Response to the BEREC consultation on Net Neutrality

Stefan Marsiske, <stefan.marsiske@ctrlc.hu>

July 31, 2012

This response has been originally submitted to the 2010 EC consultation[1]. Since then, nothing really changed, the statements in this response are as true as they were in 2010. The only progress made since then, is the vast amount of supporting evidence that has been collected by the RespectMyNet initiative and the earlier BEREC consultation this year. However two points had been improved in this response since 2010, there's a new proposal on rules governing managed services, and CDNs are now explicitly mentioned in vertical monopolies.

Summary

1. Net-neutrality is a business-term for a technological concept.
2. Regulate ISPs to adhere to the end-to-end principle.
3. Break up vertical monopolies, abolish vendor lock-in.
4. Empower non-commercial, libre and public ISPs, assign at least 33% of the Digital Dividend for unlicensed use.

End-to-End principle

Net-neutrality is business terminology for a fundamentally technical concept, the so called end-to-end principle.

The Internet is based on a stack of various so-called protocols. The user interacts with some application, which passes the data down the stack to the operating system and further on. At the bottom of stack there is some physical medium, like a cable or a radio-wave (essentially the ISP). On the receiving side similar layers of protocols handle the data from bottom to top until it reaches the user on the other end. The layers have no knowledge of the data being passed from above and do not alter it in any way. Each layer is directly addressing

[1] http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/net_neutrality/comments/11individuals/marsiske_stefan.pdf

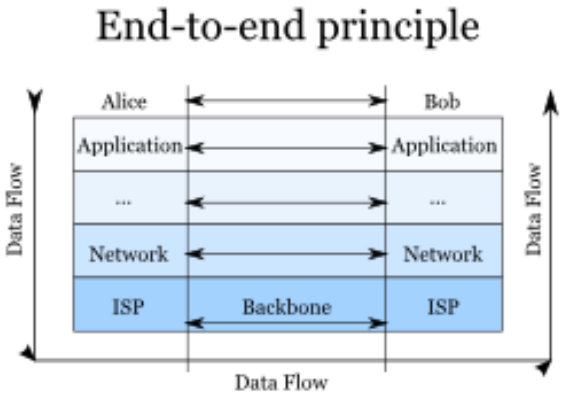

Figure 1: End-to-end principle

the matching layer on the other end. Processing happens at the communicating parties ends - not in-transit - hence the name.

This end-to-end principle decentralizes the intelligence in the network. Telecommunication companies from a classical telephony background are used to having the intelligence of the network under their control, at the "center" - first human operators, nowadays switching-centers. By keeping tight control of the complete infrastructure, true competition and innovation is generally lacking. The Carterphone 1968 regulation was essential in opening up telephone operators and decentralized the network using modems, which resulted in the dramatic economic growth of the Internet.

True net neutrality means, that ISPs are just one of the lower layers in this stack. And any kind of content sent through an ISP should be processed regardless of the source, destination or data making it up. That is the end-to-end principle and this is also what is now being twisted as network neutrality.

It is imperative to oblige infrastructure providers to adhere to the end-to-end principle and handle all data without prejudice.

Competition

The offering of both infrastructure and content by the same business entity raises anti-trust concerns, this creates incentives to discriminate against 3rd party content and to favor content owned by the operator. Extreme examples of discrimination even completely ban competing VoIP (Internet telephony) offerings or access to legal and alternative audio and video content. This behavior is also a violation of the end-to-end principle, where the content sent should be handled by the lower layered network infrastructure without prejudice.

The regulation must provide long-term solutions to the underlying root cause. The separation of content from infrastructure providers (e.g. CDN or

triple-play where Internet, TV and telephony is bundled) and the unbundling of products and services (e.g. SIM locks in mobiles) is essential as it removes some of the incentives for breaking network neutrality.

Overselling the bandwidth is another problem caused by the lack of competition. Network operators that sell more capacity than they are able to deliver need to resort to filtering, throttling and blocking. If this is discriminatory, then this is also a violation of network neutrality.

Fundamental Rights

Recent developments in regards to network neutrality endanger also fundamental rights. Analog content distribution industries unable to cope with the changing business environment - distribution at near zero cost - try to push governments and ISPs to filtering and automatic blocking of access for wide portions of the population. The basic rights to communicate, privacy and expression are threatened. Very strict judicial oversight must be enforced if - at all - any of these needs to be violated. Essential parts of everyday life (from traffic information, banking to interaction with public services) depend on the access to a free Internet. Blocking and filtering has been ruled unconstitutional in some member states. The right to Internet access is already a fundamental right in Estonia, Finland, France, Greece[2]. The Netherlands has the first network neutrality law in Europe[3].

The developments regarding free speech on the Internet in some EU member-countries are worrisome. Anonymity and freedom of speech must be protected especially in countries where most of the media is already controlled by the government. Government transparency, anti-corruption whistle-blowing, political opposition and democracy demand for free and unrestricted Internet.

The filtering of content, leads to the deployment of sophisticated Deep Packet Inspection solutions, which have an adverse effect on fundamental freedoms. The technologies developed for the EU market are also available in other regions of the world, with minimal reconfiguration these can be used for harming political dissidents, opposition in these regions. In fact these technologies are already available and harming democratization and political dissidents[4]. This technology is also misused for suppressing competition and other commercial interests.

Digital Dividend

In order to ensure a balanced neutral infrastructure, it must be possible to provide non-commercial libre public Internet access. Community networks must

[2] http://en.wikipedia.org/wiki/Internet_access#Internet_access_as_right

[3] https://www.bof.nl/2012/05/08/netherlands-first-country-in-europe-with-net-neutrality/

[4] http://samibengharbia.com/2010/09/17/the-internet-freedom-fallacy-and-the-arab-digital-activism/

be empowered to provide last-mile services. The Digital Dividend provides ample possibilities to assign at least a third of the analog television spectrum for non-commercial libre public ISPs, initiatives like the Openspectrum initiative[5] must be supported to create prospering public non-commercial ISPs that increase competition and investment in infrastructure. The US FCC decided on the 23rd September 2010 to allow the use of unlicensed whitespace spectrum [6]:

> "TV white space spectrum is considered prime real estate because its signals travel well, making it ideally suited for mobile wireless devices. Unlocking this valuable spectrum will open the doors for new industries to arise, create American jobs, and fuel new investment and innovation."

The EU must follow suit and foster non-commercial public actors on the market.

Mobile Internet

The strict control over the devices on mobile networks prohibits the end-users among others from using alternative VoIP solutions. Currently the operators do not allow to connect to mobile devices directly from another network. The devices of the end-users are not able to communicate directly using a non-voice channel, there is also no way to connect from the Internet to a device on a mobile network connection. These facts alone restrict fundamental rights, economic growth and innovation. Speeding up the adoption of IPv6 on mobile devices should remove the biggest technical obstacle to opening up these networks.

The end-to-end principle must also apply to wireless communication media.

Fixed and Wireless networks

From a customer point of view there is not much competition either on the fixed, nor the mobile access market. A local market with only less than 4–5 providers is not a competitive one. Having a public non-commercial spectrum available would increase competition in the wireless last-mile market.

For the cable market it would be also advisable, to open up the end-user set-top boxes, allowing for further competition, innovation and business growth in the home entertainment industry.

Regulation and control

The regulatory framework must change the focus from the wait-and-see approach and "regulating the Internet" to the regulation of infrastructure industry. As long as there is only a limited number of competitors on the market,

[5] http://www.openspectrum.eu

[6] http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-301650A1.pdf

the importance of strict oversight is higher - with "big oligopolies" come big responsibilities.

It's also vital to resist the aggressive efforts of other industries in and outside the value-chain to interfere with network neutrality.

Business practices by international service providers should be monitored across all EU countries, thus EU-wide coordination between NRAs is obligatory.

Traffic management

Traffic management should only be allowed for short-term management of spikes in usage or security incidents. If such a short-term traffic management is necessary, it must be done without discrimination of the users, the data or any other property unrelated to the incident. If the capacity of bandwidth is not sufficient - due to bandwidth over-selling for example - to provide the service without traffic management, the service will inevitably degrade. If there is strong competition on the market then this will be either countered by expanding bandwidth or by competing offers of other providers, for example by non-commercial public services.

Transparency

Transparency does not change the fact of violating network neutrality. Service providers are already stating in their contracts the fact, that certain services are discriminated, this reporting practice must be uphold. In fact no transparency is needed, if there is nothing to be transparent about, when no filtering or blocking is occurring, which should be the norm. Transparency is essential for monitoring real-time bandwidth usage and when end-users need to be informed about temporary network or security problems.

Managed services

Managed services are inherently violating network neutrality, so their usage must conform to the following rules:

- following the 2010 ARCEP proposal, that managed services cannot degrade the service of a normal network below a minimal acceptable level (if possible managed services should run on seperate physical networks)
- the customer must be free to choose managed service providers/services (vertical decoupling)
- the managed services purpose must be narrowly specified (e.g. emergency alarms)

Capacity management

Commercial arrangements generate profit through over-selling their capacities and reinvesting into operating content and service operations, which are currently the defining factors for competition. Unfortunately re-investment of profits into infrastructure is less common. Vertical monopolies based on the last-mile, must be separated into distinct markets, restricting access providers to focus their re-investments on only on this competence, while restricting participation in other segments.

General over-selling of capacity must be regulated, providers not being able to serve the sold bandwidth, must at least compensate for the unavailable bandwidth to customers. In such cases transparency must be also ensured, so that customers are aware of the true capacity of a provider.

Consumer control

QoS can be monitored by all users, real-time transparency of bandwidths speeds and quality enables users to measure and react independently. Especially if the end-users have access to open tools on their devices and switching providers is very easy. There should be free/open-source tools available for any user to monitor the quality for oneself, this also implies the freedom to run any kind of software on our devices. Currently the vendor (provider) lock-in of the end-user devices makes this hard. Encouraging easy switching between providers, open standards and free and open-source software on these devices will empower citizens to act as better-informed agents on the market.

If there is true end-to-end network neutrality, then transparency is necessary for end-users to monitor the available bandwidth and for temporary network and security problems on a real-time basis. If a provider does not adhere to the end-to-end principle, then transparency should mandate this provider to advertise other providers that adhere to the end-to-end principle. For this to be feasible, we need non-commercial public access providers, that can act as such actors on the market.

Other effects

Alternative content producers, such as small studios, artists and amateur communities will not be able to participate as equals among content providers. This reverses the multiplicative effect on content generation on the Internet, reducing competition for the dominant players in the content industry. The generative nature of the Internet could be decreased from a participatory to a consume-only medium.

Conclusion

While commercial and public interests collide, it is important to note that the short-term business interests are in no relation to the long-term societal benefits that this debate is trying to reverse.

sincerely,
Stefan Marsiske