

GN Docket 09-191, WC Docket No. 07-52

Reply Declaration of Michael D. Topper

April 8, 2010

I. Introduction and Summary

1. In my initial Declaration,¹ I examined the status of competition in the provision of broadband services, including the extensive and growing cross-platform competition for both wireline broadband and wireless broadband service, and increasingly between wireline and wireless broadband alternatives. In this Reply Declaration, I have been asked by Verizon to update my analysis and to respond to certain claims that some parties have made in this proceeding. In particular, some parties have argued that wireless broadband services do not compete with wireline broadband services.² In my initial Declaration, however, I explained that it is important to take a forward-looking perspective of broadband competition; that the competitive landscape for broadband provision is rapidly changing with the deployment of 4G wireless services; and that cross-platform competition is not just a hypothetical possibility but is already occurring. In this Reply Declaration I provide further evidence of such competition, including the recent rollout of 4G wireless broadband services by Clearwire, Sprint, and cable companies.
2. My initial Declaration also demonstrated that, according to the Commission's own data, the majority of U.S. households had access to broadband services from at least two wireline broadband providers. Some parties have criticized such data as not being sufficiently granular to determine where broadband services are available.³ The Commission's recent High-Speed Internet Services Report provides data at a more granular level, however, and as I explain here confirms my original conclusions.
3. In summary, my findings are:
 - 4G wireless broadband service is already available in many metropolitan areas in the U.S. Currently, Clearwire, Sprint, Comcast and Time Warner Cable are offering 4G services in certain areas. The deployment of 4G wireless technology coupled with its

¹ Declaration of Michael D. Topper, "Broadband Competition and Network Neutrality Regulation," Attachment C to Comments of Verizon and Verizon Wireless, In the Matter of Preserving the Open Internet, GN Docket No. 09-191, WC Docket No. 07-52, January 14, 2010 ("Topper Declaration"). My qualifications were provided in my initial Declaration.

² See Comments of the Ad Hoc Telecommunications User Committee, GN Docket No. 09-191 and WC Docket No. 07-52, dated January 14, 2010, p. 9; Comments of Google Inc., GN Docket No. 09-191 and WC Docket No. 07-52, dated January 14, 2010, p. 21; Comments of Vonage Holdings Corp., GN Docket No. 09-191 and WC Docket No. 07-52, dated January 14, 2010, p. 8. ("Vonage Comments")

³ Vonage Comments, p. 7; Comments of Free Press, GN Docket No. 09-191 and WC Docket No. 07-51, p. 52.

increasing availability will enable even more effective and robust cross-platform competition between wireless and wireline broadband.

- 4G availability is expected to grow significantly in the future, with Clearwire, Sprint, Comcast and Time Warner Cable planning to deploy 4G services in many additional metropolitan areas throughout 2010. In addition, other firms, including Cox Communications, Verizon Wireless, AT&T, and MetroPCS are planning to offer 4G services in the near future, expanding its availability and capabilities, and providing consumers with more 4G choices.
 - Currently available 4G services offer comparable download and upload speeds to many wireline broadband offerings, and plans are available with unlimited monthly usage. With the increased speeds of 4G and unlimited monthly usage plans, wireless broadband becomes an even more viable alternative to wireline providers for a larger range of broadband users and uses.
 - Current 4G prices are comparable to the prices of cable modem and DSL wireline broadband services, and 4G providers are marketing their 4G services as an alternative to wireline broadband access.
 - The Commission's recent High-Speed Internet Services Report, which is based on data collected at the census tract level, confirms the Commission's earlier zip code analysis, as well as marketplace evidence, showing that most Americans have choice of wireline broadband access providers as well as multiple wireless broadband alternatives.
 - The recent deployment of 4G services provides additional evidence that the Commission's current policy framework, which has relied primarily on market forces rather than regulation, works and that expansion of the Commission's current Internet Policy Statement into a set of prescriptive regulatory rules is unsound.
4. Support for these opinions is provided in the remainder of this paper.

II. 4G Deployment

5. As I discussed in my initial Declaration, competition in the provision of broadband services is developing across multiple platforms. Cable companies, local exchange carriers, wireless providers, and providers of other broadband technologies like satellite are increasingly competing against one another.⁴ The deployment of 4G wireless technology coupled with its increasing availability will enable even more effective and robust cross-platform competition between wireless and wireline broadband. Given the rapid pace of change and innovation in broadband technologies, including the deployment of 4G, assessment of competition requires a forward-looking analysis that accounts for changing industry conditions. In such a setting, a static snapshot

⁴ Topper Declaration, ¶¶ 7, 17, 92-110.

of historical or current market conditions is a poor indicator of future competitive conditions and, as such, serves as a poor basis for the development of regulatory policy with respect to broadband provision. The Department of Justice made a similar recommendation in its recent *ex parte* submission to the Commission in the Broadband NOI proceeding.⁵

6. 4G wireless broadband service is already available in many metropolitan areas in the U.S. As described in my initial Declaration, Clearwire – which is backed by Sprint, Intel, Google, Comcast, Time Warner Cable and Bright House Networks – has deployed 4G WiMAX technology in many metropolitan areas, like Chicago, Philadelphia, and Dallas-Fort Worth.⁶ As of December 2009, Clearwire offered 4G services under the CLEAR brand in at least 27 metropolitan areas in 11 different states, covering more than 34 million people with its 4G network, with recent product launches in Honolulu, Maui and Seattle-Tacoma.⁷ By the fourth quarter of 2009, total subscribers reached 688,000, with 438,000 of those in 4G markets.⁸ In addition, Sprint is using Clearwire’s facilities to offer 4G service. As of December 2009, Sprint offered 4G service in the same 27 metropolitan areas as Clearwire. Cable companies Comcast and Time Warner Cable are also using Clearwire’s facilities to offer 4G services. Comcast’s High-Speed 2go 4G service is currently available in 7 metropolitan areas, and Time Warner Cable’s Road Runner Mobile 4G service is available in 9 other metropolitan areas. See Table 1 for additional details.

7. 4G availability is expected to grow significantly in the near future, with these providers planning to deploy 4G services in many additional metropolitan areas throughout 2010. According to a recent statement by Sprint Nextel CEO Dan Hesse: “2010 is really the year of 4G for Sprint. We have roughly 30 million POPs built out at the end of ’09. We hope to have roughly four times that many built by the end of this year, 2010.”⁹ Sprint has announced plans to launch its 4G service in multiple metropolitan areas in 2010, including Boston, Cincinnati, Cleveland,

⁵ *Ex Parte* Submission of the United States Department of Justice in the Matter of Economic Issues in Broadband Competition, GN Docket No. 09-51, January 4, 2010, p. 6: “In any industry subject to significant technological change, it is important that the evaluation of competition be forward-looking rather than based on static definitions of products and services. Insight can best be gained by looking at product life cycles, the replacement of older technologies by newer ones, and the barriers facing suppliers that offer those newer technologies.”

⁶ Topper Declaration, ¶¶ 69-70.

⁷ “Q4 2009 Clearwire Corporation Earnings Conference Call,” *Thomson StreetEvents*, February 24, 2010, p. 3. (“Clearwire Q4 2009 Conference Call”) See Table 1 for a list of places where Clearwire offers service.

⁸ This includes 46,000 wholesale customers from Comcast, Sprint, and Time Warner Cable. “Clearwire Reports Fourth Quarter and Full Year 2009 Results,” *Clearwire Press Release*, February 24, 2010. (“Clearwire Press Release February 2010”)

⁹ *Sprint Nextel Corporation at Citi Global Entertainment, Media, and Telecommunications Conference – Final*, FD (Fair Disclosure) Wire, Transcript 010610a2651459.759 (Jan. 6, 2010) (statement by Sprint Nextel Corp. CEO Dan Hesse).

Denver, Houston, Kansas City, Los Angeles, Miami, Minneapolis, New York, Pittsburgh, St. Louis, Salt Lake City, San Francisco and Washington, D.C.¹⁰ Clearwire plans to cover 120 million people in 80 markets by the end of 2010,¹¹ and some analysts expect it to expand to cover roughly 155 million people by 2011.¹² Clearwire expects its 4G subscribership to triple during 2010,¹³ as it launches in the same major markets as Sprint.¹⁴ Comcast and Time Warner Cable are also planning to expand their 4G service offerings in 2010. According to Comcast COO Steve Burke: “As of year-end, we are offering the product in more than 9 million of our homes passed, and we look to significantly expand that by the end of 2010.”¹⁵ And Time Warner Cable COO Landel Hobbs recently noted that Time Warner “expect[s] to launch Road Runner Mobile in a sizable fraction of [its] footprint in 2010.”¹⁶

8. In addition to the providers that have already deployed 4G commercially, other firms also are planning to offer 4G services in the near future, expanding its availability and capabilities, and providing consumers with more 4G choices. Cable provider Cox Communications has been conducting LTE trials in Phoenix and San Diego since the fourth quarter of 2009.¹⁷ Cox spent more than \$550 million for AWS and 700 MHz spectrum licenses to support its wireless plans, which include wireless broadband.¹⁸

9. Verizon Wireless has been testing its 4G network in Boston and Seattle since August 2009 and has announced plans to launch 4G service using the LTE standard in 25 to 30 markets, covering a population of about 100 million, in 2010.¹⁹ AT&T will be starting LTE trials in 2010,²⁰

¹⁰ “Sprint 4G Expansion Plans to Stretch Coast-to-Coast from Los Angeles to Miami”, *Sprint Press Release*, March 23, 2010.

¹¹ Morgan Stanley, Clearwire Corporation 2Q09 Preview: Market Rollout and Wholesale Launches Progressing, August 10, 2009, p. 4.

¹² UBS Investment Research, Clearwire Corp.: Upgrade to Neutral, Funding Opens the Window a Little Wider, December 1, 2009, p. 2.

¹³ Clearwire Press Release February 2010.

¹⁴ “Clearwire Extends 4G Leadership in the United States,” *Clearwire Press Release*, March 23, 2010.

¹⁵ Thomson StreetEvents, *CMCSA – Q4 2009 Comcast Corporation Earnings Conference Call*, Transcript at 9 (Feb. 3, 2010) (statement by Comcast Corp. COO Steve Burke).

¹⁶ *Q4 2009 Time Warner Cable, Inc. Earnings Conference Call – Final*, FD (Fair Disclosure) Wire, Transcript 012810a2623705.705 (Jan. 28, 2010) (Time Warner Cable COO Landel Hobbs).

¹⁷ The company has not yet disclosed when it expects to offer LTE services. Cox News Release, *Cox Successfully Demonstrates the Delivery of Voice Calling, High Definition Video Via 4G Wireless Technology* (Jan. 25, 2010), <http://cox.mediaroom.com/index.php?s=43&item=469>; Todd Spangler, *Cox Tests 4G Wireless Voice, Video*, Multichannel News, at 21 (Feb. 1, 2010).

¹⁸ In addition to its plans to offer 4G services, Cox is also offering 3G wireless service in several metropolitan areas. Cox News Release, *Cox Successfully Demonstrates the Delivery of Voice Calling, High Definition Video Via 4G Wireless Technology* (Jan. 25, 2010), <http://cox.mediaroom.com/index.php?s=43&item=469>.

¹⁹ “Verizon Wireless’ 4G LTE Network Testing Promises Significantly Faster Speeds than Current 3G Networks,” *Verizon Press Release*, March 8, 2010.

with commercial deployment beginning in 2011.²¹ MetroPCS plans to begin to deploy LTE technology by the second half of 2010,²² and LEAP plans to test LTE technology in 2010.²³ In addition, T-Mobile has upgraded its 3G service to HSPA+ in parts of the Philadelphia area and plans to upgrade its national 3G HSPA network to HSPA+ capabilities in 2010.²⁴

10. 4G technologies greatly enhance the mobile data capabilities of wireless networks and are making wireless broadband an even more effective alternative for wireline broadband. Even at the relatively lower throughput speeds offered by 3G, mobile wireless broadband services are a competitive alternative to wireline broadband for some consumers, who choose wireless broadband in order to have the flexibility of mobility and the ability to use their service outside their home or office. Wireline providers have recognized the advantages of mobility as evidenced by the cable companies' own offerings of 4G mobile broadband described above.

11. With the increased speeds of 4G, wireless broadband becomes an even more viable alternative to wireline providers for a larger range of broadband users and uses.²⁵ Clearwire advertises its 4G service speed to have average download speeds of 3 to 6 Mbps with peak spikes of 10 Mbps and Sprint also advertises its 4G service to have average download speeds of 3 to 6 Mbps with peaks of 10 Mbps. Comcast and Time Warner Cable advertise similar speeds for their 4G services. See Table 2.

12. Current 4G throughput speeds are comparable to those advertised by wireline broadband providers. For example, Verizon advertises its "Starter DSL" and "Power DSL" services to have download speeds of 1 Mbps and 2 Mbps, respectively. Comcast advertises its "Economy" and "Performance" cable modem services to have download speeds of 1 Mbps and 12 Mbps, respectively, and Time Warner Cable advertises its "Road Runner Lite," "Road Runner Basic,"

²⁰ "AT&T to Speed Its Network in 6 Cities by Year-End," *The New York Times*, September 10, 2009.

²¹ "AT&T to Deliver 3G Mobile Broadband Speed Boost," *AT&T Press Release*, May 27, 2009. ("AT&T Speed Boost 2009")

²² "MetroPCS Taps Samsung, Ericsson for network", *Dallas Morning News*, September 16, 2009 available at <http://www.dallasnews.com/sharedcontent/dws/bus/industries/techtelecom/stories/091609dnbusmetropcs.1861a9b69.html>.

²³ Leap Wireless International, 2009 Form 10-K, filed March 1, 2010, p. 6.

²⁴ Some analysts expect download speeds of about 10 Mbps under good conditions. See "Hands-on with T-Mobile's Super-3G HSPA+ Network", *PCMag.com*, September 25, 2009. See also, "T-Mobile's Ray Promises National HSPA+ Deployment by mid-2010," *FierceWireless.com*, September 18, 2009, available at <http://www.fiercewireless.com/node/49541/print>.

²⁵ See, e.g., *Ex Parte* Submission of the United States Department of Justice in the Matter of Economic Issues in Broadband Competition, GN Docket No. 09-51, January 4, 2010, pp. 8-10.

and High Speed Online services to have average download speeds of 768 kbps, 1.5 Mbps and 7 Mbps, respectively. See Table 3.

13. Although 4G speeds are not yet comparable to the high-end speeds available on state of the art wireline broadband networks, which have speeds above 20 Mbps, 4G speeds are sufficient for most users and most applications. For example, a 2009 presentation from the Commission's Omnibus Broadband Initiative team documents that 5 Mbps is generally sufficient for web browsing, audio streaming, voice over internet, some online games, and even varying video conferencing and streamed video technologies.²⁶ In addition, the Commission's National Broadband Plan has set a universal availability target of 4 Mbps download speeds and 1 Mbps upload speeds, claiming that this speed represents "what the typical broadband subscriber receives today, and what many consumers are likely to use in the future, given past growth rates."²⁷ The Commission's recent survey of broadband usage provides further evidence that many consumers use broadband primarily for applications and services that require speeds well within the range that wireless broadband offers.²⁸ Survey respondents reported that communicating with friends and family was their most important internet activity followed by keeping up with news in their community.²⁹ 4G speeds should be sufficient for these types of activities.

14. It is not longer speculation that 4G service will generate substitution from wireline broadband for some consumers – it is already happening in the marketplace. The CCO of Clearwire, Mike Sievert, stated in Clearwire's recent analyst conference call "And so roughly half the customers come on and use it [Clearwire's services] as a – overall as a replacement to whatever it is that they were having before, which is a combination usually of DSL or cable broadband."³⁰

15. Prices for 4G service are competitive with prices for comparable wireline broadband services offered by cable companies and telcos. For example, Clearwire offers home 4G services for \$25 to \$45/month, and mobile 4G services for \$35 to \$55/month, as well as various bundles of home, mobile and voice services. Sprint offers its 4G service for \$59.99/month. These prices are

²⁶ FCC Presentation 2009, p. 23.

²⁷ FCC, National Broadband Plan, p. 135, available at <http://download.broadband.gov/plan/national-broadband-plan-chapter-8-availability.pdf>

²⁸ John Horrigan, Broadband Adoption and Use in America, Federal Communications Commission OBI Working Paper Series No. 1, February 2010. ("Broadband Adoption and Use in America")

²⁹ Broadband Adoption and Use in America, p. 19.

³⁰ Clearwire Q4 2009 Conference Call, p. 9.

comparable to prices for wireline broadband services with similar speeds. For example, Verizon's services range in price from \$34.99 to \$44.99, and its FIOS Fast service is available for \$54.99. Comcast's cable modem services range in price from \$24.95 to \$42.95. In addition Clearwire, Sprint, Comcast and Time Warner Cable offer 4G plans with unlimited usage allowances. See Table 4 to 9.

16. Advertising by 4G providers offers further evidence of competition between 4G services and wireline broadband offerings. As described in my initial Declaration, advertising's general purpose is to increase demand for a firm's products.³¹ Aggressive advertising that directly compares prices and services is strongly indicative of firms' attempts to change market perceptions and to increase market share. Recent marketing materials and advertising campaigns by Clearwire compares its 4G service to wireline broadband offerings from cable companies and telcos. For example:

- "Discover a wireless alternative to DSL or cable internet service at home. No drilling, digging or waiting for installation. Average download speeds of 3 to 6 mbps. Enjoy a fast, easy and affordable alternative to cable and DSL."³²
- "CLEAR offers speeds comparable to cable and DSL for home and up to 4x faster than you can get with mobile broadband from a cellular company. To provide you with the Internet you want, where you want it. CLEAR supports average download speeds up to 3-6 Mbps and upload speeds up to 1Mbps."³³
- CLEAR: "Our average mobile speeds are 4 times faster than the ones you get from a cell phone company. So, you can do the same things on the go as you normally do at home."³⁴
- CLEAR's "Basic Home Internet" plan is \$25 per month; CLEAR states that "[t]his affordable plan is perfect if you use the internet mainly for checking email or surfing the web."³⁵

17. Sprint also advertises its 4G service as a fast service with applications that can serve as an alternative to wireline broadband offerings.

³¹ Topper Declaration, ¶¶ 41, 60.

³² Clearwire website available at <http://www.clear.com/shop/services>. See "Clear - Service Plans.pdf" in attachment [A].

³³ CLEAR, *Mobile Internet: Unlimited Mobile Internet FAQs*, <http://www.clear.com/shop/services/mobile?id=226&market=42>.

³⁴ CLEAR, *Discover: Faster Network*, <http://www.clear.com/discover/network>.

³⁵ CLEAR, *Service Plans: Basic Home Internet*, <http://www.clear.com/shop/services/home>. See "Clear - Home Internet - Basic Internet.pdf" and "Clear - Compare Home Internet Plans.pdf" in attachment [A].

- Sprint offers a “4G Desktop Modem CPEi25150 by Motorola” which is “[a] great solution when you need [to] get a reliable Internet connection up and running with minimal hassle.”³⁶
- “Sprint 4G services dramatically increases [sic] download speeds for photos, videos and large files. You can download a favorite song, picture, sitcom or large video in seconds, not minutes, or watch live streaming video – all while on the go, not just from the home or office.”³⁷ Sprint goes on to cite examples of 4G use including real estate agents conducting virtual property tours, construction teams sharing schematics with engineers online, and healthcare professionals using 4G services to remotely monitor patients.
- “Turbo charge your productivity with an even faster Mobile Broadband connection. Download mammoth files and video conference without the lag.”³⁸

18. In sum, the bandwidth and pricing of 4G services, along with the added feature of mobility, make wireless broadband an increasingly viable alternative to wireline broadband for many consumers. Its rapid deployment by new entrant Clearwire, existing wireless providers such as Sprint, and cable providers such as Comcast and Time Warner Cable underscore market participants’ view of its competitive viability. This along with advertising activity suggests that 4G is increasing cross-platform competition for the provision of broadband access.

III. High-Speed Internet Services Report

19. The Commission recently issued its latest High-Speed Internet Services Report,³⁹ relying on a new methodology that collects data at a more granular census tract level.⁴⁰ This new methodology confirms the Commission’s earlier analysis showing that most Americans have choice of wireline broadband access providers and multiple alternatives for wireless broadband services.⁴¹ The recently collected data show that as of December 2008, 95.7% of census tracts had

³⁶ Sprint, *Single-mode 4G Devices*, http://nextelonline.nextel.com/en/solutions/mobile_broadband/mobile_broadband_4G_singlemode_devices.shtml.

³⁷ Sprint, Sprint 4G Mobile Broadband Press Kits, http://www2.sprint.com/mr/cda_pkDetail.do?id=1260. See “Sprint – 4G Press Kit.pdf” in attachment [A].

³⁸ See Sprint website at http://www.nextel.com/en/solutions/mobile_broadband/mobile_broadband_4G.shtml. See “Sprint – 4G Overview.pdf” in attachment [A].

³⁹ FCC Industry Analysis & Technology Division, Wireline Competition Bureau, High-Speed Services for Internet Access: Status as of December 31, 2008, February 2010. (“FCC High-Speed Services 2010”)

⁴⁰ For discussion of the new data collection methodology see, FCC High-Speed Services 2010, pp. 2-4.

⁴¹ For the Commission’s prior analysis of wireline broadband access providers see FCC Industry Analysis & Technology Division, Wireline Competition Bureau, High-Speed Services for Internet Access: Status as of June 30, 2008, July 2009. For the Commission’s prior analysis of wireless broadband providers see FCC, Thirteenth Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, January 16, 2009, ¶146.

one or more ADSL providers, and that 91.4% of census tracts had one or more cable modem providers.⁴² This suggests that at a minimum, 87.1% of census tracts have both a cable modem and an ADSL provider.⁴³ In the Commission’s prior High-Speed Internet Services Reports, it collected data on the number of broadband providers at a zip code level. In its report as of June 2008, the Commission found that 68.1% of zip codes have at least 2 providers of ADSL and/or cable broadband.⁴⁴ This suggests that the zip code data previously used by the Commission did not overestimate the extent of overlap between wireline providers.

20. These data collected at the more granular census tract level confirm the extent of overlap between wireline broadband providers that I reported in my initial Declaration.⁴⁵ In addition, most Americans have access to several mobile wireless providers offering 3G wireless services,⁴⁶ with 77% of the U.S. population living in census tracts with 3 or more 3G mobile providers as of November 2009.⁴⁷

21. The most recent High-Speed Internet Services Report also confirms that the number of “advanced services” lines has continued to increase.⁴⁸ In my initial Declaration, I reported statistics as of June 2008 from the Commission’s prior High-Speed Internet Services Report.⁴⁹ In the six months from June 2008 to December 2008, the number of “advanced services” cable modem lines increased 6.8%, from 37.8 million to 40.4 million, the number of ADSL “advanced services” lines increased 1.6%, from 26.1 million to 26.6 million, and the number of fiber to the premises “advanced services” lines increased 22.7% increase, from 2.3 million lines to 2.9 million lines.⁵⁰ Marketplace evidence presented in my initial Declaration suggests that the overall number of fixed advanced services continued to increase in the fifteen months since December 2008.

⁴² FCC High-Speed Services 2010, Table 13.

⁴³ 95.7% of census tracts have at least one aDSL provider. If all of the 4.3% of census tracts without an ADSL provider have a cable modem provider, the total percent of census tracts with both types of providers is 87.1%. (87.1% = 91.4% - 4.3%). If, as is likely, some census tracts without an ADSL provider also do not have a cable modem provider, then the total percentage of census tracts with both types of providers will be higher. Calculations are based on data provided in FCC High-Speed Services 2010, Table 13.

⁴⁴ FCC Industry Analysis & Technology Division, Wireline Competition Bureau, High-Speed Services for Internet Access: Status as of June 30, 2008, July 2009, Table 16.

⁴⁵ Topper Declaration, ¶¶ 14-15.

⁴⁶ Topper Declaration, ¶ 53.

⁴⁷ FCC, National Broadband Plan, p. 39, available at <http://download.broadband.gov/plan/national-broadband-plan-chapter-4-broadband-competition-and-innovation-policy.pdf>.

⁴⁸ The Commission defines advanced services lines as those capable of over 200 kbps in both directions.

⁴⁹ Topper Declaration, ¶¶ 9, 11, citing statistics from FCC Industry Analysis & Technology Division, Wireline Competition Bureau, High-Speed Services for Internet Access: Status as of June 30, 2008, July 2009, Table 2.

⁵⁰ FCC High-Speed Services 2010, Table 2.

22. The Commission also reports that as of December 2008 there were 14.5 million mobile wireless advanced services lines.⁵¹ Because the Commission changed its Form 477 reporting methodology for mobile wireless carriers, these numbers are not comparable to earlier years. However, as discussed in my initial Declaration, there is substantial marketplace evidence that consumers are increasingly using mobile broadband services.

IV. Implications of 4G Services for Network Neutrality Regulation

23. As discussed in my initial Declaration, competition and innovation by broadband providers, device makers, applications developers and content providers have resulted in new and faster services, expanded capabilities, new access devices (such as smartphones, aircards and netbooks), innovative content and applications, falling prices, and improved service quality. Both the latest results of the Commission's High-Speed Services report, which documents continued growth in broadband choice and availability, and the expanding deployment of 4G services provide further evidence for this.

24. Beyond just being an example of innovation wrought by the current competitive environment, the story of 4G is an informative example of the evolution of cross-platform competition in broadband provision. The faster speeds of 4G provide a competitive advantage to Clearwire and Sprint in their competition with other wireless providers. In addition, with 4G services Clearwire and Sprint are an increasingly viable alternative to traditional wireline access. Moreover, by incorporating 4G services into their own service offerings, cable providers Comcast and Time Warner Cable are enhancing their own ability to compete with the mobility offered by other wireless providers. The current competitive framework has delivered countless examples (of which 4G is just one) of competition inspiring new innovation, which, itself, changes the competitive marketplace leading to new and better customer experiences. This suggests that the Commission's current policy framework, which has relied primarily on market forces rather than regulation, works and that expansion of the Commission's current Internet Policy Statement into a set of prescriptive regulatory rules is unsound.

⁵¹ FCC High-Speed Services 2010, Table 2.

I declare under penalty of perjury that the foregoing is true and correct.

Michael D. Topper

Michael D. Topper
Executed April 8, 2010

TABLE 1. 4G SERVICE OFFERINGS

State	City	Sprint 4G	Clearwire CLEAR	Comcast High-Speed 2go	Time Warner Cable Road Runner Mobile
Georgia	Atlanta	Aug. 2009	June 2009	July 2009	
	Milledgeville	Oct. 2009	available		
Hawaii	Honolulu	Dec. 2009	Dec. 2009		Jan. 2010
	Maui	Dec. 2009	Dec. 2009		Jan. 2010
Idaho	Boise	Sept. 2009	available		
Illinois	Chicago	Nov. 2009	Nov. 2009	Dec. 2009	
Maryland	Baltimore	Oct. 2008	available		
Nevada	Las Vegas	Aug. 2009	July 2009		
North Carolina	Charlotte	Nov. 2009	Nov. 2009		Dec. 2009
	Durham & Chapel Hill	Nov. 2009	Nov. 2009		Dec. 2009
	Greensboro-High Point	Nov. 2009	Nov. 2009		Dec. 2009
	Raleigh-Cary	Nov. 2009	Nov. 2009		Dec. 2009
	Winston-Salem	Nov. 2009	available		available
Oregon	Portland	Aug. 2009	Jan. 2009	July 2009	
	Salem	Oct. 2009	available	available	
Pennsylvania	Philadelphia	Oct. 2009	available	Nov. 2009	
Texas	Abilene	Oct. 2009	available		
	Amarillo	Oct. 2009	available		
	Austin	Nov. 2009	Nov. 2009		
	Corpus Christi	Oct. 2009	available		
	Dallas-Fort Worth	Nov. 2009	Nov. 2009		4Q 2009
	Killeen-Temple	Oct. 2009	available		
	Lubbock	Oct. 2009	available		
	Midland	Oct. 2009	available		
	Odessa	Oct. 2009	available		
	San Antonio	Nov. 2009	Nov. 2009		available
	Waco	Oct. 2009	available		
Wichita Falls	Oct. 2009	available			
Washington	Bellingham	Sept. 2009	available	available	
	Seattle-Tacoma (incl. Everett)	Dec. 2009	Dec. 2009	Dec. 2009	

TABLE 1. 4G SERVICE OFFERINGS

State	City	Sprint 4G	Clearwire CLEAR	Comcast High-Speed 2go	Time Warner Cable Road Runner Mobile
<p><i>Sources:</i> Sprint, <i>Press Kits: Sprint 4G Mobile Broadband</i>, http://www2.sprint.com/mr/cda_pkDetail.do?id=1260; Clearwire Press Release, <i>Clearwire Introduces Clear™ 4G Mobile Internet Service to Portland</i> (Jan. 6, 2009), http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1240894&highlight=; Clearwire Press Release, <i>Clearwire Introduces CLEAR™ 4G Mobile Internet Service to Atlanta</i> (June 16, 2009), http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1299662&highlight=; Clearwire Press Release, <i>Clearwire Introduces CLEAR™ 4G Mobile Internet Service to Las Vegas</i> (July 21, 2009), http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1309444&highlight=; Clearwire & Sprint Press Release, <i>Clearwire, Comcast, and Sprint To Launch 4G in Chicago, Philadelphia and Seattle</i> (Oct. 22, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1345732&highlight=; Clearwire Corporation, Form 10-Q, at 29 (SEC filed Nov. 10, 2009); Thomson StreetEvents, <i>CMCSA – Q4 2009 Comcast Corporation Earnings Conference Call</i>, Transcript at 9 (Feb. 3, 2010) (statement by Comcast Corp. COO Steve Burke); Comcast, <i>High-Speed 2go FAQs: Where Can I Use Comcast High-Speed 2go 4G Service?</i>, http://www.comcast.com/highspeed2go/#/faq; Comcast, <i>High-Speed 2go: Coverage</i>, http://www.comcast.com/highspeed2go/#/coverage; Time Warner Cable Press Release, <i>Time Warner Cable Brings 4G Wireless to North Carolina with Fastest Wireless Speeds Available</i> (Oct. 14, 2009), http://www.timewarnercable.com/corporate/about/inthenewsdetails.ashx?PRID=2706&MarketID=0; Oceanic Time Warner Cable Press Release, <i>Oceanic Time Warner Cable To Launch Road Runner Mobile 4G Service on January 4, 2010</i> (Dec. 21, 2009), http://www.beckercommunications.com/App_Content/Documents/OTWC%20NR%20RoadRunnerMobileLaunch.121809.pdf; Time Warner Cable, <i>Find the Right Plan</i>, http://4gactivation.timewarnercable.com/service.html.</p>					

TABLE 2. 4G SPEEDS

	Sprint 4G	Clearwire CLEAR	Comcast High-Speed 2go	Time Warner Cable Road Runner Mobile
Downstream	3-6 Mbps (average) over 10 Mbps (peak)	3-6 Mbps (average), bursts over 10 Mbps	3-6 Mbps	3-6 Mbps (average), bursts up to 10 Mbps
Upstream	1 Mbps (average)	500 kbps-1 Mbps	1 Mbps	1 Mbps
<p><i>Sources:</i> Sprint, <i>Shop: Sprint 4G</i>, http://www.nextel.com/en/solutions/mobile_broadband/mobile_broadband_4G.shtml; Todd Rowley, Sprint 4G VP, <i>Bringing 4G to You</i>, 2009 FBR Capital Markets Fall Investor Conference Presentation, at 6 (Dec. 1, 2009), http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MjE4MDR8Q2hpbGRJRjD0tMXxUeXBIPtM=&t=1; CLEAR, <i>Discover: Faster Network</i>, http://www.clear.com/discover/network; CLEAR, <i>Mobile Internet: Unlimited Mobile Internet FAQs</i>, http://www.clear.com/shop/services/mobile?id=226&market=42; CLEAR, <i>Services: Home Internet</i>, http://www.clear.com/shop/services/home; Comcast, <i>High-Speed 2go: Frequently Asked Questions</i>, http://www.comcast.com/highspeed2go/#/faq; Time Warner Cable, <i>Learn: How Road Runner Mobile Works for You</i>, http://4gactivation.timewarnercable.com/howitworks.html.</p>				

TABLE 3. 4G AND WIRELINE BROADBAND SERVICE PLAN PRICES

Provider	Plan	Monthly Price		Speed		Price per Mbps*	
		4G Wireless	Wireline	Downstream	Upstream	Downstream	Upstream
Clearwire	CLEAR Basic Home Internet	\$25		1 Mbps	500 kbps	\$25	\$50
	CLEAR Fast Home Internet	\$30		3 Mbps	1 Mbps	\$10	\$30
	CLEAR Faster Home Internet	\$45		6 Mbps	1 Mbps	\$8	\$45
	CLEAR Unlimited Mobile Internet	\$30 ^P / \$45		3-6 Mbps (average)	500 kbps-1 Mbps	\$6-13	\$38-75
Sprint	Mobile Broadband Connection 3G/4G	\$59.99		3-6 Mbps (average)	1 Mbps (average)	\$10-20	\$60
Verizon	Starter DSL		\$34.99	1 Mbps	384 kbps	\$35	\$91
	Power DSL		\$44.99	3 Mbps	768 kbps	\$15	\$59
	FiOS Fast		\$54.99	15 Mbps	5 Mbps	\$4	\$11
Comcast	Economy		\$24.95	1 Mbps	384 kbps	\$25	\$65
	Performance		\$19.99 ^P / \$42.95	15 Mbps	3 Mbps	\$2	\$11
Time Warner Cable	Road Runner Lite		\$27.95	768 kbps	128 kbps	\$36	\$218
	Road Runner Basic		\$37.95	1.5 Mbps	256 kbps	\$25	\$148
	High Speed Online		\$54.95	7 Mbps	384 kbps	\$8	\$143
Cox	Essential		\$29.99 (online)- \$32.99	3 Mbps	768 kbps	\$10-11	\$39-43
Cablevision	Optimum Online		\$29.95	15 Mbps	2 Mbps	\$2	\$15

^P Promotional rate for the first 6 months

*For plans with a promotional rate, the Price per Mbps reflects the monthly average for the first year

Sources: See Tables 2,4-9 (CLEAR, Sprint); Verizon, *Verizon High Speed Internet*, <http://www22.verizon.com/Residential/HighSpeedInternet/Plans/Plans.htm> (DSL-only service with a 1-year agreement and no Verizon home phone service); Verizon, *Verizon FiOS Internet*, <http://www22.verizon.com/Residential/FiOSInternet/Plans/Plans.htm> (FiOS-only service with a 1-year agreement and no Verizon home phone service); Time Warner Cable, *Pricing & Packaging*, <http://www.timewarnercable.com/Carolinas/shop/pricing.html?menu=31049> (zip code 27601); Time Warner Cable, *Order Services: Road Runner High Speed Online*, <http://www.yourtwc.com/order/order.aspx?existcust=N&referencetype=CarolinasSmtBox> (zip code 27601); Comcast, *Product: Faster Internet*, <https://www.comcast.com/shop/buyflow2/productsexisting.csp?SourceP&>; Cox, *Internet*, <http://ww2.cox.com/residential/northernvirginia/internet.cox>; Optimum, *Optimum Online*, <http://www.optimum.com/online/pricing.jsp>; *Optimum Online Faster Internet*, <https://www.optimum.com/online/why/faster.jsp>.

TABLE 4. SPRINT 4G MONTHLY PRICING

Plan	Price	4G Usage	3G Usage
Mobile Broadband Connection Plan 3G/4G	\$59.99/month	unlimited	5 GB/month or 300 MB/month while off-network roaming \$0.05/add'l MB (on-network)
24-Hour 4G Day Pass	\$9.99/day	unlimited	
Additional charges for static IP address (\$3 per month per address and a one-time set-up fee of \$250 per block of addresses for reserved static IP; \$3 per month per address and no set-up fee for standard static IP). <i>Sources:</i> Sprint, <i>Shop: Plans</i> , http://nextelonline.nextel.com/NASApp/onlinestore/en/Action/DisplayPlans ; Sprint, <i>4G Day Pass</i> , http://www.nextel.com/en/solutions/mobile_broadband/mobile_broadband_4G_daypass.shtml ; Sprint, <i>Static IP for Mobile Applications</i> , http://nextelonline.nextel.com/en/solutions/static_ip.shtml .			

TABLE 5. CLEAR MONTHLY PRICING

Group	Plan	Monthly Price	4G Usage	3G Usage
Mobile Internet	Unlimited Mobile Internet	\$30 (1st 6 months)/ \$45	unlimited	
	2GB Mobile Internet	\$35	2 GB \$10/month per additional GB	
	4G+ Mobile Internet	\$55	unlimited	5 GB \$0.05/additional GB
CLEAR Professional	Fast Office	\$55	unlimited	
	Faster Office	\$75	unlimited (no download speed cap)	
	Professional 2GB Mobile Internet	\$40	2 GB \$10/month per additional GB	
	Professional Unlimited Mobile Internet	\$50	unlimited	
	4G+ Mobile Internet	\$55	unlimited	5 GB \$0.05/additional GB
	15GB Shared Mobile Internet	\$100 (for 2 users; add'1 users \$22.50/month)	15 GB \$10/month per additional GB	
	30GB Shared Mobile Internet	\$120 (for 2 users; add'1 users \$20/month)	30 GB \$10/month per additional GB	
Home Internet	Basic Home Internet (1 Mbps/500 kbps)	\$25	unlimited	
	Fast Home Internet (3 Mbps/1 Mbps)	\$30	unlimited	
	Faster Home Internet (6 Mbps/1 Mbps)	\$45	unlimited	
Bundle & Save	Pick 2 Unlimited: Home + Mobile	\$50 (per month for life)	unlimited	
	Pick 2 Unlimited: Mobile + Mobile	\$50 (per month for life)	unlimited	
	Pick 2 Unlimited: Home + Voice	\$50	unlimited	
	Pick 3 Unlimited: Home + Mobile + Voice	\$70	unlimited	
	Pick 3 Unlimited: Home + Mobile + Mobile	\$70 (per month for life)	unlimited	

Sources: CLEAR, *Service Plans: Mobile Internet*, <http://www.clear.com/shop/services/mobile>; CLEAR, *Service Plans: CLEAR Professional*, <http://www.clear.com/shop/services/business>; CLEAR, *Service Plans: Home Internet*, <http://www.clear.com/shop/services/home>; CLEAR, *Service Plans: Bundle & Save*, <http://www.clear.com/shop/services/bundles>.

TABLE 6. COMCAST HIGH-SPEED 2GO STANDARD MONTHLY PRICING Mobile Broadband Only				
Plan	Customers	Monthly Price	4G Usage	3G Usage*
Metro (4G only)	with Comcast High-Speed Internet	\$30	unlimited	
	without Comcast High-Speed Internet	\$50	unlimited	
Nationwide (incl. 3G coverage)	with Comcast High-Speed Internet	\$50	unlimited	5GB \$0.10/add'l MB
	without Comcast High-Speed Internet	\$80	unlimited	
<p>* Domestic 3G Roaming: \$1 per MB above 100 MB International 3G Roaming (Mexico & Canada): \$10/5 MB International 3G Roaming (Other countries where service is available): \$20/5 MB Source: Comcast, <i>High-Speed 2go Standard Pricing</i>, http://customer.comcast.com/Pages/FAQViewer.aspx?seoid=High-Speed-2go-Standard-Pricing&fss=high-speed%202go; Comcast Business Class Wireless Plans and Pricing, http://business.comcast.com/highspeed2go/wireless_plans.aspx.</p>				

TABLE 7. COMCAST HIGH-SPEED 2GO FAST PACK BUNDLES MONTHLY PRICING Home + Mobile Broadband				
Fast Pack Bundle	Home Broadband Speed/Offering Name			
	12 Mbps Performance	16 Mbps Blast!	22 Mbps Ultra	50 Mbps Extreme 50
High-Speed 2go Fast Pack Metro	\$49.99 ^P / \$72.95	\$59.99 ^P / \$82.95	\$69.99 ^P / \$92.95	\$106.99 ^P / \$129.95
High-Speed 2go Fast Pack Nationwide (incl. 3G Coverage)*	\$69.99 ^P / \$92.95	\$79.99 ^P / \$102.95	\$89.99 ^P / \$112.95	\$126.99 ^P / \$149.95
<p>*Includes 5GB of 3G usage; \$0.10/MB thereafter ^P Promotional rate for the first 12 months Source: Comcast, <i>Which Fast Pack Is For You?</i>, http://www.comcast.com/highspeed2go/#/fastpack; See "Comcast – Brochure.pdf" in attachment [A].</p>				

TABLE 8. COMCAST HIGH-SPEED 2GO FOR COMCAST BUSINESS CLASS INTERNET CUSTOMERS				
Plan	Customers	Monthly Price	4G Usage	3G Usage*
High-Speed 2go Nationwide (4G/3G)	with \$99 bundle	\$50	unlimited	5 GB on-network, 100 MB domestic roaming \$0.10/add'l MB on-network, \$1/add'l MB for off- network roaming
	with Internet only	\$50	unlimited	
<p>Source: Comcast Business, <i>Wireless Plans & Pricing</i>, http://business.comcast.com/highspeed2go/wireless_plans.aspx.</p>				

**TABLE 9. TIME WARNER CABLE ROAD RUNNER MOBILE MONTHLY PRICING
North Carolina**

Plan	Monthly Price*	4G Usage	3G Usage
Road Runner Mobile 4G Choice	\$29.95-\$39.95	2 GB \$0.05/add'l MB	
Road Runner Mobile 4G Elite	\$39.95-\$54.95	unlimited	
Road Runner Mobile 4G National Elite	\$59.95-\$74.95	unlimited	domestic roaming: \$0.30/MB

*The lower end of the range is based on a bundle with other Time Warner Cable services.

Sources: Time Warner Cable, *Mobile Selection Guide: Carolinas*, <http://www.timewarnercable.com/Carolinas/learn/mobile/guide.html>; Time Warner Cable, *Road Runner Mobile 4G National Elite*, <http://www.timewarnercable.com/carolinas/learn/mobile/4gnationalelite.html>; *Road Runner Mobile Pricing*, <http://www.yourtwc.com/mobile/contractcomparison.cfm?emp=N>.