The Internet and Standards

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The Internet is built on technical standards, which allow devices, services, and applications to be interoperable across a wide and disperse network of networks.

ISOC is the organisational home of the Internet Engineering Task Force (IETF), the Internet Architecture Board (IAB), the Internet Engineering Steering Group (IESG), and the Internet Research Task Force (IRTF). Collectively, these bodies support the creation of specifications and research for general Internet operation and evolution. The IETF and IRTF are open organisations, relying on transparent, bottom-up processes to build consensus. Thousands of people from around the world participate in the process and the standards they develop are free and accessible to everyone. Participants, who primarily come from the private sector, governments and academia, are technical experts who work together collaboratively as volunteers.

Many other organizations develop standards and technologies that play key roles in supporting the Internet or making use of the Internet. These organizations include, but are not limited to, the World Wide Web Consortium (W3C), the IEEE Standards Association, the ISO ANSI, the European Telecommunications Standards Institute (ETSI), the ITU-T, the Liberty Alliance Project, Open Source Communities, and the Organization for the Advancement of Structured Information Standards (OASIS).

This document is focused on the open standards that provide the general basis for the common Internet.

I. The Internet and Standards

The Internet was built on the premise of interoperability based on independent implementations of common specifications: Internet standards. By focusing on interoperability for passing traffic between networks, Internet standards describe the protocols on the wire without prescribing device characteristics, business models, or content.

Internet Society

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The value of this building block approach is seen in the range and depth of innovation and development in Internet technologies and services. New components – whether networks, services or software – work seamlessly with existing deployments, as long as all pieces correctly implement applicable standards on the network. This makes the field of possible innovations virtually limitless.

II. Key characteristics of Internet standards

Apart from the focus on wire protocols for interoperability, successful Internet standards share certain characteristics, described below:

Freely accessible specifications: all relevant written specifications required to implement the standard are available without fee or requirement of other contractual agreement (such as a non-disclosure agreement).

Unencumbered: it is possible to implement and deploy technology based on the standard without undue licensing fees or restrictions.

Open development: in order to have relevancy in the resulting standard, it is critical that all parties working with impacted technologies are able to participate in and learn from the history of the development of an Internet standard.

Always evolving: as the Internet itself continues to evolve, new needs for interoperability are identified, so the standards that support it must evolve to address identified technical requirements.

III. Engaging in the Internet Engineering Task Force

Key Internet standards, such as the Internet Protocol (IP), are developed and maintained by the Internet Engineering Task Force (IETF).

From http://www.ietf.org/tao.html:

> *"[The IETF's] mission includes the following:*
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> - *Identifying, and proposing solutions to, pressing operational and technical problems in the Internet;*
> - *Specifying the development or usage of protocols and the near-term architecture to solve such technical problems for the Internet;*
> - *Making recommendations to the Internet Engineering Steering Group (IESG) regarding the standardization of protocols and protocol usage in the Internet;*
> - *Facilitating technology transfer from the Internet Research Task Force (IRTF) to the wider Internet community;*
> - *Providing a forum for the exchange of information within the Internet community between vendors, users, researchers, agency contractors, and network managers".*

Participation in the IETF's activities is open to all individuals. As the official business is conducted via e-mail, it is also accessible by all. The next plenary face to face meeting of IETF engineers will be in Stockholm, from 26-31 July 2009. The details of that meeting are here: http://www.ietf.org/meetings/75/.

The Internet Society has a long tradition of helping build technical capacity in less developed countries, including providing a Fellowship program to enable more

technologists from developing regions to attend in person at Internet Engineering Task Force (IETF) meetings. The program is aimed at individuals from developing regions that possess a solid level of technical education and enough knowledge about concrete areas of IETF work to follow and benefit from the meeting's technical discussions. Information on this program is available at: http://www.isoc.org/educpillar/fellowship/.

IV. The Internet Society

The Internet Society (ISOC) is an independent international nonprofit organization with headquarters in Geneva, Switzerland and Reston, Virginia, USA. ISOC acts as a global clearinghouse for technically-sound, unbiased information about the Internet, as a provider of education, and also as a facilitator and coordinator of Internet-related initiatives around the world. It provides the organizational home for the IETF, IAB and IRTF.

ISOC was founded in 1992 to provide leadership in Internet related standards, education, and policy. It is supported by an active, global network of members who help promote and pursue the ISOC mission in all parts of the Internet community and all parts of the world. The Society has more than 80 organizational and more than 28,000 individual members in over 80 chapters who contribute to regionalizing the scope of ISOC technical, educational and policy initiatives.

ISOC is a Sector Member of ITU–T (Standards) and ITU-D (Development) since 1995. The website is: http://www.isoc.org.