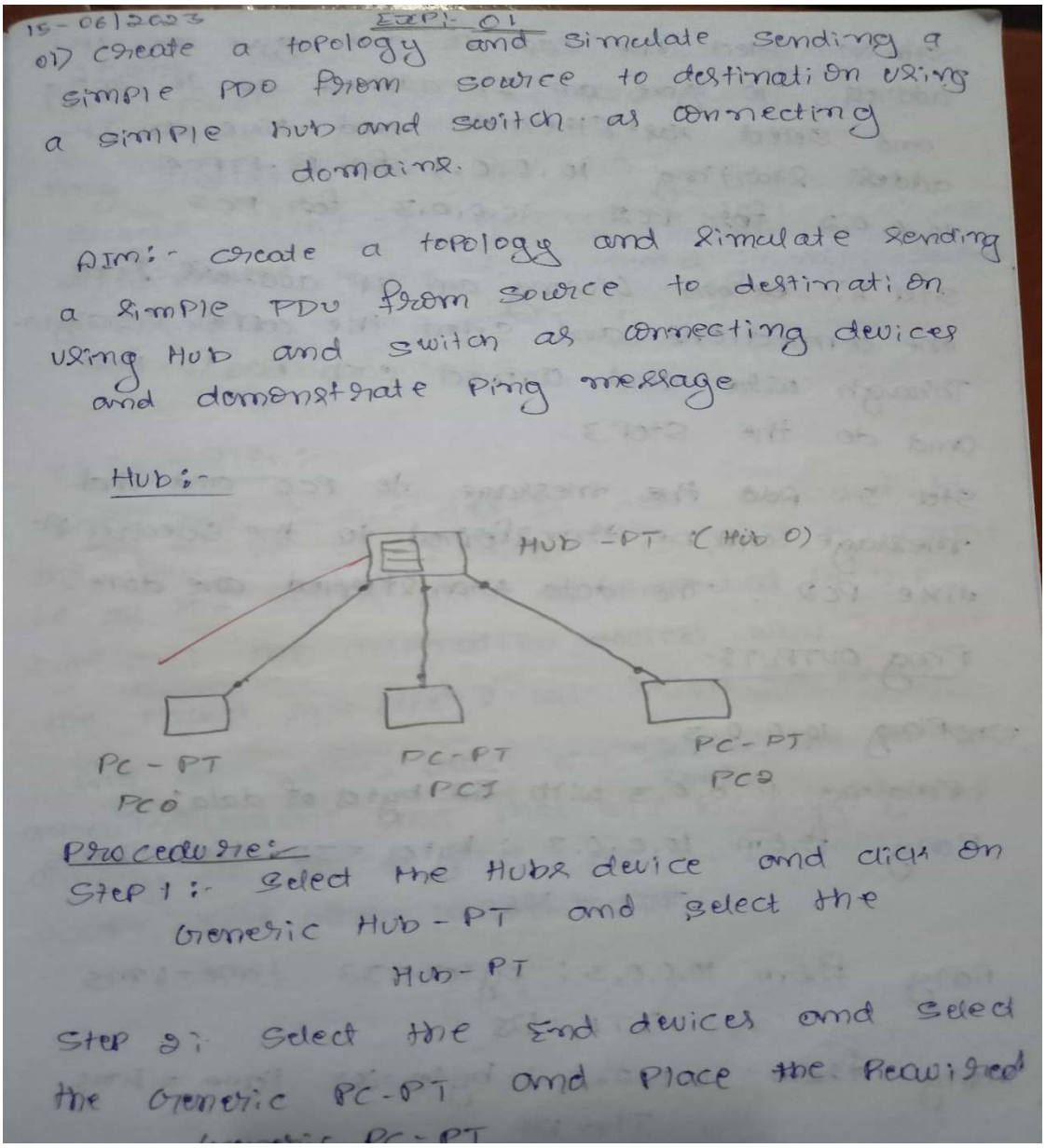
LAB-1

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:



15-06/2023 Exp: 01

01) Create a topology and simulate sending a simple PDU from source to destination using a simple hub and switch as connecting domains.

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:-

Procedure:-

Step 1:- Select the Hubs device and click on Generic Hub-PT and select the Hub-PT

Step 2:- Select the End devices and select the Generic PC-PT and Place the Required

Step 3:- Select the each Pc and give an IP address, To give an IP-address go to config and select Fast Ethernet0 and Give an IP-address starting 10.0.0.1 for PC-PTPC0 10.0.0.2 for PC2 10.0.0.3 for PC3

Step 4:- Before Giving an IP address Select the connections and select the copper Straight-Through wire and connect each Pc to Hub. and do the Step 3.

Step 5:- Add the message to PC0 and that message will be transferred to the Selected Pc like PC2. The data transferred are done.

Ping OUTPUT:-

=> Ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:-

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

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

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

Reply from 10.0.0.3: with 32 bytes of data
time = 4ms TTL = 128

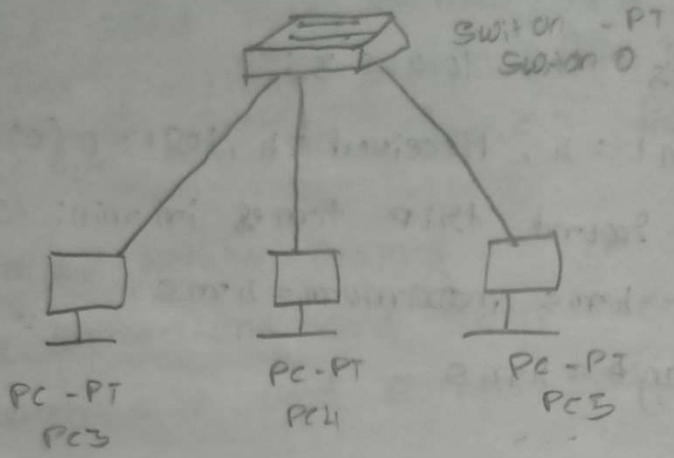
Ping statistics for 10.0.0.3:
Packets : Sent = 4, Received = 4, Lost = 0 (0% Loss),
Approximate round trip times in milli-seconds:
minimum = 4ms, maximum = 4ms,
average = 4ms

Observation:

When the source device sent a Packet to the hub it will bradcast or send the Packet to all the devices which all connected to the hub and the destination device will receive the Packet and other's will reject the Packet.

And destination's device will ~~receive~~ send the Packet acknowledgement and that will be distributed among all devices and the source will accept and other will discard.

Switch:



Procedure:-

Step 1:- Select the switch and 3 PC's

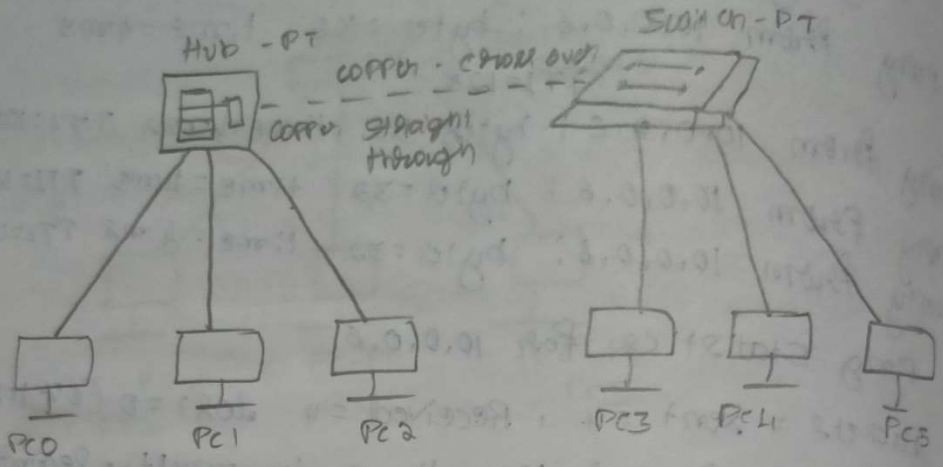
Step 2:- Connect the switch and 3 PC's with the copper straight - Through

Step 3:- Go to each PC and select the each PC and give an IP-address

Step 4:- Add Simple PDU(P) to one PC and that is the source PC and give an message to other PC that is destination PC.

Ping output:-

Hub - Switch connection:-



Step 1:- Previously drawn hub - topology and switch topology are connected through copper cross ones.

In Hub Port 3 is used in switch fast Ethernet 3.1 is used.

Step 2:- Add simple PDC from PDC to PC3

Ping output:

PC> Ping 10.0.0.4

Pinging 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 = 1 ms 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 Satisfies for 10.0.0.4

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

Approximate round trip times in milli-seconds

minimum = 4ms maximum = 4ms

Average = 4ms

observation:-

In simulation mode PCD sends packet to hub

Hub sends it to PC1, PC2 and switch broadcasts it to PC3, PC4 and PC5

PC1 PC2, PC4 and PC5 discards item.

PC3 accepts and sends acknowledgement to hub through switch

Hub is broadcasts it to all 3 PCs only PCD accepts it and others derived

In second round PCD sends packet to HUB it, broadcasted to PC1, PC1 switch now switch broadcasts it only to PC3; Thus switch is smart device.

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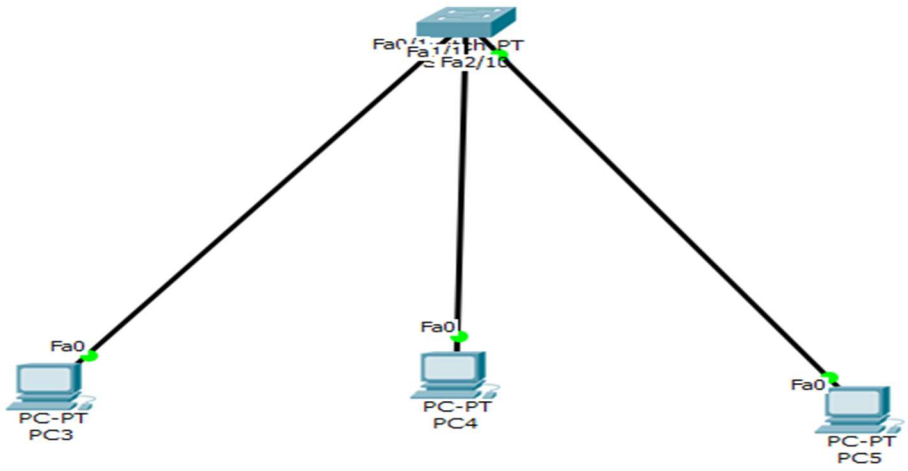
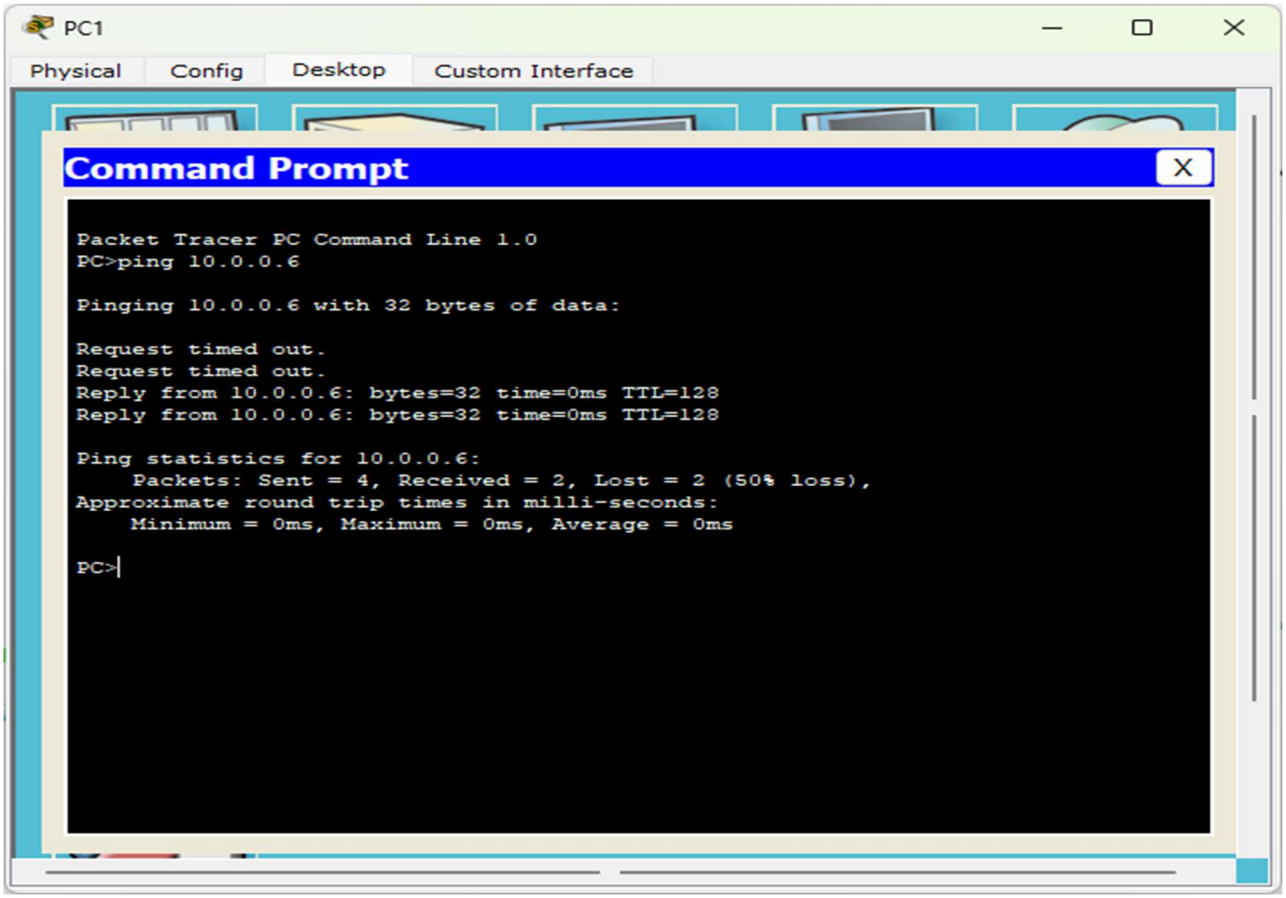
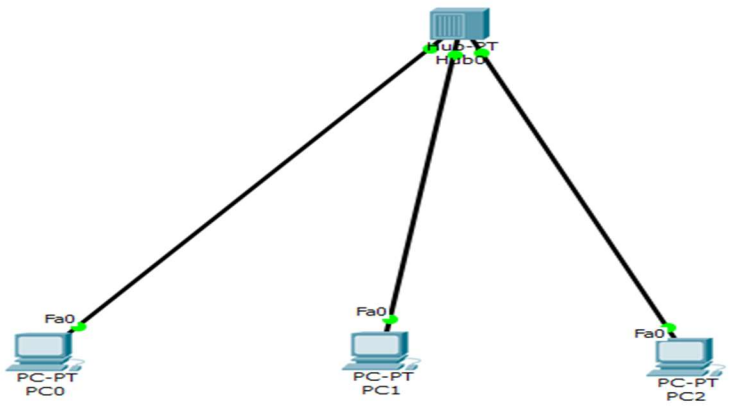
OUTPUT :


Fa2/16
Fa0
PC-PT
PC3
Fa0
PC-PT
PC4
Fa0
PC-PT
PC5


PC1
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.6
Pinging 10.0.0.6 with 32 bytes of data:
Request timed out.
Request timed out.
Reply from 10.0.0.6: bytes=32 time=0ms TTL=128
Reply from 10.0.0.6: bytes=32 time=0ms TTL=128
Ping statistics for 10.0.0.6:
Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>



PC3

Physical | Config | Desktop | Custom Interface

Command Prompt

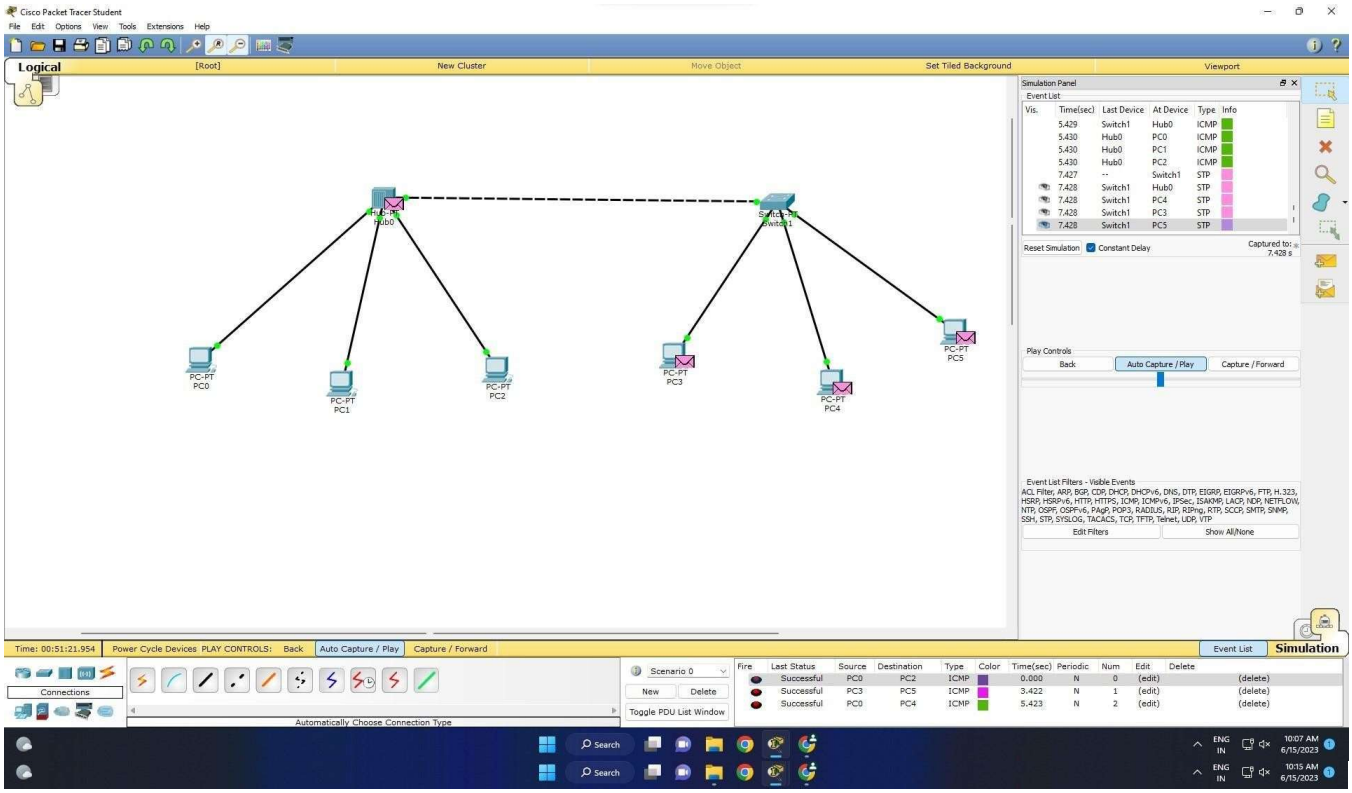
```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.6

Pinging 10.0.0.6 with 32 bytes of data:

Reply from 10.0.0.6: bytes=32 time=0ms TTL=128
Reply from 10.0.0.6: bytes=32 time=0ms TTL=128
Reply from 10.0.0.6: bytes=32 time=0ms TTL=128
Reply from 10.0.0.6: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>
```


Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Hub0
Switch1
PC-PT PC0
PC-PT PC1
PC-PT PC2
PC-PT PC3
PC-PT PC4
PC-PT PC5
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device Type Info
5.429 Switch1 Hub0 ICMP
5.430 Hub0 PC0 ICMP
5.430 Hub0 PC1 ICMP
5.430 Hub0 PC2 ICMP
7.427 -- Switch1 STP
7.428 Switch1 Hub0 STP
7.428 Switch1 PC4 STP
7.428 Switch1 PC3 STP
7.428 Switch1 PC5 STP
Reset Simulation
Constant Delay
Captured to: 7.428 s
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters - Visible Events
ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP
Edit Filters
Show All/None
Time: 00:51:21.954
Power Cycle Devices PLAY CONTROLS: Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete
Successful PC0 PC2 ICMP 0.000 N 0 (edit) (delete)
Successful PC3 PC5 ICMP 3.422 N 1 (edit) (delete)
Successful PC0 PC4 ICMP 5.423 N 2 (edit) (delete)
Search
ENG IN
10:07 AM 6/15/2023
10:15 AM 6/15/2023