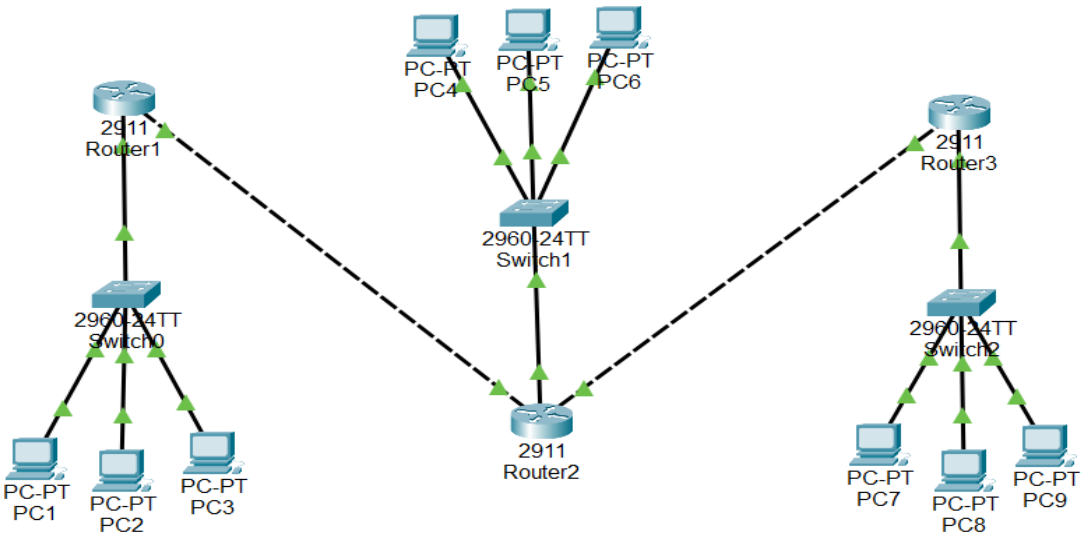
NAMA : TIARA FADILLAH PUTRI
NIM : 09010182327015
KELAS: MI3A

LAPORAN PRAKTIKUM JARINGAN KOMPUTER

PERCOBAAN



ROUTER 1

```
09010182327015_R1(config)#ip route 192.168.20.0 255.255.255.0 10.10.10.2
09010182327015_R1(config)#ip route 10.20.10.0 255.255.255.252 10.10.10.2
09010182327015 R1(config)#ip route 192.168.40.0 255.255.255.0 10.10.10.2

09010182327015_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, 4 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
S       10.20.10.0/32 [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
S    192.168.40.0/24 [1/0] via 10.10.10.2
```

ROUTER 2

```
09010182327015_R2(config)#ip route 192.168.2.0 255.255.255.0 10.10.10.1
09010182327015_R2(config)#ip route 192.168.40.0 255.255.255.0 10.20.10.2
```

```
09010182327015_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
```

ROUTER 3

```
09010182327015_R3(config)#ip route 192.168.20.0 255.255.255.0 10.20.10.1
09010182327015_R3(config)#ip route 10.10.10.0 255.255.255.252 10.20.10.1
09010182327015_R3(config)#ip route 192.168.2.0 255.255.255.0 10.20.10.1
```

```
09010182327015_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
```

TES KONEKSI ICMP

NO	SUMBER	TUJUAN	HASIL	
			YA	TIDAK
1	PC 1	PC 2	YA	
		PC 3	YA	
		PC 4	YA	
		PC 5	YA	
		PC 6	YA	
		PC 7	YA	
		PC 8	YA	
		PC 9	YA	
2	PC 4	PC 1	YA	
		PC 2	YA	
		PC 3	YA	
		PC 5	YA	
		PC 6	YA	
		PC 7	YA	
		PC 8	YA	
		PC 9	YA	
3	PC 7	PC 1	YA	
		PC 2	YA	
		PC 3	YA	
		PC 4	YA	
		PC 5	YA	
		PC 6	YA	
		PC 8	YA	
		PC 9	YA	

HASIL TES PING PADA PC

PC 1 > PC 5

```
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=7ms 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 = 7ms, Average = 1ms
```

PC 1 > PC 7

```
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 = 0ms, Average = 0ms
```

PC 4 > PC 2

```
C:\>ping 192.168.2.3

Pinging 192.168.2.3 with 32 bytes of data:

Reply from 192.168.2.3: bytes=32 time<1ms TTL=126
Reply from 192.168.2.3: bytes=32 time<1ms TTL=126
Reply from 192.168.2.3: bytes=32 time<1ms TTL=126
Reply from 192.168.2.3: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC 4 > PC 8

```
C:\>ping 192.168.40.3

Pinging 192.168.40.3 with 32 bytes of data:

Reply from 192.168.40.3: bytes=32 time<1ms TTL=126
Reply from 192.168.40.3: bytes=32 time<1ms TTL=126
Reply from 192.168.40.3: bytes=32 time<1ms TTL=126
Reply from 192.168.40.3: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.40.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC 7 > PC 3

```
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
```

PC 7 > PC 9

```
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 PERCOBAAN

Berdasarkan hasil tes koneksi ICMP yang dilakukan dalam percobaan routing statis:

- **PC1** berhasil terhubung dengan **PC2**, **PC3**, **PC4**, **PC5**, **PC6**, **PC7**, **PC8**, dan **PC9**.
- **PC4** berhasil terhubung dengan **PC1**, **PC2**, **PC3**, **PC5**, **PC6**, **PC7**, **PC8**, dan **PC9**.
- **PC7** berhasil terhubung dengan **PC1**, **PC2**, **PC3**, **PC4**, **PC5**, **PC6**, **PC8**, dan **PC9**.

Semua perangkat dalam jaringan berhasil saling berkomunikasi menggunakan protokol ICMP. Tidak ditemukan kendala dalam pengiriman paket ICMP, menandakan bahwa konfigurasi routing statis telah diterapkan dengan baik. Setiap perangkat di jaringan dapat berkomunikasi tanpa hambatan.

ANALISIS PERCOBAAN

Percobaan ini berfokus pada konfigurasi dan pengujian routing statis untuk memungkinkan komunikasi antar jaringan yang dihubungkan oleh beberapa router. Setiap router telah dikonfigurasi dengan alamat IP yang tepat dan disimpan dalam NVRAM agar tetap aktif meskipun perangkat di-restart. Dengan membuat tabel routing statis, setiap router dapat mengetahui jalur menuju jaringan

lain yang tidak terhubung langsung. Rute ini ditambahkan secara manual untuk memastikan bahwa setiap router dapat meneruskan paket ke tujuan yang berada di luar subnetnya.

Tes koneksi dilakukan menggunakan protokol ICMP, di mana paket ping dikirim antar PC di berbagai jaringan. Tes ini bertujuan untuk memverifikasi bahwa perangkat di jaringan berbeda dapat saling berkomunikasi melalui router yang sudah dikonfigurasi. Hasil tes menunjukkan bahwa seluruh PC yang diuji berhasil merespons ping, menandakan tidak ada masalah dalam penerusan paket melalui routing statis yang diterapkan.

KESIMPULAN PERCOBAAN

Dari percobaan ini, dapat disimpulkan bahwa konfigurasi routing statis berhasil diterapkan dengan baik. Semua perangkat mampu saling terhubung dan berkomunikasi antar subnet tanpa mengalami masalah. Pengaturan rute yang ditambahkan secara manual memungkinkan setiap router untuk mengetahui dan meneruskan paket ke jaringan lain, menunjukkan bahwa routing statis adalah solusi yang dapat diandalkan untuk menghubungkan jaringan yang tidak terhubung secara langsung. Meskipun demikian, perlu dicatat bahwa jika terjadi perubahan pada topologi jaringan, tabel routing harus diperbarui secara manual untuk memastikan kelangsungan komunikasi antar perangkat.