



LAB ASSIGNMENT-8

CSN-361



Submitted by:
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Problem Statement 1:

Use CISCO packet tracer to create a network topology as shown in Fig. 1, and configure the network with Open Shortest Path First (OSPF) protocol.

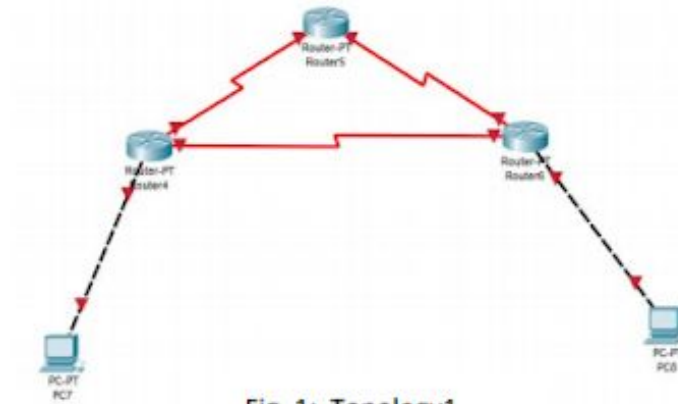


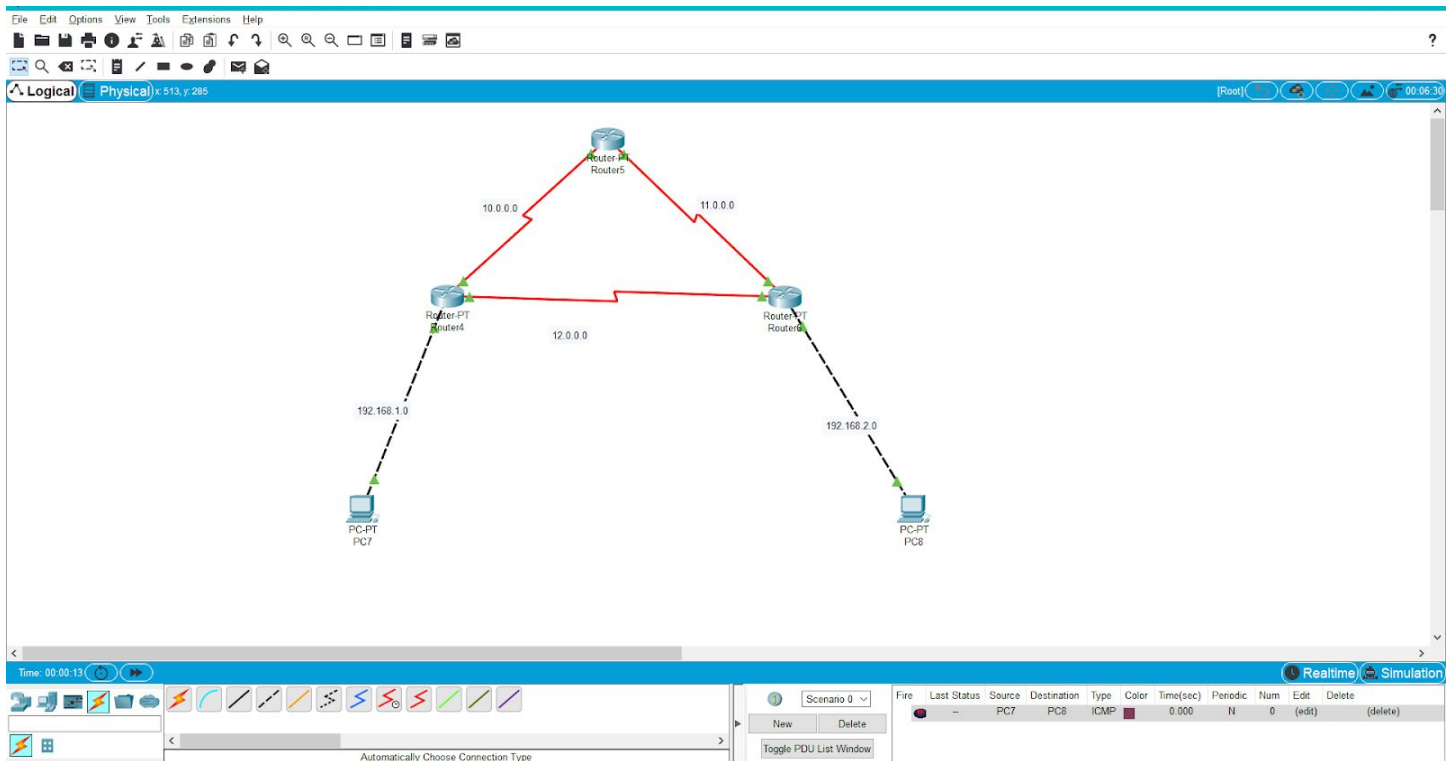
Fig. 1: Topology1

Solution

Steps:

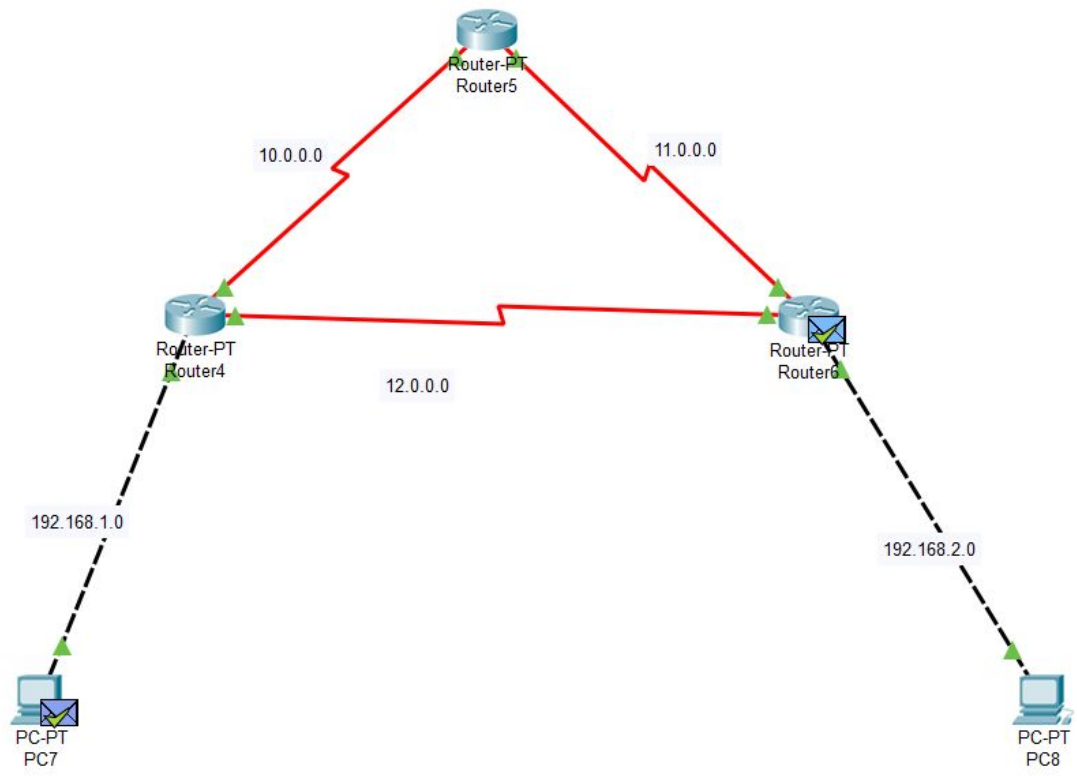
The required topology was made using 3 Routers and 2 devices.




















The 3 routers are connected in separate networks and connected with the 2 devices with separate networks as well. The routers are established as a gateway between the networks



Running picture

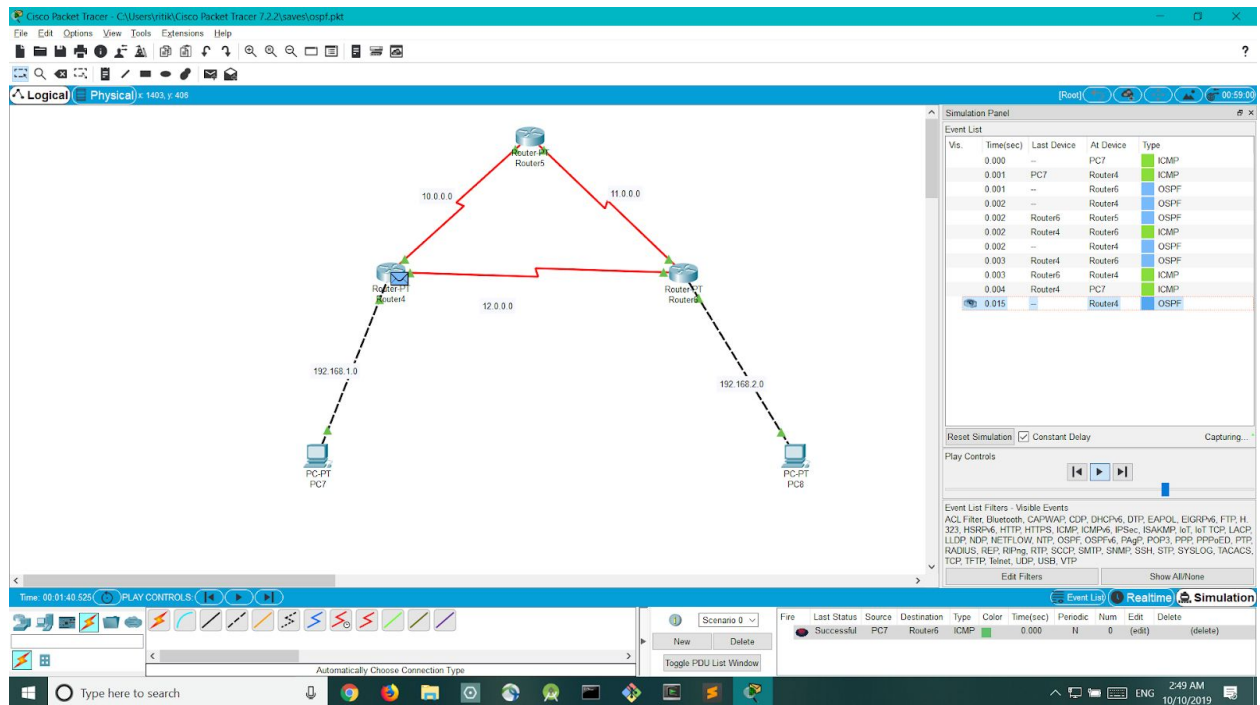
It uses ICMP to locate addresses and OSPF to find the shortest path to the destination ie, through PC7 > Router4 > Router6 > PC8 for the message and reverse order for the acknowledges message. Meanwhile, the ICMP messages are continuously exchanged between routers



Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC7	 ICMP
	0.001	PC7	Router4	 ICMP
	0.001	--	Router5	 OSPF
	0.002	Router5	Router4	 OSPF
	0.002	Router4	Router6	 ICMP
	0.003	Router6	PC8	 ICMP
	0.004	PC8	Router6	 ICMP
	0.005	Router6	Router4	 ICMP
	0.005	--	Router5	 OSPF
	0.006	Router5	Router6	 OSPF
	0.006	Router4	PC7	 ICMP
	0.011	--	Router4	 OSPF
	0.012	Router4	PC7	 OSPF
	0.019	--	Router4	 OSPF
	0.020	Router4	Router5	 OSPF
	0.032	--	Router6	 OSPF
	0.033	Router6	PC8	 OSPF
	9.998	--	Router6	 OSPF

Other Examples:

PC7 to Router 6



Problem Statement 2:

Use CISCO packet tracer to demonstrate Address Resolution Protocol (ARP) in a ring topology as shown in Fig. 2

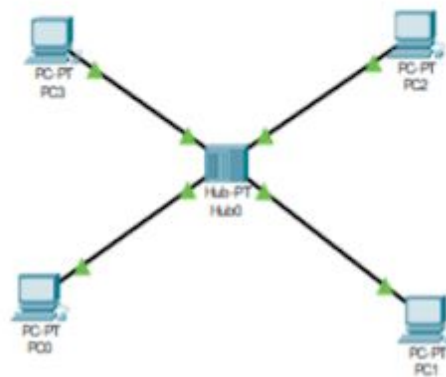
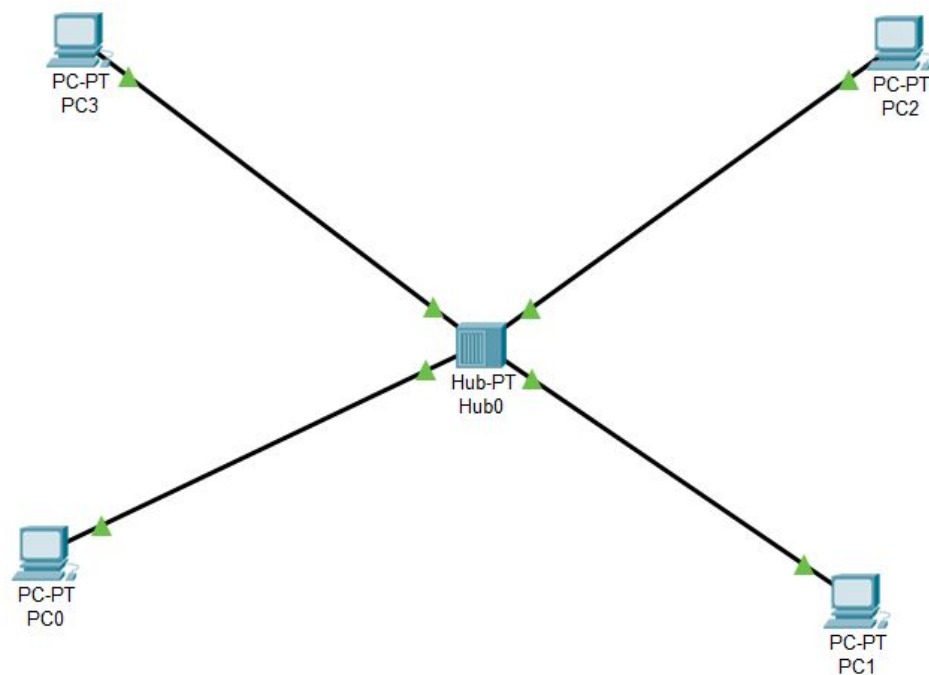


Fig. 2: Ring Topology

Steps:

Generated the required star topology using 4 devices and a central hub. The 4 devices are connected to the hub. Together, they form a network with each device having a different address. An ARP request is used to get the MAC address of devices in the network.



Running picture

According to the ARP, the request packet for PC1 is sent from PC0. The hub receives the message and sends it to all the other devices within the network. The devices with different addresses drop the message whereas the target device resends with the MAC address reply. This response is propagated to all other devices on the network by the hub. Other devices drop the packer but the target device with the matching IP process the response.

Cisco Packet Tracer - C:\Users\mish\Documents\Cisco Packet Tracer 7.2.2\saved\arp.pkt

File Edit Options View Tools Extensions Help

Logical Physical 711 x 90

```

graph TD
    Hub0[Hub0] --- PC0[PC0]
    Hub0 --- PC1[PC1]
    Hub0 --- PC2[PC2]
    Hub0 --- PC3[PC3]
  
```

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	-	PC0	ARP
	0.001	PC0	Hub0	ARP
	0.002	Hub0	PC3	ARP
	0.002	Hub0	PC2	ARP
	0.002	Hub0	PC1	ARP
	0.003	PC1	Hub0	ARP
	0.004	Hub0	PC0	ARP
	0.004	Hub0	PC3	ARP
	0.004	Hub0	PC2	ARP

Reset Simulation ☒ Constant Delay Captured to: 703.371 s

Play Controls

Event List Filters - Visible Events

AOL Filter: ARP, Bluetooth, CAPWAP, CDP, DHCPv6, DTP, EAPOL, EIGRPv6, FTP, H.323, HSRPv6, HTTP, HTTPS, ICMPv6, IPsec, ISAKMP, iot, Iot TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIPv2, RIPv3, SCOP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 01:27:52.636 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

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

Successful PC3 PC1 ICMP 0.000 N 0 (edit) (delete)

2:21 AM 10/10/2019