Assignment

Module 8: Network Access Basic routing and advance routing concept and switching concept

1. Explain Switch

Ans : Network Switch : It is a small hardware device that joins multiple computers together within one local area network (LAN).

We can also say Multiport bridge .

- ❖ Main Features
- ➢ It operates at layer two (Data Link Layer) of theOSImodel .
- ➢ It appears nearly identical to network hubs, but a switch generally contains more intelligence (and a slightly higher price tag) than a hub.
- ➢ Switches are capable of inspecting data packets as they are received, determining the source and destination device of each packet, and forwarding them appropriately.
- ➢ By delivering messages only to the connected device intended.
- ➢ It conserves network bandwidth and offers generally better performance than a hub.
- ➢ It supports different bandwidth either 10/100 Mbps Fast Ethernet or Gigabit Ethernet (10/100/1000) standards.
- ➢ It can be connected to each other, a so-called daisy chaining method to add a progressively larger number of devices to a LAN.
- ➢ It reduces the Collision Domain .

- ❖ Types of Switches by Forms

1. Rack Mounted Switches.
2. Chassis Switches.
3. Catalyst Switches.
4. DIN Rail Switches.

- ❖ Types of Switches by Configuration

1. Unmanaged Switches
- ➢ they are not configured.
- ➢ Commonly used in home networks and small businesses.
- ➢ Switches do not need to be monitored or configured using external software applications.
- ➢ They are easy to set up and require only cable connections. Check cisco for Unmanaged Switches.

2. Managed Switches
- ➢ Can be configured with SNMP.
- ➢ Console Cable. secure shell.
- ➢ These types of Switches will be configured.

- ❖ Types of Managed Switches

1. Smart Managed Switches
- ➢ Operates in Managed and Unmanaged.
- ➢ Configure virtual LANs ports.
- ➢ Set up for trunking with other Switches.
- ➢ Fast LANs to support gigabit data transfer.\

2. Enterprise Managed Switches
- ➢ Fully Managed.
- ➢ Support web interface.
- ➢ Support SNMP agent.
- ➢ Support command-line interface.
- ➢ Restore, Backup, Modify & Display Configurations.

- ❖ Types of Switches by Placement or Function
- ➢ Access Switches.
- ➢ Distribution Switches.
- ➢ Core Switches.

2. Explain Switch Boot Sequence

Ans : definition - It switches on the CPU registers, which control where physical memory is mapped, its quantity, its speed, and so forth.

Here we can see ,The switch boot sequence refers to below the steps :

1. **Power On:**
- Firstly, When we turn on the switch, it receives power.
2. **POST (Power-On Self-Test)** :
- The switch runs a quick check to make sure all the hardware is working properly.
- If something's wrong, it usually shows an error.
3. **Load Bootstrap Program**:
- After the tests, the switch loads a small program called the bootstrap.
- This program helps it find the main operating system.
4. **Load Operating System**:
- The switch looks for the operating system stored in memory (usually flash memory) and loads it.
- This OS controls how the switch operates and manages network traffic.
5. **Load Configuration**:
- Once the OS is up and running, the switch loads its configuration file.
- This file contains settings that tell the switch how to behave and what tasks to perform.
6. **Run the System**:
- After loading everything, the switch is fully operational and starts processing data and forwarding packets based on its configuration.