Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Restoring Internet Freedom	)	WT Docket No. 17-108
	)	

COMMENTS OF MOBILE FUTURE

MOBILE FUTURE

Robert M. McDowell
Chief Public Policy Advisor
1325 Pennsylvania Avenue, NW
Suite 600
Washington, DC 20004
(202) 756-4154
www.mobilefuture.org

July 17, 2017

EXECUTIVE SUMMARY

Ensuring an open internet and protecting the vibrant mobile ecosystem are both essential, and both can be achieved with broadband internet access service ("BIAS") classification under Title I of the Communications Act rather than monopoly public utility regulation under Title II. The United States wireless sector is one of the most dynamic and innovative markets in the world, which is a direct result of decades of intense competition and bipartisan regulatory restraint prior to Title II reclassification in 2015. Nearly the entire U.S. population can choose between multiple 4G LTE providers, prices for service have fallen over the past several months, and data speeds and consumption continue to skyrocket year after year. Strong consumer expectations, intense competition, and consumer protection and competition laws all impose constraints on providers' ability to unreasonably limit consumer access to content and applications. An open internet has always been and continues to be an essential aspect of the American wireless consumer experience, and Title II reclassification was based only on hypothetical future harms rather than any evidence of actual harm to consumers.

At the same time, imposition of Title II regulation has negatively affected broadband investment and stifled pro-consumer business model experimentation, necessitating a return to Title I. Wireless capital expenditures peaked at $33.1 billion in 2013, and declined by 20.2 percent by 2016 to $26.4 billion. Providers that introduced consumer-friendly free data plans were met with letters and information requests under the *Title II Order*'s general internet conduct standard, discouraging future innovative offerings that consumers may desire.

The Commission should proceed with the proposals in the Notice of Proposed Rulemaking to protect the open internet while restoring internet freedom under Title I to drive innovation, job creation, competition, and economic growth.

TABLE OF CONTENTS

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Restoring Internet Freedom	)	WT Docket No. 17-108
	)	

COMMENTS OF MOBILE FUTURE

Mobile Future submits these comments in response to the above-captioned Federal Communications Commission's ("FCC" or "Commission") Notice of Proposed Rulemaking.[1] Ensuring an open internet and a vibrant mobile ecosystem are both essential policy objectives, and neither requires the use of innovation-chilling and investment-stifling utility regulation. Therefore, the Commission should proceed with its plan to promote and protect the open internet while restoring internet freedom to drive innovation, job creation, competition, and economic growth.

Intense competition among providers and bipartisan regulatory restraint facilitated massive investment and innovation in the wireless sector for more than two decades prior to the Commission's 2015 decision to reclassify broadband as a telecommunications service under Title II of the Communications Act.[2] Over the preceding five years, more than $177 billion of private risk capital was invested in American wireless broadband facilities.[3] However, the

[1] *Restoring Internet Freedom*, Notice of Proposed Rulemaking, 32 FCC Rcd 4434 (2017) ("*NPRM*").

[2] *Protecting and Promoting the Open Internet*, Report and Order on Remand, Declaratory Ruling, and Order, 30 FCC Rcd 5601 (2015) ("*Title II Order*").

[3] Press Release, CTIA, Americans' Data Usage More Than Doubled in 2015 (May 23, 2016), https://www.ctia.org/industry-data/press-releases-details/press-releases/americans-data-usage-more-than-doubled-in-2015 (announcing that the CTIA annual survey ending in 2015 showed that wireless carriers had invested more than $177 billion since 2010).

Commission's 2015 decision to subject broadband to public utility regulation injected uncertainty into the market and jeopardized the future of critical investments in American broadband infrastructure. As Dr. Anna-Maria Kovacs' recent paper, "The Effect of Title II Classification on Wireless Investment," concluded, "[t]he pattern of capex growth and decline indicates that the industry responded to the threat of new and financially harmful regulation issued by the FCC in 2015 by pausing capital investment in 2014 and 2015, while the FCC's order was under consideration, and then cutting back sharply on capital investment in 2016 after the order became final."[4] Wireless capex peaked at $33.1 billion in 2013, and then fell from $32 billion in 2015 to $26.4 billion in 2016, a 17.5 percent drop in that year alone. [5]

Meanwhile, the global race to 5G is on. Next generation 5G services will unleash the Internet of Things ("IoT") and will offer connectivity in new ways at home, in schools, in hospitals, at work, and across every aspect of American life. To make 5G a reality in the United States, providers will need to invest $275 billion in the networks over which a plethora of 5G applications and services – including broadband internet access – will operate.[6] Utility regulation of mobile broadband puts our 5G future at risk. Now is the time for the Commission to correct its course and make clear once again that broadband is an information service subject to Title I of the Communications Act. Treating broadband with a "light touch" was the unanimous and bipartisan consensus of not only the FCC, but the Clinton White House and

[4] Anna-Maria Kovacs, Ph.D., CFA, *The Effect of Title II Classification on Wireless Investment*, at 9 (July 2017), http://cbpp.georgetown.edu/sites/cbpp.georgetown.edu/files/Kovacs%20-%20Title%20II%20and%20wireless%20investment.pdf. The paper is attached to these comments as Appendix A.

[5] *Id.* at 8.

[6] *See How 5G Can Help Municipalities Become Vibrant Smart Cities*, Accenture Strategy (Jan. 12, 2017), http://www.ctia.org/docs/default-source/default-document-library/how-5g-can-help-municipalities-become-vibrant-smart-cities-accenture.pdf.

Congress for decades.[7] In fact, internet access was always treated as a Title I service until the FCC radically departed from this long-held convention in 2015.[8] Nonetheless, ultimately, Congress should pass legislation to provide unambiguous and permanent protections for consumers and regulatory certainty for providers to innovate and invest, and to put an end to the continuous regulatory back and forth at the FCC.

I. AN OPEN INTERNET IS ESSENTIAL IN THE MODERN ECONOMY.

Mobile Future strongly supports internet freedom to drive innovation, economic growth, job creation, competition, and the myriad societal benefits that result from the free flow of information and ideas over modern broadband networks. An open internet is essential for virtually every aspect of modern life, including mobile broadband internet access, given the increasing use of smart phones to access online services and content. The average U.S. household owns 2.4 smartphones,[9] 77 percent of American adults own a smartphone, and 89

[7] For example, a Republican Congress and President Bill Clinton enacted the Telecommunications Act of 1996, which stated the United States' policy to preserve the competitive, free-market environment for the internet, "unfettered by Federal or State regulation." 47 U.S.C. § 230(b)(2). The Clinton White House further opined, "We should not assume … that the regulatory frameworks established over the past sixty years for telecommunications, radio and television fit the Internet." The White House, *A Framework for Global Electronic Commerce* (July 1, 1997). Four years later, Clinton-appointed FCC Chairman William Kennard confirmed, "It just doesn't make sense to apply hundred-year-old regulations meant for copper wires and giant switching stations to the IP networks of today." Remarks of the Honorable William E. Kennard, Chairman, FCC, *Voice Over Net Conference: Internet Telephony: America is Waiting* (Sept. 12, 2000). And President George W. Bush-appointed FCC Chairman Michael Powell highlighted the importance of ensuring that "consumers can obtain and use the content, applications and devices they want … while safeguarding Congress' intent that the Internet remains free of unnecessary regulation that might distort or slow its growth." Michael K. Powell, Chairman, FCC, Remarks at the Silicon Flatiron Symposium: Preserving Internet Freedom: Guiding Principles for the Industry (Feb. 8, 2004).

[8] *NPRM*, 32 FCC Rcd at 4436-41, ¶¶ 6-22.

[9] Ina Fried, *Americans Now Have Nearly as Many Smartphones as TVs*, recode (May 9, 2016), https://www.recode.net/2016/5/9/11640176/american-households-smartphones-tvs.

percent of Americans with a mobile subscription own a smartphone,[10] vast increases since 2011 when only 35 percent of American adults owned a smartphone.[11] Mobile data usage in the United States increased by more than 42 percent in just one year, from 9.65 trillion megabytes to 13.72 trillion megabytes between 2015 and 2016.[12] By 2021, United States mobile data traffic will reach 6.1 exabytes per month, up from 1.3 exabytes per month in 2016.[13] Modern education and agriculture, access to healthcare, participation in the political process, searching for and maintaining a job, and virtually every other aspect of daily life depend on the ability of consumers and businesses to have unfettered access to the internet. An open internet is particularly important for minority communities that increasingly rely on mobile internet access. For example, between 2013 and 2016, the percentage of African Americans who rely on a smartphone for home broadband access increased from 10 to 15 percent, while the percentage of Hispanic Americans relying on a smartphone for home broadband access similarly increased from 16 to 23 percent.[14]

---

[10] *The Nielsen Total Audience Report Q4 2016* (Apr. 3, 2017), http://www.nielsen.com/content/dam/corporate/us/en/reports-downloads/2017-reports/total-audience-report-q4-2016.pdf.

[11] *Mobile Fact Sheet*, Pew Research Center (Jan. 12, 2017), http://www.pewinternet.org/factsheet/mobile.

[12] *Annual Wireless Industry Survey*, CTIA, http://www.ctia.org/industry-data/ctia-annual-wireless-industry-survey (last visited Jul. 14, 2017).

[13] VNI Mobile Forecast Highlights, 2016-2021, Cisco, http://www.cisco.com/assets/sol/sp/vni/forecast_highlights_mobile/ (last visited Jul. 14, 2017).

[14] *Mobile Fact Sheet*, Pew Research Center (Jan. 12, 2017), http://www.pewinternet.org/factsheet/mobile.

II. RESTORING TITLE I INFORMATION SERVICE CLASSIFICATION OF MOBILE BROADBAND WILL PROMOTE AN OPEN INTERNET, INNOVATION, AND INVESTMENT.

A. Intense Competition in the Mobile Broadband Marketplace Renders Title II Reclassification Unnecessary.

The United States wireless sector remains one of the most dynamic and innovative markets in the world, following a long history of competition and bipartisan regulatory restraint prior to Title II reclassification in 2015. An open internet has always been and continues to be at the core of every American consumer's wireless experience, and the *Title II Order* therefore was based on hypothetical harms rather than any evidence of actual harm to consumers. Strong consumer expectations and demands, intense market competition, and consumer protection and competition laws that existed long before the *Title II Order* impose constraints on providers' ability to unreasonably limit consumers' access to content and applications.[15] Speeds are up, prices are falling, and consumers are voting with their feet and changing broadband providers when companies don't meet their expectations. These marketplace conditions have and will continue to ensure that the internet remains open for all and renders the use of Title II utility regulation unnecessary.

The market for mobile broadband is even more competitive now than when the 2015 *Title II Order* or the *2010 Open Internet Order* were adopted. Competition is intensifying, forcing wireless companies to constantly search for ways to respond to consumer needs and differentiate their services to attract new consumers. Robust competition for customers will continue to expand as new entrants join the wireless marketplace, including Charter and Comcast, who

[15] *See, e.g.*, 15 U.S.C. §§ 13, 45.

recently announced a wireless operational partnership.[16] All four nationwide carriers have recently introduced affordable unlimited data offerings.[17] AT&T first opened its unlimited plans to all customers a few days after Verizon began offering unlimited data plans,[18] and then lowered the price of its unlimited data plans less than two weeks later.[19] T-Mobile and Sprint also revised their unlimited plans in response to the new offerings by Verizon and AT&T.[20] Furthermore, wireless prices per bit have fallen – all to the benefit of America's consumers who are paying less for more data and faster speeds.[21] Between 2007 and March 2017, the wireless Consumer Price Index ("CPI") fell more than 25 percent.[22] In the last year alone, wireless CPI

---

[16] Press Release, Comcast, Charter to Explore Operational Efficiencies to Speed Entry into Wireless Market (May 8, 2017), http://corporate.comcast.com/news-information/news-feed/comcast-charter-wireless-efficiencies; Dana Mattioli and Shalini Ramachandran, *Comcast, Charter Strike Wireless Partnership*, Wall St. J. (May 8, 2017), https://www.wsj.com/articles/comcast-charter-to-strike-wireless-partnership-1494200087.

[17] Patrick Holland, *Unlimited Data Plans: Verizon, T-Mobile, AT&T and Sprint, Compared*, CNET (April 28, 2017), https://www.cnet.com/news/how-does-verizon-unlimited-plan-stack-up-against-the-others.

[18] Thomas Gryta, *AT&T Lowers Price of Unlimited Data Plans*, Wall St. J. (Feb. 27, 2017), https://www.wsj.com/articles/at-t-lowers-price-of-unlimited-data-plans-1488199594/?mod=mktw.

[19] *Id*.

[20] Patrick Holland, *Unlimited Data Plans: Verizon, T-Mobile, AT&T and Sprint, Compared*, CNET (April 28, 2017), https://www.cnet.com/news/how-does-verizon-unlimited-plan-stack-up-against-the-others.

[21] Today's 4G LTE mobile data speeds average faster than 19 Mbps, a vast increase from early 2010 when average download speeds hovered around 1 Mbps. *See* VNI Mobile Forecast Highlights, 2016-2021, Cisco, http://www.cisco.com/assets/sol/sp/vni/forecast_highlights_mobile/ (last visited Jul. 14, 2017); *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act*, Fifteenth Report, 26 FCC Rcd 9664, 9927, Table C-7 (2011).

[22] Press Release, Consumer Price Index – March 2017, Table 1 Consumer Price Index for All Urban Consumers (Apr. 14, 2017), https://www.bls.gov/news.release/pdf/cpi.pdf.; *see also* Annual Average Indexes 2007, Table 3A. Consumer Price Index for all Urban Consumers, Bureau of Labor Statistics (2007), https://www.bls.gov/cpi/cpid07av.pdf.

fell more than 13 percent, even as the general CPI increased 1.6 percent.[23] And from February to March, the month in which the nationwide carriers introduced new unlimited data plans, wireless prices dropped seven percent.[24]

The vast majority of Americans can choose from multiple providers, with 95.9 percent of the U.S. population living in areas with three or more mobile broadband providers offering LTE and 89.1 percent of the population living in areas covered by four or more providers offering LTE.[25] In addition to increased options, providers are also offering incentives for subscribers to switch carriers, making it easier for consumers to take advantage of new unlimited offerings and creating further disincentives for providers to violate consumers' open internet expectations. For example, all four nationwide carriers are offering up to $650 to compensate consumers for any early termination fees and device payments they may face when switching their service from another provider.[26]

---

[23] Press Release, Bureau of Labor Statistics, Consumer Price Index – June 2017, Table A Consumer Price Index for All Urban Consumers (July 14, 2017), https://www.bls.gov/news.release/pdf/cpi.pdf.

[24] Press Release, Consumer Price Index – March 2017, Table 1 Consumer Price Index for All Urban Consumers (Apr. 14, 2017), https://www.bls.gov/news.release/pdf/cpi.pdf.

[25] *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Nineteenth Report, 31 FCC Rcd 10534, 10564 ¶ 39 Chart III.A.2 (2016).

[26] T-Mobile, *There's Never Been a Better Time to Switch to T-Mobile*, https://www.t-mobile.com/offer/switch-carriers-no-early-termination-fee.html (last visited Jul. 14, 2017); AT&T, *Get up to $650 in credits per line to help you switch to AT&T*, https://www.att.com/shop/wireless/switch-and-save-etf.html (last visited Jul. 14, 2017); Verizon, *Switch to Verizon and Get up to $650*, https://www.verizonwireless.com/promos/switch-and-save (last visited Jul. 14, 2017); Sprint, *Switch to Sprint and Get a Clean Slate*, https://promo.sprint.com/Registration/DisplayLanding?ECID=vanity:joinsprint&LandingPartial=CBOLanding (last visited Jul. 14, 2017).

If any carrier does engage in blocking or throttling, consumers would have the incentive and ability to simply switch carriers. And as the carrier experienced the ensuing subscriber losses, market forces would pressure the carrier to amend its practices and otherwise lure customers back. These market pressures prevent carriers from engaging in practices that violate consumers' expectations in the first place. Therefore, placing the highly competitive wireless broadband marketplace under the Title II regulatory regime designed for a depression-era monopoly telephone system is unnecessary to ensure net neutrality for consumers, and the harm of heavy-handed Title II regulation far outweighs any alleged benefits.

B. A Negative Impact on Investment and Innovation Demands a Return to Title I.

As a policy matter, the negative effect of Title II regulation on broadband investment and the stifling of pro-consumer innovative business model experimentation demands a return to Title I classification. At a time when more investment is needed in wireless infrastructure and the wired networks that provide critical backhaul for wireless carriers, Wireless capex fell 17.5 percent from 2015 to 2016, from $32 billion in 2015 to $26.4 billion in 2016.[27] Domestic broadband capital expenditures declined by $3.6 billion in 2016 – a 5.6 percent decline relative to when the market began to account for the impending imposition of Title II[28] – and, according to a recent study, the market lost an additional $150-$200 billion in investment that would have been made "but for" Title II reclassification.[29] As a result, one economist estimates that

[27] *Kovacs*, at 8.

[28] Hal Singer, *2016 Broadband Capex Survey: Tracking Investment in the Title II Era*, Wordpress.com (Mar. 1, 2017), https://haljsinger.wordpress.com/2017/03/01/2016-broadband-capex-survey-tracking-investment-in-the-title-ii-era/.

[29] George S. Ford, *Net Neutrality, Reclassification and Investment: A Counterfactual Analysis*, Phoenix Center (Apr. 25, 2017), http://www.phoenix-center.org/perspectives/Perspective17-02Final.pdf.

consumers unfortunately experience internet speeds 10 percent slower than they otherwise would absent unnecessary common carriage regulations.[30] As Dr. Kovacs concluded, "it is possible to protect Net Neutrality while at the same time encouraging investment and innovation," and "it is the imposition of Title II that is inimical to investment and innovation and must be avoided."[31]

In addition to declining investment in broadband networks, Title II-based regulations will also negatively impact the ability of wireless carriers to offer new 5G services and applications. The business case for massive 5G investment depends on carriers' ability to support all potential applications, including broadband internet access service. Ensuring increased mobile broadband network investment and service model innovation are critical policy goals which will be substantially enhanced with a return to Title I.

C. The Commission Has the Legal Authority to Restore the Classification of Broadband Internet Access as an Information Service under Title I.

Commission action to restore broadband internet access service ("BIAS") to its proper "information service" classification – the regulatory classification under which the internet blossomed into its modern form over the past twenty years – stands on a solid legal foundation. The hyper-competitive mobile broadband marketplace in which 99 percent of Americans have access to 4G LTE service (compared to only 86 percent of Europeans, for example)[32] and U.S wireless carriers are aggressively competing to ensure we lead the world in 5G is not the product

---

[30] George S. Ford, *Broadband Speeds Post-Reclassification: An Empirical Approach*, Phoenix Center (June 27, 2017), http://www.phoenix-center.org/perspectives/Perspective17-07Final.pdf.

[31] Anna-Maria Kovacs, Ph.D., CFA, *The Effect of Title II Classification on Wireless Investment*, at 22 (July 2017), http://cbpp.georgetown.edu/sites/cbpp.georgetown.edu/files/Kovacs%20-%20Title%20II%20and%20wireless%20investment.pdf.

[32] USTelecom, *Utility Regulation and Broadband Network: The EU and U.S. Divide*, (April 25, 2017), https://www.ustelecom.org/news/press-release/utility-regulation-and-broadband-network-investment-eu-and-us-divide.

of heavy-handed utility regulation. It is the result of a conscientious, bipartisan decision of FCC Chairmen after the passage of the 1996 Telecom Act to follow congressional directives to "preserve the vibrant and competitive free market that presently exists for the Internet … unfettered by Federal or State regulation."[33] The light-touch regime during the twenty years leading up to the misguided *Title II Order* in 2015 was working, and the Commission is right to exercise its legal authority to return to Title I for mobile broadband internet access.

As a legal matter, the Supreme Court has clearly stated that the Commission has the authority to interpret the Communications Act, and that an agency retains flexibility to change its interpretation and implementation of a statute so long as it acknowledges and justifies the change.[34] Classifying BIAS as an "information service" under Title I of the Communications Act is a better reading of the statute than Title II telecommunications service classification, and the Commission has the authority to restore Title I classification for both fixed and mobile BIAS on that basis alone. Under the Act, the term information service "means the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications…."[35] These eight functions are precisely what BIAS constitutes. In the order enumerated in the statute, BIAS enables users to: (1) "generate" information through such functions as file sharing; (2) "acquire" information from web sites; (3) "store" information in any number of cloud services; (4-5) "transform" and "process" information by translating plaintext inputs from an everyday user into the actual code their device operates upon; (6) "retrieve" information from websites, from cloud drives, or from

---

[33] 47 U.S.C. § 230(b).

[34] *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 980-81 (2005); *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515-16 (2009).

[35] *See* 47 U.S.C. § 153(24).

any other number of sources; (7) to "utilize" information through their device's *interaction* with remotely stored data, including remotely stored programs; and (8) to "make available" information through everything from traditional file sharing to healthcare apps. Therefore, BIAS logically fits the definition of an information service under the Act. Indeed, the Supreme Court confirmed in *Brand X* that application of Title I to BIAS is a lawful construction of the Communications Act.[36]

Often missing from the debate over legal authority is the fact that reversing the *Title II Order*'s harmful reclassification would return to consumers a range of freedom-enhancing openness protections. For example, under Title I, the Federal Trade Commission ("FTC") would no longer be barred from applying its Section 5 authority to address unfair and / or deceptive acts by BIAS providers.[37] Because the FTC cannot regulate common carriers as a matter of law, the FTC cannot regulate BIAS so long as BIAS providers are classified as common carriers.[38] To the extent, as a result of competition and industry best practices, internet service providers make behavioral promises to consumers, the violation of such promises could trigger FTC jurisdiction if BIAS is not regulated as a common carrier service. Similarly, Section 2 of the Clayton Act prohibits discrimination in price, services, or facilities by parties engaged in commerce and similarly serves to protect the internet's openness.[39] There are a broad range of possible legal tools that can serve to protect internet openness aside from Title II – and these tools do not carry the same consumer- and market-harming disadvantages of common carriage.

[36] *Brand X*, 545 U.S. at 973-74.

[37] *See* 47 U.S.C. § 45.

[38] *See* 15 U.S.C. § 45(n).

[39] *See* 15 U.S.C. § 13.

Regarding mobile BIAS ("MBIAS"), the Commission should go further and restore MBIAS's classification as a "private mobile service" and the definitions of "interconnected service" and "public switched network." In the *Title II Order*, the Commission engaged in legal contortions regarding the definition of these terms designed to facilitate Title II regulation of MBIAS. Specifically, the *Title II Order* deleted the word "all" from its definition of "interconnected service," according to its view that two separate networks – the internet and the public switched telephone network – can be interconnected even if they do not allow all users to communicate with each other, and expanded the definition of the public switched network to include IP addresses.[40]

This conclusion runs contrary to both statute and logic. Ten years ago, the Commission correctly recognized that Congress intended MBIAS to be classified as a "private mobile service" – an information service – and therefore not a Title II telecommunications service.[41] As contemplated by Congress, and as more recently reaffirmed in the 2012 Spectrum Act, the Commission was right in 2007 to distinguish between the public switched telephone network and the public internet.[42] In the 2007 *Wireless Broadband Order*, the Commission explained that "users of a mobile wireless broadband Internet access service need to rely on another service or application … to make calls to, and receive calls from, all other users on the public switched

[40] *See* 47 C.F.R. § 20.3.

[41] *Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks*, Declaratory Ruling, 22 FCC Rcd 5901, 5916 ¶ 41 (2007) ("Wireless Broadband Order"); 47 U.S.C. § 332(c)(2) (prohibiting the treatment of a provider of private mobile service as a common carrier).

[42] *Wireless Broadband Order*, 22 FCC Rcd at 5901 ¶ 4, 5917-18 ¶ 45; s*ee* Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6202, 126 Stat. 156, 206 (2012) (requiring that the First Responder Network Authority radio core provide connectivity between "(i) the radio access network; and (ii) the public Internet **or** the public switched network, **or both**") (emphasis added).

network."[43] The *Title II Order* blurred the lines between apps and the services underlying them when it decided that MBIAS meets the definition of an interconnected services because consumers can leverage Voice over Internet Protocol ("VoIP") to call public-switched numbers.[44] By that logic, the Commission would have to ignore its own longstanding precedent that a service is classified based on its *own* functionality, and not on the functionality of any number of products that ride overtop[45] – and in the process, risk the regulation of MBIAS providers for any *range* of products offered over the top of their networks. Since express classification in 2007, MBIAS has increasingly integrated the statutory hallmarks of an information service – data transmission, computer processing, information provision, and computer interactivity – to allow end users to run various applications.[46] The same considerations that led the Commission to find that MBIAS is an information service prior to 2007 demand the same determination now. The Commission can and should restore the proper regulatory treatment to MBIAS.

III. CONGRESS IS BEST POSITIONED TO SET UNAMBIGUOUS RULES OF THE ROAD THAT PROTECT CONSUMERS AND ALLOW INDUSTRY TO INNOVATE.

Innovations in the mobile wireless industry evolved beyond the 1930's-era Communications Act long ago. Accordingly, it is past time for Congress to pass legislation to

[43] *Wireless Broadband Order, 22 FCC Rcd at 5901 ¶ 4, 5917-18 ¶ 45.*

[44] *Title II Order,* 30 FCC Rcd at 6000 ¶400.

[45] *See, e.g., Time Warner Cable Request for Declaratory Ruling that Competitive Local Exchange Carriers May Obtain Interconnection under Section 251 of the Communications Act of 1934, as Amended, to Provide Wholesale Telecommunications Services to VoIP Providers,* Memorandum Opinion and Order, 22 FCC Rcd 3513, 3521-22, ¶¶ 15-16 (WCB 2007) (the "regulatory classification of the [VoIP] service provided … has no bearing on" the status of the entity "transmitting [VoIP] traffic").

[46] *See* 47 U.S.C. § 153 (24) (defining "information service").

protect the open internet and halt innovation- and investment-killing regulation. Consumers and mobile broadband providers will both win from clear, unambiguous rules that ensure internet openness for consumers and provide sufficient regulatory certainty for broadband companies to innovate and invest in modern networks and the services they enable. Mobile Future, therefore, supports congressional action to modernize the statute and provide clear rules to protect the open internet by enabling consumers to go where they want to go and do what they want to do online while simultaneously promoting innovation and investment. Internet access services are too fundamental to 21st century American life to generate new regulatory regimes seemingly every time the Commission leadership changes.

Regardless of the outcome of this proceeding, legislation is needed to eliminate the possibility of future uncertainty-generating and investment-chilling common carriage regulation of BIAS. The *Title II Order's* framework, and in particular the general internet conduct standard,[47] saddles providers with the risk that any decision, including new pricing plans or business models, could trigger *post hoc* evaluation by regulators to determine whether or not it is permissible.[48] Such regulatory overreach stifles innovation and deprives consumers of new and innovative service offerings.

Prior Commission action related to innovative free data offerings is a prime example of Title II regulation inhibiting pro-consumer products. Free data offerings are particularly attractive to low income Americans and are beginning to be seen across the globe as driving

---

[47] 47 C.F.R. § 8.11.

[48] *NPRM* ¶ 74 (citing Letter from Herb Longware, President, Cable Communications of Willsboro, Inc. et al. to Ajit Pai, Chairman, FCC, WC Docket Nos. 14-28 and 16-106, at 2 (filed Apr. 25, 2017)).

competition.[49] Several providers have experimented with free data offerings in the United States, only to be met with letters and information requests from the FCC's Wireless Bureau under the *Title II Order's* general internet conduct standard.[50] The Commission's past vacillations regarding free data products – from the prior Chairman calling zero-rating offerings "pro-competitive,"[51] followed by the FCC's Wireless Bureau investigating such offerings and issuing a report criticizing multiple products,[52] to the Commission later rescinding said report[53] – offer the starkest example of why Congressional action to provide regulatory certainty is so critical. A legislative solution is necessary to enshrine net neutrality protections into law and ensure carriers have the freedom to experiment with new services, including free data, without the uncertainty that comes with Title II.

---

[49] *Cf.* European Commission, Zero-Rating Practices in Broadband Markets (Feb. 2017), *available at* http://ec.europa.eu/competition/publications/reports/kd0217687enn.pdf (noting, among other points, that free data is "growing from an initially low level" in its prevalence, that products "vary substantially," that "[t]here is little evidence of commercial arrangements between [content and application providers] and ISPs, and there have been few complaints" – and concluding that "**there appears to be little reason to believe that zero-rating gives rise to competition concerns**") (emphasis added).

[50] *See, e.g.*, Letter from Jon Wilkins, Chief, Wireless Telecommunications Bureau, FCC, to Kathleen Grillo, Sr. Vice President and Deputy General Counsel, Public Policy and Government Affairs, Verizon, (Dec. 1, 2016), https://apps.fcc.gov/edocs_public/attachmatch/DOC-342943A1.pdf; Letter from Jon Wilkins, Chief, Wireless Telecommunications Bureau, FCC, to Robert W. Quinn, Jr., Sr. Exec. Vice President, External and Legislative Affairs, AT&T (Nov. 9, 2016), https://apps.fcc.gov/edocs_public/attachmatch/DOC-342939A1.pdf.

[51] John Eggerton, *Wheeler: Binge On Is Pro-Competitive, Pro-Innovation*, Broadcasting & Cable (Nov. 19, 2015), http://www.broadcastingcable.com/news/washington/wheeler-binge-pro-competitive-pro-innovation/145940.

[52] Wireless Telecommunication Bureau, Policy Review of Mobile Broadband Operators' Sponsored Data Offerings for Zero Rated Content and Services (Jan. 11, 2017), http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0111/DOC-342987A1.pdf ("WTB Report").

[53] *Wireless Telecommunications Bureau Report: Policy Review of Mobile Broadband Operators' Sponsored Data Offerings for Zero Rated Content and Services,* Order, 32 FCC Rcd 1093 (WTB 2017).

IV. CONCLUSION

For the foregoing reasons, the Commission should make clear that broadband internet access is a Title I information service and eliminate the general internet conduct standard. Congress should pass legislation to protect consumers, an open internet, investment, innovation, and economic growth while also providing positive and constructive regulatory certainty once and for all.

Respectfully submitted,

MOBILE FUTURE

Robert M. McDowell
Chief Public Policy Advisor
1325 Pennsylvania Avenue, NW
Suite 600
Washington, DC 20004
(202) 756-4154
www.mobilefuture.org

July 17, 2017

APPENDIX A

Regulation in Financial Translation

The Effect of Title II Classification on Wireless Investment

Anna-Maria Kovacs, Ph.D., CFA

July 2017

Anna-Maria Kovacs is a Visiting Senior Policy Scholar at the Georgetown Center for Business and Public Policy. She has covered the communications industry for more than three decades as a financial analyst and consultant.

Table of contents

The Effect of Title II Classification on Wireless Investment

Executive summary

There is little doubt that wireless broadband has become essential to Americans, both individually and collectively. Among U.S. adults, 77% use a smartphone and for 12% it is their primary broadband connection. Americans use their mobile connections to socialize and entertain themselves, to effect transactions, for a variety of educational, health and other applications, as well as for work.

Indeed, according to Progressive Policy Institute's (PPI's) estimate, the mobile-app economy accounts for 1.7 million jobs in the U.S. Even more encouraging is the effect that mobile could have on the rest of the economy. PPI estimates that by 2030, 5G networks could form the foundation for an increase of $2.7 trillion in output for the U.S. economy. That's just from the productivity enhancements mobile apps can provide to *non-digital*, i.e., physical, industries which have barely tapped the potential of digital technologies.

All that activity generates tremendous mobile traffic. In 2016, according to Cisco VNI, mobile data traffic amounted to 15.6 trillion megabytes, up from 540 billion megabytes in 2010. Cisco VNI projects that traffic will continue to grow at a compounded rate of 34% per year over the next five years.

The wireless networks that carry that mobile traffic require enormous amounts of capital investment. Since 1985, wireless carriers have invested $489 billion, i.e. 19% of revenue, in their network infrastructure. With the upcoming migration to 5G, the next wireless technology, it is essential to continue a high pace of investment.

Unfortunately, in the last three years wireless capital investment (capex) has slowed, with a precipitous decline in 2016. That decline coincided with and was likely caused at least in part by investors' and the industry's reaction to the Federal Communications Commission's (FCC) 2015 open-Internet Order which imposed common-carrier regulation on mobile broadband Internet access providers (BSPs) under Title II of the *Communications Act of 1934*.

The 2015 open-Internet Order was not the first Net Neutrality order, but it was the one that invoked Title II and precipitated a decline in wireless capex. In contrast, the 2010 open-Internet Order, which imposed on the mobile BSPs a no-blocking obligation as well as a transparency obligation, coincided with a sharp increase in capex.

In other words, it is not Net Neutrality itself that hinders investment in wireless infrastructure, but the invocation of common-carrier regulation. It is important, therefore, to reverse the Title II designation of BSPs, while still protecting Internet freedom.

Mobile broadband is important to Americans

The Pew Research Center found that in 2016 88% of U.S. adults age 18 and up used the Internet, 73% had home broadband, 77% owned a smartphone, and 51% owned a tablet.[1] That 77% smartphone ownership was up from 35% in 2011 and tablet ownership was up from 10% in 2011. Taking a somewhat different cut at the statistics to include teens as well as adults, in Q4 2016 Nielsen looked at Americans age 13 and up who had a mobile subscription. Among those, 89% had a smartphone.[2] In this group, smartphone ownership varied somewhat among those who are White at 87%, Hispanic at 91%, Black at 94%, and Asian American at 96%.

Pew highlights that smartphones are particularly important to those Americans who rely on them as their primary broadband connection. Overall, 12% of American adults were "smartphone-only" Internet users in 2016, but rates varied by income, educational attainment, race and ethnicity, as well as community.[3] Among those whose income is below $30,000, in 2016 21% relied on smartphones rather than home broadband. Among those who did not graduate high-school, 27% relied on smartphones. By race or ethnicity, 23% of Hispanics and 15% of Blacks relied on smartphones. Among rural Americans, 14% did so.

In another study in Q4 2016, which focused on adults, Nielsen looked at the uses American adults make of various devices. Nielsen found that U.S. adults who use smartphones spend roughly 19 hours a week on various applications, web-browsing, video and audio streaming, and social media. Nielsen also found that U.S. adults who use tablets spend 9.6 hours per week for the same set of activities, albeit with a higher proportion of the time spent on video.[4]

Pew Research studied the activities of smartphone users in detail. Pew found that 90% of U.S. adults who own a smartphone use it to get directions or other location-related information. Entertainment is another key use, with 67% listening to online music, 33% watching movies or TV through a paid subscription. Communication is, of course, a major use with 47% participating in a video call or chat.[5] Those statistics are much higher for those aged 18-29. In this group, 95% use smartphones for location-related information, 87% listen to online music, 52% watch movies or TV, and 66% participate in a video chat or call.

---

[1] Aaron Smith, *Record shares of Americans now own smartphones, have home broadband*, Pew Research Center, January 12, 2017, and Kathryn Zickuhr and Lee Rainie, *E-reading Rises as Device Ownership Jumps*, Pew Research Center, January 16, 2014, p. 2.

[2] Nielsen, *Total Audience Report Q4 2016*, p. 27.

[3] Pew Research Center, *Mobile Fact Sheet*, January 12, 2017.

[4] Nielsen, *The Nielsen Comparable Metrics Report Q4 2016*, p. 9.

[5] Monica Anderson, *More Americans using smartphones for getting directions, streaming TV*, Pew Research Center, January 29, 2017.

A study published by eMarketer shows how important smartphones have become for conducting transactions.[6] eMarketer found that in 2016 84% of smartphone owners shopped via their phone, 57% searched for a coupon, and 45% made a purchase. Even when they are in stores, smartphone owners will use their device--19% used their phone to make a payment. Financial services more generally are becoming mobile applications, with 53% of adult smartphone users engaging in mobile banking over their smartphones. Travel is another area in which smartphones are used, with roughly a quarter of smartphone owners booking a trip online.

Healthcare is yet another area in which mobile devices are proliferating. eMarketer cites health-related uses of various mobile devices of ranging from wearable fitness trackers and wellness apps to clinical uses such as remote monitoring, diagnostics, and medical condition management.[7]

Smartphones are also used in the context of education. Pew Research conducted a study in 2016 that looked at lifelong learning.[8] Pew found that 74% of adults are "personal learners," i.e., those who seek personal enrichment, and 63% of workers are "professional learners," i.e., those who study for professional training or advancement. Among personal learners, 52% used the Internet for learning, while 55% of professional learners used the Internet for learning. In each case, the learning is much more likely to take place online if the individual owns a smartphone as well as home broadband than if the person owns only one of those. Among personal learners, 60% will learn online if they own both v. 39% if they own only one. Among professional learners, those statistics are 62% v. 37%.

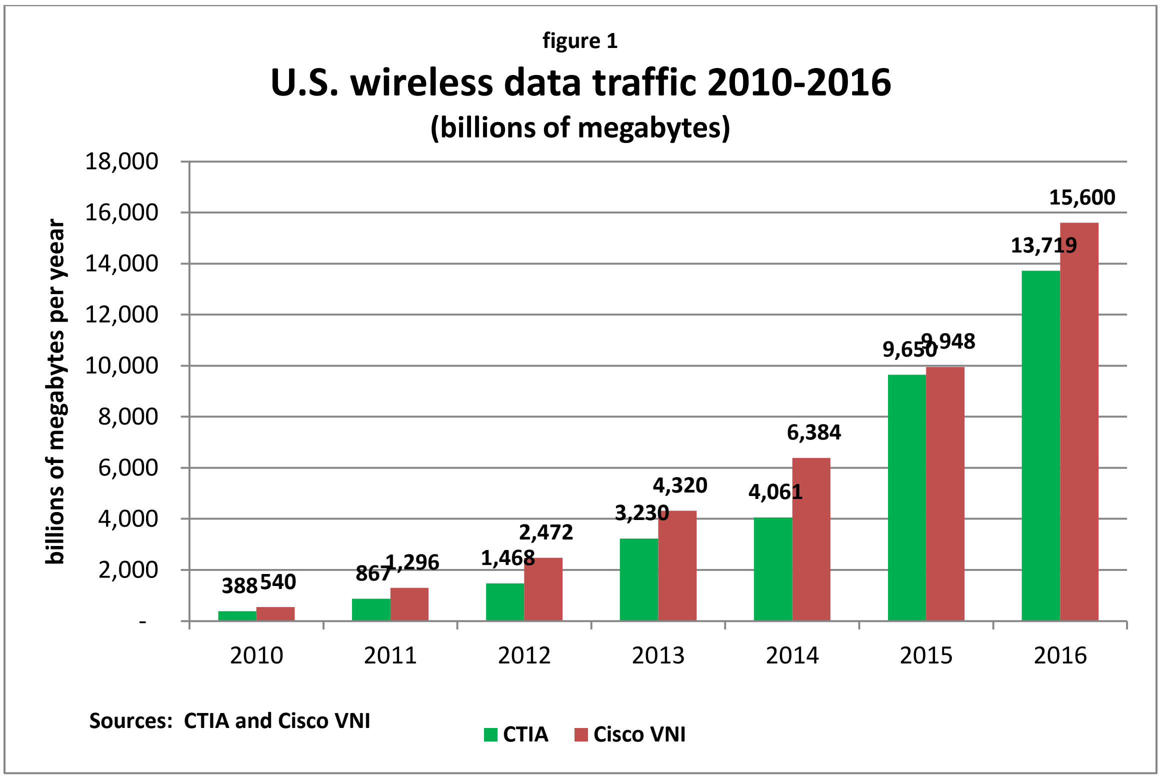
The flip side of consumption of services based on mobile is job creation and economic growth. Pew shows that 24% of Americans reported earning money from the digital economy platform in 2016, e.g. by working for a ride-hailing service or selling something on-line. Of these, 56% consider the income essential or important, rather than merely "nice to have."[9] McKinsey Global Institute, in its study of independent work and the gig economy, states that "Digital platforms are transforming independent work, building on the ubiquity of mobile devices, the enormous pools of workers and customers they can reach, and the ability to harness rich real-time information to make more efficient matches." [10] McKinsey considers three sets of platforms: labor services, selling goods, and renting out assets. Examples range from Uber to

[6] eMarketer, *US Mobile Time Spent and Activities StatPack 2017*, May 2017, pp. 19, 22, 23, and 25.
[7] eMarketer, *Moving Beyond the Pill in the Healthcare Sector*, January 5, 2017.
[8] John B. Horrigan, Lee Rainie, and Dana Page, *Lifelong Learning and Technology*, Pew Research Center, March 22, 2016, pp. 15, 20, 32, and 34.
[9] Aaron Smith and Dana Page, *Gig Work, Online Selling and Home Sharing*, Pew Research Center, November 17, 2016, pp. 16 and 19.
[10] James Manyika et al, *Independent Work: Choice, Necessity, and the Gig Economy*, McKinsey Global Institute, October 2016, p. viii.

Freelance Physician, eBay to Etsy, and Airbnb to Rent the Runway. Many rely on mobile as the connection at either the worker's or the customer's end, or both.

Dr. Michael Mandel of the Progressive Policy Institute has estimated the size of the mobile app economy in the U.S. and finds that for the U. S. economy as a whole, mobile applications are the foundation of tremendous job growth. Between the fall of 2011 and December 2016, app-economy jobs nearly quadrupled from 466,000 to 1,729,000.[11] He has also estimated that next-generation wireless networks could accelerate productivity growth in physical industries to add roughly $2.7 trillion (in 2015 dollars) to U.S. GDP by 2030, an increase of 11% in economic output.[12]

Mobile broadband traffic is growing rapidly



The amount of wireless broadband traffic in the U.S. and the rapidity with which it has grown are astounding, as shown in figure 1. CTIA has tracked wireless data growth since 2010, and shows that it has increased by 3436% since 2010, from 388 billion megabytes of data per year to 13,719 billion megabytes per year. This was in addition to traditional mobile traffic, since

[11] Michael Mandel, Ph.D., *U.S. App Economy Update*, Progressive Policy Institute, May 2017, p. 12.
[12] Michael Mandel, Ph.D., *Long-term U.S. Productivity Growth and Mobile Broadband: The Road Ahead*, Progressive Policy Institute, March 2016, p. 2.

minutes of use increased by 23% in that period, while the combined text and MMS messages declined 8%.[13]

Cisco VNI also shows a very rapid growth rate for U.S. mobile data traffic, but not quite as rapid as CTIA. Cisco VNI showed that mobile data traffic in 2010 was 45 petabytes per month. By 2016, that had increased to 1.3 exabytes per month, an increase of 2789%. In other words, Cisco VNI shows a somewhat higher level of traffic for both endpoints: for the year 2010, it showed 540 billion megabytes of data and for the year 2016 it showed 15,600 billion megabytes. Cisco VNI expects U.S. data traffic to continue to grow rapidly in the next five years, at a compounded annual growth rate of 34% per year.[14]

Mobile broadband requires enormous capital investment

Of course, such an expansion of wireless traffic required an enormous amount of capital investment (capex). Since 1985, the wireless industry has invested a total of $489 billion in its infrastructure.[15] That constituted 19% of the service revenues the industry grossed during those years. Among other things, at year-end 2016, that supported 308,334 cell sites, backhaul to those sites, and equipment at those sites. That investment has also resulted in 216,537 direct carrier jobs as of year-end 2016.

As a result of the wireless industry's past investment, coverage of the U.S. by multiple providers of state-of-the-art 4G wireless technology called LTE is essentially universal. According to the FCC's most recent *Wireless Competition Report*, which was published in September 2016 based on data through 2015, 99.7% of the American population was covered by at least one provider of LTE, and 95.9% was covered by at least three.[16]

With each new generation of technology, most of that equipment and in some cases even the structures and backhaul have had to be replaced. While the U.S. will continue to use 4G, i.e., the fourth generation of wireless technology, for several more years, it is on the cusp of deploying 5G, which is expected to provide much higher speeds. 5G will require a dense mesh

---

[13] Robert F. Roche, Ph.D. and Kathryn Malarkey, *CTIA's Wireless Industry Indices Report: Year-End 2016 Results*, CTIA, May 2017, p. 9. [Hereafter referred to as CTIA. This CTIA report is the source of the data for all the figures below that cite CTIA.]

[14] Cisco VNI, *Forecast Highlights for the United States*, for the years 2010, 2011, 2012, 2013,2014, 2015, and 2016.

[15] CTIA, pp. 65-66, 45-47, 84, and 73, respectively, for capex, revenues, jobs and cell sites. We use the CTIA data because it surveys the entire wireless industry each year and receives a very high response rate. Unlike analyst reports which must in some cases allocate capex between a company's wireless division and the rest of the entity with little guidance, CTIA receives responses that are specific to wireless operations. Another useful source would be the Census Bureau's ACES data, but that lacks 2016 capex data and is not likely to publish 2016 till early 2017.

[16] Federal Communications Commission, *Nineteenth Wireless Competition Report*, in WT Docket No. 16-137, September 23, 2016, Chart III.A.2, p. 31.

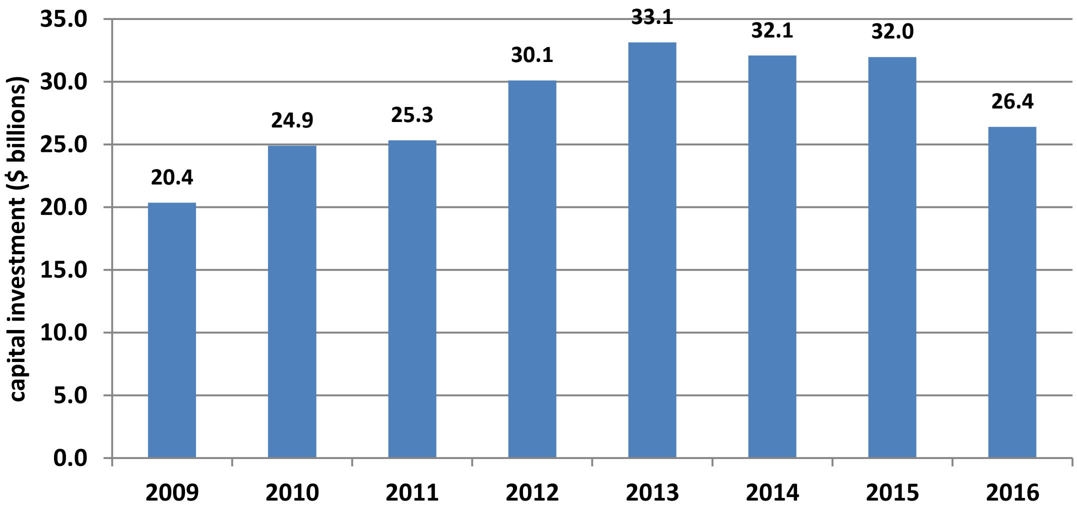
of smaller cell sites connected by massive amounts of backhaul, most of it fiber. That, in turn, will require enormous amounts of capital investment as well as more spectrum.[17]

The recent pattern of investment, however, is disturbing. During the period of 2010 to 2016, the wireless industry invested a total of $203.9 billion, according to CTIA.[18] As figure 2 shows (and including 2009 as the base year for comparison), capital investment increased each year from 2010 to 2013, but then decreased slightly in 2014 and 2015 and fell precipitously in 2016. Figure 2 shows capex for each of the years 2009-2016.

figure 2

annual wireless capital investment peaked in 2013

($ billions)



Source: CTIA

The obvious question is why capex increased during 2010 through 2013 and then fell during 2014 through 2016, especially why it fell so precipitously in 2016. There can, of course, be numerous reasons for a decline in capital investment, ranging from economic conditions, to technology cycles, to the financial conditions of individual companies, to changing regulatory conditions.[19] The first two don't seem to apply. 2016 was a year of mild economic recovery, better if anything than the years of rapid wireless capital investment growth. While the first blush of LTE upgrade had passed, 2016 saw a massive effort to densify the networks to keep up

---

[17] Andrew Entwistle et al, *Densification matters more than mm-Wave: Updating our US 5G roadmap*, New Street Research, June 30, 2017.

[18] CTIA, pp. 65-66.

[19] In *Regulation and Investment: Sk(r)ewing the Future for 21st Century Telecommunications?* Georgetown Center for Business and Public Policy, June 2016, Professor John Mayo points out that regulation can not only affect the level of a company's or industry's investment but can also skew the mix of investment.

with the data growth. Sprint's financial gyrations certainly account for some of the 2016 decline, but only about half of it.[20]

However, as we describe below, for the mobile broadband industry this period encompassed radical regulatory change, with the industry moving from light-touch regulation in 2010 to the threat of and then imposition of Title II common carrier regulation in 2014-2015. The pattern of capex growth and decline indicates that the industry responded to the threat of new and financially harmful regulation issued by the FCC in 2015 by pausing capital investment in 2014 and 2015, while the FCC's order was under consideration, and then cutting back sharply on capital investment in 2016 after the order became final.

The impacts of two very different open-Internet Orders on wireless capex

The 2009 NPRM and 2010 open-Internet Order:

In October 2009, the FCC under Chairman Genachowski issued a Notice of Proposed Rulemaking (NPRM) which initiated an open-Internet rulemaking. The NPRM proposed codifying the four open-Internet principles which were articulated in the FCC's *Internet Policy Statement* in 2005 with the addition of two new principles. It proposed reframing the original principles as provider obligations rather than consumer entitlements. Thus, the 2009 NPRM proposed a modified version of the original principles of:

- no blocking of lawful content
- no blocking of lawful applications or services
- no blocking of lawful devices that don't harm the network
- no prevention of competition among providers of networks, applications, services and content

To these it added:

- non-discrimination
- transparency

The NPRM proposed to make the rules subject to exceptions for reasonable network management.[21]

---

[20] CTIA does not report its individual respondents' figures, so it is not possible to know exactly how much of each year's total is due to Sprint, or any other individual company.

[21] Federal Communications Commission, *Notice of Proposed Rulemaking in the Matter of Preserving the Open Internet and Broadband Industry Practices*, in GN Docket No. 09-191 and WC Docket No. 07-52, October 22, 2009, ¶16. [Hereafter referred to as 2009 NPRM.]

The 2009 NPRM did not, however, propose to regulate broadband Internet access service providers (BSPs) as common carriers under Title II of the *Communications Act*.

The 2009 NPRM also made it clear that the FCC recognized the significant differences between fixed and mobile broadband.[22] Given a more competitive market and the special traffic-management problems of mobile networks, the FCC seemed in late 2009 inclined to minimal regulation of mobile BSPs.

Thus, investors expected little new regulation of mobile broadband even before the final order was issued in December of 2010. That order confirmed that no BSPs would be regulated under Title II. It further limited open-Internet regulation of mobile BSPs to two rules: a basic no blocking rule and a transparency rule, subject to reasonable network management.[23] The no blocking rule was limited to[24]:

- no blocking of lawful websites
- no blocking of applications that compete with the provider's voice or video telephony services

This light-touch regulation encouraged the major increase in capex during 2010-2013 that we cited above.

The 2014 NPRM and 2015 open-Internet Order:

In early 2014, however, light-touch regulation of BSPs--including mobile BSPs--came under attack. In January, the Circuit of Appeals for the District of Columbia (DC Circuit) rejected the 2010 Order in *Verizon v. FCC*. In May, under its new Chairman Wheeler, the FCC issued yet another open-Internet NPRM. The 2014 NPRM was more ambiguous and potentially threatening than the 2009 NPRM and 2010 Order had been.

[22] E.g., 2009 NPRM, ¶ 13: "We also affirm that the principles we propose to codify today should apply to all platforms for broadband Internet access, including mobile wireless broadband, while recognizing that different access platforms involve significantly different technologies, market structures, patterns of consumer usage, and regulatory history. These differences may require differences in how, to what extent, and when the principles apply—and we seek comment on each of these points and how they can be resolved in a manner that will further innovation, investment, research and development, competition, and the interests of consumers." See also 2009 NPRM, ¶ 108: "We also recognize that what is reasonable may be different for different providers depending on what technologies they use to provide broadband Internet access service (*e.g.*, fiber optic networks differ in many important respects from 3G and 4G wireless broadband networks)." See also 2009 NPRM, ¶ 154-174, highlighting the special circumstances of mobile wireless networks.

[23] Federal Communications Commission, *Report and Order in the Matter of Preserving the Open Internet and Broadband Industry Practices*, GN Docket No. 09-191 and WC docket 07-52, adopted December 21, 2010, ¶ 93-103. [Hereafter referred to as 2010 Order].

[24] 2010 Order, ¶ 99-103.

The 2014 NPRM indicated that the FCC was not inclined to rely on Title II common-carrier regulation of BSPs, but it asked enough questions about relying on it to make investors nervous. The introduction to the 2014 NPRM summed up the approach: "Per the blueprint offered by the D.C. Circuit in its decision in *Verizon v. FCC*, the Commission proposes to rely on section 706 of the Telecommunications Act of 1996. At the same time, the Commission will seriously consider the use of Title II of the Communications Act as the basis for legal authority."[25] The 2014 NPRM also talked about the possibility of an outright ban on paid prioritization,[26] which implied price regulation and, more generally, interference with BSPs' ability to create innovative business plans. The 2014 NPRM also raised the possibility that circumstances around mobile had changed since 2010, potentially justifying stricter regulation than had been included in the 2010 Order.[27]

On November 10, 2014, then-President Obama intervened and encouraged the FCC to reclassify BSPs under Title II. When the order was voted in February 2015, it followed the President's blueprint and applied Title II to BSPs. The order also applied forbearance from many provisions, but not from sections 201 and 202, thus leaving the door wide open to rate-regulation despite the order's disclaimer that the FCC did not plan to regulate rates.[28] Perhaps most importantly from the perspective of mobile BSPs, the order's treatment of fixed and mobile BSPs was identically harsh.

Specifically, for both fixed and mobile BSPs, the 2015 Order:

- retained the 2010 Order's ban on blocking of lawful content, applications, services, or non-harmful devices
- retained the 2010 Order's transparency rule
- added a ban on throttling of lawful Internet traffic on the basis of Internet content, application, or service, or use of a non-harmful device
- added a ban on paid-prioritization
- added a ban on unreasonable interference with or unreasonable disadvantaging of end users' access to lawful content, applications, services, or devices as well as a ban on edge providers' ability to provide those to end users. This is known as the general conduct standard or as the "catch-all rule."

[25] Federal Communications Commission, *Notice of Proposed Rulemaking in the Matter of Preserving the Open Internet and Broadband Industry Practices*, in GN Docket No. 14-28, May 15, 2014, ¶ 4. [Hereafter referred to as 2014 NPRM.]
[26] 2014 NPRM, ¶ 90.
[27] 2014 NPRM, ¶ 62, 105-108.
[28] Federal Communications Commission, *Report and Order on Remand, Declaratory Ruling, and Order in the Matter of Preserving the Open Internet and Broadband Industry Practices*, in GN Docket No. 14-28, ¶ 5, 51-59. [Hereafter referred to as the 2015 Order.]

The 2015 Order applied the "reasonable network management" exception to the bans on blocking and throttling, but did not apply it to paid prioritization or to the catch-all rule.[29]

Bottom line, the 2015 Order turned all BSPs—including mobile BSPs—into common carriers, subject to Title II. It vastly expanded the original principles as reframed by the 2010 Order, and it included a rule literally designed, as Commissioner O'Rielly noted in his dissent, to be a "catch-*all.*"[30] He argued that it would create unpredictability and uncertainty.

The industry and investors found themselves attempting to interpret the intentions of an FCC that imposed common-carrier regulation on the one hand and promised forbearance on the other. They were not left in doubt of those intentions for long.

The first volley came almost immediately, on May 20, 2015 when the Enforcement Bureau issued guidance regarding broadband ISPs' privacy obligations.[31] The guidance was extremely vague, but did make it clear that the Bureau was looking beyond traditional telephony obligations. A privacy NPRM followed in March 2016, which reinforced the belief that the FCC would apply new and harsh privacy provisions on BSPs.[32] The culmination of this process was the October 2016 privacy order[33] (now rescinded by Congress via the Congressional Review Act) that greatly increased the obligations of BSPs, and put their regulation out of sync with that of edge providers who are under the Federal Trade Commission's jurisdiction.

Next, on June 3, 2015 the FCC announced a $100 million fine against AT&T for allegedly violating the open-Internet transparency rule, over the strenuous dissents of both then-Commissioner Pai and Commissioner O'Rielly.[34] According to the majority, AT&T did not adequately disclose that it might throttle traffic for customers of its unlimited plans in order to manage congestion on its network. According to Commissioners Pai and O'Rielly, AT&T made ample disclosures under the 2010 Order, which was now being reinterpreted in light of the FCC's new vision of the open Internet. The obvious result was to bring into question the Wheeler FCC's "light touch" and to create massive uncertainty about the acceptability of practices that had been employed without reprisal since the 2010 Order. In particular, this action created a high level of risk for mobile BSPs who provided the unlimited plans which were extremely popular with consumers.

[29] 2015 Order, ¶ 14-35.
[30] Commissioner Michael O'Rielly, *Dissenting Statement*, 2015 order, p. 399.
[31] Federal Communications Commission, *FCC Enforcement Advisory Open Internet Privacy Standard*, Enforcement Advisory No. 2015-03, May 20, 2015.
[32] Federal Communications Commission, *Notice of Proposed Rulemaking in the Matter of Protecting the Privacy of Customers of Broadband and Other Telecommunications Services*, in WC Docket No. 16-106, March 31, 2016.
[33] Federal Communications Commission, *Report and Order in the Matter of Protecting the Privacy of Customers of Broadband and Other Telecommunications Services* , in WC Docket No. 16-106,October 27, 2016.
[34] Federal Communications Commission, *Notice of Apparent Liability for Forfeiture and Order in the Matter of AT&T Mobility, LLC.,* File No. EB-IHD-14-00017504, NAL/Acct. No. 201532080016, FRN 0018624742, June 3, 2015.

On June 11, 2015, the DC Circuit both refused to stay the 2015 Order (indicating that it was likely to uphold it) and agreed to review it expeditiously. Investors and broadband service providers began to face the possibility that the 2015 Order would be upheld.

In December 2015, the FCC began an investigation of Binge-on and other zero-rating or sponsored-data plans, raising questions about the use of the catch-all provision and its potential to chill innovation. The investigation overhung the wireless market through most of 2016. Finally, on November 11, 2016--right after the election--the FCC's Wireless Telecommunications Bureau (WTB) issued a report on four zero-rating or sponsored-data plans.[35]

The WTB did not find AT&T's Data Perks program troubling primarily because it was designed to zero-rate small amounts of data.[36] WTB expressed concern about Verizon's FreeBee Data 360 program, but absolved it because of its nascent state. WTB raised numerous problems that could arise from T-Mobile's Binge-on program, but ultimately forgave them, primarily because T-Mobile did not charge participating content providers for the free data it provided to end-users on their behalf. WTB did not absolve AT&T's sponsored data plan, which allows its own DTV division as well as other content providers to sponsor data for mobile end-users, charging them all the same non-zero price for capacity. WTB was only willing to bless sponsored data as long as it was priced at zero to both end-users and edge providers. Since network capacity has a cost, an approach that makes it impossible to recover that cost from any customer is not financially viable and raises concerns for investors. Just as important to investors was the restriction on the wireless providers' ability to innovate and continue to grow demand.

Because the zero-rating order was issued after the election and was clearly not going to result in prosecutions under the new Republican-led FCC, its effect on the industry before it was issued may have been more significant than its subsequent effect will be. For the duration of the second half of 2015 and throughout most of 2016, this investigation had the wireless industry on notice that the FCC was watching its pricing, not out of a concern for consumers—who signed up by the millions for free-data plans—but because it wanted to protect edge providers like Netflix who were placing tremendous amounts of traffic on wireless networks. An industry that was already nervous about massive fines that might result because of the congestion management it could not avoid if it offered popular unlimited plans found itself running low on ways to provide consumers with the plans they craved.

[35] Wireless Telecommunications Bureau, *Wireless Telecommunications Bureau Report: Policy Review of Mobile Broadband Operators' Sponsored Data Offering for Zero-Rated Content and Services*, November 11, 2016. [Hereafter referred to as WTB Report.]
[36] WTB Report, pp. 11-17.

Analyst reactions to the 2014 NPRM and 2015 Order

There was a flood of analyst reports that highlighted the uncertainty created by the 2014 NPRM, the potential rules the FCC might promulgate, and the protracted litigation that would inevitably follow. As 2014 progressed, investor nervousness increased, and grim concern about the long-term impact of Title II regulation grew as it became more likely that the FCC would deploy it. When the order was finally released in March of 2015, investors were appalled by the prospect of rate regulation and the lack of clarity of a catch-all standard that could only chill innovation.

Michael Rollins wrote on May 15, 2014, just after the release of the NPRM, that "We believe the most likely outcome is for the FCC to try to implement Net Neutrality without a Title II designation, but the language used in the NPRM that the FCC could 'seriously consider' the use of Title II is likely to raise further questions on the ultimate outcome of the proceeding."[37] Joseph Mastrogiovanni at Credit Suisse wrote that "In the NPRM, the FCC asks for comment on potentially classifying broadband under Title II (allowing stricter regulation), but we believe this is more political maneuvering to appease critics than a legitimate call to action."[38]

Jonathan Atkin at RBC Capital was more pessimistic and prescient: "The NPRM also is a step in the direction of reclassifying broadband from an information service (minimally regulated) to a public utility under so-called "Title II" provisions. We believe that the classification of broadband as a utility is likely but there will be significant legal challenges, and many of the more onerous restrictions that currently apply to telephony (e.g. unbundling requirements) are not likely to be applied to broadband."[39] John Hodulik of UBS summed up the NPRM as "Title II on the table for broadband, but unlikely to be implemented."[40] Adam Ilkowitz of Nomura also concluded that "Open Internet: Ominous Questions, Expecting Low Impact Answers," but noted that "Including wireless is an interesting development."[41] Each of these analysts referred to the likelihood of litigation if Title II were chosen as well as to the expectation of a lengthy proceeding before the actual order as a reason for not panicking immediately at the possibility of Title II regulation.

The mood worsened on November 10, 2014, when then-President Obama stepped into the proceeding. John Hodulik summed up the general reaction of investors: "The White House

[37] Michael Rollins, CFA, Kevin Toomey, Jason Bazinet, *Shaping Market Structure*, Citi Research, May 15, 2014, p. 2.
[38] Joseph Mastrogiovanni and Michael Baresich, *Busy Day in DC Leans in Telco's Direction*, Credit Suisse, May 15, 2014, p. 1.
[39] Jonathan Atkin, *FCC Takes Steps Toward Broadband Regulation and Refines 600-MHz Auction Rules*, RBC Capital Markets, May 15, 2014.
[40] John C. Hodulik, CFA, et al, *Telecom and Pay TV*, UBS Global Research, May 16, 2014, p. 1.
[41] Adam Ilkowitz, CFA, and Donald Chen, *Divided FCC Shapes the Future of Telecom*, Nomura Global Markets Research, May 16, 2014, p. 1.

surprised the market (and apparently the FCC) by issuing a statement calling for full Title II reclassification…The main question we are getting from investors is whether the Chairman will continue down his hybrid path or take the WH's lead…Given that Wheeler is an Obama appointee (and bundler), we believe it is very likely that the FCC takes up the full Title II flag with forbearance on pricing….While the carriers performed better than the MSOs on Monday, we believe reclassification could be applied to wireless as well, given the administration's focus on 'consumer broadband.' That said, the FCC has made it clear that it will apply net neutrality principles differently to wireless."[42] Michael Rollins of Citi wrote "The comments from the President step up the pressure, in our view, for the FCC, an independent agency, to employ a full Title II 'light' solution that would forbear rate regulation, which we previously viewed as an option of last resort for the FCC."[43]

Following the President's intervention, several analysts highlighted the danger to investment. Frank Louthan of Raymond James wrote that "The fear among investors is that this must mean Title II…**We believe the full imposition of Title II regulations would be a disaster for the industry and it would remove much of the incentive for the carriers to expand broadband and to invest in it**, and if done poorly this could extend to the wireless carriers as well."[44] Philip Cusick of J. P. Morgan wrote that Title II looks like the most likely path, even though "Title II would create significant regulatory burdens and uncertainties for carriers for the long term" and "Moving to Title II risks chilling carrier investment."[45] Colby Synesael of Cowen wrote "this Order has potentially more drastic consequences for the industry. This Order sets many new precedents with a concerning amount of unknowns…and over time, a Democratic regime could use the language in Title II for far greater levels of regulation than were intended today (by eliminating Forbearance on pricing, if one is imposed). As a result, ISPs could curtail capex to some degree."[46] Jennifer Fritzsche summed up what's on investors' minds as: "General sentiment is, why own the group?" noting "a big cloud of regulatory uncertainty in late February with Title II."[47]

Despite an early 2015 op-ed by Chairman Wheeler that was intended to be reassuring, Joseph Mastrogiovanni at Credit Suisse wrote that "It seems we will get forbearance on rate regulation, but it's unclear how definitive and permanent these rules will be. If the commission

[42] John C. Hodulik, CFA, et al, *Telecom and Pay TV*, UBS Global Research, November 11, 2014, p. 2.
[43] Michael Rollins, CFA, and Jason Bazinet, *Telecom Tidbits*, Citi Research, November 10, 2014, p. 1.
[44] Frank G. Louthan IV and Alexander Sklar, *Net Neutrality Debate Front and Center*, Raymond James U.S. Research, November 10, 2014, p. 1. Emphasis via bold lettering in the original.
[45] Philip Cusick, CFA, et al, *Net Neutrality: Updated Thoughts as Title II Looks Like Most Likely Path; Expect Public Notice or Even a full Order Soon*, J. P. Morgan, December 4, 2014, p. 1.
[46] Colby Synesael, Gregory Williams, CFA, and Jonathan Charbonneau, *Takeaways from Call with Regulatory Expert on FCC Net Neutrality Vote*, Cowen and Company, January 26, 2014, p. 3.
[47] Jennifer M. Fritzsche, Eric Luebchow, and Caleb Stein, *Fritzsche's Forum*, Wells Fargo Securities, January 16, 2015, p. 1.

votes to regulate broadband under provisions 201 and 202 of the law, this could provide a path to regulating rates."[48] Adam Ilkowitz of Nomura similarly expressed a concern that rate regulation could eventually be applied, despite the current promise of forbearance.[49]

Investors found plenty to worry about once the order was released. Reactions focused on uncertainty and the risks to pricing and innovation, especially for mobile. Jennifer Fritzsche at Wells Fargo wrote of Title II combined with the new catch-all standard for Internet conduct that "this potent combination is a clear path for complaints pertaining to rates. Long story short, we really cannot compare the new Order with the regulatory regime of the past 20+ years. We're entering uncharted territory, with uncertainty likely to persist for some time."[50] She highlighted that "rate regulation concerns persist: FCC does not forbear from sections 201 & 202" and that the order does not preclude a future FCC from reversing the forbearance it does grant. She highlighted that the order applies Title II to mobile broadband and found that "Language in the sections discussing the network management options for wireless create more questions than answers; such as exactly whether things like zero-rating, sponsored data, exclusive handset arrangements or exclusive content arrangements would comply with the FCC's requirement that consumers have ability to exercise their choices without restriction."[51]

Frank Louthan at Raymond James wrote that the FCC "now has all the tools necessary to impose rate regulation, tariffing, unbundling of last mile facilities, and additional cost accounting rules…We do not believe the order should have significant near term impact to our coverage, but we have significant concerns over the long term multiple contraction that is likely to ensue absent any legislative or legal fixes."[52] Vijay Jayant at Evercore wrote that "Rate regulation is still a question" and that "The extent of forbearance is less than advertised." Ironically, he concludes that "the incumbents (cable, telcos) that have already sunk substantial capital in building fast-speed broadband plants will continue to invest. However, for new entrants (Google et al), which are covered by the same Open Internet rules, the prospect of forbearance being reversed in the future and the possible inability to redline market build-out are likely to be disincentives for future investment."[53]

[48] Joseph Mastrogiovanni, *Did You Order the Code Red? Net Neutrality Likely Going to Court*, Credit Suisse, February 4, 2015, p. 1.
[49] Adam Ilkowitz, CFA, *Much Ado About Title II and "Broadband,"* Nomura Global Markets Research, February 10, 2015, p. 1.
[50] Jennifer M. Fritzsche, Eric Luebchow, and Caleb Stein, *Fritzsche's Forum*, Wells Fargo Securities, March 20, 2015, p. 1.
[51] Jennifer M. Fritzsche, Eric Luebchow, and Caleb Stein, *CliffNotes Of Open Internet Order-Key Telecom Sector Impacts*, Wells Fargo Securities, March 13, 2015, pp. 1 and 2.
[52] Frank G. Louthan IV and Alexander Sklar, *Title II: Because They Had the Tools to Deceive – Watch Out Madison Avenue*, Raymond James U.S. Research, March 13, 2015, p. 1.
[53] Vijay Jayant et al, *FCC Open Internet Order – Five Initial Takeaways*, Evercore ISI, March 12, 2015, p. 1.

The one area on which there was unanimous analyst consensus was that protracted litigation was very likely, and that the ultimate fate of the order would take considerable time to emerge.

An appeal to the DC Circuit did, indeed, follow the 2015 Order. A panel at the DC Circuit upheld the order on June 14, 2016. Kannan Venkateshwar of Barclays wrote that day that "this is likely to impact on the terminal values assigned to broadband business models, which will keep multiples across this part of the value chain depressed" and "the outcome is likely to be a longer-term negative for the industry as a whole."[54] Craig Moffett stated that "broadband price regulation is now inarguably more likely."[55] Philip Cusick's comment on the court's decision was that "we believe the victory is likely to embolden the FCC Chairman Wheeler to push forward his other regulatory agendas." He pointed to the privacy proceeding as a threat to BSPs but added that this might also be a threat to the edge companies, because "we believe that some internet companies are worried that aggressive "opt-in" privacy rules could eventually be replicated at the FTC and create a problem for business plans that rely on using customer browsing history."[56]

All three analysts indicated that further appeals were likely and the case was likely to be appealed to the Supreme Court.

The 2017 NPRM

However, concurrently with the appeal process, a new FCC led by Chairman Pai has begun the process of reviewing the 2015 Order. Because of the vigorous dissents of Commissioners Pai and O'Rielly to the 2015 Order, investors assumed right after the 2016 election that the new FCC would try to reverse that order. So there was no surprise when a NPRM was adopted by the FCC on May 18, 2017, asking whether the FCC might be able to reverse the Title II classification of BSPs while maintaining basic open-Internet protections, such as no blocking or throttling and providing transparency.[57]

Investors have welcomed this turn of events. Contemplating the prospect of reversing Title II classification early in 2017, Brett Feldman of Goldman Sachs claimed that the key benefit "to network operators is less uncertainty."[58] Amir Rozwadowski of Barclays welcomed a scenario that would retain preventions on blocking and throttling, but eliminate regulation under Title II, writing that it "could provide a benefit to the broader distribution ecosystem with easing

---

[54] Kannan Venkateshwar, *FCC Wins in Court on Net Neutrality*, Barclays, June 14, 2016.
[55] Craig Moffett, *Searching for Meaning in the DC Circuit Ruling*, MoffettNathanson Research blog, June 14, 2016.
[56] Philip Cusick, CFA et al, "Regulatory Update," June 21, 2016, p. 1.
[57] Federal Communications Commission, *Notice of Proposed Rulemaking in the Matter of Restoring Internet Freedom*, in Docket No. 17-108, May 18, 2017.
[58] Brett Feldman et al, *Americas Telecom Services: What to expect from TMT policy under President Trump*, Goldman Sachs, February 13, 2017, p. 6.

regulation allowing for prospects for incremental revenue generation at some point down the line."[59] Michael Rollins of Citi wrote that while such a reversal would not have an immediate impact, it would reduce long term risk: "We do not see any near-term financial impacts from proposed changes in Net Neutrality rules. The potential move to Title I reduces the tail risks associated with price regulation and over-protective policies, while affirming the opportunity for carriers to consider innovative products and features."[60]

Why are investors so happy about the possibility that the FCC will reverse its classification of BSPs as common carriers under Title II, even as it continues to protect the open-Internet? Craig Moffett explained it succinctly in a blog on May 22, 2017: "Over the years we have repeatedly reminded Cable and Telecom investors that, contrary to what one typically hears in the general press, Net Neutrality and Title II are not remotely the same thing. Title II is merely a jurisdictional framework. And it is one that brings with it a tremendous amount of collateral damage that is wholly unrelated to Net Neutrality. It is precisely this collateral damage (price regulation), not Net Neutrality *per se*, that has always concerned Cable and Telecom investors."[61]

Capital investment and the open-Internet NPRMs and Orders during 2010-2013 and 2014-2016

A look at the pattern of investment by the wireless industry during the period from 2010 through 2016, when each of the two open-Internet orders was first debated and then issued, confirms Moffett's comment. The data shows that it is not Net Neutrality, *per se*, that suppresses investment but rather the imposition of common-carrier regulation under Title II.

As figure 2 (page 8 above) shows, capital investment by the wireless industry peaked in 2013. Figure 2 shows in absolute terms that in the years 2010-2013 capital investment increased by a total of $12.8 billion, from $20.4 billion in 2009 to $33.1 billion in 2013. In the next three years it declined by a total of $6.7 billion, falling from that $33.1 billion to $26.4 billion.

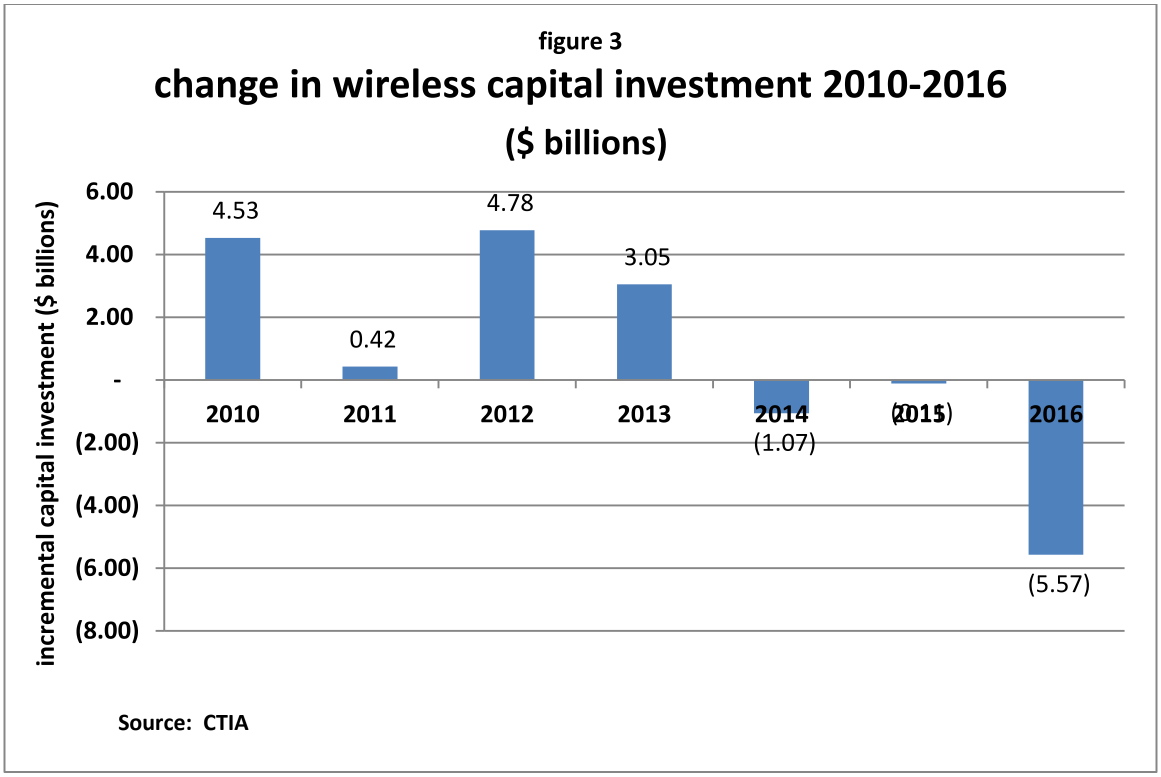
The capex pattern is even easier to visualize in figure 3 below, which shows the change in capital investment from year to year. Capital investment grew each year during 2010-2013, peaked in 2013, and then declined in 2014 and 2015, finally falling precipitously in 2016.

---

[59] Amir Rozwadowski et al, *The Roz Report: The Turning of the Tide on Net Neutrality*, Barclays Equity Research, December 19, 2016, p. 1.

[60] Michael Rollins CFA, et al, *Telecom Tidbits – Regulatory Update*, Citi Research, April 27, 2017, p. 1.

[61] Craig Moffett, *The Path Forward for Title II Repeal Takes an Unexpected Turn…through Google and Facebook's Front Yard*, MoffettNathanson blog, May 22, 1917.

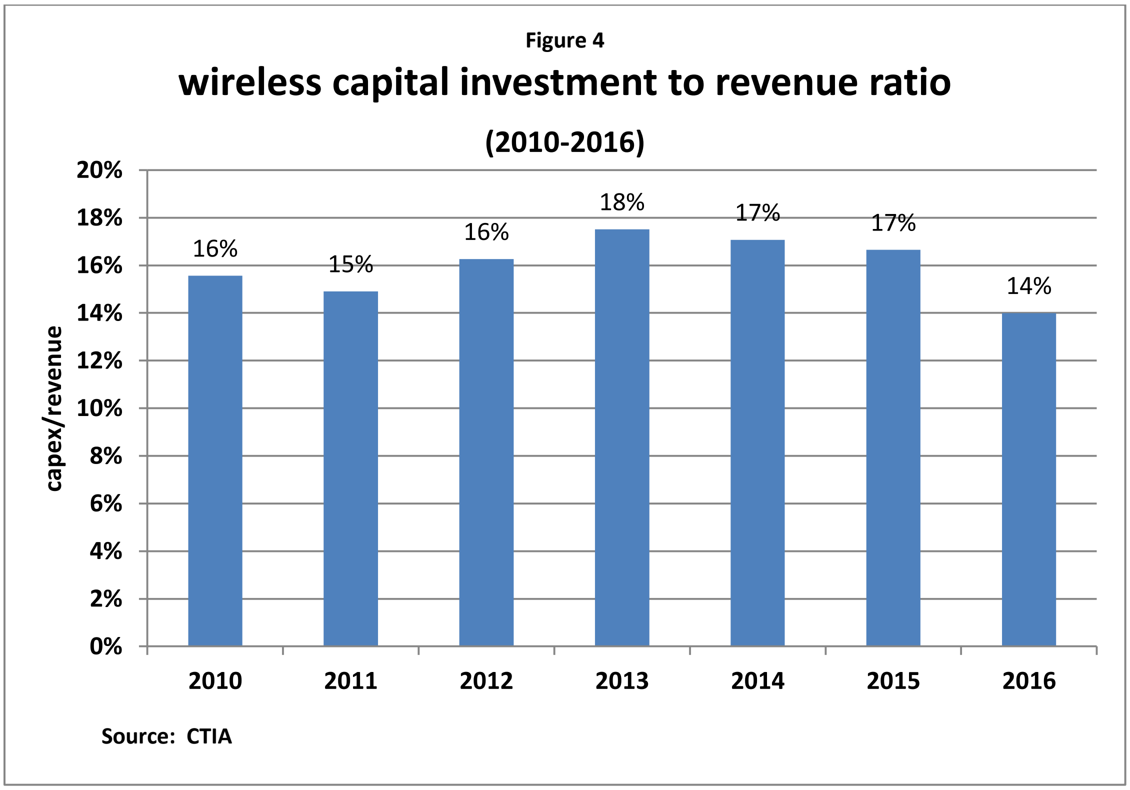


The context, of course, is that in 2009, the NPRM came in October, late enough in the year that wireless companies had gone through much of their 2010 capital budgeting and vendor contracting processes by the time it was released. Companies do have some flexibility either to increase or cut back, so it is striking that capex increased by 17% during 2010, when an open-Internet order was imminent. However, as we discussed above, this order was not expected to have a material negative effect on the wireless companies' business plans or financials. It was not expected to invoke Title II and it was expected to take into account the technological issues, such as capacity constraints, that are specific to wireless networks. Those expectations were met and capex continued to grow in 2011, albeit slowly and despite a substantial cut by Sprint, and resumed sharp increases in 2012 and 2013, as it became clear that the 2010 Order had not damaged the industry.

In 2014, however, the pattern changed and capex growth turned negative. It was clear early in the year that the FCC would respond to the DC Circuit's overturning the 2010 Order. As we discussed above, investors and the wireless industry itself were increasingly worried about the shape the new open-Internet order would take, thanks to the May 2014 NPRM, the increasing pressure on the FCC from edge providers and their advocates, and finally the intervention of then-President Obama. In response, companies cut capex slightly while they waited to see the final 2015 Order.

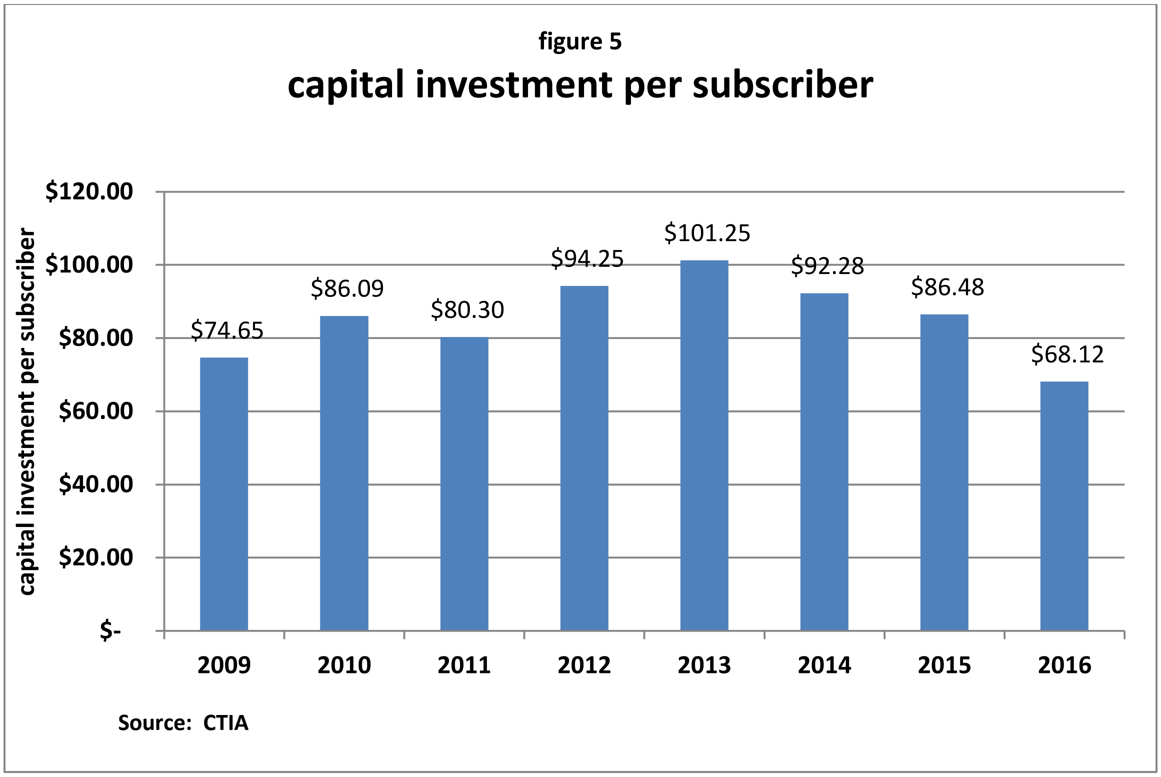
Having seen the order in March of 2015 and, as we discussed above, some of the actions that followed and presaged increasing interference in the industry's ability to charge for its service or even to innovate, the industry cut back very sharply on its capital investments in 2016.

As figure 4 shows, capex as a percent of revenue increased from 16% in 2010 to 18% in 2013. It decreased to 17% in 2014 and 2015 and then fell sharply in 2016 to 14% as the potential of the 2015 order to damage the industry's ability to grow by satisfying its customers' desires became clear.



In those same two periods, as figure 5 shows, capex per subscriber first increased by a total of 36% in the first four years and then decreased by a total of 33% in the next three, with almost all of that decline occurring in 2016.[62]

[62] For figures 2-5, the source is CTIA, chart 7 on p. 20 for reported subscribers, table 26 on pp. 65-66 for cumulative capex, and table 16 on pp. 46-47 for service revenues.



Conclusion

Comparing capital investment patterns around the two very different open-Internet proceedings is instructive. The NPRM which began the discussions around the 2010 Order was issued in October 2009, too late to have much effect on 2009 capex. Thus, throughout this paper, we merely use 2009 as a base year for comparison to 2010 and later years. The 2010 Order was issued in December, but the intent to regulate broadband Internet access lightly and mobile broadband access even more lightly was clear, believable, and believed. Thus, investment flourished in 2010 despite the NPRM. It slowed in 2011 but resumed energetically in 2012 and 2013, resulting in a total increase of capex from base-year 2009 through 2013 of $12.8 billion.

In 2014, however, investment decreased slightly rather than growing rapidly as it had in 2010-2013. That reflected the May 2014 NPRM and the FCC's ambivalence about increasingly heavy regulation, especially on mobile broadband access. As the year progressed and Title II regulation became increasingly certain, especially after then-President Obama's intervention in favor of Title II, investors became more nervous. The order itself, released in March 2015, only increased that concern, imposing the full panoply of Title II regulation while promising forbearance. Investment paused in 2015, while companies waited for the FCC to show its intentions. It was not a long wait. The FCC quickly made its intentions clear via a massive fine on a popular unlimited plan, an investigation of popular zero-rating and sponsored-data plans, and a rulemaking that would impose privacy obligations on BSPs that did not then apply to edge providers but might eventually be imposed on them as well. The FCC in power in 2014-2016 was willing to not only risk the viability of BSPs' financials, it was willing to eliminate service-plans consumers by the millions had happily bought. It is not surprising that the result was a capex decline during 2014-2016 of $6.7 billion.

The FCC is once again considering how to protect Internet freedom while encouraging investment and innovation. The key lesson of the prior two attempts is the one articulated by Craig Moffett: Net Neutrality and Title II are very different and investors respond to them differently. As the 2015 Order and the FCC actions that flowed from it proved, it is the imposition of Title II that is inimical to investment and innovation and must be avoided. Instead, as the 2010 Order proved, it is possible to protect Net Neutrality while at the same time encouraging investment and innovation. The FCC can do so by following the road map the DC Circuit set out for it in its ruling on the 2010 Order, using section 706 of the *Telecommunications Act of 1996.*