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

In the Matters of	)	
	)	
Protecting and Promoting the Open Internet	)	GN Docket No. 14-28
	)	
Preserving the Open Internet	)	GN Docket No. 09-191

COMMENTS OF LEVEL 3

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I. INTRODUCTION AND SUMMARY

Level 3 Communications, LLC ("Level 3") is pleased to offer these comments in response to the *Open Internet Order Remand Public Notice*.[1]

The D.C. Circuit's remand of the *Open Internet Order*[2] presents the Commission with the opportunity to remedy a significant omission in the order. The Commission's former rules were aimed at protecting the free and open Internet, the "level playing field" whose "openness promotes competition" and "enables a self-reinforcing cycle of investment and innovation."[3] But they failed to do so in a critical respect: they failed to address the interconnection between ISPs and those exchanging traffic with them. Yet it is in those interconnection relationships where some—though not all—ISPs are even today attempting to exploit their bottleneck control over access to their end users, demanding arbitrary and unreasonable access charges. Failing to address interconnection will cause precisely the harms to the free and open Internet that the Commission professed to be concerned about in the *Open Internet Order*, harms that "are significant and likely irreversible."[4]

Level 3 urges the Commission to protect the Internet from this abuse, by ensuring that bottleneck ISPs, which control the only means of Internet access to millions of consumers, are not permitted to impose these arbitrary access charges. That does not mean that ISPs should not be able to offer—and charge for—CDN, transit, or other services to edge providers and others. Rather, the Commission should declare that large bottleneck ISPs, in addition to offering any

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[1] *Protecting and Promoting the Open Internet*, GN Docket No. 14-28, Public Notice, DA 14-211 (rel. Feb. 19, 2014).

[2] *Preserving the Open Internet*, GN Docket No. 09-191, et al., Report and Order, FCC 10-201, 25 FCC Rcd 17905 (2010) (*Open Internet Order*).

[3] *Id*. ¶ 3.

[4] *Id*. ¶ 12.

commercial services they chose to make available, must also exchange Internet traffic on commercially reasonable terms without imposing access charges. That is, ISPs should be permitted to charge other providers for *services* they provide, but they may not charge fees simply for the privilege of *accessing* that ISP's customers.

Because Level 3's proposal requires only that ISPs offer interconnection on commercially reasonable terms, it would not impose common carrier duties on ISPs. Accordingly, consistent with the D.C. Circuit's decision in *Verizon*, the Commission could adopt Level 3's proposal whether it elects to reclassify broadband transmission services as "telecommunications services," which are subject to common carrier regulation under the Communications Act, or to continue to classify them as "information services," which are not.

II. DISCUSSION

A. The Commission Found, and the D.C. Circuit Agreed, that ISPs Have the Incentive and Ability to Threaten the Free and Open Internet

The Commission's Open Internet rules "aim[ed] to ensure the Internet remains an open platform."[5] Openness, the Commission explained, empowers users and edge providers, rather than gatekeepers like ISPs, and "maximizes commercial and non-commercial innovations that address key national challenges—including improvements in health care, education, and energy efficiency that benefit our economy and civic life."[6] Moreover, openness "enables a virtuous circle of innovation in which new uses of the network … lead to increased end-user demand for broadband, which drives network improvements, which in turn lead to further innovative network uses."[7]

[5] *Id.* ¶ 10.

[6] *Id.* ¶ 13.

[7] *Id.* ¶ 14.

This virtuous circle, however, "depends upon low barriers to innovation and entry by edge providers …. Restricting edge providers' ability to reach end users, and limiting end users' ability to choose which edge providers to patronize, would reduce the rate of innovation at the edge," disrupting the virtuous circle of innovation and investment and diminishing the potential value of the Internet.[8]

Yet, the Commission observed, large ISPs, which control access to millions of end users, have both the incentive and the ability to act to reduce openness. First, an ISP has an incentive to degrade services offered by edge providers that compete with the ISP's own services, or the services of an affiliate.[9] This is the concern that, for example, an ISP that has an affiliated video service (which all of the largest ISPs do) might degrade service to competing online services like Netflix, Hulu, YouTube, Amazon, and others.

In addition, the Commission found that ISPs have an incentive to act as gatekeepers, charging access fees or tolls to those who wish to deliver traffic to the ISP's customers, and to degrade or decline to improve performance for those who do not pay fees.[10] In contrast to an ISP's incentive to discriminate against services that compete with its own, this incentive simply to generate access revenues applies broadly to *any* traffic its users might request, whether that traffic competes with a service the ISP offers or not.[11] And ISPs "would be expected to set inefficiently high fees" for access to their users—which could be expected to cause some innovative edge providers to exit the market or to decline to enter it.[12] The Commission further

[8] *Id*.

[9] *See id*. ¶ 21.

[10] *See id*. ¶¶ 24, 29.

[11] *See id*. ¶ 24.

[12] *See id*. ¶ 24.

found that the resulting "harms to innovation … are likely to be particularly large because of the rapid pace of Internet innovation, and wide-ranging because of the role of the Internet as a general purpose technology."[13] Moreover, the harms would be particularly acute given that many new or potential entrants and innovators are small, and "particularly sensitive to barriers to innovation and entry."[14] The Commission also found that assertions that access charge revenues could be used by ISPs to offset charges to consumers were purely speculative, and that in any event, because of the other harms that access charges would cause, the possibility of reduced end-user charges did not justify allowing ISPs to charge such fees.[15]

ISPs, as the Commission found, have the ability to act on these incentives through a variety of mechanisms. And that is so even if they do not have market power in the end-user high-speed broadband market—although such market power would exacerbate the concern.[16] That is because consumers are "single homed." In other words, the ISP controls the only path through which Internet traffic can reach the user requesting it, even if the user was lucky enough to have had a choice between two such providers when signing up.[17] Moreover, the Commission further found that the theoretical possibility that consumers might switch broadband providers would be unlikely to discipline ISPs.[18] As the Commission observed, among other things, many end users may not know whether the charges or service levels an ISP is imposing are different from those imposed by an alternative provider—assuming there *is* an alternative provider that

[13] *See id*. ¶ 25.

[14] *See id*. ¶ 26.

[15] See id. ¶ 28.

[16] *See id*. ¶ 32.

[17] *See id*. ¶ 24 & nn. 65-66.

[18] *See id*. ¶¶ 27, 34.

offers broadband sufficient to support applications like streaming video—and even if the end users did know, they might find it costly to switch.[19] In addition, many end users might not know, when experiencing degraded performance, that the cause of that degradation is that the ISP's ports are congested.

Notably, the D.C. Circuit, in reviewing the Commission's rules, agreed with all of the above. The Commission's conclusion that "[c]ontinued innovation at the edge … depends on low barriers to innovation and entry by edge providers and thus restrictions on edge providers' ability to reach end users reduce the rate of innovation" found "ample support in the economic literature as well as in history and the comments of several edge providers."[20] And the court found "no basis for questioning" the determination that "the preservation of Internet openness is *integral* to achieving the statutory objectives set forth in section 706."[21] The court further agreed that ISPs have the incentive and ability to discriminate against competing services.[22] Moreover, the court agreed, "broadband providers have *powerful incentives* to accept fees" from those who wish to deliver traffic to the ISPs' end users as well as the ability to impose those fees.[23] Nor could the court find any reason to quibble with the Commission's determination that the theoretical possibility of losing end users to a competitor was unlikely to deter ISPs from engaging in harmful conduct.[24]

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[19] *See id*.

[20] *Verizon v. FCC*, 740 F.3d 623, 644-45 (D.C. Cir. 2014) (internal quotation marks, citations, and alterations omitted).

[21] *Id*. at 645 (emphasis added).

[22] *See id*. at 645-46.

[23] *See id*. (emphasis added). The court agreed that Commission's findings on this last point were "based firmly in common sense and economic reality." *Id*. at 646.

[24] *See id*. at 646-47.

B. By Failing to Address Interconnection, the Commission's Open Internet Rules Failed to Address the Threats the Commission Identified

While the Commission accurately identified ISP's incentives and ability to threaten the free and open Internet, its rules inexplicably failed to address the threat it had identified. The Commission's rules, for example, would have prohibited an ISP from charging a toll to edge providers in order to ensure that those edge providers' traffic would flow smoothly to the ISPs' customers. But the rules did not address whether the ISP could charge a similar toll to the transit or CDN providers (referred to collectively below as "transit" providers) that actually interconnect with the ISP to deliver that traffic.

Both tolls on edge providers and tolls on transit providers pose the same risks to the free and open Internet. That is, just as an ISP has the incentive and ability to charge tolls to edge providers in order to generate revenues (and which generate significant negative externalities),[25] it has the same incentive and ability to charge tolls to transit providers to generate revenue. If an ISP's tolls were charged and paid, transit providers, which operate in a highly competitive market which has seen tremendous price compression over the years, would have no choice but to pass these significant, additional costs on to those who purchase transit from them—the very edge providers that the Commission was attempting to protect from such tolls. The costs thus passed on would cause the same harm as if they had been imposed directly on edge providers. Similarly, the prospect of collecting these tolls, whether from edge providers or from transit providers, creates the same incentive for ISPs to allow their connections with transit providers to congest and degrade.[26] And of course ISPs can act on their incentive to harm a provider of a competing service by targeting transit providers who carry that competing service's traffic, either

[25] *See Open Internet Order* ¶¶ 24-25.

[26] *See id.* ¶ 29.

by refusing to augment capacity or by demanding tolls.[27] In such circumstances, if a transit provider refuses to pay an ISP's arbitrary toll, the ISP can react by refusing to augment congested interconnection links, negatively impacting the quality of competing services—and the most significant competing services, over the top VoIP and streaming video, are the most sensitive to performance degradation caused by interconnection congestion.[28] If a transit provider agrees to pay the ISPs' tolls and passes them on to its customers, those competing services will be forced to pay a cost that would necessarily be discriminatory, because the ISP's own competing services could not be required to bear the same cost by paying the same toll to itself.

These are not theoretical concerns. Over the past few years, as Internet traffic has continued to grow, Level 3 has worked to expand interconnection capacity between the Level 3 network and ISPs' networks. Yet some—though not all[29]—large ISPs have told Level 3 that they will not cooperate to augment interconnection capacity between the Level 3 network and their own networks unless Level 3 agrees to make new recurring toll payments to the ISPs for access to their customers. While Level 3 is willing to work with ISPs to ensure that all costs are borne fairly (i.e. that Level 3 will incur the costs to augment its network if the ISP will likewise incur the costs to augment the ISP's network), the tolls that ISPs are seeking to impose are unrelated to costs.[30] They are, instead, simply "gatekeeper" fees, which the ISPs seek to obtain

[27] *See id.* ¶ 21.

[28] Online games, which are growing rapidly in popularity, can also be highly sensitive to Internet performance.

[29] Some ISPs have worked with Level 3 to agree to commercially reasonable interconnection terms, though none of those agreements is perpetual.

[30] The costs to exchange traffic between networks depend primarily on the volume of traffic and the distance each network carries it. Traffic direction, which some ISPs suggest should determine payment, is unrelated to costs, as the costs associated with the carrying and exchange of traffic between two networks would be the same if traffic flows were reversed. Moreover, if the question is one of cost

by restricting access to their users. They are, in other words, exactly the kinds of fees the Commission was concerned about in the *Open Internet Order*.

While the precise size of the tolls demanded vary from ISP to ISP, in Level 3's experience they frequently equal or even exceed the price that Level 3 charges its customers for transit to those ISPs' networks (and the rest of the Internet as a whole). Said another way, some ISPs want to charge an access fee for access to their little corner of the Internet (i.e. their customers) that frequently equals or exceeds the fees Level 3 charges its transit customers to reach every destination on the Internet. And these ISP access prices would likely be just the beginning. The rational price for an ISP exploiting its terminating monopoly to charge is, of course, the price that maximizes its profit—a price reflecting its monopoly. As previously noted, transit providers like Level 3 operate in a highly competitive market, and, to avoid selling at a loss, Level 3 and other transit providers would be forced to pass on these additional costs to their customers. The Commission could expect that these charges would have an appreciable impact on costs for edge providers, including "new or small 'garage entrepreneurs'" who, the Commission found, are so highly sensitive to costs.[31] On the other hand, as noted above, the ISP's own, competing services would not be required to pay those tolls.

As a result of these attempts by some ISPs to exploit their control over their customers and to extract access tolls, interconnection points between the Level 3 network and these ISP networks have become extremely congested, well beyond the point where any reasonable network engineer would agree that interconnection capacity must be augmented. Figures 1 and 2 below show the output of an internal Level 3 tool called "3map," which can generate a graphical

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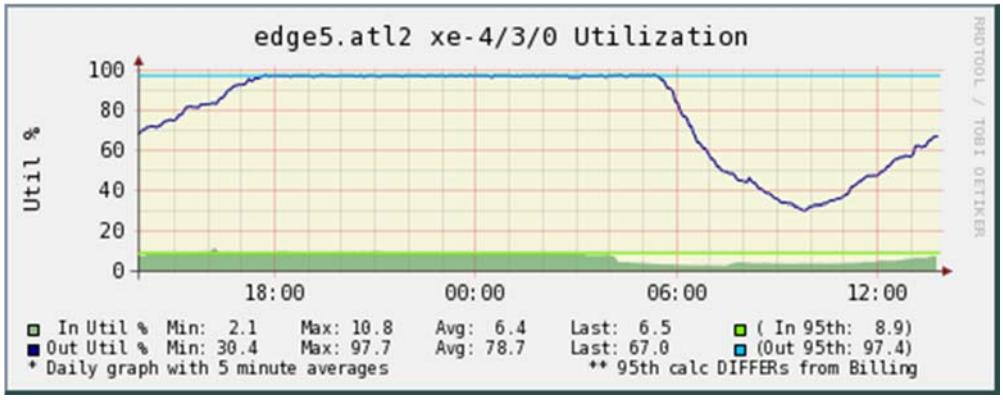
causation, then it is the ISPs' users, who request large downloads (especially video), who are causing both networks' costs.

[31] *See Open Internet Order* ¶ 26.

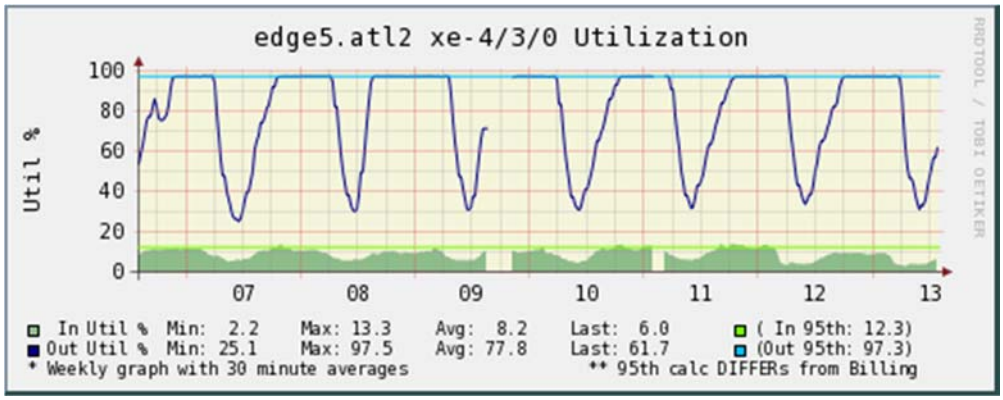
report of the utilization level for a particular Level 3 interconnection port. The port shown in both figures is the same port: a typical interconnection port with one large ISP ("ISP X") that has many millions of end-user customers. ISP X has refused to augment interconnection capacity unless Level 3 agrees to pay a toll, which Level 3 has declined to pay. Figure 1 shows the port over a 24-hour period; Figure 2 shows the same port over a one-week period.

Figure 1



One of many Level 3 interconnection ports with ISP X, a large ISP that has refused to augment interconnection capacity unless Level 3 agrees to pay a toll. The chart shows the utilization of the port over a 24-hour period. Times are in GMT; this graph was generated on Thursday, March 13, 2014.

Figure 2



The same interconnection port showing data over a one-week period. The break in the line graph for outbound traffic on March 9 represents a period for which data were unavailable. This graph was generated on Thursday, March 13, 2014.

As Figures 1 and 2 show, each day, the interconnection port between Level 3 and ISP X congests and remains congested for a significant part of the day, because the networks are trying to exchange more data through that interconnection port than it can handle. The consequences of that congestion are well understood: data packets are delayed or dropped. The effect on the consumer varies. If a delayed or dropped data packet is part of an email, then there might simply be a short delay in the delivery of that message. If the data packet is carrying information for a performance-sensitive application like a voice phone call or a streaming video, the impact on the user experience can be much more significant, as calls could become garbled—even potentially calls to 911—and online videos could be interrupted or seriously degraded.

Level 3's experience with ISP X is, unfortunately, the predictable consequence of the incentives the Commission identified in the *Open Internet Order*, coupled with the Commission's failure to address interconnection in its open Internet rules. That is, the ISP was not, while the Open Internet rules were in place, able to act on its incentives to extract revenue or discriminate against competitors by targeting edge providers directly. But it can and has done so by targeting intermediaries like Level 3. Indeed, in some respects, it is a simpler matter for an ISP to target providers like Level 3 rather than the edge providers directly. That is because it need not develop any particular technological solution to target specific traffic. It can, instead, just "do nothing" and let its ports congest. And ISP X can also deny that it is affirmatively targeting any particular edge provider competitor, or discriminating against edge providers and in favor of its own services, even though such discrimination is the unavoidable consequence of its purportedly neutral conduct.

C. The Commission Should Require ISPs to Interconnect on Commercially Reasonable Terms

The D.C. Circuit's decision in *Verizon* gives the Commission the opportunity to remedy its earlier mistake in failing to address threats to openness in the interconnection context. Specifically, the Commission should require last-mile ISPs to interconnect on commercially reasonable terms, without the payment of an access charge. Commercially reasonable terms need not be one-size-fits-all. But, consistent with the analysis set forth in the *Open Internet Order*—and approved by the D.C. Circuit—and the discussion above, the Commission should clarify that *access* charges, where an ISP charges those it exchanges traffic with simply for the privilege of reaching its users, as opposed to charges for services, are not commercially reasonable. Level 3 does not here propose to define (and the Commission need not define at the outset) every potentially commercially reasonable approach to interconnection. But the Commission should set out some principles for, and examples of, commercial reasonableness. For example, the Commission should clarify that an ISP interconnects on commercially reasonable terms:

- if the ISP agrees to provide interconnection, including augmenting existing interconnection capacity when congested, without charge; or
- if the ISP identifies a location in each local market (or larger geographic area) where it will provide sufficient interconnection capacity, including augmenting interconnection capacity as necessary, to exchange traffic for that area without charge.[32]

[32] As noted previously, network cost is correlated with the amount of traffic carried and the distance it is carried. Accordingly, when Level 3 or another transit provider invests in deploying fiber and equipment into each local market in this way, it reduces the costs for the ISP.

On the other hand, it is likely commercially reasonable for an ISP to offer these terms only to interconnecting entities that exchange a certain minimum amount of traffic with the ISP—the ISP should not be required, against its own wishes, to interconnect with every requesting entity, no matter how little traffic the entity might exchange with the ISP.[33]

This proposed rule would directly target the threat large, last-mile bottleneck ISPs pose to the free and open Internet when they attempt to leverage their control over access to their users to generate inefficient rents and harm their competitors. Yet the proposed policy would not prevent ISPs from offering services, such as transit services or CDN services, to those that wish to interconnect with them (whether edge providers or others), provided that they also offer interconnection on commercially reasonable terms as described above. The rule would simply prohibit ISPs from levying tolls for access to customers.

In addition, the proposed policy could be adopted, consistent with the D.C. Circuit's decision in *Verizon*, whether the Commission elects to reclassify broadband Internet service as a common carrier service or not. In *Verizon*, the court concluded that the vacated Open Internet rules—prohibiting ISPs from blocking or discriminating against certain contact—imposed common carrier duties.[34] This, the court explained, the Commission could not do, because the Commission had classified broadband as an information service rather than as a telecommunications service, and information services, unlike telecommunications services, are

[33] Other approaches might also be commercially reasonable. For example, Level 3 has elsewhere endorsed a concept called "Balanced Bit-Mile Peering" which is designed to ensure that providers share the burden of carrying traffic in a roughly equal way. *See* Comments of Level 3 Communications, LLC, WT Docket No. 12-240, at 8-9 & n.10 (filed Oct. 1, 2012); Level 3 IP Traffic Exchange Policy http://www.level3.com/en/legal/ip-traffic-exchange-policy/ (visited Mar. 20, 2014). An ISP agreeing to interconnect with Level 3 on those terms would satisfy the requirement that it interconnect on commercially reasonable terms with Level 3.

[34] *See Verizon*, 740 F.3d at 655-58.

exempt from being subject to common carrier regulation under Title II of the Communications Act.[35]

The Level 3 proposal to require only that ISPs agree to interconnect on commercially reasonable terms could be implemented in a way that was sufficiently flexible so as to not impose common carrier duties. For example, the Commission could decide that the requirement could be met by an ISP agreeing to different terms, suited to the unique circumstances of the parties at the time, with different interconnection partners.[36] The key requirement would simply be that the terms offered be commercially reasonable, which means that there was some reasonable offer to interconnect that would not require a payment for access.[37] Needless to say, while the Commission would not have to reclassify broadband Internet access as a telecommunications service to adopt the Level 3 proposal, if it were to do so, there would be no question that the Commission could adopt the Level 3 proposal.

III. CONCLUSION

The Commission was right in the *Open Internet Order* to focus on the threat that large ISPs pose to the free and open Internet. Yet the Commission's half-measures went less than halfway toward solving the problem it identified. The Commission's rules simply invited ISPs to target their actions in a different direction, which they have obligingly done, to the detriment of edge providers and the end users who make the Internet so incredibly powerful and valuable. Today, many end users are suffering a worse experience on the Internet than they would be if

[35] *See id*. at 650.

[36] For example, an ISP might offer to interconnect in just a few locations for those with whom it exchanges relatively less traffic, while it might demand that those with whom it exchanges more traffic interconnect in more locations. It might, alternatively, choose to expand interconnection capacity with some transit providers where they already exchange traffic.

[37] Payments for things like space or power in a facility could be reasonable, though payment merely for access would not be.

their ISPs were not engaging in these tactics. And while it is impossible to quantify, now, how much worse consumers' future Internet experience will be than it otherwise could be, or how much innovation will never happen, or how much higher prices for online services might be, those are the predictable consequences if the Commission fails to act. Level 3 urges the Commission to correct its omission promptly.

Respectfully submitted,

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