

9. Ethernet

- A protocol used by many wired LANs.
- Adopted by IEEE
- Made up of:
 - A node
 - A medium
 - Frame
- Collisions
 - Two messages using the same data channel could be sent at the same time, leading to a collision.
 - Carrier sense multiple access with collision detection (CSMA/CD): define the random time period for a device to wait before trying again.

When a frame is sent it causes a voltage change on the Ethernet cable. When a collision is detected, a node stops transmitting a frame and transmits a 'jam' signal and then waits for a random time interval before trying to resend the frame.

CSMA/CD

- Workstations listen to the communication channel
- If no data is being transmitted, the computer can send its data
- Collision caused when 2 devices transmit at the same time
- If collision occurs, each workstation waits a random time
- ... before retransmitting
- Each time a collision occurs, random time is increased.
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- Carrier sense multiple access with collision detection
- Before transmitting a device checks if the channel is busy
- If it is busy the device waits // if channel is free data is sent
- When transmission begins the device listens for other devices also beginning transmission
- If there's a collision, transmission is aborted

- Both devices wait a random time, then try again
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