

About BEREC's Net Neutrality Guidelines

INTRODUCTION

What is net neutrality and why does it matter?

Net neutrality refers to a debate about the way that Internet Service Providers (ISPs) manage the data or 'traffic' carried on their networks when data is requested by broadband subscribers (known as "end-users" under EU law) from providers of content, applications or services (CAPs) such as YouTube or Spotify, as well as when traffic is exchanged between end-users.

The best effort internet is about the equal treatment of data traffic being transmitted over the internet, i.e. that the 'best efforts' are made to carry data, no matter what it contains, which application transmits the data ("application-agnosticism"), where it comes from or where it goes. The benefits of the best effort internet notably include the separation between application and network layers of the internet. This separation enables innovation of applications independent of the ISP, thereby enhancing end-user choice.

What experience does BEREC have of net neutrality issues?

BEREC has been deeply involved with the subject since 2010, exploring such issues as [transparency](#), [competition issues](#), [quality of service](#), [quality monitoring](#) and [IP interconnection](#) in the context of net neutrality. BEREC also carried out an investigation into [traffic management practices](#) and published research into [how consumers value net neutrality](#). Furthermore, BEREC provided input to the EU institutions during negotiations on the Telecoms Single Market Regulation which has established these new rules.

Why is BEREC involved in implementing the net neutrality rules?

As the European body which brings together all national regulatory authorities (NRAs), BEREC is informed by the 'on the ground' knowledge, experience and technical expertise of its constituent NRAs. The European law establishing BEREC said that it should provide advice to both the European institutions and NRAs in the field of electronic communications for the European institutions and for NRAs. In line with this, Article 5(3) of the Regulation EU 2015/2120 explicitly obliges BEREC to issue guidelines on net neutrality in order to provide guidance to NRAs on their implementation of the rules.

Using a Regulation as the form of EU law on net neutrality (rather than, for example, a Directive) means that the precise wording of the law is identical in all EU/EEA countries. Nevertheless, by providing guidance on how NRAs should implement the law, BEREC can draw upon its technical and regulatory expertise to further contribute to a consistent application of the law across all EU/EEA countries.

What does the new law mean for net neutrality?

ISPs are prohibited from blocking or slowing down of Internet traffic, except where necessary. The exceptions are limited to: traffic management to comply with a legal order, to

ensure network integrity and security, and to manage congestion, provided that equivalent categories of traffic are treated equally. The provisions also enshrine in EU law a user's right to be "*free to access and distribute information and content, run applications and use services of their choice*". Specific provisions ensure that national authorities can enforce this new right.

WHAT IS COVERED AND PROTECTED BY THE REGULATION

Which end-users are protected by the Regulation, and how?

The Regulation establishes rights in relation to the open internet for "*end-users*". Using the legal definitions provided in the EU regulatory framework for electronic communications, BEREC understands that the rights are available to both individual consumers and businesses using internet access services. The businesses enjoying this protection include content and application providers (CAPs) insofar as they use an internet access service to provide content or applications to other end-users. A CAP is a company which makes content (e.g. webpages, blogs, video) and / or applications (e.g. search engines, VoIP applications), and / or services available on the internet.

As well as providing rights to end-users, the Regulation establishes common rules "*to safeguard equal and non-discriminatory treatment of traffic*". It is widely understood that the internet has greatly contributed to growth and innovation in our economies – the low barriers to entry on the open platform of the internet have provided particularly fertile ground for new content and applications to develop, and for information to flow freely. These new net neutrality rules seek to ensure that the internet ecosystem can continue to flourish as an engine of innovation and freedom of expression.

What kinds of service are covered under the Regulation?

The Regulation covers the provision of internet access services and of specialised services (see below). **Regarding internet access services**, these are **publicly-available electronic communication services** which **provide access to the internet, and thereby connectivity to virtually all end points of the internet**, irrespective of the network technology (e.g. fibre, cable, mobile) used, and irrespective of the terminal equipment (e.g. mobile phone handset, tablet, laptop) used.

Consequently, BEREC considers the following as not being within the scope of the Regulation and **not subject to the rules**:

- Subject to an assessment by the NRAs of the individual cases, access to the internet provided by cafés and restaurants and internal corporate networks because these are typically limited to a predetermined group of end-users and might therefore be not "*publicly available*"
- Services where the access to the internet is limited by the nature of the terminal equipment, such as M2M devices like smart meters and e-book readers.

On the other hand, BEREC considers '**sub-internet services**' to be within the scope of the Regulation and **an infringement of the rules**. BEREC defines a sub-internet service as one which would restrict access to services or applications (e.g. banning the use of VoIP or video

streaming) or which would enable access to only a pre-defined part of the internet (e.g. access only to particular websites).

Why do ISPs need to provide access to “*virtually all endpoints of the internet*” rather than the entire internet?

BEREC understands that the rules refer to access to “*virtually*” all parts of the internet because the ISP providing the access controls only a small part of the internet, and it is possible that not all parts of the internet can be reached all of the time due to reasons outside of the control of the ISP, e.g. due to regulation in other countries.

Does the Regulation cover interconnection services?

Interconnection services are distinct from internet access services. Interconnections enable traffic to be exchanged between networks across the internet, and interconnection services can be provided by many different operators, including wholesale (‘backbone’) and retail telecom operators, content delivery network (CDN) companies, and large content providers (e.g. YouTube, Netflix) which operate their own CDNs.

Given that the Regulation is focused on internet access services provided to end-users, **BEREC does not consider interconnection services to be within scope of the Regulation.** Nevertheless, NRAs may take into account the interconnection policies and practices of ISPs in so far as they have the effect of limiting the exercise end-user rights under Article 3(1). For example, this may be relevant in some cases, such as if the interconnection is implemented in a way which seeks to circumvent the Regulation.

ZERO-RATING

What is zero-rating?

‘Zero-rating’ is when an ISP applies a price of zero to the data traffic associated with a particular application or class of applications (and the data does not count towards any data cap in place on the internet access service). For example, if an internet access service does not charge a user for the data used to access a specific music streaming application or all music streaming applications, then the ISPs is zero-rating those applications. In implementing the Regulation, the BEREC Guidelines consider zero-rating as one of the commercial practices mentioned in Article 3(2) of the Regulation.

Is zero-rating allowed under the Regulation?

It depends. There are different types of zero-rating practices, some of which are more problematic than others. BEREC’s Guidelines look at different examples and provide guidance on the extent to which they could be considered permissible under the Regulation.

The BEREC guidelines explain that some practices are clearly prohibited – those where all applications are blocked or slowed down once the data cap is reached except for the zero-rated application(s). Others are less clear-cut and will be need to be assessed by NRAs against a number of criteria set out in the Guidelines.

How will regulators assess whether cases of zero-rating are permitted?

Criteria that NRAs should take into account when assessing zero-rating and other commercial practices include:

- whether the practices circumvent the general aims of the Regulation (to “safeguard equal and non-discriminatory treatment of traffic” and to “guarantee the continued functioning of the internet ecosystem as an engine of innovation”);
- the market positions of the ISPs and CAPs involved;
- any effects on end-user rights of consumer and business end-users, e.g. reductions in the range of applications available, incentives for end-users to use certain applications, or whether there is a material reduction in end-user choice;
- any effects on end-user rights of Content and Application Providers (CAP), e.g. whether there is an effect on the range of content and applications which CAPs can provide, or whether they are materially discouraged from entering the market;
- the scale of the practice (e.g. the number of end-users subscribing to such an offer) and the extent to which end-users have access to alternative offers and / or other ISPs.

TRAFFIC MANAGEMENT

What is traffic management and what is “equal treatment”?

When end-users communicate over the Internet, data traffic is sent between the end-users’ terminals. The traffic is sent through the networks of the ISPs through which the end-users connect to the internet, as well as any intermediate networks. The way the traffic is forwarded in the networks is referred to as ‘traffic management’, which may include both regular first-come-first-serve management of traffic and more advanced ways of shuffling traffic through the networks.

When traffic is forwarded on a first-come-first-serve basis, this can be referred to as “equal treatment”. As BEREC’s Guidelines explain, this does not necessarily imply that all end-users will experience exactly the same performance. But as long as any treatment of traffic is done independently of applications and end-users, the traffic is normally considered to be treated equally. Thus, the Regulation and the Guidelines seek to preserve the end-to-end principle of the internet.

What traffic management is allowed under the Regulation?

The Regulation allows for alternative traffic management under limited circumstances. As a second step, the Regulation allows “reasonable traffic management” which may be used to differentiate between “categories of traffic”. As a third step, the Regulation describes three specific exceptions which are allowed under stricter conditions. These exceptions are:

- a) compliance with other laws
- b) preservation of integrity and security
- c) congestion management measures

See further details below regarding the regulatory assessment the traffic management described under these second and third steps.

How will regulators assess whether traffic management measures should be considered “reasonable”?

In order to be considered to be “reasonable”, traffic management would have to be based on objectively different technical Quality of Service (QoS) requirements of specific categories of traffic. NRAs could ask ISPs questions about their use of traffic categories, such as which categories they implement; which QoS requirements they apply to each category; and which data packets are handled by each category? Based on the responses, NRAs could assess whether the traffic management practice in question complies with the requirements of the Regulation (specifically the second subparagraph of Article 3(3)).

BEREC considers that categories of traffic could be defined, for example, by reference to application layer protocol or generic application type, but only in so far as:

- i. this requires objectively different technical QoS;
- ii. applications with equivalent requirements are handled in the same category; and
- iii. the justification given is relevant to the category of traffic in question.

Furthermore, NRAs should ensure that such measures do not monitor specific content (i.e. anything from the transport layer protocol payload – in other words, specific content provided by the end-users themselves, such as text, pictures and video), and that by virtue of non-discrimination, encrypted traffic is treated on a par with normal traffic.

How will regulators assess whether traffic management measures should be considered “exceptional”?

Article 3(3) third subparagraph sets out traffic management practices that are banned, and can be described by these seven basic principles which should be used by NRAs when assessing ISPs’ practices. Between specific content, applications or services, or specific categories thereof, there should be:

- no blocking,
- no slowing down,
- no alteration,
- no restriction,
- no interference with,
- no degradation, and
- no discrimination

Practices which do not comply with these seven basic principles, or that otherwise go beyond “reasonable traffic management” (as explained above), may be used by ISPs only when they fit into the three specific exceptions listed above: (a) compliance with other laws, b) preservation of integrity, and c) security congestion management measures). Under all these exceptions, the traffic management measure has to be necessary for the achievement of the exception in question and applied “only for as long as necessary”.

SPECIALISED SERVICES

What are specialised services and how are they relevant to the Regulation?

BEREC uses the term 'specialised services' as a short expression for a longer term used in the Regulation: *"services other than internet access services which are optimised for specific content, applications or services, or a combination thereof, where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality"*.

The BEREC Guidelines provide a few examples of what may be considered specialised services, such as VoLTE (high-quality voice calling on mobile networks) and linear (live) broadcasting IPTV services with specific quality requirements. Another example would be real-time health services (e.g. remote surgery). BEREC considers such services to be allowed as long as they meet the strict requirements of the Regulation (set out in Article 3(5)).

What is the necessity requirement and how will regulators assess it?

Under the Regulation, in order for specialised services to be permitted, they would have to be objectively necessary to meet requirements for a specific level of quality. The BEREC Guidelines recommend that NRAs should assess this 'necessity requirement' by first requesting information from providers about their services, and then assessing whether the requirements are met.

When making their assessments, regulators will be particularly interested in technical parameters, such as latency, jitter and packet loss. Taking into account these technical parameters, regulators should assess whether the specific level of quality is objectively necessary and cannot be assured instead over the internet. If not, these services would not be allowed. If the service passes this test, regulators will also have to assess the 'capacity requirement' described below.

What is the capacity requirement and how will regulators assess it?

As a second major criteria, the Regulation allows specialised services to be offered when the network capacity is sufficient that the internet access service is not degraded. To assess the practice, BEREC recommends that regulators request information from ISPs regarding how they are ensuring sufficient capacity and the scale of the specialised service being offered.

The Guidelines also explain that regulators could assess whether sufficient capacity is provided by performing measurements of the internet access service. Regulators could perform quality measurements with and without specialised services, and then analyse quality metrics such as latency, jitter and packet loss. This analysis should enable NRAs to assess whether the general quality of the Internet access is reduced by the provision of specific specialised services.

TRANSPARENCY

What transparency requirements does the Regulation introduce for ISPs?

The Regulation requires ISPs to provide information about their internet access services, such as speeds, data caps, and any traffic management measures applied to their service, as well as explaining whether and how specialised services might have an impact on the internet access services provided. ISPs are required to provide this information in their contracts and also to publish it (e.g. in marketing or on websites).

What do BEREC's Guidelines say about these transparency requirements?

The transparency provisions are requirements on ISPs rather than NRAs. Nevertheless, NRAs need to ensure that ISPs are complying with these transparency requirements. The Guidelines therefore set out good practices which ISPs should adhere to in order to make their information transparent, e.g. it should be easily accessible, accurate, meaningful, and should enable comparison with other offers.

What kind of speed information is required?

The Regulation requires ISPs to provide information about the speeds that each end-user can expect to receive. For fixed services, this relates to minimum, normally available and maximum speeds, as well as any speeds which are advertised, while for mobile services, information must be provided about the estimated maximum speed as well as any speeds which are advertised.

BEREC's Guidelines give examples of requirements that NRAs could set for the different kinds of speeds, and observe, amongst other things, that:

- the "*maximum speed*" for fixed services is the speed that an end-user could expect to receive at least some of the time (e.g. at least once a day)
- the "*normally available speed*" for fixed services is the speed that the end-user could expect to receive most of the time and it has two dimensions – the speed itself and the proportion of time it is available during a given period
- the "*estimated maximum speed*" for mobile services should be explained in a way that the end-user can understand the realistically available maximum speed in different locations in realistic usage conditions. One way of doing this could be by using coverage maps.

TASKS OF THE REGULATORS

How will regulators ensure that the new rules are fully and properly implemented?

The Regulation requires NRAs to "*closely monitor and ensure compliance*" with the new rules, and to "*promote the continued availability of non-discriminatory IAS at levels of quality that reflect advances in technology*". BEREC's Guidelines explain that this encompasses various tasks for NRAs:

- **Supervision.** This entails monitoring of various elements, such as the terms and conditions of contracts and the transparency of information, commercial practices (e.g. zero-rating offers in the market), traffic management practices for internet access

services, and specialised services. The supervision will be done through assessing the market, conducting technical measurements, and gathering information from various sources, such as ISPs and end-users.

- **Enforcement.** The Guidelines set out a variety of interventions that NRAs could make. These include requiring ISPs to deal with any degradation of the internet access service, requiring ISPs to cease or change problematic traffic management practices, requiring ISPs to cease providing specialised services unless sufficient capacity is made available for internet access services, and imposing fines on ISPs for infringements.
- **Reporting.** The Regulation requires NRAs to provide to the European Commission and BEREC an annual report of their findings regarding the implementation of these rules. BEREC's Guidelines sets out when these annual reports should be provided and what information should be included in them.