Teacher Sign / Remarks

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LAB - 2

1) Create a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices and demonstrate ping message

Aim of the Experiment:

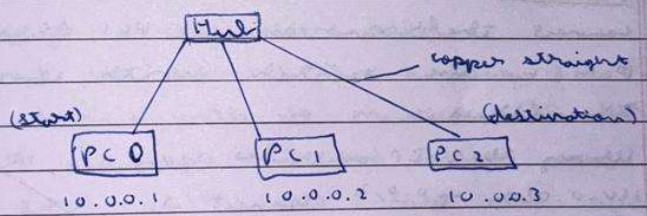
Simulating the transmission of simple PDU using hub and switch as connecting devices

Devices used:

Hub, Switch and end devices

Topology 1:

- Hub and 3 end devices



Procedure:

(i) Connect end devices PC0, PC1, PC2 to the hub using straight cable

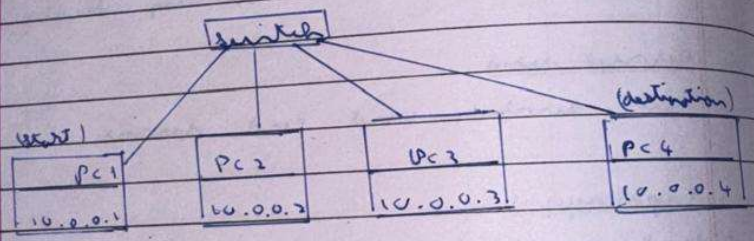
(ii) Assign IP address to the PCs as 10.0.0.1, 10.0.0.2, 10.0.0.3

(iii) Select a simple PDU. Select PC0 as the start node

and PC3 as the destination

observation:
During the simulation, the message will be received by PC2 and PC4 and acknowledged by the source.

Topology 2:
Switch and end device



Procedure:
(i) connect the 4 end devices PC1, PC2, PC3 and PC4 to the switch with the mentioned IP address.
(ii) Using the IP addresses 10.0.0.1, 10.0.0.2, 10.0.0.3, 10.0.0.4 connect it
(iii) select simple PDU, PC1 as the start node and PC4 as the destination node

observation:
The message will be sent from PC1 to PC4 and in return the acknowledgement will be sent from PC4 to PC1

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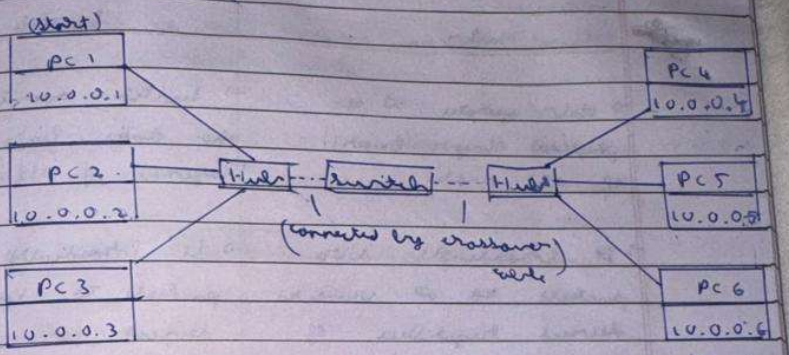
Topology 3:

Switch, Hub and End devices



Procedure:

(i) connect 3 end devices PC1, PC2, PC3 with the mentioned IP addresses to the Hub and further connected to a Switch.

(ii) the connection between the hub and switch through a cross over cable

(iii) connect the switch to another hub with 3 end devices with the mentioned IP addresses

(iv) Select a simple PDU and assign any one of the first 3 PCs as start node and any one of the other 3 PCs as destination node

(v) Demonstrate the simulation and analyse the flow of the message and acknowledgement

Observation:

During the simulation, a successful ping message confirms connectivity between the source and destination

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Difference between Hub and Switch

Hub	Switch
→ Hub operates at the physical layer (layer 1) of OSI model	→ Switch operates at the data link layer (layer 2) of OSI model
→ It broadcasts data packets to all connected devices regardless of intended recipient	→ It broadcasts data packets to specific devices for which data is intended
→ It is less efficient and supports lower speeds	→ It is more efficient and supports higher speeds

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procedure:

(i) Select a ge

(ii) connect

copper cross

(iii) configure

and 10.0.0

(iv) Select the

Router > en

Router #

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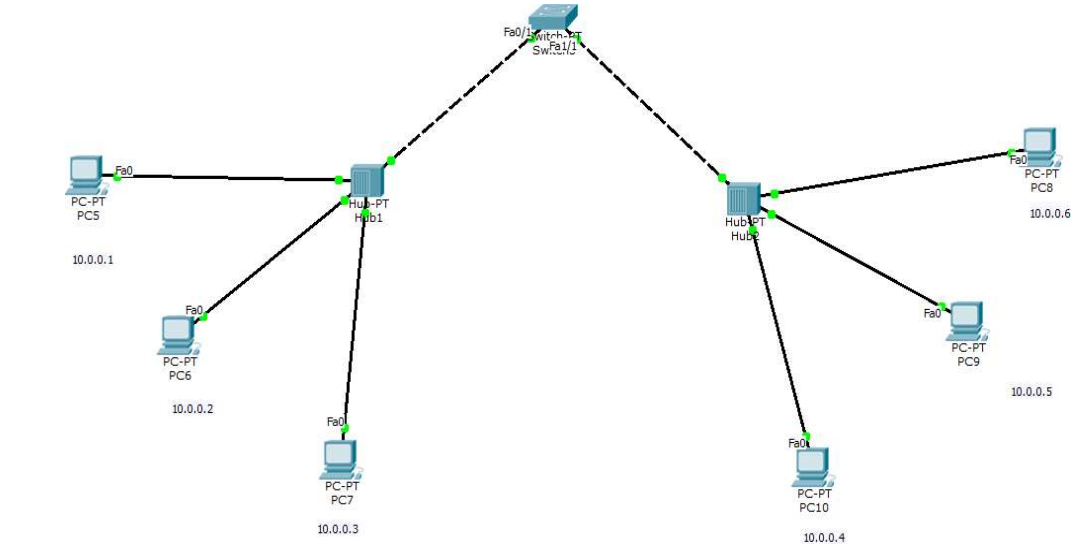
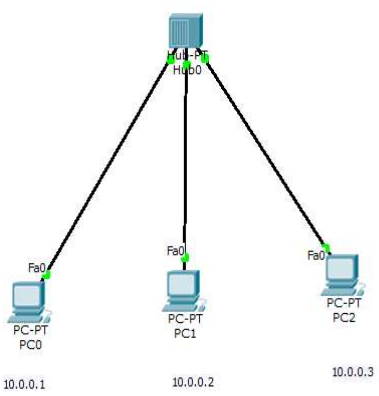
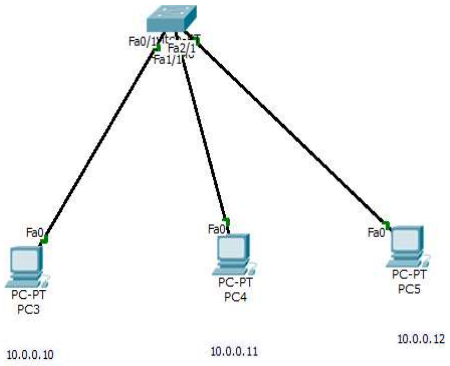

Fa0/1
Switch-PT
Fa1/1
Fa0
PC-PT
PC5
10.0.0.1
Hub-PT
Hub1
Fa0
PC-PT
PC6
10.0.0.2
Fa0
PC-PT
PC7
10.0.0.3
Hub-PT
Hub2
Fa0
PC-PT
PC8
10.0.0.6
Fa0
PC-PT
PC9
10.0.0.5
Fa0
PC-PT
PC10
10.0.0.4


Hub-PT
Hub0
Fa0
PC-PT
PC0
10.0.0.1
Fa0
PC-PT
PC1
10.0.0.2
Fa0
PC-PT
PC2
10.0.0.3


Fa0/1
Fa2/1
Fa1/1
Fa0
PC-PT
PC3
10.0.0.10
Fa0
PC-PT
PC4
10.0.0.11
Fa0
PC-PT
PC5
10.0.0.12