ECC Recommendation
(15)03

Provision of Comparable Information on Retail Internet
Access Service Quality

Approved 23 April 2015

INTRODUCTION

Publicly available, adequate, easily comparable, and up to date information on Retail Internet Access Service Quality (IASQ) helps consumers to confidently make well-informed choices when selecting from numerous Internet Access offers available on the market. The availability of this type of information has the potential to contribute to ensuring an overall positive experience for the end-user during the selection process and this factor is very important in the broader context of broadband promotion.

In recent years, Internet Service Providers (ISPs) have established their own methods and tools to measure, evaluate and present Quality of Service (QoS) related information but it is common practice that, even within the same country, different ISPs measure and present information about their services in different and often misleading ways. While information on IASQ is important in order to ensure the possibility for end users to compare different Internet access services provided by different ISPs there is no formal common approach among NRAs (or other relevant national institutions) on which IASQ parameters to measure and how to present the results of those measurements in order to promote transparency in the quality of Internet Access Services available.

Article 22 of the Universal Service Directive requires Member States to "*ensure that national regulatory authorities are […] able to require undertakings […] to publish comparable, adequate and up-to-date information for end-users on the quality of their services […]*". Article 22 also states that "*regulatory authorities may specify […] the quality of service parameters to be measured*" and that "*authorities are able to set minimum quality of service requirements*".

In order to achieve the objective of the Directive, it is essential to develop a common understanding and approach in relation to the following key questions:

- Which QoS parameters should be selected and evaluated?
- How should the selected QoS parameters be measured?
- In what way should the results of those measurements be presented publically?

This ECC Recommendation follows ECC Report 195 which analysed and evaluated a list of possible QoS parameters with the objective of selecting a basic set from the list which could be used by NRAs to establish a common or harmonised approach.

ECC RECOMMENDATION 15(03) OF 23/04/2015 ON PROVISION OF COMPARABLE INFORMATION ON RETAIL INTERNET ACCESS SERVICE QUALITY

"The European Conference of Postal and Telecommunications Administrations,

following

a)   The adoption of ECC Report 195 "Minimum Set of Quality of Service Parameters and Measurement Methods for Retail Internet Access Services"

taking into account

a)   Directive 2002/22/EC (as amended by Directive 2009/136/EC) of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive).
b)   Directive 2002/58/EC (as amended by Directive 2006/24/EC and Directive 2009/136/EC) concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications).
c)   Regulation (EC) No 2006/2004 (as amended by Regulation (EC) No 2006/2004 and Regulation (EU) No 954/2011) of the European Parliament and of the Council of 27 October 2004 on cooperation between national authorities responsible for the enforcement of consumer protection laws (Regulation on consumer protection cooperation).
d)   ETSI EG 202 057-4 V1.2.1 (2008-07) Speech Processing, Transmission and Quality Aspects (STQ); User related QoS parameter definitions and measurements; Part 4: Internet access.
e)   ITU-T Recommendation Y.1540 (03/2011) Internet protocol aspects – Quality of service and network performance; Internet protocol data communication service –IP packet transfer and availability performance parameters.
f)   ITU-T Recommendation Y.1541 (12/11) Internet protocol aspects – Quality of service and network performance; Network performance objectives for IP-based services.
g)   BEREC, A framework for quality of service in the scope of net neutrality, Document no. BoR (11) 53, 2011.
h)   BEREC, Guidelines for quality of service in the scope of net neutrality, Document no. BoR (12) 131, 2012.
i)   BEREC, Report on monitoring quality of Internet access services in the context of net neutrality, Document no. BoR (14) 117 2014.
j)   Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions "A digital agenda for Europe" COM(2010) 245 final/2.

considering

a)   That the importance and relevance of the Internet and networks using Internet Protocol are increasing.

b)   That the number of applications and services relying on a sufficient Internet Access Service Quality (IASQ) is growing.

c)   That, with a degree of trust, information relating to the performance of a network should be stated in a transparent, comparable and understandable form in order to help consumers to make well-informed choices from the numerous Internet access services available on the market.

d)   That the ongoing transformation of national level electronic communications markets to a European Single Market leads to a need for harmonised tools and measurement methods among the different member states.

e)   That the policy objectives included in the Digital Agenda for Europe in relation to capacity need to be evaluated and verified.

f)   That Transmission Speed is the most important parameter for the majority of end-users regarding the technical characteristics of retail IASQ.

g) That the minimum set of technical parameters such as Transmission Speed, Delay, Delay Variation, Packet Loss Ratio and Packet Error Ratio provides sufficient information for assessing retail IASQ.

recommends that the competent national authorities should, where appropriate, set guidelines or regulations for the provision of comparable information on IASQ in accordance with the following principles:

1) That at least the QoS parameter measurement values for **Transmission Speed** [as defined in ETSI EG 202 057-4 Clause 5.2] should be provided as the data transmission rate that is achieved separately for downloading and uploading specified test files (as described in Annex D of ETSI EG 202 057-4) between a measurement-server and a user's computer, presented as minimum and average values in Mbit/s or kbit/s.

2) That the following set of QoS parameter measurement values should be presented in addition to **Transmission Speed** in order to achieve a better overview on the offered retail IASQ:

   a. **Delay:** The delay is half the time needed for an Internet Control Message Protocol (ICMP) Echo Request/Reply (Ping) to a valid IP address, presented as average value expressed in milliseconds (ms). [ETSI EG 202 057-04 Clause 5.5]

   b. **Delay variation:** For a given pair of IP packets, Delay Variation represents the difference between the delay in one direction, measured for two consecutive packets, presented as average value in ms. [ITU-T Recommendation Y.1540 Clause 6.2.4 with a calculation method being based on ITU-T Recommendation Y.1541 Annex II]

   c. **Packet Loss Ratio:** Packet Loss Ratio is the ratio of total lost IP packet outcomes to total transmitted IP packets in a population of interest, presented as average value in $x10^{-3}$. [ITU-T Recommendation Y.1540 Clause 6.4]

   d. **Packet Error Ratio:** The Ratio of total errored IP packet outcomes to the total of successful IP packet transfer outcomes plus errored IP packet outcomes in a population of interest, presented as average value in $x10^{-4}$. [ITU-T Recommendation Y.1540 Clause 6.3]

3) That a description of the QoS evaluation methodology should be provided together with the QoS parameter measurement values also considering the impacting roles on the measurements results validity and comparability of terminal equipment configuration (for instance of the PC) and home networks that are both outside the control of internet service providers.

4) That the evaluation of the above-mentioned QoS parameter measurement values should be done based on data transmission between the end-user's equipment and one or more measurement-servers directly connected to major or national Internet Exchange Point(s) (IXP(s)) with regard to the scenario described in Annex 1.

5) That the QoS parameter measurement values should be published taking into account possible variations in IASQ. For example, due to different loads during the day (e.g. working hours, non-working hours, peak hours) or different geographical locations of end-users. This should be clearly described in the QoS evaluation methodology.

6) That the QoS parameter measurement values should be publically provided in a clear, comprehensive and easily accessible format. Annex 2 provides an example. All elements presented in the forms in Annex 2 should be provided.

7) That, for service providers offering multiple Internet Access Services, the QoS parameter measurement values should be published separately for each of those services as described in Annex 2. In the case where an offer consists of different access technologies, details of the technology should also be provided.

8) That the published QoS parameter measurement values should be periodically updated ensuring that information on QoS of new or modified retail Internet access service offers is available.

9) That each user should also have the possibility to measure at any moment the above-mentioned QoS parameter values in a reliable and comparable way."

ANNEX 1: QOS EVALUATION OF ACCESS TO COMMON SINGLE (SET OF) NATIONAL REFERENCE POINT(S)

In the QoS evaluation of the access to a major or national Internet Exchange Point (IXP), the measurement-server is directly connected to one or more major or national IXPs. This scenario will allow comparing the QoS access to the IXP of the different ISP in a specific country, taking into account a set of parameters specified by the NRA (or other relevant national institutions).
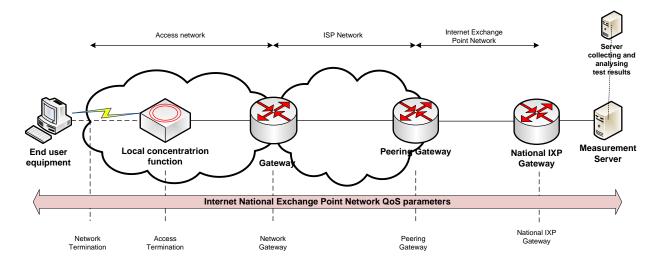
Figure 1: QoS evaluation of access to a major or national IXP

ANNEX 2: RECOMMENDED PUBLISHING FORMS FOR PROVIDING INFORMATION ABOUT RETAIL IAS QOS

Table 1: Recommended publishing form for providing required minimum information about QoS

Name of ISP:		Date of Publication:	
	Access Network Technology	**Download transmission speed * (Mean and Minimum) [kbit/s] or [Mbit/s]**	**Upload transmission speed * (Mean and Minimum) [kbit/s] or [Mbit/s]**
Offer and advertised transmission speeds			
Offer and advertised transmission speeds			
<...>			
Offer and advertised transmission speeds			

Note: A description of the QoS evaluation methodology should be provided together with the QoS parameter measurement values.

Table 2: Recommended publishing form for providing detailed overview of QoS

		Name of ISP:		Date of Publication:			
	Access Network Technology	Download transmission speed * (Mean and Minimum) [kbit/s] or [Mbit/s]	Upload transmission speed * (Mean and Minimum) [kbit/s] or [Mbit/s]	Delay (Mean) [ms]	Delay variation(Mean) [ms]	Packet Loss Ratio (Mean) [x10^{-3}]	Packet Error Ratio (Mean) [x10^{-4}]
Offer and advertised transmission speeds							
Offer and advertised transmission speeds							
<...>							
Offer and advertised transmission speeds							

Note: A description of the QoS evaluation methodology should be provided together with the QoS parameter measurement values.