

Objective Questions And Answers On Computer Networks

Objective Questions and Answers on Computer Networks: A Deep Dive

Understanding computer networks is essential in today's linked world. Whether you're an emerging IT professional, a keen student, or simply someone intrigued by the magic behind the internet, grasping the essentials of network architecture is invaluable. This article aims to provide a thorough exploration of key computer network concepts through a series of objective questions and answers, explaining the nuances and practical applications.

I. Network Fundamentals:

Q1: What is a computer network, and what are its main purposes?

A1: A computer network is a collection of interconnected computing devices that can share data and resources. Its chief purposes include resource sharing (e.g., printers, files), communication (e.g., email, instant messaging), and distributed processing (e.g., large-scale computations). Think of it like a road network: individual computers are like houses, and the network is the system of roads allowing them to connect and share goods (data).

Q2: Explain the difference between LAN, MAN, and WAN.

A2: These are network classifications based on geographical scope:

- **LAN (Local Area Network):** Covers a small geographical area, like a home, office, or school. It's typically owned and managed by a single organization. Instances include Ethernet networks.
- **MAN (Metropolitan Area Network):** Spans a larger area than a LAN, often encompassing a city or town. It's larger and more intricate than a LAN but smaller than a WAN.
- **WAN (Wide Area Network):** Covers a vast geographical area, often spanning multiple countries. The internet is the greatest example of a WAN.

Q3: What is the difference between a client-server and peer-to-peer network?

A3: These differ in their structure and resource management:

- **Client-Server:** Features a central server that supplies services to clients. Clients request services from the server, which manages resources and security. This is the model utilized for most large networks, including the internet.
- **Peer-to-Peer (P2P):** All devices have equal status and can share resources among themselves without a central server. This is simpler to configure but can be less secure and less scalable than client-server networks. File-sharing networks like BitTorrent operate on a P2P principle.

II. Network Protocols and Topologies:

Q4: What is a network protocol, and why are they crucial?

A4: A network protocol is a set of guidelines that govern data communication between devices on a network. They ensure that data is sent correctly and efficiently. Think of them as traffic laws for the network, ensuring

order and avoiding collisions. Illustrations include TCP/IP, HTTP, and FTP.

Q5: Describe three common network topologies.

A5: Network topology refers to the tangible or logical layout of a network:

- **Bus Topology:** All devices are connected to a single cable (the "bus"). It's simple but can be prone to failures if the bus fails.
- **Star Topology:** All devices connect to a central hub or switch. It's dependable and easy to manage but relies on the central device.
- **Ring Topology:** Devices are connected in a closed loop. Data travels in one direction around the ring. It can be efficient but a failure in one device can bring down the entire network.

III. Network Security:

Q6: What is network security, and why is it crucial?

A6: Network security involves protecting computer networks from unauthorized access, misuse, revelation, disruption, modification, or destruction. It's crucial to protect sensitive data and maintain the usability and correctness of network resources. This is supreme in today's data-driven world.

Q7: Name three common network security threats.

A7: Common threats include:

- **Malware:** Malicious software such as viruses, worms, and Trojans that can infect devices and compromise data.
- **Phishing:** Deceptive attempts to obtain sensitive information such as usernames, passwords, and credit card details.
- **Denial-of-Service (DoS) Attacks:** Attempts to disrupt network services by overwhelming them with traffic.

Conclusion:

This exploration into objective questions and answers on computer networks offers a base for understanding the complexities of networked systems. Grasping these core concepts provides a solid springboard for further investigation into advanced topics like network administration, cybersecurity, and cloud computing. The real-world implications of this knowledge are considerable and extend across numerous industries and aspects of modern life.

Frequently Asked Questions (FAQ):

Q1: What is the difference between TCP and UDP?

A1: TCP (Transmission Control Protocol) is a connection-oriented protocol that provides reliable data transmission with error checking and flow control. UDP (User Datagram Protocol) is a connectionless protocol offering faster but less reliable data transmission.

Q2: What is an IP address?

A2: An IP address is a unique numerical label assigned to each device connected to a computer network. It allows devices to locate and communicate with each other.

Q3: What is a router?

A3: A router is a networking device that forwards data packets between networks. It determines the best path for a packet to take to reach its destination.

Q4: What is a firewall?

A4: A firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules. It helps prevent unauthorized access and malicious activity.

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