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Hw 12

Comp Net

27.1: List and describe the three primary measures of network performance.

ANS:

- Latency (delay)( The time required to transfer data across a network)

- Throughput (capacity)( The amount of data that can be transferred per unit time)

- Jitter (variability)(The changes in delay that occur and the duration of the changes)

27.2: Give five types of delay along with an explanation of each.

ANS:

- Propagation Delay(The time required for a signal to travel across a transmission medium)

- Access Delay(The time needed to obtain access to a transmission medium (e.g., a cable))

- Switching Delay(The time required to forward a packet)

- Queuing Delay(The time a packet spends in the memory of a switch or router waiting to be selected for transmission)

- Server Delay(The time required for a server to respond to a request and send a response)

27.4: How can throughput be measured?

ANS: Throughput is a measure of the rate at which data can be sent through the network, specified in *bits per second* (*bps*).

27.7: Provide an explanation of delay and throughput in terms of bits being transmitted.

ANS: Delay, or the time it takes to transport a bit from one computer to another, and throughput, or the number of bits per second that can be transmitted across the network, are the two main indicators of network performance.

27.10: If one pings IP address 127.0.0.1, the latency is extremely low. Explain.

27.13: What is jitter, and what are the two approaches used to overcome jitter?

ANS: As networks are utilized to transmit real-time speech and video, a third network measure is becoming more significant. The jitter of a network is a metric that analyzes the fluctuation in delay. The two ways to overcome jitter are Design an isochronous network with no jitter Use a protocol that compensates for jitter.

27.16: Why is measurement of network performance difficult?

ANS: Network performance can be difficult because of four reasons

-Routes can be asymmetric

-Conditions change rapidly

-Measurement can affect performance

-Traffic is bursty

27.17: How does data traffic differ from voice traffic?

ANS: Unlike voice telephone traffic, data traffic is bursty. Data traffic is said to be self-similar because aggregates of data traffic exhibit the same pattern of burstiness.

27.19: What are the two types of QoS?

ANS:

- Fine-Grain(A provider allows a customer to state specific QoS requirements for a given instance of communication; a customer makes a request each time a flow is created (e.g., for each TCP connection))

- Coarse-Grain(A provider specifies a few broad classes of service that are each suitable for one type of traffic; a customer must fit all traffic into the classes)

27.25: Explain the four steps used to implement QoS.

ANS:

- Classification and policing

- Forwarding computation

- Output queuing

- Traffic scheduling