INTRODUCTION TO NetWORKS

**Intermediate Devices:**

Computer networks vary in scale from small work groups, local area networks (LANs) to some of the largest networks like the Internet. They are all created from connections between computers. These devices make the data transfer and regulation of these networks possible.

**Switch:**

Network switches or packet switches are devices that connect the various segments of a network, and their main function is switching packets of data. Also known as a network bridge.

**Router:**

As its name suggests, a router is an intermediary device that regulates and directs data traffic between computer networks. It forwards data to various network destinations and controls its flow between two or more logical subnets.

**Hub:**

Working at the physical layer of the OSI model, a hub is basically a connector between Ethernet segments

**Bridge:**

A device used to connect two separate Ethernet networks into one extended Ethernet. Bridges only forward packets between networks

**Repeater:**

Repeaters are network devices that carry out the task of maintaining signal strength during transmission through a network

**Transition Mode:**

Simplex, half duplex and full duplex are three kinds of communication channels in telecommunications and computer networking.

**Simplex:**

A simplex communication channel only sends information in one direction.

**Half Duplex:**

In half duplex mode, data can be transmitted in both directions on a signal carrier except not at the same time.

**Full Duplex:**

A full duplex communication channel is able to transmit data in both directions on a signal carrier at the same time.

**Transition Techniques:**

**Unicast (one to one):**

Unicast is a one-to-one transmission method in which the network carries a message to one receiver.

**Broad Cast (one to all):**

Broadcast is a one-to-all transmission method in which the network carries a message to all devices at the same time.

**Multi Cast (one to many):**

Multicast is a one-to-many transmission method in which the network carries a message to multiple receivers at the same time.

**Any Cast (one to nearest):**

Any cast is a network addressing and routing methodology in which a single destination address has multiple routing paths to two or more endpoint destinations.

**Difference between Hub and Switches:**

**Hub:**

* Physical layer. Hubs are classified as Layer 1 devices per the OSI model
* If a message comes in destined for computer “A”, that message is sent out to all the other ports, regardless of which computer “A” is.
* A network hub cannot learn or store MAC address.

**Switches:**

* Data Link Layer. Network switches operate at Layer 2 of the OSI model
* First broadcast; then unicast & multicast as needed.
* A network switch can learn or store MAC address.

**Screen Shots:**



