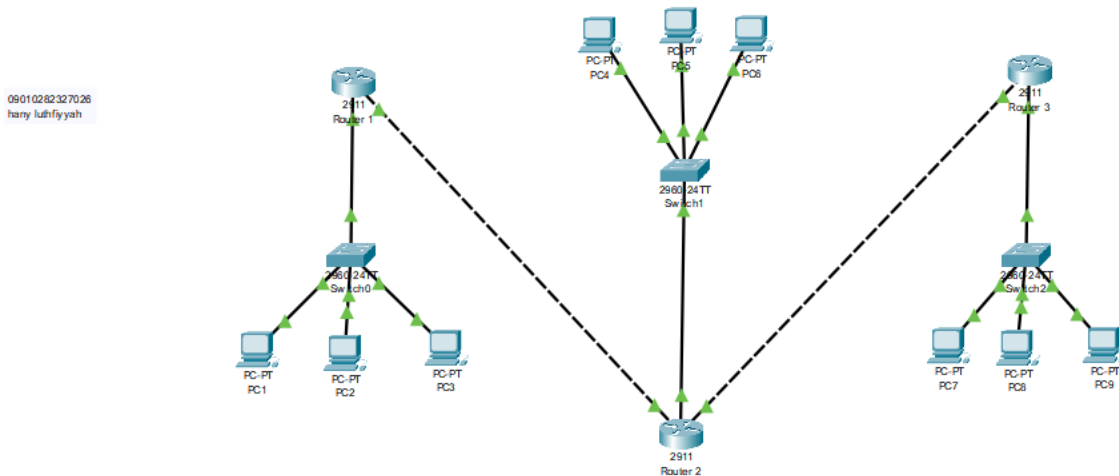


Nama : Hany Luthfiyyah
 NIM : 09010282327026
 Kelas : MI 3A
 Mata Kuliah : Praktikum Jarkom



Gambar 11.3 Topologi Percobaan Routing Static

1. Buat topologi seperti yang ditunjukkan pada gambar di atas
2. Berikut rentang IP Address pada router

No	Nama Group	Range Alamat	Netmask
1	R1	192.168.2.2 – 192.168.2.254	255.255.255.0
2	R2	192.168.20.2 – 192.168.20.254	255.255.255.0
3	R3	192.168.40.2 – 192.168.40.254	255.255.255.0

Tabel 11.2 Pengalamatan PC Client

3. Konfigurasi setiap Router dengan konfigurasi inisial dan pengalamatan

Simpan konfigurasi ke NVRAM

4. Konfigurasi Dynamic Routing disetiap Router

Routing Information Protocol (RIP) adalah sebuah protokol routing yang termasuk dalam kategori distance-vector dan interior gateway (IGP). Protokol ini digunakan oleh router untuk bertukar informasi routing. Dalam RIP, hop count digunakan sebagai metrik routing. Untuk mencegah terjadinya looping dalam routing, RIP menetapkan batas maksimum jumlah hop yang diizinkan dalam jalur dari sumber ke tujuan. Batas maksimum hop yang diizinkan oleh RIP adalah 15, yang sekaligus membatasi ukuran jaringan yang dapat didukung oleh protokol ini. RIP versi 2 (RIPv2) adalah pengembangan lebih lanjut dari RIP.

Router 1

```
R1#configure terminal
R1(config)#hostname R1
R1(config)#interface GigabitEthernet 0/0
R1(config-if)#ip address 192.168.2.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#interface GigabitEthernet 0/1
R1(config-if)#ip address 10.10.10.1 255.255.255.252
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#router rip
R1(config-router)#version 2
R1(config-router)#network 192.168.2.0
R1(config-router)#network 10.10.10.0
R1(config-router)#exit
R1#copy running-config startup-config
Building configuration...
[OK]
```

Router 2

```
R2#configure terminal
R2(config)#hostname R2
R2(config)#interface GigabitEthernet 0/0
R2(config-if)#ip address 192.168.20.1 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#exit
R2(config)#interface GigabitEthernet 0/1
R2(config-if)#ip address 10.10.10.2 255.255.255.252
R2(config-if)#no shutdown
R2(config-if)#exit
R2(config)#interface GigabitEthernet 0/2
R2(config-if)#ip address 10.20.10.1 255.255.255.252
R2(config-if)#no shutdown
```

```
R2(config-if)#exit
R2(config)#router rip
R2(config-router)#version 2
R2(config-router)#network 192.168.20.0
R2(config-router)#network 10.10.10.0
R2(config-router)#network 10.20.10.0
R2(config-router)#exit
R2#copy running-config startup-config
Building configuration...
[OK]
```

Router 3

```
R3#configure terminal
R3(config)#hostname R3
R3(config)#interface GigabitEthernet 0/0
R3(config-if)#ip address 192.168.40.1 255.255.255.0
R3(config-if)#no shutdown
R3(config-if)#exit
R3(config)#interface GigabitEthernet 0/2
R3(config-if)#ip address 10.20.10.2 255.255.255.252
R3(config-if)#no shutdown
R3(config-if)#exit
R3(config)#router rip
R3(config-router)#version 2
R3(config-router)#network 192.168.40.0
R3(config-router)#network 10.20.10.0
R3(config-router)#exit
R3#copy running-config startup-config
Building configuration...
[OK]
```

Melihat Tabel Routing R1

R1#show ip route

```
R1#show ip route
Codes: L - local, C - connected, S - static, 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

    10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C       10.10.10.0/30 is directly connected, GigabitEthernet0/1
L       10.10.10.1/32 is directly connected, GigabitEthernet0/1
S       10.20.10.0/30 [1/0] via 10.10.10.2
    192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.2.0/24 is directly connected, GigabitEthernet0/0
L       192.168.2.1/32 is directly connected, GigabitEthernet0/0
S       192.168.20.0/24 [1/0] via 10.10.10.2
    192.168.40.0/24 is variably subnetted, 2 subnets, 2 masks
R       192.168.40.0/24 [120/2] via 10.10.10.2, 00:00:29, GigabitEthernet0/1
S       192.168.40.0/30 [1/0] via 10.20.10.2
```

Melihat Tabel Routing R2

R2#show ip route

```
R2#show ip route
Codes: L - local, C - connected, S - static, 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

    10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C       10.10.10.0/30 is directly connected, GigabitEthernet0/1
L       10.10.10.2/32 is directly connected, GigabitEthernet0/1
C       10.20.10.0/30 is directly connected, GigabitEthernet0/2
L       10.20.10.1/32 is directly connected, GigabitEthernet0/2
S       192.168.2.0/24 [1/0] via 10.10.10.1
    192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.20.0/24 is directly connected, GigabitEthernet0/0
L       192.168.20.1/32 is directly connected, GigabitEthernet0/0
S       192.168.40.0/24 [1/0] via 10.20.10.2
```

Melihat Tabel Routing R3

R3#show ip route

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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

    10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
R       10.10.10.0/30 [120/1] via 10.20.10.1, 00:00:25, GigabitEthernet0/2
C       10.20.10.0/30 is directly connected, GigabitEthernet0/2
L       10.20.10.2/32 is directly connected, GigabitEthernet0/2
S       192.168.2.0/24 [1/0] via 10.10.10.1
S       192.168.20.0/24 [1/0] via 10.10.10.2
    192.168.40.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.40.0/24 is directly connected, GigabitEthernet0/0
L       192.168.40.1/32 is directly connected, GigabitEthernet0/0
```

Pada setiap router, dapat dilihat konfigurasi routing dinamis dengan ditandai oleh “D”

Tes Koneksi ICMP (catat hasil yang anda dapatkan)

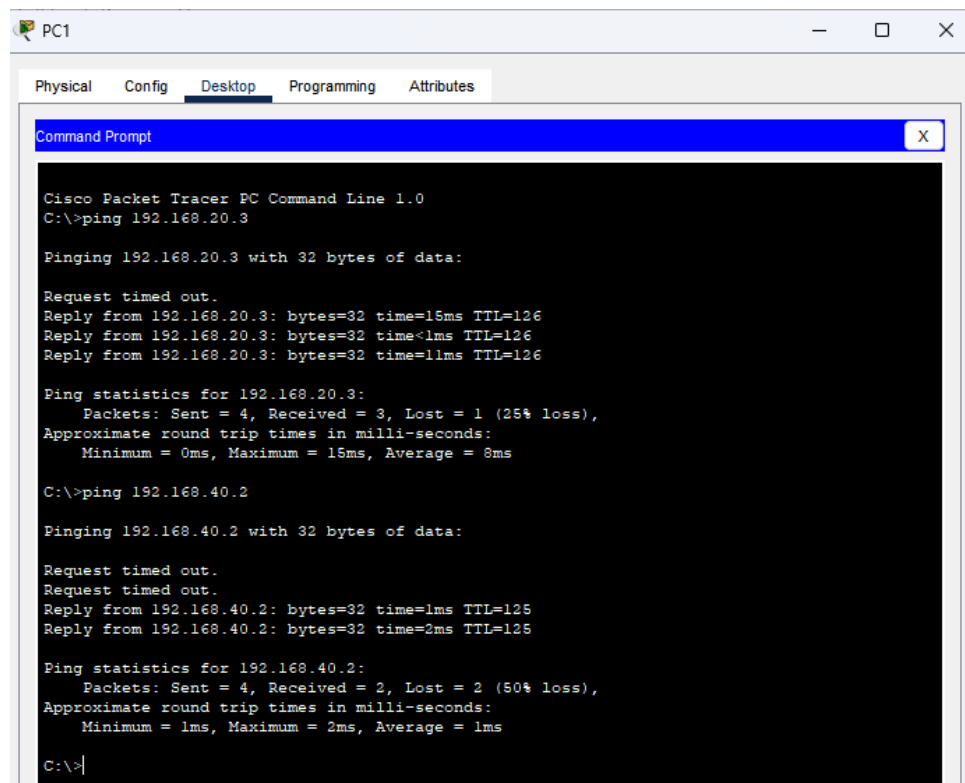
No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PC1	PC2	Ya	
		PC3	Ya	
		PC4	Ya	
		PC5	Ya	
		PC6	Ya	
		PC7	Ya	
		PC8	Ya	
		PC9	Ya	

2	PC4	PC1	Ya	
		PC2	Ya	
		PC3	Ya	
		PC5	Ya	
		PC6	Ya	
		PC7	Ya	
		PC8	Ya	
		PC9	Ya	
3	PC7	PC1	Ya	
		PC2	Ya	
		PC3	Ya	
		PC4	Ya	
		PC5	Ya	
		PC7	Ya	
		PC8	Ya	
		PC9	Ya	

Screenshot hasil Ping pada cmd PC:

PC1 -> PC5

PC1 -> PC7



The screenshot shows a Cisco Packet Tracer PC window for PC1. The 'Desktop' tab is active, displaying a Command Prompt window. The Command Prompt shows the execution of two ping commands. The first command is 'ping 192.168.20.3', which results in 3 successful replies and 1 lost packet (25% loss). The second command is 'ping 192.168.40.2', which results in 2 successful replies and 2 lost packets (50% loss).

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.3

Pinging 192.168.20.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.20.3: bytes=32 time=15ms TTL=126
Reply from 192.168.20.3: bytes=32 time<1ms TTL=126
Reply from 192.168.20.3: bytes=32 time=11ms TTL=126

Ping statistics for 192.168.20.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 15ms, Average = 8ms

C:\>ping 192.168.40.2

Pinging 192.168.40.2 with 32 bytes of data:

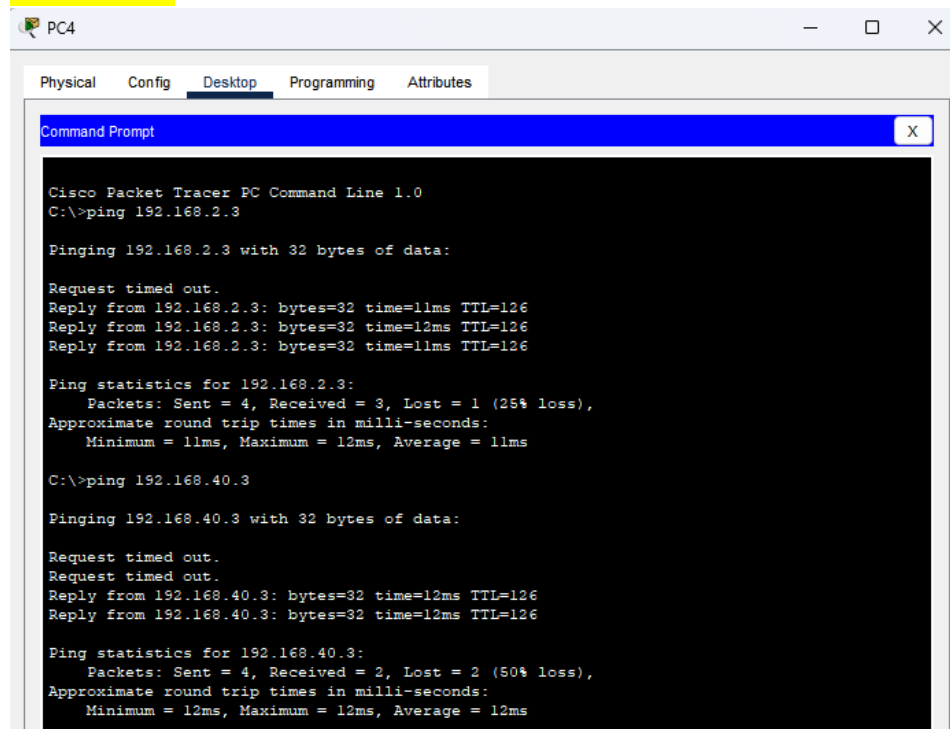
Request timed out.
Request timed out.
Reply from 192.168.40.2: bytes=32 time=1ms TTL=125
Reply from 192.168.40.2: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.40.2:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\>
```

PC4 -> PC2

PC4 -> PC8



The screenshot shows a Cisco Packet Tracer PC window for PC4. The 'Desktop' tab is active, displaying a Command Prompt window. The Command Prompt shows the execution of two ping commands. The first command is 'ping 192.168.2.3', which results in 3 successful replies and 1 lost packet (25% loss). The second command is 'ping 192.168.40.3', which results in 2 successful replies and 2 lost packets (50% loss).

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.3

Pinging 192.168.2.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.3: bytes=32 time=11ms TTL=126
Reply from 192.168.2.3: bytes=32 time=12ms TTL=126
Reply from 192.168.2.3: bytes=32 time=11ms TTL=126

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 11ms, Maximum = 12ms, Average = 11ms

C:\>ping 192.168.40.3

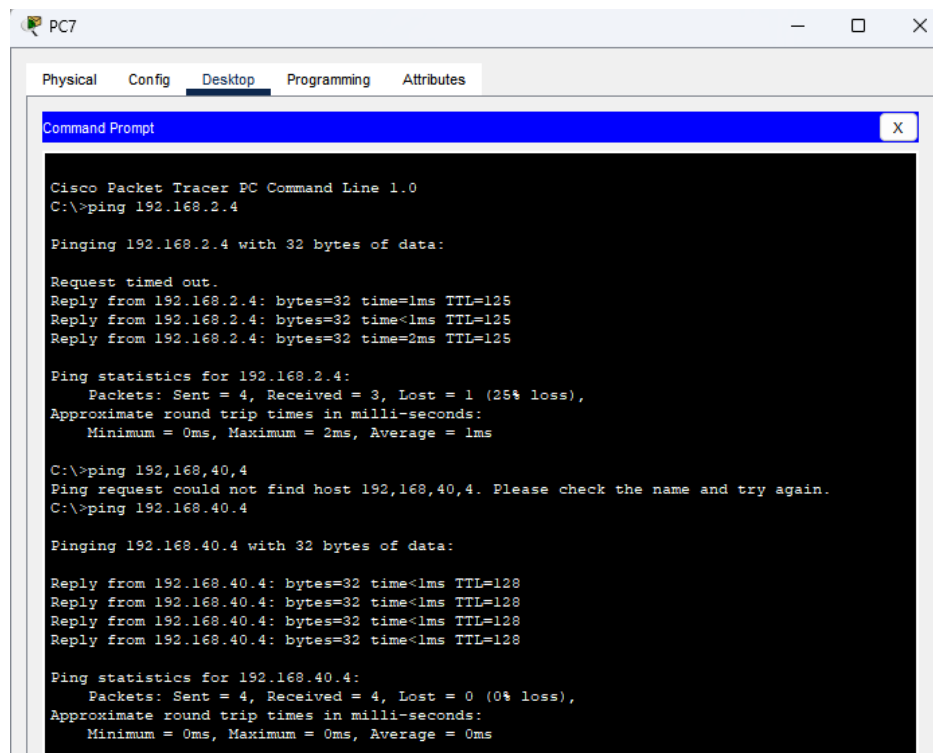
Pinging 192.168.40.3 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 192.168.40.3: bytes=32 time=12ms TTL=126
Reply from 192.168.40.3: bytes=32 time=12ms TTL=126

Ping statistics for 192.168.40.3:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 12ms, Maximum = 12ms, Average = 12ms
```

PC7 -> PC3

PC7 -> PC9



```
PC7
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.4

Pinging 192.168.2.4 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.4: bytes=32 time=1ms TTL=125
Reply from 192.168.2.4: bytes=32 time<1ms TTL=125
Reply from 192.168.2.4: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.2.4:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 1ms

C:\>ping 192.168.40.4
Ping request could not find host 192.168.40.4. Please check the name and try again.
C:\>ping 192.168.40.4

Pinging 192.168.40.4 with 32 bytes of data:

Reply from 192.168.40.4: bytes=32 time<1ms TTL=128
Reply from 192.168.40.4: bytes=32 time<1ms TTL=128
Reply from 192.168.40.4: bytes=32 time<1ms TTL=128
Reply from 192.168.40.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.40.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Hasil Praktikum

Pengujian Konektivitas Antar Perangkat:

- PC1: Berhasil melakukan ping ke PC5 (192.168.20.3) dan PC7 (192.168.40.2).
- PC4: Berhasil melakukan ping ke PC2 (192.168.2.3) dan PC8 (192.168.40.3).
- PC7: Berhasil melakukan ping ke PC3 (192.168.2.4) dan PC9 (192.168.40.4).

Pengamatan Routing Table:

- R1: Routing table menunjukkan rute ke jaringan 192.168.2.0, 192.168.20.0, dan 192.168.40.0. Rute ke jaringan 192.168.20.0 dan 192.168.40.0 didapatkan melalui RIP.
- R2: Routing table menunjukkan rute ke jaringan 192.168.2.0, 192.168.20.0, dan 192.168.40.0. Rute ke jaringan 192.168.2.0 didapatkan melalui RIP.
- R3: Routing table menunjukkan rute ke jaringan 192.168.2.0, 192.168.20.0, dan 192.168.40.0. Rute ke jaringan 192.168.2.0 dan 192.168.20.0 didapatkan melalui RIP.

Analisa

- Berdasarkan hasil pengujian konektivitas, terlihat bahwa komunikasi antar perangkat berhasil dilakukan.
- Rute yang dikonfigurasi pada router berhasil dipelajari oleh setiap perangkat, sehingga proses komunikasi dapat berjalan dengan lancar.
- Routing table yang dikonfigurasi pada router menunjukkan bahwa RIP berhasil menjalankan tugasnya sebagai protokol routing dinamis untuk memperbarui rute secara otomatis.
-

Kesimpulan

- Praktikum ini berhasil menunjukkan cara mengkonfigurasi RIP pada router dan mengujinya.
- RIP terbukti efektif dalam memperbarui rute secara otomatis, sehingga komunikasi antar perangkat dapat berjalan dengan lancar.
- RIP merupakan protokol routing yang mudah dikonfigurasi dan diimplementasikan.