VIT-AP UNIVERSITY, ANDHRA PRADESH

CSE3003 – Computer Networks - Lab Sheet: 5

Academic year: 2023-2024   **Branch/ Class:** B.Tech
Semester: Fall   **Date:**
Faculty Name: Prof. S.Gopikrishnan   **School:** SCOPE
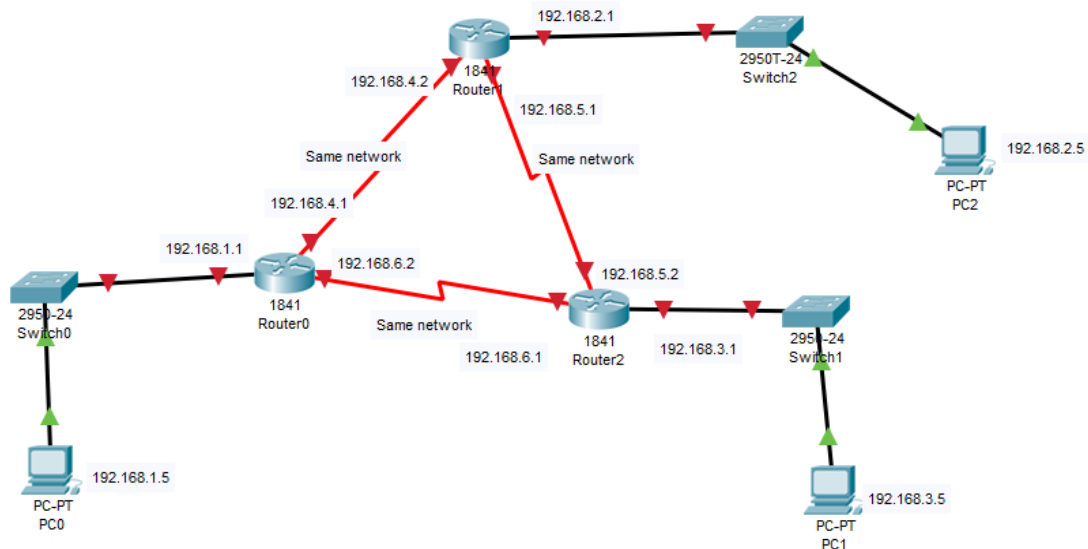**Student name:**Aman Sahu   **Reg. no.:**22BCE7224

LAB 5

1. Design and Configuring WAN using three Routers using serial DCE cables with Static Routing

Addressing Table:

Device	Interface	IP Address	Subnet Mask
PC1	NIC	192.168.1.5	255.255.255.0
PC2	NIC	192.168.2.5	255.255.255.0
PC3	NIC	192.168.3.5	255.255.255.0
Router 1 FastEthernet 0/0		192.168.1.1	255.255.255.0
Router 1 Serial 0/0		192.168.4.1	255.255.255.0
Router 1 Serial 0/1		192.168.6.2	255.255.255.0
Router 2 FastEthernet 0/0	NIC	192.168.2.1	255.255.255.0
Router 2 Serial 0/0	INC	192.168.4.2	255.255.255.0
Router 2 Serial 0/1	INC	192.168.5.1	255.255.255.0
Router 3 FastEthernet 0/0	INC	192.168.3.1	255.255.255.0
Router 3 Serial 0/0	INC	192.168.5.2	255.255.255.0
Router 3 Serial 0/1	INC	192.168.6.1	255.255.255.0

Objectives:
1. Design a WAN network using three router, three switch and 3 PCs
2. Configure 3 Routers with static routing
3. Verify the connectivity by simulation

Static Routing Table:

Router 1				
Network	192.168.2.0	11.0.0.0	192.168.3.0	12.0.0.0
Musk	255.255.255.0	255.0.0.0	255.255.255.0	255.0.0.0
Next hop	11.0.0.2	11.0.0.2	11.0.0.2	11.0.0.2
Router 2				
Network	192.168.1.0	11.0.0.0	192.168.3.0	12.0.0.0
Musk	255.255.255.0	255.0.0.0	255.255.255.0	255.0.0.0
Next hop	11.0.0.1	11.0.0.1	12.0.0.2	12.0.0.2
Router 2				
Network	192.168.1.0	11.0.0.0	12.0.0.0	192.168.2.0
Musk	255.255.255.0	255.0.0.0	255.0.0.0	255.255.255.0
Next hop	12.0.0.1	12.0.0.1	12.0.0.1	12.0.0.1

Router Configuration:

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface Serial0/0
Router(config-if)#ip address 11.0.0.1 255.0.0.0
Router(config-if)#ip address 11.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#ip route 192.168.2.0 255.255.255.0 11.0.0.2
Router(config)#ip route 11.0.0.0 255.0.0.0 11.0.0.2
Router(config)#ip route 192.168.3.0 255.255.255.0 11.0.0.2
Router(config)#ip route 12.0.0.0 255.255.255.0 11.0.0.2
Router(config)#no ip route 12.0.0.0 255.255.255.0 11.0.0.2

Router(config)#ip route 12.0.0.0 255.0.0.0 11.0.0.2
Router(config)#
%LINK-5-CHANGED: Interface Serial0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up

Router1 — Config (Static Routes)

Static Routes

Network

Mask

Next Hop

Add

Network Address

192.168.1.0/24 via 12.0.0.1

11.0.0.0/8 via 12.0.0.1

12.0.0.0/8 via 12.0.0.1

192.168.2.0/24 via 12.0.0.1

192.168.1.0/24 via 11.0.0.1

Remove

Equivalent IOS Commands

```
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

Router(config-if)#exit
Router(config)#interface Serial0/1/1
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/1, changed state to up
```

Successful	PC0	PC1	ICMP		0.000	N	0	(edit)	(delete)
Successful	PC1	PC0	ICMP		0.000	N	1	(edit)	(delete)
Successful	PC1	PC2	ICMP		0.000	N	2	(edit)	(delete)

Router2 — Config (Static Routes)

Static Routes

Network

Mask

Next Hop

Add

Network Address

192.168.1.0/24 via 11.0.0.1

11.0.0.0/8 via 11.0.0.1

192.168.3.0/24 via 12.0.0.2

12.0.0.0/8 via 12.0.0.2

Remove

Equivalent IOS Commands

```
Router(config-if)#exit
Router(config)#interface Serial0/1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

Successful	PC0	PC1	ICMP		0.000	N	0	(edit)	(delete)
Successful	PC1	PC0	ICMP		0.000	N	1	(edit)	(delete)
Successful	PC1	PC2	ICMP		0.000	N	2	(edit)	(delete)