

Deutsche Telekom AG Response to the BEREC Consultations

## **Guidelines for Quality of Service in the scope of Net Neutrality – BoR (12) 32**

**and**

## **Differentiation practices and related competition issues in the scope of Net Neutrality – BoR (12) 31**

Deutsche Telekom AG  
Bonn, 31 July 2012

# 1 Executive Summary

**Deutsche Telekom AG** welcomes the opportunity to comment on the BEREC documents “in the context of Net Neutrality” and is committed to stay engaged in a constructive dialogue with the European institutions. We share the goal of promoting the open Internet and delivering the service quality our customers expect and demand.

The **European approach to Net Neutrality** has been a sensible one so far. In order to foster both investment and innovation as well as assure customer choice the European Commission is building on three pillars: competition, transparency and ease of switching providers. This approach allows network operators and ISPs to differentiate their offerings – especially in the quality dimension – and to test new business models in the market place while it protects consumers’ rights and safeguards competition at the same time.

Going forward and **developing a regulatory practice** to deal with actual degradation of service will therefore require thorough market analysis and utmost care when considering any kind of intervention. DT agrees with BEREC that before applying any kind of asymmetric regulatory measure “NRAs would have to define and analyse relevant markets, taking utmost account of the Commission Recommendation on relevant markets. As this Recommendation covers neither retail broadband markets, nor an IP interconnection wholesale market, the three-criteria test would need to be fulfilled<sup>1</sup>”. There is no need to intervene in competitive retail markets and the quality of a network operator’s Internet Access Service (IAS) is an important parameter when competing for end customers. For that reason **high thresholds should be applied before considering setting minimum quality requirements**. DT welcomes that BEREC explicitly<sup>2</sup> confirms this approach.

The current state of the BEREC deliberations as presented in the consultation documents clearly shows that **further refinement will be needed**. DT appreciates that BEREC emphasizes on multiple occasions that the principle of proportionality shall be adhered to at all times in this process. Compared to the reference document BoR (11) 53<sup>3</sup> it is also a clear improvement that BEREC is referencing the relevant framework provisions (i.e. Art. 8(4)g Framework Directive) instead of attempting to propose new working definitions of Network Neutrality. However, there remains room for interpretation with respect to the intention of the legislator.

While the Commission stated in its declaration<sup>4</sup> on Net Neutrality that **Art. 2 (3) USD is a safeguarding power**; BEREC appears to be reasoning for a more “pro active” interpretation in the consultation documents. It was clearly not the intent of the legislator to mandate NRAs to engage in predetermining commercial offers in the competitive retail markets for fixed and mobile broadband access services. Consequently, DT has serious doubts that the current framework directives are attributing NRAs with the competence to autonomously determine which traffic management practices are to be considered reasonable and which are not. For the same reason, we also question the clear bias towards application-agnostic traffic management.

The **EU framework does neither require nor call for an equal treatment of all applications** but allows for differentiation, explicitly including restrictions in service offerings (Art. 1 (3) USD). DT believes that the entire framework should be respected when deliberating regulatory objectives in the context of Net Neutrality and commercial retail offerings should not be pre-determined by regulatory intervention (as long as competition is not harmed and transparency as well as non-discrimination obligations are respected). This is especially important

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<sup>1</sup> BoR (12) 32, p. 12

<sup>2</sup> BoR (12) 32, p. 41: “The level of quality perceived by end users can either be a trigger that leads an NRA to conduct more detailed measurements, or in addition to them, but it may not suffice in itself”.

<sup>3</sup> BEREC Framework for Quality of Service in the scope of Net Neutrality

<sup>4</sup> 2009/C 308/2

because the entire industry is currently rebalancing voice and data tariffs. Any interference in this competitive process risks distorting the market result.

It is highly regrettable that the current versions of the consultation documents do not further analyze and discuss the **interdependencies between setting minimum quality requirements and universal service obligations**. BEREC does state that there clearly is a connection when one accepts that situations arise where “economic limitations of the ISPs’ business model mak[e] it more difficult to provide sufficient network resources for high quality services<sup>5</sup>”. This also demonstrates that the solution of merely requiring ISPs to provide sufficient capacity – which is often referred to in the consultation documents – will not always work, especially when economic limitations are included in the analysis. To this end, the finiteness of the resource mobile spectrum needs to be taken into account. “Throwing more bandwidth at the problem” is obviously not the silver bullet to improve the quality of mobile broadband access services. The shared medium characteristic of radio access networks implies a heightened need for traffic management measures, including application specific approaches. The current analysis should be further refined and differentiated in order to account for those limitations.

DT also sees a **need for further analysis of the role CDNs** play in the Internet ecosystem. In the documents it is not sufficiently demonstrated why “CDNs as a principle do not raise Net Neutrality issues<sup>6</sup>”. DT has announced to enable all quality enhancing functionalities of our networks to all interested third parties on a non-discriminatory basis. This will allow small and medium enterprises to benefit from our economies of scale, from positive network effects and ultimately allow them to compete with the enterprises that are in the position to build their own quality improvement mechanisms.

While acknowledging that CDNs do significantly improve the Quality of Experience (QoE) of end users and are charging a price to do so BEREC is not discussing the effects of large CDN providers on the innovation potential of small and medium enterprises and/or the existence of barriers to entry. Despite the well known fact that CDNs do inhibit economies of scale and the current business practice requires a certain traffic volume before a content and application provider (CAP) may even enter in negotiations with CDN providers. In the case of private CDNs – such as for example the CDN operated by Google – it is outright impossible for third parties to gain access and ultimately benefit from the improved quality of experience the CDN provides. DT consequently keeps wondering why in the CDN case a paid for quality enhancing mechanism that is not offered on a non-discriminatory basis is attested full compliance with Net Neutrality principles while Telco plans to introduce paid for quality classes open to all interested parties, all content offerings and all application providers is being scrutinized by BEREC.

**An in-depth analysis of network effects would also be desirable.** BEREC stresses the fact that by offering mobile tariffs excluding the usage of VoIP services, Telcos are preventing potential users from utilizing those services and thereby are decreasing the utility of consumers, who have chosen a tariff which includes the usage of mobile VoIP services. As a consequence, BEREC then proceeds to establish a theoretical reasoning and justification to possibly prevent a fully transparent commercial practice by regulation under the sole discretion of individual NRAs, i.e. depending on specific market circumstances. What is striking is that BEREC completely ignores the fact that the user who opted for a restricted mobile tariff most likely does not intend to ever use the VoIP service and, therefore, is not limiting the utility of subscribers to the unrestricted tariff – he or she would simply not use the service anyhow. In chapter 5 of this document we discuss network effects in more detail.

Considering the state of the regulatory deliberations, DT comes to the conclusion that **BEREC would be well advised to concentrate on getting the measurement of the quality of operator-specific Internet access services (IAS) right as a first priority**. After all, any kind of “degradation” will ultimately have to be proven against a reliably

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<sup>5</sup> BoR (12) 32, p. 35

<sup>6</sup> BoR (12) 32, p. 19

measured reference point. Because best effort based IAS offerings by definition neither include a stable nor a guaranteed quality of service this will involve introducing and applying statistical approaches. DT is ready and willing to support the NRAs in their effort to establish measurement methodologies that meet internationally agreed scientific standards<sup>7</sup>. We believe that agreeing on reliable measurement methodologies and increasing market transparency will benefit all stakeholders significantly more than spending a lot of effort on theory crafting potential cases that might or might not justify regulatory intervention in the future.

## 2 General Remarks

Deutsche Telekom welcomes the opportunity to further broaden the constructive dialogue with BEREC on Network Neutrality related issues. Please note that this is a joint statement treating both the BEREC consultation on “Guidelines for Quality of Service in the scope of Net Neutrality – BoR (12) 32” as well as “Differentiation practices and related competition issues in the scope of Net Neutrality – BoR (12) 31”. DT will not submit a separate answer to “An assessment of IP-interconnection in the context of Net Neutrality – BoR (12) 33”.

We acknowledge the political pressures resulting from the public Net Neutrality debate and the resulting joint BEREC and EU Commission fact finding leading to the BEREC publication BoR (12) 30 in May 2012. DT and all its European subsidiaries have contributed to this exercise and are committed to continue supporting the European intuitions’ efforts to gather further knowledge of the actual practices and developments in the market place. However, with the next European Commission public consultation “on specific aspects of transparency, traffic management and switching in an Open Internet<sup>8</sup>” having been announced and launched before the conclusion of the three BEREC consultations there is a considerable amount of overlap. It would be highly desirable and appreciated if the European Institutions could further increase their efforts to coordinate their activities.

## 3 The DT Perspective

Before highlighting and discussing specific points in chapter four of this document we seize the opportunity to reiterate DT’s stance on transparency, network management and QoS based business models as stated in previous consultation answers as well as in position papers and at public events.

### 3.1 On Network Management

Network management is needed to mitigate network congestion, which is a daily phenomenon during peak hours. Traffic estimates project a massive increase in volumes. According to Cisco forecasts, global IP traffic will grow 4-fold from 2010 to 2015. Over the same period, mobile data alone is expected to multiply by factor 26 growing 3 times faster than global fixed IP traffic. The ever increasing demand for and consumption of video services - especially (3D) High Definition video - has been identified as the main driver for this increase. The traditional approach of over-provisioning best effort will not be able to absorb this exponential growth in traffic and still meet our customers’ expectations regarding the quality of our services.

Traffic management remains indispensable to enable the development of new and innovative services. If mechanisms for prioritization were no longer allowed, so called quality insensitive services that require a relatively

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<sup>7</sup> ETSI, CEPT, ITU and IETF are all potential candidates, BoR (12)32, p. 38

<sup>8</sup> IP/12/817 from July 23, 2012

large bandwidth would crowd out quality sensitive services. For example, ambient video could deteriorate video conferencing services to the point of unacceptable Quality of Experience (QoE).

Traffic management is also an essential mechanism to enable the differentiation of products and services. Different services have specific quality requirements that go well beyond mere bandwidth. Some new services like e-Health even depend on guaranteed levels of quality (QoS). In this respect, traffic management is an enabler for increased variety of products and services as well as for further innovation along the Internet value chain.

While Deutsche Telekom shares the view that Net Neutrality considerations do not justify deviating from the principle of technology neutral regulation, the radio access networks do have very specific characteristics which need to be acknowledged before considering potential regulatory prescriptions. Due to limited spectrum availability, resources within mobile access networks will always be limited (i.e. economically scarce). To achieve a socially desirable outcome, resources have to be allocated in the most efficient way. This requires to distinguish specific traffic “types” and to manage the traffic based on policies defined to reflect customer choice with regard to tariff plans. For efficient network operation it is also necessary to be allowed to implement application-specific measures where needed.

### **3.2 On Commercial Differentiation and Optional Tariffs for mobile VoIP services**

Our mobile offers present the customer with a wide range of choice. In the high value post paid segment there are no restrictions with regard to service usage. In order to also accommodate those customers who choose Internet connectivity bundled with our mobile voice services but do not need mobile VoIP services, corresponding tariffs are offered in the mid range of our portfolio (where mobile VoIP services are excluded both contractually and technically). It is however possible to upgrade these offers by purchasing the “mobile VoIP option”. The optional tariff structure assures that only the customers that actually use the additional services have to cover for the costs they incur. Setting different pricing points also eliminates the risk of cross-subsidization between average and heavy users – today 3% of the users generate 53 % of mobile data traffic.

Deutsche Telekom is committed to maintaining and increasing transparency regarding the features of our products and traffic management practices. Our available “high value” bundle offers include the unrestricted usage of mobile VoIP services. Following this approach, customers are granted the freedom to choose the package that best fits their needs. Future modifications to the product portfolio are not excluded. We constantly evaluate market developments and must remain able to introduce a new tariff grid, including optional tariffs for mobile VoIP services. Potential changes to the portfolio would only be valid and applicable to new contracts and communicated transparently to customers and regulators.

Furthermore, there are also mandated prioritizations that achieve social and normative goals. Some examples are the rules for communication in the case of a crisis or natural disaster, and the everyday effort to protect our customers from unsolicited messaging (e.g. SPAM) and other harmful traffic (e.g. malware, viruses etc.). Occasionally, legal and regulatory requirements result in the implementation of network management measures. In these mandated cases – such as lawful interception – we found our assumption confirmed by BEREC<sup>9</sup>. The respective requirements and resulting implementation measures are known and are not considered within the scope of the consultation documents.

Recent economic analysis demonstrates that allowing network management best suits customer demands for differentiated services. Network management practices allow for a more cost effective manner of satisfying

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<sup>9</sup> BoR (12) 32, p. 50

demand than simple over-provisioning. The traditional over-provisioning approach is no longer economically sustainable when faced with exponentially growing traffic volumes and simultaneously stagnating price levels. The research also finds that, to provide the same level of quality to new and traditional applications, ISPs would need to invest 60% more into infrastructure capacity than if differentiation in quality of service is allowed.

There is a clear need to test new business models in the market. Therefore, forward looking policies that best promote an open and innovative Internet should not get side tracked by discussing “if” network management should be allowed or not. The relevant question is where the fine line between beneficial service differentiation and anti-competitive discrimination should be drawn. The discussion so far has demonstrated that it will be practically impossible to define this in a static set of rules that is both maintaining the status quo without restricting future innovation (technologically as well as economically) on the networks themselves as well as on their edge, e.g. in services.

### **3.3 On the European Approach to Net Neutrality**

The careful European approach to traffic management has enabled competition and innovation and will achieve better market outcomes than additional economic regulation. When looking at the bigger picture of the Internet economy it becomes evident that highly concentrated market power will most likely not reside with network operators in the future. While telecom providers compete in a market characterized by open standards and are interconnected worldwide (thereby providing universal connectivity) proprietary standards have been introduced on other layers of the value chain. These allow the proprietors to leverage network effects to their own benefit. It would be short-sighted to exclusively focus on the perceived gatekeepers of today when deliberating on how to best maximize customer choice in the future.

Deutsche Telekom expects BEREC and the European Commission to carefully evaluate the current network management practices and market results before suggesting any kind of further intervention. The recent past has shown that agreeing on international standards is a challenging exercise. Nevertheless, in a competitive market, a system of QoS transport may be established and will contribute to bringing forth a wider variety of products and increased flexibility and choice to adequately meet customer demands. This will also help support the heterogeneous quality requirements of new services and products in the domains of Cloud Computing, e-Health and M2M communication (all of which are ongoing EU projects). The latter is particularly important in regard with Internet of Things (IoT) applications which will rely on network management techniques to prioritise traffic, for they will require different levels of quality of service, adapted to various customer demands and requirements. For example, a medical monitoring device will require and merit a different set of quality and latency tolerance ranges than a wireless enabled parking meter. To this extent, the network architecture that will sustain the provision of these services will depend on their functionalities' requirements to function in the intended and expected manner. It is clear that any regulation that hinders the implementation of these network management techniques will have harmful and long-lasting effects on the development of the IoT and will disserve the interests of consumers. The negative effects of prescribing overly restrictive and static network management guidelines risk being far greater than the perceived benefits of enforcing normative network management rules across the EU.

Against this background Deutsche Telekom understands BEREC's wish to take a closer look at the quality of the Internet access service (IAS). However, we do not share BEREC's null hypothesis that traffic management measures will – most likely – lead to a degradation of the IAS. Before addressing the specific points of the consultations at hand we would like to take the chance to stress the main paradigm of regulatory theory: when a market is characterized by effective competition, regulatory intervention can hardly be justified. This is laid down also in Art. 8(5)f of the Framework Directive. In comparable situations ex-ante regulation is not considered

appropriate and there is always ex-post competition law to rely on (i.e. Article 102 of the Treaty on the Functioning of the EU).

The revised EU regulatory framework introduces the competence for NRAs to apply minimum quality of service requirements in order to prevent the degradation of service and the hindering or slowing down of traffic over networks, see Art. 22 paragraph 3 of the Universal Service Directive. BEREC itself is very much aware of the fact that the imposition of any kind of minimal quality requirement is to be considered as an intrusive remedy. In order to apply this kind of measure the seriousness of an actual degradation of service has to be proven.

To justify intervention i) such degradation would have to be significant and not only temporary, ii) the NRA has to attest that the market itself is not able to provide services in a sufficient quality, i.e. insufficient competition or market failure, and iii) the NRA has to prove that less distortive instruments such as transparency are not sufficient to solve the problem.

Due to strong competition in the European broadband access markets any network operator that intentionally degrades the best effort Internet provision in order to promote managed, QoS-based services would lose customers to alternative operators or providers. As a majority of customers is expected to subscribe to a best effort based basic broadband access package any degradation would seriously damage the reputation of a provider. Hence, network operators will not only compete on price but also in quality when offering Internet access. Under these circumstances regulatory intervention could actually be counterproductive. Deutsche Telekom, therefore, supports BEREC's finding, that in a competitive market ISPs have incentives not to degrade their end users' traffic.<sup>10</sup>

Deutsche Telekom, thus, strongly agrees with BEREC that any measure aimed to forbid an anticompetitive practice would be second best compared with a scenario where market develops in an effectively competitive manner.<sup>11</sup> An appropriate and proportionate approach would have to rely on established competition law tools in the first place and sector specific regulation in the second. It would make utmost use of the enhanced transparency requirements and the safeguarding measures to facilitate switching, which have been introduced in the framework review.

### **3.4 On the proposed way forward**

Deutsche Telekom agrees with BEREC that it is a precondition for competitive and transparent markets that end users are aware of the actual terms and conditions of all service offerings. BEREC further concludes that end users therefore need appropriate means or tools to monitor the IAS, enabling them to monitor the quality of their service and also to detect potential degradations. In this regard, it has to be pointed out that the means or tools at the end users disposal would have to be appropriate, meaning they have to be i) comprehensible to non-experts, ii) adverse to faulty operation, iii) transparent towards description of insufficiencies and respective reasons. There is also a high risk that undefined or not attributable quality decreases will be linked to the performance of the ISP who is providing the access leg. This will obviously not be true in every event. A thorough investigation therefore has to be conducted to determine the real source of potential service degradations.

Deutsche Telekom welcomes the intention to make use of statistical methods during technical measurements. Besides the varying characteristics of today's best effort Internet communications system incidents in particular cases could never be prevented completely. As in regard to today's telecommunications services certain standards (95% of cases) are thus much more useful than strict requirements.

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<sup>10</sup> BoR (12) 32, p. 52.

<sup>11</sup> BoR (12) 31, p. 9.

A harmonised set of quality parameters and methods is crucial when assessing IAS quality. For this reason, Deutsche Telekom welcomes the idea to ensure such harmonisation through the adoption of internationally standardized and widely accepted metrics, such as those provided by entities like ETSI, CEPT, ITU or the IETF<sup>12</sup>.

However, DT has also identified various shortcomings in the current state of the analysis presented by BEREC. It is highly regrettable that the current versions of the consultation documents do not further analyze and discuss the interdependencies between setting minimum quality requirements and universal service obligations. BEREC does state that there clearly is a connection when one accepts that situations arise where “economic limitations of the ISPs’ business model mak[e] it more difficult to provide sufficient network resources for high quality services”<sup>13</sup>. This also demonstrates that the solution of merely requiring ISPs to provide sufficient capacity – which is often referred to in the consultation documents – will not always work, especially when economic limitations are included in the analysis. To this end, it would also be desirable that BEREC acknowledges the finiteness of the resource mobile spectrum. “Throwing more bandwidth at the problem” is obviously not a solution here and the shared medium characteristic of radio access networks implies a heightened need for traffic management measures, including application specific approaches. DT expects BEREC to refine and differentiate the analysis in order to account for those limitations.

DT also sees a need for further analysis of the role CDNs play in the Internet ecosystem. In the documents it is not sufficiently demonstrated why “CDNs as a principle do not raise Net Neutrality issues”<sup>14</sup>. DT has announced to enable all quality enhancing functionalities of our networks to all interested third parties on a non-discriminatory basis. This will allow small and medium enterprises to benefit from our economies of scale, from positive network effects and ultimately allow them to compete with the enterprises that are in the position to build their own quality improvement mechanisms.

While acknowledging that CDNs do significantly improve the Quality of Experience (QoE) of end users and are charging a price to do so BEREC is not discussing the effects of large CDN providers on the innovation potential of small and medium enterprises and/or the existence of barriers to entry. Despite the well known fact that CDNs do inhibit economies of scale and the current business practice requires a certain traffic volume before a content and application provider (CAP) may even enter in negotiations with CDN providers. In the case of private CDNs – such as for example the CDN operated by Google – it is outright impossible for third parties to gain access and consequently benefit from the improved quality of experience the CDN provides. DT consequently keeps wondering why in the CDN case a paid for quality enhancing mechanism that is not offered on a non-discriminatory basis is attested full compliance with Net Neutrality principles while Telco plans to introduce paid for quality classes open to all interested parties, all content offerings and all applications is being scrutinized by BEREC.

## 4 Answers to Consultation Questions in BoR (12) 32

BEREC explicitly asks for feedback on the regulatory aspects elaborated in chapters 4, 5 and 6 of BoR (12) 32:

1. The criteria proposed for the assessment of degradation of Internet access service as a whole? (Ref. chapter 4)
2. The criteria proposed for the assessment of issues regarding individual applications run over the Internet access service? (Ref. chapter 5)

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<sup>12</sup> BoR (12) 32, p. 38

<sup>13</sup> BoR (12) 32, p. 35

<sup>14</sup> BoR (12) 32, p. 19



3. The aspects proposed regarding the conditions and process for regulatory intervention? (Ref. chapter 6)

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?

**1. View on the criteria proposed for the assessment of degradation of Internet access service as a whole? (Ref. chapter 4)**

Deutsche Telekom welcomes the general approach BEREC has chosen towards monitoring quality of available IAS by offering different approaches to be followed by NRAs if deemed necessary. It has again to be stressed that the decision whether monitoring measures needs to be undertaken must be proportionate to begin with. When a market is characterized by effective competition regulatory intervention can hardly be justified. Only if this first step has been taken successfully an NRA might assess the question whether it is appropriate to intervene and which tool is the right one dealing with the situation at hand.

Deutsche Telekom does not share BEREC's estimation that platforms allowing end users to carry out quality measurements of their IAS themselves are good sources for information about the general quality level of IAS offers in the market.<sup>15</sup> In regard with monitoring of quality as perceived by end users (QoE), BEREC also has to acknowledge that this does not give an accurate measurement on which a regulatory decision could be based.<sup>16</sup> As stated above, problems like impact of end user's equipment and/or operating system and the fact that any ISP has only the ability to control his own network are crucial. We, therefore, believe that the respective ISP should conduct the tests for it has the knowledge and capacities to do so in an effective and efficient way. In order to ensure an objective proceeding it is essential to establish measuring methodologies that fully meet established scientific standards. Deutsche Telekom is more than willing to help identifying und determining the relevant parameters for correctly measuring the quality on the access leg as well as on the interconnection leg.

Deutsche Telekom agrees with BEREC in stating that it is particularly complicated to evaluate performance of mobile IAS because of the varying conditions for the wireless access links and because the mobility of the end users causes rather unpredictable loads in different cells<sup>17</sup>. By relying on statistical approaches, for example measuring average data throughput might mitigate some of the measurement problems. In any case, further investigations appear to be necessary. Ideally, they will be undertaken in cooperation with standardization bodies and network operators.

Specialized services deliver a guaranteed level of quality while IAS relies on best effort. Specialized services are out of scope of QoS regulation and respective measurements would not be proportionate.

BEREC rightly emphasises the importance to look at the specific situation of end users if substantial degradation should be ascertained. If affected end users are able to easily switch to an IAS offer with sufficient quality, the situation may not raise significant concern.<sup>18</sup>

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<sup>15</sup> BoR (12) 32, p. 38.

<sup>16</sup> BoR (12) 32, p. 41.

<sup>17</sup> BoR (12) 32, p. 39.

<sup>18</sup> BoR (12) 32, p. 42.

## 2. View on the criteria proposed for the assessment of issues regarding individual applications run over the Internet access service? (Ref. chapter 5)

As laid out above Deutsche Telekom stresses that the decision whether monitoring measures needs to be undertaken must be proportionate. On a market characterized by effective competition, regulatory intervention can hardly be justified. Only if this first step has been taken successfully an NRA might assess the question whether it is appropriate to intervene and which tool is the right one dealing with the situation at hand.

We agree with BEREC that fulfilling of legal obligations, actions controlled by end user (objective justifications) and maintaining network security and –integrity as well as congestion management (subjective justifications) are meeting the criteria. Additionally, at least in regard with congestion management BEREC's position seems to be that besides the aspects of transparency ISPs need to adhere to the principle of proportionality. We do not share this point of view. The proportionality test was developed to review actions by the police and is a principle of law to control legal actions of any part of the administration. To apply this test to a private organisation it is mandatory that this organisation is controlled by the state. Otherwise, the freedom of action is a fundamental right which can not be constricted by applying the strict provisions the public administration is facing to safeguard the rights of those not being part of public sector. The principle of proportionality should foremost concern public administration for its actions must be in accordance with the legal framework. Users and undertakings are not bound in such ways. Deutsche Telekom suggest rethinking the application of the concept of proportionality to the private sector for we think it limits the rights of those undertakings concerned in an unacceptable way.

Deutsche Telekom does not share BEREC's view on network effects. According to BEREC's understanding, the network effect means that in cases of restricted access to individual applications unrestricted end users are also affected by the number of restricted users, since they are not able to use the relevant applications to communicate with them. BEREC should be more concerned about innovation within the telecommunications market instead of fearing an adverse effect on innovation in the application market (for a further elaboration on the network effects in telecommunication networks please consult chapter 5 of this document).

Deutsche Telekom strongly affirms the BEREC statement that in best effort networks it is normal and unavoidable for the network to reach states of congestion from time to time.<sup>19</sup> As laid out above traffic management remains indispensable to enable the development of new and innovative services. If mechanisms for prioritization were no longer allowed, so called quality insensitive services that require a relatively large bandwidth would crowd out quality sensitive services. This would be hindering instead of promoting innovation.

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<sup>19</sup> BoR (12) 32, p. 46.

### 3. View on the aspects proposed regarding the conditions and process for regulatory intervention? (Ref. chapter 6)

DT welcomes BEREC's approach outlining legal aspects regarding regulatory intervention. DT agrees with BEREC that NRAs must rely on general legal principles, policy objectives and the implementation of article 22(3) in their Member state.<sup>20</sup> In this regard, the principle of proportionality is most important directing NRAs in every decision with incriminating effect. Beside the existence of a legitimate aim, the different subtests of effectiveness, necessity and strict proportionality are an appropriate instrument to structure the NRAs decisions, ensure the leanest and most straight forward measure and to secure the legal rights of the addressee of such a decision.

As already mentioned above Deutsche Telekom stresses that the decision i) whether monitoring measures needs to be undertaken and ii) on the type and extent of such intervention must both be proportionate. When a market is characterized by transparency and ease of switching there is no need for intrusive measures like imposing minimum QoS requirements. Transparency and competition are the main pillars and should be fostered through NRAs. On a market characterized by effective competition, regulatory intervention can therefore hardly be justified. This is laid down also in Art. 8(5) f of the Framework Directive. In comparable situations ex-ante regulation is not considered appropriate and there is always ex-post competition law to rely on (i.e. Article 102 of the Treaty on the Functioning of the EU).

Deutsche Telekom confirms BEREC's view that the imposition of QoS requirements is to be considered as an intrusive remedy. In order to apply this remedy pre-emptively the seriousness of degradation of service would need to be determined. To justify intervention i) such degradation would have to be significant and not only temporary, ii) the NRAs have to attest that the market itself is not able to provide services in a sufficient quality, i.e. insufficient competition or market failure, and iii) the NRAs have to proof that less distortive instruments such as transparency are not sufficient to solve the problem.

It is important to recognize that due to strong competition in the European broadband access markets any network operator intentionally degrading best effort Internet provision in order to promote managed, QoS-based services would lose customers to alternative operators or providers. As a majority of customers is expected to subscribe to a best effort based basic broadband access package any degradation would seriously damage the reputation of a provider. Hence, network operators will not only compete on price but also in quality when offering Internet access. Under these circumstances, regulatory intervention could actually be counterproductive. Deutsche Telekom, therefore, supports BEREC's finding, that in a competitive market ISPs have incentives not to degrade their end users' traffic.

However, if an NRA concludes that a market is not characterized by effective competition, it might assess the question whether it is appropriate to intervene and which tool is the right one to deal with the situation at hand. In this regard, imposing minimum QoS requirements should be a measure of last resort. Fostering competition and promoting ease of switching are likely to be a sufficient response in the vast majority of situations. However, when actually implementing requirements it is necessary to also conduct an impact assessment analysing the costs incurred and the expected effects (and weighing them against each other) which will strongly influence the decision in regard with the test of strict proportionality. In this context, an obligation of the ISP to increase transparency is less burdensome on the respective ISP than commencing quality measurements by third parties.

Last but not least, minimum QoS requirements may not be a substitute for universal service requirements, i.e. they should not be applied in order to reach a desirable level of service but serve exclusively their intended purpose of safeguarding against active and persistent degradation of the IAS service level.

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<sup>20</sup> BoR (12) 32, p. 55.

**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?**

Both the “dirt road” and the “cable TV Internet” scenarios are negatively biased and are derived from a subset of the economic literature on Net Neutrality effects. What is lacking is a reference scenario of an open Internet ecosystem which features non-discriminatory transport classes as a complement to the best effort IAS.

## **5 On the analysis of Network Effects in BoR (12) 31**

In its report, BEREC mentions in paragraph 112 that “it can be that the functioning of the market results in the implementation of some differentiation practices that have a negative impact.” As a reason for this step, BEREC mentions that ISPs and end-users “do not (or do not sufficiently) take into account indirect effects and medium or longer effects; i.e. externalities or so-called network effects.” BEREC designates network effects correctly as one of the Internet’s strengths (see paragraph 119) and, therefore, aims at protecting the Internet from higher barriers to entry: either for end users or, in particular, for CAPs”.<sup>21</sup>

DT agrees with BEREC’s opinion that network effects are present and that these effects are a relevant part of the end-customers benefit. However, DT is of the opinion that one has to understand the specific characteristics of network goods, network effects and its implications for competition, the actors in a multi-sided market and, in particular, for consumers, before making those broad statements.

A consumer of network goods typically benefits in two ways: firstly, by receiving a so called autarky value. This is the value which is generated by the product itself, even if there are no other users. Secondly, the consumer receives a so called synchronization value (additional value from interaction with other users). This value is generated by the so called network effects.<sup>22</sup>

A network effect, whether it is direct or indirect, can be defined as a change in the benefit or surplus that a customer derives from a service (such as telephony) when the number of other agents consuming the same kind of service changes.

A direct network effect results from the fact that the number of potential communication partners is growing. For example, as Facebook increases in popularity, a Facebook account becomes increasingly valuable, since more people can be directly contacted. The same effect occurs for telephony services, chat services and languages.

Indirect network effects occur by so called market mediated effects in cases where complementary goods (e.g. applications software) are more readily available or lower in price as the number of users of a good (operating system) increases. Indirect networks became especially known from the Microsoft Case. When assessing network effects one has to ask the following questions:

- i) How strong is the network effect? How would average customers value the network effect in comparison to the autarky value?
- ii) Does the network good show characteristics of a pure network good? In this case, the network benefit is growing steadily with each new interaction partner, i.e. other users. If there is a certain point, where an additional user does

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<sup>21</sup> Content and Application Providers (CAPs).

<sup>22</sup> See Network Externalities (Effects), S. J. Liebowitz, Stephen E. Margolis, <http://www.utdallas.edu/~liebowit/palgrave/network.html>

not lead to an additional benefit, the good concerned has the characteristics of a club good. The same situation arises for network goods with indirect network effects, if the specific complementary good shows the characteristics of a niche product (for example the application software for railway enthusiasts).

In cases where the network effect is really strong, the theoretical and empirical economic literature has shown that under certain conditions, such as property rights and instant scalability (without capacity constraints, which are common for pure digital network goods like software), network effects lead to a quasi monopolistic market outcome for a certain amount of time. The Google search engine, Microsoft Windows as a dominant client PC operating system, Facebook as well as the iTunes media store are examples for this phenomenon. In addition, indirect network effects cause so called application barriers to entry whereby the dominant market position of companies such as Apple, Microsoft and Google is strengthened.

These strong positive network effects are also present in traditional voice telecommunication networks. In contrast to the proprietary networks such as Facebook, positive network effects do not lead to a quasi monopolistic market structure. The reason is that telecommunication networks are usually standardised as an open, transparent and non-discriminatory industry standard. This allows customers of network A to communicate with customers of network B, which results in a highly competitive environment (competition within the standard) with significantly lower barriers to entry, whereby the network benefit for consumers is maximized. This holds also for Internet access networks. Since these networks are also standardised, each customer and CAP can in principle communicate with each other. There are no restrictions and, therefore, the barriers to entry are really low.

The differentiation practices as described by BEREC do not lead to smaller network effects or welfare losses in the aggregate but only rebalance the benefits each party derives from the provision, transmission or usage of network goods (by CAPs, ISPs and customers respectively). These differentiation practices show a normal behaviour of suppliers to internalise network externalities. If there was no opportunity to gain revenues by providing a network good, there would be no one who supplies this good and takes all the investment risks (principle of exclusion as the basis for functioning markets). In addition, if there was no chance for price differentiation, everybody would get the same quality for a given price. Customers and CAPs who have a higher specific benefit, have no chance to express their willingness to pay and maybe to buy a more advanced/comfortable version of the good. Thus, network externalities could not be internalised and this would lead to a market failure.

Against this background DT respectfully asks BEREC to further analyze the specific network effects and avoid jumping to conclusions prematurely.