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Net neutrality in Europe: An economic and legal analysis

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Abstract

An examination of Internet access as a two-sided market reveals among other things that net neutrality creates a cross-subsidy from retail Internet users, who pay all the costs of the access network, toward content providers.

This cross-subsidy may maximize social welfare because it lowers the cost of market entry for content providers. Economic analysis suggests that it should be maintained, but that to support productive efficiency and innovation at the access network, Internet access providers (IAPs) should also be able to charge for premium services in addition to "best efforts" Internet access. The 2009 amendments to the electronic communications directives provide that IAPs must disclose to their users the kinds of traffic management techniques that they use. NRAs may in some cases impose minimum quality of service standards for basic Internet access. Under the European framework, robust retail competition is deemed to be the best guarantee against upstream discrimination by IAPs.

Under European competition law, a net neutrality violation could be analyzed as an abuse of dominance, or as an anticompetitive vertical agreement. While an IAP has certain similarities to a telephone operator, it is not possible to apply the "terminating network monopoly" theory used for termination of voice traffic. Dominance may thus be difficult to find. If discrimination by an IAP results from a vertical agreement, a case by case analysis is necessary to determine whether the competitive harm created by the agreement is outweighed by consumer benefits.

Examiner l'accès à l'internet en tant que marché biface révèle notamment que la neutralité induit une subvention croisée des internautes, qui paient l'intégralité du coût du réseau d'accès, vers les fournisseurs de contenus.

Cette subvention peut s'avérer socialement optimale, puisqu'elle réduit les coûts d'entrée des fournisseurs de contenu sur le marché ; l'analyse économique suggère qu'elle devrait être maintenue, mais que les FAI devraient pouvoir proposer des offres "premium" à côté de l'offre standard en mode « meilleur effort », afin de soutenir l'innovation et l'investissement dans les réseaux d'accès. Les modifications apportées en 2009 aux directives européennes sur les communications électroniques obligent les FAI à informer leurs utilisateurs des pratiques de gestion de trafic qu'ils appliquent, et permettent dans certains cas au régulateur d'imposer un niveau de qualité de service minimum pour l'internet « meilleur effort ». Selon le cadre de régulation européen, une concurrence effective sur le marché de détail est supposée être la meilleure protection contre des pratiques discriminatoires des FAI sur le marché de gros.

Au titre du droit de la concurrence, une violation de la neutralité de l'internet pourrait être analysée comme un abus de position dominante, ou comme un accord vertical anticoncurrentiel. Même si certaines similitudes existent entre un FAI et un opérateur téléphonique, il n'est pas possible d'appliquer aux FAI la théorie selon laquelle l'opérateur dispose d'un monopole pour la terminaison d'appels sur son réseau ; la position dominante d'un FAI n'est donc pas aisée à démontrer. Si une discrimination résulte d'un accord vertical, une analyse au cas par cas est nécessaire afin de déterminer dans quelle mesure les aspects anticoncurrentiels sont compensés par les avantages procurés au consommateur.

Net neutrality in Europe: An economic and legal analysis

I. Introduction

1. Net neutrality refers to the potential problem of an Internet access provider (IAP) discriminating against certain kinds of applications and content, either by blocking them altogether or by degrading the quality of transmission. It can also refer to an IAP providing higher quality of service (QoS) to content providers, usually video, based on paying a premium for such service. Why would an IAP block or degrade certain kinds of content or applications? It may be to protect the network against undue congestion or attacks; it may be to obey a court order to block access to certain illegal content; or it may be to protect the IAP's own content or services against competition from others. An IAP may provide enhanced QoS to a content provider in order to generate additional wholesale revenues. The reason for the IAP's action will determine whether a given instance of discrimination is legitimate or not. For example, a mobile operator's blocking of a VoIP¹ application may occur in order to protect the mobile operator's network and the quality of service provided to other users, or it may be to protect the mobile operator's own voice revenues. Blocking for economic reasons, such as to protect an operator's own voice revenues, may or may not be legitimate, depending on the circumstances. There is no single answer, and case-by-case analysis is necessary.

2. Networks discriminate all the time and are no longer "dumb pipes." For example, a managed IPTV or voice service will have guaranteed QoS whereas an Internet service will not. Indeed Internet is based on "best efforts" treatment of packets: Data packets are passed from one autonomous system (AS) to another, and at each point of traffic exchange, a packet may be delayed or even lost depending on the level of saturation at the exchange point. The lost packets are resent, and eventually they get through but there is no end-to-end guaranteed QoS. Unlike interconnection agreements for voice traffic, peering or transit agreements for exchange of Internet traffic have never been subject to regulation, and there have been few competition law complaints relating to those agreements. In order to increase the quality of their services, certain content and service providers use content delivery networks (CDNs) to store content nearer to the end user. Some CDNs have become private networks with global reach, and their business model is based on the unpredictable quality of the "best efforts" Internet.

3. Consequently, in today's Internet, not all content and services are treated alike: IAPs offer managed IPTV or VoIP services that have guaranteed end-to-end quality; certain content providers pay fees to a CDN to ensure that end-users are able to access their content even during times of congestion. One of the most controversial questions in the net neutrality debate is whether IAPs may offer premium paid services to content, service and application providers on the Internet to guarantee a better QoS or whether such enhanced QoS is incompatible with the neutral character of the Internet.

4. Currently the Internet user's IAP has no contractual relationship with the content or service providers upstream, and receives no money from them. The IAP's sole revenues come from their own retail Internet subscribers. Content or service providers will pay significant fees to their own hosting providers, and the latter will pay fees to IAPs upstream that will "inject" the content or service provider's data into the Internet. But the IAP of the end-user will not receive any payment from the upstream

¹ Voice over the Internet Protocol.

operators. This contrasts with the situation for voice traffic, where (in Europe at least) the operator receives remuneration from two sources: from its own end-users, and also from operators upstream that send voice traffic to the terminating operator's network. These wholesale voice revenues are significant, and have historically helped telecommunications operators build and improve their networks. With voice traffic diminishing and regulators imposing cost-oriented termination rates, this source of wholesale revenues is diminishing, and may one day disappear.

5. This leads operators to wonder whether their sole source of revenues in the future will come from their retail customers, in the form of a monthly subscription fee for a triple play offer, or whether other business models may be developed on the wholesale side of the market, such as enhanced QoS offers for content providers. The answer to this question could have a significant impact on the operator's business plan, including the speed of the operator's investment in new fibre optic, or 4G mobile, networks.

6. Network operators believe that they should be able to offer premium QoS to content providers upstream – much as CDNs do today – as long as the premium services are available on a non-discriminatory basis to others, and as long as the premium services do not harm the quality of best efforts Internet service. Net neutrality advocates believe on the contrary that operators should be prohibited from entering into these kind of upstream agreements with content providers, because doing so would inevitably lead to a decrease in quality of the best efforts Internet. Operators would have an incentive to ensure that best efforts Internet is not very good, so that the premium service has real value.

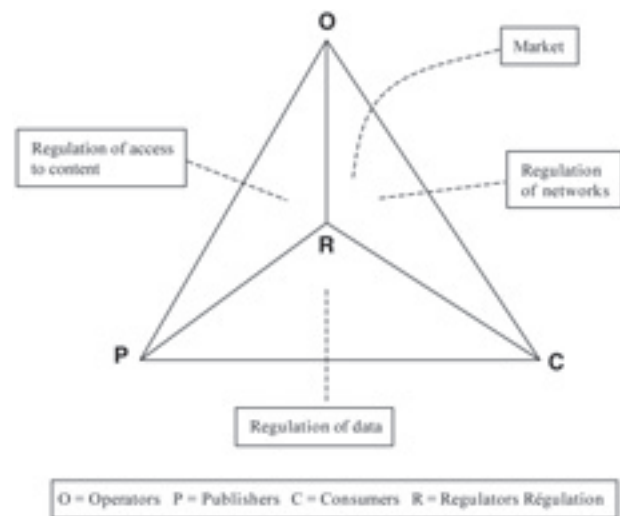
7. In this article we first place net neutrality in a bigger context of converged networks and content to show that net neutrality is not only a “telecoms” issue but requires input from various other institutional actors. We then examine the economic characteristics of Internet access as a two-sided market and discuss how the European regulatory framework for electronic communications can deal with net neutrality before turning to competition law.

8. Our conclusion is that IAPs should be free to offer enhanced QoS to content and service providers upstream, as long as the quality of best efforts Internet is not degraded. This outcome is supported by economic analysis, and regulatory tools and competition law are sufficient to prevent abuses.

II. Neutrality and convergence

9. Net neutrality is not an isolated issue. It is rather one piece of a bigger ecosystem of converged electronic communications markets. This ecosystem may be represented as a pyramid, seen from above in figure 1.

Figure 1: The pyramid of convergence



10. Understanding this broader context is important to understanding the key players in the net neutrality debate, which involves telecom regulators and operators, but also content providers, consumer protection authorities, and audiovisual regulators. In this geometric representation, each vertex of the pyramid gathers in a single point many different actors of the real world.

→ Vertex O, standing for Operators”, refers to fixed and mobile Internet access providers, as well as to backbone and content delivery networks (CDN).

→ Vertex P, as content “Publishers”, represents the wide range of actors that create or publish content on the Internet or over other networks such as audiovisual networks or simply the telephone network.

→ Vertex C, as “Consumers”, gathers all users of content or communication services, big or small.

→ Finally, vertex R stands for “Regulation” in its broadest meaning, of course including national regulators of electronic communications and regulators of audiovisual services, but also competition authorities, authorities in charge of protecting fundamental rights as the CNIL or HADOPI in France, as well as co-regulation and self-regulation systems such as those promoted by the “Forum des droits de l’Internet”.

11. The major competition and regulatory stakes of electronic communications appear on the different faces of the “pyramid of convergence”.

→ *The base OPC represents the market* and it reflects its “two-sided” structure (cf. infra), network operators O acting as technical platforms which connect content publishers P and content consumers C. The two “sides” of the market, here featured by vertices P and C of triangle OPC, are linked one to another through edge PC while each of them is connected to a network platform O through edges OP and OC.

→ *The right face ROC features network regulation, i.e. the core competence of the national authorities that were created in Europe in the late 1990s as electronic communication markets were opened up to competition, with the purpose of setting up a fair and efficient competition among network operators O for the benefit of consumers C.*

→ *The left face ROP is that of the regulation of access to content through networks. In this face we find the issue of audiovisual carriage over electronic communication networks, as well as the issue of contractual relationships between telephone operators and providers of audiotel services, and of course the issue of net-neutrality and – more globally – of networks' neutrality with respect to the exchange of content between content providers and users. In these different matters, the function R of regulation is shared between several bodies, e.g. in France the "Autorité de régulation des communications électroniques et des postes" (ARCEP), the Conseil supérieur de l'audiovisuel (CSA), and the competition authority.*

→ *Finally, the front face RPC is that of data regulation. Here, regulation R has to be considered very extensively, including co-regulation, i.e. collective regulation by several bodies and also possibly by the actors of the Internet via self-regulation. From this face numerous issues emerge and involve many stakeholders, such as: protecting the liberty of expression and communication, protecting personal data and private life, protecting intellectual property, digitizing literary and artistic works, fighting cyber-crime, protecting minors against pornography, etc.*

III. Lessons from the two-sided market model

12. What is a two-sided market? To characterize net neutrality as an economic concept, it is useful to see the market of Internet access as a two-sided market which exhibits the three following characteristics:

→ two different types of customers, namely the two sides of the market, enter into a mutual relationship through access to the same platform;

→ the connection of the two sides of the market through the common platform generates positive cross-externalities, each participant on one side deriving benefit from an increase in the number of participants on the other side;

→ direct monetary transactions across the two sides of the market are difficult and costly, so that one side is unable easily to pass on to the other side any increase or decrease in the price of its own access to the platform.

13. A common example of a two-sided market is a credit card consortium, the two sides of the market being the merchants equipped with payment terminals on the one hand and the buyers holding payment cards, on the other hand; another frequent example is a TV channel, the two sides of the market being the advertisers and the viewers. In the case of Internet access are the three criteria of a two-sided market actually met?

14. Does Internet access satisfy the three criteria of a two-sided market?

→ *Firstly, the network of an IAP is indeed a platform to which Internet users and content providers – the two sides of the market – both have access, the latter providing content to the former. More accurately, the platform of the two-sided market consists here in the "network" layer of the Internet economic system, supporting exchanges that take place in the "content, applications and services" layer.*

→ *Secondly, bidirectional and positive cross-externalities are also present, because increasing the variety of content improves the utility for each Internet user, while each content provider gains from an increase in the number of users who in turn generate more advertising revenues.*

→ *Finally, direct monetary transactions across the two sides of the market are the exception rather than the rule, because a content provider meets serious obstacles in billing an end user, such as low or zero willingness to pay, insufficient security of online payments, unavailability of micro-payment systems, etc., so that most web sites are financed through advertising revenues rather than payment from users.*

15. In a two-sided market, the platform operator is in a position to bill separately the two sides, in a differentiated way. Due to the third characteristic of a two-sided market, namely the difficulty for each side to pass on to the other side any variation of the price it pays for its own access to the platform, the way in which the revenue collected by the platform operator is split between the two sides does matter, and it generates structural effects: for the same total revenue, the global economic equilibrium of the system heavily depends on the respective contributions of the two sides.

16. How are revenues split between the two sides of the Internet? An access provider operating a given platform bills the users that are connected to its network but does not receive any payment – at least presently – for carrying the content viewed by those users: the providers of that content pay only for their own connection, to some other operators located somewhere else in the Internet worldwide grid. As a result, the neutrality principle yields what economists call a cross-subsidy: the content provision side of the market being subsidized by the content consumption side. Strangely enough, the neutrality principle seems to generate a non-neutral situation! This paradox is not unusual or surprising. In any complex and widespread system, the requirement of a global neutrality can often create local asymmetries, e.g. a geographically averaged pricing scheme leads to a national uniform tariff while giving rise to cross-subsidies across regions.

17. What reflects the neutrality principle at the local level of an access provider is the economic separation between the two layers of the Internet system: just in the same way as a content provider does not remunerate an IAP in order to address the IAP's subscribers, an access provider does not remunerate a content provider for delivering its valuable content to subscribers, as might occur for a cable network, for

example. Separation, which is a fundamental characteristic of neutrality, amounts to a reciprocal zero-payment rule between the network layer and the content layer, thus leading to a complete dissociation of the two respective business models of IAPs, on the one hand, and content providers, on the other, the former being financed by end users and the latter essentially by advertisers.

18. Does the two-sided market model provide any clear justification of the neutrality principle and of the subsidy from passive users, i.e. those just viewing content, to active users, i.e. content providers, whether professional or simply residential users generating personal content?

First, we define the social optimum as the economic state which maximizes global surplus, i.e. the cumulated surplus of all participants in the system, namely the platform operator and the participants present on the two sides of the market. Then, in order to reach the social optimum, the platform operator should price below cost the one side of the market exhibiting the higher price-elasticity and/or creating the higher positive cross-externality for the other side. At optimum, the under-priced side is cross-subsidized by the other side. According to this theory, maintaining a cross-subsidy in favor of the content provision side of the Internet might be optimal if at least one of the two following assumptions holds.

→ *Assumption 1.* If it started to bill content providers for the injection of traffic onto its network, an Internet access provider would reduce the supply of content – through a price-elasticity effect – more than it would reduce the demand of access in the retail market if it over-billed end users by a same amount.

→ *Assumption 2.* Enlarging the supply of content by some given percentage would upgrade the utility of each end user – through a cross-externality effect – more than a growth of the population of users by the same percentage would increase the welfare of each content provider; and, the other way around, reducing the scope of available content would harm the end users more than an equivalent shrinking of their population would harm the profitability of content providers.

19. Considering the first assumption, it is highly questionable that under-pricing content providers and over-pricing end users, rather than the reverse, might be justified on the only basis of a difference in price-elasticities. Although uncertain and difficult to estimate, price-elasticities on the two sides of the market likely are within a same order of magnitude. Thus, if this effect – or rather this absence of effect – was the only relevant factor, then the quest for the social optimum would not exclude an inverted world, where end users would enjoy free access to the Internet and content providers alone would finance the access networks... nor, at the other extreme, a world where the cross-subsidy towards content providers would go still beyond what exists under the neutrality model, the access providers paying for Internet content just as they already pay for premium rights-protected audiovisual content (the cable network model).

20. The second assumption, which states that the positive cross-externality from content providers towards end users is greater than the reciprocal cross-externality from end-users to content providers, seems much more justified than the first one, due in particular to the presence of three effects.

→ *The long tail effect.* Niche content, the value of which is moderate when each particular piece of content is considered separately, aggregate to form the “long tail” of a global corpus of information which is highly valuable to end users. Thus, downgrading this corpus through a non-neutral treatment of content providers to the detriment of the smallest ones would severely harm social welfare.

→ *The selection effect.* The major players in the Internet are a small group of successful experiments that have emerged from a multitude of failures. Accordingly, any non-neutral practice or policy that would reduce the incoming flow of innovative new services or business models that feeds the selection process would correspondingly reduce the sparse outgoing flow of successful innovations, or technical “hits”.

→ *The visibility effect.* The anticipation that a content provider initially makes about its future profitability which dictates its decision to go ahead, is based on the certainty that no payment – other than to his own hosting provider – is required to launch his service on the Internet. The content provider knows that whatever the future success of the site, a universal visibility throughout the web may be reached without pre-negotiating with the different IAPs in order to be seen by their subscribers. Thus, a non-neutral practice that would increase the cost of entry for a potential new content provider would discourage some promising plans and inhibit a potential creation of value. Note that there is no *ex ante* opportunity cost for an access provider to offer visibility without charge, as costs are incurred only when the bandwidth is actually required, i.e. only in the favorable outcome where the future site is successful.

21. Beside the importance and fragility of the cross-externality from content providers towards end users, two additional arguments support the neutrality principle.

→ In the first place, net neutrality may be seen as a policy aiming at promoting the creation and distribution of content in the Internet. Unlike the audiovisual editors and distributors, most Internet content providers – especially the aggregators of content free of rights – do not receive *copyright* fees nor do they have the possibility to bill end users: the viability of their business model relies upon advertizing revenues and the cross-subsidy generated by net-neutrality. Then, maintaining this cross-subsidy may be justified by the “public good” component of the Internet information corpus, as a risk of under-provision would occur should the cost of market entry increase.

→ In the second place, neutrality protects against a possible fragmentation of the Internet. Indeed, if content providers had to negotiate on an individual basis with IAPs to reach the subscribers of the latter, then some particular content

would be distributed exclusively over some particular networks, thus harming the universal accessibility of content and creating potentially anticompetitive situations of the horizontal or the vertical type, similar to those very often encountered in the audiovisual sector due to distribution exclusivities.

IV. Should neutrality be regulated from an economic standpoint?

22. Theory states that in a two-sided market, in contrast to an ordinary market, the social optimum cannot emerge spontaneously from the unconstrained competitive game. Two factors explain this: first, in order to maximize its individual profit, a platform operator would gain from amplifying the under-pricing of the subsidized side and the over-pricing of the subsidizing side, as compared to what social interest would otherwise dictate; second, whenever the two sides of the market are simultaneously present on several competing platforms, which is the case here because of the competition across different Internet access providers, then the operator of a given platform does not “internalize” – i.e. does not take into account *ex ante* – the consequences that its own decisions bear on other platforms, in such a way that the efficiency gains derived from competition are partly lost.

23. Confronting the model with reality, the intensity of the present debate between IAPs and content providers indeed demonstrates that the incentive of the former to preserve the historical neutrality of the Internet to the benefit of the latter can no longer be assumed. However, contrary to the prediction of the model, the intent of the IAPs is certainly not to increase the level of the cross-subsidy accruing to content providers, but rather to decrease it! This contradiction may be easily explained. Whereas the standard model of a two-sided market assumes a monopolistic platform operator that could extract from its subscribers a rent compensating for the free access it gives to content providers, reality is quite different: the platform operator, which is subject to strong competitive pressure and must lower the retail price of Internet access in the downstream side of the market, seeks to compensate on the upstream side and asks for a remuneration by content providers. With the objective of getting such a remuneration, IAPs today complain about the possible drawbacks of a too strict neutrality principle, that would actually deprive them of this potential revenue stream.

24. The first argument of IAPs refers to distributive equity: they claim that a perfect neutrality would lead to an unfair funding of access infrastructure, because content providers – contrary to end users – do not pay for their usage of access infrastructure. This argument is only partly true. A content provider is not a free rider of the Internet, since it pays for its connection, even if the associated revenue goes to its hosting provider and the hosting provider’s IAP, and not to the last mile operators who provide access to the end-user subscribers viewing the content. The last mile IAP does not have to pay for content either, in contrast to a cable operator, for example. Second, if access providers

received a remuneration from content providers, there would be no absolute guarantee that, in the lack of some appropriate incentive, the former would actually dedicate this additional revenue to upgrading and extending their access infrastructure. Moreover, IAPs could be tempted to extract a rent from the Internet content providers by organizing an artificial scarcity of content through exclusivities of distribution; however, competition law would then intervene *ex post* and sanction any abuse of dominant position or anticompetitive agreement.

25. The second argument of IAPs refers to productive efficiency: perfect neutrality would dangerously threaten networks with severe congestion, due to the steady growth of new services highly demanding in terms of bandwidth. Prioritizing traffic proves necessary in order to avoid the risk of network saturation. This issue certainly cannot be ignored and economic theory brings about an answer that – almost – preserves net-neutrality: access providers would maintain as the general rule free access of all content providers to all end users (and vice versa) with a guaranteed minimal QoS for best efforts Internet, while at the same time proposing in parallel paying-offers with premium quality levels, such as a larger guaranteed bandwidth or a reduced latency. Such a mechanism may need to be complemented by some appropriate safeguards, ensuring that access to best efforts Internet would not be degraded by premium offers. In particular, if competition were not a sufficient incentive for IAPs to preserve a satisfactory level of QoS for best efforts Internet, then regulation could prove useful to assure a minimum quality of basic service.

Note that the possibility of offering premium quality services, which already exists in the triple or quadruple play offers of the French IAPs, looks more virtuous – at least from a theoretical standpoint – than a data termination rate system pursuant to which an IAP would charge a termination rate to content providers: a termination rate system would penalize smaller content providers, who would lose the benefit of being able to choose a best efforts QoS with no remuneration of the termination IAP. The co-existence of best efforts and premium QoS would provide a “menu” with two options that would lead to efficient discrimination through self-selection of demand.

V. The revised EU directives

26. The European directives on electronic communications contemplate two forms of regulation: asymmetric regulation, which applies only to operators holding significant market power (SMP); and symmetric regulation, which applies to all operators regardless of their market power.

→ Asymmetric regulation is designed to facilitate market entry by competitive operators in spite of high structural barriers to entry that exist by reason of the incumbent operator’s ubiquitous access network. The obligation for incumbent operators to provide to their competitors access to local loops at cost oriented prices, through unbundling

or bitstream, is a typical form of asymmetric regulation. As competition emerges on the market, asymmetric regulation is to be progressively withdrawn, and ultimately should disappear. Upon disappearance of asymmetric regulation, competition law alone will be sufficient to deal with market failures.

→ Symmetric regulation, on the other hand, is meant to deal with consumer protection issues, which do not depend on the market power of a given operator. Symmetric regulation includes items such as the obligation to include certain minimum terms in contracts with end-users. There is no expectation that symmetric regulation will disappear over time.

27. It is important to keep in mind the distinction between asymmetric and symmetric regulation because the methodology and powers of regulators differ for the two kinds of regulation. In the case of asymmetric regulation, regulators must go through a rigorous market analysis process and when the relevant market is not on the pre-established list of the European Commission, regulators must show that the market is subject to structural barriers to entry, that it is not evolving toward competition, and that competition law is not sufficient to treat the market failures that may arise (the so-called three-criteria test). The market analysis must demonstrate the presence of an operator with SMP – the equivalent of a dominant position – and the imposition of asymmetric remedies must be justified as necessary in order to treat an actual competitive problem on the market, not just a hypothetical one. Finally, the remedy adopted must be proportionate i.e. it must be narrowly tailored to address the problem and not go beyond what it absolutely necessary to attain the objective. On a market that is competitive and where there is no operator with SMP, it goes without saying that asymmetric regulation is impossible.

28. Net neutrality raises issues that lend themselves both to possible asymmetric regulation and symmetric regulation.

→ The use of market power by an IAP to discriminate against certain content or application providers upstream is an issue falling within the realm of asymmetric regulation. Regulators are theoretically able to address the problem already, but they would have to conduct a market analysis first, and confirm that the market passes the three criteria test mentioned above. The regulator would then have to show that one or more IAPs holds significant market power on the market. Once that is done, the regulator could impose asymmetric remedies on the IAP(s), such as an obligation of non-discrimination with regard to the exchange of Internet traffic.

→ The problems of consumers not having access to all content available on the Internet or being misled by their IAP regarding its traffic management practices, fall into the category of symmetric regulation. For those issues, the powers of regulators were increased with the 2009 amendments to the electronic communications directives.

(i) *Regulators can now require that all operators regardless of their market power disclose to their customers the operator's traffic management practices, including any limitations imposed by the operator on accessing certain content or applications.* For example, if a mobile operator were to limit access to VoIP applications on its 3G network, this fact would have to be disclosed to consumers.

(ii) *In certain cases, regulators may also set minimum quality of service standards for Internet access.* However this can only be done after consultation with the European Commission.

(iii) *Finally, regulators are now also able to arbitrate disputes between operators and entities that benefit from interconnection or access.* The wording of this provision of the Directive is unclear, but the intention is to permit a national regulator to intervene in cases where an operator may be accused by a content provider upstream of discriminating against the content provider's traffic.

29. The 2009 amendments to the electronic communications directives focus essentially on the consumer protection issues of net neutrality, *via* symmetric regulation. The amendments do not introduce new measures that regulators could apply with regard to abuse of market power in the context of net neutrality. There are two reasons for this omission: First, the methodology set up by the directives for asymmetric regulation is already robust enough to apply to the net neutrality issues without it being necessary to modify the rules. Second, the European framework has always been designed to address competitive problems at their source, which in the electronic communications market means ensuring access to the incumbent's networks at appropriate places (e.g. the local loop)

30. Unlike the United States, Europe has emphasized unbundling the local loop and bitstream access as key levers to permit competitive operators to enter the market and compete on the retail market for Internet access. If the retail Internet access market is competitive thanks to these regulatory levers, and provided switching costs are not too high, then in theory consumers will have a choice of access provider and will be able to change if a given access provider begins degrading traffic or blocking access to certain applications. As noted in the preamble to the November 25, 2009 Consumer Rights Directive, “a competitive market should ensure that end-users enjoy the quality of service they require.” Consequently, if European regulatory authorities have done their job correctly by ensuring cost effective access to the incumbents' networks, competition on the retail market for Internet access should act as a sufficient constraint to prevent Internet access providers from unduly discriminating against certain content.

31. It is possible in theory to use the asymmetric regulation methodology in order to address competitive problems on the wholesale market for Internet traffic exchange. In practice it has proven difficult. The Polish regulatory authority (UKE), notified to the European Commission in November 2009 a draft decision by which it proposed to apply *ex ante* regulation, on the basis of market analysis and SMP finding, on the wholesale markets for IP traffic exchange

consisting in IP transit and IP peering. Before UKE's draft decision based on *ex ante* asymmetric regulation, the Polish authorities already imposed obligations² on the incumbent Telekomunikacja Polska (TP) as regards IP traffic exchange on the basis of Article 5 of the Access Directive and on the basis of *ex post* competition law. The aim of these measures was to prevent TP from selective degradations of IP traffic routed by ISPs trying to reach TP's users.

In its 27 November 2009 draft decision, UKE considered that IP peering³ and IP transit⁴ should be defined as two separate relevant markets. UKE admits that those markets are not regulated in other Member States but considers that the situation is different in Poland and that the three criteria test is met for the wholesale market for Internet traffic exchange with TP and in the national IP transit market. In its letter addressed to UKE on 4 January 2010⁵ and its decision dated 3 March 2010⁶, the European Commission disagreed. The Commission said that UKE failed to provide evidence to establish that the three criteria test is met for those two markets, because:

- barriers to entry are low on the IP transit market in particular;
- several operators are competing for conveyance of IP traffic on the Polish market;
- previous obligations imposed by UKE and the Competition authority have successfully remedied the problem of degradation of IP traffic on TP's network.

32. The European framework is built on the theory that the retail market for Internet access is or should be competitive, thanks to the regulatory tools put in place such as unbundled local loop and bitstream access. Consequently, if consumers are fully aware of the traffic prioritization practices of their IAP, they can compare, and change suppliers, assuming switching costs are not too high. *Competition will in theory act as a sufficient constraint on the behaviour of each IAP, including on the wholesale market.* The new measures introduced in the revised framework are focused therefore on consumer protection. There are no provisions dealing

² On 10 July 2006, UKE made a decision based on Article 5 of the Access Directive and imposed to TP an obligation of non-discrimination and transparency. On 29 June 2007, UKE proposed to impose on TP further obligations as regards IP traffic exchange under Article 5 of the Access Directive. The Commission, however, considered that the additional obligations of access, non-discrimination, transparency and price control that UKE proposed to impose on TP were not justified and proportionate *«since the effective implementation and execution of the previously imposed obligations, together with the competitive pressure exercised by the possibility to convey IP traffic through foreign carriers, should remedy the identified competition problems»*. Finally, the Polish Competition Authority found that TP's "discriminatory degradation of IP traffic" constituted an abuse of dominant position on the market for the provision of access to end users of the Internet connected to public telecommunication networks. On 20 December 2007, the Competition Authority imposed a fine on TP and requested that TP terminate such practice.

³ IP peering consists in the direct exchange of IP traffic solely between the interconnected networks of two ISPs.

⁴ IP transit is a service consisting of IP peering with additional services to enable the exchange of IP traffic with the global Internet.

⁵ See Commission decision concerning Case PL/20091019 and Case PL/2009/1020, C(2010)10, SG-Greffé (2010) D/2, 4/01/2010.

⁶ See Commission decision of 3 March 2010 in the Case PL/2009/1019 and Case PL/2009/1020, C(2010)1234, 3/03/2010.

with the wholesale relations that might exist between an IAP and a content provider upstream. We also saw that in one case an NRA attempted to use the market analysis and SMP process of the Framework Directive to regulate an operator's wholesale relations with other operators on the market for exchange of Internet traffic, but failed because the Commission was not convinced that the market satisfied the three criteria test. One of the reasons why the wholesale market for exchange of Internet traffic may not satisfy the three criteria test is that competition law may be sufficient to handle eventual market failures.

VI. Net neutrality raises well-known competition issues

33. Exclusivity and vertical leveraging are not new problems in the media and communications field.

→ *In the U.S.*, one of the first antitrust cases involved motion picture theatres that were controlled by the major motion picture studios in the U.S.⁷. The vertical relationship between the theatres and the motion picture distributors and producers limited the possibility for independent producers to get their pictures on the screen. A similar concern in the field of television broadcasting led to the "Fin Syn" rules in the U.S. that prohibited vertical integration between television broadcasters and major content production companies. These rules have been relaxed in the U.S., but U.S. antitrust authorities can impose similar rules in the context of mergers.

→ *In Europe*, the Commission imposed conditions on the joint venture between Vivendi and Vodafone for the creation of the Vizzavi portal to ensure that the portal would not hinder users' ability to access unaffiliated portals and content⁸. In the late 1990s, there was concern that web portals and walled gardens would limit users' ability to access content of their choice. The issue arose in France in connection with mobile Internet. In the year 2000, GSM users could access the Internet but they had to go first to a special WAP (Wireless Access Protocol) gateway that would then permit them to access other websites. France Telecom initially ordered WAP-enabled handsets that were locked so that users had to go to France Telecom's own WAP gateway before accessing other Internet sites. A French start-up called "Wappup" sued France Telecom arguing that the WAP-locked terminals constituted a violation of competition law. The Paris Court of Appeals agreed, holding that the contracts between France Telecom and the terminal manufacturers pursuant to which the latter integrated the WAP-locked features into the handset constituted an agreement that was restrictive of competition⁹. As a result of the Wappup matter,

⁷ *US. v. Paramount Pictures*, 344 U.S. 131, 1948.

⁸ Commission Decision of 20/07/2000 declaring a concentration to be compatible with the common market (Case No IV/M.0048 - 1*/3* VODAFONE / VIVENDI / CANAL PLUS) according to Council Regulation (EEC) No 4064/89 (Only the English text is authentic)

⁹ C. Paris, 13 juillet 2000 (1^{re} ch. sect. A), Arrêt du 13 juillet 2000 : S.A. France Télécom, S.A. France Télécom Mobiles Services (F.T.M.S.), S.A. France Télécom Mobiles Distribution (F.T.M.D.) c. S.A. Wappup.com

increases its prices for the wholesale termination of voice calls, fewer people may eventually call the operator's customer, but the customer may not even be aware of this because the customer does not know about calls he never receives.

→ For Internet traffic, the situation is different because in each case the retail Internet user places the call, i.e. he or she makes a request for certain content. If the content is not immediately available or is available with a degraded quality, this would be immediately visible to the customer having made the request.

Consequently, unlike the situation for voice telephony, the terminating operator for Internet traffic is constrained by his own retail customers in how he behaves on the wholesale market. The IAP will not therefore be able to block or degrade traffic without this immediately being known by his own customers and perceived as a degradation of service quality. Thus the IAP, unlike the telephone operator, cannot behave independently of his competitors and of customers on the wholesale market.

38. Since it appears difficult to find dominance based on the terminating network bottleneck theory, there may be other approaches, particularly if competition on the retail market is weak. In that case, it might be possible to project a strong retail market share (50% or more) onto the wholesale market and find dominance through that method. However, as noted above, in many European markets, retail competition is robust.

2. Discrimination resulting from vertical agreements

39. The second angle under which we can examine possible problems of net neutrality is as a form of anti-competitive vertical agreement. To illustrate this path of analysis, let us take the fictional example of an agreement between an IAP and a popular video sharing site, pursuant to which the IAP and the video sharing site agree to develop together a premium service permitting consumers of the IAP to share and watch 3D videos with an enhanced quality of service. In our hypothetical case study, the agreement is exclusive, which means that the IAP commits not to make the enhanced 3D quality of service available to another competing video sharing platform, and likewise the video sharing platform commits not to enter into similar agreements with other competing IAPs. The purported reason for the exclusivity is to protect the initial investment and advertising that will accompany the launch of the new 3D service in both parties.

40. Vertical agreements require a case by case analysis. There is clearly a discrimination in that the IAP has agreed not to grant the enhanced quality of service to another video sharing platform. For the purposes of our analysis we will assume that the IAP does not hold a dominant position for the reasons mentioned in the preceding section. The question therefore is whether the agreement is an anticompetitive one under article 101 TFEU. There does not seem to be any reason why it would be considered illegal *per se*. Indeed, a vertical exclusivity of this kind appears similar to the case of an IAP entering into an exclusivity agreement for certain

premium content, or an exclusivity agreement regarding a certain kind of smartphone. Nevertheless, the exclusivity and the discrimination that it creates carry significant competitive risks. Even if the IAP does not occupy a dominant position, the vertical agreement regarding the distribution of 3D videos would restrict competition in two ways.

→ First, any competing video sharing site would suffer from a significant quality disadvantage for a large proportion of potential users, i.e. all those Internet users who are customers of the IAP having entered into the exclusivity agreement.

→ Second, the exclusivity would restrict the competition between IAPs, particularly if the video sharing site having entered into the agreement is a popular site. In that case, customers may choose the IAP having signed the exclusivity not because it offers better broadband access services at better prices, but simply because it gives access to the popular 3D video sharing platform whereas the other IAPs do not.

41. Consequently, there are significant restrictions of competition both at the upstream level among video sharing platforms and at the downstream level among IAPs. The exclusivity agreement may however have positive effects that offset these competitive restrictions. One such positive effect would be that the agreement permitted the parties to make the investment both in technology and in advertising necessary to launch a truly new product. If enhanced video sharing for 3D films is truly a new product that may not have been brought to market as quickly in the absence of the exclusivity agreement, then the benefits to consumers may outweigh the restrictions to competition. Such a balancing can only be effected on a case by case basis. When analyzing vertical exclusive agreements between IAPs and content providers, the French competition authority indicated that the exclusivities would be acceptable if they are for a short duration in time and are limited to new innovative forms of distribution. In other situations, the competition authority suggested that an exclusive agreement between an IAP and a content provider would be problematic.

VII. Conclusion

42. Net neutrality refers to the current situation in which a content or service provider need only pay its own hosting provider in order to make the content or service available to the entire global population of the internet users. Net neutrality advocates seek to impose regulation that would prohibit any discrimination by an IAP between different packets that traverse its network. In the Internet today, there are already multiple forms of discrimination, the vast majority of which are legitimate. Discrimination that seeks to achieve a valid technical objective, such as protecting the network and guaranteeing a quality of service for all users, will not be considered as a violation of net neutrality. Discrimination based on economic motivations may or may not be legitimate depending on the circumstances. A case-by-case analysis is required.

43. An examination of Internet access as a two-sided market reveals that the current structure of the Internet creates a cross-subsidy from retail Internet users toward content providers. However, this cross-subsidy may maximize social welfare because it lowers the cost of market entry for content providers, thereby contributing to the diversity of niche content. The cross-subsidy also provides fertile soil for numerous experiments with new innovative Internet-based services. Out of the multitude of new technological experiments there are numerous failures, but a few winners emerge yielding highly valuable new services for consumers. Economic analysis suggests that this underlying structure of the Internet should be maintained, but that to support productive efficiencies and innovation at the access network, IAPs should also be able to develop and charge for premium services, including services provided to content providers on the wholesale market.

44. To ensure that premium services do not lead to an unacceptable degradation of standard Internet access, some regulatory protection is necessary. The 2009 amendments to the electronic communications directives provide that IAPs must disclose to their users the kinds of traffic management techniques that they use, including any restrictions to Internet users' ability to access certain content or services. In addition, the new telecoms package allows NRAs, after consulting the European Commission, to impose minimum quality of service standards for basic Internet access. The revised regulatory framework does not contain any provision changing the way NRAs would regulate the wholesale market for exchange of Internet traffic: NRAs must approach these problems using the traditional tools of asymmetric regulation.

45. Under competition law, the problems of net neutrality are not new. Vertical leveraging is well understood in the media and communications sector. If one examines the hypothetical case of an IAP discriminating against certain content providers upstream, the first approach would be to determine whether the IAP holds a dominant position and on which relevant market. While an IAP has certain similarities to a telephone operator, it is not possible to apply to an IAP the "terminating network monopoly" theory used for termination of voice traffic, because the IAP, unlike the telephone operator, will not be able to discriminate or degrade traffic without the IAP's retail customer immediately becoming aware of the degradation. Consequently, robust competition on the retail market for Internet access should constrain any anticompetitive behaviour on the wholesale market. Where retail competition is weak, it may be possible to project an IAP's strong retail market share onto the wholesale market and find a case of dominance. In the absence of dominance, discrimination on the wholesale market would have to be looked at through the sole angle of anticompetitive agreements. If discrimination results from a vertical agreement, such as an exclusivity agreement, or an enhanced QoS agreement that might not be available to all on a non-discriminatory basis, then a case by case analysis is necessary to determine whether the competitive harm created by the vertical agreement is outweighed by consumer benefits that may legitimately flow from it. ■

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