Body of European Regulators for Electronic Communications

BEREC

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Platforms for measuring the quality of Internet access

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BEREC NN QoS framework and guidelines

QoS in the scope of Net Neutrality

2009 Telecoms Package

- NN as a regulatory objective, FD 8(4)(g)
- Facilitated by competition and transparency
- Possible enforcement tool: USD 22(3)
  Minimum QoS requirements

Deliverables from BEREC Net Neutrality EWG

- QoS Framework (2011)
- QoS Guidelines (2012)

On-going BEREC Net Neutrality activity

- QoS Monitoring (target finishing 2014)

BEREC's regulatory approach to NN

(1) Ensuring that market forces work

Transparency is necessary in order for competition to discipline market players. Effective competition also relies on customers' ***ability to switch***.

(2) Monitoring quality of service

Regulators should ***continuously monitor the quality of Internet offers*** on the market, aim at ***detecting degradations of service***, evaluate the availability and penetration of unrestricted Internet access offers, and follow the evolution of specialised services, as well as traffic management practices.

(3) Acting when necessary

Minimum quality of service requirements could take the form of minimum statistical QoS levels (where an Internet access service as a whole being degraded) and/or a prohibition on blocking and throttling (where a particular application is being throttled or blocked).

BEREC's QoS framework and guidelines

Mission: How to apply USD Article 22(3)?

USD Article 22(3) - Quality of service

"In order to
prevent the degradation of service and the
hindering or slowing down of traffic over networks,
Member States shall ensure that
national regulatory authorities are able to set
minimum quality of service requirements
on an undertaking or undertakings providing
public communications networks…"

Net neutrality service architecture

USD 22(3) Degradation of "service" – which service?

Two categories of services:

- *Internet access service (IAS) + specialised services*
- *IAS will usually be the one requiring regulatory scrutiny*

Using the net neutrality service architecture

a) Assess degradation of performance of IAS as a whole

- *IAS vs. specialised services*

b) Assess degradation of specific applications using IAS

- *Restricted IAS when specific applications are degraded*
- *Unrestricted IAS vs. restricted IAS*

IAS and specialised services defined

Internet access service (IAS)

An Internet access service is a publicly available electronic communications service that ***provides connectivity to the Internet***.

Specialised services

Specialised services are electronic communications services that are ***provided and operated within closed electronic communications networks*** using the Internet Protocol. These networks rely on strict admission control and they are often optimised for specific applications based on extensive use of traffic management in order to ensure adequate service characteristics.

Intermezzo
QoS in draft STM Regulation

Overview of QoS in draft STM Regulation

Article 23 - Freedom to provide and avail of open internet access

- 23(1) - open Internet
- 23(2) - specialised services
- 23(5) - reasonable traffic management

Article 24 - Safeguards for QoS

- 24(1) - closely monitor and ensure the freedoms
- 24(2) - minimum quality of service requirements

Article 25 - Transparency

- 25(1) - actually available data speed
- 25(3) - evaluation tools and certification scheme

Article 26 - Contracts

- 26(2) - actually available data speed

Article 24(1) - Safeguards for QoS

- ***National regulatory authorities*** shall closely ***monitor and ensure*** the effective ability of end-users to benefit from ***the freedoms*** provided for in Article 23 (1) and (2),
- compliance with Article 23 (5) [i.e. reasonable traffic management]
- and the continued ***availability of non-discriminatory internet access services*** at levels of quality that reflect advances in technology
- and that are ***not impaired by specialised services***.
- They shall, in cooperation with other competent national authorities, also monitor the effects of specialised services on cultural diversity and innovation.
- National regulatory authorities shall ***report on an annual basis*** to the Commission and BEREC on their monitoring and findings.

Article 25(3) - Transparency

- End-users shall have access to ***independent evaluation tools*** allowing them to compare the performance of electronic communications network access and services and the cost of alternative usage patterns.
- To this end ***Member States shall establish a voluntary certification scheme*** for interactive websites, guides or similar tools…
- Where ***certified comparison facilities are not available*** on the market free of charge or at a reasonable price, ***national regulatory authorities or other competent national authorities shall make such facilities available themselves*** or through third parties in compliance with the certification requirements…

Part 2
BEREC NN QoS monitoring platforms

QoS monitoring in the scope of NN

- Launched in BEREC Work Program 2013
- Based on Framework and Guidelines on QoS: ***Monitoring of Internet access services is needed in order to perform a detailed assessment of "degradation of service"***
- BEREC will also ***examine the possibility*** and pros & cons of establishing a ***common opt-in platform***, whereby NRAs could coordinate, compare or complement national measurements
- Targeted finishing of deliverable in 2014

QoS monitoring: Scope of the work

Two main use cases for quality monitoring systems:

1. *Providing transparent quality information to end users*
2. *Gather quality surveillance information to regulators*

The draft STM Regulation seems to have made this work even more pertinent and relevant, notably articles 24(1) & 25(3):

- *Monitor and ensure the freedoms and report on an annual basis*
- *Independent evaluation tools and certified comparison facilities*

QoS monitoring: Content at a glance

Governance options

- Who should operate the quality monitoring system?
- Traditional regulation / co-regulation / self-regulation
- Importance of stakeholder involvement

Technical aspects

- Measurement metrics and methods
- Measurement system architecture
- Statistical sampling in time and space

Economic impact

- Cost assessment of main options
- Competition and market impact

QoS monitoring: Possible future scenarios

Common multi-NRA quality measurement platform scenarios

- allowing NRAs to opt into the common platform
- allowing integration of national systems if needed

1. May be developed from existing NRAs' systems
2. May be based on existing commercial or open systems

Some NRAs already have experiences with such systems
(like M-labs, SamKnows, RIPE Atlas)

Standardization would facilitate off-the-shelf components

e.g. Large-Scale Measurement of Broadband Performance (LMAP)
from Internet Engineering Task Force (IETF)
the standardization body developing IP and IPv6

Conclusions

QoS monitoring on the best effort Internet is complex

QoS monitoring is essential to net neutrality assessment

- in the existing Regulatory Framework
- and in the draft STM Regulation

BEREC is committed to contribute further within QoS monitoring