

complaints about violations of open Internet standards.<sup>141</sup> End users also stand to benefit from assurances that services on which they depend “won’t suddenly be pulled out from under them, held ransom to extra payments either from the sites or from them.”<sup>142</sup> Providing clear yet flexible rules of the road that enable the Internet to continue to flourish is the central goal of the action we take today.<sup>143</sup>

### III. OPEN INTERNET RULES

43. To preserve the Internet’s openness and broadband providers’ ability to manage and expand their networks, we adopt high-level rules embodying four core principles: transparency, no blocking, no unreasonable discrimination, and reasonable network management. These rules are generally consistent with, and should not require significant changes to, broadband providers’ current practices, and are also consistent with the common understanding of broadband Internet access service as a service that enables one to go where one wants on the Internet and communicate with anyone else online.<sup>144</sup>

<sup>141</sup> For this reason, we are not persuaded that alternative approaches, such as rules that lack a formal enforcement mechanism, a transparency rule alone, or reliance entirely on technical advisory groups to resolve disputes, would adequately address the potential harms and be less burdensome than the rules we adopt here. See, e.g., Verizon Comments at 130–34. In particular, we reject the notion that Commission action is unnecessary because the Department of Justice and the Federal Trade Commission (FTC) “are well equipped to cure any market ills.” *Id.* at 9. Our statutory responsibilities are broader than preventing antitrust violations or unfair competition. See, e.g., *News Corp. and DIRECTV Group, Inc.*, 23 FCC Rcd 3265, 3277–78, paras. 23–25 (2008). We must, for example, promote deployment of advanced telecommunications capability, ensure that charges in connection with telecommunications services are just and reasonable, ensure the orderly development of local television broadcasting, and promote the public interest through spectrum licensing. See *infra* Part IV; see also CDT Comments at 8–9; Comm’r Jon Liebowitz, FTC, *Concurring Statement of Commissioner Jon Liebowitz Regarding the Staff Report: “Broadband Connectivity Competition Policy”* (2007), available at [www.ftc.gov/speeches/leibowitz/V070000statement.pdf](http://www.ftc.gov/speeches/leibowitz/V070000statement.pdf) (“[T]here is little agreement over whether antitrust, with its requirements for *ex post* case by case analysis, is capable of fully and in a timely fashion resolving many of the concerns that have animated the net neutrality debate.”).

<sup>142</sup> Zittrain Comments at 1.

<sup>143</sup> Contrary to the suggestion of some, neither the Department of Justice nor the FTC has concluded that the broadband market is competitive or that open Internet rules are unnecessary. See McDowell Statement at \*4; Baker Statement at \*3. In the submission in question, the Department observed that: (1) the wireline broadband market is highly concentrated, with most consumers served by at most two providers; (2) the prospects for additional wireline competition are dim due to the high fixed and sunk costs required to provide wireline broadband service; and (3) the extent to which mobile wireless offerings will compete with wireline offerings is unknown. See DOJ *Ex Parte* Jan. 4, 2010, GN Dkt. No. 09-51, at 8, 10, 13-14. The Department specifically endorsed requiring greater transparency by broadband providers, *id.* at 25-27, and recognized that in concentrated markets, like the broadband market, it is appropriate for policymakers to limit “business practices that thwart innovation.” *Id.* at 11. Finally, although the Department cautioned that care must be taken to avoid stifling infrastructure investment, it expressed particular concern about price regulation, which we are not adopting. *Id.* at 28. In 2007, the FTC issued a staff report on broadband competition policy. See FTC, *Broadband Connectivity Competition Policy* (June 2007). Like the Department, the FTC staff did not conclude that the broadband market is competitive. To the contrary, the FTC staff made clear that it had not studied the state of competition in any specific markets. *Id.* at 8, 105, 156. With regard to the merits of open Internet rules, the FTC staff report recited arguments pro and con, see, e.g., *id.* at 82, 105, 147-54, and called for additional study, *id.* at 7, 9-10, 157.

<sup>144</sup> The definition of “broadband Internet access service” proposed in the *Open Internet NPRM* encompassed any “Internet Protocol data transmission between an end user and the Internet.” *Open* (continued...)

### A. Scope of the Rules

44. We find that open Internet rules should apply to “broadband Internet access service,” which we define as:

*A mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all Internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up Internet access service. This term also encompasses any service that the Commission finds to be providing a functional equivalent of the service described in the previous sentence, or that is used to evade the protections set forth in this Part.*

The term “broadband Internet access service” includes services provided over any technology platform, including but not limited to wire, terrestrial wireless (including fixed and mobile wireless services using licensed or unlicensed spectrum), and satellite.<sup>145</sup>

45. “Mass market” means a service marketed and sold on a standardized basis to residential customers, small businesses, and other end-user customers such as schools and libraries.<sup>146</sup> For purposes of this definition, “mass market” also includes broadband Internet access services purchased with the support of the E-rate program that may be customized or individually negotiated. The term does not include enterprise service offerings, which are typically offered to larger organizations through customized or individually negotiated arrangements.<sup>147</sup>

46. “Broadband Internet access service” encompasses services that “provide the capability to transmit data to and receive data from all or substantially all Internet endpoints.” To

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*Internet NPRM*, 24 FCC Rcd at 13128, App. A. Some commenters argued that this definition would cover a variety of services that do not constitute broadband Internet access service as end users and broadband providers generally understand that term, but that merely offer data transmission between a discrete set of Internet endpoints (for example, virtual private networks, or videoconferencing services). *See, e.g.*, AT&T Comments at 96–100; Communications Workers of America (CWA) Comments at 10–12; Sprint Reply at 16–17; *see also* CDT Comments at 49–50 (distinguishing managed (or specialized) services from broadband Internet access service by defining the former, in part, as data transmission “between an end user and a *limited* group of parties or endpoints”) (emphasis added).

<sup>145</sup> In the *Open Internet NPRM*, we proposed separate definitions of the terms “broadband Internet access,” and “broadband Internet access service.” *Open Internet NPRM*, 24 FCC Rcd at 13128, App. A § 8.3. For purposes of these rules, we find it simpler to define just the service.

<sup>146</sup> *See, e.g.*, *SBC Commc’ns Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, Memorandum Opinion and Order, 20 FCC Rcd 18290, 18335, para. 82 n.243 (2005) (“The Commission has defined mass market customers as residential and small business customers that purchase standardized offerings of communications services.”); *Applications of NYNEX Corp. Transferor, and Bell Atlantic Corp., Transferee*, Memorandum Opinion and Order, 12 FCC Rcd 19985, 20016, para. 53 (1997) (“Residential and small business customers are served primarily through mass marketing techniques including regional advertising and telemarketing.”).

<sup>147</sup> *See, e.g.*, *AT&T and BellSouth Corp.*, Memorandum Opinion and Order, 22 FCC Rcd 5662, 5709-10, para. 85 (2007) (“[E]nterprise customers tend to be sophisticated and knowledgeable (often with the assistance of consultants), . . . contracts are typically the result of RFPs and are individually-negotiated (and frequently subject to non-disclosure clauses), . . . contracts are generally for customized service packages, and that the contracts usually remain in effect for a number of years.”).

ensure the efficacy of our rules in this dynamic market, we also treat as a “broadband Internet access service” any service the Commission finds to be providing a functional equivalent of the service described in the previous sentence, or that is used to evade the protections set forth in these rules.

47. A key factor in determining whether a service is used to evade the scope of the rules is whether the service is used as a substitute for broadband Internet access service. For example, an Internet access service that provides access to a substantial subset of Internet endpoints based on end users preference to avoid certain content, applications, or services,<sup>148</sup> Internet access services that allow some uses of the Internet (such as access to the World Wide Web) but not others (such as e-mail); or a “Best of the Web” Internet access service that provides access to 100 top websites could not be used to evade the open Internet rules applicable to “broadband Internet access service.” Moreover, a broadband provider may not evade these rules simply by blocking end users’ access to some Internet endpoints. Broadband Internet access service likely does not include services offering connectivity to one or a small number of Internet endpoints for a particular device, *e.g.*, connectivity bundled with e-readers, heart monitors, or energy consumption sensors, to the extent the service relates to the functionality of the device.<sup>149</sup> Nor does broadband Internet access service include virtual private network services, content delivery network services, multichannel video programming services, hosting or data storage services, or Internet backbone services (if those services are separate from broadband Internet access service). These services typically are not mass market services and/or do not provide the capability to transmit data to and receive data from all or substantially all Internet endpoints.<sup>150</sup>

48. Although one purpose of our open Internet rules is to prevent blocking or unreasonable discrimination in transmitting online traffic for applications and services that compete with traditional voice and video services, we determine that open Internet rules applicable to fixed broadband providers should protect all types of Internet traffic, not just voice or video Internet traffic. This reflects, among other things, our view that it is generally preferable to neither require nor encourage broadband providers to examine Internet traffic in order to discern which traffic is subject to the rules. Even if we were to limit our rules to voice or video traffic, moreover, it is unlikely that broadband providers could reliably identify such traffic in all circumstances, particularly if the voice or video traffic originated from new services using uncommon protocols.<sup>151</sup> Indeed, limiting our rules to voice and video traffic alone could spark a costly and wasteful cat-and-mouse game in which edge providers and end users seeking to obtain the protection of our rules could disguise their traffic as protected communications.<sup>152</sup>

<sup>148</sup> See, *e.g.*, Koshernet, [www.koshernet.com](http://www.koshernet.com).

<sup>149</sup> To the extent these services are provided by broadband providers over last-mile capacity shared with broadband Internet access service, they would be specialized services. See *infra* Part III.G.

<sup>150</sup> We also note that our rules apply only as far as the limits of a broadband provider’s control over the transmission of data to or from its broadband customers.

<sup>151</sup> This is true notwithstanding the increasing sophistication of network management tools, described above in Part II.B. See Arthur Callado et al., *A Survey on Internet Traffic Identification*, 11 IEEE COMMNC’NS SURVEYS & TUTORIALS 37, 49 (2009).

<sup>152</sup> See IETF, REFLECTIONS ON INTERNET TRANSPARENCY, RFC 4924 at 5 (Jul. 2007) (RFC 4924) (“In practice, filtering intended to block or restrict application usage is difficult to successfully implement without customer consent, since over time developers will tend to re-engineer filtered protocols so as to avoid the filters. Thus over time, filtering is likely to result in interoperability issues or unnecessary complexity. These costs come without the benefit of effective filtering . . . .”); IETF, CONSIDERATIONS ON THE USE OF A SERVICE IDENTIFIER IN PACKET HEADERS, RFC 3639 at 3 (Oct. 2003) (RFC 3639) (“Attempts  
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49. We recognize that there is one Internet (although it is comprised of a multitude of different networks), and that it should remain open and interconnected regardless of the technologies and services end users rely on to access it. However, for reasons discussed in Part III.E below related to mobile broadband—including the fact that it is at an earlier stage and more rapidly evolving—we apply open Internet rules somewhat differently to mobile broadband than to fixed broadband at this time. We define “fixed broadband Internet access service” as a broadband Internet access service that serves end users primarily at fixed endpoints using stationary equipment, such as the modem that connects an end user’s home router, computer, or other Internet access device to the network. This term encompasses fixed wireless broadband services (including services using unlicensed spectrum) and fixed satellite broadband services. We define “mobile broadband Internet access service” as a broadband Internet access service that serves end users primarily using mobile stations.<sup>153</sup> Mobile broadband Internet access includes services that use smartphones as the primary endpoints for connection to the Internet.<sup>154</sup> The discussion in this Part applies to both fixed and mobile broadband, unless specifically noted. Part III.E further discusses application of open Internet rules to mobile broadband.

50. For a number of reasons, these rules apply only to the provision of broadband Internet access service and not to edge provider activities, such as the provision of content or applications over the Internet.<sup>155</sup> First, the Communications Act particularly directs us to prevent harms related to the utilization of networks and spectrum to provide communication by wire and radio.<sup>156</sup> Second, these rules are an outgrowth of the Commission’s *Internet Policy Statement*.<sup>157</sup> The *Statement* was issued in 2005 when the Commission removed key regulatory protections from DSL service, and was intended to protect against the harms to the open Internet that might

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by intermediate systems to impose service-based controls on communications against the perceived interests of the end parties to the communication are often circumvented. Services may be tunneled within other services, proxied by a collaborating external host (e.g., an anonymous redirector), or simply run over an alternate port (e.g., port 8080 vs port 80 for HTTP.”). Cf. RFC 3639 at 4 (“From this perspective of network and application utility, it is preferable that no action or activity be undertaken by any agency, carrier, service provider, or organization which would cause end-users and protocol designers to generally obscure service identification information from the IP packet header.”). Our rules are nationwide and do not vary by geographic area, notwithstanding potential variations across local markets for broadband Internet access service. Uniform national rules create a more predictable policy environment for broadband providers, many of which offer services in multiple geographic areas. See, e.g., Level 3 Comments at 13; Charter Comments at iv. Edge providers will benefit from uniform treatment of their traffic in different localities and by different broadband providers. Broadband end users will also benefit from uniform rules, which protect them regardless of where they are located or which broadband provider they obtain service from.

<sup>153</sup> See 47 U.S.C. § 153(34) (“The term ‘mobile station’ means a radio-communication station capable of being moved and which ordinarily does move.”).

<sup>154</sup> We note that Section 337(f)(1) of the Act excludes public safety services from the definition of mobile broadband Internet access service.

<sup>155</sup> But see AT&T Comments at 32–34; NCTA Comments at 48–49; MetroPCS Reply at 31–34; TWC PN Reply at 11–12.

<sup>156</sup> See 47 U.S.C. § 151.

<sup>157</sup> When the Commission adopted the *Internet Policy Statement*, it promised to incorporate the principles into “ongoing policymaking activities.” *Internet Policy Statement*, 20 FCC Rcd at 14988, para. 5.

result from broadband providers' subsequent conduct.<sup>158</sup> The Commission has always understood those principles to apply to broadband Internet access service only, as have most private-sector stakeholders.<sup>159</sup> Thus, insofar as these rules translate existing Commission principles into codified rules, it is appropriate to limit the application of the rules to broadband Internet access service. Third, broadband providers control access to the Internet for their subscribers and for anyone wishing to reach those subscribers.<sup>160</sup> They are therefore capable of blocking, degrading, or favoring any Internet traffic that flows to or from a particular subscriber.

51. We also do not apply these rules to dial-up Internet access service because telephone service has historically provided the easy ability to switch among competing dial-up Internet access services. Moreover, the underlying dial-up Internet access service is subject to protections under Title II of the Communications Act. The Commission's interpretation of those protections has resulted in a market for dial-up Internet access that does not present the same concerns as the market for broadband Internet access.<sup>161</sup> No commenters suggested extending open Internet rules to dial-up Internet access service.

52. Finally, we decline to apply our rules directly to coffee shops, bookstores, airlines, and other entities when they acquire Internet service from a broadband provider to enable their patrons to access the Internet from their establishments (we refer to these entities as "premise operators").<sup>162</sup> These services are typically offered by the premise operator as an ancillary benefit to patrons. However, to protect end users, we include within our rules broadband Internet access services provided to premise operators for purposes of making service available to their patrons.<sup>163</sup> Although broadband providers that offer such services are subject to

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<sup>158</sup> See, e.g., *Applications for Consent to the Assignment and/or Transfer of Control of Licenses, Adelphia Commc'ns Corp. et al.*, Memorandum Opinion and Order, 21 FCC Rcd 8203, 8299, para. 223 (2006) (the *Internet Policy Statement* "contains principles against which the conduct of Comcast, Time Warner, and other broadband service providers can be measured"); *AT&T and BellSouth Corp.*, Memorandum Opinion and Order, 22 FCC Rcd 5662, 5726, para. 119 (2007) (similar).

<sup>159</sup> See, e.g., *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 14853, 14976 (2005) (*Wireline Broadband Order*) (separate statement of Chairman Martin); *id.* at 14980 (Statement of Commissioner Copps, concurring); *id.* at 14983 (Statement of Commissioner Adelstein, concurring); Verizon June 8, 2009 Comments, GN Docket No. 09-51, at 86 ("These principles have helped to guide wireline providers' practices and to ensure that consumers' expectations for their public Internet access services are met."). The Commission has conditioned wireline broadband provider merger approvals on the merged entity's compliance with these obligations. See, e.g., *SBC Commc'ns Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, Memorandum Opinion and Order, 20 FCC Rcd 18290, 18392, para. 211 (2005).

<sup>160</sup> See *supra* Part II.B. We thus find broadband providers distinguishable from other participants in the Internet marketplace. See, e.g., Verizon Comments at 36-39 (discussing a variety of other participants in the Internet ecosystem); Verizon Reply at 36-37 (same); NCTA Comments at 47-49 (same); NCTA Reply at 22 (same).

<sup>161</sup> See *Open Internet NPRM*, 24 FCC Rcd at 13101, para. 91 n.209.

<sup>162</sup> See *Communications Assistance for Law Enforcement Act and Broadband Access and Services*, First Report and Order and Further Notice of Proposed Rulemaking, 20 FCC Rcd 14989, 15006-07, para. 36, n.99 (2005) (*CALEA Order*). Consistent with the Commission's approach in the *CALEA Order*, "[w]e note . . . that the provider of underlying [broadband service] facilities to such an establishment would be subject to [the rules]." *Id.* at 15007, para. 36.

open Internet rules, we note that addressing traffic unwanted by a premise operator is a legitimate network management purpose.<sup>164</sup>

## B. Transparency

53. Promoting competition throughout the Internet ecosystem is a central purpose of these rules. Effective disclosure of broadband providers' network management practices and the performance and commercial terms of their services promotes competition—as well as innovation, investment, end-user choice, and broadband adoption—in at least five ways. First, disclosure ensures that end users can make informed choices regarding the purchase and use of broadband service, which promotes a more competitive market for broadband services and can thereby reduce broadband providers' incentives and ability to violate open Internet principles.<sup>165</sup> Second, and relatedly, as end users' confidence in broadband providers' practices increases, so too should end users' adoption of broadband services—leading in turn to additional investment in Internet infrastructure as contemplated by Section 706 of the 1996 Act and other provisions of the communications laws.<sup>166</sup> Third, disclosure supports innovation, investment, and competition by ensuring that startups and other edge providers have the technical information necessary to create and maintain online content, applications, services, and devices, and to assess the risks and benefits of embarking on new projects.<sup>167</sup> Fourth, disclosure increases the likelihood that broadband providers will abide by open Internet principles, and that the Internet community will

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<sup>163</sup> We note that the premise operator that purchases the Internet service remains the end user for purposes of our rules, however. *See infra* Part III.D (discussing the application of our definition of “reasonable network management” in the context of traffic unwanted by premise operators). Moreover, although not bound by our rules, we encourage premise operators to disclose relevant restrictions on broadband service they make available to their patrons.

<sup>164</sup> *See infra* Part III.D. We also do not include within the rules free access to individuals' wireless networks, even if those networks are intentionally made available to others. *See* Electronic Frontier Foundation (EFF) Comments at 25–28. No commenter argued that open Internet rules should apply to individual operators of wireless networks in these circumstances.

<sup>165</sup> Broadband providers may have an incentive not to provide such information to end users, as doing so can lessen switching costs for end users. Third-party information sources such as Consumer Reports and the trade press do not routinely provide such information. *See* CDT Comments at 31; CWA Comments at 21; DISH Comments at 2; Google Comments at ii, 64–66; Level 3 Comments at 13; Sandoval Reply at 60. Economic literature in this area also confirms that policies requiring firms to disclose information generally benefit competition and consumers. *See, e.g.,* Mark Armstrong, *Interactions Between Competition and Consumer Policy*, 4 COMPETITION POLICY INT'L 97 113–16 (Spring 2008), [eprints.ucl.ac.uk/7634/1/7634.pdf](http://eprints.ucl.ac.uk/7634/1/7634.pdf).

<sup>166</sup> *See* PIC Reply at 16–18; Free Press Comments at 43–45; Ad Hoc Comments at ii; CDT Comments at 5–7; ALA Comments at 3; National Hispanic Media Coalition (NHMC) Comments at 8; National Broadband Plan at 168, 174 (lack of trust in Internet is significant factor preventing non-adopters from subscribing to broadband services); 47 U.S.C. §§ 151, 230, 254, 1302. A recent FCC survey found that among non-broadband end users, 46% believed that the Internet is dangerous for kids, and 57% believed that it was too easy for personal information to be stolen online. JOHN B. HERRIGAN, FCC SURVEY: BROADBAND ADOPTION & USE IN AMERICA 17 (Mar. 2010), *available at* [www.fcc.gov/DiversityFAC/032410/consumer-survey-herrigan.pdf](http://www.fcc.gov/DiversityFAC/032410/consumer-survey-herrigan.pdf).

<sup>167</sup> *See, e.g.,* OIC Comments at 89–91 (disclosure requirements would likely increase the speed of innovation, especially in the wireless space); Google Comments at 66–67 (failure to provide information to developers inhibits innovation and investment); Data Foundry Comments at 10; CDT Comments at 31, 33.

identify problematic conduct and suggest fixes.<sup>168</sup> Transparency thereby increases the chances that harmful practices will not occur in the first place and that, if they do, they will be quickly remedied, whether privately or through Commission oversight. Fifth, disclosure will enable the Commission to collect information necessary to assess, report on, and enforce the other open Internet rules.<sup>169</sup> For all of these reasons, most commenters agree that informing end users, edge providers, and the Commission about the network management practices, performance, and commercial terms of broadband Internet access service is a necessary and appropriate step to help preserve an open Internet.<sup>170</sup>

54. The *Open Internet NPRM* sought comment on what end users and edge providers need to know about broadband service, how this information should be disclosed, when disclosure should occur, and where information should be available.<sup>171</sup> The resulting record supports adoption of the following rule:

*A person engaged in the provision of broadband Internet access service shall publicly disclose accurate information regarding the network management practices, performance, and commercial terms of its broadband Internet access services sufficient for consumers to make informed choices regarding use of such services and for content, application, service, and device providers to develop, market, and maintain Internet offerings.*<sup>172</sup>

55. The rule does not require public disclosure of competitively sensitive information or information that would compromise network security or undermine the efficacy of reasonable network management practices.<sup>173</sup> For example, a broadband provider need not publicly disclose

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<sup>168</sup> On a number of occasions, broadband providers have blocked lawful traffic without informing end users or edge providers. In addition to the Madison River and Comcast-BitTorrent incidents described above, broadband providers appear to have covertly blocked thousands of BitTorrent uploads in the United States throughout early 2008. See Marcel Dischinger et al., *supra* note 111; Catherine Sandoval, *Disclosure, Deception, and Deep-Packet Inspection*, 78 FORDHAM L. REV. 641, 666–84 (2009).

<sup>169</sup> See 47 U.S.C. §§ 154(k), 218.

<sup>170</sup> See, e.g., CDT Comments at 31; CWA Comments at 21; DISH Comments at 2; Google Comments at ii, 64; Level 3 Comments at 13; Prof. Catherine Sandoval Reply at 30. Other commenters support a transparency rule but oppose codification of other principles. See, e.g., LARIAT Comments at 3–4; NTCA Comments at 2; NTT Comments at 2.

<sup>171</sup> See *Open Internet NPRM*, 24 FCC Rcd at 13110–11, paras. 125–29; *Further Inquiry into Two Under-Developed Issues in the Open Internet Proceeding*, Public Notice, 25 FCC Rcd 12637, 12641 (2010) (*Open Internet PN*).

<sup>172</sup> For purposes of these rules, “consumer” includes any subscriber to the broadband provider’s broadband Internet access service, and “person” includes any “individual, group of individuals, corporation, partnership, association, unit of government or legal entity, however organized,” *cf.* 47 C.F.R. § 54.8(a)(6). We also expect broadband providers to disclose information about the impact of “specialized services,” if any, on last-mile capacity available for, and the performance of, broadband Internet access service. See *infra* Part III.G.

<sup>173</sup> Commenters disagree on the risks of requiring disclosure of information regarding technical, proprietary, and security-related management practices. Compare, e.g., American Cable Association (ACA) Comments at 17; AFTRA et al. Comments at ii, 16; Cox Comments at 11; Fiber-to-the-Home Council (FTTH) Comments at 3, 27; Libove Comments at 4; Sprint Comments at 16; T-Mobile Comments at 39, *with*, e.g., Free Press Comments at 117–18; Free Press Reply at 17–19; Digital Education Coalition (DEC) Comments at 14; NJRC Comments at 20–21. We may subsequently require disclosure of such  
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information regarding measures it employs to prevent spam practices at a level of detail that would enable a spammer to defeat those measures.

56. Despite broad agreement that broadband providers should disclose information sufficient to enable end users and edge providers to understand the capabilities of broadband services, commenters disagree about the appropriate level of detail required to achieve this goal.<sup>174</sup> We believe that at this time the best approach is to allow flexibility in implementation of the transparency rule, while providing guidance regarding effective disclosure models. We expect that effective disclosures will likely include some or all of the following types of information, timely and prominently disclosed in plain language accessible to current and prospective end users and edge providers, the Commission, and third parties who wish to monitor network management practices for potential violations of open Internet principles:<sup>175</sup>

#### Network Practices<sup>176</sup>

- *Congestion Management*: If applicable, descriptions of congestion management practices; types of traffic subject to practices; purposes served by practices; practices' effects on end users' experience; criteria used in practices, such as indicators of congestion that trigger a practice, and the typical frequency of congestion; usage limits and the consequences of exceeding them; and references to engineering standards, where appropriate.<sup>177</sup>
- *Application-Specific Behavior*: If applicable, whether and why the provider blocks or rate-controls specific protocols or protocol ports, modifies protocol fields in ways not prescribed by the protocol standard, or otherwise inhibits or favors certain applications or classes of applications.<sup>178</sup>
- *Device Attachment Rules*: If applicable, any restrictions on the types of devices and any approval procedures for devices to connect to the network. (For further

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information to the Commission; to the extent we do, we will ensure that such information is protected consistent with existing Commission procedures for treatment of confidential information.

<sup>174</sup> Compare, e.g., AT&T Comments at 191, 193; Bright House Comments at 11 (high-level disclosure is adequate) with, e.g., CDT Comments at 31; Google Comments at 66; Center for Media Justice et al. Comments at 64; NJRC Comments at 23; Vonage Comments at ii, 23.

<sup>175</sup> In setting forth the following categories of information subject to the transparency principle, we assume that the broadband provider has chosen to offer its services on standardized terms, although providers of "information services" are not obligated to do so. See generally paras. 45, 79. If the provider tailors its terms of service to meet the requirements of an individual end user, those terms must at a minimum be disclosed to the end user in accordance with the transparency principle.

<sup>176</sup> See CCIA/CEA Comments at 33; DEC Comments at 11–12; Free Press Comments at 112–13, 115–16 n.232; Google Comments at 65–66; Information Technology Industry Council (ITIC) Comments at 10–12; PIC Comments at 63–65; RNK Comments at 7–8; Software & Information Industry Association (SIIA) Comments at 8.

<sup>177</sup> We note that the description of congestion management practices provided by Comcast in the wake of the Comcast-BiTorrent incident likely satisfies the transparency rule with respect to congestion management practices. See Comcast, Network Management Update, [www.comcast.net/terms/network/update](http://www.comcast.net/terms/network/update); Comcast, Comcast Corporation Description of Planned Network Management Practices to be Deployed Following the Termination of Current Practices, [downloads.comcast.net/docs/Attachment\\_B\\_Future\\_Practices.pdf](http://downloads.comcast.net/docs/Attachment_B_Future_Practices.pdf).

<sup>178</sup> But see *infra* para. 73.

discussion of required disclosures regarding device and application approval procedures for mobile broadband providers, see paragraph 98, *infra*.)

- *Security*: If applicable, practices used to ensure end-user security or security of the network, including types of triggering conditions that cause a mechanism to be invoked (but excluding information that could reasonably be used to circumvent network security).

#### Performance Characteristics<sup>179</sup>

- *Service Description*: A general description of the service, including the service technology, expected and actual access speed and latency, and the suitability of the service for real-time applications.
- *Impact of Specialized Services*: If applicable, what specialized services, if any, are offered to end users, and whether and how any specialized services may affect the last-mile capacity available for, and the performance of, broadband Internet access service.

#### Commercial Terms<sup>180</sup>

- *Pricing*: For example, monthly prices, usage-based fees, and fees for early termination or additional network services.
- *Privacy Policies*: For example, whether network management practices entail inspection of network traffic, and whether traffic information is stored, provided to third parties, or used by the carrier for non-network management purposes.
- *Redress Options*: Practices for resolving end-user and edge provider complaints and questions.

We emphasize that this list is not necessarily exhaustive, nor is it a safe harbor—there may be additional information, not included above, that should be disclosed for a particular broadband service to comply with the rule in light of relevant circumstances. Broadband providers should examine their network management practices and current disclosures to determine what additional information, if any, should be disclosed to comply with the rule.

57. In the *Open Internet NPRM*, we proposed that broadband providers publicly disclose their practices on their websites and in promotional materials.<sup>181</sup> Most commenters agree that a provider's website is a natural place for end users and edge providers to find disclosures,<sup>182</sup> and several contend that a broadband provider's only obligation should be to post its practices on its website.<sup>183</sup> Others assert that disclosures should also be displayed prominently at the point-of-sale, in bill inserts, and in the service contract.<sup>184</sup> We agree that broadband providers must, at a

<sup>179</sup> See CCIA/CEA Comments at 33; Free Press Comments at 112–13, 115–16 n.232; Google Comments at 65–66; ITIC Comments at 10–12; Nokia Siemens Comments at 12; PIC Comments at 63–65; SIIA Comments at 8.

<sup>180</sup> See CCIA/CEA Comments at 33; Free Press Comments at 112–13, 115–16 n.232; Google Comments at 65–66; PIC Comments at 63–65; SIIA Comments at 8.

<sup>181</sup> *Open Internet NPRM*, 24 FCC Rcd at 13110, para. 126.

<sup>182</sup> See, e.g., CDT Comments at 36; Charter Comments at 21; DEC Comments at 3, 14; DISH Comments at 6; NHMC Comments at 9; OIC Comments at 90; PIA Comments at 65.

<sup>183</sup> See, e.g., ACA Comments at iv, 16; Bright House Comments at 11.

<sup>184</sup> See, e.g., Netflix Comments at 8; PIA Comments at 64; NJRC Comments at 19–20, 24; NHMC Comments at 9; BBIC/BRC Comments at 7.

minimum, prominently display or provide links to disclosures on a publicly available, easily accessible website that is available to current and prospective end users and edge providers as well as to the Commission, and must disclose relevant information at the point of sale. Current end users must be able to easily identify which disclosures apply to their service offering. Broadband providers' online disclosures shall be considered disclosed to the Commission for purposes of monitoring and enforcement. We may require additional disclosures directly to the Commission.<sup>185</sup>

58. We anticipate that broadband providers may be able to satisfy the transparency rule through a single disclosure, and therefore do not at this time require multiple disclosures targeted at different audiences.<sup>186</sup> We also decline to adopt a specific format for disclosures, and instead require that disclosure be sufficiently clear and accessible to meet the requirements of the rule.<sup>187</sup> We will, however, continue to monitor compliance with this rule, and may require adherence to a particular set of best practices in the future.<sup>188</sup>

59. Although some commenters assert that a disclosure rule will impose significant burdens on broadband providers, no commenter cites any particular source of increased costs, or attempts to estimate costs of compliance.<sup>189</sup> For a number of reasons, we believe that the costs of the disclosure rule we adopt today are outweighed by the benefits of empowering end users and edge providers to make informed choices and of facilitating the enforcement of the other open Internet rules. First, we require only that providers post disclosures on their websites and provide disclosure at the point of sale, not that they bear the cost of printing and distributing bill inserts or other paper documents to all existing customers.<sup>190</sup> Second, although we may subsequently

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<sup>185</sup> See *infra* Part IV.D.

<sup>186</sup> But we expect that broadband providers will make disclosures in a manner accessible by people with disabilities.

<sup>187</sup> Some commenters advocate for a standard disclosure format. See, e.g., Adam Candeub et al. Reply at 7; Level 3 Comments at 13; Sprint Comments at 17. Others support a plain language requirement. See, e.g., NATOA Comments at 7; NJRC Comments at 19; IFTA Comments at 16. Other commenters, however, argue against the imposition of a standard format as inflexible and difficult to implement. See, e.g., Cox Comments at 10; National Telecommunications Cooperative Association (NTCA) Comments at 9; Qwest Comments at 11. The approach we adopt is similar to the approach adopted in the Commission's *Truth-in-Billing Proceeding*, where we set out basic guidelines. *Truth-in-Billing and Billing Format*, First Report and Order and Further NPRM, 14 FCC Rcd 7492, 7495–96, paras. 3–5 (1999).

<sup>188</sup> We may address this issue as part of a separate, ongoing proceeding regarding transparency for communications services more generally. *Consumer Information and Disclosure*, Notice of Inquiry, FCC 09-68 (rel. Aug. 28, 2010). Relatedly, the Commission has begun an effort, in partnership with broadband providers, to measure the actual speed and performance of broadband service, and we expect that the data generated by this effort will inform Commission efforts regarding disclosure. See *Comment Sought on Residential Fixed Broadband Services Testing and Measurement Solution, Pleading Cycle Established*, Public Notice, 25 FCC Rcd 3836 (2010) (SamKnows project); *Comment Sought on Measurement of Mobile Broadband Network Performance and Coverage*, Public Notice, 25 FCC Rcd 7069 (2010) (same).

<sup>189</sup> See, e.g., NTCA Comments at 9, 43–44; US Telecom Comments at 52; ADTRAN Comments at i, 9, 11; Texas Public Policy Foundation (TPPF) Comments at 99; Telecommunications Industry Association (TIA) Comments at 31–32.

<sup>190</sup> In a separate proceeding, the Commission has determined that the costs of making disclosure materials available on a service provider's website are outweighed by the public benefits where the disclosure requirement applies only to entities already using the Internet for other purposes. See *Standardized and Enhanced Disclosure Requirements for Television Broadcast Licensee Public Interest Obligations*, Report and Order, 23 FCC Rcd 1274, 1277–78, paras. 7–10 (2008).

determine that it is appropriate to require that specific information be disclosed in particular ways, the transparency rule we adopt today gives broadband providers some flexibility to determine what information to disclose and how to disclose it. We also expressly exclude from the rule competitively sensitive information, information that would compromise network security, and information that would undermine the efficacy of reasonable network management practices. Third, as discussed below, by setting the effective date of these rules 60 days after notice in the Federal Register announcing the decision of the Office of Management and Budget regarding its mandatory approval of the information collection requirements contained in the rules, we give broadband providers adequate time to develop cost effective methods of compliance.

60. A key purpose of the transparency rule is to enable third-party experts such as independent engineers and consumer watchdogs to monitor and evaluate network management practices, in order to surface concerns regarding potential open Internet violations. We also note the existence of free software tools that enable Internet end users and edge providers to monitor and detect blocking and discrimination by broadband providers.<sup>191</sup> Although current tools cannot detect all instances of blocking or discrimination and cannot substitute for disclosure of network management policies, such tools may help supplement the transparency rule we adopt today.<sup>192</sup>

61. Although transparency is essential for preserving Internet openness, we disagree with commenters that suggest it is alone sufficient to prevent open Internet violations.<sup>193</sup> The record does not convince us that a transparency requirement by itself will adequately constrain problematic conduct,<sup>194</sup> and we therefore adopt two additional rules, as discussed below.

### C. No Blocking and No Unreasonable Discrimination

#### 1. No Blocking

62. The freedom to send and receive lawful content and to use and provide applications and services without fear of blocking is essential to the Internet's openness and to competition in adjacent markets such as voice communications and video and audio

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<sup>191</sup> See Sandoval Comments at 4–5. For example, the Max Planck Institute analyzed data collected by the *Glasnost* tool from thousands of end user, and found that broadband providers were discriminating against application-specific traffic. See WCB Letter 12/13/10, Attach. at 235–39, Max Planck Institute for Software Systems, *Glasnost: Results from Tests for BitTorrent Traffic Blocking*, [broadband.mpi-sws.org/transparency/results](http://broadband.mpi-sws.org/transparency/results). *Netalyzer* is a National Science Foundation-funded project that tests a wide range of network characteristics. See International Computer Science Institute, *Netalyzer*, [netalyzer.icsi.berkeley.edu](http://netalyzer.icsi.berkeley.edu). Similar tools are being developed for mobile broadband services. See, e.g., WindRider, *Mobile Network Neutrality Monitoring System*, [www.cs.northwestern.edu/~ict992/mobile.htm](http://www.cs.northwestern.edu/~ict992/mobile.htm).

<sup>192</sup> For an example of a public-private partnership that could encourage the development of new tools to assess network management practices, see FCC Open Internet Apps Challenge, [www.openinternet.gov/challenge](http://www.openinternet.gov/challenge).

<sup>193</sup> See, e.g., Qwest Comments at 44–45.

<sup>194</sup> See, e.g., Barbara van Schewick, *Network Neutrality: What a Non-Discrimination Rule Should Look Like* at 22 (Dec. 14, 2010) (“In order for disclosure to have a disciplining effect, customers need to be able to switch to another provider that does not impose a similar restriction, and they need to be able to do so at low costs.”) (van Schewick Dec. 14, 2010 White Paper), *attached to* Letter from Barbara van Schewick, to Marlene Dortch, Secretary, FCC, GN Docket No. 09-191 at Attach. A (filed Dec. 14, 2010); CCIA/CEA Comments at 32; Frischmann Comments at 5; ARL et al. Comments at 5; Netflix Comments at 5; NJRC Comments at 16–17; OIC Reply at 16; Amazon.com Comments at 2.

programming.<sup>195</sup> Similarly, the ability to connect and use any lawful devices that do not harm the network helps ensure that end users can enjoy the competition and innovation that result when device manufacturers can depend on networks' openness.<sup>196</sup> Moreover, the no-blocking principle has been broadly accepted since its inclusion in the Commission's *Internet Policy Statement*. Major broadband providers represent that they currently operate consistent with this principle and are committed to continuing to do so.<sup>197</sup>

63. In the *Open Internet NPRM*, the Commission proposed codifying the original three *Internet Policy Statement* principles that addressed blocking of content, applications and services, and devices.<sup>198</sup> After consideration of the record, we consolidate the proposed rules into a single rule for fixed broadband providers:<sup>199</sup>

*A person engaged in the provision of fixed broadband Internet access service, insofar as such person is so engaged, shall not block lawful content, applications, services, or non-harmful devices, subject to reasonable network management.*

64. The phrase "content, applications, services" refers to all traffic transmitted to or from end users of a broadband Internet access service, including traffic that may not fit cleanly into any of these categories.<sup>200</sup> The rule protects only transmissions of lawful content, and does

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<sup>195</sup> See CDT Comments at 22–23; National Association of Realtors (NAR) Comments at 1–2; Netflix Comments at 3–4; Red Hat Comments at 2–3; SIIA Comments at 5–6; AOL Reply at 3–4; Google Reply at 16–18; Skype Reply at 1, 5–6; Letter from Ernesto Falcon, PK, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 09-191, 10-127, WC Docket No. 07-52 (Oct. 28, 2010).

<sup>196</sup> The Commission has long protected end users' rights to attach lawful devices that do not harm communications networks. See, e.g., *Use of the Carterfone Device in Message Toll Telephone Service*, 13 FCC 2d 420, 424 (1968); *Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry)*, Final Decision, 77 FCC 2d 384, 388 (1980); see also Michael T. Hoeker, *From Carterfone to the iPhone: Consumer Choice in the Wireless Telecommunications Marketplace*, 17 COMMLAW CONSPECTUS 187, 192 (2008); Kevin Werbach, *The Federal Computer Commission*, 84 N.C. L. REV. 1, 21 (2005).

<sup>197</sup> As Qwest states, "Qwest and virtually all major broadband providers have supported the FCC Internet Policy Principles and voluntarily abide by those principles as good policy." Qwest PN Comments at 2–3, 5; see also, e.g., Comcast Comments at 27; Clearwire Comments at 1; Margaret Boles, *AT&T on Comcast v. FCC Decision*, AT&T PUB. POL'Y BLOG (Apr. 6, 2010), [attpublicpolicy.com/broadband-policy/att-statement-on-comcast-v-fcc-decision](http://attpublicpolicy.com/broadband-policy/att-statement-on-comcast-v-fcc-decision).

<sup>198</sup> *Open Internet NPRM*, 24 FCC Rcd at 13100–03, paras. 88–98.

<sup>199</sup> As described below, we adopt a tailored version of this rule for mobile broadband providers. See *infra* Part III.E.1.b.

<sup>200</sup> See William Lehr et al. Comments at 27 ("While the proposed rules of the FCC appear to make a clear distinction between applications and services on the one hand (rule 3) and content (rule 1), we believe that there will be some activities that do not fit cleanly into these two categories"); PIC Comments at 39; RFC 4924 at 5. For this reason the rule may prohibit the blocking of a port or particular protocol used by an application, without blocking the application completely, unless such practice is reasonable network management. See Distributed Computing Industry Ass'n (DCIA) Comments at 7 (discussing work-arounds by P2P companies facing port blocking or other practices); Sandvine Reply at 3; RFC 4924. The rule also is neutral with respect to where in the protocol stack or in the network blocking could occur. See *infra* note 235.

not prevent or restrict a broadband provider from refusing to transmit unlawful material such as child pornography.<sup>201</sup>

65. We also note that the rule entitles end users to both connect and use any lawful device of their choice, provided such device does not harm the network.<sup>202</sup> A broadband provider may require that devices conform to widely accepted and publicly-available standards applicable to its services.<sup>203</sup>

66. We make clear that the no-blocking rule bars broadband providers from impairing or degrading particular content, applications, services, or non-harmful devices so as to render them effectively unusable (subject to reasonable network management).<sup>204</sup> Such a prohibition is consistent with the observation of a number of commenters that degrading traffic can have the same effects as outright blocking,<sup>205</sup> and that such an approach is consistent with the traditional interpretation of the Internet Policy Statement.<sup>206</sup> The Commission has recognized that in some circumstances the distinction between blocking and degrading (such as by delaying) traffic is merely “semantic.”<sup>207</sup>

67. Some concerns have been expressed that broadband providers may seek to charge edge providers simply for delivering traffic to or carrying traffic from the broadband provider’s end-user customers.<sup>208</sup> To the extent that a content, application, or service provider

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<sup>201</sup> The “no blocking” rule does not impose any independent legal obligation on broadband Internet access service providers to be the arbiter of what is lawful. *See, e.g.*, WISPA Comments at 12–13; *see also infra* Part III.F.

<sup>202</sup> We note that MVPDs, pursuant to section 629 and the Commission’s implementing regulations, are already subject to similar requirements that give end users the right to attach devices to an MVPD system provided that the attached equipment does not cause electronic or physical harm or assist in the unauthorized receipt of service. *See Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, Report and Order, 13 FCC Rcd 14775 (1998); 47 U.S.C. § 549; 47 C.F.R. §§ 76.1201–03. Nothing in this Order is intended to alter those existing rules.

<sup>203</sup> For example, a DOCSIS-based broadband provider is not required to support a DSL modem. *See ACA Comments* at 13–14; *see also Satellite Broadband Commenters Comments* at 8–9 (noting that an antenna and associated modem must comply with equipment and protocol standards set by satellite companies, but that “consumers can [then] attach . . . any personal computer or wireless router they wish”).

<sup>204</sup> We do not find it appropriate to interpret our rule to impose a blanket prohibition on degradation of traffic more generally. Congestion ordinarily results in degradation of traffic, and such an interpretation could effectively prohibit broadband providers from permitting congestion to occur on their networks. Although we expect broadband providers to continue to expand the capacity of their networks—and we believe our rules help ensure that they continue to have incentives to do so—we recognize that some network congestion may be unavoidable. *See, e.g.*, AT&T Comments at 65; TWC Comments at 16–18; Internet Freedom Coalition Reply at 5.

<sup>205</sup> *See, e.g.*, DCIA Comments at 8; William Lehr et al. Comments at 13, 14, 20; Google Comments at 41, 58, 62, 77–78, 81–82; NAR Comments at 2; Red Hat Comments at 3; Vonage Comments at 17; DISH Reply at 8–9; Skype Reply at 13–14.

<sup>206</sup> *See, e.g.*, AT&T Comments at 8; OIC Reply at 9–10.

<sup>207</sup> *Comcast Order*, 23 FCC Rcd at 13053, para. 44.

<sup>208</sup> *See supra* note 63.

could avoid being blocked only by paying a fee, charging such a fee would not be permissible under these rules.<sup>209</sup>

## 2. No Unreasonable Discrimination

68. Based on our findings that fixed broadband providers have incentives and the ability to discriminate in their handling of network traffic in ways that can harm innovation, investment, competition, end users, and free expression,<sup>210</sup> we adopt the following rule:

*A person engaged in the provision of fixed broadband Internet access service, insofar as such person is so engaged, shall not unreasonably discriminate in transmitting lawful network traffic over a consumer's broadband Internet access service. Reasonable network management shall not constitute unreasonable discrimination.*<sup>211</sup>

69. The rule strikes an appropriate balance between restricting harmful conduct and permitting beneficial forms of differential treatment. As the rule specifically provides, and as discussed below, discrimination by a broadband provider that constitutes "reasonable network management" is "reasonable" discrimination.<sup>212</sup> We provide further guidance regarding distinguishing reasonable from unreasonable discrimination:

70. *Transparency.* Differential treatment of traffic is more likely to be reasonable the more transparent to the end user that treatment is. The Commission has previously found broadband provider practices to violate open Internet principles in part because they were not disclosed to end users.<sup>213</sup> Transparency is particularly important with respect to the discriminatory treatment of traffic as it is often difficult for end users to determine the causes of slow or poor performance of content, applications, services, or devices.<sup>214</sup>

71. *End-User Control.* Maximizing end-user control is a policy goal Congress recognized in Section 230(b) of the Communications Act, and end-user choice and control are touchstones in evaluating the reasonableness of discrimination.<sup>215</sup> As one commenter observes, "letting users choose how they want to use the network enables them to use the Internet in a way that creates more value for them (and for society) than if network providers made this choice,"

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<sup>209</sup> We do not intend our rules to affect existing arrangements for network interconnection, including existing paid peering arrangements.

<sup>210</sup> See *supra* Part II.

<sup>211</sup> See *supra* note 172 (defining "consumer" for purposes of these rules).

<sup>212</sup> See *infra* Part III.D. We also make clear that open Internet protections coexist with other legal and regulatory frameworks. See *infra* Part III.F. Except as otherwise described in this Order, we do not address the possible application of the no unreasonable discrimination rule to particular circumstances, despite the requests of certain commenters. See, e.g., AT&T Comments at 64–77, 108–12; PAETEC Comments at 13; see also AT&T Comments at 56 (arguing that some existing agreements could be at odds with limitations on pay for priority arrangements). Rather, we find it more appropriate to address the application of our rule in the context of an appropriate Commission proceeding with the benefit of a more comprehensive record.

<sup>213</sup> See *Comcast Order*, 23 FCC Rcd at 13058–59, paras. 52–53.

<sup>214</sup> See, e.g., *id.* at 13058–59, para. 52.

<sup>215</sup> "The rapidly developing array of Internet and other interactive computer services . . . offer[] users a great degree of control over the information that they receive, as well as *the potential for even greater control in the future* as technology develops." 47 U.S.C. § 230(a)(1)–(2) (emphasis added).

and “is an important part of the mechanism that produces innovation under uncertainty.”<sup>216</sup> Thus, enabling end users to choose among different broadband offerings based on such factors as assured data rates and reliability, or to select quality-of-service enhancements on their own connections for traffic of their choosing, would be unlikely to violate the no unreasonable discrimination rule, provided the broadband provider’s offerings were fully disclosed and were not harmful to competition or end users.<sup>217</sup> We recognize that there is not a binary distinction between end-user controlled and broadband-provider controlled practices, but rather a spectrum of practices ranging from more end-user controlled to more broadband provider-controlled.<sup>218</sup> And we do not suggest that practices controlled entirely by broadband providers are by definition unreasonable.

72. Some commenters suggest that open Internet protections would prohibit broadband providers from offering their subscribers different tiers of service or from charging their subscribers based on bandwidth consumed.<sup>219</sup> We are, of course, always concerned about anti-consumer or anticompetitive practices, and we remain so here. However, prohibiting tiered or usage-based pricing and requiring all subscribers to pay the same amount for broadband service, regardless of the performance or usage of the service, would force lighter end users of the network to subsidize heavier end users. It would also foreclose practices that may appropriately align incentives to encourage efficient use of networks.<sup>220</sup> The framework we adopt today does not prevent broadband providers from asking subscribers who use the network less to pay less, and subscribers who use the network more to pay more.

73. *Use-Agnostic Discrimination.* Differential treatment of traffic that does not discriminate among specific uses of the network or classes of uses is likely reasonable. For example, during periods of congestion a broadband provider could provide more bandwidth to

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<sup>216</sup> van Schewick Jan. 19, 2010 *Ex Parte* Letter. See also *id.* at 4 n.6 (observing that: (1) the Internet “does not create value through its existence alone. It creates value by enabling users to do the things they want or need to do;” (2) “[e]nabling widespread experimentation at the application-level and enabling users to choose the applications they prefer is at the heart of the mechanism that enables innovation under uncertainty to be successful;” and (3) “[c]onsumers, not network providers, should continue to choose winners and losers on the Internet”).

<sup>217</sup> In these types of arrangements “[t]he broadband provider does not get any particular leverage, because the ability to select which traffic gets priority lies with individual subscribers. Meanwhile, an entity providing content, applications, or services does not need to worry about striking up relationships with various broadband providers to obtain top treatment. All it needs to worry about is building relationships with users and explaining to those users whether and how they may want to select the particular content, application, or service for priority treatment.” CDT Comments at 27; see also Amazon Comments at 2–3; SureWest Comments at 32–33.

<sup>218</sup> We note that default settings set by broadband providers would likely be considered more broadband provider-controlled than end-user controlled. See generally Jason Scott Johnston, *Strategic Bargaining and the Economic Theory of Contract Default Rules*, 100 YALE L.J. 615 (1990); Daniel Kahneman et al., *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSP. 193, 197–99 (1991).

<sup>219</sup> See, e.g., Verizon Comments at 70–71; AT&T Comments at 10506; ALEC Comments at 11; ALU Comments at 8–9; Bright House Comments at 7–8; CBW Comments at 7–9.

<sup>220</sup> See, e.g., CCIA Comments at 14; CDT Comments at 25–26; FTTH Comments at 18 and Attach., *A Network Engineer’s Primer* at 20; OPASTCO Comments at 15; T-Mobile Comments at 20; Verizon Comments at 56 & Attach. C, Michael D. Topper Decl. at 57; but see Free Press Comments at 54–55, 61–62; NJRC Comments at 15; SONY Comments at 7–8.

subscribers that have used the network less over some preceding period of time than to heavier users.<sup>221</sup> Use-agnostic discrimination (sometimes referred to as application-agnostic discrimination) is consistent with Internet openness because it does not interfere with end users' choices about which content, applications, services, or devices to use. Nor does it distort competition among edge providers.<sup>222</sup>

74. *Standard Practices.* The conformity or lack of conformity of a practice with best practices and technical standards adopted by open, broadly representative, and independent Internet engineering, governance initiatives, or standards-setting organizations is another factor to be considered in evaluating reasonableness. Recognizing the important role of such groups is consistent with Congress's intent that our rules in the Internet area should not "fetter[]" the free market with unnecessary regulation,<sup>223</sup> and is consistent with broadband providers' historic reliance on such groups.<sup>224</sup> We make clear, however, that we are not delegating authority to interpret or implement our rules to outside bodies.<sup>225</sup>

75. In evaluating unreasonable discrimination, the types of practices we would be concerned about include, but are not limited to, discrimination that harms an actual or potential competitor to the broadband provider (such as by degrading VoIP applications or services when the broadband provider offers telephone service),<sup>226</sup> that harms end users (such as by inhibiting end users from accessing the content, applications, services, or devices of their choice),<sup>227</sup> or that impairs free expression (such as by slowing traffic from a particular blog because the broadband provider disagrees with the blogger's message).<sup>228</sup>

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<sup>221</sup> See, e.g., van Schewick Dec. 14, 2010 White Paper at 13.

<sup>222</sup> See CDT Comments at 40 ("Congestion management practices should be agnostic as to both the content of subscribers' communications and the identities of the parties with whom the subscribers are communicating."); Ad Hoc Comments at 5-6 ("The agnostic Internet has also enabled vigorous competition to develop at the Internet's 'edge' for new applications, equipment, content, and business processes."); Free Press Comments at 56 (noting that protocol-agnostic network management "does not select winners and losers on the Internet by targeting specific application").

<sup>223</sup> 47 U.S.C. § 230(b)(2).

<sup>224</sup> Broadband providers' practices historically have relied on the efforts of such groups, which follow open processes conducive to broad participation. See, e.g., William Lehr et al. Comments at 24; Comcast Comments at 53-59; FTTH Comments at 12; Internet Society (ISOC) Comments at 1-2; OIC Comments at 50-52; Comcast Reply at 5-7. Moreover, Internet community governance groups develop and encourage widespread implementation of best practices, supporting an environment that facilitates innovation. See *supra* Part II.A (discussing the benefits of edge providers having access to a uniform service interface, consisting of a core set of Internet standards and conventions); CDT Comments at 43-44.

<sup>225</sup> See, e.g., CDT Comments at 38; ISOC Comments at 2 (noting "that while open Internet standards processes are invaluable for establishing specifications for best practices, the question of evaluating whether a given practice is implemented in a way that is reasonable or not (compliance) is outside of their scope"); OIC Comments at 52; Comcast Reply at 6 (noting that "the IETF itself demurs on 'policy-making'").

<sup>226</sup> Cf., e.g., Madison River discussion *supra* para. 35.

<sup>227</sup> Cf., e.g., Comcast-BitTorrent discussion *supra* para. 35.

<sup>228</sup> Cf., e.g., CDT Comments at 5 (describing decision by Telus, one of Canada's largest broadband providers, to block a web site created by an employee labor union that displayed information about the union's contract dispute with Telus); see also Statement of Andrew Jay Schwartzman, MAP, at FCC Open (continued....)

76. For a number of reasons, including those discussed above in Part II.B, a commercial arrangement between a broadband provider and a third party to directly or indirectly favor some traffic over other traffic in the broadband Internet access service connection to a subscriber of the broadband provider (*i.e.*, “pay for priority”) would raise significant cause for concern.<sup>229</sup> First, pay for priority would represent a significant departure from historical and current practice. Since the beginning of the Internet, Internet access providers have typically not charged particular content or application providers fees to reach the providers’ retail service end users or struck pay-for-priority deals, and the record does not contain evidence that U.S. broadband providers currently engage in such arrangements. Second this departure from longstanding norms could cause great harm to innovation and investment in and on the Internet. As discussed above, pay-for-priority arrangements could raise barriers to entry on the Internet by requiring fees from edge providers, as well as transaction costs arising from the need to reach agreements with one or more broadband providers to access a critical mass of potential end users.<sup>230</sup> Fees imposed on edge providers may be excessive because few edge providers have the ability to bargain for lesser fees, and because no broadband provider internalizes the full costs of reduced innovation and the exit of edge providers from the market.<sup>231</sup> Third, pay-for-priority arrangements may particularly harm non-commercial end users, including individual bloggers, libraries, schools, advocacy organizations, and other speakers,<sup>232</sup> especially those who communicate through video or other content sensitive to network congestion. Even open Internet skeptics acknowledge that pay for priority may disadvantage non-commercial uses of the network, which are typically less able to pay for priority, and for which the Internet is a uniquely important platform.<sup>233</sup> Fourth, broadband providers that sought to offer pay-for-priority services would have an incentive to limit the quality of service provided to non-prioritized traffic.<sup>234</sup> In light of each of these concerns, as a general matter, it is unlikely that pay for priority would satisfy the “no unreasonable discrimination” standard. The practice of a broadband Internet access service provider prioritizing its own content, applications, or services, or those of its

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Internet Workshop: Speech, Democratic Engagement, and the Open Internet, Dec. 15, 2009 (filed Dec. 17, 2009) at 1; ACLU PN Comments at 9; Free Press PN Comments at 24.

<sup>229</sup> The *Open Internet NPRM* proposed a flat ban on discrimination and interpreted that requirement to prohibit broadband providers from “charg[ing] a content, application, or service provider for enhanced or prioritized access to the subscribers of the broadband Internet access service provider.” *Open Internet NPRM*, 24 FCC Rcd at 13104–05, paras. 104, 106. In the context of a “no unreasonable discrimination” rule that leaves interpretation to a case-by-case process, we instead adopt the approach to pay for priority described in this paragraph.

<sup>230</sup> See *supra* Part II.B; see also PIC Comments at 51 (expressing concern about “market entrants [being required] to negotiate separate prioritization deals with the hundreds of ISPs that serve the United States before having an opportunity to be nationally competitive”).

<sup>231</sup> See *supra* para. 25.

<sup>232</sup> See, e.g., Prof. Thomas Nachbar Nov. 1, 2010 Comments at 10 (conceding that “allowing network providers to charge for preferred carriage may disadvantage non-commercial content, application, and service providers *relative* to commercial ones”); Statement of Michele Combs, The Christian Coalition of America, GN Docket No. 09-191, WC Docket No. 07-52, at 5 (filed Dec. 22, 2009) (expressing concern about the impact of prioritization arrangements on political advocacy organizations such as theirs); ALA Comments at 2 (same for libraries); DEC Comments at 7–12 (same for digital education).

<sup>233</sup> See, e.g., Hemphill, *supra* note 123, at 161–62.

<sup>234</sup> See *supra* para. 29.

affiliates, would raise the same significant concerns and would be subject to the same standards and considerations in evaluating reasonableness as third-party pay-for-priority arrangements.<sup>235</sup>

77. Because we agree with the diverse group of commenters who argue that any nondiscrimination rule should prohibit only unreasonable discrimination, we decline to adopt the more rigid nondiscrimination rule proposed in the *Open Internet NPRM*.<sup>236</sup> A strict nondiscrimination rule would be in tension with our recognition that some forms of discrimination, including end-user controlled discrimination, can be beneficial. The rule we adopt provides broadband providers' sufficient flexibility to develop service offerings and pricing plans, and to effectively and reasonably manage their networks.<sup>237</sup> We disagree with commenters who argue that a standard based on "reasonableness" or "unreasonableness" is too vague to give broadband providers fair notice of what is expected of them.<sup>238</sup> This is not so. "Reasonableness"

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<sup>235</sup> We reject arguments that our approach to pay-for-priority arrangements is inconsistent with allowing content-delivery networks (CDNs). *See, e.g.*, Cisco Comments at 11–12; TWC Comments at 21–22, 65, 89–90; AT&T Reply at 49–53; Bright House Reply at 9. CDN services are designed to reduce the capacity requirements and costs of the CDN's edge provider clients by hosting the content for those clients closer to end users. Unlike broadband providers, third-party CDN providers do not control the last-mile connection to the end user. And CDNs that do not deploy within an edge provider's network may still reach an end user via the user's broadband connection. *See* CDT Comments at 25 n.84; George Ou Comments (Preserving the Open and Competitive Bandwidth Market) at 3; *see also* Cisco Comments at 11; FTTH Comments at 23–24. Moreover, CDNs typically provide a benefit to the sender and recipient of traffic without causing harm to third-party traffic. Though we note disagreement regarding the impact of CDNs on other traffic, the record does not demonstrate that the use of CDNs has any material adverse effect on broadband end users' experience of traffic that is not delivered via a CDN. *Compare* Letter from S. Derek Turner, Free Press, to Chairman Genachowski et al., FCC, GN Docket No. 09-191, WC Docket No. 07-52, at 1–2 (filed July 29, 2010) with Letter from Richard Bennett, ITIF, to Chairman Genachowski et al., FCC, GN Docket No. 09-191, WC Docket No. 07-52, Attach. at 12 (filed Aug. 9, 2010). Indeed, the same benefits derived from using CDNs can be achieved if an edge provider's own servers happen to be located in close proximity to end users. Everything on the Internet that is accessible to an end user is not, and cannot be, in equal proximity from that end user. *See* John Staurulakis Inc. Comments at 5; Bret T. Swanson Reply at 4. Finally, CDN providers unaffiliated with broadband providers generally do not compete with edge providers and thus generally lack economic incentives (or the ability) to discriminate against edge providers. *See* Akamai Comments at 12; NASUCA Reply at 7; NCTA Reply at 25; *see also supra* Part II.B. We likewise reject proposals to limit our rules to actions taken at or below the "network layer." *See, e.g.*, Google Comments at 24–26; Vonage Reply at 2; CDT Reply at 18; Prof. Scott Jordan (Jordan) Comments at 3; *see also* Scott Jordan, *A Layered Network Approach to Net Neutrality*, INT'L J. OF COMMC'N 427, 432–33 (2007) (describing the OSI layers model and the actions of routers at and below the network layer) attached to Letter from Scott Jordan, Professor, University of California–Irvine, to Office of the Secretary, FCC, GN Docket No. 09-191, WC Docket No. 07-52 (filed Mar. 22, 2010). We are not persuaded that the proposed limitation is necessary or appropriate in this context.

<sup>236</sup> *See, e.g.*, CWA Comments at 14–16; Nokia Comments at 10–11; TWC Comments at 55, 58–61; TDS Comments at 7. A few parties argued that such an approach would be inadequate. *See, e.g.*, Nickolaus E. Leggett Jan. 5, 2010 Comments at 3; Free Press Comments at 79–80; OIC Comments at 15–16, 35–36.

<sup>237</sup> *See* Broadcast Music Inc. (BMI) Comments at 3–4; Internet Freedom Coalition Comments at 3; Qwest Comments at 34–36; AFTRA et al. Reply at 6–7.

<sup>238</sup> *See, e.g.*, ACLJ Comments at 5–7 (suggesting that ISPs cannot know what the agency will consider "reasonable" network management or "discriminatory" treatment); Free Press Comments at 85; Thomas D. Sydnor II Comments at 6–9; Texas Office of Public Utility Counsel Comments at 6–7.

is a well-established standard for regulatee conduct.<sup>239</sup> As other commenters have pointed out, the term “reasonable” is “both administrable and indispensable to the sound administration of the nation’s telecommunications laws.”<sup>240</sup>

78. We also reject the argument that only “anticompetitive” discrimination yielding “substantial consumer harm” should be prohibited by our rules.<sup>241</sup> We are persuaded those proposed limiting terms are unduly narrow and could allow discriminatory conduct that is contrary to the public interest.<sup>242</sup> The broad purposes of this rule—to encourage competition and remove impediments to infrastructure investment while protecting consumer choice, free expression, end-user control, and the ability to innovate without permission<sup>243</sup>—cannot be achieved by preventing only those practices that are demonstrably anticompetitive or harmful to consumers. Rather, the rule rests on the general proposition that broadband providers should not pick winners and losers on the Internet—even for reasons that may be independent of providers’

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<sup>239</sup> As recently as 1995, Congress adopted the venerable “reasonableness” standard when it recodified provisions of the Interstate Commerce Act. ICC Termination Act of 1995, Pub. L. No. 104-88, § 106(a) (now codified at 49 U.S.C. § 15501).

<sup>240</sup> AT&T Reply at 33–34 (“And no one has seriously suggested that Section 202 should itself be amended to remove the ‘unreasonable’ qualifier on the ground that the qualifier is too ‘murky’ or ‘complex.’ Seventy-five years of experience have shown that qualifier to be both administrable and indispensable to the sound administration of the nation’s telecommunications laws.”); *see also* Comcast Reply at 26 (“[T]he Commission should embrace the strong guidance against an overbroad rule and, instead, develop a standard based on ‘unreasonable and anticompetitive discrimination.’”); Sprint Reply at 23 (“The unreasonable discrimination standard contained in Section 202(a) of the Act contains the very flexibility the Commission needs to distinguish desirable from improper discrimination.”); *Thomas v. Chicago Park District*, 534 U.S. 316, 324 (2002) (holding that denial of a permit “when the intended use would present an unreasonable danger to the health and safety of park users or Park District employees” is a standard that is “reasonably specific and objective, and do[es] not leave the decision ‘to the whim of the administrator’”) (citation omitted); *Cameron v. Johnson*, 390 U.S. 611, 615–16 (1968) (stating that “unreasonably” “is a widely used and well understood word, and clearly so when juxtaposed with ‘obstruct’ and ‘interfere’”).

<sup>241</sup> *See, e.g.*, Cisco Comments at 8 n.14; Corning Comments at 16; Comcast Reply at 23–25; TIA Reply at 13–17.

<sup>242</sup> *See, e.g.*, Letter from Barbara van Schewick, Stanford Law School, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 09-191, at 1–2 (filed Dec. 10, 2010) (noting that concerns about discrimination go beyond “anticompetitive” behavior or harms to competition, as those terms are understood in antitrust law); *United States v. FCC*, 652 F.2d 72, (D.C. Cir. 1980) (“The agency’s determination about the proper role of competitive forces in an industry must therefore be based, not exclusively on the letter of the antitrust laws, but also on the ‘special considerations’ of the particular industry. As the Supreme Court has said, resolution of the sometimes-conflicting public interest considerations ‘is a complex task which requires extensive facilities, expert judgment and considerable knowledge of the . . . industry. Congress left that task to the Commission . . . .’” (quoting *McLean Trucking Co. v. United States*, 321 U.S. 67, 87 (1944)) (footnotes omitted).

<sup>243</sup> *See supra* Parts I and II; Letter from Prof. Barbara van Schewick, Professor, Stanford Law School, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 09-191, WC Docket No. 07-52, Attach. at 4 (filed Aug. 2, 2010) (van Schewick Aug. 2, 2010 *Ex Parte* Letter) (observing that such a rule would “make[] it impossible to consider the potential impact of discriminatory conduct on the Internet’s ability to realize its social, cultural and political potential—important aspects that the open Internet rules are intended to protect”).

competitive interests<sup>244</sup> or that may not immediately or demonstrably cause substantial consumer harm.<sup>245</sup>

79. We disagree with commenters who argue that a rule against unreasonable discrimination violates section 3(51) of the Communications Act for those broadband providers that are telecommunications carriers but do not provide their broadband Internet access service as a telecommunications service.<sup>246</sup> Section 3(51) provides that 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.”<sup>247</sup> This limitation is not relevant to the Commission’s actions here.<sup>248</sup> The hallmark of common carriage is an “undertak[ing] to carry for all people indifferently.”<sup>249</sup> An entity “will not be a common carrier where its practice is to make individualized decisions, in particular cases, whether and on what terms to deal” with potential

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<sup>244</sup> See van Schewick Aug. 2, 2010 *Ex Parte* Letter, Attach. at 2–3. See also, e.g., Letter from Chris Riley, Policy Counsel, Free Press, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 09-191, WC Docket No. 07-52, Attach. (filed Nov. 24, 2009) (arguing that certain types of prioritization are harmful, regardless of any underlying anticompetitive motive on the part of the broadband provider).

<sup>245</sup> For example, slowing BitTorrent packets might only affect a few end users, but it would harm BitTorrent. More significantly, it would raise concerns among other end users and edge providers that their traffic could be slowed for any reason—or no reason at all—which could in turn reduce incentives to innovate and invest, and change the fundamental nature of the Internet as an open platform. See *supra* Part II.

<sup>246</sup> See, e.g., AT&T Comments at 209–11; Verizon Comments at 93–95; CTIA PN Reply at 20–21. We do not read the Supreme Court’s decision in *FCC v. Midwest Video Corp.* as addressing rules like the rules we adopt today. 440 U.S. 689 (1979). There, the Court held that obligations on cable providers to “hold out dedicated channels on a first-come, nondiscriminatory basis . . . relegated cable systems, *pro tanto*, to common-carrier status.” *Id.* at 700–01. None of the rules adopted in this Order requires a broadband provider to “hold out” any capacity for the exclusive use of third parties or make a public offering of its service.

<sup>247</sup> 47 U.S.C. § 153(51). Section 332(c)(2) contains a restriction similar to that of § 3(51): “A person engaged in the provision of a service that is a private mobile service shall not, insofar as such person is so engaged, be treated as a common carrier for any purpose under this Act.” *Id.* § 332(c)(2). Because we are not imposing any common carrier obligations on any broadband provider, including providers of “private mobile service” as defined in § 332(d)(3), our requirements do not violate the limitation in § 332(c)(2).

<sup>248</sup> Courts have acknowledged that the Commission is entitled to deference in interpreting the definition of “common carrier.” See *AT&T v. FCC*, 572 F.2d 17, 24 (2d Cir. 1978) (citing *Red Lion Broad. Co. v. FCC*, 395 U.S. 367, 381 (1969)). In adopting the rule against unreasonable discrimination, we rely, in part, on our authority under section 706, which is not part of the Communications Act. Congress enacted section 706 as part of the Telecommunications Act of 1996 and more recently codified the provision in Chapter 12 of Title 47, at 47 U.S.C. § 1302. The seven titles that comprise the Communications Act appear in Chapter 5 of Title 47. Consequently, even if the rule against unreasonable discrimination were interpreted to require common carriage in a particular case, that result would not run afoul of section 3(51) because a network operator would be treated as a common carrier pursuant to section 706, not “under” the Communications Act.

<sup>249</sup> *Nat’l Ass’n of Reg. Util. Comm’rs v. FCC*, 525 F.2d 630, 641 (D.C. Cir. 1976) (*NARUC I*) (quoting *Semon v. Royal Indemnity Co.*, 279 F.2d 737, 739 (5th Cir. 1960) and other cases); see also Verizon Comments at 93 (“[T]he primary sine qua non of common carrier status is a quasi-public character, which arises out of the undertaking ‘to carry for all people indifferently . . .’” (quoting *Nat’l Ass’n of Reg. Util. Comm’rs v. FCC*, 533 F.2d 601, 608 (D.C. Cir. 1976) (*NARUC II*)). But see CTIA Reply at 57 (suggesting that nondiscrimination is the *sine qua non* of common carrier regulation referred to in *NARUC II*).

customers.<sup>250</sup> The customers at issue here are the end users who subscribe to broadband Internet access services.<sup>251</sup> With respect to those customers, a broadband provider may make individualized decisions. A broadband provider that chooses not to offer its broadband Internet access service on a common carriage basis can, for instance, decide on a case-by-case basis whether to serve a particular end user, what connection speed(s) to offer, and at what price. The open Internet rules become effective only *after* such a provider has voluntarily entered into a mutually satisfactory arrangement with the end user, which may be tailored to that user. Even then, as discussed above, the allowance for reasonable disparities permits customized service features such as those that enhance end user control over what Internet content is received. This flexibility to customize service arrangements for a particular customer is the hallmark of private carriage, which is the antithesis of common carriage.<sup>252</sup>

#### D. Reasonable Network Management

80. Since at least 2005, when the Commission adopted the *Internet Policy Statement*, we have recognized that a flourishing and open Internet requires robust, well-functioning broadband networks, and accordingly that open Internet protections require broadband providers to be able to reasonably manage their networks. The open Internet rules we adopt today expressly provide for and define “reasonable network management” in order to provide greater clarity to broadband providers, network equipment providers, and Internet end users and edge providers regarding the types of network management practices that are consistent with open Internet protections.

81. In the *Open Internet NPRM*, the Commission proposed that open Internet rules be subject to reasonable network management, consisting of “reasonable practices employed by a provider of broadband Internet access service to: (1) reduce or mitigate the effects of congestion

<sup>250</sup> *NARUC I*, 525 F.2d at 641 (citing *Semon*, 279 F.2d at 739–40). Commenters assert that any obligation that is similar to an obligation that appears in Title II of the Act is a “common carrier” obligation. *See, e.g.*, AT&T Comments at 210–11. We disagree. Just because an obligation appears within Title II does not mean that the imposition of that obligation or a similar one results in “treating” an entity as a common carrier. For the meaning of common carriage treatment, which is not defined in the Act, we look to caselaw as discussed in the text.

<sup>251</sup> Even if edge providers were considered “customers” of the broadband provider, the broadband provider would not be a common carrier with regard to the role it plays in transmitting edge providers’ traffic. Our rules permit broadband providers to engage in reasonable network management and, under certain circumstances, block traffic and devices, engage in reasonable discrimination, and prioritize traffic at subscribers’ request. Blocking or deprioritizing certain traffic is far from “undertak[ing] to carry for all [edge providers] indifferently.” *See NARUC I*, 525 F.2d at 641.

<sup>252</sup> *See Sw. Bell Tel. Co. v. FCC*, 19 F.3d 1475, 1481 (D.C. Cir. 1994) (“If the carrier chooses its clients on an individual basis and determines in each particular case whether and on what terms to serve and there is no specific regulatory compulsion to serve all indifferently, the entity is a private carrier for that particular service and the Commission is not at liberty to subject the entity to regulation as a common carrier.”) (internal quotation marks omitted). Although promoting competition throughout the Internet ecosystem is a central purpose of these rules, we decline to adopt as a rule the *Internet Policy Statement* principle regarding consumers’ entitlement to competition. We agree with those commenters that argue that the principle is too vague to be reduced to a rule and that the proposed rule as stated failed to provide any meaningful guidance regarding what conduct is and is not permissible. *See, e.g.*, Verizon Comments at 4, 53; TPPF Comments at 7. A rule barring broadband providers from depriving end users of their entitlement to competition does not appear to be a viable method of promoting competition. We also do not wish to duplicate competitive analyses carried out by the Department of Justice, the FTC, or the Commission’s merger review process.

on its network or to address quality-of-service concerns; (2) address traffic that is unwanted by users or harmful; (3) prevent the transfer of unlawful content; or (4) prevent the unlawful transfer of content.”<sup>253</sup> The proposed definition also stated that reasonable network management consists of “other reasonable network management practices.”<sup>254</sup>

82. Upon reviewing the record, we conclude that the definition of reasonable network management should provide greater clarity regarding the standard used to gauge reasonableness, expressly account for technological differences among networks that may affect reasonable network management, and omit elements that do not relate directly to network management functions and are therefore better handled elsewhere in the rules—for example, measures to prevent the transfer of unlawful content.<sup>255</sup> We therefore adopt the following definition of reasonable network management:

*A network management practice is reasonable if it is appropriate and tailored to achieving a legitimate network management purpose, taking into account the particular network architecture and technology of the broadband Internet access service.*

Legitimate network management purposes include: ensuring network security and integrity, including by addressing traffic that is harmful to the network;<sup>256</sup> addressing traffic that is unwanted by end users (including by premise operators), such as by providing services or capabilities consistent with an end user’s choices regarding parental controls or security capabilities;<sup>257</sup> and reducing or mitigating the effects of congestion on the network.<sup>258</sup> The term “particular network architecture and technology” refers to the differences across access platforms such as cable, DSL, satellite, and fixed wireless.

83. As proposed in the *Open Internet NPRM*, we will further develop the scope of reasonable network management on a case-by-case basis, as complaints about broadband providers’ actual practices arise.<sup>259</sup> The novelty of Internet access and traffic management questions, the complex nature of the Internet, and a general policy of restraint in setting policy for Internet access service providers weigh in favor of a case-by-case approach.<sup>260</sup>

84. In taking this approach, we recognize the need to balance clarity with flexibility.<sup>261</sup> We discuss below certain principles and considerations that will inform the

<sup>253</sup> *Open Internet NPRM*, 24 FCC Rcd at 13112–15, paras. 133–41.

<sup>254</sup> *Id.*

<sup>255</sup> See, e.g., CCIA/CEA Comments at 21–23, 26–27; CDT Comments at 41; OIC Comments at 67; EFF Comments at 5, 10–18; Google Comments at 72–73; PIC Comments at 39, 41–44, 53–63. See also *infra* Part III.F.

<sup>256</sup> See, e.g., AT&T Comments at 75–78; CenturyLink Comments at 8; Cisco Comments at 4; CWA Comments at 24; TIA Comments at 13–14.

<sup>257</sup> See, e.g., Cisco Comments at 4; CCIA Comments at 18–19; GSM Comments at 20–21; TIA Comments at 13–14, 34.

<sup>258</sup> See, e.g., CCIA Comments at 12–17; Cox Comments at 21–23, 30–33; TIA Comments at 34.

<sup>259</sup> *Open Internet NPRM*, 24 FCC Rcd at 13112, para. 134. Several commenters support this approach. See, e.g., CDT Comments at 38; Skype Comments at 15; AOL Reply at 3.

<sup>260</sup> *Open Internet NPRM*, 24 FCC Rcd at 13112, para. 134 (citing *Comcast Order*, 23 FCC Rcd at 13045–46, paras. 29–32).

<sup>261</sup> Some parties contend that there will be uncertainty associated with open Internet rules, subject to reasonable network management, which will limit provider flexibility, stifle innovation, and slow

(continued...)

Commission's case-by-case analysis. Further, although broadband providers are not required to seek permission from the Commission before deploying a network management practice, they or others are free to do so, for example by seeking a declaratory ruling.<sup>262</sup>

85. We reject proposals to define reasonable network management practices more expansively<sup>263</sup> or more narrowly than stated above.<sup>264</sup> We agree with commenters that the Commission should not adopt the "narrowly or carefully tailored" standard discussed in the *Comcast Network Management Practices Order*.<sup>265</sup> We find that this standard is unnecessarily restrictive and may overly constrain network engineering decisions.<sup>266</sup> Moreover, the "narrowly tailored" language could be read to import strict scrutiny doctrine from constitutional law, which we are not persuaded would be helpful here. Broadband providers may employ network management practices that are appropriate and tailored to the network management purpose they seek to achieve, but they need not necessarily employ the most narrowly tailored practice theoretically available to them.

86. We also acknowledge that reasonable network management practices may differ across platforms. For example, practices needed to manage congestion on a fixed satellite network may be inappropriate for a fiber-to-the-home network.<sup>267</sup> We also recognize the unique network management challenges facing broadband providers that use unlicensed spectrum to deliver service to end users.<sup>268</sup> Unlicensed spectrum is shared among multiple users and technologies and no single user can control or assure access to the spectrum. We believe the

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providers' response time in managing their networks. *See, e.g.*, ADTRAN Comments at 11–13; Barbara Esbin (Esbin) Comments at 7. For example, some parties express concern that the definition proposed in the *Open Internet NPRM* provided insufficient guidance regarding what standard will be used to determine whether a given practice is "reasonable." *See, e.g.*, ADTRAN Comments at 13; AT&T Comments at 13; CDT Comments at 38; PIC Comments at 35–36, 39; Texas PUC Comments at 6–7; Verizon Reply at 8, 75, 78. Others contend that although clarity is needed, the Commission should not list categories of activities considered reasonable. *See, e.g.*, Free Press Comments at 82, 85–86. We seek to balance these interests through general rules designed to give providers sufficient flexibility to implement necessary network management practices, coupled with guidance regarding certain principles and considerations that will inform the Commission's case-by-case analysis.

<sup>262</sup> *See* 47 C.F.R. § 1.2 (providing for "a declaratory ruling terminating a controversy or removing uncertainty").

<sup>263</sup> *See, e.g.*, AT&T Comments at 183–87; ITIF Comments at 26–27.

<sup>264</sup> *See, e.g.*, Free Press Comments at 83–94; PIC Comments at 37–51.

<sup>265</sup> *See Comcast Network Management Practices Order*, 23 FCC Rcd at 13055–56, para. 47 (stating that, to be considered "reasonable" a network management practice "should further a critically important interest and be narrowly or carefully tailored to serve that interest"); *see also* AT&T Comments at 186–87 (arguing that the *Comcast* standard is too narrow); Level 3 Comments at 14; PAETEC Comments at 17–18. *But see* Free Press Comments at 91–92 (stating that the Commission should not retreat from the fundamental framework of the *Comcast* standard). A "reasonableness" standard also has the advantage of being administrable and familiar. *See supra* para. 77.

<sup>266</sup> *See, e.g.*, Level 3 Comments at 14 (asserting that setting a restrictive standard may make operators less willing to take prophylactic actions when problems occur).

<sup>267</sup> *See* AT&T Comments at 187; Google Comments at 68; Hughes Network Systems PN Comment at 3.

<sup>268</sup> *See, e.g.*, LARIAT Comments at 2–3.

concept of reasonable network management is sufficiently flexible to afford such providers the latitude they need to effectively manage their networks.<sup>269</sup>

87. The principles guiding case-by-case evaluations of network management practices are much the same as those that guide assessments of “no unreasonable discrimination,” and include transparency,<sup>270</sup> end-user control,<sup>271</sup> and use- (or application-) agnostic treatment.<sup>272</sup> We also offer guidance in the specific context of the legitimate network management purposes listed above.

88. *Network Security or Integrity and Traffic Unwanted by End Users.* Broadband providers may implement reasonable practices to ensure network security and integrity, including by addressing traffic that is harmful to the network.<sup>273</sup> Many commenters strongly support allowing broadband providers to implement such network management practices.<sup>274</sup> Some commenters, however, express concern that providers might implement anticompetitive or otherwise problematic practices in the name of protecting network security.<sup>275</sup> We make clear that, for the singling out of any specific application for blocking or degradation based on harm to the network to be a reasonable network management practice, a broadband provider should be prepared to provide a substantive explanation for concluding that the particular traffic is harmful to the network, such as traffic that constitutes a denial-of-service attack on specific network infrastructure elements or exploits a particular security vulnerability.

89. Broadband providers also may implement reasonable practices to address traffic that a particular end user chooses not to receive. Thus, for example, a broadband provider could provide services or capabilities consistent with an end user’s choices regarding parental controls,<sup>276</sup> or allow end users to choose a service that provides access to the Internet but not to

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<sup>269</sup> See Appendix A, § 8.11. We recognize that the standards for fourth-generation (4G) wireless networks include the capability to prioritize particular types of traffic, and that other broadband Internet access services may incorporate similar features. Whether particular uses of these technologies constitute reasonable network management will depend on whether they are appropriate and tailored to achieving a legitimate network management purpose.

<sup>270</sup> See, e.g., RNK Comments at 7 (arguing that transparency will help prevent improper practices from masquerading as reasonable network management); CClA/CEA Comments at 30–33.

<sup>271</sup> See 47 U.S.C. § 230(b)(3).

<sup>272</sup> See *supra* para. 73.

<sup>273</sup> In the context of broadband Internet access service, techniques to ensure network security and integrity are designed to protect the access network and the Internet against actions by malicious or compromised end systems. Examples include spam, botnets, and distributed denial of service attacks. Unwanted traffic includes worms, malware, and viruses that exploit end-user system vulnerabilities; denial of service attacks; and spam. See IETF, REPORT FROM THE IAB WORKSHOP ON UNWANTED TRAFFIC MARCH 9–10, 2006, RFC 4948, at 31 (Aug. 2007), available at [www.rfc-editor.org/rfc/rfc4948.txt](http://www.rfc-editor.org/rfc/rfc4948.txt).

<sup>274</sup> See, e.g., AT&T Comments at 75, 184–86; Amazon Comments at 3; Comcast Comments at 51, 58–59; Messaging Anti-Abuse Working Group Comments at 2–5; Verizon Comments at 82; SIIA Comments at 7.

<sup>275</sup> See Free Press Comments at 5, 78.

<sup>276</sup> See, e.g., Google Comments at 72; NCTA Comments at 30–31; Mobile Future PN Comments at 5; Letter from Most Reverend George H. Niederauer, Archbishop of San Francisco, Chairman, Communications Committee, United States Conference of Catholic Bishops, to Chairman Genachowski et al., FCC, GN Docket No. 09-191, WC Docket No. 07-52 (filed Oct. 23, 2009).

pornographic websites.<sup>277</sup> Likewise, a broadband provider serving a premise operator could restrict traffic unwanted by that entity,<sup>278</sup> though such restrictions should be disclosed. Our rule will not impose liability on a broadband provider where such liability is prohibited by section 230(c)(2) of the Act.<sup>279</sup>

90. We note that, in some cases, mechanisms that reduce or eliminate some forms of harmful or unwanted traffic may also interfere with legitimate network traffic. Such mechanisms must be appropriate and tailored to the threat; should be evaluated periodically as to their continued necessity; and should allow end users to opt-in or opt-out if possible.<sup>280</sup> Disclosures of network management practices used to address network security or traffic a particular end user does not want to receive should clearly state the objective of the mechanism and, if applicable, how an end user can opt in or out of the practice.

91. *Network Congestion.* Numerous commenters support permitting the use of reasonable network management practices to address the effects of congestion, and we agree that congestion management may be a legitimate network management purpose.<sup>281</sup> For example, broadband providers may need to take reasonable steps to ensure that heavy users do not crowd out others. What constitutes congestion and what measures are reasonable to address it may vary depending on the technology platform for a particular broadband Internet access service. For example, if cable modem subscribers in a particular neighborhood are experiencing congestion, it may be reasonable for a broadband provider to temporarily limit the bandwidth available to individual end users in that neighborhood who are using a substantially disproportionate amount of bandwidth.<sup>282</sup>

92. We emphasize that reasonable network management practices are not limited to the categories described here, and that broadband providers may take other reasonable steps to maintain the proper functioning of their networks, consistent with the definition of reasonable network management we adopt. As we stated in the *Open Internet NPRM*, “we do not presume to know now everything that providers may need to do to provide robust, safe, and secure Internet

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<sup>277</sup> See, e.g., TWC Reply at 25 (hypothesizing about a “broadband Internet access service provider [that] emulated Apple’s practices of limiting access to certain types of sites (such as those involving pornography)”).

<sup>278</sup> See EFF Comments at 26–27. See generally *supra* Part III.A.

<sup>279</sup> See 47 U.S.C. § 230(c)(2) (no provider of an interactive computer service shall be held liable on account of “(A) any action voluntarily taken in good faith to restrict access to or availability of material that the provider or user considers to be obscene, lewd, lascivious, filthy, excessively violent, harassing, or otherwise objectionable, whether or not such material is constitutionally protected; or (B) any action taken to enable or make available to information content providers or others the technical means to restrict access to material described in [subparagraph (A)]”).

<sup>280</sup> For example, a network provider might be able to assess a network endpoint’s posture—see IETF, NETWORK ENDPOINT ASSESSMENT (NEA): OVERVIEW AND REQUIREMENTS, RFC 5209 (Jun. 2008); INTERNET ENGINEERING TASK FORCE, PA-TNC: A POSTURE ATTRIBUTE (PA) PROTOCOL COMPATIBLE WITH TRUSTED NETWORK CONNECT (TNC), RFC 5792 (Mar. 2010)—and tailor port blocking accordingly. With the posture assessment, an end user might then opt out of the network management mechanism by upgrading the operating system or installing a suitable firewall.

<sup>281</sup> See, e.g., ACA Comments at iv, 10–11; Ad Hoc Comments at 24–25; Covad Comments at 6; Google Comments at 68; DISH Reply at 19–21; Vonage Reply at 46–47.

<sup>282</sup> See, e.g., Comcast Corporation, Description of Current Network Management Practices, [downloads.comcast.net/docs/Attachment\\_A\\_Current\\_Practices.pdf](http://downloads.comcast.net/docs/Attachment_A_Current_Practices.pdf).

access to their subscribers, much less everything they may need to do as technologies and usage patterns change in the future.”<sup>283</sup> Broadband providers should have flexibility to experiment, innovate, and reasonably manage their networks.

### E. Mobile Broadband

93. There is one Internet, which should remain open for consumers and innovators alike, although it may be accessed through different technologies and services. The record demonstrates the importance of freedom and openness for mobile broadband networks,<sup>284</sup> and the rationales for adopting high-level open Internet rules, discussed above, are for the most part as applicable to mobile broadband as they are to fixed broadband. Consumer choice, freedom of expression, end-user control, competition, and the freedom to innovate without permission are as important when end users are accessing the Internet via mobile broadband as via fixed. And there have been instances of mobile providers blocking certain third-party applications, particularly applications that compete with the provider’s own offerings; relatedly, concerns have been raised about inadequate transparency regarding network management practices.<sup>285</sup> We also note that some mobile broadband providers affirmatively state they do not oppose the application of openness rules to mobile broadband.<sup>286</sup>

94. However, as explained in the *Open Internet NPRM* and subsequent Public Notice,<sup>287</sup> mobile broadband presents special considerations that suggest differences in how and when open Internet protections should apply. Mobile broadband is an earlier-stage platform than fixed broadband, and it is rapidly evolving. For most of the history of the Internet, access has been predominantly through fixed platforms—first dial-up, then cable modem and DSL services. As of a few years ago, most consumers used their mobile phones primarily to make phone calls and send text messages, and most mobile providers offered Internet access only via “walled gardens” or stripped down websites.<sup>288</sup> Today, however, mobile broadband is an important Internet access platform that is helping drive broadband adoption,<sup>289</sup> and data usage is growing rapidly.<sup>290</sup> The mobile ecosystem is experiencing very rapid innovation and change, including an

<sup>283</sup> *Open Internet NPRM*, 24 FCC Rcd at 13114, para. 140.

<sup>284</sup> See, e.g., T-Mobile Comments at 1 (“[T]he [mobile wireless] market itself is driving openness and supporting all of the goals articulated by the NPRM.”), 12–13; Verizon Comments at 61; Verizon PN Comments at 4 (“[T]he wireless broadband marketplace is moving toward greater openness, as exemplified by Verizon’s Open Development program . . .”), 15.

<sup>285</sup> See New America Foundation Comments at 2–3, App. A at 16; Sling Comments at 5–11; Vonage Comments at 9; Skype Reply at 6; Testimony of Jeffrey Glueck, CEO, Skyfire, FCC Workshop on Innovation, Investment and the Open Internet, FCC (Jan. 13, 2010), [reboot.fcc.gov/video-archives](http://reboot.fcc.gov/video-archives). See *supra* paras. 36–37.

<sup>286</sup> See Clearwire Comments at 10–11; Sprint Comments at 18–19; cf. ITIF PN Comments at 7.

<sup>287</sup> See *Open Internet NPRM*, 24 FCC Rcd at 13117–24, paras. 154–74; *Open Internet PN*.

<sup>288</sup> *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 et al.*, Fourteenth Report, 25 FCC Rcd 11407, 11502–03, para 148 (2010) (*Fourteenth Wireless Competition Report*).

<sup>289</sup> See, e.g., Latinos for Internet Freedom, et al. PN Comments at i (“Lower barriers to adoption have facilitated the widespread use of the mobile Internet in communities of color and low-income areas, where many individuals would otherwise go without Internet access altogether. . . . [M]any of our constituents rely exclusively on mobile wireless Internet access as their onramp to the web.”); Free Press PN Reply at 6.

<sup>290</sup> See, e.g., SANDVINE, FALL 2010 GLOBAL INTERNET PHENOMENA REPORT 12 (2010), [www.sandvine.com/downloads/documents/2010%20Global%20Internet%20Phenomena%20Report.pdf](http://www.sandvine.com/downloads/documents/2010%20Global%20Internet%20Phenomena%20Report.pdf).