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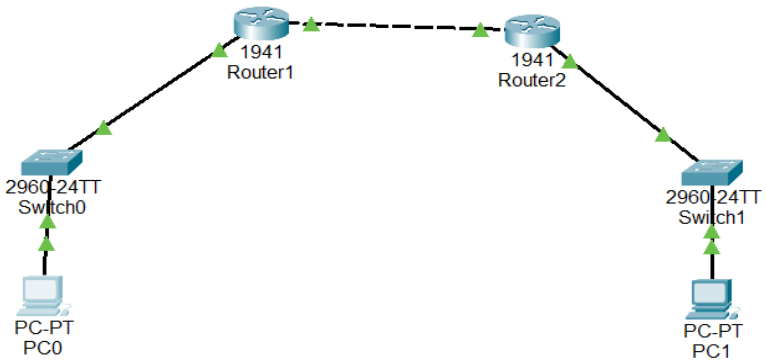
OSPF DAN BGF BYNAMIC ROUTING

- **ROUTING OSPF**



No	Nama Device	Alamat	Geteway	Netmask
1	PC0	192.168.10.2	192.168.10.1	255.255.255.0
2	PC1	192.168.20.2	192.168.20.1	255.255.255.0

- **Ping masing masing ip address**

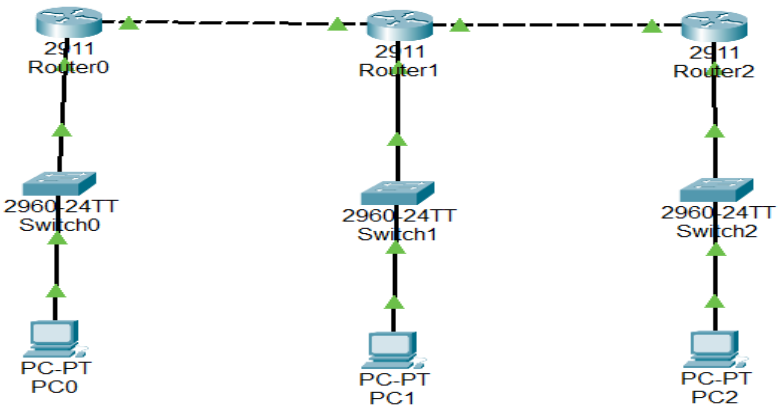
```
C:\>ping 192.168.20.1

Pinging 192.168.20.1 with 32 bytes of data:

Reply from 192.168.20.1: bytes=32 time<1ms TTL=254
Reply from 192.168.20.1: bytes=32 time<1ms TTL=254
Reply from 192.168.20.1: bytes=32 time<1ms TTL=254
Reply from 192.168.20.1: bytes=32 time<1ms TTL=254

Ping statistics for 192.168.20.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data:

Reply from 192.168.20.2: bytes=32 time=31ms TTL=128
Reply from 192.168.20.2: bytes=32 time=11ms TTL=128
Reply from 192.168.20.2: bytes=32 time=12ms TTL=128
Reply from 192.168.20.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 31ms, Average = 13ms

C:\>
```

Kesimpulan:

OSPF adalah protokol routing yang sangat andal dan fleksibel, cocok untuk jaringan skala menengah hingga besar. Meskipun membutuhkan upaya lebih dalam konfigurasi dan pemeliharaan, keunggulannya dalam efisiensi, skalabilitas, dan kemampuan konvergensi membuatnya menjadi pilihan utama dalam implementasi jaringan modern.

- **ROUTING BGP**



NO	Nama Device	Alamat	Geteway	Netmask
1	PC0	192.168.10.2	192.168.10.1	255.255.255.0
2	PC1	192.168.20.2	192.168.20.1	255.255.255.0
3	PC2	192.168.30.2	192.168.20.1	255.255.255.0

- **Hasil routing 1**

```
R0_009#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       10.10.10.0/24 is directly connected, GigabitEthernet0/0
L       10.10.10.1/32 is directly connected, GigabitEthernet0/0
B       10.10.20.0/24 [20/0] via 10.10.10.2, 00:00:00
     192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.10.0/24 is directly connected, GigabitEthernet0/1
L       192.168.10.1/32 is directly connected, GigabitEthernet0/1
B    192.168.20.0/24 [20/0] via 10.10.10.2, 00:00:00
B    192.168.30.0/24 [20/0] via 10.10.10.2, 00:00:00

R0_009#
```

- **Hasil routing 2**

```
R1_009#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       10.10.10.0/24 is directly connected, GigabitEthernet0/0
L       10.10.10.2/32 is directly connected, GigabitEthernet0/0
C       10.10.20.0/24 is directly connected, GigabitEthernet0/1
L       10.10.20.1/32 is directly connected, GigabitEthernet0/1
B    192.168.10.0/24 [20/0] via 10.10.10.1, 00:00:00
     192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.20.0/24 is directly connected, GigabitEthernet0/2
L       192.168.20.1/32 is directly connected, GigabitEthernet0/2
B    192.168.30.0/24 [20/0] via 10.10.20.2, 00:00:00

R1_009#
```

- **Hasil routing 3**

```
R2_009#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
B       10.10.10.0/24 [20/0] via 10.10.20.1, 00:00:00
C       10.10.20.0/24 is directly connected, GigabitEthernet0/0
L       10.10.20.2/32 is directly connected, GigabitEthernet0/0
B    192.168.10.0/24 [20/0] via 10.10.20.1, 00:00:00
B    192.168.20.0/24 [20/0] via 10.10.20.1, 00:00:00
     192.168.30.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.30.0/24 is directly connected, GigabitEthernet0/1
L       192.168.30.1/32 is directly connected, GigabitEthernet0/1

R2_009#
```

- **Ping masing masing ip address**

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time<1ms TTL=128
Reply from 192.168.10.2: bytes=32 time=1ms TTL=128
Reply from 192.168.10.2: bytes=32 time<1ms TTL=128
Reply from 192.168.10.2: bytes=32 time=12ms TTL=128

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 12ms, Average = 3ms

C:\>
```

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data:

Reply from 192.168.20.2: bytes=32 time=16ms TTL=128
Reply from 192.168.20.2: bytes=32 time<1ms TTL=128
Reply from 192.168.20.2: bytes=32 time=1ms TTL=128
Reply from 192.168.20.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 16ms, Average = 4ms

C:\>
```

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time=26ms TTL=128
Reply from 192.168.30.2: bytes=32 time=4ms TTL=128
Reply from 192.168.30.2: bytes=32 time=1ms TTL=128
Reply from 192.168.30.2: bytes=32 time=14ms TTL=128

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 26ms, Average = 11ms

C:\>
```

- **Border Gateway Protocol (BGP)** adalah protokol routing yang digunakan untuk pertukaran informasi routing antar sistem otonom (Autonomous Systems/AS) di jaringan internet. BGP dikenal sebagai protokol routing eksternal (Exterior Gateway Protocol) yang sangat penting untuk mengelola lalu lintas di internet.

- **Kesimpulan tentang BGP Routing:**
  BGP adalah protokol routing yang sangat penting untuk mengelola pertukaran informasi routing antar jaringan besar (Autonomous Systems) di internet. Dengan pendekatan berbasis kebijakan (*policy-based routing*), BGP memungkinkan operator jaringan untuk mengontrol jalur lalu lintas berdasarkan kebutuhan bisnis dan teknis.