Draft BEREC Guidelines on Net Neutrality and Transparency: Best practices and recommended approaches, October 2011

The Internet Society welcomes the opportunity to comment on BEREC's draft Guidelines on Net Neutrality and Transparency. We applaud BEREC on the quality of these draft guidelines, which are well aligned with principles that the Internet Society has long espoused. We are especially supportive of the focus on the end-user perspective, and the observation that unrestricted offers of Internet service are paramount is very welcome.

1. Internet service terminology

In the comments that follow we are strongly motivated by the growing acceptance of the need to establish common terminology in relation to Internet service. We also offer some considerations regarding metrics for determining the availability of Internet service versus a variety of more restricted offerings. Specifically, with reference to the following text from the Executive Summary:

> *BEREC also finds that it is particularly important to develop common frames of references about Internet access service and find agreement on which traffic management measures are non-problematic, as common terminology in these areas can help make information more comparable and easier to understand by end users;*

we offer the following commentary and terms of reference.

The Internet consists of many different and independent networks concatenated together through *open internetworking*. One of the key areas of concern today stems from the very success of the Internet Protocol (IP) as a networking technology. Standard IP equipment and networking practices are useful for providing a number of networked services in addition to Internet service, such as voice over broadband services and TV and video delivery. When those services are offered over the same physical infrastructure as Internet service, concerns regarding traffic priority can arise — whether technical or commercial. For this reason, we strongly agree with BEREC that, 'The coexistence of Internet access service and specialized services and the way that network capacity (with consequences on users' connectivity) is shared between them should also be itself the subject of transparency.'

In the text that follows, we seek to clearly distinguish Internet service from any other IP-based services, while acknowledging that both can coexist on the same broadband infrastructure.

In the future, the focus of consumer labelling and policy should be on ensuring that Internet service is unequivocally understood, offered, delivered and measured without disruption by or to other IP-based services.

Accordingly, BEREC should ensure that it is made clear to consumers whether the service they receive is Internet service – unrestricted, except for reasonable traffic management in times of acute network congestion or for legal and security needs – or not. This would be far simpler and clearer than publicising a number of different tiers of access to data, which would likely confuse consumers and not give due prominence to the open Internet.

Terms of Reference

Precise technical definitions can be found in Internet Engineering Task Force (IETF) specification documents.[1] We offer the following terms of reference to bridge the gap from the technically rigorous to the experiential world to set a framework for discussion of policies and actions.

The Internet

The Internet is: the system of interconnected networks that use IETF-specified best current practices and protocols, including the Internet Protocol, for communication with resources or endpoints reachable via a globally unique Internet address.

Internet service

Internet service is: connection of an Internet endpoint or network to the rest of the Internet with non-discriminatory, best-effort routing of data packets as part of the Internet.

Internet service providers

Internet service providers are: companies that offer Internet service to customers. In this paper we are concerned with broadband ISPs that offer Internet service over some broadband infrastructure. They may or may not own or maintain that infrastructure — they may lease it, for example. These companies are responsible for the experience of their customers over both the broadband infrastructure and the infrastructure that links the ISPs network to the rest of the Internet.

IP-based services[2]

IP-based services are: services that are built using the Internet Protocol, but that operate within a restricted set of networks, or only one network. These networks are often optimized for a single service or service type, and rely on a single administrative domain controlling the network in order to ensure (or enforce) specific service characteristics.

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[1] http://www.rfc-editor.org/rfcxx00.html
[2] In the draft guidelines such services are referred to as 'specialized' services.

They may not conform to the full set of Internet best practices, including network management techniques. Examples of IP-based services include video delivery and some communications service offerings (such as voice over broadband).

Internet-based services and applications
Internet-based services and applications are: services and applications that are delivered over or made possible by the Internet service direct to end-users. They *do not* rely on administrative control from the network. They *do* rely on the underlying Internet service conforming to standardized best practices and non-invasive network management techniques. Skype is an example of an Internet-based online communications application. Blinkbox is an example of an Internet-based video-on-demand service.

2. Internet service metrics
Whether or not Internet service is offered along with other IP-based services, the delivery of the latter should not impair the non-discriminatory nature of Internet service. The advertised (and realized) properties should clearly distinguish where they apply to the Internet service itself in order that consumers are able to choose products suitable for their needs, and verify that they are receiving the contracted service. This leads to a number of measurement-related considerations.

- Apportioning bandwidth between IP-based services and Internet traffic: it is important that Internet service providers are fully transparent to their subscribers about the bandwidth being offered for Internet service. This can best be verified independently by testing throughput to a wide variety of Internet destinations at various times of day, and in the presence of bundled IP-based services if applicable.

- Managing interconnections with the wider Internet: historically, considerable effort has been put into ensuring that peering relationships and network gateways are optimized to allow good quality access to Internet destinations beyond a given network. It is therefore essential that measurements of Internet service performance are made to as wide a range of destinations as possible, including many popular Internet-based services and applications, in particular to ensure that the quality of Internet service links doesn't atrophy over time relative to other IP-based services. These measurements must be replicated at regular intervals, compared with the stated performance characteristics of the subscribed Internet service, and publicised to the relevant stakeholder community.

- Ability to evolve: measurement methodologies need to verify that popular Internet-based services and applications perform adequately over any given Internet service, but should also verify that a much broader range of less commonly used protocols, applications and destinations are similarly functional.

- This could be done using random port numbers, for example, and by selecting destinations at random from a long list. This is necessary to ensure the continued availability of the Internet as a general purpose data networking and communications medium.

A key challenge for policymakers, as we collectively monitor the evolution of Internet service and IP-based services, will be to ensure that the Internet does not become the least-effort network. Key to ensuring this is widely shared and well-understood terminology relating to Internet service and proper labelling of service offerings — clearly identifying Internet service, where available, along with the expected performance profile. And, as with all products, consumers and consumer champions should be able to accurately confirm that they are in fact getting the service they purchased. A considerable body of work already exists in the IETF dealing with the technical complexities of measuring various aspects of Internet performance.[3]

3. Classifying traffic management techniques

With regard to the question of problematic versus non-problematic traffic management measures, we suggest developing a framework that considers measures applied at an endpoint or by user choice as reasonable, and measures that block or throttle traffic within the network, or based on source, destination or service provider as unreasonable. Such a framework provides a means to classify traffic management techniques that is both end-user centric and sensitive to the competitive environment of Internet service provision. This is a fast-changing landscape and we would expect such a framework to evolve over time, while the basic principles outlined would still apply. We would also direct BEREC to the work in this area by French regulator ARCEP, whose scoping of the appropriateness of traffic management should be replicated at European level in order for all stakeholders to have clarity on what is or is not acceptable traffic management: '*[ARCEP] recommends that the traffic management practices that ISPs employ to ensure Internet access remain exceptional and comply with the general principles of* **relevance, proportionality, efficiency, transparency and non discrimination**.'[4]

4. Real-time information

With regard to the value of real-time information tools, while there would certainly be a cost to ISPs to implement such tools, it is not clear that this cost would be especially burdensome. The software required to make suitable measurements in real-time is already freely available on a number of different Operating Systems and more innovative ISPs already provide this service for their subscribers.

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[3] See the documents of the IP Performance Metrics Working Group, for some examples: http://datatracker.ietf.org/wg/ippm/

[4] ARCEP consultation *Discussion points and initial policy directions on Internet and network neutrality,* May 2010, English version; http://www.arcep.fr/uploads/tx_gspublication/consult-net-neutralite-200510-ENG.pdf

Thank you for this opportunity to comment on the draft BEREC guidelines on net neutrality and transparency.

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