

What is IEEE 802? What role does it play in shaping modern internet connection?

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Our modern life is surrounded by internet services and it's hard to imagine how bad things will turn out if these globalized connectivity services disappear. So what contributes to the creation of modern internet connection today?

It is a system of common connection standards developed and regulated by an international organization called IEEE (Institute of Electrical and Electronics Engineers). The organization was established 40 years ago, in February 1980, to unify network protocol standardization rules and to give network equipment manufacturers a clear set of standards that must be followed, from which creates interoperable peripherals on an industry-wide scale.

History and formation of IEEE 802 network standards

In the 70s of last century, network equipment vendors began to manufacture hardware devices to provide connectivity to computer systems on a wider scale. However, each company possesses proprietary network standards that are compatible with its devices, which makes it extremely difficult to connect computer systems that do not use the same network equipment. In this situation, companies have come together and come to an agreement to build a standardized framework for network protocols so that other brand devices can still be fully compatible with each other.

The initial discussion took place in 1979, and then the first official meeting was held in February 1980. The following month, a project request sent to IEEE was approved, ready. built a new standard, known as IEEE 802 (taken from the time the first meeting was held - February 1980).

The initial goal was to establish a single local area network protocol. However, the companies were unable to reach a consensus above 75%. Therefore, the committee decided to divide 802 into different groups.

Notable IEEE 802 Standards

Since 1980, there's been 33 working groups developing standards under the IEEE 802 family. They include:

Active

IEEE 802. 1	Higher Layer LAN Protocols Working Group
IEEE 802. 3	Ethernet
IEEE 802. 11	Wireless LAN & Mesh
IEEE 802. 15.	Wireless PAN
IEEE 802. 15.4	Low-rate Wireless PAN (e.g. ZigBee)
IEEE 802. 15.6	Body Area Network

Inactive

IEEE 802. 2	LLC
IEEE 802. 15.1	Bluetooth Certification
IEEE 802. 16.1	Local Multipoint Distribution Service
IEEE 802. 20	Mobile Broadband Wireless Access

The formation of a protocol

In the 1990s, people began to explore the ability to create wireless connection standards according to the 802.4 token bus group, essentially a network penetration method in the form of signaling to detect tokens through stations and bus lines. . 802.4 is often used in production facilities. However, it was quickly incorporated into 802.11 - a standard known today as Wi-Fi.

By 1999, IEEE released 802.11a and 802.11b wifi standards, creating a popular wave of commercial wireless products.

IEEE 802 also works with commercial agencies responsible for maintaining and marketing certain standards: The 802.11 group links with Wi-Fi.org, while 802.3 works with the Ethernet Alliance. Both Wi-Fi.org and Ethernet Alliance work to market standards and help peripheral manufacturers certify products according to relevant standards.

IEEE 802 and network businesses

For companies that produce network equipment and related software, specifications of the IEEE standards play a very important role. These network protocols not only define the standards used for Wi-Fi services on home routers, but also the protocols used for connecting infrastructure on a larger scale.

For that reason, hardware manufacturers are very interested in shaping protocols that benefit them so they can sell more software or hardware products. IEEE's mission is to ensure that no organization can influence joint decisions. Paul Nikolich, IEEE 802 president, said no company could control the voting activity related to any protocol. If IEEE recognizes a business as manipulating, it will reduce the voting rights of its representatives.

The future of IEEE 802

In the future, the IEEE 802 team is working on new standards to help improve high throughput ethernet speeds and interconnect via Wi-Fi, along with stronger security and privacy standards for all protocols.

Starting this year, consumers will see more Wi-Fi 6 products on the market, greatly improving connectivity efficiency and allowing multiple devices to connect to a single source.

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