

APPENDIX

**PROFILES OF SELECTED
COMPETITIVE ENTERPRISE BROADBAND
PROVIDERS**

APPENDIX

**PROFILES OF SELECTED
COMPETITIVE ENTERPRISE BROADBAND PROVIDERS**

A. Cable Operators 1

1. Comcast Business 1

2. Time Warner Cable Business..... 4

3. Cox Business..... 6

4. Spectrum Business (formerly Charter Business) 8

5. Cablevision Lightpath..... 10

6. Bright House Networks..... 11

7. Suddenlink 12

8. WOW! Business..... 13

B. Fiber-Based Competitive Providers 14

1. Level 3 14

2. Windstream..... 15

3. XO..... 16

4. Zayo Group..... 18

5. EarthLink 20

6. Sprint..... 21

7. GTT Communications 21

8. Lumos Networks..... 22

9. Alpheus Communications..... 23

10. Axiom Fiber Networks 24

11. Birch Communications (formerly Cbeyond) 25

12. Broadview Networks 26

13. Cogent Communications..... 27

14.	Crown Castle International	28
15.	DQE Communications	28
16.	Edison Carrier Solutions	29
17.	FiberLight	30
18.	FPL FiberNet	31
19.	Hudson Fiber Network.....	32
20.	Integra Telecom	32
21.	Lightower Fiber Networks.....	33
22.	LSN.....	34
23.	NTS Communications.....	35
24.	PEG Bandwidth	36
25.	TelePacific Corp.	37
26.	Tower Cloud	38
27.	Unite Private Networks.....	39
28.	US Signal	40
29.	ZenFi Networks	41
C.	Fixed Wireless Providers	41
1.	Towerstream	41
2.	Conterra Broadband Services	43
3.	One Ring Networks.....	44

PROFILES OF SELECTED COMPETITIVE ENTERPRISE BROADBAND PROVIDERS

A. Cable Operators

1. Comcast Business

Comcast, the nation’s largest cable operator, is also a major provider of enterprise broadband services. Comcast Business operates networks in 39 states and Washington, D.C., including “20 of the top 25 U.S. markets.”¹ Comcast Business’s network—which it describes as the “largest facilities-based last mile alternative to the phone company”—consists of 628,000 plant route miles, 141,000 fiber route miles, and 125,000 optical nodes.² Comcast Business is now the sixth largest provider of carrier Ethernet services in the United States.³

On September 16, 2015, Comcast Business announced “the creation of a new Enterprise Services unit that will target Fortune 1000 companies and other large enterprises that have multiple locations nationwide.”⁴ Comcast announced that this new unit will “will offer a portfolio of managed enterprise solutions that includes Broadband, Ethernet, Voice, Router, Security, Business Continuity and Wi-Fi” and that it “has signed network agreements with other cable operators to further support national accounts.”⁵ Comcast further announced that to help “support these national accounts, it recently acquired Contingent Network Services; a national technology deployment and managed services company” that “provides deployment and managed services to a number of well-known national brands.”⁶

Comcast Business offers a wide range of enterprise broadband services “for businesses of any size.”⁷ Comcast Business Internet starts at 16 Mbps downstream/3 Mbps upstream and is available up to 150 Mbps downstream/20 Mbps upstream.⁸ Comcast Business’s Ethernet services include Ethernet Dedicated Internet (EDI) service for “a reliable, simpler, more flexible,

¹ Comcast, *Comcast Business – The Comcast Network*, http://business.comcast.com/docs/default-source/brochures/the_comcast_network.pdf?sfvrsn=0 (“*Comcast Business Network Brochure*”); Comcast Business Press Release, *Comcast Business Invests in Knoxville To Bring 10 Gigabit Ethernet Service to Local Businesses* (Sept. 4, 2014), http://business.comcast.com/docs/default-source/press-releases/comcast_business_fiber_expansion_knoxville_final.pdf?sfvrsn=0.

² *Comcast Business Network Brochure*.

³ 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/>.

⁴ Comcast Business Press Release, *Comcast Business Announces New Unit Targeting Fortune 1000 Enterprises* (Sept. 16, 2015), http://business.comcast.com/docs/default-source/press-releases/comcast_business_enterprise_press_release_final.pdf?sfvrsn=2.

⁵ *Id.*

⁶ *Id.*

⁷ *Comcast Business Network Brochure*.

⁸ Comcast Business, *Business Internet – Plans & Pricing*, <http://business.comcast.com/internet/business-internet/plans-pricing>.

and higher bandwidth options than T1 or SONET-based dedicated Internet access services,”⁹ Ethernet Private Line (EPL),¹⁰ and Ethernet Virtual Private Line (EVPL) for an “Ethernet Virtual Connection (EVC) between multiple customer locations” that provides “an ideal replacement for frame relay or ATM services.”¹¹ These Ethernet services are available with 10 Mbps, 100 Mbps, 1 Gbps or 10 Gbps Ethernet User-to-Network Interfaces (UNI) and in speed increments from 1 Mbps to 10 Gbps.¹² Comcast Business also offers cellular backhaul services using both microwave and fiber-based backhaul technologies.¹³

Comcast Business’s revenues are growing rapidly. In its most recent Form 10-K (from February 2015), Comcast reported a “continued growth in the number of customers receiving [its] Ethernet network and cellular backhaul services.”¹⁴ Business revenue increased “22% in 2014 off of a large base and end[ed] the year at over \$4 billion revenue run rate.”¹⁵ In the first quarter of 2015, Business Services revenue “grew 21.4% to over \$1.1 billion,” which not only “accelerate[d] sequentially” but represented the “[h]ighest absolute dollar growth in the business’ history.”¹⁶ In the second quarter of 2015, Business Services revenue “increased 20.4% to \$1.2Bn,” and Comcast reported “[p]enetration at ~25% for small and <10% for mid-sized

⁹ Comcast, *Comcast Business – Dedicated Internet Access*, <http://business.comcast.com/ethernet/products/dedicated-internet-technical-specifications>.

¹⁰ Comcast, *Comcast Business – Ethernet Private Line*, <http://business.comcast.com/ethernet/products/private-line>.

¹¹ Comcast, *Comcast Business – Ethernet Virtual Private Line*, <http://business.comcast.com/ethernet/products/virtual-private-line>; Comcast, *Comcast Business – Ethernet Virtual Private Line: Technical Specifications*, <http://business.comcast.com/ethernet/products/virtual-private-line-technical-specifications>.

¹² Comcast, *Comcast Business – Ethernet Virtual Private Line*, <http://business.comcast.com/ethernet/products/virtual-private-line>; Comcast, *Comcast Business – Ethernet Virtual Private Line: Technical Specifications*, <http://business.comcast.com/ethernet/products/virtual-private-line-technical-specifications>.

¹³ Comcast, *Comcast Business – Cell Backhaul*, <http://business.comcast.com/ethernet/products/cell-backhaul>.

¹⁴ Comcast Corporation, Form 10-K, at 59 (SEC filed Feb. 27, 2015), <http://www.sec.gov/Archives/edgar/data/902739/000119312515068526/d817352d10k.htm>.

¹⁵ Thomson Reuters StreetEvents, *CMCSA – Q4 2014 Comcast Corp Earnings Call*, at 12 (Feb. 24, 2015), http://files.shareholder.com/downloads/CMCSA/589089804x0x811519/663727C3-1EDF-43AC-83FA-FD4F4269BA5F/Comcast_4Q14_Earnings_Transcript.pdf (“*Comcast Q4 2014 Earnings Call Transcript*”) (statement by Comcast Corporation Chairman and CEO Brian Roberts).

¹⁶ Thomson Reuters StreetEvents, *Edited Transcript: CMCSA – Q1 2015 Comcast Corp Earnings Call*, at 6 (May 4, 2015), http://cmcsk.com/common/download/download.cfm?companyid=CMCSA&fileid=826056&filekey=C53B6711-299E-49E7-BBE0-FA5CCBB12142&filename=Comcast_1Q15_Earnings_Transcript.pdf (statement by Comcast Corporation Vice Chairman and CFO Michael Angelakis); Comcast, *1st Quarter 2015 Results*, at 5 (May 4, 2015), http://files.shareholder.com/downloads/CMCSA/166227496x0x825867/834BD433-ED10-4B7B-A4F8-E12A7C5C945A/1Q15_Earnings_Presentation.pdf.

businesses.”¹⁷ Comcast’s Chairman and CEO, Brian Roberts, recently noted that “[t]he consistency of the growth [in Business Services] has been amazing and [Comcast] ha[s] significant runway ahead.”¹⁸

Comcast Business is also expanding its network. As Comcast Cable’s President and CEO Neil Smit explains, the company “continue[s] to expand the network . . . because it’s a great investment and . . . will continue investing in Business Services expansion.”¹⁹ Network expansions in 2015 include fiber extensions in Vermont,²⁰ eastern Connecticut,²¹ and the Central Eastside district of Portland, Or.²² to provide multi-Gigabit Ethernet services; a “major proactive expansion . . . across the Denver metro area;”²³ “significant expansion . . . to three business parks in the Northern California towns of Pleasanton, Hayward and Fremont;”²⁴ a network extension to provide Ethernet service to a customer’s data center “[c]arved into a solid granite mountain outside of Salt Lake City;”²⁵ a \$385,000 investment to expand its fiber network in Salinas,

¹⁷ 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.

¹⁸ 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).

¹⁹ *Comcast Q4 2014 Earnings Call Transcript* at 16 (statement by Comcast Corporation EVP and Comcast Cable President & CEO Neil Smit).

²⁰ 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/resource-library/press-releases/details/2015/03/02/comcast-business-extends-fiber-network-to-bring-multi-gigabit-ethernet-services-to-three-communities-in-sullivan-county-new-hampshire-and-windsor-county-vermont?NewsItemID=60665447-2963-62fe-b0b5-ff0600efc36d&IsPremium=False>.

²¹ Comcast Business Press Release, *Comcast Business Launches 10 Gigabit-per-Second Ethernet Services Across Six Towns and Cities in New London County, Connecticut* (Mar. 30, 2015), <http://business.comcast.com/resource-library/press-releases/details/2015/03/30/comcast-business-launches-10-gigabit-per-second-ethernet-services-across-six-towns-and-cities-in-new-london-county-connecticut?NewsItemID=9c075747-2963-62fe-b0b5-ff0600efc36d&IsPremium=False>.

²² 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.

²³ Comcast Business Press Release, *Comcast Expands Fiber Network Throughout the Denver Metro Area* (Apr. 7, 2015), <http://business.comcast.com/resource-library/press-releases/details/2015/04/07/comcast-expands-fiber-network-throughout-the-denver-metro-area?NewsItemID=8ab25747-2963-62fe-b0b5-ff0600efc36d&IsPremium=False>.

²⁴ Comcast Business Press Release, *Comcast Business To Expand Multi-Gigabit Ethernet in East Bay with \$2 Million Fiber Extension* (Apr. 6, 2015), [http://business.comcast.com/resource-library/press-releases/details/2015/04/06/comcast-business-to-expand-multi-gigabit-ethernet-in-east-bay-with-\\$2-million-fiber-extension?NewsItemID=b0b05747-2963-62fe-b0b5-ff0600efc36d&IsPremium=False](http://business.comcast.com/resource-library/press-releases/details/2015/04/06/comcast-business-to-expand-multi-gigabit-ethernet-in-east-bay-with-$2-million-fiber-extension?NewsItemID=b0b05747-2963-62fe-b0b5-ff0600efc36d&IsPremium=False).

²⁵ Comcast Business Press Release, *New DataVaulting Service Based Inside Granite Mountain Combines Virtual with Physical Security* (July 22, 2015), http://business.comcast.com/docs/default-source/press-releases/comcastperpetualstoragepressrelease_vfinal_7-22-15.pdf?sfvrsn=0.

Cal.;²⁶ and a more than \$350,000 investment to install fiber to the Meyers Business Park and its 166 businesses in Chico, Cal.²⁷

2. Time Warner Cable Business

Time Warner Cable, the nation's second largest cable operator,²⁸ also is a large and growing provider of enterprise broadband services. Time Warner Cable Business operates fiber networks that directly connect 58,000 buildings,²⁹ and the company overall has "a little over 850,000 buildings on net and [it has] business in about 70% of those buildings."³⁰ Time Warner Cable Business serves approximately 718,000 business customers.³¹ It is the fifth largest provider of carrier Ethernet services in the United States.³²

Time Warner Cable Business offers a wide range of enterprise broadband services. Its Business Internet services are available in multiple speed tiers, from 10 Mbps downstream/1 Mbps upstream to 300 Mbps downstream/20 Mbps upstream.³³ Time Warner Cable Business also offers a variety of Ethernet solutions, including Ethernet Private Line service that "connects two locations over a secure point-to-point connection with scalable bandwidth speeds ranging from 5 Mbps to 10 Gbps,"³⁴ and multipoint-to-multipoint Ethernet Local Area Network service

²⁶ Comcast Business Press Release, *Comcast Supports Local Business Innovation and Productivity with New High Speed Connections for Salinas Municipal Airport Business District* (July 28, 2015), http://business.comcast.com/docs/default-source/press-releases/comcast_business_salinas_pro_build_release.pdf?sfvrsn=0.

²⁷ *Comcast Fosters Chico Local Business Innovation and Productivity by Extending Fiber Network and Communications Services for Meyers Business Park*, PR Newswire (Aug. 25, 2015), <http://www.prnewswire.com/news-releases/comcast-fosters-chico-local-business-innovation-and-productivity-by-extending-fiber-network-and-communications-services-for-meyers-business-park-300132706.html>.

²⁸ See National Cable & Telecommunications Association, *Industry Data: Top 10 Video Subscription Services*, <https://www.ncta.com/industry-data> (citing SNL Kagan and company-reported data, Q2 2015). Time Warner Cable has agreed to merge with Charter Communications, which will also acquire Bright House Networks. Charter Communications, Time Warner Cable & Bright House Networks Press Release, *Charter Communications To Merge with Time Warner Cable and Acquire Bright House Networks* (May 26, 2015), http://ir.timewarnercable.com/files/chtr/CHTR-TWC-BHN_Release_FINAL_v001_h4g1jc.pdf.

²⁹ *Time Warner Cable Inc. To Merge with Comcast Corporation To Create a World Class Technology and Media Company Conference Call – Final*, FD (Fair Disclosure) Wire, Transcript 021314a5295903.703 (Feb. 13, 2014) (statement by Time Warner Cable Inc. Chairman and CEO Rob Marcus).

³⁰ *Time Warner Cable Inc. at Morgan Stanley Technology, Media & Telecom Conference – Final*, FD (Fair Disclosure) Wire, Transcript 030514a5305838.738 (Mar. 5, 2014) (statement by Time Warner Cable Inc. EVP and CFO Artie Minson).

³¹ Time Warner Cable Inc., Form 10-Q, at 3 (SEC filed July 30, 2015), <https://www.sec.gov/Archives/edgar/data/1377013/000119312515269291/d146752d10q.htm>.

³² 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/>.

³³ Time Warner Cable Business Class, *Business Internet*, <http://business.timewarnercable.com/services/internet/business-internet/overview.html>.

³⁴ Time Warner Cable Business Class, *Technical Specifications for Ethernet Private Line (EPL)*, <http://business.timewarnercable.com/services/network-services/ethernet/ethernet-private-line/tech-specs.html#>.

that “enables any-to-any connectivity for businesses that need to connect all their locations on a single network.”³⁵ Time Warner Cable Business also “[l]everag[es] [its] robust core metro meshed network” to “provide[] high-capacity Cell Tower Backhaul solutions that serve as a solid foundation to satisfy the exponential traffic growth of next-generation mobile devices.”³⁶ Time Warner Cable offers “Cell Site to Mobile Telephone Switch Office (MTSO) using Ethernet backhaul from 10 Mbps to 10 Gbps.”³⁷

Time Warner Cable’s revenues from business services have been growing rapidly. According to its most recent 10-K, “[d]uring 2014, revenue from the provision of business services increased . . . to \$2.8 billion,”³⁸ which was “up 22.8%”³⁹ from 2013. Wholesale transport accounted for \$112 million in revenue in 2014, a 60% increase from the previous year.⁴⁰ Time Warner Cable has experienced quarterly results of “somewhere just north of 30% growth in [its] wholesale transport business including cell backhaul.”⁴¹ The company reports that “[c]ell tower backhaul [] continues to be an area of strong growth,” with more than “14,000 towers generating revenue and a healthy backlog.”⁴² In the first six months of 2015, Time Warner Cable reported a \$25 million increase in cell tower backhaul revenue.⁴³ Time Warner Cable states that it “expects continued strong growth in Business Services revenue driven by an increase in the number of customers (the result of continued penetration of buildings currently on its network and investment to connect new buildings to its network) and revenue per customer (due to growing product penetration, demand for higher-priced tiers of service and price increases).”⁴⁴ The company is “very bullish on the commercial business”⁴⁵ and “has established

³⁵ Time Warner Cable Business Class, *ELAN: Secure, Any-to-Any Connectivity*, <http://business.timewarnercable.com/services/network-services/ethernet/ethernet-local-area-network/overview.html>.

³⁶ Time Warner Cable Business Class, *Cell Tower Backhaul*, <http://business.timewarnercable.com/solutions/carrier-services/cell-tower-backhaul.html#>.

³⁷ *Id.*

³⁸ Time Warner Cable, Inc., Form 10-K at 36 (SEC filed Feb. 13, 2015), <http://d1lge852tjjqow.cloudfront.net/NYSE-TWC/fc9807bb-a6ad-4388-aa61-ea5652ffd65f.pdf>.

³⁹ 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>.

⁴⁰ *Id.* (under “Selected Business Services Financial Results”).

⁴¹ *Q1 2014 Time Warner Cable Inc. Earnings Conference Call – Final*, FD (Fair Disclosure) Wire, Transcript 042414a5338998.798 (Apr. 24, 2014) (statement by Time Warner Cable Inc. CEO Rob Marcus).

⁴² *Id.* (statement by Time Warner Cable Inc. CFO Artie Minson).

⁴³ Time Warner Cable Inc., Form 10-Q, at 15 (SEC filed July 30, 2015), <https://www.sec.gov/Archives/edgar/data/1377013/000119312515269291/d146752d10q.htm>.

⁴⁴ *Id.* at 3.

⁴⁵ *Time Warner Cable Inc. at Morgan Stanley Technology, Media & Telecom Conference – Final*, FD (Fair Disclosure) Wire, Transcript 030514a5305838.738 (Mar. 5, 2014) (statement by Time Warner Cable Inc. EVP and CFO Artie Minson).

a target of growing Business Services to exceed \$5 billion in annual revenue by 2018,”⁴⁶ which according to its CEO “implies high teens growth for the next several years.”⁴⁷

Time Warner Cable has been investing to expand its network and capabilities. In the first half of 2015, Time Warner Cable reported increased capital expenditures to “expand its network to additional . . . commercial buildings and cell towers, including: . . . nearly 32,000 commercial buildings added to TWC’s network.”⁴⁸ It also completed the expansion of its fiber network to bring 10 Gbps network and Internet speeds throughout One World Trade Center in lower Manhattan.⁴⁹ EVP and CFO Artie Minson states that the company “will probably spend about \$0.5 billion a year on line extensions,” which “will add about \$1.3 billion of service for revenue opportunity a year.”⁵⁰

3. Cox Business

Cox Business has deployed more than 25,000 miles of metro fiber⁵¹ with at least “28,000 fiber lit buildings, 400,000 fiber near-net buildings and over 300,000 HFC serviceable buildings.”⁵² Cox Business serves more than 330,000 customers,⁵³ including “small and regional businesses nationwide,” “healthcare providers, K-12 and higher education, financial institutions and federal, state and local government organizations,” as well as “most of the top tier wireless and wireline telecommunications carriers in the U.S. through its wholesale division.”⁵⁴ Cox

⁴⁶ Time Warner Cable, Inc., Form 10-Q, at 3 (SEC filed July 30, 2015), <https://www.sec.gov/Archives/edgar/data/1377013/000119312515269291/d146752d10q.htm>.

⁴⁷ *Time Warner Cable Inc at UBS Global Media and Communications Conference – Final*, FD (Fair Disclosure) Wire, Transcript 120814a5552480.780 (Dec. 8, 2014) (statement by Time Warner Cable Inc. Chairman and CEO Rob Marcus).

⁴⁸ Time Warner Cable, *Second-Quarter 2015 Earnings Summary*, at 10 (July 30, 2015), <http://ir.timewarnercable.com/files/2015/2Q15/Earnings-Summary-Presentation-2Q15-FINAL.pdf>.

⁴⁹ Time Warner Cable Press Release, *Time Warner Cable Business Class Expands Fiber Network To Bring 10 Gbps Internet Speed to One World Trade Center in Lower Manhattan* (Jan. 27, 2015), <http://www.timewarnercable.com/content/twc/en/about-us/press/twcbc-brings-10gbps-speeds-to-world-trade-center.html>.

⁵⁰ *Time Warner Cable Inc. at Morgan Stanley Technology, Media & Telecom Conference – Final*, FD (Fair Disclosure) Wire, Transcript 030514a5305838.738 (Mar. 5, 2014) (statement by Time Warner Cable Inc. EVP and CFO Artie Minson).

⁵¹ Cox Business, *A Remarkable Company You Can Trust*, http://www.cox.com/wcm/en/business/datasheet/brc-why-cox-business-9302013.pdf?campcode=brc_un_05_101513.

⁵² Sean Buckley, *U.S. Fiber Penetration Reaches 39.3 Percent of Buildings, Says VSG*, FierceTelecom (Apr. 4, 2014), <http://www.fiercetelecom.com/story/us-fiber-penetration-reaches-393-percent-buildings-says-vsg/2014-04-04>.

⁵³ K.C. Neel, *Business Services Replenish Coffers*, Multichannel News (Dec. 1, 2014), <http://www.multichannel.com/news/technology/business-services-replenish-coffers/385901>.

⁵⁴ Cox Business News Release, *Cox Business Builds Out Network to 165 Navy Sites in San Diego* (Oct. 8, 2014), <http://newsroom.cox.com/index.php?s=43&item=792>.

Business is the eighth largest provider of carrier Ethernet services in the United States.⁵⁵ Cox Business “is on target to exceed \$2 billion in revenues by 2016.”⁵⁶

Cox Business offers a wide range of enterprise broadband services, including Business Internet services at speeds ranging from 5 Mbps downstream/1 Mbps upstream to 50 Mbps downstream/10 Mbps upstream,⁵⁷ and Optical Internet services with symmetrical and scalable bandwidth “from 1 Mb to 10 Gb.”⁵⁸ Cox states that its Metro Ethernet service allows businesses “to cost-effectively extend [their] Local Area Network (LAN) to multiple sites in a metro area.”⁵⁹ Cox Metro Ethernet is offered at “[s]peeds ranging from 256Kbps to 1Gbps or higher.”⁶⁰ Cox also offers private line service “up to OC-192”⁶¹ and MPLS IP-VPN service that “segregates a customer’s traffic from other customer traffic and from the Internet.”⁶²

Cox Business also provides services to wireless and other carriers. According to industry sources, “Cox serves 100 different carriers including the major U.S. wireless service providers.”⁶³ According to the company’s chief strategist, “[c]arrier services is a big push for [Cox Business], it’s about a \$200 million business, and [Cox Business has] had great success in macrocell backhaul services, with double-digit growth again in the wireline last mile.”⁶⁴

⁵⁵ 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/>.

⁵⁶ Cox Business, *A Remarkable Company You Can Trust*, http://www.cox.com/wcm/en/business/datasheet/brc-why-cox-business-9302013.pdf?camcode=brc_un_05_101513; see also K.C. Neel, *Business Services Replenish Coffers*, Multichannel News (Dec. 1, 2014), <http://www.multichannel.com/news/technology/business-services-replenish-coffers/385901> (“Cox . . . is on track to generate \$2 billion from the [commercial-services category] by 2016, Steve Rowley, senior vice president of Cox Business, said.”).

⁵⁷ Cox Business, *Cox Business Internet – Overview*, <http://www.cox.com/business/data/business-internet.cox>.

⁵⁸ Cox Business, *Cox Optical Internet*, https://www.cox.com/content/dam/cox/business/documents/internet/Cox_Business_Optical_Internet_Overview.pdf.

⁵⁹ Cox Business, *Cox Metro Ethernet*, http://www.cox.com/wcm/en/business/datasheet/ds-metro-ethernet-hybrid.pdf?camcode=resources_data_1003.

⁶⁰ *Id.*

⁶¹ Cox Business, *Cox Private Line*, http://www.cox.com/wcm/en/business/datasheet/ds-private-line.pdf?camcode=xl_data_8_0908.

⁶² Cox Business, *MPLS IP-VPN – Overview*, <http://www.cox.com/business/data/mpls-ip-vpn.cox>.

⁶³ Sean Buckley, *Cable Hones Its Wholesale Skills in Special Access, Wireless Backhaul*, FierceTelecom (Apr. 7, 2015), <http://www.fiercetelecom.com/special-reports/cable-hones-its-wholesale-skills-special-access-wireless-backhaul>.

⁶⁴ Carol Wilson, *Cox Biz Looks Beyond SMBs*, LightReading (Dec. 4, 2014), <http://www.lightreading.com/cable-video/cable-business-services/cox-biz-looks-beyond-smbs/d/d-id/712419> (quoting Cox Business SVP Steve Rowley).

4. Spectrum Business (formerly Charter Business)

Charter Communications was the fourth largest cable provider in the United States⁶⁵ before the company agreed to merge with Time Warner Cable and acquire Bright House Networks.⁶⁶ Charter has deployed more than 65,000 route miles of fiber across 28 states, which connect to more than 12,000 buildings and 3,800 cell towers, and is “growing monthly.”⁶⁷ According to its FCC filings, “[w]ithin 4 years of close, New Charter will invest at least \$2.5 billion in the build-out of networks into commercial areas within [its] footprint, beyond where [it] currently operate[s].”⁶⁸ The company recently rebranded its Charter Business unit as Spectrum Business.⁶⁹ The rebranding reflects an “elevated [] focus on serving large customers with sophisticated communications needs.”⁷⁰ Spectrum Business maintained 416,000 commercial customer relationships as of June 30, 2015.⁷¹

Spectrum Business offers a wide range of enterprise broadband services, including Internet services at “speeds that are much faster than Phone Company Internet,” from 60 Mbps downstream/4 Mbps upstream and 100 Mbps downstream/7 Mbps upstream,⁷² and Fiber Optic Internet for a “dedicated fiber-optic connection with symmetrical upload and download speeds,” at speeds “up to 10Gbps.”⁷³ Spectrum Business’s Ethernet offerings include coax Ethernet for

⁶⁵ Spectrum Business, *Spectrum Business Network Map*, <https://business.spectrum.com/mediacontent/pdfs/spectrum-business-national-map-2014.pdf>.

⁶⁶ Spectrum Business, *Charter Communications To Merge with Time Warner Cable and Acquire Bright House Networks* (May 26, 2015), https://business.spectrum.com/content/news_pr_20150526.

⁶⁷ Spectrum Business, *Carrier Solutions*, <https://business.spectrum.com/content/carrier>; Spectrum Business, *Spectrum Business Network Map*, <https://business.spectrum.com/mediacontent/pdfs/spectrum-business-national-map-2014.pdf>.

⁶⁸ Public Interest Statement at 18, *Application of Charter Communications, Inc., Time Warner Cable Inc., and Advance/Newhouse Partnership for Consent to the Transfer of Control of Licenses and Authorizations*, MB Docket No. 15-149 (FCC filed June 25, 2015).

⁶⁹ *Charter Launches Spectrum Business*, PR Newswire (Mar. 2, 2015), <http://www.prnewswire.com/news-releases/charter-launches-spectrum-business-300042976.html>. Spectrum Business plans to divide its commercial service into two groups: “Spectrum Business, which serves small and medium-size businesses; and Spectrum Enterprise, which serves large businesses and carrier customers.” *Q4 2014 Charter Communications Inc Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 020515a5610607.707 (Feb. 5, 2015) (statement by Charter Communications Inc. President and CEO Tom Rutledge). As of September 2015, however, the rebranding to Spectrum Enterprise does not appear to be complete. See, e.g., Spectrum Business, *Carrier Solutions*, <https://business.spectrum.com/content/carrier>; Jeff Baumgartner, *Charter “Spectrum” Gets Down to Business*, Multichannel News (Mar. 2, 2015), <http://www.multichannel.com/news/technology/charter-spectrum-gets-down-business/388601>.

⁷⁰ *Charter Launches Spectrum Business*, PR Newswire (Mar. 2, 2015), <http://www.prnewswire.com/news-releases/charter-launches-spectrum-business-300042976.html> (citing Charter Executive Vice President and President of Commercial Services Don Detampel).

⁷¹ Charter Communications, Form 10-Q, at 27 (SEC filed Aug. 4, 2015), <https://www.sec.gov/Archives/edgar/data/1091667/000109166715000185/chtr63015-10q.htm>.

⁷² Spectrum Business, *High-Speed Internet*, <https://business.spectrum.com/content/high-speed-internet>.

⁷³ Spectrum Business, *Fiber Optic Internet*, <https://business.spectrum.com/content/fiber-internet>.

Ethernet Private Line and Ethernet LAN services at symmetric speeds up to 5 Mbps or asymmetric speeds up to 30 Mbps downstream/3 Mbps upstream,⁷⁴ and Metro Ethernet service “that connects two or more locations for commercial customers with geographically dispersed locations with services up to 10 Gbps.”⁷⁵ It also “offers large businesses (200+ employees) with multiple sites more specialized solutions such as custom fiber networks, Metro and long haul Ethernet.”⁷⁶ Spectrum Business also provides “high-capacity last-mile data connectivity services to wireless and wireline carriers, Internet Service Providers (‘ISPs’) and other competitive carriers on a wholesale basis.”⁷⁷ Spectrum Business offers carriers “cell backhaul, Ethernet access services, and Point of Presence (POP) connectivity.”⁷⁸

Spectrum Business is growing its revenues and investing heavily in expanding its facilities. The company states that “[e]very day [it is] adding to . . . lit buildings and 44,000+ multi-tenant, near-net buildings enabling a broader reach for [] Ethernet services.”⁷⁹ In the last three years, Spectrum Business spent more than \$800 million in capital expenditures for commercial services.⁸⁰ In 2014, Spectrum Business’s commercial revenues increased more than 16 percent, “driven by higher sales to small and medium business customers and to carrier customers.”⁸¹ Spectrum Business reports “a successful run with” “the cell tower business,”⁸² which represents approximately 10 percent of total commercial revenues and drives about 20 percent of the company’s growth.⁸³

⁷⁴ Spectrum Business, *Ethernet – Coax Ethernet*, <https://business.spectrum.com/content/business-ethernet#coax>.

⁷⁵ Charter Communications, Form 10-K, at 6-7 (SEC filed Feb. 24, 2015), <http://www.sec.gov/Archives/edgar/data/1091667/000109166715000049/chtr123114-10k.htm>.

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ *Charter Launches Spectrum Business*, PR Newswire (Mar. 2, 2015), <http://www.prnewswire.com/news-releases/charter-launches-spectrum-business-300042976.html>.

⁷⁹ Spectrum Business, *Carrier Solutions – Access Services*, <https://business.spectrum.com/content/carrier-solutions-detail#access-services>.

⁸⁰ Charter Communications, Form 10-K, at 56 (SEC filed Feb. 24, 2015), <http://www.sec.gov/Archives/edgar/data/1091667/000109166715000049/chtr123114-10k.htm> (\$242 million in 2014, \$300 million in 2013, and \$269 million in 2012).

⁸¹ Charter Communications News Release, *Charter Announces Fourth Quarter and Full Year 2014 Results*, at 4 (Feb. 5, 2015), <http://ir.charter.com/phoenix.zhtml?c=112298&p=irol-newsArticle&ID=2014001>.

⁸² *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).

⁸³ *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).

5. Cablevision Lightpath

Cablevision's⁸⁴ Lightpath unit (formerly known as Optimum Lightpath) has deployed "an advanced fiber optic network extending more than 6,100 route miles, which includes approximately 317,000 miles of fiber, throughout the New York metropolitan area," with approximately 7,400 buildings on-net.⁸⁵ According to Cablevision's Vice Chairman and CFO Gregg Seibert, Cablevision Lightpath has a "nearly ubiquitous footprint" in its territory.⁸⁶

Cablevision Lightpath offers a wide range of enterprise broadband services. It "has offered advanced Metro Ethernet services to businesses throughout the [New York/New Jersey/Connecticut] tri-state area" since 2005.⁸⁷ Cablevision Lightpath now offers managed and unmanaged voice solutions⁸⁸ as well as Internet access from 20 Mbps to 1 Gbps available over its Metro Ethernet network, or from 1 Gbps to 10 Gbps over its optical transport network.⁸⁹ Cablevision also offers a wide variety of Ethernet transport services,⁹⁰ and in 2014, "Lightpath introduced a 100 gigabit optical transport service which is available throughout the Lightpath footprint."⁹¹ Mr. Seibert stated that "[l]arger enterprises are beginning to outgrow their 10

⁸⁴ On September 17, 2015, Altice N.V. announced its intention to acquire Cablevision in a transaction valued at \$17.7 billion. Altice N.V. Press Release, *Altice Acquires Cablevision and Creates the #4 Cable Operator in the US Market* (Sept. 17, 2015), <http://altice.net/wp-content/uploads/2015/09/20150917-ALT-Cablevision-Acquisition.pdf>.

⁸⁵ Cablevision Systems Corp., Form 10-K, at 6 (SEC filed Feb. 25, 2015), <http://www.sec.gov/Archives/edgar/data/784681/000162828015001010/cvc-12312014x10k.htm>; *Q4 2014 Cablevision Systems Corp Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 022515a5609074.774 (Feb. 25, 2015) (statement by Cablevision Systems Corporation Vice Chairman and CEO Gregg Seibert).

⁸⁶ *Q4 2014 Cablevision Systems Corp Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 022515a5609074.774 (Feb. 25, 2015) (statement by Cablevision Systems Corporation Vice Chairman and CEO Gregg Seibert).

⁸⁷ Lightpath, *Lightpath Metro Ethernet*, <https://golightpath.com/metro-ethernet>.

⁸⁸ Lightpath, *Lightpath Voice*, <https://golightpath.com/Voice>.

⁸⁹ Lightpath, *Lightpath Internet*, <https://golightpath.com/internet>.

⁹⁰ Its service offering includes Lightpath E-Line—"a Layer 2, dedicated point-to-point service, designed for organizations who have single, or multiple applications that do not require a pre-set amount of bandwidth," Lightpath V-Line—"a Layer 2 point-to-point service, utilizing a single Ethernet Virtual Connection (EVC) to transmit information between locations," and Lightpath Virtual Private Ring Service—"a fully resilient, dedicated access ring" that "interconnects a minimum of three customer locations." Lightpath, *Lightpath E-Line*, <https://golightpath.com/e-line>; Lightpath, *Lightpath V-Line*, <https://golightpath.com/v-line>; Lightpath, *Lightpath Virtual Private Ring Service*, <https://golightpath.com/vprs>. It also offers Point-to-Point Optical Transport Service designed to connect customer locations with bandwidth up to 100 Gbps using Ethernet, fibre channel, or OC-48/OC-192 protocols and Private Fiber Service, which is "Ethernet service over dedicated Private Fiber delivered over optical waves," with up to 390 Gb throughput, designed for "transferring immense amounts of data." Lightpath, *Point to Point Optical Transport Services*, <https://golightpath.com/point-to-point>; Lightpath, *Private Fiber Service*, <https://golightpath.com/private-fiber-service>.

⁹¹ *Q1 2014 Cablevision Systems Corp. Earnings Conference Call – Final*, FD (Fair Disclosure) Wire, Transcript 050814a5348010.710 (May 8, 2014) (statement by Cablevision Systems Corporation Vice Chairman and CFO Gregg Seibert).

gigabit services and Lightpath is well positioned to meet this emerging need.”⁹² Cablevision Lightpath also “ha[s] been doing some backhaul business.”⁹³

Cablevision reports that its Lightpath unit has been successful. The company states that “Lightpath continues to be a nice growth area for [Cablevision].”⁹⁴ Lightpath’s “Ethernet business is growing much more rapidly than [Lightpath’s 6% revenue growth] number would indicate” because Cablevision has a “legacy drag of the TDM business rolling off.”⁹⁵

6. Bright House Networks

Charter Communications has entered into agreements to acquire Bright House Networks and to merge with Time Warner Cable.⁹⁶ Standing alone, Bright House Networks claims to be “the 6th largest cable provider in the country.”⁹⁷ The company operates an “all fiber network,”⁹⁸ and its Business Solutions group is a “thriving business unit” that serves “more than 100,000 unique customer relationships,” “provides fiber services to more than 4,000 business locations,” and is “[o]ne of the most rapidly growing areas of the company.”⁹⁹

Bright House Networks provides “businesses of all sizes” with a “full suite of services, including video, Broadband Internet, Dedicated Internet Access, Metro Ethernet Data Services, Voice services . . . , cellular backhaul and ancillary services like Audio Conferencing, Web Hosting and Managed Services.”¹⁰⁰ The company offers Metro Ethernet service that allows

⁹² *Id.* (statement by Cablevision Systems Corporation Vice Chairman and CFO Gregg Seibert).

⁹³ *Cablevision Systems Corp. at Bank of America Merrill Lynch Media, Communications and Entertainment Conference – Final*, FD (Fair Disclosure) Wire, Transcript 091614a5486218.718 (Sept. 16, 2014) (statement by Cablevision Systems Corporation Vice Chairman and CFO Gregg Seibert).

⁹⁴ *Id.* (statement by Cablevision Systems Corporation Vice Chairman and CFO Gregg Seibert).

⁹⁵ *CVC – Cablevision Systems Corp at Deutsche Bank Media, Internet and Telecom Conference*, FD (Fair Disclosure) Wire, Transcript 030915a5637615.715 (Mar. 9, 2015) (statement by Cablevision Systems Corporation Vice Chairman Gregg Seibert).

⁹⁶ Charter Communications, Time Warner Cable & Bright House Networks Press Release, *Charter Communications To Merge with Time Warner Cable and Acquire Bright House Networks* (May 26, 2015), http://ir.timewarnercable.com/files/chtr/CHTR-TWC-BHN_Release_FINAL_v001_h4g1jc.pdf.

⁹⁷ Bright House Networks Business Solutions, *About Us*, <http://businesssolutions.brighthouse.com/about-us/about-us.html>.

⁹⁸ Bright House Networks Enterprise Solutions, *The Local Leader of Advanced Communications and Networking Services*, <http://enterprise.brighthouse.com/home.html>.

⁹⁹ Bright House Networks, *Bright House Networks Connects Orange County Public Schools*, <http://enterprise.brighthouse.com/content/dam/bhn/ent/news/FL%20Trend%20Advertorial%202013.01%20OCPS.pdf>.

¹⁰⁰ *Id.*

customers to “connect multiple locations via dedicated all fiber access” “with symmetrical upload and download speeds up to 10 Gbps.”¹⁰¹

Bright House Networks states that it has “a ‘fiber first’ strategy in terms of Ethernet” and “emphasizes its own fiber network, its deep reach within its regions and its ability to construct connections quickly as required.”¹⁰² For example, to serve as the official telecommunications provider for the 2012 Republican National Convention, “Bright House Networks put in 48 miles of data cabling at the Tampa Bay Times Forum and convention center, and an additional 190 miles of single-strand fiber to the existing cable network in downtown Tampa.”¹⁰³ The company claims to be “the leader in North America among cable operators in the aggressive deployment of Ethernet Passive Optical Network (EPON) as its last-mile access technology to serve [its] fiber-based Ethernet Commercial Service and Cell Backhaul customer base.”¹⁰⁴

7. Suddenlink

Suddenlink,¹⁰⁵ the seventh largest cable operator in the United States, has deployed “a growing, fiber-rich” 14,000-mile network “with last-mile connectivity.”¹⁰⁶ The company serves “63,700 commercial data customers” as of the end of 2014.¹⁰⁷

Suddenlink provides “a variety of [] services to commercial and carrier customers, such as cell tower backhaul, last mile Ethernet, Primary Rate Interface (‘PRI’) and regional transport services.”¹⁰⁸ Its offering to small- and medium-sized commercial customers (100 employees or less) includes “high-speed data services with speeds up to 300 Mbps.”¹⁰⁹ “For enterprise and larger commercial customers, [Suddenlink] offer[s] high capacity data services, including wide area networking and dedicated data access, and advanced services such as wireless mesh

¹⁰¹ Bright House Networks Enterprise Solutions, *Metro Ethernet*, <http://enterprise.brighthouse.com/solutions/data/metro-ethernet.html>.

¹⁰² Bright House Networks, *Bright House Networks Connects Orange County Public Schools*, <http://enterprise.brighthouse.com/content/dam/bhn/ent/news/FL%20Trend%20Advertorial%202013.01%20OCPS.pdf>.

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ On May 20, 2015, Altice announced its intention to acquire a 70-percent share in Suddenlink. Altice Press Release, *Altice Enters the US Market with Acquisition of Suddenlink* (May 20, 2015), <http://altice.net/wp-content/uploads/2015/05/689389.pdf>.

¹⁰⁶ Cequel Communications Holdings I LLC, *Annual Report for the Year Ended December 31, 2014*, at 4, <http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NTcwNTE2fENoaWxkSUQ9MjcXNjY3fFR5cGU9MQ==&t=1>; Suddenlink Business, *Carrier*, <http://www.suddenlinkbusiness.com/carrier>; Suddenlink Business, *Ethernet*, <http://www.suddenlinkbusiness.com/ethernet>.

¹⁰⁷ Cequel Communications Holdings I LLC, *Annual Report for the Year Ended December 31, 2014*, at 11, <http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NTcwNTE2fENoaWxkSUQ9MjcXNjY3fFR5cGU9MQ==&t=1>.

¹⁰⁸ *Id.* at 7.

¹⁰⁹ *Id.* at 11.

networks. [Suddenlink] also offer[s] wholesale transport services to wireless telephone providers for cell tower backhaul and to wireline telecommunications service providers to connect to customers that their own networks do not reach.”¹¹⁰

Suddenlink has been experiencing growth which the company expects to continue. In recent quarters, the company has reported increases in high-speed Internet service revenue, due in part to “growth in [its] commercial high-speed data services to small and medium-sized businesses; and growth in carrier services, including fiber to the tower, and optical Internet and transport revenue.”¹¹¹ The company “expect[s] continued growth in . . . commercial high-speed data customers and revenues for the foreseeable future.”¹¹²

8. WOW! Business

WideOpenWest (WOW), which acquired Knology in 2012, claims to be “the ninth largest cable company in the U.S.”¹¹³ The company states that its “broadband network also supports services to business customers and [it] ha[s] developed a full suite of products for small, medium and large enterprises,” including “new products to meet the more complex high-speed data and telephony needs of medium and large enterprises.”¹¹⁴ WOW! Business “offer[s] pure fiber services, which enable [its] customers to have T-1 telephony services, data speeds of up to 1 gigabit per second on [its] fiber network, and office-to-office metro Ethernet services that provide a secure and managed connection between customer locations.”¹¹⁵ The company states that “WOW! Wholesale is an established provider of metro connections for carriers,” “offer[ing] the best source for local fiber access solutions in the Southeast and Midwest, with an ever-growing 7,000 miles of fiber infrastructure.”¹¹⁶

¹¹⁰ *Id.*

¹¹¹ Suddenlink News Release, *Suddenlink Reports Second Quarter and Year-to-Date 2015 Financial and Operating Results* (Aug. 3, 2015), http://phx.corporate-ir.net/phoenix.zhtml?c=213551&p=irol-newsArticle_print&ID=2074808; Suddenlink News Release, *Suddenlink Reports First Quarter 2015 Financial and Operating Results* (May 1, 2015), http://phx.corporate-ir.net/phoenix.zhtml?c=213551&p=irol-newsArticle_print&ID=2042883.

¹¹² Cequel Communications Holdings I LLC, *Quarterly Report for the Quarter Ended September 30, 2014*, at 18, <http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MjU5MDQwfENoaWxkSUQ9LTF8VHIwZT0z&t=1>.

¹¹³ WideOpenWest Finance, LLC, Form 10-K, at 2 (SEC filed Mar. 27, 2015), <http://www.sec.gov/Archives/edgar/data/1571833/000104746915002877/a2223921z10-k.htm>.

¹¹⁴ *Id.* at 7.

¹¹⁵ *Id.*

¹¹⁶ WOW! Business, *Wholesale Local Fiber Access Solutions*, <https://www.wowforbusiness.com/solutions/by-size/wholesale>. WOW! Business fiber maps are available at: <https://www.wowforbusiness.com/network/wow-fiber-maps>.

B. Fiber-Based Competitive Providers

1. Level 3

Level 3 is the second largest provider of carrier Ethernet services in the United States.¹¹⁷ The company completed its acquisitions of Global Crossing, IP Networks, Inc., and tw telecom in 2011, 2013, and 2014, respectively.¹¹⁸ Level 3 now has approximately 55,000 route miles of metropolitan fiber networks with approximately 33,300 buildings on-net in 228 markets in North America.¹¹⁹ Even prior to its acquisitions, Level 3 reported that “[o]ver 100,000 enterprise buildings” were “within 500 ft.” of its U.S. network,¹²⁰ and analysts have noted that because of this, “the cost [for Level 3] to add fiber to a new building is fairly low relative to [its] peers.”¹²¹ Of the company’s approximately 52,000 customers worldwide, 96 percent are enterprise customers and 4 percent are wholesale customers.¹²²

Level 3 offers a range of enterprise broadband services, including Private Line, Ethernet Private Line, Ethernet Virtual Private Line, Virtual Private LAN (VPLS), MPLS/IP VPN, Wavelength services, and managed dedicated fiber services.¹²³ Its enterprise customers include “large multinational customers; larger enterprises that purchase communications services in a manner similar to carriers; enterprises that purchase communications services on a regional or local basis; portals and large search enterprises; regional service providers; systems integrators;

¹¹⁷ 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/>.

¹¹⁸ 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; Bank Street News Release, *Level 3 Communications Acquires IP Networks* (May 31, 2013), http://www.bankstreet.com/uploads/1/7/5/9/17593291/ip_networks_sale_to_level_3_communications_05_31_2013.pdf.

¹¹⁹ See Level 3 Communications, Inc., *Second Quarter 2015 Results*, at 13 (July 29, 2015), http://investors.level3.com/files/doc_downloads/2Q15-Earnings/2Q15-External-Earnings-Presentation_Final-PDF.pdf (reporting approximately 42,200 total on-net buildings, 79 percent of which are in North America). See also Consolidated Application – Streamlined Processing Requested at 11, *Applications Filed for the Transfer of Control of tw telecom inc. to Level 3 Communications, Inc.*, WC Docket No. 14-104 (FCC filed July 8, 2014) (“Following the consummation of the Proposed Transaction [with tw telecom], Level 3 estimates that it will have approximately 30,600 on-net buildings in the United States”).

¹²⁰ Level 3 Communications, *2011 Annual Meeting of Stockholders Presentation*, at 3 (May 19, 2011), http://files.shareholder.com/downloads/LVLT/2168870475x0x469486/f0c304e5-b9ea-4c17-a9b6-bd3a8088c521/Level%203%20Communications%20Annual%20Meeting_May%202011_FINAL.pdf.

¹²¹ Simon Flannery & Lisa Lam, Morgan Stanley, *Level 3 Communications, Inc. 3Q13 Preview: Enterprise Growth and Ongoing Cost Initiatives Are Key Focuses*, at 3 (Oct. 28, 2013).

¹²² Level 3 Communications, Inc., *Second Quarter 2015 Results*, at 13 (July 29, 2015), http://investors.level3.com/files/doc_downloads/2Q15-Earnings/2Q15-External-Earnings-Presentation_Final-PDF.pdf.

¹²³ Level 3 Communications, *Level 3 Private Line Services*, <http://www.level3.com/en/products/private-line-services/>; Level 3 Communications, *Level 3 Ethernet Solutions Matrix*, at 2, http://www.level3.com/~/_media/files/factsheets/en_ethernet_fs_ethernetmatrix.pdf; Level 3, *Level 3® Virtual Private LAN Service (VPLS)*, <http://www.level3.com/en/products/virtual-private-lan-service/>; Level 3 Communications, *Level 3 Managed Dedicated Fiber*, <http://www.level3.com/en/products/managed-dedicated-fiber/>.

and software service providers.”¹²⁴ Its wholesale customers “include domestic and international carriers; voice service providers, which include calling card companies, conferencing providers, and contact centers that use VoIP technology . . . ; wireless providers; and broadband cable television operators.”¹²⁵ Level 3 also serves “U.S. Federal government departments and agencies,” and “U.S. states and municipalities as well as research and educational consortia.”¹²⁶

Level 3 reported that in 2014, it experienced 10 percent growth for its Core Network Services to enterprises, which includes transport, fiber, IP, data, colocation, local, enterprise voice, and data center services.¹²⁷

2. Windstream

Windstream was created in July 2006 through the combination of Alltel Corporation’s landline operations and VALOR Communications (a spinoff of GTE).¹²⁸ Windstream now “ha[s] operations in 48 states and the District of Columbia, a local and long-haul fiber network spanning approximately 121,000 miles, a robust business sales division and 27 data centers.”¹²⁹ Windstream’s growth followed a series of acquisitions, including PAETEC, NuVox, Hosted Solutions Acquisition, Kentucky Data Link, and Norlight.¹³⁰ In October 2014, Windstream announced the acquisition of Business Only Broadband, which “operates [a] high-bandwidth fixed wireless network providing business-class Internet, private ethernet, and managed services over microwave spectrum.”¹³¹ Windstream now offers a fixed wireless service “for carrier-grade Ethernet and Internet-over-Ethernet connectivity delivered by digital microwave technology” in Chicago, New York City, northern New Jersey, Milwaukee, Boston, and Philadelphia.¹³² Windstream’s enterprise executive vice president and chief marketing officer noted that by launching its fixed wireless solution, Windstream is “able to provide enterprise businesses with a cost-effective alternative to fiber optic or traditional copper/coax networks, along with quick

¹²⁴ Level 3 Communications, Inc., Form 10-K, at 17 (SEC filed Feb. 27, 2015), http://www.sec.gov/Archives/edgar/data/794323/000079432315000003/lvt-123114_10k.htm.

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ *See id.* at 72.

¹²⁸ Windstream Corp., Form 10-K, at 3 (SEC filed Feb. 20, 2013), <http://www.sec.gov/Archives/edgar/data/1282266/000128226613000020/a201210k.htm>.

¹²⁹ Windstream Holdings, Inc., Form 10-K, at 3 (SEC filed Feb. 24, 2015), <http://www.sec.gov/Archives/edgar/data/1282266/000128226615000010/a201410k.htm>.

¹³⁰ *Id.* at 4.

¹³¹ *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.

¹³² 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.

service installation, network diversity, and the high speed and security they need.”¹³³ “Windstream’s Fixed Wireless is perfect for any business in need of diverse, high-bandwidth, enterprise-class Ethernet and networking solutions, supported by [Windstream’s] industry-certified dedicated account teams and engineers.”¹³⁴ Windstream’s CEO remarked that “after the PAETEC deal, [Windstream is] really selling to national customers. [It has a] presence in virtually every city. [It has] got a very different model.”¹³⁵ Windstream now claims to be “the provider of choice for four out of five Fortune 500 companies for data, voice, network and cloud solutions.”¹³⁶

Windstream has been expanding its network. In an August 2015 press release, Windstream described “milestones in its network expansion plans” as including “12 new 100G markets including: Buffalo, Denver, Houston, San Antonio, Oklahoma City, and Tulsa” and “3,900 additional fiber route miles featuring Infinera’s 500G super-channel technology.”¹³⁷ The release also highlighted Windstream’s plans for the rest of 2015, which include “plans to expand 100G service to seven additional markets, including Minneapolis and Louisville in September,” so that by the end of 2015 Windstream plans to be able to provide carrier customers 100G service in 44 markets.¹³⁸

3. XO

XO is the seventh largest provider of carrier Ethernet services in the United States.¹³⁹ It states that it has “built one of the industry’s largest and most technologically advanced networks” with a presence in “85 major metropolitan markets across the U.S. and Canada.”¹⁴⁰ XO’s network includes more than 13,000 metro route miles in 40 major metropolitan markets in the U.S. and Canada, spanning more than 1.2 million fiber miles with more than 4,000 buildings on-net, and has the ability to “reach more than half of all U.S. businesses in XO serving territories.”¹⁴¹ In 2014, XO launched a \$500 million initiative to grow its nationwide network,

¹³³ *Id.* (statement by Windstream enterprise executive vice president and chief marketing officer Joseph Harding).

¹³⁴ *Id.* (statement by Windstream enterprise executive vice president and chief marketing officer Joseph Harding).

¹³⁵ *Windstream Communications at Citi Internet Media & Telecommunications Conference – Final*, FD (Fair Disclosure) Wire, Transcript 010714a5261028.728 (Jan. 7, 2014) (statement by Windstream CEO Jeff Gardner).

¹³⁶ Windstream Communications, *Why Windstream?*, <http://www.windstreambusiness.com/why-windstream>.

¹³⁷ 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.

¹³⁸ *Id.*

¹³⁹ 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/>.

¹⁴⁰ XO Communications, *Network Reach*, <http://www.xo.com/why/the-right-network/reach/>.

¹⁴¹ *Id.*

and has already completed fiber construction projects into nearly 550 enterprise buildings across 25 regional markets, as well as additional direct connection in 11 other cities and regions.¹⁴² XO's CEO, Chris Ancell, has stated that as a result of this investment, "[a]cross the business, we're seeing pretty good traction and activity and significant uptick in terms of the number of buildings we're doing versus what we have done in the past and month over month progress."¹⁴³ The company is seeing more businesses sign up for its service as it constructs facilities into new buildings, "target[ing] buildings with factors like nearness of fiber, type of building, number of tenants, estimated telecom spend, and competitive providers already in the space."¹⁴⁴ Mr. Ancell has also said that throughout 2016, XO plans to add more on-net fiber connections "to certain buildings that are within proximity of the XO high density fiber and Ethernet network."¹⁴⁵

XO has deployed "[o]ne of the largest Ethernet access networks reaching more than 2 million business locations," and provides "[n]etwork speeds up to 100G from coast-to-coast."¹⁴⁶ XO's customers include "more than 50 percent of the Fortune 500 as well as the largest cable operators, mobile wireless companies and Internet-based content providers."¹⁴⁷ XO serves "4 of the top 5 U.S. wireless providers," "9 of the world's 20 largest telecommunications companies," the "[t]op 5 social business networks," "7 of the top 20 U.S. banks," and "8 of the 20 largest U.S. retail companies."¹⁴⁸ With its extensive fiber networks in markets throughout the country, XO is now capable of serving customers with multiple locations. For example, after XO recently completed its new fiber construction in Salt Lake City, which included the addition of nearly 100 new buildings, one of the largest car dealerships in Utah "connected XO's fiber network to seven of its Utah locations" and also "is installing the CLEC's fiber connection to other locations it serves in California, Texas, Nevada, Michigan, and Iowa."¹⁴⁹

¹⁴² Sean Buckley, *XO Takes Success-Based Approach to On-Net Fiber Buildouts*, FierceTelecom (Sept. 3, 2015), http://www.fiercetelecom.com/story/xo-takes-success-based-approach-net-fiber-buildouts/2015-09-03?utm_medium=nl&utm_source=internal.

¹⁴³ *See id.* (quoting XO CEO Chris Ancell).

¹⁴⁴ *See id.* (quoting XO CEO Chris Ancell).

¹⁴⁵ 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.

¹⁴⁶ XO Communications, *Wholesale Business*, <http://www.xo.com/solutions/business/wholesale/>; XO Communications, *Network Reach*, <http://www.xo.com/why/the-right-network/reach/>.

¹⁴⁷ XO Communications, *Careers*, <http://www.xo.com/about/careers/>.

¹⁴⁸ XO Communications, *Corporate Overview*, <http://www.xo.com/XO-Resource-Detail.aspx?id=10737420894> (emphasis omitted).

¹⁴⁹ 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.

XO provides a wide range of data services, including Dedicated Internet Access “in a variety of speeds ranging from 1.5 Mbps all the way up to 100 Gbps”¹⁵⁰ and Ethernet Private Lines “at speeds up to 100 Gbps.”¹⁵¹ XO also offers fixed wireless access—“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,” with a “[b]road range of bandwidth options, from 10 Mbps to 1 Gbps.”¹⁵² Moreover, in addition to serving business customers, XO’s wholesale services “provide[] high-performance data, IP, and network transport services for national and international telecommunications carriers, cable companies, content providers, and mobile wireless companies.”¹⁵³

4. Zayo Group

The Zayo Group describes itself as “a global provider of bandwidth infrastructure services, including . . . dark fiber, live video, wavelengths, SONET, Ethernet, IP services and carrier-neutral colocation and interconnection.”¹⁵⁴ Since 2007, the company has spent nearly \$3.9 billion acquiring 34 companies, including 360networks, AboveNet, Access, Adesta Assets, AGL Networks, American Fiber Systems, Arialink, CenturyTel Tri-State Markets, Citynet Fiber Networks, CityNet Holdings Assets, Colo Facilities Atlanta, Columbia Fiber Solutions, Core NAP, Corelink, CoreXchange, Dolphini Assets, FiberGate, FiberLink, FiberNet, FTS, Geo, IdeaTek Systems, Indiana Fiber Works, Latisys, Litecast, MarquisNet, Memphis Networkx, Neo Telecoms, Northwest Telephone, Northwest Telephone California, Onvoy, PPL Telecom, USCarrier, and Voicepipe.¹⁵⁵

Zayo’s fiber network serves “46 states, plus Washington D.C.”¹⁵⁶ “[Zayo] own[s] fiber networks in over 300 metro markets, including large metro areas, such as New York, Chicago, San Francisco, Paris, and London, as well as smaller metro areas, such as Allentown, Pennsylvania, Fargo, North Dakota, and Spokane, Washington.”¹⁵⁷ The company “own[s] approximately 94% of [its] fiber miles, the remainder of which are operated by [Zayo] under long-term IRU contracts with an average remaining contract term of over 9 years.”¹⁵⁸ As of

¹⁵⁰ XO Communications, *Dedicated Internet Access*, <http://www.xo.com/network-services/internet-access/dedicated-internet-access/>.

¹⁵¹ XO Communications, *Ethernet Private Line*, <http://www.xo.com/network-services/ethernet-services/private-line/>.

¹⁵² XO Communications, *Fixed Broadband Wireless Access*, <http://www.xo.com/network-services/private-line-services/fixed-broadband-wireless-access/>.

¹⁵³ XO Communications, *Wholesale Services*, <http://www.xo.com/wholesale/>.

¹⁵⁴ Zayo Group, *About Zayo*, <http://www.zayo.com/company/company-overview>.

¹⁵⁵ Zayo Group Holdings, Inc., Form 424(B)(4) Prospectus, at 45-46 (SEC filed Mar. 13, 2015), <http://www.sec.gov/Archives/edgar/data/1608249/000119312515090531/d877708d424b4.htm> (“*Zayo Group Prospectus*”).

¹⁵⁶ Zayo Group, *About Zayo*, <http://www.zayo.com/company/company-overview>.

¹⁵⁷ *Zayo Group Prospectus* at 2.

¹⁵⁸ *Id.*

March 31, 2015, the company “had \$5.8 billion in revenue under contract with a weighted average remaining contract term of approximately 45 months.”¹⁵⁹

Zayo provides a wide range of enterprise broadband services, including “leased dark fiber, fiber to cellular towers and small cell sites, dedicated wavelength connections, Ethernet IP connectivity, cloud services and other high-bandwidth offerings.”¹⁶⁰ Its Ethernet services are provided “in speeds ranging from 10Mb to 10G,” and customers for these services “include carriers, financial services companies, healthcare, government institutions, education institutions and other enterprises.”¹⁶¹ Zayo also provides IP services at “speeds ranging from 10Mb to 100G on a single customer port interface” to “regional telecommunications and cable carriers, ISPs, enterprises, educational institutions and content companies,” and SONET services at “speeds ranging from DS-1 (1.54Mb) to OC-192 (10G) of capacity” to carriers.¹⁶²

Zayo is now a major supplier of wireless backhaul service and “provide[s] fiber based cell tower backhaul services to all major mobile service operators.”¹⁶³ The company reported having 4,500 cellular towers on-net at the end of 2014, and that it is “actively constructing fiber to an additional 1,200.”¹⁶⁴ In July 2015, Zayo announced that it “will extend its existing 120-route mile network to provide [fiber-to-the-tower] service to 147 new towers” in Nashville “to serve an anchor wireless service provider” pursuant to a 20-year contract, as well as “second tenants on the 147 towers.”¹⁶⁵ Zayo also recently announced another 20-year contract for which it will provide fiber-to-the-tower “to more than 500 towers to serve a major wireless carrier customer,” including 350 in the Greater Seattle area.¹⁶⁶ Zayo also “continues to expand on its mobile infrastructure strategy” by “provid[ing] additional services to wireless carriers and high-bandwidth non-wireless customers through follow-on sales on or near the initial anchor FTT network builds. Over the 18 months ending in June 2015, Zayo has sold additional services to over 800 macro tower and small cell sites that leverage previous anchor FTT network builds,” which Zayo estimates “will generate a greater than 20 percent unlevered return . . . on approximately \$23 million of incremental net capital investments.”¹⁶⁷ “Follow-on sales to both mobile carriers and a wide range of other customers are leveraging the fiber we are building to

¹⁵⁹ Zayo Group Holdings, Inc., Form 10-Q, at 29 (SEC filed May 13, 2015), https://www.sec.gov/Archives/edgar/data/1608249/000156459015004147/zayo-10q_20150331.htm.

¹⁶⁰ *Id.*

¹⁶¹ *Zayo Group Prospectus* at 96.

¹⁶² *Id.*

¹⁶³ Zayo Group, *Tower Backhaul*, <http://www.zayo.com/services/mobile-infrastructure/tower-backhaul-msc-connectivity>.

¹⁶⁴ *Zayo Group Prospectus* at 95.

¹⁶⁵ Zayo Group News Release, *Zayo To Significantly Expand Fiber-to-the-Tower Footprint in Nashville* (July 22, 2015), <http://investors.zayo.com/news/2015/07-22-2015-130304146.aspx>.

¹⁶⁶ Zayo Group News Release, *Zayo Continues To Execute Mobile Infrastructure Strategy in Seattle* (July 14, 2015), <http://investors.zayo.com/news/2015/07-14-2015-130317298.aspx>.

¹⁶⁷ Zayo Group News 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>.

support FTT deployments,’ said Matt Erickson, president and COO of Zayo’s Physical Infrastructure segment. ‘School districts, healthcare providers, and technology companies use the fiber to interconnect their key locations and to connect to their remote cloud and data center environments.’”¹⁶⁸

5. EarthLink

EarthLink has become a major supplier of enterprise broadband services as a result of the acquisitions of ITC^DeltaCom, Inc. and One Communications Corp., in 2010 and 2011, respectively.¹⁶⁹ EarthLink now has a “[n]ationwide [n]etwork” spanning 29,421 route fiber miles with 90 metro fiber rings in 25 states, and “secure enterprise-class data centers that provide data and voice IP service coverage across more than 90 percent of the United States.”¹⁷⁰ EarthLink serves more than 150,000 business customers.¹⁷¹

EarthLink’s enterprise broadband services include high-speed Internet access “from 1.5MB to 1 GB,”¹⁷² MPLS, IPsec VPN, and Secure WiFi.¹⁷³ In April 2015, EarthLink announced the launch of its Managed Transport Service which enables carrier customers to build and manage networks “in increments of 500Gb, capable of scaling up to multiple terabits. EarthLink will provide the line system with the amount of capacity desired in 500G increments and either provision and manage all sub-rate circuits (100G, 10G, 2.5G, 1G, below 1G) for the customer or design it to be managed by the customer.”¹⁷⁴

EarthLink’s President and CEO recently reported that the company is “seeing an increase with enterprise accounts in [its] Transport services” and is “seeing good traction with the traditional carrier customers as well.”¹⁷⁵ EarthLink’s “Q1 Carrier/Transport bookings were up more than 50% compared to [its] average quarterly bookings last year, while in Q2 [it] further

¹⁶⁸ *Id.*

¹⁶⁹ See EarthLink Holdings Corp., Form 10-K, at 1 (SEC filed Feb. 25, 2014), <http://www.sec.gov/Archives/edgar/data/1102541/000110254114000005/elnk-20131231x10k.htm> (the acquisitions “transformed [EarthLink’s] business from being primarily an Internet services provider . . . to residential customers into a network and communications provider for business customers. In addition, through these acquisitions [EarthLink] acquired a substantial network infrastructure.”).

¹⁷⁰ EarthLink, *Corporate Profile*, <http://www.earthlink.net/about/corp/>; EarthLink Holdings Corp., Form 10-K, at 1 (SEC filed Feb. 20, 2015), <http://www.sec.gov/Archives/edgar/data/1102541/000110254115000003/elnk-20141231x10k.htm>.

¹⁷¹ EarthLink News Release, *EarthLink Announces Completion of Holding Company Formation* (Jan. 2, 2014), <http://ir.earthlink.net/releasedetail.cfm?releaseid=816605>.

¹⁷² EarthLink, *Network Services: Internet Access – Features*, <http://www.earthlinkbusiness.com/data-services/internet-access.xea>.

¹⁷³ EarthLink Business, *Network Services – Products*, <http://www.earthlinkbusiness.com/data-services/>.

¹⁷⁴ EarthLink News Release, *EarthLink Carrier Introduces New Managed Transport Service* (Apr. 14, 2015), <http://www.earthlink.net/about/press/pressrelease.faces?id=1072>.

¹⁷⁵ *Q2 2015 Earthlink Holdings Corp Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 080415a5763297.797 (Aug. 4, 2015) (statement by EarthLink Holdings Corp. CEO & President Joe Eazor).

accelerated this momentum with [its] Carrier/Transport bookings up another 32% over Q1, making this [EarthLink's] best sales quarter in this business since the first quarter of 2013.”¹⁷⁶

6. Sprint

Sprint is a major provider of Ethernet, wireless backhaul, and other enterprise broadband services, which it states it provides to “other communications companies and targeted business . . . subscribers,” including “[its] Wireless segment and . . . to cable [MSOs].”¹⁷⁷ Sprint’s business and wholesale offerings include private lines,¹⁷⁸ dedicated Internet access,¹⁷⁹ Ethernet access with “[d]ata transfer speeds of 2 Mbps - 1 Gbps,”¹⁸⁰ MPLS VPN solutions from “Frac T1 to 10 Gigabyte,”¹⁸¹ wireless WAN,¹⁸² and managed network solutions.¹⁸³ Sprint’s CEO reported that the company is “becoming more aggressive competitors on all fronts, focused on acquiring and retaining quality customers, improving [its] network and customer experience, and reducing costs.”¹⁸⁴

7. GTT Communications

GTT Communications describes itself as “the leading global cloud networking provider to multinational clients,” which “operates a global Tier 1 IP network connecting to any location in the world and with any application in the cloud.”¹⁸⁵ In April 2013, GTT acquired the global data services business of Neutral Tandem, Inc. d/b/a Inteliquent, which was “one of the largest

¹⁷⁶ *Id.* (statement by EarthLink Holdings Corp. CEO & President Joe Eazor).

¹⁷⁷ Sprint Nextel Corp., Form 10-K, at 5 (SEC filed May 27, 2014), <http://www.sec.gov/Archives/edgar/data/101830/000010183014000030/sprintcorp201310-kt.htm>.

¹⁷⁸ Sprint, *Services: Private Line*, [http://shop.sprint.com/mysprint/services_solutions/details.jsp?detId=private_line&catId=solution_ip_convergence_connectivity&catName=IP%20WAN%20Convergence%20-%20Connectivity&detName=Private%20Line&specialCat=.](http://shop.sprint.com/mysprint/services_solutions/details.jsp?detId=private_line&catId=solution_ip_convergence_connectivity&catName=IP%20WAN%20Convergence%20-%20Connectivity&detName=Private%20Line&specialCat=)

¹⁷⁹ Sprint, *Services: Dedicated Internet Access*, [http://shop.sprint.com/mysprint/services_solutions/details.jsp?detId=dia&catId=solution_ip_convergence_connectivity&catName=IP%20WAN%20Convergence%20-%20Connectivity&detName=Dedicated%20Internet%20Access&specialCat=.](http://shop.sprint.com/mysprint/services_solutions/details.jsp?detId=dia&catId=solution_ip_convergence_connectivity&catName=IP%20WAN%20Convergence%20-%20Connectivity&detName=Dedicated%20Internet%20Access&specialCat=)

¹⁸⁰ Sprint, *Services: Ethernet Access*, [http://shop.sprint.com/mysprint/services_solutions/details.jsp?detId=ethernet_access&catId=solution_ip_convergence_connectivity&catName=IP%20WAN%20Convergence%20-%20Connectivity&detName=Ethernet%20Access&specialCat=.](http://shop.sprint.com/mysprint/services_solutions/details.jsp?detId=ethernet_access&catId=solution_ip_convergence_connectivity&catName=IP%20WAN%20Convergence%20-%20Connectivity&detName=Ethernet%20Access&specialCat=)

¹⁸¹ Sprint, *Multi-Protocol Label Switching (MPLS)*, <http://wholesale.sprint.com/docs/default-library/mpls-whitepaper.pdf>.

¹⁸² Sprint Wholesale Solutions, *Wireline Solutions*, <http://wholesale.sprint.com/products/wireline-solutions>.

¹⁸³ Sprint Business, *Sprint Enablers*, https://www.sprint.com/business/solutions/sprint_enablers/index.html.

¹⁸⁴ *Q3 2014 Sprint Corp Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 020515a5604541.741 (Feb. 5, 2015) (statement by Sprint Corporation CEO Marcelo Claure).

¹⁸⁵ GTT Communications News Release, *GTT Completes Acquisition of MegaPath Managed Services Business* (Apr. 1, 2015), <http://www.gtt.net/gtt-completes-acquisition-megapath-managed-services-business/>.

global Ethernet interconnection networks, a top-five global IP Transit service provider and a leading IPv6 network” and served over 1,100 customers.¹⁸⁶ In October 2014, GTT acquired United Network Services, Inc. (UNSi), “a communications company providing data services to large enterprise and carrier clients,”¹⁸⁷ which had itself acquired Airband Communications, “one of the nation’s largest fixed wireless voice and data providers for businesses, with a large southwest and southeast MPLS backbone.”¹⁸⁸ In April 2015, GTT completed its acquisition of MegaPath’s managed services business.¹⁸⁹ As of July 2015, GTT provides services in 19 U.S. cities: Atlanta, Boston, Chicago, Dallas, Denver, Houston, Las Vegas, Los Angeles, Miami, Minneapolis, New York, Orlando, Philadelphia, Phoenix, Salt Lake City, San Francisco, San Jose, Seattle, and Washington, D.C.¹⁹⁰

GTT provides a wide range of enterprise broadband services. GTT offers Dedicated Internet Access that offers “fast, reliable Internet services to any corporate location using any access technology,” with symmetrical connectivity “from 1.5Mbps to 1G and more.”¹⁹¹ GTT’s “EtherCloud” services offer point-to-point Ethernet Private Line, point-to-multipoint EVPL, multipoint-to-multipoint VPLS, and MPLS IP-VPN connectivity.¹⁹² GTT also offers “100 Gigabit optical wavelengths to support a growing base of worldwide clients.”¹⁹³

8. Lumos Networks

Lumos Networks spun off from NTELOS Holdings in 2011¹⁹⁴ and is a “fiber-based bandwidth infrastructure and service provider in the Mid-Atlantic region with a network of long-haul fiber, metro Ethernet and Ethernet rings located primarily in Virginia and West Virginia, and portions of Maryland, Pennsylvania, Ohio and Kentucky.”¹⁹⁵ The company “provide[s]

¹⁸⁶ GTT Communications News Release, *Inteliquent Sells Global Data Business to GTT for \$54.5 Million* (Apr. 30, 2013), <http://www.gtt.net/inteliquent-sells-global-data-business-gtt-54-5-million/>.

¹⁸⁷ GTT Communications News Release, *GTT Acquires UNSi* (Oct. 1, 2014), <http://www.gtt.net/gtt-acquires-uns/>.

¹⁸⁸ United Network Service, Inc. News Release, *UNSi Completes the Acquisition of Airband Communications*, Telecom Ramblings (May 15, 2013), <http://newswire.telecomramblings.com/2013/05/uns-completes-acquisition-of-airband-communications/>.

¹⁸⁹ GTT Communications News Release, *GTT Completes Acquisition of MegaPath Managed Services Business* (Apr. 1, 2015), <http://www.gtt.net/gtt-completes-acquisition-megapath-managed-services-business/>.

¹⁹⁰ GTT Communications, *Major Metropolitan Areas*, <http://www.gtt.net/wp-content/uploads/2015/07/1-sided-Major-Metro-Markets-7-14-15.pdf>.

¹⁹¹ GTT Communications, *Dedicated Internet Access*, <http://www.gtt.net/services/dedicated-internet-access/>.

¹⁹² GTT Communications, *EtherCloud Services*, <http://www.gtt.net/services/ethercloud/>.

¹⁹³ GTT Communications News Release, *GTT Expands Global Network Capacity with 100 Gigabit Wavelengths* (Feb. 4, 2014), <http://www.gtt.net/gtt-expands-global-network-capacity-100-gigabit-wavelengths/>.

¹⁹⁴ Lumos Networks Corp., Form 10-K, at 2 (SEC filed Mar. 6, 2015), <http://www.sec.gov/Archives/edgar/data/1520744/000152074415000010/lmos-20141231x10k.htm>.

¹⁹⁵ Lumos Networks Corp., Form 10-Q, at 8 (SEC filed Aug. 6, 2015), <http://www.sec.gov/Archives/edgar/data/1520744/000152074415000026/lmos-20150630x10q.htm>.

services to carrier and enterprise customers, including healthcare providers, local government agencies, financial institutions and educational institutions.”¹⁹⁶ “Lumos Networks connects 976 unique [fiber-to-the-cell (FTTC)] sites, 1,307 total FTTC connections, 33 data centers, including seven company owned co-location facilities, 1,574 on-net buildings and approximately 2,560 total on-net locations.”¹⁹⁷

Lumos provides a wide range of enterprise broadband services, including “Multiprotocol Label Switching (‘MPLS’) based Ethernet, Metro Ethernet (‘Metro E’), Fiber to the Cell site (‘FTTC’) wireless backhaul and data transport services, wavelength transport services and IP Services.”¹⁹⁸ Lumos also provides services to wireless and other carriers, and reports signed or pending agreements “with 69 fiber, or telco, or cable MSO partners.”¹⁹⁹

Lumos has been investing to expand its network. For example, the company recently deployed a 270-mile dense metro fiber network in the Norfolk, Hampton, Chesapeake, Portsmouth, Suffolk, Newport News, and Virginia Beach, Va. metro areas, which is scheduled for completion by the end of 2015.²⁰⁰

9. Alpheus Communications

Alpheus Communications claims to be “a leading provider of Texas metro-regional fiber and networking solutions” that operates “the preferred fiber backbone for Metro Texas.”²⁰¹ Alpheus operates more than 3,200 route miles of metro fiber²⁰² in Dallas-Fort Worth, Houston, San Antonio, Austin, Corpus Christi, and the Rio Grande Valley.²⁰³ Its “dense metro network coverage for Ethernet services” reaches “over 129,000 Ethernet-qualified addresses in Texas.”²⁰⁴ Alpheus states that “[f]or more than a decade, [it] provided services only to major

¹⁹⁶ *Id.* at 23.

¹⁹⁷ Lumos Networks News Release, *Lumos Networks Officially Launches Hampton Roads/Norfolk Metro as Its 24th and Largest Enterprise Market* (Aug. 6, 2015), <http://ir.lumosnetworks.com/file.aspx?IID=4293608&FID=30594280>.

¹⁹⁸ Lumos Networks Corp., Form 10-Q, at 8 (SEC filed Aug. 6, 2015), <http://www.sec.gov/Archives/edgar/data/1520744/000152074415000026/lmos-20150630x10q.htm>.

¹⁹⁹ *Q2 2015 Lumos Networks Corp Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 080615a5767704.704 (Aug. 6, 2015) (statement by Lumos Networks CEO Tim Biltz).

²⁰⁰ Lumos Networks News Release, *Lumos Networks Officially Launches Hampton Roads/Norfolk Metro as Its 24th and Largest Enterprise Market* (Aug. 6, 2015), <http://ir.lumosnetworks.com/file.aspx?IID=4293608&FID=30594280>.

²⁰¹ Alpheus Communications News Release, *Alpheus Communications and GVTC Communications Sign NNI Agreement* (Feb. 18, 2015), <http://www.alpheus.net/press-releases/alpheus-communications-and-gvtc-communications-sign-nni-agreement/>.

²⁰² Alpheus Communications, *Carrier Solutions*, <http://www.alpheus.net/carrier-solutions/>.

²⁰³ Alpheus Communications News Release, *Alpheus Communications and GVTC Communications Sign NNI Agreement* (Feb. 18, 2015), <http://www.alpheus.net/press-releases/alpheus-communications-and-gvtc-communications-sign-nni-agreement/>.

²⁰⁴ Alpheus Communications, *Ethernet Everywhere*, <http://www.alpheus.net/>.

telecommunications and cable companies,” but “[t]oday, [its] network is ‘opened’ for providing services to enterprise businesses throughout Texas.”²⁰⁵ Alpheus offers “Metro Ethernet: point-to-point, point-to-multipoint, any-to-any—scalable from 1Mbps to GigE,” “Private Line: T1, DS3, OC-N, Ethernet,” “Dedicated Internet Access: T1, DS3, OC-N, Ethernet,” MPLS IP VPN, managed Wavelength, and Texas regional long-haul services,²⁰⁶ as well as a “[c]omplete [p]ortfolio of [c]arrier [s]ervices.”²⁰⁷

In August 2015, Alpheus announced “its fourth major fiber network expansion in the past 12 months,” adding “just over 1,000 new near-net buildings for a total of approximately 7,000 near-net buildings in Texas; and the expansion brings the number of businesses able to leverage Alpheus’ fiber network and services to 48,000, up from 42,000 earlier this year.”²⁰⁸ According to its CEO, “Alpheus is in a strong position to deliver [its] fiber connections and network services to companies of all sizes.”²⁰⁹

10. Axiom Fiber Networks

Axiom Fiber Networks states that it is “a telecommunications infrastructure services provider, specializing in dark fiber, serving carriers and enterprise customers in the greater New York City Metropolitan region.”²¹⁰ Its 20-mile, 864-fiber strand count core network “is brand new and purpose built to support solutions requiring high quality fiber connectivity in any type of density situation, from single pairs to massive dense fiber counts.”²¹¹ “Deployment began in late 2014 with the first stage connecting the major carrier hotels,” and remaining stages were scheduled to be completed in the second quarter of 2015.²¹² Axiom’s network “operates within striking distance of every building in Midtown and Lower Manhattan.”²¹³ In addition to dark fiber services, Axiom offers managed private networks, “deliver[ing] streamlined inter-office communications without the high costs and overhead of traditional VPN services.”²¹⁴

²⁰⁵ Alpheus Communications, *Fiber Provider Austin*, <http://www.alpheus.net/enterprise/austin/fiber-provider-austin/>.

²⁰⁶ Alpheus Communications, *Alpheus Network*, <http://www.alpheus.net/>.

²⁰⁷ Alpheus Communications, *Carrier Solutions*, <http://www.alpheus.net/carrier-solutions/>.

²⁰⁸ 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/>.

²⁰⁹ *Id.* (statement by Alpheus CEO Scott Widham).

²¹⁰ Axiom Fiber Networks, *About Us*, <http://www.axiomfiber.com/about-us/>.

²¹¹ Axiom Fiber Networks, *Network Map*, <http://www.axiomfiber.com/network-map/>.

²¹² *Id.*

²¹³ *Id.*

²¹⁴ Axiom Fiber Networks, *Managed Private Networks*, <http://www.axiomfiber.com/services/managed-private-networks/>.

11. Birch Communications (formerly Cbeyond)

Birch Communications describes itself as “a leading technology service provider of IP-based communications, broadband, cloud and IT services to small, mid-sized, enterprise and wholesale businesses.”²¹⁵ In July 2014, Birch acquired Cbeyond, Inc., creating “a nationwide communications, cloud and managed services provider with approximately \$700 million in annual revenue and approximately 200,000 business customers located in all 50 states, the District of Columbia, Canada and Puerto Rico.”²¹⁶ In June 2015, Birch completed the customer asset acquisition of OrbitCom, “a regional provider of voice and data solutions to small and medium businesses,” adding more than 5,000 business customers.²¹⁷

Birch operates a “Nationwide IP-Network with 600+ Points of Presence (POPs) in 22 states,” with 31,000 fiber route miles, 686 fiber-lit buildings, 6 geographically-diverse data centers, and MPLS and fiber capabilities, “reaching more than 20,000 businesses” and serving more than 200,000 customers.²¹⁸ The company “currently offers high-speed Fiber-optic voice and data services in seven major metro markets across the nation.”²¹⁹ Birch’s data offering includes “business-grade broadband” at “speeds up to 100 Mbps—even up to 1GB in some areas.”²²⁰ The BirchNet Broadband Internet footprint was recently expanded by over 60 percent, allowing the company to offer BirchNet Broadband service “in 36 states, reaching approximately 1 million business customers.”²²¹ The company’s wholesale division, Birch Carrier Solutions, serves CLECs, ISPs, VoIP providers, and resellers by “leverag[ing] its extensive network in the southeast and southwest,” and currently serves 10 states and 340 interconnected central offices, “with more states to be included in the coming months.”²²²

²¹⁵ Birch Communications, Inc. Press Release, *Birch Expands Metro Fiber Services in Key Markets* (Feb. 2, 2015), <http://www.birch.com/press-releases/birch-expands-metro-fiber-in-key-markets>.

²¹⁶ Birch Communications, Inc. Press Release, *Birch Completes Acquisition of Cbeyond* (July 21, 2014), <http://www.birch.com/press-releases/birch-completes-acquisition-of-cbeyond>; Birch Communications, Inc. Press Release, *Birch Communications To Acquire Cbeyond* (Apr. 21, 2014), <http://www.birch.com/press-releases/birch-communications-to-acquire-cbeyond-archive-release>.

²¹⁷ Birch Communications, Inc. Press Release, *Birch Completes Customer Asset Acquisition of OrbitCom* (June 22, 2015), <http://www.birch.com/press-releases/birch-completes-customer-asset-acquisition-of-orbitcom>.

²¹⁸ Birch Communications, Inc., *About Birch*, <http://www.birch.com/about>; Birch Communications, Inc. Press Release, *Birch Expands Metro Fiber Services in Key Markets* (Feb. 2, 2015), <http://www.birch.com/press-releases/birch-expands-metro-fiber-in-key-markets>; Birch Communications, Inc. Press Release, *Birch Continues To Boost Metro-Fiber Services in Key Markets* (Apr. 20, 2015), <http://www.birch.com/press-releases/birch-continues-to-boost-metro-fiber-services-in-key-markets>.

²¹⁹ Birch Communications, Inc. Press Release, *Birch Expands Metro Fiber Services in Key Markets* (Feb. 2, 2015), <http://www.birch.com/press-releases/birch-expands-metro-fiber-in-key-markets>.

²²⁰ Birch Communications, Inc., *Internet & Network*, <http://www.birch.com/services/internet-and-network>.

²²¹ *Birch Expands National Broadband Footprint*, PR Newswire (Aug. 24, 2015), <http://www.prnewswire.com/news-releases/birch-expands-national-broadband-footprint-300130639.html>.

²²² Birch Communications, Inc., *Wholesale*, <http://www.birch.com/wholesale>.

In February and April 2015, Birch announced “large network expansion[s] of Fiber services” in its Dallas, Houston, Denver, Los Angeles, and Washington, D.C. markets.²²³ Its “2015 roadmap includes ongoing expansion of its Fiber services to several other markets in the coming months. The emphasis will continue to be on extending the network footprint into large, multi-tenant buildings and facilities in Tier 1 and Tier 2 markets nationwide.”²²⁴ “Birch plans to serve more than 800 lit buildings nationwide this year.”²²⁵ Birch announced that the second quarter of 2015 “was the best three month sales period in the company’s history,” achieving “an overall sales increase of 112% compared to the same quarter last year.”²²⁶ “The growth was fueled by record sales of advanced services and the onboarding of several new enterprise customers.”²²⁷

12. Broadview Networks

Broadview Networks describes itself as “a leading cloud-based service provider of communications and information technology solutions to small and medium sized business[es] and enterprise customers nationwide.”²²⁸ “Prior to 2009, [its] focus had been solely on markets across 10 states throughout the Northeast and Mid-Atlantic United States, including the major metropolitan markets of New York, Boston, Philadelphia, Baltimore and Washington, D.C.,” however, “[its] focus has evolved to a nationwide focus.”²²⁹ Broadview’s network consists of approximately 3,000 route miles of metro and long-haul fiber, including both owned and dark fiber, and approximately 260 collocations.²³⁰ Broadview serves more than 20,000 business customers.²³¹ “Approximately 88% of [Broadview’s] total revenue was generated from retail end users in a wide array of industries including professional services, health care, education, manufacturing, real estate, retail, automotive, [and] non-profit groups,” and “[a]pproximately

²²³ Birch Communications, Inc. Press Release, *Birch Expands Metro Fiber Services in Key Markets* (Feb. 2, 2015), <http://www.birch.com/press-releases/birch-expands-metro-fiber-in-key-markets>; Birch Communications, Inc. Press Release, *Birch Continues To Boost Metro-Fiber Services in Key Markets* (Apr. 20, 2015), <http://www.birch.com/press-releases/birch-continues-to-boost-metro-fiber-services-in-key-markets>.

²²⁴ Birch Communications, Inc. Press Release, *Birch Expands Metro Fiber Services in Key Markets* (Feb. 2, 2015), <http://www.birch.com/press-releases/birch-expands-metro-fiber-in-key-markets>.

²²⁵ Birch Communications, Inc. Press Release, *Birch Continues To Boost Metro-Fiber Services in Key Markets* (Apr. 20, 2015), <http://www.birch.com/press-releases/birch-continues-to-boost-metro-fiber-services-in-key-markets>.

²²⁶ Birch Communications, Inc. Press Release, *Birch Reports Record Second Quarter Sales Results* (July 20, 2015), <http://www.birch.com/press-releases/birch-reports-record-second-quarter-sales-results>.

²²⁷ *Id.*

²²⁸ Broadview Networks Holdings, Inc., Form 10-Q, at 7 (SEC filed Aug. 5, 2015), <https://www.sec.gov/Archives/edgar/data/1104358/000110435815000010/bnh-10q6x30x2015.htm>.

²²⁹ Broadview Networks Holdings, Inc., Form 10-K, at 35, 8 (SEC filed Mar. 30, 2015), <https://www.sec.gov/Archives/edgar/data/1104358/000110435815000005/broadviewnetworksholdingdo.htm>.

²³⁰ Broadview Networks Holdings, Inc., Form 10-Q, at 11 (SEC filed Aug. 5, 2015), <https://www.sec.gov/Archives/edgar/data/1104358/000110435815000010/bnh-10q6x30x2015.htm>.

²³¹ *Id.* at 10.

12% of total revenue was generated from wholesale, carrier access and other market channels.”²³²

Broadview’s “data service offerings are designed to provide a full range of services targeted at businesses that require single or multipoint high-speed, dedicated data connections.”²³³ Broadview offers MPLS and IP VPN data network services,²³⁴ and its Ethernet First Mile (EFM) service “is designed for [c]arriers interested in provisioning data speeds up to 30 Mbps to the end user premise[s].”²³⁵

13. Cogent Communications

Cogent Communications provides enterprise broadband services “through its own facilities, which run from its network to its customers’ premises.”²³⁶ Cogent’s network reaches 1,354 corporate office buildings in the U.S.,²³⁷ including “the most prestigious commercial buildings in the United States.”²³⁸ Its “most popular on-net service in North America” is its “Fast Ethernet service, which provides Internet access at 100 megabits per second,” which is “[p]rice competitive with a T1, but [provides] 65 times more bandwidth.”²³⁹ Cogent also offers

²³² *Id.* (reporting results for the first six months of 2015).

²³³ Broadview Networks Holdings, Inc., Form 10-K, at 6 (SEC filed Mar. 30, 2015), <http://www.sec.gov/Archives/edgar/data/1104358/000110435815000005/broadviewnetworksholdingdo.htm>.

²³⁴ *Id.*

²³⁵ Broadview Networks, *Wholesale Reseller Services*, <http://corporate.broadviewnet.com/Wholesale/Resellers.asp>.

²³⁶ Cogent Communications Holdings, Inc., Form 10-K, at 6, 51 (SEC filed Feb. 27, 2015), <http://www.sec.gov/Archives/edgar/data/1158324/000104746915001355/a2223182z10-k.htm>.

²³⁷ Cogent Communications, *Service Locations – List Search*, http://www.cogentco.com/index.php?continent=North+America&country=United+States&state=&metro=&city=&site_type=&action=search&option=com_content&view=article&id=40&Itemid=. Cogent claims to “directly connect with fiber approximately 1,465 skyscrapers throughout North America, representing 800 million square feet of multi-tenant office space.” *Cogent Communications Holdings Inc at Goldman Sachs Leveraged Finance Conference – Final*, FD (Fair Disclosure) Wire, Transcript 031115a5634831.731 (Mar. 11, 2015) (statement by Cogent Communications Holdings, Inc. founder and CEO Dave Schaeffer).

²³⁸ Cogent, *Cogent Powered Buildings*, <https://www.cogentco.com/en/about-cogent/cogent-powered-buildings>.

²³⁹ *See* Cogent Communications Holdings, Inc., Form 10-K, at 6 (SEC filed Feb. 27, 2015), <http://www.sec.gov/Archives/edgar/data/1158324/000104746915001355/a2223182z10-k.htm>; Cogent Communications, *On-Net Services*, <http://www.cogentco.com/en/products-and-services/dedicated-internet-access/on-net-services>; Cogent Communications, *Ethernet Point-to-Point*, <http://www.cogentco.com/en/products-and-services/ethernet-services/ethernet-point-to-point>.

Internet access services “at higher speeds of up to 100 Gigabits per second,”²⁴⁰ including Gigabit Ethernet from 200 Mbps to 10 Gbps.²⁴¹

14. Crown Castle International

Crown Castle International has a large network of wireless towers and has deployed an extensive fiber-based network to provide backhaul for these facilities. Crown Castle claims to be “the nation’s largest provider of shared wireless infrastructure” “[w]ith approximately 40,000 towers and 15,000 small cell nodes supported by approximately 16,000 miles of fiber.”²⁴² Crown Castle offers wireless carriers “[t]urnkey solutions” by “design[ing], build[ing], and maintain[ing] cost-effective infrastructure solutions from start to finish.”²⁴³

In August 2015, Crown Castle International completed its acquisition of Quanta Fiber Networks, Inc. (“Sunesys”), a fiber services provider, for approximately \$1 billion in cash.²⁴⁴ Sunesys “owns or has rights to nearly 10,000 miles of fiber in major metropolitan markets across the United States, including Los Angeles, Philadelphia, Chicago, Atlanta, Silicon Valley, and northern New Jersey, with approximately 60% of Sunesys’ fiber miles located in the top 10 basic trading areas.”²⁴⁵ The acquisition “is expected to further strengthen Crown Castle’s leading position in small cell networks by more than doubling Crown Castle’s fiber footprint available for small cell deployments and expanding Crown Castle’s presence in many of the top U.S. metropolitan markets.”²⁴⁶

15. DQE Communications

DQE Communications is a subsidiary of Duquesne Light Holdings, an energy company in Pennsylvania.²⁴⁷ DQE claims to have the “largest 100% fiber-optic network in southwestern [Pennsylvania],” with more than 2,500 route miles and more than 1,100 on-net buildings and more than 33 business parks in Allegheny, Armstrong, Beaver, Butler, Indiana, Washington, and

²⁴⁰ See Cogent Communications Holdings, Inc., Form 10-K, at 6 (SEC filed Feb. 27, 2015), <http://www.sec.gov/Archives/edgar/data/1158324/000104746915001355/a2223182z10-k.htm>.

²⁴¹ Cogent Communications, *Ethernet Point-to-Point*, <http://www.cogentco.com/en/products-and-services/ethernet-services/ethernet-point-to-point>.

²⁴² Crown Castle International News Release, *Crown Castle Completes Acquisition of Sunesys* (Aug. 4, 2015), <http://investor.crowncastle.com/phoenix.zhtml?c=107530&p=RssLanding&cat=news&id=2075668>.

²⁴³ Crown Castle International, *Wireless Carriers: Towers*, <http://www.crowncastle.com/wireless-carriers/towers.aspx>.

²⁴⁴ Crown Castle International News Release, *Crown Castle Completes Acquisition of Sunesys* (Aug. 4, 2015), <http://investor.crowncastle.com/phoenix.zhtml?c=107530&p=RssLanding&cat=news&id=2075668>; Crown Castle International News Release, *Crown Castle Announces Agreement To Acquire Sunesys* (Apr. 30, 2015), <http://investor.crowncastle.com/phoenix.zhtml?c=107530&p=RssLanding&cat=news&id=2042090>.

²⁴⁵ Crown Castle International News Release, *Crown Castle Announces Agreement To Acquire Sunesys* (Apr. 30, 2015), <http://investor.crowncastle.com/phoenix.zhtml?c=107530&p=RssLanding&cat=news&id=2042090>.

²⁴⁶ *Id.*

²⁴⁷ DQE Communications, *About DQE*, http://www.dqecom.com/about_dqe.php.

Westmoreland Counties.²⁴⁸ DQE “provides flexible, customized solutions of every size, providing unrestricted bandwidth and scalability.”²⁴⁹ It offers Metro Ethernet services from 1 Mbps to 10 Gbps, dedicated Internet access with symmetrical speeds from 10 Mbps to 1 Gbps, collocation, and dark fiber.²⁵⁰

DQE states that its goal is “to grow and thrive,” and that it has been “strategically growing, expanding [its] network to reach more buildings, carefully building redundancy and maintaining [its] commitment to performance at every step,” to allow DQE “to not only reach more customers, but also to better serve the customers who are already [its] partners.”²⁵¹ In August 2014, the company reported that it signed a 20-year contract to “provide Iron Mountain’s National Data Center in western Pennsylvania with high-speed, fiber-optic data network services.”²⁵² To accomplish this, DQE “will add approximately 40 miles of fiber-optic cable” from Boyers, Pa. to Butler, Pa., and Iron Mountain is contracting 192 miles of DQE fiber from its site to Pittsburgh’s North Side.²⁵³ According to DQE, “[o]ver the [prior] year, DQE expanded its fiber footprint by completing 263 miles of fiber.”²⁵⁴

16. Edison Carrier Solutions

Edison Carrier Solutions, a business unit of Southern California Edison, is a CLEC “focused on the wholesale carrier and large business market offering high capacity special access services at DS-3 and above.”²⁵⁵ Its customers “are regional, national, and international telecommunication carriers, cable television companies, satellite providers, wireless providers, internet service providers, system integrators, and large enterprises.”²⁵⁶ The company claims to operate “[o]ne of the largest competitive carrier networks in Southern California” with more than 5,000 route miles of metro area fiber.²⁵⁷ Its service area covers more than 50,000 square miles.²⁵⁸ Edison Carrier Solutions “provide[s] on-net connectivity to 65+ network locations such as Carrier Hotels and POP locations, and 75+ ILEC central offices,” primarily in Los Angeles,

²⁴⁸ DQE Communications, *Network Map*, http://www.dqecom.com/network_map.php (emphasis omitted); DQE Communications, *About DQE*, http://dqecom.com/about_dqe.php.

²⁴⁹ DQE Communications, *Services/Solutions*, http://www.dqecom.com/services_solutions.php.

²⁵⁰ *Id.*

²⁵¹ DQE Communications, *About DQE*, http://www.dqecom.com/about_dqe.php.

²⁵² DQE Communications News Release, *DQE Communications Provides Fiber-Optic Networking to Iron Mountain* (Aug. 27, 2014), http://www.dqecom.com/assets/images/DQE%20Com%20Iron%20Mountain_8.27.14.pdf.

²⁵³ *Id.*

²⁵⁴ *Id.*

²⁵⁵ Edison Carrier Solutions, *Edison Carrier Solutions*, <http://www.edisonconnect.com/home/default.asp>.

²⁵⁶ *Id.*

²⁵⁷ Edison Carrier Solutions, *Edison Carrier Solutions*, <http://www.edisoncarriersolutions.com/>.

²⁵⁸ *Id.*

Santa Monica, Oxnard, Irvine, Riverside, San Bernadino, and Victorville (LATA 730), and extending into Palm Springs (LATA 973) and its vicinity.²⁵⁹

Edison Carrier Solutions offers managed wavelength service for “non-proprietary, point-to-point connection” at 2.5 Gbps, 10 Gbps, or Gigabit Ethernet speeds.²⁶⁰ Edison Carrier Solutions also provides cell site backhaul.²⁶¹ The company’s fiber network “is in proximity to wireless cell sites allowing [the company] to offer competitively priced backhaul services to mobile operators in this market.”²⁶² Backhaul service is available from point-to-point DS1 to OC-12 speeds, or from 10 Mbps to Gigabit Ethernet speeds.²⁶³ Edison Carrier Solutions also offers SONET²⁶⁴ and dark fiber solutions.²⁶⁵

17. FiberLight

FiberLight states that it is “a premier provider of fiber-optic based, high-performance networking services for telecom carriers, government, enterprise, content providers and web-centric businesses.”²⁶⁶ The company wholly owns its \$1 billion, all-optical network with 1.6 million miles of fiber “in over 44 key growth areas in US cities and towns within Florida, Georgia, Maryland, Texas, Virginia and Washington, D.C., offering wide area networking options at layers 1, 2 and 3 to major commercial hubs throughout the country.”²⁶⁷ FiberLight claims to offer “more connectivity options than you can fathom” with more than “17,000 backbone access points, 1,700 on-net locations, presence in almost 100 data centers and active expansion activities occurring daily.”²⁶⁸

FiberLight offers Metro Ethernet Services for “point-to-point, point-to-multipoint and any-to-any connectivity” with “[f]lexible interfaces including 10/100 Mbps FastE, GigE, 10Gbps

²⁵⁹ Edison Carrier Solutions, *Southern California Network*, <http://www.edisoncarriersolutions.com/network.asp>.

²⁶⁰ Edison Carrier Solutions, *Managed Wavelength Service*, <http://www.edisoncarriersolutions.com/wavelength.asp>.

²⁶¹ Edison Carrier Solutions, *Cell Site Backhaul*, <http://www.edisoncarriersolutions.com/cellsite.asp>.

²⁶² *Id.*

²⁶³ *Id.*

²⁶⁴ Edison Carrier Solutions, *SONET Service*, <http://www.edisoncarriersolutions.com/sonet.asp>.

²⁶⁵ Edison Carrier Solutions, *Dark Fiber*, <http://www.edisoncarriersolutions.com/darkfiber.asp>.

²⁶⁶ FiberLight News Release, *FiberLight, LLC Brings Fiber Optic Transport Services to Booming Texas Communities* (Nov. 11, 2014), <http://www.fiberlight.com/Resources/News/FiberLight,-LLC-Closes-in-on-Texas-Expansion-Compl.aspx>.

²⁶⁷ FiberLight, *High-Performance Network*, <http://www.fiberlight.com/Carrier-Solutions/High-Performance-Network.aspx>; FiberLight, *FiberLight – Network*, <http://www.fiberlight.com/Home.aspx>; FiberLight News Release, *FiberLight, LLC Brings Fiber Optic Transport Services to Booming Texas Communities* (Nov. 11, 2014), <http://www.fiberlight.com/Resources/News/FiberLight,-LLC-Closes-in-on-Texas-Expansion-Compl.aspx>.

²⁶⁸ FiberLight, *FiberLight – Network*, <http://www.fiberlight.com/Home.aspx>.

and 100 Gbps.”²⁶⁹ FiberLight also provides Dedicated Internet Access and carrier class Ethernet services with “bandwidth options ranging from 10Mbps to 100Gbps,” as well as SONET, dark fiber, and wireless backhaul services.²⁷⁰

FiberLight continues to invest heavily in its network. In 2014, the company upgraded its network in South Florida²⁷¹ and “installed 1,765 route miles of new fiber networks” with a significant expansion across Texas.²⁷² The company plans to “complete another 1,100 miles of its Texas expansion project in 2015” and “plans to install another 900 miles across Texas in 2016.”²⁷³

18. FPL FiberNet

FPL FiberNet, a subsidiary of NextEra Energy, Inc., “delivers wholesale and enterprise telecommunications services” with networks that “cover most of the metropolitan areas in Florida,” “several in Texas,” and Atlanta.²⁷⁴ It “leases fiber-optic network capacity and dark fiber to [Florida Power & Light] and other customers, primarily telephone, wireless, internet and other telecommunications companies.”²⁷⁵ FPL FiberNet’s metro networks “consist of approximately 2,500 miles of fiber,” and serve more than 2,700 locations, including 685 towers and 1,840 commercial buildings.²⁷⁶ FPL FiberNet offers private line and backhaul services, “Ethernet transport, Dedicated Internet Access, Managed Services, Colocation and SONET and SDH transport delivered over [its] carrier-grade MPLS network.”²⁷⁷

²⁶⁹ FiberLight, *Ethernet*, <http://www.fiberlight.com/Fiber-Optic-Services/Ethernet.aspx>.

²⁷⁰ FiberLight, *Dedicated Internet Access*, <http://www.fiberlight.com/Fiber-Optic-Services/Dedicated-Internet-Access.aspx>; FiberLight, *Ethernet*, <http://www.fiberlight.com/Fiber-Optic-Services/Ethernet.aspx>; FiberLight, *FiberLight Delivers*, <http://www.fiberlight.com/files/fiberlight/d2/d2c57a8c-4921-4d3a-a2ce-8b5889f0738e.pdf>; FiberLight, *Dark Fiber*, <http://www.fiberlight.com/Fiber-Optic-Services/Dark-Fiber.aspx>; FiberLight, *Wireless Backhaul*, <http://www.fiberlight.com/Carrier-Solutions/Wireless-Backhaul.aspx>.

²⁷¹ FiberLight News Release, *FiberLight Investment in South Florida Network Brings Higher Bandwidth Capabilities for Data-Driven* (Oct. 14, 2014), <http://www.fiberlight.com/Resources/News/SFL-Ciena-Network-Upgrade.aspx>.

²⁷² FiberLight News Release, *FiberLight, LLC Brings Fiber Optic Transport Services to Booming Texas Communities* (Nov. 11, 2014), <http://www.fiberlight.com/Resources/News/FiberLight,-LLC-Closes-in-on-Texas-Expansion-Compl.aspx>.

²⁷³ *Id.*

²⁷⁴ Nextera Energy, Inc., Form 10-K, at 5, 21 (SEC filed Feb. 20, 2015), <http://www.sec.gov/Archives/edgar/data/37634/000075330815000079/nee-12312014x10k.htm>; FPL FiberNet, *Interactive Map: Atlanta*, <http://www.fplfiber.net/network/map.shtml?city=atlanta>.

²⁷⁵ Nextera Energy, Inc., Form 10-K, at 21 (SEC filed Feb. 20, 2015), <http://www.sec.gov/Archives/edgar/data/37634/000075330815000079/nee-12312014x10k.htm>.

²⁷⁶ FPL FiberNet, *Fiber-Optic Network Overview*, <http://www.fplfiber.net/network/index.shtml>; see FPL FiberNet, *FPL FiberNet Locations List*, <http://www.fplfiber.net/pdf/locationslist.pdf>.

²⁷⁷ FPL FiberNet, *Private Line Services*, <http://www.fplfiber.net/solutions/services/private-line/index.shtml>; FPL FiberNet, *Wireless Infrastructure*, <http://www.fplfiber.net/solutions/services/wireless-infrastructure.shtml>; FPL FiberNet, *Fiber-Optic Network Overview*, <http://www.fplfiber.net/network/>.

19. Hudson Fiber Network

Hudson Fiber Network (HFN) claims to be “a premier data transport provider, offering high-bandwidth, low-latency networking solutions for financial, content, carrier and enterprise customers.”²⁷⁸ Its service offering includes “Gigabit Ethernet, optical wave solutions and IP connectivity (10 MB through 100 Gig)” that is “delivered in and between key U.S. and global metropolitan markets, via HFN’s fully owned and operated fiber network.”²⁷⁹ HFN recently completed the installation of bulk cable throughout Manhattan, “bringing fiber optic services to leading commercial buildings and data centers throughout New York City.”²⁸⁰ “In addition to commercial sites within Manhattan, HFN already provides carrier services to over 50 commercial buildings throughout New York City.”²⁸¹

20. Integra Telecom

Integra Telecom states that it is “one of the largest facilities-based providers of communication and networking services in the western United States.”²⁸² Integra “connect[s] businesses of all sizes with advanced networking, communications and technology solutions in 35 metropolitan markets.”²⁸³ “Integra’s vast, privately owned network connects customers to . . . 3,000 miles of metro fiber across 35 cities in 11 states.”²⁸⁴ Its fiber network has more than 3,000 buildings on-net.²⁸⁵ Integra currently serves more than 85,000 customers in Arizona, California, Colorado, Idaho, Minnesota, Montana, Nevada, North Dakota, Oregon, Utah, and Washington.²⁸⁶

Integra’s data services offerings include high-speed Internet service “with bandwidth ranging from 1.544 Mbps to 10 Gbps,”²⁸⁷ private line services providing “scalable point-to-point

²⁷⁸ Hudson Fiber Network, *About Us*, <http://hudsonfiber.com/about-us/>.

²⁷⁹ *Id.*

²⁸⁰ Hudson Fiber Network News Release, *HFN Expands NYC’s Network Infrastructure* (July 7, 2015), <http://hudsonfiber.com/nyc-subway-system-to-move-data-not-just-people/>.

²⁸¹ *Id.*

²⁸² Integra Telecom, *About Integra*, <http://www.integratelecom.com/about/Pages/default.aspx>.

²⁸³ *Id.*

²⁸⁴ Integra Telecom News Release, *Electric Lightwave, Integra Business Drive Expansion as Integra Reaches 3,000 On-Network Locations* (Apr. 16, 2015), <http://www.integratelecom.com/about/news/pages/electric-lightwave,-integra-business-drive-expansion-as-integra-reaches-3,000-on-network-locations.aspx>.

²⁸⁵ *Id.*

²⁸⁶ Integra Telecom, *Connect Confidently*, <http://www.integratelecom.com/about/pages/default.aspx>.

²⁸⁷ Integra Telecom, *High Speed Internet for Small Business*, <http://www.integratelecom.com/small-business/products/pages/high-speed-internet-services.aspx>; Integra Telecom, *High Speed Internet for Wholesale*, <http://www.integratelecom.com/wholesale/products/pages/high-speed-internet-services.aspx>.

connections” ranging from 1.5 Mbps to 10 Gbps,²⁸⁸ E-Line and E-LAN Ethernet services,²⁸⁹ IP/MPLS VPN solutions,²⁹⁰ dark fiber,²⁹¹ Wavelength,²⁹² and Cloud Connect, which is a private connection between the Integra network to Amazon Web Services or other cloud partners.²⁹³ Integra also offers dedicated Express Routes for its Wavelength services, enabling “dedicated, point-to-point 100G connectivity between metro areas across the Western U.S. including Las Vegas, Los Angeles, Phoenix, Sacramento, Salt Lake City and Seattle.”²⁹⁴

In October 2014, Integra completed its acquisition of World Communications, Inc., providing Integra with “a sizable base of enterprise customers who now gain access to Integra’s vast network resources” in the Seattle market.²⁹⁵ Integra recently reported the expansion of its fiber infrastructure, including “significant growth in the Phoenix, Portland, Salt Lake City and Seattle markets.”²⁹⁶

21. Lightower Fiber Networks

In April 2013, Lightower Fiber Networks completed its merger with Sidera Networks, “creat[ing] one of the largest metro fiber providers in the United States.”²⁹⁷ In August 2015,

²⁸⁸ Integra Telecom, *Secure Private Line Connections for Small Business – Overview*, <http://www.integratelecom.com/small-business/products/pages/private-line.aspx>; Integra Telecom, *Private Line for Wholesale – Overview*, <http://www.integratelecom.com/wholesale/products/pages/private-line.aspx>.

²⁸⁹ Integra Telecom, *Ethernet Services for Small Business – Overview*, <http://www.integratelecom.com/small-business/products/pages/ethernet-services.aspx>.

²⁹⁰ Integra Telecom, *IP/MPLS VPN Solutions for Small Business*, <http://www.integratelecom.com/small-business/products/pages/vpn-services.aspx>.

²⁹¹ Integra Telecom, *Dark Fiber Network Provider for Enterprise*, <http://www.integratelecom.com/enterprise/products/pages/dark-fiber-network-provider.aspx>.

²⁹² Integra Telecom, *Wavelength Services*, <http://www.integratelecom.com/products/pages/network/wavelength.aspx>.

²⁹³ Integra Telecom, *Cloud Connection Service – Overview*, <http://www.integratelecom.com/products/pages/cloud-services/cloud-connect.aspx>.

²⁹⁴ Integra Telecom News Release, *Integra Strengthens Wavelength Services with Low-Latency Dedicated 100G Express Routes* (Sept. 30, 2014), <http://www.integratelecom.com/about/news/pages/integra-strengthens-wavelength-services-with-low-latency-dedicated-100g-express-routes.aspx>.

²⁹⁵ Integra Telecom News Release, *Integra Completes Acquisition of World Communications, Inc.* (Oct. 1, 2014), <http://www.integratelecom.com/about/news/pages/integra-completes-acquisition-of-world-communications-inc.aspx>. See also Integra Telecom News Release, *Integra To Expand Washington Presence with Acquisition of World Communications, Inc.* (July 14, 2014), <http://www.integratelecom.com/about/news/pages/integra-to-expand-washington-presence-with-acquisition-of-world-communications%2c-inc.aspx>.

²⁹⁶ Integra Telecom News Release, *Electric Lightwave, Integra Business Drive Expansion as Integra Reaches 3,000 On-Network Locations* (Apr. 16, 2015), <http://www.integratelecom.com/about/news/pages/electric-lightwave,-integra-business-drive-expansion-as-integra-reaches-3,000-on-network-locations.aspx>.

²⁹⁷ Lightower Fiber Networks Press Release, *Lightower Closes Merger with Sidera Networks To Form One of the Largest Pure-Play Fiber Providers in U.S. Networking Market* (Apr. 11, 2013), <http://www.lightower.com/company/news/press-releases/lightower-closes-merger-with-sidera-networks-to-form-one-of-the-largest-pure-play-fiber-providers-in-u-s-networking-market/>.

Lightower completed a \$1.9 billion merger with Fibertech Networks.²⁹⁸ Lightower now claims to have “the highest fiber density and building count of any metro fiber provider in the Northeast.”²⁹⁹ Lightower’s network spans “more than 30,000 route miles of fiber providing access to more than 15,000 service locations, including over 250 data centers, 500+ telco hotels and central offices, 40 financial exchanges, and more than 5,000 wireless towers.”³⁰⁰

Lightower’s network includes the metropolitan areas of Hartford and New Haven, Conn.; Aurora and Chicago, Ill.; Portland, Me.; Baltimore, Md.; Boston and Springfield, Ma.; Manchester, Nashua, and Portsmouth, N.H.; Newark and Princeton, N.J.; Albany, Long Island, New York City, Poughkeepsie, and White Plains, N.Y.; Philadelphia, Pa.; Providence, R.I.; Ashburn, Va.; Burlington, Vt.; and Washington, D.C.³⁰¹

Lightower offers “enterprise-class Internet access,” Metro Ethernet, managed private optical networks, SONET, Wavelength, dark fiber, video transport, colocation, and long-haul services, as well as a direct connection to Amazon Web Services.³⁰² Lightower serves “over 2,000 enterprises and carriers,”³⁰³ including “a who’s who of large enterprises, carriers, and organizations.”³⁰⁴

22. LSN

LightSpeed Networks, Inc., doing business as LSN (formerly LS Networks), claims to “offer the most extensive and secure network in Oregon & Washington.”³⁰⁵ The LSN network has “an on-net footprint in over 75 communities throughout the Northwest that passes over 40,000 business addresses.”³⁰⁶ “LSN is one of the Pacific Northwest region’s fastest growing telecommunications companies, providing integrated telecommunications solutions to carriers, education, enterprise business and government customers.”³⁰⁷

²⁹⁸ Lightower Fiber Networks Press Release, *Lightower Closes Merger with Fibertech Networks To Double Its Network Reach and Strengthen Its Position in U.S. Networking Market* (Aug. 13, 2015), <http://www.lightower.com/company/news/press-releases/lightower-closes-merger-with-fibertech-networks-to-double-its-network-reach-and-strengthen-its-position-in-u-s-networking-market/#.Vc1lIUrd-dI>.

²⁹⁹ Lightower Fiber Networks, *Why Lightower?*, <http://www.lightower.com/company/why-lightower/>.

³⁰⁰ Lightower Fiber Networks Press Release, *Lightower Closes Merger with Fibertech Networks To Double Its Network Reach and Strengthen Its Position in U.S. Networking Market* (Aug. 13, 2015), <http://www.lightower.com/company/news/press-releases/lightower-closes-merger-with-fibertech-networks-to-double-its-network-reach-and-strengthen-its-position-in-u-s-networking-market/#.Vc1lIUrd-dI>.

³⁰¹ Lightower Fiber Networks, *Why Lightower?*, <http://www.lightower.com/company/why-lightower/>.

³⁰² Lightower Fiber Networks, *Services*, <http://www.lightower.com/network-services/>.

³⁰³ *Id.*

³⁰⁴ Lightower Fiber Networks, *Solutions*, <http://www.lightower.com/network-solutions/>.

³⁰⁵ LSN, *Home*, <http://www.lsnetworks.net/>.

³⁰⁶ LSN, *Carrier Services*, <http://www.lsnetworks.net/products/carrier>.

³⁰⁷ LSN, *About Us*, <http://www.lsnetworks.net/about-us>; LS Networks, *Home*, <http://www.lsnetworks.net/>.

LSN's service offerings include "Wavelength, MEF-26 compliant Ethernet Transport services (including E-LINE, E-LAN, and E-TREE), TDM Private Line (T1 through OC-n), Dedicated Internet, and IPTV distribution via our Program Distribution Network."³⁰⁸ LSN's Metro Ethernet service "supports speeds up to 100 Gbps of high speed data, internet, voice and video applications."³⁰⁹ Its Ethernet Private Line service provides "[s]ymmetrical bandwidths from 1Mbps up to 100Gbps."³¹⁰ Its Dedicated Internet Access service offers "bandwidth up to 10Gbps."³¹¹ The company "provide[s] services to Tier One IXC, ILEC, CLEC, Wireless and Independent cable operators."³¹²

23. NTS Communications

NTS Communications (formerly Xfone) is "a holding and managing company providing, through [its] subsidiaries, integrated communications services which include voice, video and data over [its] Fiber-To-The-Premise ('FTTP') and other networks," with operations in Texas, Mississippi, and Louisiana.³¹³ The company "also serve[s] customers in Arizona, Colorado, Kansas, New Mexico, and Oklahoma."³¹⁴ In June 2014, an affiliate of private equity firm Tower Three Partners completed its acquisition of NTS, Inc.³¹⁵

NTS Communications "provide[s] business solutions for companies both small and large, government and higher education by delivering advanced networking solutions for local and long distance voice, high-speed, dedicated Internet access and metro Ethernet networks."³¹⁶ NTS offers enterprise broadband services that include "speeds up to 10 Gbps through a dedicated Internet access over fiber."³¹⁷ Its wholesale offerings include wireless cell tower builds, carrier interconnections, wholesale dedicated Internet access, Ethernet Private Line, MPLS solutions, and long haul facilities.³¹⁸

³⁰⁸ LSN, *About Us*, <http://www.lsnetworks.net/about-us>.

³⁰⁹ LSN, *Ethernet Everywhere*, <http://www.lsnetworks.net/products/Ethernet>.

³¹⁰ LSN, *Ethernet Private Line*, <http://www.lsnetworks.net/products/ethernet-private-line>.

³¹¹ LSN, *Internet Access*, <http://www.lsnetworks.net/products/internet-access>.

³¹² LSN, *Carrier Services*, <http://www.lsnetworks.net/products/carrier>.

³¹³ NTS Inc., Form 10-K, at 3 (SEC filed Mar. 27, 2014), http://www.sec.gov/Archives/edgar/data/1126216/000135448814001438/nts_10k.htm.

³¹⁴ *Id.*

³¹⁵ NTS, Inc. *Announces Successful Completion of Previously Announced Acquisition by Tower Three Partners*, PR Newswire (June 9, 2014), <http://www.prnewswire.com/news-releases/nts-inc-announces-successful-completion-of-previously-announced-acquisition-by-tower-three-partners-262367271.html>.

³¹⁶ NTS Communications, *About NTS*, <http://www.ntscom.com/#!/overview/c1cyq>.

³¹⁷ NTS Communications, *Fiber-Based Business Solutions*, <http://www.ntscom.com/#!/fiber-based-business-solutions/c12vv>.

³¹⁸ NTS Communications, *Wholesale Services*, <http://www.ntscom.com/#!/wholesale-services/cqga>.

NTS has been investing to expand its network and recently reported “new \$100,000,000 investments in [its] pure fiber-to-the-premise network.”³¹⁹ NTS is undergoing a fiber buildout which “began with select markets in Texas, where the [c]ompany currently provides its fiber offerings to Lubbock, Levelland, Smyer, Wolfforth, Littlefield, Burkburnett, Brownfield, Whitharral, Slaton, Meadow, Wilson and Lamesa, Hale Center, Abernathy, Plainview, Iowa Park, Texas, including metro builds focused on the business communities in Wichita Falls, Abilene and Amarillo.”³²⁰ NTS Communications recently announced the launch of “a new, state-of-the-art Gigabit Fiber Network in Midland” and Lubbock, Tex., “with speeds ranging from 75 Mbps up to 1 Gig (1,000 Mbps).”³²¹ NTS also is expanding its network in Louisiana and “[w]hen completed, the Louisiana network is expected to also include the communities of Independence, Tickfaw and Natalbany. A wireless service extension overlay will also bring advanced broadband services to towns in the St. Helena, Washington and Tangipahoa Parishes.”³²²

24. PEG Bandwidth

PEG Bandwidth claims to be “a leading provider of infrastructure solutions, including cell site backhaul and Small Cell as a Service for wireless operators and Ethernet, Wavelengths and Dark Fiber for telecom carriers and enterprises.”³²³ Its “growing infrastructure spans almost 15,000 fiber route miles” in 18 states, “connecting almost 3,000 cell site locations with local access to 2,600 municipalities and dozens of utilities enabling PEG Bandwidth to deliver its customized solutions wherever its customers’ toughest challenges exist.”³²⁴ Its service offering includes PEGWave, which has “2.5G, 10G and 100G options available with multiplexing from 10G to 1G and 100G to 10G.”³²⁵ In July 2015, the company acquired a 48-mile fiber network from W.L. Gore & Associates, Inc., which “spans a geography covering Newark, DE to the

³¹⁹ NTS Communications, *About NTS*, <http://www.ntscom.com/#!/overview/c1cyq>.

³²⁰ NTS, Inc. News Release, *NTS Connects First Fiber Customer in Amite, Louisiana* (July 17, 2014), available at <http://mayafiles.tase.co.il/RPdf/910001-911000/P910210-00.pdf>.

³²¹ NTS Communications News Release, *NTS Communications Provides Gigabit Fiber Internet to Downtown Midland* (June 11, 2015), <http://www.ntscom.com/#!/news/nws2/3F635176-FDB3-4404-A6F2-3055AE8037DF/nts-communications-provides-gigabit-fiber-internet-to-downtown-midland>; NTS Communications News Release, *NTS Communications Provides Gigabit Fiber Internet to Downtown Lubbock* (May 27, 2015), <http://www.ntscom.com/#!/news/nws2/A3A5742C-575E-4DBA-901F-AC1DD289D737/nts-communications-provides-gigabit-fiber-internet-to-downtown-lubbock>.

³²² NTS, Inc. News Release, *NTS Connects First Fiber Customer in Amite, Louisiana* (July 17, 2014), available at <http://mayafiles.tase.co.il/RPdf/910001-911000/P910210-00.pdf>.

³²³ PEG Bandwidth, *Company Overview*, <http://pegbandwidth.com/company-overview/>.

³²⁴ *Id.*; PEG Bandwidth News Release, *PEG Bandwidth Acquires Fiber Network from W.L. Gore & Associates, Inc.* (July 21, 2015), <http://pegbandwidth.com/gore-acquisition/>.

³²⁵ PEG Bandwidth News Release, *PEG Bandwidth Launches PEGWave Wavelength Service* (Oct. 6, 2014), <http://pegbandwidth.com/wavelength-service/>.

north, Elkton, MD to the south and Fair Hill, MD to the west and was built with high-strand counts of fiber totaling almost 3,500 fiber miles.”³²⁶

25. TelePacific Corp.

TelePacific offers “[c]omplete communications solutions for California, Nevada and Texas businesses.”³²⁷ Its network consists of 50,000 fiber strand miles with 29 switches, more than 200 lit buildings, and collocations in more than 400 wire centers.³²⁸ TelePacific claims to have “the densest footprint in California and Nevada” that’s “[r]eady to serve over 90% of California/Nevada businesses,” as well as a network that “cover[s] all of Texas’ major metro areas in [its] Ethernet ecosystem.”³²⁹ TelePacific serves “more than 40,000 business customers”³³⁰ and provides “comprehensive connectivity, cloud and continuity solutions to 75,000 locations for customers ranging from small businesses to enterprises with hundreds of sites.”³³¹ Its wholesale division “cater[s] to carriers, service providers and cable operators of all sizes.”³³² The company reports that “[i]ts multiple award-winning network and communications solutions and focus on customer service have powered more than 50 consecutive quarters of growth.”³³³

TelePacific provides Ethernet services over fixed wireless, TDM, and fiber for speeds from 1 Mbps up to 10 Gbps;³³⁴ fixed wireless Internet access that “[s]cales from 1 to 100 Mbps;”³³⁵ MPLS VPN;³³⁶ and Metro Private Line for “point to point service between two or

³²⁶ PEG Bandwidth News Release, *PEG Bandwidth Acquires Fiber Network from W.L. Gore & Associates, Inc.* (July 21, 2015), <http://pegbandwidth.com/gore-acquisition/>.

³²⁷ TelePacific Communications, *TelePacific*, <http://www.telepacific.com/>.

³²⁸ TelePacific Communications, *A Recognized Leader Among Communications and Network Providers*, <http://www.telepacific.com/about/phone-service-providers.asp>; TelePacific Communications, *Why 40,000 Companies Like Yours Made a Change*, <http://www.telepacific.com/pdfs/Company-Snapshot-2014.pdf>.

³²⁹ TelePacific Communications News Release, *TelePacific Adds Horsepower to Its Ethernet Ecosystem for Businesses*, <http://www.telepacific.com/about/press/release-template.asp?id=2277>; TelePacific Communications, *Why 40,000 Companies Like Yours Made a Change*, <http://www.telepacific.com/pdfs/Company-Snapshot-2014.pdf>.

³³⁰ TelePacific Communications, *Why 40,000 Companies Like Yours Made a Change*, <http://www.telepacific.com/pdfs/Company-Snapshot-2014.pdf>.

³³¹ TelePacific Communications, *A Recognized Leader Among Communications and Network Providers*, <http://www.telepacific.com/about/phone-service-providers.asp>.

³³² TelePacific Communications, *Why 40,000 Companies Like Yours Made a Change*, <http://www.telepacific.com/pdfs/Company-Snapshot-2014.pdf>.

³³³ TelePacific Communications News Release, *TelePacific’s OneAir Fixed Wireless Brings Peace of Mind to Las Vegas Businesses* (Apr. 30, 2015), <http://www.telepacific.com/about/press/release-template.asp?id=2293>.

³³⁴ TelePacific Communications, *We’re the Preferred Ethernet Broadband Carrier That Delivers on Speed*, <http://www.telepacific.com/offer/data-networking/internet-access/ethernet-broadband.asp>.

³³⁵ TelePacific Communications, *Fixed Wireless*, <http://www.telepacific.com/pdfs/Fixed-Wireless-Datasheet.pdf>.

³³⁶ TelePacific Communications, *MPLS, Streamlining Your Interoffice Communications*, <http://www.telepacific.com/offer/data-networking/1net.asp>.

more locations.”³³⁷ Its wholesale services include local and intercity private line with DS1 to OCn bandwidth,³³⁸ Ethernet Private Line up to 10 Gigabits,³³⁹ and Ethernet Virtual Private Line as “a cost-effective alternative to traditional TDM access services” for “carrier-to-multiple customer connections.”³⁴⁰

In April 2015, TelePacific launched its OneAir fixed wireless solution in Las Vegas, offering “line-of-sight coverage . . . for nearly all of Las Vegas by a network of state-of-the-art antennas, including one perched at the top of the Stratosphere Hotel,” delivering “one to 100Mbps of secure bandwidth.”³⁴¹

26. Tower Cloud

Tower Cloud is a “leading provider of broadband transport services in the southeastern United States,”³⁴² offering “carrier-grade backhaul solutions.”³⁴³ “Tower Cloud operates networks throughout Georgia, Florida, Alabama, and South Carolina, serving major metro and rural markets.”³⁴⁴ Tower Cloud “will have installed 24-count fiber to 1,400 cell towers and 2,000 co-location facilities by [the end of 2014],” and the company is “taking the opportunity to monetize [its] dense fiber network by selling [Ethernet Private Line] and wavelength services in increments between 50 megabits to 100 gigabits to large enterprises, content providers and other carriers.”³⁴⁵

³³⁷ TelePacific Communications, *Metro Private Line*, <http://www.telepacific.com/pdfs/Metro%20Private%20Line.pdf>.

³³⁸ TelePacific Communications Wholesale Division, *Private Line Local*, <https://www.telepacificwholesale.com/products/private-line-local.asp>; TelePacific Communications Wholesale Division, *Private Line Inter-City*, <https://www.telepacificwholesale.com/products/private-line-intercity.asp>.

³³⁹ TelePacific Communications Wholesale Division, *EPL Overview*, <https://www.telepacificwholesale.com/products/ethernet-EPL.asp>.

³⁴⁰ TelePacific Communications Wholesale Division, *Ethernet Services*, <https://www.telepacificwholesale.com/pdf/Ethernet-VPL.pdf>.

³⁴¹ TelePacific Communications News Release, *TelePacific’s OneAir Fixed Wireless™ Brings Peace of Mind to Las Vegas Businesses* (Apr. 30, 2015), <http://www.prweb.com/releases/telepacific/oneair-fixed-wireless/prweb12691438.htm>.

³⁴² Tower Cloud Press Release, *Tower Cloud CEO To Examine Business of Small Cells at PCIA: Wireless Infrastructure Show* (Apr. 9, 2015), <http://towercloud.com/tower-cloud-ceo-to-examine-business-of-small-cells-at-pcia-wireless-infrastructure-show/>.

³⁴³ Tower Cloud, *Services*, <http://towercloud.com/services/>.

³⁴⁴ Tower Cloud Press Release, *Tower Cloud CEO To Examine Business of Small Cells at PCIA: Wireless Infrastructure Show* (Apr. 9, 2015), <http://towercloud.com/tower-cloud-ceo-to-examine-business-of-small-cells-at-pcia-wireless-infrastructure-show/>.

³⁴⁵ Tower Cloud Press Release, *Carrier Ethernet News: Tower Cloud Bursts into Ethernet-for-Enterprise Market* (Oct. 21, 2014), <http://towercloud.com/carrier-ethernet-news-tower-cloud-bursts-into-ethernet-for-enterprise-market/> (citing Tower Cloud Senior Vice President of Sales and Business Development George Townsend).

In October 2014, Tower Cloud announced the expansion of its business beyond mobile backhaul services into large enterprise and wholesale Ethernet services.³⁴⁶ Tower Cloud now “provides Private Line Services, dedicated Internet access, [] wireless infrastructure, and fiber backhaul,”³⁴⁷ as well as dark fiber.³⁴⁸ “Ethernet services are available . . . from 5 megabits per second to 10 gigabits per second or more.”³⁴⁹ The company “would like to see its enterprise customers make up 50 percent of its client mix within the next two to five years.”³⁵⁰

27. Unite Private Networks

Unite Private Networks (UPN) states that it “provides high-bandwidth, fiber-based communications networks and related services to schools, governments, carriers, data centers, hospitals, and enterprise business customers throughout the United States.”³⁵¹ “UPN currently serves nearly 300 communities across 20 states, with over 5,000 metro fiber route miles, and 2,500 on-net buildings.”³⁵² UPN has deployed metro fiber in Dallas; Denver; Des Moines and across Iowa; Kansas City, Mo.; Lincoln, Neb.; Little Rock; Omaha and southeast Nebraska; and Pueblo, Colo.,³⁵³ and it is “adding more than 1,500 miles of new fiber across its network footprint in 2015.”³⁵⁴

UPN’s “[s]ervice offerings include dark and lit fiber, private line, optical Ethernet, Internet access, data center services, and other customized solutions.”³⁵⁵ The company claims to have “a proven history of successful completion of large and complex fiber-optic construction projects, on time and on budget. Customer relationships typically include long-term agreements

³⁴⁶ *Id.*

³⁴⁷ Tower Cloud Press Release, *Tower Cloud Launches New Ethernet Private Line Service To Deliver Dedicated Enterprise High-Speed, Low-Latency Connectivity* (Oct. 6, 2014), <http://towercloud.com/tower-cloud-launches-new-ethernet-private-line-service-to-deliver-dedicated-enterprise-high-speed-low-latency-connectivity/>.

³⁴⁸ Tower Cloud, *Key Products*, <http://towercloud.com/services/key-products/>.

³⁴⁹ Tower Cloud, *Network*, <http://towercloud.com/network/>.

³⁵⁰ Tower Cloud Press Release, *Carrier Ethernet News: Tower Cloud Bursts into Ethernet-for-Enterprise Market* (Oct. 21, 2014), <http://towercloud.com/carrier-ethernet-news-tower-cloud-bursts-into-ethernet-for-enterprise-market/> (citing Tower Cloud Senior Vice President of Sales and Business Development George Townsend).

³⁵¹ Unite Private Networks, *Company Overview*, <http://uniteprivatenetworks.com/company-overview/>.

³⁵² *Id.*

³⁵³ Unite Private Networks, *Metro Fiber Maps*, <http://uniteprivatenetworks.com/metro-fiber-maps/>.

³⁵⁴ Unite Private Networks News Release, *Unite Private Networks Announces Deployment of 100th Small Cell Site* (Aug. 25, 2015), <http://uniteprivatenetworks.com/unite-private-networks-announces-deployment-of-100th-small-cell-site/>.

³⁵⁵ Unite Private Networks, *Company Overview*, <http://uniteprivatenetworks.com/company-overview/>.

(10-20 years) for fiber-optic connectivity between multiple facility locations.”³⁵⁶ As of January 2015, UPN’s “total customer contract commitments amounted to \$600 million.”³⁵⁷

In August 2015, UPN announced that “it has deployed dark fiber service to its 100th small cell site in Iowa,” as “part of a state-wide build-out for a major wireless carrier.”³⁵⁸ The company “currently provides the underlying infrastructure for small cells in several states including Texas, Nebraska, Iowa, and Colorado. The strategically placed small cells provide capacity solutions to wireless carriers’ existing networks by increasing bandwidth and connectivity points.”³⁵⁹

28. US Signal

US Signal was established in 2000 “with the vision of becoming a full-service, fiber optic provider offering carrier class service to carrier, wholesale and retail customers.”³⁶⁰ US Signal claims its “massive” network is “one of the largest, fully deployed networks in the Midwest, blanketing Illinois, Indiana, Iowa, Michigan, Ohio, Wisconsin, Kentucky, and Missouri with over 14,000 miles of lit fiber and metro rings in 23 strategic tier-one, tier-two and tier-three markets” as well as eight owned and operated data centers in the Midwest.³⁶¹

US Signal offers private lines “from DS-1 to OC-192” with “competitive pricing and flexible contract terms,”³⁶² dedicated Internet access “with speeds from 1.5 Mbps to 1 Gbps,”³⁶³ point-to-point and multipoint Virtual Ethernet,³⁶⁴ and MPLS transport “between geographically diverse locations without fixed private lines or permanent virtual circuits.”³⁶⁵ US Signal’s Direct Fiber service provides “[c]ustom built fiber facilities to customer sites,”³⁶⁶ “extend[ing] US Signal network fiber right to [the customer’s] location, providing Ethernet access to US Signal services for bandwidths ranging from 20Mbps to 1Gbps.”³⁶⁷

³⁵⁶ *Id.*

³⁵⁷ *Id.*

³⁵⁸ Unite Private Networks News Release, *Unite Private Networks Announces Deployment of 100th Small Cell Site* (Aug. 25, 2015), <http://uniteprivatenetworks.com/unite-private-networks-announces-deployment-of-100th-small-cell-site/>.

³⁵⁹ *Id.*

³⁶⁰ US Signal, *About*, <https://ussignal.com/about>.

³⁶¹ *Id.*

³⁶² US Signal, *Private Line*, <https://ussignal.com/network/private-line>.

³⁶³ US Signal, *Dedicated Internet Access*, <https://ussignal.com/network/dedicated-internet-access>.

³⁶⁴ US Signal, *Virtual Ethernet Service*, <https://ussignal.com/network/virtual-ethernet-service>.

³⁶⁵ US Signal, *Multiprotocol Label Switching*, <https://ussignal.com/network/multiprotocol-label-switching>.

³⁶⁶ US Signal, *Carrier Access Options – Direct Fiber*, <https://ussignal.com/network/carrier-services>.

³⁶⁷ US Signal, *Direct Fiber Access*, <https://ussignal.com/direct-fiber-access>.

In July 2015, US Signal announced the expansion of its fiber network in Michigan to “activat[e] 100 miles of metro and long haul fiber to connect the cities of Holland, Zeeland and Hudsonville back to Grand Rapids. . . . US Signal will build direct fiber access into businesses along the newly minted route, creating low latency, private, dedicated connections for Internet and other US Signal services.”³⁶⁸

29. ZenFi Networks

ZenFi Networks describes itself as “New York’s premier provider of dedicated fiber optic network for mobile fronthaul and backhaul connectivity.”³⁶⁹ ZenFi was founded at the end of 2013 “as a solution for accessible and affordable bandwidth for mobile wireless applications,” using “a purpose-built fiber network focused on cellular backhaul, distributed antenna systems/small cell deployments, and wholesale fiber opportunities.”³⁷⁰ The company states that “[c]arriers can leverage ZenFi’s neutral infrastructure to deliver connectivity anywhere in the NY metro area.”³⁷¹ ZenFi’s services to carriers, enterprises, and municipalities³⁷² include “‘Point-to-Point’ Fiber, Wavelength and Ethernet connectivity between sites in the New York metro area,”³⁷³ dedicated Ethernet connectivity “from 10Mbps to 100Gbps,”³⁷⁴ fixed wireless Ethernet connectivity “from 10 Mbps to 1 Gbps,” “Fronthaul” and “Backhaul” fiber and Wavelength services,³⁷⁵ and dark fiber.³⁷⁶

C. Fixed Wireless Providers

1. Towerstream

Towerstream provides “broadband services to commercial customers and deliver[s] access over a wireless network transmitting over both regulated and unregulated radio

³⁶⁸ US Signal News Release, *US Signal Expands Fiber Network to Lakeshore* (July 8, 2015), <https://ussignal.com/news/us-signal-expands-fiber-network-to-lakeshore>.

³⁶⁹ ZenFi Networks News Release, *ZenFi Networks, Inc. To Participate at COMPTTEL PLUS Business Expo 2015 April 12-15* (Apr. 8, 2015), http://www.imillerpr.com/wp-content/uploads/2015/04/Zenfi_Networks_MA_ComptelPlus.pdf.

³⁷⁰ ZenFi Networks, *History*, <http://www.zenfi.com/history/>; ZenFi Networks News Release, *ZenFi Networks, Inc. To Participate at COMPTTEL PLUS Business Expo 2015 April 12-15* (Apr. 8, 2015), http://www.imillerpr.com/wp-content/uploads/2015/04/Zenfi_Networks_MA_ComptelPlus.pdf.

³⁷¹ ZenFi Networks News Release, *ZenFi Networks, Inc. To Participate at COMPTTEL PLUS Business Expo 2015 April 12-15* (Apr. 8, 2015), http://www.imillerpr.com/wp-content/uploads/2015/04/Zenfi_Networks_MA_ComptelPlus.pdf.

³⁷² ZenFi Networks, *Municipalities & Enterprises*, <http://www.zenfi.com/municipalities-enterprises/>.

³⁷³ ZenFi Networks, *Point-to-Point*, <http://www.zenfi.com/point-to-point/>.

³⁷⁴ ZenFi Networks, *Lit Fiber: Ethernet*, <http://www.zenfi.com/lit-fiber/>.

³⁷⁵ ZenFi Networks, *Fronthaul*, <http://www.zenfi.com/fronthaul/>; ZenFi Networks, *Backhaul*, <http://www.zenfi.com/backhaul/>.

³⁷⁶ ZenFi Networks, *Dark Fiber*, <http://www.zenfi.com/dark-fiber/>.

spectrum.”³⁷⁷ Towerstream uses 4G technology to serve businesses in “12 major metropolitan markets:”³⁷⁸ New York, Boston, Los Angeles, Chicago, San Francisco, Miami, Seattle, Dallas-Fort Worth, Houston, Philadelphia, Las Vegas-Reno and Providence-Newport.³⁷⁹ Towerstream serves more than 3,000 customers in more than 3,000 lit buildings throughout the United States.³⁸⁰

Towerstream offers “dedicated symmetrical bandwidth”³⁸¹ and “bandwidth options between T1 (1.5Mbps) and 1.5Gbps,” and it “will customize the broadband solutions to meet your business needs.”³⁸² Towerstream’s High Capacity service offers bandwidth from 20 Mbps to 1.5 Gigabits per second.³⁸³ Towerstream “delivers a reliable last mile solution” with “guaranteed 99.99% uptime” because it “owns [its] entire network and is not dependent on the local exchange carrier network of phone wires or cable.”³⁸⁴

Towerstream’s President and CEO stated that the company’s “100 megabit product offering continues to gain momentum across [its] footprint,” “nearly doubling the number of contracts [Towerstream] signed in the second quarter [of 2014],” and the number of “signed contracts grew by 44%” the following quarter.³⁸⁵ The “[n]umber of On Net customers added in the first half of 2015 is more than 70% higher than all of 2014.”³⁸⁶ The company continues to add more lit buildings and believes that “30 buildings per quarter is a number that [Towerstream]

³⁷⁷ Towerstream Corp., Form 10-Q, at 17 (SEC filed Nov. 10, 2014), http://www.sec.gov/Archives/edgar/data/1349437/000143774914020243/twer20140930_10q.htm.

³⁷⁸ Towerstream, *Coverage Areas*, <http://www.towerstream.com/coverage-areas>.

³⁷⁹ Towerstream Corp., Form 10-Q, at 17 (SEC filed Nov. 10, 2014), http://www.sec.gov/Archives/edgar/data/1349437/000143774914020243/twer20140930_10q.htm.

³⁸⁰ *Towerstream Corp at Drexel Hamilton Telecom, Media and Technology Conference – Final*, FD (Fair Disclosure) Wire, Transcript 090414a5470158.758 (Sept. 4, 2014) (statement by Towerstream President and CEO Jeff Thompson).

³⁸¹ Towerstream, *About Towerstream*, <http://www.towerstream.com/company>.

³⁸² Towerstream, *Scalable Internet Connections*, <http://www.towerstream.com/scalable-internet-connections>.

³⁸³ Towerstream, *High Capacity 20Mbps – 1.5 Gbps*, <http://www.towerstream.com/high-capacity-20mbps-1-5gbps>.

³⁸⁴ Towerstream, *About Towerstream*, <http://www.towerstream.com/company>.

³⁸⁵ *Q3 2014 Towerstream Corp Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 111014a5512649.749 (Nov. 10, 2014) (statement by Towerstream President and CEO Jeff Thompson).

³⁸⁶ Towerstream Press Release, *Towerstream Reports Second Quarter 2015 Results and Business Update* (Aug. 10, 2015), <http://ir.towerstream.com/releasedetail.cfm?ReleaseID=926896>.

should be able to get to in a couple quarters.”³⁸⁷ Towerstream’s “long-term plan is to expand nationally into other top metropolitan markets in the United States.”³⁸⁸

2. Conterra Broadband Services

Conterra Broadband Services claims to be a “hybrid alternative access provider[]” that “integrate[s] fiber with FCC Licensed Common Carrier Microwave links (Part 101 frequencies; 6, 11, 18 and 23 Ghz).”³⁸⁹ Conterra currently “operates in 25 states” and claims to be “the 6th largest holder of FCC microwave licenses in the country.”³⁹⁰ Conterra’s network includes approximately 500-owned communications towers, approximately 10,000 microwave route miles, and approximately 700 route miles of fiber owned by Conterra.³⁹¹ It “provides Ethernet broadband services and high bandwidth Internet via FCC-licensed microwave links and fiber to nearly 2,000 sites.”³⁹² In 2014, Conterra entered into an agreement with Court Square Capital Partners to receive an equity investment that “will bolster Conterra’s expansion of its broadband network operations on a national basis.”³⁹³

Conterra’s broadband network is scalable “from 10Mbps to 10 Gbps”³⁹⁴ and offers multiple user interfaces—“Fast Ethernet and GigE” and OC-n.³⁹⁵ Its Ethernet services provide point-to-point, point-to-multipoint, or “any-to-any connectivity which allows organizations to easily and efficiently connect multiple locations.”³⁹⁶ Conterra also offers dark fiber for “[v]irtually unlimited bandwidth”—a “[f]ully dedicated, private infrastructure tailored to [a customer’s] needs” that is a “[c]ost effective solution for bandwidth intensive applications.”³⁹⁷

³⁸⁷ *Q3 2014 Towerstream Corp Earnings Call – Final*, FD (Fair Disclosure) Wire, Transcript 111014a5512649.749 (Nov. 10, 2014) (statement by Towerstream President and CEO Jeff Thompson).

³⁸⁸ Towerstream Corp., Form 10-K, at 4 (SEC filed Mar. 17, 2014), http://www.sec.gov/Archives/edgar/data/1349437/000143774914004347/twer20131231_10k.htm.

³⁸⁹ Conterra Broadband Services, *Corporate Facts*, http://www.conterra.com/wp-content/uploads/2013/04/Conterra-Corporate-Facts-Sheet_041713.pdf.

³⁹⁰ Conterra Broadband Services, *Low Latency Connectivity*, <http://www.conterra.com/solutions/low-latency-connectivity/>.

³⁹¹ Conterra Broadband Services, *Corporate Facts*, http://www.conterra.com/wp-content/uploads/2013/04/Conterra-Corporate-Facts-Sheet_041713.pdf.

³⁹² Conterra Broadband Services, *Low Latency Connectivity*, <http://www.conterra.com/solutions/low-latency-connectivity/>.

³⁹³ Conterra Broadband Services News Release, *Court Square Capital Leads Major Equity Investment in Conterra Broadband* (Mar. 19, 2014), <http://www.conterra.com/court-square-capital-leads-major-equity-investment-in-conterra-broadband/>.

³⁹⁴ Conterra Broadband Services, *Building Broadband Communities*, <http://www.conterra.com/solutions/building-broadband-communities/>.

³⁹⁵ *Id.*

³⁹⁶ Conterra Broadband Services, *Ethernet*, <http://www.conterra.com/services/ethernet/>.

³⁹⁷ Conterra Broadband Services, *Dark Fiber*, <http://www.conterra.com/services/dark-fiber/>.

3. One Ring Networks

One Ring Networks claims to be the “preferred fixed wireless Internet service provider in the Atlanta and Dallas-Fort Worth markets” and the only carrier in these markets with the ability to “deliver customized fiber Internet *and* fixed wireless Internet solutions.”³⁹⁸ One Ring states that its fixed wireless offering is “a secure and reliable alternative to the conventional ILEC,” providing an “easily scalable,” “complete Ethernet solution” with “fast installation . . . within days, not weeks,” at “speeds ranging from 1.5Mbps to 1000Mbps.”³⁹⁹ Its “extensive fiber network” allows One Ring to offer fiber Internet service at speeds up to “10GIG.”⁴⁰⁰

³⁹⁸ One Ring Networks, *About*, <http://oneringnetworks.com/about/>.

³⁹⁹ One Ring Networks, *Fixed Wireless Internet*, <http://oneringnetworks.com/services/fixed-wireless-internet/>.

⁴⁰⁰ One Ring Networks, *Fiber Internet*, <http://oneringnetworks.com/services/fiber-internet/>.