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Network Neutrality: A Competition Angle

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“The most effective way to ensure that traffic prioritisation does not distort competition is to ensure that broadband markets remain or become competitive”²

I. ORIGIN AND SCOPE OF THE DEBATE

While there are no universally accepted definitions, “internet traffic prioritization” or, in broader terms, “network neutrality,” are terms generally used to refer to the equal treatment of internet traffic by internet service or network providers (“ISPs”) over wired or wireless networks, and the right of consumers to access content and services on the internet on a non-discriminatory basis.

The term “network neutrality” is closely related to the concept of a “common carrier,” dating from 16th century English common law first developed around port authorities, but going back further to Roman law concepts. A common (or public) carrier, in its original meaning, is a private entity that, under the authority of a regulatory body, provides a service to the general public without discrimination. The typical examples of common carriers are in the shipping and freight traffic businesses.

The debate over net neutrality with respect to broadband networks originated in the United States earlier in the decade, when some ISPs imposed restrictions on the connection of devices to their internet access service, while others blocked access to certain internet applications (such as Voice-over-Internet Protocol- (“VoIP”) based telephony services) that competed with their own voice service offerings.³

The regulatory context for wired broadband internet differs substantially between OECD countries in Europe, on the one hand, and Asia and North America on the other hand. Many experts, for example, cite greater consumer choice in fixed network access in Europe, which they attribute to unbundling policies allowing competitors access to the local loops of incumbent network operators. This is in line with a study that finds that 96 percent of consumers in the

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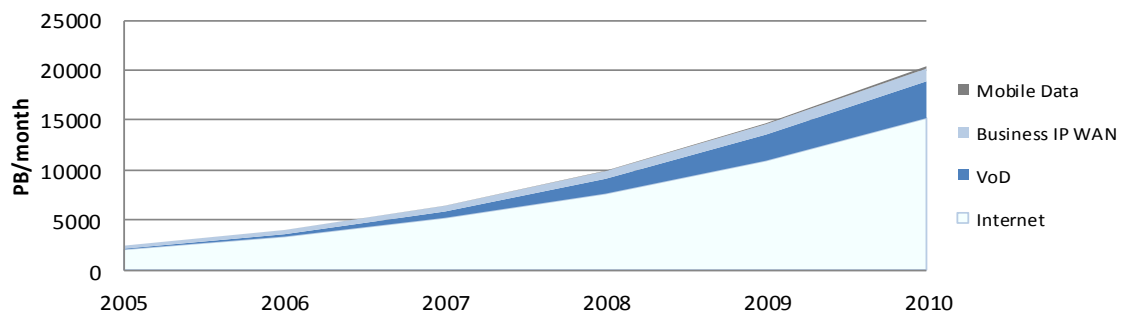
² OECD, *Internet Traffic Prioritisation: An Overview*, p. 30 (2007), to be found at: <http://www.oecd.org/dataoecd/43/63/38405781.pdf>.

³ In some sense the network neutrality debate is much older and has played out in many forms on telecommunication networks including questions such as whether the telecommunications operator allowed a fax machine to be connected to a phone line or required it to be operated from a separate dedicated fax line.

United States had, at best, only the choice between two retail fixed network broadband ISPs in 2008.⁴ The context for wireless broadband internet differs less and continues to be shaped in part by mergers.

The internet traffic prioritization debate has become an important regulatory discussion also in the European Union. Some ISPs, largely incumbent telecommunication and cable television providers, have stated they would like to charge internet content providers for access to their own internet customers in order to expand next generation fixed and wireless network investment. They note increasing demand for these services and that they should be permitted to differentiate the level of internet traffic exchange with these networks. This is sometimes referred to colloquially as providing “fast lanes” (i.e. traffic prioritization) to particular content or service providers (“CAPs”).

Figure 1. Global IP traffic, 2005-2010



Source: Cisco Visual Networking Index (VNI)

ISPs can take a variety of actions that improve or reduce the quality of the connection between consumers and content or application providers with potentially substantial implications for network use such as for e-commerce.⁵ Traditionally, the exchange of internet traffic has been independent of the content of packets or the identity of the end network senders or receivers. It is true that some networks, in countries such as Australia and New Zealand, have provided different levels and pricing for their own customers to their own “on net traffic” (for content such as games, music, or video). Concerns with traffic prioritization, however, arise where differential treatment is proposed for traffic exchange with third-party networks (i.e. advantaging one third-party provider over another) and when there is insufficient choice for consumers allowing ISPs to block or degrade third party service in a manner that favors an ISPs own content or service.

An ISP’s ability to: (i) discriminate based on the identity of the sender/receiver by blocking internet content, imposing different charges or differential treatment on internet companies for carrying the vertically integrated ISPs’ content, or imposing certain types of pricing models (tiered charges) for retail internet broadband services sold to consumers; (ii)

⁴ S. Wallsten & C. Mallahan, *Residential Broadband Competition in the United States*, SSRN working paper (2010).

⁵ For an early discussion of the competition issues in e-commerce see the 2000 OECD Roundtable Compilation: Competition Issues in Electronic Commerce, to be found at: <http://www.oecd.org/dataoecd/34/56/1920373.pdf>.

perform network management such as traffic prioritization or traffic shaping, or (iii) block certain internet content or applications from being accessed or used by consumers, may or may not provide greater incentives for investment in infrastructure and a more efficient use of existing capacity during peak load. Even when it does not foster new infrastructure investments, it does, however, raise a number of potential issues for policy makers ranging from whether there is sufficient competition to apply market discipline to these practices to straight forward competition law violations. Other examples of content discrimination or blocking include ISPs or device manufacturers controlling the content or applications that can be accessed by end-users on their internet platforms or devices.⁶

Charging different prices for differences in service quality is common in delivery industries such as postal services and it is a practice that, according to some, may be fully compatible with network neutrality. ISPs already offer varying tiers of services (typically based on theoretical download speeds or total capacity) to consumers. On the other hand, other aspects associated with network neutrality, and linked not only to content and identity but also the blocking of certain content or applications, have no obvious parallel and may raise serious competition concerns.⁷ Some jurisdictions are seeking to address these issues via regulation or by setting down principles that act as guidelines for acceptable practices. The Netherlands and Chile, for example, have passed legislation in respect to network neutrality.

The Organisation for Economic Co-operation and Development (“OECD”), notably within the Information Communication and Computer Policy Committee (“ICCP”), considered these issues in 2006, as debates about internet traffic prioritization were appearing with the growth in broadband access. This consideration resulted in a report on internet traffic prioritization being published in 2007.⁸ More broadly, however, this is one of a series of reports on internet traffic exchange which include its international implications in areas such as trade in services over networks, access to communication markets, and the market structures being adopted for fiber optic access networks.⁹

The issue was also one of the subjects of discussion during the OECD's Ministerial Meeting on the Future of the Internet Economy, held in Seoul in 2008, where Ministers discussed the need for global co-operation to address questions such as "network neutrality" and

⁶ A recent example is discussed in the *New York Times* of June 22, 2011. According to the *New York Times*, KPN, the Dutch Telekom incumbent, observed that 85 percent of the company's customers who use a Google Android phone downloaded WhatsApp onto their handsets from August 2010 through April 2011. As a result, KPN's revenue from text messaging, which had risen 8 percent in the first quarter of 2010 from a year earlier, declined 13 percent in the first quarter of 2011. It is in the context of an envisioned new set of mobile data tariffs that, according to the *New York Times*, the Netherlands “became the first country in Europe...to enshrine the concept of **network neutrality** into national law by banning its mobile telephone operators from blocking or charging consumers extra for using Internet-based communications services like Skype or WhatsApp, a free text service.”

⁷ This of course excludes the blocking of illegal content, for example, deep packet inspection methods used to identify torrent based bandwidth usage.

⁸ See the 2007 OECD Report on Internet Traffic Prioritisation: An Overview, to be found at: <http://www.oecd.org/dataoecd/43/63/38405781.pdf>. This report was discussed in detail within the Working Party on Telecommunication and Information Services Policy at the OECD.

⁹ See, for example, the report on Fibre Access - Network Developments in the OECD Area from June 2011, the Next Generation Access Networks and Market Structures report from June 2011 and the report on Internet Traffic Exchange: Market Developments and Measurement of Growth of April 2006. These reports and others can be found at http://www.oecd.org/document/27/0,3746,en_2649_34225_25496027_1_1_1_1,00.html.

the openness of networks.¹⁰ The topic was also discussed during the OECD High Level Meeting on the Internet Economy held on June 28-29, 2011, where a proposal was put forward by the Korean government for the OECD to further discuss network neutrality and its implications on a global level.¹¹

Geared more towards the potential competition aspects of internet traffic prioritization rather than broader regulatory questions that are sometimes associated with “network neutrality,” the OECD Competition Committee held a hearing on June 27, 2011.¹² The hearing aimed at setting out the context and the main economic and regulatory issues concerning network neutrality through a competition lens, and brought together the competition authorities and relevant competition bodies of all 34 OECD member countries, including a selected number of observer countries. The aim was to introduce and inform competition authorities of the issues involved and broaden the exploration of the competition law dimensions.

The following sections are an unofficial overview of the main issues that arose during the hearing. It loosely follows the debate that took place among panelists and retraces some of the arguments presented.¹³

II. THE TWO DIMENSIONS OF THE NETWORK NEUTRALITY DEBATE

Some panelists felt that any attempt at properly defining network neutrality needed to start by distinguishing between the problem of peak demand in wired and wireless networks—similar to the classic congestion problems in road traffic management—and the problem of blocking access to content and services in an exclusionary effort.

With incremental costs of bandwidth being essentially zero until full capacity or peak capacity is reached, there are basically two choices for a supplier when a bandwidth has reached full capacity. First, the peak capacity of the network can be expanded by increasing total network capacity, typically via new investments (roll out of fiber optic lines, 4G etc.). Second, capacity can be rationed, again in one of two ways. Rationing of capacity can be established through some form of traffic management during times of network congestion, or capacity can be rationed

¹⁰ See Summary of the Chair, OECD Ministerial Meeting on the Future of the Internet Economy, 2008, to be found at <http://www.oecd.org/dataoecd/53/49/40989438.pdf>.

¹¹ See Summary of the Chair of the Meeting, OECD High-Level Meeting on the Internet Economy, 2011, to be found at: <http://www.oecd.org/dataoecd/43/11/48348748.pdf>.

¹² This hearing took place in Working Party No. 2 Competition and Regulation chaired by Alberto Heimler. In addition to the author of this paper and the Chair, the panel was composed of Taylor Reynolds (OECD), David Evans (University College London), and Martin Cave (London School of Economics). In addition, industry representatives from Google, France Telekom/Orange, and AT&T were present. David Evans and Martin Cave both provided background papers setting the stage for the debate; David Evans' paper is reprinted in this issue. Both papers can also be found on the OECD Competition webpage under <http://www.oecd.org/competition>. A list of all roundtable publications of the OECD Competition Committee can be found at: <http://www.oecd.org/competition/roundtables>.

¹³ As the background text submitted by David Evans is also reprinted here, the emphasis is on the other contributions, notably also the submission by Martin Cave and the presentations made by the other panelists. While attempting to retrace important arguments, the account here is purely subjective and does in no way represent an official OECD position or the position of any of its members.

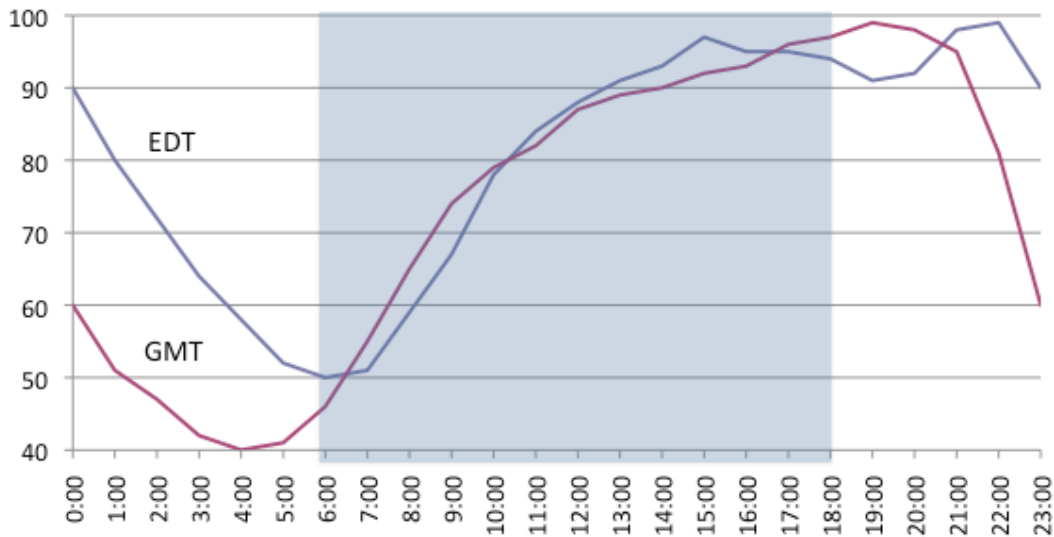
through various pricing structures, for example on the basis of a data or bandwidth cap, irrespective of whether there is congestion in the network or not.¹⁴

The debate on internet traffic prioritization therefore boils down to enabling efficient traffic management solutions and ensuring the efficient expansion of bandwidth on wired and wireless networks, in the overall interest of users. In fact, traffic shaping may not always be directed at alleviating congestion on the network but ISPs may rather target traffic that customers value most or that has the biggest negative impact on the business model of the operator. Besides potentially allowing efficient congestion management, traffic management rules, therefore, may also or possibly even primarily be used as anticompetitive and exclusionary tools. This latter risk, together with the redistributive consequences for ISPs and CAPs, is the reason that the network neutrality debate has created much regulatory attention.

According to an ISP at the hearing, annual demand for bandwidth is increasing rapidly by approximately 40 percent on wired and approximately 100 percent on wireless networks.¹⁵ The potential traffic congestion problems, so say some ISP's, require traffic management measures in the form of price or quality discrimination in addition to increased efforts in expanding capacity.

¹⁴ The latter approach of instituting data caps seems to be of decreasing significance. Either way, data caps are an inefficient way of addressing congestion as there is no reason to ration outside of congestion hours when plenty of bandwidth is available. It seems that data caps are rather used for product differentiation purposes than for dealing with congestion.

¹⁵ The wireless increases may be explained by the growth in sales of smartphones and it is therefore unclear to what extent the future will see similar growth rates in wireless traffic.

Figure 2. Daily Traffic Europe and North America¹⁶

Traffic management, it has been argued, is an alternative to additional capacity investments—at least at the margin. Without traffic management of some kind, there may be either congestion or over-investment in network capacity. In other words, if traffic prioritization allows identical benefits to consumers in terms of network capacity, while being cheaper than new investments, it is more efficient to alleviate the congestion problem via traffic management tools before engaging in further network expansions.

In light of the projected growth in bandwidth demand, traffic management is, however, considered unlikely to be the ultimate answer as it is unlikely, by itself, to generate all the necessary capacity. Indeed, it is arguable that traffic management is confined to optimizing network use at the tipping point between a well-functioning network and a congested one. There may also be a strong argument for limiting traffic management as a solution in that some forms of traffic management may also have severe implications for the development of new applications or the types of applications that can be used, possibly hindering innovation.

III. THE COMPETITION ANGLE

According to some, traffic management measures require regulatory oversight to avoid their abuse. At least the *ex post* monitoring of regulators and/or competition authorities in order to avoid abuse in the presence of market power are typically considered necessary. In light of the perceived need for traffic management, and the fact that blocking, traffic deterioration, throttling, and so forth are activities not necessarily to the detriment of consumers (as noted recently for example by the Italian regulator)¹⁷ the question was discussed whether *ex ante*

¹⁶ See <http://Ispreview.co.uk>. 100 is indexed and not necessarily equivalent to full capacity.

¹⁷ AGCOM 2011 Neutralita' della rete: avvio di consultazione pubblica, Allegator B. The recent Chilean and Dutch legislation on network neutrality, however, take a different view and were in fact not about traffic prioritization but rather about market segmentation and the protection of existing business models.

regulatory measures are needed or if *ex post* measures, for example those imposed by a competition authority, are sufficient.¹⁸

There is widespread agreement that traffic management tools should be transparent and switching should be easily possible.¹⁹ Presupposing, in addition, effective retail competition (supported by appropriate access regulation)—a possibly unrealistic assumption in many broadband markets—it was considered to be unclear whether a) network providers should be forced to treat all sources of internet content equally, and b) whether the right of a consumer to access content and services on the internet should be based on strict non-discrimination rules that may have the potential effect of hampering effective congestion management.

While some suggested that *ex post* regulation may be preferable to *ex ante* regulatory intervention, in particular in those cases where (wired and wireless) broadband markets are competitive, others saw a role for *ex ante* regulation even in the absence of market power. There was consensus that concerns about non-discrimination are most pertinent when network operators have substantial market power. In such circumstances exclusionary conduct may often be profitable and detached from (benign) traffic management efforts that can be traced back to congestion problems.²⁰ Under these conditions, network operators would no longer discriminate, for example, between premium and basic services to manage peak traffic loads, but use these measures to exploit market power in anticompetitive ways, which would stifle competition and innovation and ultimately prove to be detrimental to consumers.

Using standing competition principles, it was agreed that consumer harm from exclusionary conduct by ISPs is dependent on two cumulative criteria being met:

- The ISP should have market power.
- The ISP should be vertically integrated (offering content and applications), envision becoming a CAP in addition to an ISP (or vice versa) in the near future, or may have partnership agreements or other links with CAPs.

Given these criteria, one *ex ante* regulatory approach to avoiding exclusionary problems right from the beginning is appropriate access regulation (local loop unbundling or bitstream) that ensures that no individual ISP has market power on the retail level.²¹

In addition, there is also an important role to be played by competition policy in the form of effective merger control. Recent decisions, for example the European Commission's clearance

¹⁸ For a general discussion of such *ex post* measures in abuse of dominance cases see the 2006 OECD Roundtable Compilation on Remedies and Sanctions in Abuse of Dominance Cases to be found at <http://www.oecd.org/dataoecd/20/17/38623413.pdf>

¹⁹ See the 2007 OECD Report on Internet Traffic Prioritisation: An Overview, to be found at <http://www.oecd.org/dataoecd/43/63/38405781.pdf>. It is, however, far from clear to what extent and where this is currently a reality. Switching costs are often important and even more so if services are bundled.

²⁰ For a general discussion of exclusionary conduct in the form of refusal to deal, see the 2007 OECD Roundtable Compilation on Refusal to Deal to be found at <http://www.oecd.org/dataoecd/44/35/43644518.pdf>.

²¹ This is of course closely related to local loop unbundling and access regulation or the problem of entry barriers more generally. On this, see the 2005 OECD Roundtable Compilation on Barriers to Entry to be found at <http://www.oecd.org/dataoecd/43/49/36344429.pdf>.

of Orange and T-Mobile²² in the United Kingdom, and the possible clearance of the AT&T and T-Mobile²³ merger by U.S. authorities, are unlikely to have positive effects on competition in wireless broadband markets.²⁴ Of course, the question of market power crucially hinges on the question of market definition. Currently, in the view of many, wireless ISP's are unlikely to be in the same market as wired ISP's—at least for most of the services offered where they are considered to have complimentary capabilities.

IV. CONCLUSION

The consensus reached among OECD members in 2006/2007 that also led to the publication of the report on Internet Traffic Prioritization mentioned previously, emphasized four central points:

- As long as consumers and innovation are protected, ISP's should have the option of using traffic prioritization.
- Strong competition and, in particular, the absence of substantial market power of vertically integrated ISPs/CAPs are vital if markets are to be relied upon to generate desirable results.
- Reductions in switching costs and improved transparency concerning traffic-shaping measures are essential in allowing broadband competition to develop its full potential.
- Supervision by regulators and competition authorities combined with *ex post* interventions are not in contradiction with general sector specific guidelines.

The hearing conducted by the Competition Committee did not reach specific conclusions as it was aimed at both setting out the issues through a competition lens and to alert those competition authorities present at the meeting to the significance of the network neutrality debate for their own work.

The high-level OECD meeting conducted during the following two days emphasized the importance of appropriate rules on internet traffic prioritization for the development of the internet, new investments in next generation technology, e-commerce and economic development, and prosperity overall.

²² The Orange and T-Mobile merger in the United Kingdom was a so-called 5 to 4 merger although some commentators have claimed that it was closer to a 5 to 3 merger in light of the weak competitive constraint exerted by the third operator.

²³ The AT&T and T-Mobile merger in the United States, if approved, would result in the reduction of operators from 4 to 3 or, according to some commentators, even to a duopoly of Verizon and AT&T as Sprint only exerts a limited competitive constraint. To the extent that T-Mobile has acted as maverick on the U.S. market, the outlook may even be dimmer.

²⁴ The same is likely to hold for the envisioned 3 to 2 merger in Greece that may not even be that easy to block in light of the Orange/T-Mobile precedent. See, *Vodafone in talks with rival Wind Hellas*, FINANCIAL TIMES (August 30, 2011). For a critical discussion of U.S. merger control see L. M. Frankel, *The Flawed Institutional Design of U.S. Merger Review: Stacking the Deck Against Enforcement*, UTAH L. REV. 159 (2008) and Jonathan Baker & Carl Shapiro, *Detecting and Reversing the Decline in Horizontal Merger Enforcement*, 22(3) ANTITRUST (2008). For a critical discussion of EU merger control, see Frank Maier-Rigaud & Kay Parplies, *EU Merger Control Five Years After The Introduction Of The SIEC Test: What Explains The Drop In Enforcement Activity?*, 30(11) EUR. COMPETITION L. REV., pp. 565-579 (2009), to be found at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1827662. For a general discussion of merger review, see the 2009 OECD Roundtable document Standard for Merger Review, to be found at <http://www.oecd.org/dataoecd/28/52/45247537.pdf>.

Looking forward, in October 2012 the OECD Competition Committee will be conducting a hearing focusing on competition concerns in the digital economy. Just as with the hearing on network neutrality, the aim is to generate a broad discussion of some of the digital economy topics that have potentially high relevance to competition authorities. In addition to the issue of internet traffic prioritization, these will include the following:

- Proprietary, in-house software, particularly concerning ICT access and interoperability. A topic of high relevance with respect to appropriate access to interface and interoperability information is, for example, cloud computing.
- Supplier-imposed restraints on e-commerce. Examples of such restraints are dual-pricing (different pricing for brick and mortar as opposed to online sales) or rerouting of customers from outside specified geographic areas.
- The importance of network effects in the digital economy. Examples such as Windows or Facebook show that network effects have created both extraordinary growth and daunting entry barriers for potential competitors. Sound competition policy must take into account the benefits that consumers derive from network effects and the harm consumers may suffer when those effects deter entry.
- The competitive implications of open source versus closed platforms for mobile applications developers.

Overall, the regulatory and competition issues surrounding the question of internet traffic prioritization are far from solved and the debate is far from being over. A division of labor between appropriate *ex ante* (mainly access) regulation that generates and fosters functioning broadband competition—possibly also regulating traffic-shaping methods not aimed at addressing congestion issues—and effective *ex ante* merger enforcement combined with *ex post* competition law enforcement focusing on abuses of market power may be the right mix capable of addressing potential consumer harm in broadband internet use.