

Network Neutrality Revisited: Challenges and responses in the EU and in the US

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Net Neutrality in Europe

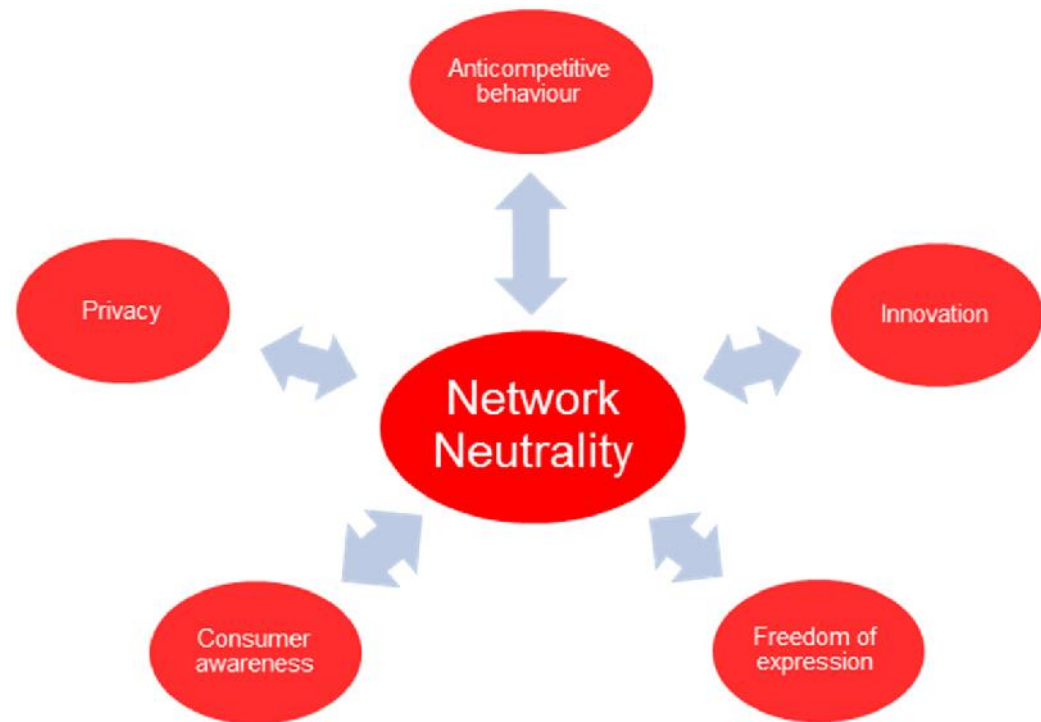
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- Based on a forthcoming study for IMCO: 'Network Neutrality Revisited: Challenges and responses in the EU and in the U.S.'

How should we define network neutrality?

- Network neutrality has taken on various meanings:
 - The ability of all Internet end-users ‘... to access and distribute information or run applications and services of their choice.’
 - Traffic ‘... should be treated equally, without discrimination, restriction or interference, independent of the sender, receiver, type, content, device, service or application.’
 - Absence of unreasonable discrimination on the part of network operators in transmitting Internet traffic.
- These definitions are not exactly equivalent, and their implications for public policy are not exactly equivalent.
- The differences in these definitions, which are visible on both sides of the Atlantic, reflect (1) whether they express *what users of the network must be enabled to do*, versus *what providers of the network are prohibited from doing*; and (2) whether they seek to *broadly limit differentiated treatment in general*, versus imposing a more *limited restriction on harmful or anticompetitive discrimination*.

Net neutrality is at the heart of a web of concerns

- Direct linkages to anticompetitive behaviour, innovation and investment, privacy and data protection, consumer awareness, empowerment, and protection, and freedom of expression.
- Indirect linkages to network and information security, broadband policy, Internet governance, and more.



Technical Aspects: Quality of Experience (QoE)

- *Quality of Service (QoS)* parameters and mechanisms are important to enable network operators to design, build and manage their networks, but they are not directly visible to end-users.
- Crucial for end-users, however, is the quality that they personally experience during their use of a service.
- These *Quality of Experience (QoE)* requirements are strongly dependent on the application. Some are sensitive to delay.
 - E-Mail has little sensitivity to packet loss and delay.
 - Real-time two-way Voice over Internet Protocol (VoIP) tends to be highly sensitive – delays more than some 150 msec cause problems.
 - Real-time two-way videoconferencing is similarly sensitive, and with greater bandwidth consumption.
 - One-way video may or may not be sensitive, depending on user expectations for how quickly the stream starts (zapping time).
- *Delay-sensitive and mission critical services (police, fire, health, and transport) can benefit from managed Quality of Service (QoS).*

Economic background of network neutrality

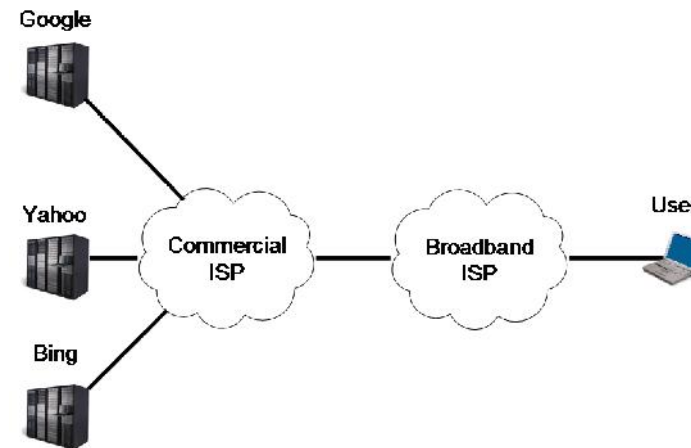
- At least three distinct strands of economic reasoning relates to differentiated quality of service in the Internet.
 - Quality and price differentiation
 - Economic foreclosure
 - Two-sided (or multi-sided) markets
- These interpretations are not necessarily incompatible, but they have different and possibly conflicting implications for public policy.

Quality and price differentiation

- Quality differentiation and price differentiation are well understood practices (cf. Hotelling (1929)).
- In the absence of anticompetitive discrimination, *differentiation generally benefits both producers and consumers.*
- **BENIGN:** We typically do not consider it problematic if an airline or rail service offers us a choice between first class and second class seats.

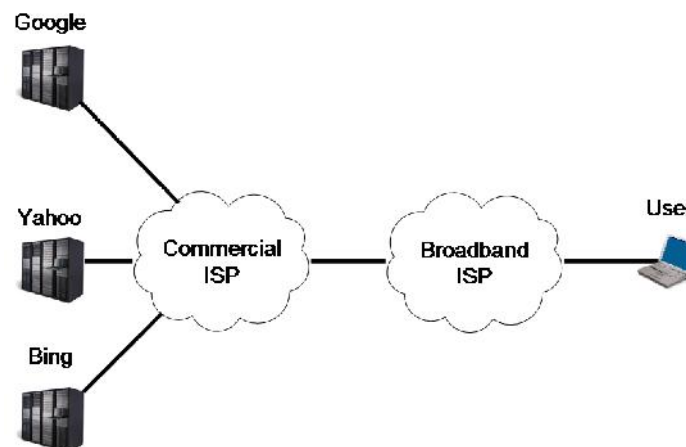
Two-sided markets

- The Internet can be thought of as a two-sided market, with network operators serving as a platform connecting providers of content (e.g. web sites) with consumers (cf. Tirole and Rochet (2004)).
- **RELATIVELY BENIGN:** Under this view, some disputes are simply about how costs and profits should be divided between the network operators and the two (or more) sides of the market.



Economic foreclosure

- When a producer with market power in one market segment attempts to project that market power into upstream or downstream segments that would otherwise be competitive, that constitutes economic foreclosure.
- **PROBLEMATIC:** Foreclosure harms consumers, and imposes an overall socio-economic deadweight loss on society. Foreclosure could be a concern in markets where effective market power (SMP) is given free rein.



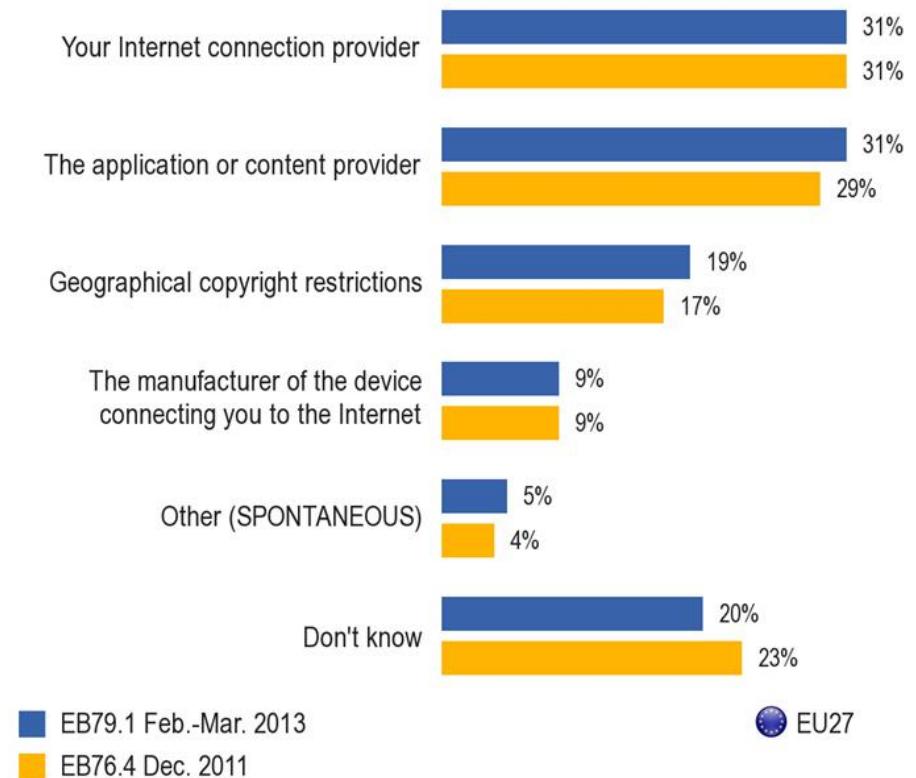
The public consultation (2012-2013)

- The Commission conducted a public consultation on network neutrality at the end of 2012, with an eye to a legislative initiative in 2013.
- A one page summary of the consultation appears in the Impact Assessment for TSM, but the Commission never published a comprehensive analysis of the results.
- The 131 non-confidential textual stakeholder responses are publicly available, and generally are thoughtful and of high quality, thus enabling us to complete the public consultation in abbreviated form based on a sample of responses.
- We gratefully acknowledge the Commission's assistance in tabulating more than 400 multiple choice (citizen) responses to the public consultation.

European consumer views are complex

- In the consultation, citizens were troubled by most forms of traffic management, but more by some forms than by others.
- CAUTION: The citizens who responded were *self-selected*.
- 29% of EU fixed broadband consumers think that they have been blocked at least once (Eurostat, 2013).
- Not all blockages appear to reflect net neutrality issues.

QA15. In your opinion, which of the following was responsible for the blocking of online content or applications?



Source: Eurobarometer 396 (2013)

The public consultation (2012-2013): Organisational stakeholder views

- Most NRAs, ISPs, content providers, and consumer advocates considered traffic management to be appropriate under suitable preconditions.
- For restrictions on specific applications (VoIP, P2P), network operators had (unsurprisingly) a dramatically different perspective from that of applications and content providers.
- Consumer advocates and other civil society organisations appear deeply troubled by limitations on Voice over IP (VoIP).
- Organisations generally agreed that for a network operator to prioritise its own traffic ahead of traffic for applications that compete with its own services is problematic.
- Many stakeholders felt that for the Member States to implement divergent approaches would carry substantial risk.

European regulatory views

- BEREC (2014), 'BEREC Annual Reports – 2013': ... very few NRAs have reported specific relevant net neutrality incidents. ... [T]he prevailing approach among ... NRAs is that possible deviations from net neutrality are dealt with on a case-by-case basis. ... [T]here is wide agreement among national regulators that the existing regulatory tools enable NRAs to address competition concerns related to net neutrality for the time being.'
- BEREC (2012), consultation response: '[R]egulation should not be unnecessarily intrusive, since flexibility appears indispensable in such a fast-changing environment.'
- BEREC (2012), 'Summary of BEREC positions on net neutrality': 'BEREC is committed to the open Internet, and believes that the existing regulatory tools, when fully implemented, should enable NRAs to address net neutrality-related concerns.'

Regulation: EU

- In the European framework, market power is a key concern.
 - Regulation addresses last mile market power in the fixed network, both for the PSTN and for Internet, thus fostering competition.
 - Internet interconnection is generally unregulated to the extent that market power does not seem to be a concern.
- Revisions to the regulatory framework were enacted in 2009.
 - The ability of end users to access content, applications or services of their choice is now an explicit goal of European policy.
 - Providers of electronic communication services must inform end users of their practices in regard to traffic management, and provide end users with the right to change providers without penalty if they are dissatisfied with a change in these practices.
 - Empowerment of NRAs to impose, if necessary, minimum QoS obligations on an SMP operator.
- Ongoing discussion of the Telecoms Single Market legislation.

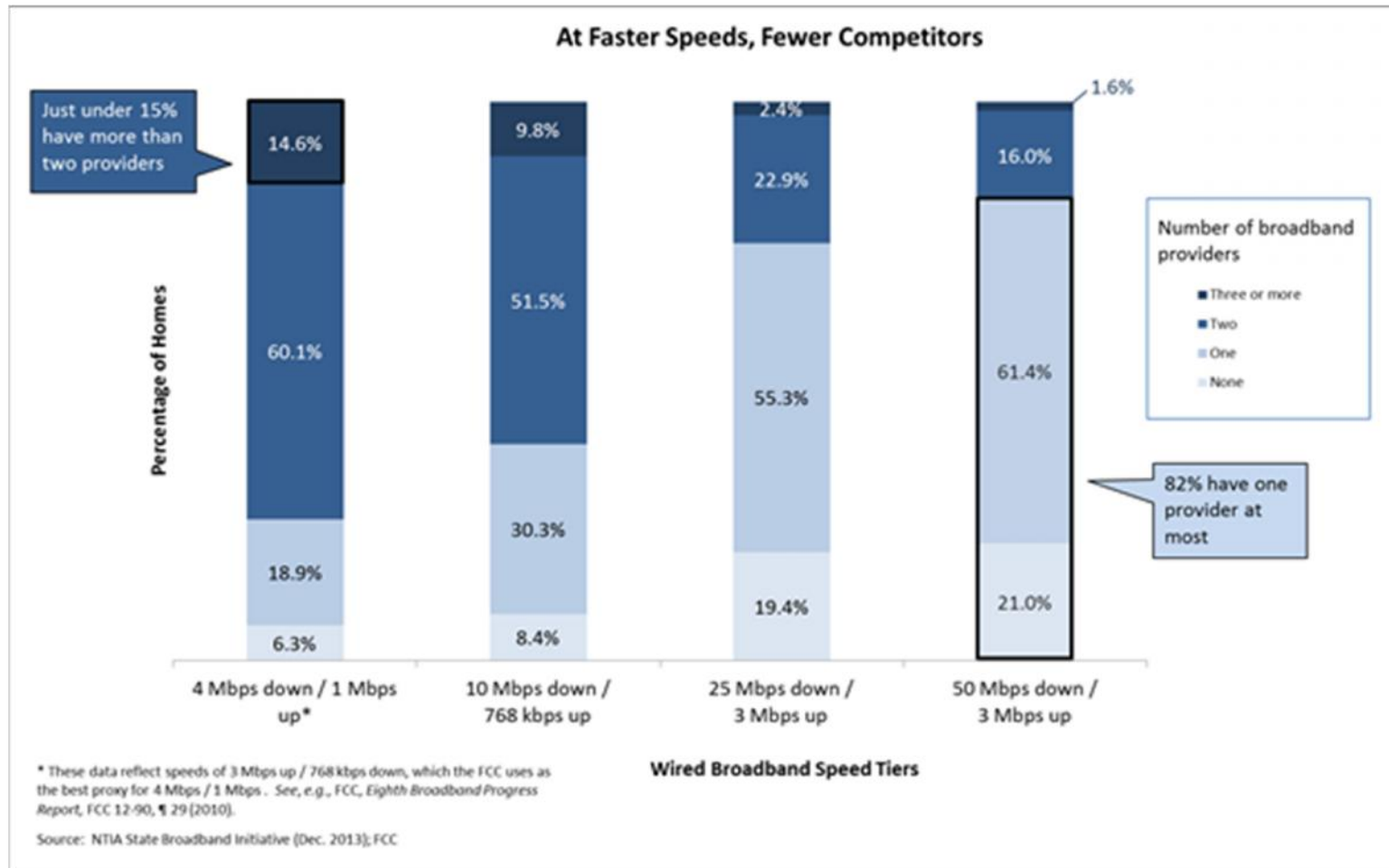
Differences between the US and the EU

- The impending US regulatory approach responds to different circumstances than those relevant to Europe.
- The overall US regulatory approach is partly a cause and partly a response to a very different marketplace.
- Real consumer choice of an alternative broadband supplier in the US is limited to the point where the threat of consumers switching is no longer felt to constrain the behaviour of network operators.
- The radical US deregulation of 2002-2005 left the US FCC with negligible ability to regulate broadband services; as a result, the US debate has been dominated by issues of legal sustainability rather than by policy goals.

Market structure: US

- Most US homes could receive fixed broadband from either a cable television provider or a telecommunications provider.
- Competitive providers (using LLU, shared access, or bitstream) have largely disappeared in the US, resulting in a market structure that is *duopolistic* (with multiple non-geographically overlapping providers).
- Mobile broadband is widespread.
 - Historically served as an *economic complement* to fixed.
 - Might increasingly represent a *substitute*.
- Competition is *between platforms, not within them*.

Market structure: US



Source: speech by FCC Chairman Wheeler (2014), data based on NTIA State Broadband Initiative

Regulation: US

- *Telecommunication services* are subject to numerous regulatory obligations; *information services* are subject to few explicit obligations. Information services were felt not to be subject to market power, so long as basic services were available on a non-discriminatory basis.
- This distinction historically enabled the FCC to avoid regulating the Internet core.
- During the George W. Bush years, the FCC classified broadband access when bundled with Internet service to be an information service (ignoring last mile market power concerns).
 - Weakened or lifted procompetitive remedies, thus reversing the growth of retail competition for DSL lines.
 - Lifted non-discrimination obligations.

Regulation: US

- The courts overturned the FCC's *Comcast* net neutrality decision
- The FCC responded with an Open Internet ruling in 2010.
 - **Rule 1: Transparency:** A provider of broadband Internet access service must publicly disclose accurate information regarding its network management practices, performance, and commercial terms sufficient for consumers to make informed choices ...
 - **Rule 2: No Blocking:** A provider of fixed broadband Internet access service shall not block lawful content, applications, services, or non-harmful devices, subject to reasonable network management.
 - **Rule 3: No Unreasonable Discrimination:** A provider of fixed broadband Internet access service shall not unreasonably discriminate in transmitting lawful network traffic over a consumer's broadband Internet access service.
- The ruling thus imposes fewer burdens on mobile networks.
- This ruling was also overturned the courts (*Verizon vs FCC*).
- Current efforts are to reinstate the 2010 rules on a legally sustainable basis.
- There is ***enormous uncertainty*** as to what will emerge.

Reflections for the Parliament to consider: 1

- What form of legislative instrument should be used?
- Does it strike the right balance in preventing harmful divergence, while providing appropriate flexibility and respect for subsidiarity?
- Are all terms defined with adequate clarity?
- Does it strike the right balance in preventing harmful differentiation, while permitting non-harmful differentiation?
- Does it enable appropriate use of managed services, and prevent inappropriate use?
- Does it enable prioritisation of services that legitimately need it, potentially including real time voice and videoconferencing over the public Internet, mission critical services (including public protection and disaster relief (PPDR), and transport), and health?

Reflections for the Parliament to consider: 2

- Does it do enough to prevent continued impediments to voice over IP (and videoconferencing over IP)?
- Does it appropriately balance costs against benefits?
- Does it appropriately balance costs and benefits among the different stakeholders?
- Is it sufficiently future proof and technologically neutral?

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