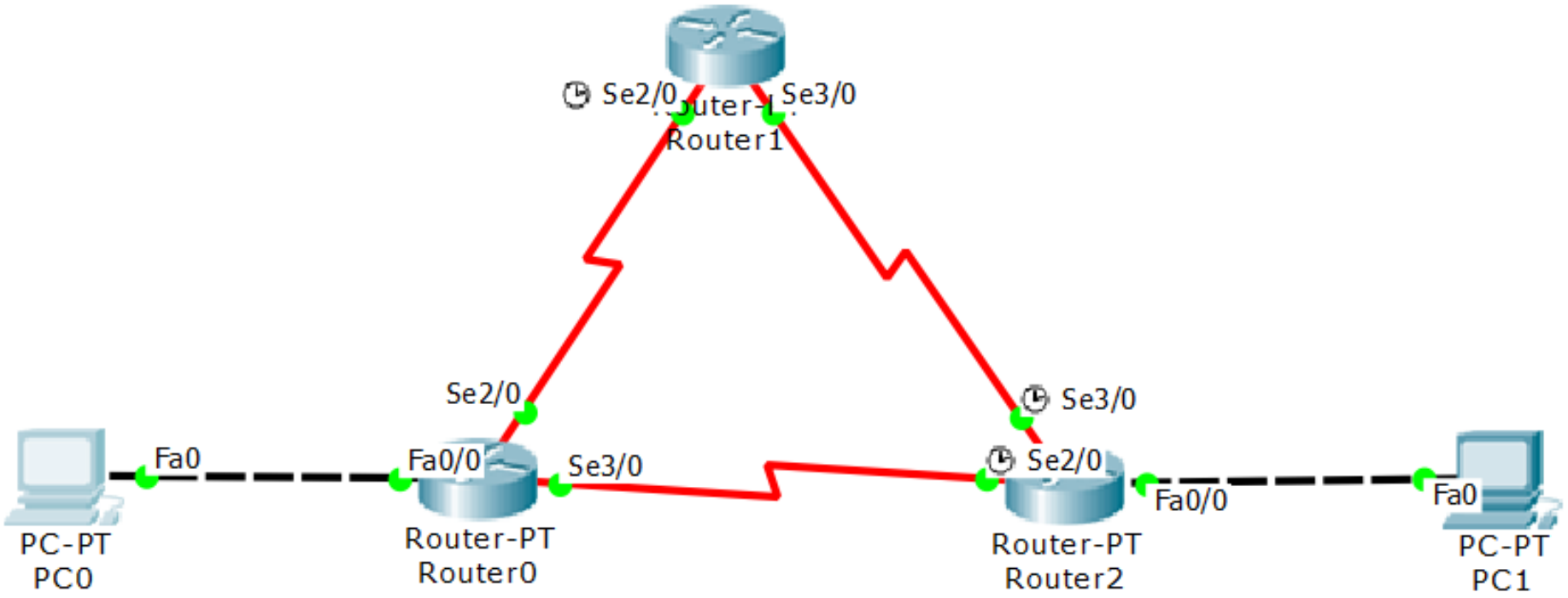
Dynamic Routing

CS F303

BITS Pilani
Dubai Campus

Dr. Pranav M. Pawar

Network Topology



Assign IP Address PC

- Assign IP address to PC0 and PC1

PC0	
IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	10.0.0.1

PC1	
IP Address	20.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	20.0.0.1

Configuring Router 0

- Configure Fa 0/0, Se 2/0, and Se 3/0 interfaces

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#ip address 192.168.0.252 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#ip address 193.167.0.219 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)# exit
Router(config)#
```

Configuring Router 1

- Configure Se 2/0 and Se 3/0

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with
    CNTL/Z.
Router(config)#interface Serial2/0
Router(config-if)#ip address 192.168.0.253 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#ip address 194.16.0.20 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)# exit
Router(config)#
```

Configuring Router 2

- Configure Fa 0/0, Se 2/0, and Se 3/0 interfaces

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#ip address 193.167.0.218 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#ip address 194.16.0.21 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)# exit
Router(config)#
```

Configure dynamic routing

- For Router 0

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#network 10.0.0.0

Router(config-router)#network 192.168.0.0

Router(config-router)#network 193.167.0.0

Configure dynamic routing

- For Router 1

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#network 192.168.0.0

Router(config-router)#network 194.16.0.0

Configure dynamic routing

- For Router 2

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

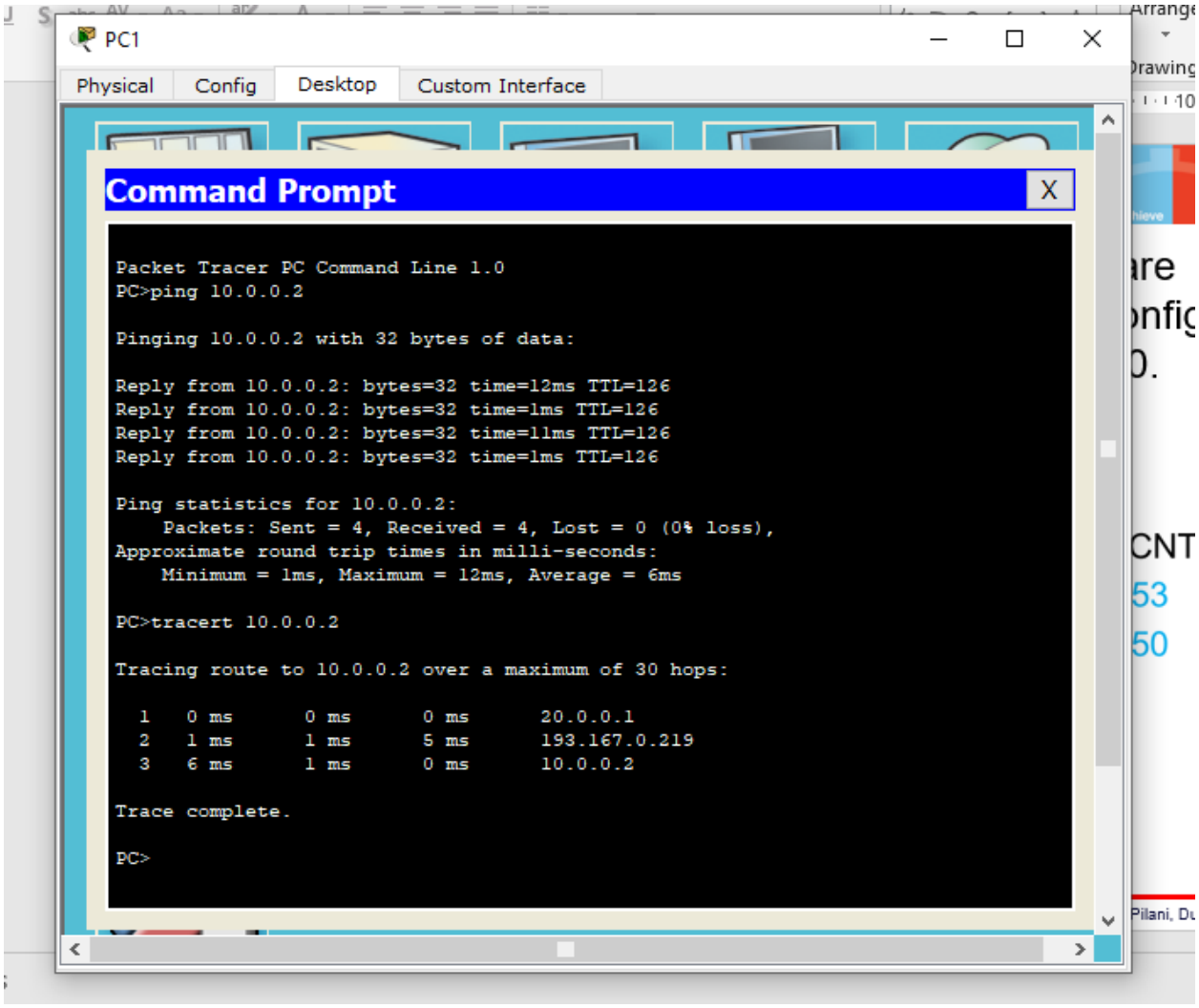
Router(config-router)#network 20.0.0.0

Router(config-router)#network 193.167.0.0

Router(config-router)#network 194.16.0.0

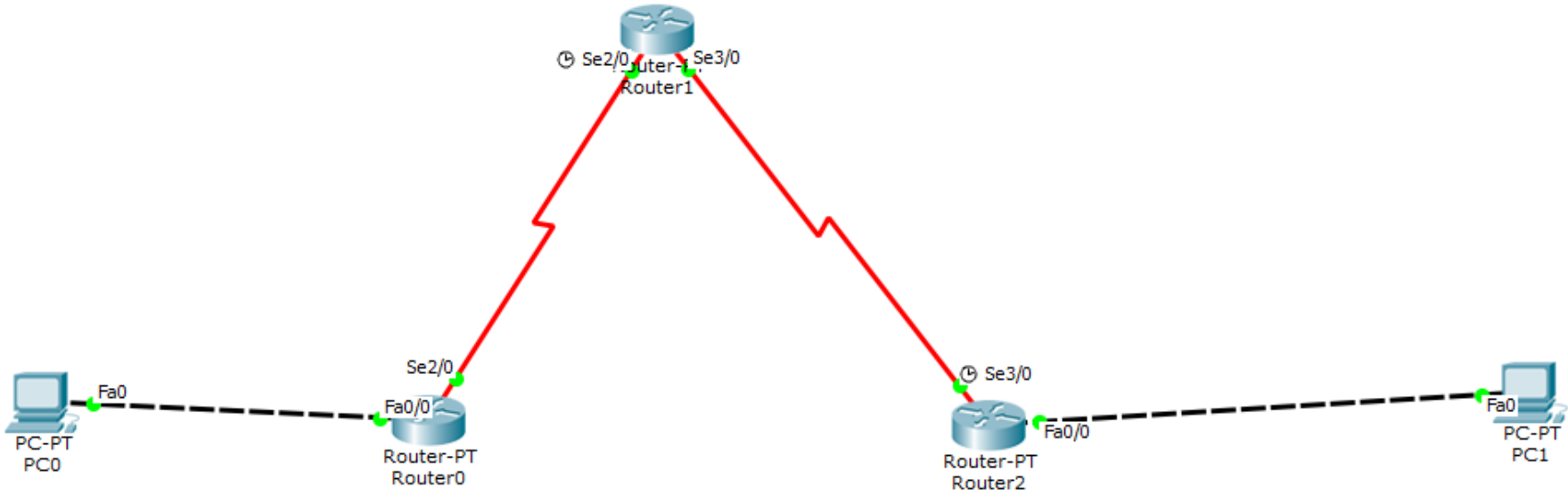
Testing of Scenario

- Ping and tracert from PC1 to PC0 and vice versa



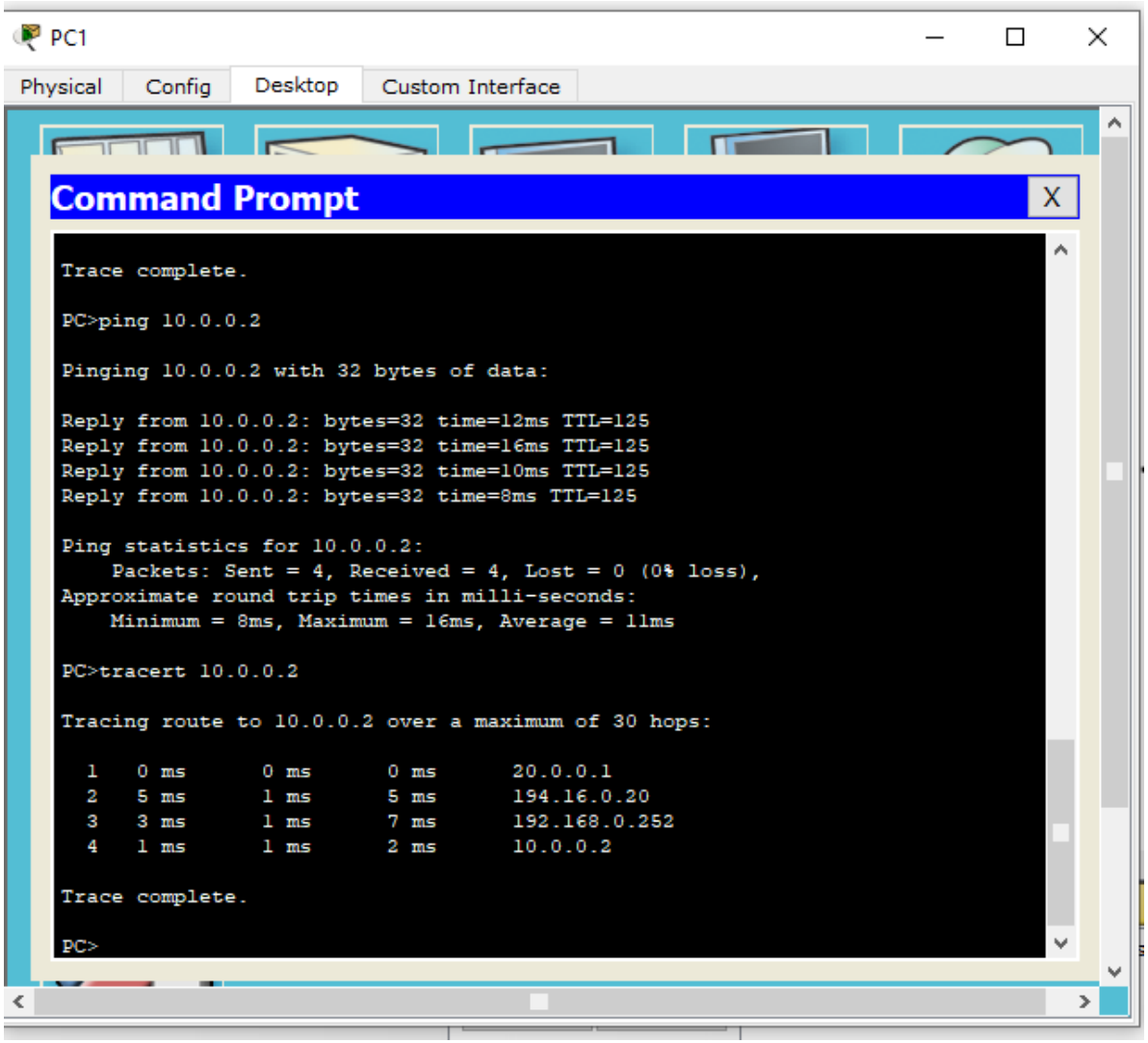
Remove Link Router 0-2

- Remove link between Router 0 and Router 2.



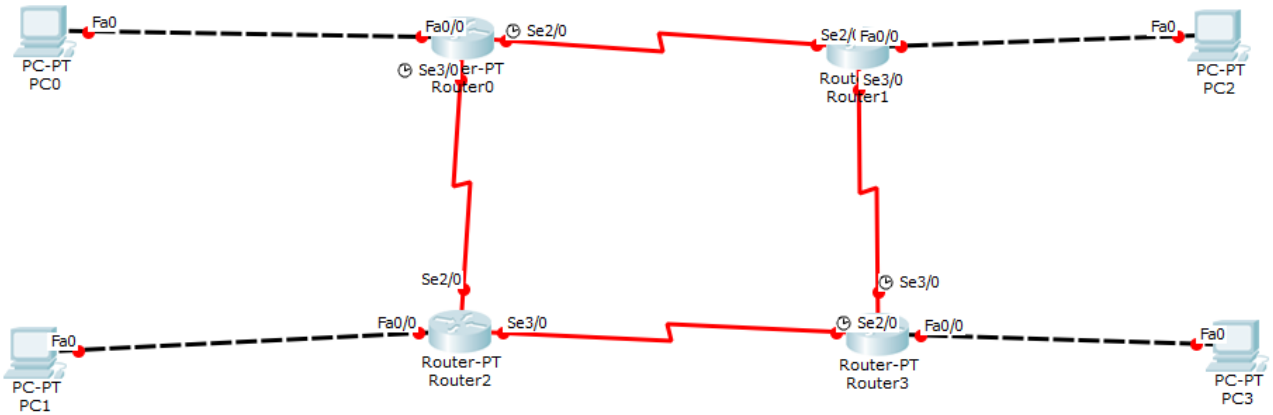
Testing of Scenario

- Ping and tracert from PC1 to PC0 and vice versa.



Practice Scenario

- Simulate the dynamic routing by considering following network scenario.



1. Ping and tracert from PC0 to PC1,PC2,PC3 and vice versa.
2. Down the link between Router 0 to Router 2, and observe the difference between tracert outcome from PC0 to PC1.

Check routing table entries on each Router


```
Router>enable
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route

Gateway of last resort is not set

C 10.0.0.0/8 is directly connected, FastEthernet0/0
R 20.0.0.0/8 [120/1] via 193.167.0.218, 00:00:21, Serial3/0
C 192.168.0.0/24 is directly connected, Serial2/0
C 193.167.0.0/24 is directly connected, Serial3/0
R 194.16.0.0/24 [120/1] via 192.168.0.253, 00:00:02, Serial2/0
[120/1] via 193.167.0.218, 00:00:21, Serial3/0
```

innovate achieve lead

BITS Pilani
Dubai Campus

Thank You!