CONNECTING DEVICES

We use connecting devices to connect hosts together to make a network or to connect networks together to make an internet.

 Connecting devices can operate in different layers of the Internet model, **there are 3 kinds of connecting devices**: hubs, link-layer switches, and routers.

Hubs	link-layer switches	Routers
A hub is a device that operates only in the physical layer. Signals that carry information within a network can travel a fixed distance before attenuation endangers the integrity of the data. A repeater receives a signal and, before it becomes too weak or corrupted, regenerates and retimes the original bit pattern. ***repeater called a hub in today's Ethernet LANs***	**- A link-layer switch (or switch) operates in physical and data-link layers.** **-As a physical-layer device, it regenerates the signal it receives.** **-As a link-layer device, it checks the MAC addresses (source and destination)**	**A router is a three-layer device; it operates in the physical, data-link, and network layers**

VIRTUAL LANS

• A station is considered part of a LAN if it physically belongs to that LAN. **The principle of membership is geographic**.

as a local area network configured by software, not by physical wiring

Membership

What characteristic can be used to group stations in a VLAN?

Vendors use different characteristics to group stations in a VLAN such as interface numbers, port numbers, MAC addresses(48-bit), IP addresses(32-bit), IP multicast addresses, or a combination of two or more of these.

Configuration

How are the stations grouped into different VLANs?

Stations are configured in one of three ways: manually, semi-automatically, and automatically

Communication between Switches

In a multi-switched backbone, each switch must know not only which station belongs to which VLAN, but also the membership of stations connected to other switches. . Three methods have been devised for this purpose: table maintenance, frame tagging, and time-division multiplexing.