Introduction

Monday, February 1, 2021 7:36 AM

Packet of data delivered to the destination through 7 layers

Any form of data
Channel: wire, fiber, air

Nodes: devices
- Intermediate nodes

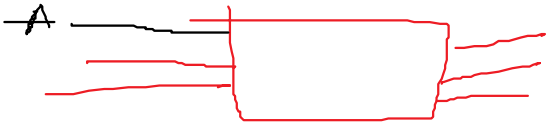
Network criteria
- Performance:
  Primary resource: channel/bandwidth + throughput (effective bandwidth)
  Entire bandwidth cannot be occupied at all times due to multiple constraints
  Delay (decrease delay)

- Reliability: ensure data is not corrupted by intermediate channel

- P

Overview:
Centralized device that enables communication between intermediary devices:
- Repeater: amplifies signal strength

Not an intelligent device (physical layer)
- Hub: distributes packet



Cannot open packet and check address
- Bridge (data link layer)

- Switch: can read MAC address and send packet to corresponding address

(data link layer)
- Router: intelligent device that can read IP address (network layer)

These devices switch data from one end to another end

7 layers of the OSI model: bottom-up approach
7. Physical layer: receiver receives packet from one end

6. Data link layer: assigns MAC address
5. Network layer
4. Transport layer
3. Session layer
2. Present layer
1. Application layer

Whenever devices want to communicate from one network to another, a router is to be used. Refer to the routing table to determine where to forward the packet.

Data found in

1. Simplex: data flows in one direction through channel between source and destination
   Eg. Keyboard, radio
2. Duplex: data flows in both directions
   - Half: not simultaneously
     Eg. Walkie talkie
   - Full: simultaneously
     Eg. Mobile communication

Type of connections

1. Point-to-point: two stations directly connected
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2. Multi-point: shared channel (more than one user)
   - Collision: more than one user transmitting data through same channel, data may collide (avoid collision through mechanism or regulations)
   - Multiple Access Protocol (to avoid collisions)

Topologies:
Configuration/Layer of nodes(devices) and wires in a network

1. Mesh
2. Star
3. Bus: Only 1 cable (LAN), CSMA/CD (to avoid collision wired), CSMA/CA (wireless), less security, node failure does not of affect others, failure of link breaks network, congestion,
4. Ring