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## Net Neutrality in Europe: Desperately seeking a market failure

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### ABSTRACT

Net Neutrality has become the focus of attention in the regulatory debate on the Internet. This article attempts to strip down the debate to its bare essential. It identifies two main types of Net Neutrality obligations that have been put forward and assesses what type of potential concerns they may be designed to address. It concludes that while some of these concerns may be important it remains doubtful (at least in Europe) that an *ex ante per se* rule, such as those proposed under the Net Neutrality term, is the best way to address them.

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*"I will not be someone who comes up with a solution first and then looks for a problem to attach to it. I am not a police officer in search of a busy corner."*<sup>1</sup>

### 1. Introduction

A lot has been written on and discussed about Net Neutrality (NN) in journals, in conferences and regulatory proceedings. There is also an emerging economic literature on this issue. Yet, most of the discussions over NN seem still to lack clarity as to what NN means as regulatory remedy and, more importantly what is the market failure concern it is supposed to address. This is probably due to the genesis of the concept. The term NN was initially put forward by legal scholars, to later spill over into the regulatory debate and become the subject of economic research. This is why the way NN is often discussed feels like a prescriptive, though not clearly defined, remedy desperately in search for some market failure to address. This is not to say that concerns like those identified by the NN advocates are never likely to arise. What is questioned here is whether a blanket *per se* rule is likely to be appropriate in most circumstances faced in Europe.

This article is an attempt to provide an economic regulation framework to assess the main types of NN obligations discussed (although it does not cover all nuances and variations), to assess what type of concerns they could address and to clarify under which circumstances such remedy may be appropriate. The discussion is confined to those aspects of the NN debate that are related to economic regulation. The debate goes beyond this to cover issues such as freedom of speech or social policies which are not discussed here.

It is organised as follows. Section 2 provides a basic description of the Internet vertical chain connecting consumers to Content and Application Providers (CAPs). It also highlights what is the precise focus of the NN debate. Section 3 puts forward two alternative definitions of NN. The more relevant and recent regulatory initiatives are briefly discussed in Section 4. Section 5 hypothetically considers what may happen if strict NN obligations were put in place. Section 6 works backwards from the definitions mentioned in Section 3 to consider what type of market failure NN may be tailored at. Two broad potential purposes of a NN obligation have been identified. It could be aimed at preventing exclusionary behaviour (Section 7) or to address a wider array of potential regulatory concerns (Section 8). Final remarks are confined to Section 9.

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<sup>1</sup> Neelie Kroes, "Net Neutrality in Europe", speech in Paris, 13 April 2010.

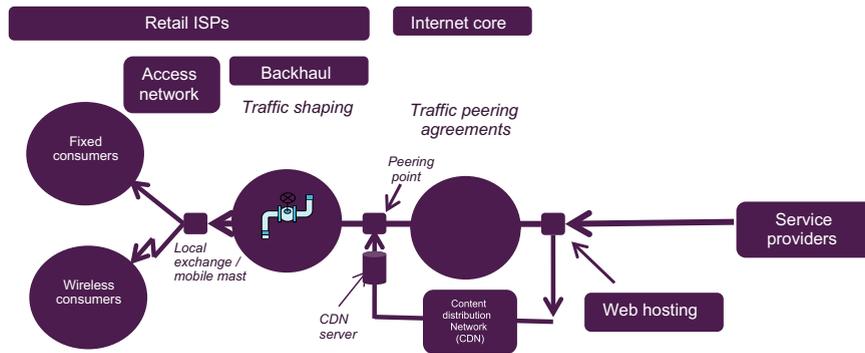


Fig. 1. The Internet vertical chain.

## 2. The Internet vertical chain

NN is a broad term to indicate a remedy to address potential concerns in the provision of Internet access services to CAPs. There are complex vertical chains and commercial arrangements that allow consumers to access content and applications on the Internet and, vice versa, allow providers of the latter to reach consumers. Understanding this vertical chain – Fig. 1 – and where exactly a potential NN remedy would sit is critical in assessing whether there is a potential market failure concern. In order to connect to the Internet consumers subscribe to an Internet Service Provider (ISP).<sup>2</sup> In Europe consumers can choose among many ISPs. Mobile networks also act as ISPs, while on the fixed side the ISP of the fixed incumbent (and of any rival cable provider) compete with rivals that rely on leasing mandated wholesale access from the incumbent. Therefore, few ISPs rely on self-provided infrastructure but most are dependent on the incumbent's network infrastructure and, hence, on effective access regulation. This includes the local loop, local exchanges and backhaul. Beyond this point of the network these (retail) ISPs rely on peering agreements with ISPs that provide regional or worldwide connectivity in the Internet—the Internet core in Fig. 1.

On the other side sit the CAPs—e.g. Google, Ebay, YouTube, Facebook, etc. They need to upload their content or applications on the web hosting and then enter into peering agreements for the distribution with a regional or worldwide ISP. In the past in order to be available worldwide a CAP had to rely on peering agreements with a number of ISPs. Recently in response to the increased risk of congestion in the Internet core some CAPs, such as Yahoo, have set up their own Content Distribution Networks (CDNs) while others have relied on the services provided by third parties such as Akamai.<sup>3</sup> CDNs providers use their own network of servers at the edge of their network to store information and content close to the consumers. In other words, consumers can access content in servers much closer to them without the need to send and receive traffic across the Internet core. While consumers may not note much difference in quality of their Internet connection, CDNs are an attempt of reducing the access quality concerns that a “best-effort” model runs into.

A number of agreements and contracts allow consumers to access content available worldwide. In the Internet core these take the form of either peering agreements on a Bill & Keep basis or often, if the size or coverage of the ISPs is unequal or the traffic unbalanced, payments. CAPs pay for uploading their content, web hosting and worldwide connectivity, including CDN. On the other side, consumers pay ISPs for connectivity to the Internet and many ISPs in order to provide that need to lease access network and backhaul facilities and for Internet core.

There are two issues that are central to the NN debate. First, CAPs do not pay the ISPs chosen by consumer in order to deliver their content to the ISPs customers. They pay for the delivery of their content close to the consumers' chosen ISP, but not for the last part of the journey through the ISP's network. As mentioned above, payments between ISPs are often governed by peering agreements. This is one of the two critical aspects in the NN debate. As a result, ISPs do not use prices towards CAPs in order to ration demand, in case this became excessive. This could result in congestion with all consumers experiencing lower quality of service.

The second aspect of the NN debate is that content and application are largely delivered according to “best-effort”, in other words without quality assurance. This is why content at times is slow to upload onto one's PC, why sometimes email may take long to be delivered or why video images get frozen. The practical consequence is that ISPs could only provide one type of connectivity service based on “best-effort”. This suffices for the majority of content and applications that are not sensitive to delays, but could effectively destroy the value of applications for which delays or latency are critical. This is the case of online games, video, Voice over IP (VoIP) or more speculative applications such as telemedicine. While the current Internet is often described to operate under a “best-effort” model, in reality ISPs currently engage in some form of traffic management. For example, they may give precedence to some form of traffic over other or may block consumers' use of some applications that generate a substantial amount of traffic such as peer-to-peer. In some cases they may engage in these activities not to better

<sup>2</sup> In this article the term ISP refers to the retail ISP—i.e. those ISP that consumers subscribe to in order to obtain connectivity to the Internet.

<sup>3</sup> These are now understood to carry as much as 40 per cent of Internet world traffic (Yoo, 2010).

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