

## Ethernet

Ethernet is the most common LAN (Local Area Network) technology in use today. Xerox developed Ethernet in the 1970s, and became popular after Digital Equipment Corporation and [Intel](#) joined Xerox in developing the Ethernet standard in 1980. Ethernet was officially accepted as IEEE standard 802.3 in 1985. The term "Ethernet" is now used to refer to all derivatives of the original Xerox "Ethernet".

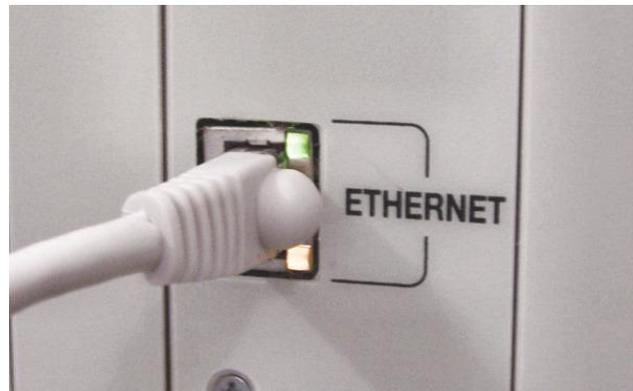
## Ethernet Speeds

The original Xerox Ethernet operated at 3Mbps. Ethernet became popular as a 10Mbps standard over coaxial or twisted pair cabling. Fast Ethernet improved speeds to 100Mbps over twisted pair or fiber optic cables. Gigabit Ethernet now provides speeds up to 1Gbps over twisted pair or fiber optic cabling.

## Ethernet Cabling

The first Ethernet standard, 10Base-5, ran over thick coaxial cable. A later standard, Ethernet 10Base-2, ran over a much thinner coaxial cable. These two versions of Ethernet were colloquially known as *thicknet* and *thinnet*.

Modern Ethernet standards run on [UTP](#) (Unshielded Twisted Pair) or fiber-optic cabling.



<b>Ethernet Standard</b>	<b>Cable Specification</b>
10Base-T	Category 3 UTP
100Base-TX	Category 5 UTP
1000Base-T	Cat 5e UTP
1000Base-SX	Optical Fiber

## Ethernet Topologies

Ethernet 10Base-5 and 10Base-2 used a bus topology. Bus topologies were difficult to maintain and troubleshoot.

Modern Ethernet networks use a star topology with an [Ethernet hub](#), switch, or router at the center of the star.

It is still possible to create a two-node Ethernet network in a bus topology using a null-[Ethernet cable](#) between the two devices.

## Ethernet DTE and DCE

All nodes on an Ethernet network are either DTE (Data Terminal Equipment) or DCE (Data Communications Equipment).

Ethernet DTE are devices such as [computers](#) and printers that are trying to communicate on the Ethernet network.

Ethernet DCE are devices such as switches and routers that are trying to help other devices communicate on the Ethernet network.

## Ethernet CSMA/CD

Like any network, Ethernet must have an algorithm for determining when each network node is allowed to communicate.

In Ethernet, this algorithm is known as [CSMA/CD](#) (Carrier Sense Multiple Access / Collision Detection).

[CSMA/CD](#) has proven to be a very capable, if highly anarchistic, algorithm.

**SOURCE: <http://www.tech-faq.com/ethernet.html>**