



Europe

GSMA Europe Response to the BEREC Public Consultations on

Quality of Service and Competition Issues in the Scope of Net Neutrality

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About the GSMA

The GSMA represents the interests of mobile operators worldwide. Spanning 219 countries, the GSMA unites nearly 800 of the world's mobile operators, as well as more than 200 companies in the broader mobile ecosystem, including handset makers, software companies, equipment providers, Internet companies, and media and entertainment organisations. The GSMA also produces industry-leading events such as the Mobile World Congress and Mobile Asia Congress.

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Introduction

The GSMA welcomes the opportunity to respond to the three consultations recently launched by BEREC on Net Neutrality. This reply covers the reports on *Differentiation Practices and Related Competition Issues in the Scope of Net Neutrality* and the *Guidelines for Quality of Service (QoS) in the Scope of Net Neutrality* as the two issues are directly-related. The GSMA addresses the IP interconnection paper in a separate reply.

The main focus of the Net Neutrality debate - introduced as one of the missions of NRAs following the telecom package review - is to promote “the ability of end-users to access and distribute information or run applications and services of their choice”.

The GSMA completely shares this objective and is committed to enhancing the consumer experience in this regard, particularly in terms of better transparency on what the user will really have access to and under which conditions. Transparency and openness are cornerstones for the development of the Internet. Instead of being positioned as an universal principle, which needs to be enforced regardless of the market framework, Net Neutrality should be considered as an outcome of healthy competitive markets.

Before imposing any measures relating to minimum QoS requirements, and in line with the proportionality principle enshrined in the framework as rightly recalled by BEREC, NRAs should ensure that other relevant tools provided within the regulatory framework, particularly with respect to transparency, have been efficiently implemented. Minimum QoS requirements should be regarded as a last resort remedy following a robust and comprehensive analysis, and should not be applied on an asymmetric basis. The setting of minimum QoS requirements should only target any proven cases of quality degradation and should not be used to achieve other goals.

However, some of the views in the two draft reports imply that operators would incur significant costs and would have to expend significant resources. BEREC does not sufficiently assess the potential impacts of its draft recommendations, especially with respect to minimum QoS requirements on specific applications. It would be particularly disproportionate and practically unfeasible to impose such measures.

In its analysis, BEREC should also take into account that specialised services will continue to develop together with the “best effort” Internet: innovation and investments relating to specialised services will not diminish best effort Internet but further improve it.

Similarly, differentiated retail offers will always be necessary to meet different customers’ needs. For example, customers should be able to select basic Internet access offers, which may not give access to some Internet services, at a lower price, as long as other offers, which include those services, are available. This ability to offer differentiated bundles is essential. European Commission Vice President Neelie Kroes has recognized their importance:

« But I do not propose to force each and every operator to provide full Internet: it is for consumers to vote with their feet. If consumers want to obtain discounts because they only plan to use limited online services, why stand in their way? And we don’t want to create obstacles to entrepreneurs who want to provide tailored connected services or service bundles, whether it’s for social networking, music, smart grids, eHealth or

whatever. But I want to be sure that these consumers are aware of what they are getting, and what they are missing. »¹

The GSMA, therefore, believes BEREC needs to ensure that its final reports do not restrict operators' flexibility to provide differentiated offers, as some of the proposed provisions currently do.

In this regard, a clear distinction should be made between traffic management practices and commercial practices. Practices to differentiate offers by blocking or throttling an application should be considered within competition and transparency analysis, rather than as a QoS issue.

BEREC rightly points out that when looking at evolutions in the market it will be necessary to take into account of the whole value chain, including content and application providers (CAPs) and device manufacturers (whose technical choices may have a major impact on consumers' ability to access content and applications), as well as technical intermediaries, such as transit providers or providers of content delivery networks (CDNs).

Finally, BEREC has published several papers on the topic of Net Neutrality over the past year. The GSMA found that there is some overlap and some of the conclusions are not always aligned. We would encourage BEREC to ensure better consistency, notably amongst the current consultation documents on QoS and competition matters and the first BEREC report on QoS published in December 2011, "*BOR (11) 53 A framework for Quality of Service in the scope of Net Neutrality*".

This response addresses the issues based on the questions raised in the QoS guidelines but we have also included, where appropriate, comments on the competition draft report. Before answering the specific questions, the GSMA would like to make some general comments on the introductory part of that report.

Comments on Chapter 1-3 of the QoS guidelines

- *Technical aspects to consider (point 2.2)*

As rightly pointed out by BEREC, the QoS experienced by the end user is the responsibility of several actors in a complex value chain. Therefore, NRA monitoring should focus purely on the quality of service delivered by the ISP and not on the quality of experience of the user which depends on the service and application providers, as well as devices and technologies such as WiFi for example.

As far as the distinction between Internet access services (IAS) and specialised services is concerned, we agree that the QoS guidelines should only address the quality of IAS. In particular, minimum QoS requirements, if needed, should only be imposed on the best effort Internet.

- *Relevant market developments (point 2.3)*

According to BEREC's analysis of Cisco figures, "*traffic rate of growth is declining*". In fact, this is only a matter of presentation, as the same figures also show that the annual increase in absolute traffic continues to rise. The decrease in the rate of traffic growth is mainly due to

¹ <http://blogs.ec.europa.eu/neelie-kroes/netneutrality/>

the increase in absolute volumes. We therefore invite BEREC to adopt a more nuanced and balanced conclusion than the one proposed at the bottom of page 17.

To achieve greater consistency between the different reports, the draft QoS guidelines should not discuss repartition of costs and value amongst players. The paragraphs related to those questions should be deleted from this paper and should only be addressed in the IP interconnection paper (Cf. GSMA comments on this last paper).

BEREC points out that the “*mobile operator usually control both voice and data tariffs and can therefore restructure tariff plans and preserve their revenue*”. However, BEREC is proposing to significantly reduce operators’ ability to offer differentiated services based on innovative business models and new source of revenues, by looking at traffic management practices without distinguishing between commercial differentiation (data caps, QoS differentiation, etc.) and Net Neutrality issues (i.e. the ability to access to content and use application, etc.).

- *Different roles of QoS in the context of Net Neutrality (point 3.1)*

In this section, BEREC describes the two main objectives as improving transparency and monitoring evolution of quality. Each of these objectives appears to be relevant, but they may not always be easy to reconcile. For instance, the method and tests that would be relevant to meet the transparency objective might not be the most efficient for the monitoring of quality. In this specific work stream, it would be more relevant to focus on the monitoring objective of the QoS exercise.

- *Two main categories to be considered (point 3.2)*

The first paragraph of point 3.2.1 is rather questionable. It asserts that “*this [congestion on a regular basis] will typically occur when the ISP fails to respond to increasing traffic levels with a sufficient increase of capacity*”. Investment, as such, is not a regulatory obligation. For operators to decide to invest, they need to be convinced it is efficient and economically sustainable to do so. In the absence of sustainable revenues, articulating a business case for investing in additional network capacity is difficult. Setting minimum QoS requirements under such circumstances without considering the challenges faced by operators would not be objectively justifiable. Traffic management to deliver services over capacity constrained networks should not be considered as ‘degradation’ of services that require regulatory intervention.

With respect to the impact of restricted offers on subscribers (point 3.2.2), considered as being negative by BEREC, it can on the contrary be legitimate for some subscribers not to have access to some applications that they would consider intrusive or would not serve them properly. Whenever unrestricted offers are available on the market, operators should be able to commercialise restricted offers as long as the restrictions are clearly indicated to the consumers. Indeed, some users may prefer to have offers that eventually don’t give access to some services, but fit with their actual needs. Tailoring the offers towards the end user’s exact demand could only increase the economic surplus, both for the consumer and for the ISP. Moreover, offering consumers options at multiple product-price points and enabling the access to the Internet at a lower cost only improves digital inclusion.

This section of the draft guidelines provides an unilateral point of view that should be nuanced. This is also true of other sections of the draft report, such as point 3.5.2 where

BEREC concludes that restriction *“will also reduce the usability of VoIP (or messaging) application for users subscribing to unrestricted IAS offers since the potential user base of the application decreases. This will reduce the economic and social value of the application”*. Again, some customers don't want to use certain applications, and will, therefore, choose the offer that best suits their needs. As a matter of principle, the rights and choice of end users should prevail.

Finally, the two examples used by BEREC in this section to illustrate its analysis and the market conditions that would justify the imposition of minimum QoS requirements are rather extreme and therefore questionable.

- *Definition of basic concepts (point 3.3)*

The draft QoS guidelines make a distinction between IAS and specialised services and only aim at monitoring the QoS of IAS. While the GSMA supports this approach, in principle, it needs to be underpinned by precise definitions of an Internet access service, so as to clearly draw the line between what should be measured and what should not be. The definitions proposed in the draft raise some concerns/questions.

According to the draft guidelines, an Internet access service represents the “open” Internet with only minimum traffic management, while specialised services would be reserved for a limited number of customers only with extensive traffic management practices. Regarding IAS, BEREC refers to “reasonable” traffic management to define “unrestricted offers”. However, as we also indicated to BEREC in our response to the transparency consultation, negative wording to classify retail offers should be avoided.

Regarding specialised services, the concept of a “closed” network, unknown to the regulatory framework, might require additional explanation. Should one understand that BEREC considers specialised services as always “closed” within on network? Some specialised services may however require end-to-end guaranteed QoS solutions across different ISPs' networks (health care, gaming, etc.). GSMA therefore invites BEREC to further assess the accuracy of the word “closed”.

This definition also raises some questions as it does not seem to include either prioritized IAS, which would be part of the open Internet according to point 4.1.4 of the draft guidelines, or services provided to CAPs. This definition seems to consider specialized services only from a retail consumer perspective. Thus, the definition should be further clarified so that it could cover all the aspects. It should also be consistent across all BEREC reports on Net Neutrality.

Moreover, we do not agree with the statement that specialised services *“only encompasses the underlying electronic communication service component, and excludes the application layer”*. In practice, the scope of the service is defined at the level of the service agreement.

Finally, in its point 3.3.1, BEREC proposes two approaches to the definition of a minimum QoS: one related to the general best efforts Internet and the other related to specific applications. As further explained below, we believe that any evaluation of minimum QoS requirements by NRAs can and should only be related to the general best efforts Internet (if necessary). Moreover, such an evaluation should be based on neutral key performance indicators which are not specific to single applications (e.g. download/upload speed, latency, packet loss, etc.).

Question 1; The criteria proposed for the assessment of degradation of Internet access service as a whole?

In chapter 4 of the draft QoS guidelines, which covers the degradation of Internet access as a whole, BEREC raises some very important points that will prove vital, not just in the development of future business models for operators, but also for the provision of relevant and useful information for end-users. BEREC rightly points out that the process of deciding whether intervention is necessary will need to take place over a sustained time period. Hasty interventions, which would prejudge market developments, risk ultimately to be proven unnecessary and damaging for both consumers and the sector.

In this chapter, many of the topics raised or measures proposed by BEREC relate to transparency, which is the focus of another workstream of BEREC. We, therefore, invite BEREC to take into account the position the GSMA has delivered on transparency during past consultation or at the meeting on the transparency aspect of net neutrality.

- *Quality of IAS over time (point 4.1.1)*

In monitoring the quality of IAS, BEREC states that under article 22-1 of the Universal Service and Users' Rights Directive (USD), NRAs are entitled to collect data which could be used to assess QoS. On several occasions, the draft guidelines refer to the use of platforms or third party services to collect information on which a judgement about IAS degradation can be made. The GSMA believes such an approach may have drawbacks, as the third parties could well be profit-motivated entities over which a regulator has no control. As this approach has never been tried, it remains to be seen how any such a process would work.

Although statistical evidence is, of course, necessary to provide adequate levels of information to regulators and consumers, the nature of mobile technology makes it challenging to source such evidence. There are numerous variables which can have an effect on an end-user's IAS. These include the location, the number of users in a cell, indoors or outdoors etc. As rightly pointed out by BEREC, mobile performance is "unpredictable". That makes it very complex to monitor QoS and to provide information which is both relevant and accurate; to give users a realistic view of the consistent performance of their connection is very difficult. In any case, this topic is related to the transparency workstream and, to avoid inconsistency, the draft QoS guidelines should refer to the activities of that workstream.

BEREC also rightly points out that it is not always the fault of the local access provider that a degradation of the IAS occurs, sometimes interconnection partners and other players in the value chain have an adverse effect (overload of a service platform due to a temporary increase in traffic or a lack of investment). Having said that, BEREC is not always clear on how this issue should be treated in the QoS measurement. On page 38 of the guidelines, it states that detection of degradation "*should preferably also include the interconnection leg*". From our point of view, interconnection should be excluded as it will, in practice, be very difficult to assess if the degradation is due to the operator or to another player.

There are also instances where the device being utilised by the consumer has certain capabilities, or a lack thereof, either as a result of technology choices or superior technical specifications. These choices, which can have a major impact on service quality, are often made by the consumer and need to be considered when assessing degradation. At the same time, some applications downloaded on smartphones can be bandwidth-hungry, with a potential negative impact on other services. ISPs clearly aren't responsible for this impact.

- *IAS speed and congestion (point 4.1.2)*

BEREC also makes a comparison between actual speeds and advertised speeds, as a potential way of giving the consumer a much better idea of what they are buying and assessing whether their actual service would be degraded. As the GSMA has already indicated to BEREC during a meeting, this process is under way, the GSMA members are committed to on-going improvements and working at the national level with their respective NRAs. BEREC rightly points out that this is mainly a transparency issue, which should therefore be addressed within the workstream on transparency to ensure consistency.

Speed is not necessarily the most relevant factor with which to assess a potential degradation of the QoS. Different services have different needs and using speed as the only parameter on which to judge an end-user's quality of experience may not deliver the truest picture. Other parameters, beyond speed, could be considered, such as packet loss, delay, jitter, etc.. How these parameters are explained to the customer will be important. As far as the consumer is concerned, service eligibility can be of greater concern than speeds, in practice. For operators, many of these issues are competitive differentiators in the market and, therefore, the role of the local NRA in any such discussion is important.

Finally, BEREC recommends that "*the different parameters should be measured between a representative set of clients and representative set of servers*". The GSMA believes it will be important to apply the principle of proportionality also in this context.

- *IAS vs specialised services (point 4.1.3)*

When considering the issue of specialised services and IAS, regulators shouldn't prejudge what the consumer market will prefer. As networks allow for more and more innovation on services, a whole host of potential business opportunities will emerge. These could arise in a number of different ways. There may be agreements between network operators and CAP with products that depend on being treated in a certain way, such as the need for low packet loss for voice calls or high capacity for video transmission. Similar dynamics may also emerge on the retail side, with consumers choosing to consume different products, with certain requirements, in a different way.

There is thus a need to consider not just a degradation of services, but also the existing ability of certain service providers, which have invested in their own private infrastructure, to deliver services to end users with a better quality than competing services relying primarily on the public Internet. Although a service is not degraded, as such, it may seem so in comparison to those organisations that do not rely on the public Internet to a greater or lesser extent. We feel that BEREC needs to explore this notion further when considering the ability of operators to offer varied QoS on the wholesale side of the market.

In terms of methodology, there are many ways to compare services. Results can be very diverse depending on the methodology chosen. It is not clear which methodology was used to produce the graphic on page 40 of the draft QoS guidelines; it is indeed very difficult, not to say almost impossible, to compare multicast Internet stream with unicast Internet stream. Moreover, having spare capacity, which nobody needs, is useless. A decline over time in the proportion of bandwidth used by IAS, compared to bandwidth used by specialised services, would not necessarily mean that IAS has been degraded and should not be the basis of any final conclusion.

As noted by BEREC, determining whether “*improved performance for some service offers actually results in a degradation of the performance of the remaining services offers*” (page 41) is more than difficult. Each kind of application has its own characteristics and the requirements of one application do not automatically correspond to the requirements of other applications.

- *Prioritised IAS (point 4.1.4)*

The notion of a best effort IAS may over time become less relevant, but at the moment best effort describes a mobile IAS accurately for the reasons mentioned above. We do see a significant opportunity to build value and to create a better consumer experience through enhanced QoS, but we do not see that being a significant detriment to, what is today considered, a best effort IAS. In addition, one should not forget that operators produce and manage their products and services in a way that obeys to fundamental rights and have also to comply with existing marketing and consumer laws when implementing their retail contracts.

At this stage, it is still not clear how these products will be packaged in future. BEREC has mentioned the possibility of a 'Gold, Silver, Bronze' style subscription which is, of course, a possibility, but there are many other ways to view how a customer or service provider may receive, pay for or monetise different service levels. It is not the role of regulators or law makers to pre-define such business models on the basis that consumer welfare is being protected (such as the recent law passed in the Netherlands.) This is not a Net Neutrality matter, but a commercial decision by the operator. Any such restrictions will limit the ability of operators of explore new business models which enhance consumer welfare and respond to rapidly evolving and increasingly granular demand. It shouldn't be the role of NRA to shape retail offers.

There is a need to monitor future variations on the traditional subscription model, but it is important that operators are able to rebalance the current mix within the services they offer. Operators will indeed need to modify their offers to better represent the capex to revenue ratios for voice and data services or alter their service mix to address the huge variety of needs of their retail consumers.

- *Additional methods (point 4.1.5)*

BEREC also mentions a variety of potential additional measures, such as surveying consumers through qualitative questionnaires. These could be useful for anecdotal evidence, as a complement to other measures, but may lack the robustness required to make a regulatory decision. We agree with BEREC that this measure “do(es) not suffice in itself”.

Monitoring the availability and penetration of services, as well as the ability to switch, could be useful to a certain extent, but an increase in the number of services available should not automatically be considered an improvement. Some operators may take a commercial decision to streamline their offerings, whereas others may choose to offer more. Importantly, NRAs need to look at such issues with a view that products and services are likely to change quite significantly; to use today's product mix as a definition of how to regulate future services could be detrimental.

When it comes to switching, an operator's responsibility is clearly mandated within the regulatory framework and any non-conformity to those provisions should, of course, be dealt

with. Low levels of switching are not necessarily a bad thing. It may well be the case that a large number of consumers are happy with the level of service that their mobile provider is giving them, so using switching levels to assess how well a market is functioning may lead to sub-optimal outcomes. To use the level of switching as any sort of indicator would imply that there is an optimal level of switching and it would, therefore, be incumbent upon a regulator to define that level, so operators have certainty over what regulatory standards they are to be judged. We do not feel this is possible or necessary.

In summary, regulators need to take a long term view when considering how and where to intervene in the market. It is important to be careful not to define today's levels of service and offers as optimal and to be open to experimentation with new products and services. The type of services the industry will offer will evolve and will become more granular to respond to the ever increasing need for network support for advanced services.

Finally, in its assessment, BEREC should carefully consider a static approach, as mentioned within point 4.2. A static approach does not take into account the dynamics at play in a market and, in particular, the fact that specialised services provide revenues that allow investment, also benefiting IAS.

Question 2; The criteria proposed for the assessment of issues regarding individual applications run over the Internet access service?

This question refers to chapter 5 of the draft QoS guidelines relating to the issues regarding individual applications on the IAS.

Imposing minimum QoS requirements on operators, in relation to specific applications, would be illegitimate, disproportional and practically unfeasible:

- There is an (almost) infinite number of applications and CAPs available in the online world. The monitoring of all of them isn't feasible;
- Each application has different characteristics and requirements in terms of network performance. The definition of applications, or categories of applications, to monitor and on which to apply a minimum level of QoS would be arbitrary and might lead to regulatory discrimination in favour of specific applications (e.g. Skype vs Viber vs. Facetime);
- It is very difficult to understand if the degradation of a specific application (e.g. Skype) is due to network deficiencies (i.e. a QoS issue), software application problems, terminal incompatibility or other issues. It would be counterproductive to impose obligations on ISPs, for example, if the problem is with the application software itself. Some applications use the available capabilities of the network more efficiently than others;
- Obligations to favour one type of application might damage other applications (e.g. the improvement of the QoS for P2P might lead to lower QoS for other applications);
- It will limit innovation by favouring existing applications over new and unforeseen future applications that have different QoS requirements.

The guidelines should be based on the interests of the end-consumer and not the interests of specific applications providers. The evaluation of the practice of blocking or throttling an application on certain plans with differentiated pricing should be considered within a competition analysis and not as a QoS issue. It is clearly not a QoS problem and it cannot be solved via minimum QoS requirements.

We consider that the draft QoS guidelines adopt an excessively unilateral approach when assessing the effects of blocking or throttling an application. For instance, on page 44, in point 5.1.1, BEREC states that “*due to network effects, even the blocking of one single (popular) application can have far reaching consequences*”. Similarly on page 54, BEREC recalls its conclusion on network effects. However, these statements fail to recognize that some services may have negative externalities for certain subscribers, i.e. those not willing to use them. Moreover, a positive impact on the quality of other applications also has network effects, which would be positive in this case.

Question 3: The aspects proposed regarding the conditions and process for regulatory intervention?

To answer this question, the GSMA has analysed chapter 6 of the draft QoS guidelines and chapter 4 of the draft Competition report together. Before commenting in detail on the regulatory tools proposed by these consultation documents, the GSMA would like to first recall the basis of any intervention:

- *General remarks on the new power granted to NRA regarding minimum QoS requirements*

Article 22-3 USD grants NRAs a competency to impose minimum QoS requirements. Such competency aims to ensure that customers do not suffer degradation of service. In light of this objective, the GSMA’s members consider that:

- Article 22-3 USD is to be used to ensure consumer protection only as far as service quality is concerned; i.e. it should not be used to impose additional rules going beyond that objective or subject to other provisions of the framework. For instance, it should not be a way to anticipate a failure in enhancing transparency or implementing switching obligation;
- As recalled by recital 34 of the 2009 directive amending the USD, the best way to ensure that customers enjoy the QoS they require is competition. Competition and transparency will deliver the best outcome to customers;
- Before considering minimum QoS requirements, BEREC should follow its proposed approach to check whether other tools, notably those relating to transparency would not solve a noticed QoS issue.

When assessing the need for QoS minimum requirements:

- As rightly stated by BEREC, NRAs should comply with the general principle of intervention and, in particular, proportionality; the decision to apply article 22-3 USD, the measures imposed, as well as the monitoring requirements, should all be proportional;
- NRAs should also keep in mind that the value chain is complex and includes several actors. QoS assessment must take into account the entire value chain; consumers experience can be impacted by other players, such as manufacturers of connected TV or smartphones, tablets.

Finally, NRA intervention should not prevent operators from differentiating their retail offers, which is necessary to meet different customers’ needs. Any measure that would prevent or constrain operators from creating differentiated offers would be highly damaging to

customers. For example, customers should be free to opt for basic offers at a lower price, (i.e. offers that do not give access to some Internet services) so long as other offers including those services are available.

- *Choosing the regulatory tools (point 6.3.1 QoS guidelines and competition report chapter 4)*

BEREC proposes the use of several tools to solve a QoS issue, before considering imposing minimum QoS requirements. The GSMA supports this approach, but questions BEREC's proposal that the key factor to define the relevant tools is the presence of actors with significant market power (SMP).

In the draft QoS guidelines, BEREC indeed refers to a provider having SMP in a retail market, while retail markets in the EU are mostly competitive. Similarly, in the draft competition report, chapter 4, BEREC proposes to analyse the functioning of two specific markets: the retail broadband market and the traffic delivery market, as described in figure 5 of that report, whereas:

- retail broadband markets have not been regulated within the EU as they are competitive, especially in the mobile segment;
- the traffic delivery market, market 5 in that report, has not been identified as a market susceptible of ex ante regulation, and moreover, is not clearly defined by BEREC.

While BEREC's analysis is thus based on very theoretical situations, it risks giving a negative impression that ISP may have SMP and would behave wrongly. We therefore consider that BEREC should nuance this analysis and note explicitly that these markets have not been identified as relevant for ex ante regulation, and are thus ruled by competition law only. An ex ante regime can only apply in cases where competition law has proven to be insufficient and is required to meet the three-criteria test and to find a player with SMP in those markets.

Besides, reflections on any kind of QoS regulation must apply to all market players. An asymmetric approach would result in distortion of competition and would induce differentiated treatment of the end users. GSMA reminds also that general competition rules apply in case of any potential abuse of dominant position.

In a case where a market is competitive, but shows some issues in terms of QoS, BEREC considers in section 6.3.1 of the draft QoS report that two tools could be used: transparency and switching.

The GSMA agrees that competition and transparency will deliver the best outcome to consumers. As previously indicated, discussions on improving transparency have already started at national level and GSMA members are committed to contribute to these discussions. Switching, as a factor of competition, is already regulated; we refer to the comments we previously made under question 1.

In addition to those tools, the explanatory paper published together with the three consultations also mentions the settlement of disputes procedure (article 20 of the Framework Directive (FWD)), but the two draft reports don't elaborate further on this possibility.

Finally, the conclusions of the two draft reports do not seem fully in line. It appears that QoS provisions are qualified as an appropriate tool to intervene in cases where there is no SMP (draft competition report p 44 § 204 and p 66 § 340), while the draft QoS guidelines conclude

that promoting competition through the SMP regime, or in case there is no SMP, through transparency and switching may be a sufficient response (page 56).

We, therefore, invite BEREC to harmonise the two reports and confirm that the best way to ensure that consumers receive the QoS they require is competition and transparency, as clearly stated in the BEREC explanatory paper on the three consultations: “*NRA’s will first rely on their competition powers and their ability to impose transparency obligations.*” Article 22 USD should be seen as a last resort remedy, as further explained below.

- *Imposing minimum QoS requirements and concrete examples (points 6.3.2 - 6.5 QoS)*

The GSMA agrees with the criteria proposed by BEREC in the draft QoS guidelines to assess the proportionality of a QoS measure; it should ensure effectiveness, be necessary and strictly proportional. We also consider that the proportionality test must be applied, not only to the measures proposed by the NRA, but also to the associated monitoring tool. Before deciding to impose such a measure, it is also necessary, as indicated by BEREC, to assess how many customers are affected.

However, the GSMA has major concerns on the reference made by BEREC to adopt “*temporary measures*” when “*fully implementing other regulatory tools will take too much time*” (page 57 QoS report), for the following reasons:

- Article 22 USD does not provide for such a possibility; the reference made to article 7.9 of the FWD does not appear relevant in the present case, since this article foresees exceptional measures only in the process of market analyses notification (“*by way of derogation from the procedure set out in paragraph 3 and 4*” relating to notification of draft decisions on market definition and SMP);
- QoS measures should not be used to solve issues that do not precisely refer to QoS, but to competition or transparency, for example;
- Moreover, the power to intervene as defined by BEREC is particularly vague: under what grounds would a NRA intervene in urgency? For what duration? What does it mean that another obligation would take “too much time” to be implemented?

QoS minimum requirements should be a last resort remedy that could be imposed only after several preliminary steps are achieved:

1. check consumers potentially impacted by a practice and the source of the practice;
2. check whether the problem at stake is significant and not only temporary;
3. check competition and availability of alternative offers in the market;
4. check whether less distortive instruments such as transparency requirements could solve the issue;
5. if not, assess whether a QoS measure is needed and proportional;
6. consult the stakeholders.

BEREC should explicitly mention in its final report that any willingness to impose minimum QoS requirements would require a consultation of the relevant stakeholders within a reasonable timeframe, as stated by article 6 of the FWD.

Finally, and as explained previously, the GSMA does not agree with the assessment of individual applications and the possible prohibition of application-specific restrictions (cf answer to question 2).

Question 4; to what extent are the scenarios described in these guidelines relevant with respect to your concerns/experience? Are there additional scenarios that you would suggest to be considered?

In answering this question, it is important to recall that according to the BEREC survey on network management practices, there is only one country with serious restrictions on VoIP in the mobile market (i.e. where all mobile operators restrict VoIP to all their customers). On the contrary, many European operators either allow all their customers to access VoIP or provide them with specific bundles to do so. In our view, this shows that competition is delivering wide access on its own.

Regarding the cases study analysed by BEREC in the draft competition report, they do not match with market reality characterised by choice for the consumers.

For instance, on the VoIP case study, the effect of restrictions is analysed on the mobile Internet access market and the mobile voice telephony market. Those two retail markets are unregulated. As a consequence, the SMP assessment made, from page 48 of that draft report - scenarios 1 and 2, seems rather theoretical.

In the case there is no SMP – scenario 3 – BEREC concludes that:

- if the blocking would become widespread, its impact is amplified on both end users and VoIP providers. BEREC should mention that, according to its own investigation, such practice is not widespread across the EU;
- Unblocking may require a rebalance of revenues between voice services and Internet; this is obviously the issue at stake. To speed up mobile broadband uptake (as also supported by public authorities), mobile operators have launched very attractive data retail offers subsidized by voice revenues. To rebalance the system, as proposed by BEREC, mobile operators and the market need some time: a mobile operator is not generally in a position to immediately modify its retail offers across its entire portfolio. However, as said previously, this rebalancing is ongoing in the EU.

The GSMA would therefore invite BEREC to focus its analysis on monitoring aspects, together with the stakeholders, rather than focusing on scenarios that are unlikely to occur.



Europe

GSMA Europe Response to the BEREC Public Consultation on

An assessment of IP-interconnection in the context of Net Neutrality

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About the GSMA

The GSMA represents the interests of mobile operators worldwide. Spanning 219 countries, the GSMA unites nearly 800 of the world's mobile operators, as well as more than 200 companies in the broader mobile ecosystem, including handset makers, software companies, equipment providers, Internet companies, and media and entertainment organisations. The GSMA also produces industry-leading events such as the Mobile World Congress and Mobile Asia Congress.

For more information, please visit Mobile World Live, the online portal for the mobile communications industry, at www.mobileworldlive.com or the GSMA corporate website at www.gsmworld.com.

In the European Union the GSMA represents over 100 operators providing more than 600 million subscriber connections across the region.

www.gsmworld.com/gsma_europe

The GSMA welcomes the opportunity to comment on BEREC's draft report for consultation on "*an assessment of IP-interconnection in the context of Net Neutrality*". Our contribution focuses on raising some issues connected with the hypotheses set out in the draft report and the rationale underpinning them. It should be read in conjunction with our response to BEREC's consultations on BoR (12) 32 *Guidelines for Quality of Service in the Scope of Net Neutrality*. This paper includes specific comments related to the various sections of the draft report and starts by setting out some general considerations that we believe should frame policy thinking around IP-interconnection.

General Considerations

Over the last five years, telecoms operators have been facing an increased traffic demand on their networks in the face of new applications, increased data usage and new device types. Future IP-based next generation networks are multiservice-networks where all services are integrated on the same infrastructure. The amount of data traffic and the expected service attributes (e.g. throughput, latency) vary according to the type of application (e.g. conversations, video conferences, smart-utility services) and the type of device (e.g. smartphone, mobile payment terminal). These service specific requirements should be taken into account in IP-based networks and in the context of IP-interconnection among networks.

Operators are investing in capacity expansion and new technologies to meet this increasing traffic. Next generation networks are being deployed by operators to meet the transport of traffic driven by applications over IP. Commercial strategies and business models are also evolving.

Traffic growth, the deployment of next generation technologies, and the emergence of new types of services are presenting operators with a huge challenge in managing different types of services over a shared network pipe whilst providing subscribers with satisfactory QoS levels that take into account different consumer needs and service attributes. Operators also face the challenge of investing in network capacity expansion to support the growing bandwidth demand and the realisation of all services with their service specific QoS-requirements and features on one infrastructure. Charging models should reflect different consumer preferences so that consumers are able to access the services they need.

Traditional business models limit mobile network operators in their ability to structure services in such a way that they encourage the efficient use of bandwidth resources and to establish pricing systems that generate sufficient revenue to justify investments. The problem is accentuated by the lack of economic incentives on the side of content/application providers to use available bandwidth in an efficient way. Accordingly, there is a need to establish new business models that better align investment incentives with technological and market developments and create additional value for consumers. Uncertainty remains regarding which models will emerge.

Operators increasingly need to manage the end-to-end quality of service to provide consumers with a satisfactory level of quality of experience, therefore we consider it particularly important to take an end-to-end view for the delivery of services to the users, taking into account the directionality for service requests as well. IP-interconnection is a service in its own right but it is not only about best effort Internet: there are other services,

which are e.g. quality-sensitive and which should be taken into account in IP-based networks and in the context of IP-interconnection among networks.

For service providers and content providers to be able to negotiate commercial arrangements regarding network operation and content distribution, flexibility is needed at every level of the value chain. In order to find innovative revenue streams that will support further network investment and lower prices for consumers, network operators need continued flexibility to experiment with different service offerings and business models, just like other participants in the Internet ecosystem.

The GSMA strongly supports BEREC's main conclusion, which is that any regulatory measure could potentially be harmful and therefore should be subject to detailed examination before being imposed. On the other hand, BEREC should adopt more nuanced conclusions regarding the necessary evolution of current business models to cope with increase of asymmetric traffic, without prejudging the outcome of commercial negotiations between actors of the value chain.

In order to avoid congestion and provide services with specific quality requirements, capacity extensions should be complemented by service- and customer oriented network management. Product differentiation and traffic management is an efficient and necessary tool for operators to manage the flow of traffic over their networks and is considered as welfare enhancing by providing fair outcomes to all consumers. With the integration of all types of services on IP-based networks and a further increase in the amount of traffic, traffic management measures such as the introduction of QoS-classes on the transport layer will become more and more relevant to ensure all services are provided in line with their service specific QoS-requirements and features.

The important condition for a widespread and eventually global implementation of QoS-classes over network boundaries is the availability of international standards for QoS-IP-interconnection. The work of international standardisation bodies should be co-ordinated and supported in this context. Moreover, the efforts of other organisations, such as the GSMA, should also be encouraged.

The future IP-interconnection environment should encompass both best effort and QoS-based interconnection. GSMA members are confident that market forces can arrive at the efficient charging mechanisms for best effort- and QoS traffic.

Specific Comments

1. Introduction

(Page 4, last para)

“For the purposes of this report the definition of Net Neutrality is very close to the widespread application of the best effort paradigm. The best efforts paradigm however is intrinsically linked to the nature of the IP-protocol governing transmission of packets of IP networks.”

- This implies IP-networks are intrinsically best effort based, which does not take account of effects at both the transport and protocol levels. But MPLS is already used to support traffic differentiation at the transport level and IP supports quality classes through DiffServ at the protocol level. Therefore, the thesis that the best effort paradigm would be intrinsically linked to the nature of the IP-protocol appraises only a part of the IP-technology and could not be generalised.

(Page 5 para 2)

“The best effort principle is reflected in today’s interconnection agreements across IP-networks taking the form of transit and peering agreements.”

- Some commercial interconnect agreements already reflect QoS. This misinterpretation results from associating all IP interconnections as part of the Internet.

(Page 7 para 3)

‘The way transit and peering....’.

- Such peering arrangements are only equitable when delivering over access networks with similar costs and constraints on delivery. Mobile networks with radio based last-hop and resource constraints (and controls) are distinctive in this sense.
- In addition, we disagree with BEREC’s statement because traffic flows do play a role. Unlike the CAU, the sending party is in a position to impact the efficiency or otherwise of the data flows it initiates. This is of utmost importance considering the huge growth of asymmetric traffic over the Internet.

(Page 7 para 6)

“Nevertheless QoS..”

- This approach does not take account of spectrum and cell site limitations.

2. Players and business models in the Internet ecosystem

(Page 9. Figure 1)

- This representation is somewhat misleading as CDNs operate at multiple levels not just as a part of the application layer. CDNs often place themselves at key tier 1 peering points. As a result ISPs who operate between CDNs and Application Layer entities carry traffic on behalf of CDNs with no reward.

(Page 10 para 6)

“The strict separation of application...”

- This statement on direction of data flows is of major importance. Traffic always has an initiator, although in IP this is not always the requestor. In the example of a video stream service, the request would come from an application client in a CAU, but the initiator is the CAP hosting the video resource and making it available in the first place. It is also important to note that CAPs should have an incentive to use ISP services in a bandwidth efficient manner.

(Page 14)

- The definition of CDN should be reconsidered. It ignores CDNs' use of additional ISPs between themselves and the CAU/CAP. In the case of CAU the ISP has no input on the use of the CDN.

(Page 14)

- CDNs are a mechanism deployed by CAPs to ensure QoS to CAUs with minimal hosting / connectivity payments to ISPs. CDNs are one example of CAPs paying to maintain QoS, other mechanisms should be possible.

(Page 17)

- BEREC should acknowledge that if a CDN provider runs its servers within the premises of an ISP to physically interconnect with the ISP's network, it is then legitimate that the CDN is charged for colocation (powering, cooling, maintenance, etc.) fees.

(Page 16/17 last/first para)

- CDNs using their own backbone also act effectively as ISPs that can provide a differentiated QoS and take payments for doing so. We would recommend BEREC revisits this section as CDNs are highly complex and the classification provided does not necessarily clarify the situation.

3. Types of IP-Interconnection

Sections 3.1, 3.2, 3.3

- Up to now peering and IP-transit arrangements are the dominant charging mechanisms in the best effort public Internet.
- Peering arrangements are indeed typically settlement free, but peering is in principle a paid interconnection regime. As stated by BEREC there are several requirements set out in the peering policies of an ISP covering to what extent settlement free peering arrangements come into account. One of the important conditions is the exchange of near equal amount of traffic between the peering partners.
- Therefore peering does not mean that traffic is exchanged and transported for free. It means that the peering partners with nearly symmetric amount of traffic or nearly symmetric peering partners disclaim billing the traffic.

- If the amount of traffic is imbalanced then IP-transit arrangements come into play. As stated by BEREC *“the Internet/broadband access provider pays for connectivity to the upstream network for upstream and downstream transmission traffic”*.
- With the implementation of QoS-classes on the IP-transport level on top of today's best effort Internet, peering policies for IP-traffic exchange would still be applied by operators in case of best effort delivery. If significant traffic asymmetries occur, network operators should be entitled to a fair compensation for carried traffic subject to commercial arrangements in place.
- In contrast, the interconnection regime for the QoS-classes on top of best effort should reflect the provision of higher end- to-end QoS delivery and the greater value for the customers CAUs and the CAPs compared to best effort..

(Page 26/27)

- Whilst network QoS is from UNI to UNI as implied, such a measure is of little value to a consumer using, for example, a video conference service. In these instances a service based QoS is required that relies upon the underlying network based QoS.

(Page 28)

“The provision of specialised services such as.....”

- Where customers roam from one network to another then interoperable QoS becomes more compelling.
- Specialised services will continue to develop together with the best effort Internet: innovation and investments relating to specialised services will not diminish best effort Internet but further improve it. The mutualisation of the IP transport resources between the specialised services and the best effort Internet allows the savings of transport resources. This is because the IP transport services will be used more efficiently to the benefit of both

(Page 28)

“In case a competitor uses Bitstream access...”

- Any regulatory obligation on bitstream access requires market analysis procedure.

4. Recent Changes

Sections 4.2, 4.3

- The paper suggests LTE *“leads to a cost decline of 94%”*. That view is not one that is widely shared.
- As regards mobile network costs, BEREC should take greater account of the investment needed to finance network deployment (LTE infrastructure, licenses).

- More generally, this section makes an argument for increasing traffic, but then states marginal costs are not changed and that cost reduction will compensate for the costs of additional capacity. Current trend shows that for the same number of users, traffic consumption has increased, together with corresponding costs, while the revenues do not follow the same evolution. We also have concerns that BEREC seems to put into question the legitimacy of commercial negotiations on compensation for services provided to counterpart by ISP.
- BEREC should adopt a more nuanced conclusion on market evolution and possible changes to business models necessary to cope with the asymmetric increase of traffic.

(Section 4.4)

- CDNs are presented as the main (if not the only) solution to deal with the current IP-Interconnection challenges (latency reduction, acceleration of content flow, etc.). BEREC should however acknowledge that other solutions, for instance QoS at the IP-interconnection level, may prove to be valuable alternatives. It is up to the ISP, based on the traffic volume, the size and the coverage of its network, to assess what mix of IP-interconnection solutions is the most effective.

(Page 39 last para of 4.3.3)

- The statement about regionalised content is at odds with the growth of CAPs and their increasing share of Internet traffic.

5. What is the regulatory context for IP interconnection?

- Article 5 of the Access Directive allows NRAs to intervene in case of issues regarding end to end connectivity. ISPs are active on competitive retail markets within the EU, we therefore do not see any risk for ISPs deciding not to ensure connectivity, since it would be automatically sanctioned by the customers.
- As rightly said by BEREC, this article clearly does not provide a legal basis for NRAs to impose free peering.
- On the other hand, in terms of end to end connectivity, it is worth remembering that while MNOs have always worked on developing interoperable services, which should be encouraged, it might not be the case for all the actors of the value chain.

6. Hypotheses / Conclusions

Developments in the types of interconnections

(b) It is correct that the Internet ecosystem has managed to adapt IP-interconnection arrangements in the past without any regulation. The current system needs to evolve further taking into account the asymmetric flows of traffic and additional investments required. New business models will emerge and should therefore not be hindered or pre-empted by public bodies.

(d) QoS traffic classes across interconnected networks are established for certain services, such as IPTV, video conferencing, telepresence, WAN based infrastructure services...

Trends along the value chain

(g) As stated above, we do not agree with BEREC that “*everything is covered and paid for in the Internet value chain*”; BEREC should adopt a more nuanced conclusion.

(h) CDNs do not pay fully where they do not have a PoP within an ISP. Thus, in the parlance used, they do free ride.

Quality of Service versus Best-Effort

(m) Inter network QoS exists for some services – e.g video conferencing. Additionally in networks where roaming happens, interconnect QoS is essential to maintain these services.

(o) We agree with BEREC’s conclusion that the provision of specialised services as IPTV do not necessarily require traffic classes across interconnected networks, if the service is provided within an operator network. However, the interconnection model for specialised services is developing, in particular for off-net.

(q) As not all customers would take enhanced QoS services then market pressure would prevent this.

(s) None of these techniques address capacity issues in the air interface in mobile networks.

Charging Principles

(t) CAPs pay disproportionately less for increases in traffic generated.

Separation of network and application layers

(u) But it allows CAPs to create services that create significant network effect without having to pay for increased traffic. An example is any VoIP or Messenger service that uses directory services distributed across multiple users CAU. The ISPs see an N^2 increase in traffic whereas the CAP sees only an N fold increase.