

COMPUTER NETWORKS

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Semester: V Sem IT

Designation: Assistant Professor

Course: Computer Networks

Department: IT

Topic: Wired LANs:Ethernet

Teaching Methodology: Flipped Class Room



ETHERNET PROTOCOL:

IEEE Project 802

The IEEE has subdivided the data-link layer into two sublayers: logical link control (LLC) and media access control (MAC). IEEE has also created several physical-layer standards for different LAN protocols.

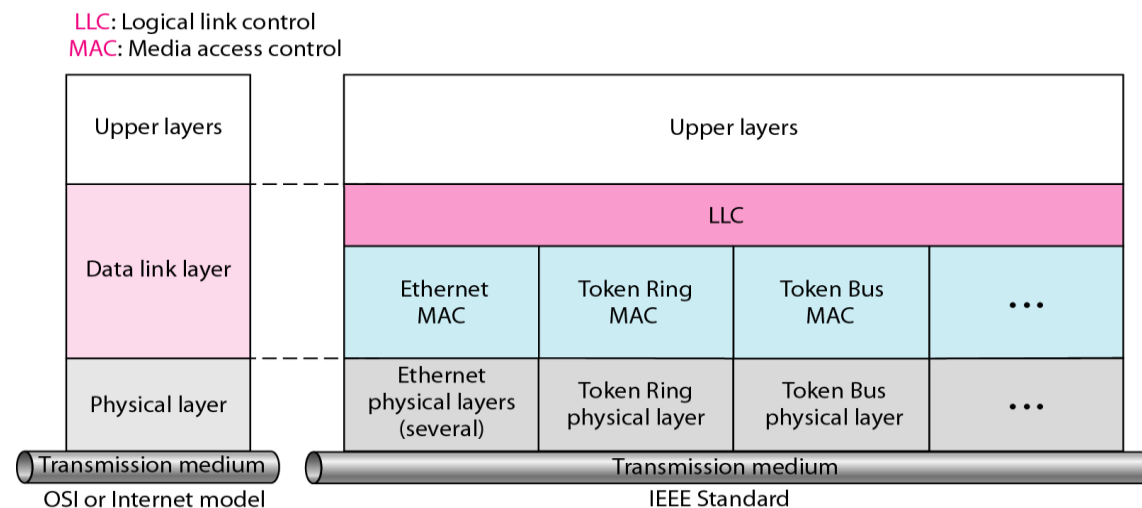
Logical Link Control (LLC)

- In IEEE Project 802, flow control, error control, and part of the framing duties are collected into one sub layer called the logical link control(LLC). Framing is handled in both the LLC sub layer and the MAC sub layer
- The LLC provides a single link-layer control protocol for all IEEE LANs. This means LLC protocol can provide interconnectivity between different LANs because it makes the MAC sub layer transparent.

Media Access Control (MAC)

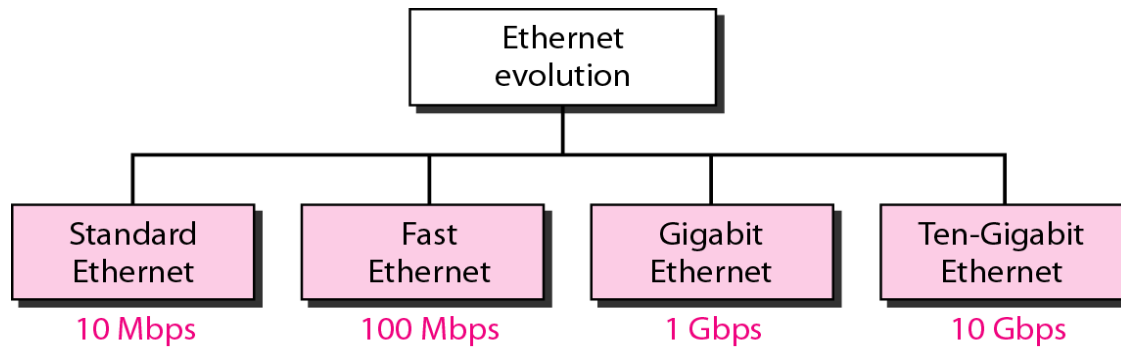
- IEEE Project 802 has created a sub layer called media access control that defines the specific access method for each LAN.
- For example, it defines CSMA/CD as the media access method for Ethernet LANs and defines the token-passing method for Token Ring and Token Bus LANs

IEEE standard for LANs



Ethernet Evolution:

The Ethernet LAN was developed in the 1970s by Robert Metcalfe and David Boggs. Since then, it has gone through four generations: Standard Ethernet (10 Mbps), Fast Ethernet (100 Mbps), Gigabit Ethernet (1 Gbps), and 10 Gigabit Ethernet (10 Gbps)



802.3 MAC frame

Preamble: 56 bits of alternating 1s and 0s.

SFD: Start frame delimiter, flag (10101011)

