



COMPUTER NETWORKS LAB EIGHT REPORT



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B. TECH COMPUTER SCIENCE AND ENGINEERING (SEC-C 3RD YEAR, 5TH SEMESTER)
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Lab Report: Configure RIP Version 2 (RIPv2) on Cisco Packet Tracer

Objective

This lab focuses on configuring RIP Version 2 (RIPv2) on a router to enable dynamic routing between routers using Cisco Packet Tracer. RIPv2 facilitates communication between different networks, using multicast updates, VLSM, and CIDR. This experiment demonstrates how to set up RIPv2 to improve network scalability and routing efficiency.

Procedure

Network Design:

- Two routers, Router1 and Router2, connected via a serial link.
- Two switches, SW1 and SW2, each connected to a router.
- Four PCs connected to switches.

IP Addressing Scheme:

- Network 1: 192.168.1.0/24 (PCs connected to SW1)
- Network 2: 192.168.2.0/24 (PCs connected to SW2)
- Serial Link: 10.0.0.0/30 (Link between Router1 and Router2)

Step 1: Configuring Network Addresses

Router1 Configuration:

1. Access the CLI of Router1.
 - Press ENTER to start configuration.
2. Activate Privileged Mode:
 - Type enable.
3. Access Configuration Mode:
 - Type config t.
4. Configure GigabitEthernet0/0 (connected to SW1):

```
interface GigabitEthernet0/0
ip address 192.168.1.1 255.255.255.0
no shutdown
```
5. Configure Serial0/0/0 (connected to Router2):

```
interface Serial0/0/0
ip address 10.0.0.1 255.255.255.252
clock rate 64000
no shutdown
```

Router2 Configuration:

1. Access the CLI of Router2.
 - Press ENTER to start configuration.
2. Activate Privileged Mode:
 - Type enable.
3. Access Configuration Mode:
 - Type config t.
4. Configure GigabitEthernet0/0 (connected to SW2):
 - interface GigabitEthernet0/0
 - ip address 192.168.2.1 255.255.255.0
 - no shutdown
5. Configure Serial0/0/0 (connected to Router1):
 - interface Serial0/0/0
 - ip address 10.0.0.2 255.255.255.252
 - no shutdown

Step 2: Configuring RIP Version 2

Router1 Configuration:

1. Access CLI of Router1.
2. Enter global configuration mode:
 - Command: config t
3. Enable RIP on Router1:
 - Command: router rip
4. Set RIP version to Version 2:
 - Command: version 2
5. Advertise the directly connected networks:
 - network 192.168.1.0
 - network 10.0.0.0
6. Exit RIP configuration mode:
 - Command: exit

Router2 Configuration:

1. Access CLI of Router2.
2. Enter global configuration mode:
 - Command: config t
3. Enable RIP on Router2:
 - Command: router rip
4. Set RIP version to Version 2:
 - Command: version 2
5. Advertise the directly connected networks:
 - network 192.168.2.0
 - network 10.0.0.0
6. Exit RIP configuration mode:
 - Command: exit

Step 3: Configuring PCs

PC0 and PC1 (connected to SW1) Configuration:

1. Go to the desktop of PC0 and PC1, select IP Configuration, and assign:
 - PC0: IP Address: 192.168.1.2, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.1.1
 - PC1: IP Address: 192.168.1.3, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.1.1

PC2 and PC3 (connected to SW2) Configuration:

1. Go to the desktop of PC2 and PC3, select IP Configuration, and assign:
 - PC2: IP Address: 192.168.2.2, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.2.1
 - PC3: IP Address: 192.168.2.3, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.2.1

Step 4: Verifying RIP Configuration

1. Test Connectivity Between Networks:
 - Open the command prompt on PC0.
 - Type ping 192.168.2.2 (ping PC2 from PC0).
 - Observe a successful response, confirming the connection.
2. Verify RIP Configuration on Routers:
 - On Router1 CLI, type show ip route to display the routing table.
 - Look for the RIPv2 routes that include the 192.168.2.0 network.
 - On Router2 CLI, type show ip route to display the routing table.
 - Look for the RIPv2 routes that include the 192.168.1.0 network.

Step 5: Testing with Simulation Mode

1. Sending a PDU from PC0 to PC2:
 - Open Simulation Mode in Packet Tracer.
 - Send a PDU from PC0 to PC2 (IP address: 192.168.2.2).
 - Observe the packet traveling from PC0 through Router1, then Router2, to PC2.
 - Ensure the return packet follows the reverse path, confirming successful routing.
2. Acknowledgment Packet:
 - Observe the acknowledgment packet traveling back from PC2 to PC0, confirming the RIP routing is properly set up.

Conclusion

This lab demonstrated the configuration of RIPv2 in Cisco Packet Tracer. The successful exchange of PDUs between PCs on different networks and the routing tables' correct entries confirmed proper RIPv2 operation. The RIP Version 2 protocol efficiently handled classless routing, ensuring the correct advertisement and forwarding of routes.

Screenshot

