

Computer Networks

CS361 Lab1

Name: Dipean Dasgupta

ID:202151188

CPT experiment file link: https://drive.google.com/drive/folders/1UI8C5eTIBEANsCa_-h192vQ5Zg-tgvGb?usp=sharing

Q1. Write the differences between switch and hub?

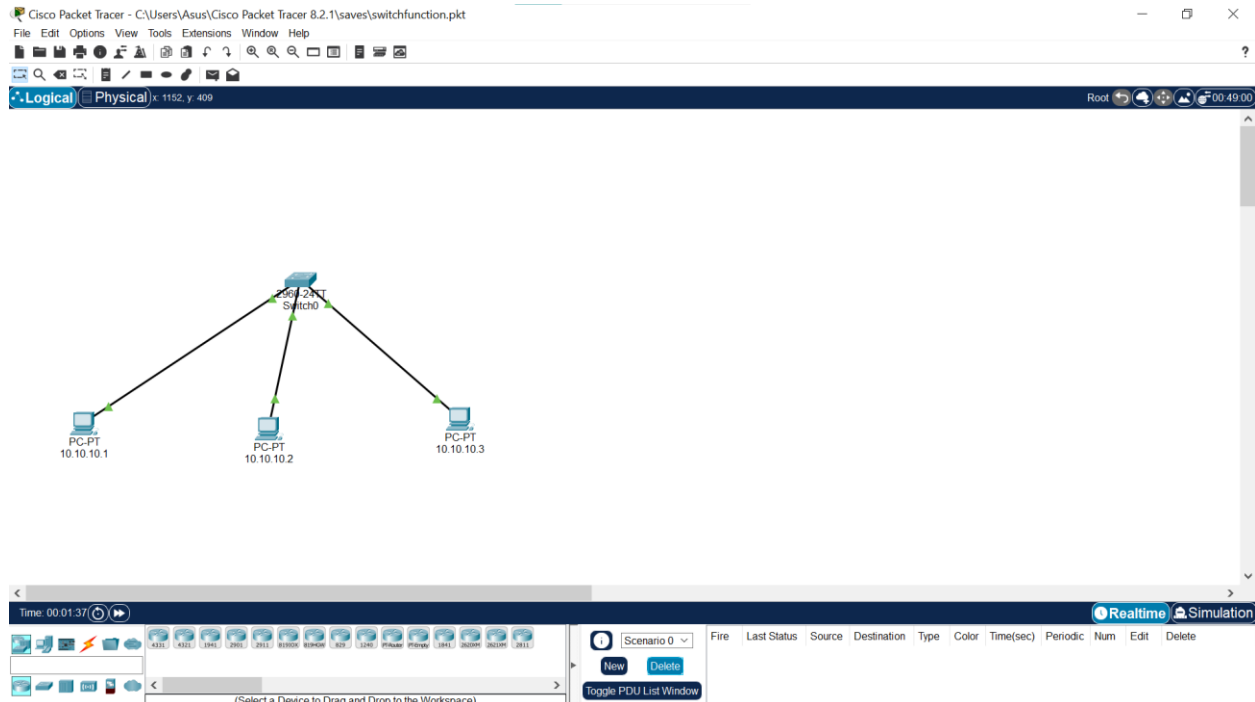
Answer:

Feature	Switch	Hub
Operation	Operates at data link layer (2 nd layer)	Operates at physical layer (1 st layer)
Data transmission	Forward to specific devices using MAC address	Broadcast data packet to all connected devices
Network Efficiency	Dedicated communication paths	No dedicated paths
Bandwidth management	Provides dedicated bandwidth to each port	Bandwidth shared equally among devices
security	More secure as data sent to specific device only	Less secure as data is broadcasted
cost	Expensive, due to advanced features	Cheaper, due to simple feature and easy to use

Continued.....

Q2. Create a small network using a switch and show that the message transferred from one end device to other is successful.

Creating network...



Checking for connection....

```
C:\>ping 10.10.10.3

Pinging 10.10.10.3 with 32 bytes of data:

Reply from 10.10.10.3: bytes=32 time<1ms TTL=128
Reply from 10.10.10.3: bytes=32 time<1ms TTL=128
Reply from 10.10.10.3: bytes=32 time<1ms TTL=128
Reply from 10.10.10.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Connection established....

Packet transfer....

Cisco Packet Tracer - C:\Users\Asus\Cisco Packet Tracer 8.2.1\saves\switchfunction.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 1480, y 320

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
0.000	--	
0.001	10.10.10.1	

Reset Simulation Constant Delay Capturing...

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:02:27.132 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

In Progress 10.10... 10.10.10.3 ICMP 0.000 N 0 (edit) (delete)

(Select a Device to Drag and Drop to the Workspace)

Cisco Packet Tracer - C:\Users\Asus\Cisco Packet Tracer 8.2.1\saves\switchfunction.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 1480, y 320

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
0.000	--	
0.001	10.10.10.1	
0.002	Switch0	

Reset Simulation Constant Delay Capturing...

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:02:27.133 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

In Progress 10.10... 10.10.10.3 ICMP 0.000 N 0 (edit) (delete)

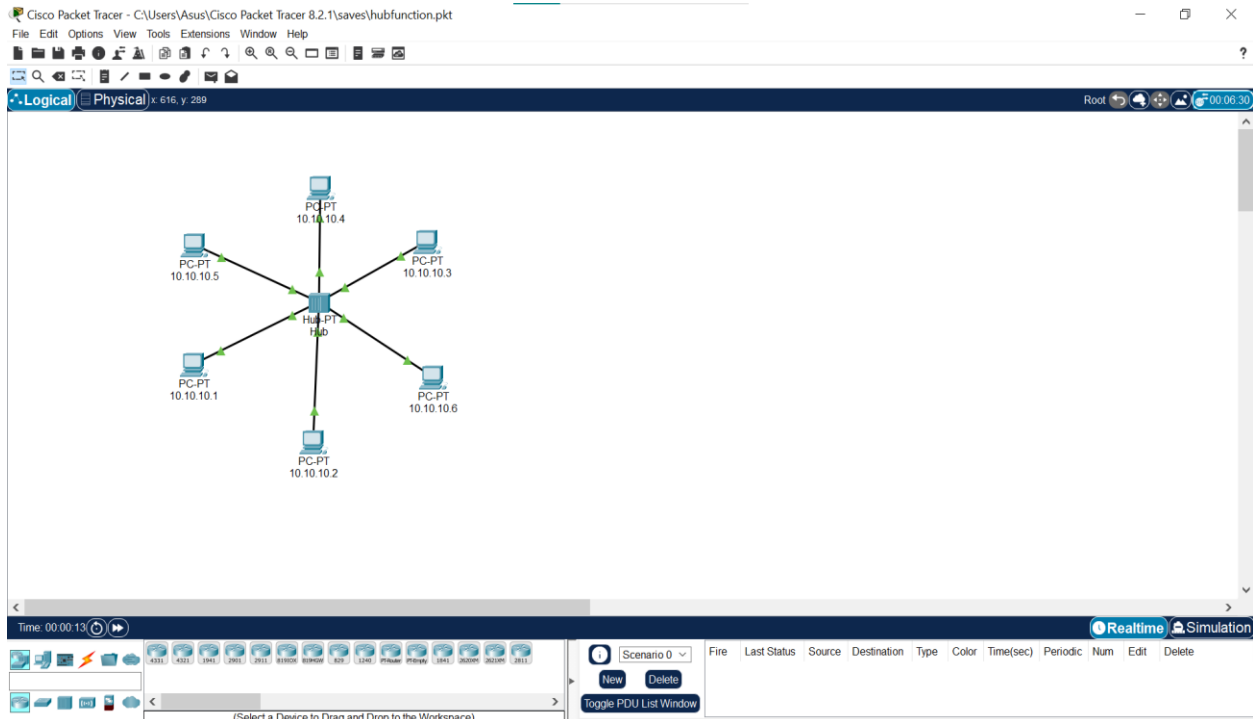
(Select a Device to Drag and Drop to the Workspace)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	10.10.10.1	10.10.10.3	ICMP		0.000	N	0	(edit)	(delete)

Packet transfer successful!! ..

Q3. Create a small network using a hub and show that the message transferred from one end device to other is successful.

Creating network...



Checking for connection....

```
C:\>ping 10.10.10.4

Pinging 10.10.10.4 with 32 bytes of data:

Reply from 10.10.10.4: bytes=32 time<1ms TTL=128
Reply from 10.10.10.4: bytes=32 time<1ms TTL=128
Reply from 10.10.10.4: bytes=32 time<1ms TTL=128
Reply from 10.10.10.4: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Connection established....

Transferring packets...

Cisco Packet Tracer - C:\Users\Asus\Cisco Packet Tracer 8.2.1\saves\hubfunction.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 1825, y 726

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	-
	0.001	10.10.10.1

Reset Simulation ☒ Constant Delay Capturing...

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PaGP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:01:19.738 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

In Progress	10.10.10.1	10.10.10.6	ICMP		0.000	N	0	(edit)	(delete)
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(Select a Device to Drag and Drop to the Workspace)

Cisco Packet Tracer - C:\Users\Asus\Cisco Packet Tracer 8.2.1\saves\hubfunction.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 1825, y 726

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	-
	0.001	10.10.10.1
	0.002	Hub
	0.002	Hub
	0.002	Hub
	0.002	Hub
	0.002	Hub

Reset Simulation ☒ Constant Delay Captured to...

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PaGP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:01:19.739 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

In Progress	10.10.10.1	10.10.10.6	ICMP		0.000	N	0	(edit)	(delete)
-------------	------------	------------	------	--	-------	---	---	--------	----------

(Select a Device to Drag and Drop to the Workspace)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	In Progress	10.10.10.1	10.10.10.6	ICMP		0.000	N	0	(edit)	(delete)

Packet transfer Successful!!

