ETNO-GSMA contribution on the draft BEREC Report on the IP interconnection ecosystem

Building on the previous stakeholder engagements, ETNO and the GSMA would like to provide some further views on the draft BEREC Report on the IP interconnection ecosystem.

As a preliminary remark, we welcome that draft BEREC's report assesses IP interconnection from a holistic ecosystem perspective – including peering, transit and on-net CDNs – acknowledging the change in the market dynamics. We also generally appreciate BEREC's efforts to collect primary data from a variety of stakeholder groups to establish an overview of the current practices of Internet Access Services (IAS) providers in the IP interconnection ecosystem between peering, transit and on-net CDNs. Although, improvements regarding the length of the consultation and the impartiality in the data collection process would be required. Further to this, in order to have a complete picture it would be important to match data from Content and Application Providers (CAPs).

Concerning BEREC's analysis, we would like to highlight the following shortcomings and conclusions:

- We disagree with the finding that seven years after the last report in 2017, the sector is facing an evolution rather than a revolution. This is particularly true considering that this report also covers trends until 2030. As stated in the associations' response to the draft BEREC report on the entry of large content and application providers into the markets for ECN/ECS, the market for digital infrastructure is undergoing massive changes and the dynamic and interaction in the internet ecosystem is developing with high speed. The risk to the open internet is huge. Big CAPs act independently of their competitors in the internet ecosystem through concentration, controlling more and more the open internet. CAPs only invest in transport and interconnection, not in the expensive delivery networks including access networks.

- BEREC is conducting an isolated analysis of the IP-IC market, without taking into account the impact of large CAPs in the global internet ecosystem, discarding factual and potential market failures. We believe the situation of the global joint impact of CAPs becoming vertically integrated, gaining market power across the whole Internet value chain, further leveraging into adjacent untapped markets and gaining market and bargaining power, should be taken into consideration in this report, as it could change some of its conclusions.

- The draft report ignores the fact that the interconnection market was originally developed as a market between operators (peers) functioning under the bill-and-keep philosophy. CAPs, however, are not peers offering an expansion of the addressable market. The relationship

between large CAPs and integrated ISPs has evolved from a symbiotic coexistence to a pure business-to-business ("B2B") relationship. None of the services which are provided by CAPs are feasible without the infrastructure of an integrated ISP as these bring the two market sides (CAPs on the one hand and end-user on the other side) together. Network operators are typically not inclined to provide IP data transport services on a settlement-free basis to a network with a significant traffic asymmetry which is especially the case between CAPs and ISPs traffic.

- BEREC does not acknowledge the market power of large CAPs orchestrating "must have content". It also ignores that the negotiating position of ISPs is constrained by competition with other ISPs (end-users can choose among several ISPs / routes by which to access their end-users) and by an asymmetric regulatory framework (telco operators are subject to access obligations on the end-user side, and to non-discrimination obligations imposed by the OIR in relation to the content provider side). Failure to consider this, puts into question the credibility of the market analysis.

Traffic developments

Steady, but significant, absolute growth: The global data traffic volume doubles approximately every three years, both in average and peak terms. In the EU, the average data traffic per user in fixed networks is expected to grow by 20% annually, reaching 900 GB/month by 2030. The mobile networks are also experiencing a rapid growth, with a projected quadrupling of data traffic by 2028.[1] Even if traffic growth remains stable rather than exponential (as we saw during the pandemic), this is still very high growth in absolute terms, given that we are starting from a very high base already.

Drivers of Growth: The assumptions on 'steady growth' also do not take into account the impact of new mass market applications based on artificial intelligence, virtual and augmented reality. The latest data traffic forecasts project significant increases in data flows as a result of the commoditisation of different types of AI applications and services[2].

The trend for 'live events' (such as the recent Euros tournament and other significant sporting, music and entertainment events) to be live streamed over the internet is also a key driver of growth. In particular, such activities have a significant impact on 'peak traffic', (which is typically the metric on which network capacity is configured).

Concentration of Traffic: It is important also to highlight that the data traffic transmitted over the internet is increasingly concentrated in the hands of a limited number of CAPs. The six largest CAPs (Google, Netflix, Amazon, Facebook, Microsoft, Apple) accounted for almost 48% of the total global data traffic in the first half of 2022[3], while at the backbone level the same parties accounted for 70%

[1] Arthur D. Little, The Evolution of Data Growth in Europe, Report 2023, p. 18.
[2] Omdia: Road to 2030: AI and the Future of Network Services – Traffic Outlook and Implications, 2024
[3] Sandvine, Global Internet Phenomena Report, 2023, p. 10.

of data traffic[4]. This has also been highlighted by BEREC in their latest report[5]: The accumulation of a few Big Tech companies in the internet ecosystem has important consequences leading to market concentration and affecting the internet traffic as well as the decentralized approach on which the internet was created.

This gives these CAPs significant influence and bargaining power in the internet ecosystem, given consuming end-users expect to be able to access their content at high quality across any internet infrastructure. Therefore, in line with the evolution of the Internet from a decentralized, user-centric communications network to a content delivery network for large CAPs the relationship between large CAPs and integrated ISPs has evolved from a symbiotic coexistence to a pure business-to-business ("B2B") relationship.

Asymmetry of Traffic: In principle, IP data transport services is subject to charges, especially in business environments.[6] The reason why charges for IP data transport services are sometimes not levied is the fact that the amount of traffic in both directions is rather symmetric and respective payments would largely offset each other. This relationship is generally referred to as "settlement-free peering". [7] Network operators are typically not inclined to provide IP data transport services on a settlement-free basis to a network with a significant traffic asymmetry which is especially the case between CAPs and ISPs traffic.

If the conditions for settlement-free peering do in general not apply and there is no symbiotic relationship, it is questionable why a commercial agreement cannot be reached in this market. Therefore, some other market conditions must be in place which hinder a fair and reasonable price for an essential and valuable IP data transport service.

Implications: The development of data traffic has implications for the structure of the Internet connectivity market, such as the increasing asymmetry and concentration of data flows.

Together, the concentration of asymmetric traffic at peak hours can increase the risk of congestion and worsen the quality of experience for other internet services on the network. This is further exacerbated through challenges related to 'content clash', where time sensitive content is delivered at the same time as content which could be time shifted, e.g. live football matches coinciding with large global gaming downloads. Since large CAPs have a role to play in the when, how, and how much traffic is delivered (for example, configuring their own CDN capacity and content routing), they are ultimately partly responsible for such impacts while rarely made accountable for it.

[4] Telegeography: The state of network report, 2023 edition

[5] https://www.berec.europa.eu/en/document-categories/berec/reports/draft-berec-report-on-the-entry-of-large-content-and-application-providers-into-the-markets-for-electronic-communications-networks-and-services

[6] The basic principle of a fair remuneration for a valuable IP data transport services was upheld by the German courts and supported by the Bundesnetzagentur, cf. decision of April 9, 2010, ref. BK-3b-09/056 - Cogent with reference to BVerwG, judgment of January 21, 2004, ref. 6 C 1/03, para. 22ff.

[7] Settlement-free peering has its origins in the early days of the Internet when the close interconnection of various AS gave rise to the global Internet and the creation of global connectivity was the primary objective. The "handshake" agreements between peering contract partners that were common at that time are still partly valid today. See WIK study, Competition Relations in Transit and Peering Markets, 2022, p. 32 f. with further references.

Finally, we remain sceptical about general blanket statements concerning the internet's ability to cope well with traffic growth and peak traffic, with competition and technological progress as a safety net. The global internet consists of tens of thousands of interconnected networks run by service providers, individual companies, universities and governments[8]. Networks owned and run by European telecom operators are part of this global internet.

However, networks only adapt to significant changes in traffic patterns and demands, if a network operator makes an investment decision to upgrade, re-dimension or expand its network. Whereas the underlying technical internet standards are flexible and adaptable, the internet will cope with increasing traffic volumes only if network operators are in a position to manage and invest in the networks accordingly.

Pricing and cost developments

BEREC states that due to continuing decline in prices, the European market for peering and transit is still competitive. BEREC also concludes that technological developments, such as the installation of on-net CDNs, are a key reason why increases in data traffic have not passed through to prices and costs.

BEREC's draft report acknowledges that on-net CDNs are a key part of the IP interconnection ecosystem – representing nearly a third of the IP-IC services used by IAS providers (Figure 1.) – and that they influence the market for peering and transit by exerting competitive pressure on transit prices. BEREC does not, however, comment on the competitiveness of the "on-net CDN market". We will further comment on the impact of on-net CDNs on the IP-IC ecosystem under the next chapter 'market developments in IP-IC'.

Transit is more and more in decline since recent years as other connectivity options have emerged, such as direct private peering and commercial CDNs. The large CAPs have developed their own global networks and infrastructures, such as data centres and CDNs, to deliver their services and content closer to their end users. At the same time, the necessary investment costs for networks to meet increasingly large volumes of data traffic have steadily increased.

The large CAPs have also established direct interconnection agreements with ISPs to bypass transit providers and commercial CDNs. Finally, the large CAPs have become major sources and destinations of internet traffic and have a superior negotiating position relative to ISPs.

This asymmetric relationship is reflected in the fact that the prices for IP-IC are very low or even zero (hence we don't see that the prices could have fallen further) which in the current *status quo* cannot be seen as a sign of a competitive well-functioning market.

We would also argue that BEREC should consider the true cost "picture" of IP-IC and not simply look at the prices of e.g. ports needed to establish a peer, but rather the end-to-end costs of ensuring the transport of content to the end-users, including access network costs.

[8] https://www.internetsociety.org/internet/

Market developments in IP-IC and the generic structure of IP-IC issues

We agree with BEREC's observation that large CAPs are increasingly present in the connectivity value chain by investing in their own backbone networks, CDNs, data centres, hosting and cloud computing. These developments continue to exert competitive pressure on transit providers.

Role of private CDNs and cache servers:
According to Wik Consult / BNetzA study (2022), there have been significant shifts in the CDN market in recent years. All major CAPs now operate their own CDNs and place little reliance on the offerings of specialised CDN providers. As a result, the CDN business of specialised CDN providers has developed less strongly than CDN traffic as a whole. The study also noted that internet access providers and carriers have not been able to develop a successful in-house CDN business, whereas some of the large CAPs have developed their own (successful) commercial CDN business.

The proprietary cache servers installed by large CAPS within ECNs, as well as the global backbone infrastructure connecting their data centres and their proprietary OTT ecosystems, are providing them with more control over their content delivery and strengthen their market position vis-à-vis providers of ECNs. This is further reinforced by the fact that a few large CAPs are increasingly privatising their core network, to the extent that control of the entire connectivity infrastructure is tipping to their favour.

Smaller CAPs seem to be more open to collaboration and partnerships with providers of ECNs for the delivery of their content. Smaller CAPs and other ecosystem stakeholders are primarily responsible for developing the Open Caching technology. Such technology may allow the development of neutral and standardised distribution platforms that rely on the ISP infrastructure (e.g. Mobile Edge Computing) and provide transparent (on-net) CDNs services giving more control to both content providers and ISPs at the same time. It is important to note that if smaller CAPs cannot make use of independent commercial CDNs for quality assured data transport anymore, this makes them highly dependent on large CAPs as well. This can lead to foreclosure incentives of large CAPs against their own competitors and can have wide implications on the downstream markets.

The investment of large CAPs in proprietary CDNs aims to strengthen their position rather than helping providers of ECNs to cope with the large amount of traffic they generate. The cost saving for ECNs resulting from CDNs and on-net CDNs (i.e. the cost savings related to the international transport and operators' national backbone) are insignificant when compared to the total and traffic related network costs, considering that CDN investment has very limited bearing on the volume of traffic on the access network. Even less so for mobile networks, as the international transport cost saving is relatively lower when compared to total network costs. Access network bears highest share of traffic sensitive costs and CDNs do not reduce bandwidth requirements for mobile access networks since cache servers must be located upstream where mobile traffic is aggregated.

This was also recognised by BEREC in its preliminary position on the internet ecosystem in which it assessed cost drivers of fixed and mobile networks which concluded that the cost of increasing IP interconnection links capacity and backbone capacity can be considered very low, in particular when compared to the cost of building access networks, and also that mobile networks exhibit some degree

of traffic sensitivity. Moreover, the BEREC report on the entry of large CAPs into the for ECNs/ECSs further made reference to this. BEREC, however, does not consider the fact that costs of providing IP-IC services should be considered end-to-end, inclusive of access network costs (not only the costs of e.g. port equipment).

In CDN arrangements, CAPs normally provide and maintain the cache servers (on-net CDNs) but operators have to bear the set-up costs and operational costs, further limiting eventual benefits. Additionally, use of on-net CDNs may trigger a rebound effect which will further increase the traffic on the access and core networks of ISPs (thus further triggering an investment need).

The efficiency of the on-net CDN systems will largely depend on the content (e.g., user generated content v. on-demand video) and the algorithms and configurations used by the CAPs and CDN providers (operators have no visibility or control hereof). It will also be impacted by other unilateral decisions of the CDN provider (for example, to launch a new service / program / game download). On-net CDNs host only specific types of content (that of the CAP which places its private CDN into a telco network) and on-net CDNs do not scale with many different on-net CDNs because operating multiple CDNs in a network is operationally complex. Even when on-net CDNs are used, embedded cache servers are not able to meet all traffic demand and part of the traffic still needs to be downloaded from the other cache servers of the CDN network or the origin and thus eliminating part of the international transport and national backhauling cost savings[9].

The effect of on-net CDNs is specific to individual ISPs depending on their network type, network size and composition of their customer base. In certain geographical markets on-net CDNs may be important for ISP rankings with respect to latency among other CAP-chosen criteria and thus contribute to the decision of ECNs whether to accommodate on-net CDNs in their networks.

To summarize this section, cost saving for ECNs resulting from CDNs and on-net CDNs are insignificant when compared to the total and traffic related network costs, which is a crucial factor not taken into account by the BEREC report.

<u>IASs do not hold a termination monopoly to the detriment of content providers:</u>
BEREC notes in its report that there are signs of IASs leveraging their termination monopoly.
BEREC highlights as a key finding (section 6) that content providers may struggle to find alternatives to reach end users if practices of vertically integrated IAS and transit providers leverage their termination monopoly. Specifically, they highlight that the increasing need for CAPs to ensure high quality delivery for their content means that 'transit' may not be a substitute for bilateral peering (and on-net CDNs), meaning ISPs have a 'gatekeeping' position for these bilateral arrangements.

Furthermore, some stakeholders claim that IASs in particular vertical integrated IASs refrain from upgrading interconnection links leading to congestions while offering a more costly premium transit as an alternative (thus abusing their 'bottleneck' position).

[9] For instance, even within the same popular video session, some video chunks are served from different locations of the CDN hierarchy or even from the origin:
https://blogs.cisco.com/sp/cdn-caching-and-video-streaming-performance (figure 3)

We first want to clarify, that there are no such strategies to artificially congest interconnection points. Which route is chosen to reach a given end-user in the network of an ISP depends solely on the routing decisions of the CAP, over which ISP have no influence. In case capacity limitations emerge at certain interconnection points both involved parties enter into technical and commercial agreements. In case of significant traffic asymmetries those commercial agreements are in line with industry standards.[10]

The GSMA and ETNO maintain the view, that neither IASs nor vertical integrated IAS hold a termination monopoly to the detriment of content providers, for the reasons outlined below.

If for example, a partner experiences a significant sudden increase in demand (e.g. a CAP they provide services to launches a new programme or service), and they fail to work with the ISP partner in advance to ensure there is enough configured capacity on ports, this can have damaging impacts and lead to spillover events. Such events reduce the quality of experience for end-users and are (typically) blamed on the ISP despite the ISP having no control over the situation.

Furthermore, if an IAS were able to leverage a monopoly against content providers it would imply that there was no alternative to routing traffic and no countervailing bargaining power present.

CAPs that orchestrate must-have content have at least countervailing bargaining power with which they can exert pressure on ISPs. Therefore, ISPs cannot act independently. In the case of insufficient quality, the end-users would hold the IAS responsible for any kind of disruption and would have the possibility to switch providers as the ISP market is very competitive.

Furthermore, content providers always have the possibility to provision their traffic through commercial CDNs, cloud providers or other carriers, thus contradicting the very definition of a monopoly. Indeed, also due to compliance with Open Internet rules, operators have a 'must carry' obligation when content reaches their network, so there is never a risk that ISPs act as a 'bottleneck' in blocking (legal) content from reaching end-users.

Another aspect that in our view does not support the claim of *de facto* termination monopoly is the structure of the European market, with strong competition among ISPs.[11] A significant percentage of end users have at least two service providers to choose from and the majority will have an even broader choice of service providers. Content providers thus have no limitation in reaching the end users. An additional aspect hereto is that end users care far more about the content they consume than who their IAS is and end-users have easy access to switching provider.

[10] See for example Telxius/TEF: https://telxius.com/pdf/es/Peering-policy-Telxius.pdf; Orange: https://wholesale.orange.com/international/en/peering-policy.html; Lumen: https://www.lumen.com/en-us/about/legal/peering-policy.html; Arelion: https://www.arelion.com/dam/jcr%3A58bcf8cb-7cd2-4108-a5d9-e65bc2a01bb5/Arelion%2520%2520Peering%2520Policy%2520Clean%2520(12.22.pdf&usg=AOvVaw0QCtlmpRRYoRoxqiBptDyQ&opi=89978449 ; AT&T http://www.corp.att.com/peering/; Speakeasy; http://www.speakeasy.net/network/peeringpolicy.php; Hurricane Electric http://www.he.net/peering.html. There are several more examples.

[11] Commission white paper on How to master Europe's digital infrastructure needs 2024, p32

Bargaining situation between CAPs and IAS providers

We do not agree with BEREC's conclusion that the IP-IC ecosystem is driven by functioning market dynamics and by the cooperative behaviour of market players, or that the IP-IC bargaining situation between market players seems balanced.

Against this background, the number of disputes is an inadmissible measure for market evaluation as can be seen from many other industries. In the automotive industry for example there is a large asymmetry in bargaining power between Original Equipment Manufacturers (OEMs) and their suppliers. OEMs dominate their suppliers with unusual market conditions such as a two-step tender procedure or full transparency on costs. The market is therefore highly asymmetric and not functioning well. The prices which are negotiated between the two parties is only so high that the supplier is not fully driven out of the market. Nevertheless, we do not see any meaningful disputes in this sector. In any case, a low number of disputes cannot be misinterpreted as a lack of market failure. The number of disputes proves to be meaningless in this respect, as the initiation of a legal dispute depends on various other internal and external factors (e.g. effects of escalation on the retail market; liquidity of the disputing companies, etc.).

This imbalance in bargaining power is also recognised in Enrico Letta's report on the 'Future of the Single Market'; *'(…) another critical issue concerns the evolution of wider global digital markets and of internet architecture, and the resulting unbalanced relationship between TLC and large online platforms. While the regulation continued to assume the prevalence of TLC operators in the digital world, other players – such as large online platforms – were assuming the role of gatekeepers in access to online services and thus as drivers of demand. In other words, existing sectorial regulation has introduced significant regulatory asymmetries between TLC operators and large gatekeepers in many emerging relevant markets*.'

Due to the flattening of the internet, the interaction between large CAPs and ISPs has become closer, as most large CAPs now have a direct interconnection with ISPs around the world essentially bypassing the open internet. This commercial relationship is characterized by asymmetric bargaining power due to the global size of large CAPs, their strong presence in adjacent markets and asymmetric regulation. Several factors indicate that large CAPs have superior bargaining power, namely:

- The 'historic' nature of bilateral IP interconnect arrangements has been between (generally) two similar sized ISPs who would exchange a roughly symmetric volume of traffic and exchange this on a settlement free basis (commonly known as settlement free peering").

  However, given the shift in nature of IP-IC arrangements (which have morphed into effectively a B2B service provided by ISPs to CAPs which is partly also reflected in the asymmetry of the traffic exchanged between CAPs / their intermediaries and ISPs), network operators should not be required to provide IP data transport services on a settlement-free basis. IP data transport is a valuable service, which should be charged, as already acknowledged by the Court in Germany in the case Deutsche Telekom against Meta.

- Large CAPs have become indispensable for ISPs, as they provide the content and applications that end users expect from any internet service and that play a key role in their everyday lives due to their strong network effects. The fact that large CAPs pay low or even zero prices for this valuable IP data transport service and make use of their dominant position in their core revenue generating markets underlines the imbalance in the ecosystem.

- Large CAPs are less dependent on ISPs, as they have alternative options (routes) to reach their end users via other networks, such as commercial CDNs, cloud operators, or other carriers. These networks are interconnected to the ISPs' networks through existing peering and transit agreements, which enable the free flow of traffic between different networks. Therefore, large CAPs do not necessarily need to obtain direct connectivity from a particular ISP to access its customers. A vertically integrated ISP must deliver any traffic that enters its network to end users on a non-discriminatory basis. As a result, even without a direct commercial agreement with a carrier, a CAP is still able to reach its end users via indirect connections such as other carriers, CDNs and/or cloud operators.

- As a consequence, large CAPs have a significant quality lever over ISPs, as they can influence the quality of service and network stability of ISPs by their own routing decisions. Large CAPs, which send particularly large volumes of data, can congest specific interconnection points by spontaneously re-routing a portion of their traffic via indirect connections to the ISP's network, thereby affecting the quality of service for all online services routed via the affected interconnects. This can induce a quality-adjusted price increase for end users on the ISP's network, which would deteriorate the ISP's competitive position if the CAP leaves connections to other ISPs unaffected. They hold this as a very strong 'bargaining chip' in negotiations.

- Large CAPs can impact the quality of services of a network carrier with an integrated ISP business towards its end customers, which is a central dimension of competition at retail level, and evidence shows that in case of any connection problem, end users react negatively towards their ISP and not the CAP. This effect is exacerbated by the fact that certain CAPs display to internet users ISPs ranking according to the quality level of the provision of their own service(s) with respect to CAPs' chosen criterion, effectively steering end-users to their preferred ISP. This is thus a powerful mechanism that can be used in negotiation between large CAPs and ISPs. It is also important to highlight that contrary to BEREC's view in the underlying report, it is a plausible behaviour which has been applied in the past by CAPs to negotiate better conditions as it only needs to be a credible threat.

We support the view that in a free-market economy commercial agreements should be reached based on commercial negotiations, however, due to the large asymmetries in bargaining power, there is ample evidence that such commercial negotiations are not taking place on equal footing. It is therefore not possible to restore a more balanced relationship without a binding dispute resolution mechanism- as anticipated in the EC White Paper consultation[12]. This mechanism should be established through targeted regulatory action.

[12] See chapter 3.2.2.. Available at: White Paper - How to master Europe's digital infrastructure needs? | Shaping Europe's digital future (europa.eu)

On the point of disputes, BEREC does recognise that since 2017, a small number of 'formal' IP-IC disputes have occurred. The message it appears to take from these is that vertically integrated ISPs have a termination monopoly (which, as noted, is disputed by our Associations).

However, its broad conclusion is that there are limited disputes, and the market is functioning effectively without regulation.

We wish to highlight, again, that a lack of formal disputes should not be taken as an indication of a functioning market. This is particularly the case given that:

- As explained above, due to the imbalance of bargaining power, some relationships still operate absent a contractual basis. It is not clear, therefore, how these could be taken to formal court dispute.
- As 'private' network infrastructure (such as CDNs or bilateral peers with large CAP infrastructure) is not currently in scope of the interconnection obligations that apply to public network operators, there is no recourse to an established dispute resolution mechanism via NRAs.

Moreover, when disputes around traffic management occur between CAPs and IAS providers, this can impact other players in the wider internet ecosystem. For instance, sending traffic inefficiently to an IAS could cause traffic overflow in international peering links, which have a direct relationship to the IAS but not the CAP.

Court proceedings are not an efficient mechanism to address market failure. From our experience, court proceedings require significant resources and take years to complete. A final judgement takes effect only between the litigating parties and is highly case specific. The recent Meta-DT judicial case provides ample support long resolution time judicial processes.

We also would like to highlight one quote from the BEREC report that shows a wrong understanding of bargaining power: *"In the IP-IC disputes in the US in 2013/2014, Netflix ultimately signed a paid peering agreement with the IAS providers. This indicates that availing of "must have" content or a high market capitalisation does not automatically imply that large CAPs have higher bargaining power vis-à-vis IAS providers." p. 33*

This statement shows a wrong understanding of bargaining power as it implies that a CAP only holds bargaining power if a zero price is reached. There is no information on the terms and conditions of the paid peering agreement mentioned above. It is also a sign of bargaining power if prices are low. IP data transport is a value enhancing service and the basis for the CAPs business models.

Relationship between IP-IC and the Open Internet Regulation (OIR)

BEREC's statement "…the OIR focuses solely on the provision of IASs to end-users"[13] is absolutely correct and there is no room for an excessive interpretation of OIRs wording. Regulation 2015/2120 (OIR) only applies to the provision of internet access services. Interconnection services are not covered.

IP-IC is not a provision of internet access services within the meaning of Art. 2 OIR

Art. 1(1) OIR defines the material scope of the Regulation. Accordingly, the Regulation lays down common rules to ensure equal and non-discriminatory treatment of traffic *in the provision of internet access service*s and the associated rights of end users. The factual prerequisite for the applicability of OIR is therefore that a factual situation concerns "the provision of internet access services".

IP-IC is not an internet access service within the meaning of Art. 2 subpara. 2 no. 2 OIR

The term "internet access service" is defined in Art. 2(2) no. 2 OIR as "a publicly available electronic communications service that provides access to the internet, and thereby connectivity to virtually all end points of the internet, irrespective of the network technology and terminal equipment used." It also follows from Article 1(1) of OIR that internet access services are only those services that are used by end users, as the purpose of the Regulation is to protect their rights. According to Art. 2 No. 14 EECC, "end users" are users who do not provide public electronic communications networks or publicly available electronic communications services. In other words, OIR regulates the treatment of Internet traffic in public electronic communications networks that connect end users to the internet, i.e. in the area of internet access provided by so-called eyeball ISPs. Peering and transit are therefore not internet access services within the meaning of Art. 2 of OIR but are distinct connectivity services.

IP-IC is not a service "*in the"* provision of internet access services within the meaning of Art. 1(1) of OIR.

The OIR is only applicable to the provision of internet access services. The OIR is not applicable to the activities of a network operator solely because the network operator also offers internet access services within the meaning of the OIR. Rather, the regulation is only applicable insofar as the activities of the network operator as an internet access service provider are concerned. In contrast, the OIR does not apply to its activities outside the provision of an internet access service.[14] Accordingly, the Regulation expressly has an activity-related ("treatment of traffic in the provision of internet access services") and not a provider-related connecting factor.

No applicability due to effects on internet access services within the meaning of Art. 2 subpara. 2 no. 2 OIR

The OIR is also not applicable to interconnection services because they can have at least an indirect impact on internet access services. Recital 7 of the OIR seems to speak in favour of such a broad understanding when it states in very general terms that national regulatory authorities should be authorised to take action against agreements or commercial practices that restrict the rights of end

[13] See draft BoR (24) 96, p. 34
[14] Cf. wording of Art. 1 para. 1 OIR

users and violate the provisions of the OIR.[15] In this sense, BEREC also assumes in its guidelines on the implementation of the OIR that interconnection practices of internet access providers can be included in the consideration of whether an internet access provider unlawfully impairs the end-user rights under Art. 3(1) OIR.[16] However, the fact that neither Recital 7 OIR nor the BEREC Guidelines draw the conclusion that interconnection practices should be included in the scope of the Regulation due to their potential impact on internet access services itself speaks against the direct applicability of the OIR to interconnection services. Rather, BEREC merely states that interconnection services are to be taken into account when assessing whether an internet access provider is lawfully providing its internet access service within the meaning of the Regulation. Interconnection practices can therefore influence the compatibility of an internet access service with Art. 3(3) OIR. However, they are therefore not themselves to be measured in isolation against the standard of Art. 3(3) OIR.

Finally, an understanding according to which interconnection services fall within the scope of the OIR solely because they can have an impact on internet access services would lead to a restriction of the private autonomy of network operators, which is also guaranteed by fundamental rights, which can hardly be justified without an explicit legal basis. In principle, this also protects the authority of network operators to decide on the conclusion of interconnection agreements on a private autonomous basis. If the OIR were now to be understood as meaning that the conclusion of peering agreements with individual CAPs would violate the obligations under Art. 3(3) subpara. 1 OIR because their services could possibly be used with higher quality by end users of an internet access provider as a result, this would ultimately mean that peering agreements could either no longer be concluded at all or that network operators would be obliged to enter into peering agreements. However, this would be such a far-reaching interference in the private autonomy of network operators (and possibly CAPs) that it would not be permissible without an explicit legal basis.

Industry practices and Open Internet

In any case, we also highlight that, as an industry, our practices are developed in line with the Open Internet rules as they stand. This would include the introduction of any commercial terms for IP-IC arrangements.

However, we are very concerned that BEREC has insinuated that ISPs would seek to 'manufacture scarcity' by failing to upgrade capacity on congested routes, and that abstaining from investment in capacity upgrades to create this scarcity could be considered in contravention of Open Internet rules. We fundamentally disagree that this is an approach operators would take, given it is *operators* who are ultimately blamed for any degradation in quality by end users.

However, such statements really highlight the vicious cycle that ISPs find themselves in, in that:

- Content is continually increasing in both volume and quality demands.
- Operators must accept and cannot ultimately control what content comes onto their networks.
- Accepting this increasing volume of content comes at a cost to operators as networks remain traffic sensitive, and operators must therefore invest to maintain capacity.

[15] This is also confirmed by ECJ, judgement of 15 September 2020, Telenor Magyarország, ECLI:EU:C:2020:70
[16] See BEREC, Report on IP-Interconnection practices in the Context of Net Neutrality, BoR (17) 184, p. 6.

- For the myriad of reasons outlined above, operators have limited ability to inject a price signal towards the generators of this traffic to account for these costs.
- CAPs and their intermediaries therefore have limited incentive to mitigate the impact of their traffic (indeed, their business models are typically driven by increased consumption of and engagement with their content).

And so, traffic continues to increase, and the cycle continues.

It is our firm view that, whilst it is standard practice that operators maintain the quality of and capacity on their networks to handle the content their end-users wish to access, the parties transmitting that content, extracting value from telco networks whilst generating costs to network operators should pay a requisite share of those costs, to help remedy this vicious cycle.

Conclusion

We take note of BEREC's conclusions of the IP Interconnection ecosystem that (i) the IP-IC ecosystem is still driven by functioning market dynamics and by the cooperative behaviour of market players based on a balanced IP-IC bargaining situation between market players, and that (ii) the internet has managed to cope with both traffic growth and higher peaks of traffic thus exhibiting an evolution rather than a revolution.

That being said, and as described throughout this paper, we respectfully disagree with BEREC's conclusions. The current imbalance in the digital ecosystem becomes clear when looking at the growing influence big CAPs yield over the internet.

What is more, the fact that the internet ecosystem is not as well functioning and balanced as the report seems to suggest, becomes evident in the asymmetry of the IP-IC bargaining power, due to the global size of large CAPs, their strong presence in adjacent markets and asymmetric regulation. As they have alternative routes to reach their end users, such as commercial CDNs, cloud operators, or other carriers, CAPs are generally less dependent on telecom operators, giving them an advantage in commercial negotiations.

This is also why we have endorsed the Commission's consideration in its White Paper to introduce a legal mechanism that can deal with eventual disputes arising from commercial negotiations between the parties in the internet ecosystem.