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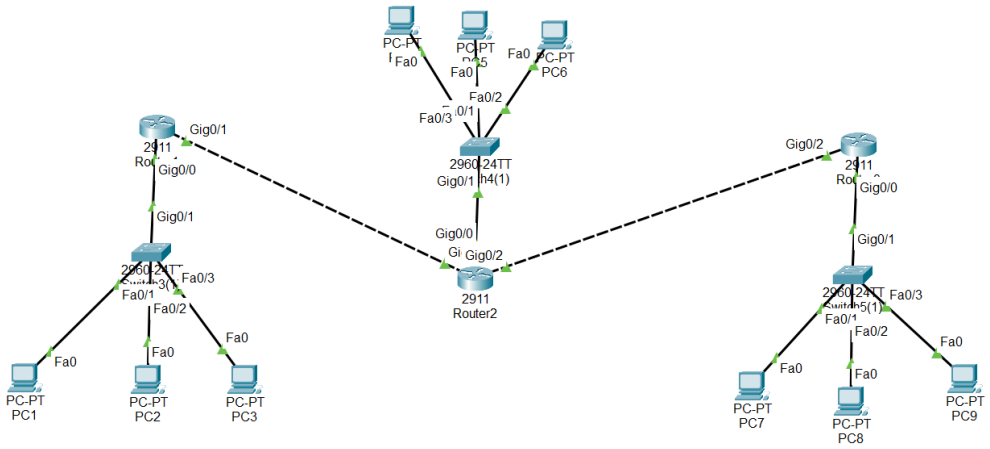
Praktikum Jaringan Komputer

Dynamic Routing



Router 1

```
09010182327008_R1>enable
09010182327008_R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
09010182327008_R1(config)#int gig0/0
09010182327008_R1(config-if)#ip address 192.168.2.1 255.255.255.0
09010182327008_R1(config-if)#no sh
09010182327008_R1(config-if)#exit
09010182327008_R1(config)#int gig 0/1
09010182327008_R1(config-if)#ip address 10.10.10.1 255.255.255.252
09010182327008_R1(config-if)#no sh
09010182327008_R1(config-if)#exit
09010182327008_R1(config)#router rip
09010182327008_R1(config-router)#version 2
09010182327008_R1(config-router)#network 192.168.2.0
09010182327008_R1(config-router)#network 10.10.10.0
```

```
09010182327008_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 are
       * - 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
R       10.20.10.0/30 [120/1] via 10.10.10.2, 00:00:05, GigabitEthernet0/1
     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
R    192.168.20.0/24 [120/1] via 10.10.10.2, 00:00:05, GigabitEthernet0/1
R    192.168.40.0/24 [120/2] via 10.10.10.2, 00:00:05, GigabitEthernet0/1
```

Router 2

```
09010182327008_R2>enable
09010182327008_R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
09010182327008_R2(config)#
09010182327008_R2(config)#int gig0/0
09010182327008_R2(config-if)#ip address 192.168.20.1 255.255.255.0
09010182327008_R2(config-if)#no sh
09010182327008_R2(config-if)#exit
09010182327008_R2(config)#int gig0/1
09010182327008_R2(config-if)#ip address 10.10.10.2 255.255.255.252
09010182327008_R2(config-if)#no sh
09010182327008_R2(config-if)#exit
09010182327008_R2(config)#int gig0/2
09010182327008_R2(config-if)#ip address 10.20.10.1 255.255.255.252
09010182327008_R2(config-if)#no sh
09010182327008_R2(config-if)#exit
09010182327008_R2(config)#router rip
09010182327008_R2(config-router)#version 2
09010182327008_R2(config-router)#network 192.168.20.0
09010182327008_R2(config-router)#network 10.10.10.0
09010182327008_R2(config-router)#network 10.20.10.0
09010182327008_R2(config-router)#
```

```
09010182327008_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
R    192.168.2.0/24 [120/1] via 10.10.10.1, 00:00:18, GigabitEthernet0/1
     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
R    192.168.40.0/24 [120/1] via 10.20.10.2, 00:00:06, GigabitEthernet0/2

09010182327008_R2#
```

Router 3

```
09010182327008_R3>enable
09010182327008_R3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
09010182327008_R3(config)#int gig0/0
09010182327008_R3(config-if)#ip address 192.168.40.1 255.255.255.0
09010182327008_R3(config-if)#no sj
                             ^
% Invalid input detected at '^' marker.

09010182327008_R3(config-if)#no sh
09010182327008_R3(config-if)#exit
09010182327008_R3(config)#int gig0/2
09010182327008_R3(config-if)#ip address 10.20.10.2 255.255.255.252
09010182327008_R3(config-if)#no sh
09010182327008_R3(config-if)#exit
09010182327008_R3(config)#router rip
09010182327008_R3(config-router)#version 2
09010182327008_R3(config-router)#network 192.168.40.0
09010182327008_R3(config-router)#network 10.20.10.0
```

```
09010182327008_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, 00:00:01, GigabitEthernet0/2
C       10.20.10.0/30 is directly connected, GigabitEthernet0/2
L       10.20.10.2/32 is directly connected, GigabitEthernet0/2
R    192.168.2.0/24 [120/2] via 10.20.10.1, 00:00:01, GigabitEthernet0/2
R    192.168.20.0/24 [120/1] via 10.20.10.1, 00:00:01, GigabitEthernet0/2
     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

09010182327008_R3#
```

Tes Koneksi ICMP (catat hasil yang anda dapatkan)

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PC 1	PC2	Ya	
		PC3	Ya	
		PC4	Ya	
		PC5	Ya	
		PC6	Ya	
		PC7	Ya	
		PC 8	Ya	
		PC 9	Ya	

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
2	PC 4	PC1	Ya	
		PC2	Ya	
		PC3	Ya	
		PC5	Ya	
		PC6	Ya	
		PC7	Ya	
		PC 8	Ya	
		PC 9	Ya	

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
3	PC 7	PC1	Ya	
		PC2	Ya	
		PC3	Ya	
		PC4	Ya	
		PC5	Ya	
		PC6	Ya	
		PC 8	Ya	
		PC 9	Ya	

Screenshot

PC1 -> PC5

PC1 -> PC7

```
C:\>ping 192.168.20.3

Pinging 192.168.20.3 with 32 bytes of data:

Reply from 192.168.20.3: bytes=32 time<1ms TTL=126
Reply from 192.168.20.3: bytes=32 time<1ms TTL=126
Reply from 192.168.20.3: bytes=32 time<1ms TTL=126
Reply from 192.168.20.3: bytes=32 time<1ms TTL=126

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

C:\>ping 192.168.40.2

Pinging 192.168.40.2 with 32 bytes of data:

Reply from 192.168.40.2: bytes=32 time<1ms TTL=125
Reply from 192.168.40.2: bytes=32 time<1ms TTL=125
Reply from 192.168.40.2: bytes=32 time<1ms TTL=125
Reply from 192.168.40.2: bytes=32 time=1ms TTL=125

Ping statistics for 192.168.40.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

PC4 -> PC2

PC4 -> PC8

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

Pinging 192.168.20.3 with 32 bytes of data:

Reply from 192.168.20.3: bytes=32 time<1ms TTL=128
Reply from 192.168.20.3: bytes=32 time=1ms TTL=128
Reply from 192.168.20.3: bytes=32 time<1ms TTL=128
Reply from 192.168.20.3: bytes=32 time<1ms TTL=128

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

C:\>ping 192.168.40.2

Pinging 192.168.40.2 with 32 bytes of data:

Reply from 192.168.40.2: bytes=32 time<1ms TTL=126
Reply from 192.168.40.2: bytes=32 time<1ms TTL=126
Reply from 192.168.40.2: bytes=32 time<1ms TTL=126
Reply from 192.168.40.2: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.40.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

PC7 -> PC3

PC7 -> PC9

```
C:\>ping 192.168.2.4

Pinging 192.168.2.4 with 32 bytes of data:

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<1ms TTL=125
Reply from 192.168.2.4: bytes=32 time<1ms TTL=125

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

C:\>ping 192.168.40.4

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=14ms 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 = 14ms, Average = 3ms

C:\>
```

Hasil Praktikum

1.Topologi Jaringan

Lakukanlah Konfigurasi setiap Router yang dibuat sesuai gambar yang terdiri dari tiga router (R1, R2, dan R3).

2. Konfigurasi Routing Dynamic ke NVRAM

• Pada router R1, Ditambahkan jaringan 192.168.2.0 dan 10.10.10.0

• Pada router R2, ditambahkan jaringan 192.168.20.0, 10.10.10.0, dan 10.20.10.0

• Pada router R3, ditambahkan jaringan 192.168.40.0 dan 10.20.10.0

Setelah itu, menggunakan perintah “show ip route” kita dapat melihat hasil dari konfigurasi masing-masing router.

3. Melakukan tes koneksi ICMP

Kemudian, kita melakukan uji koneksi ping antar PC, seperti dari PC1 -> PC5, PC4 -> PC2, PC7 -> PC3, dan lainnya. Kemudian hasil ping dicatat untuk setiap koneksi sebagai indikator keberhasilan atau kegagalan komunikasi antar perangkat di jaringan.

Analisa

Berdasarkan konfigurasi yang telah dilakukan, terlihat bahwa setiap router berhasil menjalankan protokol dengan benar. Ini ditunjukkan dengan berhasilnya uji koneksi ICMP bahwa semua PC dapat derhubung satu sama lain. Jika terdapat jalur yang gagal terkoneksi ini bisa jadi disebabkan oleh kesalahan pengaturan IP atau kendala dalam topologi jaringan. Jika terjadi kesalahan, dapat dilakukan pengecekan ulang pada jalur yang gagal agar perangkat dapat terkoneksi.

Kesimpulan

Pada praktikum ini, Konfigurasi dynamic routing RIPv2 berhasil. Semua perangkat yang dicoba berhasil terhubung dengan lancar. Konfigurasi dynamic routing menggunakan RIP v2 bermanfaat untuk mempermudah pengelolaan jaringan secara otomatis, memungkinkan penyesuaian terhadap perubahan jaringan, dan mengurangi kebutuhan untuk konfigurasi manual, terutama dalam jaringan yang lebih kompleks dengan banyak router dan subnet. RIP v2 juga mendukung subnet mask variabel dan menjaga kompatibilitas dengan jaringan yang lebih sederhana.