

Lab Guide 1

This day in Technology, Sept. 30th, 1980.

Ethernet is a family of [computer networking](#) technologies for [local area networks](#) (LANs) and metropolitan area networks (MANs). It was commercially introduced in 1980 and first standardized in 1983 as IEEE 802.3 and has since been refined to support higher bit rates and longer link distances. Over time, Ethernet has largely replaced competing wired LAN technologies such as token ring, FDDI, and ARCNET. The primary alternative for contemporary LANs is not a wired standard, but instead a wireless LAN standardized as IEEE 802.11 and also known as Wi-Fi.



The Ethernet standards comprise several wiring and signaling variants of the OSI physical layer in use with Ethernet. The original 10BASE5 Ethernet uses coaxial cable as a shared medium, while the newer Ethernet variants use twisted pair and fiber optic links in conjunction with hubs or switches. Over the course of its history, Ethernet data transfer rates have been increased from the original 2.94 megabits per second (Mbit/s) to the latest 100 gigabits per second (Gbit/s), with 400 Gbit/s expected by early 2017.

Systems communicating over Ethernet divide a stream of data into shorter pieces called frames. Each frame contains source and destination addresses and error-checking data so that damaged data can be detected and re-transmitted. As per the OSI model, Ethernet provides services up to and including the data link layer.

Since its commercial release, Ethernet has retained a good degree of backward compatibility. Features such as the 48-bit MAC address and Ethernet frame format have influenced other networking protocols.

Type of Cable	Data Transmission	Shielding	Cable Guiding	Speed	Maximum Length
Category 1	✗	✗	✗	✗	100m
Category 3	✓	✗	✗	Up to 10MBps	100m
Category 5	✓	✓	✗	Up to 100MBps	100m
Category 6	✓	✓	✓	Up to 1000MBps	100m

References

- R1. [Computer Network, Wikipedia, the free encyclopedia](#)
R2. [Local Area Network, Wikipedia, the free encyclopedia](#)