Consultation Response

Draft for Further Guidance on 5G Network Slicing

4. August 2026

Introduction

We thank BEREC for the opportunity to reply to the consultation[1] on the Further Guidance on 5G Network Slicing (hereinafter: "Guidance"). This submission builds upon our record of submissions on the legislative process of the Open Internet Regulation and the various BEREC processes for over a decade[2], including these two specific submissions on 5G to BEREC from 2019[3] and 2026[4].

We support the general idea of providing further guidance on 5G and net neutrality (hereafter: "Guidance"). However the current draft diverges significantly from the BEREC net neutrality guidelines (hereafter: "Guidelines")[5] and the Open Internet Regulation (hereafter: "OIR")[6], without offering any substantive reasoning for this drastic shift. While chapter 1 of the 5G Guidance acknowledges the priority of the Guidelines, the Guidance nevertheless should not contradict them or create false expectations for stakeholders. Hence, we would suggest clarifications on several points outlined below.

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1 https://www.berec.europa.eu/en/public-consultations-calls-for-inputs/public-consultation-on-the-draft-berec-further-guidance-on-5g-network-slicing

2 https://epicenter.works/en/documents?tx_news_pi1%5BoverwriteDemand%5D%5Btags%5D=4

3 https://epicenter.works/en/content/response-to-public-consultation-on-draft-berec-guidelines-on-the-implementation-of-the-open-internet-regulation

4 https://epicenter.works/en/content/call-for-input-guidance-on-5g-slicing

5 BoR (22) 81 https://www.berec.europa.eu/sites/default/files/files/document_register_store/2022/6/BoR_%2822%29_81_Update_to_the_BEREC_Guidelines_on_the_Implementation_of_the_Open_Internet_Regulation.pdf

6 Regulation (EU) 2015/2120 https://eur-lex.europa.eu/eli/reg/2015/2120/oj/eng

Chapter 3: Legal Guidance

Generally, we believe that the document would benefit from a practical chapter that details the privacy implications of certain practices possible in 5G mobile technology. Decisions that are taken on an application-dependent basis could require the processing of information residing in the payload of the transport layer protocol, whereby they could be in violation of the prohibition of deep packet inspection in Article 3 (3) subparagraph 2 last sentence OIR and paragraph 69 of the Guidelines.

Chapter 3.1 Scope

We agree completely with this chapter and find it important to highlight the scope of the open internet regulation.

Chapter 3.2.1 Equal treatment of traffic

We are concerned about the last paragraph of this chapter. It stipulates that if "the IAS provider, and not the end-user, could identify and control the assignment of traffic categories to certain QoS levels", such practices would have to be assessed according to Article 3(3) (ii) OIR and not based on commercial considerations. The paragraph concludes that measures have to instead be based on "objectively different technical quality of service requirements of specific categories of traffic".

This framing can be read as a significant divergence of BEREC from paragraphs 61, 64, 66 and 70 of the Guidelines. To assess whether a particular traffic measurement practice is proportionate, paragraph 61 offers invaluable guidance for all stakeholders. Key principles of the Guidelines as defined in paragraph 61 such as:

- proportionality,
- appropriateness,
- legitimate aims,
- least interference
- and requirements to provide evidence to show the desired affect of the measure

are currently completely omitted in the Guidance. Paragraph 61 includes the important principle a traffic management measure is not "proportionate" if there is "a less interfering and equally effective alternative way of managing traffic to achieve the" goal and explicitly highlights the example of "equal treatment without categories of traffic." (para. 61, fourth bullet point) In other words, application-agnostic measures have preference over class-based measures based on categories of traffic.

Similarly, important guidance in paragraph 66 of the Guidelines on the meaning of objectively different "categories of traffic" has been lost:, Paragraph 66 permits differentiation between categories only in so far as "applications with equivalent QoS requirements are handled agnostically in the same traffic category" and "justifications are specific to the objectives that are pursued." Paragraph 64 notes that an ISP needs to rely on the information provided by the application (e.g., in the packet header) to in identify categories of traffic. As outlined above, more guidance is also needed on the privacy implications of traffic management measures, for example as in paragraph 70.

Chapter 1 of the Guidance provides that "[i]n case of any conflict between the main document of the BEREC Open Internet Guidelines and this annex, the main document shall take precedence". We therefore do not read section 3.2.1 as displacing paragraphs 61, 64, 66, and 70.

However, the Guidance is expressly intended to assist providers "to self-assess their services and practices, which do not require ex ante clearance by national regulatory authorities", and a provider self-assessing against this section will likely focus on the conditions listed here. As a result, including key requirements in the guidance is critical to allow ISPs to accurately assess their offerings.

Therefore, section 3.2.1 should state explicitly that the section does not displace paragraphs 61, 64, 66, and 70 of the Guidelines, and that a traffic management measure implemented through network slicing must satisfy the proportionality assessment in paragraph 61, just like any other traffic management measure.

In particular, where the identification and control of the assignment of traffic to QoS levels rests with the IAS provider rather than the end-user, the operator must be able to demonstrate that no less interfering and equally effective alternative is available, including equal treatment without categories of traffic, and including assignment controlled by the end-user, which section 3.2.2 of this Guidance itself describes and which paragraphs 34a and 34c of the Guidelines already permit.

Chapter 3.2.2. Agreements and commercial practices

We highly appreciate this chapter and the important clarifications it provides for the connection between commercial agreements and application agnostic treatment of traffic. We welcome the clarification in the last sentence of the first paragraph:

> *"Moreover, following Art. 3(2) OIR, IAS[7] subscriptions with better QoS level should not degrade the quality of other IAS subscriptions to a quality below the contract conditions agreed under Art. 4(1) OIR."*

Nevertheless it is important to note that Article 4 has very limited rules for mobile network IAS and hence offers no real barrier in practice. However little else is provided by the OIR for this scenario. Hence, we would welcome more guidance from BEREC on the applicability of Article 4 on 5G mobile network offers. The different network slices offer different maximum and advertised speeds and the applicability of individual slices in different scenarios is often not obvious, even for technically skilled users.

We welcome the clarity in the last sentence of the second paragraph regarding the concrete meaning of application agnostic and user control:

> *"Moreover, under Art. 3(2) OIR, where the IAS provider offers more than one level of QoS, the term application-agnostic implies that any application may request any available QoS level and that the selection of the QoS per application is made on the device and depends on user choices and subscriptions"*

This is in line with existing BEREC provisions since the 2020 Guidelines. The different meaning of "request any available QoS level" and "selection of the QoS" should be clarified. We would suggest to reference paragraph 34c of the Guidelines, which is clearer in the user being the ultimate decision maker and not the application or its relationship to the ISP:

7 The term "IAS" means "internet access services" and is a common abbreviation in BEREC documents.

> *"In such an assessment, the NRA may, among other factors, take into account that end-users must have full control over which applications transmit traffic over which QoS level (e.g. by configuring the client application software) and that the QoS level in which specific applications are transmitted is not preselected by the ISP (e.g. based on commercial agreements with a third party, such as the end-user at the other end)."*

However, the following sentence in the second paragraph is currently placed in the wrong paragraph:

> *"Within each IAS, all traffic must be treated equally."*

This sentence accurately describes the kinds of offerings described in the first paragraph in Section 3.2.2., where an ISP offers different IAS plans with different characteristics, but traffic within each IAS is treated equally. However, it does not accurately describe the kinds of offerings in the second paragraph, where an ISP offers different QoS levels within the same plan. Thus, this sentence should be moved to the first paragraph.

Chapter 3.3.1. Criterion: "Optimisation is necessary in order to meet requirements … for a specific level of quality"

We welcome the clarification of BEREC on page 9 in the first paragraph that all elements of a service and bundled services have to be assessed independently from each other regarding the criterion that their optimisation is objectively necessary.

We agree with the temporal aspects of this criterion and its relationship with the constantly improving quality of IAS. Yet we would dispute BEREC's application of the optimisation criterion in this chapter on key points.

BEREC suggests that the legal requirement of necessary optimisation according to the OIR can already be met if quality levels can simply not be "assured" by IAS:

> *"In particular, operators must therefore be able to justify that the required quality level and other technical requirements cannot be **assured** by the delivery of IAS, for the concerned content, application or service."*

This reading is further exemplified by BEREC with this sentence:

> *"A typical example of inherent requirements is low latency for real-time applications, as may be required for virtual and augmented reality ("VR/AR"), where certain applications might already be deployed over IAS, but with worse quality."*

Such a reading would allow for every quality assurance given to the user to satisfy this conditions for a specialised service, irrespective of whether such optimisation is the objectively necessary for characteristic of the service itself. If a content, application or service simply benefits from quality assurances, this doesn't mean they objectively require such assurances. Taken to the extreme, such reading allows any potential buffering experience of a user to allow for the provision of a specialised service with an arbitrary service level agreement. We dispute this novel reading of BEREC and believe it to contradict the OIR and Guidelines.

Article 3 (5) of OIR conditions the provision to "where the **optimisation is necessary** in order to meet requirements of the content, applications or services for a specific level of quality" and while recital 16 OIR uses the word "assured" it subsequently details this by requiring NRAs to:

> *"[...] verify whether and to what extent such **optimisation is objectively necessary** to ensure one or more **specific and key features** of the content, applications or services and to enable a corresponding quality assurance to be given to end-users, **rather than simply granting general priority over comparable content**, applications or services available via the internet access service and thereby circumventing the provisions regarding traffic management measures applicable to the internet access services"*

The lawmakers were clear in requiring an objective necessity of optimisation before a specialised service can be provisioned and only after that criterion has been met, assurances can be given to end-users. The draft Guidance on chapter 3.2 completely omit the this important criteria by not even mentioning the objective necessity. Simply offering preferential treatment over comparable content accessible via IAS, would not qualify as a legitimate specialised service.

This chapter also contradicts the paragraph 105, 108, 110 and 111 of the Guidelines. Paragraph 105 clarifies that the optimisation must be objectively necessary for the content and not simply based on assurances given to the user:

> *"NRAs should verify whether the application could be provided over IAS at the specific levels of quality which are **objectively necessary in relation to the application**, or whether they are instead set up in order to circumvent the provisions regarding traffic management measures applicable to IAS, which would not be allowed."*

Paragraph 111 of the Guidelines reiterates this:

> *"NRAs should verify whether, and to what extent, optimised delivery is objectively necessary to ensure that the requirements of one or more specific and key features of the content, applications and services are met, and to enable a corresponding quality assurance to be given to end-users. To do this, the NRA should assess whether an electronic communication service, other than IAS, requires a level of quality that cannot be assured over an IAS."*

This criterion also has to be read in the context of 5G network technology. A low latency network slice that is provisioned as application agnostic IAS can assure exactly the type of optimisation that would be objectively necessary for several of the aforementioned specialised services. Subsequently, NRAs have to factor these technical realities into their assessment and acknowledge that 5G reduces the demand for specialised services even further. The legislator clearly didn't want specialised services to become a form of vertically integrated paid fast lane, but instead intended to give preference to innovation via open and neutral IAS.

Finally, we would dispute that virtual or augmented reality (AR/VR) are a typical example for specialised services. Such services have been provisioned over the IAS for over a decade, many vendors are absolutely fine with their products being connected via a neutral internet connection. A vertical integration between ISPs and vendors might lock in dominant market positions and thereby reduce competition and user choice. As stated above, a plain assurance to a user that AR/VR might benefit from optimisation should lead to optimised IAS offers, but does not satisfy the requirement for objectively necessary optimisation that a specialised service would require.

Chapter 3.3.2. Criterion: "Not be usable or offered as a replacement for IAS"

We welcome the clarifications in this chapter. Our only comment concerns this highlighted sentence in the last paragraph:

> *"As regards the provision of a service as a substitute for an IAS, BEREC holds that this requirement for specialised services is related to the requirement that the "optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality" (Art. 3(5) (i) OIR). Thus, operators should be able to demonstrate in a plausible and comprehensible manner, with practical elements that optimisation is required (see above).* ***This may indicate that the offer is not usable or offered as replacement for an IAS.*** *However, the operator has to assess all criteria as these apply cumulatively."*

BEREC should clarify this sentence. The reasoning of connecting these two criteria and why one might satisfy the other is not obvious to us.

Chapter 3.3.3. Criterion: "Sufficient capacity for specialised services in addition to IAS"

We agree with the general explanation and contextualisation of this criterion and the dynamic resource allocation in this chapter. But our main concern is that it should be clarified that this only applies for resources that are currently not allocated for IAS and this has to be adhered to over time.

Specialised services should not reduce the availability and quality of IAS, also over time. When a specialised service gets allocated unused capacity from IAS, the specialised service should also be obliged to free up this capacity when the IAS requires it back.

Further guidance on conflict resolution in such cases might be helpful for all stakeholders. For example, what happens to allocated capacity for specialised services, when IAS subscribers re-use capacity previously available to them.

It is important to note that paragraph 122 of the Guidelines outlines one such particular scenario where quality deterioration for IAS because of a specialised service might be acceptable, but this scenario concerns one user using both the IAS and specialised service on their connection and the deterioration only affecting their own IAS and not others.

Furthermore, we want to point to paragraph 116 of the Guidelines which states "*Both in the short and in the long term, specialised services shall not lead to a deterioration of the general IAS quality for endusers.*". Similar guidance in light of the temporal dimension seems needed for this chapter. For example, to clearly state that additional capacity from network roll-out should not be dedicated exclusively or preferentially for specialised services.

A similar logic can also be found in Recital 17 of the OIR:

> *"In mobile networks, the general quality of internet access services for end-users should not be deemed to incur a detriment where the aggregate negative impact of services other than internet access services is unavoidable, minimal and limited to a short duration. National regulatory authorities should ensure that providers of electronic communications to the public comply with that requirement."*

Lastly, references to the previous Recital 17 and Recital 19 of the OIR might also be helpful for the Guidance:

> *"Those include the obligation to ensure sufficient network capacity for the provision of high quality non-discriminatory internet access services, the general quality of which should not incur a detriment by reason of the provision of services other than internet access services, with a specific level of quality."*

Chapter 3.3.4. Criterion: "Not to the detriment of the availability or general quality of the IAS"

We are concerned about this chapter moving the goalposts from the previous established standard in paragraph 121 and 121a of the Guidelines – which are based on Recital 17 of the OIR – to a much lower level.

Paragraph 1 on page 12 states that:

> *"As far as the providers comply with their contractual obligations and no evidence of IAS degradation has been observed, the risks of degradation of the IAS may be considered negligible."*

The contractually agreed conditions for IAS according to Article 4 OIR are dependent on the network type. Fixed network IAS have stronger contractual obligations to also include realistic average quality parameters, whereas mobile network IAS only have theoretical minimum and maximum parameters. However the criterion in Article 3 (5) OIR as detailed by Recital 17 establishes that quality deterioration shouldn't occur, irrespective of any contractual arrangements.

The last sentence of the second paragraph on page 12 introduces further contradictions:

> *"In the context of 5G slicing, the degradation may be deemed not persistent or recurring, and therefore acceptable, if it is limited to the duration of specific events (e.g. a concert), to which slicing-based services are dedicated."*

On the previous page of the Guidance BEREC states that:

> *"In mobile 5G networks, the capacity impact of a specialised service delivered via a network slice may be highly localised (limited to specific cells or sectors) and/or temporary (limited to specific time periods, such as the duration of a live event). In such scenarios, operators should be able to demonstrate that they have taken adequate measures to manage the capacity impact, which may include examples such as deploying additional temporary infrastructure, and reserving dedicated radio resources or network capacity via network slicing for the specialised service."*

Large events like concerts are usually anticipated and not unforeseen. As venues are usually geographically fixed, it can also hardly be stated that they are exceptional or temporary. Hence, we would suggest to remove the sentence above on page 12 in light of Recital 15 of the OIR:

> *"Recurrent and more long-lasting network congestion which is neither exceptional nor temporary should not benefit from that exception but should rather be tackled through expansion of network capacity."*

Lastly, there is also the important issue of self-assessment in the Guidance that is applicable to several chapters. While we welcome the encouragement of BEREC for IAS providers to collect evidence regarding the provision of specialised services and we also want to stress that the current framework requires them not to seek permission before innovating, these internal practices have no binding effect on the assessment of independent NRAs.

For example, the provision on page 12 quoted above assumes that the absence of evidence is evidence of absence. Simply because the IAS provider has not collected evidence of IAS degradation doesn't mean the IAS has not been deteriorating. The regulatory assessment has to be ultimately be based on the facts in the network. A similarly flawed logic can be found in Example 5.

Provided Examples

Example 1

We completely agree with this example and would highly encourage more application agnostic examples to be added.

Example 2a

We disagree with the assessment of BEREC on this example qualifying as a specialised service. Every CAP would benefit from such optimisation and such a network slice should therefore be offered as an application agnostic product available to all content, applications and services, as determined by the user.

The museum in the example could simply buy such an application agnostic IAS product with such quality characteristics. Were Meta to bring forward such an example of a vertically integrated access product for their VR/AR handsets, it would become clear that this is a circumvention of the protections of the open internet.

Example 2b

We agree with this example and the qualification as application-agnostic IAS with a network slice suited for low latency transmission. But we would dispute the last sentence of the first paragraph:

> *"given the fact that these services could not be delivered efficiently over the normal IAS."*

Millions of internet users utilise AR/VR applications every day over their IAS. BEREC is blatantly stating a discrepancy here which is not supported by facts and that is disproven on a daily basis inside and outside the Union.

Examples 2c, 3, 4a, 4b and 5

We agree with the assessments of these examples.

Suggestions for more Examples

We would appreciate more application agnostic examples, in particular around concerts, sport events and emergency services. There is a great variety of innovative services available in Asia and other regions that showcase the market potential for these types of access services.