

1. What is network latency? What is bandwidth?

Latency: the minimum time to get the minimum amount of information between two sites.

Bandwidth: Once information is flowing, how many bits per second can be transmitted.

2. Briefly describe each of the ISO networking layers. Why might this model be useful? Why might you not want to implement network software this way?

Physical: electrical mechanism for transmitting the bits

Data Link: how to get packets between two agents. Includes error detection

Network: connections

Transport: packets (IP)

Session: process to process protocols (e.g. TCP)

Presentation: resolve character differences, etc, between the two agents

Application: interacts with users

Useful for abstracting out what happens in a network protocol. However, interfacing between layers is SLOW. . . can do many things on the same level.

3. What are some differences between Ethernet and Token Ring networks?

Ethernet: shared bus all computers tap into, carrier sense multiple access, with collision detection and backoff. If a host dies, who cares. Starvation possible.

Token Ring: ring built up of point to point links, with another protocol built on top of it. Can die if any station dies, token missing, second token created, etc. Starvation also possible.

4. What are the differences between circuit switching, packet switching, and message switching?

Circuit: like a telephone. Physical circuit between systems. Deny if no resources.

Packet: communications are broken into packets

Message: virtual circuits are set up using packets.

5. What is IP? What is UDP? What is TCP? What are the basic characteristics of each?

IP: Internet protocol. Basic protocol all internet packets are sent in. Unreliable and connectionless.

UDP: Connectionless, unreliable datagram protocol. Used for multimedia streaming applications, etc.

TCP: connection-oriented, reliable, byte-stream protocol.