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REDACTED – FOR PUBLIC INSPECTION

September 23, 2014

VIA ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20544

Re: ***Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc., and SpinCo for Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57**
REDACTED – FOR PUBLIC INSPECTION

Dear Ms. Dortch:

Comcast Corporation and Time Warner Cable Inc. (the "Applicants") hereby submit the fully redacted, public version of the Applicants' Opposition to Petitions to Deny and Response to Comments ("Opposition"), including eight (8) exhibits to the Opposition ("Exhibits"). The {{ }} symbols in the Opposition and Exhibits denote where Highly Confidential Information has been redacted, and the [[ ]] symbols denote where Confidential Information has been redacted.

Highly Confidential versions of the Opposition and Exhibits have been filed with the Office of the Secretary under separate cover. The Confidential and Highly Confidential versions of this filing will be made available for inspection pursuant to the terms of the Joint Protective Order in this proceeding.[1]

Please contact the undersigned if you have any questions regarding this submission.

Respectfully submitted,

Francis M. Buono
Counsel for Comcast Corporation

Enclosures

[1] *Applications of Comcast Corp. and Time Warner Cable Inc. for Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, Joint Protective Order, 29 FCC Rcd. 3688 (2014) ("Joint Protective Order").

REDACTED – FOR PUBLIC INSPECTION

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Applications of	)	
	)	
Comcast Corp.,	)	
Time Warner Cable Inc.,	)	MB Docket No. 14-57
Charter Communications, Inc., and	)	
SpinCo	)	
	)	
For Consent To Assign or	)	
Transfer Control of	)	
Licenses and Authorizations	)	

OPPOSITION TO PETITIONS TO DENY AND RESPONSE TO COMMENTS

COMCAST CORPORATION

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September 23, 2014

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I. INTRODUCTION AND SUMMARY

In this proceeding, Applicants have demonstrated that the license transfers from the Comcast Corporation ("Comcast") and Time Warner Cable Inc. ("TWC") transaction and related exchange of systems with Charter Communications, Inc. ("Charter") (collectively, the "Transaction") will produce substantial, verifiable public interest benefits that advance core Commission objectives. The Transaction will greatly expand the quality of communications services available to millions of additional consumers and businesses. It will also provide the combined company with the greater scale and synergies essential to continue to invest in and upgrade its networks, innovate, and compete more effectively against the growing number of communications, media, and technology providers with national and global scale. This, in turn, will spur greater competition, investment, and innovation by other providers.

Specifically, Applicants have demonstrated that the Transaction will result in the following substantial benefits for millions more American consumers and businesses, and not a single opponent or commenter demonstrates otherwise:

- accelerated deployment of higher broadband speeds and enhanced broadband services;
- greater availability of advanced video and voice services and technologies;
- accelerated digital upgrades for the acquired systems, which will enhance network reliability and security and foster next-generation services;
- greater choice in video offerings (including the most advanced and robust video-on-demand ("VOD") and TV Everywhere ("TVE") experience);
- greater scale and scope efficiencies leading to more investment and innovation;
- increased business service and wireless backhaul competition resulting in lower prices and enhanced service offerings;
- deployment of a more robust and expansive Wi-Fi network;

- development and deployment of dynamic ad insertion ("DAI") and addressable technologies for more effective advertising, particularly in VOD and online content; and

- geographic rationalization-related efficiencies leading to other enhanced service offerings, better performance, and more competition.

Comcast has pledged to make substantial incremental investments – hundreds of millions of dollars annually – to TWC's planned upgrades and enhancements over the next three years to accelerate improvements to TWC's plant and facilities. Based on the information Comcast has obtained so far, it projects that the acquired customers in each market will have access to all of Comcast's products and services within 36 months of the closing date of the Transaction, although some markets will be fully transitioned within a period as short as 12 months or even sooner. Together, these investments will help realize the many transaction-specific consumer and competition-related benefits throughout the combined company's expanded footprint.

Even more significant, when Comcast invests, it incentivizes competitors to invest too, fueling the virtuous cycle of investment and reinvestment referenced by Chairman Wheeler in his recent remarks on broadband competition, and benefiting even more Americans. As AT&T's CEO Randall Stephenson observed, the Transaction "puts a heightened sense of urgency" on competitors to "very, very aggressive[ly]" invest capital in their networks and improve the quality of their services – including, for example, AT&T's recent announcement to expand its Project VIP, 1 Gig service to up to 100 new cities. Such competitive investment is a highly desirable outcome for consumers and for the national economy.

Beyond these substantial benefits to the quality and growth of our nation's advanced communications infrastructure and services, the Transaction will provide other important public interest benefits. Notably, it will extend Comcast's acclaimed broadband adoption program, *Internet Essentials*, to millions of additional low-income families throughout the acquired

systems. Comcast has already connected over 1.4 million low-income Americans to the Internet, far more than any other program of its kind. And Comcast will extend many other public interest benefits from the NBCUniversal transaction to the acquired TWC and Charter systems – including Comcast's commitments to standalone broadband offerings, diversity, accessibility, and the protections of the Commission's 2010 Open Internet rules.

These many transaction-specific benefits are precisely the kind of verifiable, non-speculative benefits that the Commission has long recognized as satisfying its public interest standard. Indeed, most of these benefits are substantially similar to ones that Comcast has previously committed to deliver in prior cable transactions approved by the Commission. And the record shows that, in each prior case, Comcast has met and often far exceeded those commitments. It will do the same here.

These benefits are also confirmed by the comprehensive expert declarations previously submitted by Dr. Mark Israel of Compass Lexecon and Drs. Gregory Rosston of Stanford University and Michael Topper of Cornerstone Research. As part of this Opposition and Response, Applicants provide additional evidence and econometric analyses that further demonstrate the benefits that will derive from the Transaction, and also comprehensively rebut the assertions in each of the economic and other reports filed by opponents. Applicants' additional submissions include:

(1) Further economic and econometric analyses in reply declarations by (i) Dr. Dennis W. Carlton of Compass Lexecon, (ii) Dr. Israel, and (iii) Drs. Rosston and Topper;

(2) A declaration by Kevin McElearney, Senior Vice President, Network Engineering for Comcast Cable, setting out the accurate facts relating to Comcast's traffic exchange practices and experience and dealings with Cogent, Netflix, and other partners; and

(3) A declaration by Dr. Constantine Dovrolis, a professor of Computer Science and Engineering at Georgia Institute of Technology and an expert on Internet peering and transit, providing the overall technical and economic context of Internet interconnection and responding to misrepresentations made in the declarations submitted by Netflix and Cogent regarding these issues.

The record evidence that Applicants have provided demonstrating the significant public interest benefits from the Transaction is further bolstered by over 500 substantive, supportive comments and letters filed by third parties. These supporters of the Transaction span a wide range of individuals and entities, including business development and community organizations, diversity groups, advertisers, programmers, schools and universities, elected officials and other policymakers, and private citizens. Each commenter's support is based on first-hand experiences with Applicants, and powerfully reinforces that the Transaction is pro-consumer, pro-competitive, and strongly in the public interest.

State and local elected officials representing diverse populations from New York to California, including urban and rural districts in both Comcast and TWC areas, have underscored the significant benefits this Transaction will provide for their constituents. These officials understand better than anyone their local needs and attest to the greater investment, innovation, and quality of services that the Transaction will bring to their communities.

- For example, a joint filing of more than 50 mayors – Republicans and Democrats, from Comcast and TWC cities – notes that "[c]ities joining the Comcast service area will benefit from increased network investment, faster Internet speeds, improved video options and leading community development programs to help us tackle important community challenges like the digital divide."

- Rahm Emanuel, Mayor of Chicago, writes that "we are optimistic that the increased resources of the combined corporation will lead to more investment in local network infrastructure and faster Internet speeds."

- Governor Peter Shumlin of Vermont writes that "I am pleased to report that Comcast has delivered on the promise [to expand broadband to some of our most rural areas] and has invested nearly $128 million in our state.

> . . . I look forward to Comcast's continued investment in my state and expect that [the Commission's] approval of this transaction would enhance Comcast's commitment to continue working to bring services to low-income and rural Americans."

Over 100 chambers of commerce and business organizations across the country have similarly voiced their strong support for the Transaction. These include national minority business organizations, such as the National Black Chamber of Commerce, Latinos in Information Sciences and Technology Association, the National Puerto Rican Chamber of Commerce, and the U.S. Pan Asian American Chamber of Commerce Education Foundation. Each organization attests to Comcast's proven commitment to providing high quality services and recognizes the competitive benefits a geographically larger and stronger Comcast could bring to business of all sizes (including minority-owned businesses).

- For example, the California Hispanic Chamber of Commerce notes that "our members will have more choices of providers for high-end services, and our larger business members with locations in both the northern and southern parts of the state will be able to better integrate their operations, thus increasing efficiency and lowering operating costs."

- The Redwood City-San Mateo County Chamber of Commerce observes that the "entry of Comcast's business offerings into more markets where our members operate will create new competition for telecom services. As a result, our members will have more choices of providers for high-end services, and our larger business members with locations in both the northern and southern parts of the state will be able to better integrate their operations, thus increasing efficiency and lowering operating costs."

- The Fort Worth Chamber of Commerce states that "[t]he businesses and consumers of Fort Worth would benefit from access to these top-of-the-line services, and by approving the proposed transaction, the FCC could allow Fort Worth to catch up to current Comcast markets."

- The Associated Industries of Massachusetts also recognizes that the Transaction "will ramp up competition among communication companies for customers among small and medium businesses and consumers. The result will mean innovation and cutting edge products and services for our consumers and businesses."

Likewise, industry innovators, such as Cisco, TiVo, Broadcom, and Arris, understand the relevant competitive dynamics and investment incentives at play, and are confident that the Transaction will produce benefits for consumers. These companies attest to Comcast's long history of investing in next-generation technologies and partnering to bring best-in-class products and services to its customers.

- Cisco writes that the combined company's greater scale will "enabl[e] it to increase its investments in cutting-edge technologies and services and spread the costs across a larger customer base" and "allow Comcast and Charter to better rationalize their geographic footprints, producing efficiencies that will provide more room for investment and innovation."

- Broadcom states that the Transaction "will give Comcast the scale required to build on its industry leading technology initiatives and to invest in further innovation in video and broadband services. This investment will benefit consumers by accelerating the deployment of all-digital cable systems that offer higher broadband speeds, more advanced services and a more robust and secure network."

- And TiVo observes that, "[b]ased on Comcast's history of working with TiVo to facilitate innovation, . . . the [transaction] should benefit consumers that wish to use retail devices to access their pay-TV programming as we would expect Comcast's leadership and supportive policies to continue and expand."

A host of start-ups, like Maker's Row, Nextdoor, Quantifind, Shuddle, Inc., SundaySky, and Versa, similarly support the Transaction. These commenters vouch for Comcast's commitment to supporting new and innovative businesses, and recognize that the Transaction will provide greater scale and efficiencies that enable the combined company to increase those kinds of investments. And they rebut – with real-world practicality – any assertion that the Transaction would be harmful for start-up companies or budding entrepreneurial businesses.

A substantial and diverse group of programmers, including independent programmers, further attest to Comcast's commitment to carry diverse, quality programming – regardless of affiliation – that meets the needs and interests of its customers. These programmers all support

the Transaction without qualification and include, among others, Access La Porte County, BabyFirst Americas, Bedford Community Television, Berks Community Television, Cape Cod Community Media Center, Condista, Crossings TV, El Rey, Hallmark, INSP, JTV, New England Sports Network ("NESN"), Outside TV, Ovation, PBS Hawaii, REELZ, REVOLT, Rutland Region Community Television, Starz, Television Korea 24, and UnionTV34.

- Ovation states, for example, that "Comcast has the best record of any pay-TV provider in launching independent networks like Ovation, as well as many minority-owned channels, such as TV One."

- INSP adds that the Transaction "will be a great development for independent networks."

- NESN confirms that "Comcast has a strong record of supporting independent sports networks—even those that compete with Comcast's own CSN."

- BabyFirst America reports that "Comcast's support for our network over the last two years demonstrates how great Comcast is in supporting diversity and independent channels."

- Outside Television shows that "[a]lthough Comcast already carried a wide variety of sports programming, including NBC SportsNet and regional sports networks, Comcast saw that Outside Television could serve an untapped niche with tremendous upside."

- Crossings TV affirms that "[w]ithout Comcast there would have been no Crossings TV."

These programmers are among the more than 160 purely independent networks (over 100 networks focused on diverse programming) that Comcast carries today; and, since the NBCUniversal transaction, Comcast has expanded its carriage of 141 independent programmers by 217 million customers, collectively. Their direct experiences with Comcast reinforce the new opportunities that the Transaction will provide to programmers throughout the country by significantly expanding Comcast's distribution network.

And while a handful of commenters have tried to suggest that the advertising market could be harmed by this Transaction, the only *advertisers* participating in the proceeding disagree. Major advertising agencies like GroupM, Horizon Media, and MediaVest – which represent top advertisers across the globe and place tens of billions of dollars in advertising annually in the U.S. alone – filed in support of the Transaction, attesting to the significant benefits it will bring to the advertising industry, including the accelerated development and deployment of next-generation technologies like DAI and addressable advertising.

- GroupM, for instance, notes that the Transaction will enable the combined company to offer DAI across its expanded footprint, and that "deploying it at such scale would help make it an industry standard, thereby reinstating advertiser confidence that their ads are being viewed."

- Horizon Media echoes that, to date, "[a]ddressable advertising has largely been difficult to achieve because of lack of reach," but that "[t]hrough the merger, the combined entity would deliver the kind of scale required to make such hyper-targeting a viable option, [thereby] allow[ing] clients to more effectively and strategically reach their target consumer."

The record further reflects widespread enthusiasm for Comcast's promise to extend its strong commitment to diversity and diversity and inclusion practices to the legacy TWC and Charter markets, and to improve on and integrate the best of those companies' practices. Over 150 diversity groups and community partners endorse the Transaction, representing African American, Asian American, Hispanic, LGBT, People with Disabilities, and Native American communities. These commenters attest to Comcast's proven commitment to promoting diversity across all of its corporate operations, from governance, workforce recruitment and retention, procurement, programming, and philanthropy to community investment.

- The NAACP observes that "Comcast has played a large, positive role in African American hiring in the networking space [and] Comcast's demonstrated record in diverse hiring practices makes [us] confident that the

result will be positive for our members and for communities of color throughout the country."

- The African American Mayors Association notes that Comcast has consistently been ranked among the top places to work for minorities and women and concludes that, "[w]hile many companies struggle with inclusion, at Comcast people of color account for 40% of the employee population."

- The National Foundation for Women Legislators states that "[Comcast's] work toward increasing diversity in the workplace has been recognized throughout the industry."

- The United States Hispanic Leadership Institute adds that "Comcast is the nation's most extensive provider of Spanish-language networks, having invested in the development of independent channels like El Rey and BabyFirst Americas."

- MANA, a national Latina organization, emphasizes that Comcast has launched a package containing 50-60 Spanish language channels in major Hispanic markets, increased the amount of Spanish language programming available on their On-Demand service, and made continued investments in Telemundo, allowing for more Spanish language programming news broadcasts.

- The California Asian Pacific Chamber of Commerce cites "Comcast's efforts to support small and minority owned businesses [as] exemplary, and according to the company's own disclosures, business with minority-owned suppliers has totaled over $4 billion since 2010."

- The United States Hispanic Chamber of Commerce recognizes "[o]ne of the ways that Comcast was able to keep its commitment to diversity was by implementing a new method for recruitment as well as leadership training programs aimed at cultivating a robust pipeline."

- The DC Chamber of Commerce states that "Comcast's inclusive practices, when it comes to awarding supplier contracts to women and minority-owned businesses, is a model for other employers."

- The Graham Memorial Community Church notes "Comcast's commitment to promoting diversity and providing opportunities for minorities in our community. It is a fact that African-American neighborhoods are often left behind when it comes to technology and infrastructure investments, but Comcast has long demonstrated its commitment to our community by making meaningful investments to ensure our citizens have access to the highest quality services."

Community and non-profit organizations and political leaders across the country confirm Comcast's longstanding commitment to supporting local communities in a variety of important ways. These commenters include, among others, Big Brothers Big Sisters, Boys & Girls Club, United Way, Urban League chapters, By the Hand Club for Kids, City Year, and La Voz Latina. Educators from Colorado, Massachusetts, Missouri, and Hawaii also attest to the importance of Comcast's community investment and community service initiatives, including Comcast Cares Day, the nation's largest single-day corporate volunteer effort.

- Governor Markel of Delaware states that "Comcast's corporate citizenship doesn't operate from 9 to 5. We see their sustained partnerships everywhere we look in our communities. Comcast employees fully participate in making our towns and cities better places to live through corporate programs like Comcast Cares Day and United Way contributions, which drew nearly 1,000 volunteers and 1,000 pledges in 2013 alone, respectively."

- The American Association of People with Disabilities, The Arc, and Easter Seals applaud Comcast's proven commitment to, and innovation in, making its products and services accessible for all consumers. As Easter Seals states, "Accessible TV navigation options like voice command, closed captioning across platforms, and adaptation of mobile and web applications are among some of the things Comcast is offering or piloting to enrich user experience for all. Through a union with Time Warner Cable, many Americans living with disabilities would have newly gained access to these game changing technologies."

- Cape Cod Community Media Center observes that "[o]ften times large companies' community investment can be seen as half-hearted 'window dressing.' That is absolutely not the case with Comcast. Comcast is a true and genuine community leader. Beyond our partnership, Comcast has shown it is dedicated to bettering our community."

- The Virginia Holocaust Museum notes that "Comcast has consistently supported programs here in the vital areas of diversity and citizenship training, math and science and literacy development, and tolerance in a democratic society. Comcast puts their money where only the mouths of others are in community endeavors. They were the first corporate sponsor at the founding of this Museum seventeen years ago, and have supported it in all the years since."

- Big Brothers and Big Sisters "partnered with Comcast [to] develop[] the Beyond School Walls program, which is currently the nation's largest workplace mentoring program for young people. Last school year, some 300 'Littles' participated in the mentoring program in 13 Comcast offices nationwide, each paired with a Comcast 'Big' whose time and guidance has led program participants to earn higher grades, post lower truancy rates, and increase graduation rates. I am impressed with Comcast's commitment to this program and their desire to see a meaningful outcome for each child."

- The Middlesex United Way credits partnering with Comcast for helping "to build our first 'Born Learning Trail.' . . . This trail gives children a chance to experience outdoor learning that would otherwise be inaccessible to them, thus furthering our goal of improving the education of the children in our community. The trail offers a variety of activities that help to lay the foundation for developing problem solving, critical thinking, leadership and team building by encouraging children to talk, listen, read, think, imagine and create."

- The Savannah Chamber of Commerce recognizes "Comcast's commitment to education . . . evidenced through its signature scholarship program, Leaders and Achievers. The program rewards young people for getting involved in their schools and making positive change in their communities. Since its inception in 2001, numerous Savannah area students have been recognized as Comcast Leaders and Achievers. . . . To date, Comcast has awarded close to $20 million to nearly 20,000 Leaders and Achievers Scholarship winners throughout the country."

Similarly, hundreds of commenters extol Comcast's commitment to bridging the digital divide through its *Internet Essentials* program, effectively rebutting the unsupported and inaccurate criticisms of the program by a couple of commenters with their own agendas independent of the Transaction.

- As the Democratic Governors Association explains, "Comcast's *Internet Essentials* program closes the gap in access between rich and poor by offering affordable Internet and computer literacy partnerships to families across the country."

- The Cuban American National Council further observes that "*Internet Essentials* addresses virtually all the leading obstacles to broadband adoption that experts have identified. If we are going to truly close the digital divide in this country, we need to expand these efforts, as Comcast proposes to do through this transaction."

- The National Hispanic Caucus of State Legislators describes *Internet Essentials* as "a lifeline to underserved communities," and emphasizes "the possibilities for empowerment if the program is extended to some of our largest Latino centers, like Los Angeles and New York City."

- And the Boys & Girls Club of America observes that "Data on *Internet Essentials* suggests that 59% of participating families believe Internet access helped at least one person in their household to find a job – a reminder that Comcast's program is stimulating economic growth in its communities."

The comments quoted above are only a small subset of the hundreds of similar comments attesting to the many significant and wide-ranging benefits that this Transaction will bring to individuals, businesses, institutions, and community organizations across the nation. Taken as a whole, therefore, the record amply demonstrates that the Transaction will serve the public interest, convenience, and necessity in specific, verifiable ways – including many that the Commission has already found meet its public interest standard in prior license transfer review proceedings. Remarkably, there is, in fact, little dispute as to these transaction-specific benefits. There is almost no attempt by opposing commenters to rebut the significant public interest benefits demonstrated by Applicants. And the handful of feeble efforts to question certain elements of the public interest benefit case fail for lack of factual support.

The record also confirms that granting the license transfer applications will *not* result in any harms to the public interest. The Transaction involves *no horizontal consolidation* in any relevant market. After the Transaction closes, customers in the Comcast and former TWC and Charter markets at issue will have at least as many providers to choose from – for Internet, video, voice, and business services, and advertising – as they have today. No customer in any of these markets will lose a *single* competitive choice as a result of the Transaction. Nor does the Transaction raise any *vertical concerns*. The record shows robust and increasing competition for all of these services in each of the relevant markets in which the combined company will operate.

And, together with well-established antitrust laws and Commission rules, various conditions adopted in the *NBCUniversal Order* will extend to the acquired systems and provide an additional safeguard against any vertical harms.

* * *

In contrast to the strong record established by Applicants and others in support of the license transfer applications, opponents (referred to herein variously as "petitioners" and "commenters") have failed to demonstrate that granting those applications will disserve the public interest in any material respect.

The majority of arguments and allegations raised by petitioners are not transaction-specific and, therefore, are irrelevant to the Commission's analysis in this proceeding. To be sure, there are extended riffs on a generalized "big is bad" theme, but this is symptomatic of the overheated rhetoric that large transactions always evoke. Consider the following quotations:

- "What is at stake here is nothing less than the future of the Internet, and whether the future Internet will be open or closed to independent and diverse voices and viewpoints . . . . Will consumers retain the freedom to access any website, as they could when government policies were in place that ensured nondiscriminatory access, or will they be restricted to visiting sites approved by – or in business with – the 'gatekeeper' that provides high speed Internet access? By definition, approval of this transaction cannot be in the public interest."

- "It is quite clear that as the commercial value of the Internet grows, these huge communications corporations are more than willing to destroy its fundamental openness . . . . Competition and open communications would suffer a disastrous setback."

- "Comcast and Time Warner are the nation's dominant residential broadband providers . . . Increasing their national and regional concentration will permit them to block both [broadband-based providers] and potential video programming rivals, such as TiVo/Netflix."

- "Offering Internet service under the closed cable TV system model will, quite literally, change the character of the Internet as an engine of creative technological and marketplace innovation, open entry, economic growth, and

free expression."

Tellingly, the above "doom and gloom" predictions – while reflective of the petitions and certain comments in this proceeding – were, in fact, submitted in opposition to *prior* cable and other transactions approved by the Commission *as far back as 1998*.[1] These naysayers began their apocalyptic forewarnings ages ago – when most of us were connecting to the Internet at 14 or 28 *thousands* of bits per second, and a few had begun to use 56k modems. That's when cable really "rolled the dice" – not on a way to *control* the Internet, but on a risky new technology to *create* a service that Americans had no idea they would even want. Yet, as soon as cable modem technology started to work, and even more so with every attempt by any two parties to get together to enhance their competitive footprint and capabilities, the doomsayers predicted calamity resulting from cable's alleged "bottleneck power." The sky, they claim, has been falling ever since.

Except that it hasn't. Telcos rolled out DSL; cable operators improved cable modem service; telcos then invested more in advanced DSL services and FTTP; many companies invested and explored other technologies like terrestrial microwave, satellite, and broadband over power lines; first 2G, then 3G, and now 4G wireless were invented and deployed. All told,

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[1] The "doom and gloom" opposition quotes above are, respectively, from *AT&T Inc. and BellSouth Corp. Application for Transfer of Control*, Comments of Center for Creative Voices in Media, WC Docket No. 06-74, at 2 (Oct. 24, 2006); *Application of America Online, Inc. and Time Warner, Inc. for Transfer of Control*, Statement of Dr. Mark N. Cooper, Consumers Union, Consumer Federation of America, Media Access Project, and Center for Media Education before the *En Banc* Hearing, CS Docket No. 00-30, at 4 (July 27, 2000); *Applications for the Consent to the Assignment and/or Transfer of Control of Licenses Adelphia Communications Corp. to Time Warner Cable Inc.*, Petition to Deny of Free Press et al., MB Docket No. 05-192, at 16 (July 21, 2005); *Joint Application of AT&T Corp. and Tele-Communications, Inc. for Approval of Transfer of Control of Commission Licenses and Authorizations*, CS Docket 98-178, Petition to Deny of Consumers Union et al., at 12 (Oct. 29, 1998). The same "doom and gloom" prophecies are repeated again in this proceeding. *See, e.g.*, Consumer Federation of America et al. ("CFA et al.") Petition to Deny at 63-64 ("Allowing firms that have been at the forefront of the industry-wide efforts to undermine competition to become a 'fearsome Goliath' that towers over the rest of the industry would deal a severe, if not a death blow to emerging competition."); Free Press Petition to Deny at 7 ("This proposed transaction would create a telecommunications and pay-TV giant of unprecedented proportion. It would also bestow upon Comcast unprecedented and unchecked gatekeeper power over the Internet, in ways that eclipse the control once held by the monopoly Bell System.").

hundreds of billions of dollars were invested; some things worked; others did not, but vastly more households started connecting. And as Internet networks developed, so did online video distributors ("OVDs") – becoming a new part of the program buying marketplace and offering new competition to at least part of the established video provider business model. In turn, with this explosion of online video traffic, cable operators, telcos, and other providers continued rapidly upgrading their networks and their broadband speeds, thereby helping to catapult video streaming services even farther, and pushing OVD subscriber levels to 10, 20, 30 million and more. Today, the Internet is wide open and faster than ever before – thanks in large part to thoughtful regulatory policies that removed barriers to competitive entry, reduced regulation, and allowed this vibrant marketplace to grow and flourish.

In short, investment, innovation, and competition are continuing – and, in fact, flourishing. Every morning we wake up to an Internet that is better in every respect than the one we had the night before.

Yet, every step of the way, we continue to hear cries of alarm about "bottlenecks" and "chokepoints" not only on the Internet, but also in the programming and video distribution marketplace, as well as the program buyers' marketplace. In fact, all of these marketplace segments are more competitive today than they have ever been before. Nevertheless, opponents of this Transaction (e.g., Dish, Free Press, Consumer Federation, Consumers Union/Common Cause, Netflix) persist in making the same speculative and unsupported claims here that have been made for years in every major cable transaction. These claims are as unfounded today as they were when the Commission rightly and repeatedly rejected them in prior decades.

Indeed, their claims are even *more* unfounded here because many of them are being made only because Comcast refused to grant various self-interested requests that were made directly to

Comcast soon after the Transaction was announced – almost always with an express or at least an implicit offer to support the Transaction (or stand down, at minimum) if the requester's demands were met. These include requests for free backbone interconnection, requests for participation in advertising "interconnects," requests to share advanced advertising technology that Comcast develops, requests for wholesale service arrangements, requests to make all of Comcast's programming agreements with every single programmer renewable on the same date, requests to renegotiate program carriage arrangements that are not due to expire, requests to expand carriage or increase fees, and many requests to agree to carry networks that do not even exist yet – or that exist, but that are carried by no one. If just the programming asks alone were considered – and even then, only those that are concrete enough to estimate – these demands and related proposed conditions would cost Comcast upwards of $5 billion above any reasonable estimate of what its programming costs might be over the next several years, which would translate into increased costs for Comcast customers of more than $4 per month by 2019 and in perpetuity.

The significance of this extortion lies in not just the sheer audacity of some of the demands, but also the fact that each of the entities making the "ask" has all but conceded that if its individual business interests are met, then it has no concern whatsoever about the state of the industry, supposed market power going forward, or harm to consumers, competitors, or new entrants. The Commission should take heed of this, because, while the Transaction is perceived as an opportunity for so many to leverage their individual interests, none has been able to make a fact-based, compelling argument that the Transaction would actually harm the public interest.

Instead, many petitioners press nothing more than a host of individualized business interests and disputes – from the reasonableness of commercially negotiated agreements (e.g.,

Netflix, Cogent), to self-interested program carriage demands (e.g., Discovery, TheBlaze, Back9, RFD-TV, Veria Living, Herring Broadcasting, Weather Nation, etc.), to concerns over how enhanced competition might affect a particular firm (e.g., COMPTEL, Dish, RCN et al.), and to other issues that have no bearing on the license transfer applications (e.g., CenturyLink, Viamedia). Other petitioners raise industry-wide issues, such as open Internet policies, interconnection practices, and similar matters of general interest that are properly addressed (and largely being addressed) in other Commission proceedings (e.g., Netflix, Cogent, Dish).

For example, in addition to the well-worn "doom and gloom" prophecies from consumer groups, such as Common Cause, Consumers Union, Consumer Federation of America, and their allies, other more egregious misuses of this license transfer review process include the following:

- **Netflix** recycles prior claims about its interconnection agreement with Comcast – something that is plainly not transaction-specific, since it predates this proceeding by months, features in Netflix's nearly identical advocacy in the Commission's unrelated Open Internet proceeding, and mirrors Netflix's incessant complaints about its agreements with other ISPs. What its comments and trumped-up economic theories here show is that Netflix will use any proceeding, in any context, to try to shift the costs for carrying its content onto the backs of others – a great business result for Netflix, but one that would increase prices to consumers and disserve the public interest. As the biggest edge provider and OVD in the country (with over 35 million U.S. subscribers – more than Comcast post-transaction), one would expect Netflix to act responsibly on the Internet, but instead, Netflix deliberately sent its traffic on routes that could not support it, and ignored other routes that could easily have handled it. The robust capacity on those routes is a complete answer to Netflix's various arguments: Netflix was never forced to choose the routes it used, and Comcast certainly did not compel a direct relationship. Rather, as Netflix's CEO acknowledged right after the agreement was reached: "*We found middle ground on our issues that worked well for both of us for the long term, and works great for consumers.*" The agreement *is* a "*great*" deal for consumers, and there could be no clearer evidence that Netflix's expedient change of heart reflects nothing more than a base attempt to gain additional commercial advantages over Comcast through a regulatory condition that is unjustified and would be anything *but* "great" for consumers.

- **Cogent** peddles many of the same economic arguments about the Transaction as Netflix, but for a different self-interested agenda. Cogent makes its money by charging edge providers for transit costs and is desperate to prevent Comcast from competing with it in this space – including by helping to *lower* transit costs for edge providers through direct interconnection agreements, which, as Netflix has acknowledged, is "great for consumers." Cogent's alleged concerns are no more transaction-related than Netflix's, and Cogent's economic arguments are easily refuted. The bottom line is that the transit market is vibrantly competitive, and that fundamental reality refutes both Cogent's and Netflix's theoretical harms from the Transaction. Cogent has a long history of bare-knuckled disputes in the industry, with Comcast being only one in a long line of companies involved in such disputes; dressing it up as a transaction-related argument here is just a new tactic.

- **Dish** claims that the Transaction will create three potential "chokepoints" in the combined company's broadband services. Dish is wrong on each count.

  - Dish's first theory that Comcast might prioritize its own services on the "last mile" of its network before other competitors is easily disproved. Comcast's commitment to abide by the Commission's 2010 Open Internet Order, coupled with any new rules the Commission promulgates, eliminates any plausible concern that Comcast might block, degrade, or otherwise discriminate against *any* content that is delivered over the Internet to its customers post-transaction, whether from Dish or anyone else.

  - Dish's second theory that Comcast might "choke" interconnection points in the separate marketplace "where competitors' video services enter the Comcast broadband network" is also demonstrably wrong. For the nearly 20 years that Comcast has provided Internet access services, it has worked cooperatively with other companies to interconnect its networks in mutually beneficial ways. Comcast has over 40 settlement-free peering agreements and many more paid connection arrangements with ISPs, CDNs, and others. Any content provider can reach Comcast's network through multiple routes without having a direct business relationship (paid or otherwise) with Comcast, and those routes have significant available capacity today for any provider's traffic. In all events, these interconnection issues are not transaction-specific and are already being examined by the Commission's industry-wide inquiry into Internet traffic exchange.

  - Dish's third theory that Comcast might create "fast lanes" for its own "managed" or "specialized services" and slow other unaffiliated content is idle speculation. Comcast does not offer any such services or so-called "fast lanes." Questions about its ability or incentive to deploy them – let alone do so anticompetitively – are thus entirely theoretical and deserve no

weight here. Plus, Comcast already is subject to two stringent conditions on the offering of specialized services from the NBCUniversal transaction.

- **Discovery**, like many other programmers, is improperly using this proceeding to promote its own financial interests. In fact, Discovery demanded unwarranted business concessions from Comcast as a condition of Discovery's non-opposition to the Transaction. Such extortionate demands are patently improper. As the self-proclaimed "#1 Pay-TV Programmer in the World," Discovery does not need additional regulatory help to succeed in the marketplace. Its claims are baseless and should be rejected.

- **Viamedia** is likewise seeking business advantages here that it cannot obtain in the marketplace. Viamedia competes with Comcast to sell and place local cable advertising, and theorizes various harms to advertising markets from the Transaction. Its claims boil down to requests for (a) mandatory access to Comcast's advertising interconnects, and (b) regulatory constraints on Comcast's ability to compete with Viamedia in the advertising representation business. While Viamedia tries to make this about the impact on advertisers, *not a single advertiser shares those concerns*. Rather, several of the largest media agencies in the industry – which, as noted, together place tens of billions of dollars in advertising each year in the U.S. alone – *strongly support* the Transaction, recognizing that it will benefit advertisers and consumers by accelerating the availability of advanced advertising capabilities across the combined company's expanded footprint. Viamedia's concerns are not transaction-specific and are only designed to protect and advance its own business interests.

Further, while a handful of petitioners submitted economic analyses purporting to show potential harms, these analyses lack empirical evidence, rest on assumptions that do not apply in this case, or, when properly applied, actually support the Transaction, as Drs. Israel, Rosston, Topper, and Carlton explain in their attached declarations.

For example, Netflix, Cogent, and Dish propose artificially defining a "national broadband market" that not only excludes DSL, wireless, and other technologies, but also increases the baseline broadband speed by several multiples of the current baseline. These changes would effectively exclude from the Commission's analysis services and speeds that are successfully used today by tens of millions of customers, including customers who use them to access Netflix's service. This proposed definition bears no resemblance to marketplace realities

and ignores established principles of economic analysis – but would nicely advance the parochial interests of these three companies.

First, there is no such national market. As Dr. Israel's analysis makes clear, broadband is a *local* market in which Comcast and TWC do not compete. The *AT&T-MediaOne* case cited by these parties is inapposite. Neither the Commission nor DOJ identified a national broadband market in *AT&T-MediaOne*; rather, that case, unlike here, involved a horizontal merger of competitors in the portal market – a market segment quite distinct from the broadband Internet access market. In contrast, in cases where the Commission has actually analyzed the broadband market, it has consistently found that the relevant market is local, that the broadband market is competitive, and that where there is little or no geographic overlap among broadband providers that seek to combine, there is no cause for competitive concern.

Second, it makes no sense, when defining a "market" for competitive purposes, to exclude either technologies or speeds that tens of millions of broadband customers use today and will still use tomorrow. No one disputes the importance of encouraging more broadband providers to deploy speeds of and above 25 Mbps; to the contrary, Applicants applaud the Commission's (and the Chairman's) efforts to promote this goal. But that is a separate and fundamentally different proposition from whether consumers who use ISP services *below* that speed today should be excluded from the competitive analysis of this Transaction. The answer to that question is clear: they do count and it would be wrong to exclude them. There are many such competitive broadband options that consumers currently have *and use* in the local markets where the combined company will operate, including the DSL and wireless services that some petitioners would blithely have the Commission assume away. Consider the following:

- Twenty of the 60 providers on Netflix's August 2014 speed index *are DSL providers*, and the average speed of many of these DSL providers is *greater* than the average speed offered by some cable providers.

- A 4 Mbps connection has been found to be sufficient to handle streaming of HD video. The fastest ISP on Netflix's speed rankings *averaged 3.11 Mbps down*.

- *The growth rate in DSL subscribership exceeded the growth rate in cable subscribership* between June 2009 and June 2013 (30.7 percent for DSL versus 17.9 percent for cable). At 10 Mbps, the difference in annual growth rates *is even more pronounced*: 150.6 percent for DSL versus 52.8 percent for cable.

- Sixty-one percent (61%) of households in the U.S. have only one or two occupants and, therefore, are well below the five simultaneous users per household that these commenters postulate in an attempt to justify 25 Mbps as the baseline speed.

- According to NTIA, the percentage of U.S. population with access to a mobile wireless provider offering broadband speeds of at least 10 Mbps downstream increased from 7.9 percent in December 2010 to 97.5 percent in June 2013.

- Video is the largest and fastest growing segment of mobile data traffic, and is forecasted to account for over 50 percent of all global mobile data traffic by 2019.

- Continuing recent trends of declining prices to consumers, wireless providers' costs are expected to fall precipitously over the next several years, which will further reduce consumer prices.

- In a recent survey of over 1,000 broadband users conducted by Global Strategy Group ("GSG"), 42 percent of respondents indicated that they use wireless broadband at least as much as wired broadband *for high bandwidth activities*, and 60 percent or more use wireless broadband at least as much as wired broadband for low bandwidth activities.

Indeed, even customers who have opted for higher speeds would see DSL and wireless as a serious alternative if their current broadband provider were to degrade their service by blocking or slowing an edge provider's service. The GSG Survey shows that over 70 percent of cable and phone companies' broadband subscribers would likely switch broadband providers – including to a DSL or wireless provider, *or even to an ISP with slower speeds* – if their ISP blocked or

degraded access to Internet content. These findings are similar to a recent survey by *Consumer Reports* on the same issue.

Some commenters further try to dismiss existing competitive options based on the assumption that consumers cannot switch because of high switching costs and inconvenience. This may be true in some circumstances, and, if so, it is a valid consideration. But the empirical evidence shows that switching costs and inconvenience do not appear to constrain many broadband customers from switching. Consumers will – and regularly do – switch broadband providers when dissatisfied with their services:

- The GSG survey also found that consumers *frequently* switch broadband providers – *one-third* of survey respondents switched providers in at least the past two years, and nearly *one-half* switched providers within the past four years.
- These results are consistent with the results of a survey commissioned by the Commission in 2010, finding that over the prior three years 36 percent of Internet users indicated that they had switched their ISP.
- And these results are further confirmed by Comcast's churn data, which indicate that, over the course of a single year, a significant portion of Comcast's broadband subscribers switch from its service.

The conclusions to be drawn from this data go beyond the fact that subscribers can and will switch providers, and also indicate that existing broadband choices in local markets provide important discipline to providers. Thus, as Dr. Israel concludes, this research:

> implies that, to define today's local broadband markets, one should use a speed no higher than 10 Mbps, and likely closer to the current 3 Mbps definition [for data collection purposes (4Mbps otherwise)]. This conclusion follows from the adequacy of slower speeds for many uses, including many video applications, and the fact that the marginal customers who would discipline a price increase would likely consider providers offering such lower speeds. Higher speeds (such as 25 Mbps) *would miss important current competitive constraints.*

In short, the record evidence demonstrates that the existing local broadband market is competitive and that the Transaction will accelerate even more broadband investment and

competition, thereby helping to achieve the shared goal of faster Internet speeds for more Americans. But even if one were to ignore this record evidence, and disregard established economic principles that properly focus on consumer choices in local markets for competitive analysis, the Transaction still would present no issues because it would not lead to any meaningful increase in Comcast's share of a presumed national "market" at 25 Mbps downstream or higher. TWC has very few customers at 25 Mbps or higher; thus, Dr. Israel shows that the combined company's broadband share under this scenario would increase *by less than one percent*.

For these and other reasons, after having reviewed the petitions and associated economic declarations filed in this proceeding, Dr. Israel concludes:

> [T]he large and mostly unchallenged consumer benefits from the transaction easily swamp any potential competitive harms from the transaction, particularly given that Commenters have made no attempt to quantify any harms and that, as shown throughout this report, such harms are unsupported by theoretical or economic evidence and are likely to be extremely small if they occur at all.

Drs. Rosston and Topper agree, concluding that the Transaction "will not cause competitive harm" (based on econometric analyses using the Commission's own methodologies and real-world data) and "will lead to transaction-specific efficiencies that will benefit residential consumers, businesses, and advertisers."

Similarly, Dr. Carlton concludes that:

> [T]he evidence cited by the Commenters [for their concerns about the Transaction] in fact supports exactly the reverse of their conclusion – namely the evidence they cite in fact shows that the magnitude of any harm, even if real, is likely to be tiny. The overall conclusion that emerges is that the benefits of the proposed transaction are large relative to the key harms that the Commenters have identified. Thus, the proposed transaction is in the public interest.

Finally, no petitioner plausibly asserts that approval of the license transfers would effect a *per se* violation of the Act or any Commission rule – and it plainly would not. Nor does any

petitioner credibly dispute that Comcast, as transferee, is fully qualified to hold the licenses at issue. Comcast both meets the requisite qualifications and has a strong compliance history – including, most recently, in connection with the more than 150 conditions that the Commission adopted in the Comcast-NBCUniversal transaction.

* * *

As further discussed in our Opposition below, the facts and record evidence in this case are clear. In contrast to the idle speculation, non-transaction-specific demands, and well-worn predictions of doom and gloom offered by the Transaction's opponents, Applicants have provided relevant marketplace data, economic and econometric analyses, and specific commitments demonstrating substantial benefits for consumers and competition that are merger-specific, verifiable, and non-speculative. Moreover, these benefits are ones that the Commission has consistently recognized as satisfying its public interest standard under well-established precedent.

Section II of the Opposition sets out the applicable standard of review the Commission applies in license transfer proceedings and shows that Applicants have met their burden under this standard and opponents have not.

In Section III, buttressed by the accompanying economic declarations from Dr. Israel, Drs. Rosston and Topper, and Dr. Carlton, Applicants further confirm the substantial public interest benefits this Transaction will generate and rebut assertions to the contrary.

Section IV answers in detail the various allegations of competitive and consumer harm that have been raised, and both this section and the aforementioned economic and engineering declarations demonstrate the fallacies of the various horizontal, vertical, and other harms theorized by opponents and their economic experts.

Finally, Section V responds to various other non-transaction-specific issues, self-serving demands and proposed conditions, and miscellaneous matters raised by certain parties that should be given no weight in the Commission's review of the applications.

For these reasons, Applicants have conclusively demonstrated that the Transaction will serve the public interest, convenience, and necessity. Accordingly, Applicants respectfully urge the Commission to approve the license transfer applications expeditiously.

II. STANDARD OF REVIEW

Under Sections 214(a) and 310(d) of the Communications Act, the Commission will approve a proposed transfer of control so long as (1) the transaction itself does not violate a statute or rule, and (2) "on balance," the transfer "serves the public interest, convenience and necessity."[2] A petition to deny must meet two separate requirements: "(1) [it] must contain specific allegations of fact that, taken as true, make out a *prima facie* case that grant of the application would not serve the public interest; and (2) the allegations, taken together with any opposing evidence before the Commission, must still raise a substantial and material question of fact as to whether grant of the application would serve the public interest."[3]

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[2] 47 U.S.C. §§ 214(a), 310(d); *see also, e.g.*, *Applications of AT&T Inc. and Atl. Tele-Network, Inc. for Consent to Transfer Control of and Assign Licenses and Authorizations*, Memorandum Opinion and Order, 28 FCC Rcd. 13670 ¶ 12 (2013) ("*AT&T-ATN Order*"); *Applications Filed for the Transfer of Control of Insight Commc'ns Co. and Time Warner Cable Inc.*, Memorandum Opinion and Order, 27 FCC Rcd. 497 ¶ 7 (WCB 2012) ("*Insight-TWC Order*"); *Applications Filed by Qwest Commc'ns Int'l Inc. and CenturyTel, Inc. d/b/a CenturyLink for Consent to Transfer of Control*, Memorandum Opinion and Order, 26 FCC Rcd. 4194 ¶ 2 (2011) ("*CenturyLink-Qwest Order*"); *AT&T Inc. and BellSouth Corp. Application for Transfer of Control*, Memorandum Opinion and Order, 22 FCC Rcd. 5662 ¶ 2 (2007) ("*AT&T-BellSouth Order*"); *Applications for Consent to the Assignment and/or Transfer of Control of Licenses of Adelphia Commc'ns Corp. (and Subsidiaries, Debtors-In-Possession), Assignors, to Time Warner Cable Inc. (Subsidiaries), Assignees, Adelphia Commc'ns Corp., (and Subsidiaries, Debtors-In-Possession), Assignors and Transferors, to Comcast Corp. (Subsidiaries), Assignees and Transferees*, Memorandum Opinion and Order, 21 FCC Rcd. 8203 ¶ 23 (2006) ("*Adelphia Order*").

[3] *Serafyn v. FCC*, 149 F.3d 1213, 1216 (D.C. Cir. 1998); *see also Astroline Commc'ns Co. v. FCC*, 857 F.2d 1556, 1561 (D.C. Cir. 1988). Moreover, only where opponents raise genuine "substantial and material questions of fact" – circumstances not present here – may the Commission designate the matter for an adjudicatory hearing. 47 U.S.C. §§ 308, 309(a), (d), (e) & 310(d). Given the extensive record presented by both Applicants and third parties and the extensive requests for information the Commission has issued to Comcast, TWC, and Charter, there can be

A. Applicants Have Met Their Burden of Proof.

The Commission's General Counsel recently explained that the applicants bear the ultimate burden of proof in a license transfer review proceeding.[4] Specifically, they must demonstrate, by a preponderance of the evidence, that the Transaction will on balance serve the public interest, convenience and necessity,[5] based on evidence of merger-specific, verifiable, and non-speculative benefits.[6]

Applicants have clearly and convincingly met their burden of proof here.[7] The record in this proceeding establishes "demonstrable and verifiable public interest benefits that could not be achieved if there were no merger."[8]

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no plausible claim that the Commission lacks sufficient information to make an informed judgment here. The Commission may not (as some appear to wish) conduct an adjudicative hearing solely for the purpose of delaying the Transaction, *see, e.g.*, Dish Network Corp. ("Dish") Petition to Deny at 10-11, or delay its review altogether pending the outcome of a non-transaction-specific issue, *see* Sports Fans Coalition Petition to Deny at 35-36. Likewise, a hearing is not warranted where the disagreements among the parties are not genuinely factual, but "concern the appropriate public interest determination on the antitrust and communications issues." *United States v. FCC*, 652 F.2d 72, 89 n.82 (D.C. Cir. 1980). The Commission has never before set for hearing a transaction between parties with no overlapping territories.

[4] *See* Jon Sallet, *FCC Transaction Review: Competition and the Public Interest*, Official FCC Blog (Aug. 12, 2014), http://www fcc.gov/blog/fcc-transaction-review-competition-and-public-interest ("Sallet Blog") ("Fundamental is the fact that applicants have the burden of demonstrating on the public record that their proposed transaction is in the public interest.").

[5] *See generally AT&T-BellSouth Order* ¶ 19; *SBC Commc'ns Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, Memorandum Opinion and Order, 20 FCC Rcd. 18290 ¶ 16 (2005) ("*SBC-AT&T Merger Order*"); *Application of EchoStar Commc'ns Corp., Gen. Motors Corp., and Hughes Elecs. Corp.*, Hearing Designation Order, 17 FCC Rcd. 20559 ¶ 25 (2002) ("*EchoStar-DirecTV Merger Order*").

[6] *EchoStar-DirecTV Merger Order* ¶¶ 189-190; *Applications of NYNEX Corp. and Bell Atl. Corp. for Consent to Transfer Control of NYNEX Corp. and Its Subsidiaries*, Memorandum Opinion and Order, 12 FCC Rcd. 19985 ¶ 158 (1997) ("*Bell Atlantic-NYNEX Merger Order*"); *Applications of Ameritech Corp. and SBC Commc'ns Inc. for Consent to Transfer Control of Corporations Holding Commission Licenses and Lines Pursuant to Sections 214 and 310(d) of the Communications Act and Parts 5, 22, 24, 25, 63, 90, 95 and 101 of the Commission's Rules*, Memorandum Opinion and Order, 14 FCC Rcd. 14712 ¶ 255 (1999) ("*SBC-Ameritech Merger Order*").

[7] Charter Communications, Inc. and GreatLand Connections, the doing business name of what was SpinCo and is now Midwest LLC, are submitting a separate Opposition and Response to address their acquisition of legacy TWC and Comcast systems following the "Divestiture Transactions" between Comcast and Charter. *See* Letter from Kathryn A. Zachem, Senior Vice President, Regulatory and State Legislative Affairs, Comcast Corp., *et al.*, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 14-57, at 2-3 (June 5, 2014) (detailing the Divestiture Transactions). Applicants fully support this filing and Charter's and GreatLand Connection's acquisition of these legacy systems, which will lead to numerous public interest benefits.

The Commission has stated its "deeply rooted preference" for "accelerating private sector deployment of advanced services,"[9] as well as a preference for transactions that will improve the quality of communications services or result in the provision of new or additional services.[10] This Transaction will serve these Commission objectives by greatly expanding the quality of communications services available to American consumers and businesses.[11] The record demonstrates –without meaningful rebuttal – that the Transaction will result in accelerated deployment of higher broadband speeds and enhanced broadband services (including Wi-Fi);

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[8] *See, e.g.*, *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from MediaOne Group, Inc., Transferor, to AT&T Corp., Transferee*, Memorandum Opinion and Order, 15 FCC Rcd. 9816 ¶ 154 (2000) ("*AT&T-MediaOne Order*") (emphasis added); *see also Applications of Nextel Commc'ns, Inc. and Sprint Corp. For Consent to Transfer Control of Licenses and Authorizations*, 20 FCC Rcd. 13967 ¶ 129 (2005) ("*Sprint-Nextel Order*") ("We examine whether operation of the combined entity could yield consumer benefits unattainable absent a merger."). Notably, the Commission's review is confined to the transaction before it rather than the relative merit of any hypothetical alternative transactions. *See, e.g.*, *Application of Citadel Commc'ns Co., Ltd. and Act III Broad. of Buffalo, Inc. for Assignment of License of Television Station WUTV(TV) Buffalo, New York*, 5 FCC Rcd. 3842 ¶ 16 (1990) ("Section 310(d) of the Act limits our consideration to the buyer proposed in an assignment application, and we cannot consider whether some other proposal might comparatively better serve the public interest.").

[9] *See Applications of SOFTBANK CORP., Starburst II, Inc., Sprint Nextel Corp., and Clearwire Corp. for Consent to Transfer Control of Licenses and Authorizations; Petitions for Reconsideration of Applications of Clearwire Corp. for Pro Forma Transfer of Control*, Memorandum Opinion and Order, Declaratory Ruling, and Order on Reconsideration, 28 FCC Rcd. 9642 ¶ 24 (2013) ("*Softbank-Sprint Order*"); *AT&T-ATN Order* ¶ 13; *Applications of AT&T Inc. and Centennial Commc'ns Corp. for Consent to the Transfer Control of Licenses, Authorizations, and Spectrum Leasing Arrangements*, 24 FCC Rcd. 13915 ¶ 28 (2009) ("*AT&T-Centennial Order*"); *CenturyLink-Qwest Order* ¶ 8.

[10] *Applications of Comcast Corp., Gen. Elec. Co. and NBC Universal, Inc. for Consent to Assign Licenses and Transfer Control of Licenses*, Memorandum Opinion and Order, 26 FCC Rcd. 4238 ¶ 23 (2011) ("*Comcast-NBCUniversal Order*"); *see also Applications for Consent to the Transfer of Control of Licenses from Comcast Corp. & AT&T Corp., Transferors, to AT&T Comcast Corp., Transferee*, Memorandum Opinion and Order, 17 FCC Rcd. 23246 ¶ 27 (2002) ("*Comcast-AT&T Broadband Order*"), *aff'd sub nom. Consumer Fed'n of Am. v. FCC*, 348 F.3d 1009 (D.C. Cir. 2003); *Wavecom Solutions Corp., Transferor, & Hawaiian Telcom, Inc., Transferee, Applications for Consent to Transfer of Control*, Memorandum Opinion and Order and Declaratory Ruling, 27 FCC Rcd. 16081 ¶ 8 (2012); *Applications filed by Global Crossing Ltd. and Level 3 Commc'ns, Inc. for Consent to Transfer Control*, Memorandum Opinion and Order and Declaratory Ruling, 26 FCC Rcd. 14056 ¶ 11 (2011) ("*Global Crossing-Level 3 Order*"); *CenturyLink-Qwest Order* ¶ 8; Remarks of Jonathan Sallet, Acting General Counsel, FCC, Conference on Competition and IP Policy in High-Technology Industries, Stanford, Cal. (Jan. 22, 2014), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0124/DOC-325267A1.pdf.

[11] For ease of reference, and as noted above, the term "Transaction" includes the Comcast-TWC transaction and the acquisition of legacy Charter systems as part of the exchange with Charter pursuant to the Divestiture Transactions. *See* Charter-to-Comcast Public Interest Statement, Charter-to-Comcast Exchange Transaction, MB Docket No. 14-57 (June 4, 2014) ("Charter-to-Comcast Exchange Transaction").

greater availability of advanced video and voice services and technologies; greater scale and scope efficiencies leading to more investment and innovation; increased business service and wireless backhaul competition; and geographic rationalization-related efficiencies leading to enhanced service offerings, better performance, and more competition.

The Commission has repeatedly found that these exact same benefits satisfy the public interest standard in prior license application review proceedings.

- ***Accelerated Deployment of Better Broadband and Wi-Fi Services***. In every major cable TV transaction, the Commission has consistently found that the combined company's ability to deliver more advanced broadband and other services, especially if on an accelerated basis, constitutes a substantial public interest benefit. For example, in the *Comcast-AT&T Order*, the Commission found that "the merged entity is likely to accelerate the deployment of broadband services in AT&T service areas . . . . Comcast appears to have a greater 'ability to manage an accelerated program for upgrading its plant . . . .' We believe that applying this expertise to the AT&T cable systems is likely to have a positive impact on the deployment of broadband to AT&T subscribers that currently do not have access to those services."[12] And in the *Adelphia Order*, the Commission likewise found that "accelerated deployment of high-speed Internet service . . . [is a] cognizable public interest benefit[]."[13]

- ***Advanced Video and Voice Services***. Likewise, the Commission has consistently held that the deployment of advanced video and voice services is an important consumer benefit: "As the Commission has stated many times, the deployment of advanced video services is a recognized public interest benefit. In reviewing previous transactions, the Commission also has found that . . . the provision of competitive, facilities-based telephony service[s] are cognizable public interest benefits . . . . Although the Applicants have not given definitive time tables for initiating and completing the planned system upgrades and deployment of new and advanced services, we expect that Comcast and Time Warner have sufficient incentives to carry out the proposed improvements in a timely manner, because doing so serves the goal of maximizing revenues and competing effectively with LECs and DBS providers."[14]

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12 *Comcast-AT&T Broadband Order* ¶ 183.

13 *Adelphia Order* ¶ 256.

14 *Id.* ¶ 256.

- ***Greater Scale and Scope Efficiencies/Greater Investment and Innovation***. Further, the Commission has consistently found that the greater scale and scope efficiencies described by the parties in prior mergers would lead to substantial public interest benefits, including increased investment, innovation, and competition. In the *AT&T-BellSouth Order*, for example, the Commission has noted "that the increase in scale and scope arising from the merger will help the merged entity to better spread the costs of, and internalize the benefits of, its R&D, thus increasing its incentives to invest."[15] And in the *AT&T Broadband Order*, the Commission further explained, "We also agree with the Applicants that the greater scale and scope of the merged entity is likely to spur new investment. The development and deployment of new technologies often entails a significant up-front, fixed investment. The merged company should have a greater ability to spread those fixed costs across a larger customer base, which should in turn foster incentives for investment by the merged entity, as well as other businesses that seek to sell equipment, technology, and services to the merged entity."[16]

- ***Greater Business Service Competition***. In addition, the Commission has previously recognized that cable entry "foster[s] facilities-based competition in the enterprise market," and that this promotes "a long-standing goal."[17] In the 2010 Order approving the acquisition of certain assets of CIMCO by Comcast Phone, et al, the Commission concluded that "Comcast's acquisition of CIMCO's assets and expertise will result in significant public interest benefits, in part because the transaction will foster facilities-based competition in the enterprise market, a long-standing goal of the Commission."[18] And in a 2011 decision approving the transfer of Insight to TWC, the Commission reiterated that "the proposed transaction likely will provide benefits to residential and business customers through the combined companies' increased ability to compete with the incumbent LEC in the provision of voice service and service bundles."[19]

- ***Enhanced Geographic Rationalization***. As stated in the *Adelphia Order*, "[t]he Commission also has found that the potential benefits from

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[15] *AT&T-BellSouth Order* ¶ 214 n.594.

[16] *Comcast-AT&T Broadband Order* ¶ 184; *see also Applications Filed by Frontier Commc'ns Corp. and AT&T Inc. for the Assignment or Transfer of Control of the S. New Eng. Tel. Co. and SNET Am., Inc.*, Memorandum Opinion and Order, 29 FCC Rcd. 9203 ¶ 26 (WCB 2014).

[17] *Applications Filed for the Acquisition of Certain Assets of CIMCO Commc'ns, Inc. by Comcast Phone LLC, Comcast Phone of Mich., LLC and Comcast Bus. Commc'ns, LLC*, Memorandum Opinion and Order and Order on Reconsideration, 25 FCC Rcd. 3401 ¶ 4 (2010) ("*CIMCO Order*").

[18] *Id.*

[19] *Insight-TWC Order* ¶ 23.

> clustering, including marketing efficiencies and the deployment of facilities-based telephony and Internet access services, outweigh any potential anticompetitive effects of clustering on competition in product markets such as local programming or advertising. In addition, the Commission has noted that clustering can increase economies of scale and size, and thus enable cable operators to offer an increased variety of broadband services at reduced prices to customers in geographic areas that are larger than single cable franchise areas. Therefore, the Commission concluded that clustering can make cable operators more effective competitors to LECs whose local service areas are usually much larger than a single cable franchise area. The Commission also has stated that clustering can provide a means of improving efficiency, reducing costs, and attracting increased advertising."[20]

Comcast has delivered – and often over-delivered – on its promises to provide these and other public interest benefits in past transactions. It will do the same here.

The Transaction also "complies with the specific provisions of the Communications Act, other applicable statutes, and the Commission's rules."[21] In fact, not a single petition or commenter alleges that the Transaction will result in a violation of the Communications Act or other applicable statutes or the Commission's rules. In addition, Applicants possess the requisite "character" qualifications to hold Commission licenses.[22]

B. Petitioners Have Not Met Their Burden.

In contrast to the strong record established by Applicants in support of the Transaction, petitioners have failed to demonstrate that granting the license transfer applications will disserve the public interest in any material respect.

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[20] *Adelphia Order* ¶ 271; *see also Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Thirteenth Annual Report, 24 FCC Rcd. 542 ¶ 180 (2009) (recognizing that contiguous regional service areas, among other benefits, can enable cable operators to offer an increased variety of broadband services at reduced prices).

[21] *AT&T-BellSouth Order* ¶ 19.

[22] *See Comcast-NBCUniversal Order* ¶ 276; *AT&T-BellSouth Order* ¶ 194; *SBC-AT&T Merger Order* ¶¶ 175-176. Greenlining's challenge to Comcast's character and fitness to hold Commission licenses due to the inadvertent disclosure of certain unlisted telephone numbers assigned to subscribers to Comcast Xfinity Voice Service is patently absurd as explained in Section V.F. *infra*.

As explained by the Commission's General Counsel, the relevant "public interest" analysis is akin to the analysis undertaken by the Department of Justice or the Federal Trade Commission under Section 7 of the Clayton Act, but differs from the traditional antitrust analysis insofar as the Commission examines both potential anticompetitive effects and whether the transaction will serve the public interest more generally.[23] To that end, the Commission limits its consideration to whether the proposed transaction "could result in public interest harms by substantially frustrating or impairing the objectives or implementation of the [Communications] Act or related statutes."[24] The Commission's public interest review is not unbounded, and does not entail the all-encompassing reach advocated by several commenters.[25]

Moreover, as the D.C. Circuit has held, petitions to deny that set forth only generalized and unsupported criticisms of the proposed transaction "manifestly do *not* contain 'specific allegations of fact sufficient to show that . . . a grant of the application would be *prima facie* inconsistent' with the public interest standard" and thus cannot form the basis for adverse action on an application.[26] The Commission will not engage in or condone idle and unsupported speculation regarding hypothetical harms that may follow from a particular transaction. In the

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[23] *See* Sallet Blog; *see also AT&T-MediaOne Order* ¶ 9; *Gen. Motors Corp. & Hughes Elec. Corp., Transferors, and The News Corp. Ltd., Transferee, for Authority to Transfer Control*, Memorandum Opinion and Order, 19 FCC Rcd. 473 ¶ 16 (2004); *United States v. FCC*, 652 F.2d at 88 (quoting *N. Natural Gas Co. v. FPC*, 399 F.2d 953, 959 (D.C. Cir. 1968)).

[24] *Comcast-NBCUniversal Order* ¶ 22; *see also AT&T-BellSouth Order* ¶ 19; *SBC-AT&T Merger Order* ¶ 16.

[25] *See, e.g.*, Dish Petition to Deny at 6-9; Netflix, Inc. ("Netflix") Petition to Deny at 3; Free Press Petition to Deny at 10-12, 21; Sinclair Broadcast Group, Inc. ("Sinclair") Petition to Deny at 1; American Antitrust Institute ("AAI") Comments at 34. Unless otherwise noted, all citations to comments, petitions, or letters herein are those filed in MB Docket No. 14-57 on or around August 25, 2014.

[26] *United States v. FCC*, 652 F.2d at 90 (emphasis added).

Commission's words, "[m]ere possibilities are not of decisive significance in competitive analysis."[27]

Further, because the Commission's public interest analysis is informed by relevant antitrust principles,[28] its duty is "to protect . . . competition, *not competitors*."[29] Proposed transactions raise concern only if "they reduce the availability of substitute choices (i.e., increase market concentration) to the point that the acquiring firm has a significant incentive and ability to engage in anticompetitive actions such as raising prices or reducing output."[30] The mere fact that a transaction may have a negative impact on certain participants in a market is insufficient (especially when those parochial negative impacts may *increase* consumer welfare); the competitive impact must be on the market as a whole.[31] Thus, as the Commission's General Counsel has made clear, the "FCC's actions should be informed by competition principles. These principles look to the impact of practices on consumers and the public interest, not just on competitors. They are designed to be fact-based and data-driven."[32]

Nor can the Commission prohibit a strong firm from entering promising new markets merely out of concern that they might succeed in competing in those markets.[33] As the D.C.

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[27] *Bell Atl. Mobile Sys., Inc. & NYNEX Mobile Commc'ns Co.*, 12 FCC Rcd. 22280 ¶ 9 (1997) ("*Bell Atlantic-NYNEX Order*"); *see also SBC Commc'ns Inc. v. FCC*, 56 F.3d 1484, 1494 (D.C. Cir. 1995) (quoting *United States v. FCC*, 652 F.2d at 92).

[28] *AT&T-BellSouth Order* ¶ 24 nn.85-86; *SBC-AT&T Merger Order* ¶ 21 nn.83-84; *Sprint-Nextel Order* ¶¶ 39, 51.

[29] *AT&T-BellSouth Order* ¶ 195 (emphasis added); *Bell Atlantic-NYNEX Order* ¶ 16 (emphasis added).

[30] *Adelphia Order* ¶ 59.

[31] *SBC-AT&T Merger Order* ¶ 151. In this regard, the Commission has never failed to approve a transaction between parties that do not directly compete – as is the case here – including AT&T-Comcast and AT&T-TWC-Adelphia when the video and broadband markets were less competitive than they are today.

[32] *See* Sallet Blog.

[33] *United States v. FCC*, 652 F.2d at 103.

Circuit has instructed, such a proposition "turns the purpose of the antitrust laws on its head."[34] But even aside from this limiting principle, the rapid changes in technology and the Commission's own plans to spur even more investment and innovation in the relevant communications segments make it impossible to predict market outcomes. Under these circumstances, any assumptions about potential market dominance would be conjectural at best. And previous such assumptions in this dynamic industry have proven to be manifestly wrong.[35]

The Commission has also made clear that its public interest analysis is limited to *transaction-specific* harms. There is a "temptation and tendency for parties to use the license transfer review proceeding as a forum to address or influence various disputes with one or the other of the applicants that have little if any relationship to the transaction or to the policies and objectives of the Communications Act."[36] Parties also commonly misuse these proceedings to raise matters affecting industry-wide policies.[37] Such efforts are inappropriate and irrelevant to

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[34] *Id.*

[35] *See, e.g.*, Section IV.A.1.a *infra* discussing DOJ's ordered divestiture of an interest in an Internet content portal business – Excite@Home – in connection with the *AT&T-MediaOne* merger. This business model did not prove particularly compelling after all. By October 2001, Excite@Home filed for Chapter 11 bankruptcy protection. Similarly, it is instructive that the merger of AOL and Time Warner was delayed while the Commission considered consumer advocates' insistent pleas that a condition be adopted to prevent some wholly imaginary and anticipated harm with regard to "advanced [instant-messaging]-based applications." *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner Inc. and America Online, Inc., Transferors, to AOL Time Warner Inc., Transferee*, Memorandum Opinion and Order, 16 FCC Rcd. 6547 ¶ 18 (2001) ("*AOL-Time Warner Order*"). Less than two years later, the condition was quietly abandoned, with nary a word from any of the consumer advocates who deemed it so essential. *See Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner Inc. and America Online, Inc., Transferors, to AOL Time Warner Inc., Transferee; Petition of AOL Time Warner Inc. for Relief From the Condition Restricting Streaming Video AIHS*, Memorandum Opinion and Order, 18 FCC Rcd. 16835 ¶ 1 (2003).

[36] *See, e.g.*, *AOL-Time Warner Order* ¶ 6.

[37] *See, e.g.*, *AT&T-Centennial Order* ¶ 141 ("We find that the proposed conditions prohibiting exclusive handset arrangements are not narrowly tailored to prevent a transaction-specific harm, but apply broadly across the industry and are more appropriate for a Commission proceeding where all interested industry parties have an opportunity to file comments. RCA filed a petition asking the Commission to review exclusive handset agreements on an industry-wide basis, and the Commission will be able to develop a comprehensive approach on handset exclusivity based on a full record in that proceeding.") (internal citations omitted); *Applications of Cellco P'ship d/b/a Verizon Wireless and Spectrum Co LLC and Cox TMI, LLC For Consent To Assign AWS-1 Licenses; Applications of Verizon Wireless and Leap for Consent to Exchange Lower 700 MHz, AWS-A, and PCS Licenses;*

the license transfer review process. The Commission will not entertain arguments that "are better addressed in other Commission proceedings, or other legal fora, including the [courts] and the Congress."[38] Nor will the Commission consider extraneous disputes regarding an applicant's compliance with particular Commission rules.[39]

Even if the Commission identifies potential public interest harms, it must weigh those potential harms "against the potential public interest benefits" to determine whether the proposed

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Applications of T-Mobile License LLC and Cellco P'ship d/b/a Verizon Wireless for Consent to Assign Licenses, Memorandum Opinion and Order and Declaratory Ruling, 27 FCC Rcd. 10698 ¶ 89 (2012) ("We also find that any issues of interoperability in the Lower 700 MHz band raised by commenters are not transaction-related. The interoperability issues in the Lower 700 MHz band long predate these transactions. Further, the Commission has already initiated a rulemaking proceeding earlier this year to address these issues on an industry-wide basis."); *AT&T-BellSouth Order* ¶ 56 n.154 ("To the extent commenters allege that . . . contracts of the type used by AT&T and BellSouth are anticompetitive in general, this is not a merger-specific harm, but rather is an issue that has been raised, and is better addressed, in the Commission's pending special access rulemaking."); *AOL-Time Warner Order* ¶ 6 ("It is important to emphasize that the Commission's review focuses on the potential for harms and benefits to the policies of the Communications Act that flow from the proposed transaction – *i.e.*, harms and benefits that are 'merger-specific.' The Commission recognizes and discourages the temptation and tendency for parties to use the license transfer review proceeding as a forum to address or influence various disputes with one or the other of the applicants that have little if any relationship to the transaction or to the policies and objectives of the Communications Act."); *see also Softbank-Sprint Order* ¶¶ 54, 56; *Global Crossing-Level 3 Order* ¶ 13.

[38] *Applications of Craig O. McCaw, Transferor, & Am. Tel. & Tel. Co., Transferee, for the Consent to the Transfer of Control of McCaw Cellular Commc'ns, Inc. and its Subsidiaries*, Memorandum Opinion and Order, 9 FCC Rcd. 5836 ¶ 123 (1994); *see, e.g.*, *Bell Atlantic-NYNEX Order* ¶ 15; *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from S. New Eng. Telecomm. Corp., Transferor, to SBC Commc'ns, Inc., Transferee*, Memorandum Opinion and Order, 13 FCC Rcd. 21292 ¶ 29 (1998).

[39] *See Application of WorldCom, Inc. and MCI Commc'ns Corp. for Transfer of Control of MCI Commc'ns Corp. to WorldCom, Inc.*, Memorandum Opinion and Order, 13 FCC Rcd. 18025 ¶ 215 (1998) ("these unadjudicated matters [regarding payphone providers' choice of long distance carrier] are not a sufficient basis to conclude that the merger is not in the public interest, and we decline to condition approval of the transfer of control applications on resolution of this dispute"); *id*. ¶ 215 n.628 (noting that commenters could seek recourse against alleged anticompetitive restrictions on payphone providers' choice of long distance carrier from the Commission under Section 208 of the Act); *AT&T-MediaOne Order* ¶ 81 n.255 (commenters could file a program access complaint under 47 C.F.R. § 76.1003); *Applications of Pac. Telesis Grp., Transferor, & SBC Commc'ns, Inc., Transferee for Consent to Transfer Control of Pac. Telesis Grp. and its Subsidiaries*, Memorandum Opinion and Order, 12 FCC Rcd. 2624 ¶ 38 (1997) (refusing to consider extraneous allegations of market power-preserving conduct in the license transfer proceeding, and instead relying on "the specific enforcement tools that Congress" had given the Commission and the tools available to state commissions); *News Corp. and The DirecTV Grp., Inc., Transferors, and Liberty Media Corp., Transferee, for Authority to Transfer Control*, Memorandum Opinion and Order, 23 FCC Rcd. 3265 ¶ 161 (2008) (dismissing argument concerning license transfer applicant's alleged violation of FCC rules governing over-the-air reception devices because it was not transaction-specific); *see also Qwest Commc'ns Int'l, Inc. and US WEST, Inc. Applications for Transfer of Control of Domestic and International Sections 214 and 310 Authorizations and Application to Transfer Control of a Submarine Cable Landing Lease*, Memorandum Opinion and Order, 15 FCC Rcd. 5376 ¶ 28 (2000); *Bell Atl. Mobile Sys., Inc. and NYNEX Mobile Commc'ns Co. Application for Transfer of Control of Eighty-two Cellular Radio Licenses to Cellco P'ship*, Order, 10 FCC Rcd. 13368 ¶ 37 (1995).

transaction as a whole will serve the public interest.[40] When warranted, the Commission may impose "narrowly-tailored, transaction-specific conditions to ensure the public interest is served," rather than deny the application.[41]

In this proceeding, the petitions to deny and other opposing commenters fall far short of demonstrating any specific, factually supported grounds that approving the license-transfer applications will disserve the public interest. The majority of arguments and allegations raised by petitioners are not transaction-specific and/or are being addressed in other industry-wide or state-specific proceedings and, therefore, are irrelevant to the Commission's analysis here. Nevertheless, in the interest of facilitating the Commission's review process, Applicants briefly respond to these issues in Section V below. Moreover, as further detailed in Section IV below, petitioners do not establish any viable horizontal, vertical, or other harm to competition or consumers resulting from the Transaction. Nor do they credibly dispute the substantial efficiencies and related consumer and business services benefits that will flow from the Transaction, as described in Sections III.A-E below. And there is likewise no serious question that the Transaction will extend other important public interest benefits to millions of additional consumers, such as Comcast's broadband adoption, diversity, and accessibility efforts, as well as its wide-ranging support for local communities and organizations, as described in Section III.F below.

As Dr. Carlton concludes, "[t]he evidence presented in this proceeding supports the conclusion that the large benefits from the proposed transaction outweigh whatever potential

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[40] *Comcast-NBCUniversal Order* ¶ 22; *AT&T-BellSouth Order* ¶ 19; *SBC-AT&T Merger Order* ¶ 16.

[41] *Insight-TWC Order* ¶ 10; *see also AT&T-ATN Order* ¶ 14; *Softbank-Sprint Order* ¶ 25; *Global Crossing-Level 3 Order* ¶ 13.

harms may exist."[42] Accordingly, based on the Commission's established standards and extensive, well-settled precedent, the petitions to deny and all other comments opposing the Transaction should be rejected, and the license transfer applications should be granted.

III. THE TRANSACTION WILL PROVIDE SUBSTANTIAL PUBLIC INTEREST BENEFITS, AND CHALLENGES TO THESE BENEFITS ARE WITHOUT MERIT.

A. The Transaction Will Accelerate the Deployment of Advanced Broadband Services, Increase Broadband Competition and Innovation, and Expand Broadband Adoption.

Applicants showed in the Public Interest Statement, and hundreds of supporting letters and comments now confirm, that the Transaction will bring substantial broadband-related benefits throughout the combined company's footprint, especially in the areas acquired from TWC and Charter. Specifically, these benefits include: (1) the accelerated deployment of an upgraded broadband network, faster broadband speeds, innovative broadband technologies, and a more robust Wi-Fi network; (2) increased competition and innovation throughout the broadband ecosystem; and (3) the expansion of Comcast's acclaimed *Internet Essentials* broadband adoption program. As the mayors of 52 cities emphasize, the "[c]ities joining the Comcast service area will benefit from increased network investment, faster Internet speeds, . . . and [a] leading community development program to help us tackle important community challenges like the digital divide."[43] In addition, the newly acquired TWC and Charter customers will benefit from Comcast's singular, legally-binding commitment to an open Internet. *There are no credible rebuttals of these principal benefits from any commenters.*

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[42] Declaration of Dr. Dennis W. Carlton ("Carlton Decl.") ¶ 16, attached as Exhibit 3.

[43] Letter from 52 Mayors to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 21, 2014).

1. The Transaction Will Accelerate the Deployment of Advanced Broadband Services to the Acquired Systems.

A Fully Upgraded Network That Delivers Faster Broadband Speeds. Comcast has invested billions of dollars to upgrade its network to deploy DOCSIS 3.0 and transition its systems to all-digital. This hard work and substantial investment has paid off.[44] Today, Comcast delivers some of the industry's fastest broadband speeds and has increased broadband speeds *13 times in 12 years*, offering speeds of up to 505 Mbps in most markets.[45] The average broadband speed enjoyed by Comcast subscribers is about **[[ ]]** Mbps versus about **[[ ]]** Mbps for

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[44] Consumer Federation of America ("CFA") wrongly accuses Comcast of being a "laggard" in capital expenditures, asserting that Comcast "invests the lowest percentage of its free cash flow in capital expenditures (CapEx) than any of the large video and Internet access providers [and] takes more capital out through depreciation and amortization than it puts in with CapEx." CFA et al. Petition to Deny at 2; *see id*. at 46-48. CFA is simply wrong. Comcast has been – and remains – one of the *leaders* in capital spending within the cable, telecommunications, and Internet sectors, with total capital expenditures over the past three years of $19.9 billion, ahead of all companies other than the much larger Apple, Verizon, and AT&T (based on a review of SEC filings for Amazon, Apple, AT&T, Comcast, Facebook, Google, Netflix, Microsoft, TWC, and Verizon). Comcast's substantial commitment to and history of capital investment and innovation is further illustrated by the fact that Comcast is in the absolute top tier of firms (i.e., third in 2013 behind Facebook and AT&T from among the above-mentioned companies) with respect to "capital intensity" – i.e., the ratio of a company's capital expenditures to its revenues – the industry standard method for calculating this metric. CFA's methodology and calculations are flawed at a very basic level. First, CFA's use of ratios measuring capital expenditures to free cash flow and net income is not analytically sound. Free cash flow and net income are subject to a number of variables that are not related to the size of the company (e.g., taxes, interest expense, and the like). As such, these measures do not provide any reliable basis for measuring capital expenditures relative to the size of any particular company. For this reason, neither of these ratios is a generally accepted metric used by companies or financial analysts. CFA's comparison of capital expenditures to depreciation is similarly flawed. Perversely, this measure penalizes companies such as Comcast that have made substantial capital expenditures over a long period of time (and thus have high depreciation expense) and rewards companies that do not have a history of substantial capital expenditures (and thus have low depreciation expense). Beyond this, CFA cites data that is either incorrect or misleading. For example, its assertion that Comcast's 2013 capital expenditures were approximately 25% of 2013 free cash flow is false. CFA et al. Petition to Deny at 47. Comcast's 2013 capital expenditures were approximately $7.4 billion, or approximately 88% of total 2013 free cash flow of approximately $8.5 billion. Furthermore, CFA appears to have added research and development expense to the capital expenditure totals for the Internet companies it cites, even though, consistent with recognized practice, those companies themselves do not treat R&D expense as a capital expenditure. In sum, CFA's argument is based on flawed and distorted data and analysis and misrepresents Comcast's proven record of investment and innovation.

[45] Press Release, Comcast Corp., Comcast Increases Internet Speeds for 13th Time in 12 Years (Apr. 9, 2014), http://corporate.comcast.com/news-information/news-feed/comcast-xfinity-internet-speed-increase.

TWC subscribers.[46] And Comcast recently increased several tiers of broadband speeds in a number of its regions, effectively doubling the download speed for its flagship tier of service from 25 Mbps to 50 Mbps, increasing the download speed for its Blast tier of service from 50 Mbps to 105 Mbps, and increasing the download speed for its Extreme tier of service from 105 Mbps to 150 Mbps.[47] Following the Transaction, customers in the acquired TWC and Charter systems will benefit from faster broadband speeds and a fully upgraded, more reliable, and more secure network.[48] As Dr. Israel observes, "each one Mbps increase in average speed spread across all TWC customers would be worth approximately $95 million per year to consumers. Given the gap between the Comcast and TWC networks and Comcast's commitment to bring TWC up to Comcast levels, speed increases of several Mbps for TWC customers seem likely, meaning that this source of consumer benefits alone is worth hundreds of millions of dollars."[49] The Commission has recognized that Comcast consistently delivers more than its advertised speed, even during peak hours.[50]

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[46] *See* Reply Declaration of Dr. Mark A. Israel ("Israel Reply Decl.") ¶ 220, attached as Exhibit 1 ("Today, the average broadband speed enjoyed by Comcast subscribers is at least **[[ ]]** Mbps versus at least **[[ ]]** Mbps for TWC subscribers.").

[47] Press Release, Comcast Corp., Comcast Revs Up Internet Speeds Across Four States (July 31, 2014), http://corporate.comcast.com/news-information/news-feed/comcast-increases-internet-speeds-in-california-kansas-missouri-and-texas. And as broadband speeds have increased again and again, Comcast has consistently reduced the average price Comcast's customers pay on a per-Megabit basis.

[48] *See* Letter from Kathryn A. Zachem, Senior Vice President, Regulatory and State Legislative Affairs, Comcast Corp., to Marlene H. Dortch, Secretary, FCC, Response to Request No. 88 (Sept. 11, 2014) (attaching Comcast's Response to the Commission's Information and Data request) ("Comcast Information Request Response"). Based on the information Comcast has obtained so far about the systems, Comcast projects that the acquired customers in all of the markets will have access to all of Comcast's products within 36 months of the closing date of the Transaction and Divestiture Transactions, although some market will be fully transitioned within a period as short as 12 months or even sooner. *See id.*

[49] Israel Reply Decl. ¶ 221.

[50] *See* Measuring Broadband America Fixed Broadband Report: A Report on Consumer Fixed Broadband Performance in the U.S., Office of Eng'g & Tech. & Consumer & Governmental Affairs Bureau, FCC (June 2014), http://data fcc.gov/download/measuring-broadband-america/2014/2014-Fixed-Measuring-Broadband-America-Report.pdf ("Measuring Broadband 2014 Report").

Some commenters attempt to discredit these clear benefits by arguing that TWC has already announced plans to upgrade a portion of its systems to all-digital and increase broadband speeds.[51] However, as Applicants have said (and multiple commenters recognize),[52] the Transaction will enable the combined company to surpass and accelerate existing TWC deployment plans and to upgrade the *entire* TWC service footprint, and Comcast has the experience and expertise to deliver these upgrades faster and more efficiently.[53] The record shows that Comcast migrated its systems to all-digital ahead of schedule and with minimal customer disruption. This has allowed Comcast to reclaim additional bandwidth and provide faster broadband speeds. Comcast is well-positioned to deliver these same benefits to the acquired systems in this Transaction. As Drs. Rosston and Topper explain:

> Comcast will be able to apply its specialized knowledge about these and other best practices to make the transition faster and more efficiently than TWC could on its own. Consumers in turn will benefit from having access to all-digital systems sooner and with less disruption to their service.[54]

Ironically, other petitioners criticize the Transaction on the theory that Comcast will upgrade the acquired systems too quickly and thoroughly for competitors to match.[55] These

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[51] *See* Consumers Union and Common Cause ("Consumers Union et al.") Petition to Deny at 39; Writers Guild of America West, Inc. and Future of Music Coalition ("WGAW et al.") Petition to Deny at 63-65; AAI Comments at 27-28; Senator Franken Comments at 15.

[52] *See, e.g.*, ARRIS Group, Inc. ("ARRIS") Comments at 2; Free State Foundation Comments at 14; Institute for Policy Innovation Comments at 5; *see also* Letter from David Williams, President, Taxpayers Protection Alliance, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014) ("[T]he deal means a faster upgrade of broadband communications facilities for consumers.").

[53] As such, the requirements to compete in specific areas that have been proposed by some commenters are unnecessary. *See* Central Coast Broadband Consortium Comments at 3. Comcast intends to compete vigorously in all markets and invest in network upgrades.

[54] *See* Reply Declaration of Dr. Gregory L. Rosston and Dr. Michael D. Topper ("Rosston/Topper Reply Decl.") ¶ 37, attached as Exhibit 2; *see also id.* ¶¶ 35-36.

[55] *See* Letter from Pantelis Michalopoulos and Stephanie A. Roy, Steptoe & Johnson, Counsel for Dish, to Marlene H. Dortch, Secretary, FCC (Aug. 25, 2014) (attaching supplemental market share calculations prepared by Professor Sappington ("Sappington Decl.") that assume Comcast's planned upgrades of the TWC systems had already occurred).

concerns, of course, fatally undermine the concerns above, and are likewise baseless. The Commission should – as it has done in the past – see through these thinly veiled attempts to protect competitors rather than competition.

Beyond accelerating the benefits of an all-digital network for customers in the acquired systems, the Transaction will also enable Comcast to deploy other network enhancements that support future broadband needs for all of the combined company's customers.[56] The Commission has previously recognized that cost savings from a transaction can better enable a company to invest in broadband infrastructure, which ultimately benefits consumers.[57] Hance Haney of the Discovery Institute underscores this benefit here, observing that "[b]roadband services involve 'very substantial fixed' costs and are subject to 'large economies of scale' . . . . [A] larger firm can place itself in a better position to promote innovation and competition that will yield more choices and ultimately lower prices for consumers."[58] For example, Comcast has already upgraded its entire network to be compliant with IPv6, a critical new standard that is essential to the future growth and enhanced functionality of the Internet.[59] These same upgrades will be made to the acquired systems. In addition, Comcast intends to deploy broadband

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[56] *See* Comcast-TWC Public Interest Statement at 34-36; *see also id.*, Exhibit 4, Declaration of Michael J. Angelakis ("Angelakis Decl.") ¶¶ 23-24; *id.*, Exhibit 6, Declaration of Mark A. Israel ("Israel Decl.") ¶¶ 187-188; *id.*, Exhibit 5, Declaration of Dr. Gregory L. Rosston and Michael D. Topper ("Rosston/Topper Decl.") ¶ 60.

[57] *See Applications Filed by Frontier Commc'ns Corp. and AT&T Inc.*, Memorandum Opinion and Order, 29 FCC Rcd. 9203 ¶ 28 (WCB, WTB, IB 2014) (finding it likely that Frontier would achieve cost savings over $200 million following a transaction, and that these savings would enable it to increase its infrastructure investment, including infrastructure supporting broadband services); *see also Comcast-AT&T Broadband Order* ¶ 183 (finding that the transaction would accelerate the deployment of broadband services); *Adelphia Order* ¶ 256 (same).

[58] Hance Haney Comments at 4; *see also* Competitive Enterprise Institute ("CEI") Comments at 24 ("The deal will thus create a company that enjoys greater scale in the residential broadband market than any existing wireline provider. This scale will likely translate into an advantageous cost structure for the merged company and, in turn, more competitive service offerings in terms of price and throughput.").

[59] *See* Press Release, Comcast Corp. Comcast Reaches Key Milestone in Launch of IPv6 Broadband Network (July 22, 2014), http://corporate.comcast.com/comcast-voices/comcast-reaches-key-milestone-in-launch-of-ipv6-broadband-network. By contrast, TWC has implemented IPv6 to a much lower percentage of its network.

technologies like Converged Cable Access Platform and DOCSIS 3.1 throughout its service area, including the acquired systems, to deliver even faster broadband speeds and improved service.[60]

Better and More Convenient Wi-Fi Inside and Outside the Home. The Transaction will also support further deployment of advanced in-home Wi-Fi equipment and more robust, ubiquitous Wi-Fi networks across the combined company's footprint.[61] Customers in the acquired TWC and Charter systems will gain access to the fastest in-home Wi-Fi gateways (capable of speeds of up to 270 Mbps – over three times as fast as the prior-generation technology), which millions of Comcast customers already enjoy. And, just a few weeks ago, Comcast announced the launch of the latest Xfinity Wireless Gateway that is capable of delivering in-home Wi-Fi speeds of more than 700 Mbps (more than two times faster than the current model and seven times faster than similar devices available from Verizon and AT&T).[62] TWC and Charter customers in the acquired systems will benefit from this latest innovation, as well.

They will also benefit from greater access to public Wi-Fi hotspots. Comcast has made Wi-Fi deployment a priority and is building the most expansive and robust Wi-Fi network in the country, providing convenient, on-the-go Internet access to qualified Xfinity customers at no additional charge. To date, Comcast has deployed over three million hotspots nationwide,[63] and

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[60] Thus, Los Angeles County's suggestion that network upgrades and enhanced broadband technologies will benefit only a few select service areas is baseless. *See* Los Angeles County, Cal.; Montgomery County, Md.; City of Portland, Or.; and Ramsey-Washington Counties (MN) Suburban Cable Communications Commission ("Los Angeles County et al.") Petition to Deny at 15-16. As noted, Comcast has upgraded and deployed these technologies throughout its entire footprint and will bring this same approach to the acquired systems.

[61] *See* Comcast-TWC Public Interest Statement at 38-39.

[62] Allion USA, *Internet Service Provider Wireless Gateway Competitive Analysis* 4 (2014); *see also* Eric Schaefer, *Introducing the Industry's Fastest Wireless Gateway*, Comcast Voices (Sept. 8, 2014), http://corporate.comcast.com/comcast-voices/introducing-the-industrys-fastest-wireless-gateway.

[63] This includes Neighborhood Hotspots, which are residential Wi-Fi gateways that offer a supplemental public pathway for other Xfinity users. *See* Comcast-TWC Public Interest Statement at 40.

plans to reach eight million hotspots by early next year. Comcast also recently announced an arrangement with Liberty Global that will give qualified Xfinity Internet customers access to millions of new Wi-Fi access points across Europe by next year.[64]

Consumers and businesses alike will benefit from greater Wi-Fi connectivity.[65] As Dana Connors, President of the Maine Chamber of Commerce, observes, "Comcast has invested in wi-fi technology which enables businesses to offer encrypted secure networks as well as publicly available wi-fi . . . . Wi-fi is becoming an ancillary service which customers expect and Comcast's investments in wi-fi is offering businesses a simple turn-key service which greatly improves our [customers'] experience."[66] Wayne Niederhauser, President of Utah's Senate, similarly notes, "Comcast's 280,000 subscribers in our state have seen [Comcast's] investment pay off every day. The Xfinity Hotspots Program enables customers and businesses to connect on the go, without worrying about long-term or fixed-location subscriptions. Comcast has ensured that Utah's continued demand for services is supported by continued technological capacity and growth."[67] Cisco likewise praises these efforts: "Comcast's dedication to innovation . . . is evident in its efforts to expand Wi-Fi connectivity."[68] And as Cisco adds, "Led by post-transaction Comcast, accelerated deployment of Wi-Fi will drive the introduction of new

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[64] Press Release, Comcast Corp., Comcast and Liberty Global Announce Agreement to Connect U.S. and European Wi-Fi Networks (Sept. 11, 2014), http://corporate.comcast.com/news-information/news-feed/comcast-and-liberty-global-announce-agreement-to-connect-u-s-and-european-wi-fi-networks.

[65] As President Obama recognized, "[e]xpanded wireless broadband access will trigger the creation of innovative new businesses, provide cost-effective connections in rural areas, increase productivity, improve public safety, and allow for the development of mobile telemedicine, telework, distance learning, and other new applications that will transform Americans' lives." Barack Obama, Presidential Memorandum: Unleashing the Wireless Broadband Revolution (June 28, 2010), *available at* http://www.whitehouse.gov/the-press-office/presidential-memorandum-unleashing-wireless-broadband-revolution.

[66] Letter from Dana Connors, President, Maine State Chamber of Commerce, to Chairman Wheeler, FCC, at 1 (Aug. 21, 2014).

[67] Letter from Wayne Niederhauser, President, Utah State Senate, to Chairman Wheeler and Commissioners, FCC, at 1-2 (Aug. 22, 2014).

[68] Cisco Systems, Inc. ("Cisco") Comments at 5.

services in the new unlicensed spectrum made available at 5 GHz, leading to more efficient use of that spectrum and significant consumer welfare gains."[69]

Some commenters question whether the Wi-Fi benefits are transaction-specific since Comcast and TWC participate in the Cable WiFi consortium.[70] But, in contrast to Comcast, TWC has deployed only 29,000 Wi-Fi access points in its footprint to date.[71] And there is no equivalent public Wi-Fi deployment in the Charter systems today, so these customers stand to enjoy entirely new benefits from the Transaction. Moreover, as Drs. Rosston and Topper explain, "[w]ith additional service areas, Comcast will internalize the benefits to additional customers in those areas and, therefore, will have an even stronger incentive to add Wi-Fi access points."[72] This increased incentive is directly tied to the expanded geographic reach the Transaction will provide (and increased geographic rationalization from the Divestiture Transactions between Comcast and Charter).

2. The Transaction Will Foster Greater Broadband Competition and the Virtuous Cycle of Innovation.

The Transaction will in turn spur other broadband providers to invest in and improve their networks and broadband offerings.[73] Indeed, the pendency of the Transaction has *already* triggered such responses from other providers. These competitive forces will benefit consumers and edge providers alike and foster the virtuous cycle of innovation.

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69 *Id*.

70 *See* Consumers Union et al. Petition to Deny at 37; Office of the Mayor of the City of Los Angeles ("City of Los Angeles") Comments at 3; Los Angeles County et al. Petition to Deny at 16. The Cable WiFi initiative allows Comcast and TWC customers to use certain hotpots in each other's respective markets.

71 *See* Comcast-TWC Public Interest Statement at 40-41.

72 *See* Rosston/Topper Decl. ¶¶ 96-99; Israel Decl. ¶¶ 191-192.

73 Comcast-TWC Public Interest Statement at 56-59.

***Broadband Competition*.** As Applicants have shown, today's broadband market is highly competitive and dynamic, with both wireline and wireless providers offering consumers a variety of broadband choices.[74] Most consumers can choose from – and are using – a host of existing DSL, wireless, and other broadband services to meet their Internet requirements today. Key characteristics of this competitive marketplace include the following:

- According to the Commission's most recent Internet Access Services report, approximately 78 percent of households are located in census tracts where at least three or more *fixed* broadband providers reported offering at least 3 Mbps downstream and 768 kbps upstream.

- Even at a higher speed threshold, approximately 92 percent of households are located in census tracts where two or more *fixed* providers reported offering at least 10 Mbps downstream and at least 1.5 Mbps upstream.[75]

- Mobile broadband provides even more options for consumers. Approximately 99 percent of households are located in census tracts where three or more *fixed or mobile* broadband providers reported offering at least 3 Mbps downstream and 768 kbps upstream, and approximately 98 percent are located in census tracts where two or more *fixed or mobile* providers reported offering at least 10 Mbps downstream and at least 1.5 Mbps upstream.[76]

- Following the Transaction, customers will have a choice between Comcast and one or more top 10 ILEC competitors in 98.5 percent of the combined company's footprint.[77] Based on today's estimates, the combined company would be

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[74] *See* Comcast-TWC Public Interest Statement at 42-56; Israel Decl. ¶¶ 40-68.

[75] *Internet Access Services: Status as of June 30, 2013*, Industry Analysis and Technology Division, Wireline Competition Bureau, FCC, at 9, fig.5(a) (June 2014) ("Internet Access Services Report as of June 2013") , https://apps.fcc.gov/edocs_public/attachmatch/DOC-327829A1.pdf. NTIA data indicate that the extent of broadband availability is not uniform within each census tract. *See* National Broadband Map, http://www.broadbandmap.gov/speed (last visited Sept. 22, 2014). Nonetheless, because Applicants' broadband networks serve different local markets and do not overlap each other, the Transaction will not affect the current state of broadband competition in any location, whether one uses census tracts or other geographic metrics in the analysis. For the same reason, applying different Internet speed metrics (e.g., 10 Mbps or 25 Mbps), as some commenters have proposed, will not affect the competitive analysis either. *See* Israel Reply Decl. ¶¶ 27-28, 34-35.

[76] Israel Reply Decl. ¶ 65.

[77] Letter from Kathryn A. Zachem, Comcast, and Steven Teplitz, TWC, to Marlene H. Dortch, FCC, at 4 (June 4, 2014) ("Comcast-TWC Supplement Letter").

overlapped by telco fiber-based broadband services in **[[ ]]** percent of its territory.[78]

- When 4G LTE wireless broadband providers are included with the top 10 ILECs, there are virtually no areas of the combined company's footprint where customers will not have at least one of these options.[79]

Netflix's theory that the Transaction may inhibit broadband investment and deployment[80] is based on unsupported conjecture and is squarely at odds with the 20-year history of the Internet and the realities of today's marketplace. The broadband industry has grown through competitors leapfrogging each other and inciting competitive responses.[81] Chairman Wheeler recently recounted this history:

> The path from narrowband, to broadband, to high-speed broadband, was forged by competition. In order to meet the competitive threat of satellite services, cable TV companies upgraded their facilities. When the Internet went mainstream, they found themselves in the enviable position of having greater network capacity than telephone companies. Confronted by such competition, the telcos upgraded to DSL, and in some places deployed all-fiber, or fiber-and-copper networks. Cable companies further responded to this competition by improving their own broadband performance. All this investment was a very good thing. The simple lesson of history is that competition drives deployment and network innovation.[82]

The announcement of this Transaction has already spurred these and other broadband providers to accelerate their investment plans. For example, AT&T revealed plans to expand the

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[78] Letter from Kathryn A. Zachem, Senior Vice President, Regulatory and State Legislative Affairs, Comcast Corp., to Marlene H. Dortch, Secretary, FCC, at 4-5 (June 24, 2014).

[79] *Id.*

[80] *See* Netflix Petition to Deny at 93-94.

[81] Comcast-TWC Public Interest Statement at 45-46; Israel Decl. ¶ 166.

[82] Remarks of Tom Wheeler, Chairman, FCC, The Facts and Future of Broadband Competition, 1776 Headquarters, at 3 (Sept. 4, 2014), *available at* http://transition fcc.gov/Daily_Releases/Daily_Business/2014/db0904/DOC-329161A1.pdf. Commissioner O'Rielly similarly stated that "[t]he growth in Internet usage has been remarkable. . . . These gains are made possible by the billions of dollars invested in broadband infrastructure. Since 1996, broadband providers have invested more than $1.2 trillion in wireless and wireline broadband, spending $73 billion annually. Wireline providers account for more than half of this total investment . . . . The result of this investment has been increased access and competition." Remarks of Michael O'Rielly, Commissioner, FCC, LinkIDAHO 2014 Broadband Summit, at 2 (Aug. 19, 2014), *available at* http://transition fcc.gov/Daily_Releases/Daily_Business/2014/db0902/DOC-329118A1.pdf.

rollout of its high-speed fiber network, capable of 1 Gbps speeds, to as many as 100 cities, many of which will overlap with the combined Comcast-TWC service areas.[83] Following AT&T's announcement, Chairman Wheeler praised this initiative, and stated that he sees this development "as a challenge to the cable industry similar to the advent of DBS" and is "hopeful [that the cable industry] will respond competitively once again."[84] The Transaction will better position the combined company to respond to that challenge – and the dynamic cycle will continue.

These recent competitive developments demonstrate once again what the history of the Internet itself has taught; namely, that broadband is not a static market. Certainly the critics who predicted the end of Internet investment and competition during the *Adelphia* transaction could never have predicted nine years later a recommitment to broadband deployment by AT&T, network entry by Google, and speeds of 1 Gbps and even more becoming commercially viable. It is no less certain that today's marketplace will likely bear little resemblance to the market ten, five, or even two years from now.

In all events, as the record here makes clear, Applicants do not compete with one other for broadband customers anywhere. Every consumer will have the same number of choices among broadband providers after the Transaction as before. Thus, whether one is satisfied with the robust state of broadband competition today or concerned about an absence of broadband

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[83] Press Release, AT&T Corp., AT&T Eyes 100 U.S. Cities and Municipalities for Its Ultra-Fast Fiber Network (Apr. 21, 2014), http://about.att.com/story/att_eyes_100_u_s_cities_and_municipalities_for_its_ultra_fast_fiber_network.html. CenturyLink also announced that it would expand its gigabit fiber network and more than double the number of eligible homes by the end of this year. Mike Robuck, *Cox Heads to Starting Blocks for 1-Gig Service; CenturyLink Expands 1-Gig in Vegas*, CED Magazine (May 23, 2014), http://www.cedmagazine.com/news/2014/05/cox-heads-to-starting-blocks-for-1-gig-service-centurylink-expands-1-gig-in-vegas.

[84] Remarks of Tom Wheeler, Chairman, FCC, at the National Cable & Telecommunications Association, at 5 (Apr. 30, 2014), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-326852A1.pdf.

competition in certain areas, this Transaction will simply not have a negative effect on the current state of broadband competition in America. To the contrary, the Transaction will accelerate and encourage even more investments in R&D, innovation, and infrastructure – all of which will be good for broadband investment, good for broadband competition, and good for consumers.

Benefits to Internet Edge Providers. The Transaction will also benefit Internet edge providers. As the combined company continues to enhance its broadband services, edge providers will be able to innovate and improve their services as well, increasing the value of broadband for all end-users. This, in turn, will create additional incentives for other ISPs to improve their own broadband services.[85]

Thus, far from harming edge providers, as Netflix and others contend,[86] the Transaction will help facilitate the further growth of the Internet and be a boon for OVDs and others. As Matthew Burnett and Tanya Menendez, Co-Founders of Maker's Row, observe, "this transaction will produce benefits for us and other innovative web-based companies. Combined with TWC, Comcast will have added scale to innovate further in the broadband services market and all the other related technologies, making the company a key platform for online start-ups like us for years to come."[87] Nick Allen, Co-Founder of Shuddle, Inc., similarly observes that "[as] an app-based company, our business plan relies on ubiquitous, fast, and reliable broadband service . . . .

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[85] Comcast-TWC Public Interest Statement at 56-59; Israel Decl. ¶¶ 163-166.

[86] *See, e.g.*, Netflix Petition to Deny at 75-89; Cogent Communications Group, Inc. ("Cogent") Petition to Deny at 13, 37-38.

[87] Letter from Matthew Burnett et al., Co-Founder, Maker's Row, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

The continued growth and pervasiveness of broadband will boost the operating environment for web-based businesses like Shuddle."[88]

Ironically, while Netflix and Dish acknowledge that higher-speed broadband is a key driver of their businesses,[89] they simply ignore that this Transaction is already spurring greater availability of these higher-speed services. They likewise ignore that the Transaction will extend Comcast's Open Internet commitment, including application of the now-vacated no-blocking and non-discrimination rules in the Commission's 2010 Open Internet Order, to millions of additional customers in the acquired systems. This will further benefit edge providers, promote continued growth of the broadband ecosystem, and allay any reasonable concern that Comcast might use the Transaction to thwart future online offerings.[90]

Finally, while Netflix, Dish, and certain other commenters[91] insist that allowing ISPs to charge edge providers or their transit partners for arrangements that offer dedicated direct connection to their networks will somehow trigger the demise of the Internet as we know it, economic and marketplace realities refute that claim. Such arrangements have been in place for years, and, if anything, have helped the Internet's expansion.

In particular, Netflix's self-serving proposal that the government should mandate free direct interconnection for Netflix or others is squarely inconsistent with the well-established economic principle of two-sided markets that has prevailed on the Internet since day one:

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[88] Letter from Nick Allen, Co-Founder, Shuddle, Inc., to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

[89] *See* Netflix Petition to Deny at 10-12 (stating that "content-rich edge services increasingly require a consistently robust high-speed broadband connection"); Dish Petition to Deny at 13-14 (noting that their OTT services and other broadband-enables services like Hopper, Dish Anywhere require a high-speed, high-quality broadband connection").

[90] *See* discussion *infra* Section III.F.2.

[91] *See, e.g.*, Netflix Petition to Deny at 46-49; Cogent Petition to Deny at 31-33; Dish Petition to Deny at 54-61.

Network and edge providers all contributed through various paid transport arrangements and other mutual exchanges of value, and customers contributed through broadband service charges. As Dr. Israel explains, eliminating the former would, through what is known as the "seesaw" principle, either increase prices for broadband consumers or, as noted by Dr. Dovrolis – an expert in Internet network architecture and interconnection – leave the Internet without the critical funding it needs to continue developing.[92] As Dr. Dovrolis further explains, "interfering with the efficient operation of the Internet interconnection marketplace and shifting the bulk of the costs to end-users is likely to disrupt the massive flow of new investment necessary to ensure a robust backbone and ever-expanding Internet facilities. This raises serious concerns about the Internet's evolution."[93]

Dr. Israel and Dr. Dovrolis both note, as well, that charges to edge providers that choose to enter into dedicated interconnection arrangements would actually be *beneficial*, because requiring edge providers to pay a greater share of the incremental cost of the traffic their services consume would cause them to make efficient decisions about how to provide the service.[94] Dr. Dovrolis further explains:

> [P]aid-peering (and transit) arrangements create incentives for efficiency – these arrangements provide senders of Internet traffic reasons to invest in compression technologies and other ways to reduce their traffic loads. When everything is "free" to the sender, those incentives disappear, so bandwidth demands will increase rapidly – with the access networks presumably tasked with the endless job of maintaining sufficient bandwidth for all possible needs. This will simply increase the strain on the Internet and on the consumers who use it.[95]

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[92] *See* Israel Reply Decl. ¶ 183; Declaration Dr. Constantine Dovrolis ("Dovrolis Decl.") at 23, attached as Exhibit 5.

[93] Dovrolis Decl. at 23.

[94] Israel Reply Decl. ¶¶ 186-188. *See infra* Section IV.C.1.c.v.

[95] Dovrolis Decl. at 6.

In fact, as Dr. Israel notes, the theoretical model of two-sided pricing presented by Cogent's expert, Dr. Joseph Farrell, supports many of these conclusions, as do the many prior writings of Netflix's expert, Dr. David Evans, on two-sided markets.[96]

3. Expansion of *Internet Essentials* to Many New Communities Will Increase Broadband Adoption and Reduce the Digital Divide.

The Transaction will enable Comcast to do even more to help close the digital divide and encourage broadband adoption. What began as a voluntary three-year commitment in 2011 has grown beyond what Comcast initially envisioned, far beyond what the *NBCUniversal Order* required,[97] and has surpassed all expectations at the launch of the program in August 2011. Since Comcast launched *Internet Essentials* during the 2011 back-to-school season, it has connected more than 1.4 million Americans, from 350,000 families, to the power of the Internet. Comcast has not only extended *Internet Essentials* indefinitely, but also has consistently improved it, as described in subpart b, below. By expanding *Internet Essentials* to the acquired territories and fine-tuning its approach, Comcast will connect many more low-income households to today's high-speed Internet.

a. Commenters Overwhelmingly Endorse *Internet Essentials* as a Leading Program for Bridging the Digital Divide.

Internet Essentials already is having a profound impact in Comcast communities across the country. Nearly 300 stakeholders, including national and local civic organizations, state and local government officials, and school organizations, wrote letters to the Commission supporting the Transaction and highlighting the important benefits that expanding *Internet Essentials* to new

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96 Israel Reply Decl. ¶¶ 193-201; *see infra* Section IV.C.1.c.i.

97 *See Comcast-NBCUniversal Order*, App. A, § XVI.2.

communities will provide. Many of these stakeholders describe the significant impact the program is already having for their constituents. By way of example only:

- **Boys & Girls Clubs of America**: "[We] encourage our Club members to participate in *Internet Essentials* to ensure that the knowledge they develop in the Clubs transfers to the home. Data on *Internet Essentials* suggests that 59 percent of participating families believe Internet access helped at least one person in their household to find a job – a reminder that Comcast's program is stimulating economic growth in its communities."[98]

- **League of United Latin American Citizens ("LULAC")**: "LULAC can attest to the great impact of the *Internet Essentials* broadband adoption program and the benefit this program would bring to communities in the [TWC] footprint."[99]

- **National Council of Negro Women**: "The company's *Internet Essentials* program is the gold standard for broadband adoption . . . . Educational opportunities simply cannot be equal in this country if poor children do not have ready access to the Internet . . . . And *Internet Essentials* is critical to leveling the playing field for disadvantaged kids."[100]

- **The National Urban League**: "The National Urban League and many of our 93 affiliates in more than 300 communities across the country have worked hand-in-hand with Comcast to promote broadband adoption and advance policies that will deliver jobs, economic empowerment and social justice to African Americans and other communities of color nationwide."[101]

- **OCA – Asian Pacific American Advocates**: "Comcast's *Internet Essentials* program has been one of the primary vehicles for low-income families with children who receive free or reduced-price school lunches to access affordable broadband Internet, particularly in the [Asian Pacific American] communities."[102]

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[98] Letter from James L. Clark, President & CEO, Boys & Girls Clubs of America, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

[99] Letter from Brent Wilkes, Executive Director, League of United Latin American Citizens, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 25, 2014).

[100] Letter from Ingrid Saunders Jones, Chairwoman, National Council of Negro Women, at 1 (Aug. 25, 2014).

[101] Letter from Marc Morial, President & CEO, National Urban League, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 25, 2014).

[102] Letter from Sharon Wong, National President, OCA Asian Pacific American Advocates, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

As these and scores of other comments make clear, there is "no denying that the program has helped many families with school-aged children obtain badly needed broadband service."[103]

Towns, cities, and states within Comcast's footprint also affirm the importance of *Internet Essentials*. For instance, in Fulton County, Georgia, policymakers "can see a brighter future across the County for many . . . low-income families."[104] In Boston, "many of the children . . . wouldn't have Internet access or a computer in their homes without help from Comcast."[105] Chicago is "making progress toward closing the digital divide with over 33,000 households enrolled in *Internet Essentials*."[106] In California, there are "over 35,000 newly empowered families"[107] that have "gain[ed] access to the 21st Century broadband technology" because of *Internet Essentials*.[108] In southern New Jersey, stakeholders predict that "increased Internet adoption [due to *Internet Essentials*] will lead to better educational performance from [their] students and a stronger economic base in the future."[109]

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[103] National Association of Telecommunications Officers and Advisors ("NATOA") Comments at 6.

[104] Letter from John H. Eaves, Chairman, Fulton County Commission, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014).

[105] Letter from Karrie Ann Jean, Executive Director, Mattapan/Greater Boston Technology Learning Center, Inc., to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 16, 2014).

[106] Letter from Howard B. Brookins, Jr., Alderman, Chicago City Council, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

[107] Letter from Adam C. Gray, Assemblymember, California, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014).

[108] Letter from Cecilia Zamora, President, Hispanic Chamber of Commerce of Marin, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 25, 2014).

[109] Letter from Raymond L. Lamboy, President & CEO, Latin American Economic Development Association, to Chairman Wheeler, FCC, at 1 (Aug. 20, 2014). Additional examples of local success abound. In Colorado, the program "connects more than 14,000 low-income Colorado families to the broadband Internet and provides these families with the digital literacy training that is critical to their education and professional advancement in the 21st century economy." Letter from Governor John W. Hickenlooper, Colorado, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014). In Virginia, "Comcast helped many of [Virginia's] school families get Internet service at home" with "more than 17,000 people [that] were able to have a home broadband connection and buy a computer at drastically reduced prices." Letter from Michel Zajur, President & CEO, Virginia Hispanic Chamber of Commerce, to Marlene H. Dortch, Secretary, FCC, at 1 (Aug. 25, 2014). And in Arkansas, Comcast has "double[d] down on [its]

Given these significant proven benefits, it is no surprise that policymakers and local organizations in other areas are very enthusiastic about the expansion of *Internet Essentials* to their communities.[110] There is no equivalent program in any of the acquired systems, and thus no question that this would be a significant advancement of the public interest. For example, commenters emphasize that the Transaction will "bring more families in Missouri and beyond into the communications age";[111] offer a "huge step in the right direction towards giving families [in Southern California] the support and resources they need to become strong, resilient, and self-reliant members of society";[112] and "bring . . . needed service from the mainland to [the] shores" of Hawaii.[113] Comcast looks forward to working with local community partners and elected officials to extend *Internet Essentials* to help low-income Americans in these communities overcome the obstacles to broadband adoption.

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commitment" to improve the community, "connect[ing] over 1,000 families" in the state. Letter from Terry Hartwick, President & CEO, Chamber of Commerce of North Little Rock, at 1 (Aug. 20, 2014).

110 *See, e.g.*, Letter from State Senator Jason R. Holsman, Missouri, to Chairman Wheeler, FCC, at 1 (Aug. 21, 2014) ("One specific benefit that I would like to see available throughout my district is "*Internet Essentials*."); Letter from State Representative Johnny W. Shaw, Tennessee, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014) ("[D]isadvantaged children in Tennessee and across the country deserve to have the same educational resources as children whose families are better off. Comcast has committed to expand the *Internet Essentials* program to areas now served by [TWC]. That is just one of many reasons I urge you to approve the Comcast and [TWC] transaction."); Letter from Richard L. Zaldivar, Executive Director/Founder, The Wall Las Memorias Project, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014) ("Citizens here in Los Angeles, as well as in New York and Dallas, are yet to receive [the] same opportunities" afforded by *Internet Essentials*. Commission "approval will open doors for eligible low-income families in our area.").

111 Letter from Lewis Walker, Executive Director, Black Family Technology Awareness Association, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 22, 2014).

112 Letter from Deborah Villar, Senior Vice President, Bienvenidos Children's Center, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

113 Letter from Governor Neil Abercrombie, Hawaii, to Chairman Wheeler and Commissioners, FCC, at 1-2 (Aug. 22, 2014).

b. Petitioners' Complaints About *Internet Essentials* Are Overstated, Unfounded, and Often Self-Serving.

CETF and a few other petitioners criticize certain aspects of *Internet Essentials* and seek a laundry list of unnecessary and counterproductive conditions.[114] Their claims are, first and foremost, irrelevant. Comcast has never claimed that *Internet Essentials* is the only choice for a broadband adoption program, or that there are no aspects of it that could be improved, as Comcast has consistently done. But these criticisms in no way detract from the substantial benefits that *Internet Essentials* provides to low-income families and students. Moreover, Comcast has been improving and expanding *Internet Essentials* from day one, and it is unquestionably the most successful broadband adoption program that has ever been offered in this country by any entity. Even if the litany of its alleged defects were taken as true, the essential fact would remain: *Internet Essentials* is a "worthy and ambitious project *unmatched by any other major broadband provider*," as CETF itself acknowledges.[115] Indeed, the number of families that are benefitting from Comcast's *Internet Essentials* program eclipses by several orders of magnitude the results with similar public or private broadband adoption efforts *which collectively have not been able to reach even a quarter of the households that have subscribed to Internet Essentials*.[116] The question at hand is whether the Transaction serves the public interest,

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[114] *See* California Emerging Technology Fund ("CETF") Comments at 11-17; CFA et al. Petition to Deny at 38 n.31; Greenlining Institute ("Greenlining") Petition to Deny at 11-12; Common Cause Comments at 5-6; NATOA Comments at 7; Open Media and Information Companies Initiative ("Open Media et al.") Comments at 4. Stop the Cap! Comments at 20-23; The Stride Center Comments at 2. Several critics appear to rely almost exclusively on CETF's and other entities' false and unfounded claims to suggest that the program is flawed. *See, e.g.*, Los Angeles County et al. Petition to Deny at 21-23; City of Los Angeles Comments at 5-7; New Jersey Division of Rate Counsel and National Association of State Utility Consumer Advocates ("NJDRC et al.") Comments at 24 n.59; Chicana Latina Foundation at 1-2; Comments of Delaine Eastin at 1-2. Other critics that suggest the program has been unsuccessful provide neither evidence nor reasoning to back up such an assertion. *See, e.g.*, Public Knowledge and Open Technology Institute ("Public Knowledge et al.") Petition to Deny at 57.

[115] CETF Comments at 8 (emphasis added).

[116] *See, e.g.*, Press Release, Cox, Cox Communications Closes Digital Divide with Connect2Compete Broadband Adoption Program (Aug. 19, 2014), http://cox mediaroom.com/index.php?s=43&item=778 (reporting

and the answer as it relates to *Internet Essentials* is, quite simply, yes. CETF's arguments are thus a sideshow, at best.

Although Comcast is always interested in ways to improve *Internet Essentials*, many of the criticisms of the program in the docket are unfounded or patently unreasonable (many of these comments are based on inaccurate press reports):

- *Claims that Comcast makes the sign-up process long and cumbersome are untrue.*[117] The sign-up process for *Internet Essentials* reflects the fact that the program was designed to be based on the National School Lunch Program ("NSLP") eligibility, which was chosen because it was the *easiest* eligibility test to administer. Even then, from the start, Comcast has sought to simplify the process by, for example, creating an instant approval process for families whose children attend schools with 70 percent or more NSLP participation. This enhancement serves a majority of current applicants.[118] Comcast also goes to great lengths to ensure eligible customers can easily enroll in the program by working with local partners to facilitate the process, distributing program materials in a wide variety of languages, staffing a call center that is dedicated to the program, and conducting on-site registrations. Contrary to some claims,[119] Comcast does not perform credit checks as part of the application process.[120] And Comcast continues to review and improve the functionality of the online application to ensure the best user-experience. Today, the sign up process – from application to shipment of self-install kits – takes only **[[ ]]** days under the instant approval process and only **[[ ]]** days under the traditional process.

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that 15,000 low-income families have signed after approximately two years); CenturyLink Broadband Adoption Program Semi-Annual Report, WC Docket No. 10-110 (Apr. 15, 2014), http://apps.fcc.gov/ecfs/document/view?id=7521098352 (reporting 51,353 qualifying customers have purchased broadband under discount from Oct. 1, 2011 through Mar. 31, 2014). The Connect to Compete program, sponsored by the FCC itself, did not leave the trial phase in the few TWC areas where it was launched. In fact, Connect to Compete has never reported any signup data.

[117] *See* CETF Comments at 11-12; Common Cause Comments at 5; CFA et al. Petition to Deny at 38; Greenlining Petition to Deny at 10; Public Knowledge et al. Petition to Deny at 57.

[118] In addition, in July 2014, Comcast instituted a new feature whereby an online registrant who is not able to provide the required eligibility information receives a message explaining the nature of the information needed (rather than a simple error message) and requesting that the applicant call the toll-free *Internet Essentials* number.

[119] *See* CETF Comments at 13.

[120] *See id.* at 12-13. Recently, technical changes to the Comcast West Division's billing system caused an automated process to incorrectly trigger credit checks for a small number of *Internet Essentials* applicants. Comcast corrected this error as soon as it was discovered, apologized to affected customers, and worked with credit reporting bureaus to reverse the credit checks.

- *Claims regarding the asserted "low" adoption rate are unfounded.*[121] Critics complain that only 13 percent of the eligible low-income population in the United States has been connected through *Internet Essentials*. But experts agree that the program's success has exceeded all reasonable expectations.[122] Surveys about the program's progress further confirm its success and effectiveness.[123] As Dr. Horrigan noted in his comments, "[a]pproximately one-quarter of the overall broadband adoption growth rate for low-income families with children since 2009 can be credited to *Internet Essentials*."[124] The unconnected population is difficult to reach, and closing the digital divide is a long-term project. To put the program's achievement in proper perspective, after almost *twenty years* of offering and intensely marketing all tiers of its Internet access service, Comcast has achieved less than 40 percent penetration of the service across its footprint.[125] An average success rate of 13 percent of the eligible low income population – with rates of over 20 percent in at least one city – is simply remarkable.

- *Claims that eligibility requirements are too restrictive ignore the program's intent and significantly underestimate the tremendous amount of collaboration and partnership required to work.*[126] Comcast designed *Internet Essentials* to serve families with children eligible for the NSLP. Comcast's main goal, for now, is to serve *Internet Essential's* target population better and more broadly.

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[121] *See, e.g.*, CETF Comments at 2-3; Common Cause Comments at 5; Greenlining Petition to Deny at 11; Public Knowledge et al. Petition to Deny at 57; Stop the Cap! Comments at 21; National Hispanic Media Coalition ("NHMC") Comments at 11-12; Radio Bilingue Comments at 1-2.

[122] *See, e.g.*, Marguerite Reardon, *Comcast Extends 'Internet Essentials' Program Indefinitely*, CNET (Mar. 3, 2014), http://www.cnet.com/news/comcast-extends-internet-essentials-program-indefinitely/ ("Comcast is not the only company that is working toward more Internet adoption . . . . But so far, Comcast's program is the largest such effort. According to new research, it's also been among the most successful.") (citing Dr. John B. Horrigan, *The Essentials of Creativity* (Mar. 2014)).

[123] *See* Comcast-TWC Public Interest Statement at 64-65 (citing surveys finding, among other things, that "[o]verall, 90 percent of *Internet Essentials* customers in the survey were "highly satisfied" with the service, and 98 percent said that they would recommend *Internet Essentials* to others.").

[124] Letter from John B. Horrigan to Chairman Wheeler, FCC, at 3 (Sept. 18, 2014).

[125] Certain petitioners falsely claim that the modems Comcast provides to *Internet Essentials* customers restrict the number of users at one time and are incompatible with some devices, such as certain tablets or laptops. *See* CETF Comments at 17; Office of the Mayor of the City of Boston ("City of Boston") Comments at 5; California Public Utility Commission ("CPUC") Comments at 9-10. These modems, however, are compatible with a variety of computing devices, including Wi-Fi routers that enable the use of tablets and other wireless devices, and Comcast does not restrict *Internet Essentials* customers from attaching such devices.

[126] *See, e.g.*, Minnesota Association of Community Telecommunications Administrators ("MACTA") Comments at 4 (arguing that the program should be expanded to senior citizens and individuals with disabilities, among others); Seattle City Council Member Nick Licata Comments at 2 (same); Office of the Mayor of the City of New York ("City of New York") Comments at 3-4 (same); *see also* Los Angeles County et al. Petition to Deny at 28 (arguing that the program should be expanded to all low-income homes and low-income seniors, people with disabilities, and veterans); City of Boston Comments at 2; City of Los Angeles Comments at 5; Families in Schools Comments at 2.

To that end, Comcast has expanded the original eligibility criteria for *Internet Essentials* twice, first by extending it to families with children eligible to receive reduced price school lunches, and then by offering it to parochial, private, cyberschool, and homeschooled students. As a result, nearly 2.6 million families are now eligible for *Internet Essentials*, an increase of approximately 30 percent from the original eligible base. And Comcast recently (1) included up to six months of complimentary service for any new family approved prior to September 20 – an offer that was recently extended until September 30 – that had not yet applied for *Internet Essentials*; and (2) created an amnesty program for certain low-income families who otherwise qualify for *Internet Essentials* but have a past due balance.[127] More generally, a program of this size and importance cannot be executed well and expanded successfully without a tremendous amount of cooperation among the large web of nonprofit and government partnerships that Comcast has created and integrated in order to increase awareness of the program and to attack the digital literacy barrier to broadband adoption. Extending the program to other populations would be a large and complex undertaking, because an entirely new web of nonprofit and governmental partnerships would have to be created and integrated in order to ensure the same levels of success and effectiveness of *Internet Essentials* for these new populations.[128]

- *Claims that broadband speed under the program should be increased are unsupported.*[129] Comcast has increased the broadband speeds for *Internet Essentials* customers twice in less than two years. *Internet Essentials* now offers download speeds up to 5 Mbps, which is more than triple the speed offered at the beginning of the program and more than the Commission's current definition of broadband.[130] And this is more than sufficient to access educational videos, such as those available through Khan Academy, the "gold

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[127] *See* Press Release, Comcast Corp., Comcast Offers Complimentary Internet Service and an Amnesty Program for Low-Income Families (Aug. 4, 2014), http://corporate.comcast.com/news-information/news-feed/comcast-offers-up-to-six-months-of-complimentary-internet-service-and-an-amnesty-program-for-low-income-families; David L. Cohen, *Comcast Extends Internet Essentials Six Months Free Service Promotion Through Sept. 30*, Comcast Voices (Sept. 18, 2014), http://corporate.comcast.com/comcast-voices/comcast-extends-internet-essentials-six-months-free-service-promotion-through-september-30th. Despite Comcast's clear commitment to expanding and improving *Internet Essentials*, a few petitioners request certain oversight and performance standards. *See* CETF Comments at 17-18; Los Angeles County et al. Petition to Deny at 28-30; City of Boston Comments at 6. These requested conditions, however, would not do any more to advance the goal of broadband adoption than what Comcast already is doing through *Internet Essentials*.

[128] For example, Comcast has conducted pilot adoption initiatives through the AARP Foundation and the Project to Get Older Adults Online (Project GOAL) to promote the adoption of broadband services by older adults.

[129] *See, e.g.*, City of New York Comments at 3; Maui County Community Television Comments at 2; City of Los Angeles Comments at 6.

[130] As the FCC reports, 5 Mbps is sufficient for high-demand applications like streaming video, video conferencing, or online gaming. *See* Household Broadband Guide, FCC, http://www.fcc.gov/guides/broadband-speed-guide (last visited Sept. 20, 2014).

standard" of educational software sites.[131] Families with *Internet Essentials* can use their service for all their core needs, which is the key objective of the program.

- *Claims that Comcast seeks to limit eligible families' access to the program are false*.[132] Families with NSLP-eligible children of any age may participate in the *Internet Essentials* program. The assertion that Comcast seeks to "enroll" the oldest eligible child in a family is just false – and makes no sense: families, not individual children, are enrolled in the program. Comcast does not even ask for the ages of children, and families may continue to participate so long as there is one child living in the household who is eligible to participate in the NSLP.[133]

- *Claims that Comcast's customer representatives do not know about the Internet Essentials program are overstated*.[134] Comcast has a dedicated group of specially trained Customer Account Executives ("CAEs") to staff its dedicated *Internet Essentials* toll-free numbers – one in English and one in Spanish – and also trains and educates all of its CAEs on *Internet Essentials* basics. It is certainly possible that, as with any company, on occasion certain customer representatives may not be as knowledgeable as others about *Internet Essentials* or other of the many services and programs that Comcast offers. Comcast continues to work hard and to invest in improving the training of its CAEs, and the technological tools at their disposal, so that they can provide the best quality service to all customers and potential customers.

- *Claims that Comcast has not sufficiently promoted Internet Essentials are inaccurate*.[135] Comcast has distributed nearly 37 million *Internet Essentials* brochures to tens of thousands of partners for free, has mailed 1.7 million pieces of direct mail, has broadcast nearly 4 million PSAs about *Internet Essentials* in English and Spanish (valued at over $51 million), has spent millions of dollars on paid advertising for the program (including for tens of thousands of radio and print ads in local media), has held dozens of launch events across the country at the beginning of each school year and at other times that have generated over 3 billion earned media impressions for *Internet Essentials*, and produced and aired 49 "Comcast Newsmakers" public affairs

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131 *See* Khan Academy Help Center, https://khanacademy.zendesk.com/hc/en-us/articles/202487500-Why-can-t-I-play-the-videos- (last visited Sept. 22, 2014).

132 *See* CETF Comments at 12.

133 Moreover, while Comcast reserves the right to audit *Internet Essentials* subscribers for eligibility, it has not done so to date. CETF also criticizes Comcast because *Internet Essentials* applicants at addresses with delinquent accounts have to prove they are a new resident, not the delinquent account holder. This is not unique to *Internet Essentials* applicants, but to all Comcast services, and thus irrelevant. *See* CETF Comments at 13.

134 *See* CETF Comments at 12.

135 *See* CETF Comments at 11-12, 18.

> segments in support of *Internet Essentials*. Comcast also continues to undertake significant efforts to spur enrollment by working closely with more than 8,000 partners to help educate eligible families about *Internet Essentials*, distribute promotional materials, and spread the word about the benefits of broadband adoption.[136]

Comcast will continue to explore new broadband adoption measures and programs, and remains open to discussing them. But there is no question that expansion of *Internet Essentials* to the acquired TWC and Charter areas will be a substantial benefit of the Transaction – and there is no reasonable basis to condition the Transaction's approval on altering *Internet Essentials* or adopting a different – and unproven – broadband adoption program.[137]

B. The Transaction Will Acclerate the Deployment of Advanced Video Products and Services.

Following the Transaction, millions of additional consumers will enjoy more advanced video services, including a fully upgraded all-digital network, more programming choices, and Comcast's award-winning video technologies. Certain petitioners, like Dish and Netflix, attempt to cast this as a competitive harm, perhaps because it presents competitive challenges to them; but, in fact, there is no doubt that these are pro-consumer benefits that will be an improvement

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[136] Third Annual Compliance Report on *Internet Essentials*, the Comcast Broadband Opportunity Program, MB Docket No. 10-56, at 7, 16 (July 31, 2014), *available at* http://corporate.comcast.com/images/MB-10-56-Comcast-Internet-Essentials-Annual-Report-2014-07-31.pdf. Contrary to CETF's claim that Comcast does not direct sufficient resources to promoting this program, *see* CETF Comments at 19, Comcast utilizes a team of nearly 1,300 employees who act as *Internet Essentials* Ambassadors and work with Comcast's Government Affairs representatives to connect with schools, community organizations, and religious institutions. Comcast's educational, nonprofit, and government partners, working side-by-side with Comcast employees, have given countless hours to bringing *Internet Essentials* to life in our communities. Moreover, Comcast sends letters to the principals of auto-approved schools to make sure that they are aware of their schools' status.

[137] Indeed, several requested conditions ultimately would risk the viability of *Internet Essentials* altogether. For example, CETF asks the Commission to require Comcast to capitalize an independently-managed fund within states that have adopted plans to close the digital divide and establish a national oversight committee. *See* CETF Comments at 20-21 (recommending a fund of $298 million for California alone). These suggestions should be rejected by the Commission. There is no basis to justify such funding obligations on Comcast. Moreover, by seeking to create an entirely new program independent from *Internet Essentials*, such funding obligations would divert attention and resources away from, and thereby diminish the effectiveness of, *Internet Essentials.*

over the current offerings and technologies in the acquired TWC and Charter areas.[138] And, with the added scale necessary to further invest in and innovate the next generation of video services, the combined company will be better positioned to retain and win back customers in the face of robust – and increasing – competition for video subscribers throughout its expanded service area.[139] It is understandable why Comcast competitors would prefer for Comcast to be less competitive with their businesses, but the public interest strongly supports this Transaction precisely because of this enhanced ability for Comcast to compete and offer better products and services to its customers.

***Accelerated Transition to All-Digital*.** TWC and Charter customers in the acquired systems will enjoy numerous significant benefits from the migration of their current systems to all-digital.[140] Comcast has already converted its entire network to all-digital, while TWC has completed the transition in only 17 percent of its footprint and is currently planning to reach only 75 percent by 2016. The results of Comcast's digital transition, along with other technological

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[138] *See* Dish Petition to Deny at 22-24, 76-80; Netflix Petition to Deny at 32-33. As a related comment, Senator Franken contends that Comcast cannot claim the Transaction benefits of deployment of advanced products and services, because it should "prove" its services are superior by entering TWC markets and competing for subscribers, and the fact that it is not cost-prohibitive for competitors like Google, AT&T, and Verizon to expand into areas with existing cable providers means that Comcast must follow through with a similar expansion. *See* Senator Franken Comments at 14. This invented requirement that Comcast must somehow validate a benefit by first building out systems and competing head-to-head with TWC is entirely outside of the scope of what is required as a part of the Transaction review – and, in any event, Comcast has shown, and explains again in this section, that access to Comcast products and services will benefit TWC subscribers.

[139] *See* Rosston/Topper Decl. ¶¶ 80-83.

[140] Although Charter is in the process of migrating its systems to all-digital, a number of the systems Comcast will acquire from Charter will not be all-digital. As Applicants previously explained, Comcast undertook a five-year effort to reclaim bandwidth devoted to analog delivery and completed its transition to an all-digital transition ahead of schedule in 2012. *See id.* Comcast provided Digital Transport Adapter ("DTA") service at no additional charge (for a year or more) to non-basic-only customers to ease the transition to all-digital for its customers, and now provides the service for a low monthly charge. Likewise, Comcast has provided, and continues to provide, up to three DTAs at no additional charge to basic-only customers. Comcast's DBS and telco competitors do not provide a similar device alternative, and, contrary to the claims of Stop the Cap!, *see* Stop the Cap! Comments at 4-5, Comcast's DTA pricing policies are more generous than any other cable operator using these devices. Thus, this policy in no way undermines the benefits of all-digital, as Stop the Cap! contends.

improvements including the faster deployment of DOCSIS 3.0-capable modems and CCAP technology, are reflected in the fact that **[[ ]]** as many Comcast customers are in downstream speed tiers of 25 Mbps or greater as TWC customers.[141] As noted above, and as many commenters acknowledge,[142] Comcast is well poised to do the same for the acquired systems. In fact, Comcast upgraded its network to all-digital two years ahead of schedule, and 90 percent of those upgrades were implemented through highly efficient self-installations.[143] Comcast will use its proven expertise and the synergies resulting from the Transaction to accelerate the transition of the acquired systems to all-digital, and do so more smoothly and with less customer disruption.[144]

***More Programming Choices*.** Conversion of the acquired systems to all-digital will reclaim bandwidth necessary to support more programming and VOD choices, improved picture quality, and rollout advanced video features. In addition, Comcast has been able to secure more extensive programming rights and a significantly broader VOD and online catalog than other operators, including TWC. Once Comcast upgrades and integrates the acquired systems, customers will have access to significantly more programming choices and options for when,

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141 *See* Israel Reply Decl. ¶ 214.

142 ARRIS Comments at 2 ("The transactions will also help accelerate the migration of acquired systems to all-digital service, thereby enabling the reclamation of analog bandwidth for more video offerings, faster Internet and other services."); National Taxpayers Union Comments at 2 ("Comcast's strong emphasis on providing digital services to its customer base will likely accrue first to its new subscribers following the merger.").

143 *See* Israel Reply Decl. ¶ 218.

144 *See* Rosston-Topper Reply Decl. ¶ 35 (The Transaction "will allow those upgrades to occur faster and more efficiently because the combined company will be able to leverage Comcast's experience."); *see also* Comcast-TWC Public Interest Statement at 71-72. More specifically, Comcast will be able to apply the experience it has in integrating acquired systems following the Adelphia and AT&T Broadband transactions, including the various planning and implementation tools and procedures it has developed to ensure that this set of acquisitions goes smoothly and entails minimal customer disruption to existing customers. And as discussed further in Section III.F, there is no merit to the claim that the network upgrades, including the transition to all-digital, is not a transaction-specific benefit. *See* WGAW et al. Petition to Deny at 62-64.

where, and how they want to watch content.[145] These options include Comcast's approximately 55,000 VOD programming choices (compared to TWC's 15,000-20,000 and Charter's 10,000-12,000 in the systems to be acquired), including all of Nielsen's top 100 cable and broadcast shows and the most sought-after movies, and over 80 percent of these are available free of charge.[146] Customers will also have access to over 350,000 streaming choices over the Internet, including over 50 live TV channels, on XfinityTV.com. These live channels and over 25,000 on-demand choices are available on the Xfinity TV Go app, as well, enabling customers to download certain shows and movies to watch offline later.[147] And Comcast has recently expanded access to the Xfinity TV Go app to include access via any U.S. cellular network.[148]

One commenter wrongly contends that the expansion of VOD and programming choices is not a transaction-related benefit because TWC already offers these kinds of options.[149] In fact, the combined company will be able to deliver significantly *more* of the programming options

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145 *See* Rosston/Topper Decl. ¶¶ 105-106.

146 *Id.*; Andy Hunter, *American Families Love Their TV*, Comcast Voices (June 20, 2014), http://corporate.comcast.com/comcast-voices/american-families-love-their-tv; *see also* Press Release, Comcast Corp., Xfinity on Demand Now Home to Top 100 Nielson Rated Shows (June 12, 2014), http://corporate.comcast.com/news-information/news-feed/xfinity-on-demand-now-home-to-top-100-nielsen-rated-tv-shows. Comcast also launched the Xfinity Digital Store in November 2013 – a service not currently offered by TWC – giving customers the ability to purchase films and TV shows for download or streaming anywhere, anytime, on any device. Press Release, Comcast Corp., Everything is Awesome: The Lego Movie Breaks Records on the Xfinity Digital Store (May 30, 2014), http://corporate.comcast.com/comcast-voices/everything-is-awesome-the-lego-movie-breaks-records-on-the-xfinity-digital-store; *see* Joe Flint, *Comcast's Digital Movie Sales Off to Solid Start*, L.A. Times, Dec. 5, 2013, *available at* http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-comcast-digital-sell-through-20131205-story html#axzz2wSjkjzYS (noting that the Xfinity platform had been the number one seller of several movies within weeks of its launch).

147 *See* Press Release, Comcast Corp., Xfinity TV Go Network Roster Tops 50 with Latest Update (Mar. 19, 2014), http://corporate.comcast.com/news-information/news-feed/comcast-customers-can-now-stream-more-than-50-live-channels-anytime-anywhere.

148 Jeff Baumgartner, *Comcast Opens TV Everywhere App To All Cellular Networks*, Multichannel News (Sept. 2, 2014), http://www multichannel.com/news/tv-everywhere/comcast-opens-tv-everywhere-app-cellular-networks/383484.

149 *See* Los Angeles County et al. Petition to Deny at 17-18.

that consumers want and demand than TWC and Charter offer to their customers today.[150] The Commission recognized the benefits of expanded VOD and programming in the NBCUniversal transaction, and adopted a condition to ensure Comcast would increase these offerings post-transaction – and Comcast has delivered on that commitment.[151] For example, Comcast recently used the expanded capabilities of its VOD platform to support "Watchathon Week," during which customers could "catch up" on their favorite shows at no additional charge. During this seven-day period, Comcast customers watched over *61 million* pieces of Xfinity On Demand content.[152] And Comcast recently announced the return of Xfinity Freeview Latino, a two week all-access pass to more than 3,500 programs and 2,500 hours of Latino On Demand programming for Xfinity TV digital customers.[153] Neither TWC nor Charter has any comparable offerings.

Further, increasing VOD assets is not just a function of obtaining expanded content rights. Many TWC systems do not have the capacity to handle a vastly increased VOD library, which could strain the company's VOD servers and the channel capacity dedicated to VOD. And it is not clear that TWC's user interface could readily handle a substantially larger asset library, either. The post-transaction integration will remove these network impediments and provide the same expanded programming options for TWC and Charter customers that Comcast customers already enjoy. Similarly, Comcast's offering is based not only on a broad catalogue

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150 For example, TWC's TV Everywhere offering is more limited; it provides less content and less flexibility for accessing this content outside the home, with up to just 29 live TV channels and 6,500 hours of video content.

151 *See Comcast-NBCUniversal Order*, App. B, §§ X.3, XI.6, XIII.1.

152 Press Release, Comcast Corp., Watchathon Week: Shattering Viewing Records & Driving Live TV Ratings (Apr. 17, 2014), http://corporate.comcast.com/comcast-voices/watchathon-week-shattering-viewing-records-driving-live-tv-ratings.

153 Press Release, Comcast Corp., Xfinity Freeview Latino: The Biggest Hispanic On Demand Event Returns (Sept. 16, 2014), http://corporate.comcast.com/news-information/news-feed/freeview-latino-2014.

of rights, but also on sophisticated, easy-to-use technology that leads the industry. This year, the Sochi Winter Olympics and World Cup saw record-breaking numbers of subscribers viewing live streams of sports on digital platforms.[154] During the recent World Cup series, Comcast subscribers watched *13 million* live streams of soccer matches – or about 90,000 streams for every hour of match coverage – exceeding by 55 percent the number of streams that Comcast served during the Sochi Olympics.[155]

***Enhanced Video Technologies*.** The Transaction will likewise bring Comcast's best-in-class X1 platform and IP cable technology to the acquired systems – benefitting customers and programmers alike. The X1 platform provides a state-of-the-art cloud-based user interface that includes integrated search (across TV, Xfinity On Demand, and DVR) with instant play; access to the Internet and apps like Facebook and Pandora; cross-product integration, including access to voicemail from the TV; enhanced personalization and recommendations; and a "Last 9" feature that enables customers to easily access the last nine channels, VOD programs, and apps that they viewed or used.[156] Praise for the value and innovation of the X1 platform has been

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[154] Vito Forlenza, *World Cup Raises the Bar for the Future of Live Streaming*, Comcast Voices (July 2, 2014), http://corporate.comcast.com/comcast-voices/world-cup-raises-the-bar-for-the-future-of-live-streaming (noting that the Sochi Olympics saw 7.8 million streams from Xfinity TV customers, and 683,000 live streams of the USA v. Germany match during the world cup); Press Release, Comcast Corp., SEC Network on Xfinity Gives Fans College Football Anywhere They Want (Aug. 28, 2014), http://corporate.comcast.com/comcast-voices/sec-network-on-xfinity-gives-fans-college-football-anywhere-they-want (highlighting record-breaking numbers of fans live streaming the Sochi Olympics, March Madness, and the World Cup).

[155] Jeff Bercovici, *World Cup Streaming Boosts Comcast's TV Everywhere Push*, Forbes, July 16, 2014, *available at* http://www forbes.com/sites/jeffbercovici/2014/07/16/world-cup-streaming-boosts-comcasts-tv-everywhere-push/.

[156] Comcast-TWC Public Interest Statement at 79-82. Though there is a one-time "platform activation fee" for the X1, the cost of X1-capable equipment is comparable to what a consumer would pay for DVR service on a conventional set-top box, contrary to suggestion made by Stop the Cap!. *See* Stop the Cap! Comments at 5-6. And customers receive tremendous value from the X1 over conventional devices.

widespread.[157] And the Television Academy recently honored Comcast with an Emmy Award for the X1's user experience and visual design.[158]

Dozens of commenters have cited these clear video benefits in supporting the Transaction.[159] For example, as Ovation observes, "Comcast's merger with TWC means a robust video experience for more Americans. TWC customers will benefit from Comcast's industry-leading X1 platform, which provides unprecedented choice, control, and access to content on a wide array of IP-connected devices."[160] And, as Starz notes, "Starz Networks will directly gain from these advancements in Comcast services because they will allow millions of additional subscribers to have access to better, more reliable platforms on which to access our

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[157] *See, e.g.*, Todd Bishop, *Xfinity X1: How Comcast Roped Me Back in to Cable*, GeekWire, Aug. 22, 2013, http://www.geekwire.com/2013/xfinity-x1/ ("I have been testing this sleek black cable box for the past three weeks, but to call it a cable box really doesn't do it justice. It is a nice blend of Internet content, live television, apps, a multi-tuner DVR and on-demand programming, in one of the cleanest user interfaces that you'll find from a cable company."); Tim Carmody, *Comcast's New X1 UI Integrates Real-time and Streaming TV with News and Social Apps*, The Verge, May 21, 2012, http://www.theverge.com/2012/5/21/3033972/comcast-ui-platforms-video-news-social-apps ("[X1] feels like a genuinely 21st-century way to use a widescreen television set – like a smart TV inside your cable box."); John McDuling, *The American Cable Industry's Cunning Plan to Save Itself: Make TV Work Like It Should*, Quartz, Feb. 4, 2014, http://qz.com/172533/the-american-cable-industrys-cunning-plan-to-save-itself-make-tv-work-like-it-should/ (quoting Netflix CEO Reed Hastings describing the X1 as a "great product.").

[158] J.T. Ramsay, *Comcast Wins Emmy for X1's User Experience and Visual Design*, Comcast Voices (Aug.14, 2014), http://corporate.comcast.com/comcast-voices/comcast-wins-emmy-for-x1-entertainment-operating-system.

[159] *See, e.g.*, Letter from State Representative Ron Ryckman, Jr., Kansas, to Chairman Wheeler, FCC, at 1 (Aug, 25, 2014) ("Comcast is really changing the game for innovative TV and Internet services. They have set a high industry standard, yet continue to push the envelope on new technologies. The X-1 platform allows me to stream video content anywhere, on various devices, showing that Comcast cares about making their services available to their customers when and how they want them."); Letter from Mark Kleinschmidt, President, New Castle County Chamber of Commerce, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014) ("Comcast is one of the most dynamic technology companies currently operating in Delaware. Some of its latest developments are incredible advancements in the world of home entertainment and broadband. The new X1 operating system is just one example . . . ."); American Commitment Comments at 3 ("[The transaction will give consumers] accelerated deployment of advanced technology and development of new and innovative products and services such as Comcast['s] newly launched x1DVR and its X1 Entertainment Operating System, and Comcast's video-on-demand platform.").

[160] Letter from Brad Samuels, Executive Vice President, Ovation, to Chairman Wheeler and Commissioners, at 1 (Aug. 25, 2014).

programs."[161] Even Discovery Communications, while raising various self-serving concerns about the Transaction with the Commission,[162] just last week acknowledged to its investors that the Transaction *benefits* programmers: "[T]o the degree that [Comcast and AT&T are] bigger, have more access to investing in TV Everywhere and VOD offerings, a stronger ecosystem and a strong affiliate offering is good for us . . . . I do like [distributors] being stronger and I do like their being able to preserve the ecosystem more successfully . . . ."[163]

TWC and Charter customers will similarly benefit from Comcast's investments in IP streaming technology, which allows customers with the X1 platform to access essentially their full cable linear line-up, including national networks, public, educational, and government access ("PEG"), and must-carry channels, on personal computers and mobile devices throughout the home and without the need to lease or purchase additional set-top boxes.[164] With the launch of Comcast's new X1 DVR with cloud technology, the combined company's customers will also be able to record more shows; access them in their homes on multiple TVs, computers, and other devices; and download their recordings to mobile devices for later viewing away from home.[165] Critically, the Transaction will allow Comcast to spread the costs of developing and deploying

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161 Letter from David Weil, Executive Vice President & General Counsel, Starz Networks, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

162 *See* discussion *infra* Section IV.B.2.a.

163 Remarks of Andy Warren, CFO & Senior EVP, Discovery, Bank of America Merrill Lynch Media, Communications and Entertainment Conference, Beverly Hill, CA, Tr. at 3 (Sept. 16, 2014).

164 TWC has also invested in the transition to IP cable and has created IP "simulcast" feeds of most national linear networks, which enables customers to access this programming on a variety of retail devices. Comcast will build on TWC's strengths and experiences to further accelerate the IP cable transition for the benefit of the combined company's customers.

165 Comcast-TWC Public Interest Statement at 79-80. The Transaction presents the opportunity for Comcast to spread the costs of developing and deploying the X1 platform among more Comcast-owned systems, which will help facilitate future innovation. *See* Rosston/Topper Decl. ¶ 93.

the X1 platform and future-related technology among more Comcast-owned systems, helping to support future innovation.[166]

C. The Transaction Will Promote Greater Voice Competition and Services.

The Transaction will allow Comcast to offer more advanced voice services to customers in the acquired areas, making the combined company a more effective competitor to ILECs and others.[167] No commenter questions the transaction-specific benefits for the voice services marketplace in any meaningful way. Some commenters express concern that the Transaction will adversely affect Lifeline services, but that is simply not true.[168] Following the Transaction, the TWC operating entities that currently provide Lifeline service today will remain in place and will retain their status as regulated telephone utilities and designations as eligible telecommunications carriers ("ETCs"). Moreover, any changes in this regard would be addressed by the state agencies with direct responsibility for this issue, which has no relevance here.

Nor is there any basis for concern that the Transaction may harm consumers by disrupting voice interconnection arrangements or derailing the transition of the public switched telephone network ("PSTN") to IP delivery.[169] Contrary to Public Knowledge's speculative assertions, Comcast will not be able to leverage any market power to obtain favorable interconnection terms. Comcast does not have market power in voice today, and this Transaction

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166 *See* Rosston/Topper Decl. ¶¶ 85-86.

167 For example, Comcast's Xfinity Voice includes an array of enhanced features, including newer features like "Voice 2go" – which allows users to place calls over a Wi-Fi or data connection using an app installed on a mobile device – and Readable Voicemail. The Transaction will enable the Applicants to combine the best features of their respective services to create best-in-class voice service offerings, building on the strong foundation that already exists. *See* Comcast-TWC Public Interest Statement at 83-85 & n.205 (citations omitted).

168 Greenlining Petition to Deny at 7-9; CPUC Comments at 7; NJDRC et al. Comments at 25.

169 Public Knowledge et al. Petition to Deny at 50-53.

will not eliminate a voice competitor in any market.[170] As Public Knowledge well knows, Comcast is an insurgent competitor in the voice market and a leader in the transition to IP technology, with over 20 privately negotiated VoIP interconnection agreements with all types of providers. In fact, over half of Comcast voice traffic relies upon IP interconnection today. While Comcast firmly believes the marketplace is evolving on its own without the need for government intervention, Comcast shares Public Knowledge's support for the PSTN's IP transition, and clearly has no interest in "derailing" it.

In short, the benefits to voice competition and innovation from the Transaction are substantial, well supported in the record, and should be given significant weight in the Commission's public interest analysis.

D. The Transaction Will Enhance Competition and Choice for Businesses of All Sizes.

Applicants have further demonstrated that the Transaction will inject much-needed competition into the business services market and will bring about new, competitive choices for businesses of all sizes – small- and medium-sized business, regional and super-regional businesses, and enterprise businesses. There is substantial support in the record for these important competition-enhancing benefits, and no meaningful opposition.

Comcast and Time Warner Cable have each made some inroads in serving business customers within their existing footprints, focusing primarily on serving small- and medium-sized businesses. Comcast, for its part, continues to improve its offerings and has expanded its fiber network to make high-speed Ethernet services capable of speeds up to 10 Gbps available to

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[170] *See infra* at IV.B.5. Indeed, as of the Q2 2014, Comcast had approximately 11 million voice subscribers, whereas both AT&T and Verizon had over approximately 20 million voice subscribers. AT&T Inc., Quarterly Report (Form 10-Q), at 29 (Aug. 1, 2014); Verizon Commc'ns Inc., Quarterly Report (Form 10-Q), at 33 (July 29, 2014).

more businesses, including recent expansions in Connecticut, Texas, Vermont, and Washington.[171] Comcast has won several awards for its achievements in serving small businesses,[172] and a number of Comcast Business customers and business organizations strongly support the Transaction.[173] Brent Wilkes, Executive Director of the League of United Latin American Citizens, notes that when his organization became a Comcast Business customer, "our Internet speeds increased 10 fold and our bill dropped in half."[174] These offerings have evoked a competitive response from incumbent providers. Comcast and TWC have introduced aggressive price competition in the small and medium-sized business segments, with a 2013 research report

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[171] Press Release, Comcast Business, Comcast Business Extends Fiber Network to Bring Ethernet Services to Rutland, County, Vermont (May 15, 2014), http://business.comcast.com/resource-library/press-releases/details/2014/05/15/comcast-business-extends-fiber-network-to-bring-ethernet-services-to-rutland-county-vermont?NewsItemID=74264047-2963-62fe-b0b5-ff0000efc36d&IsPremium=False; Press Release, Comcast Business, Comcast Business Extends Fiber Network to Bring Multi-Gigabit Ethernet Services to Four New Haven County Communities (Aug. 13, 2014), http://business.comcast.com/resource-library/press-releases/details/2014/08/13/comcast-business-extends-fiber-network-to-bring-multi-gigabit-ethernet-services-to-four-new-haven-county-communities?NewsItemID=bc7f4747-2963-62fe-b0b5-ff0600efc36d&IsPremium=False; Press Release, Comcast Business Brings Multi-Gigabit Ethernet to Underserved Commercial Areas in Kent, Washington (Aug.13, 2013), http://www.businesswire.com/news/seattlepi/20140813006202/en; Erin Mulvaney, *Comcast Expands Fiber-Optic Network to Baytown Industrial Park*, Houston Chron., June 16, 2014, http://www houstonchronicle.com/business/technology/article/Comcast-expands-fiber-optic-network-to-sprawling-5556850.php#/0.

[172] In addition to the many awards Comcast received for its small business services previously noted, *see* Comcast-TWC Public Interest Statement at 87, Comcast Business jumped to sixth position in Vertical Systems Group U.S. Ethernet LEADERBOARD in the first half of 2014, *see* Mike Tighe, *Comcast Business Jumps Up Ethernet Market Leaderboard*, Comcast Voices (Aug. 20, 2014), http://corporate.comcast.com/comcast-voices/comcast-business-jumps-up-ethernet-market-leaderboard.

[173] *See, e.g.*, Letter from Michael Paris, President and CEO, Council for Quality Growth, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014). ("Thanks to Comcast's state-of-the-art network, Comcast Business offers advanced communications solutions for small to mid-sized companies that increase productivity, offering speeds of up to 10 Gbps."); Letter from Howard Tullman, CEO, 1871, to Marlene H. Dortch, Secretary, FCC, at 1 (Aug. 22, 2014) ("Comcast was one of the first corporate companies we sought to work with in order to provide business class service to drive technology innovation at our start-up hub. We currently serve over 250 companies in our 75,000 square foot workspace, with additional plans underway to expand our center to encourage more growth in the Chicago business community. Fortunately, Comcast business services has provided critical services to keep work and innovation flowing."); Letter from Justin Massa, Founder and CEO, Food Genius, at 1 (Aug. 22, 2014) ("High speed Internet, reliable connections, and 24/7 support are just a few of the benefits my company has received as a Comcast Business Class customer. . . . In fact, Comcast's support is an important component in our ability to expand. Its technology – especially the opportunity to scale the services we support and need – is critical to growing our business.").

[174] Letter from Brent Wilkes, Executive Director, League of United Latin American Citizens, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 25, 2014).

noting that new entry decreased Ethernet pricing for business by 10 percent or more per year.[175] Legacy providers are also responding by expanding fiber to businesses and have improved their offerings to bundle new data and voice features with basic network features, thereby adding value for customers.[176]

Despite these inroads, Comcast and TWC are currently constrained by geographic limitations and lack of scale from competing more effectively against incumbent providers. In 2013, Comcast and TWC had a combined share of only approximately 10-15 percent of the market segment for small- and medium-sized businesses in their footprints, and a *de minimis* share of regional and enterprise businesses.[177] Because larger businesses and enterprise customers have locations spanning multiple areas and cable footprints, Comcast, TWC, and other cable companies have been unable to offer seamless business service options – or meaningful competition against incumbent providers – across these different locations.[178] As a result, as

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[175] Insight Research Corp., *US Carriers and Ethernet Services, 2013-2018*, at 5 (Aug. 2013); *see also* TeleGeography, *Global Enterprise Networks: Enterprise Service Pricing*, at 16 (Jan. 2013) ("Median Ethernet market prices remain volatile, fluctuating considerably year to year. . . . With this said however, the long-term price trend is clearly down."); *id.* at 20 ("As a growing number of carriers offer the service, [Virtual Private LAN Service] prices continue to decline."); Craig Galbraith, *CableCos Gain Ground in Ethernet, But AT&T, Verizon Still Lead, Channel Partners*, Feb. 12, 2014, http://www.channelpartnersonline.com/news/2014/02/cablecos-gain-ground-in-ethernet-but-at-tverizon.aspx ("Cable companies have developed a winning formula for the U.S. business Ethernet market. They are successfully leveraging their on-net fiber footprints to offer aggressive pricing and rapid service provisioning."); *see also* Comcast-TWC Public Interest Statement at 87-88; Rosston/Topper Decl. ¶¶ 119-120; Israel Decl. ¶¶ 159-160.

[176] *See* Comcast-TWC Public Interest Statement at 87-88; Rosston/Topper Decl. ¶¶ 119-120; Israel Decl. ¶¶ 159-160.

[177] *See* Comcast-TWC Public Interest Statement at 87.

[178] For such customers to date, the only alternative to an ILEC is to rely on an "aggregator" that cobbles together multiple providers' offerings across many regions. However, this approach can create coordination problems given technical differences among different providers' networks, as well as other issues associated with multiple points of contact for customer service and technical assistance. *See* Comcast-TWC Public Interest Statement at 90-92.

Allen Gutierrez of The Latino Coalition observes, "[c]ompetition in the market for technology and communications services for businesses is *sorely needed* in many markets today."[179]

The Transaction will help create this "sorely needed" competition by providing Comcast with the greater geographic scope necessary to offer seamless service options to more large and regional businesses and enterprise customers across its expanded network.[180] Greater scale will also allow the combined company to drive fiber and other high-capacity technology deeper into its network, further enhancing the services it can offer to these business customers. Drs. Rosston and Topper explain that the Transaction will enable the combined company to undertake network infrastructure investments that would not occur absent the Transaction.[181]

In short, because it changes *both* the economic rationale and the company's capabilities to build out the network to serve these businesses, the Transaction will transform the competitive landscape of the business services market by creating a new competitor that can stand toe-to-toe with the incumbent telcos that dominate the market, and can offer business customers uniform, high-quality communications solutions at lower prices. As one Comcast executive explains, "[f]ootprint . . . is the key to bringing Ethernet to more businesses."[182] Drs. Rosston and Topper have concluded that, by significantly expanding Comcast's geographic scope and by rationalizing Comcast's service areas through the Divestiture Transactions, the Transaction will likely reduce service prices for businesses within the combined company's new footprint by

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[179] Letter from Allen Gutierrez, Executive Director, The Latino Coalition, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014) (emphasis added).

[180] Following the Divestiture Transactions, as Drs. Rosston and Topper previously explained, the combined company's expanded regional presence in California and New England, for example, will allow the company to serve more businesses with locations concentrated in these regions "on net." Rosston/Topper Supplemental Decl. ¶¶ 15-17; *see also id*. ¶¶ 24-26.

[181] *See* Rosston/Topper Reply Decl. ¶ 26; *see also* Israel Reply Decl. ¶ 217.

[182] Mike Tighe, *Comcast Business Discusses the Future of Ethernet*, Comcast Voices (Jan. 7, 2014), http://corporate.comcast.com/comcast-voices/comcast-business-discusses-the-future-of-ethernet.

reducing costs, eliminating double marginalization, and creating a viable new service provider in this space.[183] And they affirm that "the benefits of geographic reach are transaction specific, and joint sales are not a viable means of realizing the same benefits."[184]

In addition, the Transaction will bring together the best of Comcast's and TWC's innovations in businesses services, including, for example, Comcast's Business Voice Edge and the cloud-based business solutions TWC offers through its NaviSite subsidiary.[185] Further, products developed for the national, regional, and enterprise business customers often can be offered to or repackaged for small businesses, and even to consumers. And, of course, network investments and upgrades undertaken to serve larger businesses will ultimately redound to the benefit of small businesses and residential customers as well.

Besides benefiting businesses of all sizes, the Transaction will also spur greater competition for wireless backhaul services. The additional network investments, fiber buildout, and greater reach resulting from the Transaction will better position the combined company to offer wireless backhaul services to wireless carriers – adding much-needed capacity and competition in this space.[186]

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[183] Rosston/Topper Decl. ¶ 129; *see also* Israel Decl. ¶ 153; Rosston/Topper Reply Decl. ¶ 25.

[184] Rosston/Topper Reply Decl. ¶ 27. While Comcast and TWC have pursued some joint opportunities, these efforts have borne only modest fruit and have encountered friction. *See id.*

[185] *See* Comcast-TWC Public Interest Statement at 96-97; *see also* Rosston/Topper Decl. ¶ 139; Rosston/Topper Reply Decl. ¶¶ 25-26.

[186] Comcast-TWC Public Interest Statement at 97-98.

Notably, no party seriously challenges these substantial benefits – ones that the Commission has squarely recognized in the past as key benefits justifying transactions before the agency.[187] As Dr. Carlton concludes:

> Dr. Israel also shows how these significant efficiency gains will bring more competition and more reliable services to business customers, especially those with multiple offices throughout the combined company's region. The Commission should welcome the strengthening of competition in this sector.[188]

The few opponents that address these business benefits at all either casually dismiss them with no analysis[189] or seek wholesale access conditions that make no sense to impose on a new, emerging entrant.[190]

In contrast, over 100 chambers of commerce and other business organizations have voiced their strong support for the Transaction, highlighting in particular the benefits to competition that it will bring to business customers:[191] The Coachella Valley Economic

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[187] *See CIMCO Order* ¶ 4; *TWC-Insight Order* ¶ 23; *Applications Granted for the Transfer of Control of PAETEC Holding Corp. to Windstream Corp.*, Public Notice, 26 FCC Rcd. 16078, 16079 (2011) ("[W]e find that the transaction poses no significant competitive harms and should provide benefits to residential and business customers resulting from Windstream offering a broader range of competitive services[.]").

[188] Carlton Decl. ¶ 7.

[189] *See* City of Los Angeles Comments at 3 (making merely cursory claims that the benefit to businesses is "not obvious" because TWC already states that it offers world class voice and data services for businesses).

[190] *See* COMPTEL Petition to Deny at 10-13; TEXALTEL Comments at 1-2.

[191] *See, e.g.*, Letter from Harry C. Alford, President & CEO, National Black Chamber of Commerce, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014) ("Comcast consistently makes and upholds commitments made to improve the quality of life in the communities it serves by enhancing opportunities for minority-owned businesses and employees of color . . . I can say with full confidence that this proposed deal offers several real public interest benefits for minority-owned businesses and for the communities that Comcast intends to serve post approval."); Letter from Justin Vélez-Hagan, Executive Director, National Puerto Rican Chamber of Commerce, to Chairman Wheeler and Commissioners, FCC, at 1-2 (Aug. 25, 2014) ("It is our sincere opinion that Comcast's entrance into Los Angeles and New York City would be a boon to Hispanic and minority-owned enterprises in those markets. Between 2010 through 2013, Comcast increased spending on Hispanic-owned suppliers by 24%. This growth has the potential to support both increased financial stability and employment among Hispanics in these new cities, who suffer from disproportionately high levels of unemployment. In addition, by expanding its investments into more advanced broadband services, small businesses and entrepreneurs will have greater access to the technologies needed to compete in today's increasingly global marketplace."); Letter from Richard Armstrong, Director of Corporate and Institutional Relations, Boston Ballet, to Marlene H. Dortch, Secretary, FCC, at 1 (Aug. 25, 2014) ("The success my organization has had using Comcast Business makes me confident that small businesses and non-profit organizations in Comcast's new markets will benefit from a successful transaction."); Letter from Peter

Partnership states that "Comcast's entry will increase competition for communications services for all businesses in our region no matter what their specific needs, which has great potential for lowering costs and increasing quality. The enhanced services, like hosted voice and cloud collaboration applications, that Comcast provides in other markets will enable businesses to be more efficient and will free smaller outfits from the burdens of large capital outlays for their own phone systems and large file storage facilities."[192] R.J. Lehman of The R Street Institute observes that "[o]ne under-appreciated consumer benefit of a combined Comcast-TWC is the role the larger company could play in the business services sector." He further explains:

> While both Comcast and TWC have a modest presence in the market to provide broadband and voice service to small businesses, the firms are only marginal players in the market to serve large commercial enterprises. Because of the need for a large national service footprint, the business services market traditionally has been dominated by telecoms like Verizon and AT&T. A combined Comcast-TWC . . . could for the first time become competitive, with benefits redounding to business services customers.[193]

In sum, the evidence in the record is clear and demonstrates the significant benefits that the Transaction will foster in the business services market.

DelGreco, President & CEO, Maine & Company, to Chairman Wheeler, FCC, at 1 (Aug. 21, 2014) ("Combining these networks will allow businesses and consumers to have access to all the benefits of the larger network. Such benefits as login authentication and consistent access provide a tremendous benefit and reduce personal and professional hassles."); Letter from Peter S. Ho, Chairman, President & CEO, Bank of Hawaii, to Chairman Wheeler, FCC, at 1 (Aug. 21, 2014); Letter from Earl "Skip" Cooper, II, President & CEO, Black Business Association, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014) ("Comcast's business model, which values supplier diversity, would be a great addition to our community, especially to the growth and success of minority-owned service companies, suppliers and programmers.").

[192] Letter from Thomas Flavin, President & CEO, Coachella Valley Economic Partnership, to Chairman Wheeler, at 1 (Aug. 22, 2014). Similarly, the Redwood City-San Mateo County Chamber of Commerce wrote that "[t]he entry of Comcast's business offerings into more markets where our members operate will create new competition for telecom services. As a result, our members will have more choices of providers for high-end services, and our larger business members with locations in both the northern and southern parts of the state will be able to better integrate their operations, thus increasing efficiency and lowering operating costs." Letter from Amy Buckmaster, President & CEO, Redwood City-San Mateo County Chamber of Commerce, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014).

[193] Letter from Eli Lehrer, President, and R.J. Lehmann, Senior Fellow, The R Street Institute, to FCC Commissioners, at 2 (Aug. 21, 2014).

E. The Transaction Will Accelerate the Deployment and Adoption of Next-Generation Cable Advertising Technologies.

Comcast and TWC have each experimented with new cable advertising technologies that respond to the needs of advertisers in today's changing media landscape.[194] The Transaction will provide the combined company with the expanded customer base and greater geographic reach necessary to further invest in and accelerate the deployment of next-generation advertising technologies, such as DAI and addressable advertising, and interest advertisers in using them. As shown below, this will benefit advertisers, promote the adoption of new technologies,[195] and create added benefits for content providers and consumers alike. These advertising benefits, which are not credibly challenged by any commenter, further support the public interest analysis here. It is, therefore, not surprising that the only *advertisers* who have submitted comments in the docket for this Transaction all enthusiastically support the Transaction and its advertising benefits.

***Dynamic Ad Insertion*.** DAI technology can transform advertising on VOD and other platforms by inserting ads in real time separate from the programming stream. DAI enables the replacement of what traditionally have been stale, static ads with timely, tailored messages on these platforms, allowing advertisers to connect more effectively with the increasingly large segment of consumers who engage in time-shifted viewing of shows or view content using IP-enabled devices.[196] As MediaVest – a division of one the world's largest media agencies – notes,

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194 *See* Comcast-TWC Public Interest Statement at 100-101; Rosston/Topper Decl. ¶¶ 145, 155.

195 *See* Comcast-TWC Public Interest Statement at 100-101; Rosston/Topper Decl. ¶¶ 142-143.

196 *See* Comcast-TWC Public Interest Statement at 100-01.

advertisers "face increasing challenges in efficiently reaching consumers as they move across devices and consume content in a myriad of ways."[197] DAI helps to address those challenges.

The Transaction will enable the combined company to spread the costs of DAI over an expanded customer base, and further deploy and enhance this technology across multiple platforms,[198] and across the combined company's expanded footprint, including major markets like New York and Los Angeles.[199] This will increase the incentives for advertisers and ratings agencies to invest in the development of common audience measurements and effectiveness tools for these new advertising platforms. To date, the lack of viewer measurement tools has created significant barriers for widespread adoption and deployment of new advertising technologies.[200] As Drs. Rosston and Topper have explained, "[t]he increased scale from the transaction may help the industry overcome one of the biggest hurdles to realizing the significant potential of dynamic VOD advertising: measurement of viewing[.]"[201] A common measurement metric is key to the development of DAI. According to Drs. Rosston and Topper:

> If DAI on VOD can be measured so that advertisers pursue it more enthusiastically, content providers and consumers would also benefit. One of the biggest issues faced by content providers is the growing use of DVR viewing, which leads to ad skipping and reduced revenues. DAI in VOD offers an opportunity for content providers to enable the time-shifted viewing that consumers increasingly demand along with better monetization than DVR.

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197 Letter from Brian Terkelsen, CEO, MediaVest, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 9, 2014).

198 Comcast-TWC Public Interest Statement at 101; Rosston/Topper Decl. ¶¶ 145, 149.

199 Comcast-TWC Public Interest Statement at 102; Rosston/Topper Decl. ¶¶ 145, 153. As Drs. Rosston and Topper further explain in their Response, Comcast's efforts to date to develop its own audience measurement tools for VOD programming have fallen short, and the company "has encountered difficulties gaining industry acceptance of this technology with its current scale and reach." Rosston/Topper Reply Decl. ¶ 19; *see also id.* ¶¶ 20-22.

200 Comcast-TWC Public Interest Statement at 101-02; Rosston/Topper Decl. ¶¶ 144-145.

201 Rosston/Topper Decl. ¶ 144.

> [Improved measurement] could create significant incremental revenue for content providers and, as a result, potentially increase free content for consumers.[202]

***Addressable Advertising*.** The Transaction will likewise accelerate the deployment and adoption of addressable advertising, which allows marketers to replace geographic zone targeting (i.e., advertising targeted at specific zip codes or neighborhoods) with advertising based on demographics and other characteristics.[203] This technology enables advertisers to improve the efficiency and cost-effectiveness of their marketing efforts, and will provide a new option for advertisers who might not have previously considered cable advertising to reach very targeted markets.[204] As one commenter observes, this will enable the combined company to "offer businesses the ability to market to customers with the highest levels of precision, whether the business is a taqueria on 26th Street or a Fortune 500 company."[205]

The Transaction will extend Comcast's addressable advertising technology and development plans to the acquired systems.[206] The combined company's increased geographic reach and scale, in turn, will enhance the value of addressability to advertisers by significantly expanding the potential pool of desired viewers – i.e., with a bigger starting audience, a larger number of desired households can be targeted using Comcast's addressable advertising services.[207] Bill Koenigsberg, founder of Horizon Media, the largest privately held media

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202 Rosston/Topper Reply Decl. ¶¶ 18, 22.

203 Comcast-TWC Public Interest Statement at 103-04; Rosston/Topper Decl. ¶¶ 150-152, 154-156.

204 Comcast-TWC Public Interest Statement at 103; Rosston/Topper Decl. ¶ 156.

205 Letter from Jaime di Paulo, Executive Director, Little Village Chamber of Commerce, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014).

206 Comcast-TWC Public Interest Statement at 104-05; Rosston/Topper Decl. ¶¶ 154-156 (noting that TWC has not deployed addressable advertising on its cable platform).

207 Comcast-TWC Public Interest Statement at 105; Rosston/ Topper Decl. ¶¶ 149, 150-152. Drs. Rosston and Topper also point out that, given Comcast's scale, the Transaction may also lead to other MVPDs adopting next-generation advertising technologies, thereby allowing these capabilities to be offered more broadly on a uniform basis. Rosston/Topper Decl. ¶¶ 149-152.

agency in the world, notes that "[a]ddressable advertising has largely been difficult to achieve because of lack of reach," which is one of the reasons he strongly supports the Transaction.[208] "Through the merger, the combined company would deliver the kind of scale required to make such hyper-targeting a viable advertising option."[209]

Several other leading media agencies representing many of the nation's top advertisers have voiced their support for the Transaction and the benefits that it will bring to the advertising industry. GroupM, the world's largest public media investment company with over $104 billion in ad billings last year,[210] believes that these next-generation advertising technologies, along with the necessary scale and geographic reach resulting from the Transaction, will "reinstat[e] advertiser confidence that their ads are being viewed" and make cable television "a much more attractive platform for advertisers currently shifting dollars to alternatives that are perceived to be more accountable than linear TV."[211] Given that local cable television advertising today accounts for only approximately 7 percent of all local advertising spending,[212] attracting even a small percentage more advertising to cable could introduce some new competition to this already diverse marketplace. MediaVest agrees that the "advertising industry as a whole will benefit" from the next-generation advertising technologies that the transaction will promote.[213]

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[208] Letter from Bill Koenigsberg, President & CEO, Horizon Media, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 12, 2014).

[209] *Id.*

[210] *See* GroupM, www.groupm.com (last visited Sept. 22, 2014) (citing RECMA 2013 data).

[211] Letter from Irwin Gotlieb, Chairman, GroupM, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug, 22, 2014).

[212] *See* Rosston/Topper Reply Decl. ¶ 218.

[213] Letter from Brian Terkelsen, CEO, MediaVest, to Chairman Wheeler and Commissioners, FCC, at 1-2 (Aug. 9, 2014).

Although these next-generation advertising technologies may be of most interest to advertisers, Applicants have shown that the increased deployment and adoption of innovative advertising options like DAI and addressable ads will likely benefit content providers and consumers as well. Specifically, DAI will allow content providers to better monetize programming on VOD and other platforms, thereby providing a new revenue source to support high-quality programming and possibly even reducing pressure on affiliate licensing fees.[214] As Drs. Rosston and Topper explain:

> Content providers are willing to provide more VOD content, e.g., entire seasons of popular shows, to Comcast (and other MVPDs) if they are able to monetize it — and consumers are then often able to enjoy this additional content with no additional charges. The availability of more, free VOD has also proven to be self-reinforcing for content providers' business, as it allows viewers to catch up on previous episodes, and increases the live and total audience size for current shows by helping build momentum as a season progresses.[215]

In fact, Drs. Rosston and Topper concluded that advanced advertising services and the added scale from the Transaction could lead to consumers receiving discounted or free access to some of the same content they currently purchase elsewhere for $8-12 per month.[216] And addressable advertising can reduce the number of entirely irrelevant ads that now encumber the consumer's video watching experience.

While certain commenters, such as Viamedia, RCN, CenturyLink, and ACA claim that the Transaction will create harms for cable spot advertising or for cable advertising representation services, as explained in Section IV.D below, these claims amount to little more than attempts by disgruntled competitors and their customers to advance their own parochial

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[214] *See* Comcast-TWC Public Interest Statement at 103; Rosston/Topper Decl. ¶ 147; Rosston/Topper Reply Decl. ¶ 22.

[215] Rosston/Topper Repl. Decl. ¶ 22.

[216] *See* Comcast-TWC Public Interest Statement at 103; Rosston/Topper Decl. ¶ 147.

business interests – with no real nexus to the deal – by limiting competition and benefits to the advertising market as a whole. They should, therefore, be rejected by the Commission, particularly in light of the overwhelming support of advertisers for the Transaction.

F. Other Transaction Benefits

1. The Transaction Will Generate Key Efficiencies That Will Drive the Public Interest Benefits.

As Applicants previously detailed, the Transaction will create economies of scale at the national and regional levels, an expanded geographic reach, and a greater ability to share technologies and services. As numerous commenters recognize, these efficiencies will drive the many public interest benefits of the Transaction for residential customers, businesses, and advertisers. For example, as Cisco observes, "[w]ith the proposed transactions, Comcast would of course gain greater scale, enabling it to increase its investments in cutting-edge technologies and services and spread the costs across a larger customer base. In addition, the transactions would allow Comcast and Charter to better rationalize their geographic footprints, producing efficiencies that will provide more room for investment and innovation."[217] Broadcom similarly states that it "believe[s] the proposed Comcast/TWC transaction will give Comcast the scale required to build on its industry leading technology initiatives and to invest in further innovation in video and broadband services."[218]

Some commenters wrongly suggest that these efficiencies are not transaction-specific, will not be realized, or will not lead to the claimed public interest benefits. These claims either misunderstand or mischaracterize the demonstrated efficiencies (or both), and provide no facts or viable economic theory refuting the procompetitive benefits that these efficiencies will create.

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[217] Cisco Comments at 7.

[218] Broadcom Corp. ("Broadcom") Comments at 3.

In particular, some commenters allege that Comcast and TWC could realize the same economies of scale or geographic reach by expanding within their current footprints or into each other's territories.[219] But as Drs. Rosston and Topper explain, this is not the case:

> While it is true that Comcast could gain scale by winning more customers within its current footprint (and it continues to aggressively compete for these customers), the transactions allow for *additional* scale through an expanded footprint and the ability to compete for a larger universe of otherwise unavailable potential customers; such growth cannot be obtained organically within Comcast's existing footprint.
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> * * *
>
> As we described in our April Report, Comcast and TWC have not found it profitable to build new cable systems outside their existing geographic footprints or make the major investment necessary to successfully enter as an out-of-footprint OVD. It would be cost prohibitive for Comcast or TWC to build new cable systems throughout each other's geographic footprint, and we have seen no evidence that either firm has considered doing so.[220]

Dr. Israel agrees, concluding that "[g]iven that the parties have decided that footprint expansion is cost-prohibitive, and given the unchallenged fact from the original Israel Declaration that cross-operator partnerships have proven quite unsuccessful in this industry, unlocking the profitability of these investments by scaling them to more territories is a transaction-specific benefit."[221]

Other parties claim that Comcast and TWC already have sufficient scale, such that any added economies of scale will be negligible,[222] or contend that the value of economies of scale

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219 *See, e.g.*, Free Press Petition to Deny at 78; WGAW et al. Petition to Deny at 62-64; Cogent Petition to Deny, Declaration of Joseph Farrell ("Farrell Decl.") ¶ 102.

220 Rosston/Topper Reply Decl. ¶¶ 11, 33 (emphasis added).

221 Israel Reply Decl. ¶ 211.

222 Consumers Union et al. Petition to Deny at 38-39; AAI Comments at 23-36; Los Angeles County et al. Petition to Deny at 6-8; Senator Franken Comments at 10-11.

must reach a certain threshold in order to yield benefits for consumers.[223] The analysis of Drs. Rosston and Topper again shows otherwise. In their April declaration, they provide concrete examples of investments and projects that Comcast failed to undertake, or undertake as quickly, due to lack of sufficient scale, notwithstanding its size relative to other cable companies.[224]

In addition, Drs. Rosston and Topper set out s*pecific* examples of how economies of scale in prior transactions (e.g., Adelphia and AT&T Broadband) enabled Comcast to undertake larger fixed cost investment in infrastructure and in providing advanced services, showing that such efficiencies are not merely theoretical.[225] And, as Comcast increasingly competes in various segments of its business against national or even global competitors like Apple, Google, Netflix, and others, its size relative to other cable companies becomes an even less relevant measure. Drs. Rosston and Topper also make clear that the benefits of increased investment due to economies of scale will accrue to customers, regardless of the proportion of increased investment to total costs or the proportion of increased investment to the size of the company.[226] This evidence refutes the contrary – and factually unsupported – claims advanced by Professors Comanor and Evans, respectively.[227]

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[223] Netflix Petition to Deny, Declaration of David Evans ("Evans Decl.") ¶ 37 n.12; WGAW et al. Petition to Deny, Testimony of William Comanor ("Comanor Test.") at 22. Nor is there any merit to the claim that the synergies and efficiencies must directly translate into a reduction in cable prices in order to be a benefit. *See* Senator Franken Comments at 22. As discussed in Section III.B, these synergies and efficiencies will lead to tangible benefits to customers in acquired systems, like accelerated upgrades to all-digital, more reliable services, and customer service innovations, among others.

[224] *See* Rosston/Topper Decl. ¶¶ 87, 90, 93, 136; *see also* Rosston/Topper Reply Decl. ¶ 9. This evidence also rebuts the claim made by Stop the Cap! that the benefits and efficiencies of the transaction are vague. *See* Stop the Cap! Comments at 1-2.

[225] *See* Rosston/Topper Reply Decl. ¶¶ 12, 14, 16. As Vermont Governor Peter Shumlin recounts, since Comcast acquired the Adelphia systems in Vermont in 2006, it has invested nearly $128 million on broadband infrastructure in the state and extended broadband connectivity across the state. *See* Letter from Governor Peter Shumlin, Vermont, to Marlene H. Dortch, Secretary, FCC, at 1 (Aug. 20, 2014).

[226] *See* Rosston/Topper Reply Decl. ¶¶ 13-14.

[227] *See* Netflix Petition to Deny, Evans Decl. ¶ 37 n.12; WGAW et al. Petition to Deny, Comanor Test. at 22.

Finally, Consumers Union and Common Cause contend that deploying common technologies and services across the combined the Comcast and TWC systems would involve integration difficulties to the detriment of customers. But, as Drs. Rosston and Topper explain, this is idle speculation:

> [W]hile there are certain to be some costs related to integrating Comcast and TWC systems, if the costs were so high that they would lead to increased prices or lower quality service, Comcast would not choose to make those service changes. After all, Comcast has the option of leaving current TWC technologies in place if they are a more efficient way of meeting customer demand than an alternative Comcast technology.[228]

Comcast has proven in past transactions (e.g., Adelphia and AT&T Broadband) that it can integrate newly acquired systems in ways that benefit consumers through better, more reliable networks and enhanced, industry-leading video, broadband, and voice services.[229] It will do the same following this Transaction.

2. The Extension of Commitments and Conditions from the *Comcast-NBCUniversal Order* Will Further Enhance the Public Interest.

Numerous commenters support the Transaction because they have experienced firsthand Comcast's fulfillment of – and, in many cases, over-delivery on – commitments and conditions from the NBCUniversal transaction. Specifically, these supporters recognize and strongly embrace the extension of the following benefits to the acquired TWC and Charter systems (among others): (1) various pre-existing obligations and other commitments developed in connection with the NBCUniversal transaction, and (2) Comcast's best-in-class diversity and community investment programs.[230]

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228 Rosston/Topper Reply Decl. ¶ 39.

229 *See* Comcast-TWC Public Interest Statement at 36-38, Exhibit 9 (Promises Made, Promises Kept).

230 For a full description of the NBCUniversal commitments, *see id.* at 106-20.

As explained in the Public Interest Statement, the *Comcast-NBCUniversal Order* contained more than 150 conditions, many with multiple subparts. Comcast consistently has met, and often exceeded, all of its commitments and obligations.[231] Indeed, even when no longer mandated or required, many of these conditions and commitments have become part of Comcast's core business ethic and operations. Commenters who suggest Comcast has failed to live up to its obligations, or overstated its voluntary commitments,[232] simply mischaracterize the facts. Comcast submits comprehensive and publicly available annual transaction compliance reports,[233] as well as annual compliance reports on *Internet Essentials*,[234] with the

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[231] In one instance (addressed through a voluntary consent decree), the Commission took issue with certain elements of how Comcast marketed and advertised its standalone broadband Internet service. *See id.* at 106-07 & n.273 (discussing the two Commission proceedings related to the conditions that involved interpretative issues – neither of which resulted in the Commission finding or even suggesting noncompliance).

[232] It is not accurate or constructive to make broad, general statements that the NBCUniversal conditions have been unsuccessful or that parties intended to be protected by them have prevailed only after long delays and large expenses. *See* Dish Petition to Deny at 88-93; ITTA Petition to Deny at 13-15. As explained in the Public Interest Statement, *see* Comcast-TWC Public Interest Statement at 149, 170, and further below, Comcast and NBCUniversal have broadly licensed content and significantly expanded carriage of independent programs, all on reasonable and market-based terms. So it is hard to take seriously claims that the conditions or the marketplace have not worked when all the evidence in the record demonstrates the exact opposite. Nor should Comcast's compliance be called into question based on hyperbole and anecdotal evidence, at best. For example, the New Jersey Division of Rate Counsel and NASUCA argue that "Comcast has a poor track record when it comes to fulfilling the commitments it negotiated to gain approval of its takeover of NBC." NJ Division of Rate Counsel and NASUCA Comments at 24. Yet for this sweeping proposition, they cite only a May 2014 Greenlining Institute filing before the California Public Utilities Commission that raises unsupported and false allegations regarding the efficacy of the *Internet Essentials* program.

[233] *See, e.g.*, David L. Cohen, Comcast and NBCUniversal File Third Annual Compliance Report on NBCUniversal Deal, Comcast Voices (Mar. 3, 2014), http://corporate.comcast.com/comcast-voices/comcast-and-nbcuniversal-file-third-annual-compliance-report-on-nbcuniversal-deal.

[234] *See* Annual Compliance Report on Internet Essentials, the Comcast Broadband Opportunity Program (July 31, 2012), *available at* http://corporate.comcast.com/images/Internet-Essentials-Annual-Report_07312012_v3.pdf; Second Annual Compliance Report on Internet Essentials, the Comcast Broadband Opportunity Program (July 31, 2013), *available at* http://corporate.comcast.com/images/MB-10-56-Internet-Essentials-Annual-Compliance-Report-2013-07-31.pdf; Third Annual Compliance Report on Internet Essentials, the Comcast Broadband Opportunity Program (July 31, 2014), *available at* http://corporate.comcast.com/images/MB-10-56-Comcast-Internet-Essentials-Annual-Report-2014-07-31.pdf. Comcast has also voluntarily published Internet Essentials progress reports not required by the FCC. *See* Internet Essentials Launch Report (Jan. 31, 2012), *available at* http://corporate.comcast.com/images/InternetEssentialsfromComcast.pdf; Internet Essentials 2nd Annual Progress Report and New Enhancements (Mar. 5, 2013), *available at* http://corporate.comcast.com/images/IE-FCC_Trifold-2013-FNL_HRnoCrops.pdf; Internet Essentials Program Highlights at a Glance, Fall 2013 (Sept. 2013), *available at* https://www.internetessentials.com/sites/internetessentials.com/files/reports/ie-fcc_trifold-2013_fall_fnl.pdf; Year

Commission.[235] Neither the Commission nor any other party has seriously questioned Comcast's documented compliance efforts. And those that claim that the expansion of these commitments to the acquired systems is merely a legal obligation, not a public interest benefit,[236] overlook the fact that millions of additional customers in the acquired systems will now benefit from protections, offerings, and opportunities that they did not enjoy before and would not have received otherwise. The Transaction is unquestionably the "but-for" source of these benefits. Further, it bears stressing that Comcast has voluntarily extended certain commitments even after they expired under the *NBCUniversal Order*, and has overdelivered broadly on its requirements, making the question whether "legal obligations" can constitute a cognizable benefit not only silly, but irrelevant.

Given this strong record, the Commission should give substantial weight in its public interest review to the following key benefits that will be extended to the acquired systems.[237]

Open Internet Commitment. As noted above, the Transaction will extend "Comcast's ongoing commitment to a free and open Internet . . . to millions more cable customers,"[238] so that

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Three Internet Essentials Progress Report (Mar. 4, 2014), *available at* https://www.internetessentials.com/sites/internetessentials.com/files/reports/fcc_hi_res_no_crops_final_022814.pdf.

[235] In May 2011, Free Press claimed that Comcast failed to describe each local program and included commercials in its calculation of local programming time in its localism compliance reports to the Commission. Free Press got its facts wrong. Nearly three years later, it is no surprise that the Commission has not acted on the claim. Not only has Comcast met the Commission's condition, but is has far surpassed it. During 2013, the 10 NBC Owned Television Stations produced and aired approximately 2,500 hours of regularly scheduled local news programming over and above the amount required. This surpasses the Commission's requirement to add 1,000 hours of new, local news programming by approximately 1,500 hours. Comcast's Telemundo Station Group beat the Commission's requirement to air 1,000 hours of regularly scheduled local news programming by approximately 1,300 hours.

[236] *See* WGAW et al. Petition to Deny at 65-66; Netflix Petition to Deny at 97.

[237] *See* Response to Request No. 51. It is Comcast's intention to comply with the conditions and the commitments with respect to the acquired assets. However, because these conditions were in many cases tailored specifically to Comcast's cable systems and technologies, compliance may in many instances require some transition time or clarifications relating to the integration of TWC or Charter systems and services. *See id.*

"[a]ll post-merger broadband customers will enjoy the protections of the no-blocking and non-discrimination rules."[239] This will provide greater certainty for both consumers and edge providers as the Commission develops new, industry-wide rules.[240]

As one commenter notes, Comcast always has "been a strong supporter of a free and open Internet – which is critical to [] democracy and especially to online service organizations . . . . Expanding this commitment to Time Warner communities is another valuable public good that will make the Internet stronger and more open for all users if the two companies are permitted to combine."[241] The record contains no serious challenge to this commitment as a public interest benefit.[242]

Standalone Broadband Commitment. Although it originated as a commitment in the NBCUniversal transaction, offering consumers the option to procure their broadband service on a standalone basis has become a core feature of Comcast's business.[243] With the extension of this requirement to the acquired systems, customers will have the assured flexibility to mix and match any speed of broadband with the services of Comcast, another video provider, or no

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238 Letter from State Representative Brandon Phelps, Illinois, to Chairman Wheeler and Commissioners, FCC, at 1; *see also* Letter from James Santa Maria, President, Asian American Education Institute, to Chairman Wheeler, FCC, at 1 (Aug. 20, 2014).

239 Joint Academics and Experts Comments at 3.

240 Comcast-TWC Public Interest Statement at 107. Stop the Cap! asserts that Comcast should be required to abide by the Commission's original Open Internet rules "in perpetuity." Stop the Cap! Comments at 24. This proposal is unnecessary and short-sighted. To be sure, Comcast is committed to an open Internet. But the purpose of Comcast's Open Internet commitment in the NBCUniversal transaction was to give the Commission sufficient time, if necessary, to adopt new, legally enforceable rules applicable to the entire industry, not to saddle Comcast forever with burdens that do not apply to its competitors. The Commission is already engaged in a rulemaking to adopt new industry-wide rules that will ensure open Internet protections *to all broadband users*, not just Comcast customers.

241 Letter from Sonia Lopez, President & CEO, Cuban American National Council, to Chairman Wheeler, FCC, at 2 (Aug. 21, 2014).

242 For example, Consumer Watchdog improperly conflates peering with net neutrality in alleging that Comcast's arrangement with Netflix breaches its Open Internet commitment. Consumer Watchdog Comments at 1.

243 Comcast-TWC Public Interest Statement at 107-08.

traditional video service at all. Although TWC and Charter offer standalone broadband services today, the Transaction will expand a long-term commitment to such offerings throughout the acquired systems.[244] Contrary to some commenters' concerns,[245] there is no evidence to suggest that Comcast will limit the attractiveness of standalone broadband to its new customers.[246] To the contrary, the *NBCUniversal Order* requires Comcast to offer such services on terms equivalent to those of its bundled offerings, and requires active marketing for such services. Indeed, the number of Comcast's standalone broadband customers increased by over **[[ ]]**, or approximately **[[ ]]** percent, between January 2012 and January 2014 to approximately **[[ ]]** million customers.

Program Access Commitment. NBCUniversal will continue to make its programming available to MVPDs at fair market value and on non-discriminatory terms.[247] NBCUniversal has successfully reached commercial agreements with multiple MVPD partners over the past three years. Specifically, since 2011, NBCUniversal has successfully negotiated comprehensive renewal agreements with, among others, Verizon, Cablevision, Charter, Dish Network, Suddenlink, Mediacom, and NCTC, and none has had to resort to arbitration to reach a deal with

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[244] And contrary to some concerns, individuals with disabilities will have this option to purchase broadband-only service if appropriate for their needs. *See, e.g.*, City of Boston Comments at 2.

[245] *See* New York Public Service Commission ("NYPSC") Comments at 9; Senator Franken Comments at 32-33; Dish Petition to Deny at 30.

[246] Contrary to some opponents' arguments, the Comcast standalone broadband Consent Decree does not illustrate a lack of commitment to such services. *See* Dish Petition to Deny at 94-95; WGAW et al. Petition to Deny at 67; Common Cause & Allies ("Common Cause et al.") Comments at 2; Senator Franken Comments at 32-33; Public Knowledge et al. Petition to Deny at 56. The decree primarily involved concerns around the ordering system on Comcast's website and training of its customer reps on a particular new standalone service tier (Performance Starter); it did not concern Comcast's offering of standalone broadband or the terms of such offers. *See In re Comcast Corp.*, Consent Decree, 27 FCC Rcd. 6983 (2012). Comcast in fact had made a good-faith effort to comply with the condition. *See* Comcast-TWC Public Interest Statement at 106. When the Commission questioned the adequacy of Comcast's initial implementation of the standalone broadband condition, Comcast promptly resolved the Commission's concern and agreed to extend an element of this condition for an extra year. *Id*.

[247] Comcast-TWC Public Interest Statement at 108.

the company. Nonetheless, the MVPD arbitration condition in the *NBCUniversal Order* will extend to the small group of programming networks, including the Los Angeles Lakers RSN, TWC SportsNet, that Comcast will acquire as a result of the transaction, giving DirecTV, AT&T, and other MVPDs an efficient means to resolve any pricing disputes (and Comcast hopes that, after stepping into TWC's shoes with respect to the Dodgers RSN, it would be able to facilitate distribution on fair terms for all parties). As distinguished academics and professors note, "[t]his means that the companies that purchase programming from TWC will actually be receiving *more protections* than they currently enjoy."[248]

Certain commenters complain that the arbitration conditions are inadequate because they are too burdensome and costly to use, an argument they contend supports denial of the Transaction.[249] But this logic is fundamentally flawed. There is relatively little new programming accruing to Comcast as a result of this Transaction, so these commenters' concern hardly seems transaction-specific, and the Commission rejected their argument in the *NBCUniversal Order*, where it was at least relevant.[250] In all events, as Drs. Rosston and Topper show using econometric analysis and the Commission's own framework in the NBCUniversal proceeding, there is no basis to conclude that Comcast has discriminated against competing MVPDs by withholding affiliated programming and no reasonable basis to argue that the Transaction will give Comcast a basis to withhold programming going forward.[251] And, finally

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248 Joint Academics and Experts Comments at 4 (emphasis added).

249 *See* American Cable Association ("ACA") Comments at 32-39; Hargray Communications Group ("Hargray") Comments at 3-4; RCN Telecom Services, LLC, Grande Communications Networks, LLC, and Choice Cable TV of Puerto Rico ("RCN et al.") Petition to Deny at 32-33; CenturyLink, Inc. ("CenturyLink") Comments at 17-19; Horry Telephone Cooperative Petition to Condition at 7-8; Consumers Union et al. Petition to Deny at 47-48; Sports Fans Coalition Petition to Deny at 29-31.

250 *See Comcast-NBCUniversal Order* ¶¶ 49-59.

251 *See* Rosston/Topper Reply Decl. ¶¶ 111-120.

none of the MVPDs that complain that arbitration is too costly has shown that the deals they have reached with NBCUniversal in the commercial marketplace are unfair or anticompetitive, which reinforces that the market is working as it should.[252]

Online Video Commitment. Online video has grown substantially since the NBCUniversal transaction, and Comcast-NBCUniversal has been very supportive of that growth. Since 2011, NBCUniversal has widely licensed its programming to dozens of different OVDs (including Amazon, Netflix, YouTube, Vudu, and others), pursuing a variety of different business models on mutually agreeable and commercial terms. The Transaction will have no effect on this: OVDs have become, and will remain, an important part of the buyer market for NBCUniversal's content.[253] Indeed, NBCUniversal's revenues from OVD deals have increased six-fold since 2009 and, in 2013 alone, were nearly **{{ }}**.[254] Moreover, there has been only one OVD arbitration under the NBCUniversal conditions and, contrary to the assertions of the Consumer Federation of America, Dish, and others, that matter did not involve any improper withholding of NBCUniversal content. Rather, it primarily centered on

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[252] RCN, Grande Communications, and Choice Cable propose (a) extending the MVPD arbitration conditions in the *Comcast-NBCUniversal Order* for 10 years, and (b) making the arbitration process "more accessible," including allowing NCTC to serve as a bargaining agent and making several individual cable networks subject to standalone arbitration. RCN et al. Petition to Deny at 31-33. Given that *no* MVPD has found it necessary to invoke these arbitration conditions since the NBCUniversal transaction, there is simply no basis for extending their term here. In addition, the Commission already adopted provisions specially tailored to enable small MVPDs (with 1.5 million or fewer subscribers) to use a bargaining agent to negotiate on their behalf and, if necessary, pursue arbitration. *See Comcast-NBCUniversal Order*, App. A, § VII.D.1-2. It even adopted a provision for smaller MVPDs (600,000 or fewer subscribers) to have Comcast pay their legal bills if they prevail in an arbitration. *Id.*, § VII.D.7. Lastly, the Commission rejected similar requests to extend arbitration rights to individual cable networks in the NBCUniversal transaction, after concluding that doing so would require "the Commission to draw lines among various cable networks that would pose significant practical and constitutional concerns." *Id.* ¶ 53. Drawing any such lines in this proceeding would pose the same significant concerns, with even less reason to do so than in the NBCUniversal transaction (given the minimal programming assets that Comcast is acquiring here).

[253] *See* Response to Request No. 19(d) (identifying the many OVDs to whom Comcast-NBCUniversal has licensed video programming); *see also* discussion *infra* Section IV.C.1.b.

[254] *See* Response to Request No. 19, Exhibit 19.5(a).

determining the contractual rights of other NBCUniversal licensees to certain content, and the Media Bureau largely agreed with NBCUniversal's position.[255]

Nevertheless, the NBCUniversal condition allowing OVDs to demand, and, if necessary, arbitrate over access to NBCUniversal programming networks in certain circumstances remains in place. In addition, TWC's carriage agreements, to the extent they remain in place following the Transaction, would be subject to the NBCUniversal conditions' prohibitions against practices that limit the provision of the acquired programming to OVDs.[256]

Broadband Adoption Commitment. As demonstrated throughout the record and in Section II.A. *supra*, *Internet Essentials* is a true success story of commitments from the NBCUniversal transaction.[257] Although the condition was scheduled to expire, Comcast voluntarily announced it would indefinitely extend the program and has adopted additional enhancements, as detailed above, to further expand enrollment.[258] Comcast also has made clear that, upon closing of the Transaction, it will expand *Internet Essentials* to the acquired territories, enhancing opportunities for low-income families across the combined company's footprint. The record is overflowing with enthusiastic support for the extension of this commitment in these

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[255] *See* CFA et al. Petition to Deny at 13; Dish Petition to Deny at 88-93; *see also* ITTA Petition to Deny at 15; Consumers Union et al. Petition to Deny at 47-48; AAI Comments at 30-32. This single arbitration involved a benchmark demand for content by a start-up company named Project Concord, pursuant to the *Comcast-NBCUniversal Order*. *See* Comcast-TWC Public Interest Statement at 108-09. Project Concord's benchmark request covered certain content that, under common and reasonable industry practices, is restricted from ad-supported exhibition for certain time periods under other NBCUniversal license agreements. The conditions include an express provision to ensure that no benchmark demand results in the violation of the rights of other NBCUniversal licensees, and the arbitration centered on parsing through these contract issues. The Media Bureau reviewed the arbitration order, including relevant provisions of affected contracts, and *agreed* with NBCUniversal on *every* contract issue. *See Project Concord, Inc. v. NBCUniversal Media, LLC*, Order on Review, 27 FCC Rcd. 15109 (MB 2012) ("*Project Concord Order on Review*") (Commission review pending).

[256] *See Comcast-NBCUniversal Order*, App. A.

[257] Comcast-TWC Public Interest Statement at 109.

[258] *See* discussion *supra* Section III.A.3.

new cities and towns,[259] and any critiques of the program are without foundation, as explained in Section II.A.

Broadcast Commitments. In connection with the NBCUniversal transaction, Comcast made several voluntary commitments to protect the future of free, over-the-air broadcast television, to protect broadcast affiliates from discrimination, and to preserve the strength of the NBC network-affiliate partnership.[260] Comcast has scrupulously complied with those commitments, all of which remain in place, and the Transaction will do nothing to disturb that. To the contrary, the Transaction will bring the protections and assurances these commitments provide to the acquired markets and assets, affirmatively benefitting broadcasters.[261]

More generally, of course, Comcast has demonstrated an extraordinary commitment to the broadcast industry since acquiring NBCUniversal, including taking numerous steps that go far beyond any conditions or commitments. For example, Comcast has invested billions of dollars to extend NBCUniversal's rights to the Olympics and the NFL's Sunday Night Football far into the future; invested tens of millions of dollars in prime-time programming development, resulting in a first-place finish – in prime time, nightly news, and late night – for the NBC

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[259] *See, e.g.*, The Stride Center Comments; Letter from Ronald Blackburn Moreno et al., President & CEO, Aspira Association Inc., to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 19, 2014); Letter from Thomas A. Schatz, President, Citizens Against Government Waste, to Chairman Wheeler and Commissioners, FCC, at 1-2 (Aug. 22, 2014); Letter from Sonia Lopez, President and CEO, Cuban American National Council, Inc., to Chairman Wheeler, FCC, at 1 (Aug. 21, 2014).

[260] *See Comcast-NBCUniversal Order*, App. A, § IX, App. F.

[261] Specifically, the NBCUniversal broadcast conditions and commitments will continue in effect, ensuring the continued protection of over-the-air broadcast television and the continued availability of broadcast programming to consumers. In connection with the acquired systems, in accordance with the NBCUniversal conditions, Comcast will honor all existing non-duplication protections against the importation of another affiliate broadcast station signal into the local market of an NBC Local Affiliate. In addition, Comcast will be prohibited from receiving a direct linear feed of NBCUniversal network programming in the event of a retransmission dispute in any TWC or Charter system. In the NBCUniversal transaction, the Commission considered these protections to be key to ameliorating any potential harm to over-the-air broadcasting, and the extension of these conditions and commitments to the acquired systems will have the same effect here.

Television network in the key demographics for the first time in over a decade;[262] and granted NBC affiliates and VOD dynamic advertising insertion rights.[263] As these and other actions show, Comcast is more committed to the future of the broadcast business than any other broadcast network or cable company.[264]

Diversity Commitments. As demonstrated in the Public Interest Statement and in Comcast's diversity, social responsibility, and compliance reports,[265] Comcast is strongly committed to diversity and inclusion. Comcast believes that promoting diversity and inclusion enhances efficiency, innovation, and competition, and provides additional value to customers,

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[262] *See* Press Release, Comcast Corp., NBC Clinches First Full Season Win in 10 years (Sept. 16, 2014), http://corporate.comcast.com/news-information/news-feed/nbc-clinches-first-full-season-win-in-10-years.

[263] *See* Press Release, Comcast Corp., IOC Awards Olympic Games Broadcast Rights to NBCUniversal Through to 2032 (May 7, 2014), http://corporate.comcast.com/news-information/news-feed/olympics-nbcuniversal-2032-agreement; Press Release, Comcast Corp., NBC Sports Adds NFL Divisional Playoff Game to Postseason Schedule (Apr. 22, 2014), http://corporate.comcast.com/comcast-voices/nbc-sports-adds-nfl-divisional-playoff-game-to-postseason-schedule; Press Release, Comcast Corp., Back on Top: NBC Wins the 2013-14 Season (May 20, 2014), http://corporate.comcast.com/news-information/news-feed/nbc-wins-the-2013-14-primetime-television-season; Press Release, Comcast Corp., Comcast and NBCUniversal Partner to Use Dynamic Ad Insertion for On Demand Programming (July 26, 2011), http://corporate.comcast.com/news-information/news-feed/comcast-and-nbcuniversal-partner-to-use-dynamic-ad-insertion-for-on-demand-programming.

[264] While Sinclair Broadcasting, the NBC Affiliates, and a few other commenters raise various issues and seek self-serving benefits as part of this review proceeding and order on the Transaction, none of these requests or proposed conditions is transaction-specific or otherwise warranted, as discussed in Section IV.C.3.a-b below.

[265] *See* Comcast-NBCUniversal, *Diversity and Inclusion Progress Report* (June 2, 2014), *available at* http://corporate.comcast.com/images/Comcast_Diversity_Report_060214.pdf; Comcast-NBCUniversal, Third Annual Report of Compliance with Transaction Conditions, MB Docket No. 10-56, at 23-27 (Feb. 28, 2014), *available at* http://corporate.comcast.com/images/MB-10-56-C-NBCU-Annual-Compliance-Report-2013-2014-02-28.pdf; Comcast-NBCUniversal, *2013 Corporate Social Responsibility Report, available at* http://corporate.comcast.com/images/Comcast_NBCUniversal_CSR_2013.pdf; Comcast-NBCUniversal, Second Annual Report of Compliance with Transaction Conditions, MB Docket No. 10-56, at 22-26 (Feb. 28, 2013), *available at* http://corporate.comcast.com/images/C-NBCU-Annual-Report-2012-2013-02-28.pdf; Comcast-NBCUniversal, *2012 Corporate Social Responsibility Report, available at* http://corporate.comcast.com/images/Comcast_NBCUniversal_CSR_2012.pdf; Comcast-NBCUniversal, Annual Report of Compliance with Transaction Conditions, MB Docket No. 10-56, at 33-42 (Feb. 28, 2012), *available at* http://corporate.comcast.com/images/C-NBCU-Annual-Report-to-the-FCC-02-28-2012-with-Appendices_sm.pdf; Comcast-NBCUniversal, *2011 Corporate Social Responsibility Report, available at* http://corporate.comcast.com/images/Corporate-Social-Responsibility-Supplier-Diversity.pdf. In addition, Comcast corporate site's Diversity & Inclusion section features the latest information on the company's achievements. *See* Comcast, Diversity & Inclusion, http://corporate.comcast.com/our-values/diversity-inclusion (last visited Sept. 22, 2014). NBCUniversal also has a dedicated site featuring information about its diversity initiatives, including about its diversity development programs. *See* NBCUniversal, Diversity & Inclusion, http://diversity nbcuni.com/ (last visited Sept. 22, 2014).

while contributing to the creation of jobs and building wealth within diverse communities. Comcast is recognized nationally for its comprehensive commitment to promoting diversity, and has received over 100 awards in the past three years for its leadership in this area from a wide array of organizations.[266] Just last week, Comcast improved its ranking in *Hispanic Business's* 2014 Report on "Best Companies for Diversity Practices" to No. 5, with high scores in workforce, supplier diversity, and community outreach. Comcast is also featured in this report as one of the "17 Stalwarts of Diversity," meaning that it is one of the 17 companies nationally that have been on the *Hispanic Business* top company list since 2005.[267]

Comcast's progress and accomplishments in this important area are detailed in a recently-released *Comcast-NBCUniversal Diversity and Inclusion Progress Report*,[268] the key aspects of which are set forth in Exhibit 6.

The vast support in the record affirms Comcast's commitment to incorporating diversity and inclusion throughout its organization and its activities: The co-chair of Comcast's National African American Diversity Advisory Council, part of Comcast's Joint Diversity Advisory Council ("JDC"), and President and CEO of the National Urban League, "applaud[s] Comcast NBCUniversal for its work thus far to build a first-class American enterprise whose executives,

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[266] *See* Comcast-TWC Public Interest Statement at 111; *see also* Exhibit 7 (attaching updated version of the list of "Select Comcast-NBCUniversal Diversity Awards (2010-2014)" that was included as Exhibit 11 to the Public Interest Statement).

[267] *See* Hispanic Business Rankings, http://www hispanicbusiness.com/research/best_companies/list.asp?page=1&listyear=2014 (last visited Sept. 22, 2014).

[268] Comcast-NBCUniversal, *Comcast-NBCUniversal Diversity and Inclusion Progress Report*, at 3 (June 2, 2014), http://corporate.comcast.com/images/Comcast_Diversity_Report_060214.pdf ("Our Master Strategic Plan for Diversity and Inclusion is our comprehensive road map for achieving optimal diversity and inclusion across our organization. On the very first page of that plan, we assert: 'At Comcast and NBCUniversal, our goal is to be the model company for diversity and inclusion.'").

employees, suppliers and practices mirror our country's 21st century diversity."[269] At the company's highest levels, Comcast's "senior executive leadership has been fully engaged in [the JDC's] discussions and have worked to embed diversity and inclusion in the company's operating principles."[270] According to LULAC, "Comcast has *delivered on every promise in the MOU* and has worked with [LULAC] to go beyond the MOU commitments."[271]

Other commenters praise Comcast for "establish[ing] a best-in-class supplier diversity program to create sustainable relationships and economic opportunities for diverse suppliers, including members of the [U.S. Hispanic Chamber of Commerce]."[272] Still others highlight Comcast's "impress[ive]" commitment "to promoting diversity and providing opportunities for minorities in our community," stressing the fact that "African-American neighborhoods are often left behind when it comes to technology and infrastructure investments, but Comcast has long demonstrated its commitment to [the African-American] community by making meaningful investments to ensure our citizens have access to the highest quality service."[273] And many agree that "Comcast's inclusive practices, when it comes to awarding supplier contracts to women and minority-owned businesses, [are] a model for other employers."[274]

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[269] Letter from Marc Morial, President & CEO, National Urban League, to Chairman Wheeler and Commissioners, FCC, at 1-2 (Aug. 25, 2014).

[270] *Id.* at 1.

[271] Letter from Brent Wilkes, National Executive Director, League of United Latin American Citizens, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014) (emphasis added). LULAC believes "the MOU has been an outstanding success[,] and it [has] become the standard that [LULAC] has used in discussions with other companies ever since." *Id.*

[272] Letter from Marc Rodriguez, Chairman of the Board, and Javier Palomarez, President & CEO, U.S. Hispanic Chamber of Commerce, to Marlene H. Dortch, Secretary, FCC, at 1 (Aug. 25, 2014).

[273] Letter from Patrick L. Demmer, Superintendent, Graham Memorial Community Church of God in Christ, to Chairman Wheeler, FCC, at 1 (Aug. 20, 2014).

[274] *See, e.g.*, Letter from Harry Wingo, President and CEO, DC Chamber of Commerce, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014).

Comcast will extend this best-in-class diversity program to the acquired systems and will incorporate the best elements of TWC programs into its own programs. This will provide significant diversity benefits to hundreds of additional communities. As LULAC notes, "Comcast's intention to build on its record by extending the benefits of its MOU commitments to Time Warner Cable markets should not be overlooked by the Commission."[275] OCA Asian Pacific "cannot foresee any negative effects to the [diversity] community because of the [instant] merger, given that Comcast has fulfilled all mandates indicated in the MOU signed during the Comcast and NBCUniversal merger. As such, the proposed merger brings more opportunities for improved community service and access than any potential negative consequences."[276] The "expanded impact of Comcast's commitments will be felt in key [Asian American Pacific Islander] communities upon approval of the transaction, from AAPI-plurality Hawaii to the vibrant Chinatowns, Koreatowns, and Japantowns of the New York and Los Angeles areas."[277] "By expanding Comcast's reach to additional cities and towns . . . Comcast will extend contract and job-related opportunities to even more Pan Asian businesses and professionals."[278]

In contrast to this overwhelming record support, a few opponents challenge the success of Comcast's diversity efforts and how much of a benefit they provide to individuals and communities Comcast serves.[279] These allegations are baseless. For example, with little

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[275] Letter from Brent Wilkes, National Executive Director, League of United Latin American Citizens, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014).

[276] Letter from Sharon Wong, National President, OCA Asian Pacific American Advocates, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

[277] Letter from Sachi Koto, Founder, Who's Who in Asian American Communities Alliance Foundation, Inc., to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 24, 2014).

[278] Susan Au Allen, National President & CEO, US Pan Asian American Chamber of Commerce Education Foundation, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014).

[279] *See* Greenlining Petition to Deny at 16; Common Cause et al. Comments at 2 (claiming that the Transaction will substantially decrease or eliminate the supply of diversely-sourced programming).

explanation or support, Greenlining Institute refers to Comcast's efforts as "lackluster" and urges the Commission to deny the applications based on alleged harms to diversity.[280] These allegations are a discredit to the efforts of all the individuals – both inside and outside of Comcast – who have helped make the company's diversity initiatives a model for the industry and for corporate America.

***Support for Diverse and Small Independent Programmers*.** Claims by certain commenters that the Transaction will reduce the diversity in programming or impair small independent programmers are equally baseless.[281] In fact, numerous independent programmers attest that Comcast is "an industry leader in the carriage of independent programming"[282] and relay their real-world experience with Comcast in developing early-stage independent networks, encouraging a wide array of diverse content, increasing carriage, and engaging in reasonable market practices.[283] The record shows that Comcast carries more than 100 cable networks that provide programming of interest to Hispanic/Latino, African-American, Asian-American, and

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280 Greenlining Petition to Deny at 16.

281 *See, e.g.*, Common Cause et al. Comments at 2; WGAW et al. Petition to Deny at 11-12, 27-28. Moreover, a few programmers, disappointed that their own programming is not carried (or is not carried more widely) on Comcast's systems for a host of reasons (*see* Back9 Network, Inc. ("Back9") Comments at 16; RFD-TV Comments at 10; The Tennis Channel, Inc. ("Tennis Channel") Comments at 11-12; Veria Living Comments at 1, allege that the Transaction will harm program diversity and carriage of independent programmers. Applicants respond to these individual allegations in part below and more specifically in Section IV.C.3.

282 Letter from Mark Burchill, CEO, Outside Television, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 25, 2014).

283 *See id.*; Letter from David Cerullo, Chairman & CEO, INSP, LLC, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 21, 2014); Letter from Robert Rodriguez, Founder, El Rey Network, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014); REELZChannel, LLC ("REELZChannel") Comments at 3-5; Letter from David Weil, Executive Vice President & General Counsel, Starz Networks, to Chairman Wheeler, FCC, at 1-2 (Aug. 25, 2014); Letter from Eric Yoon, Founder & CEO of Television Korea 24, Inc., to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 22, 2014); Tower of Babel, LLC ("Crossings TV") Comments at 3-4; Letter from Constantino Schwarz, CEO, BabyFirst Americas, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 18, 2014); Letter from Brad Samuels, Executive Vice President, Ovation, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 22, 2014); Letter from William Abbott, President & CEO, Crown Media Family Networks, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014); Letter from Jorge Fiterre, Founder & Partner, Condista Networks, to Chairman Wheeler and Commissioners, FCC, at 1-2 (Aug. 25, 2014); Letter from Sean McGrail, President & CEO, New England Sports Network, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 22, 2014).

female audiences.[284] These currently include dozens of cable networks geared toward the Hispanic/Latino community, 14 cable networks geared toward the African-American community, 28 cable networks geared toward the Asian-American community, and 22 cable networks focused on women.[285] As one independent programmer observes, Comcast's acquisition of Time Warner Cable "will be a great development for independent networks … usher[ing] in a new, exciting era for our industry and the American viewing public."[286]

Indeed, Comcast has been recognized as a "trusted partner" dedicated to expanding diverse programming that meets the needs and interests of its customers. For example, as BabyFirst Americas explains, "Comcast's support of BabyFirst Americas demonstrates the collective commitment of both Comcast and the network to bilingual education and entertainment, as well as to viewers seeking content in both English and Spanish."[287] Condista Networks adds, "Comcast employees at all levels – whether at the local systems, regions, or corporate offices – have worked with our company to expand the number of independent, Spanish-language networks available on its systems."[288]

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[284] Comcast-NBCUniversal, *Comcast-NBCUniversal Diversity and Inclusion Progress Report*, at 31 (June 2, 2014), http://corporate.comcast.com/images/Comcast_Diversity_Report_060214.pdf; *see also* Exhibit 6, highlighting these diverse programming services.

[285] As discussed in more detail in Section IV.B.2.a, the Transaction will not harm diverse programmers such as Entravision and TVC United States, Inc. *See* Entravision Communications Corp. ("Entravision") Comments at 1; TVC United States, Inc. ("TVC") Petition to Deny at 5.

[286] Letter from David Cerullo, Chairman & CEO, INSP, LLC, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 21, 2014).

[287] Letter from Constantino Schwarz, CEO, BabyFirst Americas, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 18, 2014). BabyFirst America is but one example that should put to rest any concerns about whether the Transaction would affect minority communities' access to educational programming. *See* TVC Petition to Deny at 1. The comments made by newly launched networks also belie claims that Comcast has "done only the minimum" in meeting the independent program network commitment from the NBCUniversal transaction. Tennis Channel Comments at 12.

[288] Letter from Jorge Fiterre, Founder and Partner, Networks, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014). Comcast's record of support for and encouragement of Latino-oriented program networks like El Rey, BabyFirst Americas and Condista shows that worries about the ability of programmers to gain access to the Latino market are unfounded. *See, e.g.*, NHMC Comments at 3-5; Entravision Comments at 8-10.

All told, Comcast carries over 160 independent networks today, including many small, diverse, and international ones, accounting for the vast majority of content distributed on Comcast cable systems.[289] Indeed, *six of every seven networks* carried by Comcast are unaffiliated with the company.[290] Between January 2011 and the end of 2013, Comcast added 20

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[289] Certain commenters seek conditions providing for mandatory a la carte offerings. *See* Citizens Utility Board Comments at 1; NJDRC et al. Comments at 25; Parents Television Council et al. Comments at 7. However, numerous independent studies have demonstrated that an a la carte regime would lead to decreased consumer choice and increased consumer costs. *See* Congressional Research Service, *The FCC's 'a la carte' Reports* (Mar. 30, 2006) (finding that the migration of even a small percentage of households to a la carte pricing would undermine the economic feasibility of large tiers and the broad array of channel choices they provide and further that any benefits of a la carte would go only to households that watch a small number of networks and prefer general interest programming); U.S. Government Accountability Office, *Issues Related to Competition and Subscriber Rates in the Cable Television Industry*, at 34 (Oct. 2003) (finding that an a la carte requirement could result in increased cable rates for most consumers). Furthermore, a mandatory a la carte regime would severely disadvantage independent and diverse programming. Hilary Shelton, Senior VP Advocacy & Policy, NAACP, *The Trouble With A La Carte*, NAACP.org (May 14, 2013), http://www.naacp.org/blog/entry/the-trouble-with-a-la-carte (A la carte . . . is aimed squarely a[t] squelching new and emerging voices on television that represent the proud and diverse fabric that is America"); David Honig, *Why 'A La Carte' Video Would Eviscerate Diversity and Minority Participation in Cable*, Minority Media and Telecommunications Council (May 14, 2013) http://broadbandandsocialjustice.org/2013/05/why-a-la-carte-video-would-eviscerate-diversity-and-minority-participation-in-cable/ ("[A] la carte would be the death knell for program diversity."). Indeed, many smaller programming networks, including and especially newer services, depend on access to the large subscriber base that is a key feature of the tiered programming system. *See* Chad E. Gutstein, COO of Ovation, *Pay-Per-Channel Pricing Costs Cable, Satellite TV Users More*, San Jose Mercury News, July 8, 2013, *available at* http://www mercurynews.com/ci_23621224/pay-per-channel-pricing-costs-cablesatellite-tv ("[T]iered programming combines smaller, independent networks [like Ovation] with larger well-established ones (like ESPN) and thereby allows all programmers – big and small – to build a larger audience from the bigger universe of viewers of the entire tier . . . . This huge exposure that a network gets from being grouped on a tier helps offset the growing costs of producing programming . . . . Take away the tier, and these costs are inexorably shifted to the consumer").

[290] *See* Comcast-TWC Public Interest Statement at 172-73. California Black Media ("CBM") makes several baseless assertions. For example, CBM wrongly claims that Comcast's launch of ASPiRE and REVOLT show that "African American carriage with [Comcast] requires it to have substantial ownership and control of the networks." CBM Petition to Deny at 4-5. That is simply not true. Consistent with Comcast's commitments in the NBCUniversal transaction, both of these African-American networks are independently owned and operated, and Comcast carries them broadly on its Digital Basic Tier. CBM further suggests that Hulu, Netflix, and other OVDs "are not adequate sources of independent and diverse programming because a significant portion of minorities do not own the devices to view such programming." *Id*. at 7-8. Whatever the basis of that claim, it is plainly not transaction-specific and may, in any event, be addressed by the expansion of *Internet Essentials*. CBM next contends that Comcast should be required to create a minority-owned company instead of SpinCo, as part of the Divestiture Transactions. *Id*. at 10. Although Comcast considered different ownership options for the divested systems, including minority owners, the transaction was ultimately structured between Charter and SpinCo (as opposed to a straight sale transaction) to create substantial tax efficiencies and savings that will directly benefit their respective shareholders and customers. Finally, CBM contends that Comcast should be required to make all of its program carriage decisions reviewable by the Commission, apparently putting the agency in charge of Comcast's business. *Id.* at 11. Nothing in the record supports that implausible, and unprecedented, suggestion, which contravenes constitutional values and the American economic system. The Commission has well-established

independent networks, and as part of the company's commitments in the *NBCUniversal Order*, Comcast has launched several new independent networks on its Digital Basic tier, including four independent networks with African-American (ASPiRE and REVOLT) or Hispanic-American (BabyFirst Americas and El Rey) ownership.[291] Further, since 2011, Comcast expanded carriage of over 141 independent networks by more than 217 million customers, including expanded carriage of networks tailored to ethnic minority and women audiences such as The Africa Channel (by more than two million) Mnet, a South Korean-based music television channel (by more than four million), TV One (more than 600,000), and seven Hispanic programming services (by more than 14 million).[292] In the last three years, Comcast also expanded its On Demand programming hours of content designed for African-American, Asian-American, Hispanic-American, and LGBT audiences by 262 percent and its online programming hours of such content by 168 percent.

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program carriage rules that will continue to apply post-transaction to all vertically-integrated MVPDs, not just Comcast.

[291] Allegations that Comcast is not in compliance with its independent programming commitment are without merit. Contrary to allegations by Back9 and Veria, Comcast does not have an equity position in any of the networks launched pursuant to this commitment. Back9 Comments at 16-17; Veria Living Comments at 1. (Comcast has provided production assistance for ASPiRE and REVOLT.) Likewise, the complaint that these independent networks feature sitcom reruns and music videos rather than significant amounts of original content, Veria Living Comments at 1, is entirely without merit. Setting to one side that inaccurate caricature of these networks, the condition does not prescribe the type of content to be carried on these independent networks, and, in any event, each of these services further illustrates Comcast's commitment to launch and support a wide array of diverse programming for our customers. Finally, RFD-TV's complaint that Comcast launched new networks rather that expanding carriage of existing networks, RFD-TV Comments at 10, contradicts the very terms of the condition, which addressed the launch of independent networks that, among other things, "are not carried by Comcast" – thus precluding networks like RFD-TV that already had carriage on Comcast systems. *Comcast-NBCUniversal Order*, App. A, § III.3. It is worth noting that even a critical independent programmer acknowledges that "Comcast has met its near term obligation to launch 10 independent networks under the Comcast-NBCUniversal transaction conditions." TheBlaze Comments at 11-12.

[292] David L. Cohen, *Comments on Comcast Time Warner Cable Transaction Due Today at FCC*, Comcast Voices (Aug. 25, 2014), http://corporate.comcast.com/comcast-voices/comments-on-comcast-time-warner-cable-transaction-due-today-at-fcc.

Beyond providing and expanding carriage of diverse networks, Comcast promotes and helps drive viewer interest in such programming through a variety of innovative ways that many of these networks, particularly smaller ones, could not do on their own. Specifically, between 2011 and 2013, Comcast created Xfinity "microsites" tailored for African-American, Asian-American, Hispanic-American, and LGBT audiences.[293] Comcast has also invested heavily to develop and deploy the first-of-its-kind Xfinity Latino Entertainment Channel, a linear, interactive "barker" channel available to over 20 million subscribers that promotes curated, Latino-relevant content. In 2013, Comcast launched Xfinity Freeview Latino, the biggest Hispanic On Demand event ever, giving customers a two-week all-access pass to discover and view more than 1,000 hours of the best Latino entertainment available in the United States, totaling over 2,500 programs on Xfinity On Demand. Comcast is repeating the promotion in 2014, this time with access to more than 3,500 programs and 2,500 hours of Latino On Demand programming for Xfinity TV digital customers.[294]

As Ovation observes, "Comcast has the best record of any pay-TV provider in launching independent networks like Ovation, as well as many minority-owned channels, such as TV One."[295] Other programmers describe Comcast's early support as crucial to their development.

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[293] *See* http://xfinity.com/celebrateblacktv; http://xfinity.com/asia; http://xfinity.com/latino; http://xfinity.com/lgbt. Each of these microsites brings together culturally relevant entertainment from a variety of sources in a central, easy-to-navigate location. In 2013 alone, the sites achieved more than three million visitors. Moreover, Comcast offers special multicultural programming collections that inform and entertain, in both the On Demand and Online platforms. These collections include: Black History Month and Black Music Month, Asian-Pacific American Heritage Month, LGBT Pride Month, Hispanic Heritage Month, Disability Awareness Month, Veteran's Day, and Native American Heritage Month. Each special collection supplements Comcast's permanent On Demand and Online offerings, providing customers with access to hundreds of additional diverse content hours and choices throughout the year.

[294] Press Release, Comcast Corp., Xfinity Freeview Latino: The Biggest Hispanic On Demand Event Returns (Sept. 16, 2014), http://corporate.comcast.com/news-information/news-feed/freeview-latino-2014.

[295] Letter from Brad Samuels, Executive Vice President, Ovation, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 22, 2014).

Similarly, Comcast's work with start-up programmer El Rey "has helped to ensure we can deliver on our strategic vision to make El Rey Network the home of great entertainment for a young, ever changing, demographically and culturally rich country."[296] CrossingsTV observes, "the very inspiration for Crossings TV came from Comcast. . . . Quite simply, without Comcast there would have been no Crossings TV. . . . [T]he experience and understanding shown by Comcast with Crossings TV might be extrapolated to the broader case for how it will conduct its treatment of independent programmers."[297] Moreover, other independent programmers have gone on record to commend Comcast for working cooperatively with them to expand carriage.[298]

This commitment to independent programming extends to a wide variety of content. As INSP observes, "Comcast recognizes that family-oriented entertainment is an essential part of the American media and cultural landscape, and that such content helps distributors attract and retain subscribers in an increasingly competitive consumer marketplace."[299] Outside Television recounts, "[a]lthough Comcast already carried a wide variety of sports programming, including NBC SportsNet and regional sports networks, Comcast saw that Outside Television could serve an untapped niche with tremendous upside."[300] The Hallmark Channel similarly emphasizes that "[o]ne need only look at Comcast's programming schedule to recognize that it similarly

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[296] Letter from Robert Rodriguez, Founder, El Rey Network, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

[297] Crossings TV Comments at 1, 3.

[298] *See* Letter from Jorge Fiterre, Founder & Partner, Condista Networks, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014); Crossings TV Comments at 2; Letter from Brad Samuels, Executive Vice President, Ovation, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 22, 2014); REELZChannel Comments at 5.

[299] Letter from David Cerullo, Chairman & CEO, INSP, LLC, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 21, 2014).

[300] Letter from Mark Burchill, CEO, Outside Television, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 25, 2014).

distributes other independent channels with diverse programming, whether family-friendly, minority-owned or programmed, or presented in foreign languages."[301]

Moreover, several independent programmers attest that Comcast stands out among MVPDs as a fair and collaborative business partner. For instance, REELZChannel states that "Comcast has proven, through its actions, that it is readily willing to recognize the achievements of independent channels and treat them equitably, without discrimination compared to more established channels, or even to those to which Comcast may be affiliated."[302] NESN adds, "Comcast has never discriminated against NESN in favor of Comcast affiliated programming. On the contrary, Comcast is a good competitor and negotiates fairly with NESN as to both rates and carriage."[303] Ovation finds that Comcast "negotiates fairly" and "pays competitive rates to independent programmers like us, and [is] willing to grow distribution when warranted."[304] And INSP states that Comcast "has rightfully gained the reputation as a leading supporter of independent programming for which there is an audience."[305]

For these reasons, the vast majority of independent programmer commenters recognize that the Transaction "will be a positive development,"[306] "allow[ing] for even further growth of .

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[301] Letter from William Abbott, President & CEO, Crown Media Family Networks, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014).

[302] REELZChannel Comments at 6.

[303] Letter from Sean McGrail, President & CEO, New England Sports Network, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 22, 2014). Programmers are not always satisfied with Comcast's carriage decisions, *see* RFD-TV Comments at 5; Veria Living Comments at 1, but as REELZChannel and NESN attest, Comcast has a strong track record of treating programmers equitably, notwithstanding the claims of some dissatisfied programmers.

[304] Letter from Brad Samuels, Executive Vice President, Ovation, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 22, 2014).

[305] Letter from David Cerullo, Chairman & CEO, INSP, LLC, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 21, 2014).

[306] Letter from William Abbott, President & CEO, Crown Media Family Networks, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014).

. . programming providers,"[307] and providing "new distribution opportunities for independent programmers who target smaller but passionate niche audiences."[308] As the CEO of Ovation emphasized shortly after the Transaction was announced: "Comcast has been a good friend and ally to the independent programming community, bringing unique content to an underserved audience. . . . This merger will be a boon for unique, independent programmers."[309] Leo Hindery, former CEO of Telecommunications, Inc., Liberty Media, and AT&T Broadband, and currently a major investor in independent programming, recently called on the Commission to approve the Transaction:

> [T]he U.S. now has the most robust television industry in the world thanks to the operating efficiencies these mergers have afforded. Broadband deployment is near-ubiquitous, and though it's hard for some to admit it, the pricing models have never been fairer. Viewers, employees and shareholders have all benefited. . . . The two proposed distribution company mergers – Comcast and Time Warner, and AT&T and DirecTV – are appropriate next steps. These mergers will likely produce the same positive effects for consumers. And the deals would do no harm provided that the approving government agencies require Comcast and AT&T, and other major content distributors, to treat fairly independent channels that are not aligned with one of the six dominant TV-content producers. This safeguard should be part of the FCC and Justice approvals. . . . None of [the] objection is valid, if again, Justice and the FCC properly do their jobs. This mostly means protection, but not overprotecting independent programmers and assuring Internet neutrality.[310]

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[307] Letter from David Weil, Executive Vice President & General Counsel, Starz Networks, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

[308] Letter from Mark Burchill, CEO, Outside Television, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014).

[309] Charles Segars, Letter to the Editor, L.A. Times, Feb. 16, 2014, *available at* http://www.latimes.com/opinion/la-le-0216-sunday-comcast-time-warner-20140216-story.html. Numerous independent programmers echo this sentiment. Letter from William Abbott, President & CEO, Crown Media Family Networks, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014) ("Comcast's wide-spread distribution of the Hallmark Channel and Hallmark Movies & Mysteries reflects a genuine commitment to programming diversity and to family programming because we do not have other leverage (such as retransmission consent) to force such carriage."); *see also* Letter from Constantino Schwarz, CEO, BabyFirst Americas, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 18, 2014); Letter from Jorge Fiterre, Founder and Partner, Condista, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 25, 2014).

[310] Leo Hindery, Jr., Op-Ed., *The Absurd Opposition to Media Mergers*, Wall St. J., Sept. 8, 2014, http://online.wsj.com/articles/leo-hindery-the-absurd-opposition-to-media-mergers-1410218261.

Mr. Hindery was even more adamant in rebutting claims that the Transaction somehow harms independent programming:

> The confidential contentions by many of the biggest entertainment companies that these mergers, especially the Comcast merger, might also diminish the amount of quality content being produced is even more absurd. Content companies are all about producing ever more and better content, not about reducing production or devaluing programming. And looking ahead, nothing can curtail the proliferation of Internet content.[311]

In short, Comcast's industry-leading track record as a supporter of diverse and small independent programmers, the continuing application of the NBCUniversal conditions on programming, and the inexorable increase in competition and investment that characterizes this highly dynamic industry will ensure that the Transaction significantly benefits diverse and independent programming, just as Mr. Hindery expects.

Philanthropy and Community Investment. In 2010, Comcast and NBCUniversal committed to increase aggregate cash support to minority-led and minority-serving ("MLMS") organizations by 10 percent per year in 2011, 2012, and 2013. The company significantly exceeded this commitment, increasing its cash spending to MLMS organizations by more than 100 percent over the three-year period.[312] In addition, Comcast has a number of signature programs, such as Comcast Cares Day (the nation's largest corporate volunteer day of service), Comcast Leaders and Achievers (college scholarship program), and Digital Connectors (an intensive, after school digital literacy program), that showcase the company's deep community roots. Comcast has received numerous awards for its community investment achievements[313]

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311 *Id.*

312 Comcast-TWC Public Interest Statement at 117.

313 *See* Exhibit 8 – Selected Comcast-NBCUniversal Community Investment Awards (2010-2014).

and will extend its community-focused ethos and programs to all acquired markets, while also honoring and building on existing partnerships and programs.

In this proceeding to date, more than 150 community-based organizations have registered their support for the Transaction, describing the wide variety of positive impacts Comcast has made on their communities and would bring to the acquired markets. Beyond Comcast's "vision of an inclusive future [that] shines forth in its efforts to close the digital divide in Internet access between rich and poor,"[314] the company's "dedication and commitment to communities served" is shown through "community investment programs [that] are national models."[315] The record is filled with such testaments: Comcast is a "genuine partner" to community-based organizations,[316] "a proven community supporter" that "is continually seeking ways it can help our kids,"[317] and "an exemplary corporate representative who engages with the community."[318] The Transaction will extend Comcast's very deep community-oriented approach throughout the acquired systems to thousands of new communities – something the Commission should consider as part of its public interest analysis.

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[314] Letter from Jose Perez, Publisher, Latino Journal, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 25, 2014).

[315] Letter from Lieutenant Governors, to Chairman Wheeler, FCC, at 1 (Aug. 27, 2014).

[316] Letter from Lina Smith, Director of Refugee Services, Refugee & Immigrant Center, Asian Association of Utah, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014).

[317] Letter from F. J. Mike Hepler, President & CEO, Boys & Girls Clubs of Western Pennsylvania, to Marlene Dortch, Secretary, FCC, at 1 (Aug. 18, 2014).

[318] Letter from Judith M. Gall, Executive Director, Alternatives, Inc., to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

3. The Transaction Will Extend Comcast's Leading Accessibility Initiatives and Innovations to the Acquired Systems.

The Transaction will also generate significant public interest benefits for persons with disabilities.[319] In particular, the Transaction will enhance Comcast's ongoing commitment to inclusion and accessibility, allowing the combined company to "reach a new level of innovation for customers with disabilities."[320] As an industry leader in this area, Comcast's goal is a "Smart Home for Everyone," where accessibility is enabled across products and services, regardless of platform. To help achieve this goal, Comcast has a dedicated full-time office to coordinate accessibility efforts throughout the company and with the disability community,[321] as well as a dedicated customer support team of 22 agents in the new Comcast Accessibility Center of Excellence.[322]

In addition, Comcast has invested heavily in new technologies and initiatives for accessibility. Among other things, it is leveraging the X1 cloud-based platform to deliver the first "talking guide" in the MVPD industry. The remote control for the X1 platform – known as the XR2 – also includes "soft keys" that a customer will be able to configure to enable quick access to the talking guide and other accessibility features, such as closed captioning and video description. Comcast has also deployed a Readable Voicemail service, which converts voicemail

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[319] *See* Comcast-TWC Public Interest Statement at 120-24.

[320] Letter from Mark Perriello, President & CEO, American Association of People with Disabilities, to Marlene H. Dortch, Secretary, FCC, at 3 (July 8, 2014).

[321] A key facilitator of innovation at the company is the Comcast Accessibility Lab. This is a working lab at the Comcast Center in Philadelphia specifically designed for the development and testing of accessible solutions. The Lab is used by Comcast's product development teams to incorporate assistive technologies into new products and services. It also is utilized for focus groups and usability testing with consumers and to help educate Comcast's employees about accessibility.

[322] *See* Press Release, Comcast Corp., Comcast Debuts Accessibility Support Team and Product Lab (Oct. 28, 2013), http://corporate.comcast.com/news-information/news-feed/comcast-debuts-new-accessibility-offerings-during-national-disability-awareness-month; Comcast Corp., *Accessibility Services for Customers with Disabilities*, http://customer.comcast.com/help-and-support/account/accessibility-services#Help (last updated Sept. 18, 2014).

audio into text and aids hearing-impaired customers in accessing voicemail. And our Xfinity Connect Mobile App, which enables access to email, text, and other online services on tablets and smartphones, is screen reader-enabled for blind and low-vision users.[323]

The record is replete with commenters attesting to Comcast's industry-leading commitment to accessibility (and there are literally no opposing comments to the contrary).[324] For example, the American Association of People with Disabilities reports that "Comcast has shown a fine commitment to devoting resources towards developing accessibility features for their customers with disabilities."[325] The Arc notes that Comcast has gone "above and beyond in including people with disabilities in their technology initiatives."[326] And the Miracle League of Northampton Township, PA confirms that "the philosophies of inclusion and accessibility [are] embraced at Comcast."[327]

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[323] In addition, Comcast is deploying a number of innovative solutions aimed at ensuring that the accessibility features of its equipment work properly. For example, Comcast has adopted a caption compliance testing program for set-top boxes that has shortened quality control testing cycles for new box models from several weeks to a matter of days. It has also started deploying a first-of-its-kind network monitoring tool that detects remotely when cable program streams are non-compliant with industry standards for closed captioning and video description, giving Comcast the ability to proactively troubleshoot these issues and quickly mitigate closed captioning and video description impairments and service interruptions. These equipment testing and monitoring activities will be expanded to TWC and Charter systems as those systems are integrated into Comcast's network.

[324] *See, e.g.*, Letter from Anthony Kennedy Shriver, Best Buddies International, to Marlene H. Dortch, Secretary, FCC, at 1 (Aug. 25, 2014); Letter from State Representative Ron Ryckman, Jr., Kansas, to Chairman Wheeler, FCC, at 1-2 (Aug. 24, 2014); Letter from State Senator Becky Duncan Massey, Tennessee, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 18, 2014); Letter from James E. Williams, Jr., President & CEO, Easter Seals, Inc., to Chairman Wheeler, FCC, at 1-2 (Aug. 18, 2014); Letter from Mary Partin, CEO, The Dan Marino Foundation, to Chairman Wheeler, FCC, at 1-2 (Aug. 15, 2014); Letter from Diane Weaver Dunne, Connecticut Radio Information System, Inc., to Marlene H. Dortch, Secretary, FCC, at 1-2 (Aug. 13, 2014).

[325] Letter from Mark Perriello, President & CEO, American Association of People with Disabilities, to Marlene H. Dortch, Secretary, FCC, at 1 (July 8, 2014).

[326] Letter from Peter V. Berns, CEO, The Arc, to Chairman Wheeler and Commissioners, FCC, at 1-2 (Aug. 20, 2014).

[327] Letter from Joseph P. Hand III, President, Miracle League of Northampton Township, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 21, 2014) (describing Comcast's support of baseball leagues serving disabled children).

The extension of Comcast's commitment to and investment in accessibility to the acquired systems is an unassailable public interest benefit of the Transaction – one no commenter questioned. It will advance the interests of thousands of additional persons with disabilities across the combined company's new footprint.

4. The Transaction Will Produce Other Consumer and Competition Benefits by Increasing the Contiguous Service Areas of Systems Owned by Comcast, Charter, and GreatLand Connections.

As detailed in the Public Interest Statements for Comcast's acquisition of TWC and the subsequent Exchange Transactions, the Transaction will provide the combined company with a more cohesive, more contiguous service area that facilitates the following key benefits: (1) accelerated deployment of innovative services and improvements in network reliability; (2) improved Wi-Fi access; (3) better, more efficient customer service for consumers, and (4) enhanced ability to pursue the company's business services aspirations, offering competition in the market for regional, super-regional, and enterprise businesses located in these markets.[328]

Cisco, among other commenters, notes that "the transactions would allow Comcast and Charter to better rationalize their geographic footprints, producing efficiencies that will provide more room for investment and innovation."[329] Moreover, both the Commission[330] and the

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[328] *See* Charter-to-Comcast Exchange Public Interest Statement at 4-10; Rosston/Topper Supplemental Decl. ¶¶ 7-19; *see also* Broadcom Comments at 3 ("This investment will benefit consumers by accelerating the deployment of all-digital cable systems that offer higher broadband speeds, more advanced services and a more robust and secure network."); CEI Comments at 2 ("The deal will . . . create a company that enjoys greater scale in the residential broadband market than any existing wireline provider. This scale will likely translate into an advantageous cost structure for the merged company and, in turn, more competitive service offerings in terms of price and throughput.").

[329] Cisco Comments at 7; *see also* Douglas Holtz-Eakin and Will Rinehart Comments at 6-7; Everett M. Ehrlich Comments at 4; TechFreedom Comments at 6.

[330] *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Thirteenth Annual Report, 24 FCC Rcd. 542 ¶ 180 (2009) (recognizing that system clustering will (1) "increase economies of scale and size, and thus enable cable operators to offer an increased variety of broadband services at reduced prices to customers in geographic areas that are larger than single cable franchise areas"; (2) "make cable operators more effective competitors to LECs whose local service areas are usually much larger than a single [cable]

FTC[331] have repeatedly recognized the efficiencies and benefits to innovation and competition that contiguous regional service areas can produce.

Nevertheless, some commenters argue that increased regional concentration may threaten existing competition and deter future overbuilders.[332] However, those arguments are not accompanied by any factual or economic theoretical support and disregard the Commission's repeated recognition of the efficiency of clustering and footprint rationalization. Contrary to Los Angeles County's arguments, "[t]he Commission . . . has found that the potential benefits from clustering . . . outweigh any potential anticompetitive effects of clustering on competition in product markets such as local programming or advertising."[333] Los Angeles County also is incorrect that "[t]he Commission has recognized that clustering reduces the likelihood that

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franchise area"; and (3) "provide a means of improving efficiency, reducing costs, and attracting increased advertising."); *see also Insight-TWC Order* ¶ 24; *Adelphia Order* ¶¶ 271, 276 ("[T]o the extent that the transactions, through clustering or through the proposed upgrades and deployment schedules, result in the addition of competitive, facilities-based telephony service in Adelphia service areas or to unserved areas where Applicants currently operate cable systems, we find that consumers could benefit."); *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Eighth Annual Report, 17 FCC Rcd. 1244 ¶ 14 (2002); *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Seventh Annual Report, 16 FCC Rcd. 6005 ¶ 153 (2001).

331 *Sports Programming and Cable Distribution: The Comcast/Time Warner/Adelphia Transaction: Hearing Before the S. Comm. on the Judiciary*, 109th Cong. (2006) (statement of Michael Salinger, Dir. Bureau of Economics, FTC, at 4), *available at* http://www.ftc.gov/sites/default/files/documents/public_statements/prepared-statement-federal-trade-commission-sports-programming-and-cable-distribution/p052103sportsprogrammingandcabledistributiontestimonysenate12062006.pdf (recognizing that clustering will "enable[] cable firms to realize economies of scale associated with providing cable service in contiguous areas," "compete with local telephone companies and other providers in the delivery of video and telephone service." and "lower several categories of costs, such as management, administrative and marketing costs, as well as the expense of providing system upgrades").

332 *See* Los Angeles County et al. Petition to Deny at 8 (observing that the company gains from geographic clustering do not guarantee a public benefit); COMPTEL Petition to Deny at 41 (asserting that the benefits of clustering may also create higher entry barriers); ITTA Petition to Deny at 7-8, 17 (claiming that the system swaps will solidify regional dominance); CFA et al. Petition to Deny at 34 (arguing that Comcast's acquisition of subscribers in regions where it is the dominant provider will reinforce its regional dominance); Sinclair Petition to Deny at 3 (speculating that geographic clustering and efficiencies of the Transaction could enhance Comcast's control over key markets).

333 *Adelphia Order* ¶ 271; *see also* Comcast-TWC Public Interest Statement at 26-27, 92-94 (describing public interest benefits resulting from geographic rationalization); Charter-to-Comcast Exchange Public Interest Statement at 6-12; Rosston/Topper Supplemental Decl. ¶¶ 8-14, 16-18.

overbuilders will enter a market."[334] In fact, the Commission merely observed that "clustering can present a barrier to entry for the most likely potential overbuilder (i.e., an adjacent cable operator)."[335] But Los Angeles County's assertion that Comcast, TWC, and Charter are each other's "most readily available competitive entrants" is inaccurate and fully rebutted by the record.[336]

Sinclair, ITTA, and CFA similarly assert that contiguous service areas may in some way strengthen or reinforce Comcast's alleged "dominance."[337] These allegations are likewise baseless. As an initial matter, Comcast hardly can be considered dominant in any market it serves, as it faces effective competition for every service it offers from a variety of competitors. Rather than reinforcing Comcast's dominance, as the Commission and other regulators have previously determined, the increase in contiguous service areas and associated efficiencies resulting from the Transaction will make Comcast a more effective competitor, especially with respect to incumbent local exchange carriers and various providers that have a national and even

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[334] Los Angeles County et al. Petition to Deny at 9-10 (citing *Adelphia Order* ¶ 271). In addition, Los Angeles County et al. confusingly state that cable companies "distribute programming terrestrially and extract exclusivity deals from independent programmers." These assertions are factually inaccurate. Los Angeles County et al. Petition to Deny at 1. As a preliminary matter, Los Angeles County et al. rely on ten-year old testimony for this assertion and disregards the fact that the Commission closed the so-called "terrestrial loophole" years ago. *See Review of the Commission's Program Access Rules and Examination of Program Tying Arrangements*, First Report and Order, 25 FCC Rcd. 746 (2010). Moreover, the Commission should disregard Los Angeles County's calls to revisit exclusive marketing arrangements in multiple dwelling units ("MDUs"), a practice that the Commission found four years ago to be permissible and one that may benefit consumers. *Exclusive Service Contracts for Provision of Video Services in Multiple Dwelling Units and Other Real Estate Developments*, 25 FCC Rcd. 2460 ¶¶ 29-34 (2010).

[335] *Adelphia Order* ¶ 271.

[336] COMPTEL likewise offers no support for its claim that clustering may create higher barriers to entry for overbuilders and other smaller competitors, relying instead on vague allusions to the alleged anticompetitive effects of "level playing field" franchise agreements. *See* COMPTEL Petition to Deny at 41-42. COMPTEL also asserts, again without any support, that clustering likely increases incentives to "obfuscate" the Commission's prohibition of exclusive access arrangements for MDUs. *Id.* at 42 n.136. These vague and unproven assertions do not overcome the well-established, pro-competitive benefits of geographic clustering (as the Commission has consistently found in prior cases) and should therefore be rejected.

[337] *See* Sinclair Petition to Deny at 2-3; ITTA Petition to Deny at 7; CFA et al. Petition to Deny at 28-29, 31-34.

global presence. Moreover, Applicants have shown that increasing Comcast's and Charter's respective contiguous service areas does not deny or otherwise restrict the availability of inputs to overbuilders or other potential entrants.[338] Far from creating market "dominance," the Transaction will spur greater competition that benefits both residential and business customers.[339]

5. The Transaction Will Create a More Reliable and More Secure Network for More Homes and Businesses.

The Transaction will enable the combined company to invest additional resources (a) to improve network reliability and enhance cybersecurity and (b) to extend Comcast's industry-leading practices in these areas to TWC and Charter systems, thereby providing higher-quality services and better security protections to millions of additional consumers and businesses.[340] The record strongly supports these important public interest benefits. For example, Kazem Kazerounian, Dean of the School of Engineering at the University of Connecticut, states that "[t]he national scale created by [Comcast's] proposed merger with Time Warner Cable will enable Comcast to continue to invest in research and development, and ultimately enhance network security for millions more residential and business customers."[341] No party challenged

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[338] *See* Charter-to-Comcast Exchange Public Interest Statement at 13-15; Rosston/Topper Supplemental Decl. ¶¶ 22-49.

[339] *See, e.g.*, Comcast-TWC Public Interest Statement at 26-27, 92-94; Israel Decl. ¶¶ 107-109; Charter-to-Comcast Exchange Public Interest Statement at 6-12.

[340] *See* Comcast-TWC Public Interest Statement at 71, 124-26.

[341] Letter from Kazem Kazerounian, Dean of Engineering, School of Engineering, University of Connecticut, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 12, 2014); *see also* American Commitment Comments at 3 ("[T]he merger between Comcast and TWC will benefit consumers by providing improved reliability of service."); Letter from David Weil, Executive Vice President & General Counsel, Starz Networks, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014) ("Starz Networks will directly gain from these advancements in Comcast services [resulting from the Transaction] because they will allow millions of additional subscribers to have access to better, more reliable platforms on which to access our programs."); Letter from Dana Connors, President, Maine State Chamber of Commerce, to Chairman Wheeler, FCC, at 2 (Aug. 22, 2014) ("[T]he merger of Comcast and Time Warner [Cable] companies in Maine has great benefits because having a common interconnected network with greater redundancy improves redundancy and dependability for Maine's business community.").

these benefits, and so the Commission should recognize them as providing further support for why this Transaction is strongly in the public interest.

To be sure, notwithstanding the enhanced reliability and service benefits the Transaction will bring to the combined company, Comcast recognizes that there is more to be done now, and post-transaction, to improve customer service. Comcast is investing significant time and resources in this effort. As Comcast Cable President and CEO Neil Smit has made clear, improving customer service is his "top priority."[342] This issue is more fully discussed in Section V.A, *infra.*

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For all of these reasons, the record conclusively demonstrates that approval of the Transaction will lead to substantial, verifiable, merger-specific benefits for millions of American consumers and businesses. And as Dr. Israel, as well as Dr. Carlton and Drs. Rosston and Topper, observe, opponents of the Transaction either completely ignore or offer no analytically grounded challenges to these substantial benefits. Indeed, commenters do not challenge the benefits of the Transaction to consumers in any substantive way. Although commenters make general predictions that the benefits from the Transaction will not come to pass, they offer no detailed facts or economic refutation of the extensive discussion of broadband benefits in the Israel Declaration or the Rosston/Topper Declaration. Nor does a single commenter refute the significant benefits to business customers. And there is also no refutation of the fact that such

[342] Billy Gallagher, *Comcast CEO Neil Smit Says Improving Customer Service is His Top Priority*, Tech Crunch (May 6, 2014), http://techcrunch.com/2014/05/06/comcast-ceo-neil-smit-says-improving-customer-service-is-his-top-priority/.

business benefits would be a catalyst for network expansion and hardening, which would also benefit residential subscribers.[343]

Applicants thus respectfully urge the Commission to recognize these benefits as weighing heavily and decisively in favor of its public interest determination.

IV. THE TRANSACTION WILL NOT HARM COMPETITION OR THE PUBLIC INTEREST.

The sections below address and refute claims by petitioners and commenters that the Transaction will cause various harms. In Section IV.A, Applicants first rebut various misguided attempts to modify the appropriately defined geographic and product markets for broadband and video in this proceeding. Applicants then demonstrate in Section IV.B that the Transaction will not produce any *horizontal* competitive harms in any relevant market, including the markets for broadband service, video programming (both buying and selling), customer equipment, and voice service. Applicants next show in Section IV.C that the Transaction will not create any *vertical* harms, including (i) no vertical foreclosure of OVDs on the broadband network, (ii) no foreclosure in the distribution of Comcast and NBCUniversal programming to rival MVPDs or OVDs (i.e., program access issues), and (iii) no foreclosure with respect to Comcast's carriage of unaffiliated programmers (i.e., program carriage issues).

In these discussions, the economic declarations of Dr. Israel, Drs. Rosston and Topper, and Dr. Carlton present substantial evidence and new econometric analyses to refute various

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[343] Israel Reply Decl. ¶¶ 15, 217; *see also* Rosston/Topper Reply Decl. ¶ 6 ("Commenters ignore many of the clearly demonstrated benefits of the transactions and mischaracterize others, leading them to mistakenly conclude that there will not be transaction-specific benefits and that any benefits will not be passed on to consumers. We show that business, residential, and advertising customers all stand to benefit from the identified transaction-specific efficiencies."); Carlton Decl. ¶ 8 ("Commenters have not refuted, or even addressed, any of the specific efficiencies that Drs. Israel and others have identified beyond vague statements that such efficiency claims are 'speculative.' These unrefuted efficiencies must be taken into account in order to reach sound conclusions about the net impact of the proposed transaction on consumer welfare. Any sensible policy decision must consider the magnitude of these potential efficiencies.") (citations omitted).

economic theories espoused by opponents' experts and to demonstrate that the Transaction will not cause any of the harms alleged. And the engineering declarations of Kevin McElearney and Dr. Dovrolis make clear that there is no market failure in traffic exchange – nor anything remotely anticompetitive or harmful to consumers about the direct interconnection agreement with Comcast which Netflix signed – that calls for the kind of radical government intervention that Netflix, Cogent, and Dish, among others, seek here.

Finally, in Subsection IV.D, Applicants respond to the meritless and self-serving complaints by a few other commenters who seek to misuse the regulatory process simply to gain a competitive advantage in the advertising market.

A. Petitioners Erroneously Define Certain "Relevant Markets."

Several claims about the Transaction rest, explicitly or implicitly, on unsustainable definitions of the "relevant market." For example, certain commenters claim that the broadband market should be defined as a national market that excludes all DSL, wireless, and satellite providers, and further claim that, if the Commission so defines the market, the Transaction will result in a combined company with a problematic level of market power under antitrust precedent and guidelines. As set forth in Applicants' Public Interest Statement and the attached declarations of Dr. Israel and Dr. Carlton, however, the proposed market definitions advanced by such commenters – particularly in the broadband space – have no real-world or economic relevance or prior Commission support. As explained below: (i) the proper geographic market for broadband is local, and the Transaction does not change competition at the local level; (ii) in all events, based on marketplace realities and trends, the Commission cannot reasonably exclude all DSL, wireless, and other technologies from the relevant broadband market; and (iii) homes

passed is not a relevant metric here for assessing market concentration or competitive issues for any service.

1. Broadband Market Definition

A number of commenters (including Netflix, Dish, Cogent, Public Knowledge, and New America Foundation) argue with some variation that (i) the relevant geographic market for broadband is national; and (ii) DSL and wireless mobile should not be part of the relevant broadband product market, because the high-speed Internet access market requires sustained speeds of 10 Mbps for individuals and at least 25 Mbps for households.[344] They advance these outcome-determinative definitions in the hope that the Commission will find that the Transaction will cause an increase in the concentration of a national broadband "market" that will result in competitive harms.

But there is no basis in economic theory, factual reality, or Commission precedent for the strained market definitions urged by those commenters. Most notably, the market that Netflix and others label the "national market for high-speed broadband distribution of edge provider content"[345] has been fabricated from whole cloth. As explained in Applicants' Public Interest Statement,[346] in cases where the Commission has analyzed the broadband ISP market, it has consistently found that the relevant market is local, that the broadband market is competitive, and

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[344] *See, e.g.*, Netflix Petition to Deny at 8-13; Dish Petition to Deny at 30-38, 42-51; Cogent Petition to Deny at 14-17, 19-20; Public Knowledge et al. Petition to Deny at 7-8, 10-13, 27-28; Sports Fans Coalition Petition to Deny at 30.

[345] *See* Netflix Petition to Deny at 8-9; *see also* Dish Petition to Deny at 30-38; Cogent Petition to Deny at 14-17; Public Knowledge et al. Petition to Deny at 7-8, 10-13, 27-28; TheBlaze Comments at 20-21.

[346] *See* Comcast-TWC Public Interest Statement at 134-35 & nn.339-40.

that where there is little or no geographic overlap among broadband providers that seek to combine, there is no cause for competitive concern.[347]

a. The Broadband Market Is Local, Not National.

As Dr. Israel has previously explained, the correct geographic market for broadband services is local, not national or even regional:

> [I]t is inappropriate to assess broadband competition at the regional or national level because competition depends on the choices available to each household in each local area. . . . Defining a national geographic market would suggest that Comcast and TWC are direct competitors despite the fact that they do not serve as substitutes for any consumers, but rather serve different, geographically distinct footprints. Put simply, the transaction will not change the number of broadband choices available to consumers.[348]

In his attached reply declaration, Dr. Israel further expounds on why this is so and why claims to the contrary are misguided:

> The lack of support for a national market in the present case is made clear by considering the Horizontal Merger Guidelines ("Guidelines"). . . . The Guidelines are also clear that "the same principles apply" to geographic market definition and that the market may be "geographically bounded if geography limits some customers' willingness or ability to substitute to some products, or some

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[347] *See, e.g.*, *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner Inc. and America Online, Inc., Transferors, to AOL Time Warner Inc., Transferee*, Memorandum Opinion and Order, 16 FCC Rcd. 6547 ¶ 74 (2001) ("*The relevant geographic markets for residential high-speed Internet access services are local*. That is, a consumer's choices are limited to those companies that offer high-speed Internet access services in his or her area, and the only way to obtain different choices is to move. While high-speed ISPs other than cable operators may offer service over different local areas (e.g., DSL or wireless), or may offer service over much wider areas, even nationally (e.g., satellite), *a consumer's choices are dictated by what is offered in his or her locality*.") (emphasis added); *Comcast-AT&T Broadband Order* ¶ 153, ("Comcast and AT&T Broadband *largely compete in separate geographic markets*, and, to the extent their service areas overlap, we find no material increase in concentration that would raise the potential of competitive harm.") (emphasis added), *aff'd sub nom. Consumer Fed'n of Am v. FCC*, 348 F.3d 1009 (D.C. Cir. 2003); *Comcast-AT&T Broadband Order* ¶ 128 (concluding that a consumer's choice of ISP is "limited to those companies that offer high-speed Internet access services *in his or her area*") (emphasis added); *AT&T Inc. and BellSouth Corporation Application for Transfer of Control*, Memorandum Opinion and Order, 22 FCC Rcd. 5662 ¶ 114 (2007) ("As the Commission has previously found, high-speed Internet access services, as distinct from narrowband services, constitute a relevant product market for purposes of determining the effects of a proposed merger on the public interest. *The Commission also has found previously that the relevant geographic markets for residential high-speed Internet access services are local. We believe that both of these market definitions remain appropriate* for the purpose of our public interest analysis.") (emphasis added).

[348] Israel Decl. ¶¶ 21, 42.

> suppliers' willingness or ability to serve some customers." In the present case, the market is clearly geographically bounded by individual providers' local service areas. Broadband providers do not make sales to broadband customers outside their geographically limited footprints and thus there is no cross-region substitution.[349]

Dr. Israel thus concludes, "In short, there is no meaningful national broadband market in which Comcast and TWC constrain one another today. Hence, national market shares lose the value they would have if there were a national market."[350]

Certain commenters nonetheless insist that there is a "national market for broadband content distribution." For example, Netflix claims that the relevant geographic market for broadband should be national because the market for content distribution by edge providers is national in scope.[351] Dr. Israel explains why this is an incorrect way to analyze this market:

> One could posit that Comcast and TWC are both buyers of content from edge providers and thus both participate in a national market for content purchases. However, this analogy does not withstand scrutiny. One way to see this is to note that, in actuality, ISPs are not generally buyers of services from edge providers, but rather edge providers (or their agents) negotiate to interconnect with ISP networks, and the networks of Comcast and TWC are not substitutes but rather geographically separate, as explained above. However, even if one continues to rely on the analogy of ISPs to buyers of content (like MVPDs buying from cable networks), the same conclusion derives from the fact that content is not a "rival" input in the sense that there are not units of content—like widgets—that are sold to a particular buyer in a market. Rather, once the content is created, it can be accessed by an unlimited number of viewers, and what is sold to MVPDs are rights to view the content. When dealing with MVPDs with separate footprints, those rights cover distinct footprints and thus are not substitutes for one another.[352]

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349 Israel Reply Decl. ¶¶ 18-19 (emphasis in original).

350 *Id.* ¶ 26.

351 Netflix Petition to Deny at 24-27; *see also* Public Knowledge et al. Petition to Deny at 10-11.

352 Israel Reply Decl. ¶ 21; *see also id.* ¶ 22 ("Again, the Horizontal Merger Guidelines are on point. They indicate that in defining relevant markets for mergers of buyers, 'the Agencies focus on the alternatives available to sellers in the face of a decrease in the price paid by a hypothetical monopsonist.' Continuing with the analogy to MVPDs as buyers of content, if Comcast were to reduce the price paid for content (or not take the content at all), selling it to TWC would not be a meaningful 'alternative.' Presumably the content provider would already have a deal with TWC regarding access to the content for TWC's subscribers and, more generally, a deal with TWC would not replace the subscribers lost to the content provider if no deal with Comcast were reached. Rather, the

And to the extent commenters' claims are rooted in an effort to analogize edge providers' relationships with ISPs to national cable networks selling to MVPDs, this argument fares no better. On this point, Dr. Israel again makes clear:

> Notably, because national cable networks operate on a nationwide basis and some of the MVPDs buying content have national footprints, it may be most convenient to talk about a national market for sale of national cable networks, and this language may be tempting to apply to edge providers. However, even if one were to adopt this language, this would be purely a semantic change with no substantive effect on merger analysis. Instead of defining separate local markets for Comcast and TWC, one would have defined a national market *in which there is no diversion between Comcast and TWC* and thus no competitive interaction between the two firms and thus no transaction-related effect on the ability for consumers to divert to competing ISPs. This conclusion is confirmed by the Comcast-NBCUniversal analysis where a national market for national cable markets was used but where no competitive effects were found on non-overlapping cable providers.[353]

Commenters arguing for a national broadband market rely solely on the DOJ's decision in the *AT&T-MediaOne* case.[354] But their reliance on *AT&T-MediaOne* is entirely misplaced. Neither the Commission nor DOJ identified a national broadband market in *AT&T-MediaOne*. To the extent the case has any relevance, it *supports* Applicants' position on broadband market definition and approval of the Transaction as in the public interest.

DOJ's focus in reviewing the *AT&T-MediaOne* merger was *not* the market for residential Internet access service. Instead, it focused on a different, upstream market for providing "portal service" to ISPs, which it defined as the market "for aggregation, promotion and distribution of

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alternatives for the content provider to reach Comcast's customers would be deals with other MVPDs covering the Comcast footprint, some of which may have national footprints (*e.g.*,. DBS providers), others of which may have distinct but overlapping geographic footprints (*e.g.*, telco providers), but none of which would be cable providers with non-overlapping footprints.") (citations omitted).

353 Israel Reply Decl. ¶ 24 (emphasis in original) (citations omitted).

354 *See* Netflix Petition to Deny at 25; Dish Petition to Deny at 42-43; Free Press Petition to Deny at 14.

broadband content and services."[355] AT&T's acquisition of MediaOne would have combined ownership of two Internet portals: (1) Excite@Home (a joint venture in which AT&T had a controlling interest) and (2) Road Runner (a joint venture in which MediaOne had an interest). Neither firm was an ISP in the current sense of that term. Instead, Excite@Home and Road Runner each contracted with cable operators to be the exclusive provider of an Internet "portal" through which the cable operators' subscribers accessed broadband content over the cable operators' own networks.[356] DOJ noted that other competitive portal firms included Yahoo and Lycos, confirming clearly that it was not focused on the residential broadband business.[357]

Indeed, DOJ did not challenge broadband ISP service at all, allowing AT&T to acquire MediaOne's residential broadband business and "to retain Road Runner assets used exclusively to provide . . . broadband service to MediaOne customers."[358] *That* is the aspect of the *AT&T-MediaOne* transaction that is most analogous and relevant to the current Transaction. The fact that DOJ made no effort even to calculate the national market share of residential broadband

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[355] Am. Compl. ¶ 25, *United States v. AT&T Corp.*, No. 1:00-cv-01176 (D.D.C. May 26, 2000).

[356] *See AT&T-MediaOne Order* ¶¶ 21, 27. The DOJ's description of such an ISP "portal" from 2000 is truly a blast from the past:

> A portal generally is an Internet site containing a "first page" as well as several subsequent pages, that users see with a high degree of frequency. These pages aggregate links to a variety of types of content and services, and facilitate users' efforts to find content and services by providing search engines, "tree and branch" indexes, and prominent links to Internet content and services, as well as proprietary content and services. Most ISPs, including Excite@Home and Road Runner, include the first page of their portal as the default "start page" (i.e., the first screen a user sees upon access). . . . A large number of customers access content providers through portals and therefore content providers seek prominent links by which to promote their content and draw users to their sites. The more favorable the placement of a link (e.g., "first page" rather than subsequent pages, a link that includes a larger share of the screen, etc.), the greater the content provider's likely audience, advertising revenues, and profitability.

Am. Compl. ¶ 25, *United States v. AT&T Corp.*, No. 1:00-cv-01176 (D.D.C. May 26, 2000).

[357] Am. Compl. ¶ 25, *United States v. AT&T Corp.*, No. 1:00-cv-01176 (D.D.C. May 26, 2000).

[358] Press Release, U.S. Dep't of Justice, Justice Department Requires AT&T to Divest MediaOne's Interest in Road Runner Broadband Internet Access Service, at 2 (May 25, 2000), http://www.justice.gov/atr/public/press_releases/2000/4829.htm.

customers served by the combined AT&T/MediaOne confirms that that metric is simply irrelevant to the competitive analysis. In short, *AT&T-MediaOne* provides no support for (and in fact refutes) those advocating for a national market definition of the ISP market. To the extent this case says *anything* about the broadband market itself, it reinforces that this is a competitive market with which regulators should not interfere: In its own review, the Commission found *no* competitive harms in the broadband market, because "consumers can choose among various alternative broadband access providers, such as DSL, wireless, and satellite,"[359] and it deliberately decided *not* to interfere with that dynamic marketplace.

Ironically, though, the DOJ decision does illustrate the folly of making long-term determinations in an evolving, dynamic marketplace: The linked ISP/"portal" business model that DOJ was concerned about did not turn out to be how the Internet evolved – Excite@Home filed for bankruptcy a year after entry of the consent decree order (in 2001), largely because those types of ISP loading page portals did not prove to be a compelling business model.[360] DOJ's concerns and the protections it imposed proved entirely unnecessary, illustrating the difficulty of predicting the future dynamics of the fast-evolving technology industry – a concern that economist Dr. Carl Shapiro, former chief economist of the Antitrust Division of DOJ, has rightly highlighted.[361]

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[359] *AT&T-MediaOne Order* ¶ 116.

[360] *See* Ben Heskett & Rachel Konrad, *Excite@Home Files for Bankruptcy*, CNET News, Oct. 1, 2001, http://news.cnet.com/2100-1033-273689 html.

[361] Carl Shapiro, *Competition Policy and Innovation*, OECD Directorate for Science, Technology & Industry No. 2002/11, at 21 (2002), http://faculty haas.berkeley.edu/shapiro/oecd.pdf ("high-tech industries accentuate the usual problems associated with predicting future market conditions (either with or without a proposed merger). Historical market shares are likely to be less meaningful in rapidly changing markets than in more stable markets."). Dr. Israel agrees that the *AT&T-MediaOne* case is inapposite: "[T]hat case is not comparable to the present one, as has been noted by careful observers of the debate. In the *AT&T-MediaOne* matter, the merging parties were the two largest providers in a national market for the provision of portals for accessing and interacting with the Internet, and they could compete to be the exclusive portal on unaffiliated cable systems." Israel Reply Decl. ¶ 26 n.22 (citing Paul de Sa et al., *Comcast/Time Warner Cable: How Persuasive Are Arguments Against the Merger?*, Bernstein

Another way in which the *AT&T-MediaOne* precedent may be instructive in the current context is if the Commission follows the same course pursued by then-Chairman Kennard, whose separate statement accompanying that order has proved to be particularly prescient:

> Some parties have urged us to impose an "open access" condition on the merged entity. We have declined to do so here. As I have noted previously, the development and deployment of high-speed, broadband Internet access is vitally important to the nation as it will deliver the next generation of Internet services to Americans. Consumers should have a choice among alternative broadband providers. I believe that there are powerful marketplace incentives to ensure that consumers have such choices. Therefore, I have consistently advocated that we allow the nascent broadband marketplace a chance to develop before imposing a government-ordered regime.[362]

In short, arguments about the combined company's increased "shares" of the "national" broadband market are nonsensical because there is no such market. And in the local broadband market, the Transaction changes nothing, simply substituting Comcast for TWC or Charter in the relevant systems. As Dr. Carlton concludes:

> The transaction creates no additional market power over consumers of broadband. . . . Commenters spend many pages establishing that Comcast or Time Warner may currently have market power over their consumers. That may or may not be so for some consumers. But such claims have nothing to do with an evaluation of how the proposed transaction alters the available sources of supply to consumers, a central question in any merger analysis. The answer to that question is that the proposed transaction does not alter the supply alternatives to consumers of broadband.[363]

Research (Sept. 2, 2014). "The fact that providers of exclusive portals to the Internet competed in a national market has no bearing on whether broadband providers with non-overlapping footprints compete in a national market or whether interactions between national edge providers and regional broadband providers give rise to a national broadband market." *Id.*

362 *AT&T-MediaOne Order*, 15 FCC Rcd. at 9907 (Statement of Chairman William E. Kennard).

363 Carlton Decl. ¶ 9.

b. The Relevant Broadband Product Market Must Consider DSL, Wireless, and Other Technologies.

Petitioners Netflix, Cogent, and Dish propose that the Commission define a broadband product market that not only excludes DSL, wireless, and other technologies, but also increases the baseline broadband speed to 10 or even 25 Mbps.[364] Although Applicants share the goal of promoting enhanced broadband services, including faster Internet speeds, for more consumers, the "market" definitions urged by these petitioners improperly ignore current marketplace realities, including the many competitive broadband choices that consumers currently have and use in the local markets where the combined company will operate. Under well-established competitive analysis principles, the Transaction should be reviewed based on the current regulatory landscape, in which the Commission has defined broadband as 4 Mbps. For current purposes, 4 Mbps is within the mainstream of broadband connections in the country. A 4 Mbps connection has been found to be more than "sufficient to handle HD video," such as Netflix streaming.[365] This is consistent with the fact that Hulu's website recommends a speed of 3 Mbps for high-definition videos and 1.5 Mbps for standard-definition video, and Amazon Prime's website recommends a speed of 3.5 Mbps for high-definition videos and 900 Kbps for standard-

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[364] Netflix Petition to Deny at 16; *see also* Dish Petition to Deny at 26 ("The relevant product market . . . only includes wireline broadband access services capable of consistent, actual download speeds of 25 Mbps or more."); Cogent Petition to Deny at 19-20; *cf.* Free Press Petition to Deny at 19 ("[I]f the future of the American broadband market is advanced broadband connectivity at a level of 25 Mbps or more, Comcast would control nearly half of all such subscribers . . . .").

[365] National Cable & Telecommunications Association Comments, GN Docket No. 14-126, at 5 (Sept. 4, 2014) (citing NetForecast report); *see also* AT&T Comments, GN Docket No. 14-126 (Sept. 4, 2014) ("that consumers need 7 Mbps to access high quality video is unsupported and inconsistent with the public positions of major streaming video providers that tell their customers that less is required").

definition videos.[366] Thus, it appears to be only Netflix, among these top online video providers, that claims users need 5 Mbps for HD – which is, in any event, far short of 25 Mbps.[367]

While certain commenters have suggested that 25 Mbps would be needed to accommodate six users in a household each using their own device,[368] that is no reason to suggest that the entire market should be redefined for purposes of competitive analysis to include only 25 Mbps service. After all, the Commission has estimated that a speed of 4 Mbps would be sufficient for a "light use" broadband household engaged in *up to four Internet-related activities*, a speed of 7.9 Mbps would be sufficient for a "moderate use" household engaged in up to four Internet-related activities, and a speed of 10 Mbps would be sufficient for a "high use" household engaged in up to four Internet-related activities.[369] Further, as NCTA has pointed out, the

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366 *See* Streaming Issues With Hulu Plus on Your TV, Help Center, Hulu, http://www hulu.com/help/articles/20196801 (last visited Sept. 22, 2014); System Requirements for Streaming on Your Computer, Help & Customer Service, Amazon, http://www.amazon.com/gp/help/customer/display html?nodeId=201422810 (last visited Sept. 22, 2014).

367 *See* Internet Connection Speed Recommendations, Help Center, Netflix, https://help.netflix.com/en/node/306 (last visited Sept. 22, 2014). Netflix's own conduct demonstrates that this threshold is somewhat arbitrary. In response to widespread adoption of usage-based billing in Canada, for example, Netflix adjusted its service to "use 2/3 less data on average, with minimal impact to video quality." Netflix Lowers Data Usage by 2/3 for Members in Canada, Netflix US & Canada Blog (Mar. 28, 2011), http://blog netflix.com/2011/03/netflix-lowers-data-usage-by-23-for.html; AT&T Comments, GN Docket No. 14-126, at 3 (Sept. 4, 2014) ("[Any] assumption that the full bandwidth amounts would be continuously needed is incorrect, and it would be arbitrary to establish a new definition of advanced telecommunications capabilities based on simple addition of . . . abstract (and arbitrarily chosen) bandwidth estimates.").

368 *See* Netflix Petition to Deny at 16; Dish Petition to Deny at 26-29; Public Knowledge et al. Petition to Deny at 8; *see also* Press Release, FCC, FCC Chairman Tom Wheeler: More Competition Needed in High-Speed Broadband Marketplace, at 1 (Sept. 4, 2014), *available at* http://transition fcc.gov/Daily_Releases/Daily_Business/2014/db0904/DOC-329160A1.pdf ("The average U.S. Internet-connected homes have six connected devices–televisions, desktops, laptops, tablets, smartphones, etc. When those devices are in use at the same time, it's not difficult to strain the capacity of a 25 Mbps connection, and completely overwhelm a 4 Mbps connection."); Remarks of Tom Wheeler, Chairman, FCC, The Facts and Future of Broadband Competition, at 2 (Sept. 4, 2014), *available at* http://transition fcc.gov/Daily_Releases/Daily_Business/2014/db0904/DOC-329161A1.pdf ("It's not uncommon for a U.S. Internet-connected household to have six or more connected devices–including televisions, desktops, laptops, tablets, and smartphones. When these devices are used at the same time, as they often are in the evenings, it's not hard to overwhelm 10 Mbps of bandwidth.").

369 *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Tenth Broadband Progress

majority (61 percent) of households in the United States have only *one or two occupants* and, therefore, are well below the five to six simultaneous users per household that these commenters postulate.[370] Surely, all these customers are still within the "broadband market." As NCTA points out, for example:

> [I]f an agency were trying to count the number of cars in use, it would be irrational to define the term "car" as only including four-door sedans or larger vehicles just because those are the types of vehicles that meet the needs of a "typical" household. Just as a two-door compact is still a car even if it may not be fully functional for large families, an Internet connection should still be considered a broadband connection even if it does not meet the needs of some households.[371]

Finally, as Dr. Israel observes, "to exclude all broadband services below 25 Mbps would miss important competitive constraints . . . and thus produce an overly narrow market definition."[372]

Certain commenters similarly try to shrink the market by arguing that DSL, wireless, and satellite broadband are not part of a so-called "high-speed broadband distribution of edge provider content" market, because they simply do not provide sufficient levels of speed required today to meet the needs of broadband users.[373] While these recommended exclusions of all but

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Notice of Inquiry, 29 FCC Rcd. 9747 ¶ 11, tbl.1 (2014). The four activities for each type of household include: one user watching a standard definition (SD) movie, one user making a high quality voice call, one user browsing on the web, and syncing of email, alerts, an weather information taking place in the background (low use); one user watching a high definition (HD) movie, one user taking an online education course, one user browsing on the web, and syncing of email, alerts, an weather information taking place in the background (moderate use); one user watching a super high definition (SHD) movie, one user making a HD video call, one user saving files to and from the cloud, and syncing of email, alerts, an weather information taking place in the background (high use).

370 *See* National Cable & Telecommunications Association Comments, GN Docket No. 14-126, at 6 (Sept. 4, 2014).

371 *Id.* at 7.

372 Israel Reply Decl. ¶ 29.

373 Netflix Petition to Deny at 12-14; Dish Petition to Deny at 36-38; RCN et al. Petition to Deny at 38; Cogent Petition to Deny at 19-20; WGAW et al. Petition to Deny at 15-16, 43-47; CFA et al. Petition to Deny at 54; Free Press Petition to Deny at 24-26; Public Knowledge et al. Petition to Deny at 7-8, 12-13, 27-28; Stop the Cap! Comments at 23; Senator Franken Comments at 16-17.

cable and fiber broadband may give Netflix and others convenient "market share" percentages to use in theorizing potential harms, as shown below, these proposals are unhinged from marketplace realities and should be rejected.

DSL

Despite Netflix's proposal to exclude DSL from the broadband market, a significant share of Netflix's subscribers today use DSL. In fact, Netflix's own speed index results show that one-third of the 60 ISPs it ranks *are DSL providers*, with some of these DSL providers performing *better than cable providers*.[374] This means, necessarily, that today at least some Netflix subscribers see DSL as a potential "substitute" for other wireline broadband, putting those technologies in the same market. Indeed, Netflix admits that it "has engineered its service to work on DSL systems in standard definition."[375] Netflix argues that DSL cannot support "multiple devices in a household,"[376] but that complaint ignores the ability of edge providers to invest in compression technologies.[377]

It also ignores the fact that continuing investments in DSL technology – including fiber-to-the-node ("FTTN"), IP-DSLAM, VDSL2, and pair bonding – have allowed upgraded DSL technologies to compete effectively against cable broadband.[378] For example, the Commission's "Measuring Broadband America" report shows AT&T performing very well at 18 Mbps

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374 USA ISP Speed Index: August 2014, Netflix, http://ispspeedindex netflix.com/usa (last visited Sept. 17, 2014).

375 Netflix Petition to Deny at 12.

376 *Id.*; *see also* Cogent Petition to Deny at 19-20, Kilmer Decl.¶¶ 47-49.

377 *See supra* note 367 (describing Netflix's compression in Canada).

378 DSL encompasses a broad range of technologies. In its Measuring Broadband 2014 Report, the Commission uses "DSL" broadly to encompass all broadband services that rely on DSL technology in some way. However, grouping all forms of DSL into one undifferentiated category glosses over important developments in the broadband marketplace, including significant upgrades to traditional DSL technology that have taken place over the past several years and are ongoing.

downstream – about the same as both Cox and Comcast at equivalent speeds. At 24 Mbps, AT&T performed about the same as both TWC and Cox at equivalent speeds. AT&T uses a variety of upgraded DSL technologies, including FTTN DSL for its rapidly growing U-verse broadband service, which reaches speeds of 45 Mbps (advanced DSL technologies like VDSL offer speeds up to 100 Mbps).[379] Similarly, Qwest (now owned by CenturyLink) performs as well as TWC at 20 Mbps. Like AT&T, Qwest's service at these speeds generally uses FTTN DSL technology.[380] In addition, Qwest performs well at 40 Mbps – about the same as Cox and TWC at equivalent speeds.[381]

The higher speeds offered by these companies prove what Applicants demonstrated in the Public Interest Statement: DSL technology is capable of offering the higher speeds necessary to offer robust competition to cable and fiber broadband, and will increasingly do so as that technology develops and proliferates. In fact, as the table below illustrates, DSL-based broadband connections grew at a faster pace than cable broadband connections between June 2009 and June 2013; subscriber rates increased 30.7 percent annually for DSL compared to 17.9 percent for cable.[382]

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379 *See* Sean Buckley, *AT&T Plays Cable Catch-up Game with 45 Mbps Broadband Market Expansion*, FierceTelecom, Aug. 29, 2013, http://www fiercetelecom.com/story/att-plays-cable-catch-game-45-mbps-broadband-market-expansion/2013-08-29.

380 *See* Measuring Broadband 2014 Report, Chart 9.4: Average Peak Period Sustained Download Speeds as a Percentage of Advertised, by Provider (18-25 Mbps Tier)—September 2013 Test Data.

381 *See id.*, Chart 9.5: Average Peak Period Sustained Download Speeds as a Percentage of Advertised, by Provider (30-75 Mbps Tier)—September 2013 Test Data.

382 Israel Reply Decl. ¶ 76.

Customer Growth Rates for Connections with Speeds at least 3 Mbps-downstream and 768 Kbps-upstream, June 2009 through June 2013

	Subscriptions					
Month	**FTTP**	**DSL**	**Mobile Wireless**	**FTTP + DSL**	**FTTP + DSL + Wireless**	**Cable**
Jun-2009	3,333,000	5,623,000	224,000	8,956,000	9,180,000	23,958,000
Dec-2009	3,739,000	6,408,000	1,706,000	10,147,000	11,853,000	28,583,000
Jun-2010	4,192,000	6,288,000	4,188,000	10,480,000	14,668,000	30,616,000
Dec-2010	4,725,000	7,316,000	10,416,000	12,041,000	22,457,000	32,338,000
Jun-2011	5,188,000	8,925,000	16,242,000	14,113,000	30,355,000	34,113,000
Dec-2011	5,606,000	10,377,000	30,918,000	15,983,000	46,901,000	34,699,000
Jun-2012	6,001,000	12,905,000	43,025,000	18,906,000	61,931,000	37,798,000
Dec-2012	6,425,000	13,061,000	63,876,000	19,486,000	83,362,000	44,133,000
Jun-2013	6,989,000	16,063,000	93,247,000	23,052,000	116,299,000	46,014,000
Average Annual Growth Rate (June to June)	20.4%	30.7%	584.8%	26.9%	89.6%	17.9%

Sources: FCC Internet Access Reports.

AT&T (Comcast's largest wireline broadband competitor) in particular has made significant investments in upgrading its DSL infrastructure and has plans to continue to do so, as AT&T announced in response to the Transaction and as it confirmed in its recent filings concerning its proposed DirecTV acquisition.[383] AT&T's mostly DSL-based U-verse broadband service alone increased by 2.7 million subscribers in 2013.[384]

Dr. Israel agrees that "DSL remains a highly relevant competitor to cable broadband today."[385] He points out that "nearly 65 percent of the population has access to a DSL provider offering speeds of 10 Mbps or more, and over 18 percent of the population has access to a DSL

[383] *See Applications of AT&T Inc. and DIRECTV for Consent to Assign or Transfer Control of Licenses and Authorizations*, Description of Transaction, Public Interest Showing, and Related Demonstrations, MB Docket No. 14-90, at 39-45 (June 11, 2014) (describing effects of Project VIP and investments from cost savings achieved in transaction to cover 70 million customer locations with AT&T's high-speed fixed broadband networks).

[384] Press Release, AT&T Inc., AT&T Reports 20 Percent Adjusted EPS Growth, Record-Low Fourth-Quarter Postpaid Churn, Solid Smartphone Gains and Continued Strong U-verse Momentum in Fourth-Quarter Results (Jan. 28, 2014), http://www.att.com/gen/press-room?pid=25228&cdvn=news&newsarticleid=37405&mapcode.

[385] Israel Reply Decl. ¶ 75.

provider offering speeds of 25 Mbps or more."[386] He notes that the difference in annual growth rates between DSL and cable during 2009-2013 is even more pronounced than the table above when a 10 Mbps downstream definition of broadband is used: 150.6 percent for DSL versus 52.8 percent for cable.[387] In short, Dr. Israel concludes, "DSL remains a significant competitive threat to cable broadband."[388] Dr. Israel also responds to commenters who claim that DSL can not be in the same market as cable broadband because of DSL's lower price, observing that:

> Differences in prices do not necessarily mean that products are not substitutes or are not in the same market. To the contrary, in cases like the present one where one product (DSL) may be of lower quality than some other products, the price differences often serve to make up for the quality gap, making quality-adjusted prices more similar and thus generating more substitution among the products. Hence, the pricing of DSL provides a mechanism for telco providers to make DSL more attractive to customers, further enhancing DSL's role as an important part of telco providers' overall broadband strategy and an important competitive constraint on cable ISPs.[389]

Wireless Broadband

Mobile wireless broadband is also primed to become a formidable competitor, delivering speeds well over 50 Mbps (and averaging in the double digits).[390] Powerful players, including Comcast's competitors, recognize the marketplace opportunity for wireless broadband. AT&T, for example, plans to deploy LTE-based fixed wireless local loop services to approximately 13 million customers across 48 states, including rural communities, at download speeds of 15-20 Mbps.[391] Verizon is keenly focused on streaming video over wireless, and expects to launch a

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386 *Id.* ¶ 76.

387 *Id.* ¶ 80 (emphasis in original).

388 *Id.*

389 *Id.* ¶ 78.

390 *See* Comcast-TWC Public Interest Statement at 55; *see also* Israel Decl. ¶¶ 64-65.

391 *Applications of AT&T Inc. and DIRECTV for Consent to Assign or Transfer Control of Licenses and Authorizations*, Description of Transaction, Public Interest Showing, and Related Demonstrations, MB Docket No. 14-90, at 42-44 (June 11, 2014). In addition, Masayoshi Son, Chairman and CEO of Softbank, the parent of Sprint,

wireless TV streaming video service by early next year.[392] And, while Dish self-servingly claims in its petition here that wireless broadband cannot compete with wireline,[393] it is already trialing a fixed wireless broadband service in the marketplace that, during initial tests last year, had speeds ranging from 20 Mbps to 50 Mbps.[394]

As Dr. Israel notes, "industry analysts recognize that mobile is the number one growth area for Netflix itself: '[M]ost Netflix content is still watched on TV screens, but . . . mobile [separate and apart from Wi-Fi] is seeing the biggest growth, in part because of the way phones have been changing.'"[395] Netflix itself has also trumpeted to its investors that it is "pioneering the use of tablets and smartphones as second-screen choosing devices for TV viewing."[396] And continuing recent trends of declining prices to consumers, wireless providers' costs are expected to fall roughly **[[ ]]** percent over the next several years which will further reduce consumer prices.[397]

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stated that he envisions Sprint offering mobile broadband speeds of 200 Mbps. Masayoshi Son, CEO, Softbank Corp., The Promise of Mobile Internet in Driving American Innovation, the Economy and Education, Tr. at 12 (Mar. 11, 2014), http://webcast.softbank.co.jp/en/press/20140311/pdf/press_20140311_02.pdf.

392 Todd Spangler, *Verizon to Join "Virtual MSO" Fray in Mid-2015 with Wireless TV Service*, Variety, Sept. 11, 2014, *available at* http://variety.com/2014/digital/news/verizon-to-join-virtual-mso-fray-in-mid-2015-with-wireless-tv-service-1201303707/.

393 *See* Dish Petition to Deny at 37-38.

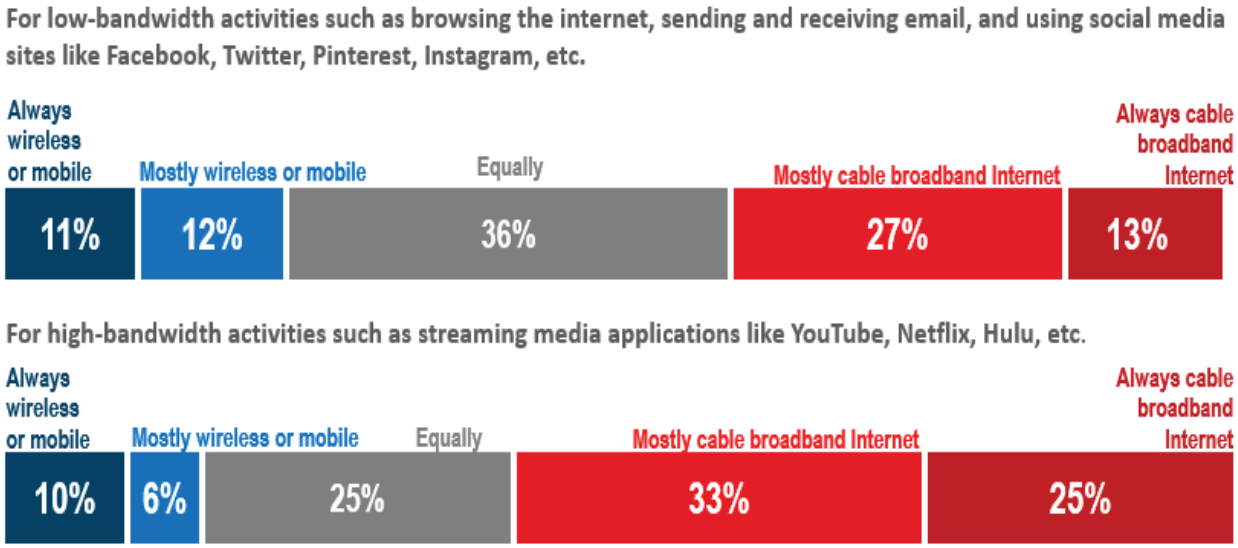
394 Press Release, Dish, Dish and nTelos Launch Fixed Wireless Broadband Pilot (June 13, 2013), http://about.dish.com/press-release/corporate/dish-and-ntelos-launch-fixed-wireless-broadband-pilot ("[A] fixed wireless solution delivering true broadband speeds will bring improved broadband options to potentially millions of consumers.").

395 Israel Reply Decl. ¶ 82 (citing Janko Roettgers, *Netflix May Add Short-form Content to Increase Mobile Usage*, *GIGAOM*, September 5, 2014, *available at* http://gigaom.com/2014/09/05/netflix-short-clips/?utm_medium=social&utm_campaign=socialflow&utm_source=twitter&utm_content=netflix-short-clips_870690 *last visited* Sept. 11, 2014 ("As screen sizes are becoming bigger, watching content on phones becomes more natural.")).

396 Netflix, Inc., Annual Report (Form 10-K), at 3 (Feb. 1, 2013). Similarly, Netflix advertised in a recent blog posting that it "will continue to make Netflix the best possible place to enjoy entertainment across all the devices our members own – from Smart TVs to mobile phones." A Quick Update on Our Streaming Plans and Prices, Netflix US & Canada Blog (May 9, 2014), http://blog.netflix.com/2014/05/a-quick-update-on-our-streaming-plans html.

397 Israel Reply Decl. ¶ 85.

In fact, a survey of over 1,000 broadband users conducted by GSG at Comcast's request specifically found that for many consumers, wireless is *already* a viable substitute for fixed broadband:[398]



A full 10 percent of the survey respondents use wireless as a substitute for fixed broadband service today, answering that they *always* opt to use their wireless or mobile broadband service, even for accessing high-bandwidth streaming services like Netflix, YouTube, and Hulu (slightly more always use wireless service for low-bandwidth activities).[399] Moreover, 17 percent use wireless service for high-bandwidth activities either all the time or most of the time (23 percent do so for low-bandwidth activities);[400] even more use wireless broadband an equal amount as they used fixed broadband (36 percent for low-bandwidth activities, and 25

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398 The complete survey results and the underlying survey response data have been produced in response to Request No. 74(e), as is a declaration by Jeffrey Pollock, President of Global Strategies Group. *See* Response to Request No. 74, Exhibits 74.2, 74.3. In his declaration, Mr. Pollock explains that the survey sample was selected to be statistically representative of the population under study, which is adults in households that subscribe to non-DSL broadband service offered by a cable company or telephone company and who are decision-makers as to that service. The survey has a margin of error of 3.1%.

399 Survey at 2.

400 Due to rounding, the 10 percent and 6 percent noted in the table above add to 17 percent. *See id*.

percent for high-bandwidth activities).[401] In sum, the survey found that 59 percent of cable broadband consumers use wireless or mobile broadband either as frequently or more frequently than they use cable broadband service for low-bandwidth activities, and 41 percent use wireless or mobile broadband either as frequently as or more frequently than they use cable broadband for high-bandwidth activities. These results confirm that a significant share of broadband consumers already view wireless to be a satisfactory alternative to fixed broadband services.[402]

Thus, any assessment of broadband availability in today's marketplace would also "need to consider wireless," as Verizon has emphasized, noting that the NTIA's Broadband Map includes wireless broadband and the Commission's own most recent data shows that (a) over 98 percent of Americans have access to wireless broadband exceeding 3 Mbps; and (b) 97.5 percent of Americans have access to wireless broadband speeds exceeding 10 Mbps.[403] Given this competitive landscape, it would be unreasonable to exclude these services in any analysis of the Internet access choices currently available to consumers in the local markets where the combined company will operate.

Satellite, Google, and Others

Google is also deploying a competitive 1 Gbps fiber network, with plans to launch in many more cities that the combined company will serve.[404] And Comcast and TWC face robust

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401 *Id*. Notably, for purposes of this answer, the respondents who indicated that they use wireless were instructed that wireless does not include cable Wi-Fi accessible on mobile devices – i.e., they were indicating usage of a wireless data plan.

402 Contrary to Dish's statements, Comcast has never claimed that wireless is a perfect and complete substitute for all uses, only that wireless should not be excluded entirely. *See* Dish Petition to Deny at 37-38.

403 Verizon Comments, GN Docket No. 14-126, at 1 (Sept. 4, 2014).

404 *See* Comcast-TWC Public Interest Statement at 50-51; Jon Brodkin, *Google Fiber Chooses Nine Metro Areas for Possible Expansion*, Ars Technica, Feb. 19, 2014, http://arstechnica.com/business/2014/02/google-fiber-chooses-nine-metro-areas-for-possible-expansion/.

competition from other ISPs, including satellite broadband providers,[405] cable overbuilders, and fixed wireless broadband services.[406]

Dr. Israel sums up these various competitive dynamics as follows:

> [C]ommenters significantly understate the strength of competitive alternatives available to Comcast customers. In fact, the competitive threat to Comcast's broadband service, particularly from the full set of options provided by powerful telco competitors, is large and growing. Commenters attempt to downplay this telco competition via a double standard that downplays DSL—which remains highly relevant today—due to claims that its competitive significance is declining, while ignoring the fact that the competitive significance of wireless—while more limited today—is growing rapidly. Together, these options, combined with fiber-to-the-premises (FTTP) options—which AT&T, CenturyLink, and others are committed to expanding, in part as a competitive response to this transaction—form an overall strategy by which the telco providers will remain a highly relevant competitive threat.[407]

Given these realities, calls for the Commission to define the broadband market to narrowly include only cable and certain other wireline technologies – and excluding others based on misconceptions of their current abilities and future potential – are misguided and just plain wrong. Every indication points to DSL providers continuing to improve in order to preserve the value of their extensive sunk investment and their substantial customer base. And although wireless broadband may not be fully competitive with the fastest wireline broadband speeds today, it is unquestionably already a partial substitute for many consumers (and a full substitute

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[405] Tom Soroka of USTelecom indicated that satellite download capabilities have gotten very good and the technology is improving. Communications Daily, Apr. 3, 2014. Satellite broadband is 12 Mbps and faster, and well-suited for streaming video. *See* Measuring Broadband 2014 Report at 26, 29 & Chart 9.3 (finding ViaSat satellite broadband delivered 139 percent of its advertised 12 Mbps download speed); *id.* at 17 ("The results published in this Report suggest that video streaming will work across all technologies tested," including satellite broadband.). Indeed, Hughes recently announced that it had surpassed 1 million active satellite broadband users in North America (including individuals). *See* Press Release, Hughes Network Systems, Hughes Becomes First Satellite Internet Provider to Surpass One Million Active Users (Sept. 8, 2014), http://www hughes.com/resources/hughes-becomes-first-satellite-internet-provider-to-surpass-one-million-active-users-1.

[406] *See* Comcast-TWC Public Interest Statement at 50; *see also* Israel Decl. ¶ 68.

[407] Israel Reply Decl. ¶ 10.

for some) and is experiencing skyrocketing demand.[408] It will indisputably provide even more competition in the future.[409] Thus, as Professor Yoo wisely cautions:

> When evaluating a merger, antitrust law counsels in favor of focusing on what the world will look like in the future rather than what the world looks like today . . . . [W]e are seeing waves of investment driven by the competitive incentive to outdo one another. Those who have attempted to [write] off DSL, FTTH, and LTE as meaningful competitors to cable have done so without any empirical foundation. Indeed, observers have been writing off DSL for years only to be proven wrong time after time . . . . The real lesson is that the future is hard to predict and innovation has thrived most when no one has attempted to impose remedies based on any particular prediction of which technologies will succeed or fail."[410]

Cogent's own economic expert, Dr. Joseph Farrell, as well as another leading economist, Dr. Carl Shapiro, concur with this flexible approach, arguing that rigid market definitions – i.e., attempts "to make a sharp distinction between products 'in' and 'out' of the market" – can be "clumsy and inaccurate" and often misleading.[411] Many markets contain multiple potential substitutes that exert different degrees of competitive pressure on merging firms' products under different circumstances. Inflexible market definitions can overstate the importance of products "in" the market and understate the importance of products "out" of the market.[412] For that matter, "in many differentiated-product industries, there is no clearly right way to draw boundaries that are inevitably somewhat arbitrary."[413]

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408 *See* discussion *supra* Section IV.A.1.b; *see also* Comcast-TWC Public Interest Statement at 51-56; Israel Decl. ¶¶ 61-62.

409 In fact, Chairman Wheeler noted that "[t]he mobile industry has proven that competition drives capital investment" and "there have been significant changes in the mobile marketplace since 2010." Remarks of Tom Wheeler, Chairman, FCC, 2014 CTIA Show, at 3-4 (Sept. 9, 2014), http://transition fcc.gov/Daily_Releases/Daily_Business/2014/db0909/DOC-329271A1.pdf.

410 Christopher S. Yoo Comments at 12.

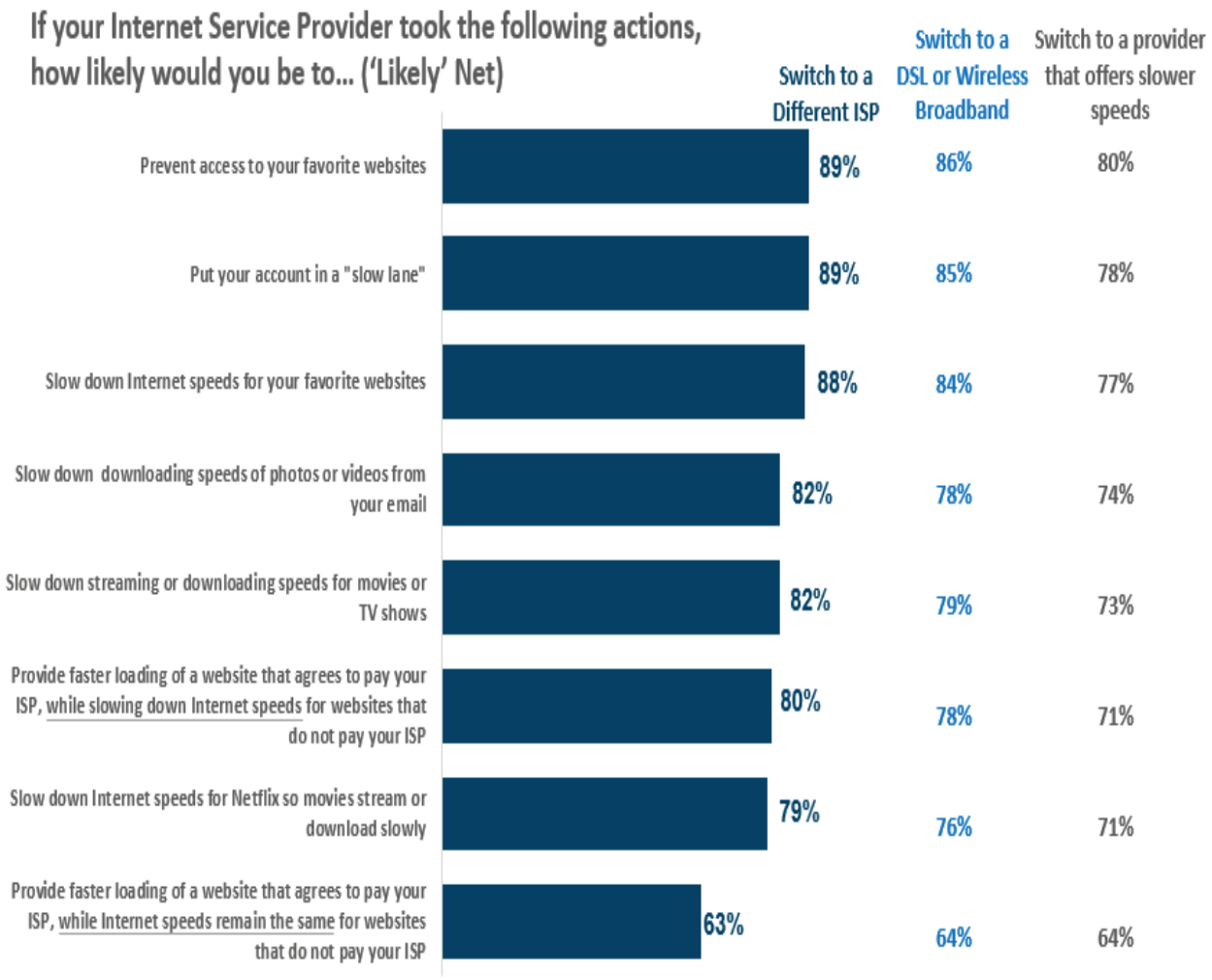
411 Carl Shapiro, *Mergers with Differentiated Products*, 10 Antitrust 23, 28 (Spring 1996); Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10 B.E. J. Theoretical Econ. 1 (2010).

412 *See United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1120 (N.D. Cal. 2004) (citing Carl Shapiro, *Mergers with Differentiated Products*, 10 Antitrust 23, 28 (Spring 1996)).

413 Farrell & Shapiro, *An Economic Alternative to Market Definition*, at 4 n.11.

Besides technological developments, there are trade-offs among product attributes that may swing customers to consider a service more or less "substitutable." For example, it is difficult to imagine how DSL and even wireless would not become significantly more attractive alternatives to Comcast's broadband service if Comcast were to degrade its broadband product by blocking or slowing content.

In fact, the GSG survey illustrates the degree to which these technologies would suddenly become attractive substitutes if a faster broadband provider degraded access to Internet content. As the survey results set out below show, consumers overwhelmingly expressed their willingness to switch ISPs in the event of adverse action even where the alternative provider was not an equally fast fixed broadband ISP:



These findings strongly substantiate Dr. Israel's hypothesis that the "absence of (or limitations on) particular edge providers would be more important to consumers than speed differences."[414] Thus, as Dr. Israel has explained, many alternative broadband providers, which offer service using a range of technologies and with different attributes, serve as viable competitive alternatives to Comcast; consumers can and would switch to those providers if Comcast were to block or degrade access to content the consumer wished to reach.[415] Said another way – whether or not a service is a "substitute" may depend on many attributes, not just

[414] Presentation by Dr. Mark A. Israel to FCC Staff, at 9 (May 6, 2014) ("Israel Presentation"); Israel Decl. ¶ 40.

[415] Israel Presentation at 9; Israel Decl. ¶ 40.

speed.[416] Thus, Dr. Israel concludes "the availability of alternative broadband providers, even those providing slower speeds, places an important competitive constraint on the behavior of Comcast or other broadband providers toward edge providers."[417]

To be sure, certain commenters argue that customers' ability to switch to other broadband providers is limited by, for example, putative high switching costs. Indeed, Chairman Wheeler recently echoed his concern that high switching costs could be an impediment to stronger broadband competition. Applicants appreciate these concerns, and Comcast is aware that a few unfortunate incidents with its own customer service agents over the past year illustrated occasional customer service failures that complicate switching requests. However, the reality is that most broadband customers can and do switch their ISP for various reasons. The GSG survey found, for example, that degradation would cause 70 percent or more of consumers to switch. Further, one-third of survey respondents actually *had* switched providers in at least the past two years, and nearly half (49 percent) switched providers within the past four years.[418] These results are in line with the results of a survey undertaken by the Commission in 2010. In the Commission's survey, over the prior three years, 36 percent of Internet users indicated that they had switched their provider, with 13 percent of users switching providers more than once, and almost one-third of those who had not switched providers having considered doing so.[419] Both in the present GSG survey and in the Commission's 2010 survey, consumers cited better

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[416] *See* Israel Decl. ¶ 40. Thus, contrary to some claims, if Comcast's alleged "market power" is based on being the only provider "fast enough" to carry meaningful over-the-top video, it could not degrade or block such video – the source of its supposed advantage – without weakening its market position.

[417] *See id.* ¶ 90

[418] Survey at 6.

[419] FCC, *Broadband Decisions: What Drives Consumers to Switch—Or Stick With—Their Broadband Internet Provider*, at 2-3 (FCC Working Paper, Dec. 2010) ("2010 FCC Survey").

speed or performance from an alternative provider, better pricing from an alternative provider, moving residences, and the availability of other services, as the primary reasons for switching.[420]

Moreover, Comcast's policies do not make it difficult for a disgruntled customer to switch to another ISP. For example, less than **[[ ]]** percent of Comcast's current residential broadband subscribers are subject to a contractual commitment. Thus, over **[[ ]]** percent of these customers would face no early termination fees for switching. Indeed, many of Comcast's customers avail themselves of the opportunity to switch – Comcast's monthly broadband churn rate for broadband subscribers has been in the **{{ }}** percent range for several years. Said another way, over the course of a single year, approximately **{{ }}** of Comcast's broadband subscribers switch.[421] In short, no customer is "captive" to Comcast, meaning an attractive alternative could easily capture share, particularly if Comcast did not provide a high-quality Internet experience.

As these empirical data show, consumers not only consider various technologies to be an alternative to cable broadband service, but also are likely to take advantage of those alternatives. For all these reasons, DSL, wireless (at least to some degree), and the other technologies noted above must be considered to be part of the relevant broadband product market, at least for many customers for many uses, which is the relevant legal and economic test.

2. MVPD Market Definition

Several commenters make the incredible argument that services offered by DBS providers should not be included in the MVPD market because there supposedly is little demand

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420 Survey at 6; 2010 FCC Survey at 9.

421 Comcast is aware of and has apologized for the recent actions of a Comcast representative in his communication with a customer seeking to cancel Comcast service. This customer's experience does not reflect the experience of the millions of customers who churn each year, and this representative's actions were not consistent with how Comcast trains its customer service representatives.

for standalone video.[422] Instead, those commenters argue, the market should be defined as bundled video and broadband offerings. As shown below, these arguments not only belie reality, but are also squarely at odds with longstanding Commission precedent.

As an initial matter, these arguments are irrelevant to the analysis of the effect of this Transaction, which will not reduce competition in any properly defined relevant market even if DBS providers were excluded. Comcast and TWC do not compete for customers, but rather offer services in separate local markets. There is no nationwide market for MVPD video, Internet, or voice services, and no viable theory of competitive harm based on the combined firm having a higher share of the total number of customers nationwide who purchase video services.

That is true even if the market were deemed to include only providers that offer bundled video products: following this Transaction, consumers will have the same number of choices for bundles *in every relevant market*. In many of those local markets, competitive bundles are also offered by telco companies on their own and/or in partnerships with DBS providers. Post-transaction, consumers will be able to choose among the same competitive options for video, broadband Internet, and voice – on a standalone *or* bundled basis – as they did before (Dish, DirecTV, Comcast, telcos, not to mention OVD offerings). Further, the efficiencies from the Transaction will facilitate innovation and investment allowing Comcast to offer improved services, including on a bundled basis. Those forthcoming improvements already have prompted competitive responses.

But in any event, it would plainly be improper to exclude standalone video services from the relevant product market. The Commission has previously stated that, for video

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[422] *See* RCN et al. Petition to Deny at 11-13; Hawaiian Telcom Servs. Co. ("Hawaiian Telcom") Comments at 8-9; WGAW et al. Petition to Deny, Comanor Test. at 13-14.

programming, "the relevant product market is all MVPD services," including MVPD services offered by DBS providers.[423] In doing so, it rejected arguments by commentators that DBS should not be considered a substitute for cable because DBS cannot "offer the 'triple play' bundle of services consumers are seeking."[424] It is absurd to suggest that the relevant product market should now change on the theory that DBS providers cannot compete with cable providers' bundles. That theory is simply belied by the marketplace facts. DBS providers and other video providers have been enormously successful in competing with cable providers. In fact, DBS providers added over 9 million customers between 2004 and 2013, while cable providers have *lost* over 7 million customers since 2009.[425]

DBS providers now have approximately 34 million customers who take multichannel video from them and voice and/or data from someone else.[426] Indeed, because Comcast offers broadband on a standalone basis, DBS customers can create their own bundle using Comcast's Internet and voice services and DBS video service. In addition, DBS providers have entered into partnerships with incumbent LECs to provide double-play (video and broadband) bundles and triple-play (video, broadband, and telephone) bundles, and these compete aggressively with

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423 *Adelphia Order* ¶ 63; *see also AT&T-Broadband Order* ¶ 89 (defining video programming market in context of cable merger as including MVPD service distributed by all MVPDs).

424 *Adelphia Order* ¶ 62. Although the Commission attempted to take a different approach in the cable cap litigation, arguing that DBS providers are not significant competitors to cable providers because of a supposed disadvantage concerning bundled offerings, the D.C. Circuit rejected that assertion because it found that the Commission had no evidence to substantiate it. Indeed, the court observed that the FCC did "not point to any evidence" showing that there was a significant set of bundle customers who would not switch to DBS to support the theory that a cable operator could acquire bottleneck power over programming. *See Comcast Corp. v. FCC*, 579 F.3d 1, 7 (D.C. Cir. 2009).

425 *See* Comcast-TWC Public Interest Statement at 67.

426 *See Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Fifteenth Report, 28 FCC Rcd. 10496 ¶ 27 (2013) ("*Fifteenth Video Competition Report*").

cable-based double-play and triple-play offerings.[427] Dish video service is bundled with Internet and voice services from Frontier, among others.[428] DirecTV video service is bundled with Internet and voice services from AT&T, CenturyLink, Verizon, Mediacom, and others.[429] Last year, the CFO of DirecTV stated that his company has "proven that we can be competitive against the [triple-play] bundle."[430] He further observed that DBS providers "have gotten very comfortable with . . . customers connecting our boxes to somebody else's broadband service . . . [W]e look at being able to offer the consumer everything that a triple play supplier can do."[431] In addition, assuming AT&T's acquisition of DirecTV is approved, then Comcast will face even more competition for video, Internet, and voice services offered on a bundled basis.

Further, regulators have *never* recognized double- and triple-play bundles offered by a single provider as a relevant product market, separate from bundles created by separate providers or consumers.[432] Antitrust regulators have approved many transactions by cable companies in

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427 *See* Bundle With Dish & Save, Dish Network, http://www.dish.com/entertainment/internet-phone/ (last visited Sept. 11, 2014); DirecTV Bundles, DirecTV, http://www.directv.com/DTVAPP/content/packages/internet (last visited Sept. 11, 2014).

428 *See* Frontier Communications chooses DISH Network as its Video Partner, Frontier Communications, http://investor.frontier.com/releasedetail.cfm?ReleaseID=646751 (last visited Sept. 21, 2014).

429 *See*, *e.g.*, DirecTV Bundles, DirecTV, http://www.directv.com/DTVAPP/content/packages/internet (last visited Sept. 11, 2014); *see also*, *e.g.*, DIRECTV Annual Report (Form 10-K), at 6 (Feb. 24, 2014) ("To better serve the segment of consumers who are attracted to the convenience and value of bundle offerings, we have agreements in place with most of the major telco companies nationwide to offer digital subscriber line, or DSL, and fiber bundles which include the DIRECTV service."). Customers purchasing these bundled offerings typically receive a single bill. *See*, *e.g.*, www.att.com/shop/help/billing-payments/billing-options.html ("You must combine your AT&T and DIRECTV billing on your AT&T bill.") (last visited Sept. 17, 2014).

430 Remarks of Patrick Doyle, CFO, DirecTV, JPMorgan Global Technology, Media and Telecom Conference (May 15, 2013).

431 Remarks of Patrick Doyle, CFO, DirecTV, Deutsche Bank Securities Access Media, Internet & Telecom Conference (Mar. 6, 2013).

432 As noted, the Commission has rejected such arguments. In addition, a 2008 report from a DOJ symposium on video, broadband, and telephone services noted that there was "no consensus whether bundled products constitute a separate product market." U.S. Dep't of Justice, Voice, Video and Broadband: The Changing Competitive Landscape and Its Impact on Consumers, at 60 (Nov. 2008), *available at* www.justice.gov/atr/public/reports/239284.pdf.

the past and have never identified a distinct market for bundled services that would exclude DBS from the product market. When defining a relevant product market, regulators focus on consumer demand substitution: the ability to choose one product over another in response to an increase in price or reduction in quality.[433] Antitrust regulators primarily define product markets by looking for products that are close enough substitutes in consumers' eyes that consumers would switch to the other when the price of one product increases by a small but significant amount.[434] Video, Internet access, and voice are distinct services, and consumers have different preferences for each. Every one of these relevant services is offered on a standalone basis so consumers are free to – and regularly do – substitute standalone services for bundles. Bundles are, therefore, inappropriate product markets because such markets leave out viable substitutes; namely, standalone video, Internet, and telephone services purchased from separate providers.

Notably, in an economic analysis filed with the Commission on behalf of AT&T in the proposed AT&T-DirecTV transaction, AT&T's economic experts Steve Berry and Phil Haile likewise conclude that "competitors' standalone products are substitutes for merged firm's standalone *and* bundled products (and for cable bundles)."[435] Those experts also concluded that the AT&T-DirecTV transaction will increase competition with standalone and bundled products offered by cable providers.[436]

Despite the overwhelming market evidence that standalone MVPD offerings substitute for bundled offerings, some commenters assert that Comcast will limit the attractiveness of

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433 *See* Horizontal Merger Guidelines § 4.1.

434 *See id.* § 4.1.

435 Letter from Maureen R. Jeffreys, Counsel for AT&T Inc., to Marlene H. Dortch, Secretary, FCC, MB Docket No. 14-90, at Attachment at 9 (July 17, 2014).

436 *Id.*, Attachment at 8.

standalone products.[437] Some opponents of the NBCUniversal transaction made the same argument, and the Commission has already addressed any potential issue by imposing a condition requiring Comcast to continue to offer all its broadband services on a standalone basis at "reasonable market-based prices" for the full term of the NBCUniversal conditions.[438] The Commission found that this condition would have "minimal" impact on Comcast because, it recognized, Comcast has always offered standalone broadband at reasonable rates.[439] Comcast's sale of standalone broadband has grown to the point that the aggregate number of standalone broadband lines constitutes more than **[[ ]]** percent of Comcast's total residential broadband subscribers.[440] There are approximately **[[ ]]** million standalone broadband subscribers, an increase of about **[[ ]]** percent between January 2012 and January 2014. And though TWC and Charter likewise sell standalone broadband services, bringing Comcast's commitment to those markets will provide certainty about the availability of standalone offerings for several years to come. As Drs. Rosston and Topper explain:

> Some commenters have made market share and market concentration calculations that assume Comcast and Time Warner compete with each other, but do not compete with DBS providers. That is simply wrong. DBS providers have been able to compete effectively, increasing their share of MVPD subscribers from 29% to 34% in the past decade alone.[441]

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437 *See* NYPSC Comments at 7-9; Dish Petition to Deny, Lynch Declaration ¶ 77; WGAW et al. Petition to Deny at 18. One must also remember that bundled discounts generally benefit consumers, who get more value for less money. Carl Shapiro, "Exclusionary Conduct Testimony Before the Antitrust Modernization Commission" (Sept. 29, 2005), http://faculty.haas.berkeley.edu/shapiro/amcexclusion.pdf ("Multi-product discounts are generally pro-competitive.").

438 *Comcast-NBCUniversal Order* ¶ 103.

439 The Commission also required Comcast to offer a 6 Mbps downstream Internet access service for $49.95 per month. *Id.*, App. A, § IV.D. Comcast responded by rolling out its Performance Starter offering in just one month – the fastest Comcast has ever deployed a brand new service simultaneously throughout its footprint.

440 *See id.* at 107 n.276.

441 Rosston/Topper Reply Decl. ¶ 44.

In sum, Commission and antitrust precedent and the record evidence make clear that DBS video offerings must be included in any relevant product market, and that bundled offerings are not a market themselves.

3. "Homes Passed" Is Not a Relevant Metric for Any Service.

The assertion by Free Press and Netflix that the combined company will pass almost two-thirds of U.S. households is beside the point.[442] The number of homes passed has no validity in the assessment of the potential for horizontal harms. The Commission long ago rejected a homes passed measurement in the subscription video market as an appropriate test for assessing a cable company's size or relative market power in favor of measuring share of actual MVPD subscribers.[443] In an industry where companies compete for paying end user customers, customer share undoubtedly is a more accurate picture of a company's position in the marketplace relative to its competitors.[444] Likewise, the antitrust agencies do not focus on an MVPD's or broadband provider's reach but on its customer share.[445] If "reach" were the appropriate measure of asserted market position, then the companies to be most concerned about would be DirecTV, Dish, and the national wireless broadband providers (AT&T, Verizon, and

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[442] Free Press Petition to Deny at 19; Netflix Petition to Deny at 9-10.

[443] *See Implementation of Section 11(c) of the Cable Television Consumer Protection and Competition Act of 1992; Horizontal Ownership Limits*, Third Report and Order, 14 FCC Rcd. 19098 ¶¶ 20-25 (1999) ("While an operator may pass a large number of homes in its franchise area, the operator could have a low penetration rate in that area due to competition from other MVPDs or other factors, thereby rendering the number of homes passed an inaccurate indicator of the operator's market power."), *rev'd on other grounds*, *Time Warner Entm't Co. v. FCC*, 240 F.3d 1126 (D.C. Cir. 2001).

[444] The FCC's broadcast horizontal ownership test measures homes passed (reach) because that is a more accurate (or perhaps the only) measure that works in an industry that does not have paying end user customers but whose business model is predicated on reach for advertisers.

[445] *See* Competitive Impact Statement, *United States v. Comcast Corp.*, 1:11-cv-00106 (D.D.C. Jan. 18, 2011) (focusing on Comcast's share of subscribers within various local franchise areas in describing Comcast's share of local MVPD markets).

others) that have close to 100 percent reach. Indeed, Netflix and other OVDs have the ability to reach nearly 100 percent of U.S. households.

But even if homes passed were a meaningful metric, it has no relevance to the Transaction, which will not reduce the number of competitive video, broadband, voice, or other service alternatives that are available to any home.[446]

B. ***No Horizontal Harms*: The Transaction Presents No Threat of Horizontal Harm in Any Relevant Market.**

Applicants have demonstrated that the Transaction presents no horizontal competitive concerns because neither TWC nor Charter currently constrains Comcast as a competitor or potential competitor in any relevant market. This is true because each firm serves different geographic areas, and no commenter seriously disputes that fact. Thus, no consumer will face a reduction in the number and quality of choices of services as a result of the Transaction, and the Transaction will not result in higher prices or lower quality. To the contrary, as discussed above, the Transaction will generate substantial efficiencies and other consumer benefits.

It is, therefore, not surprising that none of the commenters' arguments in opposition to the Transaction is based on any reduction in horizontal competition. Instead, commenters have sought to conjure up theories and calculations designed to find some means of hypothesizing harm. But those are not only unhinged from properly defined relevant markets, they are also unsustainable under any viable economic theory. In the end, the Commission cannot find harm to competition on this record.

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[446] It is possible that both Comcast and TWC pass a *de minimis* number of homes. *See* Comcast-TWC Public Interest Statement at 128 n.307.

1. No Harm to Broadband Services Competition

a. National "Market" Share Figures Are a Red Herring.

As noted above, the retail broadband market is local, and Comcast and TWC (and Charter), all of which offer broadband service in discrete, non-overlapping local markets, do not compete and do not constrain one another's retail broadband pricing.[447] As Dr. Israel explains:

> [C]ommenters have not advanced *any* direct evidence of a competitive constraint imposed by one of the merging parties on the other, or *any* indirect evidence of substitution between the merging parties on any dimension (either acting as sellers or buyers). As such, there is no evidence for the standard horizontal theories of harm, in which constraints imposed by one merging party prevent the other from profitably taking an action unilaterally, or taking an action in coordination with other competitors, with this constraint relaxed due to the transaction.[448]

The Transaction thus clearly has no impact on the local retail broadband market: no commenter has shown otherwise.

Instead, as noted above, various commenters have concocted an argument about the Transaction's impact on the alleged *national* broadband "market," arguing that it produces problematic share levels on a nationwide basis. As just discussed, however, *there is no relevant national market for broadband access.*[449] Therefore, commenters' various calculations of combined national "market" shares are not relevant to analysis of the Transaction's competitive effects – either as a matter of economic theory or in the real world.

Regardless, commenters' calculations of Comcast's post-transaction national share are significantly inflated – hardly a surprise given the ends-based approach of the analyses proffered.

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[447] Given that there are no harms to broadband service competition, the broadband-related conditions proposed by some parties are unwarranted. City of New York Comments at 6-7; Los Angeles County et al. Petition to Deny at 25-26.

[448] Israel Reply Decl. ¶ 37; *see also* Carlton Decl. ¶ 9.

[449] *See supra* Section IV.A.1.a .

Commenters such as Netflix, Cogent, Dish, Free Press, and Public Knowledge contend that Comcast's post-transaction national share will approach 50 percent.[450] As noted above, those figures are derived from various machinations designed to reduce the broadband denominator. In fact, however, Comcast's post-transaction share of the putative national "market" will be nowhere near that high, regardless of whether the figure is calculated based only on fixed broadband connections or, alternatively, on both fixed and wireless broadband connections. Using the most recent Commission data and the Commission's currently applicable definition of broadband service, Comcast's post-transaction share of fixed broadband connections will be 35.5 percent, and if wireless broadband connections are considered, its share will be as low as 15.3 percent.[451] Even if the denominator is arbitrarily limited to reflect only connections with download speeds of 10 Mbps or more, Comcast's post-transaction share will be 40 percent of fixed connections and as low as 22.5 percent of fixed and wireless connections.[452]

These figures represent a *decline* from the shares calculated based on data from only six months earlier, reflecting the rapid growth in the speeds available over both fixed and wireless broadband connections.[453] And that decline also demonstrates the degree to which any estimated

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450 *See, e.g.*, Netflix Petition to Deny at 9; Dish Petition to Deny at 39-40; Free Press Petition to Deny at 19; Public Knowledge et al. Petition to Deny at 12-13; Cogent Petition to Deny at 15 n.41 ("a reasonable approximation of Comcast's share is greater than 40%").

451 This figure is calculated from data in the Commission's latest Internet Access Services Report as of June 2013 and from the Applicants' corresponding Form 477 data. A Comcast ex parte letter filed August 13 incorrectly said 15.5%; the correct number is 15.3%. *See* Letter from Kathryn A. Zachem, Comcast, et al., to Marlene H. Dortch, Secretary, FCC, at 5, MB Docket No. 14-57 (June 27, 2014).

452 As previously noted, NTIA data suggest that the availability of competitive broadband services to consumers in a local market may be more spotty than census track data indicate. However, because Applicants do not compete for broadband services in any local market, the Transaction will not affect consumer choices even at this more granular level.

453 A computation using the most recent data that was available in February 2014 yields a post-transaction nationwide share of 37.1% of fixed connections and 18.6% of fixed and wireless connections. (These figures are lower than post-transaction share figures actually calculated at the time, which assumed that 3.0 million subscribers would be divested, rather than the approximately 3.9 million subscribers that actually will be divested.) If the 10 Mbps speed threshold is used to calculate Comcast's share post-transaction using the older data (and based on

share number would be, at best, a static snapshot of a market that is moving faster than the data can keep up with.

And, as noted, switching to the 25 Mbps standard that some commenters have proposed would mostly define TWC out of the broadband business entirely and thus virtually eliminate any alleged increase in national "market" share from the Transaction about which these commenters complain, i.e., the combined company's share of the national broadband "market" would increase by *less than one percent*.[454] In other words, the Transaction would have only a *de minimis* impact on Comcast's "national share," rendering this argument non-transaction specific.

The bottom line remains that those numbers – which have consumed the press and which feature repeatedly in commenters' critiques of the Transaction – have no meaning. National broadband "market" share calculations are not relevant, because the relevant market for residential high-speed Internet access service is local.

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divestiture of 3.9 million subscribers), the post-transaction figures are 43.3% (fixed only) and 37.1% (fixed and wireless).

[454] Israel Reply Decl. ¶¶ 6, 27-35 (noting, among other things, that TWC currently has fewer than one million broadband subscribers today with speeds at 25 Mbps or higher while Comcast has more than 12 million such customers). With a broadband definition set at 25 Mbps, Comcast's share without mobile broadband increases only slightly from 54.2% to 54.9% post-Transaction, and increases only from 41.7% to 42.3% with mobile broadband included). Netflix's claim that Dr. Israel presents unreliable data about national broadband shares is ironic, given that Netflix itself cannot decide what the proper universe of broadband subscribers should be. *See* Netflix Petition to Deny at 19. In Dr. Evans' Table 7, the total number of broadband subscribers is presented as **{{ }}** million. Yet, in Netflix's Petition to Deny, at 82 n.278, what is presented as Table 7 from Dr. Evans' Declaration provides a dramatically different picture, with a total universe of broadband subscribers of **{{ }}** million. Netflix offers no explanation for this disparity of more than 20 million customers between its own two contemporaneous portrayals of the same marketplace.

b. There Will Be No Anticompetitive Concentration of Internet Backbone Services.

No commenter suggests that the combination of Comcast and TWC's backbone network facilities itself creates any horizontal concerns.[455] Commenters appear to recognize that the Internet backbone marketplace will remain highly competitive after TWC's limited backbone facilities are combined with Comcast's backbone.[456] Indeed, the Commission found in the *Global Crossing-Level 3* transaction just three years ago that "there may be as many as 38 providers that sell transit or offer peering on a nationwide basis."[457] And in part because of this intense competition and the proliferation of different transit options offered, transit prices have dropped by over 99 percent since 1998 on a cost-per-megabit basis.[458] For the foregoing reasons, the Transaction will not create any horizontal harms in the broadband market. As Dr. Carlton observes:

> Because the market areas of Comcast and Time Warner do not overlap, the proposed [T]ransaction raises none of the traditional horizontal concerns from

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[455] Though Netflix does not allege any anticompetitive concentration of Comcast and TWC's backbone services, it references the DOJ's WorldCom/Sprint complaint (from 14 years ago) and the Commission's analysis in Verizon/MCI (from nine years ago) to imply that the Transaction poses harms to the Internet backbone market. Netflix Petition to Deny at 61 n.226, 79 n.267. Those references are inapposite because the Commission just *three* years ago left no doubt that the Internet backbone market is highly competitive and that this competition provides sufficient protection from alleged potential harms. *Global Crossing-Level 3 Order* ¶¶ 25-29.

[456] Cogent emphasizes that, in *AT&T-MediaOne*, the DOJ was concerned with the horizontal concentration of "caching" services provided to edge providers, Cogent Petition to Deny at 16, but this does not suggest any anticompetitive concern with this Transaction. The DOJ noted that caching "stores a content provider's content at various locations throughout the country, closer to end users, thereby improving speed and performance," and it believed that content providers needed caching services from Excite@Home and Roadrunner to ensure efficient distribution of their content. Am. Compl. ¶¶ 27-29, *United States v. AT&T Corp.*, No. 1:00-cv-01176 (D.D.C. Sept. 27, 2000). In contrast to the situation of 14 years ago, today there is a robustly competitive field of third-party CDNs and other providers that offer caching services to content providers, and no commenter claims that the Transaction would anticompetitively reduce content providers' choice of caching service providers.

[457] *Global Crossing-Level 3 Order* ¶ 29.

[458] *See* Declaration of Kevin McElearney ("McElearney Decl.") ¶ 3, attached as Exhibit 4.

mergers in which competitors merge and gain greater pricing over consumers who are faced with elimination of one of their sources of supply.[459]

2. No Harm to Video Programming

a. Comcast's Increased Scale as a Buyer of Programming Will Not Give Rise to Any Competitive Harm.

Although a predictable group of parties raise predictable concerns about Comcast's post-transaction power as a buyer of programming, none of their arguments is persuasive. Some of these parties have raised these exact same arguments in every substantial cable transaction since the last century. Most of the program buying arguments come from parties who expressly admit their own self-interested agendas, via explicit demands for carriage conditions designed to force Comcast to buy their programming, on their terms, or gain some non-market-based negotiation advantage.

The degree to which the requests are self-serving in this instance are perhaps most starkly illustrated by the fact that soon after the Transaction was announced, many of these very programmers and several others lodged new and extravagant carriage demands directly to Comcast – demands to prematurely renegotiate existing contracts to provide more carriage and/or higher fees (even when long-term affiliation agreements remain in place), to launch channels that do not even exist or that no distributor has launched, to increase distribution of channels, to increase license fees, and the like. Just counting the reasonably quantifiable carriage demands, contract negotiations, licensing fees, and other "asks" proposed in connection with the Transaction, the demands would cost Comcast upwards of $5 billion above any reasonable projection of its programming costs over the next few years – and could result in per-customer rate increases above $4 per month. Many of these asks came with a very specific quid pro quo:

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[459] Carlton Decl. ¶ 9.

if Comcast were willing to grant the request, the programmer might support the deal or stay silent; if Comcast refused, the programmer would oppose the deal or at least make negative comments. Now, many of these disappointed programmers are before the Commission, seeking often the very same windfalls as part of the formal process. The Commission should forcefully reject these extortionate, anti-consumer efforts, which clearly have nothing to do with the public interest, given so many programmers' willingness to abandon their requests if their individual contractual demands were met.

Even those arguments that are dressed up in more intellectual terms are ultimately no more compelling, as they rely on theories that the courts have rejected expressly and that cannot be squared with marketplace realities or economic theory. Tellingly, only three parties presenting program buying concerns (WGAW, ACA, and Entravision) even attempt to buttress their claims with economic analysis, but their economists' reports do not withstand scrutiny and are thoroughly rebutted by Drs. Rosston and Topper.

i. The Transaction Will Not Give Comcast Horizontal Market Power in Purchasing Programming, or Change the Demand for, or Supply of, Programming.

Monopsony Claims. Multiple commenters use the word "monopsony" to describe the harms they allege will follow from Comcast's addition of approximately seven million more subscribers after the Transaction.[460] But "monopsony" power is not a relevant concept here. It is sometimes used to describe a situation where a buyer possesses "too much" power and is able to drive the price of products below a competitive level, thereby reducing output.[461] There is no

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[460] *See, e.g.*, RCN et al. Petition to Deny at 19-23; Hawaiian Telcom Comments at 12-15; Entravision Comments at 12; WGAW et al. Petition to Deny at 25; *see also* Common Cause Comments at 3.

[461] *See* Rosston/Topper Reply Decl. ¶ 51.

basis in economics, Commission and judicial precedent, or current marketplace realities to conclude that the combined company will possess such power.

First, Comcast, TWC, and Charter do not compete today for programming, notwithstanding the unsubstantiated and inaccurate assertion made by WGAW's economist, Dr. William Comanor.[462] Notably, the Merger Guidelines are concerned about monopsony power where "the merger of *competing buyers* is likely to lessen competition in a manner harmful to sellers."[463] But selling to TWC or Charter today does not preclude selling to Comcast, each of which serves distinct areas, so Comcast's acquisition of former TWC and Charter systems will not result in the purchase of fewer total inputs. Post-transaction, former TWC and Charter customers who become Comcast customers will continue to receive AMC, Discovery, ESPN, FX, TNT, and hundreds of other channels, just like they do today.

Second, the monopsony theory relied on by Dr. Comanor requires suppliers to have increased marginal costs of selling to other buyers. As Drs. Rosston and Topper explain, programmers have virtually no marginal costs selling to Comcast, TWC, and Charter today. Thus, the combined company cannot reduce the supplier's price by buying less programming than Comcast, TWC, and Charter would buy individually.[464]

Third, even assuming arguendo that there is still some monopsony power concern with the combination of buyers that do not compete to serve customers, that concern does not apply here, because content providers cannot currently play Comcast and TWC off one another in their negotiations with the two. As Drs. Rosston and Topper explain:

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462 WGAW et al. Petition to Deny, Comanor Test. at 5.

463 U.S. Department of Justice & Federal Trade Commission, Horizontal Merger Guidelines § 12 (2010) (emphasis added).

464 *See* Rosston/Topper Reply Decl. ¶¶ 51-52.

> Consider, for example, a TWC customer in Los Angeles whom a content provider would like to reach. Even prior to the transaction, the content provider could not urge TWC to accept its terms to carry its network in order to serve and retain the customer based on any competitive threat of carriage by Comcast because Comcast could not serve that customer. TWC's programming purchases do not affect the content provider's opportunity cost of selling the same exact programming to Comcast and vice versa. This implies that the combination of Comcast and TWC will not change the content provider's negotiating position.[465]

Finally, and critically, the combined company will be one of many buyers of video programming, which also include satellite providers, telcos, other MSOs, and, increasingly, OVDs. The D.C. Circuit has twice concluded – in eras when there was far *less* competition among MVPDs (and OVDs had yet to emerge) – that there is no basis to find that a single cable operator at that ownership level presents any competitive threat to programmers.[466] As the D.C. Circuit found in 2009, "[c]able operators . . . no longer have the bottleneck power over programming that concerned the Congress in 1992."[467] And, on two prior occasions, when the MVPD market was considerably less competitive than it is today, the Commission approved transactions that took Comcast to approximately the same share of the MVPD marketplace as the current Transaction will – in the *AT&T Broadband* (2002) and *Adelphia* (2006) transactions.

Today's marketplace realities confirm the wisdom of those decisions and demonstrate that there can be no question of Comcast dominating the market for buying programming. Simply put, the programming marketplace is very healthy and *expanding*, as it has been since the D.C. Circuit first rejected the Commission's horizontal ownership cap in 2001. Retransmission consent fees have increased, as have the fees that MVPDs pay to cable programming networks, and advertising revenues are rebounding. And the recent explosion in distribution platforms

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465 *Id.* ¶ 52.

466 *See Comcast Corp. v. FCC*, 579 F.3d at 8; *see also Time Warner Entm't Co. v. FCC*, 240 F.3d 1126, 1136 (D.C. Cir. 2001).

467 *See Comcast Corp. v. FCC*, 579 F.3d at 8.

brought about by the emergence of online video has led to new distribution opportunities for programmers.

Netflix alone is reportedly spending between *$3 and $4 billion* this year on content – much of that to obtain exclusive windows of broadcast and cable network programming. OVDs have not only created new platforms and windows for programming traditionally sold first to MVPDs, but they have also spurred the development of *new* programming.[468] Amazon, Hulu, and Netflix have created dozens of new programming series between them.[469] YouTube has invested heavily in launching channels with professional content.[470] As the CEO of Rabbit TV recently described, not only are "diginets . . . who are looking for distribution" very interested in OTT distribution on the Rabbit TV platform, but Rabbit TV is "add[ing] our own channels where people are coming to us who are content creators – people who want to do the Beer Channel or the Quilter's Channel. . . . [O]ne aspect of our business is going in at midtier channel development and interestingly enough, between the diginets and that, we're seeing a lot [of] movement from people that have niche channels that they are trying to develop."[471] Nothing

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[468] Samantha Bookman, *A Closer Look at the Billions of Dollars Netflix, Amazon and Hulu Are Spending on Original Content*, Fierce Online Video, June 4, 2014, http://www fierceonlinevideo.com/special-reports/closer-look-billions-dollars-netflix-amazon-and-hulu-are-spending-original. Comcast just signed a deal to pay $2 million per episode for the exclusive online rights to syndicated distribution of The Blacklist.

[469] *See, e.g.*, Joan Solsman, *Amazon Renews 'Alpha House,' Picks Up 6 Series*, CNET, Mar. 31, 2014, http://www.cnet.com/news/amazon-renews-alpha-house-picks-up-6-new-series/; Meredith Blake, *Hulu Expands Original Content, Boasts 6 Million Hulu Plus Subscribers*, L.A. Times, Apr. 30, 2014, *available at* http://www.latimes.com/entertainment/tv/showtracker/la-et-st-hulu-upfront-originals-6-million-hulu-plus-subscribers-20140430-story html; Lacey Rose, *Netflix's Original Content VP on Development Plans, Pilots, Late-Night and Rival HBO (Q&A)*, The Hollywood Reporter, June 18, 2014, *available at* http://www hollywoodreporter.com/news/netflixsoriginal-content-vp-development-712293.

[470] *See A War To Watch: YouTube Takes On Television*, NPR, Jan. 12, 2012, http://www npr.org/2012/01/12/145099987/a-war-to-watch-youtube-takes-on-television.

[471] Sarah Barry James, *Rabbit TV Ready to Pay Retrans, Take OTT World by Storm*, SNL Kagan, Aug. 25, 2014.

about the Transaction impairs these marketplace dynamics, and Comcast's planned upgrades to the acquired systems – both on the video and broadband side – are likely to facilitate them.[472]

Failing to show as a matter of economics that Comcast will gain monopsony buying power post-transaction, WGAW and Dr. Comanor resort to the assertion that Comcast *already* exercises monopsony power – and try to show this with evidence that purportedly demonstrates that Comcast carries fewer programming networks than other MVPDs, ultimately harming programming producers. In their view, this shows that Comcast has already managed to force programmers to break their bundles and sell fewer channels to Comcast – a trend that they assert would spread to the TWC markets post-transaction.[473]

This contention is simply not true. Leaving aside all the theoretical flaws and the mischaracterization of Commission data,[474] the plain fact is that, as Drs. Rosston and Topper conclusively demonstrate, Comcast carries *more* programming networks (including more

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[472] Nor is there any merit to Entravision's claim that Comcast will be able to exercise monopsony power over Hispanic programming. Entravision's economist, Dr. John Kwoka, submits a table of the top 20 DMAs with significant Hispanic households and claims that Comcast "will control fully 39.2 percent (on a weighted average basis) of subscribers in these DMAs that account for a large percentage of all Hispanic viewers throughout the country." Entravision Comments, Kwoka Decl. at 14-15. As an initial matter, this calculation based on selective data bears no resemblance to national share calculations. Moreover, even if the combined company will serve more than 30 percent of US Hispanic MVPD households (a claim Dr. Kwoka does not make), there is no reason to conclude that the Commission's horizontal ownership analysis (which was flawed on its own terms) can or should be applied on a population segment basis. In any event, as Drs. Rosston and Topper explain, national Hispanic cable networks appear to be viable with only a few million subscribers – well below the Commission's own flawed old viability threshold of 19 million. Rosston/Topper Reply Decl. ¶¶ 63-66. There is no basis to conclude that the combined company could unilaterally drive a national Hispanic cable network from the market. And Dr. Kwoka's analysis does not take into account the fact that much Hispanic programming is broadcast over the air.

[473] WGAW et al. Petition to Deny, Comanor Test. at 17-18; *see also* Independent Film and Television Alliance ("IFTA") Comments at 7.

[474] In arguing that Comcast has reduced "quantity" as predicted by a traditional monopsony model, Dr. Comanor wrongfully measures quantity solely as the number of channels carried on medium-tier packages offered by Comcast and other wireline distributors. Mere channel counts are an improper measure of an MVPD's output and fail to consider, among other factors, channel quality and the likelihood of pro-consumer efficiency tradeoffs, such as carrying fewer networks to devote more limited bandwidth to broadband or HD channels. Furthermore Dr. Comanor's data do not take into account the fact that, according to the 2013 Video Competition Report he cites, Comcast offers a medium-tier package at a price significantly lower than TWC, Cox, Charter, Verizon and AT&T. *See* Rosston/Topper Reply Decl. ¶¶ 58-61.

independent networks) than TWC and other cable companies. Analyzing Rovi channel lineup data on a headend basis across MSOs, Drs. Rosston and Topper find that, among national cable networks tracked by SNL Kagan, Comcast carries 110 networks unaffiliated with NBCUniversal on average per headend, and 148 on any headend. Moreover, Comcast carries 38 independent networks tracked by SNL Kagan on average per headend, and 74 independent networks per headend.[475] These numbers are all higher than *any other MSO* – hardly the hallmark of a monopsonist.[476] Even applying Dr. Comanor's simple channel count methodology to current data shows Comcast carries more channels than most other major MVPDs.[477] In fact, Comcast's medium-tier package is closest to Verizon's in terms of total channel counts, and is slightly less expensive at that.[478]

Post-transaction, the combined company will face the same tremendous competitive pressures from MVPD and OVD rivals that Comcast, TWC, and Charter do today, and Comcast will need to continue to deliver high-quality programming to its customers. In other words, if current history is any guide, there is no reason to believe that Comcast, post-transaction, would suddenly be inclined to buy *less* programming, to the detriment of programming producers.[479]

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[475] *Id.* ¶ 86 & tbl.III.B.1.

[476] The difference between this figure and the 160 independent cable network figure provided elsewhere herein is that Drs. Rosston and Topper limited their universe to networks tracked by SNL Kagan (which does not include many smaller networks reflected in Comcast's own survey of its channel lineups).

[477] Rosston/Topper Reply Decl. ¶ 62.

[478] *Id.*

[479] Indeed, as noted, Comcast's share of the MVPD market after the Transaction will be approximately the same as it was after the *AT&T Broadband* (2002) and *Adelphia* (2006) transactions, and below the Commission's prior 30 percent cap. There certainly is no evidence that, at that size, Comcast began to buy less programming – or that its carriage decisions somehow depressed the overall programming supply. Thus, while WGAW acknowledges that the programming industry is experiencing a Golden Age, *see* WGAW et al. Petition to Deny at 29, it does not address the fact that the plethora of high-quality programming available on cable television today (including an explosion of scripted programs across numerous networks) has not been impaired in any way by Comcast's size over the past twelve years. To the contrary, as a result of Comcast's investments in video and network and substantial upgrades to the AT&T Broadband and Adelphia systems, Comcast has helped facilitate that Golden Age

Bargaining Power Claims. Other commenters have focused on bargaining power rather than monopsony power, e.g., the enhanced ability to negotiate lower programming prices, or better terms, without necessarily diminishing programming output.[480] Conceptually, this is at least a relevant argument, but as Drs. Rosston and Topper show, the Transaction is unlikely to affect the relative bargaining position of Comcast and content companies in any material fashion: "Comcast's larger size raises the stakes for both sides, but there is no gain of relative leverage for either side. And because content providers have a large open field to sell their programming, Comcast will not gain leverage through any bottleneck power in program buying."[481]

Some commenters wrongly assert that the modest programming cost savings that Comcast initially projected demonstrates that Comcast already exercises significant buyer power and will increase its bargaining power as a result of the Transaction.[482] But these commenters miss three key facts. First, the programming costs savings over a three-year period that Comcast preliminarily estimated are very small, especially relative to the companies' large programming budgets.[483] Second, even if one were to ignore other ways in which this modest level of cost savings could be achieved – i.e., by ascribing it all to contract price differentials between

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by carrying not only more networks generally, but more diverse and independent programming; more diverse sources of news programming; more Spanish-language and Latino programming; more multicultural and ethnic programming; more live sports programming; and more HD programming. If anything, Comcast's planned upgrades to the acquired systems will once again unlock new opportunities for programmers.

480 *See, e.g.*, ACA Comments at 24-25; AAI Comments at 20-21; CFA et al. Petition to Deny at 18-20; Dish Petition to Deny at 85-87; Entravision Comments at 11-12; Hargray Comments at 4.

481 Rosston/Topper Decl. ¶¶ 190-192; *see also* Rosston/Topper Reply Decl. ¶ 53.

482 *See, e.g.*, AAI Comments at 20-21; ACA Comments at 24-25; CenturyLink Comments at 13-15; Cincinnati Bell Extended Territories LLC ("CBET") Comments at 7-8; Cogent Petition to Deny at 60-66; Dish Petition to Deny at 83-85; Entravision Comments at 9; Frontier Communications Corp. ("Frontier") Petition to Deny at 7-8; Hargray Comments at 4; Hawaiian Telcom Comments at 12-15; IFTA Comments at 3-4; ITTA Petition to Deny at 11-12; NTCA-The Rural Broadband Association ("NTCA") Petition to Deny at 7-8; Public Knowledge et al. Petition to Deny at 40-41; RCN et al. Petition to Deny at 19-22; Sinclair Petition to Deny at 2-3; Public Knowledge et al. Petition to Deny at 6; Tennis Channel Comments at 13-15; WGAW et al. Petition to Deny at 35-37.

483 *See* Rosston/Topper Reply Decl. ¶ 55.

Comcast and TWC, instead of to other potential differences in the companies' programming cost profile – then, as Dr. Israel shows, this still implies that the "difference in average affiliate fee rates between Comcast and TWC is very small on a per customer per month per network basis."[484] As Drs. Rosston and Topper explain, TWC already qualifies as a large MVPD, and so it is not surprising that its rates are generally comparable to those of a larger MVPD.[485] Third, and perhaps most important, Comcast did not predict any additional savings – that is, no *incremental* discounts from programmers due to enhanced bargaining leverage – from the Transaction.

For these reasons, comparisons to the relative cost savings that AT&T projects it will enjoy when combining with DirecTV, to which some commenters point,[486] are largely inapt. By acquiring DirecTV, AT&T will be increasing its subscriber total by more than *300 percent* (i.e., going from approximately six million to approximately 26 million subscribers – just slightly smaller than Comcast will be).[487] In contrast, Comcast's post-transaction subscriber total will increase by approximately *32 percent* (i.e., going from approximately 22 million to approximately 29 million subscribers). Notably, AT&T too does not predict any additional favorable pricing beyond what DirecTV already enjoys, as it has recently reaffirmed,[488] which supports rather than undermines the conclusion that an already large MVPD (like Comcast or

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484 *See* Israel Reply Decl. ¶ 158.

485 *See* Rosston/Topper Reply Decl. ¶ 56.

486 *See* CenturyLink Comments at 13-17; IFTA Comments at 3-4; Frontier Petition to Deny at 4.

487 Applications of AT&T Inc. and DirecTV for Consent to Assign or Transfer Control of Licenses and Authorizations MB Docket No. 14-90, at 13.

488 Remarks of John Stankey, Group President and Chief Strategy Officer, AT&T Inc., Bank of America Merrill Lynch Media, Communications and Entertainment Conference (Sept. 16, 2014), ("And that savings that we get in normalizing that 6 million subscriber base, re-rating those customers to a content structure that DirecTV has already achieved on their base, *nothing more than that, it is just the 6 million AT&T subscribers re-rating them to the DirecTV base*.") (emphasis added).

DirecTV) is unlikely to gain any significant bargaining power by getting somewhat larger – illustrating simply the law of diminishing returns.

As Drs. Rosston and Topper's and Dr. Israel's analyses show, the relative size differences between Comcast and TWC do not matter much in terms of ability to achieve favorable pricing.[489] There may well be differences between smaller MVPDs and MVPDs the size of TWC, DirecTV, or Comcast, but major price differentials appear to be flattening out with the industry moving to more standard pricing. And this makes sense. In today's highly competitive MVPD market, where switching is increasingly easy, it would not be advisable for a programmer to create too much differential between one MVPD's prices and another's in the same market, since that could drive subscribers to switch to the MVPD with lower wholesale pricing (and result in less revenue for the programmer), all else being equal.[490]

WGAW's expert, Dr. Comanor, asserts that programmers are worried about their leverage relative to distributors.[491] It is natural to worry about maintaining and growing one's revenue in any dynamic marketplace, but there is abundant evidence that programmers have gained and are continuing to gain bargaining leverage vis-à-vis MVPDs. As Professor Larry Downes observes: "For the most popular produced content, MVPDs have little leverage but to accept the terms offered. And while the FCC finds that overall the average price per channel has

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489 Rosston/Topper Reply Decl. ¶ 56.

490 *Id*. Thus, there is no basis to claims that small MVPDs (and in particular, small rural MVPDs) are at a particular disadvantage with respect to programming costs and are uniquely vulnerable to competitive harm. *See, e.g.*, Horry Telephone Cooperative Comments at 9-10; ACA Comments at 21-23; CenturyLink Comments at 17-19; COMPTEL Petition to Deny at 28-29; ITTA Petition to Deny at 11-12. To the extent these parties claim they face other competitive disadvantages as compared to larger MVPDs, these issues are not transaction-related and should not be considered in this proceeding. Moreover, the merits of such claims (or, more precisely, the lack thereof) have been fully ventilated in still-pending, industry-wide proceedings. *See., e.g.*, *Revision of the Commission's Program Access Rules*, Notice of Proposed Rulemaking, 27 FCC Rcd. 3413 (2012).

491 WGAW et al. Petition to Deny, Comanor Test. at 16-17.

declined, the number of channels continues to expand, on average from 44 to 150 since 1995."[492] Comcast's programming costs have risen by more than 10 percent annually, on average, over the past 10 years, while Comcast's consumer pricing has increased at about half that rate.[493] The CBS-TWC, Fox-Cablevision, and Disney-Dish disputes all showed fairly clearly which side appears to have the upper hand in negotiations.[494] And Les Moonves, President and CEO of CBS, recently affirmed a bullish view of programmers' bargaining position: "Nobody can exist without the CBS content on their air. Yes, Comcast is going to get bigger. AT&T is going to get bigger. We're going to have to negotiate with both of them. They can't live without our content. They can't live without the NFL, they can't live without The Big Bang Theory, they can't live without NCIS."[495]

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492 Larry Downes Comments at 7.

493 *See Oversight Hearing on Competition in the Video and Broadband Markets: The Proposed Merger of Comcast and Time Warner Cable: Hearing Before the H. Comm. on the Judiciary, Subcommittee on Regulatory Reform, Commercial and Antitrust Law*, 113th Cong. (May 8, 2014) (Testimony of David L. Cohen, Executive Vice President, Comcast, at 3124-3129).

494 *See, e.g.*, Alex Sherman, *Dish Extends Disney Deadline to Avoid ESPN, ABC Blackout*, Bloomberg, Oct. 1, 2013, http://www.bloomberg.com/news/2013-10-01/dish-reaches-extension-with-disney-avoiding-espn-abc-blackout html; Bill Carter, *CBS Returns, Triumphant, to Cable Box*, N.Y. Times, Sept. 2, 2013, http://www nytimes.com/2013/09/03/business/media/cbs-and-time-warner-cable-end-contract-dispute html ("The outcome underscored the leverage that the owners of important television content . . . retain over distributors like cable systems. . . . Mr. Bank said that, if anything, the deal may make it easier for networks to press cable and other distributors like satellite systems to squeeze out more favorable fees."); David Lieberman, *NO DEAL! CBS And Showtime Go Dark on Time Warner Cable*, Deadline, Aug. 2, 2013, http://deadline.com/2013/08/no-deal-cbs-goes-dark-on-time-warner-cable-555649/ ("TWC says 'CBS has refused to have a productive discussion. It's become clear that no matter how much time we give them, they're not willing to come to reasonable terms.'"); Brian Stelter & Bill Carter, *Fox-Cablevision Dispute May Obstruct Customers' View of World Series*, N.Y. Times, Oct. 24, 2010, http://www nytimes.com/2010/10/25/business/media/25cable html ("Cablevision . . . blamed News Corporation for trying to 'extort unreasonable and unfair fee increases.'").

495 Interview by David Farber, CNBC, with Les Moonves, President & CEO, CBS Corp. on "Closing Bell" (Sept. 10, 2014), *available at* http://www.cnbc.com/id/101989964#.

Supposed Threat to "Independent Voices." Some commenters, including TheBlaze, Entravision, Tennis Channel, Veria Living, and others,[496] suggest that the Transaction will in particular threaten "independent voices" (to use Discovery Communications' term, in a letter filed after the August 25 comment date).[497] But as noted above, Comcast carries over 160 truly independent networks under the Commission's own definition, including many small, diverse, and international ones, and six of every seven networks carried by Comcast are unaffiliated with the company. It is indisputable that Comcast has launched or expanded the carriage of over 120 independent networks since 2011.[498]

Other commenters voice concern about the combined company's increased presence in markets serving African-American and Hispanic populations, claiming that Comcast will be "the only significant cable outlet in approximately 98 percent of all African-American communities in the country."[499] As detailed above in Section III.F.2, Comcast has served these populations extremely well to date, and welcomes the opportunity that the Transaction provides through added scale and increased geographic rationalization to serve them even more effectively. But

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496 *See* TheBlaze Comments at 18-21; Entravision Comments at 2-3, 9-10; Tennis Channel Comments at 12-17; Veria Living Comments at 1-2; *see also* Parents Television Council et al. Comments at 5; AAI Comments at 16-19.

497 Discovery's concerns were conveyed in the form of a September 4 ex parte letter disclosing a September 3 meeting with the Transaction Team. *See* Letter from Catherine Carroll, VP – Public Policy & Corporate/Government Affairs, Discovery Communications, to Marlene H. Dortch, Secretary, FCC, at 1 (Sept. 4. 2014).

498 *See* Response to Request No. 31 (listing the networks launched since January 2011); *At a Tipping Point: Consumer Choice, Consolidation and the Future Video Marketplace: Hearing Before the S. Comm. on Commerce, Science & Transp.*, Draft Tr. 60:2-21 (July 16, 2014) (Testimony of David L. Cohen, Executive Vice President, Comcast Corp.).

499 My Christian TV, Eden, Inc. ("My Christian TV") Petition to Deny at 1. This 98% calculation is not remotely reliable. Notably, Comcast has never served several markets with significant African-American populations such as St. Louis, Cleveland, and New Orleans, among many others, and after the Transaction, will no longer serve Detroit. Similarly, NHMC claims that Comcast will serve "up to 90 percent of Latino pay television subscribers." NHMC Comments at 3. That too is overstated – Comcast estimates that after the Transaction, it will serve markets that include approximately 78 percent of the country's Hispanic households (not counting Puerto Rico in the denominator), though of course many of those households will not be Comcast customers; *see also* discussion *supra* note 472.

there is no transaction-specific harm with Comcast increasing its presence in diverse communities. Two of Comcast's major video rivals, DirecTV and Dish Network, will continue to serve virtually 100 percent of these populations, and Verizon and AT&T (especially if combined with DirecTV) will serve very significant portions as well. These and other MVPDs will impose substantial pressure on the combined company to compete vigorously for diverse customers' loyalty.

It is particularly ironic that Discovery has appointed itself to the role of tribune for "independent voices," given its decidedly non-independent marketplace position as "The #1 Pay-TV Programmer in the World"[500] and its longstanding affiliation with significant cable industry players including the Miron family and Dr. John Malone.[501] Indeed, the letterhead on which Discovery filed its September 4 ex parte letter features icons of *47* distinct Discovery programming networks or Internet assets, and Discovery's market capitalization at over $25 billion – growing by almost $10 billion in the last three years alone – hardly reflects that of an entity that is not enjoying programmers' ascendant bargaining position.[502] It is precisely that leverage – enhanced by the regulatory gamesmanship opportunities presented by the Transaction – that Discovery has brought to bear when it has repeatedly demanded in private that Comcast **{{**

}} – demands to which, Discovery warned, Comcast must acquiesce as the price for Discovery's non-opposition to the Transaction. And Discovery's repeated public forecasts that the Transaction

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500 Discovery Communications, Discovery, http://corporate.discovery.com/ (last visited Sept. 17, 2014).

501 Robert Miron is the Chairman of Discovery's board; and other board members include Dr. John Malone and Steven Miron. Discovery Communications, Discovery, http://corporate.discovery.com/leadership/ (last visited Sept. 17, 2014).

502 *See* SNL Kagan, Discovery Communications Company Profile (2014).

review will still be ongoing in the Summer of 2015[503] are no doubt influenced by the fact that, although Discovery's carriage agreements with Comcast **{{**

}}. Discovery also has sought, in these private sessions, to pressure Comcast to agree to void Comcast's contractual right **{{**

}} – which, if accepted by (or forced upon) Comcast, would frustrate Comcast's ability to make rational decisions that are designed to best serve its customers rather than line Discovery's pockets.

Notably, in comments filed just over two years ago in which Discovery sought to downplay its multiple ties to the cable industry as any basis for heightened regulatory concern (and rightly so), Discovery warned against precisely what it is advocating for here, namely, "unwarranted . . . intrusion[s] into the program carriage marketplace." Indeed, in the same comments, Discovery approvingly noted that "[t]he Commission should be wary of adopting additional unnecessary regulations because they will increase the likelihood of illegitimate litigation, inevitably distort marketplace negotiations, massively increase costs and burdens, and interfere with the editorial discretion of MVPDs."[504] These comments aptly highlight the self-serving nature of Discovery's recent change of heart. Yet Discovery still cannot keep its story straight, telling the Commission a few weeks ago about Comcast's "enhanced position to impose

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503 *See* Remarks of Andy Warren, CFO & Senior EVP, Discovery Communications, Inc., Bank of America Merrill Lynch Media, Communications and Entertainment Conference, Beverly Hills, CA (Sept. 16, 2014); Remarks of David Zaslav, President & CEO, Discovery Communications, Inc., Goldman Sachs Communacopia Conference, New York, NY (Sept. 10, 2014).

504 Discovery Reply Comments, MB Docket Nos. 11-131 & 07-42 at 3 n.2 (citing and quoting Comments of Comcast).

price, terms, and conditions on programmers that are overly favorable to MVPDs"[505] – while telling investors just last week that Discovery has had "a lot of good and very healthy discussions with Comcast"; indeed, Discovery's CFO allowed that Comcast is "obviously a hugely important distributor for us and I know that we're a very, very important content provider for them. We're very optimistic that something will come out of it that makes sense for both parties."[506] The "it" here, of course, should be private negotiations conducted between parties in search of marketplace agreements – not cynical and opportunistic use of the Commission's resources in an effort to leverage a better deal.

Discovery's and others programmers' publicly voiced concerns on this docket ring especially hollow when it is undisputed that programming costs are the single greatest cost-driver for MVPD service, and Comcast at its current size has been far from immune from this trend.[507] But if Comcast *were* able to obtain slightly more favorable pricing or carriage terms from programmers relative to what Comcast and TWC each could do separately, this would *enhance* consumer welfare, contrary to what certain commenters claim.[508] As Drs. Rosston and

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[505] Discovery Letter at 1. Discovery's other menu of concerns about a post-Transaction Comcast – about MFNs, device and equipment issues, and advertising advantages – while they may all be important points for Discovery's negotiations with Comcast, are equally meritless as transaction-specific policy issues, for reasons explained more fully below. *See* discussions *infra* Sections IV.B.2.a.iii (MFN discussion), IV.B.4 (device and equipment discussion), IV.D (advertising discussion).

[506] Remarks of Andy Warren, CFO & Senior EVP, Discovery, Bank of America Merrill Lynch Media, Communications and Entertainment Conference, Beverly Hills, CA, Tr. at 10 (Sept. 16, 2014).

[507] *See* discussion *infra* Section V.B (noting that between 2004 and 2013, Comcast's programming costs rose 120 percent, five times the rate of inflation, but that Comcast's prices to customers during this same period rose at about *half* that rate).

[508] *See, e.g.*, RCN et al. Petition to Deny at 22. There is no credible claim that Comcast will engage in predatory pricing (classically defined as discounting below cost) in order to drive a competitor from the market – a strategy that, in any event, is illegal and that the Supreme Court has found would be highly unlikely to succeed. *See, e.g.*, *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993) ("remark[ing] upon the general implausibility of predatory pricing"); *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 588-90 (1986) ("[a] predatory pricing conspiracy is by nature speculative. . . . For this reason, there is consensus among commentators that predatory pricing schemes are rarely tried, and even more rarely successful. . . . These observations apply even to predatory pricing by a *single firm* seeking monopoly power.") (emphasis in original).

Topper explain: "[B]asic economics teaches that changes in marginal cost will be passed on in full or in part to consumers, even for a monopolist (which Comcast is not)."[509]

Indeed, it is hard to see the public interest harm that some commenters like RCN seek to draw from the claim that Comcast might achieve lower programming prices and thus discount its rates to consumers.[510] To the contrary: in the unlikely event that the Transaction leads to a material dent in the pace of increase of Comcast's programming costs, slowing or moderating the pace of increase of Comcast's retail pricing would be an unequivocal consumer benefit.

Finally, some commenters advance the theory that any enhanced ability Comcast may have to secure lower prices from programmers will result in other MVPDs, ranging in size from Dish to Grande Communications, having to pay *higher* prices, as programmers seek to make up the loss.[511] This argument defies logic, and it evaporates upon inspection.

As Drs. Rosston and Topper explain, there is no reason or basis in economics to conclude that, because a programmer makes additional price and terms concessions to one distributor, it will suddenly have the ability to extract more aggressive terms and conditions from other distributors. The fallacy here is that this argument assumes that programmers are leaving money on the table today when negotiating with MVPDs; it necessarily implies that programmers *could have* extracted higher prices from small MVPDs but chose not to do so because of the sums the larger MVPDs are paying. Like any good capitalists, programmers negotiate for the highest rates the market will bear from every single MVPD. Thus, even if Comcast were somehow able to

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509 Rosston/Topper Reply Decl. ¶ 70. And no MVPD in today's marketplace is a monopolist.

510 *See, e.g.*, RCN et al. Petition to Deny at 22; ACA Comments at 21-22; CenturyLink Comments at 21-23; Frontier Petition to Deny at 3; Hawaiian Telcom Comments at 12-15.

511 *See* ACA Comments at 24-25; Dish Petition to Deny at 86; Hargray Comments at 4; RCN et al. Petition to Deny at 24; CBET Comments at 8; COMPTEL Petition to Deny at 31; Frontier Petition to Deny at 7-8; ITTA Petition to Deny at 11-12; NTCA Petition to Deny at 7.

negotiate lower programming rates, that would in no way shift up the price the rest of the market is willing to bear (i.e., that other MVPDs are willing to pay for such programming).

While ACA's economic expert, Dr. Biglaiser, makes a half-hearted attempt to give this theory some heft with a new "market analysts" hypothesis – namely, that programmers need to meet the revenue expectations they predict to Wall Street – he advances no credible evidence or logical story to support this hypothesis. As Drs. Rosston and Topper show, among other defects, this theory "requires content providers not to want to exceed Wall Street expectations and not to maximize profits when there is an easy mechanism to do so."[512] That is clearly not how the market works. And, notwithstanding Dish's vocal support for this argument, Dish's economist is notably silent on the topic.[513] Accordingly, this theory and these arguments should be given no weight – a conclusion that also applies generally to Dish's newly minted and utterly meritless "choke point" theory.

ii. Comcast Alone Cannot Determine the Viability of Programming Networks.

Certain commenters claim that the combined company will be able to determine unilaterally the fate of programming networks. Professor Scott Hemphill of Columbia University states well the correct response:

> [P]ost-merger Comcast lacks the requisite scale [to cause disproportionate negative consequences to a programmer]. If we take as a starting point the [FCC's] previously expressed view on this subject, a video distributor must have more than 30% of traditional video subscribers to pose such a risk. But the FCC's view was likely too cautious when it was reached in 2007; indeed, it was rejected by the D.C. Circuit for understating the degree of competition in video markets.

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512 Rosston/Topper Reply Decl. ¶ 80.

513 RCN merely parrots the allegation. *See* RCN et al. Petition to Deny at 24. RCN notes that programmers have the incentive now to maximize profit, and claims that as a basis for the theory that they will extract higher prices from smaller MVPDs, but RCN does not grasp the issue that this also explains the fact that these programmers are already acting in a profit-maximizing way with respect to smaller MVPDs.

> It is surely too conservative today. Among other developments, the rise of online video provides opportunities for programmers to reach viewers without selling their content to a traditional distributor. This transaction, which results in a share of traditional video distribution slightly less than 30%, is therefore unlikely to be of a sufficient size to make a meaningful difference in this respect.[514]

As discussed above, programmers have many outlets, and that will remain true post-transaction. (In fact, after the Divestiture Transactions, programmers will have a new, substantial MVPD on which to seek carriage – GreatLand Connections – that will not be controlled or managed in any way by Comcast.). For MVPD distribution alone, programmers will have the opportunity to be distributed to more than 70 million MVPD households through MVPDs other than Comcast (using an approximate universe of 100 million total). As Drs. Rosston and Topper explain, the minimum viable scale for a network to succeed is likely much smaller than the minimum viable scale of 19 million MVPD subscribers (which is certainly too high, under current competitive dynamics) that the Commission calculated back in 2007. Drs. Rosston and Topper concluded that a programming network "would need to achieve a penetration rate of just 27 percent in the open field of 70 million households to reach the minimum viable scale of 19 million customers (27 percent = 19 million / 70 million) if it were not carried by Comcast."[515] There is no reason to conclude, even under the Commission's theory, that minimum viable scale has increased since 2007. That is especially true in light of the significant marketplace developments since that time, including growth in the telco video business, and an explosion in the number, size, and viability of OVD platforms, which (as noted) creates an entirely new outlet for program launches and success.

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514 C. Scott Hemphill ("Hemphill") Comments at 4.

515 Rosston/Topper Decl. ¶ 187.

Some commenters argue that, if Comcast stands in the shoes of TWC with respect to the services it provides to Bright House Networks (including program buying), that will increase programmers' risk of harm from the Transaction by increasing the post-transaction company's leverage even more.[516] Even if one were to attribute Bright House's subscribers to Comcast (after divesting approximately 3.9 million customers), this would result in the company having (at most) a 31 percent share of MVPD subscribers – an immaterial difference as compared to approximately 29 percent. If Comcast is attributed with approximately 31 million subscribers (at most), then using the Rosston/Topper methodology described above, a programmer would only need to achieve a penetration rate of 28 percent in the open field of approximately 68 million MVPD households (28 percent = 19 million / 69 million). Thus, an additional 2.1 million video subscribers served by Bright House does not change the competitive analysis.[517]

Other commenters try to make the viability argument with a local or regional focus, rather than a national one. But there is no reason to conclude that Comcast can shut out

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[516] *See, e.g.*, ACA Comments at 23-25; CenturyLink Comments at 24-56. CenturyLink's concerns regarding Midcontinent Communications are likewise unjustified. *See id*. While Midcontinent has the right to purchase third-party programming under (and subject to the terms of) Comcast's programming agreements, Comcast does not manage or control the Midcontinent systems; rather, they are controlled and managed by Midcontinent Communications Investor, LLC, which is a subsidiary of Midcontinent Media, Inc.

[517] Herring Broadcasting's AWE network (f/k/a WealthTV) is a case in point. Although Mr. Herring has previously been adjudicated to be not credible and unreliable as a witness in FCC proceedings, the viability of his network is not in question. *See Herring Broad., Inc. d/b/a WealthTV v. Time Warner Cable, Inc*, et al., Recommended Decision of Chief Administrative Law Judge Richard L. Sippel, 24 FCC Rcd. 12967 ¶ 44 n.179 (2009); *Herring Broad., Inc. d/b/a WealthTV v. Time Warner Cable, Inc.*, et al., Memorandum Opinion and Order, 26 FCC Rcd. 8971 ¶ 30 (2011). Mr. Herring's network survives – even thrives – despite not being carried on Comcast or TWC systems, or on DirecTV, Dish, Cox, or Cablevision. WealthTV has survived for *ten* years and counting – *twice* the time assumed by the FCC for its minimum viable scale model that formed the basis of the vacated 30% horizontal ownership cap. *Comcast Corp. v. FCC*, 579 F.3d at 4. In fact, WealthTV has benefited precisely from the growth of telcos since 2004 – something that the FCC did not even consider in its viability analysis in 2007. And WealthTV also demonstrates the alternative that programmers have – selling their programming "over the top" on an a la carte basis, and being streamed via Roku and other third-party devices. Herring Broadcasting filed four letters in MB Docket No. 14-57 commenting on the Transaction and proposing a variety of conditions, as discussed further below. Herring Broadcasting Comments (Letter 1) addressed Bright House; Herring Broadcasting Comments (Letter 2) addressed iN Demand; Herring Broadcasting Comments (Letter 3) addressed carriage of a national cable news network; and Herring Broadcasting Comments (Letter 4) addressed carriage of a national cable network.

programming from reaching subscribers in particular local markets. While Comcast may have somewhat increased shares in certain local RSN markets as a result of the Transaction, the shares are not much higher relative to existing shares of the largest of Comcast, TWC, or Charter today and, therefore, the Transaction will not affect local or regional programmers' ability to distribute their programming.[518]

There is equally no merit to the claim that the combined company's presence in the top 10 or top 20 DMAs creates a bottleneck for national programmers, as Tennis Channel and others wrongly assert.[519] Even assuming for the sake of argument that a national programming network like Tennis Channel needs carriage in a certain number of top 10 DMAs to remain viable – and improperly and artificially restricting the analysis to this narrow universe – Comcast's post-transaction average penetration in the top 10 DMAs will be 39.9 percent (weighted proportional to population). In other words, there would be an open field of 60.1 percent available solely through other MVPDs even in just these top 10 DMAs. Tennis Channel – far from an independent network, since it is owned by both DirecTV and Dish Network – can occupy a significant amount of that shelf space simply by being carried on broadly penetrated tiers *by its owners alone* (including an enlarged AT&T-DirecTV, which will be almost the same size as a post-transaction Comcast). From the standpoint of the top 20 DMAs, following the Divestiture Transactions, Comcast will operate in 16 of the top 20 DMAs – the same number that Comcast operates in today (although the makeup of those DMAs will differ). Comcast will no longer have a presence in the Detroit, Minneapolis-St. Paul, or Cleveland DMAs. Thus, the open field

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[518] Rosston/Topper Decl. ¶¶ 206-208; Rosston/Topper Supplemental Decl. ¶¶ 43-49.

[519] *See* Tennis Channel Comments at 13-14; COMPTEL Petition to Deny at 17-18; Senator Franken Comments at 7-8; Sinclair Petition to Deny at 13-14. Contrary to some parties' claims, DMAs are not relevant competitive markets for MVPD services; they are just Nielsen constructs for rating measurement purposes. Dr. Comanor's claim that Comcast and TWC compete with one another in New York, Kansas City, and Louisville is inaccurate. Though the two companies operate in certain of the same DMAs, they serve distinct geographic areas.

is even wider here from this standpoint – at 65.7 percent weighted for population. In short, programmers will have significant other outlets in these DMAs. Dish and DirecTV are in all 20 of the top 20 DMAs, and each or both of Verizon and AT&T are in all 16 DMAs that the combined company will serve (as are other MVPDs, including overbuilders). And OVDs are emerging competitors everywhere.

iii. The Transaction Will Not Give Comcast Greater Incentive or Ability to Impose Non-Market Based Contract Terms.

Various commenters assert that the Transaction will give Comcast greater incentive and ability to impose MFN provisions and provisions restricting certain types of online distribution (the latter commonly referred to as "alternative distribution methods" or ADM provisions).[520] These claims are meritless – and are a transparent attempt to avoid the normal functioning of market-based negotiations. As an initial matter, MFN provisions are procompetitve and pro-consumer, in that they guarantee that an MVPD's customers will not be asked to pay more than the market price, or will not be deprived of additional opportunities – on fair market terms – to enjoy programming in new windows. MFNs also promote Comcast's willingness to take a chance on new networks and to enter into long-term arrangements, thus providing both Comcast and these networks with some mutual contractual certainty. The Commission has recognized the public interest benefits of MFNs: "[T]he existence of [MFN] clauses in many programming contracts . . . eliminates cable operators' ability to free ride on other MVPDs' paying for the fixed costs of creating programming."[521] That is, "the ubiquity of so-called most-favored-nation

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[520] *See, e.g.*, Dish Petition to Deny at 85-86; TheBlaze Comments at 9-10, 13-15; AAI Comments at 16-19; Discovery Letter at 2.

[521] *Commission's Cable Horizontal & Vertical Ownership Limits*, Fourth Report & Order and Further Notice of Proposed Rulemaking, 23 FCC Rcd. 2134 ¶ 33 (2008).

clauses in programming contracts resolves this free-rider problem and protects the cable operator who initially purchases the programming from opportunism on the part of the programmer and other operators." [522]

As to ADM provisions, even before the NBCUniversal transaction, Comcast ceased proposing provisions that broadly prevented programmers from distributing programming online.[523] In the past four years, there is simply no marketplace evidence that restrictive ADM provisions from anyone – much less from Comcast – have materially hampered the willingness of programmers or the ability of OVDs to enter into licensing agreements. As discussed above, new OVD arrangements with programmers large and small are announced virtually every day, including increasingly arrangements for live linear programming feeds or programming typically on MVPDs. Notably, Netflix – the largest OVD – does not mention ADM (or MFN provisions) in its wide-ranging bill of particulars against Comcast. (It would be absurd for Netflix to suggest that it is unduly restricted from negotiating for programming by *Comcast's* programming agreements; Comcast's more recent experience has been that Netflix and other OVDs have locked up exclusive rights to certain programming, including from traditional cable networks, that Comcast is unable to obtain for its own customers.) Dish too makes a half-hearted argument about online restrictions;[524] notably, Dish does not indicate whether it seeks ADM or MFN provisions in negotiations with programmers, including with respect to online distribution.[525]

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522 *Id.* ¶ 97 n.342.

523 *See* Comcast, Opposition and Response, MB Docket No. 10-56 (July. 21, 2010) at 188, n.642. Comcast also noted that, when asked by a content owner to modify the limitation, Comcast had agreed to do so. *Id.*

524 Dish Petition to Deny at 85-86.

525 Under Dish's own theory, it has two reasons to be much more aggressive than Comcast concerning MFN and ADM provisions: first, because of Dish's supposed inability to compete with wireline MVPDs to provide a bundle of video and broadband services (leading to concerns about being displaced by such services); and second, because of Dish's plan to launch an OTT MVPD service (giving Dish an incentive to try to restrict others' access to such services, or at least to guarantee itself the same access). One need not subscribe to these theories to reach the

In any event, the Commission in the *NBCUniversal Order* already imposed certain clear limitations on Comcast's ability to enter into certain MFNs as well as ADM provisions.[526] Not only has Comcast complied with these limitations – no commenter credibly suggests otherwise[527] – but Comcast also has acknowledged expressly that these limitations will apply to the acquired systems, which answers any transaction-specific theory of harm. In fact, to the degree that TWC has been a source of ADM provisions that go beyond the limitations applicable to Comcast, the Transaction should be viewed as giving programmers even more leeway to explore new offerings online.[528]

The Commission did not prohibit *all* ADM and MFN provisions in the *NBCUniversal Order*. It prohibited only such provisions that "forbid[], limit[] or create[] incentives to limit a broadcast network or cable programmer's provision of its Video Programming to one or more OVDs."[529] With respect to MFN provisions in particular, the Commission expressly allowed Comcast to seek MFNs guaranteeing that Comcast Cable "is treated in material parity" with other distributors "with respect to price and non-price terms."[530] This reflected a considered decision on the Commission's part that MFNs can be procompetitive, and that it was important for consumers that Comcast continue to be able to engage in normal (and vigorous) negotiations

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conclusion that Dish's arguments are simply that of a competitor trying to protect its own competitive position, and nothing more.

526 *See Comcast-NBCUniversal Order*, App. A, § IV.B.3.

527 In fact, TheBlaze's Lynne Constantini has acknowledged that Comcast has not demanded ADM or MFN provisions that exceed the Commission's express limitations. Shalini Ramachandran et al., *Comcast Targeted by Entertainment Giants*, Wall St. J., Aug. 29, 2014, *available at* http://online.wsj.com/articles/comcast-targeted-by-entertainment-giants-1409349791.

528 As to the claim by certain programmers, like TheBlaze, that Comcast incidentally benefits from ADM provisions imposed by other MVPDs, there is obviously no transaction-specific harm to be addressed here. *See* TheBlaze Comments at 13-15.

529 *Comcast-NBCUniversal Order*, App. A, § IV.B.3. This prohibition is already quite broad without being unduly broad, as the Commission stated in imposing it. *Id.* ¶ 73 & n.157.

530 *Id.*, App. A, § IV.B.3.c.

with programmers.[531] And that is just as true and perhaps even more important today, given the substantial leverage that programmers have gained in the past four years. Any further restriction on MFNs would *not* be transaction-specific, and would only have negative collateral effects, harming the interests of Comcast's customers.

b. Comcast's Increased Programming Assets Will Be Minimal and Will Not Give Rise to Any Competitive Harm with RSNs or Local News.

The Transaction will not materially increase the amount of programming controlled by the combined company.[532] Despite this, some commenters argue that, because NBC O&O stations in Los Angeles overlap with TWC RSNs, the Transaction will reduce competition for video programming in Los Angeles and cause prices to rise.[533] This argument has no merit.

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[531] As the Department of Justice stated in connection with the same conditions in the Consent Decree, "The proposed Final Judgment strikes a balance by allowing reasonable and customary exclusivity provisions that enhance competition while prohibiting those provisions that, without any offsetting procompetitive benefits, hinder the development of effective competition from OVDs." Competitive Impact Statement, *United States v. Comcast Corp.*, 1:11-cv-00106, at 35 (D.D.C. Jan. 18, 2011). MFNs are generally thought to be procompetitive to the extent they allow buyers to obtain better prices or terms from sellers. *See Ocean State Physicians Health Plan, Inc. v. Blue Cross & Blue Shield of R.I.*, 883 F.2d 1101, 1110 (1st Cir. 1989); *Blue Cross & Blue Shield United of Wis. v. Marshfield Clinic*, 65 F.3d 1406, 1415 (7th Cir. 1995). Recent cases that have challenged MFNs have found them to be problematic only with aggravating circumstances not remotely present here. *See* Compl., *United States v. Blue Cross & Blue Shield of Mich.*, No. 2:10-cv-14155-DPH – MKM (E.D. Mich. Oct. 18, 2010) (turning in part on "MFN-plus" provisions requiring other parties to pay *more* and settled before a decision on the merits); *United States v. Apple, Inc.*, 889 F. Supp. 2d 623 (S.D.N.Y. 2012) (consent decree forbidding use of MFNs that allegedly were a means to conspire to *raise* prices).

[532] As detailed in Applicants' Public Interest Statement, Comcast will acquire minimal new programming assets from TWC: one professional sport English-language RSN (Time Warner Cable SportsNet in Los Angeles); the distribution rights to another professional sport English-language RSN (SportsNet LA); three Spanish-language RSNs; and a small number of local news channels (including Time Warner Cable News NY1). Comcast also will add TWC's minority interest in SportsNet New York to Comcast's existing minority interest in that RSN, but Comcast will continue to be a minority owner. In addition, Comcast will acquire TWC's interest in MLB Network and iN Demand, in which it already holds a small, non-controlling interests, which will remain the case after the Transaction.

[533] *See, e.g.*, ACA Comments at 13-15, Biglaiser Decl. at 16-18; CenturyLink Comments at 6-13; Dish Petition to Deny at 81-86. Commenters also argue that the Transaction will substantially increase Comcast's control of "marquee" programming. As Applicants detailed in their Public Interest Statement, however, the only programming Comcast will acquire in the Transaction that could potentially be considered "marquee" are some of TWC's RSNs, and TWC's programming assets will provide only a modest contribution to Comcast's sports programming. Even with the addition of TWC's RSNs, the combined company will still control far fewer RSNs than Fox.

There would only be a transaction-specific concern if RSNs and O&Os were substitutes for each other, as that in turn could lead to concentration in a market and harmful pricing effects. But, as Drs. Rosston and Topper explain, Comcast's NBC O&O stations in Los Angeles are not a substitute for the TWC RSNs in Los Angeles.[534] NBC O&O stations primarily show general entertainment and news, whereas the RSN shows live games and shoulder programming from local sports teams.[535] These different types of programming are not considered close substitutes. In fact, the NBC O&Os and TWC-affiliated RSNs each have many other closer programming competitors, including a large number of other national and regional broadcast and cable networks with general entertainment and sports programming.

Empirical analysis undertaken by Drs. Rosston and Topper, who used the Commission's own models, demonstrates that combining the ownership of an RSN and an NBC O&O will have *no significant effect on prices*.[536] Specifically, they examined whether any of the Commission's predicted price effects of combining Comcast's RSNs with the NBC O&Os were realized; no price effects owing to this overlap are evident. As Drs. Rosston and Topper show, these models provide no support for the conclusion that overlap between Comcast RSNs and NBC O&O ownership led to increased RSN fees after the NBCUniversal transaction, which in turns rebuts unsubstantiated assertions that there would be any price effects in Los Angeles following the instant Transaction.[537]

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534 Rosston/Topper Reply Decl. ¶ 192.

535 Although the Transaction will result in common ownership of local TWC cable news stations with NBC O&Os in three DMAs (New York, Los Angeles and San Diego), the post-transaction landscape will include a wide variety of competing, diverse news sources in each of those areas.

536 Rosston/Topper Reply Decl. ¶¶ 196-205.

537 *Id.* ¶ 205.

This conclusion is unsurprising given the nature of NBC O&O retransmission consent deals. In general, NBCUniversal negotiates joint deals involving all NBC O&Os that fall within the footprint of the MVPD seeking programming, and those negotiations may or may not also involve Comcast-controlled RSNs. If negotiations for NBC O&Os and for TWC RSNs are conducted at different times, it would not be possible to extract increased fees from MVPDs for the carriage of both. Regardless, the Commission's program access rules and the NBCUniversal conditions granting MVPDs the right to arbitrate retransmission and RSN license fee disputes on a standalone basis provide additional backstop protections for MVPDs. The fact that not a single MVPD has invoked standalone arbitration for NBCUniversal O&Os and Comcast RSNs only reinforces that the empirical reality that Comcast has made this valuable programming available on fair market terms.

Claims that the Transaction will lead to a concentration in sports programming are likewise unfounded.[538] Comcast will be gaining ownership, through the Transaction, of only one major additional English-language RSN featuring major professional league sports – Time Warner Cable SportsNet (featuring the Lakers).[539] With respect to the much-discussed Dodgers RSN, SportsNet LA, once Comcast steps into TWC's shoes to provide certain distribution and other services to the network following the Transaction, Comcast would hope to facilitate the successful distribution of the network to willing MVPD buyers on fair market terms, so that Dodgers fans in Los Angeles can enjoy this valuable programming. As to claims that Comcast will control dozens of RSNs post-transaction,[540] other TWC local channels that Comcast will

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538 *See, e.g.*, Sports Fans Coalition Petition to Deny at 10-19.

539 *See* Comcast-TWC Public Interest Statement at 154.

540 *See* Sports Fans Coalition Petition to Deny at 2-3, 10; CFA et al. Petition to Deny at 1; Monumental Sports and Entertainment ("Monumental Sports") Comments at 1.

acquire may technically qualify as RSNs under the Commission's definition, but they do not feature marquee programming of the kind that distributors sometimes call "must-have." Far from the Transaction affording Comcast a "dominant" position in RSN sports programming, Fox will continue to control many more major league professional RSNs across the country than Comcast.[541]

In any event, these claims misunderstand the licensing of regional sports programming. RSNs are generally distributed in a limited geographic area, i.e., the area in which there is likely to be substantial interest in the teams whose games are shown on the RSN.[542] And there is no geographic overlap at all between the in-market footprints of TWC's English-language RSNs and *any* of Comcast's RSNs. Because of this lack of overlap and due to the regional nature of RSNs, the Transaction will not result in the combined company having a greater share of RSN programming than Comcast or TWC already has in any RSN footprint and, therefore, will not change the competitive dynamics relating to RSN distribution.[543] In short, the Transaction simply does not create any reduction in competition for sports programming.

Nor is there any claim that Comcast's acquisition of TWC local channels will harm independent news voices.[544] These commenters provide no empirical or other evidence to

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[541] Fox has controlling interests in 18 such RSNs. SNL Kagan (last visited Sept. 20, 2014).

[542] *See* Comcast-TWC Public Interest Statement at 134, 154. Although RSNs may also license out-of-market feeds, such feeds generally do not show live sporting events of the most valuable teams and are licensed to MVPDs for relatively small fees.

[543] This is so despite the Sports Fans Coalition's naked assertion that Comcast will have a "44.3% market share" of RSN programming nationally following the Transaction. As the Commission has explained time and again, "with respect to regional sports networks ('RSNs') and other regional networks, we conclude . . . that the relevant geographic market is regional." *Adelphia Order* ¶ 68.

[544] Stop the Cap! Comments at 25-26; *see also* Consumers Union et al. Petition to Deny at 21; NYPSC Comments at 12-13. Stop the Cap attempts to tie its criticism of Comcast's acquisition of TWC news outlets to the alleged deletion of a news report concerning filings in the Commission's Open Internet docket from NewsOne.com, a news website owned by RadioOne, one of the nation's largest radio companies primarily targeting African-American and urban listeners. Comcast holds an interest in NewsOne but has no control over its editorial policies

substantiate these speculative concerns, and the Commission should disregard them. Although Comcast may be acquiring more existing news outlets in certain markets, the concept of a "greater news voice" suppressing viewpoints is anachronistic in today's marketplace, where both traditional news providers and the Internet-driven explosion of electronic outlets assure the continued growth of a multiplicity of voices disseminating news, information, and commentary on all manner of events and developments.[545]

For all of these reasons, the Transaction will not permit Comcast to extract higher fees from MVPDs in Los Angeles for either NBC O&Os or TWC-affiliated RSNs.

3. No Harm to Video Distribution Services

No commenter seriously challenges the Transaction on the grounds that it will reduce competition for video distribution service by MVPDs.[546] Consistent with core antitrust principles, Commission precedent has established that the relevant geographic market for MVPD service is local.[547] Comcast and TWC serve distinct local markets; therefore, they do not compete for MVPD subscribers and no consumer will have fewer MVPD choices post-transaction. Indeed, post-transaction, most consumers will continue to have the opportunity of

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and had no involvement in the alleged incident. This single incident, therefore, provides no support for Stop the Cap!'s idle speculation.

[545] Other entities recently have made the same point, with considerable empirical support, in other proceedings. *See* Comments of the National Association of Broadcasters, *2014 Quadrennial Review – Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, MB Docket No. 14-50, 09-31 (filed Aug. 6, 2014) (detailing outlet growth in media marketplace, more complex "information flow," and consequent erosion of concerns regarding traditional media agenda-setting or gatekeeping).

[546] Nor does any commenter seriously argue that there will be any reduction in competition for phone service. The NYPSC argues that "Petitioners' horizontal view of competition appears too narrow." NYPSC Comments at 10. But NYPSC's concern about "enhanced market power over programming and other upstream whole services" is a concern about vertical effects that we dispel below. *See infra* Section IV.C. And NYPSC's concern about "increased capital and financial resources discouraging new entrants" is misplaced. *Id.* In fact, the announcement of this Transaction already has sparked competitors to respond by announcements of increased investment and entry. *See* Comcast-TWC Public Interest Statement at 49-51.

[547] *See, e.g.*, *Adelphia Order* ¶ 81; *SBC-AT&T Merger Order* ¶ 97; *see also supra* Section IV.A.2.

choosing among three or more MVPD providers and enjoy an increasing number of online video consumption options.[548]

Nor is there any risk of elimination of potential competition in this market. Despite claims by certain commenters,[549] Comcast and TWC have never had plans to expand into each other's territory and overbuild each other.[550] Indeed, no incumbent cable operator ever has. Some commenters alternatively claim that the Transaction will eliminate potential competition between Comcast and TWC to offer their own nationwide OVD services that compete with each other.[551] But the notion that Comcast and TWC might have launched competing nationwide OVD services – or that even one would – is entirely speculative. Significant real-world factors have hindered out-of-footprint OTT deployment to date, including high subscriber acquisition costs for out-of-footprint customers, and the fact that there already has been significant entry into the OVD market by national brands (e.g.,Netflix, Amazon, Apple, Hulu, and Google). As Dr. Israel explains:

> There is no evidence that Comcast and TWC have any plans to compete with one another either in the traditional MVPD or OVD space and thus no basis for a concern about potential competition. To the contrary, the relevant potential competitors are fiber-based broadband providers like Google and municipalities, as well as the growth of wireless broadband providers, all of which have established plans to expand into the merging parties' territories and thus which place actual constraints on the merging parties' behavior.[552]

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548 *See Fifteenth Video Competition Report* ¶ 36 (as of 2011, over 35% of homes have access to at least four MVPDs and over 98% have access to at least three MVPDs).

549 *See* Senator Franken Comments at 14; ITTA Petition to Deny at 7; Los Angeles County et al. Petition to Deny at 8.

550 *See* Israel Decl. ¶ 115 (citing N.Y. Times interview with Brian Roberts); Israel Reply Decl. ¶¶ 14, 204-06.

551 *See* Dish Petition to Deny at 76-80.

552 Israel Reply Decl. ¶ 14; *see also id.* ¶¶ 95, 203-07.

Of course, for the same reason, the failure of Comcast or TWC to enter the OTT market hardly can be said to be a significant blow to competition in that vibrant marketplace. Nor does anything preclude other MPVDs from launching such services – as Verizon's recent announcement vividly illustrates.[553]

4. No Harm to the Equipment Marketplace

A few commenters raise equipment-related issues, arguing that the Transaction (a) will allow the combined company to dominate the equipment market, limiting smaller providers' choices; (b) deter consumer adoption of Internet-connected television devices because of Comcast's allegedly insufficient authentication practices, (c) squelch or prevent competition from retail device manufacturers by preferring Comcast's own devices; and (d) use the X1 platform to deter consumer use of Internet-connected television devices or over-the-top video. According to these commenters, Comcast intends to advantage Comcast-supplied equipment and Comcast-delivered services, to the detriment of competitors.[554]

As a preliminary matter, none of these claims is genuinely transaction-specific. Comcast is already a large provider today, and there is no evidence that other MVPDs are constrained in their equipment options today or that an additional seven million subscribers will tip the balance. And the other arguments advanced by opponents relate entirely to Comcast's existing practices and equipment. Further, the claims regarding Comcast's authentication practices and the X1 platform are entirely without merit. Comcast is focused on providing its customers with the best TV experience anywhere, whether on its own devices or on retail devices, and is expanding, not

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553 *See* Todd Spangler, *Verizon to Join "Virtual MSO" Fray in Mid-2015 with Wireless TV Service*, Variety, Sept. 11, 2014, http://variety.com/2014/digital/news/verizon-to-join-virtual-mso-fray-in-mid-2015-with-wireless-tv-service-1201303707/.

554 *See, e.g.*, Netflix Petition to Deny at 73-75; RCN et al. Petition to Deny at 25; COMPTEL Petition to Deny at 22-23; Consumers Union et al. Petition to Deny at 27-29; Public Knowledge et al. Petition to Deny at 36-37; WGAW et al. Petition to Deny at 58-59.

limiting, its customers' device and video choices. The Transaction will not change that fact and, indeed, promises to enable customers to access more programming, in more places, on more devices, than ever before.[555]

a. The Transaction Will Not Limit the Device Options for Other MVPDs.

COMPTEL and RCN et al. raise concerns that the Transaction will give Comcast the incentive and ability to harm competing MVPDs by limiting their equipment options. For example, COMPTEL claims that Comcast's practices impede development of third-party devices that smaller MVPDs might want to use to deliver their services and, consequently, have the effect of limiting device choices and raising device costs for these MVPDs.[556] And RCN et al. assert that Comcast could demand that manufacturers give it "first, or even exclusive, rights to a critical emerging technology by threatening to take its business to another manufacturer[.]"[557] These claims wrongly assume that Comcast can exercise buyer power in the marketplace for video and broadband equipment. That is not the case.

The marketplace for these devices is global in scope, characterized by a wide and growing array of manufacturers, substantial investment, and innovative new products.[558]

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[555] Notably, TiVo and other equipment manufacturers support the Transaction. *See generally* ARRIS Comments; Broadcom Comments; Cisco Comments; TiVo Inc. ("TiVo") Comments.

[556] *See* COMPTEL Petition to Deny at 27. COMPTEL claims that Comcast's alleged decision not to develop its own apps for certain third-party devices threatens the marketplace for these devices, which, in turn, could limit the availability of these devices as distribution platforms for smaller MVPDs. *See id.* ("For small operators, these third-party devices [such as Roku and Fan TV] may offer an opportunity to avoid significant research and manufacturing costs associated with deploying next-generation devices in order to provide consumers with the integrated MVPD/OVD experience they seek.").

[557] RCN et al. Petition to Deny at 30.

[558] *See, e.g.*, Thomas Campbell, *Set-Top Box Market Remains Stable Despite Competition*, IPTV News.com July 30, 2014, *available at* http://www.iptv-news.com/2014/07/despite-competition-set-top-box-market-remains-stable/ ("Global STB[] shipments in 2013 remained relatively stable, despite competition from other devices . . . . Emerging markets accounted for around 70% of global demand in units, with the Asia Pacific market making up 44% of this global demand."). Liberty Global, for example, operates in 14 countries with over 24 million customers. *About Liberty Global – Key Facts*, Liberty Global, http://www.libertyglobal.com/about-us html (last visited Sept.

Comcast is just one purchaser, albeit a large one, within this global market of many competitors, and the structure of the market is such that there is no reasonable prospect that Comcast could "control" that market, even if it had the incentive to do so.

For example, small MVPDs have an abundance of potential set-top box suppliers, including, among others: Arris, Cisco, Pace, Samsung, Panasonic, Technicolor, Humax, Evolution Digital, Sagem, EchoStar, LG, COSHIP, Kaon, ADB, Huawei, and TiVo.[559] These manufacturers compete vigorously for market share here and abroad.[560] This competition has enabled Comcast and other operators to diversify their base of set-top box suppliers over the years and generally resulted in lower-cost boxes across the industry. COMPTEL claims that Comcast's alleged decision not to develop its own apps for certain Internet-connected devices threatens the marketplace for these devices, which, in turn, could limit the availability of these devices as distribution platforms for smaller MVPDs.[561] But the marketplace for these devices is global in scope and is thriving: it was just reported that *24 million* of them have been

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18, 2014). Liberty Global has deployed the Horizon gateway, a state-of-the-art whole home gateway with six tuners, DOCSIS 3.0, and telephony services. *Horizon – Experience TV Like Never Before*, at 9 (Technical Specifications), *available at* http://www.libertyglobal.com/PDF/horizon/horizon-brochure-2012.pdf.

[559] Indeed, certain small operators, such as Atlantic Broadband, Grande Communications, RCN, and Suddenlink, lease TiVo devices to their customers. *See* Jeff Baumgartner, *Atlantic Broadband Launches TiVo*, Multichannel News (Oct. 30, 2013), http://www multichannel.com/news/content/atlantic-broadband-launches-tivo/357118; Grande Communications, *TiVo FAQ*, http://mygrande.com/cable-tv/resources/tivo (last visited Sept. 19, 2014); RCN, *What is the TiVo Experience*, http://rcn.com/tivo/what-is-tivo/ (last visited Sept. 19, 2014).

[560] The combined company post-transaction will account for a small fraction of the overall purchases of set-top boxes and thus will lack the necessary market share to exercise any buyer power. The combined company will serve approximately 29 million cable subscribers; that is approximately 5 percent of global cable subscribers and 3 percent of global MVPD subscribers. *See Worldwide MVPD Subscribers to Pass 1.1 Billion in 2019*, Radio & Television Business Report (Jan. 23, 2014) *available at* http://rbr.com/worldwide-mvpd-subscribers-to-pass-1-1-billion-in-2019/ (citing ABI Research study finding that there are 570.2 million cable subscribers worldwide and 903.3 million MVPD subscribers worldwide as of the end of 2013).

[561] *See* COMPTEL Petition to Deny at 27 ("For small operators, these third-party devices [such as Roku and Fan TV] may offer an opportunity to avoid significant research and manufacturing costs associated with deploying next-generation devices in order to provide consumers with the integrated MVPD/OVD experience they seek.").

deployed to date.[562] Comcast's authentication decisions, even if they were in question, are highly unlikely to derail that success. And the world of authenticated apps is in the earliest possible stage of development, with Comcast not having made any final decisions on the subject, but being in discussions with multiple third-party device manufacturers about authentication of Comcast apps. In any event, while Comcast is not aware of smaller MVPDs developing apps for these devices, there would be no impediment to their doing so, now or in the future.

RCN et al. suggest, in particular, that Comcast might restrict access to DOCSIS 3.1 technology.[563] DOCSIS actually helps to underscore the fallacy of their claim. DOCSIS standards – which are not under the control of Comcast anyway – are publicly posted and freely available to equipment manufacturers, and the technology is deployed in broadband networks across the world.[564] DOCSIS is an open platform, available to all. There are a large number of manufacturers of cable modems using DOCSIS standards,[565] and several global manufacturers, including Cisco, Arris, and Huawei, build cable modem termination systems. Comcast has no ability to restrict access to that equipment, and RCN et al. presumably have had no difficulty

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562 *See* Quentin Fottrell, *Cable Companies Should Be Afraid of This Trend*, MarketWatch Sept. 3, 2014, *available at* http://www marketwatch.com/story/cable-companies-should-be-afraid-of-this-trend-2014-09-03; *see also TDG: Net-connected TV Penetration Tops 60% of Internet Households, Up 19% YOY*, PRWeb, Feb. 13, 2014, *available at* http://www.prweb.com/releases/2014/02/prweb11582038 htm (over 60% of U.S. homes have at least one connected TV device); Aaron Bear, *Good News, Roku, Streaming Media is Catching On*, Marketing Daily, July 9, 2014, *available at* http://www mediapost.com/publications/article/229652/good-news-roku-streaming-media-is-catching-on.html; Press Release, IHS, *More Connected Than Ever: 6 Billion New Internet-Enabled Devices to be Produced This Year* (Feb. 14, 2014), http://press.ihs.com/press-release/design-supply-chain/more-connected-ever-6-billion-new-internet-enabled-devices-be-prod; *Streaming Media Player Market Growing, Roku Dominates U.S.*, Parks Assocs., July 10, 2014, *available at* http://www.parksassociates.com/blog/article/streaming-media-player-market-growing--roku-dominates-u-s-; Will Richmond, *Roku Has Sold 10 Million Players as Connected TV Category Surges*, VideoNuze, Sept. 16, 2014, *available at* http://www.videonuze.com/article/roku-has-sold-10-million-players-as-connected-tv-category-surges.

563 *See* RCN et al. Petition to Deny at 29-30.

564 For example, DOCSIS 3.1 is in the process of becoming an international standard through ETSI, and DOCSIS technology is used in Europe and China, among other places.

565 These include, among others, ARRIS, Cisco, Netgear, D-Link, Linksys, SCMNetworks, Technicolor, Ubee, Zoom, and ZyXEL.

buying and deploying such equipment. This is true for DOCSIS 3.0 equipment that RCN uses today, and will be true with respect to equipment using the new DOCSIS 3.1 standard. It also bears noting that Comcast would have no incentive to restrict the availability of DOCSIS technology, even if it had the ability to do so. As with set-top boxes, the greater the number of buyers for DOCSIS equipment, the lower the price for Comcast and other service providers.[566]

Furthermore, contrary to the claims made by RCN et al. and COMPTEL, Comcast has helped accelerate, not retard, the introduction of new and innovative technologies by smaller operators. It is undeniable that Comcast's existing scale has permitted it to make investments that have collateral benefits for the rest of the MVPD industry. For example, Comcast designed the digital transport adapter ("DTA") for its conversion to all-digital service. Today, smaller operators are similarly using DTAs as a low-cost solution for their digital conversions, thereby piggy-backing on Comcast's investment and innovation and enabling them to reclaim analog bandwidth for faster Internet and other services.[567] Comcast estimates that over 5.5 million DTAs have been sold to small and mid-sized cable operators, at attractive pricing enabled by Comcast's innovation and scale.

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[566] RCN et al. claim that Comcast and TWC have "exerted their market power in the past to impede competitors' efforts to negotiate acceptable contracts for the deployment of emerging technology," and cite, by way of example, RCN's alleged inability to license a programming guide product due to an exclusive contract between the vendor and Comcast. *See* RCN et al. Petition to Deny at 30 & n.101. RCN raised this concern in the 2002 transaction involving Comcast and AT&T, and the Commission rejected it. The Commission found that "[t]he record [did] not indicate that the merger will create or enhance Applicants' incentive or ability to impede technological developments in the emerging [Interactive Television ("ITV")] market. . . . [T]the merged entity will serve fewer than 30% of MVPD subscribers. We agree with Applicants that this would be too small a share to enable the merged entity to exercise market power in any ITV market and, contrary to RCN's speculation, circumscribes its ability to negotiate exclusive arrangements with multiple vendors in multiple markets effectively locking out competitors." *Comcast-AT&T Broadband Order* ¶ 165. These conclusions apply equally to the broadband and video device marketplaces today, where Comcast also does not possess buyer power. And if this were a serious, ongoing concern, one would think that RCN might have cited a more recent example of the alleged problem.

[567] *See, e.g.*, Baja Broadband Operating Co., LLC Request for Waiver of Section 76.1204(a)(10 of the Commission Rules, Memorandum Opinion and Order, 27 FCC Rcd. 6105 (2012) (noting plans to use HD DTAs for digital transition).

Likewise, Comcast played an instrumental role in the development of the Reference Design Kit ("RDK"), which is an integrated software bundle that can be used in a wide range of set-top boxes and other devices and provides a common platform for X1 and other innovative services. The RDK platform can help speed innovation by lowering the costs of software development, reducing development cycles, and easing the adoption of new technologies. Importantly, RDK allows flexibility for optional components selected by the operator, so the components that Comcast selects can and do differ from those selected by other operators. RDK has now been licensed to over 150 entities. Small cable operators are free to license the platform, but generally don't need to – the broad licensing of the platform to set-top box vendors and other suppliers in the cable ecosystem means that smaller operators, like other operators, will get the benefits of the RDK platform, such as greater user interface choices, when they purchase RDK-enabled boxes.[568]

b. Comcast Is Increasing, Not Restricting, Customer Access to TVE Services On Retail Devices.

Certain commenters assert that Comcast threatens the development of a marketplace for Internet-connected television devices by not sufficiently supporting access to authenticated programming services on such devices.[569] They argue that TWC has done this more aggressively than Comcast has, and that the Transaction will accordingly derail TWC's more

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[568] Moreover, contrary to Public Knowledge and Open Technology Institute's claim, RDK licensees are not bound to use the X1 user interface. *See* Public Knowledge et al. Petition to Deny at 39-40. Rather, as with other components, the operator can use a different user interface, and, in any event, **{{**

}}. In addition, RDK is licensed on a royalty-free basis, and RDK community member companies can contribute software changes and enhancements to the RDK stack, so the insinuation that RDK is merely a vehicle to generate licensing revenues while suppressing innovation and customer choice, *see id.* at 40, is wildly inaccurate.

[569] *See, e.g.*, Public Knowledge et al. Petition to Deny at 37-38; COMPTEL Petition to Deny at 23-24; WGAW et al. Petition to Deny at 58; Roku, Inc. ("Roku") Comments at 8-12.

progressive approach.[570] But as a preliminary matter, the disparity commenters try to paint mischaracterizes Comcast's approach. Further, the combined company – just as it will in all other areas – will learn from *each* company's practices and agreements, and will seek to adopt the best approach going forward.

Until now, while TWC has led in terms of authenticating various "TVE" services on different devices, Comcast has not been sitting idle. Today, Comcast provides authentication services for its customers on the websites and applications of **[[ ]]** different program networks on up to **[[ ]]** different device platforms. These numbers have been growing – this year alone, Comcast has already authenticated **[[ ]]** additional networks on **[[ ]]** different devices – and that trend will continue as more programmers pursue TVE authentication. For example, HBO Go is authenticated on the HBO website, the iPhone and iPad, Android smartphones and tablets, Kindle Fire, Xbox 360, Apple TV, and Samsung smart TV, and **{{**

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Meanwhile, Comcast has advanced beyond TWC in terms of making sure its customers have a robust TVE experience delivered *by* Comcast, over-the-top, on a host of devices, through Comcast's own applications and websites. Comcast believes that customers value the ability to access a wide range of TVE content through one aggregated source, rather than having to jump from one programmer app to another, and Comcast's TVE services aim to satisfy that demand. Comcast customers have access to 300,000-plus streaming choices, including over 50 live TV channels, via the XfinityTV.com website. The website can be accessed on personal computers and other device platforms using Internet Explorer, Firefox, Chrome, or Safari browsers. These

[570] *See, e.g.*, Public Knowledge et al. Petition to Deny at 38-39; COMPTEL Petition to Deny at 25-26; Roku Comments at 11-12.

live channels and over 25,000 on-demand choices are also available via the Xfinity TV Go app, which also allows customers to download certain shows and movies to watch offline later. The app is available on iPhone, the later generations of iPod touch, the iPad, Kindle Fire, and some Android phones and tablets.[571] Comcast also is engaged in discussions with **{{**

}} to support the Xfinity TV Go app and programmer apps on those platforms.[572] To be sure, TWC has its own TVE experience and has authenticated it on a range of devices – but that experience, as discussed in the Public Interest Statement, is far less advanced and has far less content than Comcast's.[573]

Comcast's TVE services are popular with customers. There have been 6.4 million unique users of TVE services across Xfinity.com, Xfinity TV Go, and authenticated programmer applications so far this year, a 30 percent increase over the last year. Almost 30 percent of Comcast's cable customers utilize these TVE platforms. Moreover, there has been a 63 percent increase in the hours of Comcast's TVE services watched per viewer over the last year. Comcast is committed to meeting this increasing demand for TVE services by making these offerings as

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571 The XfinityTV website and Xfinity TV Go app provide a path for online authentication for smaller programming networks that may not have the resources to create a website and/or application that can support video streaming and pay for back-office support for authentication and other services. This includes several small independent programmers that might otherwise not offer online TVE options.

572 Roku claims that MVPDs sunset authentication codes for programmer apps, but not for MVPD apps. *See* Roku Comments at 10. In Comcast's case, each device has a specific TVE authentication session token that Comcast sets with the programmer and with its applicable solution (e.g., Adobe, Akamai, or custom), the length of which varies by device platform. These procedures help combat fraudulent access to authenticated content. With respect to Comcast's own TVE services, Comcast addresses this concern in a different way. Comcast authorizes TVE users every time they attempt to play a video (i.e., Comcast checks to see if they are still a Comcast customer and that the network they are trying to watch is part of their video service).

573 *See* Comcast-TWC Public Interest Statement at 77. TWC also has provided access to its *IP cable* programming over the Xbox and Roku. This is not TVE, but an in-home substitute for a set-top box. Comcast's practices in this regard are discussed below, and in any event, Comcast's IP streaming cable service is also more robust and complete than TWC's today.

robust and accessible as possible. In this regard, Comcast is currently negotiating TVE rights with programmers covering an additional 40 different cable networks and broadcast stations.[574]

Comcast's goal is always to create the best experience for its customers, and it will continue to look for ways to maximize device choices, including reviewing the best practices and options available following the integration of the two companies.[575]

c. Contrary to Commenters' Claims, Comcast Is an Industry Leader in Enabling Consumers to Access Cable Services on Retail Devices.

Some commenters claim that Comcast is harming the device marketplace by restricting customers' access to Xfinity TV on retail set-top box devices.[576] To the contrary, Comcast is meeting consumer demand for more device choices. As the Commission noted in its latest Video Competition Report, "the CPE marketplace is more dynamic than it has ever been, offering consumers an unprecedented and growing list of choices to access video content."[577] These exciting developments are driven by marketplace imperatives: consumer demand for mobility and new distribution platforms that Comcast and other video distributors, equipment manufacturers, and application developers are all working to satisfy.

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574 Comcast will typically consider TVE rights in the context of a broader negotiation over an affiliation agreement that will often include a wide range of issues covering multiple platforms and services. Consequently, the gives-and-takes of each negotiation will be different, so the precise scope of TVE rights that are negotiated will vary from deal to deal.

575 COMPTEL alleges that Comcast is violating the no-blocking open Internet rule by not authenticating HBO Go on Roku or PlayStation3. *See* COMPTEL Petition to Deny at 25. COMPTEL misunderstands the rule, which entitles end users to connect and use any lawful device of their choice and has nothing to do with whether an MVPD agrees to authenticate that a particular user is a subscriber to its video service. *See Preserving the Open Internet; Broadband Industry Practices*, Report and Order, 25 FCC Rcd. 17905 ¶ 65 (2010) ("*2010 Open Internet Order*"). Comcast places no restrictions on the ability of a customer to connect and use Roku, PlayStation3, or other Internet-connected devices.

576 *See, e.g.*, Consumers Union et al. Petition to Deny at 27-28; Public Knowledge et al. Petition to Deny at 36; Los Angeles County et al. Petition to Deny at 14; Roku Comments at 12.

577 *Fifteenth Video Competition Report* ¶ 354; *see also* Letter from Michael K. Powell, President & CEO, NCTA, to Chairman Wheeler, FCC, MB Docket Nos. 10-9, 07-269, CS Docket No. 97-80, at 2-4 (Feb. 5, 2014) (describing the proliferation of consumer choice to access video services on consumer-owned devices).

Comcast has been at the forefront of these efforts in the MVPD industry. As TiVo notes in its comments supporting the Transaction, "Comcast has been the most supportive of enabling innovation in retail set-top boxes, thereby enabling consumers to have a robust alternative to an operator-leased set-top box."[578] TiVo continues that the Transaction "should benefit consumers that wish to use retail devices to access their pay-TV programming as we should expect Comcast's leadership and supportive policies to continue and expand."[579]

In this regard, Comcast has a strong track record of supporting retail CableCARD-enabled retail devices in its cable systems.[580] In fact, Comcast has gone above and beyond the Commission's CableCARD requirements by giving TiVo customers throughout its footprint the ability to access Comcast's VOD services on TiVo devices through the "Cardio" solution.[581] Furthermore, Comcast has committed to continue to provide and support CableCARDs in retail devices, notwithstanding the D.C. Circuit's *EchoStar* decision last year vacating certain CableCARD rules.[582] Comcast will ensure that all CableCARD-enabled devices will continue to have access to all linear channels in all current and future Comcast markets.[583]

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578 TiVo Comments at 1.

579 *Id.* at 2.

580 *See id.* at 1 n.1 (noting that when provisioning and support issues have arisen, "Comcast has been more willing than most operators to address such issues and work with TiVo on ways to improve CableCARD provisioning and support").

581 *See* Jeff Baumgartner, *Comcast, TiVo Complete VOD Connection*, Multichannel News (July 9, 2014), http://www multichannel.com/news/tv-apps/comcast-tivo-complete-vod-connection/375794. It also bears noting that a TiVo device – and any retail CableCARD device for that matter – has the ability to combine access to cable services with access to over-the-top and other non-cable services, so Consumers Union's claim that customers have to use one device for cable services and a separate device for over-the-top services, *see* Consumers Union et al. Petition to Deny at 28, is inaccurate.

582 *See* Letter from Jordan Goldstein, Vice President, Regulatory Affairs, Comcast Corp., and Matthew Zinn, Senior Vice President, General Counsel, Secretary and Chief Privacy Officer, TiVo Inc., to Marlene H. Dortch, Secretary, FCC, CS Docket. No. 97-80, MB Docket No. 10-91, at 1 (July 14, 2014) ("Comcast-TiVo Letter").

583 Comcast also is an industry leader in supporting Digital Living Network Alliance ("DLNA") standards that enable the networking of cable services from Comcast-supplied set-top boxes to third-party devices in the home. Comcast has already deployed set-top boxes that utilize DLNA standards, and will be deploying DLNA CVP-2 in its

Comcast's transition to IP-based cable services will expand upon this trend. For example, Comcast already provides its IP-based VOD services to the Xbox. TWC has authorized a linear cable service on the Xbox, which Comcast will study once the companies are integrated. And Comcast also has developed the Xfinity TV app to allow access within the home to Comcast's IP cable services (which delivers essentially the entire linear lineup, including all PEG and broadcast channels) on a variety of mobile devices and personal computers.[584] Thus, customers can use their own third-party devices in lieu of leasing set-top boxes from Comcast – and this app is more robust that TWC's (or Charter's), including a more comprehensive set of cable channels and enabling playback and downloading of DVR content.[585]

Finally, Comcast has announced that, going forward, it will make available to retail device manufacturers a non-CableCARD downloadable security solution for accessing Comcast's IP-based cable services.[586] This will allow retailers to build retail set-top boxes and other devices that are designed, from the start, to be used in conjunction with the full suite of Comcast's services, and will further support the marketplace for retail alternatives to Comcast-supplied equipment.

XG set-top boxes. This capability will enable Comcast customers with compatible DLNA-certified CE devices to access its cable services via the home network.

584 *See X1 DRV Cloud Technology: General FAQs*, Comcast Corp. http://customer.comcast.com/help-and-support/cable-tv/x1-dvr-cloud-technology-general-faqs/ (last visited Sept. 9, 2014).

585 *See* Comcast-TWC Public Interest Statement at 74, 79-82. Comcast is also enabling college students to watch live TV and VOD content on their IP-enabled devices, including laptops, tablets, and smartphones, while on campus, without the need for any set-top box. *See* Press Release, Comcast Corp., Comcast Brings TV To Every Screen for Colleges and Universities (Aug. 21, 2014), http://corporate.comcast.com/news-information/news-feed/comcast-brings-tv-to-every-screen-for-colleges-and-universities.

586 *See* Comcast-TiVo Letter at 1. Consumers Union and Common Cause claim that the Comcast-TiVo agreement "presents the additional risk that post-merger, the combined company would be able to use its additional market power to force others in the industry to go along with whatever solution, if any, it is willing to adopt." Consumers Union et al. Petition to Deny at 28 n.77. Comcast will not force any other operator to use Comcast's Cardless Solution. It will make the solution available to other operators on a purely voluntary basis. If operators want to pursue a different path, they are free to do so.

d. The X1 Platform Will Not Impede Customer Access to Over-The-Top Video.

Some commenters claim that the X1 platform could somehow restrict consumer access to over-the-top video on third-party devices.[587] Netflix also claims that Comcast restricts online video's success by not including Netflix on the X1 platform itself.[588] Both claims are entirely without merit.

As a preliminary matter, these claims appear to be an effort to resist competition and reduce consumer welfare. To the degree commenters are concerned that the X1 platform may be attractive and innovative enough to capture the attention and interest of consumers, deterring them from pursuing other alternatives, that is hardly a competitive harm: that is simply *competition.*

To the degree the arguments instead suggest the X1 platform somehow *precludes* access to Internet-connected devices or over-the-top video, those arguments are simply wrong as a factual matter. An X1-capable set-top box – like any other cable set-top box – can be plugged into any of the 24 million connected TV devices in the market (e.g., an Apple TV, a Roku, an Internet-connected TV).[589] An X1 customer who wants to access an over-the-top app would simply change the input on the relevant device – typically by simply navigating to the app on the device's main menu, or, in some cases, just by pressing a dedicated button on the device's

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587 *See, e.g.*, Netflix Petition to Deny at 73-75; Public Knowledge et al. Petition to Deny at 39-40; WGAW et al. Petition to Deny at 58.

588 *See* Netflix Petition to Deny at 74. Netflix refers to the "X1 set-top box" in its opposition. *See id.* The X1 is a platform, not a set-top box. X1 can be experienced on Comcast-supplied equipment, such as the XG1 set-top box, or customer-owned equipment, such as a tablet or smartphone using the Xfinity TV app.

589 *See supra* note 558.

remote control.[590] In short, the X1-capable box is no different vis-à-vis customers' access to third-party devices and over-the-top video on such devices than any other set-top box.

There is likewise no basis for Netflix's claim that the X1 platform is a "gatekeeper" for over-the top video apps.[591] Legacy set-top boxes across the country, in and out of Comcast's existing and future markets, have no Internet apps today, so it is difficult to see any reason why Netflix – with its 36 million-plus domestic subscribers (which is more than Comcast and TWC combined) – thinks its app *must* be included on X1-capable boxes. More fundamentally, Netflix does not explain why Comcast should be compelled to accept *any* party's over-the-top app on its X1-capable boxes, when Roku, Apple TV, and others have no such obligation for their millions of already-deployed devices, and instead are free to negotiate whatever deals they choose. Although Comcast offers and has experimented with a small selection of over-the-top apps, it has not reached definitive views about the best direction for the platform, particularly given that online content and services are already readily available on Internet-connected TV devices that can be used *with* X1-capable boxes.[592] It may make as much or more sense to devote the

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590 *See, e.g.*, *Install and Watch the Netflix App on Xbox 360*, Xbox, http://support.xbox.com/en-US/xbox-360/apps/netflix-setup (last visited Sept. 18, 2014); *Amazon Instant Video on Xbox Live*, Xbox, http://support.xbox.com/en-US/xbox-one/apps/amazon-instant-video (last visited Sept. 18, 2014); *How do I activate Hulu Plus on my Roku Player*, Roku, http://support roku.com/entries/332189-How-do-I-activate-Hulu-Plus-on-my-Roku-player (last visited Sept. 18, 2014); *How to Activate Netflix on Your Blu-Ray Player*, Samsung, http://www.samsung.com/us/support/supportOwnersHowToGuidePopup.do?howto_guide_seq=3103&prd_ia_cd=N0000071&map_seq=15190 (last visited Sept. 18, 2014).

591 WGAW makes an equally invalid claim regarding the X1's inclusion of only one music app. *See* WGAW et al. Petition to Deny at 59.

592 Netflix's gatekeeper claims are undercut by two additional facts. First, X1 is still a nascent platform. There are **{{ }}** X1-based customers in Comcast's markets today, and X1 boxes represent about **{{ }}** of Comcast's installed base of set-top boxes. Moreover, **{{ }}** of the X1-capable boxes currently have the technical capability even to support Internet-delivered apps – the remainder lack the memory, processor speed, and other technical characteristics to do so. Second, the X1 platform allows customers to access Internet content using the platform's Send-to-TV feature. Customers with Internet-accessible X1-capable boxes can use this feature to navigate to a webpage on a third-party device, such as a smartphone or tablet, and then use Send-to-TV to have the X1 pull up the content on the television. *See Download and Use Send to TV*, Comcast Corp., http://customer.comcast.com/help-and-support/cable-tv/download-and-use-send-to-tv/ (last updated Aug. 6,

interactivity of the X1 platform to apps closely linked to the core of Comcast's Title VI cable offering or to apps that help Comcast differentiate its offerings from its competitors. Or, Comcast may decide that its experience with the few over-the-top app partners it has to date has been positive and useful, and thus to expand in that direction. But in either case, there is no plausible reason any third party should be entitled to dictate to Comcast what the best use of its own equipment and service platform should be.[593]

5. No Harm to Voice Services

As discussed above, the Transaction will bring benefits to the voice marketplace by enabling the combined company to offer more advanced and innovative voice services to consumers and making it a more robust competitor.[594] The Transaction will not reduce the number of voice competitors in any market, and no opponent contends otherwise. Nor does any commenter challenge these benefits to competition and consumers.

However, a handful of ILECs and CLECs seek assistance from the Commission through an assortment of proposed conditions from the unreasonable to the radical, including requiring the combined company to forfeit certain statutory rights, that would hamstring Comcast's ability to compete in the voice services market.

For example, the Maine RLECs – whose hostility to competition is a matter of record before the Commission[595] – assert that intermodal voice competition from cable operators

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2014). To date, usage of Send-to-TV has been low, though Comcast is currently working on improvements to the feature.

593 Although there are developer guidelines for apps on the X1 platform, there is no general toolkit that just allows an edge provider to develop an app for the X1 platform. That is because launching apps on the X1 platform can entail significant development, integration, and other work.

594 *See supra* Section III.B.5.

595 *Petition of CRC Commc'ns of Maine, Inc. and Time Warner Cable Inc. for Preemption Pursuant to Section 253 of the Commc'ns Act, as Amended*, Declaratory Ruling, 26 FCC Rcd. 8259 ¶ 8 (2011) (describing Maine RLECs' refusal to interconnect).

subjects them to undue economic burdens that undermine their ability to provide universal service, and thus they need certain regulatory handicapping in order to compete.[596] The Maine Public Utilities Commission has discredited this argument and repeatedly rejected it, and, in any event, it is completely unrelated to the Transaction.[597] Undeterred, the Maine RLECs ask the Commission to require the combined company to forego its statutory right to local number portability under Section 251(b)(2).[598] Such a request would impose clear harm on consumers and has accordingly been squarely rejected by the Maine Commission.[599] The Commission should follow suit here as well, reminding the Maine RLECs that the central goal of the antitrust laws and the Commission's settled policy is "to protect competition, not competitors."[600]

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[596] Lincolnville Networks, Inc., Tidewater Telecom, Inc., Oxford Telephone Company, Oxford West Telephone Company, and UniTel, Inc. ("Maine RLECs") Petition to Deny at 2-3, 8.

[597] *Lincolnville Networks, Inc., Petition for Suspension or Modification of the Application of the Requirements of 47 U.S.C. § 251(b) and (c), Pursuant to 47 U.S.C. § 251(f)(2) regarding Time Warner Cable Info. Servs. (Maine), LLC's Request*, Order, Docket Nos. 2012-218-221 (Me. Pub. Utils. Comm'n Feb. 22, 2013) ("Maine RLECs Interconnection Order"), *aff'd*, Order on Reconsideration (Me. Pub. Utils. Comm'n Apr. 12, 2013); *Request for Arbitration of Interconnection Agreement Between Time Warner Cable Info. Servs.(Maine) LLC & Lincolnville Networks, Inc.* et al., Order, Docket Nos. 2012-133-137 (Me. Pub. Utils. Comm'n Oct. 5, 2012) (noting other mechanisms of offsetting financial impact of competition to preserve universal service).

[598] Maine RLECs Petition to Deny at 8-9.

[599] *Lincolnville Networks, Inc., Petition for Suspension or Modification of the Application of the Requirements of 47 U.S.C. § 251(b) and (c), Pursuant to 47 U.S.C. § 251(f)(2) regarding Time Warner Cable Info. Servs. (Maine), LLC's Request*, Order, Docket Nos. 2012-218-221 (Me. Pub. Utils. Comm'n Feb. 22, 2013), *aff'd*, Order on Reconsideration (Me. Pub. Utils. Comm'n Apr. 12, 2013).

[600] *Bell Atl. Mobile Sys. and NYNEX Mobile Commc'ns Co.*, Memorandum Opinion and Order, 12 FCC Rcd. 22280 ¶ 16 (1997); *see also SBC Commc'ns Inc. v. FCC*, 56 F.3d 1484, 1492 (D.C. Cir. 1995) (upholding Commission decision not to condition merger as requested by competitor and noting that such conditions "seem to be rooted in the mistaken belief that the Commission should protect competitors at the expense of consumers"). In addition, NTCA speculates that the combined company may offer low-priced introductory offers or free service, including to anchor institutions. *See* NTCA Petition to Deny at 8. Again, NTCA fails to show that such an alleged outcome is transaction-specific. Nor does it show that such offers would be harmful to competition or consumers and other end-users, which would be difficult to do given that some parties seek conditions requiring the company to make these very same offers. *See* City of Los Angeles et al. Petition to Deny at 6 (seeking s condition requiring Comcast to provide free service to libraries, schools, and community centers). That said, as a general matter, attempts by some franchising authorities to use this proceeding to extract specific benefits, such as a requirement that Comcast provide services, support certain types of networks, and make particular investments, are wholly unrelated to this transaction and should be rejected. *See, e.g.*, City of Boston Comments at 2 (seeking unspecified "[s]upport for institutional networks and municipal resiliency initiatives"); City of New York Comments at 1-2 (same).

For the same reasons, the Commission should reject CenturyLink's self-serving and anticompetitive proposal that the combined company be prevented from ordering unbundled network elements ("UNEs") at TELRIC rates and seeking interconnection pursuant to Section 251(c), broadly claiming that the combined company will have sufficient resources to build any inputs on its own.[601] In effect, CenturyLink seeks forbearance relief from its statutory obligations vis-à-vis Comcast[602] – for itself and on behalf of other ILECs – without the trouble of making the market-by-market showing required by statute.[603] The Commission should reject this plea to put CenturyLink's interests before those of consumers.

6. No Harm to Business Services

As described above, a very substantial benefit of this Transaction will be the increased competition, lower prices, and improved services it will bring to the business services market, in which such enhanced competition is greatly needed. No commenter meaningfully challenged these substantial benefits.

COMPTEL expresses concern over the possibility that the Transaction will result in the loss of wholesale inputs its members currently have from TWC and thereby harm

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601 CenturyLink Comments at 38-41; *see also* 47 U.S.C. §§ 251(c), (d)(1). This proposal is not at all "similar" to AT&T's agreement not to give effect to rulings altering its own UNE obligations in connection with its merger with BellSouth. CenturyLink Comments at 41 n.86. Whereas AT&T simply agreed not to take full advantage of regulatory relief it had obtained – which in turn restored competitors' UNE rights – CenturyLink's proposal would deprive the combined company of exercising certain of its rights at all.

602 *See, e.g.*, *Implementation of the Local Competition Provisions of the Telecomms. Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd. 3696 ¶ 3 (1999) (purpose of Section 251 is to "reduce inherent economic and operational advantages possessed by" ILECs); *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 371 (1999) (noting purpose of these provisions to "facilitate market entry").

603 *See* 47 U.S.C. § 160(a) (forbearance with respect to a particular provision not granted unless petitioner can demonstrate, *inter alia*, that (1) enforcement of the provision is not necessary to ensure just and reasonable practices or rates, (2) enforcement is not necessary to protect consumers, and (3) forbearance is consistent with the public interest).

competition.[604] But COMPTEL provides no basis for assuming that Comcast will eliminate these business arrangements with TWC. And, in fact, Comcast has no such plans to do so. Rather, Comcast intends to honor these existing TWC arrangements and will act in a manner consistent with the terms and conditions of those contracts. Beyond, this, Comcast continues to be active in this business services space and is currently in negotiations with a number of competitive providers to provide continued and enhanced wholesale services. In short, viewed from this angle as well, far from reducing competition in the business services market, the Transaction will *enhance* it.

7. No Harm from Loss of "Benchmark" Competition

Some commenters claim that Comcast's acquisition of TWC will eliminate TWC as an independent source of "benchmark" prices, thereby increasing the likelihood of anticompetitive behavior.[605] This claim is without merit. The fear that the elimination of TWC as one of many "benchmarks" in the industry would lead to higher prices is entirely unfounded. Moreover, the effect of a benchmark on pricing is neutral; it can cause firms to increase prices or decrease prices. As Dr. Israel puts it, "[T]here is no basis to conclude that eliminating TWC as one of many competitive benchmarks would lead to higher prices or otherwise harm competition."[606] There is no plausible economic argument that one additional benchmark is key to consumer welfare.[607]

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[604] COMPTEL Petition to Deny at 10-12 (noting that application does not include confirmation of the combined company's intent to continue providing wholesale services to COMPTEL members). Similarly, Public Knowledge asserts, without basis, that the combined company's scale will give it undue leverage with respect to interconnection, a result that, as discussed above, is unlikely if not impossible. *See supra* Section II.C.

[605] *See* Cogent Petition to Deny, Farrell Decl. ¶¶ 94-96; Dish Petition to Deny, Sappington Decl. at 25; Free Press Petition to Deny at 20-21; Los Angeles County et al. Petition to Deny at 9.

[606] *See* Israel Reply Decl. ¶¶ 14, 207.

[607] *See* Israel Decl. ¶¶ 115-116; Israel Reply Decl. ¶¶ 14, 207.

Moreover, the Commission has found that "benchmarking does not represent as useful or important a regulatory tool as the Commission previously believed."[608] Instead, the Commission realized that measuring a company's performance over time is the most appropriate way to detect and evaluate alleged discriminatory practices. Unlike with respect to the monopoly ILEC inputs of the 1990s, the broadband access and MVPD markets are diverse and intermodal. Before and after the Transaction, Comcast faces competitive pressure from telco and DBS providers, as well as from overbuilders. Therefore, to the extent benchmarking is a useful tool, the Commission can compare Comcast to the numerous competitors it faces in those markets in which it actually competes.

C. ***No Vertical Harms*: The Transaction Will Not Facilitate Anticompetitive Foreclosure or Other Exclusionary Conduct.**

In this section, Applicants address alleged potential vertical harms from the Transaction, showing that these are likewise without merit. As in prior analyses, Applicants start with purported concerns about Comcast's use of its broadband service to block or degrade OVDs in order to bolster Comcast's video business. Netflix, Cogent, and Dish, in particular, have advanced new self-serving theories of vertical harm that precisely match up with their business objectives of avoiding normal competitive forces and gaining negotiation advantages. Their principal focus concerns Internet traffic exchange, which (1) they attempt to portray as a market failure when, in fact, that marketplace is working extremely well, while (2) claiming that the Transaction will exacerbate these purported "market failures."

Some commenters also cite alleged vertical harms involving Comcast's licensing of video programming to MVPDs and OVDs, and its carriage of unaffiliated video programmers,

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608 *AT&T-BellSouth Order* ¶ 189.

all of which are easily dispensed with as well. These video programming-related allegations largely re-hash the same arguments made in the NBCUniversal transaction. The Commission has already thoroughly considered the issues associated with combining NBCUniversal's programming with Comcast's cable systems, and addressed any perceived concerns through a significant set of program-related conditions and voluntary undertakings in that prior transaction that will extend to the acquired systems and programming assets here. Although Comcast will gain seven million additional cable subscribers in this Transaction, it will acquire only modest additional programming assets. Thus, the Transaction does not create any new or additional risks of harm in this area. Nonetheless, a variety of programmers and others are hoping to use the Transaction to advance their own individual business interests through regulatory fiat. Whether old or new, these opportunistic claims do not withstand scrutiny.

1. No Vertical Foreclosure of OVDs on the Broadband Network

Several commenters rebottle the horizontal broadband concerns debunked in Section IV.B. above into a theory of vertical harm, although this vintage fares no better: Comcast will, the argument goes, use its increased number of broadband subscribers to foreclose their access to Internet content in order to bolster Comcast's video business. Some commenters also vaguely allege harm to OVDs because of their supposedly diminished bargaining power vis-à-vis the combined entity. But no commenters are able to identify any coherent reason why the Transaction will increase the incentive or ability of the combined entity to engage in such activities.

As explained below, the Transaction will not increase Comcast's incentive or ability to foreclose access to Internet content or applications. All other concerns that commenters raise in

this proceeding are not transaction-specific and have their proper place in industry-wide proceedings, some of which are ongoing.[609]

a. Broadband Foreclosure Claims Are Not Transaction-Specific.

Notwithstanding repeated allegations by some commenters,[610] the combined company will have no enhanced incentive or ability to risk degrading or devaluing its Internet access service to harm OVDs for the sake of protecting its video business. Simply put, there is no reason to believe that Comcast and TWC (or any other MPVD for that matter) have any different incentives in this area today. As an initial matter, it is hard to see how commenters can in good faith portray this alleged concern as a transaction-specific issue, when the same claims about ISPs' current incentives and ability are raised in the pending *Open Internet* proceeding,[611] in every effort Public Knowledge has made over usage-based billing,[612] and otherwise. Moreover, the comments contain no cohesive theory at all (and in some cases, not even a faint effort) to explain why the Transaction would in some way *increase* this supposedly ubiquitous wireline MVPD incentive or ability. And, given the pending Open Internet proceeding (and Comcast's

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609 *See, e.g.*, Comcast Corp. Comments, GN Docket Nos. 14-28, 10-127 (July 15, 2014).

610 *See* Netflix Petition to Deny at 94-95; Cogent Petition to Deny at 2; Dish Petition to Deny at 70.

611 *See* Public Knowledge et al. Comments, GN Docket No. 14-28 et al., at 13-22 (July 15, 2014); COMPTEL Comments, GN Docket Nos. 14-28, 10-127, at 7-20 (July 15, 2014); Cogent Comments, GN Docket Nos. 14-28, 10-127, at 8-9, 38 (July 15, 2014); Free Press Comments, GN Docket Nos. 14-28 et al., at 125-39 (July 17, 2014); Netflix Comments, GN Docket Nos. 14-28, 10-127, at 6-20 (July 15, 2014); Senator Franken Comments, GN Docket No. 14-28, at 2 (July 15, 2014); Writers Guild of America, West, Comments, GN Docket Nos. 14-28, 10-127, at 13-16 (July 15, 2014).

612 *See, e.g.*, Public Knowledge et al. Comments, GN Docket No. 14-28 et al., at 48-60 (July 15, 2014); Letter from Michael Weinberg, Vice President, Public Knowledge, to Acting Chairwoman Mignon Clyburn, FCC, at 2 (Aug. 22, 2013), *available at* http://apps.fcc.gov/ecfs/document/view?id=7520939385 ("As Public Knowledge detailed in its original petition, data caps undermine the ability of video providers unaffiliated with ISPs to compete with those video providers that are also ISPs."); Petition to Enforce Merger Conditions of Public Knowledge, MB Docket No. 10-56, at 7 (Aug. 1, 2012), *available at* http://apps.fcc.gov/ecfs/document/view?id=7022002447 ("Comcast is using its control over the transmission of network traffic to disadvantage unaffiliated competitors to Comcast's pay television service and OTT video offering.").

independent commitment to the prior Open Internet rules), there is no need for separate treatment of the issue here.

Further, the two examples cited by almost all opposing commenters for why this issue is a concern that the Commission should address here are the disputes regarding Netflix traffic that arose between Level 3 and Comcast *three years ago*, and between Cogent and Comcast over a year ago – which suggests that this concern about Comcast's alleged abuse of its alleged "terminating access monopoly" is anything *but* transaction-specific. And indeed, these same arguments, concerns, and incidents (broadened to include similar disputes with Verizon and AT&T) are made in the Commission's *Open Internet* proceeding,[613] further underscoring the degree to which these issues cannot seriously be portrayed as transaction-related concerns.

In any event, should the Commission decide to address these claims here, Applicants show below why Comcast will have neither the incentive nor the ability to foreclose OVDs.

b. The Combined Company Will Have No Enhanced *Incentive* to Foreclose OVDs.

i. Comcast's Offering of Streampix and IP Cable Service Provides No Increased Incentive to Foreclose OVDs.

Commenters try to make this a transaction-specific issue with claims that Comcast has a greater incentive than TWC to foreclose OVDs due to Comcast's Streampix offering and its more rapid migration to an all-IP network.[614] But Streampix is *not* designed as an out-of-footprint, over-the-top video service, much as commenters would like to pretend otherwise. It is a branded VOD offering, available on Comcast's set-top boxes; its unique claim is simply that in

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[613] *See, e.g.*, Netflix Comments, *Protecting and Promoting the Open Internet Framework for Broadband Internet Service*, GN Docket Nos. 14-28, 10-127, at 11-15 (July 15, 2014); Free Press Comments, *Protecting and Promoting the Open Internet Framework for Broadband Internet Service*, GN Docket Nos. 14-28, 10-127, at 145-46 (July 15, 2014).

[614] Netflix Petition to Deny at 32-34.

assembling the service, Comcast set out to acquire full online rights as well, and highlighted the over-the-top access of the network. And though Comcast sought to create excitement around Streampix by offering the online version through a unique online site and app, and offered Streampix to a small number of Xfinity broadband-only customers in one region, these attracted minimal interest: both the site and the app are being decommissioned, and the standalone offer was discontinued. Going forward, Streampix will simply be part of the Xfinity TV app and website like other VOD offerings.

As Dr. Israel demonstrates, "a strategy to foreclose OVDs by harming their access to the Comcast broadband network would harm Comcast more than the competition." He explains:

> The existence of a vibrant OVD sector . . . provides the applications that make best use of Comcast's high-speed broadband network. . . . [I]t seems far-fetched that angry Comcast broadband customers would then turn to (or increase their use of) Comcast video offerings; rather, it seems more likely that customers would prefer to turn to offerings from other providers.[615]

Comcast's progress in beginning to offer its cable services in IP likewise creates no enhanced foreclosure incentive. IP is merely an alternative to the QAM technology traditionally used by cable companies, and it is already used by some MVPDs like AT&T U-verse for their entire cable offering. Commenters seek to conflate and confuse the distinction between cable services using Internet *Protocol* and the distribution of video over the *public Internet*. Whether Comcast uses IP or QAM has no logical (or demonstrated) impact on its foreclosure incentives. Moreover, TWC is also committed to transitioning to an IP network, so again this argument is not transaction-specific. The Transaction may enable this conversion to occur more quickly for the combined company, but that transition is coming across the industry (to great consumer benefit) regardless.

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[615] Israel Reply Decl. ¶ 126.

ii. Degrading Access To OVDs Would Harm Comcast's Broadband Business More Than It Supposedly Would Benefit Its MVPD Business.

While OVDs like Netflix compete in certain respects with some of Comcast's MVPD offerings, OVDs contribute enormous value to the Internet ecosystem central to Comcast's Internet access service. As Netflix's own investor page states: "The more successful Netflix becomes, the more important we are to the ISPs' subscribers."[616] Netflix, of course, knows this all too well and has used this for bargaining leverage against ISPs.[617] Its CEO Reed Hastings has stated to analysts that cable operators' broadband businesses and over-the-top video companies like Netflix will "reinforce each other" in the years to come.[618] It is firmly in Comcast's economic interest to meet its customers' demand by providing the most attractive Internet access to any content consumers want (including popular high-bandwidth video content), so that existing customers continue to demand its service (or upgrade to even faster service) and new consumers choose Comcast.[619] And the Commission should not ignore that OVDs have become large buyers of NBCUniversal content. In 2013 alone, OVDs accounted for nearly **{{**

}} in revenues for NBCUniversal – a figure that has grown *more than five-fold* since 2009

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616 Netflix Long Term View, Netflix, http://ir netflix.com/long-term-view.cfm (last visited Sept. 17, 2014).

617 In January 2013, Netflix unveiled "super HD" video quality but said that only users of those broadband providers that signed up for its Open Connect CDN can select "super HD." *See* Richard Lawler, *Netflix launches 'Super HD' and 3D streaming – but only through certain ISPs*, Engadget (Jan. 8, 2013), http://www.engadget.com/2013/01/08/netflix-super-hd-3d-streaming/. In September 2013, Netflix opened "super HD" to everyone, likely in part based on Netflix subscriber complaints. *See* Jon Brodkin, *Netflix no longer blocks best HD content when feuding with your ISP*, Ars Technica (Sept. 27, 2013), http://arstechnica.com/information-technology/2013/09/netflix-no-longer-blocks-best-hd-content-when-feuding-with-your-isp/.

618 Netflix, Inc., Q4 2013 Earnings Call, Tr. at 16 (Jan. 22, 2014), http://files.shareholder.com/downloads/NFLX/3432580279x0x720548/ea656605-6780-4844-9114-3985aaabeaa4/NFLX-Transcript-2014-01-22T22_00.pdf. Mr. Hastings also said: "I think we'll just continue to work through those issues. I think the more that you own cable companies, you want great broadband services, you want consumers to take higher and higher priced tiers, and I think we'll find that our interests are very co-aligned and that fundamentally cable businesses are enormously profitable broadband franchises." *Id.*

619 Comcast-TWC Public Interest Statement at 157; Israel Decl. ¶ 3.

– which creates yet another significant *disincentive* for Comcast to harm or degrade the performance of OVDs.[620]

It is thus hardly surprising that Dr. Israel's analysis of Comcast and TWC data has demonstrated that **{{**

}}. This is exactly the opposite of what one would expect if Comcast or TWC were attempting to harm OVDs to benefit their video businesses.[621]

Commenters' attempt to locate the missing incentive for Comcast to degrade its broadband services out of a desire to protect its MVPD service is divorced from clear market realities. As shown below, Comcast's broadband business is higher-growth than its video business – a simple fact that commenters ignore but that is indisputable. Proper analysis here shows that it would make little commercial sense for Comcast to inflict harm on its broadband business in order to benefit its video business.

Broadband's higher growth than video is shown in recent subscription results. For example, in the second quarter of 2014, Comcast's broadband customers *increased* by 203,000, while video customers *decreased* by 144,000, compared to the second quarter of 2013.[622] And consider the table below from an October 2013 internal Comcast overview of customer lifetime value ("CLV"), which indicates that the operating cash flow margin (see column 4 "OCF Margin" below) for Comcast's data-only offering is **{{**

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620 Response to Request No. 19, Exhibit 19.5(a).

621 *See* Israel Reply Decl. ¶¶ 120-121; *see also id.* ¶ 121, Table 7.

622 Comcast Corp., Current Report (Form 8-K), at 3 (July 22, 2014); *see also Comcast Report 2nd Quarter 2014 Results*, www.cmcsa.com/releasedetail.cfm?ReleaseID=861091.

}}.[623]

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Moreover, the CLV for a data-only customer is **{{** **}}** that of a video-only customer.[624] In other words, Comcast would need to acquire at least **{{**

}}. Harming its broadband service would also result in loss of double-play customers. Comcast would need to add more than **{{** **}}**.[625] Given these ratios, the general trend in cable subscriptions,[626] and the ever-shrinking margins due to rising

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[623] As Dr. Israel explains, a higher broadband margin cannot create any upward pricing pressure in a transaction where there is no horizontal concern. It also cannot be misconstrued to be a signal of market power in broadband to foreclose OVD competition due to all the ways in which Comcast is unable to engage in any possible foreclosure strategy. Israel Reply Decl. ¶ 59 n.47.

[624] CLV refers to the present value of future net cash flows attributable to a particular customer over the entire length of Comcast's relationship with the customer. Variables determining CLV include **{{**

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[625] *See* Israel Reply Decl. ¶¶ 58-61.

[626] Comcast-TWC Public Interest Statement at 67 (noting that "established cable operators across the nation continue to lose subscribers").

programming costs associated with those subscriptions,[627] it would make little business sense for Comcast to harm its broadband offering to favor its video service.

Further, there is little question that blocking or degrading OVD service *would* cause Comcast to risk losing broadband customers. As noted above, many commenters contend that Comcast's highest broadband speeds are especially attractive to heavy users of over-the-top video. As Netflix argues: "Comcast subscribers, after all, do not purchase 105 Mbps broadband connections just to send email or surf the web. They purchase high-speed broadband to use that capacity to its fullest—likely to consume rich media content, including streaming video."[628] To the degree that is so, it would be entirely self-defeating and illogical for Comcast to degrade and devalue its services by trying to block or degrade online video traffic or reduce its quality. At a minimum, once it became known that Comcast blocked or degraded online video, its broadband customers likely would not bother to upgrade to its higher broadband tiers, or might in fact switch to lower-speed, less profitable tiers. As Dr. Israel explains:

> The speed enabled by Comcast's broadband network is well suited to—in fact is only fully utilized by—online video content, and thus Comcast's broadband investment is deeply complementary to the growth of online video distributors (OVDs); their side-by-side development being a leading example of the virtuous cycle between improving broadband networks and edge provider services. As a result, any strategy to harm online video distributors would involve Comcast degrading the very applications that its broadband network is built to serve and that best enable Comcast to attract broadband customers and generate a return on its broadband investment.[629]

As the GSG research demonstrates, significant majorities of broadband subscribers likely *would* switch ISPs if their provider blocked or degraded access to edge provider content.[630]

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627 *Id.* at 148-49.

628 Netflix Petition to Deny at 66.

629 Israel Reply Decl. ¶ 9.

630 *Supra* Section IV.A.1.

These consumer attitudes are in line with the results of a survey conducted by Consumer Reports earlier this year. According to that survey, 71 percent of respondents said they would switch to an alternative ISP if their provider were to try to block, slow down, or charge more for services such as Amazon Instant Video, Netflix, Pandora, and Skype.[631] Real-world experience confirms this result: amid the dispute with Netflix, Comcast suffered a surge in Netflix-related customer calls complaining about Comcast's broadband service.[632] The fact that Comcast customers reacted so strongly to this temporary and isolated event, which involved no change in Comcast's business practices or policies, is quite telling. As Dr. Israel explains:

> [T]he vast majority of customers would be willing not only to switch but to switch to slower speed service (including DSL or wireless) if their broadband provider were to degrade access to edge providers in a material way. And . . . substantial switching does occur: Comcast's churn data indicate that over the course of a single year, approximately **{{ }}** of Comcast's broadband customers churn.[633]

Thus, if Comcast degraded access to Internet content, broadband subscribers likely would switch to Comcast's competitors. And they *would* certainly have options for switching, as discussed above. These options would also only increase because any strategy to degrade edge provider content would only encourage further entry by the likes of Google, whose very fiber buildout reflects its "vested interest" in maintaining competitive broadband markets to support its huge edge provider business.[634] Any of these consumer responses – switching to another fixed broadband provider, shifting to a lower-speed tier, or cutting the fixed broadband cord altogether

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631 The nationally representative survey was conducted by the Consumer Reports National Research Center in February of 2014 and sampled 800 U.S. households with broadband service. Glenn Derene, *71% of U.S. Households Would Switch from Providers That Attempt to Interfere with Internet*, Consumer Reports (Feb. 18, 2014), *available at* http://www.consumerreports.org/cro/news/2014/02/71-%-of-households-would-switch-if-provider-interferes-with-internet-traffic/index htm#survey.

632 *See* Response to Request 74; Israel Reply Decl. ¶ 56.

633 Israel Reply Decl. ¶ 32.

634 *Id.* ¶¶ 95, 98.

– would inflict costly damage on Comcast's higher-growth broadband business (both financially and in brand reputation).

To be sure, certain commenters argue that customers' ability to switch to other broadband providers is limited (by, for example, putative high switching costs). There may be some providers whose policies make that difficult, and Comcast is aware that a few unfortunate incidents with its customer service representatives over the past year illustrated occasional customer service failures that complicate switching requests. But, as noted, the reality is that over the course of a single year, approximately **{{ }}** of Comcast's broadband subscribers churn.[635] And Comcast has no policies designed to create high bars to switching, given that **[[ ]]** percent of its residential broadband customers are not contractually bound, and thus have no early termination fees; Comcast also facilitates free mail-in return of modem equipment.[636]

Further, as Dr. Israel points out, commenters "fail[] to acknowledge the substantial cost that such reductions in consumption of broadband service would have on Comcast."[637] The issue is not just that video is a lower-growth business, as discussed, but also that, given the competitiveness of the MVPD landscape,[638] there would be no assurance in any foreclosure strategy that Comcast *would even gain a video customer*. Any dissatisfied OVD customer could

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635 These data include survey respondents who moved because, as Dr. Israel explains, "even if a move leads to a change in ISP, a move legitimately provides customers a chance to switch ISPs and ISPs a chance to compete for such customers. Thus, the move itself removes switching costs, if there are any." *Id.* ¶ 93 n.103. However, even if these respondents are excluded, the survey data still indicate substantial switching (e.g., roughly one-quarter of survey respondents switched providers in at least the past two years, and more than 40 percent switched providers within the past four years). *Id.*

636 *See* Remarks of Tom Wheeler, Chairman, FCC, The Facts and Future of Broadband Competition (Sept. 4, 2014), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0904/DOC-329161A1.pdf (noting that switching costs include, for example, early-termination fees and equipment rental fees).

637 Israel Reply Decl. ¶ 58.

638 *See* Comcast-TWC Public Interest Statement at 20-22, 67-68; Rosston/Topper Decl. ¶¶ 169-173.

turn to Comcast's telco competitors, DBS competitors, or cable and fiber overbuilders, like RCN, WOW!, and Google Fiber – and a customer angry at Comcast's broadband conduct likely *would* choose one of those providers rather than "rewarding" Comcast's bad behavior with a cable subscription (or increased video usage). Thus, given the complementary relationship between OVDs and Comcast's broadband business, and the prospect of consumers switching broadband providers, consuming less wired broadband, or switching to non-Comcast MVPDs Dr. Carlton observes, "in situations where Comcast and an edge provider are in competition for customers, Comcast has an incentive to reach a mutually beneficial vertical arrangement with the edge provider rather than attempt to harm it."[639]

Finally, it bears emphasis that OVDs are still largely complements not only to MVPDs' broadband businesses, but also to their MVPD businesses. As Netflix's investor page puts it: "In the USA, MVPDs have remained stable at about 100M subscribers while Netflix has grown to over 36M members. The stability of the MVPD subscriber base, despite Netflix's large membership, suggests that most members consider Netflix complementary to, rather than a substitute for, MVPD video."[640] For example, OVDs' library content that allows consumers to watch entire prior seasons of popular shows complements the current season and live content delivered by MVPDs. Dish concurs that OVD offerings are complements to MVPD offerings.[641] Thus, the "gain" from harming Netflix and other similar OVDs might not even be more cable video customers (since a Netflix subscriber might already be a Comcast video customer), but at

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639 Carlton Decl. ¶ 11.

640 Netflix Long Term View, http://ir.netflix.com/long-term-view.cfm (last visited Sept. 20, 2014).

641 *See* Dish Petition to Deny at 18-19 ("OTT video providers—including Netflix, Amazon, and Hulu—today serve as a complement to traditional MVPD subscriptions.").

most a slight theoretical bump in VOD usage or electronic-sell-through purchases – reducing the purported value of such vertical foreclosure even more.

A further and powerful disincentive to foreclose OVDs is Comcast's recent interconnection agreement with Netflix, which **{{**

}}. Under that arrangement, **{{**

}}. It would not be a sensible strategy for Comcast to offer such terms to a company it was trying to suppress. Moreover, as Drs. Israel and Carlton highlight, **{{** **}}** – and enjoys a long-term arrangement with Comcast – means that the combined company could have no incentive or practical reason to foreclose *other* OVDs; such a strategy would only strengthen Netflix, making it an even more viable company by constraining its competitors.[642]

In addition, given that the other largest OVDs – Google and Amazon – are invested in online video distribution as a core business to support their broader business strategies, any attempted foreclosure would be especially irrational because it would not drive those OVDs out of the market and would just hurt Comcast's broadband service.[643]

In sum, given the current business realities, there is no plausible reason to conclude that the Transaction would increase Comcast's incentive to harm its broadband service by blocking or degrading access to Internet content.[644]

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642 Israel Reply Decl. ¶¶ 116-129; Carlton Decl. ¶¶ 12-15.

643 Israel Reply Decl. ¶ 11.

644 In a related but distinct line of argument, Netflix's economist, Dr. David S. Evans, implausibly asserts that Comcast may inhibit content providers from entering or succeeding in the OVD space in order to deter potential entrants into local high-speed Internet access markets. *See* Netflix Petition to Deny, Evans Decl. ¶¶ 179-180. It is in fact more plausible that any efforts by Comcast to inhibit OVDs would *encourage* new entry or expansion by entrants like Google Fiber and AT&T's FTTP initiative. *See* Israel Reply Decl. ¶ 11.

c. The Combined Company Will Have No Enhanced *Ability* to Foreclose OVDs.

The Transaction does nothing to increase the combined company's ability to foreclose OVDs or edge providers – either over Comcast's "last mile" network or at the point of interconnection with that network. The Open Internet conditions *by which Comcast is uniquely bound* already prohibit blocking and unreasonable discrimination of lawful network traffic over Comcast's last mile network.[645] The Transaction will extend the protections of those conditions to the TWC and Charter systems acquired by Comcast, and thus directly address the risk of foreclosure perceived by commenters. And, for the reasons set forth below, the Transaction does nothing to increase Comcast's ability to engage in foreclosure at the point of interconnection with Comcast's network.

i. Comcast's Dispute with Netflix and Cogent Does Not Demonstrate That It Had the Ability to Foreclose OVD Traffic.

The history of Comcast's issues with Level 3 and Cogent and its recent direct interconnection agreement with Netflix do not illustrate, as commenters claim, that Comcast has sought to degrade access to, or exercise anticompetitive pressure on, Netflix. To the contrary, in an effort to extract concessions to achieve its desired business arrangements, Netflix irresponsibly allowed its own service to suffer, and harmed not only its own customers but also other Internet customers served by both Comcast *and* Cogent. Nor was this an isolated incident. Netflix has had similar, widely-reported "congestion" disputes with Verizon, AT&T, and

[645] Comcast-TWC Public Interest Statement at 168.

others,[646] as part of its efforts to game the interconnection system for its own economic advantage and at the expense of consumers.

It is worth briefly reiterating the key details of what really happened in Comcast's case, given the ink expended on this issue in the press and the comments. Further, it is only fair to respond to Netflix's misleading allegations in the record, given that Netflix's position here is completely at odds with its voluntary contractual arrangements and its CEO Reed Hastings' acknowledgments to Comcast executives on February 22, 2014 and March 16, 2014 that "you [Comcast] made peering affordable for us," that Comcast's team's technical agility "is like nothing we've ever seen anywhere in the world," and predicting "the great performance will be the major story over the coming months."[647] While Netflix's change of heart may be expedient for its campaign to use the Transaction to "win[] the condition" of free interconnection – which it notified Comcast it intended to do absent concessions by Comcast – the facts are very much at odds with its allegations here.[648] As Kevin McElearney, Senior Vice President of Network Engineering for Comcast Cable explains:[649]

- "Edge providers have more options for delivering their traffic to end-users than ever before. And it is they (and their transit or CDN provider(s)) that dictate the path their traffic will travel to reach our network. Any edge provider that wants to deliver traffic to our customers can hand its traffic off to numerous other partners, and need never deal directly with us. There is no 'bottleneck' issue with respect to last-mile delivery. Comcast reaches well over 99 percent of the Internet's networks through more than 40 settlement-free peers and numerous other commercial interconnection agreements, and across our interconnection partners there is more than enough capacity into our network – even enough to carry all of Netflix's Comcast-bound traffic –

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646 *See, e.g.*, Dan Rayburn, *New Data Questions Netflix's Assertion that ISPs Are At Fault For Poor Quality* (June 10, 2014), http://blog.streamingmedia.com/2014/06/netflix-isp-newdata.html.

647 McElearney Decl. ¶ 44.

648 *Id.* ¶ 45.

649 *Id.* ¶¶ 3, 23, 36, 40, 41.

which is available at reasonable, market-based prices. Edge providers with sufficient traffic and their own CDN can arrange direct connections that result in additional savings."

- "[E]ven in the face of the Netflix-related congestion, Comcast's utilization with its peers during the last 12 months was less than **{{ }}** percent on average during peak times – and those peers do not pay Comcast – which undermines Netflix's suggestion that it sought out all routes where no payment to Comcast was required. Netflix chose routes that it knew were insufficient, and created performance issues for itself and its customers."

- "Netflix appears to have adopted a self-serving strategy of using limited transit providers that never purchase interconnection services from their destination ISP. The result of this self-imposed limitation is that many transit suppliers with available capacity and potentially comparable market pricing, were excluded from Netflix's consideration."

- "Netflix has not been honest about what it did to alter traffic destined for Comcast and several other large ISPs in 2010-2013. During that period, it arranged for sudden shifts in the routing of massive volumes of its traffic (one-third of peak traffic bound to Comcast), first to Akamai, then to Limelight, then to Level 3 and Tata and Cogent. In each case, Netflix attempted to force-deliver much more traffic into Comcast's network than these providers' agreements had forecasted and provisioned with Comcast. In so doing – most notably, in the case of Cogent – Netflix effectively degraded its own customers' experience (and that of other businesses relying on these same providers) in an effort to increase its bargaining leverage against Comcast (and other ISPs)."

- "During Comcast and Cogent's scheduled joint capacity review at the end of 2012, Cogent informed Comcast that it did not foresee needing any additional capacity for the coming year. In the fall of 2013, however, Cogent requested that substantial additional capacity be added immediately to its interconnection links to accommodate a massive and unexpected spike in traffic. Comcast offered to do so pursuant to a commercial arrangement, since the additional traffic would have put the company's relationship in violation of our SFI Policy, but Cogent refused to have any discussions with Comcast other than repeated demands for 'free' interconnection."

- "Over the next few months, Cogent's traffic into Comcast's network grew by nearly *500 percent*, overwhelming Cogent's existing spare capacity and then overwhelming 50G of additional interconnection ports that Comcast supplied to Cogent on a complimentary basis in the hopes of relieving some pressure and showing good faith to encourage a solution. The resulting congestion not only affected Netflix traffic, but also disrupted other customers of Comcast and Cogent. Comcast repeatedly asked Cogent to meet and enter into

> discussions to resolve the situation, but they were not willing to meet to discuss any kind of commercial arrangement. The problem thus remained unresolved until – after Netflix proposed and entered into a direct relationship with Comcast – Netflix reduced the volume of traffic that it transmitted to Comcast through Cogent. Today, the Cogent-Comcast interconnection links are uncongested and the parties' traffic flows are back in general balance, with a ratio of less than **{{ }}** over those links, and so now back in compliance with the SFI Policy. This means capacity is again available for many third parties who need to reach Comcast's network through this route."

- "Comcast at all times dealt responsibly and in good faith with Akamai, Limelight, Level 3, Tata, and Cogent – and with Netflix as well when it sought to connect directly to our network. We ultimately reached a mutually agreeable direct interconnection agreement with Netflix in February of this year. At that time, Netflix's CEO wrote to Comcast executives and said: 'We found middle ground on our issues that worked well for both of us for the long term, and works great for consumers.' Comcast, of course, wholeheartedly shared that view and still does. Comcast is fully complying with that agreement and looks forward to a successful partnership with Netflix for years to come."

The above facts, explained in further detail in the McElearney Declaration, are in contrast to the narratives spun by Netflix and Cogent and those commenters who blindly parrot their version of events. And they are backed up by the general marketplace dynamics and edge provider routing capabilities that are explained by Dr. Dovrolis:

> [A] receiving [network] cannot stop the sending [network] from pushing all its traffic over one interconnection link rather than spreading it among several, from using up all available capacity on a particular link the moment it becomes available, or from sending *too much* traffic over an interconnection link, potentially creating serious congestion issues.[650]

In short, the reality undermines claims about vertical edge provide foreclosure concerns that are, of course, not transaction-specific anyway.

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650 Dovrolis Decl. at 15.

ii. In Fact, Comcast Does *Not* Have the Ability to Successfully "Foreclose" OVD Traffic Without Great Risk to Its Own Business Interests and Interconnectivity.

The interconnectedness of the Internet backbone and the availability of alternative and redundant routes address any "terminating access monopoly" concerns, today or post-transaction, that Comcast has or would have the *ability* to foreclose OVDs. Some commenters have invoked the phrase "terminating access monopoly" in an attempt to conjure up concerns in this regard, seeking to build, from Comcast's share of broadband subscribers on last-mile facilities (a separate and distinct marketplace), a theory that Comcast could leverage control over the "first" mile by dominating the "market" for interconnection with its network (which is its own separate market with different dynamics and characteristics). But this argument fails. The "terminating access monopoly" phrase might have made sense in the context of the then-monopoly public switched telephone network or "PSTN," where there was only one network to connect to and one flavor of interconnection agreement with that terminating local exchange carrier. But this analogy is misleading and irrelevant when applied to the backbone interconnection market.

As an initial matter, and as demonstrated above, Comcast *does not possess a monopoly* over customers' Internet access. To the contrary, the vast majority of consumers have access to multiple fixed broadband providers, and consumers' choices for ISPs are growing over time:

Percentage of Households Located in Census Tracts Where Fixed Broadband Providers Report Offering At Least 3 Mbps/768 kbps[651]

Number of Fixed Broadband Providers	December 2009	June 2013
At Least 3	28%	78%
At Least 2	76%	99%
At Least 1	97%	100%

Consumers' ISP choices offering higher speeds[652] have grown dramatically as well:

Percentage of Households Located in Census Tracts Where Fixed Broadband Providers Report Offering At Least 10 Mbps/1.5 Mbps[653]

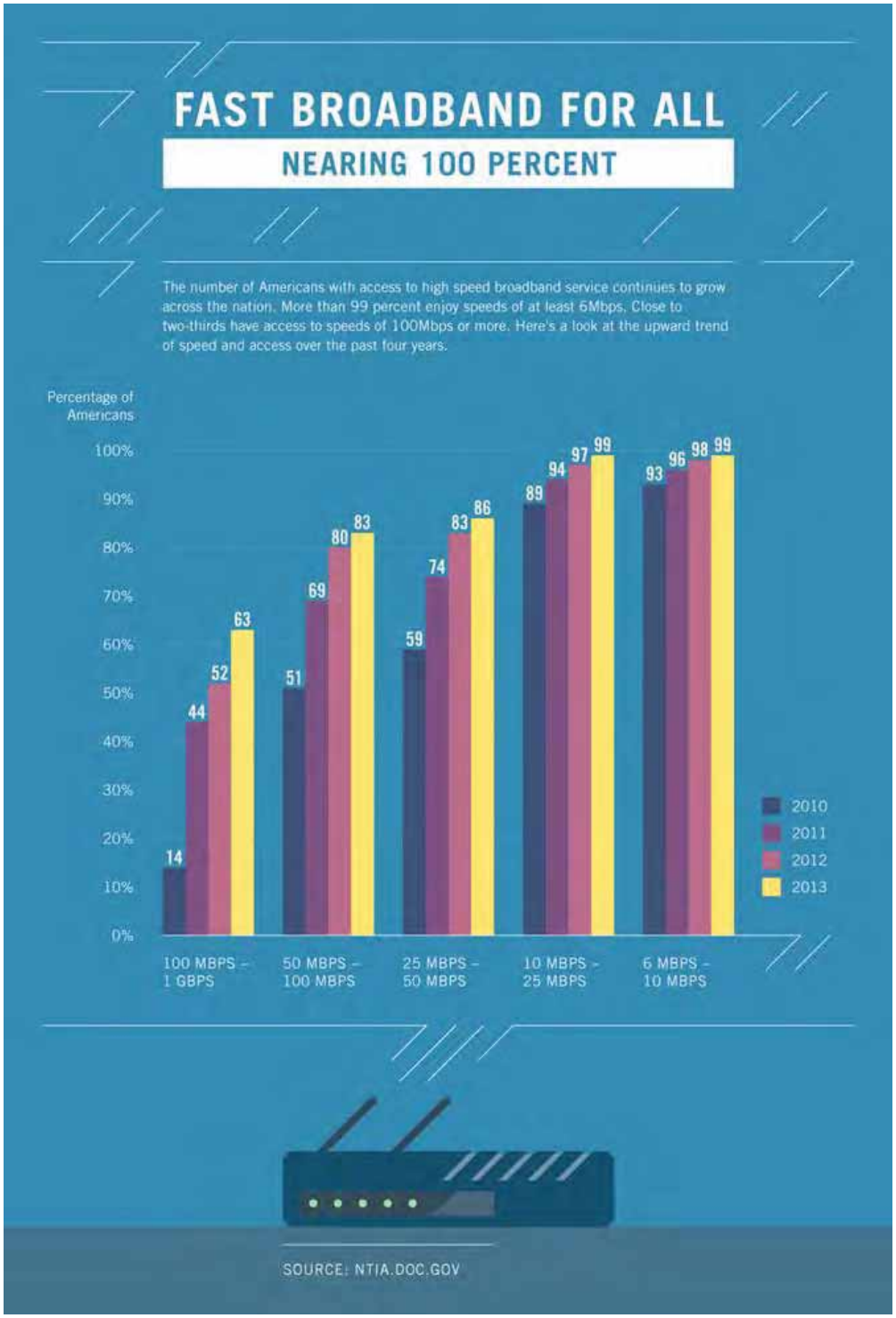
Number of Fixed Broadband Providers	December 2009	June 2013
At Least 3	2%	54%
At Least 2	22%	92%
At Least 1	80%	99%

The chart below from NCTA (using NTIA data) provides a good illustration of the significant increases in broadband speeds over the last several years and of the competitive alternatives available to consumers across the country:

651 *See* Indus. Analysis and Tech. Div., Wireline Competition Bureau, FCC, Internet Access Services: Status as of December 31, 2009, at 7 (Dec. 2010), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-303405A1.pdf; Internet Access Services Report as of June 2013, at 9.

652 Chairman Wheeler has urged targeting higher speed thresholds to "capture the increasing demand for better wired broadband." *See* Remarks of Tom Wheeler, Chairman, FCC, The Facts and Future of Broadband Competition, at 2 (Sept. 4, 2014). Although many online services do not require high-speed services, the demand from consumers noted by the speech illustrates the strong incentives that existing and potential broadband providers have to upgrade and deploy increasingly advanced technology. Thus, it is not surprising that various mobile and fixed broadband providers have undertaken significant investments in recent years and likely will continue to do so.

653 Internet Access Services Report as of December 2009, at 7; Internet Access Services Report as of June 2013, at 9.



Moreover, if Comcast degraded OVD content, broadband subscribers increasingly have the options of switching wireline providers, cutting the cord and relying on wireless instead, or

downgrading to a lower-priced broadband tier and consuming more mobile data (partial wireless substitution).[654] As Dr. Israel has calculated, mobile wireless subscriptions at the Commission's current definition of broadband have grown *584.8 percent* between June 2009 and June 2013 – and surely have continued growing rapidly in the past year (including at higher speed thresholds).[655] Various commenters who summarily dismiss wireless substitution simply ignore (1) these staggering growth statistics, (2) the likelihood of increased substitution in the near future, and (3) Applicants' powerful evidence that the cable industry is already anticipating material wireless substitution in the years ahead.[656] The Commission's data bear this out:

Percentage of Households Located in Census Tracts Where Fixed or Mobile Broadband Providers Report Offering At Least 3 Mbps/768 kbps[657]

Number of Fixed or Mobile Broadband Providers	December 2009	June 2013
At Least 3	40%	99%
At Least 2	80%	100%
At Least 1	97%	100%

654 *See* Israel Reply Decl. ¶ 63 ("[C]ustomers could react to downgraded Comcast broadband service along the intensive margin in a variety of ways, at least two of which would harm Comcast: First, if access to OVDs and other edge providers were degraded, customers might decide they no longer need broadband service from Comcast at all, perhaps relying on mobile service instead, combined with Internet access at work. Second, customers could choose to downgrade to a lower tier of service (or fail to upgrade to a higher tier).").

655 *See id.* ¶¶ 69, 71 tbl. 4; Indus. Analysis and Tech. Div., Wireline Competition Bureau, FCC, Internet Access Services: Status as of June 30, 2013, at 2 (June 2014), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0625/DOC-327829A1.pdf (showing growth of wireless subscriptions at 6 Mbps or greater since 2010).

656 Comcast-TWC Public Interest Statement at 54-56.

657 Internet Access Services Report as of December 2009 at 8; Internet Access Services Report as of June 2013at 10.

Percentage of Households Located in Census Tracts Where Fixed or Mobile Broadband Providers Report Offering At Least 10 Mbps/1.5 Mbps[658]

Number of Fixed or Mobile Broadband Providers	December 2009	June 2013
At Least 3	2%	91%
At Least 2	22%	98%
At Least 1	80%	99%

Not only is there no "monopoly" over subscribers, but Comcast has no ability to foreclose OVD interconnection into its network. Commenters make the mistake of conflating the "last" and "first" miles. There clearly is no absence of competition in the "first mile" transit marketplace, as noted below.[659] And because of this, no matter how large a subscriber base any broadband provider may have, there is simply no ability to "leverage" that last mile "control" into a so-called bottleneck for interconnection in the first mile. In the porous, interconnected, and highly redundant Internet ecosystem, no provider can effectively exercise a "monopoly" on terminating traffic to its network without undermining its own interconnectivity – and there is no meaningful ability to foreclose access to OVD traffic. As Dr. Israel explains, "At core, the logic follows from a simple idea: Interconnection points are not immune from the competitive forces that prevent competitive harm in the last-mile and backbone networks that sit on either side of them."[660]

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658 Internet Access Services Report as of December 2009 at8; Internet Access Services Report as of June 2013at 10.

659 *See Global Crossing-Level 3 Order* ¶¶ 28-29 ("[W]e note that the number of Tier 1 ISPs appears to have grown since 2005. . . . [I]f we were to consider the role of non-Tier ISPs in the marketplace, there may be as many as 38 providers that sell transit or offer peering on a nationwide basis.").

660 Israel Decl. ¶ 43.

In particular, as Comcast has repeatedly emphasized, there are over 40 settlement-free routes into its network, as well as many other substantial commercial peering and transit connections with CDNs and ISPs. Edge providers can use any of these links to send their traffic onto Comcast's network, without the need for any direct interconnection with Comcast. Regardless of its share of end user customers, Comcast does not and will not have the ability to use its backbone to foreclose (or force anticompetitive terms on) such indirect OVD access to its last mile. Comcast could not effectively achieve that objective without congesting or blocking these 40+ transit links into its network,[661] thereby critically interfering with its "ubiquitous Internet connectivity."[662] Yet, unless it did "congest" or block *a substantial number* of these links (which would literally destroy Comcast's critically important high-speed data access business), OVDs would retain the flexibility to use some of the available links to send their traffic to Comcast. And they could do so – again – without *any* direct interaction with Comcast. For these reasons, "[p]aid peering is an ineffective tool of foreclosure," as Professor Scott Hemphill has testified.[663] To the contrary, OVDs "are under no obligation" to pay Comcast

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[661] Nor could Comcast selectively block OVD content on its peering links, without deteriorating its relations with its peers and most likely violating its own and others' peering agreements, which typically preclude monitoring traffic over peering links for any purpose other than basic operations and security. *See, e.g.*, Comcast's Standard Peering Agreement 1.1 (**{{**

}}) Similarly, Comcast could not block OVD content on its paid transit links, e.g., from CDNs, since that would undermine the point of the transit services these entities purchase from Comcast in the first place.

[662] *Global Crossing-Level 3 Order* ¶ 27.

[663] *Oversight Hearing on Competition in the Video and Broadband Markets: The Proposed Merger of Comcast and Time Warner Cable: Hearing Before the H. Comm. on the Judiciary, Subcommittee on Regulatory Reform, Commercial and Antitrust Law*, 113th Cong. (May 8, 2014) (Testimony of C. Scott Hemphill, Columbia University, at 5), *available at* http://judiciary house.gov/_cache/files/14da5814-6ef9-4313-8ce7-ce81440a7198/hemphill-testimony.pdf.

directly for interconnection and they can contract with intermediaries like CDNs that will pool online video traffic with other Internet traffic.[664] Indeed, as Dr. Dovrolis points out:

> Access providers cannot demand direct interconnection arrangements (or payments) from the various content providers, CDNs, and other networks that send them traffic. Those providers always have the option of sending their traffic to an access provider by using the various indirect transit providers that provide the core interconnectivity of the Internet; no access provider can fulfill its role reliably and efficiently without being densely interconnected with several transit providers.[665]

Further, as explained in the McElearney Declaration, Comcast's settlement-free routes typically have almost **[[ ]]** percent availability. They accordingly can accommodate substantially more traffic destined for Comcast's network; congestion is not a common issue. Indeed, the overwhelming majority of edge providers send their traffic through these routes and never have any direct relationship or dealings with Comcast.[666] Whether they pay other providers for the service of transporting their traffic *to* Comcast is not something Comcast controls or knows. However, as Dr. Dovrolis explains, content providers and edge providers (and smaller ISP networks) generally have historically paid *some* provider for intermediate transport to other networks.[667]

To be sure, these intermediate providers might themselves have to interconnect with Comcast, or use another provider that does.[668] But that does not mean that Comcast has a

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[664] *Oversight Hearing on Competition in the Video and Broadband Markets: The Proposed Merger of Comcast and Time Warner Cable: Hearing Before the H. Comm. on the Judiciary, Subcommittee on Regulatory Reform, Commercial and Antitrust Law*, 113th Cong. (May 8, 2014) (Testimony of C. Scott Hemphill, Columbia University, at 5), *available at* http://judiciary house.gov/_cache/files/14da5814-6ef9-4313-8ce7-ce81440a7198/hemphill-testimony.pdf.

[665] Dovrolis Decl. at 5.

[666] *See* McElearney Decl. ¶ 36.

[667] *See* Dovrolis Decl. at 12-14; McElearney Decl. ¶¶ 8, 29.

[668] Although not all do so – for example, as explained in the McElearney Declaration, Netflix sent traffic to transit providers that sent their traffic on to another transit provider, Tata, which, in turn, connects with Comcast. McElearney Decl. ¶ 40.

terminating access monopoly through which it can indirectly affect the costs to edge providers, as Netflix seeks to imply.[669] As noted, over 40 routes into Comcast's network are *settlement free*, meaning, no money is exchanged. Thus, edge providers relying on *those* routes into Comcast's networks can negotiate with their transit providers with no influence by Comcast. And the direct routes into Comcast's network for which Comcast *does* charge – CDNs, for example – are subject to market-based rates. As Mr. McElearney explains, these rates are constrained by the marketplace's rapidly decreasing transit rates – rates that have fallen over 99 percent over the past 15 years and are now approximately less than $1 per Mbps.[670] That is because any CDN or other entity that finds Comcast's direct interconnection rate too high has the option of using one of the many indirect transit routes just described – e.g., Netflix's CDN can rely on Cogent to reach Comcast, or Akamai could rely on AT&T, and so on. Thus, indirect transit constrains Comcast's (and other parties') pricing for direct interconnection.

Commenters argue that Comcast can defeat this very functional, diverse marketplace of options by deliberately congesting its transit links, thus *forcing* edge providers who rely on those links into direct interconnection relationships with Comcast (or forcing a previously settlement-free "peer" to pay for augmented capacity).[671] But this is a plain distortion of reality. As just explained, the notion that Comcast's interconnection links have been congested is simply false. Now, and during all the events with Netflix and Cogent that litter the comments, Comcast had sufficient capacity on its settlement-free links to carry *all* of Netflix's traffic, *without any congestion or service quality issues* – (leaving aside the abundant capacity that was available on

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669 Netflix Petition to Deny at 56-57; Evans Decl. ¶¶ 100-105.

670 McElearney Decl. ¶ 19.

671 Netflix Petition to Deny at 46; 52-64; Cogent Petition to Deny at 11-12; Dish Petition to Deny at 58-59; WGAW et al. Petition to Deny at 55-56.

the various CDN links Netflix used to reach Comcast, like Akamai and Limelight[672]). As Mr. McElearney explains, the congestion issues that arose in connection with Netflix's traffic arose because Netflix chose to use only *three* routes that were connected to Comcast's network, for traffic that comprises a *third* of the Internet's traffic, which is more than those routes were designed to handle.[673] And it did so at rapid speeds and without warning, far more quickly than Comcast or any provider could possibly build out the capacity to keep up.[674] Indeed, Cogent's network apparently suffered from similar problems because it, too, was not designed to carry Netflix's traffic loads – a problem that affected a huge amount of Internet traffic for multiple ISPs.[675]

Moreover, Netflix could have used one of multiple other routes into Comcast's network, in real time. In the *Global Crossing-Level 3* case, the Commission found that, "if the combined entity were to engage in connection degradation or price increases," its interconnection customers "would be able to transition easily to another provider," thus ameliorating any foreclosure concerns.[676] Netflix claims that this precedent does not apply, because "this feature of the transit market does not apply to large terminating access networks. There is simply no way to reach a Comcast broadband subscriber other than through Comcast," and "there is no way to reach a TWC subscriber other than through TWC."[677] But saying this repeatedly does not

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672 McElearney Decl. ¶¶ 34, 37 ("In fact, even when Netflix began moving most of its traffic to Cogent and other transit routes in late 2013, Netflix continued to use Limelight to deliver some of its traffic to Comcast, and that traffic was not affected by congestion or other quality issues . . . .").

673 *Id.* ¶¶ 37-38.

674 *Id.* ¶ 38.

675 *Id.* ¶¶ 40-42 and M-Labs chart; *see* Dovrolis Decl. at 7 ("Cogent continued to route Netflix's traffic over congested links").

676 *Global Crossing-Level 3 Order* ¶ 27.

677 Netflix Petition to Deny at 45-46.

make it so. Certainly once *on* Comcast's network, traffic has only one way to reach a Comcast customer, so ultimately all Comcast-directed traffic must pass through some interconnection point *with* Comcast. But, as already established, multiple available pathways *into* Comcast's network guarantee edge providers that access. In reality, therefore, Netflix was the one trying to game the system to reduce its transit costs, obtain dedicated interconnection to support its service, and then push those costs onto Comcast's broadband customers, even those who have no interest in Netflix's service. As Dr. Israel indicates, under the "seesaw" economic principle of two-sided markets, this could lead to increased broadband prices and harm the public welfare.[678]

The other flaw in Netflix's theory is that edge providers not only have many route options – they also have the ability to *make* these routes more or less usable. As Dr. Dovrolis explains, it is the edge provider that can often cause congestion, deliberately or irresponsibly – that can vastly impact the quality not just of its traffic delivery but of *all* traffic on a particular link:

> [I]t is the networks that send traffic over the Internet (including content providers) that control how to route that traffic. Thus, a content provider can choose which routes to use, whether to split its traffic over several different routes, and whether to send it directly to another network (via a direct interconnection arrangement if it has one) or over the many indirect routes available into access providers' networks. These routing decisions can be made in real-time and they can be adjusted on a minute-by-minute basis depending on the measured performance of each interconnection, cost considerations, and the usage constraints of each interconnection. In contrast, the receiving network cannot control the routing of the traffic it receives. It cannot stop a content provider from pushing all its traffic over one interconnection link rather than spreading it among several, or from using up all available capacity on a particular link the moment it becomes available, creating serious congestion issues.[679]

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678 *See* Israel Reply Decl. ¶¶ 13, 188.

679 Dovrolis Decl. at 5.

Because edge providers can choose their transport link in real time, they can choose to route where there *is* availability and where there is none; they can play games by causing repeated, fleeting congestion that an ISP cannot possibly relieve in time, and they can play other games that force an ISP – notwithstanding its supposed "monopoly" gateway over its "eyeball" customers – to cave to the edge provider's interconnection demands.[680] As Mr. McElearney explains, the well-known "Peering Playbook" sets out aggressive tactics that a transit provider or edge provider can use to compel an ISP to peer with it, including "Traffic Manipulation" and "Aggressive Traffic Buildup."[681] This is, in fact, what Netflix did here. In other words, the "problem" was not with Comcast's alleged "terminating access monopoly" – but with Netflix's aggressive tactics designed to achieve its business goals at the expense of consumers.

As Dr. Dovrolis suggests, had Netflix acted like a responsible participant in the Internet ecosystem, it could easily have routed around the congestion points onto the 40 other settlement-free routes available into Comcast's network. As Dr. Dovrolis observes:

> [R]esponsible network providers work hard to avoid congesting their links not only by building capacity but through regular capacity planning meetings with their peers and through traffic grooming (i.e., rerouting or encouraging a customer to reroute) traffic off congested links. It seems to me that Cogent could have addressed this situation far more cooperatively than it reportedly did, and with less harm to the Quality of Experience of its own and of Comcast's customers. Similarly, Netflix has not satisfactorily explained why it did not route the traffic to Comcast through other, non-congested routes, especially when its decision not to use other, non-congested routes reportedly hurt *its* paying customers and was simply poor Internet "hygiene" that is not expected of such large players in this ecosystem.[682]

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680 Dovrolis Decl. at 5, 15.

681 McElearney Decl. ¶ 31.

682 Dovrolis Decl. at 26.

As Netflix essentially admits,[683] it refused to use routes that did not meet its philosophical requirements – those that it deemed not to be "available." It thus deliberately sacrificed its paying customers' experience in pursuit of its free peering quest.

Simply put, as the largest edge provider on the Internet, Netflix has the leverage to exact precisely the kind of harm described in the Playbook – and has in fact forced some smaller ISPs (notwithstanding their own supposed terminating access monopolies) into agreements that meet Netflix's terms using just these types of tactics. It seems clear at a minimum that the large edge providers like Netflix have more than enough clout to address any supposed power Comcast would have over interconnection arrangements. And smaller edge providers would be even less affected – such providers would almost certainly rely on CDNs or transit providers rather than invest in servers of their own and deploy them across the Internet for purposes of direct connection. Said another way, the "terminating access monopoly" theory fails and provides no evidence that Comcast has or could have the ability to foreclose access to its network.

iii. The Combined Company Will Not Be Able To Threaten OVD Viability.

Even in the purely hypothetical event that the combined company could somehow block OVD access to its network,[684] the Transaction poses no conceivable threat to OVDs' ability to survive and flourish. Even without access to the combined company's customers, OVDs would have an open field of 64-84 percent of broadband subscribers across the country (at 10 Mbps, the open field would be 60-77 percent). And these numbers assume a static share; they do not take

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683 Netflix Petition to Deny at 57.

684 Dovrolis Decl. at 15 ("In the outgoing direction . . . a[] [network] can control how to route its traffic. Specifically, it can choose which neighboring [networks] it will route the traffic through and at which locations it will pass the traffic to that (or those) [networks]. . . . All of these decisions are in the hands of the sending [network], and the receiving [network] can only react to them.").

into account any switching away from Comcast that would occur as a direct result of any anti-OVD conduct by the company. Commenters submit no credible basis to find that this percentage of potential customers is somehow insufficient for OVDs, when it is more than sufficient for programmers – particularly as the Internet has been widely recognized to reduce minimum efficient scale and barriers to entry for many businesses.[685]

Some commenters nevertheless speak of OVDs needing a large "critical mass" of subscribers, without explaining what that means, or put forth abstract, artificial, and unsubstantiated figures like "30 million" subscribers.[686] In fact, the minimum viable scale necessary for entry in the OVD market is a function primarily of programming cost, content delivery cost, and revenue strategy, none of which can be predicted in the abstract. OVDs currently offer advertising-supported, transaction-based, or subscription-based services or some combination of those models.[687] The number of subscribers necessary for viability will be different depending on the OVD's particular strategy, but clearly there is no reason to assume that all or most would need 30 million subscribers to succeed.[688] And, importantly, many OVD services are, or can be, *global* and thus have a substantial number of subscribers internationally as well.[689] This substantially expands the open field and further undercuts the claim that OVDs are or will be dependent on access to Comcast's customers (which they will in any event have) to survive.

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685 *See* Israel Reply Decl. ¶¶ 108-112.

686 Netflix Petition to Deny at ii, 50-51, Evans Decl. ¶ 125; Dish Petition to Deny at 69-75.

687 *See Fifteenth Video Competition Report* ¶¶ 270-275.

688 *See* Israel Decl. ¶ 232-240.

689 For example, while Netflix has 36 million subscribers in the U.S., it has over 50 million globally. Netflix Q2 14 Letter to Shareholders at 1-2 (July 21, 2014), *available at* http://ir.netflix.com/results.cfm.

As to content delivery cost, for large edge providers like Netflix, the modest interconnection fees charged by Comcast are an immaterial portion of their costs, and are thus hardly likely to impact an OVD's "viability."[690] Not surprisingly, nowhere in its petition does Netflix offer any insight into the share of its costs that are related to interconnection. Indeed, despite having entered into paid interconnection arrangements with AT&T, Verizon, Comcast, and TWC,[691] Netflix has filed no SEC disclosure suggesting that such arrangements in total have caused, or are expected to cause, it any financial harm, as it would be required to do if – as it has claimed – entering into such contracts "breaks the Internet."[692] Right after the Comcast/Netflix agreement was reached, Netflix's CFO took pains to emphasize that it had secured a "long-term" arrangement that did not change in the slightest Netflix's expectation of "400 basis point year-on-year margin improvement for the U.S. streaming business," adding that "you are hearing me confirm that nothing has changed there."[693] And, responding to a question about entering into similar arrangements with other providers, he also said "we're not going to be interested in doing something that's going to meaningfully change the economics for us . . . but, we are interested in doing things that, for the right set of economics improve that subscriber experience long-

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690 For reasons described above in *supra* Section IV.C.1, these costs are irrelevant to small OVDs because they would have no need for direct interconnection.

691 Netflix Petition to Deny at 59, Florance Decl. ¶ 60.

692 Companies with obligations to make certain SEC filings, as Netflix has, are required to disclose "material contracts" (i.e., "Every contract not made in the ordinary course of business which is material to the [company]") and need not disclose, inter alia, a contract that "ordinarily accompanies the kind of business conducted by the [company]." 17 C.F.R. § 229.601. If these interconnection arrangements were financially material to Netflix's business and were at all out of the "ordinary," they would have been appended to Netflix's SEC filing.

693 Remarks of David Wells, CFO, Netflix, Inc. Morgan Stanley Technology, Media & Telecom Conference (Mar. 3, 2014), *available at* http://seekingalpha.com/article/2064743-netflix-management-presents-at-morgan-stanley-technology-media-and-telecom-conference-transcript. As noted above, Netflix's CEO, Reed Hastings, also thanked Comcast for, among other things, making "peering affordable for us . . . ." McElearney Decl. ¶ 44.

term."[694] As Dr. Evans notes, approximately 70 percent of Netflix's costs are content costs.[695] Modest interconnection charges, which improve efficiency, could hardly be a threat to OVDs' viability in their marketplace, especially when they are offset by savings in payments to transport "middlemen." Indeed, as Dr. Carlton concludes, "rather than showing the significant harm that Comcast can inflict, this evidence shows exactly the reverse. Even the 'powerful' Comcast has not caused Netflix any material harm."[696]

Finally, Dr. Carlton and Dr. Israel note that by entering into an **{{ }}** agreement with Netflix, Comcast has created yet another insurmountable obstacle to successfully foreclosing OVD competition. Netflix would have contractual remedies were Comcast to take any actions to degrade the parties' Internet interconnection arrangement, and the per-Megabit price for traffic under that contract is determined **{{ }}** with time and increased traffic flow. Even if Comcast were to take action against *other* OVDs, it would simply drive customers into Netflix's hands, thus not advantaging Comcast's video business at all. And given that other major edge providers **{{ }}** and multiple CDNs have similar interconnection arrangements with Comcast, **{{ }}**, such a strategy would be even less effective or worthwhile. Rather, as Dr. Carlton notes, "[Comcast's] long-term agreement with the largest OVD substantially reduces any incentives to harm *other* OVDs, because now the benefits of doing so must be shared with Netflix."[697] In

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694 Remarks of David Wells, CFO, Netflix, Inc. Morgan Stanley Technology, Media & Telecom Conference (Mar. 3, 2014), *available at* http://seekingalpha.com/article/2064743-netflix-management-presents-at-morgan-stanley-technology-media-and-telecom-conference-transcript. As noted above, Netflix's CEO, Reed Hastings, also thanked Comcast for, among other things, making "peering affordable for us . . . ."

695 Evans Decl. ¶ 130, tbl.5.

696 Carlton Decl. ¶ 14.

697 *Id.* ¶ 15.

other words, there is neither reasonable incentive *nor* ability for Comcast to foreclose OVDs in light of real-world facts, which "trump theory," as Dr. Evans suggests.[698]

iv. Size Does Not Confer Undue Bargaining Power Over OVDs in Interconnection Negotiations.

Leaving aside the company's alleged foreclosure motives, or the notion that the ISP can "control" access to its network, commenters also argue that the post-transaction company would have undue bargaining power over interconnection negotiations because of its size. But there is no theoretical or empirical support for the contention that increasing Comcast's ISP size would increase its bargaining power vis-à-vis its counterparties in the separate interconnection market. As Dr. Israel explains, commenters and their economists have failed to establish any systematic relationship between an ISP's subscriber count and its bargaining leverage against interconnection counterparties. Even commenters' economists acknowledge that the theoretical literature is ambiguous.[699] As for the supposed empirical evidence,[700] the data cited by Netflix and Cogent show **{{**

}}.[701] Instead, rigorous econometric analysis of the data shows that, contrary to commenters' contentions, differences in interconnection prices and terms are driven by factors other than any bargaining power attributable to size.[702] Those factors include degree of connectivity to the network (that is, number of interconnection points and redundancy of server routes), greater server capacity, and more efficient server utilization.[703] In

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698 *See* discussion *supra* Section IV.C.1.b.ii

699 *E.g.*, Cogent Petition to Deny at 34 n.112, Farrell Decl. ¶¶ 148-153, Evans Decl. ¶¶ 162-163.

700 *See* Evans Decl. ¶¶ 81-85; Farrell Decl. ¶¶ 50-59.

701 *See* Israel Reply Decl. ¶ 163.

702 *See id.* ¶¶ 163-164.

703 *See id.* ¶¶ 152-155.

other words, it is the quality and value of Comcast's network – the backbone facilities in which it has invested billions of dollars over the last decade to build out and reach across the nation and interconnect with hundreds of networks – not the number of end user customers it serves, that drives interconnection pricing and terms.

These findings undermine the claims made by Netflix's and Cogent's economists in this proceeding. Dr. Evans observes that Netflix pays the four largest ISPs but not smaller ISPs, and that Netflix pays **{{ }}**.[704] But the broad conclusions that Dr. Evans draws from this small number of observations – i.e., that the combined company's increased size will allow it to extract unfair prices and terms for interconnection[705] – are "effectively meaningless," according to Dr. Israel.[706] Within the set of ISPs that have settlement-free peering with Netflix – i.e., outside the four largest ISPs – no relationship between size and negotiated terms exists. With regard to the four largest ISPs themselves, these ISPs also have the most *connectivity* to the Internet through their extensive backbone networks. When this degree of connectivity is controlled for, empirical analysis indicates that ISP size is no longer a significant factor in interconnection negotiations, contrary to Netflix's claims.[707] Indeed, as Dr. Evans concedes, CenturyLink, with its more connected network, has greater bargaining leverage than does Charter, even though those ISPs' respective subscriber bases are roughly the same size,[708] and Comcast is also ahead of TWC on various interconnection quality metrics, as Dr. Israel notes. Dr. Evans' theory of the case does not

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704 Evans Decl. ¶¶ 78-80.

705 *Id.* ¶¶ 138, 140-41.

706 Israel Reply Decl. ¶ 166.

707 *See* Israel Reply Decl. ¶ 162-164.

708 Evans Decl. ¶ 147.

account for this distinction. That the four largest ISPs are so different from one another (e.g., an outcome bearing out different levels of investment in their network facilities and backbone),[709] and that there is no indication of any relationship between size and interconnection price and terms among the wide set of smaller ISPs that Netflix does not pay, means this: commenters have no basis to conclude that variation in interconnection terms is attributable primarily to the size of an ISP's subscriber base.[710] As Dr. Israel concludes, "Dr. Evans' analysis falls prey to the trap [of] focus[ing] only on what is charged by an ISP, not on the critical question of whether the edge provider actually pays more as a result."[711]

Dr. Farrell's analysis is equally flawed. He concludes from data on interconnection terms between ISPs and Cogent that the largest ISPs have settlement-free peering while smaller residential ISPs pay Cogent, and so supposedly larger ISPs have more bargaining power than smaller ISPs.[712] But he makes no attempt to control for any of the other factors that account for bargaining power. Without having built backbone facilities, smaller ISPs must buy transit services from others, while larger ISPs have invested to provide backbone services, contributing to the overall capacity of the Internet. Once his analysis is replicated with controls for the quality of network facilities (i.e., the number of interconnection points), **{{**

}}.[713] As Dr. Carlton concludes, commenters' concerns regarding, among

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709 For example, Comcast has substantially more interconnection points than TWC. Indeed, as Dr. Evans acknowledges, TWC relies on transit providers more than Comcast does to reach the rest of the Internet. *Id.* ¶ 113.

710 *See* Israel Reply Decl. ¶¶ 159-164.

711 *See id.* ¶ 166.

712 Farrell Decl. ¶¶ 61-66.

713 *See* Israel Reply Decl. ¶ 162-164.

others, a larger company having greater bargaining power with respect to edge providers "are unjustified based on the empirical facts."[714]

Notwithstanding all the evidence to the contrary, even if the Transaction were to affect bargaining power, there is no basis to conclude that the Transaction would reduce competition or consumer welfare. Any shift in bargaining power in bilateral negotiations may simply transfer a portion of surplus from one party to another, not leading to any reduction in output that would result in consumer harm.[715]

Commenters' experts do not seriously challenge this. Although Netflix criticizes Dr. Israel's methodology, this methodology actually uses standard assumptions that the Commission itself has used in prior proceedings.[716] As Dr. Israel previously established, and as the Horizontal Merger Guidelines make clear, antitrust analysis is not concerned with just any shift in bargaining power, but one that will lead to reduction in output.[717] "Buyer power," for example, can result in efficiencies, such as volume-based discounts, for suppliers, rather than necessarily squeezing those suppliers such that they have to reduce production.[718] In other words, all the scenarios and data propped up by commenters simply reflect ordinary commercial bargaining which poses no concern for competition analysis.

v. Paid Peering Arrangements with OVDs Are Not Indicators or Instruments of Foreclosure.

Netflix's and Cogent's arguments also seem to assume that there is something inherently anticompetitive about the imposition of a charge for a direct, dedicated interconnection with

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714 Carlton Decl. ¶ 10.

715 *See* Comcast-TWC Public Interest Statement at 162-63; Israel Decl. ¶ 105.

716 *See* Israel Reply Decl. ¶¶ 145-148.

717 *See* Israel Decl. ¶ 105.

718 Horizontal Merger Guidelines § 12.

Comcast's network – i.e., that "paid peering" is necessarily an anticompetitive instrument or outcome. Netflix and others suggest that Comcast should be prohibited from charging interconnection fees – and that such fees are entirely unjustified "tolls" that are inherently anticompetitive in nature – because Comcast's customers request and pay for the traffic at issue.[719] But this abstract argument disregards a few key facts. First, as Mr. McElearney explains, edge providers have *always* paid *some* entity to reach Comcast's (and *all* ISPs' networks), whether such entity is a transit provider, a CDN, or some other entity.[720] It is hard to see a "fairness" differential between paying AT&T or Cogent to take traffic to Comcast and arrange interconnection and delivery to Comcast's customers, and paying Comcast to do the same exact thing. While Cogent and Netflix suggest that Comcast should not have the right to charge for this service because only Tier 1 providers should be permitted to do so,[721] that reflects an outdated view of the transit marketplace: today, the plethora of fiber backbone facilities in which companies like Comcast have invested have massively reduced transit (and interconnection) pricing and have created many new interconnection paths and options.[722]

Direct interconnection generates benefits and promotes efficiency, notwithstanding competitors like Cogent's natural desire to be insulated from additional competition – free to continue to charge edge providers for transit, while demanding that Comcast must never charge for interconnection under any circumstances. As Dr. Israel explains:

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[719] Netflix Petition to Deny at 65-66; Consumers Union et al. Petition to Deny at 24-27; Free Press Petition to Deny at 53. WeatherNation's concern about potential interconnection problems is misplaced; it need not connect direct directly with Comcast but can procure transit from any of Comcast's numerous interconnection partners. WeatherNation TV, Inc. ("WeatherNation") Petition to Deny at 9-10.

[720] *See* McElearney Decl. ¶ 28.

[721] Netflix Petition to Deny at 75-76, Kilmer Decl. ¶ 14.

[722] *See* McElearney Decl. ¶ 27; *see also* Dovrolis Decl. at 14.

> To put direct payments from edge providers to ISPs in context, it is useful to recognize them for what they are—the disintermediation of intermediaries such as transit providers and CDNs, which otherwise would sit between the edge provider and the ISP, charging one or both of them to connect to the other. Direct interconnection agreements (and associated payments, whichever direction they flow) reflect the fact that when *both* an edge provider and an associated ISP are large enough to have a sufficient Internet backbone presence, they may no longer need such intermediaries. Instead, they may find it mutually beneficial to avoid the cost associated with an intermediary's services (and the associated intermediary profit margins).[723]

Dr. Israel concludes that cutting out the middleman "may not be a good financial result for the intermediary (*e.g.*, Cogent), but it is not a bad outcome for the edge provider (*e.g.*, Netflix) or the ISP (*e.g.*, Comcast), or for competition or consumers."[724]

Interconnection charges imposed by the ISP are minimal and constrained, as discussed, by today's very low transit rates, but are still important from an economic perspective – and certainly not anticompetitive. As Professor Hemphill explained at the House Judiciary Committee hearing on this Transaction:

> Paid peering is best seen not as an instrument of exclusion, but as a means to put a price on the additional capacity demands resulting from the increased popularity of online video. It is efficient for the distributor and its end-users, considered collectively, to pay for that capacity, rather than spreading the expense among all ISP customers. Doing so better aligns use with cost and incentivizes both investment and economical use.[725]

According to Dr. Israel's, Dr. Carlton's, and Dr. Dovrolis's analyses, paid peering or "transit" (on- or off-net) charges generate important efficiencies for the Internet ecosystem, and also benefit broadband customers in at least three ways.

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723 Israel Reply Decl. ¶ 173.

724 *Id*.

725 *Oversight Hearing on Competition in the Video and Broadband Markets: The Proposed Merger of Comcast and Time Warner Cable: Hearing Before the H. Comm. on the Judiciary, Subcommittee on Regulatory Reform, Commercial and Antitrust Law*, 113th Cong. (May 8, 2014) (Testimony of C. Scott Hemphill, Columbia University, at 6), *available at* http://judiciary house.gov/_cache/files/14da5814-6ef9-4313-8ce7-ce81440a7198/hemphill-testimony.pdf.

First, they help mitigate the cross-subsidization of broadband subscribers who are heavy OVD users by broadband subscribers who are light or non-OVD users. As Dr. Israel explains, "because Netflix subscribers impose relatively large data loads on the network, uniform subscriber pricing means the majority (non-Netflix users) are subsidizing the minority (Netflix users)."[726] Interconnection charges by ISPs to edge providers who seek direct interconnection mean that "ISP subscribers will pay less if edge providers pay more." These edge providers may then pass on a portion of such charges to their own subscribers, "but this pass-through only affects subscribers who use those edge providers and thus targets prices to the right subscribers."

Second, they incentivize OVDs to make efficient decisions that impact the costs that their traffic imposes. As Professor Yoo notes: "Like any for-profit company, [Netflix] would prefer it if the ISPs bore as much of the burden of the additional costs of carrying this traffic as possible."[727] But as Mr. McElearney explains:

> *[I]ncentives* for efficiency . . . come into play where senders of traffic bear some responsibility for the costs of delivery. It was the cost of transit that led to the development of CDNs . . . and more backbone investment, as various providers sought to send their traffic more efficiently. Of course, if Comcast were required to accept traffic for free from any edge provider or network operator on the Internet, without regard to volume, that would remove normal incentives for those who send large amounts of traffic to do so efficiently. Not only would that increase the risk of abusive sending practices, stranded facilities, and constant congestion episodes, but it also would unfairly impose the sending party's costs on *all* of Comcast's customers, rather than those who actually receive and benefit from the relevant traffic (i.e., Netflix's and Comcast's shared customers).[728]

Third, they address "distortions created by the large and growing heterogeneity between the largest edge providers and much smaller providers."[729] Dr. Evans has noted such

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726 Israel Reply Decl. ¶ 188.

727 Christopher S. Yoo Comments at 13.

728 McElearney Decl. ¶ 26 (emphasis in original); *see also* Dovrolis Decl. ¶ 6.

729 *See* Israel Reply Decl. ¶ 13.

heterogeneity in his past scholarship.[730] Based on economic theory, as Dr. Israel explains, the largest edge providers derive substantially more value from interacting with ISPs than do smaller websites. Increased prices to large edge providers that seek to establish direct interconnection with the ISP would ultimately reduce prices to the ISP's subscribers, and this would result in more subscribers, thus benefiting *all* edge providers. Further, where edge providers have much more willingness to pay than subscribers, it is inefficient to mandate that an ISP can only charge subscribers but never edge providers, leading to sub-optimal output.[731] Indeed, even Cogent's expert, Dr. Farrell, has written in favor of a two-sided pricing model that supports the above three theories.[732]

Moreover, even if one were to accept that it is the ISP's "obligation" to bear the cost of being able to transport to its customers all the traffic that edge providers deliver, Comcast and every other major ISP does precisely that, by establishing extensive interconnectivity with peering and transit partners across the Internet. As discussed, on Comcast's settlement-free peering routes alone, Comcast has (and has had) the capacity to carry all of Netflix's traffic without degradation. In other words, there is more than enough capacity to handle traffic as it is normally routed. But Comcast does not have that entire amount of capacity sitting idle at any given link and with every single transit partner: that would be grossly inefficient, not to mention truly absurd.[733] Comcast, like any ISP, is not in a position to respond to the routing whims of a

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730 *Id.* ¶ 194.

731 *Id.* ¶ 197.

732 *Id.* ¶ 13.

733 *See* Dovrolis Decl. at 22 (noting that "nothing would preclude the content provider or CDN from making erratic routing decisions, moving traffic from point to point (or, if the rule applied to transit providers like Cogent as well, from transit route to transit route), forcing the access provider to repeatedly build capacity at various points, or maintain huge amounts of spare capacity across the Internet with all its partners, bearing the cost of repeatedly stranded facilities or idle equipment and capacity").

massive traffic generator like Netflix, just because it chooses to restrict its entire load of traffic to a few select routes. No ISP should be forced to bear the cost of responding to such arbitrary routing actions – or even worse, to build out direct interconnection for free to every large content provider that demands it. As Dr. Dovrolis accurately warns, "[i]f we eliminate the option of paid-peering interconnections through regulatory intervention, we are effectively placing all financial burden for the growth of the Internet exclusively on end-users (access providers' customers) – a situation that has never before prevailed in the Internet ecosystem. End-users will have to pay not only for Internet access but also for investments in the network core, something that has been traditionally defrayed by contributions from edge providers, CDNs, and other 'large' Internet players."[734]

d. Usage-Based Billing Does Not Give Rise to Public Interest Harms.

The claims by a few commenters that Comcast imposes "data caps"[735] are likewise irrelevant to this Transaction review. The attacks on Comcast's trialing of usage-based billing ("UBB") – mischaracterized as "data caps" – have been raised, in almost the same words, in the Open Internet proceeding and in other filings by various commenters in other contexts.[736] This proceeding is just another opportunity to rehash the same arguments.

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[734] *Id.* at 24.

[735] *See* Netflix Petition to Deny at 71-73; 87-88; Free Press Petition to Deny at 66; Dish Petition to Deny at 62; WGAW et al. Petition to Deny at 12, 18; Public Knowledge et al. Petition to Deny at 34-35; Stop the Cap! Comments at 16, 17; Roku Comments at 13-14. But as a preliminary matter, it is important to note that Comcast abandoned data "caps" in 2012, and Comcast subscribers today, even under its UBB trials, can use as much broadband data as they would like. Moreover, the vast majority of Comcast's customers are not currently subject to UBB, which Comcast is now testing in select locations.

[736] Public Knowledge et al. Comments, *Protecting and Promoting the Open Internet Framework for Broadband Internet Service*, Nos. 14-28, 10-127, at 52-53 (July 15, 2014); Roku Comments, *Protecting and Promoting the Open Internet Framework for Broadband Internet Service*, Nos. 14-28, 10-127, at 8-9 (July 15, 2014); Writers Guild of America, West Comments, *Protecting and Promoting the Open Internet Framework for Broadband Internet Service*, Nos. 14-28, 10-127, at 14-15 (July 15, 2014). Similarly, concerns regarding the treatment of "specialized services" are not unique to Comcast or to this present Transaction. *See* City of Boston

Any concerns that UBB could be used to disfavor unaffiliated OVDs are addressed by the Commission in the NBCUniversal conditions, which provide: "[A]ny Comcast or Comcast-NBCUniversal broadband Internet access service offering that involves caps, tiers, metering, or other usage-based pricing shall not treat affiliated network traffic differently from unaffiliated network traffic," a condition with which Comcast is indisputably in full and complete compliance.[737] And these concerns are further allayed by Comcast's legally binding commitment to comply with the no-blocking and non-discrimination requirements in the original Open Internet rules. Rather than creating any transaction-specific anticompetitive concerns regarding UBB, the Transaction will extend these protections to TWC subscribers and the acquired Charter subscribers.

Nevertheless, some commenters seek to make UBB a transaction-related issue by alleging that Comcast has particularly problematic practices that could spread. For example, AAI and others falsely claim that Comcast gives its "video streaming service," Xfinity, "preferential treatment" over Netflix and Amazon in applying UBB.[738] But that argument mixes apples and oranges. Comcast treats all Internet traffic the same, whether it involves affiliated or unaffiliated programming and whether the traffic comes from an affiliated or unaffiliated website; *all* Internet traffic – affiliated or not – is subject to UBB in markets where Comcast is trialing such programs. But Internet traffic is distinct from Comcast's cable service even when

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Comments at 7; Los Angeles County et al. Petition to Deny at 14. The 2010 Open Internet Order expressly excluded specialized services from its rules, and any concerns regarding specialized service are being addressed as part of the Commission's industry-wide rulemaking. Furthermore, the specialized service condition from the *NBCUniversal Order* would not allow the discriminatory "managed service" that WeatherNation hypothesizes. WeatherNation Petition to Deny at 9.

[737] *Comcast-NBCUniversal Order* ¶ 94.

[738] *See* AAI Comments at 32; *see also* Netflix Petition to Deny at 71-73; Public Knowledge et al. Petition to Deny at 34-35, 45, 56; Roku Comments at 13-14; WGAW et al. Petition to Deny at 56-58.

delivered in IP format. The latter is delivered over a managed IP path, separate and apart from the Xfinity Internet service, and is not even accessible over the Internet. Cable services – whether delivered using QAM or IP – are entirely separate from Internet traffic. As such, these cable services are not, and have never been, subject to Comcast's UBB or its previous data cap.

To the extent that commenters assert a purported public interest harm of extending Comcast's UBB practices to TWC systems, such claims fail.[739] First, Comcast's UBB trials are not a harm to customers. Second, there is no coherent claim that UBB harms consumers, but there are strong economic arguments that UBB promotes efficiency.

Almost two years ago, Comcast announced that it was suspending enforcement of its prior 250 GB excessive usage cap and that it would be trialing different pricing and packaging options to evaluate different options for customers—options that reflect evolving Internet usage and that are based on the principle that those who use more should pay more.[740] As has been well publicized for some time now – including through Comcast's own website – these trials are ongoing and currently cover a small minority of Comcast's customers (approximately **{{ }}** percent). One trial plan allows customers that use very little Internet each month to receive a discount for continuing to do so. Another trial plan provides customers with 300 GB with their monthly service and then customers have the option to buy extra levels of usage above that amount.

Comcast continues to evaluate the results of these trials. So far, the trials have shown: (1) median usage of all Xfinity Internet customers, including those in trial markets, remains far

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739 *See, e.g.*, NHMC Comments at 9-10; City of Boston Comments at 7.

740 *See* Cathy Avgiris, *Comcast to Replace Usage Cap With Improved Data Usage Management Approaches*, Comcast Voices (May 17, 2012), http://corporate.comcast.com/comcast-voices/comcast-to-replace-usage-cap-with-improved-data-usage-management-approaches.

below 300 GB; (2) the overwhelming majority of customers do not come close to using 300 GB, which thus remains an enormous amount of data usage for the typical customer; (3) only approximately **{{ }}** percent of all of Comcast's customers, including those in trial markets, use 300 GB in any given month and only approximately **{{ }}** percent of those customers in trial markets have used 300 GB per month for more than three months in any 12-month period; and (4) many of the customers that have been charged for additional data have continued to consume more than 300 GB per month despite having to pay for the overage.

In addition, user behavior has generally not been impacted in markets where Comcast is conducting data usage trials. Usage in trial markets aligns with usage patterns in non-trial markets, both in terms of overall usage growth, as well as median usage. In other words, the trials have not diminished customers' use of the Internet. Across Comcast's footprint, median use has grown by **{{ }}** percent over the last year as of May 2014 **{{ }}**.[741]

Further, UBB creates efficiency benefits. As noted above, in connecting usage level to price, UBB helps to mitigate subsidization of the tiny fraction of subscribers representing the heaviest data users by the average data user.[742] Just as Netflix would have non-Netflix users

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[741] Median usage in two of Comcast's larger trial markets, Atlanta and Nashville, also has grown by **{{ }}** percent, which is typical of many of the trial markets. Further, in the Nashville and Atlanta markets, a slightly higher percentage of Comcast customers exceed 300 GB usage per month currently than did before the trial began, notwithstanding the related charges. More customers are opting to purchase additional usage each month. Still, the **{{ }}** of customers in these markets do not exceed 300 GB per month or even come close to that level of usage. Comcast currently has no new data usage trials planned, as it continues to monitor the existing trials described above. Response to Request No. 59(iii).

[742] *See, e.g.*, Gigi Sohn, *Time Warner Steps Up to the Plate on Bandwidth Usage: UPDATED* Public Knowledge (Jan. 17, 2008), https://www.publicknowledge.org/news-blog/blogs/time-warner-steps-plate-bandwidth-usage-updat (supporting TWC's UBB trials as heavy data users "will now be directly responsible for bearing the cost of their heavy bandwidth usage"); *see also* Robin S. Lee & Tim Wu, *Subsidizing Creativity through Network Design: Zero-Pricing and Net Neutrality*, 23 J. Econ. Perspectives 61, 72 (2009) ("[N]othing in the current net neutrality regime prevents charging higher prices to consumers who utilize more bandwidth or demand faster service.").

subsidize the costs of traffic exchange benefiting Netflix users, others press for the cost of end-user service to be subsidized without limit by light-data users who do not consume huge amounts of bandwidth-intensive HD video. That would not be sound public policy. Indeed, as the Commission has already recognized, "prohibiting tiered or usage-based pricing and requiring all subscribers to pay the same amount for broadband service, regardless of the performance or usage of the service, would force lighter end users of the network to subsidize heavier end users."[743]

2. No Vertical Foreclosure in the Sale of Programming to Rival MVPDs or Unaffiliated OVDs

Various commenters allege that the Transaction will allow Comcast to leverage its control over NBCUniversal content to harm MVPDs and OVDs. Specifically, those commenters argue that the expansion of Comcast's subscriber base and the acquisition of (minimal) additional programming by Comcast will increase the company's incentive and ability to profitably withhold programming.[744] These commenters are merely rehashing the same arguments raised in opposition to Comcast's acquisition of control over NBCUniversal nearly four years ago. The Commission fully evaluated and approved that Transaction, subject to conditions that apply today and will apply to the assets acquired here. This Transaction involves an immaterial amount of additional video programming and will not increase Comcast's incentive or ability to engage in any kind of foreclosure strategy, and the effort to show otherwise is strained and should be rejected.

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[743] *2010 Open Internet Order* ¶ 72.

[744] *See, e.g.*, AAI Comments at 21-27; ACA Comments at 13-16; CenturyLink Comments at 6-13; Consumers Union et al. Petition to Deny at 22-27; Dish Petition to Deny at 80-82; NHMC Comments at 15-16; WGAW et al. Petition to Deny at 21.

a. Comcast's Video Programming Ownership Will Not Substantially Increase.

As explained above in Section IV.B.2.b, unlike its acquisition of control over NBCUniversal, Comcast will only acquire a small amount of additional video programming from TWC, and even less from Charter. Comcast today accounts for less than 12 percent of video programming by revenue nationwide (including broadcast, national cable networks, and RSNs), and the Transaction will increase that by only 0.25 percent. Because the addition of TWC's and Charter's programming will not significantly increase that share,[745] any alleged competition issues arising from Comcast's vertical integration are simply not transaction-specific.[746]

Moreover, Comcast's video programming holdings do not begin to reflect market power as a programming seller. The video programming marketplace offers numerous alternatives to each of Comcast's cable and broadcast networks. Were Comcast to withhold NBCUniversal content from a competing MVPD or an OVD, many viewers would simply watch alternative programming rather than switch to Comcast, so any attempt by Comcast to withhold programming would harm its programming business more than any potential gain in MVPD revenue. Indeed, the report of Drs. Rosston and Topper demonstrates that Comcast will not have the incentive to foreclose competitors from access to its programming.[747]

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[745] *See* Comcast-TWC Public Interest Statement at 164-66.

[746] For example, calls to impose a condition barring Comcast from pursuing tier placement or bundling arrangements involving Comcast programming fail to make any meaningful transaction-specific claims. *See, e.g.*, Hawaiian Telcom Comments at 16; NTCA Petition to Deny at 6. As Comcast's video programming ownership will not substantially increase, there is no basis to conclude that such claims are transaction-related and accordingly no basis for restricting Comcast alone from commonplace commercial practices.

[747] *See* Rosston/Topper Decl. ¶¶ 82-104.

b. Expanding Its Customer Base Will Not Increase Comcast's Incentive or Ability to Foreclose Rival MVPDs and OVDs from its Programming.

Programming foreclosure arguments fail to take into account the long-term impact of withholding key programming. NBCUniversal's successful programming sales business depends on the willingness of MVPDs and OVDs to pay for NBCUniversal content, which, in turn, depends on the popularity of the content among viewers. Withholding programming from MVPDs or OVDs would likely reduce overall audience exposure and cause a decline in the programming's popularity. If Comcast were to begin withholding popular NBCUniversal networks, over time viewers would lose interest and video distributors would demand a lower price (and NBCUniversal would in turn lose the ability to demand high prices from advertisers for that programming, losing revenue on both sides of the equation). Similarly, the value of Comcast's programming assets is highly dependent on the ability to attract creative talent to produce hit TV programs. Withholding programming and losing viewers would create a downward spiral for NBCUniversal by diminishing the reputation of its networks among content creators and would cause creators to launch new shows on competing networks. Nor, as the video distribution industry grows even more competitive, is there any reason to think that a withholding strategy would be lucrative for Comcast. Customers of MVPDs that are deprived of attractive NBCUniversal programming might very well choose to stay with their provider, but watch other programming networks, or they might switch to one of the other options in the market *besides* Comcast,[748] including an OVD. It is thus a risky and uncertain strategy, while the loss of programming revenues would be real and potentially unremediable.

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[748] Senator Franken is correct that Comcast has, in the past, pointed to TWC as one of the *many* MVPDs that buys NBCUniversal programming. Senator Franken Comments at 24-25. But TWC's presence or absence in the programming market is not a basis for concern. After this Transaction, the program access rules will still apply and

i. Economic and Empirical Evidence Refutes Any Foreclosure Claims.

Some commenters suggest that Comcast has implicitly conceded (in its arguments in support of the NBCUniversal transaction) that its incentive and ability to withhold programming will increase post-transaction.[749] For example, Dish points to Comcast's argument that withholding retransmission of the NBC O&O in New York from DirecTV would cause diversion to cable operators in New York (like TWC) rather than Comcast. Dish argues that the acquisition of TWC means Comcast will be able to capture more of the New York subscribers that would be lost by an MVPD from which the NBC O&O programming was withheld. But as Drs. Rosston and Topper conclusively show using the Commission's theoretical and empirical analyses (and applying current data), the Transaction presents no increased risk of foreclosure of any NBCUniversal programming to MVPDs. Drs. Rosston and Topper demonstrate with a variety of regression analyses that the incremental increase in Comcast's footprint will not overcome the strong incentives Comcast faces to sell programming to willing buyers at fair market prices.[750] The losses sustained by Comcast's programming sales business for either temporary or permanent foreclosure would outstrip any minor increase in MVPD revenues arising from subscribers switching to Comcast.

ii. Economic and Empirical Evidence Refutes Any Claims of Increased Prices due to Vertical Integration.

Empirical economic analyses also refute the notion that the Transaction will lead to higher fees for NBCUniversal programming. Based on the most recent available data, Drs.

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there will still be multiple distributors carrying NBCUniversal programming, including distributors with which Comcast does and does not compete, for purposes of potential comparison.

[749] *See, e.g.*, Dish Petition to Deny at 80-82.

[750] Rosston/Topper Reply Decl. ¶¶ 111-187.

Rosston and Topper show no significant effect on programming prices associated with Comcast's ownership of NBCUniversal programming. As their regression demonstrates, there is no evidence that vertical integration increased affiliate fees of NBCUniversal cable networks relative to a set of control networks, and therefore no basis to conclude that the Transaction will lead to transaction-specific fee increases.[751] Although a similar analysis of NBC O&O stations is somewhat more complicated due to the significant marketplace developments in retransmission consent in the past several years, Drs. Rosston and Topper similarly conclude that the increases in retransmission consent fees for NBC O&O stations were in line with those of the general market trends.[752] In fact, Drs. Rosston and Topper observe that "following the Comcast-NBCUniversal transaction, NBC O&O retransmission **[[**

]] even though NBC O&Os were vertically overlapped with Comcast distribution to a substantial degree in seven DMAs."[753] Thus, although in theory a vertically integrated MVPD might be able to cause programming prices to increase, data from the last several years show that that has not happened for a vertically integrated Comcast.

iii. Applicants' Track Record Proves They Will Not Withhold Content.

Since Comcast acquired control over NBCUniversal, it has successfully licensed or renewed programming agreements with all MVPDs with whom it negotiates (including Verizon, Cablevision, Dish, NCTC, and 20 other MVPDs), and it has licensed programming to dozens of OVDs (including Amazon, Netflix, and YouTube)[754] – all without resort to the NBCUniversal

751 *Id.* ¶¶ 112-120.

752 *Id.* ¶¶ 121-126.

753 *Id.* ¶ 125.

754 *See* Response to Request No. 19(a), (d) & Exhibits 19.1(a), 19.5(a).

arbitration provisions. Other OVDs with whom NBCUniversal licensed programming include: Apple, Barnes and Noble, CinemaNow, Google, Grab Media, Hit Bliss (formerly Project Concord), Hulu, Media Navi, Microsoft, MovieLink, Reliance Majestic, Samsung, Sony, Target, VDIO, and Vudu.[755] As discussed above, the additional programming and subscriber base Comcast will acquire post-transaction will not increase the likelihood that Comcast will attempt to engage in anticompetitive withholding strategies that it has never previously attempted.

Other commenters try to show that there have been incidents that should raise the Commission's concerns about the future. For example, the Sports Fans Coalition opposes the Transaction on the basis of disputes related to the licensing of SportsNet LA, a new regional sports network that carries the Los Angeles Dodgers' baseball games and other sports programming.[756] Sports Fan Coalition accuses TWC of withholding SportsNet LA from other MVPDs, presumably by offering access to the channel at an excessive price,[757] and demands that the Commission bring the current proceedings to a halt, "declining to act at all in this docket, unless and until TWC makes the SportsNet LA channel, and its exclusive Los Angeles Dodgers baseball content, available to all competing MVPDs at fair market value and on non-discriminatory prices, terms and conditions."[758] But, notably, TWC has offered to participate in

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755 *Id.*

756 Sports Fan Coalition Petition to Deny at 1-2.

757 Sports Fan Coalition Petition to Deny at 3 ("refusal . . . to license"), 13 ("withholding"), 14 ("boycott of all other satellite and cable MVPDs"), 27 (claiming that TWC is offering SportsNet LA to other MVPDs for $4-5 per subscriber per month).

758 *Id.* at 37.

binding arbitration with such MVPDs, and they have all refused to do so, belying any suggestion that TWC is withholding SportsNet LA or insisting on unreasonable terms.[759]

Focusing on Comcast's RSNs, other parties claim that Comcast previously withheld CSN-Philadelphia from other MVPDs, and that this supposedly demonstrates a propensity to withhold content.[760] These allegations are old chestnuts that continue to be meritless.[761] In addition, allegations that Comcast has raised prices or withheld RSNs in Northern California and Houston are also flagrant mischaracterization of the facts.[762] In the case of Houston, the network is currently in bankruptcy proceedings for a variety of reasons having little to do with Comcast, and in the case of California, it was Dish that temporarily blacked out Comcast's programming in a blatant attempt to game the Commission's arbitration process to avoid the consequences of an arbitration that Dish initiated and lost.[763]

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759 Joe Flint & Mike Hiserman, *Time Warner Cable Says Yes to Arbitration to End Dodgers TV Standoff*, L.A. Times, July 28, 2014, *available at* http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-dodgers-time-warner-cable-arbitration-20140728-story html.

760 *See* Dish Petition to Deny at 65-58; COMPTEL Petition to Deny at 38.

761 CSN-Philadelphia previously was excluded from the Commission's program access rules. After the Commission revised its rules, Comcast made this programming available to all, but certain distributors have chosen not to carry it. *See* Jeff Gelles, *Comcast and Satellite Companies at Impasse Over SportsNet Programming*, The Phila. Inquirer (Apr. 15, 2012), *available at* http://articles.philly.com/2012-04-15/business/31345434_1_satellite-providers-cable-companies-comcast-sportsnet (describing SportsNet Philadelphia as "the poster child for quality local sports programming" and noting that Comcast made formal carriage offers to DirecTV and Dish Network); Jeff Gelles, *Phils TV Deal With Comcast Still Leaves Some Fans Out*, The Phila. Inquirer (Jan. 27, 2014), *available at* http://articles.philly.com/2014-01-27/business/46641343_1_sportsnet-philadelphia-comcast-sportsnet-phillies-games (stating that SportsNet Philadelphia is available on Verizon FiOS and other regional cable systems, but that DirecTV and Dish Network had rejected Comcast's offer to utilize the FCC arbitration process to determine carriage rates.).

762 *See* Senator Franken Comments at 29.

763 *See* Loren Steffy, *Blame for TV Blackouts Begins with the Teams*, Houston Chronicle (Apr. 16, 2013), available at http://www houstonchronicle.com/business/steffy/article/Blame-for-TV-blackouts-begins-with-the-teams-4439808.php ("Hating cable companies is as much a national pastime as baseball, of course, but in this case, frustrated fans should start by blaming the teams themselves."); *see id*. ("As a minority owner, [Comcast] has an interest in expanding through distribution . . . . Meanwhile, the distributors – several of whom own their own regional sports networks in other markets – say there's a limited amount of these networks they're able to carry."); Steve Johnson, *TV Dispute Puts Sharks Fans on Ice*, San Jose Mercury News (Dec. 10, 2010), *available at* http://www mercurynews.com/sharks/ci_16828270 ("After its contract with Dish expired in September 2009, Comcast contends it tried to work out a new deal, only to see Dish suddenly drop the network hours after the

Other commenters blend vague references to local news channels into broader assertions concerning RSNs and Comcast's alleged incentives and ability post-transaction to withhold local news channels it owns from competitors.[764] With respect to local news channels in particular, the Commission correctly recognized years ago that such content is easily replicable by competitors and not comparable to content provided by RSNs, which typically is licensed from the owners of local sports teams on an exclusive basis.[765] In contrast, there are no comparable legal restrictions that would prevent an MVPD or any other interested entity from engaging in its own local news reporting. Consequently, to the degree that these commenters seek to condition approval of the Transaction on giving rivals access rights to local news channels, the

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arbitrator ruled in favor of Comcast's final offer. In an FCC filing Wednesday, Comcast characterized Dish's use of arbitration as an 'attempt to game the process to see if it likes the results – and if not, to abandon the programming and the Dish subscribers who have paid for and expected to receive it."); *see id*. (noting that fans agreed with Comcast, citing longtime Sharkspage blogger Jon Swenson, who wrote, "Pulling the plug 12 hours after an arbitrator decision you initiated appears on its face unconscionable."); *see also* Phil Rosenthal, *Dish, Comcast TV Contract Fight in California Could Affect Blackhawks, Bulls, Cubs, White Sox*, Chi. Trib. (Dec. 2, 2010), *available at* http://newsblogs.chicagotribune.com/towerticker/2010/12/dish-comcast-tv-contract-fight-in-california-could-affect-blackhawks-bulls-cubs-white-sox.html ("What happened in California is Dish took its contract fight with CSN California to arbitration. Half a day after the arbitrator ruled against Dish, it pulled the plug on the channel that carries San Jose Sharks, Sacramento Kings and other teams.").

764 *See, e.g.*, Consumers Union et al. Petition to Deny at 21; Public Knowledge et al. Petition to Deny at 45; CFA et al. Petition to Deny at 28, 32-33.

765 *See Review of the Commission's Program Access Rules and Examination of Programming Tying Arrangements*, 25 FCC Rcd. 746, 782 n.200 (2010), *aff'd in part, Cablevision Sys. Corp. v. FCC*, 649 F.3d 695 (D.C. Cir. 2011) ("*2010 Program Access Order*"). As the Commission correctly explained there, in declining to fashion an explicit program access obligation for local news channels:

> [W]e believe it highly unlikely that an unfair act involving local news and local community or educational programming will have the prescribed purpose or effect under Section 628(b). Unlike RSN programming, local news and local community or educational programming is readily replicable by competitive MVPDs. Moreover, the Commission previously found that exclusivity plays an important role in the growth and viability of local cable news networks and that permitting such exclusivity "should not . . . dissuade new MVPDs from developing their own competing regional programming services."

Id. (internal citations omitted); *see also, e.g., Verizon Tel. Cos. and Verizon Servs. Corp. v. Madison Square Garden, L.P. and Cablevision Sys.*, 26 FCC Rcd. 13145 n.152 (2011) (noting precedent finding that "local and regional news channels are 'readily replicable' programming") (internal citations omitted).

Commission should summarily reject that proposition as baseless and contrary to the Commission's decades-long goal of encouraging the emergence of more local news voices.[766]

Finally, moving to online content, AAI, CFA, and others point to the NBCUniversal arbitration with Project Concord, Inc. ("PCI"), as supposed evidence of the company's tendency to withhold content.[767] But that was not the nature of the dispute, which focused on *which* content PCI could have in light of contractual limitations and on what terms PCI had a right to demand it. And notably, the Media Bureau ruled in Comcast's favor on the core issue that NBCUniversal was not required to violate its licensing agreements with others in order to license certain content to PCI.[768] Indeed, the Bureau resolved the interpretive issues raised by the case without any suggestion of non-compliance by NBCUniversal and expressly rejected claims that NBCUniversal's positions in the arbitration were unreasonable.[769] While the Media Bureau's ruling is pending review by the Commission, NBCUniversal has in the meantime provided significant content to PCI under the parties' arbitrated programming agreement (as modified by the Media Bureau's order) – further refuting any claim of that this dispute says anything about "withholding."

iv. The Commission Has Already Addressed Any Foreclosure Concerns.

Any residual concern that the combined company will withhold programming is mitigated by the Commission's existing program access regulations and the conditions of the

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766 *See, e.g.*, *2010 Program Access Order*, n.200; *2014 Quadrennial Regulatory Review – Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, 29 FCC Rcd. 4371 ¶ 21 n.50 (2014) (discussing tentative conclusion to retain local TV duopoly rule to, inter alia, bolster incentives for production of local news programming).

767 AAI Comments at 31-32; CFA et al. Petition to Deny at 2, 36-37.

768 *Project Concord Order on Review* ¶¶ 66-73 (Commission review pending).

769 *See id.*

NBCUniversal Order.[770] In other words, even if the Transaction were somehow to increase Comcast's incentive or ability to foreclose rivals from licensing its programming (which it will not), Comcast would be prevented from doing so. Some commenters, such as ACA, make generalized allegations that arbitration is inadequate.[771] These claims, however, merely highlight issues common to any commercial negotiation and to arbitration generally. For example, ACA argues that Comcast has an advantage in baseball-style arbitration because it has more information than a small MVPD would about the value of its programming.[772] However, a video programmer will always have superior information as compared to an MVPD about its own programming, just as the MVPD (or its bargaining agent) will always have superior information to the programmer about the terms it obtains from other programmers. In any case, one purpose of arbitration by an independent third party is to reduce the advantages of information asymmetry. The Commission in the NBCUniversal transaction specifically chose arbitration as a "more effective and less costly" remedy for guarding against "harms from integrating content and distribution,"[773] and made a number of modifications to the arbitration conditions to protect

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770 The Maine RLECs seek to require the combined company to provide them with access to video programming on the same terms and at the same rates applicable to its local cable affiliates, to "enable" the RLECs "to compete on the triple play on a level playing field." Maine RLECs Petition to Deny at 9-10. Further, they call for the combined company to divest unspecified cable systems to the RLECs. *Id*. at 9. These demands are patently absurd. Regarding the former request – which the Maine Commission has already rejected – there is no basis for relieving the Maine RLECs of the same procedures for obtaining content that apply to all MVPDs, and in any event the combined company would be in no position to extend to the Maine RLECs or to anyone else the rights, terms, or prices of content offered by unaffiliated programmers. *See Lincolnville Networks, Inc., Petition for Suspension or Modification of the Application of the Requirements of 47 U.S.C. § 251(b) and (c), pursuant to 47 U.S.C. § 251(f)(2) regarding Time Warner Cable Information Services (Maine), LLC's Request*, Order, Docket Nos. 2012-218-221 (Me. Pub. Utils. Comm'n Feb. 22, 2013) (rejecting prior request from Maine RLECs). With regard to the clearly unreasonable call for divestiture of cable systems or unbundling facilities to the RLECs, the Maine RLECs might welcome such a leg up in their own business pursuits, but they cannot explain why the Transaction presents any basis for the Commission to compel it. These clearly unreasonable conditions do not address any transaction-specific harm, and the Commission should therefore reject them.

771 ACA Comments at 31-39; *see also* Hargray Comments at 3-4; Sports Fans Coalition Petition to Deny at 29.

772 ACA Comments at 34-46.

773 *Comcast-NBCUniversal Order* ¶ 4.

small and medium-sized MVPDs.[774] ACA shows no reason the Commission's decision in NBCUniversal should be different in relation to this Transaction.[775]

3. No Vertical Foreclosure in the Carriage of Unaffiliated Programmers

As previously discussed, this Transaction does not produce any further concentration of national programming, and only limited additional regional and local programming, largely outside of the areas currently served by Comcast. None of the commenters has made any credible argument that the limited added distribution scale will increase Comcast's incentives or ability to discriminate on the basis of affiliation against unaffiliated programmers in its carriage decisions. Blinded by their parochial interests, these commenters discount or simply ignore the fact that Comcast has launched or expanded the carriage of *141* unaffiliated networks in recent years by more than 217 million customers.[776] As noted, it carries over 160 independent networks, including many small, diverse, and international networks. Post-Transaction, six out of seven networks that Comcast carries will continue to be unaffiliated.

Several of the programmers nevertheless seek to use this proceeding to achieve conditions directing Comcast to support their favored carriage arrangements. It is a long menu of classic rent-seeking:[777]

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774 *Id.* ¶ 57.

775 ACA complains about the "high fixed costs" and risks of arbitration, asserting that it is an impractical remedy for smaller MVPDs. ACA Comments at 32-39. However, the Commission already addressed these concerns by adopting special provisions in the *Comcast-NBCUniversal Order* which, among other things, (a) authorize smaller MVPDs (with 1.5 million subscribers or less) to appoint an independent bargaining agent and (b) shift the attorney costs and fees incurred by smaller MVPDs (with 600,000 subscribers or less) in an arbitration to Comcast if it does not prevail. *Comcast-NBCUniversal Order*, App. A, § VII.D. ACA's real objection is that its members do not want to be bound by the outcome of an arbitration, but rather want a free pass to see how it goes and then decide whether to accept the final offer awarded by the arbitrator. As the Commission has correctly concluded, that would defeat the purpose of final offer arbitration and be unfair to Comcast. *See id.* § VII.D.5 (making the final arbitration award binding on all parties).

776 *See* Response to Request No. 30; Response to Request No. 31.

777 Rent-seeking is "[t]he expenditure of resources in order to bring about an uncompensated transfer of goods or services from another person or persons to one's self as the result of a 'favorable' decision on some public

- Back9 seeks a golf channel carriage condition, with significant distribution that would impose significantly higher costs on Comcast's customers;

- RFD seeks a rural channel carriage condition, making clear that its only concern is obtaining a windfall for its network;

- Herring Broadcasting seeks a news channel carriage condition and a carriage condition for its non-news network (f/k/a WealthTV), each tailored specifically so that these networks would qualify;

- WeatherNation seeks a weather channel carriage condition, while never explaining why Comcast customers should be required to pay for another source of local weather news;

- Monumental Sports seeks an RSN carriage condition, conveniently crafted to serve its individual business interests;

- Veria Living, TheBlaze, and others baldly propose conditions that would effectively guarantee them automatic or near-automatic carriage on Comcast systems;[778] and

- Sinclair Broadcasting, the largest programming interest of this group of commenters, about whose filing ACA's spokesman observed, "[i]n terms of sheer hypocrisy, [it] has to take first prize,"[779] seeks a raft of non-transaction-specific

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policy." *See* Dr. Paul M. Johnson, Auburn University, Glossary of Political Economy Terms, http://www.auburn.edu/~johnspm/gloss/rent-seeking_behavior (last visited Sept. 22, 2014).

[778] *See* Back9 Comments at 18-19 (Comcast must be forced to carry all competing independent networks on the same systems and distributed to the same subscribers as affiliate programming and launch two competing independent networks each from the entertainment, men's lifestyle, women's lifestyle, golf, and children genres); RFD-TV Comments at 12-13 (Comcast must be forced to carry on 100% of its systems an independent rural programming network focusing on rural news and information.); Herring Broadcasting Comments (Letter 3) (Comcast must be forced to extend a 10-year carriage term to any national news cable network that, among other things, is launched on two other MVPDs.); Herring Broadcasting Comments (Letter 4) (Comcast must be forced to extend a 10-year carriage term to any national cable network that, among other things, is launched on two other MVPDs.); WeatherNation Petition to Deny at 10-11 (Comcast must be forced to extend terms better or at least equal to those given to The Weather Channel by Comcast and other MVPDs to include carriage in the same tier and neighborhood.); Monumental Sports Comments at 7-8 (Comcast must be forced to carry an RSN automatically if it declines to immediately agree to carriage of a newly launched RSN.); TheBlaze Comments at 21 (Comcast must be subject to binding private arbitration in carriage disputes and prohibited from seeking or even enforcing any MFN provisions.); Tennis Channel Comments at 27-28 (Comcast must be subject to arbitration and a watered-down standard of evidence for a complainant.); Sinclair Petition to Deny at 16, 19-20 (Comcast must be subject to binding arbitration solely upon the request of a broadcaster.). The Parents Television Council et al. and WGAW likewise raised program carriage concerns. *See* Parents Television Council et al. Comments at 5; WGAW et al. Petition to Deny at 32-37.

[779] Ted Hearn, Vice President of Communications, ACA, *available at* https://twitter.com/TedatACA/status/504685636805484544.

> conditions designed to obtain deal terms that Sinclair has not been able to achieve at the bargaining table.[780]

And more programmers may yet emerge (untimely though they would be) with redundant or even more onerous proposals looking to advance their narrow business interests (or, like Discovery, barely cloaking their narrow interests in the form of more generalized concerns).

a. Transaction Reviews Have Too Often Been Used for Frivolous Program Carriage Advocacy.

Unfortunately, the Commission has expended enormous amounts of time in previous proceedings on what have proved, time and again, to be frivolous program carriage claims. This history is worth recounting.

In the *Adelphia* proceeding, for example, The America Channel ("TAC") was a major proponent of mandatory program carriage arbitration. Eventually, the Commission created an arbitration right for unaffiliated RSNs. TAC was merely an idea for a network, not a going concern, when it filed comments in FCC rulemakings and inquiries in 2004-2007 claiming that the only barrier to its successful launch as a network was its inability to secure a carriage agreement with Comcast. TAC filed scores of ex partes in eight different dockets during this period and met with senior Commission staff and even Commissioners on multiple occasions, including multiple meetings in the *Adelphia* proceeding. After the Commission imposed the program carriage arbitration condition for RSNs in the *Adelphia Order*, TAC acquired rights to some college sports – rights that no one else appeared to want – and suddenly claimed that it was an RSN eligible to use that condition. Comcast challenged TAC's claim that it was a qualified RSN at the Commission.[781] And even though the Commission suspended the *Adelphia Order*'s

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780 Sinclair Petition to Deny at 15-20.

781 *Comcast Corp. Petition for Declaratory Ruling that The America Channel is not a Regional Sports Network*, Order, 22 FCC Rcd. 17938 ¶ 8 (2007) ("*TAC Decision*").

program carriage arbitration condition indefinitely because of its susceptibility to abuse, the Commission nevertheless allowed TAC to pursue arbitration.[782] TAC and Comcast reached a settlement in October 2007, under which TAC was guaranteed carriage on Comcast's systems. And then, even though TAC had obtained precisely what it had told the Commission was all it needed to be successful, the network still did not launch. Nearly seven years later, it still has not.

Herring Broadcasting was a major proponent of draconian program carriage conditions in the Comcast-NBCUniversal proceeding, even while it was still pursuing its non-meritorious litigation against Comcast, TWC, and two other cable operators.[783] But Herring Broadcasting had already had its day in court and "failed completely" to prove its case, as the Commission's Chief ALJ, the Commission itself, and (later) the Ninth Circuit found.[784]

Here, again, commenters have emerged to seek the imposition of conditions such as (1) mandatory program carriage arbitration, (2) watering down the current program carriage discrimination standard, (3) shifting the burden of proof, and (4) nakedly granting windfalls to certain parties.[785] The Commission should declare that enough is enough. Faced with robust MVPD competition in all areas it serves, Comcast has every incentive to carry networks that its subscribers want, without regard to affiliation. Unlike program access, in which there is generally an economic incentive to sell programming to all willing MVPD buyers, MVPDs like Comcast do not *and cannot* carry all networks that seek carriage, and do not and cannot agree to all carriage terms desired by the networks they already carry. Weakening Comcast's ability to

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782 *TAC Decision* ¶ 24.

783 *See Herring Broad., Inc. v. Time Warner Cable, Inc.* et al., Memorandum Opinion and Order, 26 FCC Rcd. 8971 (2011), *aff'd sub nom. Herring Broad., Inc. v. FCC*, No. 11-73134 (9th Cir. 2013).

784 *Id.*

785 *See, e.g.*, Tennis Channel Comments at 27-28; Beach TV Cable Co. ("Beach TV") Comments at 5; Back9 Comments at 18-19; My Christian TV Petition to Deny at 3; RFD TV Comments at 12-13.

decline to carry certain services, or subjecting it to arbitration triggered by a programmer, would disserve the public's interest by harming Comcast's ability to provide its customers attractive packages of programming at attractive prices.

The Commission should in particular dismiss the suggestions by Tennis Channel, TheBlaze, and Sinclair[786] to impose a program carriage arbitration regime, which is both unnecessary and inappropriate. The Commission has tried a program carriage arbitration regime before – the aforementioned *Adelphia Order* condition imposed on Comcast and TWC – and it wisely suspended that condition for the abuse it inherently invited.[787] In the other instance in which that condition was employed, the Commission reversed the decision of two arbitrators and the Media Bureau in finding that TWC did not act on the basis of discrimination but instead on the basis of legitimate business factors in determining that there was not sufficient demand to justify carrying MASN on its North Carolina systems.[788] In short, the condition produced years of litigation, consumed massive legal fees and agency and judicial resources, and did not change the carriage of any channel anywhere. There is no reason to repeat this history again. This is especially true in light of evidence discussed below demonstrating that Comcast has not engaged in discrimination against unaffiliated program services.

b. No Affiliation-Based Discrimination Against National Programmers

Against the backdrop of extremely competitive programming and MVPD marketplaces, Comcast has neither the incentive nor the ability to act anticompetitively toward unaffiliated national programmers. As Drs. Rosston and Topper explain, an anticompetitive foreclosure

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786 TheBlaze Comments at 4, Tennis Channel Comments at 27-28; Sinclair Petition to Deny at 16.

787 *TAC Decision* ¶ 24.

788 *TCR Sports Broad. Holding, L.L.P. v. Time Warner Cable Inc*, Memorandum Opinion and Order, 25 FCC Rcd. 18099 ¶ 23 (2010).

strategy against unaffiliated programmers would risk loss of Comcast's MVPD customers for little gain.[789] Drs. Rosston and Topper observes that "because of the vigorous competition Comcast faces in the upstream (video programming) and downstream (video distribution) markets . . . . a discriminatory program carriage strategy against unaffiliated programming would likely be unprofitable – it would likely lead to Comcast losing cable customers without bringing much benefit to Comcast's affiliated programming."[790] Moreover, using the Commission's economic model in the Technical Appendix to the *NBCUniversal Order* for assessing discrimination on the basis of affiliation, Drs. Rosston and Topper demonstrate that no such pattern has occurred since the NBCUniversal transaction, either on behalf of legacy Comcast networks or newly acquired NBCUniversal networks. [791] In short, there is no basis to conclude that Comcast has favored its affiliated networks since 2011 or would do so following the Transaction.[792]

Indeed, over the years since acquiring NBCUniversal, Comcast has negotiated successfully with numerous unaffiliated national programmers, large and small.[793] Comcast carries many more independent networks than TWC and has expanded the carriage of dozens of networks. As REELZChannel observes: "[S]ince the 2011 Comcast merger with NBCU, the number of REELZ subscribers has more than doubled to 11.5 million, making Comcast REELZ's largest cable distributor and demonstrating Comcast's continued commitment to

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789 Rosston/Topper Decl. ¶ 232.

790 Rosston/Topper Reply Decl. ¶ 83.

791 *Id.* ¶¶ 96-104. As Drs. Rosston and Topper explain, there are several conceptual flaws with this model. Nonetheless, to the extent it has any weight, it provides evidence *in support* of the Transaction.

792 Rosston/Topper Decl. ¶¶ 201-210, 234-235; Rosston/Topper Reply Decl. ¶ 104.

793 Applicants note further that Veria Living's allegation that Comcast refuses to carry it is false. Veria Living Comments at 1. Comcast has not agreed to carry the network at the distribution levels it demanded because such a large scale roll-out is not an appealing business proposition for the company, but Comcast has not refused to carry the network or otherwise closed the door on carriage negotiations with Veria Living.

support independent networks that show diligence and long-term commitment to their own future."[794] Crown Media Family Networks similarly observes: "One need only look at Comcast's programming schedule to recognize that it similarly distributes other independent channels with diverse programming, whether family-friendly, minority-owned or programmed, or presented in foreign languages. [The Transaction] will be a positive development not only for the Hallmark channels, but also for other unaffiliated and independent networks."[795] And as Ovation plainly and powerfully states, "Comcast has the best record of any pay-TV provider in launching independent networks like Ovation."[796]

Against Comcast's record of carriage, various commenters cite the Tennis Channel and Bloomberg disputes, as evidence of a problem (including, most prominently, Tennis Channel itself).[797] With respect to the Bloomberg dispute, that case simply did not relate to alleged discrimination. The dispute involved an interpretation of a provision of the *NBCUniversal Order*, specifically what number of contiguous news channels constituted a "neighborhood" into which Bloomberg TV should be moved. It was irrelevant to the case whether any news channels affiliated with Comcast were in a particular neighborhood.[798] And the dispute was solely about the interpretation of the NBCUniversal Order "news neighborhooding" condition – it did not relate to whether a network should be carried or the tier on which it should be carried. Indeed,

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[794] REELZChannel Comments at 5.

[795] Letter from William Abbott, President & CEO, Crown Media Family Networks, to Chairman Wheeler, FCC, at 2 (Aug. 25, 2014).

[796] Letter from Brad Samuels, Executive Vice President, Ovation, to Chairman Wheeler and Commissioners, FCC, at 2 (Aug. 22, 2014).

[797] *See, e.g.*, CFA et al. Petition to Deny at 36-40; Consumers Union et al. Petition to Deny at 30-31, 45-46; Dish Petition to Deny at 88-93; ITTA Petition to Deny at 14-15; Entravision Comments at 11-12; Public Knowledge et al. Petition to Deny at 56; TheBlaze Comments at 11.

[798] *See Bloomberg v. Comcast Cable Commc'ns, LLC*, Memorandum Opinion and Order, 28 FCC Rcd. 14346 (2013) ("*Bloomberg Order*").

Bloomberg TV, with Comcast's support, has recently sought to *release* Comcast from the requirements of the *Bloomberg Order*, so that Comcast could move Bloomberg TV to a channel slot next to Comcast's affiliated CNBC network – and this relief was needed precisely because CNBC was in several cases *not* in the news neighborhoods that were the focus the Bloomberg case.[799]

Tennis Channel. With respect to the Tennis Channel matter, a unanimous panel of the Court of Appeals of the D.C. Circuit found *no evidence of unlawful discrimination* and vacated the Commission's order.[800] Both the full D.C. Circuit and the Supreme Court found no reason to review – let alone disturb – this decision, which did not "introduce a new test" or weaken the evidentiary standard, as Tennis Channel claims, but instead properly weighed the evidence and found none supporting Tennis Channel's allegations, consistent with the Commission's precedent.[801] That ruling stands, no matter how many contortions Tennis Channel is willing to undertake to try to overcome it.[802] And it would be grossly inappropriate for the Commission to allow Tennis Channel to circumvent the dispositive judicial rulings against it to leverage a new carriage arrangement to which it is simply not entitled.

Further, the claims Tennis Channel makes in this proceeding are inaccurate and unsustainable. Tennis Channel claims that national sports programming presents an "especially acute" risk of public interest harms, pointing to a table of affiliation versus carriage of sports networks that Tennis Channel alleges demonstrates Comcast's "pattern of favoring affiliated

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799 Bloomberg L.P., Petition for Waiver, MB Docket No. 11-104 (June 23, 2014).

800 *Comcast Cable Commc'ns, LLC v. FCC*, 717 F.3d 982 (D.C. Cir. 2013), *reh'g en banc denied*, No. 12-1337, 2013 WL 5610420 (D.C. Cir. Sept. 4, 2013), *cert. denied*, 134 S. Ct. 1287 (2014).

801 *See id.*

802 Tennis Channel Comments at 26 n.63.

sports networks," which Tennis Channel further alleges "remains true today."[803] There was no "pattern" to begin with – Comcast's carriage of affiliated and unaffiliated sports networks has been in line with most other major MVPDs, as Commissioner Pai has recognized[804] – and since 2011, Comcast has *added* two unaffiliated national programming services to broadly penetrated tiers: Fox Sports 1, which Comcast launched last year, is carried on the same tier as NBC Sports Network, Golf Channel, ESPN, and ESPN2.[805] CBS College Sports was rebranded as CBS Sports, and Comcast moved the network to a broadly penetrated tier in 2011. Tennis Channel accounts for neither development in making its assertions here. Tennis Channel's misleading table also fails to include the recently launched and unaffiliated PAC 12 Network and SEC Network – two networks that Comcast carries on a broadly penetrated tier in their respective territories (along with the Big 10 Network, which is not carried exclusively on the sports tier)[806] – and ignores Comcast's highly penetrated carriage of TBS and TNT (which feature significant sports content), and all other unaffiliated in-market RSNs.[807] In short, Tennis Channel's "evidence" should be given no weight.

Tennis Channel's effort to manufacture a transaction-specific harm here is just one more contortion on its part in its more than four-year effort to enlist the Commission's help in rewriting the ten-year old long-term contract to which Tennis Channel freely agreed and with

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803 Tennis Channel Comments at 17, 19.

804 *Tennis Channel, Inc. v. Comcast Cable Commc'ns, L.L.C.*, Memorandum Opinion and Order, 27 FCC Rcd. 8508 (2012) (Statement of Commissioner Pai, dissenting).

805 Xfinity TV Channels, http://www.comcast.com/Customers/Clu/ChannelLineup.ashx (abbreviating Fox Sports 1 as FS1).

806 *See* Tennis Channel Comments at 19.

807 *See* Xfinity TV Channels, http://www.comcast.com/Customers/Clu/ChannelLineup.ashx. Tennis Channel also claims that NBA TV is affiliated with Comcast "through its ownership in the National Basketball Association." Comcast never owned a cognizable interest in NBA TV through its ownership of the Philadelphia 76ers, but even accepting Tennis Channel's ownership theory as true, Tennis Channel ignores the fact that *Comcast sold the 76ers in 2011*.

which Comcast has fully complied. As Tennis Channel admits, TWC – like Comcast – carries Tennis Channel on its sports tier. And, like Comcast (and numerous other MVPDs), TWC carries Golf Channel and NBC Sports Network on highly penetrated tiers. The most Tennis Channel can say is that it "reasonably expected" to engage in negotiations with TWC upon the expiration of its contract with TWC to obtain broader carriage, and "any such negotiations will now presumably be influenced by Comcast" – which is hardly convincing, nor unique in any way to Tennis Channel. Nevertheless, Tennis Channel seeks a condition that would allow networks to "opt" between an expiring Comcast and TWC contract.[808] That impractical and opportunistic proposal would not only be indefensible, but would arbitrarily abrogate contracts (which, as noted, is just another page out of Tennis Channel's playbook).

RFD-TV. RFD-TV has been singularly aggressive in its shameless and unprincipled attempts to use the Transaction to gain additional carriage from Comcast. Despite these efforts, RFD-TV's complaint is not transaction-specific. Instead, RFD-TV seeks to reopen a business decision Comcast's local systems made in August 2013 to discontinue carriage of RFD in New Mexico and Colorado. This decision was essential to reclaim much-needed bandwidth for increased broadband speeds and other improvements to those local systems. And Comcast's decision was driven, in part, by the lack of viewership of RFD-TV in those markets. The decision simply has nothing to do with the Transaction.

Moreover, RFD-TV ignores the inconvenient fact that Comcast *substantially increased* distribution of its sister network, FamilyNet, which largely carries the same programming as RFD-TV. In fact, the parent company of both networks, Rural Media Group, has increased its

[808] Tennis Channel Comments at 15 n.45, 29.

networks' carriage on Comcast's systems *by over a million subscribers since 2011*.[809] Far from demonstrating any "rural bias," these facts confirm Comcast's commitment to serve the interest and needs of its customers, including those in more rural communities.

RFD-TV also acknowledges that both Comcast and TWC carry the network at about the same penetration levels.[810] Thus, there is no transaction-specific issue here, despite RFD-TV's attempts to manufacture one.

Finally, although RFD-TV included some of the correspondence between the parties in its comments, a more recent email from RFD-TV's CEO, Patrick Gottsch, to Comcast reveals the gamesmanship at play here. In the email, Mr. Gottsch openly taunts Comcast's regional vice president of product management, who made the difficult decision to reduce RFD-TV's carriage, asking if he now "wish[es he] would have picked one of those other '12 channels' besides RFD-TV" that were being considered for drop as part of the bandwidth reclamation. This blatant abuse of the license transfer review process to challenge reasonable, good-faith business judgments that pre-date a transaction is patently improper and should be rejected by the Commission.[811]

TheBlaze. TheBlaze has also raised issues that have nothing to do with the Transaction, wrongly asserting that Comcast is trying to "squelch" online distribution to suppress

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809 *See* Jaclyn Tuman, *RFD-TV Fans Flood Comcast/TWC Deal Docket*, Multichannel News, July 28, 2014, *available at* http://www multichannel.com/news/distribution/rfd-tv-fans-flood-comcasttwc-deal-docket/382791; Bob Fernandez, *It's a Barnyard Brawl Between Comcast and RFD-TV*, Philly.com, July 12, 2014, http://articles.philly.com/2014-07-12/news/51361056_1_rfd-tv-patrick-gottsch-comcast-corp.

810 RFD-TV Comments at 10.

811 As further proof that RFD-TV is in need of no governmental intervention, AT&T recently announced a decision to carry RFD-TV. Press Release, AT&T, *AT&T U-verse and RFD-TV Reach Agreement to Bring Rural Programming to U-verse Customers* (Sept. 8, 2014), http://about.att.com/story/att_u_verse_and_rfd_tv_reach_agreement_to_bring_rural_programming_to_u_verse_customers.html.

conservative political voices.[812] There is no merit to this claim. TheBlaze is only one of a number of conservative-leaning news channels that have recently launched or are in the process of launching.[813] Like other MVPDs, Comcast cannot carry every conservative-leaning news channel. Nor can it carry every liberal-leaning news channel. Rather, Comcast must – and is entitled to – make editorial judgments about the programming that best meets the needs and interests of its customers. On that score, Comcast is already the largest distributor of Fox News, which is carried on Comcast's budget-friendly "Digital Economy" package of 40+ programming channels. In contrast, CNBC and MSNBC are carried on higher, more costly tiers of service.

Further, the fact that consumers can already obtain TheBlaze's programming online, for a monthly fee, is a relevant but not dispositive factor. The principal obstacle to a carriage agreement has been TheBlaze's insistence on significantly broader carriage at higher fees than other nascent news services have received, which would immediately drive up monthly rates for Comcast's customers.

Notably, TheBlaze has been unsuccessful thus far in obtaining carriage from other major MVPDs – presumably for the same reasons. Like other dissatisfied programmers, TheBlaze is

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[812] TheBlaze Comments at 9.

[813] TheBlaze's and Herring Broadcasting's claim that Comcast disadvantages certain unaffiliated conservative political content is non-transaction-specific and utterly without merit. *See* Herring Broadcasting Comments (Letter 3); TheBlaze Comments at 5-6. Comcast has no interest in, nor incentive for, discriminating against conservative-leaning news channels. Such programming is attractive to many viewers, and Comcast is keen to serve that interest. Indeed, Comcast provides greater distribution to the conservative-leaning Fox News than it does to the more progressive news channel it owns, MSNBC. A number of new conservative-leaning news channels have recently launched or are in development, such as Newsmax, One America News, TheBlaze, and a national channel that Sinclair plans to create. As one independent programmer observed, however, "One must realize that there are distinct differences between independent programmers and that it is appropriate for Comcast, or any distributor, to exercise discretion when it comes to carriage. . . . Not all independent programmers provide value in the same fashion and shouldn't expect carriage otherwise." Crossings TV Comments at 4. In any event, as the Commission has recognized, it is legally prohibited from dictating the content of programming carried on cable systems. In approving Comcast's acquisition of control of NBCUniversal, the Commission noted that "the First Amendment, Section 326 of the Act, and Commission precedent limit our ability to dictate the programming policies of our licensees." *Comcast-NBCUniversal Order* ¶ 191 (citing *Grutter v. Bollinger*, 539 U.S. 306, 326 (2003); *Gratz v. Bollinger*, 539 U.S. 244 (2003); *Johnson v. Cal.*, 543 U.S. 499 (2005); *Lutheran Church-Mo. Synod v. FCC*, 141 F.3d 344, 354 (D.C. Cir. 1998)).

improperly using this license transfer review proceeding to seek concessions that it has been unable to obtain in an open, well-functioning marketplace.

Certain other programming commenters' demands warrant brief responses:

- **WeatherNation.** WeatherNation's petition is expressly predicated on concerns relating to Comcast's "control" of programming assets, most notably The Weather Channel.[814] But Comcast is only a minority owner in The Weather Channel and does not control it. Comcast played no role in The Weather Channel's negotiations with DirecTV, or the alleged change in fees The Weather Channel's affiliate allegedly sought to charge WeatherNation for certain data, so this is not even a Comcast-specific – much less transaction-specific – issue. Nor is there any program carriage issue here;[815] Comcast is already subject to legally-binding obligations to bargain in good faith for retransmission consent and not to discriminate on the basis of affiliation in the selection of channels for carriage and the associated terms and conditions. (As noted, the fact that no successful complaints have been brought against Comcast is proof, not that the rules are inadequate, but that Comcast has fully complied with them notwithstanding meritless litigation to which Comcast has been subject.). As to WeatherNation's claim that Comcast has "repeatedly declined to even meet with WeatherNation to discuss carriage" since the NBCUniversal acquisition,[816] that is false. Comcast has had discussions with WeatherNation's representatives from time to time (including last year) and in fact *carries the WeatherNation programming on multicast signals pursuant to retransmission consent arrangements in several major markets*. Finally, there is no basis for WeatherNation's demand that Comcast be required to divest its interest in The Weather Channel, since WeatherNation has failed to provide any credible evidence that the existing relationship is the source of any harm or that the Transaction will create any new likelihood of harm that cannot be redressed through existing rules and conditions.[817]

- **Back9.** Another commenter, Back9, offers golf-oriented entertainment and lifestyle programming, much of which is derivative of reality and lifestyle programming already abundantly available on other networks. Back9 only recently signed its first carriage deal with an MVPD (DirecTV) – a deal that gives Back9 a "national footprint" on which to sell advertising, in the words of its president[818] (demonstrating only the unreliability of Back9's and other commenters' claim that carriage on Comcast is essential to

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814 WeatherNation Petition to Deny at 2.

815 *Id*. at 3, 10.

816 *Id*. at 8.

817 *Id*. at 11. For the same reason, other calls for Comcast to divest or structurally separate its programming assets are equally without merit. *See, e.g.*, Herring Broadcasting Comments (Letters 3 and 4); Tennis Channel Comments at 29.

818 Peter Finch, *A Lot of High Fives in Hartford: Back9 Network's President on its DirecTV Deal*, Golf Digest, June 23, 2014, http://www.golfdigest.com/blogs/the-loop/2014/06/a-lot-of-high-fives-in-hartfor html.

programmers' viability). In the same interview, Back9's president also candidly stated that Back9 was expecting only to sign deals with cable operators *two, three, or four years* after this initial DirecTV deal, and that Back9 is a "complement" rather than a competitor to Golf Channel (a network that, after all, has been successful for nearly two decades).[819] Yet, notwithstanding these candid observations – which are an improvement, at any rate, over what one industry observer called the "bizarre shilling" for mandatory carriage by Back9's former CEO at a Congressional hearing earlier this year[820] – Back9 proposes a new condition here predicated on contrived concerns about discrimination that would require Comcast to launch 15 independent networks, including at least five networks that carry "golf/sports" and other "entertainment" and "lifestyle" programming opportunistically tailored to guarantee broad mandatory carriage of the Back9 network. In short, Back9 is simply another rent-seeker in the long line of programmers trying to obtain an improper and wholly undeserved business windfall through the Transaction review process.

- **Religious Programming.** Two commenters seek specific conditions concerning carriage of diverse religious programming, including forced carriage of more diverse religious networks.[821] But they do not offer any evidence – let alone a remotely plausible theory – of any claimed harms arising from the Transaction. Of course, many religious broadcasters have must-carry status, so there is no credible claim that Comcast could unilaterally deny carriage or drop such stations.[822] As to carriage of non-must-carry diverse religious programmers, Comcast will continue to exercise its editorial judgment about which channels its customers desire to have available in their video packages, and has shown an extraordinary willingness to meet the needs of its diverse customers.

c. No Affiliation-Based Discrimination Against Spanish-Language Programmers

Comcast has been a tremendous supporter of national and local Spanish-language programming. In fact, while Entravision expresses concern about Comcast carrying *too little* Spanish-language local broadcast programming, one commenter (Beach TV) faults Comcast for

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819 *Id*.

820 Holman W. Jenkins, Jr., Op-Ed, Wall. St. J., Apr. 15, 2014), http://online.wsj.com/news/articles/SB10001424052702303663604579503352686650912.

821 CBM Petition to Deny at 10; My Christian TV Petition to Deny at 3.

822 Notably, Comcast already carries My Christian TV (call sign WJYS) on its systems in the greater Chicago area. As to My Christian TV's concerns about greater consolidation, Comcast is *divesting* its systems in Michigan, Wisconsin, and Indiana – the other areas where My Christian TV's programming reaches. *See* My Christian TV Media Kit, *available at* http://www.mychristiantv.net/MCTV_media%20Kit_lowres.pdf.

carrying *too much* local Spanish-language programming on terms favorable to the relevant broadcasters. (As discussed below, BeachTV's claims are equally meritless.[823])

There is no credible claim that Comcast's carriage decisions with respect to local or national Spanish-language channels have been tainted in any way by Comcast's ownership of Telemundo or mun2. Since the NBCUniversal transaction, Comcast has launched two independent national Hispanic channels. It carries more independent Hispanic channels than virtually any other MVPD. And recently, Comcast reached a long-term agreement to distribute the Univision Deportes Network.[824] The record strongly supports Comcast's leadership in this respect. The United States Hispanic Leadership Institute explains that "Comcast is the nation's most extensive provider of Spanish-language networks, having invested in the development of independent channels like El Rey and BabyFirst Americas."[825] MANA, a national Latina organization, also points out that Comcast has launched a package containing 40-60 Spanish language channels in major Hispanic markets, and has increased the amount of Spanish language programming available on Comcast's On-Demand service.[826]

Entravision, which owns a number of Univision affiliate stations and also owns the Hispanic programming service "LATV,"[827] has nevertheless undertaken a campaign against Comcast, not only filing its own comments but actively soliciting members of the industry and

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[823] *Compare* Entravision Comments at 12, *with* Beach TV Comments at 4; *see also infra* Section V.L.

[824] Press Release, Comcast Corp., *Comcast and Univision Reach Long-Term Agreement for Distribution of Univision Deportes Network* (Sept. 9, 2014), http://corporate.comcast.com/news-information/news-feed/comcast-and-univision-reach-long-term-agreement-for-distribution-of-univision-deportes-network.

[825] Letter from Dr. Juan Andrade, Jr., President, United States Hispanic Leadership Institute, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014).

[826] Letter from Amy L. Hinojosa, President and CEO, MANA, A National Latina Organization, to Chairman Wheeler and Commissioners, FCC, MB Docket No. 14-57, at 2 (Aug. 22, 2014).

[827] LATV is for the most part distributed as a broadcast multicast channel over Entravision's TV stations.

the community to advocate against the Transaction. For example, in a recent email to a Hispanic advocacy organization, Entravision claims:

- Comcast will be the [dominant] gatekeeper of programming content that reaches the Latino community.
- Comcast will have every reason to restrict the availability of content that competes with its own content (Telemundo and mun2).
- If any programmer can't get carriage with Comcast it won't be able to obtain funding []or talent. This will have a serious chilling effect on independent Latino program producers.[828]

What makes Entravision's advocacy curious – besides being meritless – is that Comcast already delivers LATV to upwards of seven million subscribers – more by number and by percentage than *any other MVPD*, including TWC. Indeed, LATV has benefitted more than any other Hispanic network from Comcast's commitment, in its 2010 Memorandum of Understanding (MOU) with representatives of the Latino community, to distribute Latino-targeted channels it already carried to at least 10 million more digital basic subscribers. Of that increased distribution – which Comcast actually overdelivered to *17* million new subscribers – LATV received the lion's share of any programmer – with over four million new subscribers.

In addition, Comcast already carries all 12 Entravision-operated Univision affiliate stations in its footprint. As Drs. Rosston and Topper observe, there is nothing transaction-specific about Entravision's claims. None of Entravision's Univision affiliates operates in the four DMAs where Comcast has Telemundo O&Os and is acquiring a significant number of cable customers – New York, Los Angeles, Dallas, and San Antonio. Moreover, precisely because Comcast would be gaining DMAs with significant Hispanic populations, Comcast will have every incentive to carry popular Spanish-language programming like Univision so that Comcast

[828] Entravision Comments at 8-10.

does not lose cable customers to competing MVPDs, or induce them to cut the cord.[829] As Drs. Rosston and Topper observe, "[i]f Comcast were to foreclose carriage to Entravision's affiliates in the DMAs in which it operates cable systems, it would likely lose MVPD subscribers to other MVPDs who carry Entravision stations over-the-air. As a result, such a strategy would likely be unprofitable for Comcast."[830] Finally, Entravision's claims that it is threatened by the Transaction in any way ring particularly hollow for yet another reason. Entravision's retransmission consent agreements are currently negotiated by Univision, the leading media company serving Hispanic America, not by Entravision itself.[831]

d. No Affiliation-Based Discrimination Against Regional or Local Programmers

The Transaction does not raise program carriage concerns in local markets. Comcast is gaining only limited incremental shares in markets whether there is a Comcast RSN, and this added distribution does not significantly increase Comcast's incentive or ability to foreclose competing RSNs. (In Los Angeles, Comcast is not gaining significant share through the Divestiture Transactions beyond the share that TWC already has in that market.) A single unaffiliated would-be regional sports programmer – Monumental Sports – filed critical comments, claiming that the Transaction will provide Comcast a "dominant position" as an RSN operator and will allow Comcast "to use anticompetitive tactics to limit competition from

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829 Rosston/Topper Reply Decl. ¶¶ 91-95.

830 *Id.* ¶ 94.

831 *See* Entravision, Annual Report (Form 10-K) (Apr. 30, 2014). The claims asserted by TVC United States, Inc. ("TVC") are likewise specious. *See* TVC Petition to Deny. Carriage by Comcast is not essential to the ability of an independent network to launch or succeed. Nevertheless, Comcast's record reflects that it serves the diverse needs and interests of its customers by offering a wide variety of quality, compelling content, regardless of any affiliation with Comcast. *See* discussion *supra* Section IV.C.3.a-b. TVC may not agree with all of Comcast's carriage decisions, but it is inaccurate and unreasonable to suggest Comcast does not support diverse programming and independent networks. Comcast's proven commitment to a wide diversity of content will enhance consumer access to diverse programming after the TWC transaction is completed.

existing RSN operators and prevent or disadvantage the launch of a team-owned RSN."[832] Monumental Sports' claim is unfounded, and the only RSN that might be thought to have to worry about this is decidedly in Comcast's corner. In the one market (New England) in which Comcast owns an RSN and Comcast would be gaining a non-trivial share of customers relative to the existing cable operator, the major independent team-owned RSN (NESN) filed *in support of* the Transaction. Specifically, NESN CEO Sean McGrail notes that,

> As our experience demonstrates, Comcast has a strong record of supporting independent sports networks—even those that compete with Comcast's own CSN. Indeed, Comcast has never discriminated against NESN in favor of Comcast affiliated programming. On the contrary, Comcast is a good competitor and negotiates fairly with NESN as to both rates and carriage.[833]

Monumental Sports has even less reason for concern than NESN – since Comcast will be gaining almost no incremental MVPD subscriber share in the Comcast Sports Net Mid-Atlantic ("CSN-MA") territory (or that of the hypothetical Monumental Sports RSN).[834] Like other programmer commenters, Monumental Sports' filing makes clear that its real concern has nothing whatsoever to do with the Transaction; instead, it is seeking to pressure Comcast to renegotiate CSN-MA's existing rights to carry games of the Capitals and Wizards – rights that are not due to expire for three years in the case of the Capitals and seven years in the case of the Wizards.[835] The Commission should firmly reject this transparently self-interested gamesmanship.[836]

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832 Monumental Sports Comments at 3.

833 Letter from Sean McGrail, President & CEO, New England Sports Network, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 22, 2014).

834 *See* Rosston/Topper Supplemental Decl. ¶¶ 42-43.

835 Monumental Sports Comments at 4-5.

836 To the extent Monumental Sports rashly hypothesizes about a program carriage complaint involving a not yet conceived – let alone launched – RSN with major sports rights formerly held by a Comcast RSN, *see*

There is equally no basis to conclude that Comcast will have increased incentive or ability to harm local broadcast stations. As an initial matter, Sinclair acknowledges that it has not had any disputes with Comcast[837] – in contrast to Sinclair's well-publicized disputes with other MVPDs, including TWC, over the years. Sinclair is the largest station owner group in the country and an affiliate of major broadcast stations; as recent retransmission consent disputes have demonstrated, a dispute with Sinclair is an unattractive proposition for even large MVPDs. And Sinclair's reach across the combined company's footprint will provide Sinclair with significant leverage in retransmission consent negotiations with the combined company.[838] Finally, with respect to allegations of discrimination, Sinclair is well protected by the ABC, CBS, and Fox Affiliates' agreement with Comcast and NBCUniversal,[839] which will extend to the acquired systems. There is no basis to give Sinclair's arguments here any credence.[840]

D. No Harm to Advertising

The Transaction presents no plausible harm to advertising, despite some commenters' attempts to manufacture "concerns" in this area.[841] Because Applicants do not currently compete with each other for local advertisers, the Transaction will have no effect on competition.

Monumental Sports Comments at 6-7, there is no basis to assume that the Commission will be incapable of adjudicating any such proceeding on the merits under its existing processes.

837 Sinclair Petition to Deny at 4-5.

838 *See* Roger Yu, *Sinclair Emerges as a Major Broadcasting Player*, USA Today, Sept. 20, 2013, http://www.usatoday.com/story/money/business/2013/09/19/sinclair-broadcast/2819599/ ("In the last 2½ years, Sinclair nearly doubled its portfolio of TV stations to 108 from 58, becoming the largest broadcaster in terms of number of stations. It will own and operate 149 stations when its pending deals are completed.").

839 *See Comcast-NBCUniversal Order*, App. F.

840 Sinclair's other patently non-transaction-specific demands are discussed further below. *See* discussion *infra* Section IV.C.3.

841 *See* Viamedia, Inc. ("Viamedia") Comments at 8-16; CenturyLink Comments at 21-28; ACA Comments at 28-31; RCN et al. Petition to Deny at 26-28.

Comcast's management of additional "interconnects" post-transaction will not reduce competition in any market, either.

Notably, no *advertisers* oppose the Transaction. Indeed, the only advertisers who filed in the docket (representing tens of billions of dollars in advertising sales annually) strongly support it – observing, for example that "[t]he combined Comcast/Time Warner Cable footprint will provide a larger, more efficient platform to execute local ad buys" and that it will "provide greater opportunity for the advancement of [advertising] technologies that otherwise wouldn't flourish."[842] The only alleged concerns about advertising come from a group of disgruntled competitors seeking to advance their own parochial business interests.

1. Overview of the Advertising Marketplace

Advertising is a broad and diverse market, with television, Internet, radio, newspapers, and other media all competing for advertising dollars. Within this market, television advertising can be broken down into three basic categories: (1) national cable and broadcast network advertising; (2) local broadcast advertising; and (3) local cable "spot" advertising.

Network advertising is sold on a nationwide basis by national broadcast networks (ABC, CBS, Fox, and NBC) and national cable networks (like ESPN, CNN, and USA). Networks compete with each other to sell advertising, since each offers advertisers a means to reach the same (or at least many of the same) consumers across the country. Advertisers choose to place ads on a particular network based upon their assessment of how effectively it reaches the desired audience.[843]

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[842] Letter from Irwin Gottlieb, Global Chairman, GroupM, to Chairman Wheeler and Commissioners at 1-2 (Aug. 22, 2014); *see also* Letter from Bill Koenigsberg, President, CEO, and Founder, Horizon Media Inc., to Chairman Wheeler and Commissioners at 1-2 (Aug. 18, 2014); Letter from Brian Terkelsen, CEO, MediaVest, to Chairman Wheeler and Commissioners at 1-2 (Aug. 20, 2014).

[843] *See* Rosston/Topper Reply Decl. ¶ 208.

Local broadcast advertising is sold by local affiliates of national broadcast networks – like the local ABC or NBC affiliate – in a given market. It is typically sold across the DMA where the broadcast affiliate is distributed. Like national networks, local broadcasters within the same DMA compete against each other to sell advertising, since each offers advertisers an alternative path to reach the same consumers.[844]

Local cable spot advertising is sold by MVPDs. In their affiliation agreements with cable networks, MVPDs commonly are allocated two minutes per hour of advertising inventory, called "ad avails."[845] Cable companies primarily sell this advertising inventory on a local basis. Because cable franchise areas are much smaller than DMAs, cable companies can offer advertisers a means to target ads to smaller geographical zones within a DMA. In contrast, broadcast stations blanket entire DMAs with their feed, and, therefore, do not have the kind of locally zoned advertising capabilities that cable providers do.[846] For these reasons, spot cable advertising and broadcast advertising are not close substitutes.[847]

Moreover, unlike local broadcasters, MVPDs do not generally compete with each other in the sale of advertising because they do not offer advertisers access to the same households. For the most part, each MVPD serves separate subscribers. An advertiser wanting to reach TWC subscribers would purchase ad avails from TWC and not from Cablevision, and vice versa.

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844 *See id*. ¶ 209.

845 By comparison, broadcast networks, local broadcast stations, and cable networks have 12-14 minutes of advertising time per hour available for sale.

846 *See id*. ¶ 210.

847 *See* Compl. ¶¶ 14-16, *United States v. Gannett Co., Inc*., No. 1:13-cv-01984 (D.D.C. Dec. 16, 2013) ("Like broadcast television, cable television and satellite television channels combine elements of sight, sound, and motion, but they are not a desirable substitute for broadcast television spot advertising."); *NBCUniversal Order* ¶¶ 152-154 ("Broadcast and cable programming advertising are not sufficiently close substitutes to advertisers to warrant defining a product market that would include both. . . . Our view is consistent with the DOJ's conclusion."); *see also* Compl. ¶ 10, *United States v. Raycom Media Inc.*, No. 1:08-cv-01510 (D.D.C. Aug. 28, 2008).

Thus, advertising on different MVPD systems is mostly viewed as complementary by advertisers desiring to reach households served by each MVPD.[848]

Interconnects. In many DMAs, MVPDs have agreed to form "interconnects" where they pool their ad avails inventory to facilitate a buy of several complementary options simultaneously for advertisers. Interconnects allow MVPDs to compete more effectively with other outlets for local advertising, like broadcast television, that sell advertising on a DMA-level. These MVPD interconnects benefit advertisers, who can go to one outlet (the interconnect) to purchase the cable equivalent of DMA-level advertising by using several contiguous MVPDs' ad inventory. Otherwise, advertisers trying to cobble together a wide-footprint cable-based advertising campaign would have to go MVPD-by-MVPD to negotiate individual cumulative purchases of ad time.[849]

Interconnects are usually managed by the largest MVPD in a particular market. The managing MVPD negotiates with advertisers to sell the pooled ad avails inventory, and distributes the revenue back to MVPDs on a pro-rata basis according to the amount of inventory and number of customers each contributed to the interconnect (less a representation fee). Management of an interconnect requires significant investments in personnel, research, technology, and sales/marketing efforts.[850]

NCC Media. MVPDs also came together on a national level to form NCC Media, which places advertising for multiple interconnects in different DMAs. NCC Media serves as a representative for its affiliate MVPDs (including all major cable, DBS, and telco providers) in

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848 *See* Rosston/Topper Reply Decl. ¶ 210. Indeed, even otherwise competitive MVPDs (such as DBS and telcos) are generally complements to cable MVPDs for advertising purposes, because they do not offer alternative means for an advertiser to reach a given MVPD household.

849 *See* Rosston/Topper Reply Decl. ¶ 211.

850 *See id*. ¶ 212.

the sale of local ad avails to national advertisers. Although NCC Media negotiates on their behalf, the represented MVPD affiliates set their own rate cards for the ad avails inventory they sell (which may be their own, or, if the MVPD manages an interconnect, may be the full inventory of the interconnect). NCC Media receives a commission of approximately **[[ ]]** percent to **[[ ]]** percent of the amount of the advertising buy. Net of NCC Media's fees, revenue from the sale of advertisements is divided proportionally among the MVPDs and/or interconnects that contributed advertising inventory to the sale on the basis of the number of subscribers that each MVPD contributed. Comcast owns **[[ ]]** percent, Cox owns **[[ ]]** percent, TWC owns **[[ ]]** percent, and Bright House owns **[[ ]]** percent of NCC Media. NCC Media has its own separate management team with 450 employees across 17 offices nationwide.[851]

2. The Transaction Poses No Harm to Advertising.

a. No Competitive Harms for National or Regional Advertisers

As Drs. Rosston-Topper previously demonstrated, the Transaction does not raise any competitive concerns for national, regional, or local advertisers.[852] The Transaction will not adversely affect the competitive landscape for national advertising, since there will be no change in the ownership of any national broadcast or cable network.

b. No Competitive Harms for Local Cable Advertisers

Suggestions that the Transaction will harm local spot cable advertising are equally baseless.[853] Cable MVPDs in a DMA, whether Comcast, TWC, or Charter, generally operate in

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851 *See id*. ¶ 213.

852 Rosston/Topper Decl. ¶¶ 236-246.

853 *See* Viamedia Comments at 3-4, 11-12 (claiming that the Transaction "provides Comcast with the unchecked ability to exercise its market power" and will "put an end to competition in . . . the Spot Cable

distinct footprints and do not serve the same households. As a result they do not compete for advertising dollars and, as just explained, advertisers do not view them as substitutes, but rather as complements. There is accordingly no reduction of competition from the fact that, in this Transaction, Comcast will replace TWC and Charter in each of the relevant DMAs, and GreatLand Connection and Charter will replace Comcast or TWC.[854]

Some commenters allege that Comcast and TWC do compete for advertising dollars in the New York DMA, and that the Transaction will reduce competition for advertising sales and raise spot cable advertising prices there.[855] But that is also incorrect. Comcast and TWC (as well as Charter) serve distinct footprints in the New York DMA, and deliver their spot advertisements to distinct groups of customers directly and through different interconnects. As a result, advertisers do not consider spot advertisements on Comcast to be a substitute for spot advertisements on TWC or Charter in this DMA, either. Rather than reducing competition, the Transaction will create efficiencies for advertisers in the New York DMA by offering all of the combined company's ad avails through a single interconnect.[856]

Advertising market."); CenturyLink Comments at 21, 26; RCN et al. Petition to Deny at 27-28; ACA Comments at 30-31.

[854] Relatedly, there is no merit to the claim that Comcast will dominate a "national Spot Cable Advertising market" following the Transaction, based on its management of 18 of the top 25 interconnects. First, there is no "national" spot cable market, since cable advertising is by its very nature local; an ad in one DMA is generally not a substitute for an ad in another DMA. Therefore, the scope of Comcast's interconnect management nationally is irrelevant. Second, in all DMAs (other than New York City) where Comcast would gain "control" of the interconnect as a result of the Transaction, the change simply consists of Comcast managing the interconnect instead of TWC, which will make little practical difference, as discussed above. Said another way, there is no support for Viamedia's bald claim that "[t]he consolidation would result in one less Spot Cable Advertising Representation firm in many U.S. markets."

[855] *See* Viamedia Comments at 1-3, CenturyLink Comments at 21; RCN et al. Petition to Deny at 27; ACA Comments 30.

[856] *See* Rosston-Topper Reply Decl. ¶ 222. Most DMAs have a single cable advertising interconnect. This is not surprising since, as Viamedia acknowledges, the purpose of an interconnect is to maximize the efficient distribution of spot advertising in a given DMA. Viamedia Comments at 5-6. However, the New York City DMA has two interconnects with non-overlapping membership (with Comcast and TWC participating in different interconnects). *See* Viamedia Comments at 6; RCN et al. Petition to Deny at 27.

In addition, Comcast's spot cable advertising prices (in New York and elsewhere) are constrained by robust competition from other local advertising media, including the multiple television (e.g., broadcast) and non-television (e.g., Internet, radio, newspapers, etc.) options available in local markets.[857] Using SNL Kagan data, Drs. Rosston and Topper observe that local cable advertising only accounts for 21 percent of local television advertising spending. And across all local advertising spending, local cable advertising accounts for a much lower share.[858] And the share of that advertising controlled by cable companies is much lower. The Commission has estimated that, in total, spot cable advertising (including Comcast, TWC, and, all other MVPDs) accounts for only about seven percent of the $72 billion annual spending on local advertising—far less than other common local advertising outlets, such as broadcast television, radio, Internet, or newspapers.[859] As Professor Christopher Yoo testified during the Senate Judiciary Committee hearing on the Transaction, "If you're a local advertiser, 93% of your money is going elsewhere. *And a 7% concentration level under any antitrust standard is irrelevant*."[860] Thus, the notion that Comcast or any other MVPD that controls some subset of only seven percent of a market possesses a "must have" product for local advertisers to purchase, as CenturyLink asserts,[861] is utterly baseless. Drs. Rosston and Topper agree:

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857 *See* Rosston/Topper Decl. ¶¶ 236-246.

858 *Id.* ¶ 218.

859 *Examining the Comcast-Time Warner Cable Merger and the Impact on Consumers: Hearing Before the S. Comm. on the Judiciary*, 113th Cong. (2014) (testimony of Christopher S. Yoo, John H. Chestnut Professor of Law, Communication, and Computer & Information Science and Founding Director, Center for Technology, Innovation and Competition, Univ. of Penn.).

860 *See id.* (emphasis added); *see also Fifteenth Video Competition Report.*

861 CenturyLink Comments at 26.

> In summary, given that the parties do not compete in the provision of local advertising services and the robust competition that local cable advertising faces from other local advertising providers, there is no concern about reduction of competition for local cable advertising.[862]

Although Comcast will acquire new systems in a handful of DMAs where NBC O&O broadcast stations operate, that presents no significant competitive concerns, either. NBC O&O stations compete more closely with the affiliates of the other major broadcast networks (and independent broadcasters) for advertising dollars than with MVPDs. As noted, most advertisers do not regard cable and broadcast advertising to be close substitutes. For example, few of Comcast's or TWC's top 100 local-zoned cable advertisers purchase significant amounts of advertising on NBC O&O stations. Similarly, few of the top 100 advertisers on each NBC O&O station purchase a significant amount of local-zoned cable advertising from Comcast or TWC.

Because local cable and broadcast are not close substitutes, the Commission determined that Comcast's acquisition of NBC O&O stations in areas where Comcast operated cable systems was "unlikely to harm competition in advertising"[863] in the NBCUniversal transaction. Claims about harms to the advertising marketplace are even weaker in this Transaction, given the assets being combined. So the Commission should find it even easier to conclude, as it did in NBCUniversal, that there is no competitive problem in this space.

Finally, RCN theorizes that "[p]rices for advertisers could be increased because advertisers' ability to leverage independent Interconnects against the Interconnects controlled by the combined company will be severely depleted."[864] This theory is equally baseless. DMAs typically have only one interconnect because of the efficiencies of providing advertisers one-stop

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862 Rosston/Topper Reply Decl. ¶ 218.

863 *Comcast-NBCUniversal Order* ¶ 152.

864 RCN et al. Petition to Deny at 27.

shopping for larger ad buys. In most DMAs, there is no "independent Interconnect." Although the New York DMA has two interconnects, neither is so-called "independent" and, in any event, there is no evidence that advertisers have tried to leverage one against the other to obtain lower prices. Nor would that make economic sense: since the two interconnects serve different households, they are better viewed as complements than as competitors for advertising dollars.[865]

3. No Competitive Concerns for Advertisers from a Reduced Supply of Local Advertising or from Bundling

Viamedia asserts that Comcast's "domination" of the spot cable advertising market will incent Comcast to "allocate more advertising time for the national and regional advertisers because of the higher margins those transactions provide . . . result[ing] in reduced supply of spot cable advertising to local advertisers and increased prices."[866] This argument likewise fails as it is inconsistent with marketplace facts. As Drs. Rosston and Topper explain:

> Viamedia offers no support for its claims and they are incorrect. We are aware of no basis for Viamedia's claims that the margins for national and regional advertisers are higher and this would be surprising if true since it is our understanding that prices for local cable advertising are generally higher than regional cable advertising, which in turn are generally higher than prices for national cable advertising. In fact, Comcast Spotlight has a greater emphasis on local business and more focus on local zones than TWC does. Therefore, rather than reducing the supply of local advertising, the transaction may *increase* supply.[867]

Notably, the supposedly "at risk" local advertisers have not joined Viamedia's complaint and plainly perceive no cause for concern over a diminished supply of local ad avails. Nor should there be any such concern. In fact, Comcast's local ad avails inventory is sold by Comcast Spotlight, and the record shows that Comcast Spotlight places a greater emphasis on

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865 *See* Rosston/Topper Reply Decl. ¶¶ 220-222.

866 Viamedia Comments at 11-12.

867 Rosston/Topper Decl. ¶ 225 (emphasis in original).

local business and more focus on local zones than TWC does. Consequently, rather than reducing the supply of local advertising, the Transaction should *increase it*.

Viamedia also theorizes that "Comcast could bundle across [i]nterconnects."[868] This is entirely speculative, and Viamedia provides no explanation of what such "bundling" would look like, how it would occur, or who would be harmed. Even so, as Drs. Rosston and Topper conclude, bundling across interconnects "is more likely to be pro-competitive, as it could reduce rates for national or regional advertisers who purchase cable advertising across multiple DMAs."[869]

4. No Competitive Concerns for Cable Advertising Representation Services

Many of the same commenters wrongly suggest that the Transaction may harm competitors that provide representation services, such as Viamedia, as well as smaller MVPDs that may wish to use independent representation services.[870] They allege that Comcast has excluded independent representation firms and competing MVPDs from interconnects, and will use its "control" of additional interconnects and larger ownership stake in NCC Media to further restrict access to these services and squeeze out independent representation firms.[871] They also claim that Comcast will have increased leverage to force MVPDs to use Comcast Spotlight as a

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868 Viamedia Comments at 11.

869 *See* Rosston/Topper Reply Decl. ¶ 226.

870 *See* Viamedia Comments at 8-14; CenturyLink Comments at 21-28; RCN et al. Petition to Deny at 26-28; ACA Comments at 30-31.

871 *See* Viamedia Comments at 9-14; CenturyLink Comments at 24-27; RCN et al. Petition to Deny at 26-28; ACA Comments at 30.

condition of participating in interconnects or using NCC Media, and then charge higher rates for these services.[872]

These allegations are refuted in the first instance by the widespread participation of competing MVPDs in Comcast Spotlight-run interconnects today. If Comcast had an incentive to foreclose interconnect access to competing MVPDs, one would expect to see limited to no participation today.[873] Instead, Comcast has generally accepted every interested MVPD into interconnects.[874] As Comcast Executive Vice President David L. Cohen informed the House Judiciary Committee, "Comcast will continue its policy of admitting all MVPDs to any interconnects that it manages."[875]

Indeed, more small cable companies participate in Comcast-managed interconnects than in TWC-managed interconnects, which further refutes speculative concerns that the Transaction might result in the exclusion of other MVPD participants. Comcast's investments in the interconnects it manages have reduced costs for interconnect participation, opening – not closing – doors for smaller MVPDs.[876]

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[872] *See* Viamedia Comments at 12-14; CenturyLink Comments at 26-28; RCN et al. Petition to Deny at 27-28; ACA Comments at 30-31.

[873] *See* Rosston/Topper Reply Decl. ¶ 236.

[874] Cost has sometimes been an obstacle to interconnect participation for small players to some degree in the past, but the minimum necessary scale has fallen, and participation has gotten easier as the costs have fallen for the technology necessary to bring an MVPD into advertising interconnects.

[875] *Oversight Hearing on Competition in the Video and Broadband Markets: The Proposed Merger of Comcast and Time Warner Cable: Hearing Before the H. Comm. on the Judiciary, Subcommittee on Regulatory Reform, Commercial and Antitrust Law*, 113th Cong. (May 8, 2014) (Questions for the Record, Response 11, at 18).

[876] *See* Rosston/Topper Reply Decl. ¶ 237. Some MVPDs, such as WOW and RCN, have chosen to use Viamedia for their ad representation services in certain markets, rather than participating directly in an interconnect managed by Comcast. Like all other MVPDs, WOW and RCN are free to join the Comcast-managed interconnects at any time, and RCN's assertion that it is "prohibited" by Comcast from doing so is incorrect. RCN et al. Petition to Deny at 27. However, in its managed interconnects, Comcast does not typically contract with "middlemen" media firms, such as Viamedia, that merely add costs to the interconnect and benefit neither MVPDs nor advertisers.

Viamedia's claim that it should be entitled to join the interconnects Comcast manages is a different question.[877] Comcast has invested substantial resources in creating, developing, and operating the interconnects it manages, including: (i) hiring sales personnel, (ii) conducing market research and purchasing data (e.g., Nielsen ratings), (iii) managing the intake and distribution of individual video advertisements, (iv) engaging in sales and marketing efforts directed at advertisers, and (v) purchasing necessary hardware and equipment. Viamedia is an advertising broker that *competes* with interconnects and their MVPD managers, whether Comcast or another MVPD, to sell advertising inventory. CenturyLink, WOW!, Frontier, RCN, Blue Ridge Cable, and Service Electric Cable are among Viamedia's MVPD clients.[878]

There is nothing anticompetitive about a firm electing not to do business with one of its competitors, as the Supreme Court has long recognized.[879] "Forcing" such cooperation among competitors has a number of well-recognized risks, such as "free riding" by one firm on the work of another, which deters beneficial investment by both firms. Mandated cooperation between competitors may also blunt competition and harm customers. For these and other reasons, consumers are generally best served when competitors compete, not when one competitor attempts to use a regulatory process to obtain mandated access to another's business and investment. Viamedia's attempt to gain such anticompetitive advantages here should be rejected.[880]

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877 *See* Viamedia Comments at 9.

878 *See* Viamedia, http://www.viamediatv.com/partners.htm (last visited Sept. 22, 2014).

879 For almost a century, the Supreme Court has held that the Sherman Act does not restrict the "long recognized right" of a firm "freely to exercise his own independent discretion as to parties with whom he will deal." *United States v. Colgate & Co.*, 250 U.S. 300, 307 (1919). The bedrock principle was strongly reiterated in *Verizon v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004), which held that even a monopolist has no general obligation to deal with competitors.

880 Although Comcast is under no obligation to deal with Viamedia, Comcast has in fact offered to do business with Viamedia in three DMAs (selected by Viamedia) on market-based terms. Comcast expects that this

Finally, claims about Comcast "pressuring" MVPDs into interconnects that it manages – and Viamedia's suggestion that Comcast Spotlight should be prohibited from providing representation services for these interconnects – are unfounded. Interconnects are typically managed by the largest MVPD in each DMA, and participating MVPDs use the representation services (and nearly always sales services) provided by the managing entity. Indeed, these are key efficiencies provided by an interconnect. Viamedia makes a vain attempt to distinguish the technical integration component of an interconnect from the representation (sales, billing, and insertion) component, but elsewhere concedes that " [a]n [i]nterconnect is *both* a joint sales and technical integration entity comprised of the MVPDs that offer service in a given market" and that "[t]he Interconnect is managed, and therefore controlled, by the dominant MVPD in the DMA."[881] Nothing about the Transaction will affect these existing marketplace practices. And conditions that prevent or discourage Comcast from managing interconnects, or providing representation services to other MVPDs, would only harm advertisers and reduce competition.[882] While that may serve Viamedia's interests, it would plainly disserve the public interest[883] – which is why it is not surprising that, as noted above, advertisers have *strongly supported* the Transaction.

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arrangement will move forward, regardless of the Transaction. This further reveals Viamedia's complaints for what they are: a base attempt to use the license transfer review process to gain unwarranted concessions that it could not get in the marketplace.

[881] Viamedia Comments at 3 (emphasis added).

[882] Indeed, Viamedia's and CenturyLink's proposed conditions are outlandish and, for the various reasons, above should be rejected. *See* Viamedia Comments at 18; CenturyLink Comments at 29-30.

[883] Viamedia also claims that "smaller MVPDs rely on robust competition among Spot Cable Advertising Representation firms to keep the revenue share costs in check" and that "smaller MVPDs, small business advertisers, and consumers would face the threat of higher costs and fewer choices." Viamedia Comments at 4. But it is unclear how the Transaction would affect competition from advertising representation firms, simply because Comcast replaces TWC in an interconnect. Further, the revenue share in an interconnect is often the same for all participants, and fairly standardized across interconnects.

5. No Competitive Issue with NCC Media

Finally, Comcast's increased ownership of NCC Media from the Transaction does not pose any legitimate competition concerns.[884] As commenters acknowledge, Comcast already owns a majority of NCC Media.[885] Nothing in the record suggests that TWC has ever adopted a different approach to the operations of NCC Media than Comcast. Thus, Comcast's acquisition of TWC's *minority* interest in NCC Media presents no transaction-specific issues.

CenturyLink theorizes that Comcast might use NCC Media to "steer advertisers looking to buy a significant portion of the country to DMAs where Comcast controls the interconnect" and away from those DMAs where "the advertiser would . . . have to buy from smaller cable operators who are not represented in the particular interconnect."[886] This allegation, like others, is woven from whole cloth. Advertisers select their target markets, not NCC. Nor is there any evidence that Comcast or TWC has ever used its ownership interest in NCC Media to disadvantage competitive MVPDs. To the contrary, today, NCC Media's affiliates include a host of firms that compete with Comcast and TWC, including DirecTV, Dish, Frontier, RCN, FiOS, AT&T U-verse, WOW!, and others.[887]

Viamedia expresses concern that Comcast might squeeze it out of NCC. But that is another makeweight and speculative argument. NCC Media is managed independently from Comcast today and, far from removing Viamedia, just agreed to extend its membership in the

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884 *See* ACA Comments at 30-31; RCN et al. Petition to Deny at 28; CenturyLink Comments at 27-28; Viamedia Comments at 4, 9-10.

885 *See* Viamedia Comments at 9; ACA Comments at 30.

886 CenturyLink Comments at 27-28.

887 *See* NCC Owners and Affiliates, http://nccmedia.com/about/owners-affiliates/ (last visited Sept. 20, 2014).

service. Indeed, despite its claims here, Viamedia's CEO recently wrote to Comcast to express his "[t]hanks for the support in the NCC extension."[888]

Moreover, other national firms provide services similar to NCC Media, including TelAmerica, CTV, CableScope, RevShare, Cable Time, Zip Tech Media, WorldLink, ITN, Delivery Agent (The Band), and AudienceXpress. There will be no reduction in choice among these services for local advertisers from the Transaction. An MVPD will retain the same ability, post-transaction, as it has today to sell its local spot cable advertising time directly to advertisers, through NCC Media or another national firm, or through any of the interconnects that Comcast manages, which are open to all MVPDs.

6. The Transaction Will Not Stifle The Development of Advanced Advertising Services.

The record amply demonstrates that the Transaction will accelerate the deployment, measurement, and use of advanced advertising services for the benefit of advertisers. Claims by Viamedia[889] and the NBC Affiliates[890] that the Transaction will harm innovation or competition in this space are entirely unsupported and, therefore, should be given no weight.

The marketplace for these technologies includes major companies like Google and Apple, and is dynamic and rapidly evolving. There is no basis to believe Comcast would have the ability to impede others, including broadcasters, from competing for these advanced services and

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[888] *See* Reply Comments of Comcast Corporation and Time Warner Cable Inc., State of New York Public Service Commission Case 14-M-0183 (Aug. 25, 2014) at 72 n. 205.

[889] *See* Viamedia Comments at 4-16.

[890] NBC Television Affiliates ("NBC Affiliates") at 5-6. The NBC Affiliates merely make vague references to the Transaction's purported possible effect on "competition in emerging markets for advanced advertising technologies and platforms." NBC Affiliates Comments at 5-6. But they provide no details about the platforms or technologies that concern them or how those would be affected by the Transaction. And their speculation is also highly questionable in light of empirical showings that the local advertising market is vibrantly competitive and that cable's relative position in that market is small. *See* Comcast-TWC Public Interest Statement at 137; *see also supra* Section IV.D.2.b.

technologies.[891] Comcast will also have strong incentives to cooperate with other MVPDs in developing and offering similar advanced advertising services that can be pooled and sold to advertisers seeking larger audiences, much like interconnects operate today. This will further enhance competition. Although some commenters may not like that prospect for their own competitive interests, it will clearly benefit advertisers and other MVPDs alike.[892]

V. OTHER ISSUES RAISED BY COMMENTERS ARE NOT TRANSACTION-SPECIFIC, ARE ADDRESSED IN OTHER PROCEEDINGS, OR ARE OTHERWISE EXTRANEOUS, AND THUS ARE IRRELEVANT TO THE COMMISSION'S ANALYSIS.

A host of other issues and complaints raised by other commenters have nothing to do with this Transaction, involve individualized business concerns or disputes, or raise policy issues that are properly addressed (if at all) in industry-wide proceedings. Under well-established Commission precedent, these extraneous issues are irrelevant to the license transfer review process and thus should carry no weight here.

A. Customer Service

Comcast agrees that its customers deserve a superior customer service experience that reflects the company's commitment to high-quality, consumer-friendly products and services. Although it has made measurable strides in this area, Comcast recognizes that it needs to improve more, and more quickly, to meet customers' expectations. Independent from this Transaction, Comcast is investing significant time and resources to do so: as Comcast Cable President and CEO Neil Smit has made clear, improving customer service is his "top priority."[893]

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[891] *See* Rosston/Topper Reply Decl. ¶ 247.

[892] *See id*. ¶ 248.

[893] Billy Gallagher, *Comcast CEO Neil Smit Says Improving Customer Service is His Top Priority*, Tech Crunch (May 6, 2014), http://techcrunch.com/2014/05/06/comcast-ceo-neil-smit-says-improving-customer-service-is-his-top-priority/.

Despite this commitment, concerns about customer service are not transaction-specific. The record contains no evidence of customer service harms that would be caused or exacerbated by the Transaction. Instead, there are only speculative claims.[894] Calls to deny or condition the Transaction based on customer service-related concerns, therefore, should be rejected.[895]

Indeed, the Commission long ago concluded that customer service issues are not part of a transferee's character qualifications,[896] and it has rejected prior claims to establish retail customer service requirements as part of a transaction proceeding in the absence of a demonstration that customer service "in [affected] markets is likely to suffer as a result of the transaction."[897] The record here is no different from those in prior proceedings, where parties likewise stated only general concerns about customer service or failed to show that a transaction would cause a reduction in the quality of customer service.[898]

For example, greater size does not equal poorer service, as some have wrongly suggested.[899] Claims that Comcast's size undermines the customer experience, and that further

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894 *See, e.g.*, Consumers Union et al. Petition to Deny at 6; Greenlining Petition to Deny at 13-15; Public Knowledge et al. Petition to Deny at 32-33.

895 *See supra* note 2; Los Angeles County et al. Petition to Deny at 32; City of New York Comments at 5-6; Maui County Community Television Comments at 2; Hana Broadband Committee Comments at 2; Seattle City Council Member Nick Licata Comments at 2; Telecommunications Board of Northern Kentucky Comments at 7-8. Similarly, requests that Comcast adopt unique customer practices, such as CenturyLink's demand that Comcast allow competitors to discontinue Comcast video and broadband service through some form of letter of agency, are unrelated to any showing of transaction-specific harm and should be disregarded. *See* CenturyLink Comments at 21 (citing 47 C.F.R. § 64.1130).

896 *See, e.g.*, *Comcast-AT&T Broadband Order* ¶ 212 ("[T]here is no precedent to support the claim that customer service violations are to be considered in the character qualification analysis.").

897 *Adelphia Order* ¶ 238 n.735.

898 *Id.* ("Specifically, we find no evidence that LFAs have raised, on this record, substantial concerns about the capability of Comcast and Time Warner to serve Adelphia customers in the same manner as they currently serve their respective customers. Hence, we do not find that customer service in those markets is likely to suffer as a result of the transactions.").

899 *See* City of Los Angeles Comments at 8-9; Consumers Union et al. Petition to Deny at 9; Free Press Petition to Deny at 79; Greenlining Petition to Deny at 13-15; Institute for Local Self-Reliance and Media Mobilizing Project ("Institute for Local Self-Reliance et al.") Comments at 2; Los Angeles County et al. Petition to Deny at 17; Public Knowledge et al. Petition to Deny at 32-33.

expansion therefore will harm consumers, are simply not accurate,[900] and the economic analysis that purports to show an inverse relationship between cable company size and consumer satisfaction is deeply flawed.[901] As a threshold matter, Dr. Israel observes that the analysis "does not even purport to show that Comcast's or TWC's customer satisfaction" would be negatively impacted "because of the transaction."[902] It also fails to generate statistically significant results. It employs a very small sample size of larger ISPs and excludes many smaller ISPs. It uses only ISP ratings, omitting any assessment of video services or triple-play bundles. It also fails to account for confounding variables, such as the possibility that larger ISPs are more likely to be the subject of negative news reports about customer service and differences in services levels and expectations across ISPs.[903] Ultimately, these surveys themselves offer no clear evidence that size drives consumer satisfaction ratings. For example, in *Consumer Reports*, Comcast has a higher rating than another well-known small MVPD with just one million subscribers, and in *JD Power*, Comcast has a higher rating than that same small MVPD and at least two other mid-sized MVPDs.[904]

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900 Cogent Petition to Deny at 35-36 ("Increased scale leads to a less efficient result for cable customers.").

901 *See id.* at 35-36 (citing Farrell Decl. ¶ 103).

902 *See* Israel Reply Decl. ¶ 212.

903 *Id.* ¶¶ 212-213. The study thus fails to account for the possibility that Comcast and other large MVPDs offer some services that are unavailable to customers of smaller MVPDs, and customer satisfaction ratings between companies that offer very different levels of service cannot be compared apples-to-apples. In particular, customers of many smaller MVPDs do not have access to advanced services, and thus their satisfaction ratings are relative to the less-advanced service they receive. Even for ISP service, which the customer satisfaction ratings claim to measure, customers' ratings are relative to the level of service they receive. To the extent that larger ISPs, including Comcast, offer higher broadband speeds and other ancillary services (e.g., a large network of Wi-Fi hotspots), these higher-quality services will not necessarily be captured in customer satisfaction ratings.

904 *See* Farrell Decl. ¶ 105, fig.6.

Another commenter alleges that Comcast itself has equated larger scale with poorer customer service,[905] but that is a misrepresentation: The quoted statement makes the unremarkable point that with a large company, "the size of its customer base makes even a small percentage of complaints seem like a never ending cascade of [poorly treated] customers."[906]

Some commenters cite a blog post about customer service integration following past transactions,[907] centralization of customer service functions,[908] and claims of customer service representatives "upselling" products as reasons to condition the Transaction or even deny it.[909] Others claim that Comcast's "reputation" and rankings in customer surveys mean that TWC customers will not benefit from access to Comcast products and services.[910] Besides being anecdotal, these allegations do not demonstrate any transaction-specific harms that would result from the Transaction and disregard the many customer benefits that will be gained, including in the customer service experience.

Foremost, the greater synergies resulting from the Transaction will enable Comcast to accelerate upgrades to the TWC and Charter systems, providing better, more reliable services.[911]

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905 *See* Free Press Petition to Deny at 79.

906 *See* Tim Cushing, *Comcast CEO Thinks Its Customer Service Problem Is Mostly A Matter Of Scale*, Techdirt, Dec. 5, 2013, https://www.techdirt.com/articles/20131202/04583725425/comcast-ceo-thinks-its-customer-service-problem-is-mostly-matter-scale.shtml.

907 *See* Greenlining Petition to Deny at 15; Public Knowledge et al. Petition to Deny at 33.

908 Los Angeles County et al. Petition to Deny at 8.

909 Greenlining Petition to Deny at 15; Free Press Petition to Deny at 53.

910 Senator Franken Comments at 12-14.

911 Comcast-TWC Public Interest Statement at 71-73 (noting that the Transaction will allow Comcast to deploy customer service innovations such as self-install kits to the acquired systems); *see also* Charter-to-Comcast Exchange Public Interest Statement at 8 (explaining that enhanced geographic rationalization will enable Comcast to deploy customer service centers, retail stores, and truck fleets in more central locations, which would enable Comcast to provide better, more convenient customer services at lower costs); Rosston/Topper Supplemental Decl. ¶ 12.

The Transaction will also extend other customer service improvements to TWC and Charter customers. Comcast is investing billions of dollars to transform the end-to-end customer experience through an advanced broadband network and state-of-the-art care and diagnostic tools for technicians and customer account executives. These improvements will allow Comcast to better detect and remediate quality issues, often before issues arise.

Comcast has also created new call centers of excellence that house specially trained representatives to improve the level of customer service. In addition, Comcast has developed a variety of options for customers to manage their accounts and resolve service issues more efficiently. For example, more than one-third of customers managed their accounts online in 2013, a 42 percent increase over 2012. These customers use the innovative new "Xfinity My Account" function, which includes: outage estimated time of repair; expanded self-help videos; interactive troubleshooting guides; easy call-back options (i.e., dial Comcast or request a call back); and Twitter integration. Comcast has also enabled customers to access their accounts on mobile devices (iOS and Android)[912] and introduced next-generation self-service products, including self-install kits and online self-service that have improved customer experience. And Comcast has offered guaranteed appointment windows across most of its footprint, which are met 97 percent of the time. Specifically, Comcast has instituted the Comcast Guarantee,[913] which includes:

- A 30-day, money-back guarantee on video, voice, or high-speed Internet services. If a customer is not satisfied and wants to cancel for any reason within the first 30 days, the company will refund the monthly recurring fee for the first 30 days of service and any installation charges.

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[912] The "My Account" app is based on successful business models like Uber, and provides customers with systems status updates, as well as troubleshooting tips and advice. (More than 60% of customers contact Comcast on mobile devices.).

[913] Comcast Customer Guarantee, http://www.comcast.com/Corporate/Customers/CustomerGuarantee html.

- A promise to always be on time within a two-hour appointment window and to resolve routine issues in one visit. If Comcast does not meet these promises, the company will deliver a credit or a free premium channel for three months. If Comcast cannot satisfactorily complete installation or resolve a routine issue during the 30 days following the first visit, Comcast will extend a complimentary service to the account.

These efforts are beginning to bear fruit, despite allegations to the contrary.[914] Since 2010, inbound customer service and billing-related call volume has decreased by approximately 20 million and, in the last two years, Comcast has reduced its truck rolls by eight million.[915] Comcast has also reduced repeat service visits by about 20 percent. In the same time period, Comcast has improved its J.D. Power Overall Satisfaction by nearly 100 points as a video provider and close to 80 points in High Speed Data – more than any other provider in the industry over this same period of time.[916] And, in a recent report on Comcast's 2013 fourth quarter performance, industry analyst Craig Moffett observed that Comcast's customer service has "*improved by light-years*."[917]

The company is, of course, aware of a few recent unfortunate customer service episodes, including the experience of Ryan Block.[918] This was unacceptable and atypical, and Comcast contacted Mr. Block to apologize personally. While the recorded conversation may make for

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914 *See, e.g.*, Stop the Cap! Comments at 10.

915 Comcast-TWC Public Interest Statement at 72.

916 *Compare* Press Release, J.D. Power & Assocs., 2013 U.S. Residential Television Service Provider Satisfaction Survey (Sept. 26, 2013), http://www.jdpower.com/content/press-release/jxh1ZHX/2013-u-s-residential-television-serviceprovider-satisfaction-study.htm, *and* Press Release, J.D. Power & Assocs., 2013 U.S. Residential Internet Service Provider Satisfaction Survey (Sept. 26, 2013), http://www.jdpower.com/press-releases/2013-us-residential-internet-serviceprovider-satisfaction-study, *with* Press Release, J.D. Power & Assocs., 2010 U.S. Residential Television Service Satisfaction Study (Oct. 6, 2010), http://businesscenter.jdpower.com/news/pressrelease.aspx?ID=2010166; *and* J.D. Power & Assocs., 2010 U.S. Residential Internet Service Provider Satisfaction Survey (Oct. 28, 2010), http://businesscenter.jdpower.com/news/pressrelease.aspx?ID=2010167.

917 MoffettNathanson Research, Comcast Q4 2013: Boardwalk Empire, at 2 (Jan. 28, 2014) (emphasis added).

918 *See* Tom Karinshak, *Comcast Statement Regarding Customer Service Call*, Comcast Voices (July 15, 2014), http://corporate.comcast.com/comcast-voices/comcast-statement-regarding-customer-service-call.

viral blogosphere fodder, the real story is that it is not consistent with Comcast's customer service philosophy or how Comcast trains its customer service representatives. Comcast has a comprehensive, mandatory training program about how to do the "right thing" and the overwhelming majority of Comcast employees at all levels work very hard to do just that every day.

Comcast is using this incident as a "teachable moment" to reinforce how critical it is to always treat customers with the utmost respect. Comcast has created a task force to ensure that the messages it uses in communicating with its customers reinforce that the customer experience is the company's top priority. Nearly a dozen employee coaching courses that previously were optional are now mandatory. In addition, the company is reviewing all training materials used in customer service and sales. While Comcast recognizes that it must continue to work tirelessly to enhance its customer service, the reality is that even if Comcast does a commendable job 99.9 percent of the time, there will still be some dissatisfied customers. In all events, it is not a ground on which to deny or impose conditions on this Transaction.[919]

B. Customer Prices

A handful of commenters have made conclusory claims about cable prices for video and broadband services, many of which are not specific to Applicants, much less the Transaction.[920]

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[919] Public Knowledge cites Section 552(b) of the Communications Act and suggests that approving this Transaction would "frustrate[]" the Commission's "ability to implement its statutory requirement to promote adequate customer service." Public Knowledge et al. Petition to Deny at 17-18 (citing 47 U.S.C. § 552(b)). But as a preliminary matter, it is entirely unclear why this Transaction would frustrate the Commission's "ability" to do anything. And beyond that, the Commission has already fulfilled its statutory requirement to "establish standards" for certain cable operator customer service requirements. The statute simply does not give the Commission any further ongoing responsibility to "implement . . . adequate customer service," as Public Knowledge claims here.

[920] *See* Common Cause Comments at 2; Common Cause et al. Comments at 1; Consumers Union et al. Petition to Deny at 9-14; Institute for Local Self-Reliance at 2; Parents Television Council et al. Comments at 3-4; Public Knowledge et al. Petition to Deny at 34; Stop the Cap! Comments at 3; NJDRC et al. Comments at 26.

The comments thus deserve no weight.[921] Nevertheless, for the record, Applicants believe it is important to correct some of the inaccurate and misleading arguments made by parties regarding cable pricing generally.

As Applicants have shown, the Transaction "will not result in any reduction in competition or consumer choice for broadband, video, or voice providers."[922] Because the Transaction will not reduce consumer choice in any market, it will have "*no* tendency to affect consumer prices."[923] Drs. Rosston and Topper underscore this conclusion, explaining that their "analysis of empirical data finds no evidence of any significant price effect from vertical integration."[924] Moreover, they conclude that to the extent the increased scale of the combined company helps to reduce its programming or other costs, such efficiencies will ultimately

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[921] The Minnesota Association of Community Telecommunications Administrators ("MACTA"), New Jersey Division of Rate Counsel ("NJDRC"), and National Association of State Utility Consumer Advocates ("NASUCA") suggest that the Commission should "freeze" Applicants' retail rates for video services for two or three years as a condition of the Transaction. *See* MACTA Comments at 2-3; N.J. Division of Rate Council Comments at 25. Cincinnati Bell Extended Territories ("CBET") urges the Commission to impose uniform retail pricing (residential and commercial) in each DMA where the combined company operates, regardless of whether there is effective competition. *See* CBET Comments at 14. These rate-related proposals are entirely unwarranted for a number of reasons. First, the Commission is not permitted to regulate cable rates in franchise areas subject to effective competition, and that prohibition applies to uniform pricing restrictions. *See* 47 U.S.C. § 543(a)(2). Second, as Applicants have shown, the MVPD market is subject to intense competition; indeed, cable companies *lost* over 10 million MVPD subscribers from 2005 to 2013, while DBS and telco providers *gained* over 7 million and 11 million MVPD subscribers, respectively, during the same period. *See, e.g.*, Comcast-TWC Public Interest Statement at 67, 140. Third, as discussed below, Comcast's cable rates are reasonable, particularly given the dramatic increases in programming costs over the past decade and in light of the various discounts and multiple packages Comcast offers, thereby enabling customers to choose the right amount of programming that meets their budgets. Nothing about the Transaction will change those business practices. Thus, in addition to being unwarranted, these rate-related proposals are not transaction-specific and should be rejected.

[922] Comcast-TWC Public Interest Statement at 138.

[923] C. Scott Hemphill Comments at 3 (emphasis added). This also squarely contradicts the unsupported assertion of some commenters that the post-transaction company will have added incentive to increase prices, which necessarily – and incorrectly – assumes that the Transaction will reduce competition. *See* City of New York Comments at 4.

[924] Rosston/Topper Reply Decl. ¶ 182.

redound to the benefit of consumers in various ways, including the possibility of lower prices or slower increases in future prices.[925]

Further, although Comcast and TWC do not compete with each other, they both face robust competition in their respective markets from DirecTV and Dish (the nation's second and third largest MVPDs), telcos (e.g., AT&T, Verizon, CenturyLink), overbuilders (e.g., RCN, WOW!, and Google Fiber), and, increasingly, online video distributors (e.g., Netflix, Amazon).[926] The video marketplace is thriving, and cable operators and other MVPDs face enormous pressure to offer reasonable prices and attractive programming, features, and options to consumers.

In fact, despite generalized complaints about cable prices, Applicants and other MVPDs today "offer some of the best value of anything Americans consume."[927] The abundance and diversity of programming have never been greater, and the quality of programming has never been higher. There is widespread consensus that we are living in the middle of cable TV's "Golden Age."[928] As David Carr observed in The New York Times, "[t]he vast wasteland of

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[925] *Id.* ¶ 47 ("Over time, part or all of the savings in Comcast's programming costs, which constitute the largest share of Comcast's marginal cost of serving an MVPD customer, would be passed through to Comcast's customers in the form of slower growth in their subscription fees, or through greater investments in service, expanded program offerings, or other non-price alternatives, relative to what consumers might pay without the transaction, implying an increase in consumer welfare.").

[926] That competition will be even more intense if AT&T and DirecTV combine.

[927] Roslyn Layton Comments at 16.

[928] *See* Marcus Wohlsen, *When TV Is Obsolete, TV Shows Will Enter Their Real Golden Era*, Wired.com, May 15, 2014, http://www.wired.com/2014/05/real-golden-age-television/ ("Streaming video as offered by Netflix and Amazon Instant Video are not constrained by any of the commercial or technical boundaries of traditional broadcast television or cable. There aren't schedules. There aren't channels. The only limitations are how much bandwidth their data centers and the internet itself can support. . . . Welcome to the real new golden age of television — television without limits."); Todd Leopold, *The new, new TV golden age*, CNN, May 6, 2013, http://www.cnn.com/2013/05/06/showbiz/golden-age-of-tv/ ("We are living in good TV times. . . . With more channels and more choices, there are also more creative voices being heard."); Brett Martin et al., *Stop Flipping! The New Rules of TV*, GQ.com, June 2012, http://www.gq.com/entertainment/movies-and-tv/201206/new-rules-of-tv#slide=1 ("Nearly everything about how we watch television has changed. For starters, we can do it anytime we

television has been replaced by an excess of excellence" in the diversity and quality of video programming.[929]

The value proposition for Comcast customers, in particular, has been further enhanced by the convenience and versatility of Comcast's modern cable platforms, especially HD, VOD and TVE. Shows that used to be available only in standard definition are now routinely produced and delivered in HD; and VOD and TVE have made it easier than ever for Comcast customers to watch content whenever and wherever they want, and on multiple devices.

These enhancements are made possible by the enormous investments that Comcast and others have made to upgrade their networks and to launch new products and services. Since 1996, cable companies have invested over $210 billion in infrastructure, including almost $14 billion in 2013 alone.[930]

To be sure, cable prices have not remained stagnant during this time. But as even some opponents of the Transaction acknowledge, increased programming costs have been the primary driver of the growth in cable's video prices.[931] From 2004 through 2013, Comcast's programming costs per video subscriber have cumulatively increased *by over 120 percent*, an astonishing amount.

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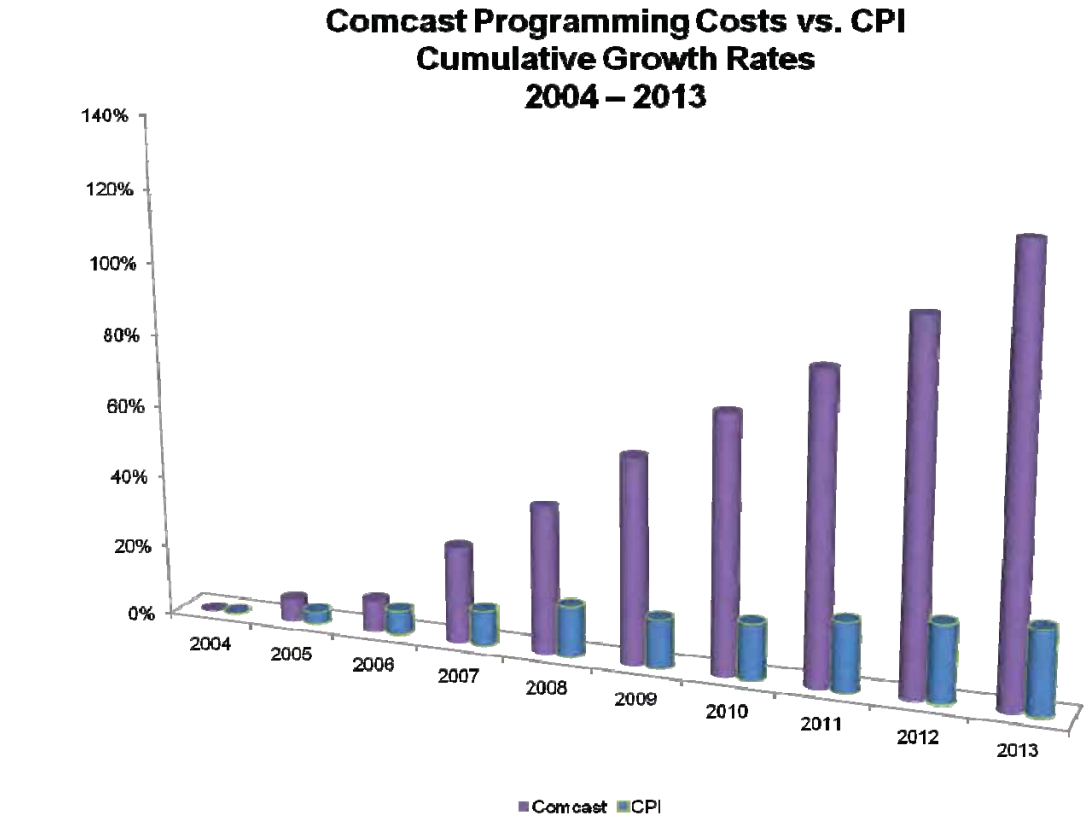
want. . . . And yes: The shows are a whole lot sexier, more terrifying, complex, and hilarious than the ones we grew up with. It is, as people like to say, a new golden age of television.").

929 David Carr, *Barely Keeping Up in TV's New Golden Age*, N.Y. Times, Mar. 9, 2014, http://www nytimes.com/2014/03/10/business/media/fenced-in-by-televisions-excess-of-excellence.html ("The growing intellectual currency of television has altered the cultural conversation in fundamental ways. Water cooler chatter is now a high-minded pursuit, not just a way to pass the time at work. The three-camera sitcom with a laugh track has been replaced by television shows that are much more like books — intricate narratives full of text, subtext and clues.").

930 Nat'l Cable & Telecomms. Ass'n Comments, MB Docket No. 14-16, at 6 (filed Mar. 21, 2014).

931 *See* Sports Fan Coalition Petition to Deny at 14.

Indeed, as the chart below indicates, during this period, Comcast's programming costs grew about *five times as much* as the CPI, which increased just 23 percent.

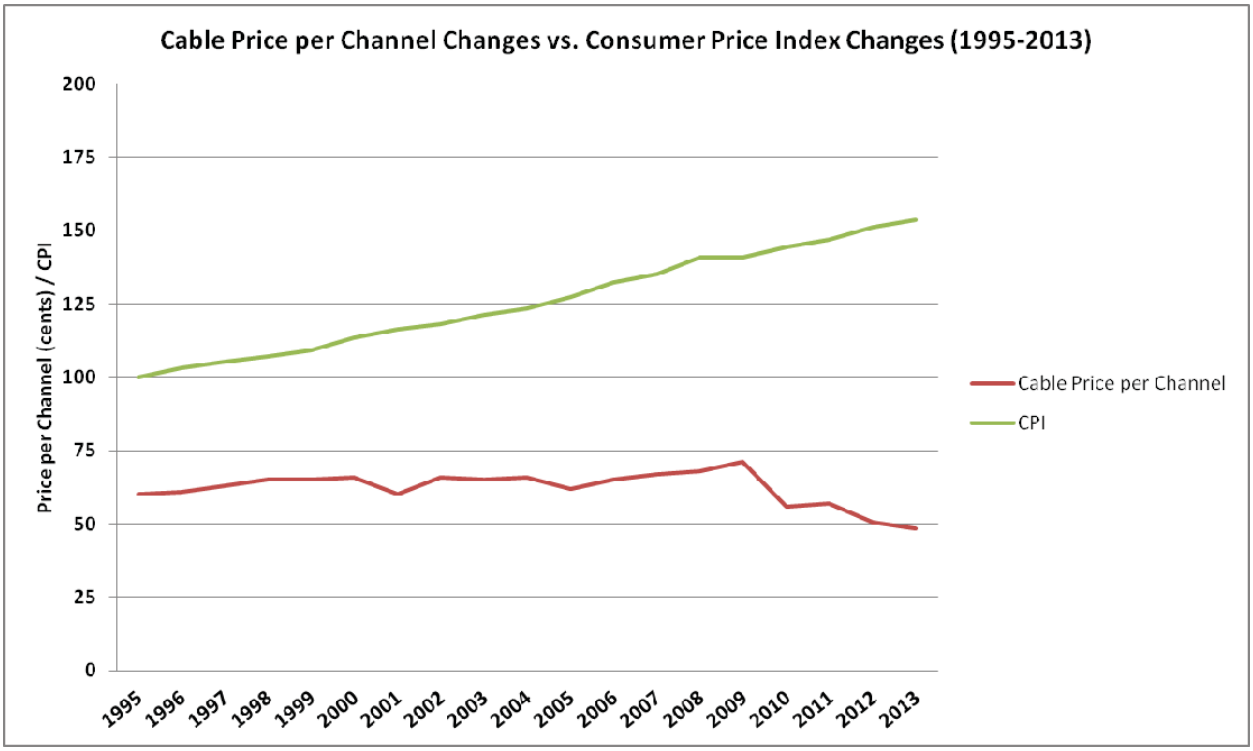


Source: Comcast SEC Filings, Federal Reserve Bank of Minneapolis

Despite these enormous increases in programming costs, Comcast and TWC have done their best to control prices for the benefit of their customers. While Comcast's programming costs increased by over 120 percent from 2004 through 2013, Comcast's prices to customers during the same period rose at about *half* that rate. The average Comcast customer bill this year increased by only two percent. Moreover, nearly 50 percent of Comcast's customers take advantage of promotional or multi-product discounts, neither of which are factored into price surveys (which are based solely on rate cards). The standard prices of multi-product packages are stable, rising by an average of approximately 4-5 percent annually since 2011 depending on

the particular package and market (about half of the 9.2 percent average annual increase in Comcast's per-subscriber programming costs over the same period).

Across the industry, the price per channel of expanded basic (the most popular tier among consumers) has actually *decreased* by 0.3 percent per year from 1995 to 2013, based on Commission data, while the CPI has risen 2.4 percent per year during that same period.[932] As the graph below illustrates, the price per channel of cable has remained constant over this 18-year period and has been declining in recent years.



Source: FCC 2014 Cable Price Report; Bureau of Labor and Statistics (http://www.multpl.com/cpi/table)

And just as the value proposition of Comcast's video services has steadily increased, so too has the value of Comcast's broadband services. Comcast has increased Internet speeds 13

[932] *Implementation of Section 3 of the Cable Television Protection and Competition Act*, Report on Cable Industry Prices, 29 FCC Rcd. 5280 ¶ 17 (MB 2014). Although Common Cause and Consumers Union claim that cable prices have "far outpace[d] the rate of inflation," they ignore the reality that the cable services offered today are far different than those offered five or ten years ago. The price-per-channel metric offers a much better, apples-to-apples comparison, and by that metric, cable prices have lagged far behind inflation, not the other way around.

times in the last 12 years across all of its systems, and now provides some residential customers with speeds up to 505 Mbps. As a result, Comcast customers pay *92 percent less* per Megabit of Internet speed on our network today than they paid in 2002, even before adjusting for inflation. Moreover, the Commission's most recent *Measuring Broadband America* report released in June found, once again, that Comcast consistently delivers more than its advertised speeds every hour of the day, every day of the week, and even during peak usage periods.[933]

In short, the generalized claims by some commenters about prices are irrelevant to the Commission's review of the Transaction and disregard important facts. The Commission should decline to consider them.

C. PEG Programming

Some public, educational, and governmental ("PEG") programming advocates request conditions on the Transaction that mirror their requests in other proceedings before the Commission and in proposed legislation. Specifically, the Alliance for Community Media & the Alliance for Communications Democracy, American Community Television, the National Association for Telecommunications Officers and Administrators, and their affiliates and supporters (collectively "PEG Commenters") propose conditions that go well beyond any of the statutory PEG requirements imposed on cable operators and would include additional obligations such as:[934]

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933 *See* Measuring Broadband 2014 Report at 34 (noting that Comcast demonstrated average of 113% of advertised download speeds).

934 Other PEG commenters with substantially similar requests include the Alliance for Community Media of New York, BRIC, Community Television Network, City of New York, City of Los Angeles, Easton Community Access Television, Fairfax Cable Access Corporation, Manhattan Neighborhood Network, MetroEast Community Media, San Jose Community Media Access Corporation; Telecommunications Board of Northern Kentucky. In particular, Los Angeles County also raises a variety of PEG issues, relating to inclusion in the program guide, delivery in HD, and inclusion in VOD libraries. Los Angeles County et al. Petition to Deny at 4-7. Again, none of these issues are remotely transaction-specific. Nonetheless, just so that the record is clear, Comcast provides the following response: First, Comcast has no objection to PEG programmers having detailed program listings included

- Carriage rights and channel positions for PEG channels that are equivalent to those of broadcast stations;[935]

- Carriage of PEG channels in HD and delivery of PEG programming VOD;[936]

- Financial and technical support for the inclusion of PEG program information in on-screen menus and guides;[937] and

- Applicants' agreement to allow PEG programming funds to be used for operational purposes without having them count as franchise fees,[938] contrary to Section 622 of the Communications Act.[939]

These proposals have nothing to do with the Transaction and instead reflect the PEG Commenters' wish list as they confront the rapidly evolving video marketplace, including the increasing migration of viewers to OTT and other non-cable platforms, as well as state

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in the guide service by working directly with the vendor where it is otherwise technically feasible to do so. The program guides are controlled and provided by vendors, not the cable companies. Programmers contract directly with the program guide companies to provide their detailed listing for inclusion on the guide service. Second, with respect to HD PEG channels and PEG Programming on OnDemand, Comcast does distribute PEG programming in HD and does have PEG programming on OnDemand in a number of communities where community need and interest has been demonstrated and as part of the puts and takes in franchise renewals. As has been the case for more than 30-years under the Communications Act, and consistent with the express will of Congress, Comcast negotiates PEG obligations on a community-by-community basis taking into account local needs, community interest, and costs. There is no one-size fits all solution when it comes to PEG and Comcast tailors its approach accordingly.

[935] *See, e.g.*, Access Fort Wayne Comments at 2; Alliance for Community Media ("ACM") Comments at 10-11; channelAustin Comments at 2; Community Programming Board Comments at 3.

[936] *See, e.g.*, ACM Comments at 11-12; American Community Television ("ACT") Comments at 14-17; channelAustin Comments at 2; City of Eagan, MN ("City of Eagan") Comments at 9.

[937] *See, e.g.*, ACM Comments at 14-15; ACT Comments at 13-14; City of Eagan Comments at 9; MACTA Comments at 3.

[938] *See, e.g.*, ACM Comments at 9; channelAustin Comments at 2; City of Eagan Comments at 9; MACTA Comments at 3; NATOA at 4-5.

[939] 47 U.S.C. § 542. The Commission has acknowledged that under Section 622, "capital costs which are required by the franchise to be incurred by the cable operator for public, educational, or governmental access facilities" are not franchise fees, but that "[p]ayments made in support of PEG access facilities are considered franchise fees and are subject to the 5 % cap." *Implementation of Section 621(a)(1) of the Cable Commc'ns Act of 1984*, Report and Order and Further Notice of Rulemaking, 22 FCC Rcd. 5101 ¶ 109 (2007), *aff'd, Alliance for Cmty. Media v. FCC*, 529 F.3d 763 (6th Cir. 2008).

franchising legislation. And many of these proposals are contained in pending national legislation introduced with the support of the PEG Commenters.[940]

The record shows that Comcast provides substantial resources and support for PEG programming, and that the problems perceived by the PEG Commenters are not specific to either Comcast or the Transaction. The PEG Commenters have offered no evidence that the Transaction will have any harmful effect on PEG programming, which is already covered by Section 611 of the Act, state franchising laws, and local cable franchise agreements. And they fail to demonstrate that their proposals are in the public interest, let alone that there is any reason for applying them uniquely to Comcast via this Transaction review.

***Comcast's PEG Support*.** Comcast is the largest distributor of PEG access programming in the country, with PEG fee payments exceeding $65 million per year. Comcast has a long history of supporting PEG access programming and is committed to exploring how local programming, including PEG, and the distribution of that programming adds value to its customers and local government partners.[941] Numerous commenters highlight Comcast's

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[940] *See* S. 1789, 113th Cong. (2013), *available at* https://beta.congress.gov/bill/113th-congress/senate-bill/1789; Press Release, American Community Television, The CAP Act (Sept. 4, 2014), http://acommunitytv.org/cap-act (supporting S. 1789 and explaining that the CAP Act would remove the distinction between "capital" and "operating" PEG support fees; provide PEG funding and channels in states with statewide/state-issued franchising laws; require cable operators to transmit the channels at no charge to the local government, and; require cable operators to carry the PEG channels on the basic tier of service, so that every cable subscriber can receive them without the need for additional equipment); H.R. 1746, 112th Cong. (2011), *available at* http://thomas.loc.gov/cgi-bin/query/z?c112:H.R.+1746; Alliance for Community Media, *Community Access Preservation (CAP) Act FAQ*, http://www.allcommunitymedia.org/policy-advocacy/community-access-preservation-act-cap-act (confirming that ACM and NATOA, "as well as several national organizations representing local governments, public interest groups, and Community Media Centers," together "work[ed] on language for a bill" before identifying sponsors and supporting legislation).

[941] ACT/SEATOA use this proceeding to complain about the effects of a state law passed nearly 10 years ago that has nothing to do with this Transaction. *See* American Community Television et al. Comments at 10-12. In the California Digital Infrastructure and Video Competition Act of 2006 ("DIVCA"), the California legislature passed a comprehensive bill for competitive video franchising that also included a new framework for the provision and support of PEG channels. *See* Cal. Pub. Utils. Code § 5870 (PEG channels, facilities, and funding). As part of that new PEG channel framework, the legislature allowed franchise "obligations to provide and support PEG channel facilities . . . contained in a locally issued franchise[s]," which in some cases included studio commitments, to

"strong track record of supporting community programming"[942] and important role as "a true partner in public access development."[943]

Comcast's conversion of its systems to all-digital has also improved PEG performance with digital delivery of PEG channels.[944] Bedford Community Television notes, for example, that "[n]ot only does Comcast provide the cable capacity for our three channels, [it] also make[s] certain that we have the highest quality signal. In fact, [Comcast] often upgrade[s] our signal without us having to ask."[945] Comcast has also been flexible and innovative in finding other ways to work with its PEG partners.[946] For example, Rutland Region Community Television

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expire. *See* Cal. Pub. Utils. Code §§ 5800-5970 (Digital Infrastructure and Video Competition Act of 2006); Cal. Pub. Utils. Code section 5870(k) (PEG facilities). Notably, Comcast has launched a new educational channel in the City of Fairfield, and a second educational channel will launch in Grass Valley/Nevada City shortly. Under the law, all video franchise holders have a continuing obligation to provide funding for PEG access to the local government "for the ongoing costs of public, educational, and government access channel facilities". Cal. Pub. Utils. Code § 5870(l)-(n). Comcast is fulfilling its responsibilities under the law, and ACT/SEATOA do not even claim – much less prove – otherwise.

[942] Letter from Ann Sheehan, Executive Director, Berks Community Television, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014); *see also* Letter from William V. Jennings, Jr., Station Manager, Bedford Community Television, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014) ("Comcast is not just a company that comes to town, lays down cable and vanishes."); Letter from Mike Dempsey, Access La Porte County, to Marlene H. Dortch, Secretary, FCC, at 1 (Aug. 21, 2014) ("[Access La Porte County] has a strong working relationship with Comcast"); Letter from Steven C. Vinezeano, Village Manager, Village of Niles, IL, to Chairman Wheeler, FCC, at 1 (Aug. 16, 2014) ("Comcast has dedicated its energies toward advancing communications, technology, and service to the benefit of our community and to hundreds of communities throughout Illinois.").

[943] Letter from Michael J. Valentine, Executive Director, Rutland Region Community Television, to Chairman Wheeler, FCC, at 2 (Aug. 22, 2014).

[944] Letter from Michael J. Valentine, Executive Director, Rutland Region Community Television, to Chairman Wheeler, FCC, at 1-2 (Aug. 22, 2014); Letter from Steven C. Vinezeano, Village Manager, Village of Niles, IL, to Chairman Wheeler, FCC, at 1 (Aug. 16, 2014); Letter from Robbie Alm, Board Chair, PBS Hawaii, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014).

[945] Letter from William V. Jennings, Jr., Station Manager, Bedford Community Television, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014).

[946] Despite this cooperative approach, Minnesota Association of Community Telecommunications Administrators ("MACTA") complains that Comcast has been engaging in hardball tactics with Minnesota communities, attempting to reduce PEG access support fees by 90% and the number of PEG channels by 50%, taking advantage of its "unlimited legal resources" against small communities. To the contrary, Comcast has not unilaterally reduced any PEG channels or PEG funding under current franchising provisions in Minnesota. In fact, Comcast has voluntarily extended existing franchise provisions regarding both PEG programming and funding while negotiating franchise renewals. Any changes to PEG channel or PEG contributions have been conducted through mutual agreement of both Comcast and the LFA in the ordinary course of franchise negotiations. In any event,

explains that "Comcast recognized [our] unique, rural setting and offered to pilot an IP-based video return line technology for remote origination (live remote shoots) . . . . Through this new technology, [Rutland has] a new way for rural families and communities to share news with residents tens of miles away."[947]

In addition, as part of the NBCUniversal transaction, Comcast committed to trial VOD and Online On Demand platforms for PEG programming in several communities.[948] The trial was successful across the board, offering particular benefits from online access to PEG content.[949] Given these results, Comcast has agreed to continue to work with interested communities to explore new opportunities to place local content on an Online On Demand platform.

In developing its first linear IP cable offering, moreover, Comcast made the encoding of PEG channels a priority and a gating requirement for deployment. Comcast's XfinityTV IP-based linear cable service streams each and every local PEG channel in the customer's channel lineup.

Comcast's provision of PEG channel capacity and financial support has continued against a backdrop of increasingly aggressive competitors – none of which are required to match cable's PEG obligations. DirecTV and Dish serve over 34 million households and do not provide local PEG programming or contribute to PEG efforts; nor do edge providers such as Netflix, Amazon,

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MACTA's complaints are the antithesis of "transaction-specific," since one consequence of the transaction will be that Comcast will no longer have a presence in Minnesota communities.

[947] Letter from Michael J. Valentine, Executive Director, Rutland Region Community Television, to Chairman Wheeler, FCC, at 1-2 (Aug. 22, 2014).

[948] *See* Letter from Lynn R. Charytan, Senior Vice President, Legal Regulatory Affairs, Senior Deputy General Counsel, Comcast Corporation, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 10-56, Attachment B, *Comcast PEG Pilot Program, Final Report and Evaluation* ("*Transaction Compliance Report*") at 1 & n.1 (Jan. 28, 2014).

[949] *Transaction Compliance Report*.

Apple, or Roku.[950] Imposing additional PEG carriage obligations solely on cable operators (let alone just Comcast) is entirely unjustified and inappropriate under these circumstances, and would unfairly exacerbate the regulatory disparity that cable already faces in this area.

PEG Issues Are Not Implicated by the Transaction. The lack of any relation of the PEG Commenters' concerns to this proceeding is exemplified by the ACM comments, which include a purported survey and analysis of PEG "threats."[951] ACM submitted this exact same document in a docket opened in response to ACM's petition challenging AT&T's treatment of PEG programming on its U-Verse video service, three years ago – a proceeding still pending before the Commission.[952] Rather than showing any transaction-specific harm here, the ACM document confirms that "[t]he primary reasons cited by the respondents for these reductions [in PEG programming in-kind support] were (1) the local franchising government made a decision to cut/divert PEG Access funding; (2) state franchising laws . . . and recent local cable franchise renewals resulted in reductions in funding and/or support of PEG Access."[953] Those are all industry-wide issues that can be addressed through local franchise negotiations, state franchising legislation, or other legislative efforts – but that have absolutely no connection to this Transaction.[954]

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950 *Fifteenth Video Competition Report* ¶ 3 (DBS subscribers); *id.* ¶ 256 (over-the-top on-demand video consumption).

951 ACM Comments, App. 2.

952 *See Ex Parte Notice* filed by James N. Horwood on behalf of Alliance for Community Media in MB Docket No. 09-13, Petition For Declaratory Ruling Regarding AT&T's U-verse PEG Product (May 17, 2011).

953 ACM Comments, App. 2, at 5.

954 For example, METRO East Community Media (Oregon) complains that Comcast, TWC, and Charter have removed many PEG stations from their long-time channel positions close to local broadcast channels. MetroEast Community Media Comments at 2. Again, these claims have nothing to do with the transaction at hand. And, in point of fact, Comcast has not moved any PEG channels in the Portland, Oregon, metropolitan area since the close of the NBCUniversal transaction. Plus, Comcast has added two PEG HD channels in the Metroeast Community Media footprint and a PEG HD channel in Vancouver, Washington.

In fact, to the extent that this Transaction has any effect on PEG programming or programmers, it will be a beneficial one. Specifically, the Transaction will extend Comcast's PEG commitments from the NBCUniversal transaction to the acquired systems.[955] Those conditions prevent Comcast from migrating PEG channels to digital delivery in systems that are not yet all digital; require Comcast to carry PEG channels on the digital starter tier or an equivalent tier that reaches at least 85 percent of subscribers; and obligate Comcast to ensure that there is no material degradation in the delivery of PEG channels. Thus, if anything, the Transaction will materially benefit PEG programming rather than harm it. Accordingly, the Commission should reject the PEG Commenters' arguments and proposed conditions.[956]

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[955] The City of Los Angeles asserts that TWC wrongfully withheld payment of PEG fees for 2008. *See* City of Los Angeles Comments at 4. As an initial matter, this issue is the subject of ongoing litigation in federal court between the City and TWC. As such, it will be addressed in that proceeding and is not transition-specific, and should therefore be disregarded for this reason alone. In any event, this claim is baseless. TWC took a credit in the amount of $5 million against the franchise fees that it paid the City for May 2011 for the $5 million in 2008 PEG fees that it paid under protest at the same time. The $5 million in PEG fees represented 1% of gross revenues for 2008, which the City improperly demanded. In 2008 and prior years, TWC expended millions operating PEG studios in Los Angeles and providing other free services to the City, as required under the local franchises and the Digital Infrastructure and Video Competition Act of 2006 ("DIVCA"). The costs of operating those studios fully met TWC's PEG support obligations. *See* DIVCA § 5870(k)-(*l*). And those costs, together with the costs of providing free services to the City, in 2008 and earlier, constitute franchise fees under federal law. *See Implementation of Section 621(a)(1) of the Cable Communications Policy Act*, Report & Order & Further Notice of Proposed Rulemaking, 22 FCC Rcd. 5101 ¶¶ 103-104 (2007) ("First Section 621 Order"). As a result, in order to avoid exceeding the 5% federal cap on franchise fees, TWC offset its payment of the 2008 PEG fees paid under protest against its franchise fee payment in May 2011. *See* 47 U.S.C. § 542(b). Indeed, the City does not mention that in this same litigation TWC is seeking to recover excessive franchise and PEG fee payments improperly extracted by the City, which more than offset the 2008 PEG fees the City alleges TWC owes it.

[956] ACM claims that Comcast violated the NBCUniversal PEG conditions because it "moved PEG channels from analog to digital prior to moving all other channels on the systems to a digital format" and did so "without having obtained express agreement from the relevant government entity." ACM Comments at 10-11. This claim is patently false, and ACM provides no evidence to the contrary. Since the *NBCUniversal Order* was adopted, Comcast has completed its migration to all-digital and at no time and under no circumstances did it ever migrate PEG channels to digital before the entire system was all-digital. Comcast will bring this same commitment to any cable systems it acquires where PEG channels continue to be carried in analog. In addition, contrary to the unsupported claims of Los Angeles County et al., *see* Los Angeles County et al. Petition to Deny at 21, PEG channels in the acquired systems will benefit from *NBCUniversal Order*'s requirement that Comcast carry all PEG channels on the acquired systems on the equivalent of the digital starter (DO) tier and not materially degrade the signal quality or impair viewer reception of PEG channels.

D. Local Franchising Issues/Enforcement

CenturyLink blames Comcast for delays CenturyLink may have experienced in obtaining local cable franchises in Colorado.[957] These claims likewise have nothing to do with this Transaction and thus the Commission should disregard them.

More importantly, CenturyLink simply misrepresents the facts. Specifically, Comcast has suggested that certain Colorado communities negotiating with CenturyLink should include reasonable build-out obligations in its franchise agreement, similar to the requirements that cable companies have faced in local communities.[958] Contrary to CenturyLink's claim that Comcast was "extraordinarily aggressive" in sharing its views, many of these communities welcomed or solicited Comcast's input.

And, as the correspondence submitted for the record by CenturyLink demonstrates, Comcast expressly did not oppose the issuance of an equitable franchise to CenturyLink.[959] Comcast only made the proposal just mentioned, set forth in the Commission's guidance as to what types of build-out requirements might be considered "unreasonable," and emphasized that "Comcast is *not* recommending any of those requirements."[960] The correspondence thus rebuts CenturyLink's statements that Comcast sought "onerous and unreasonable buildout requirements." Comcast simply argued for *some* form of reasonable, enforceable build-out requirement on CenturyLink, consistent with this Commission's guidance. That type of advocacy is hardly something the Commission should consider anticompetitive or otherwise addressable.

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957 CenturyLink Comments at 30-33.

958 *Id.*

959 *Id.*, Attachs. A, B.

960 *Id.* (emphasis added).

The Commission should also reject CenturyLink's request that the Commission impose unprecedented restrictions on Comcast's First Amendment rights.[961] CenturyLink's proposals are especially remarkable given its own repeated efforts to press government officials and agencies at all levels (including the Commission, state agencies, and local governments) to impose conditions on Comcast that would be most advantageous to CenturyLink. For all these reasons, the Commission should reject CenturyLink's proposals.

Suggestions by other commenters that any conditions placed on the Transaction's approval should be enforceable by local governments are inconsistent with Commission practice and contrary to law.[962] Fundamentally, the Commission has never made its transaction-related conditions enforceable by states or local government, including local franchising authorities ("LFAs").[963] Indeed, in several merger decisions, the Commission has presumed that states do *not* have authority to independently enforce a Commission merger condition and may only pursue an equivalent enforcement remedy "to the extent that a requirement in the[] conditions duplicates a requirement imposed by a state pursuant to its review of the proposed merger."[964] The Commission has also maintained separation with regard to conditions and enforcement

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[961] CenturyLink Comments at 34-35 (specifically asking the Commission to prohibit Comcast from petitioning local government officials or, in the alternative, to specifically prohibit Comcast from asking local governments to reject competitive franchisees' requests for action, and to publish a comprehensive database and log of all Comcast communications with local governments related to competitive video applications); *see also* COMPTEL Petition to Deny 45 (asking the Comcast be required to waive any MFN or opt-in rights in its existing franchise agreements).

[962] *See, e.g.*, City of Los Angeles Comments at 4; Los Angeles County et al. Petition to Deny at 24-25. Calls for conditions that would dissolve effective competition orders or allow municipalities to retain exclusive authority over rights of way are likewise unrelated to the Transaction.

[963] Calls for conditions that would dissolve effective competition orders or allow municipalities to retain exclusive authority over rights of way are likewise unrelated to the Transaction. *See* City of Eagan Comments at 9.

[964] *GTE Corp., Transferor, and Bell Atl. Corp., Transferee*, Memorandum Opinion and Order, 15 FCC Rcd. 14032 ¶ 254 (2000); *SBC-AT&T Merger Order* ¶ 358.

among LFAs and the Commission.[965] Moreover, the D.C. Circuit has held that the Commission may not delegate its statutory authority to third parties that (like states and localities) are not its subordinates. "[W]hile federal agency officials may subdelegate their decision-making authority to subordinates . . . they may not subdelegate to outside entities—private or sovereign— absent affirmative evidence of authority to do so."[966] The Commission, thus, should reject proposals to delegate its enforcement role to LFAs.

E. Workforce Issues

The Applicants understand from decades of experience that successful communications, technology, and media companies rely on trained, talented, and motivated employees. The record contains substantial support from numerous elected representatives and industry groups from across the country highlighting Comcast's commitment to its workers,[967] and its long-standing support for good jobs and investment that boost the economy.[968] For example:

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[965] *See, e.g.*, *Adelphia Order* ¶ 95 ("It would be inefficient and impractical for the Commission to referee all the disputes that may arise from the numerous LFA reviews required by these transactions, including disputes relating to pre-existing franchise conditions arising from previous transfers. Our approval of the transactions does not affect the rights of LFAs to negotiate desired terms and conditions in their [own] transfer approvals.").

[966] *U.S. Telecom Ass'n v. F.C.C.*, 359 F.3d 554, 566 (D.C. Cir. 2004).

[967] *See, e.g.*, Letter from Hugh "Trip" Tollison, Savannah Economic Development Authority, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 25, 2014) (calling Comcast "one of our finest employers" and commenting that "Comcast employees have access to a great benefits package, which includes healthcare, training, tuition reimbursements and free cable"); Letter from State Representative Brenda Gilmore, Tennessee General Assembly, to Chairman Wheeler, FCC, at 1 (Aug. 20, 2014) (calling Comcast "a vital source of employment in the state of Tennessee," where it accounts for 3,000 full-time jobs, "provid[es] solid health care benefits and on-the-job training to our residents," and after the Transaction will "generate new economic opportunity on top of what it has already made possible").

[968] *See, e.g.*, Letter from Jim Roche, Business and Industry Association of New Hampshire, to Chairman Wheeler, FCC, at 1 (Aug. 25, 2014) (stating that "Comcast is committed to creating and supporting good job opportunities in New Hampshire" where it "employs over 1,700 full-time workers across the state, spends over $125 million in payroll and close to $15 million annually in health-care benefits"); Letter from Arthur Turner, Assistant Majority Leader, Illinois House of Representatives, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 21, 2014) (stating that "Comcast spent more than $1.3 billion on capital, employee, and community partnerships in Illinois last year," and while "some industries have relocated or reduced investments, Comcast has," since 1996, "invested more than $6 billion in capital expenditures in Illinois"); Letter from David Hinderliter, Chicago Southland Chamber of Commerce, to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014) at 1 (arguing that "with the

- Governor Tom Corbett calls Comcast "an important partner in keeping Pennsylvanians working, directly employing close to 12,000 of the state's residents and supporting thousands of indirect jobs through its supplier community."[969]

- James Kenney, Philadelphia City Councilmember, remarks that, in a challenging job market "Comcast continues to hire employees from every sector of our communities at all levels of the company, from technicians to sales reps to roles in the corporate division."[970]

- The Economic Council of Palm Beach County praises Comcast as an "exemplary employer" that "employs almost 17,000 Florida residents, pays them a living wage and . . . offers one of the best benefit packages around, including healthcare and tuition reimbursement."[971]

- The Associated Industries of Massachusetts states that Comcast "employs more than 4,000 full-time employees who enjoy excellent benefits" and "is committed to education, job training, and leadership, as demonstrated by its investment of more than $2 million in on-job training and nearly $200,000 on tuition reimbursement for its employees in 2013 alone."[972]

NHMC's separate concerns that the Transaction might result in job losses affecting Applicants' workforce diversity are nothing more than unsupported speculation and are also misplaced.[973] NHMC correctly notes that both Comcast and TWC employ a high number of Latino employees. Applicants are proud of this diversity, and there is no reason the Transaction will change that. And Comcast is already on record that it does not anticipate reductions in customer-facing jobs. As David L. Cohen has stated publicly, "most of our jobs are the

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proposed transaction, Comcast . . . would continue to invest in our state, spurring positive economic growth on the local level").

969 Letter from Governor Tom Corbett, Pennsylvania, to Chairman Wheeler, FCC (Aug. 21, 2014).

970 Letter from James Kenney, Councilmember, Philadelphia City Council, to Chairman Wheeler, FCC, at 1 (Aug. 14, 2014).

971 Letter from Daniel F. Martell, Economic Council of Palm Beach County, Inc., to Chairman Wheeler, FCC, at 1 (Aug. 22, 2014).

972 Letter from Richard Lord, Associated Industries of Massachusetts, to Chairman Wheeler and Commissioners, FCC, at 1 (Aug. 20, 2014).

973 NHMC Comments at 15-17.

customer-facing jobs of technicians in call centers and local management and we don't anticipate any reductions in those jobs."[974]

The City of New York suggests that Comcast should commit to train and hire additional New York City residents.[975] Since acquiring NBCUniversal in 2011, Comcast has created a couple thousand new jobs and invested over $1 billion in the state of New York. And as a leading technology company, Comcast is continually hiring college graduates, and spends millions of dollars to train those hires. Given the need for high-quality personnel, the excellent reputation of New York State's higher education system, and Comcast's participation in training and talent development programs, Comcast expects that it will continue to employ New York residents going forward. However, this is not a transaction-specific issue, and the proposed condition would be inappropriate.

Writer's Guild of America, East ("WGAE") raises an issue involving a single labor-related election that the National Labor Relations Board ("NLRB") conducted in June 2013 to determine whether certain producers, associate producers and casting directors associated with NBCUniversal wished to be represented by WGAE.[976] NLRB has not announced the results of the election and, contrary to WGAE's claims, NBCUniversal is not responsible for the delay. That matter is still pending before the NLRB and has nothing to do with the Transaction. The

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974 *Senator Patrick J. Leahy Holds a Hearing on the Comcast-Time Warner Cable Merger*, Financial Markets Regulation Wire, at 28 (Apr. 9, 2014).

975 City of New York Comments at 5-6.

976 *See* Jonathan Handel, *WGA East to NBCU's Steve Burke: Let Us Count Union Votes*, The Hollywood Reporter, Aug. 28, 2013, http://www hollywoodreporter.com/news/wga-east-nbcus-steve-burke-614521.

Commission has refused to consider similar unrelated labor issues in previous license transfer review proceedings, and should do the same here.[977]

F. Customer Privacy and Character Issues

Public Knowledge vaguely alleges that the Transaction will pose undefined "privacy concerns" by providing Comcast with access to additional consumer data, which it could then use to refine and enhance its ability to help advertisers reach their desired audiences.[978] As a preliminary matter, beyond being vague and unsupported, this allegation is transparently not transaction-specific. And in any event, the use of customer data is subject to well-established laws and policies.[979] Moreover, Comcast takes very seriously its obligations to protect its customers' privacy and complies fully with the privacy requirements in the Communications Act. Thus, whatever alleged harm Public Knowledge envisions, it is not one that would arise from – and thus bears no relationship to – the Transaction.

In particular, Section 631 of the Communications Act, 47 U.S.C. § 551, places express requirements on cable operators' protection of customer's private information, and Comcast complies fully with those requirements. As Comcast clearly informs customers, it uses only anonymized data "to distribute and deliver relevant programming and advertising to you *without*

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977 *See, e.g.*, *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from Tele-Communications, Inc., Transferor to AT&T Corp., Transferee*, Memorandum Opinion and Order, 14 FCC Rcd. 3160 ¶¶ 140-141 (1999) (declining to consider the Communications Workers of America's speculative, non-merger-specific employment-related claims); *Application of WorldCom, Inc. and MCI Commc'ns Corp. for Transfer of Control*, Memorandum Opinion and Order, 13 FCC Rcd. 18025 ¶ 213 (1998) (rejecting the Communications Workers of America's employment-related objections to the transaction and concluding that the union's prediction that the merger would have an adverse impact on telecommunications employees was "speculative" and "not . . . credible").

978 *See* Public Knowledge et al Petition to Deny at 48-50.

979 *See* 47 U.S.C. § 551.

disclosing personally identifiable information about you to programmers or advertisers."[980] Accordingly. the Commission should give no weight to Public Knowledge's unfounded and irrelevant allegations.[981]

The California Public Utilities Commission ("CPUC") notes that it has issued an Order Initiating Investigation ("OII")[982] involving the inadvertent release (by a Comcast contractor) of certain unlisted telephone numbers assigned to subscribers to Comcast Xfinity VoIP service. CPUC encourages the Commission to consider the relevant facts that result from its OII "as they bear on the effect of the proposed license transfer on the public interest, as well as the applicants' character and fitness to hold FCC licenses or authorizations."[983] Citing to the same matter, Greenlining Institute argues that the Commission should deny the Transaction because "Comcast lacks the requisite character to meet the requisite qualifications to transfer FCC licenses."[984]

To be clear, the matter referenced by CPUC involved an inadvertent error in the process by which Comcast extracted (and consequently released) non-published listings to its vendor for

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980 Comcast Customer Privacy Notice at 3, *available at* http://cdn.comcast.com/~/Media/Files/Legal/CustomerPrivacy/CustomerPrivacy.pdf?vs=3 (emphasis added).

981 Public Knowledge's primary basis for its allegation that Comcast has a "flawed" track record regarding data protection practices is a reference to an ongoing proceeding at the California Public Utilities Commission regarding an incident involving the inadvertent release of unlisted telephone numbers. As discussed below, this allegation is unfounded and, in all events, irrelevant to this proceeding.

982 *Investigation on the Commission's Own Motion into the Operations, Practices, and Conduct of Comcast Phone of California, LLC (U-5698-C) and its Related Entities (collectively "Comcast") to Determine Whether Comcast Violated the Laws, Rules, and Regulations of this State in the Unauthorized Disclosure and Publication of Comcast Subscribers' Unlisted Names, Telephone Numbers, and Addresses*, Order Instituting Investigation into the Unauthorized Disclosure and Publication of Unlisted Telephone Numbers by Comcast, Investigation 13-10-003 (issued Oct. 8, 2013) ("OII.").

983 California Public Utilities Commission Comments at 6 (citing *Investigation on the Commission's Own Motion into the Operations, Practices, and Conduct of Comcast Phone of California, LLC (U-5698-C) and its Related Entities (Collectively "Comcast") to Determine Whether Comcast Violated the Laws, Rules, and Regulations of this State in the Unauthorized Disclosure and Publication of Comcast Subscribers' Unlisted Names, Telephone Numbers, and Addresses*, Order Instituting Investigation into the Unauthorized Disclosure and Publication of Unlisted Telephone Numbers by Comcast, Investigation 13-10-003 (issued Oct. 8, 2013)).

984 Greenlining Petition to Deny at 4-6.

publication on Comcast's online directory Ecolisting and to third parties. Once the error was identified, Comcast took immediate steps to fix it, to work with the vendor to remove all such listings, to investigate the period and extent of the inadvertent publication and to notify affected customers and provide them with refunds. Comcast also established a dedicated toll-free number and worked with impacted customers who contacted the number to provide them with additional remedies tailored to meet their individual needs, including free telephone number changes, additional service credits and reimbursements for home security systems. On a going-forward basis, Comcast has taken a number of additional steps to improve its processes including implementing measures to validate the accuracy of the listing data it provides to its vendor, establishing an improved process for investigating non-published complaints, developing and implementing a refresher training module which reviews directory listing rules and order entry requirements, and commissioning its internal audit team to conduct a comprehensive assessment of Comcast's policies, practices, and procedures regarding the directory listings.

In all events, this matter is not transaction-specific and should be given no weight on procedural grounds or on the merits. Moreover, the Commission's character inquiry involves separate analyses for Commission-related conduct and non-Commission related conduct, with a significantly narrower range of relevant conduct for the latter.[985] In any analysis of alleged *non-*

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[985] *Application of Green Eagle Networks, Inc. and Convey Communications, Inc. for Commission Consent to the Assignment of Personal Communications Service Licenses*, Memorandum Opinion and Order, 27 FCC Rcd. 5732 ¶ 14 (2012) ("*Green Eagle Order*") ("With respect to Commission-related conduct, the Commission has stated that all violations of provisions of the Act, or of the Commission's rules or polices, are predictive of an applicant's future truthfulness and reliability, and thus have a bearing on an applicant's character qualifications."); *see also Policy Regarding Character Qualifications in Broadcast Licensing; Amendment of Rules of Broadcast Practice and Procedure Relating to Written Responses to Commission Inquiries and the Making of Misrepresentations to the Commission by Permittees and Licensees*, Report, Order and Policy Statement, 102 F.C.C.2d 1179 ¶ 23 (1986) ("*Policy Regarding Character Qualifications*") ("We will be concerned with misconduct which violates the Communications Act or a Commission rule or policy, and with certain specified non-FCC misconduct which demonstrate the proclivity of an applicant to deal truthfully with the Commission and to comply with our rules and policies.").

Commission misconduct, the Commission limits its consideration to "*adjudicated*, non-Commission related misconduct that include: (1) felony convictions; (2) fraudulent misrepresentations to governmental units (which requires an element of intent);[986] and (3) violations of antitrust or other laws protecting competition."[987]

Here, the CPUC's investigation is still pending and, thus, as a threshold matter, there is no adjudicated decision finding any violation of any state law. More critically, however, the alleged misconduct at issue in the OII does not involve any of the types of misconduct enumerated above. The state laws at issue in the investigation are PU Code section 2981.1 (prohibiting the sale and licensing of unlisted numbers); PU Code section 451(requiring all charges, services, instrumentalities, and rules of a public utility to be just and reasonable); and California's Constitutional right to privacy (Article I, § 13).[988]

The Commission has consistently found Comcast to have the requisite character qualifications to hold Commission licenses in prior review proceedings. Nothing about this single, isolated incident seriously calls into question Comcast's continued qualifications to hold the licenses at issue here.[989]

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986 The Commission defines misrepresentation as "an intentional misrepresentation of fact intended to deceive." *Applications for Consent to Transfer of Control from License Subsidiaries of Allbritton Commc'ns Co. to Sinclair Television Group, Inc.*, Memorandum Opinion and Order, 29 FCC Rcd. 9156 ¶ 39 (MB 2014). Lack of candor exists when an applicant breaches its duty "to be fully forthcoming as to all facts and information relevant to a matter before the FCC, whether or not such information is particularly elicited." *Id.* The Commission will not disqualify an applicant, however, for a negligent omission; "intent to deceive [is] an essential element of a misrepresentation or lack of candor showing." *Id.* An intent to deceive is established when "factual evidence" shows that "the inconsistency involved an intent to deceive. . . ." *Id.*

987 *Green Eagle Order* ¶ 14 (emphasis added).

988 *See* OII at 13-14.

989 As he did in the NBCUniversal proceeding, Elan Feldman filed a Petition to Deny in this proceeding related to a long-time grievance he has had with Comcast. *See* Elan Feldman Petition to Deny. The Commission fully addressed and rejected precisely the same claims in its *NBCUniversal Order* in considering Comcast's character qualifications, *see NBCUniversal Order* ¶¶ 278-279, and Mr. Feldman provides absolutely no basis for the Commission to revisit its prior conclusion in the current Transaction, *see id.* at 279 ("Mr. Feldman's dispute with Comcast does not call into question Comcast's character qualifications."). Similarly, Mr. Peter's claim the

G. Municipal Broadband

The handful of criticisms regarding Comcast's position on municipal broadband are not accurate and have no direct connection to this proceeding. In, addition, the Commission is considering this issue in an industry-wide proceeding.[990] Proposals to impose conditions to promote municipal broadband should therefore be rejected.[991] However, Comcast takes this opportunity to clarify its position on this issue, since it has been mischaracterized by some.

Comcast believes that cities and other governmental bodies should think carefully before entering the broadband business where private investments are occurring – especially at a time when other priorities, like transportation infrastructure, desperately need public funds. Government-owned broadband networks are risky and costly, and many have failed and have left residents holding the bag with substantial debt.[992] Continuing and expanding private investment

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Transaction would somehow lead to more adult programming is unsubstantiated and unrelated to the Transaction. *See* Robert W. Peters Comments at 6.

[990] *See Pleading Cycle Established for Comments on Electric Power Board and City of Wilson Petitions, Pursuant to Section 706 of the Telecommunications Act of 1996, Seeking Preemption of State Laws Restricting the Deployment of Certain Broadband Networks*, Public Notice, 29 FCC Rcd. 9239 (2014).

[991] *See* Open Media et al. Comments at 4; Seattle City Council Member Nick Licata Comments at 1; NATOA Comments at 5-6; Public Knowledge et al. Petition to Deny at 4.

[992] For example, the city of Groton, Connecticut, remains responsible for repaying more than $20 million in loans after selling its fiber network at a loss of more than $30 million. *See* Charles M. Davidson & Michael J. Santorelli, Advanced Communications Law & Policy Institute at New York Law School, *Understanding The Debate Over Government-Owned Broadband Networks: Context, Lessons Learned, and a Way Forward for Policy Makers*, Groton Case Study, at 2-3 (June 2014), http://www nyls.edu/advanced-communications-law-and-policy-institute/wp-content/uploads/sites/169/2013/08/ACLP-%E2%80%93-Groton-Case-Study-%E2%80%93-June-2014.pdf**.** Similarly, Lafayette, Louisiana, which launched a broadband network in 2009, has a debt in excess of $150 million and keeps pushing back the date that the network is expected to be self-sustainable – most recently, to 2015. *See* Charles M. Davidson & Michael J. Santorelli, Advanced Communications Law & Policy Institute at New York Law School, *Understanding The Debate Over Government-Owned Broadband Networks: Context, Lessons Learned, and a Way Forward for Policy Makers*, Lafayette Case Study, at 3 (June 2014), http://www nyls.edu/advanced-communications-law-and-policy-institute/wp-content/uploads/sites/169/2013/08/ACLP-%E2%80%93-Lafayette-Case-Study-%E2%80%93-June-2014.pdf. Additionally, in 2002, 16 cities in Utah joined together to build the UTOPIA broadband network, which, more than a decade later, has yet to turn a profit; the network has a negative net value of $120 million and owes $500 million in interest payments through 2040. *See* Ellis Smith, *Chattanooga's high-speed broadband brings high-stakes battle over EPB expansion*, Times Free Press, Aug. 29, 2014, *available at* http://www.timesfreepress.com/news/2014/aug/29/high-speed-broadband-brings-high-stakes-battle/.

in broadband networks is the best way for America to keep its position as the preeminent Internet economy in the world with the most advanced networks.[993] As TechFreedom observes, government ownership of broadband networks risks undermining incentives for continued private investment in broadband networks.[994]

At the same time, however, the claim that Comcast has been attempting to outlaw municipal broadband is simply erroneous. Although, as noted above, Comcast has concerns about the wisdom of municipal broadband initiatives and has express those concerns to state and local governments, it does not advocate for legal prohibition of such programs. In any event, calls for the Commission to preempt state laws are completely unrelated to this Transaction, and, as noted, are being considered by the Commission in an ongoing proceeding.[995] They thus need not and should not be considered here.

H. Wholesale Access

TEXATEL broadly demands that Comcast be required to "pursue an active and viable wholesale business," while the Maine RLECs ask the Commission to subject the combined company to ILEC-style unbundling requirements, complete with TELRIC pricing.[996] There is no

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[993] *See* Remarks of Chairman Wheeler, FCC, National Cable and Telecommunications Association (Apr. 30, 2014), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-326852A1.pdf ("[W]e believe that the private sector must play the leading role in extended broadband networks to every American.").

[994] TechFreedom Comments at 8; *see also* Charles M. Davidson & Michael J. Santorelli, Advanced Communications Law & Policy Institute at New York Law School, *Understanding The Debate Over Government-Owned Broadband Networks: Context, Lessons Learned, and a Way Forward for Policy Makers*, Lafayette Case Study, at xiv (June 2014) ("Positioning a municipal network as a vehicle for spurring competition in a local broadband market could ultimately undermine market forces and harm consumers."), http://www nyls.edu/advanced-communications-law-and-policy-institute/wp-content/uploads/sites/169/2013/08/ACLP-%E2%80%93-Lafayette-Case-Study-%E2%80%93-June-2014.pdf.

[995] *See Pleading Cycle Established for Comments on Electric Power Board and City of Wilson Petitions, Pursuant to Section 706 of the Telecommunications Act of 1996, Seeking Preemption of State Laws Restricting the Deployment of Certain Broadband Networks*, Public Notice, 29 FCC Rcd. 9239 (2014).

[996] TEXATEL Comments at 2-3; Maine RLECs Petition to Deny at 9-10 (urging adoption of requirement to make dark fiber, interoffice facilities, and fiber to the premises "accessible to competitors on reasonable terms at any technically feasible point and at rates based on TWC's total element long run incremental costs").

basis for imposing any such wholesale obligations on Comcast, let alone a condition modeled on the unbundling provisions that Congress enacted solely to apply to beneficiaries of a century-long monopoly. Because there will be no reduction in competition within the broadband, video, voice, or any other service market, there is no transaction-specific harm that could even remotely justify draconian mandates of this kind.[997]

Such a requirement is particularly unwarranted in light of the fact that, as noted above in Section IV.B.6, Comcast has agreed to extend and enhance the wholesale business services arrangements that TWC has already established, thereby underscoring Comcast's commitment to fostering greater business service competition.

Moreover, any such condition would actually create irremediable and overwhelming harm to the public interest by reducing the incentives of all market participants – not only for Comcast but also for its competitors – to deploy new facilities and improve service, while also imposing substantial costs that would be borne by consumers. Comcast is an insurgent in the business services market, and is fully prepared to expand its investment and presence in an effort to bring much-needed competition to incumbent LECs. One sure-fire way to dampen these

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[997] Similarly, the contention of Spot On Networks, LLC ("Spot On") that Comcast should be subject to a wholesale access requirement for a third-party Wi-Fi services – whether in commercial location or multiple dwelling units – is without merit. *See* Spot On Comments at 15. As shown above and in the Public Interest Statement, one of the many benefits that Comcast will bring to the acquired systems is a greater focus on and investment in Wi-Fi services and greater competition in backhaul services. Those benefits of scale and greater investment incentives would be jeopardized if the combined company were required to permit Spot On to be an intermediary between Comcast and the customers it hopes to serve. Like TWC, where it has made business sense, Comcast has entered into arrangements with certain providers – including Spot On – on commercial terms. Spot On's allegations that Comcast has refused to deal with Spot On and imposed a "nationwide 'moratorium'" in backhaul services on it, *see* Spot On Comments at 6, 11, are both erroneous and irrelevant. Spot On Networks mischaracterizes its relationship with Comcast, and has been illegally reselling Comcast's service to MDU residents, in plain violation of the applicable contract terms. Far from targeting Spot On Networks with a "moratorium," Comcast has offered to sell Spot On a service that is appropriate for its business, even though it is under no legal obligation to do so. There is thus no need for the Commission to remedy this contractual violation with any conditions (including by prohibiting "predatory" retail pricing or by penalizing Comcast $100,000 per day for any violation). *See id.*

investments and impair these prospects would be to hamstring Comcast with a wholesale access condition.

For these and other reasons, the Commission has rightly – and repeatedly – rejected prior proposals to subject cable operators to open access, resale, or comparable wholesale obligations, both in industry-wide proceedings and in reviews of specific transactions.[998] It should do so once again here.

I. iN Demand

IFTA and Herring wrongly assert that Comcast is using its ownership interest in iN Demand to harm competition in the VOD marketplace, and will have increased incentives and ability to do so post-transaction.[999] To address these purported harms, Herring urges the Commission to require Comcast to divest its ownership interest in iN Demand, while IFTA asks the Commission to deny the applications.[1000] These allegations fundamentally misconstrue Comcast's relationship with iN Demand and ignore the intense competition in the marketplace

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998 *Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd. 4798 ¶¶ 46-47 (2002); *Comcast-NBCUniversal Order* ¶ 101 n.224; *Adelphia Order* ¶ 222; *Comcast-AT&T Broadband Order* ¶ 141; *AT&T-MediaOne Order* ¶ 128; *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from Tele-Communications, Inc., Transferor, to AT&T Corp., Transferee*, Memorandum Opinion and Order, 14 FCC Rcd. 3160 ¶ 29 (1999). On one occasion in 2001, the Commission experimented with such a condition, finding it appropriate to supplement an open access requirement imposed by the FTC in connection with the merger of AOL and Time Warner Inc. due to unique factors at that time relating to the lack of widespread DSL and vertical integration concerns. That rationale does not apply here, but in any event, the Commission eventually eliminated that condition based on changed circumstances. *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner Inc. and America Online, Inc., Transferors, to AOL Time Warner Inc., Transferee*, Order, 27 FCC Rcd. 11508 ¶ 4 (2012). The resale and "unbundled network element" regimes in the Telecommunications Act of 1996 ("1996 Act") do not change the above analyses or conclusions. Rather, those were exceptional provisions, applicable only to ILECs, and based on Congress's assessment of the unique circumstances applicable to that industry. *See Verizon Commc'ns Inc. v. FCC*, 535 U.S. 467, 488-89 (2002) (observing that the local competition provisions of the Act represented a significant departure from traditional regulatory practice); DOJ Amicus Brief, *Verizon v. Law Offices of Curtis V. Trinko, LLP*, at 18 (filed May 23, 2003) (explaining that the provisions of the 1996 Act applicable to ILECs rest on Congress's "industry-specific determination" to depart from general antitrust principles and take a "distinctly different approach" to promoting competition).

999 *See* IFTA Comments at 5-8; Herring Broadcasting Comments (Letter 1).

1000 *See* IFTA Comments at 5-8; Herring Broadcasting Comments (Letter 2).

for VOD services. In all events, their requests are wholly non-transaction-related and should be rejected.

Comcast currently owns a 53.7 percent economic interest in iN Demand, and, as the Commission has previously recognized, does not exercise control over the company.[1001] Although Comcast's economic interest in the company will increase to 84 percent after the Transaction, Comcast will not control the company any more post-transaction than it does today. **[[**

]] Thus, post-transaction Comcast will *not* have unilateral control to approve key actions of iN Demand relating to operations of the company or to video programming decisions.[1002] Its relative influence in such decisions will remain unchanged.

Herring points to its complaints filed at the Commission to try to establish a history of anticompetitive behavior by iN Demand,[1003] but all four of those complaints *were denied* by the Commission.[1004] A series of unfounded complaints does not translate into an actionable argument in this proceeding. IFTA's claims that iN Demand is a "gatekeeper" with inordinate market leverage and quasi-monopolistic power to foreclose independent content from reaching

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1001 *See Revision of the Commission's Program Access Rules*, Report and Order, 27 FCC Rcd. 12605 n.89 (2012) ("In addition, given Comcast's previous statements that it cannot control decisionmaking at iN Demand, the *NPRM* proposed to consider iN Demand as Comcast-affiliated, but not Comcast-controlled. No commenter opposed this characterization, thus we consider the iN Demand networks to be Comcast-affiliated, but not Comcast-controlled, for purposes of the estimates in this *Order*.").

1002 *See* IFTA Comments at 5-8; Herring Broadcasting Comments (Letter 2).

1003 Herring Broadcasting Comments (Letter 2).

1004 *Herring Broad., Inc. v. Time Warner Cable Inc*., Recommended Decision of Chief Administrative Law Judge Richard L. Sippel, 24 FCC Rcd. 12967 (2009) ("*WealthTV ALJ Decision*"); *see also Herring Broad., Inc. v. Time Warner Cable Inc.*, Memorandum Opinion & Order, 26 FCC Rcd. 8971 (2011) ("*WealthTV FCC Order*") (adopting the conclusions of the *Wealth TV ALJ Decision*), *aff'd, Herring Broad., Inc v. FCC*, No. 11-73134 (9th Cir. Mar. 14, 2013).

an audience are equally baseless.[1005] The marketplace for VOD services is highly competitive. For example, Vubiquity (formerly Avail-TVN) bills itself as "the industry's single-source for on-demand programming,"[1006] and competes vigorously with iN Demand to obtain VOD content from programmers and to sell VOD packages to MVPDs. In fact, Comcast's cable systems today receive VOD content from both Vubiquity and iN Demand.

Further, Programmers can market VOD content *directly to MVPDs* rather than using third-party aggregators like iN Demand or Vubiquity. For instance, IFTA and Comcast are parties to an agreement whereby Comcast Cable has agreed to distribute at least 10 feature-length programs offered by IFTA members each month on VOD. The agreement has been in force for more than two years and recently was extended through November 2014. Since the agreement was entered, *Comcast Cable has distributed every title offered by IFTA*. More generally, independent or "indie" film is an important genre for the company: Comcast's partnerships with indie film houses have grown the last few years; Comcast pioneered the same-day-as theatrical release offering with IFC films on Xfinity On Demand; and the company launched an indie film microsite to promote indie films.[1007]

The various claims and proposed conditions regarding iN Demand, therefore, are non-transaction-specific, inconsistent with marketplace realities, and should be rejected.

J. Headend in the Sky

CenturyLink theorizes that, post-transaction, Comcast may choose not to offer its Headend in the Sky ("HITS") transport service to some or all the small cable operators in geographic areas that are adjacent to or overlap with TWC systems. CenturyLink thus urges the

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1005 IFTA Comments at 5-7.

1006 Vubiquity VOD, http://www.vubiquity.com/service-providers/vod (last visited Sept. 4, 2014).

1007 Michael Imbesi, *Tribeca Talks: Comcast on Independent Film*, Comcast Voices (Apr. 25, 2013).

Commission to require Comcast to commit to offer HITS at current rates for seven years, or, alternatively, to require that Comcast renew the HITS commitments it made in the Comcast-AT&T Broadband transaction.[1008] These concerns are non-transaction-specific, lack any supporting facts, and have repeatedly been rejected by the Commission. The Commission should similarly reject them here.

The HITS transport service aggregates and transmits digital video programming via satellite to cable operators and other MVPDs, which in turn transmit that content to their subscribers. In order to provide these services, Comcast Media Center ("CMC," which is the corporate parent of HITS) obtains non-exclusive rights from programming networks to multiplex and uplink their content to leased satellite transponders for transmission to the headends of MVPDs that purchase HITS. The majority of programming networks with which CMC deals are unaffiliated with Comcast. MVPDs that use CMC must separately contract with each of the networks for rights to distribute the programming to their customers; the networks, not CMC, control contractual access to their programming.

CenturyLink advances no basis for its theory that Comcast will discontinue HITS to some market participants post-transaction. Among other things, CenturyLink cannot show that Comcast withholds HITS's service today from small cable systems adjacent to or overlapping with Comcast's systems, and it is thus unclear why Comcast would choose to degrade the HITS business post-transaction by engaging in such conduct.

In any event, CMC's cable operators are not dependent on HITS. Transport services also are available from Vubiquity, which recently announced that its "LiveVU solution can help deliver bandwidth and network capacity savings, mitigate the need for costly headend upgrades

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[1008] *See* CenturyLink Comments at 35-37.

and STB replacement, and provide the springboard for future monetization services, for MSOs nationwide."[1009] And MVPDs increasingly obtain their video programming *directly from programmers* (via so-called "direct feeds") or self-provide by distributing linear feeds to their systems over their own fiber networks. CenturyLink's assertion that such direct feeds or terrestrial fiber solutions are "prohibitive" is not true.[1010]

Finally, Comcast notes that similar HITS-related concerns were raised in the context of the Comcast-AT&T Broadband transaction in 2002, and again in the context of Comcast's acquisition of NBCUniversal. In the Comcast-AT&T Broadband transaction, Comcast voluntarily made certain commitments with respect to the provision of HITS service to small cable providers, but the Commission nevertheless found that "there are several alternative sources of digital programming, including direct feed options from the programmers themselves" and that the applicants "would not have the ability to prevent competing MVPDs from gaining access to other digital programming packages."[1011] In light of these marketplace realities, the Commission rejected proposed HITS-related conditions in its approval order.[1012] In the NBCUniversal proceeding, the Commission again declined to impose conditions regarding HITS, notwithstanding similar arguments raised by NTCA.[1013] It should do so again here.

[1009] Press Release, Vubiquity, Inc., Vubiquity Adds a Slate of New MPEG-2 and MPEG-4 Channels To Its LiveVU Linear Platform (July 28, 2014), http://www.vubiquity.com/node/360.

[1010] CenturyLink Comments at 37.

[1011] *Comcast-AT&T Broadband Order* ¶ 116.

[1012] *See id.*

[1013] *See Comcast-NBCUniversal Order* (the order approving the merger does not address arguments regarding CMC or HITS.).

K. Broadcaster Issues

Sinclair and the NBC Affiliates raise various concerns that have nothing to do with this Transaction. Their various proposals either relate to broadcast industry issues writ large or to their own particular economic self-interests.[1014]

Many of Sinclair's individual contentions – when not simply voicing unsupported speculation about possible harms that the Transaction might theoretically cause[1015] – center on nothing more than the company's frustrations with industry-wide broadcast regulations, and thus will be unaffected by the Transaction and provide no basis for conditions. Sinclair also focuses on issues concerning network-affiliate compensation arrangements, but these, too, are industry-wide matters that are by no means transaction-specific. In addition, the NBCUniversal conditions regarding network affiliation and retransmission consent will extend to the newly acquired cable systems and therefore fully address any reasonable concerns relating to Comcast's role in broadcasting and cable.[1016] And while the NBC affiliates may have had legitimate issues with the NBCUniversal transaction, those issues are simply not present in the instant Transaction, where Comcast will gain seven million cable customers, relatively few programming assets, and no broadcast stations. Any legitimate issues the affiliates may have had

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[1014] *See* Sinclair Petition to Deny at 15-20; NBC Affiliates Comments at 6-7; *see also supra* Section IV.C.3 for a discussion of Sinclair's equally groundless claims regarding Comcast's alleged buyer power. The National Association of Broadcasters ("NAB") declined to comment on the substance of the Transaction. *See* NAB Comments at 2.

[1015] *See, e.g.*, Sinclair Petition to Deny at 4 (claiming that "[t]he combined company could have sufficient size and scale . . . to drive [competing programmers] out of business"); *id.* at 9 ("Should Comcast treat local broadcast television stations in a discriminatory manner, this could adversely affect a broadcaster's business"); *id.* at 13 ("The transaction could provide the parties with the ability to shift fees from broadcast to cable."). The Sinclair Petition's showing falls well fall short of the "specific allegations of fact" required to meet the prima facie benchmark for petitions to deny, *see, e.g.*, *Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC*, Memorandum Opinion and Order and Declaratory Ruling, 23 FCC Rcd. 17444 ¶ 212 (2008) (citing 47 C.F.R. § 1.939(d) in rejecting petitioner allegations as purely speculative), as well as the requisite relationship to the transaction at issue, *id*. ¶ 29.

[1016] Comcast-TWC Public Interest Statement at 109-110; *see also supra* Section III.F.2.

three years ago have, in any event, been proved not to be problems related to the actual behavior of Comcast and NBCUniversal in building and recommitting to the broadcast business.

Sinclair also makes various inchoate arguments concerning such matters as local advertising sales, broad rights to content, or carriage of future offerings.[1017] It provides no comprehensible explanation of why these issues have any valid nexus to the Transaction; and they do not.

The wish list continues: Sinclair calls for a condition that would bar Applicants from ever objecting to a "new, next generation broadcast technology standard," presumably including Sinclair's favored alternative, without contending that any of the Applicants has ever been an impediment or that the Transaction would somehow create a relevant issue in this regard.[1018]

Next, Sinclair asks for a condition that would prohibit Applicants from "discouraging or preventing content owners" from participating in the delivery of content via "broadcast-to-mobile enabled devices."[1019] Again, Sinclair makes no showing that Comcast or the other Applicants has ever done so or would do so, now or as a result of the Transaction. Similarly, the NBC Affiliates' "issues" are a largely fact-free recitation of concerns that have been addressed by the ongoing NBCUniversal commitments, and that are in any case not triggered by this Transaction, which is not a vertical one. Their sole theory is that, by increasing its number of cable subscribers, the Transaction will make Comcast more focused on its cable business.[1020]

[1017] Sinclair Petition to Deny at 9-10, 15-16, 18-20. These requests appear similarly untethered to the facts of this Transaction. Indeed, many of the conditions proposed by Sinclair are self-serving and baseless, and should, therefore, be rejected. *See id.* at 15-19.

[1018] *Id.* at 17-18. This appears to be a reference to ongoing discussions within – and outside of – the Advanced Television Systems Committee about the right options for the next digital television standard. *See, e.g.*, Phil Kurz, *Sinclair-Coherent Plan Alternative to ATSC 3.0*, TV NewsCheck, May 6, 2014, *available at* http://www.tvnewscheck.com/article/76125/sinclaircoherent-plan-alternative-to-atsc-30.

[1019] Sinclair Petition to Deny at 19.

[1020] NBC Affiliates Comments at 3.

That becomes the springboard for asking the Commission to double the duration of Comcast's existing commitments[1021] – all of which extend, by their current terms, for many years yet.

In short, neither Sinclair nor the NBC Affiliates rebuts Applicants' demonstration that the Transaction will contribute to the health of the broadcast industry by extending existing protections for broadcasting generally, and the NBC Affiliates in particular, to the acquired markets. Their litany of arguments are unsubstantiated and amorphous, and their calls for imposing greater conditions are not transaction-specific and should be rejected.

L. Beach TV

Beach TV Cable Co., Inc. d/b/a Key TV ("Beach TV") seeks to use this proceeding to gain more favorable carriage on Comcast's cable systems than it is entitled to obtain through the leased access provisions of the Communications Act. Although Beach TV has admitted that it is not among the few LPTV broadcasters that possess must-carry rights, it nonetheless claims that Comcast's decision to carry some LPTV broadcasters (referred to by Beach TV as "Carried LPTV's") pursuant to voluntary retransmission consent agreements necessarily requires that it do the same for all other LPTV broadcasters.[1022] Beach TV then tries to link its request to the Transaction by arguing (somewhat confusingly) that Comcast's apparently more extensive carriage of LPTV stations than TWC's should be a cause for Commission concern.[1023] Both claims are meritless.

1021 *Id.* at 6-7.

1022 *See* Beach TV Comments at 4-5.

1023 *See id.* at 4-5. In the alternative, Beach TV demands that the Commission permit it to invoke the confiscatory leased access rates that were adopted in 2007 but have been stayed by the U.S. Court of Appeals for the Sixth Circuit. *See Nat'l Cable & Telecomms. Ass'n v. FCC*, No. 08-3369 (and consolidated cases), Stay Order (6th Cir. May 22, 2008). Comcast's current leased access rate is in full compliance with the rate formula that is in effect, and there is no rational reason to apply a rate formula that has been stayed by federal courts to Beach TV.

Beach TV's claim that Comcast is "discriminating" among LPTV stations because it has chosen to enter into retransmission consent agreements with some LPTV stations but not others makes no sense.[1024] There can be no conceivable legal obligation to carry all LPTV stations equally when even Congress has recognized that not all LPTV stations should be entitled to equal carriage. Comcast is free to enter into retransmission consent deals with some LPTV stations and not others based on its editorial discretion and business judgment, and its decision to do so does not suddenly create a compulsion to carry all others. Those LPTV stations that do not have must-carry rights or a retransmission consent agreement with Comcast have the option of arranging carriage under the leased access provisions – precisely as Beach TV has done.

Beach TV's effort to make its issue transaction-specific is equally baseless. First and foremost – Beach TV is pursuing this precise claim in federal court litigation against Comcast.[1025] That is decisive in and of itself.[1026] Second, Beach TV's theory here makes no sense. Beach TV claims that Comcast and TWC both "favor" Spanish-language LPTV stations over other LPTV stations by carrying more of them pursuant to retransmission consent arrangements, and that Comcast's "discrimination is far more insidious" than TWC's because (1) "Comcast favors Spanish language programming by a significantly larger margin" than TWC and (2) "there are twice as many Carried LPTV's on Comcast systems as on Time Warner systems."[1027] But Comcast's elective carriage of a greater proportion of *diverse* LPTV

[1024] *See* Beach TV Comments at 4-5.

[1025] *See* Defendant Comcast of Florida/Georgia, LLC's Motion To Dismiss the First Amended Complaint, *Beach TV Cable Co. Inc. d/b/a Key TV v. Comcast of Florida/Georgia, LLC d/b/a Comcast*, No. 13-10119 (S.D. Fla. Sept. 9, 2013) (pending).

[1026] *See, e.g.*, *Applications for Consent to the Transfer of Control of Licenses from Comcast Corp. and AT&T Corp., Transferors, to AT&T Comcast Corporation, Transferee*, Order on Reconsideration, 25 FCC Rcd. 3492 ¶ 8 n.24 ("The Commission's longstanding policy is that '[w]e will not take cognizance of non-FCC misconduct . . . unless it is adjudicated.'") (quoting *Policy Regarding Character Qualifications* ¶ 48).

[1027] Beach TV Comments at 4.

programming than TWC is hardly a basis for regulatory concern – in fact, the extension of this philosophy into the TWC footprint is a recognizable public interest benefit. And Beach TV's claim that Comcast's greater carriage of LPTV stations will somehow diminish the advertising dollars that will be spent at LPTV stations that are not carried, leading "[e]ventually" to a "tipping point" at which "only Carried LPTV's will survive,"[1028] is impossible to reconcile with the fact that vast numbers of LPTV stations – Spanish-language and non-Spanish-language alike – remain on the air in the twenty-some markets that Beach TV purportedly analyzed, and in numerous other markets as well, even though they neither have must-carry rights nor retransmission consent arrangements.

M. Future Industry Consolidation

The Commission likewise should dismiss generic concerns that approval of this Transaction may prompt further industry consolidation.[1029] As a matter of law and sound public policy, and consistent with well-established Commission precedent, generic and speculative concerns about future transactions can have no bearing on the Commission's analysis of the license transfer application before it. The Commission has long recognized – and courts have affirmed – that the Commission's duty is to review only the proposed transaction before it based on actual record evidence.[1030] "Mere possibilities are not of decisive significance in competitive analysis."[1031] Accordingly, this Transaction must be considered on its own merits, not in

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[1028] *Id.* at 5.

[1029] *See, e.g.*, Frontier Petition to Deny at 4-5 (asserting that this Transaction has triggered an "arms race"); ITTA Petition to Deny at 6-7; Consumers Union Petition to Deny at 49; Public Knowledge et al. Petition to Deny at 43.

[1030] *See, e.g.*, *Adelphia Order* ¶ 72 (2006) (limiting analysis to "the facts and evidence presented in the record").

[1031] *Bell Atl. Mobile Sys., Inc. and NYNEX Mobile Commc'ns Co.*, Memorandum Opinion and Order, 12 FCC Rcd. 22280 ¶ 9 (1997) (quoting *United States v. Marine Bancorporation*, 418 U.S. 602, 623 (1974)); *see also United*

connection with any other transaction. Any suggestions to the contrary should be rejected, just as the Commission has properly rejected similar proposals in past review proceedings.[1032]

To be sure, the Commission now has another major transaction before it, one that involves two of Comcast's most formidable competitors, AT&T & DirecTV. As noted above, if the AT&T-DirecTV transaction is approved – making AT&T almost as big as the post-transaction company here would be and larger than Comcast is today – Comcast will face even more competition for video, Internet, and voice services. But that transaction should and will be judged on its own merits, in its own docket.

For purposes of *this* docket, only two simple points matter. First, neither the approval nor disapproval of AT&T's proposed acquisition of DirecTV would reduce the substantial public interest benefits that Applicants have shown here will result from Comcast's acquisition of TWC and the associated transactions with Charter and GreatLand. Second, neither the approval nor disapproval of AT&T's proposed acquisition of DirecTV would weaken Applicants' showing here that no competitive or public interest harms will result from Comcast's acquisition of TWC and the associated transactions with Charter and GreatLand. In short, Applicants here have more than met their burden of demonstrating that the Transaction warrants the Commission's approval, no matter what the Commission decides with respect to AT&T-DirecTV.

States v. FCC, 652 F.2d 72, 99 (D.C. Cir. 1980) (*en banc*) (same); *SBC Commc'ns, Inc. v. FCC*, 56 F.3d 1484, 1494 (D.C. Cir. 1995) (same).

[1032] *See SBC-AT&T Merger Order* ¶ 149 n.435 ("We reject as fundamentally speculative commenters' concerns that other BOCs will acquire the remaining independent facilities-based interexchange carriers. No such mergers are pending before the Commission and, in any event, the Commission could address any concerns arising from such mergers when, and if, they are presented to the Commission for approval."); *see also Verizon Commc'ns Inc. and MCI, Inc. Applications for Approval of Transfer of Control*, Memorandum Opinion and Order, 20 FCC Rcd. 18433 ¶ 148 n.430 (2005) (same). *Cf. id.* at 18573, Statement of Commissioner Kathleen Q. Abernathy ("It should not be standard operating procedure to craft company-specific merger conditions to address unknown and hypothetical competitive threats."); *Application of AT&T Mobility Spectrum LLC and Aloha Partners II, L.P.; For Consent to Assign Advanced Wireless Services A, B and C Block Licenses*, Order, ULS File No. 0006065982, ¶ 6 (WTB July 22, 2014) (rejecting "general concerns" that a specific transaction would result in future spectrum aggregation).

VI. CONCLUSION

For the foregoing reasons, the Transaction serves the public interest, convenience, and necessity. Applicants respectfully request that the Commission expeditiously complete its review and grant the applications.

Respectfully submitted,

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September 23, 2014

CERTIFICATE OF SERVICE

I, Melanie A. Medina, hereby certify that on September 23, 2014, I caused true and correct copies of the foregoing Opposition to Petitions to Deny and Response to Comments and accompanying exhibits to be served on the following by FedEx Overnight delivery or electronically as noted below:

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EXHIBIT 1

ECONOMIC ANALYSIS OF THE EFFECT OF THE COMCAST-TWC TRANSACTION ON BROADBAND: REPLY TO COMMENTERS

Mark A. Israel

September 22, 2014

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I. INTRODUCTION AND EXECUTIVE SUMMARY

A. BACKGROUND

1. Comcast Corporation ("Comcast") and Time Warner Cable ("TWC") propose to transfer control of the licenses and authorizations held by TWC and its wholly owned and controlled subsidiaries to Comcast.[1] In addition, Comcast and Charter Communications, Inc. ("Charter") propose a series of divestiture transactions whereby, contingent on approval of the proposed Comcast-TWC transaction, Comcast will divest systems resulting in a net reduction of approximately 3.9 million residential video customers.[2] I refer to these transactions collectively as "the proposed transaction" or just "the transaction."

2. At the request of counsel for Comcast, I have already filed one declaration on this matter.[3] My main conclusion in that declaration was that "[g]iven (i) the lack of any valid competitive concerns and (ii) the substantial consumer benefits, the proposed

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[1] Comcast Corporation and Time Warner Cable Inc., *Description of Transaction, Public Interest Showing, and Related Demonstrations,* April 8, 2014.

[2] Public Interest Statement, *In the Matter of Applications of Comcast Corp. and Time Warner Cable Inc. for Consent to Transfer Control of Licenses and Authorizations,* MB Docket No. 14-57, June 5, 2014, *available at* http://apps.fcc.gov/ecfs/document/view?id=7521215151, *site visited* September 17, 2014.

[3] Declaration of Mark A. Israel, "Implications of the Comcast/Time Warner Cable Transaction for Broadband Competition," Attachment to Comcast Corporation and Time Warner Cable Inc., *Description of Transaction, Public Interest Showing, and Related Demonstrations,* April 8, 2014 (hereinafter, *Israel Declaration*). This initial declaration provides my qualifications.

transaction—as it relates to the provision of broadband services in particular—is pro-consumer, pro-competitive, and in the public interest."[4]

3. Based on the analyses presented in my initial declaration and supplemented in this reply declaration, my main conclusion continues to hold: The largely unquestioned consumer benefits from the proposed transaction easily swamp the largely unsupported claims of harms to competition and consumers.

B. ASSIGNMENT

4. For this declaration, counsel for Comcast asked me to review the broadband-related arguments made by economists in the Comments and Petitions to Deny filed in this proceeding, in order to determine whether those arguments provide a basis for amending or reversing the conclusions in my initial declaration.[5] In addition, counsel has asked me to assess whether the economists identify any likely sources of competitive harm other than those examined in my initial declaration. The analysis, presented in this declaration, is based on my review of the Comments and Petitions to Deny, including the

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[4] *Israel Declaration*, ¶ 12.

[5] I focus on arguments related to the provision of broadband data services in the following reports by economists: Declaration of David S. Evans, "Economic Analysis of the Impact of the Comcast/Time Warner Cable Transaction on Internet Access to Online Video Distributors," Attachment to Petition to Deny of Netflix Inc., August 25, 2014 (hereinafter, *Evans Declaration*); Declaration of Joseph Farrell, Attachment to Petition to Deny of Cogent Communications Group, August 25, 2014 (hereinafter, *Farrell Declaration*); Declaration of David Sappington, "The Anticompetitive Effects of the Proposed Merger of Comcast and Time Warner Cable," Attachment to Petition to Deny of DISH Network, August 25, 2014 (hereinafter, *Sappington Declaration*).

economic reports associated with those Comments and Petitions to Deny, review of relevant documents, and discussions with industry personnel, as well as my review of the relevant economic literature, application of relevant economic theory, and analysis of relevant empirical evidence.

5. As in my initial declaration, I focus on the effect of the transaction in the broadband segment. I do not qualify all of my conclusions about competitive effects and benefits from the transaction with the words "broadband' or "broadband-related," but unless otherwise explicitly noted, all statements and conclusions should be taken as referring to effects on broadband.

C. PRIMARY CONCLUSION

6. M***y primary conclusion remains that the proposed transaction is pro-competitive, pro-consumer, and in the public interest.*** Despite hundreds of pages of argument from economists in this matter—and my own very detailed response in the rest of this report—the key points are actually quite straightforward. **First**, commenters advance no serious arguments to refute the substantial efficiencies and associated consumer benefits from the transaction, as detailed in my initial declaration and the declarations by Drs. Rosston and Topper.[6] Hence, any claimed harms must be weighed

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[6] *Israel Declaration*, §§ III-IV; Declaration of Gregory L. Rosston and Michael D. Topper, "An Economic Analysis of the Proposed Comcast – Time Warner Cable Transaction," Attachment to Comcast Corporation and Time Warner Cable Inc., *Description of*

against these substantial consumer benefits. **Second**, commenters offer no *horizontal* theory of harm to broadband customers and, in particular, no evidence that Comcast and TWC compete with or constrain one another in any market today. **Third**, the *vertical* theory advanced by some commenters—that the transaction would enable Comcast to foreclose OVDs—does not hold together as a matter of economic theory. Comcast lacks the incentive to stifle the complementary OVD industry, which makes best use of the high speed broadband network in which Comcast has invested tens of billions of dollars, and Comcast lacks the ability to thwart the rapidly growing OVD business, which already includes many of the giants of the high technology and entertainment industries. More importantly, this vertical theory is belied by the facts: Comcast has agreed with Netflix to a long-term contract, which imposes minimal incremental costs on Netflix and has not harmed Netflix's market performance. **Fourth**, the remaining "big is bad" argument that the transaction will give Comcast excessive bargaining power is theoretically ambiguous, empirically unsupported, and, in all events, completely swamped by the consumer benefits from the transaction. Perhaps most tellingly, commenters spend dozens of pages alleging that Comcast has substantial market power *today*, and yet the Comcast

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Transaction, Public Interest Showing, and Related Demonstrations, April 8, 2014 (hereinafter, *Rosston-Topper Declaration I)*, § IV; Declaration of Gregory L. Rosston and Michael D. Topper, "An Economic Analysis of the Proposed Comcast Divestiture Transactions with Charter," Attachment to Comcast Corporation and Time Warner Cable, Inc., *Public Interest Statement*, June 4, 2014 (hereinafter, *Rosston-Topper Declaration II)*, § III.

interconnection charges that lie at the heart of their theories of harm are tiny overall and literally zero for more than 40 "settlement-free" paths into the Comcast network.

D. EXECUTIVE SUMMARY

7. Although the logic supporting my primary conclusion is straightforward even without wading through the intricacies of interconnection terms or bargaining economics, in this executive summary and the body of the declaration, I explain my findings in more detail. My main points are all presented in the executive summary, including references to the sections/paragraphs in the remainder of the declaration that further develop each point in more detail for those who are interested.

8. *Despite the substantial attention paid by commenters to the combined firm's share of nationwide broadband customers, commenters have not established the existence of a national broadband market in which the change in national broadband share is an indicator of horizontal competitive effects from the transaction, nor any market in which Comcast and TWC place relevant competitive constraints on one another today:*

- *Despite repeated appeals to national share statistics, commenters fail to provide a coherent basis to conclude that there is a national broadband market in which such a share calculation is a relevant indicator of horizontal competitive effects.* The Horizontal Merger Guidelines are clear that product markets are defined to include "a group of substitute products," meaning "products that are reasonably

interchangeable with a product sold by one of the merging firms."[7] Applying this logic to geographic market definition, the Guidelines are clear that the market may be "geographically bounded if geography limits some customers' willingness or ability to substitute to some products, or some suppliers' willingness or ability to serve some customers."[8] In the present case, the market is clearly geographically bounded, as broadband providers cannot serve broadband customers outside the boundaries of their geographically limited footprints. Adding edge providers into the mix does not change this fact; Comcast and TWC each offer broadband platforms to connect edge providers to only those consumers within their distinct footprints, meaning that the Comcast and TWC platforms are not substitutes for the distribution of content to *any consumer*. Even if an edge provider's goal is to achieve national distribution, the Comcast and TWC networks serve different areas and are not substitutes for one another: Rather, relevant substitutes for each include the third-party CDNs and transit providers that sell interconnection services into both networks and mean that an edge provider need not negotiate directly with *either* Comcast or TWC if it chooses not to. Analogies to nationwide markets for cable networks have no substantive effect on this conclusion: At

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[7] U.S. Department of Justice and the Federal Trade Commission, "Horizontal Merger Guidelines," August 19, 2010 (hereinafter, *Horizontal Merger Guidelines*), 7-9.

[8] *Id.*, 8, 13.

most, such an approach would generate a national market in which there is no diversion between the merging parties and thus no transaction-related effect on the ability of customers to divert to a competitor should their ISP degrade their access to edge providers. Finally, although one could potentially define a national Internet backbone market, including the transport of traffic across Internet backbones and associated interconnection services, no commenter has alleged harm in such a market, with competition in backbone services widely acknowledged to be intense. (See Section II.A, ¶¶ 17-26, for more detail.)

- *Given the lack of relevance of national broadband shares, potential revisions to the minimum speed required to distinguish broadband from non-broadband Internet access have no bearing on analysis of the transaction's effects.* Along with the focus on national broadband shares has come a focus on the minimum speed required for a particular Internet access service to qualify as broadband. Given that the change in national broadband share is not a meaningful indicator of the horizontal competitive effects of the transaction, debates over the definition of broadband—although potentially relevant for transactions that affect competition in local broadband markets and for other important policy issues—are of little relevance to the analysis of the transaction. That said, evidence derived from ordinary course and survey analyses of the products to which marginal customers would switch if faced with a broadband price increase (the relevant issue when considering market definition) implies that, to define today's local broadband markets, one should use a speed no higher than 10 Mbps, and likely closer to the

current 3 Mbps standard.[9] This conclusion follows from the adequacy of slower speeds for many uses, including many video applications, and the fact that the marginal customers who would discipline a price increase would likely consider switching to providers that offer lower speeds. Basing the standard on higher speeds (such as 25 Mbps) would exclude important current competitive constraints. Finally, I note that (i) defining broadband based on a 10 Mbps standard (rather than the FCC's current 3 Mbps used in my initial declaration) has little effect on the national share calculations presented in my initial declaration and (ii) switching to a 25 Mbps standard would imply that TWC has relatively few broadband customers today and thus that the proposed transaction would have little effect on Comcast's current national broadband share. (See Section II.B, ¶¶ 27-35, for more detail.)

- *Comcast and TWC do not constrain each other's actions today and thus the transaction will not relax any competitive constraints*. The heart of a standard argument for horizontal harm from a merger is that, absent the merger, the merging parties would place significant constraints on one another's behavior and

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[9] The Commission defines the current broadband standard as 4 Mbps download speed and 1 Mbps upload speed. However, in practice, to match the data on broadband customers available from the Commission's Form 477, the Commission actually uses a standard of 3 Mbps download speed and 768 Kbps upload speed. Since those cutoffs define the data used to measure broadband customers under the current definition, I refer to the standard as "3 Mbps" throughout.

thus that, by eliminating this constraint, the merger would make it easier for the merging parties to raise prices or otherwise harm competition. Yet, despite dozens of pages on alleged market power, available substitutes, recent negotiations with edge providers, and related topics, commenters have provided no evidence of any relevant competitive constraint that Comcast or TWC place on one another today. This includes not only a lack of evidence that the firms constrain one another's retail broadband pricing or related strategies, but also a lack of evidence that any competitive constraints from TWC affected Comcast in its recent negotiations with Netflix, Cogent, or other edge providers or their agents (or vice versa). There is simply no direct evidence that any pricing, strategies, or negotiations would have been different absent some constraint imposed by one merging party on one the other. (See Section II.C, ¶¶ 36-37, for more detail.)

9. *Lacking evidence for any* ***incremental*** *harm from the transaction, many commenters attempt to divert attention to Comcast's* ***current*** *broadband market position, a discussion that primarily serves to highlight the reasons Comcast would not want to harm the broadband marketplace and, otherwise, has little relevance for evaluation of the proposed transaction.* Commenters collectively spend dozens of pages analyzing Comcast's current market position in broadband, arguing that Comcast faces few competitive constraints as a broadband provider today. This entire discussion is of limited relevance: Proper merger analysis focuses on the incremental effect of the merger on the competitive constraints faced by the parties and, as noted above, the parties do not constrain one another today. That said, what *is* true is that Comcast has spent tens of

billions of dollars to develop its (last mile and backbone) broadband network, that as a result it offers very high-quality broadband service with speeds up to 505 Mbps, and that (as explained in my initial declaration), it sees the transaction as a way to extend this high-quality broadband service into additional territories and to expand the footprint over which to deploy future innovations, making more investment in such innovations profitable. The speed enabled by Comcast's broadband network is well suited to—in fact is *only* fully utilized by—online video content, and thus Comcast's broadband investment is deeply complementary to the growth of online video distributors (OVDs); their side-by-side development being a leading example of the virtuous cycle between improving broadband networks and edge provider services. As a result, any strategy to harm online video distributors would involve Comcast degrading the very applications that its broadband network is built to serve and that best enable Comcast to attract broadband customers and generate a return on its broadband investment.

10. *Commenters understate the constraints faced by Comcast, including those that constrain its ability to degrade an edge provider's access to Comcast's last-mile network.*

- *In an attempt to support claims that Comcast can harm competition via "terminating access" market power, many commenters focus attention narrowly on interconnection points through which traffic travels from the broader Internet backbone into last-mile networks, claiming that Comcast has bottleneck control at these points. Such theories ignore the constraints imposed by the competition on both sides of these interconnection points, including competition among last-mile networks and especially in the hyper-competitive Internet backbone.* Given

Comcast's commitment to adhere to Open Internet rules, theories of competitive harm based on discrimination or degradation of traffic inside the Comcast access network (the "last mile") are not tenable. And given the overall competitiveness of the Internet backbone and the merging parties' relatively small role in that ecosystem, theories of competitive harm to the Internet backbone (including transit) are also not tenable. Hence, commenters' theories of harm are reduced to claims about potential changes to agreements regarding interconnection *into* the merging parties' last-mile networks—the terms under which edge providers or, more often, their agents (CDNs, transit providers, etc.) are able to transmit traffic into the parties' last-mile networks. However, interconnection points are not immune from the market forces that prevent competitive harm in the last-mile and backbone networks that sit on either side of them; rather, these market forces—explained in detail in the following bullets—prevent competitive harm via potential transaction-induced changes in interconnection agreements as well. (See Section III.A, ¶¶ 40-43, for more detail.)

- *Commenters largely ignore the range of options open to edge providers to defeat any attempt to degrade their access to ISP last-mile networks.* Due to the competitiveness of backbone services, edge providers—either on their own if they are large enough (and decide to do so) or through CDNs or other agents—can utilize a wide variety of paths into the Comcast network. Hence, no edge provider is forced to negotiate with Comcast or TWC directly. Rather, there are dozens of third-party CDNs and transit providers who have interconnection agreements with

Comcast and TWC—many of them settlement-free agreements under which interconnection is free—with which edge providers can contract to access the Comcast and TWC last-mile networks. Although commenters attempt to dismiss the importance of alternative paths into the Comcast network, in part based on claims about the recent negotiations between Comcast and Netflix, Comcast's Kevin McElearney explains in his declaration that these commenters have their facts wrong, and that there were actually many paths with substantial spare capacity available to Netflix, many of which Netflix simply refused to use. More generally, commenters' claim that Comcast can simply degrade or charge for these interconnection paths ignores the presence of numerous settlement-free paths into the Comcast network and the fact that Comcast would have to compromise significantly its connectivity to the overall Internet to attempt to prevent providers from making use of such paths. (See Section III.B, ¶¶ 44-56, for more detail.)

- *Comcast's broadband customers also have important and growing options, through which they can effectively discipline any attempt by Comcast to degrade edge provider access to its last-mile network*. As an initial matter, note that any reduction in demand for broadband service among Comcast customers would be very costly to Comcast. For example, ordinary-course-of-business customer lifetime value (CLV) calculations show that if a customer were to cancel her broadband service, this would eliminate a very large fraction of that customer's overall lifetime value to Comcast. And should Comcast degrade its customers'

access to edge providers, the customers can and most likely would react in one of many possible ways. One obvious such reaction—entirely ignored by commenters—is that, if faced with diminished broadband service, a customer could downgrade or even cancel broadband service (an option open to all customers in all areas). Indeed, as noted above and stressed by Netflix, a primary incentive to subscribe to higher speed tiers is to watch more online video, meaning that actions to harm online video would reduce demand for Comcast's higher speed broadband tiers. Or Comcast customers could switch broadband providers; commenters significantly understate the strength of competitive alternatives available to Comcast customers. In fact, the competitive threat to Comcast's broadband service, particularly from the full set of options provided by powerful telco competitors, is large and growing. Commenters attempt to downplay this telco competition via a double standard that downplays DSL—which remains highly relevant today—due to claims that its competitive significance is declining, while ignoring the fact that the competitive significance of wireless—while more limited today—is growing rapidly. Together, these options, combined with fiber-to-the-premises (FTTP) options—which AT&T, CenturyLink, and others are committed to expanding, in part as a competitive response to this transaction—form an overall strategy by which the telco providers will remain a highly relevant competitive threat. None of these threats is merely theoretical: Empirical evidence indicates that customers would switch to broadband alternatives in large

numbers should Comcast degrade access to edge providers. (See Section III.C, ¶¶ 57-94, for more detail.)

- *Finally, commenters largely ignore the constraints on Comcast due to potential broadband entrants, including Google and certain municipalities, with such entry potentially facilitated by Commission action*. To be clear, I am not claiming that such potential entrants are options for most consumers today. But, in considering whether Comcast could profitably harm edge providers, the role of recent or potential entrants like Google cannot be ignored. Indeed, Dr. Evans acknowledges that Comcast's strategies are affected by the possibility of entry by Google and others. However, he reaches the implausible conclusion that, post-transaction, Comcast could thwart the current and planned efforts by firms like Netflix, Google, Amazon, Apple, Sony to establish OVD services *and* thereby deter broadband entry by Google and others. The more realistic conclusion is that Comcast cannot thwart the OVD efforts of these powerful firms, and that attempts to do so would encourage broadband entry, including by firms like Google that have a vested interest in maintaining competitive broadband markets in support of their enormous edge provider businesses and a proven willingness and ability to enter the broadband business. To the extent that such entry needs any further encouragement, Chairman Wheeler has been quite clear that the Commission intends to provide it, with induced Commission action a further risk Comcast would face should it attempt to harm broadband competition or edge providers. (See Section III.D, ¶¶ 95-99, for more detail.)

11. S*ome commenters advance a theory of OVD foreclosure, which depends on the dual hypotheses (i) that Comcast has an incentive to harm OVDs and (ii) that the increased size of the combined firm would give it the ability to foreclose OVDs. Neither hypothesis holds: Comcast does not have an incentive to foreclose OVDs, and the combined firm would lack the ability to do so*.

- *Given the constraints discussed above, the proposed transaction would not give Comcast the ability to foreclose OVDs.* As above, I note that foreclosure is not a last-mile issue because Comcast's commitment to the Open Internet requirements precludes discriminatory conduct inside the last mile. Thus, my focus is again on the supposed ability to manipulate interconnection arrangements *into* the combined company's last-mile network to achieve OVD foreclosure. Several points each independently refute such ability. First, the discussion above reveals the lack of an effective mechanism to foreclose: Given the ability for OVDs to rely on multiple transit providers or on CDNs that, in turn, can utilize multiple paths, including settlement-free paths, into Comcast's last-mile network, Comcast effectively lacks the ability to limit OVD access to its customers. Any attempt to degrade OVD access to the Comcast network would require substantial disruption to Comcast's overall Internet interconnectivity. Second, the idea that the combined firm could drive enormous edge providers with vested interests in using the OVD business to support core parts of their strategies—including Google, Amazon, Apple, and Sony—out of the OVD business (or significantly degrade their competitive strength) is not credible. And the firm that had received the

most attention and is focused primarily on the OVD segment—Netflix—is protected by a multi-year direct interconnection agreement with Comcast. Indeed, for a foreclosure strategy to work, it would need to force out *most or all of these large OVDs*, as a foreclosure strategy that left some OVDs in the market would not eliminate the OVD sector but rather would primarily serve to strengthen the remaining, non-foreclosed OVDs. Third, even accepting the (incorrect) notion that Comcast actually "controls" its customers, analogies to minimum scale levels that the Commission has used in related contexts and to the size of other content providers or MVPDs reveal that the number of *non*-Comcast/TWC customers is far more than sufficient to sustain a viable OVD. This fact becomes even more obvious when recognizing that OVDs' *global* operations are growing rapidly, and still more obvious when recognizing that (as discussed above), even within the combined firm's footprint, most customers have choices regarding broadband service, with empirical evidence indicating that many would switch ISPs were Comcast to degrade its broadband service. Hence, by the "open field" analysis that the Commission has used in other settings, the combined firm would lack the ability to foreclose OVDs. Finally, no commenter has presented any evidence to support a merger-specific foreclosure claim that the number of customers gained by Comcast via the transaction would make the difference between the ability to foreclose or the lack thereof. (See Section IV.A, ¶¶ 104-115, for more details.)

- *The combined firm will lack the incentive to foreclose OVDs, just as Comcast lacks such incentives today*. Commenters do not argue that the transaction will

create a new incentive to foreclose OVDs, rather they claim that the increased size of the combined firm will enhance its ability to foreclose OVDs. Hence, the revealed lack of incentive to foreclose OVDs today should also dictate analysis of post-transaction incentives. Following Netflix's recent negotiations with Comcast and TWC, both merging parties gave Netflix **{{**

}}. None of those facts is consistent with an incentive to harm OVDs' competitiveness. This should not be surprising; it is explained by fundamental economic logic. OVDs provide services that are highly complementary to Comcast's broadband business, increasing returns from the high-speed broadband network that Comcast has built up through billions of dollars in investments. Moreover, OVDs are significant purchasers of NBCUniversal content, paying hundreds of millions of dollars per year, and thus are complementary to that business as well. Well-established economic theory teaches that strategies to leverage a strong position in one industry (broadband) to foreclose competition in a complementary industry (OVD/video) are rarely profitable, explaining why Comcast lacks the incentive to undertake such a foreclosure strategy pre- or post-transaction. (See Section IV.B, ¶¶ 116-129, for more detail.)

12. *Moving beyond theories regarding foreclosure of OVDs, commenters also advance "big is bad" theories based on increased bargaining power. In particular, commenters argue that, even though the merging parties do not overlap, the increased size created by the merger would increase Comcast's bargaining power vis-à-vis edge providers and their agents (e.g., transit providers and CDNs) and thus enable the combined firm to charge higher prices for interconnection into the Comcast network. However, this theory is not supported by theoretical or empirical economic analysis and is rejected by marketplace realities.*

- *Marketplace realities, including the large number of settlement-free paths into Comcast's network and the extremely small size of interconnection payments to Comcast, contradict theories of harm based on bargaining power.* The small size of Comcast's charges for interconnection refutes any theory that Comcast's large size as an ISP parlays into anti-competitive power over edge providers or their agents. Most simply, the existence of over 40 *settlement-free* paths into the Comcast network is inconsistent with the claim that Comcast can impose anti-competitive terms on interconnection. More generally, the amount of money at issue in Comcast's interconnection agreements is **{{ }}**. For example, Netflix's **{{ }}** relative to Netflix's variable operating costs and revenue. Indeed, interconnection payments from edge providers or their agents to Comcast fail even to cover **{{ }}**. (See Section V.A, ¶¶ 132-138, for more detail.)

- *Economic theory does not support the claim that the proposed transaction will increase Comcast's bargaining power.* Dr. Farrell has presented the one economic theory in this case that yields a clear economic prediction about the effect of the transaction on prices charged to edge providers, *and it predicts a price* ***decrease*****.** In discussing the effects of a price increase to OVDs (assuming there would be one), Dr. Farrell presents a model that assumes that OVDs do not price discriminate in the prices they charge to customers with different ISPs, meaning that if one ISP were to raise an OVD's costs (including via higher interconnection payments), that OVD would pass this cost increase through to customers of all ISPs. An implication of this model is that if Comcast or TWC charges more to an OVD today, they effectively impose a tax on each other in the form of higher OVD prices charged to one another's broadband customers. That tax creates an externality on one another, which the combined firm would internalize post-transaction, leading to *lower* prices to edge providers. Aside from Dr. Farrell's model, the larger body of economic theory establishes no conclusion about the effect of a merger of non-overlapping firms on bargaining power, a point commenters do not dispute. (See Section V.B, ¶¶ 139-150, for more detail.)
- *Empirical evidence rejects the claim that the proposed transaction will increase Comcast's bargaining power*. **First**, any attempt to use an observed relationship between size and prices to establish that greater size creates greater bargaining power must rule out the obvious alternative explanation, that higher quality firms generally are relatively large *and* generally charge relatively high prices. That

general economic concept applies to the present context—larger ISPs tend to have higher quality networks and, in particular, to offer a richer, more robust set of interconnection services. **Second,** the analogy to MVPD/content provider negotiations demonstrates the importance of controlling for quality: The greater advertising revenue (and thus greater surplus) that certain MVPDs can generate for content providers more than explains the small observed gaps in affiliate fees across MVPDs. **Third,** once quality is controlled for, the Cogent data presented by Dr. Farrell *actually contradicts the claim that ISP bargaining power due to a greater number of broadband customers leads to higher prices*. In particular, once basic measures of ISP quality are accounted for, an ISP's number of broadband customers is no longer even a statistically significant predictor of interconnection prices, with the ISP quality metrics the relevant determinants of price. **Finally,** the limited details that Dr. Evans provides about Netflix's interconnection prices are meaningless, at most revealing *whom* Netflix pays for interconnection, but lacking sufficient detail to reveal anything about the relevant question, *how much* Netflix pays. (See Section V.C, ¶¶ 151-170, for more detail.)

13. *Even if the structure or magnitude of interconnection prices were to change, as some commenters have predicted, this would not be harmful to consumers or competition.*

- *Direct interconnection agreements between edge providers and ISPs are not harmful to competition, consumers, or edge providers.* The recent direct interconnection agreements between Netflix (and other edge providers) and Comcast and TWC have served to "disintermediate" Cogent and other transit

providers, an economically efficient and mutually beneficial outcome in many cases. The Netflix direct interconnection contracts also provide a direct test of whether such direct interconnection agreements are harmful to competition, consumers, or edge providers. In fact, (i) there is no evidence that the contracts led to a change in Netflix's churn, margins, or other such metrics and (ii) the agreements led to no significant change in Netflix's stock market performance, which indicates that the agreements have not harmed Netflix and are not expected to harm its future performance. (See Section VI.A, ¶¶ 172-179, for more detail.)

- *Even if prices to edge providers (or their agents) were to increase further, this would be beneficial to broadband customers and economically efficient.* An ISP's broadband platform is a classic example of a "two-sided market" that facilitates interaction between edge providers and broadband customers, with charges potentially being paid by either side of the market. The economics of two-sided markets provides several reasons why additional charges on the edge provider side of the market would be beneficial to broadband customers and economically efficient. These reasons include: (i) the "seesaw" principle says that higher prices to edge providers would result in lower prices to broadband customers,[10] which

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[10] Throughout the declaration, when I refer to lower prices, this should be taken as a comparison to the "but-for" world absent the transaction, meaning that the lower prices might manifest themselves as a slowed rate of price increase rather than a reduction in the

would benefit customers directly and also reduce cross-subsidization of heavy OVD users by light or non-OVD users; (ii) requiring edge providers to pay a greater share of the incremental cost of the traffic generated by their services would incentivize them to make more efficient decisions about how to provide the services; and (iii) greater charges to edge providers could help to solve distortions created by the large and growing heterogeneity between the largest edge providers and much smaller providers. The theoretical two-sided pricing model presented by Dr. Farrell supports many of these conclusions, as do many prior writings by Dr. Evans on two-sided markets. (See Section VI.B, ¶¶ 180-201, for more detail.)

14. *Miscellaneous other arguments advanced by commenters are also without merit*:

- There is no evidence that Comcast and TWC have any plans to compete with one another either in the traditional MVPD or OVD space and thus no basis for a concern about potential competition. To the contrary, the relevant potential competitors are fiber-based broadband providers like Google and municipalities, as well as the growth of wireless broadband providers, all of which have established plans to expand into the merging parties' territories and thus which place actual constraints on the merging parties' behavior. (See Section VII.A, ¶¶ 203-206, for more detail.)

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price level. In either case, the key implication is that prices are lower with the transaction than without it.

- There is no basis to conclude that eliminating TWC as one of many competitive benchmarks would lead to higher prices or otherwise harm competition. (See Section VII.B, ¶ 207, for more detail.)

15. *No commenters challenge the consumer benefits from the transaction in any substantive way*. Although some commenters make general assertions that the benefits from the transaction will not come to pass, they offer no substantive refutation of the extensive discussion of broadband benefits in the Israel Declaration, the Rosston/Topper Declarations, and the parties' application. As one striking example, no commenter refutes the significant benefits to business customers, nor the fact that such benefits would lead to network expansion and hardening that would also help residential customers. Nor is there an economic refutation of the fact that investments made by Comcast or TWC are presently "landlocked" by limited footprints, with the geographic expansion due to the transaction thus unlocking value for incremental investments and making more such investments profitable to undertake. As such, there is no refutation of the gains from faster access networks (due to faster rollout of digital service and DOCSIS 3.0/3.1), expanded broadband networks, expanded Wi-Fi networks, or improved home network technology, nor the virtuous cycle that such improvements foster. Any one of these sizable efficiencies would likely be sufficient to overwhelm the small, tenuous claims for adverse competitive effects from the transaction; the combination of consumer benefits surely swamps any alleged harms. (See Section VIII, ¶¶ 208-222, for more detail.)

II. COMMENTERS HAVE NOT ESTABLISHED THE EXISTENCE OF A NATIONAL BROADBAND MARKET NOR THE EXISTENCE OF *ANY* MARKET IN WHICH COMCAST AND TWC CONSTRAIN ONE ANOTHER TODAY

16. Much of the public discussion of the transaction to date has appealed to calculations of the combined firm's share of national broadband subscriptions. (I discuss the details of these calculations in Section II.B.2, below.) Such calculations give complaints about the transaction the patina of traditional horizontal merger analysis in which it is standard practice to consider "the merging parties' market shares in a relevant market, the level of concentration, and the change in concentration caused by the merger."[11] However, as I explain in this section, no commenter has established the existence of a national broadband market in which such market shares would be a relevant indicator of horizontal competitive effects nor, for that matter, any market in which Comcast and TWC compete to any significant degree today. Moreover, no commenter has provided any evidence that Comcast and TWC constrain one another's behavior today. In fact, the contrary conclusion holds: Comcast and TWC do not constrain one another to any significant degree in any well-defined antitrust market today.

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[11] *Horizontal Merger Guidelines*, 3.

A. COMMENTERS PROVIDE NO COHERENT BASIS TO DEFINE A NATIONAL BROADBAND MARKET IN WHICH NATIONAL BROADBAND SHARES WOULD BE RELEVANT INDICATORS OF HORIZONTAL COMPETITIVE EFFECTS

17. Several commenters present calculations of national market shares (based on various definitions of what constitutes broadband).[12] However, in presenting such shares, commenters fail to establish the existence of a national broadband market in which such shares would be relevant.

18. The lack of support for a national market in the present case is made clear by considering the Horizontal Merger Guidelines ("Guidelines"). The Guidelines indicate that product market definition is about "customers' ability and willingness to substitute away from one product to another," and that product markets are defined to include "a group of substitute products," meaning "products that are reasonably interchangeable with a product sold by one of the merging firms."[13] The Guidelines are also clear that "the same principles apply" to geographic market definition and that the market may be "geographically bounded if geography limits some customers' willingness or ability to substitute to some products, or some suppliers' willingness or ability to serve some customers."[14]

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[12] *Evans Declaration*, ¶ 31 and Table 6; *Farrell Declaration*, ¶ 92 and Figure 5; *Sappington Declaration*, ¶¶ 20, 58 and note 29.

[13] *Horizontal Merger Guidelines*, 7-9.

[14] *Id.*, 8, 13.

19. In the present case, the market is clearly geographically bounded by individual provider's local service areas. Broadband providers do not make sales to broadband customers outside the boundaries of their geographically limited footprints and thus there is no cross-region substitution.

20. Adding edge providers into the mix does not change this conclusion. The relevant venue for analysis of potential competitive effects on edge providers involves options for interconnection into the Comcast and TWC last-mile networks; the broader venue of Internet backbone service is recognized to be highly competitive,[15] and has not been raised as an area of concern by commenters. With regard to interconnection into last-mile networks, the Comcast and TWC networks reach only customers within their footprints, and their footprints do not overlap. Hence, from the point of view of edge providers, interconnection services into the Comcast and TWC last-mile networks are not substitutes for purposes of reaching *any* consumers.

21. An alternative perspective on market definition may cause some confusion and thus deserves additional comment. One could posit that Comcast and TWC are both buyers of content from edge providers and thus both participate in a national market for content purchases. However, this analogy does not withstand scrutiny. One way to see

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[15] *See, e.g.,* Memorandum Opinion and Order and Declaratory Ruling, *In the Matter of Applications filed by Global Crossing Limited and Level 3 Communications, Inc. for Consent to Transfer Control,* IB Docket No. 11-78, September 29, 2011 (hereinafter, *Level 3-Global Crossing Order),* ¶ 27.

this is to note that, in actuality, ISPs are not generally buyers of services from edge providers, but rather edge providers (or their agents) negotiate to interconnect with ISP networks, and the networks of Comcast and TWC are not substitutes but rather geographically separate, as explained above. However, even if one continues to rely on the analogy of ISPs to buyers of content (like MVPDs buying from cable networks), the same conclusion derives from the fact that content is not a "rival" input in the sense that there are not units of content—like widgets—that are sold to a particular buyer in a market. Rather, once the content is created, it can be accessed by an unlimited number of viewers, and what is sold to MVPDs are rights to show the content. When dealing with MVPDs with separate footprints, those rights cover distinct footprints and thus are not substitutes for one another.

22. Again, the Horizontal Merger Guidelines are on point. They indicate that in defining relevant markets for mergers of buyers, "the Agencies focus on the alternatives available to sellers in the face of a decrease in the price paid by a hypothetical monopsonist."[16] Continuing with the analogy to MVPDs as buyers of content, if Comcast were to reduce the price paid for content (or not take the content at all), selling it to TWC would not be a meaningful "alternative" for a content provider. Presumably the content provider would already have a deal with TWC regarding access to the content for TWC's

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[16] *Horizontal Merger Guidelines*, 32-33.

customers and, more generally, a deal with TWC would not replace the customers lost to the content provider if no deal with Comcast were reached. Rather, the alternatives for the content provider to reach Comcast's customers would be deals with other MVPDs covering the Comcast footprint, some of which may have national footprints (*e.g.*, DBS providers), others of which may have distinct but overlapping geographic footprints (*e.g.*, telco providers), but none of which would be cable providers with non-overlapping footprints.

23. Indeed the Commission grappled with and resolved a similar issue in the Comcast-NBCUniversal transaction. There the issue was whether NBCUniversal, due to its affiliation with Comcast, would have an incentive to raise prices for content *to those content buyers (e.g., MVPDs) that compete with Comcast*. Although there was great disagreement on many aspects of this question, there was consensus that the relevant measure of competition with Comcast was the diversion rate—the fraction of customers leaving a given MVPD due to higher content prices that would switch to Comcast. As such, there was agreement that the set of MVPDs who competed with Comcast were those that overlapped geographically with Comcast and thus presented a true "alternative" for a content provider to reach the Comcast customers. Hence there was no allegation that non-overlapping cable providers, *including TWC*, would face higher prices from

NBCU—they were not seen as competitors for Comcast, even in a market for purchase of content.[17]

24. Notably, because national cable networks operate on a nationwide basis and some of the MVPDs buying content have national footprints, it may be most convenient to talk about a national market for sale of national cable networks, and this language may be tempting to apply to edge providers.[18] However, even if one were to adopt this language, this would be purely a semantic change with no substantive effect on merger analysis. Instead of defining separate local markets for Comcast and TWC, one would have defined a national market *in which there is no diversion between Comcast and TWC* and thus no competitive interaction between the two firms and thus no transaction-related effect on the ability for customers to divert to competing ISPs. This conclusion is confirmed by the

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[17] Memorandum Opinion and Order, *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. For Consent to Assign Licenses and Transfer Control of Licensees*, MB Docket No. 10-56, January 20, 2011 (hereinafter, *Comcast-NBCU Order)*, ¶¶ 40, 42, and Technical Appendix, ¶¶ 13, 47; Department of Justice, Competitive Impact Statement, *US vs. Comcast*, Docket No. 1:11-cv-00106, January 18, 2011, 14, *available at* http://www.justice.gov/atr/cases/f266100/266158.pdf, *site visited* September 12, 2014; William P. Rogerson, "Economic Analysis of the Competitive Harms of the Proposed Comcast-NBCU Transaction," *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses and Transfer Control of Licensees*, MB Docket No. 10-56, June 21, 2010, 24-25.

[18] *See, e.g., Sappington Declaration*, § III.B.

Comcast-NBCUniversal analysis where a national market for national cable networks was used but where no competitive effects were found on non-overlapping cable providers.[19]

25. Finally, some commenters argue that because certain edge providers "require national distribution" or "enter the market with national distribution in mind," and because "any edge provider that requires national distribution would have to deal with the combined company," there is a market for the "national high-speed broadband distribution of edge provider content."[20] Even if one accepts that some edge providers "require" national distribution—an unsupported assertion—this argument is incoherent. Comcast and TWC provide completely distinct, non-substitutable inputs to an edge provider that seeks national distribution. If an edge provider truly "requires" national distribution and fails to obtain access to the TWC network, the Comcast network is not a substitute. Indeed, if commenters' argument were correct and some edge providers required national distribution *and* needed to work directly with ISPs to obtain it, then both Comcast and TWC would have the alleged power *today*, as failure to reach a deal with *either* of them would prevent national distribution. In fact, however, the same alternatives exist today as will exist post-transaction—the dozens of CDNs and transit

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[19] *Comcast-NBCU Order*, Technical Appendix, ¶ 13 (in the context of assessing vertical incentives associated with national broadcast networks).

[20] Petition to Deny of Netflix, Inc., *In the Matter of Applications of Comcast Corp. and Time Warner Cable Inc. for Consent to Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, August 25, 2014, § III.A.

providers who offer edge providers the ability to transmit traffic onto the TWC network and thus who provide a substitute to a direct agreement with the merging parties.[21]

26. In short, there is no meaningful national broadband market in which Comcast and TWC constrain one another today. Hence, national market shares lose the value they would have if there were a national market: The Guidelines make clear that it is market definition that "allows the Agencies to identify market participants and measure market shares and market concentration."[22]

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[21] It is true that the transit services offered by Comcast and TWC are among this large set of alternatives for reaching one another's network. But, as discussed throughout this declaration, the Internet backbone is highly competitive, with Comcast and TWC small players in this overall ecosystem and with no commenter alleging harm to Internet backbone services.

[22] *Horizontal Merger Guidelines*, 7. Some commenters have attempted to rely on the AT&T/MediaOne transaction (conditionally approved by the FCC and Antitrust Division of the U.S. Dept. of Justice ("DOJ") in 2000) to support the existence of a national market for broadband. (*See, e.g., Sappington Declaration*, ¶ 21 and note 31). However, that case is not comparable to the present one, as has been noted by careful observers of the debate. (S*ee* Paul de Sa, et al., "Comcast/Time Warner Cable: How Persuasive Are Arguments Against the Merger?" *Bernstein Research*, September 2, 2014.) In the AT&T/MediaOne matter, the merging parties were the two largest providers in a national market for the provision of portals for accessing and interacting with the Internet, and they could compete to be the exclusive portal on unaffiliated cable systems. (*See, e.g.*, Competitive Impact Statement, *US vs. AT&T and MediaOne*, US District Court, District of Columbia, 1:00cv00176, May 25, 2000; Memorandum Opinion and Order, *In the Matter of Applications for the Consent to the Transfer of Control of Licenses and Section 214 Authorizations from MediaOne Group, Inc., Transferor, to AT&T Corp., Transferee*, CS Docket No.99-251, June 6, 2000). The fact that providers of exclusive portals to the Internet competed in a national market has no bearing on whether broadband providers with non-overlapping footprints compete in a national market or whether interactions between national edge providers and regional broadband providers give rise to a national broadband market.

B. POTENTIAL REVISIONS TO THE MINIMUM SPEED STANDARD USED TO DEFINE BROADBAND CHANGE NONE OF MY CONCLUSIONS ABOUT THE PROPOSED TRANSACTION

27. Along with the focus on national broadband shares has come a focus by some commenters on the minimum speed required for a particular Internet access service to qualify as broadband.[23] Given that national broadband shares are not a meaningful indicator of horizontal competitive effects of the transaction, debates over the definition of broadband—while potentially relevant for analysis of broadband-related mergers with local market overlap and for other policy issues—are of limited relevance to the analysis of the transaction. No matter which Internet access services are defined as "broadband," there is no market in which Comcast and TWC compete or constrain one another in the provision of such services, and thus the transaction raises none of the standard horizontal merger concerns.

28. Nevertheless, in the remainder of this section, I make two points regarding the minimum speed used to define broadband. First, although it makes sense to set policy goals that continue to strive for faster broadband—and indeed, as explained below, the realization of such faster speeds for more customers is an important goal and benefit of

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[23] For more discussion of this issue, *see* Tom Wheeler, "The Facts and Future of Broadband Competition," prepared remarks at 1776 Headquarters, Washington, DC, September 4, 2014, *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0904/DOC-329161A1.pdf, *site visited* September 11, 2014 (hereinafter, *Wheeler Remarks*).

the proposed transaction—standards of market definition point either to the current 3 Mbps standard or, taking a more conservative, forward-looking view, to speeds no higher than 10 Mbps as the appropriate definition of broadband to use when defining markets. And even if I conservatively adopt the 10 Mbps standard, the national broadband share figures presented in the Israel Declaration (based on the FCC's current standard) change at most slightly, meaning the substantive discussion of shares in my initial declaration remains correct. Second, if one were to ignore the evidence presented in this section and insist on a standard of 25 Mbps to define broadband, one implication would be that TWC has few broadband customers today and thus that the transaction would have only a small effect on Comcast's current number of broadband customers.

1. The appropriate speed for defining local broadband markets is at most 10 Mbps, with the current standard a reasonable alternative

29. In recent statements, the Commission has pointed toward speeds of 25 Mbps as a goal for broadband service, based on speeds that may be required in certain high-use cases in which multiple users make simultaneous use of high-bandwidth broadband applications. Although it certainly makes sense for the Commission to continue to encourage faster broadband speeds to support high-use cases, some commenters have advocated using these high-use cases to define the broadband market for analysis of the

present transaction.[24] However, while such high-use cases certainly can occur, they do not define markets. To the contrary, the decisions made by the marginal customers who are likely to switch providers or reduce broadband usage, and thereby discipline a theoretical price increase or quality reduction, define the boundaries of (local) broadband markets. As explained in this section, a broadband definition that excludes all broadband services below 25 Mbps would miss important competitive constraints that each of Comcast and TWC faces in its footprint and thus produce an overly narrow market definition. Rather, a speed threshold of no more than 10 Mbps (and perhaps the current 3 Mbps standard) provides a more reasonable definition of broadband for use in defining (local) broadband markets.

30. Perhaps the simplest evidence regarding the effect of excluding broadband service below 25 Mbps comes from the parties' own customers. A sizeable fraction of customers at both companies are currently on service tiers with speeds below 25 Mbps. In particular, according to the December 2013 FCC Form 477 data, **[[ ]]** percent of TWC customers and **[[ ]]** percent of Comcast customers (in combination, 41 percent of the post-transaction customers of the combined firm) are on speed tiers below 25 Mbps even

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[24] *Sappington Declaration*, ¶¶ 15-16; *Evans Declaration*, ¶¶ 48-51.

though speeds over 25 Mbps are generally available.[25] Hence, to ignore speeds below 25 Mbps would be to ignore 41 percent of the customers of the combined firm.

31. When considering substitution by the marginal customers who would discipline price increases or other competitive strategies, other recent commentary from the Commission is on point. In its recent NOI, the Commission defines usage cases that would require a speed of no more than 10 Mbps, and perhaps less.[26] In particular, the FCC estimates that a speed of 4 Mbps would be sufficient for a "light use" broadband household engaged in up to four Internet-related activities, a speed of 7.9 Mbps would be sufficient for a "moderate use" household engaged in up to four Internet-related activities, and a speed of 10 Mbps would be sufficient for a "high use" household engaged in up to

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[25] Comcast offers a 105 Mbps downstream tier in all of its markets (*see Israel Declaration*, ¶ 167). TWC offers a 30 Mbps downstream tier in nearly all of its markets (*see, e.g.*, TWC document summarizing speed tiers available by geographic area: Speeds Tiers Pricing 2014 Q1.xlsx).

[26] *See* Tenth Broadband Progress Notice of Inquiry, *In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 14-126, August 5, 2014. In a comment to the Commission, AT&T noted that the Commission's calculations did not take into account common network management practices, such as statistical multiplexing, which would lessen the amount of bandwidth required by several applications running simultaneously. Thus, the 10 Mbps figure is likely an overestimate of throughput needs, even for the high-use case. *See* Comments of AT&T, *In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 14-126, September 4, 2014, 9-10.

four internet-related activities.[27] Thus, even for the "high use" case, customers would be able to make use of broadband service offering speeds of 10 Mbps, indicating that such options are part of the relevant market. To the extent that "light use" or "moderate use" customers represent the marginal users who would switch following a price or quality change, the appropriate speed threshold for market definition would be even lower.

32. In addition, evidence (presented in detail in Section III.C, below) shows a significant likelihood of customer switching to slower speed services, which means that slower speed services place relevant competitive constraints on Comcast today. As one example, a survey commissioned by Comcast shows that the vast majority of customers would be willing not only to switch but to switch to slower speed service (including DSL or wireless) if their broadband provider were to degrade access to edge providers in a material way. And, notwithstanding Chairman Wheeler's concern about switching costs, substantial switching does occur: Comcast's churn data indicate that over the course of a

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[27] The four activities for each type of household include: (a) one user watching a standard definition (SD) movie, one user making a high-quality voice call, one user browsing on the web, and syncing of email, alerts, and weather information taking place in the background (low use); (b) one user watching a high definition (HD) movie, one user taking an online education course, one user browsing on the web, and syncing of email, alerts, and weather information taking place in the background (moderate use); (c) one user watching a super high definition (SHD) movie, one user making a HD video call, one user saving files to and from the cloud, and syncing of email, alerts, and weather information taking place in the background (high use).

single year, approximately **{{ }}** of Comcast's broadband customers churn.[28] As explained in more detail in Section III.C.1, below, such switching would be quite costly to Comcast, indicating that the competitive constraint from these slower speed services is relevant to Comcast pricing and other strategies.

33. Many industry participants consider broadband download speeds at (or near) 3 Mbps to be sufficient for many of their services today. For example, Netflix's website recommends a download speed of 3 Mbps per stream for playing movies and TV shows in standard definition quality, 5 Mbps per stream for high definition quality, and 25 Mbps *only* for Ultra HD quality.[29] Similarly, Hulu's website recommends a speed of 3 Mbps for high definition videos and 1.5 Mbps for standard definition video, and Amazon Prime's website recommends a speed of 3.5 Mbps for high definition videos and 900 Kbps for standard definition videos.[30]

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28 As noted below, even conservatively excluding movers from this total, roughly **{{ }}** percent of Comcast broadband customers churn each year.

29 *See* Netflix Internet Connection Speed Recommendations, *available at* https://help.netflix.com/en/node/306, *site visited* September 12, 2014.

30 *See* Streaming issues with Hulu Plus on your TV, *available at* http://www.hulu.com/help/articles/20196801, *site visited* September 12, 2014; System Requirements for Streaming on Your Computer, *available at* http://www.amazon.com/gp/help/customer/display.html?nodeId=201422810, *site visited* September 12, 2014.

2. Alternative broadband definitions do not affect my conclusion that changes in national broadband share provide no basis for a finding of horizontal competitive effects from the transaction

34. Given that there is no meaningful national market for broadband, national broadband shares are not indicative of horizontal competitive effects of the transaction in any well-defined market. Nevertheless, even if I compute national shares using a 10 Mbps threshold, they are quite similar to the shares presented in the Israel Declaration based on the 3 Mbps standard. As Table 1 shows, using a 10 Mbps threshold, the share of the merged firm (after accounting for the divestitures in the three-way Comcast-TWC-Charter transaction) is 40 percent ignoring mobile broadband competition. If mobile wireless customers are included in the share calculation, the post-transaction share with the proposed divestiture is 22.5 percent.

Table 1: National Broadband Shares Using 10 Mbps Threshold

		Subscriptions		Shares			
		Pre Comcast-TWC-Charter Transactions		Pre Comcast-TWC-Charter Transactions		Post Comcast-TWC-Charter Transactions	
Subscriber Type	Total U.S.	Comcast	TWC	Comcast	TWC	Comcast and TWC Combined	Comcast Share Change
Fixed Broadband Only	57,850,000	[[			]]	40.0%	7.8%
Fixed and Mobile Broadband	102,797,000	[[			]]	22.5%	4.4%

Notes: The Comcast and TWC combined figure includes proposed divestitures and swap of subscribers with Charter

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Sources: FCC Form 477 data (June 2013); FCC IAS Report (June 2014) (reporting data from June 2013); Comcast-TWC-Charter Divestiture Schedule

35. Although I consider a broadband definition based on a downstream speed of 25 Mbps overly narrow and hence inappropriate, it should be noted that TWC currently has fewer than one million broadband customers with speeds at 25 Mbps or higher, whereas Comcast has more than 12 million such customers. Consequently, if broadband is defined as requiring 25 Mbps, the transaction has little effect on Comcast's current share of national broadband customers. Table 2 shows that, under a 25 Mbps definition, without accounting for mobile broadband, Comcast's share increases by only 0.7 percentage points following the transaction; with mobile broadband included Comcast's share increases by only 0.5 percentage points.

Table 2: National Broadband Shares Using a 25 Mbps Threshold

		Subscriptions		Shares			
		Pre Comcast-TWC-Charter Transactions		Pre Comcast-TWC-Charter Transactions		Post Comcast-TWC-Charter Transactions	
Subscriber Type	Total U.S.	Comcast	TWC	Comcast	TWC	Comcast and TWC Combined	Comcast Share Change
Fixed Broadband Only	22,579,000	[[			]]	54.9%	0.7%
Fixed and Mobile Broadband	29,328,000	[[			]]	42.3%	0.5%

Notes: The Comcast and TWC combined figure includes proposed divestitures and swap of subscribers with Charter [[

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Sources: FCC Form 477 data (June 2013); FCC IAS Report (June 2014) (reporting data from June 2013); Comcast-TWC-Charter Divestiture Schedule

C. COMMENTERS PRESENT NO EVIDENCE OF COMPETITIVE CONSTRAINTS THAT COMCAST AND TWC IMPOSE ON ONE ANOTHER AND THUS NO TRANSACTION-INDUCED RELAXATION OF COMPETITIVE CONSTRAINTS

36. The Horizontal Merger Guidelines focus on mergers that lead to enhancements of market power and substantial lessening of competition. As the Horizontal Merger Guidelines note, "[a] merger enhances market power if it is likely to encourage one or more firms to raise price, reduce output, diminish innovation, or otherwise harm customers *as a result of diminished competitive constraints or incentives.*"[31] For this reason, evidence that merging parties act as competitive constraints on one another is generally at the heart of merger analysis.

37. Such evidence of competitive constraints is entirely absent from commenters' analysis of the transaction. In particular, commenters have not advanced *any* direct evidence of a competitive constraint imposed by one of the merging parties on the other, or *any* indirect evidence of substitution between the merging parties on any dimension (either acting as sellers or buyers). As such, there is no evidence for the standard horizontal theories of harm, in which constraints imposed by one merging party prevent the other from profitably taking an action unilaterally, or taking an action in coordination with other competitors, with this constraint relaxed due to the transaction. This includes not only the obvious lack of evidence that the firms constrain one another's retail

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[31] *Horizontal Merger Guidelines*, § 1 [emphasis added].

broadband pricing or strategies, but also a lack of evidence that any competitive constraints from TWC affected Comcast in its recent negotiations with Netflix, Cogent, or other edge providers or their agents. There is simply no evidence that any pricing, strategies, or negotiations would have been different absent some constraint imposed by the other merging party.

III. THE MERGING PARTIES FACE LARGE AND GROWING COMPETITIVE CONSTRAINTS, INCLUDING ON THEIR ABILITY TO AFFECT EDGE PROVIDER ACCESS TO THEIR LAST-MILE NETWORKS

38. Commenters dedicate dozens of pages to allegations of Comcast's market power, including *substantially overstated* claims about the lack of competitive alternatives available to Comcast broadband customers.[32] Commenters' focus on *current* market power is of limited relevance, particularly absent any showing that the transaction enhances that power. However, because I disagree with commenters' conclusions and because those conclusions also infect their foreclosure and bargaining theories, I refute the conclusions that commenters attempt to draw from Comcast's current broadband market position at some length in this section.

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[32] For example, Dr. Evans concludes that "there are no significant competitive constraints" on Comcast and TWC and "[a]pplicants' subscribers have nowhere else to turn" (*Evans Declaration*, ¶¶ 21, 89). Dr. Sappington states that "most residential customers have little or no meaningful choice among suppliers of high-speed broadband Internet access service." (*Sappington Declaration*, ¶ 37).

39. Before turning to this refutation, I note that commenters and I do agree on one fact: Comcast has an extremely high-quality broadband network and thus offers very high-quality broadband service to its customers. Comcast has spent tens of billions of dollars to develop its network and now offers broadband speeds up to 505 Mbps. Furthermore, as explained in the Israel Declaration, Comcast sees this transaction as a way to extend its high-quality broadband service into additional territories and to expand its footprint for future investments, thus making more such investments profitable. The speed enabled by this broadband network is well suited to—in fact is *only* fully utilized by—online video content, and thus Comcast's broadband investment is deeply complementary to the emergence and growth of online video distributors (OVDs). This means that any strategy to harm online video distributors would involve Comcast degrading the very applications that its broadband network is built to serve and that best enable Comcast to attract broadband customers and thus generate a return on its broadband investment.

A. THE MERGING PARTIES' ABILITY TO AFFECT EDGE PROVIDER ACCESS TO THEIR LAST-MILE NETWORKS IS CONSTRAINED BY COMPETITION IN THE INTERNET BACKBONE AND AMONG LAST-MILE NETWORKS

40. Commenters dedicate substantial attention to the large number of customers who make use of Comcast's last-mile broadband networks and, from its size as a retail broadband provider, attempt to make the leap to claims about the combined firm's ability

to harm edge providers' access to its last-mile network.[33] In this section, I explain why this logical leap does not follow, with further details in Sections III.B through III.D.

41. As an initial matter, note that the commenter theories of harm apply *neither* to last-mile networks nor to transit services on backbone networks through which (among other things) edge provider content is carried to the last-mile networks.

- The lack of any overlap between Comcast's and TWC's last-mile networks, and Comcast's stated willingness to adhere to Open Internet principles—which prevent selective degradation of particular traffic in the last mile—effectively eliminates any concern about harm in the last mile.
- Although Comcast and TWC participate in the backbone as transit providers, I have seen no allegation that either Comcast or TWC has any market power—or that the transaction would have any anti-competitive effect—in the Internet backbone. To the contrary, as noted, the Commission has previously found that Internet backbone services are highly competitive.[34] No commenter has contested that finding nor argued that this transaction will change that reality.

42. Hence, the possibility of competitive effects from the transaction collapses to the possibility of competitive effects at the "interconnection points" where last-mile and

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[33] *Evans Declaration*, § III.A; *Farrell Declaration*, § V.B; *Sappington Declaration*, § IV.B and § IV.E.

[34] *Level 3-Global Crossing Order*, ¶ 27.

backbone networks intersect. In general, commenters' theories of harm are theories about possible changes to interconnection agreements—the terms under which edge providers, (or more often their CDN or transit provider agents) obtain access into the Comcast and TWC last-mile networks.

43. Much of the remainder of this declaration is explicitly or implicitly about why the transaction creates no harmful effects on interconnection agreements—and more importantly, no harmful effects on the terms under which edge providers can access the Comcast or TWC last-mile networks—certainly no effects that come anywhere near the magnitude of benefits from the transaction. At core, the logic follows from a simple idea: Interconnection points are not immune from the competitive forces that prevent competitive harm in the last-mile and backbone networks that sit on either side of them. Most importantly, as explained in Section III.B, the recognized intense competitiveness of *backbone services* places strong constraints on an ISP's ability to manipulate interconnection terms in a way that would harm edge providers, whatever the size of its last-mile network. And, as developed in Section III.C, consumers *do* have important and growing choices between *last-mile networks* and thus have options should an ISP degrade edge provider access to its last-mile network. Finally, as developed in Section III.D, efforts to harm edge providers' access to last-mile networks would likely only hasten the development of new, alternative last-mile networks, sponsored directly by edge providers themselves (*e.g.*, Google), by municipalities, or by Commission action.

B. CONSTRAINTS ARISING FROM THE HIGHLY COMPETITIVE INTERNET BACKBONE

1. The wide range of interconnection options means that attempts to degrade interconnection options open to edge providers would be highly disruptive to the combined firm

44. Comcast lacks the ability to degrade edge provider access to its last-mile network to any significant degree. Due to the competitiveness of backbone services, there are many options for an edge provider to obtain access to Comcast's last-mile network. In particular, as detailed in the declarations of Kevin McElearney and Constantine Dovrolis, there are dozens of third-party CDNs and transit providers that have interconnection agreements with Comcast and with which edge providers can contract to access the Comcast last-mile network.[35] And, importantly, it is the edge provider, not Comcast (or any receiving ISP), that makes all the choices about which of these many paths to use to deliver content.[36]

45. Hence, no edge provider is forced to negotiate with Comcast directly. Rather, edge providers—either on their own if they are large enough (and choose to do so) or through CDNs or other agents—can use any of multiple paths onto the Comcast

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[35] Declaration of Kevin McElearney, September 19, 2014 (hereinafter, *McElearney Declaration*), ¶ 3; Declaration of Constantine Dovrolis, "The Evolution and Economics of Internet Interconnections," September 21, 2014 (hereinafter, *Dovrolis Declaration*), 24.

[36] *McElearney Declaration*, ¶¶ 3, 17; *Dovrolis Declaration*, 5.

network.[37] Access through third-party routes is not just a theoretical possibility: I understand that the overwhelming majority of edge providers reach the Comcast last-mile network through indirect connections rather than through direct interconnection with Comcast. And indirect connection is not an option pursued only by small edge providers; for example, Yahoo **{{**

}}.[38]

46. Notably, more than 40 of the third parties offering access to the Comcast last-mile network have settlement-free interconnection agreements with Comcast, meaning that Comcast charges nothing to the provider for interconnection services. The existence of so many settlement-free arrangements belies any claim that Comcast is exercising significant market power via interconnection today.

47. Commenters' claim that Comcast can simply degrade or charge for these paths significantly underplays the import of the large number of settlement-free paths onto the Comcast network. In particular, to support a claim that Comcast could raise interconnection prices across the board, one would have to claim that Comcast would

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37 *Israel Declaration*, § II.B.1.c.

38 Peter Stern, Executive Vice President & Chief Strategy Officer, TWC, September 3, 2014, interview; "September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request," RFI 70, 184.

have sufficient power to disrupt its more than 40 settlement-free paths and force positive interconnection payments onto enough of them to disrupt significantly the spare capacity into Comcast's network, of which "there is more than enough…to carry all of Netflix's Comcast-bound traffic."[39] No commenter has presented any evidence that this is possible.

48. To the contrary, given that commenters' discussion focuses on the alleged lack of constraints that Comcast faces *today*, the evidence points in the opposite direction: Comcast has maintained all of these settlement-free paths despite its alleged market power. This Comcast behavior follows from the fact that Comcast depends on these links to maintain connectivity to the broader Internet, not just in the U.S., but globally. Attempting to disrupt them to harm particular edge provider traffic would be extremely disruptive.

49. The upshot of this wide range of paths onto the Comcast network remains what I explained in my initial declaration: To degrade significantly the access of particular edge providers to its last-mile network would require significant disruption to Comcast's own access to the broader Internet, at extremely high cost to Comcast. In particular, as the Israel Declaration explained,[40] the ability of edge providers to pool their traffic with other providers (via the use of transit providers or CDNs) and to make use of multiple paths

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[39] *McElearney Declaration*, ¶ 3.

[40] *Israel Declaration*, § II.B.1(c).

onto an ISP's network (either on their own or via a CDN) together mean that Comcast would have to degrade its connection to the overall Internet to a significant extent to prevent a particular edge provider from accessing its last-mile network.

2. Contrary to commenters' claims, events during the recent Comcast-Netflix negotiations confirm that Comcast has little ability to harm edge providers' access to its last-mile network

50. Experts for Cogent and Netflix argue that during the recent Comcast-Netflix negotiations, Comcast was able to prevent Netflix from obtaining sufficient capacity to deliver a high-quality experience to Comcast customers.[41] I understand that this is false, with this apparent lack of capacity driven by artificial limitations placed by Netflix on the providers with which it would work. As Kevin McElearney explains in his declaration:[42]

> Netflix appears to have adopted a self-serving strategy of using limited transit providers that never purchase interconnection services from their destination ISP. The result of this self-imposed limitation is that many transit suppliers with available capacity and potentially comparable market pricing, were excluded from Netflix's consideration. This Netflix transit strategy severely limited Netflix's delivery capability and its ability to deliver a high-quality service. No other large content provider that I know of – including several in the same space as Netflix – has adopted the same restrictive delivery requirements. The small handful of providers to which Netflix limited itself simply were not capable, by themselves, of handling delivery of one-third of peak Comcast-bound Internet traffic without arranging for massive capacity augmentations that would have far exceeded normal growth and put those providers outside of their peering policies or not in a position to augment at the speed that Netflix wanted to

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41 *Evans Declaration*, § III.A.2 and § III.A.3; *Farrell Declaration*, § V.C.

42 *McElearney Declaration*, ¶¶ 23-24.

> shift traffic. Had Netflix instead taken advantage of the many other routes into Comcast's network, including the many settlement-free routes on which Comcast had (and has) abundant available capacity, as noted above, it could have delivered its traffic to Comcast's network with high quality and no performance issues.

51. Netflix's experience with other ISPs was similar. For example, Verizon recently stated that Netflix chose to transmit traffic over congested transit paths, even while other paths into its network were uncongested and had substantial available capacity.[43]

52. More generally, Mr. McElearney confirms my understanding that Netflix had access to a wide range of interconnection points into the Comcast network, with the ability to pick and choose from those paths, such that Comcast would have needed largely to shut down its connection to the Internet to degrade Netflix's access significantly:[44]

> Comcast reaches well over 99 percent of the Internet's networks through more than 40 settlement-free peers and numerous other commercial interconnection agreements, and across our interconnection partners there is more than enough capacity into our network – even enough to carry all of Netflix's Comcast-bound traffic…even in the face of the Netflix-related congestion, Comcast's utilization with its peers during the last 12 months was less than **{{ }}** percent on average during peak times – and those

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43 *See* "Why is Netflix Buffering? Dispelling the Congestion Myth," *Verizon Policy Blog*, July 10, 2014, *available at* http://publicpolicy.verizon.com/blog/entry/why-is-netflix-buffering-dispelling-the-congestion-myth, *site visited* September 15, 2014. ("While the links chosen by Netflix were congested (congestion occurs when use approaches or reaches 100% capacity during peak usage periods), the links from other transit providers (carrying non-Netflix traffic) to Verizon's network did not experience congestion and were performing fine. The maximum amount of capacity used (or peak utilization) over the links between these other networks and Verizon's network ranged from 10% to 80% (with an average peak utilization of 44%)."

44 *McElearney Declaration*, ¶¶ 3, 36.

peers do not pay Comcast – which undermines Netflix's suggestion that it sought out all routes where no payment to Comcast was required. Netflix chose routes that it knew were insufficient, and created performance issues for itself and its customers.

3. The array of interconnection options are relevant for all providers and may be especially valuable for small edge providers

53. The wide range of options for getting traffic onto the Comcast network are relevant for all providers; no edge provider is required to negotiate directly with Comcast to access its network. That said, some large edge providers such as Netflix and Google are sufficiently large that they choose to invest in their own CDNs and then to negotiate directly with ISPs for interconnection, rather than pay third-party CDNs or transit providers to provide indirect access.[45] Not surprisingly given that such providers are large, powerful firms in their own right, the terms they have reached with the merging parties have not proven harmful to them, but rather have represented mutually beneficial disintermediation. (See Sections IV.B and VI.A for further discussion.)

54. Cases like Netflix and Google are definitely the exception: The vast majority of edge providers are sufficiently small that negotiating direct access with ISPs would be inefficient. Instead, such edge providers, no matter how small, can contract with CDNs

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[45] Such "self supply" makes sense when the costs of distributing servers around the backbone, and paying multiple ISPs for direct access to their individual networks, is less (or no more) expensive than paying for third-party CDN services or transit. I understand that direct links also may provide additional control, oversight, and dependable capacity that a larger provider may be willing to pay for.

such as Akamai and Limelight to deliver content to ISPs' networks (or can use web hosting companies that in turn use CDNs, or can purchase transit from transit providers).[46] The third-party agent arranges direct interconnection with various ISPs, perhaps on its own, or perhaps working with yet another third-party transit provider that has a direct connection with the ISP.

55. By delivering traffic via third parties, small edge providers are effectively able to pool their content with other providers who use a given CDN, web hosting company, or transit provider. Moreover, because edge providers (small or large) can route their traffic over multiple redundant transit and CDN routes, in order to degrade any given edge providers' access to an ISP's network, the ISP would have to degrade a significant amount of the other traffic it receives or sends over these same links, and in the process degrade its interconnectivity with the overall Internet. Hence, small edge providers have a level of protection that distinguishes Internet interconnection arrangements from other contexts, including negotiations for carriage of traditional video offerings.

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[46] Such third parties have plenty of capacity to accommodate traffic from small edge providers. For example, MIT CSAIL Information Policy Project recently found that "[f]or smaller providers of content and applications, who would normally reach their customers across the Internet either by using a third-party content delivery platform or by using the paths provided by peering and transit links, the lack of widespread congestion means they have adequate ways to reach their customers." (MIT/CAIDA, "Measuring Internet congestion: A preliminary report," *available at* https://ipp.mit.edu/sites/default/files/documents/Congestion-handout-final.pdf, *site visited* September 22, 2014).

4. Attempts by the merged firm to degrade interconnection into its network in any material way would be extremely costly

56. Recent real world experience illustrates that degradation of edge provider access to the Comcast network—whether inadvertent, intentional, or a temporary side effect of unresolved commercial negotiations—would be harmful to Comcast's business interests. For example, although the recent "event" in which Netflix quality on the Comcast network declined (at least for traffic delivered over certain routes) was fairly short lived and affected multiple ISPs at the same time—thus limiting the impact on customer churn—the Comcast complaint data indicate that customers noticed and reacted negatively to the event, directing complaints to Comcast and, at a minimum, imposing customer service costs on Comcast. In particular, during the brief period in late 2013/early 2014 when Netflix's quality on Comcast network declined (at least for traffic sent over certain routes), Comcast experienced a surge in Netflix-related customer-service calls with customers complaining about Comcast's broadband service. Figure 1 shows that the Netflix-related service calls spiked by approximately **[[ ]]** percent, from **[[ ]]** per month before the onset of the dispute to more than **[[ ]]** per month during the dispute period, which lasted from November 2013 through February 2014. The number of customer calls declined in March and thereafter as Netflix performance improved with the re-routing of its traffic after the resolution of the dispute.

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C. CONSTRAINTS IMPOSED BY CUSTOMERS, MAKING USE OF THE FULL RANGE OF CHOICES REGARDING BROADBAND SERVICE

57. In this section, I explain that even if, despite the analysis above, Comcast attempted and managed to degrade edge provider access significantly, customers would react in a wide range of ways that would impose substantial costs on Comcast, thus further reducing the chance that Comcast could undertake such actions profitably.

1. Any reduction in customers' demand for broadband services would be quite costly to the merging parties

58. Although certain commenters spend substantial time arguing that customers have limited ability to reduce their consumption of Comcast broadband services—a point I refute below—they fail to acknowledge the substantial cost that such reductions in consumption of broadband service would have on Comcast. Customers taking broadband service are extremely valuable to Comcast, both in absolute terms and relative to customers not taking broadband service. Given the high value associated with broadband service, the converse also holds—the loss of a broadband customer is quite costly to Comcast.

59. Ordinary-course-of-business customer lifetime value (CLV) calculations show that the addition of broadband service increases a customer's lifetime value to Comcast **[[ ]]**.[47] Comcast has computed the following CLVs for standalone and bundled products:[48]

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[47] In interpreting these high broadband CLVs, it is important to remember that, as explained in Section II, there is no coherent theory of horizontal harm in broadband competition in this case. If there were such a theory (as in a merger of overlapping broadband providers), then standard "upward pricing pressure" logic might imply that the presence of high broadband CLVs heightens the horizontal concern. In the present case, however, with no coherent theory of horizontal harm, the relevant implication of the high broadband CLVs is that Comcast would be unlikely to find it profitable to harm its profitable broadband business to help its much less profitable video business. Moreover, one also cannot use the broadband CLVs to infer that Comcast has sufficient market power in broadband to foreclose OVD competition. Rather, as explained in Section IV.A, Comcast lacks this ability due to factors including the range of options open to OVDs

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60. Notable from this table is the high CLV associated with broadband relative to other products and thus the high cost to Comcast if a customer were to drop broadband service. For example, if a broadband/video double-play customer were to drop broadband service, her CLV would fall from **{{** **}}**, thus eliminating more than **{{** **}}** percent of her expected lifetime value. No such effect is seen for traditional video: If the

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(including powerful established OVDs like Google, Apple, and Netflix) to access Comcast's network; the large number of non-Comcast/TWC broadband customers outside Comcast's footprint and around the world; and the substantial harm that any attempt to degrade edge provider access would do to demand for Comcast's broadband services.

[48] The table is based on slide 17 of Comcast's October 2013 presentation titled "Customer Lifetime Value (CLV)." I understand that this presentation was developed by the Finance Department at Comcast and that the CLV is based on the **[[**

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double-play customer drops video and thus switches to "data only," this eliminates less than **{{ }}** percent of the double-play CLV (**{{ }}** in double play CLV). A similar pattern holds for single-play customers. Losing a single-play broadband customer leads to an expected reduction in CLV of **{{ }}** loss from losing a single-play video customer. These figures indicate that Comcast suffers substantial losses with each loss of a broadband customer, even if some fraction of those customers chose to replace broadband service with video service.

61. Given that 44 percent of all Comcast broadband customers subscribe to a triple-play package, including video and voice in addition to broadband, the conclusions in this section become even stronger.[49] For any triple-play customers who react to downgraded Comcast broadband service by disconnecting their overall service—as some surely would—Comcast loses **{{ }}** in value, an amount equivalent to the value from more than **{{ }}** standalone video customers (or from more than **{{ }}** customers adding video to what had been a standalone data subscription). Hence, any material risk of loss of triple-play customers would act as a significant deterrent to strategies to downgrade broadband.

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[49] *See* Comcast data produced in FCC Information and Data Request – Exhibit 4.2(e).

2. Customers can substitute away from ISPs along multiple dimensions

62. In evaluating the extent to which customers have the ability to substitute away from Comcast's broadband services, commenters fail to consider all relevant margins of substitution. In particular, commenters focus only on the extent to which Comcast and TWC customers can substitute to alternative high-speed, wireline ISPs (*i.e.*, one part of the "extensive margin"), ignoring the fact that, if faced with diminished or more expensive broadband service, any Comcast customer in any region could downgrade or even cancel broadband service altogether (*i.e.*, the intensive margin).

(a) Adjusting the Intensity of Usage/Tier of Service (Intensive Margin)

63. Even without switching providers, customers could react to downgraded Comcast broadband service along the intensive margin in a variety of ways, at least two of which would harm Comcast:

- First, if their access to OVDs and other edge providers were degraded, customers might decide they no longer need broadband service from Comcast at all, perhaps relying on mobile service instead, combined with Internet access at work.
- Second, customers could choose to downgrade to a lower tier of Comcast's broadband service (or fail to upgrade to a higher tier). Indeed, both the Commission and industry participants recognize that access to OVD offerings is

an important driver of demand for high speed broadband service, so an inability to utilize higher speeds for such access could very well undermine the value of those tiers.[50] Comcast currently offers broadband products that include (among others) the 3 Mbps Economy Plus product ($39.95 per month), the 6 Mbps Performance Starter product ($49.95 per month), and the 150 Mbps Extreme 150 package ($89.99 per month).[51] Comcast indicates that customers who watch video extensively online disproportionately choose higher-speed tiers.[52] Hence, if a reduction in the quality (or increase in the cost) of OVD offerings on the Comcast network were to cause a customer to downgrade broadband service from, for example, Extreme 150 to Economy Plus (which is more than fast enough for most non-video applications), this would cost Comcast $50 per month in revenue—or $1200 over a two-year period. Not surprisingly, then, Netflix CEO Reed Hastings recently explained how Netflix services help cable companies by noting: "I think

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50 Reed Hastings (Netflix, Inc. CEO), 4Q13 Earnings Call, January 22, 2014. The Commission also recognizes that HD-quality streaming is one of the key edge uses that requires high-speed data networks. (*See* Broadband Speed Guide, *available at* http://www.fcc.gov/guides/broadband-speed-guide, *site visited* September 12, 2014).

51 *See* http://www.comcast.com/internet-service.html, *site visited* September 12, 2014.

52 John Schanz, Executive Vice President and Chief Network Officer, Comcast Corporation, September 18, 2014, interview.

the more that you own cable companies, you want great broadband services, *you want consumers to take higher and higher priced tiers*."[53]

64. In sum, then, even those customers who might choose not to switch broadband providers if their service were degraded can (and likely would) react to such degradation by downgrading or canceling broadband service, a decision which would be quite costly to Comcast. And importantly, the threat to substitute along the intensive margin in this way is open to *all* Comcast customers, not just those in areas where Comcast faces a particular set of broadband competitors.

(b) Switching to Another Provider (Extensive Margin)

65. Despite overstated assertions that "[f]or all intents and purposes, the Applicants' subscribers have nowhere else to turn,"[54] the evidence presented by commenters is actually quite consistent with the evidence that I presented in the Israel Declaration, showing that most subscribers definitely do have "somewhere else to turn."[55] In

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[53] Reed Hastings (Netflix, Inc. CEO), 4Q13 Earnings Call, January 22, 2014 (emphasis added). The Commission also recognizes that HD-quality streaming is one of the key edge uses that requires high-speed data networks. (*See* Broadband Speed Guide, *available at* http://www.fcc.gov/guides/broadband-speed-guide, *site visited* September 12, 2014).

[54] *Evans Declaration*, ¶ 89.

[55] *See Israel Declaration*, ¶ 43 (citing to FCC data showing that "approximately 97 percent of households are located in census tracts in which two or more fixed broadband providers report offering at least 3 Mbps downstream and 768 kbps upstream and approximately 70 percent are located in census tracts in which two or more providers report offering at least 10 Mbps downstream and at least 1.5 Mbps upstream.").

particular, Dr. Evans indicates that, on average, Comcast customers have one other *fixed* high-speed (greater than 10 Mbps) broadband option.[56] Similarly, Dr. Farrell acknowledges that most local markets have at least two competitors.[57] Thus, by commenters' own evidence, the majority of Comcast and TWC customers do have at least one alternative that would meet even these commenters' standards for a relevant competitor, a finding consistent with the evidence in my original declaration. In addition, as indicated in the June 2013 FCC Internet Access Report, the inclusion of wireless options—which are becomingly increasingly relevant, with new developments announced nearly every day, as I will explain below—substantially increases the set of options, as 98 percent of US households are located in census tracts that have access to two or more fixed and mobile broadband providers offering speeds of at least 10 Mbps.[58]

66. In Section III.C.4, I present empirical evidence that, faced with a reduction in the quality of broadband service, customers would, in fact, switch to such alternatives—including lower speed, DSL, and wireless options—in large numbers, thus imposing substantial costs on Comcast per the CLV numbers presented above. Before turning to

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56 *Evans Declaration*, Table 2.

57 *Farrell Declaration*, ¶ 55.

58 *See* Figure 5b in FCC's Report titled "Internet Access Services: Status as of June 30, 2013," *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-327829A1.pdf, *site visited* September 20, 2014).

that, I provide some additional details on the set of alternatives and recent developments that continue to strengthen these alternatives.

3. There exists a large and growing set of competitive broadband alternatives

(a) Overview of Telco Options

67. Commenters discuss two of the broadband options offered by telco providers (DSL and wireless) separately, thus creating an incomplete perspective on the full competitive threat imposed by telco providers. Among other things, this one-off evaluation of these telco options leads commenters to a double standard in which they downplay DSL—which is highly relevant today—due to claims that its competitive significance is declining, while ignoring the fact that the competitive significance of FTTP and wireless options—while somewhat more limited today—is growing rapidly. Hence, in this section, I present a more unified view of the competitive strategies and offerings of telco providers. This unified view reveals, unsurprisingly, that firms like AT&T, Verizon, CenturyLink, and others remain powerful broadband competitors and are poised to become even more powerful, in a continuation of the "leapfrogging" that has long characterized broadband competition.[59]

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[59] FCC Chairman Wheeler recently described this leapfrogging phenomenon as follows: "The path from narrowband, to broadband, to high-speed broadband, was forged by competition. In order to meet the competitive threat of satellite services, cable TV companies upgraded their facilities. When the Internet went mainstream, they found

68. Leading the way among the full set of telco options, fiber to the premises ("FTTP") is offered by telcos in a growing set of geographic areas, with some of the growth being tied directly to the need to respond competitively to the proposed transaction.[60] And in areas where FTTP is not presently available, telcos are substantially improving their DSL service. Layered on top of those options, high-speed wireless broadband is available nearly ubiquitously. As discussed in the Israel Declaration,[61] the combined set of approaches to providing broadband service makes telco firms highly significant competitors.

69. Actual data on market growth rates belie any claim that, appropriately considered as a whole, telco options are falling behind relative to cable; to the contrary, wired telco

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themselves in the enviable position of having greater network capacity than telephone companies. Confronted by such competition, the telcos upgraded to DSL, and in some places deployed all-fiber, or fiber-and-copper networks. Cable companies further responded to this competition by improving their own broadband performance. All this investment was a very good thing." (*Wheeler Remarks*, 3).

60 Thomas Gryta, "AT&T to Build Out Ultrafast Internet in North Carolina," *Wall Street Journal*, April 10, 2014, *available at* http://online.wsj.com/news/articles/SB10001424052702303873604579492103338327532 , *site visited* September 15, 2014.

61 *Israel Declaration*, ¶¶ 49-68. I note that data available at the time of the *Israel Declaration* understated the overlap between the Comcast/TWC footprints and the telco footprints. Newly available data indicate greater overlap than reported in ¶¶ 50 and 56 of the *Israel Declaration* (*See* Letter from Comcast, TWC, and Charter to the FCC, June 25, 2014, p. 4, which shows, for example, overlap between the Comcast footprint and AT&T's U-verse footprint of **[[ ]]** percent, and overlap between the TWC footprint and the U-verse footprint of **[[ ]]** percent, compared to overlaps of **[[ ]]** percent and **[[ ]]** percent, respectively, reported in my original declaration.).

options are growing faster than cable, and the telco growth rates are even higher when wireless is included. Table 4 shows broadband customer counts from June 2009 through June 2013 and average annual growth rates for FTTP, DSL, mobile wireless, and cable technologies using the FCC's current definition of broadband (based on speeds of 3 Mbps downstream and 768 Kbps upstream). I rely on the existing broadband definition in order to let the data tell the story—if, for example, telco products are more concentrated in the lower speed ranges, *and* therefore are less popular, telco growth rates should be correspondingly lower.[62] They are not.

70. Across both wired options (*i.e.*, FTTP + DSL), the total number of wired telco customers grew at an annual rate of 26.9 percent during this period, and when wireless is included, the total number of telco customers grew at an annual rate of 89.6 percent. *Hence, with or without including wireless options, the telco broadband growth rate is substantially <u>higher</u> than the cable broadband growth rate of only 17.9 percent.*

71. In the following sections, I provide more details on the full set of telco broadband options that are generating this growth.

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[62] In addition, if I were to use a higher speed cutoff, it would largely capture upgrades by some customers rather than overall growth rates, and it would only capture growth rates for the highest speed telco options without answering the question about the overall set of telco options.

Table 4: Customer Growth Rates for Connections with Speeds at least 3 Mbps-downstream and 768 Kbps-upstream, June 2009 through June 2013

	Subscriptions					
Month	**FTTP**	**DSL**	**Mobile Wireless**	**FTTP + DSL**	**FTTP + DSL + Wireless**	**Cable**
Jun-2009	3,333,000	5,623,000	224,000	8,956,000	9,180,000	23,958,000
Dec-2009	3,739,000	6,408,000	1,706,000	10,147,000	11,853,000	28,583,000
Jun-2010	4,192,000	6,288,000	4,188,000	10,480,000	14,668,000	30,616,000
Dec-2010	4,725,000	7,316,000	10,416,000	12,041,000	22,457,000	32,338,000
Jun-2011	5,188,000	8,925,000	16,242,000	14,113,000	30,355,000	34,113,000
Dec-2011	5,606,000	10,377,000	30,918,000	15,983,000	46,901,000	34,699,000
Jun-2012	6,001,000	12,905,000	43,025,000	18,906,000	61,931,000	37,798,000
Dec-2012	6,425,000	13,061,000	63,876,000	19,486,000	83,362,000	44,133,000
Jun-2013	6,989,000	16,063,000	93,247,000	23,052,000	116,299,000	46,014,000
Average Annual Growth Rate (June to June)	20.4%	30.7%	584.8%	26.9%	89.6%	17.9%

Sources: FCC Internet Access Reports.

(b) FTTP

72. Commenters all seem to agree that FTTP options pose a significant competitive threat to cable. As such, the recent and planned growth in these options is of particular note. For example, the Israel Declaration noted that AT&T had begun to deploy FTTP (specifically, its GigaPower product with speeds up to 1 Gbps) in certain cities, including Austin, Texas.[63] In the context of its proposed merger with DirecTV, AT&T stated the following in a submission to the Securities and Exchange Commission (SEC):[64]

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63 *Israel Declaration*, ¶ 53.

64 AT&T Inc., Current Report (Form 8-K), Item 8.01 Other Events, June 3, 2014. *See also*, Applications of AT&T Inc. and DIRECTV for Consent to Transfer Control of Licenses

> The economics of this transaction will allow the combined company to upgrade 2 million additional locations to high speed broadband with Gigapower FTTP (fiber to the premise) and expand our high speed broadband footprint to an additional 13 million locations . . .

73. Prior to the announcement of its proposed merger with DirecTV, AT&T had already been advancing the deployment of FTTP. In April of this year, in an announcement similar to that of Google Fiber's, AT&T announced plans to expand GigaPower in as many as 100 candidate cities in 21 metropolitan areas.[65] Since then, it has launched service in Austin and Dallas/Ft. Worth and has reached agreements with 11 additional cities in California, Kansas, North Carolina, Tennessee, and Texas.[66] AT&T

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and Authorizations, Description of Transaction, Public Interest Showing, and Related Demonstrations, June 11, 2014 ("Specifically, the combined company will commit to provide FTTP wireline broadband service to 2 million more customer locations. In addition, the combined company will commit to deploy fixed wireless local loop ("WLL") technology to bring high-speed broadband to approximately 13 million largely rural customer locations. By using a fixed antenna, this service is designed to perform as well as services with advertised speeds of 15-20 Mbps. This fixed WLL deployment will include areas outside AT&T's wireline footprint and areas within that footprint that currently do not receive the U-verse broadband and video bundle.").

[65] Jon Brodkin, "AT&T Copies Google, Names 100 Cities Where It Could Offer Gigabit Fiber," *Ars Technica*, April 21, 2014, *available* at http://arstechnica.com/business/2014/04/att-copies-google-names-100-cities-where-it-could-offer-gigabit-fiber/, *site visited* April 23, 2014.

[66] *See* http://www.att.com/att/gigapowercities/, *site visited* September 19, 2014; Scott Moritz, "AT&T Plots Zippiest Internet Speed in Google's Backyard," *Bloomberg*, August 20, 2014, *available at* http://www.bloomberg.com/news/2014-08-20/at-t-plots-zippiest-internet-speed-in-google-s-backyard.html, *site visited* August 21, 2014; Jeff Baumgartner, "AT&T Adds Overland Park To 'GigaPower' Targets", August 8, 2014, *available at* http://www.multichannel.com/news/technology/att-adds-overland-park-gigapower-targets/382993#sthash.dqo3m6o9.dpuf, *site visited* September 19, 2014.

Chief Executive Randall Stephenson stated that AT&T's work in Austin, along with the proposed Comcast/TWC merger, "has encouraged the company to be 'a little more aggressive and assertive in deploying that technology around the country.'"[67]

74. In addition to AT&T, other providers have launched or are planning to expand their FTTP services. As I discuss in more detail in Section III.D below, Google Fiber and numerous municipalities are expanding their offerings or entering the FTTP broadband space. Among telco providers, Verizon's CEO has just indicated that "he is more open now than before to expanding the company's FiOS broadband Internet service in new markets."[68] Cincinnati Bell has launched "Fioptics Gigabit" in its footprint and explicitly compares its top download speeds to those of TWC.[69] And CenturyLink has launched gigabit service to both residential and business customers in ten cities, where it competes

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67 Thomas Gryta, "AT&T to Build Out Ultrafast Internet in North Carolina," *Wall Street Journal*, April 10, 2014, *available at* http://online.wsj.com/news/articles/SB10001424052702303873604579492103338327532, *site visited* September 15, 2014.

68 Ryan Knutson, "Verizon Eyes Digital Video Service by Mid-2015," *Wall Street Journal*, September 11, 2014, *available at* http://online.wsj.com/articles/verizon-ceo-eyes-digital-video-service-by-mid-2015-1410467151, *site visited* September 11, 2014.

69 Alan Breznick, "Cincinnati Bell Preps for 1-Gig," *Light Reading*, August 20, 2014, *available at* http://www.lightreading.com/broadband/fttx/cincinnati-bell-preps-for-1-gig-/d/d-id/710411, *site visited* August 21, 2014.

with Cox, Mediacom, Bright House, and Comcast, and to just business customers in six additional cities.[70]

(c) DSL

75. For many customers, DSL remains a highly relevant competitor to cable broadband today, one that is likely to continue to remain relevant in the future given advances in DSL technology. As noted in the Israel Declaration, advanced DSL technologies like VDSL, which are based on "fiber-to-the-node" ("FTTN") architecture, offer speeds up to 100 Mbps while non-FTTN DSL technology can deliver speeds up to 45 Mbps, which certainly qualifies as broadband service and is more than sufficient to meet the requirements of many broadband customers.[71] Furthermore, the competitive pressure imposed by DSL is likely to increase over time as telcos continue to make investments in upgrading their DSL footprints.[72] As discussed in detail below, ordinary course business documents as well as customer surveys indicate substantial switching from Comcast to DSL, thus confirming that DSL would impose a competitive constraint on Comcast if it were to consider degrading its broadband service.

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70 Jeff Baumgartner, "CenturyLink Pushes 1-Gig Expansion," *Multichannel News*, August 5, 2014, *available at* http://www.multichannel.com/news/technology/centurylink-pushes-1-gig-expansion/382971, *site visited* August 7, 2014.

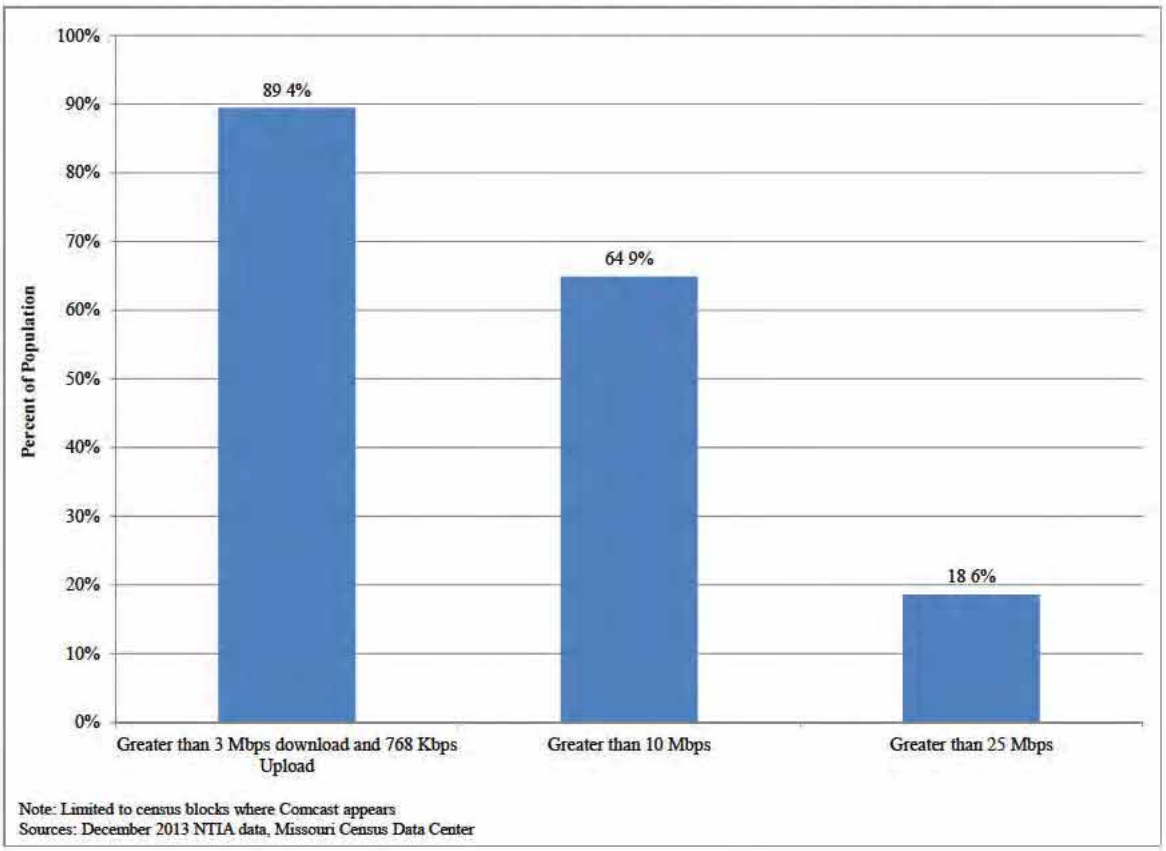
71 *Israel Declaration*, ¶ 55.

72 *Id.*, ¶¶ 57-59.

(1) DSL is a viable alternative

76. DSL easily meets the 10 Mbps threshold in many areas. As is evident in Figure 2, nearly 65 percent of the population has access to a DSL provider offering speeds of 10 Mbps or more, and over 18 percent of the population has access to a DSL provider offering speeds of 25 Mbps or more.

Figure 2: Distribution of Population in Comcast Footprint by DSL Speed



77. In his report, Dr. Evans points to the fact that {{

}} occurs on mobile devices today as evidence that wireless service is not an important substitute for wireline options, {{

}}. I discuss the limitations of this analysis below (including the fact that it is a backward-looking analysis at a time when extremely rapid changes in mobile video

require a forward-looking perspective). Here, I note that Dr. Evans fails to provide a similar statistic for the current share of Netflix viewing that occurs on DSL connections, a telling omission. Although I do not have the required Netflix data to compute the percentage of Netflix viewing on DSL, it is noteworthy that of the 60 broadband providers included on Netflix's "USA ISP Speed Index," *approximately* 20 provide DSL service.[73] Perhaps even more telling, in Netflix's most recent Speed Test (July 2014), the average speed of many of the DSL providers was greater than the average speed offered by some cable providers, *including TWC*. For example, the average Netflix speeds for Shentel, Lumos, Cincinnati Bell, and Sonic—all DSL providers—were higher than the average speeds for TWC, Brighthouse, and Mediacom.

78. Commenters have also claimed that differences in prices between cable broadband products and DSL suggest that they are in different product markets.[74] However, antitrust economists have long recognized that what matters for product market definition is the degree of substitutability between the products, not differences in their prices.[75] Differences in prices do not necessarily mean that products are not substitutes or are not

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[73] Netflix USA ISP Speed Index, *available at* http://ispspeedindex.netflix.com/usa, *site visited* September 5, 2014.

[74] *Sappington Declaration*, ¶¶ 18-19.

[75] *See*, for example, Gregory J. Werden and Luke M. Froeb (1993), "Correlation, Causality, and All that Jazz: The Inherent Shortcomings of Price Tests for Antitrust Market Delineation," *Review of Industrial Organization*, 9: 329-353.

in the same market. To the contrary, in cases like the present one where one product (DSL) may be of relatively lower quality than some other products, the price differences often serve to make up for the quality gap, making quality-adjusted prices more similar and thus generating more substitution among the products.[76] Hence, the pricing of DSL provides a mechanism for telco providers to make DSL more attractive to customers, further enhancing DSL's role as an important part of telco providers' overall broadband strategy and an important competitive constraint on cable ISPs.

79. Commenters, including Dr. Evans, claim that the lack of DSL growth indicates that DSL is not an important competitive threat.[77] In particular, Dr. Evans argues that the loss of DSL customers between 2011 and 2013 for AT&T (non-U-verse), Verizon (non-FiOS), and other telco providers suggests that DSL is no longer a viable competitor for cable broadband. Although I agree that growth rates can be one indicator of competitive strength, this indicator, when correctly measured, actually points to the overall strength of

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[76] *See, e.g.*, Motta (2004) who states that "using price differences as a criterion to define the relevant market is unsound…It might well be, for instance, that the price of product A is twice as much as the price for product B, but that it would be unprofitable to raise the price of A even by a small amount since most of those buying it would switch to B. Markets that exhibit quality differentials are likely to be a case in point. Organic bananas might command a large price premium over bananas grown in plantations that use pesticides…However, a further increase in price of organic bananas (say, because of a merger) is not profitable if there is a sizeable proportion of consumers less keen on organic food who will then switch to non-organic bananas." (Massimo Motta (2004), *Competition Policy: Theory and Practice*, Cambridge University Press, 109-110.)

[77] *Evans Declaration*, ¶¶ 59-61; *Sappington Declaration*, ¶ 18 and note 25.

telco, as shown above. As an example of the misleading nature of Dr. Evans' narrow focus on DSL, he failed even to account for DSL customers who have been upgraded by their telco providers to higher speed technologies. Such customer transitions actually represent overall telco strength, but Dr. Evans ignores that point with his narrow focus on non-U-verse and non-FiOS customers.[78]

80. Even if one chooses to focus on DSL growth by itself (rather than overall telco growth), Dr. Evans' results are incorrect. For example, he excludes U-verse even though U-verse is acknowledged to be an advanced form of DSL.[79] Table 4 shows overall DSL growth rates including all DSL options. As seen in the table, using the current 3 Mbps definition of broadband, *the growth rate in DSL subscribership exceeded the growth rate in cable subscribership* between June 2009 and June 2013. During this time, the average annual subscribership growth rate was 30.7 percent for DSL relative to 17.9 percent for cable. The difference in annual growth rates is even more pronounced under the 10 Mbps downstream definition of broadband: 150.6 percent for DSL, relative to 52.8 percent for cable. In sum, these differences in growth rates suggest that DSL remains a significant competitive threat to cable broadband.

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[78] For example, U-verse subscribership increased from 5.2 million in 2011 to 7.7 million in 2012 and to 10.4 million in 2013, implying growth rates of 47.7 percent and 34.4 percent, respectively.

[79] The FCC Internet Access Reports, for example, consider U-verse a DSL technology and include U-verse's customer figures in the counts of DSL customers.

(2) Empirical evidence indicates substantial substitution from cable to DSL

81. Analysis in the ordinary course of business by Comcast also indicates substantial switching to DSL, meaning that, based on its own analyses, Comcast cannot ignore DSL as a competitive threat. In particular, Comcast conducts quarterly studies on customers who voluntarily disconnect or downgrade their broadband, video, or voice services.[80] Figure 3 below presents results for customers who disconnected their broadband service in early 2011, 2012, 2013, and 2014. The results indicate that a sizeable fraction of disconnects were accounted for by switches to DSL. For example, most recently in Q1 2014, **[[ ]]** percent of the disconnects switched to a DSL provider, and in prior years no less than **[[ ]]** percent of the disconnects switched to a DSL provider. Thus, DSL remains an important destination for broadband customers leaving Comcast, which is also confirmed by the customer survey evidence discussed in Section III.C.4, below.

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[80] These studies are based on phone surveys of approximately 2000 households who disconnected services in the prior month.

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(d) Wireless

82. Some commenters also assert that wireless Internet access is not a good alternative for wired Internet access.[81] In support of this view, Table 1 in Dr. Evans' declaration

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[81] *See, e.g., Farrell Declaration*, ¶¶ 28, 49; *Sappington Declaration*, ¶¶ 14-15; *Evans Declaration*, ¶¶ 45, 47.

indicates that in May 2014, only **{{ }}** percent of Netflix viewing hours were accounted for by mobile wireless. However, Dr. Evans' argument represents a backward-looking view of mobile wireless video usage in a world where conditions are changing so rapidly that only a forward-looking view will suffice. Indeed, industry analysts recognize that mobile is the number one growth area for Netflix itself: "[M]ost Netflix content is still watched on TV screens, but . . . mobile is seeing the biggest growth, in part because of the way phones have been changing."[82] Similarly, Netflix's OVD rival Hulu recently called wireless a "really critical" part of its business and also noted that in just three years, "content on Hulu has jumped from zero percent to 20% viewership using mobile devices."[83] As another example, Verizon is poised to launch a new mobile-focused OTT business in 2015:[84]

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82 Janko Roettgers, "Netflix May Add Short-form Content to Increase Mobile Usage," *GIGAOM*, September 5, 2014, *available at* http://gigaom.com/2014/09/05/netflix-short-clips/?utm_medium=social&utm_campaign=socialflow&utm_source=twitter&utm_content=netflix-short-clips_870690, *site visited* September 11, 2014.

83 Deborah Yao, "Wireless Operators Getting Serious about Mobile Video," *SNL*, September 10, 2014, *available at* http://www.snl.com/InteractiveX/article.aspx?CDID=A-29163017-14378&KPLT=4, *site visited* September 11, 2014.

84 Ryan Knutson, "Verizon Eyes Digital Video Service by Mid-2015," *The Wall Street Journal*, September 11, 2014, http://online.wsj.com/articles/verizon-ceo-eyes-digital-video-service-by-mid-2015-1410467151, *site visited* September 11, 2014. For background, *see, e.g.*, "September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request," RFI 13.A.2.f., 35 ("For example, in February 2012, Verizon formed a joint venture with the parent company of Redbox to provide over-the-top services. And, earlier this year, Verizon purchased an online video streaming service from Intel that purportedly will enable it to provide a competitive

> Verizon is envisioning a service that would be akin to Netflix . . . but also would likely stream some live channels . . . it would deliver content from major broadcasters and live sporting events to smartphones via a technology called multicasting, which avoids congesting the network because it essentially allows the carrier to broadcast content over a single stream of airwaves that consumers can tune in to.

Other industry representatives also recognize the growing importance of video over wireless. For example, Ericsson notes: "[v]ideo is the largest and fastest growing segment of mobile data traffic. It is expected to grow around 13 times by 2019, by which time it is forecasted to account for over 50 percent of all global mobile data traffic."[85]

83. I present more information on the growth of wireless usage below. Before doing so, I note that, in terms of speed, wireless users can already obtain broadband-level performance today. For example, according to NTIA data, the percentage of U.S. population with access to a mobile wireless provider offering broadband speed of *at least*

MVPD substitute service over the Internet, including over wireless broadband networks."). *See also*, Verizon Communications at Goldman Sachs Communacopia Conference, edited transcript, September 11, 2014, p. 5 ("So if you look at an over-the-top, I [Lowell McAdam, Chairman and CEO of Verizon] think you could end up with a bundle that will have the major broadcast content providers and we would use our network around multicast to handle that very efficiently. And then you'd have a lot of these sort of custom channels that people can do the video demand, the IPTV much more interactive that you could have on these individual channels . . . So that whole ecosystem . . . is coming together; it has been primed for a while. But as I say, over the last six months to a year, that dialogue is changing dramatically.").

85 "Ericsson Mobility Report: On the Pulse of the Networked Society," *Ericsson*, June 2014, *available at* http://www.ericsson.com/res/docs/2014/ericsson-mobility-report-june-2014.pdf, *site visited* September 4, 2014. *See also* "Global Video Index: Q1 2014," *Ooyala, available at* http://go.ooyala.com/rs/OOYALA/images/Ooyala-Global-Video-Index-Q1-2014.pdf, *site visited* September 4, 2014.

10 Mbps downstream increased from 7.9 percent in December 2010 to *97.5 percent* in June 2013.[86] Given the widespread availability of wireless networks with broadband-level speed, the main obstacles to increased wireless usage relate to costs and capacity constraints, but these obstacles are diminishing rapidly, as discussed below.

(1) Wireless is growing rapidly in its viability as a broadband alternative

84. As noted in the Israel Declaration, estimates of the degree of substitution from wireline broadband to wireless broadband have been increasing over time.[87] Consistent with these estimates, a recent report on Internet trends notes that mobile usage as a percentage of web usage (defined as the percentage of page views coming from mobile devices) increased from 11 percent in May 2013 to 19 percent in May 2014 in North America.[88]

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86 *Israel Declaration*, ¶ 62. National Broadband Map data indicates that 97.5 percent of the U.S. population has access to wireless broadband at speeds greater than 10 Mbps downstream. ("Broadband Statistics Report: Access to Broadband Technology by Speed," July 2014, *available at* http://www.broadbandmap.gov/download/Broadband%20Availability%20in%20Rural%20vs%20Urban%20Areas.pdf, *site visited* September 12, 2014.)

87 *Israel Declaration*, ¶ 65.

88 Mary Meeker, "Internet Trends 2014 – Code Conference," *KPCB*, May 28, 2014, *available at* http://s3.amazonaws.com/kpcbweb/files/85/Internet_Trends_2014_vFINAL_-_05_28_14-_PDF.pdf?1401286773, *site visited* September 12, 2014, Slide 9.

85. Furthermore, industry research indicates that gains in wireless capacity and reductions in cost will make wireless broadband an increasingly relevant alternative over time.[89] As detailed (with reference to industry sources) in the Israel Declaration, additional spectrum will be released via the upcoming spectrum auctions (*e.g.*, AWS-3 auction and 600 MHz incentive auction), and average spectral efficiency is expected to improve with further LTE deployment and advances in LTE technology. The spectrum auctions and greater LTE deployment and innovation will increase the capacity of wireless networks, which will put downward pressure on cost and price per gigabyte.[90] Continuing recent trends of declining prices to consumers, wireless providers' costs are expected to fall roughly **[[ ]]** percent over the next several years which should reduce consumer prices substantially.[91] The increasing threat of wireless broadband is also noted in a recent **[[**

]][92]

86. New wireless technologies are further increasing their competitive relevance, particularly for video applications. For example, LTE multicast, based upon evolved

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[89] *See, e.g.*, the **[[ ]]** studies discussed in *Israel Declaration*, ¶¶ 64-65.

[90] *Israel Declaration*, ¶ 67.

[91] *Id.*, ¶ 67. *See also* **[[ ]]**.

[92] **[[ ]]**.

Multimedia Broadcast Multicast Service (eMBMS), allows identical content to be sent to many customers at the same time, thus enhancing network efficiency and increasing effective network capacity.[93] As noted in a recent press report, "Verizon Communications CFO Fran Shammo called the advent of Multicast 'the pivotal point that starts to change the way content is delivered over a mobile handset which opens up content into the wireless world.'"[94] AT&T announced in August of this year that it plans to launch LTE multicast some time in 2015, and Verizon Wireless plans to begin seeding its devices with technology that can support multicast in the fourth quarter of this year, with plans to launch the service in 2015 as well.[95]

87. Advances in fixed wireless technology provide additional support for expected improvements in wireless capacity and the corresponding downward pressure on wireless network costs and prices. As discussed in the Israel Declaration, fixed wireless is a special type of wireless service that uses radio spectrum (generally licensed to wireless

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93 For background information concerning LTE multicast, *see, e.g.*, Jeff Baumgartner, "Verizon CFO: LTE Multicast 'Pivotal' To Mobile Video," August 12, 2014, *available at* http://www.multichannel.com/news/technology/verizon-cfo-lte-multicast-pivotal-mobile-video/383137, *site visited* September 11, 2014.

94 Phil Goldstein, "AT&T to Launch LTE Multicast in 2015," *FierceWireless*, August 13, 2014, *available at* http://www.fiercewireless.com/story/att-launch-lte-multicast-2015/2014-08-13, *site visited* August 15, 2014.

95 *Ibid. See also*, Jim Barthold, "Report: Verizon will Deliver Cable TV over 4G LTE," *FierceCable*, August 13, 2014, *available at* http://www.fiercecable.com/story/report-verizon-will-deliver-cable-tv-over-4g-lte/2014-08-13, *site visited* August 15, 2014.

telecommunications providers) to communicate between two fixed points.[96] AT&T recently announced plans to bundle DirecTV with 15 Mbps fixed wireless broadband service by dedicating spectrum to a fixed wireless broadband complement to satellite TV service.[97] In an AT&T SEC filing in June of this year, AT&T discussed fixed wireless as an anticipated benefit of its planned merger with DirecTV:[98]

> With the cost synergies and increased revenue from this transaction, AT&T will expand its high speed broadband build to offer a competitive bundle of high speed fixed wireless broadband and satellite video service.

Similarly, Dish Network indicated in August of this year that it will begin a trial of a fixed broadband service with Sprint. According to Dish's CEO, "[o]ne of the great things I love about Sprint is their spectrum is tailor-made, I believe, for many homes to be a substitute for a fixed line to the house for broadband. And we're experimenting both with nTelos and Sprint."[99]

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96 *Israel Declaration*, ¶ 63.

97 *See, e.g.*, Daniel Frankel, "AT&T plans to bundle DirecTV video with satellite-delivered wireless broadband for rural customers," *FierceCable*, September 12, 2014, *available at* http://www.fiercecable.com/story/att-plans-bundle-directv-video-satellite-delivered-wireless-broadband-rural/2014-09-12?utm_medium=nl&utm_source=internal, *site visited* September 15, 2014 ("Pending approval of its $49 billion takeover of DirecTV (NASDAQ: DTV), AT&T will bundle the satellite operator's pay-TV service with a wireless-broadband product capable of delivering download speeds of 15 Mbps and above, then deliver the package via a single dish to rural customers starting in 2015.")

98 AT&T Inc., Current Report (Form 8-K), Item 8.01 Other Events, June 3, 2014.

99 "Dish Network's (DISH) CEO Joseph Clayton on Q2 2014 Results - Earnings Call Transcript," *Seeking Alpha*, August 6, 2014, *available at* http://seekingalpha.com/article/2391475-dish-networks-dish-ceo-joseph-clayton-on-q2-

(2) Empirical evidence indicates extensive usage of wireless options for high-bandwidth activities

88. A recent survey commissioned by Comcast documents extensive usage of wireless broadband today, including for "high-bandwidth" activities such as video. In particular, Comcast recently commissioned a survey by Global Strategy Group (GSG) which, among other things, measured current usage of wired and wireless broadband services. Among those with access to wireless broadband, approximately 42 percent of survey respondents indicated that they use wireless broadband *at least as much as wired broadband for high-bandwidth activities*, and 60 percent or more use wireless broadband at least as much as wired broadband for low-bandwidth activities.[100] This degree of wireless usage indicates

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2014-results-earnings-call-transcript?part=single, *site visited* August 7, 2014. I note that there are various fixed wireless options available today, and these offerings may get better in the near future. For example, a recent **[[**

]] (*See* **[[**

]]).

[100] *See* Appendix I for a more detailed summary of the survey results. Note that the survey requires that a respondent has previously confirmed having access to wireless broadband, so these results are based on a subset of all respondents (683 of 1,012 or 67 percent of all survey respondents). I understand that the survey is careful to avoid confusion between mobile broadband, the subject of the question, and Wi-Fi. In particular, the text of the wireless usage question in the survey includes the following language: "'Wireless or mobile broadband service' allows you to connect to the internet with a mobile device (this does not include devices that only connect to Wi-Fi). Examples of wireless or mobile

that wireless is a relevant alternative to wireline today for at least some customers, with the degree of substitutability increasing rapidly.

4. Customers would respond to decreased Comcast broadband quality by utilizing these various options, disciplining any attempt to degrade edge provider access

89. Ultimately, the relevant question regarding the availability of competitive broadband providers is whether consumers would switch to such providers in significant numbers in response to any Comcast attempt to degrade access to edge providers or otherwise harm broadband service. If so, this would subject Comcast to the large loss of customer value described above and thus discipline the attempt. Any broadband provider to which a sufficient number of consumers would switch in response to a strategy to harm edge providers is a relevant competitive constraint on Comcast's ability to undertake such a strategy, even if its speed is slower than Comcast's.

90. The survey by Global Strategy Group (GSG), discussed above, assesses consumers' willingness to switch broadband providers if access to edge providers were limited—including their willingness to switch to particular types of broadband providers (*e.g.*, DSL or wireless) or, more generally, broadband providers providing slower service. The survey finds that the vast majority of broadband users are likely to switch to another

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broadband service include an AT&T data plan for your smartphone, iPad, or tablet; or a Verizon data plan for your Jetpack mobile-hotspot device."

ISP, even an ISP *offering slower speeds*, if their current ISP were to take any of the following actions: "prevent access to favorite websites"; "slow down Internet speeds for your favorite websites"; or "slow down Internet speeds for Netflix." Specifically, the percentage of survey respondents likely to switch to an ISP *offering slower speeds* if any of the three actions described above were taken ranges from 71-80 percent for all users; 72-79 percent for heavy Internet users, and 75-81 percent for frequent streaming video users (see Figure 4).[101]

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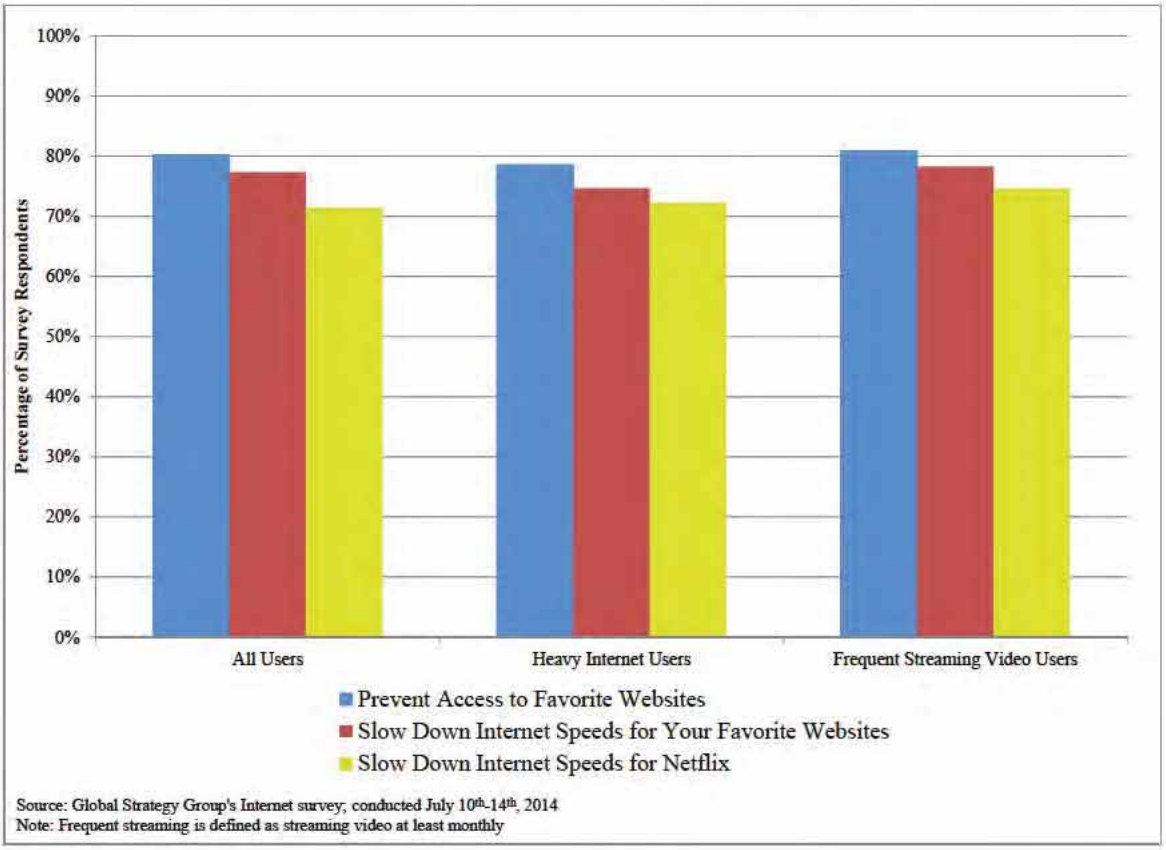
[101] Note that "likely to switch to another ISP" includes "very" and "somewhat" likely to switch responses, and frequent streaming video users are respondents who stream video at least once per month.

Figure 4: Percentage of Survey Respondents Likely to Switch to an ISP Offering Slower Speeds if Their ISP Takes Selected Actions



91. The results of the survey are striking: If a customer's broadband provider were to limit access to edge providers, the vast majority of customers would switch to an alternative broadband provider, even one that offers slower speed.[102] Put differently, access to edge providers (which is possible on lower speeds, as discussed above) appears to trump speed as a driver of consumer choice for most consumers. Hence, the

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102 *See* Appendix I for a more detailed summary of the survey results.

availability of alternative broadband providers, even those providing slower speeds, places an important competitive constraint on the behavior of Comcast or other broadband providers toward edge providers.

92. The percentage of survey respondents likely to switch to another ISP *like DSL or Wireless Broadband* if any of the three actions listed above ranges from 77-86 percent for all users; 79-85 percent for heavy Internet users, and 81-87 percent for frequent streaming video users. Hence, empirical evidence indicates that DSL and wireless are relevant competitive constraints.

93. Some commenters have also argued that once a consumer chooses a broadband provider, she generally does not change the provider because of switching costs (Chairman Wheeler also referenced switching costs in recent remarks).[103] However, the empirical evidence on customer switching does not bear out this concern. For instance, the GSG survey found that consumers switch broadband providers frequently. As Table 14 in the Appendix shows, one-third of survey respondents switched providers in at least the past two years, and nearly half (49 percent) switched providers within the past four years.[104]

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[103] *Evans Declaration*, § II.E; *Sappington Declaration*, ¶ 38 and note 48; *Wheeler Remarks*, 4.

[104] The percentages in Table 14 include survey respondents who departed following a move. To the extent that customers switch ISPs when they move, this means that moves break whatever switching costs exist and give ISPs a chance to compete for moving customers.

94. Furthermore, Comcast's data shows that the monthly churn rate for broadband customers has been in the **[[ ]]** percent range for several years.[105] This implies that over the course of a single year, approximately **{{ }}** of Comcast's broadband customers churn, which is in line with the results of the GSG survey.[106]

D. CONSTRAINTS IMPOSED BY POTENTIAL ENTRY OR EXPANSION BY POWERFUL NEW BROADBAND PROVIDERS WITH VESTED INTEREST IN COMPETITIVE BROADBAND MARKETS

95. In evaluating the competitive threats that shape Comcast's strategy, one cannot disregard the important role played by potential entry or expansion by new broadband alternatives. The leading example of such a new entrant is Google Fiber.[107] The Israel

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Nonetheless, even if I exclude all respondents that moved, I still obtain evidence indicating substantial switching. In particular, results without movers indicate that approximately one-quarter of survey respondents switched providers in at least the past two years, and more than 40 percent switched providers within the past four years.

105 *See* Comcast data produced in FCC Information and Data Request – Exhibit.4.2(e), Exhibit.4.6(a), Exhibit.4.9(a).

106 The churn data from Comcast also includes movers, which, as explained above, is not problematic because moves appear to break any switching costs and give other ISPs an opportunity to compete for customers. Nevertheless, the churn remains high even if I remove the component associated with movers. In particular, Comcast data indicates that approximately **[[ ]]** of aggregate broadband churn is due to customers moving. Hence, I remove movers from the churn data as follows: Assuming that the aggregate monthly churn rate is **[[ ]]** percent (midpoint of **[[ ]]** percent), monthly churn excluding movers is **[[ ]]** percent (*i.e.* **[[ ]]**), and therefore the implied churn excluding movers is approximately **[[ ]]** percent annually.

107 For further discussion of current and expected entry and expansion plans, *see, e.g.*, "Telcos Extend Lead in 1 Gbps Race," *SNL Kagan*, September 2, 2014 ("A look at the landscape for the fastest residential HSD offerings from top U.S. providers shows AT&T Inc.'s GigaPower in the lead, Google Inc.'s Google Fiber primed for expansion, and cable

Declaration discussed the launch of Google Fiber, which offers broadband speeds of up to 1 Gbps in both directions.[108] Evidence since that declaration has confirmed Google Fiber's success. In Kansas City, one of the first cities with Google Fiber, survey results indicate Google Fiber's penetration rate has exceeded *50 percent* of homes passed, with substantially higher rates in higher income neighborhoods.[109] Furthermore, customer satisfaction with Google Fiber has been *extremely high*; the median score for "likelihood to recommend Google Fiber" is 10 out of 10 (10 = always recommend it) according to a survey.[110] Given this success, a recent Bernstein research report concludes: "there are material chances that Google could build a network passing 20 or 30 million US homes and small businesses in the US profitably."[111]

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slow to enter. Based on a compilation of company announcements, the top telcos combined have targeted almost 40 major metropolitan areas for 1 Gbps services and have deployed the offering in 14 of those areas as of August."). *See also*, Bryan Nichols, "3 Reasons Why Investors Should Avoid Comcast Corporation," *The Motley Fool*, September 8, 2014, *available at* http://www.fool.com/investing/general/2014/09/08/3-reasons-why-investors-should-avoid-comcast-corpo.aspx, *site visited* September 8, 2014. ("In the past, Comcast had one maybe two competitors, often Time Warner Cable included, but now both Google and AT&T are rapidly building faster networks to compete. So, Comcast could lose customers; to avoid that fate, it'll have to lower prices, affecting revenue or margins either way.")

108 *Israel Declaration*, ¶ 51.

109 "Google Fiber: How Well Is It Doing in Kansas City," *Bernstein Research*, May 6, 2014.

110 *Ibid.*

111 "Google Fiber: Scale Matters – How Large Could It Be? How Fast Could It Grow? Introducing Bernstein's BIGR Model," *Bernstein Research*, May 7, 2014.

96. Municipal overbuilds are also potential broadband entrants, and they are supported by the FCC and others. For example, a recent article in *Law360* noted:[112]

> Netflix Inc. is throwing its weight behind the effort to get the Federal Communications Commission to override state laws barring or restricting local municipalities from building their own broadband networks . . . FCC Chairman Tom Wheeler, who has repeatedly said that such laws conflict with his agency's statutory mandate to increase consumer access to broadband, has warned that he might use his authority to preempt them.

97. In addition, in a recent speech Chairman Wheeler could not have been much clearer: "Where greater competition can exist, we will encourage it… where meaningful competition is not available, the Commission will work to create it."[113] One would expect that Comcast heard this message and thus would consider the possibility of Commission action before taking any post-transaction actions to harm broadband competition or edge providers.

98. To be clear, I am not claiming that Google Fiber, municipal broadband offerings, or other such providers are alternatives for a large percentage of Comcast broadband customers today. Although these competitors are relevant in certain markets, their current footprint remains limited. Instead, the threat to Comcast comes from the long-term

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[112] Bill Donahue, "Netflix Jumps Into Fight Over City-Run Broadband," *Law360*, September 3, 2014. *See also, e.g.*, Masha Zager, "Number of Community FTTP Networks Reaches 143," *Community Broadband*, August/September 2014, *available at* http://bbcmag.epubxp.com/i/374665, *site visited* September 9, 2014, 10-14.

[113] *Wheeler Remarks*, 6.

strategies of these potential entrants or expanders. These entrants are entities with a vested interest in ensuring that broadband remains competitive and that broadband offerings continue to improve—Google to support its various businesses, as perhaps the most prominent edge provider, and municipalities to support local economic growth and attract businesses to the community.[114] As such, if Comcast fails to continue to upgrade its broadband service or degrades the quality of its service by harming edge providers, it would face a heightened risk that these providers would enter or expand to thwart such efforts. Moreover, to the extent that any actions by Comcast were to degrade its broadband service, the evidence presented above indicates that this would cause many

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[114] *See, e.g.*, Jon Brodkin, "AT&T: Cities Should Never Offer Internet Service Where ISPs Already Do or Might Later," *Ars Technica*, September 2, 2014, *available at* http://arstechnica.com/business/2014/09/att-cities-shouldnt-offer-broadband-where-private-isps-already-do-or-might-later/, *site visited* September 11, 2014 ("Community broadband isn't widespread, but local governments have sometimes built their own networks when service offered by private ISPs was too slow, expensive, or both."); Heather Bellini, Jason Armstrong, Drew Borst, Brian Baytosh, and Dan Pelligrini, "Google Fiber – Build or Bluff," *Goldman Sachs*, June 28, 2013, 1 ("Fiber's vastly greater speeds have the potential to drive more processing to the cloud and accelerate HTML5 adoption . . . These last two moves could serve to cement Google's dominance as a provider of enhanced web-services on both mobile devices and PCs . . . Google is ultimately indifferent to whether it or incumbent broadband providers deliver fiber-optic internet speeds since either case supports the company's vision of an open, services-based web."); Jon Brodkin, "Fed up with Slow and Pricey Internet, Cities Start Demanding Gigabit Fiber," *Ars Technica*, November 22, 2013, http://arstechnica.com/business/2013/11/fed-up-with-slow-and-pricey-internet-cities-start-demanding-gigabit-fiber/, *site visited* March 13, 2014 ("Louisville government officials believe, as many other municipal officials in US cities do, that fiber networks are crucial for attracting and retaining businesses, which increasingly need copious amounts of bandwidth to remain competitive.").

customers to wish to switch providers. If those customers do not have good competitive alternatives—as some commenters allege—this would create a source of potential profits for new entrants, increasing the likelihood that broadband investments would be profitable. The success of existing Google and municipal efforts, even if in only a few markets to date, means these are not threats Comcast can simply ignore.[115]

99. Notably, Dr. Evans supports the view that Comcast will consider medium-/long-term entry threats in assessing its strategy today. In particular, he argues that Comcast may attempt to harm OVDs today in order to deter long-term broadband entry.[116] Dr. Evans and I agree that long-term entry decisions by potential broadband providers influence Comcast's decisions today, but we reach opposite conclusions on the implications. To understand why my version is correct, one simply needs to recognize that Google and/or municipalities would step in to prevent Comcast from impeding broadband competition and OVD development and that firms like Google would take advantage of the ability to steal dissatisfied Comcast customers to enter and expand profitably, a possibility supported by industry observers. To believe Dr. Evans' version,

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[115] Comcast has recognized this threat in its internal documents (*see, e.g.,* **[[ ]]**). Comcast's reaction to the threat has also been documented by third parties (*see, e.g.,* Karl Bode, "Comcast Fights Google Fiber in Provo with New Pricing," *DSLReports.com*, August 15, 2013, *available at* https://secure.dslreports.com/shownews/Comcast-Fights-Google-Fiber-in-Provo-With-New-Pricing-125390, *site visited* September 11, 2014 .

[116] *See, e.g., Evans Declaration*, ¶¶ 178-179.

one would have to believe that (i) Comcast has the ability to thwart the development of the OVD industry and (ii) seeing Comcast doing so, Google, municipalities, and others would *reduce* their efforts to enter and expand and choose simply to let this occur. As already discussed, point (ii) is implausible. Point (i) may be even more implausible. Comcast would need to prevent the development of successful OVDs by powerful firms like Google, Apple, Amazon, Netflix, Sony, and others.[117] And it would have to do so despite having recently agreed to a long-term interconnection contract with Netflix (thus protecting Netflix from foreclosure), and despite the fact that firms like Google, Apple, Amazon, and Sony all view OVD offerings as a way to support other parts of their core businesses. I discuss Comcast's lacks of incentive and ability to foreclose OVDs in more detail in the next section.

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[117] Netflix and Amazon are, of course, already highly successful OVDs (*see, e.g.*, Richard Greenfield, "HBO's Amazon Agreement Illustrates Netflix Is a Competitive Media Brand, Amazon Is Not … for Now," *BTIG Research*, April 24, 2014, *available at* http://www.btigresearch.com/2014/04/24/hbos-amazon-agreement-illustrates-netflix-is-a-competitive-media-brand-amazon-is-not-for-now/, *site visited* September 1, 2014 ("HBO fears Netflix's growing industry power. We suspect HBO wanted to balance Netflix's growing media industry hegemony by helping to bolster their largest direct-to-consumer, SVOD competitor – Amazon."). Sony's ongoing efforts to develop and launch an OVD service are well documented in the public domain (*see, e.g.*, note 127 of this declaration, which indicates that Viacom will be providing "22 channels to Sony's upcoming virtual pay-TV service."). Regarding Apple's OVD plans, it was recently reported that "[f]or several months now, rumors have continually suggested Apple is working on a new television product, which may be an updated set top box with capabilities like support for games and apps and expanded access to television content." (*See* Juli Clover, "New Apple TV Likely Delayed Until 2015 Due to Negotiation Difficulties," July 30, 2014, *available at* http://www.macrumors.com/2014/07/30/apple-tv-launch-delayed/, *site visited* September 11, 2014).

IV. COMMENTERS' FORECLOSURE-BASED THEORIES OF HARM ARE WITHOUT MERIT

100. Some commenters allege that post-transaction, Comcast would intentionally degrade (or deny) OVD access to the combined firm's broadband network (or other assets)[118] in order to weaken OVD competition. For example, Dr. Sappington states that Comcast has an "arsenal of weapons" to "reduce the quality of competing OVD services, as perceived by Comcast's broadband customers."[119] Dr. Evans concludes that "Comcast has the *ability and incentive* to degrade significantly the quality of service that its subscribers obtain from an OVD" and that Comcast's incentives to foreclose OVDs are heightened because, among other reasons, "its subscribers are likely to increase their viewing of Comcast video content if they cannot view content from OVDs."[120]

101. In the economic literature, such a theory is known as "foreclosure." In basic terms, the theory is that a firm may be able to leverage market power in one market (the

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[118] I note that, as a general matter, foreclosure could take the form of reducing OVD access to broadband customers or limiting OVD access to NBCUniversal content. Comments mainly focus on the former, but much of the logic described below applies to both and the conclusion is the same: The combined firm would lack both the ability and incentive to foreclose OVDs.

[119] *Sappington Declaration*, ¶ 30.

[120] *Evans Declaration*, ¶¶ 91, 117 [emphasis added]. *See also, e.g., Farrell Declaration*, ¶¶ 78-86.

"primary market") to foreclose competition in a second "adjacent market."[121] In some cases, the foreclosure takes the form of "tying," in which sale of a firm's product in the adjacent market is "tied together" with sale of a product in the primary market, in order to drive competitors out of the adjacent market. The theories advanced in this case are quite similar to tying—if Comcast can prevent OVDs from using its broadband network then Comcast customers would have to use Comcast's various video services (*e.g.*, its traditional linear video services, perhaps combined with non-linear options such as VOD), effectively tying those services to Comcast's broadband and thus, if the effort were successful, leveraging Comcast's position in broadband to drive out OVD competition.

102. For a theory of vertical foreclosure to make sense, the firm engaging in the foreclosure strategy ("the foreclosing firm") must have *both* the ability and the incentive to foreclose the "target."[122] The ability to foreclose generally requires that the foreclosing firm has sufficient scale and market power to drive the target out of business (or prevent it from entering in the first place).[123] The incentive to foreclose requires that the strategy

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121 Patrick Rey and Jean Tirole (2007), "A Primer on Foreclosure," in *Handbook of Industrial Organization*, Volume 3, Mark Armstrong and Robert Porter, eds., Amsterdam: Elsevier (hereinafter, *Rey and Tirole (2007)*).

122 Note that Dr. Evans himself uses this "ability and incentive" formulation in the quotation above.

123 In theory, one could also consider strategies to weaken the competition without driving them out of the market, but if competitors are not driven from the market but rather just weakened, this may simply cause them to become intense price competitors, generally not a good outcome for the firm engaging in foreclosure. *See, e.g., Rey and Tirole (2007)*,

will sufficiently benefit the foreclosing firm in the adjacent market to make up for the loss incurred in the primary market. For example, under commenters' foreclosure theory that the combined firm would restrict OVD access to its customers, one would need to show both that this could significantly weaken OVD competition (ability) and that Comcast's gain from so doing would offset the (likely significant, based on the analysis in Section III.C) reduction in broadband profits (incentive).

103. Although economic theory is clear that a coherent foreclosure theory requires that the combined firm have *both* the ability and the incentive to foreclose OVDs, I show in this section that the combined firm would actually have neither. In particular, available evidence indicates that the transaction would not provide the combined firm with the ability to harm OVD competition to any significant degree, and an analysis of both Comcast's behavior (and thus revealed preferences) and the complementary relationship between the OVD and broadband businesses demonstrates that it does not have the incentive to engage in foreclosure.

A. THE COMBINED FIRM WOULD LACK THE ABILITY TO FORECLOSE OVDS

104. For several reasons, the combined firm would lack the ability to foreclose OVDs. Many of these reasons make use of the evidence presented in Section III on the

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2185. In the present case, this could be a particularly bad outcome for Comcast, as weaker OVDs may also reduce their purchases of NBCUniversal content.

constraints that edge providers, customers, and emerging broadband alternatives place on Comcast; others are unique to theories of vertical foreclosure.

105. **First** and most basically, as explained above, Comcast lacks the ability to deny OVDs access to its network without enormous disruption to its Internet service. Comcast's commitment to the Open Internet rules (vis-à-vis the last mile) and the competitiveness of the Internet backbone means that any efforts to degrade edge provider access would have to occur at interconnection points between the two. But, as explained in Section III.B, OVDs (and edge providers generally) can rely on one or more transit providers or CDNs, which pool their traffic with the content from many other edge providers, to deliver their content to Comcast or other ISPs. Hence, to deny (or significantly impair) access to a particular OVD, Comcast would have to deny (or significantly impair) access to all (or at least most) major CDNs and transit links, else the OVD could rely on those alternatives to reach the Comcast network. Denying or significantly impairing access to multiple routes would be a hugely costly step for Comcast, greatly limiting its customers' access to much of the Internet's content. Notably, Netflix's recent disputes with Comcast occurred only after Netflix chose to stop using third-party CDNs and to limit its massive traffic to six transit providers.[124] And,

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[124] Declaration of Ken Florance, Attachment to Petition to Deny of Netflix Inc., August 25, 2014 (hereinafter, *Florance Declaration*), ¶¶ 30-50; *McElearney Declaration*, ¶¶ 23-24 and 36-42.

even in this case, Netflix and Comcast eventually agreed to terms for direct interconnection, with Netflix now protected from foreclosure for the next **{{**

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106. **Second** and more generally, the idea that Comcast could foreclose the set of OVDs that already (or will soon) exist is beyond credibility. At this point, the leading OVDs are far from small start-ups that might be driven out of the market; many are extremely large, well-established firms, several with market capitalization that exceeds Comcast's.[126] Examples include Google, Amazon, Sony, Apple, Netflix, and Dish Network.[127] Moreover, as noted above, many of these are firms for which OVD service

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125 *See* Letter from Kathryn A. Zachem, Comcast Corporation, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 14-57 (Sept. 17, 2014) (enclosed documents on CD-ROM); Letter from Matthew A. Brill, Latham & Watkins, LLP, Counsel to Time Warner Cable Inc., to Marlene H. Dortch, Secretary, FCC, MB Docket No. 14-57 (Sept. 17, 2014) (enclosed documents on CD-ROM).

126 Comcast's market capitalization at market close on September 10, 2014, was $147 billion compared to $153 billion for Amazon, $401 billion for Google, and $605 billion for Apple (WolframAlpha, *available at* http://wolframalpha.com, *site visited* September 11, 2014).

127 *See, e.g.*, Daniel Frankel, "Viacom to deliver channels to Sony's new OTT service," *FierceCable*, September 10, 2014, *available at* http://www.fiercecable.com/story/viacom-deliver-channels-sonys-new-ott-service/2014-09-10?utm_medium=nl&utm_source=internal, *site visited* September 10, 2014 ("Viacom has struck a deal to provide 22 channels to Sony's upcoming virtual pay-TV service . . . Viacom has agreed to provide live-streaming access to leading channels such as BET, Comedy Central, MTV and Nickelodeon, as well as TV Everywhere authentication and video-on-demand rights. It's the first major announcement relating to Sony's secrecy-shrouded over-the-top service since it was first announced in January . . . In what is shaping up to be a rival OTT pay-TV initiative, Dish Network has secured similar digital rights to Disney and A&E Networks programming for its own upcoming OTT service.").

supports fundamental parts of their business, including search and related services and ad revenue for Google, the overall sales platform and "Prime" service offered by Amazon, hardware sales by Apple, and so on. It is not credible that Comcast could drive these firms out of the market.

107. **Third,** the lack of credibility of a successful foreclosure strategy is heightened by the fact that, in practice, the ability to foreclose OVDs effectively requires the ability to foreclose *all* OVDs. If some combination of the powerful and/or contractually protected OVDs listed above were to survive, any foreclosure efforts by Comcast would at most affect only *additional* OVDs beyond the core set. A primary effect of such partial foreclosure would be to benefit the core, existing set of OVDs, who would likely capture many of the customers departing other, foreclosed OVDs. As such, Comcast would bear the costs of a strategy that would largely benefit other OVDs. Such a strategy is unlikely to be profitable.

108. **Fourth**, following the "open field" logic that the Commission has used in other settings,[128] the pool of non-Comcast/TWC broadband customers in the marketplace

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See also, e.g., "September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request," RFI 13.A.2., 32-36, which includes a list of potential OVD entrants.

128 I note that I am not evaluating or endorsing this logic but rather investigating how it applies to the present setting. *See* Fourth Report & Order and Further Notice of Proposed Rulemaking, *In the Matter of The Commission's Cable Horizontal and Vertical Ownership Limits; Implementation of Section 11 of the Cable Television Consumer*

provides more than sufficient scale for an OVD to succeed even if (counterfactually) that OVD had no access to the combined firm's customers. In particular, even if one considers only domestic customers—obviously an overly narrow view given that OVDs are generally global—and even if one assumes that the combined firm would "control" its customers—an incorrect view given their available alternatives and demonstrated willingness to switch—there are still plenty of *other* broadband customers to support an OVD, making a foreclosure theory implausible.

109. Table 5 provides the numeric support for this conclusion. In particular, the table compares customer levels that have proven themselves to be sufficient for viability in various analogy cases to the number of customers available to an OVD that (counterfactually) did not have access to Comcast and TWC customers. In particular:

- Lacking direct data on the number of customers an OVD needs to succeed, the table considers a wide range of possible benchmarks, including the threshold the Commission has used for required scale in the MVPD context, the number of

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Protection and Competition Act of 1992; Implementation of Cable Act Reform Provisions of the Telecommunications Act of 1996; Review of the Commission's Regulations Governing Attribution of Broadcast and Cable/MDS Interests; Review of the Commission's Regulations and Policies Affecting Investment in the Broadcast Industry; Reexamination of the Commission's Cross-Interest Policy, MM Docket No. 92-264, MM Docket No. 92-264, CS Docket No. 96-85, MM Docket No. 94-150, MM Docket No. 92-51, MM Docket No. 87-154, December 18, 2007, *available at* https://apps.fcc.gov/edocs_public/attachmatch/FCC-07-219A1.pdf, *site visited* September 19, 2014. I also note that the D.C. Circuit reversed this order in *Comcast Corp. v. FCC (2009) (Comcast Corp. v. FCC, 579 F.3d 1, 9 (D.C. Cir. 2009)).*

customers currently served by a range of successful premium channels and MVPDs, and Netflix itself.

- To determine the number of customers available to an OVD, the table relies on the existing 3 Mbps broadband definition. Whatever one's view on the definition of "broadband," Netflix has stated publicly and demonstrated that it can provide video at broadband speeds as low as (or lower than) 3 Mbps, making this the relevant threshold for considering customers available to an OVD.[129]

110. As seen in the table, when counting wireless customers, the benchmark cases are always less than 30 percent and generally less than 20 percent of the "open field" of non-Comcast/TWC broadband customers. Even without counting wireless customers (something that is becoming increasingly hard to justify given OVD focus on this

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[129] *See* Netflix Internet Connection Speed Recommendations, *available at* https://help.netflix.com/en/node/306, *site visited* September 12, 2014. *See also* Michael Nathanson, Robert Fishman, and Andrew Izaguirre, "Netflix: The Law of Large … and Small Numbers," *MoffettNathanson*, February 26, 2014, 3 ("When we first launched on the company, we made the underlying assumption that Netflix's addressable U.S. universe was tied to the underlying U.S. broadband market excluding the homes where broadband is sourced by slower DSL technology. However, in thinking about the addressable universe further (and discussing usage trends with internet-connected device manufacturers), we are revisiting our initial assumption that excluded DSL from these penetration curves. It would appear that the DSL user experience is still acceptable for streaming Netflix at lower speeds and, as such, we need to revise the underlying U.S. addressable market for broadband.")

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segment, as explained above), the benchmarks are substantially below (generally less than half of) the open field.

Table 5: Providers' Scale Compared to Non-Comcast and TWC Broadband (Residential + Commercial) Customers Nationwide (2012, HSD Speed of 3 Mbps/768 Kbps)

		With Divestiture (Mobile Wireless Included)	With Divestiture (Mobile Wireless Excluded)
Comcast TWC Customers		23,945,701	23,945,701
Non-Comcast Non-TWC Customers		104,526,299	40,650,299
Provider	**Customers**		
FCC Threshold	**19,030,000**	**18.2%**	**46.8%**
Premium Channel: HBO	28,720,000	27.5%	70.7%
Edge Provider: Netflix	25,471,000	24.4%	62.7%
Premium Channel: Showtime	22,329,000	21.4%	54.9%
Premium Channel: Starz	21,229,000	20.3%	52.2%
MVPD: DIRECTV	20,084,000	19.2%	49.4%
MVPD: DISH Network	14,056,000	13.4%	34.6%
Premium Channel: Cinemax	12,730,000	12.2%	31.3%

111. For completeness, Table 6 presents the overly conservative results based on a 10 Mbps threshold. The benchmarks continue to be smaller than the "open field," and in most cases, substantially so.

Table 6: Providers' Scale Compared to Non-Comcast and TWC Broadband (Residential + Commercial) Customers Nationwide (2012, HSD Speed of at Least 10 Mbps Downstream)

		With Divestiture (Mobile Wireless Included)	With Divestiture (Mobile Wireless Excluded)
Comcast TWC Customers		22,159,220	22,159,220
Non-Comcast Non-TWC Customers		37,636,780	28,985,780
Provider	**Customers**		
FCC Threshold	**19,030,000**	**50.6%**	**65.7%**
Premium Channel: HBO	28,720,000	76.3%	99.1%
Edge Provider: Netflix	25,471,000	67.7%	87.9%
Premium Channel: Showtime	22,329,000	59.3%	77.0%
Premium Channel: Starz	21,229,000	56.4%	73.2%
MVPD: DIRECTV	20,084,000	53.4%	69.3%
MVPD: DISH Network	14,056,000	37.3%	48.5%
Premium Channel: Cinemax	12,730,000	33.8%	43.9%

112. In sum, the "open field" is more than sufficient to support an OVD's business without any customers from the combined firm. This conclusion holds even though this analysis has considered only the domestic market. *In fact, the footprints of OVDs such as Netflix, Google, Amazon and others are clearly global, with global markets rapidly becoming as or more important than the US.* For example, Netflix ended the second quarter of 2014 with 13.8 million international subscribers, a 78 percent increase over the second quarter of 2013. That represents 27.6 percent of its total subscribers. This month (September 2014) Netflix is launching in Germany, France, Austria, Switzerland, Belgium, and Luxembourg, markets with more than 60 million broadband households. Executives say the move will "raise our current international addressable market to over

180 million broadband households, or *2x the number of current U.S. broadband households*."[130] Over the longer term, estimates indicate that the "company will have nearly 104 million subscribers globally by 2020."[131] It is implausible to think that a cable provider covering a subset of the US could foreclose an OVD with large and growing global operations.

113. **Fifth,** as documented in Section III.C, it is simply false that Comcast "controls" its customers. As commenters have shown, the typical Comcast customer has at least one broadband alternative, more in some cases, particularly when growing wireless options are included.[132] Furthermore, the vast majority of surveyed broadband customers indicate they would switch providers if their provider attempted to downgrade access to edge providers, even if that meant switching to a lower speed alternative, including DSL or wireless. And roughly **{{ }}** of Comcast's broadband customers do churn every year. As such, it is incorrect to model Comcast as a monopolist that "controls" its

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130 Reed Hastings and David Wells, Netflix Letter to Shareholders, July 21, 2014, *available at* http://files.shareholder.com/downloads/NFLX/0x0x769748/9b21df7f-743c-4f0f-94da-9f13e384a3d2/July2014EarningsLetter_7.21.14_final.pdf, *site visited* September 18, 2014 [emphasis added].

131 Daniel Frankel, "Netflix Euro rollout puts it on track to 100M-plus international subs by 2020," *FierceCable*, September 22, 2014, *available at* http://www.fiercecable.com/story/netflix-euro-rollout-puts-it-track-100m-plus-international-subs-2020/2014-09-22?utm_medium=nl&utm_source=internal, *site visited* September 22, 2014.

132 *Evans Declaration*, § II.C and Table 2; *Farrell Declaration*, § III.E.

customers; the vast majority of such customers have alternatives, and thus the "open field" of customers for an edge provider certainly includes Comcast's own customers, further demonstrating that the combined firm lacks the ability to foreclose OVDs.[133]

114. Dr. Evans' Table 7 appears to be an attempt to refute the above two points, as he uses it to claim that the ability of "very large" ISPs to harm OVDs increases "dramatically" with ISP size.[134] However, notably, Dr. Evans does not claim that the combined firm could actually foreclose Netflix or other OVDs from competing; in fact, he acknowledges that Netflix would still be able to operate even if it did not come to terms with the merged firm.[135] Further, Dr. Evans' analysis in Table 7 is flawed because he ignores the fact that Netflix customers have choices among ISPs, and that if Comcast were no longer an option for obtaining Netflix service, some customers would switch to another ISP. Switching to another ISP would harm Comcast, not Netflix. Table 7 also excludes *all* of Netflix's global operations, a rapidly growing source of revenue and profit for Netflix that Comcast cannot affect, as discussed above.

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133 I also note that "Comcast does not unilaterally 'downgrade' the capacity of its interconnection links with counterparties and rarely, if ever, decommissions ports." (*See, e.g.*, "September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request," RFI 73, 193-194.).

134 *Evans Declaration*, ¶ 140.

135 *Id.*, ¶ 168 and note 123. As noted above in footnote 123, as a matter of economics, a foreclosure strategy that leaves OVDs in the marketplace is unlikely to be profitable, even more so because any reduction in NBCUniversal content purchased by the OVD would be harmful to Comcast.

115. **Finally,** none of the theories presented by commenters has pointed to any transaction-specific evidence of harm. In particular, no one has presented any evidence that the incremental number of customers that Comcast would gain from the transaction (post-divestiture) would make the difference between Comcast having or not having the ability to foreclose customers.

B. THE COMBINED FIRM WOULD LACK THE INCENTIVE TO FORECLOSE OVDS, JUST AS THE MERGING PARTIES LACK THIS INCENTIVE TODAY

116. Not only does the first necessary condition for a foreclosure theory (ability to foreclose) fail, so does the second necessary condition (incentive to foreclose).

1. The merging parties' behavior reveals that they have no incentive to foreclose OVDs

117. When considering whether the combined firm has an incentive to foreclose OVDs, I start by noting that no commenter has advanced a theory that explains why the transaction would create an incentive that does not, by the same logic, exist for Comcast today. That is, any theory under which the video gains would offset the broadband losses and thus support a foreclosure strategy would also apply to Comcast today. Hence, the actions that Comcast has taken on its own, to date, provide the clearest answer to the question of whether Comcast has an incentive to foreclose OVDs, as suggested by some

commenters. And, in fact, those actions demonstrate that Comcast does not have such an incentive.

118. As part of regular business operations, Comcast has engaged in negotiations with various edge providers and their agents over interconnection terms—the most publicized being with Netflix.[136] The outcome of those negotiations indicates that Comcast has not sought to foreclose Netflix. In particular, as explored in more detail in Section V.A,

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In its post-agreement communications with Comcast, Netflix agreed that it was not harmed by the agreement.[137] This behavior is not consistent with Comcast having an incentive to harm Netflix.

119. Two features of the Comcast-Netflix agreement demonstrate Comcast's lack of incentive to harm Netflix's competitiveness most clearly:

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[136] Despite commenters' inferences to the contrary *(Evans Declaration*, ¶ 117; *Farrell Declaration*, ¶¶ 10, 13, 130, and 177), it is not surprising (or indicative of any foreclosure incentives) that Comcast did not put additional interconnection capacity in place until these negotiations were completed and thus the terms for payment for such capacity expansions were resolved. To the contrary, this is an entirely standard process: When additional capacity beyond that contemplated in an existing agreement is needed, a commercial negotiation is required, and once terms are reached, capacity can be added. (*See McElearney Declaration*, ¶¶ 18, 32).

[137] *See McElearney Declaration*, ¶ 44.

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}}.[138] **{{**

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138 Sam Schwartz, Chief Business Development Officer, Comcast Cable, July 22, 2014, interview.

120. Moving beyond just the Netflix agreement, another indicator of the merging parties' lack of intention to harm OVDs comes from **{{**

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121. **{{**

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[139] The OVDs considered in the sample include **{{**

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2. Economic theory explains why the merging parties have shown no incentive to foreclose OVDs

122. OVDs are obviously complementary to Comcast's broadband business. As such, Comcast's revealed lack of incentive to foreclose OVDs (pre- or post-transaction) is fully consistent with economic theory. In particular, economic theory is clear that it is generally not profitable to leverage market power in one market to foreclose competition in a closely complementary market, even when competitors produce high-quality and/or low-cost products. As Rey and Tirole explain, firms with market power in a primary

market do not want to exclude "low-cost and high-quality varieties" from the adjacent market "since their presence makes its own [primary] product more attractive to consumers."[140]

123. The basic logic against foreclosure of complementary products is straightforward: The strong competitive OVDs add value and thus grow the overall "pie" of profits available to the OVDs and Comcast collectively, and thus Comcast is better off letting them do so and then profiting from this via its broadband business, rather than attempting to foreclose OVD competition and shrinking the overall pie. The simplest version of this theory applies to the hypothetical case where Comcast would seek to foreclose OVD competition in order to enhance its own OVD business—the theory indicates that this would generally not be profitable, as Comcast would be better off letting the competing OVDs grow the overall pie and profiting through its established broadband service. But the logic also applies to a theory that Comcast would foreclose OVDs to drive customers to its traditional video offering. Indeed, in this case, foreclosure would likely be even

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[140] *Rey and Tirole (2007)*, 2182. Note that Dr. Evans himself refers to the possibility of "offsetting factors" that would lessen incentives to foreclose. Presumably he has in mind the harm to broadband profits. Notably the empirical analysis above makes clear that these offsetting factors have eliminated any theoretical incentive to foreclose OVDs. And the theory is also clear. Although Dr. Evans argues vaguely and weakly that because "MVPD and broadband services are not consumed in fixed proportion…the Chicago single-monopoly profit theorem does not necessarily hold," I do not rely on a general reference to that theorem to show there is no incentive to foreclose, but rather demonstrate it for this specific case, including via specific discussion of the import of the negotiation between Comcast and Netflix. (*See Evans Declaration*, ¶ 176 and n. 131.)

worse for Comcast's broadband business (since traditional video does not rely on broadband and thus would not prop up its value as OVDs are removed) while (as shown in the CLV calculations in Section III.C.1), above, it would offer limited profits to make up for this loss.[141]

124. Finally, the fact that Comcast negotiates directly with OVDs (or their agents) completes the point. Bottom line, for those OVDs that grow the overall pie, fundamental economic logic indicates that Comcast and the OVD can always find a "middle ground" that leave them both mutually better off than they would be under a foreclosure strategy.[142] And notably this is precisely how Netflix described the outcome of the negotiations in communications with Comcast.[143]

125. To be sure, Comcast may have incentives to develop strong, in-footprint over-the-top video offerings to compete more effectively with OVDs, though it has not entered that market today in any meaningful way. But such competition is fundamentally different

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141 It is also worth noting that such a foreclosure theory would imply that OVDs are in the same market with traditional video. This theory would still involve Comcast harming complementary products (OVDs) in an adjacent market (all video), rather than letting successful OVDs continue to grow and capturing this value via the complementary broadband service.

142 This logic has been long understood in economics, dating back to Nobel Prize winner Ronald Coase. As summarized by another Nobel Prize winner, George Stigler, "Ronald Coase taught us, what of course we should already have known, that when it is to the benefit of people to reach an agreement, they will seek to reach it." (George J. Stigler (1989), "Two Notes on the Coase Theorem," *The Yale Law Journal*, 99.3: 631-633.)

143 *McElearney Declaration*, ¶ 44.

from foreclosure—it is good for the broadband business and, should OVDs respond with their own competitive initiatives, that is all the better for broadband. This is much like the case of Google entering the broadband business; Google may well have anticipated the competitive response from other broadband providers but its core edge provider business *benefits* from this competitive response. This logic is what makes Google such a strong competitive threat in broadband. And the same logic applies to Comcast in the OVD business—Comcast has incentives to compete aggressively with OVDs, in part because stimulated responses are good for broadband, unlike any attempts at foreclosure.

126. Dr. Farrell advances the hypothesis that Comcast could have an incentive to hurt complementary OVD offerings if, in so doing, it hurts other competitors (*e.g.*, other ISPs or MVPDs) more than it hurts itself.[144] Although theoretically possible, such a hypothesis does not apply to the facts of this case: Harming broadband inputs would harm Comcast more than other ISPs or MVPDs, not less. Comcast has spent tens of billions of dollars to develop its high-quality broadband network, which now offers very high-quality broadband service with speeds up to 505 Mbps, with the quality of this broadband network an important source of competitive differentiation that Comcast uses to win customers.[145] The existence of a vibrant OVD sector is complementary to this strategy, as

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[144] *See, e.g.*, *Farrell Declaration*, ¶ 83.

[145] *Israel Declaration*, ¶ 167.

it provides the applications that make best use of Comcast's high-speed broadband network. Moreover, given that, under such a strategy, Comcast would have degraded access to OVDs, it seems far-fetched that angry Comcast broadband customers would then turn to (or increase their use of) Comcast video offerings; rather, it seems more likely that customers would prefer to turn to offerings from other providers. For all these reasons, a strategy to foreclose OVDs by harming their access to the Comcast broadband network would harm Comcast more than the competition. By Dr. Farrell's own logic, this means that Comcast does not have an incentive to foreclose OVDs.

127. Alternatively, one might hypothesize that Comcast would foreclose OVDs in order to benefit itself in some largely independent market (rather than one that is complementary to Comcast's broadband offerings). One possible hypothesis would be that Comcast wants to foreclose OVDs in order to support expansion of its own OVD (or other video) offerings into new *geographic markets*. However, such a theory does not withstand scrutiny because Comcast has no plans to offer online video offerings outside its footprint Historically, **{{**

}}.[146] Further, Comcast has no plans to extend its geographic footprint by overbuilding another cable operator's territory. Indeed, to my knowledge, no incumbent cable operator has overbuilt another cable operator's territory. As discussed more extensively in Section VII.A, the primary reason that Comcast and other cable companies have not opted to expand into each other's franchise areas is that the fixed costs are too high, causing the return on investment to be either negative or insufficient relative to other strategic options.

128. Alternatively, one could hypothesize that Comcast would have an incentive to foreclose OVDs to protect its NBCUniversal broadcast and cable networks from competition that would reduce their revenues.[147] However, this claim also does not withstand scrutiny. First, OVDs do not threaten NBCUniversal to any significant degree. As Netflix as well as other industry participants and analysts have acknowledged, OVDs such as Netflix compete primarily with premium channels like HBO and Showtime, and not with NBCUniversal, which does not offer such premium channels.[148] Even more

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146 *See, e.g.*, **{{**

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147 *See, e.g.*, *Sappington Declaration*, ¶ 51.

148 *See, e.g.*, Michael Nathanson, Robert Fishman, and Andrew Izaguirre, "2Q Preview: We Interrupt the M&A Show For Earnings," *MoffettNathanson Research*, July 21, 2014, at 1 ("We believe Netflix will, over time, look like HBO in content offerings, margin, pricing strategy, and, one day, subscriber growth."); Reed Hastings, Facebook post, August 6, 2014, *available at* https://www.facebook.com/reed1960/posts/10152414721999584, *site*

fundamentally, there are dozens of existing broadcast and cable networks, so the notion that foreclosing OVDs would have a material effect on the profitability of any NBCUniversal network is far-fetched. And finally, this theory ignores the complementarity between OVDs and NBCUniversal content, which arises from the fact that OVDs purchase hundreds of millions of dollars per year in content from Universal studios and NBCUniversal's broadcast and cable networks, and is a source of complementarity that applies to *any* theory under which Comcast would seek to foreclose OVDs.[149]

129. In sum, the features of the broadband marketplace, Comcast's observed behavior, and economic theory all confirm that Comcast lacks both the incentive and the ability to foreclose OVDs.

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visited September 1, 2014 ("Minor milestone: last quarter we passed HBO is [*sic*] subscriber revenue ($1.146B vs $1.141B). They still kick our ass in profits and Emmy's, but we are making progress. HBO rocks, and we are honored to be in the same league."); and according to Netflix's chief content officer, the company's goal "is to become HBO faster than HBO can become us." (*See* Bryan Bishop, "Netflix wants at least five new shows a year: 'The Goal is to become HBO faster than HBO can become us," *The Verge*, January 29, 2013, *available at* http://www.theverge.com/2013/1/29/3930560/netflix-wants-at-least-five-new-shows-a-year-the-goal-is-to-become, *site visited* June 5, 2014.)

149 In 2013, NBCUniversal earned **{{ }}** in revenues from OVDs. (*See* Comcast data produced in FCC Information and Data Request- Exhibit 19.5(a).)

V. COMMENTERS' CLAIMS THAT INCREASED BARGAINING POWER WILL LEAD TO HIGHER PRICES TO EDGE PROVIDERS OR THEIR AGENTS ARE NOT SUPPORTED BY ECONOMIC THEORY OR EMPIRICAL EVIDENCE

130. The discussion thus far shows that commenters have advanced no coherent horizontal or vertical theory of harm from the transaction, including no coherent theory of OVD foreclosure. Moving beyond these more standard antitrust theories, commenters also advance "big is bad" claims that increasing Comcast's size—even in the absence of any overlap with TWC—would increase its bargaining power *vis-à-vis* edge providers or their agents and thus increase its ability to demand higher payments for interconnection.[150] Such bargaining theories are distinguished from the (already refuted) foreclosure theories addressed in Section IV in that they do not depend on a claim that Comcast seeks to defend its video business, but rather on a claim that Comcast's increased size post-merger will enable it to demand higher interconnection prices. The higher interconnection prices in such a theory need not occur as part of direct interconnection agreements with edge providers; instead they might be charged to edge providers' agents (*e.g.*, CDNs or transit providers who handle edge providers' traffic). But for such higher prices to even potentially form a coherent theory of competitive harm, a necessary (but far from sufficient, as seen below) condition is that they must result in higher prices to edge providers. In contrast, a situation in which an ISP sets up a direct interconnection

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[150] *Evans Declaration*, § III.E; *Farrell Declaration*, § VI; *Sappington Declaration*, § IV.E.2.

agreement with an edge provider—which may enable the ISP to secure incremental interconnection revenues, but which, due to the efficiencies from disintermediating a previously-used transit provider (*e.g.*, Cogent), enables the edge provider to secure lower quality-adjusted prices than before the agreement—cannot be the basis of a valid theory of harm.

131. In this section, I explain why marketplace realities, economic theory, and empirical evidence—including that presented by commenters, once properly interpreted—all reject this "big is bad" bargaining theory. Then, in Section VI, I explain why even if some outcomes predicted by commenters—including more direct interconnection deals between Comcast and edge providers or, more generally, higher prices to edge providers or their agents—were to occur, these outcomes would not harm competition or consumers.

A. MARKETPLACE REALITIES CONTRADICT THEORIES OF HARM BASED ON BARGAINING POWER

132. Perhaps the most striking feature of commenters' discussion of harms due to bargaining power is that they largely focus on allegations regarding Comcast's *current* size as an ISP and associated market power.[151] Of course, claims about Comcast's current bargaining power cannot establish incremental harms from the proposed combination

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[151] *Ibid.*

with TWC. But even more telling, if Comcast has such bargaining power today, then current marketplace outcomes provide a direct test of commenters' theories: Do current marketplace outcomes demonstrate high interconnection prices and limited interconnection options, as one would expect to see if commenters' claims that large size as an ISP parlays into excessive power over edge providers and their agents? The answer is decidedly no.

133. **First**, the fact that there are over 40 *settlement-free* paths into the Comcast network demonstrates that having a large number of broadband customers does not parlay into the ability to charge high prices for interconnection services. Indeed, the existence of that large number of paths substantially restricts Comcast's ability to exercise bargaining power on interconnection terms, even post-merger. In particular, if Comcast were to raise the price for only one or a small number of paths into its network, traffic would naturally flow to other paths. And a claim that Comcast could force higher prices on all paths—even though more than 40 are settlement-free today—would depend on an implausibly large and entirely unproven increase in bargaining power over the entire Internet backbone due to the proposed transaction.

134. **Second**, even where Comcast has entered into paid commercial agreements for direct interconnection, its prices have been very low, generally at or below market prices

for transit, which themselves have plummeted over time.[152] Consistent with this fact, payments for direct interconnection make up only a tiny sliver of the costs paid by edge providers and an even smaller percentage of edge providers' revenue (the relevant comparison to assess what effect such charges could possibly have on price, even if fully passed through). Interconnection payments are dwarfed by content costs in particular: As Netflix CFO David Wells recently explained, "I think for Netflix content is our largest cost. It dwarfs all the other costs…."[153] Such a pattern is not consistent with a claim that Comcast controls a critical input (direct interconnection into its last-mile network) without which Netflix cannot compete successfully.

135. Table 8 documents the small size of interconnection payments. It shows the interconnection charges paid to Comcast as a percentage of cost of revenue (or cost of sales) as reported by three large edge providers, **{{**

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152 *See McElearney Declaration*, ¶ 18; see also Appendix III.

153 "Netflix's (NFLX) CEO Reed Hastings on Q2 2014 Results – Earnings Call Transcript," July 21, 2014, *available at* http://seekingalpha.com/article/2327585-netflixs-nflx-ceo-reed-hastings-on-q2-2014-results-earnings-call-transcript, *site visited* September 2, 2014.

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136. Even more importantly, the payments for direct interconnection from these edge providers are substantially **{{ }}** their traffic imposes on ISP networks. This comparison is particularly telling because standard theories regarding harm from the alleged exercise of market power involve setting marginal prices over marginal costs, thus inefficiently reducing output. Because Comcast currently charges customers nothing for subscribing to a given edge provider and little if anything for

consuming additional data,[154] the marginal revenue associated with an increase in traffic from edge providers comes primarily from the edge provider side of the market. Hence, unless interconnection fees are above marginal cost, then there is no basis to say that such fees are consistent with a standard market power claim of marginal prices greater than marginal costs.

137. The recent Netflix interconnection agreements provide good examples from which to perform compare direct interconnection prices to associated marginal costs. Based on Comcast's estimates of the network costs incurred to serve Netflix traffic, I calculate the marginal costs (per Mbps) associated with Netflix traffic and compare these costs to the direct interconnection fees paid to Comcast by Netflix (also per Mbps).[155] The results show that Netflix's payments to Comcast for direct interconnection are less than **{{ }}** percent of the marginal network costs that the Netflix traffic imposes on Comcast's network. Similarly, TWC indicates that the price that it is charging Netflix for direct interconnection is below the marginal costs of serving Netflix's traffic "by orders of

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154 Although Comcast is experimenting with usage-based pricing in certain markets, the monthly data allowances are high relative to usage and very few customers reach the allowance. For details regarding Comcast's usage-based pricing trials and customer usage relative to the 300 GB/month threshold, *see*, *e.g.*, "September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request," RFI 59.(iii), 156-161.

155 See Appendix III for the details of this calculation.

magnitude."[156] **{{ }}** for interconnection are not consistent with the standard market power claim that marginal prices are above marginal costs.

138. The fact that Comcast's prices for direct interconnection are below Comcast's marginal costs for the associated traffic holds not just for Netflix, but also for many other edge providers and their agents. Figure 5 plots Comcast's average incremental costs in the 2014-2017 period **{{ }}** against the schedule of direct interconnection prices for six major interconnection customers. In all cases the price is far below the marginal cost.

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156 Peter Stern, Executive Vice President & Chief Strategy Officer, TWC, September 3, 2014, interview.

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B. ECONOMIC THEORY DOES NOT SUPPORT THE CLAIM THAT THE PROPOSED TRANSACTION WILL INCREASE COMCAST'S BARGAINING POWER

139. Although current marketplace realities refute the argument that Comcast's alleged bargaining power leads to excessively high interconnection prices, commenters still allege that the proposed transaction will lead to a harmful increase in the exercise of bargaining power. Of course, no commenter has provided any transaction-specific evidence explaining why acquiring TWC would be the critical addition that would enable Comcast to exercise such bargaining power over interconnection terms, particularly given that

Comcast and TWC do not constrain one another today. To the contrary, economic theory supports no such conclusion (and as I show in Section V.C, empirical evidence rejects it).

1. The one economic theory in this case that yields a clear prediction of the transaction's effects on pricing to edge providers comes from Dr. Farrell and predicts a price decrease

140. In discussing the effects of increased prices for interconnection services to edge providers (assuming there would be increased prices), Dr. Farrell presents a model that assumes that edge providers would not price discriminate in the prices they charge to customers with different ISPs, meaning that if one ISP were to raise an edge provider's interconnection costs, that edge provider would raise prices to the customers of all ISPs.[157] Putting aside whether this model is correct, an implication of its assumption about lack of edge provider price discrimination is that if one of Comcast or TWC charges more to an edge provider, it effectively imposes a tax on the other in the form of higher edge provider prices charged to the other's broadband customers. That tax creates an externality, which the combined firm would internalize post-transaction. In particular, after internalizing the reduced broadband demand that the "tax" imposes on the other firm, the post-transaction firm would have an incentive to *reduce* prices charged to edge

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[157] Dr. Farrell actually presents two versions of his "simple price-theoretic" model. Here, I focus on the second version of Dr. Farrell's model, which Dr. Farrell appears to prefer. *See* discussion in *Farrell Declaration*, ¶¶ 189-192.

providers.[158] Hence, if Dr. Farrell's assumption about edge provider pricing is correct *for even some edge providers*, then he has presented the only theory in this case that makes a clear prediction about the transaction's effect on prices to edge providers: It will decrease them.

141. I note that the internalization effect that drives this result is not apparent in Dr. Farrell's articulation of the model *only* because he effectively assumes it away by assuming that customers react to price changes only by switching firms (the extensive margin), and not by dropping broadband service or downgrading broadband tier (the intensive margin). However, this is not a reasonable assumption. As discussed in Section III.C.2(a), substitution on the intensive margin is likely to be an important phenomenon—if edge provider prices change by a material amount, such that some customers reduce edge provider usage, those customers would surely consider whether they could get by with slower broadband service. Thus, to the extent that higher interconnection fees from Comcast would decrease demand for high-quality TWC broadband products (via their

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158 In Dr. Farrell's model, this effect arises because the transaction *reduces* the share of non-firm customers that bear a portion of the price increase, relative to Comcast and TWC standing alone. This creates an incentive for the combined firm to reduce price relative to the stand-alone firms.

effect on edge provider pricing), Comcast would internalize this effect post-transaction, thus creating an incentive to *lower* interconnection fees post-transaction.[159]

2. Taken as whole, economic theory provides no basis to conclude that the proposed transaction will generate increased bargaining power for Comcast

142. Moving beyond the implications of Dr. Farrell's specific theory, I note that other economic theories provide no basis to conclude that the proposed transaction will lead to increased bargaining power for Comcast. In the Israel Declaration, I demonstrated that "the economic theory of bargaining provides no basis to conclude that the transaction will increase the bargaining power of the combined firm, relative to Comcast and TWC on their own."[160] Neither Dr. Evans nor Dr. Farrell appears to dispute this point.[161]

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159 As an aside, Dr. Farrell concludes that customers benefit from an interconnection price increase in his second model as long as $rst < at$ (*i.e.*, as long as the edge provider's pass-through rate is not too much higher than the ISP's). This assumption is likely to hold under any reasonable set of assumptions. For example, if the share (s) of the combined firm is 40 percent, Dr. Farrell's condition would hold as long as the edge provider's pass-through rate is less than **{{ }}** the ISP's pass-through rate. If one reasonably assumes both pass-through rates are less than one, the edge provider's pass-through rate would have to be less than **{{ }}** for the condition to fail. Pass-through rates below **{{ }}** (implied by a linear demand curve) are not commonly used in practice.

160 *Israel Declaration*, ¶ 89.

161 *Evans Declaration*, note 108 ("It is possible to identify some assumptions under which economic theory would show a different result [from the conclusion that greater size leads to greater bargaining leverage] as Dr. Israel has done."); *Farrell Declaration*, ¶ 148 ("As Dr. Israel suggests, a theoretical literature on the relationship between size and bargaining leverage suggests that the effect of one party's size on its bargaining leverage depends on the shape (concave or convex) of the function that relates value created to the size of the customer base.")

(a) Economic theory establishes no consistent relationship between size and bargaining power/outcomes

143. As described in the Israel Declaration, the directional impact of a merger of non-overlapping firms on bargaining outcomes depends on technical conditions describing the shape (concavity or convexity) of the "surplus functions" for each party in the negotiation.[162] In particular, if the merger involves non-overlapping buyers, it only leads to increased bargaining power if seller surplus functions are concave (exhibit decreasing returns to scale), as in that case each separate buyer is limited by the decreasing returns that the seller receives in working with an additional (marginal) buyer, whereas the merged firm can negotiate over the more valuable (inframarginal) purchases. In contrast, if seller surplus functions are convex (exhibit increasing returns to scale), each separate buyer benefits by negotiating with the seller only over the more valuable marginal sales, whereas the merged firm also bargains over the less valuable inframarginal sales. The same logic holds (with reference to buyer surplus functions) for a merger of sellers.

144. Hence, in situations such as the one arising in the transaction, in which the merging parties do not overlap, the fact that economic theory makes no systematic prediction on the shape of the surplus functions means that it also makes no general prediction on the directional impact of the merger. Lacking any general relationship, the answer varies from case to case (and perhaps even negotiation to negotiation).

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[162] *Israel Declaration*, ¶ 93.

(b) Dr. Evans' assertion that the transaction will change the split of the surplus is atheoretical and inconsistent with standard economic practice, including the Commission's established practice

145. Traditional bargaining models—including those that give rise to the concavity/convexity results discussed above—assess the impact of a transaction on bargaining outcomes by evaluating how the transaction shifts the outside options of the negotiating parties.[163] By basing inferences on observed changes in outside options, this standard approach permits one to use the economic characteristics of the transaction in question to undertake a fact-based analysis of the likely effects of the transaction on bargaining outcomes. Notably, the Commission itself employed this approach in its analysis of Comcast-NBCUniversal to assess the effect of the transaction on NBCU's programming prices to Comcast's MVPD rivals. The predictions of that analysis were based on the changes in the outside options of the various parties.[164] Although there was stark disagreement on the relevant facts and thus predictions, there was no meaningful disagreement on the overall approach.

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[163] *See, e.g.*, Tasneem Chipty and Christopher M. Snyder (1999), "The Role of Firm Size in Bilateral Bargaining: A Study of the Cable Television Industry," *The Review of Economics and Statistics*, 81.2: 326-340 (hereinafter, *Chipty and Snyder (1999)*), whose model is based on a Nash bargaining model; Ken Binmore, Ariel Rubinstein, and Asher Wolinsky (1986), "The Nash Bargaining Solution in Economic Modeling," *The RAND Journal of Economics*, 17.2: 176-188. The Commission recognized this same logic in the Comcast-NBCU transaction. *See Comcast-NBCU Order*, Appendix B, ¶ 37.

[164] Technical Appendix, *Comcast-NBCU Order*, ¶ 36.

146. As explained above, in the present case, this traditional approach does not support any clear prediction of harm from the transaction. Apparently recognizing this, Dr. Evans turns to an alternative claim that the transaction would change the split of the surplus between ISPs and edge providers.[165] However, as the authors of one paper that raised this possibility note, and as I discussed in the Israel Declaration, claims that a transaction will change the split of the surplus are atheoretical and thus make no clear prediction on the effects of a merger on bargaining outcomes.[166] Put differently, using such an approach only serves to confirm my main conclusion that economic theory provides no general prediction regarding the direction of merger effects from a merger of non-overlapping ISPs.

147. Likely for this reason, neither the Commission nor those opposing the Comcast-NBCUniversal transaction argued for a change in the split of surplus as a basis for harm. Rather, both Dr. Rogerson in his capacity as an expert testifying on behalf of the ACA and the Commission assumed a 50/50 split of the surplus *both pre- and post-merger*,

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165 *Evans Declaration*, ¶ 167.

166 *Israel Declaration*, ¶ 101; Nodir Adilov and Peter J. Alexander (2006), "Horizontal merger: Pivotal buyers and bargaining power," *Economics Letters*, 91: 307-311, 310 (recognizing that "a precise relationship between firm size and bargaining power cannot be determined by theory.")

when evaluating bargaining effects in that transaction, directly contradicting Dr. Evans' proposed approach in this case.[167]

148. Dr. Evans does provide one specific argument about why the transaction could improve the combined firm's outside option relative to Comcast and/or TWC on its own and thus improve Comcast's bargaining position.[168] In particular, he argues that Comcast's size might be positively correlated with its outside option because either (i) "decreased use of OVDs leads to greater consumption of its [NBCUniversal] content"; or (ii) Comcast has made "greater investments than other ISPs in streaming video."[169] With respect to the first claim, as discussed in Section IV.B.2, there is no evidence that OVD content is a particularly close substitute for NBCUniversal's programming networks. Rather, statements by OVDs point to closer competition with premium networks like HBO, which NBCUniversal does not offer. And OVDs are primarily *buyers* of NBCUniversal content, giving Comcast an incentive to favor more OVD competition. With respect to the second claim, Comcast's streaming video is just part of its cable offering and thus does not truly compete with OVD offerings. But, in all events, even if

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167 Technical Appendix, *Comcast-NBCU Order*, ¶40; William P. Rogerson, "Economic Analysis of the Competitive Harms of the Proposed Comcast-NBCU Transaction," *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses and Transfer Control of Licensees*, MB Docket No. 10-56, June 21, 2010, 12, 24.

168 *Evans Declaration*, ¶ 172.

169 *Ibid*.

Dr. Evans were correct, this boils down to an efficiencies offense: If Comcast has a superior "streaming video" product than TWC has, TWC's customers will benefit from this service post-transaction. If the scale economies from the transaction lead the combined firm to make further investments to improve this service, this would be a prime example of the scale-based benefits from the transaction. To the extent that such improvements affect Netflix, this would likely occur through the normal competitive process by which Netflix competes for customers, meaning that improvements in the Comcast streaming service would likely induce pro-competitive responses from Neflix and other OVDs. But rather than recognize such direct benefits to consumers, Dr. Evans and Netflix argue that these effects are bad due to alleged second-order effects on the division of surplus in negotiations between Comcast and Netflix.

(c) Dr. Farrell's assertion that ISPs can choose not to bargain jointly is not supported by any evidence and is inconsistent with industry practice

149. Dr. Farrell also offers an alternative view, suggesting that a merger could never decrease a firm's bargaining power because the post-merger firm could choose to bargain separately or jointly depending on which approach is more advantageous.[170] I first note that regardless of the merits of this argument, it does not provide any affirmative theoretical support for a claim that a merger of non-overlapping firms will increase a

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[170] *Farrell Declaration*, § VI.A.2.

firm's bargaining power due to greater size. Instead, it only makes the defensive claim that the merger will not *reduce* the merging firm's bargaining power, a possibility I have never advanced affirmatively.

150. Moreover, Dr. Farrell presents no evidence in support of his alternative view, which, in fact, is inconsistent with industry characteristics on multiple dimensions. Dr. Farrell does not present a single situation in which an ISP or MVPD has negotiated about distinct portions of its footprint separately. The failure for ISPs or MVPDs to engage in such bargaining is likely due to specific features of bargaining in this industry, including:

- Each side of a negotiation likely has a different view about whether combined or separate bargaining would be better. Dr. Farrell offers no basis to assert why the ISP would be able to dictate to an edge provider (or its agent) that negotiations will be conducted in separate pieces, rather than the standard practice of a single negotiation.
- Negotiating separately is likely to increase transaction costs for both the ISP and the edge provider relative to negotiating jointly, which is likely a large part of the reason why separate negotiations do not occur in practice.
- Even if the ISP attempted to enforce separate negotiations for distinct parts of its footprint, it is hard to see how the ISP could keep the other parts of the footprint out of the negotiation. In particular, if either party saw a way to gain bargaining leverage through an action that would affect the other party throughout its footprint—not just in the areas technically under negotiation—it seems likely that the party would take that action everywhere, whatever the

stated limits to the negotiation. In such instances, it is hard to see how the stated limits to the negotiation could be maintained.

C. EMPIRICAL EVIDENCE REJECTS THE CLAIM THAT THE PROPOSED TRANSACTION WILL INCREASE COMCAST'S BARGAINING POWER

151. Both Dr. Evans and Dr. Farrell argue that, in the absence of theoretical predictions of the direction of the proposed transaction's effect on bargaining power, one must rely on empirical evidence.[171] I agree, and I consider available empirical evidence in this section. But given the lack of any general theoretical prediction of harm, one should closely scrutinize empirical evidence to see if it can support a prediction of harm that applies to the specific case in question. When subjected to proper scrutiny—including controlling for the effect of ISP quality on observed prices—the empirical evidence in this case supports no such prediction of merger harm due to increased bargaining power; in fact, it contradicts this claim.

1. To be informative, empirical work on the size/bargaining power relationship must control for firm quality

152. To provide a basis to conclude that increased firm size leads to greater bargaining power, empirical evidence would need to rule out alternative explanations, including the well-known relationship between firm size and quality. In any study of the effect of firm size on price, one needs to account for the fact that higher quality firms tend to have

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[171] *Evans Declaration*, ¶ 159; *Farrell Declaration*, § VI.B.

higher share *and* higher price. Hence, it is well known that, to be informative, empirical analysis must determine whether an observed size/price relationship actually reflects anti-competitive effects as opposed to the effect of higher quality or other factors.[172]

153. The fact that larger firms tend to be higher quality is not just an abstract possibility; it applies directly to the relevant issues in the present case. Network quality and the quality of interconnection services tend to differ across ISPs of different sizes. Most basically, the smallest ISPs simply do not have backbone facilities, meaning that they generally have to *pay* someone for transit services. Comparisons between larger ISPs that do offer backbone services—and thus for whom the relevant decision may be between settlement-free interconnection vs. charging for interconnection services—and smaller ISPs, who generally have to *pay* for transit and at best might hope to get settlement-free terms, are effectively meaningless due to this fundamental difference.[173] In effect, the difference in the "quality" of interconnection services offered by these ISPs is so extreme as to render the comparison meaningless.

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[172] *See, e.g.*, Peter C. Reiss and Frank A. Wolak (2007), "Structural Econometric Modeling: Rationales and Examples from Industrial Organization," *Handbook of Econometrics*, Vol. 6A, Elsevier B.V., § 7.4.3.

[173] *See McElearny Declaration*, ¶ 22; *Dovrolis Declaration*, 13, 25.

154. Even among ISPs that do have backbone facilities, I understand there are important differences in network quality and in the quality of interconnection services, with larger ISPs generally offering higher quality. For example:

- Evidence cited by Dr. Evans, as well as engineers from Netflix and Cogent, indicates that connectivity to the Internet (as measured by the number of paths between the ISP's network and the broader Internet) plays an important role in the negotiations.[174] Greater ISP connectivity to the Internet reduces the costs of direct interconnection with the ISP because of the presence of more interconnection options for edge providers and because of the reduced distance between servers.[175] More interconnection points also lead to more efficient interconnection and greater redundancy.[176] Figure 6 demonstrates that larger ISPs, including Comcast, tend to have more interconnection points than do smaller ISPs.

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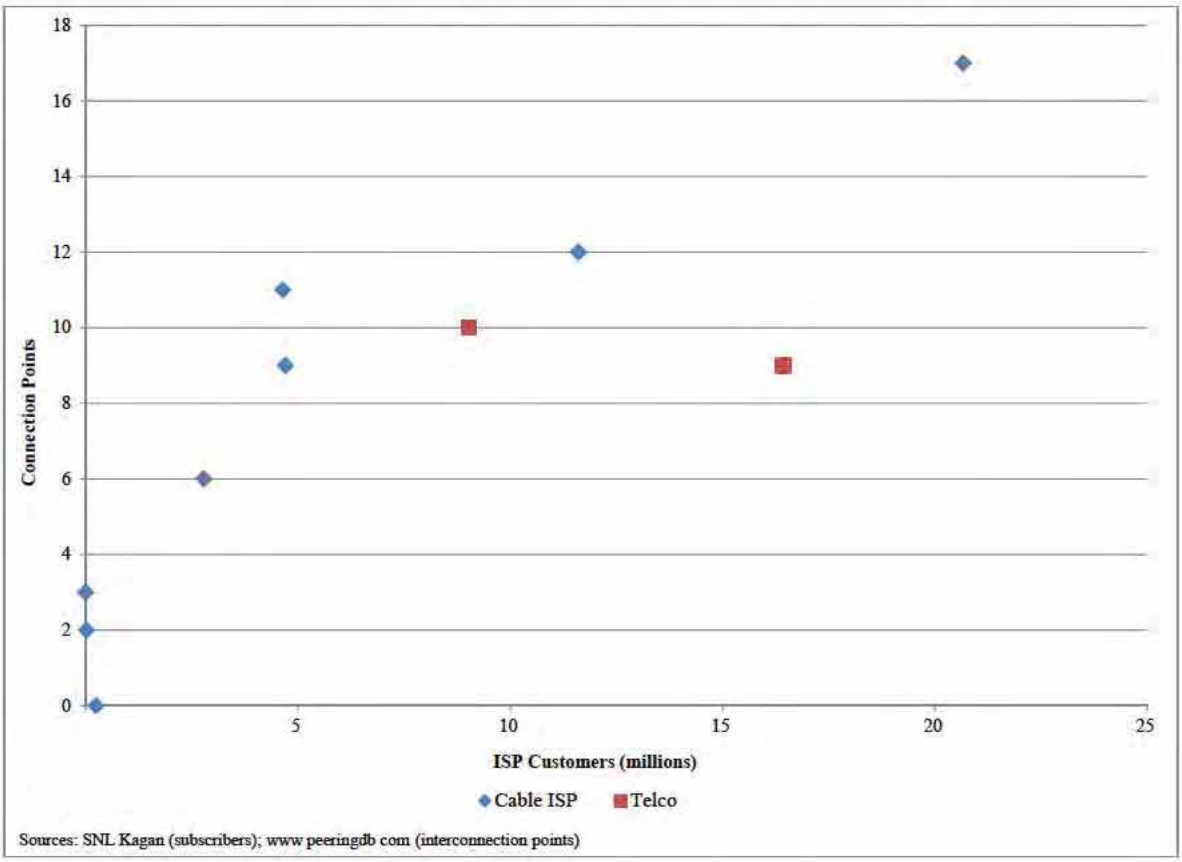
174 *Evans Declaration*, ¶ 147; *Florance Declaration*, ¶ 63; Declaration of Henry (Hank) Kilmer, Attachment to Petition to Deny of Cogent Communications Group, August 25, 2014 (hereinafter, *Kilmer Declaration*), ¶¶ 34, 42-43. *See also*, *McElearney Declaration*, ¶ 5 (investments in backbone "enabled Internet backbone providers and edge providers to more efficiently (and cost-effectively) interconnect to our growing network.")

175 John Schanz, Executive Vice President and Chief Network Officer, Comcast Corporation, September 19, 2014, interview.

176 For example, Comcast requires applicants for settlement-free interconnection to "meet Comcast at a minimum of four mutually agreeable geographically diverse [third-party exchange] points in the U.S." (*McElearney Declaration*, ¶ 7.)

Figure 6: Comparison of ISP Customer Base to Number of Interconnection Points



- I also understand that other differences across ISPs generate differences in the quality of their interconnection services. Such differences include greater server capacity and more efficient server utilization, which also reduce the costs of interconnection and thus create additional surplus.[177] I understand that large ISPs

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177 John Schanz, Executive Vice President and Chief Network Officer, Comcast Corporation, September 19, 2014, interview.

in general (and Comcast in particular) tend to offer higher quality along these dimensions as well.[178]

155. The fact that network quality matters to interconnection terms seems beyond reasonable debate. Indeed, in describing the "stringent standard" that Cogent uses to determine which networks warrant settlement-free peering, Cogent engineer Hank Kilmer cites "size, geographic scope, capacity, traffic volume and significance," and also specifically calls out "geographic reach and multiple interconnect points," as relevant factors.[179] Strikingly, however, Cogent's economist, Dr. Farrell, makes no attempt to control for any of these determinants of settlement-free peering when evaluating the prices that different ISPs pay for interconnection with Cogent. As I show below, controlling for these factors eliminates the appearance of any relationship between an ISP's number of customers and interconnection prices.

2. The analogy to MVPD/content provider negotiations demonstrates that quality differences can explain the observed relationship between size and price

156. As an example of the importance of controlling for quality, I consider evidence from negotiations between MVPDs and content providers. Although they take place in a separate industry, with its own unique institutional features, MVPD/content provider

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178 *Ibid*.

179 *Kilmer Declaration*, ¶¶ 14, 16.

negotiations are often used as an analogy for what will happen in ISP/edge provider negotiations as ISPs get bigger.[180] Here, I show that, in fact, to the extent one relies on this analogy, it actually demonstrates that quality (and associated surplus) differences can entirely explain differences in observed bargaining outcomes, with no need to resort to (theoretically ambiguous) claims about bargaining power.

157. The key point in the analogy is to note that, similar to the variation in ISP quality, there are also quality differences across MVPDs that lead to variation in the surplus that different MVPDs generate for content providers. Sources of quality variation across MVPDs include, among other things, differences in the advertising revenue per customer that content providers earn when working with different MVPDs due, for example, to variation across MVPDs in efficacy in monetizing advertising on video-on-demand (VOD) or other non-linear platforms.

158. The differences in quality across MVPDs are easily large enough to explain observed affiliate fee differences across MVPDs (Comcast and TWC in particular). In particular:

- I understand that Comcast's initial assessment was that it expects to generate some modest cost savings on these fees, in part by bringing down the rates on existing TWC contracts to the level of Comcast contracts (as well as by making certain

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[180] *Farrell Declaration*, § VI.B.2.

other adjustments in TWC's programming profile).[181] The cost savings are quite small in total, amounting to only **{{ }}** per year, with the savings phasing in gradually over three years.[182] For my purposes, the key implication of this analysis is that—even assuming that all of the savings are a function of contract price differential, as opposed to tier placement, channel lineups, etc.—the difference in average affiliate fee rates between Comcast and TWC is very small on a per customer per month per network basis. Specifically, TWC has a little more than 11 million video customers currently and each customer has on average access to over 168 video networks.[183] These figures imply a difference between the per-network average affiliate fees of Comcast and TWC of only approximately **{{ }}** per customer per month.[184]

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181 I understand that the actual size of the realized gains will depend on whether the savings are realizable under the contracts, but that does not affect my conclusions regarding the size of the price differences between Comcast and TWC implied by the Comcast analysis.

182 Declaration of Michael J. Angelakis, Attachment to Comcast Corporation and Time Warner Cable Inc., *Description of Transaction, Public Interest Showing, and Related Demonstrations*, April 8, 2014, ¶ 7.

183 "Time Warner Cable Reports 2014 Second-Quarter Results", July 31, 2014, *available at* http://ir.timewarnercable.com/investor-relations/investor-news/financial-release-details/2014/Time-Warner-Cable-Reports-2014-Second-Quarter-Results/default.aspx, *site visited* September 14, 2014. TWC's average number of video networks per subscriber estimated using Rovi data.

184 That is, **{{ }}**/[11,011,000 (subs) x 12 (months) x 168 (networks/sub)] ~=**{{ }}** .

- Given that Comcast and TWC almost surely generate at least somewhat different surplus per customer for content providers, this tiny difference in affiliate fees is not surprising and does not imply differences in bargaining power. For example, NBCUniversal's own analysis indicates that Comcast creates greater surplus for content providers than TWC, in the form of greater advertising revenue, at least in part because of the higher quality of Comcast's VOD platform including its ad-insertion tools. Evidence from analysis performed by NBCUniversal on a group of video networks indicates that, on average, relative to TWC, content providers earn an additional **{{ }}** per customer per month per network in advertisement revenues on Comcast relative to TWC.[185] Hence, this result illustrates that greater surplus generated for content providers by Comcast is easily of a magnitude that can more than explain the very small estimated differences in affiliate fees across the two companies, with no need to turn to differences in bargaining power.[186]

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185 Comcast slide deck analyzing advertisement revenues "Ad Contribution Per Sub by MVPD.pdf." I understand that **{{**

}}. Even if I conservatively assume that the **{{ }}** savings that Comcast is expected to generate from the transaction similarly stems entirely from the top 50 networks, instead of all of the 168 networks, the per sub per month per network fee difference comes out to **{{ }}**, which is still below the **{{ }}** of additional advertisement revenue generated by Comcast.

186 Literature cited by Dr. Farrell does not change this conclusion. (*See Farrell Declaration*, ¶¶165-171). The FCC staff report (Mark M. Bykowsky, Anthony M. Kwasnica and William W. Sharkey (2002), "Buyer Size and Bargaining Power: An Experimental

3. Once quality is controlled for, Dr. Farrell's conclusions based on Cogent data are reversed

159. Dr. Farrell presents data on interconnection terms between ISPs (including both cable and telco ISPs) and Cogent and concludes on the basis of this evidence that "the largest ISPs have settlement-free peering while smaller consumer ISPs pay Cogent."[187] From this, Dr. Farrell attempts to infer that larger ISPs have greater bargaining power than smaller ISPs.[188] However, Dr. Farrell's empirical results support no such conclusion.

160. Most basically, for many ISPs this result is entirely unsurprising and demonstrates only the fact that, as noted above, many smaller ISPs simply do not have backbone facilities, meaning that they generally *must* pay someone for transit services. No

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Analysis," *FCC OPP Working Paper No. 35*) presents experimental evidence in which participants are presented with bargaining situations in which the number and share of programming distributors varies. The authors find no effect of size on bargaining power at shares greater than 12 percent.

George S. Ford and John D. Jackson (1997), "Horizontal Concentration and Vertical Integration in the Cable Television Industry," *Review of Industrial Organization* 12.4: 501-518 and Gregory S. Crawford and Ali Yurukoglu (2011), "The Welfare Effects of Bundling in Multichannel Television Markets," *American Economic Review* 102.2: 643-685 only show that prices paid by MVPDs fall with sizes, with no examination of the source of the difference, and thus cannot answer the question posed in this section.

Dr. Farrell's references to the health care literature describe an entirely different industry with different institutional features. As explained above, given that economic theory makes no general prediction on the relationship between size and bargaining power, the answer is highly context-specific, making the hospital industry findings irrelevant to the present case.

187 *Farrell Declaration*, ¶ 175. *See generally*, *Farrell Declaration*, § VI.B.3 and Appendix B.

188 *Id.*, ¶ 176.

inference of differences in bargaining power can be drawn based on this stark difference in the backbone assets of different ISPs. Among other things, Dr. Farrell's interpretation would suggest that the fact that some large ISPs have built out backbone services, *thus increasing the capacity of the overall Internet*, is a bad thing, because he interprets resulting price differences as evidence of bargaining power.

161. More generally, in his analysis of interconnection terms, Dr. Farrell makes no attempt to distinguish between the role of bargaining power associated with a firm's size as a broadband provider and other factors, including the quality of ISPs' interconnection services. For the reasons described above, absent sufficient controls for variation in quality across ISPs, his conclusion that "[t]his pattern seems difficult to reconcile with a view that an ISP's size has no systematic relationship with its bargaining power…"[189] is nothing more than an unsupported assertion.

162. To test whether Dr. Farrell's assertion is correct—or whether, instead, quality differences rather than bargaining power (based on number of broadband customers) explain the observed price differences—I perform a basic regression analysis using the data reported by Dr. Farrell.[190] The results show that, in fact, observed price differences

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189 *Ibid.*

190 To perform these regressions, I start from the data that Dr. Farrell reports in Appendix B. I drop those ISPs for which SNL Kagan does not report the number of customers. I also drop **{{** **}}** from my analysis because the **{{** **}}** that Dr. Farrell reports in Appendix B is inconsistent with his statement in

are explained by quality differences across ISPs and that, once such quality differences are controlled for, an ISP's size (measured as its number of broadband customers) has no significant effect on interconnection prices.

163. Table 9 presents the regressions results:

- In Column (1), I simply regress ISP interconnection fees with Cogent (as reported by Dr. Farrell) on the number of ISP customers (in millions). The results indicate that, *without controlling for any other factors*, increasing the number of ISP customers by one million **{{**

  }}. This is the relationship to which Dr. Farrell's inference refers.

- However, the regression specification in Column (1) controls for *none* of the differences across ISPs described above. To correct this limitation, I use data reported by www.peeringdb.com to introduce a control for each ISP's number of peering facilities (as described above, the number of peering facilities an ISP has

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paragraph 174 indicating that **{{**

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Because Dr. Farrell has not supplied the code used to calculate the average transit prices, I cannot verify its accuracy. **{{**

}}. For these two companies, I include customer counts using data from SNL Kagan, the same data source that Dr. Farrell uses. I include the number of private peering facilities that each ISP has from data reported by www.peeringdb.com.

reflects the degree of connectivity the ISP's network has with the broader Internet, an important measure of the quality of an ISP's interconnection services). Where www.peeringdb.com does not report any peering facilities for an ISP, I assume that the absence of any data indicates that the ISP does not have any peering facilities. As described below, I test the sensitivity of the results to alternative assumptions. Of course, an ISP's number of peering locations is likely to be correlated with an ISP's number of customers (see Figure 6), but that is the point of the regression analysis—to sort out whether interconnection prices are driven by the number of broadband customers (the source of the alleged market power that commenters say drive higher interconnection prices) or by measures of interconnection quality.

- Results with the quality control in place are presented in column (2). They demonstrate that, after controlling for quality, the number of broadband customers has no measureable impact on interconnection prices. With the control for quality in place, **{{**

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164. In sum, the Cogent data are more consistent with **{{**

}} based on an ISP's "control" of more broadband customers.[191]

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[191] I ran several sensitivities on this analysis, all of which confirm my finding that the relationship between ISP size and interconnection fees is no longer statistically significant once one controls for ISP quality. These sensitivities included dropping the observations for which data on the number of connection points are unavailable, treating these same observations as having one (rather than zero) connection point, and including data on **{{**

}}, based on *Farrell Declaration*, ¶¶ 173-174).

4. Dr. Evans' analysis of Netflix's interconnection payments is uninformative

165. Although he has not produced interconnection terms at the same level of detail as Dr. Farrell, Dr. Evans claims that "[e]xcluding the largest four ISPs, ISPs have not been able to impose terminating access fees on Netflix. Smaller ISPs have been unable to demand and receive payment. They continue to adhere to the zero price equilibrium."[192] For the reasons described below, no coherent theory of harm can be supported based on Dr. Evans' analysis.

166. Dr. Evans' claim is effectively meaningless. It does not establish that **{{**

}}; only that it pays more *to the ISP itself*, with which it connects directly. This simply reflects the fact that, as noted above, edge providers have a range of interconnection options, only one of which is direct interconnection with the ISP. The difference Dr. Evans points to is one of form, not substance: The fact that Netflix pays the ISP, rather than some other interconnection provider, does not establish that Netflix pays more in total. Dr. Evans' analysis falls prey to the trap described above; he focuses only on what is charged by an ISP, not on the critical question of whether the edge provider actually pays more as a result.

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[192] *Evans Declaration*, ¶ 142.

167. An analogy may clarify the point. If a consumer buys corn directly from a farmer at a farmer's market, he pays more *to the farmer* than if he buys the corn at the grocery store. But this says nothing about how much the consumer pays for the corn in the two cases (or how much the farmer receives), even though those are clearly the relevant economic questions. Analogously, Dr. Evans' statements say nothing about *how much* Netflix pays for interconnection in the various cases, only to *whom* it pays.[193]

168. Indeed, Netflix's Ken Florance explains that Netflix always pays to interconnect into an ISP's network no matter which of its methods for delivering traffic it uses. In particular, Mr. Florance describes two methods of delivering traffic in addition to direct interconnection.[194] First, with some ISPs (*e.g.*, Cablevision), Netflix might deliver traffic through its own CDN, Open Connect. In this case Netflix "pays for the hardware…, delivery, and maintenance of the appliance," presumably along with the overall costs of running an in-house CDN.[195] Second, for many of the smaller ISPs, as well as Charter

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[193] This analogy also highlights another flaw in Dr. Evans' analysis; like Dr. Farrell's analysis, it fails to control for quality. A consumer may happily pay more for corn at a farmer's market if, by eliminating the grocery story middleman, she can get fresher corn. Similarly, I understand that direct interconnection agreements offer benefits like predictability and control, which might explain any increase in price paid by the edge provider, if there were one.

[194] *Florance Declaration*, ¶¶ 14-23.

[195] *Id.*, ¶ 16.

and CenturyLink, Netflix "uses transit providers to deliver traffic…."[196] As explained above, this means that Netflix pays a transit provider rather than an ISP directly; it certainly does not mean that Netflix pays less in total.

169. Absent data to compare the prices Netflix pays to the large ISPs with which it interconnects directly, relative to the prices it pays to transit providers and to the costs it incurs to operate its CDN, Dr. Evans' comparisons say nothing about whether large ISPs capture higher prices than other transit providers, which of these methods is most costly to Netflix, or whether these highly technical distinctions between interconnection methods have any material negative effect on Netflix. *Because Dr. Evans has not produced any of his underlying data—including the data on prices and costs that would permit an evaluation of Netflix's costs under the different arrangements—his analysis adds no value to the analysis of the proposed transaction*. In contrast, the evidence I present in Section VI.A, below, indicates that its agreements for direct interconnection with Comcast and TWC have not harmed Netflix.

170. Finally, Dr. Evans also notes that **{{**

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[196] *Id.*, ¶ 23.

[197] *Evans Declaration*, ¶ 146.

However, the fact that Comcast and TWC are known to differ in the quality of their networks and interconnection services renders such a comparison—or any simple comparison of **{{**

}} that does not account for the quality differences—uninformative, as **{{**

}}. The fact that Dr. Evans relies on a **{{** **}}** without controlling for quality differences is particularly notable, as Dr. Evans himself recognizes that quality differences are important and that Comcast is ahead of TWC on many important quality metrics.[198]

VI. POTENTIAL CHANGES IN THE MAGNITUDE OR STRUCTURE OF INTERCONNECTION PAYMENTS WOULD NOT BE HARMFUL TO COMPETITION OR CONSUMERS

171. The discussion thus far has established that neither economic theory nor empirical evidence can establish that the transaction will give Comcast greater bargaining power through which it could impose higher prices on edge providers or their agents. Although this should end the inquiry on this topic, in this section I go on to consider whether possible changes to the structure or magnitude of interconnection payments, which some

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198 *Id.*, ¶ 57 and Figure 1. Effectively, Dr. Evans' conclusions, while not based on any formal econometric modeling, suffer from omitted variable bias. The regressions that I present in Section V.C.3 illustrate that such an omission leads to an incorrect conclusion.

commenters allege may occur as a result of the transaction, would be harmful.[199] In particular, I assess whether either increased usage of direct interconnection agreements between edge providers and ISPs (thus cutting out the intermediaries), or increased payments from edge providers or their agents to ISPs, would harm competition or consumers. In both cases, I explain why the answer is no.

A. DIRECT INTERCONNECTION AGREEMENTS BETWEEN EDGE PROVIDERS AND ISPS ARE NOT HARMFUL TO COMPETITION, CONSUMERS, OR EDGE PROVIDERS

172. Recent trends indicate that, with or without the proposed transaction, there may be increased usage of direct interconnection agreements between edge providers and ISPs—cutting out intermediaries.[200] This trend (whether or not the proposed transaction has any effect on it) is not harmful to competition or consumers, as evidenced by the lack of harm to Netflix from its recent direct interconnection agreements with Comcast and TWC.

1. Direct interconnection agreements between edge providers and ISPs often represent economically efficient disintermediation

173. To put direct payments from edge providers to ISPs in context, it is useful to recognize them for what they are—the disintermediation of intermediaries such as transit providers and CDNs, which otherwise would sit between the edge provider and the ISP,

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199 *Farrell Declaration*, § VI; *Evans Declaration*, § III.F.1; *Sappington Declaration*, ¶ 60 and note 59.

200 *Dovrolis Declaration*, 13-14.

charging one or both of them to connect to the other.[201] Direct interconnection agreements (and associated payments, whichever direction they flow) reflect the fact that when *both* an edge provider and an associated ISP are large enough to have a sufficient Internet backbone presence, they may no longer need such intermediaries. Instead, they may find it mutually beneficial to avoid the cost associated with an intermediary's services (and the associated intermediary profit margins). Such a decision is hardly surprising and not unique to the interconnection context—the economic efficiency of "cutting out the middleman" is well recognized in economics across a wide range of industries. It may not be a good financial result for the intermediary (*e.g.*, Cogent), but it is not a bad outcome for the edge provider (*e.g.*, Netflix) or the ISP (*e.g.*, Comcast), or for competition or consumers.

174. The recent direct interconnection agreements between Netflix and both Comcast and TWC provide examples of such mutually beneficial, economically efficient

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[201] *See* Dan Rayburn, "Here's How the Comcast & Netflix Deal Is Structured, With Data & Numbers," *StreamingMediaBlog.com*, February 27, 2014, *available at* http://blog.streamingmedia.com/2014/02/heres-comcast-netflix-deal-structured-numbers.html, *site visited* September 12, 2014; Dan Rayburn, "Chart Shows Which Content Owners Have Direct Interconnect Deals with ISPs," *StreamingMediaBlog.com*, May 21, 2014, *available at* http://blog.streamingmedia.com/2014/05/chart-shows-which-content-owners-have-direct-interconnect-deals-with-isps.html, *site visited* September 12, 2014; Dan Rayburn, "How Transit Works, What It Costs, & Why It's So Important," *StreamingMediaBlog.com*, February 24, 2014, *available at* http://blog.streamingmedia.com/2014/02/transit-works-costs-important.html, *site visited* September 12, 2014.

disintermediation. The benefits of the agreement to Netflix are clear. As Mr. McElearney explains, "[the Comcast-Netflix agreement] provides Netflix long-term

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Indeed, as Mr. McElearney further explains, Netflix appears to recognize the value of such disintermediation.[203] The fact that Netflix benefited from the direct interconnection agreement belies any claim that such agreements and associated payments are anti-competitive or harmful to edge providers or consumers.[204]

175. Direct interconnection agreements (and associated capacity expansions) also free up capacity that the intermediaries can sell to other transit buyers, to the benefit of edge providers and consumers. Again, McElearney explains clearly:[205]

> Today, the Cogent-Comcast interconnection links are uncongested and the parties' traffic flows are back in general balance, with a ratio of less than **{{ }}** over those links, and so now back in compliance with the SFI Policy. This means capacity is again available for many third parties who need to reach Comcast's network through this route.

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202 *McElearney Declaration*, ¶ 43 [emphasis in original].

203 *Id.*, ¶ 44.

204 On this point, it is also worth noting that, to my knowledge, no edge provider other than Netflix has commented in this docket or has come out publicly against the proposed transaction. Certainly firms like Google, Apple, Sony, Amazon, and others have the wherewithal to complain if they felt the transaction would harm their ability to compete.

205 *McElearney Declaration*, ¶ 41.

As a matter of economics, such an increase in available capacity is good for Internet consumers, likely leading to lower transit prices and greater output to make use of the capacity. But it is also economically harmful to Cogent, perhaps explaining why Cogent is unhappy with the transaction.

2. Recent direct interconnection agreements between edge providers and ISPs have had no material negative impact on edge providers' financial performance

176. Recognizing that the recent agreements with Netflix are only one example, they still provide a useful opportunity to see if direct interconnection deals between edge providers and large ISPs have had a material negative effect on edge providers. In fact, no such effect has been observed, and public statements made by Netflix confirm that the direct interconnection agreements did not have a material impact on its margins.[206] In fact, analyst reports suggest that, if anything, the direct interconnection contracts should enhance Netflix's profitability.[207] Netflix apparently considered the agreement's effects

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[206] Netflix CFO David Wells mentioned on the Q2, 2014 earnings call that, "[o]n a short term basis I think there is great assurances in the sense that we've been able to sign these immediate interconnect deals and still able to achieve our margin targets…" Netflix's (NFLX) CEO Reed Hastings on Q2 2014 Results – Earnings Call Transcript," July 21, 2014, *available at* http://seekingalpha.com/article/2327585-netflixs-nflx-ceo-reed-hastings-on-q2-2014-results-earnings-call-transcript, *site visited* September 2, 2014.

[207] For example, analyst Dan Rayburn states: "This allows Netflix to spend less on delivery, increase their quality, reduce churn do [*sic*] to streaming issues, and has a direct and positive impact on their bottom line. Show me any company that wouldn't want this, or feel it's an advantage." Dan Rayburn, "Why A Comcast/TWC Merger Is Good For

so minor that it did not discuss the agreement in any of its subsequent filings with the SEC, despite being required by law to disclose factors that materially affect earnings.[208]

177. To further assess whether the direct interconnection agreements—or the anticipation of the transaction and any associated inferences about future changes to interconnection agreements—has had any negative effect on Netflix or other edge providers, I used standard event study methodology to test the effect of the Comcast/TWC merger rumor, Comcast/TWC merger announcement, and Netflix's direct interconnection agreements with Comcast and TWC on the stock market valuations of Netflix, Google, Amazon, and Apple. In particular, I study whether each company's stock experienced a statistically significant "residual return" (*i.e.*, change in valuation associated with the event net of market and industry effects) on the trading day immediately following the event, and if it did, whether the change in valuation was positive or negative. Based on the results of this analysis, I can infer whether the firm in

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Netflix's Business," *StreamingMediaBlog.com*, April 30, 2014, *available at* http://blog.streamingmedia.com/2014/04/netflix-comcast.html, *site visited* September 2, 2014.

208 When Netflix announced price increases in the spring of 2014, it mentioned the cost of content but not the cost of interconnection ("A Quick Update On Our Streaming Plans and Prices," *Netflix US & Canada Blog*, May 9, 2014, *available at* http://blog.netflix.com/2014/05/a-quick-update-on-our-streaming-plans.html, *site visited* September 2, 2014; Netflix letter to shareholders, April 21, 2014, 5, *available at* http://files.shareholder.com/downloads/NFLX/3102704504x0x745654/fb5aaae0-b991-4e76-863c-3b859c8dece8/Q114%20Earnings%20Letter%204.21.14%20final.pdf, *site visited* September 2, 2014).

question was affected directly by the given event and, more generally, whether the market anticipated that the event would have either a positive or negative effect on the firm in question (or no effect).

178. I evaluated the following four events:

- Effect of rumored transaction between Comcast and TWC (November 23, 2013) on all four edge providers.
- Effect of announcement of Comcast/TWC merger (February 13, 2014) on all four edge providers.
- Effect of announcement of Netflix Interconnection Agreement with Comcast (February 23, 2014) on Netflix.
- Effect of announcement of Netflix Interconnection Agreement with TWC (August 19, 2014) on Netflix.

179. As shown in Table 10, below, the various events were not associated with negative changes (*i.e.*, statistically significant declines in valuation or stock price) for Netflix or any of the other selected edge providers. These results provide additional evidence that market participants did not expect the transaction to harm edge providers. The results also indicate that Netflix's direct interconnection agreements with Comcast

and TWC had no measureable direct negative effect on Netflix.[209] As such, these results stand in sharp contrast to any claim that Netflix has been harmed by direct interconnection agreements with large ISPs such as Comcast and TWC, or that such agreements are generally harmful to edge providers' ability to compete effectively.

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[209] *See* Appendix IV for further details regarding the methodology used in this event study and the statistical results.

Table 10: Results from Stock Market Event Study

		Statistically Significant Residual Return (Direction)?			
	Company	Merger Rumor 11/23/2013 [1]	Merger Announcement 2/13/2014 [2]	NF/CC Interconn. Agmt. 2/23/2014 [3]	NF/TWC Interconn. Agmt. 8/19/2014 [4]
1	Netflix	No (+)	No (-)	No (+)	No (+)
2	Google	No (-)	No (+)	-	-
3	Amazon	No (+)	No (+)	-	-
4	Apple	No (-)	No (-)	-	-

Notes:

[1] On 11/22/2013 news reports were published regarding a possible Comcast/TWC transaction. (Bloomberg article published at 9:45AM stating "Comcast seeking advice on anti-trust issues on TWC deal" and Bloomberg article published at 9:51AM stating "Comcast shareholders said encouraging mgmt. to buy TWC.")

[2] The TWC/Comcast transaction was announced after the close of the market on 2/12/2014.

[3] On Sunday 2/23/2014, Comcast and Netflix announced a deal for direct interconnection to Comcast's network. Event study results are for Monday, 2/24/14.

[4] Netflix announces that it agreed to pay Time Warner Cable for direct internet connections after the market close on 8/19/14. Event study results are for 8/20/2014.

B. FURTHER SHIFTS TOWARD PRICING ON THE EDGE PROVIDER SIDE OF THE MARKET WOULD REPRESENT AN EFFICIENT MOVE TOWARD MARGINAL COST PRICING AND REDUCED CROSS-SUBSIDIZATION

180. As explained in Section V, there is no support for the claim that the transaction will lead to higher payments by edge providers or their agents. In this section, I go on to explain that even if interconnection payments by edge providers or their agents (collectively, "the edge provider side of the market") were to increase due to the

transaction—in contrast to the evidence presented above—this would not be bad for competition or consumers. To the contrary, economic theory and available evidence indicate that any further shifts toward pricing on the edge provider side of the market would in fact be an efficient move toward incremental cost prices and would reduce cross-subsidization on the customer side of the market.

1. ISPs provide two-sided broadband platforms

181. To understand the implications of increased prices to the edge provider side of the market, a bit of economic theory is required. As both Dr. Evans and Dr. Farrell recognize, ISPs run two-sided broadband platforms, which facilitate the interaction of broadband customers and edge providers.[210] Customers derive value from interacting with edge providers. Similarly, edge providers derive value from interacting with customers (some of which may occur by selling to advertisers access to these broadband customers).

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[210] *Evans Declaration*, ¶ 38; *Farrell Declaration*, ¶ 1. For general articles describing the economics of two-sided markets, *see* Jean-Charles Rochet and Jean Tirole (2003), "Platform Competition in Two-Sided Markets," *Journal of the European Economic Association*, 1.4: 990-1029; Jean-Charles Rochet and Jean Tirole (2006), "Two-sided markets: a progress report," *The RAND Journal of* Economics, 37.3: 654-667 (hereinafter, *Rochet and Tirole (2006)*); E. Glen Weyl (2010), "A Price Theory of Multi-Sided Platforms," *American Economic Review*, 100.4: 1642-1672 (hereinafter, *Weyl (2010)*); and David S. Evans and Richard Schmalensee (2014), "The Antitrust Analysis of Multi-Sided Platform Businesses," in *The Oxford Handbook on International Antitrust Economics*, Volume 1, Roger Blair and Daniel Sokol, eds., New York: Oxford University Press, forthcoming. (hereinafter, *Evans and Schmalensee (2014)*).

(a) Overview of two-sided platforms

182. A two-sided (or more generally, multi-sided) market has two distinguishing features:[211]

- Cross-group externalities:[212] The value of the platform to one side of the market increases with the amount of participation and/or usage on the other side of the market.
- The price structure, in addition to the price level, matters: The relative prices that the platform charges to each side of the market impact welfare and profits on each side of the market.[213]

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211 *See Rochet and Tirole (2006)* and *Weyl (2010)*.

212 Externalities arise when end-users do not fully internalize the value they produce or the costs they impose on the system. Cross-group externalities (or network effects) arise in many industries, including payment cards, advertising, video gaming, and job matching websites. In the context of the broadband segment, internet access is more valuable to customers the more and higher quality are the available edge provider applications. Similarly, more users with high-quality Internet connections make it more profitable for edge providers to invest in developing content and applications.

213 In order for the price structure to matter (to the welfare and profit on either side of the platform), market participants must not be able to undo the price structure via side payments. If market participants can undo the price structure via side payments, then the price structure is said to be "neutral." This "neutrality exception" does not apply in the present context; among other things, many edge providers have no direct interaction with broadband customers and thus no opportunity for side payments. Dr. Farrell agrees that "[t]his [neutrality] exception almost certainly does not apply to the case for consumer ISPs." (*Farrell Declaration*, ¶ 27.)

(b) Seesaw principle and optimal pricing to each side of the market

183. A core principle of pricing in multi-sided markets is the "seesaw" principle, which Rochet and Tirole describe as follows:[214]

> [A] factor that is conducive to a high price on one side, to the extent that it raises the platform's margin on that side, tends also to call for a low price on the other side as attracting members on that other side becomes more profitable.

In the present context, the implication of the seesaw principle is simple: Higher prices to edge providers or their agents for interconnection imply lower prices to broadband customers. And this result is very general: The seesaw principle is present in nearly all models of two-sided markets, including, as described below, the model introduced by Dr. Farrell.[215] The principle does not depend on any assumption about market structure or the degree of competition. Thus, as both Dr. Evans and Dr. Farrell recognize, in evaluating pricing in two-sided markets, it is critical to evaluate the impact on both sides of the market, *taking into account the fact that higher prices to edge providers or their agents directly imply lower prices to broadband customers and conversely that lower prices to edge providers or their agents directly imply higher prices to broadband customers*.[216]

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214 *Rochet and Tirole (2006)*, 659.

215 *Farrell Declaration*, § VII. For a more complete discussion of his model, *see* Sections V.B.1 and VI.B.3.

216 *Evans Declaration*, ¶¶ 38, 156; *Farrell Declaration*, ¶ 27.

184. The question of the welfare effects of a decision to charge more to edge providers or their agents is an example of a long-standing question in economics, concerning the optimal split of pricing between the two sides of a two-sided market, taking the tradeoff implied by the seesaw principle into account. *As economists including Dr. Evans have long recognized, as a general matter, the answer depends heavily on the market-specific facts, with no presumption that prices should be higher or lower on one side of the market versus the other*.[217] Hence, by Dr. Evans' own logic, there is no general theoretical support for a claim that higher prices on the edge provider side of the market (and thus lower prices on the consumer side of the market) would harm welfare.

185. The fact that there is no general presumption that one side of the market should pay while the other should not also refutes blanket assertions by Netflix that it should not have to pay anything to Comcast for direct interconnection simply because Comcast can charge its broadband customers.[218] This argument simply assumes, without support, that a particular price structure—in which customers pay to use an ISP's broadband platform to interact with edge providers, while edge providers do not pay the ISP for dedicated access to the platform in order to interact with customers—is appropriate, with no economic

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217 *See Evans and Schmalensee (2014)* (reviewing various models of pricing in two-sided markets that arrive at different optimal pricing rules depending on the modeling assumptions).

218 Petition to Deny of Netflix, Inc., *In the Matter of Applications of Comcast Corp. and Time Warner Cable Inc. for Consent to Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, August 25, 2014, 66.

support establishing that such a price structure is likely to be socially optimal. As such, there is no economic basis for this position.

2. Features of the two-sided market for broadband services indicate that greater payments on the edge provider side of the market are likely to be efficient

186. Building off both the general principles described above and the economic literature regarding two-sided markets, several specific features of the broadband industry point to the conclusion that, if anything, increased prices charged to the edge providers or their agents are likely to be welfare enhancing (in part because such price increases to edge providers or their agents would tend to *lower* prices to broadband customers, in a socially beneficial way).

(a) The seesaw principle means that payments by edge providers reduce payments by broadband customers and reduce cross-subsidization of OVD users by non-OVD users

187. Under the most common current pricing structures, ISPs do not price differentially to customers depending on the costs they impose on the network (other than any weak correlation between the average usage in a given speed tier and the price of the tier).[219] Hence, all customers (in a given tier) pay a price based on the average usage across all

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[219] As noted above, although Comcast is experimenting with usage-based pricing in certain markets, the monthly data allowances are high relative to usage and very few customers reach the allowance.

users in the tier. An implication of these pricing policies is that non-OVD users (or low-usage customers in general) subsidize OVD users (or high-usage customers in general).

188. Focusing on the case of Netflix in particular, Comcast data indicate that only approximately **{{ }}** percent of Comcast customers use Netflix.[220] Similarly, only approximately **{{ }}** percent of TWC customers use Netflix.[221] And these Netflix users tend to use a disproportionate share of network bandwidth. For example, during peak hours, approximately **{{ }}** percent of Comcast customers are streaming Netflix, and that usage accounts for 35 percent of peak downstream traffic.[222] Thus, because Netflix customers impose relatively large data loads on the network, uniform customer pricing means the majority (non-Netflix users) are subsidizing the minority (Netflix users).

189. Pricing by ISPs to edge providers or their agents can alleviate this cross-subsidization problem. As noted above, an implication of the seesaw principle is that ISP customers will pay less if edge providers or their agents pay more.[223] Edge providers may pass on a portion of any interconnection fee to their own customers, but this pass-through necessarily only goes to customers who use the particular edge provider, and thus such

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220 Barry Tishgart, Vice President, Comcast Wholesale, September 15, 2014, interview.

221 Nielsen Total Communications (TCS) Survey Q2 2014.

222 Barry Tishgart, Vice President, Comcast Wholesale, September 15, 2014, interview.

223 Both Dr. Evans and Dr. Farrell acknowledge that the seesaw principle implies lower broadband pricing given increases in interconnection fees. (*See Evans Declaration*, ¶ 156; *Farrell Declaration*, ¶ 187.)

pricing is targeted at the right customers, limiting cross-subsidization by those who watch little online video.

(b) Increased payments by edge providers would permit marginal prices to move closer to marginal costs, yielding economically efficient reactions by edge providers

190. Prices are the mechanisms by which firms cause buyers to "internalize" the costs their actions create. It is a well-established economic principle that the efficiency of market outcomes requires prices to reflect marginal costs.[224] Given prices that reflect marginal costs, those that interconnect with the platform (customers, edge providers, or both) can then decide how best to optimize their behavior. If prices are below marginal network costs, customers and edge providers will have an incentive to "over-consume" or "over-provide" data.

191. Under current pricing policies, neither customers nor edge providers face prices that fully reflect the marginal network costs that their actions (and interactions) create. Customer pricing is largely on a per customer per month basis and does not vary with usage.[225] Although interconnection fees naturally do have at least some variable

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[224] Dennis W. Carlton and Jeffrey M. Perloff (2004), *Modern Industrial Organization*, 4th Edition, Prentice Hall, at 58, 70. *See also*, *Israel Declaration*, note 105 and Stanley M. Besen and Mark A. Israel (2013), "The evolution of Internet interconnection from hierarchy to "Mesh": Implications for government regulation," *Information Economics and Policy*, 25: 235-245 (hereinafter, *Besen and Israel (2013)*).

[225] As noted above, even where usage-based pricing is in place, the usage level at which additional charges apply is generally set very high, meaning that for most consumers

component, as described in Section V.A, Comcast's interconnection fees are generally substantially below marginal network costs. Given prices that are below marginal costs, increasing incremental prices to edge providers or their agents, in order to move them closer to marginal cost, would be efficient.

192. Notably, charging prices that more closely reflect marginal costs *to edge providers in particular* is likely to be efficient. Edge providers can make investments to react to marginal cost pricing in flexible ways. Because such investments are costly, Netflix has a reduced incentive to undertake such investments (or conversely an increased incentive to over-invest in high-quality video even if it generates limited consumer benefits) if it does not internalize the full costs of its actions, including the costs those actions impose on ISPs' networks. For example, Netflix has a variety of options to optimize its traffic, including investing in caching and compression technologies and establishing flexible pricing policies such as premium charges for consumers who stream video during congested periods.[226] Such options are not just theoretical possibilities. For example, in Canada, Netflix reduced the data requirements associated with streaming video by two-

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prices do not vary with usage and, in general, the correlation between usage and price is weak.

[226] "Optimizing the Netflix Streaming Experience with Data Science," *Netflix Tech Blog*, June 11, 2014, *available at* http://techblog.netflix.com/2014/06/optimizing-netflix-streaming-experience.html, *site visited* September 15, 2014. *See also*, *Besen and Israel (2013)*.

thirds "with minimal impact to video quality" in response to data allowances used by Canadian ISPs.[227]

(c) The presence of a small set of very large edge providers supports the efficiency of pricing on the edge provider side of the market

193. Finally, economic theory also indicates that, all else equal, it is generally optimal to charge more to the side of the market which: (i) exhibits greater heterogeneity between the largest "inframarginal" users and the smaller "marginal" users,[228] and (ii) derives relatively higher valuation from the interactions facilitated by the two-sided platform.[229]

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227 "Netflix Lowers Data Usage By 2/3 For Members in Canada," *Netflix US & Canada Blog*, March 28, 2011, *available at* http://blog.netflix.com/2011/03/netflix-lowers-data-usage-by-23-for.html, *site visited* September 15, 2014.

228 *See Weyl (2010)*. Weyl shows that a two-sided platform facing heterogeneity in user values has an incentive to cater to the preferences of the marginal user on either side, *causing it to underprice to the side with more heterogeneity* (meaning the side with a bigger gap between the preferences of the marginal and inframarginal users; in the language of economics, the side with a larger Spence distortion). Hence, in such a setting, welfare is generally enhanced if more of the payments can be shifted to the side of the market with greater heterogeneity; here, the edge provider side.

229 *See* Mark M. Bykowsky and William W. Sharkey (2014), "Net Neutrality and Market Power: Economic Welfare with Uniform Quality of Service," *FCC Office of Strategic Planning and Policy Analysis* (hereinafter, *Bykowsky and Sharkey (2014)*). Bykowsky and Sharkey show that the optimal pricing depends on the relative importance, or "willingness-to-pay," of edge providers and consumers for interactions via the ISP's platform. If edge providers have sufficiently high valuations for interacting with customers relative to customers' valuations for interacting with edge providers—as one might expect given the large revenue that some edge providers generate, including from advertisers—and if edge providers' demand is relatively elastic (such that increasing output will not depress their willingness-to-pay too much), then constraining the amount that ISPs can charge edge providers (including for establishing a dedicated access arrangement) tends to diminish welfare.

Hence, both the extremely large heterogeneity across edge providers and the large valuation that at least some edge providers receive from interacting with consumers point toward the efficiency of greater charges to edge providers (or their agents).

194. **First**, as Dr. Evans has noted in his academic writings, there is a huge degree of heterogeneity on the edge provider side of the market, with a few large firms dominating Internet traffic and a "long tail" comprising "thousands of blogs and small websites that provide valuable content."[230] For example, Table 11, based on data from Sandvine, shows that the 10 largest Internet applications account for approximately 76 percent of total peak-period Internet traffic, with Netflix alone accounting for more than one-third of peak-period Internet traffic. Observed trends indicate that such heterogeneity will continue to grow: There has been a huge shift in traffic toward the largest OVDs over the past few years, creating even more heterogeneity on the edge provider side.[231]

195. Large providers such as Netflix and Google are likely to derive substantially more value from interactions via ISPs' platforms than do the millions of small websites in the

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230 David S. Evans (2011), "Net Neutrality Regulation and the Evolution of the Internet Economy," *CPI Antitrust Chronicle*, 2: 1-9.

231 For instance, Netflix began streaming in 2007 and now accounts for one-third of peak download traffic. *See* Nate Anderson, "Netflix offers streaming movies to subscribers," *Ars Technica*, January 16, 2007, *available at* http://arstechnica.com/uncategorized/2007/01/8627/, *site visited* September 15, 2014; Sandvine, "Global Internet Phenomena Report: 1H 2014," May 15, 2014, Table 2, *available at* https://www.sandvine.com/downloads/general/global-internet-phenomena/2014/1h-2014-global-internet-phenomena-report.pdf, *site visited* September 15, 2014.

"tail" of the distribution, which in many cases rely on completely different business models and do not require direct interconnection. *As noted above, economics indicates that, given such heterogeneity, shifting charges toward the edge provider side of the market, including via charges for direct interconnection, is likely to be economically efficient and welfare enhancing*.

Table 11: Top-10 Share of Peak Internet Traffic (Sandvine)

Application	Share
Netflix	34.21%
YouTube	13.19%
HTTP	11.65%
iTunes	3.64%
SSL	3.42%
BitTorrent	3.40%
MPEG	2.85%
Facebook	1.99%
Amazon Video	1.90%
Hulu	1.74%
	76.24%

Source: Sandvine, "Global Internet Phenomena Report," Table 2.

Notes: Peak period usage (1H 2014) - North America, Fixed Access.

196. Moreover, edge providers have pursued a variety of business strategies, a further source of heterogeneity. For example, Table 12 compares the business models of the largest edge providers. Whereas Netflix and HBO derive their revenue almost exclusively from subscription fees, Google (including YouTube) and Facebook derive the vast majority of their revenue from advertising.

Table 12: Sources of Revenue for Large Edge Providers (Revenue in Thousands)

Edge Provider	Subscription Revenue	Percent of Total	Advertising Revenue	Percent of Total	Operating Revenue	Total Revenue
Netflix	$4,374,562	100%	$0	0%	$228,347	$4,374,562
Google/Youtube	$0	0%	$50,578,000	91%	$13,966,000	$55,519,000
Facebook	$886,000	11%	$6,986,000	89%	$2,804,000	$7,872,000
HBO	$4,890,000	100%	$0	0%	$1,791,000	$4,890,000
Hulu	$509,400	51%	$490,600	49%	N/A	$1,000,000

Source: Sec.gov.

197. **Second**, the largest edge providers are likely to derive substantially more value from interactions with customers (including interactions facilitated by direct interconnection) than customers derive from interactions with edge providers. For example, in the case of edge providers like Google, which earn nearly all of their revenue via advertising, prices charged on the customer side of the market cannot incorporate advertisers' willingness to pay for higher quality broadband. In such a setting, economic theory, including models developed by FCC staff economists, indicates that output and welfare will increase with higher fees to edge providers.[232] For example, in an environment where an ISP can only price to customers but not edge providers, it will price based on the willingness to pay of those customers. If the willingness to pay of edge providers is substantially higher than that of customers, pricing only to customers will generally lead to sub-optimal output. In such a case, output would increase if the ISP

[232] *Bykowsky and Sharkey (2014).*

could raise the price to the edge provider side of the market and thus decrease price to customers.[233]

3. The two-sided pricing model presented by Dr. Farrell supports my conclusion that it is efficient to charge edge providers

198. In Section V.B.1, I described a model of two-sided pricing presented by Dr. Farrell.[234] In this section, I explain that Dr. Farrell's model is closely related to other models of two-sided markets and that it supports my conclusion that it is likely to be economically efficient to charge edge providers or their agents.

199. **First**, I note that Dr. Farrell's model reflects the seesaw principle. In all versions of his model, under reasonable parameter assumptions, increasing the price (*t)* to edge providers creates an incentive to reduce the price to customers.[235]

200. **Second**, I note that Dr. Farrell does not reach any conclusions about overall welfare effects arising from increases in interconnection fees. Instead, he concludes that customers and Comcast are likely to gain while edge providers (and possibly customers of

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233 *Id.*, Figure 4.

234 *See* discussion in *Farrell Declaration*, ¶¶ 189-192

235 This incentive arises for two reasons. First, an increase in t is effectively a reduction in the ISP's marginal cost to serve customers (because edge providers cover some of the cost) and, as a matter of economics, the ISP has an incentive to pass a portion of marginal cost reductions on to its consumers in the form of a price decrease. Second, because edge services are a complement to broadband services, an increase in t reduces demand for both the edge service and broadband service and creates an additional incentive to lower the broadband price

other ISPs) may be harmed. But he provides no mechanism to balance these harms and benefits and thus no conclusion about overall welfare effects. Thus, although it is obvious why Cogent and Netflix might object to increased interconnection fees, *Dr. Farrell provides no evidence to even support a claim that the competitive effects he points to would be harmful (rather than helpful) to consumers and welfare*. This stands in sharp contrast to the largely unchallenged benefits from this transaction, which clearly will benefit consumers and welfare.

201. **Third**, if, as described in Section V.B.1, Dr. Farrell is concerned that interconnection fees impose "taxes" on rival ISPs (assuming edge providers cannot price discriminate),[236] then he should also be concerned about cross-subsidization that benefits one OVD at the expense of another.[237] Yet, such cross-subsidization is what occurs when one OVD, such as Netflix, imposes marginal costs on an ISP that it (or its agents) does not fully pay for. For example, when an OVD sends traffic onto an ISP's network, that action imposes marginal costs on the ISP. If the OVD (or its agents) do not fully pay for those marginal costs, then (absent usage-based pricing that perfectly accounts for those costs, which does not exist today) that raises the ISP's overall marginal costs of service

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236 *Farrell Declaration*, ¶ 192.

237 Dr. Farrell's model implicitly assumes that all of an ISP's customers use the edge provider's service (for example, there is no parameter that scales the increase in edge provider price increase by the fraction of the ISP's customers using the service) and thus does not consider any cross-subsidization within an ISP's customer base.

which are then passed on to all of the ISPs' customers. As such, when Netflix argues that broadband customers, not Netflix or its agents, should pay for the costs of delivering its traffic, they are actually arguing that the users of all other edge providers, including the smallest ones, should pay more to interact with their preferred edge providers in order to subsidize Netflix traffic. Charges to OVDs or their agents that more fully reflect the marginal cost imposed by such traffic reduce such cross-subsidization.

VII. OTHER THEORIES OF COMPETITIVE HARM RAISED BY COMMENTERS ARE WITHOUT MERIT

202. The discussion thus far has refuted all of the core competitive issues raised by commenters with regard to broadband. In this section, I briefly discuss two other claims raised by commenters.

A. A THEORY OF POTENTIAL COMPETITION BETWEEN COMCAST AND TWC IS NOT SUPPORTED BY AVAILABLE EVIDENCE

203. Dr. Farrell finds it "somewhat puzzling" that cable operators have not expanded by entering into other cable companies' historical franchise territories. He also asserts that approval of the transaction would "make permanent the absence of such competitive expansion between Comcast and TWC."[238] Thus, he raises a potential competition theory with regard to the transaction.

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[238] *Farrell Declaration*, ¶ 100.

204. There is no valid potential competition concern with regard to this transaction. As discussed in Section IV.B.2, neither Comcast nor TWC has plans to overbuild one another's current footprints.[239] Indeed, to my knowledge, no incumbent cable operator has ever overbuilt another incumbent cable operator's footprint. Hence, as with all other horizontal aspects of this transaction, Comcast and TWC do not constrain one another today, including via potential competition.

205. The primary reason that incumbent cable operators have not generally overbuilt each other's historical franchise areas is that the fixed costs are too high to be recouped, making the return on an investment either negative or at least not worth it relative to other strategic initiatives. As noted in the Israel Declaration, "[o]verbuilding (*i.e.*, building a network entirely from scratch) in one another's service area would be a significant expense made more difficult to recover by the competitive video and broadband marketplace that already exists."[240] In addition to the cost of materials and labor to build a network entirely from scratch, the expense of obtaining permits, rights-of-way, and so on can be very substantial.[241] Notably, lower fixed cost alternatives to expansion—such

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239 In addition, as discussed above in Section IV.B.2, neither Comcast nor TWC have current or future plans to enter each other's footprints as OVDs.

240 *Israel Declaration*, ¶ 115.

241 *See*, e.g., Federal Communications Commission, "Connecting America: The National Broadband Plan," March 17, 2010, *available at* http://download.broadband.gov/plan/national-broadband-plan.pdf, *site visited* March 28,

as expanding distribution of OVD services out of market—have also been considered and rejected, as explained in Section IV.B.2 above.

206. Dr. Farrell is correct that the threat of potential competition can be an important constraint on firms; he is simply incorrect about the relevant source of such potential competition. Contrary to the evidence that Comcast and TWC have no plans to overbuild one another's footprints, there *is* substantial evidence, presented in Section III, above, that Google is planning broadband entry into additional cities; that telco operators including AT&T, CenturyLink, and others are planning to roll out FTTP in more markets; that AT&T, Dish Network/Sprint, and others are planning expanded fixed wireless offerings; that various municipalities are considering investments in municipal fiber networks, and so on. These entities provide the relevant actual and potential competition constraining any ability for the merging parties to slow their broadband investments or degrade the quality of service offered over those networks.

B. THE ELIMINATION OF ONE COMPETITIVE BENCHMARK PROVIDES NO BASIS TO ALLEGE COMPETITIVE HARMS FROM THE TRANSACTION

207. Some commenters assert that Comcast and TWC serve as competitive benchmarks for each other, and that the elimination of this benchmark could increase the likelihood of

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2014, at 109: ("The cost of deploying a broadband network depends significantly on the costs that service providers incur to access conduits, ducts, poles and rights-of-way on public and private lands. Collectively, the expense of obtaining permits and leasing pole attachments and rights-of-way can amount to 20% of the cost of fiber optic deployment.")

anticompetitive behavior.[242] Such claims are without basis with regard to the proposed transaction. I am aware of no coherent economic theory or empirical evidence indicating that more benchmarks lead to lower prices and/or higher quality. Competition between firms selling substitute products benefits consumers because competing firms must make attractive offers to consumers (*e.g.*, lower prices and/or higher quality) in order to attract them away from rival firms. Benchmarking has no such systematic effect on pricing incentives. Moreover, to the extent that competitive benchmarks provide any valuable information to consumers, the transaction results in a negligible decrease in the number of available benchmarks, with multiple cable, telco, and other providers continuing to operate.

VIII. CONSUMER BENEFITS ARISING FROM THE TRANSACTION OVERWHELM SMALL, TENUOUS COMPETITIVE EFFECTS

208. In this section, I begin by providing an overview of commenters' claims about consumer benefits. In short, commenters leave the benefits from the transaction largely untouched, and to the extent they present any analysis of efficiencies, it is without merit. I then summarize the substantial benefits for business customers, residential customers, and edge providers discussed in my initial declaration, which are largely untouched by

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[242] *Farrell Declaration*, ¶¶ 87-96; *Sappington Declaration*, ¶¶ 70-71.

commenters.[243] At the end of this section, I show that the magnitude of consumer benefits arising from even a small subset of the consumer benefits from the transaction easily swamps any alleged harms.

A. COMMENTERS' VAGUE CLAIMS ABOUT CONSUMER BENEFITS PROVIDE NO BASIS TO REJECT THE IMPORTANCE AND LIKELY REALIZATION OF THESE BENEFITS

209. Commenters' analysis of consumer benefits from the transaction, to the extent that there is any analysis at all, is either vague or without merit. Generally, commenters do not address the extensive, specific evidence presented in my original declaration, in the declarations of Drs. Rosston and Topper, and by the merging parties in their application. Dr. Sappington does not address consumer benefits at all. Dr. Evans provides an extremely limited assessment of consumer benefits, acknowledging that he is "not expressing any opinion on the efficiency *[sic]* of the Transaction."[244]

210. Dr. Farrell raises two issues regarding the consumer benefits. First, he states that my "claim that economies of scale are so significant conflicts with . . . [my] assertion that

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[243] I understand that Comcast's analysis indicates that the divestiture transaction will increase the benefits from the Comcast-TWC transaction (*see, e.g.*, "September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request," RFI 80(a).2, 225-226.).

[244] *Evans Declaration*, note 12. Dr. Evans' discussion of consumer benefits is limited to one part of a sentence in ¶ 37 (in which he states that he has "found that their substantive claims concerning . . . efficiencies from the merger are not supported by the economic analysis and evidence they present") and a corresponding footnote with selected citations to the economics and business literature.

Comcast and TWC face strong competition in the provision of broadband to consumers."[245] He states that, given such competition, "either or both could readily expand their scale and capture any scale efficiencies simply by improving their competitive offerings and thus taking customers from their supposedly many rivals."[246] Hence, he concludes that scale-based efficiencies are generally not merger-specific.[247]

211. Dr. Farrell's criticism is effectively a version of a common criticism of scale-based efficiencies from a merger—that the merging parties should compete to capture the scale benefits, rather than merge. However, in the present case, this argument has two fundamental flaws:

- First, it misses the fact that, unlike most mergers that attract scrutiny, in this transaction *the parties do not compete with one another but rather operate in separate footprints*. Hence, they cannot compete with one another to capture more scale. And any investments they might consider are "landlocked"—no matter how successful they are, they can capture customers only in their own footprint, thus inherently limiting the revenue available and thus potentially turning many high-cost investments into money losers (negative NPV). Given that the parties have decided that footprint expansion is cost-prohibitive, and given

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245 *Farrell Declaration*, ¶ 102.

246 *Ibid*.

247 *Ibid*.

the unchallenged fact from the original Israel Declaration that cross-operator partnerships have proven largely unsuccessful in this industry,[248] unlocking the profitability of these investments by scaling them to more territories is a transaction-specific benefit.

- Second, the fact that Comcast faces strong competition does not mean it could "readily expand…simply by improving [its] competitive offerings." To the contrary, as a matter of economics, Comcast is making the investments it can justify, and competing as effectively as it can within its footprint today. Nonetheless, as illustrated by recent actions by AT&T, Google, and others, those investments stimulate a competitive reaction that limits how much share can be gained and thus limits the returns on any investment, particularly as long as those share gains are constrained to be within footprint.

212. Second, Dr. Farrell asserts that my claims about scale benefits are belied by Comcast's and TWC's low customer service scores.[249] Despite the fact that I never claimed that Comcast has an advantage relative to other cable companies in customer satisfaction scores, Dr. Farrell devotes substantial attention, including several regression

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248 *Israel Declaration*, ¶ 128.

249 *Farrell Declaration*, ¶ 103.

analyses, in an attempt to demonstrate that Comcast does not have such an advantage.[250] Of course, the relevant question is the incremental effect of the transaction, and Dr. Farrell does not even purport to show that Comcast's or TWC's customer satisfaction would be lower than it is today because of the transaction. If Dr. Farrell is arguing that the transaction will harm customer service scores, his data do not support this claim: In the surveys Dr. Farrell cites, the performance of Comcast compared to TWC shows no systematic pattern. Comcast is ranked higher than TWC in the *PC Magazine* survey and in the 2014 ACSI survey, the same as TWC in the *Consumer Reports* ranking, and lower than TWC in the JD Power and 2013 ACSI rankings (without taking each survey's margin of error into account).[251]

213. Furthermore, although largely irrelevant for assessing the central question of the incremental effect of the transaction, Dr. Farrell's attempt to demonstrate an inverse relationship between cable company size and consumer satisfaction is highly flawed. Among other shortcomings, Dr. Farrell's regression analysis generally fails to generate statistically significant results (meaning that he generally cannot reject the possibility of no relationship between cable company size and consumer satisfaction). In addition, his analysis focuses on fairly large ISPs, and thus he excludes many smaller ISPs, the

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250 *Id.*, § IV.E.

251 *Id.*, ¶ 105 and Figure 6.

inclusion of which might alter his results. Finally, his analysis does not account for potentially confounding variables, such as the possibility that larger ISPs are more likely to be the subject of negative news reports about customer service, as well as differences in service levels and expectations across ISPs.[252]

214. Regarding the objective network benefits that I have actually claimed will arise from the transaction—improvements in residential and business network speed and quality, improvements in Wi-Fi networks, improvements in home networking, and so on—such surveys are mostly silent, confounding objective network quality with other subjective metrics and offering no guidance on the transaction's incremental effects. As explained in my initial declaration, objective measures of network quality are an area

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[252] I also note that Comcast has experienced recent improvements in its J.D. Power satisfaction rankings. From 2010 to 2013, Comcast's score in the U.S. Residential Internet Service Provider Satisfaction Study improved by nearly 80 points (averaged across all regions), which was a larger improvement than for any other provider in the survey over that same time period. According to J.D. Power, this study "measures customer satisfaction with high-speed Internet service based on five factors: performance and reliability; cost of service; billing; communication; and customer service." (*See* Press Release, "2013 U.S. Residential Internet Service Provider Satisfaction Study," *J.D. Power and Associates*, September 26, 2013, *available at* http://www.jdpower.com/press-releases/2013-us-residential-internet-service-provider-satisfaction-study, *site visited* September 17, 2014 and Press Release, "2010 U.S. Residential Internet Service Provider Satisfaction Study," *J.D. Power and Associates*, October 28, 2010, *available at* http://businesscenter.jdpower.com/news/pressrelease.aspx?ID=2010167, *site visited* September 17, 2014.).

In addition, in a recent report on Comcast's 2013 fourth quarter performance, industry analyst Craig Moffett observed that Comcast's customer service has "*improved by…lightyears*" (Craig Moffett, Nick Del Deo, and Cathy Yao, "Comcast Q4 2013 Earnings: Boardwalk Empire," *MoffettNathanson*, January 28, 2014 [emphasis added]).

where Comcast has excelled, and the transaction is designed to bring this quality to the TWC footprint and extend it due to scale economies. For example, as noted in my initial declaration, Comcast has already converted its entire network to all-digital, while TWC has completed the transition in only 17 percent of its footprint, and under current plans expects to reach only 75 percent in 2016.[253] Similarly, Comcast has deployed DOCSIS 3.0-capable modems to approximately **[[ ]]** percent of its customers, relative to **[[ ]]** percent for TWC.[254] Looking forward, Comcast is on track to deliver CCAP technology to about **[[ ]]** percent of its footprint by the end of this year and **[[ ]]** percent by 2016, while TWC's plans only contemplate reaching 75 percent of its footprint over the next several years.[255] These improvements are reflected in network speeds available to customers. At present, **[[ ]]** as many Comcast customers are in downstream speed tiers of 25 Mbps or greater as TWC customers.[256] Comcast customers also have access to a greater range of digital amenities than do TWC customers. Comcast had more than 725,000 hotspots operating at the end of 2013, twenty times as many as TWC.[257]

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253 *Israel Declaration*, ¶¶ 173-174. An additional 1.25 million TWC customers will be converted to all-digital in Los Angeles in October of this year.

254 *Id.*, ¶ 176.

255 *Id.*, ¶ 178.

256 *Id.*, ¶ 168.

257 *Id.*, ¶¶ 192-193. The number of hotspots is growing rapidly, and Comcast expects to reach 8 million hotspots by the end of this year. ("Comcast to Reach Eight Million Xfinity WiFi Hotspots in 2014," *available at* http://corporate.comcast.com/news-

215. The FCC's Measuring Broadband America Report provides additional support for the contention that Comcast ranks highly in terms of network quality. For example, according to the report, Comcast scored the best of all ISPs for download speeds as a percentage of advertised speeds for 1 to 5 Mbps plans and second only to Verizon's fiber-optic network in the same metric for 25 and 50 Mbps service.[258] Comcast was also tied with Cox for the fastest web page load time of all ISPs on the 1 to 3 Mbps tier and second only to Frontier's fiber for 18 to 25 Mbps service.[259]

B. COMMENTERS FAIL TO ADDRESS SPECIFIC ANALYSES OF EFFICIENCIES ARISING FROM THE TRANSACTION

216. Three main mechanisms drive substantial benefits from the transaction: economies of scale, expanded geographic reach, and sharing of technologies and services. Commenters provide no detailed economic refutation of the comprehensive discussion of these broadband benefits in my initial declaration or the Rosston/Topper declarations. As one notable example, there is no refutation of the significant benefits to business

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information/news-feed/comcast-to-reach-8-million-xfinity-wifi-hotspots-in-2014, *site visited* September 17, 2014).

258 Federal Communications Commission, "2014 Measuring Broadband America: Fixed Broadband Report," 2014, at 28-30, *available at* http://data.fcc.gov/download/measuring-broadband-america/2014/2014-Fixed-Measuring-Broadband-America-Report.pdf, *site visited* September 8, 2014 (hereinafter, *FCC 2014 Broadband Report*).

259 *Id.*, 36 and 38.

customers. As I described in my initial declaration, the transaction improves the combined firm's ability to serve business customers in at least three ways:[260]

- First, in the case of businesses whose locations span the footprints of multiple cable operators ("super-regional" businesses), the transaction helps to alleviate the coordination problems that currently plague efforts by cable operators to serve those businesses.

- Second, the transaction combines the complementary skills and products of the two companies and facilitates the provision of higher quality business services.

- Third, as explained above, the combined firm can spread fixed cost investments over a larger group of current and potential business customers, thereby incentivizing new investment and innovation that benefits those business customers.

217. There is also no refutation of the fact that such business benefits would be a catalyst for network expansion and hardening, which would also benefit residential customers.[261] Commenters also do not refute the fact that investments made by Comcast or TWC are currently "landlocked" by footprint limitations and that the geographic expansion from the transaction therefore unlocks value for incremental investments and makes more of such investments profitable. Thus, there is no denial of the gains regarding faster access networks (owing to quicker rollout of digital service and DOCSIS 3.0/3.1), expanded broadband and Wi-Fi networks, or improved home network

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260 *Israel Declaration*, ¶¶ 133-160.

261 For a discussion of benefits to residential customers and edge providers, *see Israel Declaration*, ¶¶ 161-201.

technology, nor the virtuous cycle that such improvements catalyze, which also benefits edge providers.

218. My continued investigation has revealed additional sources of consumer benefits that will accrue to TWC customers. As one example, Comcast is ahead of TWC in technology and procedures to enable self-installations for customers who prefer this option, particularly on the broadband side. In particular, I understand that Comcast has made substantial investments to standardize its products on the network and to develop the processes that enable customers to activate products remotely.[262] As a result of these investments, a large fraction of Comcast customers now choose to self-install broadband equipment. I understand that approximately **[[ ]]** percent of Comcast's new customer orders chose to self-install their equipment, and the activation success rate among these customers is greater than **[[ ]]** percent. Furthermore, Comcast has increased the rate of self-installs over time, with the rate increasing from **[[ ]]** percent to **[[ ]]** percent in the last four years. Among the benefits of self-installation are:

- Customers have the *option* (but not requirement) to self-install the equipment, thus saving time that would otherwise be spent waiting for a technician.[263]

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262 This paragraph relies on an interview with John Schanz, Executive Vice President and Chief Network Officer, Comcast Corporation, June 25, 2014.

263 *See* http://customer.comcast.com/help-and-support/selfinstall/, *site visited* September 19, 2014.

- When customers choose the self-installation option, Comcast saves the costs associated with installation-related truck rolls.
- Perhaps most importantly, extensive use of self-installation is also the reason why Comcast is able to roll out new technologies quickly and efficiently, as evidenced by the fact that Comcast upgraded its network to all-digital two years ahead of the schedule, with 90 percent of the upgrades implemented through self-installs. Hence, technologies like those enabling more self-installation are a part of the reason why Comcast expects to be able to roll out all digital service, as well as DOCSIS 3.0 and 3.1 in the TWC footprint faster than TWC would be able to do on its own.

C. EVEN A HIGHLY CONSERVATIVE QUANTIFICATION OF A SUBSET OF CONSUMER BENEFITS FROM THE TRANSACTION SWAMPS ANY ALLEGED COMPETITIVE EFFECTS

219. A highly conservative quantification of just a subset of the consumer benefits from the proposed transaction illustrates the substantial value to consumers that that the proposed transaction will generate.

220. As seen in Table 13, as of December 2013, the average broadband speed enjoyed by Comcast customers was **[[ ]]** Mbps versus **[[ ]]** Mbps for TWC customers.[264]

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[264] I calculate customer-weighted averages using data from FCC Form 477. The data report the following ranges: > 200 kbps and < 768 kbps, >= 768 kbps and < 1.5 Mbps, >= 1.5 Mbps and < 3 Mbps, >= 3 Mbps and < 6 Mbps, >= 6 Mbps and < 10 Mbps, >= 10 Mbps

Although there may be a number of reasons for this difference, it is likely to be due at least in part to differences in Comcast's and TWC's network infrastructure.[265] With the proposed transaction, Comcast has committed to invest hundreds of millions of dollars to improve TWC's network and to realize higher broadband speeds.[266] Comcast and TWC have already made substantial progress in working toward implementation of this commitment.[267]

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and < 25 Mbps, >= 25 Mbps and < 100 Mbps, >= 100 Mbps. For the purposes of this calculation, I have assumed that each household is at the lower bound of the relevant range. The difference between Comcast and TWC is larger if I assume that customers are at the mid-point of the range.

265 *See Israel Declaration*, § IV.B.3.

Comcast typically automatically upgrades the speed received by customers as the costs of its network decline. (*See, e.g.*, Comcast Corp., Press Release, "Xfinity Internet Performance Tier doubles to 50 Mbps. Blast Tier doubles to 105 Mbps and Extreme Tier moves from 105 Mbps to 150 Mbps," July 31, 2014, *available at* http://corporate.comcast.com/news-information/news-feed/comcast-increases-internet-speeds-in-california-kansas-missouri-and-texas, *site visited* September 21, 2014.)

266 Description of Transaction, Public Interest Showing, and Related Demonstrations, 28. ("Comcast is committed to putting [the efficiencies and synergies of the transaction] to work to forge a faster path to all-digital systems, higher broadband speeds, more advanced video and voice services, a more secure network, better system reliability, and other benefits to consumers, businesses, and the public interest generally.")

267 *See* Comcast and TWC, "Comcast – TWC Merger Integration: Integration Summit II," September 4, 2014, Exhibit 88.3, 49-56.

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221. Even small increases in broadband speeds resulting from these transaction-specific investments will be very valuable to customers.[268] For example, a recent paper by Aviv Nevo and coauthors found that a one Mbps increase in broadband speed is worth as much as $5.86 per sub per month (to customers who place the most value on network speed), with an average of $1.76 and a median of $0.87.[269] Using the median valuation (which is conservative relative to the average), each one Mbps increase in average speed spread

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268 Based on the survey results presented in Section III.C.4 and Appendix I, which demonstrate that the majority of respondents would switch to a slower speed provider if access to edge providers were degraded, it is clear that access to edge providers is worth even more than speed, and that speed becomes less valuable if the broadband uses for which speed is most valuable, such as online video, are degraded or blocked.

269 Aviv Nevo, John L. Turner and Jonathan W. Williams (2013), "Usage-Based Pricing and Demand for Residential Broadband," *Working Paper* (hereinafter, *Nevo et al. (2013)*), 28. Note that, although significant, these values are also consistent with statements above that reasonable speed differences across firms can be overcome with price differences of the magnitude that are seen in practice, enabling slower speed options to be important competitors.

across all TWC customers would be worth approximately $95 million per year to consumers.[270] Given the gap between the Comcast and TWC networks and Comcast's commitment to bring TWC up to Comcast levels, speed increases of several Mbps for TWC customers seem likely, meaning that this source of consumer benefits alone is worth hundreds of millions of dollars.[271] Hence, even small broadband speed gains from the transaction completely overwhelm any theories of harm that commenters have advanced.[272] And this is without even counting any benefits to Comcast customers, all the other benefits to TWC customers, or benefits from the virtuous cycle that start when edge providers develop offerings to take advantage of the increased speeds. Moreover, the comparison of benefits to alleged harms becomes even more one-sided in favor of the

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270 After divestitures, the former TWC systems remaining with Comcast will constitute 9.1 million broadband customers. Thus, a one Mbps average increase in broadband speed for all customers would be worth *$0.87 per sub per month x 12 months x 9.1 million TWC customers ~= $95* million per year. Because *Nevo et al. (2013)* estimate a complicated non-linear model, the precise calculations would be more complicated—for example depending on the baseline broadband speed for each customer. Nevertheless, I include this estimate as an illustration of the immense benefits that the transaction will yield.

271 Note that arguments that speed differences are even more important than those listed here, such as some may advance in support of a higher standard for the definition of broadband, would make these consumer benefits even larger.

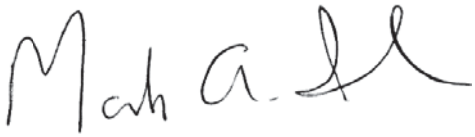
272 Note that the full consumer value of these speed increases (without deducting any possible price increase arising from the quality improvements) is the appropriate metric to compare to alleged price increases to edge providers. Economic literature makes clear that upward pricing pressure, changes in marginal cost, and the full value consumers derive from changes in quality all can be weighed directly against one another to determine the directional effect of a merger on consumer welfare. (Robert Willig (2011), "Unilateral Competitive Effects of Mergers: Upward Pricing Pressure, Product Quality, and Other Extensions," *Review of Industrial Organization*, 39:19–38.)

benefits when one recalls that any alleged "harms" via higher prices to edge providers will actually *reduce* prices for broadband customers due to the seesaw principle.

222. In sum, then, the large and mostly unchallenged consumer benefits from the transaction easily swamp any potential competitive harms from the transaction, particularly given that commenters have made no attempt to quantify any such harms and that, as shown throughout this report, such harms are unsupported by theoretical or economic evidence and are likely to be extremely small, if they occur at all.

I, Mark A. Israel, declare under penalty of perjury that the foregoing declaration is true and correct to the best of my knowledge, information, and belief.

Executed on September 22, 2014.



Mark A. Israel

APPENDIX I: GLOBAL STRATEGY GROUP'S BROADBAND SURVEY

223. Global Strategy Group (GSG) implemented an online survey of 1,012 adult broadband Internet users from July 10th – 14th of this year. The survey was designed to assess the "likelihood of switching Internet Service Providers if their provider limits Internet speeds, slows down streaming or downloading speeds, or prevents access to certain websites."[273]

224. The primary findings of the survey are as follows:[274]

- A high percentage of broadband users are likely to switch to another Internet service provider (ISP) if their current ISP were to take any of the following actions: "prevent access to favorite websites;" "slow down Internet speeds for your favorite websites;" or "slow down Internet speeds for Netflix."
    - The percentage of survey respondents likely to switch to another ISP (without qualifying the type of ISP) if any of the three actions listed above were taken by their current ISP ranges from 79-89 percent for all Internet users; from 83-

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[273] Memorandum from Jef Pollock, James Delorey, and Michelle Woodruff, Global Strategy Group to Davis Polk, *re: Broadband Survey*, July 16, 2014.

[274] All figures and tables report weighted results, which are based on GSG's adjustment of the raw data to be representative of the broader adult population of the United States.

90 percent for heavy Internet users, and from 84-91 percent for frequent streaming video users. (See Figure 7.)[275]

- Similar results are obtained when the type of ISP to which respondents would switch is restricted to ISPs with slower speeds or to DSL or wireless providers:
  - The percentage of survey respondents likely to switch to an ISP *offering slower speeds* if any of the three actions were taken ranges from 71-80 percent for all users; from 72-79 percent for heavy Internet users, and from 75-81 percent for frequent streaming video users. (See Figure 8.)
  - The percentage of survey respondents likely to switch to another ISP *using DSL or Wireless broadband technology* if any of the three actions were taken ranges from 77-86 percent for all users; from 79-85 percent for heavy Internet users, and from 81-87 percent for frequent streaming video users (See Figure 9.)

- The survey results also indicate that wireless broadband, in particular, is a relevant and highly-used alternative for many customers:[276]

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275 Note that "likely to switch to another ISP" includes both "very" and "somewhat" likely to switch, and frequent streaming video users are respondents who stream video at least once per month.

276 The survey is careful to avoid confusion between mobile broadband, the subject of the question, and Wi-Fi. To avoid confusion, the text of the wireless usage question in the

- Note that the survey requires that a respondent has previously confirmed having access to wireless broadband before answering the questions regarding use of wireless broadband as an alternative, so these results are based on a subset of all respondents (specifically, 683 of 1,012 or 67 percent of all survey respondents).
- Among those with access to wireless broadband, approximately 42 percent of survey respondents use wireless broadband at least as much as wired broadband for *high*-bandwidth activities, and 60 percent or more use wireless broadband at least as much as wired broadband for *low*-bandwidth activities.[277] (See Figure 10.)
    - The percentage of survey respondents who use wireless broadband at least as much as wired broadband for *high*-bandwidth activities equals 42 percent for all users; 41 percent for heavy Internet users, and 42 percent for frequent streaming video users.

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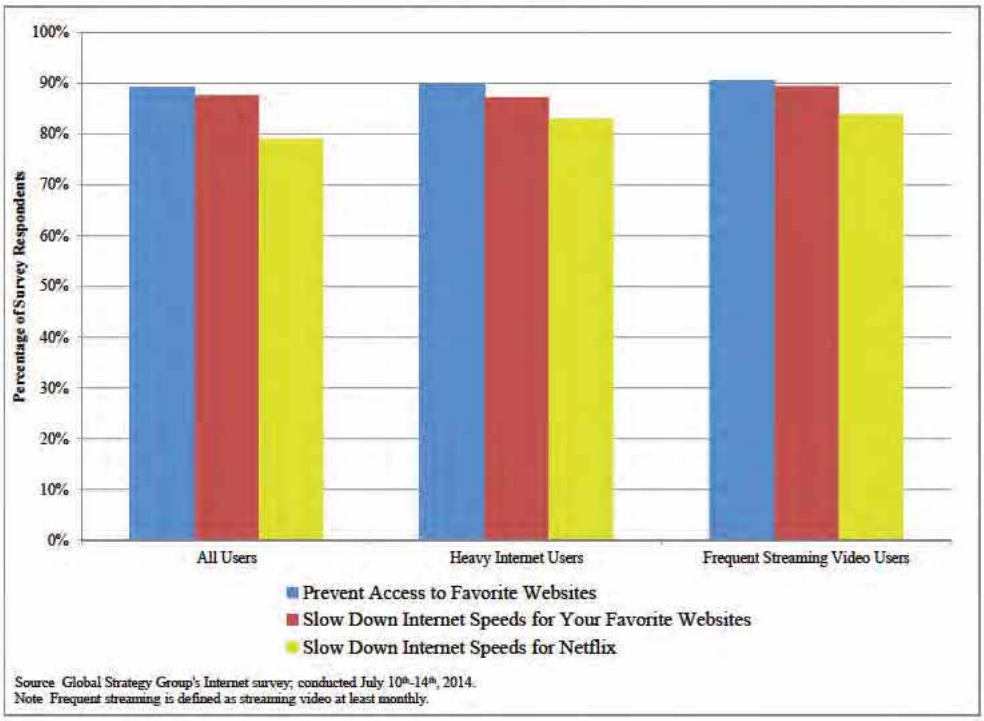
survey includes the following language: "'Wireless or mobile broadband service' allows you to connect to the internet with a mobile device (this does not include devices that only connect to Wi-Fi). Examples of wireless or mobile broadband service include an AT&T data plan for your smartphone, iPad, or tablet; or a Verizon data plan for your Jetpack mobile-hotspot device

[277] Note that using wireless broadband "at least as much" as wired broadband includes "always," "most of the time," and "equally both" responses regarding usage of wireless relative to wired broadband.

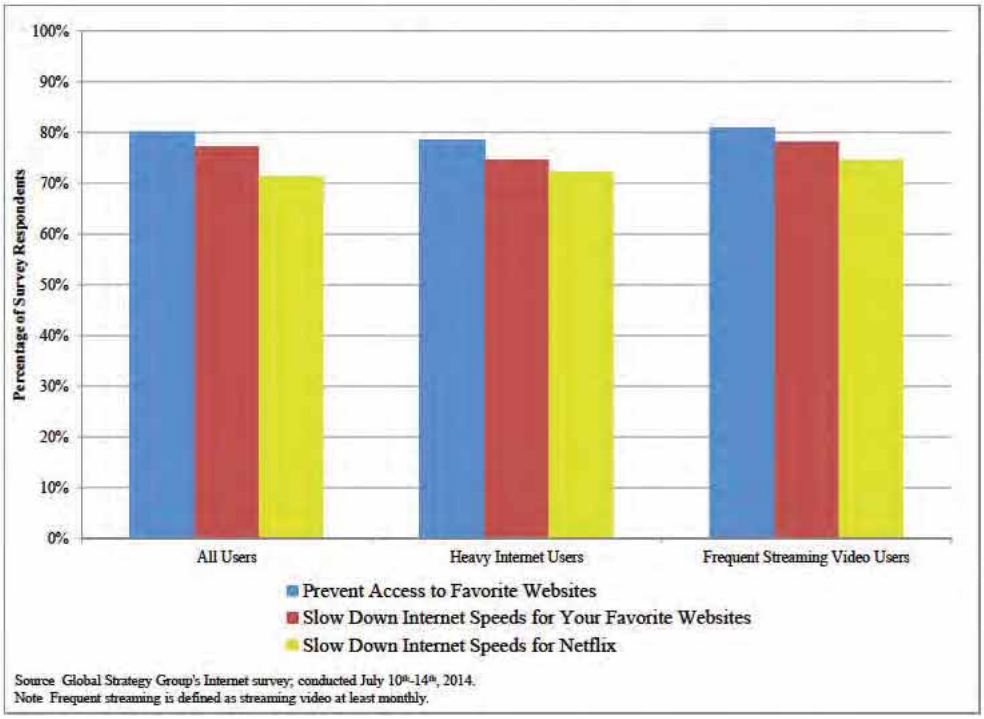
- The percentage of survey respondents who use wireless broadband at least as much as wired broadband for *low*-bandwidth activities equals 60 percent for all users; 62 percent for heavy Internet users, and 62 percent for frequent streaming video users.

Figure 7: Percentage of Survey Respondents Likely to Switch to Another ISP If Their ISP Takes Selected Actions



Source Global Strategy Group's Internet survey; conducted July 10th-14th, 2014.
Note Frequent streaming is defined as streaming video at least monthly.

Figure 8: Percentage of Survey Respondents Likely to Switch to an ISP Offering Slower Speeds If Their ISP Takes Selected Actions



Source Global Strategy Group's Internet survey; conducted July 10th-14th, 2014.
Note Frequent streaming is defined as streaming video at least monthly.

Figure 9: Percentage of Survey Respondents Likely to Switch to Another ISP Like DSL or Wireless Broadband If Their ISP Takes Selected Actions

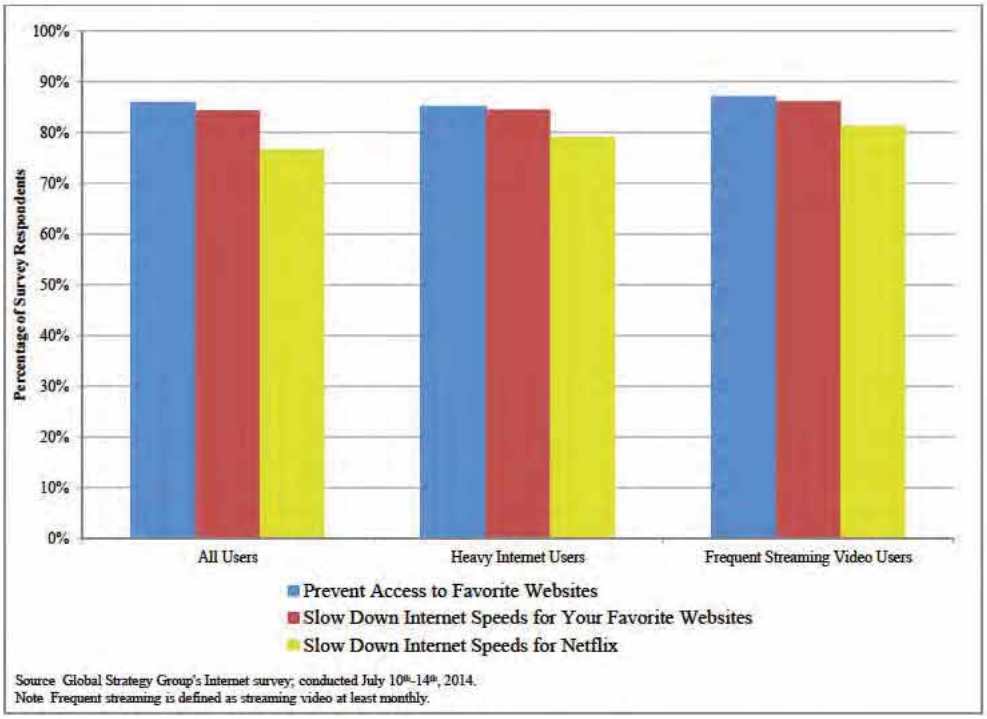
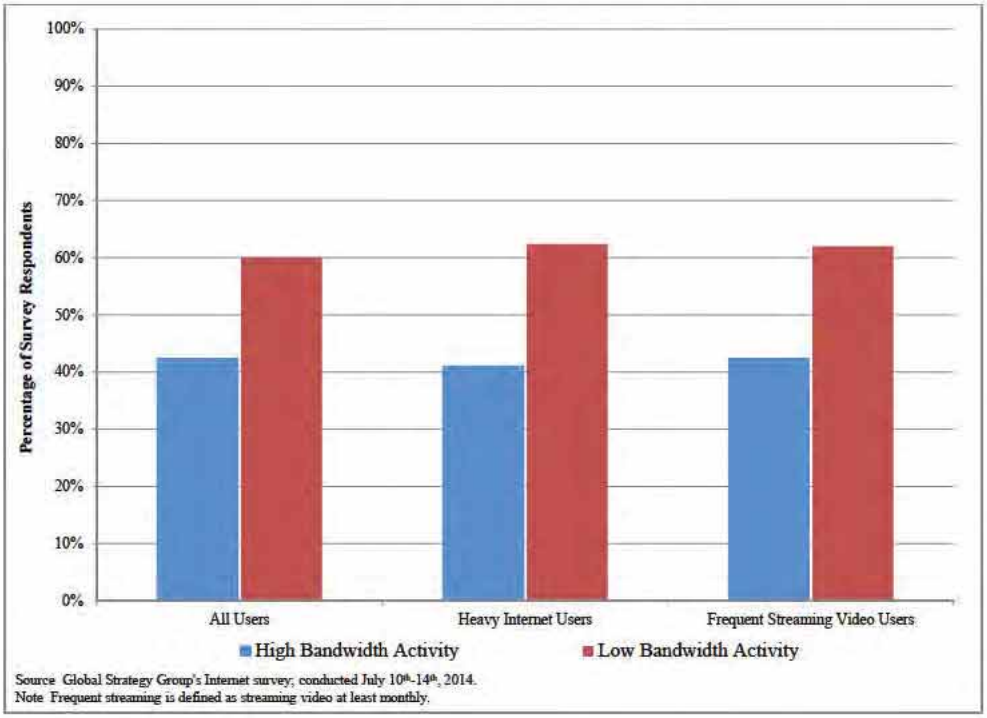


Figure 10: Percentage of Survey Respondents Who Use Wireless Broadband At Least As Much as Wired Broadband, by Activity and Type



225. The survey results also indicate that a large proportion of respondents have recently switched ISPs, including one-third of respondents within the past two years and nearly half (49 percent) within the past 4 years. Table 14 below summarizes these results. Based on these results, a large percentage of all broadband customers are available for capture by new ISPs over relatively short periods of time.

Table 14: Internet Service Provider Switching Trends

Percentage of Survey Respondents Who Have Switched Internet Service Providers:	
In the past 6 months	6.8%
In the past 12 months	17.6%
In the past 2 years	33.1%
In the past 4 years	49.4%

Note: 1,012 total survey respondents. Percentages are based on weighted survey responses.

226. Table 15 through Table 18, below, provide more detailed tabulations of the survey results.

227. According to Table 15:

- The percentage of survey respondents likely to switch to another ISP (without qualifying the type of ISP) if any of the three actions listed above were taken by their current ISP ranges from:
    - 54-76 percent for *light* Internet users
    - 79-91 percent for *medium* Internet users
    - 83-90 percent for *heavy* Internet users

- The percentage of survey respondents likely to switch to another ISP *offering slower speeds* if any of the three actions were taken by their current ISP ranges from:
    - 51-69 percent for *light* Internet users
    - 74-84 percent for *medium* Internet users
    - 72-79 percent for *heavy* Internet users
- The percentage of survey respondents likely to switch to another ISP *like DSL or wireless broadband* if any of the three actions were taken by their current ISP ranges from:
    - 59-81 percent for *light* Internet users
    - 77-87 percent for *medium* Internet users
    - 79-85 percent for *heavy* Internet users

Table 15: Cross-Tabulation of Internet Usage Versus Switching

	Percentage of Respondents Very Likely or Somewhat Likely to Switch to Another ISP If the ISP:		
	Slow down Internet speeds for your favorite websites, so that the webpages load slowly	Prevent access to your favorite websites	Slow down Internet speeds for Netflix, so that movies and TV shows stream or download slowly, the video is jumpy and stops in places, or the video has lower-quality resolution
Light Internet User	76 4%	73 7%	53 8%
Medium Internet User	89 7%	90 9%	79 3%
Heavy Internet User	87 3%	89 8%	83 1%

	Percentage of Respondents Very Likely or Somewhat Likely to Switch to Another ISP That Offers Slower Speeds but Does Not Take Such Action If the ISP:		
	Slow down Internet speeds for your favorite websites, so that the webpages load slowly	Prevent access to your favorite websites	Slow down Internet speeds for Netflix, so that movies and TV shows stream or download slowly, the video is jumpy and stops in places, or the video has lower-quality resolution
Light Internet User	66 2%	68 6%	51 0%
Medium Internet User	81 6%	83 5%	73 7%
Heavy Internet User	74 7%	78 5%	72 3%

	Percentage of Respondents Very Likely or Somewhat Likely to Switch to Another ISP *Like DSL or Wireless Broadband* If the ISP:		
	Slow down Internet speeds for your favorite websites, so that the webpages load slowly	Prevent access to your favorite websites	Slow down Internet speeds for Netflix, so that movies and TV shows stream or download slowly, the video is jumpy and stops in places, or the video has lower-quality resolution
Light Internet User	77 0%	80 5%	59 1%
Medium Internet User	85 4%	87 4%	77 1%
Heavy Internet User	84 5%	85 1%	79 2%

Note: 1,012 total survey respondents Percentages are based on weighted survey responses

228. According to Table 16:

- The percentage of survey respondents likely to switch to another ISP (without qualifying the type of ISP) if any of the three actions listed above were taken by their current ISP ranges from:
    - 62-84 percent for users who *stream video rarely or never*
    - 84-91 percent for users who *stream video at least monthly*
- The percentage of survey respondents likely to switch to another ISP *offering slower speeds* if any of the three actions were taken by their current ISP ranges from:
    - 60-78 percent for users who *stream video rarely or never*

- 75-81 percent for users who *stream video at least monthly*

- The percentage of survey respondents likely to switch to another ISP *like DSL or wireless broadband* if any of the three actions were taken by their current ISP ranges from:
  - 60-82 percent for users who *stream video rarely or never*
  - 81-87 percent for users who *stream video at least monthly*

Table 16: Cross-Tabulation of Video Usage Versus Switching

	Percentage of Respondents Very Likely or Somewhat Likely to Switch to Another ISP If the ISP:		
	Slow down Internet speeds for your favorite websites, so that the webpages load slowly	Prevent access to your favorite websites	Slow down Internet speeds for Netflix, so that movies and TV shows stream or download slowly, the video is jumpy and stops in places, or the video has lower-quality resolution
Use Streaming Video Rarely or Never	81 2%	84 2%	62 1%
Use Streaming Video At Least Monthly	89 5%	90 6%	83 9%

	Percentage of Respondents Very Likely or Somewhat Likely to Switch to Another ISP That Offers Slower Speeds but Does Not Take Such Action If the ISP:		
	Slow down Internet speeds for your favorite websites, so that the webpages load slowly	Prevent access to your favorite websites	Slow down Internet speeds for Netflix, so that movies and TV shows stream or download slowly, the video is jumpy and stops in places, or the video has lower-quality resolution
Use Streaming Video Rarely or Never	74 0%	77 9%	60 0%
Use Streaming Video At Least Monthly	78 3%	80 8%	74 6%

	Percentage of Respondents Very Likely or Somewhat Likely to Switch to Another ISP *Like DSL or Wireless Broadband* If the ISP:		
	Slow down Internet speeds for your favorite websites, so that the webpages load slowly	Prevent access to your favorite websites	Slow down Internet speeds for Netflix, so that movies and TV shows stream or download slowly, the video is jumpy and stops in places, or the video has lower-quality resolution
Use Streaming Video Rarely or Never	78 2%	81 9%	60 2%
Use Streaming Video At Least Monthly	86 2%	87 0%	81 4%

Note: 1,012 total survey respondents Percentages are based on weighted survey responses

229. According to Table 17:

- The percentage of survey respondents who use wireless broadband as least as much as wired broadband for high and low-bandwidth activities ranges from:

- 46-53 percent for *light* Internet users
- 43-59 percent for *medium* Internet users
- 41-62 percent for *heavy* Internet users

Table 17: Cross-Tabulation of Internet Usage versus Wireless Broadband Usage

Percentage of Survey Respondents Who Use Wireless Broadband At Least as Much as Wired Broadband	High Bandwidth Activity	Low Bandwidth Activity
Light Internet User	45.5%	53.4%
Medium Internet User	43.3%	58.5%
Heavy Internet User	41.1%	62.4%

Note: 1,012 total survey respondents. Percentages are based on weighted survey responses.

230. According to Table 18:

- The percentage of survey respondents who use wireless broadband as least as much as wired broadband for high and low-bandwidth activities ranges from:
  - 43-51 percent for users who *stream video rarely or never*
  - 42-62 percent for users who *stream video at least monthly*

Table 18: Cross-Tabulation of Video Usage versus Wireless Broadband Usage

Percentage of Survey Respondents Who Use Wireless Broadband At Least as Much as Wired Broadband	High Bandwidth Activity	Low Bandwidth Activity
Use Streaming Video Rarely or Never	42.9%	50.6%
Use Streaming Video At Least Monthly	42.3%	62.0%

Note: 1,012 total survey respondents. Percentages are based on weighted survey responses.

APPENDIX II: ANALYSIS OF EDGE PROVIDER SCALE

231. This Appendix provides details on the calculations underlying the edge provider scale analysis (summarized in Table 5 and Table 6 in Section IV.A, above). It also includes sources and notes to the tables.

232. I cannot observe directly the minimum scale required for an edge provider to succeed. Instead, I examine the size of one large edge provider (Netflix) and a number of potential "analogy cases" from other industries, including premium movie channels (HBO, Showtime, Starz, and Cinemax), as well as MVPDs (DIRECTV and Dish Network) as examples of video distributors.

233. As a reference point, I also include the minimum viability threshold of 19.03 million subscribers articulated by the FCC in its "Fourth Report & Order and Further Notice of Rulemaking" released on February 11, 2008. The document states the following:[278]

> We also need to decide which characteristics of a network should be taken into account when calculating the survival probability. We use the survival probability for a network that is not vertically integrated and is not a "spin-off" of an existing network. We exclude the effect of vertical integration and "spin-offs" from the calculation in order to account for the additional difficulties faced by independent and unaffiliated programming networks. Thus, we rely on empirical data indicating the number of subscribers needed for a network with the characteristics specified above

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[278] Federal Communications Commission, *Fourth Report & Order And Further Notice Of Rulemaking*, February 11, 2008, ¶ 57.

to have a 70 percent probability of survival after five years. These choices lead to a minimum viable scale of 19.03 million subscribers.

234. I do not claim that any of these analogies or reference points is perfect, but I certainly see no basis to believe that an edge provider would need *more* scale than these comparison cases, particularly given the conventional wisdom that the Internet has reduced entry barriers and minimum efficient scale in many businesses.[279]

235. In the tables in Section IV.A, I present the number of customers for the selected comparison cases as a share of the total number of (post divestiture) non-Comcast and non-TWC broadband customers. In this way, I demonstrate that these comparison cases could be replicated (in many cases, more than once over) without any reliance on Comcast-TWC broadband customers (even though there is no reason to believe the transaction would make this necessary).

236. This analysis was performed using information for 2012 due to unavailability of certain data for subsequent years.

237. As a first step, I determined the denominator for the exercise, that is, the number of non-Comcast and non-TWC customers in the marketplace. I estimated this number at the national level using information from the most recent report of the Commission

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[279] *See*, for example, Federal Communications Commission, "Connecting America: The National Broadband Plan," [March 17, 2010], 266, *available at* http://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf, *site visited* September 17, 2014.

entitled "Internet Access Services: Status as of December 31, 2012," December 2013 (hereinafter, *FCC IAS Report*), which contains data on the total number of U.S. broadband customers, and from FCC Form 477s for Comcast, TWC, Insight, and Charter which contain data on the number of broadband customers for each firm. I calculated non-Comcast and non-TWC customers for speeds of 3 Mbps downstream /768 kbps upstream (3Mb/768k) and for at least 10mbps downstream (10Mb).

238. The *FCC IAS Report* provides broadband counts for customers with "fixed" broadband service (either wireline or wireless) and "mobile" wireless service. I estimated the relevant figures both excluding and including mobile wireless in the universe of all broadband customers. This resulted in four alternative figures for the denominator; that is, the total number of non-Comcast and non-TWC customers, based on the following cases: (1) 3Mb/768k speed with mobile wireless included, (2) 3Mb/768k speed with mobile wireless excluded, (3) 10Mb speed with mobile wireless included, and (4) 10Mb speed with mobile wireless excluded.

239. When subtracting Comcast and TWC customers from the nationwide broadband counts, I accounted for divestitures reported in an internal Comcast document and scaled them appropriately for HSD customers.[280]

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[280] Project Tiger_Cheetah Transaction_Updated System List_5 29 143.pptx ("Systems Included in Transaction").

240. The customer numbers for satellite MVPDs and premium movie channels were sourced from SNL Kagan,[281] and Netflix customer figures were derived from its quarterly financial statements on its website.[282] By dividing these customer numbers (and the FCC's 19.03 minimum scale number) by the number of non-Comcast and non-TWC customers discussed in the previous paragraph, I obtained the shares as reported in the tables in Section IV.A.

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281 Satellite MVPD Subscribers: *SNL Kagan - U.S. DBS Industry Projections* (2012); Premium Movie Channel Subscribers: *SNL Kagan - Broadband Cable Financial Databook 2013 Edition*, December 2013, pg. 21.

282 Quarterly Earnings, Q4 2012 Financial Statement, Netflix, *available at* http://ir.netflix.com/results.cfm, *site visited* August 6, 2014.

Table 19: Providers' Scale Compared to Non-Comcast and TWC Broadband (Residential + Commercial) Customers Nationwide (2012, HSD Speed of 3 Mbps/768 Kbps)

		With Divestiture (Mobile Wireless Included)	With Divestiture (Mobile Wireless Excluded)
Comcast TWC Customers		23,945,701	23,945,701
Non-Comcast Non-TWC Customers		104,526,299	40,650,299
Provider	**Customers**		
FCC Threshold	**19,030,000**	**18 2%**	**46.8%**
Premium Channel: HBO	28,720,000	27.5%	70.7%
Edge Provider: Netflix*	25,471,000	24.4%	62.7%
Premium Channel: Showtime	22,329,000	21.4%	54.9%
Premium Channel: Starz	21,229,000	20.3%	52.2%
MVPD: DIRECTV^	20,084,000	19.2%	49.4%
MVPD: DISH Network^	14,056,000	13.4%	34.6%
Premium Channel: Cinemax	12,730,000	12.2%	31.3%

Sources:

Total Subscribers: *DOC-324884A1.pdf ("Internet Access Services Report December 2012")*

Comcast Subscribers: *FCC Summary by Zip for 12-2012 - Resi and Bus Serv.xlsx ("Comcast Form 477 December 2012"),*

SNL Kagan - Broadband Cable Financial Databook 2013 Edition

TWC Subscribers: *FCC_FORM477_MAR2013.xlsx ("TWC Form 477 December 2012"), SNL Kagan - Broadband Cable Financial Databook 2013 Ed.*

Insight Subscribers: *Insight IN FCC Form 477 - 2H2012.pdf ("Insight Form 477 December 2012"), Insight KY FCC Form 477 - 2H2012.pdf*

("Insight Form 477: December 2012"), and Insight OH FCC Form 477 - 2H2012.pdf ("Insight Form 477: December 2012")

Charter Subscribers: *2.5.4.2 FCC Form 477 Bro...ential Proprietary).pdf ("Charter Form 477 December 2012")*

Divestiture: *Project Tiger_Cheetah Transaction_Updated System List_5 29 143.pptx ("Systems Included inTransaction")*

FCC Threshold: *Fourth Report & Order and Further Notice of Proposed Rulemaking (December 2007)*

Premium Movie Channel Subscribers: *SNL Kagan - Broadband Cable Financial Databook 2013 Edition*

Satellite MVPD Subscribers: *SNL Kagan - U.S. DBS Industry Projections (2012)*

Netflix Subscribers: *http //ir.netflix.com/results.cfm*

Notes:

^ Includes data estimated/projected by SNL Kagan.

* Total domestic streaming subscribers. Excludes free subscriptions and DVD.

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Table 20: Providers' Scale Compared to Non-Comcast and TWC Broadband (Residential + Commercial) Customers Nationwide (2012, HSD Speed of at Least 10 Mbps Downstream)

		With Divestiture (Mobile Wireless Included)	With Divestiture (Mobile Wireless Excluded)
Comcast TWC Customers		22,159,220	22,159,220
Non-Comcast Non-TWC Customers		37,636,780	28,985,780
Provider	**Customers**		
FCC Threshold	**19,030,000**	**50.6%**	**65.7%**
Premium Channel: HBO	28,720,000	76.3%	99.1%
Edge Provider: Netflix*	25,471,000	67.7%	87.9%
Premium Channel: Showtime	22,329,000	59.3%	77.0%
Premium Channel: Starz	21,229,000	56.4%	73.2%
MVPD: DIRECTV^	20,084,000	53.4%	69.3%
MVPD: DISH Network^	14,056,000	37.3%	48.5%
Premium Channel: Cinemax	12,730,000	33.8%	43.9%

Sources:

Total Subscribers: *DOC-324884A1.pdf ("Internet Access Services Report: December 2012")*

Comcast Subscribers: *FCC Summary by Zip for 12-2012 - Resi and Bus Serv.xlsx ("Comcast Form 477: December 2012"),*

SNL Kagan - Broadband Cable Financial Databook 2013 Edition

TWC Subscribers: *FCC_FORM477_MAR2013.xlsx ("TWC Form 477: December 2012"), SNL Kagan - Broadband Cable Financial Databook 2013 Ed.*

Insight Subscribers: *Insight IN FCC Form 477 - 2H2012.pdf ("Insight Form 477: December 2012"), Insight KY FCC Form 477 - 2H2012.pdf*

("Insight Form 477: December 2012"), and Insight OH FCC Form 477 - 2H2012.pdf ("Insight Form 477: December 2012")

Charter Subscribers: *2.5.4.2 FCC Form 477 Bro...ential Proprietary).pdf ("Charter Form 477: December 2012")*

Divestiture: *Project Tiger_Cheetah Transaction_Updated System List_5 29 143.pptx ("Systems Included inTransaction")*

FCC Threshold: *Fourth Report & Order and Further Notice of Proposed Rulemaking (December 2007)*

Premium Movie Channel Subscribers: *SNL Kagan - Broadband Cable Financial Databook 2013 Edition*

Satellite MVPD Subscribers: *SNL Kagan - U.S. DBS Industry Projections (2012)*

Netflix Subscribers: *http://ir.netflix.com/results.cfm*

Notes:

^ Includes data estimated/projected by SNL Kagan.

* Total domestic streaming subscribers. Excludes free subscriptions and DVD.

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APPENDIX III: INCREMENTAL COST ANALYSIS

241. I estimated the incremental costs of additional traffic on Comcast's network based on information provided by Comcast regarding the incremental capital expenditures that it would incur to serve incremental Netflix traffic in the 2014 to 2017 period.[283, 284] I understand that the major elements of incremental capital costs include costs associated with investments in backbone and investment in metro and access components (primarily costs associated with routers, CMTSs, and node splits).

242. Given the existence of an active competitive market for backbone services, I used the market price for backbone to reflect the relevant marginal costs of backbone service, as the backbone market price is essentially the opportunity costs for Comcast of providing transit via its backbone. Unlike the backbone services, there is no spot market for metro and access services and I therefore relied on Comcast's estimate of the incremental costs associated with these services. I very conservatively assumed that the costs associated with operating expenditures (*e.g.*, space rental, power, network maintenance, etc.) are

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283 Amit Garg, Executive Director, Capacity Planning, Comcast Corporation, August 6 and September 22, 2014, interviews.

284 **{{**

}}. (Amit Garg, Executive Director, Capacity Planning, Comcast Corporation, August 6 and September 22, 2014, interviews.)

zero. Comcast also provided estimates of its cost of capital and the lifetime of the relevant network capital, which I used to convert capital expenditures to a levelized monthly estimate of costs per Mbps.[285]

243. Table 21 shows that the total monthly incremental cost for serving the Netflix traffic is **{{ }}** in 2014 and decreases to **{{ }}** by 2017 due to the projected decline in the costs for each element of the network. The average monthly interconnection price paid by Netflix to Comcast is **{{ }}** in 2014 (monthly payment of **{{ }}** divided by an allocated data usage of **{{ }}**) and declines to **{{ }}** by 2017. Hence, Netflix's payments to Comcast are no more than **{{ }}** of the incremental costs incurred by Comcast in carrying the additional Netflix traffic in the 2014 to 2017 period.

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[285] Conclusions are robust to a wide range of values for the lifetime of the capital.

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APPENDIX IV: STOCK MARKET EVENT STUDY

244. A stock market event study is a statistical method commonly used in financial economics to estimate the association between releases of information and stock returns, controlling for the effect of market factors on stock returns.[286] The standard approach is to use regression analysis to estimate the historical relation between a company's stock returns and the corresponding returns on a market index (*i.e.*, a one-factor model), perhaps also including an industry-specific index (*i*.e., a two-factor model). The expected return on the event date is calculated based on the parameters from the regression model and the actual performance of the market index (and industry index in a two-factor model) on that date. The expected return is subtracted from the actual return to estimate a residual return (sometimes referred to as an "abnormal return" or "market-adjusted return").

245. In this case, I have estimated two-factor models for Netflix, Amazon, and Apple, and a one-factor model for Google using daily data for the year ending November 21, 2013.[287] For each company, I used the market and industry indices that the company used in their contemporaneous performance comparisons in their 10-K reports to the SEC.[288]

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286 *See, e.g.*, A.Craig MacKinlay (1997), "Event Studies in Economics and Finance," *Journal of Economic Literature*, 35: 13-39 (hereinafter, *MacKinlay (1997))*.

287 Data for the industry index used by Google, the RDG Internet Composite Index, was not available and thus an industry index was not used for the Google event study. The year

246. When performing event studies, the conventional practice is to test the "null hypothesis" that the residual return is zero against the alternative hypothesis that the residual return is different from zero.[289] If the null hypothesis cannot be rejected at conventional levels of significance, then the residual returns are not considered to be statistically significant (*i.e.* not significantly different from zero). I have implemented this approach. Results—showing no significant residual returns for the OVDs studied—are presented in Table 22 below.

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ending November 21, 2013 was selected for the estimation period because November 21, 2013 was the last trading day prior to the earliest event tested in the event study analysis.

288 In instances where the company used multiple market or industry indices, I selected the market and industry index combination that yielded the highest R-squared. However, the market and industry index selection did not affect any substantive conclusions as none of the event studies yielded statistically significant residual returns on any of the dates tested.

289 John Y. Campbell, Andrew W. Lo and A. Craig MacKinlay (1997), *The Econometrics of Financial Markets*, Princeton University Press, 160-66; *MacKinlay (1997)*, 13-39; G. William Schwert (1981), "Using Financial Data to Measure Effects of Regulation," *The Journal of Law and Economics*, 24: 121-157; Daniel R. Fischel (1982), "Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities," *The Business Lawyer*, 38: 1-20, 19.

Table 22: Event Study Results

						Regression Results													
				Estimation Period		Intercept Parameter		Market Parameter		Industry Parameter		Returns on 11/22/2013[1]		Returns on 2/13/2014[2]		Returns on 2/24/2014[3]		Returns on 8/20/2014[4]	
#	Company	Market Index[5]	Industry Index[5]	Begin	End	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Residual	t-stat	Residual	t-stat	Residual	t-stat	Residual	t-stat
1	Netflix	NASDAQ Composite Index	S&P North American Technology Internet Index	11/22/12	11/21/13	0 0037	1 66	-3 1483	-6 60	3 6031	10 7	1 97%	0 56	-1 80%	-0 52	0 47%	0 13	0 60%	0 17
2	Google	NASDAQ Composite Index	NA	11/22/12	11/21/13	0 0006	0 85	0 9188	9 72	NA	NA	-0 80%	-0 67	0 19%	0 16	NA	NA	NA	NA
3	Amazon	S&P 500 Index	S&P 500 Retailing Index	11/22/12	11/21/13	0 0000	0 03	-0 5182	-2 74	1 7877	11 5	1 61%	1 34	1 00%	0 84	NA	NA	NA	NA
4	Apple	S&P 500 Index	S&P Computer Hardware Index	11/22/12	11/21/13	-0 0002	-1 11	-0 0753	-3 51	1 0953	123 6	-0 06%	-0 28	-0 07%	-0 30	NA	NA	NA	NA

Sources:
CRSP, Center for Research in Security Prices Graduate School of Business, The University of Chicago 201406 Used with permission All rights reserved www crsp uchicago edu; Bloomberg; FT Interactive; Dow Jones Institutional News; Company SEC filings

Notes:
1 On 11/22/2013 news reports were published regarding a possible Comcast/TWC transaction (Bloomberg article published at 9:45AM stating "Comcast seeking advice on anti-trust issues on TWC deal" and Bloomberg article published at 9 51AM stating "Comcast shareholders said encouraging mgmt to buy TWC "
2 The TWC/Comcast transaction was announced after the market close on 2/12/2014
3 On 2/23/2014, Comcast and Netflix announced a deal for direct interconnection to Comcast's network 2/23/14 is a Sunday so returns are on 2/24/14
4 Netflix announces that it agreed to pay Time Warner Cable for direct internet connections after the market close on 8/19/14
5 Market and Industry indices are used in the stock performance graph contained in each company's 2013 10-K (Netfilx, Amazon, and Apple) or 2013 Annual Report (Google) In cases where the company reported multiple market or industry indices, the regression used the market and industry index combination that yielded the highest R-squared The data for the industry index used by Google, the RDG Internet Composite Index, was not available so an industry index was not used for the Google event study

EXHIBIT 2

An Economic Analysis of The Proposed Comcast Transactions with TWC and Charter In Response to Comments and Petitions

September 20, 2014

Gregory L. Rosston
Michael D. Topper

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I. Introduction

A. Assignment

1. On April 8, 2014, we filed a report (the "April Report") analyzing potential benefits and video/advertising competition issues related to the Comcast – Time Warner Cable Inc. ("TWC") transaction (the "TWC transaction").[1] On June 2, 2014, we filed a report (the "June Report") supplementing our analyses to account for an April 25, 2014 agreement between Comcast and Charter Communications ("Charter") on a series of transactions (the "divestiture transactions"), under which Comcast, conditioned on the completion of the proposed TWC transaction, will divest and swap systems serving a net of approximately 3.9 million video customers to Charter and to GreatLand Connections ("GreatLand"), a newly formed, independent, publicly traded company.[2]

2. In this report, we have been asked by counsel for Comcast Corporation ("Comcast") to review and respond to petitions to deny and comments regarding the efficiencies of the proposed Comcast transactions with TWC and Charter, and the impact of the proposed transactions on video and advertising competition.

B. Summary of Opinions

3. Nothing we have reviewed in the petitions to deny and comments changes the conclusions in our April and June Reports. Moreover, we have undertaken additional empirical analysis, some at the request of the Commission and some replicating analyses performed in connection with the Commission's Order in the Comcast-NBCUniversal transaction. The results of those analyses further support our conclusions.

4. The proposed TWC and divestiture transactions will lead to transaction-specific efficiencies that will benefit residential consumers, businesses, and advertisers:

- Economies of scale will justify more fixed-cost investment and lead to more and higher-quality innovations in video, broadband, and advertising. Increasing the size of the company's set of potential customers increases the potential returns on fixed-cost investments. In our previous reports, we provided several examples of

[1] Declaration of Gregory L. Rosston and Michael D. Topper, "An Economic Analysis of the Proposed Comcast – Time Warner Cable Transaction," April 8, 2014 ("April Report").
[2] Declaration of Gregory L. Rosston and Michael D. Topper, "An Economic Analysis of the Proposed Comcast Divestiture Transactions with Charter," June 2, 2014 ("June Report")

transaction-specific benefits and explained why those benefits were unlikely to be attained without the transactions. Some commenters argue that Comcast is already large enough and that such benefits are, therefore, not transaction-specific. We disagree with these commenters' claims, and provide additional transaction-specific examples where increased scale afforded by the transactions will increase investment incentives.

- Expanded geographic reach from the transactions will increase Comcast's ability to serve multi-location and enterprise business customers, and thus increase the competitiveness of business services. Expanded geographic reach will also increase Comcast's incentives to invest in Wi-Fi hotspots and increase the speed and resiliency of Comcast's network, benefitting both residential and business customers. Notably, no commenters presented any credible evidence challenging these benefits.

- Current TWC and Comcast customers and potential customers will benefit from the sharing of technologies across the companies. Some commenters argue that these benefits are not transaction-specific because TWC was planning on upgrading its systems prior to the transaction. However, these upgrades are likely to occur faster and possibly at lower cost with the transactions because of Comcast's specialized knowledge from its own system upgrades. Comcast and TWC have each invested in technology; however, contracting to share technology has not occurred because of transactional frictions. The transactions will allow Comcast to integrate the best technology from each company without the same transactional frictions.

- Customers will benefit from these procompetitive efficiency gains. Some commenters assert, without evidence or economic theory, that such benefits will not be passed through, but it is well known that all firms have incentives to pass through cost reductions and quality improvements in some ways to their customers. In addition, in a dynamic competitive marketplace, competitors will also be forced to increase the attractiveness of their offerings to customers in response to product improvements by Comcast so there will be widespread benefits.

5. The transactions will not cause competitive harm for video or advertising services:

- There is no overlap in the territories served by Comcast, TWC, and Charter, so there will be no reduction in the number of MVPD choices of any consumers. The combined company will continue to compete with two DBS providers in its entire footprint, with telco MVPDs in almost half of its footprint, and with overbuilders and new facilities-based entrants such as Google Fiber in certain areas. Some commenters have made market share and market concentration calculations that assume Comcast and TWC compete with each other, but do not compete with DBS providers. That is simply wrong.

- The transactions will not generate market power in program buying. Some commenters express concern that the transactions would generate monopsony power,

but provide no credible evidence to support this assertion. Because the firms do not compete in the distribution of programming, the sale of programming to distributors involves zero marginal cost, and programming is sold to distributors through individualized negotiations, there is no valid economic theory to support the monopsony assertion. Finally, the divestiture transactions bring the national share of MVPD households below 30%, a level even the Commission believed, in a marketplace with fewer competitors and fewer options for the sale of programming than today, would not lead to monopsony concerns.

- The transactions will not increase Comcast's incentives to foreclose or harm unaffiliated content providers to favor NBCUniversal programming. No commenters have provided any viable economic theory or evidence of transaction-specific program carriage concerns. If Comcast were to deny carriage to unaffiliated programming of interest to its customers, it would reduce Comcast's ability to compete with its MVPD rivals and to a lesser extent, with OVDs, and would unlikely benefit its affiliated programming networks due to competition from other unaffiliated programming. Moreover, we have updated the empirical analysis underlying the Commission's conclusion in the NBCUniversal Order that Comcast "may have in the past" favored its own programming for anticompetitive reasons.[3] This updated analysis provides no support for that conclusion now.

- The transactions will not increase Comcast's incentives to foreclose access to or raise prices of programming to rival MVPDs. Commenters have not presented any credible evidence supporting such program access concerns. Those program access strategies would not be profitable for Comcast given the strong competition it faces in the distribution and programming marketplace. Updating the Commission's empirical analysis shows no price effect from vertical integration. In addition, application of the Commission's vertical foreclosure and Nash bargaining models from the Comcast-NBCUniversal Order provides no support for claims that the acquisition of TWC and Charter systems in the current transactions will lead Comcast to use its programming to disadvantage its rivals. Finally, the Commission's program access rules and the Comcast-NBCUniversal conditions remain available if there were any legitimate concerns.

- The transactions will not generate market power in program selling. TWC controls a very small amount of programming. NBCUniversal will continue to have only a modest share of overall programming revenues after the transactions, and will not gain the ability to charge supra-competitive prices for its programming after the transactions. Application of the Commission's empirical model from the Comcast-NBCUniversal Order finds no evidence of price increases due to joint ownership of NBC O&Os and Comcast RSNs in the same area. This result suggests that there is no

[3] Comcast-NBCUniversal Order, ¶ 117.

empirical support for commenters' horizontal program selling power concerns about the current transactions.

- The transactions will not impair competition in national or local advertising. Advertising is a broad market with television, internet, radio, newspapers, direct mail, and others all competing for dollars. The transactions affect only a small part of this broad market and will not cause competitive harms. Concerns raised by certain commenters about Comcast's and TWC's participation in local cable advertising "interconnects" are not transaction-specific, do not appropriately account for the incentives of interconnect managers and participants, and do not account for the fact that local cable advertising competes in a broad market with many other forms of advertising.

II. Transaction-Specific Competitive Benefits and Efficiencies

6. In our previous reports, we described how the TWC and divestiture transactions will lead to transaction-specific competitive benefits and efficiencies through economies of scale at the national and regional levels, expanded geographic reach, and sharing of technologies and services.[4] Nothing in the comments changes these conclusions. We will address comments related to each of these economic mechanisms in turn and also address claims that the efficiencies we have identified would not be passed through to customers. Commenters ignore many of the clearly demonstrated benefits of the transactions and mischaracterize others, leading them to mistakenly conclude that there will not be transaction-specific benefits and that any benefits will not be passed on to customers. We show that business, residential, and advertising customers all stand to benefit from the identified transaction-specific efficiencies.

A. Additional National and Regional Economies of Scale

7. As we described in our April Report, the TWC transaction will allow Comcast to achieve additional economies of scale in its investments and innovation because it will be able to spread the fixed costs of those investments across more potential customers.[5] Among other benefits, increased economies of scale from the transaction should allow Comcast to provide more advanced video services to residential customers, more robust and higher-quality service to business customers, and more valuable dynamic ad insertion possibilities to advertisers.[6] In our

[4] April Report, ¶¶ 41–161; June Report, ¶¶ 7–19.
[5] April Report, ¶¶ 44–57.
[6] April Report, ¶¶ 85–94, 134–138, 144–147.

June Report, we described how the divestiture transactions will allow Comcast to achieve increased economies of scale at the regional level, which should benefit customers through efficiencies in a variety of areas: network infrastructure and upgrades; operational, marketing and administrative functions; and customer service.[7]

8. Multiple commenters suggest that any claimed benefits due to economies of scale are not transaction-specific, not likely to be realized, or will not lead to benefits to consumers.[8] Commenters' suggestions are vague, unspecific, and do not address the specific transaction-specific efficiencies we discussed in our previous reports. As we described in our April Report, the economies of scale *are* very much transaction-specific because the TWC and divestiture transactions remove some of Comcast's and TWC's geographic limitations on scale and allow Comcast to achieve scale that it could not achieve in its current footprint.[9] The benefits of economies of scale are likely to be realized because they are based on the fundamental economics of the fixed investment costs needed for innovation. These benefits should flow to consumers through improved service, more advanced features, or lower prices that would not occur absent the transactions.

9. Several commenters suggest that Comcast and TWC are already so large that additional economies of scale will be negligible.[10] Commenters' remarks miss the point. While it is true that Comcast and its customers already benefit from Comcast's scale, there are additional economies of scale to be realized from the transactions. In our April Report, we provided examples of investments that Comcast was not able to make or was not able to make as quickly as it would have with a larger scale.[11]

10. AAI suggests that our assertion that Comcast will realize additional efficiencies from a scale larger than its current scale "almost implies an emerging national natural monopoly in

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[7] June Report, ¶¶ 9–14.

[8] For example, Joint Petition to Deny of Future of Music Coalition and Writers Guild of America West, Inc. ("WGAW/FMC Comment"); Comments of the American Antitrust Institute ("AAI Comment"); Petition to Deny of Netflix, Inc.; Petition to Deny of COMPTEL ("COMPTEL Comment"); Petition to Deny of Free Press; Petition to Deny of The Greenlining Institute; Statement in Opposition to Comcast's Proposed Acquisition of Time Warner Cable, Senator Al Franken ("Franken Comment"); Cogent Communications Group, Inc.'s Petition to Deny; Declaration of Joseph Farrell, filed on behalf of Cogent Communications Group, Inc. ("Farrell Report"); Joint Petition to Deny of Consumers Union and Common Cause ("Consumers Union/Common Cause Comment"); Petition to Deny of Los Angeles County, et al. ("Los Angeles County, et al. Comment"); Petition to Deny of Consumer Federation of America, et al. ("Consumer Federation of America Comment").

[9] April Report, ¶ 50.

[10] For example, Consumers Union/Common Cause Comment, pp. 38–39; AAI Comment, pp. 24–29; Los Angeles County, et al. Comment, pp. 6–8; Franken Comment, pp. 10–11.

[11] April Report, ¶¶ 87, 90, 93, 136.

wired broadband."[12] We are not suggesting such a natural monopoly, and it does not necessarily follow from the existence of economies of scale in investment at Comcast's current scale. In our April Report, we identified investments for which economies of scale are present at the scale that the transactions will provide. However, this does not necessarily mean that scale economies will always hold at any scale or for any particular investment. Therefore, while having a larger scale increases the incentives for particular investments, it does not necessarily mean there is a natural monopoly in the provision of wired broadband or MVPD services more generally, especially with the competitive success of video and broadband delivery on DBS and telco platforms in addition to overbuilders and wireless providers.

11. Professor Farrell argues that if scale economies were present, Comcast and TWC could realize them by simply expanding within their current footprints.[13] While it is true that Comcast could gain scale by winning more customers within its current footprint (and it continues to aggressively compete for these customers), the transactions allow for additional scale through an expanded footprint and the ability to compete for a larger universe of otherwise unavailable potential customers; such growth cannot be obtained organically within Comcast's existing footprint.[14]

12. Dr. Evans claims that there is no empirical support from Comcast's history or theoretical support for our claim that economies of scale will lead to increased investment.[15] But Dr. Evans has overlooked the evidence in our April Report, in which we showed how Comcast realized economies of scale due to its acquisition of AT&T Broadband and consequently made larger fixed cost investments.[16] Comcast thus produced the benefits that the Commission recognized in its approval of that transaction.[17] In addition, we explained that after Comcast's and TWC's acquisition of Adelphia's cable systems, Comcast and TWC substantially increased investments

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[12] AAI Comment, p. 25.
[13] Farrell Report, ¶ 102.
[14] In addition, the competitors that Comcast and TWC face within their current footprints also have large footprints: DirecTV and Dish operate at the national level, AT&T and Verizon have broad geographic reach, and OVDs also have a national (or international) scale.
[15] David S. Evans, "Economic Analysis of the Impact of the Comcast/Time Warner Cable Transaction on Internet Access to Online Video Distributors," 8/25/14, filed on behalf of Netflix, Inc. ("Evans Report"), fn. 12. While Dr. Evans technically states that we have not provided evidence on Comcast "as it has grown over the last decade," the fundamental economics of economies of scale held even prior to the last decade.
[16] April Report, ¶ 69.
[17] *In Re Applications for Consent to the Transfer of Control of Licenses from Comcast Corporation and AT&T Corp., Transferors to AT&T Comcast Corp., Transferee*, Memorandum Opinion and Order, 17 FCC Rcd. 23246, ¶ 184.

in those systems to enable them to provide advanced digital services.[18] Here too, Comcast generated the consumer benefits that the Commission anticipated in its Order approving the Adelphia transaction.[19]

13. Dr. Evans also ignores support in the economics literature for our claim that economies of scale from the transactions will lead to increased investment. Dr. Evans provides one theoretical criticism that narrowly assumes that the benefit of increased innovation due to economies of scale can occur only if the amount of investment and innovation increases more than in proportion to firm size.[20] That criticism does not hold.

14. Consider a simple example. Suppose Comcast's scale justified it investing $1 billion to develop its X1 set-top box platform and TWC's scale justified it investing $500 million to develop its own set-top box platform with fewer features. Even if the level of investment scaled only proportionally with firm size, the combined company would have the scale to justify investing $1.5 billion in a set-top box platform.[21] This platform, which would be more advanced than either the Comcast or TWC platforms in isolation, would be available to all customers in the former Comcast and TWC service areas. As we described in our April Report, the difficulties involved in contracting between MVPDs preclude Comcast and TWC from achieving this benefit of scale absent the transactions. Therefore, customers would benefit from economies of scale even though investment increases in proportion to firm size, providing a counter example to Dr. Evans' assertion.

15. Professor Comanor argues the benefits of economies of scale would occur on only 3% of Comcast's total costs (namely the costs devoted to R&D) and therefore represent minor cost savings.[22] Even though R&D may represent only a relatively small portion of Comcast's total costs, that is irrelevant to the impact that economies of scale can have on consumer welfare. The level of R&D spending undertaken by Comcast is determined by weighing the costs of R&D

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[18] April Report, ¶ 71.

[19] *In re Applications for Consent to the Assignment and/or Transfer of Control of Licenses Adelphia Communications Corporation (and Subsidiaries, Debtors-In-Possession), Assignors, to Time Warner Cable Inc. (Subsidiaries), Assignees, Adelphia Communications Corporation, (and Subsidiaries, Debtors-In-Possession), Assignors and Transferors, to Comcast Corporation (Subsidiaries), Assignees and Transferees*, Memorandum Opinion and Order, 21 FCC Rcd 8203 ¶ 23 (2006) ("Adelphia Order"), ¶ 257.

[20] Evans Report, fn. 12.

[21] Even a $1 billion investment would be better because former TWC subscribers would get access to the technology and benefits of a $1 billion investment in technology instead of those associated with a smaller $500 million investment.

[22] Testimony of William S. Comanor on the Competitive and Economic Consequences of the Comcast – Time Warner Cable Merger, August 2014, filed on behalf of WGAW/FMC ("Comanor Report"), pp. 22–23.

against the benefits from that R&D and customers' willingness to pay for those benefits. And the fact that Comcast also incurs costs in the form of programming expenses and operating expenses has no bearing on the new and improved technologies and services that would be enabled through the increased R&D spending arising from additional economies of scale. After the transactions, the combined firm will have the scale to justify higher R&D spending than would occur absent the transactions.

16. In addition to the examples of the benefits of scale described in our previous reports, another area in which additional economies of scale arising from the transactions may lead to concrete, measurable benefits to customers is in the development of tools to monitor the "health" of Comcast's network.[23] To ensure that it is providing high-quality service, Comcast has invested substantial resources in developing such tools. These include proprietary systems to monitor "node health" (a "node" is a location in Comcast's network where the network transitions from fiber to coax) or "plant performance." Comcast's continual enhancement of these tools over the past decade has been a contributing factor to improvements in network performance, including fewer video quality impairments, faster broadband speeds, and fewer (and shorter) service outages. One indicator of these improvements is that Comcast's technical call volumes and truck roll repairs have decreased steadily each year over the last six years.[24] Investment in network monitoring tools is largely a fixed cost that does not depend on the number of subscribers. Therefore as Comcast gains additional scale from the transactions, it will be able to justify additional fixed cost investments in network monitoring tools.[25] These new network monitoring tools will be a benefit to both business and residential customers through improved network performance and reductions in the marginal cost of serving customers.

17. Comcast internal data on node health and customer churn shows the concrete, quantifiable nature of this benefit to customers. Comcast has found that **[[**

[23] This example is based on interviews that took place after we submitted our previous reports.
[24] These reductions are based on year-over-year comparisons (e.g., Q1 2014 compared to Q1 2013, etc.). Interview with John Schanz (Executive Vice President and Chief Network Officer, Comcast Cable).
[25] Comcast invested in developing a system to evaluate the health of its network. Its "national watchtower" can be used to determine, for example, the location of an impairment in the network to within three feet. Going forward, Comcast plans to develop more advanced tools including spectrum analysis at the premise level, systems for monitoring network health on the customer side of the wireless gateway, and a big data engine that will allow Comcast to use more sophisticated algorithms. Interview with John Schanz (Executive Vice President and Chief Network Officer, Comcast Cable).

]].[26]

Early data and analysis from 2014 indicates this is particularly true for business customers, but also holds for residential customers.[27]

18. Another area in which the additional scale from the transactions is likely to yield tangible benefits is in accelerating the deployment, measurement, and uptake of advanced advertising services such as dynamic ad insertion (DAI). As discussed in our previous reports, sharing of Comcast's industry-leading VOD content and delivery platforms will benefit customers in TWC's territory.[28] Moreover, their combination with the additional scale and reach afforded by the transactions has the potential to speed up improved measurement of viewing in ways that could create significant incremental revenue for content providers and, as a result, potentially increase free content for consumers.[29]

19. On the VOD platform, **[[ ]]**% of viewing is outside of the traditional window measured by Nielsen on which advertising sales are based.[30] Comcast has been working to improve measurement of viewing outside this window using On Demand Commercial Ratings (ODCR), which it believes would measure an additional **[[ ]]**% of VOD viewing.[31] ODCR has been tested and trialed, and Comcast is waiting for accreditation and auditing. However, Comcast has encountered difficulties gaining industry acceptance of this technology with its current scale and reach.[32]

20. The additional scale and expanded geographic reach provided by the transactions may help accelerate deployment, acceptance, and uptake of these new measurement tools. At present the industry looks at ODCR as a regional, Comcast-only solution.[33] The additional scale and

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[26] Comcast Business Presentation, "Business Service Maintenance Improvement Pilot Overview," 1/9/14.
[27] Interview with John Schanz (Executive Vice President and Chief Network Officer, Comcast Cable).
[28] For example, Comcast represents 55–60% of total national VOD use, even though it represents only about 20% of MVPD subscribers. Interview with Rob Holmes (Vice President of Advanced Advertising Services, Comcast).
[29] Rentrak, State of VOD: Trend Report 2013, Free on Demand, p. 23: "While there has been significant effort to replicate linear C3 ad loads for VOD content, nearly 70% of views do not have full ad loads. Monetizing these views is a major opportunity to increase the value of VOD as an advertising platform, with the potential for multi-billion dollar ad revenues. As with last year, there is still a significant portion of viewing being left on the table by content providers and advertisers."
[30] Interview with Rob Holmes (Vice President of Advanced Advertising Services, Comcast).
[31] The basic idea with ODCR is to cut and paste advertisements from the C3 window into older episodes of a given show if being viewed within the C3 window for a current episode. For example, in week 10 of a broadcast season for a show, some consumers will have not seen week 8 and will watch on VOD. With ODCR, if within the C3 window of the week 10 episode, the ads from the week 10 episode would be cut and pasted into the week 8 episode. Interview with Rob Holmes (Vice President of Advanced Advertising Services, Comcast).
[32] Interview with Rob Holmes (Vice President of Advanced Advertising Services, Comcast).
[33] Interview with Rob Holmes (Vice President of Advanced Advertising Services, Comcast).

expanded geographic reach enabled by the transactions will make it easier for ODCR to be viewed as a national advertising solution and help get more traction with advertisers, content providers, and other MVPDs.[34] The additional scale and reach will also make it more likely that ad agencies will accept ODCR insertions as something they are willing to pay for and invest in the large scale coordination effort needed.[35]

21. Since even with ODCR, up to **[[ ]]**% of VOD viewing would not be measured, Comcast has also been working with Nielsen to develop a different methodology for DAI based on Nielsen's online campaign tool, which creates a reliable projection of demographic impressions.[36] Comcast is trying to establish this technology as viable, but believes it needs other MVPDs to accept the methodology in order for it to prove a national solution; with a broader presence, Comcast could more readily convince advertisers, and hence other MVPDs, to take a chance on this tool.

22. If DAI on VOD can be measured so that advertisers pursue it more enthusiastically, content providers and consumers would also benefit. One of the biggest issues faced by content providers is the growing use of DVR viewing, which leads to ad skipping and reduced revenues.[37] DAI in VOD offers an opportunity for content providers to enable the time-shifted viewing that consumers increasingly demand along with better monetization than DVR.[38] To the extent that content providers realize greater revenues from VOD viewing relative to DVR viewing (due to ad-skipping on DVRs), Comcast's large VOD library allows it to provide content providers more ad revenue per subscriber.[39] Content providers are willing to provide more VOD content, e.g., entire seasons of popular shows, to Comcast (and other MVPDs) if they

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[34] Interview with Rob Holmes (Vice President of Advanced Advertising Services, Comcast).

[35] Interview with Rob Holmes (Vice President of Advanced Advertising Services, Comcast). See "Comcast Trials Aim to Unlock VOD Ad Dollars, Measure TV Binge Viewing," Multichannel News, 12/2/13.

[36] In the television world, Nielsen projects viewer demographics from a sample panel, and in digital web content, Nielsen has managed to obtain demographic information by working with Facebook. Nielsen takes cookies from the websites someone visits and sends the pool of cookies to Facebook, who provides the demographics for the pool. Nielsen then applies those demographics to the viewed content. Similarly, the VOD solution under development involves trying to generate a projection for each insertion: Comcast provides some data to Nielsen and then Nielsen tries to model the demographic characteristics of who is actually watching

[37] See "As DVRs Shift TV Habits, Ratings Calculations Follow," The New York Times, 10/6/13.

[38] See "CBS Research Chief: Significant Changes in TV Viewing in Past Two Years," Ooyala.com 12/10/13: "As to VOD, [Dave] Poltrack [Chief Research Officer, CBS] said its 'increasing the average audience for our prime time programming by 4%,' and said VOD is being used to watch television and catch up on favorite shows. Some shows, he said, have recorded more than double the 4% overall bump the network has experienced, like the 9% increase experienced by 'The Good Wife.'" See also "VOD Advertising Business Is Slowly Coming to Life," Broadcasting & Cable, 11/11/13.

[39] NBCUniversal Presentation, "NBC Ad Contribution Per Sub," 11/22/13.

are able to monetize it — and consumers are then often able to enjoy this additional content with no additional charges.[40] The availability of more, free VOD has also proven to be self-reinforcing for content providers' business, as it allows viewers to catch up on previous episodes, and increases the live and total audience size for current shows by helping build momentum as a season progresses.[41]

B. Expanded Geographic Reach Will Increase Comcast's Ability to Serve Residential and Business Customers

23. In our April Report, we described how the transaction will increase Comcast's ability to serve customers whose needs span the existing geographic footprints of Comcast and TWC. These customers include (1) businesses with multiple locations that span the Comcast and TWC footprints and (2) residential and business customers who travel throughout the Comcast and TWC footprints and need Wi-Fi access while away from their primary location.

24. As we described in our April Report, by being able to provide business services on its own network in an expanded footprint, Comcast will be a more effective competitor in serving multi-location businesses. This will increase competition for these customers and possibly lead to lower prices and improved service quality. Notably, no commenter addresses the transaction-specific increase in Comcast's ability to provide service to more multi-location businesses and to provide improved enterprise-level service.[42] These benefits of the transaction are cognizable and are recognized by industry analysts.[43] In our April Report we provided specific examples of Comcast contracts for service that could have been provided at lower cost with the expanded geographic reach provided by the transaction.[44]

25. Information obtained since submitting our April Report about Comcast's network investment approval process underscores our conclusions as to the transaction-specific benefits of expanded geographic reach. Comcast undertakes network investment projects within its

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[40] In contrast, with traditional or cloud DVR technology, consumers often pay $10–20 per month for similar capabilities. Interview with Rob Holmes (Vice President of Advanced Advertising Services, Comcast).
[41] See "Comcast Trials Aim to Unlock VOD Ad Dollars, Measure TV Binge Viewing," Multichannel News, 12/2/13.
[42] The City of Los Angeles argues that increased availability of "world class" business services cannot be a transaction-specific benefit because TWC already claims to offer "world class" business services. However, this argument misses the point that the transaction will allow those "world class" business services to be available to more businesses, namely those with locations spanning the Comcast and TWC service areas. Comments of the Office of the Mayor of the City of Los Angeles ("City of Los Angeles Comment"), p. 3.
[43] April Report, ¶¶ 120–133.
[44] April Report, ¶ 127.

current footprint if a project satisfies profitability criteria even when individual components of such projects (e.g., network build-out to a particular site) do not meet profitability criteria when examined on a standalone basis. For example:

- A proposed business services investment to serve a customer in **[[**

  ]].[45]

- Comcast approved the network investment required to provide **[[**

  ]].[46]

26. The same logic will spur post-transaction investment that would not take place absent the merger. Today, network investment to serve customers whose locations span the Comcast and TWC footprints does not occur unless the TWC- and Comcast-specific investments each meet profitability criteria. The transaction will relax this constraint: investments that meet profitability criteria on an aggregate basis (i.e., across the combined footprint) may go forward, even if the investment within one party's current footprint does not meet the profitability threshold.

27. Finally, new information obtained since submitting our April Report underscores our conclusion that the benefits of geographic reach are transaction specific, and joint sales are not a viable means of realizing the same benefits. We noted in our April Report that Comcast, TWC and other MVPDs have discussed partnering on sales to super-regional businesses that span their footprints, and that Comcast had recently reported closing its first joint contract to serve a super-regional customer. However, the contract in question was not the fruit of a larger collaborative initiative targeting super-regional businesses, but rather a transaction led by Comcast in which TWC and other providers served locations outside Comcast's footprint. We understand that **[[**

]]. In addition,

[45] Interview with Robert Victor (Senior Vice President, Finance and Operations, Comcast Business).
[46] Interview with Kevin O'Toole (Senior Vice President and General Manager, New Business Solutions, Comcast Business).

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]].[47]

28. It should also be noted that Comcast serving more business customers due to the transactions should lead to more network hardening in the nodes that will be serving the additional business customers. For example, when Comcast serves business customers it may lay more fiber or install additional capacity in CRANs to serve these customers. Because business and residential customers use largely the same physical plant, these investments should spill over to benefit residential customers through improved service quality by increasing the capacity of CRANs (allowing, for example, a larger VOD library) and improving "node health" (i.e., reducing service outages or impairments).[48]

29. On the residential side, expanded geographic reach and increased regional clustering from the transactions will increase Comcast's incentive to invest in its Wi-Fi network. These increased incentives arise because Comcast will be able to internalize the benefits of Wi-Fi access to customers across its entire combined service area in a way that the separate cable operators currently do not.

30. Some commenters make reference to the existence of the CableWiFi consortium as a reason to discount claims about the improvements in Comcast's Wi-Fi network due to the transaction.[49] However, these commenters miss the key point that the transactions increase Comcast's incentive to invest in its Wi-Fi network.[50] This increased incentive comes from Comcast internalizing the benefits of the Wi-Fi network to customers in both Comcast's and TWC's current service areas (as well as the service areas being acquired from Charter).[51]

31. Comcast has already demonstrated a continued commitment to expanding its Wi-Fi network within its footprint. In addition to installing Wi-Fi access points in outdoor locations and in businesses throughout its footprint, it has pioneered the use of in-home "neighborhood" hotspots that allow Comcast customers to access the Wi-Fi network through in-home routers in

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[47] Interview with Kevin O'Toole (Senior Vice President and General Manager, New Business Solutions, Comcast Business).
[48] April Report, ¶ 63.
[49] Consumers Union/Common Cause Comment, p. 37; City of Los Angeles Comment, p. 3; and Los Angeles County, et al. Comment, p. 16.
[50] April Report, ¶¶ 96–99.
[51] April Report, ¶¶ 96–99.

Comcast customer homes equipped with capable routers. By the end of the year, Comcast plans to have installed over 8 million Wi-Fi hotspots.[52]

32. Comcast's large investment in Wi-Fi access points to date is consistent with it having a strong incentive to invest in a network that will benefit its comparatively large subscriber base. That is, Comcast is able to internalize the benefit that investments in one part of its service area will provide to customers in another part of its service area. For example, when Comcast is considering whether to install an additional Wi-Fi access point in the Philadelphia area, it weighs the cost of doing so against not only the benefit that its customers in the Philadelphia area will realize, but also the benefit that its customers traveling from Washington, DC, Boston, or San Francisco, among others, will realize. The transactions will increase Comcast's incentive to invest in Wi-Fi access points. With the expanded geographic reach afforded by the transactions, Comcast will internalize the benefits to the additional customers in former TWC and Charter areas and therefore will have an even stronger incentive to add Wi-Fi access points. This increased incentive applies to all types of Wi-Fi access points, including in-home neighborhood hotspots.

33. Finally, Professor Farrell and Senator Franken suggest that Comcast could obtain the benefits of expanded geographic reach by simply expanding its footprint to encompass TWC's service areas without the need for the transactions.[53] As we described in our April Report, Comcast and TWC have not found it profitable to build new cable systems outside their existing geographic footprints or make the major investments necessary to successfully enter as an out-of-footprint OVD.[54] It would be cost prohibitive for Comcast or TWC to build new cable systems throughout each other's geographic footprint, and we have seen no evidence that either firm has considered doing so. And if either firm were to provide OTT services outside its existing footprint, it would face strong competition from large players like Apple, Sony, Dish, and others in providing OTT services. As a result, the geographic expansion suggested by Professor Farrell and Senator Franken is highly unlikely to be a viable strategy for Comcast or TWC.

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[52] Comcast Press Release, "Comcast to Reach Eight Million Xfinity WiFi Hotspots in 2014," 4/30/14, available at http://corporate.comcast.com/news-information/news-feed/comcast-to-reach-8-million-xfinity-wifi-hotspots-in-2014.
[53] Farrell Report, ¶¶ 97–100; Franken Comment, p. 14.
[54] April Report, ¶ 173.

C. Sharing of Technologies and Services Will Benefit Customers

34. In our April Report, we explained that by combining the Comcast and TWC portfolios of technologies and services, the combined company should be able to provide more services at lower cost than Comcast or TWC could on its own.[55] Each company will bring proprietary technology and specialized knowledge about providing its unique mix of services. For example, the sharing of Comcast's advanced X1 or addressable advertising technology with TWC should speed up deployment of the technology in TWC's territory. Some commenters argue that these benefits are not transaction-specific because (1) TWC has announced plans to upgrade its systems and increase broadband speeds, or (2) in some cases, TWC's offerings appear to be a better value for consumers.[56] In addition, some commenters argue that combining Comcast's and TWC's systems will actually lead to difficulties in integration, which will harm customers.[57]

35. Even though TWC announced plans prior to the transaction (via its "Maxx" initiative) to upgrade systems in certain geographic areas over the next several years, the transaction will allow those upgrades to occur faster and more efficiently because the combined company will be able to leverage Comcast's experience. For example, although TWC announced in January 2014 its plan to transition 75% of its systems to all-digital by 2016, Comcast should be able to use the experience it gained from its own 2009 to 2012 transition to all-digital to transition TWC's systems more rapidly and at lower cost than TWC could on its own. Based on the information Comcast has obtained so far, we understand that Comcast plans to be able to offer all Comcast products and services to TWC customers within 36 months.[58] That will necessitate a transition of all TWC systems to all-digital prior to that time. This will benefit customers, particularly those served by systems TWC was not planning to transition to all-digital via its "Maxx" initiative, through earlier and increased availability of advanced digital services and faster broadband speeds.

36. In order to make its transition to all-digital more seamless, Comcast invested in developing a configuration of QAM channels that it believes currently best serves the needs of

[55] April Report, ¶¶ 65–68.
[56] For example, WGAW/FMC Comment, pp. 63–65; Consumers Union/Common Cause Comment, pp. 35–38.
[57] For example, Consumers Union/Common Cause Comment, pp. 39–40.
[58] Comcast Response to FCC Request for Information 88.

its customers by utilizing the bandwidth at each of its headends more efficiently.[59] This configuration is a standard by which the QAM channels at Comcast headends are allocated between data and video, among other things. By standardizing its headend configuration, Comcast was able to make self-installation of all-digital set-top boxes relatively seamless for customers. In large part because of this standardization, when Comcast made its transition to all-digital, over 90% of digital upgrades were self-installs.[60] By bringing this standardized configuration to TWC systems, Comcast will be able to use the knowledge it has in this area to make the all-digital transition of TWC systems more efficient. This will benefit customers by giving them access to digital service sooner and perhaps more conveniently by allowing self-installation. The standardization of the channel configuration at Comcast and TWC headends will also make the future deployment of DOCSIS 3.1 (for which chips are currently being designed and deployment should begin in 2016) more rapid than it would be absent standardization.[61]

37. In addition to the benefits from standardizing the channel configuration at its headends, Comcast learned many other "best practices" for the transition to all-digital from its experience going through that transition. A Comcast presentation summarizing these best practices makes clear that Comcast's learning-by-doing spanned multiple areas.[62] These areas include customer messaging, warehouse/inventory management, back-office systems, staffing, and handling of service calls.[63] In transitioning TWC systems to all-digital, Comcast will be able to apply its specialized knowledge about these and other best practices to make the transition faster and more efficiently than TWC could on its own. Consumers in turn will benefit from having access to all-digital systems sooner and with less disruption to their service.

38. WGAW/FMC and Consumers Union/Common Cause argue that sharing technologies and services is not a benefit of the transaction because, in some cases, TWC appears to offer a better value to consumers.[64] In support of that assertion, WGAW/FMC cites one low-cost Internet option that TWC offers that Comcast does not, while Consumers Union/Common Cause

[59] Interview with John Schanz (Executive Vice President and Chief Network Officer, Comcast Cable).
[60] Interview with John Schanz (Executive Vice President and Chief Network Officer, Comcast Cable).
[61] Interview with John Schanz (Executive Vice President and Chief Network Officer, Comcast Cable).
[62] Comcast Presentation, "All Digital Initiative," July 2013.
[63] Comcast Presentation, "All Digital Initiative," July 2013.
[64] WGAW/FMC Comment, pp. 64–65; Consumers Union/Common Cause Comment, pp. 36–37.

cites the ability of TWC customers to access their MVPD service via a Roku device. However, while commenters may be able to find differences in the product portfolios of Comcast and TWC, they have offered no support for the claim that on the whole customers would be better off absent the transaction. It is natural for different companies to offer different products to meet the needs of their different customers. After the transaction, Comcast will seek to meet the needs of its customers, including former TWC customers. To the extent that there are some areas where TWC is able to offer a product at a better value to consumers through superior or more efficient technology than what Comcast has, the combined company will have the option of deploying that technology more broadly, to the benefit of Comcast customers. As we said in our April Report, sharing of technologies works in both directions.[65]

39. Consumers Union/Common Cause also argue that the transaction will lead to integration difficulties, which will actually increase prices to consumers.[66] However, while there are certain to be some costs related to integrating Comcast and TWC systems, if the costs were so high that they would lead to increased prices or lower quality service, Comcast would not choose to make those service changes. After all, Comcast has the option of leaving current TWC technologies in place if they are a more efficient way of meeting customer demand than an alternative Comcast technology. As discussed below, the benefits of efficiency-enhancing changes in technology due to the integration will be passed on in part to customers. Moreover, Comcast's history of integration and investment subsequent to its prior transactions demonstrates the benefits from sharing technologies. For example, Comcast's successful integration and upgrades of AT&T Broadband and Adelphia systems to bring them to the same quality as existing Comcast systems led to increased availability of advanced digital services, as the Commission recognized.[67]

D. Transaction-Specific Efficiencies Will be Passed Through to Customers

40. Some commenters argue that even if Comcast were to realize efficiencies from the transaction, these would not be passed through to customers in the form of lower prices or improved service.[68] They argue either that the efficiencies will come in the form of reduced

[65] April Report, ¶ 68.
[66] Consumers Union/Common Cause Comment, pp. 39–40.
[67] Adelphia Order, ¶ 257.
[68] For example, Consumers Union/Common Cause Comment, pp. 38–39; COMPTEL Comment, p. 9; Franken Comment, pp. 8–11.

fixed costs, which would not be passed through, or that due to a lack of competition, Comcast will not have an incentive to pass through cost savings. As we discuss below in Section III.A, it is a straightforward matter of economics to show that cost reductions benefit customers. Even a monopolist, which Comcast is not, would choose to pass through some portion of a cost reduction to customers in the form of lower prices because that would allow the monopolist to sell to some marginal customers for which the monopolist's marginal revenue exceeds the new, lower marginal cost.[69]

41. Regarding the claim that fixed cost savings would not be passed through to customers, it should first be noted that many of the efficiencies we describe should result in reduced *marginal* costs in the near-term. For example, even with a narrow, static view of marginal costs, the geographic clustering of cable systems from the Charter transactions should lead to lower marginal costs for technicians to travel to customers.[70] Moreover, as we described in our April Report, "fixed" cost savings can lead to substantial customer benefits as well:

> [T]he deployment of new technologies depends on a firm's willingness to undertake the fixed costs of research, development, and deployment. As a result, while such costs are 'fixed' when viewed through a static lens, they are incremental costs when viewed through the lens of undertaking or accelerating investment and new product deployment.[71]

42. Therefore, the benefits we described in our previous reports and expand upon here are not merely reductions in Comcast's fixed costs. They are effects of the transaction that will lead to increased investment, which will in turn facilitate and accelerate deployment of new and enhanced services and products. These longer-term benefits, along with reductions in marginal costs that will be passed on to customers, are the ways in which customers will benefit from the efficiencies we have described. Finally, as we discussed in our April Report, the transactions give Comcast the ability to compete for customers in an expanded footprint, but it will need to compete for these customers with a number of rivals that operate on a national scale or with broad geographic reach.[72] Comcast's new and enhanced service offerings will not only benefit its customers directly, but will also likely encourage a competitive response from DBS operators,

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[69] See, e.g., Hal Varian, *Microeconomic Analysis*, 3rd Ed., pp. 236–237.
[70] June Report, ¶ 12.
[71] April Report, ¶ 54.
[72] April Report, ¶¶ 80–83.

telcos, and other providers of video, broadband, voice, and advertising services that in turn can lead to new or improved services.

III. No Video Programming Competitive Concerns

43. We showed in our previous reports that the transactions did not raise competitive concerns about video programming, and that conclusion still holds. Comcast, TWC, and Charter do not overlap in their service territories so the transactions will not affect the competitive choices available to MVPD customers.[73] Therefore, the transactions will not raise any competitive concerns about the distribution of video programming to consumers.

44. The combined company will continue to compete with the two DBS providers in its entire footprint, with telco MVPDs in almost half of its footprint, and also with overbuilders and new facilities-based entrants such as Google Fiber in certain areas within its footprint.[74] Some commenters have made market share and market concentration calculations that assume Comcast and TWC compete with each other, but do not compete with DBS providers.[75] That is simply wrong. DBS providers have been able to compete effectively, increasing their share of MVPD subscribers from 29% to 34% in the past decade alone.[76] Similarly, it does not make sense, as suggested by WGAW/FMC, to ignore OVDs from a competitive analysis of program buying simply because they do not own facilities to distribute content directly to their customers. OVDs are a competitive factor – Netflix, Apple, Google, Amazon, Hulu, Sony, and other online companies are entering or have entered online video provision and are positioning themselves as competitors to MVPDs for at least some services such as VOD. They are also large purchasers of video programming and provide an alternative channel of monetization for content providers. For example, as of the end of 2013, Netflix had purchased licenses for $7.25 billion in streaming content.[77] Ignoring the realities of DBS providers and OVDs being part of the open field for content providers in the programming marketplace renders Professor Comanor's and Dr.

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[73] Consumer Federation of America argues that combining Comcast and TWC will increase the combined company's ability to "lead, signal and coordinate actions that would diminish competition," especially from OVDs. However, because Comcast and TWC do not compete with one another in distributing video programming to any particular customer, there will be no reduction in the number of competitors serving any customer and no increased possibility of "coordinated effects." Consumer Federation of America Comment, pp. 17–18.
[74] Letter from Comcast, Time Warner Cable, and Charter to Marlene H. Dortch, 6/24/14, p. 4.
[75] Comanor Report, pp. 13–14; Consumer Federation of America Comment, pp. 25–28.
[76] SNL Kagan, "National MVPD subscribers 2005–2013."
[77] Netflix, Inc. 2013 Annual Report, p. 28.

Cooper's calculations, and WGAW/FMC's speculations, meaningless for understanding any competitive implications of the transactions.

45. In this section, we first address the program buying power and program carriage issues raised by the commenters, and then discuss the program access and program selling power issues raised by the commenters.

A. No Monopsony Program Buying Power Concerns

46. Various commenters have argued that because the TWC and divestiture transactions will increase the number of subscribers served by Comcast, the transactions will give Comcast more program buying power.[78] In our previous reports, we showed that program buying power was not a concern because the TWC and divestiture transactions would not change the demand for or supply of programming, would not give Comcast bottleneck power over the purchase of programming, and would not give Comcast market power from the perspective of bargaining theory. None of these elements is effectively rebutted by any commenter. In addition, size is far from the only determinant of program pricing; there are many other factors that content providers and MVPDs consider in the course of their negotiations.

47. Even if the transactions would allow Comcast to negotiate more favorable terms from content providers, consumers would benefit. Over time, part or all of the savings in Comcast's programming costs, which constitute the largest share of Comcast's marginal cost of serving an MVPD customer, would be passed through to Comcast's customers in the form of slower growth in their subscription fees, or through greater investments in service, expanded program offerings, or other non-price alternatives, relative to what consumers might pay without the transaction, implying an increase in consumer welfare.

48. The theoretical arguments and limited empirical evidence put forward by commenters do not change these conclusions. We respond to the commenters' specific program buying power concerns below. First, we discuss how market facts and economics imply that Comcast will not gain monopsony power from the proposed transactions. Next, we show that there is no evidence that Comcast has exercised monopsony power. We then examine the impacts of the alleged

[78] For example, WGAW/FMC Comment; Comanor Report; AAI Comment; Consumer Federation of America Comment; Comments of Entravision Communications Corporation ("Entravision Comment"); John Kwoka, "Economic Analysis of the Effects of the Proposed Merger of Comcast and Time Warner Cable on Program Providers Serving the Latino Market," 8/25/14, filed on behalf of Entravision Communications Corporation ("Kwoka Report").

monopsony power on consumers. Our analysis confirms the conclusions in our previous reports that the transactions will not give Comcast monopsony power and even if it did, that would *increase* consumer welfare.

1. Comcast Will Not Gain Monopsony Power from the Proposed Transactions

49. As discussed above and in our previous reports, an MVPD's demand for programming is driven by the need to compete for and retain customers within its footprint. Even within an MVPD's footprint, its demand for programming (including nationally available programming) may vary depending on variations in consumer preferences locally and on the carriage decisions of other MVPDs operating in that local area.[79] Because Comcast and TWC do not compete for MVPD customers, the combination of the two will not change the demand for programming – the combined firm will continue to need programming of the same quality, quantity, and diversity as the separate firms do in each of their local service areas today to satisfy the demands of subscribers and compete with rival MVPDs in the combined service areas. The combination of the two also does not change the supply for programming because there is essentially zero incremental cost for a content provider to sell its programming to both Comcast and TWC relative to selling it to one of the two. Therefore, Comcast and TWC are not competitors in a national market of video programming from either a demand or a supply perspective.

50. Professor Comanor states that even though Comcast and TWC do not compete for customers (in the "output market"), the two may still compete in the program buying market (the "input market"). He argues that "the merger to monopsony may or may not involve monopoly in the output market" and buyers who do not compete with each other directly "can still exploit any market conditions that restrict the number of prospective buyers available to sellers."[80]

51. Professor Comanor's argument is not supported by economics or market facts. According to economic textbook theory, monopsony power stems from a buyer reducing its purchase of an input to drive down the input's price.[81] This textbook scenario requires the input having increasing marginal costs, which leads to an upward sloping supply curve. However,

[79] For example, Comcast continues to carry RFD-TV in Jacksonville, FL, Nashville, TN, and Salt Lake City, UT, but made a decision to stop carrying RFD-TV in Colorado and New Mexico, where it primarily operates in areas with low demand for RFD-TV programming. Letter from David L. Cohen to Rural Media Group, 8/15/14.
[80] Comanor Report, p. 21.
[81] See, e.g., Hal Varian, *Intermediate Microeconomics*, 6th Ed., pp. 464–467.

carriage negotiations between MVPDs and content providers do not fit the textbook model. Comcast and TWC do not compete with each other in the distribution of programming, a content provider's sale of programming to both Comcast and TWC involves zero marginal cost, and programming is sold to distributors through individualized negotiations. Therefore, the supply curve for a content provider's sale of programming to Comcast and TWC is essentially flat at zero. In that case, Comcast and TWC cannot reduce programming fees post-transaction by reducing their purchase of programming and moving along the supply curve.

52. In practice, because Comcast and TWC do not compete with each other in the distribution of programming to consumers, content providers cannot play Comcast and TWC off one another in their negotiations with the two. Consider, for example, a TWC customer in Los Angeles whom a content provider would like to reach. Even prior to the transaction, the content provider could not urge TWC to accept its terms to carry its network in order to serve and retain the customer based on any competitive threat of carriage by Comcast because Comcast could not serve that customer. TWC's programming purchases do not affect the content provider's opportunity cost of selling the same exact programming to Comcast and vice versa. This implies that the combination of Comcast and TWC will not change the content provider's negotiating position.

53. Finally, as explained in our April Report, any deals between MVPDs and content providers must be mutually beneficial. In this transaction, Comcast's larger size raises the stakes for both sides, but there is no clear gain of relative leverage for either side.[82] And because content providers have a large open field in which to sell their programming, Comcast will not gain leverage through any bottleneck power in program buying. In fact, the dramatic increase of programming fees in recent years suggests that content providers have substantial leverage in negotiations with MVPDs (including Comcast).[83] The transactions will not change the balance of negotiating power and will not allow Comcast to exercise monopsony power.

2. No Evidence That Comcast Has Exercised Monopsony Power

54. Commenters claim there is evidence that the largest MVPDs pay less for their programming than small and medium MVPDs. They argue this is an indication of monopsony

[82] April Report, ¶ 192.
[83] April Report, ¶¶ 193–194.

power.[84] However, the relevant competition question here is not whether small to medium MVPDs generally tend to pay a higher price than large MVPDs, which we do not dispute. Rather, the relevant competition question is whether Comcast will obtain anticompetitive leverage in its programming negotiations after the acquisition of TWC and Charter systems. We have seen no evidence that Comcast's per-subscriber programming costs will be lower as a result of the transactions, and, more importantly, no evidence that, even if Comcast's per-subscriber programming costs were lower, consumers would be harmed rather than benefitting.

55. First, some commenters refer to Comcast's preliminary estimated savings of **{{ }}** million in programming costs over three years for the TWC transaction,[85] But even if we were to assume that all of these estimated savings are owing to pricing differentials in Comcast's and TWC's contracts. the savings are small relative to the size of what the combined company's programming budget is likely to be three years after the closing of the transactions.[86]

56. More importantly, these cost savings arise in part because Comcast estimated that some of its *existing* contracts may have somewhat lower prices than TWC contracts; Comcast did not anticipate any *additional* discounts to its own prices in its due diligence analysis for the TWC transaction. (And the difference is small even though Comcast currently has about twice the number of MVPD subscribers as TWC. This is likely because TWC already is a "large" MVPD, and thus its rates are likely to be far more different from those of a small MVPD than from those of a larger MVPD.) In addition, if a content provider gives one MVPD a lower rate, it faces the risk that the MVPD with the lower rate would use the cost advantage to attract subscribers of rival MVPDs with a higher rate. If subscribers of the high-rate MVPD were to switch to the low-rate MVPD, the content provider would collect lower fees. Thus, content providers may have disincentives to give lower rates to Comcast. Of course, any comparisons of per-subscriber fees across MVPDs needs to control for a variety of factors including, for example, differential advertising revenue that the content provider can generate from carriage by different MVPDs.

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[84] See, e.g., Biglaiser Report, p. 28, Comanor Report, p. 17 and WGAW/FMC Comment, p. 35.
[85] Comanor Report, p. 17.
[86] TWC's 2014 programming cost is expected to be around $5.2 billion (TWC 2013 10-K, p. 52) and Comcast's 2014 programming cost is expected to be around $9.8 billion (Comcast 2013 programming cost was $9.1 billion and the annual growth rate of the cost was 7.7% in the last two years; Comcast 2013 10-K, p. 53). If the combined company's programming costs continue to grow at the 7.7% annual rate, the combined company's programming cost would grow to $18.7 billion in three years (by 2017), of which the estimated **{{ }}** million savings is just **{{ }}**.

57. Professor Comanor asserts that Comcast has exercised monopsony power by reducing quantity as predicted by a traditional monopsony model. He measures the "quantity" using the number of channels carried by MVPDs and cites the 2012 and 2013 FCC Video Competition Report to show that Comcast carries a lower number of channels on its "medium-tier" packages than other wireline distributors. He claims that Comcast does so not by reducing the quantity of any particular channel, but instead by reducing the number of channels it takes from a provider.[87]

58. Professor Comanor's claim is flawed both conceptually and empirically. Reduction in demand and exercise of market power cannot be shown by simple channel counts because the number of channels carried on a particular tier is not a proper measure of output. Some channels are very valuable whereas others generate little overall surplus, and it would be inappropriate to compare channel counts without adjusting for quality or consumer welfare. Professor Comanor picked arbitrary "medium-tier" packages to compare without any justification for why those particular packages are appropriate, comparable, or relevant for assessing the economic impact and consumer welfare implications of the many other packages offered by MVPDs.

59. Moreover, Professor Comanor's data do not take price of packages into account. According to the 2013 Video Competition Report he cites, the 160-channel package that Comcast offers is priced at $39.99. The prices of other medium-tier packages he uses for comparison of channel counts are much higher: TWC's is $49.99; Cox's is $65.99; Verizon's is $74.99; and AT&T's is $72.00.[88] Even on its own terms, Professor Comanor's interpretation of the data is deeply flawed by not accounting for price.

60. Professor Comanor's data is also out-of-date. He relies on the Commission's 2013 Video Competition Report, which in turn relies on company websites visited on October 30, 2012.

61. Finally, it may be efficient for MVPDs to carry fewer channels. For example, an MVPD may carry fewer channels and devote more of its limited bandwidth to broadband or HD channels. Or an MVPD may decline to carry channels for a variety of legitimate competitive business reasons. For example, Dish does not carry several RSNs, including the YES Network.

62. Despite all of these infirmities in using channel counts as a metric for quantity, applying Professor Comanor's channel count methodology to current data obtained from company

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[87] Professor Comanor suggests that "one means to exercise monopsony power is to reject the seller's proposed bundles and agree only to pay for a smaller number of channels." Comanor Report, p. 18.

[88] FCC 15th Video Competition Report, ¶ 127 (Table 6).

websites visited in September 2014 shows that Comcast carries more channels than most major MVPDs. For example, Table III.A.1 provides the advertised channel counts offered by a variety of major MVPDs in September 2014. Comparing "medium-tier" packages (analogous to the method used by Professor Comanor), Comcast currently offers 220+ channels ($39.99) compared to TWC's 200+ channels ($49.99), Cox's 220+ channels ($49.99), DirecTV's 205+ channels ($39.99), Dish's 190+ channels ($54.99), AT&T's 300+ channels ($44.00), and Verizon's 225+ channels ($49.99). Comcast also carries a large number of unaffiliated channels and carries more networks produced by independent content providers (i.e., those outside the top 15 content providers by revenue) than other cable MVPDs.[89] There is no support in the data for a conclusion that Comcast exercises monopsony power by restricting the number of channels.

[89] Source: Rovi. See Table III.B.1 below.

Table III.A.1
Advertised Video Packages and Channel Counts
September 2014

MVPD Type	MVPD	Package	Number of Channels	Price
Cable	Comcast	Digital Starter	140+	$29.99
		Digital Preferred	220+	39.99
		Digital Premier	260+	84.99
	Time Warner Cable	Starter TV	20+	19.99
		Standard TV	70+	39.99
		Preferred TV	200+	49.99
	Cox Communications	TV Economy	155+	24.99
		Advanced TV	220+	49.99
		Advanced TV & Contour	220+	61.98
DBS	DirecTV	Select	130+	24.99
		Entertainment	140+	29.99
		Choice	150+	34.99
		Xtra	205+	39.99
		Ultimate	225+	44.99
		Premier	285+	92.99
	Dish Network	Smart Pack	55+	19.99
		America's Top 120	190+	29.99
		America's Top 120 Plus	190+	34.99
		America's Top 200	220+	39.99
		America's Top 250	290+	44.99
		America's "Everything" PAK	320+	89.99
Telco	AT&T U-verse[1]	U-Family TV	140+	29.00
		U200 TV	300+	44.00
		U200 TV Latino	350+	54.00
		U300 TV	390+	59.00
		U450 TV	470+	91.00
	Verizon FiOS	FiOS TV Local	17	10.00
		Select HD	135+	49.99
		Preferred HD	225+	64.99
		Extreme HD	300+	74.99
		Ultimate HD	390+	$89.99

Source:
http://www.comcast.com/Corporate/Learn/DigitalCable/digitalcable.html (accessed Sept.1, 2014)
http://www.timewarnercable.com/en/packages/cable-internet-packages.html (accessed Sept. 1, 2014)
http://www.cox.com/residential/tv.cox?campcode=home_tv_tvlanding_offer2_1 (accessed Sept.1, 2014)
http://www.directvdeals.com/packages.html (accessed Sept. 1, 2014)
http://www.dish.com/entertainment/packages/offers/value/ (accessed Sept. 1, 2014)
http://www.att.com/u-verse/shop/?shopFilterId=100004#fbid=zKRfbh7ozJC (accessed Sept. 1, 2014)
http://www.verizon.com/home/fiostv/ (accessed Sept. 1, 2014)

Note:
[1] Price does not include HD service for packages other than U450 TV. HD service is $10/month.

3. Comcast Will Not Gain Monopsony Power Over Hispanic Programming from the Proposed Transactions

63. Entravision and its expert Professor Kwoka express concern that the transactions will harm Hispanic programming.[90] Their arguments about Hispanic programming are similar to the comments about potential horizontal and vertical harms for programming overall that we have addressed in our previous reports and above. The same economic logic and analysis in our earlier discussion show that these concerns about Hispanic programming also do not lead to a cause for concern about anticompetitive behavior.

64. Entravision claims that Comcast will acquire buying power and make it more difficult for other Hispanic programming providers to reach enough subscribers to be successful. In particular, Professor Kwoka claims that Hispanic programming providers may have difficulty reaching a scale of 20 million subscribers if they do not gain carriage on Comcast.[91] There are several problems with this claim.

65. First, Professor Kwoka assumes that reaching 20 million MVPD subscribers is necessary for success of a Hispanic programming network. There is no evidence to support this hypothesis. The minimum viable scale for a network can vary greatly depending on a variety of factors, including its programming concept, delivery strategy, programming costs, revenue sources, and brand recognition. In addition, the 20 million figure is unlikely to apply to Hispanic programming since according to the U.S. Census, there are far fewer than 20 million Hispanic households in the U.S., and only a fraction of those subscribe to MVPD service.[92]

66. In fact, there are other ethnic networks that have succeeded with a limited subscriber base. For example, WAPA-America, which focuses on Caribbean-produced programming, has been a cable network since 2004 and has only an estimated **[[ ]]** million subscribers. CentroAmerica TV, which focuses on Central American programming, has been a cable network since 2004 and is carried by MVPDs to only an estimated **[[ ]]** million subscribers.[93] Other networks with Hispanic-oriented programming and fewer than 20 million U.S. subscribers

[90] Entravision Comment; Kwoka Report.
[91] Kwoka Report, p. 9.
[92] U.S. Census Bureau, 2008–2012 American Community Survey; National Association of Broadcasters, "Broadcast Television and Radio in Hispanic Communities," July 2013.
[93] Source: SNL Kagan, *Economics of Basic Cable Networks 2013*.

include Mexico TV, Sorpresa!, LatinoAmerica TV, MEXICANAL, Canal Sur, De Pelicula, and Bandamax.[94]

67. Second, even assuming Entravision's hypothesis is correct, an agreement with Comcast is not necessary to reach 20 million MVPD households. As we showed in our April Report, it is easy for a content provider to reach 20 million MVPD households through other MVPDs, including MVPDs that serve all of the top DMAs with high Hispanic populations.[95] In addition, over-the-air (including Entravision broadcast stations) and online distribution would make reaching 20 million households without Comcast relatively easy.

68. Finally, because much Hispanic programming is shown over the air, many of the stations on which this programming is carried have must-carry rights and therefore can demand carriage on Comcast's systems. In addition, such programming is now thought to be valuable enough that many such stations are forgoing must-carry and instead negotiating compensated retransmission consent. There is no evidence that Comcast has the bottleneck power alleged by Professor Kwoka.[96] It is indisputable that Hispanic programming networks can succeed without carriage on Comcast.[97]

4. A Reduction of Comcast's Programming Cost Will Benefit Consumers, Will Not Harm the Quality of Programming, and Will Not Increase the Cost of Other MVPDs

a) Lower Programming Costs Will Benefit Consumers

69. Professor Comanor suggests that a reduction of programming cost from Comcast's exercise of alleged monopsony power would not lower the prices to consumers because "[the

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[94] Source: SNL Kagan, *Economics of Basic Cable Networks 2013*.

[95] Because there are only about 13.4 million Hispanic households in the U.S., Entravision's claim of 20 million households necessarily includes both Hispanic and non-Hispanic households. Source: U.S. Census Bureau, 2008–2012 American Community Survey. In addition, DirecTV recently announced that it is "building the infrastructure for a Hispanic OTT product," which will provide yet another potential avenue for Hispanic-oriented programming to reach Hispanic households. DirecTV Conference Call at Bank of America Merrill Lynch Media, Communications and Entertainment Conference, 9/16/14, p. 8.

[96] In fact, a sizeable share of Hispanic households are over-the-air only and Comcast could not be a bottleneck for them. See, e.g., National Association of Broadcasters, "Broadcast Television and Radio in Hispanic Communities," July 2013.

[97] The National Hispanic Media Coalition claims that the transaction would "make Comcast the cable provider for up to 90 percent of Latinos nationwide" (Comments of the National Hispanic Media Coalition, p. 2). However, after the transactions, Comcast will not pass 90% of Latino households nationwide, but will only operate in zip codes where about 79% of Hispanic households are located. Moreover, Comcast will be an option, but certainly not the only option for those households. It will need to compete for those customers with other MVPDs, over-the-air viewing, and potentially OVDs.

monopsonist's] relevant costs for decision marking purposes are marginal costs and these are not lower" and "when the monopsonist has market power in its output market, the reduced input prices translate into higher output prices."[98] Professor Comanor further claims that "any enhanced monopsony power resulting from the proposed merger will likely lead to higher prices for wireline consumers."[99]

70. In our April Report, we addressed this issue, and the facts and economics have not changed. Programming fees are generally assessed on a per-subscriber basis, and are thus a marginal cost to MVPDs.[100] In addition, as discussed above, the monopsony claim requires a reduction in input quantity (which may in turn affect the output quantity and price) but there is no quantity reduction present here. Without a change in input quantity, basic economics teaches that changes in marginal cost will be passed on in full or in part to consumers, even for a monopolist (which Comcast is not).[101] Economic studies have found changes in programming costs are passed through to MVPD subscribers at a rate of about 50 percent.[102] According to Dr. Shelanski, who recently served as head of the Bureau of Economics at the Federal Trade Commission:

> The case for pass-through of efficiencies is compelling for a firm that faces competition, particularly competition as vigorous as that in the MVPD market. . . . Reductions in the direct costs of procuring programs will result in both a lower cost per-program for subscribers and in an increased number of programs being made available to subscribers. . . . Efficiency gains from the merger may also be passed through to consumers in a less direct way through increased investment in network upgrades and the development and deployment of innovative services.[103]

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[98] Comanor Report, p. 20 (quoting Roger D. Blair and Jeffrey L. Harrison, *Monopsony, Antitrust Law and Economics*, Princeton University Press, 1993, pp. 39–42).
[99] Comanor Report, p. 20.
[100] Professor Comanor acknowledges this fact: "Prices in this market are traditionally set on a per-subscriber basis, which reflects the buyers' valuation of the programming acquired." Comanor Report, p. 9.
[101] See, e.g., Hal Varian, *Microeconomic Analysis*, 3rd Ed., pp. 236–237.
[102] See George Ford and John Jackson (1997), "Horizontal Concentration and Vertical Integration in the Cable Television Industry," *Review of Industrial Organization*, Vol. 12, No. 4, pp. 501–518 at pp. 513–514. Note that 50% is also the value of the pass-through rate for a monopolist facing linear demand curve. For many models that are commonly used in merger simulations – in which competitors react to one another's price cuts by lowering their own prices and in which demand takes alternative functional forms such as logit or AIDS – pass-through rates are substantially higher than 50%, so this may be a conservative estimate of the actual benefits from eliminating double marginalization.
[103] See Reply to Comments and Petitions to Deny Applications for Consent to Transfer Control of AT&T Corp. and Comcast Corp., In the Matter of Applications for Consent to the Transfer of Control of Licenses, Comcast Corporation and AT&T Corp., Transferors, To AT&T Comcast Corporation, Transferee, MB Docket No. 02-70 (May 21, 2002), App. 4 (Declaration of Howard Shelanski), pp. 21–22.

Thus, over time, part or all of any savings in Comcast's programming costs would be passed through to Comcast's customers.[104]

71. In fact, multiple commenters argue that Comcast would pass cost savings on to consumers. For example, ACA states that because Comcast gets the best rates from content providers, it will be able to offer its subscribers the lowest possible prices.[105] ACA casts this as putting ACA members at a competitive disadvantage. However, while lower Comcast subscription prices resulting from lower programming costs would be a concern to those ACA members that compete directly with Comcast for subscribers,[106] those lower consumer prices would be a competitive benefit that would enhance consumer welfare, not an anticompetitive concern. Moreover, basic economics suggests that other MVPDs – particularly the DBS and telco providers who compete directly with Comcast – are likely to react to Comcast's improved service or better pricing with their own service enhancements and/or price competition. The public interest is advanced by promoting competition, not by protecting competitors.

b) Lower Programming Fees Will Not Harm the Quality of Programming

72. Some commenters (e.g., WGAW/FMC and AAI) argue that lower fees from Comcast will reduce investment in programming, stifle innovation in program offerings, and harm consumers.[107] As discussed previously, Comcast does not expect to pay lower programming fees relative to its existing fees, although there is some anticipated moderate reduction in the fees that TWC would otherwise be paying. Of course, Comcast's estimated fee reduction is a small percentage of its overall programming fees, as discussed above.

73. Even that small percentage overstates any potential consequence for programming quality. Content providers rely on multiple revenue streams, including affiliate fees (not only from Comcast, but also from other cable companies that do not overlap with Comcast, competing MVPDs, and OVDs), and advertising revenue. Comcast affiliate fees typically account for less

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[104] Any changes in programming costs would occur over time, rather than right away, due to the long term programming contracts that are in place. For example, an increase of 5% per year instead of 10% per year in programming costs would lead to lower cable prices than would otherwise have occurred even though consumers would not actually see nominal rate reductions. These changes might also take 3–5 years to come to fruition given the multi-year nature of programming contracts.

[105] American Cable Association Comments ("ACA Comment"), pp. 27–28.

[106] Most ACA members operate in geographic footprints that do not overlap with Comcast's geographic footprint.

[107] See, e.g., WGAW/FMC Comment, p. 32; AAI Comment, p. 21.

than 30% of the total affiliate fees and much less of the total revenue for content providers. In fact, among the national cable networks tracked by SNL Kagan, advertising revenue comprises on average about **[[ ]]**% of network revenue, with the majority of networks receiving between **[[ ]]**% and **[[ ]]**% from advertising (25th percentile to 75th percentile).[108] As a result, a content provider's decision to reduce quality because of a small reduction in less than about **[[ ]]**% of its revenues would put at risk much more than **[[ ]]**% of the content provider's revenues.

74. More generally, content providers need to compete with other content providers' programming to attract viewers and therefore carriage by MVPDs. If a content provider reduces the quality of its programming, it will get worse deals and further reductions in fees in future negotiations with all MVPDs and lower advertising revenue. As long as a content provider receives a competitive return, it should be willing to continue supplying the same amount of programming (in terms of quality and quantity) in the long run.

75. Further, Comcast has incentives to pay a competitive rate to ensure the quality of programming as lower quality programming would reduce the attractiveness of Comcast's MVPD service and cause some consumers to drop or downgrade the service they purchase.

c) Lower Programming Costs for Comcast Will Not Increase the Cost to Other MVPDs

76. Some commenters claim that if Comcast gets better prices from content providers, it will in turn cause smaller MVPDs to pay higher prices.[109] However, as explained in our previous reports, there is no evidence that such claims would hold true in the marketplace. In addition, such claims run counter to any rational theory of economics where firms are assumed to maximize profits.

77. As a matter of economics, there is no reason to believe that content providers leave money on the table today, and will only charge small MVPDs higher prices if Comcast pays a

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[108] Source: SNL Kagan. Advertising revenue share is calculated as Net Advertising Revenue divided by Operating Revenue. Average advertising revenue share is calculated as an operating revenue-weighted average.

[109] The commenters present no empirical evidence to support this point. Professor Biglaiser claims this is indicated by empirical data but does not present any (Gary Biglaiser, "The Harms of Comcast-TWC-Transaction," 8/25/14, filed on behalf of the American Cable Association ("Biglaiser Report"), p. 29). Mr. Rich Fickle, CEO and President of NCTC, filed a declaration stating that based on his long experience in the industry, if Comcast gets better prices, content providers will charge NCTC higher prices, but does not present any data. Dish also makes this claim in its comments.

lower price. Programming fees are not a zero-sum game with the content provider seeking a fixed, predetermined amount. If content providers could charge higher prices to smaller MVPDs without losing too many sales today to maximize their profit, they would do so regardless of the price charged to Comcast.

78. Most ACA members do not compete with Comcast or TWC. Consider a content provider that sells programming to Comcast, TWC, and an ACA member, each of which serve distinct territories and do not compete with each other for subscribers. The content provider would want to maximize the profits it could get from each of the three buyers. In economic terms, the programming demands of the three buyers are independent. Independent demand and a flat marginal cost for programming, as discussed above, means that the price and quantity from one does not affect the price and quantity of the others. An increase or decrease in the price to Comcast will have no effect on the supply or demand for these ACA members.

79. On the other hand, some ACA members compete with Comcast and/or TWC. In this case, the demands are not necessarily independent. However, if Comcast were to get lower prices, the most logical effect would be for smaller carriers also to get lower, not higher prices. It is perhaps easiest to understand this point by hypothesizing what would happen if content providers all gave Comcast lower prices and then raised the prices to its smaller competitors. In that case, the smaller competitors may be more likely lose customers to Comcast (depending on the magnitude of the differential).[110] But Comcast would pay lower prices than the competitor paid before the price changes, so that the content provider would end up with lower overall revenue as a result of trying to make up the lower Comcast price by raising prices to others. This makes little sense and may be one of the reasons that programming fee differentials appear to be flattening out in today's competitive MVPD marketplace.

80. Professor Biglaiser develops a theory that "when publicly held programming firms address market analysts they often promise to achieve a given rate of return in order to convince the analysts to recommend to their client that they buy the programmer's stock."[111] He claims

[110] According to ACA: "Comcast will be able to offer its subscribers the lowest possible prices, because Comcast receives the most favorable rates from programmers. Competing small MVPDs, who are forced to accept higher rates from programmers, will have to recoup these higher costs by raising prices to their subscribers, putting them at a competitive disadvantage as opposed to Comcast. The small and diverse members of ACA are threatened the most under these circumstances." ACA Comment, pp. 27–28.

[111] Biglaiser Report, p. 29.

this story "provides an economic linkage between the prices paid by rival MVPDs and Comcast."[112] However, Professor Biglaiser's story requires that content providers not try to get the best deal in their negotiations with smaller MVPDs unless they get a worse deal from Comcast. Essentially, it requires content providers not to want to exceed Wall Street expectations and not to maximize profits when there is an easy mechanism to do so. Not surprisingly, his story is not backed up with market evidence that content providers behave in this way or that stock analysts accept these "promises."

81. Overall, neither the theory nor the data provide any support for commenters' claims that the transactions will allow Comcast to exercise increased buyer power, and even less evidence that there would be any harm to consumers.

B. No Vertical Program Carriage Concerns

82. Various parties have argued that because the transactions will increase Comcast's size and footprint, the transactions may increase Comcast's incentive and ability to discriminate against competitors of Comcast's affiliated programming with respect to carriage on Comcast's cable systems.[113] RFD-TV and Tennis Channel also frame their disputes with Comcast in a vertical foreclosure theory to try to explain Comcast's carriage decision with respect to their respective programming.[114]

83. Such vertical program carriage issues were analyzed in our previous reports, where we showed that they are not a concern because of the vigorous competition Comcast faces in the upstream (video programming) and downstream (video distribution) markets.[115] Given this upstream and downstream competition, a discriminatory program carriage strategy against unaffiliated programming would likely be unprofitable – it would likely lead to Comcast's losing cable customers without bringing much benefit to Comcast's affiliated programming. To benefit affiliated programming, Comcast would have to target directly competitive unaffiliated programming (and the benefits of such a strategy are likely elusive given the large number of unaffiliated programming networks).

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[112] Biglaiser Report, p. 30.
[113] See, for example, Comanor Report, WGAW/FMC Comment, and Kwoka Report.
[114] Comments of RFD-TV, pp. 4–10; Comments of The Tennis Channel, Inc., pp. 6–10.
[115] April Report, ¶¶ 203–205.

84. As explained in our April Report, Comcast needs to provide attractive programming because of competition from other distributors. However, programming is not free; additional channels usually increase programming cost, which, as a marginal cost, tends to increase the price of MVPD service. In addition, cable companies (and other MVPDs) face bandwidth constraints. As a result, programming decisions are complex – how much bandwidth should be allocated to video when demand for high-speed data is increasing? Within the bandwidth allocated for video, how much should be used to carry standard-definition channels and how much for HD channels? And then which channels to carry? MVPDs need to have the flexibility to add and drop networks based on the interest of their customers, bandwidth constraints, and other legitimate business considerations.

85. In this section, we show that Comcast carries a large amount of unaffiliated programming, that there are no program carriage concerns for Hispanic programming, and that the Commission's method for showing anticompetitive carriage in the Comcast-NBCUniversal transaction has serious flaws and even then does not provide any evidence of anticompetitive behavior here.

1. Comcast's Carries More Unaffiliated and Independent Programming Than Other Cable MVPDs

86. Given the large number of total channels Comcast carries on its systems, it is hard to believe that foreclosure is a reasonable business strategy. Despite being vertically integrated and allegedly having anticompetitive incentives, the vast majority of the programming carried by Comcast is unaffiliated. In fact, Comcast carries more national cable networks (among those tracked by SNL Kagan) that are unaffiliated with NBCUniversal than any other cable MVPD.[116] Table III.B.1 shows the average number of national cable networks that are unaffiliated with Comcast, among national cable networks tracked by SNL Kagan, carried per headend by cable MVPDs. Comcast's carries an average of 110 unaffiliated networks per headend, followed by Cablevision with 105 per headend. Comcast carries 148 of these 170 unaffiliated networks on at least one headend, which is also the most among cable MVPDs. In addition, Comcast carries

[116] This analysis focuses on national cable networks tracked by SNL Kagan in order to allow for comparisons across MVPDs that operate in different geographic areas. By focusing on national cable networks, we are able to remove any differences in carriage that may be driven entirely by regional or local networks. We focused further on networks that are tracked by SNL Kagan in order to determine network ownership and carriage. Therefore the network counts in Table III.B.1 do not include all unaffiliated national, regional, or local networks carried by Comcast or other MVPDs.

more "independent" networks tracked by SNL Kagan per headend than any other cable MVPD, including TWC.[117] The last two columns of Table III.B.1 show carriage of these independent networks. The second-to-last column shows the average number of independent national cable networks, among national cable networks tracked by SNL Kagan, carried per headend by cable MVPDs. Comcast's average of 38 independent networks per headend is the highest, followed by TWC with 33. Comcast carries 64 of these 84 independent networks on at least one headend, as shown in the last column of Table III.B.1, which is also the highest carriage rate among cable MVPDs.[118]

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[117] Source: Rovi. "Independent" networks are defined, per the Commission's Comcast-NBCUniversal Order, Appendix A, as networks that are not majority owned by a content provider that is among the top 15 content providers in revenue. We focus on national cable networks tracked by SNL Kagan in order to determine network ownership and carriage. We note that Comcast carries many more "independent" networks (*In the Matter of Applications of Comcast Corp. and Time Warner Cable Inc. For Consent To Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, Applications and Public Interest Statement, p. 170), but our analysis only uses the national cable networks tracked by SNL Kagan.

[118] Source: Rovi, SNL Kagan.

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87. We understand that the Commission has received many written comments from viewers (including many from viewers living in territories the combined company will not serve) concerned about the carriage of RFD-TV, a low-rated, niche cable network. In the context of the competitive implications of the proposed transaction, carriage of RFD-TV is not a transaction-specific concern. Any carriage decisions already made by Comcast with respect to RFD-TV are, by definition, not impacted by this transaction. And since Comcast and TWC do not compete for any customers, there will be no difference in the incentives to carry RFD-TV on any particular system.

88. It is very important for MVPDs to carry programming that will attract and retain customers. When there is subscriber demand for programming, including RFD-TV, an MVPD has an incentive to carry that programming. However, as discussed above, both direct costs (affiliate fees) and opportunity costs (from the use of bandwidth) affect the decision to carry a particular channel.

89. We understand, based on Comcast Executive Vice President David L. Cohen's August 15, 2014, letter to Rural Media Group, that Comcast weighed the benefit to its customers of carrying RFD-TV in Colorado and New Mexico against the opportunity cost of foregone Internet speed improvements and carrying other programming. Comcast ultimately decided that providing improved Internet speeds and other programming, particularly high definition programming, to its customers provided more value to its customers.

90. It would be unfortunate if the Commission were to use the pretense of a merger to intervene in a normal business decision simply because a specific content provider is able to generate some publicity and political support. Such an intervention could then cause other content providers to compete on the steps of the Commission rather than to compete by creating and providing programming that would benefit MVPD subscribers.

2. The Transactions Raise No Program Carriage Concerns Related to Hispanic Programming

91. Professor Kwoka and Entravision bring up a vertical program carriage concern about Hispanic programming, similar to the general program carriage concern we have addressed above and in our previous reports. They claim that the transactions will increase Comcast's

incentive to discriminate against unaffiliated Hispanic programming to benefit its own Hispanic programming (the cable network mun2, the Telemundo broadcast network, and its Telemundo O&O stations).[119] However, there is very little transaction-specific about these claims related to Entravision.

92. First, Comcast is not acquiring any national Hispanic programming in the transactions, so there will be no additional incentive to foreclose unaffiliated national Hispanic programming due to increasing NBCUniversal's Hispanic programming portfolio. Comcast will be acquiring additional households in certain DMAs with sizable Hispanic populations. However, an anticompetitive program carriage strategy directed at unaffiliated national Hispanic programming would likely not be profitable for Comcast. Comcast has to compete with other MVPDs, over-the-air service, and, to a lesser extent, with OVDs to satisfy the demands of households with a desire for Hispanic programming. If Comcast does not carry attractive Hispanic (or other) programming, consumers may be able to access that programming in other ways, including by switching to other MVPDs, or by canceling their MVPD service and watching over-the-air or online. Thus, competition for subscribers creates the appropriate incentives for Comcast to carry attractive programming.[120] In addition, NBCUniversal programming faces strong competition from a variety of unaffiliated content providers. If Comcast were to deny carriage to a particular Hispanic broadcast or cable network, NBCUniversal programming would continue to compete for viewers, advertising, and programming with a wide variety of other programming. Thus, denying carriage to a particular broadcast or cable network would likely bring little benefit to NBCUniversal programming.

93. Second, although Comcast operates Telemundo O&Os in 17 DMAs, and is acquiring a limited amount of regional Spanish-language programming from TWC,[121] there are no

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[119] Kwoka Report, pp. 8–12.

[120] For example, Comcast recently reached an agreement with Univision Communications Inc. for the distribution of Univision Deportes Network, a Spanish-language sports network. Comcast found this network to be attractive enough to its customers to justify the costs associated with carriage. Comcast Press Release, "Comcast and Univision Reach Long-Term Agreement for Distribution of Univision Deportes Network," 9/9/14, available at http://corporate.comcast.com/news-information/news-feed/comcast-and-univision-reach-long-term-agreement-for-distribution-of-univision-deportes-network.

[121] Comcast is acquiring three regional networks from TWC that carry major league sports in Spanish, including TWC Deportes (Lakers) and TWC Channel 858 (Clippers and Angels, based on programming feeds from Fox) in Los Angeles, and Canal de Tejas (Mavericks, Spurs and Rangers, based on programming feeds from Fox) in Texas and TWC's local Spanish-language news network (NY1 Noticias) in New York.

Entravision transaction-specific concerns in any DMAs.[122] None of Entravision's Univision affiliates operates in the four DMAs where Comcast has Telemundo O&O stations and is acquiring a significant number of cable customers: New York, Los Angeles, Dallas, and San Antonio. In addition, there is no evidence that Comcast discriminates against Entravision. Comcast carries all 12 Entravision-operated Univision affiliates in its footprint.[123] Given how widely Comcast carries Entravision stations, it must believe that its customers' demand for Entravision-affiliated stations is strong enough to justify the cost (including the bandwidth) necessary to carry those stations. The transactions do not change that calculus.

94. If Comcast were to foreclose carriage to Entravision's affiliates in the DMAs in which it operates cable systems, it would likely lose MVPD subscribers to other MVPDs who carry Entravision stations and some subscribers would choose to watch Entravision stations over-the-air. As a result, such a strategy would likely be unprofitable for Comcast. As Entravision states in its Annual Report, Univision is the most-watched television network (English- or Spanish-language) among U.S. Hispanic households during primetime.[124] In fact, Entravision claims that Univision and UniMas (the majority of Entravision's stations) represented approximately 67% of the Spanish-language network television primetime audience of adults 18 to 49 as of November 2013.[125] Recently, Univision's primetime average viewership has been twice that of Telemundo's.[126]

95. Professor Kwoka also claims that the "Goolsbee-style" analysis performed by the Commission in the Comcast-NBCUniversal Order is a "compelling" way to determine whether Comcast has favored its affiliated programming in an anticompetitive way.[127] The next section shows that the Goolsbee analysis does not provide the "compelling" support Professor Kwoka relies on for his conclusions.

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[122] We are responding to Entravision's and Professor Kwoka's comments in this paragraph and thus focusing on Entravision's programming; more generally there are no transaction-specific program carriage concerns with any Hispanic programming in any DMAs.

[123] Source: Rovi. Includes the full-power Univision affiliates KLUZ-TV, KCEC-TV, KINT-TV, WVEN-TV, WFDC-TV, WVEA-TV, WUNI-TV, WUVN-TV, KSMS-TV, KVSN-TV, KPMR-TV, WHTX-TV.

[124] Entravision 2013 Annual Report, p. 2.

[125] Entravision 2013 Annual Report, p. 4.

[126] Media Life Magazine, "This week's broadcast ratings," 9/16/14, available at http://www.medialifemagazine.com/this-weeks-broadcast-ratings/.

[127] See Kwoka Report, p.10 (including fn.18). In particular, Professor Kwoka claims that "[e]specially compelling to its determination was the study by Professor Austan Goolsbee that was discussed in detail and applied in that proceeding" and "[a]n important aspect of the Goolsbee study was its methodology for distinguishing efficiency vs. competitive harm as the reason for program selection by vertically integrated companies."

3. The Commission's Goolsbee-Style Regressions Provide No Support For Anticompetitive Program Carriage Concerns

96. We first describe the Goolsbee-style analysis and the conceptual and econometric flaws that render it unreliable for reaching a conclusion about anticompetitive program carriage. We then update the analysis with current data using the same methodology used by the Commission in its Comcast-NBCUniversal Order and show that even this analysis does not provide any evidence that Comcast favors its own programming for anticompetitive reasons, or that the TWC and divestiture transactions will lead to anticompetitive program carriage concerns.

97. In Section E of Appendix B in the Comcast-NBCUniversal Order (hereinafter, "Comcast-NBCUniversal Order, Appendix B"), the Commission performed econometric analyses of program carriage based on a regression model originally proposed by Professor Austan Goolsbee (the "Goolsbee analysis" or "Goolsbee regression").[128] The Commission's implementation of the Goolsbee analysis used channel lineup data to estimate the correlation between Comcast's carriage, relative to other MVPDs, of its affiliated programming on each of its headends and the customer share of "DBS and telco MVPDs" in the DMA containing the headend. Because the Commission's regression specification found a statistically significant negative correlation (i.e., that Comcast was more likely to carry its affiliated programming, relative to other MVPDs, in DMAs with lower DBS and telco customer shares, the Commission concluded that "Comcast may have in the past discriminated in program access and carriage in favor of affiliated networks for anticompetitive reasons."[129] The Goolsbee analysis, however, is ill-suited for assessing Comcast's incentives and ability to engage in anticompetitive program carriage because it has conceptual and econometric flaws (at least as applied by the Commission in this context).

98. The Goolsbee analysis has several conceptual and econometric flaws that render it unreliable for reaching a conclusion about anticompetitive program carriage. One key conceptual flaw is the interpretation of a *correlation* between Comcast's carriage of some of its affiliated networks and the share of competing MVPDs as an indication of the latter's having a

[128] Austan Goolsbee, "Vertical Integration and the Market for Broadcast and Cable Television Programming," research paper commissioned by the Federal Communications Commission, April 2007 ("Goolsbee (2007)").
[129] Comcast-NBCUniversal Order, ¶ 117, and Appendix B, ¶ 70. Although the analysis by the economists retained by the Applicants did not find such a correlation, the Commission did after it made changes to the regression specifications submitted by the Applicants' economists.

causal effect on the former. But the correlation does not necessarily imply causation because other variables could explain why Comcast's carriage of affiliated programming may appear higher in areas where competing MVPDs' market share is lower. For example, in geographic areas that have a strong demand for broadband service and HD channels due to factors not controlled for by the Goolsbee analysis, Comcast might allocate more bandwidth to broadband services and HD channels. As a result, Comcast may be less likely to carry some of its own channels (as well as some unaffiliated channels). At the same time, telco MVPDs may aggressively enter these areas, leading to a higher combined DBS and telco market share. In this example, the Goolsbee analysis would show a negative correlation between Comcast's carriage of its affiliated programming and the share of DBS and telco MVPDs, even though Comcast neither favors its affiliated programming nor discriminates against unaffiliated programming.

99. Compounding these conceptual issues, there are several empirical and econometric flaws with the Commission's implementation of the Goolsbee analysis. First, the empirical specification adopted by the Commission attempts to measure the competition faced by Comcast at each headend using the share of DBS and telco MVPDs across the entire DMA in which a headend is located. In other words, the analysis assumes that Comcast faces the same level of competition at each headend located within a particular DMA. However, the share of DBS and telco MVPD competitors measured at the DMA-wide level does not necessarily reflect the level of competition faced by a particular cable system/headend within that DMA. There are many cable headends in each DMA,[130] and the share of DBS and telco MVPDs (and even the availability of telco MVPD services) can vary considerably across these headends. For example, the Salt Lake City DMA has a relatively high DBS share of **[[ ]]**% (and no telco MVPD presence), but that DMA is geographically very large (encompassing the area from eastern Nevada to southwest Wyoming) and includes areas that are very sparsely populated. However, in the zip codes within the Salt Lake City DMA that are served by Comcast headends, the DBS share is only **[[ ]]**%. The fact that many households in remote areas choose to subscribe to

[130] There are an average of 87 traditional cable company headends in each of the top 50 DMAs, each serving a completely different set of potential subscribers. This count is based on headends appearing in the Rovi data and headends that are missing DMA information are assigned to a DMA based on the zip code(s) that they serve. In Comcast's response to the Commission Information Request, Item 25, we derived the count without filling in the missing DMA information, which yielded a count of 67 (rather than 87).

DBS is not necessarily indicative of the level of competition faced by a cable system that operates only in the Salt Lake City metropolitan area.

100. Second, an MVPD's market share is presumably affected by, among other things, the programming carried by the MVPD and its in-market competitors. Thus, the share of DBS and telco MVPDs is affected by Comcast's channel lineup, which means the combined DBS + telco market share is *endogenous*. It is well known in econometrics that using an endogenous variable as a regressor will bias the estimated coefficients.[131] Therefore, regression specifications using the combined DBS + telco market share as a regressor are not reliable.

101. Third, the Goolsbee analysis performed in the Comcast-NBCUniversal transaction used the number of channels to control for the "capacity" of a headend. However, variation in the number of channels at a headend for Comcast, and likely for other MVPDs, may be affected by a variety of factors, including an MVPD's allocation of bandwidth between SD and HD channels (HD channels require more bandwidth) and between linear video channels and other advanced services like VOD and broadband, as well as the availability of local and regional programming at the headend's location.[132] Therefore, the variation in the observed number of channels does not necessarily imply variation in capacity. Incorrectly controlling for capacity may lead to the appearance of a statistically significant correlation between the carriage of affiliated programming and the combined DBS + telco share when in fact none exists.

102. Putting aside the myriad problems with the Goolsbee regression, to respond fully to a Commission request and to address the comment by Professor Kwoka, we have run the Goolsbee regression using current data with a specification analogous to that used by the Commission in the Comcast-NBCUniversal Order, Appendix B.[133] However, Comcast currently has more affiliated programming assets than it did prior to the Comcast-NBCUniversal transaction, so we

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[131] For example, see Peter Kennedy, *A Guide to Econometrics*, 6th Ed., pp. 139–141.

[132] For example, consider the Comcast headend in Chicago (Area 2&3) and the Comcast headend in Turnersville, NJ. Both of these headends have a raw capacity of **[[ ]]** MHz of bandwidth. However, the Chicago headend has **[[ ]]** channels in its digital lineup while the Turnersville headend has only **[[ ]]** channels in its digital lineup in the Rovi data. This difference is due in part to a difference in the number of broadcast channels carried (the Chicago headend has **[[ ]]** broadcast stations compared to Turnersville's **[[ ]]** and **[[ ]]** low power stations compared to Turnersville's **[[ ]]**), but is also due to a difference in cable channels such as "Windy City TV."

[133] We used data from the Rovi Corporation on channel lineups at every MVPD headend as of May 1, 2014. We estimated a logit model of the probability that a headend carries a Comcast network with the control variables listed in Table III.B.2. We have attempted to mimic the set of control variables identified in footnote 93 of the Comcast-NBCUniversal Order, Appendix B as closely as possible. Robust standard errors are clustered by MVPD.

applied the analysis to several sample network sets. We considered four sets of Comcast-affiliated national cable networks: (1) networks in which Comcast has a controlling interest and management rights and that have carriage rates of 5% to 90% across all MVPDs' headends; (2) all networks in which Comcast has a controlling interest and management rights; (3) Comcast-affiliated networks with between 5% and 90% carriage across all MVPDs' headends; and (4) all Comcast-affiliated networks.[134]

103. None of the regression results shows any evidence that Comcast is more likely to carry its own affiliated programming in areas where the combined share of DBS and telco MVPDs is lower (or vice versa). In fact, Table III.B.2 below shows that Comcast is slightly *less* likely to carry its own affiliated programming in areas where the market share of DBS and telco MVPDs is lower, as indicated by the positive coefficient on the interaction term between the Comcast indicator and the DBS + telco share in the DMA. Results are shown for both unweighted and weighted regressions, where each headend is weighted by the population of the zip codes it serves. For both the unweighted and weighted regressions, the coefficient of interest is estimated to be positive in all cases (in the unweighted regression the positive estimate is also statistically significant). This is the opposite of the negative and significant coefficient found by the Commission.

104. In short, even ignoring the significant conceptual flaws in the Goolsbee methodology, updating the data provides no basis to conclude that Comcast favors its own programming for anticompetitive reasons, or that the TWC and divestiture transactions will lead to anticompetitive program carriage concerns. Combined with its conceptual flaws, the Goolsbee methodology provides no empirical support for such conclusions.

[134] We consider Comcast-controlled and Comcast-affiliated networks with between 5% and 90% carriage because Goolsbee (2007) suggested that such networks with intermediate levels of carriage would provide the greatest incentives for strategic behavior and he restricted his analysis to networks with between 5% and 90% carriage. In the Comcast-NBCUniversal Order, Appendix B, the Commission followed a similar approach and considered national cable networks in which Comcast had a controlling interest and that were carried on "some but not most cable systems." The Commission excluded E! Entertainment Television from its analysis because it was "carried on nearly all systems." Comcast-NBCUniversal Order, Appendix B, ¶ 68.

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C. No Vertical Program Access Concerns

105. In our previous reports, we showed that the TWC and divestiture transactions raise no vertical program access concerns:

> Comcast will not gain incentives to withhold programming from other video distributors to attempt to benefit its distribution business. After the transaction, Comcast will account for a limited share of customers both nationally and in areas where it will acquire TWC systems. Retransmission consent and license fee revenue from Comcast's broadcast and cable networks have made licensing to other video distributors a productive and important part of the company's business. These facts, along with the strong competition from a broad range of other content providers, mean that denying other video distributors access to Comcast's affiliated programming (or charging above-market rates) could cost Comcast significant revenues while yielding limited benefit to the combined company's cable systems.[135]

In addition, the Commission's regulatory safeguards provide an additional backstop.

[135] April Report, ¶ 26; June Report, ¶¶ 36–49.

106. Various commenters have argued that because the transactions will increase the systems served by Comcast, it will increase Comcast's opportunity to attract subscribers from rival MVPDs if those MVPDs do not have access to Comcast-affiliated programming. This will in turn increase Comcast's opportunity cost of selling programming to rival MVPDs and thus increase Comcast's incentive and ability to withhold NBCUniversal programming from competing distributors or to charge them higher programming prices.[136] In addition, Professor Biglaiser states that because the transactions will lead to efficiency gains and increased programming negotiation leverage for Comcast, they will improve the profit margin of Comcast's cable business and give Comcast further incentive to attract subscribers from rival MVPDs by increasing its programming price to those MVPDs.[137]

107. Using marketplace data and economic theory, we show that these concerns are misplaced and the transactions will not lead to competitive harm. It is important to recall the points we made in our previous reports – the video programming and MVPD markets are competitive, and the transactions will not lead to significant changes in vertical integration between NBCUniversal programming and Comcast distribution. This alone should assuage many of the concerns about competitive problems in program selling.

108. Commenters point to the Commission's analysis and statements in the Comcast-NBCUniversal Order to justify their program access concerns about the current transactions. In the Comcast-NBCUniversal Order, the Commission analyzed affiliate fees before and after the vertical integration of Fox programming and DirecTV distribution and used the result of that analysis to support its conclusion that the Comcast-NBCUniversal transaction would lead to higher NBCUniversal affiliate fees after the transaction. In this report, we update the Commission's empirical analysis, using data from before and after the Comcast-NBCUniversal transaction, and find no evidence of an affiliate fee increase after the vertical integration of NBCUniversal programming and Comcast distribution. Overall, application of the Commission's methodology to this recent actual vertical integration provides no support for the Commission's conclusion that "… evidence from past vertical transactions supports our

[136] See, for example, Biglaiser Report, pp. 5–19; ACA Comment, pp. 15–20; and AAI Comment, pp. 19–20.
[137] Biglaiser Report, pp. 22–23.

conclusion that vertically integrating a video distributor and a national cable programmer leads to higher programming prices to rival MVPDs."[138]

109. In addition, in the Comcast-NBCUniversal Order, the Commission adopted theoretical models to simulate whether it would be profitable for Comcast-NBCUniversal to forego revenues associated with programming in order to attract subscribers from other MVPDs by restricting or raising the cost of the MVPDs' access to NBCUniversal programming. The Commission's analysis included two sets of models: (1) a vertical foreclosure model that theorized how the Comcast-NBCUniversal transaction would affect Comcast's incentives to permanently or temporarily withhold programming from competing MVPDs; and (2) a Nash bargaining model that theorized how the Comcast-NBCUniversal transaction would affect the fees that Comcast would charge rival MVPDs for NBCUniversal programming.[139]

110. We were asked by the Commission to update these vertical foreclosure and bargaining models and apply them to the TWC and divestiture transactions. As we explain in detail below, the Commission's theoretical models have a number of conceptual issues and limitations and thus cannot provide a reliable assessment of the impact of the proposed transactions. Despite these limitations, we have used recent data to calibrate the models to the proposed transactions, and found no evidence to support claims that the transactions would lead to significant price increases as a result of vertical integration. Finally, even if the competitive marketplace, the limited transaction-specific changes in vertical integration, and the clear picture that emerges from updating of the Commission's analyses were not enough, the Commission's regulatory safeguards remain in place.

1. Empirical Analysis Does Not Show Any Anticompetitive Vertical Price Effects from the Comcast-NBCUniversal Transaction

111. Because the Commission's theoretical models regarding foreclosure incentives and price effects of vertical integration require many assumptions and do not capture many of the complexities of real-world bargaining between content providers and MVPDs, the models cannot provide a reliable assessment of the potential impact of the proposed transactions. Therefore, we follow the Commission's approach in the Comcast-NBCUniversal Order to analyze empirically

[138] Comcast-NBCUniversal Order, Appendix B, ¶ 52.
[139] Comcast-NBCUniversal Order, Appendix B, ¶¶ 36–47.

how affiliate fees of NBCUniversal cable networks changed after the Comcast-NBCUniversal transaction.[140] The analysis finds negative and generally statistically insignificant price effects from the vertical integration of NBCUniversal cable networks with Comcast cable systems. We also analyze the retransmission consent fees of NBC O&O stations after the Comcast-NBCUniversal transaction and find that retransmission consent fees of NBC O&O stations remain considerably below the retransmission consent fees of other Big 4 broadcast stations post-transaction. Therefore, real-world prices of NBCUniversal programming do not support the position that the incremental vertical integration that arises in the current transactions will lead to higher NBCUniversal programming prices to rival MVPDs.[141]

a) NBCUniversal Cable Networks

112. In connection with the Comcast-NBCUniversal proceeding, the Commission ran a difference-in-differences regression to estimate the effect of an earlier vertical integration event on the prices of cable networks, comparing the affiliate fees of Fox cable networks to the affiliate fees of non-vertically integrated cable networks before, during, and after the 2004–2008 vertical integration of Fox programming and DirecTV distribution and estimated whether there was a significant increase in the prices of Fox networks during the period of integration.[142] It found that "the average monthly price per network for News Corp. programming is expected to be a statistically significant [**REDACTED**] higher than would be the case absent integration" and used that result to support its conclusion that "vertically integrating a video distributor and a national cable programmer leads to higher programming prices to rival MVPDs."[143]

113. There are both conceptual and empirical problems with the Commission's approach. First, programming fees are affected by a wide variety of factors, making it difficult to isolate the effect of vertical integration from those other factors. While a difference-in-difference framework is a well-accepted general methodology for isolating the effect of a particular "event"

[140] Comcast RSNs were already vertically integrated before the Comcast-NBCUniversal transaction and their vertical integration status was not affected by the transaction so the analysis is not applicable to Comcast RSNs.
[141] We understand that the programming prices were negotiated in the backdrop of the Commission's existing program access rules and the Comcast-NBCUniversal conditions. However, the results provide no support for vertical program access concerns since the NBCUniversal transaction. We also note that some commenters claim that the TWC relationship with BHN will increase the degree of vertical integration (see Biglaiser Report, pp. 14–15 and Kwoka Report, p. 14). The analysis in this section is applicable to that relationship as well and shows that such concerns are not problematic either.
[142] Comcast-NBCUniversal Order, Appendix B, ¶¶ 48–52.
[143] Comcast-NBCUniversal Order, Appendix B, ¶ 52.

from other factors, its reliability depends on identifying good controls.[144] In the context of the vertical integration of cable networks, identifying appropriate controls is very difficult due to large variation in networks' content and their value and importance to MVPDs and consumers. Second, analysis of a particular vertical integration event might not be particularly informative for other vertical integration events that differ in various dimensions. For example, Comcast systems that are vertically integrated with NBCUniversal programming will increase from approximately 22% to 29% of MVPD customers after the transactions. This increase in the share of MVPD subscribers involved in vertical integration is very different from the increase in the Comcast-NBCUniversal transaction where the Comcast systems integrated with NBCUniversal programming increased from 0% to 24% of MVPD subscribers. Because of the differences, any effect estimated from the NBCUniversal event may not be applicable to the current transactions.

114. Despite these limitations, we have conducted a difference-in-difference regression analysis, similar to the Commission's analysis, to study the affiliate fees charged by NBCUniversal cable networks before and after the Comcast-NBCUniversal transaction to see if there was a price effect due to the networks becoming part of a vertically integrated company. We use 2008 through 2013 as the sample period of our analysis, with three years of data (2008–2010) before the Comcast-NBCUniversal transaction and three years of data afterwards (2011–2013).

115. Under the Commission's program access models, a rival MVPD could only be meaningfully impacted by a foreclosure of programming if the programming being withheld is popular and important to the MVPD's subscribers. Small networks that account for a very limited amount of revenues would unlikely raise program access issues. Thus, we focus our analysis on popular NBCUniversal cable networks. Specifically, our treatment group is comprised of six NBCUniversal national cable networks that are in the top 50 national cable networks and were owned by NBCUniversal prior to the Comcast-NBCUniversal transaction ("legacy NBCUniversal cable networks"): Bravo, CNBC, MSNBC, Oxygen, Syfy, and USA.[145]

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[144] Angrist, J. D.; Pischke, J. S. (2008). Mostly harmless econometrics: An empiricist's companion (pp. 221–247). Princeton University Press.

[145] Among the cable networks in which NBCUniversal had full or partial ownership in 2010, besides the six in our sample, NBCUniversal has a minority interest in the Weather Channel but does not negotiate contracts for the network. It also used to have a minority ownership interest in the A&E family of networks but sold it in 2012. The remaining legacy NBCUniversal cable networks were not among the 2013 top 50 cable networks reported by SNL Kagan.

116. For a difference-in-differences analysis, it is important to find appropriate controls. In the current context, one consideration for selecting appropriate control networks is the popularity (or size) of a network. A popular (and thus widely distributed) network is more important to TV viewers and is more likely to be able to negotiate higher programming fees and possibly larger growth in fees. One way to account for the popularity or size of networks is to use those networks with revenues similar to the treatment NBCUniversal cable networks as controls. Thus, our analysis uses non-vertically integrated top 50 networks as controls.

117. In addition, even cable networks with similar revenues at a point in time may experience significantly different growth paths in affiliate fees over time. Appropriate control networks should have a growth path similar to NBCUniversal cable networks *before* the Comcast-NBCUniversal transaction so that one can assess the specific impact of vertical integration by examining how the affiliate fees of these control networks differ from those of NBCUniversal cable networks after the transaction. As a sensitivity check, we have included specifications that account for the growth of fees before the transaction by limiting the set of control networks to non-vertically integrated top 50 cable networks with average affiliate fee growth rates similar to that of NBCUniversal cable networks *before* the Comcast-NBCUniversal transaction (from 2008 to 2010). Specifically, the pre-event average annual growth rate of the treatment networks was between **[[ ]]**% and **[[ ]]**%. So we have limited the control networks in this sensitivity check to those non-vertically integrated top 50 cable networks with average annual growth rates of **[[ ]]**% to **[[ ]]**% during 2008 to 2010.

118. Following the Commission's approach in the Comcast-NBCUniversal Order, we run difference-in-differences regressions using the growth rate of fees as the dependent variable. We have also run a specification using the natural logarithm of fees as the dependent variable (as we explain in Section III.D below, using the natural logarithm controls for the variation in the scale of fees). Like the Commission, we define the measure of vertical integration as the percentage integrated during the past five years.[146] We also include network fixed effects and per subscriber programming investment of each cable network in the regressions.[147] See Technical Appendix for details of the control selection and regression specification.

[146] Comcast-NBCUniversal Order, Appendix B, ¶ 51.
[147] Comcast-NBCUniversal Order, Appendix B, ¶ 50.

119. As shown in Table III.C.1 below, in contrast to what the Commission found in the Comcast-NBCUniversal Order, none of the regression specifications finds a statistically significant positive correlation. Instead, the current regressions find a *negative* correlation between the vertical integration variable and the growth rate of affiliate fees or the logarithm of fees.

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120. The results of the analysis do not support the conclusion that vertical integration increased affiliate fees of NBCUniversal cable networks relative to the control networks after the Comcast-NBCUniversal transaction. These results, for a transaction that resulted in a significantly greater increase in vertical integration (Comcast's vertical overlap with respect to NBCUniversal cable networks increased from 0% to 24%) than the current transactions, do not support the position advanced by commenters that the vertical integration between NBCUniversal national cable networks and the cable systems that Comcast will acquire from

TWC and Charter (an increase in Comcast's vertical overlap from 22% to 29%) will lead to transaction-specific affiliate fee increases.

b) NBC O&O Stations

121. Next, we analyze the retransmission consent fees of NBC O&O stations after vertical integration with Comcast.[148] There are several considerations to keep in mind when comparing NBC O&Os' retransmission consent fees to those of other Big 4 broadcasters. First, retransmission consent fees for many stations have increased dramatically in the years just before and after the Comcast-NBCUniversal transaction.[149] Because of these dramatic changes, variation in the level and growth of retransmission consent fees over time may have been greatly affected by factors such as the renewal dates of existing contracts, the length of contracts signed, and other networks included in the negotiations, making it difficult to identify appropriate controls for a regression analysis.

122. As a result, even stations that may be expected to have similar retransmission consent fees could differ greatly in the fees that they receive at a particular point in time. For example, SNL Kagan reports that NBC O&O stations charged a **[[ ]]** retransmission consent fee in 2010 while all other Big 4 O&Os and broadcast station groups with Big 4 network affiliates charged **[[ ]]** retransmission consent fees. Therefore, it would not be surprising if NBC O&O stations' fees would **[[ ]]** than other O&O and Big 4 network affiliate fees regardless of vertical integration.[150] Similarly, given the rapidly changing marketplace during this period, it would not be surprising if some of the station group owners with lower retransmission consent fees were able to raise their fees more rapidly than those station group owners already charging higher fees.

123. Due to the lack of data to account for the factors above, it would be inappropriate to run a difference-in-difference regression for NBC O&O stations as we did for NBCUniversal cable

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[148] The Commission did not analyze the impact of vertical integration on Fox O&O retransmission consent fees in the Comcast-NBCUniversal Order, Appendix B.

[149] SNL Kagan, "Average Retrans Per-Sub Fees Up 45.6% YOY for TV Station Owners."

[150] According to Steve Burke, the CEO of NBCUniversal, "We will, as contracts come up, get those revenues the same way as CBS, ABC and Fox have. There may be a little bit of a lag, because our contracts may come up at a later date than some of the other broadcasters, but we have gone from essentially zero a couple of years ago to $200 million this year. I see no reason why we won't draft behind the other broadcasters and get paid in a similar fashion to the way they get paid in the future." Mike Farrell, "Burke: NBC Retrans Revenue to Reach $200M in 2013," *Multichannel News*, 9/11/13, available at http://www.multichannel.com/cable-operators/burke-nbc-retrans-revenue-reach-200m-2013/145410.

networks above. Based on the limited data we have, we compare the average level of retransmission consent fees for NBC O&O stations, other Big 4 O&O stations, and broadcast station groups carrying Big 4 affiliate stations.[151]

124. As shown in Table III.C.2 below, the average retransmission consent fee of NBC O&Os in 2013 (**[[ ]]**) remained considerably lower than those of other Big 4 O&O stations and broadcasters of Big 4 affiliate stations, including Fox O&O stations (**[[ ]]**), CBS O&O stations (**[[ ]]**) and ABC O&O stations (**[[ ]]**), as well as seven of the nine broadcast groups tracked by the SNL Kagan report.

[151] SNL Kagan, "Average Retrans Per-Sub Fees Up 45.6% YOY for TV Station Owners." The average retransmission fee of each group of O&O stations is calculated as the group's 2013 retransmission fees divided by the number of subscribers of the O&O stations (SNL Kagan, "Broadcast TV Network O&O Station Retrans Revenue Projections 2012–2018").

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125. The retransmission consent fee estimates above suggest that, following the Comcast-NBCUniversal transaction, NBC O&O retransmission [[

]] even though NBC O&Os were vertically overlapped with Comcast distribution to a substantial degree in seven DMAs. This evidence does not support a conclusion that the additional vertical overlap resulting from the current transactions will lead to transaction-specific retransmission consent fee increases.[152]

[152] The additional vertical overlap of NBC O&Os and Comcast distribution arising in the current transactions is considerably less than the vertical overlap that arose in the Comcast-NBCUniversal transaction. Specifically, after the Comcast-NBCUniversal transaction, DMAs with vertical overlap between NBC O&Os and Comcast systems include Chicago ([[ ]]%), Hartford-New Haven ([[ ]]%), Miami ([[ ]]%), New York ([[ ]]%), Philadelphia ([[ ]]%), San Francisco-Oakland-San Jose ([[ ]]%), and Washington DC ([[ ]]%). The current transactions will increase Comcast's vertical overlap with NBC O&Os in five DMAs, including Dallas-Ft.Worth (from no overlap to

126. In sum, empirical analysis of the pricing of NBCUniversal cable networks and NBC O&O stations finds no evidence of any price increase due to the vertical integration from the Comcast-NBCUniversal transaction. The empirical methodology that the Commission relied upon for assessing the effect of vertical integration in the Comcast-NBCUniversal transaction suggests that such concerns are not present in the current transactions.

2. The Commission's Vertical Foreclosure Model Provides No Support for Any Anticompetitive Conclusions

127. In addition to its empirical analysis of vertical price effects, the Commission adopted two theoretical models to assess the effect of vertical integration on Comcast's incentives in negotiation with MVPDs. In Section A of its Comcast-NBCUniversal Order, Appendix B, the Commission analyzed Comcast's incentives to permanently or temporarily withdraw signals of NBC O&O stations from DBS and telco MVPDs. The Commission's analysis consisted of three steps.

- First, the analysis assumed that, if an MVPD loses access to NBC O&O programming, the MVPD will lose subscribers at a certain rate ("departure rate"), and the departing subscribers will switch to Comcast at a certain rate ("diversion rate"). Under the Commission's theory, the higher the departure rate, the more likely that Comcast's gain of MVPD profit will exceed its loss of programming profit if it withholds programming from the MVPD, controlling for the diversion rate, Comcast's MVPD profit, NBCUniversal programming profit (from advertising revenues and retransmission fees), and other parameters. Thus, the Commission's analysis used a *theoretical* foreclosure model to estimate a critical departure rate above which Comcast would have an incentive to foreclose other MVPDs.

- Second, the Commission estimated the actual subscriber departure rate that might occur following a hypothetical temporary loss of NBC O&O programming. The estimation was based on data from the 2008–2009 Fisher-Dish dispute in which

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[[ ]]%), Los Angeles (from no overlap to **[[ ]]**%), San Diego (from no overlap to **[[ ]]**%)), Hartford-New Haven (from **[[ ]]**% to **[[ ]]**%) and New York (from **[[ ]]**% to **[[ ]]**%)).

programming from Fisher's ABC, CBS, and Fox affiliates in seven DMAs was withheld from Dish during a six-month retransmission consent dispute.

- Third, the Commission compared the theoretical critical departure rate to the estimated actual departure rate. Because the Commission's preferred calibration of the temporary foreclosure model produced a theoretical critical departure rate less than the actual departure rate the Commission estimated from the Fisher-Dish dispute, the Commission concluded that Comcast would likely profit from temporarily withholding NBC O&O programming from rival MVPDs after the Comcast-NBCUniversal transaction.

128. The theoretical model underlying the Commission's permanent and temporary foreclosure analysis has a number of conceptual issues and limitations that undermine the reliability of its results. First, the theoretical model does not capture many important features of real-world negotiations between content providers and MVPDs. The model focuses on trade-offs between short-term programming profits and MVPD profits but ignores how withholding programming from rival MVPDs could harm Comcast/NBCUniversal in the long run. For example, withholding programming from MVPDs could jeopardize the programming's popularity among consumers and give other MVPDs more incentives to purchase competing programming, both of which could harm Comcast's programming revenues (including both license fees and advertising sales) over time but are not accounted for by the model. Foreclosure may also harm the reputation of NBCUniversal and give producers of shows and other programming more incentives to work with other broadcast or cable networks, or OVDs, instead of with NBCUniversal. In addition, the model does not account for the Commission's program access rules or the additional program access conditions adopted in the Comcast-NBCUniversal Order, both of which provide further assurance against any program access concerns about vertical foreclosure and pricing effects.

129. Second, the model relies on a series of assumptions about factors such as the rate at which consumers who leave a rival MVPD may switch to Comcast. For example, the model assumes that the percentage of departing consumers who switch to Comcast (the "diversion rate") is proportional to Comcast's and other MVPDs' shares, and does not take into account that

certain programming may be available from non-MVPD outlets. In addition, the model relies on assumptions about the rates at which customers who switch would return to their original MVPD after the foreclosed programming is restored. However, there is little empirical evidence to support these assumptions.

130. Third, the model requires estimates of the actual departure rate that would occur after programming of interest (which was NBC O&O programming in the Commission's analysis) was withheld from an MVPD. We are aware of no situations where NBC O&O programming has been withheld. Thus, estimating a departure rate applicable to NBC O&O programming requires looking at other retransmission disputes where other programming was withheld and controlling for differences in the programming and MVPDs involved, differences in the characteristics and preferences of customers of different MVPDs, differences in the competitive environment and the specific markets at issue, and differences in other factors that influence subscriber departure rates.[153] Because it is difficult to control for all of these differences, estimates of subscriber departure rates from a particular event when programming was withheld may not provide a reliable benchmark to assess the likelihood of Comcast foreclosure of different programming to a different MVPD in a different time period.

131. Furthermore, because the video programming marketplace has been evolving rapidly in recent years, older events such as the 2008–2009 Fisher-Dish event and the 2004 News Corp.-Hughes merger that the Commission relied upon in the Comcast-NBCUniversal transaction likely do not provide reliable information about MVPD subscriber behavior in 2015 and beyond, the time period relevant for assessing the competitive effects of the current transactions. For example, access to programming online provides an additional viewing option for consumers and may reduce departure rates even if the MVPD does not carry certain NBCUniversal programming.

132. The Commission requests that critical departure rates be calculated for NBCUniversal cable networks and Comcast and TWC RSNs, as well as for NBC O&Os. In addition to the difficulties outlined above, the lack of proper benchmarks to compare with the theoretical critical

[153] As just one example, DirecTV is the exclusive provider of NFL Sunday Ticket, which is highly valued by certain of its subscribers. At the same time, Dish may have more price sensitive subscribers as it markets more low-cost options. Thus, information derived from an event where programming was withheld from Dish may not be particularly informative about what would happen if similar programming were withheld from DirecTV.

departure rates is a serious limitation for applying the Commission's foreclosure analysis to NBCUniversal cable networks and Comcast and TWC RSNs. For NBCUniversal cable networks, there have been no recent blackout events that cover all the programming at issue. Moreover, the wide variation in content available on different cable networks makes it very difficult to identify blackout events for other cable network programming that is sufficiently comparable to NBCUniversal's cable network programming to make it a reasonable benchmark.

133. For Comcast and TWC RSNs, while there are MVPDs not carrying particular RSNs for short or long periods of time, such events may not provide reliable evidence for use as a benchmark for assessing departure rates after a hypothetical foreclosure of the RSNs at issue. The importance of an RSN to a particular MVPD's subscribers may vary greatly depending on factors such as the popularity of the team(s) carried by the RSN, how well the team(s) is doing at a particular point in the season, whether a carriage interruption occurs during the season or the off-season, other sports (and general) programming available to consumers, and the alternative ways for TV viewers to access programming related to the team(s), such as through local broadcast stations, through national sports networks like ESPN, through the Internet (e.g., MLB.com, NHL.com and NBA.com), or through radio. It is difficult to estimate actual departure rates applicable to the RSNs at issue because controlling for all of these factors across areas and over time leads to large margins of error, not to mention the need to extrapolate beyond the scope of the data.

134. Finally, the Commission's theoretical foreclosure model does not take into account the transaction-related efficiency gains that could benefit consumers and their impact on incentives. Therefore, the model does not provide a full picture of the impact of the proposed transactions.

135. Despite these significant limitations, we have applied the Commission's foreclosure model to NBC O&O stations, NBCUniversal cable networks, and Comcast and TWC RSNs. We have also compared the computed theoretical critical departure rates to the limited information available regarding actual departure rates when programming was withheld. Our analysis of recent retransmission consent disputes shows that estimates of actual departure rates are small and generally far below the theoretical critical departure rates, which means there is no evidence to support arguments that the proposed transactions raise any program access foreclosure concerns.

a) Foreclosure Analysis for NBC O&O Stations

136. As explained in our April and June reports, five of the ten NBC O&O stations (Chicago, Miami, Philadelphia, San Francisco, and Washington DC) will not be affected by the transactions because Comcast will acquire no or very few cable systems in the stations' footprints.[154] As a result, the proposed transactions will have zero or close to zero incremental effect on the critical departure rates for these five NBC O&O stations.

137. Comcast will acquire TWC or Charter systems serving a non-trivial number of subscribers in five DMAs where there is an NBC O&O station: Dallas, Hartford-New Haven, Los Angeles, New York, and San Diego. For the New York and Hartford-New Haven DMAs where Comcast is currently present, we compute pre-transaction and post-transaction critical departure rates, with the difference between the pre- and post-transaction rates being the transaction-specific effect on critical departure rates. Because Comcast currently has no cable systems in Dallas, Los Angeles, and San Diego, we calculate only the post-transaction critical departure rates for the NBC O&O stations in those three DMAs to estimate the effect of the transactions.

138. Although we have calculated critical departure rates individually for each NBC O&O as requested by the Commission, we understand that **[[**

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Therefore, we have applied the Commission's foreclosure analysis to an additional scenario: **[[ ]]**.

139. In the Comcast-NBCUniversal transaction, the Commission calculated critical departure rates for the temporary foreclosure of DirecTV, Dish, AT&T, and Verizon separately and for the permanent foreclosure of these MVPDs combined. We have done the same here. In addition, we have also run the permanent foreclosure model for each MVPD separately because anticompetitively foreclosing all these MVPDs permanently is highly unlikely in reality as it would be very costly and damaging to NBCUniversal programming and would attract considerable regulatory attention. We have also performed the Commission's foreclosure

[154] April Report, ¶ 218; June Report, ¶ 37.

analysis for RCN because RCN raised vertical program access concerns in its comments about the current transactions.

140. We present results of the permanent foreclosure analysis for two scenarios: (1) foreclosure of DirecTV, Dish, AT&T, Verizon, and RCN separately; and (2) foreclosure of all five rival MVPDs at the same time. For the temporary foreclosure analysis, we present the results for the foreclosure of each rival MVPD separately. For both the permanent and temporary foreclosure analyses, we calculate theoretical critical departure rates for each NBC O&O station affected by the transactions and for all NBC O&Os as a group. Similar to the Commission's approach in the NBCUniversal Order, we use MVPDs' share of subscribers in each DMA to calculate the diversion ratios. We also adopt similar assumptions to the Commission regarding over-the-air watching, online video viewing, the nonlinearity of advertising revenues, and other parameters. See Technical Appendix for further details of the critical departure rate calculation.

141. Below, we show the calculated theoretical critical departure rates and the estimates of actual departure rates, and then compare the two sets of rates.

(1) Critical Departure Rates Based on the Commission's Permanent and Temporary Foreclosure Models

142. Table III.C.3 shows the calculated critical departure rates for permanent foreclosure of the five NBC O&O stations at issue. For individual NBC O&O stations in DMA where Comcast is present both pre- and post-transaction, the change in the critical departure rate is around **{{ }}**% for the Hartford-New Haven NBC O&O and is in the range of approximately **{{ }}**% to **{{ }}**% for the New York NBC O&O. For each of the five NBC O&Os, the post-transaction critical departure rate is **{{ }}** – **{{ }}**% for the foreclosure of rival MVPDs combined and generally in the range of **{{ }}**% to **{{ }}**% for the foreclosure of a single rival MVPD. To put this in context, a critical departure rate of 30%, for example, implies that 30% or more of an MVPD's subscribers would need to leave that MVPD in response to the withholding of NBC O&O programming in order for such withholding of NBC O&O programming to be profitable in theory for Comcast. These critical departure rates show that the actual departure rate in a permanent foreclosure event would have to be very high for the theoretical model to imply that Comcast would have an incentive to foreclose MVPDs.

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143. For the temporary foreclosure analysis, we calculate critical departure rates for a one-month foreclosure event rather than for a six-month event as the Commission did in the Comcast-NBCUniversal Order. This is because the length of the foreclosure event is determined by the length of the actual event(s) used to estimate the actual departure rates under the Commission's approach. Because of rapid changes in the video marketplace in recent years, the 2008–2009 Fisher-Dish event (which lasted six months) that the Commission relied upon last time may not provide a reliable benchmark for departure rates in 2015 and beyond. Thus, we use two more recent events to estimate the departure rate, a 2013 retransmission consent dispute between Media General and Dish that lasted 46 days and a 2013 retransmission consent dispute between CBS and TWC that lasted 32 days. Since these more recent blackout events lasted one month or so, we use a one-month event window.

144. Table III.C.4 shows the critical departure rate calculated for temporary foreclosure of the five NBC O&O stations at issue. The results show that, for NBC O&O stations in DMAs where Comcast is present both pre- and post-transaction, the change in the critical departure rate ranges from {{ }}% to {{ }}% for the Hartford-New Haven NBC O&O and from {{ }}% to {{ }}%

for the New York NBC O&O. For the five NBC O&Os, the level of post-transaction critical departure rate ranges from around {{ }}% to {{ }}%. As we show below, these critical departure rates {{ }} estimates of actual departure rates, implying that there are no temporary foreclosure issues.

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145. As discussed above, we understand that current practice is that **[[**

]]. Table III.C.5 shows the critical departure rate calculated for permanent and temporary foreclosure of all NBC O&O stations in the footprint of Dish, DirecTV, AT&T, Verizon, and RCN. For individual MVPDs, the transaction-related change ranges from {{ }}% to {{ }}% for the permanent foreclosure model and from {{ }}% to {{ }}% for the temporary foreclosure model. The level of post-transaction critical departure rates range from {{ }}% to {{ }}% for permanent foreclosure and {{ }}% to {{ }}% for temporary foreclosure. For permanent foreclosure of all MVPDs combined, the change in critical departure rate is around {{ }}% and the post-transaction critical departure rate is {{ }}%.

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146. As explained above, these theoretical critical departure rates derived from the Commission's foreclosure models should be compared to actual departure rates estimated from comparable actual blackout events to accurately determine whether Comcast would have an incentive to withhold NBC O&O programming. We estimate the actual departure rates in the next section.

(2) Actual Departure Rates

147. In the Comcast-NBCUniversal transaction, the Commission used an actual departure rate estimated based on the 2008–2009 Fisher-Dish dispute and compared that rate to the theoretical critical departure rates derived from the Commission's foreclosure models. The departure rate estimate for the Fisher-Dish dispute is confidential and not available to us. Moreover, as we discussed above, the 2008–2009 Fisher-Dish event may not provide a reliable benchmark for departure rates in 2015 and beyond. In addition, we are aware of no situations where NBC O&O programming has been withheld. Thus, we use two more recent events involving Big 4 affiliate stations and other Big 4 O&O stations to estimate the actual departure rate for a temporary foreclosure of NBC O&O stations: the 2013 retransmission consent dispute between Media General and Dish and the 2013 retransmission consent dispute between CBS and TWC.

148. Among the retransmission blackout episodes since 2012 (tracked by SNL Kagan), the dispute between Media General and Dish (which lasted 46 days from October 1, 2013 to November 16, 2013) is the only one that involved a major rival MVPD of Comcast (i.e., DirecTV, Dish, AT&T, or Verizon), affected more than five DMAs (including some top 50 DMAs), and lasted longer than 30 days. The dispute affected all 17 Big 4 broadcast stations owned by Media General in 17 markets, including eight NBC affiliate stations. See Technical Appendix for details of the selection of blackout events for our analysis.

149. We first examine Dish's subscriber growth rate in the DMAs where it lost access to Media General's broadcast stations (the "treatment DMAs") and in a set of "control DMAs" where Dish did not lose access to Big 4 network affiliate programming. In the Comcast-NBCUniversal Order, Appendix B, the Commission stated that it identified control DMAs by matching unaffected DMAs to the treatment DMAs. However, the criteria used for the matching were confidential and not available to us. For the current analysis, we select control DMAs that are similar to the treatment DMAs in size and/or in geographic location, but in which Dish did not lose access to Big 4 broadcast stations (see Technical Appendix for details).

150. Table III.C.6 below compares Dish's subscriber growth rates inside Media General's footprint (where Dish lost access to Media General's broadcast stations) to comparable DMAs outside Media General's footprint (where Dish did not lose access to programming) before, during and after the programming dispute. The comparison finds that there was **[[ ]]** in the difference between Dish's subscriber growth rate in the treatment DMAs and that in the control DMAs during the dispute. Specifically, the difference between Dish's subscriber growth rate in the treatment DMA and that in the control DMAs **[[ ]]** during the dispute (4Q2013) relative to the quarter before the dispute (3Q2013), from **[[ ]]**% to **[[ ]]**%, and continued to **[[ ]]** after the dispute ended (to **[[ ]]**% in 1Q2004). The results are similar if the affected DMAs are limited to those in which Media General operates an NBC station (to test whether there is some NBC effect that differs from the other Big 4 networks). Again, the difference in subscriber growth rates between the treatment and control DMAs **[[ ]]** during the dispute relative to the quarter before the dispute (from **[[ ]]**% to **[[ ]]**%) and continued to **[[ ]]** after the dispute ended (to **[[ ]]**% in 1Q2004).

Overall, a simple comparison of subscriber growth rates finds no evidence that the dispute had any adverse effect on Dish's subscriber growth in the affected DMAs.

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151. Next, to estimate the departure rate in the Media General-Dish event, we follow the Commission's approach in analyzing the 2008–2009 Fisher-Dish event in the Comcast-NBCUniversal Order. Specifically, we run a regression of natural logarithm of Dish subscribers on quarterly and DMA fixed effects and an interaction term between a dummy for affected DMAs and the dummy for the quarter of the blackout (4Q2013). The regression uses one year of quarterly data, from 2Q2013 through 1Q2014. According to the Commission's approach, the coefficient for the interaction term represent the percentage change of Dish subscribers in affected DMAs relative to control DMAs as a result of the blackout.

152. Table III.C.7 below shows the regression results. None of the specifications finds a statistically significant effect during the blackout period. Because we only have quarterly subscriber data for the event and the blackout happened in the first half of 4Q2013, it is conceivable that the quarterly subscriber count captured the net effect of subscribers leaving Dish as the result of the blackout and those departing subscribers returning to Dish during the second half of 4Q2013, after the blackout ended. Therefore, the evidence is inconclusive as to whether there is a significant actual departure rate associated with this event. However, to the

extent that the net effect of the blackout event was [[ ]] by the end of 4Q2013, it implies that the temporary foreclosure of the Media General network affiliates had no lasting effect on Dish subscribers beyond two months.

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153. We also consider evidence on departure rates from TWC during its August 2013 dispute with CBS that led to a 32-day blackout (from August 2 through September 2, 2013) of the CBS O&O stations in six DMAs (Boston, Dallas-Ft. Worth, Denver, Los Angeles, New York, and Pittsburgh). CBS also blocked all TWC's broadband subscribers' access to CBS.com during the dispute. Around the same time, TWC also had a retransmission consent dispute with Journal Broadcasting that lasted from July 25, 2013 to September 20, 2013 and resulted in blackout of CBS affiliate stations in four DMAs (Green Bay, Wisconsin; Milwaukee, Wisconsin; Omaha, Nebraska; and Palm Spring, California).

154. Despite the significant publicity surrounding the CBS-TWC dispute, its relevance for assessing vertical foreclosure incentives in the current transaction is limited since Comcast does not have even a theoretical anticompetitive incentive to withhold NBC O&O programming from cable MVPDs such as TWC with which it does not compete. In addition, the departure rate from

a cable company like TWC in areas including Manhattan may be very different than departure rates from other MVPDs in other areas. This is because TWC is a cable company, while the estimated departure rate of interest would be for DBS companies, telcos, or overbuilders whose subscribers may have different characteristics. In addition, market conditions faced by TWC systems in the areas affected by the dispute may also differ from the areas to which the estimate would be applied. Thus, departure rates from TWC during the CBS-TWC programming dispute may not be informative regarding Comcast's vertical incentives with respect to its rival MVPDs. Despite these limitations, we use this event as an additional estimate of actual departure rates after the withholding of a single Big 4 network.

155. We follow the same steps as we did with the Media General-Dish blackout. Using data on monthly TWC video subscriber counts by DMA, we first compare the changes in subscriber counts in DMAs affected by the blackout and control DMAs.[155] Like the analysis of the Media General-Dish event above, our control DMAs include DMAs that are similar to the affected DMAs in size and/or in geographic location, but in which TWC did not lose access to CBS broadcast stations. Because the DMAs affected in the CBS-TWC event were mostly large DMAs such as New York and Los Angeles, our control DMAs include all Top 50 DMAs in which TWC has a significant presence. For each affected DMA, we also include the two unaffected TWC DMAs closest in size in the Census region of the affected DMA. The control DMAs exclude the four DMAs that were affected by the Journal Broadcasting-TWC dispute. See Technical Appendix for details of the selection of control DMAs for the CBS-TWC event.

156. Table III.C.8 below shows 12 months of subscriber growth rates in the affected and control DMAs, from February 2013, the first month for which we can calculate the growth rate, through January 2014. **{{**

}}. In August 2013, the month of the CBS-TWC dispute, there was a **{{** **}}** in the difference in subscriber growth rates between the affected and control DMAs (from **{{** **}}**% in July to **{{** **}}**% in August). The difference **{{** **}}**% in September, possibly due to a lag in the effect of the blackout. As the blackout ended in early September, the trend in the

[155] Unlike in the Media General-Dish dispute where we needed to rely on Kagan data for video subscriber counts, we rely on confidential TWC data on monthly subscribers.

difference between affected and control DMAs {{ }}% in October and November before {{ }}% in December. The simple comparison of subscriber growth rates suggests that the blackout's effect was likely primarily in September of 2013, with probably some small effect in August of 2013.

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157. Next, to estimate the departure rate in the CBS-TWC event, we again follow the Commission's approach in analyzing the Fisher-Dish event. Specifically, we run a regression of the natural logarithm of subscribers on monthly and DMA fixed effects and interaction terms between a dummy for affected DMAs and dummy variables for August and September of 2013 (the period impacted by the blackout). Under the Commission's approach, the coefficients of the interaction terms estimate the percentage change of TWC subscribers in affected DMAs relative to control DMAs as a result of the blackout. The regression uses one year of monthly data, from February 2013 through January 2014. To give DMAs where TWC has more subscribers more weight, we use the subscriber count in January 2013 as the weights. We also show the results of regressions without the weights.

158. Table III.C.9 shows the regression results. The unweighted regression finds no statistically significant blackout effect {{

}}. The weighted regression does not find a statistically significant effect in August, but finds a statistically significant effect in September 2013 – the coefficient estimate for the interaction between September and affected DMAs is {{ }},

implying that the subscriber loss rate in the affected DMAs was about {{ }} than that in the control DMAs during the window of the CBS blackout.

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159. Overall, our analysis finds no conclusive evidence for a statistically significant actual departure rate for the Media General-Dish programming dispute, but finds a statistically significant estimated actual departure rate ({{ }}%, with a standard error of {{ }}%) in September 2013 for the CBS-TWC programming dispute. As we explained earlier, because, among other things, TWC does not compete with Comcast, the CBS-TWC result may not provide a reliable benchmark departure rate for MVPDs that do compete with Comcast. Nonetheless, we assume that the actual departure rate for NBC O&O stations would be {{ }}%, the same as the rate estimated from the CBS-TWC event.

(3) Compare Theoretical Critical Departure Rates to Actual Departure Rates

160. The estimated actual one-month temporary departure rate of **{{ }}**% for NBC O&O stations is **{{ }}** than all theoretical one-month temporary foreclosure critical departure rates calculated above (in Tables III.C.3, III.C.4 and III.C.5). Therefore, the Commission's theoretical foreclosure model does not suggest any temporary foreclosure concerns for NBC O&O stations.

b) Foreclosure Analysis for NBCUniversal National Cable Networks

161. Next, we apply the Commission's foreclosure model to NBCUniversal national cable networks. Comcast currently has a controlling interest and management right in 17 nationally distributed cable networks including Bravo, Chiller, Cloo (formerly Sleuth), CNBC, CNBC World, E!, Esquire Network (formerly Style), G4, Golf Channel, MSNBC, mun2, NBC Sports Network (formerly Versus), Oxygen Network, Sprout, SyFy, Universal HD, and USA. These networks constitute the set of national cable networks examined in our foreclosure analysis. While Comcast (and TWC) has some interest (or attributable interest) in a few other national networks such as NHL Network and MLB Network, it is our understanding that Comcast does not negotiate the contracts for those networks and is not in a position to withhold the networks from rival MVPDs. Therefore, we do not include these networks in our foreclosure analysis.

162. Similar to our application of the Commission's foreclosure model to NBC O&O stations, we apply the Commission's model to compute critical departure rates for theoretical permanent and temporary foreclosures of DirecTV, Dish, AT&T, Verizon, and RCN separately. For permanent foreclosure, we have also modeled the extremely unlikely scenario of the five MVPDs being foreclosed at the same time. For the temporary foreclosure analysis, we use a one-month event window for the same reasons noted above.

(1) Critical Departure Rates Based on the Commission's Permanent and Temporary Foreclosure Models

163. Table III.C.10 shows the critical departure rate estimates for permanent and temporary foreclosure of the bundle of NBCUniversal national cable networks. For permanent foreclosure, the theoretical critical departure rates **{{ }}** by an amount ranging from **{{ }}**% to **{{ }}**%, but level of post-transaction theoretical critical departure rates are **{{ }}**, ranging

from {{ }}% to {{ }}%. For temporary foreclosures, the change in the rates is between {{ }}% and {{ }}%, with the level of post-transaction theoretical critical departure rates ranging from {{ }}% to {{ }}%.

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(2) Actual Departure Rates

164. In the Comcast-NBCUniversal transaction, the Commission did not use an actual blackout event to estimate an actual departure rate due to the withholding of NBCUniversal cable networks. Instead, the Commission inferred a departure rate by applying a theoretical model proposed by DirecTV's expert Professor Kevin Murphy based on assumptions about the bargaining between NBCUniversal and MVPDs, and observed affiliate fees for NBCUniversal networks. Professor Murphy's model was based on confidential data not available to us. The merging parties' experts Professor Michael Katz and Dr. Mark Israel assumed that the actual departure rate due to the withholding of NBCUniversal cable networks would be half (1/2) of the departure rate for withholding of NBC O&O stations. Professor Rogerson has suggested that the departure rate due to foreclosure of NBCUniversal cable networks "would be at least comparable in size to the departure for an individual Big 4 broadcast network."

165. The Commission's discussion in the Comcast-NBCUniversal Order, Appendix B appeared to suggest that the Commission believed NBC O&O stations were more important to consumers than NBCUniversal cable networks. Specifically, in the Commission's analysis of the transaction's vertical price effect, it assumed that NBC O&O stations would receive 2/3 of the surplus from a carriage agreement with MVPDs while NBCUniversal cable networks would receive 1/2 of the deal surplus, the same as MVPDs. While the Commission described this parameter as a measure of relative bargaining skills of negotiating parties, it acknowledged that the parameter reflected the popularity of the programming involved in the negotiation. If so, the difference in the Commission's assumed parameter values for NBCUniversal cable networks and NBC O&Os presumably reflects the difference in the popularity and importance of the programming.

166. Because the actual departure rate is determined in large part by the programming's popularity and importance to consumers, the Commission's assumptions suggests that the actual departure rate for NBCUniversal cable networks is likely lower than that for NBC O&O stations. If the ratio of the Commission's assumed shares of deal surplus that would be received by the two sets of programming reflects the relative importance of the programming and the ratio of departure rates related to the programming, the NBCUniversal cable networks would have a departure rate **{{ }}** that of the NBC O&O stations. In that case, a rough estimate of the actual departure rate for NBCUniversal cable networks would be **{{ }}** as our estimated actual departure rate for NBC O&O stations is **{{ }}**%.

(3) Compare Theoretical Critical Departure Rates to Actual Departure Rates

167. The assumed actual one-month temporary departure rate of **{{ }}**% for NBCUniversal cable networks is **{{ }}** than all theoretical one-month temporary foreclosure critical departure rates computed above (in Table III.C.10). Therefore, the Commission's theoretical model does not suggest any concern that Comcast will have any incentive to temporarily foreclose its rivals' access to NBCUniversal cable networks

c) Foreclosure Analysis for Comcast and TWC RSNs

168. Comcast owns interests in nine RSNs that carry major league professional sports. Of these nine Comcast RSNs, CSN New England (carrying the Boston Celtics) is the only RSN for which Comcast's share of subscribers will have a material increase after the transactions. Thus, we apply the Commission's foreclosure model to CSN New England. As explained in our previous reports, six of the other RSNs (CSN Chicago, CSN Houston, CSN California, CSN Philadelphia, CSN Mid-Atlantic, and CSN Bay Area) will see zero or minimal change in Comcast's share of subscribers within the core footprint of the RSNs. A seventh RSN, CSN Northwest, is not carried by any of the four major rival MVPDs, so there is not a foreclosure issue. For the eighth RSN, SportsNet New York, Comcast will remain a minority owner after it acquires TWC's interest in the RSN, so it will not gain any ability to withhold SportsNet New York from other MVPDs. Since there is no transaction-specific vertical integration for these other RSNs, we do not apply the Commission's foreclosure model to them.

169. Among the TWC RSNs in which Comcast will have a controlling interest after the TWC transaction, only TWC SportsNet in Los Angeles carries major professional sports (the Lakers) in English. Comcast currently does not have cable systems in Los Angeles, and there is already vertical overlap between TWC SportsNet and TWC's Los Angeles cable systems, so the TWC transaction does not raise any transaction-specific vertical issues for TWC SportsNet. However, Comcast will acquire some Charter cable systems in the core footprint of TWC SportsNet. As a result, the theoretical critical departure rates for TWC SportsNet would change post-transaction. Thus, we apply the Commission's foreclosure model to TWC SportsNet.

170. As part of the transactions, Comcast will take over distribution and operational services for SportsNet LA in Los Angeles, which carries the Dodgers. However, the RSN is currently not carried by any of the major rival MVPDs so there is no transaction-specific foreclosure issue. Therefore, we do not apply the Commission's foreclosure model to SportsNet LA.

(1) Critical Departure Rates Based on the Commission's Permanent and Temporary Foreclosure Models

171. Table III.C.11 shows theoretical critical departure rates for permanent and temporary foreclosure for CSN New England and TWC SportsNet. We consider the scenarios where each

rival MVPD individually experiences permanent or temporary foreclosure and the unlikely scenario where all five rival MVPDs are permanently foreclosed at the same time.

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(2) Actual Departure Rates

172. In the Comcast-NBCUniversal Order, the Commission did not compute critical departure rates or estimate actual departure rates for RSNs. As we noted earlier, the potential departure rate from an MVPD that loses access to an RSN may vary greatly across different MVPDs and RSNs due to multiple factors. As a result, it is very difficult to find reliable benchmarks for the departure rate from CSN New England and TWC SportsNet. Without a reliable benchmark from empirical data, we assume, for the purposes of this analysis, that each RSN has the same departure rate as the NBCUniversal cable networks. Thus, our calculations assume that the RSNs have a departure rate of {{ }}% (with a standard error of {{ }}%).

(3) Compare Theoretical Critical Departure Rates to Actual Departure Rates

173. The estimated actual temporary departure rate of {{ }}% is {{ }} than all the post-transaction critical departure rates for temporary foreclosure computed above (in Table III.C.11). Thus, the Commission's theoretical foreclosure model does not provide support for any transaction-specific foreclosure concerns for CSN New England and TWC SportsNet.

3. The Commission's Nash Bargaining Model Does Not Support Conclusions of Anticompetitive Price Increases

174. In Section B of the Comcast-NBCUniversal Order, Appendix B, the Commission adopted a Nash bargaining model for analyzing the potential price effect of vertical integration between Comcast's MVPD service and NBCUniversal's programming assets. The model assumed that vertical integration would increase Comcast's opportunity cost for selling programming to rival MVPDs and, therefore, increase Comcast's incentive and ability to charge rival MVPDs higher programming prices.

175. The magnitude of the price increase predicted by the model depends on several factors, including the bargaining skill of Comcast relative to the rival MVPD (μ); the rate at which the rival MVPD's subscribers would leave the MVPD if it lost access to Comcast's programming (the "departure rate" d); the share of those departing subscribers who would switch to Comcast (the "diversion ratio" α); and the MVPD profit that Comcast would earn from an additional subscriber (π). Specifically, the predicted price increase was calculated using the following formula:

$$\Delta P = (1 - \mu) \times d \times (\alpha_{post} - \alpha_{pre}) \times \pi$$

In the formula above, αpre and αpost represent the diversion ratios before and after the proposed transactions.

176. The theoretical model underlying the Commission's vertical price effect analysis shares the conceptual issues and limitations of the Commission's foreclosure models. For example, the vertical price effect model does not capture many important features of real-world negotiations between content providers and MVPDs. The model relies on a series of assumptions that have limited empirical support, including assumptions about factors such as the rate at which consumers who leave a rival MVPD may switch to Comcast and the likely departure rate if NBCUniversal programming is not accessible to an MVPD. The model also does not take into account the transaction-related efficiencies and other gains that could benefit consumers. See a more detailed discussion of these issues in Section A.1 above. Moreover, by design, the model predicts a price increase for all increases in MVPD share by a vertically integrated MVPD, regardless of the programming involved, the viewing options available to consumers, or the size of the share increase. Because of these limitations, the Commission's theoretical model does not

provide a reliable benchmark for assessing the price effect of vertical integration in the current transactions.

177. Despite these limitations of the Commission's model, we have updated the model and applied it to Comcast-NBCUniversal programming affected by the proposed transactions. As explained in Section A.1 above, a number of NBC O&O stations and RSNs are either not affected or minimally affected by the current transactions, so the theoretical Nash bargaining model would predict a zero or minimal price effect from the proposed transactions. Thus, we have computed the theoretical price effect predicted by the Commission's Nash bargaining model for the following Comcast and TWC programming where there is a material change in the extent of vertical integration: (1) five NBC O&O stations (Dallas, Hartford-New Haven, Los Angeles, New York, and San Diego); (2) the national cable networks in which Comcast has a controlling interest, and (3) CSN New England (Celtics) and TWC SportsNet (Lakers) in Los Angeles. Also, as in Section A.1, we calculated results for DirecTV, Dish, AT&T, Verizon, and RCN separately.

178. In the calculation of the theoretical price effect, one needs to make an assumption about the departure rate at which a rival MVPD's subscribers would leave the MVPD if it lost access to Comcast's programming. Based on the recent Media General-Dish and CBS-TWC disputes, which involved blackouts of Big 4 broadcast stations, we use an estimate of the actual departure rate for a one-month temporary foreclosure of **{{ }}**% for NBC O&O stations. Based on the Commission's assumption in the NBCUniversal Order, we assume an actual departure rate of **{{ }}**% for the set of NBCUniversal cable networks, and for each of the two RSNs affected by the transactions, CSN New England and TWC SportsNet. See Section III.C.2 above for additional details.

179. Table III.C.12 and Table III.C.13 below show the theoretical price increases calculated using the Commission's vertical price effect model. All calculated price increases account for a small or moderate percentage of what the MVPDs currently pay. In the Commission's Adelphia Order, the Commission found that a vertical price effect would not be a concern if the price increase were less than 5% of the current price. Table III.C.12 and Table III.C.13 show that there is no theoretical price effect **{{ }}** the Commission's 5% criterion, with all but one of the calculated price increases **{{ }}** the criterion.

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180. As discussed above, the Commission's vertical price effect model has many significant limitations and relies upon a large number of assumptions for the values of parameters in the model, many of which are based on no or very little market evidence. Therefore, the vertical price effects resulting from the Commission's model and the large number of assumptions and parameters underlying the model cannot provide any reliable assessment of the impact of the proposed transactions. Even ignoring the conceptual problems and lack of market evidence for other parameters, the departure rate estimate also has a considerable margin of error that should be considered if the estimate is used to calculate theoretical price increases and to assess whether those calculated increases raise any concerns. As a result, the Commission's vertical price effect model, even with no consideration of procompetitive efficiencies, provides no basis for the conclusion that the proposed transactions are likely to result in retransmission consent or affiliate fee increases to rival MVPDs.

4. Commenters Proposed Extensions to the Commission's Foreclosure and Vertical Price Effect Models Do Not Raise Program Access Concerns

181. Commenters propose a number of theoretical extensions to the Commission's foreclosure and vertical price effect models. As we demonstrate in this section, these proposed extensions, which are not accompanied by any empirical analysis, do not raise program access concerns for the current transactions. For example, Professor Biglaiser suggests that merger-related efficiency gains and lower programming fees will increase the profit margin of Comcast's MVPD service (π in the equation in Section C.3 above), which in turn would increase NBCUniversal's incentives or ability to raise programming fees to rival MVPDs.[156] Professor Biglaiser and other commenters have presented no evidence that the transactions will increase Comcast's negotiation leverage and allow it to pay lower programming fees. But, even if that were the case, Professor Biglaiser's theory ignores the benefits to consumers associated with Comcast being more efficient or paying lower programming fees. If the transactions improve Comcast's efficiency and reduce its per-subscriber costs, Comcast will be able to provide consumers with better products in the form of higher quality, faster speed, or slower increases in price, among others. Being able to compete more efficiently is good for consumers and strongly in the public interest.

182. Moreover, Professor Biglaiser has presented no evidence that his theorized fee increase would be significant relative to the consumer welfare benefits identified above. In fact, because Comcast faces strong competition from other distributors in the markets in which it competes, any increase in its profit margin would be limited. And with a limited increase in its margin, even the Commission's Nash bargaining model, which theorizes that the vertical price effect equals the change in price margin multiplied by the departure rate (d), diversion ratio (α), and relative bargaining skill ($1 - \mu$), would imply very little vertical price effect based on the parameter values we estimated from empirical data above. Even this small theoretical price increase is not supported by any real-world evidence – as we have shown above, analysis of empirical data finds no evidence of any significant price effect from vertical integration.

[156] Biglaiser Report, pp. 22–23.

183. In addition to claiming that the transactions may increase Comcast's wholesale affiliate fees to rival MVPDs, Professor Biglaiser also suggests that the transactions will give Comcast incentives to increase the retail price of its own MVPD service.[157] He suggests that, because vertical integration allows Comcast to internalize the cost of NBCUniversal programming, there is an opportunity cost associated with having a subscriber with Comcast (which as an integrated firm effectively pays a zero affiliate fee) instead of with another MVPD that pays a programming fee to NBCUniversal. He further explains that, if an increase in Comcast's MVPD subscription price leads some Comcast subscribers to switch to other MVPDs, Comcast can recoup some of the losses through the affiliate fees that the other MVPDs pay. He suggests that this is an effect not considered by the Commission in the Comcast-NBCUniversal transaction.[158]

184. To analyze any transaction-specific effects on retail pricing, one needs to compare Comcast's (or TWC's) MVPD price before and after the proposed transaction. Professor Biglaiser's theory does not do that – it only looks at Comcast's profit after the transaction.[159] As a result, the theory fails to take in account that vertical integration between distribution and programming will internalize the cost of programming for Comcast (i.e., eliminate the double marginalization between Comcast or TWC and NBCUniversal). This internalization of programming cost will allow Comcast to pass more benefits on to consumers in the form of better product quality, more product offering or slower growth in its MVPD price, which offsets the upward pricing pressure theorized by Professor Biglaiser.

185. In addition, contrary to Professor Biglaiser's claim, the Commission's Comcast-NBCUniversal Order did consider the upward pricing pressure he theorized. Consistent with our discussion above, the Commission's analysis considered both "the opportunity cost associated with rival subscribers switching to Comcast" (which underlies the upward pricing pressure theorized by Professor Biglaiser) *and* the elimination of double marginalization between Comcast and NBCUniversal, and concluded that "Comcast's subscribers may benefit from the elimination of double marginalization."[160] The same conclusion applies to the current

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[157] Biglaiser Report, pp. 19–22.
[158] Biglaiser Report, p. 22. Professor Biglaiser states that this harm occurred and has existed since the NBCUniversal merger, but provides no evidence to support this statement.
[159] See, for example, Biglaiser Report, p. 20.
[160] Comcast-NBCUniversal Order, Appendix B, ¶¶ 56–64. The Commission concluded that while there may be benefits, the magnitude of the benefits may be smaller than what the Applicants claim. However, this does not change the conclusion that the benefits are positive.

transactions – the downward pricing pressure from the elimination of double marginalization between TWC and Comcast-NBCUniversal may well more than offset the upward pricing pressure.

186. Finally, Professor Biglaiser and ACA argue that because NBCUniversal negotiates a single master agreement with NCTC (which represents ACA members), if NBCUniversal has incentives to charge any NCTC member more, it will charge a higher price to all NCTC members covered by the agreement. However, the change in overlap between NCTC and the combined company is very limited (only 2%).[161] Thus, any effect, which the analysis does not support, would be small. If the current NCTC price were optimal, then it does not make economic sense for Comcast to increase the price to the entire membership just to harm a small share of NCTC members. In addition, any price change would be *de minimus* even according to this argument. For example, if the transaction caused the profit-maximizing price for 2% of the membership to increase by $0.25, then the overall price increase would be $0.005.

187. Overall, our analysis in this section confirms the conclusions from our April and June Reports that there should be no program access concerns for the proposed transactions. First, Comcast-NBCUniversal faces substantial competition in the video programming and MVPD markets in which it competes, and that substantial competition protects consumers. Second, the Commission's empirical framework for assessing the impact of vertical integration on affiliate and retransmission consent fees does not show any harmful price effect after the 2011 vertical integration of NBCUniversal and Comcast. Third, the theoretical models the Commission relied upon for its program access conclusions in the Comcast-NBCUniversal Order do not support any anticompetitive program access concerns. Fourth, commenters proposed extensions to the Commission's theoretical foreclosure and vertical price effect models do not raise program access concerns for the current transactions. Finally, the Commission's program access rules and NBCUniversal Order conditions remain in place to provide additional assurance against any potential program access concerns.

[161] Biglaiser Report, pp. 17, 19 (Table 1). The change in overlap is slightly higher if Brighthouse is included.

D. No Horizontal Program Selling Concerns from the Transactions

188. As discussed in our April and June Reports, Comcast will gain a very limited amount of programming from TWC and Charter, and after the transactions Comcast will continue to have a limited share in video programming and to face strong competition from unaffiliated content providers at both the national and regional level.[162] As a result, the transactions do not raise horizontal program selling concerns.

189. Professor Biglaiser suggests that the TWC transaction will lead to horizontal program selling concerns because Comcast could raise programming prices to other MVPDs by combining TWC's RSNs in Los Angeles and New York with the NBC O&Os in those DMAs.[163] He proposes a theoretical model with two networks in which if an MVPD carries both networks, the total value of the two networks is less than the sum of each network's value to the MVPD if the MVPD just carries that network but not the other network. In his model, MVPDs would incur a lower program cost if the two networks are owned by two content providers as opposed to by one content provider, even if the two networks are not close substitutes. This model is not supported by any data to show that the assumptions are valid or that the effects would be meaningful.

1. Market Facts and Economics Do Not Support Commenters' Concerns

190. Professor Biglaiser suggests that Comcast would acquire TWC RSNs in both Los Angeles and New York, but that is not correct – Comcast already is a minority owner of SportsNet New York today and will continue to be a minority owner even after acquiring TWC's minority stake in SportsNet New York. Therefore, Comcast will not acquire control of SportsNet New York.

191. In Los Angeles, TWC currently owns TWC SportsNet (which carries the Lakers) and the distribution rights for (but no ownership interest in) SportsNet LA (which carries the Dodgers). Neither RSN has a footprint that overlaps with a Comcast RSN. We have shown above that Comcast's acquisition of TWC SportsNet and the distribution rights for SportsNet LA do not

[162] April Report, ¶¶ 212–213; June Report, ¶ 35. Contrary to the concern raised by Dr. Cooper (Consumer Federation of America Comment, pp. 32–33), the transactions do not materially change the concentration of regional programming as we discussed in our April Report, ¶ 213.
[163] Biglaiser Report, pp. 25–27; ACA Comment, pp. 21–23.

raise vertical program access competitive concerns. As we demonstrate in this section, the transactions do not raise horizontal program selling concerns in Los Angeles (or elsewhere).[164]

192. Mergers generally raise horizontal pricing concerns when the goods produced by the merging firms are close substitutes.[165] Because programming on the NBC O&O station in Los Angeles O&O and programming on TWC SportsNet and SportsNet LA mostly serve different demands (general entertainment versus regional sports), they are not close substitutes. The NBC O&O and TWC-affiliated RSNs face many other closer programming competitors, including a large number of other national and regional broadcast and cable networks with general entertainment and sports programming. Dish does not carry TWC SportsNet (Lakers), which means that a major MVPD can be successful in the Los Angeles DMA even without the RSN.[166]

193. Moreover, as noted, we understand that **[[**

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and may or may not involve the negotiations for any Comcast RSNs carried by the MVPD. For example, according to Professor Biglaiser, negotiations for NBC O&Os and those for Comcast RSNs are separate for NCTC members.[167] To the extent that carriage negotiations for NBC O&Os and for TWC RSNs are negotiated separately and at different times, it would be difficult to extract increased fees from MVPDs for the carriage of the two. Additionally, the Comcast-NBCUniversal Order provides a commercial arbitration remedy stipulating that an MVPD can seek standalone arbitration for a Comcast-owned RSN programming or broadcast stations.[168]

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[164] The same analysis shows there will be no horizontal program selling concern in New York either even ignoring Comcast's lack of control of SportsNet New York.

[165] See, e.g., U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, p. 20: "Unilateral price effects are greater, the more the buyers of products sold by one merging firm consider products sold by the other merging firm to be their next choice."

[166] We note that there has been concern about the lack of carriage of SportsNet LA (Dodgers) by MVPDs other than TWC. While this may be a concern to regulators, it is not a transaction-specific concern.

[167] According to Professor Biglaiser, "NCTC currently has a master agreement with Comcast for its national cable programming and for its ten NBC O&O stations. … NCTC does not have, and has never had, an agreement for Comcast's RSN programming. For this programming, an NCTC member must negotiate with Comcast directly for RSN programming owned by Comcast." (Biglaiser Report, p. 31.)

[168] Professor Biglaiser also argues that the combination of NBC O&O stations and TWC RSNs in New York and Los Angles will increase the rate at which an MVPD's subscribers will leave the MVPD if it does not carry Comcast's programming in those areas (Biglaiser Report, p. 24). However, this is not an issue in practice to the extent the negotiations regarding NBC O&Os and Comcast RSNs are separate. Moreover, an MVPD that shares these concerns can pursue arbitration, as noted above, and thus need not face the alleged subscriber loss.

194. As a result, the combination of an NBC O&O and TWC-affiliated RSNs will not give Comcast market power or the ability to increase its fees anticompetitively.[169] In fact, in the next section we show that the Commission's empirical framework for estimating horizontal pricing effects in the Comcast-NBCUniversal Order does not show any price increases due to the joint ownership of NBC O&Os and RSNs after the Comcast-NBCUniversal transaction.

195. Moreover, even if one assumes that Comcast could bundle the NBC O&O station and TWC RSN in Los Angeles, Professor Biglaiser's theoretical example for a price effect is not applicable. While his model does not explicitly rely on programming channels being close substitutes, implicitly it relies strongly on assumptions that the stations have a particular relationship in value to an MVPD, which in turn relies on assumptions about the presence or lack of competitive alternatives. In particular, his model essentially assumes the value of networks is concave in the number of networks, i.e., the second network in a two-network bundle will generate less incremental value than the value each network can generate individually. There is no evidence that this assumption is consistent with reality. Since O&Os and RSNs offer different programming (one with general entertainment and the other with regional sports), the value that each can generate may not be affected by whether or not the two are bundled. In addition, Professor Biglaiser's model would apply to the ownership of any two programming channels, but he presents no evidence that owning multiple channels leads to higher prices when all other factors are considered. One reason is that the programming market is competitive so that implementing such a strategy would not work well.

2. Empirical Analysis of RSN – O&O Overlap Does Not Show Any Anticompetitive Price Effects

196. Commenters have not presented any empirical evidence that the acquisition of TWC's ownership or distribution rights for RSNs in Los Angeles (or New York) will increase Comcast's programming price in those areas. Professor Biglaiser refers to the Commission's finding that "two separately owned, same market broadcasters who coordinate their retransmission consent

[169] Similar analysis applies to areas where there is a Telemundo O&O station and a TWC affiliated Spanish-language RSN that carries major league sports, including Los Angeles (with a Telemundo O&O, TWC Deportes, and TWC Channel 858) and Dallas and San Antonio in Texas (with a Telemundo O&O and TWC's Canal de Tejas).

negotiations can extract higher prices than when broadcasters negotiate separately."[170] However, the coordinated negotiation by two broadcasters in the same market is not at issue in this transaction, and there is no reason to expect that evidence developed in that proceeding regarding the joint negotiation of retransmission consent fees by Big 4 broadcast stations in the same DMA is relevant to the very different programming, market environment, and negotiation dynamics regarding RSNs.

197. In the Comcast-NBCUniversal Order, the Commission considered the question of whether joint ownership of NBC O&Os and Comcast RSNs in the same DMA would lead to programming price increases for Comcast RSNs relative to the pre-merger situation in which NBC O&Os and Comcast RSNs were under separate ownership. The Commission examined that issue by estimating a regression using data from the News Corp.–Hughes transaction involving joint ownership by News Corp. of Fox O&Os and Fox RSNs in the same DMA.[171]

198. The Commission's approach assumed that results based on joint Fox ownership of RSNs and O&Os could be used to predict the impact of the Comcast-NBCUniversal transaction. It found that there was a positive correlation between the increase of Fox RSNs' prices and the time that the RSNs and Fox O&O station were under the same ownership over the previous five years. The Commission interpreted the result as evidence that joint ownership of RSNs and O&O stations in the same area increased the RSNs' price and assumed that the same result would apply to joint ownership of Comcast RSNs and NBC O&O stations in an area.

199. The Commission's assumptions (and approach) were potentially problematic as a predictor of what would happen after the Comcast-NBCUniversal transaction, as it ignored differences in the programming involved, the parties involved, and market condition differences between the Fox situation and the Comcast-NBCUniversal situation. Ignoring these limitations, which also apply to the current transactions, we apply the same difference-in-differences regression framework to examine the pricing of Comcast RSNs before and after the Comcast-NBCUniversal transaction. We use 2008 through 2013 as the sample period of our analysis, with three years of data (2008–2010) before the Comcast-NBCUniversal transaction and three years of data afterwards (2011–2013).

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[170] Biglaiser Report, p. 25, referring to the Commission's Amendment of the Commission's Rules Related to Retransmission Consent, Report and Order and Further Notice of Proposed Rulemaking, MB Docket 10-71.
[171] Comcast-NBCUniversal Order, Appendix B, ¶¶ 53–55.

200. The relevant empirical question is whether Comcast RSNs' affiliate fees in areas with an NBC O&O station ("treatment RSNs") increased more relative to the market trend after the Comcast-NBCUniversal transaction than before the transaction. The treatment RSNs are the six Comcast RSNs that overlapped with an NBC O&O after the Comcast-NBCUniversal transaction.[172] Appropriate control RSNs should be similar except for not overlapping with an O&O under the same ownership. We are able to identify nine control RSNs (i.e., RSNs without an O&O station under the same ownership during the relevant time period) for which SNL Kagan data are available. See Technical Appendix for the full list of RSNs the selection of control RSNs.

201. An important consideration in using this set of control RSNs is that most of the treatment RSNs (except for CSN California and SportsNet New York) had both higher programming investments and higher affiliate fees in 2010 (prior to the Comcast-NBCUniversal transaction) than many of the control RSNs. The simple average of programming investments for the six Comcast RSNs was **$[[ ]]** and the average program investments for the nine control RSNs was **$[[ ]]**. The simple average affiliate fee for the six Comcast RSNs was **$[[ ]]** and the average affiliate fee for the nine control RSNs was **$[[ ]]**.

[172] For purposes of this analysis only, we categorize SportsNet New York as a Comcast RSN because several commenters are of the (incorrect) view that even a minority owner of an RSN could somehow gain negotiation leverage from the RSN.

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202. Given the difference in costs and fees, a simple comparison of fees over time without controlling for the scale of fees may yield a misleading result. For example, if the treatment Comcast RSN prices increased by 5% or $0.12 while the control RSN prices also increased by 5% or $0.10, a naïve comparison of the absolute dollar change in fees before and after the Comcast-NBCUniversal transaction would conclude that Comcast RSNs had a larger post-transaction increase in fees than the control RSNs, even though the change is the same in percentage terms.

203. There are two straightforward ways to account for such scale differences: using the percentage change in fees as the dependent variable (the approach adopted by the Commission in the Comcast-NBCUniversal Order) or using the logarithm of fees as the dependent variable.[173] We have run the analysis both ways.

[173] In contrast, in a difference-in-differences regression using the level of fees as the dependent variable, an RSN fixed effect would only capture the difference in the average level of fees, not the difference in the amount of fee growth due to the different starting points.

204. Following the Commission's approach, we include a variable for joint ownership of an O&O and RSN as measured by percentage of years overlapped in previous five years. We also follow the Commission's approach and include each RSN's monthly per subscriber programming investment along with RSN fixed effects and year fixed effects.[174] Similar to the sensitivity check in our analysis of vertical price effects, we have also included specifications where we limit the set of control RSNs to those with a pre-transaction growth rate similar to those of the treatment RSNs (in the range of 6% to 15% in this case). See Technical Appendix for details of the selection of controls and regression specifications.

205. Table III.D.2 shows the results of the regressions. Neither specification shows any support for the conclusion that overlap between Comcast RSNs and NBC O&O ownership led to increased RSN fees after the Comcast-NBCUniversal transaction. In Table III.D.2 below, none of the coefficient estimates on "% Overlap in 5 Years" are statistically significant, which means there is no evidence that the horizontal overlap between Comcast RSNs and NBC O&Os is correlated with a higher growth rate of RSN fees after the Comcast-NBCUniversal transaction. Therefore, the Commission's approach to estimate horizontal price effects does not support the conclusion that there is a horizontal program selling power concern in the current transaction from Comcast's acquisition of TWC ownership or distribution rights for RSNs in Los Angeles.

[174] The Commission states that the investment controls for possible changes in programming quality over time. Comcast-NBCUniversal Order, Appendix B, ¶ 50.

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IV. No Video Advertising Competitive Concerns

206. Various commenters have alleged that the transactions will reduce advertising competition. As we showed in our April Report, advertising is a very broad and competitive market with cable comprising only a small part. Commenters concerned about the transactions' impact on advertising implicitly define unrealistically narrow markets with no justification or analysis and mischaracterize the workings of the advertising market. A proper competition analysis shows that the transactions (1) do not reduce advertising competition; (2) do not reduce competition in cable advertising representation services; and (3) do not reduce competition in advanced advertising technology and services.

A. Overview of the Advertising Marketplace

207. Television comprises part of the overall advertising market.[175] Television advertising can be broken down into three basic categories: (1) cable and broadcast network adverting ("network advertising"); (2) local broadcast advertising; and (3) local cable advertising.

208. Network advertising is sold by national broadcast networks (ABC, CBS, NBC, etc.) and national cable networks, like ESPN, CNN, and USA. It is sold on a national basis. Networks compete with each other to sell advertising, since each offers an alternative path to reach the same (or many of the same) consumers, and also compete with other forms of advertising such as online, print, direct mail, and radio. Advertisers place their ads on a given network based upon their assessment of how effectively that network delivers access to the targeted audience.

209. Local broadcast advertising is sold by local broadcast affiliates of national broadcast networks – like the local ABC or NBC affiliate – as well as by independent local broadcasters in a given market. It is typically sold across the region where the broadcast affiliate is distributed – sometimes referred to as a DMA. Like national networks, local broadcasters compete directly to sell advertising, since each offers an alternative path to reach the same consumers, and also compete against other forms of advertising.

210. Finally, local cable advertising is sold by MVPDs.[176] In their affiliation agreements with cable networks, MVPDs typically are allocated two minutes per hour of advertising inventory. They sell this inventory on a local basis. In contrast to the networks and local television broadcasters, MVPDs do not typically compete with each other in the sale of local cable advertising because they do not offer alternative paths to reach the same consumers. Instead, each MVPD serves separate subscribers. If an advertiser wants to reach TWC subscribers, purchasing advertising on Cablevision is typically not an effective substitute. Instead, advertising on different MVPD systems is often complementary since different MVPDs offer access to different consumers and combining purchases may assist advertisers in reaching their target audience.

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[175] April Report, ¶¶ 236–246.
[176] In addition, a small amount of advertising is sold by local and regional cable channels.

211. Because MVPD advertising is often complementary, MVPDs have agreed in many DMAs to form procompetitive "interconnects" where they pool their inventory. The interconnects permit MVPDs to compete more effectively with other outlets for local advertising, like broadcast television, which sell advertising inventory on a DMA-level with far greater coverage than any individual MVPD. This structure benefits advertisers who can go to one outlet (the interconnect) to purchase DMA-level advertising if they choose. Otherwise, advertisers would have to purchase advertising from each and every MVPD in a DMA to make a purchase of similar scope from cable companies trying to compete with local broadcasters.

212. Interconnects are generally managed by the largest MVPD in a particular market, which negotiates with advertisers that want access to the pooled inventory. In addition, individual MVPDs can and do sell advertising directly to advertisers. The managing MVPD generally distributes the interconnect revenue back to the participating MVPDs on a pro rata basis according to the amount of inventory and number of subscribers contributed to the interconnect (less a management fee). Management of an interconnect generally requires significant investments in personnel, research, technology, and sales/marketing.

213. MVPDs also formed NCC Media to simplify and facilitate the buying process across multiple interconnects in different DMAs for larger scale national and regional advertisers. NCC Media serves as a representative for its affiliate MVPDs (including all major cable, DBS, and telco providers and many smaller ones as well) in the sale of local advertising availabilities to national and regional advertisers. While NCC Media negotiates on their behalf, the represented MVPDs (which sometimes serve as managers of interconnects) set their own rate cards for the advertising inventory NCC Media sells. Comcast owns **[[ ]]**%, Cox owns **[[ ]]**%, TWC owns **[[ ]]**%, and Bright House owns **[[ ]]**% of NCC Media.[177] NCC Media has its own management team with 450 employees across 17 offices nationwide.[178] In addition to purchases through NCC Media, some national and regional advertisers buy local cable advertising from interconnects and directly from individual MVPDs to reach viewers in certain local markets.

[177] September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request, Response 46(a).
[178] See http://nccmedia.com/about/.

B. No Competitive Concerns for Advertisers

214. As we detailed in our previous reports, the proposed transactions do not raise any competitive concerns for national, regional, or local advertisers. The transactions do not change the competitive landscape for national advertising since there will be no change in the ownership of any national broadcast or cable network. And as we explain in this section, the transactions do not raise competitive concerns for advertisers who rely on local cable as one of their advertising options.

1. No Competitive Concerns for Local Cable Advertisers

215. Commenters Viamedia, ACA, NBC Television Affiliates, and Viamedia customers CenturyLink and RCN claim that the transactions will harm local cable advertising competition.[179] Viamedia, for example, claims that the transaction "…provides Comcast with the unchecked ability to exercise its market power" and will "put an end to competition in…the Spot Cable Advertising market…"[180] CenturyLink claims that "…access to Comcast/TWC will often be a 'must have' for advertisers, which will give the combined entity greater incentive and ability to increase their market share…"[181] These claims are flawed for a number of reasons.

216. First, the cable MVPDs in a DMA, including Comcast, TWC, and Charter, operate in distinct footprints and do not serve or compete for the same households. For this reason, advertisers do not view them as competitive alternatives, but instead view them as complements. Indeed, even otherwise competitive MVPDs (such as DBS and telco MVPDs) are complements to cable MVPDs because they do not offer alternative means for an advertiser to reach a given MVPD household. Accordingly, there is no basis to conclude that the proposed transactions will eliminate or harm competition in any fashion.

217. This conclusion is supported by the fact that MVPDs typically pool their advertising inventory (through interconnects) and sell it on a coordinated basis. They have pooled

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[179] See Comments in Support of Conditions, Mark Lieberman, President and Chief Executive Officer, Viamedia Inc., 8/25/14, ("Viamedia Comment"), pp. 3–4, 11–12; Comments of CenturyLink, Inc., 8/25/14 ("CenturyLink Comment"), pp. 21–22, 26; RCN Telecom Services, LLC, Grande Communications Networks, LLC and Choice Cable TV of Puerto Rico Petition to Deny Applications or Condition Consent, 8/25/14 ("RCN Comment"), pp. 27–28; Comments of the American Cable Association, 8/25/14 ("ACA Comment"), pp. 30–31; Comments of the NBC Television Affiliates, 8/25/14 ("NBC Affiliates Comment"), pp. 5–6.
[180] Viamedia Comment, p. 4.
[181] CenturyLink Comment, p. 26.

advertising to serve advertisers more efficiently and attempt to offer a stronger competitive alternative to local broadcasters and other forms of local advertising. Because MVPDs do not compete for advertisers to the same households and already pool their advertising inventory by contract to serve advertisers' needs, a merger or other combination of these MVPDs will not have any adverse effect on local advertising competition.

218. Second, these commenters ignore the fact that local cable advertising prices are disciplined by robust competition with other local advertising media. The appropriate relevant market is a broad local advertising market comprised of advertising on local broadcast stations, local cable television, and a range of other media and advertising platforms, including online video advertising, other online advertising, radio, print, outdoor, and direct mail.[182] For example, online advertising is a significant competitive threat for automotive, political, and pharmaceutical advertising.[183] According to SNL Kagan, local cable advertising accounts for approximately 7% of total local advertising spending and 21% of local television advertising spending.[184] Thus there is no economic support for CenturyLink's claim that Comcast/TWC will be a "must have" for advertisers. In summary, given that the parties do not compete in the provision of local advertising services and the robust competition that local cable advertising faces from other local advertising providers, there is no concern about reduction of competition for local cable advertising.

219. In addition, there are no competition concerns in the small handful of DMAs with an NBC O&O broadcast station where Comcast will be acquiring TWC or Charter subscribers. The Commission (and DOJ) analyzed this exact issue (the overlap of local cable advertising with O&O advertising) in the Comcast-NBCUniversal transaction and concluded that "the proposed transaction is unlikely to harm competition in advertising."[185] While both compete in the same broad local advertising market, each has closer substitutes. For example, NBC O&O stations compete more closely with the affiliates of the other major broadcast networks and with independent broadcasters for advertising dollars.[186] As we discussed in our April Report, the

[182] April Report, ¶¶ 236–246.
[183] Interview with Hank Oster (Senior Vice President and General Manager, Comcast Spotlight).
[184] See SNL Kagan "US Advertising Market Overview 2003–2022."
[185] Comcast-NBCUniversal Order, ¶ 152.
[186] See Complaint, United States Department of Justice Antitrust Division v. Gannett Co., Inc, Belo Corp., and Sander Media LLC, December 16, 2013. See also Complaint, U.S. v. Raycom Media, Inc., August 28, 2008.

NBC O&Os in the four DMAs where Comcast is acquiring cable systems from TWC face competition from at least six other local broadcasters, and the NBC O&O share of local broadcasting advertising revenue varies from **[[ ]]**% to **[[ ]]**%.[187]

2. No Competitive Concerns for Local Cable Advertisers in New York City

220. A few commenters claim that because Comcast and TWC are members of competing interconnects in the New York City DMA today, the transaction will reduce competition and raise local cable advertising prices in New York.[188] These claims are without merit. As we discussed above, the combination of Comcast and TWC advertising operations will not increase advertising prices in the New York DMA for several reasons: Comcast and TWC do not reach the same households, local cable comprises a small share of the New York local advertising market, and local cable advertising prices in New York are disciplined primarily by the competitive local advertising marketplace in New York, not by illusory competition between the two cable interconnects. Commenters present no theory or evidence that the two companies compete.

221. The New York DMA is unique in being the only top 50 DMA with two interconnects, a Cablevision-managed interconnect in which Comcast participates, and a TWC-managed interconnect in which Verizon, DirecTV, and Dish participate. There is no overlap in membership in the two interconnects, so an advertiser that wishes to reach all MVPD households in the DMA must negotiate with both interconnects. In all of the other top 50 DMAs in the country, there is a single cable advertising interconnect.[189]

222. If, as commenters imply will occur, the transaction results in a single interconnect in the New York DMA, this would create efficiencies by allowing advertisers wishing to target the entire New York DMA or various slices of it to do so with a single coordinated transaction.

223. RCN's claim that "[p]rices for advertisers could be increased because advertisers' ability to leverage independent Interconnects against the Interconnects controlled by the combined entity will be severely depleted"[190] does not reflect the realities of the advertising marketplace.

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[187] April Report, ¶ 245.
[188] See Viamedia Comment, pp. 1–3; CenturyLink Comment, p. 21; RCN Comment, p. 27–28; ACA Comment, p. 30.
[189] See http://www.tvb.org/media/file/TVB_Local-Cable-Reach-Guide.pdf.
[190] RCN Comment, p. 27

Interconnects provide efficient mechanisms for advertisers to reach all or specific sets of households in a DMA. Interconnects do not compete with each other as a means for advertisers to reach any specific household.[191] An advertiser seeking to reach all customers in a Cablevision interconnect market, for example, cannot threaten to go to the TWC interconnect because it services different customers. In summary, there is no support for commenters' claim that the transaction will reduce local cable advertising competition in the New York City DMA.

3. No Reduced Supply of Local Advertising or Bundling Concerns

224. Additionally, Viamedia raises concerns that Comcast's "domination" of the local cable advertising market will cause it (through NCC) to "allocate more advertising time for the national and regional advertisers because of the higher margins those transactions provide for Comcast."[192] According to Viamedia, this reallocation will result in reduced supply of local cable advertising to local advertisers and increased prices.[193]

225. However, Viamedia offers no support for its claims and they are incorrect. We are not aware of any basis for Viamedia's claims that the margins for national and regional advertisers are higher and this would be surprising if true since it is our understanding that prices for local cable advertising are generally higher than regional cable advertising, which in turn are generally higher than prices for national cable advertising.[194] In fact, Comcast Spotlight has a greater emphasis on local business and more focus on local zones than TWC does.[195] Therefore, rather than reducing the supply of local advertising, the transaction may *increase* supply. Additionally, Viamedia's concern is not transaction-specific. Comcast already has a majority stake in NCC, and Comcast and TWC would have already allocated more local ad availabilities to NCC for its inventory if this were more attractive. Finally, as a matter of economics, if advertising supply were moved to where it was of higher value, it would be a social benefit and more efficient use of scarce resources.

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[191] We note that a number of advertisers filed in support of the transactions.
[192] Viamedia Comment, p. 11.
[193] Viamedia Comment, pp. 11–12.
[194] Interview with Hank Oster (Senior Vice President and General Manager, Comcast Spotlight).
[195] Interview with Hank Oster (Senior Vice President and General Manager, Comcast Spotlight).

226. Viamedia also raises a concern that "Comcast could bundle across interconnects,"[196] but offers no explanation of what such "bundling" would look like, how it would occur, who would be harmed, and how. If anything, bundling across interconnects is more likely to be pro-competitive, as it could reduce rates for national or regional advertisers who purchase cable advertising across multiple DMAs.

C. No Transaction-Specific Competitive Concerns for Cable Advertising Representation Services

227. Some commenters, including Viamedia, CenturyLink, RCN, and ACA have raised concerns about the transaction's impact on cable advertising representation services,[197] including local and regional representation, and national representation by NCC. Specifically, commenters claim the transaction will harm Comcast and TWC competitors, such as Viamedia, in providing representation services as well as harming smaller MVPDs that may wish to use independent representation services.[198]

228. These commenters claim that Comcast has excluded independent cable advertising representation firms such as Viamedia and competing MVPDs such as RCN from participation in cable advertising interconnects and that Comcast's "control" of additional interconnects and larger ownership stake in NCC after the transactions will give Comcast leverage to restrict its competitors' access to the interconnects and NCC and squeeze out independent representation firms.[199] Commenters also claim that Comcast will have increased leverage to force MVPDs to use Comcast Spotlight representation services as a condition to access the interconnects and NCC and discriminate against competing MVPDs with higher rates for interconnect and NCC representation services.[200] Finally, CenturyLink claims the transaction would give Comcast the incentive and ability to steer national advertisers to interconnects controlled by Comcast and away from DMAs with a higher proportion of MVPDs who do not participate in the

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[196] Viamedia Comment, p. 11.
[197] Viamedia describes representation services as including "…fully functioning turn-key sales, spot insertion, encoding, validation, IT, traffic and billing, and collection." Viamedia Comment, p. 8.
[198] See Viamedia Comment, pp. 8–14; CenturyLink Comment, pp. 21–28; RCN Comment, pp. 26–28; ACA Comment, pp. 30–31.
[199] See Viamedia Comment, pp. 9–14; CenturyLink Comment, pp. 24–27; RCN Comment, pp. 26–28; ACA Comment, p. 30.
[200] See Viamedia Comment, pp. 12–14; CenturyLink Comment, pp. 26–28; RCN Comment, pp. 27–28; ACA Comment, pp. 30–31.

interconnect.[201] These claims do not demonstrate that the transactions will lead to any harms to competition.

1. Existing Industry Structure and Practices Are Unrelated to these Transactions

229. Most of these issues raised about cable advertising representation services are not specific to these transactions. The industry practices and concerns these commenters raise, such as the practical difficulties faced by independent representation companies, are issues that exist today.

230. Nearly all DMAs have a single advertising interconnect,[202] almost all interconnects currently are managed by the largest cable MVPD in the DMA,[203] and interconnect participants almost always use the representation services provided by the managing MVPD.

231. Economic efficiencies, rather than market power, have driven interconnects to include both technical integration and advertising sales components – it is not efficient for most MVPDs to field an independent local advertising sales force in DMAs where they have a small amount of the overall local advertising pie. While Viamedia tries to draw a stark distinction between the technical integration component of the interconnect and the representation (sales, billing, and insertion) component, it acknowledges that "…[a]n interconnect is both a joint sales and technical integration entity comprised of the MVPDs that offer service in a given market…" and that "…[t]he Interconnect is managed, and therefore controlled, by the dominant MVPD in the DMA."[204] Therefore, the idea that MVPDs can or should be precluded from offering representation services for the interconnects they manage would be inefficient. In addition, it would create perverse investment incentives if MVPDs who have invested in the technology and personnel to run and represent an interconnect were required to open the interconnect to competing representation firms that have not made similar investments. Finally, Comcast at least, and to our knowledge all interconnects, welcome all MVPDs of any size – **{{**

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[201] CenturyLink Comment, pp. 27–28.
[202] Of the 210 DMAs, 196 have a single interconnect, 7 have two interconnects, and 7 have no interconnects. See http://www.tvb.org/media/file/TVB_Local-Cable-Reach-Guide.pdf.
[203] The largest cable MVPD manages an interconnect in all of the top 50 DMAs. In all DMAs with at least one interconnect, the largest cable MVPD manages an interconnect in approximately 90% of cases.
[204] Viamedia Comment, pp. 2–3.
[205] Interview with Hank Oster (Senior Vice President and General Manager, Comcast Spotlight).

232. Additionally, cable interconnects face formidable competition from other outlets available for advertisers. Commenters have provided no evidence that the current organization of regional cable advertising interconnects has reduced advertising competition and, more importantly, that the transactions would reduce local advertising competition.

2. The Transactions Result in Little or No Change to Operation of Interconnects in Most DMAs

233. Commenters point to a variety of statistics, some misleading, to illustrate Comcast's dominance and control of the "national Spot Cable Advertising market"[206] following the transactions. For example, several commenters note that Comcast will "control" 18 of the top 25 interconnects.[207] Commenters then assert that "control" of a larger number of interconnects nationally will lead to a variety of competitive harms in cable advertising representation services, including exclusionary conduct, tying, price discrimination, and steering. There is no theoretical or empirical support for any conclusion of competitive harm from the transactions.

234. First, there is no "national spot cable advertising market." Spot cable advertising is a form of *local advertising*, and different interconnects generally do not compete. This is because advertising in one DMA is generally not a substitute for advertising in another DMA. For an advertiser (say an association of car dealerships) desiring to reach customers in a given DMA (say Boston), it is not a substitute to purchase advertising in another DMA (say Los Angeles). Instead, such an advertiser would consider other alternatives in the *targeted* DMA, such as local cable advertising from the specific MVPDs, local broadcast advertising, radio advertising, and online advertising. These alternatives would be closer substitutes than cable advertising in a *different* DMA. Therefore, the scope of Comcast's interconnect management nationally is irrelevant and the transaction's impact on cable advertising representation services should be evaluated in *each individual DMA*.

235. Second, in nearly all DMAs (other than New York City) where Comcast would gain "control" of the interconnect as a result of the transaction, the change simply consists of Comcast managing the interconnect instead of TWC, which will make little practical difference.[208] A simple change in management from one MVPD to another does not remove a competitor in

[206] Viamedia Comment, p. 3.
[207] Viamedia Comment, p. 9; ACA Comment, p. 30; RCN Comment, p. 26.
[208] Interview with Hank Oster (Senior Vice President and General Manager, Comcast Spotlight).

either advertising sales or representation services from the DMA, and results in little or no change in industry structure or dynamics. As explained, and contrary to Viamedia's claims, Comcast and TWC (and other MVPDs) generally do not "compete in the Spot Cable Advertising Representation business against each other"[209] in a given DMA and there is no support for Viamedia's claim that "[t]he consolidation would result in one less Spot Cable Advertising Representation firm in many U.S. markets."[210]

3. Comcast Provides Interconnect Access to All MVPDs and Has Expanded Access for Competing MVPDs

236. Commenters' theories regarding Comcast's future exclusionary behavior and tying practices towards competing MVPDs are contradicted by the widespread participation (including competing MVPDs) in Comcast Spotlight-run interconnects today. With respect to competing MVPDs, **[[**

]].[211] If Comcast had an incentive to foreclose interconnect access to competing MVPDs, one would expect to see limited participation today. Contrary to commenters' claims, Comcast has generally accepted every MVPD into interconnects.[212]

237. In addition, **[[**

]].[213] Therefore, there is no basis for commenters' concerns about the transactions' impact on interconnect access for smaller MVPDs. This may reflect the fact that

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[209] Viamedia Comment, p. 3.
[210] Viamedia Comment, p. 3.
[211] Based on subscriber data from SNL Kagan and Comcast data on interconnect participation, and weighted by the number of telco and DBS subscribers in each DMA. See SNL Kagan ("Subs by all MVPD by DMA Q2 2014.xlsx"); September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request, Exhibit 47.1.
[212] See Testimony of David L. Cohen (Comcast Executive Vice President), Oversight Hearing on Competition in the Video and Broadband Markets: The Proposed Merger of Comcast and Time Warner Cable: Hearing Before the H. Subcomm. on Regulatory Reform, Commercial and Antitrust Law, Questions for the Record, Response 11, at 18 (5/8/14): "Comcast will continue its policy of admitting all MVPDs to any interconnects that it manages."
[213] Based on subscriber data from SNL Kagan and Comcast and TWC data on interconnect participation. See SNL Kagan ("Subs by all MVPD by DMA Q2 2014.xlsx"); September 11, 2014 Responses of Comcast Corporation to the Commission's Information and Data Request, Exhibit 47.1; TWC's Response to FCC Information Request No. 45.

Spotlight has made investments and developed technologies that reduce the minimum viable scale for interconnect participation.[214]

238. **[[** **]]** commenters' speculation that Comcast will attempt to exclude competing MVPDs and overbuilders from the interconnects it manages would be counter to Comcast's incentives to include all MVPDs in interconnects. An interconnect is valuable to advertisers because it provides access to substantially all MVPD households in a given DMA. Therefore, excluding certain MVPDs from participation is likely to reduce the value of the interconnect and hinder its ability to compete with other forms of local advertising.[215]

4. No Basis for a Claim about Discriminatory Representation Rates

239. Viamedia claims that "…smaller MVPDs rely on robust competition among Spot Cable Advertising Representation firms to keep the revenue share costs in check…" and that "smaller MVPDs, small business advertisers, and consumers would face the threat of higher costs and fewer choices."[216] CenturyLink warns that the transactions "…could also give the combined entity the scale and ability to offer short-term discounts that could threaten the viability of independent [representation] firms" and would allow "…it to raise the rates it charges for representation of its competitors."[217]

240. Since the transactions do not impact competition in cable advertising representation services, these concerns are not transaction-specific. Viamedia does not present any theory or empirical evidence as to why the proposed transaction would harm competition among representation firms. Similarly, CenturyLink presents no evidence that Comcast has ever engaged in predatory pricing in cable advertising representation services or discriminatory pricing of representation services for its MVPD competitors.

[214] Interview with Hank Oster (Senior Vice President and General Manager, Comcast Spotlight).
[215] In particular, a high concentration in overbuild areas with more affluent customers makes a competing MVPD valuable to advertisers and to Comcast as an interconnect operator.
[216] Viamedia Comment, p. 4.
[217] CenturyLink Comment, pp. 26–27.

5. No Competitive Concerns with NCC Media

241. The transactions raise no competition issues with respect to NCC Media. As commenters note, Comcast already owns a majority of NCC Media. In addition, we have seen no evidence that TWC has ever adopted a different approach to the operations of NCC Media than Comcast. Thus, there is no basis for a transaction-specific issue relating to NCC Media as a result of Comcast's acquisition of TWC's minority interest in NCC Media.

242. In addition, there is no evidence that Comcast has ever used its controlling ownership interest in NCC Media to disadvantage competitive MVPDs. To the contrary, today NCC Media's affiliates include a host of MVPDs that compete with Comcast and TWC, including DirecTV, Dish, Frontier, RCN, FiOS, AT&T U-verse, WOW!, and others.[218]

243. In addition, Viamedia is a member of NCC Media and Comcast has never threatened Viamedia's access to NCC Media. To the contrary, Viamedia's CEO recently wrote to Comcast to give his thanks for its support in the NCC extension (even though this decision was made independently by NCC's management).[219]

6. No Basis for CenturyLink's Steering Claims

244. CenturyLink claims that Comcast would be able to use its "control" of NCC to "steer advertisers looking to buy a significant portion of the country to DMAs where Comcast controls the interconnect" and away from those DMAs where "the advertiser would …have to buy from smaller cable operators who are not represented in the particular interconnect."[220]

245. We have seen no evidence that Comcast has used its control of NCC or its current interconnects to engage in the types of steering conduct that CenturyLink predicts. In addition, CenturyLink does not specify how Comcast would "steer" advertisers to purchase advertising in DMAs other than those they wished to buy. As noted above, local advertisers that want to purchase advertising in a particular DMA have many options for doing so, and do not view advertising in different DMAs as substitutes. Finally, CenturyLink's steering theory is not transaction-specific. There is no support for the assertion that adding TWC's ownership interest

[218] See http://nccmedia.com/about/owners-affiliates/.
[219] See Reply Comments of Comcast Corporation and Time Warner Cable Inc., State of New York Public Service Commission Case 14-M-0183 (8/25/14) at 72 n. 205.
[220] CenturyLink Comment, pp. 27–28.

to Comcast's would lead to a different approach to the operation of NCC Media, and no support for a theory that common operation of a larger number of local interconnects will change the incentive or ability to "steer" advertisers.

D. No Basis for Claim that Transaction Will Stifle Advanced Advertising Services Development

246. Finally, Viamedia and the NBC Affiliates raise concerns about the transactions' impact on advanced advertising services. Viamedia claims that "the combined entity will dominate future advertising markets," "…effectively control the deployment of emerging advertising technology for broadcast television, cable television, and online video," and "…allow Comcast to define the terms under which new cable advertising technology is introduced to the market – likely on terms that only benefit Comcast."[221] The NBC Affiliates claim that "Comcast's extensive advertising interests could put it in a position to affect competition in emerging markets for advanced advertising technologies and platforms" and that "Comcast could have the incentive and ability to use its market power as a distributor to impair the ability of broadcasters and others from participating in this market."[222]

247. First, these claims are highly speculative and not supported by any empirical evidence that Comcast has attempted to or could dictate advanced advertising technologies for the cable advertising sector. The landscape for advanced advertising technologies is dynamic and rapidly changing, with the involvement of major industry players such as Google and Apple. In such an environment, there is no basis for commenters' claims that Comcast will be able to limit the ability of others to enter and compete in video advertising markets, including broadcasters. In addition, the robustly competitive advertising marketplace makes it implausible that Comcast could control or dictate anything. New cable advertising technologies will only be successful if they can offer value to advertisers and consumers beyond other offerings in the broad, competitive advertising marketplace.

248. Second, far from being an anticompetitive harm, the increased scale, reach, and sharing of technologies from these transactions is likely to accelerate the deployment, measurement, and uptake of advanced advertising services that will compete with the many other forms of

[221] Viamedia Comment, pp. 4, 14.
[222] NBC Affiliates Comment, pp. 5–6.

advertising available to prospective advertisers. As we have detailed previously and expand on in Section II.A, with so many MVPDs across the country, coordination is a major hurdle for the cable advertising industry to overcome, and the transactions will help with that coordination. To date, the only area in which cable companies have successfully collaborated on an advanced advertising technology is with dynamic ad insertion, and more is still needed in that area with respect to better measurement. Industry efforts towards addressable advertising and interactive advertising have been largely unsuccessful. The sharing of Comcast's addressable advertising technology with TWC, along with the additional scale and reach for better targeting will make Comcast a stronger competitor for the advanced, targeted advertising offered by online advertising providers.

249. In addition, Comcast has incentives to work with other MVPDs on advanced advertising technologies and does not have incentives to limit their ability to offer or compete for these services. Similar to the formation of interconnects, the pooling of availabilities across MVPDs, particularly with addressable advertising or interactive advertising capabilities benefits both advertisers (with one-stop-shopping) and MVPDs. In sum, there is no support for commenters' claims that the transactions will harm the development of or competition in advanced advertising technologies.

I, Gregory L. Rosston, declare under penalty of perjury that the foregoing declaration is true and correct to the best of my knowledge, information, and belief.

Executed on September 22, 2014.

Gregory L. Rosston

I, Michael D. Topper, declare under penalty of perjury that the foregoing declaration is true and correct to the best of my knowledge, information, and belief.

Executed on September 22, 2014.

Michael D. Topper

TECHNICAL APPENDIX

I. Empirical Analysis of the Price Effect of Vertical Integration of NBCUniversal Cable Networks and Comcast's MVPD Service after the Comcast-NBCUniversal Transaction

1. This section provides additional details regarding our analysis of the vertical price effect of the Comcast-NBCUniversal transaction (as described in Section III.C.1 of the Reply Report). Our analysis follows the Commission's approach in the Comcast-NBCUniversal Order.[1]

A. Treatment and Control Networks

2. The treatment networks include the six NBCUniversal legacy networks (Bravo, CNBC, MSNBC, Oxygen, Syfy, and USA) that are in SNL Kagan's Top 50 national cable networks in 2013 (ranked by total revenues, including both affiliate revenue and net advertising revenue).[2]

3. To determine a set of appropriate control networks, we start by considering all the Top 50 national cable networks excluding the six legacy NBCUniversal cable networks. We then exclude from the set: (1) three premium network entries (HBO/Cinemax, Showtime/TMC/Flix, Starz/Encore) because premium networks are not comparable to NBCUniversal's basic cable networks due to their higher pricing and more restricted targeted audience; (2) three networks that were repackaged or re-launched during the sample period of 2008 – 2013[3] (Speed, currently FOX Sports 1; Toon Disney, currently Disney XD; and Discovery Health Channel, currently Oprah Winfrey Network) because the change of programming may affect the networks' affiliate fees in ways that do not represent market trends; (3) one network (the MLB Network) for which SNL Kagan does not have an affiliate fee for one year during the sample period; and (4) 14 cable networks that were vertically integrated with MVPDs at some point during the 2008-2013 sample period,[4] so that we are not comparing the treatment networks to other networks that were also vertically integrated. After these exclusions, the remaining 23 national cable networks are used as non-vertically integrated controls. Table A-1 shows SNL Kagan's list of Top 50

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[1] Comcast-NBCUniversal Order, Appendix B, ¶¶ 48 – 52.
[2] SNL Kagan, "Basic Cable Networks by Affiliate Revenue" and "Basic Cable Networks by Net Advertising Revenue."
[3] The sample period covers three years before and three years after the Comcast-NBCUniversal transaction.
[4] A network is classified as vertically integrated with an MVPD in a year if the MVPD or the parent company of the MVPD has a 50% or greater ownership interest in the network in the year.

national cable networks in 2013 and whether a network is included as a treatment or control network or excluded from the sample.

Table A-1. Top 50 National Cable Networks in 2013

Network Name	2013 Rank [1]	Category	Premium	Repackaged	Missing Affiliate Fees	Vertically Integrated Between 2004 and 2013
ESPN	1	Control				
HBO / Cinemax	2	Exclude	Yes			
TNT	3	Exclude				Yes
USA	4	Treatment				Yes
FOX News	5	Exclude				Yes
Nickelodeon/Nick At Nite	6	Control				
TBS	7	Exclude				Yes
Showtime / TMC / Flix	8	Exclude	Yes			
Disney Channel	9	Control				
MTV	10	Control				
Starz / Encore	11	Exclude	Yes			
FX Network	12	Exclude				Yes
NFL Network	13	Control				
ESPN2	14	Control				
CNN	15	Exclude				Yes
Discovery Channel	16	Control				
Lifetime Television	17	Control				
HGTV	18	Control				
A&E	19	Control				
Food Network	20	Control				
History	21	Control				
Cartoon Network	22	Exclude				Yes
AMC	23	Exclude				Yes
Syfy	24	Treatment				Yes
ABC Family Channel	25	Control				
Comedy Central	26	Control				
Spike TV	27	Control				
Bravo	28	Treatment				Yes
BET	29	Control				
CNBC	30	Treatment				Yes
VH1	31	Control				
TLC	32	Control				
MSNBC	33	Treatment				Yes
FOX Sports 1	34	Exclude		Yes		
E!	35	Exclude				Yes
Golf Channel	36	Exclude				Yes
TV Land	37	Control				
National Geographic Channel	38	Exclude				Yes
truTV	39	Exclude				Yes
NBCSN	40	Exclude				Yes
Hallmark Channel	41	Control				
The Weather Channel	42	Control				
Travel Channel	43	Exclude				Yes
Animal Planet	44	Control				
Investigation Discovery	45	Control				
Disney XD	46	Exclude		Yes		
FOX College Sports	47	Exclude				Yes
OWN: Oprah Winfrey Network	48	Exclude		Yes		
MLB Network	49	Exclude			Yes	
Oxygen Network	50	Treatment				Yes

Source: SNL Kagan

Note: [1] National cable networks are ranked by total revenue in 2013, defined as the sum of affiliate revenue and net advertising revenue.

B. Regression Specifications

4. Following the Commission's approach,[5] we regress the year-on-year growth rate of affiliate fees on:

[5] Comcast-NBCUniversal Order, Appendix B, ¶ 51.

- Percentage of years under vertical integration during the previous five years (including the current year), which is the variable of primary interest.[6] A positive and statistically significant coefficient is interpreted as indicating a positive correlation between affiliate fees and the event of vertical integration.
- Growth rate of the three-year moving average of monthly programming investment of the 36-month window covering the previous three years (including the current year).
- A spline in the age of the network with knot points at the quintiles.
- Network and year fixed effects.

5. We cluster the standard errors of the estimates by the "top owner" to account for the fact that networks are usually sold as a bundle.[7]

6. In addition to a specification using the growth rate of fees as the dependent variable, we run an alternative specification where we use the natural logarithm of affiliate fees as the dependent variable. In this alternative specification, we replace the growth rate of the three-year moving average of programming investment with the natural logarithm of the three-year moving average of programming investment.

7. We also run the growth rate and natural logarithm specifications using a subset of control networks that had average pre-transaction growth rates of affiliate fees similar to those of the treatment networks. We compute the average annual growth rate of affiliate fees in the pre-transaction period of 2008 to 2010 for each of the six treatment networks. Pre-transaction, the six treatment networks had average annual growth rates between **[[ ]]**% and **[[ ]]**%, so we choose control networks with pre-transaction average annual growth rates between **[[ ]]**% and **[[ ]]**%. This criterion excluded 5 of the 23 control networks, leaving 18 networks in this subset of control networks.[8]

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[6] The Commission used this variable because it was "unable to observe the date when the pre-transaction contracts were renegotiated following the merger. Since contracts can span multiple years, we would expect that the change in programming fees would increase with the time since vertical integration occurred." Comcast-NBCUniversal Order, Appendix B, ¶ 51.

[7] Comcast-NBCUniversal Order, Appendix B, ¶ 51. The top owner of the network is identified as the owner with the highest ownership interest in the network. If there is a tie between two owners, we identify the top two owners. For example, Walt Disney and Hearst each owned 50% of Bio Network in 2013. We classify Walt Disney and Hearst as the top owners of the network.

[8] The networks excluded are ABC family channel, Disney channel, HGTV, Hallmark channel, and Food network.

II. Empirical Analysis of the Price Effect of Horizontal Integration of Comcast RSNs and NBC O&Os in the Same Area after the Comcast-NBCUniversal Transaction

8. This section provides additional details regarding our analysis of the price effect of horizontal integration of Comcast RSNs and NBC O&Os in the same area after the Comcast-NBCUniversal transaction (as described in Section III.D.2 of the Reply Report). Our analysis follows the Commission's approach in Section C of the Comcast-NBCUniversal Order, Appendix B.[9]

A. Treatment and Control RSNs

9. There are 42 RSNs for which SNL Kagan tracks affiliate fees since 2008.[10] These 42 RSNs each carry at least one NBA, MLB, or NHL team in the U.S.[11] The treatment RSNs include the six Comcast-affiliated RSNs whose footprints overlap with DMAs served by NBC O&Os (CSN Philadelphia, CSN Mid-Atlantic, SportsNet New York,[12] CSN Bay Area, CSN California, and CSN Chicago).

10. To select a group of appropriate control RSNs, we exclude from the remaining 36 RSNs: (1) 17 Fox RSNs due to their joint ownership with a Fox O&O station for at least some time from 2008-2013; (2) five RSNs that were launched after 2010 and thus have no data from the pre-period; (3) two RSNs that experienced a significant change of programming during the sample period; (4) two RSNs that have gone off-air; and (5) Comcast SportsNet Northwest because it only had Comcast as its main carrier during most of the sample period. After these exclusions, the remaining nine RSNs are used as non-horizontally integrated control RSNs.

11. Table A-2 below shows the RSNs included and excluded from the sample and the reasons for exclusion, along with the NBA, MLB, and NHL teams carried by the RSNs in 2014.

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[9] Comcast-NBCUniversal Order, Appendix B, ¶¶ 53 – 55.
[10] SNL Kagan, "RSN Networks by Affiliate Revenue per Avg Sub per Mo".
[11] Together, these 42 RSNs carry all the U.S.-based NBA, MLB, and NHL teams, except for the Kansas City Royals, New Orleans Pelicans, and Oklahoma Thunder. The Kansas City Royals are carried by Fox Sports Kansas, the New Orleans Pelicans by Fox Sports New Orleans, and the Oklahoma Thunder by Fox Sports Oklahoma, none of which is tracked in the SNL Kagan report.
[12] Comcast has a minority, non-controlling ownership interest in SportsNet New York.

Table A-2. Regional Sports Networks (RSNs) Included in and Excluded from the Sample

	RSN	NBA Teams	MLB Teams	NHL Teams	Category
Treatment					
	Comcast SportsNet Philadelphia	Philadelphia 76ers	Philadelphia Phillies	Philadelphia Flyers	Treatment
	Comcast SportsNet Mid-Atlantic	Washington Wizards		Washington Capitals	Treatment
	SportsNet New York		New York Mets		Treatment
	Comcast SportsNet Bay Area	Golden State Warriors	San Francisco Giants		Treatment
	Comcast SportsNet California	Sacramento Kings	Oakland Athletics	San Jose Sharks	Treatment
	Comcast SportsNet Chicago	Chicago Bulls	Chicago Cubs	Chicago Blackhawks	Treatment
			Chicago White Sox		Treatment
Control					
	Comcast SportsNet New England	Boston Celtics			Control
	Altitude Sports and Entertainment	Denver Nuggets		Colorado Avalanche	Control
	MSG Plus			New Jersey Devils	Control
				New York Islanders	Control
	Madison Square Garden Network [1]	New York Knicks		New York Rangers	Control
				Buffalo Sabres	Control
	Mid-Atlantic Sports Network		Baltimore Orioles		Control
			Washington Nationals		Control
	Root Sports Pittsburgh		Pittsburgh Pirates	Pittsburgh Penguins	Control
	New England Sports Network		Boston Red Sox	Boston Bruins	Control
	Root Sports Northwest		Seattle Mariners		Control
	SportsTime Ohio		Cleveland Indians		Control
Excluded					
	FOX Sports Arizona	Phoenix Suns	Arizona Diamondbacks	Phoenix Coyotes	Excluded
	FOX Sports Carolinas	Charlotte Hornets		Carolina Hurricanes	Excluded
	FOX Sports Detroit	Detroit Pistons	Detroit Tigers	Detroit Red Wings	Excluded
	FOX Sports Ohio	Cleveland Cavaliers	Cincinnati Reds	Columbus Blue Jackets	Excluded
	FOX Sports Southwest	Dallas Mavericks	Texas Rangers	Dallas Stars	Excluded
		San Antonio Spurs			Excluded
	FOX Sports Tennessee	Memphis Grizzlies		Nashville Predators	Excluded
	FOX Sports West [2]		Los Angeles Angels	Los Angeles Kings	Excluded
Overlap with O&O Stations under the Same Ownership	Prime Ticket [3]	Los Angeles Clippers		Anaheim Ducks	Excluded
	SportSouth [4]	Atlanta Hawks	Atlanta Braves		Excluded
	FOX Sports Wisconsin	Milwaukee Bucks	Milwaukee Brewers		Excluded
	Sun Sports	Miami Heat	Tampa Bay Rays	Tampa Bay Lightning	Excluded
		Orlando Magic			Excluded
	FOX Sports Midwest	Indiana Pacers	St. Louis Cardinals	St. Louis Blues	Excluded
	FOX Sports Florida	Orlando Magic	Miami Marlins	Florida Panthers	Excluded
	FOX Sports North	Minnesota Timberwolves	Minnesota Twins	Minnesota Wild	Excluded
	FOX Sports South	Atlanta Hawks	Atlanta Braves		Excluded
	Root Sports Rocky Mountain	Utah Jazz	Colorado Rockies		Excluded
	YES Network	Brooklyn Nets	New York Yankees		Excluded
	Longhorn Network				
	Comcast SportsNet Houston	Houston Rockets	Houston Astros		Excluded
Launched after 2010	Time Warner Cable SportsNet/Deportes	Los Angeles Lakers			Excluded
	FOX Sports San Diego [5]		San Diego Padres		Excluded
	SportsNet LA		Los Angeles Dodgers		Excluded
Change in Programming	Cox Sports Television	(New Orleans Hornets prior to 2012-2013 season)			Excluded
	Channel 4 San Diego		(San Diego Padres prior to 2012)		Excluded
Off the Air	Royals Sports Television Network				Excluded
	Comcast/Charter Sports Southeast				Excluded
With little sales to MVPDs other than Comcast	Comcast SportsNet Northwest	Portland Trail Blazers			Excluded

Source: RSN websites

Notes: [1] Madison Square Garden Network also broadcasts some games for the New Jersey Devils and New York Islanders.
[2] FOX Sports West also broadcasts some games for the Anaheim Ducks.
[3] Prime Ticket also broadcasts some games for the Los Angeles Kings.
[4] SportSouth also broadcasts some games for the Memphis Grizzlies and Charlotte Hornets.
[5] FOX Sports San Diego also broadcasts some games for the Los Angeles Clippers, Anaheim Ducks, and Los Angeles Kings.

12. As shown in Table A-3 below, our sample of treatment and control networks covers 8 NBA teams, 12 MLB teams, and 11 NHL teams.

Table A-3. RSN Sample
Carriage of Major League Teams

Category	NBA	MLB	NHL
Treatment	5	6	4
Control	3	6	7
In Sample	**8**	**12**	**11**
Excluded	19	16	12
Not Tracked by SNL Kagan [1][2][3]	3	2	7

Note: [1] NBA: Oklahoma City Thunder (carried by Fox Sports Oklahoma), Toronto Raptors (carried by a Canadian network), New Orleans Pelicans (carried by Fox Sports New Orleans).
[2] MLB: Kansas City Royals (carried by Fox Sports Kansas) and Toronto Blue Jays (carried by a Canadian network).
[3] NHL: Seven teams carried by Canadian networks.

B. Regression Specifications

13. Following the Commission's approach,[13] we regress the year-on-year growth rate of affiliate fees from the previous year on:

- Percentage of years under horizontal overlap during the previous five years (including the current year), which is the variable of primary interest.[14] A positive and statistically significant coefficient is interpreted as indicating a positive correlation between affiliate fees and the event of horizontal overlap.
- Growth rate of the three-year moving average of monthly programming investment of the 36-month window covering the previous three years (including the current year).
- A spline in the age of the network with knot points at the quintiles.
- Network and year fixed effects.
- We cluster the standard errors of the estimates by RSN.[15]

[13] Comcast-NBCUniversal Order, Appendix B, ¶¶ 51, 54.
[14] The Commission stated that this variable was used because it was "unable to observe the date when the pre-transaction contracts were renegotiated following the merger. Since contracts can span multiple years, we would expect that the change in programming fees would increase with the time since vertical integration occurred." Comcast-NBCUniversal Order, Appendix B, ¶¶ 51, 54.
[15] Comcast-NBCUniversal Order, Appendix B, ¶54.

14. We also run an alternative specification where we use the natural logarithm of the affiliate fee as the dependent variable. In this alternative specification, we replace the growth rate of the three-year moving average of the programming investment with the natural logarithm of three-year moving average of the programming investment.

15. In addition, we also run the two specifications using a subset of control RSNs that had an average pre-transaction affiliate fee growth rate similar to those of the treatment RSNs. We compute the average annual growth rate of affiliate fees in the pre-transaction period of 2008 to 2010 for each of the six treatment RSNs. Pre-transaction, the six treatment RSNs had average annual growth rates ranging between **[[ ]]**% and **[[ ]]**%, so we choose control RSNs with pre-transaction average annual growth rates between **[[ ]]**% and **[[ ]]**%. This criterion excluded 5 of the 9 control RSNs, leaving 4 RSNs in this subset of control networks.[16]

III. Permanent and Temporary Foreclosure Analysis Using the Commission's Approach in the Comcast-NBCUniversal Order

A. Illustration of Theoretical Critical Departure Rate Calculations

16. In this section, we illustrate the calculation of theoretical critical departure rates for permanent and temporary foreclosures using the Commission's approach in the Comcast-NBCUniversal Order. Section C below lists mathematical formulas of the calculations for all scenarios.

1. NBC O&Os

a) Permanent foreclosure

17. Consider a permanent foreclosure of the NBC O&O station in DMA *m* to four rival MVPDs (e.g., Dish, DirecTV, AT&T and Verizon) combined.[17] The cost of a permanent foreclosure includes lost retransmission fees and lost advertising revenues (local and national). The former is associated with the rival MVPDs' subscribers who do not leave the MVPDs. The latter is associated with the rival MVPDs' subscribers who do not leave the MVPDs and do not watch NBC programming over-the-air. In addition, we adopt the Commission's assumption that

[16] The excluded RSNs are Mid-Atlantic Sports Network, New England Sports Network, Root Sports Pittsburgh, MSG Plus, and Comcast SportsNet New England.
[17] A similar formula applies to five MVPDs including RCN.

the foreclosure-related decrease in viewership will also reduce Comcast's national and local advertising revenue per viewer.[18] The total cost of foreclosure is given by the following formula:

$$\sum_{i=1}^{4} retrans_i \times (1-d) \times subs_{i,m} + \left(ad_{national} + ad_{local_m}\right) \times (1-a-d) \times \sum_{i=1}^{4} subs_{i,m}$$
$$+ad_{national} \times b \times (1-a-d) \times \frac{\sum_{i=1}^{4} subs_{i,m}}{subs_{national}} \times [a \times \sum_{i=1}^{4} subs_{i,m} + (subs_{national} -$$
$$\sum_{i=1}^{4} subs_{i,m})] + ad_{local_m} \times b \times (1-a-d) \times \frac{\sum_{i=1}^{4} subs_{i,m}}{subs_m} \times [a \times \sum_{i=1}^{4} subs_{i,m} + (subs_m -$$
$$\sum_{i=1}^{4} subs_{i,m})]$$

18. In this formula, *d* is the proportion of foreclosed MVPD's subscribers who switch to other MVPDs; *a* is the proportion of subscribers who will stay with the foreclosed MVPDs but switch to watch the NBC programming over-the-air.[19] We use 33% for *a*, the same rate the Commission used in the Comcast-NBCUniversal transaction and the News Corp-Hughes transaction.[20] We also assume that a 1% decline in viewership results in a 0.39% (*b*) reduction in the advertising price per viewer.[21]

19. For retransmission fees, we use the fee each MVPD pays Comcast in 2014. For local advertising revenues, we use the 2014 advertising revenue per subscriber of the relevant NBC O&O station estimated by SNL Kagan. For national advertising revenues, we use 2014 national advertising revenues per subscriber of the NBC Network estimated by SNL Kagan.

20. Under the Commission's theoretical foreclosure model, the gain from foreclosing a rival MVPD is the additional profit Comcast will earn from subscribers who switch from the rival MVPDs to Comcast due to the loss of NBC O&O programming, which is:

$$\alpha_{MVPDs,m} \times d \times \pi_m \times \sum_{i=1}^{4} subs_{i,m}$$

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[18] FCC Appendix B, ¶ 20. For ease of calculation, we assume that the reduction in national and local advertising revenue per subscriber does not apply to foreclosed subscribers who switch to other MVPDs.
[19] Comcast-NBCUniversal Order, Appendix B, ¶ 23.
[20] Comcast-NBCUniversal Order, Appendix B, ¶ 23. News Corp Hughes Order, Appendix D, ¶ 6.
[21] Comcast-NBCUniversal Order, Appendix B, ¶ 20.

21. In this formula, $\alpha_{MVPDs,m}$ is the diversion ratio from the foreclosed MVPD to Comcast, i.e., among the subscribers who would leave the MVPD, the share that would switch to Comcast. Following the Commission's approach in the Comcast-NBCUniversal Order, we calculate proportional diversion ratios in each DMA based on 2Q2014 subscriber shares estimated by SNL Kagan.[22] For profit π_m in market *m*, we use the monthly average profit per video subscriber calculated from the 2014 Comcast regional "profit and loss" statements.[23] See Section I.B below for details of the calculation of the profits per video subscriber.

22. Equating the theoretical cost and benefit of the foreclosure, the critical departure rate *d* for permanent foreclosure is given by the following formula:

$$d_{permanent} = \frac{\sum_{i=1}^{4}\left[retrans_i + \left(\widetilde{ad_m} + \widehat{ad_m}\right) \times (1-a)\right] \times subs_{i,m}}{\sum_{i=1}^{4}\left(retrans_i + \widetilde{ad_m} + \widehat{ad_m} + \alpha_{MVPDs,m} \times \pi_m\right) \times subs_{i,m}}$$

23. In the formula,

$$\widetilde{ad_m} = \left[ad_{national} \times \left(1 - b \times (1-a) \times \frac{\sum_{i=1}^{4} subs_{i,m}}{subs_{national}}\right) + ad_{local_m} \times \left(1 - b \times (1-a) \times \frac{\sum_{i=1}^{4} subs_{i,m}}{subs_m}\right)\right]$$

and

$$\widehat{ad_m} = ad_{national} \times b + ad_{local_m} \times b$$

b) Temporary foreclosure

24. The calculation of theoretical critical departure rates for a one-month temporary foreclosure of the NBC O&O station in DMA *m* to a rival MVPD *i* is similar to that for a permanent foreclosure but with a few modifications. First, we adopt the Commission's assumption that a temporary foreclosure will not lead to any reduction in the advertising revenue per viewer ($b = 0$).[24] The cost of a temporary foreclosure is the lost retransmission fee and local

[22] Comcast-NBCUniversal Order, Appendix B, ¶ 13.
[23] Comcast-NBCUniversal Order, Appendix B, ¶ 22.
[24] Comcast-NBCUniversal Order, Appendix B, ¶ 20.

and national advertising revenue during the foreclosure, which is

$$Cost = retrans_i \times (1-d) \times subs_{i,m} + \left(ad_{national} + ad_{local,m}\right) \times (1-a-d) \times subs_{i,m}$$

25. Second, unlike in a permanent foreclosure where subscribers are assumed to permanently switch from the foreclosed MVPD, in a temporary foreclosure subscribers are assumed to switch back to the foreclosed MVPD gradually after the programming is restored. Since the subscribers who switch from the foreclosed MVPD have shown a higher tendency to switch MVPDs depending on the MVPD's carriage of programming, they are also more likely to switch back (or "churn back") to their original MVPD when the programming is restored on the MVPD. We estimate two "churn-back" rates based on Comcast's churn data, one rate for those who are more likely to switch ("movers") and one rate for those who are more likely to stay ("stayers"). Following the Commission's approach, we assume that during the month immediately after the programming is restored, the switchers would churn back to the foreclosed MVPD at a rate about twice the estimated churn rate for movers.[25] Using Comcast's churn data, we estimate the churn rate of the movers to be **{{ }}**%, which implies that the first-month churn back rate is about **{{ }}**% (≈ 2 × **{{ }}**%) according to the Commission's assumption. For the second month onward, we also follow the Commission's approach and assume the churn back rate is the same as the average customer churn rates in Comcast's subscriber data.[26]

26. Third, Comcast incurs a net acquisition cost including sales and marketing, installation and overhead costs at the time a subscriber switches to Comcast. In addition, the profit for a new subscriber during the first year may be lower due to promotions that reduce revenue. Therefore, we calculate three average profits for subscribers at three different points in their tenure with Comcast. The first average profit is for new subscribers who have switched to Comcast for less than a month, which takes into account the net acquisition cost. The second average profit is for new subscribers who have been with Comcast for more than one month and up to one year,

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[25] Comcast-NBCUniversal Order, Appendix B ¶ 24. This assumption was originally proposed by Comcast's experts in the Comcast-NBCUniversal transaction (Israel-Katz February 2010 Report, ¶¶ 41, 43) and was adopted by the Commission.

[26] Comcast-NBCUniversal Order, Appendix B ¶ 24. **{{**

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which takes into account promotional offers. The third average profit is for subscribers who have been with Comcast for at least one year. See Section I.B below for the details of calculation of Comcast profits.

27. Overall, the theoretical gain from a temporary foreclosure is given by:

$$
\begin{aligned}
&\alpha_{i,m} \times d \times subs_{i,m} \\
&\quad \times \Bigg[\left(\pi_{1,m} - Acqcost\right) + \pi_{1,m} \\
&\quad \times \Bigg((1-c_1) \times \frac{1}{1+r}^{1} + (1-c_1)(1-c_2) \times \frac{1}{1+r}^{2} + (1-c_1)(1-c_2)^2 \\
&\quad \times \frac{1}{1+r}^{3} + \cdots + (1-c_1)(1-c_2)^{10} \times \frac{1}{1+r}^{11} \Bigg) + \pi_{2,m} \\
&\quad \times \Bigg((1-c_1)(1-c_2)^{11} \times \frac{1}{1+r}^{12} + (1-c_1)(1-c_2)^{11}(1-c_3) \times \frac{1}{1+r}^{13} + \cdots \\
&\quad + \ (1-c_1)(1-c_2)^{11}(1-c_3)^{12} \frac{1}{1+r}^{24} \\
&\quad + (1-c_1)(1-c_2)^{11}(1-c_3)^{12}(1-c_4) \times \frac{1}{1+r}^{25} \ldots \Bigg) \Bigg]
\end{aligned}
$$

28. In this formula, $\alpha_{i,m}$, the diversion ratio, represents the proportion of subscribers departing foreclosed MVPD *i* that would switch to Comcast. We compute the proportional diversion ratios using 2Q2014 subscriber shares. To account for the fact that DBS subscribers are more likely to switch to other DBS providers than to Comcast, the Commission used a diversion ratio from DBS to Comcast at an undisclosed rate implied by the proportional diversion ratio.[27] Since the Commission's rate is redacted, we assume the diversion rate for DBS

[27] Comcast-NBCUniversal Order, Appendix B, ¶¶ 13-16.

MVPDs to be 1/2 of the rate implied by the proportional diversion ratio and the diversion rate for telco MVPDs to be the same as proportional diversion ratio.

29. We assume subscribers churn back to the foreclosed MVPD at a rate of c_1 during the first month after the programming is restored, at c_2 during the second month up to one year, at c_3 during the second year, and at c_4 after the second year. We assume that r, the annual discount rate, is 10%. The monthly profit of a new subscriber in DMA m is $\pi_{1,\mathrm{m}} - Acqcost$ during the first month, $\pi_{1,\mathrm{m}}$ during the second month up to one year, and $\pi_{2,\mathrm{m}}$ after the second year.

30. With the assumptions above, we derive the critical departure rate that would equate the cost and benefit of a temporary foreclosure.

$$d_{temporary} = \frac{retrans_i + \left(ad_{national} + ad_{local,m}\right) \times (1-a)}{retrans_i + \alpha_{i,m} \times (\pi_{1,m} - Acqcost) + \alpha_{i,m} \times \pi_{1,m} \times \tilde{c} + \alpha_{i,m} \times \pi_{2,m} \times \hat{c} + (ad_{national} + ad_{local_m})}$$

31. In this formula,

$$\hat{c} = \left(\frac{1-c_2}{1+r}\right)^{12} \left(\frac{1-c_1}{1-c_2}\right) + \sum_{t=13}^{24} \left(\frac{1-c_3}{1+r}\right)^{t} \frac{(1-c_1)(1-c_2)^{11}}{(1-c_3)^{12}} + \left(\frac{1-c_4}{1+r}\right)^{25} \frac{(1-c_1)(1-c_2)^{11}(1-c_3)^{12}}{(1-c_4)^{24}} \times \frac{1+r}{c_4+r}$$

and

$$\tilde{c} = \sum_{t=2}^{11} \left(\frac{1-c_2}{1+r}\right)^{t} \left(\frac{1-c_1}{1-c_2}\right) + \frac{1-c_1}{1+r}$$

2. NBCUniversal Cable Networks

32. The Commission's permanent and temporary foreclosure model for NBCUniversal national cable networks is similar to that for NBC O&Os with a few modifications. First, Comcast loses affiliate fees instead of retransmission consent fees. Second, the advertising revenue Comcast loses in a foreclosure is national cable network advertising.

33. We calculate affiliate fees and advertising revenue per subscriber per month for the set of NBCUniversal cable networks at issue based on Comcast's data on affiliate fee revenue, advertising revenue and cable network subscribers for the first half of 2014. Diversion ratios are calculated using 2Q2014 subscribers estimated by SNL Kagan.

3. RSNs

34. The permanent and temporary foreclosure model for an RSN is also similar to that for NBC O&Os with a few modifications. First, the advertising revenue Comcast loses in a foreclosure involving RSNs is regional advertising. Second, the diversion ratio is calculated based on the shares of RSN subscribers. For example, Dish does not carry TWC SportsNet, so the model assumes that if a subscriber leaves DirecTV due to foreclosure of TWC SportsNet, she would not switch to Dish.[28]

35. As explained in the main text, we calculate critical departure rates for two RSNs: CSN New England and TWC SportsNet. For CSN New England, we calculate affiliate fees, advertising revenue per subscriber per month, and diversion ratios using Comcast data for the first half of 2014.[29]

36. For TWC SportsNet, we obtain the affiliate fees from TWC and calculate the advertising revenue per subscriber per month from SNL Kagan estimates. Diversion ratios are calculated based on subscriber counts from SNL Kagan in Los Angeles, the home DMA of the LA Lakers.[30]

B. Model Inputs

1. Comcast's Monthly Profit from an Additional Residential Video Subscriber

37. To estimate the monthly profit Comcast would earn from an additional residential video subscriber, we first identify revenue and cost items for video service from Comcast's "2014

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[28] We note that this assumption is problematic. Suppose a consumer chooses among Comcast, DirecTV, Dish and AT&T based on the value of each MVPD to her. Dish does not carry the RSN programming while the other three MVPDs do. Suppose the value ranking of the four MVPDs is DirecTV, Dish, AT&T, and Comcast, from the highest to lowest, so the subscriber chooses DirecTV. Assume that if DirecTV loses the RSN programming, its value to the subscriber declines to just below the value of Dish and the value ranking changes to Dish, DirecTV, AT&T and Comcast. In that case, the subscriber will choose Dish even though it does not carry the RSN programming while AT&T and Comcast do. While we do not have the data to estimate such an effect, this example shows that if the diversion ratio calculation excludes an MVPD not carrying the programming at issue, it may overstate the diversion ratio to Comcast and overstate Comcast's incentive for permanent or temporary foreclosure.

[29] Comcast Exhibit 8.2 (b), Comcast Exhibit 8.6 (a-c).

[30] We exclude Dish's subscribers as Dish does not carry TWC SportsNet.

budgeted Profit and Loss (P&L) Statements," (hereinafter "Comcast P&L Statements"), which were provided to us for Comcast's 16 business regions.[31]

38. Revenues from an additional residential video subscriber include recurring video revenue (including monthly video subscription revenues and video equipment rentals) and Pay-Per-View revenue on the Comcast P&L statements.

$$Video\ Revenue = Recurring\ Video\ Revenue + Pay\ Per\ View\ Revenue$$

39. **{{**

}}. Since these expenses include expenses for both residential and commercial subscribers, we adjust these expenses by the share of residential video subscribers in total video subscribers, which is estimated to be **{{ }}**%.[33]

$$Recurring\ Video\ Expenses$$
$$= \{programming\ expense$$
{{
}}
$$* \%\ of\ residential\ subscribers\ who\ are\ video\ subscribers\}$$
$$\times \%\ of\ subscribers\ who\ are\ residential\ subscribers$$

[31] These regions include Beltway Region, Big South Region, California Region, Chicago Region, Florida Region, Freedom Region, Greater Boston Region, Heartland Region, Houston Region, Keystone Region, Mile High Region, Mountain Region, Portland Region, Seattle Region, Twin Cities Region, and Western New England Region.
[32] Comcast, "Customer Lifetime Value", October 2013, p. 11.
[33] Comcast Exhibit 4.7 (e).

40. Second, **{{**

}}.[34] Because a subscriber will typically return equipment if his or her service is discontinued, we **{{**

}}.[35] That is:

$$Amortized\ Capital\ Expense = \frac{capital\ expense\ for\ video\ sub}{\sum_{t=0}^{119}\left(\frac{1}{1+r}\right)^{t}}$$

41. With the video expenses identified above, we subtract recurring video expenses from video revenue, divide the difference by the number of residential video subscribers and 12 months, and then subtract the amortized capital expense to calculate profit per video subscriber per month in a given region.

$$\begin{aligned} &Profit\ per\ video\ sub\ per\ month \\ &\quad = \frac{Recurring\ Video\ Revenue - Recurring\ Video\ expenses}{residential\ video\ subscribers \times 12} \\ &\quad - Amortized\ Capital\ Expense \end{aligned}$$

42. Third, Comcast incurs a net acquisition cost at the time a subscriber switches to Comcast, **{{** **}}**.[36] Note that even if the foreclosure drives a subscriber to leave her current MVPD, Comcast still needs to incur the cost to compete with other MVPDs to attract the subscriber. For sales and marketing expense associated with a new video subscriber, we use the **{{**

}}.[37] We subtract the installation revenue from the installation and overhead costs to calculate the net installation costs and **{{** **}}**.[38]

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[34] Comcast, "Customer Lifetime Value", October 2013, p. 22.
[35] Comcast, "Customer Lifetime Value", October 2013, pp. 22-23. **{{**

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[36] Comcast, "Customer Lifetime Value", October 2013, p. 22.
[37] Comcast's Response to the DOJ 2nd Request, Exhibit 4.13(a).
[38] Comcast, "Customer Lifetime Value", October 2013, p. 22.

$$Net\ acquisition\ cost\ per\ video\ sub = regional\ cost\ per\ connect + national\ marketing\ expense + \frac{installation\ cost + overhead - installation\ revenue}{3}$$

43. In addition, as described above, the profit for a new subscriber during the first year is usually lower due to promotional offers. Therefore, we calculate separately an average profit for a new subscriber during the first month that takes into account the net acquisition cost, an average profit for a new subscriber after the first month up to one year that takes into account promotional offers, and an average profit for a subscriber with at least one year of tenure.

$$Video\ Profit\ per\ sub_{first\ year} = Video\ Revenue\ per\ sub * \%\ of\ First\ year\ ARPU^{39} - Video\ Expense\ per\ sub$$

$$Video\ Profit\ per\ sub_{second\ year\ and\ beyond} = = Video\ Revenue\ per\ sub * \%\ of\ Second\ year\ and\ beyond\ ARPU^{40} - Video\ Expense\ per\ sub$$

$$Video\ Profit\ per\ sub_{first\ month} = Video\ Profit\ per\ sub_{first\ year} - Net\ acquisition\ cost\ per\ video\ sub$$

2. Other Inputs

44. The values of various other parameters used in the calculations are listed below:

- Share of over-the-air watching: a = **{{ }}**
- Percentage reduction in advertising revenue per sub due to loss of one percent viewership: b = **{{ }}**

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[39] Comcast, "Customer Lifetime Value", October 2013, p. 6. We estimate first year ARPU by averaging 0-6 months and 7-12 months monthly recurring charge (MRC) and second-year-beyond ARPU by averaging 1-2 years, 2-3 years, 3-5 years, and >5 years MRC.

$$\%\ of\ First\ year\ ARPU = \frac{First\ year\ ARPU}{First\ year\ ARPU * \%\ of\ 1st\ year\ subs + Second\ year\ and\ beyond\ ARPU * \%\ of\ subs\ with\ tenure\ longer\ than\ 2\ years}$$

[40]

$$\%\ of\ Second\ year\ and\ beyond\ ARPU = \frac{Second\ year\ and\ beyond\ ARPU}{First\ year\ ARPU * \%\ of\ 1st\ year\ subs + Second\ year\ ARPU * \%\ of\ subs\ with\ tenure\ longer\ than\ 2\ years}$$

- Churn back rates after programming is restored:
  - Month 1: c_1 = **{{ }}**%
  - Month 2 – Month 12: c_2 = **{{ }}**%
  - Month 13 – Month 24: c_3 = **{{ }}**%
  - Month 25 onwards: c_4 = **{{ }}**%
- Monthly discount rate: r = **{{ }}**%

3. Estimation of Actual Departure Rates Using Data from Programming Disputes

a) Selection of programming disputes

45. In order to estimate the actual departure in a hypothetical foreclosure of NBC O&O programming, we examine retransmission consent blackouts between a broadcaster or O&O carrying Big 4 networks and one of the four major non-cable MVPDs (Dish, DirecTV, AT&T, or Verizon). As explained in the main text, due to rapid changes in the video programming marketplace, we focus on recent retransmission blackouts since 2012 tracked by SNL Kagan.[41] To make sure that the dispute lasted long enough to have an effect and we have enough data to estimate the effect, we also limit the disputes to those affecting more than 5 DMAs (including some Top 50 DMAs) and lasting more than 30 days.

46. Based on the criteria above, the programming dispute between Media General and Dish (which lasted 46 days from October 1, 2013 to November 16, 2013) is the only one that involved a major rival MVPD of Comcast in more than five affected DMAs (including some Top 50 DMAs) and lasted longer than 30 days.[42] To supplement the Media General-Dish dispute, we also used SNL Kagan data to identify retransmission consent blackouts between a broadcaster or O&O carrying Big 4 networks and a cable MVPD since 2012. The dispute between CBS and

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[41] SNL Kagan, Publicized Retrans Blackouts 2000-2014 YTD.

[42] There was also a dispute between Bonten Media and Dish that led to a blackout in 6 small DMAs with big 4 stations for 36 days from December 8, 2013 to January 12, 2014 where the affected DMAs ranged in size ranging from 97 to 198 in 2013-2014 Nielsen size ranking ("Nielsen, Local Television Market Universe Estimate"). In comparison, the DMAs involved in the Media General-Dish dispute are bigger, with a Nielsen size ranking ranging from 14 to 167, and the DMAs at issue in this transaction (those with NBC O&Os) have a Nielsen size ranking ranging from 1 to 30. Due to the small size of the DMAs involved in the Bonten dispute, it is not relevant for estimating actual departure rates applicable to foreclosure of NBC O&O programming.

TWC (which lasted 32 days from August 2, 2013 to September 2, 2013) is the only one that lasted more than 30 days and affected more than five DMAs.

b) Selection of control DMAs for the analysis of the Media General – Dish programming dispute

47. The dispute between Media General and Dish affected 17 big 4 broadcast stations in 17 DMAs. To select control DMAs similar in size and/or geographic location to the affected DMAs, we first limit the set of potential control DMAs to unaffected DMAs in the same census regions of each affected DMA and then select the two DMAs closest to the affected DMA in 2013-2014 Nielsen ranking of DMAs by number of TV households.[43] Table A-4 below shows the affected DMAs and the control DMAs.

[43] Nielsen, Local Television Market Universe Estimate (Estimates as of January 1, 2014 and used throughout the 2013-2014 television season).

Table A-4. Media General-Dish Dispute Affected DMAs and Control DMAs

Affected DMAS	Control	
Augusta, GA-A ken, SC	Montgomery-Selma	Lafayette, LA
Birmingham (Anniston and Tuscaloosa), AL	Norfolk-Portsmth-Newpt Nws	Greensboro-H.Point-W.Salem
Charleston, SC	Chattanooga	Waco-Temple-Bryan
Columbus, GA (Opelika, AL)	Corpus Christi	Amarillo
Columbus, OH	Kansas City	Milwaukee
Greenville-New Bern-Washington, NC	Ft. Smith-Fay-Sprngdl-Rgrs	Tallahassee-Thomasville
Greenville-Spartanburg, SC-Asheville, NC-Anderson, SC	San Antonio	West Palm Beach-Ft. Pierce
Hattiesburg-Laurel, MS	Abilene-Sweetwater	Clarksburg-Weston
Jackson, MS	Shreveport	Harlingen-Wslco-Brnsvl-McA
Mobile, AL-Pensacola (Ft. Walton Beach), FL	Tulsa	Knoxville
Myrtle Beach-Florence, SC	Tyler-Longview(Lfkn&Ncgd)	Macon
Providence, RI-New Bedford, MA	Buffalo	Wi kes Barre-Scranton-Hztn
Raleigh-Durham (Fayetteville), NC	Charlotte	Baltimore
Roanoke-Lynchburg, VA	Lexington	Charleston-Huntington
Savannah, GA	Huntsville-Decatur (Flor)	Paducah-Cape Girard-Harsbg
Tampa-St. Petersburg (Sarasota), FL	Miami-Ft. Lauderdale	Orlando-Daytona Bch-Melbrn
Tri-Cities, TN-VA	El Paso (Las Cruces)	Baton Rouge

Source: Nielsen (2013), US Census

Note: Control is defined as an unaffected DMA in the same census region as the affected DMA with the closest Nielsen ranking.

c) Selection of control DMAs for the analysis of the CBS – TWC programming dispute

48. The dispute between CBS and TWC affected six CBS O&O stations in Boston, Dallas-Ft. Worth, Denver, Los Angeles, New York, and Pittsburgh. Because most of these DMAs are very large, our set of control DMAs includes all unaffected DMAs among the top 50 DMAs in the nation if TWC has a significant presence in the DMAs.[44] In addition, like in our analysis of the Media General-Dish dispute, we select two control DMAs in the footprint of TWC for each affected DMA based on census region and 2013-2014 Nielsen ranking of DMAs by TV households. Table A-5 below lists the control DMAs selected for the CBS-TWC dispute.

[44] We exclude DMAs where TWC's presence is less than 1,000, as well as four DMAs affected by a dispute between Journal Broadcasting and TWC (Green Bay, Wisconsin; Milwaukee, Wisconsin; Omaha, Nebraska; and Palm Springs, California).

Table A-5. CBS-TWC Dispute Control DMAs

Albany-Schenectady-Troy, NY	Honolulu, HI	Rochester, NY
Austin, TX	Houston, TX	San Antonio, TX
Buffalo, NY	Kansas City, MO	San Diego, CA
Charlotte, NC	Louisville, KY	Spokane, WA
Cincinnati, OH	Norfolk-Portsmouth-Newport News, VA	Syracuse, NY
Cleveland-Akron (Canton), OH	Portland-Auburn, ME	Wilkes Barre-Scranton-Hazleton, PA
Columbus, OH	Raleigh-Durham (Fayetteville), NC	Yuma, AZ-El Centro, CA
Greensboro-High Point-Winston Salem, NC		

C. List of Formulas

49. This section shows the mathematical formulas for deriving the critical departure rates under the Commission's permanent and temporary foreclosure models. The notations in the formulas are listed at the end of the section.

A. Permanently withholding signal of the NBC O&O station in market *m* from MVPD *i*

$$d_{permanent} = \frac{retrans_i + \left(\widetilde{ad_m} + \widehat{ad_m}\right) \times (1-a)}{\alpha_{i,m} \times \pi_m + retrans_i + \widetilde{ad_m} + \widehat{ad_m}}$$

$$where\ \widetilde{ad_m} = ad_{national} \times \left(1 - b \times (1-a) \times \frac{sub\,s_{i,m}}{sub\,s_{national}}\right) + ad_{local_m} \times \left(1 - b \times (1-a) \times \frac{sub\,s_{i,m}}{sub\,s_m}\right)$$

B. Permanently withholding signal of all NBC O&O stations in the footprint of MVPD *i*

$$d_{permanent} = \frac{\sum_{m=1}^{10}\left[retrans_i + \left(\widetilde{ad_m} + \widehat{ad_m}\right) \times (1-a)\right] \times subs_{i,m}}{\sum_{m=1}^{10}\left\{\left(\alpha_{i,m} \times \pi_m + retrans_i + \widetilde{ad_m} + \widehat{ad_m}\right) \times subs_{i,m}\right\}}$$

$$where\ \widetilde{ad_m} = ad_{national} \times \left(1 - b \times (1-a) \times \frac{\sum_{m=1}^{10} sub\,s_{i,m}}{sub\,s_{national}}\right) + ad_{local_m} \times \left(1 - b \times (1-a) \times \frac{sub\,s_{i,m}}{sub\,s_m}\right)$$

C. Permanently withholding signal of the NBC O&O station in market *m* from four major MVPDs.

$$d_{permanent} = \frac{\sum_{i=1}^{4}\left[retrans_i + \left(\widetilde{ad_m} + \widehat{ad_m}\right) \times (1-a)\right] \times subs_{i,m}}{\sum_{i=1}^{4}\left(retrans_i + \widetilde{ad_m} + \widehat{ad_m} + \alpha_{MVPDs,m} \times \pi_m\right) \times subs_{i,m}}$$

$$where\ \widetilde{ad_m} = \left[ad_{national} \times \left(1 - b \times (1-a) \times \frac{\sum_{i=1}^{4} sub\,s_{i,m}}{sub\,s_{national}}\right) + ad_{local_m} \times \left(1 - b \times (1-a) \times \frac{\sum_{i=1}^{4} sub\,s_{i,m}}{sub\,s_m}\right)\right]$$

D. Permanently withholding signal of all NBC O&O stations in the footprint of each of the four major MVPDs

$$d_{permanent} = \frac{\sum_{i=1}^{4}\sum_{m=1}^{10}\left[retrans_i + \left(\widetilde{ad_m} + \widehat{ad_m}\right) \times (1-a)\right] \times subs_{i,m}}{\sum_{i=1}^{4}\sum_{m=1}^{10}\left(retrans_i + \widetilde{ad_m} + \widehat{ad_m} + \alpha_{MVPDs,m} \times \pi_m\right) \times subs_{i,m}}$$

$$where\ \widetilde{ad_m} = ad_{national} \times \left(1 - b \times (1-a) \times \frac{\sum_{i=1}^{4}\sum_{m=1}^{10} sub\,s_{i,m}}{sub\,s_{national}}\right) + ad_{local_m} \times \left(1 - b \times (1-a) \times \frac{\sum_{i=1}^{4} sub\,s_{i,m}}{sub\,s_m}\right)$$

E. Temporarily withholding signal of the NBC O&O station in market *m* from MVPD *i* for one month

$$d_{temporary} = \frac{retrans_i + \left(ad_{national} + ad_{local_m}\right) \times (1-a)}{retrans_i + \alpha_{i,m} \times \pi_{1,m} \times \tilde{c} + \alpha_{i,m} \times (\pi_{1,m} - Acq) + \alpha_{i,m} \times \pi_{2,m} \times \hat{c} + \left(ad_{national} + ad_{local_m}\right)}$$

F. Temporarily withholding signal of all NBC O&O stations in the footprint of MVPD *i* for one month

$$d_{temporary} = \frac{\sum_{m=1}^{10}\left\{\left[retrans_i + \left(ad_{national} + ad_{local_m}\right) \times (1-a)\right] \times subs_{i,m}\right\}}{\sum_{m=1}^{10}\begin{bmatrix} retrans_i + \alpha_m \times \pi_{1,m} \times \tilde{c} + \alpha_m \times (\pi_{1,m} - Acqcost) \\ +\alpha_m \times \pi_{2,m} \times \hat{c} + \left(ad_{national} + ad_{local_m}\right) \end{bmatrix} \times subs_{i,m}}$$

G. Permanently withholding signal of NBCUniversal national cable networks in the footprint of MVPD *i*

$$d_{permanent} = \frac{fee_i + \widetilde{ad}}{\alpha_i \times \pi_{national} + fee_i + \widetilde{ad}}$$

$$where\ \widetilde{ad} = ad \times \left(1 + b - b \times \frac{sub\,s_i}{sub\,s_{national}}\right)$$

H. Permanently withholding signal of NBCUniversal national cable networks in the footprint of each of the four major MVPDs

$$d_{permanent} = \frac{\sum_{i=1}^{4}\left[fee_i + \widetilde{ad}\right] \times subs_i}{\sum_{i=1}^{4}\left\{\left(fee_i + \widetilde{ad} + \alpha_{MVPDs} \times \pi_{national}\right) \times subs_i\right\}}$$

$$where\ \widetilde{ad} = ad \times \left(1 + b - b \times \frac{\sum_{i=1}^{4} sub\,s_i}{sub\,s_{national}}\right)$$

I. Temporarily withholding signal of NBCUniversal national cable networks in the footprint of MVPD *i* for one month

$$d_{temporary} = \frac{fee_i + ad}{fee_i + \alpha_i \times \pi_1 \times \tilde{c} + \alpha_i \times (\pi_1 - Acqcost) + \alpha_i \times \pi_2 \times \hat{c} + ad}$$

J. Permanently withholding signal of a Comcast RSN from MVPD *i* in market *m*

$$d_{permanent} = \frac{fee_i + \widetilde{ad_m}}{\alpha_{i,m} \times \pi_m + fee_i + \widetilde{ad_m}}$$

$$where\ \widetilde{ad_m} = ad \times \left(1 + b - b \times \frac{sub\,s_{i,m}}{sub\,s_m}\right)$$

K. Permanently withholding signal of a Comcast RSN from four major MVPDs in market *m*

$$d_{permanent} = \frac{\sum_{i=1}^{4}\left[fee_i + \widetilde{ad_m}\right] \times subs_{i,m}}{\sum_{i=1}^{4}\left\{\left(fee_i + \widetilde{ad_m} + \alpha_{MVPDs,m} \times \pi_m\right) \times subs_{i,m}\right\}}$$

$$where\ \widetilde{ad_m} = ad \times \left(1 + b - b \times \frac{\sum_{i=1}^{4} sub\,s_{i,m}}{sub\,s_m}\right)$$

L. Temporarily withholding signal of a Comcast RSN from MVPD *i* in market *m* for one month

$$d_{temporary} = \frac{fee_i + ad}{fee_i + \alpha_{i,m} \times \pi_{1,m} \times \tilde{c} + \alpha_{i,m} \times (\pi_{1,m} - Acqcost) + \alpha_{i,m} \times \pi_{2,m} \times \hat{c} + ad}$$

Notation:

a: Proportion of foreclosed MVPD who will switch to watch NBC programming over the air.

$Acqcost$: One-time net acquisition cost incurred when Comcast acquires a new subscriber.

$ad_{local,m}$: Advertising revenue per sub per month of the NBC O&O in market m.

$ad_{national}$: Advertising revenue per sub per month of the NBC network.

$\widehat{ad_m} = ad_{national} \times b + ad_{local_m} \times b$

α_i: Diversion ratio from foreclosed MVPD i to Comcast in the footprint of MVPD i nationally.$\alpha_{i,m}$: Diversion ratio from foreclosed MVPD i to Comcast in market m.

$\alpha_{MVPDs,m}$: Diversion ratio from foreclosed MVPDs to Comcast in market m.

α_{MVPDs}: Diversion ratio from foreclosed MVPDs to Comcast nationally.

b: Percentage reduction in average advertising revenue per sub given 1% of decrease in local or national viewership.

c_1: Churn rate during the first month after the programming is restored.

c_2: Churn rate between the second and the 12th month after the programming is restored.

c_3: Churn rate between the 13th and the 24th month after the programming is restored.

c_4: Churn rate beyond 25th month after the programming is restored.

$$\hat{c} = \left(\frac{1-c_2}{1+r}\right)^{12}\left(\frac{1-c_1}{1-c_2}\right) + \sum_{t=13}^{24}\left(\frac{1-c_3}{1+r}\right)^{t}\frac{(1-c_1)(1-c_2)^{11}}{(1-c_3)^{12}} + \left(\frac{1-c_4}{1+r}\right)^{25}\frac{(1-c_1)(1-c_2)^{11}(1-c_3)^{12}}{(1-c_4)^{24}} \times \frac{1+r}{c_4+r}$$

$$\tilde{c} = \sum_{t=2}^{11}\left(\frac{1-c_2}{1+r}\right)^{t}\left(\frac{1-c_1}{1-c_2}\right) + \frac{1-c_1}{1+r}$$

d: Departure rate.

fee_i: Affiliate fee per sub per month MVPD i pays to Comcast for RSNs or bundle of cable networks.

π: Comcast's profit per sub per month nationally.

π_m: Comcast's profit per sub per month in market m.

π_1: Comcast's profit per sub per month of a first-year subscriber nationally.

$\pi_{1,m}$: Comcast's profit per sub per month of a first-year subscriber in market m.

π_2: Comcast's profit per sub per month of a subscriber with at least one year of tenure nationally.

$\pi_{2,m}$: Comcast's profit per sub per month of a subscriber with at least one year of tenure in market m.

$retrans_i$: Retransmission fee per sub per month MVPD i pays to Comcast for NBC O&Os.

$subs_i$: Subscribers of MVPD i nationally.

$\pi_{national}$: Comcast's profit per sub per month nationally.

$subs_{i,m}$: Subscribers of MVPD i in market m.

$subs_m$: Subscribers in market m.

$subs_{national}$: Subscribers of MVPD services in the US.

EXHIBIT 3

DECLARATION OF DENNIS W. CARLTON

September 22, 2014

Declaration of Dennis W. Carlton

I. Introduction

1. My name is Dennis W. Carlton. I am the David McDaniel Keller Professor of Economics at the Booth School of Business of The University of Chicago. I have served on the faculties of the Law School and the Department of Economics at The University of Chicago and the Department of Economics at the Massachusetts Institute of Technology. In addition to my academic experience, I served as Deputy Assistant Attorney General for Economic Analysis, Antitrust Division, U.S. Department of Justice from October 2006 through January 2008. I also served as a Commissioner of the Antitrust Modernization Commission, created by Congress to evaluate U.S. antitrust laws. I also am a Senior Managing Director of Compass Lexecon, a consulting firm that specializes in the application of economics to legal and regulatory issues and for which I served as President (of Lexecon) for several years. I have provided expert testimony before various U.S., state and federal courts, the U.S. Congress, a variety of state and federal regulatory agencies and foreign tribunals. My curriculum vitae is attached as Exhibit 1 to this report.

2. I have been asked by counsel for Comcast Corporation ("Comcast") to focus on the economic analyses related to the provision of broadband services. I have reviewed the declaration of Dr. Israel on broadband services as well as the declarations by the economists who criticize his analyses ("Commenters").[1] I have also reviewed Dr. Israel's

[1] Declaration of Mark A. Israel, "Implications of the Comcast/Time Warner Cable Transaction for Broadband Competition," Attachment to Comcast Corporation and Time Warner Cable Inc., *Description of Transaction, Public Interest Showing, and Related Demonstrations*, April 8, 2014 (hereinafter, *Israel Declaration I*); Declaration of David S. Evans, "Economic Analysis of the Impact of the Comcast/Time Warner Cable Transaction on Internet Access to Online Video Distributors," Attachment to Petition to Deny of Netflix, Inc., August 25, 2014 (hereinafter, *Evans Declaration*); Declaration of Joseph Farrell, Attachment to Petition to Deny of Cogent Communications Group, Inc., August 25, 2014 (hereinafter, *Farrell Declaration*); Declaration of David Sappington, "The Anticompetitive Effects of the Proposed Merger of Comcast and Time Warner Cable," Attachment to Petition to Deny of DISH Network Corporation, August 25, 2014 (hereinafter, *Sappington Declaration*).

reply declaration, which provides a detailed rebuttal to many of the criticisms of Commenters as they pertain to his analysis of the broadband segment.[2]

3. In a transaction as large as this one, with effects on so many parties, it is not surprising that hundreds of pages of analyses have been submitted challenging Dr. Israel's conclusion that the proposed transaction is in the public interest.[3] My purpose here is not to analyze the detailed criticisms of Dr. Israel's analysis, a task that I leave to him, nor to verify any claimed facts. Rather, my purpose is to highlight what I consider to be the key economic issues based on the submissions by the economists, assuming that the evidence they present is correct. To focus on the key issues in this case, I intentionally abstract from many details that are covered at length in Dr. Israel's declarations. With a matter involving as many details as this one, my goal is to make sure that details do not obscure the big picture, which, as I will explain, seems clear. In my view, none of the details I ignore are likely to change my central conclusions. If Commenters believe otherwise, I welcome their views and the opportunity to react to them.

4. Based on my reading of the economic analyses, my key conclusions are the following:

- The proposed transaction promises large consumer benefits from improvement in broadband quality.
- The proposed transaction creates no additional market power over consumers of broadband.
- Commenters focus primarily on two concerns that they claim will generate significant harm to competition arising from the proposed transaction. The first concern involves vertical foreclosure (or harm to a rival) – in which the merged

[2] Declaration of Mark A. Israel, "Economic Analysis of the Effect of the Comcast-TWC Transaction on Broadband: Reply to Commenters," September 22, 2014 (hereinafter, *Israel Declaration II*).

[3] *Israel Declaration I*, ¶ 12.

entity will harm online video distributors (OVDs) such as Netflix in order to promote its own competing video services. The second concern is that, by becoming larger, the merged entity will be able to negotiate better terms from edge providers, thereby harming them. Given the structure of the industry, economic theory is ambiguous as to whether these concerns are valid, highlighting the need for empirical evidence. Importantly, the evidence cited by commenters in fact supports exactly the reverse of their conclusion – namely the evidence they cite in fact shows that the magnitude of any harm, even if real, is likely to be tiny.

The overall conclusion that emerges is that the benefits of the proposed transaction are large relative to the key harms that Commenters have identified. Thus, the proposed transaction is in the public interest. Below, I briefly discuss each of these points in more detail.

II. Efficiencies

5. The proposed transaction promises large consumer benefits from the improvement in broadband quality.[4] None of the economists who criticize Dr. Israel factor such consumer benefits into their evaluation of whether the transaction is in the public interest. Yet obviously, such benefits, if sufficiently large, can provide a justification for proceeding with the transaction even if there were harms to competition. If one ignores these benefits, then it is not surprising that one could conclude that there is no reason to risk incurring competitive harms even if the risk – or those harms themselves – may be small. However, doing so would be inappropriate. That is especially the case here, where the unrebutted consumer benefits from the proposed transaction are particularly large.

6. Dr. Israel and others identify three categories of efficiencies arising from the transaction:

[4] See, e.g., *Israel Declaration I*, § IV and *Israel Declaration II*, § VIII.

- Efficiencies arising from increased scale;[5]
- Efficiencies arising from increased geographic scope;[6] and
- Efficiencies arising from a combination of complementary skills and products.[7]

Based on these incentives and the evidence, Dr. Israel and others identify specific ways in which the proposed transaction would improve wired, Wi-Fi, and home networks, including via higher broadband speeds.[8] Such improvements in broadband networks are a central component of the Commission's public policy objectives.[9] Recent economic research has demonstrated that improvements in broadband network performance are tremendously valuable to consumers.[10] For example, Dr. Israel demonstrates that even a one Mbps increase in speed for TWC customers would generate nearly $100 million in annual consumer benefits, and that such increases in speed are well within the range of benefits expected from the proposed transaction.[11]

7. Dr. Israel also shows how these significant efficiency gains will bring more competition and more reliable services to business customers, especially those with multiple offices throughout the combined company's region.[12] The Commission should welcome the

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5 *Israel Declaration I*, § III.A.

6 *Israel Declaration I*, § III.C.

7 *Israel Declaration I*, § IV.A.2.

8 *Israel Declaration I*, § IV.B.3.

9 See, e.g., "The Facts and Future of Broadband Competition," Prepared Remarks of FCC Chairman Tom Wheeler, 1776 Headquarters, Washington, DC, September 4, 2014.

10 *Israel Declaration II*, § VIII.C.

11 *Israel Declaration II*, § VIII.C.

12 *Israel Declaration I*, § IV.A.

strengthening of competition in this sector. None of the commenters challenge, or even address, this benefit.

8. Indeed, as a general matter, Commenters have not refuted, or even addressed, any of the specific efficiencies that Drs. Israel and others have identified beyond vague statements that such efficiency claims are "speculative."[13] These unrefuted efficiencies must be taken into account in order to reach sound conclusions about the net impact of the proposed transaction on consumer welfare.[14] Any sensible policy decision must consider the magnitude of these potential efficiencies.

III. No horizontal overlap in the provision of broadband services to consumers

9. The transaction creates no additional market power over consumers of broadband. Commenters seem not to (and cannot) dispute this point. Because the market areas of Comcast and Time Warner do not overlap, the proposed transaction raises none of the traditional horizontal concerns from mergers in which competitors merge and gain greater pricing power over consumers who are faced with elimination of one of their sources of supply.[15] Even though this point seems undisputed, Commenters spend many pages establishing that Comcast or Time Warner may currently have market power over

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13 See, e.g., *Evans Declaration*, n. 12; *Sappington Declaration*, ¶ 91. See also *Israel Declaration II*, § VIII.A (demonstrating why Dr. Farrell's claims about customer service scores do not refute the specific efficiencies that Dr. Israel and others identify).

14 See U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines*, August 19, 2010 (hereinafter, *Horizontal Merger Guidelines*), § 10.

15 *Israel Declaration I*, § II.A.

While both Comcast and TWC may compete in the market for "transit" or "backbone" services that deliver traffic to their broadband access networks that provide broadband services to consumers (such services to consumers are in a separate market from transit or backbone services), so do multiple other providers; no Commenter suggests that the elimination of TWC would have anything but a minimal impact on the competitiveness of this separate market. (See *Israel Declaration I*, § II.A.3.(c).)

their consumers.[16] That may or may not be so for some consumers. But such claims have nothing to do with an evaluation of how the proposed transaction alters the available sources of supply to consumers, a central question in any merger analysis. The answer to that question is that the proposed transaction does not alter the supply alternatives to consumers of broadband.

IV. Commenters' concerns about significant antitrust harms do not follow unambiguously from economic theory and are contradicted by the evidence

10. Lacking any plausible claim that the proposed transaction will increase market power over (and thus prices to) broadband customers, some Commenters instead focus on two theories of antitrust harm that they claim could be significant. The first involves the possibility that the merged firm will use its market position to harm a rival such as Netflix in order to benefit itself by increasing sales of its own video products. The second concern is that by becoming larger the merged entity will have greater bargaining power and will be able to negotiate better prices when it deals with third parties, thereby harming those third parties. Given the structure of the industry, economic theory is ambiguous as to whether these concerns are valid, highlighting the need for empirical

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[16] See, e.g., *Evans Declaration*, § II; *Farrell Declaration*, § III.

Some Commenters assert that Comcast and TWC currently have a terminating access monopoly, a term borrowed from telecom regulation. Even if that claim were true, for the same reasons discussed above, this claim has no bearing on the transaction since whatever market power for terminating access to an individual consumer exists pre-merger does not change post-merger because the geographic markets of Comcast and TWC for providing broadband access to consumers do not overlap. Moreover, Commenters use Comcast's agreement with Netflix to illustrate the existence of this market power. Yet, as I discuss later, the facts of the Netflix transactions {{

}}. (*Israel Declaration II*, § V.A and Appendix III; see also *Israel Declaration II*, § III for a discussion of the institutional features that constrain Comcast.)

evidence.[17] Importantly, Commenters "prove" empirically the validity of their concerns by referencing the recent agreement between Netflix and Comcast.[18] But that transaction reveals that Commenters' concerns about significant harms are unjustified based on the empirical facts.

A. Ambiguous theoretical basis for concerns

11. The theoretical literature on vertical foreclosure demonstrates that a key condition for such theories to operate would be that Comcast would benefit from harming an edge provider primarily when, by doing so, it would acquire market power over consumers with whom it does not currently deal or have market power over. I have written several articles on this topic and take seriously the concern about such potential vertical harms.[19] For example, if by harming Netflix (and all other OVDs), Comcast could acquire additional market power to sell its competing video products to consumers who reside outside of Comcast's territory then, in such a situation, Comcast could theoretically have an incentive to harm Netflix (or other OVDs).[20] But, if such a gain of new market power cannot occur given current marketplace or other constraints, then even if Comcast were to destroy Netflix (and all other OVDs), Comcast will not benefit: it would not obtain access to any customers over whom it does not already have "market power" according to Commenters and, therefore, gain no additional power to harm consumers above what

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17 Dr. Evans appears to agree with me that, when theory is ambiguous, facts are crucial. (See, e.g., *Evans Declaration*, n. 108.)

18 See, e.g., *Evans Declaration*, § III.E.2; *Farrell Declaration*, ¶ 177.

19 See, e.g., Dennis W. Carlton and Michael Waldman (2002), "The strategic use of tying to preserve and create market power in evolving industries," *RAND Journal of Economics*, 33(2): 194-220.

20 If the foreclosure concern arises post-merger, then the relevant "Comcast territory" is the merged firm's territory.

it already had absent the foreclosure.[21] Therefore, its incentive to harm Netflix is eliminated.[22] (Indeed, as I describe below, in situations where Comcast and an edge provider are in competition for customers, Comcast has an incentive to reach a mutually beneficial vertical arrangement with the edge provider rather than attempt to harm it.) As I understand the facts, Comcast has no plans to market its video services outside of its current footprint (absent the transaction) or the combined footprint (post-merger) and thus has no incentive to engage in the behavior contemplated by Commenters to extend any of its assumed market power to consumers over whom it does not already, or will not in the future, have market power.[23]

12. More generally, the literature on vertical harms often relies on assumptions about the impossibility of writing flexible contracts. When such assumptions are relaxed, the rationale for the vertical harm disappears. The logic explaining why firms do not find it in their interest to harm rivals when contract terms are freely negotiable is that if, for example, a powerful firm (e.g., Comcast) that produces products *A* (e.g., broadband distribution services) and *B* (e.g., video services) – where *A* and *B* are complements – attempts to harm a rival (e.g., Netflix) who produces product *B*, it will lose sales of product *A* by making the complementary product *B* less valuable. As Rey and Tirole (2007) note, a

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21 To see this, consider an example. Suppose a consumer who pays $5 to Comcast for video on demand (VOD) services considers switching to Netflix instead of consuming those VOD services (a form of "cord-shaving"). In such an instance, Comcast could charge Netflix $5 for the switch if Comcast is the monopoly supplier to Netflix, as Commenters allege, and therefore has no incentive to destroy Netflix to prevent the switch.

22 See, e.g., Dennis W. Carlton and Ken Heyer (2008), "Assessing Single-Firm Conduct," *Competition Policy International*, 4(2):285-305. It is true that absent the key condition discussed in the text, models of vertical foreclosure (or harm to rivals) can still be built that preserve the incentive to harm rivals under a variety of special circumstances. The results of such models are fragile in the sense that small changes in assumptions completely reverse the results. That is why empirical evidence on harm to rivals is needed, since the theory is ambiguous. I discuss below the empirical evidence that Commenters cite and show it is lacking.

23 *Israel Declaration II*, §§ IV.B.2 and VII.A.

firm with market power over product *A*, as commenters suppose, "has no interest in excluding low-cost and high-quality varieties from the market since their presence makes its own product more attractive to consumers."[24] Thus, the Internet service provider (ISP) and the edge provider have an incentive to negotiate terms that split the surplus that their interaction generates in a way that makes both better off. When ISPs and OVDs negotiate directly and flexibly, such flexibility removes any pricing-related constraints that might otherwise inhibit the ability to negotiate a mutually beneficial outcome.[25]

13. Regarding the theory underlying Commenters' claim that the merged entity will be able to negotiate better terms because of its increased size, there seems to be no dispute among Commenters and Dr. Israel that the predictions provided by economic theory of the merger's effect on the outcome of a negotiation are ambiguous.[26] Instead, Commenters attempt to support their assertions with empirical evidence, which, as I describe in the next section, is very limited and does not support their conclusions.

B. Empirical evidence shows that the harms identified by commenters are tiny, if they exist at all

14. Commenters rely on the recent negotiations between Comcast and Netflix to illustrate the validity of their concerns about the harms they raise. For example, Dr. Evans argues that

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[24] Patrick Rey and Jean Tirole (2007), "A Primer on Foreclosure," in *Handbook of Industrial Organization*, Volume 3, Mark Armstrong and Robert H. Porter, ed, Amsterdam: Elsevier at 2182.

[25] Non-linear pricing terms are common in interconnection agreements. For example, Comcast's agreement with {{

}}. (See Letter from Kathryn A. Zachem, Comcast Corporation, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 14-57 (Sept. 17, 2014) (enclosed documents on CD-ROM).)

[26] *Evans Declaration*, n. 108; *Farrell Declaration*, ¶ 148.

Indeed, Dr. Farrell's model – the only formal economic model presented in this proceeding – demonstrates that consumers typically benefit from increases in interconnection fees. (See *Israel Declaration II*, § V.B.1. See also *Israel Declaration II*, § VI for further discussion of the reasons why increases in interconnection fees are likely to benefit, rather than harm, consumers.)

the outcome of the Netflix deal shows that, by supposedly foreclosing Netflix, Comcast succeeded in obtaining sizable interconnection fees.[27] Similarly, Dr. Evans uses the Netflix example to show that the interconnection fee that Netflix pays Comcast, the largest ISP, is greater than the zero fee that Netflix pays many smaller ISPs.[28, 29] Regardless of one's views about the facts of the supposed "foreclosure," or about requiring an edge provider like Netflix, which seeks special arrangements for the very large demands it places on the network, to pay for a portion of the costs that its traffic imposes on Comcast's network, the amount that Netflix pays Comcast is {{ }} and, indeed analysts expect the agreement to enhance Netflix's profitability relative to its previous arrangements for interconnecting with Comcast.[30] {{

}}.[32] As Netflix itself has said publicly, the payments it makes to Comcast have no material effect

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27 *Evans Declaration*, § III.B.

28 *Evans Declaration*, § III.E.2.

See also *Farrell Declaration*, § VI.B.3. Professor Farrell presents an analysis, based on Cogent data, that he claims shows that the merged entity will acquire significant bargaining power. Dr. Israel discusses why that analysis is flawed. (See *Israel Declaration II*, § V.C.3.)

29 Dr. Israel discusses the reasons why Dr. Evans' inferences from the empirical evidence are incorrect, including that Netflix does in fact incur costs to interconnect with *all* ISPs. (*Israel Declaration II*, § V.C.4.)

30 See *Israel Declaration II*, §§ V.A and VI.B.2.(b) for a discussion of Comcast's incremental network costs. See *Israel Declaration II*, § VI.A.2, for a discussion of the impact of direct interconnection agreements on edge providers' financial performance.

31 See Letter from Kathryn A. Zachem, Comcast Corporation, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 14-57 (Sept. 17, 2014) (enclosed documents on CD-ROM).

32 See *Israel Declaration II*, § V.A.

on its margins.[33] Such amounts are inconsistent with claims that Comcast is exercising substantial bargaining power over edge providers or trying to harm their business prospects.[34] Rather than showing the significant harm that Comcast can inflict, this evidence shows exactly the reverse. Even the "powerful" Comcast has not caused Netflix any material harm.

15. There is another important point that follows from the agreement between Netflix and Comcast. That negotiation led to an {{ }} contract during which time Netflix is protected from the alleged power of Comcast to harm it through foreclosure or {{ }}. That is, whatever harm Commenters are worried about no longer applies to Netflix, which has guaranteed interconnection terms with Comcast for approximately the next {{ }}. Furthermore, the long-term agreement with Netflix means that should the merged entity attempt to harm a different rival of the merged firm (and a rival of Netflix), then the gain to the merged entity is reduced from what it would have been absent the Netflix contract, to the extent that the merged firm's profits are lower as a result of Netflix's presence. Hence, the incentive to preserve its profits – which drives models of vertical harm – is diminished by Netflix's presence (which is guaranteed by contract). In other words, the long-term agreement with the largest OVD substantially reduces any incentives to harm *other* OVDs, because now the benefits of doing so must be shared with Netflix.

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33 Thomson Reuters StreetEvents Edited Transcript, "NFLX – Q2 2014 Netflix Inc Earnings Call," July 21, 2014 ("Well on a short-term basis, I think there's great assurances in the sense that we've been able to sign these immediate interconnect deals, and *still able to achieve our margin targets, and our guidance implies those costs are embedded*." [emphasis added])

34 See also *Israel Declaration II*, § VI.A.2 (presenting a stock market event study demonstrating that "market participants did not expect the transaction to harm edge providers.")

V. Conclusion

16. The evidence presented in this proceeding supports the conclusion that the large benefits from the proposed transaction outweigh whatever potential harms may exist.

I, Dennis W. Carlton, declare under penalty of perjury that the foregoing declaration is true and correct to the best of my knowledge, information, and belief.

Executed on September 22, 2014.

Dennis W. Carlton

Dennis W. Carlton

EXHIBIT 1

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EDUCATION

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M.S., MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Massachusetts: Operations Research, 1974.

A.B., HARVARD UNIVERSITY (Summa cum laude): Applied Math and Economics, 1972.

ACADEMIC EMPLOYMENT

UNIVERSITY OF CHICAGO, Booth School of Business, David McDaniel Keller Professor of Economics (2011 – present); Katherine Dusak Miller Professor of Economics (2008 – 2011); Professor of Economics (1984 – 2008)

UNIVERSITY OF CHICAGO, Law School (1980 - 1984): Professor of Economics.

UNIVERSITY OF CHICAGO, Department of Economics: Assistant Professor (1976 – 1979); Associate Professor (1979).

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Massachusetts, Department of Economics (1975 - 1976): Instructor in Economics.

OTHER ACADEMIC EXPERIENCE

HARVARD UNIVERSITY, Public Policy Summer Course in Economics (1977): Professor.

BELL TELEPHONE LABORATORIES (Summers 1976, 1977).

JOINT CENTER FOR URBAN STUDIES OF M.I.T. AND HARVARD UNIVERSITY, Cambridge, Massachusetts (1974 - 1975).

FIELDS OF SPECIALIZATION

Theoretical and Applied Microeconomics Industrial Organization

ACADEMIC HONORS AND FELLOWSHIPS

Keynote Address, International Industrial Organization Conference, 2014
The 2014 Distinguished Fellow, Industrial Organization Society
Award for Best Antitrust Economist, Global Competition Review, 2014
Keynote Address, Sixth Annual Federal Trade Commission Microeconomics Conference, 2013
Heath Memorial Lecture, University of Florida, 2013
Award (w. Mark Israel) for Best Antitrust Analysis in Litigated Cases, Global Competition Review, 2013
Keynote Address, 21st Annual Workshop of the Competition Law & Policy Institute of New Zealand, 2010
Keynote Address, Japanese Symposium on Competition, sponsored by Japan Fair Trade Commission, 2009
Recipient of Inaugural Robert F. Lanzilotti Prize, awarded by the Industrial Organization Society for Best Paper in Antitrust Economics, 2008
Keynote Address to Israel Antitrust Conference, 2008
Lewis Bernstein Memorial Antitrust Lecture, Washington, D.C., 2006
Distinguished Visitor, University of Melbourne, April 2005
Milton Handler Lecture, New York, 2004
Keynote Address to the International Competition Network, Mexico, 2004
Alexander Brody Distinguished Lecture, Yeshiva University, 2000
Ph.D. Thesis chosen to appear in the Garland Series of Outstanding Dissertations in Economics
Recipient of the 1977 P.W.S. Andrews Memorial Prize Essay, best essay in the field of Industrial Organization by a scholar under the age of thirty
National Science Foundation Grant, 1977 - 1985
Recipient of Post-doctoral Grant from the Lincoln Foundation, 1975
National Science Foundation Fellowship, 1972 - 1975
Phi Beta Kappa, 1971
John Harvard Award, 1970
Detur Book Prize, 1969
Edwards Whitacker Award, 1969
M.I.T., National Scholar Award, 1968

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Compass Lexecon, 2008 – present; (formerly) Lexecon Inc., 1977 – 2006; President 1997 – 2001
Member, American Bar Association Transition Task Force on Antitrust, 2012
Advisory panel to the Department of Justice and the FTC on the merger guidelines, 2010
Co-editor, Journal of Law and Economics, 1980 - present
Visiting Committee, MIT, Department of Economics, 1995 - 2011
Member, Advisory Board, Economics Research Network, 1996 - present
Member, Advisory Board of Antitrust and Regulation Abstracts, Social Science Research Network, 1998 - present
Advisory Board, Massachusetts Institute of Technology, Department of Economics, 1999 - present
Editorial Board, Competition Policy International (CPI), 2010 – present, Co-Editor, Competition Policy International (CPI), 2004 – 2009
Member, Economic Task Force – Antitrust Division, American Bar Association, 2010 – present
Advisory Board, Journal of Competition Law and Economics, 2004 – present
Adjunct Scholar, American Enterprise Institute for Public Policy Research, 2007 – present
Deputy Assistant Attorney General for Economic Analysis, Antitrust Division, U.S. Department of Justice, 2006 - 2008
Presidential Appointment to the Antitrust Modernization Commission, 2004 - 2007

Invited Panelist at Public Hearing on the Retail Banking Sector Inquiry: Payment Cards, before the European Commission in Brussels, Belgium, July 17, 2006.
Consultant on Merger Guidelines to the FTC, 2003
Professor, George Mason Institute for Judges, October 2001
Chairman, FTC Round Table on Empirical Industrial Organization (September 11, 2001)
Participant in the Round Table on the Economics of Mergers between Large ILECS before the Federal Communications Commission, February 5, 1999
Member, Steering Committee, Social Science Research Council, Program in Applied Economics, 1997 - 1999
Participant in roundtable discussions on "The Role of Classical Market Power in Joint Venture Analysis," before the Federal Trade Commission, November 19, 1997 and March 17, 1998.
Participant in meetings with Committee of the Federal Reserve on Payment Systems, June 5, 1997
Associate Editor, Regional Science and Urban Economics, 1987 - 1997
Resident Scholar, Board of Governors of the Federal Reserve System, Summer, 1995
Accreditation Committee, Graduate School of Business, Stanford University, 1995
Associate Editor, The International Journal of Industrial Organization, 1991 - 1995
Editorial Board, Intellectual Property Fraud Reporter, 1990 - 1995
Consultant on Merger Guidelines to the U.S. Department of Justice, 1991 - 1992
Member, Advisory Committee to the Bureau of the Census, 1987 - 1990
National Bureau of Economic Research, Research Associate
Member, American Economics Association, Econometrics Society

BOOKS

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Separate Statement of Dennis W. Carlton, in The Report of the Antitrust Modernization Commission, (April 2007)

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"Product Variety and Demand Uncertainty: Why Mark-ups Vary with Quality," (with James D. Dana Jr.), Journal of Industrial Economics (2008)

"Regulation, Antitrust, and Trinko," (With H. Sider), in eds. J. Kwoka and L. White, The Antitrust Revolution, (2008).

"A Solution to Airport Delays," (with W. Whalen, K. Heyer and O. Richard), Regulation (2008).

"Should 'Price Squeeze' Be A Recognized Form of Anticompetitive Conduct?," Journal of Competition Law & Economics (2008).

"Safe Harbors for Quantity Discounts and Bundling," (with M. Waldman), George Mason Law Review (2008).

"Appropriate Antitrust Policy Towards Single-Firm Conduct: Extraction vs. Extension" (with K. Heyer)," Antitrust, (condensed version of subsequent paper), (Summer 2008).

"Extraction vs. Extension: the Basis for Formulating Antitrust Policy Towards Single-Firm Conduct" (with K. Heyer), Competition Policy International, (Autumn, 2008).

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WORK IN PROGRESS

Theoretical analysis of firm size, information, price rigidity, and product variety.

Empirical analysis of business cycle effects on firm size distributions.

Analysis of growth of futures markets and the effect of this growth on the industrial organization of related industries.

EXHIBIT 4

REDACTED – FOR PUBLIC INSPECTION

DECLARATION OF KEVIN MCELEARNEY

1. My name is Kevin McElearney. I am Senior Vice President, Network Engineering for Comcast Cable, a position I have held since March 2011. Before that, I was Vice President, National Network Engineering for Comcast Cable. I am responsible for managing Comcast's converged, fiber-rich network, which offers video, voice, and data services.

2. I joined Comcast in 2004 with the principal focus of establishing a technologically advanced and fully upgradeable nationwide backbone network over which Comcast could deliver new and enhanced services to its commercial and residential customers. Over time, we created a multi-terabit, converged backbone, which became the first 40 Gbps and now Nx100Gbps backbone in the world. My team's accomplishments also included several technology firsts, including the first live network traffic trials at 40 Gbps, then 100 Gbps, and most recently one Terabit.

3. The purpose of this declaration is to describe Comcast's Internet traffic exchange practices, and to respond to certain assertions in declarations submitted by Ken Florance of Netflix and Hank Kilmer of Cogent. At the outset, I want to highlight a few key points:

- Comcast is a responsible participant in the Internet ecosystem. We respect and abide by Internet norms; we honor our contracts; and we have many long-standing and successful business relationships with our peering and transit partners.

- We have invested billions of dollars in our access, metro, and backbone networks, and these continuous investments have helped to create more capacity, establish more connections, increase options, and lower unit prices. As a result of these investments, we have a rich array of mutually beneficial on-net and off-net interconnection arrangements with numerous CDNs, edge providers, and other partners.

- Internet traffic exchange has worked extremely well throughout the history of the Internet. The FCC consciously – and rightly – chose to leave this marketplace unregulated, and that judgment has been validated by the way in which the

marketplace has produced tens of thousands of agreements, with a minimum of disputes, even as traffic volumes have grown exponentially and new business models have developed. Given that capacity has scaled up to meet exponential growth in traffic and transit prices have declined over 99 percent over the past 15 years, it is simply not credible to claim that there is a market failure that requires government intervention.

- Edge providers have more options for delivering their traffic to end-users than ever before. And it is they (and their transit or CDN provider(s)) that dictate the path their traffic will travel to reach our network. Any edge provider that wants to deliver traffic to our customers can hand its traffic off to numerous other partners, and need never deal directly with us. There is no "bottleneck" issue with respect to last-mile delivery. Comcast reaches well over 99 percent of the Internet's networks through more than 40 settlement-free peers and numerous other commercial interconnection agreements, and across our interconnection partners there is more than enough capacity into our network – even enough to carry all of Netflix's Comcast-bound traffic – which is available at reasonable, market-based prices. Edge providers with sufficient traffic and their own CDN can arrange direct connections that result in additional savings.

- Traffic exchange disputes arise only rarely, and generally only when a backbone provider or (more recently) an edge provider has sought to create a problem as a means of exerting leverage over an ISP.

- Netflix has not been honest about what it did to alter traffic destined for Comcast and several other large ISPs in 2010-2013. During that period, it arranged for sudden shifts in the routing of massive volumes of its traffic (one-third of peak traffic bound to Comcast), first to Akamai, then to Limelight, then to Level 3 and Tata and Cogent. In each case, Netflix attempted to force-deliver much more traffic into Comcast's network than these providers' agreements had forecasted and provisioned with Comcast. In so doing – most notably, in the case of Cogent – Netflix effectively degraded its own customers' experience (and that of other businesses relying on these same providers) in an effort to increase its bargaining leverage against Comcast (and other ISPs). In short, the congestion problems were not caused by changes within Comcast's network but by the traffic delivery decisions of Netflix, which had other many transit options available that would have avoided congestion and consumer disruption.

- Comcast at all times dealt responsibly and in good faith with Akamai, Limelight, Level 3, Tata, and Cogent – and with Netflix as well when it sought to connect directly to our network. We ultimately reached a mutually agreeable direct interconnection agreement with Netflix in February of this year. At that time, Netflix's CEO wrote to Comcast executives and said: "We found middle ground on our issues that worked well for both of us for the long term, and works great

> for consumers." Comcast, of course, wholeheartedly shared that view and still does. Comcast is fully complying with that agreement and looks forward to a successful partnership with Netflix for years to come.

Background on Comcast's Interconnection Practices

4. Comcast has a wide variety of interconnection arrangements with other networks and services on the Internet, which can be categorized as follows: (1) settlement-free peering, (2) off-net transit, and (3) on-net transit (i.e., paid peering), including metro interconnect (an emerging regional offering, which involves a direct interconnection to Comcast's metro networks in specific markets). Settlement-free peering involves the mutual exchange of network value without payment pursuant to the terms of each party's peering policy. Off-net transit service provides access to Comcast's entire network and the full Internet. On-net transit (i.e., paid peering) provides access to Comcast's entire network and all our commercial, residential, and content customers, but does not include off-network access; metro interconnect provides reach into specific Comcast markets only. Off-net transit and on-net transit involve some payment to Comcast at market-driven competitive prices.

5. When Comcast first began interconnecting with other networks over two decades ago, nearly all of our arrangements involved purchasing transit services from major providers to reach the other networks that comprised the "public Internet." Over the past decade, we made a multi-billion dollar investment to build our own backbone, which has enabled Internet backbone providers and edge providers to more efficiently (and cost-effectively) interconnect to our growing network – and allows third parties to use *our* network for transit to other parts of the Internet. As part of this evolution of our network, we developed a broader range of interconnect relationships to include over 40 settlement-free interconnections, as well as dozens of

commercial arrangements with content delivery networks ("CDNs"), edge providers, and transit relationships with thousands of other businesses. All of these relationships are critical to our participation in the Internet and to providing our customers the services they demand.

6. Comcast's Settlement-Free Interconnection ("SFI") Policy, which is consistent with industry standards used by other ISPs, including AT&T, Verizon, Sprint, CenturyLink, international ISPs, and many others, is publicly available at www.comcast.com/peering. The criteria in the SFI Policy include certain operational requirements intended to ensure that providing settlement-free interconnection is mutually beneficial for Comcast and the potential partner. This is consistent with industry norms in Internet network interconnection, where parties seeking settlement-free interconnection have traditionally been expected to demonstrate that they can provide a roughly commensurate level of mutual network value to one another.

7. For example, Comcast's SFI Policy requires that an applicant "operate a US-wide IP backbone whose links are primarily 10 Gbps or greater," in order to ensure that the applicant provides roughly equivalent network routing availability for the level of traffic exchanged to Comcast as Comcast provides in return. And, in order to allow for efficient interconnection across Comcast's network, an applicant must be prepared to "meet Comcast at a minimum of four mutually agreeable geographically diverse [third-party exchange] points in the U.S." Another requirement is that "traffic to/from the Comcast network . . . must amount to at least 20 Gbps average in the dominant direction," because it would not be cost-effective for Comcast to dedicate facilities and invest time and resources for a network with a lesser infrastructure.[1]

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[1] Comcast has **{{**

Similarly, the SFI Policy requires that "the network cost burden for carrying traffic between networks shall be similar to justify SFI." The relative network investment to carry traffic in both directions across interconnection links is one factor that affects whether the interconnection arrangement offers mutual network value to both parties. In that regard, the policy requires that the applicant must "maintain a traffic scale between its network and Comcast that enables a general balance of inbound versus outbound traffic." We regularly monitor the traffic balance with our respective peers, and, in Comcast's experience, a persistent ratio of **{{ }}** or more over a prolonged period of time is generally understood to be an indication that a settlement-free relationship is no longer in balance.[2]

8. The roughly 40-plus entities with which Comcast has established settlement-free peering arrangements are overwhelmingly international or domestic ISPs.[3] In addition, this group includes providers that serve enterprises, edge providers, web and content hosting companies, and other networks. Similar to Comcast, some of these entities also operate their own CDNs, though most do not. All of these settlement-free peers have invested, to a greater or lesser extent, in the backbone, metro, access, and exchange facilities that enable the essential interconnectivity of the Internet, and in facilities to serve their customers. Smaller ISPs, website hosting companies, content providers, and other non-network based Internet players – that may

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[2] Settlement-free peering applicants also must "have a professionally managed 24x7 NOC [(network operations center)] and agree to repair or otherwise remedy any problems within a reasonable timeframe," since Comcast will rely on the applicant's network routes for incoming and outgoing traffic, and needs assurance that the applicant will be able to quickly address maintenance issues.

[3] An exception in this category of settlement-free partners are providers of Root DNS services, such as ISC (Internet Systems Consortium), *see* http://www.isc.org/f-root/, that are a critical part of the Internet infrastructure but do not run backbone or access services.

not have contributed to the Internet networks through direct investment in end-to-end facilities that other providers can utilize – instead contribute directly or indirectly by buying paid transit, content delivery, or other interconnection arrangements. CDNs on the other hand, have contributed to the overall Internet ecosystem by aggregating and distributing web and other services closer to ISP networks, lowering the overall burden on parts of the Internet infrastructure. This contribution is typically reflected in a CDN receiving significantly lower transit prices from an ISP than a web server located in a single facility.

9. It is important to stress that settlement-free peering is a two-way street. In other words, Comcast is often the *requesting* party for such arrangements, not simply the "grantor" of such arrangements. In fact, we have been denied settlement-free peering by some networks that don't believe we conform to their peering policies. When that has occurred, we have not sought regulatory relief or tried to execute any punitive tactics to force the hand of other networks; we have either addressed their policy concerns, or simply relied on commercial transit arrangements to reach them. In other words, in evaluating a proposed interconnection arrangement, *both* parties typically evaluate whether it would comply with each of their respective settlement-free peering policies, and both must conclude that it does. Settlement-free peering agreements are subject to regular review for continued compliance with each contracting party's policies and are not a permanent entitlement.

10. Comcast has a general balance of network investment with its settlement-free peers, i.e., the traffic burden from the peer is in general balance with the traffic burden Comcast imposes on that peer. In fact, the number of settlement-free peers to which Comcast sends more traffic than it receives is roughly equivalent to the number of peers from which Comcast receives

more traffic than it sends. While this may seem surprising to those who prefer to characterize Comcast as strictly a consumer "eyeball" or "terminating access" network, the reality is that Comcast serves as a transit provider to many businesses, CDNs, small ISPs, content providers, and other entities that send large amounts of traffic off-net, destined for other providers' networks.

Capacity Arrangements

11. Internet traffic is constantly growing. To handle the expanding volume, arrangements must be made from time to time to add capacity to existing interconnection links. As explained in greater detail below, Comcast's policy for adding capacity with settlement-free partners is different from Comcast's policy for adding capacity for its customers that purchase transit services. But a threshold point applies to both: Comcast does not possess the power to act unilaterally in either situation.

12. Settlement-free peering arrangements are inherently two-way. As a result, one party cannot augment the interconnection arrangement on its own; rather, both parties must add new ports when an interconnection link must be augmented, which generally involves joint planning and discussion. Further, in any given settlement-free interconnection arrangement, Comcast may be the party experiencing traffic growth, thus making Comcast the party *requesting* an augmentation rather than "granting" it.

13. Likewise, paid arrangements are not augmented at the whim of the ISP; the customer determines when it wants additional capacity to meet its needs. Different customers may be satisfied with different levels of utilization of their interconnection ports. The decision to

increase capacity has many facets, including where and when to add capacity, and the ability of the transit provider to deliver the locations at the time-frames requested.[4]

Settlement-Free Partners

14. Internet traffic is constantly growing, and Comcast and its interconnection partners strive to account for this growth proactively. Comcast's SFI Policy requires that applicants "must agree to participate in joint capacity reviews at pre-set intervals and work towards timely augments as identified." Comcast and its settlement-free peers hold these reviews approximately every six weeks, and also have ad-hoc communications between reviews, to discuss operational and infrastructure needs. These discussions include capacity requests and ongoing assessments of each party's compliance with the other's peering policy, as well as discussions about additional technology needs or geographic locations. Comcast's business practice is to maintain a healthy interconnection relationship with each of its partners and manage traffic growth as anticipated by both parties. And while different partners have different policies and practices, Comcast's goal is to have no more than **{{ }}** percent utilization of available capacity in any settlement-free interconnection arrangement to provide sufficient headroom for spikes in traffic, unexpected events, and normal growth.

15. When one of the two parties projects (or experiences) growth that would require additional capacity and communicates that to the other party, the other party evaluates the

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[4] Although Comcast has historically had several interconnection relationships in which Comcast has *paid* for transit as the "customer," **{{ }}**. Comcast would have to *request* an augmentation if Comcast decided it needed more capacity **{{ }}**. In the main, **{{ }}**.

{{ }}.

request to determine whether the addition of capacity would be consistent with its peering policy. As noted above, the requesting party might be Comcast or might be the peer. Of course, in some cases, both parties may project relatively equivalent growth, which makes augmentation straightforward. Upon receiving a straightforward request for augmentation (either because the request is mutual or because it is compliant with the SFI Policy), Comcast will promptly begin the process of provisioning the requested capacity. This process entails evaluating whether the additional capacity is readily available at the relevant exchange points (i.e., whether there are available ports, line cards, capacity on the relevant router, and optical capacity to carry the traffic onto Comcast's backbone network and nationally to the associated metro network). If the requested capacity is readily available, Comcast generally can provision it within as little as a week. If the requested capacity is not readily available, Comcast will begin the process of network design, capital orders, deployment, and turn-up in order to make the new capacity available as soon as practicable. In some cases, the required changes are minor, but, in others, Comcast may need to install new network infrastructure or arrange for more space and power (though this is less common given Comcast's efforts to deploy spare capacity in these facilities). Overall, the process of provisioning additional capacity when none is available often takes approximately six to eight weeks, depending on the work required.

16. It is important to note that a settlement-free agreement is not a permanent entitlement and both parties review compliance of the relationship on a regular basis. On rare occasions, a substantial change in a peer's business practices may cause the peer to exceed the bounds of the pre-agreed to settlement-free policy. Historically, peering disputes have come about because of such a dramatic alteration of the balance of mutual network value.

17. Relatedly, where these situations involve sudden and unexpected shifts of massive amounts of traffic across the parties' interconnects, demand for that capacity will quite quickly exceed the prearranged supply – resulting in congestion.[5] While ISPs can determine the utilization percentage of an interconnection point's capacity, they generally cannot determine in real time the extent to which the path selection of a content provider is negatively impacting its services. The content provider alone makes the routing decision and is in full control of any resulting consequences for user experience. Receiving ISPs do not choose the path(s) over which content enters their network.

18. If a peer accepts this unanticipated level of traffic destined for Comcast's network, beyond what the SFI Policy contemplates, Comcast will invite the company to engage in discussions concerning an out-of-policy commercial arrangement for additional capacity (i.e., above and beyond the capacity covered by the existing SFI arrangement).[6] The commercial terms are typically straightforward and **{{**

}}. The prices are market-based, and are constrained by the transit pricing offered by third parties. As shown below, transit pricing has steeply decreased over time (note the logarithmic scale on the y-axis).

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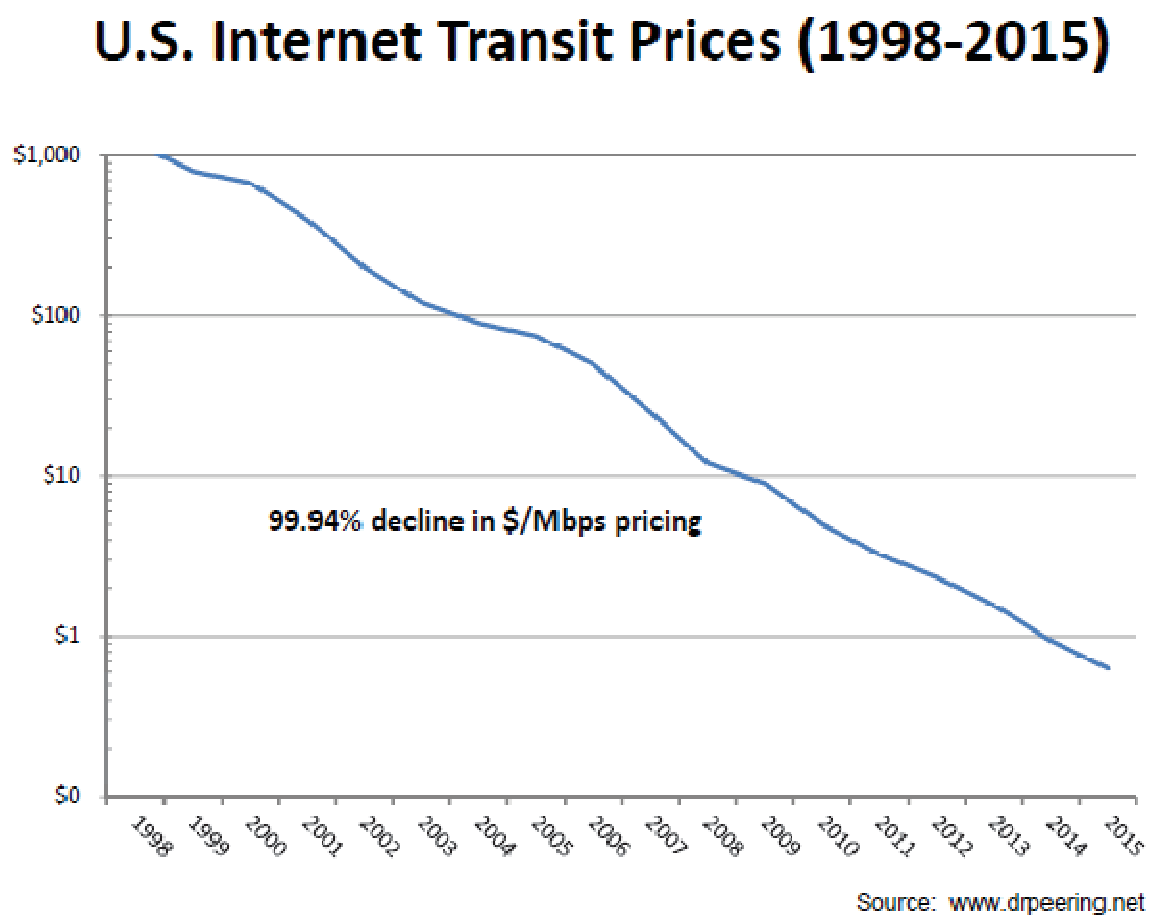
[5] The reverse is also theoretically possible, resulting in stranded facilities and capacity.

[6] In the interim, because Comcast typically has longstanding, productive relationships with its peers, Comcast may provide a complimentary augmentation of the interconnection to help alleviate the congestion.



19. Alternatively, the peer could choose to "groom" the amount of traffic it sends over its interconnection arrangement with Comcast, and use – or encourage its customers to use – one of the many other routes third parties offer into Comcast's network for the overflow. Thanks to the joint efforts of Comcast and its interconnection partners to plan for traffic growth, the capacity of Comcast's interconnection points is almost always more than sufficient to accommodate the volume of traffic exchanged. In fact, over the past two years, the ports that Comcast uses to interconnect with its settlement-free peers have been, on average, less than **{{ }}** percent utilized during peak times, as shown in the chart below.

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Transit and On-Net Partners

20. When companies purchase off-net or on-net transit services from Comcast, they enter into contracts that specify the capacity that must be made available, the locations at which traffic will be exchanged, and other conventional terms and conditions of an interconnection arrangement. As a general matter, these contracts provide that the parties may request that Comcast add capacity, and (subject to the terms of the contracts) Comcast must do so in the manner described above. It is the customer's decision whether or not to have Comcast add capacity. In our history, we have never rejected an order, and we have a strong track record of providing ample capacity. Our standard installation intervals are often much shorter than those available from most other networks.

Response to Ken Florance's Allegations

21. All of the foregoing is necessary background for responding to Ken Florance's general depiction of the traffic exchange marketplace and his specific claims about issues that he

claims Netflix encountered in delivering its traffic to Comcast. At the outset, I note that many of Mr. Florance's statements portray as fact certain characterizations that are matters of opinion or are just plain wrong. I note also that many of his specific claims regarding Comcast are unsupported hearsay – pertaining to matters as to which his knowledge is at best second-hand, and which have apparently been either misreported to him or misconstrued by him.

22. Mr. Florance chooses to characterize ISPs such as Comcast and TWC as "terminating access networks." (Florance Decl. ¶ 3) This is a loaded term, imported from common carrier regulation, that is properly applied only to components of the public switched telephone network – which has a dramatically different structure, history, economics, and regulatory regime than Internet services do. Mr. Florance also overlooks the fact that some residential ISPs only operate regionally with metro and last-mile networks, while others have substantial national and international infrastructures as well as commercial and residential services. According to Mr. Florance's logic, both supposedly serve as so-called "terminating access networks." But the reality is that their situations differ markedly because the former are dependent on transit providers, while the latter are not.[7]

23. Mr. Florance suggests that Netflix had a choice of only six "transit providers" (Florance Decl. ¶ 5) – but he omits dozens of other transit options with adequate capacity to reach Comcast's network. Netflix appears to have adopted a self-serving strategy of using limited transit providers that never purchase interconnection services from their destination ISP.

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[7] I note that Netflix's economic expert, Dr. David Evans, implicitly acknowledges the importance of an ISP's presence in the backbone space (i.e., rather than the size of its so-called "terminating access network") when he observes that "CenturyLink . . . has substantially more bargaining leverage than does Charter [in interconnection negotiations with Netflix], even though they have roughly similar numbers of subscribers." (Evans Decl. ¶ 147).

The result of this self-imposed limitation is that many transit suppliers with available capacity and potentially comparable market pricing were excluded from Netflix's consideration.

24. This Netflix transit strategy severely limited Netflix's delivery capability and its ability to deliver a high-quality service. No other large content provider that I know of – including several in the same space as Netflix – has adopted the same restrictive delivery requirements. The small handful of providers to which Netflix limited itself simply were not capable, by themselves, of handling delivery of one-third of peak Comcast-bound Internet traffic without arranging for massive capacity augmentations that would have far exceeded normal growth and put those providers outside of their peering policies or not in a position to augment at the speed that Netflix wanted to shift traffic. Had Netflix instead taken advantage of the many other routes into Comcast's network, including the many settlement-free routes on which Comcast had (and has) abundant available capacity, as noted above, it could have delivered its traffic to Comcast's network with high quality and no performance issues.

25. Mr. Florance suggests (Florance Decl. ¶ 6) that ISPs like Comcast have only two choices: they can pay entities like Cogent for interconnection, or they can peer on a settlement-free basis where the other partner agrees it makes sense. But this view is seriously flawed and outdated. ISPs that have invested in large metro networks and Internet backbone facilities today no longer rely on paid transit to any significant degree, and in fact offer their *own* commercial transit services, charging third parties, just like the traditional Tier 1 providers did for years. And that is not the result of any "terminating access" monopoly, but instead of the massively increased interconnectedness of the Internet, which allows many more parties to compete in the transit market. Mr. Florance's logic would also compel Comcast not only to accept traffic for

free from any edge provider or network operator on the Internet but also to do so with respect to as *much* traffic as any provider wants to send onto Comcast's network.

26. Mr. Florance claims that Netflix's goal is to send traffic in the most efficient manner possible (Florance Decl. ¶ 27). But Mr. Florance does not address *incentives* for efficiency, which come into play where senders of traffic bear some responsibility for the costs of delivery. It was the cost of transit that led to the development of CDNs 15 years ago and more backbone investment, as various providers sought to send their traffic more efficiently. Of course, if Comcast were required to accept traffic for free from any edge provider or network operator on the Internet, without regard to volume, that would remove normal incentives for those who send large amounts traffic to do so efficiently. Not only would that increase the risk of abusive sending practices, stranded facilities, and constant congestion episodes, but it also would unfairly impose the sending party's costs on *all* of Comcast's customers, rather than those who actually receive and benefit from the relevant traffic (i.e., Netflix's and Comcast's shared customers).

27. It is emphatically *not* the case that Comcast over the period 2008-2014 "succeeded in departing from the previous business norm" under which ISPs either paid for transit or "received such traffic without payment." (Florance Decl. ¶ 26) Just as Netflix's business has evolved since 2007, so has Comcast's. But, unlike Netflix, Comcast has followed established norms as its backbone facilities and infrastructure have become more robust and as Internet traffic has exploded (peak Internet demand in Comcast's network is growing over 40 percent per year). Comcast's investments in infrastructure not only have helped to provide new

capacity for the Internet ecosystem, but have provided new options for edge providers and increased competition that contributed to continued reductions in the cost of transit services.

28. Circa 2004-2005, Comcast used AT&T for backbone services. At no time did edge providers or CDNs ever get costless delivery to Comcast's network; they just paid another transit provider instead. Comcast decided to build a network comparable to AT&T's, since Comcast already accounted for more than half of AT&T's Internet traffic at the time. Once Comcast had invested sufficiently, and had significant value to offer, it began selling Internet traffic services (or trading value via settlement-free relationships), just as AT&T had done previously (and still does). Having built a large backbone network, Comcast acted like every other backbone provider. We have not "depart[ed] from" any "previous business norm" (Florance Decl. ¶ 26); the relevant norm is, and has always been, mutual exchange of value (in one form or another) among settlement-free peers, and payment for transport in the absence of that. This is invisible to most edge providers, because it is handled by the transit provider or CDN they use to deliver their traffic, but it is not novel.

29. It is certainly true, as Mr. Florance suggests (Florance Decl. ¶ 28), that much of the behavior in the Internet community is infused with a respect for traditions established in the early days of the Internet and a commitment to the overall health of the Internet ecosystem. That "do no harm" ethos is reflected in many of the elements of *The Art of Peering: The Peering Playbook* – a compendium of interconnection knowledge from hundreds of the people most involved in architecting and managing Internet traffic exchange.[8] And as a major member of the Internet, it would be fair to expect that Netflix would be true to that ethos in establishing its CDN

[8] http://drpeering.net/white-papers/Art-Of-Peering-The-Peering-Playbook.html.

and peering relationships. Yet, in my opinion, Netflix has been more focused on another part of the *Playbook*, which explains a variety of "tactics that Peering Coordinators have used to obtain peering where they otherwise might not have been able to obtain peering," and these maneuvers "vary from the mundane to the clever, from merely deceptive to manipulative and unethical."[9]

30. Netflix's sole concern is to deliver the most traffic possible to Comcast's network, with the least cost to Netflix. To try to achieve its economic goals, Netflix has actively employed some of the most harmful tactics described in the *Playbook*. These harmful tactics include, most notably, the Traffic Manipulation, Aggressive Traffic Buildup, and Bluff tactics designed to create consumer disruption that the receiving ISP can resolve only by caving to Netflix's (or its chosen transit provider's) demands.

Response to Claims About Congestion Problems

31. In the following paragraphs, I respond directly to certain allegations made by Mr. Florance.

32. It is false that Comcast began a practice in 2009 to 2010 to allow its ports with certain settlement-free transit networks and CDNs to congest. (Florance Decl. ¶¶ 28-29) Instead, in 2009-2010, Netflix began sending huge, unprecedented amounts of traffic over Level 3's transit links into Comcast's network, which had not been provisioned to handle that amount of traffic. From day one of this dispute, Comcast offered to augment the relevant links (and, in fact, made initial augmentations immediately that were soon overcome by even more traffic). But the augmentations would have provided capacity above and beyond the amount required or contemplated under the settlement-free arrangement under which the existing interconnection

[9] *Id.*

arrangement had been established – and thus had to be arranged on a commercial basis, which Level 3 at first refused to consider. While this issue was resolved with no performance issues when it involved Level 3, with whom Comcast has since established a positive **{{**

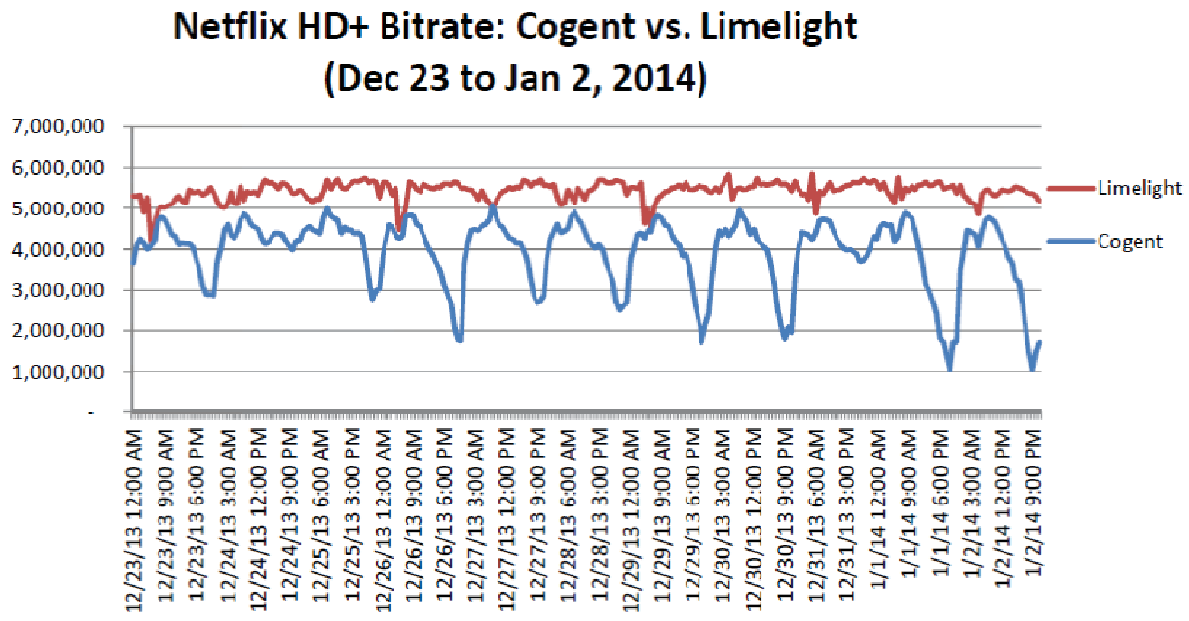
}}, this was not the case when, several years later, Netflix switched its allegiance to Cogent, causing the exact same scenario. In that case, Netflix and Cogent continued to send the traffic at issue, knowing full well it would cause performance issues – a *Playbook* tactic designed to "persuade" Comcast to cave and provide more capacity on a settlement-free peering basis. I address below various specific allegations Mr. Florance makes that misrepresent all parts of this series of events.

33. First, Mr. Florance claims that, "Not long after Akamai took on Netflix traffic [in 2009], Comcast used a number of different tactics against Akamai, including de-peering and congestion." (Florance Decl. ¶ 32) None of this is true. First, Akamai has been a partner of Comcast's since 2008, prior to any arrangement Netflix apparently made with Akamai. Second, our relationship with Akamai has been a good and solid one: we have never de-peered Akamai or threatened to do so, nor have we ever limited capacity to Akamai; and we have consistently provisioned its requested capacity pursuant to our agreement. Contrary to Mr. Florance's speculation, Comcast did not impose a "new terminating fee" on Akamai in 2009; **{{**

}}.

34. Mr. Florance's claims about our dealings with Limelight (Florance Decl. ¶¶ 33-35) are also incorrect. I am aware of no basis for his assertion that Comcast demanded that Limelight interconnect directly with Comcast rather than continuing its reliance on Global

Crossing (later acquired by Level 3) as its upstream transit provider; Comcast at all times honored its agreement with Global Crossing and would have readily added capacity in accordance with the policies described above. Limelight and Comcast did enter into a **{{ }}**, and capacity was added to that arrangement whenever Limelight requested it. In fact, even when Netflix began moving most of its traffic to Cogent and other transit routes in late 2013, Netflix continued to use Limelight to deliver some of its traffic to Comcast, and that traffic was not affected by congestion or other quality issues, as shown in the chart below. (The same was true of Akamai and Level 3.) In short, Mr. Florance's attempt to show that Comcast took aggressive steps that somehow undermined Netflix's relationships with its CDN partners has no basis in reality.



35. As just noted, Mr. Florance also misrepresents our dealings with Level 3. (Florance Decl. ¶¶ 36-38) Comcast and Level 3 had a settlement-free arrangement for several years prior to November 2010, when Level 3 signed on as Netflix's CDN. At that time, Level 3

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}}. But Level 3's new arrangement with Netflix substantially increased the amount of traffic Level 3 delivered to Comcast's network. Instead of ordering additional capacity, as **{{**

}}, Level 3 instead demanded additional settlement-free peering capacity by an amount that would have exceeded the **{{**

}}. Then, as now, Comcast had a transaction review pending before the Commission, and arguments were made that Comcast should be forced to provide the requested capacity on a settlement-free basis (above and beyond some additional free capacity Comcast had provided already as a show of good will) – notwithstanding that Level 3 itself had taken the same position as Comcast in its own previous peering dispute with Cogent. Instead, Comcast invited Level 3 to explore an additional commercial on-net transit arrangement, and offered to consider various iterations that would serve both parties' interests. Ultimately Comcast and Level 3 reached a mutually beneficial arrangement, and Comcast has honored – and continues to honor – all of its contractual obligations to Level 3 (and vice versa).

36. Mr. Florance states that Netflix then determined to transition to its own CDN and relied on transit providers to reach those ISPs, like Comcast, that did not accept Netflix's "offer" that Comcast connect with Netflix on a settlement-free basis. He then suggests (Florance Decl. ¶ 48), incorrectly, that Netflix had a choice of only six transit providers. The reality is that, throughout the period in which Netflix used some or all of these six routes, *there remained*

abundant available capacity into Comcast's network on scores of other routes. Indeed, Netflix and Mr. Florance concede that AT&T (the only ISP mentioned by Mr. Florance) could have delivered Netflix's traffic to Comcast (Florance Decl. ¶ 49). But there were also other large transit routes and dozens of other settlement-free peers and CDNs that Netflix could have used to send its traffic to Comcast's network. As noted, even in the face of the Netflix-related congestion, Comcast's utilization with its peers during the last 12 months was less than **{{ }}** percent on average during peak times – and those peers do not pay Comcast – which undermines Netflix's suggestion that it sought out all routes where no payment to Comcast was required. Netflix chose routes that it knew were insufficient, and created performance issues for itself and its customers.

37. By its own account, Netflix sent traffic to Comcast over only three of Comcast's more than 40 settlement-free peers: Cogent, Level 3, and Tata. Netflix has been saying (but not in the Florance declaration) that it was using five of the six "top" transit providers according to Renesys Market Intelligence data, but Renesys data measures the Internet routing table, not capacity or performance.[10] Also, three of the five transit ISPs that Netflix was using are primarily international, leaving only two U.S.-based major transit providers to carry the lion's share of Netflix's massive traffic load. Out of more than 40 available paths with capacity to Comcast, Netflix intentionally attempted to funnel all of its traffic to a small number of connections not designed to handle this massive amount of traffic. Netflix, in its sole discretion, moved this traffic and could do so again at any time – creating new congestion on the Internet.

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[10] *See* http://www renesys.com/2014/01/bakers-dozen-2013-edition/. In other words, Renesys measures how many individual networks are behind each ISP, so a provider with many small transit customers could be reflected as "larger" by Renesys than one with far more capacity and connectivity to Netflix's end customers.

In contrast, CDNs that adhere to Internet norms of managing capacity across available paths would measure any capacity issues and move traffic appropriately (and often quite rapidly) to avoid customer impact. In fact, prior to Netflix in-sourcing its CDN, Limelight, Level 3, and Akamai were managing this delivery and providing Netflix customers with a good video experience.

38. During these events, Comcast observed that the utilization rates of its interconnection points with Cogent, Level 3, and Tata suddenly soared to 100 percent at peak times, far beyond normal Internet growth expectations. Discussions with these partners (as well as customer complaints) made clear that there was a congestion issue. **{{**

}}. Thus, with sufficient notice, Comcast could and would have supplied the capacity necessary to avoid congestion on its routes with **{{** **}}**. However, the Netflix traffic was moved to that route very quickly, before capacity had been deployed, and immediately caused short-term congestion issues and customer impact.

39. As noted above, **{{**

}}. Netflix elected to send its traffic to Tata, through NTT, TeliaSonera, and XO, for Tata to deliver to Comcast. My understanding is that **{{**

}}. **{{**

}}. In effect, Netflix used Tata as a pawn in Netflix's effort to press Comcast on settlement-free interconnection – again, not the conduct of a responsible member of the Internet ecosystem. Notwithstanding this unfortunate episode, Comcast and Tata's traffic exchange arrangements continue to be mutually beneficial, and our negotiations are amicable and productive. **{{**

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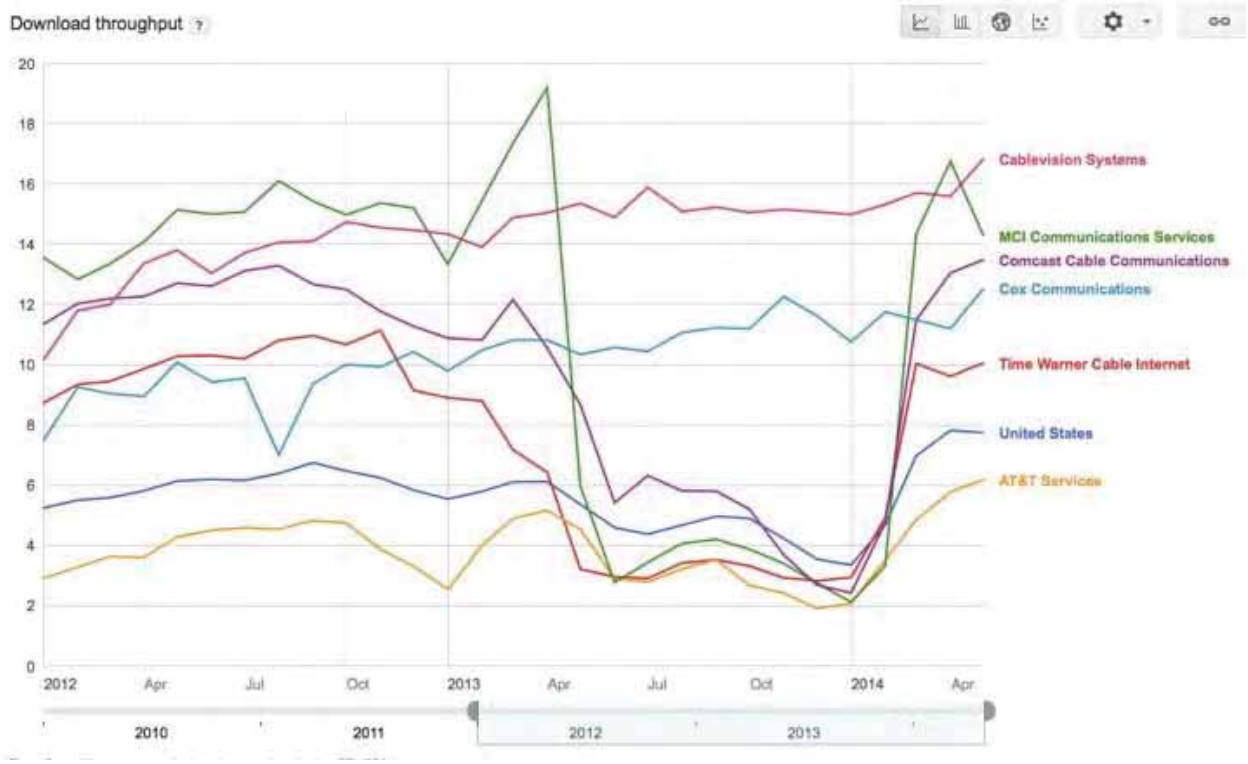
40. Netflix's actions created the most pronounced and prolonged problem with Cogent, which had been a long-term settlement-free peer of Comcast and remains so today. During Comcast and Cogent's scheduled joint capacity review at the end of 2012, Cogent informed Comcast that it did not foresee needing any additional capacity for the coming year. In the fall of 2013, however, Cogent requested that substantial additional capacity be added immediately to its interconnection links to accommodate a massive and unexpected spike in traffic. Comcast offered to do so pursuant to a commercial arrangement, since the additional traffic would have put the company's relationship in violation of our SFI Policy,[11] but Cogent refused to have any discussions with Comcast other than repeated demands for "free" interconnection.

[11] Note that it was not just the traffic flow that became decidedly one-sided. While the receiving party (Comcast) bore the growing burden of transporting more and more traffic over its facilities, the sending party (Cogent) did nothing more than pick up traffic at a third-party collocation site from Netflix's collocated server and transfer such traffic to a Comcast server in the same exact facility, essentially carrying the traffic a few hundred feet or less.

41. Over the next few months, Cogent's traffic into Comcast's network grew by nearly *500 percent*, overwhelming Cogent's existing spare capacity and then overwhelming 50G of additional interconnection ports that Comcast supplied to Cogent on a complimentary basis in the hopes of relieving some pressure and showing good faith to encourage a solution. The resulting congestion not only affected Netflix traffic, but also disrupted other customers of Comcast and Cogent. Comcast repeatedly asked Cogent to meet and enter into discussions to resolve the situation, but they were not willing to meet to discuss any kind of commercial arrangement. The problem thus remained unresolved until – after Netflix proposed and entered into a direct relationship with Comcast – Netflix reduced the volume of traffic that it transmitted to Comcast through Cogent. Today, the Cogent-Comcast interconnection links are uncongested and the parties' traffic flows are back in general balance, with a ratio of less than **{{ }}** over those links, and so now back in compliance with the SFI Policy. This means capacity is again available for many third parties who need to reach Comcast's network through this route.

42. Netflix's use of Cogent was not unique to Comcast; multiple ISPs were also negatively impacted by Netflix's decision to use Cogent far beyond its capabilities. Google's Measurement Lab (M-Lab) infrastructure, which uses Cogent for some of its measurement servers, is an Internet research project with servers measuring various ISPs' performance. During the time at issue here, M-Lab measured a clear performance decline across several ISPs that had not agreed to Netflix's demand for settlement-free peering and was accordingly subjected to Netflix's various *Playbook* tactics. As shown below:



<u>The Direct Connection Agreement</u>

43. While these congestion events were occurring in 2013, Netflix and Comcast had discussions about establishing a direct connection relationship. The parties discussed a number of technical and economic issues about how such an arrangement might be structured, but negotiations foundered on Netflix's insistence that the relationship cost Netflix nothing. But, in January 2014, before Comcast's transaction with Time Warner Cable was announced, Netflix agreed in principle to a commercial direct connection relationship. In February, Comcast and Netflix entered into a mutually-agreeable, long-term contract. That agreement addressed one of the chief concerns Mr. Florance identifies – "unpredictable price increases by Comcast." (Florance Decl. ¶ 39) In fact, it provides Netflix long-term **{{**

}}. And the contract includes **{{**

}}.

44. After the agreement was reached, and implementation was underway, Netflix's CEO Reed Hastings wrote to Comcast executives and said: "We found middle ground on our issues that worked well for both of us for the long term, and works great for consumers." He also noted that the Comcast team's technical agility "is like nothing we've ever seen anywhere in the world" and predicted that "the great performance will be the major story over the coming months." Later, Netflix conceded in an email to Comcast executives that "you [Comcast] made paid peering affordable for us."

45. Of course, Netflix soon decided that it wanted to tell another story publicly. Just three weeks after signing the agreement, Netflix began portraying its agreement with Comcast as something it was forced into against its will and contrary to its interests. Notably, this was after Comcast and Time Warner Cable had announced their transaction. And it thus came as no surprise when, in April, Mr. Hastings wrote to Comcast executives to urge Comcast to accept settlement-free interconnection for residential networks without regard to traffic volumes as a merger condition – and stated that, in the absence of such a statement, Netflix and other Internet companies would "have to protest the merger to increase the odds of winning the condition."

Response to Hank Kilmer's Allegations

46. I now turn to Hank Kilmer's declaration, much of which has already been addressed above. In particular, I have already refuted Mr. Kilmer's highly misleading

description of congestion problems that Cogent created in 2013, but a few additional points warrant further explanation.

47. Mr. Kilmer asserts that whether a network has (or should be entitled to) settlement-free peering with Tier 1 networks depends on whether it is itself a Tier 1 network. (Kilmer Decl. ¶ 14) His implication is that, since Comcast is technically not a Tier 1 provider, Comcast should be *paying* for transit, rather than peering with anyone on a settlement-free basis. By this definition, once the Tier 1 "club" is established everyone must pay Tier 1s, no new ISP can ever become a Tier 1, and a Tier 1 network's status is forever, no matter how its business changes. While Mr. Kilmer may wish this to be true, it is not. As noted, over the last decade, backbone interconnect players have changed and the market has become increasingly competitive and dynamic. Comcast and other new entrants in the backbone market have invested *billions of dollars* in fiber backbone facilities while some older Tier 1s have consolidated or disappeared. The Internet is not a static world, and as businesses, networks, and services have evolved, so have the underlying interconnection arrangements. As explained in paragraph 5 above, as companies like Comcast built out backbone networks, direct settlement-free peering became more widespread among a variety of players, and non-Tier 1 providers began competing to provide paid transit. This created choice and competition – with the unsettling result, for Cogent, that it can no longer charge all other players for transit. But the fact that an edge provider, small ISP, or CDN now has the choice of reaching an arrangement with Comcast, directly, rather than paying *more* to Cogent to reach Comcast, has clearly been an unmitigated positive for the Internet at large.

48. Mr. Kilmer acknowledges that Cogent has been de-peered by five Tier 1 carriers since 2003. (Kilmer Decl. ¶ 15) It bears emphasis that this accounts for almost half of all major de-peering occurrences across the globe since the turn of the century.[12] Although Mr. Kilmer raises these incidents to try to show that such disputes should be resolved by a resumption of settlement-free peering (which of course is ultimately what has now happened between Comcast and Cogent), he does *not* focus on the more compelling issue: that Cogent's repeated abuse of its interconnection capacity with other providers has caused it to be involved in a disproportionate share of the Internet's fairly limited de-peering situations.

49. Mr. Kilmer devotes several paragraphs to an argument that "Comcast's 'balanced traffic ratio' requirement makes no sense." (Kilmer Decl. ¶¶ 55-60) First, he points out that cable broadband providers' last-mile networks are asymmetrical, and that home users want to download more than they transmit (Kilmer Decl. ¶ 55) and asserts that "a Tier 1 backbone provider will always deliver more traffic to a cable ISP than the cable ISP will transmit to a Tier 1 provider." (Kilmer Decl. ¶ 59) To the contrary, Comcast tends to send roughly the same amount of traffic off-net, to its settlement-free peers, as it receives collectively from them. As noted, our relationship with Cogent is highly balanced today. In fact, Comcast *sends* more traffic to some of its peers than it receives. Mr. Kilmer overlooks that Comcast is not simply an eyeball network, anymore than Cogent is simply a transit provider: Comcast provides transit to many networks, businesses, and content providers, and Cogent serves "eyeballs" like universities and businesses and networks that consume traffic. As shown in the graph below, we send net traffic

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[12] *See generally* http://en.wikipedia.org/wiki/Peering#Depeering.

outbound through roughly the same number of settlement-free peers as those through which we receive net *inbound* traffic.

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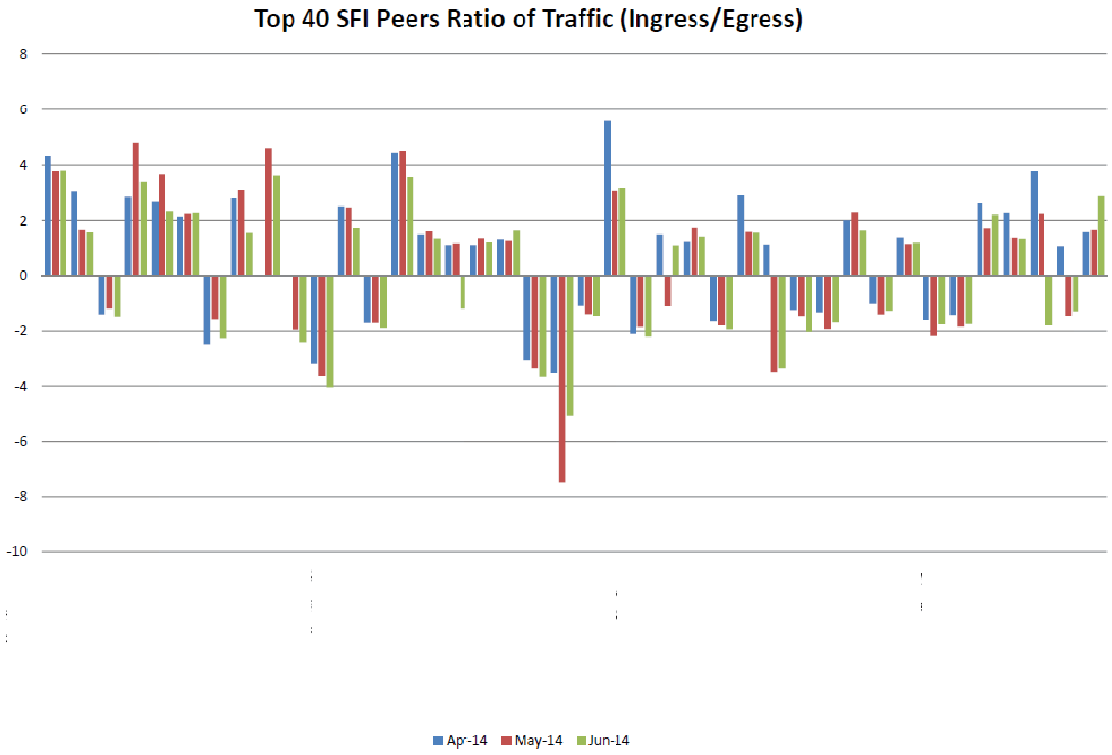

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50. Mr. Kilmer next suggests that interconnection responsibilities (and costs) should all be borne by Comcast, because any traffic that is delivered to Comcast's network is traffic that Comcast's customers have requested. (Kilmer Decl. ¶ 58) But of course, even if this were completely true, Comcast had sufficient interconnection arrangements in place to handle all of Netflix's traffic and all other traffic incoming to its network. Furthermore, it certainly is not Comcast's "responsibility" to ensure that there is always and immediately sufficient capacity to handle a third of the Internet's traffic via any route Netflix chooses to use at any instant. To do so would require hugely excessive spare capacity on every route and create serially stranded facilities. The bottom line is, whether or not Comcast's customers request the traffic, it is Netflix

that decides which route to use to send it to Comcast's network, and Netflix's responsibility to deliver what its customers are requesting with sufficient quality.

51. Comcast did not "deliberately fail to augment port capacity." (Kilmer Decl. ¶ 61) Comcast repeatedly offered to enter into discussions with Cogent about augmenting the capacity – and in the meantime, as I explained above, even augmented ports for Cogent for free.

52. Cogent could have solved its problems at any time, without paying Comcast a dime. It is not uncommon for a transit ISP to work with its large customers to manage their traffic so as to avoid causing congestion or peering problems (e.g., by using a variety of other transit options). Comcast has addressed similar situations with its large volume transit customers, and in my experience, they have always been very cooperative. Large-volume customers are (or should be) very aware that they have the power to create congestion, which can result in "denial of service" situations with their traffic, and normally such customers act very responsibly to avoid these issues. Congestion can be easily corrected in real time by edge providers if the traffic is properly managed, forecasted, and distributed among the various routes available to the customer, rather than insisting that all of it stay on any particular provider's route. Equally important, transit providers like Cogent should avoid selling more capacity than they have in any given time period.

53. Cogent's refusal to engage in this expected Internet "hygiene" is hardly unusual conduct for Cogent, as Mr. Kilmer's discussion of Cogent's de-peering history, mentioned above, illustrates: Cogent has a long history of overselling its routes and then refusing to address the resulting crisis. As Verizon noted during a similar dispute with Cogent in 2013:

> Cogent is not compliant with one of the basic and long-standing requirements for most settlement-free peering arrangements: that traffic between the providers be

> *roughly in balance*. When the traffic loads are not symmetric, the provider with the heavier load typically pays the other for transit. * * * This is [simply] a bandwidth provider that is unhappy that they are out of balance and will have to make alternative arrangements for capacity enhancements, just like any other interconnecting ISP.[13]

And the same problem arose between Cogent and Level 3 in 2005, leading to Cogent being de-peered by Level 3. As Level 3 said:

> We determined that the agreement that we had with Cogent was not equitable to Level 3. There are a number of factors that determine whether a peering relationship is mutually beneficial. For example, Cogent was sending far more traffic to the Level 3 network than Level 3 was sending to Cogent's network. It is important to keep in mind that traffic received by Level 3 in a peering relationship must be moved across Level 3's network at considerable expense. Simply put, this means that, without paying, Cogent was using far more of Level 3's network, far more of the time, than the reverse. Following our review, we decided that it was *unfair for us to be subsidizing Cogent's business*.[14]

54. Finally, I want to answer Mr. Kilmer's claim that Cogent offered to bear the cost of all of Comcast's expenses in upgrading its connections with Cogent. (Kilmer Decl. ¶ 68) Importantly, the costs of upgrading the ports themselves are relatively minor compared to the costs of carrying huge amounts of traffic on an ongoing basis. In any event, Cogent only made this offer in late March 2014, a month *after* Netflix and Comcast had announced (February 23) that they had reached a direct interconnection agreement and weeks after Netflix had moved its Comcast-bound traffic off Cogent's network.

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[13] *See* http://publicpolicy.verizon.com/blog/entry/unbalanced-peering-and-the-real-story-behind-the-verizon-cogent-dispute (emphasis added).

[14] *See* http://www.prnewswire.com/news-releases/level-3-issues-statement-concerning-internet-peering-and-cogent-communications-55014572 html (emphasis added).

I, Kevin McElearney, declare under penalty of perjury that the foregoing declaration is true and correct to the best of my knowledge, information, and belief.

Executed on September 19, 2014.

Kevin McElearney

EXHIBIT 5

The Evolution and Economics of Internet Interconnections

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About the Author

Dr. Constantine Dovrolis is a Professor at the School of Computer Science of the Georgia Institute of Technology. He received his Ph.D. degree from the University of Wisconsin-Madison. His research focuses on the evolution of the Internet, the economics of Internet interconnections, network measurement methods, and cross-disciplinary applications of network science.

Dr. Dovrolis has been an editor for the *IEEE/ACM Transactions on Networking* and the ACM Communications Review (CCR). He served as the Program co-Chair for the PAM'05, IMC'07, CoNEXT'11, and as the General Chair for HotNets'07. He received the National Science Foundation CAREER Award in 2003.

His most relevant prior work to this report includes publications in:

a) The evolution of the Internet at the Autonomous System level from 1998 to 2010 [1], exploring the transformation of the latter from a hierarchical to a horizontally-dense ("flat") structure [2];

b) The economics of Internet interconnections, and of peering in particular [3, 4, 5]; and

c) The development of network measurement tools to evaluate network performance and to detect traffic discrimination in the Internet [6, 7, 8].

His previous research has been funded by the National Science Foundation, Google, and Cisco.

Dr. Dovrolis is a Steering Committee member of the Measurement Lab (M-Lab), a consortium of research, industry, and public interest partners dedicated to providing an ecosystem for the open, verifiable measurement of global network performance.

About this Report

The author was asked by counsel for Comcast Corporation, based on his expertise in the evolution and economics of Internet interconnection, to offer an objective and neutral overview of the techno-economic structure of Internet interconnections and their evolution during the last 20 years.

The author was also asked to offer his assessment of whether certain claims by Cogent (see Declaration of Mr. H. Kilmer) and Netflix (see Declaration of Mr. K. Florance) submitted on the record in this proceeding are accurate, whether these claims justify regulatory intervention in Internet interconnection arrangements, and whether such intervention would benefit the Internet ecosystem as a whole. These three points are discussed in the last three sections of the report.

The opinions expressed in this report are solely of the author and do not necessarily reflect the opinions of Comcast (or any other Internet firm), Georgia Tech, M-Lab, or any sponsors of the author's research.

Executive Summary

I have examined the declarations submitted in this proceeding, In the Matter of Applications of Comcast Corporation, Time Warner Cable Inc., Charter Communications, Inc., and SpinCo for Consent To Transfer Control of Licenses and Authorizations, MB Docket No. 14-57, by Mr. Ken Florance on behalf of Netflix, Inc. and Mr. Henry Kilmer on behalf of Cogent Communications Group. In my opinion, they misrepresent many aspects of the Internet ecosystem –its history, its recent evolution, its direction – and the technical and economic factors that characterize it today. In particular, the mechanisms of traffic routing and capacity provisioning, what options are available, and which parties are most able to influence the quality of routed traffic, are not reported accurately or clearly. I provide this report to correct the misconceptions or misstatements that I have observed. Although I begin with a background on the Internet backbone's structure and evolution, I then comment in particular on the following key points:

- The traditional lines between various Internet firms – enterprise networks, content providers, transit providers, content delivery networks, and access networks – have blurred and many of today's networks have multiple roles and provide multiple services. The arrangements under which these networks have interconnected have evolved as well. ***Today, it makes no sense to decide who should pay whom, or who should peer with whom, based on a historical classification of each firm's Internet role. Instead, each interconnection should be evaluated independently based on the costs and benefits it introduces to each party.***

- Over the past decade, the backbone has become very competitive, there is abundant connectivity at all layers and among all types of providers, and access providers have many interconnection relationships in which they do not pay for transit. Where providers like Cogent used to dominate the transit market and charge providers such as Comcast for transit, today Comcast and Cogent are more or less in the same business – both serve end-users of various sizes, both provide transit, and if the two peer for free, it is because doing so helps both their businesses. ***Thus, Cogent's focus on the "Tier-1 vs. Tier-2" classification is an anachronism with no particular relevance to the current environment or ongoing policy debates.***

- Settlement-free peering is reasonable when the arrangement is of roughly equal benefit to both parties, taking into account both value and costs. The "traffic-ratio" metric is a commonly used proxy to evaluate if a peering link is of roughly the same value for both parties, but it is not the only one and more sophisticated cost-benefit analyses can be used that consider the costs on the receiving network as well as the economic benefits that the transferred flows will generate for each party. ***If one of the parties benefits much more from the interconnection than the other, or imposes far more cost on the other, it is reasonable to consider a paid-peering relationship.***

- Direct interconnection arrangements between content providers and access providers are beneficial to the content provider because the latter ensures capacity and may even reduce the transport costs for the traffic flow (by removing a middleman transit provider). At the same time, the direct arrangement will impose costs on the access network. ***These costs include not only the costs of the dedicated interconnection arrangement, but also the costs of accommodating the incremental traffic flow all the way from the interconnection point to the end-user*** – costs that may increase over time if the sending content provider takes advantage of the direct interconnection to send traffic with less compression or higher resolution, for example.

- ***Paid-peering payments are very different from "termination access fees," although that is the talismanic terminology that Netflix and Cogent have used.*** Access providers cannot demand direct interconnection arrangements (or payments) from the various content providers, CDNs, and other networks that send them traffic. Those providers always have the option of sending their traffic to an access provider by using the various indirect transit providers that provide the core interconnectivity of the Internet; no access provider can fulfill its role reliably and efficiently without being densely interconnected with several transit providers. Access providers simply offer the option of direct interconnection (through paid-peering) as an alternative to the sender's purchase of transit services. Paid-peering may also be offered as a way for a settlement-free peer to send traffic that exceeds the limitations of the parties' settlement-free peering arrangement in terms of traffic exchange constraints.

- Although Netflix and Cogent suggest that Comcast forced Netflix into direct interconnection by causing congestion on its routes with Cogent, it is important to remember that it is ***the networks that send traffic over the Internet (including content providers) that control how to route that traffic***. Thus, a content provider can choose which routes to use, whether to split its traffic over several different routes, and whether to send it directly to another network (via a direct interconnection arrangement if it has one) or over the many indirect routes available into access providers' networks. These routing decisions can be made in real-time and they can be adjusted on a minute-by-minute basis depending on the measured performance of each interconnection, cost considerations, and the usage constraints of each interconnection. ***In contrast, the receiving network cannot control the routing of the traffic it receives. It cannot stop a content provider from pushing all its traffic over one interconnection link rather than spreading it among several, or from using up all available capacity on a particular link the moment it becomes available, creating serious congestion issues.***

In addition, I conclude that if content providers, or transit providers carrying content providers' traffic, could demand free direct interconnection with access networks, as Netflix and Cogent seek through regulation, there would be several negative impacts on consumers and the Internet in general.

- ***First, forcing networks to provide free direct interconnection to any requesting provider would place significant and unfair financial burdens on consumers.***

  - End-users (i.e., access providers' customers) would have to pay the dedicated transport costs of a particular content provider's traffic, whether or not they even subscribe to that content provider, which may be significant when larger providers, like Netflix, are at issue. Meanwhile, the content provider (i.e., Netflix) would not only get subsidized transport to an access network, but also subscription or advertising revenues that it earns because it has access to that network.

  - Eliminating all paid-peering would place all financial burden for the growth of the Internet exclusively on end-users – a situation that has never before prevailed in the Internet ecosystem. End-users would have to pay not only for Internet access but also for investments in the network core, something that has traditionally been defrayed by contributions from content providers, CDNs, and other "large" Internet players.

- ***Second, there is no way or reason to differentiate between content providers (and their partners) and other network providers in setting such a rule; and in any event content providers can simultaneously be transit providers and CDNs themselves.*** There is no basis to differentiate among so-called "terminating access networks" (i.e., all access providers) and transit providers like Cogent, because those categories are equally fluid – transit providers like Cogent provide access to the Internet for their customers. And why would it be deemed acceptable for a transit provider to collect compensation from small access networks and content providers, and send traffic between the two, but wrong for those same small access providers and content providers to pay for direct paid-peering interconnection, eliminating the "middle man" (i.e., the transit provider) from the path? If all networks have the right to seek direct interconnection to every other network, and all can do so for free, this essentially would eliminate the transit market, among other collateral effects, and further exacerbate the problems just described about supporting the Internet's backbone going forward.

- ***Third, paid-peering (and transit) arrangements create incentives for efficiency – these arrangements provide senders of Internet traffic reasons to invest in compression technologies and other ways to reduce their traffic loads.*** When everything is "free" to the sender, those incentives disappear, so bandwidth demands will increase rapidly – with the access networks presumably tasked with the endless job of maintaining sufficient bandwidth for all possible needs. This will simply increase the strain on the Internet and on the consumers who use it.

In short, regulatory intervention to prohibit access providers from collecting payments for direct interconnection arrangements with content providers or their intermediaries is not only unnecessary, but would also be unfair to end-users and harmful to the evolution of the Internet ecosystem.

Finally, with respect to certain claims made by Mr. Florance and Mr. Kilmer, I explain why their premise that access providers' paid-peering arrangements are the same as "terminating access fees" is false. I demonstrate that the purported benefits to access providers of participating in "Open Connect" may not be a benefit at all to certain providers; that the proposition that Comcast should not be charging for interconnection is anachronistic and unjustified; that the claim that Comcast caused congestion on the interconnection links between it and Cogent is implausible and ignores the reality that Netflix controls how its traffic is routed and that Cogent continued to route Netflix's traffic over congested links; and that the assertion that whether a network paid for or was paid for interconnection has always been based on whether the network was a member of the historic "Tier-1 club," rather than whether the network provided a mutual exchange of value, is fiction.

1 The Internet Ecosystem

We usually think of the Internet as a communication network. It is much more than that, however. The Internet is a dynamic and self-organized *"network of networks"*. The networks that participate and form the Internet can belong to an individual or family, a small business, a global enterprise, an ISP, a content provider, etc. Each of these networks operates independently, has its own objectives, and operates under its own constraints. Their common goal, however, is that they want to form a *connected inter-network* in which every individual network can reach every other network. From this point of view, we can also think of the Internet as a techno-economic ecosystem in which various "species" interact through different types of relations (antagonistic or symbiotic) to meet their diverse objectives.

The larger individual networks often follow an administrative process in which they are registered as *"Autonomous Systems"* or ASes, so that they can have their own provider-independent addresses, and to have more than one direct interconnection with other ASes. Individual users or smaller businesses, on the other hand, are typically connected to the Internet through another AS (e.g., their residential ISP or the AS they work for). Today, the Internet consists of about 50,000 ASes [9].

The set of these ASes is constantly changing as new firms and organizations connect to the Internet, while others merge or shut down. The interconnections between these ASes are also highly dynamic because they are determined by economic, performance or strategic objectives, while the "ecosystem's landscape" is constantly in a state of flux. It should be emphasized that these interconnections are not just some cables that connect the networking gear of different companies; *an interconnection between two ASes represents a business agreement, and as such it is formed only when it is beneficial for both parties.* It is amazing (but certainly not a coincidence) that, despite this distributed and heterogeneous decision-making process that is executed in parallel by about 50,000 players, the Internet has always remained connected (with only few disruptions that are discussed later in this report).

1.1 The "Species" of the Internet Ecosystem

Autonomous Systems are often classified based on their main functional role or business objective. I summarize this classification next (emphasizing, at the outset, that many ASes which at one time fit neatly into a single one of the categories below today play multiple roles in the ecosystem).

1.1.1 Traditional AS Classification

- **Enterprise Networks:**
  Most registered ASes fall in this category. They are typically corporations or organizations that want to connect to the Internet with their own, provider-independent addresses. For instance, a major university, a federal

organization, or a manufacturing company with multiple sites would be classified as an enterprise network.

- **Access Providers:**
  These are firms that sell *Internet access* to residential and business customers (mostly through broadband technologies such as DSL or DOCSIS, but possibly also through fiber optics or wireless connections). Historically, firms such as Comcast and Verizon would be classified as access providers.

- **Content Providers:**
  These are firms that generate Internet content, such as online video, news, e-commerce, online social networking, or Web search results. The revenues of these firms are generated mostly through user subscriptions, advertisements, and online sales. For example, Netflix, Google, Facebook, and Amazon would be classified as content providers.

- **Transit Providers:**
  These are firms that operate geographically large and high-capacity backbone networks. Historically, transit providers were paid by all other types of ASes to transfer data over large distances. Firms such as Cogent, NTT, and Level3 would be classified as transit providers. From the start, many transit providers also were access providers at least to business networks.

- **Content Distribution Networks (CDNs):**
  These are firms that replicate Internet content in their distributed storage infrastructure ("caches"), serving download requests from locations (typically third party IXPs, explained below, where they have deployed caches) that are close to end-users. The customers of CDNs are typically content providers. For instance, firms such as Akamai and Limelight are CDNs.

- **Internet Exchange Points (IXPs):**
  These companies operate well-connected facilities ("Internet hotels"), mostly at major urban centers, in which different ASes can be present and interconnect with each other (if they choose to do so). They are paid by the ASes that use these facilities [10]. For instance, Equinix and NetIX are IXP providers.

1.1.2 Versatile, Multi-Role ASes

This traditional classification system can be misleading today. As discussed more in Section 2, the Internet ecosystem has gone through a major transformation during the last ten years. The largest ASes (at least in terms of generated or transferred traffic) try to be more independent and versatile, playing multiple roles at the same time. For instance, the major content providers (e.g., Netflix, Amazon) have

developed their own CDNs and some have even begun supporting third-party services on those "private" CDNs; in some cases (e.g., Google), content providers operate their own international backbone networks. Some transit providers (e.g., Level3) have also diversified their role by offering CDN services to content providers and others. Certain access providers (e.g., Comcast) also have deployed large, high-capacity backbone networks so that they now provide transit service to other networks, CDNs, etc.; additionally, they do not need to rely on the services of other transit providers as much or at all. And of course, content is not only generated by content providers, but also from all Internet users, and consequently, from all ASes.

This diversification of the business roles and functions of ASes has major implications, as will be discussed later, for the economics of Internet interconnections. We can no longer determine who should pay whom based on the single business function that has been historically associated with each AS. By the same token, old classifications no longer have much relevance, including for example the "Tier-1" classification discussed below. *Today, every interconnection must be evaluated independently by the interconnecting parties to determine what its terms should be, examining the costs and benefits that that interconnection brings to each party* [11,12].

A point about terminology: in the rest of this report, when I refer to an AS based on the traditional classification (e.g., "a transit provider"), I mean that it acts in this role at that specific instance, not that this is the only role of that AS.

1.2 Interconnections Between Autonomous Systems

An interconnection between two ASes can be of different types. These types control both the traffic that can be exchanged and the economics of the interconnection (who pays whom and for what purpose) [13]. In the following, I review the major types of AS interconnections:

- **(Global) Transit:**
  This is an asymmetric relation in which one AS is the "customer" and the other is the "provider." The provider offers the customer routes that can reach any network in the Internet, and it "advertises" the addresses of the customer to the rest of the Internet. The customer pays the provider for the traffic it sends to and receives from the Internet.[1]

[1] Typically, the customer pays based on usage, billed at the 95th percentile of the five minute average traffic load. Also, the customer typically pays only for the most heavily used direction of the transit link. This means that a customer may pay based on the traffic *into* its network from third party senders.

- **Settlement-Free Peering (SF-peering):**
  This is a symmetric relation ("peer to peer"). The two peering ASes agree to exchange traffic that is destined to them or their customers[2] for "free", based on the mutual exchange of transport value each AS obtains from the other. Thus, SF-peering interconnections are established when there are roughly equal costs and benefits for both parties. For instance, two ASes may want to establish a SF-peering interconnection to reduce the fees they would otherwise pay to their transit providers. ASes typically establish criteria specifying the conditions under which they will establish SF-peering links with other ASes; these are often publicly posted. Traditionally, a rough balance of traffic has been deemed a necessary element for many SF-peering relationships, as well as roughly equivalent network facilities and sufficient traffic to merit dedication of one or more 10Gbps links [13]. In some instances, where one network provides unique network routing value (e.g., transport to another country), that can provide value that would make up for a less balanced traffic flow and thus justify an SF-peering arrangement.

- **Paid Peering (Paid-peering):**
  This type of interconnection (sometimes also referred to as "on-net transit") can be thought of as an intermediate solution between the previous two types (namely, transit and SF-peering relations). Similar to transit links, a paid-peering interconnection is asymmetric: one party is the customer and the other is the provider; typically, the former sends far more traffic than the provider sends back (if any) and/or has much less to offer in terms of mutual "transport" or "network" value. Similar to SF-peering relations, the only traffic that can be exchanged is traffic flowing between the two ASes or their customers. A paid-peering interconnection may be chosen to provide a redundant route alternative to an indirect transit route into the network – something large CDNs may do to ensure that they have several options for quality routing. A paid-peering arrangement may also make sense when a party has a large amount of traffic destined for the receiving network, and direct interconnection would be less expensive and/or more predictable and reliable than relying on an indirect transit provider to reach that network. Paid-peering arrangements are commercially negotiated and may be very simple contracts or agreements that are reached as part of larger, multi-faceted arrangements.

- **Other kinds of interconnections:**
  As the Internet has evolved, the level of sophistication in the available interconnection types has been increasing to meet more specialized needs and cost structures. For instance, a *Partial-Transit* relation provides transit

[2] For this purpose, "customers" include not just retail customers but transit/paid-peering customers; traffic can be sent to any of these entities, but *not* to the provider's other SF peers.

service but for only a subset of the global routes or ASes. A *Backup* interconnection is used only when a primary interconnection has failed or is congested. ISPs also are experimenting with interconnections beyond the regional IXPs described above; they are testing models that would provide interconnection deeper into their networks, which might make sense and save money for content providers or CDNs with enough traffic to make this worthwhile. I believe that in the future we will see more advanced interconnection types in which different routes may cost more or less depending on their distance, capacity, or number of intermediate ASes. Such innovations can improve Internet performance because they create economic incentives to offer better routing and more well managed networks with more available capacity.

2 The Evolution of the Internet Ecosystem

Since the commercialization of the Internet core in the mid-90s, the Internet has gone through a gradual but major transformation during the last 20 years. Specifically, it has evolved from a highly hierarchical structure to a more "flat", horizontally-dense structure [2,14]. Roughly speaking, we can separate this 20-year period in two phases: the hierarchical era (mid-90s to mid-00s) and the "flat" era (mid-00s to present).

2.1 The Hierarchical Internet (Mid-90s to Mid-00s)

Originally, there were only a few transit providers that had the resources and "know-how" to operate geographically large IP-based backbone networks. At the top of the hierarchy, there was a set of ten to fifteen *Tier-1* providers. These were large, national (U.S.) and global ASes that would establish peering links with all other Tier-1 ASes and, therefore, they did not need to have a transit provider because they could reach every network in the Internet through their customers or through other Tier-1 providers. This fully interconnected mesh of Tier-1 providers is referred to as the *"Tier-1 club"* or the "*Tier-1 clique.*"

Lower in the hierarchy, there were many *Tier-2* transit providers, which were customers of one or more Tier-1 providers. Tier-2 providers often had a regional footprint. Access and content providers would often be customers of both Tier-1 and Tier-2 providers, placing them at Tier-3. At the Tier 3 level of the hierarchy, we would find most enterprise networks.

Because of the previous hierarchy, most Internet traffic would need to go through three to six ASes before it could reach its destination. Those long inter-ASes paths often caused delays and congestion. Additionally, it was quite hard to identify the ASes, or the ASes' interconnection, that were responsible for any observed performance problems.

Most traffic would ultimately need to flow through one or two Tier-1 providers, generating large revenues for them. When a Tier-1 provider routed traffic directly from one customer to another customer, it would often be paid twice for the same traffic (i.e., on both ends of the transmission).

Tier-1 providers have often been involved in bilateral disputes (the so-called "Tier-1 peering disputes").[3] A common reason behind these disputes is that one or more of their SF-peering interconnections were very imbalanced in terms of traffic. Most of these disputes were resolved, but only after causing significant pain to the customers of the involved Tier-1 providers. It is worth noting that at least some of those disputes were eventually resolved through the establishment of paid-peering links, even though the details of those agreements were never publicly disclosed.

2.2 The Flat Internet (Mid-00s to Present)

In the last decade or so, the structure of the Internet has changed. The establishment of many peering links across ASes of the same or different role has transformed the Internet from a hierarchical to a "flat," horizontally-dense structure. Today, most traffic can be routed from its source to its destination through only a couple of ASes, because many more ASes are directly connected, regardless of their supposed "Tier," using any and all of the interconnection types described above. [14]

This transformation has been caused by mostly the following developments:

a) Many networks, including large access and content providers, invested in the development of their own backbone networks, reducing the volume of traffic they have to route through transit providers, and bringing their networks directly into contact with the interconnection points of other networks.

b) The establishment of IXPs at major urban centers made it much easier and cheaper to interconnect directly with many other ASes. After the initial cost of setting up a connection at the premises of an IXP, an AS can connect directly (through "public" or "private" interconnections) with many other ASes that are also present at that IXP. Again, this reduces the volume of traffic that needs to be routed through transit providers, and helps increase interconnectivity.

c) The penetration of CDNs around the Internet, closer to the end-users in the relevant region of the country, reduced significantly the amount of traffic that needs long-distance transit. It is common today, at least in the United States,

[3] Some of the more recent Tier-1 peering disputes: Cogent with AOL in Dec 2002, Cogent with Level3 in Oct 2005, Cogent with Telia in Mar2008, and Cogent with Sprint-Nextel in Oct 2008. Even more Tier-1 peering disputes took place in the 90s, when the commercial Internet was still at its early steps and there were several more contesters (UUNET, Global Crossing, PSINet, Savvis, etc.).

that an Internet user will download most traffic from servers that are located at the nearest IXP (the major U.S. IXPs are located in New York City, the Washington, DC area, Atlanta, Miami, Chicago, Dallas, the Bay area, and Seattle), although at times CDNs make real-time routing decisions based more on load-balancing or economic calculations than distance to a requesting user.

d) A small number of content providers (Netflix, Google, Facebook, Amazon, etc.) generate a large (and increasing) percentage of the total amount of Internet traffic.[4] These content providers have started using CDNs (sometimes their own CDNs) and/or their own backbone networks to bring traffic closer to end-users and interconnect directly with at least larger ISPs: generally to avoid or reduce their transit fees.

In this new, flat Internet, the terms "Tier-1/2/3 provider" are often misleading. For instance, a historically Tier-2 provider may engage in SF-peering with a historically Tier-1 provider, and may sell transit service competing with Tier-1 providers.

The transformational developments described above also had a major effect on the price of Internet transit. As noted, more providers invested in their own fiber backbones, so they no longer bought as much transit service, which forced transit prices down. The development of CDNs – first conceived of as a way of *reducing* transit fees, further drove down demand for transit. And, access providers with new large backbone facilities also began offering their *own* competitive transit services to third parties, thus producing even more downward pressure on transit pricing. To stay competitive in the flat Internet, transit providers had to drop their monthly transit prices, over time, from over $1000 per Mbps in 1998 to less than $1 per Mbps today, and pricing continues to drop [13]. It is worth noting that *streaming a high-definition movie through a transit provider today costs less than a penny*; indeed, the over-the-top streaming video business came about largely because network investment and commercial forces made the transport of content so inexpensive.

3 Good (and Bad) Network Interconnections

Whether an interconnection arrangement will provide high quality and efficient transport depends primarily on two factors: routing and available capacity. The routing component determines the sequence of links, and thus the sequence of ASes, that a traffic flow will go through. The capacity component determines whether the corresponding links are heavily loaded, and thus whether they can transfer the traffic with negligible queuing delay and/or packet loss.

[4] In 2009, 30% of the total Internet traffic was generated by 30 ASes [14]; today, just a single content provider, Netflix, generates more than 30% of the peak traffic in the United States.

3.1 The Routing Component

The flow of traffic in the Internet does not follow simple optimization objectives, such as "choose the route with the minimum number of hops." At the inter-domain level (i.e., between different ASes), routing decisions are based on local policies set by each AS.

In the outgoing direction (the "egress paths"), an AS can control how to route its traffic. Specifically, it can choose which neighboring ASes it will route the traffic through and at which locations it will pass the traffic to that (or those) ASes. For example, if Netflix is a transit customer of Cogent and a paid-peering customer of Comcast, Netflix may choose to route its traffic to Comcast through the paid-peering interconnection or through Cogent, or it may even split its traffic between these two interconnections. These routing decisions can be made in real-time and they can be adjusted on a minute-by-minute basis depending on the measured performance of each interconnection, cost considerations, as well as the usage constraints of each interconnection.

In the opposite direction however (the "ingress paths"), it is not possible for an AS to control the routing of the traffic it receives.[5] For example, a receiving AS cannot dictate (other than by contract) where it receives traffic from a sending party: this is the so-called *"hot potato routing"* practice, in which a sending AS will drop off traffic as close to its source as possible, leaving the receiving network with the cost of transporting it all the way across the backbone – notwithstanding that the parties have a second interconnection point far closer to the destination of the traffic. Similarly, a receiving AS cannot stop the sending AS from pushing all its traffic over one interconnection link rather than spreading it among several, from using up all available capacity on a particular link the moment it becomes available, or from sending *too much* traffic over an interconnection link, potentially creating serious congestion issues. All of these decisions are in the hands of the sending AS, and the receiving AS can only react to them.

3.2 The Capacity Component

Together with routing policies, the performance of an interconnection also depends on the capacity of the corresponding links. Typically, if the utilization of a link during peak-usage time periods is more than 70%, the link can experience congestion episodes in which traffic is delayed or even dropped.[6]

In a transit or paid-peering interconnection, the customer generally dictates the number of peering links, their location, and the required capacity of each link. In SF-

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[5] BGP MEDs or AS-Path prepending are crude and typically ineffective mechanisms to control ingress routes [15].

[6] That is not to say that links cannot be run "hotter." Higher levels of utilization (even as high as 90-100%) may be acceptable when traffic is very smooth (i.e., not bursty, of almost constant rate), as long as the link is closely monitored.

peering interconnections, on the other hand, the two parties decide all these aspects of the agreement together. They typically also agree on how they will deal with long-term growth and sudden spikes. For instance, they may decide that they will review the utilization level at each peering link every three months, that the sending AS will *not* be using "hot potato routing", and/or that the receiving AS will be informed well in advance about any major changes in expected traffic volumes. SF-peering interconnections can be terminated when the sending AS violates this "peering etiquette," though issues generally are worked out cooperatively given the parties' joint interest in resolution.

A naïve way to think about the cost of a bilateral AS interconnection is that it is only the cost of the corresponding router ports that need to be directly connected. Depending on the capacity of these ports and the number of physical locations at which the interconnection is taking place, this cost may be from two to three hundred dollars to a few tens of thousands of dollars, which seems like a relatively low cost given the size of major providers.

The reality, however, is that the real costs of an interconnection are much higher. Suppose that X and Y are two ASes that interconnect at ten locations with 40Gbps SF-peering links. But say that X starts flooding these links to the point that the links are running at 100% utilization, potentially also dropping some traffic. To handle the incoming traffic flow, Y may need to upgrade its capacity not only at the corresponding routers, but also throughout all network paths through which it exchanges traffic with X – all the way through the last mile, where capacity is most expensive. And if X directs this traffic to many different paths of Y at different times, the latter will need to upgrade its interconnection and transport capacity at multiple locations throughout its network. Such an upgrade may require Y to purchase more and/or faster routers, increase the capacity or density of its links, to modify its internal traffic engineering and network management provisions – and more. In other words, capacity upgrades are *not* simply the acquisition of an additional port, nor are they a purely local operation; they cause cascade effects that require network-wide planning and optimization.

In summary, the interconnection between two ASes is not simply the agreement to share a link and two router ports. Instead, *it is an agreement to share the entire infrastructure of each AS.* This is an important point that should be considered when we estimate the cost of a substantial capacity upgrade in a peering interconnection – particularly when it is being driven primarily by one party's needs.

3.3 Who is Blamed When an Interconnection Performs Poorly?

It is quite hard for Internet users (and sometimes even for network operators) to identify the exact location of congestion that may be affecting their quality of experience, especially when the end-to-end path traverses more than one or two ASes. For example, a Comcast customer that experiences many "re-buffering events" while watching a Netflix movie would not know whether the problem is at her home

network, within Comcast's network, at the Netflix origin servers, at the CDNs that Netflix uses, at an intermediate transit provider, or at an interconnection between any of these ASes. This creates the potential for "finger-pointing" between the involved ASes, and can make it harder and slower to address the root cause of congestion. For example, there may be congestion within *both* the receiving network (Comcast in this hypothetical) and the transit network or the CDN, but Comcast would have no way of knowing reliably that other segments of the end-to-end network path are also congested. Thus, the receiving network could undertake substantial investment to upgrade its network and/or its interconnection with the transit provider, only to find out eventually that the end-to-end performance problems experienced by its subscribers persist.

Additionally, based on my observations in the marketplace, Internet users typically complain to their access provider (Comcast in my example) when they experience the effects of poor interconnection, probably because that is the only network provider they directly interact with (and pay). As a result, the risk of poor network performance is mostly borne by access providers like Comcast. For instance, it is my understanding that congestion episodes have caused a flood of calls to the technical support centers of access providers. Additionally, frustrated customers may switch to another access provider when they experience congestion, independent of the actual location of the congested links. Under this pressure, the access provider may be compelled to make upgrades to its interconnections even when the congestion is caused by other ASes' conduct and even when these upgrades do not make economic sense.

4 The Economics of Internet Interconnections

4.1 Who Should Pay Whom?

In traditional telephony, it was typically the caller that was charged for a call, not the called party. In most telephone markets, this rigid pattern was enforced by a regulatory authority. In the case of Internet traffic, if AS X sends traffic to AS Y over an interconnection arrangement, who should pay for the costs of the traversed network infrastructure? In contrast to telephony, in the case of the Internet this question has been answered by the participants themselves, through voluntary commercial agreements.

This debate usually does not focus on global transit interconnections/services, presumably because in that case it is clear that the customer needs the provider's infrastructure to transfer the traffic to *another* party's network. This has not provoked the same policy considerations to date.[7]

[7] Of course, as noted above, some transit providers are also access providers, and thus some of the traffic they carry remains "on-net" (i.e., it does not leave the transit provider's AS) even when they sell global transit. This raises the question, *why is*

But there has been much debate in the past few years about who should pay (or whether there should be payment) in the case of peering interconnections, i.e., whether such arrangements should be settlement-free or paid-peering. There is a fallacy in this dichotomy, however, because SF-peering is not truly "free." If a peering interconnection is somewhat equally beneficial for X and Y, and if the two ASes can split the costs, one reasonable approach is that neither party pays the other. This is exactly the rationale behind SF-peering links; the two ASes agree that a direct interconnection would be (almost) equally beneficial for both of them and so they do not pay each other. On the other hand, if one of the two ASes benefits much more from the interconnection than the other, or imposes far more cost on the other, it is reasonable (and has traditionally been the case) to consider a paid-peering relationship. Thus, in determining what is equitable for various peering arrangements, we need to *consider the relative value of the interconnection for each of the two involved parties and the cost each would bear absent the agreement*. But how can we estimate the relative value of an interconnection between two ASes?

4.2 The Economic Value of a Traffic Flow

For most Internet applications today, the economic value of a particular traffic flow is paid to the source of the traffic, not the destination. For instance, in the case of video, which constitutes more than 60% of the Internet traffic today, Internet users pay an online video provider to watch movies, or they watch them for free but the video provider generates revenue from advertisements those users see. Or, in the case of e-commerce sites, users pay those sites (the source of the traffic) through their purchases and, typically, viewing advertisements. Or, when users use a search engine or an online social network, they also look at advertisements that create revenue for the sources of that traffic. There are certainly exceptions (e.g., some peer-to-peer applications), but for the majority of Internet traffic today, it is a fact that the economic value of a traffic flow is exploited significantly by the sender. Additionally, establishing a direct interconnection arrangement to support that traffic flow is beneficial to the sender, since it ensures capacity and may even reduce the transport costs for the traffic flow (by removing a middleman transit provider), thus *increasing* the value of the traffic flow for the sender. At the same time, the direct arrangement will impose costs on the receiving AS including the costs of accommodating the incremental traffic flow over its network, and, over time, it may generate more costs – for example, if the sending AS takes advantage of the direct interconnection to send traffic with less compression.

Consequently, if a peering arrangement is mostly used to transfer traffic from AS X to AS Y, X surely receives a meaningful economic utility from this arrangement. Note that X may receive another utility from this arrangement – it may obtain a lower cost than it would have to pay to send the same traffic to Y through transit provider

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paid-peering viewed as controversial while transit service is considered "business as usual"?

Z (as noted, cutting out the cost of a middleman). Additionally, having a direct interconnection makes it easier for X to monitor the performance of its traffic, and to ensure sufficient and non-shared capacity (potentially on a long-term basis), which is another benefit. These points should be taken into account when considering whether this interconnection will be SF-peering or paid-peering, and in the latter case, in determining an appropriate and fair price.

4.3 Traffic Ratios and Cost-Benefit Analysis

The "traffic-ratio" metric is a commonly used proxy to evaluate if a peering link is of roughly the same value for both parties. For a link between X and Y, the "*traffic-ratio < q*" constraint states that the average traffic load in either direction should be less than q times the average traffic load in the opposite direction. Typical values of the parameter q are between 2 to 5. If this constraint is violated, and especially when that happens often and/or by a large extent,[8] one of the two parties is likely to perceive that the economic value of this direct interconnection is (very) unequally distributed between the two parties and to insist either that the traffic balance is restored or that the nature of the relationship is revised.

It is often claimed, especially by content providers and CDNs, that the traffic-ratio constraint does not apply in the case of modern Internet traffic because the latter is highly asymmetric (the traffic flows mostly from content providers and CDNs towards access providers and enterprise networks). As a preliminary matter, I note that there are many stable SF-peering agreements among large transit/access networks today, which implies that the traffic-ratio constraint is not violated at those interconnections. While this is not the case for the interconnections of content providers or CDNs, such ASes were historically viewed as customers of network services, and thus they have always been expected to pay a transit or access provider for transferring their traffic.

In any event, the traffic-ratio metric is certainly only one, admittedly simplistic, mechanism to evaluate the mutual value of an SF-peering interconnection between two ASes. More sophisticated cost-benefit analysis can be used by each party, considering the actual costs of delivering the traffic not only through the corresponding peering ports but on an end-to-end basis, as well as the economic benefits that the transferred flows will generate for each party. If AS X would benefit much more from a direct interconnection with AS Y, while at the same time imposing additional costs on AS Y, it is reasonable to expect that Y will request a paid-peering relation with X in which the payment from the latter will amortize the costs associated with the arrangement and the corresponding economic value between the two parties. Importantly, if their respective valuations differ widely,

[8] A heavily unbalanced traffic flow may impose costs on the receiving network far beyond what it had to expend to support the outgoing traffic for which *it* needed the interconnection arrangement.

and as a result they are not able to agree, then each AS has alternative ways to obtain the connectivity it needs.

4.4 The Role of Paid-Peering Agreements in the Evolution of the Internet

Such negotiations can lead to the establishment of stable and fair paid-peering direct interconnections that would not be possible under the parameters of SF-peering. These arrangements thus increase the interconnectedness of the Internet. Additionally, paid-peering interconnections typically result in lower costs and shorter network paths compared to transit interconnections.

Economists often think about the Internet as *a two-sided market*: one side of the market has end-users (or "customers"), the other side has content providers, and in between there is an Internet "platform" that allows the two sides to communicate [19,20,21,22]. A key question in the economic theory of two-sided markets is how to allocate the price that each side of the market should pay to the platform. Even though that research does not provide a clear-cut answer (the optimal price allocation depends on the specific setup of each model and on its parameters), it approaches the problem from the right perspective: *if there is a cost associated with transferring content to end-users, and if content providers generate substantial value from these transfers, then some fraction of the platform's costs should be paid by the content providers or by their transport agents*. This is another way to understand the rationale behind paid-peering interconnections.

As the Internet evolves, I expect to increasingly see sophisticated interconnection agreements that provide more flexibility, better economics, and more stable network performance to the involved parties. For instance, AS X may want to pay AS Y only for selected routes and to condition pay depending on the performance level of those routes. Or, two ASes may agree to be SF-peers for some types of traffic but paid-peers for all other traffic. The network locations for peering interconnection may move closer to the network edge, at least for larger senders of traffic. At the same time, Internet firms are using more advanced tools for traffic measurement and performance monitoring, allowing them to examine in a real-time manner whether the performance conditions of an interconnection agreement are violated. These are indications of a healthy competitive marketplace, and we can expect that they will increase the overall efficiency, robustness and performance of the Internet ecosystem.

5 Paid-Peering and Network Neutrality

The debate about Internet peering (namely whether access providers should be permitted to establish paid-peering interconnections with other ASes) has recently been presented to the public as a debate about the "neutrality" of the Internet. This has created confusion and several misunderstandings. The public is led to believe that peering disputes mean that they will not be able to access certain sites or services unless the content provider pays their ISP some "terminating access fees."

Another hyperbolic concern is that certain types of traffic, say Netflix or Skype, will be subject to deliberate degradation of service and congestion by ISPs that offer similar services.

5.1 What Does Network Neutrality Mean?

The FCC has focused its net neutrality rules on the last mile, where a receiving network may be in the position to undertake the types of improper conduct that have been the focus of the net neutrality rules – blocking or degrading an individual edge provider's traffic. No provider should engage in such conduct, nor should any provider demand compensation for *not* engaging in this conduct.

Even beyond the strict confines of the net neutrality legal regime, I take the view that providers should not be discriminating against individual content provider's traffic at *any* point in the network. With the exception of malicious/unlawful traffic, every intermediate provider at *any* point along the route should do its best to deliver all traffic at its highest possible performance, subject to the constraints imposed by the available routes and network capacity, and subject to the interconnection terms that the intermediate ASes have agreed on. In so stating, I am not proposing an expansion of regulation – just describing a behavioral norm that I believe is widely respected throughout the ecosystem.

Consistent with my views, I and several other Internet researchers, have designed measurement tools that can detect such traffic discrimination in the Internet [6,7,8,16,17,18]. These tools are publicly available at M-Lab and they are used by thousands of Internet users every day. It should be noted that such *traffic discrimination events occur very rarely, especially in the United States, and when they do occur, they result in major negative publicity for the corresponding ISP.*

My understanding is that many major providers today have provisions in their SF-peering agreements that specifically prohibit the receiving network from even inspecting traffic across the parties' interconnections for reasons unrelated to operational or legal reasons.

5.2 Are Peering Disputes Related to Net Neutrality-Type Concerns?

Traffic discrimination practices are clearly *not relevant* to the recent paid-peering disputes. The former involve the intentional service degradation of a selected portion of Internet traffic. Peering disputes, on the other hand, represent market-based, content-agnostic disagreements about the price of providing dedicated capacity from one network to another. It is not ultimately about *access* to the receiving network, since the sender retains other access options (i.e., through transit providers). It is also not about performance, since those other routing options can also provide high quality access. It is simply about the price of dedicated direct interconnections versus interconnections that traverse shared, indirect paths. Such disagreements are common in any market and they are resolved through economic analysis, bargaining, and compromise.

6 The Risk of Regulatory Intervention

Cogent and Netflix request regulatory intervention to prohibit Comcast (and, in other proceedings, other ASes that traditionally have been labeled as "access providers") from collecting payment for direct peering with content providers or their intermediary ASes. I believe that such regulatory interventions would not only be unnecessary but will harm the evolution of the Internet ecosystem. I explain my position next.

First, paid-peering payments are very different from "termination access fees," although that is the "talismanic" terminology that these parties tend to use. Notably, Comcast does not demand the payment of such fees from the various ASes that send it traffic. It simply offers the option of direct interconnection (through paid-peering) as an alternative to the sender's purchase of transit services. Paid-peering may also be offered as a way for a SF-peer to send traffic that exceeds the limitations of the parties' SF-peering arrangement in terms of traffic constraints.

A second issue is *the economic incentives that will result from such regulation*. If a content provider or CDN could demand SF-peering with any access provider (and practically all ASes can be viewed as access providers, as discussed in Section 2), content providers and CDNs would not have the incentive to optimize their traffic operations (e.g., compressing traffic prior to delivery, or storing many profiles of each DASH video stream). Rather, they could simply shift their costs to network operators and expect that the next-hop AS (the access provider) would bear the burden of figuring out *some way* to keep increasing its capacity to accommodate all received traffic and avoid congestion.

Similarly, nothing would preclude the content provider or CDN from making erratic routing decisions, moving traffic from point to point (or, if the rule applied to transit providers like Cogent as well, from transit route to transit route), forcing the access provider to repeatedly build capacity at various points, or maintain huge amounts of spare capacity across the Internet with all its partners, bearing the cost of repeatedly stranded facilities or idle equipment and capacity.

A third issue is *the implementation of such regulation*. Paid-peering interconnections are not used only by content providers or CDNs (or their transit providers), but by other networks, such as smaller access providers that may arrange direct access to a particular network. Why would a regulator control the interconnections between some ASes but not between others? Would CDNs get free access while smaller ASes had to pay? Why would it be deemed acceptable for a transit provider to collect compensation from small access networks *and* content providers, and send traffic between the two, but wrong for that same content provider to pay for a direct paid-peering interconnection, eliminating the "middle man" (i.e., transit provider) from the path? Again, there is no clear and major difference today between large access and transit providers. They are not fundamentally different in terms of their network infrastructure and function.

A fourth issue relates to *the viability and evolution of the Internet ecosystem and the network core*. If content providers can *demand* SF-peering interconnections with access providers, then any AS should also be allowed to demand SF-peering with any other AS. The reason is that any AS can claim to be a content provider (they all generate some traffic) and any AS can be described as an "access provider" (they all consume some traffic). There are many potential, and unforeseen consequences of this type of rule. The first victim of such regulation might well be the traditional transit providers, because their customers (or potential customers) could demand SF-peering interconnections with access providers instead of purchasing transit; their business models would dissolve if all direct interconnection were cost-free. Further, and critically, as I explain below, interfering with the efficient operation of the Internet interconnection marketplace and shifting the bulk of the costs to end-users is likely to disrupt the massive flow of new investment necessary to ensure a robust backbone and ever-expanding Internet facilities. This raises serious concerns about the Internet's evolution.

A final remark about *the necessity of regulation*: Internet peering disputes are not new. As mentioned in Section 2 (*see also* Footnote 3), peering disputes between Tier-1 providers have occurred from time to time. Those disputes were always quickly resolved by network operators, often through negotiation and mutual compromises, without ever requiring regulatory intervention. The current disputes are not fundamentally different so as to warrant dramatically different action by regulatory bodies. Plus, the price of transit has dropped by 99%, which strongly suggests that there is no market failure here.

7 Looking Forward: Who Will Pay for the Continuing Growth of the Internet?

Even though the Internet has always been full of surprises, there are two observations that we can reliably expect to remain true in the future. First, the Internet will continue to grow in terms of number of users, new applications, and volume of traffic exchanged. In the last few years, the annual traffic growth rate is about 35%-55%, depending on when, where, and how it is measured [23]. This means that, in the absence of any capacity upgrades, networks today will need to be able to carry twice the amount of traffic currently carried in about 18-28 months from now. Clearly, if major capital expenditures in networking capacity cannot be sustained, it will only take a few months for the existing infrastructure to get severely congested.

The second observation is that whenever there is an increase in the access capacity of Internet users, a new wave of applications is quickly invented that manages to use that capacity. For instance, soon after DSL and cable broadband access became widely available, the first peer-to-peer file sharing applications were developed, and

it did not take much time to saturate those early broadband links. When the access capacities increased to more than 2-4 Mbps – and when CDNs exploded and providers' investments in backbone facilities shrunk the cost of transit – online video began to flourish, now encompassing high-definition video streaming products such as Netflix. I expect that as the broadband access capacities begin to increase to about 100Mbps (downstream), we will see in the next few years a new wave of applications that will quickly utilize that capacity.

This relentless traffic growth and the associated evolution of Internet applications will require a persistent and substantial capital investment in Internet infrastructure. In particular, it is the last mile of the network, i.e., the access links that connect millions of households to the Internet, that will require the largest capital expenditures in the next decade or so. The obvious question is: *who is going to pay for this major overhaul of the Internet access infrastructure?*

If we eliminate the option of paid-peering interconnections through regulatory intervention, we are effectively placing all financial burden for the growth of the Internet exclusively on end-users (access providers' customers) – a situation that has never before prevailed in the Internet ecosystem. End-users will have to pay not only for Internet access but also for investments in the network core, something that has been traditionally been defrayed by contributions from edge providers, CDNs, and other "large" Internet players. Additionally, end-users will have to pay the dedicated transport costs of a particular content provider's traffic, whether or not they even subscribe to that content provider – which may be significant when larger providers, like Netflix, are at issue. Meanwhile, the content provider (i.e., Netflix) would not only get subsidized transport, but subscription or advertising revenues that it earns *because* it has access to that access network. Not only is this inconsistent with how the Internet has evolved and grown, it may also be insufficient for the continuing growth of the Internet. *Given that edge providers benefit from this communication platform, as do their transport agents, and some of them are among the most profitable companies today, shouldn't they also financially contribute to the Internet's growth and evolution?*

8 Comments on Certain Claims by Netflix and Cogent

8.1 Comments on the Declaration of Mr. K. Florance (Netflix)

- In §2 of Mr. Florance's declaration, he claims that Comcast uses its market power to *"impose a terminating access fee on Netflix and others."*

- As I discuss above, this misrepresents how Internet interconnectivity works. A terminating access fee is a mandatory fee that must be paid to the access provider so that the corresponding traffic can reach its destination. But there are other routes content providers like Netflix could use to reach Comcast (and since this dispute is fairly recent, apparently *did* use for many years) without paying Comcast any fee.

- Moreover, if Mr. Florance were correct that this was a terminating access fee, you would expect *every terminating access provider to try to extract such a fee from Netflix*. Yet, as he notes in his declaration, Netflix has reached hundreds of agreements with terminating access networks for settlement-free transfer of traffic. The likely reason for this disparity between business arrangements with Netflix is that these (typically smaller) networks saw value in exchanging traffic directly with Netflix on a settlement-free basis rather than pay the transit costs of receiving Netflix's traffic from a third-party transit provider. But other, larger networks that have built their own backbones, like Comcast, and that do not incur the transit costs to send and receive Netflix traffic, likely do not realize the same benefits of settlement-free direct connections with Netflix, so Netflix's tactics to impose transit costs on them are less susceptible to success.

- In §18, Mr. Florance asserts that Netflix can install the Open Connect appliances as deep into Comcast's network as the latter would like, and that this would provide several benefits to Comcast and its customers, which Comcast should have accepted.

- Deeper network connections may in fact benefit access providers by reducing the load on their backbones (or, for access providers without their own backbone facilities, this could reduce their transit costs). But that does not mean that the relationship inherently qualifies for SF peering. As discussed in Section 3 of this report, the relative value and costs of a peering interconnection should be evaluated based on the costs *and benefits* it provides to each party. Notably, Comcast would continue to bear the cost of dedicated space and power, and would continue to bear the cost of building capacity as Netflix's traffic expands. While the price in this arrangement might be lower than the price for interconnection at an IXP, there is no reason to assume it would be zero.

- In §26, Mr. Florance claims that *"Comcast succeeded in departing from the previous business norm under which the terminating access network paid for the delivery of traffic to its network, or received such traffic without payment."*

- This view of the "business norm" is outdated. As discussed in Section 2 of this report, large access networks today often have their own nation-wide backbone, and so they may need the services of a transit provider for only a small fraction of their traffic. For this reason, as noted above, smaller access providers have a much greater incentive than larger ones to establish SF-peering links with content providers and CDNs (so that they decrease their transit costs).

- In §29, Mr. Florance alleges that *"Comcast began a practice in 2009 to 2010 in which it allowed its ports with certain settlement-free transit networks and CDNs to congest".*

- This is at best misleading. As discussed in Section 3 of this report, based on my observations of this market, the cost of bad performance is paid mostly by access providers. It would be unwise for Comcast to deliberately cause

congestion to its own customers. At the same time, capacity upgrades or new links cannot be set up overnight and they are costly. If the traffic ratio constraints of Comcast's SF-peering interconnections were persistently violated, it would have been reasonable for Comcast to seek to restore its peer's compliance with the terms of those agreements. This is common practice. Why should we think about this as "normal business practice" *only* when transit providers do it?

- In §41, Mr. Florance claims that *"Comcast began to allow Cogent's routes into Comcast to congest."*

- As discussed in Section 3, an AS cannot control the ingress path of the traffic it receives. If there was congestion at the links between Cogent and Comcast, it was not necessarily Comcast's fault. While I know only the details the involved parties have revealed, in my view, responsible network providers work hard to avoid congesting their links not only by building capacity but through regular capacity planning meetings with their peers and through traffic grooming (i.e., rerouting or encouraging a customer to reroute) traffic off congested links. It seems to me that Cogent could have addressed this situation far more cooperatively than it reportedly did, and with less harm to the Quality of Experience of its own and of Comcast's customers. Similarly, Netflix has not satisfactorily explained why it did not route the traffic to Comcast through other, non-congested routes, especially when its decision not to use other, non-congested routes reportedly hurt *its* paying customers and was simply poor Internet "hygiene" that is not expected of such large players in this ecosystem.

- In §46, Mr. Florance claims that *"adding port capacity costs less than $10,000 -- a cost which is typically amortized over three to five years by the access network."*

- This figure is accurate if we only consider the cost of peering to be equivalent to buying a few ports. As discussed in Section 3 of this report, however, capacity upgrades are not a localized operation. A significant increase in the capacity of an interconnection may require simultaneous capacity upgrades in several other links and routers. Otherwise, the bottleneck is just moved from the interconnection links elsewhere in the same network.

8.2 Comments on the Declaration of Mr. H. Kilmer (Cogent)

- In §26, Mr. Kilmer contends that *"Comcast and TWC, although not Tier 1 networks, have been able to obtain settlement-free peering from certain Tier 1 providers, including Cogent, because of their market power arising from their control of access to the consumers who use them for broadband Internet service."*

- It is hard for me to see how any network could be *forced* into a SF-peering interconnection (without government intervention). Another way to interpret the relation between Cogent and Comcast is that – assuming Comcast was not interested in *purchasing* transit from Cogent once it had its own backbone capabilities – *Cogent actually preferred* SF-peering

interconnection with Comcast, compared to having no direct connection with Comcast at all. This allows Cogent to then attract transit customers who want short paths to Comcast's subscribers.

- In §43, Mr., Kilmer claims that Comcast and TWC *"are not Tier 1 ISPs. They do not provide the infrastructure and support for the Internet that Tier 1 providers do".*

- As discussed in Section 2 of this report, the historical distinction between Tier-1 and Tier-2 (or access providers) is of little practical consequence today. Should we evaluate the value an AS brings to a relationship based on whether it happened to be a member of a particular "club" established more than a decade ago? Or does it make more sense to evaluate a provider based on its investment in its transmission links, the total traffic it carries, the number of people that it serves directly, and similar factors? The marketplace has been gravitating toward the latter approach, and interconnection arrangements today turn on these types of factors, not outdated Tier rules.
- It is certainly hard to quantify the *"support for the Internet"* that any Internet firm offers, though it seems to me unfair and unjustified to allege that Comcast has not provided "support for the Internet". We should not ignore that most peering disputes during the last 15 years, sometimes causing reachability disruptions to millions of users, involved Cogent (see Footnote 3).

- In §55-§60, Mr. Kilmer argues that *"Comcast's 'Balanced Traffic Ratio' Requirement Makes No Sense."*

- First, it is important to note that a "traffic ratio constraint" is used by many ASes, not just Comcast. In fact, the existence of a traffic ratio clause is the norm in SF-peering policies, as Cogent is well aware given its past peering disputes over the same issue.
- Second, Mr. Kilmer criticizes the use of traffic ratio constraints, but without offering an answer to the obvious question: how will two ASes determine if an SF-peering interconnection is (roughly) equally valuable for both parties such that they should share the costs? To be clear, traffic ratio considerations are not an end of themselves, but rather a proxy that has been used by many networks for several years to determine mutual value.

- In §68, Mr. Kilmer claims that *"the cost of upgrading all of the connections between Comcast and Cogent (…) would have been approximately $120,000."* And it is further stated that *"in March of 2014 Cogent offered to pay for Comcast's expenses in upgrading the connections with Cogent. Comcast refused."*

- As was also discussed in my response to Mr. Florance's declaration, these cost estimates refer only to the cost of the ports between Cogent and Comcast – they do not capture the other required interconnection costs or the capacity upgrades that will certainly be required more deeply into

Comcast's network. ***An interconnection is not just a "shared link"; it is a "shared network."***

- Further, what would happen if Cogent kept increasing the volume of traffic it sends to Comcast? Cogent's revenues would increase the more (Netflix or other) traffic it sends to Comcast, while Comcast's costs would increase as it carries these larger and larger traffic loads. And since Comcast would presumably be required to maintain whatever amount of capacity Cogent required to keep the direct interconnection between the two providers uncongested, neither Cogent nor Cogent's customers would have any reason to send traffic in an efficient manner, meaning Comcast's costs would increase all across its network on an ongoing basis. In a marketplace where direct connections have always been formed and maintained only when they were deemed to be mutually beneficial, why should Cogent enjoy growing benefits while Comcast is saddled with growing costs?

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I, Constantine Dovrolis, declare under penalty of perjury that the foregoing declaration is true and correct to the best of my knowledge, information, and belief.

Executed on September __21_ , 2014.

Constantine Dovrolis

Constantine (Konstantinos) Dovrolis

Professor

School of Computer Science
College of Computing
Georgia Institute of Technology
Atlanta, GA 30332-0280, USA

EDUCATIONAL BACKGROUND

Degree	Year	University	Field
Ph.D.	Dec,2000	University of Wisconsin, Madison WI, USA.	*Electrical Engineering*
M.S.	May,1996	University of Rochester, Rochester NY, USA.	*Electrical Engineering*
Eng.D.	June,1995	Technical University of Crete, Chania, Greece.	*Electronic & Computer Engineering*

EMPLOYMENT HISTORY

Title	Organization	Years
Professor	College of Computing Georgia Institute of Technology	*2014-present*
Associate Professor	College of Computing Georgia Institute of Technology	*2007-2014*
Assistant Professor	College of Computing Georgia Institute of Technology	*2002-2007*
Assistant Professor	Dept of Computer & Info Science University of Delaware	*2001 - 2002*
Visiting Professor	Univ-Thessaly Volos, Greece	*Spring 2013*
Visiting Professor	Simula Research Oslo, Norway	*June 2007*
Visiting Professor	Thomson Research Paris, France	*July 2006*
Visiting Professor	FORTH Research Heraclion, Greece	*July 2005, June 2008, July 2010*
Research Intern	CAIDA-SDSC University of California, San Diego	*Summer 1999*
Research Intern	High-Speed Networking Group Bell Labs - Lucent Technologies	*Summer 1998*
Research Assistant	Dept of Electrical & Computer Engineering University of Wisconsin	*1996-2000*

CURRENT FIELDS OF INTEREST

- Network measurement methods, and their application in network neutrality monitoring, problem diagnosis, and adaptive video streaming.
- Internet evolution: measurements, modeling and implications for the future of the Internet.
- Interdisciplinary applications of Network Science in climate science, biology, neuroscience and sociology.

Goals:

My group's current research goals are three-fold.

First, to develop practical and accurate network performance measurement/inference methods, and to apply them in the detection of network neutrality violations, the detection, localization and diagnosis of performance problems, and the adaptive transport of video streams.

Second, to study in a multi-faceted manner the evolution of the Internet and to use that knowledge in predicting and guiding its future. This research focuses on the evolution of network architectures (protocol stacks and network designs), the evolution of the Internet topology and peering interconnections, and the evolution of the interdomain routing system.

Third, to establish an interdisciplinary Network Science research program, applying computational network models and network data analysis methods in climate science, biology, neuroscience and sociology.

I. TEACHING

A. Courses Taught

Semester	Course Number & Title	Number of Students	Teaching Effectiveness
	College of Computing, Georgia Institute of Technology		
Fall'02	CS 6250 Computer Networks	37	4.4/5.0
Spring'03	CS 7260 Internetworking Architectures and Protocols	27	4.8/5.0
Fall'03	CS 8803 Network Measurements	23	4.2/5.0
Spring'04	CS 4251 Computer Networks II	36	3.0/5.0
Fall'04	CS 4251 Computer Networks II	29	4.2/5.0
Spring'05	CS 8803 Experimental Performance Evaluation	17	4.6/5.0
Fall'05	CS 3251 Computer Networks I	40	4.6/5.0
Spring'06	CS 2200 Computer Systems and Networks	23	4.1/5.0
Fall'06	CS 6250 Computer Networks	43	4.7/5.0
Spring'07	CS 4270 Internet Lab	26	4.7/5.0
Fall'07	CS 7270 Internet Applications and Services	31	4.8/5.0
Spring'08	CS 4270 Internet Lab	36	4.4/5.0
Fall'08	CS 4270 Internet Lab	18	4.9/5.0
Fall'08	CS/BIO 8802 Networks in Systems Biology	4 CS and 6 Biology	5.0/5.0
Spring'09	CS 7270 Internet Applications and Services	35	4.3/5.0
Fall'09	CS 8803 Network Science: Methods and Applications	28	4.9/5.0
Fall'10	CS 4270 Internet Lab	18	4.3/5.0
Spring'11	CS 7270 Internet Applications and Services	47	4.3/5.0
Fall'11	CS 4270 (with CS8803-DCL) Internet Lab	25	4.4/5.0
Spring'12	CS 7270 Internet Applications and Services	35	4.5/5.0
Fall'12	CS 4270 (with CS8803-DCL)	35	4.6/5.0
Fall'13	CS 8803 Network Science	13	4.6/5.0
Spring'14	CS 4270 (with CS8803-DCL)	14	4.6/5.0

B. Curriculum Development

Revised CS 7270 - Internet applications and services: I revised CS7270 with a completely new syllabus in Fall'07, and I have taught it several times since then. The new CS7270 focuses on a new wave of Internet applications and on how people use them. The first part of the course covers the following topics: VoIP, IPTV and video streaming, Web browsing, peer-to-peer file sharing, peer-to-peer TV distribution, online games, email and chat applications, and virtual worlds. The second part of the course focuses on the Web and on how people use it. Specifically, it covers topics on Web search, the semantic Web, Web economics, Web information diffusion, and Web user behavior.

New course - CS 4270 Undergraduate Network Laboratory: A new undergraduate course that was first offered in Spring'07. The main objective of the course is to offer students hands-on experience with networking technologies (routers, switches, hubs), networking protocols (RIP, OSPF, BGP, DHCP, NAT, DNS, TCP, UDP, SNMP), and networking tools (tcpdump, netstat, netflow). In parallel, the course covers advanced topics (based on research papers) that are related to the lab exercices. The

class size is about 30 students and it is given once per year. The lab has been set up using Technology Fee funding.

CS 8803 Experimental Performance Evaluation: An advanced graduate course focusing on practical but rigorous techniques in experimental performance evaluation. These techniques are drawn from experimental design, statistics (both parametric and non-parametric), data visualization, workload characterization, random number generation, simulation, and time series analysis/forecasting. Additionally, the course covers performance evaluation case-studies in operating and distributed systems, computer architecture, databases, and networks.

CS 8802 Network Science - Methods and Applications: Network science is a new discipline that investigates the topology and dynamics of complex networks, aiming to better understand the behavior and properties of the underlying systems. The applications of network science cover physical, informational, biological, cognitive, and social systems. This graduate course focuses on algorithmic, computational, and visualization methods of network science, as well as applications in communications, biology, ecology, brain science, sociology and economics. The course goes beyond the strictly structural concepts of small-world and scale-free networks, focusing on dynamic network processes.

CS 8802 Networks in Systems Biology: An advanced graduate seminar, cross-listed in Biology and co-taught with Prof. Todd Streelman from Biology. It focused on the application of network science methods in the study of biological networks, such as regulatory, metabolic, protein interaction, and development networks. It also focused on some fundamental biological properties, such as robustness, modularity, and evolvability, using network science concepts and methods.

C. Individual Student Guidance

Post-Doctoral Fellows Supervised.

Amund Kvalbein CoC, now Assistant Professor at Simula Research, Norway
Fall 2007- Summer 2008.
Research on Interdomain Routing (BGP) Scalability.

Demetris Antoniades CoC.
Spring 2012 - Present.
Research on Network Performance Monitoring and Diagnosis.

Ph.D. Students Supervised.

Manish Jain CoC, now at Akamai.
Summer 2002 - Fall 2006.
Research on Available Bandwidth Estimation and Applications.

Ravi S. Prasad CoC, now at Cisco Systems.
Summer 2002 - December 2007.
Research on Congestion Control and Router Buffer Sizing.

Amogh Dhamdhere CoC, now at the CAIDA research center.
Summer 2003 - May 2009.
Research on Internet Evolution.

Qi He CoC, co-advised with Mostafa Ammar, now at Apple.
Fall 2003- Summer 2005.
Research on TCP Throughput Prediction, TCP simulation scalability.

Yong Zhu CoC, co-advised with Mostafa Ammar, now at Google.
Fall 2003 - Summer 2006.
Research on Overlay Routing.

Ruomei Gao CoC, co-advised with Ellen W. Zegura, now at Akamai.
Fall 2003 - Summer 2007.
Research on Routing and Traffic Engineering.

Partha Kanuparthy CoC, now at Yahoo! Research.
Spring 2007 - December 2012.
Research on Network Inference and Tomography.

Ahmed Elmokashfi University of Oslo, now PostDoc at Simula Research.
Fall 2007 - Fall 2010
Research on BGP Scalability and Interdomain Routing Evolution.

Saamer Akhshabi CoC.
Fall 2009 - Present.
Research on Evolution of Internet Architecture.

Aemen Lodhi CoC.
Fall 2009 - Present.
Research on Economics of Internet Interconnections.

Ilias Fountalis CoC.
Fall 2010 - Present.
Research on Applications of Network Science in Climate Science (in collaboration with Prof. Annalisa Bracco, EAS, Georgia Tech).

Kamal Shadi ECE.
Summer 2013 - Present.
Research on Applications of Graph Mining in Internet Performance Monitoring.

Ph.D. Special Problems Students.

Saiedeh Bakhshi CoC, switched to School of Interactive Computing.
Fall 2009 - Spring 2012.
Research on Evolutionary Network Design.

M.S. Thesis Students.

Manish Jain CIS - Univ of Delaware.
Summer 2001 - Summer 2002.
Thesis title: Available Bandwidth Estimation.

Joseph Pellegrino CIS - Univ of Delaware.
Summer 2001- Summer 2002.
Thesis title: A Peer-to-Peer Architecture for Multiplayer Internet Games.

Antonios Danalis CIS - Univ of Delaware.
Fall 2001- Summer 2002.
Thesis title: ANEMOS, an Autonomous Network Monitoring System.

M.S. Special Problems Students.

Jamie R. Booth CoC, *Spring 2003, Design of a Simple Router Using Network Processors.*

Tammara M. Massey CoC, *Spring 2003, Networking Issues in Multiplayer Internet Games.*

Ola Nordstrom CoC, *2003, Security Threats in the BGP Routing Protocol.*

Ken Edwards CoC, *Spring-Summer 2005, Scaling Effects in TCP Pacing.*

Aditi M. Thanekar CoC, *Spring 2006 - Spring 2007, Experimental Evaluation of Intelligent Route Control.*

Izudin Ibrahimbegovic CoC, *Fall 2006 - Spring 2007, Router-based Active Network Measurement Methods.*

Nehil Jain CoC, *Spring 2008 - Spring 2009, Rate-Adaptive Video Streaming.*

Alessio Guerrieri CoC, *Fall 2009 - Spring 2010, Application of Network Science in Modeling Science Collaboration Networks.*

Robert Miller CoC, *Fall 2008 - Summer 2010, The Impact of Congestion on User Behavior.*

Shivani Suresh Babu CoC, *Fall 2009 - Fall 2010, Application of Network Science in Modeling Brain Networks.*

Madhav Shree CoC, *Fall 2009 - Fall 2010, Application of Network Tomography in Problem Diagnosis.*

Sethumadhavan Narayanaswamy CoC, *Spring 2010 - Spring 2011, Rate-Adaptive Video Streaming over HTTP.*

Madhwaraj G. K. CoC, *Fall 2010 - Spring2011, Network Performance Problem Localization.*

Lakshmi Anantakrishnan CoC, *Spring 2012 - Fall 2012, The Use of Traffic Shaping to Avoid Oscillations in Adaptive Video Streaming.*

Bhuvaneswari Sundararaman CoC, *Fall 2011 - Spring 2013, Analysis and Visualization of Shaper-Probe Traffic Shaping Results.*

Andrew Liu CoC, *Fall 2012 - Spring 2013, Design and Implementation of a Co-Evolutionary Network Influence Game.*

Danny Lee CoC, *Fall 2012 - Present, Design and Implementation of a Network Problem Diagnosis System (Pythia).*

Thiagarajan T.S. CoC, *Spring 2013 - Present, Network Analysis Methods for Brain Diffusion MRI Data.*

Undergraduate Research Projects.

Jonathan Aguilard CoC, *Summer 2004, Utility Functions in Peer-to-Peer Systems.*

Spencer Huang CoC, *Summer 2004, Available Bandwidth Estimation Tools.*

Joe Chung CoC, *Summer 2004, Socket Buffer Auto-Sizing (SOBAS).*

Christian Adam CoC, *Spring 2005, Scaling Effects in TCP pacing.*

Izudin Ibrahimbegovic CoC, *Spring 2006, BGP-based Network Active Measurements.*

Elizabeth A. Durham CoC, *Spring 2006, Cortex-Inspired Network Architectures.*

Stephen Rollyson CoC, *Fall 2006, Improving the Performance of the TOR Anonymous Routing System.*

II. RESEARCH AND CREATIVE SCHOLARSHIP

A. Thesis

Ph.D. Thesis

Title: *"Proportional Differentiated Services for the Internet",*
Date Completed: *December 2000,*
Advisor: *Prof. Parmesh Ramanathan*,
University: *University of Wisconsin-Madison.*

Engineering Diploma Thesis

Title: *"Two Metastability-Robust Hardware Synchronizers for High-Speed Network Interfaces",*
Date Completed: *June 1995,*
Advisor: *Prof. Apostolos Dollas,*
University: *Technical University of Crete, Greece.*

B. Published Journal Papers (refereed)

B.1 C.Dovrolis, P.Ramanathan, "Resource Aggregation for Fault-Tolerance in Integrated Services Packet Networks". In *ACM Computer Communications Review*, 28(2):39-53, April 1998.

B.2 C.Dovrolis, P.Ramanathan, "A Case for Relative Differentiated Services and the Proportional Differentiation Model". In *IEEE Network*, 13(5):26-34, September 1999.

B.3 C.Dovrolis, D.Stiliadis, P.Ramanathan, "Proportional Differentiated Services: Delay Differentiation and Packet Scheduling". In *IEEE/ACM Transactions on Networking*, 10(1):12-26, February 2002.

B.4 H.Jiang, C.Dovrolis, "Estimation of TCP Round-Trip Times from Passive Measurements". In *ACM Computer Communications Review*, 32(3):75-88, July 2002.

B.5 C.Dovrolis, P.Ramanathan, "Dynamic Class Selection and Class Provisioning in Proportional Differentiated Services". In *Computer Communications Journal*, 26(3):204-221, February 2003.

B.6 M.Jain, C.Dovrolis, "End-to-End Available Bandwidth: Measurement Methodology, Dynamics, and Relation with TCP Throughput". In *IEEE/ACM Transactions on Networking*, 11(4):537-549, August 2003. Selected for publication as one of the best papers of the ACM SIGCOMM 2002 conference.

B.7 R.S.Prasad, M.Murray, C.Dovrolis, K.C.Claffy, "Bandwidth Estimation: Metrics, Measurement Techniques, and Tools". In *IEEE Network*, 17(6):27–35, November 2003.

B.8 R.S.Prasad, M.Jain, C.Dovrolis, "Socket Buffer Auto-Sizing for High-Performance Data Transfers". In *Journal of Grid Computing*, 1(4):361-376, December 2003.

B.9 O.Nordstrom, C.Dovrolis, "Beware of BGP Attacks". In *ACM Computer Communications Review*, 34(2):1–8, April 2004.

B.10 C.Dovrolis, P.Ramanathan, D. Moore, "Packet Dispersion Techniques and Capacity Estimation". In *IEEE/ACM Transactions on Networking*, 12(6):963–977, December 2004.

B.11 Y.Zhu, C.Dovrolis, M.Ammar, "Proactive and Reactive Bandwidth-Driven Overlay Routing: A Simulation Study". In *Computer Networks* Journal, 50(6):739–876, April 2006.

B.12 Q.He, C.Dovrolis, M.Ammar, "A Methodology for the Optimal Configuration of TCP Traffic in Network Simulations under Link Load Constraints". In *Simulation: Transactions of The Society for Modeling and Simulation International*, 82(5):279-293, 2006.

B.13 Q.He, C.Dovrolis, M.Ammar, "On the Predictability of Large Transfer TCP Throughput". In *Computer Networks* Journal, 51(14):3959-3977, October 2007.

B.14 M.Jain, C.Dovrolis, "Path Selection using Available Bandwidth Estimation in Overlay-based Video Streaming". In *Computer Networks* Journal, 52(12):2411-2418, August 2008.

B.15 R.S.Prasad, C.Dovrolis, M.Thottan, "Router Buffer Sizing for TCP Traffic and the Role of the Input/Output Capacity Ratio". In *IEEE/ACM Transactions on Networking*, 17(5):1645-1658, October 2009.

B.16 A.Elmokashfi, A.Kvalbein, C.Dovrolis, "On the Scalability of BGP: the Roles of Topology Growth, Policy and Update Rate-Limiting". In IEEE Journal on Selected Areas in Communications (JSAC) - Special issue: Internet Routing Scalability, 28(8):1250-1261, October 2010.

B.17 A.Dhamdhere, C.Dovrolis, "Twelve Years in the Evolution of the Internet Ecosystem". In *IEEE/ACM Transactions on Networking*, 19(5):1420-1433, October 2011.

B.18 P.Kanuparthy, C.Dovrolis, K.Papagiannaki, P.Steenkiste, S.Seshan, "Can User-Level Probing Detect and Diagnose Common Home-WLAN Pathologies?" In *ACM Computer Communications Review*, January 2012.

B.19 A.Elmokashfi, A.Kvalbein, C.Dovrolis, "BGP Churn Evolution: A Perspective from the Core". In *IEEE/ACM Transactions on Networking*, 20(2):571-584, April 2012.

B.20 S.Akhshabi, S.Narayanaswamy, A.C.Begen, C.Dovrolis, "An Experimental Evaluation of Rate-Adaptive Video Players over HTTP". In *Signal Processing: Image Communication*, 27(4):271-287, April 2012.

B.21 A.Vishwanathan, V.Sivaraman, C.Dovrolis, M.Thottan, "Enabling a Bufferless Core Optical Network Using Edge-to-Edge Packet-Level FEC". In *IEEE Transactions on Communications*, 61(2):690-699, 2013.

B.22 I.Fountalis, A.Bracco, C.Dovrolis, "Spatio-Temporal Network Analysis for Studying Climate Patterns". In *Climate Dynamics*, 42(3):879-899, February 2014.

B.23 A.Lodhi, A.Dhamdhere, C.Dovrolis, "GENESIS-CBA: An Agent-based Model of Peer Evaluation and Selection in the Internet Interdomain Network". In *Complex Adaptive Systems Modeling*, 1:10, 2013.

B.24 P.Kanuparthy, D.Lee, W.Matthews, S.Zarifzadeh, C.Dovrolis, "Pythia: Detection, Localization and Diagnosis of Performance Problems". In *IEEE Communications*, accepted for publication, August 2013.

C. Published Books and Parts of Books (Refereed)

C.1. Chapters in Books

C.1.1 S.Bakhshi, C.Dovrolis, "The Price of Evolution in Incremental Network Design (The Case of Ring Networks)". In *Bio-Inspired Models of Networks, Information, and Computing Systems*, Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. Edited by E.Hart, J.Timmis, P.Mitchell, T.Nakamo, and F.Dabiri. Springer, Volume 103, pp:1-15, 2012.

C.1.2 S.Akhshabi, C.Dovrolis, "The Evolution of Layered Protocol Stacks Leads to an Hourglass-Shaped Architecture". In *Dynamics of Time Varying Networks*, Edited by N.Ganguly, A.Mukherjee, B.Mitra, F.Peruani and M.Choudhury. Springer, 2013.

D. Edited Proceedings

D.1 C.Dovrolis (Editor), "Proceedings of the 5'th workshop on Passive and Active Measurements (PAM)". Published by Springer, Lecture Notes in Computer Science (LNCS), April 2005.

D.2 C.Dovrolis and M.Roughan (Editors), "Proceedings of the 4'th Internet Measurement Conference (IMC)". Published by ACM SIGCOMM, October 2007.

D.3 C.Dovrolis and P.Key (Editors), "Proceedings of the 7'th ACM CoNEXT Conference". Published by ACM SIGCOMM, December 2011.

E. Conference Presentations

E.1. Invited Keynote Addresses

E.1.1 C.Dovrolis, Keynote title: "Bandwidth Estimation in Computer Networks: Measurement Techniques and their Applications", The Third IASTED International Conference on Communications and Computer Networks (CCN), October 2005.

E.1.2 C.Dovrolis, Keynote title: "Bandwidth Estimation in Computer Networks: Measurement Techniques and their Applications", The Fourth IEEE/IFIP Workshop on End-to-End Monitoring Techniques and Services (E2EMON'06), April 2006.

E.1.3 C.Dovrolis, Keynote title: "Hourglass-like Networks: from Protocol Stacks to Developing Embryos", The Fourth International Workshop on Network Science for Communication Networks (NetSciCom, in conjuction with IEEE INFOCOM), March 2012.

E.2. Conference Presentations with Proceedings (refereed)

E.2.1 C.Dovrolis, D.Stiliadis, "Issues and Mechanisms for Relative Differentiated Services in the Internet" (2-page extended abstract). In *Proceedings of the ACM SIGMETRICS conference*, Atlanta GA, May 1999.

E.2.2 C.Dovrolis, D.Tull, P.Ramanathan, "Hybrid Spatial/Temporal Loss Concealment for Packet Video". In *Proceedings of the 9th International Packet Video Workshop,* New York NY, May 1999.

E.2.3 C.Dovrolis, D.Stiliadis, P.Ramanathan, "Proportional Differentiated Services: Delay Differentiation and Packet Scheduling". In *Proceedings of the 1999 ACM SIGCOMM conference,* Cambridge MA, September 1999. *[24 accepted papers out of 190 submissions (13%).]*

E.2.4 C.Dovrolis, P.Ramanathan, "Proportional Differentiated Services, Part II: Loss Rate Differentiation and Packet Dropping". In *Proceedings of the 2000 International Workshop on Quality-of-Service (IWQoS),* Pittsburgh PA, June 2000. *[24 accepted papers out of 84 submissions (29%).]*

E.2.5 C.Dovrolis, P.Ramanathan, D.Moore, "What Do Packet Dispersion Techniques Measure?" In *Proceedings of the 2001 IEEE INFOCOM conference,* Anchorage AK, April 2001. *[192 accepted papers out of 890 submissions (22%).]*

E.2.6 C.Dovrolis, P.Ramanathan, "Dynamic Class Selection: From Relative Differentiation to Absolute QoS". In *Proceedings of the 9th IEEE International Conference in Network Protocols (ICNP),* Riverside CA, November 2001. *[36 accepted papers out of 157 submissions (23%).]*

E.2.7 M.Jain, C.Dovrolis, "Pathload: A Measurement Tool for End-to-End Available Bandwidth". In *Proceedings of the 3rd Passive and Active Measurements (PAM) workshop,* Fort Collins CO, March 2002.

E.2.8 R.S.Prasad, C.Dovrolis, B.A.Mah, "The Effect of Layer-2 Switches on Pathchar-like Tools" (2-page extended abstract). In *Proceedings of the ACM Internet Measurement Workshop,* Marseille, France, November 2002.

E.2.9 M.Jain, C.Dovrolis, "End-to-end Available Bandwidth: Measurement Methodology, Dynamics, and Relation with TCP Throughput". In *Proceedings of the 2002 ACM SIGCOMM conference,* Pittsburgh PA, August 2002 *[25 accepted papers out of 300 submissions (8%).]*

E.2.10 A.Danalis, C.Dovrolis, "ANEMOS: Autonomous Network Monitoring System". In *Proceedings of the 4th Passive and Active Measurements (PAM) workshop,* San Diego CA, April 2003.

E.2.11 R.S.Prasad, C.Dovrolis, B.A.Mah, "The Effect of Layer-2 Store-and-Forward Devices on Per-Hop Capacity Estimation". In *Proceedings of the 2003 IEEE INFOCOM conference,* San Fransisco CA, April 2003. *[224 accepted papers out of 1078 submissions (21%).]*

E.2.12 J.Pellegrino and C.Dovrolis, "Bandwidth Requirement and State Consistency in Three Multiplayer Game Architectures". In *Proceedings of the 2nd ACM NetGames conference,* Redwood City CA, May 2003.

E.2.13 H.Jiang, C.Dovrolis, "Source-Level IP Packet Bursts: Causes and Effects". In *Proceedings of the ACM/USENIX Internet Measurements Conference (IMC),* Miami FL, October 2003. *[32 accepted papers out of 109 submissions (29%).]*

E.2.14 R.S.Prasad, M.Jain, C.Dovrolis, "Effects of Interrupt Coalescence on Network Measurements". In *Proceedings of the 5th Passive and Active Measurements (PAM) workshop,* Antibes Juan-les-Pins, France, April, 2004. *[29 accepted papers out of 220 submissions (13%).]*

E.2.15 H.Jiang, C.Dovrolis, "The effect of flow capacities on the burstiness of aggregated traffic". In *Proceedings of the 5th Passive and Active Measurements (PAM) workshop,* Antibes Juan-les-Pins, France, April, 2004. *[29 accepted papers out of 220 submissions (13%).]*

E.2.16 M.Jain, C.Dovrolis, "Ten Fallacies and Pitfalls on End-to-End Available Bandwidth Estimation". In *Proceedings of the ACM/USENIX Internet Measurements Conference (IMC),* Taormina, Italy, October 2004. *[32 accepted papers out of 109 submissions (29%).]*

E.2.17 A.Dhamdhere, H.Jiang, C.Dovrolis, "Measurement-Based Buffer Provisioning of Router Interfaces". In *Proceedings of the 2005 IEEE INFOCOM conference,* Miami FL, April 2005. *[244 accepted papers out of 1419 submissions (17%).]*

E.2.18 Q.He, C.Dovrolis, M.Ammar, "A Methodology for the Optimal Configuration of TCP Traffic in Network Simulations under Link Load Constraints". In *Proceedings of the 2005 IEEE Annual Simulation Symposium,* San Diego CA, April 2005. *[35 accepted papers out of 96 submissions (36.5%).]*

E.2.19 R.Gao, C.Dovrolis, E.W.Zegura, "Interdomain Ingress Traffic Engineering through Optimized AS-Path Prepending". In *Proceedings of the 2005 IFIP Networking conference,* Waterloo Canada, May 2005. *[106 accepted papers out of 430 submissions (25%).]*

E.2.20 Q.He, C.Dovrolis, M.Ammar, "Prediction of TCP Throughput: Formula-based and History-based Methods". In *Proceedings of the 2005 ACM SIGMETRICS conference (2-page extended abstract),* Banff Canada, June 2005.

E.2.21 M.Jain, C.Dovrolis, "End-to-end Estimation of the Available Bandwidth Variation Range". In *Proceedings of the ACM SIGMETRICS conference*, Banff Canada, June 2005. *[31 accepted papers out of 237 submissions (13%).]*

E.2.22 H.Jiang, C.Dovrolis, "Why is the Internet Traffic Bursty in Short (sub-RTT) Time Scales?" In *Proceedings of the ACM SIGMETRICS conference*, Banff Canada, June 2005. *[31 accepted papers out of 237 submissions (13%).]*

E.2.23 Q.He, C.Dovrolis, M.Ammar, "On the Predictability of Large Transfer TCP Throughput." In *Proceedings of the ACM SIGCOMM conference*, Philadelphia PA, August 2005. *[27 accepted papers out of 255 submissions (11%).]*

E.2.24 M.M.Bin Tariq, C.Dovrolis, M.Ammar, "Poisson Versus Periodic Path Probing (or, does PASTA Matter?)". In *Proceedings of the ACM/USENIX Internet Measurement conference*, October 2005. *[36 accepted papers out of 148 submissions (24%).]*

E.2.25 D.Antoniades, M.Athanatos, A.Papadogiannakis, E.Markatos, C.Dovrolis, "Available Bandwidth Measurement as Simple as Running wget". In *Proceedings of the 7th Passive and Active Measurements (PAM) workshop,* Adelaide, Australia, March, 2006. *[24 accepted papers out of 96 submissions (25%).]*

E.2.26 A.Dhamdhere, C.Dovrolis, "ISP and Egress Path Selection for Multihomed Content Providers". In *Proceedings of the 2006 IEEE INFOCOM conference,* Barcelona, Spain, April 2006. *[252 accepted papers out of 1400 submissions (18%).]*

E.2.27 R.Gao, C.Dovrolis, E.W.Zegura, "Avoiding Oscillations due to Intelligent Route Control Systems". In *Proceedings of the 2006 IEEE INFOCOM conference,* Barcelona, Spain, April 2006. *[252 accepted papers out of 1400 submissions (18%).]*

E.2.28 R.S.Prasad, C.Dovrolis, "Congestion Responsiveness of Internet Traffic (A Fresh Look at an Old Problem)". In *Proceedings of the 2006 ACM SIGMETRICS conference (2-page extended abstract),* Saint-Malo, France, June 2006.

E.2.29 R.S.Prasad, C.Dovrolis, "Measuring the Congestion Responsiveness of Internet Traffic". In *Proceedings of the 8th Passive and Active Measurements (PAM) workshop,* Louvain-la-neuve, Belgium, April, 2007. *[21 accepted papers out of 80 submissions (25%).]*

E.2.30 Y.Zhou, C.Dovrolis, M.Ammar, "Combining multihoming with overlay routing (or, how to be a better ISP without owning a network)". In *Proceedings of the 2007 IEEE INFOCOM conference,* Anchorage AK, May 2007. *[250 accepted papers out of 1400 submissions (18%).]*

E.2.31 M.Jain, C.Dovrolis, "Path Selection using Available Bandwidth Estimation in Overlay-based Video Streaming". In *Proceedings of the 2007 IFIP Networking conference,* Atlanta GA, May 2007. *[99 accepted papers out of 440 submissions (22.5%).]*

E.2.32 R.Gao, C.Dovrolis, E.W.Zegura, "Interactions of Intelligent Route Control with TCP Congestion Control". In *Proceedings of the 2007 IFIP Networking conference,* Atlanta GA, May 2007. *[99 accepted papers out of 440 submissions (22.5%).]*

E.2.33 R.S.Prasad, C.Dovrolis, M.Thottan, "Router Buffer Sizing Revisited: The Role of the Input/Output Capacity Ratio". In *Proceedings of the 2007 ACM CoNEXT conference,* New York NY, December 2007. *[28 accepted papers out of 138 submissions (20.3%).]*

E.2.34 A.Dhamdhere, R.Teixeira, C.Dovrolis, C.Diot, "NetDiagnoser: Troubleshooting Network Unreachabilities using End-to-End Probes and Routing Data". In *Proceedings of the 2007 ACM CoNEXT conference,* New York NY, December 2007. *[28 accepted papers out of 138 submissions (20.3%).]*

E.2.35 R.S.Prasad, C.Dovrolis, "Beyond the Model of Persistent TCP Flows: Open-Loop vs Closed-Loop Arrivals of Non-Persistent Flows". In *Proceedings of the 2008 Annual Simulation Symposium (ANSS),* Ottawa, Canada, April 2008. *[33 accepted papers out of 68 submissions (48.5%).]*

E.2.36 A.Dhamdhere, C.Dovrolis, "Can ISPs be Profitable Without Violating Network Neutrality?", In *Proceedings of the ACM SIGCOMM Network Economics (NetEcon) Workshop,* Seattle WA, August 2008. *[18 accepted papers out of 33 submissions (54.5%).]*

E.2.37 A.Dhamdhere, C.Dovrolis, "Ten Years in the Evolution of the Internet Ecosystem". In *Proceedings of the ACM SIGCOMM Internet Measurement Conference (IMC),* Athens, Greece, October 2008. *[32 accepted papers out of 185 submissions (17.3%).]*

E.2.38 P.Kanuparthy, C.Dovrolis, M.Ammar, "Spectral Probing, Crosstalk and Frequency Multiplexing in Internet Paths". In *Proceedings of the ACM SIGCOMM Internet Measurement Conference (IMC),* Athens, Greece, October 2008. *[32 accepted papers out of 185 submissions (17.3%).]*

E.2.39 A.Elmokashfi, A.Kvalbein, C.Dovrolis, "On the Scalability of BGP: the Roles of Topology Growth, Policy and Update Rate-Limiting". In *Proceedings of the ACM SIGCOMM CoNEXT Conference,* Madrid, Spain, December 2008. *[29 accepted papers out of 166 submissions (17.5%).]*

E.2.40 A.Kvalbein, C.Muthu, C.Dovrolis, "Multipath Load-Adaptive Routing: Putting the Emphasis on Robustness and Simplicity". In *Proceedings of the IEEE International Conference on Network Protocols (ICNP),* Princeton NJ, October 2009. *[36 accepted papers out of 197 submissions (18.3%).]*

E.2.41 D.Antoniades, E.Markatos, C.Dovrolis, "One-Click Hosting Services: A File-Sharing Hideout". In *Proceedings of the ACM SIGCOMM Internet Measurement Conference (IMC),* Chicago IL, November 2009. *[41 accepted papers out of 183 submissions (22.4%).]*

E.2.42 R.Miller, W.Matthews, C.Dovrolis, "Internet Usage at Elementary, Middle and High Schools: A First Look at K-12 Traffic from two US Georgia Counties". In *Proceedings of the Passive and Active Measurements (PAM) conference,* Zurich, Switzerland, April 2010. *[23 accepted papers out of 79 submissions (29.1%).]*

E.2.43 D.Antoniades, E.Markatos, C.Dovrolis, "MOR: Monitoring and Measurements through the Onion Router". In *Proceedings of the Passive and Active Measurements (PAM) conference,* Zurich, Switzerland, April 2010. *[23 accepted papers out of 79 submissions (29.1%).]*

E.2.44 A.Vishwanath, V.Sivaraman, M.Thottan, C.Dovrolis, "Enabling a Bufferless Core Network Using Edge-to-Edge Packet-Level FEC". In *Proceedings of the IEEE INFOCOM Conference,* San Diego CA, March 2010. *[276 accepted papers out of 1575 submissions (17.5%).]*

E.2.45 P.Kanuparthy, C.Dovrolis, "DiffProbe: Detecting ISP Service Discrimination". In *Proceedings of the IEEE INFOCOM Conference,* San Diego CA, March 2010. *[276 accepted papers out of 1575 submissions (17.5%).]*

E.2.46 A.Elmokashfi, A.Kvalbein, C.Dovrolis, "BGP churn evolution: A perspective from the core". In *Proceedings of the IEEE INFOCOM Conference,* San Diego CA, March 2010. *[276 accepted papers out of 1575 submissions (17.5%).]*

E.2.47 A.Dhamdhere, P.Francois, C.Dovrolis, "A Value-Based Framework for Internet Peering Agreements". In *Proceedings of the International Teletraffic Congress (ITC),* Amsterdam, The Netherlands, September 2010. *[35 accepted papers out of 110 submissions (32%).]*

E.2.48 A.Lodhi, C.Dovrolis, "A Network Formation Model for Internet Transit Relations". In *Proceedings of the Economics of Networks, Systems and Computation (NetEcon) workshop,* Vancouver, Canada, October 2010.

E.2.49 A.Dhamdhere, C.Dovrolis, "The Internet is Flat: Modeling the Transition from a Hierarchy to a Peering Mesh". In *Proceedings of the ACM SIGCOMM CoNEXT Conference,* Philadelphia PA, December 2010. *[28 accepted papers out of 147 submissions (19.0%).]*

E.2.50 S.Akhshabi, A.Begen, C.Dovrolis, "An Experimental Evaluation of Adaptive Video Streaming over HTTP". In *Proceedings of the ACM Multimedia Systems (MMSYS) Conference (special session on Modern Media Transport Protocols,* San Jose CA, February 2011. *[7 accepted papers out of 19 submissions (36.8%).]*

E.2.51 S.Akhshabi, C.Dovrolis, "The Evolution of Layered Protocol Stacks Leads to an Hourglass-Shaped Architecture". In *Proceedings of the ACM SIGCOMM conference*, Toronto, Canada, August 2011. *[32 accepted papers out of 223 submissions (14.4%).]*

E.2.52 A.Elmokashfi, A.Kvalbein, C.Dovrolis, "SIMROT: a Scalable Inter-domain Routing Toolbox". In *Proceedings of the IFIP Performance Conference,* Amsterdam, The Netherlands, October 2011. *[20 accepted papers out of 99 submissions (20.0%).]*

E.2.53 P.Kanuparthy, C.Dovrolis, "ShaperProbe: End-to-end Detection of ISP Traffic Shaping using Active Methods". In *Proceedings of the ACM SIGCOMM Internet Measurement Conference (IMC),* Berlin, Germany, November 2011. *[42 accepted papers out of 220 submissions (19.1%).]*

E.2.54 S.Bakhshi, C.Dovrolis, "The Price of Evolution in Incremental Network Design (the case of ring networks)". In *6th International ICST Conference on Bio-Inspired Models of Network, Information, and Computing Systems (BioNetics),* York, United Kingdom, December 2011. *[TBD accepted papers out of TBD submissions (TBD%).]*

E.2.55 A.Lodhi, A.Dhamdhere, C.Dovrolis, "GENESIS: An Agent-Based Model of Interdomain Network Formation, Traffic Flow and Economics". In *Proceedings of the IEEE INFOCOM Conference,* Orland FL, March 2012. *[278 accepted papers out of 1547 submissions (18.0%).]*

E.2.56 J.Mikians, A.Dhamdhere, C.Dovrolis, P.Barlet-Ros, J.Sole-Pareta, "Towards a Statistical Characterization of the Interdomain Traffic Matrix". In *Proceedings of the IFIP Networking Conference,* Prague, Czech Republic, May 2012. *[64 accepted papers out of 225 submissions (28.4%).]*

E.2.57 A.Dhamdhere, H.Cherukuru, C.Dovrolis, k.Claffy, "Measuring the Evolution of Internet Peering Agreements". In *Proceedings of the IFIP Networking Conference,* Prague, Czech Republic, May 2012. *[64 accepted papers out of 225 submissions (28.4%).]*

E.2.58 S.Akhshabi, L.Anantakrishna, C.Dovrolis, A.Begen, "What Happens when HTTP Adaptive Streaming Players Compete for Bandwidth?". In *Proceedings of the ACM SIGMM NOSSDAV workshop*, Toronto, Canada, June 2012. *[17 accepted papers out of 47 submissions (36.2%).]*

E.2.59 S.Zarifzadeh, C.Dovrolis, "Localization of Network Performance Problems with Multi-Level Discrete Tomography". In *Proceedings of the IEEE ICCCN Conference*, Munich, Germany, July 2012. *[78 accepted papers out of 260 submissions (30.0%).]*

E.2.60 S.Zarifzadeh, G.Madhwaraj, C.Dovrolis, "Range tomography: Combining the practicality of boolean tomography with the resolution of analog tomography". In *Proceedings of the ACM SIGCOMM Internet Measurement Conference (IMC),* Boston MA, November 2012. *[45 accepted papers out of 183 submissions (24.6%).]*

E.2.61 S.Akhshabi, L.Anantakrishna, C.Dovrolis, A.Begen, "Server-Based Traffic Shaping for Stabilizing Oscillating Adaptive Streaming Players". In *Proceedings of the ACM SIGMM NOSSDAV workshop*, Oslo, Norway, February 2013. *[10 accepted papers out of 32 submissions (31.3%).]*

E.2.62 S.Bakhshi, C.Dovrolis, "The price of evolution in incremental network design: The case of mesh networks". In *Proceedings of the IFIP Networking Conference,* New York City, May 2013. *[50 accepted papers out of 191 submissions (26.2%).]*

E.3. Conference Presentations with Proceedings (non-refereed)

E.3.1 C.Dovrolis, P.Ramanathan, "Class Provisioning using Proportional Delay Differentiation". In *Proceedings of the SPIE Scalability and Traffic Control in IP Networks conference*, Denver CO, August 2001.

E.3.2 H.Jiang, C.Dovrolis, "Guardian: A Router Mechanism for Extreme Overload Prevention". In *Proceedings of the SPIE Scalability and Traffic Control in IP Networks conference,* Boston MA, August 2002.

E.3.3 A.Dhamdhere, C.Dovrolis, "An Agent-based Model for the Evolution of the Internet Ecosystem". In *Proceedings of the International Conference on COMmunication Systems and NETworkS (COMSNETS) - Invited paper,* Bangalore, India, January 2009.

E.4. Conference Presentations without Proceedings

E.4.1 C.Dovrolis, P.Ramanathan, "Providing Fault-Tolerant QoS Guarantees in Integrated Services Packet Networks". In *12th Annual IEEE Computer Communications workshop*, Phoenix AZ, September 1997.

E.4.2 C.Dovrolis, "A Spectrum Analyzer for IP-layer Network Paths". In *Internet Statistics and Metrics Analysis (ISMA) workshop*, San Diego CA, December 2000.

E.4.3 C.Dovrolis, "Experiments with Bandwidth Measurement Methodologies on Internet2". In *Internet2 Network Research workshop*, Chicago IL, April 2001.

E.4.4 C.Dovrolis, "End-to-End Available Bandwidth Estimation". In *IPAM Large-Scale Communication Networks workshop*, Los Angeles CA, March 2002.

E.4.5 H.Jiang, C.Dovrolis, "Guardian: A Router Mechanism for Extreme Overload Prevention". In *IEEE Disaster Recovery Networks workshop*, New York NY, June 2002.

E.4.6 R.S.Prasad, M.Jain, C.Dovrolis, "Evaluating Pathrate and Pathload with Realistic Cross-Traffic". In *First Bandwidth Estimation Workshop*, San Diego CA, December 2003.

E.4.7 C.Dovrolis, "Inferring Path Characteristics Based on End-to-End Measurements". In *COST-IST (EU) and NSF (USA) Workshop on Exchanges & Trends in Networking*, Chania Greece, June 2003.

E.4.8 R.S.Prasad, M.Jain, C.Dovrolis, "On the Effectiveness of Delay-Based Congestion Avoidance". In *Workshop on Protocols for Fast Long-Distance Networks*, Argonne IL, February 2004.

E.4.9 H.Jiang, C.Dovrolis, "Why is the Internet Traffic Bursty in Sub-RTT Time Scales?". In *Workshop on Internet Signal Processing (WISP)*, San Diego CA, November 2004.

E.4.10 R.S.Prasad, C.Dovrolis, "Congestion Responsiveness of Internet Traffic (a Fresh Look at an Old Problem)". In *Hamilton Institute Workshop on Congestion Control*, Maynooth, Ireland, September 2005.

E.4.11 A.Dhamdhere, C.Dovrolis, "Buffer Sizing for Congested Routers". In *Hamilton Institute Workshop on Congestion Control*, Maynooth, Ireland, September 2005.

E.4.12 A.Mansy, C.Dovrolis, "The Mythical Traffic Matrix". In *WIRED: Workshop on Internet Routing Evolution and Design*, Atlanta GA, September 2006.

E.4.13 C.Dovrolis, "Four Myths about GENI (and one recommendation)". In *DIMACS Tutorial on Algorithms for Next Generation Networks*, New Brunswick NJ, August 2007.

E.4.14 S.Bakhshi, D.Gutman, C.Dovrolis, "The Structural Network of Major Depressive Disorder". In *Neuro-Informatics conference*, Boston MA, September 2011.

E.4.15 I.Fountalis, A.Bracco, C.Dovrolis, "Validation of the CMIP5 Climate Models Using Network Analysis". In *92nd American Meteorological Society Annual Meeting*, San Francisco CA, January 2012.

E.4.16 I.Fountalis, A.Bracco, C.Dovrolis, "Evaluation of Coupled Climate Models Using Network Analysis". In *3rd Workshop on Complex Networks*, Melbourne FL, March 2012.

E.4.17 S.Akhshabi, C.Dovrolis, "Emergence of Hourglass-Shaped Structures in the Evolution of Layered Networks". In *3rd Workshop on Complex Networks*, Melbourne FL, March 2012.

F. Other

F.1. Submitted Journal Papers

F.1.1 S.Akhshabi, S.Sarda, C.Dovrolis, S.Yi, "An Explanatory Evo-Devo Model for the Developmental Hourglass". Submitted for publication to the *Proceedings of the National Academy of Science (PNAS)*, September 2013.

F.2. Submitted Conference Papers

F.2.1 A.Lodhi, A.Dhamdhere, C.Dovrolis, "Gravitation of Internet Transit Providers towards Open Peering: Dynamics and Economic Consequences". Submitted for publication to the *IEEE INFOCOM conference*, July 2013.

F.2.2 P.Kanuparthy, C.Dovrolis, "Pythia: a System for Wide-Area Performance Problem Diagnosis". Submitted for publication to the *USENIX NSDI conference*, September 2013.

F.2.3 D.Antoniades, C.Dovrolis, "Co-evolutionary dynamics in social networks: A case study of Twitter". Submitted for publication to the *ACM WWW conference*, October 2013.

F.3. Technical Reports

F.3.1 C.Dovrolis, M.Vedam, P.Ramanathan, "The Selection of the Token Bucket Parameters in the IETF Guaranteed Service Class". Technical Report ECE-97-6, Department of ECE, University of Wisconsin- Madison, November 1997.

F.3.2 C.Dovrolis, P.Ramanathan, "Increasing the Clock Interrupt Frequency for Better Support of Real-Time Applications". Technical Report ECE-00-3, Department of ECE, University of Wisconsin-Madison, February 2000.

F.4. Software

F.4.1 C.Dovrolis, *UW-phone: A loss resilient and rate adaptive IP-telephony application.*
Available at `http://www.cc.gatech.edu/~dovrolis/uwphone.tar`.

F.4.2 R.S.Prasad, M.Jain, C.Dovrolis. *Pathrate, Pathload, Pathvar, ABget: Tools for measuring the capacity (bottleneck bandwidth), average available bandwidth, and available bandwidth variation range of Internet paths.*
Available at `http://www.pathrate.org`.

F.4.3 R.S.Prasad, M.Jain, C.Dovrolis, *SOBAS: Application-layer code for socket buffer auto-sizing.*
Available from the authors upon request.

F.4.4 P.Kanuparthy, C.Dovrolis, *ShaperProbe: A tool to detection ISP Traffic Shaping.* Running as a public service on M-Lab. Available at `http://measurementlab.net`.

F.4.5 A.Elmokashfi, A.Kvalbein, C.Dovrolis, *SIMROT: A scalable interdomain routing toolbox* Available at `http://simula.no`.

F.4.6 A.Lodhi, C.Dovrolis, *GENESIS: An agent-based simulator of interdomain network formation* Available upon request.

F.4.7 I.Fountalis, A.Bracco, C.Dovrolis, *Climate Network Inference Software.* Available at `http://www.cc.gatech.edu/~dovrolis/ClimateNets`.

F.5. Published Papers (non-refereed)

F.5.1 C.Dovrolis, B.Thayer, P.Ramanathan, "HIP: A Hybrid Interrupt-Polling Scheme for High-Speed Network Interfaces". In *ACM Operating Systems Review,* 35(4):50-60, October 2001.

F.5.2 A.Dhamdhere, C.Dovrolis, "Open Issues in Router Buffer Sizing". In *ACM SICGOMM Computer Communications Review (CCR), Editorial Section,* 36(1):87-92, January 2006.

F.5.3 L.Lao, C.Dovrolis, M.Y.Sanadidi, "The Probe Gap Model can Underestimate the Available Bandwidth of Multihop Paths". In *ACM SICGOMM Computer Communications Review (CCR), Editorial Section,* 36(5), October 2006.

F.5.4 C.Dovrolis, "What would Darwin Think about Clean-Slate Architectures?". In *ACM SICGOMM Computer Communications Review (CCR), Editorial Section,* 38(1), January 2008.

F.5.5 C.Dovrolis, T.Streelman, "Evolvable network architectures: What can we learn from biology?". In *ACM SICGOMM Computer Communications Review (CCR), Editorial Section,* 40(2), April 2010.

F.5.6 C.Dovrolis, K.Gummadi, A.Kuzmanovic, S.D.Meinrath, "Measurement Lab: Overview and an Invitation to the Research Community". In *ACM SICGOMM Computer Communications Review (CCR), Editorial Section,* 40(3), July 2010.

F.5.7 J.Rexford, C.Dovrolis, "Future Internet Architecture: Clean-Slate Versus Evolutionary Research". In *Communications of the ACM (CACM)*, September 2010.

G. Research Proposals and Grants

1. Approved and Funded

G.1.1 **Bandwidth estimation: measurement methodologies and applications.**
Sponsor: SciDAC program, Office of Science, Department of Energy.
Investigator(s): C.Dovrolis (PI).
Amount: *$308,422 for 3 years.*
Submitted: February 2001. Funded: August 2001.

G.1.2 **Networking Measurement Laboratory.**
Sponsor: Intel Corporation.
Investigator(s): C.Dovrolis (PI).
Amount: *$27,838 (Equipment).*
Submitted: August 2002. Funded: August 2002.

G.1.3 **NetReact Services: Middleware Technologies to Enable Real-Time Collaboration.**
Sponsor: National Science Foundation, Strategic Technologies for the Internet (STI) program.
Investigator(s): K.Schwan (PI), C.Dovrolis, C.Pu, G.Eisenhauer, M.Wolf, and N.Rao (ORNL).
Amount: *$859,998 for 3 years.*
Submitted: June 2002. Funded: October 2002.

G.1.4 **Design of Overlay Network Routers using Network Processors.**
Sponsor: Georgia Tech Broadband Institute (GTBI).
Investigator(s): C.Dovrolis (PI), E.W.Zegura.
Amount: *$20,000 for 1 year.*
Submitted: March 2003. Funded: July 2003.

G.1.5 **Putting Network Measurements to Work: Design and Evaluation of Measurement-Driven Network Mechanisms.**
Sponsor: National Science Foundation, CAREER Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$500,000 for 5 years.*
Submitted: July 2003. Funded: September 2004.

G.1.6 **Addendum to "Bandwidth Estimation: Measurement Methodologies and Applications".**
Sponsor: SciDAC program, Office of Science, Department of Energy.
Investigator(s): C.Dovrolis (PI).
Amount: *$60,000 for 6 months.*
Submitted: October 2003. Funded: March 2004.

G.1.7 **Using Real-Time Network Measurements in VoIP and IP-TV Applications.**
Sponsor: EGT Corporation.
Investigator(s): C.Dovrolis, N.Jayant (GTBI grant).
Amount: *$35,000 for 1 year.*
Submitted: April 2005. Funded: August 2005.

G.1.8 **Intelligent Routing Control: Panacea or Imminent Disaster?**
Sponsor: National Science Foundation, Networking Technology and Systems (NeTS) Program.
Investigator(s): C.Dovrolis (PI), E.W.Zegura, M.Ammar.
Amount: *$195,000 for 2 years.*
Submitted: January 2005. Funded: September 2005.

G.1.9 **Dynamics and Stability of Performance-Driven Edge Routing Systems.**
Sponsor: Cisco Systems Corporation - University Research Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$85,000 for 1 year.*
Submitted: August 2005. Funded: January 2006.

G.1.10 **Elastic Communication for Long-Tail Content.**
Sponsor: Hewlett-Packard Corporation - HP Labs.
Investigator(s): N.Jayant, C.Dovrolis (GTBI grant).
Amount: *$35,000 for 1 year.*
Submitted: February 2006. Funded: June 2006.

G.1.11 **Distributed Performance Monitoring, Problem Diagnosis, and Problem Localization.**
Sponsor: Telchemy Inc.
Investigator(s): C.Dovrolis, A.Ammar.
Amount: *$40,000 for 1 year.*
Submitted: November 2006. Funded: January 2007.

G.1.12 **Ingress Traffic Engineering and Performance Routing.**
Sponsor: Cisco Systems Corporation - University Research Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$88,587 for 1 year.*
Submitted: April 2007. Funded: July 2007.

G.1.13 **Student Travel Support for ACM HOTNETS-VI Workshop**
Sponsor: National Science Foundation, Networking Technology and Systems (NeTS) Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$12,000.*
Submitted: July 2007. Funded: December 2007.

G.1.14 **Use of Automatic Measurements of Video Quality and Network Quality (AVQ and ANQ) to enhance IP Streaming of Video.**
Sponsor: Cisco Systems Corporation - University Research Program.
Investigator(s): N.Jayant, C.Dovrolis, N.Suresh (GTBI grant).
Amount: *$99,000 for 1 year.*
Submitted: November 2007. Funded: January 2008.

G.1.15 **NECO: Towards a Theory of Network Evolution**
Sponsor: National Science Foundation, Networking Technology and Systems (NeTS) Program.
Investigator(s): C.Dovrolis (PI), T.Streelman.
Amount: *$370,000 for 3 years.*
Submitted: March 2008. Funded: September 2008.

G.1.16 **Detection, Classification and Localization of Network Neutrality Violations Using Differential Probing.**
Sponsor: Google.
Investigator(s): C.Dovrolis (PI).
Amount: *$70,000 for 1 year.*
Submitted: January 2009. Funded: April 2009.

G.1.17 **The Economics of Interdomain Internet Connectivity.**
Sponsor: Cisco Systems Corporation - University Research Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$75,000 for 1 year.*
Submitted: July 2009. Funded: October 2009.

G.1.18 **The Economics of Transit and Peering Interconnections in the Internet.**
Sponsor: National Science Foundation, Networking Technology and Systems (NeTS) Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$230,000 for 3 years.*
Submitted: December 2009. Funded: August 2010.

G.1.19 **Adaptive Video Streaming over HTTP.**
Sponsor: Cisco Systems Corporation - University Research Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$99,192 for 1 year.*
Submitted: July 2010. Funded: September 2010.

G.1.20 **Detection, Localization and Diagnosis of Performance Problems using perfSONAR.**
Sponsor: Department of Energy (DOE).
Investigator(s): C.Dovrolis (PI).
Amount: *$525,000 for 3 years.*
Submitted: April 2010. Funded: September 2010.

G.1.21 **Peering Disputes Between Internet Service, Network and Content Providers.**
Sponsor: Google.
Investigator(s): C.Dovrolis (PI).
Amount: *$58,885 for 1 year.*
Submitted: January 2011. Funded: July 2011.

G.1.22 **A Novel Traffic Shaping Mechanism for Adaptive Video Streaming.**
Sponsor: Cisco Systems Corporation - University Research Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$99,192 for 1 year.*
Submitted: June 2011. Funded: September 2011.

G.1.23 **Validation and Quantification of Uncertainty in Coupled Climate Models using Network Analysis.**
Sponsor: Department of Energy (DOE).
Investigator(s): A.Bracco (PI), C.Dovrolis.
Amount: *$281,671 for 3 years.*
Submitted: March 2011. Funded: September 2011.

G.1.24 **SOCINT: Social Signals for Identifying and Using Influential Subnetworks.**
Sponsor: DARPA - SMISC program.
Investigator(s): E.Gilbert(PI), E.Briscoe, D.Bader, C.Dovrolis, I.Essa, L.Weiss.
Amount: *$3,217,919 for 3 years.*
Submitted: August 2011. Funded: January 2012.

G.1.25 **Terabit Network Performance Modeling based on Passive End-to-End Monitoring (TeN2PM).**
Sponsor: Department of Energy (DOE).
Investigator(s): C.Dovrolis (PI).
Amount: *$439,449 for 3 years.*
Submitted: April 2011. Funded: January 2012.

G.1.26 **Leveraging M-Lab Data to Monitor in (Almost) Real-Time Internet-Wide Network Performance**
Sponsor: Google.
Investigator(s): C.Dovrolis (PI).
Amount: *$98,100 for 1 year.*
Submitted: February 2013. Funded: March 2013.

G.1.27 **Modeling the evolution of network protocol stacks.**
Sponsor: Cisco Systems Corporation - University Research Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$99,192 for 1 year.*
Submitted: April 2013. Funded: June 2013.

G.1.28 **NeTS:Small:Collaborative Research: The Role of Layering and Modularity as Drivers of Network Evolution.**
Sponsor: National Science Foundation, Networking Technology and Systems (NeTS) Program.
Investigator(s): C.Dovrolis (PI, Georgia Tech), R.Guerin (PI, WUSL).
Amount: *$500K for 3 years ($250K for Georgia Tech).*
Submitted: December 2012. Funded: September 2013

2. Pending

3. Not Funded

G.3.1 **Network Exostructure: Providing Novel, On-Demand, and Evolving Services over the Legacy Network Infrastructure.**
Sponsor: National Science Foundation, Information Technology Research (ITR) Program, medium size.
Investigator(s): E.W.Zegura (PI), M.Ammar, C.Dovrolis, J.Xu.
Amount: *$3,000,000 for 3 years.*
Submitted: February 2003.

G.3.2 **Internet Control Plane (ICPlane): Measurement-driven Overlay Services for Multi-path Routing, Transport, and Traffic Filtering.**
Sponsor: DARPA, BAA 04-11, Internet Control Plane.
Investigator(s): B.DeCleene (PI, AlphaTech), C.Dovrolis, M.Ammar, E.W.Zegura, J.Kurose (UMass), D.Towsley (UMass).
Amount: *Subcontract to GATech: $908,112 for 3.5 years.*
Submitted: February 2004.

G.3.3 **Pythia: Automatic Performance Monitoring and Problem Diagnosis in Ultra High-Speed Networks.**
Sponsor: MICS program, Office of Science, Department of Energy.
Investigator(s): C.Dovrolis (PI), K.Claffy (CAIDA-UCSD), T.Dunigan (ORNL), M.Mathis (PSC).
Amount: *$430,000 for 3 years.*
Submitted: February 2004.

G.3.4 **Middleware for Optimized Network-Aware Data Dissemination (MONADD).**
Sponsor: National Science Foundation, NSF Middleware Initiative (NMI).
Investigator(s): C.Dovrolis (PI), L.Cottrell (SLAC-Stanford).
Amount: *$1,141,955 for 3 years.*
Submitted: May 2004.

G.3.5 **Heavy-Tails and Beyond: The Mathematical Framework for A New Network Science.**
Sponsor: MURI - Army Research Office.
Investigator(s): R.Calderbank (PI, Princeton), M.Chiang (Princeton), N.Bambos (Stanford), I.Daubechies (Princeton), C.Dovrolis (Georgia Tech), B.Hassibi (Stanford), C.Ji (Georgia Tech), E.Knightly (Rice), R.Nowak (Wisconsin), J.Rexford (Princeton), W.Willinger (AT&T Research).
Amount: *$7,439,000 for 5 years.*
Submitted: October 2007.

G.3.6 **CDI-Type I: Organismal Development as a Distributed Computational Network**
Sponsor: National Science Foundation, Computational Discovery and Innovation (CDI) Program.
Investigator(s): T.Streelman (PI), C.Dovrolis.
Amount: *$500,000 for 3 years.*
Submitted: December 2008.

G.3.7 **NeTS: Medium: Collaborative Research: Exploring the Scalability of Interdomain Internet Routing.**
Sponsor: National Science Foundation, Networking Technology and Systems (NeTS) Program.
Investigator(s): G.Riley, C.Dovrolis, L.Gao (U-Mass, PI).
Amount: *$800,000 for 3 years (GAtech budget).*
Submitted: August 2009.

G.3.8 **NeTS:Small: A New Class of Network Inference Problems and their Applications.**
Sponsor: National Science Foundation, Networking Technology and Systems (NeTS) Program.
Investigator(s): C.Dovrolis (PI).
Amount: *$500,000 for 3 years.*
Submitted: December 2010.

G.3.9 **NeTS:Large:Collaborative Research: Computational Modeling of Large and Complex Networks.**
Sponsor: National Science Foundation, Networking Technology and Systems (NeTS) Program.
Investigator(s): C.Dovrolis (PI, Georgia Tech), R.Fujimoto (Georia Tech), D.Towsley (U-Mass), Z-L.Zhang (U-Minnesota).
Amount: *$4M for 4 years.*
Submitted: November 2012.

G.3.10 **MURI:Coevolutionary Complex Networks: Dynamical Foundations, Influence, and Control.**
Sponsor: Army Research Office.
Investigator(s): J.Shamma (PI, ECE, Georgia Tech), C.Dovrolis (SCS, Georgia Tech), M.Egerstedt (ECE, Georia Tech), P.Tetali (Math, Georgia Tech), J.Weitz (Biology, Georgia Tech), P.Young (Economics, Johns Hopkins University).
Amount: *$5M for 4 years.*
Submitted: December 2012.

H. Research Honors and Awards

- Student research award ($16,000) from USENIX for development of bandwidth measurement tools, December 1999.
- Student research award ($32,000) from Cisco Systems for research on proportional differentiated services, February 2000.
- National Science Foundation, NSF CAREER Award, 2003.
- Federal Communications Commission, Open Internet Challenge, Best Research Award, 2011.

III. SERVICE

A. Professional Activities

A.1. Memberships and Activities in Professional Societies

- Member, Association for Computer Machinery (ACM).
- Member, Institute of Electrical and Electronics Engineers (IEEE).

A.2. Conference Committee Activities

1. **Member, Steering Committee**, *ACM CoNEXT Conference*, 2013-Present.
2. **co-Chair**, *Workshop on Internet Topology and Economics (WITE)*, 2012.
3. **Chair**, *DOE Workshop on Computational Modeling of Big Networks (COMBINE)*, 2012.
4. **co-Chair, Program Committee**, *ACM SIGCOMM CoNEXT Conference*, 2011.
5. **co-Chair, Program Committee**, *ACM/USENIX Internet Measurement Conference (IMC)*, 2007.
6. **General Chair**, *ACM Hot Topics in Networks (HotNets-VI)*, 2007.
7. **co-Chair**, *1st and 2nd Workshop on Internet Economics (WIE)*, 2009 and 2011.
8. **co-Chair**, *3rd ICST International Workshop on Wireless Network Measurement (WiNMee'07)*, 2007.
9. **Chair, Program Committee**, *Passive and Active Measurement (PAM) Workshop*, 2005.
10. **Co-chair, Program Committee**, *CAIDA Bandwidth Estimation Workshop*, 2003.
11. **Member, Program Committee**, *IEEE Smart Data Pricing (SDP) Workshop*, 2012, 2013.
12. **Member, Program Committee**, *ACM SIGCOMM Conference*, 2004, 2006, 2007, 2011.
13. **Member, Program Committee**, *IEEE INFOCOM Conference*, 2002, 2004, 2005, 2006, 2007, 2008, 2009.
14. **Member, Program Committee**, *ACM SIGMETRICS Conference*, 2006, 2007.
15. **Member, Program Committee**, *ITC International Teletraffic Congress*, 2010, 2011.
16. **Member, Program Committee**, *ACM/USENIX Internet Measurement Conference (IMC)*, 2004, 2005.
17. **Member, Program Committee**, *ACM CoNEXT Conference*, 2005, 2009, 2010.
18. **Member, Program Committee**, *Network Economics (NetEcon) Workshop*, 2012, 2013
19. **Member, Program Committee**, *Passive and Active Measurement (PAM) Workshop*, 2010, 2011, 2013.
20. **Member, Program Committee**, *ACM SIGCOMM Workshop on Mining Network Data (MineNet)*, 2005.
21. **Member, Program Committee**, *IEEE Workshop on Local and Metropolitan Area Networks*, 2005.

22. **Member, Program Committee**, *ACM Multimedia Conference*, 2004.

23. **Member, Program Committee**, *IEEE International Conference on Distributed Computing Systems (ICDCS)*, 2003.

24. **Member, Program Committee**, *IEEE International Conference on Network Protocols (ICNP)*, 2001, 2003.

25. **Member, Program Committee**, *IEEE International Workshop on Quality-of-Service (IWQoS)*, 2002, 2003, 2004.

26. **Member, Program Committee**, *IFIP-TC6 Networking Conference*, 2004, 2007, 2011.

27. **Member, Program Committee**, *ACM International Conference on Advances in Computer Entertainment Technology*, 2004.

28. **Member, Program Committee**, *ACM Network and System Support for Games (NetGames)*, 2004.

29. **Member, Program Committee**, *ACM International Workshop on Networked Group Communication (NGC)*, 2002.

30. **Member, Program Committee**, *IEEE International Conference on Computer Communications and Networks (ICCCN)*, 2001, 2002.

31. **Member, Program Committee**, *IFIP Scalability and Traffic Control in IP Networks Conference*, 2001, 2002.

B. On-Campus Georgia Tech Committees

1. Member, School of Computer Science, SCS PhD Review Committee, 2010, 2011, 2013.

2. Member, College of Computing, Undergraduate Curriculum Committee (UCC), 2013.

3. Member, College of Computing, Best CoC PhD Dissertation award and ACM Award Nomination, 2012.

4. Member, School of Computer Science, Joint CoC/ECE Curriculum Task Force, Spring 2012.

5. Member, School of Computer Science, SCS Chair Search Committee, 2011.

6. Member, School of Computer Science, Revision of SCS PhD Review Process, 2010.

7. Chair, College of Computing, CS PhD Admissions Committee, 2009.

8. Chair, School of Computer Science, PhD Review, 2006, 2007.

9. Member, Campus-wide Technology Fee Committee, 2007-2009.

10. Member, College of Computing, TSO Advisory Committee (TSAC), 2006-2009.

11. Member, College of Computing, CS PhD Admissions Committee, 2005-2007.

12. Member, Organization Committee for “Georgia Tech Symposium on Computing Systems and Networking Technologies”, February 2005.

13. Member, CNS Task Force, Summer 2004.

14. Member, College of Computing, Faculty Recruiting Committee, 2003-2005.

C. Member of Ph.D. Examining Committees

Ph.D. Examining Committee – Georgia Tech.

1. Hong Huang, School of ECE, October 2002.
   Thesis Title: "Optical Networks with Hybrid Routing".
   Principal Advisor: J.A.Copeland.

2. Wei Tang, College of Computing, August 2003.
   Thesis Title: "Internet-Scale Information Monitoring: A Continual Query Approach".
   Principal Advisor: L.Liu.

3. Li Zou, College of Computing, November 2003.
   Thesis Title: "The Effect of Peer Selection and Buffering Strategies on the Performance of Peer-to-Peer File Sharing Systems.".
   Principal Advisor: M.Ammar.

4. Shashidhar Merugu, College of Computing, July 2005.
   Thesis Title: "Network Design and Routing in Peer-to-Peer and Mobile Ad Hoc Networks".
   Principal Advisor: E.W.Zegura.

5. Qi He, College of Computing, July 2005.
   Thesis Title: "The Design and Operation of Advanced TCP-Based Services over an Evolving Internet".
   Principal Advisor: M.Ammar.

6. Pradnya Ajit Karbhari, College of Computing, August 2005.
   Thesis Title: "Throughput and Fairness Considerations in Overlay Networks for Content Distribution".
   Principal Advisor: E.W.Zegura.

7. Abhishek Kumar, College of Computing, October 2005.
   Thesis Title: "Network data Streaming: Algorithms for Network Measurement and Monitoring".
   Principal Advisor: J.Xu.

8. Jinliang Fan, College of Computing, November 2005.
   Thesis Title: "Enabling Performance Tradeoffs Through Dynamic Configuration of Advanced Network Services".
   Principal Advisor: M.Ammar.

9. Christos Gkantsidis, College of Computing, December 2005.
   Thesis Title: "Algorithmic Performance of Large-Scale Distributed Networks: A Spectral Method Approach".
   Principal Advisor: M.Mihail.

10. Jianjun Zhang, College of Computing, June 2006.
    Thesis Title: "Efficient Information Dissemination in Wide Area Heterogeneous Overlay Networks".
    Principal Advisor: L.Liu.

11. Yong Zhu, College of Computing, August 2006.
    Thesis Title: "Routing, Resource Allocation and Network Design for Overlay Networks".
    Principal Advisor: M.Ammar.

12. Sridhar Srinivasan, College of Computing, November 2006.
    Thesis Title: "Design and Use of Managed Overlay Networks".
    Principal Advisor: E.W.Zegura.

13. Oladeji Akanbi, School of ECE, November 2006.
Thesis Title: "Multistage DWDM PON Architectures for Broadband Access Networks".
Principal Advisor: G-K.Chang.

14. Arshad Chowdhury, School of ECE, November 2006.
Thesis Title: "Optical Label Switching Technologies for Optical Packet Switched Networks".
Principal Advisor: G-K.Chang.

15. Manish Jain, College of Computing, November 2006.
Thesis Title: "End-to-end Available Bandwidth Estimation and its Applications".
Principal Advisor: C.Dovrolis.

16. Ruomei Gao, College of Computing, August 2007.
Thesis Title: "Interdomain Traffic Engineering in the Internet".
Principal Advisor: C.Dovrolis.

17. Srinivasan Seetharaman , College of Computing, August 2007.
Thesis Title: "Analyzing Cross-layer Interaction in Overlay Networks".
Principal Advisor: M.Ammar.

18. Ravi Prasad, College of Computing, November 2007.
Thesis Title: "An Evolutionary Approach to Improve End-to-End Performance in TCP/IP Networks".
Principal Advisor: C.Dovrolis.

19. Amogh Dhamdhere, College of Computing, November 2008.
Thesis Title: "Provider and Peer Selection in the Evolving Internet Ecosystem".
Principal Advisor: C.Dovrolis.

20. Partha Kanuparthy, College of Computing, October 2012.
Thesis Title: "End-to-End Inference of Internet Performance Problems".
Principal Advisor: C.Dovrolis.

21. Aytac Azgin, School of ECE, May 2013.
Thesis Title: "Service Quality Assurance for IPTV Networks".
Principal Advisor: Y.Altunbasak.

22. Pu Wang, School of ECE, August 2013.
Thesis Title: "Modeling, Analysis, and Optimization for Wireless Networks in the Presence of Heavy Tails".
Principal Advisor: I.Akyildiz.

23. Waseem Abbas, School of ECE, November 2013.
Thesis Title: "Network-Centric Methods for Heterogeneous Multiagent Systems".
Principal Advisor: M.Egerstedt.

External Member of Ph.D. Examining Committee.

1. Bob Melander, Department of CS, Uppsala University, Sweden, February 2003.
Thesis Title: "Probing-Based Approaches to Bandwidth Measurements and Network Path Emulation".
Principal Advisor: M.Bjorkman.

2. Attila Pasztor, Department of ECE, University of Melbourne, Australia, December 2003.
Thesis Title: "Accurate Active Measurement in the Internet and its Applications".
Principal Advisor: D.Veitch.

3. Yaqing Huang, Department of ESE, University of Pennsylvania, May 2005.
   Thesis Title: "Understanding How to Provide Service Guarantees in IP-based Networks".
   Principal Advisor: R.Guerin.

4. Mingzhe Li, Department of CS, Worcester Polytechnic Institute, December 2006.
   Thesis Title: "Using Bandwidth Estimation to Optimize Buffer and Rate Selection for Streaming Multimedia over IEEE 802.11 Wireless Networks".
   Principal Advisor: M.Claypool.

5. Alok Shriram, Department of CS, University of North Carolina - Chapel Hill, August 2007.
   Thesis Title: "Scalable Available Bandwidth Estimation".
   Principal Advisor: J.Kaur.

6. Bivas Mitra, Department of CS, Indian Institute of Technology - Kharagpur, May 2010.
   Thesis Title: "Analyzing the Resilience and Emergence of Superpeer Networks".
   Principal Advisor: N.Ganguly.

7. Edmond Wun-Wah CHAN, Department of CS, Hong Kong Polytechnic University, June 2010.
   Thesis Title: "Design and Analysis of Robust Techniques for Inferring Network Path Properties".
   Principal Advisor: Rocky K.C.Chang.

8. Demetris Antoniades, Department of CS, University of Crete, December 2011.
   Thesis Title: "Understanding File and Information Sharing Services in the Web 2.0".
   Principal Advisor: Evangelos Markatos.

D. Consulting and Advisory Appointments.

1. Member of several NSF and DOE panels.
2. Member of Steering Committee of *Measurement Lab (M-Lab)* for monitoring network neutrality and ISP traffic discrimination policies (see http://www.measurementlab.net/)
3. Member of Networking Research Advisory Board for National LambdaRail (NLR), 2004-2008.
4. Reviewer for several EU research projects.
5. Consulting for VQLink (spring 2008), Alcatel-Lucent (2009) and others.

IV. NATIONAL AND INTERNATIONAL PROFESSIONAL RECOGNITION

A. Invited Conference Session Chair

1. Scalability and Traffic Control in IP Networks conference, August 2001, Session on Service Level Agreements in Differentiated Services Networks.
2. Scalability and Traffic Control in IP Networks conference, August 2002, Session on QoS and Differentiated Services Networks.

B. Editorial and Reviewer Work for Technical Journals and Publishers

1. Associate Editor for IEEE/ACM Transactions on Networking, September 2008 - December 2012.
2. Area Editor for ACM SIGCOMM Computer Communications Review (CCR), January 2005 to August 2008.
3. Reviewer for IEEE/ACM Transactions on Networking, IEEE Journal on Selected Areas of Communications, ACM Computer Communications Review, Computer Networks Journal, Journal on High-Speed Networks, IEEE Transactions on Communications, IEEE Transactions on Parallel and Distributed Systems, IEEE Communications, and several other leading journals in computer communications and networks.
4. Reviewer for John Wiley and Sons (textbook publisher).

V. OTHER CONTRIBUTIONS

A. Seminar Presentations (Invited Papers and Talks at Meetings and Symposia)

1. "Proportional Differentiated Services", at *Sprint Advanced Technology Laboratories,* San Francisco CA, Host: C.Diot, November 1999.
2. "Proportional Differentiated Services", at *University of Pennsylvania,* Philadelphia PA, Host: R.Guerin, March 2000.
3. "Proportional Differentiated Services", at *Johns Hopkins University,* Baltimore MD, Host: Y.Amir, April 2000.
4. "A Spectrum Analyzer for IP-layer Network Paths", at *Internet Statistics and Metrics Analysis (ISMA) workshop,* San Diego CA, Host: K.Claffy, December 2000.
5. "Bandwidth Estimation and Dynamic Class Selection", at *University of Minnesota,* Minneapolis MN, Host: Z-L.Zhang, February 2002.
6. "Bandwidth Estimation and Dynamic Class Selection", at *University of Maryland,* College Park MD, Host: B.Bhattacharjee, February 2002.
7. "Why is the Internet Traffic Bursty in Short Timescales?", at *Columbia University,* New York, NY, Host: D.Rubenstein, December 2004.
8. "Prediction of TCP Throughput: Formula-based and History-based Methods", at *Massachusetts Institute of Technology,* Cambridge MA, Host: D.Katabi, April 2005.
9. "Prediction of TCP Throughput: Formula-based and History-based Methods", at *University of Pennsylvania,* Philadelphia PA, Host: R.Guerin, May 2005.
10. "End-to-end Estimation of the Available Bandwidth Variation Range", at *Princeton University,* Princeton, NJ, Host: J.Rexford, June 2005.
11. "Why is the Internet Traffic Bursty in Short Timescales?", at *University of California - Los Angeles (UCLA),* Los Angeles, CA, Host: M.Sanadidi, October 2005.
12. "Prediction of TCP Throughput: Formula-based and History-based Methods", at *DePaul University,* Chicago IL, Host: E.Al-Shaer, November 2005.

13. "Congestion Responsiveness of Internet Traffic", at *University of Toronto,* Ontario Canada, Host: J.Liebeherr, November 2005.

14. "Congestion Responsiveness of Internet Traffic", at *University of Washington,* Seattle, WA. Host: T.Anderson, March 2006.

15. "Avoiding Oscillations due to Intelligent Route Control", at *University of California - Irvine,* Irvine, CA. Host: A.Markopoulou, May 2006.

16. "Open Issues in Router Buffer Sizing", at *Bell Labs,* Murray Hill, NJ. Host: M.Thottan, June 2006.

17. "Open Issues in Router Buffer Sizing", at *ICSI Center for Internet Research (ICIR),* Berkeley, CA. Host: S.Floyd, June 2006.

18. "Avoiding Oscillations due to Intelligent Route Control", at *Simula Research Center,* Oslo, Norway. Host: Tarik Cicik, September 2006.

19. "Intelligent Route Control", at *Cisco Systems,* San Jose, CA. Host: Read Bell, November 2006.

20. "Combining Multihoming with Overlay Routing (or, how to be a better ISP without owning a network)", at *University of North Carolina,* Chapel Hill, NC. Host: Jasleen Kaur, December 2006.

21. "Router Buffer Sizing Revisited: The Role of the Input/Output Capacity Ratio", at *Stanford University,* Palo Alto, CA. Host: Nick McKeown, March 2007.

22. "Intelligent Route Control", at *University Carlos-III,* Madrid, Spain. Host: Arturo Azcorra, September 2007.

23. "Ten Years in the Evolution of the Internet Ecosystem", at *Telefonica Research,* Barcelona, Spain. Host: Pablo Rodriguez, December 2007.

24. "Router Buffer Sizing Revisited: The Role of the Input/Output Capacity Ratio", at *Hamilton Institute,* Maynooth, Ireland. Host: Robert Shorter, November 2008.

25. "Ten Years in the Evolution of the Internet Ecosystem", at *FORTH research center,* Heraclion, Greece. Host: Evangelos Markatos, July 2010.

26. "Hourglass-like networks: from protocol stacks to developing embryos", at *Network Science for Communication Networks Workshop,* Orlando, FL. Keynote, March 2012.

27. "Hourglass-like networks: from protocol stacks to developing embryos", at *University of Wisconsin,* Madison, WI. Host: Parmesh Ramanathan, May 2012.

28. "The Hourglass Effect in Complex and Adaptive Systems", at *University of Thessaly,* Volos, Greece. Host: Leandros Tassioulas, February 2013.

29. "Open Peering by Internet Transit Providers", at *Federal Communications Commission (FCC),* DC, USA. Host: Henning Schulzrinne, September 2013.

VI. PERSONAL DATA

Born:	1973, Drama, Greece.
Home Address: (private)	
Office Telephone:	404-385-4205.
Citizenship:	US and Greek.
Email:	`constantine@gatech.edu`
WWW:	`http://www.cc.gatech.edu/~dovrolis`

EXHIBIT 6

Exhibit 6

COMCAST'S LEADING TRACK RECORD ON DIVERSITY AND COMMUNITY INVOLVEMENT AND CITIZENSHIP

I. Diversity

Comcast is strongly committed to diversity and inclusion. Comcast believes that promoting diversity and inclusion enhances efficiency, innovation, and competition, and provides additional value to customers, while contributing to the creation of jobs and building wealth within diverse communities. Comcast is recognized nationally for its comprehensive commitment to promoting diversity and has received over 100 awards in the past three years for its leadership in this area from a wide array of organizations.[1] Comcast's progress and accomplishments in this important area are detailed in a recently-released Comcast-NBCUniversal Diversity and Inclusion Progress Report,[2] and include the following:

- Corporate Governance. One-third of the members of Comcast's Board of Directors reflect diversity, including representation of people of color and women. Comcast and NBCUniversal each have an executive Internal Diversity Council to provide oversight and guidance on development and implementation of diversity and inclusion strategies across the company. The company has also established an external Joint Diversity Council ("JDC") to advise on diversity and inclusion efforts. The JDC consists of four, nine-member Diversity Advisory Councils representing the interests of African Americans, Asian Americans, Hispanics, and Women. There are also At Large Members representing Native Americans, people with disabilities, veterans, and the lesbian/gay/bisexual/transgender ("LGBT") community. The JDC participates in formal meetings attended by Comcast and NBCUniversal executive leadership, and regularly interacts with the company's Internal Diversity Councils and corporate-level Diversity and Inclusion Groups to share information and consult about ideas for achieving diversity and inclusion goals.

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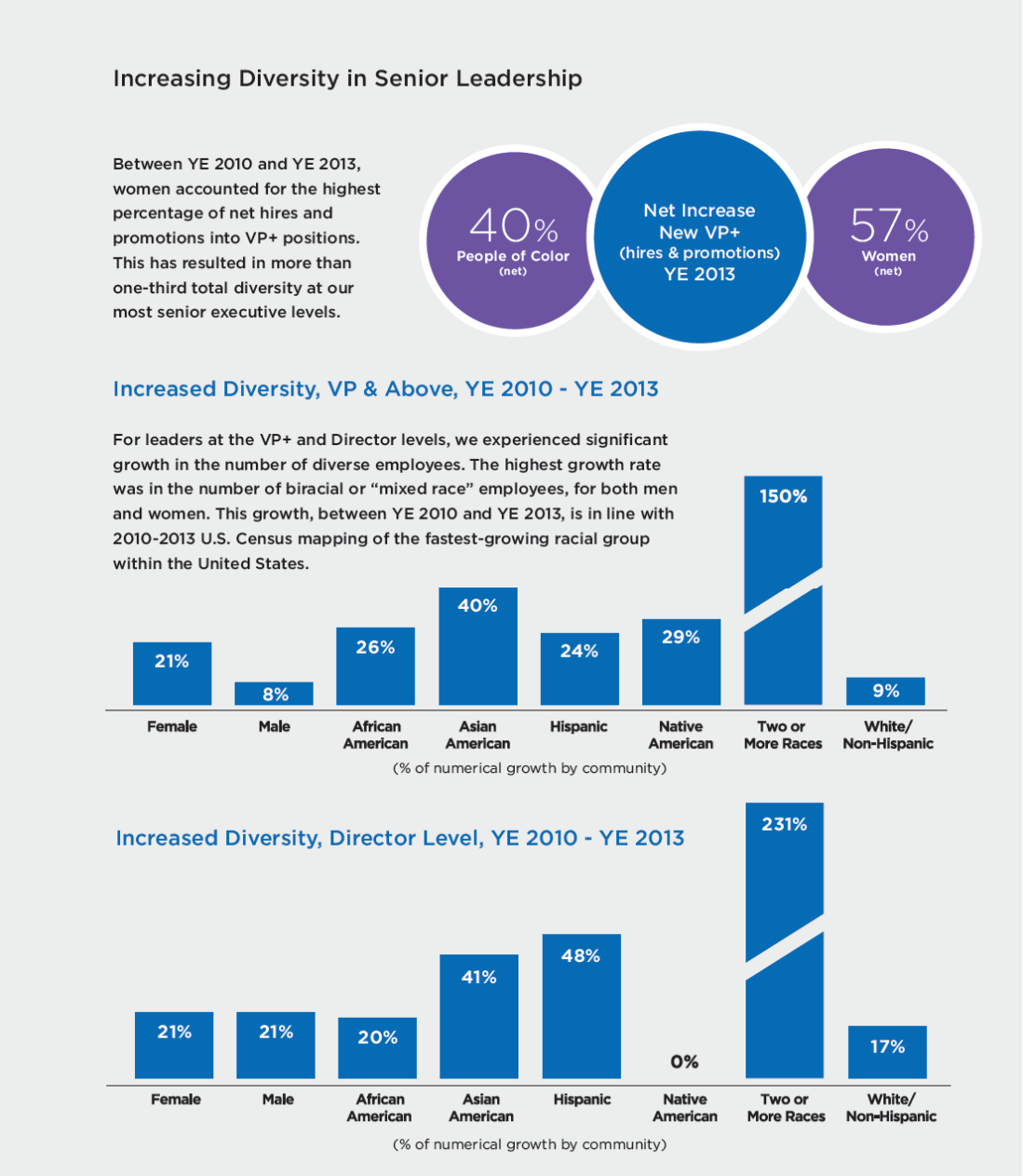
[1] *See also* Comcast-TWC Public Interest Statement at 111; *see also* Exhibit 7 (updated version of the list of "Select Comcast-NBCUniversal Diversity Awards (2010-2014)" that was included as Exhibit 11 to the Public Interest Statement).

[2] Comcast Corp., *Comcast-NBCUniversal Diversity and Inclusion Progress Report*, at 3 (June 2, 2013), http://corporate.comcast.com/images/Comcast_Diversity_Report_060214.pdf ("Our Master Strategic Plan for Diversity and Inclusion is our comprehensive road map for achieving optimal diversity and inclusion across our organization. On the very first page of that plan, we assert: 'At Comcast and NBCUniversal, our goal is to be the model company for diversity and inclusion.'").

Comcast's Internal Diversity Councils were recently selected for the 2014 "Top 25 List" of the Association of Diversity Councils (a practice group of the diversity and inclusion training firm PRISM International, Inc.), marking the sixth consecutive year the company has received this recognition (rankings will be announced in October 2014).

- Workforce Diversity. At the heart of Comcast's workforce culture, is a tangible and visible commitment to diversity and inclusion. At year-end 2013, the company's total workforce was 59 percent diverse. And this commitment and progress is evident at every level of the company – from entry level, to mid-management, to directors, to the VP level. For example, at year-end 2013, the company's workforce was more than 50 percent diverse at the director level and 46 percent diverse at the VP+ level, and every level of the company saw an increase in people of color.

  One of Comcast's proudest achievements to date is the increase in women leaders across the company. As of year-end 2013, women accounted for about 40 percent of all directors and 36 percent of all executives at the VP+ level. In addition, women accounted for 44 percent of all promotions and 35 percent of all new hires at the VP+ level in 2013 alone. Between year-end 2010 and year-end 2013, women accounted for the highest percentage of net hires and promotions into VP+ positions with 57%, while people of color accounted for 40%. This has resulted in a workforce that is 46% diverse at our most senior executive levels.



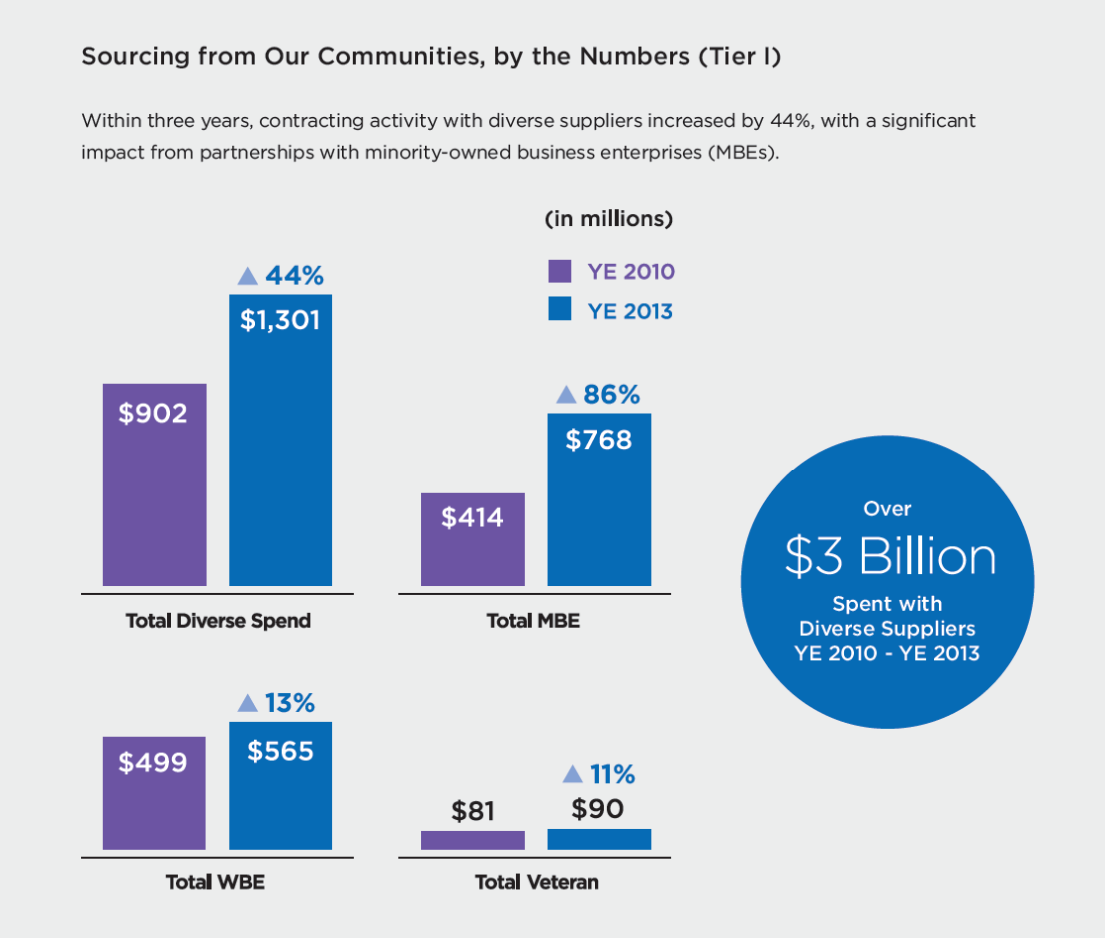
This commitment to workforce diversity also extends to employees in front of the camera and behind the camera. For example, the NBC Owned Television Stations division – which owns and operates WNBC in New York – has one of the highest percentages of on-air news and primetime ethnic diversity across NBCUniversal's programming units, with 47 percent diversity in front of the camera and 35 percent behind the camera. At local NBC owned stations, between year-end 2010 and year-end 2013, the number of ethnically diverse anchors and reporters grew at nearly three times the rate of white anchors and reporters. The owned stations' longstanding leadership in promoting diversity in front of and behind the camera has been validated by peer surveys, including the National

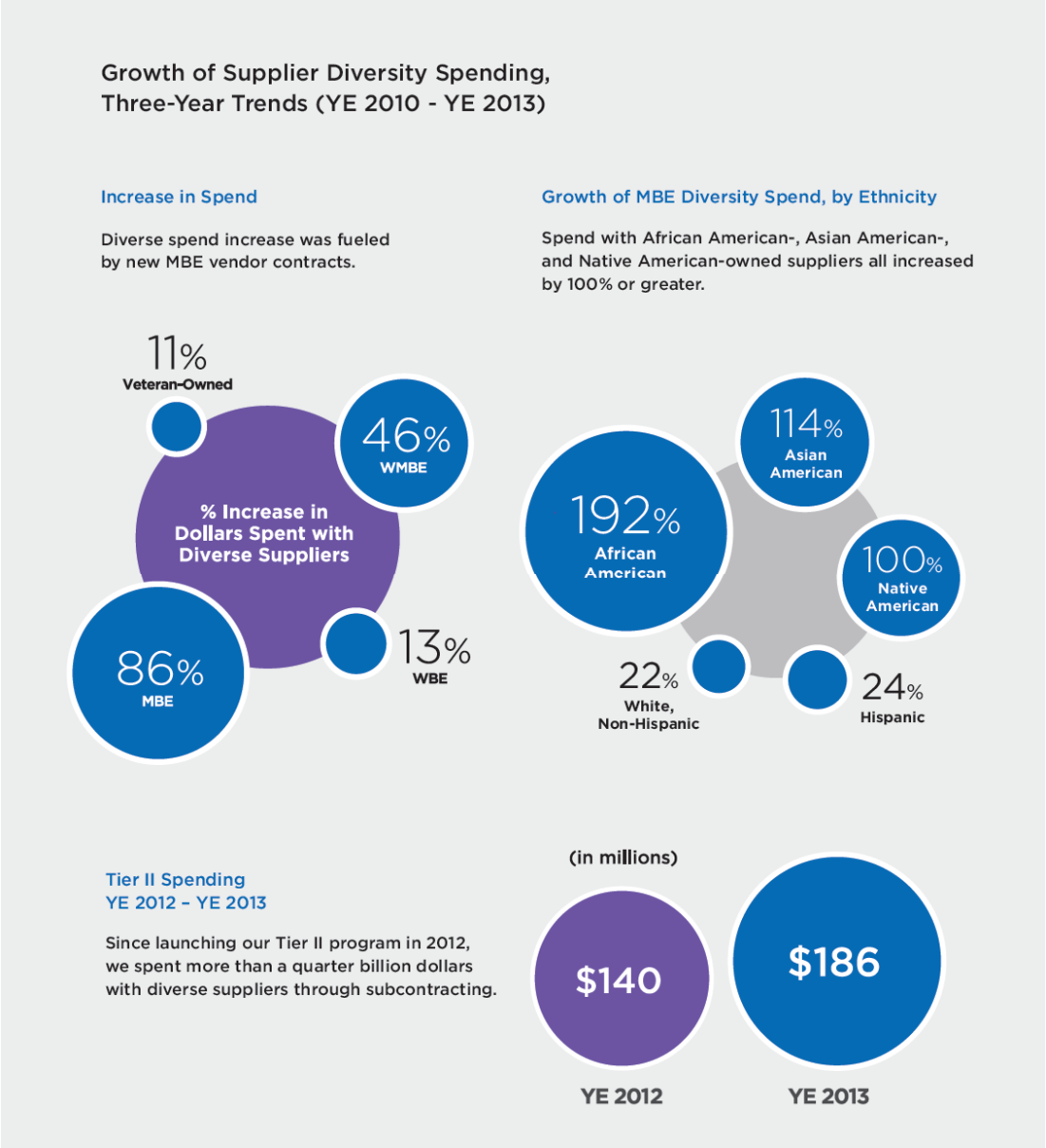
Association of Black Journalists' census of diversity among television newsroom managers, which in 2012 concluded that NBC-owned stations' "total diversity percentage is the best of all companies in the report," including the percentages reported by the ABC, CBS, and Fox owned television stations.[3]

[3] *See* 2012 NABJ Diversity Census: An Examination of Television Newsroom Management, www.nabj.org/resource/resmgr/onrmore.2012_nabj_diversity_.pdf.

Comcast has also long recognized that veterans bring exceptional strengths to its business. The company is proud to actively recruit prospective employees with military backgrounds and provide an array of networking and professional development resources to help them succeed. Comcast deepened this commitment in 2012 by becoming a corporate sponsor of "Hiring Our Heroes," a U.S. Chamber of Commerce Foundation campaign that helps veterans and military spouses find meaningful employment. By August 2014, the company had successfully hired more than 3,000 veterans into its Comcast and NBCUniversal workforce, far outpacing both the company's original goal to hire 1,000 veterans, and its expanded goal to hire 2,000, by 2015.

- Supplier Diversity. Comcast also embraces diversity within the supply chain, which enhances efficiency, innovation, and competition, provides additional value to customers, and contributes to job creation and wealth building within diverse communities across the country. Supplier diversity includes Comcast's primary (Tier I) suppliers and subcontractor (Tier II) vendors. Over the course of three years, Comcast has spent almost $3.2 billion with diverse Tier I vendors. Since Comcast's launch of its Tier II program in 2012, prime suppliers have reported over $325 million in diverse Tier II subcontracting.





Other supplier diversity initiatives include: (i) partnering with diverse chambers of commerce and business organizations at the national and regional level; (ii) attending more than 200 supplier diversity events in the last four years, including supplier fairs, conferences, capacity-building events, and business opportunity fairs, panels, and awards ceremonies; and (iii) pursuing diversity objectives in its purchase of professional services, including banking and advertising services. For example, in April 2011, Comcast added The Williams Capital Group, L.P. (Williams Capital), a minority-owned bank, as one of its four placement agencies in its commercial paper program. Since 2011, Williams Capital has issued $2.75 billion in commercial paper for Comcast. Likewise, it works with diverse firms for advertising, public relations, marketing, and media services, including Burrell

Communications, Baru, Grupo Gallegos, Liquid Soul Media, Bark, TD Wang, and Lopez Negrete.

Comcast's supplier diversity program has been recognized by DiversityBusiness.com, *Black EOE Journal*; *Hispanic Network Magazine*; *Professional Women's Magazine*; the National Veteran-Owned Business Association (NaVOBA); Black Enterprise Magazine; the U.S. Hispanic Chamber of Commerce, and *U.S. Veterans Magazine*, among others. With this transaction, the combined company will be able to further expand the opportunities for, and the business revenues of, Tier I and Tier II vendors, including additional diverse vendors in many new local markets.

- Programming Diversity. Comcast provides its customers with access to a variety of programming choices and options that speak directly to their entertainment or educational interests. Comcast has consistently expanded minority-focused programming, increasing the amount, quality, and diversity of national and local programming for its customers across its platforms, including its VOD and online platforms.

  By June 2014, Comcast carried more than 100 networks tailored to ethnic minority and women audiences. Over the last three years, Comcast has significantly expanded carriage of many of these networks, including the following:

  - Expanded distribution of The Africa Channel in Detroit, Chicago, and Washington, D.C. markets; also launched in Northern Santa Barbara County, Savannah, Charleston, and South Florida markets, growing the network's audience by more than 2 million homes.

  - Expanded carriage of TV One, a channel focused on African-American programming, making it available to over 600,000 additional subscribers in the Chicago and Miami markets.

  - Expanded carriage of Mnet, a South Korean based music television channel, to more than 4 million additional Comcast subscribers in the San Francisco, Chicago, Sacramento, Boston, Washington, D.C., and Philadelphia DMAs.

  - Expanded distribution of seven Hispanic programming services (Azteca America, Galavisión, HITN, LATV, nuvoTV (formerly SíTV), Telefutura, and Univision) by more than 14 million subscribers, exceeding by more than 40 percent Comcast's commitment to expand carriage of three Hispanic networks by more than 14 million subscribers.

  - Launched MYX TV, a channel made for and by Asian-Americans, in Seattle and western Washington, increasing the network's audience by over 2.4 million Comcast subscribers.

– Launched the Asian-American oriented network Crossings TV in over 3.5 million homes.

Comcast is proud to be the nation's largest provider of Hispanic and multicultural television packages, with a distribution platform that delivers more than 60 Hispanic networks in both Spanish and English. In 2012, Comcast enhanced its suite of video products and services developed exclusively to serve Latino customers by adding 10 new popular Hispanic channels and doubling Latino On Demand content on TV and online. It also created the XFINITY Latino Entertainment Channel, which provides programming highlights and allows customers to directly access and discover On Demand content through an interactive menu. In 2013, Comcast launched XFINITY Freeview Latino, the biggest Hispanic On Demand event ever, now giving customers a two-week all-access pass to discover and view more than 2,500 hours of the best Latino entertainment available in the United States, totaling over 3,500 programs on XFINITY On Demand. And Telemundo Media leads the industry in the production and distribution of high-quality Spanish-language original content across its multiplatform portfolio to U.S. Hispanics and audiences around the world.[4]

In 2011, Comcast announced its plans to distribute eight new minority-owned and/or operated independent networks on its cable systems, four of which would be controlled or operated by African Americans and four of which would be controlled or operated by Latinos. Two of those networks launched in 2012, and two launched in 2013:

ASPiRE – Comcast joined with sports legend and entrepreneur Earvin "Magic" Johnson and Up TV (formerly the Gospel Music Channel) to launch ASPiRE in 2012. Since its launch, ASPiRE has been offered on Comcast's digital basic tier and continues to deliver enlightening, entertaining, and positive programming to African American families with a diverse slate including movies, documentaries, short films, music, comedy, visual and performing arts, and faith and inspirational programs. The channel is now available to approximately 9 million Comcast subscribers in 16 markets.

REVOLT – REVOLT TV, the new 24-hour music, pop culture, and social media interactive network developed by Sean "Diddy" Combs, launched in October of 2013 in select cities nationwide on Comcast's XFINITY TV.

[4] Telemundo's primary platforms include the Telemundo Network and mun2. Telemundo Network is a Spanish-language television network featuring original productions, theatrical motion pictures, news, and sporting events. It reaches U.S. Hispanic viewers in 210 markets through 17 owned stations and its broadcast and cable affiliates. And mun2 is the preeminent voice for young Hispanics in the United States, reaching TV households nationwide on digital and analog cable and satellite. Since 2011, Telemundo has increased its total primetime viewers by 86 percent, becoming the fastest-growing broadcast network, regardless of language.

REVOLT TV is a multi-genre, multiplatform music network that delivers music news in real time and the best in music programming. The channel is now available to approximately 8.5 million Comcast subscribers in 25 markets.

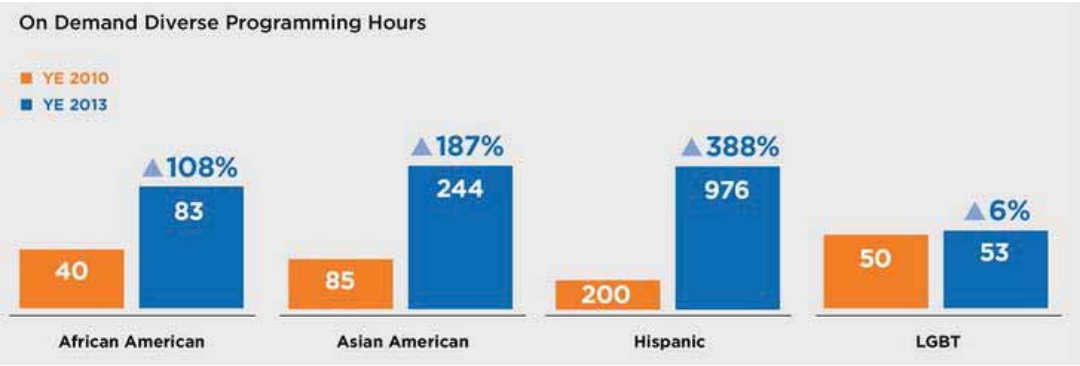
BabyFirst Americas – Launched in 2012, BabyFirst Americas is a Latino-focused English-language channel proposed by Spanish-language television veteran Constantino "Said" Schwarz, designed for children and their parents and emphasizing the importance of early development of verbal, math, and motor skills. The channel is now available to nearly 9 million Comcast subscribers in 19 markets.

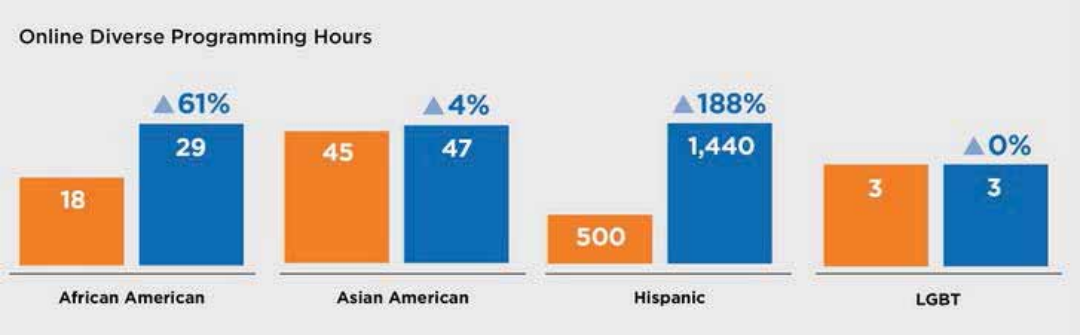
El Rey – El Rey, which launched in December of 2013, is designed to be an action-packed general entertainment channel in English for Hispanic and general audiences that includes a mix of reality, scripted, and animated series, movies, documentaries, news, music, comedy, and sports programming. The channel is now available to approximately 8.3 million Comcast subscribers in 19 markets.

And Comcast will be adding five more independent channels in the coming years, including four more with African American or Latino ownership or management.

Comcast also launched a family of award-winning microsites specific to diverse communities, which offer customers access to special programming for African American, Asian-Pacific American, LGBT, and Hispanic audiences. Each microsite brings together culturally relevant entertainment from a variety of sources in a central, easy-to-navigate location. In 2013 alone, the sites achieved more than 3 million visitors. Moreover, Comcast offers special multicultural programming collections that inform and entertain, in both the On Demand and Online platforms. These collections include: Black History Month and Black Music Month, Asian-Pacific American Heritage Month, LGBT Pride Month, Hispanic Heritage Month, Disability Awareness Month, Veterans Day, and Native American Heritage Month. Each special collection supplements Comcast's permanent On Demand and Online offerings, providing customers with access to hundreds of additional diverse content hours and choices throughout the year.

As the charts below illustrate, the last three years have seen tremendous growth in Comcast's On Demand and Online offerings of content designed for African American, Asian American, and Hispanic communities.





For these and other efforts, Comcast was recently honored with the 2014 Multicultural TV Front Runner Award, recognizing the company's commitment and leadership in supporting multicultural communities. The National Hispanic Media Coalition ("NHMC") also honored Comcast for its Outstanding Diversity Practices during NHMC's 17th Annual Impact Awards Gala in February 2014. In 2012, Comcast Cable was the first-ever recipient of Broadcasting & Cable and Multichannel News' award for Leadership in Hispanic Television. And in 2013, Comcast and Telemundo won many first-place awards for their programming at The National Association for Multi-ethnicity in Communications' 2013 Excellence in Multicultural Marketing Awards ("EMMAs"). These awards recognize original, multi-platform television programming that depicts the lives, spirit, and contributions of people of color and best reflects the diversity of the global viewing audience. Comcast's multicultural microsites were honored as well, with six first-place awards at the 2013 EMMAs.

- Philanthropic and Community Investment. Comcast and NBCUniversal empower communities by investing in local organizations, developing programs and partnerships, and mobilizing resources to connect people and inspire positive and substantive change. In 2010, Comcast established a three-year goal to increase cash contributions to organizations led by and serving minority groups by 10 percent year-over-year for each of the three years. The company significantly

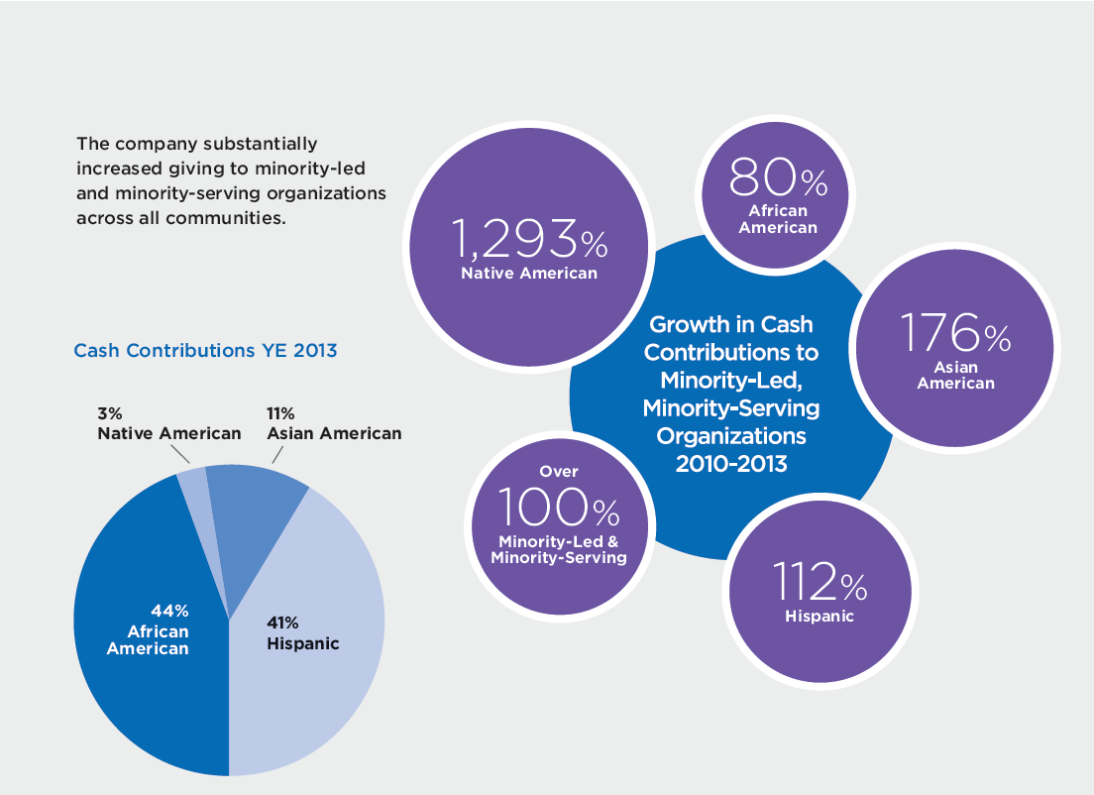
exceeded this 10 percent annual goal. In 2013 alone, Comcast and NBCUniversal contributed a combined $415 million in cash and in-kind services to charitable organizations nationwide. The company's cash giving to minority-led and minority-serving organizations in 2013 was *106 percent greater* than 2010 levels.

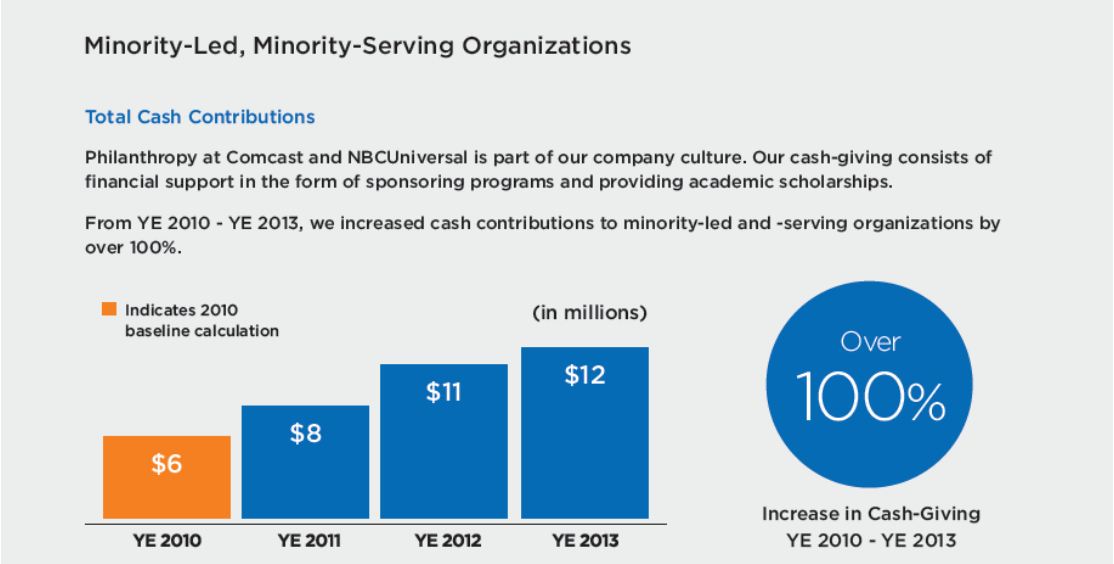
Comcast and NBCUniversal have been recognized for community investment-related achievements by many organizations, including the following:

- United Way Worldwide recognized Comcast Corporation with two 2013 Summit Awards for volunteer and philanthropic engagement.

- The Congressional Black Caucus Foundation, Inc. recognizes Comcast as a Distinguished Corporation for its tremendous work in promoting digital literacy.

- Comcast and the City of Chicago were awarded the U.S. Conference of Mayors Outstanding Award for Public/Private Partnerships for the collaborative efforts to close the Digital Divide via Comcast's *Internet Essentials* program.





II. Active Community Involvement and Citizenship

Like diversity, community involvement and corporate responsibility and citizenship are Comcast hallmarks.[5] The company, through extensive employee volunteer activities, the Comcast Foundation, partnerships with local organizations and groups, and its signature programs like *Internet Essentials*, establishes deep roots in and works to help the towns and neighborhoods it serves. Comcast looks forward to bringing more of these opportunities and relationships to all the acquired systems covered by the Transaction. Comcast's community initiatives include:

- Comcast Cares Day. Comcast Cares Day is Comcast and NBCUniversal's signature celebration of service and the largest single-day corporate volunteer effort in the nation. When we first started in 2001, nearly 6,000 Comcasters volunteered at 108 projects in the Greater Philadelphia area. Last year, more than 85,000 volunteers participated in over 750 project sites, contributing their time and energy to clean up parks, makeover schools, and landscape playgrounds. In 2014, a record 95,000 Comcast and NBCUniversal volunteers contributed 570,000 hours to improve more than 820 parks, schools, beaches, senior centers, and other vital community sites around the world.[6]

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[5] *See* Exhibit 8 – Selected Comcast-NBCUniversal Community Investment Awards, 2010-2014.

[6] Comcast Community Service, http://corporate.comcast.com/our-values/community-investment/community-service#accordion-0 (last visited Aug. 24, 2014).

- Comcast Leaders and Achievers® Scholarship Program. Now in its 13th year, the Comcast Leaders and Achievers® Scholarship Program, funded through the Comcast Foundation, recognizes high school seniors for their community service, academic achievement, and leadership skills. Comcast has awarded more than $21.6 million in scholarships to about 21,000 students through this program since 2011.

- Comcast Digital Connectors. The Comcast Digital Connectors program trains youth from primarily diverse, low-income backgrounds in Internet and computer skills. Teens meet weekly after school, have the option to earn a Cisco IT Essentials certification of completion, and receive a complimentary laptop upon graduation from the program. The program also has a community service component, as participants volunteer at senior centers, churches, local schools, and other community organizations. Since the program began, more than 2,000 Digital Connectors have participated, volunteering more than 100,000 hours to bridge the Digital Divide in their communities. Based on a survey conducted by an independent research firm, program participants scored higher than the school district average in English and Math, and more than 54 percent of those surveyed agreed or strongly agreed that they have gotten better grades since starting Comcast Digital Connectors. The majority of participants surveyed responded that they agree or strongly agree that doing well in school is more important to them than before starting Comcast Digital Connectors (64 percent), or it has made them feel that going to college is important to their future (61 percent). And 66 percent of those surveyed agreed or strongly agreed that Comcast Digital Connectors will help them achieve their future goals. Of alumni from the program years 2010-2011 and 2011-2012 program, 51 percent are in high school, 19 percent have graduated from high school and are working, and 30 percent are in college.[7]

- Big Brothers Big Sisters, Boys & Girls Clubs. Comcast runs the nation's largest workplace mentoring program in partnership with Big Brothers Big Sisters of America ("BBBS"). "Beyond School Walls" is a one-on-one youth mentoring program through which children from local schools meet with an employee volunteer mentor every other week during the school year. The program introduces children to jobs at an early age, helping them understand what it means to work for a corporation and the educational requirements needed to achieve professional success. In 2013, Comcast celebrated its fifth anniversary of Beyond School Walls with a total of 305 matches in 13 cities, including its newest site in Chicago. All of Comcast's current school assignments are located in diverse communities. And compared to national BBBS metrics, Comcast's matches on the whole are more diverse (77% non-white vs. 69% non-white); serve more male "Littles" (52% vs. 44%); and have a higher 12-month retention rate than the

[7] *See* Rockman et al, *Comcast Digital Connectors: 2012-2013* (July 17, 2014), http://bit.ly/DigitalConnectorsPresentation.

national BBBS average (66% vs. 44%). These metrics exemplify the high quality of the matches made in the program.

Comcast has supported local Boys & Girls Clubs for more than a decade, providing more than $88 million in cash and in-kind contributions. In 2010, Comcast took its support to the next level to sponsor Club Tech, a program incorporating digital literacy into local Clubs' curriculum, providing children and teens with technology training to equip them with the skills needed to succeed in the 21st century. Through its support of Club Tech and other programs, Comcast supports half the nation's Boys & Girls Clubs serving nearly 900,000 young people annually.

- United Way. Through an annual employee giving campaign, company employees pledged nearly $6.4 million to United Way during the 2013 campaign. Combined with matching Comcast Foundation grants, the campaign will provide almost $8 million next year to local United Ways and affiliate organizations across the country, and more than $50 million in total historic support to United Way. Comcast is ranked 41st among all companies in America for its United Way campaign.

EXHIBIT 7

Exhibit 7

SELECTED COMCAST-NBCUNIVERSAL
DIVERSITY & INCLUSION AWARDS
2010-2014

Overall/Multiple Focus Areas

- In 2014, for the second consecutive year, Comcast-NBCUniversal was named among ***DiversityInc*** magazine's prestigious ***Top 50 Companies for Diversity*** list, moving up to 44th from 49th in 2013. The "Top 50" includes companies from a wide range of industries that *DiversityInc* recognizes for "using diversity management to attract and retain a global, multicultural workforce and gain market share." Companies participate in the annual survey assessing four areas of diversity management:

  - CEO Commitment: accountability for results, communications, visibility

  - Human Capital: management, professional development, and promotions

  - Corporate and Organizational Communications: mentoring, employee resource groups, philanthropy, consistency/effectiveness of diversity-management initiatives

  - Supplier Diversity: spend with certified minority-owned and women-owned companies, as well as spend with companies owned by people with disabilities, veterans, and members of the LGBT community

  Comcast was recognized as one of ***DiversityInc's 25 Noteworthy Companies*** for the three consecutive prior years.

- Comcast and NBCUniversal were named among the ***2014 LATINO 100*** by ***Latino Magazine***, which recognizes companies providing the most opportunities for Latinos.

- For the second consecutive year in 2014, ***U.S. Veterans Magazine*** (USVM) named Comcast-NBCUniversal among its ***Best of the Best*** lists for "Top Veteran-Friendly Companies" and "Top Supplier Diversity Programs."

- For the second year in a row in 2014, ***Hispanic Network Magazine*** named Comcast-NBCUniversal among its ***Best of the Best*** in "Top Diversity Employers" and "Top Supplier Diversity Programs."

- The ***Urban League of Southern Connecticut*** awarded NBCUniversal its ***Corporate Diversity Award*** in June 2014.

- The readers of ***Diversity/Careers in Engineering & Information Technology*** recognized Comcast-NBCUniversal as a ***2014 Best Diversity Company***.

- The ***National Association for Multi-ethnicity in Communications (NAMIC)*** honored Comcast and NBCUniversal with its ***2013 Industry Diversity Champion Award***, which is given to a company demonstrating an exemplary effort to address diversity and inclusion among its workforce and within the communities it serves. The ***Industry Diversity Champion Award*** was presented during the National Cable Telecommunications Association (NCTA)'s annual Cable Show held in June 2013 in Washington, D.C.

- In November 2013, Comcast and NBCUniversal were both designated a ***2013 Top Company for People of Color by NAMIC***, based on the findings of NAMIC/WICT's (Women in Cable Telecommunications) Cable Telecommunications Workforce Diversity Survey.

- ***OCA - Asian Pacific American Advocates***, a national membership driven organization dedicated to advancing the social, political, and economic well-being of Asian Pacific Americans (APAs), awarded Comcast-NBCUniversal its ***2013 Outstanding Corporate Partner Award*** during the National Asian Pacific American Corporate Achievement Awards in November 2013. The distinction recognizes Comcast-NBCUniversal for its demonstrated commitment to diversity and to partnering with OCA on community investment efforts.

- ***Black EOE Journal*** (BEOEJ) named Comcast among its ***2013 Best of the Best*** lists for "Top Diversity Employers" and "Top Supplier Diversity Programs." In determining the Best of the Best companies, the BEOEJ polled hundreds of Fortune 1000 companies for its 2013 Best of the Best evaluations. BEOEJ is a leading African American career and business magazine. Its annual review is an evaluation of the nation's employers, initiatives, government agencies, and educational institutions.

- ***Hispanic Network Magazine*** named Comcast and NBCUniversal among its ***2013 Best of the Best*** lists for "Top Diversity Employers" and "Top Supplier Diversity Programs" for 2013.

- ***U.S. Veterans Magazine*** (USVM) named Comcast-NBCUniversal among its ***2013 Best of the Best*** lists for "Top Veteran-Friendly Companies" and "Top Supplier Diversity Programs."

- ***Professional Woman's Magazine*** recognized Comcast-NBCUniversal among its ***2013 Best of the Best*** lists for "Top Diversity Employers for Women" and "Top Supplier Diversity Programs for Women."

- In March 2013, ***Calvert Investments***, a mutual fund firm that invests in companies that engage in sustainable and responsible practices, released its ranking of

diversity among companies in the S&P 100. Using an in-depth methodology, Calvert examines diversity policies, programs, and performance metrics that these companies employ. This year, ***Comcast scored 90 points out 100 for its record on including women, minorities, and LGBTs***. Among other initiatives, Calvert highlighted Comcast's diversity recruiting events, new Office of Corporate Diversity and Inclusion, and restructured Internal Diversity Council.

- Comcast Corporation was honored with the ***New York Urban League's (NYUL) 2013 "Champions of Diversity" Award***, presented at the 10th Anniversary Champions of Diversity (COD) Awards Breakfast in February 2013. The COD Awards Breakfast recognizes companies that understand the need for diversity in the job market, embracing diversity to its fullest potential, and understanding that, to be successful in today's competitive market, diversity must be reflected in every aspect of the workplace. Corporate leadership, employment policy, supplier relations, and corporate giving are fundamental tenets of NYUL's philosophy. In listing Comcast-NBCUniversal among its COD honorees, the NYUL recognized that the company's "top-down commitment to diversity is evident through its leadership, hiring, supplier relations and philanthropic activities."

- ***Black Enterprise*** magazine selected Comcast as one of its 40 Best Companies for Diversity in 2012. *Black Enterprise* compiles its 40 Best Companies for Diversity list using a survey measuring diversity among employee base, senior management, board of directors, and procurement.

- Comcast-NBCUniversal ranked No. 5 among ***HispanicBusiness.com's 2014 Best Companies for Diversity***. Each year, *Hispanic Business* magazine analyzes top corporation's efforts on diversity in recruitment and retention, governance, supplier development, and philanthropy.

  - 2014 marks Comcast's 10th consecutive year on *Hispanic Business's* Top 60 list, moving up to No. 5 (Comcast was also No. 9 in 2013 and 2012, No. 37 in 2011, and No. 38 in 2010).

- For the second year in a row, Comcast was named among ***Asian Enterprise Magazine's Fortune 500's Best Companies for Asian Americans and Pacific Islanders***, recognizing Comcast's "invaluable contribution to the Asian American and Pacific Islander community." (August 2012)

Governance

- Comcast and NBCUniversal's Diversity Councils are ranked among the ***2014 Top 25 Diversity Councils by the Association of Diversity Councils*** (a practice group of the diversity and inclusion training firm PRISM International, Inc.). Exact rankings will be announced in October 2014.

- 2014 is the sixth consecutive year that Comcast has made the *Top 25* list.

- In 2009, Comcast was ranked No. 12; in 2010, Comcast was ranked No. 13; in 2011, Comcast was No. 8; in 2012, Comcast and NBCUniversal's Diversity Councils were ranked No. 5. In 2013, Comcast and NBCUniversal's Diversity Councils were ranked No. 3.

- Comcast received a score of 85 on the Hispanic Association of Corporate Responsibility's (HACR) 2013 ***Corporate Inclusion Index*** (CII). The HACR CII, a component of HACR's Corporate Accountability Strategy, takes a comprehensive measurement of Hispanic inclusion at *Fortune 100* and HACR corporate member companies by focusing on HACR's four pillars of corporate social responsibility and market reciprocity: Employment, Procurement, Philanthropy, and Governance.

  - Comcast earned a score of 75 on the 2012 CII, 60 points on the 2011 CII, and 50 points on HACR's 2010 CII.

- In May 2012, the ***Equality Forum*** honored NBCUniversal with its ***International Business Leadership Award***.

- Comcast received a ***Corporate Impact Award*** at the California Asian & Pacific Islander Policy Summit, *iADVOCATE*, in April 2012.

- At the ***National League of Cities***' (NLC) Congress of Cities and Exposition in 2012, Comcast officials accepted awards of appreciation from Asian Pacific American Municipal Officials (APAMO), Women in Municipal Government (WIMG), National Black Caucus of Local Elected Officials (NBC-LEO), Hispanic Elected Local Officials (HELO) and the Gay Lesbian Bisexual Transgender Officials (GLBTO).

Workforce

All Communities

- ***Equal Opportunity*** magazine ranked Comcast 22nd in among its 2014 ***Top 50 Employers***. Readers of *Equal Opportunity* select the top companies in the country for which they would most prefer to work or believe would provide a positive working environment for members of minority groups.

- In March 2014, ***The Legal Intelligencer*** named Comcast's legal team among Pennsylvania's Best In-House Legal Departments of the Year for, among other things, its commitment to diversity.

- The Legal Department of Comcast Cable Communications was selected to receive the ***Minority Corporate Counsel Association's 2013 Employer of Choice Award for the Mid-Atlantic Region***. Comcast was selected from legal department applicants of corporations across the Mid-Atlantic for demonstrating a commitment to diversity and creating and maintaining an inclusive workplace.

- Comcast was named one of the ***2012 Best Adoption-Friendly Workplaces*** by the Dave Thomas Foundation for Adoption. The list recognizes the top 100 companies with the best adoption benefits available to their employees. Comcast tied for No. 3 with Verizon Communications in the Communications and Telecommunications category.

- Comcast placed No. 9 out of 50 among ***Diversity MBA Magazine's "Top 50 Companies for Diverse Managers to Work."*** (April 2010)

African-American

- Comcast received the ***National Association of Black Accountants' (NABA) 2012 Workforce Diversity Award***.

- Comcast received the ***"Outstanding Achievement in Workforce Initiatives"*** honor from the ***Philadelphia Association of Black Accountants*** in 2012.

- Comcast was recognized as the ***2011 National Black MBA Association, Inc.'s Corporate Partner of the Year.***

- NBCUniversal won the ***2010 National Association of Black Journalists Best Practices Award***, given annually to a news organization for extraordinary coverage of issues of great importance to the black community and for efforts in increasing diversity among newsroom staff and management.

Asian-American

- Comcast received the ***Asian American Justice Center's 2011 Bridge Builder Award***. (October 2011)

- Craig Robinson, NBCUniversal's Chief Diversity Officer, was honored by the ***Japanese American Citizens League (JACL)*** in September 2012 with its ***Salute to Champions Award***. Comcast received the JACL's Salute to Champions Award in September 2011.

- ***Hmong American Partnership*** featured Comcast as its ***"Partner of the Month."*** (August 2011)

- Comcast Cable received the ***APIsCAN Corporate Vision and Leadership Award from the Asian Pacific Islanders California Action Network***. (July 2011)

Hispanic

- As mentioned above, for the second consecutive year in 2014, Comcast and NBCUniversal were named among *Latino Magazine's* ***LATINO 100***.

- In its Fall 2013 issue, ***Latino Magazine*** recognized Comcast among the ***LatinoSTEM10*** as a top 15 company actively encouraging Latinos to enter STEM (science, technology, engineering and mathematics) careers.

- Comcast Corporation was ranked No. 3 among the ***2013 LATINA Style 50 Report***, the seventh consecutive year that Comcast was selected for the list.

  - Comcast was selected as the ***Company of the Year (No. 1)*** for the ***2012 LATINA Style 50 Best Companies for Latinas to Work***.

  - Comcast ranked No. 45 on LATINA Style's 2011 list. In 2010, Comcast ranked No. 46.

Women

- ***Women in Cable Telecommunications*** (WICT) ranked Comcast (and Cox Communications) first among Best Operators for Women in Cable; and NBCUniversal ranked first among Best Programmers for Women in Cable in ***WICT PAR's 2013 Best Companies for Women in Cable Telecommunications*** survey, the first time one company won both awards the same year.

- Comcast was named ***Regional Corporation of the Year*** by the ***Women's Business Enterprise Council of PA-DE-sNJ***. (May 2010)

Veterans

- In November 2013, ***G.I. Jobs*** and ***Military Spouse*** magazines ranked Comcast-NBCUniversal No. 76 among the ***Top 100 Military Friendly Employers for 2014***. Companies compete for this elite title through a data-driven survey, with criteria scoring key programs and policies such as the strength of company military recruiting initiatives, percentage of new hires with prior military service, and retention efforts.

- Due to an unprecedented number of participants in its annual survey, *G.I. Jobs*, for the first time, awarded a new ***Military Friendly Employers®*** designation in 2012, recognizing employers that offer tremendous benefits for military personnel but fall outside of *G.I. Jobs'* Top 100 list. Comcast was named among this elite group of *Military Friendly Employers®* in *G.I. Jobs* magazine's January 2013 issue, having qualified for this designation based on our survey score, which meets *G.I. Jobs'* stringent criteria and exceeds an established baseline.

  - Comcast was listed among *G.I. Jobs'* 2011 Top 100 Military Friendly Employers (at No. 87); Comcast also ranked No. 87 on the 2010 *G.I. Jobs'* Top 100 list.

- Comcast-NBCUniversal was named one of ***U.S. Veterans Magazine's* "2012 Best of the Best: Top 100 Companies Recruiting Veterans."**

- In November 2012, ***the U.S. Chamber of Commerce*** and its National Chamber Foundation announced Comcast and NBCUniversal among its ***2nd Annual Lee Anderson Hiring Our Heroes Award Winners***, honoring employers that have gone above and beyond to honor the sacrifices made by our nation's military families. Specifically, Comcast and NBCUniversal received the *Lee Anderson Veteran and Military Spouse Employment Award*, which recognizes Comcast and NBCUniversal's proven dedication in addressing the challenges faced by veterans, transitioning service members, and military families in their search for meaningful employment.

LGBT

- For the second year in a row, Comcast-NBCUniversal earned a 100% score on the ***Human Rights Campaign***'s (HRC) 2014 Corporate Equality Index (CEI), and was recognized among ***HRC's "Best Places to Work"*** list. HRC's CEI rates large U.S. employers and their policies and procedures pertinent to LGBT employees.

  - Comcast scored 80 points out of 100 on HRC's 2012 CEI, 95 out of 100 on HRC's 2011 CEI, and 90 out of 100 on HRC's 2010 CEI.

- For the second year in a row in 2012, NBCUniversal was selected as one of ***Work Life Matters magazine's Top Companies for LGBT Equality***, honoring the trailblazing company's work for LGBT equality, both within and outside the company. (June 2011 and November 2012)

People with Disabilities

- Comcast was listed No. 27 among ***Careers & the disABLED Magazine's Readers' Choice Top 50 Employers for 2014***. The Readers' Choice Awards include public and private sector employers for which the publication's readers would most like to work or that they believe would provide a progressive environment for people with disabilities.

  - Comcast ranked No. 9 on the 2013 list and No. 41 on the 2012 list.

- Universal Orlando won a ***2012 Exceptional Employer Award from the State of Florida's Agency for Persons with Disabilities***. Lighthouse Central Florida nominated Universal Orlando for its work with them on providing employment opportunities for persons with disabilities.

- NBCUniversal won the ***Disability Rights Legal Center's Corporate Diversity Award***. (November 2011)

Procurement

- The ***National Veteran-Owned Business Association*** (NaBOVA) named Comcast and NBCUniversal among its 2014 *10 Best U.S. Corporations for Veteran-Owned Businesses*. Comcast and NBCUniversal had previously won the award in 2012.

- ***DiversityBusiness.com*** ranked Comcast-NBCUniversal No. 27 among its ***Top 50 Organizations for Multicultural Business Opportunities*** (Div50) for 2014. The *Div50* award recognizes commitment to diversity throughout the nation's multicultural business community and commitment to growing this economic sector. The award is based on factors such as volume, consistency, and quality of business initiatives a company grants to multicultural suppliers. 2014 marked the company's ninth consecutive year on the list.

- Comcast is ranked 12th among the 2014 ***HispanicBusiness.com Top 25 Supplier Diversity Companies*** list.

- In August 2014, the ***National Association for Multi-ethnicity in Communications (NAMIC)*** announced the winners of its 2014 ***Excellence in Multi-cultural Marketing Awards (EMMAs)***, garnering 13 top awards across Case Studies/Campaigns and Marketing Tactics. The EMMAs recognize excellence in marketing designed to culturally diverse audiences and customers among African American, Asian, Hispanic, LGBT, and other market segments. Comcast also earned an additional six 2014 EMMA Awards for international marketing efforts.

  - In 2013, Comcast garnered five first place wins to lead the Cable Distributors division. Additionally, Telemundo Media, including mun2, garnered three first place wins, and International Media Distribution earned two first place awards. Comcast's EMMA wins for 2012 totaled 13.

  - Comcast, in collaboration with GRM Marketing, won first place in the Tactics Category for Experimental Marketing of NAMIC's 2011 ***Excellence in Multicultural Marketing*** Awards (EMMAs) for La Academia de Comcast. (October 2011)

- In December 2013, the ***PA-NJ-DE Minority Supplier Development Council (MSDC)*** recognized Comcast as ***National Corporation of the Year*** based on the company's supplier diversity policies, contracting activity, MBE development, leadership, and engagement. The PA-NJ-DE MSDC is one of 37 regional councils of the National Minority Supplier Development Council, which certifies minority-owned businesses and creates access to opportunities for them.

- In September 2013, Comcast-NBCUniversal was honored among ***United States Hispanic Chamber of Commerce***'s (USHCC)'s ***Million Dollar Club*** ($100M-$250M category), which recognizes corporations and procurement executives who actively demonstrate an unwavering commitment to Hispanic Business Enterprises (HBEs) through their work with Hispanic suppliers.

- Comcast was named one the ***Best Companies for Asian American and Pacific Islanders*** in 2012 by ***Asian Enterprise*** magazine, which recognized Comcast's "unwavering and continued commitment to the small business community" and "invaluable contribution to the Asian American and Pacific Islander community."

- The ***Rocky Mountain Minority Supplier Development Council*** named Comcast its ***Corporate Partner of the Year*** in July 2012.

- Comcast was ranked No. 1 among the ***Top 50 Green Fleets*** in 2012 by ***Fleet Central Magazine***, thanks in part to Comcast's effective outsourcing relationship with Burt Fleet. Burt Fleet, an MSDC-certified supplier, has provided in excess of 20,000 vehicles to Comcast across our service footprint, making Comcast the 4th largest fleet in the U.S., and aiding Comcast's commitment to lowering our carbon footprint by purchasing flex-fuel and hybrid vehicles.

- NBCUniversal was named ***2012 Corporation of the Year*** by the ***Greater Los Angeles African American Chamber of Commerce*** (GLAAACC), for its contribution and support of the African American business community.

- Comcast was recognized as the ***National Black Chamber of Commerce's Corporate Partner of the Year*** for its achievements with diverse suppliers. (August 2011)

- The ***Hispanic Chamber of Commerce*** in Philadelphia recognized Comcast as the 2010 "***Corporate Advocate of the Year***."

Programming

- The ***National Hispanic Media Coalition*** (NHMC) honored Comcast for its Outstanding Diversity Practices during NHMC's ***17th Annual Impact Awards Gala*** in February 2014. The Impact Awards Gala celebrates the artistic achievement of American Latino artists shows work is so creative and outstanding that it must be recognized. NHMC also honors those individuals or entities whose achievements have greatly benefited the welfare of the Latino community in front of and behind the camera.

- Comcast-NBCUniversal was awarded the ***2014 Multicultural TV Front Runner Award*** for the company's commitment and efforts to support multicultural communities -- in particular, for noteworthy efforts like *His Dream, Our Stories*,

the interactive and comprehensive multimedia package we unveiled to honor the 50th anniversary of the March on Washington for Jobs and Freedom.

- The ***GLAAD Media Awards*** recognize and honor media for their fair, accurate, and inclusive representations of the lesbian, gay, bisexual and transgender community and the issues that affect their lives. They also fund GLAAD's work to amplify stories from the LGBT community that build support for equality. In 2014, sixteen Comcast-NBCUniversal productions were nominated for the ***25th Annual GLAAD Media Awards***, which recognize and honor media for their fair, accurate, and inclusive representations of the LGBT community and the issues that affect their lives.

  – *Dallas Buyers Club* (Focus Features) – Outstanding Film

  – "There's the Door" *Necessary Roughness* (USA Network) – Outstanding Individual Episode

  – *Days of Our Lives* (NBC) – Outstanding Daily Drama

  – "Gay Rights at Work" *MSNBC Live* (MSNBC) – Outstanding TV Journalism Segment

  – "Pride & Prejudice" Melissa Harris-Perry (MSNBC) – Outstanding TV Journalism Segment

  – "Scouts Dishonor" *The Last Word with Lawrence O'Donnell* (MSNBC) – Outstanding TV Journalism Segment

  – "Wild Blue Yonder: Scott Hines" *The Rachel Maddow Show* (MSNBC) – Outstanding TV Journalism Segment

  – "Entregando a mi nieta" *Caso Cerrado* (Telemundo) – Outstanding Daytime Talk Show Episode [Spanish Language]

  – "Exclusivas Declaraciones" *Al Rojo Vivo* (Telemundo) – Outstanding Daytime Talk Show Episode [Spanish Language]

  – "Matrimonios del mismo sexo: Entrevista con Daniel Zavala y Yohandel Ruiz" *Un Nuevo Día* (Telemundo) – Outstanding Daytime Talk Show Episode [Spanish Language]

  – "Decisión Histórica" *Noticiero Telemundo* (Telemundo) – Outstanding TV Journalism Segment [Spanish Language]

  – "Hasta que la corte nos una" *Noticias Telemundo 51* (WSCV-51 [Miami, Fla.]) – Outstanding Local TV Journalism [Spanish Language]

- "Natalia: rompiendo barreras" *Noticiero Telemundo Arizona* (KTAZ-39 [Phoenix, Ariz.]) – Outstanding Local TV Journalism [Spanish Language]

- "Reportaje Especial: Derechos Homosexuales" N*oticiero Telemundo Washington* (WZDC-25 [Washington, D.C.]) – Outstanding Local TV Journalism [Spanish Language]

- *Brooklyn Nine-Nine* (Universal Television) – Outstanding Comedy Series category

- "Fred Rosser" *The Ellen DeGeneres Show* (syndicated/airs on NBC's 10 Owned Stations) – Outstanding Talk Show Episode

- In May 2014, the ***National Academy of Television Arts and Sciences*** awarded Telemundo two ***Sports Emmys***, the most of any Spanish-language broadcast network. Telemundo also received more nominations and awards than any other Hispanic broadcast network at the 35th Annual Sports Emmy® Awards, the first time specific categories for Spanish-language television were included. The World Cup classifying match between Mexico and Costa Rica on "Rumbo al Mundial" in October 2013 was recognized as "Outstanding Live Sports Coverage in Spanish" and the network's acclaimed sportscaster Andrés Cantor was honored as "Outstanding On-Air Sports Personality in Spanish."

- In July 2013, ***NAMIC*** announced winners of its ***19th Annual Vision Awards***. Presented in partnership with **NAMIC - Southern California**, the awards recognize original, multi-platform television programming that depicts the lives, spirit, and contributions of people of color and best reflects the diversity of the global viewing audience. 2013 winners include:

  - Comedy: *The Rickey Smiley Show* (TV One)

  - Digital Media – Long Form: *Black and Latino* (mun2)

  - Digital Media – Short Form: *The Secret of Chancla* (mun2)

  - Reality (Unscripted): *Tia and Tamera* (Style Network)

  - Reality (Social Series): *Save My Son* (TV One)

- Eighteen NBCUniversal productions were nominated for the ***24th Annual GLAAD Media Awards* (2013)**, including *Smash* (Outstanding Drama Series), *The New Normal* (Outstanding Comedy Series), *Titulares Telemundo*'s interview with openly gay boxer Orlando Cruz, and *Days of Our Lives* (Outstanding Daily Drama).

- According to the ***National Association of Black Journalists***' 2012 Diversity Census, NBC again led the industry with 27% newsroom management diversity, up from the prior year's 24%.

- Comcast Cable was the first-ever recipient of ***Broadcasting & Cable and Multichannel News' new award for Leadership in Hispanic Television***. (October 2012)

- MSNBC was announced as the recipient for the ***DANDI Award in the Media*** category at the first annual DANDI Awards Ceremony held in July 2012. The Diversity and Inclusion Awards, better known as the DANDI Awards, was founded in 2012 to recognize exemplary commitment and focus on diversity and inclusion. The mission of the DANDIs is to celebrate the contributions of any individual, group or organization that is truly making a difference toward creating a more diverse and inclusive world. MSNBC prepared a video that was presented during the awards ceremony, featuring Phil Griffin and emphasizing the network's commitment to diversity.

- The ***American Association of People with Disabilities*** honored NBCUniversal's USA Network with its Image Award at the annual ***AAPD Leadership Awards*** Gala in March 2012. USA was acknowledged for *Characters Unite*, which has helped promote equal rights and opportunities for people with disabilities. *Characters Unite* is USA Network's public service campaign to address the social injustices and cultural divides still prevalent in our society. Inspired by USA's iconic *Characters Welcome* brand and, with the support of leading national nonprofit organizations, the ongoing initiative is dedicated to supporting activities and messaging that combat hate and discrimination while promoting understanding and acceptance — on-air, online, and in communities around the country.

- Comcast and NBCUniversal were recognized at the ***23rd Annual GLAAD Media Awards*** in 2012. Among other mentions:

  - Neil Meron and Craig Zadan, producers of *Smash*, were honored with the ***Vito Russo Award***, which is presented annually to openly LGBT media professionals who have made a significant difference in promoting equality;

  - FOCUS Features' *Pariah* was honored as Outstanding Film–Limited Release;

  - Telemundo's "Lesbianas celebran 10 años" Caso Cerrado was honored as Outstanding Daytime Talk Show Episode;

- GLAAD's Acting President took a special moment in his remarks to thank Comcast for sharing GLAAD's anti-bullying public service announcements with Comcast's nearly 23 million video customers;

- Tina Fey and Rachel Maddow were featured in GLAAD's video clip recognizing media personalities who were committed to the positive representation and inclusion of LGBT community members and issues in the media.

- In February 2012, the ***National Latino Media Council*** (NLMC) released its 2011 Network Diversity report card, awarding NBC an overall B+ grade (an improvement over 2010's B grade). NBC earned an A+ for "Actors: On-Air Primetime Reality Shows," the highest score in any category for any network. NBC also earned an A in the "Entertainment Creative Executives" category, as well as the "Network Commitment to Diversity Initiatives and Submission of Data" category. The NLMC noted that there have been "tangible and incremental" results since NBC's 2000 MOU was signed.

- In December 2011, NBCUniversal received an overall grade of B from the ***Asian Pacific American Media Coalition***, the highest grade ever given by the group.

  - In December 2011, the ***Asian Pacific American Media Coalition*** (APAMC) issued its annual report card. Overall, NBC, with a B (up from a B- in 2010), ranked highest in this year's APAMC report cards, which marks the 10th anniversary of judging the inclusion of APAs in eight categories: actors, unscripted show participants, writers/producers, directors, development, procurement, executives, and network initiatives. No other network has ever received this high a grade from the coalition. Out of 12 report cards since 2000, NBC has received the highest overall grade 8 times (5 of them ties with other networks). NBC has also received the highest grade for actors, development deals, and writers/producers, and tied for top honors in procurement, executives, and diversity initiatives. Guy Aoki, Co-Chair of the APAMC, stated, "last season, NBC had 13 regulars of Asian Pacific descent (boosted by five regulars on *Outsourced*). This was the highest number any network has been able to achieve in the 11 years the Coalition has released report cards. Accordingly, we have issued our highest grade in the actors category ever, a B+. NBC is the only network to receive this high a grade, which they also received in 2004."

- NBCUniversal was named to the ***WICT*** Foundation/PAR Initiative ***Best Programmers for Women in Telecommunications*** in 2011**.**

- NBCUniversal won several categories at the 22nd Annual GLAAD Media Awards (2011), including ***Outstanding Individual Episode*** for the "Klaus & Greta" episode of *30 Rock*. MSNBC's *The Last Word with Lawrence O'Donnell*

won for Outstanding TV Journalism Segment for its “Fort Worth Speech” segment. (April 2011)

- In April 2011, MSNBC President Phil Griffin was honored by the ***National Action Network*** as a recipient of its 13th annual ***Keepers of the Dream Award***.

- In July 2011, NBC’s *Parenthood* was selected to receive the ***American Federation of Television and Radio Artists***, AFL-CIO’s (AFTRA) 2011 American Scene Award in the Television Dramatic Program category for its diversity of age and ethnicity, as well as groundbreaking storylines that accurately and honestly depict the intricacies of relationships. In addition, NBCUniversal’s *The Voice* was selected as recipient of AFTRA’s 2011 American Scene Award in the Talent competition.

EXHIBIT 8

Exhibit 8

SELECTED COMCAST-NBCUNIVERSAL COMMUNITY INVESTMENT AWARDS 2010-2014

- In 2014, Comcast and NBCUniversal received the ***Innovative Program Award*** for *Internet Essentials* at the 2014 T. Howard Foundation Diversity Awards Dinner.

- In March 2014, the ***Denver Indian Center*** presented its Excellence in Corporate Partnership Award to Comcast-NBCUniversal for the company's outstanding work with American Indian communities in Colorado and across the United States. Comcast Denver was recognized separately as Local Partner of the Year.

- Comcast-NBCUniversal received a ***Distinguished Corporation Award*** from the ***Congressional Black Caucus Foundation, Inc. (CBCF)*** for its work in promoting digital literacy. This award honors corporations that have demonstrated a commitment to cultivating minority and civic engagement, public discourse on African American history, or the preservation of important historic artifacts through philanthropic or programmatic support. The award was presented at CBCF's Avoice Heritage Celebration on February 2014.

- In December 2013, Comcast was recognized among ***The Civic 50***, an initiative to identify the 50 most community-minded companies in the nation. Additionally, Comcast was recognized as No. 3 – Best in Communications industry. Launched in 2012, *The Civic 50* is an initiative to survey and rank S&P 500 corporations on how they engage with the communities they serve and institutionalize these practices in their corporate culture. Specifically, *The Civic 50* recognizes companies seeking to best use their time, talent, and resources to improve the quality of life in the communities where they do business.

- During its 2013 Corporate Philanthropy Summit, the *Philadelphia Business Journal* presented Comcast with the ***Top Community Impact Award*** and the ***Top In-Kind Donor Award*** in the extra-large company category. Comcast was also ranked as the fifth-largest corporate charitable giver in the Philadelphia region.

- In September 2013, the ***Marin County Chamber of Commerce*** awarded Comcast its ***Spirit of Marin Award*** for its efforts in the *Internet Essentials* program.

- In September 2013, the ***Foundation for Florida Virtual Schools*** awarded Comcast its ***Bridging the Gap Award*** for demonstrating a resourceful approach to education by connecting communities through innovation and technology.

- In June 2013, WICT honored Comcast as an exceptional operator that champions community and public service programs in support of women's initiatives through the *Internet Essentials* program.

- In May 2013, the ***Gay, Lesbian & Straight Education Network (GLSEN)*** honored USA Network's *Characters Unite* campaign with its ***Inspiration Award*** during GLSEN's Respect Awards in New York City.

- During the ***United Way Spirit of America® and Summit Awards*** program in April 2013 in Indianapolis, the United Way recognized Comcast Corporation with awards for ***Philanthropic Engagement and Volunteer Engagement***. The Spirit of America and Summit Awards program, celebrating its 26th year, is United Way's highest national honor for corporations, recognizing United Way Global Corporate Leaders with the most comprehensive commitments to strengthening communities.

- In January 2013, the ***United States Conference of Mayors*** recognized Comcast and the City of Chicago as the ***Outstanding Public/Private Partnership*** for the *Internet Essentials* program.

- In 2013, Comcast received a Beacon Award® from the Association of Cable Communicators for its *Internet Essentials* Ambassadors Program.

- In June 2012, Comcast was honored with the ***Communications Pillar Award at the United Way's Annual Community Celebration***. The award recognizes a company that strategically raises visibility and awareness through outstanding communication to employees about the impact United Way makes in the Chicagoland community. Among other mentions:

  - Comcast's Angie Wells received the Outstanding Volunteer of the Year Award, which recognizes a United Way volunteer whose work has gone above and beyond the defined requirements and resulted in groundbreaking achievements towards the advancement of United Way's LIVE UNITED 2020 vision.

  - Comcast was also recognized for giving 110% year-over-year with our Comcast United Way employee campaign.

- Comcast received a ***Platinum PR Award*** in 2011 for Comcast Cares Day.

- Comcast Cable Communications was honored with a ***2011 Visionary Award presented by United Spinal***.