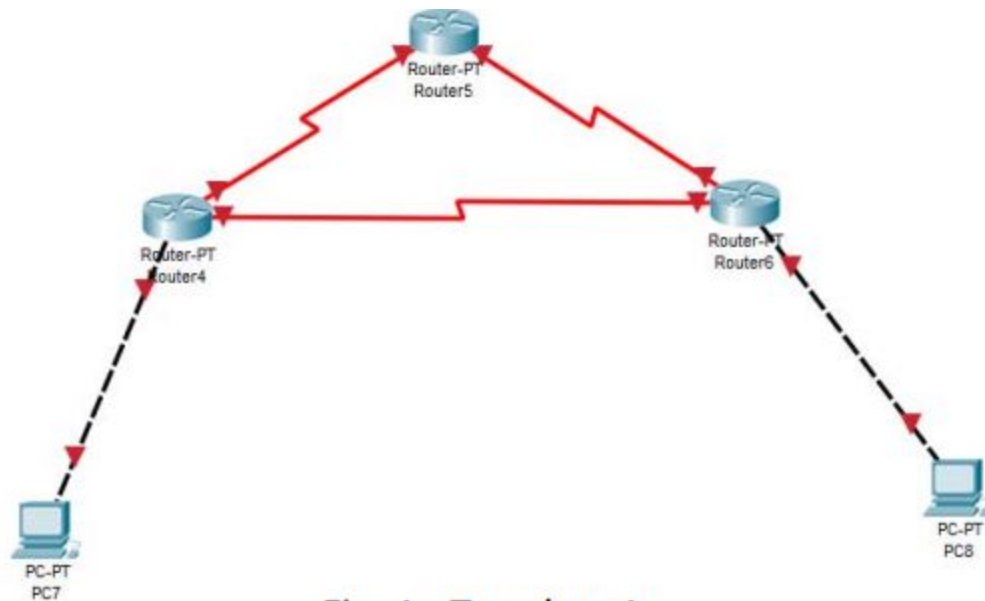


# Assignment Report

*This report contains work from **Assignment 8** of course CSN 361.*

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Class - CSE B.Tech. 3rd Year  
Submission Files - [Repository Link](#)

**QUESTION 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.

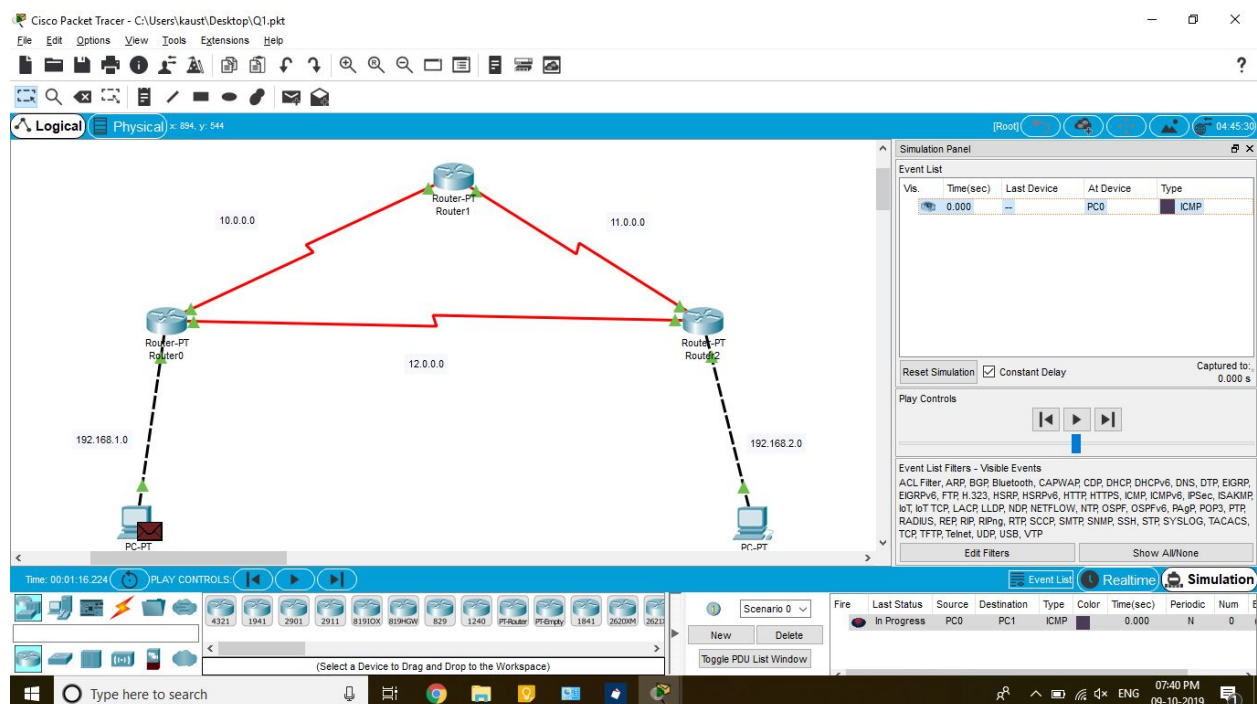


**Fig. 1: Topology1**

### SOLUTION:

Open shortest path first (OSPF) is a link-state routing protocol which is used to find the best path between the source and the destination router using its own SPF algorithm.

### SCREENSHOT:



Cisco Packet Tracer - C:\Users\kaust\Desktop\Q1.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 624, y: 509

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Router0	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.001 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDR, NETFLOW, NTP, OSPF, OSPFv6, PaGP, POP3, PTP, RADIUS, REP, RIP, RIPv2, RTR, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:01:16.225 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

07:40 PM 09-10-2019

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q1.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 737, y: 488

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Router0	ICMP
	0.002	Router0	Router2	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.002 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDR, NETFLOW, NTP, OSPF, OSPFv6, PaGP, POP3, PTP, RADIUS, REP, RIP, RIPv2, RTR, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:01:16.226 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

07:40 PM 09-10-2019

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q1.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 800, y: 488

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Router0	ICMP
	0.002	Router0	Router2	ICMP
	0.003	Router2	PC1	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.003 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDR, NETFLOW, NTP, OSPF, OSPFv6, PaGP, POP3, PTP, RADIUS, REP, RIP, RIPv2, RTR, SCCP, SMTP, SNMP, SSH, STR, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:01:16.227 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

07:40 PM 09-10-2019

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q1.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 800, y: 480

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Router0	ICMP
	0.002	Router0	Router2	ICMP
	0.003	Router2	PC1	ICMP
	0.004	PC1	Router2	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.004 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDR, NETFLOW, NTP, OSPF, OSPFv6, PaGP, POP3, PTP, RADIUS, REP, RIP, RIPv2, RTR, SCCP, SMTP, SNMP, SSH, STR, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:01:16.228 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

07:40 PM 09-10-2019

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q1.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 888, y: 481

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Router0	ICMP
	0.002	Router0	Router2	ICMP
	0.003	Router2	PC1	ICMP
	0.004	PC1	Router2	ICMP
	0.005	Router2	Router0	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.005 s

Play Controls

Event List Filters - Visible Events

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

Edit Filters Show All/None

Time: 00:01:16.229 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q1.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 747, y: 449

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Router0	ICMP
	0.002	Router0	Router2	ICMP
	0.003	Router2	PC1	ICMP
	0.004	PC1	Router2	ICMP
	0.005	Router2	Router0	ICMP
	0.006	Router0	PC0	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.006 s

Play Controls

Event List Filters - Visible Events

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

Edit Filters Show All/None

Time: 00:01:16.230 PLAY CONTROLS

Scenario 0

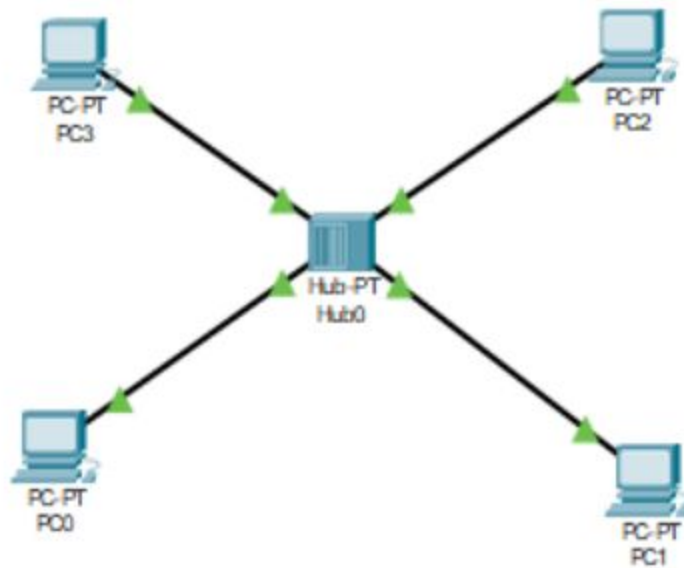
New Delete

Toggle PDU List Window

Type here to search



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



**Fig. 2: Ring Topology**

**SOLUTION:**

Most of the computer programs/applications use logical address (IP address) to send/receive messages, however the actual communication happens over the physical address (MAC address) i.e from layer 2 of OSI model. So our mission is to get the destination MAC address which helps in communicating with other devices. This is where ARP comes into the picture, its functionality is to translate IP address to physical address.

## SCREENSHOTS:

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q2.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 146, y: 702

Simulation Panel

Vis.	Time(sec)	Last Device	At Device
	0.000	PC0	PC0

Reset Simulation ☒ Constant Delay Captured to: 0.000 s

Play Controls

Event List Filters - Visible Events

ARR ICMP

Edit Filters Show All/None

Time: 00:06:23.708 PLAY CONTROLS

Router-PT-Empty

Scenario 0

New Delete

Toggle PDU List Window

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

In Progress PC0 PC3 ICMP 0.000 N 0

07:56 PM 09-10-2019

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q2.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 397, y: 733

Simulation Panel

Vis.	Time(sec)	Last Device	At Device
	0.000	PC0	PC0
	0.001	PC0	Hub0

Reset Simulation ☒ Constant Delay Captured to: 0.001 s

Play Controls

Event List Filters - Visible Events

ARR ICMP

Edit Filters Show All/None

Time: 00:06:23.708 PLAY CONTROLS

Router-PT-Empty

Scenario 0

New Delete

Toggle PDU List Window

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

In Progress PC0 PC3 ICMP 0.000 N 0

07:56 PM 09-10-2019

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q2.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 1067, y: 726

[Root] 14:13:00

Simulation Panel

Event List

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

Reset Simulation ☒ Constant Delay Captured to: 0.002 s

Play Controls

Event List Filters - Visible Events  
ARP ICMP

Edit Filters Show All/None

Time: 00:06:23.710 PLAY CONTROLS

Router-PT-Empty

Scenario 0

New Delete

Toggle PDU List Window

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

In Progress PC0 PC3 ICMP 0.000 N 0

07:57 PM 09-10-2019

Cisco Packet Tracer - C:\Users\kaust\Desktop\Q2.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 1067, y: 726

[Root] 14:15:30

Simulation Panel

Event List

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

Reset Simulation ☒ Constant Delay Captured to: 0.003 s

Play Controls

Event List Filters - Visible Events  
ARP ICMP

Edit Filters Show All/None

Time: 00:06:23.711 PLAY CONTROLS

Router-PT-Empty

Scenario 0

New Delete

Toggle PDU List Window

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

In Progress PC0 PC3 ICMP 0.000 N 0

07:57 PM 09-10-2019



Cisco Packet Tracer - C:\Users\kaust\Desktop\Q2.pkt

File Edit Options View Tools Extensions Help

Logical Physical x: 100%, y: 720

[Root] 14:18:00

Simulation Panel

Event List

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

Reset Simulation ☒ Constant Delay Captured to: 0.004 s

Play Controls

Event List Filters - Visible Events

ARP, ICMP

Edit Filters Show All/None

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
	Successful	PC0	PC3	ICMP	Green	0.000	N	0

Router-PT-Empty

Type here to search

07:57 PM 09-10-2019