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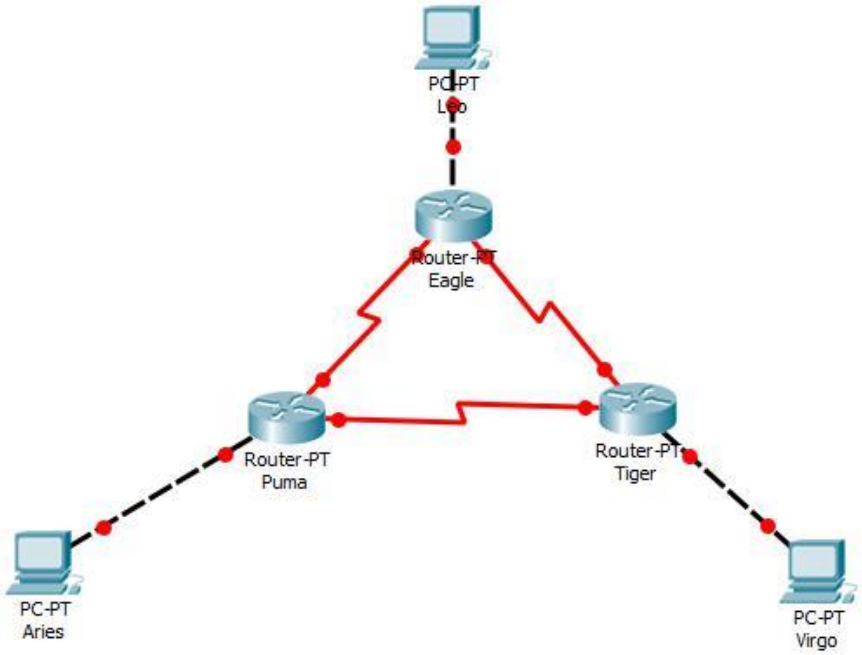
Praktikum Modul 8

Kegiatan 1. Topologi 1 (Static Routing)

1. Membuat topologi seperti gambar dibawah ini. Beri nama masing-masing router dengan Eagle(router 1), Puma(router 2) dan Tiger(router 3) serta beri nama masing-masing PC dengan Leo(PC 1), Aries(PC 2) dan Virgo(PC 3).



2. Konfigurasi masing-masing interface pada tiap Router dengan alamat IP berikut ini: - Eagle (ethernet 0) = 172.21.10.10/24

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip add 172.21.10.10 255.255.255.0
Router(config-if)#no shutdown

Router(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
```

- Eagle (serial 0) = 172.21.1.1/24 dan Eagle (serial 1) = 172.21.2.1/24

```
Router(config-if)#int se2/0
Router(config-if)#clock rate 2000000
Router(config-if)#ip add 172.21.1.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#int se3/0
Router(config-if)#clock rate 2000000
Router(config-if)#ip add 172.21.2.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0,
changed state to up

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0,
changed state to up
```

- Puma (ethernet 0) = 172.21.20.20/24

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip add 172.21.20.20 255.255.255.0
Router(config-if)#no shutdown

Router(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
```

- Puma (serial 0) = 172.21.1.2/24 dan Puma (serial 1) = 172.21.3.2/24

```
Router(config-if)#int se2/0
Router(config-if)#ip add 172.21.1.2 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0,
changed state to up

Router(config-if)#int se3/0
Router(config-if)#clock rate 2000000
Router(config-if)#ip add 172.21.3.2 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0,
changed state to up
```

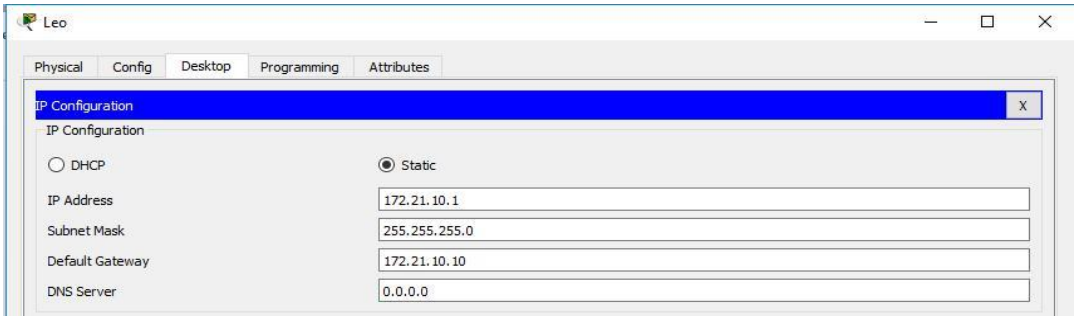
- Tiger (ethernet 0) = 172.21.30.30/24

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip add 172.21.30.30 255.255.255.0
Router(config-if)#no shutdown

Router(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
```

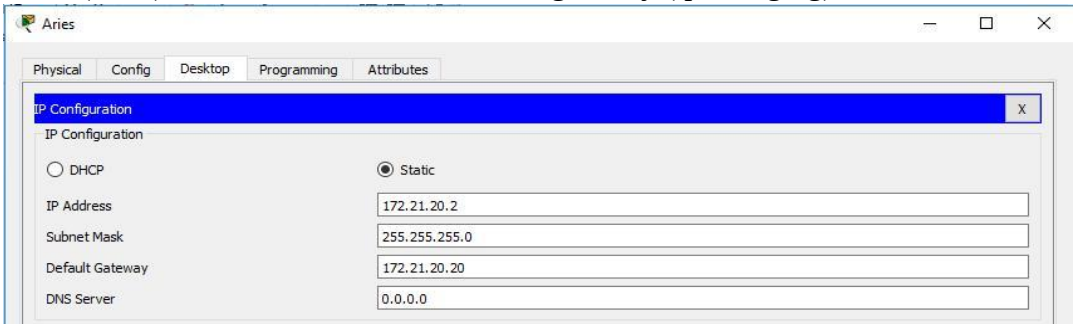
- Tiger (serial 0) = 172.21.2.3/24 dan Tiger (serial 1) = 172.21.3.3/24

```
Router(config-if)#int se2/0
Router(config-if)#ip add 172.21.2.3 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0,
changed state to up

Router(config-if)#int se3/0
Router(config-if)#ip add 172.21.3.3 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0,
changed state to up
```

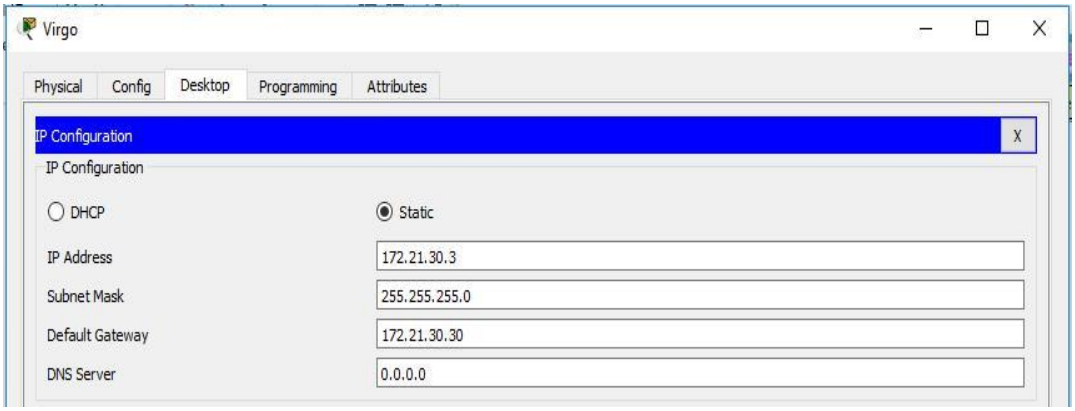
3. Konfigurasi masing-masing PC dengan alamat IP berikut ini:
   - Leo (PC 1) = 172.21.10.1/24 dan default gateway (ipconfig/dg) 172.21.10.10



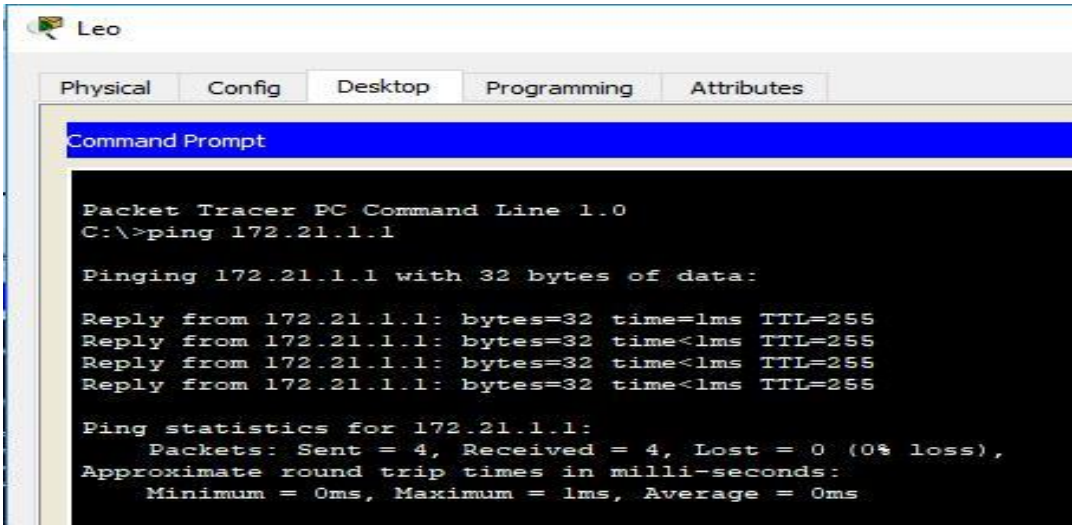
   - Aries (PC 2) = 172.21.20.2/24 dan default gateway (ipconfig/dg) 172.21.20.20



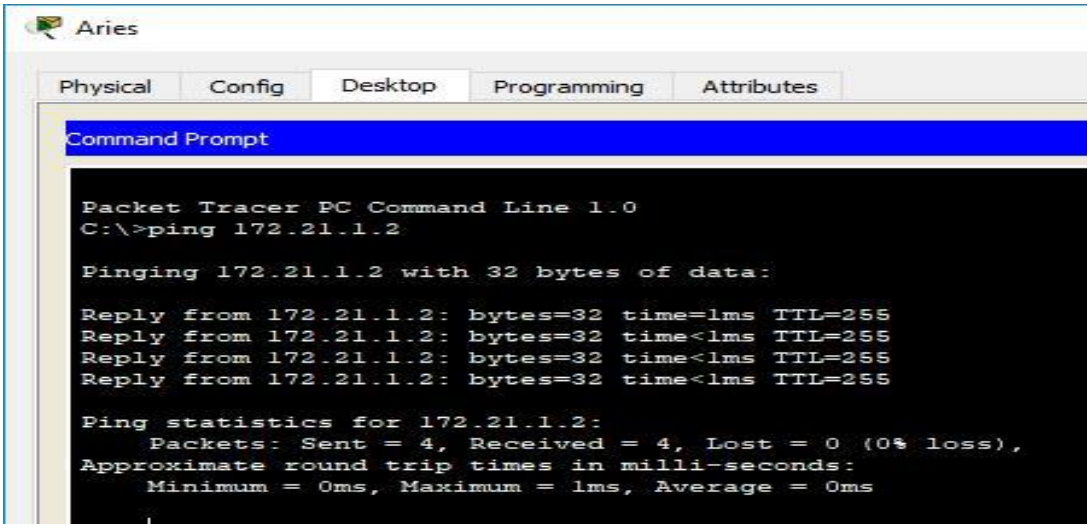
- Virgo (PC 3) = 172.21.30.3/24 dan default gateway (ipconfig/dg) 172.21.30.30



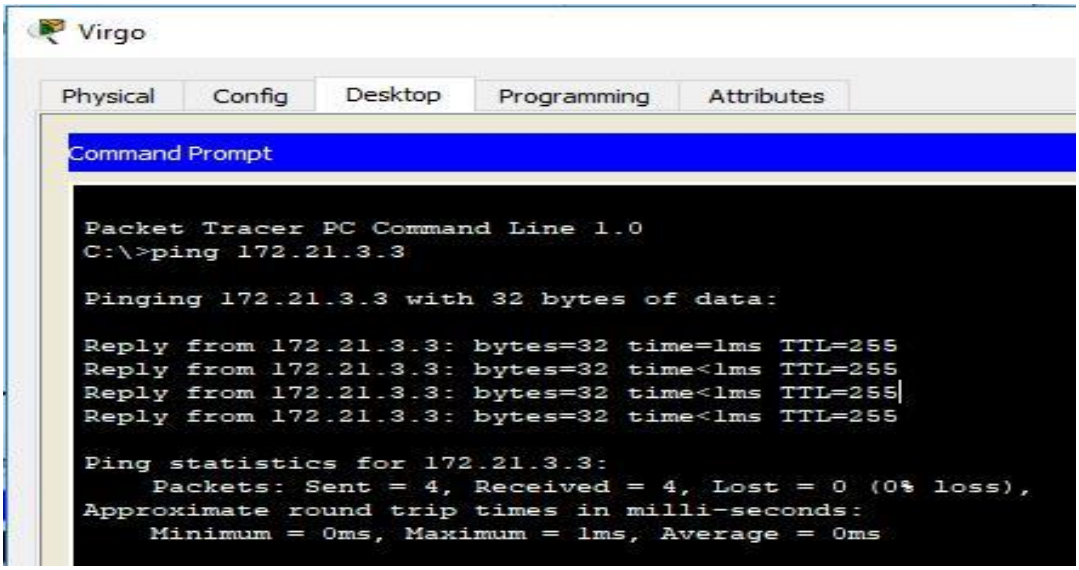
4. Langkah pengujian untuk memastikan kesesuaian konfigurasi. - Lakukan ping dari PC leo ke router eagle (172.21.1.1)



- Lakukan ping dari PC aries ke router puma (172.21.1.2)



- Lakukan ping dari PC virgo ke router tiger (172.21.3.3)



- Lakukan ping dari router eagle ke router puma (172.21.1.2)

```
Router>en
Router#ping 172.21.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.21.1.2, timeout is 2
seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/3
ms
```

- Lakukan ping dari router eagle ke router tiger (172.21.2.3)

```
Router#ping 172.21.2.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.21.2.3, timeout is 2
seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4
ms
```

- Lakukan ping dari router puma ke router tiger (172.21.3.3)

```
Router>en
Router#ping 172.21.3.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.21.3.3, timeout is 2
seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4
ms
```

5. Simpan konfigurasi seluruh device yang telah dilakukan

6. Pada mode user atau mode privileged, lihat route pada masing-masing router
   - Eagle

```
Router>en
Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.21.0.0/24 is subnetted, 3 subnets
C       172.21.1.0 is directly connected, Serial2/0
C       172.21.2.0 is directly connected, Serial3/0
C       172.21.10.0 is directly connected, FastEthernet0/0
```

   - Puma

```
Router>en
Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.21.0.0/24 is subnetted, 3 subnets
C       172.21.1.0 is directly connected, Serial2/0
C       172.21.3.0 is directly connected, Serial3/0
C       172.21.20.0 is directly connected, FastEthernet0/0
```

- Tiger

```
Router>en
Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.21.0.0/24 is subnetted, 3 subnets
C       172.21.2.0 is directly connected, Serial2/0
C       172.21.3.0 is directly connected, Serial3/0
C       172.21.30.0 is directly connected, FastEthernet0/0
```

7. Dari router eagle lakukan ping ke alamat interface e0 router puma (172.21.20.20)

```
Router#ping 172.21.20.20

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.21.20.20, timeout is 2
seconds:
.....
Success rate is 0 percent (0/5)
```

8. Dari PC leo lakukan trace ke PC aries

```
Packet Tracer PC Command Line 1.0
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1    1 ms      0 ms      0 ms      172.21.10.10
  2    0 ms      *         0 ms      172.21.10.10
  3    *         0 ms      *         Request timed out.
  4    0 ms      *         0 ms      172.21.10.10
  5    *         0 ms      *         Request timed out.
  6    0 ms      *         0 ms      172.21.10.10
  7    *         0 ms      *         Request timed out.
  8    0 ms      *         0 ms      172.21.10.10
  9    *         3 ms      *         Request timed out.
  10    0 ms      *         0 ms      172.21.10.10
  11    *         0 ms      *         Request timed out.
  12    1 ms      *         0 ms      172.21.10.10
  13    *         0 ms      *         Request timed out.
  14    0 ms      *         1 ms      172.21.10.10
  15    *         0 ms      *         Request timed out.
  16    0 ms      *         0 ms      172.21.10.10
  17    *         0 ms      *         Request timed out.
  18    0 ms      *         1 ms      172.21.10.10
  19    *         0 ms      *         Request timed out.
  20    0 ms      *         0 ms      172.21.10.10
  21    *         0 ms      *         Request timed out.
  22    0 ms      *         0 ms      172.21.10.10
  23    *         0 ms      *         Request timed out.
  24    0 ms      *         0 ms      172.21.10.10
  25    *         0 ms      *         Request timed out.
  26    0 ms      *         3 ms      172.21.10.10
  27    *         0 ms      *         Request timed out.
  28    0 ms      *         0 ms      172.21.10.10
  29    *         0 ms      *         Request timed out.
  30    0 ms      *         0 ms      172.21.10.10

Trace complete.
```

9. Dari PC leo lakukan trace ke alamat interface s0 router eagle (172.21.1.1)

```
C:\>tracert 172.21.1.1

Tracing route to 172.21.1.1 over a maximum of 30 hops:

  1    1 ms      0 ms      0 ms      172.21.1.1

Trace complete.
```

10. Pada mode user atau mode privileged, tambahkan route table pada masing-masing rote untuk setiap alamat jaringan yang tidak terhubung secara langsung dengan interface router
    - Eagle

```
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 172.21.20.20 255.255.255.0 172.21.1.2
%Inconsistent address and mask
Router(config)#ip route 172.21.20.0 255.255.255.0 172.21.1.2
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.2.3
Router(config)#ex
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.21.0.0/24 is subnetted, 5 subnets
C       172.21.1.0 is directly connected, Serial2/0
C       172.21.2.0 is directly connected, Serial3/0
C       172.21.10.0 is directly connected, FastEthernet0/0
S       172.21.20.0 [1/0] via 172.21.1.2
S       172.21.30.0 [1/0] via 172.21.2.3
```

    - Puma

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 172.21.10.0 255.255.255.0 172.21.1.1
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.3.3
Router(config)#ex
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.21.0.0/24 is subnetted, 5 subnets
C       172.21.1.0 is directly connected, Serial2/0
C       172.21.3.0 is directly connected, Serial3/0
S       172.21.10.0 [1/0] via 172.21.1.1
C       172.21.20.0 is directly connected, FastEthernet0/0
S       172.21.30.0 [1/0] via 172.21.3.3
```

- Tiger

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 172.21.10.0 255.255.255.0 172.21.2.1
Router(config)#ip route 172.21.20.0 255.255.255.0 172.21.3.2
Router(config)#ex
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.21.0.0/24 is subnetted, 5 subnets
C       172.21.2.0 is directly connected, Serial2/0
C       172.21.3.0 is directly connected, Serial3/0
S       172.21.10.0 [1/0] via 172.21.2.1
S       172.21.20.0 [1/0] via 172.21.3.2
C       172.21.30.0 is directly connected, FastEthernet0/0
```

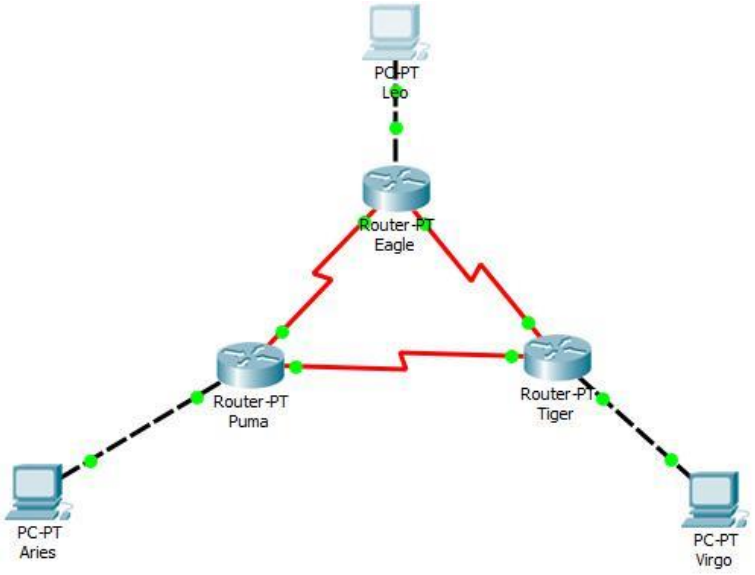
11. Dari PC leo lakukan ping ke PC aries, dan lakukan pula trace dari PC leo ke aries

```
C:\>ping 172.21.20.2

Pinging 172.21.20.2 with 32 bytes of data:

Reply from 172.21.20.2: bytes=32 time=4ms TTL=126
Reply from 172.21.20.2: bytes=32 time=3ms TTL=126
Reply from 172.21.20.2: bytes=32 time=1ms TTL=126
Reply from 172.21.20.2: bytes=32 time=14ms TTL=126

Ping statistics for 172.21.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 14ms, Average = 5ms
```

```
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1    1 ms      0 ms      5 ms      172.21.10.10
  2    5 ms      1 ms      0 ms      172.21.1.2
  3    4 ms      1 ms      0 ms      172.21.20.2

Trace complete.
```

Kegiatan 2. RIP (Routing Information Protocol)

1. Dari Packet Tracker, buka (load) topologi NetMap Kegiatan 1.



2. Pada mode configuration, konfigurasi roting RIP pada router eagle

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 172.21.0.0
```

3. Lihat konfigurasi routing RIP yang telah dibuat dengan perintah “show running-config” pada mode user. Perhatikan konfigurasi pada bagian “router rip”

```
Router#show running-config
Building configuration...

Current configuration : 795 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 172.21.10.10 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.1.1 255.255.255.0
 clock rate 2000000
!
interface Serial3/0
 ip address 172.21.2.1 255.255.255.0
 clock rate 2000000
!
interface FastEthernet4/0
 no ip address
 shutdown
!
interface FastEthernet5/0
 no ip address
 shutdown
!
router rip
 network 172.21.0.0
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

4. Lihat proses update routing RIP pada router eagle dengan perintah “debug ip rip” pada mode user. Tunggu beberapa saat untuk melihat proses yang terjadi.

```
Router#debug ip rip
RIP protocol debugging is on
Router#
Router#RIP: sending  v1 update to 255.255.255.255 via
FastEthernet0/0 (172.21.10.10)
RIP: build update entries
      network 172.21.1.0 metric 1
      network 172.21.2.0 metric 1
RIP: sending  v1 update to 255.255.255.255 via Serial2/0
(172.21.1.1)
RIP: build update entries
      network 172.21.2.0 metric 1
      network 172.21.10.0 metric 1
RIP: sending  v1 update to 255.255.255.255 via Serial3/0
(172.21.2.1)
RIP: build update entries
      network 172.21.1.0 metric 1
      network 172.21.10.0 metric 1
RIP: sending  v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.10.10)
RIP: build update entries
      network 172.21.1.0 metric 1
      network 172.21.2.0 metric 1
```

5. Lakukan konfigurasi routing RIP pada router puma dan tiger. Perhatikan proses update routing RIP pada router eagle ketika konfigurasi router puma dan tiger dilakukan.
   - Konfigurasi routing RIP Puma

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 172.21.0.0
Router(config-router)#ex
Router(config)#ex
```

```
Router#show running-config
Building configuration...

Current configuration : 775 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
```

```
interface FastEthernet0/0
 ip address 172.21.20.20 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.1.2 255.255.255.0
!
interface Serial3/0
 ip address 172.21.3.2 255.255.255.0
 clock rate 2000000
!
interface FastEthernet4/0
 no ip address
 shutdown
!
interface FastEthernet5/0
 no ip address
 shutdown
!
router rip
 network 172.21.0.0
!
ip classless
!
ip flow-export version 9
!
```

```
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

- Update router RIP Puma

```
Router#debug ip rip
RIP protocol debugging is on
Router#RIP: received v1 update from 172.21.1.1 on Serial2/0
      172.21.2.0 in 1 hops
      172.21.10.0 in 1 hops
RIP: sending  v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.20.20)
RIP: build update entries
      network 172.21.1.0 metric 1
      network 172.21.2.0 metric 2
      network 172.21.3.0 metric 1
      network 172.21.10.0 metric 2
RIP: sending  v1 update to 255.255.255.255 via Serial2/0
(172.21.1.2)
RIP: build update entries
      network 172.21.3.0 metric 1
      network 172.21.20.0 metric 1
RIP: sending  v1 update to 255.255.255.255 via Serial3/0
(172.21.3.2)
RIP: build update entries
      network 172.21.1.0 metric 1
      network 172.21.2.0 metric 2
      network 172.21.10.0 metric 2
      network 172.21.20.0 metric 1
```

- Konfigurasi routing RIP Tiger

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 172.21.0.0
Router(config-router)#ex
Router(config)#ex
```

```
Router#show running-config
Building configuration...

Current configuration : 755 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
!
```

```
interface FastEthernet0/0
 ip address 172.21.30.30 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.2.3 255.255.255.0
!
interface Serial3/0
 ip address 172.21.3.3 255.255.255.0
!
interface FastEthernet4/0
 no ip address
 shutdown
!
interface FastEthernet5/0
 no ip address
 shutdown
!
router rip
 network 172.21.0.0
!
ip classless
!
ip flow-export version 9
!
!
!
```

```
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

- Update router RIP Tiger

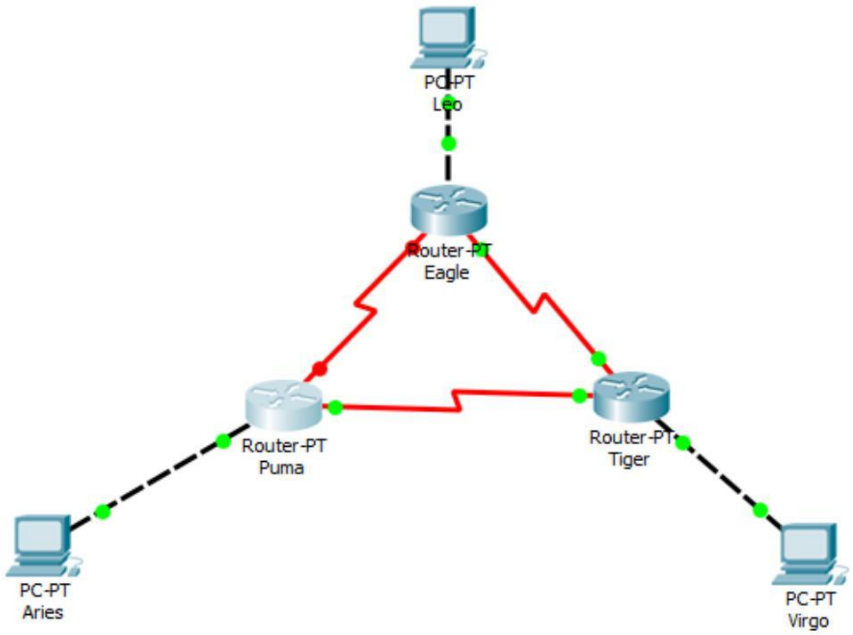
```
Router#debug ip rip
RIP protocol debugging is on
Router#RIP: received v1 update from 172.21.3.2 on Serial3/0
      172.21.1.0 in 1 hops
      172.21.10.0 in 2 hops
      172.21.20.0 in 1 hops
RIP: sending  v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.30.30)
RIP: build update entries
      network 172.21.1.0 metric 2
      network 172.21.2.0 metric 1
      network 172.21.3.0 metric 1
      network 172.21.10.0 metric 2
      network 172.21.20.0 metric 2
RIP: sending  v1 update to 255.255.255.255 via Serial2/0
(172.21.2.3)
RIP: build update entries
      network 172.21.3.0 metric 1
      network 172.21.20.0 metric 2
      network 172.21.30.0 metric 1
RIP: sending  v1 update to 255.255.255.255 via Serial3/0
(172.21.3.3)
RIP: build update entries
      network 172.21.2.0 metric 1
      network 172.21.10.0 metric 2
      network 172.21.30.0 metric 1

Router#no debug ip RIP: received v1 update from 172.21.2.1 on
Serial2/0
      172.21.1.0 in 1 hops
      172.21.10.0 in 1 hops
      172.21.20.0 in 2 hops

% Incomplete command.
```

6. Dari PC leo lakukan trace ke PC aries

```
Packet Tracer PC Command Line 1.0
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1    10 ms      0 ms      0 ms      172.21.10.10
  2    1 ms       0 ms      1 ms      172.21.1.2
  3    *          0 ms      0 ms      172.21.20.2

Trace complete.
```

7. Buat hubungan antara router eagle dan puma terputus dan perhatikan proses update routing RIP yang terjadi.

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to
administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0,
changed state to down
```

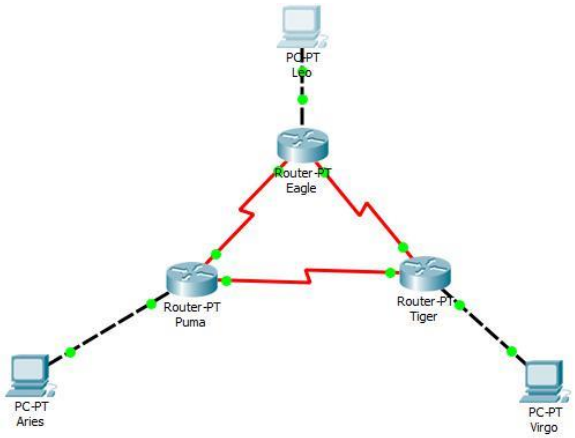


8. Dari PC leo lakukan trace ke PC aries

```
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      172.21.10.10
  2    1 ms      1 ms      4 ms      172.21.2.3
  3    10 ms     1 ms      6 ms      172.21.3.2
  4    11 ms     14 ms     13 ms     172.21.20.2

Trace complete.
```

Kegiatan 3. EIGRP (*Interior Gateway Routing Protocol*)

1. Dari Packet Tracker, buka (load) topologi NetMap Kegiatan 1



2. Pada mode configuration, konfigurasi routing RIP pada router eagle

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router eigrp 100
Router(config-router)#network 172.21.0.0
```

3. Lihat konfigurasi routing EIGRP yang telah dibuat dengan perintah “show running-config” pada mode user. Perhatikan pada bagian “router RIP’

```
Router#show running-config
Building configuration...

Current configuration : 815 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.1.1 255.255.255.0
 clock rate 2000000
!
interface Serial3/0
 ip address 172.21.2.1 255.255.255.0
 clock rate 2000000
!
interface FastEthernet4/0
 no ip address
 shutdown
!
interface FastEthernet5/0
 no ip address
 shutdown
!
router eigrp 100
 network 172.21.0.0
 auto-summary
!
ip classless
!
ip flow-export version 9
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

4. Lihat proses transaksi routing EIGRP pada router eagle dengan perintah “debug eigrp packets”

```
Router#debug eigrp packet
EIGRP Packets debugging is on
    (UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
EIGRP: Sending HELLO on Serial3/0
  AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial2/0
  AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0
```

5. Lakukan konfigurasi routing EIGRP pada router puma dan tiger - Konfigurasi routing EIGRP Puma

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router eigrp 100
Router(config-router)#network 172.21.0.0
Router(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 172.21.1.1 (Serial2/0)
is up: new adjacency
```

```
Router#show running-config
Building configuration...

Current configuration : 795 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
```

```
interface FastEthernet0/0
 ip address 172.21.20.20 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.1.2 255.255.255.0
!
interface Serial3/0
 ip address 172.21.3.2 255.255.255.0
 clock rate 2000000
!
interface FastEthernet4/0
 no ip address
 shutdown
!
interface FastEthernet5/0
 no ip address
 shutdown
!
router eigrp 100
 network 172.21.0.0
 auto-summary
!
ip classless
!
ip flow-export version 9
!
```

```
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

- Update pada routing EIGRP Puma

```
Router#debug eigrp packets
EIGRP Packets debugging is on
    (UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial3/0
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial2/0
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Received HELLO on Serial2/0 nbr 172.21.1.1
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0
```

- Konfigurasi routing EIGRP Tiger

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router eirgp 100
                     ^
% Invalid input detected at '^' marker.

Router(config)#router eigrp 100
Router(config-router)#network172.21.0.0
                      ^
% Invalid input detected at '^' marker.

Router(config-router)#network 172.21.0.0
Router(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 172.21.3.2 (Serial3/0)
is up: new adjacency

%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 172.21.2.1 (Serial2/0)
is up: new adjacency
```

```
Router#show running-config
Building configuration...

Current configuration : 775 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
```

```
interface FastEthernet0/0
 ip address 172.21.30.30 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.2.3 255.255.255.0
!
interface Serial3/0
 ip address 172.21.3.3 255.255.255.0
!
interface FastEthernet4/0
 no ip address
 shutdown
!
interface FastEthernet5/0
 no ip address
 shutdown
!
router eigrp 100
 network 172.21.0.0
 auto-summary
!
ip classless
!
ip flow-export version 9
!
!
```

```
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

- Update pada routing EIGRP Tiger

```
Router#debug eigrp packets
EIGRP Packets debugging is on
    (UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
EIGRP: Received HELLO on Serial2/0 nbr 172.21.2.1
  AS 100, Flags 0x0, Seq 11/0 idbQ 0/0

EIGRP: Sending HELLO on Serial3/0
  AS 100, Flags 0x0, Seq 11/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 11/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial2/0
  AS 100, Flags 0x0, Seq 11/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Received HELLO on Serial3/0 nbr 172.21.3.2
  AS 100, Flags 0x0, Seq 9/0 idbQ 0/0
```

6. Dari PC leo lakukan trace ke PC aries

```
Packet Tracer PC Command Line 1.0
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1   25 ms     0 ms      0 ms      172.21.10.10
  2   1 ms      4 ms      0 ms      172.21.1.2
  3   *         0 ms      3 ms      172.21.20.2

Trace complete.
```

7. Buat hubungan antara router eagle dan puma terputus dan perhatikan proses update routing RIP yang terjadi

```
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to
administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0,
changed state to down

%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 172.21.1.1 (Serial2/0)
is down: interface down
```

```
Router#debug eigrp packets
EIGRP Packets debugging is on
    (UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
EIGRP: Received HELLO on Serial3/0 nbr 172.21.3.3
  AS 100, Flags 0x0, Seq 16/0 idbQ 0/0

EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 16/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial3/0
  AS 100, Flags 0x0, Seq 16/0 idbQ 0/0 iidbQ un/rely 0/0
```

8. Dari PC leo lakukan trace ke PC aries

```
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      172.21.10.10
  2   0 ms      1 ms      1 ms      172.21.2.3
  3   2 ms      5 ms      0 ms      172.21.3.2
  4   13 ms     1 ms      11 ms     172.21.20.2

Trace complete.
```