
NET NEUTRALITY AND VIDEO DISTRIBUTION IN EUROPE AND THE US
KEY POINTS FOR DUTCH MEDIA COMPANIES
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This presentation contains notes
TNO innovation for life
RVO Partner in Business program Dutch Media Innovators - November 2017

SUMMARY (1)

Situation – Net neutrality rules are important for media companies, Internet service providers and consumers as it affects the conditions for distribution of streaming music and video. The US and Europe both have net neutrality rules in place – although the US rules are likely to be withdrawn. For Dutch media companies with (planned) activities in the US, it is important to understand how these rules work out for the distribution of their media products and applications – and what removal of the rules would mean.

Question of RVO to TNO – RVO has requested TNO to develop a compact comparison of the net neutrality rules in the US and Europe, to be documented in a short slide set with notes.

Target audience – This slide set is aimed at Dutch media companies with (planned) activities in the US, and in particular companies in RVO's Dutch Media Innovators program. They can use it in the development of their strategy, business plans and partnering.

Sources and approach – For the comparison, TNO has analysed the European net neutrality regulation, the associated BEREC guidelines and FCC's Open Internet Order. The consequences of the rules are illustrated for the important case of zero rating of music and video content. In this commercial arrangement, the data used for music or video content does not count against the (monthly) data allowance that consumers have in their internet subscriptions. The case is visualised using TNO's DAMIAN method for the analysis of regulation in the media-internet-telecom ecosystem.

SUMMARY (2)

Main messages
The EU (NL) and US net neutrality rules look rather similar for media companies.

- The Dutch rules are now aligned with EU rules on zero rating
- The EU rules and BEREC guidelines provide number of safeguards against anti-competitive use of zero-rating
- The US rules are likely to be withdrawn, thus removing safeguards around all net neutrality topics

Media companies can benefit from participating in a zero-rating agreement for their distribution over the Internet

- The benefit is clear when participation is free and open to all video/music providers
- For media start-ups, sponsored data (involving a payment to the ISP, as is sometimes done in the US) may be to expensive or complicated and present a barrier to entry
- All media companies benefit from fully unlimited data subscriptions

Net neutrality is important but also clearly not the only factor affecting consumers and companies in the media-Internet ecosystem. Apart from the asset that is central to net neutrality, the Internet access infrastructure, other assets are also relevant for the positions that companies have, such as content rights, and access to popular devices and app stores

PROJECT DATA

Title	Net Neutrality and Video Distribution in Europe and the US - Key points for Dutch media companies
Author	Pieter Nooren
Reviewer	Martin Prins (TNO), Maarten Brinkerink (Beeld & Geluid)
Report number	TNO 2017 R10928
Project number	060.28128 (TNO), G2G15C1703 (RVO)
Version	Final
Date	November 2017
Sponsor	Netherlands Enterprise Agency (RVO.nl)
Contact at sponsor	Onno Bakker

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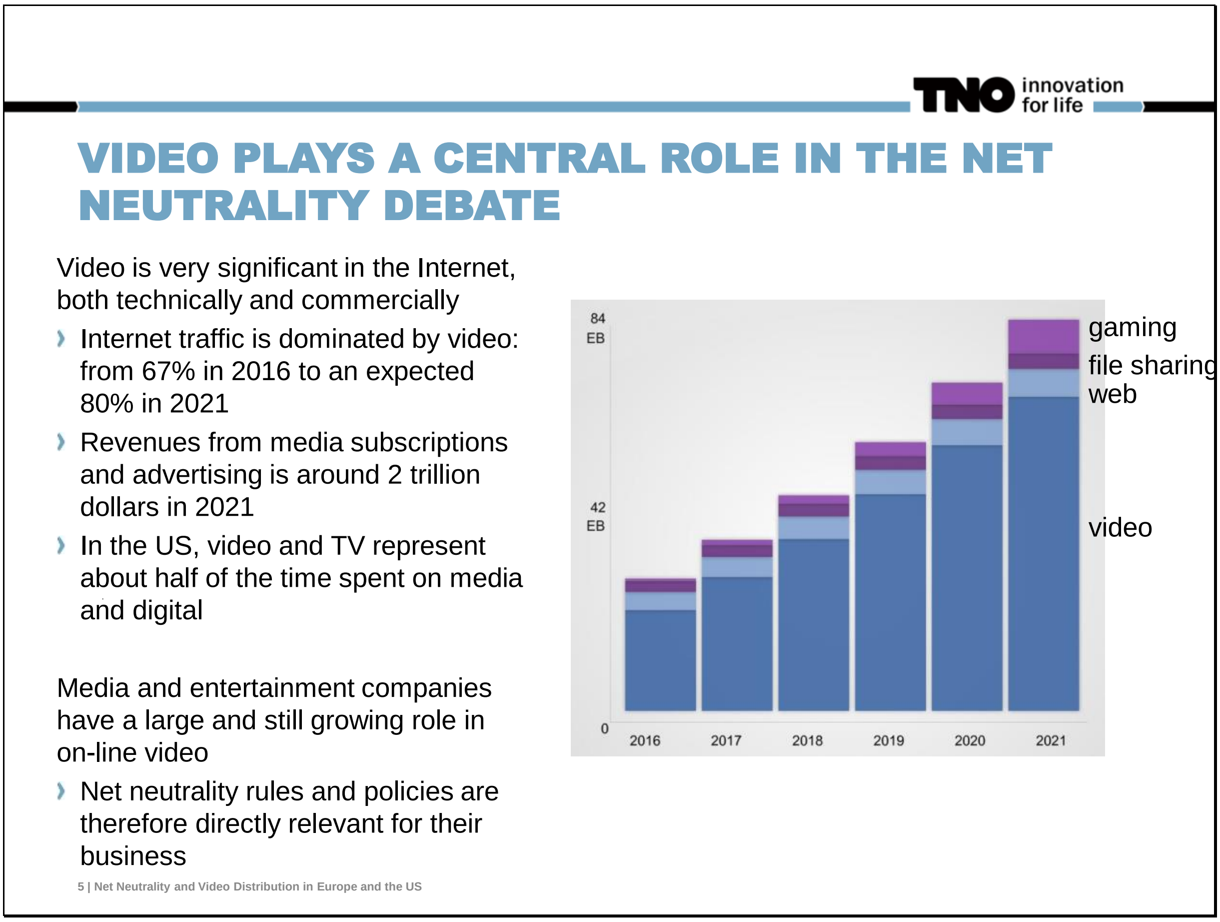


Media and entertainment companies have come to depend heavily on the Internet for distribution of their services to consumers. Through their video streams, they play a central role in the net neutrality debate for both technical and commercial reasons:

- Technically, one sees that global IP traffic is dominated by video. According to Cisco's Visual Networking Index [1], a well-established source on Internet traffic volumes and application usage, the Internet video share of total Internet traffic will rise from 67% in 2016 to 80% in 2021. Therefore, traffic management by ISPs, which is one of the key topics in net neutrality discussions, often touches on video.

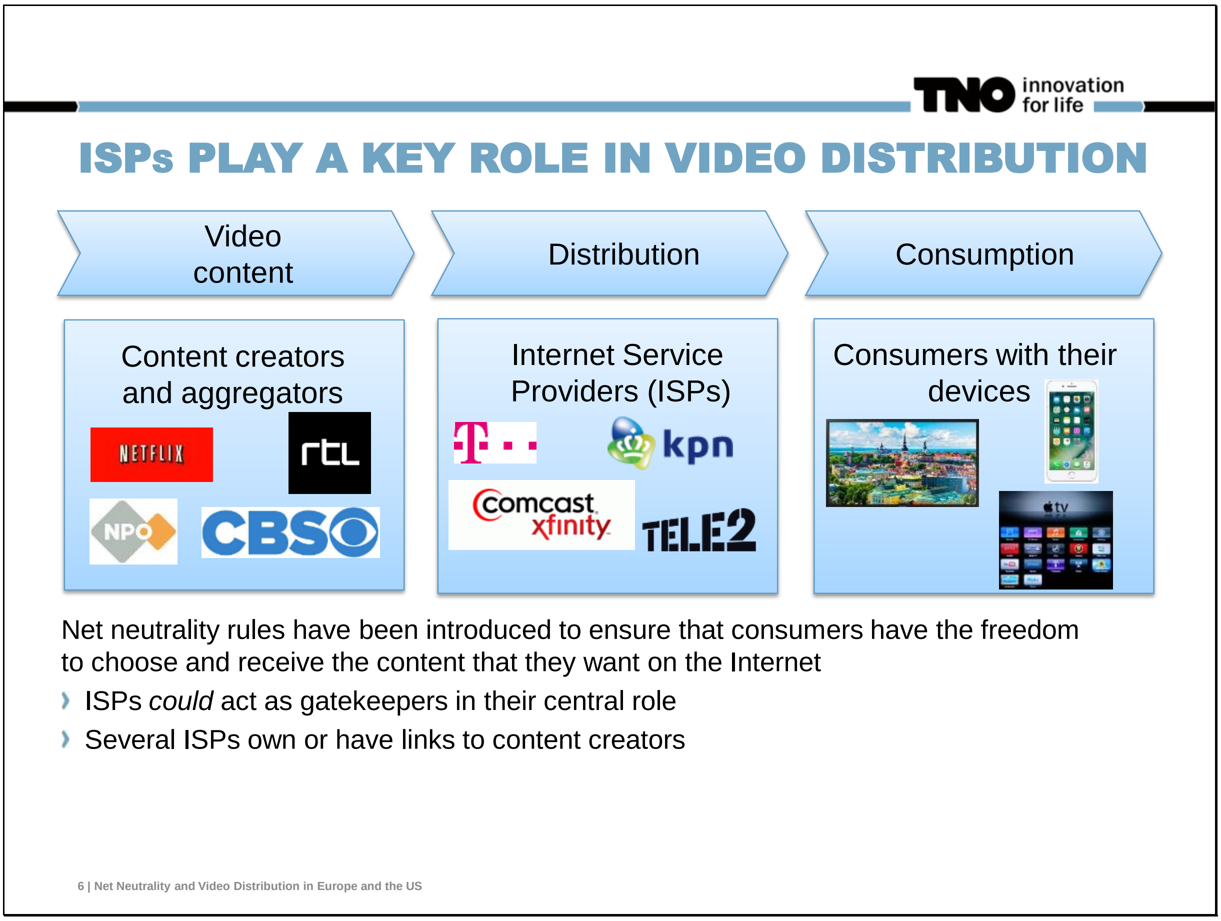
- Commercially, the revenues from media spending by consumers and from advertisers are very significant. PwC estimates that the total revenues will be 2.2 trillion dollar in 2021 [2,3]. Much of these revenues are related to TV and video. Therefore, the end user choice in content and applications on the Internet and the innovation in applications that are central in net neutrality discussions immediately affect large revenue streams. This explains the commercial significance of video in net neutrality discussions.

Net Neutrality and Video Distribution in Europe and the US - Slide 5

- Video is also important from the consumers' perspective as they spend a very substantial amount of time on it. Consumers increasingly engage in media multitasking, e.g. watching TV and checking social media in parallel. From data by eMarketer [4] on US consumers in 2017, it is seen that various forms of streaming video and TV account for about half the time spent by consumers on major media, with the other half made up of social networking, radio, and print newspapers and magazines. eMarketer reports that due to multitasking, the total time spent on media adds up to around 12 hours per day.

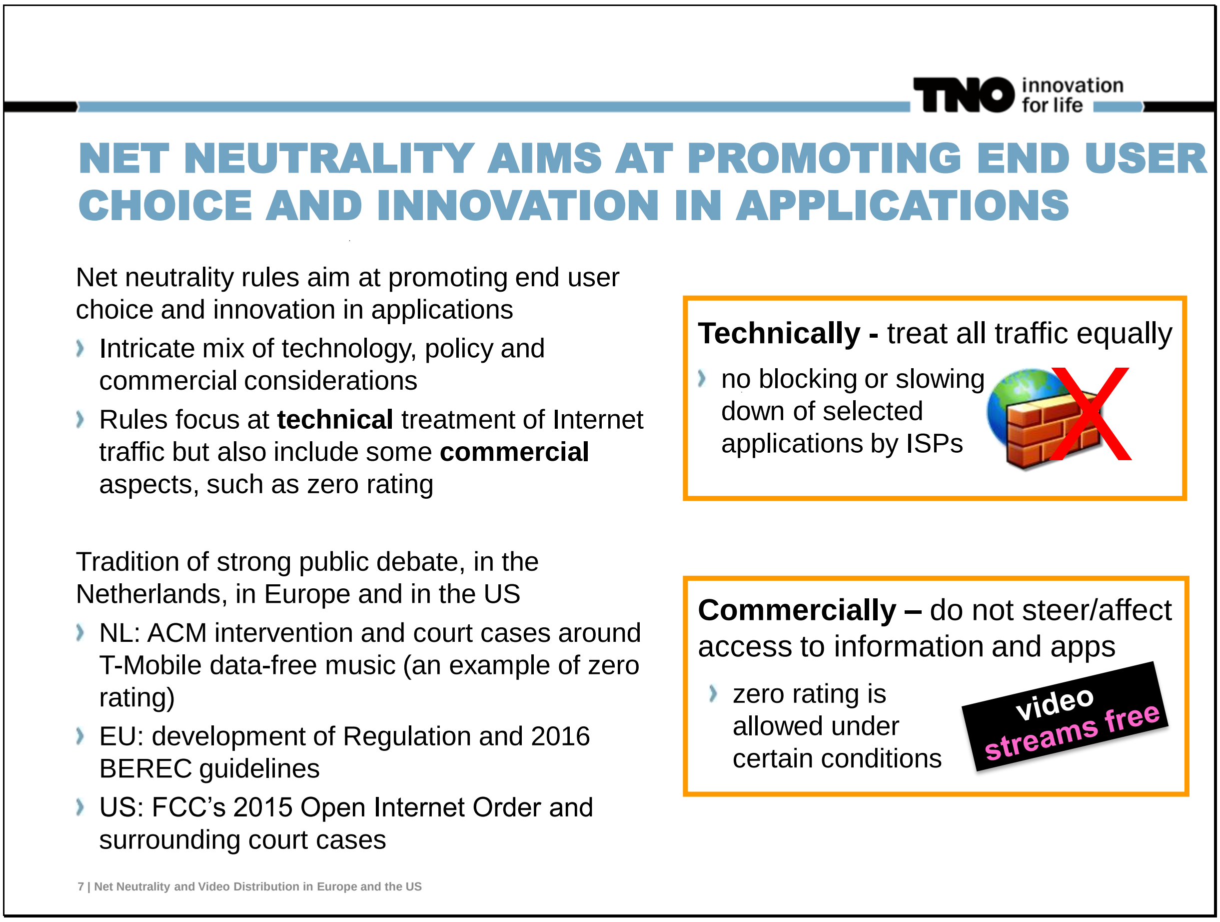
Net neutrality rules are therefore important for media companies and consumers as it affects the conditions for distribution of streaming music and video.

Net Neutrality and Video Distribution in Europe and the US - Slide 6



In slides 13-16, this simple picture is expanded to properly analyse the options in distribution and the interactions between companies.

Net Neutrality and Video Distribution in Europe and the US - Slide 7

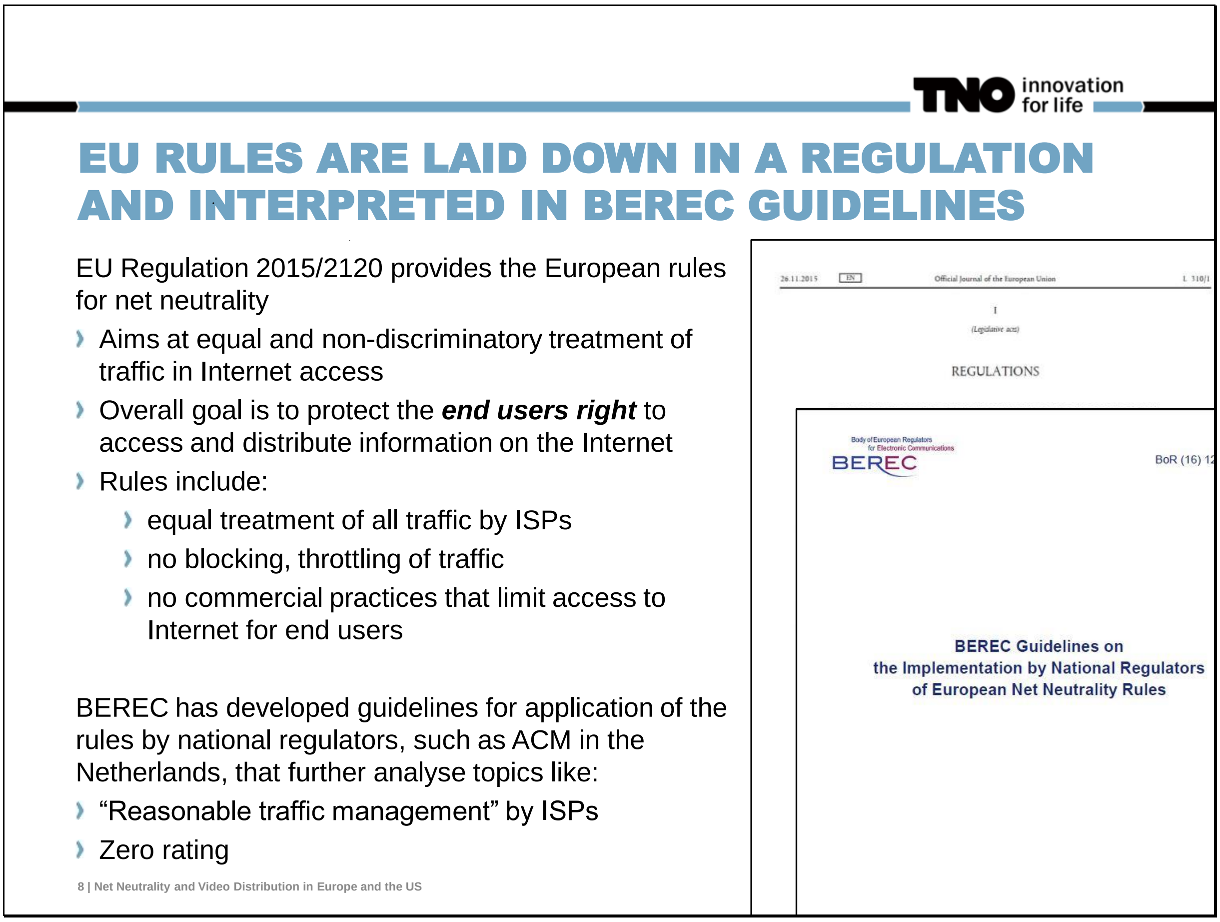


The background and rationale for net neutrality regulations can be found in many excellent academic texts, such as [5]. Over the years, it has turned into a rich area for scholars and academics. For this slide presentation, it is sufficient to keep in mind that there are (at least) two overall goals:

1. to promote the choice and freedom that end users have for accessing and distributing information on the internet via the access they buy from their ISP and
2. to promote innovation in applications in the Internet ecosystem by safeguarding the access that providers of new applications have to (consumer) audiences.

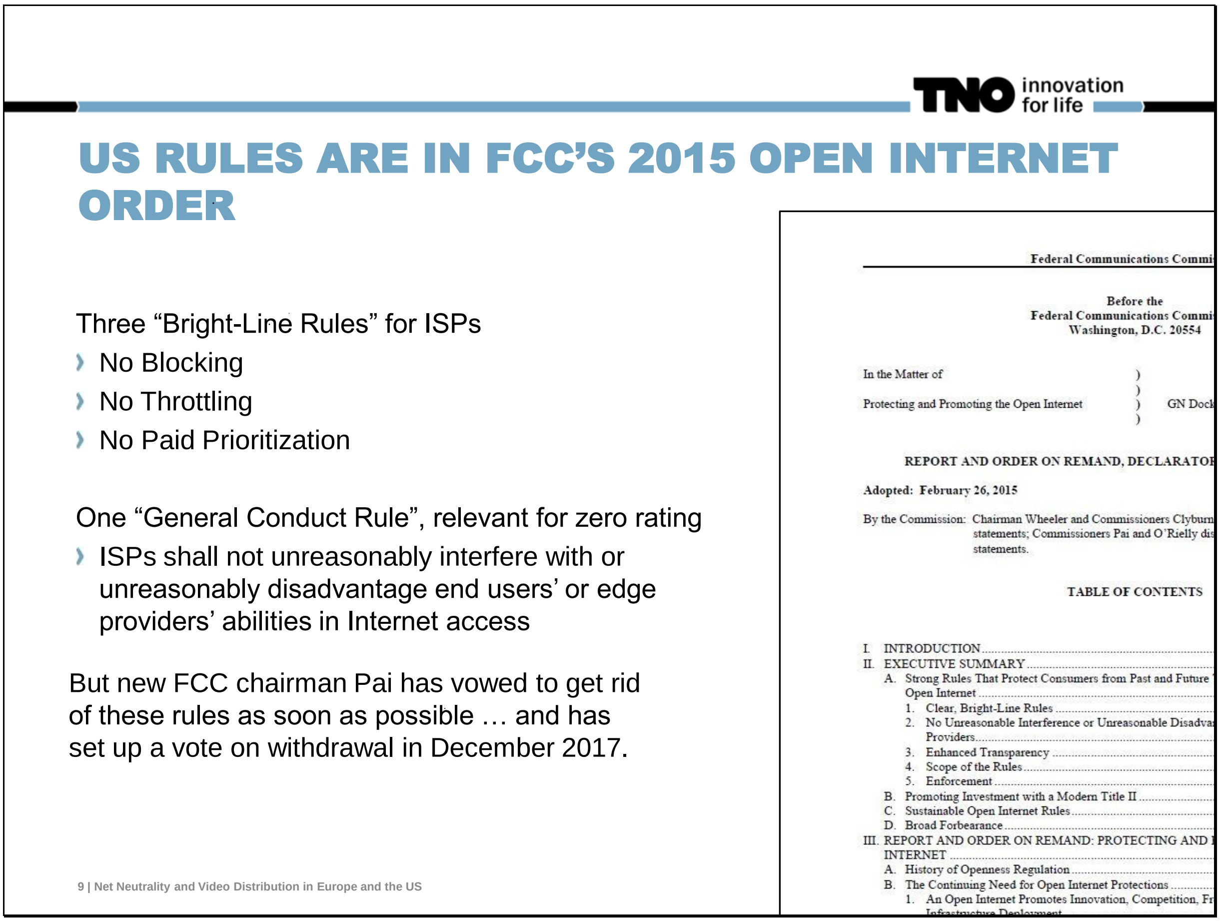
Net neutrality rules tend to focus at the technical treatment of traffic in the internet access by ISPs, but there are also some rules on commercial aspects. Zero rating arrangements, such as the ones analysed later on in this slide set, are the most prominent examples of so-called commercial practices touched by the rules.

Net neutrality is a policy area with a tradition of strong debate in the Netherlands, in Europe and in the US. The debate includes many perspectives: from technical and business to societal and ideological, and the interests at stake are large. In 2011, the Netherlands was a frontrunner in net neutrality regulation with its ground-breaking law, triggered by operator plans for charging for over-the-top communication apps. The discussion and court case in 2016-2017 around the zero rating arrangement in T-Mobile Netherlands data-free music is discussed later in this slide set. A much wider, multi-year discussion occurred around the development of the European Regulation from 2015 that laid down the rules for net neutrality in Europe. The rules Europe are now stable and supported by guidelines by BEREC, the body for European Regulators in Electronic Communications, in which the Dutch regulator ACM is a member. The rules in the US appeared reasonably stable after the extensive discussion preceding the FCC’s 2015 Open Internet Order. However, in 2017 the new Republican leadership of the Federal Communications Committee initiated the withdrawal of the rules in their entirety.



The European rules for net neutrality are laid down in the European Commission regulation 2015/2120 [6]. The main elements are that ISPs shall treat all traffic equally and shall not block, slow down, alter or discriminate between specific content or applications. Because the rules are in an EU regulation (and not in a so-called directive), they apply “as is” in the Netherlands and the other EU Member States, i.e. without room for national modifications.

The implementation guidelines [7] developed by BEREC, the body of European Regulators for Electronic Communications, are very important for the practical application of the regulation by the national regulators such as ACM. Among other things, the guidelines provide the elements to be considered when assessing the appropriateness of zero-rating arrangements, such as the market positions of the ISP and application providers and the effects on entry barriers for application providers.



In the US, the Federal Communications Committee (FCC) published its latest net neutrality rules in its 2015 Open Internet Order [8]. There are three "bright line rules": no blocking, no throttling and no paid prioritization by ISPs, supplemented by a generic standard for future conduct that could apply to zero-rating.

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THE US RULES SEEM TO BE ON THEIR WAY OUT … BUT NOT WITHOUT DISCUSSION

FCC will vote whether to delete net neutrality on December 14

Posted Nov 21, 2017 by Jonathan Shieber (@jshieber)

John Oliver's plea for net neutrality may have provoked hackers to knock out FCC website

At the time of writing of this slide set, the US rules for net neutrality seem to be on their way out. FCC chairman Ajit Pai has set up a vote at the FCC to withdraw the rules. In the preparation for this vote, he has met fierce criticism from consumer interest groups and media personalities that were effective in organising wide support for the rules earlier. Removal of the net neutrality rules may be challenged in court, as has been done before with most FCC initiatives in this area.

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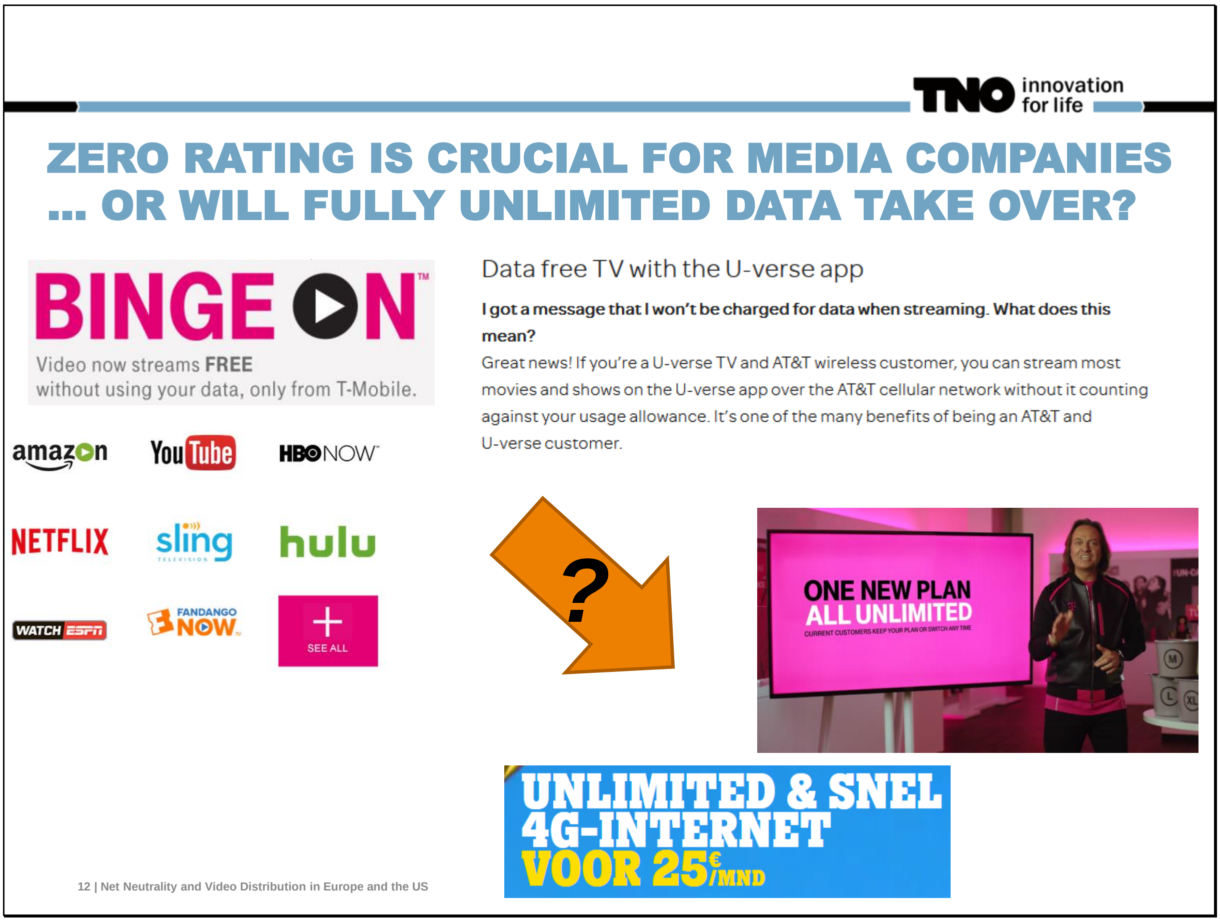
THE NET NEUTRALITY RULES IN THE EU AND THE US ARE SIMILAR IN MOST RESPECTS

Rule*	EU → NL	US
No blocking	Yes	Yes
No throttling	Yes	Yes
No paid prioritization**	Yes	Yes
Guidance on zero-rating	Yes - BEREC guidelines for assessment by NRA	Yes - Case-by-case assessment by FCC
Status of rules	*Stable, regulators and industry are gaining experience*	*Likely to be withdrawn*

*Not considered here: rules on transparency and “specialised services”
**The EU Regulation uses the wider wording “no commercial considerations” in the context of traffic management

11 | Net Neutrality and Video Distribution in Europe and the US

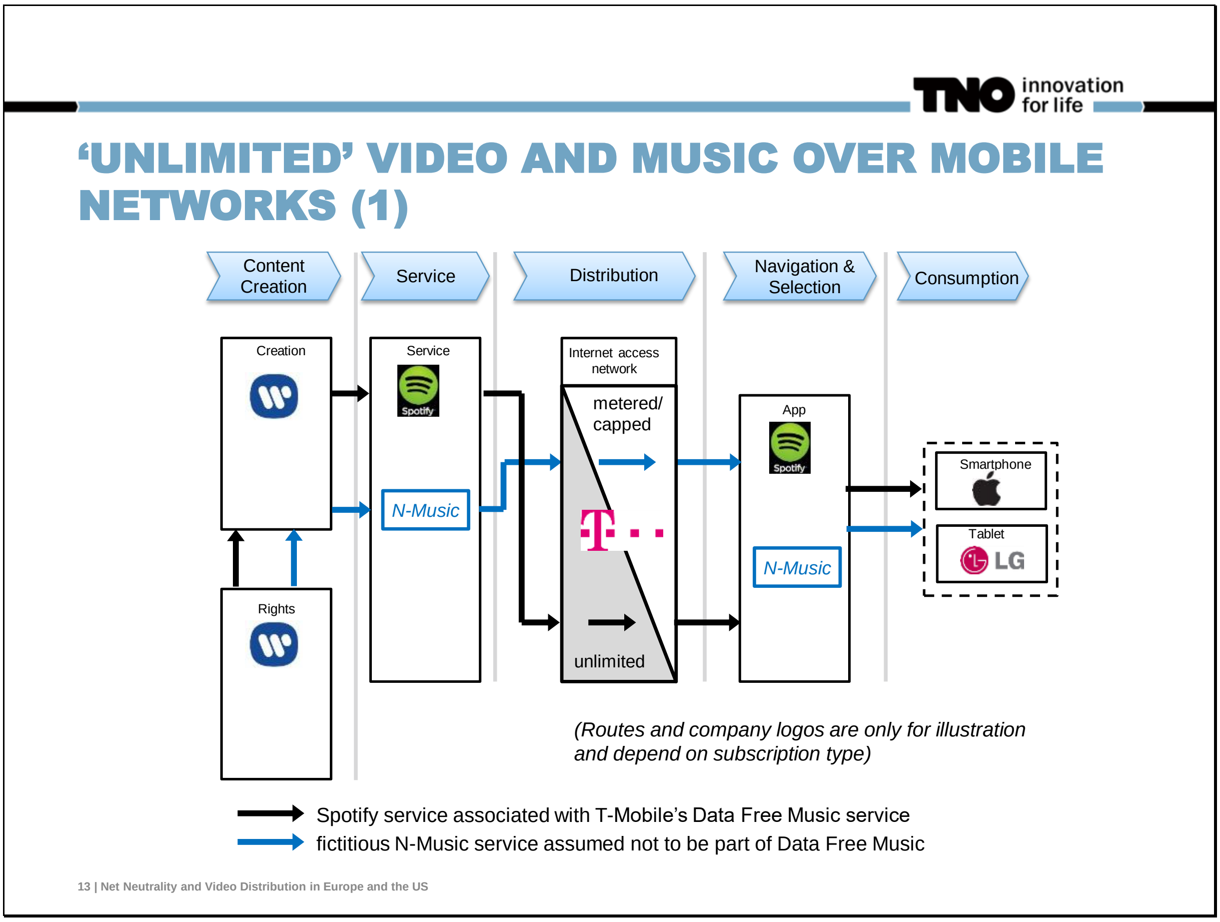
The European and (still current) US rules share many key ingredients. One could say that for media companies looking to distribute their content over the internet, they are essentially the same. The difference between Europe and the US is probably in the enforcement of the rules. For example, both sets of rules offer room for zero-rating arrangements. In Europe, regulators such as ACM seem to actively analyse zero rating to make sure they are in line the with the rules. In the US, the earlier FCC leadership started investigations as well (for example, into AT&T’s DirecTV offering [10]) but has ended these investigations now [11], against the background of its actions to withdraw the rules.



Zero rating is a commercial arrangement in which the data used for certain applications does not count against the monthly data allowance that customers have. The zero-rated services clearly have an attraction for consumers who are weary of their limited data allowances. Conversely, non-zero-rated services are at a commercial disadvantage. For media providers, it is clearly attractive to be associated with a zero-rating arrangement if the ISP does not charge for it. An example of a zero-rating arrangement that is free for the participating music providers is Data Free Music by T-Mobile Netherlands. There are also so-called sponsored data examples, such as Verizon's FreeBee data where the content provider is expected to pay for the data used by customers for his app.

In parallel to zero-rating arrangements, mobile operators have introduced mobile data subscriptions that offer unlimited data regardless of the application type. In such subscriptions, the difference between zero-rated and non-zero-rated services disappears altogether.

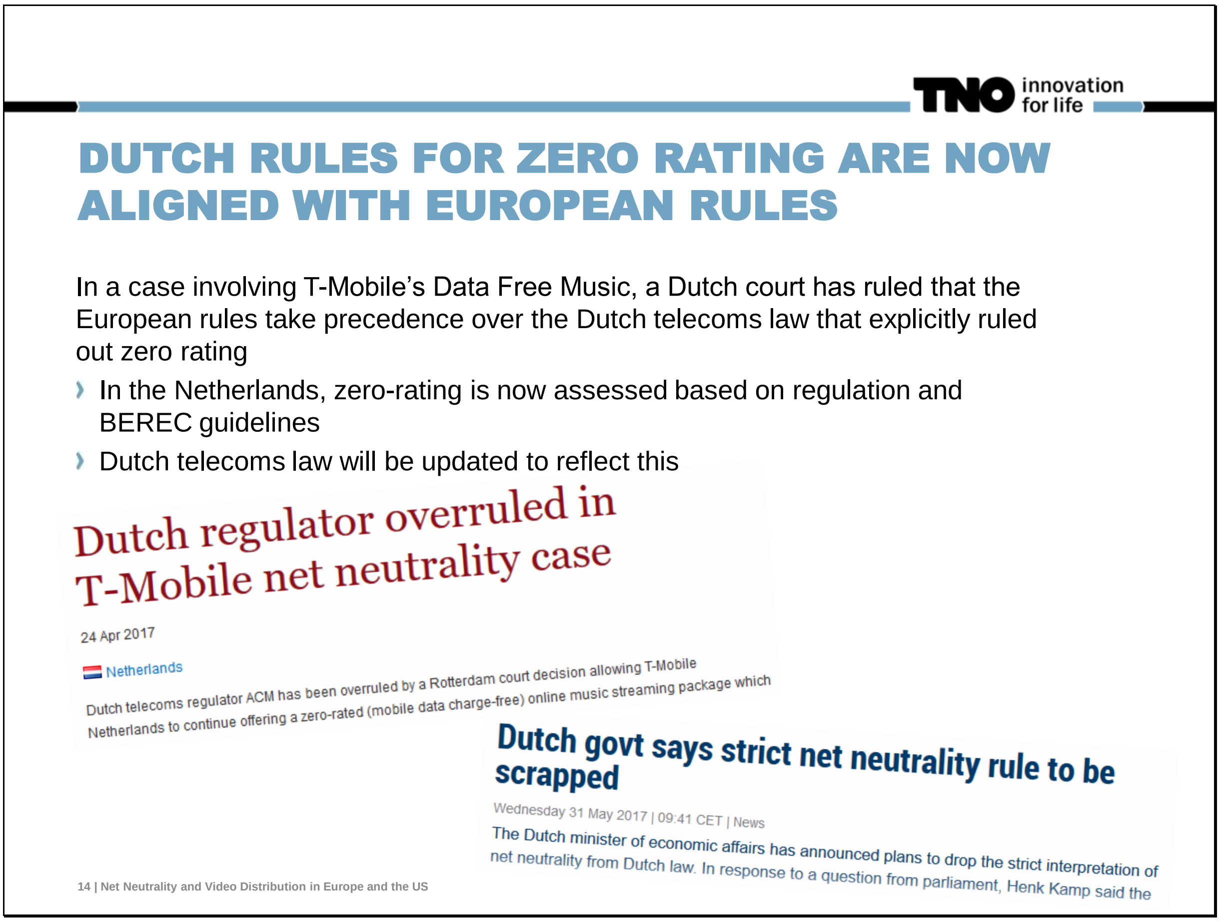
Net Neutrality and Video Distribution in Europe and the US - Slide 13



In mobile Internet access, so-called data free or unlimited plans for music and video streaming have led to considerable debate. We use the DAMIAN method [12] to position three music and video services in the media-Internet ecosystem. In the top part, we find a traditional value chain. Below that are the service flows for the three services that show in more detail how companies in different segments of the chain interact. We explain the activities and dependencies in the ecosystem using the service flow for the Spotify music service. The first step is *creation* of music *content* by record labels such as Warner Music. Spotify then aggregates music from multiple labels to build a *service* that it sells to its customers. Spotify *distributes* its service via the global Internet. In the figure, we assume that the Spotify customer has a mobile Internet access subscription from T-Mobile Netherlands. The role of net neutrality in the distribution is discussed below. Then, the customer can *navigate* the Spotify catalogue and *select* music using the Spotify app, that runs on the smartphone or tablet he *consumes* the music on.

For customers that have a T-Mobile Netherlands subscription that includes Data Free Music, the data used for streaming music services associated with the Data Free Music does not count against their monthly data allowance, i.e. these music services are zero-rated. Spotify is such an associated service, as are a range of other services (25 in total at the time of writing). The zero-rating of Spotify and other services makes them more attractive.

Conversely, non-zero-rated services, like the (fictitious) N-Music service in the figure have a disadvantage that may negatively affect their competitive position. A key factor here is whether all music services can associate themselves with the T-Mobile data free service. T-Mobile does not charge music services for associating, but does have a number of technical requirements. The current list of streaming music services contains both well-known services, like Spotify and Tidal, and smaller, relatively unknown services [13]. This suggests that the requirements are mild. Still, the Internet access segment is now made up of two parts: a part where data is metered or capped and a part where data is unlimited. Note that this is only the case for subscribers that have a subscription with the data free component in their data plan. It does not apply for subscribers that have a traditional data plan nor for customers that have unlimited data for all applications.

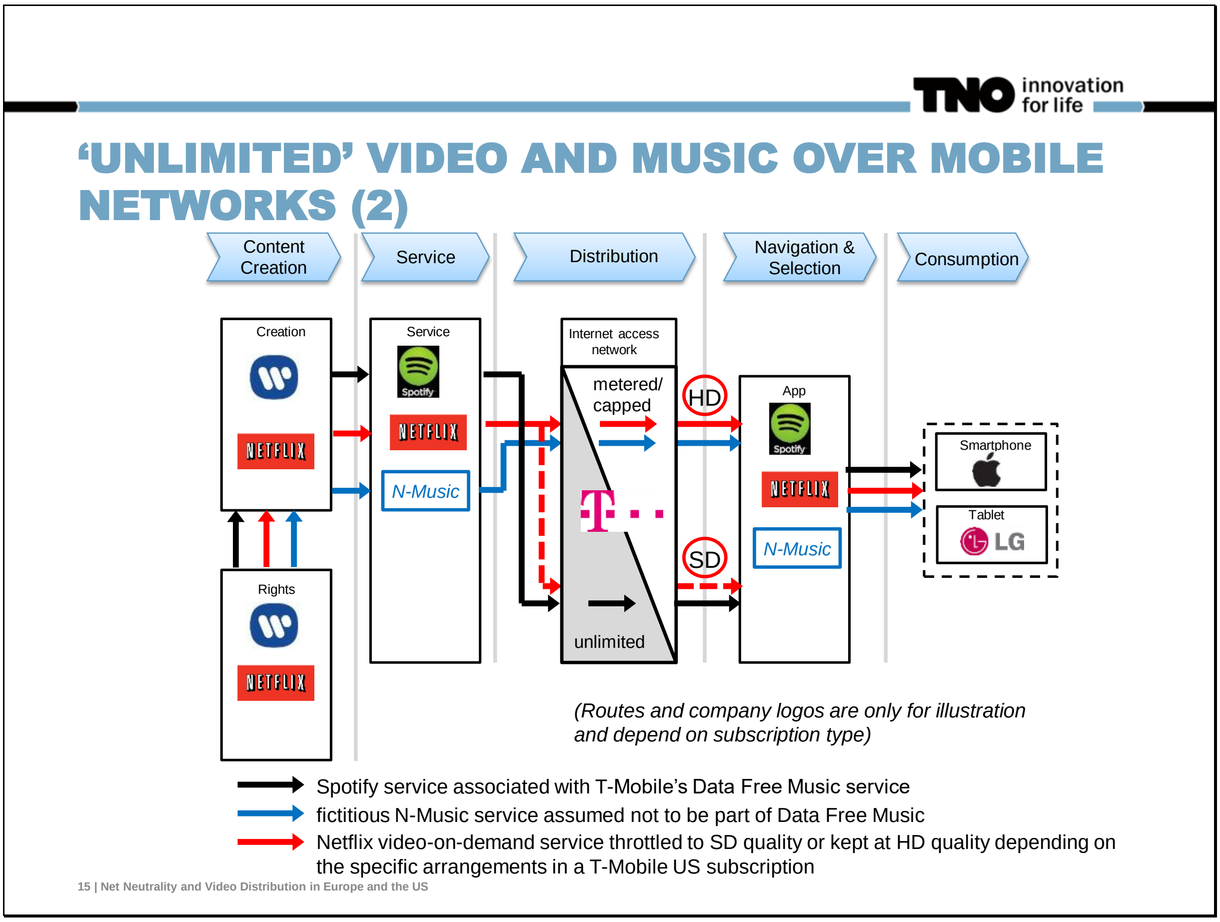


From 2011 on, the Dutch telecoms law prohibited all zero-rating agreements, as it stated that ISPs could not make the pricing of internet access dependent on the applications used over the access. This gave an ambiguity with the arrival of the 2015 Regulation and 2016 BEREC guidelines that provide room for zero rating, subject to criteria involving:

- the market positions of the ISP and application providers
- effects on entry barriers
- application of zero rating to individual applications or to categories

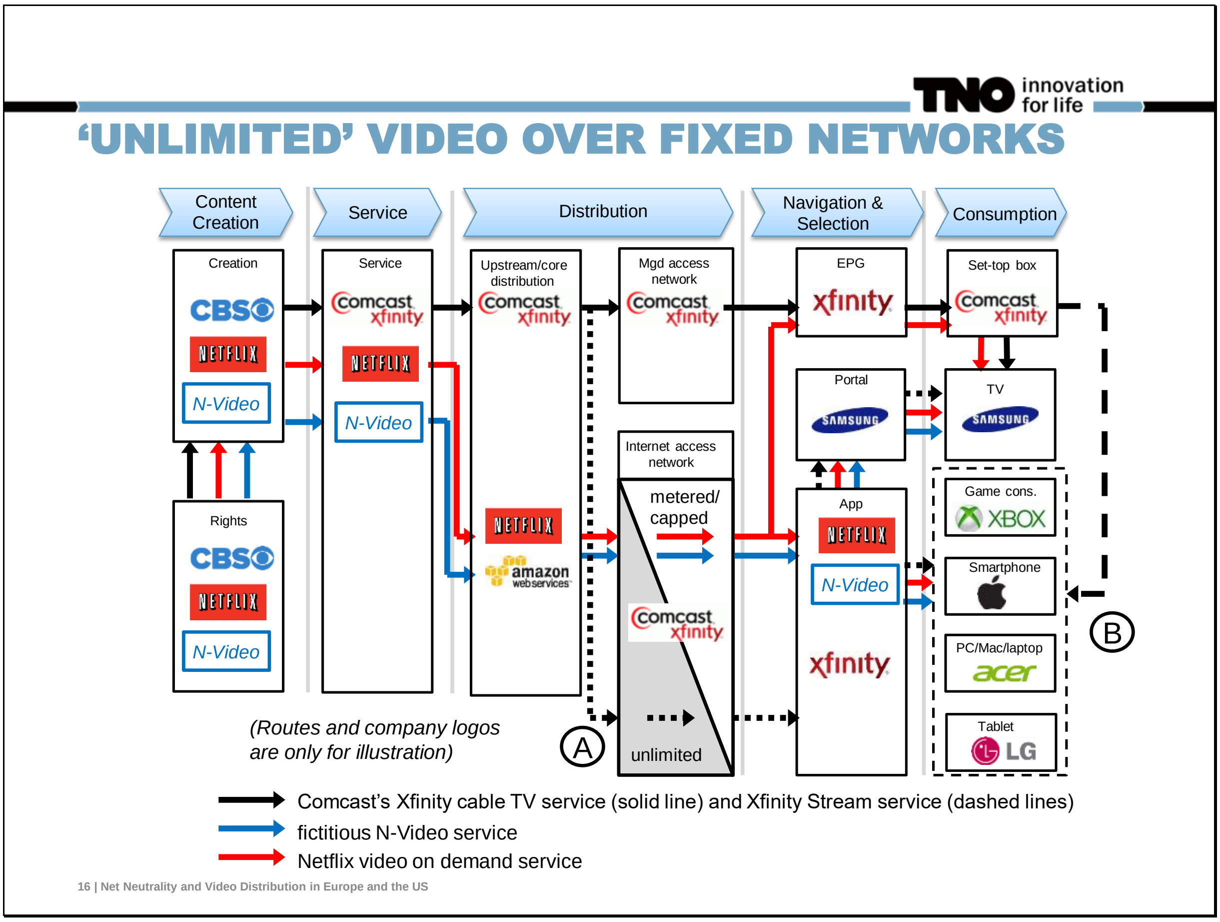
In December 2016, Dutch regulator ACM ordered T-Mobile to end its data free service as it was in violation with the Dutch telecoms law. T-Mobile appealed to court, as it believed that the European rules should be applied to its service rather than the Dutch law. The court sided with T-Mobile's view. ACM did not appeal and the Dutch ministry of Economic Affairs has announced that it will modify the Dutch telecoms law to align it to the European regulation. As a result, in the Netherlands, zero-rating is now assessed based on the EU regulation and BEREC guidelines.

Net Neutrality and Video Distribution in Europe and the US - Slide 15

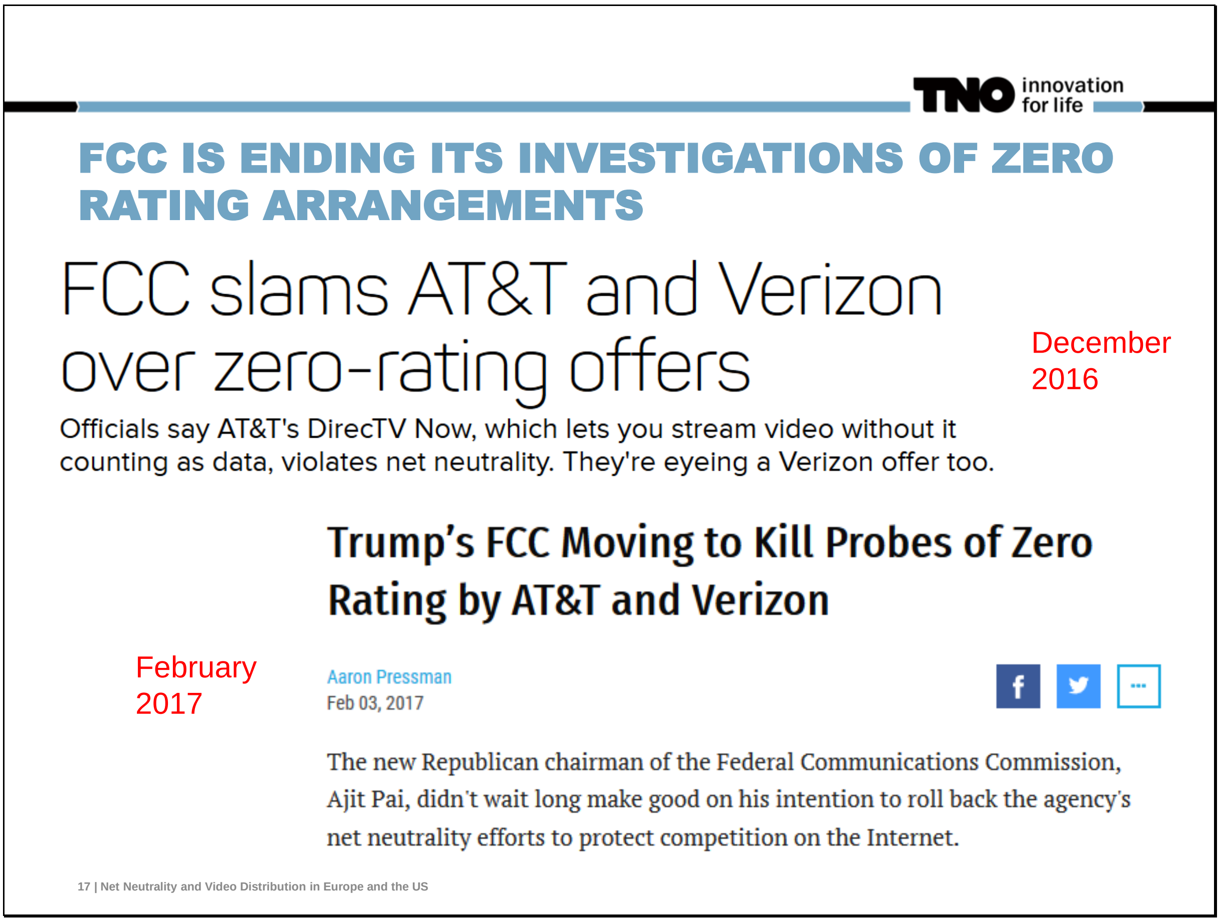


In this slide, we add the Netflix streaming video service. In the US (but not in the Netherlands), zero-rating for streaming video has been introduced by several mobile operators in different forms and with changes over time. Compared to streaming audio, the effect of zero-rating on video is larger as it involves much more data. The first prominent zero-rating service was Binge On by T-Mobile US that provided zero-rated data for a number of associated video services, including Netflix – while throttling all video to Standard Definition quality (SD 480p, around 1.5 Mbit/s, illustrated by the dashed red line in the figure). Customers could switch off Binge On and receive HD video streams that do count against their data allowance. Note that Binge On touched both the zero-rating and the no throttling aspects of net neutrality. The Binge On service received both applause and criticism. The criticism included points such as the inability to include all streaming video providers and the technical requirements (no encryption, no UDP) that T-Mobile had [14]. T-Mobile and other US mobile operators now offer multiple subscriptions with unlimited and/or zero-rated elements. The top end subscriptions offer unlimited data usage regardless of the application.

Net Neutrality and Video Distribution in Europe and the US - Slide 16



In fixed networks, there has also been debate on net neutrality and zero-rating in the context of video distribution. Many fixed ISPs are facilities-based providers that have triple-play offers of TV, Internet and telephony. Thus, they use their infrastructure in two roles: as provider of their own video services and as provider of Internet access services. This is shown above for US-based ISP Comcast that provides triple play services under its xfinity brand. The solid black line shows the service flow for the xfinity TV and video services provided over Comcast's own infrastructure, delivered to its set-top box that runs the xfinity Electronic Program Guide (EPG). In parallel to this managed flow, xfinity customers can also watch the TV and videos on a variety of IP-enabled devices, via the xfinity Stream service. This streaming service is the subject of an ongoing debate. Comcast does not consider the xfinity Stream services delivered to their consumers' homes to be provided over the Internet, but rather over the xfinity managed network. This is indicated by the long-dashed line B in the figure. Its opponents consider the xfinity Stream service to be provided over the Internet access service that is part of the xfinity triple play, indicated by the short-dashed black line A. In their view, Comcast applies zero-rating to the xfinity Stream data flows which puts other streaming video services at a disadvantage. This is because many of Comcast customers have subscriptions with data caps and may prefer the zero-rated xfinity Stream service to avoid exceeding their cap. Examples of video services that would be put at a disadvantage are Netflix and the (fictitious) new N-video service. Netflix is a special case, as it is also available via the xfinity set-top box. According to Comcast, the Netflix streams delivered via this route are not zero-rated [15].



Until 2016, the FCC closely watched the zero-rating offers in the US, such as the ones by AT&T and Verizon. These offers allegedly put AT&T's and Verizon's own content services at an advantage compared to others. With the arrival of the new FCC leadership, the investigations into zero-rating were ended.

TAKE AWAY MESSAGES (1)

The EU (➔ NL) and US net neutrality rules look rather similar for media companies

- Dutch rules are now aligned with EU rules on zero rating
- EU rules and BEREC guidelines provide a number of safeguards against anti-competitive use of zero-rating
- US rules likely to be withdrawn, thus removing safeguards around ***all*** net neutrality topics

Rule*	EU ➔ NL	US
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No throttling	Yes	Yes
No paid prioritization**	Yes	Yes
Guidance on zero-rating	Yes - BEREC guidelines for assessment by NRA	Yes - Case-by-case assessment by FCC
Status of rules	*Stable, regulators and industry are gaining experience*	*Likely to be withdrawn*

Media companies can benefit from participating in a zero-rating agreement for their distribution over the Internet

- The benefit is clear when participation is free and open to all video/music providers
- The benefit becomes smaller if the ISP requires a payment from the media company (sponsored data, sometimes done in the US)
- For media start-ups, sponsored data may be to expensive or complicated and present a barrier to entry
- All media companies benefit from fully unlimited data subscriptions

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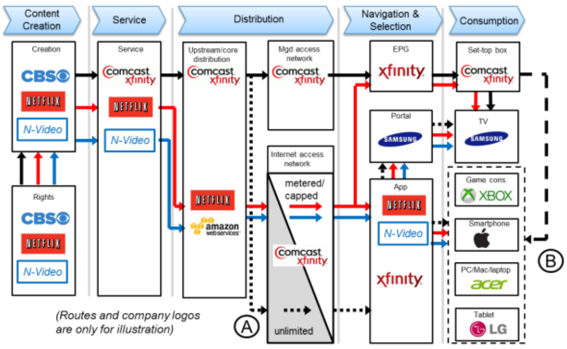
TAKE AWAY MESSAGES (2)

Net neutrality is important but also clearly not the only factor affecting consumers and companies in the media-Internet ecosystem

- Net neutrality revolves around a key asset that ISPs control and that content providers need: the Internet access infrastructure
- Content and content rights have always been important assets and this importance has grown in recent years.
- Companies depend on access to devices and app stores for many of their applications



(Routes and company logos are only for illustration)

Net Neutrality and Video Distribution in Europe and the US - Slide 20

The analysis in this slide set builds on an earlier paper presented and discussed at ACM TVX, June 14-16, 2017 in Hilversum [16]. This slide set and the take away messages include the outcome of the court case around T-Mobile's data free service and the follow-up by ACM and the ministry of Economic Affairs, which were not yet available during the writing of the paper. The latest developments in the FCC's actions to withdraw the US rules have also been added.

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