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Net neutrality: not as neutral as it sounds

Net neutrality may sound like a self-evident concept. It might even seem a bit boring, because almost everybody says they are in favor of it. Yet to judge from the debate on Capitol Hill in Washington DC, the concept has proved to be highly controversial. The heated debate originated as a fairly technical and purely domestic US debate, focused on the ins and outs of the internet per se. However, the debate has already had repercussions in other countries, as well as across the telecommunications market worldwide. Where should the line be drawn between the rights and plights of investors in new telecom infrastructure, and those who choose instead to invest in commercial content using this infrastructure?

ON THE FACE OF IT, net neutrality is just a matter of normal commercial negotiations between telecom companies such as Verizon and AT&T with internet companies such as Google, eBay and Microsoft. In reality, however, it is not that straightforward a battle, because both sides have engaged a number of other interested parties in support of their cases. The telcos have received heavy public support from players such as Cisco, 3M and Qualcomm, whereas the Google camp has enlisted its champion, Vinton Cerf, and Sir Tim Berners-Lee. These two, regarded as founding fathers of the internet, cite ideological arguments for why a two-tiered in-

ternet could pose a threat to its own freedom. Whatever the final outcome on Capitol Hill (where the jury is still out), what are the possible implications for network operators outside the US?

Blindness is a virtue

The debate about internet neutrality was triggered by the Federal Communications Commission's (FCC) decision to allow Verizon, a network operator, some pricing freedom for its investment in a new breed of broadband capacity. Verizon argued that the investment was necessary for it to cater for services in need of higher



and more secure quality than the internet at large: otherwise, time-critical applications, such as live video, would suffer from degradation due to network delay and inadequate synchronization between packets representing video and voice.

Some critics say this move by the FCC opens up the possibility of a two-tier internet, in contradiction to its original credo where each and every packet was to be treated equally, rather than being subjected to priority schemes designed to secure certain levels of QoS (quality of service) and so on. Other critics focus on the pricing issues, because higher and more secure quality levels imply, higher price levels. From their perspective, the concept of net neutrality is to be interpreted literally: the network must give each and every packet the very same treatment. Some packets might well have to line up in a queue, while others might have to be dropped. The very blindness of this random process to any commercial and political considerations is seen as its virtue.

However, there are also other interpretations of net neutrality. The origin of the concept is often ascribed to Columbia Law School professor Tim Wu, in support of a theory of network regulation that rejects the traditional “open-

access” model. In his interpretation, network neutrality is the principle that network operators should not discriminate between network applications. Wu argues that the present internet is not a neutral network, but rather is designed to give preference to data applications over others such as voice and video that require low latency and low jitter. His contribution can hence be cited by both camps. (See *Network Neutrality, Broadband Discrimination in the Journal of Telecommunications and High Technology Law*, Vol. 2, p. 141, 2005)

These conflicting perspectives provide a background to why a mundane conflict of business interests – content versus the network industry and its vendors – has risen to such a high position on the political agenda. It is no longer just a matter of the normal haggling over the proportion of revenues to be shared.

Outside the US, the debate is already on the agenda within the OECD, which recently published a document taking a more dispassionate view. (“*Network Neutrality: A Policy Overview.*” OECD Working Party, Dublin, Ireland, May 29–30, 2006. DSTI/ICCP/TISP(2006)4)

And there have already been related clashes between the German regulator (which was inclined to follow the FCC’s stance) and the

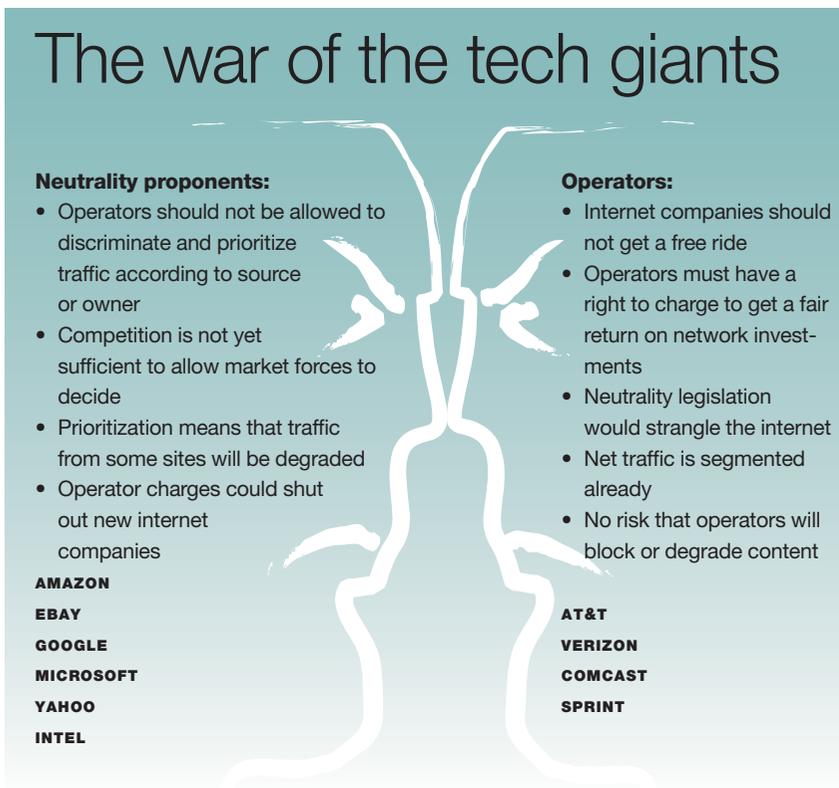
European Commission, and between Telstra and its regulator in Australia. Like Verizon in the US, other operators see a need for greater commercial freedom – perhaps even regulatory protection – as a precondition for new investments in broadband networks. (“*Deutsche Telekom to be told to open network.*” *Financial Times*, Aug 19/20, 2006, p.8)

From this perspective, the internet-focused debate might prove to be the tip of an iceberg. The incumbents have grudgingly accepted the sharing of legacy networks and other conditions judged necessary for competition to flourish. When it comes to new network investments, however, they (and their shareholders) balk in the face of imbalances between risk and reward. Under the prevailing regime, any losses due to issues such as incorrect timing must be borne by the balance sheet of the investing operator alone. If, on the other hand, a new investment is a success, it has to be shared with others, who pay only the incremental costs. How then can shareholders and investors be convinced to finance investments in new infrastructure? (“*Is Verizon a Network Hog?*” *Business Week*, Febr.13, 2006, p.58)

Some of the contributions actually refer to historical conditions where telecom networks were national and legal monopolies, with a more or less secure rate of return. Take for example a recent statement by Berners-Lee: “We need a church and state-like separation between web access and content. We’ve had in Britain the fact that if you put a stamp on a letter it gets there.”

That perhaps was not such a good example: most post offices are still run by governments as opposed to being financed by private shareholders. Even so, many post offices offer different service levels, such as priority versus economy delivery, the introduction of which caused similar debate about two-tiered services. There was a suspicion that economy letters would be deliberately delayed in order to convince customers to pay extra for secure priority delivery.

The debate has many of the necessary ingredients of a perfect storm. Not only are strong new winds causing large waves – the storm conditions are also being intensified by waves from past and adjacent storms. What started as a fairly technical debate on the handling of packets has escalated to an ideological battle over the provision of telecom networks at large, not just the internet. With the present trend towards all-IP, networks close to all telecom services (including wireless) look bound to be affected, for better or worse.





Operators fear that “network neutrality” will create an imbalance between risk and reward.

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Before going into this wider scenario, it could be useful to return to the original internet-specific debate.

The internet-specific debate

There are several ideological arguments, often disguised as technical issues. The internet was created in an academic environment, not a commercial world. It was therefore proper to assign equal treatment and equal rights of delivery to each and every packet. In case of congestion, some packets might be placed in a queue or dropped, by means of a random mechanism. This very blindness is often considered a crucial virtue representing an egalitarian credo. The "best-effort" paradigm has also proved to be good enough for most purposes, especially where there has been ample capacity.

Delays have been kept within acceptable levels, often unnoticed by end users of data communications (as opposed to video or voice

services which require real-time synchronization). One way of getting around this has been to over-provision capacity in order to avoid negative queuing effects. Other measures used in corporate networks, for example, include tunneled VPNs. Now, however, the original TCP/IP paradigm is being threatened by its very success. Music and other capacity-hungry applications, such as video downloading, have rapidly grown in popularity. In addition, telecom operators, such as Verizon, have seen a need to set aside capacity for their own IPTV services in order to meet the competitive challenge of triple-play services delivered by cable-TV operators. Otherwise, available capacity might not be sufficient to avoid queuing and dropped packets; in other words the degradation of services in need of real-time synchronization could become more common.

The approach chosen by operators such as Verizon and AT&T is a two-tiered internet

where services that require secure quality of service are provided separately, with their own terms and pricing schemes. Premium service levels, which cost more to provide, can justify premium prices. On the face of it, this seemed a logical step, and was approved by the regulator (the FCC). It was even in line with the observation of Professor Tim Wu, that not even the classical internet can pass the requirements for perfect network neutrality. Time-critical applications could well suffer from being handled the same way as e-mail for example. Seen from a user's perspective, identical treatment of every packet is not necessarily the same as neutrality.

So far, there seems to be a growing consensus regarding the need for a two-tiered approach and that premium services can rightfully cost more.

That said, the arguments of Tim Berners-Lee and Vinton Cerf (now at Google) deserve due respect for their concerns about the original and egalitarian concept, which is now subject to a serious challenge. In their minds, any talk of priority – for whatever reason – is like opening a Pandora's box. As soon as you disregard the original "end-to-end" logic, there is room for many potential abuses, such as blocking the use of VoIP. It is also worth noting that the dispassionate OECD report contains a long list of "possible abuses," but that this is not too different from similar lists referring to other industries.

Others have less idealistic, more commercial reasons for objections. Companies such as Google and Microsoft fear that network operators might charge them (rather than end users) for high-quality access to potential mass markets. This is not too unlike their own business models, where mass-market access to end users is a sales argument for advertising. Here it seems we have a classical channel conflict, to which there is no objective answer. It could be likened to the credit card conflict. How much should retailers pay card companies for their services? Or how much should card companies pay retailers for access to the end users? These days, as opposed to the historical situation, telcos and content providers are competing on the same turf, even with respect to their ability to attract investors willing to finance new investments. The old rulebook no longer applies.

The US regulator (the FCC) looks to have adapted to the new situation a bit faster than its counterparts in Europe. For example, in 2005 the FCC declared the internet to be an "information service" as opposed to a "communication service," something that looks like a precursor to its decision to allow Verizon's

The EU perspective: national regulators should rule

The European Commission is presently engaged in its 2006 policy review. As part of this exercise, a staff working document was made available on June 28, 2006. On pages 26–27 the document addresses the issue of network neutrality, mainly from an end-user perspective:

"Net neutrality": Ensuring that regulators can impose minimum quality of service requirements. A key concern for the near future will be to ensure that the internet remains "open": open from the point of view of service providers wanting to deliver new, innovative services and open from the point of view of consumers wanting to access, create and distribute the services of their choice. In the US, the concept(s) of "Net Neutrality" and "Net Freedoms" are currently being debated as part of the reform of the US Telecoms Act. "Net Neutrality" relates to the ability of a network provider to offer different levels of quality of service for content traveling over its network.

In general, a competitive market means that if one supplier seeks to restrict user rights, another supplier can enter the market with a more "open" offer. In Eu-

rope, the regulatory framework allows operators to offer different services to different customer groups, but does not allow those who are in a dominant position to discriminate between customers in similar circumstances. However, in some situations there is a risk that the quality of service could degrade to unacceptably low levels. It has therefore been proposed that national regulators (NRAs) should be given the power to set minimum quality levels for network transmission services in an NGN environment based on technical standards identified at the EU level.

The existing provisions for NRAs to impose obligations on operators with significant market power, and the powers of NRAs to address access and interconnection issues, could be used to prevent the blocking of information society services, or degradation in the quality of transmission of electronic communication services for third parties, and to impose appropriate interoperability requirements.

sources

- "Deutsche Telecom to be told to open network." Financial Times, August 19/20, 2006 p.8
- "Is Verizon a Network Hog?" Business Week, February 13, 2006, p.58
- "Network Neutrality: A Policy Overview." OECD Working Party, Dublin, Ireland, May 29-30, 2006. DSTI/ICCP/TISP (2006) 4
- "The End of Network Neutrality. An Economic Analysis." Insider, Vol 6, No.5, May 2006
- "Getting a grip on Net neutrality." Computerworld, July 19, 2006
- "eBay Marshals Members For Net Neutrality." June 2, 2006 <http://www.internetnews.com/bus-news/article.php/3610891>
- "Agents of deflation-disruptive technologies in European Mobile." European Equity Research. JP Morgan. August 3, 2006
- "Internet boom may turn against European telcos." By David Roman, Dow Jones Newswires May 3, 2006
- "Cisco, Qualcomm come out against net neutrality.— Some of the world's largest hardware makers back the two-tier internet." <http://networks.silicon.com/webwatch/0,39024667,39158962,00.htm>. May, 18, 2006

controversial two-tiered broadband approach. If almost anybody, particularly the cable-TV companies, could freely deliver triple-play services including VoIP, the why should telcos should be blocked from delivering a competing package.

Even in the light of possible abuses, the FCC moved to the standpoint that it was better to apply general competition law, rather than the sector-specific telecommunications law. Any abuse should be punished only after it actually occurred, rather than blocked in advance by the suspicion of what might happen. EU legislation is moving in the same direction, at least in theory, but not as quickly as in the US.

How not to get stuck in the middle

The debate is already on the agenda of several international forums, with policy implications stretching far beyond the technical issue of packet handling over the internet. That said, there seems to be a time lag between the policy changes in Europe when compared with the US. Even if European legislation moves towards applying general competition law rather than sector-specific preventive regulation, there has been little concrete evidence of a policy shift.

By contrast, the FCC has deregulated DSL (Digital Subscriber Line) providers, freeing them from having to share lines with competitors, and accepts the two-tier plans proposed by Verizon and others. Both cases are defined as "information services" as opposed to communication services. If abuses do occur, the combatants will have to fight it out on the same battlefield, and will be judged by the same standards. This change of perspective clearly has led opponents to refer back to past monopoly regimes and the once-clear-cut split between carriage and content.

What's next? Nobody really knows. The odds are that Capitol Hill will finally endorse

the FCC policy, whereas European policymakers and regulators are not expected to change their view any time soon. In any case, companies such as Google, Microsoft and eBay have such a widespread international presence that any change of US policy will certainly have consequences worldwide.

What are the possible scenarios seen from the perspective of a network operator?

One must reason that new broadband infrastructure will not materialize unless operators get more commercial freedom to ensure a reasonable return on investment. Shareholders and investors will simply move their money to areas with a better potential than telecom. This argument has so far received a chilly reception from the European Commission and the Australian regulator. It will take some time and ef-

fort to convince them that this is not an empty threat but rather a fact of life.

A related scenario refers to the way in which the market deals with intellectual property rights (IPR). The media and content industry has made it clear that the secure treatment of IPR is a prerequisite for financing any forward-looking initiatives. By the same token, patent rights are crucial for the pharmaceutical industry when considering investments in new drugs.

Yet another scenario is consortia financing, similar to the business model used for transatlantic cable ventures. Everybody is invited to participate (indefeasible rights of use), thereby sharing the risks as well as the possible rewards. Other parties are welcomed, but only as tenants, if they are not prepared to share the financial risks.



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