

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

In the Matter of)	
)	
Preserving the Open Internet)	GN Docket No. 09-191
)	
Broadband Industry Practices)	WC Docket No. 07-52

COMMENTS OF PUBLIC INTEREST COMMENTERS

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Media Access project, as counsel to the Benton Foundation, Center for Media Justice, Consumers Union, New America Foundation, and Public Knowledge (collectively “Public Interest Commenters” or “PIC”), respectfully submits these comments in response to the *Public Notice* released by the Commission’s Wireline Competition Bureau and Wireless Telecommunications Bureau in the above-captioned dockets.¹ Public Interest Commenters respectfully suggest that the two issues set forth for comment in the *Public Notice*—the treatment of “specialized services” and the application of Open Internet rules to mobile wireless platforms—are not “under-developed,” as these questions already have been raised and discussed in this proceeding. Nevertheless, Public Interest Commenters welcome this opportunity to recount briefly their prior positions, explaining herein that specialized services must be a limited category (if recognized by the Commission at all) and that mobile wireless broadband networks must be protected by Open Internet rules.

¹ “Further Inquiry Into Two Under-Developed Issues in Open Internet Proceeding,” GN Docket No. 09-191, WC Docket No. 07-52, *Public Notice*, DA 10-1667 (rel. Sept. 1, 2010) (“*Public Notice*”).

INTRODUCTION AND SUMMARY

The Public Interest Commenters have answered the questions set out for comment in the *Public Notice*, not only in their respective filings in the initial and reply comment rounds in these dockets,² but also in the Commission's "Third Way" Broadband Framework proceeding³ with their respective initial and reply comments filed in that separate docket.⁴ As they explained in greater detail in those proceedings, the Public Interest Commenters here reiterate the need for the Commission to treat broadband providers requests for various "specialized service" exemptions with care, as well as the fundamental need for the Commission to apply the same regulatory framework and same Open Internet principles to wired and wireless networks.

For instance, with regard to specialized services, the Public Interest Commenters have shown that this potential category of services is undefined at present, and suggested that the Commission initiate a separate proceeding to consider the scope of the category in greater

² See Comments of Center for Media Justice, Consumers Union, Media Access Project, New America Foundation, and Public Knowledge, GN Docket No. 09-191, WC Docket No. 07-52 (filed Jan. 14, 2010) ("PIC Open Internet Comments"); Comments of New America Foundation, Columbia Telecommunications Corporation, Consumers Union, Media Access Project, and Public Knowledge, GN Docket No. 09-191, WC Docket No. 07-52 (filed Jan. 14, 2010) ("NAF/CTC Comments"); Reply Comments of Center for Media Justice, Consumers Union, Media Access Project, and New America Foundation, GN Docket No. 09-191, WC Docket No. 07-52 (filed Apr. 26, 2010) ("PIC Open Internet Reply Comments"); Reply Comments of Public Knowledge, GN Docket No. 09-191, WC Docket No. 07-52 (filed Apr. 26, 2010) ("Public Knowledge Open Internet Reply Comments").

³ In the Matter of Framework for Broadband Internet Service, GN Docket No. 10-127, *Notice of Inquiry*, 25 FCC Rcd 7866, FCC 10-114 (rel. June 17, 2010).

⁴ See Comments of Public Knowledge, GN Docket No. 10-127 (filed July 15, 2010) ("Public Knowledge Broadband Framework Comments"); Comments of Center for Media Justice, Consumers Union, Media Access Project, and New America Foundation, GN Docket No. 10-127 (filed July 15, 2010) ("PIC Broadband Framework Comments"); Reply Comments of Public Knowledge, GN Docket No. 10-127 (filed Aug. 12, 2010) ("Public Knowledge Broadband Framework Reply Comments"); Reply Comments of Center for Media Justice, Consumers Union, Media Access Project, and New America Foundation, GN Docket No. 10-127 (filed Aug. 12, 2010) ("PIC Broadband Framework Reply Comments").

depth.⁵ Most importantly, the Public Interest Commenters have indicated that the Commission must not recognize too broad or poorly defined a category of specialized services, so as to “avoid creating an open-ended and undefined exception” to the Open Internet rules it ultimately will adopt in the instant proceeding.⁶ Public Interest Commenters offered some suggestions for the parameters of specialized services in their initial comments in these dockets, explaining for example that any such services should be regulated on the basis of their functions and the offering made to users, not the technology used to offer these services.⁷ The comments that follow provide additional such suggestions and definitional rules. It remains the case, however, that no proponent of specialized service offerings has made anything approaching a compelling and comprehensive case regarding the precise definition or scope of these types of services, a category that seems at best a catchall and at worst a clear attempt to evade Open Internet protections. While it is abundantly clear what specialized services must *not* be—neither a route to avoid Commission rules for broadband Internet access, nor otherwise to replicate, degrade, or retard the growth of broadband Internet access—it is not at all clear what specialized services themselves might be, or even what parties calling for the recognition of such services truly intend them to be. For these reasons, Public Interest Commenters remain convinced that the Commission should conclude the instant proceeding by adopting robust Open Internet rules, and only then consider the question of specialized services in a subsequent proceeding should that prove necessary.

⁵ See, e.g., PIC Open Internet Comments at 32-35; see also Comments of Free Press, GN Docket No. 09-191, WC Docket No. 07-52, at 6 (filed Jan. 14, 2010) (“Free Press Comments”).

⁶ PIC Open Internet Comments at 32.

⁷ See *id.* at 33 (answering contention that specialized services might include voice and video subscription services by noting that the Commission should regulate a managed telephony service under Title II as a common carrier service, and that it should regulate a provider of video subscription services under Title VI as a multichannel video programming distributor).

With regard to the need for common Open Internet principles that apply with equal force to both wireline and wireless broadband Internet access networks, the Public Interest Commenters have written at great length both in this proceeding and the Broadband Framework proceeding. For instance, their earlier submissions in these dockets have explained that “[t]he legal justification for the open Internet rules is platform agnostic, and the definition of broadband Internet access services should indeed include wireline and wireless services,” because “[t]he attributes of broadband Internet service hold true regardless of the platform used to deliver access to customers.”⁸ The Public Interest Commenters consistently have recognized that what constitutes “reasonable network management” on different platforms may indeed depend on the legitimate technological characteristics of such networks.⁹ Public Interest Commenters also have submitted an engineering report concluding “that nothing about the technology of today’s 3G and emerging 4G wireless data networks would preclude compliance with the Commission’s six proposed Open Internet policy principles.”¹⁰ Thus, whatever the distinctions between different networks and network architectures, it is imperative that the same principles and rules apply to wired and wireless networks alike.

As described above, the Public Interest Commenters have noted the need for this type of consistent approach from a legal standpoint, in light of the fact that there can be no meaningful legal distinction between types of broadband Internet access service merely on the basis of the

⁸ *Id.* at 18.

⁹ *See id.*; *see also* PIC Open Internet Reply Comments at 5, 22; PIC Broadband Framework Comments at 23; PIC Broadband Framework Reply Comments at 30.

¹⁰ NAF/CTC Comments at 6.

technology used to offer the service;¹¹ and have highlighted the reality that distinctions between wired and wireless broadband Internet access are greatly diminished as cognitive devices access “hybrid” networks and move seamlessly from mobile wireless networks one moment to WiFi and other wireless LAN networks the next.¹² Public Interest Commenters have demonstrated the importance of preserving the openness of mobile wireless broadband Internet access platforms for the sake of protecting consumer expectations and experiences in such an environment,¹³ as well as the importance of uniform principles for preventing the creation of a new and pernicious digital divide that would arise from unequal application of Open Internet rules to wireless networks.¹⁴

¹¹ See Public Knowledge Broadband Framework Comments at 28-30; Public Knowledge Broadband Framework Reply Comments at 20; PIC Broadband Framework Reply Comments at 31.

¹² See, e.g., PIC Open Internet Reply Comments at 22-23; PIC Broadband Framework Comments at 24-25; NAF/CTC Comments at 4.

¹³ See, e.g., PIC Open Internet Reply Comments at 22-26; PIC Broadband Framework Comments at 21 (“[T]o ensure that users of wireless broadband Internet connectivity service have the same protections, experiences, and functionalities as users of wired services, it is critical that the Commission be consistent regarding its oversight authority for all forms of broadband Internet connectivity service.”).

¹⁴ See PIC Open Internet Reply Comments at 20-21; see also PIC Broadband Framework Comments at 21-23.

While access to the Internet through a wireless device is not a solution to closing the digital divide completely, access to the wireless ecosystem represents a critical first step in helping to close that divide and providing a means for communication. The numbers indicate that wireless devices are increasingly used for Internet access, especially by people in communities of color. Yet, if these communities are to take full advantage of the opportunities afforded to them on the Internet, the Commission must not eliminate protections nor create different sets of rules for broadband Internet users that connect to the Internet wirelessly. Such a decision would relegate mobile broadband users to second-class Internet citizenship.

Id. at 23.

Finally, the Public Interest Commenters likewise have explained in this proceeding and the Broadband Framework proceeding that the Commission can and should reclassify broadband Internet access as a telecommunications service subject to the provisions of Title II of the Communications Act.¹⁵ Doing so would establish a more sound legal basis for protecting Internet users and innovation, and Public Interest Commenters therefore maintain that the Commission should undertake to conclude its Broadband Framework proceeding either prior to or simultaneously with actions to promulgate strong and meaningful Open Internet rules here.

Once the Commission proceeds to adopt Open Internet rules, the robust record developed in this proceeding contains definitive answers to many of the questions presented by the *Public Notice*. In response to the specific inquiries in the *Public Notice*, Public Interest Commenters illustrate once more in the comments that follow the need for caution before carving out any overbroad exemptions for so-called specialized services, as well as the need to apply the same Open Internet principles to mobile wireless broadband platforms with respect to the specific questions regarding transparency, devices, and applications raised in the *Public Notice*.¹⁶

I. The Commission Should Refrain from Adopting a Definition of Specialized Services on the Basis of the Record in This Proceeding, But In Any Event Must Ensure That a Specialized Service Exception Does Not Swallow the Open Internet Rules.

As the Public Interest Commenters have noted in their previous submissions in these dockets, the Commission should not define or classify specialized services in this proceeding.¹⁷ To date, no one has offered a clear and comprehensive definition of “specialized services,” as the

¹⁵ See, e.g., PIC Open Internet Comments at 15-17; PIC Open Internet Reply Comments at 30-34; Public Knowledge Open Internet Reply Comments at 1-4; PIC Broadband Framework Comments at 14-15; Public Knowledge Broadband Framework Comments at 5-6.

¹⁶ See *Public Notice* at 5.

¹⁷ See PIC Open Internet Comments at 32-35.

questions posed in the *Public Notice* itself demonstrate.¹⁸ Thus, there is considerable uncertainty regarding the types of services that actually would fall under this category, coupled with ambiguity regarding the scope of any such services. Broadband Internet access service providers have thus far presented little if any information suggesting valid technical reasons that potential candidates for specialized services treatment (such as remote health monitoring or distance learning) must be offered as separate services rather than made available over broadband Internet access service. Moreover, making such applications and functionalities available on the open Internet should give users of such services access to any number of competing applications, rather than allowing access only to those approved by the network operator.

Nothing in the Open Internet rules proposed by the Commission and supported by the Public Interest Commenters would preclude providers from offering a broadband Internet access service with service level agreements (“SLAs”) for latency, packet loss, or other legitimate technical factors that could affect delivery of such applications on an open Internet platform. Broadband Internet access providers already enter into SLAs with enterprise customers, and such agreements could be utilized—on a nondiscriminatory basis—by any end-user to improve performance for all latency sensitive applications such as VoIP, gaming, and others.¹⁹ However, there has been a clear attempt by certain broadband Internet access providers to conflate the issues surrounding specialized services with standard industry practices such as enterprise

¹⁸ See *Public Notice* at 3 (defining specialized services only as services that are *not* broadband Internet access, and suggesting that the Commission could address the implications of specialized services “if and when such services are further developed in the market”).

¹⁹ For an example of an SLA applicable to Internet access service, see AT&T Service Level Agreement at <http://dedicated.sbcis.sbc.com/NDWS/sla/methodology.jsp> (visited Oct. 12, 2010).

customers' ability to make choices through DiffServ.²⁰ These broadband Internet access providers have claimed incorrectly that DiffServ protocols specifically contemplate allowing “paid prioritization” of specific Internet content and applications on the open Internet or in a specialized services context.²¹

The Public Interest Commenters believe these conflated claims only serve to reinforce concerns that broadband Internet access providers will attempt to deploy specialized services that would not be distinct transmission services reserved solely for latency-sensitive applications. Rather, such providers may intend to evade the Commission's rules and make specialized services into nothing more than a stripped-down replica of the Internet—a “pay to play” prioritized platform for discriminatory distribution of content in the absence of protections that otherwise would apply under the proposed Open Internet rules.²² In other words, specialized services could indeed be used to bypass Open Internet rules and prioritize certain types or sources of content if loopholes in the definitions of these various services allow for such anticompetitive and innovation dampening behavior.²³

²⁰ See, e.g., Letter from Robert W. Quinn, Jr., Senior Vice President, AT&T Services, to Marlene Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 10-127, 09-191 (filed Sept. 15, 2010).

²¹ See Letter from Josh King *et al.*, New America Foundation Open Technology Initiative, to Ms. Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 10-127, 09-191 (filed Sept. 1, 2010); Letter from Josh King *et al.*, New America Foundation Open Technology Initiative, to Ms. Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 10-127, 09-191 (filed Sept. 21, 2010) (“AT&T's continuing effort create confusion on these issues is exactly why explicit and enforceable Commission rules are needed to protect the open Internet and ensure that it remains an open platform for innovative commercial and non-commercial services and applications.”).

²² See Comments of CDT, GN Docket No. 09-191, WC Docket No. 07-52 (January 24, 2010).

²³ See *Public Notice* at 2-3 (summarizing concerns that improper recognition of a category of specialized services could allow providers to bypass Open Internet protections and engage in unreasonably discriminatory and anticompetitive conduct).

As the *Public Notice* also recognizes,²⁴ and as the Public Interest Commenters²⁵ and others²⁶ have asserted, there is also the risk that carriers will prioritize bandwidth for their specialized services rather than bandwidth for Internet access over shared broadband infrastructure.²⁷ If permitted, such prioritization of capacity would systematically degrade and inhibit the growth and development of the open Internet, supplanting the open platform that drives innovation and commerce today with a closed and discriminatory network.²⁸ For the same reasons, broadband providers may have every incentive to under-invest in upgrading the capacity of broadband Internet access relative to the capacity available for their specialized services. The Commission cannot ignore these risks to maintaining a flourishing and innovative Open Internet.

To avoid creating an open-ended and undefined exception to the Open Internet rules, Public Interest Commenters strongly urge the Commission not to make any determination with respect to specialized services in this proceeding, and rather to initiate a separate proceeding after the conclusion of the Open Internet proceeding to consider defining specialized services as offerings that would not replicate, replace, or retard the growth of broadband Internet access. Should the Commission choose to address specialized services within this proceeding, however, it should not recognize “specialized services” as a separate regulatory category outside of Title II

²⁴ *See id.* at 2-3 (summarizing concerns that specialized services could supplant the open Internet or create incentives for providers to invest less in expanding the network capacity allocated to broadband Internet access).

²⁵ *See* PIC Open Internet Comments at 33-35.

²⁶ *See* Comments of the Center for Democracy & Technology, GN Docket No. 09-191, WC Docket No. 07-52, at 46-49 (filed Jan. 24, 2010).

²⁷ *See id.* at 49 (“[A] network operator could devote the bulk of its maintenance and capacity upgrade resources to specialized services, while allowing the Internet access services to lag. It could build up its specialized services to provide substitute offerings for the...functions Internet users expect today.... The risk here is of gradual erosion.”); *see also* Free Press Comments at 109.

²⁸ *See* PIC Open Internet Comments at 32-35; Free Press Comments at 109.

and Title VI, as doing so would undermine its authority to protect consumers and the open Internet. Therefore, the Commission should recognize the fundamental transmission character of specialized services, and treat them as Title II or Title VI services as appropriate, while retaining the option to forebear from specific provisions in Title II that are not necessary to protect consumers, promote the public interest, and ensure just and reasonable service.

Furthermore, the Commission should not allow providers to bundle Internet access and specialized services together, nor to market specialized services as part of a consumer's general broadband Internet access service subject to whatever capacity caps the provider may impose. Instead, and as indicated above, just as cable operators do with their voice over IP services, and as AT&T and other IPTV providers do with their IPTV services, all broadband Internet access providers should segregate these services and market them separately, subject to the appropriate regulatory classification. The fact that these services use an IP-based delivery system should not alter the regulatory classification of these services under the Communications Act. To the contrary, the drafters of the Communications Act, as amended, went to great lengths to keep statutory definitions technologically neutral.²⁹ This shows that Congress intended the Commission to make particularized determinations about regulatory classification on a case-by-case basis rather than issue blanket determinations about vague, undefined categories.³⁰

²⁹ See 47 U.S.C. §§ 153(43) (definition of telecommunications); 522(7) (definition of cable system); 522(13) (definition of multichannel video programming distributor).

³⁰ AT&T's IPTV service provides a clear example of why the Commission should make determinations with regard to specialized services on a case-by-case basis rather than attempting to craft blanket rules because broadband Internet access providers may use the same system to offer multiple services. AT&T has demanded that the Commission provide its IPTV service access to video programming under the "program access" rules. See, e.g., *AT&T Services, Inc. v. CoxCom, Inc.*, CSR-8066-P, *Memorandum Opinion and Order*, 24 FCC Rcd 2859 (Med. Bur. 2009). PEG programmers and local governments have petitioned the FCC to clarify AT&T's PEG obligations on this same service. See, e.g., *Entities File Petitions for Declaratory Ruling Regarding Public, Educational, and Governmental Programming*, MB Docket No. 09-13, *Public*

In light of the foregoing, and pursuant to its authority generally to regulate transmission services as Title II offerings, the Commission should clarify (if it makes any determinations here) that specialized services typically would be subject to nondiscrimination requirements, and should take additional and concrete steps to prevent specialized services from serving as a loophole for open Internet rules. If it chooses to adopt any general rules for specialized services at this time, the Commission should make clear that:

1. Broadband Internet access service providers may not offer as “specialized services” any service that replicates the functionality of the Internet.
2. Specialized services may not reduce the amount of or otherwise degrade the bandwidth available for broadband Internet access service.
3. Broadband Internet access service providers may not “bundle” specialized services together with broadband Internet access service, nor market any such specialized service in a manner that indicates it is equivalent to, or a substitute for, broadband Internet access service.
4. Providers offering specialized services should be required to report annually to the Commission how much bandwidth they allocate to broadband Internet access service and to specialized services.

To the extent that a specialized service does not meet these strict definitional requirements, it should not be exempted from Open Internet rules. Further, to monitor the level of investment in broadband Internet access services relative to specialized services, the Commission should annually evaluate and report on specialized services, including their effects on the bandwidth available for broadband Internet access service and on Internet content, applications, and services.

Notice, DA 09-203 (Med. Bur. Rel. Feb. 6, 2009). Had the Commission decided first to craft any blanket exemptions for “specialized services,” it might have been unable to address these issues regarding a service that clearly should be subject to Title VI of the Act.

II. The Commission Must Apply the Same Open Internet Principles to Wired and Wireless Networks, Allowing for Different Network Management Practices Only to the Extent Justified by Legitimate Technical Differences Distinctions.

A. Standardized disclosures and transparency rules should apply to all broadband Internet access services.

With increasing mobile broadband adoption comes the increased need to improve transparency for mobile wireless broadband services, including improved disclosures for the true cost of those services, their performance, and their coverage. Existing disclosures available to consumers, regulators, researchers, and innovators is minimal at best, and often provide little meaningful information. Often, information is only available from the carriers themselves, or from high-priced third-party commercial analysts who develop their own proprietary information, meaning that the only realistic way for the Commission to ensure user access to truthful information is to require disclosures by the broadband Internet access service providers themselves.³¹ There should be no requirement for broadband providers to reveal sensitive facts or details that legitimately would compromise network security if disclosed. Yet, the inconsistent nature of present disclosures, and frequent lack of transparency for basic and essential pricing and performance information, provides too many openings for harmful provider practices based on invalid or ambiguous contract terms and marketing language. For this reason, *all* broadband Internet access service providers should be required by Commission rule to disclose in a meaningful format a standardized list of details about their service offerings. The “Broadband Truth-in-Labeling” disclosure format proposed for ISPs by New America Foundation and others would make broadband services more transparent, thereby spurring

³¹ See, e.g., PIC Open Internet Reply Comments at 19-20.

broadband competition, increasing innovation, improving consumer welfare, and ensuring healthy development in future broadband technology.³²

Furthermore, to continue and broaden its existing efforts aimed at deploying a coordinated and comprehensive measurement program to collect data on broadband performance over wireline networks, the Commission should expand this effort to mobile wireless broadband networks as well. Consistent with the Commission's obligation under Section 706(b) of the Telecommunications Act of 1996, 47 U.S.C. § 1302(b), data collected regarding mobile broadband offerings will help the Commission to evaluate more accurately the state of mobile advanced services offered to the American public. Taken together, these efforts will bring much-needed transparency to the broadband marketplace, empower consumers, spur research and innovation, and improve public policy.³³

B. The Commission should adopt “wireless Carterfone” principles and other rules necessary to ensure that users have the right to attach non-harmful devices to mobile wireless broadband networks.

While they have succeeded in adding mobile wireless broadband and data subscribers, wireless carriers are nonetheless stifling innovation through policies designed to control mobile device product design. Such controls would appear absurd in the traditional wired telephony market, which for decades has been guided by successful *Carterfone* rules that spur innovation and economic growth while increasing the public's ability to benefit from their use of services. Thus, Public Interest Commenters reiterate their request that the Commission adopt Open Internet rules permitting mobile wireless broadband users to attach any non-harmful device to

³² See New America Foundation's "Broadband Truth-in-Labeling," available at http://www.newamerica.net/publications/policy/broadband_truth_in_labeling.

³³ See New America Foundation Comments, CG Docket No. 09-158, CC Docket No. 98-170, WC Docket No. 04-36 (filed May 4, 2010).

their broadband provider's network,³⁴ with such rules designed to eliminate carrier and mobile device manufacturer policies and designs that prohibit such beneficial user choices. Even if mobile wireless broadband Internet providers and device manufacturers nominally allow customers to attach devices to the network and then modify those devices, such products may include an array of device- and feature-crippling overrides that can block or otherwise prevent customers' use of all manner of lawful devices, applications, and content. Such overrides can and do include features that prevent device owners from making permanent changes and custom modifications to the Android operating system.³⁵ Other "features" of mobile wireless devices may prevent users from accessing lawful and non-harmful applications except when on certain types of networks,³⁶ along with a wide array of controls that prevent certain so-called "foreign" devices from attaching to carriers' networks even when such uses are non-harmful.³⁷

³⁴ See PIC Open Internet Reply Comments at 24-26; NAF/CTC Comments at 6.

³⁵ See T-Mobile Press Release, "Code-Level Modifications to the G2" (rel. Oct. 7, 2010), available at <http://press.t-mobile.com/articles/t-mobile-G2-code-level-modifications>:

The HTC software implementation on the G2 stores some components in read-only memory as a security measure to prevent key operating system software from becoming corrupted and rendering the device inoperable. There is a small subset of highly technical users who may want to modify and re-engineer their devices at the code level, known as "rooting," but a side effect of HTC's security measure is that these modifications are temporary and cannot be saved to permanent memory. As a result the original code is restored.

³⁶ See Rob Pegoraro, "Skype (sort of) available for non-Verizon Android phones," Wash. Post (Oct. 5, 2010), available at http://voices.washingtonpost.com/fasterforward/2010/10/skype_sort_of_available_for_no.html (noting that Skype users with Android devices in the United States are only allowed to place calls using Skype on WiFi connections or on Verizon's 3G network, based on limitations imposed by wireless carriers).

³⁷ See Tim Wu, "Wireless Net Neutrality: Cellular Carterfone and Consumer Choice in Mobile Broadband," New America Foundation Working Paper (Feb. 15, 2007), available at http://www.newamerica.net/publications/policy/wireless_net_neutrality.

The Commission could adopt a “glide path” for implementation of wireless *Carterfone* rules to allow for a smooth transition.³⁸ At the end of that transition period, however, the basic consumer protection policies inherent in the *Carterfone* approach and made available to consumers connecting to wireline networks should also protect consumers when they choose to connect to a mobile wireless network. Therefore, while the Commission should require mobile wireless broadband Internet access service providers to permit consumers to use any non-interfering or non-harmful equipment capable of connecting to their respective mobile networks, the Commission could set a short and definitive timeframe for ultimately reaching this “Any Device” regulatory regime—one that would foster a consumer-driven mobile marketplace similar to the markets for wireline broadband networks and the computers that attach to them. For these reasons, the Commission should adopt the following rules:

- a. Network carriers should be required to allow the registration of non-carrier-affiliated mobile devices;
- b. The Commission should ensure compatibility and interoperability by creating a standard interface for mobile networks;
- c. The Commission should consider adopting requirements that would impose separation between the purchase of wireless service and purchase of a mobile device; and
- d. The Commission should prohibit mobile wireless broadband Internet service providers and manufacturers from continuing to:
 - i. lock mobile devices to single networks
 - ii. restrict the type of applications that can operate on the devices and on the networks
 - iii. limit the types of peripherals and outside devices that can connect to approved devices
 - iv. restrict how devices can be used on other provider networks³⁹

³⁸ See NAF/CTC Comments at 6.

³⁹ See *id.*

Finally with respect to devices, the Commission should address interconnection issues, building on a long history and national policy of ensuring the compatibility and interoperability of equipment and services. The Commission has for decades ensured that telephone equipment would operate seamlessly with the telephone network under the *Carterfone* rules.⁴⁰ Similarly, both Congress and the Commission require television sets to be compatible with broadcast and cable television signals, and the Commission's application of *Carterfone* rules to cable set-top boxes was, even according to the National Cable & Telecommunications Association, "intended to spark a retail market for independent devices that can access cable's upgraded networks."⁴¹

The Commission intended all these requirements to allow consumers to benefit from competition and a diversity of media and technology sources; they all have succeeded, in varying degrees, with the more successful outcomes stemming from situations in which the Commission has more successfully implemented standardized connection rules. For the same reasons, the Commission should establish service rules for two-way broadband services to ensure that mobile wireless broadband providers do not discriminate against non-harmful unaffiliated devices, nor against the lawful applications, services, and content that users can access on such devices. Moreover, the Commission should adopt as part of its Open Internet rules a requirement that providers will be subject to any interoperability standards later adopted to facilitate consumer choice and open networks by creating an interface comparable to the standard phone jack that derived from the *Carterfone* policies.⁴²

⁴⁰ See *Carterfone*, 13 FCC 2d 420 (1968) (subsequent history omitted).

⁴¹ See National Cable & Telecommunications Association, "2007 Industry Overview: Competition Works, Consumers Win," at 11 (2007).

⁴² See, e.g., Comments of the *Ad Hoc* Public Interest Spectrum Coalition, WT Docket No. 06-150, PS Docket No. 06-229, WT Docket No. 05-211, WT Docket No. 96-86, at 26 (filed May 23, 2007) (suggesting same requirement for 700 MHz service rules).

C. *The Commission should recognize with respect to applications that wireless data infrastructure differs from wired infrastructure only at a lower architectural layer than that at which applications operate.*

1. Convergence illustrates the irrationality of bright-line distinctions between wired and wireless platforms.

Long Term Evolution (“LTE”), the emerging next generation 4G data network standard, is flattening out the architecture of the mobile wireless Internet. As shown with tests using the newest pre-release Cisco network hardware, cellular networks of the next five years will be almost entirely IP-based, with everything above the actual radio on the tower indistinguishable from any other IP network.⁴³ Thus, in the case of cellular infrastructure, the network and application layers are being pushed further and further towards the physical layer.

The market is moving this trend forward, as the ability to use standardized enterprise-grade network hardware reduces the operational costs for the network providers. Accordingly, even as 4G technologies enter their deployment phases on provider networks globally,⁴⁴ current 3G and 3.5G networks are incorporating IP-based networking closer and closer to the edges of their infrastructure⁴⁵ in order to improve performance and drive down expenses associated with running specialized equipment. As these widespread developments become universal over a relatively short timescale, it becomes increasingly apparent that wireless and wireline networks continue rapidly to converge, and that any claimed necessity for applying different management standards to the two types of networks bears little relation to any physical differences between these systems, which differences will continue rapidly to decrease over time.

⁴³ “Testing Cisco’s Mobile Core, Data Center & Business Services” (Sept. 7, 2010), *at* http://www.lightreading.com/document.asp?doc_id=196419.

⁴⁴ Mark Sullivan, “Verizon Wireless Brings 4G Wireless to 39 US Cities By Year-End,” *PC World* (Oct. 6, 2010), *available at* http://www.pcworld.com/article/207105/verizon_wireless_brings_4g_wireless_to_39_us_cities_by_yearend.html.

⁴⁵ “Pseudo-wire, TDMoIP, or VoIP – Which should you choose?” (Dec. 7, 2006), *available at* http://www.uriunplugged.com/2006/12/pseudowire_tdmop_or_voip_whic_1.html.

As this convergence continues at the network layer, it continues for the end-user as well. Today's consumer of Internet services exists in a world of increasing overlap between mobile wireless broadband and more traditional networked computing infrastructure. The newest smartphones are true mobile computers, with features and computational abilities to rival common laptop and desktop form-factors. Conversely, many netbooks and tablets run operating systems like Android and iOS, which conventionally were utilized for smartphone platforms. Major providers like AT&T, T-Mobile and Verizon provide attachment dongles that allow their networks to be utilized by any computing device with a USB port, and there are large numbers of laptops and netbooks with so-called "WWAN" cards that integrate the computer directly with the cellular network.⁴⁶ Computers and devices packaged in this fashion offer multiple forms of connectivity, such as ethernet and WiFi. Manufacturers and carriers tout them for their ability to utilize surrounding points of connection opportunistically, whether those are cellular connections or ethernet plugs. Users' willingness to use their devices in this opportunistic fashion suggests they are most interested in using the Internet, not in connecting to a carrier specific data service, and that users do not discriminate between the different connection methods they use to access it.

Thus, Internet technologies are converging with the cellular networks both at the network core and at the end-user devices. As the Internet pushes in from both the center of the network and the edges, it is increasingly a narrow and shrinking layer that differentiates between the two. Insofar as a network is defined by the technologies it utilizes and the fashion in which those technologies are applied, any attempt to differentiate broadly between wireless and wireline systems with respect to Open Internet rules would be tantamount to bifurcating the infrastructure

⁴⁶ See "Global sales of built-in 3G modules to exceed plug-type data cards in three years, say sources," Digitimes (Mar. 19, 2010), *available at* <http://www.digitimes.com/news/a20100319PB201.html>.

into two completely separate spheres. Given the ideals of the Internet as an open, standards-based, end-to-end system, this would be a problematic notion under the best of circumstances. But the fact that the fundamental differences between wireless and wireline are small and rapidly disappearing makes such suggestions even less defensible.

2. Nondiscriminatory, transparent network management from the network layer to the application layer will mitigate concerns about congestion without resorting to application blocking.

Advertised network capacity on a mobile data network is rarely an accurate reflection of true network capacity across the aggregate of users. Through the process of overselling, carriers build their networks towards the specification of what they consider to be average rather than peak throughput. However, as streaming data applications like VoIP and video become more prevalent, data usage is outpacing the traditional scale of overselling. A customer of a mobile network that is using streaming video within the advertised bandwidth of the network would not consider this an abusive behavior, but such a user runs the risk of being labeled a “bandwidth hog” by the carrier.⁴⁷ Despite the fact that capabilities like streaming video are driving the marketability of these devices, customers are told to blame those who actually utilize the advanced capabilities of the network for their slower-than-advertised speeds rather than the carriers themselves. Carriers use this as a justification for de-prioritizing the traffic of certain applications, but this is simply a way to obscure the fact that they are overselling their networks more than would allow them to keep up with customer demands.⁴⁸ Simply advertising the actual expected rates of the networks and disclosing the methodologies used to manage them would abate the concerns of users who are concerned with how their experience matches up with what is promised by the carrier.

⁴⁷ See NAF/CTC Comments at 54

⁴⁸ See *id.*

The same technologies that are used for application-discriminatory network management can be applied in nondiscriminatory ways. Carriers already impose on users bandwidth caps that do not discriminate on the basis of the traffic type, instead limiting the ability of high-usage customers to saturate the network. As carrier networks become more and more IP-based, the applications themselves become more capable of regulating their own bandwidth usage. Applications utilizing the TCP connection protocol smoothly scale their usage according to the available capacity of the network.⁴⁹ GSM cellular technology already contains the capacity to spread connections and load across multiple access points.⁵⁰ And as more advanced technologies push increased data connectivity they will additionally push smaller cell sizes, meaning fewer users per connection point and an easier task of distributing load across many cells, reducing the need for discriminatory network management practices.⁵¹

3. Network management arguments cannot be utilized to discriminate against applications that compete with carrier.

A call for application-discriminatory network management techniques by carriers opens the door for the network providers to privilege their own offerings in the space at the expense of their competitors. The effects of this clearly anti-competitive practice already appear in a number of areas, such as in the restriction of existing tethering functionality in favor of users paying for additional data lines and devices, and the restriction of VoIP technology to certain networks and applications.⁵² Third-party applications that are not harmful to the network must be allowed to connect in a nondiscriminatory fashion in order to maximize consumer choice, and

⁴⁹ See IETF RFC 3782 at 1; *see also* NAF/CTC Comments at 52-53.

⁵⁰ See NAF/CTC Comments at 49-50.

⁵¹ See *id.* at 60.

⁵² See Seth Weintraub, “Why Verizon and Skype’s backdoor deal hurts Android,” *Fortune* (Aug. 21, 2010), *available at* <http://tech.fortune.cnn.com/2010/08/21/why-verizon-and-skypes-backdoor-deal-hurts-android/>.

those same applications must not be considered harmful on the sole criteria of their use of a continuous stream of data.⁵³

CONCLUSION

For the foregoing reasons, the Commission should not make any determinations with regard to specialized services in this proceeding; but if it does, should adopt the guidelines set forth herein for preventing an ill-defined category specialized services from becoming an exception that swallows Open Internet rules. The Commission also should apply Open Internet rules to wired and wireless networks, recognizing that the same openness principles can and should apply to broadband Internet access services no matter the technology used to offer them. The Commission therefore should make clear that transparency rules apply to mobile broadband networks, and that users have the right to use non-harmful and applications on such networks.

Respectfully submitted,

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⁵³ See NAF/CTC Comments at 54-55.