

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Special Access for Price Cap Local Exchange Carriers)	WC Docket No. 05-25
)	
AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Service)	RM-10593
)	

**COMMENTS OF
THE UNITED STATES TELECOM ASSOCIATION**

Jonathan Banks
Patrick Brogan
Diane Griffin Holland
Robert Mayer

607 14th Street, NW, Suite 400
Washington, D.C. 20005
(202) 326-7300

January 28, 2016

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION.....	1
II. THERE HAS BEEN EXPLOSIVE GROWTH IN BUSINESS BROADBAND INVESTMENT AND INNOVATION.....	2
III. BUSINESS BROADBAND COMPETITION HAS GROWN DRAMATICALLY.....	8
A. Fiber Investment by CLECs Has Steadily Increased.....	8
B. The Recent Fixed Wireless Surge Means Even More Competition.....	12
C. The Cable Industry Has Shifted Its Growth Strategy to Business Broadband.....	14
IV. THE 2013 DATA COLLECTION UNDERSTATES THE CURRENT STATE OF COMPETITION IN THE BUSINESS BROADBAND MARKETPLACE.....	23
A. Cable Has Moved Quickly Up Market in the Last Two Years.....	24
B. Competitive Fiber Providers Have Deployed Fiber and Connected Buildings in the Last Two Years.....	31
V. CONCLUSION.....	33

SUMMARY

Competitive local exchange carriers (CLECs) began entering the special access business in the mid-1980s. Since that time, competition from those providers has steadily grown. In response, the FCC has carefully cut back on monopoly-era regulation to reflect and encourage this competition, moving over the decades to price cap regulation and then on to providing a measure of pricing flexibility that allows for discounting and, in some cases for price increases. Every indicia suggests that the FCC's gradual right-sizing of regulation has helped create a marketplace for these services that is functioning well – competitors continue to grow, a whole new set of competitors has entered recently, rapid technological innovation is cannibalizing older technology, and discounting is commonplace.

The FCC's collection of 2013 market data will show that competitive providers have their own facilities deployed throughout the country and can serve the vast majority of the nation's business customers. Although the 2013 data collected by the FCC in this proceeding is a good start, it only tells a fraction of the whole business broadband story. In these comments, we provide recent information on competitors entering new markets, expanding their offerings, and investing billions to reach new and retain existing business customers. These investments and upgrades, which include new fiber routes, extensions of Ethernet and fiber networks, and new fiber connections to buildings, are simply not reflected in the 2013 data collection.

The current state of competition in the business broadband market, therefore, cannot be adequately assessed by looking only at the 2013 data collection. The additional data presented in these comments are both relevant and necessary to the Commission's analysis, and must be considered to ensure that any conclusions reached are data driven and fully-supported by the

record before it. The breadth and depth of CLEC and cable investment in businesses services over the years, and especially since the 2013 data collected by the Commission, demonstrates that the Commission's longstanding approach of replacing regulatory restraints with competition makes sense and should be continued and expanded. Commission policies on business broadband should be focused on ensuring that all providers are incented to invest in the modern fiber and IP networks that businesses need.

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Special Access for Price Cap Local Exchange Carriers)	WC Docket No. 05-25
)	
AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Service)	RM-10593
)	

**COMMENTS OF
THE UNITED STATES TELECOM ASSOCIATION**

The United States Telecom Association (USTelecom)¹ submits these comments in response to the Federal Communications Commission’s (FCC or Commission) inquiry into issues raised in the special access rulemaking proceeding. The Commission seeks input on the data collected in this proceeding to inform its comprehensive evaluation of the special access services marketplace.²

I. INTRODUCTION.

Competitive business broadband facilities have emerged just as Congress envisioned in the Telecommunications Act of 1996 (1996 Telecom Act). The companies that purchase access to

¹ USTelecom is the premier trade association representing service providers and suppliers for the telecom industry. Its diverse member base ranges from large publicly traded communications corporations to small companies and cooperatives – all providing advanced communications service to both urban and rural markets.

² *Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order and Further Notice of Proposed Rulemaking, 27 FCC Rcd 16318 (2012) (*Data Collection Order*); Report and Order, 28 FCC Rcd 13189 (Wireline Comp. Bur. 2013) (*Data Collection Report and Order*); Order on Reconsideration, 29 FCC Rcd 10899 (Wireline Comp. Bur. 2014) (*Data Collection Recon Order*); Order, 29 FCC Rcd 14346 (Wireline Comp. Bur. 2014) (*Extension Order*).

backhaul and other special access services have a wide and growing range of options available to them, and discounts are now the norm.³ As a result of this competition, there is now a broad range of providers of business broadband services unlike when the 1996 Telecom Act was passed. And, in fact, the original providers that were subject to regulation now are seeing their market share decline as business customers move away from copper-based services.

A major game-changer is entry of the nation's major cable operators, which are using their large network footprints to serve multiple business locations. New competition from cable and other providers is not captured in the 2013 data collection, which provides a snapshot of a single point in time. In just the last two years – 2014 and 2015 – cable business service units have invested an estimated \$6 billion in capital, while competitive fiber providers have invested an estimated \$9 billion. This new competition is leading to a virtuous cycle of innovation, investment, increased choice, economic growth, and job creation – exactly the kind of competition that Congress and the Commission sought to achieve.

II. THERE HAS BEEN EXPLOSIVE GROWTH IN BUSINESS BROADBAND INVESTMENT AND INNOVATION.

Since the passage of the 1996 Telecom Act, the Commission has sought to balance the goal of promoting facilities-based investment in next generation networks and technologies with the goal of stimulating competition.⁴ In doing so, the Commission acknowledged a direct nexus

³ See, e.g. Ex Parte Letter of Verizon, WC Docket No. 05-25, RM-10593 (filed Mar. 2, 2015) (describing Verizon's voluntary discount plans that offer significant discounts in exchange for term and volume commitments).

⁴ See *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978, 17103, ¶ 200 (2003) (*TRO*). See also *Unbundled Access to Network Elements, Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Order on Remand,

between increased facilities investment in upgraded networks and facilities and a decline in the need for competitors to access incumbent local exchange carrier (ILEC) facilities.⁵ In the decade that this unbundling policy has been in place, both of the Commission’s goals – more investment in fiber and IP technology and more competition – are being realized.

Facilities-based competition creates a sustainable platform for competition and investment in ever more powerful and innovative network facilities while eliminating the need for perpetual regulatory intervention and economically inefficient regulatory decisions. Policy makers expected that deregulatory policies promoting facilities-based competition would not only introduce competition for business voice services, but would encourage deployment of more powerful and innovative data networks to support then-emerging business Internet growth. Competitive use of incumbent local facilities was required as a temporary means to achieving this end; but where local facilities-based competition developed, or was shown to be feasible, regulation of incumbent facilities would be gradually reduced and eventually phased out.⁶

As anticipated, the growth of competition for business broadband services has been a great success story of the 1996 Telecom Act. In enacting this legislation two decades ago, Congress recognized that meaningful long-term competition in the business marketplace would emerge only if competitors built their own facilities to compete with the ILECs. To ensure that competitive providers retained a lasting incentive to build their own facilities, Congress placed

20 FCC Rcd 2533, 2535, ¶ 2 (2005) (*TRRO*) (noting the additional steps it was taking “to encourage the innovation and investment that come from facilities-based competition”).

⁵ *TRRO*, 20 FCC Rcd. at 2536, ¶ 3.

⁶ *See* Reply Comments of the United States Telecom Association, WC Docket No. 15-1, GN Docket No 13-5, at 2-4 (filed Mar. 9, 2015) (explaining that the Commission knew and fully intended that at some point in the future and under appropriate circumstances, ILEC unbundling obligations would go away).

limits on competitors' ability to obtain access to the ILECs' networks.⁷ Competitive business broadband facilities have emerged just as Congress had hoped, and that competition in providing these services is robust and growing.

Dedicated high-capacity business services have been competitive for decades. The first competitive special access providers emerged in the 1980s, just after the breakup of the Bell System, responding in part to state policies designed to promote competition in business markets. These new entrants deployed fiber networks in metropolitan areas to provide connections between large business customers and long-distance networks.⁸ In response to this emerging competition, the Commission began to modernize its rules for special access in the late 1980s and early 1990s by adopting price cap and expanded interconnection rules.⁹ The local market opening measures in the 1996 Telecom Act further mandated competition in local markets, and business competition began to spread. Not surprisingly, competitive providers initially entered the most densely populated business districts where demand was the greatest. As demand has expanded, competitors have expanded their footprints with investments in network facilities.

By the time broadband services first began taking off in the late 1990s, competitive providers had built multi-billion-dollar businesses for a rapidly growing industry segment.¹⁰

⁷ See 47 U.S.C. § 251(d)(2)(B); *AT&T Corp. v. Iowa Utilities Bd.*, 525 U.S. 366 (1999) (FCC must apply “some limiting standard, rationally related to the goals of the Act,” in implementing unbundling regulations).

⁸ See, e.g., *TRO*, 18 FCC Rcd at 17011, ¶ 44 (“Within the enterprise market for telecommunications services, new entrants began competing with the incumbent LECs in the mid-1980s.”); *Expanded Interconnection with Local Telephone Company Facilities*, Notice of Proposed Rulemaking and Notice of Inquiry, 6 FCC Rcd 3259, ¶ 2 (1991) (“[F]iber-based carriers, sometimes described as Competitive Access Providers (CAPs), now offer access services to large business customers in the central business districts of many major cities.”).

⁹ See, e.g., 47 CFR §§ 61.41-42, 64.1401.

¹⁰ See, e.g., New Paradigm Resources Group, Inc. Press Release, *New CLEC ReportTM Tracks Over 200 Facilities-Based CLECs; Data Continues to Drive Explosive Growth of Competitive*

Given expanding competitive alternatives in this marketplace, the FCC continued in 1999 to modify its regulatory framework by allowing relaxed rate regulation for price cap incumbent special access in some geographic areas upon proof that certain competitive indicators were present.¹¹ In issuing those rules, the FCC stated its policy to “give carriers greater flexibility to set rates as competition develops, until competition gradually replaces regulation as the primary means of setting prices.”¹² Its stated aim was “to accelerate the development of competition in all telecommunications markets and to ensure that [its] own regulations do not unduly interfere with the operation of these markets as competition develops.”¹³ In other words, the Commission hoped that over time competition would replace regulation as the primary means of setting prices. Granularly aligning regulation with competitive developments would provide incentives for all providers to invest in increasingly powerful facilities. As anticipated, the business broadband marketplace has flourished and facilities-based competitors have effectively supplied ever greater local access and transport capacity.

Since this proceeding was opened in 2005, we have witnessed a decade of explosive growth in business broadband competition, investment, and innovation. Business use of the Internet has grown at an extraordinary pace. According to Cisco Visual Networking Index data, U.S. Business Internet Protocol (IP) traffic grew from 3 exabytes per year in 2005 to 39 exabytes per year in 2015, a multiple of 13 and a compounded annual rate of 29 percent. See Chart 1. In

Local Telecom Industry (May 1, 2000), <http://www.nprg.com/Media/PDF/119-new-clec-report-tracks-over-200-facilities-based-clecs> (“From revenue of \$2 billion derived from access services in 1996, CLECs reported more than \$28.5 billion in 1999 derived from a plethora of services they now offer.”).

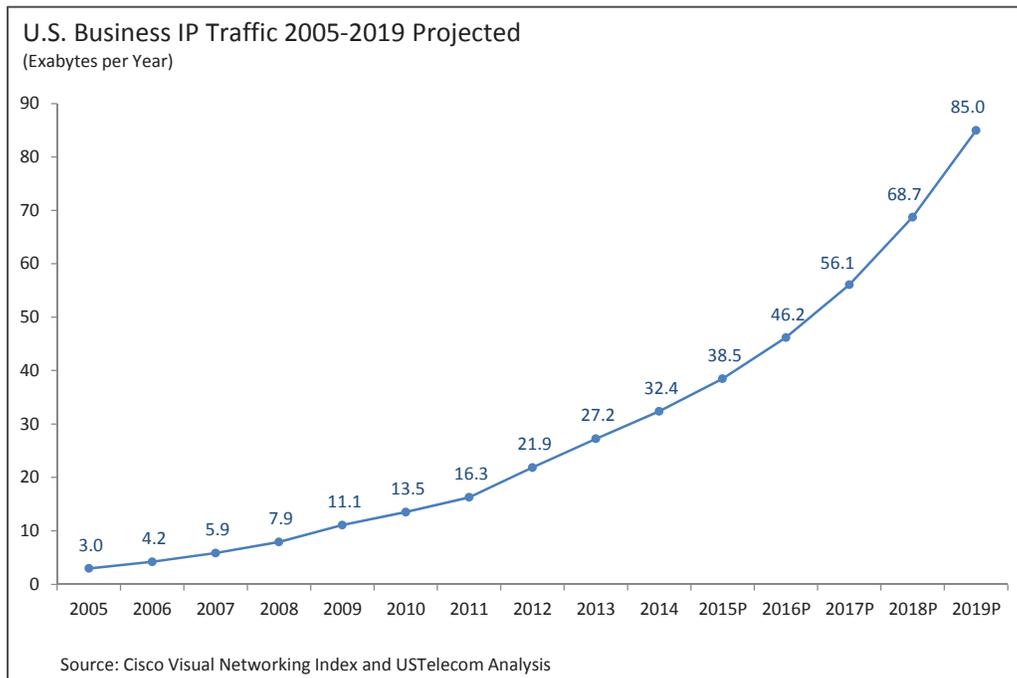
¹¹ See *Access Charge Reform, et al.*, Fifth Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 14221,14233, ¶ 19 (1999).

¹² *Id.* at 14224, ¶ 2.

¹³ *Id.*, ¶ 1.

the four years from 2015 to 2019, U.S. business IP traffic will more than double to 85 exabytes per year and will grow at a compounded annual rate of 22 percent.

Chart 1



Existing competitive providers have consolidated and grown stronger while new entrants, especially the cable operators, have stormed into the marketplace. As a result, innovative and more efficient fiber and Ethernet technologies are rapidly displacing the legacy time-division multiplexing (TDM) and copper networks that were designed for voice communications.

The rapidly expanding availability of affordable business broadband services further demonstrates the vitality and robustness of the broadband marketplace. Until fairly recently, most dedicated business services consisted of DS-1 or DS-3 special access services, which use antiquated TDM technology. When Ethernet and IP-based services were introduced, some feared that ILECs would not upgrade their networks to support these services, which offered lower

revenues and profits, because they would “cannibalize” traditional special access services. With hindsight, it is clear those concerns were seriously misplaced, as both ILECs and new entrants have rapidly deployed modern Ethernet networks.

For decades, business customers’ high-capacity needs were met by DS1 and DS3 technology because that was the only option. Over the last ten years, however, customers have been rapidly shifting away from that decades-old technology towards a multitude of options with a range of capacities and features. Among these options are much higher-speed and more cost-effective Ethernet services. This shift in technology is a result of and also is a driver of massive growth in total demand for data traffic, as customers require more and faster connections for an ever-increasing array of data-consuming applications. This rapidly increasing demand creates massive new opportunities for competitive providers. A large number of providers compete to offer Ethernet services, including cable operators and numerous CLECs, in addition to ILECs. Indeed, the second largest U.S. provider of Ethernet services is a CLEC, Level 3, ranking ahead of two of the three major ILECs (Verizon and CenturyLink).¹⁴

As demand for business broadband services continues to grow, Ethernet services will continue to grow and displace legacy services, more fiber will be deployed, and more buildings will be connected. Business broadband today exhibits all of the hallmarks of a healthy, vibrant, functioning marketplace: investment, innovation, growth of competitive supply, and entry by new and unexpected sources of competition. Expected ongoing growth will provide opportunities for all competitors to increase their footprints and compete for new business.

Moreover, the CLECs and mobile operators who purchase backhaul and other high-capacity special access services are not ordinary consumers, but sophisticated companies with

¹⁴ Vertical Systems Group, *Mid-Year 2015 U.S. Carrier Ethernet LEADERBOARD* (Aug. 24, 2015), <http://www.verticalsystems.com/vsglb/mid-year-2015-u-s-carrier-ethernet-leaderboard/>.

deep expertise in telecommunications and teams devoted to negotiating for lower prices and other favorable terms. For example, these companies routinely pay significantly less than the standard rates that incumbents are required to offer under tariffs that are filed with the FCC. These tariffed prices were originally set at price-cap regulation levels, which were designed to mimic a competitive market by limiting the profits providers were permitted to earn. Since those levels were set, prices have steadily decreased, and discounts have become the norm. Thus, there is no need for new or additional regulation of this thriving marketplace.

III. BUSINESS BROADBAND COMPETITION HAS GROWN DRAMATICALLY.

Despite the early history of ILECs as the dominant providers of voice services and early residential and business broadband services, competitors now have a significant share of these markets. Although some CLECs claim they are unable to compete for many business broadband customers, market realities show otherwise. According to one of Wall Street’s leading telecom analysts, “the telco’s business services revenues dropped like a stone during the Great Recession, and have continued to bleed in the years since,” due to “two primary factors: the transition to lower-priced [Internet Protocol]-based services and away from higher-priced copper based services, and the inroads made by cable and alternative fiber providers.”¹⁵

A. Fiber Investment by CLECs Has Steadily Increased.

Fiber-based CLECs provide extensive and growing competition to ILECs. These companies have successfully competed for tens of thousands of customers and billions in revenues, capturing a significant share of the existing marketplace. For many years, the CLEC industry was highly fractured, containing hundreds of regional and local carriers spread

¹⁵ Nick Del Deo, Craig Moffett, Cathy Yao & Jessica Moffett, MoffettNathanson Research, *The Phone Book: A Twenty Year View of ROIC Across the Telecommunications Landscape*, at 3 (May 18, 2015).

throughout the country, but through natural consolidation and organic growth, “Mega CLECs” have reshaped the marketplace, boasting footprints that stretch from coast to coast. In the past five years, for example, Level 3 acquired both Global Crossing (2011) and twtelecom (2014), making it the second largest Ethernet provider in the country, surpassing two of the three major ILECs, Verizon and Century Link, and trailing only AT&T.¹⁶ Similarly, since it was formed in 2006, another large CLEC with “operations in 48 states and the District of Columbia” has acquired at least a half-dozen other CLECs, and it states that it now has “a presence in virtually every city” and is “the provider of choice for four out of five Fortune 500 companies for data, voice, network and cloud solutions.”¹⁷ Another of the largest CLECS – Zayo – was formed from acquisitions of more than 34 companies worth about \$4.6 billion, and now operates fiber networks covering “over 300 metro markets” in “46 states, plus Washington D.C.”¹⁸ Other competitors – large and small – have also continued to expand and thrive in this marketplace.¹⁹

Unlike the cable companies that generally rely exclusively on their own networks and facilities, some CLECs have adopted business models that rely at least in part on their ability to

¹⁶ Vertical Systems Group, *Mid-Year 2015 U.S. Carrier Ethernet LEADERBOARD* (Aug. 24, 2015), <http://www.verticalsystems.com/vsglb/mid-year-2015-u-s-carrier-ethernet-leaderboard/>; Level 3 Communications, Inc., Form 10-K, at 5 (SEC filed Feb. 27, 2015), http://www.sec.gov/Archives/edgar/data/794323/000079432315000003/lvlt-123114_10k.htm.

¹⁷ Windstream Holdings, Inc., Form 10-K, at 3 (SEC filed Feb. 24, 2015), <http://www.sec.gov/Archives/edgar/data/1282266/000128226615000010/a201410k.htm>.

¹⁸ Zayo Group Holdings, Inc., Form 424(B)(4) Prospectus, at 2 (SEC filed Mar. 13, 2015), <http://www.sec.gov/Archives/edgar/data/1608249/000119312515090531/d877708d424b4.htm>; Zayo Company History, <http://investors.zayo.com/company-history.aspx>.

¹⁹ See, e.g., Birch Press Release, *Birch Intensifies Metro-Fiber Initiative, Adds 80,000 Buildings Across a 22-State Area* (Nov. 30, 2015) <http://www.birch.com/press-releases/birch-intensifies-metro-fiber-initiative> announcing that Birch added “another 80,000 new buildings across a 22-state area, bringing the total to more than 400,000 Metro-Fiber buildings nationwide”. See also Ex Parte Letter of Verizon, WC Docket No. 05-25, RM-10593 (filed Sep. 24, 2015) (describing how several CLECs have continued to expand their networks since the Commission’s 2013 data collection).

obtain high-capacity network facilities from ILECs. Those CLECs often deploy a fiber ring in a metropolitan area, and utilize their own facilities, leased ILEC circuits, or some combination thereof, to connect that ring to buildings or other end-user locations. Not surprisingly, the CLEC industry spends considerable time and resources asking regulators to lower the prices they pay ILECs for this access. In their advocacy, CLECs frequently spin tales of gloom and doom, claiming that unless the regulator modifies the terms of access to ILEC facilities, “competitive carriers would likely be unable to serve most of the business customer locations they serve today” and “[h]undreds of thousands of American businesses would lose their service provider and/or would be forced to pay higher prices.”²⁰ They claim that current policies are “chilling fiber deployment and the expansion of IP-based services to end users.”²¹

Outside of Washington, however, CLECs have told a very different story since 2013, one of economic prosperity and growth. One large CLEC, for example, reports steadily increasing enterprise service revenues and “growing market share.”²² Level 3 reported 10 percent growth in 2014 for its Core Network Services to enterprises.²³ XO has deployed “[o]ne of the largest Ethernet access networks reaching more than 2 million business locations” with customers that include “more than 50 percent of the Fortune 500 as well as the largest cable operators, mobile wireless companies and Internet-based content providers.”²⁴ Zayo Group recently reported “\$5.8

²⁰ Ex Parte Letter of COMPTTEL, GN Docket No. 13-5 (filed Apr. 2, 2014).

²¹ Ex Parte Letter of Level 3 Communications, LLC, WC Docket No. 05-25 (filed Sep. 23, 2015).

²² Windstream 3Q15 Earnings Presentation, at 15 (Nov. 5, 2015) (enterprise service revenues grew from \$477M in 3Q14 to \$501M in 3Q15) <http://abea-43pvyw.client.shareholder.com/investors/results.cfm?Quarter=3&Year=2015>.

²³ Level 3 Communications, Inc., Form 10-K, at 72 (SEC filed Feb. 27, 2015), http://www.sec.gov/Archives/edgar/data/794323/000079432315000003/lvlt-123114_10k.htm.

²⁴ XO Communications, *Wholesale Business*, <http://www.xo.com/solutions/business/wholesale/>; XO Communications, *Careers*, <http://www.xo.com/about/careers/>.

billion in revenue under contract with a weighted average remaining contract term of approximately 45 months.”²⁵ Similarly, Birch reported in January 2016 that “[t]he company expects Q4 ’15 organic sales to be approximately 118% higher than Q4 ’14 and approximately 80% higher than Q1 ’15” driven in significant part by “Metro-Fiber sales, which increased by 179% this quarter as compared to the first quarter of 2015.”²⁶ And CLECs are not merely saying they are succeeding, their investment dollars prove it. CLECs, like cable operators, are on a spending spree, extending their fiber networks to additional locations throughout the country, as discussed in Section IV below.

FCC data indicate the extent of progress CLECs have made in continually growing their businesses. For example, CLEC share of business voice connections continues its uninterrupted climb, and was greater than 45 percent at the end of 2013.²⁷ Based on trends, it is highly likely that by now CLEC share of business voice connections is greater than 50 percent. Moreover, given the historical focus of their businesses, it is even more likely that CLEC progress in the provision of high-capacity business data services is at least as strong as it is for business voice services.

²⁵ Zayo Group Holdings, Inc., Form 10-Q, at 29 (SEC filed May 13, 2015), http://www.sec.gov/Archives/edgar/data/1608249/000156459015004147/zayo-10q_20150331.htm.

²⁶ Birch Press Release, *Birch Announces Substantial Q4 ’15 Organic Sales Results* (Jan. 19, 2016), <http://www.birch.com/press-releases/birch-announces-substantial-q4-15-organic-sales-results>.

²⁷ FCC, *Local Telephone Competition: Status as of December 31, 2013*, at p. 13, Table 2 (Oct. 2014).

B. The Recent Fixed Wireless Surge Means Even More Competition.

The CLECs' familiar refrain is that they need low-priced access to ILEC networks because it is not economically feasible to extend fiber to serve every potential broadband customer. Deploying fiber, they claim, often entails costs such as running wires underground or digging up streets, and not every customer generates enough revenues to justify these up-front expenditures. But fiber is no longer the only option for providing business broadband services. Fixed wireless services are growing due to marked improvements in this technology over the past several years. In the words of one fixed wireless executive, "[t]his means that customers served by fixed wireless can enjoy the same bandwidth-intensive services as their wireline counterparts – and in a fraction of the time and at a much lower cost."²⁸

The main historical criticism of fixed wireless was that it required a clear line of sight for service. But those days are "long gone" as a result of recent "technological strides" that make the inability to obtain a clear line a rare exception, particularly in urban settings.²⁹ TelePacific, one of the many CLECs that has embraced fixed wireless technology, explains that obtaining a line of sight "[g]enerally . . . is not a problem as the base stations are deployed on the roofs of high-rise buildings, which have a commanding view over adjacent terrain. In some cases, trees and other buildings may cause obstructions, which should be overcome using a mast extension at the user's

²⁸ See Michelle Pampin, *Reality Check: Fixed Wireless Myth Busting*, RCR Wireless News (Jan. 20, 2015), <http://www.rcrwireless.com/20150120/opinion/reality-check/reality-check-fixed-wireless-myth-busting>.

²⁹ See *id.* ("Long gone are the days when line-of-sight was an imperative for fixed wireless installations. Buildings, trees, mountains and water are no match for the technological strides made in ensuring that communities can count on the connectivity fixed wireless broadband equipment provides. This capability ensures additional cost savings for fixed wireless network operators, who don't need to cut down trees or otherwise remove obstructions to set up a high-quality network.").

location or with a repeater.”³⁰ Nor are there any valid remaining concerns about the reliability of fixed wireless: “Naval officers and high-frequency traders alike rely on fixed wireless for their mission-critical data transactions and transmissions, so clearly it is no runner-up to wireline in terms of reliability.”³¹

One competitive provider believes in fixed wireless technology so much that, in October 2014, it acquired Business Only Broadband, which “operates [a] high-bandwidth fixed wireless network providing business-class Internet, private Ethernet, and managed services over microwave spectrum.”³² It now uses fixed wireless to provide “carrier-grade Ethernet and Internet-over-Ethernet connectivity” in Chicago, New York City, northern New Jersey, Milwaukee, Boston, and Philadelphia.³³ The provider’s enterprise executive vice president and chief marketing officer noted that by launching its fixed wireless solution, it is “able to provide enterprise businesses with a cost-effective alternative to fiber optic or traditional copper/coax

³⁰ TelePacific Communications, *Wireless Business Internet FAQ*, <http://www.telepacific.com/offer/data-network/internet-faq.asp>. See also Central Valley Broadband, *Installation Services and Other Questions Concerning the Service*, http://www.calwisp.com/html/installation_services.html (explaining that if you do not have a direct line-of-sight to a transmitter or relay tower, one option is to use point-to-point (PTP) networking, where the signal from the Internet antenna is bounced to a second set of antennas).

³¹ Michelle Pampin, *Reality Check: Fixed Wireless Myth Busting*, RCR Wireless News (Jan. 20, 2015), <http://www.rcrwireless.com/20150120/opinion/reality-check/reality-check-fixed-wireless-myth-busting>.

³² *Q3 2014 Windstream Holdings Inc. Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 110614a5502223.723 (Nov. 6, 2014) (statement by Windstream CEO Jeff Gardner); Windstream Communications News Release, *Windstream Acquires Chicago-based Fixed Wireless Provider* (Oct. 1, 2014), http://news.windstream.com/article_display.cfm?article_id=1575.

³³ Windstream News Release, *Windstream’s Fixed Wireless Solution Now Available in Philadelphia* (Aug. 19, 2015), http://news.windstream.com/article_display.cfm?article_id=1661.

networks, along with quick service installation, network diversity, and the high speed and security they need.”³⁴

Other CLECs also are using fixed wireless to extend their networks. XO markets its “fixed Broadband Wireless Access” as “an alternative last-mile and metro-area access solution that you can use as your primary network, providing the speed, performance and reliability your business demands – without direct fiber access.”³⁵ FiberTower states that “24GHz fully licensed fixed wireless connections can function as ‘wireless fiber extension cords’, extending the reach of existing fiber optic infrastructure and connecting additional customers, under-served office buildings and community anchor institutions.”³⁶ Cambium Networks describes its fixed wireless as “a proven technology used to extend fiber networks inexpensively to areas outside embedded plant reach,” offering “bandwidth comparable or greater than most physical media at a significantly lower cost.”³⁷

C. The Cable Industry Has Shifted Its Growth Strategy to Business Broadband.

Entry into the business broadband marketplace by the nation’s major cable operators – the same companies that increasingly have dominated the provision of broadband services to residential consumers – alone changes the marketplace dynamics. Once these companies

³⁴ *Id.* (statement by Windstream enterprise executive vice president and chief marketing officer Joseph Harding).

³⁵ XO Communications, *Fixed Broadband Wireless Access*, <http://www.xo.com/network-services/private-line-services/fixed-broadband-wireless-access/>.

³⁶ FiberTower News Release, *FiberTower Releases “Wireless Fiber” Fact Sheet for Montgomery County ultraGig Partnership* (Aug. 5, 2015), <http://www.fibertower.com/news-1/2015/8/4/fibertower-releases-wireless-fiber-fact-sheet-for-montgomery-county-ultragig-partnership>.

³⁷ Troy Conley, *Connecting Small and Mid-size Enterprise with Fixed Wireless*, Cambium Networks, <http://www.cambiumnetworks.com/blog/connecting-small-and-mid-size-enterprise-with-fixed-wireless/>.

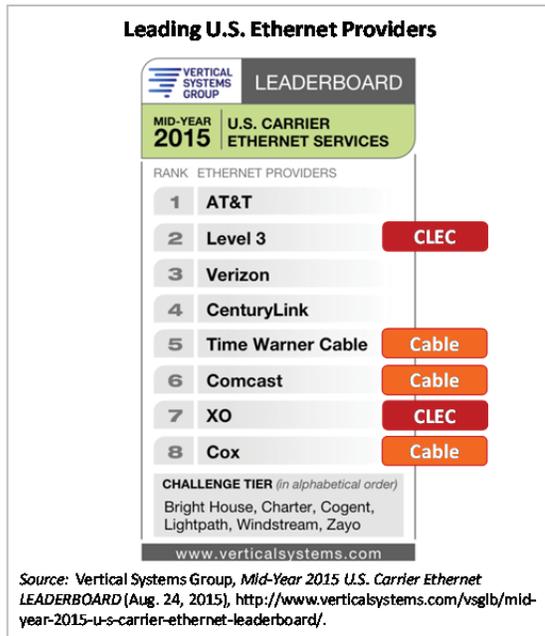
upgraded their networks to provide high-speed data to their core residential customers, they aggressively leveraged that effort to serve the business marketplace – first to serve small and medium-sized business customers, and more recently to go after the largest business customers as well. In September 2015, for example, Comcast formed a new business unit to target the Fortune 1000, announcing it will “continue to expand the network” and “will continue investing in Business Services expansion.”³⁸ The largest U.S. cable operators – Time Warner Cable, Comcast, and Cox – are now the fifth, sixth, and eighth largest providers of Ethernet services in the United States, respectively.³⁹ See Chart 2. As cable television subscriptions decline among ordinary consumers, the cable industry now views the business marketplace as a critical area for future growth.⁴⁰

³⁸ Comcast Business Press Release, *Comcast Business Announces New Unit Targeting Fortune 1000 Enterprises* (Sep. 16, 2015), <http://corporate.comcast.com/news-information/news-feed/comcast-business-announces-new-unit-targeting-fortune-1000-enterprises>.

³⁹ See Vertical Systems Group, *Mid-Year 2015 U.S. Carrier Ethernet LEADERBOARD* (Aug. 24, 2015), <http://www.verticalsystems.com/vsglb/mid-year-2015-u-s-carrier-ethernet-leaderboard/>.

⁴⁰ See, e.g., Alan Breznick, *Cable Gives Thanks for Business Services*, Light Reading (Nov. 27, 2015), <http://www.lightreading.com/cable/cable-business-services/cable-gives-thanks-for-business-services/a/d-id/719564> (“Cable operators are increasingly relying on commercial services for revenue growth as their residential video revenues flatten out and their residential broadband business faces fresh competitive and regulatory challenges.”); Mari Silbey, *Moffett: Business Services Critical to Cable Growth*, Light Reading (Dec. 1, 2015), <http://www.lightreading.com/cable/cable-business-services/moffett-business-services-critical-to-cable-growth/d/d-id/719612> (“In the near-term future, business services will be increasingly critical to cable’s continued success.”).

Chart 2



Cable operators have leveraged some natural advantages in the marketplace. Their large network footprints allow them to serve most business locations without significant incremental investment. As a map created by Time Warner Cable Business highlights, the nation’s big five cable operators “cover major population areas in [the] U.S.” – indeed, they cover approximately 85 percent of the U.S. population.⁴¹ Independent analysts have estimated that cable broadband networks currently pass more than three quarters of small and medium businesses in the U.S.⁴²

⁴¹ See Time Warner Cable Business Class Presentation, COMPTTEL PLUS Business Expo 2014 Spring, *What’s New and What’s Next in Cable Wholesale?*, at slide 21 (Mar. 17, 2014), <http://files.comptelplus.org/2014Spring/Slides/Cable%20Slides%20Final%203-15-14.pdf>; *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Sixteenth Report, 30 FCC Rcd 3253, Table 1: Homes Passed by MVPDs (in millions) & n.60 (2015) (*Sixteenth Annual Video Report*) (year-end 2013 homes passed numbers of Comcast, Time Warner, Charter, Cox, and Cablevision totaled (111.9) and divided by year-end 2013 DBS number (133.8), as FCC assumes DBS passes all homes, resulting in 83.6 percent).

⁴² Alan Breznick, Heavy Reading, *Presentation to The Future of Cable Business Services 2014* (Dec. 2, 2014) (“Cable industry’s HFC lines already passed more than three quarters of SMBs in U.S.”).

To serve the very largest business customers, cable operators have used fiber to extend their networks to hundreds of thousands of large office buildings where large businesses are concentrated. In addition, because many large enterprises have locations spread throughout the country and often want to buy services for all their locations from a single provider, cable operators have collaborated to form wholesale arrangements with each other and other competitive providers to serve locations beyond their footprints.⁴³ For example, in announcing that it had formed a new business unit to provide enterprise broadband services to Fortune 1000 enterprise customers, Comcast explained that it would offer service in major markets outside of its territory, such as Los Angeles and New York City, through partnerships with other cable providers, including Time Warner Cable and Cox.⁴⁴ In just the first nine months of 2015, Comcast signed up 25 to 30 enterprise customers with \$45 million in contracts.⁴⁵

Cable's expansive geographic coverage is the result of massive and ongoing investment. Over the past six years alone, from 2009 to 2015, cable companies have invested nearly \$15 billion to deploy and expand their business broadband offerings. See Chart 3. They continue to

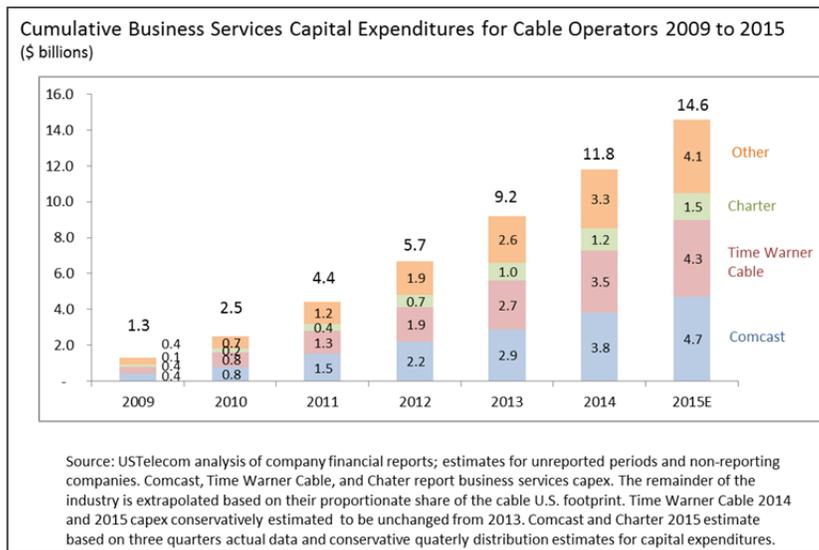
⁴³ SA Transcripts, *Time Warner Cable Q3 2015 Results – Earnings Call Transcript* (Oct. 29, 2015), available at <http://seekingalpha.com/article/3620806-time-warner-cable-twc-robert-d-marcus-on-q3-2015-results-earnings-call-transcript> (statement by Chairman and Chief Executive Officer Robert D. Marcus: “For our part, we are aggressively pursuing the Enterprise space, and, in fact, making decent headway on our own. The only catch is that that requires us to essentially rent network from other providers, whether it’s other MSOs or other telecom providers, to serve customers who have locations outside of our footprint, which in the case of Enterprise, is more often the case that not. That piece of the product is inherently less profitable than when we serve customers with our own network, but it’s still certainly an interesting business opportunity for us.”)

⁴⁴ Comcast Business Press Release, *Comcast Business Announces New Unit Targeting Fortune 1000 Enterprises* (Sep. 16, 2015), <http://corporate.comcast.com/news-information/news-feed/comcast-business-announces-new-unit-targeting-fortune-1000-enterprises>.

⁴⁵ CNBC, *Comcast Creates Enterprise Services Unit to Target Big Businesses* (Sep. 16, 2015), <http://www.cnbc.com/2015/09/16/comcast-creates-enterprise-services-unit-to-target-big-businesses.html>.

invest heavily and expand at a rapid rate, as discussed below in Section IV. Cable companies are now on the verge of deploying next-generation DOCSIS 3.1 technology. This new technology permits speeds up to 10Gbps, and cable operators have already begun testing 1 Gbps service for commercial deployment.⁴⁶ Comcast has stated that it will begin deploying this service in several parts of the country in 2016, noting that “the beauty of DOCSIS 3.1 is that it is backwards compatible, so no digging up streets or backyards. . . . DOCSIS 3.1 will work over our existing network as currently configured.”⁴⁷

Chart 3



Cable companies are enjoying the fruits of their substantial infrastructure investment.

Since 2009, cable business revenues have grown from approximately \$4 billion to an estimated

⁴⁶ See, e.g., Tony Werner, Executive Vice President & CTO in Technology, Comcast, *DOCSIS 3.1 Gigabit Class Modem Goes Online in Philadelphia* (Dec. 22, 2015), <http://corporate.comcast.com/comcast-voices/worlds-first-live-docsis-3-1-gigabit-class-modem-goes-online-in-philadelphia#.VnlhdfcTuHJ.twitter>.

⁴⁷ *Id.*

\$14 billion in 2015.⁴⁸ According to Time Warner Cable, cable operators already account for “more than 25 percent of U.S. Ethernet services.”⁴⁹ Cable companies also fully expect this rapid growth to continue. Comcast and Time Warner Cable have each reported revenue growth of 20 percent or more in 2015.⁵⁰ Comcast’s Chairman and CEO, Brian Roberts states that “[t]he consistency of the growth [in Business Services] has been amazing and [Comcast] ha[s] significant runway ahead.”⁵¹ Time Warner just reported its “17th consecutive quarter of year-

⁴⁸ USTelecom analysis of company financial reports and press releases for Charter, Comcast, Cox, and Time Warner. Estimates were necessary for unreported periods as follows: 2015 full year estimate for Cox is a straight-line estimate of 2014 and projected 2016 revenue; for three other cable operators the 2015 projection is based on three quarters of actual data and quarterly distributions of previous years' revenue. Non-reporting operators estimated based on extrapolation of cable footprint as measured by homes passed. *See Sixteenth Annual Video Report, supra* note 41.

⁴⁹ *See* Time Warner Cable Business Class Presentation, COMPTTEL PLUS Business Expo 2014 Spring, *What’s New and What’s Next in Cable Wholesale?*, at slide 18 (Mar. 17, 2014), <http://files.comptelplus.org/2014Spring/Slides/Cable%20Slides%20Final%203-15-14.pdf> (citing Heavy Reading Cable Industry Insider Report, *Cable Operators & Ethernet Series Market Share*).

⁵⁰ Comcast, *2nd Quarter 2015 Results* at 5 (July 23, 2015), http://files.shareholder.com/downloads/CMCSA/559455302x0x840662/3FD48B40-95E5-42A2-9B6C-AAABC026FA16/2Q15_Earnings_Presentation.pdf (Comcast business revenue “increased 20.4% to \$1.2Bn,” and “[p]enetration at ~25% for small and <10% for mid-sized businesses.”); Time Warner Cable, Inc., Form 10-K, at 36 (SEC filed Feb. 13, 2015), <http://d1lge852tjqow.cloudfront.net/NYSE-TWC/fc9807bb-a6ad-4388-aa61-ea5652ffd65f.pdf>; Time Warner Cable Press Release, *Time Warner Cable Reports 2014 Fourth-Quarter and Full-Year Results* (Jan. 29, 2015), <http://ir.timewarnercable.com/investor-relations/investor-news/financial-release-details/2015/Time-Warner-Cable-Reports-2014-Fourth-Quarter-and-Full-Year-Results/default.aspx>; *id.* (under “Selected Business Services Financial Results”) (reporting annual growth in business revenues of more than 20 percent overall, including a 60 percent increase in revenues from wholesale services provided to other carriers).

⁵¹ Thomson Reuters StreetEvents, *Edited Transcript: CMCSA – Q2 2015 Comcast Corp Earnings Call*, at 4 (July 23, 2015), http://files.shareholder.com/downloads/CMCSA/559455302x0x841029/430997F7-0B02-45F1-8DD8-5F1C44523352/Comcast_2Q15_Earnings_Transcript.pdf (statement by Comcast Corp. Chairman & CEO Brian Roberts).

over-year growth above \$100 million,” and is “still targeting at least \$5 billion in annual revenue in the Business Service area by 2018.”⁵²

Cable companies have succeeded not only in providing high-capacity services directly to business customers on a retail basis, but also in providing these services on a wholesale basis to other carriers. One of the biggest growth areas in the high-speed marketplace is the provision of so-called “backhaul” facilities that connect cell towers to wireless providers’ networks. The bandwidth required at each cell site is rapidly expanding as customers switch to new 4G services, and the number of cell sites proliferates as wireless providers struggle to keep pace with this demand.⁵³ Cable companies have aggressively pursued this opportunity. Cox is “serving all wireless service providers;”⁵⁴ Time Warner Cable has connected “17,000 lit customer cell sites”;⁵⁵ and Charter reports “a successful run with” “the cell tower business,”⁵⁶ which represents

⁵² SA Transcripts, *Time Warner Cable Q3 2015 Results – Earnings Call Transcript* (Oct. 29, 2015), <http://seekingalpha.com/article/3620806-time-warner-cable-twc-robert-d-marcus-on-q3-2015-results-earnings-call-transcript> (Statement by Senior Vice President, Controller, Chief Accounting Officer, and Acting Co-Chief Financial Officer William F. Osbourn, Jr.).

⁵³ See John Fletcher, *Tower Projections Through 2025*, SNL Kagan (July 13, 2015), <https://www.snl.com/InteractiveX/Article.aspx?cdid=A-33164108-14126> (July 2015 study by SNL Kagan projected that cell sites would grow from approximately 298,000 in 2014 to approximately 353,000 in 2019 and approximately 452,000 in 2025).

⁵⁴ See Cox Business Presentation, COMPTTEL PLUS Business Expo 2014 Spring, *What’s New and What’s Next in Cable Wholesale?*, at slide 5 (Mar. 17, 2014), <http://files.comptelplus.org/2014Spring/Slides/Cable%20Slides%20Final%203-15-14.pdf>.

⁵⁵ Time Warner Cable Business Class, Carrier Services, <https://business.timewarnercable.com/solutions/carrier-services.html>.

⁵⁶ *Q4 2014 Charter Communications Inc. Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 020515a5610607.707 (Feb. 5, 2015) (statement by Charter Communications Inc. CFO Chris Winfrey).

approximately 10 percent of total commercial revenues and drives about 20 percent of the company's growth.⁵⁷

Finally, cable companies also are thriving in providing “best efforts” business class Internet access services as a competitive alternative to traditional high-capacity dedicated services like traditional special access. Cable modem services are available virtually everywhere in the country – covering approximately 89 percent of the population, according to government data⁵⁸ and 93 percent of U.S. households according the cable industry itself.⁵⁹ In fact, the government data indicate that as of mid-2014, cable modem service using DOCSIS 3.0 technology was available to more than 80 percent of the population at 50 megabits per second or greater and 58 percent of households at 100 megabits per second or greater.⁶⁰ These best-efforts broadband services serve similar needs as special access serves for many business customers.

In fact, cable providers routinely market these services as competitive alternatives to traditional DS1 special access. In 2012, USTelecom filed a letter with the Commission in this proceeding demonstrating that cable “best efforts” business broadband services are aggressively marketed as alternatives to ILEC special access, stating that, “[e]ven a cursory review of cable

⁵⁷ *Charter at Deutsche Bank Leveraged Finance Conference – Final*, FD (Fair Disclosure) Wire, Transcript 100113a5186233.733 (Oct. 1, 2013) (statement by Charter Communications Inc. President & CEO Tom Rutledge).

⁵⁸ NTIA, *Broadband Statistics Report*, at 3 (Mar. 2015), [http://www.broadbandmap.gov/download/Technology by Speed.pdf](http://www.broadbandmap.gov/download/Technology%20by%20Speed.pdf) (national availability of cable broadband download speeds > 1.5 Mbps, as of June 2014).

⁵⁹ National Cable & Telecommunications Association, Industry Data, <https://www.ncta.com/industry-data>.

⁶⁰ NTIA, *Broadband Statistics Report*, at 4 (Mar. 2015), [http://www.broadbandmap.gov/download/Technology, by Speed.pdf](http://www.broadbandmap.gov/download/Technology%20by%20Speed.pdf) (national availability of cable broadband download speeds > 1.5 Mbps, as of June 2014). It is probable that DOCSIS 3.0 technology has been deployed even more widely in the year and a half since these data were published.

company web sites demonstrates that these companies heavily market non-dedicated broadband services to business customers, particularly small and mid-size businesses, by advertising them as superior substitutes to ILEC special access services.”⁶¹ The letter cited the Comcast Business Class website, including: a statement that “Business High Speed Internet speeds [are] up to 66x faster than a T1;” a statement describing even its lowest-speed “Starter” service level as “Faster and more reliable than T1;” a chart favorably comparing each of its levels of non-dedicated business services to T1 service; and a business customer endorsement stating, “[w]ith Comcast Business Class, we don’t need a T1 line[;] we can use the service that gives us quadruple the speed at a fraction of the price.”⁶² The letter also explained that each of the other major cable companies have similar “best efforts” services that they market as business-class alternatives to ILEC special access and pointed to a joint marketing effort of cable operators Comcast, Cox, Charter, and Time Warner Cable called “BusinessCableDirect.” Through this joint effort, the cable operators were marketing non-dedicated cable business services as a substitute for special access service (“Cable vs T1”), asserting that the services were: “[m]uch more affordable than T1;” “[e]asier to install and maintain than T1;” and as “secure & reliable as T1.”⁶³

The cable industry today continues to successfully market best-efforts business broadband services as an alternative to special access. Comcast, for example, advertises that “[w]ith speeds 64x faster than T1, advanced security, and dedicated national support, Business Internet provides the bandwidth, reliability and scalability your organization needs to help you be more competitive

⁶¹ Ex Parte Letter of USTelecom, WC Docket No. 05-25 (filed Nov. 29, 2012).

⁶² *Id.* at 2.

⁶³ *Id.*

and successful.”⁶⁴ The advertisement claims that Comcast Business Broadband – a best-efforts service with download speeds up to 50Mbps and upload speeds up to 10Mbps – is “[p]erfect for your branch offices, franchise locations, retail stores and remote locations.”⁶⁵

IV. THE 2013 DATA COLLECTION UNDERSTATES THE CURRENT STATE OF COMPETITION IN THE BUSINESS BROADBAND MARKETPLACE.

The 2013 data collection provides a snapshot of the market as it existed more than two years ago. But that snapshot alone will not enable a meaningful analysis of the current extent of business broadband competition. As discussed in detail above, the business broadband marketplace is dynamic and innovative, and investment in competitive facilities by non-ILECs is ongoing and has been robust since 2013.

An analysis of the FCC’s special access data collection by Compass Lexecon, an economic consulting firm, found that competitive facilities have been deployed across a wide portion of the U.S. and are capable of serving an overwhelming majority of business establishments.⁶⁶ Compass Lexecon further notes that deployment of additional infrastructure increases the intensity of competition in a geographic area.⁶⁷ In just the last two years, from 2014 and 2015, cable business services units have invested an estimated \$6 billion in capital.⁶⁸ During

⁶⁴ Comcast Corporation, *Business Internet for Branch Offices*, <http://business.comcast.com/ethernet/products/internet-for-branch-offices>.

⁶⁵ *Id.*

⁶⁶ M. Israel, D. Rubinfeld & G. Woroch, *Competitive Analysis of the FCC’s Special Access Data Collection*, WC Docket No. 05-25 & RM-10593, at 5 (filed Jan. 28, 2016) (“Competitors have deployed sunk facilities in virtually every census block accounting for virtually all special access demand.”).

⁶⁷ *Id.* at 6-8 (explaining that “when multiple carriers make abundant investments in sunk network facilities, competitive outcomes can be assured.” *Id.* at 8.).

⁶⁸ See Chart 3, *supra*.

the same period, competitive fiber providers invested an estimated \$9 billion.⁶⁹ That is at least \$15 billion in capital invested by cable and competitive fiber providers to extend and upgrade business broadband networks, including new metro fiber routes, extension of Ethernet and fiber networks, and new competitive connections to customer locations that is simply not reflected in the FCC's 2013 data collection. Likewise, ILECs have made substantial investments in facilities-based business broadband infrastructure in recent years.⁷⁰

Additionally, because the data represent only a snapshot in time, they do not demonstrate the competitive impact of such facilities investments over time, including market share gains made by non-ILECs. In the last two years, for example, more customers have migrated from legacy ILEC services to Ethernet services provided by CLECs and cable providers, and ILECs continue to lose market share to these competitors.⁷¹

A. Cable Has Moved Quickly Up Market in the Last Two Years.

Two years is a particularly long time when examining the strides the cable industry has made in the business broadband marketplace, where its role and presence is evolving at an extraordinarily rapid pace. It is no longer plausible to discount cable as a formidable competitor in the entire broadband market. From "best-efforts" broadband services at blazing fast speeds, to the most sophisticated Ethernet services available, and everything in between, the cable industry is effectively targeting all segments of the business broadband marketplace. Cable annual business services revenue has grown from \$10 billion per year in 2013 to \$14 billion per year in

⁶⁹ See USTelecom, Historical Broadband Provider Capex, <http://www.ustelecom.org/broadband-industry-stats/investment/historical-broadband-provider-capex>. The competitive fiber provider investment figure is based on data available from publicly reporting companies and industry trends.

⁷⁰ *Id.* ILECs have been investing at a pace of greater than \$20 billion per year in wireline networks; however, business and residential broadband are not reported separately.

⁷¹ *See supra* note 15 and accompanying text.

2015, an increase of \$4 billion in just the last two years.⁷² Again, this growth is not reflected in the 2013 data collection. As business revenues and market share grow from the cable industry's provision of service to small business customers, cable also has increasingly expanded its presence by moving up-market to serve medium-sized business customers, "large locals" such as schools and hospitals, and now the largest enterprises in the nation. Cable's up-market migration, including its latest efforts in the largest enterprise markets, is not adequately reflected in the 2013 data collection.

A series of recent studies by an independent third party have found that the cable industry can serve a significant majority of businesses in selected core-based statistical areas. The studies estimate cable network availability based on a Census Blocks-level analysis of where cable companies already have existing business voice customers. USTelecom commissioned the first such study, which analyzed the Atlanta market and found that cable business service was conservatively available to at least 78 percent of businesses.⁷³ Another study, commissioned by Verizon, examined five markets: Albany-Schenectady-Troy NY; Boston-Cambridge-Newton MA; Philadelphia-Camden-Wilmington PA-NJ-DE; Virginia Beach-Norfolk-Newport News VA; and Washington-Arlington-Alexandria DC-VA. It found a similarly strong cable presence, with cable service available to at least 77 percent of all businesses in the areas analyzed and a range of

⁷² USTelecom analysis of company financial reports and press releases for Charter, Comcast, Cox, and Time Warner. Estimates were necessary for unreported periods as follows: 2015 full year estimate for Cox is a straight-line estimate of 2014 and projected 2016 revenue; for three other cable operators the 2015 projection is based on three quarters of actual data and quarterly distributions of previous years' revenue. Non-reporting operators estimated based on extrapolation of cable footprint as measured by homes passed. *See Sixteenth Annual Video Report, supra* note 41.

⁷³ Ex Parte Letter of USTelecom, WC Docket No. 05-25, RM-10593 (filed Oct. 16, 2015) (citing attached analysis prepared by Arthur Menko, Business Planning, Inc., for USTelecom – October 2015).

74 percent to 83 percent.⁷⁴ Finally, USTelecom commissioned a second study covering 11 markets, which is attached to these comments. The markets studied were: Anchorage AK; Austin-Round Rock TX; Charleston WV; Cincinnati, OH-KY-IN; Honolulu HI; Kansas City MO-KS; Las Vegas-Henderson-Paradise NV; Omaha-Council Bluffs IA-NE; Portland-South Portland ME; Rochester NY; and Spokane WA. Cable service was found to be available to a weighted average of at least 69 percent of businesses in the areas analyzed, with a range of 55 percent in Kansas City MO-KS to 86 percent in Las Vegas-Henderson-Paradise NV.⁷⁵

These granular studies are based on data from 2015, which are more current than the 2013 data collection. Nonetheless, the analyses are conservative because they only reflect availability in areas where voice customers were specifically identified. Where cable providers have existing voice customers is a conservative proxy for overall business broadband availability since network availability extends beyond only those customers that have already signed up for voice service and cable voice is provided over networks designed to provide data services, and because it is likely that there are businesses or other locations that get data-only (or video) service without voice from the cable operator.⁷⁶

⁷⁴ Ex Parte Letter of Verizon, WC Docket 05-25, RM-10593 (filed Jan. 14, 2015) (attaching Declaration of Arthur Menko). The market-specific results are: Albany NY 77.1 percent; Boston MA 79.7 percent; Philadelphia PA 73.9 percent; Virginia Beach VA 82.5 percent; and Washington DC 76.6 percent.

⁷⁵ See Appendix (prepared by Arthur Menko of Business Planning, Inc., for USTelecom – December 2015). Market-specific results were: Anchorage AK 81.0 percent; Austin-Round Rock TX 73.3 percent; Charleston WV 61.4 percent; Cincinnati OH-KY-IN 61.1 percent; Honolulu HI 63.1 percent; Kansas City MO-KS 55.3 percent; Las Vegas-Henderson-Paradise NV 85.6 percent; Omaha-Council Bluffs IA-NE 78.4 percent; Portland-South Portland ME 71.3 percent; Rochester NY 69.1 percent; and Spokane WA 64.1 percent.

⁷⁶ In assessing the conservative nature of the analysis, Business Planning, Inc., demonstrated as an example that cable availability in the Kansas City MO-KS CBSA would rise from 55.3 percent to 77.6 percent if data-only cable business customers were added to the voice operators. *Id.*

Since 2013, there is evidence that cable operators have been rapidly expanding their service offerings, which can be delivered over fiber or hybrid fiber-coaxial cable networks.⁷⁷ Time Warner Cable, for example, recently told investment analysts that “[t]hrough the first nine months of [2015], we added 50,000 commercial buildings to our network, representing almost \$750 million in serviceable annual opportunity.”⁷⁸ Charter claims that it is expanding Ethernet capability “to nearly 300 new companies/buildings in Charter markets every month.”⁷⁹ Comcast announced a series of fiber and Ethernet service expansions to business districts in range of geographic areas in 2015 and early 2016. A non-exhaustive list of examples includes Huntsville, Alabama;⁸⁰ Redmond, Washington;⁸¹ Modesto, California;⁸² Napa, California;⁸³ San Ramon,

⁷⁷ See Alan Breznick, *Heavy Reading, Ethernet Over DOCSIS: Drivers, Technology & Applications* (Jan. 2009) at pp. 5, 9 (stating that “cable providers can offer carrier-grade Ethernet access over a traditional DOCSIS-enabled HFC [hybrid fiber-coax] network” using a technology known as “Layer 2 Tunneling Protocol Version 3”).

⁷⁸ SA Transcripts, *Time Warner Cable Q3 2015 Results – Earnings Call Transcript* (Oct. 29, 2015), <http://seekingalpha.com/article/3620806-time-warner-cable-twc-robert-d-marcus-on-q3-2015-results-earnings-call-transcript> (statement by Senior Vice President, Treasurer, and Acting Co-Chief Financial Officer Matthew Siegel).

⁷⁹ See Charter Business Presentation, COMPTTEL PLUS Business Expo 2014 Spring, *What’s New and What’s Next in Cable Wholesale?*, at slide 28 (Mar. 17, 2014), <http://files.comptelplus.org/2014Spring/Slides/Cable%20Slides%20Final%203-15-14.pdf>.

⁸⁰ Fierce Telecom, *Comcast Business builds 10G fiber network to serve Huntsville, Ala. business sector* (Jan. 12, 2016), <http://www.fiercetelecom.com/story/comcast-business-builds-10g-fiber-network-serve-huntsville-ala-business-sec/2016-01-12>.

⁸¹ Comcast Business Press Release, *Comcast Business Extends Ethernet Network to Redmond-Woodinville Business District* (Nov. 5, 2015), https://business.comcast.com/docs/default-source/press-releases/woodinville_redmond_probuild_release_v12final.pdf?sfvrsn=0.

⁸² Comcast Business Press Release, *Comcast Business Extends Fiber-Based Network to Modesto Business Park* (Nov. 10, 2015), <http://comcastcalifornia.mediaroom.com/index.php?s=43&item=821>.

⁸³ Comcast Business Press Release, *Comcast Launches New Fiber-Based Network and Internet and Phone Services at Two Napa Business Parks to Support Local Business Innovation and Productivity* (Nov. 9, 2015), <http://comcastcalifornia.mediaroom.com/index.php?s=43&item=823>.

California;⁸⁴ Salinas, California;⁸⁵ Salt Lake City, Utah;⁸⁶ Chico, California;⁸⁷ Twin Cities, Minnesota⁸⁸ Denver, Colorado;⁸⁹ the East Bay Region of California;⁹⁰ New London, Connecticut;⁹¹ Sullivan County, New Hampshire and Windsor County, Vermont;⁹² Portland,

⁸⁴ Comcast Business Press Release, *Comcast Business Extends Fiber-Based Network to San Ramon Business Park* (Oct. 28, 2015), <http://comcastcalifornia.mediaroom.com/index.php?s=43&item=819>.

⁸⁵ Comcast Business Press Release, *Comcast Supports Local Business Innovation and Productivity with New High Speed Connections for Salinas Municipal Airport Business District* (Jul. 28, 2015), http://business.comcast.com/docs/default-source/press-releases/comcast_business_salinas_pro_build_release.pdf?sfvrsn=0.

⁸⁶ Comcast Business Press Release, *Comcast Business Extends Advanced Fiber-Based Network to Sugar House Business District* (Nov. 19, 2015), https://business.comcast.com/docs/default-source/press-releases/comcast_sugar_house_press_release_v5_final.pdf?sfvrsn=0; Comcast Business Press Release, *New DataVaulting Service Based Inside Granite Mountain Combines Virtual with Physical Security* (Jul. 22, 2015), https://business.comcast.com/docs/default-source/press-releases/comcastperpetualstoragepressrelease_vfinal_7-22-15.pdf?sfvrsn=0.

⁸⁷ Comcast Business Press Release, *Comcast Fosters Chico Local Business Innovation and Productivity By Extending Fiber Network and Communications Services for Meyers Business Park* (Aug. 25, 2015), <http://comcastcalifornia.mediaroom.com/index.php?s=43&item=810>.

⁸⁸ Fierce Telecom, *Comcast Business Expands Network in Twin Cities* (Oct. 8, 2015), <http://www.fiercetelecom.com/press-releases/comcast-business-expands-network-twin-cities>.

⁸⁹ Fierce Telecom, *Comcast Business invests \$10M in Denver fiber network* (Apr. 8, 2015), <http://www.fiercetelecom.com/story/comcast-business-invests-10m-denver-fiber-network/2015-04-08>.

⁹⁰ Fierce Telecom, *Comcast beefs up fiber, Ethernet reach in California's East Bay region* (Apr. 6, 2015), <http://www.fiercetelecom.com/story/comcast-beefs-fiber-ethernet-reach-californias-east-bay-region/2015-04-06>.

⁹¹ Fierce Telecom, *Comcast Business brings 10G Ethernet to New London County, Connecticut, businesses* (Mar. 30, 2015), <http://www.fiercetelecom.com/story/comcast-business-brings-10g-ethernet-new-london-county-connecticut-business/2015-03-30>.

⁹² Comcast Business Press Release, *Comcast Business Extends Fiber Network To Bring Multi-Gigabit Ethernet Services to Three Communities in Sullivan County, New Hampshire, and Windsor County, Vermont* (Mar. 2, 2015), http://business.comcast.com/docs/default-source/press-releases/comcast_2015-03-02_claremont_nh_ethernet_expansion_vfinal-v6.pdf?sfvrsn=0.

Oregon;⁹³ and Albuquerque and Santa Fe, New Mexico.⁹⁴ Comcast has become especially aggressive in expanding Ethernet after attaining Carrier Ethernet 2.0 certification from the Metro Ethernet Forum (MEF), which has developed standards for carrier-class Ethernet service.⁹⁵ Brighthouse, Cox, Spectrum Business (Charter), Time Warner Cable are also among the cable operators who have attained MEF certifications.⁹⁶

Cable operators provide both retail and wholesale Ethernet services. Wholesale has been a growth driver for cable business services, including mobile backhaul and carrier services. Market research firm Frost & Sullivan has noted that “[c]able MSOs have been increasing their share in the retail Ethernet services market with a combination of Ethernet over HFC and Ethernet over Fiber services. However, the past couple of years have seen MSOs become competitive in the wholesale Ethernet space....”⁹⁷

Moreover, cable companies continue to expand their efforts by targeting ever larger business customers. Among the most significant new developments in business broadband marketplace in recent years took place in late 2015, when Comcast announced “the creation of a new Enterprise Services unit that will target Fortune 1000 companies and other large enterprises

⁹³ Comcast Business Press Release, *Comcast Business Expands Fiber Network to Businesses Moving into Portland’s Central Eastside* (May 12, 2015), http://business.comcast.com/docs/default-source/press-releases/comcast_business_portland_central_eastside_revitalization_press_release_vfinal.pdf?sfvrsn=0.

⁹⁴ Fierce Telecom, Comcast takes on CenturyLink in Albuquerque, Santa Fe with fiber network extension (Nov. 14, 2014), <http://www.fiercetelecom.com/story/comcast-takes-centurylink-albuquerque-santa-fe-fiber-network-extension/2014-11-20>.

⁹⁵ See MEF, Carrier Ethernet and CE 2.0, <https://www.mef.net/carrier-ethernet-services/carrier-ethernet-and-ce-2-0>.

⁹⁶ See MEF certification registry, <https://www.mef.net/certification/services-certification-registry>.

⁹⁷ Frost & Sullivan, Wholesale Carrier Ethernet Services Market Update, 2015 (Aug. 2015).

that have multiple locations nationwide.”⁹⁸ In its announcement, Comcast stated, “Our entry into this segment of the market will introduce new innovation and choice.”⁹⁹

Comcast’s push into the enterprise marketplace will also expand the cable industry’s focus on wholesale opportunities and capabilities. In its announcement, Comcast revealed that it would be utilizing wholesale arrangements with other cable companies to effectively extend the facilities-based cable competitive footprint, noting in its announcement, “Comcast Business has also reached network agreements with leading cable operators making it easier to serve national clients with local offices and locations that span different geographies.”¹⁰⁰

Cable is already having success winning customers in the enterprise marketplace, including large contracts with multi-location businesses. In Comcast’s third quarter call with investors, a senior Comcast Official stated, “we are targeting the Fortune 1000 companies and other large enterprises that have 300 locations or more. And if you think about it, this type of enterprise customer, we are looking at entities with branches such as banks, restaurants retailers and those are all small customers like an assembly of small customers. So, we have managed

⁹⁸ Comcast Press Release, *Comcast Business Announces New Unit Targeting Fortune 1000 Enterprises* (Sep. 15, 2015).

⁹⁹ *Id.*

¹⁰⁰ *Id.* See also Shalini Ramachandran, The Wall Street Journal, “Comcast to Sell Data Services to Big Firms Nationwide” (Sep. 16, 2015) (stating, “Comcast says it is seeking to bring together the cable industry to provide a meaningful alternative to AT&T and Verizon, the longtime incumbents in the market for selling network services to businesses. ... Through these new wholesale arrangements, Comcast hopes that a bank with locations outside of Comcast’s service area, for instance, can still sign up with Comcast and receive service at all its locations. Comcast would pay wholesale fees to other operators to service business locations outside of Comcast’s footprint.”)

services to more than 20 large enterprise customers already and have already signed multiple eight figure deals.”¹⁰¹

None of these recent developments with respect to cable Ethernet expansion, greater wholesale focus, and entry into the large enterprise marketplace for business broadband services, are reflected in the 2013 data collection.

B. Competitive Fiber Providers Have Deployed Fiber and Connected Buildings in the Last Two Years.

Competitive fiber providers, including the new MegaCLECs, have also been investing billions of dollars to expand networks and win new customers. To cite just a few examples, one large CLEC recently announced “12 new 100G markets including: Buffalo, Denver, Houston, San Antonio, Oklahoma City, and Tulsa” and “plans to expand 100G service to seven additional markets, including Minneapolis and Louisville in September” in 2015.¹⁰² XO in 2014 launched a \$500 million initiative to grow its nationwide network, which to date has completed fiber construction projects into nearly 550 enterprise buildings across 25 regional markets, with additional on-net connections to be added throughout 2016.¹⁰³ In 2015 alone, Birch Communications announced in September that it had expanded its Metro-Fiber services to add

¹⁰¹ Thomson Reuters Street Events, CMCSA Q3 2015 Comcast Corp. Earnings Call (Oct. 27, 2015), http://files.shareholder.com/downloads/CMCSA/1008307614x0x856825/3E85ADAC-D861-4ADC-BEF9-CE4C2D07D6FD/Comcast_3Q15_Earnings_Transcript.pdf.

¹⁰² Windstream News Release, *Windstream and Infinera Partnership Drives Windstream Carrier Solutions' Leadership in the Wave Transport Market* (Aug. 12, 2015), http://news.windstream.com/article_display.cfm?article_id=1659.

¹⁰³ Sean Buckley, *XO Takes Success-Based Approach to On-Net Fiber Buildouts*, FierceTelecom (Sep. 3, 2015), http://www.fiercetelecom.com/story/xo-takes-success-based-approach-net-fiber-buildouts/2015-09-03?utm_medium=nl&utm_source=internal; Sean Buckley, *XO Invades CenturyLink's Turf by Extending Fiber into 100 Salt Lake City Buildings*, FierceTelecom (Aug. 28, 2015), http://www.fiercetelecom.com/story/xo-invades-centurylinks-turf-extending-fiber-100-salt-lake-city-buildings/2015-08-28?utm_medium=nl&utm_source=internal.

“more than 320,000 new buildings across 12 major U.S. metro markets”¹⁰⁴ and then announced in November that it had added “another 80,000 new buildings across a 22-state area, bringing the total to more than 400,000 Metro-Fiber buildings nationwide.”¹⁰⁵ Alpheus announced in August 2015 “its fourth major fiber network expansion in the past 12 months,” adding “over 1,000 new near-net buildings for a total of approximately 7,000 near-net buildings in Texas.”¹⁰⁶

Zayo provides an instructive example of how CLECs are leveraging new sources of demand to serve a range of customers – such as enterprises, cellular network providers, and data centers – with new fiber deployments. Zayo has recently announced large local network expansions in areas around the country. A non-exhaustive list of its local network expansions announced over the last couple years includes: Seattle, Washington;¹⁰⁷ Nashville, Tennessee;¹⁰⁸ Atlanta, Georgia;¹⁰⁹ Northern California;¹¹⁰ Kansas City, Kansas/Missouri;¹¹¹ and Boulder

¹⁰⁴ Birch Press Release, *Birch Continues Nationwide Expansion of Metro-Fiber Footprint* (Sep. 28, 2015), available at <http://www.fiercetelecom.com/press-releases/birch-continues-nationwide-expansion-metro-fiber-footprint>.

¹⁰⁵ Birch Press Release, *Birch Intensifies Metro-Fiber Initiative, Adds 80,000 Buildings Across a 22-State Area* (Nov. 30, 2015), <http://www.birch.com/press-releases/birch-intensifies-metro-fiber-initiative>.

¹⁰⁶ Alpheus Communications News Release, *Alpheus Communications’ Latest Network Expansion Gives New Fiber Last-Mile Option to Thousands of Buildings and Businesses in Texas* (Aug. 13, 2015), <http://www.alpheus.net/press-releases/alpheus-communications-latest-network-expansion-gives-new-fiber-last-mile-option-to-thousands-of-buildings-and-businesses-in-texas/>.

¹⁰⁷ Zayo Press Release, *Zayo Continues to Execute Mobile Infrastructure Strategy in Seattle* (Jul. 14, 2015), <http://www.zayo.com/news/zayo-continues-to-execute-mobile-infrastructure-strategy-in-seattle>.

¹⁰⁸ Zayo Press Release, *Zayo to Significantly Expand Fiber-to-the-Tower Footprint in Nashville* (Jul. 22, 2015), <http://www.businesswire.com/news/home/20150722005491/en/Zayo-Significantly-Expand-Fiber-to-the-Tower-Footprint-Nashville#.VbpJxWfbJ01>.

¹⁰⁹ Zayo Press Release, *Zayo to Significantly Expand Fiber-to-the-Tower Footprint in Atlanta* (Dec. 2, 2015), <http://www.zayo.com/news/zayo-to-significantly-expand-fiber-to-the-tower-footprint-in-atlanta/>.

Colorado.¹¹² Zayo also builds long haul inter-city fiber routes.¹¹³ Often, Zayo will expand its network in a particular geography based on winning a long term contract – as much as twenty years – with a large anchor client, such as a wireless company purchasing cell site backhaul or a data center. Then, Zayo leverages its network expansions based on an initial anchor client to serve additional enterprise and carrier customers near the network.¹¹⁴

V. CONCLUSION.

Competition in the business broadband marketplace has steadily increased over the last thirty years, and today, the business broadband marketplace has every indicia of a market that is functioning successfully. The disruptive entry of cable operators, the formation of Mega CLECs, new technologies, the surge of fixed wireless, and the rapid growth in bandwidth needs have all

¹¹⁰ Zayo Press Release, *Zayo Invests in Fiber Network Expansion in Northern California* (Apr. 2, 2014), <http://www.zayo.com/news/zayo-invests-in-fiber-network-expansion-in-northern-california-3/>.

¹¹¹ Zayo Press Release, *Zayo Expands Dark Fiber and Lit Services North of Kansas City* (Mar. 5, 2014), <http://www.zayo.com/news/zayo-expands-dark-fiber-and-lit-services-north-of-kansas-city-3/>.

¹¹² Zayo Press Release, *Zayo Announces Network Expansion in Boulder, Colorado* (Oct. 21, 2014), <http://www.zayo.com/news/zayo-announces-network-expansion-in-boulder-colo-3/>.

¹¹³ A non-exhaustive set of examples of recently announced deployments includes: Zayo Press Release, *Zayo Extends Long Haul Dark Fiber Route from Phoenix to Dallas* (Apr. 9, 2015), <http://www.zayo.com/news/zayo-extends-long-haul-dark-fiber-route-from-phoenix-to-dallas-3/>; Zayo Press Release, *Zayo Announces New Long Haul Dark Fiber Route from Atlanta to Washington, D.C.* (Jun. 2, 2015), <http://www.zayo.com/news/zayo-announces-new-long-haul-dark-fiber-route-from-atlanta-to-washington-d-c-2/>; Zayo Press Release, *Zayo Expands Dark Fiber Offering Between Omaha and Dallas* (Dec. 1, 2014), <http://www.zayo.com/news/zayo-expands-dark-fiber-offering-between-omaha-and-dallas-3/>; Zayo Press Release, *Zayo's New Omaha to Dallas Fiber Route Attracts Seven New Customers* (Sep. 16, 2015), <http://www.zayo.com/news/zayos-new-omaha-to-dallas-fiber-route-attracts-seven-new-customers-2/>; Zayo Press Release, *Zayo Adds Diverse 100G Wavelength Network from New York to Ashburn, Va.* (Mar. 27, 2014), <http://www.zayo.com/news/zayo-adds-diverse-100g-wavelength-network-from-new-york-to-ashburn-va-3/>.

¹¹⁴ Zayo Press Release, *Zayo Leverages Growing Fiber-to-the-Tower Footprint* (Aug. 18, 2015), <http://www.zayo.com/news/zayo-leverages-growing-fiber-to-the-tower-footprint-2/>.

boosted competition in this space. New technologies like Ethernet and IP-based services are technologically superior to, and more economically efficient than, legacy DS1 and DS3 special access services. For comparable bandwidth, Ethernet services offer savings as high as 80 percent or more as compared to the traditional TDM-based special access services they replace.¹¹⁵

Over the years, the FCC has carefully eased regulation of business broadband services, reflecting the fact that the marketplace has responded as expected – multiple, intermodal providers are investing in facilities and competing for business customers throughout the country. The FCC’s charge is to protect the public interest and competition, not individual competitors or particular business models.¹¹⁶ Many competitors in the marketplace have demonstrated the ability to succeed under the current framework developed in 1999. Cable companies and some CLECs, for example, have achieved great success, not by leasing from the ILECs, but by investing billions in upgrading and expanding their own networks. These companies, like the traditional “incumbent” companies, have made massive investments in modern facilities to serve business customers. The Commission should make every effort to recognize the enormous

¹¹⁵ AGC Research, The Business Case for Ethernet Services, White Paper Sponsored by Time Warner Cable Business Class, at p. 4, Figure 1 (2014), <http://ethernet.network-needs.com/documents/Business%20Case%20for%20Ethernet%20Services%202014.pdf>.

¹¹⁶ Compare, e.g., *Brown Shoe Co. v. United States*, 370 U.S. 294, 320, 344 (1962) (“antitrust laws protect competition not competitors”).

investment that has occurred under the 1999 Pricing Flexibility Framework and to encourage the further investments needed by today's businesses by adopting policies that incent all providers to invest in modern fiber and IP facilities.

Respectfully submitted,

UNITED STATES TELECOM ASSOCIATION



By: _____

Jonathan Banks
Patrick Brogan
Diane Griffin Holland
Robert Mayer

607 14th Street, NW, Suite 400
Washington, D.C. 20005
(202) 326-7300

January 28, 2016

APPENDIX

APPENDIX

Methodology for Identifying Local Competitive Commercial Infrastructure: Cable Modem High Capacity Services

The objective of the study is to identify the Cable commercial infrastructure serving businesses in eleven core-based statistical areas (CBSAs), with a focus on Cable providers that could provide high speed data services. The eleven CBSAs chosen represent areas across the nation. For this study, we analyzed the following CBSA markets: Anchorage AK, Austin-Round Rock TX, Charleston WV, Cincinnati OH-KY-IN, Honolulu HI, Kansas City MO-KS, Las Vegas-Henderson-Paradise NV, Omaha-Council Bluffs IA-NE, Portland-South Portland ME, Rochester NY and Spokane WA. We discuss below the information, sources, and methodologies used in these findings.

To identify commercial cable providers and their infrastructure, we used a current list of businesses, locations and phone numbers from InfoUSA (November 23, 2015) for these eleven CBSAs. We passed the phone number of each business found in these CBSAs with a street address through up-to-date LNP (Local Number Portability for December 11, 2015) and December 2015 LERG (Local Exchange Routing Guide) databases to determine the voice provider of record. We binned each business and its voice provider of record by its Census Block location. CBSA-wide results are derived by aggregating individual Census Blocks. If a cable provider was found to be an active voice provider of record for at least one business in a given Census Block, it was determined that the cable operator has existing commercial infrastructure in the Census Block.

In order to include only cable facilities that are capable of providing business class services, we determined that it was appropriate to examine the extent to which cable has deployed DOCSIS 3.0 or better technology. According to the December 2014 National Broadband Map (using the FCC's Form 477), we only included Cable Companies where they provide DOCSIS 3.0 service.

Since Census Blocks are granular, with on average 4.1 firms in census blocks where there are businesses in the eleven CBSAs studied, it is assumed that if there is one Cable business voice subscriber in a Census Block with DOCSIS 3.0, then they can serve all of the businesses in that Census Block. To calculate the commercial cable coverage ratio for each CBSA found through voice subscribership findings one must first sum all of the businesses found in Census Blocks that have Cable Business voice services and then divide that by all of the businesses found in those CBSAs.

This voice approach only accounts for those businesses that have adopted voice services from Cable Companies. This methodology undercounts those businesses that subscribe to cable data or video services, but not voice services.¹

¹ Typically cable providers serve more commercial data customers than voice customers and therefore we are undercounting the number of cable business subscribers and census blocks that are currently deployed to serve firms. For example in Charter's Earnings Results for 3Q 2015, for every commercial voice customer Charter reports it has 1.65 commercial internet customer relationships. Likewise in Time Warner Cable's Earnings Results for 3Q 2015, for every business voice subscriber Time Warner Cable reports it has 1.71 business high speed data subscribers. As a demonstration, we have added areas and associated businesses in the Kansas City CBSA where cable providers indicate that business or government broadband service is available according to the FCC's Form 477 broadband deployment files. In the Kansas City CBSA, cable is capable of providing voice subscriber business broadband services to 55.3% of the businesses, and an incremental 22.3% of businesses found in other Form 477 commercial broadband deployed census blocks, producing a total business voice and data coverage ratio of 77.6%.

Preliminary Results

Overall, for all eleven CBSAs, 69.3% of businesses are located in Census Blocks where a cable operator has been identified as actively providing voice service to at least one business customer with DOCSIS 3.0 or better technology. For the individual CBSAs analyzed in this study, based on this methodology:

- In the Anchorage AK CBSA, cable is capable of providing business broadband services to at least 81.0% of the businesses in the CBSA.
- In the Austin-Round Rock TX CBSA, cable is capable of providing business broadband services to at least 73.3% of the businesses in the CBSA.
- In the Charleston WV CBSA, cable is capable of providing business broadband services to at least 61.4% of the businesses in the CBSA.
- In the Cincinnati OH-KY-IN CBSA, cable is capable of providing business broadband services to at least 61.1% of the businesses in the CBSA.
- In the Honolulu HI CBSA, cable is capable of providing business broadband services to at least 63.1% of the businesses in the CBSA.
- In the Kansas City MO-KS CBSA,¹ cable is capable of providing business broadband services to at least 55.3% of the businesses in the CBSA.
- In the Las Vegas-Henderson-Paradise NV CBSA, cable is capable of providing business broadband services to at least 85.6% of the businesses in the CBSA.
- In the Omaha-Council Bluffs IA-NE CBSA, cable is capable of providing business broadband services to at least 78.4% of the businesses in the CBSA.
- In the Portland-South Portland ME CBSA, cable is capable of providing business broadband services to at least 71.3% of the businesses in the CBSA.
- In the Rochester NY CBSA, cable is capable of providing business broadband services to at least 69.1% of the businesses in the CBSA.
- In the Spokane WA CBSA, cable is capable of providing business broadband services to at least 64.1% of the businesses in the CBSA.

Summary of Results by CBSA

Minimum Percentage of Businesses with Cable Business Infrastructure Available

CBSA	Percentage	Major Cable MSO
Total - 11 CBSA Markets	69.3%	Multiple MSOs
Anchorage AK	81.0%	GCI
Austin-Round Rock TX	73.3%	Time Warner Cable, Suddenlink
Charleston WV	61.4%	Suddenlink
Cincinnati OH-KY-IN	61.1%	Time Warner Cable
Honolulu HI	63.1%	Time Warner Cable
Kansas City MO-KS ¹	55.3%	Time Warner Cable, Comcast, Mediacom
Las Vegas-Henderson NV	85.6%	Cox
Omaha-Council Bluffs IA-NE	78.4%	Cox, Charter
Portland-South Portland ME	71.3%	Time Warner Cable, Comcast
Rochester NY	69.1%	Time Warner Cable
Spokane WA	64.1%	Comcast