

A Norwegian perspective on European regulation of net neutrality

By Frode Sørensen, Senior Advisor, Norwegian Communications Authority

Abstract

After the advent of the political agreement about pan-European net neutrality regulation, several related questions would be interesting to discuss. Due to the relatively long history of net neutrality in the US, one can ask how the European approach compares with the US, both regarding cultural background and technical details. Furthermore, a major criticism that has been raised regarding the European net neutrality rules is that it hardly addresses zero-rating, and one can ask how net neutrality relates to such charging models. In this paper, these two questions are discussed from a Norwegian perspective.

The agreement about the European net neutrality rules was reached between the Commission, the Parliament and the Council in Brussels 1 July 2015. The FCC published the new US net neutrality rules 26 February 2015, a step ahead of the European developments. These two approaches to regulation of net neutrality have similarities and differences. Similarities may be easily understood due to cross-Atlantic influence, but are there any particular reasons for the differences?

In the second part we are digging into the core of net neutrality, and the key to understand this concept is application-agnosticism. This is basically a technical characteristic regarding traffic management practices, but an interesting aspect is that it has economic implications regarding charging models. The paper walks through application-agnostic traffic management as well as application-agnostic charging models, leading to conclusions regarding zero-rating.

Introduction

An agreement about European net neutrality rules was reached between the Commission, the Parliament and the Council in Brussels 1 July 2015. The FCC published the US net neutrality rules 26 February 2015, a step ahead of the European developments.

The first part of this paper presents some thoughts regarding comparison between the two approaches to net neutrality on the different sides of the Atlantic, as seen from a Norwegian perspective.

And the second part of the paper discusses the relationship between net neutrality and traffic handling, and the relationship between net neutrality and charging models, including zero-rating, from a Norwegian perspective.

First, a quick walk along the Norwegian historical milestones related to Internet, net neutrality and democracy:

- **Norway has the longest running net neutrality regime in Europe**

In 2009 Norwegian net neutrality guidelines were adopted based on a co-regulatory approach, with clear rules against blocking and throttling of applications (not to be compared to self-regulation which typically only covers transparency, while allowing throttling and blocking).¹

- **Norway was the first country outside US that was connected to the Internet**

In 1973 Norway established the first non-US node on ARPANET, the predecessor of the Internet. In the beginning, the connection was primarily used for seismic data exchange, subsequently giving access to additional Norwegian research institutions.²

- **Norway has one of the oldest constitutions in the world which is still in use**

There is a strong democratic tradition in Norway. Inspired by the US Declaration of Independence 1776 and the French revolution 1789, the Norwegian Constitution from 1814 was at the time considered one of the most liberal and radically democratic in the world.³

This may be mere coincidence, and I will not speculate, although it is a fascinating constellation of historical facts. Anyway, Norwegians are today enjoying an open Internet!

¹ <http://eng.nkom.no/technical/internet/net-neutrality/net-neutrality>

² <http://www.norsar.no/norsar/about-us/History/Internet/>

³ http://en.wikipedia.org/wiki/Constitution_of_Norway

Part 1 – A comparison between European and US attitude to net neutrality⁴

Discussion of European vs. US background

Europe is a large continent with varying cultures, as well as different approaches to net neutrality. And how do Europe compare with US regarding attitude to net neutrality? There are several significant differences which I would like to address.

Can regulated local loop unbundling ensure net neutrality in Europe?

It has often been speculated whether local loop unbundling in Europe would lead to a significant difference in the need to regulate net neutrality.⁵ Unbundling stimulates the establishment of competing providers of Internet access services. This increases users' possibility to choose a neutral Internet access service.

However, Internet access is not like any other service, since an Internet user is (of course) not communicating with himself. Users need to communicate with *other* users in the other end, and these users may not be switching to a neutral Internet access service.

And restrictions on Internet access services for some users fragments the Internet, the possibility for user-to-user communication becomes lower, and the size of the market for content and application providers becomes smaller. The network effect is reduced.

Significant level of restrictions of Internet access in the European market

An investigation of the actual level of restrictions on Internet access in the European market, conducted by BEREC in 2012, showed that every fifth fixed

⁴ These considerations were elaborated for the Net Neutrality panel of the SMART Workshop which was organized on 22 April 2015 in Barcelona (ref. <http://internet-monitoring-study.eu/>), where these two approaches were discussed between Scott Jordan (FCC) and Frode Sørensen (Nkom). The considerations were subsequently updated after the 1 July agreement to reflect latest European developments in the area.

⁵ Christopher Marsden (2009). Net Neutrality 'Lite': Regulatory Responses to Broadband Internet Discrimination, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1330747

Internet connection and every third mobile Internet connection experienced blocking or throttling of applications.⁶

It is interesting to read the analysis by van Schewick in The Atlantic in 2014: "Unlike Internet users in Europe, many of whom are on restricted Internet service plans that ban the use of specific applications on mobile networks, U.S. users have experienced the power of an open Internet—and they are not willing to give it up."

The amount of restrictions was one of the major reasons presented by the European Commission when they in September 2013 proposed a net neutrality regulation.

Europe, despite the European Union, still consists of many strong national states

Furthermore, different national approaches to net neutrality have developed over time. Norway has its co-regulatory approach, while the Netherlands and Slovenia have adopted net neutrality laws. Several member states were considering net neutrality rules before the European Commission proposed the regulation of net neutrality.⁷

After the European Parliament in April 2014 strengthened the proposed net neutrality regulation, the national interests within the Council of EU discussed significantly weaker proposals which were presented during the trilogue meetings between the Commission, the Parliament and the Council in Brussels. And finally, on 1 July 2015 an agreement between the three was announced.

The most successful content and application providers (CAPs) are US-based

ISPs express worries about increasing power of CAPs, and many major successful CAPs are US-based. This may have given an impression that there

⁶ BEREC (2012), BoR (12) 30, A view of traffic management and other practices resulting in restrictions to the open Internet in Europe, [http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/Traffic Management Investigation BEREC_2.pdf](http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/Traffic%20Management%20Investigation%20BEREC_2.pdf)

⁷ European Commission, 2014 Report on Implementation of the EU regulatory framework for electronic communications, <https://ec.europa.eu/digital-agenda/en/news/2014-report-implementation-eu-regulatory-framework-electronic-communications>:

"Belgium and Luxemburg were considering legislating and have opened a debate on net neutrality; however the process is pending the co-legislative process on the Connected Continent initiative. In Germany the draft decree on net neutrality of June 2013 was not further pursued. In January 2014 the Finnish Government submitted its proposal to the Parliament on the 'Information Society Code', a telecoms legislative package scheduled for 2015 that includes provisions on net neutrality."

is a particular need to protect European ISPs against US CAPs. However, blocking and throttling of content and applications would not lead to any stimulation of European CAPs! And CAPs are essential since it is the demand for content which drives the demand for bandwidth.

The ISPs have a gatekeeper role towards their subscribers. And the termination monopoly problems leading to sector specific regulation of traditional telecoms may revive in new fashions for providers of Internet access services due to the powerful deep packet inspection techniques. Therefore, net neutrality is important for innovation among European CAPs that can compete with US-based CAPs.

European telecom technology has shown major success in mobile communications

The European Telecommunications Standards Institute (ETSI) developed the GSM mobile telephony system, which became widespread over the world. Furthermore, its successor the 3G-system UMTS, standardized by 3GPP, has also taken over as a prevailing technology for the previous US-dominated 3GPP2 standards, while being succeeded by LTE (“4G”).

US on the other hand, have a stronger tradition in IP technology, being “the cradle” of the Internet. This may have led to a better position in the communication technology development where IP has become “the winner”, as well as a better understanding of how to adapt to this new paradigm which is replacing traditional telecommunications.

How come US citizens show such enthusiasm in protecting net neutrality?

What is the reason for the strong engagement of the US population in the public net neutrality discourse? There seems to be a more relaxed attitude to net neutrality in Europe, although there are some strong advocates on this side of the Atlantic as well.

Can this be understood in the context of the First Amendment to the US Constitution and the strong position of freedom of speech in the US society? Is the “Internet freedom” simply highly valued by US citizens as a prolongation of this well-established constitutional principle?

Fundamental elements of net neutrality regulation

How does this difference in background between Europe and US influence the proposed net neutrality regulations on the different continents? This may be difficult to prove, but the differences in the regulations are anyway interesting to investigate.

Application-agnosticism

Equal treatment of traffic from different applications, so-called application-agnosticism, is the essence of net neutrality, and therefore it should be expected that this is safeguarded in such regulation. Non-blocking and non-throttling are obvious characteristics of both proposed regulations reflecting this.

The rules from FCC are even clearer and add non-prioritization to these characteristics. Regarding the European proposed rules, they announce: “Providers of internet access services shall treat all traffic equally, when providing internet access services”.⁸ However, the effect of this depends on the implementation of the rules for exceptions.

Reasonable traffic management

Net neutrality is of course not regulated to give obstacles to efficient operation of networks or protection of citizens, even though stakeholders sometimes present such travesty. To accommodate such measures, reasonable traffic management is allowed. A typical example is preservation of network integrity and security.

The proposed European rules have fairly well designed exceptions for reasonable traffic management. Unfortunately, the rule for handling of network congestion does not prescribe that the exception should only be granted when application-agnostic methods are not usable. Traffic overload can in many cases be fully handled by application-agnostic methods.

Specialised services (non-Internet access services)

Specialised services, also referred to as “non-Internet access services”, provide extensive exceptions from net neutrality. Therefore there must be clear rules regarding which services that can be approved as specialised services. First, the traffic from such services should be isolated from the traffic on the Internet, and second, specialised services should not be provided at the expense of Internet access services.

Regarding the former, the proposed European rules remain unclear, while the US rules say that “these services use some form of network management to isolate the capacity used by these services from that used by broadband Internet access services”. Regarding the latter, the European rules say that such services may be offered “only if the network capacity is sufficient to provide them in addition to any internet access services provided”. But the implementation of this rule is still pending.

⁸ Council of the European Union, 2015, Roaming and open internet draft regulation, <http://data.consilium.europa.eu/doc/document/ST-10409-2015-REV-1/en/pdf>

Zero-rating and price discrimination

Recently, there has been much attention to data caps and zero-rating, in particular for mobile Internet access services. Simple data caps can be application-agnostic and would then not lead to concerns regarding net neutrality. However, in case of exempting particular applications from charging, so-called zero-rating, would obviously not be application-agnostic.

In the legislative net neutrality initiatives on both sides of the Atlantic, this question is not fully resolved yet. However, the US net neutrality rules seem to acknowledge that this will need particular regulatory attention, and such matters will be scrutinized on a case-by-case basis.

In Europe, a few national initiatives have tackled the issue. In the Netherlands and in Slovenia, the regulators have taken concrete decisions against zero-rating based on the national laws. In Norway as well, it has been clarified that zero-rating would be regarded as a breach of the national net neutrality guidelines. However, proposed European rules, has not resolved this issue explicitly. And it remains to be seen how “commercial practices which by reason of their scale, lead to situations where end-users’ choice is materially reduced in practice” will be interpreted.

Net neutrality has been an important regulatory question in Nkom’s work for many years, and it is interesting to see how the relevance of net neutrality has grown in Europe lately. But the public debate never reached the same temperature as in the US, while FCC has taken a clear position to strengthen net neutrality through its new rules. The question is; has Europe really taken a strong stance regarding net neutrality to achieve similar safeguards for an open Internet, or will we be lagging behind the US?

Part 2 – Net neutrality and charging models ⁹

Lately we've seen a change in the European net neutrality discussion where charging models have become more central. In this part of the paper we discuss how the relationship between net neutrality and traffic handling has implications regarding the relationship between net neutrality and charging models. The clues to this discussion are application-agnosticism and user-control. But this still allows rich possibilities for ISPs to perform traffic management and product differentiation, as described below.

In simple terms, net neutrality means that the Internet works the same for different users of the net, regardless of who you are. Norway has had guidelines on net neutrality since 2009, and these seem to be working well as a regulatory tool to preserve net neutrality for the citizens. Through the EEA Agreement, the new regulation of net neutrality in Europe will also apply to Norway when it enters into force.

Net neutrality – equality and variation

Some people argue against net neutrality on the grounds that the Internet has never worked the same for all users, or for all types of usage, which is in itself true. However, the goal of net neutrality is not that all traffic should be handled identically – which would never be possible in practice. The aim is rather to preserve the Internet as an open platform for communication and avoid discrimination between applications or fragmentation of the Internet.

A commonly used analogy for Internet communication is the road network. In this analogy net neutrality means that we want the same rules for all traffic on the "road network". But, as for the road network, there are various ways of accessing the Internet. Different technologies such as telephony networks, cable TV networks, fibre networks and mobile networks all have varying qualities and provide varying access speeds. It is also common practice for a single technology to operate at different speeds for various types of subscription. However, with regard to net neutrality, the point is that it is the users of the Internet access who decides what their access is to be used for.

Following the analogy, inside the Internet too, the various "highways" have different capacities. The capacity is typically deployed by the Internet service provider, based on how much traffic there is to the various destinations. As users of Internet communications, we can observe this by running speed tests via our own Internet access. In some cases disputes arise when the

⁹ This paper was originally published at Nkom's web site (<http://eng.nkom.no/>), but has subsequently been updated to reflect latest developments.

interconnection between the different providers' networks need upgrading. Until such disputes are settled, this can lead to short-term reduced speed when users communicate via these interconnections. But as long as all the different applications are treated equally, this is not a direct violation of net neutrality.

Charging models for Internet access services

Internet service providers use differentiation of Internet access services as a natural element of their business model. We all benefit from well-functioning businesses that can offer a wide range of well-functioning, affordable communication services to the population. Today it is common for providers to charge users on the basis of capacity (speed) and/or volume, depending on the technological platform.

According to economic theory, offers of different qualities at different prices can help to ensure that people with lower willingness to pay are also able to obtain a product.¹⁰ Product differentiation can be fully compatible with net neutrality, since different speed classes mean that the different products have varying quality. Differentiation based on other quality parameters such as time delay or service availability can also be used similarly. By contrast, services that provide access to selected sets of content or applications would be typical examples of differentiation that would violate net neutrality.

Nowadays it has also become common practice for subscriptions to be differentiated on the basis of volume limits. Again, as long as this is done independent of the traffic type, this does not provide grounds for concern in respect of net neutrality. However, in recent years providers in some countries have launched service offers where specific applications are exempted from charging.¹¹

What about zero-rating?

The Norwegian guidelines on net neutrality state quite clearly that "Internet users are entitled to an Internet connection that is free of discrimination with regard to type of application, service or content or based on sender or receiver address." This means that in the Norwegian market zero-rating would constitute a violation of the guidelines. At first glance it may appear that all traffic is handled equally in this charging model, but once you have used your quota, the traffic that is exempted will usually be allowed to continue, while all other traffic will be throttled or blocked. This is clearly a case of discrimination between different types of traffic.

¹⁰ https://en.wikipedia.org/wiki/Price_elasticity_of_demand

¹¹ Digital Fuel Monitor (2014). List of 75 zero-rated, potentially anti-competitive mobile applications/services, violating net neutrality, in EU28, http://dfmonitor.eu/insights/2014_oct_zerorate/

Also for data plans where users can upgrade their basic data cap with an additional quota, there is discrimination between different traffic types. For any given total quota bought by a user, consider a user pumping exempted traffic, such traffic would always run at full speed since it never reaches the limit of the total quota, compared with a user pumping non-exempted traffic which would eventually become blocked when it reaches the limit of the quota.

Another way to consider this would be to assess the average speed provided to the users, which would become application-specific. Again, for a given total quota bought by a user, consider a user pumping exempted traffic, such traffic would achieve a considerably higher average speed, compared with a user pumping non-exempted traffic which would eventually reach the limit of the total quota and thereby achieve a lower average speed.

Furthermore, in the heads of the users there would probably be a “traffic filter” choosing which application(s) to prefer, based on a decision taken by the Internet service provider. Thereby we can understand that also for data plans with continuous volume charging without explicit quotas, such personal “traffic filters” would still have effect due to the incentive to select specific applications to avoid high bills by the end of the month.

There are of course arguments in favour of zero-rating that make the method seem quite fair. As consumers, we may find it advantageous that we do not have to pay for a particular type of traffic. Nevertheless, zero-rating lead to selected traffic from the Internet service provider itself or affiliated providers being favoured above other traffic. And this is exactly the kind of situation net neutrality aims to avoid – allowing the Internet service provider to decide how we use the Internet. Instead, the Internet should remain an open, neutral platform for all types of communication.

The Norwegian Communications Authority (Nkom) has long been working actively for net neutrality for the benefit of Norwegian consumers, organisations and businesses. The Internet is important to economy, cultural diversity, social life and democracy, and Nkom therefore works to preserve the Internet as an open platform. Internet service providers should instead use other methods than discrimination of content and/or applications to differentiate their products, e.g. based on access speed.