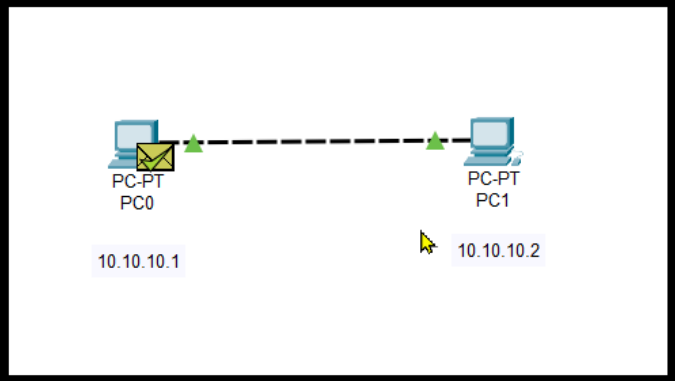
CISCO:

It is a very popular software company and they are the leaders in networking.

CISCO PACKET TRACER:

A simulation tools (imitation of real world situations) used for practice (means provides a safe environment for users to learn and improve their networking skills), discovery (The process of exploring and learning new concepts of technologies) and troubleshooting (identifying and fixing problems or issues that may arise in a network) or simply a computer program that helps people learn and understand how computer networks work.It helps to understand networks practically.

PEER-TO-PEER NETWORK IN CISCO PACKET TRACER:



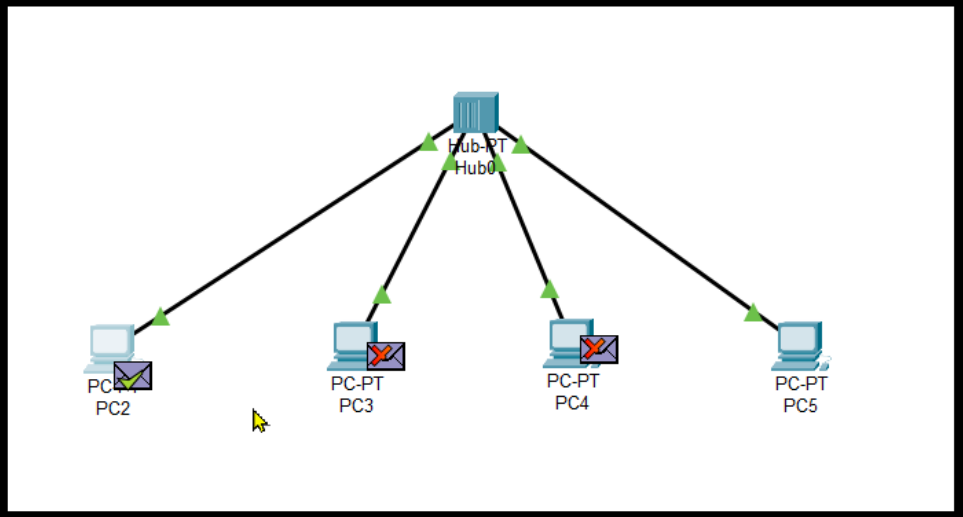
HUB:

★ Hub is also known as Network Hub.
★ Hub works at the physical layer of the OSI model.
★ Used to set up LAN.
★ Has multiple ports.
★ Makes star topology.

WORKING OF HUB:

When a packet arrives at one port, it is copied to the other ports so that all segments of the LAN can see all packets.

LAN USING HUB IN CPT:



PROS AND CONS OF HUB:

PROS:

★ Cheaper than switches.
★ Works good for smaller network.

CONS:

★ Issues with broadcast because it floods the networks by copying the data to all other nodes
★ No memory.

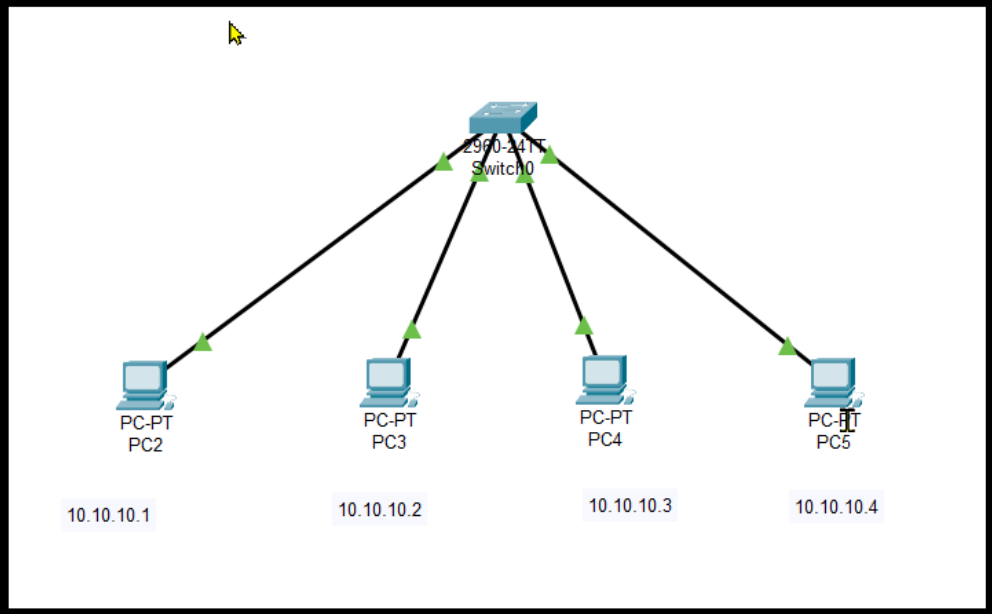
SWITCH:

★ A switch is a networking hardware that connects devices on a computer network to establish a local area network.
★ Unlike hub, switch has memory.
★ Stores MAC ADDRESS TABLE. (Contains MAC Address of the device along with the port to which they are connected)
★ Layer 2 Device for setting up LAN.

WORKING OF SWITCH:

When a packet arrives at one port, it is copied to the target port to which the target device is connected. Because switch is an intellegent device.

LAN USING SWITCH IN CPT:



MAC ADDRESS TABLE IN CPT:

To see MAC address table in CPT, go to CLI tab of the switch and type the "EN" for enable, then type "show mac-address-table" and hit enter.

DIFFERENCE BETWEEN SWITCH AND HUB:

HUB	SWITCH
Layer 1 Device and works at the physical layer.	Layer 2 Device and works at the data link layer.
It has no memory.	It has memory and stores mac address table.
It is not an intelligent device.	It is intelligent device.
Floods the network due to broadcasting.	Can do unicasting, multicasting and broadcasting.
Security risks are high and works in a half duplex mode.	Security risks are low and works in a full duplex mode.

ROUTER:

★ A router is a networking device that forward data packets between computer networks.
★ A router is connected to atleast two networks, commonly two LANs or WANs or a LAN and its ISP's network.
★ It is a layer 3 device.
★ It has memory and stores Routing table.

DIFFERENCE BETWEEN SWITCH AND ROUTER:

SWITCH	ROUTER
Used to connect devices to make LAN.	A networking device used to connect 2 different networks.
Operates at Data Link layer (Layer 2 device).	Operates at Network layer (Layer 3 device).
It has memory and stores MAC Address table.	It has memory and stores Routing table.
It takes decisions based on MAC address.	It takes decisions based on IP address.
Can work in half and full duplex.	Can work in full duplex.
Used for setting up LAN.	Can be used for LAN, WAN and MAN.

HAROON

INTER LAN COMMUNICATION USING ROUTER IN CPT: