

## LAB1

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

OBSERVATION:

LAB 1

Q.1] Create a topology and simulate sending a simple PDU from source to destination using a simple hub and switch as connecting devices.

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

Hub:-

```
graph TD; Hub[HUB - PT  
HUB 0] --- PC0[PC - PT  
PC0]; Hub --- PC1[PC - PT  
PC1]; Hub --- PC2[PC - PT  
PC2]; style PC2 stroke-dasharray: 5 5; style PC2 stroke:#0000FF,stroke-width:2px
```

Step 1:- Select and devices and choose generic and choose PC0, PC1, PC2.

Step 2:- Go to hubs and select generic.

Step 3<sup>rd</sup> - Goto connection and select copper straight through wires then connect PC's to the hub (select port numbers and PC)

Step 4<sup>th</sup> - click on PC, goto config and select fast ethernet then set IP address for the 10.0.0 PC. Do the same for all the PC's 10.0.0.1, 10.0.0.2, 10.0.0.3

Step 5<sup>th</sup> - Add simple PDV

Step 6<sup>th</sup> - click source and destination systems

Step 7<sup>th</sup> - then goto simulation mode, auto capture / play. then the packets will start to transfer

Step 8<sup>th</sup> - click on PC goto desktop and select command prompt. then type command ping 10.0.0.3

PC > Ping 10.0.0.3

Reply from 10.0.0.3 bytes=32 time=4ms TTL=128

Reply from 10.0.0.3 bytes=32 time=23ms TTL=128

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

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

## Ping Statistics for 10.0.0.3

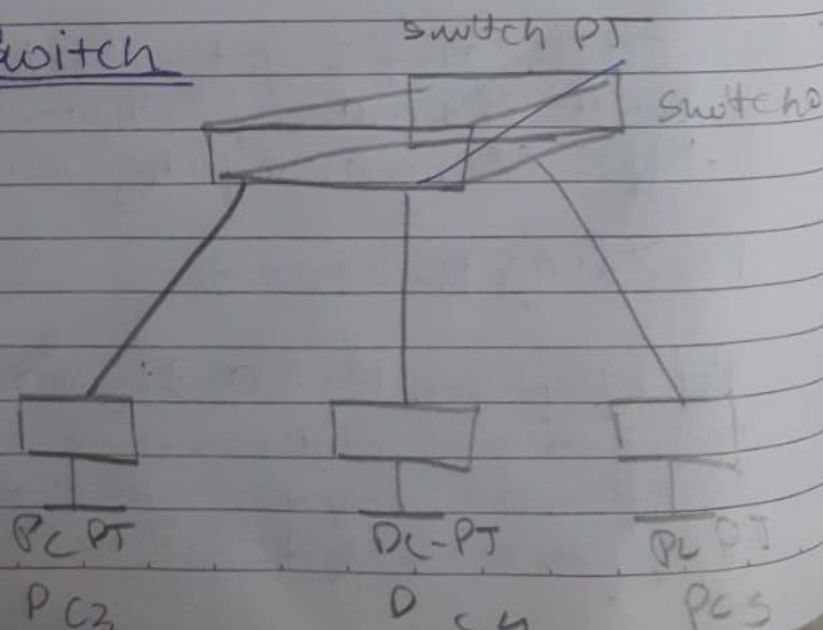
Packets: Sent = 4, Received = 4, lost = 0 (0% loss)

Approximate Round trip time in multi-seconds minimum = 0ms, maximum = 4ms  
Average = 2ms

### Observation:-

When the source device sent a packet to the hub it will broadcast or send the packet to all the devices which are connected to the hub. And the destination devices will receive the packet and others will reject the packet. And destination devices will send the acknowledgment and the source will accept and others will discard.

### Switch





## procedure :-

Step 1:- Select Switch and 3 PC's

Step 2:- Set IP address for all the PC's  
10.0.0.4, 10.0.0.8, 10.0.0.6

PC → Catalog → Fast Ethernet → IP address

Step 3:- Connect PC's to the Switch by selecting copper straight through

Step 4:- Add Simple PDU.  
Select Source and destination

Step 5:- Go to Simulation mode & click on Auto capture/Play

Step 6:- click on PC → Desktop → Command prompt

## Ping Message

PC > Ping 10.0.0.6

Pinging 10.0.0.6 with 32 bytes of data:

Reply from 10.0.0.6: bytes = 32 time = 4ms TTL = 128

Reply from 10.0.0.6: bytes = 32 time = 4ms TTL = 128

Reply from 10.0.0.6: bytes = 32 time = 4ms TTL = 128

Reply from 10.0.0.6: bytes = 32 time = 4ms TTL = 128

ping statistics for 10.0.0.6

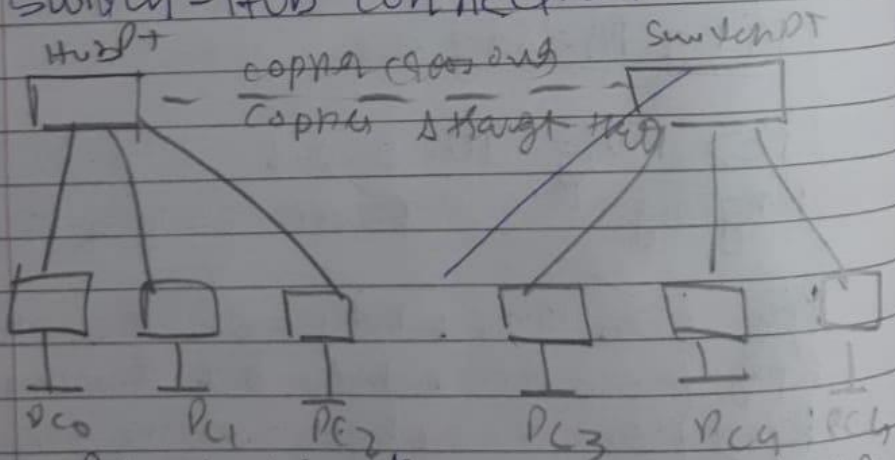
Page no. \_\_\_\_\_  
Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
packets sent = 4 Received = 4 cost = 0 (OTL)

Approximate round trip time in  
milliseconds minimum = 4ms maximum  
= 4ms Avg = 4ms

observation :-

When the first time the packet is sent  
the switch will distribute the  
packet with all devices. Once it  
changes around the IP address  
it will only send packet to the  
destination and send acknowledgement  
back to the source

Switch-hub connection:-



Step 1:- Previously drawn hub-topology &  
switch topology are connected  
through copper crossover. In  
hub port 3 is used in switch

port ethernet 8/1 is used.

q2 - Add Simple PDC from PC 0 to PC 3  
ping 10.0.0.4

Ping 10.0.0.4 with 32 bytes of data

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

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

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

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

ping statistics for 10.0.0.4

packets: Sent 4 Received 4 Loss=0%

Approximate round trip times in milliseconds

Minimum=4ms Maximum=4ms Average=4ms

Observation:-

In simulation mode PC 0 sends packet to hub sends it to PC 1, PC 2 & Switch board casts it to PC 3, PC 4 &

PC 5

PC 1, PC 2, PC 4 & PC 5 discards it, PC 3 accepts & sends acknowledgement to hub through Switch.

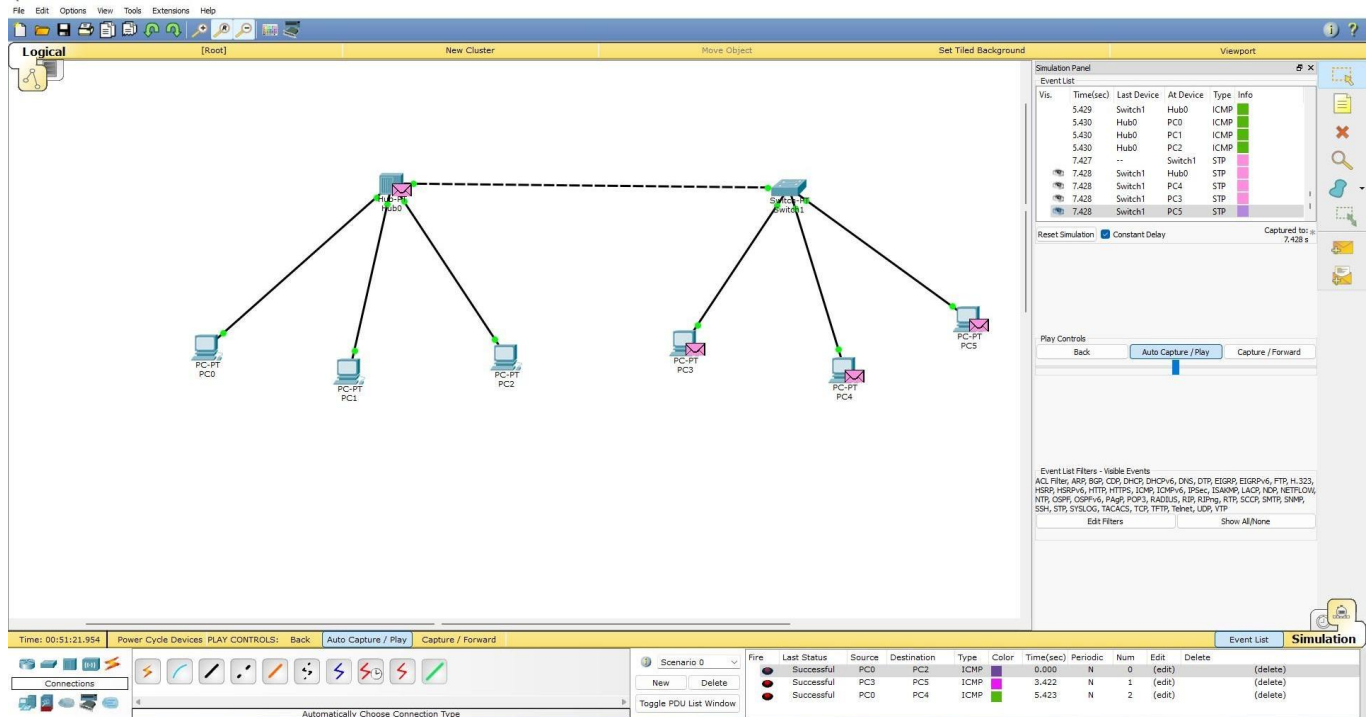
Hub is BROADCAST it to all PCs only PC 0 accepts it and others discard it in second round PC 0

Send packet to hub if broadcast  
to PC1, PC2 switch now switch  
broadcast it only to PC3 - thus  
switch is smart devices.

lee



# OUTPUT:



```

Physical Config Desktop Custom Interface

Command Prompt

Packet Tracer PC Command Line 1.0
PC>ping 192.160.1.5

Pinging 192.160.1.5 with 32 bytes of data:
Reply from 192.160.1.5: bytes=32 time=0ms TTL=128
Reply from 192.160.1.5: bytes=32 time=0ms TTL=128
Reply from 192.160.1.5: bytes=32 time=0ms TTL=128
Reply from 192.160.1.5: bytes=32 time=0ms TTL=128

Ping statistics for 192.160.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>ping 192.160.1.6

Pinging 192.160.1.6 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.160.1.6:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>192.160.1.2
Invalid Command.

PC>ping 192.160.1.2

Pinging 192.160.1.2 with 32 bytes of data:
Reply from 192.160.1.2: bytes=32 time=0ms TTL=128
Reply from 192.160.1.2: bytes=32 time=0ms TTL=128
Reply from 192.160.1.2: bytes=32 time=0ms TTL=128
Reply from 192.160.1.2: bytes=32 time=0ms TTL=128

Ping statistics for 192.160.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>
    
```



