

**Module 8: Network Access**

* + **Beginner Question**

1. Explain Switch

**Ans.** A network switch is a hardware device that connects multiple devices (like computers, printers, and servers) within a local area network (LAN) and enables communication between them. It operates at Layer 2 (Data Link Layer) of the OSI model but can also function at Layer 3 (Network Layer) in advanced switches.

1. Explain Switch Boot Sequence

**Ans.** A switch boot sequence refers to the series of steps a network switch performs when powered on, starting with a Power-On Self-Test (POST) to verify hardware functionality, then loading a bootloader program from ROM to initialize the CPU and access the operating system image stored in flash memory, ultimately booting up the switch and making it ready to process network traffic

1. Explain Three Methods to access Switch Command Line Interface

**Ans.** To access a switch's command line interface (CLI), you can use three primary methods console connection (physical access), Telnet (remote access using an older protocol), and Secure Shell (SSH) (secure remote access).

**1. Console Connection:**

* This involves physically connecting a computer to the switch's dedicated console port using a serial cable.
* This is typically used for initial switch configuration or troubleshooting as it provides direct access to the switch even if network connectivity is unavailable.

**2. Telnet:**

* Access the switch CLI remotely by sending commands over the network using the Telnet protocol.
* While convenient for remote access, Telnet transmits data in plain text, making it vulnerable to eavesdropping.

**3. Secure Shell (SSH):**

* Provides a secure way to access the switch CLI remotely using encryption to protect data transmitted over the network.
* Considered the most secure option for remote switch management due to its encryption capabilities.

1. Explain and Configuring the Cisco Internet Operating System

**Ans.** Cisco Internetwork Operating System (IOS) is the software used on most Cisco networking devices, including routers and switches. It is responsible for enabling network connectivity, security, and management functions. Cisco IOS provides:

* Command-Line Interface (CLI): The primary method of configuration.
* Routing & Switching Functions: Manages how data is forwarded in a network.
* Security Features: Implements access control lists (ACLs), VPNs, and firewalls.
* Quality of Service (QoS): Ensures efficient traffic management.

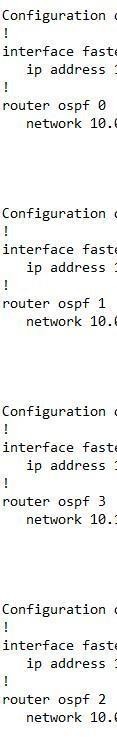
1. Explain Switch Port

**Ans.** A switch port is a physical or virtual interface on a network switch that connects to devices such as computers, servers, or other network devices. Switch ports play an important role in managing network traffic efficiently by forwarding data only to the intended recipient rather than broadcasting it to all connected devices.

**Types of Switch Ports**

1. Access Ports: Connects end devices like computers, printers or Etc.
2. Trunk Ports: Connects switches to other switches or routers.
3. Hybrid Ports: Can function as both an access port and a trunk port.
4. SPAN (Switch Port Analyzer) Port: Used for network monitoring and troubleshooting.
5. R1, R2, R3, and R4 have their Fast Ethernet 0/0 interfaces attached to the same VLAN. A network engineer has typed a configuration for each router by using a word processor.

He will later copy and paste the configuration into the routers. Examine the following exhibit, which lists configuration for the four routers, as typed by the network engineer. Assuming that all four routers can ping each other’s LAN IP addresses after the configuration has been applied, choose the routers that will be able to form a neighbor relationship with the other routers on the LAN. (You can assume that, if not shown in the exhibit, all other related parameters are still set to their defaults.) (Choose two)



* + R1
  + R2
  + R3
  + R4
  + None of the routers will exchange routing information.

**Ans.** R1 and R2 maybe because there are the neighbors.

1. enable secret [password] is hashed using the algorithm.
2. MD5
3. AH
4. PSK
5. ESP
6. WPA2

**Ans.** A) MD5- Message- Digital

1. An engineer connects to Router R1 and issues a show ip ospf neighbor command. The status of neighbor 2.2.2.2 lists FULL/BDR. What does the BDR mean?
2. R1 is an Area Border Router.
3. R1 is a backup designated router.
4. Router 2.2.2.2 is an Area Border Router.
5. Router 2.2.2.2 is a backup designated router.

**Ans.** D) Router 2.2.2.2 is a backup designated router.

1. Which command is used to view the neighbor discovery table on a PC?
2. show ipv6 neighbor
3. show ipv6 neighbors
4. netsh interface ipv6 show neighbor
5. netsh interface ipv6 show neighbors

**Ans.** C) netsh interface ipv6 show neighbor

1. What type of variable is being shown? Routers = [R1,R2,R3]
2. List
3. Dictionary
4. Simple
5. Unsigned integers

**Ans.** A) List

1. Identify the fields in an IPv4 header. (Choose three)
2. Host component
3. Time to Live
4. Source address
5. Destination address
6. Network address

**Ans.** B),C) & D)