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
	)	

REPLY COMMENTS OF THE CENTER FOR DEMOCRACY & TECHNOLOGY

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The Center for Democracy & Technology ("CDT") respectfully submits these reply comments in the above captioned proceedings regarding proposed rules to preserve the free and open Internet.[1] CDT is a nonprofit, public interest organization dedicated to preserving and promoting openness, innovation, and freedom on the decentralized Internet – a mission that closely tracks the Commission's goals for this proceeding. CDT submitted prior comments on the Commission's proposed openness rules on January 14, 2010.[2]

I. Introduction and Summary

Many opponents mischaracterize the Commission's effort in this proceeding as a move to "regulate the Internet," and go on to catalog numerous harms that could flow from this supposed reversal of longstanding federal policy towards Internet matters. Incredibly, many of the same opponents then turn around and ask the Commission to make this mischaracterization a reality, by extending any rules to cover the entire Internet ecosystem. The Commission should categorically reject both strands of argument. The Commission does not, should not, and indeed legally may not aim to regulate the Internet ecosystem generally in this proceeding.

Rather, the Commission should keep a steady focus on a limited but crucial goal: ensuring the preservation of robust offerings of the kind of basic Internet access that, because it gives network operators no role in picking winners and losers, creates a richly fertile environment for "innovation without permission." Given that goal, this proceeding need not entail any kind of ban on new business models or technical developments, as opponents seem to fear. Rather, the aim should be simply to ensure that new business models and technical innovations create additional options to ordinary Internet access, rather than replacing it or crowding it out.

Pursuing this moderate yet crucial goal need not depress investment, impair the effective operation of networks, forestall the offering of latency-sensitive applications, or carry any of the other dire consequences that opponents predict. Opponents' claims rest largely on the risk that Commission rules could be interpreted or implemented in overbroad and damaging ways, or that mere *uncertainty* regarding what the rules mean will have a broad chilling effect. The

[1] *See* Notice of Proposed Rulemaking, *Preserving the Open Internet*, GN Docket No. 09-191, WC Docket 07-52 (rel. Oct. 22, 2009) (hereinafter "NPRM").

[2] Comments of the Center for Democracy & Technology ("CDT Comments"), http://www.cdt.org/files/pdfs/2010_CDT_openness_comments.pdf.

Commission can best refute many arguments, therefore, by reinforcing the limited scope of the proceeding and by providing additional guidance to reduce uncertainty. With certain modifications to the proposed rules and with appropriate explanatory language, it should be possible for the Commission to make clear that its open Internet rules can serve their intended purpose while still leaving broadband providers with plenty of flexibility to address the various technical, practical, and business challenges cited in many comments. Indeed, CDT believes that many of the suggestions in our initial comments would, if adopted by the Commission, go a long way towards alleviating the concerns that opponents identify.

The Commission should start by establishing a carefully limited theory of its authority in this proceeding. The D.C. Circuit's recent decision in *Comcast v. FCC* reinforces that, as CDT said in its initial comments, the Commission needs to go back to square one with respect to its assertion of legal authority.[3] An open-ended theory of authority, besides opening the door to exactly the kind of efforts to "regulate the Internet" that opponents warn about, is not legally tenable in the wake of the court's decision. In light of this decision, the FCC should issue a further notice to build a full record on an appropriate legal approach. Ultimately, it should be possible for the Commission to assert focused jurisdiction over the provision of actual transmission capabilities for broadband Internet access, probably relying at least in part on the agency's Title II authority. At the same time, it is crucial for the Commission to recognize that its authority cannot extend to regulating the content of Internet communications or the behavior of any entity that does not provide actual transmission capabilities.

After declaring broad Internet regulation off limits from a legal perspective, the Commission should address complaints that the rules are vague or overbroad by providing more guidance about what categories of behavior the rules would prohibit or permit. The nondiscrimination rule, for example, should not bar caching or paid peering. It should not bar differentiation of subscribers' Internet traffic based on how much Internet capacity individual subscribers have used or paid for. It should not bar tools that enable individual subscribers to choose how different traffic streams should be prioritized. All of this can be made clear, as CDT has recommended.

Similarly, providing some guidelines for determining when network management tactics will be deemed "reasonable" could help fill a gap in the proposed rules. Some commenters worry that "reasonable network management" will be interpreted too narrowly to allow broadband providers to respond appropriately to real network challenges; other commenters worry that interpreting the term too broadly could create a serious loophole. The Commission can steer a middle course by establishing that a network management practice will enjoy a presumption of reasonableness if it is consistent with common technical standards, targets traffic based on general criteria that are evenly applied, and is appropriately transparent. By contrast, practices that are completely ad hoc or that single out particular content, applications, or services for special treatment could face the opposite presumption.

"Managed or specialized services" is another area where ambiguity appears to have fueled fears on all sides. With an appropriate definition and some continued oversight, however, managed or specialized services can give broadband providers an avenue for experimenting with new technologies and business models, including models in which the broadband provider favors certain partners or accepts payment for delivering traffic. The key is that such offerings

[3] *Comcast Corp. v. FCC*, No. 08-1291, 2010 U.S. App. LEXIS 7039 (D.C. Cir. Apr. 6, 2010).

must not threaten to displace or squeeze out robust offerings of ordinary, open Internet access. CDT suggests a definition for achieving this result in Part IX below.

In the wireless area, many concerns raised by commenters center on the belief that Internet openness rules could deny network operators the ability to meet difficult and evolving technical challenges. Here too, greater clarity can address many commenters' points. For all the pages devoted to the crucial role and technical aspects of network management for wireless networks, there are no serious examples of challenges that require broadband providers to pick and choose among traffic streams on an ad hoc basis. Where the concern is bandwidth-related, for example, comments offer no reason why network operators need to single out specific bandwidth-hungry applications; the concern could just as easily be addressed by adopting a policy that has equal impact on all applications with comparable bandwidth usage characteristics. Thus, if the Commission issues appropriate guiding principles for determining when network management practices are "reasonable," wireless broadband providers should have little remaining basis for complaining that Internet openness rules will handcuff their ability to run their networks in an effective manner.

In sum, with appropriate modifications, the Commission's proposed regulatory framework can achieve its important aims without producing the various harms that opponents allege in their comments. Below, CDT offers responses to a variety of specific arguments raised in the comments and discusses how CDT's proposed recommendations could help alleviate many concerns.

II. The Need for FCC Action

A. The Commission Should Not Be Swayed by Claims That There Is "Insufficient Evidence" To Adopt Rules.

One frequent theme from comments opposing the Commission's proposed rules is that there is insufficient evidence of any problem or risk.[4]

Some say, for example, that "broadband ISPs have been around for a decade, during which time they have been free to engage in the various nefarious actions that advocates claim are about to occur any day now. If these threats are real, then we surely would have seen them materialize in the past decade. In fact, we would be overwhelmed with such abuses."[5] But in truth, it has been far less than a decade since the key legal and administrative decisions making it clear that broadband providers are exempt from any kind of common carrier obligation, and since that time a number of policy and political factors have served as major constraints on any potential discriminatory behavior.

The Supreme Court issued its *Brand X* decision in June 2005.[6] The Commission exempted DSL services from common carriage obligations in September 2005.[7] Any strategies for

[4] *See, e.g.*, Comments of the Internet Innovation Alliance ("Internet Innovation Alliance Comments") at 5; Comments of AT&T, Inc. ("AT&T Comments") at 80-86, 94-95; Comments of Cisco Systems, Inc. ("Cisco Comments") at 5, 7; Comments of Comcast Corp. ("Comcast Comments") at 17; Comments of Motorola, Inc. ("Motorola Comments") at 6-8; Comments of Bright House Networks ("Bright House Comments") at 5.

[5] AT&T Comments, Exhibit 1: Gerald Faulhaber & David Farber, *The Open Internet: A Customer-Centric Framework* ("Faulhaber & Farber") at 7.

[6] *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967 (2005). Prior to *Brand X*, the regulatory framework for cable modem services was unsettled, as a federal court had ruled that cable modem services should

capitalizing on this legal freedom, particularly if they represent a significant departure from past practice and/or require deployment of new capabilities like deep packet inspection, would likely take significant time to develop, evaluate, and implement in any event.

But carriers have faced significant additional constraints. The Commission's broadband Policy Statement put broadband providers on notice that certain actions might still draw regulatory scrutiny. The Commission's review of merger agreements resulted in the imposition of temporary constraints on major segments of the broadband industry.[8] Above all, heightened political attention to the issue of Internet neutrality – including bills pending in Congress, petitions and inquiries before the Commission, and considerable "Netroots" interest – has made it likely that, for the present, going public with a new strategy involving substantial discrimination would risk both negative publicity and a serious policy backlash.

Such constraints may prove temporary, however. When political attention ebbs, changes in the way Internet traffic is handled, particularly if implemented in a gradual fashion, might draw far less attention. Nor is it tenable any longer to argue, as some commenters do,[9] that the broadband Policy Statement provides a sufficient safeguard against any risks in this area; the recent decision of the D.C. Circuit vacating the Commission's *Comcast* Order appears to leave the Statement without any teeth whatsoever.[10] And of course, the relevant merger commitments have already expired.

Remarkably, Comcast has the temerity to argue that the supposed lack of evidence of any problem can been seen in the Commission's 2007 Notice of Inquiry seeking comment on broadband industry practices. This inquiry, Comcast says, yielded relatively few examples of practices involving prioritization or discrimination.[11] Yet as we now know, Comcast itself was discriminating against BitTorrent traffic at the time of that inquiry – a practice that came to light several months later only as a result of third-party sleuthing. Given that Comcast did not disclose practices that were directly relevant to the Commission's questions, it hard to see how it can now ask the Commission to draw policy conclusions based on the proceeding's failure to uncover more evidence. Other carriers similarly would have had little incentive to freely self-report any practices with arguably harmful effects or motives.

The truth is, there is plenty of evidence that, at least in some circumstances, broadband providers may be tempted to try to exercise measures of control or influence over how their networks are used. AT&T famously resisted allowing customers to use non-AT&T telephone

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be treated as "telecommunications services" subject to common carrier regulation, contrary to a 2002 decision of the Commission.

[7] *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Report and Order and Notice of Proposed Rulemaking, FCC 05-150 (rel. Sept. 23, 2005).

[8] In both the SBC/AT&T and MCI/Verizon mergers, the merging companies committed to abide by the principles in the Commission's broadband Policy Statement for a period of two years. The Commission's approval of the merger of AT&T and BellSouth included a commitment to operate a neutral Internet network with neutral routing along a substantial portion of the company's wireline infrastructure, again for two years. *See SBC Communications Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, 20 FCC Rcd 18290 (rel. Oct. 31, 2005); *Verizon Communications Inc. and MCI, Inc. Applications for Approval of Transfer of Control*, 20 FCC Rcd 18433 (rel. Oct. 31, 2005); *Review of AT&T Inc. and BellSouth Corp. Application for Consent to Transfer Control*, FCC 06-189 (rel. Mar. 26, 2007).

[9] *See, e.g.*, Comments of Alcatel-Lucent ("Alcatel-Lucent Comments") at 24-25; Cisco Comments at 2-5.

[10] *Comcast Corp. v. FCC*, *supra* note 3.

[11] Comcast Comments at 17-18.

equipment until forced to do so by the Commission's *Carterphone* decision.[12] Mobile phone networks have traditionally not been open to unaffiliated applications and devices, although their openness in this regard has been improving in the last couple of years.[13]

On the Internet, meanwhile, when cable modem providers introduced their service in the 1990s, they originally blocked streaming video applications.[14] Madison River Communications blocked stand-alone VoIP service.[15] An Australian DSL provider reportedly favored selected content, including its own Web sites, by exempting it from monthly volume usage caps it established for all other traffic.[16] Several major cable providers in South Korea reportedly either blocked or reduced bandwidth to services delivering on-demand streaming video.[17] Telus, one of Canada's largest broadband providers, blocked a Web site created by an employee labor union that displayed information about the union's contract dispute with Telus.[18] Comcast degraded BitTorrent traffic, the practice addressed by the Commission in its 2008 *Comcast* Order.[19] Reports indicate that Cox similarly interfered with peer-to-peer traffic in 2007.[20] And RCN has recently settled a lawsuit over precisely the same behavior.[21] These may be isolated incidents – but they also may reflect underlying temptations or incentives, at least under some circumstances, for network operators to try to establish a measure of "gatekeeper" control that the Internet has traditionally not afforded.

In this proceeding, meanwhile, Sandvine estimates that "approximately 90% of its network provider customers have deployed application-specific network management policies."[22] This would appear to suggest that many broadband providers are choosing to adopt practices that single out individual applications for special treatment – an approach that clearly could give rise to a measure of gatekeeper control. Numerous other commenters assert that broadband

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[12] *Use of the Carterphone Device in Message Toll Telephone Service*, 13 FCC 2d 420 (1968).

[13] *See Skype Communications S.A.R.L. Petition to Confirm a Consumer's Right to Use Internet Communication Software and Attach Devices to Wireless Networks*, RM-11361 (filed Feb. 20, 2007); *see also* Tim Wu, *Wireless Net Neutrality: Cellular* Carterphone *and Consumer Choice in Mobile Broadband*, New America Foundation, Working Paper No. 17 (Feb. 2007); Comments of Vonage Holdings Corp. ("Vonage Comments") at 9 n.37 (citing correspondence regarding the blocking of certain VoIP applications on the AT&T network).

[14] JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS: AMERICAN TELECOMMUNICATIONS POLICY IN THE INTERNET AGE 173 (2005). Marketplace pressures quickly forced cable modem providers to scuttle this policy, but in the early days of cable modem service DSL was still subject to common carriage rules and narrowband ISPs were still a significant factor in the market. It is an open question whether marketplace pressures would necessarily force the same result in today's market, where DSL is the principal competitor and is free to engage in similar practices itself.

[15] *Madison River Communications, LLC and Affiliated Companies*, Order, 20 FCC Rcd 4295 (2005).

[16] OECD Working Party on Telecommunications and Information Services Policies, *The Implications of WiMax for Competition and Regulation*, DTSI/ICCP/TISP(2005)4/FINAL (Mar. 2, 2006) at 25, www.oecd.org/dataoecd/32/7/36218739.pdf.

[17] OECD Working Party on Telecommunications and Information Services Policies, *Internet Traffic Prioritisation: An Overview*, DSTI/ICCP/TISP(2006)4/FINAL (Apr. 6, 2007), at 20-21, http://www.oecd.org/dataoecd/43/63/38405781.pdf.

[18] *Telus Blocks Consumer Access to Labor Union Web Site and Filters and Additional 766 Unrelated Sites*, OpenNet Initiative: Bulletin 010 (Aug. 2, 2005), http://www.opennetinitiative.net/bulletins/010.

[19] *Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications*, Memorandum Opinion and Order, 23 FCC Rcd 13028 (2008).

[20] *See Cox also Disrupting P2P Traffic*, DSL Reports.com, Nov. 15, 2007, http://www.dslreports.com/shownews/Cox-Also-Disrupting-P2P-Traffic-89481.

[21] *See* RCN Official Notices, http://www.rcn.com/dc-metro/policies-and-disclaimers/official-notice.

[22] Comments of Sandvine Inc. ("Sandvine Comments") at 18.

providers need the discretion to treat different applications differently, with little apparent concern for the policy risks posed by having broadband providers pick and choose whose traffic to favor or disfavor.[23] In other words, they acknowledge that network operators may want to discriminate; they just fail to grapple with the implications of the gatekeeping capability this creates.

Opponents of this proceeding also try in vain to assume away the terminating monopoly problem, arguing that end users would complain and ultimately switch carriers if a broadband provider were to impose termination charges or otherwise engage in other unwanted practices.[24] But end users have very limited choices among broadband Internet access providers, and switching providers is far too much hassle for users to toggle rapidly between any choices they may have.[25] Behavior that is non-transparent or that affects only lesser-known websites or services would be unlikely to prompt a significant backlash.

In any event, the main terminating monopoly point is that, from the perspective of an upstart trying to roll out new online content, services, or applications, each potential customer can be reached *only* via the facilities of that customer's broadband provider. The theoretical ability of a consumer to change providers occasionally is nearly irrelevant. It is entirely unrealistic to think that such an upstart, if it feels disadvantaged by some discriminatory practice of a broadband provider, would be able to convince that provider's subscribers to change carriers. Only the most established, "must-have" websites or applications could even dream about having such clout. The only realistic options would be to suffer the discrimination, or to contact the broadband provider to try to strike a deal for better treatment. As a number of commenters note, the terminating monopoly issue is a serious one.[26]

Perhaps most important of all, however, Internet openness is an area where harms could be difficult or impossible to remedy once they have occurred. If practices to favor or disfavor particular Internet traffic were to evolve in directions that undermine the openness of the Internet, the damage might not easily be reversed. Unraveling a web of discriminatory deals after significant investments have been made and business plans built would be a difficult and complicated undertaking both logistically and politically. Documenting the harms could prove impracticable; nobody knows about small businesses and innovative applications that are lost before they make if off the ground.

Moreover, while opponents of this rulemaking today urge the Commission to wait for more evidence of harm before acting, it is a safe bet that any future Commission action to roll back perceived harm after it has occurred would meet loud complaints about the unjust nature of *ex post facto* regulatory action. If the Commission holds off from adopting rules now but later concludes that broadband providers have re-architected their networks in ways that have in fact resulted in a less open Internet, broadband providers would surely say it would be unfair and

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[23] *See, e.g.*, Comments of the National Cable & Telecommunications Association ("NCTA Comments") at 15-17; Comments of the Information Technology and Innovation Foundation ("ITIF Comments") at 23-24; AT&T Comments at 44; Faulhaber & Farber at 16-17.

[24] *See* AT&T Comments at 123-26; Comcast Comments at 20.

[25] *See* Jackie Krafft & Evens Salies, *The diffusion of ADSL and costs of switching Internet providers in the broadband industry: Evidence from the French case*, 37 RESEARCH POLICY 706 (May 2008), http://www.sciencedirect.com/science/article/B6V77-4S2VFTM-1/2/114350a2884bda8e3a889cb706498606.

[26] *See* Vonage Comments 9-10; Comments of the Computer & Communications Industry Association ("CCIA Comments") at 7; Comments of Free Press ("Free Press Comments") at 34.

perhaps illegal for the Commission to interfere with their investment-backed expectations by forcing them to change their networks back.

Indeed, some parties in this proceeding are already telling the Commission that it must not disrupt regulatory frameworks that companies have relied on in making investments. AT&T argues that imposing openness rules on wireless broadband would "grossly interfere with investment-backed expectations" of many 700 MHz auction winners.[27] A February letter in this docket by a coalition of major broadband providers warns that broadband providers have invested billions "in reliance on the Commission's Title I classification decisions."[28] If the Commission now chooses to kick this can down the road, future actions will meet similar arguments, likely from the same parties opposing forward-looking Commission rules today.

B. Rules Would Not Represent a Major Departure from Federal Internet Policy – Unless the Commission Were To Try To Extend Them to the Entire Internet Ecosystem.

Some commenters attempt to portray the proposed rules as a dramatic reversal of a longstanding "no-regulation policy with respect to the Internet."[29] The flaw in this largely rhetorical argument should be obvious: It relies on mischaracterizing this proceeding as an effort to regulate "the Internet" generally. In fact, the effort here is, as it should be, aimed exclusively at broadband Internet *access* service – the "on-ramps" to the Internet.[30] It simply is not true that there is a decades-long tradition and policy consensus that Internet *access* should remain entirely regulation free. Dial-up Internet access services may have been unregulated, but the last-mile transmission facilities upon which they rode were regulated under common carrier principles. So were the last-mile facilities used by DSL services, prior to September 2005. There is also is a long history in the *Computer Inquiries* of Commission regulatory involvement in enhanced services delivered via last-mile transmission facilities of incumbent telecommunications providers.[31]

It would indeed be a radical departure, however, for the Commission to extend its reach to "all players and all layers of the Internet ecosystem."[32] The suggestion that it should do so is a transparent attempt to divert attention from the real issue at hand and render this proceeding so broad in scope that it collapses under its own weight. Moreover, as discussed below, the Commission has no statutory basis whatsoever to extend its regulatory reach to the broad range of parties providing content, applications, and services that travel over or make use of the Internet. Attempting to do so would be the surest way to render the rules legally indefensible. It would also set a terrible example for other countries, potentially emboldening them to regulate the actual content of Internet communications.[33] CDT strongly agrees with the suggestion that

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[27] AT&T Comments at 142.

[28] Letter from NCTA et al., to Julius Genachowski, Chairman, Federal Communications Commission, GN Docket No. 09-191, WC Docket No. 07-52, GN Docket No. 09-51 (Feb. 22, 2010) at 3.

[29] Faulhaber & Farber at 3; *see also, e.g.*, NCTA Comments at 8-15; AT&T Comments at 6.

[30] *See* NPRM ¶ 14.

[31] *See* Free Press Comments at 129-133; Comments of Professor Tim Wu, Columbia Law School ("Wu Comments") at 6.

[32] Comcast Comments at ii; *see also id.* at 29-32; AT&T Comments at 196-207; NCTA Comments at 47-49.

[33] *See* Comments of NTT Corp. ("NTT Comments") at 2, 6.

any final order in this proceeding should include language to make absolutely clear that online content, application, and service providers are simply outside the scope of the rules.[34]

In a separate argument regarding the rules' scope, one commenter argues that the openness rules should serve to protect only those online applications or services that are "used predominantly for lawful purposes and do not harm a given ISP's network or interests."[35] This kind of standard would have a serious negative impact on Internet innovation. It would force any entity making a general-purpose online communications tool, if it wanted to avoid discrimination, to monitor and indeed supervise user behavior – because without monitoring and supervision, the maker of such a tool could neither know nor control the level of unlawful use. It would allow discrimination against lots of perfectly lawful content transmitted via communications applications that also happened to be used unlawfully. It would even allow discrimination against any applications that simply cannot prove the level of lawful versus unlawful use.[36]

C. Rules Need Not Stifle Innovation and Investment in Networks.

Many opponents of Commission action here express fear that openness rules will discourage innovation at the network level. They stress that innovation happens constantly at the network's core as well as its edges, and that network operators need flexibility to enable such innovation to continue.[37]

Certainly network operators need appropriate flexibility to figure out ways to better run the network. Internet openness rules should not and need not interfere with that. But not all "flexibility" is consistent with the goals of this proceeding. Flexibility to abandon the concept of open, general-purpose Internet service in favor of a more supervised environment would be contrary to those goals. So would flexibility to devise "innovations" that, in the interest of helping a broadband provider capture more of the immense value that the network fosters, put the provider in the position to exercise more centralized influence or control. Innovations at the network level that leave the platform more ISP-controlled and less open would risk undermining innovation at the edges. In short, flexibility for broadband providers to choose to pare back the medium's flexibility for or openness to independent speakers and innovators is obviously *not* something that needs to be preserved.

This is the only kind of flexibility that Internet openness rules should aim to restrict. Commenters warn, however, that ambiguities in the rules and the resulting regulatory uncertainty will chill network-level innovation.[38] To the extent that the real risk to network-level innovation stems from vagueness, the Commission can best address that by making the rules' meaning and

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[34] *See, e.g.*, Comments of the Entertainment Software Association ("ESA Comments") at 5.

[35] Comments of Thomas D. Sydnor II ("Sydnor Comments") at 15.

[36] A "used predominantly for lawful purposes" standard is also a far cry from the "substantial noninfringing use" safe harbor that the Supreme Court adopted in the landmark *Sony* case in 1984. *Sony Corporation of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984). The idea of revamping the *Sony* standard to impose secondary liability on a technology provider whenever the infringing uses of its product come to predominate is a highly controversial position – one that the Supreme Court declined to adopt in the 2005 *Grokster* case, with equal numbers of Justices (3) writing separately on both sides of the question. *See Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005) (concurring opinions of Justice Breyer and Justice Ginsburg).

[37] *See, e.g.*, Comments of CTIA – The Wireless Association ("CTIA Comments") at 32; Sandvine Comments at 21; Comcast Comments at 13; Comments of Cox Communications, Inc. ("Cox Comments") at 12-14.

[38] *See* NCTA Comments at 18-19; CTIA Comments at 35.

impact more clear. Many of CDT's recommendations are intended to provide greater clarity and guidance.

Many opponents also say that the proposed rules will reduce investment in broadband networks.[39] But the Commission should keep in mind that broadband Internet access providers offer a product that is of increasing relevance, usefulness, and importance to users; indeed, this is the entire premise of the Commission's National Broadband Plan. Moreover, providing greater certainty regarding the network's open nature should promote innovation at the edges of the network, leading to precisely the kinds of independent innovations that have been making broadband access more and more central to the lives of more and more Americans. It is hard to see why some basic "rules of the road," carefully crafted to avoid overreaching, would ultimately depress investment in an area where demand is so clearly growing. This is particularly the case when, as discussed below, the rules will not bar broadband providers from offering other, non-Internet services over broadband networks, thus leaving open the possibility that investment costs may be shared among multiple services with different revenue models.

D. CDT Recommendations

- The Commission should reaffirm its finding that the Internet's open nature carries tremendous benefits and should be affirmatively preserved and protected.
- In the final order, the Commission should state expressly that the rules' goal is to ensure that services offering access to the open Internet are not displaced by other services – not barring such other, non-Internet services entirely. The Commission should make clear that the rules would be interpreted with this goal in mind.
- In the final order, the Commission should state expressly that the scope of its rules is firmly limited to broadband Internet access service. It should expressly reject the idea that the rules can or should apply to content, applications, or services transmitted via the Internet.

III. FCC Authority to Act

A. The Commission Should Not and Cannot Assert Authority Based on 47 U.S.C. § 230, or Any Other Theory That Would Give the FCC Broad Authority Over "All Things Internet."

A number of commenters suggest that the Commission should not and cannot adopt a theory of jurisdiction that has no conceivable limit.[40] CDT agrees. An open-ended assertion of jurisdiction here could open the door for future Commissions, pursuing any number of potential policy concerns, to regulate virtually any of the wide range of conduct and communications traversing the Internet. Thus, the Commission would render the charge that this proceeding is about "regulating the Internet" at least half true – because this proceeding would be laying the jurisdictional groundwork for broad Internet regulation in the future. Such a result would be

[39] *See, e.g.,* Internet Innovation Alliance Comments at 3-5; Motorola Comments at 8; Comcast Comments at 12; Cox Comments at 16-17.

[40] Comments of Barbara Esbin ("Esbin Comments") at 12, 16-17, 66-69, 71-74; Comments of the Electronic Frontier Foundation ("EFF Comments") at 6-8. *See also* AT&T Comments at 214-22; Comments of Global Crossing North America, Inc. ("Global Crossing Comments") at 4 (the Commission needs to specify "clearly the bounds of any 'ancillary' jurisdiction it may choose to assert").

directly at odds with the purpose of this proceeding. As the NPRM notes, the goal of U.S. policy in this area is "to promote an Internet that is both open and unregulated."[41] Asserting jurisdiction over Internet matters in a manner that offers no discernible limits would create major risks for the Internet's future.

Any such overbroad assertion of ancillary jurisdiction would also be squarely unlawful, as the recent decision of the Court of Appeals for the D.C. Circuit makes clear. The court rejected the exercise of ancillary jurisdiction based solely on "policy statements" – including 47 U.S.C. § 230, the first statutory section cited by the NPRM as a basis for jurisdiction[42] – on the ground that relying on such sections would "virtually free the Commission from its congressional tether,"[43] would result it "unbounded"[44] ancillary jurisdiction, and would "shatter . . . entirely" the limits of the Commission's jurisdiction.[45]

As CDT argued in its initial comments, the Commission needs to go back to square one on the question of its authority.[46] The bases of jurisdiction offered in the NPRM are untenably broad. Any assertion of authority to adopt open Internet rules needs to include expressly articulated limits.

B. The Commission Should Assert Targeted Authority Over Internet "On Ramps."

While the D.C. Circuit's *Comcast* decision makes clear that an unbounded assertion of jurisdiction will not pass legal muster, the decision does not mean – and cannot mean – that the Commission has no possible authority whatsoever over the provision of broadband Internet access services. That would be an absurd result.

Ensuring that operators of key physical communications infrastructure do not abuse their position has been a central purpose of communications regulation dating back to the days when nondiscrimination requirements were applied to telegraph operators.[47] It is reflected in Section 1 of the Communications Act, which says that the Commission exists to ensure access to efficient, multi-purpose communications "to all the people of the United States, without discrimination" – and to do so by "regulating . . . commerce in communication by wire and radio." The Communications Act, in other words, established the Commission in order to promote the ability of the entire public to use and benefit from the nation's basic, general-purpose communications infrastructure.

From the start of the computer era, the Commission recognized that its mandate enabled it to act to prevent operators of the general purpose, two-way communications architecture of the day – the telephone networks – from exerting undue leverage over emerging, computer-based services that rode on top of those networks. Beginning in 1971 in the *Computer Inquiries,* the Commission enacted a variety of rules aimed in large part, in the words of the Ninth Circuit Court of Appeals, at addressing the risk that "carriers would gain an unfair competitive edge by

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[41] NPRM ¶ 47.

[42] NPRM ¶ 84.

[43] *Comcast Corp. v. FCC*, *supra* note 3, at *34.

[44] *Id.* at (citing *FCC v. Midwest Video Corp.* (*Midwest Video II*), 440 U.S. 689, 706 (1979)).

[45] *Id.* at *35.

[46] CDT Comments at 1, 11-16.

[47] *See generally* Susan Crawford, *Transporting Communications*, 89 B.U.L. REV. 871 (2009).

discriminating in favor of their own enhanced service offerings in providing access."[48] Thus, there is a "long history of FCC attempts to guard against . . . potential abuses of communications carriers' monopoly power."[49] The 1996 Telecommunications Act did nothing to interrupt this history and indeed essentially carried forward the *Computer Inquiries* regime.[50]

Thus, while Congress and the Commission may have intended for information services themselves to remain unregulated as a general matter, they emphatically did not envision that there might be no oversight regarding the provision of such services by *entities controlling the physical transmission facilities*. To the contrary, preventing providers of physical transmission links from exercising undue influence over the data- and computer-related services that use those links is a longstanding function of the Commission. There is no evidence that Congress intended for the Commission to be stripped of its authority to guard against such abuse at the very time that those data- and computer-related services are assuming an unprecedented role in the nation's commerce, civic discourse, education, and government. Indeed, it would hardly be worth having a communications regulator at all if it were to have zero ability to address the Internet access connections upon which the bulk of 21st-century communications are likely to rely. Such a result is not a plausible outcome; the Communications Act does not contemplate that the shift to broadband Internet access should render the Commission powerless to play its longstanding role of ensuring that independent information services have nondiscriminatory access to the nationwide communications network.

The task the *Comcast* decision leaves for the Commission, therefore, is to determine what would be the most sound and appropriate legal path for avoiding an untenable result. In the end, the Commission should assert targeted authority over entities controlling the *physical transmission* connections for broadband Internet access, in order to prevent them from exercising undue influence over the relative performance of the content, applications, and services that travel over those connections. The Commission needs to select and articulate a sound legal basis for asserting such authority.

The Commission should issue a further notice to build a full record on an appropriate legal approach. There are several options worth exploring.

One possible legal approach, which CDT mentioned in our initial comments, would be to revisit the Commission decisions classifying broadband Internet access services as "information services" that are entirely exempt from common carriage requirements.[51] There is a strong

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[48] *California v. FCC* (*California I*), 905 F.2d 1217, 1224 (9th Cir. 1990).

[49] *Id.*

[50] *See* JONATHAN NUECHTERLEIN & PHILIP WEISER, DIGITAL CROSSROADS: AMERICAN TELECOMMUNICATIONS POLICY IN THE INTERNET AGE 154 (2007) ("Congress left the *Computer Inquiry* rules essentially untouched when it overhauled the Communications Act in 1996").

[51] Even before the *Comcast* decision, major broadband providers sought to preempt consideration of this option by telling the Commission that to even *look* at this question would be dangerous and unlawful. *See* Letter from NCTA et al., to Julius Genachowski, Chairman, Federal Communications Commission, GN Docket No. 09-191, WC Docket No. 07-52, GN Docket No. 09-51 (Feb. 22, 2010). But as CDT argued in a February letter, there is nothing extremist or radical about the idea that the Commission, in connection with this proceeding and its other broadband policy initiatives, should examine legacy regulatory classifications and assess whether they are optimal today. Moreover, the lawfulness of any Commission decision to modify regulatory classifications would depend almost entirely on whether it had articulated rational reasons for doing so; there is no basis for simply assuming that any modification would be unlawful. *See* Letter from Leslie Harris, President & CEO, Center for Democracy & Technology et al., to Julius Genachowski, Chairman, Federal Communications Commission, GN Docket No. 09-191, WC Docket No. 07-52, GN Docket No. 09-51 (Feb. 26, 2010).

argument that broadband Internet access subscribers today perceive and use Internet access as telecommunications: a connection that permits them to transmit information of their choosing to and from any other Internet-connected party of their choosing, without the broadband provider changing the form or content of the information sent or received.[52] Some subscribers may also use email, website hosting, or other functions offered by their broadband providers, just as many telephone subscribers also choose to use phone-company-provided add-on services like voicemail or caller identification. But with the rise of numerous "cloud-based" applications, Internet subscribers today need not rely on their broadband provider for anything but the underlying connection. Once connected, they have numerous choices for email, website hosting, or virtually any other function from sources entirely independent from the broadband provider.[53]

In short, the core of broadband Internet access services – providing the physical transmission link between subscribers and the Internet at large – arguably is better viewed as telecommunications. As telecommunications, the Commission could treat them as common carrier services[54] subject to Title II of the Act and in particular the nondiscrimination obligations of 47 U.S.C. § 202(a). Taking such an approach would not require a heavy-handed, backward-looking regulatory regime. Forbearance would make sense for most legacy regulations, and indeed the FCC could suggest a presumption of forbearance in the broadband context. Tariff filing, price regulation, and other features of monopoly telephone regulation could be taken off the table from the start. Ultimately, the end result would most likely be "Title II light," not the burdensome regulatory structure carriers decry.

Another possible legal approach would be to assert ancillary jurisdiction in a manner not foreclosed by the *Comcast* decision. The court did not reject the entire concept of ancillary jurisdiction; rather, it said that ancillary jurisdiction needs to be tied to a statutorily mandated responsibility, rather than mere policy statements.[55] The Commission could consider, for example, whether developing open Internet rules for facilities-based broadband Internet access providers may be essential to the Commission's successful performance of its statutory responsibility to require interconnection under Section 251. Kevin Werbach has recently argued that network operators "may be able to escape from interconnection obligations by offering broadband service"; thus, "the FCC today could argue that unregulated broadband access networks would make its rules promoting interconnection irrelevant."[56] Perhaps a similar argument could be made regarding Section 202(a): If network operators are allowed the option of offering broadband Internet access services on a completely unregulated basis, that option could enable them to end run Section 202(a) and render that provision a dead letter.

The Commission should carefully consider these and perhaps other possible legal approaches to asserting jurisdiction in a narrow and targeted way. Any such assertion of authority should be expressly limited to providers of broadband Internet access service; entities providing information services that ride on top of the Internet, but that do not themselves provide the physical means for connecting with users, should be expressly excluded. The Commission

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[52] *See* 47 U.S.C. § 153(43) (defining "telecommunications").

[53] Subscribers need not even rely on their broadband provider's domain name system (DNS) servers, but are free instead to select other DNS providers. *See, e.g.*, Google Public DNS, http://code.google.com/speed/public-dns.

[54] *See* 47 U.S.C. § 153(44) ("A telecommunications carrier shall be treated as a common carrier under this Act only to the extent that it is engaged in providing telecommunications services").

[55] *See Comcast Corp. v. FCC*, *supra* note 3, at *25-45.

[56] Kevin Werbach, *Off the Hook*, 95 CORNELL L. REV. 535, 588, 594 (2010).

should also make clear that it recognizes that its authority does not and cannot extend to regulating the *content* of Internet communications.

C. Other Specific Claims that the Open Internet Rules Would be Illegal Are Not Well Founded.

Commenters advance a number of other challenges to the Commission's authority to act. None are well founded:

- Some commenters argue that it would be contrary to the Act to impose Title II-like obligations on non-Title II carriers.[57] But the Commission is not proposing to enact rules that are broadly the same as Title II in this proceeding. Rather, the narrow focus here is on addressing "last mile" provider actions that could impede consumers' *access* to the Internet. The argument seems to be that the Commission cannot make any rule that bears any resemblance to any part of Title II without violating the statute. However, such an argument proves too much. It would essentially mean that the FCC has no ancillary jurisdiction whatsoever and we know this is not the case since the Supreme Court's seminal decision in *Southwestern Cable*. Further, albeit in dicta, the Supreme Court in *Brand X* explicitly suggested that the Commission has the authority to impose "special regulatory duties" on broadband Internet access service. That is, while facilities-based providers of broadband Internet access, such as cable modem services, were not subject to mandatory common-carrier regulation under Title II, "the Commission has jurisdiction to impose additional regulatory obligations under its Title I ancillary jurisdiction to regulate interstate and foreign communications."[58]

- Another argument is that the proposed nondiscrimination obligations would contradict Section 230(c)(2),[59] which protects service providers' ability to restrict access to certain objectionable material.[60] However, at the time Section 230 was passed, providers of actual transmission facilities carrying Internet traffic were *regulated as common carriers*. This strongly suggests that Congress never intended Section 230 to mean that providers of underlying transmission facilities may discriminate at will. Indeed, under the asserted argument – that Section 230 prevents regulation of the facilities on which Internet traffic flows – the FCC would never have been able to regulate DSL service, which it did without objection until 2005. Moreover, at most Section 230(c)(2) permits discrimination based on a "good faith" belief that content is "obscene, lewd, lascivious . . . or otherwise objectionable."[61] Section 230 does nothing to permit discrimination based on business deals or competition aims. These are the exact kinds of discrimination that opponents of the Commission's rules cite in this proceeding.[62] So the kind of discrimination at issue in this policy debate is largely outside the scope of any possible interpretation of Section 230(c)(2).

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[57] Alcatel-Lucent Comments at 24-25; AT&T Comments at 210-12.

[58] *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs*, *supra* note 6.

[59] *See* 47 U.S.C. § 230(c)(2)(A).

[60] *See* AT&T Comments at 216-17.

[61] 47 U.S.C. § 230(c)(2)(A).

[62] *See, e.g.*, NCTA Comments at 35-36; Cisco Comments at 9-11; Comments of Clearwire Corp. ("Clearwire Comments") at 12; AT&T Comments at 133-34.

- Some commenters further suggest that free speech rights of ISPs prohibit FCC action in this proceeding.[63] For example, the National Cable & Telecommunications Association argues that the rules at issue would "force carriage of speech that [ISPs] might otherwise elect not to carry."[64] However, as addressed in our initial comments, broadband Internet access service providers are not acting as speakers through the provision of Internet access – they are simply acting as communications conduits, and as such they do not have First Amendment objections to a requirement that they carry all traffic.[65] And even if the speech rights of broadband providers were somehow implicated, the speech burdens that the Supreme Court *upheld* in the *Turner* "must carry" cases were constitutionally more far more burdensome than the nondiscrimination rule at issue in this proceeding, and thus such a rule would be upheld even under the "intermediate scrutiny" approach adopted in *Turner*.[66] Broadband Internet access service providers simply do not exert "editorial control" like cable operators do over their channel line up.[67]

D. CDT Recommendations

- The Commission should issue a further notice to build a full record on an appropriate legal approach.
- The end product of the Commission's jurisdictional analysis should be a targeted assertion of authority over the "on ramps" that connect consumers to the Internet. In articulating its legal rationale, the Commission should expressly state that it recognizes that such authority is limited: It cannot extend to regulating the behavior of entities that do not provide actual physical transmission capabilities and it cannot support regulation of the *content* of Internet communications.

IV. Codifying the Existing Four Internet Principles

Various commenters suggest that codification should follow the language of the principles, expressing what "consumers are entitled to."[68] But such phrasing is too ambiguous for a clear rule; it would leave too much uncertainty about precisely who must comply and in what way. This appears to be nothing more than an effort to leave the new "rules" in a state of limbo, where it is unclear to whom they apply and whether they could really be enforced. Acquiescing here would prevent this rulemaking from achieving its goals of solidifying the murky nature of the broadband Policy Statement.

In addition, having rules refer only to what *consumers* are entitled to opens the door to further confusion, as well as advocacy by parties with various agendas, about which policy issues the

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[63] AT&T Comments at 235-40; NCTA Comments at 49-64.

[64] NCTA Comments at 51.

[65] CDT Comments at 31.

[66] *See Turner Broad. Sys. v. FCC* (*Turner I*), 512 U.S. 622 (1994); *Turner Broad. Sys. v. FCC* (*Turner II*), 520 U.S. 180 (1997).

[67] If anything, the carriers' First Amendment arguments suggest that maybe they should indeed be considered Title II common carriers. There is no question that common carriage does not implicate First Amendment rights. To the extent the carriers protest that they have a First Amendment right to strike special deals with favored content providers and discriminate against non-favored providers, the simplest solution might be for the Commission to proceed under Title II.

[68] *See, e.g.*, Sandvine Comments at 7-8; Comments of Arts+Labs ("Arts+Labs Comments") at 4-5.

rules are designed to address. For example, Sandvine suggests that the proposed codification of the existing broadband principles would somehow require every network provider to strike an agreement with ESPN360.[69] The Wireless Internet Service Providers Association argues that openness rules *should* apply to such content distribution agreements.[70] Both arguments are badly misplaced. The proposed rules would require every network provider to be *open* to ESPN360 traffic, should ESPN360 want to send it. The rules simply would not apply to the actions of ESPN360 or any other content provider. There may be competitive issues raised by content providers choosing to restrict the availability of their content; perhaps it could disadvantage independent broadband providers and thus reduce the competitiveness of the broadband marketplace. But those issues are outside the proper scope of *this proceeding*. This is not a proceeding about the activities of Internet endpoints like content providers. As discussed above and in CDT's initial comments, sound policy and legal considerations demand a narrow focus on transmission facilities.

The language of the Policy Statement, referring broadly to the rights of consumers, does nothing to foster an appropriately targeted focus and indeed invites a wide range of interpretations and policy advocacy regarding what the rules do or should mean.

A. CDT Recommendation

- As proposed in the NPRM, the Commission should codify the principles as formal, enforceable rules applicable to specific parties – namely, broadband Internet access service providers. The Commission should expressly reject suggestions to also apply the openness rules to online content, application, or service providers.

V. Nondiscrimination

A. Many Arguments Against a Nondiscrimination Rule Reflect Confusion about the Goals and Functions of a Nondiscrimination Requirement.

Many comments opposing the imposition of a nondiscrimination rule reflect considerable confusion about the proper policy goals and function of such a rule.

The goal of a nondiscrimination rule is not to achieve an egalitarian utopia where every blogger is the complete equal of the *New York Times*.[71] Obviously, established entities with substantial resources always will have a variety of advantages – the ability to engage in extensive marketing, to afford state-of-the-art server equipment, to purchase caching services from a content delivery network such as Akamai, and more. Nor is the goal to prevent all uses of DiffServ, or all differential treatment of traffic generally.[72] In terms of a postal service analogy, the goal is not to bar all express mail because "'fast lane' service is 'undemocratic.'"[73] Properly

[69] Sandvine Comments at 7-8.

[70] Comments of the Wireless Internet Service Providers Association ("WISPA Comments") at 8-11.

[71] *See* ITIF Comments at 21.

[72] Commenters noting the existence of DiffServ as part of their argument against adopting a nondiscrimination rule include AT&T (pages 51-55), Sandvine (page 10), and ITIF (page 7). *See also* Faulhaber & Farber at 17 ("The engineers who actually set Internet standards (Internet Engineering Task Force, IETF) have long understood the importance of Quality of Service (QoS) capabilities").

[73] *See* AT&T Comments at 134 (citing David Farber & Michael Katz, *Hold Off on Net Neutrality*, WASH. POST, Jan. 19, 2007).

framed, a nondiscrimination rule would not aim to say that enhanced delivery techniques cannot exist.

Rather, the goal of a nondiscrimination rule, and of the Open Internet rules generally, is to preserve a basic Internet service on which providers of broadband Internet access do not and cannot play "kingmaker." It is to ensure that the Internet's open and decentralized model is not displaced by a new regime in which broadband providers single out specific content, applications, and online services in ways that allow them to pick winners and losers. To use the postal service analogy, it is to make sure that a robust basic postal service is maintained.

A nondiscrimination rule, therefore, need not outlaw entire engineering practices.[74] Rather, such a rule should focus on the non-engineering question of *who chooses* when and how to invoke tools like DiffServ to favor some Internet traffic over others. A nondiscrimination rule addresses the crucial question of how much discretion should be reserved to broadband providers to play favorites on the Internet.

Once one sets aside the exaggerated characterizations of what a nondiscrimination rule is designed to do, responses to many arguments against nondiscrimination are relatively straightforward.

Some commenters say the ability of broadband providers to charge fees to content, application, and service providers for priority treatment on the basic Internet is essential to successful deployment of engineering tools that differentiate for service quality purposes.[75] Such arguments turn a blind eye to the possibility of allowing the *user* to specify which traffic to prioritize, as discussed in greater detail below in section B.3. If users were given the option of designating some but not all of their traffic for priority, they would have every incentive to assign priority to whichever of the applications or services they use are most sensitive to service quality.[76]

By contrast, "Internet payola," as Professor Tim Wu aptly terms the pay-for-priority model that most nondiscrimination opponents seem to support,[77] is not consistent with an open Internet on which innovators do not need to cut deals with broadband providers. Instead, it threatens to make cutting such deals broadly necessary for all but the most latency-insensitive applications and services – because any application or service that fails to pay up would be last in line for bandwidth. Its practical effect would therefore be to help entrench incumbent applications and services against potential upstart competitors. Imagine if the one-time leading Internet search engine Alta Vista had locked up long-term deals with major broadband providers for priority delivery. New search engines would then have faced the additional hurdle of either having to accept slower delivery than their main competitor, or else trying to go negotiate priority deals of their own with all the major broadband providers. Similarly, if carriers had five years ago made special deals to select a favored social network, MySpace might never have had a chance to topple Friendster (and then itself be surpassed by Facebook). However comfortable incumbent content providers may be with an outcome that makes them harder to topple, it should be easy

[74] *See* Faulhaber & Farber at 17 (warning that proposed rules could "outlaw good engineering practice").

[75] *See* AT&T Comments at 108 ("without price signals, *every* application or content provider would mark *all* of its packets as 'QoS sensitive,' because every provider would incur no cost in doing so").

[76] *See* Comments of Professor Scott Jordan ("Jordan Comments") at 2 n.1 (envisioning a system in which the payment of a small fee "would entitle the subscriber to QoS treatment for a specified amount of user-marked packets").

[77] Wu Comments at 2.

to see why a group like the Independent Film & Television Alliance fears it would spur major consolidation and create barriers to upstarts.[78]

In short, giving broadband providers free rein to cut commercial prioritization deals with providers of Internet content, applications, and services cannot be squared with the goals of this proceeding. But that does not mean those goals require a blanket ban on prioritization. In addition to user-directed prioritization and cases where prioritization may constitute reasonable network management, some pay-for-special-delivery models may qualify as "managed or specialized services." The key is that such paid priority models should create options *in addition* to basic Internet service – just as priority mail is an additional option to regular mail. Such models simply should not be allowed to squeeze out or marginalize the model that allows "innovation without permission."

A common rhetorical tactic in the Internet neutrality debate has been to criticize nondiscrimination rules as requiring "dumb pipes"[79] and barring new, smarter technology. But value-laden terms like "dumb" and "smart" obscure rather than inform the debate. The real question is the extent to which the "pipes" (i.e., the broadband Internet access providers) should make judgments and decisions about which applications and services are most important or most in need of special treatment – as opposed to remaining application-agnostic or, in the alternative, leaving the decisions to end users. Clearly a strong case can be made for handling certain network management matters, like some security issues, at the network level. On the other hand, a call for "smart pipes" can also be code for broader reliance on centralized evaluation and categorization of the type or content of Internet communications. Thus, a belief that networks could benefit from some built-in "intelligence" does not argue for giving broadband providers unbounded discretion to discriminate. Indeed, a network that empowered *users* to determine the relative priority levels of traffic based on their individual needs would be far "smarter" than one in which broadband providers make broad, across-the-board choices.

Some commenters oppose a nondiscrimination rule on the ground that it would interfere with the ability of broadband providers or other service providers to differentiate their products from those of competitors.[80] But it is not at all clear why the understandable desire for competitive differentiation should require a broadband provider, as opposed to its subscribers, to select specific Internet traffic for special treatment. If the idea is that a network operator may try to "differentiate" various applications and online services that it or a partner offers by giving them faster or more reliable carriage on the network than non-affiliated offerings, CDT believes that is exactly the kind of behavior that nondiscrimination safeguards are designed to prevent. If "differentiation" means using discriminatory traffic routing to give certain products an advantage that competitors are unable to duplicate, that is just another way of saying that the broadband provider wants to reserve discretion to shelter certain online offerings from the full pressure of the Internet's hypercompetitive environment. That is not a goal the Commission should seek to accommodate.

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[78] *See* Comments of the Independent Film & Television Alliance ("IFTA Comments") at 10-15.

[79] *See, e.g.*, AT&T Comments at 45-46, 48; Sydnor Comments at 10.

[80] Comments of Verizon and Verizon Wireless ("Verizon Comments") at 3-4, 44-45; Comments of SureWest Communications ("SureWest Comments") at 30; Cisco Comments at 4-6.

B. The Commission Should Clarify that Many Practices Commenters Cite Would Not Be Barred Under a Nondiscrimination Rule.

Some commenters express concern about the impact of a nondiscrimination rule on practices that should not, in fact, run afoul of such a rule. To some extent, these concerns may reflect an effort to construct an easily attacked "straw man." But fears regarding the potential impact of a nondiscrimination rule may also be fueled by a lack of clarity in the Commission's proposed rule and the associated NPRM. Some commenters warn that the proposed rule is too vague or ambiguous, making it hard to know when or whether specific practices might violate it.[81] A vague rule and the uncertainty it would foster perhaps could chill a significantly broader range of behavior than the Commission intends to target.

The Commission can address this risk head-on by clarifying the meaning and scope of its nondiscrimination rule, as CDT recommended in its initial comments.[82]

1. The nondiscrimination rule should not bar caching or paid peering.

Some commenters express concern that the nondiscrimination rule could bar caching[83] or paid peering.[84] But if the rule were modified to focus expressly and exclusively on discrimination in the interior of a broadband provider's network – that is, at the level of the routers that control transmission – then it would be clear that caching and paid peering create no risk of violation. CDT's initial comments suggested language to achieve this result.[85]

Several other commenters seem to support this transmission-focused conception of nondiscrimination. For example, Professor Scott Jordan, concerned that "the proposed rules may be interpreted as applying to traffic management practices that can be competitively offered by many other non-facilities based providers," suggests that "[t]he rules could be modified to explicitly *apply only to traffic management practices that are implemented below the transport layer*."[86] Free Press argues that the rule should prohibit any "deliberate packet or flow degradation or prioritization."[87] Akamai urges the Commission to apply the rules only to entities "that offer IP transmission between an end user and the Internet."[88]

By modifying its rule to focus expressly on discrimination at the level of transport or transmission, the Commission can avoid the risk of unintended impact on caching and paid peering.

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[81] *See* AT&T Comments at 105-07.

[82] CDT Comments at 23-27.

[83] Comcast Comments at 41; AT&T Comments at 73, 111.

[84] Arts+Labs Comments at 4; ITIF Comments at 15; Comcast Comments at 40; AT&T Comments at 111.

[85] CDT Comments at 25.

[86] Jordan Comments at 3 (emphasis in original).

[87] Free Press Comments at 75.

[88] Comments of Akamai Technologies, Inc. ("Akamai Comments") at 10.

2. The nondiscrimination rule should not bar differentiation based on subscriber traffic volumes or usage patterns.

According to Sandvine, the top one percent of users accounts for 25 percent of total bandwidth consumption, and the top 20 percent of users accounts for 80 percent of consumption.[89] As CDT explained in our initial comments, broadband providers should be free to differentiate traffic on this basis – that is, to take account of individual subscriber usage volumes or patterns in handling and prioritizing Internet transmissions. Such differential treatment should not be considered "discriminatory" for purposes of the rule: Because it focuses on *subscriber* behavior rather than content, applications, or online services, this kind of tactic does not single out any Internet content, applications, or services for special treatment. Crucially, therefore, it does not create a means by which a broadband provider could play favorites or pick winners among applications. The broadband provider tracks overall usage, but can remain agnostic as to the content of its subscribers' communications.

Managing traffic based on individual usage characteristics provides a good means of addressing the "selfish" applications sometimes cited as a justification for discrimination.[90] Today, users generally have little reason to be concerned about their level of bandwidth consumption and their impact on the network or other users.[91] They in turn put zero pressure on applications to be careful or efficient with bandwidth usage. If users became concerned about their consumption levels, however, application developers would have a strong incentive to avoid unnecessary or disproportionate consumption of network resources; it would be a matter of responding to user demand in the highly competitive market for online applications. Thus, high-consuming applications could be encouraged to use bandwidth in a friendlier and more effective way *without* the broadband provider singling out and making judgments about specific applications, which leads to the type of problems the Commission identified in the Comcast-BitTorrent case.

The protocol-agnostic traffic management techniques that Comcast adopted in the wake of the BitTorrent controversy provide one illustration of how a network operator can focus on individual subscriber usage patterns instead of engaging in tactics that would violate a nondiscrimination rule.[92] Another important example would be *usage-sensitive pricing*. CDT disagrees with the view of Free Press that usage-sensitive pricing is not a sound way to deal with the costs imposed by "super users." The use of the term "Internet overcharging" to describe pricing that imposes heavier charges on the heaviest users seems particularly inappropriate.[93]

First, the mere fact that charges may be tied in some way to usage patterns or volumes says nothing whatsoever about the absolute level of such charges. Perhaps usage surcharges could be imposed in ways that lead to excessive fees, but there is no basis for assuming this will automatically be the case. Second, usage-based pricing could be structured in any number of ways. It could affect only the heaviest users, while having little or no impact on the behavior of

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[89] Sandvine Comments at 18-19.

[90] *See* AT&T Comments at 37-39.

[91] Sandvine Comments at 6.

[92] *See Comcast Corporation Description of Current Network Management Practices*, WC Docket No. 07-52, File No. EB-08-IH-1518 (filed Sept. 19, 2008 as Attachment A to Letter from Kathryn A. Zachem, Vice President Regulatory Affairs, Comcast Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission).

[93] Free Press Comments at 54-61.

mainstream users. It could take account of congested periods, treating a rush-hour bit differently than a bit that has the pipe all to itself. The options are numerous.

In any event, there is no need for the Commission to make judgments about usage-sensitive pricing practices in this proceeding. The key point is that usage-sensitive pricing is an additional tool that broadband providers could use in place of the kind of discriminatory practices that the Commission is moving to bar. Broadband providers should remain free to experiment with such pricing.[94] The Commission should certainly refrain from saying anything that would cast doubt on usage-sensitive pricing, and indeed should confirm that it poses no discrimination issues.

3. The nondiscrimination rule should not bar user-directed priority.

AT&T says that network operators currently provide the ability for *enterprise* subscribers to designate content for prioritized handling across the network.[95] This kind of model – putting prioritization choices in the hands of subscribers – is one that CDT would be happy to see extended to the residential and small business markets. Allowing customers to specify what they want prioritized certainly should not be considered discriminatory, and indeed is an arrangement the Commission should seek to encourage.

Indeed, Sandvine indicates that in the future it "expects to be able to offer solutions that let the *subscriber* select which applications receive higher priority in the network in times of congestion" – but it also worries that a bright-line nondiscrimination rule "could halt investment in this area."[96] The Commission should state expressly that its rules do not and will not prohibit user-directed prioritization.

AT&T claims, however, that it would be "inefficient" and "unworkable" for broadband providers to deal directly with consumers in making priority allocations. In AT&T's view, "broadband providers can efficiently negotiate the details of QoS arrangements with applications providers; but they could not feasibly negotiate the same arrangements with millions of individual consumers."[97] Yet a regime of negotiated special arrangements between applications providers and broadband providers, with broadband providers making "highly context-specific engineering judgments" about the needs and appropriate handling of each application,[98] is precisely what open Internet rules aim to avoid. It is a vision that puts network operators in the driver's seat and is fundamentally at odds with the concept of "innovation without permission." It also ignores the fact that the last two years have seen an enormous explosion of small, independent application developers. Negotiating special deals with applications developers would be "efficient" for network operators only if they limit negotiations to a small, hand-picked subset of the large and growing universe of app-makers.

Subscriber-directed priority poses no favoritism problems, and the practical issues it raises should not be overstated. Computing environments have long combined a high degree of user configurability, providing choices for those who want them, with default settings and other techniques to avoid overwhelming less technical users. Broadband providers could suggest or

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[94] *See* CCIA Comments at 14-15 (suggesting that broadband Internet access providers could implement either usage-sensitive or usage-and time-sensitive pricing models, or bandwidth caps).

[95] AT&T Comments at 60-61.

[96] Sandvine Comments at 21.

[97] AT&T Comments at 139-40.

[98] *Id.*

even deploy initial default suggestions that they believe will serve the needs of many subscribers, while making it easy for subscribers at any time to change their priority designations.

Nor would subscriber-directed priority necessarily be limited to upstream traffic that originates at the user premises and therefore can be marked for priority close to its point of origin.[99] CDT believes that engineers could devise solutions to allow user-directed prioritization of downstream traffic as well. For example, upstream traffic that a user sends to a particular online service could be marked for priority with an encrypted token generated by the broadband provider; the online service, in sending its response, could copy that encrypted token to mark the downstream traffic for priority as well. The broadband provider would recognize the encrypted token as an authentic indication of a user's prioritization request. Other approaches could be possible as well; the point is that providing effective user-directed priority should not pose any insurmountable technical challenge.

The bottom line is that the various purposes commenters say would be served by allowing prioritization or "QoS" – such as facilitating the delivery of latency-sensitive applications,[100] or enabling competitive IPTV services[101] – could be just as well served by user-directed prioritization. Empowering users avoids the risk of giving broadband providers a new potential lever for exercising gatekeeper control. It allows the Internet to remain a fully open and user-controlled medium.

4. Other misplaced concerns.

Some commenters express concern that a nondiscrimination rule would bar specialized services like the Amazon Kindle, virtual private networks, or "telepresence."[102] But such services are not general-purpose Internet access service; they are more properly thought of as "managed or specialized services." Uncertainty about whether individual services would qualify as "managed or specialized services" argues for defining that term, as discussed below. It does not argue for abandoning the crucial concept of nondiscrimination.

A few commenters, often citing the example of ESPN360, suggest that nondiscrimination principles either might or should apply to bar *content* providers from charging a fee to network operators for the right to distribute their content.[103] As discussed above, however, this proceeding is about ensuring that the Internet remains available as an open platform. How and whether content providers or other parties at Internet endpoints choose to use that platform in distributing content is simply out of scope.[104]

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[99] *See id.* at 140.

[100] *See* Cisco Comments at 7; Comments of the Motion Picture Association of America, Inc. ("MPAA Comments") at 18; AT&T Comments at 44.

[101] *See* ITIF Comments at 18.

[102] *See, e.g.*, Arts+Labs Comments at 4; AT&T Comments at 111; CTIA Comments at 46; Sandvine Comments at 10.

[103] *See* Sandvine Comments at 7-8; WISPA Comments at 8-11.

[104] *See supra* Part IV.

C. Articulating Principles and Presumptions for "Reasonable Network Management" Can Help Clarify the Scope of the Nondiscrimination Rule.

A number of commenters urge the Commission to recast its nondiscrimination rule as a prohibition against "unjust or unreasonable" discrimination, similar to the standard found in Section 202(a) of the Act.[105] In CDT's view, however, there may be only limited practical difference between a ban on "unreasonable discrimination" and the proposed rules' approach of creating a bright-line rule against discrimination but then providing an exception for "reasonable network management." As the Commission observed in the NPRM, behavior that would qualify as "reasonable" discrimination would also likely qualify as "reasonable network management."[106]

One subtle difference may be that the Commission's proposed approach offers greater opportunity to provide some helpful advance guidance concerning what behaviors are and are not likely to be permitted. An "unreasonable discrimination" standard with case-by-case enforcement gives market participants little in the way of concrete principles for assessing when and whether behavior may violate the Commission's rules. To the extent such a standard can be said to provide "rules of the road" at all, they are decidedly vague. Relying on a "reasonable network management" exception may raise the same concern, but it also may provide the Commission with an opportunity to define or explain "reasonable network management" in ways that offer more guidance. By announcing some guiding principles for assessing the reasonableness of network management tactics, as CDT recommends below, the Commission could provide greater clarity regarding the intended scope and effect of its nondiscrimination rule.

Another possible difference may be burden of proof, as Free Press suggests.[107] As discussed below in Part VII, CDT believes the Commission can reach a reasonable middle ground on the burden of proof question by saying that network management practices that comply with certain core principles will enjoy a presumption of reasonableness.

D. CDT Recommendations

- The Commission should modify the proposed nondiscrimination rule to read:

  > ***§ 8.13 Nondiscrimination.*** *Subject to reasonable network management, a provider of broadband Internet access service must route and transmit lawful communications across its network in a manner that is nondiscriminatory with respect to content, source, destination, ownership, application, or service.*

- In the final order, the Commission should include a clear and express statement that the nondiscrimination rule shall not be interpreted to bar or restrict broadband providers from differentiating or prioritizing among Internet traffic based on the usage volumes, usage patterns, or subscription plans of the individual subscribers sending or receiving such traffic.

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[105] Comments of the Rural Cellular Association ("Rural Cellular Association Comments") at 4-11; Comcast Comments at 38-44 (proposing "unreasonable and anticompetitive"); Clearwire Comments at 14-15; NCTA Comments at 40-41.

[106] NPRM ¶ 110.

[107] *See* Free Press Comments at 78.

- In the final order, the Commission should include a clear and express statement that the nondiscrimination rule shall not be interpreted to bar or restrict broadband providers from enabling individual subscribers to designate certain traffic streams for prioritized or differentiated treatment.

VI. Transparency

A. Transparency Regarding Network Management Is Critical to the Openness Goals of this Proceeding and Need Not Be Unduly Burdensome.

There is widespread agreement among supporters of the transparency rule that the rule should not be subject to the exception for reasonable network management.[108] As CDT wrote in its original comments, including the exception would lead to an absurd situation in which broadband providers need only disclose unreasonable practices already prohibited by the nondiscrimination rule.[109] Other commenters' agreement on this point reflects the importance of disclosing *all* network management practices; even reasonable practices can affect users' Internet traffic, and should be disclosed. The Commission's final transparency rule should not include the "reasonable network management" exception.

Indeed, the disclosure of network management information is the aspect of transparency most central to this proceeding. Other information may well be useful and should be disclosed to consumers, as the Commission has recommended in the National Broadband Plan.[110] But the focus of this proceeding is actions by broadband providers that may block, prioritize, or discriminate in the transmission of Internet traffic. Network management practices bear directly on the subject matter at hand.[111]

Contrary to concerns expressed by several commenters, meaningful disclosure of network management practices need not impose a major burden on broadband providers. These commenters fear that disclosure obligations might limit their flexibility to adjust network management tactics rapidly in response to new and shifting threats. For example, CTIA worries that the rule will tie providers' hands, limiting "tools available to those that have already been disclosed to consumers."[112]

An approach to transparency along the lines proposed in CDT's comments, however, would mitigate any such risk. The area where rapid adjustments matter most is security management, where new threats arise constantly and must be dealt with quickly to protect networks and ensure smooth operation. Requiring disclosure of the general contours of security management

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[108] *See id.* at 121; Vonage Comments at 23; EFF Comments at 23-25; CCIA Comments at 32-33.

[109] CDT Comments at 32.

[110] FEDERAL COMMUNICATIONS COMMISSION, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN (2010) ("National Broadband Plan"), Recommendation 4.5 at 44.

[111] By contrast, the actions of online content, applications, and service providers do not bear directly on the subject matter at hand. The Commission therefore should reject the calls of some commenters to apply the transparency rule to such entities. *See* AT&T Comments at 195; Sandvine Comments at 9-10; Comcast Comments at 48; Cox Comments at 11-12; NCTA Comments at 45; Verizon Comments at 50. While transparent business practices by these entities would provide important consumer benefits, such entities are outside the scope of this proceeding, and indeed outside the scope of the Commission's jurisdiction, as discussed above in Part III.

[112] CTIA Comments at 47. *See also* AT&T Comments at 194; Comcast Comments at 46.

practices without overexposing details, as CDT proposed,[113] would allow broadband providers to respond to specific new threats without updating disclosures, so long as the new tactics fall within the general policies outlined. For cases in which specific rapid responses might need to deviate from the practices described in a company's disclosures, Cox Communications provides a reasonable solution in its comments: the rule could be crafted such that advance notice is preferred, but also allow a reasonable grace period in the event of necessary reactive adjustments.[114]

With respect to congestion management, CDT submits that there is less need for such rapid modifications in tactics. While usage patterns may vary, thus changing the particular times when congestion management may need to be invoked, the types of tactics a broadband provider employs and the objective criteria used to trigger those tactics – for example, criteria tied to a subscriber's service plan or bandwidth consumption – should not be subject to major abrupt changes. Moreover, unlike security management, which by definition targets only harmful traffic, evenly applied congestion management practices could significantly impact the full range of subscribers' lawful traffic. Broadband providers therefore will need to carefully consider the likely effects of new techniques; they will not generally need to make significant changes in this area in near-real time.

The RIAA, meanwhile, fears that transparency requirements could undercut the anti–copyright infringement techniques it would like broadband providers to adopt under the prong of the proposed reasonable network management definition relating to unlawful conduct.[115] As argued in CDT's initial comments and in Part VII below, this type of activity should not be considered "network management" in the first place. CDT strongly opposes any Commission endorsement of broadband providers taking on a new role as monitors and police of the content of user communications. But to the extent that broadband providers take on any such role, transparency will be critical. Such practices will inevitably have a significant impact on subscribers' legitimate traffic and on their privacy;[116] subscribers should have a right to know about that.

B. The Final Rules Should Emphasize that Disclosure of Network Management Practices Is Important for Application Developers, in Addition to Subscribers.

The Commission's final transparency rule should state that the audience for disclosure of network management practices is not just subscribers, but also the developers of web-based applications and services. Some commenters continue to resist the idea that this is necessary and appropriate.

Comcast, for example, argues that disclosure to applications providers would be unduly burdensome, going so far as to say that the proposed rule "proposes to impose a duty on broadband ISPs that potentially would require them to provide proprietary information to tens of millions of parties around the globe who are not even their customers."[117] But disclosure

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[113] With respect to security management, CDT recommends that the disclosure requirements be kept general enough that they not become a roadmap to circumvention. CDT Comments at 34-35.

[114] Cox Comments at 10.

[115] Comments of the Recording Industry Association of America ("RIAA Comments") at 16-17.

[116] *See Comments of the Center for Democracy & Technology Regarding the Intellectual Property Enforcement Joint Strategic Plan*, Mar. 24, 2010, http://www.cdt.org/files/pdfs/CDT_comments_for_IPEC.pdf ("CDT IPEC Comments").

[117] Comcast Comments at 46.

obligations obviously need not entail affirmatively reaching out to every application developer; it would be absurd for broadband providers to coordinate with each and every application developer across the Internet. Publicly posting network management practices online will be sufficient to allow application developers anywhere (in addition to subscribers and potential subscribers) to seek out information they think may be relevant to them.

The Commission should clarify that publicly posting network-management information, including information that may be useful to application developers, will be sufficient to meet the requirement.[118] As a method of public disclosure, posting information on the company website is about as easy as it gets.[119]

AT&T asserts that "developers have no more need than consumers for detailed network-management information," and that therefore no special consideration of the information needs of application developers is warranted.[120] Perhaps the standard consumer disclosure would suffice where network management tactics are entirely arbitrary and ad hoc, such that there really are no generally applicable policies or practices to disclose (other than the list of specific protocols or applications that the broadband provider is choosing to throttle or prioritize today). But if network management practices are tied to criteria that are applied evenly, like bandwidth usage – which, as discussed below in Part VII, CDT believes the open Internet rules should strongly encourage – then applications developers might well want information to evaluate how and when their applications may be affected. Information about how a broadband provider responds to certain usage patterns could enable an application provider to try to optimize its product for that provider's network. In effect, disclosure can enable applications developers to fine-tune their products to avoid conflicts with a provider's network management techniques, as well as to investigate the source of problems users may be experiencing on particular networks. There is no basis for arguing that transparency cannot be useful to applications developers.

Nor would such fine-tuning be somehow tantamount to "circumvention" of network management techniques. AT&T expresses concern about circumvention of congestion management.[121] But if congestion management is based on objective criteria like bandwidth usage, then applications that take care to avoid surpassing the relevant congestion thresholds are actually complying with the parameters the broadband provider has set, not circumventing them. Transparency helps them to cooperate with the broadband provider, by informing them of the behavior the broadband provider considers problematic.[122] Circumvention would be more of an issue if congestion management targeted specific protocols; that kind of approach would give application developers a strong incentive to make their targeted applications masquerade as other traffic. CDT does not believe congestion management should be targeting specific applications or protocols in the first place, and disclosing meaningful, evenhanded criteria simply does not pose the same risk.

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[118] A number of commenters agree that web-based disclosure and not formal reporting to the Commission should be sufficient to satisfy the transparency rule. *See, e.g.,* Bright House Comments at 11, Cox Comments at 11, Rural Cellular Association Comments at 24.

[119] As discussed in CDT's initial comments, web-based notice also easily lends itself to a "layered" approach, with an initial page containing a condensed disclosure for those who do not need much detail and links to further detail for those who want it. CDT Comments at 36.

[120] AT&T Comments at 191.

[121] AT&T Comments at 193-94.

[122] AT&T's own comments acknowledge this: "To be sure, content and application providers need to understand what consumers are permitted to do with their broadband services—e.g., what types of usage limitations they face—so they can optimize their services." *Id.* at 191.

C. CDT Recommendations

- The final transparency rule should not include an exception for reasonable network management.
- In the final order, the Commission should emphasize the importance of public disclosure of network management practices to both subscribers *and* application developers.
- In the final order, the Commission should expressly state that it will expect more detailed disclosure of *congestion* management practices than of *security* management practices. Security-related practices should still be disclosed, but at a relatively high level.[123]
- In the final order, the Commission should encourage broadband providers, in addition to posting information about their network management practices on their websites, to provide targeted notice to individual subscribers whose Internet traffic is being, has been, or may soon be substantially affected by those practices.[124]

VII. Reasonable Network Management

A. Questions Regarding Breadth and Burden of Proof Would Be Best Addressed by the Commission Announcing Some Guiding Principles for "Reasonableness."

Some commenters say "reasonable network management" needs to be interpreted narrowly, with the burden of proof on broadband providers, in order to prevent reasonable network management from serving as a major loophole in the proposed rules.[125] Others say broadband providers must be given very broad latitude and flexibility here, with network management practices enjoying a presumption of reasonableness and the burden of proof resting squarely on any complainant.[126] Many of these comments, generally put forth by network operators, also suggest that the key factor in assessing reasonableness should be the broadband provider's intent;[127] in this view, so long as a practice is intended to address one of the purposes listed in NPRM's "reasonable network management" definition, that should be sufficient to establish that the practice is reasonable.

As explained in CDT's initial comments, focusing purely on intent here would not be a good idea.[128] Comcast's practice of targeting and interfering with BitTorrent traffic may well have been *intended* to reduce network congestion, but it provides an excellent illustration that specific practices may be unreasonable despite a valid purpose. Part of the goal in this proceeding is to push broadband providers to address network congestion in ways that minimize any negative impact on the open character of the Internet. Thus, the means used – and their collateral effects – matter, not just the intended ends.

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[123] *See* CDT Comments at 33-34.

[124] *See id.* at 37.

[125] CCIA Comments at 11; Comments of Public Knowledge et al. ("Public Interest Comments") at 35-36.

[126] Comments of Covad Communications Co. ("Covad Comments") at 5; Rural Cellular Association Comments at 18-19; Cisco Comments at 8-14; Internet Innovation Alliance Comments at 7; NCTA Comments at 27-29; AT&T Comments at 187; Comcast Comments at 51; Cox Comments at 23, 30-32.

[127] *See, e.g.*, NCTA Comments at 29; AT&T Comments at 187; Clearwire Comments at 11-12.

[128] CDT Comments at 38-39.

With regard to presumptions and burden of proof, CDT believes there is a sensible middle-ground approach. As CDT suggested in its initial comments, the Commission should announce guiding principles concerning what kinds of practices are likely to be considered "reasonable" and what kinds are not.[129] If the Commission does this, then the presumption and burden of proof for a network management tactic can depend on whether the tactic in question complies with those principles. In particular, network management tactics could be presumed reasonable, putting the burden of proof on any complainant, if they (i) are based on general criteria that are applied evenly, such that the tactics would have comparable impact on different online applications or services with equivalent bandwidth usage patterns; (ii) are consistent with common technical standards; and (iii) are appropriately transparent. By contrast, practices that are completely ad hoc or that single out particular content, applications, or services for special treatment could face the opposite presumption.

Notably, this suggestion would not require that carriers get some kind of permission or approval for network management tactics, as some commenters seem to fear.[130] Rather, by providing general but actionable guidance concerning what kinds of tactics will be presumed reasonable, it should enable network operators to move forward with network management activities with a greater degree of confidence. It also should help address the complaint of some commenters that the proposed definition of "reasonable network management" is too vague.[131]

B. For Prioritization Based on Traffic Type, the Key Question is Who Decides How to Classify Specific Applications.

Many commenters argue that latency-sensitive traffic needs priority, and that "reasonable network management" should include prioritizing traffic based on traffic type.[132] However, these arguments largely skip over the key question of *who decides* how to classify the traffic type of specific applications. As discussed in our initial comments, CDT has concerns about a traffic management system that leaves providers of broadband Internet access service with full discretion to determine which applications will be placed into which categories.[133] If the power to selectively determine which applications will get the major advantage of packet prioritization lies exclusively with the network operator, it could become a gatekeeper for new applications – because a would-be provider of an upstart application would have to work out a deal with the network operator in order to be assured of the favorable classification it needs to offer fully functional service. Such a result is fundamentally at odds with the Commission's effort to preserve the Internet's open and decentralized model.

As Free Press appropriately notes in its comments, traffic class prioritization at the ISP level will also likely disadvantage new applications compared to established, incumbent ones, even in a regime without negotiated arrangements or payments for priority: "common, popular uses of the Internet today, by the majority of users" would be likely to get favorable treatment compared to new and less-common uses.[134] In addition, identifying and classifying specific applications is likely to require deep packet inspection (DPI) technology, which raises significant privacy

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[129] *Id.* at 38.

[130] *See, e.g.*, CTIA Comments at 35.

[131] *See* Comments of Level 3 Communications, LLC ("Level 3 Comments") at 6. *See also* CTIA Comments at 35.

[132] Covad Comments at 7; Cox Comments at 25-26; Comments of COMPTEL ("COMPTEL Comments") at 3-4; Cisco Comments at 10.

[133] CDT Comments at 40.

[134] Free Press Comments at 102; *see also id.* at 103.

concerns.[135] Consumers simply do not expect their broadband Internet access provider or its partners to be looking into the content of their Internet traffic.

For all these reasons, a better approach would be to put discretion in the hands of *users*. Where users are the ones who decide when and where to grant special prioritization treatment, there are no risks to the Internet's ability to remain a fully open and user-controlled medium.

If traffic class prioritization at the broadband provider level is done at all, it needs to have safeguards against unfettered broadband provider discretion. As CDT suggested in its initial comments, the Commission could reduce the risks of traffic class prioritization by making priority treatment the default for "unknown" applications.[136] Cox Communications says this is exactly how its recent congestion management trial worked.[137] Having a default rule of high priority treatment could reduce the risk that new or niche applications that would benefit from priority will feel compelled, as a prerequisite to rollout, to convince broadband providers to put them on the favored application class list. In addition, or alternatively, it might be possible for broadband providers to look to independent standards or technical bodies for some guidance on application classification decisions.

C. The Idea of Looking to Existing or New Technical or Standards Bodies for Guidance on "Reasonable Network Management" is Worth Exploring, But Some Commission Policy Guidance Will Likely Remain Essential.

A variety of commenters suggest that either existing standards bodies, such as the Internet Engineering Task Force (IETF) or some new technical advisory group, could provide guidance on what network management tactics are reasonable.[138] For example, Comcast proposes a "safe harbor" approach based on standards or practices adopted by the IETF along with a rebuttable presumption of reasonableness for practices consistent with "best practices" developed by or in conjunction with industry.[139] CDT believes the idea of looking to independent bodies for guidance on certain aspects of network management question is worth exploring. At the same time, there are some significant limits to relying on any new or existing technical or standards bodies.

As discussed in CDT's initial comments, it would be unrealistic for the Commission to expect standards bodies like the IETF to pass judgment or to assist the Commission in passing judgment on the reasonableness of individual network operators' specific practices.[140] At its core, the IETF is an engineering organization dedicated to crafting technical protocols that

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[135] *See, e.g.*, *What Your Broadband Provider Knows About Your Web Use: Deep Packet Inspection and Communications Laws and Policies: Hearing Before the Subcomm. on Telecommunications and the Internet of the House Comm. on Energy and Commerce*, 110th Cong., 1st Sess. (July 17, 2008) (statement of Alissa Cooper, Chief Computer Scientist, Center for Democracy & Technology), http://www.cdt.org/files/pdfs/20080717cooper.pdf; *The Privacy Implications of Deep Packet Inspection: Hearing Before the Subcomm. on Communications, Technology and the Internet of the House Comm. on Energy and Commerce*, 111th Cong., 1st Sess. (Apr. 23, 2009) (statement of Leslie Harris, President and Chief Executive Officer, Center for Democracy & Technology), http://www.cdt.org/files/pdfs/20090423_dpi_testimony.pdf.

[136] CDT Comments at 29-30.

[137] *See* Cox Comments at 25-26.

[138] *See, e.g.*, CCIA Comments at 34-38; Comcast Comments at 52-58; Comments of Google and Verizon ("Google and Verizon Joint Comments") at 4-7.

[139] Comcast Comments at 52-58.

[140] CDT Comments at 45.

improve the Internet. But "reasonableness" is not purely a technical question. While compliance with technical standards should be a part of what is required to qualify as reasonable, it is not sufficient. As discussed above, there are serious policy questions about, for example, how much discretion network operators should have to use the technical tools at their disposal to pick and choose among applications. The IETF is not equipped to make policy judgments about *when* the use of particular technical tactics should be considered reasonable. Commission policy guidance in this area will likely remain essential.

Google and Verizon suggest the creation of one or more "technical advisory groups," composed of technically oriented experts, to provide guidance to industry and policymakers alike.[141] This idea has merit; such a technical advisory body or bodies could well play a useful role. There would be a number of challenges to resolve, however, including the danger of politicization. The risk is that participants, rather than offering disinterested or even-handed perspectives, might instead assess particular issues with an eye towards what it means for their particular employer or industry segment. For example, carrier representatives might take whatever view would tend to maximize carriers' flexibility or control; alternatively, they might take positions aimed at creating some advantage over their competitive rivals. The bottom line is that it would not be easy to find people to serve in a new independent body who do not have vested business interests in certain outcomes. That being said, CDT does believe it is worthwhile for the Commission to explore this idea further.

D. The Definition of "Reasonable Network Management" Should Not Implicitly Endorse a New Role for Broadband Providers in Actively Policing the Content of User Communications.

Many commenters agree with CDT that actions to prevent Internet users from engaging in unlawful conduct are not "network management" activities and should not be included in the definition of "reasonable network management."[142] The prongs of the proposed definition addressing unlawful conduct ((a)(iii) and (a)(iv)) are redundant and unnecessary because the proposed rules would apply only to lawful content; unlawful activity is outside the scope of the rules and hence not protected. Including these prongs in the definition, however, risks implicitly endorsing a new role for broadband providers in actively policing the content of user communications. The Commission should not endorse new enforcement roles for broadband providers as part of the open Internet rules.

Copyright interests, of course, support the inclusion of these prongs.[143] The Commission should recognize this advocacy for what it is: part of a concerted campaign aimed at reversing longstanding policies regarding the appropriate role of broadband Internet access providers in the United States.

As CDT explained in comments regarding the National Broadband Plan, U.S. law reflects a deliberate policy choice that Internet access providers should not be held liable for content

[141] Google and Verizon Joint Comments at 4-7.

[142] *See, e.g.*, CDT Comments at 42-43; Comments of Data Foundry, Inc. ("Data Foundry Comments") at 4; CCIA Comments at 2; EFF Comments at 10-19.

[143] *See, e.g.*, Comments of the Songwriters Guild of America ("SGA Comments"); MPAA Comments; RIAA Comments.

transmitted by others.[144] They are not expected to actively police their networks. These policy choices are a significant part of what has enabled the Internet to be an open platform.

Copyright interests, with their intense single-issue focus, would like to revisit those policy choices. In this proceeding and others, copyright interests hope to get the camel's nose under the tent.[145] The Motion Picture Association of America, for example, explicitly states that the FCC should "encourage" ISPs to police IP infringement.[146] By involving the Commission, and by getting copyright-related matters addressed in Commission rules and orders, copyright-dependent industries hope to force the entities the Commission regulates – communications providers, and in particular broadband Internet access providers – to start actively policing copyright infringement. The Commission should not start down this dangerous path, and doing so would upset the delicate balance that Congress has already struck in this area. To ask network operators to serve as police, judge and jury with respect to the legality of individual Internet communications is to advocate a fundamental recasting of the role of broadband providers and can do substantial collateral damage to lawful communications.[147] By encouraging broadband providers to take a more active gatekeeper role, the Commission would risk significantly undermining the foundational and proven principles behind the Internet's growth – the very principles that this proceeding aims to safeguard. In short, the Commission's focus is, and should remain, promoting the availability of high quality communications capabilities in the United States – not policing what users do with those capabilities.

The international impact here is also important. Secretary of State Clinton explained in January that promoting Internet freedom in foreign countries is now a major U.S. foreign policy goal.[148] The United States intends to urge other countries to allow the provision of Internet access as an open communications platform without centralized supervision or monitoring. There is a clear tension in pressing broadband providers to resist the demands of foreign governments to monitor, filter, or otherwise police the content of Internet communications while at the same time encouraging broadband providers to police Internet communications here at home. Repressive regimes that censor certain kinds of speech would say their restrictive Internet policies were

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[144] *See Comments of the Center for Democracy & Technology In the Matter of A National Broadband Plan for our Future*, GN Docket No. 09-41, June 8, 2009, at 7-8, http://www.cdt.org/files/pdfs/20090608_broadband_comments.pdf (citing 47 U.S.C. § 230(c)(1) and 17 U.S.C. § 512).

[145] *See, e.g.*, MPAA Comments at 10-15 ("The Commission should encourage ISPs to use the best available tools and technologies to combat online content theft."); RIAA Comments at 13 ("We thus urge the Commission to adopt rules that not only allow ISPs to address online theft, but actively encourage their efforts to do so."). *See also* Joint Comments of Creative Community Organizations Regarding the Intellectual Property Enforcement Joint Strategic Plan, Mar. 24, 2010, at 17-18, http://www.dga.org/news/pr-images/2010/Joint-submission-re-IPEC.pdf ("Network administrators and providers should be encouraged to implement those solutions that are available and reasonable to address infringement on their networks. The government should implement policies that encourage, rather than impede, investment and innovation in the area of technology solutions to infringement and counterfeiting."); *Comments of the Motion Picture Association of America in the matter of A National Broadband Plan for our Future*, GN Docket No. 09-51, Oct. 30, 2009, http://fjallfoss.fcc.gov/ecfs/document/view?id=7020244174 (recommending that "Congress encourage ISPs to work with the creative community to implement the best available, commercially practicable policies and technological solutions to diminish the theft and unauthorized distribution of copyrighted materials online").

[146] MPAA Comments at ii, 10-15.

[147] *See* CDT IPEC Comments, *supra* note 116. Indeed, issues of copyright enforcement are far outsider the Commission's jurisdiction. *See also* Letter from Leslie Harris, President & CEO, Center for Democracy & Technology, to Eric Holder, Attorney General, U.S. Department of Justice (Feb. 24, 2010), http://www.cdt.org/files/pdfs/CDT%20DoJ%20letter%202-24-10.pdf.

[148] Secretary of State Hillary Rodham Clinton, Remarks on Internet Freedom at The Newseum (Jan. 21, 2010), http://state.gov/secretary/rm/2010/01/135519.htm.

really no different than U.S. policy: in both cases, governments would be calling on broadband providers to police user behavior to prevent certain unlawful communication. Even in democratic regimes, dangerous efforts to hold Internet intermediaries broadly responsible for legal violations committed by users could draw encouragement from a U.S. policy stance asking broadband providers to take a new role in combating unlawful Internet traffic.[149]

CDT's opposition to addressing unlawful conduct under the definition of "reasonable network management" does not stem from any sympathy for infringement or hostility to copyright. The point is simply that, as explained in our comments, reasonable network management should be about technical measures to ensure the network runs efficiently and safely – not about enforcing social policy.[150] The same principle applies to questions of privacy protection. Although CDT is a strong privacy advocate, we nonetheless believe the Commission should resist the suggestion of the Future of Privacy Forum to include in the definition of "reasonable network management" open-ended measures to improve user privacy and security.[151] Security issues are largely covered in the definition already, and adding in privacy here would be a mistake. While privacy is a critical consideration for a wide range of online activities, that does not mean the issue needs to be addressed at the network level, with broadband providers serving as central arbiters of how and when privacy protections should apply.[152] Privacy would be better addressed in legislation and through a competitive marketplace for tools designed to give users more granular privacy controls (where, to be clear, broadband providers should be welcome to compete; the provision of user controls would not violate any Internet openness rule). Ultimately, privacy – like copyright enforcement – is not a question for this proceeding and should not be considered "network management."

E. CDT Recommendations

- In the final order, the Commission should include explanatory language providing guiding principles for what practices are likely to be deemed "reasonable." The Commission should announce its expectation that reasonable network management practices should be:
    - Based on general criteria that are applied fairly and evenly, so that the network provider is not selecting which specific content or applications to favor or disfavor. For congestion management in particular, providers should use objective criteria such as volume of bandwidth usage. (A key test for reasonableness would be: does this tactic have equal impact on all applications with comparable bandwidth usage characteristics?)

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[149] *See* Statement of Leslie Harris, President & CEO of the Center for Democracy & Technology, Italian Conviction of Google Execs Threatens Global Internet Freedom, Feb. 24, 2010, http://www.cdt.org/pr_statement/italian-conviction-google-execs-threatens-global-internet-freedom ("Today's stunning verdict sets an extremely dangerous precedent that threatens free expression and chills innovation on the global Internet."); Leslie Harris, *Italy's Case Against Google Is a Bad Moon Rising*, THE HUFFINGTON POST, Dec. 17, 2009, http://www.huffingtonpost.com/leslie-harris/italys-case-against-googl_b_395634.html.

[150] CDT Comments at 38.

[151] Comments of the Future of Privacy Forum ("FPF Comments") at 11-13.

[152] This is not to say that broadband providers should not be subject to privacy obligations with respect to data that they themselves hold or generate, such as an obligation to maintain the confidentiality of customer proprietary network information. But any such obligations have nothing to do with network management.

- Consistent with the common technical standards on which the Internet's broad interoperability depends.
- Sufficiently transparent to both subscribers and developers of Internet applications and services.

- The Commission should state in the final order that, where a network management practice is consistent with these general principles, it will be presumed reasonable. Where a practice is not consistent with these principles, it will carry the opposite presumption.
- In the definition of "reasonable network management," the Commission should delete the references to preventing unlawful conduct contained in (a)(iii) and (a)(iv).
- In the definition of "reasonable network management," the Commission should modify the "catch-all" provision in (b) to read as follows:[153]

> *Reasonable Network Management.*
> . . .
> *(b) other reasonable practices that a provider of broadband Internet access service may take with respect to its network to protect and promote the smooth, effective, and safe operation and enjoyment of the network.*

VIII. Law Enforcement and Public Safety Exceptions

CDT has two concerns about the Law Enforcement and Public Safety and Homeland and National Security exceptions the Commission proposes to the open Internet rules. First, the exceptions should apply only to activities that are required by law. Second, any proposed contractual arrangement to provide priority access to public safety and homeland security officials that would impact nondiscrimination obligations should be made subject to public review and comment in a waiver proceeding.

A. The Law Enforcement and Public Safety and Homeland and National Security Exceptions Should Be Limited to Legal Obligations.

CDT agrees with comments of the Electronic Frontier Foundation that the law enforcement exception should apply only when a provider acts to meet a legal obligation it has to accommodate a law enforcement demand.[154] CCIA made a similar comment.[155] We all agree with the Commission that network neutrality rules should not stand in the way of a provider's legal obligations to meet the needs of law enforcement, public safety, homeland security and national security officials.

However, the proposed language suggests that providers are free to violate the open Internet rules to voluntarily address a law enforcement need even when the carrier has no legal obligation to address such need. This broad language could be read to permit a provider to

[153] *See* CDT Comments at 43.
[154] EFF Comments at 19-23.
[155] CCIA Comments at 28-30.

slow Internet traffic of a particular subscriber or of a class of subscribers, or to slow a particular type of content, upon request by law enforcement in the absence of a court order or any legal process at all. It could be read to permit blocking of particular content, upon a law enforcement request, to one or more subscribers, and even to all subscribers. A subscriber might never know that this had happened. It would be unwise for the Commission to open the door to such mischief, particularly when current law gives law enforcement sufficient authority to seek court orders necessary to carry out necessary law enforcement activities.[156]

We propose the following articulation of the Law Enforcement exception:

> ***§ 8.19 Law Enforcement.*** *Nothing in this part limits the ability of a provider of broadband Internet access service to meet its legal obligations to address the needs of law enforcement officials.*

These concerns apply as well to the Public Safety and Homeland and National Security exception. The neutrality rules should of course not inhibit any service provider from complying with any legal obligations it has regarding public safety or emergency communications.

But the original Public Safety exception would go much farther than that, and could be read to authorize an access provider to (for example) discriminate against certain users or content providers based on the mere assertion of a public safety or national security "need." Such discrimination, however, would raise serious policy and civil liberties concerns, and is not something the Commission's rules should even appear to sanction.

More generally, although meeting public safety and national security needs is an important public goal, that goal is not one that should be presumed to override the public's right to free speech without a careful public proceeding evaluating any trade off between public safety and civil rights. Thus, the Commission's rules should not sanction – *a priori* – any private arrangements that make such a trade-off.

To address these concerns, we urge the Commission to take two actions. First, the Commission should modify its Public Safety exception to apply it to legal obligations to which access providers are subject. Our proposed language is:

> ***§ 8.21 Public Safety and Homeland and National Security.*** *Nothing in this part limits the ability of a provider of broadband Internet access service to meet its legal obligations to deliver emergency communications or to meet its legal obligations to address the needs of public safety or national or homeland security officials.*

Second, to accommodate the possibility that an access provider may want to enter into a contractual arrangement with a public safety agency that might implicate the open Internet rules, the Commission should allow providers and agencies to seek waivers (comparable to the waiver process articulated by the Electronic Frontier Foundation in its comments).[157] Such a waiver process could be used, for example, to allow an Internet version of the GETS emergency public safety calling system,[158] if such a system were approved by the Commission after an

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[156] *See* 18 U.S.C. § 2501 et seq.; 18 U.S.C. § 3121 et seq.

[157] EFF Comments at 22-23.

[158] *See* National Communications System (Department of Homeland Security), Government Emergency Telecommunications Service, http://gets.ncs.gov/.

opportunity for public review and comment. CDT has significant reservations about the GETS system itself being translated into the Internet context, but for purposes of this proceeding, the Commission need only make clear that it will entertain petitions from providers and public safety agencies to approve such a contractual arrangement.

B. The Other Laws Exception Should Not Include Compliance with Foreign Laws.

We also urge the Commission to reject the proposal from Level 3 Communications that it amend the Other Laws exception to include compliance with foreign laws. Such an approach would adversely affect the constitutional rights of people in the United States.

Level 3 would add the bolded language below to the proposed exception for compliance with other laws:

> ***§ 8.23 Other laws.*** *Nothing in this part is intended to prevent a provider of broadband Internet access service from complying with other laws* ***of the United States, its states or any other country.***[159]

Level 3 argues that if the government of Germany directs it to block access of people in Germany to Nazi propaganda on a website created by an American living in Nebraska, it should be able to block all access by people in the U.S. to this website without violating the Commission's open Internet rules.

To the contrary, the rules should preclude such blocking. Authorizing it would have serious First Amendment implications. Different countries regulate different categories of speech in their countries, often far beyond what would be permitted in the U.S. under the First Amendment. France regulates hate speech.[160] China censors political speech.[161] Saudi Arabia censors as pornography images that could grace the covers of magazines broadly circulated in the U.S.[162] To permit blocking in the U.S. of content that is lawful in the U.S. in order to comply with foreign law applicable to foreigners abroad would launch a race to the bottom that would dramatically limit the availability of lawful content to people in the U.S. If any country in the world objected to particular content, and passed a law to ban its residents from accessing it, the content could in effect be put beyond the reach of people in the U.S. even though accessing it would violate no federal, state, or local law.

The question of whether broadband providers operating in other countries should be permitted to block access *in foreign countries* to content when directed by foreign governments to do so is beyond the purview of the Commission. We respectfully submit that because the FCC has no jurisdiction over what information can be accessed in those countries, it need not adjust its open Internet rules to permit such blocking. We also urge the Commission to reject the invitation to adjust its open Internet rules to permit blocking in the U.S. of content that foreign countries make inaccessible to their residents. Just as we do not want a local broadband provider picking and choosing what content should be available online, so too do we not want other countries imposing their content restrictions on American Internet users.

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[159] Level 3 Comments at 10.

[160] *See Yahoo! Inc. v. LICRA and UEJF*, 433 F.3d 1199 (9th Cir. 2006).

[161] *See* Open Net Initiative, China Profile, http://opennet.net/research/profiles/china.

[162] *See* Open Net Initiative, Saudi Arabia Profile, http://opennet.net/research/profiles/saudi-arabia.

C. CDT Recommendations

- The final Law Enforcement exception should be edited to read:

> ***§ 8.19 Law Enforcement.*** *Nothing in this part limits the ability of a provider of broadband Internet access service to meet its legal obligations to address the needs of law enforcement officials.*

- The final Public Safety and Homeland and National Security exception should be edited to read:

> ***§ 8.21 Public Safety and Homeland and National Security.*** *Nothing in this part limits the ability of a provider of broadband Internet access service to meet its legal obligations to deliver emergency communications or to meet its legal obligations to address the needs of public safety or national or homeland security officials.*

- The Commission should create a public comment and waiver process to address public safety needs that might benefit from specialized agreements between carriers and the government.

- The Commission should flatly reject the suggestion that the Other Laws exception include compliance with foreign laws. The final Other Laws exception should be edited to read:

> ***§ 8.23 Other Laws.*** *Nothing in this part in intended to prevent a provider of broadband Internet access service from complying with other United States Federal, state, or local laws.*

IX. Managed or Specialized Services

A. Contrary to Commenters Urging an Open-Ended Interpretation, a Careful Definition Is Needed To Avoid Creating a Huge Loophole.

Some commenters advocate an expansive, open-ended interpretation of "managed or specialized services." AT&T says that trying to define the term at all is a "fools errand";[163] Motorola tells the Commission to view the term "expansively";[164] Clearwire says that a definition should be "broad" and "evolving."[165]

As CDT explained in its initial comments and as certain other commenters observe, however, leaving the term open-ended or entirely undefined would create a huge potential loophole in the Commission's rules.[166] That may be just fine in the view of parties who oppose this entire rulemaking in the first place, but it is not a result the Commission should be willing to tolerate. Defining "managed or specialized services" is crucial to the ultimate success of this proceeding.

[163] AT&T Comments at 101.

[164] Motorola Comments at 15.

[165] Clearwire Comments at 13.

[166] *See* CDT Comments at 46-49; Free Press Comments at 111; Vonage Comments at 27-28.

A number of suggested definitions for "managed or specialized services" focus only on the provision of enhanced treatment and the *purpose* for providing such treatment. For example, Alcatel-Lucent and Cisco suggest that "managed or specialized services" are services that employ enhanced treatment due to the services' need for minimal packet loss, latency, jitter, bandwidth guarantees, and so forth.[167]

As in the case of reasonable network management, however, the definition cannot rely merely on purpose or intent. If the term "managed or specialized services" covers *any* kind of prioritization undertaken for a purpose related to service quality, then it will effectively serve as a multipurpose, carte-blanche excuse that could apply to a wide range of behaviors that would undermine the open Internet. Discrimination that would otherwise be prohibited under the open Internet rules could be easily relabeled as a "managed or specialized service"; all a broadband provider would need to do is articulate a relevant purpose. This will always be possible to do, and asserted purposes will be extremely difficult to verify. Moreover, one of the functions of open Internet rules should be to ensure that broadband providers, in selecting techniques to address valid service quality purposes, avoid the solutions that would be detrimental to the open Internet. A definition of "managed or specialized" services must focus at least in part on how the service is delivered, not just whether it has a legitimate purpose.

To prevent "managed or specialized services" from serving as a broad loophole that could effectively vitiate the rules, CDT suggested a definition requiring that such services (i) be truly different from Internet access service – that is, not be just a relabeled Internet access service or a close functional substitute; and (ii) use last-mile bandwidth that is separate from the last-mile bandwidth used by Internet access traffic.[168] The nature and degree of bandwidth sharing with Internet access service is important, since the goal of this proceeding is to ensure that open, general-purpose Internet access service is not squeezed out or eroded.

As Free Press observes, there are several ways non-Internet traffic might share facilities with Internet access traffic. The two kinds of traffic could be physically or virtually separated, could partially share capacity, or could fully share capacity.[169] The last option – involving complete comingling – offers no principled way to distinguish the non-Internet traffic from the Internet traffic; it becomes merely a matter of labeling. Thus, a definition of "managed or specialized services" that allows complete comingling offers no protection against the risk that Internet services covered by the openness rules could be displaced by more highly prioritized "managed or specialized services" that serve essentially the same functions but are exempt from the openness rules.

Partial bandwidth sharing raises a closer question. For example, AT&T's U-verse IPTV service shares last-mile capacity with its customers' Internet traffic.[170] But according to AT&T, the Internet traffic cannot be completely choked off by heavy use of the prioritized IPTV service; the service has been engineered to ensure that bandwidth remains available for Internet traffic. Engineering tactics to achieve this include that "all buffers are polled often enough to give each

[167] Alcatel-Lucent Comments at 13; Cisco Comments at 15.

[168] *See* CDT Comments at 49.

[169] *See* Free Press Comments at 108.

[170] Bright House Networks similarly uses shared IP architecture for video and data, and argues that strict structural separation should not be a prerequisite for managed or specialized services. Bright House Comments at 14-15.

service class the opportunity to consume at least its prescribed minimum amount of bandwidth."[171]

If the Commission wishes to allow some partial bandwidth sharing of this kind between Internet access services and managed or specialized services, there are several approaches it could take.

First, the Commission could adopt a definition of "managed or specialized services" along the lines suggested by CDT, but announce in the final order that it will allow service providers to petition for a waiver of the portion of the definition that excludes last-mile bandwidth sharing. The Commission could explain that it will grant waivers of the bandwidth-sharing prong of the definition where a service provider can demonstrate that there is no risk that the Internet access service will be starved of bandwidth.[172] The key question would be whether the bandwidth sharing is engineered such that Internet traffic retains access to a robust minimum amount of bandwidth even when the proposed "managed or specialized services" are being heavily used.[173]

Second, the Commission could adopt a definition of "managed or specialized services" that allows partial bandwidth sharing so long as Internet traffic retains access to a robust minimum level of bandwidth. A revised definition could state that a managed or specialized service must, if it shares last-mile bandwidth with Internet traffic at all, ensure that a robust amount of bandwidth remains available for Internet traffic even when the volume of managed or specialized services is unusually high. (The full text of CDT's proposed definitions are set forth in the Recommendations following immediately below.)

Either of these approaches would require the Commission to make some judgments about what constitutes a robust minimum capacity for Internet access service. In general, a robust capacity should be one that is capable of supporting a wide range of mainstream Internet applications that consumers in the current market environment expect to be able to enjoy over typical broadband connections. CDT would not recommend that the Commission set rigid numerical thresholds, however; this will of necessity be an evolving standard.

Analyzing robustness may also depend to some degree on a broadband provider's technical architecture. In particular, the Commission may choose to be more flexible about minimum bandwidth if the architecture effectively empowers subscribers to increase their Internet speeds well above the minimum simply by cutting back on their own use of managed or specialized services. This could be the case in a scenario with a dedicated (i.e., single subscriber) last-mile link and a system of bandwidth allocation that allows Internet access services to make use of any extra capacity that is left open when the subscriber's managed or specialized services are not in use. In other words, a subscriber might be able to greatly boost his Internet capacity simply by turning off his IPTV for a while. On the other hand, where last-mile architecture is

[171] AT&T Comments at 67.

[172] Waivers, when granted, need not lock the broadband provider into existing allocation mechanisms or require separate Commission approval each time the provider wants to tweak its allocations or its algorithm for polling different queues. Rather, a waiver should enable the provider to treat its services as "managed or specialized" until such time as it makes major changes to the way it allocates bandwidth – and even then only if the change may have the effect of reducing the proportion of capacity available to Internet traffic.

[173] In a network architecture in which last-mile facilities are shared among multiple users, heavy usage scenarios could include scenarios in which a subscribers' neighbors, rather than the subscriber herself, are making intense use of managed or specialized services.

shared among multiple subscribers, an individual may have less ability to affect her Internet speed through behavior of her own. This is a factor the Commission should consider when assessing systems in which bandwidth is partially shared between Internet and non-Internet services.

If the Commission wishes to provide an avenue for greater certainty in this area, it could establish a "safe harbor." For example, a bandwidth floor for Internet access could enjoy a strong presumption of robustness if it constitutes fifty percent of the total amount of bandwidth shared between the Internet and non-Internet (managed or specialized) services. This would mean that, during times of peak usage for the managed or specialized services, they could enjoy full priority over Internet traffic on one half of the shared capacity – perhaps shutting out the Internet traffic from this portion of the bandwidth entirely. But Internet traffic would retain access to the other half, with the managed or specialized services using only whatever bandwidth the Internet traffic does not need. A fifty percent threshold would create a salutary incentive for carriers, as they expand network capacity over time, to do so in ways that benefit Internet access and managed services alike.

It is important to remember, however, that such a safe harbor would come into play only for services that partially share bandwidth with Internet traffic. Services that are physically or virtually separated from Internet traffic – like many cable television services today – could qualify as managed or specialized services on that ground.

In addition, the adoption of such a safe harbor should not carry any negative presumption regarding services that do not meet it. The Commission would need to make clear that failure to qualify for the safe harbor should carry no inference one way or the other. Indeed, bandwidth-sharing arrangements that are not even close the fifty percent threshold may well offer robust Internet connectivity if the absolute amount of bandwidth is sufficiently high.

CDT believes it is entirely possible, for example, that AT&T's U-verse and other IPTV services that partially share bandwidth with Internet access traffic could be engineered to retain for Internet traffic a sufficient level of capacity to be considered robust, regardless of what percentage that capacity constitutes of the total bandwidth shared between Internet and other services. Suppose that a partially shared IPTV and Internet access network were designed and operated such that even in times of heavy IPTV usage, the system affords Internet traffic an amount of bandwidth that exceeds the Commission's recently adopted target for national broadband availability (4 Mbps downstream).[174] In such a scenario, the managed or specialized services (IPTV) simply cannot squeeze the Internet service down to a level that seriously impairs its ability to serve as a platform for the full range of mainstream functions. If the system architecture gives a subscriber the ability to increase his Internet capacity substantially above any minimum by pausing IPTV use, that would also be an important positive factor too.

In short, CDT sees no barrier to engineering Internet access service in a way that plainly retains a robust minimum capacity despite sharing bandwidth with prioritized "managed or specialized" services. That is what the Commission's definition of "managed or specialized services" should demand, if it is going to accommodate such sharing at all.

[174] *See* National Broadband Plan, Box 8-1 at 135.

B. CDT Recommendations

- The Commission should add a definition of "managed or specialized services." The text could read:

> *Managed or specialized broadband transmission service. Any communication service by wire or radio that:*
>
> > *(a) provides broadband data transmission:*
> >
> > > *(i) between an end user and a limited group of parties or endpoints; or*
> >
> > > *(ii) for a limited set of purposes or applications;*
> >
> > *(b) is not intended, marketed, or widely used as a substitute for broadband Internet access service, either individually or together with other managed or specialized services offered by the same provider; and*
> >
> > *(c) is allocated bandwidth on last-mile transmission facilities that is separate from bandwidth allocated to broadband Internet access service, such that usage spikes for the managed or specialized service do not affect the amount of last-mile bandwidth available for broadband Internet access service.*[175]

- To make clear that managed or specialized services are outside the scope of the open Internet rules, the Commission should expressly exclude them from the definition of "broadband Internet access." A revised definition could read:

> *Broadband Internet access. Internet Protocol data transmission between an end user and the Internet. Broadband Internet access shall not include:*
>
> > *(a) dial-up access requiring an end user to initiate a call across the public switched telephone network to establish a connection; or*
> >
> > *(b) any managed or specialized broadband transmission service.*

- If the Commission wishes to allow services that partially share bandwidth with Internet access traffic to be eligible to qualify as "managed or specialized services," it could take either of two approaches.
  - In a final order, the Commission could expressly state that it will grant waivers of the bandwidth sharing prong of the definition of managed or specialized services (in the definition above, prong (c)) where an applicant can show that Internet access traffic will retain access to a robust minimum amount of bandwidth even when the usage of the managed or specialized services is unusually high.

[175] This is essentially the definition suggested on page 49 of CDT's initial comments. It differs only in that it drops (c)(i) of our previous suggestion, which had referred to transmissions that "do not traverse the public Internet." We believe that provision to be largely duplicative of the version of (c) set forth above, because transmissions that do not comingle with public Internet traffic at all by definition will not share capacity with such traffic on the last mile.

- The Commission could modify prong (c) of the definition suggested above to read:

> *(c) either:*
>
> *(i) is allocated bandwidth on last-mile transmission facilities that is separate from bandwidth allocated to broadband Internet access service, such that usage spikes for the managed or specialized service do not affect the amount of last-mile bandwidth available for broadband Internet access service; or*
>
> *(ii) receives priority over Internet access traffic on last-mile transmission facilities, if at all, only in a manner engineered to ensure that a robust minimum amount of bandwidth remains available for Internet access traffic even during periods of heavy usage of the managed or specialized service.*

- In conjunction with either of the two approaches discussed immediately above, the Commission could consider creating a "safe harbor" by expressly stating in a final order that in any partial bandwidth-sharing arrangement, the amount of minimum bandwidth the system is engineered to provide for Internet access traffic will carry a strong presumption of "robustness" if it constitutes fifty percent or more of the total amount of shared bandwidth. If the Commission includes such a "safe harbor," it should expressly state that the failure to qualify for this safe harbor shall *not* create any inference or presumption of non-robustness; in appropriate circumstances, Internet access minimums may qualify as "robust" even where they are nowhere close to fifty percent.

- The Commission should require broadband providers, when offering broadband Internet access service and managed or specialized broadband transmission services in the same geographic markets, to disclose how much bandwidth they allocate to each category of service.[176]

- The Commission should expressly state that in its reports on broadband deployment pursuant to Section 706 of the Telecommunications Act of 1996, it will include an analysis of what impact, if any, the offering of managed or specialized services appears to be having on the robustness of broadband Internet access offerings.

- The Commission should expressly state that it will not hesitate to act if a service provider is neglecting Internet access in favor of managed or specialized services. Such action could include finding that the provider's managed or specialized services are now serving as substitutes for Internet access, disqualifying them as managed or specialized services and making them subject to the open Internet rules.

[176] *See* CDT Comments at 50-51.

X Wireless

A. Many of the Special Technical Considerations Cited by Various Commenters Can Be Addressed in Ways that Comply with Openness Rules.

Wireless broadband service may raise special technical considerations, but opponents of extending Internet openness rules to wireless are wrong to assume that tactics for addressing those considerations would run afoul of the rules.

As a preliminary matter, some wireless network operators say that they need to be able to prioritize voice traffic.[177] CDT does not believe that this specific kind of prioritization should violate the openness rules. As CDT discussed in our previous comments, given consumer expectations and the fact that mobile voice service has to date been the core of wireless providers' business, the Commission should expressly state that prioritizing legacy voice services will be considered reasonable network management for wireless networks.

Many commenters go on at length about the other technical challenges that arise in the wireless context. They cite factors such as spectrum limitations,[178] mobility,[179] capacity constraints and dynamic sharing,[180] and radio interference.[181] All of this argues for the importance of network management in the wireless space. Indeed, it may well be that network management tactics will need to be more aggressive than in the wireless context. But the proposed rules do not prohibit network management; they just require it to be reasonable. Nor is there any merit to the characterization of the rules as barring all traffic differentiation "subject only to a safe harbor for certain pre-approved network-management techniques."[182] The rules neither do nor should call for network management practices to be pre-approved by the Commission. Setting aside such straw-man arguments intended to overstate the rules' impact, there is no reason the rules should bar aggressive but evenhanded management of wireless networks.

Special technical characteristics, like the limited and shared nature of spectrum, may call in particular for network management tactics that focus on how much bandwidth individual users are consuming. Some opponents of the rules specifically stress the need for this kind of "differentiation based on resource consumption."[183] The Commission should put concerns to rest on this point by making clear that usage-based management of network resources does not conflict in any way with openness rules. As discussed above and in CDT's initial comments, usage-based network management should be deemed reasonable on all networks, including wireless, so long as it is nondiscriminatory with respect to content, application, or service.[184] In

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[177] AT&T Comments at 162; Comments of T-Mobile USA, Inc. ("T-Mobile Comments") at 25.

[178] Verizon Comments Attachment E, Joint Declaration of Michael D. Poling & Thomas K. Sawanobori ("Verizon Comments, Network Mgmt Decl.") at 18; Comments of Mobile Future ("Mobile Future Comments") at 13; AT&T Comments at 162-66; T-Mobile Comments at 16-21.

[179] Verizon Comments, Network Mgmt Decl. at 16; Mobile Future Comments at 15-16; AT&T Comments at 159-160; T-Mobile Comments at 22-23.

[180] Verizon Comments, Network Mgmt Decl. at 19-20; Motorola Comments at 13; CTIA Comments at 39-40; Mobile Future Comments at 12-13; AT&T Comments at 159-62.

[181] Verizon Comments, Network Mgmt Decl. at 19; Motorola Comments at 12; AT&T Comments at 161.

[182] AT&T Comments at 170-71.

[183] AT&T Comments, Exhibit 2: Jeffrey H. Reed & Nishith D. Tripathi, *The Application of Network Neutrality Regulations to Wireless Systems: A Mission Infeasible* ("Reed & Tripathi"); *see also* Verizon Comments, Network Mgmt Decl. at 19-20.

[184] *See supra* Part VII; CDT Comments 25-26.

short, tactics that focus on the *volume* of a user's traffic while remaining agnostic as to its *content* pose no risks to the Internet's open nature.

Such usage-based tactics provide the most direct and effective means for addressing the concern that individual users might "[occupy] the entire capacity of [a] base station."[185] Likewise such tactics can fully address any risk that "tethering" might unreasonably burden a network.[186] If the goal is to reduce congestion and fairly allocate shared bandwidth among wireless users, the obvious approach is to tie any restrictions, limitations, or surcharges to quantities or patterns of bandwidth usage. There simply should be no need for a network operator to ban tethering or to ban specific individual applications when volume-based tactics can fully address the problem. Indeed, targeting network management tactics at high-volume users would be substantially more effective, because it would apply to *any* subscribers imposing untenable burdens on the network, not just those subscribers engaged in particular uses that the network operator has chosen to target.

B. The Commission Should Reject Claims that Wireless Networks Require Network Operators Unconstrained Freedom to Play Favorites.

For all their discussion of technical characteristics, opponents of applying the proposed rules to wireless offer no persuasive reason why wireless providers would need to discriminate among broadband communications based on content, source, destination, ownership, application, or service.

Nothing suggests that schedulers must treat different content or applications differently in order to regulate packet flows based on radio channel conditions.[187] Similarly, load balancers can certainly allocate bandwidth based on usage rates, without regard to the particular applications being used or the contents of users' communications.[188] It remains entirely unclear why a wireless carrier would need to disable or rate-limit particular applications or online services in order to manage shared bandwidth. If two different online services generate similar patterns of bandwidth consumption, why should one be targeted for limitations and the other not? Why restrict one high-bandwidth, low-latency application but not another?

The bottom line is that network management practices should – as in the case of wireline networks – be evenly applied based on objective criteria. Wireless broadband providers do not provide a justification for unlimited network operator discretion to pick and choose among content, applications, and services.

Far from persuading that openness rules should not apply to wireless networks, opponents' claims that discriminatory treatment is somehow a necessary component of wireless network management actually underscore the importance of adopting the proposed rules. A number of comments suggest that picking and choosing among Internet applications and services and forcing online service providers to negotiate for permission or approval of carriers is exactly what some network operators envision. As more and more Internet use moves onto mobile platforms, it is crucial that rules prevent such gatekeeping.

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[185] CTIA Comments at 40.

[186] Reed & Tripathi at 39; CTIA Comments at 11; *see also* Verizon Comments, Network Mgmt Decl. at 20 (discussing the provision and unnecessary retention of MAC addresses).

[187] *See* AT&T Comments at 167.

[188] *See* AT&T Comments at 166; Verizon Comments, Network Mgmt Decl. at 19.

For example, Mobile Future says it wants the ability to incentivize "good citizen" behavior by applications.[189] But leaving network operators with broad discretion to judge good and bad, and to mete out punishment and reward on a case-by-case basis, puts network operators in precisely the gatekeeping role that the rules are intended to prevent. Mobile Future may well be right that applications need better and stronger incentives to be more efficient and less selfish in their use of bandwidth, but these incentives could best be achieved by giving subscribers reasons to care about excessive or wasteful bandwidth consumption. If subscribers faced the possibility of limits or surcharges resulting from certain bandwidth usage patterns, then they would put marketplace pressure on the application providers not to be wasteful. Creating better incentives does not require wireless network operators to pass judgment on individual applications.

Similarly, AT&T and Verizon say they need to the right to disable particular applications but stress their intention, rather than to block applications permanently, to collaborate closely with applications developers to resolve issues.[190] This kind of approach, requiring coordination and deal-cutting with network operators in order to be allowed on the network, is the antithesis of an "innovation without permission" environment. It shows exactly why rules are needed: unless pushed to maintain an open and fully interoperable environment, it appears that wireless carriers may be inclined, at least with respect to some types of network challenges, to gravitate towards approaches that reserve more gatekeeper control.

This is not to say that carriers should be forbidden from cultivating and promoting collaborations with some providers of content, applications, or services. Under the rules, wireless network operators would still be free to work with partners in offering managed or specialized services, or in delivering Internet-based offerings that do not receive any special priority in transmission. Nor would the rules create a "homogenized marketplace."[191] Network operators and others would be free to offer consumers more mediated choices, such as applications stores with offerings that have all been pre-screened and approved. Mediated offerings, however, must remain a *choice*; they should not come at the expense of consumers' ability to choose a fully open environment.

C. CDT Recommendations

- In the final order, the Commission should reaffirm that the openness rules will apply to broadband Internet access delivered via wireless networks.
- In the final order, the Commission should specify that with respect to wireless networks, prioritizing voice traffic will be considered reasonable network management.
- In the final order, the Commission should clarify that usage-based network management practices will be considered reasonable network management.

[189] Mobile Future Comments at 15.

[190] AT&T Comments at 171, 174; Verizon Comments at 45-47.

[191] *See* AT&T Comments at 154, 183.

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CDT commends the Commission for its efforts to safeguard the open character that has enabled the Internet to serve as an unprecedented platform for free expression and independent innovation. We appreciate the opportunity to comment on these important policy issues.

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