



## European Commission: Public consultation on the open Internet and net neutrality

The Internet Society is pleased to submit the following in response to the European Commission's consultation questions on "The Open Internet and Net Neutrality in Europe".

ISOC agrees with the Commission's statement regarding the importance of the Open Internet:

*"The Commission attaches high importance to preserving the open and neutral character of the Internet, taking full account of the will of the co-legislators now to enshrine net neutrality as a policy objective and regulatory principle to be promoted by national regulatory authorities, alongside the strengthening of related transparency requirements and the creation of safeguard powers for national regulatory authorities to prevent the degradation of services and the hindering or slowing down of traffic over public networks<sup>3</sup>. The Commission will monitor closely the implementation of these provisions in the Member States, introducing a particular focus on how the "net freedoms" of European citizens are being safeguarded in its annual Progress Report to the European Parliament and the Council. In the meantime, the Commission will monitor the impact of market and technological developments on "net freedoms" reporting to the European Parliament and Council before the end of 2010 on whether additional guidance is required, and will invoke its existing competition law powers to deal with any anti-competitive practices that may emerge."<sup>1</sup>*

The open character of the "network of networks" has allowed the Internet to be enjoyed and shaped by an increasingly diverse range of players, from its users, to those who manage the networks that comprise it, to those whose economic competitive advantage increasingly depends upon it.

These fundamental characteristics have driven a whole range of innovations on the Internet. The ability to use the medium in an unhindered way – 'innovation without permission' - has been a fundamental driver of the Internet's success. Public policies, Internet architectures, technical tools, service offerings and business models should be consistent with the characteristics and principles outlined above.

**Question 1:** *Is there currently a problem of net neutrality and the openness of the Internet in Europe? If so, illustrate with concrete examples. Where are the bottlenecks, if any? Is the problem such that it cannot be solved by the existing degree of competition in fixed and mobile access markets?*

When considering how to preserve the neutrality of the Internet, policy-makers should concentrate on preserving the open, user-centric Internet model that has

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<sup>1</sup>Telecom Reform 2009: Commission Declaration on Net Neutrality (OJ L 337, 18 December 2009)

been so successful to date. We commend the European Commission for framing this consultation from the perspective of openness and for its leadership in seeking a policy framework that promotes the open Internet and continued Internet innovation and growth within a sustainable Internet ecosystem.

“Network neutrality” has come to the foreground of policy and regulatory discussions about the Internet, but efforts to address the issue are hampered by the lack of agreed definitions of the term. Indeed, competition, transparency and the end-to-end principle are the core policy issues that must be addressed in order to ensure that the Open Internet persists. Open Inter-networking<sup>2</sup> is the term that the Internet Society uses to describe an environment of interconnected networks and open standards that is the prerequisite for the development and delivery of unlimited, innovative and diverse applications and services.

Openness underpins and enables user access, choice, and transparency. These principles are so critical to the success of the Internet that they must be incorporated into present and future policy for the Internet. Thus, while competition is essential to the Open Internet, it must go hand-in-hand with equal commitment to transparency and access.

Over the last decade, both European competition rules and the telecoms regulatory packages have helped to open up national telecommunications markets to competition, stimulating investment and innovation, and increasing choice for business and private consumers. This said, National Regulatory Authorities have exercised considerable discretion in implementing the European Telecoms Directives and, in some cases their perspectives have remained largely confined to national borders. Whereas in some respects, this flexibility has enabled different regulators to address differing market conditions with appropriate attention, in other instances, this has led to regulatory inconsistency and distortions of competition that may be hindering the development of a single European market. Where the inconsistencies have impeded the ability to deploy cross-border applications and services, they have been particularly detrimental to the development of an open Internet in Europe.

The recent establishment of the Body of European Regulators for Electronic Communications (BEREC) is a significant development in the evolution of electronic communications sector throughout the EU. We are hopeful that it will contribute to achieving the goal of a single market for European electronic communications, while ensuring broad commitment to preserving an open and transparent Internet throughout the European Union.

Competition should facilitate an innovative digital economy. While there are many criteria for defining real and effective competition, among the most important is transparency in service offerings so that users have a choice of Internet service providers and are able to make their choices based on informed decisions. This requires clear, easy-to-understand, comparative information that helps consumers distinguish between services offered by competitors. In some cases, it may be necessary to establish a set of baseline definitions of what can be sold as Internet access. The Internet Society believes that Internet access should mean provision of connectivity to the global Internet without any regard to the destination, source, or

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<sup>2</sup> <http://www.isoc.org/pubpolpillar/usercentricity/20100222-Inter-Networking.pdf>

content of subscriber traffic.

**Question 2:** *How might problems arise in future? Could these emerge in other parts of the Internet value chain? What would the causes be?*

The need to upgrade networks and add network capacity is likely to be an on-going issue for network operators as demand for bandwidth increases. Policy makers and network operators should identify ways to address the technical and policy implications of network congestion so that measures taken to address today's challenges do not stifle innovation and growth in the future. To avoid problems in the future, the emphasis should always be on maintaining a platform that is fully open to future innovation.

The Internet Society recently reviewed research on traffic growth and found that data shows a rough consensus emerging that the annual growth rate for global Internet bandwidth lies somewhere between 40 percent and 50 percent.<sup>3</sup> Bandwidth demand, through new users coming online, new services, more bandwidth hungry applications, etc., is putting pressure on existing networks and network management techniques.

Internet protocols provide the means to share finite networking resources (optical fibres, copper wires, coaxial cable, etc.) amongst many users simultaneously. Therefore, congestion is a natural consequence of the Internet's design. When the offered load exceeds the available capacity, congestion occurs, and sending hosts should reduce their transmission rate accordingly. The bursty nature of Internet traffic, and the ability to interconnect relatively high-speed and low-speed links means that transient congestion is an expected feature of Internet networks.

Network operators use a range of tools to mitigate the presence of congestion including the ability to limit throughput for specific classes of application or user. However, the Internet Society believes that there are serious risks associated with installing mechanisms in the network to deal with the presence of congested links, unless those mechanisms are neutral to the specific applications using those congested links. Additionally, policy makers must ensure that network operators do not use network management tools anti-competitively, and that regulators have adequate powers to address such activity when it occurs in the marketplace.

Continued investment in network capacity and advancing technology standards is essential for the development and growth of the Internet. Network management tools alone will not meet the challenges arising from growing user demand for bandwidth; adding capacity to network links is also critical to alleviating congestion. Policy makers should aim to create a clear and predictable regulatory framework that promotes necessary investment in network capacity. Without this increased investment, users may experience limited capacity, rationed access, higher costs, and lower quality of service.

Policy makers need to take care to develop policies that promote growth of the Internet. The Internet has been successful due to its openness and its ability to scale. Policy makers should recognize that there is a clear role for network

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<sup>3</sup> <http://www.isoc.org/isoc/conferences/bwpanel/docs/bp-growingp-201003-en.pdf>

management in maintaining a smooth-running network and in delivering high-quality, innovative services to users. They must also be vigilant, however, to ensure that traffic management is truly application or protocol neutral and is not a tool for anti-competitive or other harmful/prejudicial behaviour.

Additionally, those who create Internet protocols need to develop them in such a manner as to account for the use of the protocols within the greater Internet environment. Developers need to take care not to develop protocols that operate to the detriment of other protocols, in a manner that increases congestion or otherwise causes ill-considered harm to the Internet environment.

**Question 3:** *Is the regulatory framework capable of dealing with the issues identified, including in relation to monitoring/assessment and subsequent enforcement?*

In general, users expect Internet traffic to be conveyed in a manner that is independent of its source, content or destination and in a manner that respects their privacy. These principles are at the heart of the user's Internet experience, one that is characterized by choice and transparency, enabling users to remain in control of their Internet experience, and thereby allowing them to benefit from, and participate in, the open Internet.

Ensuring the primacy of these principles is essential to the future success of the Internet. In practical terms, this means that a regulatory framework should ideally embrace:

- Unimpeded access to a diversity of services, applications, and content;
- Comprehensible and readily-available information as to service limitations, network and traffic restrictions that the subscriber is subject to;
- Effective competition at all levels of the Internet value chain;
- A diversity of competitive service offerings that are transparent and enable the user to make an informed choice of Internet serviceprovider and level of service; and,
- Reasonable network management that is neither anti-competitive nor prejudicial.
- Privacy-respecting network management policies

The Internet Society welcomes the recent statement of Ms. Neelie Kroes on her commitments to both transparency and fair competition as a pre-requisite for an open Internet in Europe. Transparency issues are already addressed in the new regulatory framework, but, as Commissioner Kroes stated, "in a complex system like the Internet, it must be crystal clear what the practices of operators controlling the network mean for all users, including consumers"<sup>4</sup>. European decision-makers should ensure that regulatory inconsistency or distortions of competition do not arise at the national level. This would hinder the development of a single European market, which would be particularly detrimental to the development of an open Internet in Europe.

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<sup>4</sup> Net neutrality in Europe Address at the ARCEP Conference (L'Autorité de Régulation des Communications Electroniques et des Postes) Paris, 13th April 2010.

**Question 4:** *To what extent is traffic management necessary from an operators' point of view? How is it carried out in practice? What technologies are used to carry out such traffic management?*

Traffic management is a normal part of everyday network operation and network management. As new equipment and links are brought into service, and as part of the normal process of handling network faults and repairs, aggregated traffic has to be redirected to maintain service for network subscribers. Denial-of-service attacks and other security-related events might also require filtering of specific incoming or outgoing traffic.

In the case of broadband access networks, traffic management is needed to ensure that all subscribers are able to obtain adequate service at peak times. The growing use of high-bandwidth, broadband access networks, together with the increasing popularity of bandwidth-intensive applications such as video streaming services and file-sharing applications, means that the aggregation networks of a typical broadband ISP (i.e. cable or DSL) may be coming under considerable pressure, especially at peak times.

Traffic management can take the form of volume caps, slowing down certain applications, differential pricing for peak and off-peak bandwidth, and so on. When applied, traffic management techniques should be neutral to the applications that traverse the networks to maintain the openness of the platform. We note that scalable and flexible traffic management technologies are under development through open and transparent processes at the IETF.

Network management practices should not, however, block or hinder legitimate content, applications or services and should not be used to gain unfair commercial or competitive advantage or other prejudicial ends. Internet service providers should be encouraged to develop more transparent and privacy-respecting means of managing traffic in order to provide better service to the user. Similarly, application developers should consider the effects of their protocols on the deployed architecture in order to support a smooth running infrastructure. In the end, investment in traffic management tools should go together with a long-term commitment to investment in networks and advancing network technology standards.

**Question 5:** *To what extent will net neutrality concerns be allayed by the provision of transparent information to end users, which distinguishes between managed services on the one hand and services offering access to the public internet on a 'best efforts' basis, on the other?*

Achieving greater degrees of transparency for users of any service or product is a critical goal. To date, there has been a great deal of inertia involved with changing service providers. Factors such as bundled offerings, lack of application/service interoperability, incumbent dominance, time, and inconvenience may raise costs to consumers and may discourage them from making a change. While competition and new technologies may help diminish these switching costs, transparency remains essential insofar as it allows the user to make informed choices about real alternatives for the provision of Internet access services.

Transparency implies an agreed baseline of what a particular service might

reasonably include, so that any deviation from that agreed baseline is clearly identifiable. This might mean informing consumers before entering into a contract, about bandwidth constraints, the conditions under which bandwidth availability may be reduced (e.g. time of day, specific applications, specific destinations or services), what types of services may be temporarily given a lower priority, and how security is addressed. It also means that users, policy makers and industry need accurate and comparable information about what services are actually being provided. As we discuss in Question 11, data measurement techniques are needed so that network operators, policy makers and users all have a complete picture of Internet access in a particular market. In each instance, the information provided must be clear and understandable to users. At the same time, transparency requirements must also respect the need to protect sensitive personal and network information.

**Question 6:** *Should the principles governing traffic management be the same for fixed and mobile networks?*

The policy principles of openness, access, choice and transparency should apply to Internet access regardless of the specific access technology - fixed or mobile. Differentiating between network types reinforces the belief that services over those networks can or should be treated differently. We recognize that mobile networks face different challenges than fixed networks not only due to physics, but also due to the simple fact that a combination of mobility and shared spectrum makes managing wireless networks more complex than landline networks. As a consequence, traffic management techniques may differ across access technologies. For these reasons, emphasis on transparency in the near-term must be key. But this does not diminish the fundamental need for users to have choice amongst Internet service providers, transparency in the conditions of service and access to lawful content and applications of their choosing.

**Question 7:** *What other forms of prioritisation are taking place? Do content and application providers also try to prioritise their services? If so, how – and how does this prioritisation affect other players in the value chain?*

In principle, it is technically possible for individual users to prioritise their applications by slowing down the available upstream and/or downstream bandwidth available to an application. This can be achieved by adjusting application specific settings, or by careful configuration of their network gateway. However, this is seldom done at the user interface and is typically a solution for advanced/professional users only. The Internet Engineering Task Force (IETF) is developing new congestion control algorithms and other mechanisms that should deliver similarly high performance, but in a more user-friendly or automatic fashion.

Large content providers are improving the responsiveness of their online services by building their own backbone networks and peering their content with access network providers locally. Content providers can also make use of third-party Content Distribution Networks (CDNs) to achieve a similar result.

In the longer term it may become increasingly difficult for new entrants to the content marketplace to gain a foothold without access to global content delivery networks. This risk would be mitigated by a diversity of content providers and by the presence

of multiple competing CDN providers.

Finally, many Internet Service Providers are seeking to offer differentiated or “managed” IP-based services that could offer prioritization, specialized services, quality-of-service guarantees, or other service enhancements. In an environment where Internet access services and IP-based managed services coexist, it is important that there is continued investment in the best efforts Internet and that investment in managed services does not come at the expense of open Internet access. We note that managed services do not constitute “Internet access” and should not be labelled or sold to consumers as such.

**Question 8:** *In the case of managed services, should the same quality of service conditions and parameters be available to all content/application/online service providers which are in the same situation? May exclusive agreements between network operators and content/application/online service providers create problems for achieving that objective?*

The Internet Society’s input to this consultation is focused exclusively on the provision of general Internet access. It does not address the question of enterprise and other managed services. The term “Internet access” should mean the provision of connectivity to the global Internet without regard to the source, destination or content of subscriber traffic. Other offerings may provide Internet Protocol (IP) - based applications and services to consumers on a more limited basis but do not constitute Internet access and should not be labelled or sold as such.

**Question 9:** *If the objective referred to in Question 8 is retained, are additional measures needed to achieve it? If so, should such measures have a voluntary nature (such as, for example, an industry code of conduct) or a regulatory one?*

See the response to Question 8 above.

**Question 10:** *Are the commercial arrangements that currently govern the provision of access to the internet adequate, in order to ensure that the internet remains open and that infrastructure investment is maintained? If not, how should they change?*

In order for an ISP to deliver Internet connectivity to its subscribers, it must be connected to all the other networks that constitute the Internet. The ISP can peer with individual networks on a 1:1 basis, either for a fee or for no fee, or can buy ‘transit’ from another ISP to gain connectivity with networks that it does not have a peering relationship with or engage in a range of other commercial arrangements.

Relatively large networks in relationships with smaller networks may not agree to settlement-free peering arrangements or may require purchase of private interconnections. Currently, the commercial terms of such agreements are evolving rapidly with regard to the factors that govern access to the Internet. Commercial entities need to be free to make the lawful commercial arrangements that make sense for them – innovation in such arrangements should not be constrained. For policy makers, this means two things: first, minimising regulation that artificially restricts the nature of commercial arrangements between ISPs as well as between

ISPs and other parties such as CDNs, and secondly, promoting a competitive marketplace of players at all tiers of the value chain so that users can exercise real choice. If these two conditions are met, and there is adequate transparency, the probability of a market failure or collusion seems remote.

**Question 11:** *What instances could trigger intervention by national regulatory authorities in setting minimum quality of service requirements on an undertaking or undertakings providing public communications services?*

One of the challenges in the current broadband access market is a lack of comparable and usable data necessary for NRAs to assess and compare the public communications services that are provided in their jurisdiction. Appropriate data can help to identify instances where there are substantial discrepancies between the advertised service and the average service experienced by consumers of that service.

Internet service provision should mean provision of connectivity to the global Internet without any regard to the destination or content of subscriber traffic. We are concerned that restricted forms of Internet access may arise in the marketplace - in the form of application specific restrictions, or forms of network service provision that limit the flexibility and utility of the network for the subscriber – but continue to be labelled as “Internet access services”. This is already the case for a number of mobile operators across the EU. This could confuse end users and make it difficult to compare different service offerings in the market. In this case, NRAs and the European Commission may seek to define Internet service provision in terms of application-neutral access to the Internet and require that restricted services be marketed as something other than Internet service provision.

**Question 12:** *How should quality of service requirements be determined, and how could they be monitored?*

Where it is determined that conditions in the marketplace require the setting of quality of service<sup>5</sup> minimums, these requirements should be determined in collaboration with the appropriate stakeholders, including Internet service providers, to understand the limitations of measurement techniques as they interact with operationally deployed networks. Baseline quality of service standards should be as widely applicable as possible and minimise the potential for ‘gaming’ the system.

Monitoring studies have already been commissioned by several NRAs. It is important that the network operators being monitored have an opportunity to provide feedback on the validity of the monitoring results, as there are many factors that can influence an end-user’s quality of Internet experience, and many factors that can influence the validity of measurements.

**Question 13:** *In the case where NRAs find it necessary to intervene to impose minimum quality of service requirements, what form should they take, and to what*

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<sup>5</sup> Meaning quality of the end user experience, not to be confused with Quality of Service (QoS), DiffServ, or prioritization.



*extent should there be co-operation between NRAs to arrive at a common approach?*

Appropriate quality of service requirements would include: average bandwidth measurements in various configurations and application types, service availability measurements for important services like SMTP and DNS, latency measurements, and so on. It is important to take bandwidth measurements across a randomized range of ports to increase confidence that application-specific filtering is not taking place without the user's knowledge.

Co-operation between Regulators to develop widely applicable and acceptable measurement methodologies and standards is highly desirable. Given that the Internet is a global network of networks that does not adhere to national boundaries, policy makers should strive to minimise obstacles to network operators building their networks across national boundaries. Having to submit to and satisfy multiple different measurement approaches and quality of service requirements could be a serious impediment to Internet growth and investment.

**Question 14:** *What should transparency for consumers consist of? Should the standards currently applied be further improved?*

See comments under Question 5 regarding transparency.

**Question 15:** *Besides the traffic management issues discussed above, are there any other concerns affecting freedom of expression, media pluralism and cultural diversity on the internet? If so, what further measures would be needed to safeguard those values?*

The Internet's success has been driven by the user's ability to use the Internet as they wish, accessing the people, sites and content of their choice. These qualities have made the Internet an extraordinarily effective tool for sharing information, one that has brought about an unprecedented free-flow of information, ideas and opinion.

In Europe, the Internet has "become a vital platform for the political, cultural, and social participation of European citizens".<sup>6</sup> The Open Internet is important for the free flow of information, to protect freedom of expression and the openness of society, to encourage participation by civil society and build new relationships between citizens and government. Furthermore, the Internet promotes diversity through the development of local content, facilitating multilingualism, preserving cultural heritage and identity, and promoting accessibility.

We must all work together to ensure that the Open Internet remains a tool for creativity, free flow of information and innovation worldwide. Technical measures and public policies must be carefully assessed against these objectives – any technical, commercial, regulatory or other measure that reduces the impact that the Internet has in promoting freedom of expression, the free flow of information, cultural diversity or individual empowerment must be avoided.

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<sup>6</sup> [http://ec.europa.eu/information\\_society/policy/ecomms/doc/library/public\\_consult/net\\_neutrality/nn\\_questionnaire.pdf](http://ec.europa.eu/information_society/policy/ecomms/doc/library/public_consult/net_neutrality/nn_questionnaire.pdf)

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