CCNA: Introduction to Network

**Module 3 – 3.4: Standards Organization**

*I. Open Standards:*

**- Importance of Open Standards (Tiêu chuẩn mở):**

+ Interoperability (Khả năng tương tác): Open standards ensure devices from different manufacturers can seamlessly communicate and work together.

+ Competition: Open standards prevent monopolies and encourage innovation by fostering a level playing field for vendors.

+ Innovation: Open standards provide a common foundation for developers to build upon, accelerating the development of new technologies and applications.

**- Role of Standards Organizations:**

+ Developing and Promoting Standards: These organizations are crucial in creating and maintaining the open standards that underpin the internet.

+ Vendor Neutrality (Trung lập nhà cung cấp): Standards organizations operate independently of any specific vendor, ensuring fair and unbiased development of standards.

+ Maintaining an Open Internet: By promoting open standards, they help ensure the internet remains accessible and interoperable for everyone.

- Real-World Example: The example of wireless routers demonstrates how open standards like IPv4, IPv6, and 802.11 allow devices from different manufacturers to connect and communicate effectively.

- Proprietary (Tiêu chuẩn độc quyên) vs. Open Standards: While proprietary protocols can sometimes form the basis of open standards, it's important to ensure fair and open participation from all vendors.

=> In essence, open standards are the foundation of a thriving and interconnected digital world. They enable innovation, competition, and interoperability, ensuring that the internet remains accessible and beneficial for everyone.

*II. Internet Standards*

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**- Internet Society (ISOC)**: Responsible for promoting the ***open development and evolution of internet*** use throughout the world.

**- Internet Architecture Board (IAB)** - Responsible for the ***overall management and development*** of internet standards.

**- Internet Engineering Task Force (IETF)**- ***Develops, updates, and maintains internet and TCP/IP technologies***. This includes the process and documents for developing new protocols and updating existing protocols, which are known as Request for Comments (RFC) documents.

**- Internet Research Task Force (IRTF)**- Focused on ***long-term research related to internet and TCP/IP protocols*** such as Anti-Spam Research Group (ASRG), Crypto Forum Research Group (CFRG), and Peer-to-Peer Research Group (P2PRG).

*III. Electronic and Communication Standards:*

**- Key Points:**

**+ Focus on Communication Standards:** These organizations play a crucial role in developing and promoting the standards that underpin modern communication technologies.

**+ Diverse Scope:** They cover a wide range of areas, from physical layer standards (like cabling and connectors) to higher-level protocols for data transmission and communication services.

**+ Industry Impact:** Their work directly impacts the design, development, and interoperability of various communication systems and devices used worldwide.

**Main Ideas:**

**- IEEE (Institute of Electrical and Electronics Engineers):**

+A leading organization in electrical engineering and electronics.

+ Develops standards across various industries, with a significant focus on networking.

+ Key networking standards include 802.3 Ethernet and 802.11 WLAN.

**- EIA (Electronic Industries Alliance):** Primarily known for standards related to electrical wiring, connectors, and 19-inch racks.

**- TIA (Telecommunications Industry Association):** Focuses on developing communication standards for a broad range of technologies, including radio, cellular, VoIP, and satellite communications.

**- ITU-T (International Telecommunications Union - Telecommunication Standardization Sector):**

+ A major global player in telecommunication standards.

+ Defines standards for video compression, IPTV, broadband communications (like DSL), and other key technologies.

**=> In essence, these standards organizations are vital for ensuring compatibility, interoperability, and innovation within the telecommunications and networking industries.** Their work helps to create a global ecosystem where different devices and systems can seamlessly communicate and work together, driving advancements in technology and improving communication experiences worldwide.