



About Network Neutrality 1.0, 2.0, 3.0 and 4.0

Is there anything else that could be written about network neutrality? Every second student's paper deals with the subject, and every single day I receive a reference by e-mail to a scientific publication or policy document.¹ Is there anything

left to be added? In this contribution, I will try to indicate in a nutshell that it is a subject in transition and that we are only at the beginning of a learning curve. To distinguish between the various transition stages, I use the well-known Internet metaphor – Internet 1.0, Internet 2.0 etc.



Nico van Eijkputs
network neutrality in context, predicts the future flow of debate on the topic and makes a series of telling observations on network neutrality dilemmas

Net Neutrality 1.0

Discussions about network neutrality in current regulation and policy making are primarily on net neutrality on the Internet. In 2003, Tim Wu put the subject on the agenda with his paper *Network Neutrality, Broadband Discrimination*.² He described net neutrality as 'an Internet that does

not favour one application (say, the World Wide Web) over others (say, e-mail)'. Little by little, net neutrality appeared on the political agenda. In 2005, the Federal Communications Commission in the USA (FCC) issued its Internet Policy

Statement. This included four principles with respect to network neutrality:³ (a) consumers are entitled to access the lawful Internet content of their choice, (b) consumers are entitled to run applications and use services of their choice, subject to the needs of law enforcement, (c) consumers are entitled to connect their choice of legal devices that do not harm the network and (d) consumers are entitled to competition among network providers, application and service providers, and content providers. The current FCC chairman, Julius Genachowski, added two further principles: non-discrimination and transparency.⁴ In Europe, the debate coincided with handling the so-called New Regulatory Framework, the adjustment of the communication sector regulation. In the amended European directives, the American model is more or less copied. Regulators have to promote the interests of the citizens by promoting the ability of end-users to access and distribute information or run applications and services of their choice.⁵ To achieve this, rules can be set that closely match the American rules. In the first place, there is the transparency requirement. Providers need to provide their users with information on any procedures put in place by the provider to measure and shape traffic so as to avoid filling or overfilling a network link, and on how those procedures could impact on service quality.⁶ In

the second place, rules can be set with respect to network neutrality: 'in order to prevent the degradation of service and the hindering or slowing down of traffic over the network, Member States shall ensure that national regulatory authorities are able to set minimum quality of service requirements.'⁷ In the context of the implementation of these rules, several national supervisory bodies and governments have entered into consultations. The European Commission, too, asked the market for input.⁸ On the basis of the reactions provided (some 318 in total) the European Commission concluded that there was a wide diversity of views but that for the time being it saw no reason for further EU regulation.⁹ There was said to be wide support for the development of industry-wide standards on transparency, but minimum quality-of-service requirements were not deemed necessary. As a rule, consultations and preparations of viewpoints at a national level lead to similar conclusions.¹⁰ Perhaps it is oversimplifying things a bit, but many of the analyses at this Net Neutrality 1.0 stage boil down to the fact that reasonable network management should be possible but that unreasonable network management should be opposed – but that first more transparency is needed.

Net Neutrality 2.0

Can or should the proposed principles and rules from policy

documents and directives be turned into concrete measures? The FCC, which also entered into consultations on network neutrality and possible regulatory intervention,¹¹ adopted a 'Report and Order' in December 2010. In this, for the first time, something more tangible was provided and regulation was established.¹² This marks the beginning of a new stage, Net Neutrality 2.0. At the heart of the FCC regulation, there are three rules about transparency, the prohibition of access blocking and the prohibition of unreasonable discrimination, the great outlines of which are briefly discussed here.¹³

Providers of broadband Internet access must publicly disclose accurate information on network management, performance and commercial terms of the broadband service provided. This needs to be done at a level that allows consumers to make informed choices. The Order includes further details as to which type of concrete information is referred to, without imposing these details as binding, but a phrase like 'effective disclosures will likely include' says a lot. It should be noted that the FCC does not regard transparency as an independent means to tackle the problem of net neutrality. This is why the two additional rules are set.

Blocking access is not allowed. An Internet provider 'shall not block lawful content, applications, services, or non-harmful devices, subject to reasonable network management'. This rule applies to providers of fixed Internet access; for mobile providers the rule is limited to accessing lawful web sites. Blocking applications that compete with the providers'

voice or video telephony services, however, is not allowed (again 'subject to reasonable network management'). This second rule means that end-users are to have free access to the Internet, both to retrieve information and to disseminate it. Although the rules for mobile networks are less stringent, the FCC believes that blocking providers of VoIP (such as Skype) must be prohibited. In addition, in the FCC's view, there is no difference between blocking and degradation of traffic. Withholding blocking only on payment of compensation is not allowed under the anti-blocking rule either.

The third rule has two elements. First, there is a prohibition on providers of fixed broadband Internet access services unreasonably discriminating in transmitting lawful network traffic over a consumer's broadband Internet access service. Second, it is ruled that reasonable network management shall not constitute unreasonable discrimination. According to the FCC, a network management practice is reasonable if it is appropriate and tailored to achieving a legitimate network management purpose, taking into account the particular network architecture and technology of the broadband access services. Next, several examples are mentioned, including congestion of the network. The FCC's remarks about preferring certain traffic to other traffic are particularly important. This is a tricky issue, for there is increasing pressure on certain service providers that generate much traffic to give their traffic 'head of way' against payment. Some service providers are prepared to pay for quality transport as well.¹⁴

Stating various considerations, the FCC suggests that pay for priority is unlikely to comply with the unreasonable discrimination rule. From the text, it follows that the prohibition of unreasonable discrimination-rule as such does not apply to mobile parties. The argument provided is that mobile Internet use is still under development and that intervention by the FCC therefore remains restricted to 'measured steps'. Finally, in the context of reasonable/unreasonable network management, the FCC recognizes the 'specialized services' phenomenon (sometimes also referred to by the term 'managed services'). The services in question share capacity with broadband Internet access, such as certain IP protocol based voice telephony and video services. The development of these services will be monitored closely and, as the FCC notes, the definition of broadband Internet access service also includes services that are functionally equivalent or intended to circumvent the new rules.

It is interesting to see if the FCC rules will be adopted in Europe in the short term. This would mean that the non-committal positions recently taken will be abandoned quickly. Some regulators would be able to include such an option in the implementation of the new European regulatory framework.

Net Neutrality 3.0

The introduction of concrete rules for transparency and net neutrality is only a subsequent step. It will have to become clear in practice if transparency and net neutrality rules actually make a difference.

With regard to transparency rules, a reality check would

certainly be in order. As mentioned earlier, the FCC has indicated that transparency is not a means in itself, a view that has meanwhile come in for wider support. Transparency in the context of net neutrality has the aim of informing users about the product they are getting on the one hand, but on the other hand there is also the intention of helping them to make a deliberate choice on the basis of the information obtained between accepting an offer or switching to another. Of course, it remains to be seen if this is actually happening in practice. Information is definitely not communication, and information overkill leads to information not being read rather than readers trying to get to the bottom of it. A interesting example in this context is the definition of transparent information which the French Telco regulator ARCEP included in a consultation document: 'ISPs must provide end-users with clear, precise and relevant information on the services and applications that can be accessed through their data services, of the traffic management practices employed on their networks, the quality of service of these offers and their possible limitations'. This is definitively a lot of information to digest.

Whether consumers actually decide to change providers on the basis of the information obtained, depends on many factors. It is not without reason that consumer switching costs are receiving more and more attention.¹⁵ Is there a genuine choice or are offers rather equally good or equally bad? How easy is it in the event of dissatisfaction about broadband access to change once a bundle of services has been



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purchased? How complex are the change procedures (red tape, terms etc)?

It is a good thing that the FCC has introduced concrete rules for net neutrality, but many issues remain unaddressed. Although the FCC states that 'reasonableness' is a frequently occurring regulatory concept, there is still much ground to be covered towards a practicable interpretation of what reasonable network management is. Specialized/managed services make the Internet 'flatter': services are no longer part of the 'cloud' but are directly supplied by the Internet service provider. What a reasonable capacity for these services is supposed to be remains as yet unanswered.

Net Neutrality 4.0

The dialectic process between the rules imposed and

enforceability will undoubtedly lead to further reflections on net neutrality. I take the opportunity to make a stand on two points.

Net neutrality is only a means, not a solution. When it comes to producing information and receiving it by end-users, a complex value chain is at issue. Every link in the value chain is weak: every position in the chain can develop into a bottleneck. When Internet service providers are restricted in their opportunities to influence traffic, the problem will probably shift to another spot in the value chain. In practice, this phenomenon is already discernible. Platform providers and peripheral equipment suppliers also try to affect 'net neutrality' by granting favours to their own providers by allowing certain applications etc. Cable operators providing Internet access themselves discover they have allowed

Endnotes

- 1 I should at least mention the extensive study by Chris Marsden, 'Net Neutrality, Towards a Co-regulatory Solution', Bloomsbury Academic, 2010 (download version: <http://ssrn.com/abstract=1533428>).
- 2 T. Wu, *Network Neutrality, Broadband Discrimination*, 2 J. on Telecomm. and High Tech. L. 141. (http://www.jthtl.org/content/articles/V2i1/JTHTLv2i1_Wu.PDF; also: <http://ssrn.com/abstract=388863>).
- 3 FCC Policy Statement on Network Neutrality FCC 05–151, adopted 5 August 2005.
- 4 FCC, news bulletin ('FCC Chairman Julius Genachowski Statement on Open Internet Public Notice'), 1 September 2010.
- 5 Article 8.4, sub g, Directive 2002/21/EC (Framework Directive).
- 6 Article 21.2, sub d, Directive 2002/22/EC (Universal Service Directive).
- 7 Article 22.3, Directive 2002/22/EC (Universal Service Directive).
- 8 IP/10/860, d.d. 30/6/2010 ('Digital Agenda: Commission launches consultation on net neutrality').
- 9 IP/10/1482, d.d. 9/11/2010 ('Digital Agenda: consultation reveals near consensus on importance of preserving open Internet').
- 10 For example: Autorité de régulation des Communications électroniques et des postes (ARCEP), 'Discussion points and initial policy directions on Internet and network neutrality', May 2010; Office of Communication (OFCOM), 'Traffic Management and 'net neutrality, a Discussion Document', 24 June 2010). See also: Body of European Regulators for Electronic Communications (BEREC), 'BEREC Response to the European Commission's consultation on the open Internet and net neutrality in Europe', BoR(10)42, 30 September 2010.
- 11 Notice of Proposed Rulemaking d.d. 22 October 2009, FCC 09–93 ('Open Internet NPRM').
- 12 The US discussion on net neutrality also involves some major jurisdiction questions, but these are not considered here.
- 13 These rules have been formalized in Part 8 of Title 47 of the Code of Federal Regulations.
- 14 See for example the Verizon-Google Legislative Framework Proposal and the discussion around it or the Comcast/Level3/Netflix dispute.
- 15 See for example the recent BEREC-study 'BEREC report on best practices to facilitate consumer switching', October 2010 (http://www.erg.eu.int/doc/berec/bor_10_34_rev1.pdf).
- 16 For example: R. Frieden, 'Winning the Silicon Sweepstakes: Can the United States Compete in Global Telecommunications?', Yale University Press, 2010, pp. 275–289.

the Trojan Horse in: after all, the services they provided previously (traditional cable TV) can now be substituted by services received via the Internet (IPTV). Solutions that do not take the value chain

dynamics into account only fight the symptoms, not the disease. A value chain approach is inevitable.

This automatically takes me to my second observation. Net neutrality is not about

something 'technical'; it is only an aspect of a problem that has existed much longer: who takes control of the eyeballs, who takes control of the content? The party taking control of the users and/or content, also takes control of the major income flow. From this perspective, the Internet has much in common

with the classic broadcasting organisations in terms of earnings model. In this sector, several showdowns took place in the past about access to distribution networks for instance. Not surprisingly – and quite justifiably, in my opinion – a comparison is made in the literature with

policy and regulation in the field of cable TV networks.¹⁶ Bringing previous experiences to the task can be useful, but it can also open a can of worms. This does not alter the fact that there is unmistakable convergence between the (tele) communication and media domains and that net neutrality

needs to be discussed within this wider context.

Next stop: net neutrality 5.0 . . . ●

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