

The Norwegian model for net neutrality

A repetitive theme in the media and at conferences in these "everyone is always online" times is how the growth in traffic on the Internet should be managed. The type of charging model that should apply is an equally obvious part of the debate. Net neutrality is often put forward as an important element in these discussions. So, what does the "Norwegian model" actually say about net neutrality when considering these issues?

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When one considers, among other things, the growth in traffic and charging models, it is important to know how traffic on the Internet is actually handled.

Firstly, this traffic has always grown quickly and this is the distinguishing feature of the Internet's success. The growth in traffic is also based on the rapid development in communication technologies such as optical fibres and high-capacity radio communication as well as adaptable Internet architecture. Local caching of content (CDN - Content Delivery Network) and congestion control in the computers that are connected to the Internet are examples of the latter.

Secondly, it is essential to remember that it is the providers themselves that choose to use a charging model with a "flat rate" for Internet access. This may appear less suitable on mobile networks and the providers have tending to use volume caps for many of the subscriptions. The amounts paid by content and application providers connected to the Internet are based on commercial agreements between the market players. During negotiations for such agreements, the network operators can offer the transmission capacity while the content providers offer attractive content to the operators' customers.

It is of course the *content* that is available via the Internet access that drives the end users' demand for high-speed access.¹ If there had not been large amounts of content, or mainly content that did not require high capacity, the demand would be less and the operators would receive lower revenues from the sale of Internet access. In this way, the development towards capacity-demanding content, such as the streaming of video, constitutes a win-win scenario for the content providers and network operators.

Last, but not least: the utility value of content and applications increases with the number of users of these. This is known as the network effect. According to Metcalf's law, the value of an application increases in proportion to the square of the number of users.² On the other hand, if there are fewer end users who have access to, for example, video sharing or voice over IP, the value of the application will be reduced. This will then also reduce the end users' capacity demands for Internet access.

Net neutrality in all of this

How does net neutrality then come into the picture? Net neutrality means that all electronic communication that is transferred over a network is handled equally, for example, regardless of the type of content or application. If Internet service providers breach net neutrality and start using *content and application-specific* traffic management, for example, by throttling streaming or blocking voice over IP, this will mean that the utility value of these applications will fall.

¹ See for example ["Network Operators and Content Providers: Who Bears the Cost?", WIK Consult](#)

² See for example [Wikipedia's article about "Metcalf's law"](#)

In addition, the traffic load is not dependent on the type of content or application. If an end user sends or receives a traffic stream of, for example, 1 Mbit/s, this is the same load regardless of the type of content or application it transfers. If the end user pays for capacity on an Internet access, the user should be able to use this capacity to transport various forms of content or applications of their choice.

The Norwegian model

The Norwegian model for net neutrality is based on a co-regulatory approach. That is to say that the regulator, the Norwegian Post and Telecommunications Authority (NPT), has worked together with the different stakeholders developing a model for net neutrality. In 2009 the Norwegian guidelines for net neutrality were launched and there have since been annual stakeholder meetings to monitor the status of net neutrality in Norway. The conclusion from these gatherings has been that the guidelines still appear to function as intended.

The Norwegian guidelines can be seen as an approach that prevents the potential need to require net neutrality by law. In the Netherlands and Slovenia they have taken this step and have established such laws and the matter is up for political debate in Belgium. It is of course interesting when [foreign observers state that the Norwegian model has become famous](#). At the same time it is essential that the industry complies with the guidelines, something that is a requirement for the model to succeed.

It is also an important point that market players that have not formally endorsed the guidelines follow the guidelines in practice. This entails that we have an open platform for the transfer of content and applications in the Norwegian Internet market. A situation in which, for example, an application such as voice over IP is blocked for certain types of subscriptions, would not be as satisfactory because the users that do not have access to the application will influence the possibility of using the application for those who have access, cf. the network effect.

Traffic management on the Internet

The Internet's mode of operation can appear complicated. The NPT sometimes receives questions about how "traffic management" on the Internet, particularly the caching of content (CDN), can be understood in terms of net neutrality. CDN is a special form of traffic management and is, in many ways, more a form of local content storage. At present, the NPT has concluded that, as a starting point, the ordinary use of CDN servers is not a breach of net neutrality³, however NPT has not expressed a "carte blanche" that any CDN implementation is net neutral.

CDNs can be understood using an analogy from traffic management on the road network. When there are queues on the road, the cars have to stay in the same queue regardless of whether they are driving locally or whether they have come from a long distance away. If a store that is located far away is visited by many people, the traffic can be reduced by the store establishing more shops closer to where people live. This will be "neutral" because all the cars have to go into the same queue, regardless of whether some drive shorter distances than others.

However, if the customers from the store are given a separate driving lane which has less traffic than the normal lanes or if the store's customers are all given a green light, this would of course no longer be neutral. In the same way, the use of CDN servers that are connected to dedicated transmission lines or that use a higher priority level than "best effort" will not be considered net neutral.

The guidelines for net neutrality apply to traffic management on the Internet. The Internet is our common "road network" for electronic communication. Some operators also provide services other than Internet access via broadband. A typical example is IPTV provided on a closed network (i.e. not

³ See [the NPT's report on Content Delivery Networks \(CDN\)](#)

over the Internet) which can, in principle, be considered a modern form of cable TV. These types of services are often referred to as "specialised services" and as long as these are not provided at the expense of the Internet service, net neutrality will not apply for them.⁴

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⁴ See Principle 1 in [Norwegian guidelines for net neutrality](#)