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## A Net Neutrality Primer

Should the Internet Be Regulated Like Ma Bell?

By Ryan Radia and Jessica Melugin\*

If you have watched *Last Week Tonight with John Oliver* recently, you will have noticed that its TV comedian host is upset about something called “net neutrality.”<sup>1</sup> But does anyone know what it means?

Law professor Tim Wu coined the phrase “network neutrality,” or “net neutrality,” in 2003 to describe a regulatory regime that requires broadband providers to let their subscribers “use non-harmful network attachments or applications,” giving “innovators the corresponding freedom to supply” such applications.<sup>2</sup> Since then, regulators, courts, academics, engineers, and pundits have sought to clarify the meaning of “net neutrality,” but determining whether a particular practice runs afoul of the principle remains challenging to this day.<sup>3</sup>

One thing is clear, however. Net neutrality regulations harm consumers because they prevent ISPs from experimenting with the network configurations and pricing models that serve consumers best. Instead of regulating how broadband service is provided, Congress, the Federal Communications Commission (FCC), and governments at all levels should promote competition by making more spectrum available for commercial use and by reducing barriers to deploying wireline infrastructure.

Past efforts by the FCC to establish net neutrality regulations have repeatedly failed in the courts. Though its latest effort, which was heavily influenced by the Obama White House, has survived, the new chairman of the FCC, Ajit Pai, is moving to repeal it. That is a welcome move because freeing the Internet’s infrastructure from burdensome regulations will allow greater innovation and restore open competition among Internet service providers (ISPs).

**How It Works.** To understand net neutrality, one must know a bit about how the Internet works. From web pages to video streams, all information that travels across the Internet is broken up into “packets,” each a tiny piece of the complete message or file. Specialized computers called “routers” direct these packets from their source to their destination, where they are reassembled in their proper order.<sup>4</sup> The principle of net neutrality holds that Internet service providers, also known as broadband providers, should generally treat every packet they transmit in the same manner, regardless of its application, source, destination, or meaning.

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Most net neutrality proponents concede that ISPs may legitimately discriminate or block certain types of information under a narrow set of circumstances—for example, when traffic is malicious, illegal, or unwanted by its intended recipient—but such exceptions to the net neutrality principle are few.<sup>5</sup>

The Communications Act of 1934,<sup>6</sup> which the FCC was set up to administer, encompasses both information and telecommunications services. Information services are subject to relatively minimal regulation under Title I of the Act,<sup>7</sup> while telecommunications services are subject to public utility-style regulation under Title II.<sup>8</sup> In a series of three opinions from 2002 to 2007, the FCC determined that Internet service providers would be subject to Title I and thus free from heavy-handed regulations.<sup>9</sup> This conclusion was bolstered by Congress' decision to enact Section 230 of the Telecommunications Act of 1996, which states that it is the nation's policy to "preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation."<sup>10</sup>

In 2005, the five-member FCC voted unanimously to adopt an "Internet Policy Statement" that endorsed four principles, affirming that consumers are entitled to:

1. "[A]ccess the lawful Internet content of their choice;"
2. "[R]un applications and use services of their choice;"
3. "[C]onnect their choice of legal devices that do not harm the network;" and
4. Enjoy "competition among network providers, application and service providers, and content providers."<sup>11</sup>

In this policy statement, the FCC did not purport to exercise its regulatory authority pursuant to a delegation of power from Congress.<sup>12</sup> Rather, the Commission explained that it would merely "incorporate" these four principles "into its ongoing policymaking activities."<sup>13</sup>

Then in 2007, several news outlets reported that Comcast, a major cable ISP, was interfering with its subscribers' ability to upload content using BitTorrent, a popular peer-to-peer file sharing protocol.<sup>14</sup> After initially denying these allegations, Comcast admitted that it was targeting BitTorrent upload sessions in neighborhoods suffering from localized network congestion.<sup>15</sup> Later in 2007, two advocacy organizations filed a complaint with the FCC alleging that Comcast had violated the FCC's Internet Policy Statement.<sup>16</sup>

In an August 2008 3-2 vote, the FCC held that Comcast had acted in contravention of federal policy. It ordered the company to "end its discriminatory network management practices."<sup>17</sup> Comcast, which had ended the practice after it drew public ire and before the FCC began its investigation, challenged the FCC's decision in the U.S. Court of Appeals for the District of Columbia Circuit.<sup>18</sup> That court ruled in April 2010 that the FCC's policy statement did not empower the agency to regulate how ISPs managed their networks.<sup>19</sup>

The FCC went back to the drawing board. It commenced a notice-and-comment rulemaking proceeding pursuant to the Administrative Procedure Act and issued what it called the “Open Internet Order” in December 2010.<sup>20</sup> This order imposed several new rules on ISPs, barring them from blocking lawful content, prohibiting unreasonable discrimination, and requiring that ISPs publicly disclose their network management practices and other characteristics of their services.<sup>21</sup> Notably, the 2010 order applied less rigid regulation to mobile ISPs under the justification that mobile broadband was “rapidly evolving” and experiencing “rapid innovation and change.”<sup>22</sup>

Two ISPs, Verizon and MetroPCS, challenged the FCC’s 2010 order, again in the U.S. Court of Appeals for the D.C. Circuit. In 2014, the court ruled largely in the ISPs’ favor, invalidating the FCC’s rules regarding blocking and discrimination while upholding the agency’s transparency rule.<sup>23</sup> The D.C. Circuit concluded that the FCC’s rules effectively treated ISPs as “common carriers,” a statutory definition that the FCC had previously *not* applied to ISPs.

The *Verizon* court essentially left the FCC with two options if it wished to proceed with enforceable net neutrality regulations: either adopt more flexible rules that allow ISPs “substantial room for individualized bargaining and discrimination in terms”<sup>24</sup> or reverse the agency’s earlier decision not to treat ISPs as common carriers under Title II of the Communications Act of 1934.<sup>25</sup>

In the wake of the 2014 *Verizon v. FCC* decision, the agency issued a notice of proposed rulemaking that indicated it would likely pursue the first option: adopting rules that do not go so far as to treat ISPs as common carriers.<sup>26</sup> Around this time, the White House reportedly set up a “parallel version” of the FCC to chart an alternative course for net neutrality regulation.<sup>27</sup> Then in November 2014, President Obama issued a statement calling on the FCC to reverse its longstanding interpretation of the Communications Act and impose common carrier regulation on ISPs.<sup>28</sup> In March 2015, the nominally independent<sup>29</sup> FCC issued its second “Open Internet Order”—also known as the “Title II Order”—which concluded that ISPs were “telecommunications services,” not “information services,” under the Communications Act and thus subject to regulation as common carriers.<sup>30</sup>

The agency was sued yet again in the D.C. Circuit by various trade associations, ISPs, and other individuals and organizations. These challengers emphasized that the FCC itself had previously determined that ISPs were not telecommunications services, and that in 2005 the Supreme Court had upheld the agency’s determination in *National Cable & Telecommunications Association v. Brand X Internet Services*.<sup>31</sup>

In June 2016, however, the D.C. Circuit ruled in the FCC’s favor with one member of the three-judge panel dissenting.<sup>32</sup> On May 1, 2017, the D.C. Circuit declined to rehear this decision *en banc*—that is, before the full court. Judges Brett Kavanaugh and Janice Rogers Brown wrote separate dissents from the court’s denial of rehearing.<sup>33</sup> The parties challenging the FCC rule can still seek review at the U.S. Supreme Court, but FCC Chairman Pai’s stated intent to reverse the rule may render this litigation moot before the nation’s high court has a chance to hear the matter.

Ajit Pai, then an FCC commissioner, dissented from the FCC's 2015 Title II order, criticizing both its legality and its policy rationale.<sup>34</sup> Pai said in a December 2016 speech that the FCC ought to “fire up the weed whacker and remove those rules that are holding back investment, innovation and job creation.”<sup>35</sup>

On January 23, 2017, President Donald Trump designated Ajit Pai—who has served as an FCC commissioner since 2012—to serve as the agency's chairman.<sup>36</sup> In an April 2017 speech, Pai announced that the agency will vote on whether to undo the 2015 order and return ISPs to “light-touch regulation” under Title I of the Communications Act.<sup>37</sup> The next day, the FCC released a draft notice of proposed rulemaking that explains the agency's tentative plans and seeks comment from the public on how it should proceed.<sup>38</sup>

**The Fatal Conceit of Net Neutrality Regulation.** As noted, under both iterations of the FCC's net neutrality regulations, ISPs must generally treat every packet they transmit in the same manner. This approach to network management is not without merit. In fact, it has been the predominant method by which ISPs have managed their networks since the dawn of residential Internet access. But as a regulatory regime, net neutrality restricts how broadband providers can manage the traffic that flows on their finite networks.

When more information is routed through a connection than that connection can handle, some packets must be dropped. Some types of content, such as Web pages and email, are resilient to dropped packets, as data can be resent with only a momentary delay that is barely noticeable to the end user. But other services are adversely affected by dropped packets. Voice over Internet Protocol applications, such as Skype or FaceTime, operate in real time, so they can be rendered unintelligible by too many dropped packets.<sup>39</sup> Dropped packets can cause similar problems for video streaming apps, multiplayer online games, and many other services.

This complication has led to the adoption of quality-of-service technologies, whereby ISPs prioritize some types of information that are more sensitive to delays caused by excessive latency, packet loss, or “jitter,” a form of packet delay. In other cases, ISPs may selectively target certain bandwidth-intensive applications—that is, applications especially likely to cause network congestion—to make room for other applications. As former FCC chief economist Thomas Hazlett explained with respect to the FCC's 2008 investigation of Comcast: “Comcast ... was managing its network to limit congestion, seeking to protect the great bulk of its customers from traffic generated by a few.”<sup>40</sup>

Targeting certain protocols is not the only way an ISP can manage congestion. An ISP might impose an application-agnostic limit on each subscriber's overall usage, or on each subscriber's usage during peak hours when congestion is most likely to occur. For instance, Verizon Wireless offers an “unlimited” mobile broadband plan that begins throttling a subscriber's usage once she transmits over 22 gigabytes in a month—albeit only when the subscriber is using a congested cell tower.<sup>41</sup> Until recently, T-Mobile offered an “unlimited” plan that throttled streaming video quality for any subscriber that exceeded a specified monthly threshold.<sup>42</sup> One potential implementation of metering is a “Ramsey two-part

tariff,” which offers all subscribers a certain guaranteed level of service but then imposes metering above that guaranteed level.<sup>43</sup>

The FCC’s net neutrality orders presume that consumers will be better off if their ISPs are barred from throttling usage on an application-by-application basis.<sup>44</sup> In reality, not every consumer perceives every byte of Internet traffic to be equally valuable. If a mobile ISP were to degrade video content from ultra-high-definition to “ordinary” high-definition, how many consumers could even tell the difference? The answer depends on the technical sophistication of the ISP’s customers, the capabilities of their mobile devices, and even their average visual acuity.

Similarly, if a subscriber downloads a file via BitTorrent and leaves the client on all night long to distribute the content—thereby generating significant upstream traffic—how much would that subscriber suffer if his ISP were to throttle his peer-to-peer uploads?

ISPs have been willing to experiment with a variety of strategies to handle network congestion, seeking the practices that work best for them and their customers, but the FCC’s net neutrality rules have thwarted such exploration, ultimately reducing innovation and consumer choice.

**Net Neutrality Morphs into Ma Bell-Style Internet Regulation.** Until 2014, the campaign for net neutrality regulation focused chiefly on just that: the principle of ISP nondiscrimination. Yet the FCC’s 2014 notice of proposed rulemaking, culminating in its 2015 Title II order, went far beyond net neutrality’s relatively humble roots. In 2014, the agency suggested that it might regulate not only the exchange of traffic *within* an ISP’s network—to and from its residential subscribers—but also the exchange of traffic *between* an ISP’s network and other commercial Internet facilities.<sup>45</sup>

The FCC’s 2015 order declined to “directly regulate” interconnection practices among ISPs and content delivery networks. However, it said it would subject such arrangements to potential enforcement actions on a case-by-case basis.<sup>46</sup> This approach—while preferable to prescriptive, *ex ante* regulation—nevertheless extended the FCC’s reach to the historically unregulated, fully functional market for Internet traffic exchange.<sup>47</sup>

Similarly, the 2015 order banned so-called “fast lanes” by forbidding ISPs from entering into agreements to offer “paid prioritization” to certain applications, services, or companies.<sup>48</sup> This prohibition went beyond the 2010 order, extending the earlier ban on *discrimination* to also encompass a ban on *prioritization*. This is like the federal government barring grocers from negotiating with Campbell’s over shelf placement for its soups. The justification would be the grocery store’s potential power to favor its own brands and “shake down” Campbell’s. It is, of course, absurd to suggest such a huge company would need regulatory protection.<sup>49</sup> And it is no less absurd to assert that giants like Google, Facebook, and Netflix need regulatory protection from the FCC.

Again, this cut off potential innovation. Regulators do not have the expertise and foresight to know what best serves consumers. They should not declare certain business models off-

limits simply because they can imagine hypotheticals in which network practices might suppress competition in the market for applications and services.

The 2015 order's most radical departure from the agency's previous approach was its reversal of a series of decisions the FCC reached in 2002, 2005, and 2007 to treat cable, DSL, and wireless broadband, respectively, as "information services" subject to Title I of the Communications Act.<sup>50</sup> These decisions, the first of which was upheld by the Supreme Court in 2005, ensured that cable and wireless ISPs would be free from many of the regulatory shackles that phone companies long endured under Title II of the Communications Act.<sup>51</sup> Under the 2015 order, ISPs are common carriers, and are thus subject to many of the same obligations as telephone companies.<sup>52</sup>

Then in late 2016, the FCC imposed an onerous set of privacy regulations on ISPs, different from the market practices, privacy standards, laws, and regulations that apply to the rest of the tech sector. In April 2017, Congress passed and the president signed a resolution of disapproval that invalidated these regulations pursuant to the Congressional Review Act.<sup>53</sup> As long as ISPs remain classified as common carriers, though, Title II hangs over them like the Sword of Damocles, offering a future FCC many options for regulating ISP behavior the way it used to regulate Ma Bell.

Indeed, if former FCC Chairman Tom Wheeler were still in charge of the agency, he would almost certainly be pursuing new avenues for intrusive regulation. In December 2016, shortly before he stepped down from the FCC, the agency sent a letter to Verizon and AT&T stating that it had reached a "preliminary conclusion" that providing certain services at low or no cost would "inhibit competition, harm consumers, and interfere with the 'virtuous cycle' needed to assure the continuing benefits of the Open Internet."<sup>54</sup> As Chairman Pai observed in his April 2017 speech, under his predecessor, "the "FCC had met the enemy, and it was consumers getting something for free from their wireless provider."<sup>55</sup>

**Conclusion.** To the extent that consumers would benefit from greater competition among ISPs, the proper governmental response is to adopt policies that promote such competition, rather than seek to regulate existing providers. For instance, Congress should pass legislation freeing up the electromagnetic spectrum, which is the lifeblood of mobile broadband. With more spectrum available to market participants, new wireless ISPs could emerge, while existing wireless ISPs could offer faster speeds and more lenient usage policies.<sup>56</sup> The FCC established a Broadband Deployment Advisory Committee in April 2017 to study burdens on broadband deployment and recommend to the FCC how to eliminate them.<sup>57</sup> Governments at all levels should eradicate barriers to deploying wireline infrastructure, a process that has been rendered artificially costly by municipal, state, and federal regulations.

If harmful practices occur, the Federal Trade Commission and the Department of Justice have concurrent authority to enforce laws such as the Sherman and Clayton Acts. Such laws are probably not necessary, as fully functioning markets can solve the problem of concentration, but as long they as exist, they offer an alternative means for government intervention in broadband disputes.<sup>58</sup> And if the FCC insists on maintaining a role as an

Internet regulator, addressing net neutrality disputes on a case-by-case basis would be far better than the prescriptive rules contained in the 2015 order.

No credible case exists for universal net neutrality regulation. There may be reason for the occasional intervention to deal with situations where ISPs have enjoyed unfair advantages owing to past exclusive franchises and other such arrangements. But even here, unfavorable press generally does the trick.<sup>59</sup> Banning entire business models hardly constitutes “openness.”

Telecommunications networks are the property of their owners. Neither the FCC nor net neutrality advocates can predict which network configurations will serve consumers best. They should not invade the property rights of network owners. Government benefits and subsidies should be unwound and removed, and ISPs should be free to explore all approaches to network access, strategies, and pricing. Enjoying the infrastructure wealth creation that such property rights foster is vital.<sup>60</sup> That may not be as entertaining as John Oliver’s take on net neutrality, but it is much sounder public policy.

## Notes

<sup>1</sup> Net Neutrality II: Last Week Tonight with John Oliver (HBO), May 7, 2017, <https://www.youtube.com/watch?v=92vuuZt7wak>.

<sup>2</sup> Tim Wu, “Network Neutrality, Broadband Discrimination,” *Journal of Telecommunications and High Technology Law*, Vol. 2, p. 141, 2003.

<sup>3</sup> Brian Fung, “AT&T may be violating net neutrality with this program, the FCC says,” *Washington Post*, January 11, 2017, [https://www.washingtonpost.com/news/the-switch/wp/2017/01/11/atts-sponsored-data-program-may-violate-net-neutrality-the-fcc-says/?utm\\_term=.ccd2183a7d81](https://www.washingtonpost.com/news/the-switch/wp/2017/01/11/atts-sponsored-data-program-may-violate-net-neutrality-the-fcc-says/?utm_term=.ccd2183a7d81).

<sup>4</sup> Charles R. Severance, “Introduction to Networking,” p. 8 (2015).

<sup>5</sup> 25 FCC Rcd 17905, 17952, para. 82.

<sup>6</sup> Act of June 19, 1934, ch. 652 (codified as amended at 47 U.S.C. §§ 151–622).

<sup>7</sup> 47 U.S.C. §§ 151–162.

<sup>8</sup> 47 U.S.C. §§ 201–276.

<sup>9</sup> Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798 (2002); Appropriate Framework for Broadband Access to the Internet over Wireline Facilities et al., 20 FCC Rcd 14986 (2005); Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks, Declaratory Ruling, 22 FCC Rcd 5901 (2007).

<sup>10</sup> 47 U.S.C. § 230(b)(2).

<sup>11</sup> Appropriate Framework for Broadband Access to the Internet over Wireline Facilities et al., 20 FCC Rcd 14986, 14987–988, para. 4 (2005).

<sup>12</sup> *Comcast v. FCC*, 600 F.3d 642, 654 (D.C. Cir. 2010).

<sup>13</sup> 20 FCC Rcd at 14988, para. 5.

<sup>14</sup> Peter Svensson, “Comcast Blocks Some Internet Traffic, AP Testing Shows,” Associated Press, October 19, 2007, [http://www.nbcnews.com/id/21376597/ns/technology\\_and\\_science-internet/t/comcast-blocks-some-internet-traffic/](http://www.nbcnews.com/id/21376597/ns/technology_and_science-internet/t/comcast-blocks-some-internet-traffic/).

<sup>15</sup> Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications; Broadband Industry Practices; Petition of Free Press et al. for Declaratory Ruling that Degrading an Internet Application Violates the FCC’s Internet Policy Statement and Does Not Meet an Exception for “Reasonable Network Management,” Memorandum Opinion and Order, 23 FCC Rcd 13028, 13031, para. 9 (2008).

<sup>16</sup> *Ibid.*, 13032, para. 10.

<sup>17</sup> *Ibid.*, 13060, para. 55.

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- <sup>18</sup> Ibid., 13059–13060, para. 54 and n. 244 (citing July 2008 letter from Comcast to FCC noting that the company planned to move to a “protocol-agnostic management technique” by the end of 2008).
- <sup>19</sup> *Comcast v. FCC*, 600 F.3d 642 (D.C. Cir. 2010).
- <sup>20</sup> Preserving the Open Internet; Broadband Industry Practices, Report and Order, 25 FCC Rcd 17905 (2010).
- <sup>21</sup> Ibid., 25 FCC Rcd at 17906, para. 1.
- <sup>22</sup> Ibid., 25 FCC Rcd at 17956, para. 94.
- <sup>23</sup> *Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014).
- <sup>24</sup> Ibid. at 652 (quoting *Cellco Partnership v. FCC*, 700 F.3d 534, 548 (D.C. Cir. 2012)).
- <sup>25</sup> Communications Act of 1934, tit. II (codified as amended at 47 U.S.C. §§ 201 et seq.).
- <sup>26</sup> Protecting and Promoting the Open Internet, Notice of Proposed Rulemaking, 29 FCC Rcd 5561 (2014).
- <sup>27</sup> Gautham Nagesh and Brody Mullins, “Net Neutrality: How White House Thwarted FCC Chief,” *Wall Street Journal*, February 4, 2015, <https://www.wsj.com/articles/how-white-house-thwarted-fcc-chief-on-internet-rules-1423097522>.
- <sup>28</sup> The White House, Office of the Press Secretary, “Statement by the President on Net Neutrality,” November 10, 2014, <https://obamawhitehouse.archives.gov/the-press-office/2014/11/10/statement-president-net-neutrality>.
- <sup>29</sup> *PHH Corporation v. Consumer Financial Protection Bureau*, 839 F.3d 1, 6 (D.C. Cir. 2016) (rehearing en banc granted, order vacated, Feb. 16, 2017).
- <sup>30</sup> Protecting and Promoting the Open Internet, Report and Order on Remand, Declaratory Ruling, and Order, 30 FCC Rcd 5601 (2015).
- <sup>31</sup> 545 U.S. 967 (2005).
- <sup>32</sup> *U.S. Telecom Association v. FCC*, 825 F.3d 674 (D.C. Cir. 2016).
- <sup>33</sup> *U.S. Telecom Ass’n v. FCC*, 2017 WL 1541517 (D.C. Cir. 2017).
- <sup>34</sup> 30 FCC Rcd at 5921 (Pai, Commissioner, dissenting).
- <sup>35</sup> Jim Puzzanghera, “Trump names new FCC chairman: Ajit Pai, who wants to take a ‘weed whacker’ to net neutrality,” *Los Angeles Times*, January 23, 2017, <http://www.latimes.com/business/la-fi-pai-fcc-chairman-20170123-story.html>.
- <sup>36</sup> Statement of Ajit Pai on Being Designated FCC Chairman by President Donald J. Trump, January 23, 2017, <https://www.fcc.gov/document/statement-ajit-pai-being-designated-chairman-president-trump>.
- <sup>37</sup> Ajit Pai, “The Future of Internet Freedom,” Remarks at the Newseum, April 26, 2017, [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2017/db0426/DOC-344590A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0426/DOC-344590A1.pdf).
- <sup>38</sup> Restoring Internet Freedom, Draft Notice of Proposed Rulemaking, April 27, 2017, [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344614A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344614A1.pdf).
- <sup>39</sup> Riley Flaherty, “Here’s Why You’re Going to Hate Net Neutrality,” *The Libertarian Republic*, March 16, 2015, <http://thelibertarianrepublic.com/why-you-will-hate-net-neutrality/>.
- <sup>40</sup> Thomas W. Hazlett, *The Fallacy of Net Neutrality* (New York: Encounter, 2011), p. 48-49.
- <sup>41</sup> Jon Brodtkin, “Verizon offers unlimited data and won’t throttle video (unlike T-Mobile),” *ArsTechnica*, February 13, 2017, <https://arstechnica.com/information-technology/2017/02/verizon-offers-unlimited-data-and-wont-throttle-video-unlike-t-mobile/>.
- <sup>42</sup> Ibid.
- <sup>43</sup> Adam Thierer, “Wallsten on metering bandwidth as alternative to Net neutrality,” October 26, 2007, <https://techliberation.com/2007/10/26/wallsten-on-metering-bandwidth-as-alternative-to-net-neutrality/>.
- <sup>44</sup> The “fatal conceit,” a term coined by Friedrich Hayek, refers to how little knowledge we really have about “what are the causes or what will be the effects of particular events” in the economy. Friedrich Hayek, *The Fatal Conceit: The Errors of Socialism* (Chicago: University of Chicago Press, 1998).
- <sup>45</sup> 29 FCC Rcd at 5582, para 59.
- <sup>46</sup> 30 FCC Rcd at 5693, para. 203.
- <sup>47</sup> Restoring Internet Freedom, Draft NPRM, at para. 42.
- <sup>48</sup> 30 FCC Rcd at 5067, para. 18.
- <sup>49</sup> For a detailed discussion of payments by manufacturers for shelf space in the grocery retailing market, see Joshua D. Wright and Benjamin Klein, “The Economics of Slotting Contracts,” *Journal of Law and Economics*, Vol. 50, August 2007.
- <sup>50</sup> Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798 (2002), and Appropriate Framework for Broadband

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Access to the Internet Over Wireline Facilities, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 14853 (2005).

<sup>51</sup> *National Cable and Telecommunications Association v. Brand X Internet Services*, 545 U.S. 967, 988 (2005).

<sup>52</sup> The FCC's 2015 order engaged in "forbearance" under 47 U.S.C. § 160 to exempt ISPs from a large portion of Title II, albeit not its most far-reaching provisions, 47 U.S.C. §§ 201 and 202. 30 FCC Rcd at 5616, para. 51.

<sup>53</sup> Pub. L. No. 115-22 (2017).

<sup>54</sup> Colin Lecher, "FCC says AT&T and Verizon 'harm consumers' with free data schemes," *The Verge*, <https://www.theverge.com/2016/12/2/13820294/fcc-att-verizon-sponsored-data-letters>.

<sup>55</sup> Pai speech at 4.

<sup>56</sup> Ryan Radia and Joseph Kane, "A Case for Property Rights in the Electromagnetic Spectrum How Private Markets Can Unleash Telecommunications Innovation," *Issue Analysis* 2017, no. 5, Competitive Enterprise Institute, April 2017, <https://cei.org/content/case-property-rights-electromagnetic-spectrum>.

<sup>57</sup> Broadband Deployment Advisory Committee, <https://www.fcc.gov/broadband-deployment-advisory-committee>.

<sup>58</sup> Fred L. Smith, Jr., "Why Not Abolish Antitrust," *Regulation*, January/February 1983, <https://cei.org/content/why-not-abolish-antitrust>.

<sup>59</sup> Randall Rothenberg, "Facebook's Flop," *Wall Street Journal*, December 14, 2007, <https://www.wsj.com/news/articles/SB119760316554728877>.

<sup>60</sup> Wayne Crews, Comments to the FCC, Broadband Industry Practices, Notice of Inquiry, 2008, <https://www.scribd.com/document/161364202/Wayne-Crews-2008-CEI-Filing-on-FCC-Notice-of-Inquiry-on-Broadband-Industry-Practices-Net-Neutrality>.