

**COGENT EUROPE, S.À.R.L'S RESPONSE TO BERC'S PUBLIC CONSULTATION
ON THE PROPOSED GUIDELINES ON THE IMPLEMENTATION
BY NATIONAL REGULATORS OF EUROPEAN NET NEUTRALITY RULES**

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INTRODUCTION

Cogent Europe, S.à.r.l. (“Cogent”) submits this response to BEREC’s June 2016 public consultation on the Proposed Guidelines on the Implementation by National Regulators of European Net Neutrality Rules (the “Proposed Guidelines”). Cogent focuses on proposed guidance concerning the implementation of rules “to safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-user rights,” as provided in Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 (the “Regulations”). Specifically, Cogent explains below why and how the final Guidelines should anticipate and address more explicitly certain conduct and practices at interconnection points where transit providers and Content and Application Providers (CAPs) exchange traffic with eyeball EU internet service providers (ISPs). In sum, Cogent explains why end-users’ rights to use the internet necessarily imply an affirmative obligation by ISPs offering internet access services (IAS) to provide and maintain sufficient connectivity with other internet networks at interconnection points to ensure that traffic requested by end-users flows uncongested and without unnecessary delay to and from all internet endpoints.

Cogent, along with its various affiliated operating companies, is a facilities-based provider of low-cost, high-speed internet access and internet Protocol (“IP”) communications services. Cogent’s IP network spans forty-one countries in Europe, Asia, and North America, and consists of nearly 56,000 route miles of intercity fiber and more than 28,000 metro fiber miles. Its network provides service to over 190 major markets. The breadth of this connectivity makes Cogent’s network one of the largest in the internet’s infrastructure, sometimes referred to as a “Tier 1” network, such that Cogent now exchanges traffic on a settlement-free basis (*i.e.*,

without either party compensating the other monetarily for the exchange of internet traffic) with peer networks in eleven different countries, including nine within Europe.¹

In Europe, Cogent primarily serves as a transit provider of high-speed internet connectivity to both retail ISPs and CAPs, including universities, telephone companies, cable television companies, web hosting companies, content delivery networks, and online video distribution providers. The service Cogent provides to its transit customers is access to virtually all internet endpoints. Based on its experience as a transit provider in Europe, Cogent has firsthand knowledge of the impact that ISP conduct at interconnection points can have on CAPs and end-users alike.

Cogent strongly supports the adoption and enforcement of EU net neutrality rules that will protect the transformational role the internet has come to occupy in virtually every sphere of life, and ensure that the internet remains an open platform for all forms of communication, innovation, and economic growth. However, in adopting a meaningful set of guidelines, BEREC should bear in mind the myriad ways in which an open internet can be (and, indeed, has been) impeded. In particular, limiting the reach of the Regulations to conduct that occurs *only* within the boundaries of an ISP's proprietary network fails this test.

A defining characteristic of the internet is the ubiquity of connectivity it facilitates, allowing end-users connected to one network to reach end users or CAPs connected to a multitude of other networks. To be effective, and to achieve the goals the European Commission

¹ As BEREC has explained, interconnection on the global internet has historically operated “on the basis of transit/peering arrangements at the higher level and a ‘bill & keep’ approach whereby the terminating access network operator (i.e., ISP) does not receive payments at the wholesale level for terminating traffic, but recovers its costs at the retail level from the end user.” See BEREC, *An Assessment of IP Interconnection in the Context of Net Neutrality* at 52 (“BEREC Interconnection Report”), available at http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/1130-an-assessment-of-ip-interconnection-in-the-context-of-net-neutrality (December 6, 2012). See also *id.* at 21 (“Peering is a bilateral agreement between ISPs to carry traffic for each other and for their respective customers. Peering does not include the obligation to carry traffic to third parties. The exchange of traffic typically occurs settlement free.”).

(EC) repeatedly has articulated, the Guidelines must explicitly account for the exchange of traffic at the interconnection points where content requested by ISP subscribers is delivered to ISP networks by CAPs or transit providers, and the extent to which that traffic is subject to manipulation that ultimately harms consumers.

In Section I below, Cogent explains the critical role interconnection plays in the provision of IAS and why the final BEREC guidelines should reach beyond the boundary of an ISP's proprietary network and address those aspects of internet traffic exchange that directly implicate EC efforts to ensure that all Europeans have access to the online content and services of their choosing without ISP discrimination or interference. In Section II, Cogent uses the factors identified by the Guidelines and Regulations to show how interconnection practices can be, and have been, used to limit end-user's rights and circumvent the Regulations' objectives. Finally, in Section III, Cogent provides specific recommendations on how the Proposed Guidelines should be enhanced in order to best protect end-users' rights.

I. The Essential Role of Interconnection in the Provision of Internet Access Services

The Regulations already recognize that “a significant number of end-users are affected by traffic management practices which block or slow down specific applications or services.”² Moreover, the European Parliament also has acknowledged that “[d]isruptions of interconnection or deterioration of interconnection service quality at the wholesale level could lead to a situation in which end-users and content providers cannot reach all destinations on the Internet.”³ These,

² See Regulation, Recital 3. In 2012 BEREC reported that between 21% and 36% of internet access subscribers were affected by blocking or throttling depending on the type of application (e.g., VoIP, peer-to-peer traffic). See BEREC, *A View of Traffic Management and Other Practices Resulting in Restrictions to the Open Internet in Europe* at 21 (May 29, 2012), available at http://berec.europa.eu/files/document_register/2012/7/BoR12_30_tm-snapshot.pdf.

³ See European Commission, *Public Consultation on Specific Aspects of Transparency, Traffic Management and Switching in an Open Internet, EC Questionnaire* at 11 (July 23, 2012), available at https://ec.europa.eu/digital-single-market/sites/digital-agenda/files/Questionnaire_0.pdf.

and other inherent characteristics of IAS and the exchange of IP traffic that facilitates such services, establish a set of facts which are beyond dispute and, if ignored by BEREC and EU member NRAs, threaten to undermine the efficacy of the Regulations and Guidelines. 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;⁴
- During this time, and inconsistent with historical industry practice, certain EU ISPs have refused to augment capacity at their interconnection points with transit providers in an effort to extract revenue and/or favor their own or affiliated services;⁵
- ISP refusals to augment capacity at interconnection points have resulted in the degradation of service to their own end-users;⁶
- Very little, if any, of the congestion or degradation of third-party content actually occurs *inside* ISP networks;⁷
- *All* off-net content subjected to congestion and degradation is requested by paying ISP subscribers. In other words, neither transit providers nor CAPs “force” traffic on ISP end-users. The only content delivered is that which is requested and paid for by those consumers;⁸

⁴ Overall annual global IP traffic, 80% of which is expected to be comprised of online video, is estimated to triple from 2014 to 2019 and reach 2 zettabytes. This includes compound annual growth rates in IP traffic of 21% in Western Europe and 33% in Central Europe. See Press Release, *Cisco Visual Networking Index Predicts IP Traffic to Triple from 2014-2019; Growth Drivers Include Increasing Mobile Access, Demand for Video Services* (May 27, 2015), available at <https://newsroom.cisco.com/press-release-content?type=webcontent&articleId=1644203>. See also BEREC Interconnection Report at 36 (“Generally, the traffic at the biggest European IXPs—DE-CIX, AMS-IX, LINX—are characterized by a constant growth. For example, average traffic throughput at the DE-CIX reached approximately 500 Gbits/s at the end of 2010, approximately 800 Gbits/s at the end of 2011 and approximately 1.250 Gbits/s at the end of April 2012.”).

⁵ See Cogent Communications, *On DGCONNECT’s Public Consultation on Specific Aspects of Transparency Traffic Management and Switching in an Open Internet* at 6-7 (2012), available at <https://ec.europa.eu/digital-single-market/en/news/answers-public-consultation-specific-aspects-transparency-traffic-management-and-switching-open>. See also Section II *infra*.

⁶ *Id.*

⁷ This is because most data which end-users seek is situated “off-net” (*i.e.*, the content does not reside on the eyeball ISP’s network).

⁸ See BEREC Interconnection Report at 60-61 (“The request for the data flow usually stems not from the CAP who sends the data but from the retail Internet access provider’s own customer (who ‘pulls’ content provided by the CAPs, and from whom the ISP is already deriving revenues)”).

- Both ISP *and* transit provider networks have sufficient capacity to accept and deliver the increased amount of bandwidth-intensive content end users are demanding. Certain ISPs have simply chosen not to do so;
- ISPs control the actual connections (*e.g.*, ports) through which unaffiliated content requested by their own subscribers and handed off by transit providers or CAPs is delivered to those customers;
- The burden and expense associated with upgrading capacity at interconnection points, and thereby remedying congestion and resulting degradation, is minimal;⁹ and
- While thousands of networks collectively comprise the internet, eyeball ISPs provide the *only* path to reach the tens of millions of customers who subscribe to their particular internet access service.¹⁰

Notwithstanding these industry realities, the Proposed Guidelines fail to sufficiently recognize the import of interconnection to ensuring the Regulations’ objective “to safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-user’s rights.”¹¹ Because bandwidth-intensive and latency-sensitive traffic cannot permeate congested interconnection facilities—or, at a minimum, cannot do so without

⁹ See BERC Interconnection Report at 37 (explaining that “there is ample evidence of falling equipment cost” for “core network” routers and optics, and showing that by 2012 router costs had fallen to approximately \$1000/Gbps). See also *In the Matter of Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc. and SpinCo for Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, Declaration of Henry (Hank) Kilmer, Vice President, IP Engineering, Cogent Commc’ns Grp., Inc.) ¶ 19 (filed Aug. 25, 2014) (“Kilmer Decl.”), available at <https://www.fcc.gov/ecfs/filing/6018318046/document/7521817735> (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 [10 Gbps] port card to its router, the capital cost for each additional port is less than \$10,000.”); *In the Matter of Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc. and SpinCo for Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, Declaration of Ken Florance, Vice President, Content Delivery, Netflix Inc. ¶ 46 (filed Aug. 25, 2014), available at <https://ecfsapi.fcc.gov/file/7521819696.pdf> (explaining that “adding [10 Gbps] port capacity costs less than \$10,000—a cost which is typically amortized over three to five years by [eyeball ISPs].”); Mark Taylor, *Verizon’s Accidental Mea Culpa*, Beyond Bandwidth: Level 3 Communications Blog (July 17, 2014), available at <http://blog.level3.com/global-connectivity/verizons-accidental-mea-culpa/> (explaining that ports cards “are very cheap, just a few thousand dollars for each 10 Gbps card”).

¹⁰ Eyeball ISPs’ control over these customers is furthered by the costs their end users face to switch to another ISP. See BERC Report, *Guidelines for Quality of Service in the Scope of Net Neutrality* at 45 (Nov. 26, 2012) (“BEREC QoS Report”) (“switching generally comes at a cost, a cost which an end-user might not immediately be willing to pay because of the throttling or blocking of one single or a few applications. Also, end-users often have long(er)-term contracts, and can thus not switch immediately when they are confronted with an unwanted practice”).

¹¹ Regulation Article 1(1).

experiencing degradation—the maintenance of such congested facilities fails to comport with this core aim. Moreover, much of the discriminatory conduct the Regulations aim to address can and does occur just outside the boundary of an eyeball ISP’s network—at the interconnection points where content requested by ISP subscribers is delivered to ISP networks by CAPs or transit providers. Thus, the only way to prevent evasion of the Regulations is to remove the artificial distinction that provides a safe harbor for conduct at interconnection points that is antithetical to an open internet. Failure to do so will effectively allow EU ISPs to do indirectly (*i.e.*, just outside the boundary of their networks) what they are prohibited from doing directly (*i.e.*, within their own networks).

The Proposed Guidelines mention interconnection—the only means by which an ISP can provide access to the internet, as distinct from its own network—very few times. They state, for example, that “the provision of interconnection is a distinct service from the provision from IAS.”¹² Absent unambiguous language addressing the exchange of traffic between eyeball ISPs and other networks, however, the final Guidelines will perpetuate a loophole that would swallow the Regulations. Perhaps in recognition of this, the Proposed Guidelines go on to provide that:

NRAs may take into account the interconnection policies and practices of ISPs in so far as they have the effect of limiting the exercise [of] end-user rights under Article 3(1). For example, this may be relevant in some cases, such as if the interconnection is implemented in a way which seeks to circumvent the Regulation.¹³

This statement is correct as far as it goes and, at an absolute minimum, should be preserved in the final Guidelines. Indeed, it implicitly recognizes the unassailable fact that without interconnection there is no internet access, and with degraded interconnection there is degraded internet access.

¹² Proposed Guidelines ¶ 5.

¹³ *Id.* ¶ 6.

However, the Guidelines should go further and explicitly address the following additional facts concerning the inextricable link between interconnection and the provision of IAS:

First, interconnection—even though it is deemed a distinct service from the provision of IAS—is nonetheless subsumed within the IAS sold and provided to end-users, because it is the only mechanism by which an ISP can provide access to “virtually all end points of the internet.”¹⁴ Without interconnection, an end-user can only access what is on their ISP’s network. In this regard, findings of the United States Federal Communications Commission (“FCC”), recently upheld by a U.S. appellate court,¹⁵ are instructive:

- “The service to edge providers [or CAPs] is subsumed within the promise made to the retail customer of the BIAS [broadband Internet access service]” and “is always a part of, and subsidiary to, the BIAS service.”¹⁶
- “BIAS provider practices with respect to [interconnection] arrangements are plainly ‘for and in connection with’ the BIAS service.”¹⁷
- “BIAS involves the exchange of traffic between a broadband Internet access provider and connecting networks. The representation to retail customers that they will be able to reach ‘all or substantially all Internet endpoints’ necessarily includes the promise to make the interconnection arrangements necessary to allow that access.”¹⁸

¹⁴ Regulation Article 2(2).

¹⁵ *U.S. Telecom Assoc. v. FCC*, Case No. 15-1063 (June 14, 2016), available at [https://www.cadc.uscourts.gov/internet/opinions.nsf/3F95E49183E6F8AF85257FD200505A3A/\\$file/15-1063-1619173.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/3F95E49183E6F8AF85257FD200505A3A/$file/15-1063-1619173.pdf).

¹⁶ Report and Order on Remand, Declaratory Ruling, and Order, *Protecting and Promoting the Open Internet*, GN Docket No. 14-28, FCC 15-24 at ¶ 338 (rel. Mar. 12, 2015), available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf (“FCC Open Internet Order”). The FCC has defined “broadband Internet access service,” or BIAS, in relevant part, as “A mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all Internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up Internet access service.” *Id.* ¶ 25. Particularly for the purposes of addressing the link between interconnection and the provision of IAS, the FCC’s definition of “BIAS” and the European Parliament’s definition of “IAS” (*see* Regulation Article 2(2)) are functionally equivalent.

¹⁷ *Id.* ¶ 204.

¹⁸ *Id.* ¶ 28. Accordingly, the provision of IAS necessarily entails an ISP’s interconnections with CAPs (*e.g.*, Netflix) or their intermediaries (*e.g.*, transit providers like Cogent).

- “[B]roadband Internet access service encompasses the exchange of Internet traffic by an edge provider or an intermediary with the broadband provider’s network.”¹⁹

Accordingly, there is no tension between opting not to directly regulate interconnection, on the one hand, and concluding that interconnection practices used to circumvent the Regulations will be subject to some degree of regulatory oversight, on the other. That is the very model recently adopted and affirmed in the United States. More importantly, it comports with the reality of internet architecture and the provision of IAS.

Second, as is well-established, eyeball ISPs have obvious incentives and abilities to limit internet openness, including by engaging in interconnection conduct that impairs or degrades the delivery of “off-net” traffic. Numerous European incumbents have sought to convert settlement-free peers into paying customers in an effort to extract monetary concessions. Some of those incumbents have additional motivations. To that end, eyeball ISPs who offer their own on-demand video services and/or voice services are incentivized to steer their subscribers toward their own proprietary services and away from competitive products offered by CAPs such as YouTube, Maxdome or Skype.²⁰ For example, in 2013 Deutsche Telekom acted on such incentives, proposing a policy that would have throttled all traffic to a customer *other than* DT’s own IPTV service once a data cap was met.²¹ Only after the proposed plan was blocked by a German court did DT abandon this proposal.²² Moreover, as the FCC and U.S. Court of Appeals for the D.C. Circuit have recognized:

¹⁹ *Id.* ¶ 193.

²⁰ See BEREC Interconnection Report at 14 (“Often, ISPs provide services over the user’s broadband connection bundled with the Internet access that compete with for example over-the-top providers.”).

²¹ See David Meyer, *Deutsche Telekom’s ‘Anti-Net-Neutrality’ Plans Alarm German Government*, GigaOm (Apr. 25, 2013), available at <https://gigaom.com/2013/04/25/deutsche-telekoms-anti-net-neutrality-plans-alarm-german-government/>.

²² See Hannibal Hanschke, *Court Blocks Deutsche Telekom Plans to Cap Internet Speed*, Reuters (Oct. 30, 2013), available at <http://www.reuters.com/article/us-deutschetelekom-ruling-idUSBRE99T0N120131030>; Fabian

[B]roadband providers are in a position to act as a “gatekeeper” between end users’ access to edge providers’ applications, services, and devices and reciprocally for edge providers’ access to end users. Broadband providers can exploit this role by acting in ways that may harm the open Internet, such as preferring their own or affiliated content, demanding fees from edge providers, or placing technical barriers to reaching end users.²³

As BEREC itself has explained:

Interconnection on the Internet has operated on the basis of transit/peering arrangements . . . and a “bill & keep” approach where the terminating access network operator does not receive payments at the wholesale level for terminating the traffic, but recovers its costs at the retail level from the end-user. If “bill & keep” were to be replaced by SPNP [“sending party network pays”] then the ISP providing access could exploit the physical bottleneck for traffic exchange and derive monopoly profits, requiring regulatory intervention.²⁴

It is precisely the ability and incentives to “exploit” such “bottlenecks” that the Regulations and Guidelines must address.

Third, it follows that ISP interconnection practices can have the purpose and/or effect of circumventing the Regulations. This concern is not speculative. Indeed, interconnection policies and practices—specifically refusals to provision sufficient capacity, whether based on a pretext of traffic ratios or otherwise—have been used by EU ISPs to limit end-users’ rights. As detailed in Section II, for example, Orange already has discriminated against competing content by refusing to upgrade interconnection ports between its network and Cogent’s network, thereby degrading its end-users’ experiences with bandwidth-intensive and latency-sensitive services like

Bimmer, *Deutsche Telekom Plans New Package After Internet Cap Blocked*, Reuters (Dec. 2, 2013), available at <http://finance.yahoo.com/news/deutsche-telekom-plans-packages-internet-114636544.html>.

²³ FCC Open Internet Order ¶ 80; *Verizon v. FCC*, 740 F.3d 623, 645 (D.C. Cir. 2014) (recognizing that “broadband providers may be motivated to discriminate against and among edge providers”). *See also* FCC Open Internet Order ¶ 85 (“[P]ast instances of abuse indicate that broadband providers have the technical ability to act on incentives to harm the open Internet. . . . Use of these techniques may ultimately effect the quality of service that users receive, which could effectively force edge providers to enter into paid prioritization agreements to prevent poor quality of content to end users.”).

²⁴ *See* BEREC Interconnection Report at 52.

online video and VoIP.²⁵ In sum, if an ISP engages in interconnection practices that impede its ability to provide the “access to the internet, and thereby connectivity to virtually all end points of the internet” that it sells to consumers, then the IAS the ISP is offering to consumers is, by definition, compromised.²⁶

II. The Permissive Ability for NRAs to Take Interconnection Policies and Practices Into Account, As The Proposed Guidelines State, Is Necessary, But Not Sufficient, To Stop ISPs’ Interference With End-Users’ Rights

As noted above, the Proposed Guidelines provide:

NRAs may take into account the interconnection policies and practices of ISPs in so far as they have the effect of limiting the exercise end-user rights under Article 3(1). For example, this may be relevant in some cases, such as if the interconnection is implemented in a way which seeks to circumvent the Regulation.²⁷

As explained in Section III, the final Guidelines should be strengthened in several ways to prevent or deter ISP manipulation of interconnections in a manner that infringes on end-users’ rights through discrimination against CAPs and distortion of the transit market. At minimum, however, BEREC should preserve paragraph 6 in full for the reasons provided here.

BEREC’s recognition that interconnection policies and practices can be used to limit end-user rights is fundamentally correct. Specifically, interconnection manipulation by ISPs can (and has) limited end-users’ right to “[a]ccess and distribute information and content” or “[u]se and provide applications and services” through their ISP.²⁸ The infringement of these rights through interconnection policies and practices is most easily confirmed through application of the factors

²⁵ See *infra* Section II at pg. 14-16.

²⁶ FCC Open Internet Order ¶ 199 (“When links are congested and capacity is not augmented, the networks—and applications, large and small, running over the congested links into and out of those networks—experience degraded quality of service due to reduced throughput, increased packet loss, increased delay, and increased jitter.”) (citations omitted); *id.* ¶ 204 (“We note that anticompetitive and discriminatory practices in [the interconnection] portion of broadband Internet access service can have a deleterious effect on the open Internet.”).

²⁷ Proposed Guidelines ¶ 6.

²⁸ Regulation Article 3(1); Proposed Guidelines ¶ 21-22.

identified in Proposed Guidelines paragraph 43. While these recommended factors are tailored to analyzing whether terms in commercial agreements between ISPs and their end-users comply with the Regulations,²⁹ the factors provide insight into the effect of interconnection practices because they provide a framework of analysis for determining when “the exercise of end-users’ rights” are being “limit[ed].”³⁰ In this Section, Cogent uses the factors enumerated in the Proposed Guidelines to show why and how interconnection policies and practices are subject to abuse that can impede end-users’ rights.

As a preliminary matter, however, it is critical to underscore the essential role interconnection plays in end-users’ ability to access the internet. As BEREC previously has explained, “To provide connectivity, eyeball ISPs need to buy upstream capacity through transit and/or peering, so that their customers can access content from distant non-affiliated CAPs connected to other ISPs.”³¹ An end-user thus cannot make use of the IAS sold to—and paid for by—them if their ISP does not maintain interconnection policies and practices that ensure “connectivity to any accessible end-points of the internet” as required by the Regulations.³² Accordingly, policies and practices that result in poorly functioning interconnection between ISPs and other networks directly and adversely impact end-users’ rights to access the internet.

A. ISPs Can Circumvent The Goals Of The Regulations Through Interconnection Practices

NRAs should evaluate interconnection policies and practices because they can be used to “circumvent” the “goals of the Regulation,”³³ which is to “safeguard equal and non-

²⁹ Proposed Guidelines ¶ 28, 32-45.

³⁰ Proposed Guidelines ¶ 32; Regulation Article 3(2).

³¹ BEREC Interconnection Report at 14.

³² Regulation Recital 4.

³³ Proposed Guidelines ¶ 42.

discriminatory treatment of traffic in the provision of internet access services and related end-users' rights."³⁴ This objective is evaded any time an ISP adopts a policy or engages in a practice that artificially limits capacity of interconnection points, which creates congestion that has a discriminatory effect on certain CAPs and, ultimately, the end-users that wish to access such CAPs' content or applications. Specifically, when capacity of an interconnection port is insufficient, access to data-intensive or latency-sensitive content and applications, such as streaming video, real-time video, and voice-over IP, is limited or degraded. This is because packet loss tends to occur once interconnection ports approach 90% utilization.³⁵ That is, some packets of data necessary for the smooth operation of the video or other data-intensive applications cannot make it through the interconnection point such that it either needs to be resent (and, thus, is delayed) or the content merely fails to be delivered. This does not occur for content and applications requiring either a small amount of data or a non-continuous data transfer because lost packets can be replaced so quickly as not to diminish quality.

The unique sensitivity of certain types of content and applications to interconnection congestion means that an ISP does not necessarily need to use internal network traffic management tools to discriminate against traffic generated by data-intensive CAPs (and requested by the ISP's own subscribers). Instead, to diminish access to these CAPs' content and applications (some of which compete directly with the ISP's own content, applications or services), the ISP can simply refuse to augment capacity at one or more interconnection

³⁴ Regulation Article 1(1); Proposed Guidelines ¶ 3.

³⁵ Kilmer Decl. ¶¶ 16, 20 (observing that "packet loss tends to occur once ports are about 90% utilized"); *In the Matter of Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc. and SpinCo for Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, Applicants' Opposition to Petitions to Deny and Response to Comments, Exhibit 5, Declaration of Constantine Dovrolis, Ph.D., Professor at the School of Computer Science of the Georgia Institute of Technology, MB Docket No. 14-57, Section 3.2 (filed September 23, 2014), available at <https://www.fcc.gov/ecfs/filing/6019379465/document/7522909787> ("Typically, if the utilization of a link during peak-usage time periods is more than 70%, the link can experience congestion episodes in which traffic is delayed or even dropped.").

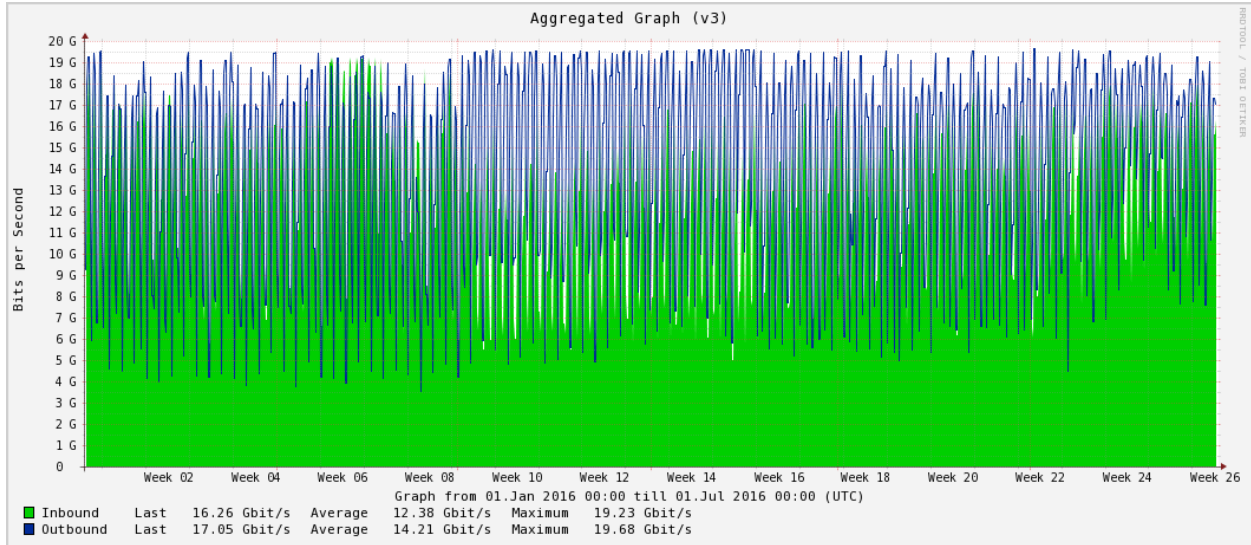
locations. In doing so, the ISP frustrates the Regulations’ purpose of “equal and non-discriminatory treatment of traffic.”

As noted earlier, this behavior is not purely hypothetical. It takes place regularly. One prominent example, from the United States, involved ISPs strategically refusing to upgrade capacity with various transit providers, including Cogent, *only after* Netflix decided to use those transit providers to deliver the videos requested by the ISPs’ own customers.³⁶ As a result, until Netflix reached commercial agreements with a number of dominant American IAS providers, the end-users of these ISPs suffered the inability to access not only Netflix’s content but also any other content or applications that had to pass through the interconnection points between, for example, Cogent and these ISPs.³⁷

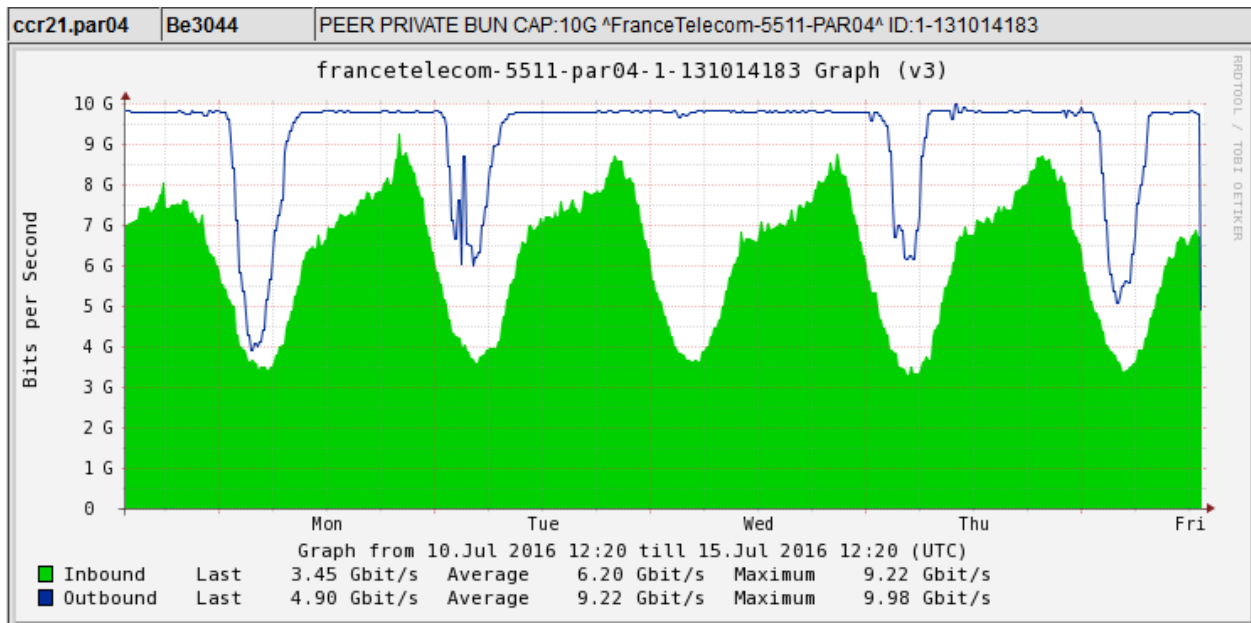
This is not just an American issue. In Europe, many legacy ISPs artificially have created congestion through pre-textual interconnection policies that do not conform with historical practice. In some cases this involves outright refusals to augment interconnection ports. In other cases it entails *de minimis* and insufficient upgrades outside of an incumbent’s home market. For example, interconnection points between Cogent and Orange have been congested for years. The ports in Paris, specifically, have experienced sustained congestion since late 2014. Indeed, as the repeated peaks show in the chart below, interconnection ports in Paris have reached their capacity routinely throughout 2016.

³⁶ A Measurement Lab Consortium Technical Report, *ISP Interconnection and its Impact on Consumer Internet Performance* at 4, 30 (October 28, 2014), available at http://www.measurementlab.net/static/observatory/M-Lab_Interconnection_Study_US.pdf (“we conclude that ISP interconnection has a substantial impact on consumer internet performance—sometimes a severely negative impact—and that business relationships between ISPs, and not major technical problems, are at the root of the problems we observed”); Susan Crawford, *Jammed: The Cliff and the Slope*, Backchannel (Oct. 30, 2014), available at <https://backchannel.com/jammed-e474fc4925e4#.2ru3ndkcg> (explaining that the M-Labs study showed that “in their attempts to charge Netflix for access to their subscribers, Comcast and some other networks were recklessly affecting Internet connectivity for [other] businesses”).

³⁷ Crawford, *Jammed* (“Within a few days after Netflix and Comcast agreed to a deal, traffic carried by Cogent was flowing normally to Comcast subscribers.”).



Focusing more closely on a recent week, the week of July 10, 2016, the horizontal blue lines illustrate the extent to which one such interconnection port in Paris has been at maximum capacity for long periods of time during the week.



This extraordinary level of congestion results in Orange customers receiving degraded access or being unable to access CAPs at all because there is simply insufficient capacity to send the requested data back to the end-user. Nonetheless, Orange has not augmented interconnection capacity with Cogent in Paris since May 2014.

This congestion is solely the consequence of Orange interconnection policies and practices, which serve no purpose other than to try and leverage monetary concessions out of CAPs and/or transit providers such as Cogent. In particular, Orange has demanded that Cogent achieve some level of parity between the traffic flowing to and from Orange. This “ratio” requirement is entirely pretextual because it is disassociated with how the internet is structured and operates. It assumes that Cogent is somehow in direct control of the quantity of data being sent to Orange. This fails to recognize that *all* data sent to Orange by Cogent is data requested by Orange end-users—data to which Orange itself has promised its customers access.³⁸ Cogent and other transit providers obviously cannot control how much data Orange end-users request (or how much Orange permits its customers to request) and thus is not in a position to control the data ratio at Cogent-Orange interconnection points.

Orange’s pretextual ratio requirement also fails to recognize that “ratio imbalances” are inherent to the internet, over which the exchange of traffic has *always* been asymmetrical. This is because ISP end-users have always downloaded more data than they upload and the ISP broadband networks are built to reflect that fact. BEREC has already recognized this dynamic, explaining that

one may generally expect that in case of the CAPs the traffic load is significantly higher in the upstream direction, while users mostly receive traffic, unless they also provide peer-to-peer applications. Also some ISPs focus on CAPs as customers (also offering services such as hosting), while other focus on users (the so-called eyeball ISPs).³⁹

The foregoing discussion shows that interconnection policies and practices can (and do) interfere with the Regulations’ purpose of safeguarding “equal and non-discriminatory treatment

³⁸ BEREC Interconnection Report at 60-61 (“The request for the data flow usually stems not from the CAP who sends the data but from the retail Internet access provider’s own customer (who “pulls” content provided by the CAPs, and from whom the ISP is already deriving revenues).”).

³⁹ *Id.* at 10.

of traffic in the provision of internet access services and related end-users' rights." It also further supports the Proposed Guidelines' recommendation that NRAs should consider these policies and practices when evaluating ISPs' compliance with the Regulations.

B. ISPs' Monopoly Over Access To Their Customers Provides Them Disproportionate Bargaining Power Over Interconnection

The necessity of interconnection supervision is reinforced by the second factor identified by the Proposed Guidelines: "the market position of the ISPs and CAPs involved" such that where an ISP "has a 'strong' market position (all else being equal)" it is more likely that "a limitation of the exercise of end-user rights" will occur.⁴⁰ ISPs have substantial market power in at least two ways. First and foremost, ISPs, especially those that are incumbent providers of telephone and television services (such as France Telecom, Deutsche Telekom, Telefonica, and Telecom Italia), have a terminating access monopoly over their end-user subscribers. This "access monopoly" means that the ISPs have complete control over whatever "off-net" content is able to reach their customers. As the FCC has described the dynamic, "Broadband providers function as gatekeepers for both their end user customers who access the Internet, and for various transit providers, CDNs, and edge providers attempting to reach the broadband provider's end-user subscribers."⁴¹

This "gatekeeper" position is unique to eyeball ISPs because no other actors in the internet ecosystem have the ability to unilaterally limit end-users' access to the content or applications they seek. Cogent, for example, cannot prevent an Orange customer from accessing content provided by a CAP that is also a Cogent customer; if Cogent did not provide the access,

⁴⁰ Proposed Guidelines ¶ 43.

⁴¹ FCC Open Internet Order ¶ 78.

another transit provider (or the CAP itself) would be able to send the content to Orange and its customer. Only the eyeball ISPs can do this.

Second, this access monopoly power is enhanced by ISPs' substantial market power over their own customers. Very few end-users subscribe to multiple ISP services and most face substantial costs to switching providers.⁴² These high transition costs come in the form of upfront device installation fees, activation fees imposed when changing providers, and the costs incurred by having to replace equipment that is not compatible with the new service provider. Put differently, in Europe it remains a lot easier to switch websites than it is to switch IAS providers. Switching costs are sufficiently high that, in the United States, the FCC found that ISPs' "position as gatekeeper is strengthened by the high switching costs consumers face when seeking a new service."⁴³ Thus, when a large ISP refuses to increase capacity, CAPs generally have few alternatives to capitulating to an access fee or finding a way to provide their content and applications with reduced capacity.

These two factors combined provide ISPs significant market power within the internet ecosystem. And while this can be manipulated through on-net traffic management practices such as throttling, it also can be exploited at interconnection points. As BEREC previously has noted, interconnections are a "physical bottleneck for traffic exchange" from which ISPs can "derive

⁴² See BEREC QoS Report at 45 ("switching generally comes at a cost, a cost which an end-user might not immediately be willing to pay because of the throttling or blocking of one single or a few applications. Also, end-users often have long(er)-term contracts, and can thus not switch immediately when they are confronted with an unwanted practice"); FCC Open Internet Order ¶ 80 (explaining that the practice of households buying "broadband service from multiple networks" is "not widely practiced and imposes significant additional costs on consumers").

⁴³ FCC Open Internet Order ¶ 81. See also *id.* ¶ 80 ("the record provides substantial evidence that broadband providers have significant bargaining power in negotiations with edge providers and intermediaries that depend on access to their networks because of their ability to control the flow of traffic into and on their networks. Another way to describe this significant bargaining power is in terms of a broadband provider's position as gatekeeper—that is, regardless of the competition in the local market for broadband Internet access, once a consumer chooses a broadband provider, that provider has a monopoly on access to the subscriber."); *Verizon v. FCC*, 740 F.3d 623, 646 (D.C. Cir. 2014) ("Because all end users generally access the Internet through a single broadband provider, that provider functions as a 'terminating monopolist,' with power to act as a 'gatekeeper' with respect to edge providers that might seek to reach its end-user subscribers.") (citation and quote omitted).

monopoly profits” if existing pricing mechanisms fail.⁴⁴ This warrants, at a minimum, that NRAs consider interconnection policies and practices with respect to whether ISPs are infringing on end-users’ rights to access the content or applications of their choosing.

C. Interconnection Policies And/Or Practices That Artificially Create Congestion Limit The Rights Of Consumer And Business Customer End-Users

Interconnection is also essential for NRAs to consider because of the effect that congestion has “on consumer and business customer end-user rights.”⁴⁵ As explained, interconnection congestion has “an effect on the range and diversity of content and application which consumer end-users may use,”⁴⁶ by limiting the scope of content these end-users can effectively reach. That is, congestion causes data-intensive and latency-sensitive content and applications to either be delivered at sub-optimal speeds or to not be delivered at all. During the height of the Netflix dispute in the United States, for example, many end-users were unable to access the service at all and those who were had to wait substantially longer for the delivery of their requested content.

The more limited access to such content means that “the end-user is incentivised to use . . . certain applications,”⁴⁷ namely those that do not have to pass through congested interconnection ports. This is of particular concern because the content and applications that do not pass through the interconnections are often owned by or affiliated with the ISPs themselves, especially when the ISP involved is an incumbent that also operates substantial pay television and telephone

⁴⁴ BERIC Interconnection Report at 52. Moreover, as seen with relation to Orange, incumbent ISPs have sought to distort existing pricing mechanisms through their insistence that transit providers and CAPs pay them access fees for sending content to their network although that content is requested and paid for by the ISPs’ own customers.

⁴⁵ Proposed Guidelines ¶ 43.

⁴⁶ *Id.*

⁴⁷ *Id.*

businesses. As the FCC, affirmed by the U.S. Court of Appeals for the D.C. Circuit, explained, “broadband providers—often the same entities that furnish end users with telephone and pay television services—‘have incentives to interfere with the operation of third-party Internet-based services that compete with the providers’ revenue-generating telephone and/or pay-television services.’”⁴⁸ Thus, by limiting interconnection capacity, the ISPs are able to incentivize end-users to use ISP proprietary content and services with which at least some CAPs are competing. And even those ISPs that do not compete directly with CAPs have incentives to exploit their gatekeeper role to extract payments.

These incentives make it essential for NRAs to evaluate interconnection policies and practices for attempts to inhibit end-users’ rights, and to be skeptical of reasons proffered by ISPs for artificially limiting the capacity of interconnection points.

D. Interconnection Policies and Practices That Artificially Create Congestion Also Interfere with CAP Rights

The effects that interconnection policies and practices have “on CAP end-user rights” also warrant the Guideline’s specification that NRAs should review them.⁴⁹ Specifically, just as interconnection congestion prevents end-users from accessing certain content, the congestion also prevents CAPs from sending the requested content to end-users. Congestion thus causes a reduction in “the range and diversity of content and applications which CAPs provide” and diminishes the “range and diversity of applications” that can be “effectively accessed.”⁵⁰

⁴⁸ *Verizon v. FCC*, 740 F.3d 623, 645 (D.C. Cir. 2014) (quoting *In re Preserving the Open Internet*, FCC 10-201 ¶ 22 (2010)). BEREC has also recognized that some ISPs directly compete with certain CAPs, explaining in 2012 that “Often, ISPs provide services over the user’s broadband connection bundled with the Internet access that compete with for example over-the-top providers.” BEREC Interconnection Report at 14.

⁴⁹ Proposed Guidelines ¶ 43.

⁵⁰ *Id.*

The impact that congestion has on the ability of CAPs to communicate also has broader implications for the market. As the FCC found, “broadband providers have incentives to charge for prioritized access to end users or degrade the level of service provided to non-prioritized content.”⁵¹ Indeed, as discussed above, this incentive is particularly great for legacy providers that own businesses that directly compete with CAPs. These incentives “could result in so-called ‘tolls’ for [CAPs] seeking to reach a broadband provider’s subscribers, leading to reduced innovation at the edge [*i.e.*, by CAPs], as well as increased rates for end users, reducing consumer demand, and further disrupting the virtuous cycle.”⁵² With respect to interconnection, this means that ISPs have incentives to use their control over interconnections to create congestion that alters the “internet ecosystem as an engine of innovation” such that the ISPs are able to “pick[] winners and losers.”⁵³ In fact, nascent or start-up CAPs providing data-intensive content and applications who are unable to win the ISPs’ favor would be “materially discouraged from entering the market” or be “forced to leave the market,”⁵⁴ because they would have no viable path to end-users free from content- and application-disabling congestion.

The market power ISPs have at interconnection locations, coupled with their incentives to favor their own proprietary content and services, thus enables them to have significant negative effects on CAP rights and makes clear that NRAs should evaluate their interconnection policies and practices.

⁵¹ FCC Open Internet Order ¶ 82.

⁵² *Id.*

⁵³ Proposed Guidelines ¶ 43.

⁵⁴ *Id.*

E. Congestion Effects Are Broad In Scope And Difficult For End-Users To Avoid

Finally, the Proposed Guidelines are correct to encourage NRAs to take interconnection policies and practices into account because these both concern “many end-users” and present end-users with “few alternatives.”⁵⁵ Interconnection policies and practices, from end-users’ perspective, are wide spread because when they are deployed in a manner that creates congestion along the path to certain content or applications, every end user attempting to access that material is affected with degraded service. Indeed, the congestion not only will affect customers seeking the specific content their ISP may seek to discriminate against, but also will affect the quality of access to any other content that has to pass through the same congested interconnection point. In that sense, interconnection abuse can be more damaging to net neutrality principles than blocking or throttling a specific CAP. Put differently, because all traffic exchanged between Cogent and an ISP must pass through common interconnection points, the impact of that ISP’s congestion-creating strategy necessarily will be broader than its targets. For example, people trying to telecommute from home with Telefonica as their ISP might face difficulties in connecting to their employer’s servers because their employer is a Cogent internet access customer. Thus, from an end user’s perspective, interconnection policies and practices are broad in scope because they impair the ability of any end user to access content that must attempt to permeate the congestion.

Moreover, end-users have few options to avoid the congestion. In fact, perhaps the only way for end-users to avoid congestion is to change IAS providers. But this, as discussed above, is generally costly enough for customers to do such that they are unlikely to do so.⁵⁶ Further, the

⁵⁵ *Id.*

⁵⁶ *See notes 10 and 42 supra.*

end-user may not even realize that it is the ISPs' interconnection policies and practices that are diminishing the quality of their service because the end-user often has no way of determining the cause of poor service when accessing particular content. Indeed, if an end-user is able to access some content without issues (such as ISPs' proprietary content or the content of CAPs who have paid for special access), then the user is likely to blame the CAPs that cannot be reached for the degraded service being experienced as a result of the ISPs' interconnection policies and practices. End-users thus may not even realize that switching ISPs would resolve their problem.

* * *

The above analysis makes clear that interconnection can have, and already has had, a detrimental effect on end-users' right to access virtually all end points on the internet. The Proposed Guidelines are thus correct to advise NRAs to consider and evaluate whether interconnection policies and practices "have the effect of limiting the exercise end-user rights under Article 3(1)."

III. The Guidelines Should More Fully Recognize The Impact That ISPs' Interconnection Policies And Practices Have On End-Users' Rights

The ability of interconnection policies and practices to impair end-users' rights, as explained in Sections I and II, also means that the final Guidelines should provide more guidance on NRA oversight of these policies. Without this guidance, there is too great a risk that NRAs may underappreciate the essential role that interconnection plays in the provision of IAS to consumer end-users. Specifically, the Guidelines should explain the ability of interconnection policies and practices to negatively affect end-users' rights, recognize end-users' rights (including when CAPs are acting as end-users) to send (or receive) data at a disproportionate rate than they receive (or send) data, and make clear that specialised services cannot be justified on the basis of restrictive interconnection policies. The Guidelines should also encourage NRAs to

require ISPs to disclose certain data concerning interconnection. Including these provisions will confirm that interconnection points are the essential gateway through which end-users access virtually all internet content and applications and more fully enable NRAs to evaluate related policies and practices that occur within their respective countries.

A. The Guidelines Should Further Acknowledge The Negative Impact That Interconnection Policies And Practices Have On End-Users' Rights

The Proposed Guidelines would more clearly identify and mitigate the risk posed by interconnection policies and practices if three changes are made: (1) advise NRAs to evaluate interconnection policies and practices for potential harm to end-user rights, (2) include additional examples of the types of policies and practices that do harm end-user rights, and (3) encourage NRAs to provide a remedial mechanism to resolve interconnection disputes.

1) NRAs Should Evaluate Interconnection Policies and Practices.

The Proposed Guidelines should strengthen the language of paragraph 6. Currently, it states that NRAs “*may*” take interconnection policies and practices “into account.”⁵⁷ “May” is permissive and thus implies that NRAs do not need to evaluate what impact, if any, an ISP’s interconnection policies have on end-users’ ability to access the internet. This should be clarified, by changing “may” to “should,” so that NRAs are clearly advised to evaluate these policies. This is necessary because of the role that interconnection plays in ISPs’ provision of IAS: without interconnection, no ISP can provide IAS.⁵⁸ Accordingly, any regulation of IAS that seeks to prevent the abuse of end-users’ rights is incomplete if the NRA does not consider whether the ISP’s interconnection policies and practices are limiting end-users’ ability to access

⁵⁷ Proposed Guidelines ¶ 6.

⁵⁸ See BEREC Interconnection Report at 14 (“To provide connectivity, eyeball ISPs need to buy upstream capacity through transit and/or peering, so that their customers can access content from distant non-affiliated CAPs connected to other ISPs.”); *id.* at 10 (“The Internet ecosystem is built up by interconnected networks (or Autonomous Systems - AS) forming a common network layer for traffic exchange between Internet end points, i.e. CAPs and users.”).

certain types of content or are systematically creating incentives to use particular applications over others. Interconnection thus *should* be a part of an NRA’s evaluation of ISPs’ compliance with the Regulations.

2) Recognize Specific Interconnection Policies And Practices That Have A Detrimental Impact On End-User Rights.

The Regulations also would be more effectively enforced if the Proposed Guidelines are supplemented to identify specific interconnection policies and practices that violate the Regulations by limiting end-user rights. Currently, the Proposed Guidelines provide only one example: “For example, this [i.e., interconnection] may be relevant in some cases, such as if the interconnection is implemented in a way which seeks to circumvent the Regulation.”⁵⁹ This example, while broad in scope, lacks additional explanation and details that would provide greater clarity for evaluating current and future interconnection policies and practices that have a detrimental effect on end-user rights.

The Guidelines would benefit from the inclusion of greater clarification, which can be drawn from past and present experience. These would include at least four types of interconnection policies and practices that unquestionably limit end-user rights:

First, the Guidelines should encourage NRAs to prohibit interconnection policies and practices that use congestion as a means to steer end-users toward ISP’s own on-demand services (e.g., Orange’s OCS service or Deutsche Telekom’s EntertainTV) and away from competitive services offered by unaffiliated CAPs (e.g., Netflix, Mediaset Infinity, Wuaki.tv). As explained, interconnection enables eyeball ISPs to incentivize the use of the ISPs’ proprietary or affiliated content by adopting interconnection policies that make accessing competing services difficult relative to on-net content that need not pass through artificially congested interconnection ports.

⁵⁹ Proposed Guidelines ¶ 6.

Accordingly, those policies that have the purpose or the effect of incentivizing end-users to cease or limit the use of competing content should not be permitted.

Second, the Guidelines should encourage NRAs to prohibit interconnection policies and practices that use congestion as leverage against CAPs to enter into direct (often paid) peering relationships with ISPs.⁶⁰ Such policies ensure that CAPs offering data-intensive and latency-sensitive content and applications have no method to deliver their content at the necessary quality except through a bilateral arrangement between the CAP and ISP. An ISP can, for example, limit the interconnection capacity between itself and the transit providers used by the CAP to create a negotiating atmosphere that is very ISP-favorable such that CAPs must pay to escape the congestion created by the ISP's interconnection policies and practices. Policies like this are an abuse of the terminating-access monopoly that eyeball ISPs possess that ultimately harm CAP end-user rights and result in higher prices for consumer end-users. Accordingly, such policies and practices should be clearly prohibited as circumventive of the Regulations' objectives.

Third, the Guidelines should encourage NRAs to prohibit interconnection policies and practices that explicitly link interconnection capacity solely to traffic ratios. As seen with Cogent's experience with Orange, sent-to-received data ratios are a common interconnection policy used to justify refusals to augment capacity in settlement-free interconnection relationships. The pretextual nature of these ratio requirements is evidenced, as discussed, by the fact that ratio imbalances are an inevitable consequence of the types of customers eyeball ISPs serve (content-consuming end-users) as opposed to the types of customers transit providers serve (content-creating end-users), and the simple fact that none of the data being sent to eyeball ISPs

⁶⁰ In theory, Cogent does not oppose an arrangement whereby a CAP pays an eyeball ISP for dedicated capacity or improved connectivity. Rather, what Cogent opposes are ISP efforts to use interconnection congestion as a lever to force CAPs into such paid arrangements.

is unsolicited. Indeed, eyeball ISPs' insistence on ratios as a post hoc justification for payment serves only to frustrate their end-users' ability to access the content they are requesting from transit providers' CAP customers.

Fourth, the Guidelines should encourage NRAs to prohibit interconnection policies and practices that allow congestion to be used as leverage for additional compensation. These practices are essentially a method of bargaining, in which an eyeball ISP agrees to interconnection on particular terms but then refuses to augment capacity when their customers seek more data than the then-provisioned interconnection ports can accommodate. This, in turn, leads to congestion that the eyeball ISP can use as leverage for monetary concessions from the transit provider. Similar to ISPs' use of congestion as leverage directly against CAPs, this practice is an abuse of ISPs' terminating-access monopoly over the end-users that subscribe to and pay for their service that ultimately results in diminished quality of service to those end-users. Accordingly, it is a practice that should be recognized as limiting end user rights.

These four interconnection policies and practices are not the only ways an ISP can limit end-users' rights. They are only the most common ones seen in recent years. The Proposed Guidelines are thus correct to provide the one example it does, and ideally those proposed here, as illustrative rather than exclusive. This allows NRAs to adopt a flexible approach to reviewing interconnection policies and practices for negative effects on end-users' rights.

3) Encourage NRAs To Develop Appropriate Remedial Measures To Address Interconnection Policies And Practices Harming End-User Rights.

Circumvention of the Regulations would be more difficult if the Guidelines encouraged NRAs to provide a process for obtaining appropriate remedial measures for interconnection disputes. The establishment of such a process alone would further end-users' access to the internet because the lack of any clear system for parties to resolve interconnection disputes can,

and has, led to long-standing disputes between major internet-network providers (*i.e.*, eyeball ISPs and transit providers) that cause equivalently long-standing quality of service problems for end-users of both providers.⁶¹ The FCC, for example, determined (like BERC and the Regulations) that interconnection *per se* would not be subject to net neutrality rules. But, recognizing that interconnection has profound implications for end-users, the FCC decided to take a “case-by-case approach” to review and order remedial measures when warranted against interconnection policies and practices found to be unjust and unreasonable.⁶²

The Guidelines should adopt a similar structure for resolving interconnection disputes by making clear that NRAs should hear and resolve complaints related to interconnection policies and practices. The Proposed Guidelines provide only that the NRAs may “collect end-user complaints,”⁶³ but it is unclear whether this would be adequate for interconnection given that few end-users are directly involved with interconnection and many may not be aware of its role in the provision of their IAS. Permitting other internet networks to bring complaints would ensure that industry participants knowledgeable about interconnection, and with sufficient technical and financial resources, can bring any abuses to the attention of the relevant NRA as well as create a method for ISPs to resolve their interconnection disputes in a manner that will shorten disruption of end-user access.

B. The Guidelines Should Recognize That End-Users’ Right to “Access and Distribute” Data Under Article 3(1) Includes The Right To Receive (or Send) Data At A Disproportionate Rate Than Sent (or Received)

Refusal to augment interconnection capacity, as discussed, is often justified on the basis that eyeball ISPs request (on their end-users’ behalf) more data than they send. Moreover, some

⁶¹ See Section II.A *supra* discussing the long-standing congestion between Orange and Cogent.

⁶² FCC Open Internet Order ¶¶ 202-04.

⁶³ Proposed Guidelines ¶ 165.

eyeball ISPs have argued that certain CAPs ought to pay for access to their customers because of the disproportionate amount of data they send to the ISPs' network.⁶⁴ Accordingly, it is important the Guidelines recognize that an essential aspect of end-users' right to "access and distribute" data under Article 3(1) is the right to receive (or send) as much data as is desired regardless of how much data a particular end user sends (or receives). As BEREC has previously recognized, different types of users send and receive data at different ratios.⁶⁵ To protect this well-established pattern of use, the Guidelines should thus recognize this difference and acknowledge that one aspect of end-users' rights to "access and distribute information and content"⁶⁶ and to "use and provide applications and services"⁶⁷ is the ability to send or receive data at a disproportionate rate.

C. The Guidelines Should Require That NRAs Assume There Is No Congestion At Interconnection Points When Determining Whether A "Specialised Service" Is "Objectively Necessary . . . For A Specific Level Of Quality"

The Proposed Guidelines permit ISPs to offer "specialised services" so long as certain conditions are met, including that "the optimisation is objectively necessary in order to meet requirements for a specific level of quality."⁶⁸ The Guidelines then provide a framework of analysis for NRAs to apply.⁶⁹ One aspect of this analysis is for the NRA to "assess whether an electronic communication service, other than IAS, requires a level of quality that cannot be

⁶⁴ See FCC Open Internet Order at ¶ 201 (recounting ISPs' assertion that certain CAPs "are imposing a cost on broadband Internet access service providers who must constantly upgrade infrastructure to keep up with demand" because of "extremely large volumes of traffic" they send).

⁶⁵ BEREC Interconnection Report at 10 ("one may generally expect that in case of the CAPs the traffic load is significantly higher in the upstream direction, while users mostly receive traffic, unless they also provide peer-to-peer applications. Also some ISPs focus on CAPs as customers (also offering services such as hosting), while other focus on users (the so-called eyeball ISPs)").

⁶⁶ Proposed Guidelines ¶ 21.

⁶⁷ *Id.* ¶ 22.

⁶⁸ *Id.* ¶ 97.

⁶⁹ *Id.* ¶¶ 104-111.

assured over an IAS.”⁷⁰ The Regulations and Proposed Guidelines are silent, however, on what the baseline for the “level of quality” available over an IAS is.

Notably, European eyeball ISPs with whom Cogent and other transit providers exchange traffic have sufficient network capacity on their side of interconnection points to accept and deliver the increased amount of bandwidth-intensive content the ISPs’ own end-users are demanding (and for which they pay their ISP on a monthly basis). Certain ISPs are simply choosing not to augment interconnection capacity (or are not augmenting it sufficiently or efficiently) so that traffic can flow unimpeded through their proprietary networks. Moreover, as is understood in the industry, augmenting capacity and thereby eliminating congestion at interconnection points requires no great feat of engineering and no great expenditure.⁷¹ And provisioning additional interconnection ports is typically all that is necessary to ensure a high-quality, fast and reliable exchange of internet traffic between networks when existing ports become congested.

At minimum, then, the baseline “level of quality” available over an IAS should assume that the IAS is not maintaining congested interconnection points that the ISP refuses to mitigate. To assume otherwise would allow ISPs to manipulate the “level of quality” available for the IAS they offer by simply refusing to augment capacity (as some have been doing for years). This would allow ISPs to facially justify and monetize specialised services on the basis of level of quality, even though the same level of quality used to justify the unique service is obtainable

⁷⁰ *Id.* ¶ 107.

⁷¹ Adding such ports requires only a modest expenditure by either party (*i.e.*, approximately €9,000 per 10 Gbps port). *See* note 9 *supra*. Beyond that, the only other expenses ISPs would split with transit providers are *de minimis* fees for space rental, electric power and cross-connect cables. Cogent has been, and remains, willing to commit such resources to eliminate congestion on its side of the interconnection facilities. Certain European ISPs have not.

simply by easily and inexpensively augmenting interconnection capacity with other internet networks.

Alternatively, the Guidelines should instruct NRAs to limit their inquiry to ISP *network*—as opposed to *interconnection*—capacity. So long as there is sufficient capacity *within* an ISP’s proprietary network to accept and deliver the content or applications its own users are requesting, there should be no reason the ISP cannot also provide sufficient interconnection capacity to facilitate the delivery of that content. If an ISP is not engaging in interconnection abuse, then the impact of this will impose no burden on them.

D. The Guidelines Should Encourage NRAs To Require ISPs to Periodically Disclose Data Concerning Utilization And Congestion at Interconnection Points

IAS end-users in Europe should get what they pay for. For this reason, the Regulations and Guidelines institute a number of “transparency measures for ensuring open internet access” which require ISPs to provide certain information concerning the provision and performance of IAS.⁷² To be meaningful, the information ISPs are obligated to provide end-users also should encompass practices concerning the management of interconnection points. If such information is not provided, end-users will receive a less than complete picture of their IAS service. To that end, the Guidelines should expressly encourage NRAs to require ISPs to disclose the following additional information:

1. Data sufficient to show sustained network congestion/capacity constraint at interconnection points between the ISP network and other networks, transit providers, and/or peers with whom they interconnect;⁷³ and

⁷² Regulation Article 4(1).

⁷³ Consistent with industry practice, Cogent further proposes the Guidelines define a “sustained state of congestion” as any instance where an interconnection point (*i.e.*, port) between an eyeball ISP and a transit or CAP operates at 70% or greater capacity during peak usage periods (7:00-11:00 pm, adjusted for local time zones) for one

2. Any practices that block or degrade the performance of content or applications from any particular CAP.⁷⁴

CONCLUSION

Based on the foregoing, the final BEREK Guidelines must forcefully address what all stakeholders in the internet ecosystem know to be true: if eyeball ISPs face no limitation on their practices vis-à-vis interconnection and traffic exchange with other networks, then they will have an easy path, should they choose to take it, to block content or degrade content or connections—the very acts the EU net neutrality rules seek to address. Only then can the Regulations truly be considered “the strongest and most comprehensive open internet rules in the world.”⁷⁵

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month. Capacity is measured using the 95th Percentile metric. See Kilmer Decl. ¶ 20; see also *id.* ¶¶ 21-22 (explaining how the 95th Percentile metric is applied).

⁷⁴ Notably, such practices may entail a decision not to augment capacity at an interconnection point that serves any CAP that the eyeball ISP’s end-users have chosen to patronize.

⁷⁵ European Commission, Press Release – Fact Sheet, *Roaming Charges and Open Internet: Questions and Answers* (June 30, 2015), available at http://europa.eu/rapid/press-release_MEMO-15-5275_en.htm.