Deutsche Telekom contribution on the draft BEREC Report on the IP interconnection ecosystem 2024

Bonn, July 2024

Introductory comments

Deutsche Telekom welcomes the opportunity to comment on BEREC's draft report on the IP-IC Interconnection ecosystem.

As a preliminary remark, we welcome that BEREC's draft report tries to assess IP interconnection from a holistic ecosystem perspective – including peering, transit and on-net CDNs – acknowledging the change in the market dynamics. However, there are several statements in the report which we fundamentally disagree with and would like to correct. In general, we follow the ETNO/GSMA contribution on the draft BEREC report on the IP interconnection ecosystem. However, there are certain aspects which we would like to additionally comment on.

1. Comments on the data/information collection

We 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. However, we fully disagree that the approach chosen by BEREC was the right one.

Please find the following remarks on the first RFI (deadline October 2023) below:

- Not ALL relevant market participants are included in the survey.

Besides the traditional network operators key market participants include private and commercial CDNs as well as Cloud Providers which are used by CAPs to store and transport content to end users. Furthermore, we submit that an isolated analysis focusing only on IC interconnection necessarily fails to capture current market realities driven by the evolution of the Internet and large CAPs over time.

- Only static view: requested information only covers a certain point in time and does not show any developments over time e.g., from 2017 on.

To understand the IP interconnection ecosystem and its recent and substantial developments, we consider the requested information for only one static point in time as not sufficient. The consideration of a period of at least the last 5 years is necessary to understand the step change this market has taken. We would therefore ask BEREC to also consider these data in their Report.

- Traffic measurement period is not representative: Only traffic data on a certain prior announced month should be provided. This does not give a full picture of the traffic volume.

The collection of more data over different seasons would also allow BEREC to avoid any wrong conclusions about the delivered data, since it covers only one certain month and does not cover a representative time period. E.g., IP traffic usually shows effects from certain events or seasonal impacts. Moreover, despite the comprehensive guidance issued by BEREC we have serious doubts regarding the compatibility of the data delivered by the numerous respondents.

- Traffic measurement method: 95% Monday to Friday measurement is not representative. It does not show the full traffic profile as important data points are artificially excluded. This is an artificial reduction of the total traffic.

Such a method does not lead to representative data giving the full picture needed to evaluate the developments in the IP Interconnection ecosystem. Based only on this data the BEREC Report on the IP Interconnection ecosystem will not give a correct view and will not allow to draw conclusions for further steps in the political debate.

The second RFI (deadline May 2024) asked in parts tendentious questions.

It gives the impression that the second RFI had the purpose of rigidifying BERECs opinion of shortening interconnection capacity from its last report from 2017 where BEREC looked at a dispute in the US. Just to give a few examples:

> "Did you experience that any of your IP-IC interfaces have been congested?"
>
> "Considering that the costs for upgrading IP-IC links are rather small, did you offer your IP-IC partner to cover all the costs for such upgrading or has this been offered to you?"
>
> "Independently from congestion issues on your interconnection links, have you experienced issues with interconnection partners that insisted on a specific ratio of incoming and outgoing traffic? Was an imbalanced ratio used as an argument to trigger negotiations on a new interconnection agreement despite the capacity of your links not being congested?"

We highly disagree with the chosen approach as it only looks at one part of the story.

2. Comments on the report

In this section, we comment on individual passages of the report. The selection of quotes from the BEREC report does not claim to be exhaustive.

Pricing and developments

BEREC makes the following statements in its IP-IC report:

> *"Taken together with the observed continuing decline in prices, BEREC can therefore conclude that the European market for peering and transit is still competitive." p. 13*
>
> *"This also holds for the price of transit, as transit is usually priced according to capacity rather than total gigabytes of traffic, and a proportion of transit capacity will be required to serve peak traffic. Data on transit costs reported by IAS providers in BEREC's data collection exercise suggest that technological developments (e.g. CDNs, more efficient infrastructure and codecs) may even prevent an increase in transit costs even if peak traffic were to increase." p. 14*

In the first data collection round in October there was no data collection on costs, but only on prices. These are not necessarily congruent.

We also disagree with the statement that the *"European market for peering and transit is still competitive"*. CAPs hold asymmetric bargaining power vis-à-vis vertically integrated ISPs (see explanation below).

BEREC states that:

> *"Furthermore, Packet Clearing House shows that more than 99% of all agreements, analysed in their report, are "handshake" agreements. This finding is also supported by BEREC's data analysis showing that across all IAS providers (settlement-)free peering is by far the dominant form of peering even if traffic volumes are assessed" p. 17*

The essentially symmetrical traffic volume on both sides is the business basis of every settlement-free peering. Therefore, it is not surprising that in the vast majority of existing peering agreements, there is no obligation to pay a fee on the part of one side. An investigation of the relationship between

contracts with asymmetric traffic would be more meaningful as there are many providers with out of ration agreements if traffic is asymmetric (see next section).

Market developments in IP-IC

"There are nevertheless limits to substitution: BEREC observes increasing importance of latency and bandwidth in recent years, where transit is less of a substitute to peering." p. 25

In this generosity, this statement is misleading.

Generic structure of IP-IC issues

Accusation of putative scarcity

BEREC makes the following unfounded accusations:

> *"At BEREC workshops, some stakeholders reported that CAPs may struggle to find alternatives to reach end-users if practices of vertically integrated IAS and transit providers leverage their termination monopoly." p. 25*
>
> *"IAS provider would let the interconnection link to the Tier 1 transit provider artificially congest." p. 28*
>
> *"ACM addressed the issue of artificial congestion in a case involving a CDN provider and concluded that "The capacity of Tier-1 peering interconnections has been (artificially) scarce in order to prevent the use of (partial) transit over these networks from becoming a substitute for direct interconnection with DT. Transit competition was limited in order to impose excessive prices for direct interconnection." p. 29*

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:

- 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
- AboveNet http://www.above.net/peering/
- Verizon http://www.verizonbusiness.com/terms/peering/
- ATDN http://www.atdn.net/settlement_free_int.shtml
- Qwest http://www.qwest.com/legal/peering_na.html
- InterNAP http://www.internap.com/peering/
- Net Access http://www.nac.net/eng/peering.asp

- TWTelecom http://www.twtelecom.com/cust_center/public_peering_policy.html
- WVFiber http://peering.wvfiber.com
- nLayer http://www.nlayer.net/network/peering/
- RCN http://ptd.mbo.ma.rcn.net/peer-policy/
- EasyNet http://peering.easynet.net/
- BBC http://support.bbc.co.uk/support/peering/
- HopOne http://www.hopone.net/peering.php
- CoxCommunication http://www.cox.com/INETPeering/sfp.asp
- WBSConnect http://peering.wbsconnect.com/
- DalNet http://www.dal.net/?page=peering
- MZima http://www.mzima.net/network.html
- Comcast http://www.comcast.com/peering/
- Cablevision http://www.cv.net/peering/requirements/
- Charter http://www.charter.com/visitors/general.aspx?ownerid=25
- New Edge Networks http://www.newedgenetworks.com/about_us/coverage/peering_policies.xea
- High Winds http://www.highwinds.com/tabid/109/Default.aspx
- OpenAccess http://www.openaccess.org/index.php?section=204
- LambdaNet http://www.lambdanet.de/index.php?p=200&l=2&sid=4b0a1625ba0047b3c9cc8231c541d8c7
- tinet http://www.as3257.net/peering-policy/ http://www.as3257.net/peering-policy/

Putative disputes on scarcity

> *"It seems that these incumbents try to extract additional rents from CAPs for traffic termination by offering uncongested alternative routes with sufficient capacity, in return for payments from CAPs." p. 26*
>
> *These are in particular:*
>
> - *Deutsche Forschungsnetz vs. Deutsche Telekom;*
> - *Hetzner vs. Deutsche Telekom;*
> - *[CONFIDENTIAL] vs. Deutsche Telekom;*
> - *as well as the cases mentioned in Annex I." p. 26*

We contest the allegations of BEREC regarding the disputes. We provide more detailed comments in our confidential statement.

Additionally, we highly question allegations such as "[CONFIDENTIAL] vs. Deutsche Telekom", as it does not give us any chance to react to such an allegation. We also were not interviewed on the specific cases shown in the report before the publication of the draft report.

Bargaining situation (in particular) between CAPs and IAS providers

BEREC states that:

> *"Additionally, substitution is limited if vertically integrated Tier 1 providers leverage their termination monopoly to transit." p. 25*

"The relative bargaining situation is inter alia affected by the degree of substitutability between transit and peering (see Section 5.3). The bargaining power of an IAS provider is balanced by the extent to which it is a viable option for a CAP to use transit if the IAS provider declines to peer on a settlement-free basis. Other developments may rather shift the relative bargaining power more towards the IAS providers. Streaming has become a mass market product during the last decade and also the uptake of cloud services grew significantly during that period. In case of these services, CAPs may rather use peering services for qualitative reasons. Thus, in these cases transit might not be a substitute for (direct) peering. This leads to a relative shift of bargaining power towards IAS providers in these cases." p. 32

This statement gives a very shortened picture on bargaining power as there are several factors which strengthen bargaining power. First, the asymmetric regulation regarding large CAP and telco infrastructure in combination with the CAPs dominant position on their core revenue generating markets ("must have content") and second the credible threat to deteriorate the quality experience of broadband customers of a given ISP with their massively increased data traffic and their very own routing decision.

When causing congestion at one or several interconnects of a vertically integrated ISPs network to other networks, the connection quality in its network temporarily deteriorates for all services routed via the affected interconnects (i.e., not only for the services of the CAP which is re-routing the traffic via another carrier). This implies that large CAPs can, through unilateral routing decisions, impact the quality of mobile and fixed broadband services of an integrated ISP towards its end customers, which is a central dimension of competition on retail level. Put differently, large CAPs by their own routing decisions can induce a quality-adjusted price increase for end users on a carrier's network by causing congestion at one or several interconnection points. This increase in quality-adjusted prices for broadband customers for a given ISP would result in a deterioration of its competitive position vis-á-vis unaffected ISPs in the relevant market.

In particular, the quality lever can generate pressure on an ISP if it is threatened or used in advance or during relevant network tests. Network tests permanently measure the accessibility of certain websites, including embedded content, over a certain period of time. If the respective website (or even just embedded content) is fed in indirectly and a "congestion" of the relevant port occurs, the website (and/or its embedded content) will not (completely) load within a certain period of time. Therefore, the network test will measure a "time out" or "fail". Such a "fail" has a significant impact on a network test and significantly impairs the reputation of the ISP concerned. Threating vertically integrated ISPs during network tests gives a strong position in a negotiation.

This credible threat is especially strong as customers hold their ISP responsible for quality problems but not the CAP.

For consumers it is completely opaque which player is responsible for which part of the IP data transmission chain. This is why end customers, who expect the uninterrupted availability of content and services from large CAPs at all times, generally attribute any form of quality degradation to their ISP.

In light of the above, overall, integrated ISPs face far higher risks than the large CAPs in case there is no commercial alignment between them and the large CAPs since the adverse effects of any traffic disruption or quality loss for ISPs significantly outweigh any economic risk of large CAPs notably those with dominant positions in their core revenue generating markets.

Geographically limited deteriorations of the services of large CAPs are less severe for them given the global scale of their business activities and significantly higher revenues compared to ISPs. In the light of certain lock-in effects of their content and applications, users of their services do not easily switch to other CAPs in case of quality deterioration. Due to the strong or even dominant position of large CAPs in their core markets and the strong network effects associated with their activities, users are

dependent on their services which is why the users' willingness to switch from large CAPs' services to other CAPs in case of disruptions or quality problems is fairly low.

CAPs continue to generate revenue in case of network disruptions. End customers can be reached not only through one network, but also through other networks. End customers typically use multiple Internet access services (especially multihoming through parallel use of mobile and fixed networks).

Vertically integrated ISPs, however, do not only face immediate consequences of any quality loss for end users, but they also incur further damages which outweigh any risks of the large CAPs:

- Reputational damage and loss of customers: As mentioned before, quality losses are associated with the ISP and not with the CAP by end customers. Accessibility restrictions and quality deficits in the use of Internet services, thus, lead to reputational and eventually customers losses for ISPs.
- Liability for disruption of Connectivity services: Large network operators that have entered into SLAs with important B2B customers and/or Tier 2 and 3 networks might become liable for quality degradation and/or disruption of Internet connectivity services. The SLAs typically oblige large network operators to comply with certain quality standards when forwarding data traffic. A violation of these contractual obligations can, therefore, result in claims by customers against the large network operator in the event of packet loss at interconnection points.

BEREC also states that:

> *"BEREC considers that such a practice is accompanied by the risk of causing unintended effects, which raises doubts that it was a viable practice in reality. Also, some stakeholders pointed to this. Furthermore, BEREC holds that such a practice by CAPs would not be plausible in those instances where CAPs in the first instance were willing to bear the complete costs of upgrading the IP-IC links." p. 29*

Those practices of CAPs threatening vertically integrated ISPs are practices which we have experienced and also elaborated on in BERECs latest RFI.

These threats only need to be credible in order to unfold its potential to decrease prices. Currently, digital markets and services are highly concentrated, with a few large CAPs having significant market power and providing essential content and applications to end-users and businesses creating so called "must-have services" whereas telecommunication or broadband service providers are seen, effectively, as interchangeable commodity services. In this situation, integrated ISPs cannot act independently of their competitors and customers. Any failure to reach agreements with CAPs would result in end-users switching to another mobile and/or fixed broadband provider due to fierce competition for end-users which puts pressure on ISPs to provide the must-have content and applications demanded by their customers in impeccable quality. This effect results from the two-sidedness with (partially) identical end customers/users with the CAP.

From an economic point of view such a strategy is also rational even if the threatening party (is this case the CAP) would make losses in the short term. This is because the relevance of such a threatening strategy goes beyond the one specific case. By refusing to reach an amicable agreement and making use of the quality lever despite the resulting revenue losses, the CAP can credibly signal that it is willing to use the quality lever and that it will refuse to pay a fee for IP data transport also in other bilateral negotiations with carriers. Though building up a reputation of "fighting" is costly for a certain CAP, it can be the profit maximizing strategy, as the CAP has to repeatedly negotiate with many carriers in many countries. This argument relates to the literature on the chain store paradox[1] as well as

[1] Selten, R. (1978), "The chain store paradox," Theory and decision, 9(2), 127-159. Kreps, D. M., and Wilson, R. (1982), "Reputation and imperfect information," Journal of economic theory, 27(2), 253-279.

reputation effects. In the theoretical model of the chain store paradox, there is an incumbent chain store facing different potential entrants in different cities. If an entrant decides to enter the market in a given city, the incumbent chain store can decide to fight the entrant (by reducing its prices) or to accommodate the entrant. Fighting implies lower profits for the incumbent than accommodating. Solving the game backwards (backwards induction), it is always rational for the incumbent chain store to accommodate the entrant once it has entered since its profits are higher than when fighting the entrant. Anticipating this in the first stage, the entrant will always decide to enter the market. This reasoning applies to all cities. Rationally, the chain-store incumbent should accommodate the entrants in all cities. However, this is not necessarily what is observed in practice. Incumbent chain stores often fight an entrant in one city in order to build a reputation of fighting, thereby deterring other potential entrants. This deviation from rational behavior can be explained the following. If the incumbent chain store does not know how many entrants he will be facing and how many periods will be played, he can have an incentive to deter entry to build a credible reputation for fighting entry.

BEREC additionally states that:

> *"Generally, the IP-IC ecosystem is driven by functioning market dynamics and by the cooperative behaviour of market players. Nevertheless, BEREC observes that some IP-IC disputes could be observed in the market since 2017. Several stakeholders also pointed out such disputes during BEREC's workshops. However, they typically did not call for (general) regulation of IP-IC markets but rather suggested to monitor markets, ensure transparency and – in case of disputes – to examine the individual case." p. 29*

This statement indirectly assumes that the number of disputes is an adequate measure to analyze the well-functioning of a market. The relationship between large CAPs and integrated ISPs is characterized by large imbalances rooted in significant regulatory and information asymmetries indicative for a market failure. Large CAPs wield significant bargaining power (see comments above). 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 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 as 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.).

Irrespective, there are legal disputes ongoing for example in Germany and Korea. However, to the extent that other ISPs have resigned with major CAPs' buying power and are reluctant to engage antitrust authorities and courts, this only demonstrates the balance of power in this market, which has led to European providers of IP data transport services facing increasing financial difficulties. Even if there would be more legal disputes, regulation is still required as court proceedings are not an efficient mechanism to address a market failure. From our own 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.

BEREC also states that:

> *"BEREC observes that customers are ultimately the ones who suffer from such disputes as they cannot access services or use content with the quality they expect. This holds in particular when one considers that safeguarding end-users' rights is an essential aim of the Open Internet Regulation." p. 29*

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. Each CAP with an own AS decides whether to

route traffic via a quality assured direct interconnection, via a quality assured third party content delivery network (commercial CDN) or indirectly via another network operator on a best-effort basis. CAPs also decide which specific port at which specific location is used to reach the end-user. In any case, the data traffic in the network is always transported to the CAP's users without discrimination in line with the OIR.

The fact that routing decisions are solely in the hands of CAPs – on top of the asymmetric regulation – increases the imbalance between CAPs and a vertically integrated ISP as CAPs have the ability to make unilateral decisions on the routing of traffic in a way that derogates the customer experience, which allows them to exert negotiation power by strategically (threatening to) routing large amounts of traffic. Therefore, it is the CAP who has the ability to derogate the customer experience and not an ISP.

BEREC states that:

> *"These converging incentives have led to cooperative agreements, for example CAPs paying to install CDNs in IAS providers' networks. These agreements have positive outcomes for both parties, and their customers, and may suggest that bargaining is possible if incentives are converging." p. 31*
>
> *"The demand from IAS providers' customers for content drives demand for broadband access and the availability of broadband access drives demand for content." p. 31*

So-called cooperative agreements/symbiotic relationships between CAPs and ISPs BEREC assumes in its report due to alleged positive externalities of CAP services on ISP services is not existing.

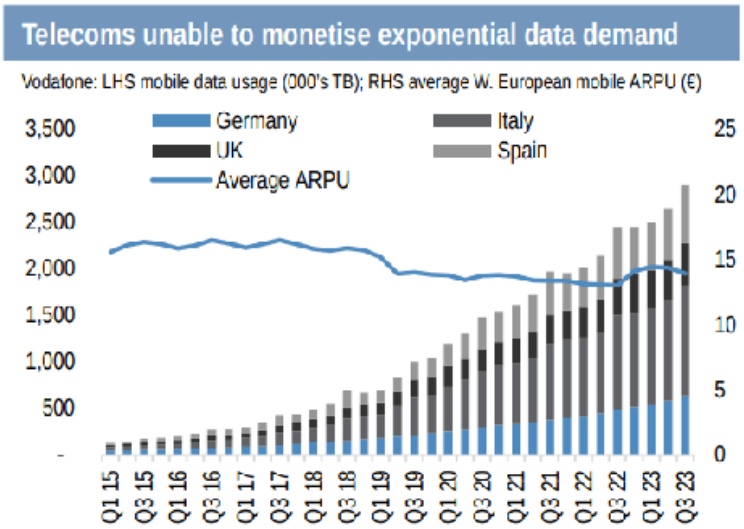
This symbiotic relationship would be only true if ISPs and CAPs would be perfect complements. However, internet access services in terms of fixed and mobile connectivity subscription, as well as digital contents are not perfect complements, as (i) end-users decide to subscribe to an ISP for access to the whole Internet including all online content and services and (ii) for reasons other than accessing online content and applications from players who make an intensive usage of the network infrastructure such as for interpersonal communication services. Therefore, the cross-elasticity of demand would not necessarily always be symmetric. Different to for example true complements such as printer and cartridges, users do not decide the quantities of CAP services and internet access services in function of both prices. They rather decide in a two-step approach where connectivity is the preliminary (autonomous) choice. This also explains why an increase in consumer surplus on the content market does not translate in a higher willingness to pay for connectivity. [2]

Thus, if the symbiotic relationship would be true (quod non) then it is not clear why despite a large traffic increase and the availability of all CAP services on integrated ISP networks only ARPUs and ROCE of large CAPs increase, but ARPUs of integrated ISPs even decrease. Many analysts and industry observers point at the failure to monetize 5G as the telecoms industry biggest problem – despite of the costly rollout of 5G, returns remain lackluster.[3]

[2] Cf. Manganelli, Nicita, The governance of telecom markets: Economics, Law and institutions in Europe, 2020.

[3] Cf. e.g. Telecoms,com, The telecoms industry's biggest problem? Failure to monetise 5G, 2024, https://www.telecoms.com/5g-6g/the-telecoms-industry-s-biggest-problem-failure-to-monetise-5g

Figure 1: Traffic increase and telco APRU



Source: J.P. Morgan European Telecoms, December 2023, p. 61.

If there truly was a symbiotic relationship between large CAPs and ISPs then obviously both parties would (commercially) benefit from an increase in traffic. In reality, however, large CAPs gain the benefits while ISPs revenues stay flat.

Also, the cost savings resulting from CDNs and on-net CDNs (i.e. cost saving related to international transport and operators' national backbone) are not significant when compared to the total and traffic related networks costs, considering that CDN investment has very limited bearing on the volume of traffic on the access network.

It should be noted that CAPs normally provide and maintain the cache servers (on-net CDNs), but ECNs bear the set-up costs and operational costs, which further limits the benefits. For mobile networks the use of on-net CDNs is even less viable as the international transport cost saving is relatively lower when compared to total network costs, as access networks bear the highest share. CDNs do not reduce bandwidth requirements for mobile access networks since cache servers must be located upstream where mobile traffic is aggregated. Finally, CDNs lead to less control for ECS/ECN providers over their own infrastructure, thus increasing dependence on CAPs.

BEREC states:

> *"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 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 OIR

BEREC states:

> *"Given the foregoing considerations, it follows that practices such as those discussed in Chapter 6 can constitute OIR violations. For instance, selective routing policies and/or artificially manufactured scarcity (e.g. by abstaining from upgrading capacity on congested routes and/or by reducing or limiting the number of interconnections) may, in a given case, ultimately degrade the quality of the IAS experienced by end-users in an application-specific manner." p. 35*

This statement is not in line with the requirements of the OIR. However, BEREC's statement "…the OIR focuses solely on the provision of IASs to end-users"[4] is 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. The following explains why the material scope of the OIR is not affected in the case of IP-IC.

1. 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".

a) IP-IC is no internet access service within the meaning of Art. 2 subpara. 2 no. 2 OIR

The term "internet access service" is defined in Art. 2 para. 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) OIR that internet access services are only those services that 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 OIR but are distinct connectivity services.

b) IP-IC is no 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.[5] 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.

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

First of all, there are no such strategies on "*selective routing policies and/or artificially manufactured scarcity"*. 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 (see comments above). Second, and

[4] Cf. draft BoR (24) 96, p. 34.

[5] Cf. wording of Art. 1 para. 1 OIR.

independent of the non-existence of such strategies 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 users and violate the provisions of the OIR.[6] 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.[7] 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 para. 3 OIR. However, they are therefore not themselves to be measured in isolation against the standard of Art. 3(3) OIR.

Furthermore, the applicability of the OIR to interconnection services solely because of possible effects on internet access services is also opposed by the following conclusion (argumentum a maiore ad minus): Art. 3(2) OIR provides that "agreements" and the "commercial practices" of a provider of internet access services may not restrict the exercise of the rights of end users pursuant to Art. 3(1) OIR. An "agreement" in this sense is given if there is an agreement of intent between two parties on the basis of a corresponding offer and acceptance.[8] In contrast, a "commercial practice" exists if a provider of internet access services can unilaterally, i.e. without agreement with an end user, enforce certain behaviour in commercial transactions.[9]

What both alternatives have in common is behaviour on the part of the provider of internet access services in relation to end users, which the latter can freely decide within the scope of their private autonomy. However, if the Regulation only considers private autonomous behaviour in the case of measures by internet access service providers that affect the direct scope of application of the Regulation - internet access services - this cannot go any further in the case of measures at the upstream interconnection level, which in any case can only have indirect relevance for the internet access service.

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.

[6] This is also confirmed by ECJ, judgement of 15 September 2020, Telenor Magyarország, ECLI:EU:C:2020:70

[7] Cf. BEREC, Report on IP-Interconnection practices in the Context of Net Neutrality, BoR (17) 184, p. 6.

[8] In this sense, CJEU, judgment of 15 September 2020, Telenor Magyarország, ECLI:EU:C:2020:708 para. 29

[9] Cf. ECJ, Judgment of 15.09.2020, Telenor Hungary, ECLI:EU:C:2020:708 para. 34 f.