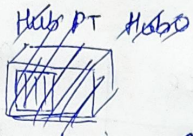
Lab-2

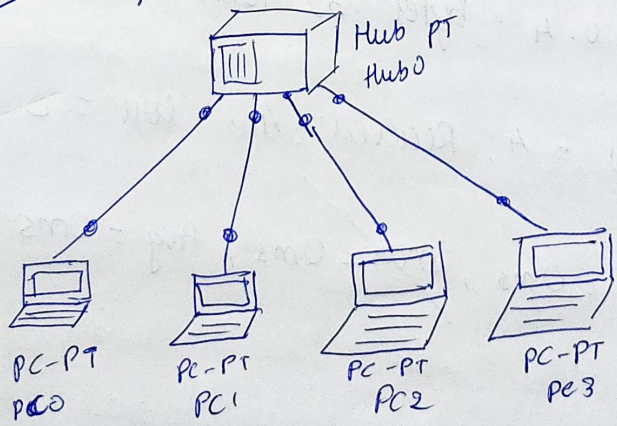
Date : 10/11/12

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

(1) Using Hub as connecting device :



* Pick 4 end devices and place it on the area.
* ~~Use~~ Pick a hub and connect it with all 4 devices.
* Configure the end devices and set their IP address 10.0.0.1, 10.0.0.2, 10.0.0.3, 10.0.0.4.
* Now, add a simple PDU from source to destination end devices.
* Go to simulation mode and click Auto Capture / Play to view the simulation.
* Or, click on the end device using ~~Comm~~ command prompt type the command "ping 10.0.0.4" to do in Realtime mode.
  ↳ can be any destination not necessarily 10.0.0.4
* We see that ~~that~~ the PDU is going from source to hub and to all the devices. But only the correct destination accepts the PDU.



(2) using switch as connecting device:

* Pick 4 end devices and place it in the area
* Pick a switch and connect ~~to~~ it with all device
* configure the end devices and set their IP addresses 10.0.0.5, 10.0.0.6, 10.0.0.7, 10.0.0.8.

Event List

Time (sec)	Last Device	At Device
0.000	---	PC0
0.001	PC0	Hub0
0.002	Hub0	PC1
0.002	Hub0	~~PC~~ PC2
0.002	Hub0	PC3
0.003	PC3	Hub0

Real time (event list):

Fire	Last Status	Source	Destination	time	Periodic
	Successful	PC0	PC3	0.000	N

command prompt (Ping)

C:>> ping 10.0.0.4

pinging 10.0.0.4 : bytes : 32 time : 0 ms

Statistics

packets : sent = 4, Recieved = 4, lost = 0

Round trip times

Minimum = 0ms, max = 0ms, Avg = 0ms

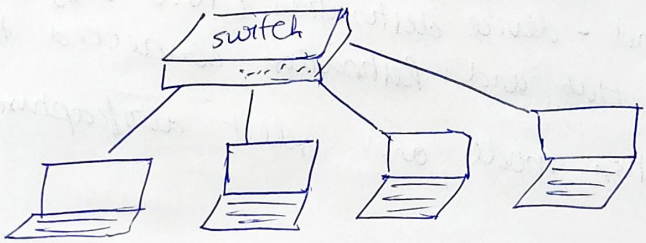
Task 2 : Using a switch :

* From device type selection box select 4 devices by clicking on end devices.

* Then select switch and connect all the devices to the switch . Configure the devices by setting the IP address : 10.0.0.5 to 10.0.0.8.

* Next in simulation mode add PDU from source to destination and click on "auto capture / Play"

* We observe that the PDU packets is being sent only to the desired device (destination)



Event list

Time (sec)	Last Device	At device
0.00	- - -	PC4
0.001	PC4	switch0
0.002	switch0	Laptop1
0.003	Laptop1	switch0
0.004	switch0	PC4

Real time :

Fire	Last Status	Source	Destination	Time	Periodic	Num
	Successful	PC4	Laptop1	0.000	N	1

Ping :

c:>> ping 10.0.0.8
pinging 10.0.0.8 with 32 bytes of data.
Reply from 10.0.0.8 bytes 32 time = 0ms TTL = 128
statistics for 10.0.0.8 ~~bytes~~
Packets sent = 4, Recieved = 4, Lost = 0,

Approx. round trip times.

min = 0 ms , max = 11 ms , Avg. = 4 ms

Task - 3

Using both hub & switch as connecting devices

Procedure:

* We form an interconnected LAN by making a connection b/w the hub & switch established previously using a copper-cross over connection.
* We add a PDU to end-device source (10.0.0.1) and to end-device destination (10.0.0.8). Source connected to Hub and Destination connected to switch.
* Enter simulation mode and select autocapture / play.

Real time

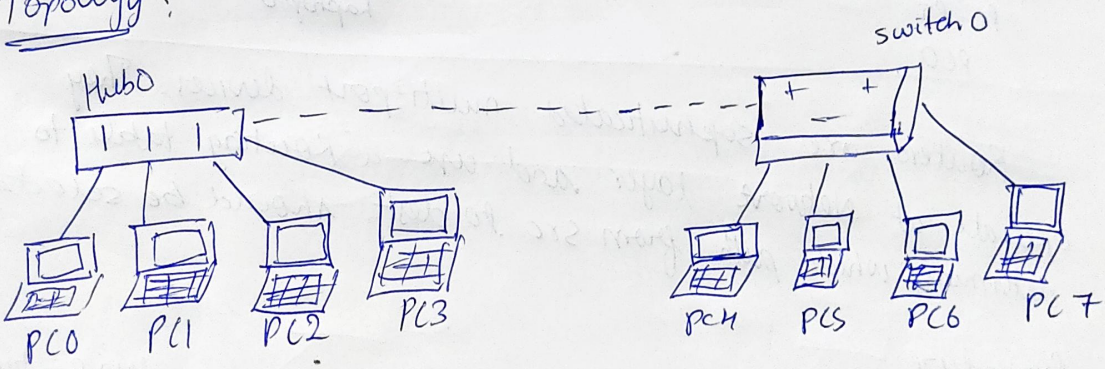
Fire	Last Status	Source	Destination	Time	Periodic
	successful	PC0	PC2	0.000	N

* message moves from source device to hub.
* Hub broadcasts the message to devices (10.0.0.2, 10.0.0.3, 10.0.0.4) and to the switch.
* The end devices reject the message.
* The switch receives the message and sends it to destination end device (10.0.0.8) directly and not to any other device.
* In the next cycle, message sent from device (10.0.0.8) goes to switch then to hub.
* Hub broadcasts it to devices (10.0.0.1, 10.0.0.2, 10.0.0.3, 10.0.0.4). Source device recieves message.

simulation model

Time	Last device	At device
0.000	- -	PC0
0.001	PC0	Hub0
0.002	Hub0	switch 0
0.003	Switch 0	PC7
0.004	PC7	Switch 0
0.005	Switch 0	Hub 0
0.006	Hub 0	PC4
0.006	Hub 0	PC3
0.006	Hub 0	PC2
0.006	Hub 0	PC1

Topology :



Ping :

C:\> ping 10.0.0.8

Pinging 10.0.0.8 with 32 bytes of data

Reply from 10.0.0.8 : bytes = 32 time = 1ms

Reply from 10.0.0.8 : bytes = 32 time = 1 ms

Reply from 10.0.0.8 : bytes = 32 time = 1 ms

Reply from 10.0.0.8 : bytes = 32 time = 1 ms

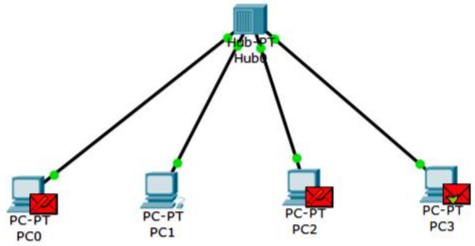
statistics ~~for~~ for 10.0.0.8

Packets = sent = 4, Recieved = 4, lost = 0

Approx round trips

minimum = 0ms, max = 1ms, Avg = 0 ms.

Logical | [Root] | New Cluster | Move Object | Set Tiled Background | Viewport



Simulation Panel

Event List

Vis.	Time(sec)	Last Devi	At Devi	Type	Info
	0.002	Hub0	PC0	ICMP	
	0.002	Hub0	PC1	ICMP	
	0.002	Hub0	PC2	ICMP	
	0.003	PC1	Hub0	ICMP	
	0.004	Hub0	PC0	ICMP	
	0.004	Hub0	PC2	ICMP	
	0.004	Hub0	PC3	ICMP	

Reset Simulation | Constant Delay | Captured to: 201.388 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: 00:06:43.415 | Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture / Forward | Event List | Simulation

Connections

Automatically Choose Connection Type

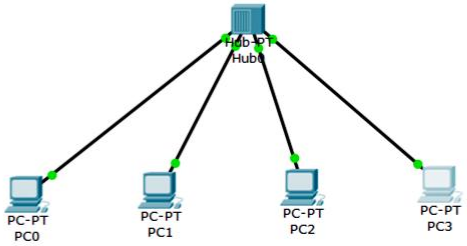
Scenario 0

New | Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
	Successful	PC3	PC1	ICMP		0.000	N	0	(edit)	(delete)

Logical | [Root] | New Cluster | Move Object | Set Tiled Background | Viewport



PC3

Physical | Config | Desktop | Custom Interface

Command Prompt

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=0ms TTL=128
Reply from 10.0.0.1: bytes=32 time=4294967295ms TTL=128
Reply from 10.0.0.1: bytes=32 time=0ms TTL=128
Reply from 10.0.0.1: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4294967295ms, Average = 1073741823ms

PC>
```

Time: 00:07:10 | Power Cycle Devices | Fast Forward Time | Realtime

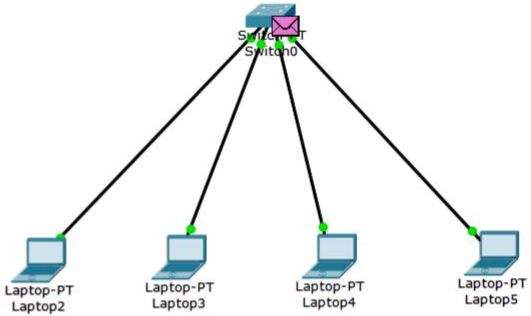
Connections

Automatically Choose Connection Type

Scenario 0 | New | Delete | Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
	Successful	PC3	PC1	ICMP		0.000	N	0	(edit)	(delete)

Logical | [Root] | New Cluster | Move Object | Set Tiled Background | Viewport



Simulation Panel

Event List

Vis.	Time(sec)	Last Devi	At Devi	Type	Info
	0.000	--	Laptop5	ICMP	
	0.001	Laptop5	Switch0	ICMP	
	0.002	Switch0	Laptop4	ICMP	
	0.003	Laptop4	Switch0	ICMP	
	0.004	Switch0	Laptop5	ICMP	
	1.526	--	Switch0	STP	

Reset Simulation | Constant Delay | Captured to: 1.526 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: 00:20:27.817 | Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture / Forward | Event List | Simulation

Connections

Automatically Choose Connection Type

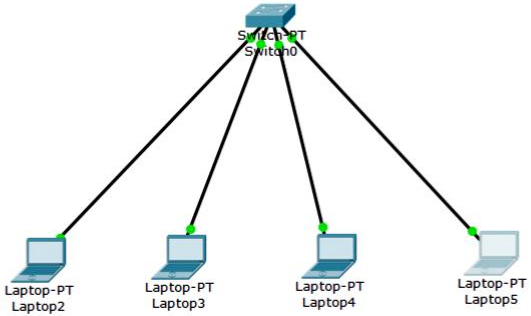
Scenario 0

New | Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
	Successful	Lapto...	Laptop4	ICMP		0.000	N	0	(edit)	(delete)

Logical | [Root] | New Cluster | Move Object | Set Tiled Background | Viewport



Laptop5

Physical | Config | Desktop | Custom Interface

Command Prompt

```
Packet Tracer PC Command Line 1.0
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=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 times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>
```

Time: 00:20:59 | Power Cycle Devices | Fast Forward Time | Realtime

Connections

Automatically Choose Connection Type

Scenario 0 | New | Delete | Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
	Successful	Lapto...	Laptop4	ICMP		0.000	N	0	(edit)	(delete)