



Internet Society International Chapter Toolkit

**Tools for Unraveling the Net Neutrality /
Open Internetworking Debate**

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Introduction

Network neutrality. Open internetworking. An Internet for all. These phrases and others have risen to the top of a multitude of regulatory, legislative, and policy agendas worldwide. The issues they encompass have become not just discussion points but flashpoints, primarily because they represent the intersection where Internet standards, applications development, business enterprise, and a vast array of policy issues meet.

The Internet works because the open standards on which it was built allows every network to connect to every other network. This model—known as the Internet model—is what makes it possible for anyone to create content, offer services, and sell products without requiring permission from a central authority, such as a network operator. The Internet model levels the playing field for everyone; it is the reason why we have the rich diversity of applications and services that many of us enjoy today.

Protecting and preserving that model of openness has been a priority for the Internet Society since its inception. Among a growing number of Internet Society Chapters, the issues associated with Net neutrality and open internetworking have become especially relevant; for those where the internet infrastructure has not yet developed, those issues may only be on the horizon. The information presented here is intended to provide background and a set of tools for understanding Net neutrality and open internetworking.

In this toolkit you will find ...

- ✓ An overview of Net neutrality and open internetworking
- ✓ Work being done by the IETF that addresses Net neutrality and open internetworking
- ✓ The open networking principles being advanced by the Internet Society
- ✓ The Internet Society's position on key issues associated with Net neutrality and open internetworking
- ✓ Examples of how Chapter leaders and members leverage these issues to advance their Chapters
- ✓ Suggestions for educating and stimulating discussion of these issues
- ✓ Resources and tools



I. NET NEUTRALITY AND OPEN INTERNETWORKING

A. Definitions and Context

In recent years, a vast array of complex and increasingly powerful Internet applications have led to unprecedented demand for bandwidth, a demand that is unlikely to diminish anytime soon. At the same time, widespread availability of high-bandwidth Internet access is putting more and more pressure on network capacity, leading to greater deployment of congestion-management and network-traffic-management tools and techniques by network operators. These new realities have raised concerns among Internet technologists, policy-makers, users, and other stakeholders that the open architecture and end-to-end principle¹ that have guided Internet development may be at risk.

Generally speaking, Net (or network) neutrality is a term used to describe a variety of policy issues that address the utilization of network traffic-management techniques and similar strategies that could potentially jeopardize the Internet as a medium for free expression, user choice, and innovation. On the face of it, Net neutrality would appear to be a relatively simple issue, but the pressures on today's Internet make the Net neutrality debate far more complex than it might seem. In fact, the complexities and nuances inherent in the discussion suggest that it is neither helpful nor even possible to take a simple "for or against" position on the constellation of issues that make up Net neutrality; rather, the Internet Society believes that the most sensible approach is to rely on the model of open internetworking that has served the Internet since its inception.

What do we mean by open internetworking? From a technical perspective, open internetworking refers to a set of operational principles that support transit of network data irrespective of source, destination, or purpose as well as an expectation of good-faith effort on the part of network operators to achieve best transmission of traffic within and between networks (also known as best-effort transmission). Open internetworking also speaks to transparency of delivery, operations, and governance of Internet traffic.

The Internet Society strongly believes that Internet access should mean provision of connectivity to the global Internet without any regard to the destination, source, or content of subscriber traffic.

What is referred to as the end-to-end principle states that, whenever possible, communications protocol operations should be defined to occur at the end-points of a communications system, or as close as possible to the resource being controlled. Simply put, in an open environment, decisions about network traffic are made at the point of destination, not by the carrier. The job of the Internet is simply to carry bits of information from originator to receiver without modifying them while in the network.

Net neutrality is a broad and ill-defined term that encompasses a range of policy objectives, including free expression, user choice, and discrimination as well as business issues, including network traffic management, pricing, and overall business models

¹ http://en.wikipedia.org/wiki/End-to-end_principle

Through open standards and user and developer choice as well as transparency of delivery, operation, and governance, the Internet can continue to function for the benefit of all people, everywhere. Preserving this model is at the heart of the Internet Society's mission and it is essential to the future of a smooth-running and functional Internet.

B. Overarching technical issues

Many of the pressures on today's Internet are fueled by significant growth of and increased demand for bandwidth, which can lead to Internet traffic-management challenges for network operators. The Internet technical community is actively working to develop scalable and flexible traffic-management technologies through open and transparent processes at the IETF.

Chapters interested in addressing the overarching technical issues that underscore open internetworking are encouraged to use or adapt the following points, all of which speak to the fundamental conditions that have led to the Net neutrality debate. They can easily be converted into brief presentations or used as talking points when engaging in a discussion or educational forum with policy makers, government agencies, or other stakeholders.

1. **Bandwidth supply/demand.** Increasingly widespread demand for and availability of broadband has created new pressures on network operators.
2. **Best-effort transmission.** Best-effort transmission (an assurance of a good-faith effort to achieve best results under prevailing circumstances) of traffic within and between networks is an essential component of the Internet's power and success.
3. **Operator intervention.** With monthly Internet traffic now being measured in exabytes (or quintillions of bytes), network operator intervention is sometimes necessary to keep the Internet functioning. However, as those who have engaged in the Net neutrality debate point out, network-management tools such as volume caps and bandwidth shaping can be unpredictable and have unintended consequences.
4. **Investment in network capacity.** 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.
5. **Technical community response.** The technical community is developing new mechanisms and algorithms to better manage congestion on the Internet in a way that better fits with the Internet's architecture (see examples on next page).

Regardless of your Chapter's interest or involvement, gaining a clear understanding of open internetworking and what is meant by Net neutrality can enhance your Chapter's work, prepare you and your Chapter's members to educate and inform policy makers, and help us advance our mission and goals to ensure the Internet remains open and accessible to all.

C. Relevant IETF technical work

A number of IETF working groups are addressing issues relevant to Net neutrality and open internetworking. The goal of this work is to develop solutions to network congestion that support the continued scalability and flexibility of the Internet's architecture. Broadband-management solutions that are global, flexible enough to address growing demand, based on open standards, and protocol-agnostic have the benefit of being consistent with the Internet's architecture.

1. **Conex.** Exposing expected congestion along the forwarding path of the Internet (<http://datatracker.ietf.org/wg/conex/charter/>)
2. **Ledbat WG.** Congestion-control algorithm for scavenger service (<http://datatracker.ietf.org/wg/ledbat/charter/>)
3. **Alto WG.** Protocols for better-than-random peer selection (<http://datatracker.ietf.org/wg/alto/charter/>)
4. **MultipathTCP WG.** Simultaneously use multiple paths in a single TCP session (<http://datatracker.ietf.org/wg/mptcp/charter/>)
5. **Decade WG.** In-network storage for P2P applications (<http://datatracker.ietf.org/wg/decade/charter/>)

Open internetworking allows new networks and end users to connect to, innovate over, and use the Internet without permission from any central authority.

D. Policy issues

If there is one guiding principle that Internet Society Chapter leaders and members should embrace with regard to Net neutrality and open internetworking, it is openness. The policy overview that follows is intended to assist those Chapter leaders and members who are engaging in discussions with policy makers, regulators, or government agencies on this issue. As with the technical issues, feel free to use or adapt these points to educate and inform policy makers and regulators—and be sure to share these points with Chapter members who might need to help craft language for presentations, press releases, and/or formal responses.

1. Openness

Openness is the overarching principle that has ensured the success and growth of the Internet to date. Internet standards, development, and governance are open to all to participate, contribute, create, shape, and build. That means shared global ownership (no central authority), open technical standards, collaborative engagement models (among researchers, the business community, civil society, and government), freely accessible processes for technology and policy development, and transparent and collaborative governance.

Openness Enablers

- **Access** to Internet services, applications, sites, and content, which enhances users' experience and ensures continued innovation, creativity, and economic development.
- **Choice** and control by users over their online activities, including their choice of providers, services, and applications, and recognition that legal and technical limitations exist.
- **Transparency**, including providing accurate information about bandwidth and network-management policies, which enables users to make informed choices about their Internet services.

2. Network management

Policy makers must take into account the technical reality of how networks are operated and managed and the need for reasonable network management in order to maintain a smooth-running network and deliver high-quality, innovative services to users. However, while traffic management is a normal part of network operation, traffic-management techniques should be protocol-agnostic (meaning they do not discriminate between different applications—all are treated equally). In short, approaches to network management must not impact the sustainability of the global Internet.

E. The regulatory framework

Policy and regulatory discussions about Net neutrality are emerging all over the globe. Chapters located in countries and regions where demand for high-bandwidth, high-speed Internet is commonplace and where Internet congestion and network-management issues are making their way onto the national agenda are in an especially good position to influence and inform policy makers, legislators, and regulatory agencies. This toolkit should help you frame the discussion for optimal outcomes in your local community.

As most Internet Society Chapter leaders and members know, in order for a regulatory framework to be successful, the policies that drive regulation must be informed by local and regional conditions and priorities. With that in mind, it is both impractical and inadvisable to suggest any type of regulatory agenda that advances a one-size-fits-all set of solutions. Instead, we believe an overarching set of principles and scalable solutions—such as those offered by the Internet model and the principles of open internetworking—should be agreed upon and embraced by policy makers and stakeholders. Once those policies and principles are accepted, countries may apply them as they see fit.

Policy makers need to be sure that their measures do not lead to traffic management as a substitution for investment in networks and advancing network technology standards.

How is this outcome achieved? To start, Chapter members and leaders can work to advance the notion that any ideal regulatory framework should embrace the following principles:

- Unimpeded access to a diversity of services, applications, and content.
- Transparency with regard to delivery, operations, and governance.
- Comprehensible and readily-available information made available to users by network operators outlining potential service limitations.
- Effective competition at all levels of the Internet value chain.
- An allowance for reasonable network management that is neither anti-competitive nor prejudicial.
- Privacy-respecting network management policies.
- A diversity of competitive service offerings that are transparent and that enable users to make informed choices about their Internet service provider and levels of service.

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 a 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.

F. Communicating the Internet Society's positions on Net neutrality

As an Internet Society Chapter member or leader you may, from time to time, find yourself in a position where you are asked to speak about Net neutrality or open internetworking, or respond to relevant developments or announcements. The Internet Society has adopted the following approach to the Net neutrality debate that Chapters may find helpful when framing the discussion for their purposes.

- ✓ Keep the focus on *open internetworking*, 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.
- ✓ Advance the concept of *global solutions* and embrace user-centric principles of access, choice, and transparency.
- ✓ Allow technical issues to be addressed within the *open-standards processes*—such as through the IETF—in order to find global technical solutions that are consistent with the Internet's architecture.

Throughout the world, ISOC's Chapter leaders are following and engaging in discussions about Net neutrality. Internally, Joly McFie of the [Internet Society U.S. New York Chapter](#)¹ regularly offers feedback and input on this and

¹ <http://www.isoc-ny.org/>

other issues on the Internet Society's Chapter-Delegates list. Externally, Joly authors a blog on the Chapter's website (<http://www.isoc-ny.org/p2/?p=1112>), where he has pulled together a number of articles, opinion pieces, and announcements related to Net neutrality. Joly's blog not only helps raise awareness of the broader issues around Net neutrality, it helps educate and inform policy makers, some of whom may not be as well-versed in the history of Internet issues or its unique vocabulary.

For more detailed examples of how Internet Society Chapters leverage the three previously mentioned positions, see the Best Practices section later in this document.

G. Entities dealing with Net neutrality

A number of governments have enacted policies or are considering policy proposals to address network neutrality.

- ✓ The U.S. Government's Federal Communications Commission (<http://www.openinternet.gov/>)
- ✓ The European Commission and European National Regulatory Authorities (http://ec.europa.eu/information_society/policy/ecomm/library/public_consult/net_neutrality/index_en.htm)
- ✓ Canadian Radio-television and Telecommunications Commission (CRTC) (<http://www.crtc.gc.ca/eng/archive/2009/2009-657.htm>)
- ✓ Japanese industry/government (http://www.jaipa.or.jp/other/bandwidth/guidelines_e.pdf)
- ✓ Chilean Legislature (in July 2010, Chile became the first country to officially put net neutrality principles into law) (http://www.subtel.cl/prontus_subtel/site/artic/20100826/asocfile/20100826145847/ley_20453_neutralidad_de_red.pdf)
- ✓ Mexico Senate proposal (<http://www.senado.gob.mx/index.php?ver=sp&mn=2&sm=2&id=5228&lg=61>)

The Internet Society does not believe that there needs to be, or should be, a trade-off between the openness and freedom of the Internet and innovation and investment; rather, we believe that universal adoption of the principles of open internetworking is the only logical framework for ensuring ongoing technological innovation and investment, as well as a long-term, sustainable future for the Internet.

II. BEST PRACTICES: NET NEUTRALITY AND INTERNET SOCIETY CHAPTERS

Throughout the world, Internet Society Chapter leaders and their members are leveraging their individual and collective experiences, expertise, and knowledge of core technology and policy issues to speak out about open Net neutrality and the real and potential threats to open internetworking.

Chapters often find that by following and monitoring the developments in their regions, as well as by focusing on advancing the Internet Society's position in

support of open internetworking as a general thesis, they can improve their profiles and increase their impact on public policy. Avoiding controversy and keeping a clear head is the best path toward gaining recognition as a trusted and reliable voice.

- **Internet Society Mexico Chapter**

While the [Internet Society Mexico Chapter](#)¹ has been promoting awareness of Net neutrality among its members for a while, pending legislation (as of this writing) has prompted the Chapter's leaders to be especially proactive. "We are now more active since the Senate has a law initiative for Network neutrality, which we find simplistic and lacking in support from significant actors, such as ISPs," wrote Chapter leader Alejandro Pisanty. Awareness of the issue began both abroad and at home, where the telecommunications industry faces new challenges as the result of a new, large-scale broadband network being authorized, the operation of which is granted to a major television chain allied with a leading telecommunications stakeholder. The Chapter actively discussed the issue at its annual public meetings in 2009 and 2010, enlisting speakers to help clarify and parse the issues for the membership. Alejandro describes the audiences for such discussions as a mix of policy makers, distinguished and active members of the Internet community, and more general members of the community. The Chapter is in constant dialogue with legislators and some officials and they are approaching representatives of ISPs and other decision makers. Some of the Chapter's members are publishing articles on the issue in online media as well as in blogs and through Twitter.

- **Internet Society New York Chapter**

In the aftermath of two New York City events that pitted supporters and opponents of Net neutrality against each other, the [Internet Society New York Chapter](#)² conducted a poll in December 2009 to gauge the community's thoughts on potential threats to open internetworking (a small number of votes were received). The Chapter's main avenue of involvement has been via OneWebDay, which they have sponsored and served as presenters for the past three years (they have offered webcasts and shown discussions via their cable TV show).

- **Internet Society Sweden Chapter**

In response to a question on the EC's questionnaire that asked for examples of threats to the openness of the Internet, the [Internet Society Sweden Chapter](#)³ surveyed its community and made contact with a handful of network-user organizations and was surprised to have received no examples of current significant abuse. Chapter leader Lars Lundgren suggests other Chapters find out what the situation is in their regions and use the technology tools that are

"I spoke at a [New York City] council meeting. Jaws dropped that ISOC New York took an even-handed view [on Net Neutrality] rather than were gung-ho activists."

*—Joly MacFie, Internet Society
New York Chapter*

¹ <http://www.isocmex.org.mx/>

² <http://www.isoc-ny.org/>

³ <http://www.isoc.se>

available to find out if a problem actually exists. In Sweden, a move to take a hard look at the consumer situation has been proposed. “It must be possible for consumers to know what they are paying for and what they are getting and there must be a channel for complaints,” Lars added.

III. SUGGESTIONS FOR STIMULATING DISCUSSION AND ADVANCING EDUCATION

Chapters interested in engaging in discussion and advancing education about open internetworking and Network neutrality have a variety of options. See the Resources section for additional tools and materials as well as the [Internet Society International Chapter Handbook](#)¹ for tools for creating successful events and presentations.

1. Presentation or workshop for Chapter members

Create an educational opportunity for your members by hosting a presentation or conducting a workshop that outlines and explores the basic concepts of open internetworking and Net neutrality. Be sure to have the presenter and/or moderator connect the basic concepts with developments in your Chapter’s country or region. Discussion points to consider include:

- ✓ How relevant is the issue of open internetworking in our region?
- ✓ Have issues around Net neutrality been reported in our region’s mainstream media or business publications?
- ✓ What are the threats to open internetworking that do (or should) concern our membership the most?
- ✓ Are there members or leaders of our Chapter who have contacts within the country’s policy or regulatory leadership?
- ✓ What types of activities would the Chapter like to pursue to promote and advance Net neutrality and open internetworking?

2. Single-speaker or panel presentation

Chapters that have some experience speaking about open internetworking and Net neutrality (either as a Chapter or as individual members) might consider a single-speaker or panel presentation geared to the membership plus members of the business community, government agency officials, regulators, educators and trainers, and various other decision makers and policy makers.

1. Blogging, writing
2. Do you have bloggers or writers among your Chapter’s leadership or membership? Blogging is a useful tool for raising awareness of issues

¹ http://www.isoc.org/isoc/chapters/guidelines/docs/chapterhandbook_2010.pdf

“My goal as a Chapter leader is not to convince everyone to stop saying ‘Net neutrality’ but rather to explain to them the concept of open internetworking and to advance the preservation of the open Internet. That way we can avoid being ‘for’ or ‘against’ Net neutrality (because Net neutrality is understood as different things by different people) and instead support the worthy ideal of open internetworking.”

—Chris Grundemann, Internet Society U.S. Colorado Chapter

such as Net neutrality and open internetworking. It also makes it possible for the Chapter to respond quickly to announcements.

3. Formal response
4. If Net neutrality is a hot issue in your Chapter's country or region, consider issuing formal responses to announcements made by government officials or other stakeholders. Responses can come in the form of press releases and/or letters to the editor of mainstream and online news media. It can also come in the form of a written appeal to a particular governing body.

"When you talk to people, they assume operators are blocking access, but there are no facts to support that claim."

***—Lars Lundgren, Internet Society
Sweden Chapter***

IV. Resources and Tools

- [Open Internetworking](#)¹. Briefing paper published by the Internet Society in early 2010 is an essential primer on the principles of Internet "openness" and its key enablers: access, choice, and transparency
- [Open Internetworking: From technology to policy](#).² Slide presentation developed by the Internet Society's Mat Ford and Sally Wentworth.
- [European Commission Questionnaire for the Public Consultation on the Open Internet and Net Neutrality in Europe](#).³ A questionnaire issued in 2010 intended to contribute to the debate on the open Internet and inform a report the Commission expects to present to the European Parliament and Council by end-of-year 2010.
 - [The Internet Society's response to the European Commission's questionnaire](#)⁴
 - [The Internet Society Sweden Chapter's contribution to the Internet Society's response to the EC questionnaire on the open Internet and Net neutrality](#)⁵
- [Consultation publique sur la « neutralité du Net »: Consultation Publique sur la Neutralité du Net](#). French government invitation to gather views and opinions on the issue of Net neutrality. Published in 2010.⁶
 - [Internet Society response to the French government's consultation on Network neutrality](#)⁷
- [Neelie Kroes, Vice President of the European Commission Commissioner for the Digital Agenda, address on Net neutrality in](#)

¹ <http://www.isoc.org/pubpolpillar/usercentricity/20100222-Inter-Networking.pdf>

² <http://www.isoc.org/isoc/conferences/opennetwork/docs/ford-wentworth.pdf>

³ http://ec.europa.eu/information.../public.../net_neutrality/nn_questionnaire.pdf

⁴ http://www.isoc.org/pubpolpillar/docs/20100929_eu.pdf

⁵ http://www.isoc.se/index.php?option=com_content&view=article&id=154&Itemid=56

⁶ <http://www.telecom.gouv.fr/debat.neutralite>

⁷ http://www.isoc.org/regions/europe/docs/netneutrality_20100516_en.pdf

Europe at the ARCEP Conference (L'Autorité de Régulation des Communications Electroniques et des Postes) in Paris, France, April 2010.¹

- Comments by Internet Society Chief Operating Officer Jon McNerney to The Guardian about the need to keep the Internet open and accessible.²
- The Internet Society's Chief Information Technology Officer Leslie Daigle talks with BBC Radio on Net Neutrality³

1 <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/153>

2 <http://www.guardian.co.uk/technology/blog/2010/sep/27/internet-society-net-neutrality>

3 <http://www.bbc.co.uk/programmes/b00v3ynd#p00bgfdy>

