# Internet Law: Cases & Problems

## (Apr. 2015 draft)

# Chapter 9: Private Power

## C. Network Neutrality

"Network neutrality" is the name given to various proposals that would require ISPs not to discriminate against any legal uses of their networks. Under the Federal Communication Commission's (FCC) most recent network neutrality rules, ISPs cannot *block* service to websites or applications their users wish to use, cannot unfairly *discriminate* against websites or services, and cannot *prioritize* some content over others by creating dedicated "fast lanes" open to those who pay. The details are immensely complicated, and to cover them in real depth would take us far afield into telecommunications law. This section offers only a brief survey of the issues raised by the subject.

The modern debates over network neutrality are rooted in three widely-shared beliefs about the Internet. The first is universality: that a single global Internet is better than multiple incompatible networks. The second is competition: that the Internet is better because different companies compete with each other to offer superior service. The third is innovation: that investments in technological improvements to and on the Internet benefit society. Sometimes these values reinforce each other; sometimes they conflict. As you read this section, pay attention to how advocates and opponents of network neutrality invoke these different values in support of their arguments.

Before pressing into the historical, technical, and administrative thicket, we begin with a high-level overview of the policy case for network neutrality, presented in an excerpt from one of the judicial opinions reviewing the FCC's actions. It is an approving paraphrase of the FCC's rationale, and also provides an introduction to some of the essential terminology. These are followed by an extended note on the history of network regulation, starting with Alexander Graham Bell and tracing the FCC's first two (failed) attempts to impose binding network neutrality rules. Next come excerpts from the FCC's third try, and a popular essay criticizing both the rules and the entire project of network neutrality regulation. The section concludes with a problem asking you to think through how the FCC's rules might play out in practice.

### Verizon v. FCC

740 F. 3d 623 (D.C. Cir. 2014)

Tatel, Circuit Judge: ...

Four major participants in the Internet marketplace are relevant to the issues before us: backbone networks, broadband providers, edge providers, and end users. Backbone networks are interconnected, long-haul fiber-optic links and high-speed routers capable of transmitting vast amounts of data. Internet users generally connect to these networks – and, ultimately, to one another – through local access providers like petitioner Verizon, who operate the "last-mile" transmission lines. In the Internet's early days, most users connected to the Internet through dial-up connections over local telephone lines. Today, access is generally furnished through "broadband," i.e., high-speed communications technologies, such as cable modem service. Edge providers are those who, like Amazon or Google, provide content, services, and applications over the Internet, while end users are those who consume edge providers' content, services, and applications. To pull the whole picture together with a slightly oversimplified example: when an edge provider such as YouTube transmits some sort of content – say, a video of a cat – to an end user, that content is broken down into packets of information, which are carried by the edge

provider's local access provider to the backbone network, which transmits these packets to the end user's local access provider, which, in turn, transmits the information to the end user, who then views and hopefully enjoys the cat.

These categories of entities are not necessarily mutually exclusive. For example, end users may often act as edge providers by creating and sharing content that is consumed by other end users, for instance by posting photos on Facebook. Similarly, broadband providers may offer content, applications, and services that compete with those furnished by edge providers.

Proponents of net neutrality – or, to use the Commission's preferred term, "Internet openness" – worry about the relationship between broadband providers and edge providers. They fear that broadband providers might prevent their end-user subscribers from accessing certain edge providers altogether, or might degrade the quality of their end-user subscribers' access to certain edge providers, either as a means of favoring their own competing content or services or to enable them to collect fees from certain edge providers. Thus, for example, a broadband provider like Comcast might limit its end-user subscribers' ability to access the New York Times website if it wanted to spike traffic to its own news website, or it might degrade the quality of the connection to a search website like Bing if a competitor like Google paid for prioritized access. …

One set of rules applies to "fixed" broadband providers – i.e., those furnishing residential broadband service and, more generally, Internet access to end users "primarily at fixed end points using stationary equipment." The other set of requirements applies to "mobile" broadband providers – i.e., those "serv[ing] end users primarily using mobile stations," such as smart phones.

To begin with, the Commission has more than adequately supported and explained its conclusion that edge-provider innovation leads to the expansion and improvement of broadband infrastructure. The Internet, the Commission observed in the *Open Internet Order,* is, "[l]ike electricity and the computer," a "general purpose technology that enables new methods of production that have a major impact on the entire economy." Certain innovations – the lightbulb, for example – create a need for infrastructure investment, such as in power generation facilities and distribution lines, that complement and further drive the development of the initial innovation and ultimately the growth of the economy as a whole. The rise of streaming online video is perhaps the best and clearest example the Commission used to illustrate that the Internet constitutes one such technology: higher-speed residential Internet connections in the late 1990s "stimulated" the development of streaming video, a service that requires particularly high bandwidth, "which in turn encouraged broadband providers to increase network speeds." The Commission's emphasis on this connection between edge-provider innovation and infrastructure development is uncontroversial. …

The Commission's finding that Internet openness fosters the edge-provider innovation that drives this "virtuous cycle" was likewise reasonable and grounded in substantial evidence. Continued innovation at the edge, the Commission explained, "depends upon low barriers to innovation and entry by edge providers," and thus restrictions on edge providers' "ability to reach end users … reduce the rate of innovation." This conclusion finds ample support in the economic literature on which the Commission relied, as well as in history and the comments of several edge providers. For one prominent illustration of the relationship between openness and innovation, the Commission cited the invention of the World Wide Web itself by Sir Tim Berners-Lee, who, although not working for an entity that operated the underlying network, was able to create and disseminate

this enormously successful innovation without needing to make any changes to previously developed Internet protocols or securing "any approval from network operators." It also highlighted the comments of Google and Vonage – both innovative edge providers – who emphasized the importance of the Internet's open design to permitting new content and services to develop at the edge. The record amassed by the Commission contains many similar examples …

Equally important, the Commission has adequately supported and explained its conclusion that, absent rules such as those set forth in the *Open Internet Order*, broadband providers represent a threat to Internet openness and could act in ways that would ultimately inhibit the speed and extent of future broadband deployment. First, nothing in the record gives us any reason to doubt the Commission's determination that broadband providers may be motivated to discriminate against and among edge providers. The Commission observed that broadband providers – often the same entities that furnish end users with telephone and television services – "have incentives to interfere with the operation of third-party Internet-based services that compete with the providers' revenue-generating telephone and/or pay-television services." As the Commission noted, Voice-over-Internet-Protocol (VoIP) services such as Vonage increasingly serve as substitutes for traditional telephone services, and broadband providers like AT&T and Time Warner have acknowledged that online video aggregators such as Netflix and Hulu compete directly with their own core video subscription service. Broadband providers also have powerful incentives to accept fees from edge providers, either in return for excluding their competitors or for granting them prioritized access to end users. … Although Verizon dismisses the Commission's assertions regarding broadband providers' incentives as "pure speculation," those assertions are, at the very least, speculation based firmly in common sense and economic reality.

Moreover, as the Commission found, broadband providers have the technical and economic ability to impose such restrictions. Verizon does not seriously contend otherwise. … The Commission also convincingly detailed how broadband providers' position in the market gives them the economic power to restrict edge-provider traffic and charge for the services they furnish edge providers. Because all end users generally access the Internet through a single broadband provider, that provider functions as a "terminating monopolist," with power to act as a "gatekeeper" with respect to edge providers that might seek to reach its end-user subscribers. As the Commission reasonably explained, this ability to act as a "gatekeeper" distinguishes broadband providers from other participants in the Internet marketplace – including prominent and potentially powerful edge providers such as Google and Apple – who have no similar "control [over] access to the Internet for their subscribers and for anyone wishing to reach those subscribers."

To be sure, if end users could immediately respond to any given broadband provider's attempt to impose restrictions on edge providers by switching broadband providers, this gatekeeper power might well disappear. *Cf. Open Internet Order* (declining to impose similar rules on "dial-up Internet access service because telephone service has historically provided the easy ability to switch among competing dial-up Internet access services"). For example, a broadband provider like Comcast would be unable to threaten Netflix that it would slow Netflix traffic if all Comcast subscribers would then immediately switch to a competing broadband provider. But we see no basis for questioning the Commission's conclusion that end users are unlikely to react in this fashion. According to the Commission, "end users may not know whether charges or service levels their broadband provider is imposing on edge providers vary from those of alternative broadband providers, and even if they do have this information may find it costly to switch." As described by

numerous commenters, and detailed more thoroughly in a Commission report compiling the results of an extensive consumer survey, the costs of switching include: "early termination fees; the inconvenience of ordering, installation, and set-up, and associated deposits or fees; possible difficulty returning the earlier broadband provider's equipment and the cost of replacing incompatible customer-owned equipment; the risk of temporarily losing service; the risk of problems learning how to use the new service; and the possible loss of a provider-specific email address or website." Moreover, the Commission emphasized, many end users may have no option to switch, or at least face very limited options: "[a]s of December 2009, nearly 70 percent of households lived in census tracts where only one or two wireline or fixed wireless firms provided" broadband service. As the Commission concluded, any market power that such broadband providers might have with respect to end users would only increase their power with respect to edge providers. …

Furthermore, the Commission established that the threat that broadband providers would utilize their gatekeeper ability to restrict edge-provider traffic is not, as the Commission put it, "merely theoretical." In support of its conclusion that broadband providers could and would act to limit Internet openness, the Commission pointed to four prior instances in which they had done just that. These involved a mobile broadband provider blocking online payment services after entering into a contract with a competing service; a mobile broadband provider restricting the availability of competing VoIP and streaming video services; a fixed broadband provider blocking VoIP applications; and, of course, Comcast's impairment of peer-to-peer file sharing that was the subject of the *Comcast Order*. …

### Questions

1. Do the arguments for network neutrality also imply a need for search neutrality to keep Google from unfairly demoting its competitors like Yelp? What about payments neutrality for PayPal, app neutrality for the Apple iOS app store, social graph neutrality for Facebook, or or e-book neutrality for Amazon? What would these mean? Is there a reason to treat ISPs differently?

2. Is there even a problem here? Are neutrality violations common or rare? If there is a problem, is it a one that antitrust law and consumer protection law can't fix?

## Wired Network Regulation: A Brief History

It impossible to understand the modern debates over network neutrality without some sense of the regulatory backdrop against which they take place. And it is impossible to understand the regulatory backdrop without a generous helping of history. We start with the history of telephone regulation, because for many observers it supplies the most closely analogous baseline.

### AT&T and the Telephone System

For present purposes, the story starts in 1877, when Alexander Graham Bell, the inventor of the first practical telephone,[*] founded the Bell Telephone Company. It combined a national headquarters, an equipment manufacturing division, and a set of local

[*] Perhaps. Elisha Gray was also working on transmitting speech electrically, and the two of them filed paperwork with the Patent Office on the same day in 1876. Bell ultimately was awarded a patent, and Gray was not, but there is also strong circumstantial evidence that Bell's filing was plagiarized from Gray's. It may not be accurate to call either of them "the" inventor, especially given how many other people were active in developing the numerous technologies required to build a working telephone *system*: microphones, switchboards, speakers, etc.

operation companies, each of which had an exclusive license from Bell for its territory. Initially, local service was the big draw of having a telephone. Businessmen wanted to talk to their customers and their suppliers; individuals wanted to talk to their friends. Bell affiliates built out networks in major cities, with long-distance lines to other cities as an expensive separate service. But in 1889, Bell placed a major bet on the future of the telephone, upgrading its local systems so local subscribers could also use its city-to-city links.

The last of Bell's patents on the telephone expired in 1894, opening the field to competition from a variety of companies who gradually became known as the "independents." Although they had difficulty maintaining competition in urban areas that Bell had already wired, they were frequently able to establish themselves in suburbs, towns, and rural areas. For the next two decades, local Bells and independents competed vigorously. A crucial area of controversy was whether or not their networks would "interconnect," allowing subscribers on one to talk to subscribers on the other. At first, Bell followed a policy of refusing to interconnect, trying to use its long-distance network as a weapon to convince telephone users to drop their independent subscription and jump ship to Bell.

But then, under the leadership of president Theodore Vail, who coined the slogan, "One System, One Policy, Universal Service," Bell (now known as American Telephone and Telegraph) switched course. It started offering interconnection to the independents, effectively weaving them into its own network one-by-one rather than leaving them to band together to create their own competing long-distance network. It also started to buy up independents where it could, until a 1913 agreement with the Justice Department, known as the Kingsbury Commitment, put an end to the acquisitions. As it knit its long-distance lines together into a truly coast-to-coast network, Bell was now the dominant provider of telephone service, with an effectively unassailable monopoly in long-distance service.

The Communications Act of 1934 recognized this fact, establishing AT&T as a legally regulated monopoly under the jurisdiction of the newly-created Federal Communications Commission. For nearly the next fifty years, AT&T (or "Ma Bell," as it was often called), for most practical purposes, *was* the telephone system. Long distance service gradually changed from a remarkable luxury to something many Americans used regularly. The company's research arm, Bell Labs, became the country's preeminent industrial laboratory: it produced the first transistor and basic advances in physics, computing, and communications engineering.

As a regulated monopoly, AT&T lived under a legal regime that both empowered and restricted it. It was a "common carrier," regulated under Title II of the Communications Act. Common carriage is an old concept, rooted in the common-law regulation of certain particularly "public" forms of service. The basic duty of common carriage was to serve all comers:

> Also, when a man takes upon himself a public employment, he is bound to serve the public as far as his employment goes, or an action lies against him for refusing. Thus, if a farrier refuse to shoe a horse, an innkeeper to receive a guest, a carrier to carry, when they may do it, an action lies; their understanding is in proportion to their power and convenience.

*Lane v. Cotton* (1703) 91 Eng. Rep. 17 (K.B.). Over time, common carriage in the United States was used primarily in regulation transportation and telecommunications. Railroads and telegraphs were the archetypal nineteenth century common carriers. Today, the basic duties of common carriers in communications are spelled out in Title II of the Communications Act. (Remember that: "Title II" will be important later.):

- First, there is the essential duty to serve all comers, that is, "to furnish such communication service upon reasonable request therefor." 47 U.S.C. § 201(a). An important special case is that common carriers must "establish physical connections with other carriers," *id.*, when ordered to do so by the FCC.
- Second, a common carrier's rates must be "just and reasonable." *Id.* § 201(b).
- Third, a common carrier may not engage in "unjust or unreasonable discrimination" between customers. *Id.* § 202(a).
- Fourth, each common carrier must file with the FCC the details of its pricing, called a tariff, *id.* § 203(a), and may charge customers only in accordance with the filed tariff, *id.* § 203(c).
- Last but not least, FCC has broad authority to hold hearings on and accept or reject filed tariffs, *id.* § 204, to make general rules about permitted and prohibited practices, *id.* § 205, and to investigate complaints about violations of common carriers' obligations, *id.* § 208.

There are two other concepts kicking around in here in addition to common carriage. The first is that AT&T was treated as a public utility – that is, an operator of infrastructure used by the public – not unlike an electric company or a water district. The idea that infrastructure is different from ordinary business is a recurring theme in telecommunications regulation. The second is that AT&T was the holder of a public franchise: a government-granted right to carry on its line of business. Because of the need to string wires on poles or underground, or to place transmitters on towers, most telecommunications businesses require franchises, and negotiating with local zoning boards and state public utility commissions is a big part of their work.

The FCC used its regulatory power to extend telephone service broadly throughout the country: it had AT&T charge businesses higher rates to subsidize cheaper service for individuals. Within the limits of the basic nondiscrimination rule and the FCC's rate regulation, AT&T had near-total control over its network. The company adopted an attitude of technocratic paternalism. For example, its equipment was rigidly standardized, even down to the telephones in people's houses – which AT&T insisted were leased from it, not owned by the subscriber. The company was paranoid about non-AT&T equipment connected to its network. In the words of one of its tariffs:

> No equipment, apparatus, circuit or device not furnished by the Telephone Company shall be attached to or connected with the facilities furnished by the Telephone Company, whether physically, by induction or otherwise, except as provided in this tariff.

In a move that would backfire badly, AT&T tried to prohibit use of the Hush-a-Phone, a cup-shaped object with no electric parts. The user would attach the Hush-a-Phone to the mouthpiece on his standard AT&T telephone, and *voilà*: no one else in the room could see his lips move or hear what he was saying into the telephone. AT&T convinced the FCC to declare that even though the Hush-a-Phone could not possibly harm the workings of the telephone network itself, it somehow was "deleterious to the telephone system and injure[d] the service rendered by it." A user who desired privacy should instead cup her hand around her mouth and the phone.

Hush-a-Phone took the case to the D.C. Circuit, which set aside the FCC's order in a brief and incredulous opinion, *Hush-a-Phone Corp. v. United States*, 238 F.2d 266 (D.C. Cir. 1956). The court held that, as applied to the Hush-a-Phone by the FCC, the tariff was

an "unwarranted interference with the telephone subscriber's right reasonably to use his telephone in ways which are privately beneficial without being publicly detrimental."

A decade later, the FCC itself enshrined this principle in In Re *Carterfone*, 13 F.C.C. 420 (1968). The device there was essentially a way of connecting a telephone to a walkie-talkie – enabling a kind of primitive roaming cell phone. The FCC held that AT&T could not prohibit the use of this or other "interconnecting devices" as long as they did not "adversely affect the telephone system."

Meanwhile, AT&T started to face significant competition again. It still had a stranglehold on local service – for most Americans it was simply "the telephone company" – but for reasons including the FCC's rate regulation policies, long distance was the most lucrative part of the market. If you could figure out how to connect point A to point B on your own, then you could interconnect with AT&T's network at points A and B, and offer long-distance service for customers near A and B, using AT&T's network only as necessary for the local portions of the call.

This was the play made by a new company, Microwave Communications, Inc., better-known to history as MCI. After the FCC approved its application to offer long-distance service via microwave relay towers linking Chicago and St. Louis in 1969, numerous other would-be long-distance competitors rushed in. In a rulemaking in 1971, the FCC approved their entry in principle. Although AT&T agreed to work with these new competitors to set the terms on which they would interconnect, negotiations broke down over numerous technical and pricing issues. The fight quickly spilled over into court. MCI sued, alleging that AT&T was using its dominant position in local service and its tremendous resources to prevent the new long-distance companies from competing with it. The Department of Justice, which had been eyeing AT&T on and off for decades, filed its own antitrust lawsuit in 1974. The old compromise, which had long accepted AT&T as a benign and universalizing monopolist, was breaking down.

The trial began in 1981. It ran for almost a year, and the two sides presented over three hundred witnesses and tens of thousands of pages of documents. But on January 8, 1982, with only about a month to go, the parties returned to the judge with a remarkable announcement: AT&T had agreed to a consent decree under which it would agree to be broken up. The judge approved the decree later that year, *United States v. American Telelphone and Telegraph Co.*, 552 F. Supp. 131 (D.D.C. 1982), and the breakup took place on January 1, 1984.

The breakup fragmented AT&T into three major pieces. AT&T itself kept the long-distance business, which would now be entirely open to competition. AT&T Technologies (today known as Lucent) took Bell Labs and AT&T's equipment-manufacturing arm. The local service part of the company was split up into seven regional "Baby Bells." While each of the Baby Bells still had a dominant position in providing local service, they were prohibited from entering other lines of business – thereby, in theory, keeping them from being tempted to drive competitors out of any other market.

The decade between the breakup in 1984 and the mid-1990s was a time of vibrant long-distance competition. Rates tumbled, as Americans chose between AT&T, MCI, Sprint, and a host of smaller long-distance providers. Local service, however, changed much less; the Baby Bells retained their dominant positions.

### The Telecommunications Act of 1996

This was the situation facing Congress as it took up the project of reworking telecommunications law in the 1990s. Complex and highly distinct regulatory regimes had grown up around the country's major networks: telephone, broadcast television, cable

television, radio, and so on. The proponents of what would become the Telecommunications Act of 1996 were eager to replicate the competition they saw in the long-distance market throughout the system. They also could tell that data and computer services – which the FCC had been rather clumsily attempting to regulate in a series of *Computer Inquiries* (in 1971, 1980, and 1986) – were important enough that they needed to be included in the framework of the Act they were drafting.

The first major choice was to repudiate treating the Baby Bells as regulated monopolies in favor of trying to create structural competition for them. The Act relaxed the restrictions on the lines of business the Baby Bells could enter. In exchange, Baby Bells were required to "unbundle" many of their facilities and offer them for interconnection at specified prices to competitors. A competing regional phone company, for example, was supposed to be able to lease access to switches and cables from the incumbent Baby Bell. The FCC would set appropriate prices if necessary; the goal was vibrant competition in local service from a large number of providers.

It didn't work out that way. Perhaps the Act was wrong to assume that this kind of interconnection was workable; perhaps the FCC failed to implement the Act effectively; perhaps the Baby Bells were more efficient than their new competitors. For whatever reason, few local providers made substantial inroads against their Baby Bell. The Supreme Court also beat back an antitrust challenge to one Baby Bell's actions in allegedly shirking its obligations to assist its competitors. *Verizon Commc'ns Inc. v. Law Offices of Curtis v. Trinko, LLP*, 540 U.S. 398 (2004).

With their regulations relaxed, the Baby Bells entered into several waves of expansions and mergers. By now, they have all been reabsorbed into three phone empires: AT&T, Verizon, and CenturyLink. For most Americans, one of these three is their landline phone company. Note that two of the three are also cell phone providers, and that all three also offer television and Internet along with their phone service.

The second major choice the Act made was to draw a line between traditional "telecommunications" services, to which Title II common-carrier regulations would continue to apply, and new kinds of "information" services, which would be much less strictly regulated. The line itself wasn't new – the second *Computer Inquiry* had distinguished between "basic" and "enhanced" services in 1980 – but the Act gave it sweeping new applicability.

> (24) Information service
>
> The term "information service" means the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications …
>
> (50) Telecommunications
>
> The term "telecommunications" means the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received. …
>
> (51) Telecommunications carrier
>
> The term "telecommunications carrier" means any provider of telecommunications services … . A telecommunications carrier shall be treated as a common carrier under this chapter only to the extent that it is engaged in providing telecommunications services … .

(53) Telecommunications service

The term "telecommunications service" means the offering of telecommunications for a fee directly to the public ...

47 U.S.C. § 153.

In hindsight, these definitions were unfortunate. Telephone service was clearly a type of telecommunications service, since it involved the transmission of unmodified information in the form of audio signals, and remained subject to Title II. Cable television service had its own regulatory regime. But what to make of the broadband Internet offered by telephone and cable companies using telephone and cable networks? Was this also a "telecommunications service" involving unmodified transmission of user information? Or was it an "information service" involving the "capability for ... making available information via telecommunications?"

In a 2000 rulemaking, the FCC decided that broadband Internet offered over a cable network was an "information service not subject to Title II common-carrier obligations. *In re Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, 17 F.C.C. Rcd. 4798 (2002).* Lawsuits promptly followed, and in 2005, the Supreme Court held that the FCC's interpretation was a reasonable construction of the statute. *Nat'l Cable & Telecomm. Assn. v. Brand X Internet Services*, 545 U.S. 967 (2005). Also in 2005, the FCC classified the broadband Internet service offered by telephone companies as an unregulated information service. *In Re Matters of Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, 20 F.C.C. Rcd. 14853 (2005). The net result is that the home Internet service used by most Americans is not subject to rate regulation, to obligations to provide service to any and all sites on the Internet, or to the other traditional components of common carriage under Title II.

### The Four Freedoms and the *Madison River* Case

The term "network neutrality" comes from an article by the legal scholar Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. Telecomm. & High Tech. L. 141 (2003). He recommended rules that would obligate ISPS not to discriminate among applications, protocols, sites, or content. As Wu and others articulated it, network neutrality drew on the nondiscrimination principles of common carriage and the user-autonomy principles of *Carterfone*. At the same time, it stopped well short of full Title II common-carrier treatment of ISPs with filed tariffs and rate regulation.

Wu's article was published in 2003, at the height (or the nadir, depending on your perspective) of the FCC's deregulatory campaign. But the next step towards Wu's network neutrality principle came from a perhaps unlikely source: Michael K. Powell, the chairman of the FCC from 2001 to 2005 and a major advocate of industry self-regulation. In a 2004 speech, Chairman Powell outlined four "Internet Freedoms" he hoped that the broadband industry would preserve:

*A. Freedom to Access Content*

First, I believe consumers should have their choice of legal content. Consumers expect to be able to go where they want on high-speed connections,

---

* Note that cable *television* service remains regulated under Title VI, 47 U.S.C. §§ 521–573. For example, cable operators must provide community and educational access channels, *id.* § 531, must carry local broadcast television channels if the broadcaster insists, *id.* § 534, and are subject to local franchising, *id.* § 541. The FCC is currently considering the future of cable television regulations in a world in which video is increasingly provided "over the top" on the Internet rather than through dedicated video-only networks.

> and those who have migrated from dial-up would presumably object to paying the premium asked for broadband if certain content were restricted. Thus, I challenge all facets of the industry to commit to allowing consumers to reach the content of their choice. I do recognize that operators have legitimate needs to manage their networks and ensure quality experiences, and reasonable limits sometimes must be placed in service contracts. But such restraints should be clearly spelled out and should be as minimal as necessary.
>
> *B. Freedom to Use Applications*
>
> Second, consumers should be able to run applications of their choice. As with access to content, consumers have come to expect that they can generally run whatever applications they choose or perhaps even develop. Again, these applications are crucial to continuing the Digital Broadband Migration because they can drive the demand that fuels infrastructure and content deployment. Applications developers must remain confident that their products will continue to work without interference from other companies. No one can know for sure what ''killer applications'' will emerge to drive deployment of next generation technologies. Again, it is important to challenge all facets of the industry to let the market work and allow consumers to run their applications provided they fall within service plans and will not disrupt the network.
>
> *C. Freedom to Attach Personal Devices*
>
> Third, consumers should be permitted to attach personal devices they choose to the connections that they pay for in their homes. Devices give consumers more choice, value, and personalization with respect to how they use their high-speed connections, and they are critical to the future of broadband. I challenge all facets of the industry to permit consumers to attach those devices they choose to their broadband connection, so long as the devices operate within their plans, and are not designed and used to enable theft of service.
>
> *D. Freedom to Obtain Service Plan Information*
>
> Finally, and most importantly, consumers must receive clear and meaningful information regarding their service plans and what the limits of those plans are. Simply put, information is absolutely necessary to ensure that the market is working. Consumers need to know whether and how their service plans protect them against spam, spyware, and other potential invasions of privacy. I challenge all facets of the industry to ensure that consumers can easily obtain this information.

Michael K. Powell, *Preserving Internet Freedom: Guiding Principles for the Industry,* 3 J. Telecomm & High Tech. L. 5 (2004).

Powell's speech was hortatory, but the FCC quickly acted on its principles. In 2005, the VoIP service Vonage complained to the FCC that a North Carolina ISP, Madison River, was blocking customers' Vonage calls. The allegations presented an especially stark stark violation of the network neutrality principle and of Powell's second freedom, the freedom for consumers "to run applications of their choice." And because Madison River was also a telephone company, it was easy to see how it might have a commercial interest in making it harder for its customers to make Vonage calls. The FCC opened an investigation and quickly reached a consent decree in which Madison River agreed to pay a $15,000 fine and promised that it would not "block ports used for VoIP applications or otherwise prevent customers from using VoIP applications." *In re Madison River Com-*

*munications, LLC,* 20 F.C.C. Rcd. 4295 (2005). Because it ended in a consent decree, the *Madison River* case made no new law binding on other ISPs, nor did the FCC take the occasion to explain its legal reasoning in any detail. The FCC did, however, adopt a non-binding Internet Policy Statement later in 2005 paraphrasing Powell's four freedoms and promising to "incorporate the above principles into its ongoing policymaking activities." *In re Appropriate Framework for Broadband Access to the Internet over Wireline Facilities,* 20 F.C.C. Rcd 14986 (2005). In a footnote, the FCC added that the "the principles we adopt are subject to reasonable network management."

### Comcast and BitTorrent

The next major test of network neutrality came in 2008 under Powell's successor as chairman, Kevin J. Martin. Some Comcast subscribers noticed that they were having difficulty using BitTorrent to share files. A close investigation by networking experts discovered evidence that the difficulties were deliberate on Comcast's part. Specifically, BitTorrent uses TCP to connect a computer uploading a chunk of a file with a computer downloading that chunk. Ordinarily, when one of the computers in a TCP believes concludes that something has gone seriously wrong, it will send an "RST packet" – a packet with a particular bit set to 1 – to tell the other computer to stop sending data and give up on the connection. Analysis of Comcast subscribers' BitTorrent connections showed that they were receiving RST packets that *the other computer in the TCP connection had not sent*. In ordinary Internet use, this situation simply would not occur; it is the technical equivalent of receiving forged postcards that claim to be from a friend, bear the right postmark, and refer to events you and the friend have discussed with each other in previous postcards.

Following an investigation by the press, Comcast admitted that it inspected customers' Internet traffic to detect BitTorrent connections and that it injected RST packets to terminate those connections when it identified them. Comcast explained that it interrupted BitTorrent connections as a way of managing bandwidth. The advocacy group Free Press asked for a declaratory ruling "that an Internet service provider violates the FCC's Internet Policy Statement when it intentionally degrades a targeted Internet application." The FCC agreed. It concluded that the BitTorrent interference violated the principles allowing consumers to access content of their choice and using applications of their choice. Comcast argued that restricting BitTorrent qualified as "reasonable network management," but the FCC was unpersuaded:

> Next, Comcast asserts that even if its practice is discriminatory, it qualifies as reasonable network management. However, experts in the field generally disagree strongly with Comcast's assertion that its network management practices are reasonable. The Internet Engineering Task Force, a repository for the standards and protocols that underlie the functioning of the Internet, has promulgated universal definitions for how the TCP protocol is intended to work. ... Significantly, Comcast's practices contravene those standards. Comcast's method of sending RST packets to interrupt and terminate TCP connections thus contravenes the established expectations of users and software developers for seamless and transparent communications across the Internet – this practice, known as RST Injection, "violate[s] the expectation that the contents of the envelopes are untouched inside and between Autonomous Systems" and "potentially disrupt[s] systems and applications that are designed assuming the expected behavior of the Internet." ...

We next must ask whether Comcast's means are carefully tailored to its interest in easing network congestion, and it is apparent that no such fit exists. As an initial matter, Comcast's practice is overinclusive for at least three independent reasons. First, it can affect customers who are using little bandwidth simply because they are using a disfavored application. Second, it is not employed only during times of the day when congestion is prevalent: Comcast's current P2P management is triggered … regardless of the level of overall network congestion at that time, and regardless of the time of day. And third, its equipment does not appear to target only those neighborhoods that have congested nodes – evidence suggests that Comcast has deployed some of its network management equipment several routers (or hops) upstream from its customers, encompassing a broader geographic and system area. With some equipment deployed over a wider geographic or system area, Comcast's technique may impact numerous nodes within its network simultaneously, regardless of whether any particular node is experiencing congestion. Furthermore, Comcast's practice suffers from the flaw of being underinclusive. A customer may use an extraordinary amount of bandwidth during periods of network congestion and will be totally unaffected so long as he does not utilize a disfavored application.

Moreover, Comcast has several available options it could use to manage network traffic without discriminating as it does. Comcast could cap the average users' capacity and then charge the most aggressive users overage fees. Or Comcast could throttle back the connection speeds of high-capacity users (rather than any user who relies on peer-to-peer technology, no matter how infrequently). Or Comcast can work with the application vendors themselves. As Comcast has touted in this very dispute, negotiations with Pando and BitTorrent, Inc. and other peer-to-peer application companies have advanced the creation of the P4P protocol, which promises "backbone bandwidth optimization" and "improve[d] P2P download performance." Although we do not endorse any of these particular solutions today, they all appear far better tailored to Comcast's basic complaint that a "disproportionately large amount of the traffic currently on broadband networks originates from a relatively small number of users."

Comcast and several other commenters maintain a continual refrain that "all network providers must manage bandwidth in some manner" and that providers need "flexibility to engage in the reasonable network management practices." We do not disagree, which is precisely why we do not adopt here an inflexible framework micromanaging providers' network management practices. We also note that because "consumers are entitled to access the lawful Internet content of their choice," providers, consistent with federal policy, may block transmissions of illegal content (e.g., child pornography) or transmissions that violate copyright law. To the extent, however, that providers choose to utilize practices that are not application or content neutral, the risk to the open nature of the Internet is particularly acute and the danger of network management practices being used to further anticompetitive ends is strong. As a result, it is incumbent on the Commission to be vigilant and subject such practices to a searching inquiry, and here Comcast's practice falls well short of being carefully tailored to further the interest offered by the company. …

*In re [Complaint Against] Comcast Corp. for Secretly Degrading Peer-to-Peer Applications*, 23 F.C.C. Rcd. 13028 (2008). By the time the ruling issued, Comcast had already pledged to discontinue its BitTorrent blocking and replace it with a more nuanced approach to managing congestion. As a result, the FCC's order was limited to requiring Comcast to provide the FCC with details of its congestion management practices to ensure compliance with the pledge. But that was enough to get Comcast into court; it sued the FCC to set aside the order.

As it turned out, the case turned less on the FCC's decision itself and more on its authority to act. The basic problem was that nothing in the Telecommunications Act purported to give the FCC general authority over the Internet. And by 2008, the FCC had spent most of a decade telling anyone who would listen that broadband Internet was an unregulated "information service" not subject to Title II common-carrier rules. The Internet Policy Statement from which the *Comcast* order derived its legal standards, recall, was the FCC's paraphrase of four voluntary principles originally suggested by a chairman who wanted to avoid governmental regulation in favor of industry self-regulation. The FCC's strategy, then, was to point to a variety of regulatory powers it did have, and to argue that the anti-blocking policy applied in *Comcast* was "ancillary" to those powers. *See generally* 47 U.S.C. § 154(i) (authorizing the FCC to "perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with this chapter, as may be necessary in the execution of its functions").

The D.C. Circuit was unimpressed. In an opinion by Judge David Tatel, it vacated the order. *See Comcast Corp. v. F.C.C.*, 600 F.3d 642 (D.C. Cir. 2010). In the court's view, none of the FCC's claimed sources of jurisdiction held up to scrutiny. Statements of Congressional policy "to promote the continued development of the Internet," 47 U.S.C. § 230(b)(1), and the like, for example, were "just that – statements of policy. They are not delegations of regulatory authority." Other sections explicitly denied that they provided regulatory authority, or gave the FCC only limited powers to write reports. And still others were waived because they were either not mentioned in the order or not mentioned on appeal. But the FCC did have one near-miss:

> We begin with section 706 of the Telecommunications Act of 1996, which provides that "[t]he Commission ... shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans ... by utilizing ... price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment." 47 U.S.C. § 1302(a). As the Commission points out, section 706 does contain a direct mandate – the Commission "shall encourage...." In an earlier, still-binding order, however, the Commission ruled that section 706 "does not constitute an independent grant of authority." *In re Deployment of Wireline Servs. Offering Advanced Telecomms. Capability*, 13 F.C.C.R. 24,012, 24,047, ¶ 77 (1998). Instead, the Commission explained, section 706 "directs the Commission to use the authority granted in other provisions ... to encourage the deployment of advanced services." *Id.* at 24,045, ¶ 69. ...

*Comcast Corp.*, 600 F.3d at 658.

### The *Preserving the Open Internet* Order

By the time the *Comcast Corp.* decision came down in April 2010, the FCC was on a new chairman, Julius Genachowski. Unlike Powell and Martin, he bad been appointed by a Democratic president, and he came into office as a strong proponent of

network neutrality. Even before the decision, the FCC had started a rulemaking procecss, and the final rule was published in the *Federal Register* in 2011. The new rule explicitly rested on § 706, which the FCC now interpreted as a source of authority. Substantively, it added a nondiscrimination rule to the familiar rules against blocking. As the FCC explained:

> Today the Commission takes an important step to preserve the Internet as an open platform for innovation, investment, job creation, economic growth, competition, and free expression. To provide greater clarity and certainty regarding the continued freedom and openness of the Internet, we adopt three basic rules that are grounded in broadly accepted Internet norms, as well as our own prior decisions:
>
> **i. Transparency**. Fixed and mobile broadband providers must disclose the network management practices, performance characteristics, and terms and conditions of their broadband services;
>
> **ii. No blocking.** Fixed broadband providers may not block lawful content, applications, services, or non-harmful devices; and
>
> **iii. No unreasonable discrimination**. Fixed broadband providers may not unreasonably discriminate in transmitting lawful network traffic.
>
> We believe these rules, applied with the complementary principle of reasonable network management, will empower and protect consumers and innovators while helping ensure that the Internet continues to flourish, with robust private investment and rapid innovation at both the core and the edge of the network. …

*Preserving the Open Internet,* 76 Fed. Reg. 59,192 (2011). Again the FCC was sued, this time by Verizon. Again the case went before the D.C. Circuit. Again, Judge Tatel wrote the opinion. And again, he mostly struck down the FCC's rules on statutory authority grounds. *See Verizon v. F.C.C.,* 740 F.3d 623 (D.C. Cir. 2014). The reasons why the rules failed are subtle, and an understanding of them is crucial to understanding the FCC's next move. The court was untroubled by the FCC's decision to reverse its interpretation of § 706:

> But the Commission need not remain *forever* bound by the *Advanced Services Order*'s restrictive reading of section 706(a). "An initial agency interpretation is not instantly carved in stone." *Chevron* [*U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 863 (1984)]. The APA's requirement of reasoned decision-making ordinarily demands that an agency acknowledge and explain the reasons for a changed interpretation. But so long as an agency adequately explains the reasons for a reversal of policy, its new interpretation of a statute cannot be rejected simply because it is new. At the time we issued our *Comcast* opinion, the Commission failed to satisfy this requirement, as its assertion that section 706(a) gave it regulatory authority represented, at that point, an attempt to "depart from a prior policy *sub silentio*."
>
> In the *Open Internet Order,* however, the Commission has offered a reasoned explanation for its changed understanding of section 706(a). …
>
> The question, then, is this: Does the Commission's current understanding of section 706(a) as a grant of regulatory authority represent a reasonable interpretation of an ambiguous statute? We believe it does.

*Id.* at 636–37. And the court agreed that "the Commission's prediction that the *Open Internet Order* regulations will encourage broadband deployment" was "both rational and supported by substantial evidence." *Id.* at 644.

Nonetheless, the *Open Internet* rulemaking still came to naught. The problem was the FCC's classification, still on the books, of fixed broadband Internet as an "information service" rather than as a "telecommunications service." Because the Act provided that a fixed ISP "shall be treated as a common carrier under this [Act] *only to the extent that it is engaged in providing telecommunications services*," 47 U.S.C. § 153(51) (emphasis added), the court reasoned that the FCC was prohibited from treating it as a common carrier under any other source of authority. But that was precisely what the no-blocking and no-discrimination rules did:

> Significantly for our purposes, the Commission never argues that the *Open Internet Order*'s "no unreasonable discrimination" standard somehow differs from the nondiscrimination standard applied to common carriers generally … . [T]he *Order* defines "reasonable network management" to include practices designed to protect the network itself by "addressing traffic that is harmful to the network" and "reducing or mitigating the effects of congestion." As Verizon correctly points out, however, this allowance "merely preserves a common carrier's traditional right to turn away business either because it is not of the type normally accepted or because the carrier's capacity has been exhausted." Railroads have no obligation to allow passengers to carry bombs on board, nor need they permit passengers to stand in the aisles if all seats are taken. It is for this reason that the Communications Act bars common carriers from engaging in "*unjust or unreasonable* discrimination," not *all* discrimination. 47 U.S.C. § 202 (emphasis added). …
>
> Whether the *Open Internet Order's* anti-blocking rules, applicable to both fixed and mobile broadband providers, likewise establish *per se* common carrier obligations is somewhat less clear. According to Verizon, they do because they deny "broadband providers discretion in deciding which traffic from … edge providers to carry," and deny them "discretion over carriage terms by setting a uniform price of zero." This argument has some appeal. The anti-blocking rules establish a minimum level of service that broadband providers must furnish to all edge providers: edge providers' "content, applications [and] services" must be "effectively []usable." *Open Internet Order*, 25 F.C.C.R. at 17943 ¶ 66. The *Order* also expressly prohibits broadband providers from charging edge providers any fees for this minimum level of service. In requiring that all edge providers receive this minimum level of access for free, these rules would appear on their face to impose *per se* common carrier obligations with respect to that minimum level of service.

*Verizon*, 740 F.3d at 656–58. Only the transparency rules survived.

By the time the *Verizon v. FCC* decision came down in January 2014, chairman Genachowski had moved on. Now, network neutrality was in the hands of its fourth FCC chairman, Tom Wheeler. That the FCC would try again was not in much doubt. But the nature of the new rules was up in the air. At first, in its notice of proposed rulemaking, the agency offered to rely for the third time on § 706 but to write rules that fell slightly short of outright bans on blocking and discrimination so as not to fall afoul of the *de facto* common carriage doctrine. *Protecting and Promoting the Open Internet*, 79 Fed. Reg. 37,448 (proposed July 1, 2014).

Some network neutrality advocates were skeptical, arguing either that this middle course was unlikely to stand up in court, or that it would leave broadband ISPs with too much power over consumers' Internet connections. They argued instead that the FCC should bite the bullet and "reclassify" fixed broadband as a "telecommunications service" subject to Title II's common-carriage requirements. The administrative difficulty with that approach was that Title II classification would bring with it numerous common-carriage requirements in addition to the no-blocking and no-discrimination rules the FCC had promulgated in its first *Open Internet* order in 2011. For critics of network neutrality, the prospect of regulating ISPs' prices was a clear example of the kinds of intrusive regulations they had been warning against; the FCC's original decision to treat fixed broadband Internet service as an unregulated information service had been the right one. And most network neutrality advocates agreed that full-on Title II regulation was massive overkill – it was just such a concern that had led the FCC to rely on § 706 in the previous go-around. The workability of reclassification hinged, therefore, on the FCC's authority to "forbear" from applying some of the Title II rules to ISPs. Specifically, Congress had instructed the FCC to forbear when it determined that:

> (1) enforcement of such regulation or provision is not necessary to ensure that the charges, practices, classifications, or regulations by, for, or in connection with that telecommunications carrier or telecommunications service are just and reasonable and are not unjustly or unreasonably discriminatory;
>
> (2) enforcement of such regulation or provision is not necessary for the protection of consumers; and
>
> (3) forbearance from applying such provision or regulation is consistent with the public interest.

47 U.S.C. § 160(a). Through 2014, a broad debate raged between advocates of strong neutrality rules under reclassification with forbearance, advocates of (possibly) weaker neutrality rules under § 706, and advocates of no neutrality rules at all. Everyone from HBO's John Oliver to President Obama weighed in, and the FCC received millions of public comments on the proposed rules.

### Questions

1. Why did Madison River restrict VoIP use? Who won and who lost when it did? Why did Comcast restrict BitTorrent use? Who won and who lost?

2. In judging alleged network neutrality violations, how should regulators and the public think about arguments like the claim that sending RST packets conflicts with the technical standard defining TCP/IP? Who should get to decide what counts as a "right" or "wrong" way of using technologies like TCP/IP?

3. Where is Congress in all of this? Congress could certainly clean up the mess it created in the 1996 Act if it wanted. Why hasn't it?

### Wireless Network Regulation: A Even Briefer History

The story for mobile Internet service has followed a slightly different trajectory, because wireless communications have a different regulatory history. The starting point is that since the Radio Act of 1927, the agency that became the FCC has strictly regulated use of "spectrum." That is, it restricts who can transmit electromagnetic signals, with what devices, at what frequencies, and at how much power. Until the last few years, the economically dominant use of spectrum encountered by ordinary consumers was for *broad-*

*casting*: transmitting radio or television signals to everyone in a station's service area. Broadcast regulation is the subject of Title III of the Communications Act of 1934 (as extensively amended over the decades). The FCC divides the country into allotments, which consist of a location and a frequency, and then assigns licenses to local broadcasters, which allow them to broadcast in that location on that frequency, at specified power levels. For example, in the Boston area, channel 4 is assigned to WBZ, a CBS affiliate, which is allowed to broadcast from an antenna located at latitude 42°18'37" north and longitude 71°14'14" west at a power of 41.88 kilowatts and using the frequencies between 66 and 72 megahertz. Broadcasters like WBZ enjoy near-complete freedom in choosing what programs to air, *see* 47 U.S.C. § 326, subject only to a few restrictions. For example, television stations may not air more than 10.5 minutes of commercials per hour during shows directed at children, *see id.* § 303a(b), and they may not broadcast hoax news reports they know will cause public harm, *see id.* § 325(a).

But broadcasting is hardly the only way to use spectrum; there is also a long history of using it for two-way communications. The simplest and oldest such systems involved nothing more complicated than radio users transmitting and listening on the same frequency. To this day, this is how CB radio and ham radio work: everyone in the same area using the same frequency can hear everyone else, and users take turns speaking. It took two crucial engineering advances to get from there to the mobile phones we enjoy today. First, because most phone users want private conversations rather than chat rooms, phones had to become sophisticated about picking unused bits of spectrum to keep different calls from interfering with each other. Second, because mobile phone users want to be mobile, phones had to become equally sophisticated about finding a nearby tower (or "base station") to take their calls on the fly and at switching from one tower to another also on the fly. Thanks in large part to a series of breakthroughs by Bell Labs researchers from the 1940s through the 1970s, both problems were successfully solved. Major commercial buildouts of the necessary technical infrastructure followed, and in the 1990s and 2000s, mobile phone service went mainstream. Mass-market mobile data services – using the same engineering principles but carrying bits rather than voice signals – soon followed. Today, mobile telephone and data service are so immensely popular that the FCC is engaged in a massive effort to reallocate spectrum from broadcasting to mobile, using a series of "incentive auctions" to sell spectrum to mobile entrepreneurs and use the revenues to compensate broadcasters for giving up their licenses.

The regulatory treatment of mobile service has traditionally fallen somewhere between Title II and Title III. The major cellular carriers (currently AT&T, Verizon, Sprint, and T-Mobile) are licensed by the FCC to allow consumers' phones to transmit to and from their towers, and they use those back-and-forth transmissions to provide phone and data connections for their customers. The FCC has traditionally treated cellular *telephone* service as a "commercial mobile service," defined as "any mobile service … that is provided for profit and makes interconnected service available … to the public," 47 U.S.C. § 332(d)(1). The crucial term is "interconnected services," which is itself defined as "service that is interconnected with the public switched network," *id.* § 332(d)(2). The "public switched network," at the very least, is the traditional telephone network; since mobile phones can dial land lines and vice versa, the FCC's position was uncontroversial.

Commercial mobile services are generally treated as common carriers, but Congress gave the FCC the same forbearance authority it enjoys with respect to Title II for telecommunications services. *Id.* § 332(c). Here, the FCC has exercised its forbearance authority liberally, exempting cellular voice from almost all common-carriage requirements beyond the most basic nondiscrimination rules. Thus, the cellular carriers are free

to charge different customers different rates; if Verizon Wireless gives your next-door neighbor a discount to keep her as a customer but refuses to offer you the same deal, neither the FCC nor the courts will object. *See, e.g.*, *Orloff v. F.C.C.*, 352 F.3d 415 (D.C. Cir. 2003).

While there is little question that cellular *telephone* service is a commercial mobile service subject to common-carrier rules, it was not until 2007 that the FCC took a definitive position on cellular *data*. In a declaratory ruling, it held that cellular data is a "private mobile service" instead *In re Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks*, 22 F.C.C. Rcd. 5901 (2007) and hence almost entirely exempt from regulation. *See* 47 U.S.C. § 332(c)(2) (stating that private mobile services "shall not be treated as a common carrier for any purpose").

Thus, cellular carriers generally had a free hand in operating their networks. There has never been a general equivalent to *Carterfone* for mobile phones. You can plug your own handset into the telephone jack in the wall, but you can only use an approved phone on a mobile carrier's network. The carriers have traditionally used this control to "lock down" phones, so that they work only on one carrier's network and run only applications approved by the carrier. Carriers also typically put strict limits on data usage, with high fees for going over your monthly quota. Some of this tight grip has been loosening recently: Apple, not the carriers, determines which apps are available for the iPhone.

The FCC's first serious foray into neutrality for cellular data came in 2008, only a year after the FCC had classified it as a private mobile service. By reassigning UHF television stations to lower-numbered channels, the FCC was able to free up channels 52 through 69, corresponding to frequencies between roughly 700 and 800 megahertz (and hence known as the "700 megahertz" auction). The FCC auctioned off this spectrum in several blocks. Google made a high-stakes play for the C Block, offering to make a minimum bid of $4.6 billion in exchange for open-device and open-application rules. The FCC agreed, writing the rules into its regulations:

> Licensees offering service on spectrum subject to this section shall not deny, limit, or restrict the ability of their customers to use the devices and applications of their choice on the licensee's C Block network, except: (1) Insofar as such use would not be compliant with published technical standards reasonably necessary for the management or protection of the licensee's network, or (2) As required to comply with statute or applicable government regulation.

47 C.F.R. § 27.16(b). Verizon Wireless won the auctions for the C Block in the continental United States; as a result, it has been bound by a flavor of network neutrality ever since.

In its first *Open Internet* order in 2011, the FCC subjected mobile data services to weaker neutrality rules than their fixed counterparts. While fixed broadband services were prohibited from blocking "lawful content, applications, services, or non-harmful devices"; mobile broadband services were prohibited from blocking only "lawful websites" and "applications that compete with the provider's voice or video telephony services." The FCC declined entirely to apply the no-discrimination rule to mobile. But even this narrower no-blocking rule suffered the same fate as the broader rules for fixed broadband, again because of the FCC's own previous regulatory moves. Thanks to the FCC's classification of cellular data as private mobile service rather than as commercial mobile service in 2007, it was subject to § 332 prohibition on treating private mobile services as common carriers – and the no-blocking rule was, in the court's view, equivalent to common carriage.

Here, too, the FCC had the choice between doing nothing, trying to push through with neutrality rules narrow enough to avoid being treated as common carriage, and full-on reclassification. The analogy to Title II reclassification for mobile services is to reclassify cellular data as a commercial mobile service. But the statutory landscape here is a little different, because the relevant definitions are different. Recall that on the fixed side, "telecommunications" is defined as the "transmission, between or among points specified by the user, of information of the user's choosing." 47 U.S.C. § 153(50). That definition is a reasonable enough fit for broadband Internet service that three justices of the Supreme Court felt it was the only plausible fit, the FCC's own views in the early 2000s notwithstanding. *See Brand X*, 545 U.S. at 1005 (Scalia, J., dissenting). But on the mobile side, a "commercial mobile service" is defined in terms of its "interconnect[ion] with the *public switched network*," *id.* § 332(d)(1)–(2) (emphasis added), a term that has typically referred to the telephone network. *See, e.g.*, 47 C.F.R. § 20.3 (2014) (defining "public switched network" in terms of the "North American Numbering Plan," i.e., telephone numbers). The FCC has the authority to redefine the term by regulation, *see* 47 U.S.C. § 332(d)(2), but this may be more of an uphill linguistic struggle, given the long history of its authority over the public switched *telephone* network.

**Note on Interconnection**

Another emerging issue has to do with the terms on which ISPs connect their networks to each other. To understand the issue, a little technical background will be helpful. A broadband provider has a relationship with its customers, and it has relationships with the other networks its own network connects to. It has no direct relationship with websites (usually now called "edge providers"). To block or discriminate against an edge provider, it can detect that packets are headed to or from a particular IP address, or it can use deep packet inspection to discover that they are carrying a particular kind of data, such as VoIP calls or streaming video. Checking IP addresses is easy; ISPs do that all the time already as part of their work delivering packets. Deep packet inspection is harder; it requires specialized routing equipment.

But these are far from the only reasons that customers will experience different edge providers differently. To take a simple example, your home ISP will help you load a site hosted in the United States more quickly than one hosted in rural Sri Lanka. This isn't the result of a deliberate action to disfavor the Sri Lankan website; it reflects the fact that the signals must travel much further, through more computers along the way. The architecture of the Internet itself – the *interconnection* between different networks – affects the speed and reliability of transmissions.

So take another example slightly closer to the point. Twitch.tv lets videogame fans watch live streams of each other playing games: it broadcasts everything from major videogame tournaments to speedruns (in which players try to beat a level a fast as possible). All this video, combined with Twitch's booming popularity (more than 40 million viewers), make it a huge user of bandwidth. It now accounts for more than 1% of all home Internet bandwidth use in the United States. Twitch couldn't possibly hope to get that video to viewers without some serious bandwidth connecting its servers to the Internet. It pays its own ISP, and pays handsomely, to connect it to the Internet. No one thinks that it's a violation of any relevant neutrality principle that Twitch has to pay more than the all-text IsItChristmas.com does.

So: Twitch.tv pays its ISP and viewers pay their ISPs. This leaves open the question of how the video gets from the former to the latter. This is the province of interconnection: how, where, and on what terms different companies link their networks together and

exchange packets. To interconnect, two companies must bring their networks to a single location (an "interconnection point") where they can hand off packets one to the other. Just like any buildout of a network, interconnection is costly: it requires purchasing and installing hardware, laying the cables to reach a shared interconnection point, and maintaining the whole apparatus.

The interconnection market is global, and almost entirely unregulated. Because the terms of many interconnection contracts are secret, the market is also very poorly understood. Interconnection agreements provide a mechanism for money to flow to the parts of the Internet – especially backbone networks – that have few or no end-user customers. The customers pay their own ISPs, who pay the backbone networks for *transit*: connectivity to the rest of the Internet. Sometimes, networks (often ones that are roughly comparable in size and/or type) will agree to *peer* with each other and carry each others' traffic for free.*

For a good example of the complexity that interconnection introduces, consider *content delivery networks* (or CDNs), such as Akamai and Amazon CloudFront. A CDN operates its own global network of servers. Instead of having a massive bank of servers all located at its headquarters in Bristol, Connecticut, an Akamai customer like ESPN will contract to have Akamai distribute its content using Akamai's network. ESPN continually supplies Akamai with webpages and videos, which Akamai then sends out to its servers around the world using its private network. Then, when an ESPN fan in San Francisco wants to check the latest basketball headlines, the request is routed to a nearby Akamai server, which responds far more quickly than a server in Connecticut could. Moreover, when a thousand fans in San Francisco check the latest basketball headlines, their requests all go to the same local Akamai server: the content had to be sent across the country only once, rather than a thousand times. (A CDN is, therefore, a clever form of geographic caching.)

But now for the twist. *How does content get from a CDN to a user*? The answer, obviously, is through the user's local ISP. But this requires interconnection – and the terms of the interconnection are subject to private negotiation between the CDN and the ISP. Compare a CDN that has access to interconnection with an ISP around the country with one that doesn't. The connected CDN will be perceptibly faster for users; its clients will get better connectivity to users. The ISP is therefore in a position to discriminate among websites, at least at the level of discriminating among CDNs. Or perhaps more lucratively, it is in a position to demand that the CDNs pay it handsomely for interconnection. The ISP isn't charging websites directly, but it is charging them indirectly.

Interconnection boiled over into public consciousness in a series of disputes involving Comcast and Netflix. Initially, Netflix had been using Akamai as a CDN; Akamai in turn paid Comcast to connect to the Comcast network. But in 2010, Netflix signed a deal with Level3 instead, which had a relationship in which Comcast paid it for transit. Comcast objected, and threatened to terminate its relationship with Level3 unless the terms were renegotiated to send more money from Level3 (and thus, ultimately from Netflix) to Comcast. Level3 went public, angrily.

To Comcast, this was simply a standard interconnection dispute about the relative flows of traffic from Comcast to Level3 and from Level3 to Comcast. When the inbound traffic Level3 was sending Comcast went up sharply, Comcast demanded to be paid for it. But to Level3 and to Netflix, this was a network neutrality violation. Comcast was seeking

---

* There are other differences between transit and peering, but this is not the place to get into them.

to extract money by discriminating in the terms on which it provided service to Netflix. The argument bubbled for several years, during which Netflix's overall share of bandwidth on the Internet in the U.S. spiked dramatically to over 30%. Netflix bought transit from a variety of other networks, but its overall bandwidth usage was so high that it was simply unable to get the level of bandwidth to its customers on Comcast's network that it wanted without upgrades to the interconnection between those other networks and Comcast's – and Comcast held firm in demanding payment. Finally, in 2014, the still-complaining Netflix agreed to pay for direct interconnection with Comcast.

Legally, both Title II telecommunications carriers and commercial mobile services are required to interconnect when ordered to do so by the FCC. *See* 47 U.S.C. §§ 201(a) (general common-carrier duty to connect), § 251(a) (telecommunications carriers), 332(c)(1)(B) (commercial mobile services). Reclassification without forbearance would therefore immediately regulate the currently unregulated market for interconnection.

**Question**

Is interconnection a network neutrality issue? If so, does this cut for or against regulation?

## Protecting and Promoting the Open Internet

80 Fed. Reg. 19,738 (Apr. 13, 2015)

### I. Introduction

The open Internet drives the American economy and serves, every day, as a critical tool for America's citizens to conduct commerce, communicate, educate, entertain, and engage in the world around them. The benefits of an open Internet are undisputed. But it must remain open: open for commerce, innovation, and speech; open for consumers and for the innovation created by applications developers and content companies; and open for expansion and investment by America's broadband providers. For over a decade, the Commission has been committed to protecting and promoting an open Internet. ...

### II. Executive Summary

#### A. Strong Rules That Protect Consumers from Past and Future Tactics that Threaten the Open Internet

*1. Clear, Bright-Line Rules*

Because the record overwhelmingly supports adopting rules and demonstrates that three specific practices invariably harm the open Internet – Blocking, Throttling, and Paid Prioritization – this Order bans each of them, applying the same rules to both fixed and mobile broadband Internet access service.

*No Blocking*. Consumers who subscribe to a retail broadband Internet access service must get what they have paid for – access to all (lawful) destinations on the Internet. This essential and well-accepted principle has long been a tenet of Commission policy, stretching back to its landmark decision in *Carterfone*, which protected a customer's right to connect a telephone to the monopoly telephone network. Thus, this Order adopts a straightforward ban:

> *[47 C.F.R. § 8.5. – No blocking]*
>
> *A person engaged in the provision of 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.*

*No Throttling*. The 2010 open Internet rule against blocking contained an ancillary prohibition against the degradation of lawful content, applications, services, and devices, on the ground that such degradation would be tantamount to blocking. This Order creates a separate rule to guard against degradation targeted at specific uses of a customer's broadband connection:

> *[47 C.F.R. § 8.7. – No throttling]*
>
> *A person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not impair or degrade lawful Internet traffic on the basis of Internet content, application, or service, or use of a non-harmful device, subject to reasonable network management.*

The ban on throttling is necessary both to fulfill the reasonable expectations of a customer who signs up for a broadband service that promises access to all of the lawful Internet, and to avoid gamesmanship designed to avoid the no-blocking rule by, for example, rendering an application effectively, but not technically, unusable. It prohibits the degrading of Internet traffic based on source, destination, or content. It also specifically prohibits conduct that singles out content competing with a broadband provider's business model.

*No Paid Prioritization*. Paid prioritization occurs when a broadband provider accepts payment (monetary or otherwise) to manage its network in a way that benefits particular content, applications, services, or devices. To protect against "fast lanes," this Order adopts a rule that establishes that:

> *[47 C.F.R. § 8.9 - No paid prioritization]*
>
> [(a)] *A person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not engage in paid prioritization.*
>
> [(b)] *"Paid prioritization" refers to the management of a broadband provider's network to directly or indirectly favor some traffic over other traffic, including through use of techniques such as traffic shaping, prioritization, resource reservation, or other forms of preferential traffic management, either (a) in exchange for consideration (monetary or otherwise) from a third party, or (b) to benefit an affiliated entity.*[18]
>
> [(c) *The Commission may waive the ban on paid prioritization only if the petitioner demonstrates that the practice would provide some significant public interest benefit and would not harm the open nature of the Internet.*]

The record demonstrates the need for strong action. The Verizon court itself noted that broadband networks have "powerful incentives to accept fees from edge providers, either in return for excluding their competitors or for granting them prioritized access to end users." Mozilla, among many such commenters, explained that "[p]rioritization . . . inherently creates fast and slow lanes." Although there are arguments that some forms of paid prioritization could be beneficial, the practical difficulty is this: the threat of harm is overwhelming, case-by-case enforcement can be cumbersome for individual consumers or edge providers, and there is no practical means to measure the extent to which edge innovation and investment would be chilled. And, given the dangers, there is no room for a

---

[18] Unlike the no-blocking and no-throttling rules, there is no "reasonable network management" exception to the paid prioritization rule because paid prioritization is inherently a business practice rather than a network management practice.

blanket exception for instances where consumer permission is buried in a service plan – the threats of consumer deception and confusion are simply too great.

*2. No Unreasonable Interference or Unreasonable Disadvantage to Consumers or Edge Providers …*

The key insight of the virtuous cycle is that broadband providers have both the incentive and the ability to act as gatekeepers standing between edge providers and consumers. As gatekeepers, they can block access altogether; they can target competitors, including competitors to their own video services; and they can extract unfair tolls. Such conduct would, as the Commission concluded in 2010, "reduce the rate of innovation at the edge and, in turn, the likely rate of improvements to network infrastructure." In other words, when a broadband provider acts as a gatekeeper, it actually chokes consumer demand for the very broadband product it can supply.

The bright-line bans on blocking, throttling, and paid prioritization will go a long way to preserve the virtuous cycle. But not all the way. Gatekeeper power can be exercised through a variety of technical and economic means, and without a catch-all standard, it would be that, as Benjamin Franklin said, "a little neglect may breed great mischief." Thus, the Order adopts the following standard:

*[47 C.F.R. § 8.11 – No unreasonable interference or unreasonable disadvantage standard for Internet conduct.]*

> *Any person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not unreasonably interfere with or unreasonably disadvantage (i) end users' ability to select, access, and use broadband Internet access service or the lawful Internet content, applications, services, or devices of their choice, or (ii) edge providers' ability to make lawful content, applications, services, or devices available to end users. Reasonable network management shall not be considered a violation of this rule.*

This "no unreasonable interference/disadvantage" standard protects free expression, thus fulfilling the congressional policy that "the Internet offer[s] a forum for a true diversity of political discourse, unique opportunities for cultural development, and myriad avenues for intellectual activity." And the standard will permit considerations of asserted benefits of innovation as well as threatened harm to end users and edge providers.

*3. Enhanced Transparency*

The Commission's 2010 transparency rule, upheld by the *Verizon* court, remains in full effect:

*[47 C.F.R. § 8.3 – Transparency.]*

> *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.*

Today's Order reaffirms the importance of ensuring transparency, so that consumers are fully informed about the Internet access they are purchasing and so that edge providers have the information they need to understand whether their services will work as advertised. To do that, the Order builds on the strong foundation established in 2010 and enhances the transparency rule for both end users and edge providers, including by

adopting a requirement that broadband providers always must disclose promotional rates, all fees and/or surcharges, and all data caps or data allowances; adding packet loss as a measure of network performance that must be disclosed; and requiring specific notification to consumers that a "network practice" is likely to significantly affect their use of the service. Out of an abundance of caution and in response to a request by the American Cable Association, we also adopt a temporary exemption from these enhancements for small providers (defined for the purposes of the temporary exception as providers with 100,000 or fewer subscribers), and we direct our Consumer & Governmental Affairs Bureau to adopt an Order by December 15, 2015 concerning whether to make the exception permanent and, if so, the appropriate definition of "small." Lastly, we create for all providers a "safe harbor" process for the format and nature of the required disclosure to consumers, which we believe will result in more effective presentation of consumer-focused information by broadband providers.

*4. Scope of the Rules*

The open Internet rules described above apply to both fixed and mobile broadband Internet access service. Consistent with the 2010 Order, today's Order applies its rules to the consumer-facing service that broadband networks provide, which is known as "broadband Internet access service" (BIAS) and is defined to be:

> *[47 C.F.R. § 8.2 – Definitions.].*
>
> [(a)] *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.*

As in 2010, BIAS does not include enterprise services, virtual private network services, hosting, or data storage services. Further, we decline to apply the open Internet rules to premises operators to the extent they may be offering broadband Internet access service as we define it today.

In defining this service we make clear that we are responding to the *Verizon* court's conclusion that broadband providers "furnish a service to edge providers" (and that this service was being treated as common carriage *per se*). As discussed further below, we make clear that broadband Internet access service encompasses this service to edge providers. Broadband providers sell retail customers the ability to go anywhere (lawful) on the Internet. Their representation that they will transport and deliver traffic to and from all or substantially all Internet endpoints includes the promise to transmit traffic to and from those Internet endpoints back to the user.

*Interconnection.* BIAS involves the exchange of traffic between a broadband Internet access provider and connecting networks. The representation to retail customers that they will be able to reach "all or substantially all Internet endpoints" necessarily includes the promise to make the interconnection arrangements necessary to allow that access.

As discussed below, we find that broadband Internet access service is a "telecommunications service" and subject to sections 201, 202, and 208 (along with key enforcement provisions). As a result, commercial arrangements for the exchange of traffic with a broadband Internet access provider are within the scope of Title II, and the Commission will be available to hear disputes raised under sections 201 and 202 on a case-by-case ba-

sis: an appropriate vehicle for enforcement where disputes are primarily over commercial terms and that involve some very large corporations, including companies like transit providers and Content Delivery Networks (CDNs), that act on behalf of smaller edge providers.

But this Order does not apply the open Internet rules to interconnection. Three factors are critical in informing this approach to interconnection. First, the nature of Internet traffic, driven by massive consumption of video, has challenged traditional arrangements – placing more emphasis on the use of CDNs or even direct connections between content providers (like Netflix or Google) and last-mile broadband providers. Second, it is clear that consumers have been subject to degradation resulting from commercial disagreements, perhaps most notably in a series of disputes between Netflix and large last- mile broadband providers. But, third, the causes of past disruption and – just as importantly – the potential for future degradation through interconnection disputes – are reflected in very different narratives in the record.

While we have more than a decade's worth of experience with last-mile practices, we lack a similar depth of background in the Internet traffic exchange context. Thus, we find that the best approach is to watch, learn, and act as required, but not intervene now, especially not with prescriptive rules. This Order – for the first time – provides authority to consider claims involving interconnection, a process that is sure to bring greater understanding to the Commission.

*Reasonable Network Management.* As with the 2010 rules, this Order contains an exception for reasonable network management, which applies to all but the paid prioritization rule (which, by definition, is not a means of managing a network):

[*47 C.F.R § 8.2 – Definitions*]

> *[*(f)*] A network management practice is a practice that has a primarily technical network management justification, but does not include other business practices. A network management practice is reasonable if it is primarily used for and tailored to achieving a legitimate network management purpose, taking into account the particular network architecture and technology of the broadband Internet access service.*

Recently, significant concern has arisen when mobile providers' have attempted to justify certain practices as reasonable network management practices, such as applying speed reductions to customers using "unlimited data plans" in ways that effectively force them to switch to price plans with less generous data allowances. For example, in the summer of 2014, Verizon announced a change to its "unlimited" data plan for LTE customers, which would have limited the speeds of LTE customers using grandfathered "unlimited" plans once they reached a certain level of usage each month. Verizon briefly described this change as within the scope of "reasonable network management," before changing course and withdrawing the change.

With mobile broadband service now subject to the same rules as fixed broadband service, the Order expressly recognizes that evaluation of network management practices will take into account the additional challenges involved in the management of mobile networks, including the dynamic conditions under which they operate. It also recognizes the specific network management needs of other technologies, such as unlicensed Wi-Fi networks.

*Non-Broadband Internet Access Service Data Services.* The 2010 rules included an exception for "specialized services." This Order likewise recognizes that some data services

– like facilities-based VoIP offerings, heart monitors, or energy consumption sensors – may be offered by a broadband provider but do not provide access to the Internet generally. The term "specialized services" can be confusing because the critical point is not whether the services are "specialized;" it is that they are not broadband Internet access service. IP-services that do not travel over broadband Internet access service, like the facilities-based VoIP services used by many cable customers, are not within the scope of the open Internet rules, which protect access or use of broadband Internet access service. Nonetheless, these other non-broadband Internet access service data services could be provided in a manner that undermines the purpose of the open Internet rules and that will not be permitted. The Commission expressly reserves the authority to take action if a service is, in fact, providing the functional equivalent of broadband Internet access service or is being used to evade the open Internet rules. The Commission will vigilantly watch for such abuse, and its actions will be aided by the existing transparency requirement that non-broadband Internet access service data services be disclosed.

*5. Enforcement*

The Commission may enforce the open Internet rules through investigation and the processing of complaints (both formal and informal). In addition, the Commission may provide guidance through the use of enforcement advisories and advisory opinions, and it will appoint an ombudsperson. In order to provide the Commission with additional understanding, particularly of technical issues, the Order delegates to the Enforcement Bureau the authority to request a written opinion from an outside technical organization or otherwise to obtain objective advice from industry standard-setting bodies or similar organizations. ...

C. Sustainable Open Internet Rules

We ground our open Internet rules in multiple sources of legal authority – including both section 706 and Title II of the Communications Act. The *Verizon* court upheld the Commission's use of section 706 as a substantive source of legal authority to adopt open Internet protections. But it held that, "[g]iven the Commission's still-binding decision to classify broadband providers ... as providers of 'information services,'" open Internet protections that regulated broadband providers as common carriers would violate the Act. Rejecting the Commission's argument that broadband providers only served retail consumers, the *Verizon* court went on to explain that "broadband providers furnish a service to edge providers, thus undoubtedly functioning as edge providers' 'carriers,'" and held that the 2010 no blocking and no unreasonable discrimination rules impermissibly "obligated [broadband providers] to act as common carriers."

The *Verizon* decision thus made clear that section 706 affords the Commission substantive authority, and that open Internet protections are within the scope of that authority. And this Order relies on section 706 for the open Internet rules. But, in light of *Verizon*, absent a classification of broadband providers as providing a "telecommunications service," the Commission could only rely on section 706 to put in place open Internet protections that steered clear of regulating broadband providers as common carriers *per se*. Thus, in order to bring a decade of debate to a certain conclusion, we conclude that the best path is to rely on all available sources of legal authority – while applying them with a light touch consistent with further investment and broadband deployment. Taking the *Verizon* decision's implicit invitation, we revisit the Commission's classification of the retail broadband Internet access service as an information service and clarify that this service encompasses the so-called "edge service."

Exercising our delegated authority to interpret ambiguous terms in the Communications Act, as confirmed by the Supreme Court in *Brand X*, today's Order concludes that the facts in the market today are very different from the facts that supported the Commission's 2002 decision to treat cable broadband as an information service and its subsequent application to fixed and mobile broadband services. Those prior decisions were based largely on a factual record compiled over a decade ago, during an earlier time when, for example, many consumers would use homepages supplied by their broadband provider. In fact, the *Brand X* Court explicitly acknowledged that the Commission had previously classified the transmission service, which broadband providers offer, as a telecommunications service and that the Commission could return to that classification if it provided an adequate justification. Moreover, a number of parties who, in this proceeding, now oppose our reclassification of broadband Internet access service, previously argued that cable broadband should be deemed a telecommunications service. As the record reflects, times and usage patterns have changed and it is clear that broadband providers are offering both consumers and edge providers straightforward transmission capabilities that the Communications Act defines as a "telecommunications service."

The *Brand X* decision made famous the metaphor of pizza delivery. Justice Scalia, in dissent, concluded that the Commission had exceeded its legal authority by classifying cable-modem service as an "information service." To make his point, Justice Scalia described a pizzeria offering delivery services as well as selling pizzas and concluded that, similarly – broadband providers were offering "telecommunications services" even if that service was not offered on a "stand-alone basis."

To take Justice Scalia's metaphor a step further, suppose that in 2014, the pizzeria owners discovered that other nearby restaurants did not deliver their food and thus concluded that the pizza- delivery drivers could generate more revenue by delivering from any neighborhood restaurant (including their own pizza some of the time). Consumers would clearly understand that they are being offered a delivery service.

Today, broadband providers are offering stand-alone transmission capacity and that conclusion is not changed even if, as Justice Scalia recognized, other products may be offered at the same time. The trajectory of technology in the decade since the *Brand X* decision has been towards greater and greater modularity. For example, consumers have considerable power to combine their mobile broadband connections with the device, operating systems, applications, Internet services, and content of their choice. Today, broadband Internet access service is fundamentally understood by customers as a transmission platform through which consumers can access third-party content, applications, and services of their choosing.

Based on this updated record, this Order concludes that the retail broadband Internet access service available today is best viewed as separately identifiable offers of (1) a broadband Internet access service that is a telecommunications service (including assorted functions and capabilities used for the management and control of that telecommunication service) and (2) various "add-on" applications, content, and services that generally are information services. This finding more than reasonably interprets the ambiguous terms in the Communications Act, best reflects the factual record in this proceeding, and will most effectively permit the implementation of sound policy consistent with statutory objectives, including the adoption of effective open Internet protections.

This Order also revisits the Commission's prior classification of mobile broadband Internet access service as a private mobile service, which cannot be subject to common carrier regulation, and finds that it is best viewed as a commercial mobile service or, in the

alternative, the functional equivalent of commercial mobile service. Under the statutory definition, commercial mobile services must be "interconnected with the public switched network (as such terms are defined by regulation by the Commission)." Consistent with that delegation of authority to define these terms, and with the Commission's previous recognition that the public switched network will grow and change over time, this Order updates the definition of public switched network to reflect current technology, by including services that use public IP addresses. Under this revised definition, the Order concludes that mobile broadband Internet access service is interconnected with the public switched network. In the alternative, the Order concludes that mobile broadband Internet access service is the functional equivalent of commercial mobile service because, like commercial mobile service, it is a widely available, for profit mobile service that offers mobile subscribers the capability to send and receive communications, including voice, on their mobile device.

By classifying broadband Internet access service under Title II of the Act, in our view the Commission addresses any limitations that past classification decisions placed on the ability to adopt strong open Internet rules, as interpreted by the D.C. Circuit in the *Verizon* case.

Having classified broadband Internet access service as a telecommunications service, we respond to the *Verizon* court's holding, supporting our open Internet rules under the Commission's Title II authority and removing any common carriage limitation on the exercise of our section 706 authority. For mobile broadband services, we also ground the open Internet rules in our Title III authority to protect the public interest through the management of spectrum licensing.

D. Broad Forbearance

In finding that broadband Internet access service is subject to Title II, we simultaneously exercise the Commission's forbearance authority to forbear from 30 statutory provisions and render over 700 codified rules inapplicable, to establish a light-touch regulatory framework tailored to preserving those provisions that advance our goals of more, better, and open broadband. We thus forbear from the vast majority of rules adopted under Title II. [Most notably, the FCC forbore from applying:

- Sections 203 and 204, which required service providers to file tariffs and required FCC approval of their rates and practices, along with numerous other sections relating to the FCC's enforcement and investigatory powers in connection with tariffs;
- Section 214, which requires FCC approval before a carrier discontinues existing service;
- Sections 251, 252, and 256, which set out a detailed framework for the negotiation, arbitration, and approval of interconnection agreements, preferring to leave interconnection disputes for case-by-case resolution; and
- Numerous provisions whose applicability to Internet, rather than telephone, service is hard to discern, such as sections 227 (relating to the national Do Not Call list), and 228 (relating to the pay-per-call services popularly known as "1-900 numbers").

The FCC chose not to forbear from the basic service-to-all and non-discrimination rules of sections 201 and 202, along with its authority to investigate and act on complaints under section 208. Many of the details of the forbearance decisions, such as their interaction with the roaming rules for mobile services, are highly technical. All in all, the forbearance section of the order spans sixty-four pages.]

**Questions**

1. Has the FCC finally written a rule capable of withstanding judicial review? Are you persuaded that the FCC has adequately justified its decision to reverse course in classifying fixed broadband Internet service as a telecommunications service? What about its decision to classify mobile broadband Internet service as a commercial mobile service?

2. Why did FCC adopted a more hands-off attitude towards mobile Internet service in its 2011 *Open Internet* order? Why did it change its mind in the 2014 order?

3. How is paid prioritization different from discrimination or blocking? Is it a good thing or a bad thing?

4. Suppose that YouTube, in light of its overwhelming popularity with users, demands that ISPs start paying it. When Time Warner refuses, YouTube makes its HD videos unavailable to Time Warner customers by detecting Time Warner IP addresses; it delivers them lower-quality SD videos instead. Would this violate the *Open Internet* order? Should it?

5. Does the *Open Internet* order have anything to say about the Comcast/Level 3 interconnection dispute?

Geoffrey A. Manne, *The FCC's Net Neutrality Victory Is Anything But*
Wired, Mar. 3, 2015

The day after the FCC's net neutrality vote, Washington was downright frigid. I'd spoken at three events about the ruling, mentioning at each that the order could be overturned in court. I was tired and ready to go home.

I could see my Uber at the corner when I felt a hand on my arm. The woman's face was anxious. "I heard your talk," she said."If net neutrality is overturned, will I still be able to Skype with my son in Turkey?"

The question reveals the problem with the supposed four million comments submitted in support of net neutrality. *Almost no one really gets it*. Fewer still understand Title II, the regulatory tool the FCC just invoked to impose its conception of net neutrality on the Internet.

Some internet engineers and innovators do get it. Mark Cuban rightly calls the uncertainty created by Title II a "Whac-a-Mole environment," driven by political whims. And telecom lawyers? They love it: whatever happens, the inevitable litigation will mean a decade's worth of job security.

As I've said in technically detailed comments, academic coalition letters, papers, and even here at *Wired*, while "net neutrality" sounds like a good idea, it isn't. And reclassifying the internet under Title II, an antiquated set of laws repurposed in the 1930s for Ma Bell, is the worst way to regulate dynamic digital services.

On February 26, self-styled "consumer advocates" and a few self-interested corporate behemoths won the day with clever branding and passionate rhetoric. But as FCC Commissioner Ajit Pai warned in his dissent, net neutrality regulation enacted under Title II doesn't deliver.

"Instead," he wrote, "the order imposes intrusive government regulations that won't work to solve a problem that doesn't exist using legal authority the FCC doesn't have."

Let's take a look at those charges.

"Intrusive Government Regulations"

Driven almost entirely by private enterprise, the internet has become, in the FCC's own words, "the preeminent 21st century engine for innovation." So why is that immensely successful engine suddenly in need of a new regulatory regime that Congress never authorized?

When it amended the Communications Act in 1996, Congress included the clear admonition that "[i]t is the policy of the United States…to preserve the vibrant and competitive free market that presently exists for the internet…, unfettered by Federal or State regulation." The FCC has followed this deregulatory approach since the Clinton administration, and Congress hasn't seen fit to change it over the past 20 years.

But last week, three FCC Commissioners voted to saddle the internet with a new set of constraints so complex, vague and problematic that it took over 300 pages of explanation to justify eight pages of rules. While we haven't seen the full text yet, we do know a lot about what's inside.

First, the FCC claims authority under both Title I of the Communications Act, as well as under several cherry-picked provisions of the Act's Title II common-carrier law, to outlaw certain conduct (blocking, throttling and paid prioritization). The fact that these practices rarely occur (and may be beneficial when they do) is overlooked.

Title II reclassification also allows the FCC to impose a "general conduct" or "catch-all" provision. Under this standard, the FCC asserts its authority over literally anything else that, in the eyes of three commissioners, seems "unreasonable." As former Commissioner Robert McDowell has pointed out, "'reasonable' is perhaps the most litigated word in American history."

The rules also subject interconnection agreements – the private business arrangements that govern the exchange of traffic between networks – to FCC scrutiny for the first time. This is despite the fact that the cost of interconnection has fallen 99 percent since 1998, and that interconnection has rarely presented any problems.

Internet Service Providers (ISPs) will now have to jump through a host of new legal hoops. Smaller ISPs and wireless ISPs struggling to provide service to the remotest (and poorest) parts of the country will have to hire telecom lawyers to ensure that they conform to industry-wide, arbitrary standards of conduct. Many have already said this will threaten their continued viability.

"That Won't Work"

Will the new order affect the woman's ability to Skype with her son in Turkey? No. Will it affect her broadband bill? Yes.

Unfortunately, regulating net neutrality under Title II will almost certainly raise your broadband bill. A range of state and local fees apply only to common-carrier telecommunications services – which is what the FCC just made your broadband internet service.

Wheeler's approach creates a host of other problems. Most important, it allows the FCC to regulate not just your (hated) broadband provider, but also your favorite internet services.

You were sold a bill of goods when activists told you net neutrality was all about protecting "the next Facebook" from evil ISPs. Think about it: If you're "the next Facebook," who do you think is more worried about you? Your ISP, or Facebook itself? If the problem is between Facebook and its potential challengers, hamstringing ISPs is an aw-

fully roundabout way of dealing with it. Especially because we already have a regulatory apparatus to deal with issues related to competition: antitrust laws.

But consider this irony: Now that ISPs are regulated under Title II as common carriers, the Federal Trade Commission can't enforce its consumer protection laws against them anymore.

That doesn't mean there won't be antitrust enforcement, but we did just hobble our most significant and experienced consumer protection authority. That seems like a mistake if we're enacting rules that purport to protect consumers.

"To Solve a Problem That Doesn't Exist"

One would think that after a decade of debate there would be a strong economic case for net neutrality. But there isn't. According to Commissioner O'Rielly – one of the few people who's actually read the order – "[t]here is not a shred of evidence [in the order] that any aspect of this structure is necessary." The record leading up to last week's vote contained evidence of only five instances in the history of the internet where ISPs may have thwarted content providers' access to end-users, none of which required heavy-handed net neutrality rules to address.

The world in which internet innovators have to ask permission to operate is imaginary. Or it was, until Wheeler regulated it into existence.

The new catch-all provision may well apply to internet companies that now think they're not subject to the rules. Title II (which, recall, is the basis for the catch-all) applies to all "telecommunications services" – not just ISPs. Now, every time an internet service might be deemed to transmit a communication (think WhatsApp, Snapchat, Twitter…), it either has to take its chances or ask the FCC in advance to advise it on its likely regulatory treatment.

That's right – this new regime, which credits itself with preserving "permissionless innovation," just put a bullet in its head. It puts innovators on notice, and ensures that the FCC has the authority (if it holds up in court) to enforce its vague rule against whatever it finds objectionable.

And no matter how many times this Chairman tells you that for now the rules won't apply to internet service X, he can't guarantee that they won't next year (or next month). And he certainly can't make that guarantee for the FCC's next chairman.

One of life's unfortunate certainties, as predictable as death and taxes, is this: regulators regulate. It would be crazy to think the FCC adopted these rules and will just to let them lie fallow if tomorrow's internet boogeyman is a non-ISP company.

Even staunch net neutrality supporters like EFF worry about the breadth of the FCC's new "general conduct" standard. Couple that with language that invites complaints and class action lawsuits, and suddenly a regulation claimed to ensure "just and reasonable" conduct becomes a rent-seeking free-for-all.

But surely ISPs have it in for Netflix, right? Actually, Comcast is the only ISP (out of the literally thousands that are now regulated under Title II) that competes with Netflix. And the evidence shows that the problems allegedly arising from that competition were caused by Netflix, not Comcast. Did we really just enact 300 pages of legally questionable, enormously costly, transformative rules just to help Netflix in a trivial commercial spat?

"Using Legal Authority the FCC Doesn't Have"

For last week's "victory" to stand, the FCC must win in court on all (or nearly all) of a host of difficult legal questions.

Most obviously, the rules will be challenged as "arbitrary and capricious" under Supreme Court precedent that makes clear that agencies may not adopt rules that "run[] counter to the evidence before the agency," or are simply implausible.

Last year, the Supreme Court took the EPA to task for "tailoring" provisions from the Environmental Protection Act to rewrite an outdated statute. The FCC's effort to do the same thing with Title II will likely fall prey to the same result.

Better Call Saul!

Competition on the internet is constantly evolving and poorly understood. AOL was a has-been before the ink was dry on the relentless complaints about its unassailable monopoly; cable content is suddenly challenged by streaming video; DSL, once thought dead, now offers 25-75 Mbps service. Yet the FCC's rules ignore this complexity, insisting on a one-dimensional conception of internet competition that's never actually existed.

So where does this leave entrepreneurs? As telecom attorney Barbara Esbin quipped at an event last week when asked for guidance on business models that might steer clear of Title II regulation: "Better Call Saul."

FCC Commissioner Mike O'Rielly added: "If you're looking for a lucrative business, you should be a telecom lawyer."

Sadly, that's the real legacy of Chairman Wheeler's new rules.

**Questions**

1. Has the FCC just "regulated the Internet?" How far will the FCC go with its new-found powers?

2. How is it that people on both sides of the network neutrality debate can couch their arguments in terms of protecting "freedom" and not "breaking" the Internet?

3. What do you think of the market-discipline argument: that if an ISP's customers don't like its policies, they can buy Internet service elsewhere? How many reasonable choices do you personally have for getting online? Even if an ISP's customers don't have good alternatives, might it still have an incentive to give consumers what they want?

4. How does this *Open Internet* order affect ISPs' incentives to invest in its infrastructure and to innovate in developing in new network technologies?

5. Network neutrality critics also raise First Amendment arguments. Does the no-blocking rule impermissibly interfere with ISPs' editorial discretion as to which speech they will allow on their network? What about the no-discrimination rule? The ban on paid prioritization? FCC oversight over interconnection?

6. Is the game worth the candle?

**DoubleNet Problem**

You are Senior Counsel at DoubleNet, a major residential and commercial ISP that serves customers in twelve states. You report directly to the Vice President for Legal Affairs. You are the chief legal officer responsible for overseeing DoubleNet's operations, including intellectual property and regulatory compliance. (Your three peers are responsible, respectively, for the company's securities and corporate legal issues, for its labor and employment matters, and for its marketing and consumer relations.)

DoubleNet offers its residential customers their choice of telephone, television, and Internet service. In most of the metropolitan areas that it serves, DoubleNet reaches its customers along fiber-optic links installed in the early and mid-2000s. Unfortunately, many of its routers are a full generation behind the current state of the art, limiting the

bandwidth available to DoubleNet's customers. The company is about to embark on an expensive (tens of billions of dollars in capital investment) upgrade of the routers, but most of that roll-out won't be complete for 18–24 months. In the meantime, the company's engineers have become concerned by the rising intensity of bandwidth usage among its residential customers. In essence, the problem is that DoubleNet's current network can only supply the full promised bandwidth to a small number of users at a time. As long as only a few users connected to a given router are downloading large files continually, each user experiences a fast, zippy Internet. But as more users download large files, watch videos online from sites like Hulu, engage in voice- and video-chats, and make other bandwidth-intensive uses, the overall effective bandwidth available to most users has been dropping. Meanwhile, the chief financial officer has become concerned that DoubleNet's revenue projections don't appear to be sufficient to convince shareholders of the value of spending tens of billions on greater bandwidth.

You have been summoned to a daylong strategic retreat at which various DoubleNet technical and business teams will pitch ideas for increasing value in the next few years. The following ideas are up for consideration:

- DoubleNet could switch from its current billing system ($35 to $120 a month for all-you-can-eat Internet access at various speeds) to a "metered" system in which the user pays $1 per gigabyte downloaded.
- DoubleNet could partner with a major sports cable network to offer a premium service for watching high-definition sports videos, live, at $25/month. A substantial portion of the revenues from this service would be used to deploy special-purpose devices that provide the necessary bandwidth *solely* for the sports network's videos. The goal would be to shift many of your video-hungry customers to the sports network's programming, freeing up bandwidth for other uses.
- DoubleNet could start blocking all voice-over-IP traffic, such as Vonage, Skype, and FaceTime video chats.
- DoubleNet could institute a policy that when its routers have more traffic than they can handle, they will attempt to deliver web pages and emails first. Streaming video and peer-to-peer programs will be given lower priority, which may lead them to slow down or, in times of high congestion, fail entirely.
- DoubleNet could attempt to charge bandwidth-intensive web sites (such as YouTube, Hulu, and ChatRoulette) for preferential access to DoubleNet's customers. Those who paid would be given priority; those who didn't would be pushed to the end of the queue. The result is that DoubleNet's customers would see the paid-up sites as being speedier than the ones that refuse to pay.
- DoubleNet could raise its rates for Internet service by 50%.

As the head of legal affairs for operations, you will be asked for your views on the various proposals. The executives, of course, are interested in the tradeoff between reward and legal risk; they will want to know what you think of the business prospects of the proposals, as well as their likely legal implications. Prepare an opinion on the legality and advisability of the proposals.