



Ex Parte

by

TechFreedom¹

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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

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Introduction & Summary

The conclusion of the FCC's tenth annual broadband inquiry appears to be foreordained.² In September, FCC Chairman Tom Wheeler made plain that he intends to raise the speed benchmark for defining broadband from 4 Mbps to 25 Mbps, which he called “table stakes” in 21st century communications.”³ That he made this speech the very day comments on the FCC's August Notice of Inquiry on this matter were due reflects just how much weight this Chairman places on data from outside the agency. This Inquiry has been just a formality, a necessary but irritating (no doubt) hoop through which the Chairman must jump before doing precisely what he had decided to do before the Notice of Inquiry was even issued.

The Chairman has made his agenda clear: Declare that broadband providers are not deploying 25 Mbps service in a reasonable and timely fashion, and use that finding to justify reclassification of broadband under Title II,⁴ and preemption of state laws governing municipal broadband under Section 706.⁵ It also appears that such preemption – almost certainly to be struck down in court as an unconstitutional infringement upon the sovereignty of the states, absent an “unmistakably clear” direction from Congress in Section 706 – will be only the first step in the Chairman's plan to use Section 706 to regulate the Internet. He might use this finding to justify blocking (or at least heavily conditioning) the proposed merger between Comcast and Time Warner Cable.⁶ The Notice

² 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 Notice of Inquiry*, GN Docket No. 14–126 (Aug. 2014) [*Notice*], available at <http://apps.fcc.gov/ecfs/document/view?id=7521750894>.

³ Tom Wheeler, *The Facts and Future of Broadband Competition*, Remarks delivered at 1776 Headquarters, Washington, D.C. (Sept. 4, 2014), available at https://apps.fcc.gov/edocs_public/attachmatch/DOC-329161A1.pdf.

⁴ See Protecting and Promoting the Open Internet, *Notice of Proposed Rulemaking*, GN Docket No. 14–28 (May 15, 2014), available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-14-61A1.pdf.

⁵ 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*, WCB Docket Nos. 14–115 & 14–116 (July 28, 2014), available at https://apps.fcc.gov/edocs_public/attachmatch/DA-14-1072A1.pdf.

⁶ See Commission Seeks Comment on Applications of Comcast Corporation, Time Warner Cable Inc., Charter Communications, Inc., and SpinCo to Assign and Transfer Control of FCC Licenses and Other Authorizations, *Public Notice*, MB Docket No. 14-57 (July 10, 2014), available at <http://apps.fcc.gov/ecfs/document/view?id=7521374780>.

also hints at the Chairman’s next targets for regulation – privacy and cybersecurity – with its paragraph asking how “concerns” about these issues affect broadband adoption.⁷

Moving the goalpost on the speed benchmark for “timely and reasonable broadband deployment” may be the FCC’s way of preserving the authority it claims to “take immediate action to accelerate deployment” under Section 706(b). If anything, it implicitly concedes that broadband of 4 Mbps or even 10 Mbps down is already being provided by the marketplace.

Regardless, we reiterate our fundamental objection: Section 706 contains no independent grant of authority. The statute is unambiguous: Congress wrote Section 706 as a command to the FCC to use its other grants of authority for the purposes set forth in Section 706. Even if the statute were ambiguous, the FCC’s 2010 re-interpretation is absurdly unreasonable: It allows the FCC to write a new Communications Act out of whole cloth. We have attached here, as Appendix A, our comments on the FCC’s 2014 proposed Open Internet rules, of which pages 62-91 discuss Section 706.

We also object the rushed process by which the Commission has conducted this Inquiry. The Commission allowed only two weeks for reply comments, half the time it had offered for the last four Notices, yet summarily denied US Telecom’s request for an extension of time after the comment cycle had begun.⁸ A month later, the FCC published a detailed analysis of the December 2013 data on which it had based the Inquiry⁹ – thus minimizing public scrutiny of the FCC’s analysis. Could the FCC not have coordinated release of this report within, or before, the conclusion of the comment cycle? Furthermore, the Chairman’s speech, making clear that he intends to base the Commission’s determination on a 25 Mbps benchmark came the very day comments were due – thus limiting the opportunity for discussion of his speech to the reply comment round, and effectively discouraging further discussion after that.

The “stakes” of this inquiry are enormous: How the FCC regulates the Internet depends heavily on what might otherwise seem like a dry statistical report, and on the finding

⁷ Notice, ¶ 47; see also TechFreedom, *The FCC’s Section 706 Power Grab is Dangerous, and Ignores Marketplace Realities*, Media Statement (Sept. 8, 2014), available at <http://techfreedom.org/post/96976630964/the-fccs-section-706-power-grab-is-dangerous-and>.

⁸ 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, *Order*, GN Docket No. 14–126 (Aug. 29, 2014), available at <http://apps.fcc.gov/ecfs/document/view?id=7521825896>.

⁹ FCC Wireline Competition Bureau Indus. Analysis & Tech. Div., *Internet Access Services: Status as of December 31, 2013* (Oct. 2014) [*WCB Oct. 2014 Status Report*], available at https://apps.fcc.gov/edocs_public/attachmatch/DOC-329973A1.pdf.

Congress required the FCC to make in Section 706(b). This greatly magnifies our concern that the FCC is politicizing the methodology underlying this report by moving the goalpost and setting an artificially high benchmark for adequate minimum speeds. The FCC appears to be headed towards finding that the broadband glass is emptier than ever. The Chairman's September speech appears to boil down to three concerns:

1. Broadband is becoming less competitive.
2. Broadband companies are not keeping up with user demands for faster speeds.
3. A broadband availability gap is growing between urban and rural areas.

The data tell precisely the opposite story, as discussed below. If anything, this report should be the FCC's opportunity to applaud broadband deployment, and finally stop playing the cynical political game it began in 2010 when, for the first time, it suddenly found that broadband was *not* "being deployed to all Americans in a reasonable and timely fashion."¹⁰ (Not coincidentally, this was also the last time the FCC raised the speed benchmark.) Instead, the Commission appears determined to avoid reversing that determination, and is now grasping at statistical straws to justify its continued pessimism about the broadband market.

The Good News Story on Broadband Deployment through 2013

The FCC's Notice of Inquiry relies on broadband data from December 2013.¹¹ The FCC's most recent broadband report, published last October, relies on the same data.¹² Pessimists see only dark linings in data from December 2013, most notably cable's lead over DSL services,¹³ particularly at higher speed levels,¹⁴ or the relatively limited deployment of

¹⁰ 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, *Sixth Broadband Progress Report*, 25 FCC Rcd. 9556, 9558 ¶ 2 (July 2010) [*Sixth Broadband Deployment Report*], available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-10-129A1_Rcd.pdf.

¹¹ *Notice*, ¶ 13.

¹² *WCB Oct. 2014 Status Report*, *supra* note 9.

¹³ *Id.* at 31, Table 11 (showing Cable Modem to have 50.7 million residential broadband connections compared to only 27.3 million for DSL).

¹⁴ *Id.* (showing Cable Modem to have 26.5 million residential broadband connections with speeds between 25–100 Mbps compared to less than a million for DSL at those speeds).

FTTP in the U.S.¹⁵ (Never mind that fiber deployment in the U.S. is far higher than in Europe.¹⁶)

Operators of legacy networks have also been investing heavily in upgrading their networks to meet consumers' growing broadband needs. For example, the nation's third largest telco, CenturyLink, made enormous strides in speed upgrades in 2013.¹⁷ As the FCC's recent speed data (through September 2013) show, CenturyLink was, in the previous year, able to "double" its broadband speeds in certain markets by upgrading parts of its network.¹⁸ In March 2014, CenturyLink disclosed that it had FTN service (a form of VDSL) with speeds of at least 10 Mbps to 65% of its footprint (8 million of 13 million homes).¹⁹

Yet this obscures the clear good news: both fixed and mobile wireless broadband providers have been investing heavily in upgrading their networks to supply faster speeds to meet consumers' ever-growing appetites for data. For example, from December 2012 to December 2013, the number of residential fixed-broadband connections with speeds of at least 6 Mbps downstream and 1.5 Mbps upstream grew 28% (up from 38.1 million to 48.6 million), while connections with speeds of at least 10 Mbps downstream and 1.5 Mbps upstream grew 27%.²⁰

This good news looks even better in a larger historical perspective. For example, the number of residential mobile wireless broadband connections with speeds of at least 3 Mbps downstream and 768 kbps upstream grew *ten-fold* from 2009 (1.5 million) to 2011 (16 million), and then another seven fold between 2011 and 2013 (107 million), a 71-fold increase in four years.²¹ Today, thanks to the explosive growth of 4G LTE, there are 48% more 3 Mbps wireless connections than there are fixed connections.²² Even at higher speed levels, such as 10–25 Mbps and 25–100 Mbps, mobile wireless does very well, accounting

¹⁵ *Id.* (showing only 7.2 million FTTP residential broadband connections).

¹⁶ Christopher S. Yoo, *U.S. vs. European Broadband Deployment: What Do the Data Say?* U of Penn, Inst. for Law & Econ. Research Paper No. 14–35 (June 3, 2014), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2510854.

¹⁷ See FCC Consumer and Governmental Affairs Bureau, Office of Eng'g & Tech., *2014 Measuring Broadband America Report: A Report on Consumer Fixed Broadband Performance in the U.S.*, 14 (2014) [*2014 Measuring Broadband America Report*] (“[T]hose ISPs using DSL technology show little or not improvement in maximum speeds, with the sole exception of Qwest/CenturyLink, which this past year doubled its highest download speed within specific market areas.”).

¹⁸ *Id.*

¹⁹ See CenturyLink, *Ex Parte: In re Connect America Fund: CenturyLink Rural Broadband Experiment Expression of Interest*, WC Docket No. 10-90 (Mar. 7, 2014), available at <http://apps.fcc.gov/ecfs/document/view?id=7521089735>.

²⁰ WCB Oct. 2014 Status Report, *supra* note 5, at 12, 28, Chart 12.

²¹ *Id.* at 17, Table 4.

²² *Id.* at 26, Table 8.

for 41.1 million (57%) and 7.9 million (21%) of total consumer broadband connections at those respective speeds.²³

These are exactly the sort of developments the FCC hoped for when it eliminated most of the network unbundling rules in order to promote facilities-based broadband competition.²⁴ It is true that cable has recently used its first-mover advantage to seize a large share of the broadband market at higher speed levels, but telcos are investing heavily to try and keep pace by upgrading their DSL networks (through new transmission protocols and hybrid fiber-copper networks) and mobile wireless carriers are investing an unprecedented amount to try and serve consumers' broadband needs wherever they may be,²⁵ with many consumers even going as far as to rely on mobile wireless networks for all of their broadband needs. This intermodal competition has driven aggregate broadband investment in this country through the roof, with ISPs investing over \$1.3 trillion in their broadband networks since 1996, 85% of U.S. homes having access to networks capable of speeds of 100 Mbps or greater, and the overall Internet economy supporting 869,000 American jobs.²⁶ Satellite broadband service is finally taking off as an option for serving rural Americans, with 3mbps satellite broadband growing from a negligible 68,000 Americans in 2011 to 393,000 by 2012 and 1.2 million by 2013.²⁷ Private companies are investing heavily in these and similar broadband platforms for the future. Most notably, the success of SpaceX and advent of other potential low-cost launch providers like Virgin Galactic have made it possible for Google and other companies to revive the kind of large low-orbit satellite constellations planned in the 1990s – only this time, operating at much higher bandwidths.²⁸ Google is also experimenting with high-altitude balloons as

²³ *Id.* at 31, Table 11.

²⁴ See generally ICLE & Techfreedom, *Comments on Communications Act Rewrite Request for Comments*, June 16, 2014, https://docs.google.com/a/techfreedom.org/file/d/0B0GbbPcR1h_enJORUtjNEg2Y1k/edit

²⁵ See, e.g., Seventeenth Annual Report on the State of Competition in Mobile Wireless, *Written Ex Parte Communications of CTIA*, WT Docket No. 13–135 (Oct. 2, 2014), available at <http://www.ctia.org/docs/default-source/fcc-filings/ctia-competition-report-ex-parte-10-2-14.pdf> (showing U.S. carriers to have spent four times more on network infrastructure per subscriber than the rest of the world and to far and away lead the world in LTE coverage and subscribers).

²⁶ See Testimony of W. Tom Simmons, Senior VP of Midcontinent Communications, *on Protecting the Internet and Consumers Through Congressional Action*, before the Committee on Commerce, Science, and Transportation, U.S. Senate, 3 (Jan. 21, 2015), available at http://www.commerce.senate.gov/public/?a=Files.Serve&File_id=6af8f4fc-089b-4624-bebe-c1361ee03749.

²⁷ *WCB Oct. 2014 Status Report*, at 26, Table 8.

²⁸ See, e.g., Jessica E. Lessin, *Google Nears Major Investment in SpaceX to Bolster Satellites*, THE INFORMATION (Jan. 19, 2015), available at <https://www.theinformation.com/Google-Nears-Major-Investment-in-SpaceX-to-Bolster-Satellites>; Richard Branson, *Creating the World's Largest Ever Satellite Constellation*, VIRGIN (Jan. 15, 2015), available at <http://www.virgin.com/richard-branson/creating-the-worlds-largest-ever-satellite-constellation-0>.

platforms for providing broadband service, especially in rural areas and developing countries.²⁹

There is also a wealth of data available from other sources that tell a similar story. For example, looking not at maximum speeds or hypothetical applications, but at simply the aggregate amount of Internet traffic produced as a basic measure of the health of the broadband market, the U.S. does extremely well: The aggregate amount of Internet traffic produced by the U.S. is two to three times greater than that of most advanced nations, and is more traffic per capita and per Internet users than any major nation except for South Korea.³⁰ The international comparisons are equally favorable when the U.S. is compared with the European Union.³¹ At the lofty speed levels of 25+ Mbps (referred to as “Next Generation Access”), the U.S. leads Europe in terms of the percentage of households with access (82% compared to 54%), and dominates if the focus is limited to rural areas (48% compared to 12%).³² Such superior coverage is the direct result of superior investment in broadband, with the U.S. facilities-based approach generating \$562 of broadband investment per household compared to only \$244 per household in Europe under their service-based approach.³³ And furthermore, not only do U.S. broadband providers offer greater speeds to more households, but they are better at following through on their promises, with U.S. broadband providers delivering 96% of advertised speeds during peak hours while European broadband providers delivering only 74% of advertised speeds during such times.³⁴

Altogether, it seems that the U.S. made the right choice initially, by favoring facilities-based competition over service-based competition, and it has paid great dividends over the years in terms of greater deployment, faster speeds, and new innovative broadband platforms. But if all that still isn’t enough, and concern lingers over the perceived competitive imbalance in the U.S. broadband market, there still is significant cause for optimism here, because of what the available deployment data don’t (yet) say.

²⁹ See Google, *Project Loon: What is Loon?* (last visited Jan. 22, 2015), available at <http://www.google.com/loon/>.

³⁰ See Bret Swanson, *Internet Traffic as a Basic Measure of Broadband Health*, AEI (Nov. 20, 2014), available at <http://www.aei.org/publication/internet-traffic-basic-measure-broadband-health/>.

³¹ See, e.g., Yoo, *supra* note 16.

³² *Id.* at i.

³³ *Id.*

³⁴ *Id.*

The Even-Better News Story of Broadband Deployment in 2014

When the FCC finally gets around to issuing its Eleventh 706(b) report, the real headline will be so clear, even this FCC, for all its relentless pessimism, will have a hard time burying it the story: Between December 2013 (the end of the data set for this report) and December 2014, the U.S. saw upgrades to telcos' DSL architecture of a magnitude that can only be compared to cable companies' upgrades of their own architecture to DOCSIS 3.0 and wireless companies upgrading from 3G to 4G. Even as the Chairman wrings his hands about the state of broadband deployment, the picture is brighter than ever.

The Sexy News: Fiber Upgrades

Verizon has covered 65% of its footprint with FTTP FiOS service.³⁵ FiOS has reached an enviable penetration rate of 40.6%, meaning that almost half of all consumers with access to FiOS have chosen to subscribe to it.³⁶

AT&T has begun deploying its own Gigapower FTTP initiative, which AT&T announced will be rolled out in 25 major metropolitan areas nationwide.³⁷ In March 2014, CenturyLink disclosed that it had FTTN service (a form of VDSL) with speeds of at least 10 Mbps to 65% of its footprint (8 million of 13 million homes).³⁸

Like AT&T, CenturyLink is deploying FTTP service in cities with population density high enough to make FTTP cost-effective. In August CenturyLink announced that its 1 Gbps FTTP service had reached residential and business customers in eleven major cities across the West and Midwest, and business customers in additional five cities.³⁹

³⁵ See Verizon, *Financial and Operating Information*, 16 (Sept. 30, 2014), available at <http://www.verizon.com/about/file/3717/download?token=cJaGzDMo>.

³⁶ Thomson Reuters StreetEvents, Edited Transcript: VZ – Q3 2014 Verizon Earnings Conference Call, 7 (Oct. 21, 2014), available at <http://www.verizon.com/about/investors/quarterly-reports/3q-2014-quarter-earningsconference-call-webcast/>.

³⁷ AT&T, *AT&T Eyes 100 U.S. Cities and Municipalities for its Ultra-Fast Fiber Network*, Press Release (Apr. 21, 2014), available at http://about.att.com/story/att_eyes_100_u_s_cities_and_municipalities_for_its_ultra_fast_fiber_network.html.

³⁸ See CenturyLink, *Ex Parte: In re Connect America Fund: CenturyLink Rural Broadband Experiment Expression of Interest*, WC Docket No. 10-90 (Mar. 7, 2014), available at <http://apps.fcc.gov/ecfs/document/view?id=7521089735>.

³⁹ CenturyLink, *CenturyLink Expands its Gigabit Service to 16 Cities, Delivering Broadband Speeds Up to 1 Gigabit Per Second* (Aug. 5, 2014), available at <http://news.centurylink.com/news/centurylink-expands-its-gigabit-service-to-16-cities-delivering-broadband-speeds-up-to-1-gigabit-per-second>.

Perhaps most exciting, though, is the jump Google recently made into the broadband market with its Google Fiber offering, which it is expanding from Austin, Kansas City and Provo to as many as 34 cities and nine metro areas.⁴⁰

[The Less Sexy but Bigger Story: A Banner Year for Telco DSL Upgrades](#)

On November 10, 2014, AT&T announced that it had completed upgrading the 57 million customer locations it targeted back in 2012 to VDSL2 service.⁴¹ This represented the 75% of the customer locations within its wireline service footprint – completing the goal AT&T set back in 2012 a year ahead of schedule.⁴² By upgrading legacy <6 Mbps DSL networks to VDSL2 technologies, AT&T made speeds of 25 Mbps and up available to 75% of its wireline broadband footprint – bringing strong broadband competition to over half of all Americans.

Back in November 2012, AT&T had announced its Project Velocity IP (“VIP”), a \$14 billion investment planned over three years (above its regular annual capital expenditure, which is generally in the range of about \$15 billion to \$18 billion)⁴³ to upgrade both its wireless and wireline networks with two specific goals:

- \$6 billion for upgrading U-verse broadband speeds up to 75 Mbps for 33 million customer locations (or 43% of its footprint) and up to 45 Mbps for another 24 million customer locations (or 32% of its footprint).⁴⁴
- \$8 billion for providing 4G LTE fixed-wireless Internet access to offer VoIP and broadband services to 300 million people.⁴⁵

⁴⁰ See Google, *The Future of Fiber* (last visited Jan. 22, 2015), <https://fiber.google.com/newcities/>; see also Stephanie Mlot, *34 Cities Working to Land Google Fiber*, PCMag (Feb. 19, 2014), available at <http://www.pcmag.com/article2/0,2817,2453662,00.asp>.

⁴¹ AT&T has deployed Project VIP to 57 million households, *supra* note 42 and associated text, of a grand total of 115.6 million households in the U.S. U.S. Census Bureau, *State and County Quickfacts* (last visited Dec. 22, 2014), available at <http://quickfacts.census.gov/qfd/states/00000.html>.

⁴² AT&T, Form 10-Q Filed with U.S. Securities and Exchange Commission, 17 (Nov. 10, 2014), available at <http://bit.ly/1Gk4nKs> (“As part of Project VIP, we announced a goal to expand our IP-broadband service to approximately 57 million customer locations and we achieved that goal during the third quarter.”).

⁴³ AT&T, Form 10Q U.S. SEC Filing, 11/10/2014 and at AT&T press release at http://about.att.com/story/att_to_acquire_mexico_wireless_provider_iusacell.html

⁴⁴ AT&T has publicly stated that 57 million customer locations represent 75% of its wireline service area. This means its wireline footprint is 76 million customer locations. See “Investing in Wireline IP Network Growth” at <http://www.att.com/gen/press-room?pid=23506&cdvn=news&newsarticleid=35661>

⁴⁵ See AT&T, AT&T to Invest \$14 Billion to Significantly Expand Wireless and Wireline Broadband Networks, Support Future IP Data Growth and New Services (Nov. 7, 2012), available at <http://www.att.com/gen/press-room?pid=23506&cdvn=news&newsarticleid=35661&mapcode>.

Financial data from Comcast and AT&T show that AT&T's U-verse (VDSL) broadband had roughly more than twice as many average quarterly broadband net-adds as did Comcast from Q2 2013 to Q3 2014. Legacy DSL cannot effectively provide download speeds above about 6 Mbps, but VDSL certainly can. Legacy DSL is fast declining as a share of telcos' broadband subscriber base as they upgrade at a rapid rate. The focus by critics on legacy DSL misses the point that the market increasingly sees it as being replaced by upgraded VDSL. Last November, AT&T noted that 2014 was the peak year for its U-verse broadband upgrades.⁴⁶ For example, U-verse broadband subscribers made up 75% of AT&T's wireline broadband subscribers in Q3 2013, up from 59% just a year earlier.

This news alone should make the pessimists rethink the dreary predictions made by critics based on the FCC's December 2013 data. This sudden change in telcos' wireline broadband strategy and future prospects also suggests need for a greater humility about any regulator's ability to predict the future of dynamic markets and complex technologies such as broadband.

And in June 2014, as part of the deal to acquire DirecTV, AT&T announced a further acceleration of its deployment of U-verse and other broadband upgrades – above and beyond the Project VIP upgrades recently completed.⁴⁷ AT&T said it would also reach an additional 2 million premises with its expanded GigaPower FTTP and 13 million premises with a mix of U-verse VDSL2 and fixed 4G LTE wireless service at 10-15 Mbps.⁴⁸

Approval of AT&T's pending merger with DirecTV would allow the combined company to execute a comprehensive investment strategy that would bring higher speeds to an additional 20% of its footprint – above the 75% already upgraded to VDSL under Project VIP for a total of 95%, upgraded from DSL through a mix of U-verse, FTTP GigaPower and fixed wireless within four years of the DirecTV deal being closed. Clearly this is evidence that the broadband access market is not as static as some would claim – and that cable does not have a monopoly, even where it does not currently face competition from a FTTP provider.

Of course, none of this good news from 2014 will be reflected in the FCC's 2015 Report – based on 2013 data.

⁴⁶ AT&T, *AT&T to Acquire Mexico Wireless Provider Iusacell*, Press Release (Nov. 7, 2014), available at http://about.att.com/story/att_to_acquire_mexico_wireless_provider_iusacell.html.

⁴⁷ See U.S. Sec. & Exch. Comm'n, *AT&T Inc. Form 8-K Current Report* (June 3, 2014), available at <http://www.sec.gov/Archives/edgar/data/732717/000073271714000049/qa8k.htm>.

⁴⁸ See *id.*

New DSL Technologies Behind Telco Upgrades

New DSL technologies are competing quite effectively because they are doing precisely what the Chairman claims they cannot: allowing telcos to give each “local cable company a competitive run for its money.” Critics claim that the technical characteristics of copper, most notably its signal propagation rates, will forever render it a second-class broadband medium. But telcos are using three techniques to overcome these limitations and to compete with cable even without the significant expense of deploying FTTP:

- (1) **Pair-bonding** (combining multiple lines, where available),⁴⁹
- (2) **Vectoring** (noise cancellation on a single line),⁵⁰ and
- (3) Shortening loop distances by **pushing fiber deeper** into their networks (i.e., from the central office interconnection point to more localized street cabinets using DSLAMs outside central offices).

It is important to note that these fiber-to-the-node (“FTTN”) techniques are essentially the same as what cable operators have used to extract higher speeds from their hybrid fiber-coaxial networks: building fiber closer and closer to the customers’ premises (or “fiber deep”) and then upgrading the electronics of the network. Copper networks, just like cable networks, can achieve significant speed upgrades through iterative investments, without incurring the massive expense of going straight to all-fiber.

DSL equipment manufacturer ADTRAN explains the state of the art and what is actually commercially practicable in its recent comments:

Using VDSL2 technology and two-pair bonded loops, broadband download speeds of 80 Mbps can be provided on loop lengths up to 2500 feet. Alternatively, using ADSL2+ technology and two-bonded loops, the subscriber can get speeds of 25 Mbps on loop lengths of up to 10,000 feet. And where there are additional loops (which may be the case for most

⁴⁹ Stefaan Vanhastel & Wim Van Daele, *VDSL2: Turning Copper Into Gold*, OSP MAGAZINE (last visited Jan. 22, 2015), available at <http://www.ospmag.com/issue/article/vdsl2-turning-copper-gold> (“VDSL2 bonding typically combines 2 regular VDSL2 lines into a single, virtual “big pipe” that allows operators to double the bitrate for existing subscribers (since you’re using 2 lines). Alternatively, it allows them to deliver the same bitrates over longer distances (covering subscribers that were previously out-of-reach, thereby also reducing the number of cabinets that need to be built to cover a given area).”).

⁵⁰ *Id.* (“VDSL2 vectoring works on a single pair and is based on the concept of “noise cancellation”, much like the headphones people have started to use increasingly on planes, to reduce or cancel background/engine noise when listening to music or watching a movie. VDSL2 vectoring calculates the interference between all pairs in a binder, based on the actual signals, and will use this information to generate a noise cancellation signal on each pair, effectively removing all crosstalk. The net gain is between 25% and 100%.”).

residences, or for broadband service to businesses or to remote terminals), multi-pair bonding can be used to provide hundreds of Mbps download speeds.⁵¹

ADTRAN also said that upgrading the hardware used inside broadband networks allows for even greater gains in speeds:

One of the challenges limiting DSL performance is crosstalk between the loops within the same binder group in the network. A solution to mitigate crosstalk is vectoring, which uses advanced signal processing techniques to alleviate crosstalk. By performing the signal processing jointly among a group of lines at the DSL Access Multiplexer (DSLAM), rather than performing the signal processing on a line-by-line basis, the crosstalk can be significantly reduced or eliminated, thereby increasing capacity. Using vectoring, DSL download speeds of 100 Mbps can be provided on loops of up to 3400 feet with two-pair bonding. Vectoring thus provides significant enhancements on relatively short copper loops, and combined with bonding, it allows service on loops of up to 3400 feet at the 100 Mbps download speeds adopted as the longer term goal under the Commission's National Broadband Plan. In addition, companies continue to refine these DSL technologies. Moreover, advances in Outside Plan DSLAMs (OSP DSLAMs) are making it more economical to limit the length of the DSL copper loops to the customer premises, so that these download speeds can be provided on a cost effective basis to many more subscribers. Indeed, because of its cost and capabilities, DSL is the last-mile technology of choice for high-speed broadband services in Europe.⁵²

ADTRAN notes that its own ActivReach technology can triple the range of 100 Mbps Ethernet over copper wires in older buildings, to 1600 feet.⁵³ ADTRAN also notes that it has already introduced a technology that allows VDSL2 to coexist with G.fast, the likely successor standard to VDSL2.⁵⁴ G.fast would allow telcos to move fiber even closer to the

⁵¹ Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc., and SpinCo for Consent to Assign and Transfer Control of FCC Licenses and Other Authorizations, *Comments of Adtran, Inc.*, MB Docket No. 14-57, at 3 (Aug. , 2014) [Adtran Comments], available at <http://apps.fcc.gov/ecfs/document/view?id=60000979824>.

⁵² *Id.* at 3-4.

⁵³ *Id.* at 4-5. See also Adtran, *NetVanta 1535P* (last visited Dec. 22, 2014), <https://www.adtran.com/web/page/portal/Adtran/product/1702595G10>.

⁵⁴ See Brian Santo, *Adtran Paves VDSL2-to-G.fast Trail*, CED MAGAZINE (Aug. 14, 2014), available at <http://www.cedmagazine.com/news/2014/08/adtran-paves-vdsl2-to-gfast-trail> ("Adtran has introduced a

home by installing miniature DSLAMs closer to end-users than the street cabinets relied upon by VDSL2.⁵⁵ While VDSL2 uses channel sizes ranging from 17 MHz to 30 MHz, G.fast uses channel sizes of 106 MHz and will eventually use 212 MHz.⁵⁶ The first two test phases of the G.fast specification have enabled download speeds of up to 700 Mbps and 1.25 Gbps over 300 and 225 feet, respectively, and G.fast could soon support speeds of up to 1 Gbps at a distance of about 300 feet or 500 Mbps at about 800 feet.⁵⁷ Finally, Alcatel-Lucent's Bell Labs has already successfully tested XG-FAST, which is capable of download speeds up to 10 Gbps when used with channel bonding and over a relatively short distance.⁵⁸

Upgrading from ADSL to ADSL2 to VDSL to VDSL2 to G.fast to XG-FAST may not sound as sexy as building "fiber to the home," but it may be a far more cost-effective strategy for deploying high speed networks in urban and suburban areas. An iterative approach avoids the major expense of installing fiber directly to the customers' premises, relying instead for final transmission on the legacy copper infrastructure still in place, while allowing investments to be staggered over time as consumer demand for greater speed grows.

The Right Speed Benchmarks

As numerous commenters have observed, the FCC needs multiple measures of available broadband speeds to accurately describe the state of broadband deployment – and formulate appropriate policy responses, or recommendations to Congress.⁵⁹ To that end, we urge the Commission to follow the model of the European Union's Digital Agenda Scoreboard, which tracks the availability of broadband by speed tiers, breaks that data

variation of DSL technology that ... would enable DSL carriers to deploy G.fast on a node by node basis, rather than having to upgrade entire markets from VDSL2 to G.fast.”).

⁵⁵ See Sean Buckley, *Adtran Tackles G.fast, VDSL2 Vectoring Compatibility with Frequency Division Vectoring Technology*, FIERCETELECOM (Aug. 15, 2014), available at <http://www.fiercetelecom.com/story/adtran-tackles-gfast-vdsl2-vectoring-compatibility-frequency-division-veccto/2014-08-15>.

⁵⁶ Paul Spruyt & Stefaan Vanhastel, *The Numbers Are In: Vectoring 2.0 Makes G.fast Faster*, ALCATEL-LUCENT (July 4, 2013), available at <http://www2.alcatel-lucent.com/techzine/the-numbers-are-in-vectoring-2-0-makes-g-fast-faster/>.

⁵⁷ *Id.*

⁵⁸ Alcatel-Lucent, *Alcatel-Lucent Sets New World Record Broadband Speed of 10 Gbps for Transmission of Data Over Traditional Copper Telephone Lines*, Press Release (July 9, 2014), available at <http://www.alcatel-lucent.com/press/2014/alcatel-lucent-sets-new-world-record-broadband-speed-10-gbps-transmission-data-over-traditional>.

⁵⁹ See, e.g., 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, *Comments of the National Cable & Telecommunications Association*, GN Docket No. 14–126, 3 (Sept. 4, 2014) [*NCTA Comments*], available at <http://apps.fcc.gov/ecfs/document/view?id=7521827767> (arguing that the Commission should use multiple benchmarks in performing its Section 706 analysis rather than just one).

down geographically and offers a robust, user-friendly interface for accessing and comparing that data across multiple dimensions.⁶⁰ Even more helpful would be tracking the availability, especially geographically, of evolving speed levels. This would help to reveal important trends about rural/urban divides.

Whatever the value of measuring multiple benchmarks, only one speed benchmark may properly undergird the “determination” the Commission must make under Section 706(b): the deployment of “advanced telecommunications capability,” as defined in 706(d)(1) “without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology.” This definition has nothing to do with median usage; it focuses on basic capabilities (akin to the FCC’s Lifeline subsidies for basic telephone service). The words “advanced” and “high speed” as used in the statute, must be understood in the context of the times: At a time when almost no one had Internet service faster than dial-up Congress used “advanced telecommunications capabilities” to mean broadband. Yes, this definition was intended to be flexible, but not infinitely so.

The right question to ask is the one the FCC set forth back in 1999: How fast is fast “enough to provide the most popular [applications]?”⁶¹ The FCC itself lists popular applications – none of which require more than 4 Mbps.⁶² If the FCC could identify popular applications that require more than 4 Mbps for service, it would be justified in raising this threshold accordingly. If, for example, typical HD video streaming rates actually approached the 5 mbps Netflix recommends, the FCC might well be justified in raising its benchmark to 5mbps.

There is nothing wrong with the FCC measuring broadband deployment at higher speed benchmarks – such as those needed to run multiple apps simultaneously, or for multiple users to do so. These are important measures of broadband deployment. They are simply

⁶⁰ See European Commission, *Digital Agenda for Europe: A Europe 2020 Initiative – Our Goals: Scoreboard* (last visited Jan. 22, 2015), available at <http://ec.europa.eu/digital-agenda/create-graphs>.

⁶¹ Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, *Report*, CC Docket No. 98–146, 14 FCC Rcd. 2398, 2406 ¶ 20 (1999), available at http://transition.fcc.gov/Bureaus/Common_Carrier/Orders/1999/fcc99005.txt (choosing original 200 kbps threshold because it was “enough to provide the *most popular* forms of broadband– to change web pages as fast as one can flip through the pages of a book and to transmit full-motion video” (emphasis added)). In context, it is clear that the Commission meant what we would, today, call “most popular applications,” so we use this phrasing below to avoid confusion.

⁶² FCC, *Broadband Speed Guide* (last visited Jan. 22, 2015), <http://www.fcc.gov/guides/broadband-speed-guide>.

not the what is contemplated by the text of Section 706(d)(1) as the basis for the positive/negative determination the Commission must make under Section 706(b).

But if the Commission is determined to go down that road, despite the text of the statute, it is essential that its speed benchmarks be grounded in *actual* usage levels *contemporaneous* with the broadband data collected. The arguments in the record for jumping to 25 Mbps threshold simply do not bear careful scrutiny.

Debunking Arguments for a 25 Mbps Threshold

Netflix argues for a “forward-looking threshold”:

The Commission’s benchmark must accommodate forecasts about future demand, particularly if the Commission does not intend to adjust the benchmark annually. Many of the services that account for a substantial amount of the traffic requested by broadband users today did not exist a decade ago. It is likely that a decade from now, the same will hold true. The speed benchmark should leave room for the emergence of new content and services.⁶³

This is precisely the wrong way to conceptualize the Section 706(b) Inquiry. Yes, *of course*, new bandwidth-intensive services will come along and speed demands will rise with the tide. But because the FCC can update its speed benchmark every year, instead of just every four, there is no need whatsoever for the FCC to base its speed benchmark on what consumers might do a “decade from now” – or even a year from now.

Public Knowledge justifies a “forward-looking market definition” of 25 Mbps as follows:

The average HD video stream requires 5 Mbps of capacity, and the average American home has three television sets. A 25 Mbps threshold ensures that viewers can watch television while still having sufficient leftover capacity for mobile devices, online backup services, and other applications. The Commission [sic] has already found that speeds in excess of 15 Mbps are necessary for “[b]asic functions plus more than one high demand application running at the same time” – 10–25 Mbps for three high-demand

⁶³ 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, *Comments of Netflix, Inc.*, GN Docket No. 14–126, 6 (Sept. 4, 2014) [*Netflix Comments*], available at <http://apps.fcc.gov/ecfs/document/view?id=7521827931>.

applications plus basic functions is a reasonable extrapolation of this metric.⁶⁴

Essentially, Public Knowledge's proposed equation may be written as

$$(video\ speed * number\ of\ users) + other\ simultaneous\ activities = benchmark$$

Every piece of this equation ignores *actual* user behavior in order to produce a speed benchmark contrived to justify a dreary determination on the state of broadband deployment – in order to justify a pre-determined policy outcome.

Video Speed

To start, Public Knowledge makes the same mistake that Chairman Wheeler made in his September speech when he asserted that “Four megabits per second isn't adequate when a single HD video delivered to home or classroom requires 5 Mbps of capacity.”⁶⁵ In fact, even on Google Fiber's 1,000 Mbps service, Netflix still streams, on average, at around 3.7 Mbps⁶⁶ – not significantly higher than some cable companies, and only 25% faster than, say, Comcast (3.25 Mbps in December 2014).⁶⁷ The 5 Mbps number is, in fact, merely Netflix's *recommendation* for HD quality.⁶⁸ Netflix also recommends 25 Mbps for its Ultra-HD 4K video streaming service, although some reports suggest that a stream of 15 Mbps would be sufficient.⁶⁹

And of course, real-time streaming is only one way to deliver and consume video content over the Internet. Among other things, content can be downloaded and cached for future viewing on even the slowest of networks, as long as the connection is stable. The key point here is that the Commission should be focused on hard data about how consumers actually, in aggregate, use the Internet, not anecdotal examples of how *some* consumers like to use the Internet.

⁶⁴ 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, *Comments of Public Knowledge*, GN Docket No. 14–126, 16 (Sept. 4, 2014) [*PK Comments*], available at <http://apps.fcc.gov/ecfs/document/view?id=7521827814>.

⁶⁵ *1776 Speech*, *supra* note 3.

⁶⁶ See Netflix, *USA ISP Speed Index Results Graph* (August 2014 – December 2014) (last visited Jan. 22, 2015), available at <http://ispspeedindex.netflix.com/results/usa/graph>.

⁶⁷ *Id.*

⁶⁸ See Netflix, *Internet Connection Speed Recommendations* (last visited Jan. 22, 2015), available at <https://help.netflix.com/en/node/306>.

⁶⁹ Ryan Waniata, *The 4K Revolution Will Be Televised, and Netflix Says You'll Only Need 15 Mbps to Watch*, DIGITAL TRENDS (Sept. 24, 2013), available at <http://www.digitaltrends.com/home-theater/netflix-ceo-says-4k-streaming-will-only-require-15mbps-bandwidth/>.

Number of Simultaneous Users

Similarly, even if it is true that “the average American home has three television sets,” it hardly follows that Americans regularly (or even ever) simultaneously stream content on all three. Indeed, in 2010, the average American household had just 2.59 persons, 61% had only one or two persons, and 27.3% had just one.⁷⁰

Neither Public Knowledge nor Netflix nor anyone else has offered any data as to how often Americans might watch multiple video streams simultaneously within a single household – let alone at what quality level they might do so. And even if they did, such data would fail to account for another important aspect of the market: innovation at the edge.

For all that critics talk about the vital importance of “edge providers” innovating in the context of net neutrality, they seem to have in mind only the simplest form of pure-streaming business models. But as Americans switch to OTT video providers and rely on them to stream to multiple devices simultaneously, should we not expect streaming services and devices to become smarter, too? If simultaneous bandwidth is the relevant constraint, should we not expect that streaming services and devices will pre-cache at least some of the content they expect users to watch? For example, a service could algorithmically predict the likelihood that a user will watch the next episode, next two episodes, etc. of a series. At some point, perhaps not after the very first episode, it may become more cost-effective for the service to upload those episodes to the user in advance, perhaps during off-peak hours when the costs for sending the content are lower. And this will become especially easy if the service interacts with a specialized device or an application on one of the user’s devices that can receive the content during, say, the middle of the night and store it until it is demanded by the user. The point is that no one really knows exactly what the future will look like, but it is extremely unlikely to look quite like what Public Knowledge and some of the other critics predict.

Other Simultaneous Uses

Finally, Public Knowledge breezily asserts that “leftover capacity for mobile devices, online backup services, and other applications” will require an additional 10 Mbps.⁷¹ Again, Public

⁷⁰ U.S. Census Bureau, *Table 61. Households and Persons Per Household by Type of Household: 1990 to 2010* (2012), available at <http://www.census.gov/compendia/statab/2012/tables/12s0062.pdf>; U.S. Census Bureau, U.S. Department of Commerce, and Office of Policy Development and Research, U.S. Department of Housing and Urban Development, *American Housing Survey for the United States: 2011*, 23-24, Table C-08-AO (2013), available at <http://www.census.gov/content/dam/Census/programssurveys/ahs/data/2011/h150-11.pdf>

⁷¹ Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc., and SpinCo for Consent to Assign and Transfer Control of FCC Licenses and Other Authorizations, *Petition to Deny of Public*

Knowledge offers no data to substantiate its claim.⁷² And, again, Public Knowledge repeats the stasis fallacy that seems to undergird its entire filing when it implies that bandwidth-intensive, but non-urgent, applications like automated backup will regularly take place while three simultaneous video streams (at 5 Mbps, of course; 40% faster than on Google Fiber) *and* VoIP calls and online browsing are taking place. Apparently, for all Public Knowledge’s talk of “smart” applications and “dumb” networks, in the future PK is fighting to preserve, applications are equally dumb – if not dumber.

“Garbage In, Garbage Out”

This is the worst kind of market-analysis-by-conjecture. Each of the three terms in the equation, being essentially arbitrary and unsupported by actual evidence, introduces a wide margin for error. To show just how wide that margin is, suppose that the actual data show that the use case that actually drives the marginal consumer’s decision about broadband and video service is streaming HD quality Netflix (3.7 Mbps, to take the Google Fiber number) on two (not three) devices plus a certain amount of web browsing and a VoIP call (1.5 Mbps⁷³). If the web browsing figure is 1.2 Mbps, that equation would suggest that the relevant threshold is 10 Mbps – a scant 40% of the figure arrived at by Public Knowledge’s conjecture.

This simply illustrates how wide the margin of error is in the methodology proposed by Public Knowledge and Netflix – rather like starting a drive from Los Angeles to Seattle and making it only as far Sacramento (40% of the way).

Just how far off Public Knowledge’s methodology is becomes clear when considering the fact, cited in the FCC’s own notice that, in December 2013, the percentage of Americans who had chosen a 25+ Mbps plan was just 21%. In essence, Public Knowledge would convert Section 706’s inquiry about *basic* broadband service into a legal right (enforceable by the FCC through what it proudly declares is its sweeping Section 706 power) to 4K video service. This approach ignores the costs of providing higher quality service, and policies based on this assumption will inevitably redirect resources away from users who are not yet online or who have very basic service to the kinds of *Jetsons* users Public Knowledge favors: those who would run multiple 4K or HD video streams while also engaging in simultaneous video conferencing and massive file transfers (which, for some

Knowledge and Open Technology Institute, MB Docket No. 14–57, 8 (Aug. 25, 2014), available at <http://apps.fcc.gov/ecfs/document/view?id=7521817048>.

⁷² See *id.*

⁷³ See, e.g., Skype, *How Much Bandwidth Does Skype Need?* (last visited Sept. 23, 2014), available at <https://support.skype.com/en/faq/FA1417/how-much-bandwidth-does-skype-need> (recommending 100kbps / 100 kbps for calling and 1.5 Mbps / 1.5 Mbps for HD video calling).

mysterious reason, have to done at precisely the same time as latency-sensitive streaming).

[A Statistically Sound Methodology for an Evolving Speed Benchmark](#)

Netflix and Public Knowledge are essentially asking the Commission to decide how Americans *should* use the Internet. It's classic 1960s technocratic thinking – right out of *The Jetsons*. What if George, Jane, Judy and Elroy all want to stream 4K video at once? What about Rosie? Even robot maids need breaks! And what if poor Astro gets a firmware upgrade while everyone is “doing their own thing” (with their own screens, of course)?

There is no need for the FCC to engage in such impossible predictions. Again, its determination should rest on a far simpler question: what speed is necessary to deliver the fastest “most popular” applications?

However, since the Commission seems dead set on using a higher benchmark for this determination, we urge it to at least ground that benchmark as much as possible in real-world data. As illustrated above, a more realistic, less Jetsonian application of Public Knowledge's approach *might* justify a basic benchmark somewhere around 10 Mbps. But this approach inevitably requires making arbitrary assumptions about how consumers use the Internet, which creates a methodological mismatch – measuring the adequacy of deployment data that is 12-14 months old by the gestalt sense of what should happen in the next few years.

A far better approach would be to measure that broadband data through usage data from the very same time period. In this inquiry, the Commission should ask: How did consumers up through December 2013 actually use the Internet? One way to do that would be to attempt to count the percentage of users who actually streamed multiple apps simultaneously. But it would be far simpler, and more technologically agnostic to instead assess peak usage, a simple measure that synthesizes other messy questions about which apps consumers used together, how often and at what bandwidth levels.

What would be the most logical extension of the Commission's “most popular” applications inquiry? Measuring the peak usage of the median household seems reasonable, but even this would represent a fundamental change in what the FCC's “determination” means: Instead of an assessment as to whether all Americans have the basic capability to run the “most popular” applications (a la Lifeline's basic connectivity), it would be assessing geographic equity. This may be a useful enterprise but, again, it is not what Section 706 was for – and it is particularly problematic if the Commission uses its Section 706

determination as the basis for regulating based on Section 706, reclassifying broadband under Title II, blocking mergers, etc.⁷⁴

The FCC *does* need a way of assessing the availability of broadband at speeds above its minimum benchmark. But that analysis, again, should be grounded in real-world data about the speeds necessary “to provide the most popular [applications]”⁷⁵. Rather than creating an artificial, *Jetsons*-style model of broadband use, the FCC should look at how Americans actually use broadband. The most statistically valid way to do this would be to assess the peak bandwidth use (or average daily peak bandwidth use) of the median household. Or, to create a richer portrait of how broadband usage and availability varies, the FCC could assess the variability and distribution of peak bandwidth uses (or average daily peak bandwidth uses) by breaking the data set out into quartiles, or relaying such figures as standard deviation. This would avoid any need to decide how many video streams or smart home gadgets or backup service or firmware updates are truly necessary, and would discern the appropriate benchmark under Section 706(b) by relying upon the wisdom of the crowd. And this kind of methodology would at least be far, far less arbitrary than what Public Knowledge and Netflix advocate: it would involve apples-to-apples comparisons (using data from the same time period) based on actual use, rather than hypothesized uses. And, again, this methodology would allow the Commission to update the benchmark every year in a non-arbitrary way, without having to guess what the future would look like. Finally, this methodology would allow the FCC to create multiple benchmarks – say, peak usage for various quartiles of users, which could inform its overall assessment of availability. This would be the best way to truly assess geographic equity, and to avoid confusing the speeds consumers choose with the speeds they actually use.

The fact that only 21% of Americans in 2013 chose a 25+ Mbps plan suggests that *any* benchmark of peak usage based on peak usage, whether of the median household or some more bandwidth-intensive household, would, for purposes of this report, fall well short of 25 Mbps. The data will (no doubt) someday support a 25 Mbps threshold, but by the time we get there, the broadband marketplace will have changed considerably, and it will no longer be an unfair comparison to assess that marketplace through the lens of a 25 Mbps benchmark.

⁷⁴ See, e.g., John Eggerton, *Wheeler: 25/3 Mbps Should Be New High-Speed Definition*, MULTICHANNEL NEWS (Jan. 7, 2015), available at <http://www.multichannel.com/news/policy/wheeler-253-mbps-should-be-new-high-speed-definition/386714>.

⁷⁵ *Supra* note 61.

Basing a Negative Determination on a 25 Mbps Benchmark Would be Arbitrary & Capricious

The FCC's Section 706 report is not "just another report." Section 706 is one of only two places in the Communications Act where Congress *required* the FCC to make a particular determination – and, even if Section 706 is not (as we maintain) an independent grant of authority, a negative finding *does* trigger a duty for the FCC to "take immediate action" (using other sources of authority). Thus, the FCC's 706(b) "determination" is a final action that should be subject to review under the Administrative Procedure Act. Whether or not it is, the FCC's determination may face legal scrutiny if the FCC uses this determination in some other agency action, such as the basis for exercising the authority it claims (absurdly) under Section 706 to preempt state broadband laws or to regulate privacy or cybersecurity, or as part of the justification for reclassifying broadband, *etc.*

Basing a negative determination on a 25 Mbps benchmark would be arbitrary and capricious in three respects:

1. The record does not support such a threshold. Public Knowledge and Netflix have offered a flimsy methodology and little evidentiary support for their proposed 25 Mbps benchmark (*e.g.*, evidence of streaming rates, the frequency with which two or any number of other users simultaneously stream video at any speed, the bandwidth needs of other applications likely to be run in parallel with two or more video streams).
2. The FCC would have a difficult time justifying a 25 Mbps threshold when, just last month, it raised the benchmark for the Connect America Fund to 10 Mbps.⁷⁶
3. Most seriously, the mismatch between retrospective (2013) data on deployment and a "forward-looking" benchmark (based on hypothetical consumer behavior at some point in the future) inherently skews the outcome of the inquiry towards a negative finding. Indeed, it is difficult to see how the FCC would *ever* decide that last year's broadband speeds were adequate to meet the demands of the future imagined by the FCC. This kind of apples-to-oranges comparison is precisely the kind of comparison that is considered arbitrary and capricious.

It is, of course, possible that, no matter how glaringly arbitrary and capricious the FCC's determination, the FCC may evade judicial review by insisting no one has standing to

⁷⁶ In the Matter of Connect America Fund, Report & Order, FCC 14-190, WC Docket No. 10-90, WC Docket No. 14-58, WC Docket No. 14-192 (Dec. 2014), http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0115/FCC-14-190A1.pdf

challenge the FCC's determination or that it is not ripe for legal challenge.⁷⁷ Nonetheless, the FCC ought to seriously weigh the fundamental principles of administrative law in doing anything that has an essentially regulatory effect. If, as Judge Tatel so memorably put it in his *Verizon* decision last year, “even a federal agency is entitled to a little pride,”⁷⁸ and it must also be said that even a federal agency should have a little self-respect.

Moving the goalpost this far, based on such contorted logic – claiming the sky is falling when broadband deployment is proceeding better than ever in order to justify a preconceived regulatory agenda – is far beneath the dignity of any federal agency, even one that has recently become as politicized as the FCC.

⁷⁷ Although we would contest both claims, as such arguments are often the last refuge of rogue agencies.

⁷⁸ *Verizon v. F.C.C.*, 740 F.3d 623, 637 (D.C. Cir. 2014).