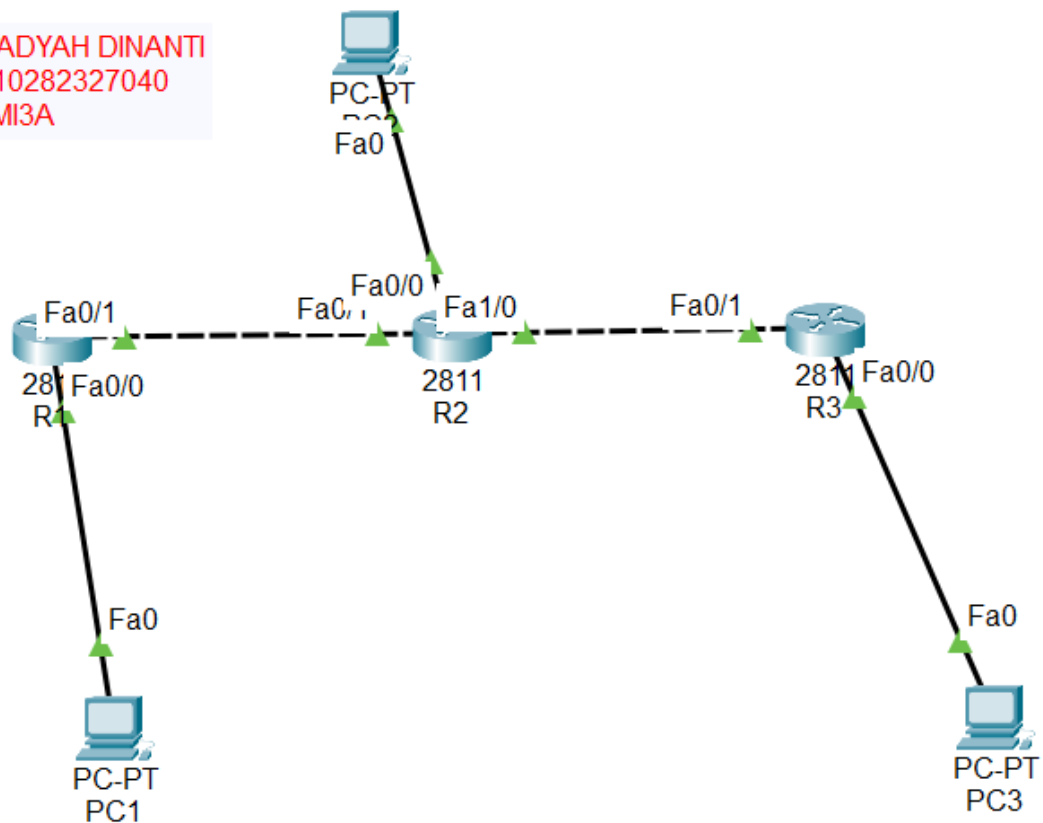


NAMA : NADYAH DINANTI
NIM : 09010282327040
MATKUL : PRATIUM JARINGAN KOMPUTER

RIP & EIGRP DYNAMIC ROUTING

Konfigurasi Router RIP

NAMA : NADYAH DINANTI
NIM : 09010282327040
KELAS : MI3A



1. Buat topologi seperti yang ditunjukkan pada gambar di atas
2. Buatlah IP Address di PC

No	Nama Device	Alamat	Netmask	Gateway
1	PC1	192.168.1.10	255.255.255.0	192.168.1.1
2	PC2	192.168.2.10	255.255.255.0	192.168.2.1
3	PC3	192.168.3.10	255.255.255.0	192.168.3.1

Tabel 13.1 Topologi Percobaan RIP

3. Setelah selesai menambahkan konfigurasi IP Address di PC, selanjutnya melakukan konfigurasi RIP pada Router, sebagai berikut:

- **Konfigurasi Pada R1**

```
R1_09010282327040>ENABLE
R1_09010282327040#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1_09010282327040(config)#int fa0/0
R1_09010282327040(config-if)#ip address 192.168.1.1 255.255.255.0
R1_09010282327040(config-if)#no sh

R1_09010282327040(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

R1_09010282327040(config-if)#ex
R1_09010282327040(config)#int fa0/1
R1_09010282327040(config-if)#ip address 192.168.100.1 255.255.255.252
R1_09010282327040(config-if)#no sh

R1_09010282327040(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

R1_09010282327040(config-if)#ex
R1_09010282327040(config)#router rip
R1_09010282327040(config-router)#version 2
R1_09010282327040(config-router)#network 192.168.1.0
R1_09010282327040(config-router)#network 192.168.100.0
R1_09010282327040(config-router)#no auto-summary
R1_09010282327040(config-router)#passive-interface fa0/0
R1_09010282327040(config-router)#end
R1_09010282327040#
%SYS-5-CONFIG_I: Configured from console by console

R1_09010282327040#copy running-config startup-config
```

- **Konfigurasi Pada R2**

```
R2_09010282327040>enable
R2_09010282327040#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2_09010282327040(config)#int fa0/0
R2_09010282327040(config-if)#ip address 192.168.2.1 255.255.255.0
R2_09010282327040(config-if)#no sh

R2_09010282327040(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

R2_09010282327040(config-if)#ex
R2_09010282327040(config)#int fa0/1
R2_09010282327040(config-if)#ip address 192.168.100.2 255.255.255.252
R2_09010282327040(config-if)#no sh

R2_09010282327040(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

R2_09010282327040(config-if)#ex
R2_09010282327040(config)#int fa1/0
R2_09010282327040(config-if)#ip address 192.168.200.1 255.255.255.252
R2_09010282327040(config-if)#no sh
R2_09010282327040(config-if)#
R2_09010282327040(config-if)#ex
R2_09010282327040(config)#router rip
R2_09010282327040(config-router)#version 2
R2_09010282327040(config-router)#network 192.168.2.0
R2_09010282327040(config-router)#network 192.168.100.0
R2_09010282327040(config-router)#network 192.168.200.0
R2_09010282327040(config-router)#no auto-summary
R2_09010282327040(config-router)#passive-interface fa0/0
R2_09010282327040(config-router)#end
R2_09010282327040#
%SYS-5-CONFIG_I: Configured from console by console

R2_09010282327040#copy running-config startup-config
```

- **Konfigurasi Pada R3**

```
R3_09010282327040>enable
R3_09010282327040#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3_09010282327040(config)#int fa0/0
R3_09010282327040(config-if)#ip address 192.168.3.1 255.255.255.0
R3_09010282327040(config-if)#no sh

R3_09010282327040(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

R3_09010282327040(config-if)#ex
R3_09010282327040(config)#int fa0/1
R3_09010282327040(config-if)#ip address 192.168.200.2 255.255.255.252
R3_09010282327040(config-if)#no sh

R3_09010282327040(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

R3_09010282327040(config-if)#ex
R3_09010282327040(config)#router rip
R3_09010282327040(config-router)#version 2
R3_09010282327040(config-router)#network 192.168.3.0
R3_09010282327040(config-router)#network 192.168.200.0
R3_09010282327040(config-router)#no auto-summary
R3_09010282327040(config-router)#passive-interface fa0/0
R3_09010282327040(config-router)#end
R3_09010282327040#
%SYS-5-CONFIG_I: Configured from console by console

R3_09010282327040#copy running-config startup-config
```

Lanjutkan verifikasi yang sama di R2 dan R3

- **R1**

```
R1_09010282327040#sh ip route rip
      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
R       192.168.2.0/24 [120/1] via 192.168.100.2, 00:00:02, FastEthernet0/1
R       192.168.3.0/24 [120/2] via 192.168.100.2, 00:00:02, FastEthernet0/1
      192.168.200.0/30 is subnetted, 1 subnets
R       192.168.200.0 [120/1] via 192.168.100.2, 00:00:02, FastEthernet0/1
```

- **R2**

```
R2_09010282327040#sh ip route rip
R       192.168.1.0/24 [120/1] via 192.168.100.1, 00:00:22, FastEthernet0/1
      192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
R       192.168.3.0/24 [120/1] via 192.168.200.2, 00:00:04, FastEthernet1/0
```

- **R3**

```
R3_09010282327040>enable
R3_09010282327040#show ip route rip
R       192.168.1.0/24 [120/2] via 192.168.200.1, 00:00:26, FastEthernet0/1
R       192.168.2.0/24 [120/1] via 192.168.200.1, 00:00:26, FastEthernet0/1
      192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
R       192.168.4.0/24 [120/1] via 192.168.220.2, 00:00:14, FastEthernet1/0
      192.168.100.0/30 is subnetted, 1 subnets
R       192.168.100.0 [120/1] via 192.168.200.1, 00:00:26, FastEthernet0/1
```

4. Lakukan PING dan Traceroute dari PC1 ke PC2 dan PC3, PC2 ke PC1 dan PC3, serta PC3 ke PC1 dan PC2.

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PC1	PC2	Ya	
		PC3	Ya	
2	PC2	PC1	Ya	
		PC3	Ya	
3	PC3	PC1	Ya	
		PC2	Ya	

PC1

Physical Config Desktop Programming Attributes

Command Prompt

```

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=125
Reply from 192.168.3.10: bytes=32 time<1ms TTL=125
Reply from 192.168.3.10: bytes=32 time<1ms TTL=125
Reply from 192.168.3.10: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

PC2

Physical Config Desktop Programming Attributes

Command Prompt

```

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

PC3

Physical Config Desktop Programming Attributes

Command Prompt

```

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=125
Reply from 192.168.1.10: bytes=32 time<1ms TTL=125
Reply from 192.168.1.10: bytes=32 time<1ms TTL=125
Reply from 192.168.1.10: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

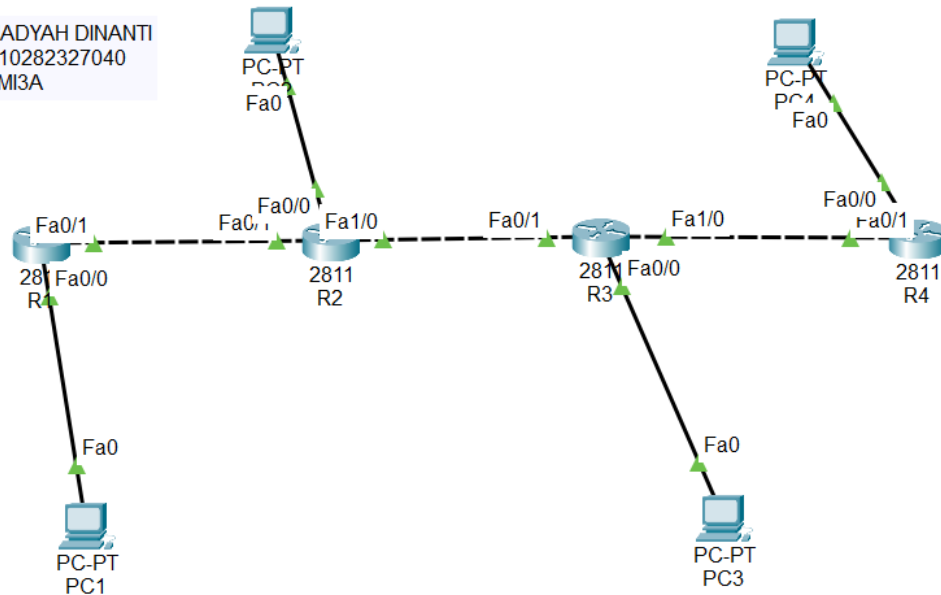
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

5. Tambahkan satu Router (R4) dan PC (PC4), dimana R4 terhubung ke R3 dan PC4 terhubung ke R4.

NAMA : NADYAH DINANTI
NIM : 09010282327040
KELAS : MI3A



Konfigurasi R3 ke R4

```
R3_09010282327040(config-if)#int fa1/0
R3_09010282327040(config-if)#ip address 192.168.220.1 255.255.255.252
R3_09010282327040(config-if)#no sh
R3_09010282327040(config-if)#ex
R3_09010282327040(config)#router rip
R3_09010282327040(config-router)#version 2
R3_09010282327040(config-router)#network 192.168.220.0
R3_09010282327040(config-router)#no auto-summary
R3_09010282327040(config-router)#passive-interface fa0/0
R3_09010282327040(config-router)#end
R3_09010282327040#
```

6. Konfigurasi Router dengan protokol RIP pada R4, dan konfigurasi IP pada PC4. Lakukanlah konfigurasi seperti tahap 3, buktikan jika PC4 dapat melakukan PING dan traceroute ke PC lainnya.

```
R4_09010282327040#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R4_09010282327040(config)#int fa0/0
R4_09010282327040(config-if)#ip address 192.168.4.1 255.255.255.0
R4_09010282327040(config-if)#no sh

R4_09010282327040(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

R4_09010282327040(config-if)#ex
R4_09010282327040(config-if)#int fa0/1
R4_09010282327040(config-if)#ip address 192.168.220.2 255.255.255.252
R4_09010282327040(config-if)#no sh

R4_09010282327040(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

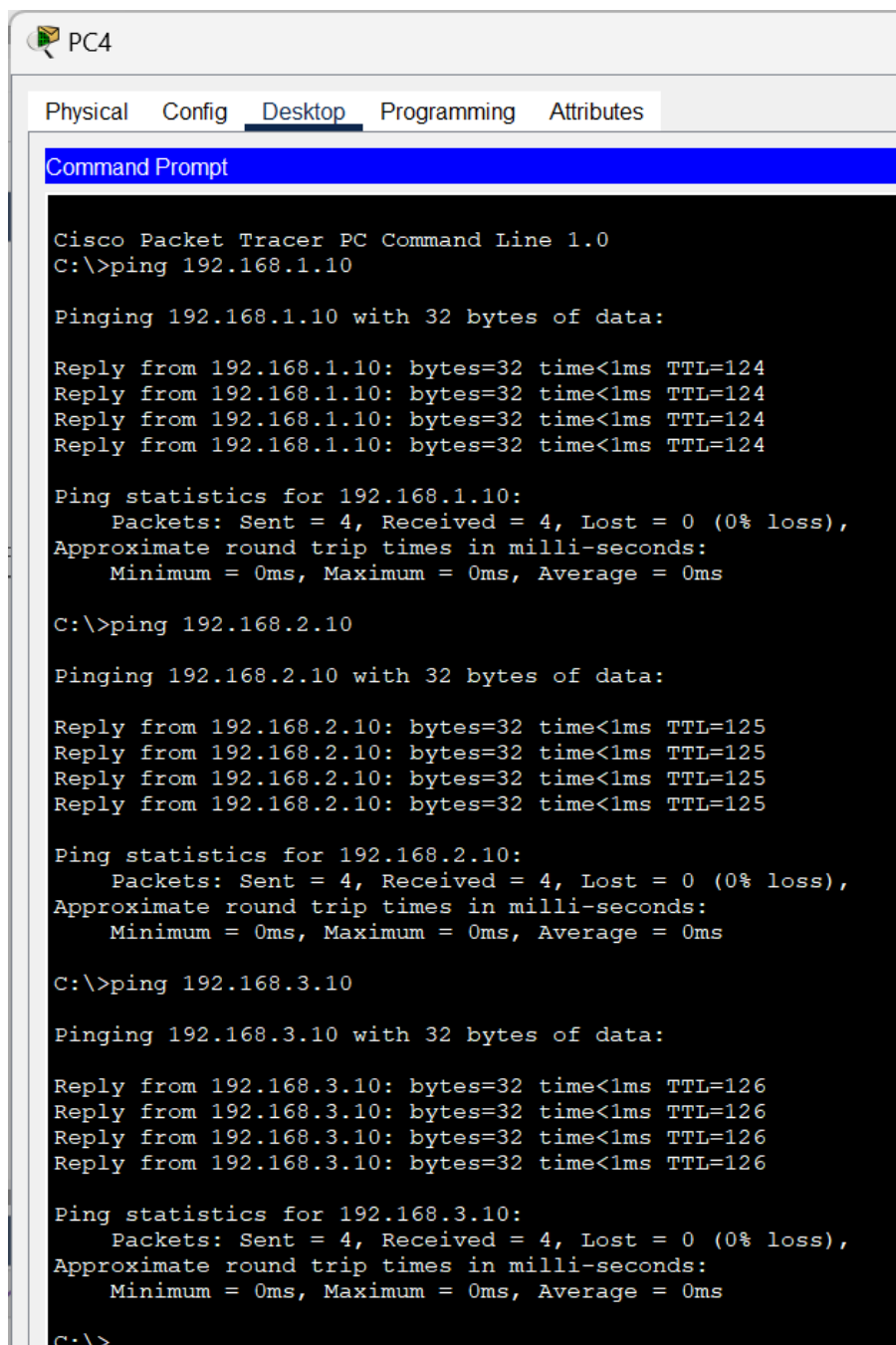
R4_09010282327040(config-if)#ex
R4_09010282327040(config)#router rip
R4_09010282327040(config-router)#version 2
R4_09010282327040(config-router)#network 192.168.4.0
R4_09010282327040(config-router)#network 192.168.220.0
R4_09010282327040(config-router)#no auto-summary
R4_09010282327040(config-router)#passive-interface fa0/0
R4_09010282327040(config-router)#end
R4_09010282327040#
%SYS-5-CONFIG_I: Configured from console by console

R4_09010282327040#copy running-config startup-config
```


show ip route rip R3 & R4

```
R4_09010282327040>enable
R4_09010282327040#show ip route rip
R    192.168.1.0/24 [120/3] via 192.168.220.1, 00:00:18, FastEthernet0/1
R    192.168.2.0/24 [120/2] via 192.168.220.1, 00:00:18, FastEthernet0/1
R    192.168.3.0/24 [120/1] via 192.168.220.1, 00:00:18, FastEthernet0/1
    192.168.100.0/30 is subnetted, 1 subnets
R      192.168.100.0 [120/2] via 192.168.220.1, 00:00:18, FastEthernet0/1
    192.168.200.0/30 is subnetted, 1 subnets
R      192.168.200.0 [120/1] via 192.168.220.1, 00:00:18, FastEthernet0/1
```

PC4 dapat melakukan PING dan traceroute ke PC lainnya



The screenshot shows a Cisco Packet Tracer PC Command Line interface for PC4. The interface has tabs for Physical, Config, Desktop (selected), Programming, and Attributes. The Command Prompt window displays the following output:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=124
Reply from 192.168.1.10: bytes=32 time<1ms TTL=124
Reply from 192.168.1.10: bytes=32 time<1ms TTL=124
Reply from 192.168.1.10: bytes=32 time<1ms TTL=124

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

- **Hasil Praktikum**

Pada praktikum ini, kami melakukan konfigurasi protokol Routing Information Protocol (RIP) pada beberapa router (R1, R2, R3, dan R4) dan perangkat komputer (PC1 hingga PC4) untuk memastikan seluruh perangkat dapat saling berkomunikasi dalam topologi jaringan yang dibuat. Langkah-langkah yang diambil meliputi:

1. Pembuatan Topologi dan Konfigurasi IP Address: Masing-masing PC dan router dikonfigurasi dengan alamat IP sesuai skenario topologi yang telah ditentukan.
2. Konfigurasi RIP pada Router: Setiap router dikonfigurasi dengan protokol RIP untuk mendistribusikan informasi routing secara dinamis ke router lain dalam jaringan.
3. Pengujian Konektivitas: Pengujian dilakukan dengan menggunakan perintah PING dan Traceroute antara PC1, PC2, PC3, dan PC4 untuk memastikan koneksi dapat terbentuk dengan sukses.

Hasil pengujian menunjukkan bahwa seluruh PC dapat melakukan koneksi satu sama lain tanpa hambatan, yang mengindikasikan bahwa konfigurasi RIP berfungsi sesuai harapan.

- **Analisis**

Protokol RIP merupakan salah satu protokol routing dinamis yang mendistribusikan informasi routing di antara router yang terhubung dalam jaringan. Dalam praktik ini, RIP memungkinkan tiap router saling bertukar informasi routing dengan tetangganya, sehingga seluruh jalur dapat ditemukan dan digunakan oleh semua perangkat.

1. Penggunaan RIP: Protokol RIP memanfaatkan metode distance-vector routing, yang mengirimkan informasi routing setiap 30 detik. Hal ini memungkinkan pembaruan informasi routing secara berkala dan otomatis dalam jaringan.
2. Efisiensi Distribusi Routing: Hasil yang diperoleh menunjukkan bahwa RIP dapat mendistribusikan informasi routing dengan efisien pada topologi sederhana ini, membuat setiap router memahami rute menuju seluruh perangkat lain.
3. Penambahan Router dan PC: Setelah R4 dan PC4 ditambahkan ke topologi, router R3 dikonfigurasi ulang agar dapat berkomunikasi dengan R4 melalui

RIP. Hasil PING dan traceroute dari PC4 ke PC lain menunjukkan bahwa RIP mampu menangani penambahan perangkat secara otomatis.

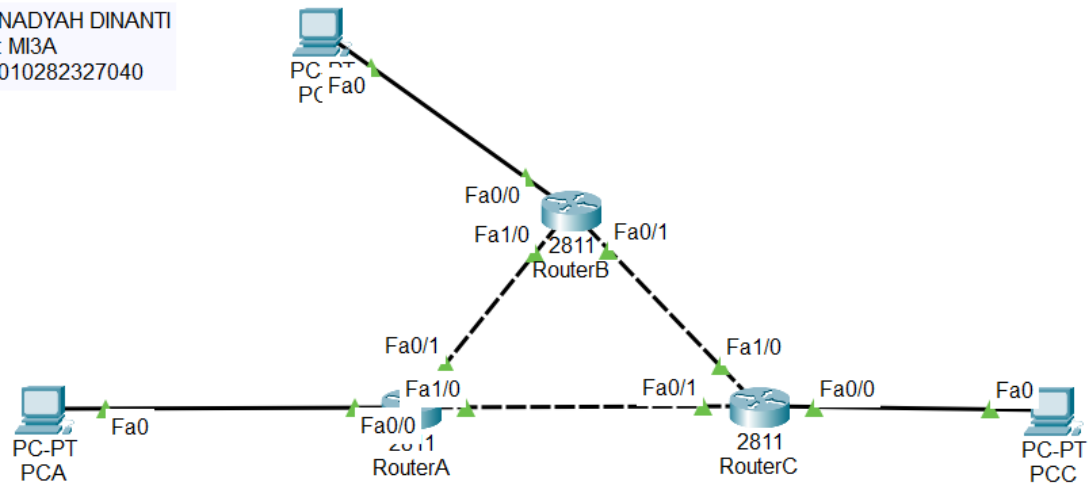
- **Kesimpulan**

Praktikum ini berhasil menunjukkan cara kerja protokol RIP dalam mendistribusikan informasi routing di dalam jaringan. RIP mempermudah manajemen jaringan dengan cara menyebarkan rute secara otomatis kepada router lain, yang memungkinkan konektivitas penuh antar perangkat. Keberhasilan komunikasi di seluruh perangkat, bahkan setelah penambahan router dan PC baru, membuktikan bahwa RIP merupakan protokol routing yang efektif untuk jaringan kecil hingga menengah.

Dengan menggunakan RIP, administrator jaringan dapat mengurangi beban konfigurasi manual pada setiap router, sekaligus meningkatkan fleksibilitas jaringan dalam menangani penambahan perangkat baru.

EIGRP Dynamic Routing

NAMA : NADYAH DINANTI
KELAS : MI3A
NIM : 09010282327040



1. Buat Topologi Seperti Gambar diatas
2. Buat Pengalamat di PC

No	Nama Device	Alamat	Netmask	Gateway
1	PCA	192.168.1.10	255.255.255.0	192.168.1.1
2	PCB	192.168.2.10	255.255.255.0	192.168.2.1
3	PCC	192.168.3.10	255.255.255.0	192.168.3.1

Tabel 13.2 Pengalamatan PC Client

3. Setelah selesai menambahkan konfigurasi IP Address di PC, selanjutnya melakukan konfigurasi EIGRP pada Router, sebagai berikut:

- **Konfigurasi RouterA**

```
RouterA_09010282327040#show ip route eigrp
100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D    100.100.100.8/30 [90/30720] via 100.100.100.2, 00:03:10, FastEthernet1/0
    [90/30720] via 100.100.100.6, 00:03:10, FastEthernet0/1
192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
D    192.168.2.0/24 [90/30720] via 100.100.100.6, 00:03:10, FastEthernet0/1
D    192.168.3.0/24 [90/30720] via 100.100.100.2, 00:03:10, FastEthernet1/0
```

- **Konfigurasi RouterB**

```
RouterB_09010282327040>enable
RouterB_09010282327040#conf t
Enter configuration commands, one per line. End with CNTL/Z.
RouterB_09010282327040(config)#int fa0/0
RouterB_09010282327040(config-if)#ip address 192.168.2.1 255.255.255.0
RouterB_09010282327040(config-if)#no sh

RouterB_09010282327040(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

RouterB_09010282327040(config-if)#exit
RouterB_09010282327040(config)#int fa1/0
RouterB_09010282327040(config-if)#ip address 100.100.100.6 255.255.255.252
RouterB_09010282327040(config-if)#no sh
RouterB_09010282327040(config-if)#exit
RouterB_09010282327040(config)#int fa0/1
RouterB_09010282327040(config-if)#ip address 100.100.100.9 255.255.255.252
RouterB_09010282327040(config-if)#no sh

RouterB_09010282327040(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
exit
RouterB_09010282327040(config)#exit
RouterB_09010282327040>enable
RouterB_09010282327040#show ip route eigrp
    100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D       100.100.100.0/30 [90/30720] via 100.100.100.5, 00:05:20, FastEthernet1/0
          [90/30720] via 100.100.100.10, 00:02:27, FastEthernet0/1
D       192.168.1.0/24 [90/30720] via 100.100.100.5, 00:11:18, FastEthernet1/0
          192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
D       192.168.3.0/24 [90/30720] via 100.100.100.10, 00:02:59, FastEthernet0/1
```

- **Konfigurasi RouterC**

```
RouterC_09010282327040(config)#int fa0/0
RouterC_09010282327040(config-if)#ip address 192.168.3.1 255.255.255.0
RouterC_09010282327040(config-if)#no sh

RouterC_09010282327040(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

RouterC_09010282327040(config-if)#exit
RouterC_09010282327040(config)#int fa1/0
RouterC_09010282327040(config-if)#ip address 100.100.100.10 255.255.255.252
RouterC_09010282327040(config-if)#no sh

RouterC_09010282327040(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

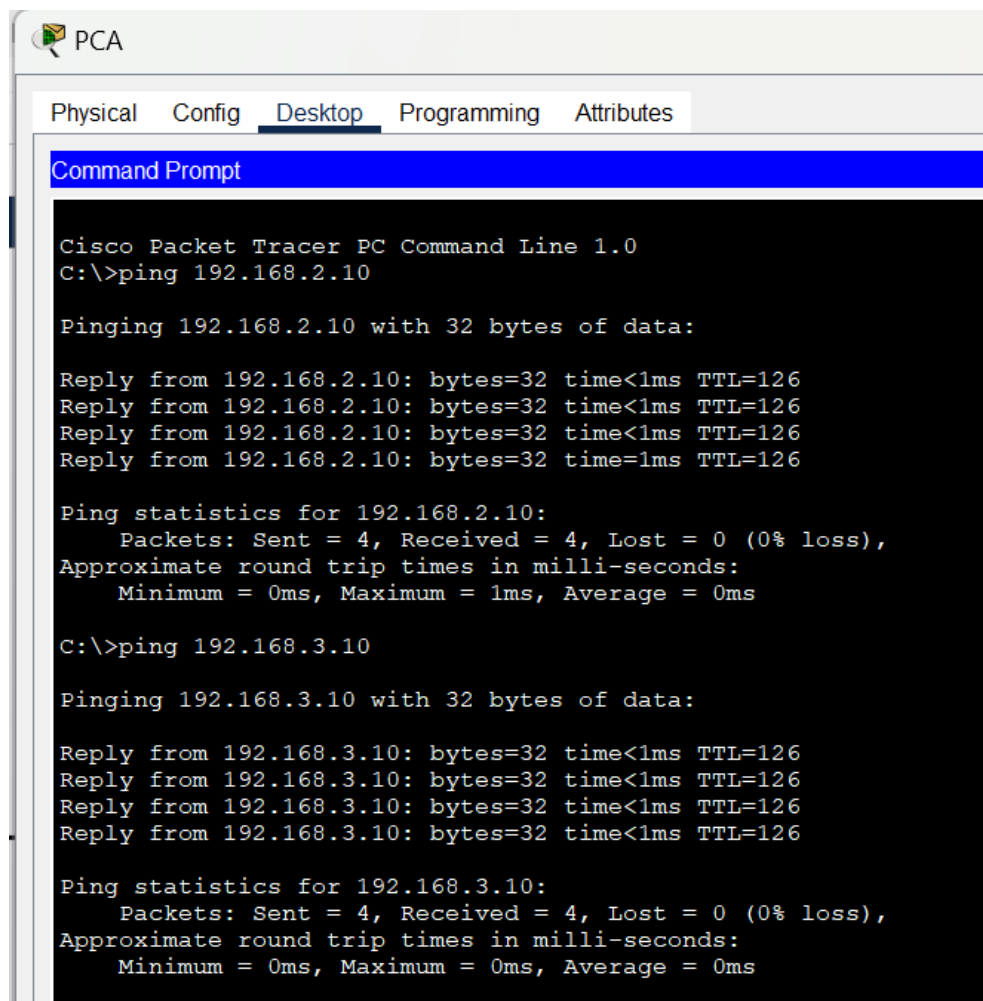
RouterC_09010282327040(config-if)#exit
RouterC_09010282327040(config)#int fa0/1
RouterC_09010282327040(config-if)#ip address 100.100.100.2 255.255.255.252
RouterC_09010282327040(config-if)#no sh
RouterC_09010282327040#show ip route eigrp
    100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D       100.100.100.4/30 [90/30720] via 100.100.100.9, 00:01:23, FastEthernet1/0
          [90/30720] via 100.100.100.1, 00:00:51, FastEthernet0/1
D       192.168.1.0/24 [90/30720] via 100.100.100.1, 00:00:51, FastEthernet0/1
D       192.168.2.0/24 [90/30720] via 100.100.100.9, 00:01:23, FastEthernet1/0
```

Melakukan PING dan Traceroute dari PCA ke PCB dan PCC, PCB ke PCA dan PCC, serta PCC ke PCA dan PCB.

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PCA	PCB	Ya	
		PCC	Ya	

2	PCB	PCA	Ya	
		PCC	Ya	
3	PCC	PCA	Ya	
		PCB	Ya	

- **PCA**



```

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

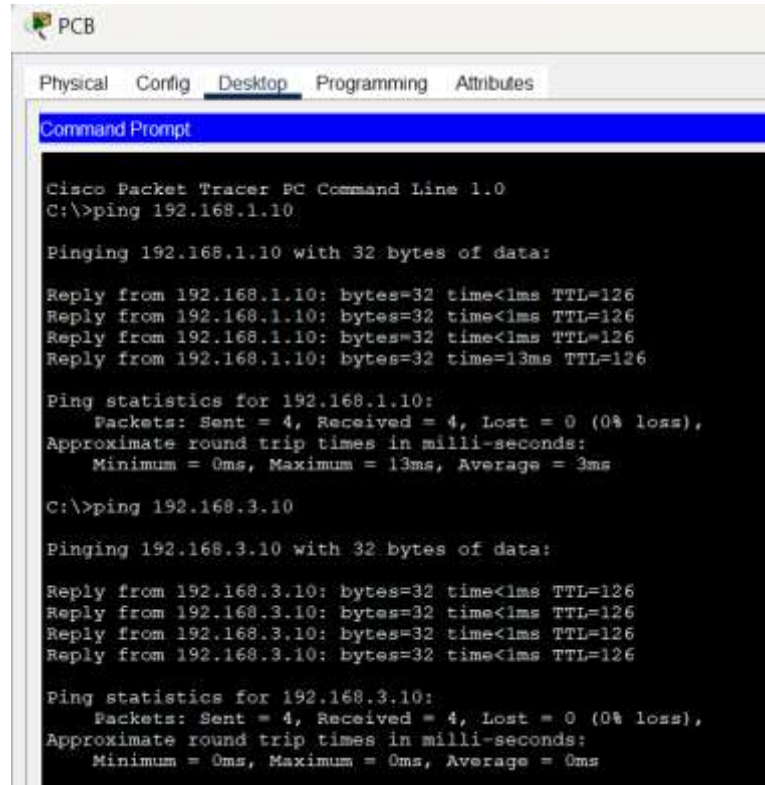
C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
  
```

- PC B



The screenshot shows the 'PCB' window in Cisco Packet Tracer. The 'Desktop' tab is selected, displaying a 'Command Prompt' window. The text in the command prompt is as follows:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time=13ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 13ms, Average = 3ms

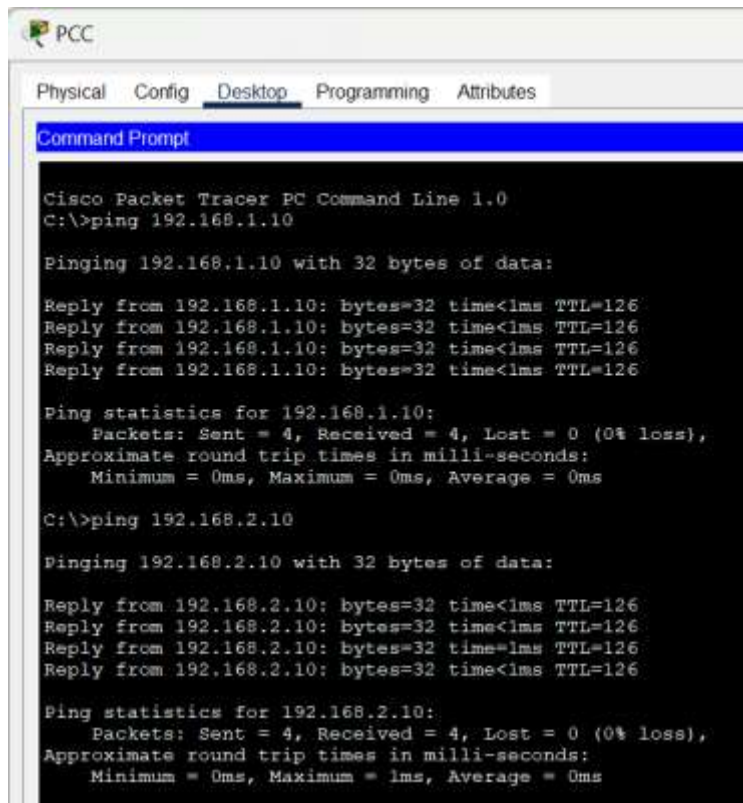
C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

- PC C



The screenshot shows the 'PCC' window in Cisco Packet Tracer. The 'Desktop' tab is selected, displaying a 'Command Prompt' window. The text in the command prompt is as follows:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.2.10

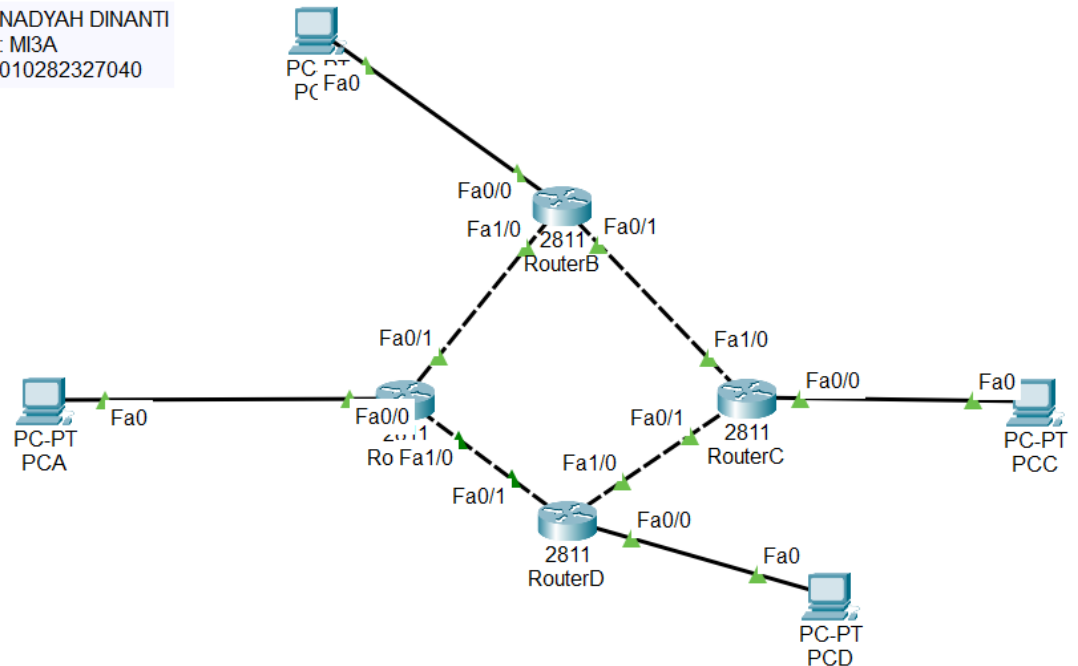
Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time=1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

4. Putuskan koneksi pada RouterA ke RouterC, lalu tambahkan satu Router (RouterD) dan PC (PCD), dimana RouterD terhubung ke RouterA dan RouterC.

NAMA : NADYAH DINANTI
KELAS : MI3A
NIM : 09010282327040



5. Konfigurasi Router dengan protokol EIGRP pada RouterD, dan konfigurasi IP pada PCD. Lakukanlah konfigurasi seperti tahap 3, buktikan jika PCD dapat melakukan PING dan traceroute ke PC lainnya.

```
RouterD_09010282327040(config)#router eigrp 1
RouterD_09010282327040(config-router)#network 192.168.4.0 0.0.0.255
RouterD_09010282327040(config-router)#network 100.100.100.0 0.0.0.3
RouterD_09010282327040(config-router)#no auto-summary
RouterD_09010282327040(config-router)#end

RouterD_09010282327040#show ip route eigrp
100.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
D    100.100.100.4/30 [90/30720] via 100.100.100.1, 00:23:56, FastEthernet0/1
D    100.100.100.8/30 [90/33280] via 100.100.100.1, 00:23:56, FastEthernet0/1
D    192.168.1.0/24 [90/30720] via 100.100.100.1, 00:23:56, FastEthernet0/1
D    192.168.2.0/24 [90/33280] via 100.100.100.1, 00:23:56, FastEthernet0/1
D    192.168.3.0/24 [90/35840] via 100.100.100.1, 00:23:48, FastEthernet0/1
```

- PC D

```

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=124
Reply from 192.168.3.10: bytes=32 time<1ms TTL=124
Reply from 192.168.3.10: bytes=32 time<1ms TTL=124
Reply from 192.168.3.10: bytes=32 time<1ms TTL=124

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>

```

Penjelasan Hasil Praktikum

Pada praktikum ini, konfigurasi protokol EIGRP (Enhanced Interior Gateway Routing Protocol) dilakukan pada beberapa router untuk memungkinkan routing dinamis dalam jaringan yang menghubungkan beberapa PC (PCA, PCB, dan PCC). Setelah konfigurasi, dilakukan pengujian konektivitas antar-PC melalui perintah PING dan Traceroute. Hasil pengujian menunjukkan bahwa konektivitas antarsemua PC berhasil terjalin, ditandai dengan respon ping dan traceroute yang sukses dari setiap sumber ke tujuan.

Tahapan konfigurasi utama meliputi:

- Menetapkan alamat IP pada setiap PC dan gateway sesuai tabel pengalamatan.
- Mengonfigurasi EIGRP pada router (RouterA, RouterB, dan RouterC) dengan nomor AS tertentu.
- Melakukan pengujian konektivitas untuk memastikan semua jaringan dapat saling terhubung dengan benar.

Pada tahap akhir, koneksi antara RouterA dan RouterC diputus, dan kemudian RouterD serta PCD ditambahkan ke topologi. Setelah konfigurasi EIGRP pada RouterD dan pemberian alamat IP pada PCD, pengujian konektivitas menunjukkan bahwa PCD juga berhasil terhubung dengan jaringan lainnya.

Analisis Praktikum

Dari hasil konfigurasi dan pengujian konektivitas, dapat dianalisis beberapa hal penting berikut:

- Efektivitas EIGRP dalam Routing Dinamis: Praktikum ini menunjukkan bahwa EIGRP mampu mengonfigurasi routing dinamis antar-subnet secara cepat dan efisien. Setiap router dapat menemukan tetangganya secara otomatis dan membuat tabel rute yang tepat untuk menjangkau seluruh jaringan yang terhubung.
- Pengujian dan Verifikasi Konektivitas: Hasil pengujian menggunakan ping dan traceroute membuktikan bahwa EIGRP berfungsi dengan baik dalam menyediakan rute yang optimal, sehingga mendukung komunikasi antarjaringan tanpa hambatan. Proses traceroute juga memberikan informasi jalur yang dilalui paket data, membantu dalam memverifikasi jalur komunikasi.
- Kemampuan Adaptasi Jaringan dengan Penambahan Router Baru: Saat RouterD dan PCD ditambahkan ke jaringan, EIGRP secara otomatis mendistribusikan rute baru tanpa mengganggu rute yang sudah ada. Hal ini menunjukkan fleksibilitas EIGRP dalam menangani perubahan topologi jaringan.
- Manajemen Jaringan yang Efisien: Dengan adanya EIGRP, kebutuhan untuk melakukan konfigurasi manual pada setiap perangkat dapat diminimalisir. EIGRP menyederhanakan administrasi jaringan, terutama untuk topologi yang kompleks atau ketika terjadi perubahan pada jaringan.

Kesimpulan

Dari praktikum ini, dapat disimpulkan bahwa:

- EIGRP merupakan protokol routing dinamis yang efektif dan efisien dalam mempermudah manajemen rute pada jaringan berskala besar, serta memungkinkan perubahan topologi tanpa memerlukan konfigurasi ulang secara manual di setiap router.
- Kemampuan EIGRP dalam menemukan dan mempertahankan hubungan dengan tetangga menjadikannya pilihan yang ideal untuk lingkungan jaringan yang membutuhkan komunikasi antar-subnet yang dinamis dan adaptif.
- Hasil pengujian konektivitas menunjukkan bahwa EIGRP bekerja dengan baik, memungkinkan semua perangkat dalam jaringan terhubung satu sama lain tanpa hambatan.