

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Restoring Internet Freedom) WC Docket No. 17-108
)

COMMENTS OF COGENT COMMUNICATIONS INC.

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INTRODUCTION

Cogent is a multinational Tier 1 Internet service provider, headquartered in Washington, D.C. With a network spanning forty-one countries in North America, Europe, and Asia, Cogent has one of the largest networks in the world. This network is used to provide two types of services: the sale of Internet access to small and medium-sized businesses, and the sale of data transit services to content providers and smaller Internet service providers. The latter is most relevant to this proceeding because Cogent does not sell “mass market retail” services, sometimes referred to as broadband Internet access service (“BIAS”).¹

Cogent’s core business philosophy always has been that Internet bandwidth should be marketed, sold and purchased as a commodity. Consistent with this guiding principle, Cogent has leveraged superior technology to provide Internet bandwidth in large quantities, at high speeds, at industry-leading and ever-lower prices, and without regard to the sources of the bits of data that move across its network. When Cogent started its business, it offered Internet access at 100 Mbps for \$1,000 per month, although the then-prevailing rate was more than that for a 1.5 Mbps T-1 connection to the Internet for commercial customers. Ever since,

¹ *Protecting And Promoting The Open Internet*, Report and Order on Remand, Declaratory Ruling, and Order, GN Docket No. 14-28, 30 FCC Rcd 5601 (2015) (“*Title II Order*”) at ¶ 25; *Restoring Internet Freedom*, Notice of Proposed Rulemaking, WC Docket No. 17-108 (2017) (“*NPRM*”) ¶ 93-94 (not proposing any changes to the definition of broadband Internet access service).

Cogent has been at the forefront of providing large quantity, high speed transit services for a very low price.

This philosophy has benefited competition, innovation and consumers. As the price of connectivity provided by Cogent has continued to fall, innovative edge providers have been able to take advantage of this cost structure to develop new and disruptive services and applications that are in high demand by consumers. Moreover, Cogent's business model enables these edge providers to deliver their services to consumers at lower prices.

Cogent's business, while successful, did face meaningful threats in the years before the *Title II Order* that the NPRM now raises the possibility of changing or revoking in its entirety. Notably, throughout the notice and comment period that preceded the *Title II Order*, a substantial record was developed by the Commission that is consistent with Cogent's pre-*Title II Order* experiences. For example:

- Since at least several years before the *Title II Order* through the present, consumer demand for streaming video and other bandwidth-intensive content and latency-sensitive applications (*e.g.*, VoIP calls) has increased dramatically—and shows no sign of abating;
- Between 2012 and adoption of the *Title II Order*, certain BIAS providers refused to augment capacity at their interconnection points with transit providers like Cogent;
- BIAS providers' refusals to augment capacity at interconnection points resulted in the well-documented degradation of service to their

own subscribers—residential and business consumers who purchase mass market retail Internet access;²

- Very little, if any, of the congestion or degradation of this content actually occurs inside the last mile BIAS providers' networks;³
- All of the content subjected to congestion and degradation is content that has been requested by BIAS subscribers. In other words, neither transit providers, edge providers nor content delivery networks “force” or “dump” traffic on BIAS providers or their users;
- Both BIAS and transit provider networks have sufficient capacity to accept and deliver the increased amount of bandwidth-intensive content end users are currently demanding.⁴ At times, certain BIAS providers have simply chosen not to do so;

² See, e.g., Zachary M. Seward & Herman Wong, YouTube, Following Netflix, is now publicly shaming Internet providers for slow video, Quartz, <http://qz.com/230603/youtube-like-netflix-is-nowpublicly-shaming-internet-providers-for-slow-video/> (July 5, 2014); Drew Fitzgerald & Shalini Ramachandran, Feud Over Netflix Traffic Leads to Video Slowdown, Wall Street J. (Feb. 18, 2014), <http://online.wsj.com/news/articles/SB10001424052702304899704579391223249896550> (reporting on congestion issues caused in part by peering disputes with ISPs); Jon Brodtkin, Why YouTube buffers: The secret deals that make—and break—online video, Ars Technica (July 28, 2013), <http://arstechnica.com/information-technology/2013/07/why-youtube-buffers-the-secret-deals-that-makeand-break-online-video/> (explaining why congestion at interconnection points with ISPs slows the performance of streaming video services to the point such services are, at times, “almost unusable”).

³ In fact, Cogent is not aware of any comments during the *Title II Order* proceeding that claimed degradation may be occurring inside the last mile.

⁴ See, e.g., David Young, Why is Netflix Buffering? Dispelling the Congestion Myth, Verizon Policy Blog, <http://publicpolicy.verizon.com/blog/entry/why-is-netflix-buffering-dispelling-thecongestion-myth> (July 10, 2014) (stating that a recent study of utilization of “every link in the Verizon network” confirmed that “there was no congestion anywhere within the Verizon network”). Moreover, immediately after Netflix agreed to pay for a direct connection with Comcast, sufficient capacity and high-quality service to Comcast subscribers streaming movies from Netflix were restored. Comments of Netflix, Inc., GN Docket Nos. 14-28 and 10-127 at 12-14 (filed July 15, 2014).

This pattern repeated itself following the *Title II Order*. As Cogent and other transit providers entered into agreements with BIAS providers, quality issues ended once interconnection congestion was eliminated.

- BIAS providers control the actual connections (*e.g.*, ports) through which unaffiliated content requested by their own subscribers and handed off by edge or transit providers is delivered to those customers;
- The burden and expense associated with upgrading capacity at interconnection points, and thereby remedying congestion, is minimal;⁵ and
- While thousands of networks collectively comprise the Internet, BIAS providers control the only path to reach the tens of millions of customers who subscribe to their broadband services.

None of these facts were seriously disputed during the comment period for the *Title II Order*. Nor, to Cogent’s knowledge, have any been disputed since that time.

These facts illustrate the importance of sufficient levels of interconnection to ensure that consumers have the freedoms, as identified by the Commission, to “access the lawful Internet content of their choice,” “run applications and use services of their choice,” and benefit from “competition among network providers, application and service providers, and content providers.”⁶ Moreover, it is clear

⁵ Declaration of Henry (Hank) Kilmer, Vice President, IP Engineering, Cogent Commc’ns Grp., Inc., MB Docket No. 14-57 (filed Aug. 25, 2014) ¶ 19 (explaining that the cost to an ISP of augmenting capacity at a point where it exchanges traffic with another network is the “share of the fee charged by the data facility for optical fiber that connects the ports of the two operators,” which “typically [is] \$200 per month. ... If an [ISP] has to add a port card to its router, the capital cost for each additional port is less than \$10,000.”); Declaration of Ken Florance, Vice President of Content Delivery, Netflix, Inc., MB Docket No. 14-57 (filed Aug. 25, 2014), ¶ 46 (explaining that “adding port capacity costs less than \$10,000—a cost which is typically amortized over three to five years by [last-mile ISPs].”).

⁶ *Appropriate Framework for Broadband Access to the Internet over Wireless Facilities et al.*, 20 FCC Rcd. 14986 at ¶ 4 (2005).

that interconnection points are susceptible to manipulation by BIAS providers to the detriment of consumers and that certain providers have been willing to do just that. A reversion to an environment in which interconnection manipulation can be deployed by BIAS providers that choose to do so is the most concrete and significant consumer harm that is likely to occur should the Commission abandon the interconnection oversight established by the *Title II Order*.

The Commission therefore should continue to exercise oversight of interconnection among networks by at least (1) ensuring that disclosure requirements remain robust enough to reveal information sufficient to identify congestion at interconnection points and (2) continuing to provide a forum to consider disputes concerning the exchange of Internet traffic, should interconnecting parties be unable to resolve such issues. While these measures ideally should be encompassed in a broader decision to retain Title II classification, they are also modest regulatory steps that fall within the Commission's Title I powers.

COMMENTS

I. Interconnection Between BIAS Providers And Transit Providers Is Necessary For Consumers To Access The Lawful Content They Select And For Which They Pay.

Interconnection is vital to the Commission's professed commitment to a flourishing free and open Internet.⁷ This commitment is embodied in the four "Internet freedoms" first set out by the Commission in 2004, and include the "freedom to access lawful content" and the "freedom to use applications."⁸ Interconnection is essential to both because the Internet is a network of networks. Thus, if the networks that comprise the Internet are unable to fully communicate with one another, consumers will not be able to access lawful content or use the applications of their choice.

The import of interconnection is necessitated by the fact that no single BIAS provider, or anyone else, is individually capable of transmitting and receiving data "from all or substantially all Internet endpoints."⁹ This means that none of these providers can actually provide the mass-marketed retail Internet service they sell to consumers without some degree of interconnection.

Consumer-facing Internet service providers ("ISPs") generally have relatively limited direct access to Internet content and application providers. This

⁷ NPRM ¶ 4.

⁸ NPRM ¶ 13; *see also id.* at ¶¶ 13-19 (summarizing the Commission's statement and repeated defense of these freedoms).

⁹ *Title II Order* ¶ 25.

is because BIAS providers have networks that primarily connect consumers with a central location that is often relatively close geographically to the consumer. They do not, however, generally have networks like Cogent's that carry data long distances or focus on connecting with edge providers.

Accordingly, the provision of consumer access to content by his or her ISP typically requires the exchange of data with an intermediary network that has access to the content sought by the consumer. Specifically, when a consumer requests content, the consumer's BIAS provider will take that request and hand it off through an interconnection point to a network like Cogent that has access to that content.¹⁰ Cogent then will deliver the consumer's request to the content provider who will respond by sending the required content back through the same channel: the content will first go to Cogent; Cogent will then deliver the data to the consumer's BIAS provider through an interconnection point; and finally the BIAS provider will deliver the content to the requesting consumer.

Consumers' access to content and applications of their choice thus hinges on BIAS providers maintaining sufficient connections with the networks that can facilitate, indirectly, the access that an ISP cannot provide directly.

¹⁰ There are a number of types of networks that have access to content, including transit providers like Cogent, but also other networks such as content delivery networks ("CDNs").

II. Prior to the *Title II Order*, The Interconnection Market Was Characterized By Episodes Of Failure—A Situation That Was Remedied In The Wake Of That Order.

The centrality of interconnection to preserving a free and open Internet is important to consider here because, prior to the *Title II Order*, the interconnection market had failed in important respects. In short, certain large BIAS providers unilaterally stopped increasing capacity at interconnection points, which prevented consumers from reaching content they requested. This had the most severe impact on content requiring large amount of data, such as video streaming, or latency-sensitive content, like VOIP calls. Interconnection, and the impact it had on consumers, thus represents one of the primary “specific ways in which consumers were harmed under the light-touch regulatory framework that existed before the Commission’s *Title II Order*.”¹¹

This harm dissipated, and BIAS provider conduct changed, “as a result of Title II reclassification.”¹² Shortly after it became apparent that the Commission would reclassify the provision of BIAS and provide a forum for interconnection disputes to be resolved, previously recalcitrant ISPs agreed to augment capacity at the points where they exchange traffic with transit/content providers. This provides “evidence that the likelihood of these events occurring [*i.e.*, events

¹¹ NPRM ¶ 50; *See also id.* ¶ 39 (“What actual harms, if any, resulted from light-touch regulation?”); ¶ 44 (arguing that reclassifying “has not solved any discrete, identifiable problems”).

¹² NPRM ¶ 51.

harming consumers, such as interconnection congestion] decreased with the shift to Title II.”¹³

A. Prior to the *Title II Order*, Congestion at Interconnection Points Prevented Certain End Users From Reaching Desired Content.

Congestion exists at an interconnection point when the amount of data being sent through the point exceeds the data-exchange capacity. Between 2013 and the adoption of *Title II Order*, interconnection points between Cogent and nearly all of the largest BIAS providers in the United States were congested. Moreover, this issue was not unique to Cogent. Other transit providers confronted the same problem.¹⁴ In short, prior to the *Title II Order*, the connections between BIAS providers and the networks with access to content were not operating properly.

This had a direct impact on consumers’ ability to access the content and applications of their choice. During times of congestion, data cannot make it through the interconnection point. These “dropped packets” cause a degradation in Internet service, especially for bandwidth-intensive or latency-sensitive content and applications. For example, a working mother who wants to stay home with a sick child and telecommute must have Internet access to connect with her corporate network. Often such a connection is very bandwidth intensive because it

¹³ NPRM ¶ 50.

¹⁴ See M-Labs, *ISP Interconnection And Its Impact On Consumer Internet Performance* at 4 (Oct. 28, 2014), available at <https://www.measurementlab.net/publications/isp-interconnection-impact.pdf> (“*M-Labs Report*”).

involves connecting to a virtual desktop, which is a data-intensive application. But if that mother's BIAS provider must pass her connection through a congested interconnection point, her ability to work from home will be meaningfully impaired. Indeed, prior to the *Title II Order*, Cogent received complaints from customers whose employees were functionally blocked from telecommuting because of such congestion.¹⁵ These complaints are consistent with the experience of NEPC, LLC, which has explained that its employees were unable to telework for two months because of congestion caused by Verizon and Comcast—the dominant ISPs for its Boston-area employees.¹⁶

The same difficulty arises for other high bandwidth content or applications. The best documented of these disruptions have been for video streaming services. Interconnection congestion prevents consumers from accessing these services because the packets lost lead to low quality or delayed video, or even the complete

¹⁵ See also Susan Crawford, Jammed: The Cliff and the Slope, Medium, <https://medium.com/backchannel/jammed-e474fc4925e4> (Oct. 30, 2014) (explaining how congested interconnection facilities between transit and BIAS providers harm individual and business broadband users).

¹⁶ NEPC Decl. ¶¶ 6-7, 9-11, Intervenor's Opposition To Petition To Stay The Open Internet Order, *USTA v. FCC*, Case No. 15-1063 (D.C. Cir. May 22, 2015) ("*USTA Stay Opposition*").

failure to deliver the video.¹⁷ But, as noted above, problems caused by congestion are not limited to just video services.¹⁸

There is no serious dispute that congestion at interconnection points directly impacts consumers' ability to access content. As an extensive public study of interconnection during this time concluded, "customers of Access ISPs AT&T, Comcast, Centurylink, Time Warner Cable, and Verizon" experienced "sustained performance degradation experience" as a consequence of the interconnection problems "when their traffic passed over interconnections with Transit ISPs Cogent Communications (Cogent), Level 3 Communications (Level 3), and XO Communications (XO)."¹⁹

Accordingly, any meaningful effort to protect the Internet freedoms the Commission has articulated for over a decade and on which the NPRM presently focuses must account for potential consumer harm attributable to congested interconnection points. Otherwise, any attempt to preserve these freedoms will be merely symbolic as consumer choice can easily be circumvented by creating congestion at the interconnection points. Put differently, the Commission and the rules it promulgates in this proceeding must address an indisputable market reality:

¹⁷ See Vonage Declaration ¶ 21, *USTA Stay Opposition*; DISH Decl. ¶ 13, *USTA Stay Opposition*; Netflix Decl. ¶¶ 18-19, *USTA Stay Opposition*; Vimeo Decl. ¶¶ 12-13, *USTA Stay Declaration*.

¹⁸ See Etsy Decl. ¶ 8, *USTA Stay Opposition*.

¹⁹ *M-Labs Report* at 4.

without interconnection, there is no Internet access. And without reasonable interconnection practices, there is degraded Internet access.

B. The Interconnection Market Was Characterized By Episodes Of Failure Because Of The Market Power/Gatekeeper Status Of BIAS Providers And Asymmetric Information.

The pre-*Title II Order* instances of congestion were a significant departure from the ordinary course of business in the interconnection market. Since the inception of the Internet, interconnection between large global networks like Cogent has taken the form of settlement-free peering. Under this model, Cogent and the ISPs with whom it peers on a settlement-free basis do not exchange monetary compensation. Instead, they exchange access to one another's network, which is considered fair because Cogent provides access to more content than ISPs have access to and the ISPs provide access to more consumers than Cogent has access to. Moreover, both parties are monetarily compensated by their own customers to whom they have sold access to the entire Internet.

These bilateral relationships historically depended upon each settlement-free peer increasing interconnection capacity between the networks in order to avoid congestion. Industry practice is to increase capacity any time an interconnection point has reached a point of "sustained congestion," which is where an interconnection point operates at 70 percent or greater capacity during peak usage periods (7:00-11:00 pm, adjusted for local time zones) for one month. This

ensures that interconnection points do not reach a level of congestion at which packets begin to be lost.

Despite these market norms, the market exhibited significant failures in 2013 when several large BIAS providers attempted to unilaterally change the model by refusing to increase capacity unless they were paid by transit providers. This had the effect of creating congestion at the interconnection points that, in turn, harmed consumers' ability to access high bandwidth content such as video streaming. From the offending ISPs' perspective, this strategy made sense because it meant that content that had to pass through interconnection points was less able to compete with ISP-controlled content that was housed inside an ISP's own network and thus not impacted by congestion at interconnection points.

This is the embodiment of anticompetitive incentives the Commission identified in the *Title II Order* and the NPRM does not call into doubt: the favoring of content and applications affiliated with a BIAS provider over unaffiliated content and applications.²⁰ Notably, the only BIAS providers that allowed interconnection points to become congested controlled and marketed competing content. Those that did not have services that competed with over-the-top content did not allow congestion to occur.

²⁰ *Title II Order* ¶ 123 (stating that “if a BIAS provider and an unaffiliated entity both offered over-the-top applications, the no-throttling rule would prohibit BIAS providers from constraining bandwidth for the competing over-the-top offering to prevent it from reaching the BIAS provider's end user in the same manner as the affiliated application.”); NPRM ¶ 78.

Consumer-facing ISPs are able to act on these incentives at the interconnection points because information asymmetries create a marketplace in which congestion is profitable for certain BIAS providers. During the pre-*Title II Order* congestion, neither most content providers nor consumers were able to identify who was responsible for the congestion. Consumers, in particular, were likely unaware that their requests for data had to go through an interconnection point to a third-party network they did not know. This allowed BIAS providers to deflect blame to others, such as the content providers, although the BIAS providers were the networks refusing to increase interconnection capacity. Indeed, even those BIAS providers for whom Cogent offered to pay all of the costs associated with increasing capacity refused to do so.²¹

The pressure on BIAS providers was further alleviated by the fact that congestion does not prevent their customers from reaching all content but primarily high bandwidth content, which those customers had an alternative to—namely, the BIAS providers’ own or affiliated content (*e.g.*, on-demand video services). Customers thus could access a broad range of content other than that from certain providers (*i.e.*, those who relied on congested transit links), which fed into

²¹ See Press Release, *Cogent Offers to Pay Capital Costs Incurred by Major Telephone and Cable Companies Necessary to Ensure Adequate Capacity*, Cogent Commc’ns Grp. (March 21, 2014), available at <http://www.cogentco.com/en/news/press-releases/631-cogent-offers-to-pay-capital-costs-incurred-by-major-telephone-and-cable-companies-necessary-to-ensure-adequate-capacity> (last visited July 11, 2017).

consumers' perception that the content provider, rather than their ISP, was at fault. Moreover, the diversion of these customers to the BIAS providers' proprietary content created the additional benefit for ISPs that the longer the sustained congestion lasted, the more money they gained from use of their content and the more pressure was placed on net-centric high bandwidth content providers to directly pay the providers for access to their customers.²²

These dynamics culminated in an interconnection market that stopped functioning properly. Certain BIAS providers had little to no incentive to eliminate (or even mitigate) congestion because (a) their customers could not accurately identify who was to blame for their inability to access certain content and (b) the congestion allowed them to effectively exclude certain content from their networks, such that their customers would use the providers' own competing content or they were able to extract extra payments from the content providers. Congestion, in short, appears to have been profitable.

Prior to the *Title II Order*, there was no efficient remedy for this situation. Private litigation, whether sounding in antitrust or contract, was cost-prohibitive or potentially unavailable. Moreover, the challenges associated with a transit

²² This is well evidenced by Comcast's successful effort to obtain direct payments from Netflix for access to its network. Comments of Netflix, Inc., GN Docket Nos. 14-28 and 10-127 at 12-16 (filed July 15, 2014) (describing how Comcast has "use[d] its terminating access monopoly to harm edge providers, its own customers, and the virtuous circle by discriminating at interconnection and peering points.").

provider's decision to completely de-peer a BIAS provider because of congestion vastly limits the utility of such a "self-help" remedy and, thus, made it essentially impossible to force negotiations. Congestion, despite the harm it was causing to consumers, thus became a market equilibrium.

C. The *Title II Order* Facilitated The Resolution Of Significant Interconnection Disputes.

Responding to a well-developed record, the *Title II Order* provided a forum for resolution of interconnection disputes.²³ Soon thereafter, BIAS providers that had refused to increase interconnection capacity reversed course and agreed with transit providers to augment capacity. Accordingly, sustained congestion was eliminated at the interconnection points between Cogent and the BIAS providers.

It defies logic to believe anything other than that the BIAS providers' change of course was influenced by the *Title II Order*.²⁴ Providing a mechanism for evaluating and adjudicating interconnection disputes disrupted the congestion-sustaining equilibrium which had emerged in the market. In essence, the *Title II Order* enabled the Commission, when warranted, to step into the shoes of consumers and edge providers who were harmed by congestion. Assuming that an agency committed to protecting Internet freedoms would not permit congestion to

²³ *Title II Order* ¶¶ 200-04. The key points from that record remain unchanged today.

²⁴ NPRM ¶ 51 ("Was Title II reclassification necessary for any of those changes to occur?").

continue unabated, BIAS providers evidently accepted that they would have to modify their conduct and/or come to new agreements with transit providers.

And so they did. Within a year of the *Title II Order*'s adoption, Cogent entered into new agreements with essentially every major BIAS provider with which it had previously had congestion issues.²⁵ Level 3, another large transit provider, had the same experience.²⁶ While most agreements were reached without any reference to the Commission's availability to adjudicate interconnection disputes, Cogent did have to begin the process of filing a formal complaint under Section 208 against one BIAS provider before that provider came to the table.²⁷ Once Cogent made its intentions clear, however, it and the BIAS provider were able to come to a mutually agreeable arrangement that eliminated congestion. This

²⁵ Press Release, Cogent and Verizon Enter Into Interconnection Agreement (May 1, 2015), available at <http://www.cogentco.com/en/news/press-releases/714-cogent-and-verizon-enter-into-interconnection-agreement> (last visited July 11, 2017); Press Release, Cogent and AT&T Enter Into Interconnection Agreement (June 10, 2015), available at <http://www.cogentco.com/en/news/press-releases/741-cogent-and-at-t-enter-into-interconnection-agreement> (last visited July 11, 2017).

²⁶ Press Release, Comcast and Level 3 Announce Long-Term Interconnection Agreement (May 21, 2015), available at <http://investors.level3.com/investor-relations/press-releases/press-release-details/2015/Comcast-and-Level-3-Announce-Long-Term-Interconnection-Agreement/default.aspx> (visited July 13, 2017); Press Release, Level 3 and Verizon Enter Into Interconnection Agreement (Apr. 23, 2015), available at <http://investors.level3.com/investor-relations/press-releases/press-release-details/2015/Level-3-and-Verizon-Enter-Into-Interconnection-Agreement/default.aspx> (visited July 13, 2017); Press Release, Level 3 and AT&T Enter Into Interconnection Agreement (May 11, 2015), available at <http://investors.level3.com/investor-relations/press-releases/press-release-details/2015/Level-3-and-ATT-Enter-Into-Interconnection-Agreement/default.aspx> (visited July 13, 2017).

²⁷ Specifically, Cogent sent the BIAS provider a certified letter, as required by 47 C.F.R. § 1.721(a)(8), identifying the dispute and explaining that it intended to file a complaint with the Commission if the dispute could not be resolved.

starkly illustrates the availability of the forum provided by the *Title II Order* as a catalyst to private party resolution of interconnection disputes.²⁸

In each case, once an agreement was reached and implemented, congestion and the ensuing consumer harm essentially disappeared.²⁹ The hardware for these congestion-eliminating upgrades cost Cogent approximately \$3.2 million. Presumably, it *collectively* cost the BIAS providers no more than this because they largely had the same expenses. Consumers, therefore, have meaningfully benefited from implementation of the *Title II Order* and at a relatively modest cost to the networks that comprise the Internet.

D. Interconnection Congestion Is Likely To Return If The Commission Abandons Its Ability To Adjudicate Interconnection Disputes That Cannot Be Resolved Between Interconnecting Parties.

Should the Commission relinquish its authority to adjudicate complaints arising out of interconnection, then the likelihood is that the interconnection market will revert to its pre-*Title II Order* environment.³⁰ None of the incentives that created this situation have changed, and arguably the increasing consumer adoption of over-the-top services has exacerbated those incentives. As explained

²⁸ See NPRM ¶ 98 (“Can we infer that parties heeded the Commission’s encouragement to ‘resolve disputes through informal discussions and private negotiations’ without Commission involvement, except through the informal complaint process?”).

²⁹ NPRM ¶ 51 (“Is there any evidence, for example, that consumers’ online experiences and Internet access have improved due to policies adopted in the *Title II Order*?”).

³⁰ NPRM ¶ 42 (soliciting comment on the “consequences and implications of relinquishing the Commission’s regulatory authority” over interconnection).

above, congestion is in the self-interest of BIAS providers who own or control content that competes with over-the-top content whose quality is diminished by congestion. Thus, without a forum and legal framework to resolve interconnection disputes, interconnection points are destined to become congested again with the resulting degradation and harm to consumers.

This provides a compelling rationale to maintain the *Title II Order*'s oversight of interconnection. Moreover, the re-emergence of congestion and its resulting harms must be considered a substantial cost in the proposed cost-benefit analysis of repealing the regulations the *Title II Order* created.³¹ Specifically, repealing oversight of interconnection likely will result in congestion that reduces investments and innovation in high bandwidth services that must pass through interconnection points. Moreover, a return to the status quo ante could lead to diminished investments by networks that serve as the backbone of the Internet. In the long term, that would harm Internet connectivity as a whole.

III. The Commission Should Prevent Interconnection Congestion And Has Authority To Do So Under Title I.

A. Avoiding Interconnection Congestion Between Major Networks Is Essential To Protecting Internet Freedom.

The Commission should continue to provide a forum for resolving interconnection disputes because interconnection congestion directly affects the

³¹ See NPRM ¶¶ 109-12.

Commission’s “long-standing, bipartisan consensus” of “commitment to a free and open Internet.”³² As outlined in the NPRM, this commitment is substantive and pre-dates the *Title II Order* by a decade.³³ In 2004, then-Chairman Powell “announced four principles for Internet freedom to further ensure that the Internet would remain a place for free and open innovation with minimal regulation.”³⁴ These four “Internet freedoms,” which the Commission unanimously endorsed in 2005, provided that “consumers are entitled to”:

- “access the lawful Internet content of their choice”;
- “run applications and use services of their choice, subject to the needs of law enforcement”;
- “connect their choice of legal devices that do not harm the network”; and
- “competition among network providers, application and service providers, and content providers.”³⁵

Congestion at interconnection points implicates three of the four of these freedoms.

Interconnection disputes resulting in congestion impair consumers’ abilities to “access the lawful Internet content of their choice” and to “run applications and use services of their choice” by rendering some content unavailable or effectively unusable. Accordingly, when the interconnection market fails to eliminate

³² NPRM ¶ 70.

³³ NPRM ¶¶ 12-19.

³⁴ NPRM ¶ 13.

³⁵ *Appropriate Framework for Broadband Access to the Internet over Wireless Facilities et al.*, 20 FCC Rcd. 14986 at ¶ 4 (2005).

congestion, it infringes on the first two Internet freedoms identified by the Commission.

Congestion also impairs consumers' right to "competition among network providers, application and service providers, and content providers" in two separate ways. Most directly, congestion creates disincentives to use content that must pass through interconnection points by making it harder to reach this content relative to content existing on a BIAS provider's network. Additionally, consumers lose the benefits of competition between content and application providers because only the largest and wealthiest of such providers can obtain direct connections that circumvent congested interconnection points. This means that small and nascent content and application providers have a more difficult time reaching consumers, which impairs their growth and the level of innovation their presence injects into the market.

B. The Commission Has Authority To Provide Oversight And Regulation Of Interconnection.

Despite the implications that interconnection congestion has for consumers' Internet freedoms, the NPRM states that the Commission does "not believe there exists any non-Title II basis for the Commission to exercise ongoing regulatory oversight over Internet traffic exchange."³⁶ This statement is incorrect, and predicated on a misperception about control over interconnection facilities.

³⁶ NPRM ¶ 42.

Interconnection between two networks is a bilateral exercise, in which each side connects its own equipment (ports and routers) to the other network's equipment via a cross-connect cable. As such, a BIAS network has as much control over its own routers and ports as it does over the other elements of its network that reside anywhere between those interconnection facilities and a customer's home. Further, due to this control, a BIAS provider who wishes to do so can manipulate its interconnection facilities—*i.e.*, deliberately restricting capacity—to achieve the same functional result as if it blocked or degraded particular content or applications anywhere else along the path to a consumer's home.

Regardless, the “Commission’s general grant of jurisdiction under Title I of the Communications Act...encompasses ‘all interstate and foreign communication by wire or radio.’”³⁷ Interconnections are the transfer of information from one network to another by wire. Specifically, the broadband and transit providers connect their networks at a carrier neutral facility with a wire that connects a router on the BIAS provider's network with a router on the transit provider's network.

Additionally, interconnection lies within the Commission's authority under Section 706. Section 706(a) “vest[s] the Commission with actual authority to utilize” the regulatory methods set forth in the statute to “encourage the

³⁷ *Am. Library Ass'n v. FCC*, 406 F.3d 689 (D.C. Cir. 2005) (quoting *United States v. Southwestern Cable Co.*, 392 U.S. 157, 167 (1968); *see also* 47 U.S.C. § 152(a) (“The provisions of this chapter shall apply to all interstate and foreign communication by wire or radio....”).

deployment...of advanced telecommunications capability.”³⁸ This authority, Congress explained, is a “fail safe” to enable the Commission to achieve the goal of permitting all Americans “to send and receive information in all its forms—voice, data, graphics, and video—over a high-speed switched, interactive, broadband, transmission capability.”³⁹ Thus, when there are “barriers to infrastructure investment” such as a market equilibrium that fosters an environment in which one party actively avoids increasing transmission capacity, Section 706(a) empowers the Commission to adopt regulations that remove the barrier.⁴⁰

This authority is bolstered by Section 706(b), which is a grant of “the power necessary to fulfill the statute’s mandate” of the reasonable and timely deployment of broadband.⁴¹ The Commission found in 2012 that broadband deployment was not taking place in a reasonable and timely fashion.⁴² It has not found otherwise since. The statute thus requires the Commission to remove “barriers to infrastructure investment” and promote “competition in the telecommunications

³⁸ *Verizon v. FCC*, 740 F.3d 623, 637 (D.C. Cir. 2014).

³⁹ S. Rep. No. 104-23, 51 (1995); *see also Verizon*, 740 F.3d at 639 (“In fact, section 706(a)’s legislative history suggests that Congress may have, somewhat presciently, viewed that provision as an affirmative grant of authority to the Commission whose existence would become necessary if other contemplated grants of statutory authority were for some reason unavailable.”).

⁴⁰ 47 U.S.C. § 1302(a).

⁴¹ *Verizon*, 740 F.3d at 641; *see also* 47 U.S.C. § 1302(b).

⁴² Eighth Broadband Progress Report, 27 FCC Rcd. 10342 (2012).

market,”⁴³ both of which are fostered by regulations that eliminate or discourage the emergence of congested interconnection points because such points can inhibit additional broadband deployment and hinder competition in the content and applications markets.⁴⁴

The Commission’s authority to regulate interconnection is reinforced by the legal basis the Commission has invoked to support its authority to protect the four Internet freedoms. The Commission’s authority and jurisdiction to protect these freedoms traditionally was found “under [the Commission’s] Title I ancillary jurisdiction to regulate interstate and foreign communications.”⁴⁵ And, like interconnection, the Commission’s authority to exercise this ancillary authority is a part of its power to regulate “interstate and foreign commerce in communication by wire and radio.”⁴⁶

Any other interpretation would make little sense. The freedoms are to “encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet.”⁴⁷ Broadband deployment is hindered

⁴³ 47 U.S.C. § 1302(b).

⁴⁴ Seventh Broadband Progress Report and Order on Reconsideration, 26 FCC Rcd 8008 ¶ 19 (2011) (explaining that this mandate requires the Commission “to identify and help reduce potential obstacles to deployment, competition, and adoption—concepts that are tightly linked.”).

⁴⁵ *Appropriate Framework for Broadband Access to the Internet over Wireless Facilities et al.*, 20 FCC Rcd. 14986 at ¶ 4 (2005).

⁴⁶ *Id.*

⁴⁷ *Id.*

if the freedoms end at the interconnection point. Moreover, they would lose their ability to “promote the open and *interconnected nature*” of the Internet if the freedoms categorically ignore interconnection facilities. Indeed, such a limitation would invite circumventive behavior, such as the use of interconnection policies to impair consumers’ ability to access lawful content and application—particularly those that compete with BIAS providers owned or controlled content and applications. Such behavior already has been illustrated by BIAS providers that have disclaimed any blocking or prioritization despite knowing that they have achieved the same result through interconnection congestion. There is no reason the Internet freedoms the Commission is committed to protecting will be treated differently.

C. The Commission Should Preserve Robust Disclosures Relating To Congestion And A Forum For Bringing Interconnection Disputes.

The Commission should exercise its authority in two ways relevant to interconnection. *First*, it should preserve the *Title II Order*’s disclosure requirements that improve the Commission’s and the public’s abilities to monitor congestion at interconnection points.⁴⁸ This means preserving the requirement that BIAS providers produce performance data on packet loss in addition to speed and latency, and that such data be measured in terms of average performance during

⁴⁸ See NPRM ¶¶ 89-90 (seeking comment on whether to preserve existing disclosure rules).

peak hours.⁴⁹ These measures, while still imperfect in terms of providing the public a complete picture of congestion and its sources, make it easier to identify BIAS providers that are struggling to provide the Internet access requested and paid for by their consumers.

Second, the Commission should provide interconnecting parties a forum to adjudicate interconnection disputes.⁵⁰ The “case-by-case approach” outlined by the *Title II Order* avoids the *ex ante* regulations that create the sort of regulatory costs about which the NPRM expresses concern,⁵¹ creates incentives for parties to negotiate and resolve disputes privately, and allows the Commission to efficiently monitor interconnection. To do this, the Commission should maintain the tripartite approach of Commission-initiated investigations, informal complaints, and formal complaints. This range of options affords the flexibility, dependent upon circumstances, to consider whether particular interconnection-related conduct is violating any of the four Internet freedoms.

⁴⁹ *Title II Order* ¶ 165.

⁵⁰ *Title II Order* ¶¶ 202-03.

⁵¹ *See NPRM* ¶ 70.

IV. The Commission Should Not Abandon Its Title II Classification Of BIAS Providers

A. The Provision Of Broadband Internet Service Is A Telecommunication Service.

While the Commission has authority under Title I to address interconnection issues that adversely impact broadband Internet access, it should not abandon the legal rationale of the *Title II Order*. BIAS is defined as a “mass-market retail service by wire or radio that provides the capability *to transmit data to and receive data from all or substantially all Internet endpoints*, including any capabilities that are incidental to and enable the operation of the communications service.”⁵² The key is providing the capability “to transmit data to and receive data from” the Internet. This corresponds with the definition of telecommunication services, which is “*the transmission, between or among points specified by the user, of information [i.e., data] of the user’s choosing, without change in the form or content of the information as sent and received.*”⁵³ Thus, because BIAS is the transmission of data, it is a telecommunication service.⁵⁴

⁵² *Title II Order* ¶ 25 (emphasis added).

⁵³ 47 U.S.C. § 153(50) (emphasis added).

⁵⁴ *USTA v. FCC*, 855 F.3d 381, 383 (D.C. Cir. 2017) (en banc) (Srinivasan, C.J., concurring in the denial of rehearing en banc) (“we know Congress vested the agency with authority to impose obligations like the ones instituted by the [*Title II Order*] because the Supreme Court has specifically told us so”); *see also USTA v. FCC*, 825 F.3d 674, 701-04 (D.C. Cir. 2016) (affirming the FCC’s conclusion that BIAS is a telecommunication service).

Further, BIAS conforms with the other two requirements in the definition of telecommunication services. *First*, BIAS does not make any “change in the form or content of the information as sent and received.”⁵⁵ When a consumer sends a request through her BIAS provider to Netflix to view *House of Cards*, she receives the episode as it is stored on Netflix’s server (or its agent’s server). At no point between the consumers’ request for content and receipt of that content does a transit provider or BIAS provider substantively alter the information that has been requested.

The NPRM contemplates that BIAS providers do change the form and content of information they transmit because these providers “us[e] firewalls to block harmful content or us[e] protocol processing to interweave IPv4 networks with IPv6 networks.”⁵⁶ But firewalls and other security tools do not “change...content,” they “block” content. No BIAS provider, for example, replaces harmful content with a safe version of that content—it does not replace an email with a virus with a version of the email that lacks the virus. It simply stops the harmful content from being accessed.

Similarly, the Internet protocol used to transmit a consumers’ request and deliver the content requested does not alter the form of content being transmitted.

⁵⁵ 47 U.S.C. § 153(50).

⁵⁶ NPRM ¶ 30.

House of Cards is a video whether it is transmitted over a network using IPv4 or IPv6. The same analysis is true for DNS and caching because neither changes the form or content of the information that is being transmitted,⁵⁷ which is why the *Title II Order* was correct to conclude that they were “for the management, control, or operation of a telecommunications system or the management of a telecommunications service.”⁵⁸

Second, BIAS is a telecommunication service because it enables the transmission of data “between or among points specified by the user.” Users, through web addresses or IP addresses, identify the source of the content they are requesting. Contrary to the NPRM’s suggestion, nothing in the statute requires “points” to be specific geographic locations.⁵⁹ Indeed, such a requirement would be inconsistent with treatment of 800 numbers for which consumers often have no idea of the geographic location of where they are calling but are seeking solely a specific company or service akin to a BIAS consumer’s identification of the source of the content desired.

⁵⁷ See NPRM ¶ 37 (requesting comment on DNS and caching); see also *USTA*, 825 F.3d at 705-06 (upholding the Commission’s conclusion that DNS and caching are adjunct the telecommunication service being offered in BIAS).

⁵⁸ *Title II Order* ¶ 366.

⁵⁹ NPRM ¶ 29.

B. The NPRM's Proposed Interpretation Of Information Service Is Flawed.

BIAS's proper classification as a telecommunication service is also illustrated by the inapplicability of the definition of information services, which are the offering of the "capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications."⁶⁰ Unlike the definition of telecommunication service, this contains no element of transmission such that it does not directly include "the capability to transmit data to and receive data from all or substantially all Internet endpoints."⁶¹

The NPRM tries to fit the definition of BIAS into "information service" by adopting an extremely broad definition of "capability."⁶² The definition proposed equates "capability" with "provide access to."⁶³ This approach is over-inclusive because some telephone services would fall within it. For example, while a BIAS user's "posting on social media or drafting a blog" enables the user "to generate and make available information," so too does a campaign worker's calls to votes about a candidate or voting issue. Similarly, while a BIAS user "reading a

⁶⁰ 47 U.S.C. § 153(24).

⁶¹ *Title II Order* ¶ 25 (emphasis added).

⁶² NPRM ¶ 27.

⁶³ NPRM ¶ 27 ("Can broadband Internet access users indeed *access* these capabilities?") (emphasis added).

newspaper’s website or browsing the results from a search engine” enables the user “to acquire and retrieve information,” so too does an interested citizen’s call to the FCC to learn more about its efforts to protect Internet freedoms.

To avoid the over-inclusive result of the NPRM’s definition of “capability,” the Commission should narrow the scope of its analysis. The definition should not focus on whether an offered service *provides access to* “generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications,” but instead focus on whether the service in question *by itself* enables its users to generate, acquire, store, transform, process, retrieve, utilize, or make available information via telecommunications. Services obtained via BIAS, such as email, hosting blogs, or streaming video, thus are information services. BIAS itself, however, is not because it is only the ability “to transmit data to and receive data from” Internet end points.

C. Public Policy Considerations Do Not Warrant Reversing The *Title II Order*.

In addition to better conforming with the Commission’s authorizing statutes, exercising Title II authority is more in line with promoting broadband deployment and Internet freedom. As explained above, prior to exercising this authority, certain BIAS providers demonstrated an ability and willingness to take actions that harmed consumers to further the providers’ own ends. Any diminished amount of

investment that has occurred, as the NPRM speculates,⁶⁴ thus must be offset by the harms consumers will be confronted with following repeal of the *Title II Order*.

Moreover, the NPRM does not recognize that there is some benefit to the uniform regulation of BIAS providers. Many of these providers, unlike Cogent and other new market participants, already offer services that are regulated under Title II. The regulatory costs they face are thus less than they would be if the regulatory structure were entirely new. Such BIAS providers also have benefitted from being treated as common carriers in the development of the network they use to provide BIAS. For example, they have had the advantage of mandatory pole attachment regulations to reduce the costs they incur to expand their networks.

Additionally, repealing the *Title II Order* will not provide the regulatory certainty the NPRM seeks.⁶⁵ Reversing course in such a short period of time, without obtaining any actual consensus, only heightens the controversy surrounding this proceeding and makes it more likely that the Commission will reverse course at a later date. This uncertainty is enhanced by the NPRM's failure to identify any new development since the *Title II Order* that shows the Commission's 2015 interpretation of relevant statutes—which was affirmed by the D.C. Circuit—was incorrect. Instead, the NPRM simply disagrees with the earlier

⁶⁴ NPRM ¶¶ 45-47.

⁶⁵ NPRM ¶ 48.

order in the first instance.⁶⁶ Such reasoning is inadequate to justify an agency's reversal of an earlier decision.⁶⁷ Moreover, that reasoning undermines the deference-to-expertise justification that underlies courts' deference to agency interpretations of statutes they manage.⁶⁸

CONCLUSION

The Commission should resist the temptation to keep revisiting the classification of, and approach to, BIAS services. The judicially affirmed approach enacted two years ago remains sound as a matter of law and policy. There is no reason to prolong the regulatory and market uncertainty that is created not by the Open Internet rules themselves, but rather by the repetitive re-examination of this topic. If, however, the Commission believes otherwise, then it should ensure that whatever framework it adopts prevents interconnection practices from once again being used as a tool to deprive American consumers of the critical Internet freedoms about which there is no disagreement.

⁶⁶ See NPRM ¶¶ 26-43.

⁶⁷ See *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009) (explaining that an “agency must show that there are good reasons for the new policy” that reverses an earlier one, particularly where “its new policy rests upon factual findings that contradict those which underlay its prior policy”).

⁶⁸ See *Chevron, USA, Inc. v. NRDC*, 467 U.S. 837, 844-45 (1984).

Respectfully Submitted,

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