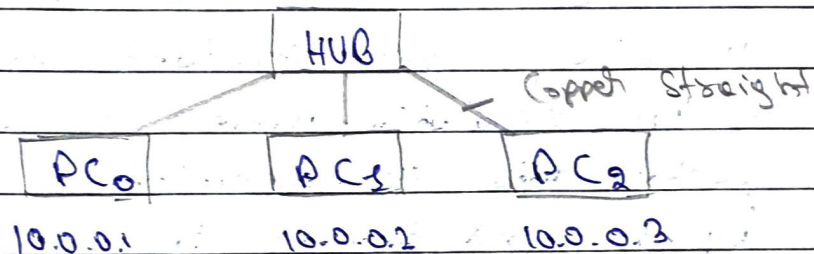


Experiment:-

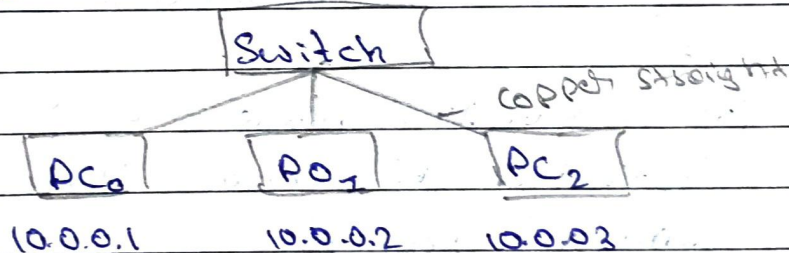
Aim:- Creating a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices.

Topology:-

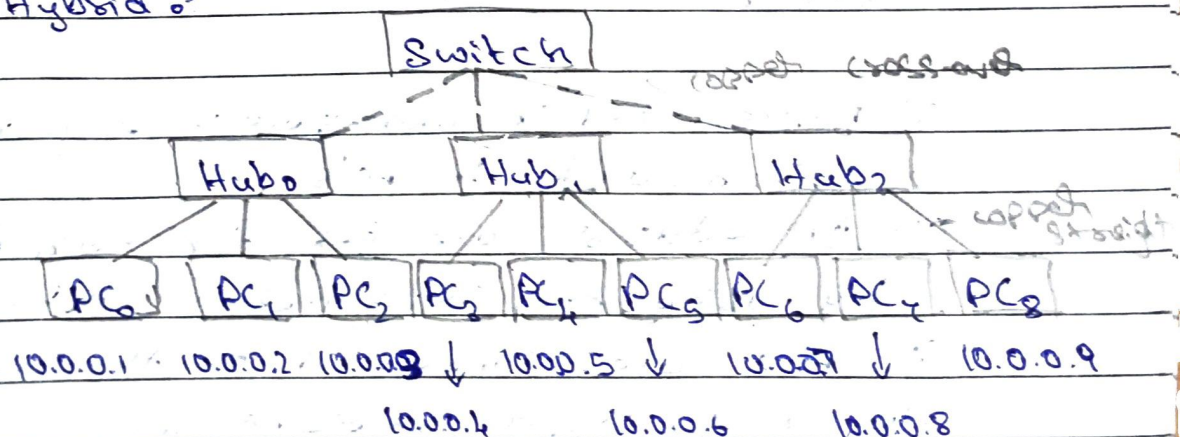
HUB:-



Switch:-



Hybrid:-



Procedure:-

⇒ Hub

- (i) Devices used in workspace : A generic hub and seven PC's
- (ii) IP addresses are set for each PC's by using the configuration tab in the PC.
- (iii) PCs are connected to the Hub using a copper straight wire
- (iv) In simulation mode, we can how packet data is transmitted and received by the end devices through the hub. message is transmitted to all devices by only the destination device receives it.
- (v) In real-time mode, we ping the destination PC from the source PC's command prompt.

⇒ Switch

- (i) Devices used in workspace : A generic switch and five PC's
- (ii) IP addresses are set for each PC's by using the configuration tab in the PC.
- (iii) PCs are connected to the switch using a copper straight wire.
- (iv) In simulation mode, ADU is established between two end devices, packet transfer can be seen.
- (v) In real-time mode, we ping the destination PC from the source PC's command prompt.

⇒ Hybrid

- (i) Devices used in workspace:- One generic Switch, 3 generic Hubs and 12 PC's
- (ii) IP address is set for all the PC's
- (iii) PC's are connected to the Hub's using a copper straight wire and hubs are connected to the switch using a cross-over wire.
- (iv) In Simulation mode, PDV is established between two PCs, packet transfer can be seen.
- (v) In real time mode, we ping the destination PC (can be any PC in the network) from the source PC's command prompt.

Observation:-

⇒ Hub:-

Learning outcome:-

The hub sends message to all the end devices, but the message is read only by the destination device. (Note:- message is not sent to the source device)

Result:-

> Ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:

Reply from 10.0.0.4: bytes=32 time=0ms TTL=128

Reply from 10.0.0.4: bytes=32 time=1ms TTL=128



Reply from 10.0.0.4: bytes=32 time=0ms TTL=128

Reply from 10.0.0.4: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.4:

Packets: Sent=4, Received=4, Lost=0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum=0ms Maximum=1ms Average=0ms

⇒ Switch

Learning Outcome:

Switch take time to establish connection with a device called learning time.

Message cannot be done until the green light is established. message is only sent to the destination device.

Result:-

PC> ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=0ms TTL=128

Reply from 10.0.0.3: bytes=32 time=0ms TTL=128

Reply from 10.0.0.3: bytes=32 time=3ms TTL=128

Reply from 10.0.0.3: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.3

Packets: Sent=4, Received=4, Lost=0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum=0ms Maximum=3ms Average=0ms

⇒ Hybrid:

Learning Outcome:

The switch first sends the message to ~~all the~~ the hub to which the destination end device is connected then the hub sends to all the devices it is connected to then it is received by destination devices.

Result:-

P(> ping 10.0.0.12

Pinging 10.0.0.12 with 32 bytes of data:

Reply from 10.0.0.11: bytes=32 time=0ms TTL=128

Reply from 10.0.0.11: bytes=32 time=0ms TTL=128

Reply from 10.0.0.12: bytes=32 time=0ms TTL=128

Reply from 10.0.0.12: bytes=32 time=0ms TTL=128

Ping Statistics for 10.0.0.12:

Packets: Sent=4, Received=4, lost=0 (0% loss),

Approximate round trip times in milliseconds:

Minimum=0ms, Maximum=0ms, Average=0ms