



## Does Europe Need Network Neutrality Rules?

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For the purposes of this paper, we interpret net neutrality as a restriction on price differentiation or price discrimination by firms involved in the communications services value chain- particularly those providing transport. The European regulatory framework for electronic communications services permits *ex ante* regulatory intervention in specified network or services markets only where there is dominance or 'significant market power.' We argue that this provision, combined with European competition law which can be applied to content as well as – concurrently – to electronic communications services, is adequate to deal with actual or prospective abuses of market power, whereas a blanket prohibition of the kind envisaged by proponents of net neutrality is likely in some cases to harm consumers' interests.

### Introduction

It is strange that the issue of network neutrality has gained such prominence in the United States while in Europe it has found so little resonance. In this paper, we suggest that one of the chief reasons for the lack of panic in Europe is the presence of a fairly robust and comprehensive regulatory framework which, although may be implemented imperfectly in practice, is precisely designed to deal with the kind of market power issues which – so we believe – underlie the network neutrality debate. We set out below to illustrate how this framework operates, and why we expect the relevant issues to be capable of resolution within it.

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### What is Net Neutrality?

The net neutrality debate originated in the U.S. where it has become an important regulatory issue about the Internet. It has been triggered by the decision of the Federal Communications Commission's (FCC) to allow fixed network operator Verizon some degree of pricing freedom for its new investment in broadband capacity. Verizon argued that it needed a better and more secure quality of service for time-critical applications such as live TV which otherwise would suffer from degradation.

It is not easy to define net neutrality because not only is the concept not clearly and unanimously articulated, but it also spans over vague concepts of fairness and civil liberty much more than economics. Baumol, *et al.* (2007) define net neutrality as 'a policy proposal that would, among other things, regulate how network providers manage and price use of the network.' Sidak (2006) defines it as consisting of a number of propositions rather than a single concept. First, proponents of net neutrality argue that access providers – i.e., Internet Service Providers (ISPs) – should not charge more for priority delivery. In essence, price discrimination should be banned altogether in the provision of access services. In some extreme cases even prioritisation *per se* (without charging more for it) is criticised. Second, they argue against any form of denial of access to specific websites or Internet applications by final users. Third, and largely a corollary to the above, proponents of the concept would argue that access providers should not be allowed to integrate backwards into the production of content or applications.

Two further aspects should be borne in mind when discussing net neutrality. First, there is a political economy aspect of the net neutrality debate. A rough, but we believe sufficiently accurate characterisation is that of net neutrality being an attempt by content and application providers – the likes of Amazon, eBay, Google, Microsoft, Yahoo! and Intel - to constrain the behaviour of broadband Internet access providers – such as AT&T, Verizon, Comcast and Sprint - through political pressure. An otherwise *"mundane conflict of business interest - content versus the network industry and its vendors - has risen to such a high position on the business agenda"* (Thorngren, 2006).

Second, the net neutrality debate originated in the U.S. and is at least partly conditioned by the U.S. specific regulatory and market features. It is most importantly the retail ISPs, operating at the IP layer of the network, making prioritisation decisions. In the U.S. it is much more likely that the ISP is affiliated to the network access provider than in Europe. This is because the degree of access regulation for Internet broadband in the U.S. is currently considerably lower than in Europe where often because of access obligations, the retail ISP is not the wholesale network provider. Effectively there have been opposite regulatory trends to access to broadband networks in the U.S. and Europe. U.S. access obligations have been largely removed, while since 1998 European National Regulatory Authorities (NRAs) and the European Commission (henceforth Commission) have increasingly extended access obligations to broadband networks at different levels (see below).

### **Is There Any Economics in Net Neutrality?**

If net neutrality is about discriminatory behaviour by network operators against unaffiliated ISPs and/or content and application providers, it is then nothing new but the name given to it. It is well known that when providers with market power discriminate against downstream rivals, there may be concerns about exclusionary behaviour. This could be either aimed at favouring the downstream operators' arm or to fend off rivals who may threaten to integrate backwards.

However, this does not call for a blanket prohibition of any discrimination as the proponents of net neutrality advocacy. First, a finding of substantial market power in the provision of access services is a necessary precondition. Second, the practice needs to have an adverse impact on consumer welfare and not all types of discrimination do, or if they do, there may also be some offsetting efficiency justifications for it.

In general,<sup>2</sup> price and non-price discrimination could be welfare-enhancing. By price discriminating, a downstream monopolist is able to extract more surplus and often expand output to serve a larger number of consumers. A necessary condition for total welfare to increase under price discrimination is that a monopolist expands output by moving from uniform pricing to (third degree) price discrimination – e.g., Schmalensee (1981) and Varian (1985). Thus, in this case, price discrimination increases total welfare, although its distribution will change with a transfer from consumers to producers. In essence, this means that imposing an absolute ban on price (and non-price) discrimination in these circumstances may lead to lower output, for example, because some (smaller) markets may no longer be served.

Let's first discuss the two main elements or planks of net neutrality: no prioritisation (or no charging for prioritisation) and a prohibition against blocking access to specific websites and applications.

#### **No Prioritisation or Charging for Prioritization**

It is true that originally the Internet was designed to assign equal treatment and rights of delivery to each and every packet. This because prioritisation was not critical as original Internet applications were not delay-sensitive and, to a lesser extent, due to the fact that the Internet was set up in an academic rather than commercial environment. Modern telecommunications networks allow quality of service prioritisation by allowing labelling some types of traffic as higher priority than others. To an extent, some elements of prioritisation are already present. For example, most European ISPs offer access packages with higher downloading than uploading speed. Furthermore, search engines charge content providers in a variety of ways (e.g., for sponsored links, for priority in search results, or on a click-through basis). This is effectively a way of prioritising between different content providers.

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<sup>2</sup> A significant exception is that of non-price discrimination by a vertically integrated operator that is subject to cost based upstream regulation that goes under the name of "sabotage" (Cave, Correa, Crocioni 2006).

The ability to discriminate on the basis of the quality of service is an efficient way of dealing with excess demand which, in networks, is referred to as 'congestion'. When congestion arises, all traffic is delayed irrespective of its value. As this is an economically inefficient outcome, charging more for priority is an efficient way to ration demand and allow highly valued traffic to experience a better quality of service. Even when no congestion existed, discrimination on the basis of difference in consumers' willingness to pay is an efficient way to recover fixed and common costs (Ramsey pricing).

We illustrate this with some examples.

A good quality of service is key to ensuring consumers receive a high-quality experience when using Voice over Internet Protocol (VoIP). This is probably one of the applications which is least tolerant of interruptions or delays as the value of a phone call will be close to zero even with delays of a fraction of a second. Television services delivered over the IP network (IPTV) are more delay-tolerant, but jitter – whereby the duration of delays differ – will significantly impact the user experience. As a result, consumers (and hence the providers of such services) may be willing to pay more for priority. E-mail or Internet browsing, on the other hand, is not particularly affected by delays or jitter. Hence, some consumers and providers may be happy to pay less but experience some delays, while others willing to pay more for better service.

The proponents of net neutrality tend to approach the issue from a supply-side perspective; that is, whether networks are engaging in "undesirable," but not necessarily anticompetitive or harmful, behaviour against service and application providers. This may be part of the political side of the net neutrality debate. However, it is very likely that if network operators introduced prioritization, they would do so acting in most cases on the basis of the relative consumer's willingness to pay for different services. In some cases, it may be possible that consumers may be able to decide the quality of services of their network services directly and pay for prioritizing certain types of services.

### **Blocking Access to Websites and Applications**

The second plank of the net neutrality argument is that network operators should not deny access by final users to specific websites or Internet applications. In a similar tone to the discussion about prioritisation, one can think of situations where such behaviour may have anticompetitive effects. This may be the case of network operators that are vertically integrated into content or applications and have market power in the provision of network access services. Absent strategic motivations, no ISPs of network providers would have an incentive to deny access to websites, as this would reduce the attractiveness of its own services and they would lose profits.

### **Does Absence of Evidence Mean No Concern?**

The surprising aspect about net neutrality and in particular the issue of prioritisation is that it seems based on concerns that anticompetitive behaviour may occur in the future (and under a presumption that it will harm consumers). U.S. network operators such as Verizon and AT&T have chosen a two-tiered approach to the Internet service in which service level requirements are provided separately

with specific terms and pricing schemes. So far there is no or little evidence that priority has been used anti-competitively (Sidak 2006). The situation in Europe is no different. To our knowledge, no UK ISP is currently charging application providers for prioritised quality of service.<sup>3</sup>

Although, to our knowledge, no prioritisation has been explicitly and widely adopted in Europe, this may change in the future for a number of reasons. First, demand for prioritisation will increase. Traffic over the Internet is rapidly increasing. Consumers are using the Internet for applications that generate vastly more traffic than before – e.g., graphics-heavy websites or High Definition Television (HDTV) films downloads. This rapid increase in traffic is generating substantial congestion in some parts of the Internet. Furthermore, the nature of applications is changing. Consumers are increasingly using the Internet for time-sensitive applications, such as VoIP or IPTV. Second, the technical ability to prioritise traffic is improving. The Internet network was initially designed with most of its processing power at the edge. For example, Internet routers were kept simple in order to cope with large volumes of traffic. But today's routers are capable of identifying packets associated with different applications, and prioritising them accordingly.

For these reasons, it is important to understand today whether these trends justify specific interventions, or, alternatively, whether an adequate regime of safeguards is already in place. In the next section, we argue that such a system is in place in Europe.

#### **How the European Regulatory Framework Handles Net Neutrality Issues**

The current European framework for regulation of Electronic Communication Services (ECS) came into force in 2003 and is already subject to a debate over how it should be reformed in 2010; EC(2006) both describes the present arrangements and initial options for reform. The main objectives of the current framework were to simplify the previous regimes, to make it more economic-based, to apply them in a technologically neutral manner, and to encourage competition while guaranteeing user rights. At one level, the new régime was perceived as a major step down the transition path between regulated monopoly and normal competition, governed exclusively by generic competition law. The conditions that may be imposed are heavily circumscribed and many require a demonstration that an operator has Significant Market Power (SMP). The new regime's provisions are applied across the range of 'electronic communications services,' ignoring pre-convergence distinctions. It thus represents an ingenious attempt to corral the NRAs down the path of normalisation - allowing them, however, to proceed at their own speed (but within the uniform framework necessary for the internal market). In our view it was premature in 2003, and probably will be premature in 2010, to abandon sector-specific *ex ante* regulation entirely, but it is nonetheless a feasible long-run goal.

Under the Directives, the Commission first establishes a list of markets where *ex ante* regulation is to be considered, the markets being defined according to normal competition law principles.<sup>4</sup> These

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<sup>3</sup> In the summer of 2006, T-Mobile announced that it would block access to voice over IP on its network; it has since introduced a (slightly more expensive) tariff where this is permitted.

markets are then adapted and analysed by NRAs with the aim of identifying SMP (on a forward-looking basis). The Recommendation identifies three cumulative criteria for identifying those markets which are suitable for *ex ante* regulation: high and non-transitory barriers to entry over the period of application of remedies, the expected persistence of such barriers to entry beyond that period, making the prospect of effective competition unlikely, and the inability of competition law adequately to address the particular issue. The second of these is simply a projection of the first (albeit difficult to apply in practice). The third, cumulative, criterion is whether competition law is sufficient to address the particular market failure. This has proved particularly contentious when the form of SMP in question has been joint, rather than single dominance.

Pursuant to Article 16 of the Framework Directive, the regulatory framework only permits the imposition of *ex ante* regulation where one or more undertakings are found to have Significant Market Power (SMP). The definition of SMP is identical to the standard definition of dominance determined and repeated by the European Court of Justice, ensuring in principle a major step forward towards the convergence of approaches under regulation and competition law.

Where no SMP is found, *ex ante* obligations may not be imposed on any undertaking in the relevant market (*ex post* competition law would still apply). Where SMP is found, the choice of an appropriate remedy must be made from a specified list. The effect of the regime is to create a series of market-by-market 'sunset clauses' which reduce the level of *ex ante* regulation as the scope of effective competition expands. At present that list does not include functional/operational separation of key 'bottleneck' assets; still less does it allow mandatory ownership separation of network services in general or of the access network, but such topics -- especially a remedy of functional separation-- are under discussion (Cave 2006).

The Commission's *Guidelines on Market Analysis* (EC 2002) contain the principles to be used by NRAs in determining whether an undertaking has SMP. Essentially, to determine whether one or more undertaking has SMP (i.e., whether effective competition is absent), NRAs must evaluate current conditions on the relevant market. Where the analysis indicates an absence of effective competition, the NRA must then examine whether the market may be "prospectively competitive."

Under the Directives, NRAs have the power to impose obligations on firms found to enjoy SMP in a relevant market. Essentially, for wholesale markets the remedies are contained in Articles 9-13 of the Access Directive, while for retail markets the remedies are contained in Articles 17-19 of the Universal

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<sup>4</sup> The first *Recommendation on relevant markets* (EC 2003) identified those markets which, in the Commission's view, may warrant *ex ante* regulation. The first Recommendation identified 18 markets. The draft second version published in 2006, reduces it by a third, notably eliminating most retail markets. Unlike the previous regime, markets must be defined in accordance with the principles of competition law. NRAs may vary the markets subject to objection by the Commission. Member States can also add markets, using specified (and quite exacting) procedures.

Service Obligations Directive. The wholesale remedies are, in ascending order of rigour: transparency, non-discrimination (defined in the standard competition policy way of prohibiting in certain circumstances the charging of the different prices for the same service, and not, as in some versions of the network neutrality debate, as prohibiting the offer of tiered service), separate accounting, mandatory access, and cost-oriented pricing. NRAs must act within a framework of duties set out in Article 8 of the Framework Directive and the measures they take must be proportionate to the policy objectives identified. This can be construed as meaning that the intervention is appropriate, no more than is necessary, and by implication, satisfies a cost-benefit test, in the sense that the expected benefits from the intervention exceed the expected costs. This is quite different from a framework of legislation that specifies in advance where interventions should occur, and what they should be. Article 8 additionally specifies policy objectives, but does not go so far as to determine the weights appropriate for use in the cost-benefit analysis. For example, Article 8(2) requires NRAs to promote competition for electronic communications networks and services by maximising users' choice and value for money, eliminating distortions or restrictions to competition and encouraging efficient investment in infrastructure. Further, Article 7(4) of the Framework Directive requires NRAs to promote the interest of EU citizens by, *inter alia*, providing consumers with protection in their dealings with suppliers, and requiring transparency of tariffs and conditions for the use of publicly available electronic communications services.

In institutional terms, power is shared between the Commission, which seeks to harmonise the whole process across the Member States and has specific powers of veto over certain decisions and NRAs which implement the measures in their own countries. This is intended to produce a balance between harmonisation and delegation, even though there is disagreement over precisely where it should be struck, at present particularly over whether the Commission should have a veto over remedies selected by NRAs.

The modifications to this framework, proposed by the Commission in June 2006 (EC 2006), are modest in nature, though they would give the Commission a veto over remedies, which would ensure greater consistency of regulation across the 27 Member States, but is likely to be resisted by NRAs.

### **Applying the Framework to Net Neutrality Issues**

We turn to how this regulatory framework addresses the questions raised by the net neutrality proponents following Hermalin & Katz (2007). We consider two models, one based on the standard form of payment for content (Figure 1) and the other on advertiser support (Figure 2). Broken line arrows show provision of services, while full lines show direction of payments.

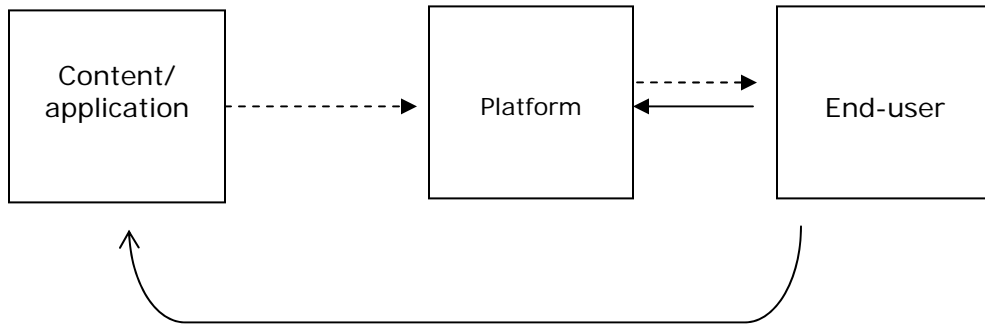


Figure 1\* The standard form of paid content

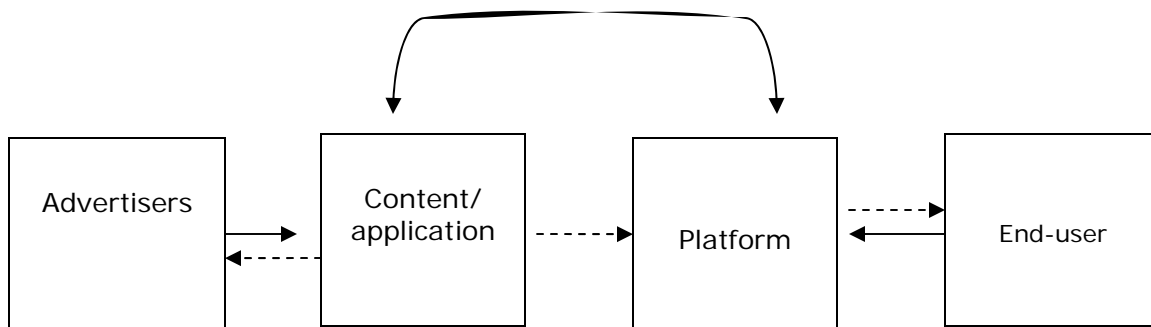


Figure 2\* Advertiser support

Note that a range of combinations of payment for content and advertiser support can arise. Also in Figure 2, the payments between application/content providers and platforms can go either way. Cases are observed where a platform pays a content provider to appear on its platform (to attract end-users) as well as the more common case of payments for carriage. Further particular cases can be found. The end user may make a single payment to either the content/application provider or the platform, which then

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\* Solid lines are payments; dotted lines are service flows



recompensates the other. Figure 2 also illustrates a genuine two-sided market, in which payments are shared in some proportion by advertisers and end-users.

The detriment to end-users which might emerge in either case is abuse by the platform owner of its market power. This involves the familiar litany of dysfunctional behaviour associated with control of a dominant position, including:

- excessive pricing by a platform provider;
- exclusionary behaviour (including price discrimination) toward competing platforms; and
- exclusionary behaviour (including price discrimination) towards upstream or downstream competitors, where the platform owner is vertically integrated in those activities.

All three types of behaviour, but especially the last, are the concern of the proponents of net neutrality. But they are precisely the behaviours which the remedies available under the European regulatory regime are designed to prevent in the following manner:

- The transport or access services provided by the platform make up several markets subject to *ex ante* regulation, according to the Commission Recommendation noted above. This requires each national regulation to conduct a market analysis, to identify operators with SMP; and
- If such SMP is found in say, the core or backhaul networks providing transit services, the wholesale broadband access user, particularly in the access network, the regulator has to intervene, using the type of remedies specified above.

In particular, the regulator can impose, where it is proportionate to do so, cost-based access to network elements in markets where dominance is found. Critically in the context of the net neutrality debate, it can prohibit discrimination, with respect to price and non-price dimensions of access. It can impose accounting separation to make price discrimination more transparent.

This is not to say that such remedies are invariably successful in wholly eliminating the risk of abuses. Indeed, there has been much recent debate in the EU about the adequacy of protection against non-price discrimination (Cave, Correa and Crocioni 2006), and the Commission is likely shortly to propose the inclusion in the regime of an additional instrument – the functional separation of key bottleneck assets.

However, if network operators (including ISPs) had a degree of market power equivalent to SMP and concerns existed about recurrent exclusionary behaviour through discrimination *ex ante* obligations could be imposed as a remedy.

A further, but secondary concern in relation to Figures 1 and 2 is abuse of market power by a content provider. As for the previous case, this may take the form of excessive pricing or exclusionary behaviour towards other content providers. Here, the remedy available is usually intervention under competition law, as the problem of persistent content monopoly is considered less likely than in the case of platforms, the creation of the content imposes fewer sunk costs and content is more easily replicable. This is clearly not a concern for the proponents of the need for a "net neutrality" provision for whom the concern is mainly about discrimination by network operators.

### Conclusions

The considerations give good grounds for the belief that the need for a "net neutrality" provision is, at best, not proven in Europe. Existing regulation seems capable of dealing with the problem in a more focused and targeted way, which does not involve restrictions on potentially welfare-improving pricing strategies adopted by firms.

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