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## Conflict in the Network of Networks: How Internet Service Providers Have Shifted From Partners to Adversaries

Rob Frieden

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# Conflict in the Network of Networks: How Internet Service Providers Have Shifted From Partners to Adversaries

by ROB FRIEDEN\*

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## I. Introduction

In a relatively short time, Internet Service Providers (“ISPs”) have changed their priority in interconnection negotiations from emphasizing global connectivity to concentrating on cost recovery and profit. While still promoting ubiquitous access to the Internet “cloud”<sup>1</sup> and “network of networks,”<sup>2</sup> ISPs have become less cooperative, resulting in well-

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1. The Internet cloud refers to the vast array of interconnected networks that make up the Internet and provide users with seamless connectivity and the content available via these networks: “The increasing functionality of the Internet is decreasing the role of the personal computer. This shift is being led by the growth of ‘cloud computing’—the ability to run applications and store data on a service provider’s computers over the Internet, rather than on a person’s desktop computer.” William Jeremy Robison, Note, *Free at What Cost?: Cloud Computing Privacy Under The Stored Communications Act*, 98 GEO. L.J. 1195, 1199 (2010).

2. “The Internet is a global network of networks that has been the platform for revolutionary innovation. The role of the Internet in enabling innovation is not accidental; rather it flows from the Internet’s architecture. The key innovation-enabling feature of Internet

publicized disputes<sup>3</sup> over what constitutes fair compensation for switching, routing, and delivering high volumes of traffic.

At the Internet's inception, ISPs largely embraced the twin goals of expanding the number of users and points of communications.<sup>4</sup> These ventures refrained from metering traffic and charging for carriage based on usage because traffic volumes roughly matched, or the cost of traffic measurement exceeded, the estimated financial gain from better calibrated metering. Most ISPs bartered network access through a process known as peering in lieu of metering traffic and billing for network use.<sup>5</sup> ISPs also could downplay the importance of cost recovery from content providers and carriers because governments provided ample funds to incubate and promote the Internet.

Eventually, governments removed subsidies on grounds that a commercialized Internet<sup>6</sup> could sustain itself without tax payer

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architecture is comprised of layers, narrowly understood as defined by code or broadly understood as functional components of a communications system." Lawrence B. Solum & Minn Chung, *The Layers Principle: Internet Architecture and the Law*, 79 NOTRE DAME L. REV. 815, 816 (2004); see also Eli M. Noam, *Beyond Liberalization: From the Network of Networks to the System of Systems*, 18 TELECOMM. POL'Y 286 (1994).

3. "The hit political drama series [House of Cards] of Netflix kept about 60,000 subscribers glued onto their screens on Valentine's Day to watch the whole 13-hour production. However, the shifting behavior of consumers to watch videos on demand over the Internet is causing some clogged pipes on the information highway." Randell Suba, *Netflix-Verizon Standoff: Only Net Neutrality Can Now Stop Video Slowdown*, TECH TIMES (Feb. 23, 2014), <http://www.techtimes.com/articles/3670/20140223/netflix-verizon-standoff-only-net-neutrality-can-now-stop-video-slowdown.htm>; see also Drew Fitzgerald & Shalini Ramachandran, *Netflix-Traffic Feud Leads to Video Slowdown*, WALL ST. J. (Feb. 18, 2014), <http://online.wsj.com/news/articles/SB10001424052702304899704579391223249896550>.

4. For background on the history of Internet development, see Barry M. Leiner, Vinton G. Cerf, David D. Clark, Robert E. Kahn, Leonard Kleinrock, Daniel C. Lynch, Jon Postel, Larry G. Roberts & Stephen Wolff, *A Brief History of the Internet*, INTERNET SOC'Y (Oct. 15, 2012), <http://www.isoc.org/internet/history/brief.shtml>; William B. Norton, *The Evolution of the U.S. Internet Peering Ecosystem, Draft 1.1*, EQUINOX (Nov. 19, 2003), <http://www.equinox.com/pdf/whitepapers/PeeringEcosystem.pdf>.

5. For background on peering and other types of interconnection arrangements, see Dennis Weller & Bill Woodcock, *Internet Traffic Exchange: Market Developments and Policy Challenges*, OECD DIGITAL ECON. PAPERS NO. 207 (Jan. 29, 2013), <http://www.oecdilibrary.org/docserver/download/5k918gpt130q.pdf?expires=1446238564&id=id&accname=guest&checksum=19FC2944AD026364F3BDAD20F72394D4>; Ana-Maria Kovacs, *Internet Peering and Transit*, TECH. POL'Y INST. (Apr. 4, 2012), <http://www.techpolicyinstitute.org/files/amkinternetpeeringandtransit.pdf>; DR. PEERING INT'L, <http://drpeering.net/index.php> (last visited Oct. 30, 2015).

6. "Having succeeded beyond its wildest dreams in nurturing the Internet computer web into a vital national communications system, the Federal Government has begun turning over to the private sector the job of operating and maintaining the network's major arteries." Peter H. Lewis, *U.S. Begins Privatizing Internet's Operations*, N.Y. TIMES (Oct. 24, 1994), <http://www.nytimes.com/1994/10/24/business/us-begins-privatizing-internet-s-operations.html>.

underwriting.<sup>7</sup> Commercial ISPs invested substantial funds to build larger and faster networks to accommodate growing demand for service.<sup>8</sup> The combination of subsidy removal and ever expanding capital expenditures to accommodate consumer demand prompted ISPs to use more accurate traffic measurement techniques to identify which carriers and customers generate the most traffic for carriage.<sup>9</sup> ISPs have adjusted the manner in which they recover costs by expanding the number of service tiers available to subscribers by seeking new or additional compensation from upstream ISPs and sources of content, particularly bandwidth intensive video files,<sup>10</sup> and by metering traffic instead of offering unlimited downloading.<sup>11</sup>

The matter of cost causation has become a key commercial and regulatory policy issue because interconnection agreements can have significant positive and negative impacts on competition, consumers, and the Internet ecosystem. In a best-case scenario, traffic metering fosters greater efficiency in both the provisioning and use of Internet resources.<sup>12</sup> In a worst-case scenario, an ISP could use its market power to extort above cost compensation from content sources and distributors, as well as retail broadband subscribers. Rather than offer desirable quality of service enhancement, an ISP might generate artificial congestion as a way to demand higher compensation and otherwise disadvantage a competitor to the ISP or its affiliate.

Consumers suffer when interconnection carriers cannot reach fair terms on a timely basis. Regardless of whether traffic congestion results from artificial manipulation or a substantial increase in volume, broadband service subscribers quickly become inconvenienced and angry when

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7. “NSF awarded contracts in 1995 for three network access points, to provide connection points between commercial networks, and one routing arbiter, to ensure an orderly exchange of traffic across the Internet. In addition, NSF signed a cooperative agreement to establish the next-generation very-high-performance Backbone Network Service. A more prominent milestone was the decommissioning of the NSFNET backbone in April 1995.” *Fact Sheet: A Brief History of NSF and the Internet*, NAT’L SCI. FOUND. (Aug. 13, 2003), [http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=103050](http://www.nsf.gov/news/news_summ.jsp?cntn_id=103050). “In the years following NSFNET, NSF helped navigate the road to a self-governing and commercially viable Internet during a period of remarkable growth.” *Id.*

8. See Shane Greenstein, *Commercialization of the Internet: The Interaction of Public Policy and Private Choices or Why Introducing the Market Worked So Well*, in 1 *INNOVATION POL’Y AND THE ECON.* 151 (Adam B. Jaffe, Josh Lerner & Scott Stern eds., 2001), <http://www.nber.org/chapters/c10779.pdf>.

9. See *INTERNET ECONOMICS*, (Lew W. McKnight & Joseph P. Bailey eds., 2000).

10. See Christopher S. Yoo, *Innovations in the Internet’s Architecture that Challenge the Status Quo*, 8 *J. ON TELECOMM. & HIGH TECH. L.* 79, 95–96 (2010).

11. Brian Stelterjune, *Sweeping Effects as Broadband Moves to Meters*. *N.Y. TIMES* (June 26, 2012), [http://www.nytimes.com/2012/06/27/business/media/internet-providers-testing-metered-plans-for-broadband.html?\\_r=0](http://www.nytimes.com/2012/06/27/business/media/internet-providers-testing-metered-plans-for-broadband.html?_r=0).

12. See Daniel A. Lyons, *Internet Policy’s Next Frontier: Usage-Based Broadband Pricing*, 66 *FED. COMM. L.J.* 1 (2013).

streams of “must see” video disconnect, or degrade. Consumers expect all participating carriers to resolve interconnection disputes before “mission critical” traffic fails to arrive in the proper sequence and speed.<sup>13</sup>

The Federal Communications Commission (“FCC”) and National Regulatory Agencies (“NRAs”) in other nations have responded with ex ante, regulatory safeguards<sup>14</sup> designed to anticipate and prevent anticompetitive and consumer harming practices. Regulatory oversight concentrates on ISPs providing “last mile” broadband services to consumers<sup>15</sup> because of limited facilities-based competition and the fact that nearly all end users rely on only one ISP to handle all traffic deliveries. Advocates for ex ante regulatory oversight conclude that last mile ISPs have both the incentive and ability to manipulate the interconnection process in ways that can handicap upstream carriers and content courses unless they agree to unfair compensation terms and conditions. Worst-case scenarios anticipate Internet fast lanes available to ventures with sufficient financial resources to pay surcharges for prioritization of their traffic, relegating others to unreliable, slow lanes.<sup>16</sup> Under such a dichotomy, the Internet ecosystem would suffer as market entrants might not have the opportunity to achieve a fair trial with consumers because of their inability to pay for enhanced service that has become mandatory. While, previously, market entrants could rely on conventional, “best efforts”

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13. See, e.g., Joseph W. Waz, Jr., *Comcast’s Letter to FCC on Level 3*, COMCAST: COMCAST VOICES (Nov. 30, 2010), <http://corporate.comcast.com/comcast-voices/comcasts-letter-to-fcc-on-level-3>; see also Joseph W. Waz, Jr., *20 Q’s—with Accurate A’s—About Level 3’s Peering Dispute*, COMCAST: COMCAST VOICES (Dec. 7, 2010), <http://blog.comcast.com/2010/12/20-qs—with-accurate-as—about-level-3s-peering-dispute.html>; see also *Press Release: Level 3 Releases Statement to Clarify Issues in Comcast/Level3 Interconnection Dispute*, THE STREET (Dec. 3, 2010, 9:30 AM), <http://www.thestreet.com/story/10937967/1/level-3-releases-statement-to-clarify-issues-in-comcastlevel-3-interconnection-dispute.html>.

14. See Rob Frieden, *Ex Ante Versus Ex Post Approaches to Network Neutrality: A Comparative Assessment*, BERKELEY TECH L. J. (forthcoming).

15. “Broadband Internet access service involves the exchange of traffic between a last-mile broadband 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.” Protecting and Promoting the Open Internet, GN Docket No. 14-28, FCC 15-24, 2015 WL 1120110, ¶ 204 (rel. Mar. 12, 2015) [hereinafter *2015 Open Internet Order*].

16. See Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, Memorandum Opinion and Order, 23 F.C.C.R. 13,028 (2008), *vacated*; *Comcast Corp. v. FCC*, 600 F.3d 642 (D.C. Cir. 2010) (deeming FCC to have exceeded its statutory authority when responding to a complaint and imposing network neutrality rules); Preserving the Open Internet, Report and Order, GN Docket No. 09-191, WC Docket No. 07-52, 25 F.C.C.R. 17905 (2010) [hereinafter *2010 Open Internet Order*], *aff’d in part, vacated and remanded in part sub nom.* *Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014); *2015 Open Internet Order*, *supra* note 15; Order Denying Stay Petitions, DA 15-563, 2015 WL 2195245 (rel. May 8, 2015).

traffic routing, ISPs might so degrade this service with an eye toward nudging or forcing upstream carriers and content providers to pay surcharges for now essential, “better than best efforts” traffic delivery.<sup>17</sup>

A number of highly publicized traffic interconnection and compensation disputes have recently occurred among ISPs and between them and content distributors.<sup>18</sup> The most controversial clashes have involved Netflix and ventures handling its extremely large volume of downstream video traffic, as well as last mile ISPs, such as Comcast and Verizon, that provide final delivery of broadband traffic to retail subscribers.<sup>19</sup>

These disputes evidence a substantial change in strategies and tactics among ventures operating within the Internet ecosystem. In particular, the process for negotiating network interconnection appears increasingly contentious instead of cooperative, as carriers attempt to extract higher compensation, particularly when the volume of downstream traffic vastly exceeds what a last mile ISP generates for upstream delivery. Last mile ISPs appear most able and inclined to exploit possible market power as terminating monopolies, particularly when negotiating with content sources

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17. For background on ISPs’ strategies to provide service enhancements for additional compensation, see Rob Frieden, *Network Neutrality and Consumer Demand for “Better Than Best Efforts” Traffic Management*, FORDHAM INTELL. PROP. MEDIA & ENT. L.J. (forthcoming); Rob Frieden, *Internet Protocol Television and the Challenge of “Mission Critical” Bits*, 33 CARDOZO ARTS & ENT. L.J., 1, 47–87 (2015).

18. “If you are trying to get Netflix and use Verizon’s broadband, then there is a good chance that your video performance is less than optimal. Some Verizon customers might even go as far as calling it a crappy Netflix experience. The reason: a behind-the-scenes power play between Verizon and Cogent Communications, one of the largest bandwidth providers.” Om Malik & Stacey Higginbotham, *Having Problems with Your Netflix? You Can Blame Verizon*, GIGAOM (June 17, 2013), <https://gigaom.com/2013/06/17/having-problems-with-your-netflix-you-can-blame-verizon/>; see also Dan Rayburn, *Inside the Netflix/Comcast Deal and What the Media Is Getting Very Wrong*, STREAMING MEDIA BLOG (Feb. 23, 2014), <http://blog.streamingmedia.com/2014/02/media-botching-coverage-netflix-comcast-deal-getting-basics-wrong.html>.

19. “From what information is public, it appears that the largest ISPs are demanding payment from networks that deliver content and services that residential broadband consumers demand. Because the large residential ISPs themselves are the ones keeping the terms of their deals secret, it raises the question of whether they have something to hide.” Brats Cox Jr., *Press Release: Public Knowledge Raises Concerns over Netflix/Comcast Agreement*, PUB. KNOWLEDGE (Feb. 23, 2014), <https://www.publicknowledge.org/press-release/public-knowledge-raises-concerns-over-netflixcomca>. “Alexis Ohanian, startup investor and co-founder of Reddit, lashed out at U.S. broadband policy on Thursday, calling on the FCC to reclassify internet broadband as ‘the utility we all know it to be.’ Ohanian aimed special vitriol at Comcast, affecting a mafia-style voice to accuse the cable giant of ‘legal extortion’ for fiddling with Netflix speeds until the video site paid it to restore proper service.” Jeff John Roberts, *Comcast “Extortion” Shows the Need to Treat Broadband As a Utility, Reddit’s Ohanian Said*, GIGAOM (Oct. 16, 2014), <https://gigaom.com/2014/10/16/comcast-extortion-shows-the-need-to-treat-broadband-as-a-utility-reddits-ohanian-said/>.

and Content Distribution Networks (“CDNs”)<sup>20</sup> that provide downstream video delivery from content sources to last mile ISPs.

Most broadband subscribers in the United States have limited facilities-based carrier options,<sup>21</sup> particularly for the high transmission speeds needed for delivery of full motion video content.<sup>22</sup> Consumers typically subscribe to only one ISP, and they may not readily change carriers even if options

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20. “In recent years, more complex arrangements have developed, as companies constantly seek to optimize performance along both financial and engineering dimensions. Some networks now pay for peering in order to guarantee performance on the terminating network. The rise of content delivery networks, which store content close to its destination using caching servers for improved performance, has also changed Internet interconnection dynamics. The environment is considerably more complex today than in the days of ‘Tier 1’ peering.” Kevin Werbach, *No Dialtone: The End of the Public Switched Telephone Network*, 66 FED. COMM. L.J. 203, 240 (2014). Content providers and distributors can opt to negotiate directly with retail ISPs for the right to install (“co-locate”) equipment on site, or, alternatively, secure the services of a company such as Akamai to negotiate, install and maintain the equipment. Netflix has sought the direct negotiation option with ISPs. See Ken Florence, *Announcing the Netflix Open Connect Network*, NETFLIX: U.S. & CAN. BLOG (June 4, 2012), <http://blog.netflix.com/2012/06/announcing-netflix-open-connect-network.html>.

21. “At the low end of throughput, 4 Mbps and 10 Mbps, the majority of Americans have a choice of only two providers. That is what economists call a ‘duopoly’, a marketplace that is typically characterized by less than vibrant competition. But even two ‘competitors’ overstates the case. Counting the number of choices the consumer has on the day before their Internet service is installed does not measure their competitive alternatives the day after. Once consumers choose a broadband provider, they face high switching costs that include early-termination fees, and equipment rental fees. And, if those disincentives to competition weren’t enough, the media is full of stories of consumers’ struggles to get ISPs to allow them to drop service.” Tom Wheeler, Chairman, FCC, Prepared Remarks: The Facts and Future of Broadband Competition, (Sept. 4, 2014), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-329161A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-329161A1.pdf); see also *National Broadband Map: How Connected Is My Community?*, NAT’L BROAD. MAP, <http://www.broadbandmap.gov/> (last visited Oct. 16, 2015).

22. “We conclude that advanced telecommunications capability is not being deployed to all Americans in a reasonable and timely fashion. We reach this conclusion for several distinct and independent reasons. First, we find that a significant number of Americans—approximately 55 million, 17 percent—lack access to service capable of originating and receiving at, respectively, 25 Mbps download and 3 Mbps upload speeds or higher—the speed we have determined best satisfies the statutory definition of advanced telecommunications capability. Not only do a significant number and percentage of Americans lack access to advanced telecommunications capability, but the deployment rate is not reasonable and timely. The overall percentage of Americans without access to 25 Mbps/3 Mbps dropped only three percentage points between 2012 and 2013, and the percentage of Americans in rural areas without such access dropped by a mere two percentage points over the same span of time. Moreover, more than half of Americans living in rural areas cannot subscribe to advanced telecommunications capability.” Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, GN Docket No. 14-126, 2015 Broadband Progress Report and Notice of Inquiry on Immediate Action to Accelerate Deployment, FCC 15-10, ¶ 133 (rel. Feb. 5, 2015), <https://www.fcc.gov/document/fcc-finds-us-broadband-deployment-not-keeping-pace-0> [hereinafter *FCC 2-15 Broadband Report*].

exist.<sup>23</sup> Additionally, end users require higher transmission speeds and downloading capacity in light of growing demand for bandwidth intensive video, often by multiple users at the same location seeking service at the same time.<sup>24</sup>

Under current marketplace conditions, last mile ISPs have raised rates and segmented service into different tiers of transmission speed and monthly allocation of permitted downloading capacity.<sup>25</sup> Additionally, they have imposed surcharges on upstream CDNs and other carriers.<sup>26</sup> Exploiting superior bargaining leverage has translated into a number of new interconnection and compensation arrangements that deviate from both traditional telecommunications and Internet carriage models.<sup>27</sup>

This article will examine new models for the carriage of Internet traffic with an eye toward providing insights on how the interconnection process has changed and what positive and negative consequences have resulted. The article will explain how some types of price and quality of service discrimination benefits and harms consumers. It also identifies instances where migration from traditional interconnection arrangements can reduce

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23. “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.’” *Verizon v. FCC*, 740 F.3d 623, 647 (D.C. Cir. 2014) (citing 2010 Open Internet Order, at 17924–25 ¶ 34 and FCC, *Broadband Decisions: What Drives Consumers to Switch—Or Stick With—Their Broadband Internet Provider* (FCC Working Paper (Dec. 2010), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-303264A1.pdf/](https://apps.fcc.gov/edocs_public/attachmatch/DOC-303264A1.pdf/)). “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.” *Verizon*, 740 F.3d at 646 (D.C. Cir. 2014) (citing *Preserving the Open Internet*, GN Docket No. 09-191, WC Docket No. 07-52, Report and Order, 25 F.C.C.R. 17905, 17919 (2010)).

24. “The average household includes 2.58 people, and the average family household includes as many as 4.3 people. Household members may use one or more broadband services, from multiple devices, simultaneously; and there is some evidence that the average household has seven Internet-connected devices. The sheer number and wide array of broadband-capable devices in American households suggest that they are often used simultaneously.” *Inquiring Concerning the Development of Advanced Telecommunications*, GN Docket No. 14-126, Report and Notice of Inquiry, FCC 15-10, ¶ 38 (rel. Feb. 4, 2015).

25. See, e.g., *Press Release, Comcast, Comcast to Launch Extreme 50 Mbps High-Speed Internet Service in San Francisco and on the Peninsula* (Apr. 21, 2015), <http://comcastcalifornia.mediaroom.com/index.php?s=43&item=279>.

26. See, e.g., Fitzgerald & Ramachandran, *supra* note 3.

27. See Yoo, *supra* note 9, at 95–99 (outlining new ISP interconnection variations of peering and transiting).

some of the benefits accruing from positive network effects and externalities.<sup>28</sup> This article concludes that NRAs should permit ISPs to negotiate new commercial arrangements, such as paid peering, so long as the parties can demonstrate that both content providers and end users do not incur the absolute necessity to pay higher prices to secure adequate, uncongested service.

## II. Five Generations of Internet Development

In quick succession, the Internet has evolved from a non-commercial subsidized medium to a commercial ecosystem where ISPs have to generate revenues sufficient to recoup ever-increasing infrastructure costs to accommodate growing supply and demand for bandwidth. ISPs previously could avoid having to meter traffic and identify supply-push and demand-pull growth in capacity requirements as governments directly underwrote investment in new facilities for switching, routing, and transmitting traffic. Now, ISPs have no source of subsidies and thereby have to recoup substantial infrastructure investments from content creators and distributors, as well as consumers.

Much of the growth in the supply of bandwidth intensive content comes from Over the Top (“OTT”)<sup>29</sup> applications, particularly ones that offer video content or provide a cheaper alternative to incumbent services, such as voice telephony and text messaging. OTT applications, such as Internet Protocol Television (“IPTV”),<sup>30</sup> Voice over the Internet Protocol

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28. “Because the attractiveness of the platform grows with the number of users, it is possible for network effects to cause a market to ‘tip’ to monopoly. Such externalities are less likely to occur in other kinds of platforms, such as those for Internet search or on-line shopping, but these services may nonetheless benefit from less direct forms of network effects. A shopping network with a comparatively large number of users might be more appealing because of the greater number of available product and service reviews. Likewise, a more widely used search engine might provide greater confidence to a user because the results she is seeing are what many others are seeing and relying upon.” Howard A. Shelanski, *Information, Innovation, and Competition Policy for the Internet*, 161 PENN L. REV. 1663, 1682 (2013).

29. “Over-the-top VoIP [and other] services require the end user to obtain broadband transmission from a third-party provider, and providers of over-the-top [services] can vary in terms of the extent to which they rely on their own facilities.” Preserving the Open Internet, 25 F.C.C.R. 17,905, 17,916 n.48 (2010), *aff’d in part, vacated and remanded in part sub nom. Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014), *on remand*, Protecting and Promoting the Open Internet, 79 Fed. Reg. 37,448 (July 1, 2014). In the United States, OTT operators do not need to secure the consent of ISPs for carriage of their content. However, ISPs pay close attention to the volume of traffic generated by OTT operators, particularly ventures offering bandwidth intensive video content such as Netflix. ISPs have demanded additional compensation for their efforts to ensure congestion-free carriage of Netflix content. See Fitzgerald & Ramachandran. *supra* note 3. ISP involvement with OTT ventures primarily occurs in the negotiation and execution of agreements to promote congestion-free delivery of video content. *Id.*

30. IPTV offers consumers with broadband connection options to download video files or view (streaming) video content on an immediate “real time” basis. See Sky Angel U.S., LLC, 25

(“VoIP”),<sup>31</sup> video teleconferencing, and Internet-based texting ride “on top” of an already functioning broadband link. OTT content and services represent an increasingly significant portion of all broadband traffic<sup>32</sup> and arguably have the greatest impact on many consumers’ decision to subscribe to a broadband service and what tier of transmission speed and monthly capacity allotment to purchase.<sup>33</sup>

Set out below is a brief summary of the four generations of Internet development that precede the current one driven by growth in OTT video supply and demand:

1) Incubation—government administration, first through the United States Defense Department and later through the United States National Science Foundation and universities and research institutes throughout the world (1980s-1995);

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F.C.C.R. 3879, 3879 (2010). Some of the available content duplicates what cable television subscribers receive, therein triggering disputes over whether cable operators can secure exclusive distribution agreements and prevent an IPTV service provider from distributing the same content. “Sky Angel has been providing its subscribers with certain Discovery networks for approximately two and a half years, including the Discovery Channel, Animal Planet, Discovery Kids Channel, Planet Green, and the Military Channel. Sky Angel submits that these channels are a significant part of its service offering.” *Id.* at 3879–80 (footnote omitted). For background on IPTV, see generally In-Sung Yoo, Comment, *The Regulatory Classification of Internet Protocol Television: How the Federal Communications Commission Should Abstain from Cable Service Regulation and Promote Broadband Deployment*, 18 COMMLAW CONSPECTUS 199 (2009).

31. “The Internet developed initially as an academic curiosity, based on a commitment to the ‘end-to-end principle.’ This principle requires that all Internet traffic, whether an email, a Voice over Internet Protocol (VoIP) ‘call’ or a video stream, be treated equally and managed through ‘best efforts’ connections. In such a network, data packets pass from one router to another without the prioritization of any particular packets. In practice, this means that Internet traffic reaches its destination at varying times, depending on the traffic levels of the relevant Internet communications links.” Philip J. Weiser, *The Next Frontier for Network Neutrality*, 60 ADMIN. L. REV. 273, 277–78 (2008).

32. Netflix currently generates as much as thirty-four percent of the total traffic ISPs handle at peak hours in the United States. Drew Fitzgerald, *Netflix Share of Internet Traffic Grows*, WALL ST. J. (May 14, 2014), <http://online.wsj.com/news/articles/SB20001424052702304908304579561802483718502>; *Sandvine Report: Netflix Dominates (Still), Amazon Instant Video Growing*, SANDVINE (Nov. 20, 2014), <https://www.sandvine.com/pr/2014/11/20/sandvine-report-netflix-dominates-still-amazon-instant-video-growing.html>.

33. See *Cisco Visual Networking Index: Forecast and Methodology, 2014–2019 White Paper*, CISCO (May 27, 2015), [http://www.cisco.com/c/en/us/solutions/collateral/service-provider/ip-ngn-ip-next-generation-network/white\\_paper\\_c11-481360.html](http://www.cisco.com/c/en/us/solutions/collateral/service-provider/ip-ngn-ip-next-generation-network/white_paper_c11-481360.html); *The Zettabyte Era—Trends and Analysis*, CISCO (May 2015), [http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/VNI\\_Hyperconnectivity\\_WP.html](http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/VNI_Hyperconnectivity_WP.html); *Akamai’s State of the Internet: Q1 2015 Report*, STATE OF THE INTERNET (June 24, 2015), <http://www.stateoftheinternet.com/resources-connectivity-2015-q1-state-of-the-internet-report.html>; Mary Meeker, *Internet Trends 2015—Code Conference*, KPCB (May 27, 2015), <http://www.kpcb.com/internet-trends>.

2) Privatization—governments eliminate financial subsidies obligating contractors to assess whether and how to operate commercially (1995-1998);

3) Commercialization—private networks proliferate as do ventures creating software applications and content that traverse the Internet. The “dotcom boom” triggers irrational, excessive investment and overcapacity (1998-2001); and

4) Diversification—after the dotcom bust and market re-entrenchment, Internet survivors and market entrants expand the array of available services and ISPs offer diversified terms, conditions and rates, including price and quality of service discrimination needed by “mission critical” traffic having high bandwidth requirements, e.g., full motion video content.

#### **A. Generation 1: Incubation**

Until 1995, the United States government, through the Defense Department and later the National Science Foundation (“NSF”), underwrote development and maintenance of the core Internet backbone, NSFnet.<sup>34</sup> National governments in other parts of the world pursued similar network projects. The Internet began as specialized, closed networks between specific operators and users. Governments incubated what became the Internet through financial subsidies and by being the first major “anchor tenant” of newly created networks.

Government stewardship helped expedite the research and development of the technologies and the uniform operating standards needed to achieve broadly accessible and interconnected networking. The engineering necessary to support self-healing, redundant, and reliable networks for the military and other government users also supported seamless connectivity among the many different networks operating throughout the world using different vintages of equipment manufactured by many different companies.

After incubating the Internet as a medium for traffic associated with research and education, NSF determined that it could conclude its public financing and a commercial, privatized Internet could evolve. NSF’s 1993 public solicitation document<sup>35</sup> anticipated a privatized Internet with a structure much like what we have today: a hierarchy of many small ISPs

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34. For background on how the National Science Foundation incubated and financially supported initial development of the Internet see *NSF and the Birth of the Internet*, NAT’L SCI. FOUND., [http://www.nsf.gov/news/special\\_reports/nsf-net/](http://www.nsf.gov/news/special_reports/nsf-net/).

35. *Solicitation for Network Access Point Manager, Routing Arbiter, Regional Network Providers, and Very High Speed Backbone Network Services Provider for NSFNET and NREN Program*, NAT’L SCI. FOUND. (May 6, 1993), [https://w2.eff.org/Infrastructure/Govt\\_docs/nsf\\_nren.rfp](https://w2.eff.org/Infrastructure/Govt_docs/nsf_nren.rfp).

serving localities and regions, fewer inter-regional Tier-2 ISPs, and even fewer Tier-1 ISPs serving entire nations with the highest capacity backbone networks.

At the outset of Internet development, government contractors engineered national networks accessible primarily by government, academic, and research users. With few operators, generally having the same characteristics in terms of user population, bandwidth, traffic switching capabilities, network management staffing, and geographical reach, the parties could agree to simple interconnection and access arrangements. The intelligence behind Internet network routing sought to achieve efficiency and the ability to route around outages and congestion. Because all the ISPs in this phase had roughly the same characteristics and traffic volumes, their routing assignments generated approximately the same financial burdens.

Internet access in this first phase sought primarily to achieve better geographical reach and more users with little regard to the cost of access, as well as who caused an ISP to incur such costs. This promotional phase emphasized the accrual of positive networking externalities<sup>36</sup> so much so that the parties did not seek to monitor traffic flows. Because few ISPs existed, each having the same characteristics and operating with government funding, the parties saw little benefit and significant cost in negotiating interconnection agreements that required carriers to meter traffic.

In this first promotional phase all participating ISPs agreed to network “peering,” meaning that they would provide reciprocal access to each other’s subscribers in a free exchange of traffic that would take place at a few shared, “public” Network Access Points (“NAPs”).<sup>37</sup> The few ISPs

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36. A positive network externality exists when the cost incurred by a user of the Internet does not fully reflect the benefit derived with the addition of new users and points of communications. See John Farrell & Garth Saloner, *Standardization, Compatibility and Innovation*, 16 RAND J. OF ECON. 70 (1985); Michael L. Katz. & Carl Shapiro, *Network Externalities, Competition and Compatibility*, 75 AM. ECON. REV. 424 (1985); see also Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479 (1998).

37. For helpful background on how peering developed, see Scott Marcus, *Global Traffic Exchange Among Internet Service Providers*, OECD (2001), <http://www.oecd.org/internet/broadband/1894955.pdf>; Geoff Huston, *Interconnection Peering and Settlements*, INET’99 Presentation, [http://www.isoc.org/inet99/proceedings/1e/1e\\_1.htm](http://www.isoc.org/inet99/proceedings/1e/1e_1.htm); William B. Norton, *Interconnection Strategies for ISPs* (v.2.1), DR. PEERING, [http://drpeering.net/white-papers/\\_pdfs/Interconnection-Strategies-for-ISPs.pdf](http://drpeering.net/white-papers/_pdfs/Interconnection-Strategies-for-ISPs.pdf) (last visited Oct. 16, 2015); Bill Woodcock, *White Paper on Transactions and Valuation Associated with Inter-Carrier Routing of Internet Protocol Traffic—or—BGP for Bankers*, (v. 0.2), <http://www.pch.net/resources/papers/bgp-for-bankers/BGP-for-Bankers-v02.doc>; Daniel C.H. Mah, *Explaining Internet Connectivity: Voluntary Interconnection Among Commercial Internet Service Providers* (Mar. 26, 2003), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2053810](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2053810); Steve Gibbard, *Economics of*

operating at this time agreed to receive traffic from the other ISPs for onward delivery to the final intended destination, or to another ISP in exchange for the same traffic acceptance and delivery commitment from the other ISPs. This barter interconnection commitment triggered no exchange of funds based on the “rough justice” expectation that an ISP would deliver roughly the same amount of traffic generated by other ISPs that it handed off for delivery by those ISPs.<sup>38</sup> In the vernacular of telecommunications carriers, this arrangement constituted a “bill and keep” and “sender keep all” arrangement<sup>39</sup> because each ISP retained all revenues it generated from subscriptions for traffic carriage regardless of whether it solely provided the transmission or whether it handed off the traffic for carriage by other ISPs.

## B. Generation 2: Privatization

NSF’s glide path to privatization largely succeeded with former contractors migrating to positions of owning and operating backbone networks and NAPS.<sup>40</sup> MCI, whose assets Verizon now holds, won the solicitation to take over the very high speed backbone network that

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*Peering* (Oct. 2004), <http://paranoidbits.com/ebooks/economics/Gibbard-peering-economics.pdf>. For more recent tutorials on the peering process, see William B Norton, *Peering Tutorial*, 2012 Peering Forum, APRICOT (Jan. 28, 2012), [http://www.apricot.net/apricot2012/\\_data/assets/pdf\\_file/0010/45586/peering-tutorial.pdf](http://www.apricot.net/apricot2012/_data/assets/pdf_file/0010/45586/peering-tutorial.pdf); Richard A Steenbergen, *A Guide to Peering on the Internet*, N. AM. NETWORK OPERATORS GRP. (Jan. 30, 2011), <https://www.nanog.org/meetings/nanog51/presentations/Sunday/NANOG51.Talk3.peeringnanog51.pdf>.

38. “Most . . . peering relationships have been historically ‘settlement free’ because they benefit both parties and because traffic demands were symmetrical.” Dirk Grunwald, *The Internet Ecosystem: The Potential for Discrimination*, 63 FED. COMM. L.J. 411, 427 (2011).

39. “In a bill-and-keep or sender-keeps-all arrangement, each carrier bills its own customers for the origination of traffic and does not pay the other carrier for terminating this traffic. In a settlement arrangement, on the other hand, the carrier on which the traffic originates pays the other carrier to terminate the traffic. If traffic flow between the two networks is balanced, the net settlement that each pays is zero, and therefore a bill-and-keep arrangement may be preferred because the networks do not have to incur costs to measure and track traffic or to develop billing systems. As an example, the Telecommunications Act of 1996 allows for incumbent local exchange carriers to exchange traffic with competitors using a bill-and-keep arrangement.” Michael Kende, *The Digital Handshake: Connecting Internet Backbones*, 11 COMM L. CONSPICUOUS 45, 51 n.60 (2003) (citing 47 U.S.C. § 252 (d)(2)(B)(i) (2000)). “The sharing of traffic over the interconnected networks forming the Internet on a statistical and un-metered ‘settlements’ (or ‘bill & keep’) basis was a hallmark of early federal agency involvement in the development of the Internet. This system of traffic carriage free of charge became known as ‘peering.’” Barbara Esbin, *Internet Over Cable: Defining the Future in Terms of the Past* (F.C.C., O.P.P. Working Paper No. 30, 1998), 1998 WL 567433.

40. See Rajiv C. Shah & Jay P. Kesan, *The Privatization of the Internet’s Backbone Network*, 51 J. OF BROAD. & ELEC. MEDIA 93 (Dec. 2007), [http://governingwithcode.org/journal\\_articles/pdf/Backbone.pdf](http://governingwithcode.org/journal_articles/pdf/Backbone.pdf); see also Press Release, Nat’l Sci. Found., *Internet Moves Toward Privatization*, 97-046 (June 24, 1997), [http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=102819](http://www.nsf.gov/news/news_summ.jsp?cntn_id=102819).

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previously had served NSF-sponsored research institutions including Cornell University, supercomputer centers in Pittsburgh and San Diego, and several government facilities. MCI upgraded its Asynchronous Transfer Mode network from OC-3 (155 megabits per second) to OC-12 (622 megabits per second). NSF subsequently sought proposals for the creation of private NAPs in Chicago, New York, Philadelphia, San Diego, San Francisco, and Washington, D.C.

With the privatization of the Internet, a hierarchical industrial structure developed. At the top of the pyramid stood a handful of Tier-1 ISPs whose network size, customer base, and operational success qualified them for the direct and cost-free exchange of traffic. While peering used to predominate as the primary mode of the NSF network interconnection, the commercialization of the Internet created opportunities for market entry by more ISPs and new incentives for all ISPs to charge what the market would bear for network access. The composition of ISPs expanded and diversified in terms of available bandwidth, geographical reach, subscribership, types of available content, etc.

In light of this diversification and proliferation of ISPs, universal peering became unsustainable. ISPs, not having sufficient size and importance, became customers of network access provided by the Tier-1 and other ISPs. This meant that smaller ISPs had to pay the larger Tier-1 ISPs for the privilege of accessing the Tier-1 ISP's customers and network connections. The term transit—also borrowed from the telecommunications vernacular—refers to a negotiated business relationship whereby one ISP sells access to its customers, its network, and its access to other ISP networks it has negotiated.

Clearly no ISP beneficiary of cost-free peering appreciated the demoted status of having to pay for access as a customer and reseller. Yet this demotion appeared to occur on the basis of sound business judgment made by individual Tier-1 ISPs and not on the basis of collusion or concerted refusals to deal. ISPs in Asia-Pacific and Africa bore the greatest financial burden in having to self-provision lines to and from NAPs in North America and Europe, as well as the obligation to pay for transit. But smaller ISPs everywhere incurred a similar, albeit less expensive, burden as well. ISPs in North America generated less telecommunications expense in reaching a Tier-1 ISP's NAP, or Point of Presence, in light of the proliferation of such facilities and their close proximity to most Tier-1 ISPs. ISPs located in more remote areas had to procure at their expense the complete link to Tier-1 ISP facilities, even though once installed these two-way links provided Tier-1 ISPs with a cost-free pathway to the smaller remotely located ISP and its subscribers.

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ISPs in remotely located regions objected to having to provide typically well financed Tier-1 ISPs a “free ride” for the delivery of traffic from the Tier-1 ISPs. Certainly from a telecommunications service orientation, it appeared that the remotely located ISP underwrote the full cost of “return” traffic in light of the bi-directional nature of telecommunications links instead of having to pay half of such cost. However, in the context of Internet service, the free ride attribution breaks down. First, the Internet seamlessly combines telecommunications bit transport conduit function with access to content. Particularly at the time of Phase Two in the Internet’s development, ISP subscribers could access most of the content available via the Internet for nothing more than the cost of their ISP subscription. Put another way, when an ISP pays another larger ISP for transit services, the smaller ISP acquires access to the larger ISP’s subscribers and the content available from these customers, as well as the customers of other ISPs with which the larger ISP peers or pays for transit. Smaller ISPs had to pay for access to and from larger ISPs in North America and Europe, but the smaller ISPs could then acquire and deliver content that their subscribers sought. Much of the most desired content resided on servers located in North America and Europe, meaning that remote ISPs had to secure access to be able to deliver the content their subscribers expected to access.

Internet transit access arrangements also do not match the limited geographical scope of a telecommunications transit arrangements. In telecommunications service, transit arrangements typically secure an indirect link for a carrier in one location, primarily because this carrier might not have sufficient traffic volume to secure a direct link. In Internet service, transit arrangements typically provide access to a vast array of networks certainly not limited to one country or carrier. In its most expansive role, one Internet transit payment arrangement with one major Tier-1 ISP can provide a small, remote ISP with access to the rest of the world because the Tier-1 ISP has secured ubiquitous access and, therefore, can offer (advertise in the Internet vernacular) an extensive list of routing opportunities.

### C. Generation 3: Commercialization

The “irrational exuberance” of the dotcom bubble stimulated a gold rush mentality among investors keen on finding “ground floor” stock ownership opportunities.<sup>41</sup> Undocumented and belatedly refuted claims

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41. “The Dot-com Bubble or the Tech Bubble was a speculative bubble in the shares of early internet companies called ‘Dot-coms.’” Jesse Colombo, *The Dot-com Bubble*, THE BUBBLE BUBBLE (Aug. 19, 2012), <http://www.thebubblebubble.com/dot-com-bubble/>; see also Dan Steinbock, *Twin Drivers and Irrational Exuberance: Markets, the Internet and Mobility*, 5 INT’L

that the Internet doubled in size on a monthly basis encouraged risk taking based on the assumption that a rising tide would raise all ships, i.e., that anyone investing at the onset of the Information Revolution would reap ample returns. Investors sank several hundred billion dollars in incumbent and new telecommunications and ISP networks. The resulting glut in local and long haul transmission capacity had the impact of creating substantial downward pressure on Internet transport cost and precluding any pricing discipline by Tier-1 ISPs individually, or even collectively, had they attempted to collude. Similarly, even before the dotcom implosion, several Tier-1 ISPs experienced financial distress, but the infusion of more investment helped create new aspiring Tier-1 and Tier-2 operators.

#### D. Generation 4: Diversification

The popping of the dotcom bubble triggered substantial losses in the Internet marketplace and a relatively short period of irrational pessimism.<sup>42</sup> The post-dotcom bubble environment appears to emphasize a shorter transition to profitability, but substantial funds continue to be invested in business plans requiring the use of Internet connections. With less tolerance for financial losses, investors expect to see a realistic timetable for profitability. Throughout the Internet ecosystem, ventures have a greater appreciation for cost control and the need to turn cash flow positive quickly.

ICE ventures in this fourth phase have to pay close attention to costs. This means that the carriers providing traffic delivery services will closely monitor traffic flows and have little patience for instances where a traffic partner has executed a peering agreement, but either generates comparatively more downstream traffic or lacks the network capacity upstream to route traffic it receives from a peer. While relatively few in number, perhaps because ISPs generally use Non-Disclosure Agreements to shroud peering terms and disputes,<sup>43</sup> the onset of peering disputes create

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J. ON MEDIA MGMT. 109 (2009), <http://www.tandfonline.com/doi/abs/10.1080/14241270309390025?journalCode=hijm20>.

42. “But in March of 2000, 15 years ago, one of those things came to a crashing halt. The dotcom bubble, which had been building up for the better part of three years, slowly began to pop. Stocks sunk. Companies folded. Fortunes were lost, and the American economy started to slip down a slow mudslide that would end up in full-on recession.” Ben Geier, *What Did We Learn from the Dotcom Stock Bubble of 2000?*, TIME (Mar. 12, 2015), <http://time.com/3741681/2000-dotcom-stock-bust/>.

43. The “norms [for a blend of FCC and industry self-regulation of the Internet] might include requirements to provide some level of transparency over the terms of treating a counterpart as a peer deserving of settlement-free interconnection as opposed to a customer required to pay for transit.” Philip J. Weiser, *The Future of Internet Regulation*, 43 U.C. DAVIS L. REV. 529, 576 (2009); see also Frank Pasquale, *Beyond Innovation and Competition: The Need for Qualified Transparency in Internet Intermediaries*, 104 NW. U. L. REV. 105 (2010).

incentives for a partner to quickly force a renegotiation of terms, possibly leading to conversion from zero cost peering to a transit payment when a traffic imbalance arises.<sup>44</sup>

Greater vigilance of traffic volumes and the proliferation of Internet-mediated services have also created incentives for ISPs to diversify the nature, type, terms, and conditions for network interconnection beyond the peering/transiting dichotomy. While NDAs obscure which ISP has agreed to what terms for new traffic routing and interconnection arrangements, the diversification of services carried via the Internet has prompted ISPs to expand the types of interconnection arrangements. For example, the growing market for access to full motion video content delivered on an instantaneous, “real time basis” has stimulated the creation of a new type of service provider called Content Delivery Network (“CDN”) that offers guaranteed “better than best efforts” routing of traffic.<sup>45</sup> Because many CDNs concentrate on the downstream delivery of traffic, they may have the volume that would stimulate interest in a peering arrangement, but not necessarily the network capability to handle a commensurate upstream flow.

Ongoing need to upgrade infrastructure to handle increasingly bandwidth intensive applications creates a powerful financial incentive for ISPs to change the terms and conditions for service both upstream and downstream. Many ISPs initially offered retail subscribers an “all you can eat” unmetered service plan based on the correct perception that all but early adopters would need financial inducements to “test drive” the Internet. Now that the Internet marketplace has evolved, many ISPs see unmetered service as conferring an unnecessary windfall on high volume users to the detriment of the carrier and low volume users. ISPs perceive Network Neutrality<sup>46</sup> initiatives as foreclosing necessary pricing flexibility.

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44. For example, in 2008, Sprint and Cogent “de-peered” their networks, causing temporary service disruptions between their customers. See Om Malik, *Cogent, Sprint Disconnect Networks, May Cause Web Slowdown*, GIGAOM (Oct. 30, 2008), <http://gigaom.com/2008/10/30/cogent-sprint-un-peer-may-cause-web-slowdown>.

45. “Today, much Web content is not delivered to the ultimate recipient directly from the Web server belonging to the original creator, but via a content delivery network (CDN)—a collection of servers that cache the content and deliver it on demand.” David D. Clark & Marjory S. Blumenthal, *The End-to-End Argument and Application Design: The Role of Trust*, 63 FED. COMM. L.J. 357, 364–65 (2011).

46. Network neutrality refers to regulatory initiatives requiring Internet Service Providers to operate as neutral, nondiscriminating conduits prohibited from prioritizing, blocking and slowing traffic absent compelling network management justifications. See Justin S. Brown & Andrew W. Bagley, *Neutrality 2.0: The Broadband Transition to Transparency*, 25 FORDHAM INTELL. PROP. & ENT. L.J. 639 (2015); Rob Frieden, *Internet Protocol Television and the Challenge of “Mission Critical” Bits*, *supra* note 17;

### E. The Internet's Fifth Generation

The Internet's most recent evolution combines the widespread diffusion of broadband infrastructure with growing consumer interest in accessing video content anytime, anywhere, via any device, and in any content transmission and screen presentation format.<sup>47</sup> Consumers increasingly consider OTT applications as functional equivalents to incumbent media. They have little tolerance for the rationing of access to content via sequential "windows" based on a declining payment scale, e.g., initial exclusive, "first run" movies, followed by access via pay per view, DVD purchase, download, rental, premium cable network, etc.

In growing numbers, consumers consider reducing or eliminating incumbent media subscriptions because new OTT options offer greater value, lower prices, more flexibility, and accessibility from more than one device.<sup>48</sup> Cord cutting refers to the decision by incumbent media consumers to abandon their monthly subscriptions. The term cord shaving refers to the decision by subscribers to reduce the number and price of content options by migrating to a lower-priced tier, or smaller bundle of channels. Young and price sensitive consumers have begun to consider Internet-delivered video options as a partial or complete alternative to traditional broadcast, satellite, and wireline content delivery. Such widespread interest in new content delivery options evidences dissatisfaction with traditional media display models that tie content to a particular time, channel, and sequence of access, a process commonly referred to as "appointment television."<sup>49</sup>

Consumers have little affinity to any specific distribution technology, and expect to have "on demand" access to content via television sets,

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Rob Frieden, *The Costs and Benefits of Regulatory Intervention in Internet Disputes: Lessons from Broadcast Signal Retransmission Consent Negotiations*, 37 HASTINGS COMM. & ENT. L.J., 1, 1 (2015); Barbara van Schewick, *Network Neutrality and Quality of Service: What a Nondiscrimination Rule Should Look Like*, 67 STAN. L. REV. 1 (2015); Tejas N. Narechania & Tim Wu, *Sender Side Transmission Rules for the Internet*, 66 FED. COMM. L.J. 467 (2014); Adam Candeub & Daniel McCartney, *Law and the Open Internet*, 64 FED. COMM. L.J. 493 (2012).

47. See, e.g., Rob Frieden, *Internet Protocol Television and the Challenge of "Mission Critical" Bits*, *supra* note 17; Maggie Macdonald, *Comcast v. Netflix: Why the FCC Should Redefine Multi-Channel Video Programming Distributors to Include Over-the-Top Video Providers*, 12 COLO. TECH. L.J. 479 (2014); Christopher S. Yoo, *Possible Paradigm Shifts in Broadband Policy*, 9 I/S: J. L. & POL'Y FOR INFO. SOC'Y 367 (2014).

48. Georg Szalai, *U.S. Pay TV Sector Has Biggest-Ever Quarterly Video Sub Decline (Study)*, THE HOLLYWOOD REPORTER (Aug. 13, 2015), <http://www.hollywoodreporter.com/news/us-pay-tv-sector-has-815100>; Emily Steel, *Nielsen Charts Reach of Video Streaming*, N.Y. TIMES (Mar. 11, 2015), <http://www.nytimes.com/2015/03/12/business/nielsen-reports-2-in-5-households-subscribe-to-video-streaming-services.html>.

49. "A secular trend toward narrowcasting has intensified on the web, as more individuals forsake appointment television for the 'long tail' of online content." Pasquale, *supra* note 43, at 110.

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computer monitors, smartphone screens, tablets, and even watches. Additionally, they are pleased when content providers, such as Netflix, opt to make an entire season's worth of episodes available for "binge watching" in lieu of the traditional model that distributes episodes one at a time in a weekly, linear sequence.

Content providers have begun to experiment with alternative distribution options<sup>50</sup> that eliminate intermediaries such as local broadcast stations, DBS operators, and cable television providers. One alternative involves the use of new, Internet-based intermediaries such as Hulu, Amazon, and YouTube. Another option eliminates the intermediary so that content providers directly serve end users. Netflix, HBO, and professional sport leagues, such as Major League Baseball, provide examples of this model.

Content providers move cautiously and incrementally because they have concerns about the potential for piracy and do not want to replace an existing intermediary model with a less profitable direct access option. It appears increasingly likely that content producers will have to offer direct access models in light of growing consumer dissatisfaction with the status quo, particularly the lack of options for an à la carte access to a specific network or program instead of the conventional packaging of programming tiers or bundles containing many different content sources, many of which consumers have no interest in watching.

Old media ventures have resisted consumer demand for alternatives based on real concerns that they may lose audiences, revenues, and sole source intermediary status. Some ventures, particularly cable television operators, have offered to expand content access in terms of time and device, provided consumers retain their subscription with the intermediary.<sup>51</sup> So-called television everywhere options provides a solution to consumers' antipathy toward appointment television, but it maintains the intermediary model and the packaging of content in expensive tiers containing dozens of channels.

In the near term, content intermediaries will confront growing subscriber resistance to the tiered content access and à la carte, or smaller tiered service will become available. Recently Dish Network, a DBS operator, packaged a "skinny bundle" of fewer channels for access via the

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50. See, e.g., Emily Steel, *Suddenly, Plenty of Options for Cord Cutters*, N.Y. TIMES (July 15, 2015), <http://www.nytimes.com/interactive/2015/business/media/streaming-tv-cord-cutting-guide.html>.

51. See, e.g., Emily Steel, *Comcast Offers Its Alternative to Cable TV, Using the Web*, N.Y. TIMES (July 12, 2015), <http://www.nytimes.com/2015/07/13/business/media/comcast-offers-its-alternative-to-cable-tv-using-the-web.html>.

Internet.<sup>52</sup> Verizon, a major diversified telecommunications and Internet company, has also offered its video programming subscribers the option of acquiring smaller and more narrowly tailored service tiers of video content.<sup>53</sup>

### III. Increasing Disputes over Interconnection and Compensation Terms

The Internet increasingly becomes a functional equivalent to old media service options, with emphasis on providing more convenient, diversified, and mobile access to video content.<sup>54</sup> In light of the bandwidth intensive nature of video content delivery, last mile ISPs have demanded additional compensation from upstream content providers and distributors, as well as downstream end users.

Last mile ISPs operate in what economists call a double-sided market<sup>55</sup> because, on one side, upstream content providers and distributors need them to deliver content to end users and, on the other side, downstream retail broadband subscribers need them for access to and from the Internet cloud. Put another way, retail ISPs provide an essential and not easily

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52. See SLING, <https://www.sling.com/> (last visited Oct. 30, 2015).

53. See VERIZON, *FiOS*, <http://fios.verizon.com/tv-channels.html>; Lucas Shaw & Scott Moritz, *Verizon Ushers in the Era of 'Skinny Cable,'* BLOOMBERG BUSINESSWEEK (Apr. 30, 2015), <http://www.bloomberg.com/news/articles/2015-05-01/verizon-ushers-in-the-era-of-skinny-cable->.

54. See Lindsay Fritchmand, *There's a TV App for That: Putting the "Neutral" Back in Net Neutrality for the App-Based Television Future*, 163 U. PA. L. REV. ONLINE 299 (2015), <https://www.pennlawreview.com/notes/index.php?id=13>; Rob Frieden, *The Impact of Next Generation Television on Consumers and the First Amendment*, 24 FORDHAM INTELL. PROP. MEDIA & ENT. L. J., 1, 61-95 (2014).

55. "Platform businesses compete in "multi-sided markets." For example, video game console companies such as Sony, Nintendo, and Microsoft compete for game developers and users, while payment card companies such as American Express, MasterCard, and Visa compete for merchants and cardholders. Platform businesses must deal with interdependent demand when devising pricing, production, and investment strategies. These strategies can be quite different from non-platform businesses that do not serve mutually dependent customer groups. The optimal price on a particular side of the market, whether measured socially or privately, does not follow marginal cost on that side of the market. Many platform businesses charge one side little or nothing; for example, most operating system vendors collect scant revenue from software developers who use their intellectual property. In many cases, the joint provision of a good that services multiple groups of customers makes the assignment of costs to any one side arbitrary false." David S. Evans, *The Antitrust Economics of Multi-Sided Platform Markets*, 20 YALE J. ON REG. 325, 328 (2003); see also Inge Graef, Sih Yuliana Wahyuningtyas & Peggy Valcke, *Assessing Data Access Issues in Online Platforms*, 39 TELECOMM. POL'Y, 375 (2015), <http://www.sciencedirect.com/science/article/pii/S0308596114001906>; David S. Evans, *Governing Bad Behavior by Users of Multi-Sided Platforms*, 27 BERKELEY TECH. L.J. 1201 (2012); Daniel M. Tracer, *Overcharge but Don't Overestimate: Calculating Damages for Antitrust Injuries in Two-Sided Markets*, 33 CARDOZO L. REV. 807 (2011).

replaced platform or interface for access to high value, “must see” video content.

ISPs control facilities through which a variety of content and applications must traverse. ISPs can have flexibility in determining how best to recoup investment costs, possibly erecting subsidies that enhance consumer welfare by facilitating access to free or low cost services.<sup>56</sup> On the other hand, such flexibility can provide ISPs with the ability to price access in ways that favor ISPs ventures and affiliates. Because Internet service involves multiple ventures providing different services in the link from content source to end user, an NRA or court might have great difficulty in determining whether an ISP that had used techniques that tilt the competitive playing field in favor of an affiliate, or a venture agreeing to pay a surcharge for preferred treatment.<sup>57</sup>

#### **A. The FCC’s Latest Attempt to Prevent Harmful OTT Content Discrimination**

The FCC initially classified OTT carriage of non-voice content as an information service largely free of regulation.<sup>58</sup> In a very controversial

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56. For example, a last mile ISP can opt not to debit subscribers’ monthly downloading allotments as an inducement for subscribing to a new service or because an advertiser has agreed to defray the cost. The FCC has expressed concerns about such zero rating and sponsored data plans: Sponsored data plans (sometimes called zero-rating) enable broadband providers to exclude edge provider content from end users’ usage allowances. On the one hand, evidence in the record suggests that these business models may in some instances provide benefits to consumers, with particular reference to their use in the provision of mobile services. Service providers contend that these business models increase choice and lower costs for consumers. . . . On the other hand, some commenters strongly oppose sponsored data plans, arguing that ‘the power to exempt selective services from data caps seriously distorts competition, favors companies with the deepest pockets, and prevents consumers from exercising control over what they are able to access on the Internet,’ again with specific reference to mobile services. In addition, some commenters argue that sponsored data plans are a harmful form of discrimination. The record also reflects concerns that such arrangements may hamper innovation and monetize artificial scarcity.” *2015 Open Internet Order*, *supra* note 15, ¶ 151 (citations omitted).

57. “It is far from clear that two-sided markets apply to broadband provision. The assumptions one must make are simply too heroic and too distanced from what is known about market realities. Second, even if one accepts these models’ applicability, they are largely ambiguous even in theory. The various models in the literature come to opposite answers. As even the experts for AT&T concede in the Internet proceeding, the models simply do not give answers that are robust to the likely market conditions.” Adam Candeuba1 & Daniel McCartney, *Law and the Open Internet*, FED. COMM. L.J. 493, 513 (2012).

58. Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities Internet Over Cable Declaratory Ruling, GN Docket No. 00-185, Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities, CS Docket No. 02-52, 17 F.C.C.R. 4798 (2002) (cable modem broadband), *aff’d sub nom.* Nat’l Cable & Telecomm. Ass’n v. Brand X Internet Servs., 545 U.S. 967, 977–78 (2005); Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Report and Order and Notice of Proposed Rulemaking, 20 F.C.C.R. 14,853, 14,863-64 (2005) (Digital Subscriber Line broadband) [hereinafter DSL Reclassification Order]; United Power Line Council’s Petition for Declaratory

decision, the Commission reclassified broadband Internet access as a telecommunications service subject to a streamlined common carrier regulatory regime.<sup>59</sup> For ventures that produce or acquire content, while also operating the network used to deliver it to consumers, a confusing blend of regulatory safeguards apply to promote neutral carriage and an open Internet for competing content. The FCC emphasizes common carrier regulation on ISPs providing the first and last broadband link to the Internet cloud. However, the Commission extends this classification to ISPs serving as intermediaries between content providers and downstream ISPs providing first and last mile service.

Unlike some other NRAs, the FCC assumes that network operators, providing carriage of content, will operate biased, non-neutral networks with the ability to affect the quality of service and other key factors relating to how the content arrives:

[B]roadband 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.<sup>60</sup>

The FCC has decided to mandate network neutrality largely based on the assumption that network operators will get “involved” in the distribution of content and not operate as neutral conduits.<sup>61</sup> The Commission has concluded that, absent significant government oversight, ISPs will operate biased networks that harm competitors and consumers.<sup>62</sup>

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Ruling Regarding the Classification of Broadband over Power Line Internet Access Service as an Information Service, Memorandum Opinion and Order, 21 F.C.C.R. 13,281 (2006) (broadband via power lines); Appropriate Regulatory Treatment for Broadband Access to the Internet over Wireless Networks, Declaratory Ruling, 22 F.C.C.R. 5901 (2007) (wireless broadband).

59. The FCC currently requires that telecommunications service providers comply with the requirements established in Title II of the Communications Act of 1934, as amended, 47 U.S.C. §§ 201–276 (2014). These regulations impose common carriage duties including the obligation to provide service on a nondiscriminatory basis. *Id.*

60. *2015 Open Internet Order*, *supra* note 15, ¶ 20.

61. “Although broadband providers in many cases provide broadband Internet access service along with information services, such as email and online storage, we find that broadband Internet access service is today sufficiently independent of these information services that it is a separate ‘offering.’” *Id.* ¶ 356.

62. “Broadband providers function as gatekeepers for both their end user customers who access the Internet, and for various transit providers, CDNs, and edge providers attempting to reach the broadband provider’s end-user subscribers. As discussed in more detail below, broadband providers (including mobile broadband providers) have the economic incentives and technical ability to engage in practices that pose a threat to Internet openness by harming other network providers, edge providers, and end users.” *Id.* ¶ 78.

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In contrast to a previous, largely unconditional commitment not to regulate Internet content, the FCC imposes common carrier regulation on ISPs. The FCC believes that, absent government oversight, an ISP would act on its incentive and ability to favor corporate affiliates and ventures agreeing to pay for traffic prioritization.<sup>63</sup> The FCC worries that, absent common carrier regulation, ISPs would bifurcate the Internet into fast lanes, providing “better than best efforts” traffic carriage at a premium price and slow lanes providing “best efforts” service prone to congestion and quality of service degradation.

The FCC emphasizes the need for regulation of ISPs that deliver content to end-users. Broadband subscribers typically retain the services of only one last mile ISP for access to and from the Internet cloud. Additionally, few consumers in the United States have access to a robustly competitive market for broadband service, making it more likely that any last mile ISP can operate in a discriminatory manner without loss of customers and revenues.

The FCC has constructed a regulatory regime designed to ensure open access to the Internet by requiring ISPs to operate as neutral conduits. This network neutrality, or open Internet policy, requires ISPs to refrain from using techniques that would block lawful traffic, deliberately slow (“throttle”) traffic streams, even in the absence of network congestion, and offer paid prioritization of traffic. Network neutrality regulation seeks to prevent ISPs from creating artificial congestion as justification for network management that interferes with traffic streams to achieve anticompetitive goals.

The FCC emphasized the need for narrowly crafted rules designed to “prevent specific practices we know are harmful to Internet openness—blocking, throttling, and paid prioritization—as well as a strong standard of conduct designed to prevent the deployment of new [anticompetitive] practices that would harm Internet openness.”<sup>64</sup> The Commission emphasized that ISPs have both the incentive and ability to leverage access in ways that can thwart the virtuous cycle of innovation and investment in the Internet ecosystem.

The FCC emphasized that, while subjecting ISPs to Title II, common carrier oversight, the Commission will use its statutory authority quite narrowly as evidenced by the decision to forbear<sup>65</sup> from applying “27

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63. “[B]roadband providers not only have the incentive and ability to limit openness, but they had done so in the past.” *Id.* ¶ 79.

64. *Id.* ¶ 4.

65. 47 U.S.C. § 160(a) (2015) authorizes the FCC to streamline the scope of its Title II oversight by forbearing from applying many common carrier requirements: “[T]he Commission shall forbear from applying any regulation or any provision of this chapter to a

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provisions of Title II of the Communications Act, and over 700 Commission rules and regulations.”<sup>66</sup> The Commission recognized the need to explain how the new requirements satisfy pressing needs, but in the most narrow and well-calibrated manner, in light of virulent opposition from most ISPs and the two Republican Commissioners. The Order reports that “there will be fewer sections of Title II applied than have been applied to Commercial Mobile Radio Service (“CMRS”), [the regulatory classification for wireless voice telecommunications service] where Congress expressly required the application of Sections 201, 202, and 208, and permitted the Commission to forbear from others. In fact, Title II has never been applied in such a focused way.”<sup>67</sup>

In addition to the specific prohibitions on blocking, throttling, and paid prioritization, the FCC established a general prohibition on ISP practices that would unreasonably interfere with or disadvantage downstream consumers and upstream edge providers of content, applications, and services. The Commission will consider on a case-by-case basis whether an ISP has engaged in a practice “that unreasonably interfere[s] with or unreasonably disadvantage[s] the ability of consumers to reach the Internet content, services, and applications of their choosing or of edge providers to access consumers using the Internet.”<sup>68</sup> The Commission opted to apply a more open-ended and evaluative legal standard, prohibiting commercially unreasonable practices it had proposed in the 2014 Open Internet NPRM. The Commission concluded that it should “adopt a governing standard that looks to whether consumers or edge providers face unreasonable interference or unreasonable disadvantages, and makes clear that the

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telecommunications carrier or telecommunications service, or class of telecommunications carriers or telecommunications services, in any or some of its or their geographic markets, if the Commission determines 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).

66. *2015 Open Internet Order*, *supra* note 15, ¶ 5. The major provisions of Title II that the Order will apply are: nondiscrimination and no unjust and unreasonable practices under sections 201 and 202; authority to investigate complaints and resolve disputes under section 208 and related enforcement provisions, specifically sections 206, 207, 209, 216 and 217; protection of consumer privacy under section 222; fair access to poles and conduits under Section 224, protection of people with disabilities under sections 225 and 255; and providing universal funding for broadband service, but not the requirement to collect contributions to such funding through partial application of section 254. *Id.*

67. *Id.* ¶ 38.

68. *Id.* ¶ 135.

standard is not limited to whether a practice is agreeable to commercial parties.”<sup>69</sup>

The FCC reported that it will use the “no-unreasonable interference/disadvantage” standard to evaluate controversial subjects including the lawfulness of “sponsored data” arrangements where an ISP accepts advertiser payment in exchange for an agreement not to meter and debit the downstream traffic delivery. The Commission will also use this standard to consider the lawfulness of data caps that tier service by the amount of permissible downloading volume. In both instances, the FCC sees the potential for an ISP to create artificial scarcity to extract higher revenues, to favor corporate affiliates and third parties willing to pay a surcharge, as well as the potential for disadvantaging competitors, e.g., using data caps to harm new vendors of video programming that compete with an ISP service.

The Order expresses the view that reclassifying Internet access as a telecommunications service provides the strongest legal foundation for the Open Internet regulations, coupled with a secondary reference to section 706 of the Telecommunications Act of 1996 and Title III, which addresses the use of radio spectrum and applies common carriage regulation to wireless voice carriers.<sup>70</sup> By using the stronger Title II foundation, the FCC asserts that it can not only establish clear and unconditional statutory authority, but also use the flexibility contained in Title II to forbear from applying most common carrier requirements not relevant to modern broadband service just as occurs for wireless telephone service. However, with a Title II regulatory foundation, the Order makes it possible for the FCC to create an open Internet conduct standard that ISPs cannot harm consumers or edge providers with enforcement tools available to sanction violations.<sup>71</sup>

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69. *Id.* ¶ 150. The FCC identified a number of factors it will consider in future evaluations. These include an assessment whether a practice allows end-user control and is consistent with promoting consumer choice, its competitive effect, whether consumers and opportunities for free expression are promoted or harmed, the effect on innovation, investment, or broadband deployment, whether the practice hinders the ability of end users or edge providers to use broadband access to communicate with each other and whether a practice conforms to best practices and technical standards adopted by open, broadly representative, and independent Internet engineering, governance initiatives, or standards-setting organization. *Id.* at ¶¶ 139-145.

70. “We ground the open Internet rules we adopt today in multiple sources of legal authority—section 706, Title II, and Title III of the Communications Act. We marshal all of these sources of authority toward a common statutorily-supported goal: to protect and promote Internet openness as platform for competition, free expression and innovation; a driver of economic growth; and an engine of the virtuous cycle of broadband deployment. We therefore invoke multiple, complementary sources of legal authority. As a number of parties point out, our authority under section 706 is not mutually exclusive with our authority under Titles II and III of the Act.” *Id.* at ¶¶ 273-74.

71. With an eye toward providing timely, certain and flexible enforcement of its open Internet rules, the FCC announced its intention to use advisory opinions similar to those issued by

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The Commission's decision to treat aspects of Internet access as common carriage will certainly trigger a third judicial appeal and review whether such reclassification constitutes a reasonable decision based on a complete evidentiary record. By opting for the reclassification option, the FCC underscores the riskiness in imposing *ex ante* regulation without an explicit legislative mandate.

#### **B. Declining Confidence in Commercially Negotiated Peering Arrangements**

The FCC has expressed uncertainty whether recent contentious peering arrangements end up with a fair outcome evidencing good faith, commercially driven negotiations. The 2015 Open Internet Order acknowledges that stakeholders have generated “competing narratives,” particularly when disputes have arisen.<sup>72</sup> Advocates for dispute resolution, and perhaps more aggressive government oversight, identify a scenario where an ISP exercises bottleneck control over an essential transmission link for which a content provider or distributor has no readily available alternative route:

Some edge and transit providers assert that large broadband Internet access service providers are creating artificial congestion by refusing to upgrade interconnection capacity at their network entrance points for settlement-free peers or CDNs, thus forcing edge providers and CDNs to agree to paid peering arrangements. These parties suggest that paid arrangements resulting from artificially congested interconnection ports at the broadband Internet access service provider network edge could create the same consumer harms as paid arrangements in the last-mile, and lead to paid prioritization, fast lanes, degradation of consumer connections, and ultimately, stifling of innovation by edge providers.<sup>73</sup>

The alternative scenario characterizes commercial negotiations resulting in more costly terms and conditions as a fair outcome in light of the substantial investment made to accommodate upstream demand for last mile delivery of ever growing volume of video content:

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the Department of Justice's Antitrust Division: “Advisory opinions will enable companies to seek guidance on the propriety of certain open Internet practices before implementing them, enabling them to be proactive about compliance and avoid enforcement actions later. The Commission may use advisory opinions to explain how it will evaluate certain types of behavior and the factors that will be considered in determining whether open Internet violations have occurred. Because these opinions will be publicly available, we believe that they will reduce the number of disputes by providing guidance to the industry.” *Id.* ¶ 229.

72. *Id.* ¶ 200.

73. *Id.*

In contrast, large broadband Internet access service providers assert that edge providers such as Netflix are imposing a cost on broadband Internet access service providers who must constantly upgrade infrastructure to keep up with the demand. Large broadband Internet access service providers explain that when an edge provider sends extremely large volumes of traffic to a broadband Internet access service provider—e.g., through a CDN or a third-party transit service provider—the broadband provider must invest in additional interconnection capacity (e.g., new routers or ports on existing routers) and middle-mile transport capacity in order to accommodate that traffic, exclusive of “last-mile” costs from the broadband Internet access provider’s central offices, head ends, or cell sites to end-user locations. Commenters assert that if the broadband Internet access service provider absorbs these interconnection and transport costs, *all* of the broadband provider’s subscribers will see their bills rise.<sup>74</sup>

The FCC evidenced an unwillingness to pick sides, but ultimately opted not to subject interconnection and compensation negotiations to regulatory oversight.<sup>75</sup> The Commission chose a case-by-case approach, emphasizing investigation of complaints,<sup>76</sup> in light of the fact that this process “historically has functioned without significant Commission oversight.”<sup>77</sup> Perhaps mindful of several recent and pending merger applications, requiring FCC and Department of Justice approval, the FCC also noted that it will consider the competitive impact of such acquisitions on the peering process.<sup>78</sup>

The FCC’s review of AT&T’s proposed acquisition of DirecTV<sup>79</sup> provided the Commission with an opportunity to impose more safeguards

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74. *Id.* ¶ 201.

75. “We conclude that it would be premature to adopt prescriptive rules to address any problems that have arisen or may arise. It is also premature to draw policy conclusions concerning new paid Internet traffic exchange arrangements between broadband Internet access service providers and edge providers, CDNs, or backbone services.” *Id.* ¶ 202 (citation omitted).

76. “The Commission will be available to hear disputes raised under sections 201 and 202 on a case-by-case basis. We believe this is an appropriate vehicle for enforcement where disputes are primarily between sophisticated entities over commercial terms and that include companies, like transit providers and CDNs, that act on behalf of smaller edge providers.” *Id.* ¶ 205.

77. *Id.* ¶ 203.

78. “The Commission’s regulatory and enforcement oversight, including over common carriers, is complementary to vigorous antitrust enforcement. Indeed, mobile voice services have long been subject to Title II’s just and reasonable standard and both the Commission and the Antitrust Division of the Department of Justice have repeatedly reviewed mergers in the wireless industry. Thus, it will remain essential for the Commission, as well as the Department of Justice, to continue to carefully monitor, review, and where appropriate, take action against any anti-competitive mergers, acquisitions, agreements or conduct, including where broadband Internet access services are concerned.” *Id.*

79. Applications of AT&T Inc. and DIRECTV for Consent to Assign or Transfer Control of Licenses and Authorizations, MB Docket No. 14-90, Memorandum Opinion and Order, FCC 15-

and oversight of the peering process. Online video distributors (“OVDs”) had expressed concerns that AT&T, in its capacity as a major ISP, could discriminate against unaffiliated content providers and distributors by allowing congestion to build up at the interconnection points with AT&T’s last-mile network and by over-charging OVDs for access to the network, thereby raising their costs of doing business.<sup>80</sup>

The FCC did not explicitly agree, but it did increase the scope and nature of its AT&T interconnection oversight.<sup>81</sup> The Commission imposed disclosure requirements for interconnection agreements and interconnection metrics that it will use to assess whether the terms and conditions of Internet traffic exchange agreements have the potential to generate congestion, hinder competition, or harm consumers. Additionally, AT&T must retain both an internal company compliance officer and an independent, external compliance officer who will report and monitor, respectively, the combined entity’s compliance with the conditions imposed by the FCC.<sup>82</sup>

#### IV. Conclusions and Recommendations

The FCC’s 2015 Open Internet Order evidences significant ambivalence at the FCC in terms of what, if any, regulatory oversight is needed to ensure timely, fair, and good faith interconnection negotiations among ISPs, and between content distributors and ISPs.<sup>83</sup> The Commission acknowledges the benefits of a hands off approach that favors commercial negotiations. However, it also recognizes the potential for harm to both consumers and competition, particularly when one party perceives a negotiation advantage by stalling and refusing to offer good faith terms.

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94 (rel. July 28, 2015), <https://www.fcc.gov/document/fcc-releases-order-approving-att-directv-transaction> [hereinafter *AT&T-DirectTV Acquisition*].

80. *See id.* ¶ 214.

81. “[G]iven our heightened concern where ISPs compete with third-party Internet-based services (i.e., OVDs), we impose additional conditions that require the combined entity to file all interconnection agreements with the Commission and to provide the Commission with certain interconnection performance metrics, which we will use in combination to monitor the terms and effects of such interconnection arrangements.” *Id.* ¶ 219.

82. *Id.* ¶ 397.

83. At the same time as the FCC considers whether and how to intervene in ISP interconnection and compensation disputes, it also reassesses whether it should become more proactive when local broadcasters cannot reach timely closure to negotiations covering the terms and conditions by which multichannel video program distributors, such as cable and satellite television operators, secure rights to retransmit the signals. *See* Amendment of the Commission’s Rules Related to Retransmission Consent, MB Docket No. 10-71, Report and Order and Further Notice of Proposed Rulemaking, 29 F.C.C.R. 3351 (2014); *see also* Rob Frieden, *The Costs and Benefits of Regulatory Intervention in Internet Disputes: Lessons from Broadcast Signal Retransmission Consent Negotiations*, *supra*, note 46, at 1.

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When presented with the opportunity to impose and extract concessions in exchange for approval of a controversial merger, the FCC opted for more extensive reporting requirements and other safeguards.<sup>84</sup>

The FCC had wisely opted not to impose a comprehensive, ex ante regulatory regime over interconnection and compensation agreements executed between retail ISPs and upstream ventures. The FCC articulated a wait and see approach rather than anticipate the need to intervene in disputes. The Commission properly defers to commercial incentives that support connectivity that would provide consumers with congestion-free access to OTT content.

However, the FCC and other NRAs may not avoid having to intervene when parties cannot reach timely settlement of disputes. Regulatory agencies should use a complaint resolution process to resolve disputes with emphasis on expediting a solution rather than applying service definitions that trigger different regulatory status and burdens. NRAs should permit ventures to negotiate compensation arrangements that enhance quality of service and provide better than best efforts switching and routing of must see video content. Consumers expect to receive such content on a seamless and congestion free basis. Indeed, they pay significant subscription fees based on the assumption that Netflix and other video content will arrive without degradation or delay.

While NRAs should permit ISPs to negotiate and secure surcharges for traffic prioritization, advocates for such arrangements should bear the burden of proving that they will not intentionally degrade service to ventures opting not to pay a premium. ISPs should not have the opportunity to create artificial congestion as a way to nudge or shove consumers and content providers to premium services. Additionally, ISPs should bear the burden of proving that they will offer premium service arrangements to any venture regardless of affiliation.

NRAs should use dispute resolution procedures to ensure that ISPs operate in a transparent manner when offering alternatives to conventional best efforts routing. They should ensure that ISPs continue to offer basic services that should suffice for most ventures. ISPs should not have the ability to bifurcate their networks into fast and slow lanes where conventional services are all but certain to offer unacceptably slow and inferior service. On the other hand, they should have the opportunity to engage in commercially desirable price and quality of service discrimination that does not harm competition and consumers.

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84. “We also impose certain disclosure requirements for interconnection agreements and interconnection metrics, which will help the Commission address any future concerns about the nature of AT&T’s exchange of Internet traffic and the potential impact of congestion upon consumers.” *2015 Open Internet Order*, *supra* note 15, at 7.