**Networking Questions**

1. **What is Computer Networking?**

It is the process of creating and using wired or wireless networks for exchanging information, ideas, files and other electronic communication.

1. **What is backbone network?**

A backbone network is a centralized infrastructure that is designed to distribute different routes and data to various networks. It also handles management of bandwidth and various channels.

1. **What is VPN?**

VPN means Virtual Private Network, a technology that allows a secure tunnel to be created across a network such as the Internet. For example, VPNs allow you to establish a secure dial-up connection to a remote server.

1. **Briefly describe NAT.**

NAT is Network Address Translation. This is a protocol that provides a way for multiple computers on a common network to share single connection to the Internet.

1. **What does Protocol mean?**

Protocol is defined as the rules that connect two or more devices to transfer the information from one device to another. It helps to know how data is being transferred from one network to another network for communication.

1. **What is OSI reference model?**

OSI is a reference model that tells how information and data are communicated over a network. It is a conceptual framework that understands the relationships of transmission.

1. **What are the different layers of OSI model?**

Basically, there are 7 layers of OSI model. Each layer has its own functionality in the OSI model.

They are:

Layer 1 – Physical

Layer 2 – Data Link Layer

Layer 3 – Network

Layer 4 – Transport

Layer 5 – Session

Layer 6 – Presentation

Layer 7- Application

1. **What is a Switch and why we are using Switches?**

Switch is used to receive the signal to create a frame. It forwards the packets between various LAN segments. It supports packet control when the data is sent to Data Link layer or Network layer of the OSI model. While sending packets, a signal gets enabled and gets accessed by reading the destination address and forwards the frame to appropriate frame, hence we use switches.

1. **What are Routers?**

Routing is the process to find the path on which the information or data can pass from the source to its destination. The device by which routing is done is called Routers.

1. **What is the difference between Switch, Routers, and Hub?**

Switch is used to receive the signal to create a frame. It forwards the packets between various LAN segments. It is the platform for packet control when the data is sent at a Data Link layer or Network layer of the OSI model. It supports single broadcast domain and multiple collision domains.

Routers is a networking gateway device that is used to forward data packets to the computer networks. A router is connected by at least a single LAN with its IP address or with LAN or WAN. A router supports two broadcast domains.

Hub, if anything comes in its port then it sends it out to the others. It is less expensive and least complicated. It has a single collision domain and single broadcast domain.

1. **What is Half duplex and Full duplex?**

* In half-duplex, transmission of information or communication is from one direction only.

Example: Walkie-talkie

* In full duplex, transmission of information or communication is from both the directions.

Example: Talking on the telephone.

1. **Define Network Congestion?**

The process in which a network node is carrying more data which can’t be handled on the network, and owing to which loss of packets or information happens on the network node and the receiver can’t receive appropriate information is termed as Network Congestion.

1. **What is the difference between LAN, MAN, and WAN?**

LAN, It is a local area network where computers and network devices are connected with each other, usually within the same area or building. Connections in LAN must be of high speed.

Example: Ethernet

MAN

It is metropolitan area network where the networks are connected widely within several buildings in the same city.

Example: The IUB Network

WAN

It is a wide area network where the networks are limited to one enterprise or organization and can be accessed by the public. It connects several LANs. Connection in WAN is high speed and expensive too.

Example: Internet.

1. **Define IP Address?**

Internet Protocol (IP Address) is a 32-bits to 128-bits identifier for a device on TCP/IP protocol. IP address of a device must be uniquely defined for communication.

It has 2 principal functions which include host and location address. And it has two versions which are IPv4 (32-bits) and IPv6 (128-bits).

1. **In how many ways can data be transferred in CCNA?**

Ans: Data can be transferred in 3 ways:

* Simplex
* Half-duplex
* Full-duplex

1. **What is the difference between Unicast, Multicast, Broadcast, and Anycast?**

Unicast: It is the exchange of messages between a single source and a single destination. In Unicast, while sending packets from a sender, it contains data address of the receiver so that it can go there directly.

Broadcast: It is the exchange of messages between one sender to possible multiple receivers. It works only on a local network. Broadcasting of data can’t be done on the public internet due to a massive amount of unrelated and unnecessary data.

Multicast: It is the exchange of messages between one sender and multiple receivers. In multicast, the network settings determine your receiving clients and sort of broadcasting.

Anycast: It is the exchange of messages between one host to another host. It uses TCP and UDP protocol. Copy of each data packet goes to every host that requests it.

1. **What are the different types of network in CCNA?**

There are two types of network:

* Server-based network
* Peer-to-Peer network

1. **What is a Network subnet?**

Ans: It is the subdivision of an IP address which is divided into two parts such as the network prefix and the host identifier.

1. **Can IP address be assigned to Layer 2?**

No, IP addresses cannot assign to Layer2.

1. **What is PING used for?**

PING is packet Internet groper. It is used to test the reachability of a host on an Internet protocol (IP) network. When any data is sent via the network through the IP addresses, then it will PING the receiver to receive the data from the sender.

1. **What are the different class and ranges of IP address?**

There are 5 different classes of IP address:

Class Range

A 1-126

B 127-191

C 192-223

D 224-239

E 240-254

1. **What is Private IP and Public IP? Range of Private IP address.**

Private IP used within the local LAN and Public IP used across the Internet.

* Class-A: 10.0.0.0/8 IP addresses: 10.0.0.0 – 10.255.255.255
* Class-B: 172.16.0.0/12 IP addresses: 172.16.0.0 – 172.31.255.255
* Class-C: 192.168.0.0/16 IP addresses: 192.168.0.0 – 192.168.255.255

1. **Define Topology.**

It is an arrangement of elements in a specific order. The various types of Topology include:

* Bus
* Star
* Mesh
* Ring
* Hybrid
* Tree

1. **Define MAC Address.**

MAC address is Media Access Control address. It is stored in ROM and is uniquely defined. It is identified as Media Access Control layer in the network architecture.

1. **Why is VLAN used?**

It is a Virtual LAN network which is used to make a separate domain in a single switch.

1. **What are the different types of passwords that you can use in Cisco routers?**

Different types of passwords that are used in Cisco routers are enabled, enable secret, auxiliary (AUX), console and virtual terminal (VTY).

1. **How many types of memories are used in Cisco router?**

Given below are the 3 different types of memory that are used:

* Flash memory – Store system IOS. It is electronically erasable and a re-programmable memory chip.
* RAM – Store configuration file which is being executed. It loses its information when a router is restarted or shut down.
* NVRAM – Store startup configuration file and IOS reads this file when the router boots up.
* ROM – Read Only Memory. It saves the information if the router is shut down or restarted. It maintains the instructions for POST diagnostics.

1. **What is meant ARP and RARP?**

* ARP is Address Resolution Protocol which is used to map an IP address to a physical machine.
* RARP is Reverse Address Resolution Protocol which is used to map MAC address to the IP address.

1. **What are the different types of cables that are used in routing?**

Three different types of cables that are used include:

* Straight cable – (switch-router)
* Cross cable – (PC-PC, switch-switch)
* Rollover cable – (Console port to computer)

1. **Define Logical Topology.**

Logical Topology is the network from where the data packets are sent from the source to destination, which we can see as well.

1. **What is the difference between static and dynamic IP addresses?**

Static IP address won’t change over the time and is reserved statically whereas dynamic IP address changes each time when you connect to the Internet.

1. **What is Peer to Peer network?**

The P2P network is a distributed and decentralized network where individual nodes i.e. Peers in the networks act as both suppliers and consumers of the resources.

1. **What is the IEEE standard for wireless networking?**

IEEE 802.11

1. **What do you understand by ‘Protocol’ in networking?**

A protocol enables two devices to connect and transmit the information or data to one another.

1. **What do you understand by PoE (Power over Ethernet)?**

It is defined by IEEE standard and it passes electric power supply to the network devices over the existing data connection.

1. **What is OSPF? Describe it.**

OSPF stands for Open Shortest Path First. It uses Dijkstra algorithm and is a link state routing protocol which is used to connect to a large number of networks without having any limitation on the number of hops.

1. **What does Multiple Access mean?**

In Multiple Access, it allows more than one devices to transmit the data at the same time. For Example, Star or Mesh Topology.

1. **Explain the difference between Collision Domain and Broadcast Domain.**

In the Broadcast Domain, all the juncture can reach each other by broadcast at the data link layer and every device is ready to receive their respective data. It can bind to the same LAN segments or the other LAN segment. Broadcast Domain uses local network for broadcasting the data packets to the receiver. While broadcasting, massive data are broadcasted, hence the speed of receiving the data is less and it also takes more time to receive the data of their address.

In the Collision Domain, data collision occurs more due to sending of more frames simultaneously. If more than two frames are sent simultaneously then the data will collide with each other in between and the information gets lost due to an occurrence of a collision and the devices will not accept the data and due to this, the communication between the sender and receiver side will collide. Hence, the sender has to send the data again and like this, it will take more time to receive the data at the receiver's side.

1. **Frame Relay Technology works on which layer of OSI model?**

It works on Data Link Layer.

1. **What does Round Trip Time mean?**

Round-trip time or round-trip delay is defined as the time taken by a signal to send the data plus the time it receives the acknowledgment from the receiver of that signal.

1. **What is MTU and what is its size for transmission?**

MTU stands for Maximum Transmission Unit and its size is 1500 bytes.

1. **What is the difference between CSMA/CD and CSMA/CA?**

Carrier Sense multiple access with Collision detection (CSMA/CD) is a media access control method which is used in local area networking. It uses early Ethernet technology to overcome collision when it happened. And Carrier sense multiple access with collision avoidance (CSMA/CA) is used in the wireless network to avoid a collision.

1. **Define Autonomous System (AS).**

It is either a single network or a group of networks that are managed by a single directive. It is defined by a unique number or code and is called as an Autonomous system number (ASN). Sometimes, it is also called as a routing domain. Communication of networks within an AS is done by using Interior Gateway Protocol (IGP).

1. **Why do you use ‘Service Password Encryption’?**

Service Password Encryption is used to encrypt plaintext password into type 7 password. Security is less and hence it can be easily decrypted.

1. **Explain DHCP scope.**

Dynamic Host Configuration Protocol (DHCP) is used to automatically assign IP host with its address to a client.

1. **Explain the difference between Tracert and Traceroute.**

You would use tracert on a PC while you would use the command traceroute on a router or switch.

1. **Why is Distributed Processing useful?**

Distributed processing is useful because of its lower cost, improved performance, reliability, and flexibility.

1. **What do you understand by Redundancy?**

Redundancy is a method which provides backup paths in case of network or path failure.

1. **What is Domain Name System (DNS)?**

DNS is an internet service that translates domain names into IP addresses. Anything connected to the internet i.e. mobile phones, laptops, websites etc. has an IP address which is uniquely defined.

1. **Define Bandwidth.**

Bandwidth is defined as the amount of data that can be transmitted or carried in a fixed interval of time.

1. **Explain the basic difference between TCP/IP and OSI model.**

OSI and TCP/IP protocol are different by their layers. In OSI model, there are 7 layers whereas in TCP/IP there are 4 layers.

1. **What is the difference between ‘bit rate’ and ‘baud rate’?**

A bit rate is defined as the total number of bits transmitted in one second whereas baud rate defines the number of signal unit per second that is required to represent those bits.

Baud rate=bit rate / N,

where N = no. of bits represented by each signal shift.

1. **What do we check while configuring the server?**

* Check whether LAN is connected or not.
* The root should be in the NTFS format.
* The server should have a static IP address for communication.