EAST WEST UNIVERSITY

Course Name: Data Communications
Course Code: CSE350

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Lab Topic: Routing Configurations & Protocols

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1 Design Implementation

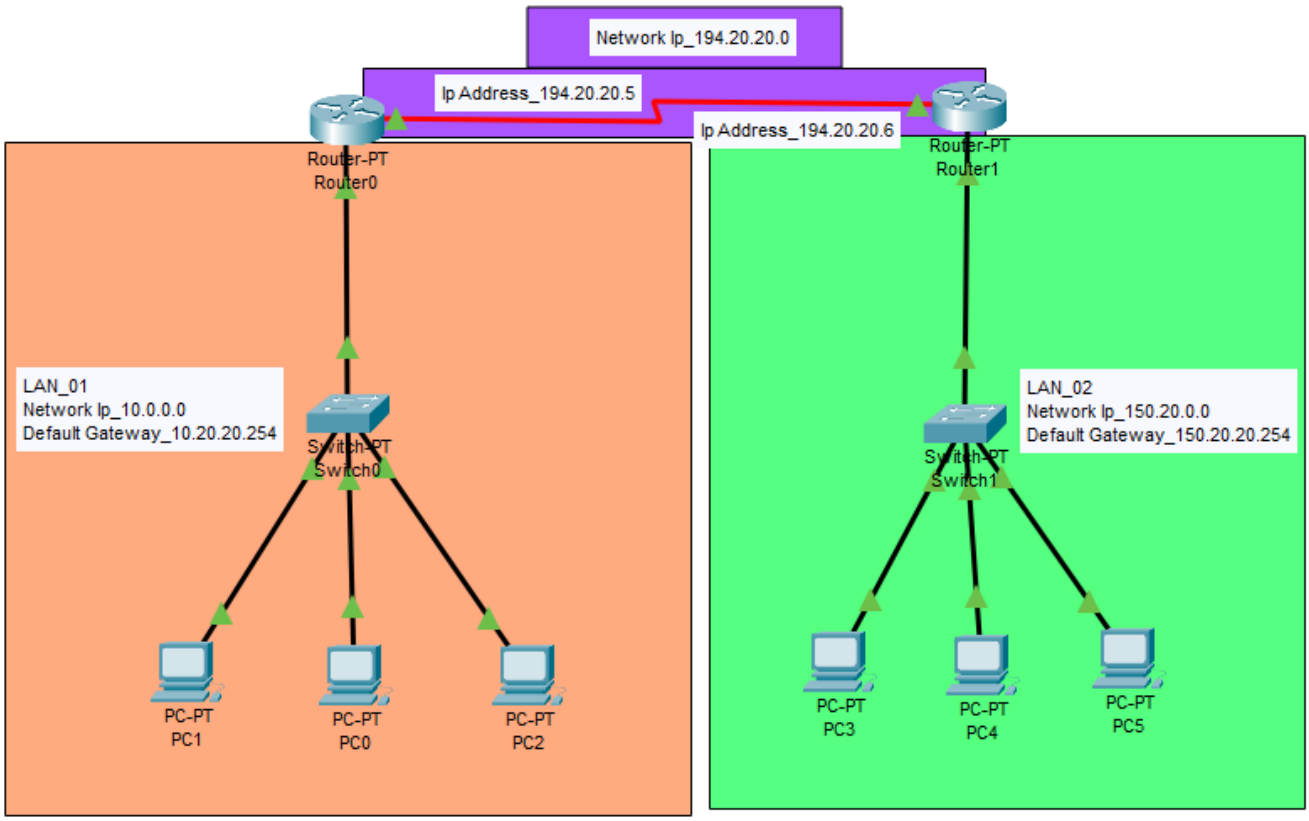


Figure 1: LAN Topology

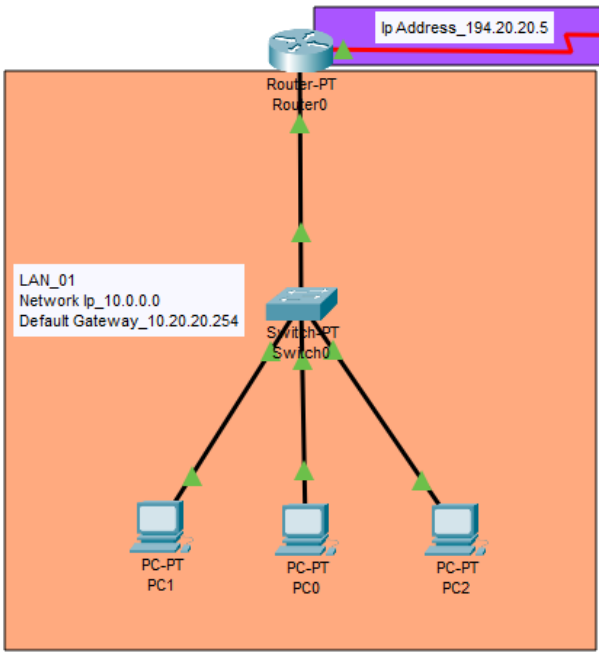
2 IP Address Allocation

The following table outlines the network topology used, including three networks and six host IP addresses, as shown below:

Network IP	Host IP
10.0.0.0	10.20.20.1
150.20.0.0	10.20.20.2
194.20.20.0	10.20.20.3
-	150.20.20.1
-	150.20.20.2
-	150.20.20.3

3 Consider Configuration of Networks and Protocols

3.1 Design of LAN 01



3.2 Configuration of the LAN 01 with FastEthernet (Fa)

```
interface fa0/0
ip address 10.20.20.254 255.0.0.0
no shut
do wr
exit
```

3.3 Configuration of the LAN 01 with Serial (Se)

```
interface se2/0
ip address 194.20.20.5 255.255.255.0
clock rate 6400
no shut
do wr
exit
```

3.4 Using Static Routing Protocol of the LAN 01

```
ip route 150.20.0.0 255.255.0.0 194.20.20.6
exit
```

3.5 Using RIP Protocol of the LAN 01

```
router rip
network 10.0.0.0
network 194.20.20.0
exit
```

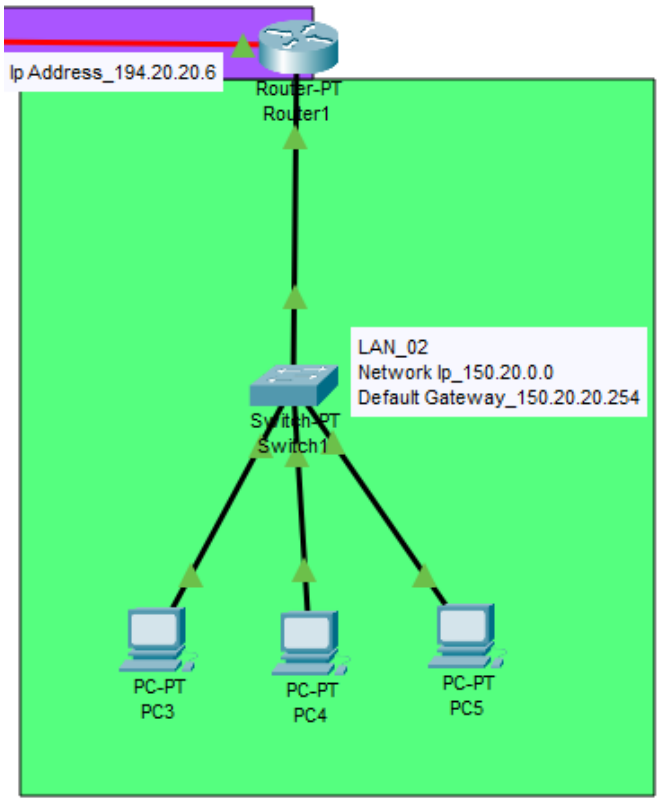
3.6 Using EIGRP Protocol of the LAN 01

```
router eigrp 1
network 10.0.0.0 0.255.255.255
network 194.20.20.0 0.0.0.255
exit
```

3.7 Using OSPF Protocol of the LAN 01

```
router ospf 1
network 10.0.0.0 0.255.255.255 area 1
network 194.20.20.0 0.0.0.255 area 1
exit
```

3.8 Design of LAN 02



3.9 Configuration of the LAN 02 with FastEthernet (Fa)

```
interface fa0/0
ip address 150.20.20.254 255.255.0.0
no shut
do wr
exit
```

3.10 Configuration of the LAN 02 with Serial (Se)

```
interface se3/0
ip address 194.20.20.6 255.255.255.0
no shut
do wr
exit
```

3.4 Using Static Routing Protocol of the LAN 02

```
ip route 10.0.0.0 255.0.0.0 194.20.20.5
exit
```

3.11 Using RIP Protocol of the LAN 02

```
router rip
network 150.20.0.0
network 194.20.20.0
exit
```

3.12 Using EIGRP Protocol of the LAN 02

```
router eigrp 1
network 150.20.0.0 0.0.255.255
network 194.20.20.0 0.0.0.255
exit
```

3.13 Using OSPF Protocol of the LAN 02

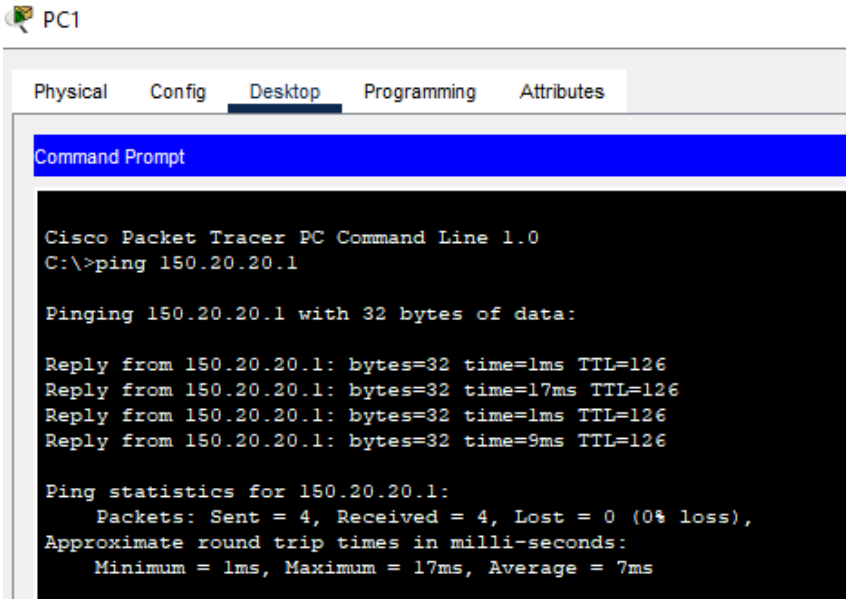
```
router ospf 1
network 150.20.0.0 0.0.255.255 area 1
network 194.20.20.0 0.0.0.255 area 1
exit
```

4 Ping Operation

Ping (Packet Internet Groper) is a network utility used to test the reach- ability of a host on an IP network and to measure the round-trip time for messages sent from the originating host to a destination computer. The basic function of the ping command is to send a series of Internet Control Message Protocol (ICMP) Echo Request messages to a target host and wait for ICMP Echo Reply messages. After configuring the network as described, the ping command is used to test connectivity. The primary test is to ping from PC1(10.20.20.1) Router0 router to PC3(150.20.20.1) Router1.

Steps:-

- Open the command prompt on PC1
- Execute the command: ping 150.20.20.1
- Observe the ping results
- The ping command should display successful replies from PC3, indicating that ICMP packets have traversed the network from PC1 and back without issues.



This output shows successful communication with the target host, indicating that the network is functioning correctly between the two points.