Position paper

ETNO response on BEREC report on Monitoring Quality of Internet Access Services in the context of Net Neutrality

April 2014

ETNO would like to thank BEREC for the opportunity to comment on the draft report on "Monitoring Quality of Internet Access Services in the Context of Net Neutrality.

General comments:

ETNO believes that monitoring the quality of broadband performance can be a positive and fruitful exercise both for European citizens and for European market players operating along the broadband value chain. Beyond legal obligations coming from the Universal Service Directive (USD) and further best practice at national level, ETNO supports cost-effective and appropriate steps to increase transparency. Transparency around strong broadband performance is a means to differentiate between competitors and, consequently, delivers an incentive to invest in high-speed-networks. Only reliable measurement tools provide such transparency. In contrast, non-reliable measurement tools (e.g. online web portals) often erroneously report low network performance and increase end users' complaints and mistrust. Therefore, the growing availability of non-reliable tools is a negative incentive to invest in high-speed networks and may unduly affect end users' trust towards network operators.

According to ETNO, development of reliable measurement tools needs to be done cautiously and be preceded by a thorough analysis on the goals that BEREC wants to reach with the tools. Depending on whether the tool will be used (1) to validate transparency compliance with regard to net neutrality, (2) to inform the end-user after contract conclusion on speed of his/her personal broadband connection or (3) to serve as support for customers before contract conclusion searching for objective information on what he can expect from different broadband offerings in the market, has an important impact on the design of such tool. ETNO believes that it is impossible to catch all those purposes in one tool. Indeed, for measuring an operator's network quality a measurement tool which excludes all external influences (home network, potential internet server congestion,…) should be preferred. However, this

might not be the favorable tool, if the user shall be informed about the quality of service received, which includes a range of external influences beyond the service delivered by the operator. Depending on the choice made with regards to the measurement approach, BEREC's or NRAs' communication will need to provide proper guidance on the correct interpretation of the measurement results.

In defining the scope of future BEREC work in this area, ETNO suggests that the relationship with the "net neutrality" concept is handled with caution: as regards IAS in terms of physical access to the Internet, ETNO suggests that the exercise of measurement of quality by regulators be carried out by sticking to the legal provisions of the USD, that is by taking into account very well defined parameters defined in the Directive and avoiding the misuse of generic concepts such as "net neutrality". Since the USD already provides provisions to measure the quality of service for the sake of efficiency, additional legal rules to supervise net neutrality do not appear to be currently appropriate. Any approach intended to protect the quality of Internet access service from the interference of specialized services could have counterproductive effects and actually result in a lower quality for Internet access service. Such measure could also affect competitive position of different actors in countries with Infrastructure Competition. As long as a dynamic allocation of mutualized resources between the two categories of services is allowed, the provision of specialized services and best effort Internet over the same physical network infrastructure is the most efficient use of network resources. Flexibility in operating the networks and dynamically assigning network resources is important for efficiently transporting multiple traffic flows over the network. When operators invest in their networks to allow specialized services, the increased capacity also benefits the Internet access services, due to the efficient allocation of resources and the expanded high speed broadband coverage to those households where only offering Internet Access Service made it not affordable, as it is recognised by the FCC1 in their studies.

As regards the correct and fair use of well-defined concepts and parameters, ETNO also would like to highlight that close attention must be given, for the sake of accuracy, to characteristics of the technology platform whose quality is measured and to the specificity of national broadband markets. The possible definition of a European system designed to monitor and measure the quality of broadband needs to avoid non-accurate results, which would have a detrimental effect and result in a loss of ISPs' credibility in the eyes of the customer. In this regard, ETNO shares the concerns expressed by BEREC on the "the second Broadband Quality of Service report" carried out by Sam Knows for the European Commission. Due to the likelihood that single measurements generated by consumers are not fully reliable, any potential legal consequence resulting from such a measurement would have no legitimate grounds.

ETNO believes that European network operators should be involved, from the very beginning of the process, in the definition of a possible European opt-in system of monitoring.

[1] Summary of Findings and Conclusions.Specialized Services Working Group.Open Internet Advisory Committee.Federal Communications Commission.Released August 20, 2013 I

Detailed feedback:

SCOPE AND BACKGROUND

ETNO welcomes the recommendations regarding reliable measurement tools, which provide valid information on ISPs' performance. This implies that the measurements exclude interfering factors which are out of the ISPs' control and responsibility. In any respect and since BEREC highlights the need for accuracy, any limitations ("margins of error") of a specific tool need to be explicitly be flagged to the end user to avoid misleading or false conclusions on ISPs' performance.

As regards transparency of Quality of Service towards end users and in line with BEREC's view, the actual performance of service is not only determined by ISPs' networks but also by factors beyond ISPs' responsibility and reach. Therefore, an end user's experience of connectivity cannot be seen as equal to what ISPs deliver to their end users. Users are generally more involved with their quality of experience and end-to-end quality of service, something that goes beyond operator's network performance and beyond the operator's control Both measurement via a website and software installed on an end user's device do not exclude the specificities of an individual's infrastructure. A user's connectivity experience (sub case A2) is negatively influenced by e.g. WLAN connectivity or an individual device performance. Consequently, such tools can only provide some indication and not the actual picture. Usually, actual delivered speeds are higher than the indications based on the recommended tools.

The same applies to average performance indication (sub case A1), which can provide an indication of what end users may expect, however this may vary greatly between individual use cases. Particularly, this refers to mobile broadband where there is, for technological reasons, a broad range of possible connectivity (depending on a user's individual location and the usage of a mobile cell at a certain point in time). Also for fixed networks the aggregation of measured speeds into an average speed per country/region/operator has only limited relevance for an individual access. As a heterogeneous network with very high and very low speeds can lead to same average speed as a homogeneous network, publication of such average speed doesn't provide clear transparency to the customer since a customer of a fixed broadband connection is mainly interested in the information about his individual connection. Average performance based on performance of other connections throughout the country doesn't serve that purpose. Accordingly, the value of information on average speed through crowd sourcing is limited, particularly if the number of measurements is not sufficiently high.

LEGAL BASIS

ETNO deems that there is no clear legal basis within the USD which obliges all Member States to ensure that ISPs provide measurement tools to end users (sub case A2). The prescriptions within the USD only refer to general information to

be provided and/or published by the provider to the public (and not on a concrete basis) and information requirements within the contract. However, on a national basis it is admissible that some domestic legislators may have adopted rules that extend beyond the threshold set out in the USD. The new EU Regulation on a "Telecoms Single Market", currently under legislative analysis, may introduce new and EU-wide harmonised obligations for ISPs in the future.

This dynamic development of the legal EU framework needs to be considered in the scope of governance, since any self-regulatory approach requires legal certainty.

QUALITY MONITORING SYSTEMS REQUIREMENTS

Any recommendation to establish measurement tools for end users needs to balance effectiveness and proportionality. Already today, a broad range of tools is available for end users. However, the reliability of such tools in terms of indicating actual speeds is limited. The establishment of new tools must ensure a real added value and, thus, higher transparency to end users compared to the current status. At the same time, efforts for ISPs to establish new measurement tools must be affordable and proportionate to the intended increase in broadband transparency.

ETNO considers BEREC's quality criteria of accuracy, comparability, trustworthiness, openness and future proofness as being of major importance. Although the establishment of new high-quality tools needs time, there should be no trade-off between quality and time-to-market. To accomplish BEREC's quality criteria, ETNO recommends the following clarifications:

Accuracy: In addition to BEREC's meaningful components of accuracy, the overall importance of reliability of measurement tools should explicitly be highlighted. Only measurements stemming from reliable measurement tools provide meaningful transparency on network performance to end users.

Comparability: BEREC's recommendation should focus on the establishment of new tools that ensure reliable data which should allow comparisons made by specialists at the NRA. It is ETNO's belief that BEREC should issue more guidance on the methodology and metrics to be adopted by each NRA in the different Member States, for example by defining target population, sample selection methods and control of results. ETNO would like to highlight that aggregated data should be published with sufficient context information, e.g. linked to information on technical details of network coverage. Indeed, based on averaged results, operators with a nationwide coverage might be handicapped compared to operators who have an opportunistic approach, only investing in densely populated areas with high economic potential for very high speed broadband connections. Same logic applies to countries with technology competition. Publication of results should not lead to promotion of certain technologies or operators based on differences measured on arbitrary chosen parameters, certainly if those differences don't translate into objective differences in quality perceived by the customer. Finally, we agree with BEREC that providing access to raw collected data might be challenging for several reasons. Next to potential privacy issues and the difficulty to interpret the data as mentioned by

BEREC, ETNO thinks that availability of raw data allows misinterpretation and could lead to competitive distortions. Focusing only on speed for example measured through the tool might be interesting for certain operators, but would not necessarily increase transparency to the customer as speed is only one characteristic of a complete e customer experience.

Trustworthiness: This criterion is closely linked to the reliability of measurement tools. End users will only trust tools if they are also reliable.

Openness: To increase market penetration of new reliable measurement tools, the functionality/shall be made available with open source as an option. This also supports high market penetration of a new measurement tool.

Future-Proofness: Any future proof tool should meet BEREC's quality criteria. Apart from that, technological developments and changing habits of end users must be considered. This includes the increasing use of wireless Internet access, based on fluctuating performance of wireless broadband. Depending on the goals of the measurement tools, BEREC could consider excluding end-user equipment and infrastructure.

REGULATORY ENVIRONMENT

Competition plays a vital role in guaranteeing appropriate quality of service due to the strong competition stimulated by NRAs. Competition leads operators to offer the best products and quality of Internet Access Services to end users. Consequently any network operator that would intentionally degrade its 'best effort' internet as a whole would lose customers in benefit of alternative ISPs and seriously undermine its reputation as a high-quality provider. Any temporary quality degradation of the service has been resolved by the market forces pressure without any regulatory intervention. ETNO recommends self- and co-regulation over traditional regulation. Self- and co-regulation tend to be more efficient and flexible types of governance than traditional regulation, since they better balance proportionate effort for industry (cost-efficiency) and effectiveness (real added value) for end users. Also, considering the lack of established EU-wide rules, self-regulation can close a gap and increase transparency on network performance in a shorter timeframe. Since self-regulatory establishment of high-quality tools across markets demand significant investments by ISPs, a stable legal framework is a prerequisite. Accordingly, long term commitment of NRAs to the voluntary establishment of a specific measurement tool is essential. A positive example of a self-regulatory approach is Germany, where the telco industry has proposed a variety of measures to increase transparency, including fixed broadband. These measures go well beyond any legal obligations or regulatory power (see section on Implementation Measures).

Besides this, ETNO does not support BEREC's recommendation to apply a different kind of governance in parallel, such as to complement a stakeholder-controlled hardware-based system by a regulator-controlled software-based tool. Usually, end users do not have sufficient technical knowledge to understand the reasons for different measurement results generated by different tools. This leads to confusion and less transparency on broadband performance. Accordingly, ETNO recommends to rather seek broad alignment of relevant

stakeholders and to jointly establish a reliable tool that provides real guidance to end users. Only by this, BEREC's quality criteria of "comparability" can be ensured.

In any case, the involvement of ISPs in any governance is crucial to include industry-specific technological knowledge on networks as well as end users. Therefore, ETNO agrees with BEREC's conclusion that regulators shall carefully assess cooperation of different stakeholders, such as e.g. public consultation, cooperative forum or advisory bodies.

LEGAL VALUE OF THE MEASUREMENT RESULTS

First of all, ETNO agrees on BEREC consideration that having full and good connectivity with any other ISP is an important part of the Internet Access Service. Nonehtless, it has to be highlighted that the quality experienced by users is a shared responsibility that depends also on other internet assets that are out of the control of ISPs (apps, handsets, OS, etc.) and not only on network provider performance.

Due to a lack of robustness of available measurement tools to end users, these data are no evidence of ISPs' compliance or non-compliance with contractual obligations. Data may also impair a lack of statistical relevance. Therefore, the legal usage of such data, e.g. before a court in case of a dispute, is unjustified and risks to seriously impair the telco industry. This particularly refers to fixed broadband.2 Consequently, ISPs would be forced to lower the contractually agreed minimum speed for fixed broadband, to avoid unjustified special contra ctual termination rights by end users. Following from that, the end user would have less transparency and accuracy.

Notwithstanding this point, ETNO stresses that all end users already have a legally granted right of contract fulfilment. Accordingly, ISPs have established a variety of practices to ensure delivery across Europe. This includes reliable quality checks through ISPs in case of end users' complaints, e.g. through own technical staff. Considering this, additional legal consequences – particularly based on unreliable measurement tools – are inappropriate.

In that context, ETNO stresses that individually agreed speed ranges must not be mixed up with advertised speeds. Advertised speed is not an indication to each specific end user, but highlights the maximum actual network performance in a market by a given operator. Such advertisement is a comparative advantage and justifies significant investment in high-speed networks.

Notwithstanding the advertised speed, the end user gets a speed within the individually agreed speed range.

It that context, it needs to be stressed that advertisement usually refers to the deployed infrastructure and available tariffs. This may significantly differ from the individually agreed tariff, e.g. if a customer simply does not want to have

[2] Since mobile broadband is a location-based service, additionally determined by the cell's capacity in a certain point in time, the agreed minimum speeds are usually very low by today.

higher available speeds. ISPs promote the agreement of tariffs with higher bandwidths, through advertisement and up-selling campaigns. This is particularly important in the context of major network upgrades or investment projects.. The fact that the new technology might not (yet) be appropriately reflected in the measurement results should not handicap ISP's ability to communicate, as this would hamper investment in new technologies.

IMPLEMENTATION ASPECTS

ETNO appreciates BEREC's comprehensive assessment but notes that BEREC omits to provide clarity on whether BEREC wants to promote measuring the quality of the ISP's network or the quality of the customer experience. For the customer the second might be the most important, however ISPs can only ensure performance of their own networks. This is what is agreed between ISPs and end users. Depending on what the tool is supposed to measure, BEREC could suggest excluding other technical factors that interfere with an end user's experience. In such case, measurement tools need to assess the performance between an end user's point of Internet access (e.g. the router) and the measurement server in an ISP's backbone. In this case the use of hardware-based probes might be a more reliable solution for measurement of quality of an ISP network. However, BEREC claims that due to costs such tools are not available to a wider audience of end users and, therefore, suggests the use of software-based clients. In this conclusion, BEREC does not sufficiently consider that software-based clients are potentially significantly biased by individual end user equipment (particularly the PC performance). BEREC's suggestions to at least partly improve reliability of measurements through the exclusion of WLAN-based Internet access, would exclude many end users from such measurements (e.g. users of tablets). ETNO does not share BEREC's view and believes that the adoption of more reliable tools, which exclude interference by end users' infrastructure, should not be discouraged and could still be the outcome of self-, co- or regulation. Different to BEREC's findings, ETNO members have identified possibilities to make such tools available to a wider audience (see the proposal of German telco industry, to include measurement tools into internet access devices/ routers).

German example:

A positive example of a self-regulatory approach is Germany, where the telco industry has proposed a variety of measures to increase transparency, including fixed broadband. These measures go far beyond any legal obligations or regulatory power. For fixed broadband, the proposal includes inter alia the establishment of a router-based measurement tool for fixed broadband, which generates reliable measurements of ISPs' performance. This hardware-based probe would increasingly be available for all end users. They could measure their Internet access performance whenever and how often he/ she wishes, at any point in time. Measurements would be published in a database, to ensure transparency and comparability on ISPs' performances. Through this, end users would have a user-friendly tool which generates reliable information on their internet access performance. Functionality of the tool would be published as open-source and, thus, be available for all ISPs.

If the goal is to measure ISP network performance, ETNO recommends that **measurement servers are located within an ISP's own network**. ISPs have no influence on the connectivity to measurement servers outside an ISP's network. Additionally, server capacity and content providers' router policies are out of ISP's responsibility. Therefore, measurements of ISPs' broadband against one single server somewhere in the Internet, are neither comparable nor do they reflect ISPs' performances. BEREC partly considers these technological circumstances through proposing that measurement servers are located close to an ISP's network. This not sufficient for reliable measurements on the quality of the ISP's network.

If on the contrary it is BEREC's purpose to provide a tool to end-users which translates individual broadband performance into a quality metric, the end-to-end view (including interfering factors such as WLAN and potential server congestion) should be covered. Indeed, an end-user may particularly be interested in his internet experience, not only in his ISP's performance.

Regarding software-based measurement tools installed at the end user's device, it must be ensured that the software is up to date and matches with the current broadband agreement. Indeed, such software tool typically runs in background, and user settings are hardly modified, even if the user decides to change the broadband agreement. An additional lack of reliability of the results might be an issue in this case.

It's obvious that proper guidance on the correct interpretation of the measurement results is needed when end-to-end quality metrics are provided: an ISP can't be blamed for the fact e.g. that the server of an internet content provider would be congested.

COMPLEMENTARY METHODS

As BEREC states, a user's broadband experience goes well beyond the characteristic of "physical connection" to a broadband network and involves many other aspects, e.g. the quality of the user's experience in using search engines, transparency regarding the use of personal data and the ability to access content originated in Member States other than those of the user's residence. In other words, the measurement of quality of traffic and of performances of the network connection "in order to prevent the degradation of service and the hindering or slowing down of traffic over networks" (Art. 22,3 USD) is only one part of the overall quality measurement exercise regarding a user's experience of the Internet.

However, due to a lack of correlation between subjective consumer experience and objectively measured data, these complementary methods are not useful mean to validate measured data. Usually, voluntary indications of end users regarding e.g. contract details, tend to be flawed. Therefore, discussions on measurement tools and quality perceived by end users need to be kept separate.

Notwithstanding this point, the proposed complementary methods are important considerations for customers' satisfaction and are useful in public discussions. ISPs and regulators already analyse complaints and public opinion and debates. For ISPs, such analysis is crucial for effective marketing,

management of contractual relationships and sales activities and so ETNO is concerned about any attempts to regulate or harmonize these company specific business activities. Additionally, regulators undertake traffic management investigations based on the USD's provisions and so additional efforts in this area are neither necessary nor proportionate.

FUTURE PERSPECTIVES

ETNO welcomes the attempt to harmonize measurement tools across the EU, provided that these tools deliver reliable results. If such tools are supposed to cover different technologies, the distinct characteristics of network technologies have to be taken into account (i.e. copper, cable, fibre, mobile) and also the state of play of the broadband market in each EU jurisdiction. In this regard, ETNO believes that more detailed work should be carried out at national level by the different NRAs.

ETNO believes that European network operators should be involved, as from the very beginning, in the definition of a possible European opt-in system of monitoring. By involving industry players in possible future exercises carried out at European level, any future exercise that BEREC will carry out will benefit from the expertise of representatives of companies that operate the networks. This includes active participation in discussion on standardizations (e.g. IETF-LMAP, IETF-IPPM, Broadband Forum).

ETNO also would like to highlight that a European opt-in system of monitoring must not lead to new systems that reduce the reliability of measurement tools A standalone new opt-in joint system should not be planned without making a cost&benefit analysis and considering the reliability of the results (e.g. avoiding joint measurement servers outside of ISPs' networks).ETNO does not support a model where a European opt-in system is based on e.g. joint measurement servers outside of ISPs' networks.