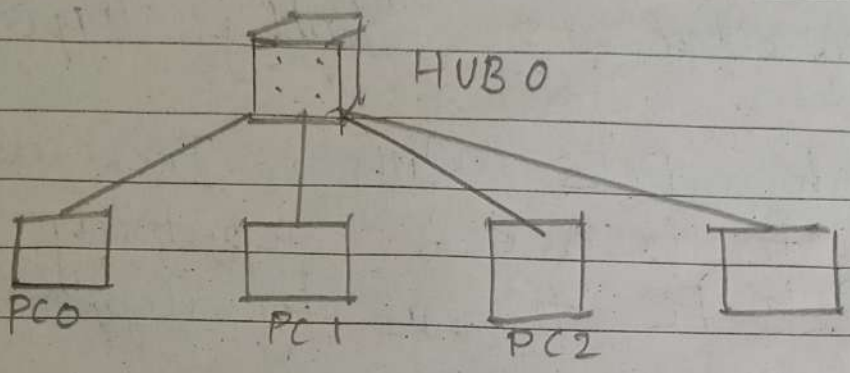
10/11/22

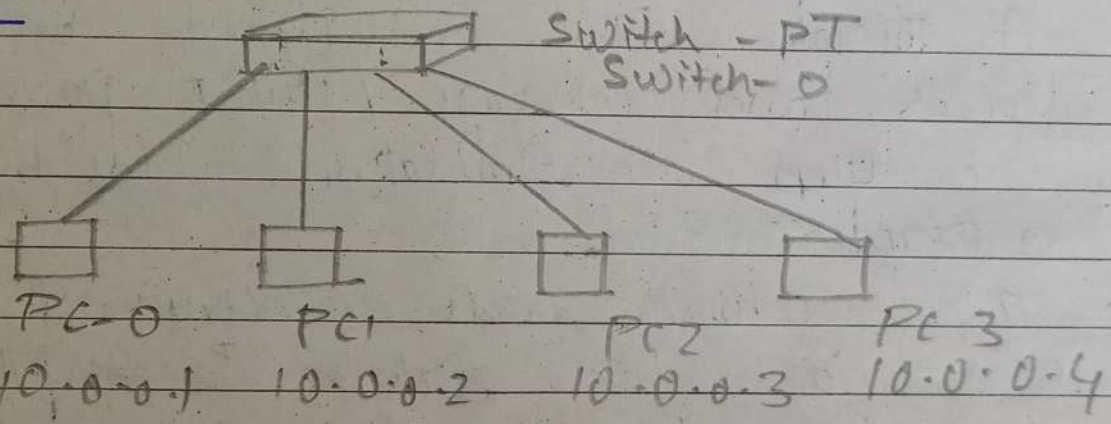
AIM:- Creating a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices.

Topology :-

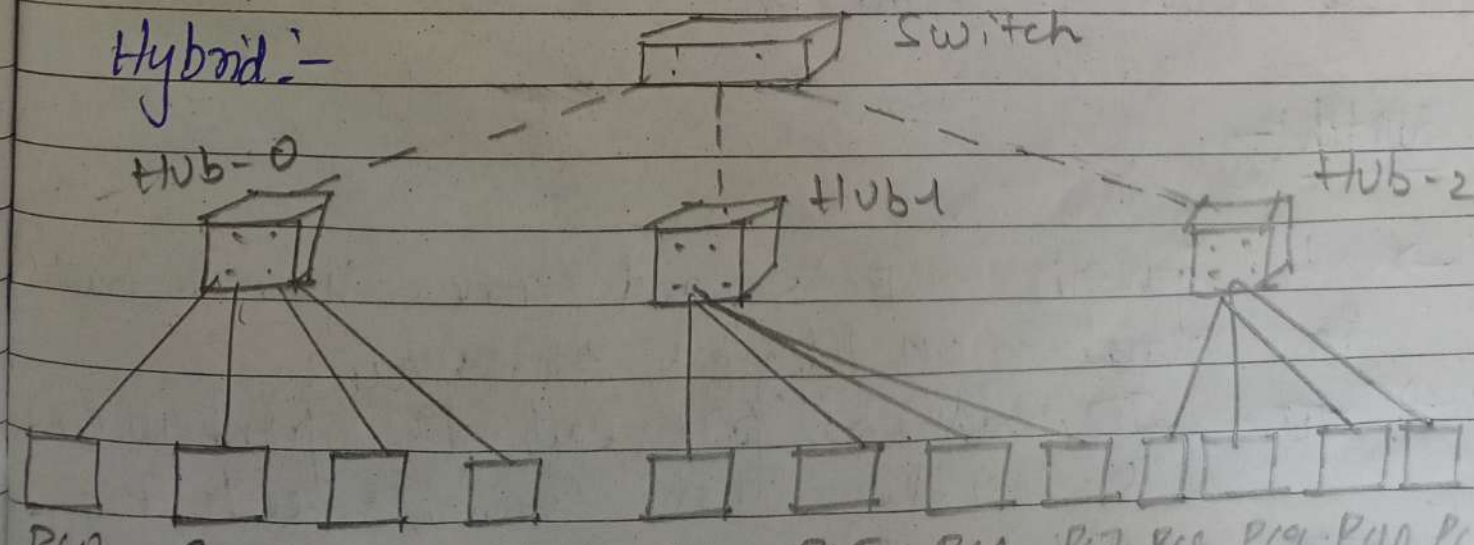
Hub:-



Switch :-



Hybrid :-



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Procedure:-

Hub:-

1. place 7 generic PC's and 1 generic hub in logical Workspace and all 7 PC's are connected to hubby Copper straight wire.
2. Set each PC's with IP adress from 10.0.0.0 to 10.0.0.6 respectively and Connect each PC to hub by Copper straight wire
3. A simple PDU is placed on any 2 devices and message / packet passing can be seen in Simulation Mode by clicking autocapture.
4. In realtime mode a command prompt is opend for certain PC & following command is given to trasfer message PING destination IP adress.

Switch:-

→ 4 generic PC's and one generic Switch is placed on logical Workspace

→ Set IP adress for each PC from 10.0.0.7 to 10.0.0.10 and Connect each PC to switch using copper straight wire.

→ In Simulation mode after placing simple PDU to any 2 PC's click on to capture and packet transfer can be seen.

→ In real-time mode click on any PC and open Command prompt and type 'PING dest-IP' to send message.

* Hybrid:-

→ 12 PC's, 3 hubs, 1-Switch all generic are placed onto logical workspace.
→ 3-generic hubs are connected to Switch using copper cross-over wire and 12 PC's are connected to 3 hubs, 4PC each using copper straight wire assigning IP address for each PC from 10.0.0.0 to 10.0.0.11 respectively.
→ After adding 8 PC's from different hubs with simple-PDU and clicking on auto-capture, packets passing simulation can be seen in simulation mode.
→ In realtime mode open command prompt by clicking any PC → Devices → command prompt and type 'PING dest. IP address' to send packet.

Observations:-

* Hub:-

→ learning outcome:- After source sends message to hub its broadcasted to all end devices but only destination device reads and send response back to hub for

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source to get response.
→ Hub establishes connection to end-devices quickly and signals by green-light

Result:-
PING 10.0.0.3
PINGING 10.0.0.3 with 32 bytes of data
REPLY FROM 10.0.0.3 bytes=3 time=0ms

PING STATISTICS FOR 10.0.0.3
DETAILS of how many packets sent and recieved.

* Switch:-

learning observation:-

→ Unlike hub, switch dosnot give green signal immediately but takes some amount of time called learning time and the packets can be sent once green signal can be sent once green signal is generated.
→ Initially switch also broadcasts for all end-devices and the next time the communication happens & message passing happens only between source and destination devices.

Result:-
PING 10.0.0.5
PINGING 10.0.0.5 with 32 bytes of data

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PING STATISTICS FOR 10.0.0.3
- Details of how many packets sent and received".

* Hybrid :-

learning outcome :-

→ message sent by one PC of one hub to switch is sent to destination hub which broadcast to all devices of that hub and only destined end-devices sends back response to source of other hub.

Result :-

PING 10.0.0.4
PINGING 10.0.0.4 with 32 bytes of data
REPLY from 10.0.0.4 bytes = 32

PING STATISTICS for 10.0.0.4:
"Details of number of packets sent and recived".

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