**Network Hubs**

A hub, also known as a network hub, is a basic networking device that operates at the physical layer (Layer 1) of the OSI model. Its primary function is to connect multiple Ethernet devices, allowing them to communicate with each other within a local area network (LAN).

When one device transmits data, all other devices connected to that hub can hear the transmission. This is because hubs operate at the physical layer (Layer 1) of the OSI model and broadcast incoming data to all ports.

**Network Switches**

An L2 (Layer 2) switch operates at the Data Link layer of the OSI (Open Systems Interconnection) model. It is responsible for switching data frames between devices on the same local area network (LAN).

Features:

* An L2 switch learns the MAC addresses of devices connected to its ports by examining the source address of incoming frames.
* It uses the MAC address table to forward frames only to the specific port associated with the destination MAC address, reducing unnecessary traffic.

**Network Bridges**

A network bridge is a device that connects and filters traffic between two or more network segments at the data link layer (Layer 2) of the OSI model. It helps to create an extended network by allowing communication between devices on separate segments, thereby increasing the overall size and capacity of the network.

While both bridges and switches operate at Layer 2 and perform similar fundamental tasks of forwarding frames based on MAC addresses, switches provide additional functionality, scalability, and performance benefits. Bridges are simpler devices used mainly for connecting separate LAN segments, while switches are integral to modern network architectures, offering flexibility, efficiency, and support for advanced network features like VLANs and QoS (Quality of Service).

**Network Routers**

A router is a networking device that connects multiple networks together and routes data packets between them, based on IP addresses. It operates at the network layer (Layer 3) of the OSI model and is essential for interconnecting different networks to enable communication between devices in different locations.