

Public Consultation On The Open Internet And Net Neutrality In Europe

To: Policy Development Unit (B1), BU33 7/40

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From : Dr Christopher T. Marsden

Dear sirs

I am responding to your consultation on the Open Internet and Net Neutrality in Europe. I am a Senior Lecturer at the School of Law of the University of Essex, Colchester, UK and a Fellow of both Keio University¹ and GLOCOM, International University of Japan². I have published on network neutrality and other issues surrounding bottleneck gatekeepers in European communications since 1997³. I have also consulted for various Member State governments, the European Commission itself, the OSCE and Council of Europe, as well as non-EU governments and private corporations and thinktanks during that period. My most recent book is 'Net Neutrality: Towards a Co-regulatory Solution' (Bloomsbury Academic, London, 2010), which has been downloaded online more than 100,000 times and is also available in hardback. My blog on network neutrality in Europe⁴ has received more than 20,000 viewings in the first half of 2010. I have also responded by invitation to the FCC consultation as noted by 'Washington Watch'⁵, and my work has been commended to the FCC by others⁶.

I am responding to the consultation as an individual. None of my submission is confidential and it can be republished in its entirety on the consultation website.

The European Commission is to be congratulated on its broad terms of reference for its 'Public Consultation on the Open Internet and Net Neutrality in Europe', acknowledging the role of an open and interoperable Internet for the future of digital innovation in the knowledge economy. This is very well captured in Commissioner Kroes' Speech 10/300 at Open Forum Europe 2010 Summit: 'Openness at the heart of the EU Digital Agenda' Brussels, 10th June 2010. My response attempts to map my answers to both the specific questions and the overall framework for interoperability and transparency set out by Commissioner Kroes in this and other public speeches.

This broad consultation stands in stark contrast to the very limited telecommunications economics oriented consultations conducted by the UK Ofcom⁷ and other national regulators within the BEREC consultations. This reflects the paucity of network neutrality information supplied by most national governments as published in the 15th Implementation Report⁸. The issues surrounding network neutrality are far too broad to be captured by such narrow approaches, and the consultations carried out by BEREC members are therefore unlikely to produce useful outcomes from the perspectives of COM(2010) 245 and the European Union's Digital Strategy.

I now answer the questions as set out in the consultation, as briefly as possible, noting that my other published work⁹ provides further details of my approach to the problems which the consultation addresses.

¹ http://www.keio.ac.jp/english/research/atoz_it_its.html

² <http://www.glocom.ac.jp/e/organization/>

³ www.ijclp.net/files/ijclp_web-doc_6-1-1998.rtf

⁴ <http://chrismarsden.blogspot.com/>

⁵ <https://www.neca.org/cms400min/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=2979>

⁶ <https://prodnet.www.neca.org/publicationsdocs/wwwpdf/45itif.pdf>

⁷ <http://chrismarsden.blogspot.com/2010/06/draft-reply-to-ofcom-network-neutrality.html>

⁸ <http://chrismarsden.blogspot.com/2010/05/uk-to-ec-no-net-neutrality-issues-that.html>

⁹ http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=220925

Question 1: Is there currently a problem of net neutrality and the openness of the internet in Europe? If so, illustrate with concrete examples.

Yes, declared by operators themselves, reported by end-users, noted by content providers (e.g. Norwegian state broadcaster, Skype VOIP on mobile, BBC iPlayer throttled by British Telecom, Deutsche Telekom threats to throttle video and so on).

These are recorded in great depth in my blog e.g.

<http://chrismarsden.blogspot.com/2010/03/telefonica-and-d-telekom-aggressively.html>

Where are the bottlenecks, if any?

End-user access but also at handover points between ISPs. Note that this has substantial challenges for all European online content development, as well as ISP investment, As Commissioner Almunia stated at a conference on 7 July 2010 (which caught my attention as it was Tweeted by Commissioner Kroes):

“The market for online content in Europe is a shameful anachronism, and the distribution of content online across the entire European Union is expensive and difficult. This market fragmentation deprives us of scale and the lack of scale deprives us of business... we must not confuse threats to the creators of content and threats to the current intermediaries”¹⁰

Without basic Internet access for content producers to prosumers, this market will never develop. Note that I do not support measures that would outlaw higher Quality of Service (QoS) for higher cost, but this must be accompanied by minimum QoS guarantees.

This also means that innovative cloud computing services would be available to low-bandwidth SMEs as well as larger corporate actors. Without minimum QoS, cloud computing will only be for the fortunate, not for all.

As the Commission stated:

“Open models and interoperability do favour entry by a greater number of players. Open and interoperable environments drive down the cost of innovation. The lower the costs of entry, the lower the risk to innovators, and the more innovators you get. A time such as this one characterized by a very dynamic environment and a high rate of innovation might not be the best time to close the door to experimentation and private initiative.”¹¹

It is extremely pleasing to see such forward thinking exercised by both Commissioner kroes and Commissioner Almunia. One might describe this as an excellent example of inter-Directorate coordination and ‘joined-up’ government.

Is the problem such that it cannot be solved by the existing degree of competition in fixed and mobile access markets?

Yes, because it is ISPs as a class that fear commodization by content providers and prosumers. This point eliminates the attempts by Ofcom and others to portray the problem as one of market entry and Significant Market Power – it is a problem caused by the n-sided market. ISPs can act

¹⁰ SPEECH/10/365 Joaquín Almunia, Competition in Digital Media and the Internet, UCL Jevons Lecture London, 7 July 2010 at <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/365&format=HTML&aged=0&language=EN&guiLanguage=en>

¹¹ Continuing: “For instance, it is a combination of competitive markets in infrastructure and open standards that fostered the development of ‘cloud’ services. And the internet would not be the success it is today, had it not been built on open, interoperable standards and protocols. These brought the ‘freedom to innovate’ to everyone, from the largest multinational to the self employed mom in her garage. It was impossible to predict the many ways internet services would develop and it took an open environment to have the very successful – and unexpected - services that we have today. Not any one company could have dreamt them all. There are many ways society might seek to lower the cost of innovation. An internet based on open standards has proved to be a very effective platform for innovation.”

as roadblocks or traffic cops, but they cannot innovate or provide solutions for end-users. Putting a cash register on the consumer Internet is a zero-sum game that ISPs win, but that everyone else loses (consumers, prosumers, content providers, innovation in the digital economy, society through net public welfare losses).

Question 2: How might problems arise in future? Could these emerge in other parts of the internet value chain? What would the causes be?

The major problem may not lie with end-users but with traffic management as between ISPs.

This is more likely where there are wide disparities in traffic volumes – e.g. ISP A hosts a Content Delivery Network (CDN) for a video provider and has much more outgoing traffic, ISP B is almost entirely a consumer ISP and thus receives more incoming traffic.

In this situation, ISP B (which might be the wholesale arm of the former incumbent, or a mobile operator) will throttle at the handover point, not at the end-user's connection.

It is an obvious incentive problem and the forensics required to track and prove any discrimination are fiendishly difficult using 2010 technology.

Question 3:

Is the regulatory framework capable of dealing with the issues identified, including in relation to monitoring/assessment and subsequent enforcement?

No – even though it is a step forward on consumer rights.

Question 4:

To what extent is traffic management necessary from an operators' point of view? How is it carried out in practice? What technologies are used to carry out such traffic management?

[1] ISPs must filter spam and content that is otherwise malicious – this is widely accepted and for the vast majority of consumers and their ISPs, it is uncontroversial. It generally requires only shallow packet inspection to check headers in datagrams.

[2] Deep Packet Inspection for behavioural advertising and mandatory filtering on behalf of public policy objectives (cf. Malmstrom mandatory filtering proposal, UK Cleanfeed/CAIC list, Nordic suicide-watch sites) are highly damaging to privacy and responsibility of end-users, and outright break the end-to-end principle.

Question 5:

To what extent will net neutrality concerns be allayed by the provision of transparent information to end users, which distinguishes between managed services on the one hand and services offering access to the public internet on a 'best efforts' basis, on the other?

Very little – in fact, effective transparency will result in consumer outrage at the throttling of their legitimate traffic and calls for more regulation will follow.

Question 6:

Should the principles governing traffic management be the same for fixed and mobile networks?

Yes, of course. Otherwise, the same distortions will appear that have jeopardized mobile termination for voice calls over the past 20 years. That experience was disastrous – do we want to repeat it?

Question 7:

What other forms of prioritisation are taking place? Do content and application providers also try to prioritise their services? If so, how – and how does this prioritization affect other players in the value chain?

CDNs, as noted above, are a content provider response to lags and jitter in Internet delivery, but also to costs associated with ISPs' hosting of their services. Content providers are by no means all equal.

Question 8:

In the case of managed services, should the same quality of service conditions and parameters be available to all content/application/online service providers which are in the same situation?

Yes, subject to FRAND rules that would reinstate our long historical experience of common carriage. These are public communications networks, after all.

May exclusive agreements between network operators and content/application/online service providers create problems for achieving that objective?

Yes, clearly. Toll roads affect state roads significantly, by diverting investment and overcharging so preventing optimal traffic loading.

Question 9: If the objective referred to in Question 8 is retained, are additional measures needed to achieve it?

Yes, NRAs need to be encouraged by the CEC to engage with operators in discussing what FRAND rules will look like, as in an interconnection RIO.

If so, should such measures have a voluntary nature (such as, for example, an industry code of conduct) or a regulatory one?

It must be mandatory – whether co-regulatory or regulatory.

Question 10:

Are the commercial arrangements that currently govern the provision of access to the internet adequate, in order to ensure that the internet remains open and that infrastructure investment is maintained? If not, how should they change?

No – peering agreements between Tier 1 and other ISPs are subject to a very large degree of discrimination.

It is long overdue that regulators shone a light into the opacity of this area, which has not been effectively examined since WorldCom/Sprint in 2001.

Question 11:

What instances could trigger intervention by national regulatory authorities in setting minimum quality of service requirements on an undertaking or undertakings providing public communications services?

There are several answers to this question, which we can separate into contraventions by ISPs of what I term net neutrality 'lite' and 'heavy'.

'Lite':

1. Blocking of Skype/VOIP products – this is especially true of mobile networks which have made no secret of fairly widespread blocking. See Madison River (2005) FCC compliance order.
2. Blocking of P2P – when protocols or programmes are blocked rather than a general throttling for peaktime traffic management, this is directly discriminatory. See Comcast (2008) FCC compliance order.
3. Blocking or throttling of video traffic whether delivered by CDN (Akamai or YouTube for instance) or P2P or streaming – which is also discriminatory as in Case 1. See BBC iPlayer/BT (2009), Turkey/YouTube (ongoing) or Norwegian case (2006) for examples.

4. Blocking or throttling of more general traffic classes at hand-over point between ISPs – see AT&T/SouthWesternBell [all now merged under brand ‘AT&T’] (2006) merger consent order.
5. Note all these cases represent blocking and throttling at either end-user or hand-over points. It is significantly harder to analyze hand-over point discrimination for affected parties.

‘Heavy’

1. The questions here concern the nature of ‘unreasonable’ delays in upgrading non-premium (i.e. 99.999% of Internet) traffic.
2. It should be de facto unacceptable ISP behaviour for throttling to be introduced for more than a minor part of each day – perhaps 6 hours. Many ISPs now throttle for much of the business day and the evening peak with no break, e.g. 10am-11pm with a 2-hour mid-afternoon break (Virgin Media terms of May 2010).
3. It is also clear that the consultation on Universal Service needs to make very clear that this universality must be to open Internet access, not throttled access to premium services first, and Internet second.
4. To discourage continued ISP under-provisioning of bandwidth requires two strengthened regulatory interventions:

[a] to prevent misleading advertising and mis-selling based on that deceptive advertising, not simply within generally weak consumer protection law and even weaker advertising self-regulation, but also in General Conditions of ISP licences;

[b] to remove bandwidth bottlenecks which are generally no longer in the local loop (where ADSL2 is increasingly common at least in urban and semi-urban exchanges, and DSLAM cost is decreasing as Moore’s law drives down processing costs). This indicates increased NRA concentration on backhaul costs which are still typically the monopoly or near-monopoly of the incumbent with SMP.

Both duct-sharing and functional separation can eventually act as incentives to drive down costs in a competitive market, as well as Ethernet LAN products and other NGA backhaul products, but NRAs appear spectacularly misinformed or misguided as to the exponentially decreasing costs of providing such backhaul, instead allowing themselves to be sidetracked by incumbent pension fund deficits and other issues.

The Commission must make plan in its forthcoming NGA Recommendation that the cost of backhaul remains the key cost for ISPs and it is this that drives short-termist throttling strategies rather than longer-term investment in bandwidth.

Question 12:

How should quality of service requirements be determined, and how could they be monitored?

One of the more effective actions by Ofcom has been its joint exercises in testing Internet speeds with Samknows and this should be examined at EU level. However, as a lawyer rather than network engineer, I defer to those with specialist knowledge in this area. I caution that a body of technical experts to determine such factors must always be co-regulatory rather than self-regulatory (as the US approach appears increasingly).

Question 13:

In the case where NRAs find it necessary to intervene to impose minimum quality of service requirements, what form should they take, and to what extent should there be co-operation between NRAs to arrive at a common approach?

Quality of Service minimum levels are the only way for independent application and service developers, and their financiers, to be confident that their innovations can be received by consumers. A single European market in Internet innovation depends on a common minimum

QoS standard. That is surely obvious to all. Failure to create a single minimum – above which NRAs are of course welcome to set higher standards, particularly in higher-speed regions within countries – would jeopardize the single European market and signal to venture capital to look elsewhere for entrepreneurs to support.

Question 14:

What should transparency for consumers consist of? Should the standards currently applied be further improved?

The means to achieve this is a consumerist intervention to prevent ISPs advertising ‘Internet access’ when they actually provide ‘special access’ to premium services.

A further means to provide true consumer transparency is to force ISPs to advertise not their ludicrous laboratory-feasible maximum speeds, but their true and provisioned MINIMUM speeds.

If they have 24mbps backhaul and service a maximum 800 customers from one exchange, then they should advertise ‘minimum bandwidth’ as $24576/800 = 30.7\text{kbps}$.

Even here, they must caution that the 24mbps is a theoretical maximum and not all customers can access 30kbps at peak times.

An example should be included – “at peak times, you may not always be able to access web-based email”.

Question 15:

Besides the traffic management issues discussed above, are there any other concerns affecting freedom of expression, media pluralism and cultural diversity on the internet? If so, what further measures would be needed to safeguard those values?

Traffic management is censorship at its most basic, whether conducted by private or public bodies. This does not mean it is necessarily or always bad – filtering spam for customers has been the default position for most ISPs for half a dozen years. However it clearly affects fundamental rights to privacy (consider the PHORM experiment in behavioural advertising using Deep Packet Inspection) and freedom of expression (including the right to receive information via the protocol of one’s choosing – e.g. via P2P or streaming).

The monograph I published earlier this year considers the wider details in more detail in its final Chapter 8. See: Marsden (2010) *Net Neutrality: Towards a Co-regulatory Solution*, Bloomsbury Academic: London.

See also my latest article on the subject: Marsden, Christopher T. (June 8, 2010) *Network Neutrality and Internet Service Provider Liability Regulation: Are the Wise Monkeys of Cyberspace Becoming Stupid?* Available at SSRN: <http://ssrn.com/abstract=1622324>

I am available for further clarification or discussion on these issues.

Sincerely

BY EMAIL

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