



On Open Internet Standards

by

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The Internet is fundamentally based on the existence of open, non-proprietary standards. Originally developed with the support of the US Defense Advanced Research Projects Agency (DARPA), the TCP/IP protocols spawned the invention and development of a cornucopia of new applications and protocols, many of which originated in open standards processes, inter alia, in the Internet Engineering Task Force (IETF), World Wide Web Consortium, the International Standards Organization (ISO), the International Telecommunications Union (ITU), International Electrical and Electronic Engineering (IEEE) standards activity as well as through other regional, national or industry-led organizations.

Among the properties most critical to the success of these standards has been the open process of their development and evolution and the freedom with which the standards are accessible. That all of the documents of the IETF always have been available at no charge and online, for example, has contributed to adoption of Internet standards developed through the IETF process and to the ease with which virtually any interested party could participate in further development.

Even when protocols that have become standards were originated by individuals or small groups (such as the original Hypertext Transport Protocol (HTTP) and Hypertext Markup Language (HTML)), their accessibility and freedom from proprietary restrictions has contributed to their adoption and use.

One of the other properties common to most IETF-developed Internet protocols is the philosophy that if you are going to perform some particular function using a protocol, you should try to adopt only one protocol for doing it. This avoids ambiguity and the problem that two parties might choose different, mutually incompatible protocols for carrying out the function and thus fail to achieve interoperability. One can hardly over-emphasize the

criticality of interoperability among multiple, independently-produced software packages in the Internet environment.

Multiple implementations of open standards also contribute to their adoption. More than one independent and interoperable implementation not only increases the credibility of the open standards specifications but may also provide adopters with alternatives to obtain the functionality desired. One might acquire an implementation or might use an open source version or might choose to implement an in-house instance of the standard.

In my opinion, such standards can be considered "open" however, only if there is non-proprietary opportunity for interested parties to contribute to their evolution and demonstration that independent implementations have been made and shown to interwork. Publishing of the specifications for protocols does not automatically confer openness, in my estimation.

Freely available Peer-to-Peer software emulates some of these properties since compatibility is conferred through the use of identical copies of the software but these are not open standards in the sense I intend in this essay.

Freedom from intellectual property restrictions, available open source versions, demonstrable interoperability of independently produced instances, and freedom to participate in further standards evolution all contribute to the power and utility of open standards. All of these ingredients need to be present for the real value of open standards to be realized.