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| **Keywords:** | Internet; |
| **Abstract:** | This contribution notes that collaborative standards development for the Internet of which IEEE SA is a participant. |

The Internet has become a pervasive and fundamental part of our daily life. Its impact on economic development and in addressing challenges in health, education, financial services and agriculture are well documented. It consists of tens of thousands of interconnected networks run by service providers, individuals, companies, universities and governments. The Internet continues to evolve at a rapid pace. New services, applications, and protocols are being developed and deployed in many areas. These changes are possible because the community involved includes everyone from content providers, to Internet Service Providers, to browser developers, to equipment manufacturers, to researchers, to users, and more. The rapid and continued development and adoption of the Internet can be attributed to the involvement of a broad range of actors and ongoing technical coordination under a common set of principles, including openness, transparency and collaboration.

These principles are fundamental to the bottom up, market-driven, and globally open and inclusive standards development processes that standards developing groups like the IEEE 802 LAN/MAN Standards Committee employs. They help ensure strong integration, interoperability, and increased synergies along the innovation chain across national and regional boundaries.

The development and evolution of technologies on which the Internet is based exemplifies the success of this bottom-up, globally open, market-driven system of standardization. The Internet evolved from a networking community to a global collection of communities, and its widespread information infrastructure has resulted in today’s e-commerce, information sharing, and community operations. The standards on which the Internet was built, and continues to evolve on and advance, were developed within a globally open, inclusive, and decentralized model that allows for diversity of opinions and approaches as well as flexibility to acknowledge and address change and varying needs, opening the door to innovation by leveraging and expanding knowledge. Open standards are what enable this network to interconnected networks to communicate and what makes it possible for people around the world to create content, offer services and sell products.

It is estimated that greater than 98% of all Internet traffic is carried by one or more IEEE 802 compliant networks during its transmission. Without IEEE 802 standards any application dependent on packet-based network protocols such as email, Internet access, World Wide Web, fixed and mobile broadband would not have been possible to the extent we see today. Equipment based on technologies such as IEEE 802.11 Wireless LANs and IEEE 802.3 Ethernet are responsible for all the heavy lifting involved in sending [packets] content [information] across the Internet. The Layer 1 and Layer 2 technical standards for these technologies are developed by IEEE 802, formed 40 years ago, to enable multi-vendor interoperability via standardized network interface specifications to provide device makers a clear path to produce equipment that are compatible with each other across the industry.

IEEE 802 is engaged in standardization efforts that are integral building blocks of the Internet and private networks. IEEE 802 Working Groups are continually evolving their technical specifications to respond to market demand for faster speeds, high throughput, delivery of DC power of data cabling, intra and inter-vehicular connectivity, real-time applications requiring deterministic timing and more robust security and privacy standards for all protocols. For example, IEEE 802.1 Time Sensitive Networking [TSN] task group is developing standards related to deterministic networking, liaising with ITU-T SG15 and 3GPP. Deterministic networking relies on coordination across all networking layers in order to ensure the expected quality of service.  For example, IEEE 802.1 TSN and IETF DetNet have been coordinating with this in mind.

 As the Internet and its underlying technology evolves, it becomes increasingly important to have open collaboration and standards to build trust. This can best be done through communication to foster an understanding of the working methods of the different groups and thereby aiding efficient and non-duplicative standards development. IEEE 802 is committed to transparency, building an open, deep and diverse technical community, partnership across regions and nations, service to humanity and professional integrity. The IEEE 802 LMSC has a vital role in providing an environment in which worldwide technical experts come to consensus on identifying market needs, impactful technology and developing technical standards. The IEEE 802 LMSC welcomes continued collaboration on standardization efforts related to the Internet, Internet Protocol, and how the Internet or Internet Protocols leverage IEEE 802 standards as ongoing development of the Internet is of interest to the IEEE 802 LMSC.

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