Introduction (2)

Tuesday, February 2, 2021 11:00 AM

Bus topology:
- less complexity
- Issues in devices will not affect network
- Lack of security

Ring topology:
- Each station connected to the two nearest stations with the help of a repeater
- Unidirectional flow of data
- Access method: token passing -
  - (token: simple data unit, propagates around the ring, assume station A wants to communicate with B, A captures token, data delivered to B, token opened and MAC address checked, if match found, packet captured, packet contains bit to check if data is captured by intended destination, B copies data and puts the packet into the network, **to avoid collision**)
  - (monitor ensures there is one and only one token in the network)
- Advantages:
  - Easier to manage and locate defective node
  - Long distance over LAN
  - Avoids collision

Star topology:
- Centralized hub where all the stations are connected
- Collision? At the hub, yes.
- Can be expanded
- Failure in hub => network down
- Secure if switch (hub receives all packets and broadcasts it)

Fully-connected mesh:
- Every node connected to another node
- If any link fails, route can be redirected

Advantages:
- No traffic
- Easy fault identification (send and check for failure)

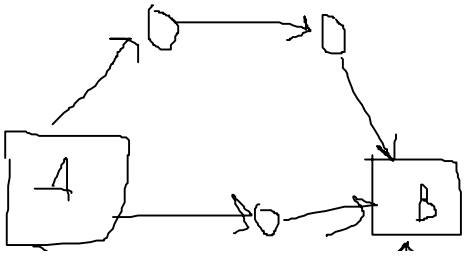
Hybrid:
- Backbone topology of star connected to another topology

Bus and star most popularly used

LAN: campus network
WAN: internet
MAN: city-wide

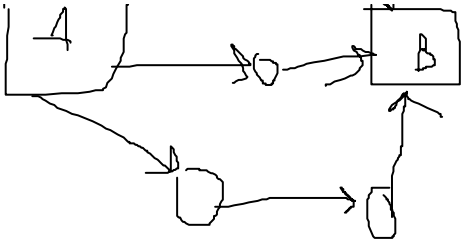
End-points: host, laptop, client/server
Interconnection: how devices get access to network/internet, wireless, optical fibre
Switches: intermediate device, no direct link between source and destination (between different networks)
Protocols: set of rules, defines which format data is to be transmitted, what to do with a particular data that is received,

UDP: connectionless protocol
TCP: connection oriented



Connection-oriented (circuit switching)
If TCP, connection setup, send sample packet to ensure connection. Acknowledgement sent back and a particular link is decided. Channel established and available for data transfer till they terminate connection. Has flow control and error control to ensure data is properly received.
(Advantage, dedicated channel (unless defective).
(WWW, mail, telnet, remote login)

Connectionless, packet switching



(Advantage, dedicated channel (unless defective).
(WWW, mail, telnet, remote login)

Connectionless, packet switching
If UDP, no connection setup, data transmitted through small packets distributed across different channel. Independent path for each packet. Data does not arrive in a sequence. Transport layer puts sequence in proper order before sending it to the application/device. (VoIP, video streaming)