



Net neutrality measurements: Regulatory use case and problem statement

IETF#97 Seoul

Regulation (EU) 2015/2120

- European open internet regulation also known as Telecommunications Single Market (TSM) Regulation
 - » <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2015:310:FULL&from=EN>
- Net Neutrality obligations came into force 30.4.2016
 - » BEREC guidelines were given 30.8.2016
http://berec.europa.eu/eng/document_register/subject_matter/berec/download/0/6160-berec-guidelines-on-the-implementation-b_0.pdf
- End-users have the right to
 - » **access** and **distribute** information and content,
 - » **use** and **provide** applications and services, and
 - » use terminal equipment of their choice.
- Right is irrespective of the end-user's or provider's location or the location, origin or destination of the information, content, application or service, via their internet access service.

ISPs shall treat all traffic equally

- ISPs shall treat **all** traffic equally
 - » irrespective of the sender and receiver, the content accessed or distributed, the applications or services used or provided, or the terminal equipment used.
 - » Exceptions: categories of traffic and specialised services
- ISPs shall **not** block, slow down, alter, restrict, interfere with, degrade or discriminate certain traffic or applications
 - » Exceptions: law, security and exceptional congestion
 - » Cannot be waived by contract

Measuring internet access quality

- For fixed internet access services, ISPs specify the following speed values in contracts minimum, normally available, maximum and advertised speeds
 - » speed should be calculated based on **IP packet payload**
 - » Measurements should also be performed beyond the ISP leg
- How the regulators should measure the normally available and maximum speeds?
 - » **Normally available speed** is understood to be the speed that an end-user could expect to receive most of the time when accessing the service.
 - » BEREC has given further guidance that the speed should be available during the specified daily period.
 - » Regulators may require that the normally available speed should be available e.g. during off-peak hours and 90% of time over peak hours, or 95% over the whole day.

Measuring application performance

- Regulators should be able to detect if an ISP slows down or otherwise discriminate certain traffic or applications
- How regulators can detect if an ISP
 - » throttles e.g. the competing VoIP or IPTV applications?
 - » prioritizes their own or an affiliated application against the rest internet traffic?
- How regulators can detect and reduce the change for false positives?
 - » impacts of end-user environment

Detecting restrictions

- Regulators should be able to detect if an ISP blocks, alters, restricts, interferes with certain traffic or applications
 - » Blocking communication ports
 - » Blocking websites or certain content
 - » Blocking certain applications
- Detecting if traffic management measures monitor specific content
 - » ISPs can use the information contained in the IP packet header, and transport layer protocol (e.g. TCP) header
 - » Exceptions: law, security and exceptional congestion



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