

Position Paper on Net Neutrality

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Preface

This position paper is RTR's contribution to the European and national debate about net neutrality and traffic differentiation. In view of the dynamic and topical nature of the discussion, it is important to emphasise that it constitutes the current, but not the final, position of RTR on this subject. In particular, once the European Commission has published a recommendation or opinion, the paper will be subject to a review so as to reflect any potential changes in the regulatory framework. A common European approach to the matter is preferable to diverse national initiatives. With this in mind, the paper is to be understood as a contribution to the ongoing discussions designed to arrive at a European consensus.

1. Introduction

Net neutrality has been the subject of lively controversy for several years now. Originating in the USA, the discussion has spread to Europe and continues here at both national and European level. In the process, what in the first instance seemed to be simply a debate about a single net principle has turned out on closer consideration to be one of the key issues surrounding the future development of the Internet.

One of the peculiarities of the debate about net neutrality is that there is no definitive or official definition, and in particular no legal one, of the term “net neutrality”. Rather there are various definitions that attempt to formulate the essential significance of net neutrality, that is, namely equal treatment of all IP data packets during transport on the Internet.

In line with the BEREC¹ definition² net neutrality in this position paper is understood to be the **equal treatment of all data flows** by a network, **regardless of:**

- **Sender**
- **Recipient**
- **Content**
- **Application**
- **Service.**

Since its commercialisation about 18 years ago, the Internet has developed from a specialist research niche to a worldwide phenomenon. It has revolutionised the way we communicate, acquire information, work and conduct business, and its use has brought significant social and economic advantages. The right to freedom of expression³, a basic human right enshrined in Article 10 of the European Convention on Human Rights (ECHR) and Article 11 of the European Union’s Charter of Fundamental Rights, is reinforced by the Internet, as are the opportunities to communicate and access information both simply and cost-effectively. The market for Internet access products, and for services provided through the Internet, has grown rapidly in the past few years. Last but not least, as a “general purpose technology” the Internet has contributed to increasing productivity and growth in many sectors of the economy, while opening up whole new fields of business activity.

The groundbreaking importance of the Internet is that it allows all its users⁴ to present their ideas, content and business models to a global public, without having to make large investments or overcome significant barriers to market entry. As a result, every user is also a potential provider of contents or services. And it is precisely the Internet’s nature as an open

¹ BEREC (Body of European Regulators for Electronic Communications) was established by Regulation (EC) No. 1211/2009 of the European Parliament and of the Council of 25 November 2009. It replaced the ERC (European Regulators Group for Electronic Communications Networks and Services), which was established in 2002 as an advisory body of the European Commission. The Austrian regulatory authority is one of 27 BEREC members.

² See BEREC (2012a): “BEREC response to EC questionnaire on specific aspects of transparency, traffic management and switching in an Open Internet”, BoR (12) 145 rev.1, (http://berec.europa.eu/eng/document_register/subject_matter/berec/opinions/1145-berec-response-to-ec-questionnaire-on-specific-aspects-of-transparency-traffic-management-and-switching-in-an-open-internet).

³ See: Open Society Foundations (2012): “European Court Rules against Blanket Internet Access Ban”, (<http://www.opensocietyfoundations.org/press-releases/european-court-rules-against-blanket-internet-access-ban>); Neelie Kroes (2012): “Malala day: an inspiring girl reminds us of the power of the Internet”, (<http://blogs.ec.europa.eu/neelie-kroes/malala-day-power-internet>).

⁴ In the following the terms “user”, “end user”, “customer” and “consumer” are used as synonyms for the term “Internet user”. All such references are to be understood as gender-neutral.

platform that has allowed an unending stream of new contents, services and applications to be generated. That is shown by cases like those of YouTube, Facebook and Google, all of which began as personal initiatives taken by individuals with limited financial means, and have become services used world-wide and businesses with global operations.

In all that, net neutrality has played a crucial role. Even if the Internet as it exists today is not wholly "neutral" according to the definition used here,⁵ differentiation in the treatment of different services and the traffic of various service providers by Internet service providers (ISPs) has been kept within tight bounds.⁶ This could change, however, as is evident from the continuing debate on net neutrality.

For market participants there might be various reasons to deviate from net neutrality.⁷ ISPs, for instance, argue that new services such as video streaming result in enormous rises in the data to be transmitted, which in turn requires more investment in capacity and/or bandwidth. A number of ISPs are now demanding that service providers (content and application providers – CAPs) contribute to this investment, the need for which is, after all, primarily generated by them. One way this could happen is that services are only transmitted in suitable quality if CAPs pay a fee to the ISP concerned, or if CAPs can purchase preferential treatment (better quality) by paying a fee.

CAPs, on the other hand, argue that they do indeed pay to offer their services on the Internet, specifically to hosting and connectivity providers (HCPs), and that demand for Internet access and customers' readiness to pay exist only because of the services and applications offered on the Internet. On this view, ISPs benefit from CAPs and really ought to pay them.

Furthermore, some of the services offered on the Internet, such as voice telephony or video-on-demand, are in competition with those offered by ISPs themselves. This means there could be an incentive for ISPs to block these services, or treat them less favourably, in order to increase demand for their own and boost the earnings associated with these.

Questions relating to net neutrality can also arise in cases with which the regulatory authority (and other national authorities) has – or will have – to deal directly. The relevant legal requirements at EU level are based primarily on the (new) regulatory framework for electronic communications networks and services (the Telecoms Package), comprising five directives. This was transposed into Austrian law in the 2003 Telecommunications Act (TKG 2003) and its subsequent amendments. At EU level, the legal requirements relating to net neutrality with relevance for regulatory authorities are to be found in the Framework Directive (Art 8 Par 4 (g), Art 8 Par 2 (b) and Art 8 Par. 5 (d)) and the Universal Service Directive (Art 20, Art 21 and Art 22 Par 3),⁸ The relevant Austrian requirements are to be found in the TKG

⁵ See BEREC (2012b): "A view of traffic management and other practices resulting in restriction to the open Internet in Europe", BoR (12) 30, (http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/45-berec-findings-on-traffic-management-practices-in-europe).

⁶ See also BEREC (2012b)

⁷ See BEREC (2012c): "Differentiation practices and related competition issues in the scope of Net Neutrality." BoR (12) 132, S. 18ff., (http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/1094-berec-report-on-differentiation-practices-and-related-competition-issues-in-the-scope-of-net-neutrality).

⁸ BEREC (2012d): "Summary of BEREC positions on net neutrality", BoR (12) 146, pp. 2 + 3, ([http://berec.europa.eu/files/document_register_store/2012/12/BoR_\(12\)_146_Summary_of_BEREC_positions_on_net_neutrality2.pdf](http://berec.europa.eu/files/document_register_store/2012/12/BoR_(12)_146_Summary_of_BEREC_positions_on_net_neutrality2.pdf)); BEREC (2012e): "BEREC Guidelines for quality of service in the scope of net neutrality", BoR (12) 131, pp. 8 to 14,

2003 (Art 1 Par 1 and 2, Art 17 Par. 3, 4, 5, and Arts 25, 50 and 122), as well as in some civil law provisions (including the Consumer Protection Act (KSchG)).

Other matters that will require discussion in cases involving net neutrality are legal questions surrounding data protection and, associated with them, the rights to privacy and to freedom of expression.

The Austrian regulatory authority is actively involved in the debate about net neutrality at international and European level, to which some regulatory authorities have already contributed statements or position papers.⁹ In order for it to continue to act consistently and predictably, and to react swiftly to sudden new developments, this document will set out the principles by which it is guided in matters including and relating to net neutrality. As the discussion will continue at national and European level, and since it is very likely that new technical and commercial developments will arise, these principles will be subject to review at regular intervals.

This document will look firstly at value chains on the Internet (Section 2). Various deviations from net neutrality will then be described and assessed (Section 3). Based on this discussion, principles to guide decisions on which deviations from net neutrality can be regarded as justified, and under what circumstances, will then be derived (Section 4).

2. The Internet value chain

Conflicts and problems related to net neutrality can occur at various layers of the Internet. Figure 1 shows the “markets” that could be affected.¹⁰ These are not markets distinguished by the normal criteria of competition law (supply-side and demand-side substitution, hypothetical monopolist test). Instead, they provide a schematic representation of the value layers and the interactions between the various players, which will form the basis for the discussion that follows.

http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/1101-berec-guidelines-for-quality-of-service-in-the-scope-of-net-neutrality).

The five directives can be viewed at

http://europa.eu/legislation_summaries/information_society/legislative_framework/l24216a_en.htm.

⁹ Including ARCEP (2010): “Internet and network neutrality”, http://www.arcep.fr/uploads/tx_gspublication/net-neutralite-orientations-sept2010-eng.pdf; ARCEP (2012): “Report to Parliament and the Government on Net Neutrality”, http://www.arcep.fr/uploads/tx_gspublication/rapport-parlement-net-neutrality-sept2012-ENG.pdf;

Federal Communications Commission (2010): “Preserving the open Internet”,

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-201A1.pdf; NPT (2009): “Network neutrality –

Guidelines for Internet neutrality”,

<http://eng.npt.no/ikbViewer/Content/109604/Guidelines%20for%20network%20neutrality.pdf>;

Ofcom (2011): “Ofcom’s approach to net neutrality”, <http://stakeholders.ofcom.org.uk/binaries/consultations/net-neutrality/statement/statement.pdf>.

¹⁰ See BEREC (2012c), Section 2.2.

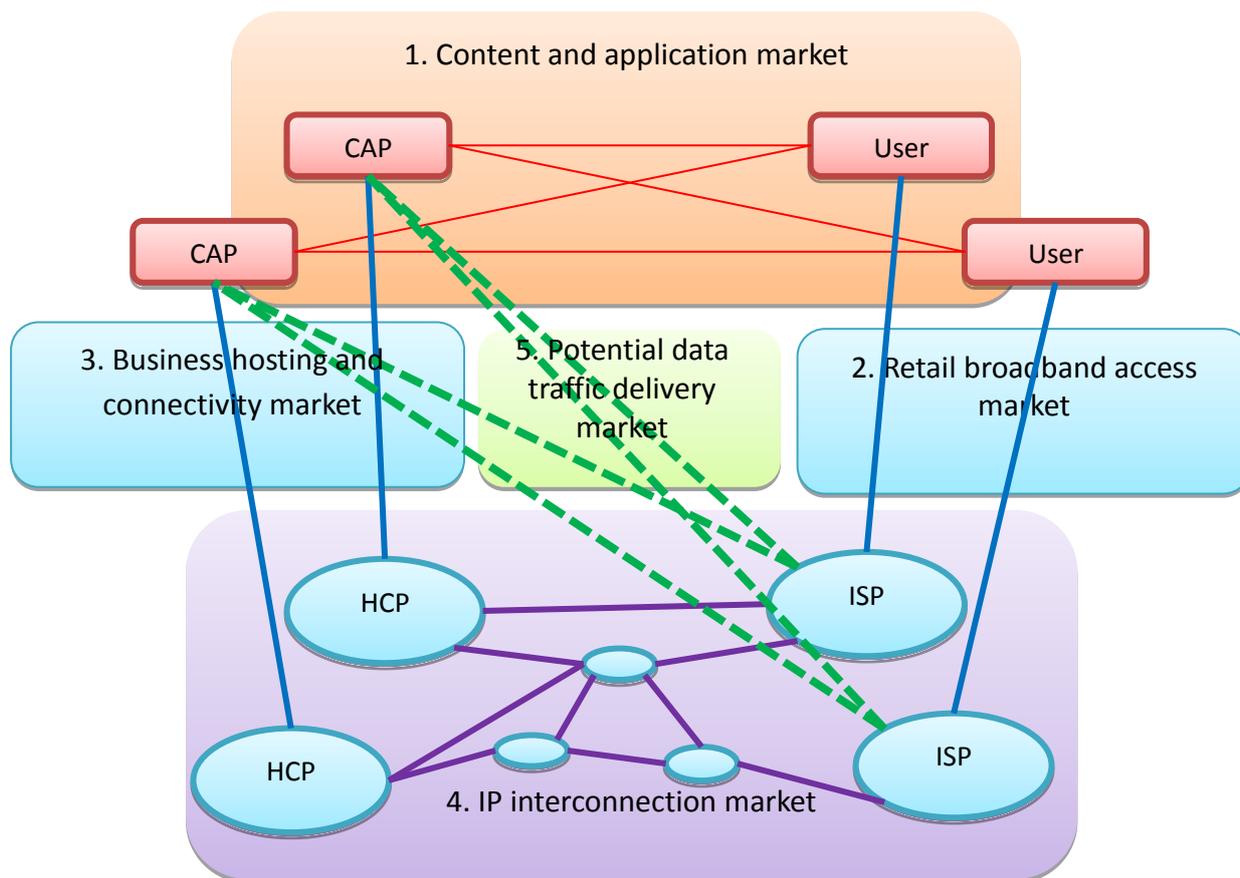


Figure 1: Markets in the Internet value chain¹¹

The markets are briefly described below.

1. Content and applications market: Here users of Internet access connections (end users) purchase services provided on the Internet. The word “service” in this context means anything on the Internet that can be used by end users, such as visiting websites (surfing/content), using search engines, email, social networks, blogs, voice-over-Internet (Internet telephony), video streaming, online banking, online gaming, online radio, teleworking, cloud computing, etc. The use may or may not be free of charge. There is a parallel “advertising market” where companies can purchase advertising services (e.g. banner advertising) from CAPs. The special quality of the Internet is that all users can become CAPs simply by providing content or offering services themselves.
2. Retail broadband access market: Here ISPs provide Internet access to end users (retail or business users) for a fee. Various access infrastructures may be used (mobile network, copper-wire pairs, coaxial cable network, optical fibre, etc.) and different tariff models – offering various bandwidths or download volumes – may be offered.
3. Business hosting and connectivity market: Here CAPs can purchase, for a fee, hosting and connectivity services that allow them to put their content on the Net and/or to offer their services. Some HCPs are also ISPs that provide Internet access for end users. Consequently, the boundaries between markets 2 and 3 are blurred (an HCP can also be an ISP; an end user can also be a CAP).

¹¹ BEREC (2012c): p. 32 (slightly modified).

4. IP interconnection market:¹² To ensure an end-to-end connection between all Internet users, ISPs are interconnected either directly or through providers of transit services. Between operators more or less comparable in size with more or less symmetrical traffic, peering usually applies (i.e. no billing takes place), whereas smaller operators must usually pay a fee to larger transit providers for routing their traffic.¹³ At the moment there is no way of applying full quality differentiation in this market.
5. Potential data traffic delivery market: This is a market that currently barely exists, if at all, yet it is central to the net neutrality debate – the (commercial) relationship between CAPs and ISPs. Thus, for example, ISPs might demand money from CAPs for delivering their traffic to their end users or for delivering it in a specific quality. Indeed, as a means of increasing the quality of their services, CAPs can already access services from content distribution networks (CDNs). The providers of these services operate networks of servers on which the content or services offered by the CAP can be accessed. Because of the greater proximity to end users, their access times, for example, can be reduced.¹⁴

Since the focus of the net neutrality discussion is on the ISP–CAP and ISP–end user relationships, these relationships are also of particular interest for the rest of this paper. The interconnection aspect will only be dealt with in passing.

3. Deviations from net neutrality

This section will discuss and assess various deviations from net neutrality as defined in Section 1. It will focus on the ISP–user and ISP–CAP relationships and is structured on the basis of the answers to two questions, viz:

- What/who is the target of differentiation and in which layer is the differentiation made: in the user layer or in the layer of services¹⁵ or CAPs?
- Who decides on the differentiation: the end user, the ISP or the CAP?

The resultant scenarios are displayed in Table 1. Each of these consists in turn of several sub-scenarios resulting, for instance, from the nature of the differentiation or its motivation.

Table 1: Deviations from net neutrality in the ISP-user and ISP-CAP relationships

Scenario	Target of differentiation	Decision on differentiation
1	User	User
2	User	ISP
3	Services/CAPs	ISP
4	Services/CAPs	CAP/ISP (contractual relation)
5	Services/CAPs	User

¹² See BEREC (2012f): “An assessment of IP interconnection in the context of Net Neutrality”, BoR (12) 130, (http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/1130-an-assessment-of-ip-interconnection-in-the-context-of-net-neutrality).

¹³ Combinations of peering and transit also exist on the market, e.g. “paid peering”.

¹⁴ This is generally not regarded as a deviation from the principle of net neutrality.

¹⁵ As mentioned above, the word “service” here means anything that end users can use the on the Internet for, such as visiting websites (surfing/content), using search engines, email, social networks, blogs, voice-over-Internet (Internet telephony), video streaming, online banking, online gaming, online radio, teleworking, cloud computing, etc.

For each of the five scenarios, the following questions will be discussed below:¹⁶

- Does a deviation from net neutrality already exist and, if not, might it foreseeably arise?
- What are the (economic) incentives for the user/ISP/CAP to differentiate?
- Under what conditions can a user/ISP/CAP achieve differentiation?
- What effects does differentiation have on users/ISP/CAPs, especially in regard to:
 - (Users) fees/price, quality, choice, competition?
 - (ISPs) revenues/profits, costs, investment?
 - (CAPs) fees, revenues/profits, quality, barriers to market entry, innovation, competition?
- How is this practice regarded in general?

No distinction will be made between fixed and mobile networks, because similar scenarios can arise in both network types.

To distinguish below between services or users treated differently from others, the term “best-effort” will be used to refer to undifferentiated traffic.

Scenario 1: Differentiation: user - Decision: user

Here, the target of differentiation is the user's entire data flow, i.e. data packets of different customers on the ISP's network can be treated differently. It may involve, for example, throttling the speed of transmission once a specified volume has been used, allocating different bandwidths on the ISP's network or prioritising the traffic of specific users. Under this scenario, it is essentially users that choose how their traffic is treated. However, their choice is not absolutely free at the moment, being restricted by the tariff options offered by operators.

This type of differentiation has been standard practice for quite some time now. Some examples of it are: tariff options with differing download caps, especially in the mobile sector (where, once a specified volume has been used, the speed is throttled or additional charges are incurred), and tariff options with different (maximum) bandwidths or differentiation between consumer and business tariffs (on the fixed network). Prioritisation in the form of higher bandwidths for different customer groups according to the tariff selected is applied, for instance, in mobile telephony.

The incentive for ISPs to offer such tariff options lies in the fact that user demand is heterogeneous. Rather than by a single tariff, users' different demand levels can be more easily met by means of tariff options, which ultimately allow ISPs to increase their revenues. For end users, too, a wider choice is on the whole preferable, making it easier for them to find a tariff option that suits their requirements.

Problems can arise, however, in those cases where the behaviour of one user group impacts significantly on the Internet access performance of another. Thus, user groups not given "preferential" treatment sometimes have to accept severe restrictions on their service, which can (at least temporarily) go as far as complete loss of functionality. Differentiating between various customer groups may also be problematic if the effects on one or more user groups are insufficiently transparent and/or foreseeable because customers then have no way of making rational decisions about their choice of tariff (not even in theory).

¹⁶ Not all points are relevant or equally important for each case.

There are no direct effects for CAPs under this scenario, because differentiation is not service-specific. In the long term, however, there may be such implications in that the quality of the Internet access service may change for specific customers or customer groups (what ultimately matters is the end-to-end quality of service). These long-term effects may have an indirect effect on CAPs and compromise the innovative power of the Internet.

Assessment of Scenario 1: In the net neutrality debate, differential treatment of the traffic of specific customers or customer groups - as happens in this case - is not regarded as particularly serious as long as the end user has a free choice. This kind of differentiation is “application-agnostic” because it originates with the customer, rather than with the service the customer is using on the Internet. Nevertheless, to give end users the optimum choice of tariffs, and to allow a comparison between competing ISPs, the manner in which the different treatment impacts on the quality of Internet access must be clearly and transparently communicated. Impairment of the service received by “non-preferred” customer groups should be avoided.

Scenario 2: Differentiation: user - Decision: ISP

This scenario could arise if, for example, an ISP throttles specific customers that generate a great deal of traffic regardless of the tariff chosen, assuming this to be contractually possible. For customers, this kind of throttling may well be indistinguishable from a general performance reduction affecting all users. The motivation for the ISP here may be to reduce costs by abandoning or postponing investment in expanded capacities, and/or to prevent a few users degrading Internet access service for the many. While the quality of Internet access is reduced for the customers affected, it may increase for others.

CAPs are not directly affected by this type of differentiation. In the long term, however, it could affect them by changing the quality of Internet access service for specific customers or customer groups.

Assessment of Scenario 2: Like Scenario 1, this is generally regarded as unproblematic provided that no service specific differentiation takes place and the customer has a free choice. However, to give end users the optimum choice of tariffs, and to allow comparison between competing ISPs, it is essential that clear and transparent information be provided about the circumstances in which, regardless of the tariff chosen, the traffic of individual users may be treated differently.¹⁷

Scenario 3: Differentiation: services/CAPs – Decision: ISP

In this case, it is the ISP alone that decides on the differentiation between services. It is not possible for CAPs to influence the differentiation (e.g. under a contractual agreement with the ISP); nor can end users do so, either by direct influence or by the choice of tariff. The following two cases are possible:

¹⁷ In particular, non-specific general clauses such as fair-use provisions should be avoided.

- An ISP treats certain services of certain CAPs differently.
- An ISP treats all “similar“ services, i.e. all services in a specific "class", alike but distinguishes between different classes, e.g. a higher quality class for voice-over-IP (VoIP) and video, and a best-effort class for all other services.¹⁸

Differentiation by an ISP can take different forms, the simplest distinction being the following:

- Blocking: One service or service class is completely blocked (i.e. made inaccessible for the end user).
- Quality differentiation: One service or service class is transmitted in a different quality from others, for instance by means of prioritisation.¹⁹

ISPs may have various reasons for treating services and CAPs differently, allowing a further classification into sub-scenarios, as follows:²⁰

- (i) Legal reasons: An ISP blocks service access for legal reasons, for example, in order to implement statutory provisions or court rulings.
- (ii) Network integrity: Traffic may be blocked or rerouted for reasons of network security or integrity (within the meaning of TKG 2003, Art 16a), e.g. in the event of failure of network elements or denial-of-service attacks (which deliberately cause overloading). The motivation here is to protect the network and its functionality.
- (iii) Overloading: An ISP may block specific services because the network is partially – e.g. at certain times or for certain network elements – overloaded (i.e. the total capacity is simply not sufficient to transmit the total traffic load demanded). The motivation is usually to reduce costs by abandoning or postponing capacity expansions without compromising the quality of use for other services.
- (iv) Protection of existing revenues/profits: An ISP may block or degrade Internet services that compete with its own, for which it may charge the customer an additional fee, or which enhance customer loyalty or increase revenues and profits in some other way. Thus the motivation here is to reduce competition by denying access.
- (v) Improvement of the quality of specific services provided for the end user on the Internet: An ISP may transmit specific services with higher quality requirements at a higher quality. This would correspond to differentiation by “service classes“.²¹ The motivation is to improve the ISP’s offering to end users, in order to differentiate itself from the competition or to be able to charge higher fees.²²

Sub-scenarios (i) and (ii) are generally regarded as justified because they involve either external requirements (legal reasons) or measures supporting network performance as a whole, and therefore beneficial for all interested parties (users, ISPs and CAPs). However, there is a risk that measures actually intended to achieve other purposes, such as retaining existing revenues/profits, may be presented as being taken for legal reasons or reasons of network integrity. Hence such measures should only be taken by ISPs within reasonable bounds and where necessary to achieve the stated purposes.

¹⁸ In practice, however, assignment to a service class can be difficult (see e.g. van Schewick (2012)): “Network Neutrality and Quality of Service. What a Non-Discrimination Rule Should look Like”, (http://cyberlaw.stanford.edu/files/publication/files/20120611-NetworkNeutrality_0.pdf)).

¹⁹ Ultimately, however, the boundaries between severe degrading and blocking are blurred.

²⁰ See BEREK (2012c), pp. 23ff. The list is not exhaustive but should include all the most relevant existing cases and those under discussion.

²¹ The case where an ISP conveys the services of specific CAPs in a better quality only for a fee is discussed below under Scenario 4.

²² This differs from the case where a contractual relationship exists between the ISP and the CAP.

One example of sub-scenario (iii) would be the throttling or blocking of peer-to-peer (P2P) traffic (e.g. BitTorrent),²³ as apparently practised by several European ISPs.²⁴ Here it is appropriate to take a more discriminatory approach. While (possibly partial) throttling or blocking of specific services improves performance for users that do not use them, performance is reduced for those that do. Furthermore, CAPs that offer or develop such services or applications could lose customers or users, and therefore have less incentive to continue operation or development. This might, of course, be in the interests of the ISP (especially with services generating a lot of traffic), but is hardly in those of end users as it could eventually narrow the portfolio of services available.

If ISPs are unwilling or unable to invest in network expansion, they can combat overload by reducing traffic in ways that are not application-specific. These include setting download limits, throttling the bandwidth of heavy users (always providing this is sufficiently transparent: see Scenarios 1 and 2), or rejecting traffic regardless of service or user. In these cases, no given CAP suffers any disadvantages. In light of these considerations, application-specific differentiation to avoid overloading cannot be justified in general.

One significant example of sub-scenario (iv) is the blocking of VoIP services on mobile networks, as currently or formerly practised by a number of European operators.²⁵ In this way, mobile operators can attempt to protect their revenues and profits from selling mobile telephone services. The disadvantages for end users are restricted choice and, in some cases, higher call charges. There are drawbacks, too, for providers of VoIP services because the customer base they can address is restricted. This could even mean that services are no longer offered or no new service providers enter the market,²⁶ with more disadvantages for end users in the long term.

Where there is effective competition, blocking of specific services should, in theory, not be sustainable because of the incentives for competitors to make blockage-free offerings, and hence win customers. In practice, however, this may not be the case. Specifically, the service may not be “important enough” to a sufficient number of customers and there may – probably will – be switching costs. Then, even under otherwise effective competition, it may be that some or all operators block specific services that compete with their own. If competition is generally restricted (the market is dominated by a single player or several players), blocking or throttling of services by companies with a dominant market position to the disadvantage of end users is more likely to occur. This is particularly problematic if the differentiation is not transparent for customers, for then service quality may be worsened without users being able to identify the ISP as the cause. Customers could then simply conclude that the service is “poor”, and so cease using it.

Thus, all in all, sub-scenario (iv) must be regarded as problematic.

Sub-scenario (v), in the form of application-specific prioritisation, has not yet been observed by the regulatory authority. The reason for this may be that an improvement in the quality of specified services cannot be achieved on a single ISP's network, but only end-to-end, or that

²³ Always providing this is contractually permissible.

²⁴ See BEREC (2012c), pp. 51ff. and BEREC (2012b). The Glasnost test (<http://www.measurementlab.net/measurement-lab-tools#glasnost>), which tests whether your ISP performs application-specific traffic shaping, is appropriate here.

²⁵ See BEREC (2012c), pp. 47ff. and BEREC (2012b).

²⁶ This may be unlikely for VoIP services, but cannot be ruled out for others. Ultimately, it depends on the extent to which a service or an application is blocked (i.e. for what proportion of potential customers).

customers find the quality of most services currently offered with best-effort transmission on the ISP's own network to be adequate. Since this is, as yet, a hypothetical case, we can only speculate about its impact on end users and CAPs. Quality management on the existing best-effort Internet is currently carried out by, for example, CDNs (see market 5 in Section 2) and does not constitute a violation of net neutrality. On an ISP's own network, some services (e.g. IPTV) may be carried on their own channels, but this does not usually involve end-to-end prioritisation as understood in sub-scenario (v).

In a hypothetical sub-scenario (v), end users would potentially be in a better position because they could purchase certain services in a better quality. New services only providable at a better transmission rate might also be developed.²⁷ On the other hand, there would probably be a reduction in quality for non-prioritised services (best-effort). The effects on end user prices and product differentiation for end users are not foreseeable.

Among CAPs, those whose services were transmitted at a better transmission rate would benefit. However, this could raise the barriers to market entry for new operators because these would first have to ensure themselves the same, higher transmission quality in order to offer competing services. Furthermore, CAPs without prioritised services could suffer quality losses. In any case, there is no guarantee that such ISP-driven differentiation would meet the requirements of end users or of CAPs.

Sub-scenario (v) must therefore be regarded as ambiguous. While it would increase quality for some services, and new services might be offered, it could also involve quality reductions for others. Since the decision on prioritisation is not made by the individual end user, and since some users may exert mutual influence, differentiation should never result in degrading of best-effort services.

Assessment of Scenario 3: Differential treatment of traffic for legal reasons or to maintain network integrity would appear to be justified from the point of view of net neutrality, provided it is carried out within reasonable bounds and only to achieve these purposes. But where there is unequal treatment in the services layer in order to counter network overload or to retain existing revenues/profits, the disadvantages for end users are likely to outweigh the benefits. The – as yet hypothetical – case of quality differentiation by service class in the absence of contracts with CAPs must be considered ambiguous. In any case, best-effort services should, at least, suffer no structural impairment or disadvantage.

Scenario 4: Differentiation: services/CAPs – Decision: CAP/ISP (by contract)

This scenario covers cases where there is a contractual relationship between a CAP and an ISP regarding the treatment of traffic and the charges payable for it, with the customer lacking any influence on the differentiation (or on the tariff options). It is currently the subject of particularly intense discussion in the network neutrality debate.²⁸

Admittedly, even if the major ISPs have made a number of demands and announcements in this respect,²⁹ there are hardly any examples so far of an ISP charging a fee from a CAP for

²⁷ In this model it is open to question how, without a corresponding contractual relationship, a CAP that develops a new service requiring a high quality can persuade ISPs to transmit it in a higher quality.

²⁸ See BEREC (2012c), pp. 57ff.

²⁹ See e.g. the demands made by Deutsche Telekom CEO Rene Obermann on March 2010, or the recent call by ETNO for a "sending party pays" regime.

the delivery or the prioritised delivery of its service or application. Nevertheless, this scenario is of central importance for the net neutrality debate, and for the future of the open Internet (see also the discussion in Section 1). For instance: Should it be possible for some CAPs to differentiate themselves from others by paying fees to an ISP? Or should CAPs have to pay as a matter of course for the delivery of traffic to end users by an ISP?

ISPs argue that CAPs, and the services demanded by end users, generate ever more traffic for which CAPs pay no charges, even though the increased volume of traffic requires investment in expanding capacity – and so means higher costs for ISPs. CAPs, by contrast, argue that they do indeed pay for the provision of their services on the Internet, to hosting and connectivity providers (HCP), and that the demand for Internet access and the readiness of customers to pay only exist because of the services offered on the Internet. Larger CAPs could, in fact, turn the tables here and demand a fee from ISPs for “permission” to deliver their services, or make ISPs deliver their services in better quality without additional charges.

Essentially, two sub-scenarios are conceivable here:

- (i) Positive differentiation: An ISP offers a CAP preferential treatment compared to the current best-effort delivery, in return for a fee;
- (ii) Negative differentiation: An ISP threatens a CAP with degraded delivery compared to the current best-effort delivery, or with complete blockage (if the CAP fails to pay a charge).

It must be remembered, however, that preferential treatment of specific traffic will, in practice, often lead to a reduction in the quality of other traffic (and vice versa in the case of negative differentiation).

The incentive for ISPs to act in this way clearly lies in additional revenues and profits. One argument they use in this context is that they must invest more in modernising access networks (e.g. next generation access (NGA) or LTE in mobile telephony) if they are to meet the demand for increased data volumes. Whether ISPs really “need” additional revenues from CAPs in order to invest in capacity expansion is hotly debated. One argument to the contrary is that, under effective competitive, profits should really be independent of the kind of tariff model applied (and therefore of the revenue source, be it end users, CAPs, or both). In addition, investment in expansion has been possible in the past without such revenues. According to BEREC,³⁰ there is no evidence that the network costs of ISPs cannot be fully covered at present.

The chances of an ISP earning additional revenues from CAPs may be restricted for various reasons. For one thing, CAPs can apply their own demand-side power in order to avoid paying for delivery, or for prioritised delivery. Large CAPs could even be able to make ISPs pay to be allowed to provide delivery for them (this case is discussed below). Moreover, degrading specific services (negative differentiation) is less easy to achieve if there is

Sources: “Obermann will Google zur Kasse bitten“, (<http://www.manager-magazin.de/unternehmen/it/0,2828,684172,00.html>); ETNO (2012): “CWG-WCIT12 CONTRIBUTION 109 SOURCE: ETNO, Revision of the International Telecommunications Regulations – Proposals for high level principles to be introduced in the ITRs”, (<http://files.wcitleaks.org/public/ETNO%20C109.pdf>).

³⁰ See BEREC (2012g): “BEREC’s comments on the ETNO proposal for ITU/WCIT or similar initiatives along these lines“, BoR (12) 120 rev. 1, ([http://berec.europa.eu/files/document_register_store/2012/11/BoR\(12\)120rev.1_BEREC_Statement_on_ITR_2012.11.14.pdf](http://berec.europa.eu/files/document_register_store/2012/11/BoR(12)120rev.1_BEREC_Statement_on_ITR_2012.11.14.pdf)).

competition between several ISPs, if others offer the services in better quality and if switching costs are low. Finally, establishing contractual relationships with all CAPs is probably neither desirable nor administratively practicable for ISPs, which is why in practice contracts with a few major CAPs are more likely.³¹ One alternative would be for CAPs to use CDNs in order to improve service quality.

As this form of differentiation has seldom occurred in practice, in the following we can only posit hypotheses and assumptions about its precise forms and effects.

We turn first to sub-scenario (i) (positive differentiation), under which an ISP gives a CAP's service preferential treatment compared to the existing best-effort service, in return for a fee. This practice may take various forms, such as prioritisation or guaranteed quality of service (QoS) for several service classes (e.g. packet loss, delay, jitter).³²

The short-term effects of such differentiation for end users are not necessarily negative since these can receive specific services faster or in a better quality. That may, however, lead to a degrading of the best-effort services, in which case the short-term effects for the end user are ambiguous. In addition, end user prices could fall because of the ISP's ability to earn additional revenues from the CAP and invest those in competing for subscribers³³ – again to the advantage of end users.

The long term could see the offering of new services only providable on ISPs' networks with a better than best-effort transmission quality. New services and innovations increase consumer surplus and are therefore positive. However, it is unclear whether some (new) services might, in fact, require end-to-end quality, which would mean they would have to be supported by all transit providers involved and for all interconnections. Although this is exactly what the European Telecommunications Network Operators' Association (ETNO) is calling for,³⁴ it is relatively unlikely to be implemented in view merely of the extreme technical complexity involved. Such a system could indeed favour the introduction of new services, but it is likely to be associated with increased costs and reduced flexibility.

The effects on CAPs might take various forms: CAPs that wanted to offer their existing services in a better quality, or to offer new ones requiring a better quality, would have the chance to do so, and thus be potentially better off than in the current situation. Ultimately, however, it is likely that only large CAPs would actually be able to afford the better quality. As a result, the barriers to market entry for smaller CAPs would be raised considerably because these would have to compete with larger companies enjoying better-quality traffic delivery. One example of such potential barriers for smaller CAPs would be the administrative costs that would incur in monitoring the quality standards of all ISPs. Low market entry barriers are, of course, a vital feature of the Internet and largely responsible for its success and wide use, as is testified by the fact that many of today's large service providers or CAPs, such as YouTube, Google or Facebook, were garage start-ups.

³¹ ETNO's call for a sending party pays system would, however, mean a charge for all traffic (in other words, potentially that of all CAPs) terminating in the ISP's network.

³² Another conceivable form of positive discrimination is that that the data volume used by specific CAPs would not be deducted from any maximum limit on download volume. This case is an (economic) deviation from net neutrality and must be assessed in similar terms to the other cases cited in sub-scenario (i).

³³ The Internet is an example of a two-sided market, where CAPs and users interact with each other on the Internet "platform". In this context it is also conceivable that ISPs finance their activities mainly through revenues from CAPs and to a lesser extent through revenues from end users.

³⁴ See ETNO (2012).

The effect on barriers to market entry would depend on the actual difference between the "high" quality and the best-effort service, and on the extent to which end users preferred the former. The more the quality of the best-effort service is reduced, the higher the barriers to market entry. Higher market entry barriers mean less choice of services for the end user in the long term, and they could also lead to considerable consolidation among CAPs, i.e. that in the end only a few large CAPs would remain. From the end user's perspective, it would be particularly worrying if ISPs made contracts with some CAPs to supply them exclusively with the better quality. In a less restrictive version, various QoS would be available to all CAPs prepared to pay the corresponding charges.

Subscenario (ii) (negative differentiation) differs from the previous one in that there would be no positive effects for the customer derived from better quality or new services. For CAPs, too, the effects would be entirely negative, involving either additional costs (if they had to pay a fee – see sub-scenario (i)) or poorer quality transmission (or even blockage). The negative effects resulting from positive differentiation (higher market entry barriers for CAPs and therefore less choice for users in the long term) would also arise under negative differentiation. This must therefore be viewed critically, even if under competitive conditions it is less likely than the positive variety.

Finally, we must discuss here the possibility that a CAP – due to its size and/or negotiating power – is paid by an ISP for permission to deliver the CAP's services, or makes the ISP deliver its services in higher quality free of charge. Such cases hardly occur at the moment and are therefore of an essentially hypothetical nature. Should the CAP charge a fee but no quality differentiation actually occur, there would be no impact on net neutrality (albeit probably on the ISP's costs). However, should the CAP succeed in achieving better-quality traffic, the effects would be comparable to those of positive differentiation (with the exception that there could be no end user price reductions resulting from additional revenues).

Assessment of Scenario 4: As differentiation between services by an ISP at the instigation of a CAP has hardly been observed so far, one can only speculate about the potential practices and effects. Thus positive differentiation could result in both advantages and disadvantages for the end user. Potential advantages lie in the higher quality for some services, the potential for new services and the possibility of lower end user prices. Disadvantages could arise from a reduction in quality for best-effort services and increased market entry barriers for new CAPs, which would cause a long term decrease in Internet innovation. The disadvantages will be less severe if the quality of the best-effort delivery service is maintained (the likelihood of which rises with the intensity of competition between operators) and if there are no exclusive contracts between CAPs and ISPs. Under negative differentiation, disadvantages clearly predominate for end users because, while the advantages of positive differentiation would be lost, the disadvantages remain.

Scenario 5: Differentiation: services/CAPs – Decision: end user

Under this scenario, it would be the end user that decides which service on an ISP's network is delivered in what quality. The following sub-scenarios are conceivable and will be considered in more detail below.

- (i) The ISP offers the end user a tariff, and the user can choose between several quality levels for the various services included.

- (ii) The end user can choose between several different tariff options allowing either the conveyance of different services or service classes at higher quality (positive differentiation by tariff), or the blockage or degradation of different services or service classes (negative differentiation by tariff).³⁵
- (iii) The end user can choose between several tariffs: for some services, the ISP's own offerings are prioritised and provided over the same line, but not via the Internet. This can occur, for example, in voice telephony (voice-over-broadband – VoB) or IPTV services offered additionally by the ISP (sometimes referred to as specialised services).³⁶

Sub-scenario (i) is a hypothetical case that has not yet been observed. Under it, users would generally be better off, having more options and the opportunity to use better qualities on demand. The crucial points are that the customer chooses the services for which a higher quality is required, and that neither the ISP nor the CAP involved makes any decisions possibly detrimental to end users. Increased service quality could also be associated in one way or another with a higher charge. This, or the wish to stand out from competitors, may be an incentive for ISPs to offer such products on the end user market (product differentiation, increase in customers' readiness to pay). If customers can exert influence on each other through the choice of quality levels, those that do not use the higher quality could be worse off, the resulting problems being similar to those discussed under Scenario 1.

CAPs would not be affected by this type of differentiation in the first instance, because customers would be able to choose the better quality for all services. Furthermore, the longer term could see the emergence of new services requiring better quality than currently possible, so that the user choice could be broadened. At the same time, the barriers to market entry for new entrants would not rise (as they would under Scenario 4).

Sub-scenario (ii) encompasses a group of cases in which an ISP offers a tariff option, some or all of whose options involve application of the practices described under Scenarios 3 and 4. In other words, the decision on differentiation is made in two stages, by the ISP and by the end user: in the first stage, the ISP decides what tariffs to offer; in the second, customers decide which tariff to choose. Possible examples of this approach are premium charges for the use either of VoIP (which would otherwise be blocked) or of certain services in better quality.

The motivation for ISPs to engage in such practices could be to avoid network overload, to protect existing revenues/profits, to obtain revenues from CAPs or to meet customer preferences (see Scenarios 3 and 4). The opportunities for them to do so may be restricted either by competition at end-user level or by the opposing demand-side power of CAPs, provided switching costs are sufficiently low (see again Scenarios 3 and 4).

The effects on ISPs, CAPs and end users may also be similar to those described for Cases 3 and 4, but with two differences:

³⁵ Also possible is a combination of the two, e.g. if an ISP offers the following tariff option: low-cost tariff: - video-streaming is blocked; average tariff - video-streaming is given best-effort service; high-cost tariff - video-streaming is delivered at higher quality.

³⁶ The term "specialised services" is sometimes also used for services provided on the Internet in higher than best-effort quality. What is meant here, however, is the narrow interpretation as described above.

- The effects will occur only to the extent to which tariffs with differentiated treatment of services/CAPs are actually chosen by end users.
- Customers will have more freedom of choice, and so fewer potentially negative effects.³⁷

From the standpoint of net neutrality, and in light of the discussion under Scenarios 3 and 4, such tariff options will be less problematic if they are offered *in addition to* the pure best-effort Internet options (e.g. on different bandwidths), if the price of the best-effort options is not increased (e.g. no premium charges for “full Internet”) and if quality is not degraded.³⁸

Sub-scenario (iii) is standard practice in VoB and IPTV offerings, which are offered as bundled products or in addition to Internet access. Here, prioritisation means that these services are provided in sufficiently good quality despite the restricted bandwidth, thus increasing customers’ readiness to spend money. From the standpoint of net neutrality, this case is less problematic since, ultimately, users have almost total freedom to decide on prioritisation through their choice of tariff and use of services. (Which services do I purchase from the ISP? Which do I use at the same time?). Moreover, it is usually only a user’s own Internet bandwidth that is affected by use of the prioritised service (except in the case of a shared medium), while – if this case is considered in isolation – no further differentiation is made within the Internet access service. However, in order to give end users the optimum choice of tariffs, and to allow a comparison between competing ISPs, it is essential that information about the impacts of using the prioritised service on the quality (e.g. bandwidth) of the Internet access service be communicated clearly and unambiguously.

Assessment of Scenario 5: Under sub-scenario (i) customers themselves can decide which applications or services they want to use with better quality, without raising the barriers to market entry for CAPs. If users exert influence on each other as regards quality, the conditions formulated under Scenario 1 should be fulfilled. Sub-scenario (ii) can ultimately be treated like Scenarios 3 and 4, the potential negative effects for customers usually being small because of the opportunities for choice. From the standpoint of net neutrality the available options should also include the existing best-effort options. Sub-scenario (iii) is less problematic from the standpoint of net neutrality since, ultimately, users have almost total freedom to decide on prioritisation through their choice of tariff and use of services.

4. Principles

This document describes the regulatory authority’s basic perspective on, and attitude to the subject of net neutrality. Its approach was based on the overall principles underpinning TKG 2003, Art 1. The actual enforceability of the individual theories and principles described was, however, not a criterion. As a result, the document sets out at least some rules which, in case of violation, would not be subject to direct sanctions for lack of a concrete legal basis.

³⁷ Although this may entail a reduction of consumer choice in future because of the effects on innovation.

³⁸ Under these conditions, even negative differentiation or blocking may be conducive to consumer satisfaction. This would be the case, for example, if there were a “limited” tariff covering specific services that was significantly cheaper than existing tariffs and thus appealed to customers for whom Internet access at existing prices was not attractive (“market widening effect”). But such an effect is unlikely in the current situation, where prices are already very low (e.g. EUR 4 per GB for mobile broadband). Surveys also suggest that the price of Internet access plays only a minor role even for “off-liners”, and that factors such as lack of interest or lack of ability are decisive (see e.g. RTR (2011): “Die österreichischen Telekommunikationsmärkte aus Sicht der Nachfrager im Jahr 2011”, p. 72 – in German). Such an effect could in fact probably be achieved without differentiation in the application, e.g. by means of download caps (Case 1).

With this in mind, it aims primarily to provide principles for the regulatory authority with potential implications in three areas.

1. Where statutory provisions exist and are applicable, these principles will provide an aid to interpreting the law, but of course only within the framework of other applicable methods of interpretation. It need hardly be said that, in individual cases, conflicts may arise that must be resolved by the techniques of interpretation.
2. TKG 2003, Art 17 Par 3, merits explicit mention here.³⁹ This provision gives RTR wide-ranging powers to issue ordinances designed to ensure net neutrality. Hence this document may also suggest circumstances under which the regulatory authority is to make use of such powers. Should it transpire in practice that principles set out here are being violated, the process of issuing an ordinance can and will be initiated. Likewise, the principles will provide the basis of the content of any ordinance pursuant to the stated article.
3. Regardless of questions of enforceability, the principles formulated in this document will constitute guidelines for other measures to be taken by the regulatory authority. This relates to activities both at European and at national level, insofar as the regulatory authority is involved in the associated (political) opinion-forming process, or is co-opted as an advisory body.

These general remarks on the legal framework will be followed by further detailed analysis of the individual principles, although no claim is made as yet that these are exhaustive or have an established legal basis. The sphere of net neutrality is highly complex in legal terms, and a wide variety of legal disciplines have a bearing on it, so there can be no recourse to established case law or precedent.

In the following, those principles will be set out that will guide the regulatory authority in cases arising within its sphere of competence and relating, inter alia, to net neutrality. No distinction is made between fixed and mobile networks because the same issues can arise in both cases.

Principle 1: Net neutrality as fundamental axiom

The regulatory authority is committed to an open Internet, with low barriers to entry, in which every end user and content and application provider (CAP) can:

- **send and receive contents of their choice;**
- **provide and use services and applications of their choice; and**
- **use terminal devices (hardware) and programs (software) of their choice.**

This can only be guaranteed by equal treatment for all data packets: in other words, by net neutrality. “Net-neutral” practices are therefore to be regarded as positive in principle. Together with the best-effort principle (equal availability to end users and services of

³⁹ TKG 2003, Art 17 Par 3 reads “... *The regulatory authority may issue an ordinance imposing minimum quality of service requirements on operators of public communications networks, in particular in order to prevent a degradation of service and a hindering or slowing down of traffic over networks. ...*” and is the national implementation of Universal Service Directive Art 22 Par 3. The complete text of TKG 2003, Art 17 Par 3 can be found in English here: <https://www.rtr.at/en/tk/TKG2003#a17>

adequate bandwidth on ISPs' network), the broad adherence to neutrality apparent in Austria both now and in the past has been, and remains, a necessary condition for the Internet to provide a unique platform for communication, innovation and the free expression of opinion. Low barriers to Internet market entry guarantee the development of new applications and services, and thus also innovation and competition.

Nevertheless, since some deviations from net neutrality may actually have positive implications for end users, an ex-ante rejection of all deviations would be inappropriate. On the other hand, some deviations are overwhelmingly likely to have predominantly adverse effects, especially for end users and CAPs. As a result, other principles are needed that can be applied in the event of deviations.

Operationalisation: From the legal point of view it can generally be said that, for lack of a firm legal basis, no direct sanctions for breaches of Principle 1 are currently available. Under TKG 2003, Art 17 Par 3, RTR nevertheless has wide-ranging powers to issue ordinances. Should it transpire in practice that principles set out here are being violated, these may be used to initiate the process of issuing an ordinance.

Principle 2: Deviations only when sufficiently justified

Any deviation from net neutrality should be sufficiently justified. If the purposes pursued can also be achieved by measures compatible with net neutrality, preference must be given to these.

While the great success of the Internet in its present form is undisputed, the effects of deviations from net neutrality can only be predicted with a degree of uncertainty. Often there may be both positive and negative potential effects, of both short- and long-term natures, that can only with difficulty be weighed against each other. Some deviations may have negative effects that are irreversible in the long term. Consequently, any deviations from net neutrality must be properly justified.

Operationalisation: Reference is made to TKG 2003, Art 17 Par 3, and to the legal considerations discussed under Principle 1.

Principle 3: Transparency

Any deviation from net neutrality must be transparent and clearly intelligible, and have effects that are verifiable.

If an ISP deviates from net neutrality, it must inform its end users in a transparent and clearly intelligible fashion. This applies equally to cases where end users and CAPs are differently treated. The practical effects of different treatment of Internet traffic on end users must be communicated clearly to them. (Can their service be compromised? If so, when, how often and how badly? Will their usage of specific services be blocked or degraded? And so on.) End users must have some way of verifying the information provided as, otherwise, they would be unable to compare offerings or make rational decisions between tariff options.

It must also be possible for CAPs to verify the actual effects of deviations from net neutrality on their offering, particularly when preparing business cases.⁴⁰ Transparency for CAPs reduces the barriers to market entry, encourages innovation and competition, and is inherent in best-effort Internet services.

Operationalisation: In Austrian law, the Consumer Protection Act (KSchG: Art 6 Par 3) and the General Civil Code (ABGB: Art 864a) provide the framework for assessing transparency in regard to possible restrictions to, or blocking of services or particular service features. The former article stipulates, for consumer transactions, that provisions in standard contract forms, general terms of business or similar documents are binding only if stated in clear and fully comprehensible terms. The General Civil Code, on the other hand, imposes sanctions on clauses whose content is unusual or detrimental in nature, that would be surprising to the other party, and that the latter could not have expected given the nature of the business concerned.

KSchG, Art 6 Par 3, in particular, provides many points of reference because, from the general requirement for transparency imposed by this provision, case law has derived specific requirements of clear recognizability, understandability, accuracy and completeness. In doing so, it has set relatively tough requirements for legally-valid agreements to restrict, or block services. For applying such restrictions or blocking involves complex technical matters that must nevertheless be explained to the consumer clearly and in full. Yet, on the one hand, an abstract, technical description of these matters can be difficult for consumers to understand, while, on the other, a simplified description using specific examples may be to some extent incomplete. Either way, consumers will only be in a position to make an informed and empowered decision before concluding a contract if this information is conveyed to them in a clear and intelligible way appropriate to their level of understanding.

Transparency requirements are further tightened in cases involving deviation from normally expected provisions under warranty law. These provisions refer to product or service features that customers of legal age would expect to be standard in a product or service offered for sale (e.g. in the case of a bicycle, a seat and handlebars). In the communications sphere, the unrestricted nature of services, i.e. that they are provided in a standard form with no blocks or restrictions, represents a normally expected property. For Internet access services, it must be assumed – in line with the basic concept of the freedom of the WWW - that the the basic standard involves unrestricted viewing of websites and the free use of highly diverse data services or applications, no matter what protocol, layer⁴¹ or technical infrastructure they are based on.

In the event of departure from these principles, and insofar as such deviation does not violate ABGB, Art 879 Par 3 (violation of bonos mores), a high degree of transparency and intelligibility is in any case necessary since customers cannot and need not expect this to occur. In order to satisfy the legal provisions on transparency as well as the conditions of ABGB, Art 864a, the relevant agreement would have to be clearly highlighted (bold font, boxed text, or similar) and prominently placed in the contract concerned.

⁴⁰ This implies that the information on deviations is publicly available and accessible to third parties.

⁴¹ As defined in the Open Systems Interconnection (OSI) model: http://en.wikipedia.org/wiki/OSI_model

These provisions (regardless whether contained in general terms and conditions of business, in performance specifications or in documentation concerning charges) are reviewed in line with TKG 2003, Art 25 Par 6.

Principle 4: No reduction in quality

The quality of Internet access and of non-preferred services must suffer no degradation following traffic differentiation.

Firstly, prioritisation of specific users, for example, must not impair the quality for other users. Secondly, the quality of services not given “preferential” treatment must not be degraded. If these conditions are not satisfied, differentiation practices can result in some end users suffering degrading, and therefore being disadvantaged.

Operationalisation: As regards changes in quality parameters or performance specifications for existing contracts, under the terms of TKG 2003, Art 25 Par 3, changes detrimental to an ISP’s customers are only possible if they have been accorded a special right to terminate the contract. It is not necessary for the change in the performance parameters or performance specifications to have direct negative effects on the quality of the service received by customers. The mere possibility that the change could have detrimental effects on the service (possibly not until a later date) suffices to make it not exclusively favourable within the meaning of TKG 2003, Art 25 Par 3. For new contracts, reference is made to TKG, Art 17 Par 3, and the legal considerations discussed under Principle 1.

Principle 5: Offerings without differentiation as standard product

Offerings without quality differentiation should be the standard in ISPs’ portfolios. Products with quality differentiation should be offered as additional options only.

Offering products with quality differentiation only in addition to existing products ensures that customers have complete freedom of choice and inquire about such products only if they (at least individually) will be better off as a result of using them. Along with Principle 4, it also ensures that end users not in need of quality differentiation can continue to purchase existing products without facing quality restrictions or higher prices.

Operationalisation: Reference is made to TKG 2003, Art 17 Par 3, and the legal considerations discussed under Principle 1.

Principle 6: No blocking or degrading

There should be no blockage of traffic, content or services, and no negative differentiation should take place, with the exception of measures taken in response to legal requirements or for reasons of network security and integrity (within the meaning of TKG 2003, Art 16a). Such measures are justified only if they are kept within reasonable bounds, are necessary to achieve the purposes stated and, if taken, are appropriately communicated to end users.

Blocking or degrading (lower quality) reduces either the end user's freedom of choice or the quality of use of specific services, which in turn means a potential long-term reduction in the choice of services. Legitimate purposes such as avoiding overload can normally be achieved without differentiating between services.

Measures to safeguard network security and integrity are, in general, in the interests of all. However, they should be taken by ISPs only within reasonable bounds and if necessary to achieve the purposes stated. In line with Principle 3, such measures should be transparent.

Operationalisation: Reference is made to TKG 2003, Art 17 Par 3, and the legal considerations discussed under Principle 1.

Principle 7: No exclusive differentiation

Preferential treatment of services should only be permitted if offered non-exclusively, i.e. there should be no exclusive contracts at wholesale level and no exclusive preference for the provider's own services. The only exceptions are cases in which the decision on differentiation rests essentially with the end user. These mainly involve services such as IPTV or VoB (referred to as "specialised services") which are provided by the same ISP but not on the public Internet.

Exclusive differentiation restricts the options of both end users and CAPs. In general, differentiation results in disadvantages for non-preferred CAPs, which can then raise the barriers to market entry and lead ultimately to a reduction in the number of CAPs. This effect is even more marked in the case of exclusive differentiation.

Operationalisation: Reference is made to TKG 2003, Art 17 Par 3, and the legal considerations discussed under Principle 1.

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6. Abbreviations

ABGB	General Civil Code (Allgemeines Bürgerliches Gesetzbuch)
ARCEP	French Telecommunications and Posts Regulator (Autorité de régulation des communications électroniques et des postes)
BEREC	Body of European Regulators for Electronic Communications
CAP	Content and application provider
CDN	Content distribution network
ECHR	European Convention on Human Rights
ETNO	European Telecommunications Network Operators' Association
ERG	European Regulators Group
HCP	Hosting and connectivity provider
IPTV	Internet protocol television
ISP	Internet service provider
KSchG	Consumer Protection Act (Konsumentenschutzgesetz)
LTE	Long term evolution
NGA	Next generation access
NPT	Norwegian Post and Telecommunications Authority (Post- og teletilsynet)
OFCOM	Independent regulator and competition authority for the UK communications industries
OSI	Open systems interconnection
P2P	Peer-to-peer
QoS	Quality of service
RTR	Rundfunk und Telekom Regulierungs-GmbH
TKG 2003	Telecommunications Act (Telekommunikationsgesetz) 2003
TKK	Telekom Control Kommission
VoIP	Voice over Internet protocol
VoB	Voice over broadband