

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

In the Matters of)	
)	
Protecting and Promoting the Open Internet)	GN Docket No. 14-28
)	
and)	
)	
Framework for Broadband Internet Service)	GN Docket No. 10-127
)	

REPLY COMMENTS OF COGENT COMMUNICATIONS GROUP, INC.

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INTRODUCTION AND SUMMARY OF KEY ISSUES IN THIS PROCEEDING

Cogent Communications Group, Inc. (“Cogent”) submits these reply comments in further response to the Commission’s May 15, 2014 Notice of Proposed Rulemaking in the above-captioned proceeding.¹ As in its previous comments,² Cogent reiterates that preservation of the Internet’s open and dynamic nature, along with all of the innovation, investment and economic growth that entails, is not only within the Commission’s statutory mandate, but vitally in the public interest. Here, Cogent focuses on two key issues about which the Commission has solicited public and industry input and which have generated much-needed discussion:

(1) whether, why and how conduct and practices at interconnection points where transit and edge providers exchange traffic with last-mile ISPs should be addressed in this proceeding, and (2) the optimal ways to effectively enhance the current transparency rule.³

The opening round of comments and other information in the public domain establish a set of facts relating to the exchange of Internet traffic and enhancement of the current transparency rule which are beyond dispute and that, if ignored by the Commission, threaten to

¹ *In the Matter of Protecting and Promoting the Open Internet*, GN Docket No. 14-28, Notice of Proposed Rulemaking, FCC 14-61 (May 15, 2014) (“NPRM”). Cogent also is submitting these comments simultaneously in the *Framework for Broadband Internet Service* proceeding (GN Docket No. 10-127). *See* Wireline Competition Bureau Seeks to Refresh the Record in the 2010 Proceeding on Title II and Other Potential Legal Frameworks for Broadband Internet Access Service, GN Docket No. 10-127, Public Notice, DA 14-748 (May 30, 2014).

² *See* Comments of Cogent Commc’ns Grp., Inc., GN Docket No. 14-28 (filed Mar. 21, 2014) (“Cogent March 21, 2014 Comments”); Comments of Cogent Commc’ns Grp., Inc., GN Docket Nos. 14-28 and 10-127 (filed July 15, 2014) (“Cogent July 15, 2014 Comments”).

³ The focus on these two issues is not intended to signal that other topics addressed in Cogent’s prior submissions are not important. Those issues are important, and Cogent refers the Commission to those submissions for a discussion of other matters raised in the NPRM.

“undermine the efficacy of any open Internet or consumer protection rule that the Commission adopts” in this proceeding.⁴ In particular:

- ! Over the past several years, consumer demand for streaming video and other bandwidth-intensive content and latency-sensitive applications (*e.g.*, VoIP calls) has increased dramatically.⁵
- ! During this time, and inconsistent with historical industry practice, certain last-mile ISPs have refused to augment capacity at their interconnection points with transit providers.⁶
- ! ISP refusals to augment capacity at interconnection points have resulted in the well-documented degradation of service to their own subscribers.⁷
- ! Very little, if any, of the congestion or degradation of this content actually occurs *inside* the last mile.⁸

⁴ Comments of Netflix, Inc., GN Docket Nos. 14-28 and 10-127 (filed July 15, 2014), at 2 (“Netflix July 15, 2014 Comments”).

⁵ Fact Sheet: Internet Growth and Investment, Federal Communications Commission, Feb. 19, 2014, available at https://apps.fcc.gov/edocs_public/attachmatch/DOC-325653A1.pdf (last visited Sept. 9, 2014) (citing evidence that the number of hours Americans spend watching video over the Internet has grown 70% since June 2010 (Nielsen), revenues from online video services grew by 175% between 2010-2012, from \$1.86 billion to \$5.12 billion (SNL Kagan), and real-time streaming of entertainment in prime time grew from 42.7% of downloads in 2010 to 67% by Sept. 2013 (Sandvine Global Internet Phenomena Report)); Tom Wheeler, Chairman, FCC, The Facts and Future of Broadband Competition (Sept. 4, 2014), at 2 (“[C]onsumer demand is growing; today over 60% of peak-time downloads are streaming audio and video.”) (“Wheeler September 4, 2014 Remarks”), available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0904/DOC-329161A1.pdf (last visited Sept. 10, 2014).

⁶ See, *e.g.*, Cogent March 21, 2014 Comments at 18-19; Netflix July 15, 2014 Comments at 12-15; Comments of Level 3 Commc’ns, LLC, GN Docket No. 14-28 (filed July 15, 2014), at 7-11 (“Level 3 July 15, 2014 Comments”).

⁷ 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-now-publicly-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-make-and-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”).

⁸ In fact, Cogent is not aware of any comments that claim degradation may be occurring *inside* the

- ! *All* of the content subjected to congestion and degradation is content that has been requested by last-mile ISP subscribers. In other words, neither transit providers, edge providers nor content delivery networks “force” traffic on last-mile broadband users. The only content delivered is that which is requested and paid for by those consumers.
- ! Both last-mile ISP *and* transit provider networks have sufficient capacity to accept and deliver the increased amount of bandwidth-intensive content end users are currently demanding.⁹ Last-mile ISPs have simply chosen not to do so.
- ! Last-mile ISPs 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.¹⁰

last mile.

⁹ 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-the-congestion-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. Netflix July 15, 2014 Comments at 12-14. Similarly, Verizon’s expectation that its paid arrangement with Netflix should resolve the congestion problems shows that Verizon’s network has ample capacity to deliver the content its customers want and pay for. See Comments of Verizon & Verizon Wireless, GN Docket Nos. 14-28 and 10-127 (filed July 15, 2014), at 75 (“As the recently negotiated arrangement between Netflix and Verizon is implemented, the congestion problems . . . should resolve.”) (“Verizon July 15, 2014 Comments”). Equally important, Cogent’s Tier 1 network is not close to operating at full capacity. This is because Cogent regularly upgrades capacity on its network in order to avoid *any* sustained packet loss or congestion. See Declaration of Henry (Hank) Kilmer, Vice President, IP Engineering, Cogent Commc’ns Grp., Inc., MB Docket No. 14-57 (filed Aug. 25, 2014) ¶ 7 (“Any sustained packet loss experienced by Cogent’s customers can be attributed to congested interconnection points with our peering partners, which is outside of Cogent’s sole control.”) (“Kilmer Decl.”). Other transit and edge provider networks and CDNs are similarly maintained and have sufficient capacity. See, *e.g.*, Mark Taylor, *Verizon’s Accidental Mea Culpa*, Beyond Bandwidth: Level 3 Communications Blog, <http://blog.level3.com/global-connectivity/verizons-accidental-mea-culpa/> (July 17, 2014) (“I can confirm once again that all of those thousands of links on the Level 3 network are managed carefully so that the peak utilizations look very similar to those Verizon show for their own network – IN BOTH DIRECTIONS.”) (emphasis in original); Netflix July 15, 2014 Comments at 12 n.24 (explaining that Open Connect, Netflix’s content delivery network, “uses a ‘proactive caching’ method to conduct daily content updates during periods when the network is least used, such as early in the morning, to avoid congesting the network”).

¹⁰ See, *e.g.*, Level 3 July 15, 2014 Comments at 3 (“Broadband ISPs directly control their interconnection facilities, including determining how much capacity to make available, to whom, where, and on what terms, and when to increase such capacity, and in so doing control the flow of traffic from outside their network to their broadband customers.”).

- ! The burden and expense associated with upgrading capacity at interconnection points, and thereby remedying the congestion at issue, is minimal.¹¹
- ! While thousands of networks collectively comprise the Internet, last-mile ISPs provide the *only* path to reach the tens of millions of customers who subscribe to their broadband services.¹²

Notwithstanding these propositions, the Commission’s proposed rules and tentative conclusions would do *nothing* to curtail the recent refusal of last-mile ISPs to augment interconnections, conduct which directly implicates the transmission of data to and from end users.¹³ Indeed, under the regime provisionally proposed in the NPRM, broadband ISPs would effectively be granted a safe harbor for such conduct, because they need not even *disclose* it.

In addition to the foregoing facts, there is at least one related issue about which there should also be no serious question. As the Commission, D.C. Circuit, and Department of Justice have all recognized, last-mile ISPs have obvious incentives and abilities to limit Internet openness, including by engaging in conduct that impairs or degrades the delivery of competitive traffic (*e.g.*, third party offerings that compete with last-mile ISP proprietary video and voice services).¹⁴ Comcast disputes this notion, arguing that, “[i]f a provider were to block or degrade

¹¹ Kilmer Decl. ¶ 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 (“Florance Decl.”) (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].”).

¹² Netflix July 15, 2014 Comments at 14-15; Cogent July 15, 2014 Comments at 21.

¹³ There is nothing in the proposed rule that would prevent ISPs from simply treating the proposed rules “as permission to allow Internet performance to deteriorate” at interconnection points. *See* Letter from Joseph C. Cavender, Vice President, Level 3 Commc’ns, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 14-28 and 09-191 (Apr. 24, 2014), at 2; Netflix July 15, 2014 Comments at 11-12 (“Putting in last-mile protections while leaving interconnection exposed to abuse . . . will create a perverse incentive for the ISP to leave interconnection points congested . . .”).

¹⁴ *See, e.g., United States v. AT&T*, Case No. 1:00-cv-01176, Complaint at 12-13 ¶ 34 (D.D.C. May

Internet applications or content, the provider would incur substantial subscriber losses and reputational harm. Thus, in order to undertake such a strategy, a broadband provider would first need to conclude that any theoretical benefits of the strategy outweigh these very real costs.”¹⁵

This statement, however, must be read in the context of Comcast knowing that, under the prior and proposed regulatory regime, Comcast and other last-mile ISPs can do indirectly barely outside the last mile—by not augmenting interconnections—what they cannot do directly within

25, 2000) (“AT&T could profit from the creation and exercise of such market power either through direct ownership of a favored [service], or by obtaining payments from favored [services] in exchange for favorable treatment by [its broadband services]. By exploiting its ‘gatekeeper’ position in the residential broadband content market AT&T could make it less profitable for unaffiliated or disfavored [services] to invest in the creation of attractive broadband content, and thereby reduce the quantity and quality of content available.”); *In the Matter of Applications for Consent to the Transfer of Control of Licenses & Section 214 Authorizations by Time Warner Inc. & America Online, Inc., Transferors, to AOL Time Warner Inc., Transferee*, CS Docket No. 00-30, Mem. Op. & Order, 16 FCC Rcd 6547, 6554 ¶ 18 (2001) (“[W]e have concerns that the merger may give AOL Time Warner the ability and the incentive to discriminate against the interactive television . . . services of unaffiliated video programming networks”); *In the Matter of Preserving the Open Internet; Broadband Indus. Practices*, GN Docket No. 09-191, WC Docket No. 07-52, Report & Order, 25 FCC Rcd 17905, 17916 ¶ 22 (2010) (“Today, broadband providers have incentives to interfere with the operation of third-party Internet-based services that compete with the providers’ revenue-generating telephony and/or pay-television services.”) (“*Open Internet Order*”); *United States v. Comcast Corp.*, Case No. 1:11-cv-00106, Competitive Impact Statement at 11 (D.D.C. Jan. 18, 2011) (“OVDs would be harmed competitively if ISPs that are also MVPDs (e.g., cable companies, telcos) were to impair or delay the delivery of video because OVDs pose a threat to those MVPDs’ traditional video programming distribution businesses. Because Comcast is the country’s largest ISP, an inherent conflict exists between Comcast’s provision of broadband services to its customers, who may use this service to view video programming provided by OVDs, and its desire to continue to sell them MVPD services.”); *In the Matter of Applications of Comcast Corp., Gen. Elec. Co. & NBC Universal, Inc.*, MB Docket No. 10-56, Mem. Op. & Order, 26 FCC Rcd 4238, 4275 ¶ 93 (2011) (“[W]e also identify particular transaction-related harms that arise from the increased risk that Comcast will engage in blocking or discrimination when transmitting network traffic over its broadband service. Specifically, we find that Comcast’s acquisition of additional programming content that may be delivered via the Internet, or for which other providers’ Internet-delivered content may be a substitute, will increase Comcast’s incentive to discriminate against unaffiliated content and distributors in its exercise of control over consumers’ broadband connections.”) (“*Comcast/NBCU Order*”); *Verizon v. F.C.C.*, 740 F.3d 623, 645 (D.C. Cir. 2014) (“Equally important, the Commission has adequately supported and explained its conclusion that, absent rules such as those set forth in the *Open Internet Order*, broadband providers represent a threat to Internet openness and could act in ways that would ultimately inhibit the speed and extent of future broadband deployment. . . . [N]othing in the record gives us any reason to doubt the Commission’s determination that broadband providers may be motivated to discriminate against and among edge providers.”).

¹⁵ Comments of Comcast Corp., GN Docket Nos. 14-28 and 10-127 (filed July 15, 2014), at 5-6 (“Comcast July 15, 2014 Comments”).

the last mile.¹⁶ Moreover, at least in the highly-publicized case of Netflix, Comcast (as well as other last-mile ISPs, including Verizon and AT&T) apparently concluded that the benefits of degradation outweighed the risks.¹⁷

Confronted with these issues concerning interconnection, the Commission has effectively asked what, if anything, should be done? The arguments made by opponents of a truly open Internet typically boil down to a single mantra: “Trust us, and continue to do nothing.” Relatedly, such opponents look for any reason to argue that this—or any other—proceeding is not the right forum to address these well-documented threats to an open Internet. These arguments should be rejected. The detailed history of anticompetitive practices engaged in by last-mile ISPs instructs that such trust would be misplaced and amount to ignoring reality. Accordingly, it is incumbent upon the Commission to finally acknowledge that addressing traffic exchange in the context of *this* proceeding is the most logical, comprehensive and timely way to

¹⁶ See, e.g., Netflix July 15, 2014 Comments at 2-3 (“As important as they are, last-mile protections are insufficient if ISPs can move discriminatory conduct to interconnection points with content providers.”); Comments of Floor64/Techdirt.com, GN Docket Nos. 14-28 and 10-127 (filed July 15, 2014), at 2 (urging the Commission “to recognize that the current debate over interconnection is not a different issue, but the other side of the same coin. It is how the large broadband access providers have tried to move the debate upstream, to use their market power to get internet companies to double-pay for the same traffic they already sold to their end users, creating the equivalent fast and slow lanes, even if not at the last mile”) (“Floor65/Techdirt.com July 15, 2014 Comments”); Comments of COMPTTEL, GN Docket No. 14-28 (filed July 15, 2014), at 2-3 (“[A]n excessively narrow focus on only the last-mile portion of the Internet traffic path will fail to adequately constrain the potential for anticompetitive behavior on the part of ISPs that serve as gatekeepers to the transit providers and content delivery networks (‘CDNs’) seeking to deliver Internet traffic to ISPs’ end users.”) (“COMPTTEL July 15, 2014 Comments”).

¹⁷ See, e.g., Netflix July 15, 2014 Comments at 12-16. Notably, some last-mile ISPs have not throttled traffic requested by and bound for their own subscribers, and have continued to upgrade capacity at interconnection points as the need arises. However, these companies—like Cox, Cablevision and Charter—either do not own substantial content that competes with third party offerings like Netflix, or have decided, notwithstanding content they may own, that optimizing broadband service to their customers is more important than attempting to diminish the competitive vitality of unaffiliated content and service providers.

achieve the primary objective of the NPRM— “protecting and promoting Internet openness”¹⁸— while, at the same time, “ensur[ing] that a broadband provider would not be able to evade [the] open Internet rules by engaging in traffic exchange practices that would be outside of the scope of the rules as proposed[.]”¹⁹

REPLY COMMENTS

I. TO BE EFFECTIVE AND ACHIEVE THE COMMISSION’S GOALS, THE NEW OPEN INTERNET RULES MUST ADDRESS CONDUCT AT INTERCONNECTION POINTS.

As various commenters have emphasized, one of the chief obstacles to an open Internet is the relatively recent and deliberate refusal of last-mile ISPs to upgrade capacity at the entrances to their networks.²⁰ The Commission is now well aware of this conduct and its effect on the ability of transit and edge providers to deliver traffic and/or end users to enjoy any lawful content of their choosing.²¹ However, the Commission’s tentative refusal to connect the dots and

¹⁸ NPRM ¶ 4.

¹⁹ *Id.* ¶ 59.

²⁰ *See, e.g.*, COMPTTEL July 15, 2014 Comments at 25 (“Indeed, protecting the openness not only of last-mile access but also of the interconnection point is fundamental to protecting the open nature of the Internet.”); Comments of Vimeo, LLC, GN Docket No. 14-28 (filed July 15, 2014), at 18 (“A broadband provider’s arrangements as to traffic entering its network (*e.g.*, through peering or interconnection) can be as significant as its decisions about traffic that is within its network (*e.g.*, through discrimination or blocking within the ‘last mile’). Actions and agreements impacting or impeding traffic delivery—whether in a ‘last mile’ network or on its edge—should be regulated to ensure that all traffic is delivered on a neutral basis.”) (citation omitted); Level 3 July 15, 2014 Comments at 7-8 (explaining the manner in which “some big mass-market ISPs are attempting to exploit their control over access to their customers to extract interconnection tolls from providers like Level 3—at levels that frequently equal or even exceed the entire price that Level 3 charges its customers for transit to reach those ISPs’ networks as well as the rest of the Internet.”).

²¹ Statement by FCC Chairman Tom Wheeler on Broadband Consumers and Internet Congestion (June 13, 2014), at 1 (“The bottom line is that consumers need to understand what is occurring when the Internet service they’ve paid for does not adequately deliver the content they desire, especially content they’ve also paid for.”) (“Wheeler June 13, 2014 Statement”), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-327634A1.pdf (last visited Sept. 9, 2014).

address—in this proceeding—what is undeniably the root cause of the congestion and degradation experienced by edge providers and end users alike ensures that broadband ISPs will be able to evade any protections promulgated here. Therefore, to be effective, and to achieve the goals the Commission repeatedly has articulated, the new rules must explicitly apply to the exchange of traffic at the interconnection points where content requested by end users is delivered to broadband ISP networks by edge or transit providers.

Tellingly, last-mile ISPs do not seriously dispute the actual causes or effects of the congestion of interconnection points or degradation of Internet content. Instead, as discussed below, they offer self-serving explanations for why interconnection should be excluded from the scope of this proceeding, and irrational or insupportable justifications for their new-found refusal to provision interconnection facilities to accept and deliver content requested by their own subscribers.

A. This Proceeding Is The Proper Forum In Which To Address The Exchange Of Traffic With Last-Mile ISP Networks.

Rather than engage in a substantive debate about the impact of interconnection practices on the delivery of traffic to and from end users, ISPs have instead settled on a strategy of misdirection, arguing that whatever Commission proceeding clearly implicates interconnection is the wrong proceeding in which to address this topic. For example, Comcast does not want to address traffic exchange in the context of its proposed merger with Time Warner Cable (“TWC”), where the enhanced incentives and abilities of the largest and third largest broadband ISPs in the country to leverage bottleneck control over interconnections is plainly relevant.²² According to Comcast, “if there is a need to address [interconnection] issues at all, it should be

²² See, e.g., Letter from Jeffrey H. Blum, Senior Vice President and Deputy General Counsel, DISH, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 14-57 (Sept. 9, 2014), at 2 (referring to interconnection as a “choke point” where ISPs can engage in discriminatory behavior).

done in an industry-wide context.”²³ Yet, when commenting in this proceeding—the quintessential exemplar of an “industry-wide context”—Comcast maintains that the Commission should address interconnection “separate and apart from this proceeding.”²⁴

Comcast’s vigorous advocacy before the Commission to exclude traffic exchange from the new rules is illuminating. As exhibited through its interactions with Netflix, Comcast has been a principal beneficiary of the original exclusion of interconnection from the rules’ scope.²⁵ Moreover, its arguments in this regard do not stand up to scrutiny. Comcast argues that “these commercial arrangements . . . have no bearing on and are entirely distinct from any issues that are the subject of the Commission’s open Internet rules, which have always been aimed at ensuring consumers’ ability ‘to access the lawful internet content of their choice’ and to ‘run applications and use services of their choice.’”²⁶ Comcast could not be more wrong. Such arrangements bear directly upon, and thus are not distinct from, the very goals it cites in the same sentence. Indeed, it is Comcast’s and other ISPs’ use of port congestion that has thwarted those very same goals of “ensuring consumers’ ability ‘to access the lawful internet content of their

²³ See *In the Matter of Applications of Comcast Corp. & Time Warner Cable Inc. For Consent To Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, Application and Public Interest Statement (filed Apr. 8, 2014) at 164 n.441 (“[T]his transaction raises no unique issues [with respect to peering and transit relationships] and thus is not the appropriate context for that debate. Thus, the peering-related concerns that have been suggested . . . are not transaction-specific and are applicable to the marketplace generally. If there is a need to address these issues at all, it should be done in an industry-wide context.”) (“Comcast/TWC Application”).

²⁴ Comcast July 15, 2014 Comments at 3 (“And, to the extent the Commission seeks to evaluate the marketplace for Internet backbone traffic exchange, it should do so separate and apart from this proceeding, as the issues presented are distinct.”).

²⁵ Netflix July 15, 2014 Comments at 12-16 (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.”).

²⁶ Comcast July 15, 2014 Comments at 33 (citation omitted).

choice’ and to ‘run applications and use services of their choice.’”²⁷ Thus, contrary to Comcast, “[t]raffic-exchange arrangements” have *everything* “to do with the ability of end users to access particular content.”²⁸

Comcast also characterizes those who disagree with it, like Cogent, as employing a “transparent effort to gain a competitive advantage in the marketplace.”²⁹ That is ironic, coming from the entity that has leveraged the loophole in the *Open Internet Order* to extract payments from edge providers like Netflix.³⁰ If anyone is seeking a competitive advantage here, it is Comcast.

While Comcast is particularly strident in its efforts to exclude the regulation of interconnection practices from this or any other proceeding, it is not alone. Other last-mile ISPs have also presented their positions on various issues concerning interconnection.³¹ As such, the record in this proceeding is already replete with arguments and evidence covering both sides of the interconnection debate. Indeed, anyone interested in learning virtually anything about what

²⁷ Cogent March 21, 2014 Comments at 18-19 (summarizing Cogent’s dealings with Verizon, which led to the congestion and degradation of content illustrated in Exhibits A and B, attached thereto); Declaration of Joseph Farrell, DPhil, Cogent Commc’ns Grp., Inc., MB Docket No. 14-57 (filed Aug. 25, 2014) ¶¶ 136-141 (discussing congestion Cogent has experienced over the last several years at interconnection points with AT&T, Comcast, TWC and Verizon); Level 3 July 15, 2014 Comments at 7-11 (discussing recent congestion Level 3 experienced at its interconnection points with an unidentified last-mile ISP).

²⁸ Comcast July 15, 2014 Comments at 33-34.

²⁹ *Id.* at 34.

³⁰ Comcast, in connection with its acquisition in 2011 of NBC Universal, agreed to abide by the 2010 *Open Internet Order* even if it were overturned on appeal. *Comcast/NBCU Order* at 4275 ¶ 94. It now offers to extend that commitment to Time Warner Cable should its merger be consummated. *See Comcast/TWC Application* at 59. This voluntary comment is meaningless, because the merged entity could—consistent with that promise—continue to engage in practices that allow interconnection points to become congested and, thereby, impede the delivery of unaffiliated Internet content and applications.

³¹ *See, e.g.*, Verizon July 15, 2014 Comments at 70-76; Comments of Time Warner Cable, Inc., GN Docket Nos. 14-28 and 10-127 (filed July 15, 2014) at 30 (“TWC July 15, 2014 Comments”).

is currently happening at interconnection points, as well as how and why it might be happening, need look no further than the docket in this proceeding.

The Commission recently announced a plan to compile and study information concerning Internet congestion issues.³² However, no additional information is needed to understand that, if last-mile broadband ISPs are free to discriminate at interconnection points they will take advantage of that opportunity to favor their own content and disadvantage competitors.³³ Accordingly, there is simply no reason to separate interconnection issues from open Internet issues; both issues can and should be easily and thoroughly addressed in this proceeding.³⁴

B. ISPs' Arguments Concerning Interconnection Are Self-Serving, Misleading And Not Supported By The Facts.

The last-mile ISPs' embrace of various aspects of the NPRM is yet another indicator as to why interconnection practices must be addressed in this proceeding. Comcast, TWC, and AT&T have each professed their support for an open Internet, transparency, and certain prohibitions against blocking and discrimination of content.³⁵ Regardless of what transpires in this

³² See Wheeler June 13, 2014 Statement at 1 (“The bottom line is that consumers need to understand what is occurring when the Internet service they’ve paid for does not adequately deliver the content they desire, especially content they’ve also paid for.”).

³³ Cogent July 15, 2014 Comments at 8.

³⁴ While the Commission’s parallel inquiry into congestion issues may provide insight into the specific terms of direct connection agreements that, for example, several last-mile ISPs have recently entered into with Netflix, such information is not necessary for the Commission to address the interconnection practices discussed in this proceeding and their impact on end users.

³⁵ See Comcast Comments on FCC’s Proposed Rules to Protect and Promote the Open Internet, <http://corporate.comcast.com/comcast-voices/comcast-comments-on-fccs-proposed-rules-to-protect-and-promote-the-open-internet> (July 15, 2014) (“[W]e support the FCC putting in place legally enforceable rules to ensure that there is a free and open Internet, including transparency, no blocking and anti-discrimination rules.”); TWC July 15, 2014 Comments at 3 (voicing support for “the Commission’s existing transparency rules,” “reinstatement of a ‘no-blocking’ rule,” and “a new rule that would enable the Commission to screen any business arrangements between broadband access providers and edge providers for ‘commercial reasonableness’”); Comments of AT&T Servs., Inc., GN Docket No. 14-28 (filed July 15, 2014), at 13 (advocating retention of the existing transparency rule, re-adoption of the no-

proceeding, each has also publicly pledged to abide by—at least for the next several years—the no-blocking and anti-discrimination rules contained in the 2010 *Open Internet Order*.³⁶

As is well-established, though, the now-vacated *Open Internet Order* which these ISPs tout as a panacea would, of course, apply only to traffic *inside* the last mile. Given that the connections ISPs have consistently refused to upgrade are all located just *outside* the last mile, by the time unaffiliated content requested by a ISP subscribers enters an ISP's network (where the old *Open Internet Order* protections would apply), the damage—in the form of dropped packets, buffering or latency—will have already been done. This is precisely why commenters like Level 3 argue accurately that there is nothing in the currently proposed rules that would prevent ISPs from simply treating the proposed rules “as permission to allow Internet performance to deteriorate” at interconnection points.³⁷

In addition, the refusals of last-mile ISPs to augment capacity at interconnection points are also based, in large part, on the purported imbalance in ratios between inbound and outbound traffic (*i.e.*, ISPs claim they are receiving a greater quantity of data than their subscribers are

blocking rule “under a different rationale,” and a “slightly revised nondiscrimination rule that bars ‘commercially unreasonable’ differentiation in the transmission of lawful traffic over a consumer’s fixed broadband Internet access service.”).

³⁶ See Comcast/TWC Application at 59; *In the Matter of Applications of AT&T Inc. and DIRECTV For Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-90, Description of Transaction, Public Interest Showing, and Related Demonstrations (filed June 16, 2014) at 51 (in connection with its pending merger with DIRECTV, AT&T offers to abide by the now-vacated *Open Internet Order* for three years following the closing of the merger).

³⁷ Letter from Joseph C. Cavender, Vice President, Level 3 Commc’ns, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 14-28 and 09-191 (Apr. 24, 2014), at 2; *see also* Netflix July 15, 2014 Comments at 11-12 (“Putting in last-mile protections while leaving interconnection exposed to abuse will do nothing about congestion at the entrance to the terminating ISP’s network. Instead, it will create a perverse incentive for the ISP to leave interconnection points congested, even in the face of growing data requests from its customers, in order to try to extract fees from online content providers to buy their way out of congestion.”).

sending through transit and edge providers).³⁸ Reliance on traffic ratios is a post-hoc justification designed to mask what is really motivating ISP behavior. First, the exchange of data over the Internet has always been asymmetrical. Second, all of the traffic purportedly “out of balance” represents content requested by last-mile ISP subscribers. A last-mile ISP subscriber goes to a website, clicks a few times, which sends a few bits of information to a content provider like Netflix and, in return, receives a bandwidth-intensive stream of data containing a movie. It is ironic that last-mile ISPs complain about traffic imbalances when most of them provide an asymmetric service to their own customers.³⁹ For example, Verizon’s DSL service allows subscribers to receive data at higher speeds than the customer can send data.⁴⁰ Accordingly, Verizon customers are already paying to receive data faster than they send it, yet Verizon demands additional consideration from transit providers like Cogent that carry and hand off such

³⁸ Kilmer Decl. at 64 (citing to and attaching as Exhibit 2 a June 20, 2013 letter from Arthur Block (Comcast’s General Counsel) to Bob Beury (Cogent’s Chief Legal Officer), in which Comcast bases its refusal to augment capacity at interconnection points with Cogent on a “growing traffic imbalance [that] has eroded the mutual benefit assumption that underlies both our settlement-free arrangement and international practice relating to settlement-free peering.”). Other last-mile ISPs have taken the same position in their dealings with Cogent.

³⁹ Last-mile ISPs such as AT&T and Verizon have recently announced plans to boost certain subscriber upload speeds to match download speeds. *See* http://campaign.verizon.com/fasterspeeds/?CMP=DMC-CVZ_ZZ_FD_Z_DO_N_X00002 (last visited September 10, 2014) (Verizon ad informing FIOS subscribers that “Now you can upload as fast as you download”); Press Release, *AT&T Confirms Plans to Deliver U-verse with AT&T*, AT&T Services, Inc., available at http://about.att.com/story/att_confirms_plans_to_deliver_u_verse_with_att_gigapower_in_miami.html (last visited September 10, 2014) (announcing further expansion of AT&T Gigapower network “featuring symmetrical upload and download broadband speeds up to 1 gigabit per second”). Considering the paucity of applications currently available to take advantage of such increased upload capabilities, these announcements amount to largely meaningless gestures, certainly with respect to typical broadband subscribers whose requests to stream movies (i.e., uploads) will continue to require much less bandwidth than the movies they receive in return (i.e., downloads).

⁴⁰ *See* Verizon High Speed DSL Internet Plans, available at <http://www.verizon.com/home/highspeedinternet/#plans> (last visited September 10, 2014).

data to Verizon for delivery to its customers over its own asymmetric connections, or from edge providers themselves.

As other commenters and industry observers have explained, the suggestion that Internet traffic should be balanced in order to justify a peering relationship is a straw man. For example:

Some large ISPs attempt to justify these access charges based on a ratio “imbalance” between downstream and upstream traffic. But these ratios are arbitrarily set and enforced and are not reflective of how ISPs sell broadband connections and how consumers use them. Traffic volumes are consistently and significantly greater downstream than upstream and ISPs who deliver traffic over the last mile can never be in balance with the networks that deliver video. ISPs typically do not sell symmetrical Internet connections to consumers.⁴¹

Put differently, there can be no such thing as balanced traffic when the only bandwidth sold to the home is asymmetric in the first place. Given the increasing popularity of streaming video, balanced traffic (to the extent it ever existed) “is or soon will be a myth.”⁴²

Further obfuscating the obvious causes of congestion and the resultant degradation of content requested by their customers, last-mile ISPs have also suggested that the congestion is attributable to capacity constraints on the networks of transit providers with whom they interconnect. These assertions have no basis in fact. According to Verizon, the congestion at issue is “the result of some Internet transit providers like Cogent trying to send large volumes of traffic to ISPs through connections that are too small and were not designed to deal with huge

⁴¹ Netflix July 15, 2014 Comments at 15 n.25.

⁴² Rob Powell, *Verizon Boosts FTTH Upload Speeds*, Telecom Ramblings, <http://www.telecomramblings.com/2014/07/verizon-boosts-ftth-upload-speeds-shifts-peering-debate/> (July 21, 2014). See also Rob Powell, *Level 3 Calls Out Verizon Directly on Peering Upgrades*, Telecom Ramblings, <http://www.telecomramblings.com/2014/07/level-3-calls-verizon-directly-peering-upgrades/> (July 18, 2014) (“[I]n a world of streaming video and asymmetric consumer broadband connections, using balanced traffic ratios as a basis for peering makes no mathematical sense. Nor does blaming traffic on one side of a two-party exchange of data transaction for which both parties already pay.”).

amounts of traffic.”⁴³ Similarly, Comcast maintains that “Cogent has repeatedly agreed to provide transit services to edge providers for volumes of traffic that exceed the capacity of Cogent’s interconnections with broadband providers.”⁴⁴ Comcast’s statement is misleading in that it implies that Cogent pushes traffic across the connections between Cogent and Comcast and that Cogent chooses how much traffic to send. The major component of traffic across the connections between Cogent and Comcast is video requested by Comcast customers. If Comcast wants to blame someone for crowded connections it should blame its customers for daring to watch video provided by companies other than Comcast, and itself for providing content that makes people look elsewhere.

In fact, unlike many ISPs whose traffic links were built on top of legacy circuit-switched networks, Cogent’s fiber-optic network was purpose-built to handle Internet traffic. For that reason, even as consumer demand for bandwidth-intensive and latency-sensitive content has increased, Cogent has upgraded its network infrastructure accordingly such that today it is not even close to operating at full capacity.⁴⁵ Other transit provider networks are similarly maintained and have ample capacity.⁴⁶ As the record in this proceeding shows, the degradation end users are experiencing has nothing to do with network capacity, or lack thereof. It instead

⁴³ David Young, *Thoughts on Internet congestion and the FCC’s broadband report*, Verizon Policy Blog, <http://publicpolicy.verizon.com/blog/entry/thoughts-on-internet-congestion-and-the-fccs-broadband-report> (June 20, 2014).

⁴⁴ Comcast July 15, 2014 Comments at 38 n.113.

⁴⁵ See Kilmer Decl. ¶ 7 (“Any sustained packet loss experienced by Cogent’s customers can be attributed to congested interconnection points with our peering partners, which is outside of Cogent’s sole control.”).

⁴⁶ See, e.g., Mark Taylor, *Verizon’s Accidental Mea Culpa*, Beyond Bandwidth: Level 3 Communications Blog, <http://blog.level3.com/global-connectivity/verizons-accidental-mea-culpa/> (July 17, 2014) (“I can confirm once again that all of those thousands of links on the Level 3 network are managed carefully so that the peak utilizations look very similar to those Verizon show for their own network – IN BOTH DIRECTIONS.”) (emphasis in original).

has everything to do with the fact that last-mile ISPs control access to their networks and, therefore, access to their subscribers. Verizon and Comcast essentially concede as much. Neither directly says that Cogent (or any other Tier 1 backbone) actually lacks sufficient network capacity. Instead, they refer to “connections that are too small” or “volumes of traffic that exceed the capacity of Cogent’s interconnections.” Yet the reason there are issues with those connections is because of the unilateral, albeit parallel, choices that Verizon and Comcast have made to cease port augmentation as their subscribers demand ever greater amounts of bandwidth.

II. IT SHOULD BE COMMERCIALY UNREASONABLE FOR AN ISP TO ALLOW OR FAIL TO REMEDY SUSTAINED STATES OF CONGESTION AT INTERCONNECTION POINTS.

In its previous comments, Cogent proposed that the Commission utilize its statutory authority⁴⁷ to make it incumbent upon last-mile ISPs to remedy any sustained states of congestion between their networks and other networks with whom they have chosen to interconnect, or show cause why they should not be compelled to do so.⁴⁸ Alternatively, Cogent urged that the Commission should state explicitly that “it shall not be a commercially reasonable practice for a broadband ISP to maintain a sustained state of congestion at any interconnection points between a broadband ISP’s network and another network with whom it interconnects.”⁴⁹ While this rule would require ISPs, absent a compelling justification, to remedy sustained states

⁴⁷ The Commission has received extensive submissions in this docket on the scope of its authority under both Title II of the Communications Act and Section 706, along with entreaties to proceed under one or the other of these regulatory rubrics. Cogent’s position is documented, and need not be repeated here. Cogent March 21, 2014 Comments at 1-3, 25-31, 33-34; Cogent July 15, 2014 Comments at 3-4, 9-12. For present purposes, the most salient point is that the vigorous debate over interconnection (as well as enhancing the transparency rule) has centered on whether the Commission should do anything, not whether it has the authority to do so.

⁴⁸ Cogent March 21, 2014 comments at 25, 31-33; Cogent July 15, 2014 Comments at 19-22.

⁴⁹ Cogent July 15, 2014 Comments at 20.

of congestion at interconnection points, it would also allow ISPs to negotiate and enter into individualized agreements to serve customers and carry traffic “without having to hold themselves out to serve all comers indiscriminately on the same or standardized terms.”⁵⁰

In an effort to define a “sustained state of congestion,” Cogent suggests that the Commission look to recent and relevant submissions in the Comcast-TWC merger proceeding. For example, in connection with Netflix, Inc.’s petition to deny the merger, Ken Florance, Netflix’s Vice President of Content Delivery, explains that, historically, “a regular practice” of last-mile ISPs was to augment their interconnections when transit or edge provider ports running into their networks “started to regularly go above 70% capacity utilization.”⁵¹ Hank Kilmer, Cogent’s Vice President of IP Edge Engineering, concurs: “When a connection [between two interconnecting networks] reaches about 70% of that connection’s capacity, the two networks generally add additional capacity (i.e., additional ports and cross-connects).”⁵² As is therefore consistent with industry practice, Cogent further proposes that the Commission define a “sustained state of congestion” as any instance where an interconnection point (*i.e.*, port) between a last-mile ISP and a transit or edge provider operates at 70% or greater capacity during peak usage periods (7:00-11:00 pm, adjusted for local time zones) for one month.⁵³

⁵⁰ *Cellco P’ship v. F.C.C.*, 700 F.3d 534, 548 (D.C. Cir. 2012) (quoting *In the Matter of Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers & Other Providers of Mobile Data Services*, WT Docket No. 05-265, Second Report & Order, 26 FCC Rcd 5411, 5433 ¶ 45 (2011)).

⁵¹ Florance Decl. at ¶ 60.

⁵² Kilmer Decl. ¶ 20. Mr. Kilmer also observes that “discussions and negotiations typically begin prior to capacity reaching that [70%] level. Such conversations and the implementation of measures to address capacity constraints are important because packet loss tends to occur once ports are about 90% utilized.” *Id.* ¶ 16.

⁵³ As Mr. Kilmer further explains, “Capacity is measured using the 95th Percentile metric.” *Id.* ¶ 20; *see also id.* ¶¶ 21-22 (explaining how the 95th Percentile metric is applied).

A. There Is Broad Support For Rules Addressing The Obligation To Remedy Sustained States Of Congestion.

Other commenters in this proceeding echo Cogent’s concerns regarding pervasive network congestion and support its proposed solution. For example, Level 3’s proposed rules for reasonable interconnection are consistent with Cogent’s “sustained state of congestion” proposal; specifically, Level 3 proposes that “[i]f interconnection capacity is congested at any interconnection location, it must be promptly augmented.”⁵⁴ COMPTTEL likewise proposes that the Commission make clear that

A broadband Internet service provider cannot refuse to provision enough capacity at the point of interconnection (i.e., ports) to handle Internet exchange traffic being delivered to its network that its end users have requested. Failing to do so denies end-users access to the speeds that they have paid for and allows broadband providers to extract additional revenues from transit and/or edge providers to relieve congestion that should not have occurred in the first place.⁵⁵

⁵⁴ Level 3 July 15, 2014 Comments at 15. As Level 3 also points out, arguments concerning the costs that including interconnection in an *Open Internet* regime would impose on broadband ISPs are specious. *Id.* at 12-14.

⁵⁵ COMPTTEL July 15, 2014 Comments at 29. *See also* Comments of the Internet Association, GN Docket 14-28 (filed July 14, 2014), at 18 (“Reasonable network management should ensure that broadband Internet access providers expeditiously resolve network congestion issues by employing measures to maintain and protect the efficient operation of their network.”). Moreover, as content provider Floor64/TechDirt.com explains,

When broadband access providers are allowed to sell consumers a promise of being able to access content on the internet, but then allow their interconnection nodes to clog, rather than doing basic maintenance to make sure they can deliver the traffic requested by their own paying customers, the broadband access providers are playing a dangerous game. They are underserving both sides of the market, in an effort to get both to pay more. It is a move the broadband access providers can only make thanks to their market dominance in the space, and it is a practice that the FCC should be focused on preventing, as it clearly goes against the stated principles of a free and open internet.

Comcast, on the other hand, endeavors to dismiss Cogent’s proposal for remedying “sustained states of congestion” by stating that “it is well-established that the congestion of ports is not often within the sole control of a broadband provider.”⁵⁶ Cogent agrees. Upgrading interconnection ports requires *both* sides to agree. The problem to date, however, has been the intransigence of Comcast and other last-mile broadband ISPs in refusing to follow their historical practice of port upgrades. That intransigence is the reason for Cogent’s proposal. Cogent would have no problem with the obligation to upgrade interconnections falling on parties on either side of the connection. Indeed, Cogent has offered to pay for the capital costs associated with upgrades on both sides,⁵⁷ but Comcast, like its large ISP brethren, has refused.

Comcast’s argument highlights two additional arguments last-mile ISPs commonly raise with respect to interconnection: that the instant congestion issues are largely beyond the control of last-mile ISPs, and that upgrades to network infrastructure associated with augmenting capacity at interconnections points are costly and burdensome. Neither argument is persuasive.

B. The Ability To Remedy Congestion Is Clearly Within The Control Of Last-Mile ISPs.

In the *Open Internet Order*, the Commission stated that “its rules did not apply beyond ‘the limits of a broadband provider’s control over the transmission of data to or from its broadband customers.’”⁵⁸ However, as Cogent and other commenters have explained, it is well

Floor64/Techdirt.com July 15, 2014 Comments at 5.

⁵⁶ Comcast July 15, 2014 Comments at 35 (citations omitted).

⁵⁷ 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 Sept. 9, 2014).

⁵⁸ NPRM ¶ 59 (citing *Open Internet Order* at 17933 ¶ 47 n.150).

within the limit of an ISP's control to decide to maintain its interconnections with other networks in a manner that avoids congestion and degradation of content originating outside the ISP's network. As Level 3 summarizes, "Broadband ISPs directly control their interconnection facilities, including determining how much capacity to make available, to whom, where, and on what terms, and when to increase such capacity, and in so doing control the flow of traffic from outside their network to their broadband customers."⁵⁹ This statement is indisputable, and underscores the critical issue the Commission needs to confront in this rulemaking.

Downplaying the extent to which they can exert any control at interconnection points, ISPs seek to blame edge providers for choosing the wrong paths (*i.e.*, transit providers or CDNs) to reach last-mile networks. For example, in an ultimately unavailing effort to avoid the logic supporting the inclusion of interconnection in the scope of the new rules, TWC argues:

Edge providers have significant discretion to route traffic using various [] arrangements to the networks of broadband Internet access providers. As a result, the NPRM's professed concern about gatekeeper control does not exist in the context of peering, transit, and CDN arrangements. Seeking to regulate such arrangements now thus would disrupt this portion of the marketplace—and in unpredictable and counterproductive ways—absent any clear justification.⁶⁰

TWC's rhetorical gimmick cannot withstand even minimal scrutiny. First, TWC notes (correctly) the multitude of options that exist for an edge provider to reach a last-mile broadband network. Second, it then conflates the existence of competition among such providers to assert, as a result, that there is no concern of "gatekeeper control" in reaching the consumers of last-mile consumers. That premise is false. Regardless of the competition that exists among transit

⁵⁹ Level 3 July 15, 2014 Comments at 3.

⁶⁰ TWC July 15, 2014 Comments at 30.

providers and CDNs, every one of them must interconnect with TWC if they wish to reach even a single TWC consumer. That is the very essence of gatekeeper control. Third, and contrary to TWC's position, including interconnection arrangements within the new rules not only would close a large loophole that has been leveraged by the likes of TWC, but would actually preserve and enhance competition among transit providers and CDNs. Of course, the ultimate beneficiaries of such competition will be consumers who already pay TWC and its last-mile ISP counterparts for access to all lawful Internet content.

In a similar refrain, Verizon asserts that congestion experienced recently by its subscribers when attempting to stream movies via Netflix “was caused by Netflix’s decision to route its traffic over a handful of transit providers who had not *made arrangements* for connections that could handle Netflix’s traffic volumes, while the other peering and transit providers and content providers interconnecting with Verizon’s network in the customer’s area were not experiencing congestion.”⁶¹ To the extent this relates to Cogent’s experience with Verizon after Cogent began delivering Netflix traffic to Verizon customers (of course, at the request of such customers), it is misleading. Cogent went to great lengths to “make arrangements” with Verizon to address congestion at the interconnection ports, even offering to pay Verizon’s capital costs associated with such augmentations.⁶² Indeed, up until Cogent began carrying traffic from Netflix that posed a competitive threat to Verizon, routine port augmentation between Cogent and Verizon was standard operating procedure. However, by departing from this historical pattern of conduct, Verizon was able to force Netflix into a paid

⁶¹ Verizon July 15, 2014 Comments at 75 (emphasis added).

⁶² See Cogent Press Release, *supra* n.57.

agreement.⁶³ Thus, this episode demonstrates the need to include interconnection arrangements in the new rule.

C. The Costs And Burdens To Remedy Congestion Are Minimal.

The capital expenditures required to upgrade port capacity and remedy congestion at interconnection points are extremely modest. Moreover, the only burden for ISPs leveraging bottleneck control would be to upgrade capacity as need arises. This has been typical practice since the Internet's creation. As Mr. Kilmer explains,

Once established in a carrier neutral data facility, the cost of increasing the capacity of the interconnection between the two peers is minimal. Capacity is typically increased by adding additional interconnections that carry traffic at 10 Gbps. If the network operator has an available 10 Gbps port on its router then the only cost to the operator is the operator's share of the fee charged by the data facility for optical fiber that connects the ports of the two operators. That charge is typically \$200 per month. The operators generally alternate paying for this cross connect. Even if an operator has to add a port card to its router, the capital cost for each additional port is less than \$10,000.⁶⁴

This explanation is entirely consistent with independent assessments provided by other edge and transit providers, including Netflix and Level 3.⁶⁵ In fact, based on this straightforward

⁶³ See Florance Decl. ¶¶ 59-60.

⁶⁴ Kilmer Decl. ¶ 19.

⁶⁵ See Florance Declaration ¶ 46 (explaining that “adding port capacity cost less than \$10,000—a cost which is typically amortized over three to five years by [the last-mile ISP].”). Recounting a recent interconnection dispute with Verizon, Mark Taylor, Level 3's Vice President of Content and Media, stated:

Maybe [Verizon] can't afford a new port card because they've run out – even though these cards are very cheap, just a few thousand dollars for each 10 Gbps card which would support 5,000 streams or more. If that's the case, we'll buy one for them. Maybe they can't afford the small piece of cable between our two ports. If that's the case, we'll provide it. Heck, we'll even install it.

methodology, Cogent estimates that “[t]he cost of upgrading all of the connections between Comcast and Cogent, completely resolving these concerns, would have been approximately \$120,000.”⁶⁶ Again, these are precisely the types of capital costs that, in March 2014, Cogent offered to pay Verizon, Comcast, AT&T, and Time Warner Cable to upgrade their connections with Cogent, thereby ensuring “adequate capacity to deliver quality service to the customers of Cogent and [the] ISPs.”⁶⁷

Like the costs, the burdens associated with implementing interconnection upgrades are minimal. At most locations where edge or transit providers and last-mile ISPs exchange traffic,

Mark Taylor, *Verizon’s Accidental Mea Culpa*, Beyond Bandwidth: Level 3 Communications Blog, <http://blog.level3.com/global-connectivity/verizons-accidental-mea-culpa/> (July 17, 2014).

⁶⁶ Kilmer Decl. ¶ 68. As Mr. Kilmer also notes, the cost for adding capacity to exchange traffic “does not reflect any of the capital or operational costs of the operator’s network, but Cogent regards those costs as relevant to the capacity of the network, which is a function of the capacity promised to the operator’s customers.” *Id.* ¶ 19. Accordingly, as the volume of Internet traffic carried by Cogent’s network has increased 716% over the past five years—from approximately 2,226,229 TBytes to 18,155,339 TBytes per year—“Cogent has accommodated that increase with capital expenditures averaging \$48 million per year.” *Id.* ¶ 8. Given that last-mile ISPs promise and their subscribers pay handsomely for access to the entire Internet, last-mile ISPs also should be expected to upgrade their network infrastructure. Indeed, many of them tout the expenditures they have made in recent years to upgrade their networks. *See, e.g., AT&T Eyes Data Growth with \$14 Billion Network Overhaul*, Forbes, <http://www.forbes.com/sites/greatspeculations/2012/11/16/att-eyes-data-growth-with-14-billion-network-overhaul/> (Nov. 16, 2012); *Verizon Is a World Leader in Broadband Network Investment & Capital Expenditure*, Verizon Public Policy Blog, <http://publicpolicy.verizon.com/blog/entry/verizon-is-a-world-leader-in-broadband-networkinvestment-capital-expenditu> (May 30, 2013) (“In the last six fiscal years (2007-12), Verizon alone has spent over \$100 Billion towards capital expenditures. Verizon’s state-of-the-art 4G LTE and Fiber-to-the-Home FiOS networks are proof of our commitment to invest in networks that can help drive the US economy forward.”); Steve Donohue, *Time Warner Cable To Increase Broadband Speeds By 50 Percent*, FierceCable, <http://www.fiercecable.com/story/timewarner-cable-increase-broadband-speeds-50-percent/2012-11-05> (Nov. 5, 2012). *See also* Fact Sheet: Internet Growth and Investment, Federal Communications Commission, Feb. 19, 2014, *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-325653A1.pdf (last visited Sept. 9, 2014) (citing evidence that broadband capital expenditures rose from \$64 billion in 2009 to \$68 billion in 2012 (U.S. Telecom) and that the telecommunications/cable industry invested \$50.5 billion in 2013 (The Progressive Policy Institute)).

⁶⁷ Cogent Press Release, *supra* n.57. As noted above, other transit providers have made similar offers.

the physical act of interconnection “typically involves running a cable between routers located within a few feet of one another.”⁶⁸ As Level 3 recently explained, “So in fact, we could fix this congestion in about five minutes simply by connecting up more 10Gbps ports” on the routers where Level 3 interconnects with Verizon.⁶⁹ Confronted with these facts—which are also unrefuted—one is forced to conclude that the unwillingness of particular ISPs to augment their interconnections with transit or edge providers is attributable to their desire to limit the competitive vitality of Internet content that competes with vertically integrated services they offer (*e.g.*, on-demand video or VoIP calls), and/or to the divergence between the capacity and functionality of their own networks as compared to what they marketed and sold to their own customers. Whatever the reason, it should not be commercially reasonable to allow this congestion to persist.⁷⁰

III. THE COMMISSION SHOULD REQUIRE THE DISCLOSURE OF INFORMATION ABOUT NETWORK CONGESTION UNDER THE ENHANCED TRANSPARENCY RULE.

As Chairman Wheeler and Commission staff have made abundantly clear, broadband Internet customers should get what they pay for.⁷¹ As commenters in this docket

⁶⁸ Florance Decl. ¶ 13.

⁶⁹ See Mark Taylor, *Verizon’s Accidental Mea Culpa*, Beyond Bandwidth: Level 3 Communications Blog, <http://blog.level3.com/global-connectivity/verizons-accidental-mea-culpa/> (July 17, 2014), at 2.

⁷⁰ As Cogent has previously noted, an individualized arrangement whereby an edge provider pays a broadband ISP for dedicated capacity or improved connectivity should theoretically not pose a problem. As long as a broadband ISP’s network is not congested at interconnection points to the degree that its customers are not able to reasonably access the open Internet, then the fact that one or more edge providers are paying for a “dedicated” lane is not inconsistent with the reasonable and timely deployment of broadband service to all Americans.

⁷¹ Statement by Chairman Tom Wheeler on Open Internet Transparency Rule Enforcement Advisory (July 23, 2014) (“Consumers deserve to get the broadband service they pay for We expect providers to be fully transparent about the details of their services, and we will hold them accountable if they fall down on this obligation to consumers.”), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-328401A1.pdf (last visited Sept. 10, 2014); Wheeler

overwhelmingly agree, an enhanced transparency rule is an obvious tool the Commission has and should use to help achieve this objective. Accordingly, efforts to enhance the transparency rule must focus on requiring broadband ISPs to provide more detailed, timely and accessible disclosures that are useful to all persons in the Internet distribution chain—not just the customers of last-mile broadband ISPs.⁷² To be meaningful, such disclosures must also encompass practices concerning the management of interconnection points. If this information is not provided, consumers receive a less than complete picture of their broadband service. To that end, the Commission should expressly identify the disclosures proposed in Cogent’s prior comments as among the type of information that broadband ISPs must disclose in order to comply with the new rule. In particular, the Commission should implement the following enhancements to the transparency rule which Cogent originally proposed in its March 21, 2014 comments:

1. A requirement that performance data be disclosed in a manner that lets all interested persons observe the actual speeds at which popular edge-provider

June 13, 2014 Statement (“The bottom line is that consumers need to understand what is occurring when the Internet service they’ve paid for does not adequately deliver the content they desire, especially content they’ve also paid for.”); Statement of Enforcement Bureau Acting Chief Travis LeBlanc Regarding FCC Enforcement Advisory on Open Internet Transparency Rule (July 23, 2014) (“Consumers rightly expect to receive the Internet access that they have been promised by their service providers.”), available at https://apps.fcc.gov/edocs_public/attachmatch/DA-14-1039A2.pdf (last visited Sept. 10, 2014); *Broadband Providers Must Disclose Accurate Information to Protect Consumers*, Public Notice, DA-1039, FCC Enforcement Advisory No. 2014-03 (July 23, 2014) at 2 (“A core purpose of the Transparency Rule is to allow consumers to understand what they are purchasing.”) (“FCC July 23, 2014 Enforcement Advisory”), available at https://apps.fcc.gov/edocs_public/attachmatch/DA-14-1039A1.pdf (last visited Sept. 10, 2014).

⁷² See NPRM ¶ 66 (“As the Commission explained in the *Open Internet Order*, disclosures under the rule: (1) help end users make informed choices regarding the purchase and use of broadband services and increase end users’ confidence in broadband providers’ practices; (2) ensure that edge providers have access to broadband providers’ network information necessary to develop innovative new applications and services; and (3) inform the Internet community and the Commission about broadband providers’ practices and conduct that could impact Internet openness.”) (citing *Open Internet Order* at 17936-37 ¶ 53).

content is being downloaded during peak usage periods (7:00-11:00 pm, adjusted for local time zones) on a system-specific level.⁷³

2. A requirement that packet loss data be disclosed on a system-specific level for data transmitted by edge providers with respect to the same “popular content” identified in Proposal No. 1, above.
3. A requirement that broadband ISPs disclose download speeds on a stand-alone (not blended) basis for their own, proprietary services to create a benchmark against which the download speeds of unaffiliated content can be compared.
4. A requirement that broadband ISPs disclose data sufficient to show network congestion/capacity constraint at interconnection points between their network and other networks, backbone providers, and/or peers with whom they interconnect.
5. A requirement that broadband ISPs provide access to raw speed-test data, on a system-specific level, on a monthly basis.
6. A requirement that broadband ISPs disclose promptly any practices that block or degrade the performance of content or an application from any particular edge provider.⁷⁴
7. A requirement that a broadband ISP disclose the Service Level Agreements related to any arrangement pursuant to which an edge provider connects directly with the broadband ISP’s network.⁷⁵

Each of these proposed disclosure obligations would increase the utility of the information disclosed to the Commission, consumers, and the Internet community at large.

Other commenters from a variety of vantage points explicitly endorse or propose disclosure obligations consistent with Cogent’s proposals. These commenters are, like Cogent,

⁷³ To identify “popular content,” the Commission could simply refer to credible outside sources (e.g., www.alexacom) that rank, on a monthly basis, the most visited websites in the United States. Measurement of download performance from the top 250 websites, for instance, would give end users meaningful insight into how their particular broadband ISP performs.

⁷⁴ Notably, such practices may entail a decision not to augment capacity at an interconnection point that serves an edge provider that the broadband ISP’s customers have chosen to patronize.

⁷⁵ As with the third proposal in this list, this disclosure will provide another benchmark against which overall performance can be assessed, and will aid the Commission in detecting potentially discriminatory conduct. It does not seek to proscribe such direct-connect arrangements.

particularly interested in disclosures regarding congestion management practices.⁷⁶ As Vonage suggests, “The [enhanced transparency] rule should also require prompt disclosure to the Commission, as well as to users and edge providers, of any practices that block or degrade performance of content or an application offered by a particular edge provider.”⁷⁷ Microsoft agrees, advocating that “the Commission should require broadband access providers to report periodically on the congestion status of their interconnection points” and that such reports “should include information on maximum capacity, typical traffic volumes at peak and off-peak hours, and typical resolution timelines.”⁷⁸ Netflix also supports an enhanced transparency regime and states that, “To be meaningful, the public (consumers and edge providers) must receive immediate information about the network and performance problems with terminating ISP networks in real time. To be complete, those disclosures must embrace the ISP’s interconnection and peering points as a fundamental part of the ISP’s network.”⁷⁹

⁷⁶ See, e.g., COMPTTEL July 15, 2014 Comments at 31-32 (identifying several critical categories of information ISPs should be obligated to disclose, including “practices and policies for increasing a broadband provider’s network capacity for Internet traffic exchange – including information about whether and which entities are charged to increase such capacity, and when requests to increase capacity are refused.”); Comments of Independent Film & Television Alliance (IFTA), GN Docket No. 14-28 (filed July 16, 2014), at 10 (stating that IFTA “strongly supports” Cogent’s proposal “that any effort to enhance the transparency rule must focus on requiring broadband providers to provide more detailed, timely and accessible disclosures that are useful to all persons involved in the operation or use of the Internet—not just the customers of last-mile broadband ISPs.”) (citing Cogent March 21, 2014 Comments at 7).

⁷⁷ Comments of Vonage Holdings Corp., GN Docket Nos. 14-28 and 10-127 (filed July 18, 2014), at 28 (citing Cogent March 21, 2014 Comments); see also *id.* at 28-30 (endorsing Cogent’s transparency proposals).

⁷⁸ Comments of Microsoft Corp., GN Docket No. 14-28 (filed July 18, 2014) at 32. Cogent strongly encourages the Commission to adopt all of the disclosure obligations Microsoft proposes in its comments, particularly Microsoft’s proposal that broadband access providers disclose their policies for settlement-free interconnection agreements. See *id.* at 31-32.

⁷⁹ Netflix July 15, 2014 Comments at 19.

Critics of an enhanced transparency rule are not persuasive. Comcast, for example, argues that, “broadband providers possess little if any firsthand information regarding instances of congestion that originate beyond their networks and interconnection points.”⁸⁰ While Comcast’s resistance to being more transparent is hardly surprising, its rationale is flawed. No one is suggesting that ISPs should disclose information that they do not have. That is a red herring. The point is that where an ISP does possess information relevant to identifying the source of congestion, it should be timely and fully disclosed. The fact that such information may not be specifically helpful to the average consumer is not dispositive; others in the Internet distribution chain are well-equipped to understand such information, assess its significance and propose remedies.⁸¹

AT&T makes essentially the same argument as Comcast and asserts that, “A formal regulation requiring more, such as ‘information regarding the source, location, timing, speed, packet loss, and duration of network congestion,’ would be impossible for ISPs to comply with given the broad array of external conditions that might affect broadband speed for an end user.”⁸² Like Comcast, AT&T is attacking a straw man. No one has suggested that AT&T or any other ISP should disclose more than they know. Instead, all that is sought is transparent and prompt information known to each ISP about what may be contributing to congestion. Likewise, TWC’s

⁸⁰ Comcast July 15, 2014 Comments at 38-39.

⁸¹ Similarly, Cox “is open to refinements of the existing disclosure rules, but only to the extent they would meaningfully benefit retail consumers without imposing disproportionate burdens on ISPs.” Comments of Cox Commc’ns, Inc., GN Docket No. 14-28 and 10-127 (filed July 18, 2014), at 18-19. While Cox’s concern for retail consumers is laudable, its endorsement of an enhanced transparency regime that excludes disclosures of value to the larger Internet community and the Commission—even if not readily understood by retail consumers—has the effect, perhaps intended, of hiding the ball from those who understand the Internet best.

⁸² Comments of AT&T Servs., Inc., GN Docket No. 14-28 (filed July 15, 2014), at 88 (quoting NPRM ¶ 83).

argument that “the enhanced disclosure rules in question would not meaningfully benefit edge providers or transit providers” is wrong.⁸³ While TWC has an obvious interest in parroting its hoped-for corporate parent, its comment in this respect is off the mark, as the enhanced transparency disclosures proffered by Cogent are deliberately and specifically designed to provide information that will be of tremendous value to the wider Internet community, as well as the Commission.

Cogent also does not, as a theoretical matter, disagree with Verizon’s assertion that “any new disclosure requirements addressing the sources of congestion must be appropriately cabined to ensure that ISPs are only responsible for reporting on the sources of congestion on their own last-mile networks.”⁸⁴ As discussed above, where we part company is with respect to the view of what is and is not “beyond” the last-mile ISP’s network. In particular, an ISP like Verizon can and should know—and thus disclose—whether it is maintaining connections with other networks with whom it interconnects at levels that are leading to congestion. In other words, Verizon has insight into what it is doing on its side of any given interconnection, and the fact that a port connects, on the other side, to a different network should not immunize Verizon from disclosing in a timely and accessible manner what is happening on its side of the interconnection. If all is well on its side, Verizon can and should make that known. What it should not be permitted to do is hide its own practices that contribute to congestion by moving the definitional outer limits of its network away from the points at which it interconnects with others.

⁸³ TWC July 15, 2014 Comments at 6.

⁸⁴ Verizon July 15, 2014 Comments at 25.

Enhanced disclosures will serve to provide timely and accurate information about the deployment of broadband service in America to interested persons.⁸⁵ Indeed, as the Commission has instructed, “Accuracy is the bedrock of the Transparency Rule.”⁸⁶ Moreover, a comprehensive and clearly defined transparency regime may very well deter some or all of the conduct that poses a threat to an open Internet, even in local markets where end users have very few or no alternatives for broadband Internet access providers. To the extent such mandated disclosures do not deter such conduct, it will at least tell end users exactly what the problems are and where they reside.

As Commission staff have recently noted, “[i]t has become clear from consumer complaints to the FCC” that “consumers are frustrated by recent trouble with their Internet experience,” particularly when attempting to stream video.⁸⁷ Moreover, in compiling data for the latest Measuring Broadband America (“MBA”) report, the Commission “found significant drops in broadband performance during a period when Cogent . . . reportedly was having disputes with various ISPs.”⁸⁸ While Cogent is not privy to the data referenced by the Commission, the

⁸⁵ See Cogent March 21, 2014 Comments at 25-31 (discussing the Commission’s authority under Section 706).

⁸⁶ FCC July 23, 2014 Enforcement Advisory at 2.

⁸⁷ Julie Knapp and Walter Johnston, *Internet Traffic Exchange: Time to Look Under the Hood*, Official FCC Blog (June 18, 2014), <http://www.fcc.gov/blog/internet-traffic-exchange-time-look-under-hood>.

⁸⁸ *Id.* As the Commission acknowledges, “internet traffic exchange issues were not the focus of the [MBA] report.” *Id.* As Cogent also detailed in its March 21, 2014 Comments in this proceeding, the failure to address interconnection issues in the MBA report significantly limits the utility of the report’s findings. Cogent March 21, 2014 Comments at 10-17. For example, the precise “traffic exchange issues” noted by the Commission and omitted from the MBA report explain how an end user can seemingly receive greater than advertised speeds from a last-mile ISP and yet also experience buffering and degradation in streaming a third party video service like Vudu or Hulu. Federal Communications Commission, 2014 Measuring Broadband America: Fixed Broadband Report, at 11, *available at* <http://data.fcc.gov/download/measuring-broadband-america/2014/2014-Fixed-Measuring-Broadband->

corresponding assessment of “a *significant* drop in broadband performance” is entirely consistent with the congestion issues Cogent highlighted in its March 21, 2014 comments in this proceeding and its petition to deny the Comcast-TWC merger.⁸⁹ Level 3 has also submitted virtually identical data.⁹⁰ Putting aside one of the more obvious conclusions that can be drawn from this data—that last-mile ISPs regularly throttle the traffic of transit providers that refuse to pay tolls for access to last-mile ISP subscribers—the Cogent and Level 3 charts also reflect the type of data that all ISPs should disclose and all end users should be entitled to receive, pursuant to an enhanced transparency rule.⁹¹

CONCLUSION

As Chairman Wheeler has stated, “the exercise of uncontrolled last-mile power is not in the public interest When network operators have unrestrained last-mile power, public policy can step in to protect consumers and innovators.”⁹² As shown above, protecting last-mile access and interconnection go hand-in-hand. Unless the Commission addresses interconnection within the context of this proceeding, any rules it ultimately promulgates promise to be a boon for last-

[America-Report.pdf](#) (last visited September 10, 2014) (“Many ISPs now closely meet or exceed the speeds they advertise, but there continues to be room for improvement.”).

⁸⁹ Cogent March 21, 2014 Comments at 18-19 (summarizing Cogent’s dealings with Verizon, which led to the congestion and degradation of content illustrated in Exhibits A and B, attached thereto); Declaration of Joseph Farrell, DPhil, Cogent Commc’ns Grp., Inc., MB Docket No. 14-57 (filed Aug. 25, 2014) ¶¶ 136-141 (discussing congestion Cogent experienced in 2012-2014 at interconnection points with AT&T, Comcast, TWC and Verizon).

⁹⁰ Level 3 July 15, 2014 Comments at 7-11 (discussing recent congestion issues Level 3 has experienced at its interconnection points with an unidentified last-mile ISP).

⁹¹ Mark Taylor, *When the Middleman and ISP are Aligned*, Beyond Bandwidth: Level 3 Communications Blog, <http://blog.level3.com/global-connectivity/when-the-middleman-and-isp-are-aligned/> (May 20, 2014) (noting that “every ISP has access to exactly the same data that [Level 3 has]. Every one of them could easily provide, on a city-by-city basis, a view into the level of use (and the congestion, if it is happening) of interconnections to the rest of the Internet”).

⁹² Wheeler September 4, 2014 Remarks at 5.

mile ISPs who can be expected to fully embrace the new rules, while continuing to exact bottleneck control over access to their networks and consumers at points of interconnection. In this sense, the essence of blocking, discriminating, and anticompetitive interconnection practices are precisely the same: each serves “as a means by which broadband providers can use the threat of degrading service to extract cash from content providers, and to favor [] some companies over others.”⁹³ For all of the foregoing reasons, and to be faithful to the Commission’s articulated objectives and policy goals as endorsed by the D.C. Circuit, Cogent encourages the Commission to promulgate new open Internet rules consistent with this and Cogent’s prior submissions in this docket.

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Respectfully Submitted,

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⁹³ Tim Wu, *Comcast Versus the Open Internet*, *The New Yorker*, <http://www.newyorker.com/tech/elements/comcast-versus-the-open-internet> (February 24, 2014); *see also* Comments of Public Knowledge, Benton Foundation and Access Sonoma Broadband, GN Docket No. 14-28 (filed July 15, 2014), at 112 (asserting that interconnection “practices can raise the types of ISP gatekeeper concerns that have traditionally animated open internet concerns”).