
**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554**

In the Matter of)
)
Protecting and Promoting the Open Internet) GN Docket No. 14-28
)
Framework for Broadband Internet Service) GN Docket No. 10-127

**REPLY COMMENTS OF
CTIA – THE WIRELESS ASSOCIATION®**

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CTIA – The Wireless Association® (“CTIA”) hereby responds to comments filed with the Federal Communications Commission (“Commission”) in the above-captioned dockets.¹ The record establishes that CTIA and its members are committed to delivering an open mobile Internet to U.S. consumers, and it confirms the Commission’s tentative conclusion in favor of a distinct regulatory regime for mobile broadband. There is no need to radically change the regulatory framework for mobile broadband to preserve an Open Internet.

These reply comments make the following points:

- The record explains in great depth how mobile broadband presents unique technical challenges that demand far more complex and aggressive network management than fixed broadband requires. Mobile networks must subject different uses or users to differentiated treatment on a constant basis to provide consumers with the level of service they have come to expect.

¹ See *Protecting and Promoting the Open Internet*, Notice of Proposed Rulemaking, 29 FCC Rcd 5561 (2014) (“Notice”); *Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014). See *New Docket Established to Address Open Internet Remand*, Public Notice, 29 FCC Rcd 1746 (WCB 2014). *Wireline Competition Bureau Seeks to Refresh the Record in the 2010 Proceeding on Title II and Other Potential Legal Frameworks for Broadband Internet Access*, Public Notice, 29 FCC Rcd 5856 (WCB 2014). Unless otherwise noted, all comments referenced herein were filed on or about July 15, 2014, in this proceeding and will be short cited.

- The mobile broadband market is fiercely competitive, with providers introducing ever more innovative mobile broadband product offerings. The record shows that Internet openness is essential for any mobile broadband provider seeking to win and keep customers, and that differentiation in service – far from weakening the Open Internet – benefits consumers.
- The record confirms that additional Open Internet regulation of mobile broadband would undermine the very consumer experience the Commission is seeking to protect. Mobile is different than fixed; mobile providers need more flexibility to manage their networks and continue to develop innovative product offerings. Application of the same rules to fixed and mobile platforms would only inhibit innovation and remove consumer choice from the mobile market.
- Any Open Internet regulation must steer clear of common carrier regulation, which would jeopardize mobile broadband’s dynamism and the investment and innovation which characterizes the U.S. mobile ecosystem today. In any event, no commenter has raised any credible argument against CTIA’s showing that Section 332 of the Communications Act bars subjecting mobile broadband to Title II regulation. Any effort to surmount that showing by reinterpreting Section 332’s terms would be beyond the scope of this proceeding and thus unlawful.

I. INTRODUCTION AND SUMMARY

The record shows that today’s mobile broadband providers deliver limitless content, services, and applications at ever faster speeds. To do so, they deploy aggressive network management techniques to address the unique challenges of mobility and offer innovative and competitively differentiated services to appeal to differing consumers. Mobile broadband providers are competing fiercely to win and retain customers, contesting on price and network performance – and introducing increasingly innovative mobile broadband product offerings. One thing is constant, however: the U.S. mobile broadband market has irrevocably embraced Internet openness because of marketplace dictates, not regulatory mandates. This mobile market has flourished without prescriptive Open Internet regulation, and the Commission should continue to pursue that course. As Chairman Wheeler recently observed, “[t]here is no doubt”

that regulation “imposes costs. Especially in a fast-moving sector, it is important that companies be free to develop better networks and to attract the investment necessary to do so.”²

Commenters claiming that there is just “one Internet” and that one set of rules should govern both fixed and mobile broadband miss the point – *mobile is different than fixed*, just as the tentative conclusions in the Commission’s *Notice* recognize. A single fiber strand can carry 1,000 times more bits per second than a 10 GHz radio channel; whereas fixed communications channels are relatively clean and stable, mobile channels are anything but. Extensive evidence has been submitted explaining the distinct challenges of mobility – limited spectrum resources, varying numbers of users at any one time, and each user’s constantly changing channel conditions, to name a few. Commenters highlight the aggressive network management that mobile providers engage in to provide consumers with the level of service they have come to expect.

And of course, the complications presented by mobile broadband traffic are growing; as mobile data traffic is expanding at an exponential and accelerating pace, more users continue to adopt mobile services, and more devices are connected to the “Internet of Things.” In 2013, U.S. wireless providers handled more than 3.2 trillion MB of data – a 120 percent increase from the previous year and a 732 percent increase since the *Open Internet Order*³ was adopted in 2010. Cisco predicts that mobile data traffic will grow *eleven-fold* between 2013 and 2018 – more than three times as fast as it predicts fixed data traffic will grow. New spectrum resources and more infrastructure deployments struggle to keep pace.

² Tom Wheeler, Chairman, FCC, Remarks at 1776 Headquarters, Washington, DC, *The Facts and Future of Broadband Competition*, at 5 (Sept. 4, 2014) (“*Wheeler 1776 Remarks*”).

³ *Preserving the Open Internet*, Report and Order, 25 FCC Rcd 17905 (2010) (“*Open Internet Order*”), *aff’d in part, vacated and remanded in part sub nom. Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014).

It is precisely because mobile is different but consumers increasingly expect the same experience that mobile providers need more latitude in managing their networks and more flexibility to find innovative ways to meet consumer demand. At base, mobile network management involves a series of algorithms and cutting-edge systems assessing the spectrum environment and active user demands as often as every millisecond, making individualized and differing decisions about the treatment of users and the services and applications they access. A network may expend far more radio resources to connect with a distant user with degraded channel conditions, for example; alternatively, it may limit the operation of a bandwidth-hungry application in order to provide the service quality that other nearby users expect, thereby balancing the aggregate user experience. This is not new; mobile broadband succeeds today because of this aggressive network management.

From a marketplace standpoint, too, the contrast between mobile and fixed is just as stunning: while 85 percent of U.S. homes have at most two wired broadband providers, 82 percent of Americans are served by *four* or more mobile broadband providers (and 92 percent are served by three or more). The result is a thriving, competitive mobile marketplace, with more choices, innovative options, and tremendous value.

Some mobile broadband offerings provide popular consumer choices and create additional levers to help manage demands for scarce network resources. For example, some plans offer unlimited data at low prices but do not offer 4G speeds once users consume more than a specified amount of data in a given month; others offer a flat fee up to specific data caps and incremental charges for usage above those caps at the same speeds. The former plans may appeal to price-sensitive consumers who wish to avoid additional overage charges but want unlimited data, while the latter benefit users who value speed more than price. Each constitutes a form of network management, as well as the development of service options that cater to

different sets of customers. So long as providers disclose these practices (as they do under the existing transparency rule), consumers are free to determine which offering they prefer, benefitting all.

And in the competitive mobile environment, mobile providers are offering more and more innovative – and open – products. Competitors vying for customers offer the content, services and applications that mobile consumers want. As mobile providers introduce novel product offerings – for example, plans that allow customers to access certain services or applications without the usage counting towards their data cap – they are delivering more choices. Flexibility, moreover, has given rise to incredible innovation in the mobile ecosystem, from 4G LTE itself to LTE Advanced, VoLTE, and LTE Broadcast, for example, and has driven a broad array of complementary offerings, including vibrant markets for devices, operating systems, and applications.

A prescriptive regulatory overlay would undo this. It would derail today’s flexible, permissionless environment that allows mobile providers to find new ways to handle the demand for broadband, while ensuring that American consumers gain access to the content, services, and applications they want to use. It would frustrate mobile users and take consumer choices away. And, in turn, it would require the Commission and the public to accept that mobile broadband providers will no longer deliver the service that American consumers have come to expect.

The Commission should refrain from applying expansive new requirements to mobile broadband. A comprehensive no-blocking rule would leave the vast majority of users at the mercy of the small subset that wish to use applications that would utilize a vastly disproportionate share of network resources reducing (or eliminating) the ability of others to access the network. Moreover, the “minimum level of service” approach to blocking would be

entirely inconsistent with the great cell-by-cell, minute-by-minute variability in service that characterizes mobile network management.

The Commission also should reject calls to apply a “commercially reasonable” standard to mobile broadband. Such a standard would chill investment and innovation by imposing additional risks and regulatory costs on providers wishing to pursue consumer-friendly differentiation or other procompetitive practices. Such differentiation is becoming especially crucial as Americans embrace the “Connected Life”: From banking and healthcare to connected homes and cars, there will be more than 50 billion connected devices sharing information with each other by 2020. The mobile wireless services they enable – including, for example, mHealth, Smart Grid, mobile education, and intelligent transportation offerings – will depend in large part on mobile broadband providers’ ability to ensure high-quality network performance to satisfy the service requirements of these new services and applications. A new “commercial reasonableness” standard would jeopardize these developments by calling into question the very differentiation on which they rely.

The Commission also should not expand the existing transparency requirements. The current rule works effectively, and the level of additional granularity contemplated by the expanded rule would be infeasible and could even deter providers from adopting practices that would benefit consumers but would also be difficult or impossible to disclose in time to be useful.

Simply applying any of these rules in a more flexible fashion to mobile broadband providers will not alter the underlying problem with them – they will stifle innovation and create homogenized services, causing substantially more consumer harm in the mobile context. In highly managed networks (such as mobile broadband networks), the reasonable network management “exception” is no exception at all – such management is, of necessity, the *norm*. It

thus makes no sense to adopt enforceable prohibitions but to leave an escape hatch under the “reasonable network management” rubric, because that exception will, if applied properly, swallow the rule – creating far more uncertainty than sound policy. Put differently, actions that might not pass muster on a fixed broadband network will, more often than not, be reasonable on a mobile network. Under these circumstances, applying aggressive mandates, even subject to an exception, is bound to chill customer-friendly management activities and sow confusion for providers, consumers, and edge companies. The Commission made the right decision in 2010, and it should adopt its tentative conclusion here and refrain from imposing a broad no blocking rule or anti-discrimination/commercial reasonableness rule against mobile broadband.

Finally, the Commission should not and cannot “reclassify” mobile broadband and subject it in whole or in part to Title II’s requirements. That approach would be disastrous for investment, for innovation, and for consumers, replacing a model favoring differentiation and experimentation with one that favors uniformity and commoditization. Promises to forbear from certain regulations offer little comfort, because even if the Commissioners were to agree on which provisions to apply, a court – or future Commission – might well disagree. In any case, Section 332 of the Act affirmatively bars the Commission from subjecting mobile broadband – a private mobile service – to common carrier regulation, and the Commission’s conclusion that mobile broadband is an integrated information service is at least as warranted today as it was in 2007. Finally, there is no lawful basis for the Commission to identify a separate “service” offered by a broadband provider to an edge provider and to classify that as “telecommunications,” much less as a “telecommunications service.”

II. THE RECORD CONFIRMS THAT MOBILE BROADBAND SHOULD BE TREATED DIFFERENTLY.

A. Technical Factors Render Prescriptive Open Internet Regulation of Mobile Broadband Networks Particularly Risky.

As CTIA and other commenters described in detail in the initial comments, mobile broadband providers face technical and operational constraints that are far more challenging than those faced by fixed broadband providers, and these challenges have become even more pronounced as demand for data and number of devices connected have skyrocketed.⁴ Contrary to the assertions of some commenters,⁵ the “basic physics of wireless networks continue to limit the available bandwidth when compared to higher capacity wireline networks, and the comparatively greater need of wireless operators to manage network capacity must continue to be recognized.”⁶ Mobile broadband providers must aggressively manage traffic – subjecting different uses or users to differentiated treatment – to provide consumers with the level of service they have come to expect. As discussed more fully below, prescriptive regulation of mobile broadband providers would be highly problematic.

1. Mobile Broadband Networks Present Unique Technical Challenges.

The record is replete with evidence that mobile broadband networks present challenges not relevant in the fixed network environment. The Competitive Carriers Association notes, among several key differences, “[w]ireless networks are more sensitive to user behavior than wireline networks, so capacity management is a constant concern of wireless engineers.”⁷

⁴ CTIA Comments at 14-27.

⁵ See, e.g., Bright House Comments at 5; Center for Democracy & Technology (“CDT”) Comments at 28; CenturyLink Comments at 24; Cox Comments at 9; NCTA Comments at 71-73; Public Knowledge Comments at 25-26; Time Warner Cable Comments (“TWC”) at 27-28.

⁶ Alcatel-Lucent Comments at 25.

⁷ Competitive Carriers Ass’n (“CCA”) Comments at 4-5.

Manufacturers' initial comments highlight the difficulties posed by mobile network management. Alcatel-Lucent notes that "[w]ireless broadband services are constrained by limited and dynamically changing radio resources shared among multiple users, and service providers need to be free to manage their networks in order to meet the current and expected consumer demand and service quality obligations."⁸ Ericsson summarizes these challenges as follows:

Wireless networks are unique. They are influenced by the radio environment, where operating parameters are constantly changing. The number of users, the level of interference, and the profile of data and voice traffic in a wireless network at a given time all contribute to how well the network functions from a capacity and coverage perspective. User location relative to a site in a network also impacts propagation characteristics and can affect the user's perception of equipment and application performance. Capacity limitations compound these challenges, as does the amount of spectrum available and its RF characteristics. All of these factors require constant network management....⁹

Cisco likewise cites a number of mobile-specific challenges, including "finite spectrum resources," "[t]he number of customers sharing a network," "the nature of each customer's data demands," and the fact that these demands "can vary from location to location and from one instant to the next."¹⁰ These wireless traffic characteristics are inherently more variable than fixed operations, requiring more dynamic and more sophisticated traffic management technologies for mobile networks.¹¹

⁸ Alcatel-Lucent Comments at 25.

⁹ Ericsson Comments at 9.

¹⁰ Cisco Comments at 20-22.

¹¹ Ericsson Comments at 9-10.

More recently, Dr. Jeffrey Reed and Dr. Nishith Tripathi explored these themes further in a paper CTIA filed in this docket, “*Net Neutrality and Technical Challenges of Mobile Broadband Networks.*”¹² Drs. Reed and Tripathi explain at length the numerous technical factors affecting wireless network management, resulting in a complex system in which mobile broadband providers must apply differential treatment to different traffic streams on a real-time, dynamic basis in order to provide the service to which users have become accustomed. The factors Drs. Reed and Tripathi highlight – which track many of the concerns mentioned above – are as follows:

- ***Scarcity of radio resources.*** With the explosion in the amount of mobile data traffic, spectrum resources have not kept pace. Mobile broadband operators are thus constrained, necessitating aggressive and efficient management of limited radio resources.
- ***Radio resource sharing.*** As the number of users being served by the same base station fluctuates, the challenge of providing high-quality service to each of them also grows, requiring providers to make choices regarding how to manage network resources.
- ***Dynamic channel conditions.*** The allocation of radio resources constantly changes due to varying channel conditions and the interference environment, as often as every millisecond.
- ***Varying resource consumption.*** For a given channel condition, different services consume different amounts of resources. Thus, resource allocations change as users shift among different uses – often many times during a given session.
- ***Integration of devices and the network.*** Even when two devices experience identical channel conditions and allocation of radio resources, their design characteristics may dictate widely different throughput, further complicating network management.
- ***Ever-evolving network.*** Mobile broadband providers constantly manage services provided over numerous disparate “generations” of technology. For example, the

¹² See Dr. Jeffrey H. Reed and Dr. Nishith D. Tripathi, *Net Neutrality and Technical Challenges of Mobile Broadband Networks*, attached to Letter from Scott Bergmann, Vice President – Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 14-28, 10-127 (filed Sept. 4, 2014) (“Reed Tripathi”).

current mobile environment includes users relying on 4G LTE services as well as 3G services. Even within these “generations,” there are generally multiple “revisions” deployed at any given time. These different generations and revisions have different capabilities, offering differing levels of achievable network performance – and mobile broadband providers must manage them all effectively to maximize the user experience.

- ***Challenges of network capacity additions.*** The intricacies of capacity growth (adding spectrum and wireless infrastructure deployment), along with ever rising user traffic, make efficient utilization of the existing radio resources extremely critical to the user experience and network efficiency.¹³

As described below, these challenges have very real consequences for managing mobile broadband networks.

2. These Technical Challenges Necessitate Extremely Complex Network Management.

These challenges require active and aggressive network management, effectuated through extraordinarily complex interactions among multiple network components and the user device, to provide a seamless user experience. The result is network management that involves “differentiation among users and user services” to maintain high quality performance and a satisfactory user experience.¹⁴ Ericsson observes that “networks could not support the numerous applications and services essential to daily living and commerce” without this highly complex web of “network management tools.”¹⁵

¹³ *See id.* at 12-16.

¹⁴ *Id.* at 2.

¹⁵ Ericsson Comments at 10.

Drs. Reed and Tripathi describe at length multiple systems and subsystems involved in an LTE network, including the network management decisions made by a typical LTE base station related to the radio resource use.¹⁶ That system alone engages in the following:

- Evaluates the availability of the radio resources to determine if the subscriber can be offered services or not;
- Implements a scheduling algorithm that allocates radio resources to the active users based on factors including the target quality of service (QoS) of the applications of users, the amount of data, the number of users, the radio channel conditions of users, the capabilities of the [base station] and the mobiles, and the available spectrum;
- Executes this scheduling algorithm as often as every 1 millisecond;
- Determines the type of multiple antenna technique and the combination of the modulation and coding scheme for a given mobile to reflect the prevailing radio channel conditions for the mobile;
- Carries out load balancing and interference coordination with the neighboring [base stations]; and
- Implements a handover algorithm and makes a handover decision if appropriate.¹⁷

And this is just one of the systems involved in mobile network management.

Differentiated treatment is fundamental to mobile network management, as described by Drs. Reed and Tripathi. As channel conditions vary, for example, so too does the amount of radio resources used to maintain a connection between a user device and a base station. “A good scheduling algorithm maximizes network performance while providing good user-perceived experience, not necessarily by treating all users or all applications identically. If the scheduler treats two users with two different channel conditions (e.g., one excellent channel and one

¹⁶ See Reed Tripathi at 16 (“The network management in modern mobile wireless networks is extremely complex. Numerous interactions among the user equipment, the eNodeB, the Mobile Management Entity, the Serving Gateway, the Packet Data Network Gateway, the IMS network, and the Policy and Charging Control network occur to provide seamless communications experience and end-to-end QoS to the user.”).

¹⁷ See *id.* at 9-10.

poor/noisy channel) in the same manner, the overall network performance would certainly degrade and the average user experience would also deteriorate.”¹⁸ Differentiated treatment is similarly at play in load management, as mobile providers use network optimization to manage a user’s data traffic where an application would otherwise flood the network with excessive amounts of data, causing degradation to many users. This practice provides some level of fairness among users and balances aggregates user performance. These examples of individualized treatment are fundamental to mobile network management.

Comments attempting to downplay the differences between mobile and fixed broadband providers by likening the limitations faced by both platforms are inapt.¹⁹ While mobile and fixed platforms at times may involve shared use of resources, the capacities of the shared facilities are vastly different, placing mobile providers in a class by themselves. The fact that both resources must be shared does not render them equivalent: *One fiber strand can carry 1,000 times more bits per second than a 10 GHz radio channel can.*²⁰ Although wireline systems may be subject to some noise and path losses, they are “closed” in nature and not subject to the unpredictable amount of attenuation and noise that a wireless system is confronted with.

Drs. Reed and Tripathi discuss “the vastly different technical challenges” between the two types of communications networks, noting: “The wireline network engineer knows precisely how much bandwidth is available in a single fiber optic strand and (other than losses over distance) will have a near-constant understanding of the performance of the transport layer.

¹⁸ *See id.* at 28.

¹⁹ *See, e.g.*, CenturyLink Comments at 24; Cox Comments at 9-10; ITTA Comments at 4; NCTA Comments at 71-73; TWC Comments at 27-28.

²⁰ Mobile Future Comments at 9-12.

In contrast, wireless networks are faced with ever-changing radio environments.”²¹ Fixed networks contain channels that are relatively clean with signal regeneration, while mobile channels are impaired with interference, multipath and blockage. Fixed offerings enjoy more stable quality of service due to higher capacity and predictability of resource requirements, whereas mobile networks experience interference limits on a dynamic basis, varying by location and from one millisecond to the next.²² Drs. Reed and Tripathi conclude it is far more difficult to manage shared use of mobile spectrum than shared use of fiber (or coaxial, or copper) facilities.

Given the multiple constraints and dynamic variability in play for mobile network management, the Commission should avoid adopting prescriptive rules that offer an exception for network management, an ever-evolving series of practices that defy regulatory definition. As Akamai concludes, “[i]t is important that mobile operators retain as much flexibility as possible to manage the traffic on their networks in order to deliver promising new services that seek to maximize the use and functionality of wireless networks.”²³

B. Market Factors Obviate The Need to Adopt Additional Open Internet Regulation.

1. Competition in the Mobile Broadband Marketplace Drives Providers to Maintain Open Networks, Eliminating the Need for Further Regulation.

As the *Open Internet Order* recognized in setting different requirements for mobile broadband, “most consumers have more choices for mobile broadband than for fixed

²¹ Reed Tripathi at 2, 17.

²² *Id.* at 2.

²³ Akamai Comments at 11.

(particularly fixed wireline) broadband.”²⁴ The record confirms that today more customers can choose among more mobile broadband providers, and the market exhibits the traditional indicia of competition, including price- and non-price competition, strong investment, and robust innovation.²⁵ As Ericsson notes:

By every measure, the mobile broadband market in the U.S. continues to be the envy of the world in terms of competition, innovation, and investment. There are multiple, facilities-based providers offering a dizzying array of plans and services differentiated by service tiers, speeds, and billing arrangements. There are thousands of devices available running multiple operating systems. Subscriberhip is above 100% penetration, and prices continue to fall.²⁶

The competitive pressure to retain existing customers and attract new ones ensures that providers also engage in significant *non-price* competition.²⁷ One crucial source of competition is network performance. Given the constraints on mobile broadband networks discussed above, providers differentiate themselves on network capabilities and the effects of network management practices. The Commission has noted that “a critical way in which mobile wireless service providers differentiate themselves is with the speeds, reliability, capabilities, and

²⁴ *Open Internet Order*, 25 FCC Rcd at 17957 ¶ 95 According to a recent speech by Chairman Wheeler, just under 15 percent of U.S. homes are served by three wired broadband providers, *Wheeler 1776 Remarks*, but 82 percent of Americans are served by four or more mobile broadband providers, while 92 percent are served by three or more. *See Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Sixteenth Report, 28 FCC Rcd 3700, 3749-50 ¶ 48 (2013) (“*Sixteenth Competition Report*”).

²⁵ CTIA Comments at 6. Microsoft claims that developments in the mobile marketplace have “reduc[ed] competition,” Microsoft Comments at 22, but it makes no effort to support that assertion. The New America Foundation’s Open Technology Initiative acknowledges that there are circumstances in which the “national wireless carriers compete vigorously for customers[,] exerting some discipline on the price and quality of service of Internet access.” New America Foundation Comments at 30.

²⁶ Ericsson Comments at 10.

²⁷ *See, e.g.*, Mobile Future Comments at 6-8; T-Mobile Comments at 3; Verizon Comments at 44-45.

coverage of their mobile broadband networks.”²⁸ As CTIA has explained, carriers have competed vigorously on this basis, deploying next-generation network facilities, expanding coverage, and improving network quality.²⁹

Internet openness is essential for any carrier competing for customers. As Verizon states, the only way it can recoup its massive network investments is “*to win and retain customers*, and the only way to do *that* is to offer them the services and features they demand – including access to the content and applications they want to use.”³⁰ T-Mobile points out that “[c]ustomers demand access to the services, applications, and content of their choice, and a provider that fails to fulfill such expectations risks losing its customers.”³¹ The proposition that mobile broadband providers would benefit in the long term by restricting use of their networks and directing users to affiliated content is “a politically motivated fantasy.”³²

A review of the record reveals that commenters’ claims of harm to mobile consumers since the *Open Internet Order*’s release are inapt. Several parties note AT&T’s introduction of FaceTime over its mobile data network.³³ However, as AT&T itself explains at length, it did permit use of FaceTime over this network, and phased in usage in stages to ensure that use of

²⁸ Sixteenth Competition Report, 28 FCC Rcd at 3821 ¶ 181.

²⁹ See generally CTIA Comments, *Wireless Telecommunications Bureau Seeks Comment on the State of Mobile Wireless Competition*, WT Docket No. 13-135 (June 17, 2013).

³⁰ Verizon Comments at 6.

³¹ T-Mobile Comments at 4. See also AT&T Comments at 21 (“And both economic research and common sense dictate that networks are more valuable to mobile providers the more end users subscribe to them, and the more data those users consume. That imperative compels mobile providers to continue to ensure that customers can access the applications, services, and content of their choosing.”).

³² Verizon Comments at 6.

³³ See, e.g., Electronic Frontier Foundation (“EFF”) Comments at 23; Voices for Internet Freedom Comments at 23; Writers Guild of America, West Comments at 15.

FaceTime did not consume network resources to the point that other users' service would be materially degraded.³⁴ Similarly, claims regarding alleged refusals to permit peer-to-peer file sharing over networks³⁵ fail to recognize that P2P offerings are precisely the type of high-bandwidth offerings that prevent other users from accessing the materials *they* wish to consume. Other parties cite Verizon's consent decree with the Commission regarding tethering,³⁶ but that agreement had nothing to do with user access to content, applications, or other edge-provider offerings subject to the *Open Internet* rules. Finally, a reference to limitations by some providers on use of Google Wallet³⁷ ignores the fact that the service required a degree of interaction with and control over the user's device that would compromise its security, and thus was harmful to consumer interests.

These "examples" cited by commenters therefore either are irrelevant or in fact demonstrate why providers must maintain flexibility to protect their customers. As AT&T concludes, "[g]iven the investment-backed imperative for mobile providers to expand rather than restrict the use of their networks, it is not surprising that there is no reliable evidence of a threat to Internet openness in the mobile broadband ecosystem."³⁸ Ultimately, the U.S. mobile

³⁴ See, e.g., AT&T Comments at 24-25.

³⁵ See, e.g., Voices for Internet Freedom Comments at 23

³⁶ See, e.g., EFF Comments at 23-24; Voices for Internet Freedom Comments at 23.

³⁷ See Writers Guild of America, West Comments at 15.

³⁸ See AT&T Comments at 24.

broadband market has irrevocably embraced Internet openness as a result of marketplace dictates rather than regulatory mandates.³⁹

Consumers Union attempts to blunt this reality by arguing that high switching costs prevent customers from switching carriers, making providers far more immune to competitive threat and paving the way for *Open Internet* violations. But their own data show that 95 percent of their respondents flat out disagree with the perception that switching costs are a barrier.⁴⁰ Rather, the record reflects consumers are increasingly pleased with their wireless service.⁴¹

Competition in the mobile broadband sector has led providers to develop and deploy ever-more-innovative and ever-more-differentiated service offerings, all to the benefit of consumers. Some offerings provide both popular consumer choices and create additional levers to help manage the network. For example, some plans offer unlimited data at low prices but do not offer 4G speeds once users consume more than a specified amount of data in a given month, while others offer a flat fee up to specific data caps and incremental charges for usage above those caps at the same speeds. The former plans may appeal to price-sensitive consumers who wish to avoid additional overage charges but want unlimited data, while the latter benefit users who value speed more than price. Each constitutes a form of network management and competitive differentiation. As Qualcomm observes, “[t]hese pricing models are consumer-

³⁹ CTIA Comments at 5. *See also e.g.*, GSM Ass’n (“GSMA”) Comments at 8 (“mobile operators have no interest or incentive to engage in such behavior because they desire to provide their customers with unfettered access to the Internet”).

⁴⁰ Consumers Union Comments at 13-14 (*citing* survey results showing that 31 percent of respondents said that they are considering switching providers, and one in six of these (1/6 of 31%, or 5%) are constrained by switching costs).

⁴¹ *See, e.g.*, Mobile Future Comments at 9 (*citing* American Consumer Satisfaction Index Survey).

friendly and encourage bandwidth conservation, which is essential to supporting the rapidly growing number of users and their skyrocketing mobile data demands.”⁴²

And as mobile providers introduce novel product offerings – for example, plans that allow customers to access certain services or apps without the usage counting towards a user’s data cap – they are delivering more choices; this does not threaten openness, as some argue, but enhances consumer welfare. So long as providers disclose these practices (as they do under the existing transparency rule), consumers should be free to determine which practices they prefer, benefitting all. “There is no reason for the FCC to deny choices to consumers.”⁴³

2. The Mobile Broadband Marketplace Is Subject to Intense Innovation, Further Negating Any Need for Additional Regulation.

The pace of mobile innovation also makes additional regulation perilous. As Andrew Lippman of MIT’s Media Lab observes, “radio technology is far more open to innovation than wired access; it is proportionately less mature.”⁴⁴ 4G/LTE mobile broadband – first deployed only four years ago – remains an early-stage technology, fomenting rapid innovation throughout the mobile ecosystem. Mobile providers are currently exploring new LTE technologies such as LTE Advanced and LTE Broadcast *and* the next generation technology, 5G.⁴⁵ Likewise, as Nokia notes, the “multi-sided market [among] consumers, wireless operators, and application

⁴² Qualcomm Comments at 9.

⁴³ *Id.*

⁴⁴ MIT Media Lab Comments at 12 (submitted by Andrew Lippman).

⁴⁵ Of note, U.S. wireless carriers are among the world’s most intense and efficient users of spectrum. These network advances are contributing to the effort to achieve the most efficiencies from existing spectrum allocations. “LTE technology has boosted the spectral efficiency of voice and data traffic by approximately 50 percent from UMTS/HSPA, and LTE Advanced is expected to double this efficiency yet again.” Scott Bergmann, *The Misguided Diversion on Spectrum by NAB*, CTIA Blog (Aug. 1, 2013), available at <http://blog.ctia.org/2013/08/01/nab-spectrum-diversion/>.

and over-the-top ... providers is still rapidly developing.”⁴⁶ This includes the Internet of Things, which as Qualcomm points out, “is creating whole new classes of devices ... introducing fundamentally different needs on wireless networks to develop and implement new traffic routing algorithms.”⁴⁷

As CTIA explained in its opening comments, this evolution has occurred *in the absence of* a prescriptive nondiscrimination rule, and without an all-encompassing no-blocking requirement or overly granular transparency rules. Indeed, the mobile sector’s fast-moving innovation counsels strongly against prescriptive rules; in a paper filed in the Commission’s Open Internet docket in 2009, economists Gregory L. Rosston and Michael B. Topper explain that regulators must “account for the challenges of adopting effective regulation, *especially* in an industry with rapid innovation and the potential adverse consequences of regulation.”⁴⁸

Prescriptive regulation would lock in existing technology and hamper innovation, as each new development would be subject to regulatory review under a rule ill-equipped to assess the implications of dynamic network management tools or new business models. As Qualcomm aptly notes, the FCC “should not impose regulation based on anecdotal information, unfounded concerns, and what ifs.”⁴⁹

* * *

The mobile ecosystem is vigorously competitive, intensely innovative, and rapidly evolving. As a result, mobile broadband providers face business pressure to maintain open

⁴⁶ Nokia Comments at 4.

⁴⁷ Qualcomm Comments at 7.

⁴⁸ Gregory L. Rosston and Michael B. Topper, Stanford Institute for Economic Policy Research, Stanford University, *An Antitrust Analysis of the Case for Wireless Network Neutrality*, WT Docket No. 09-66 at 37 (filed Sept. 10, 2009) (“Rosston/Topper”) (emphasis added).

⁴⁹ Qualcomm Comments at 7, 12; *see also* Mobile Future Comments at 2, 6, 8-9.

access to the Internet for their customers. As discussed more below, any additional regulation would be at best unnecessary and at worst harmful to consumers and to innovation.

III. IN LIGHT OF MOBILE BROADBAND'S UNIQUE FEATURES, ADDITIONAL OPEN INTERNET OBLIGATIONS WOULD BE COUNTERPRODUCTIVE

A. Commenters Show that Mobile Broadband Providers Should Not Be Subject to Rules for Fixed Providers, as the *Notice* Tentatively Concludes.

Chairman Wheeler recently observed, “Our goal in this proceeding is to establish rules of the road for Internet openness that will provide certainty in the marketplace and facilitate the continuation of the virtuous cycle of investment and innovation.”⁵⁰ For mobile, that course is established and clear. The Commission should maintain its tentative conclusion against extending the proposed fixed broadband provider rules to mobile.⁵¹ As the record shows, given the technical and competitive features of the mobile broadband market, application of more expansive rules would harm, rather than help, mobile broadband users, and would result in less certainty for all stakeholders.

First, the limitations inherent in mobile networking require that mobile providers have *more* flexibility in managing their networks, precisely so that they can manage their networks more aggressively and creatively to provide the best possible consumer experience. Indeed, uniform treatment would *create* bias (i.e., against resource-constrained wireless networks), rather than eliminate it. As Drs. Reed and Tripathi explain, on a wireline network, “the only variable is the amount of traffic on a given link – all other things such as capacity, etc. are typically static.”⁵² In contrast, wireless networks introduce “many variables that are all changing

⁵⁰ FCC Chairman Tom Wheeler, Prepared Remarks at 2014 CTIA Show, at 3 (Sept. 9, 2014).

⁵¹ *See Notice*, 29 FCC Rcd at 5583-84 ¶ 62.

⁵² Reed Tripathi at 20.

simultaneously – signal strength and interference affect capacity, orientation of antenna affects throughput, and obstacles can dynamically interrupt data, among other things.”⁵³ Thus, mobile providers must engage in far more network management to provide a high-quality experience. Even Mozilla, which generally advocates expansive regulation, recognizes that “[t]here remain technical distinctions between mobile and fixed networks, some of which ... are inherent in the nature of the technologies.”⁵⁴ It would be foolhardy to slap broad no-blocking and commercial reasonableness rules on mobile broadband providers simply because those rules may apply to fixed providers. As the Information Technology & Innovation Foundation observes, “[a]ny arguments for a wireless non-discrimination rule must go beyond ‘wireless is increasingly important’ and address the fundamental differences in capacity.”⁵⁵

Second, arguments favoring “like” treatment of fundamentally “unlike” networks do not take into account that the mobile broadband experience that users enjoy today has evolved under circumstances in which mobile broadband has not been subject to an expansive no-blocking rule, or to any nondiscrimination requirement at all. It is true that “[i]mproving technology and the widespread use of smartphones and tablets has meant that the mobile Internet experience ever more resembles the fixed broadband experience,”⁵⁶ but *only because mobile providers manage traffic aggressively* without regulatory overhang that necessarily stultifies innovating solutions.

⁵³ *Id.* at 21. *See also id.* at 23 (“[T]he numerous variables inherent to a wireless network may mean that during times of congestion, heavy users may have to be treated differently to ensure proper throughput for all users. Should the FCC mandate the suspension of such network management practices in the name of ‘neutrality,’ significant negative consequences could result.”).

⁵⁴ Mozilla Comments at 23-24.

⁵⁵ ITIF Comments at 20-21.

⁵⁶ CDT Comments at 28.

It is simply wrong to assert that platform-specific rules would “result in a two-tiered internet,” leaving mobile users “to languish in a degraded ‘second-class’ wireless world.”⁵⁷

Third, the competitive framework demands that mobile broadband providers work hard to keep and win customers – *all customers* – and “if they were to artificially constrain the applications, services, or devices available on their networks, they would swiftly lose customers to competitors.”⁵⁸ With “users in underserved communities ... rely[ing] exclusively or primarily on mobile broadband for Internet access,”⁵⁹ mobile providers are incented to provide the best consumer experience they can, or risk losing subscribers to competitors that will. Application of identical rules would hamstring mobile providers, leaving them less able to meet consumers’ demands, and placing them at a distinct market disadvantage.

B. There Is No Need For a New Mobile No-Blocking Rule.

Providers have strong incentives to optimize delivery of all content and applications that will not harm the network or undercut the experience of other users. In any event, given that the current transparency rule ensures consumers are able to learn about provider practices along with the competitive state of the market, consumers can choose another provider if they are concerned

⁵⁷ Public Knowledge Comments at 27. In its Petition to Deny the pending Comcast/Time Warner Cable merger transaction, Public Knowledge denies that fixed and mobile broadband services are alike, stating that wireless broadband “complements wireline service rather than substituting for it.” Public Knowledge Petition to Deny, *Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc., and SpinCo for Consent to Assign and Transfer Control of FCC Licenses and Other Authorizations*, MB Docket No. 14-57 at 7 (filed Aug. 25, 2014). Free Press, for its part, states that “Mobile, Fixed LTE and satellite broadband are not products that are ‘reasonably interchangeable by consumers for the same purposes’ as wired broadband in general.” Free Press Petition to Deny, *Applications of Comcast Corp. and Time Warner Cable Inc. For Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57 at 23 (filed Aug. 25, 2014).

⁵⁸ AT&T Comments at 22.

⁵⁹ Voices for Internet Freedom Comments at 22.

about any practices. An expanded no-blocking rule, therefore, is not necessary. Mobile broadband should at most be subject to very limited no-blocking requirements. If the Commission applies a no-blocking rule to mobile broadband, its scope should be limited to the 2010 no-blocking rule – i.e., prohibiting only the blocking of access to lawful websites or to applications that compete with the provider’s voice or video telephony offerings.

Given the unique constraints on spectrum-based networks, certain apps can place excessive demands on network resources, degrading the experience of other users or presenting network security or reliability threats unique to mobile networks.⁶⁰ Mobile broadband providers need the flexibility to block such apps. Drs. Reed and Tripathi explain that “[w]ithout the ability to manage blocking effectively, a wireless provider would be faced with situations where a single user or application could occupy all the radio resources associated with a particular [base station] – leaving any other subscriber seeking access to that [base station] without the ability to connect and receive the service expected.”⁶¹ They thus conclude that mobile providers must be permitted to block traffic. As T-Mobile observes, decisions regarding blocking must be made in real-time, with the interests of all users in mind: “[w]hen communications networks are at risk, it is not responsible to wait until an application has degraded the network to act.”⁶²

⁶⁰ See, e.g., CTIA Comments at 29-30; T-Mobile Comments at 13-15; AT&T Comments at 23-25; Mobile Future Comments at 9-11 (“Providers simply cannot anticipate with a high degree of accuracy how many users will be sharing the network at any particular time or location, or what kind of demands those users will make on the network. The shared nature of a mobile broadband network also means that one user or application can impede the services of other network users.”).

⁶¹ Reed Tripathi at 27.

⁶² T-Mobile Comments at 14.

Allowing mobile broadband providers to block apps that cause problems for other users also provides a beneficial incentive to app developers to consider network resources and load-management issues as they develop their products.⁶³

A limited no-blocking rule would allow providers to protect aggregate user welfare and poses no legitimate risks. First, the existing transparency rule requires providers to disclose any limitations they place on their subscribers' activities, and thus promotes openness and choice in the mobile environment, offering consumers many choices. Further, as noted above, given the state of the market, mobile providers have strong incentives to allow their users to access the applications and services of their choice. If they do not, those customers will simply shift to other providers. Thus, the scope of the 2010 rules – which barred mobile providers from blocking lawful websites and services that compete with the provider's voice or video telephony offerings – preserved provider flexibility while also preventing anticompetitive behavior.

In the event the Commission does adopt a no-blocking rule and effectuates that rule through a “minimum level of access” standard, it should exempt mobile providers or, at least, account for the special circumstances presented by mobile offerings. The “level of service” provided on mobile networks varies tremendously and changes frequently. Examples abound. As Reed and Tripathi explain, a user may experience data rates of tens of Mbps in an LTE network, but this speed could go down to hundreds of kbps when the user enters an area served instead by a UMTS network. “Such wide disparity of the achievable performance makes it difficult to quantify even the minimum level of QoS or any metric.”⁶⁴ More generally, well-managed mobile networks constantly change the network resources devoted to each user,

⁶³ *See, e.g.*, Qualcomm Comments at 3.

⁶⁴ *See* Reed Tripathi at 16.

resulting in optimal service levels that might nevertheless fail to meet a particular quantitative standard from moment to moment: “Even if best-effort service were the goal for all users, these users would typically experience different data rates as the [base station] scheduler would try to improve overall network throughput and overall user throughput.”⁶⁵ As a result, a quantitative “minimum level of access” standard would be impossible to administer in the mobile setting without affirmatively harming many customers.⁶⁶

Likewise, attempting to tie the standard to a “typical” or “reasonable” end user’s expectations is unworkable because such expectations cannot account for the technical and other challenges that mobile providers face – most of which (*e.g.*, loading on a given cell site, sunspot interference) are unknown to the user.⁶⁷ As T-Mobile points out, a “‘reasonable person’ has no basis for understanding the complex technical aspects of mobile network management.”⁶⁸ And as WISPA observed, “establishing a minimum quantitative service level would, if applied equally to all broadband providers, fail to account for sometimes more limited network capabilities of service providers.”⁶⁹ Prescriptive minimum levels of service would therefore limit providers’ flexibility and undercut consumer value. Nor would it be sufficient to rely on a “reasonable network management” exception to warrant application of this rule – as described below, that approach would necessarily chill innovation and harm, not help, consumers.⁷⁰

⁶⁵ *Id.* at 14.

⁶⁶ *See, e.g.*, AT&T Comments at 77-79; Verizon Comments at 42; *see also* Alcatel-Lucent at 25; Telecommunications Industry Ass’n (“TIA”) Comments at 27.

⁶⁷ *See, e.g.*, Cisco Systems at 21-22; Mobile Future at 10-11; TIA Comments at 14; Wireless Internet Service Providers Ass’n (“WISPA”) Comments at 27.

⁶⁸ T-Mobile Comments at 16.

⁶⁹ WISPA Comments at 27.

⁷⁰ *See infra* Part III.E.

C. A Commercial Reasonableness Requirement Would Harm, Not Help, Mobile Consumers.

Various commenters suggest that, contrary to the *Notice*'s tentative conclusion,⁷¹ mobile services should be subject to the “commercial reasonableness” standard.⁷² In the fiercely competitive mobile ecosystem, mobile providers can be expected to act in commercially reasonable ways for the same reasons that companies in hundreds of other ultra-competitive markets do: because their customers will go elsewhere if they do not, and because existing laws already bar unfair and deceptive business practices. As Verizon states, “rigid requirements would stymie rapid innovation in the mobile broadband ecosystem even more than in the context of fixed service, further constraining operators’ efforts to diversify their offerings and address consumers’ evolving preferences.”⁷³ Imposing a commercial reasonableness regulation on mobile broadband providers would not be a solution in search of a problem, it would be a problem.

Most importantly, a commercial reasonableness standard would strongly deter the competitive differentiation that lies at the heart of the mobile broadband ecosystem and would thus harm consumers. When considering whether to develop and deploy new consumer-friendly offerings, or to manage networks in the best interest of consumers, mobile providers would need to factor in the risk that their actions will be subject to complaints or investigations, imposing substantial costs even if the provider prevails. Nokia warns against an “attempt to prophylactically anticipate and regulate an emerging marketplace” pointing out that “[w]ireless

⁷¹ See *Notice*, 29 FCC Rcd at 5583-84 ¶ 62.

⁷² See, e.g., CDT Comments at 28; Cox Comments at 9-11; Internet Association Comments at 20-21; Microsoft Comments at 27; NCTA Comments at 69-70; Public Knowledge Comments at 29-31; TWC Comments at 5-6.

⁷³ Verizon Comments at 43.

data services unencumbered by constricting regulations ... have opened unfettered opportunities for startups, small to medium businesses, and large companies to innovate services that have benefitted the consumer.”⁷⁴

Applying a commercial reasonableness rule to mobile broadband may stifle innovation and the next generation of welfare-enhancing benefits. Nicholas Negroponte, Chairman Emeritus of MIT Media Lab, recently remarked, “the truth is all bits are not created equal.”⁷⁵ He observed that some applications and technologies use more bits than others, and he compared a pacemaker to a book and a video: “[A] few bits of your heart data are, you know, a small fraction of a book. So you have bits that represent your heart, bits that represent books, and bits that represent video. And so, ... to argue that they’re all equal is crazy.”⁷⁶

Advocates of aggressive mandates, however, argue precisely that, ignoring the fact that tomorrow’s basic mobile broadband offerings are premised on the ability to differentiate. Pro-consumer developments like VoLTE and LTE Broadcast, which will greatly increase efficiency of network operations and are just two of the pro-consumer, pro-innovation developments that next-generation LTE will provide, simply could not function under the regime they envision. And this is to say nothing of services and applications, such as “Connected Life” offerings, just around the corner. Nokia identifies numerous examples, including remote health care monitoring, health service delivery by mobile networks, and self-driving cars that “will all require networks that can ensure a level of service quality (‘QoS’) current networks may not be

⁷⁴ Nokia Comments at 5.

⁷⁵ Kate Cox, *Founder Of One Laptop Per Child: Maybe Net Neutrality Isn’t Such A Good Idea After All*, Consumerist (Aug. 14, 2014) available at <http://consumerist.com/2014/08/14/founder-of-one-laptop-per-child-maybe-net-neutrality-isnt-such-a-good-idea-after-all/>.

⁷⁶ *Id.*

able to fully support.”⁷⁷ With constrained networks, a government review process under a commercially reasonable regulation will only bog down innovative new approaches, for example if a provider sought to optimize its network, or portions of its network, to offer such services.

More prescriptive regulation will tend to homogenize the marketplace and, ultimately, limit consumer options. Rosston and Topper discuss the harms associated with such homogenization. “Wireless providers have a scarce resource – network bandwidth – that they need to manage to ensure that they can provide services for which their consumers wish to pay”; thus, “wireless providers have to manage their networks to serve a large number of heterogeneous customers, which can mean denying some groups certain features and rights to increase the experience for other groups.”⁷⁸ Such decisions are best left to the market, as Rosston and Topper illustrate by analogy:

[R]estaurants serve dinner to multiple customers who all enjoy the same ambience and service staff. One noisy or especially demanding diner affects how much other patrons enjoy their meals. Society relies on market forces (competition among restaurants) to give restaurant owners appropriate incentives to deal efficiently with such patrons, but owner’s decisions may not mean that all customers get the same service even in the same restaurant when they order exactly the same meals. In a competitive business like restaurants, management of the common resource will differ based on the demands of customers, costs, and other factors and restaurants offer different “business models” to attract different types of patrons....Like restaurants, wireless networks must satisfy widely varying demands for service.⁷⁹

Additional regulation would effectively require mobile broadband providers to treat the noisy and demanding diner no differently from anyone else, potentially to the detriment of all. It also

⁷⁷ Nokia Comments at 4.

⁷⁸ Rosston/Topper at 13, 11.

⁷⁹ *Id.* at 14.

could well preclude mobile broadband providers from offering additional services responsive to consumer demands. It would, in short, replace today’s heterogeneous marketplace with a one-size-fits-all regime in which customers were less able, not more able, to choose the services they want from multiple options. This would be disastrous for consumers – as Qualcomm notes, “the mobile Internet’s future openness directly depends upon the development of ever-improving traffic management techniques and infrastructure improvements and extensions.”⁸⁰ As Rosston and Topper conclude, “[p]reventing a firm from reaping the rewards of its investments and ingenuity or the threat of taking away such rewards can change a firm’s actions,”⁸¹ More intrusive regulation would inhibit investment and innovation, contrary to decades of bipartisan Congressional and Commission wireless policy seeking to encourage innovation.

D. Expanded Transparency Requirements Would Be Infeasible to Administer and Would Harm Consumers.

While some commenters seek expanded disclosure mandates,⁸² the record shows that mobile broadband providers already are committed to informing their customers, edge providers, and others about relevant terms, conditions, and practices. Any additional disclosure requirements would be highly burdensome, impractical, and ineffectual. As Reed and Tripathi make clear, disclosure at the contemplated level of granularity would be “nearly impossible, as network management practices are highly complex and are constantly changing.”⁸³ In short,

⁸⁰ Qualcomm Comments at 6-7.

⁸¹ Rosston/Topper at 30; *see also id.* at 37 (“[i]f regulators intervene, they risk reducing the incentive for firms to invest in their networks and can prevent efficiency enhancing investment both upstream and downstream.”)

⁸² *See, e.g.*, Cogent Comments at 20-24; Communications Workers of America and NAACP Comments at 5-6, 14-15, CompTel Comments at 30-32; Consumer Federation of America Comments at 4-5, 69.

⁸³ Reed Tripathi at 5.

dynamic network management practices are “too complex to summarize with a small set of easily defined comparative metrics.”⁸⁴ Moreover, because many of these practices are proprietary, publication of detailed information would expose commercially sensitive information to scrutiny by competitors – not to mention hackers, criminals, and others who would exploit such information for illicit and harmful ends.⁸⁵

Further, the more granular disclosures contemplated by the *Notice* would impose tremendous burdens on providers, notwithstanding the absence of any commensurate benefit to consumers, and could even deter providers from pursuing effective management strategies. As CCA explains: “Requiring that even more segmented disclosures be made in this constantly evolving environment would be a significant waste of small-carrier resources. Worse, smaller carriers may be discouraged from optimizing the customer experience on their networks for fear of having to revise even more burdensome disclosures, whether to the FCC or to the public at large.”⁸⁶

* * *

In sum, the constraints and complexity of mobile broadband networks militate against imposing no-blocking requirements, commercial reasonableness standards, or additional transparency rules on mobile broadband providers.

⁸⁴ *Id.* at 22.

⁸⁵ *See id.* at 5, 21, 24.

⁸⁶ CCA Comments at 9.

E. The Commission Cannot Simply Adopt Identical Rules for Fixed and Mobile Broadband and Account for Differences By Applying the “Commercial Reasonableness” and “Reasonable Network Management” on Mobile Networks Differently.

Application of a broader no blocking rule or a commercial reasonableness rule – whether as a unified fixed-mobile rule or under some mobile-specific standard – will stifle innovation and harm consumer interests substantially more in the mobile context. On mobile broadband networks, aggressive management is the norm, not the exception. Properly applied, an “escape hatch” for reasonable actions would swallow the requirement from which it provides an exemption. There is no value to a framework that calls virtually all practices into question only to have them validated as a reasonable exception. Still worse would be a regime that *failed* to apply the escape hatch this way, and subjected mobile providers to standards that failed to reflect the realities of mobile broadband service. Either way, the result would be less clarity and more uncertainty, which in turn would undercut investment, innovation, and consumer welfare. As Drs. Reed and Tripathi observe:

[S]ubjecting this type of network and network management to broad prophylactic rules with a vague ‘exception’ standard would provide no clarity to carriers, edge providers, or consumers as to how these networks will be managed. The exception would either simply subsume any rules (e.g., blocking or non-discrimination) or providers would be stripped of their ability to evolve and manage networks for the betterment of the entire subscriber base.⁸⁷

The unique challenges presented by mobile service necessitate aggressive and complex network management involving individualized treatment of users and usages. It is inaccurate to believe that none of these challenges “commands a substantively different rule” for mobile service, and it is folly to presume that the differences between fixed and mobile services “can be adequately accounted for as part of the Commission’s case-by-case consideration of what

⁸⁷ Reed Tripathi at 3.

constitutes unreasonable discrimination or reasonable network management.”⁸⁸ The Commission made the right decision in 2010, and it should adopt its tentative conclusion here and refrain from imposing a broad no blocking rule or anti-discrimination/commercial reasonableness rule against mobile broadband.

Simply applying these rules in a more flexible fashion to mobile broadband providers will not alter the underlying fault in imposing these rules: they will stifle innovation, badly chill consumer-focused initiatives now pursued by mobile broadband providers, limit consumer choice, and ultimately harm the very consumer interests that the Commission seeks to protect in this proceeding. These rules would force mobile providers to consider the risk that their every decision – from developing new pricing plans, network configurations, and business relationships to responding to specific threats to the network in real time – will be subject to potentially costly complaints even under a mobile standard. Those complaints, in turn, will then be evaluated post-hoc by regulators working with varying degrees of knowledge about the workings of mobile networks and subject to shifting political forces. This additional regulatory overhang inevitably will cause network operators to second-guess all of their decisions. This will jeopardize network management in the near term and consumer value and innovation in the long term.

The potential for long-term negative impacts on product differentiation and innovation are of even graver concern. Mobile providers are constantly working to offer consumers new and innovative services, both to meet customer demands and to differentiate themselves from their competitors. If additional constraints are placed on mobile providers’ practices, providers may be deterred from deploying such services for fear that they would be challenged and

⁸⁸ CDT Comments at 28.

ultimately deemed unlawful. As noted above, even if the provider ultimately prevailed against a challenge, the costs of defending against complaints and the mere risk of defeat will reduce the expected value of any new innovation, and will ensure that some offerings that would otherwise be developed and deployed are not.

This concern is not hypothetical; indeed, it is borne out by recent events. For example, T-Mobile recently introduced its Music Freedom offering, which allows users to stream unlimited amounts of music from a wide range of streaming sites (most unaffiliated with T-Mobile) without any effect on data limits. The offering includes a mechanism for the addition of new streaming services – the only limitation is that the service must be lawful. As the CEO of music streaming site Grooveshark remarked when T-Mobile added the company to the list of supported services, Music Freedom helps make little-known offerings available to a wider customer base: ““Together with Music Freedom, Grooveshark is creating a new kind of music discovery on T-Mobile devices. We believe the combined global audiences of millions represents a new and engaged audience for Grooveshark on T-Mobile.””⁸⁹ Yet despite this innovative offering’s obvious consumer benefits and benefits to small companies like Grooveshark, Public Knowledge suggests counterintuitively that it undermines consumer interests and innovation,⁹⁰ and the Electronic Frontier Foundation complains that it will somehow discourage users from trying new streaming sites.⁹¹ Consumers Union states that this offering “threaten[s] the openness of the Internet” and (incorrectly) asserts that Music Freedom

⁸⁹ *T-Mobile Adds Rdio, Songza Grooveshark to Free Data Program*, Billboard (Aug. 28, 2014), available at <http://www.billboard.com/articles/business/6236378/t-mobile-music-freedom-rdio-songza-grooveshark>.

⁹⁰ Public Knowledge Comments at 21.

⁹¹ EFF Comments at 25-26. *See also* New Media Rights Comments at 5; Future of Music Coalition Comments at 10.

“pushes [consumers] to watch affiliated content out of fear that doing otherwise will count against their monthly caps and result in either overage charges or slower speeds.”⁹²

AT&T’s Sponsored Data plan allows edge providers to pay for the data that a subscriber consumes while using their offerings. Consumers’ access to other edge providers is unaffected. Sponsored Data’s initial customers include many small entities such as Aquoto, Hipcricket, DataMi, and Syntonic.⁹³ Telecommunications research firm Ovum named Sponsored Data its “innovative service of the month” for January 2014, stating that the offering “addresses two key industry needs – to encourage mobile data consumption and spread the cost of that additional consumption to others besides the end user.”⁹⁴ Again, however, despite clear consumer benefits, Public Knowledge complains that AT&T is an “Internet gatekeeper,” “now in a position to tax any person or service that wants to connect to millions of AT&T wireless subscribers.”⁹⁵ Consumers Union asserts that this offering “prevents consumers from exercising maximum control over what they are able to access over the Internet.”⁹⁶

If the proposed “commercial reasonableness” requirement applied to mobile broadband providers, today Public Knowledge, Consumers Union, and others surely would be filing (or threatening) complaints challenging the offerings discussed above, no matter how baseless those

⁹² Consumers Union Comments at 13.

⁹³ See AT&T, Sponsored Data, http://www.att.com/att/sponsoreddata/en/index.html#fbid=B6j_iIC-vSt (last visited Sept. 15, 2014).

⁹⁴ See Sara Kaufman, Ovum, *Ovum’s innovative service of the month: AT&T’s sponsored data*, at 1 (Mar. 19, 2014), <http://www.att.com/att/sponsoreddata/docs/Ovum-ATT-Sponsored-Data.pdf>.

⁹⁵ Public Knowledge Comments at 53-54.

⁹⁶ Consumers Union Comments at 12.

complaints might be. Public Knowledge, for example, has written that Music Freedom reflects a “type of gatekeeping interference by ISPs [that] is exactly what net neutrality rules should be designed to prevent”⁹⁷ and that Sponsored Data is a “tremendous loss” for “everyone besides AT&T.”⁹⁸ Of course, critics would not stop with these two offerings, but instead would take aim at others as well. For example, Sprint’s Virgin Mobile recently began offering “Virgin Mobile Custom,” which offers (among other things) “add-on[]” options providing unlimited access to apps such as Facebook and Pandora.⁹⁹ The hallmark of these offerings is that they expand consumer welfare, offering consumers new options and more value. The prospect of formal complaints, however, would undoubtedly chill providers’ desire and willingness to launch new consumer-friendly and budget-friendly options.

Nor is there reason to believe that a series of enforcement actions would generate a body of principles that will guide providers’ behavior. The growing variety of mobile network configurations, pricing plans, and usage models would badly undercut the likelihood that a decision regarding one practice will be relevant to the practices of another provider in different circumstances. For example, the reasonableness of a provider’s response to a bandwidth-hogging app on a 3G network with limited spectrum holdings would not necessarily speak to the

⁹⁷ Michael Weinberg, *T-Mobile Uses Data Caps to Manipulate Competition Online, Undermine Net Neutrality*, Public Knowledge Blog (June 19, 2014), available at <https://www.publicknowledge.org/news-blog/blogs/t-mobile-uses-data-caps-to-manipulate-competition-online-undermine-net-neut>.

⁹⁸ Michael Weinberg, *AT&T’s New Sponsored Data Scheme is a Tremendous Loss for All of Us*, Public Knowledge Blog (Jan. 8, 2014), available at <https://www.publicknowledge.org/news-blog/blogs/attas-new-sponsored-dataa-scheme-tremendous>.

⁹⁹ See Press Release, Sprint, *Virgin Mobile USA Launches Virgin Mobile Custom – Fully Customizable Cell Phone Plan with Rich Parental Controls*, (July 30, 2014), available at <http://newsroom.sprint.com/news-releases/virgin-mobile-usa-launches-virgin-mobile-custom-fully-customizable-cell-phone-plan-with-rich-parental-controls.htm>.

reasonableness of another provider's response to the same app on an LTE network with greater spectrum resources. The extreme variability in circumstances and in provider practices, combined with the fast pace of innovation, eviscerates any claim that mobile broadband providers could, over time, conform their actions to agency precedent. Moreover, the common-law approach simply could not keep up with ever-changing network management practices – by the time a complaint got resolved, the techniques at issue would likely already have been updated, improved, or even overtaken completely, undercutting the value of the Commission's ruling, and the complaint itself may have altered the path of innovation. Thus, mobile broadband providers will always be left to guess at whether a given practice will pass muster, guaranteeing that investment and innovation remain chilled by uncertainty. The only sound policy is the one the Commission has proposed: leave mobile broadband out of the more prescriptive rules and allow the fiercely competitive marketplace, along with transparency rules, continue to serve mobile providers' interests.

IV. SUBJECTING MOBILE BROADBAND TO COMMON CARRIER REGULATION WOULD HARM INVESTMENT, INNOVATION, AND ULTIMATELY CONSUMERS.

As demonstrated above, should the Commission move forward with any new rules, it must recognize that mobile services warrant mobile-specific rules. Aside from the scope of regulation, however, commenters make clear it is imperative that any regulation avoid reclassification. Subjecting mobile broadband to common carrier regulation is not only unnecessary, it would also harm investment and innovation, create a cloud of uncertainty, and lead to years of litigation – all to the detriment of consumers. As described in Section V. below, it is also unlawful.

Reclassification would have drastic consequences for the mobile ecosystem and ultimately consumers.¹⁰⁰ By replacing a model favoring differentiation and experimentation with one that favors uniformity and commoditization of service, the FCC would depress investment, stymie consumer interests, and cripple marketplace development. According to T-Mobile:

Whereas today’s mobile ISPs enjoy flexibility to explore new and different business models, *ISPs subject to Title II would labor under a regime that casts a deeply skeptical eye on product differentiation.* Furthermore, while today’s providers can offer creative pricing bundles to meet evolving needs, *providers subject to Title II would be subject to ex post “just and reasonable” review of their offerings.* And where today’s broadband providers operate principally on a commercial basis, *the Title II regime would invite persistent regulatory intervention and oversight, slowing or even preventing efforts to develop new offerings.*¹⁰¹

Quite simply, imposing a common carrier regime on mobile broadband would “thwart the ‘virtuous cycle’ of investment, competition, and innovation that the agency has celebrated and throw the industry and agency into disarray.”¹⁰² The GSM Association cautions that the Commission should be “particularly reluctant to rely upon Title II” for yet another reason: international lessons learned. In particular, it points to the “resounding success” achieved in the U.S. mobile broadband market under a light-touch regulatory model, as compared to the less favorable results achieved by some European countries that have “embraced a more heavy-

¹⁰⁰ See CTIA Comments at 47-48; GSMA Comments at 10-11; Mobile Future Comments at 2, 14-15; Qualcomm Comments at 7-8; T-Mobile Comments at 22-24.

¹⁰¹ T-Mobile Comments at 23 (emphasis added).

¹⁰² Qualcomm Comments at 7; see also Mobile Future Comments at 14-15 (warning that applying Title II to mobile broadband would subject it to price regulation, additional fees, surcharges, and “a raft of other unwise constraints and regulatory overhangs” – all of which would “reflect a substantial departure from the flexibility, speed, and consumer-centric adaptability, and openness that continues to fuel mobile broadband’s growth”).

handed regulatory approach to broadband.”¹⁰³ Indeed, “North America’s average wireless data connection speed is the fastest in the world, nearly twice that available in Western Europe, and over five times the global average.”¹⁰⁴

The record also shows that reclassification coupled with forbearance is a risky strategy. In particular, forbearance will not alleviate many of the harmful consequences of reclassification and will always remain subject to reversal by a court or a future Commission.¹⁰⁵ As Ericsson notes, “the potential for reversals of forbearance decisions based on shifts in political winds and accompanying Commission leadership changes would deter investment in the short *and* long term.”¹⁰⁶ The record is also replete with evidence that reclassification would be subject to years of litigation.¹⁰⁷ This likelihood of litigation, coupled with the ever-present risk that any

¹⁰³ GSMA Comments at 11-12; *see also* Erik Bohlin, Kevin W. Caves, and Jeffrey A. Eisenach, *Mobile Wireless Performance in the EU & the US*, at 2 & 38-39 (May 2013) (concluding that the “EU mobile wireless market is underperforming relative to other advanced economies, including the U.S.,” and finding that such underperformance is due, in part, to regulatory policies that focus “primarily or exclusively on the pursuit of static efficiency through the promotion of commoditized competition and ever lower prices” rather than on “paying attention to the need for preserving incentives for investment and innovation”), <http://www.gsamobilewirelessperformance.com/>.

¹⁰⁴ Declaration of Andres V. Lerner, *Competition in Broadband and “Internet Openness”*, t 36-37 ¶ 81 (July 15, 2014) attached to Verizon Comments.

¹⁰⁵ *See* AT&T Comments at 64-68; Consumers Electronics Ass’n (“CEA”) Comments at 13-14; Cisco Comments at 24-25; Comcast Comments at 66-67; CTIA Comments at 48-50; Ericsson Comments at 11-12; Int’l Center for Law & Econ. Comments at 54; NCTA Comments at 26-27; TWC Comments at 18-19; TechFreedom Comments at 18, 32-45, 57.

¹⁰⁶ Ericsson Comments at 12.

¹⁰⁷ AT&T Comments at 64-68; CEA Comments at 13-14; CenturyLink Comments at 36; Cisco Comments at 25-27; Comcast Comments at 4, 49; CTIA Comments at 50-51; NCTA Comments at 38; National Minority Organizations Comments at 8; T-Mobile Comments at 23-24; TechFreedom Comments at 9; TWC Comments at 8, 17; U.S. Chamber of Commerce at 3; WISPA Comments at 41-42.

forbearance strategy could be reversed, risks investment- and innovation-stifling uncertainty that ultimately would harm both broadband deployment and consumers.

Finally, there is no merit to suggestions that a reclassification framework coupled with forbearance will be successful simply because the mobile wireless market has flourished under a “light-touch” Title II framework.¹⁰⁸ As CTIA has explained, a forbearance approach would still apply key parts of Title II to mobile and fixed broadband, severely limiting providers’ flexibility to manage limited network resources and experiment with new business models, and undermining their ability to serve customers’ needs.¹⁰⁹ Moreover, some commenters have sought an expansive list of Title II provisions that would be applied,¹¹⁰ so it is not at all clear that only a “limited” class of requirements would in fact be imposed. And even if the Commission rejected such calls, there would still be the same risk of litigation and uncertainty discussed above, along with the ever-present possibility that any decision to limit forbearance today could be reversed tomorrow. For all of these reasons, a reclassification strategy, even with forbearance, should be rejected.¹¹¹

¹⁰⁸ See, e.g., Free Press Comments at 7.

¹⁰⁹ See CTIA Comments at 48-49.

¹¹⁰ See, e.g., CompTel Comments at 4, 21-24; Massachusetts Dept. of Telecomms. & Cable Comments at 8 & n.41; Telecommunications for the Deaf and Hard of Hearing Comments at 13.

¹¹¹ As others have pointed out, a Title II approach to broadband services would also have negative international implications, undercutting American policy objectives and potentially subjecting American Internet providers to suffocating charges for sending traffic to Internet endpoints abroad. See, e.g., AT&T Comments at 69-72; Comcast Comments at 43-50; GSMA Comments at 14-17; Telecom Italia Comments at 12 (submitted by Giovanni Amendola); Statement of the Hon. Robert M. McDowell, Visiting Fellow, Hudson Institute Center for the Economics of the Internet, *Net Neutrality: Is Antitrust Law More Effective Than Regulation in Protecting Consumers and Innovation?* Before the U.S. House Committee on the Judiciary, Subcommittee on Regulatory Reform, Commercial and Antitrust Law, U.S. House of Representatives at 5, 7-8 (June 20, 2014), http://judiciary.house.gov/_cache/files/cc1cce99-2711-459f-9e70-67cb8dff7536/mcdowell-testimony.pdf.

V. THE FCC IS LEGALLY PROHIBITED FROM APPLYING TITLE II TO MOBILE BROADBAND SERVICES.

Not only does the record show that reclassification is bad public policy, it also confirms that the Commission does not have the legal authority to subject mobile broadband services to common carrier treatment under Title II of the Act in the first instance. As CTIA explained in its opening comments, and as the D.C. Circuit has found, mobile broadband providers are “statutorily immune, perhaps twice over, from treatment as common carriers.”¹¹²

- First, mobile broadband service is a private mobile service (“PMRS”) and not a commercial mobile service (“CMRS”),¹¹³ and Section 332 of the Act makes clear that PMRS offerings “shall not ... be treated as a common carrier [service] for any purpose.”¹¹⁴ While a handful of commenters argue that the FCC should reclassify mobile broadband as CMRS in order to bring it under the ambit of Title II,¹¹⁵ no commenter can overcome the fact that mobile broadband does not meet the definition of CMRS and therefore cannot under Section 332 be subject to Title II.
- Second, mobile broadband service is an integrated “information service,”¹¹⁶ and for this reason as well cannot be subject to common carrier regulation under the Act.¹¹⁷ The Commission correctly concluded more than seven years ago that the transmission and information-processing components of mobile broadband services are integrated and comprise a single, integrated “information service.” Parties seeking reclassification fail to show these facts have changed for mobile broadband services – in fact, as Drs. Reed and Tripathi have shown, mobile broadband service is even *more* integrated today than they were in 2007.¹¹⁸

¹¹² *Cellco P’Ship v. FCC*, 700 F.3d 534, 538 (D.C. Cir. 2012), *cited in* CTIA Comments at 42.

¹¹³ *See* CTIA Comments at 37-43; *see also* TechFreedom Comments at 60-62.

¹¹⁴ 47 U.S.C. § 332(c)(2).

¹¹⁵ *See, e.g.*, American Civil Liberties Union (“ACLU”) Comments at 2; Future of Music Coalition Comments at 16; Popular Resistance Comments at 5-7; David W. Quist Comments at 2; Vonage Comments at 41-44.

¹¹⁶ *See* CTIA Comments at 43-46; T-Mobile Comments at ii, 18-20.

¹¹⁷ *See* 47 U.S.C. § 153(51); *Nat’l Cable & Telecomms. Ass’n v. Brand X Internet Servs.*, 545 U.S. 967, 975-76 (2005); *Verizon*, 740 F.3d at 630.

¹¹⁸ Reed Tripathi at 31-36.

Moreover, Mozilla’s proposal to carve out a new “service” provided by a broadband provider to an edge provider, and then to subject that new service to common carrier mandates, is equally unlawful. The “service” that broadband providers provision to edge providers is not “telecommunications,” and even if it were, it would not be a “telecommunications service.” More fundamentally, it is not an offering to the edge provider at all, but rather – on the “best effort” Internet, at least – part of the integrated information service the broadband provider sells to its end user.

A. The Record Confirms that Section 332 Bars the Commission from Subjecting Mobile Broadband Services to Common Carrier Treatment.

The record confirms that mobile broadband service cannot be deemed CMRS (or its functional equivalent) under Section 332, and as such cannot be subject to common carrier treatment.¹¹⁹ CTIA demonstrated in its opening comments that Section 332 divides mobile services into two categories – a mobile offering must be either CMRS or PMRS.¹²⁰ The statute provides that mobile services that are not CMRS (or the functional equivalent) are by definition PMRS,¹²¹ and prohibits the Commission from subjecting PMRS to common carrier requirements.¹²² Because mobile broadband services are PMRS, the FCC is barred from treating mobile broadband providers as common carriers.

Specifically, Section 332(d)(1) defines CMRS as any mobile service that is provided for profit and “makes interconnected service available” to the public.¹²³ For these purposes, “interconnected service” means “a service that is interconnected with the public switched

¹¹⁹ See CTIA Comments at 37-43; TechFreedom Comments at 60-61.

¹²⁰ 47 U.S.C. § 332(c)(1)-(2), *cited in* CTIA Comments at 38.

¹²¹ *Id.* § 332(c)(3).

¹²² *Id.* § 332(c)(2).

¹²³ *Id.* § 332(d)(1).

network” and gives subscribers the ability to communicate with “all other users on the public switched network.”¹²⁴ “Public switched network,” in turn, means “[a]ny common carrier switched network ... that use[s] the North American Numbering Plan in connection with the provision of switched services.”¹²⁵ Mobile broadband service does not fall under the CMRS definition, because it is not interconnected with the public switched network. That is, it does not give subscribers the capability to communicate with “all other users” on the public switched network, nor does it use the North American Numbering Plan (“NANP”).¹²⁶ Therefore, because mobile broadband is not CMRS, it is by definition PMRS,¹²⁷ and the Commission “*shall not*” treat any PMRS provider “as a common carrier *for any purpose*.”¹²⁸

As TechFreedom recognizes,¹²⁹ both the FCC and the D.C. Circuit have agreed with this logic. In its 2007 *Wireless Broadband Order*, the FCC found that “mobile wireless broadband Internet access service does not meet the definition of ‘commercial mobile service’ within the meaning of section 332 ... because such broadband service is not an ‘interconnected service.’”¹³⁰ The Commission has confirmed this finding in court, conceding that “wireless internet service ... *is not* a ‘commercial mobile service’” and that, as a result, “it has no authority to treat mobile-

¹²⁴ 47 C.F.R. § 20.3.

¹²⁵ *Id.*

¹²⁶ *Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks*, Declaratory Ruling, 22 FCC Rcd 5901, 5916-18 ¶¶ 41-45 (2007) (“*Wireless Broadband Order*”). The fact that VoIP or other applications that ride over mobile broadband service may provide the ability to communicate with other users on the public switched network makes no difference, because mobile broadband in and of itself does not provide this capability. *Id.* at 5917-18 ¶ 45.

¹²⁷ 47 U.S.C. § 332(c)(3).

¹²⁸ *Id.* § 332(c)(2) (emphasis added).

¹²⁹ See TechFreedom Comments at 60-61. See also CTIA Comments at 39-42.

¹³⁰ *Mobile Broadband Order*, 22 FCC Rcd at 5916 ¶ 42.

data providers ... as common carriers.”¹³¹ Likewise, the D.C. Circuit has twice described Section 332(c)(2) as a statutory bar that precludes treating mobile broadband providers as common carriers. In the court’s 2012 ruling on the FCC’s data roaming rule, it referred to Section 332(c)(2) as providing a “statutory exclusion of mobile-internet providers from common carrier status.”¹³² And just this year, the court cited Section 332(c)(2) as one basis for overturning the no-blocking rule with respect to mobile broadband, noting that “treatment of mobile broadband providers as common carriers would violate section 332[(c)(2)].”¹³³

The Commission cannot upend the statutory scheme simply by “updating” the definition of CMRS to determine that the use of IP addresses renders an offering “interconnected,” as Vonage contends.¹³⁴ The statutory definition, as long interpreted by the Commission, properly focuses on NANP numbering and interconnection to the public switched network.¹³⁵ Vonage effectively proposes to treat the Internet as part of the public switched network, which would represent a radical and unlawful departure from precedent.¹³⁶ The “update” Vonage seeks would also require a revision to the definition of “public switched network” in Section 20.3 of the

¹³¹ *Cellco*, 700 F.3d at 538, 545.

¹³² *Id.* at 538, 544, 548.

¹³³ *Verizon*, 740 F.3d at 650 (internal citations omitted).

¹³⁴ *See* Vonage Comments at 43-44.

¹³⁵ *Implementation of Sections 3(n) and 332 of the Communications Act*, Second Report and Order, 9 FCC Rcd 1411, 1437 ¶ 60 (1994) (“*CMRS Second Report and Order*”) (“We agree ... that use of the North American Numbering Plan by carriers providing or obtaining access to the public switched network is a *key element* in defining the network because participation in the North American Numbering Plan provides the participant with ubiquitous access to all other participants in the Plan.”) (emphasis added)).

¹³⁶ *See* TechFreedom Comments at 61-62; *CMRS Second Report and Order*, 9 FCC Rcd at 1437 ¶ 60. Such a departure would “stretch the bounds of reasonableness,” *see* TechFreedom Comments at 61-62, and veers into the realm of arbitrary and capricious decisionmaking. *See* 5 U.S.C. § 706(2)(a); *West Coast Media, Inc. v. FCC*, 695 F.2d 617, 620-21 (D.C. Cir. 1982) (citing *Greater Boston Television Corp. v. FCC*, 444 F.2d 841 (D.C. Cir. 1970)).

FCC's rules,¹³⁷ which is beyond the scope of this rulemaking.¹³⁸ The *Notice* asks only whether mobile broadband falls within the existing definition of CMRS, and does not propose any changes to the well-established definitions in Section 20.3 of the FCC's rules.¹³⁹

Moreover, the change Vonage proposes would not make mobile broadband an "interconnected service" as required by Section 332(d)(1), because mobile broadband subscribers would still lack the capability of communicating with "*all* other users" on the public switched network.¹⁴⁰ As the Commission has recognized, "[t]he purpose of the public switched network is to allow the public to send or receive messages *to or from anywhere in the nation.*"¹⁴¹ The ability to communicate with other IP addresses does not give mobile broadband subscribers "ubiquitous access to *all* other participants,"¹⁴² including those participants accessible only through the NANP, and therefore cannot turn mobile broadband into an interconnected service subject to common carrier treatment.

Critically, no other commenter contends that mobile broadband is an interconnected service. While a handful of commenters blithely urge the FCC to reclassify mobile broadband

¹³⁷ See Vonage Comments at 44 (conceding the need to "update[e]" Section 20.3 of the rules "to include Internet Protocol addresses as an alternative numbering scheme").

¹³⁸ See 5 U.S.C. § 553(b)(3), (c); *Long Island Care at Home, Ltd. v. Coke*, 551 U.S. 158, 174 (2007) (rules adopted must be a "logical outgrowth" of rules proposed).

¹³⁹ See *Notice*, 29 FCC Rcd at 5614 ¶ 150 & n.307, 5626-27 (Appendix A - proposed rules). Such a revision would also have disastrous consequences, as it would effectively reclassify a large swath of over-the-top applications as CMRS, subject to universal service contributions, 911 obligations, rate regulation, and a host of other common carrier requirements. Under this theory, the Commission would be regulating and assessing fees on more of the Internet than ever before.

¹⁴⁰ See 47 C.F.R. § 20.3 (definition of "interconnected service") (emphasis added).

¹⁴¹ *CMRS Second Report and Order*, 9 FCC Rcd at 1436 ¶ 59 (emphasis added); see also *id.* at 1437 ¶ 60 ("[W]e believe that this approach to the public switched network is consistent with creating a system of universal service *where all people in the United States* can use the network to communicate with each other.") (emphasis added)).

¹⁴² *Id.* at 1437 ¶ 60 (emphasis added).

service as CMRS rather than PMRS in an outcome-driven attempt to apply common carrier regulation, they fail to explain how mobile broadband could possibly be deemed an interconnected service – let alone attempt to demonstrate how the Commission could make such a finding consistent with the statute, its rules, and its precedents.¹⁴³ Notably, no commenter argued that mobile broadband service is the “functional equivalent” of CMRS. Nor could they: Congress intended the hallmark of CMRS to be the provision of interconnected service through use of the public switched network.¹⁴⁴ No service lacking this essential attribute could amount to a commercial mobile service equivalent.

While the Open Technology Institute (“OTI”) argues that the FCC has independent authority under Title III to adopt common carrier-type open Internet rules for mobile broadband service providers,¹⁴⁵ the Commission’s general Title III authority to prescribe the nature of licensed services and adopt rules cannot be used to evade the well-recognized specific statutory bar against common carrier treatment in Section 332(c)(2). As the Supreme Court long ago held, “[g]eneral language of a statutory provision, although broad enough to include it, will not be held to apply to a matter specifically dealt with in another part of the same enactment.”¹⁴⁶ And, as

¹⁴³ See, e.g., ACLU Comments at 2; Future of Music Coalition Comments at 16; Popular Resistance Comments at 5-7; David W. Quist Comments at 2.

¹⁴⁴ See *CMRS Second Report and Order*, 9 FCC Rcd at 1445-46 ¶ 76. (“[I]f we conclude that a mobile service does not meet the literal definition of a commercial mobile radio service, we will presume that the service is private and it will be regulated as PMRS unless there is a showing in a specific case that it is the functional equivalent of a service that is classified as CMRS.”) (emphasis omitted); *id.* at 1447 ¶ 79 (“[W]e anticipate that very few mobile services that do not meet the definition of CMRS will be a close substitute for a commercial mobile radio service.”).

¹⁴⁵ See Open Technology Institute (“OTI”) Comments at vii, 48-50 (citing 47 U.S.C. §§ 303(b), (r)) (submitted by the New America Foundation and Benton Foundation).

¹⁴⁶ *D. Ginsberg & Sons, Inc. v. Popkin*, 285 U.S. 204, 208 (1932), cited in *Verizon*, 740 F.3d at 649-50.

OTI acknowledges, the provision that gives the Commission its broadest authority over licensees – Section 303(r) – specifically states that its regulations must be “not inconsistent with law.”¹⁴⁷

Thus, as detailed in the record, mobile broadband service may not be treated as a common carrier offering pursuant to Section 332 of the Act. As a result, even if the Commission could reclassify mobile broadband service as including a distinct “telecommunications service” component – and as discussed below, it cannot – the FCC nevertheless would be prohibited from subjecting mobile broadband service to common carrier regulation because mobile broadband would still be PMRS under Section 332.

B. The Record Demonstrates That Mobile Broadband Services Are Integrated Information Services and There Is No Factual Basis for Reclassification.

The record also demonstrates that mobile broadband service is an integrated “information service.”¹⁴⁸ This fact creates an additional statutory bar against the application of Title II common carrier regulation to mobile broadband providers. As the D.C. Circuit has explained, the Act distinguishes between telecommunications carriers and information-service providers,¹⁴⁹ but subjects only telecommunications carriers – not information-service providers – to Title II common carrier regulation.¹⁵⁰ Because mobile broadband meets the statutory definition of an integrated “information service,”¹⁵¹ it cannot be subject to common carrier treatment.

¹⁴⁷ 47 U.S.C. § 303(r). *See also* OTI Comments at 49.

¹⁴⁸ *See* CTIA Comments at 43-46; T-Mobile Comments at ii, 18-20.

¹⁴⁹ *Verizon*, 740 F.3d at 630 (*citing* 7 U.S.C. § 153(24), (50), (51), (53); *Brand X*, 545 U.S. at 976-77).

¹⁵⁰ *Id.* (*citing* 47 U.S.C. § 153(53); *Brand X*, 545 U.S. at 975-76).

¹⁵¹ An “information service” is “the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications.” 47 U.S.C. § 153(24).

Commenters seeking to reclassify Internet access services fail to demonstrate that the factual predicate for classifying mobile broadband service as an integrated information service has changed. In 2007, the FCC correctly found that “wireless broadband Internet access service meets the statutory definition of an information service” because it “offers a single, integrated service to end users, Internet access, that inextricably combines the transmission of data with computer processing, information provision, and computer interactivity, for the purpose of enabling end users to run a variety of applications.”¹⁵² This finding remains true today – if anything, the record shows that mobile broadband transmission is even *more* “integrated” and “inextricably intertwined” with processing functionality today than it was in 2007.¹⁵³ As T-Mobile explains:

In recent years, mobile broadband offerings have become more, not less, integrated. As bandwidth demand has skyrocketed and cyber threats have multiplied, wireless ISPs have had to interlink the transmission and processing components of their offerings ever more tightly, in order to facilitate real-time network management and security protocols. For example, the transition to LTE and, more generally, to IP-based mobile networks exposes mobile networks to new and rapidly evolving security threats that can attack through devices, the radio access network, backhaul, or external third-party networks. Such threats require the use of network intelligence and visibility into real-time traffic patterns to improve detection of malicious attacks and accidental traffic floods, as well as scalable, distributed, and automated security tools for discovery and remediation of problems. These tools tightly integrate processing and transmission functions.¹⁵⁴

The Reed/Tripathi paper confirms this result. Drs. Reed and Tripathi explain that “[t]he nodes of the entire wireless network infrastructure work together to present a single unified view of the network to the subscriber’s device and to provide service-specific QoS for a user’s

¹⁵² *Wireless Broadband Order*, 22 FCC Rcd at 5911 ¶ 26.

¹⁵³ See CTIA Comments at 43-46; T-Mobile Comments at 18-20.

¹⁵⁴ T-Mobile Comments at 20.

services according to the 3GPP LTE framework,” and that “[a]ll the network components need to do specific processing, which often needs to be customized for a given service, to provide seamless and satisfactory experience of a variety of services for the user.”¹⁵⁵ Moreover, mobile broadband has only become more integrated over time, as “[a]s technologies and networks have evolved,” because “subscribers are increasingly using advanced networks for multiple simultaneous data services,” necessitating “[e]xtensive and complex processing in the mobile broadband network...”¹⁵⁶ As Drs. Reed and Tripathi show, this tight integration between transmission and processing is essential whether the user is browsing a website, engaged in mobile video conferencing, or undertaking any of the myriad other activities made possible by mobile broadband. Thus, the factual premises that previously led the Commission to classify mobile broadband Internet access offerings as integrated information services compel the same result even more so today.

The record also demonstrates that under the Supreme Court’s 2009 *Fox* decision,¹⁵⁷ reclassification would require a heightened level of explanation to survive judicial review because it would (1) reflect new factual premises contradicting previous conclusions and (2) disrupt established reliance interests.¹⁵⁸ First, reclassification would directly contravene the Commission’s 2007 finding, discussed above, that mobile broadband service constitutes a single,

¹⁵⁵ Reed Tripathi at 31.

¹⁵⁶ *Id.*

¹⁵⁷ *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009).

¹⁵⁸ See CenturyLink Comments at 46-47; Charter Comments at 15-16; Comcast Comments at 54; Cox Comments at 30-31; CTIA Comments at 45-46; NCTA Comments at 33; TWC Comments at 12-13; USTelecom Comments at 23-24; Verizon Comments at 57-61.

integrated offering, and is therefore an information service.¹⁵⁹ As T-Mobile and Verizon demonstrated, and Drs. Reed and Tripathi have confirmed, mobile broadband services are at least as tightly integrated today as they were in 2007, if not more so.¹⁶⁰ Commenters have shown that this is true for other broadband platforms as well.¹⁶¹

Second, reclassification would disrupt well-established reliance interests. When the Commission classified mobile broadband as an integrated information service more than seven years ago, it explained that “[t]hrough this classification, we provide the regulatory certainty needed to help spur growth and deployment of these services.”¹⁶² That regulatory certainty worked, and the record shows that as a result, America’s wireless companies “invested hundreds of billions of dollars in their networks in reasonable reliance on their Title I status.”¹⁶³

¹⁵⁹ See CTIA Comments at 44; TechFreedom Comments at 60; see also T-Mobile Comments at 19-20; Mobile Future Comments at 12-15.

¹⁶⁰ See T-Mobile Comments at 20; Verizon Comments at 44 (“For example, mobile providers may use sophisticated queuing and scheduling algorithms that send more packets to users during times when the ‘signal-to-noise’ ratio is high and fewer packets when that ratio is low.”).

¹⁶¹ See AT&T Comments at 48 (“[T]he data-processing and transmission components of today’s broadband Internet access services are now even more functionally integrated.”); CenturyLink Comments at 42 (“[I]t is clear that, for CenturyLink’s BIA service offerings as well as those of other providers, the consumer perceives the finished product to be an integrated broadband Internet access product and not a separate transmission service.”); Verizon Comments at 57 (“Yet now, more than ever, broadband service is a tightly integrated service that cannot realistically be separated into distinct telecommunications and processing components.”); USTelecom Comments at 24, 27-28 (“[B]roadband Internet access services are even more functionally integrated today than when the Commission first considered the matter more than a decade ago. ...end users...are able to purchase a unitary service comprised of broadband transmission and data processing capabilities that include a host of features, functionalities, and content.”).

¹⁶² *Wireless Broadband Order*, 22 FCC Rcd at 5911 ¶ 27.

¹⁶³ TechFreedom Comments at 95; see also T-Mobile Comments at 12 (describing the “billions of dollars [mobile broadband providers] have invested in their networks”); GSMA Comments at 9 (same); Mobile Future Comments at 14 (same); AT&T Comments at 8 (same); Verizon Comments at 39 (same); see also TechFreedom Comments at 62 (noting that reclassification

Because mobile broadband transmission is at least as integrated with processing functionality today as it was in 2007, there is simply no factual predicate for reclassifying mobile broadband. And given carriers' well-established reliance interests, there is no showing that can satisfy the heightened level of review needed to sustain the reclassification of mobile broadband services. Accordingly, because "wireless internet service ... is an 'information service,'" mobile broadband providers remain "statutorily immune ... from treatment as common carriers."¹⁶⁴

C. Mozilla's Proposal to Identify a "Service" Provided by a Broadband Provider to an Edge Provider, and Subject that Service to Common Carrier Mandates, Is Unlawful and Arbitrary.

Perhaps recognizing the infirmities of reclassifying Internet access services generally, Mozilla has sought to invoke common carrier mandates in other ways that are equally problematic. Under its proposal, Mozilla would carve a new "transport" service out of Internet access services provided by broadband companies to edge providers (*e.g.*, websites and other providers of online content or services, as distinguished from end users), and subject this newly discovered "service" – whether provided by fixed or mobile broadband providers – to Title II regulation.¹⁶⁵ As discussed below, mobile providers of any such edge transport service cannot be subject to common carrier treatment because the service is neither a telecommunications service nor CMRS. In any case, the FCC should not be drawing artificial lines within the Internet that neither engineers nor end users recognize. The "service" that broadband providers

"might be considered a regulatory taking" given the hundreds of billions of dollars invested in mobile data networks "on the understanding that these were not common carrier services").

¹⁶⁴ *Cellco*, 700 F.3d at 538 (emphasis omitted).

¹⁶⁵ See Mozilla Comments at 3-4, 9-12, 23-25 (*citing* Mozilla Petition to Recognize Remote Delivery Services in Terminating Access Networks and Classify Such Services as Telecommunications Services Under Title II of the Communications Act, GN Docket Nos. 09-91, 14-28, WC Docket No. 07-52 (filed May 5, 2014)); *see also* CDT Comments at 20-22; City of Los Angeles, California Comments at 16-17.

provide is broadband Internet access. That service is provided to their end users, and it *includes* the carriage of edge-provider content to those end users. Thus, the Commission’s existing classification of broadband Internet access service subsumes the category Mozilla identifies.

First, as commenters point out, any “service” provided by broadband providers to edge providers cannot be deemed a “telecommunications service.”¹⁶⁶ “Telecommunications service” means “the offering of telecommunications for a fee directly to the public,”¹⁶⁷ and “telecommunications” means “the transmission, between or among points specified by the user, of information of the user’s choosing, without change.”¹⁶⁸ Broadband providers are not offering “telecommunications” to edge providers, however, because edge providers do not specify the points of a transmission; rather, the broadband provider’s end user customer does that.¹⁶⁹ Thus, “[b]ecause the ‘user’ referred to in the statute is the end user, broadband providers would not be offering ‘telecommunications’ to edge providers.”¹⁷⁰ And even if the “service” at issue were telecommunications, it would not be a “telecommunications service,” because telecommunications services must, by definition, be provided “for a fee.” As Charter explains, “[b]roadband ISPs do not provide a service ‘for a fee directly to the public’ when they carry downstream traffic from edge providers to their end users.”¹⁷¹

Second, Mozilla’s proposal would not address the limitations in Section 332 discussed above: Even if one were to accept the notion that mobile broadband providers provide a distinct

¹⁶⁶ See Charter Comments at 19-20; Comcast Comments at 64; USTelecom Comments at 35-38.

¹⁶⁷ 47 U.S.C. § 153(53).

¹⁶⁸ *Id.* § 153(50).

¹⁶⁹ See USTelecom Comments at 37-38.

¹⁷⁰ *Id.* at 38.

¹⁷¹ Charter Comments at 19.

service to edge providers, it surely is not CMRS. That is, even assuming a separate edge transport service exists, that service is not “interconnected” – it neither enables communications with “all other users” on the public switched network nor relies on the NANP.¹⁷² Thus, the provision of any edge transport services by mobile broadband providers would still be deemed PMRS, and cannot be subject to common carrier regulation under Section 332(c)(2).

More fundamentally, the record shows that the arbitrary lines Mozilla seeks to draw between service to an edge provider and service to the end user do not exist in the real world. As Verizon explains, Mozilla’s proposal “hypothesize[s] a separate transmission service offered to edge providers” that does not exist and “mischaracterize[es] the services that providers actually offer to the public.”¹⁷³ In fact, the two “components” are functionally integrated: “the content provider’s response to the subscriber’s request for data is ‘part and parcel’ of ‘a single, integrated offering’ to the end user because broadband Internet access service could not function without the transmission of data back from the edge provider.”¹⁷⁴ Indeed, from the end user’s perspective, “it would be anomalous to describe an Internet transaction as involving two separate components because the entire transaction begins and ends with the initial request submitted by the end user.”¹⁷⁵ Given these realities, regulators must not create artificial distinctions within the Internet that neither engineers nor end users understand.

¹⁷² See *Wireless Broadband Order*, 22 FCC Rcd at 5916-18 ¶¶ 41-45.

¹⁷³ Verizon Comments at 63.

¹⁷⁴ USTelecom Comments at 32-33; see also *Brand X*, 545 U.S. at 990 (“It is common usage to describe what a company ‘offers’ to a consumer as what the consumer perceives to be the integrated finished product, even to the exclusion of discrete components that compose the product.”).

¹⁷⁵ USTelecom Comments at 33.

VI. CONCLUSION

The Commission should refrain from imposing additional prescriptive Open Internet rules on mobile broadband providers, which would only undermine the very consumer experience the Commission is trying to protect. Mobile networks are different than fixed and require more flexibility for network management and for innovative offerings, making mobile-specific, Title I-based rules appropriate – and necessary.

Respectfully submitted,

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