

# INSTITUTE OF ENGINEERING & MANAGEMENT



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DATE OF EXPERIMENT / PROJECT : 21/04/2022

DATE OF SUBMISSION :

TITLE : Configure a star topology using hub & switch .

OBJECT : To Configure a star topology using a hub & then a switch & note the differences .

Objective: To configure a star topology using hub and then a switch & note the differences.

Introduction:

Hub & Switches are the network connecting devices, both helps to connect various devices. Hub works at physical layer and transmits the signal to the port. Switch route the information and send it over the network.

Hub: It is a networking device which helps to connect several devices to a single network and also connects segments of LAN. Hub works at physical layer and contains many ports. When any device intends to connect to a network then it can be plugged into one of these ports.

Switch: It is a networking device which connects multiple device together on a single network & routes the information. The switches uses a data link layer for working. The packet switching technique is used to transmit the data packet over the network.

Method:

I. configuring a star topology using hub:

step (I) Open the cisco packet tracer

step (II) Select few computers & a hub from the symbols available there.

step (III) connect them using wires which is available in symbols.

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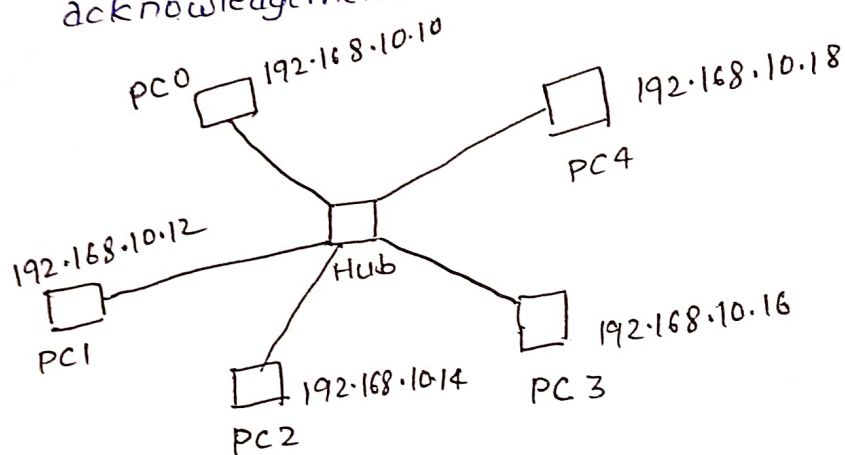
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Step (iv) Assign the IP addresses to the computers.  
[I assigned 192.168.10.10] for the first computer and so on.

Step (v) Now test the connection using a computer by entering the command ping 192.168.10.14 in the computer having the IP 192.168.10.10 & if the ping is coming, then our configuration is established.

Step (vi) Now test the broadcast concept by sending something from one computer to another. Hub will receive the sent message from one computer & broadcast to all. but the target receiver computer accept the data & send acknowledgement.



II. configuring a star topology using Switch:

step (i) open the cisco packet tracer.

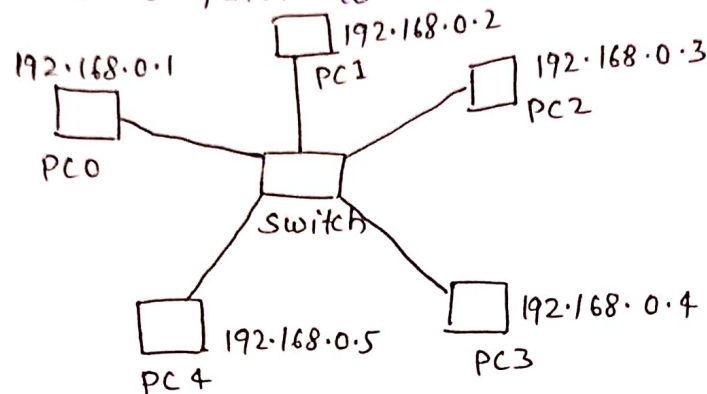
step (ii) select few computers & a switch & connect them using wires from symbols.

step (iii) Assign the IP addresses to the computers  
I assigned 192.168.0.1 for the first computer & so on.

step (iv) Now test the connection by entering the command ping 192.168.0.4 by the computer having IP address 192.168.0.1



Step (V) Now test the unicast, multicast & broadcast concept of switch by sending something from one computer to others.



Result :

On doing both the experiments I came to know the difference between Switch & Hub.

Hub	Switch.
→ It follows broadcasting	→ It follows unicast, multicast and broadcast
→ It allows packet switching	→ It has a separate collision domain
→ There can be four or 12 ports in a Hub.	→ There can be 24 to 48 ports in a Switch.
→ Half duplex transmission technique is utilized.	→ Full duplex transmission technique is utilized.
→ Hacking of Systems attached to hub is complex	→ Hacking of Systems attached to switch is little easy.

Discussion :

After performing the above experiment, I came to know about the difference between Hub & Switch. Basically, Hub main objective is to transmit the signal to port to respond where the signal was received. Switch enables connection setting & terminating based on the need.