

Nama : Ayasha Ninda Maharani

NIM : L200170143

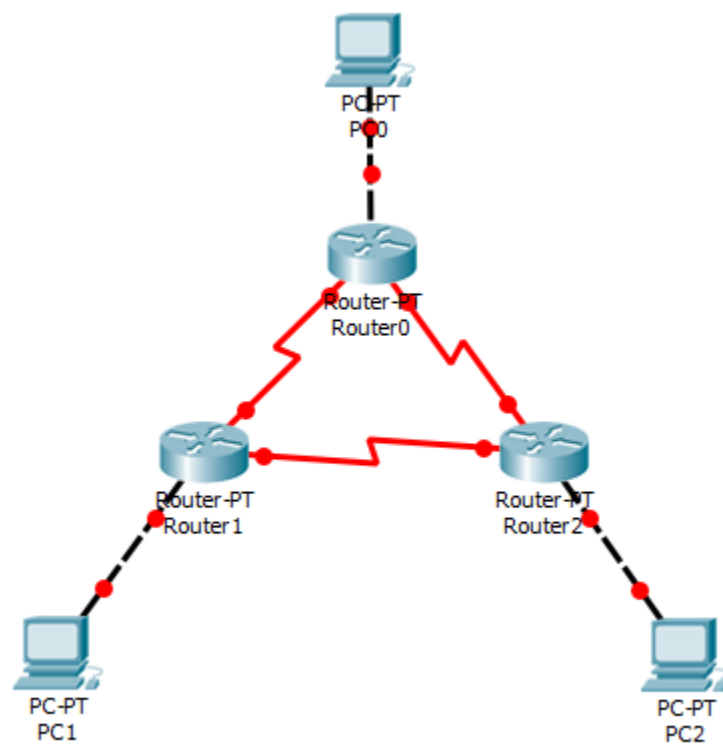
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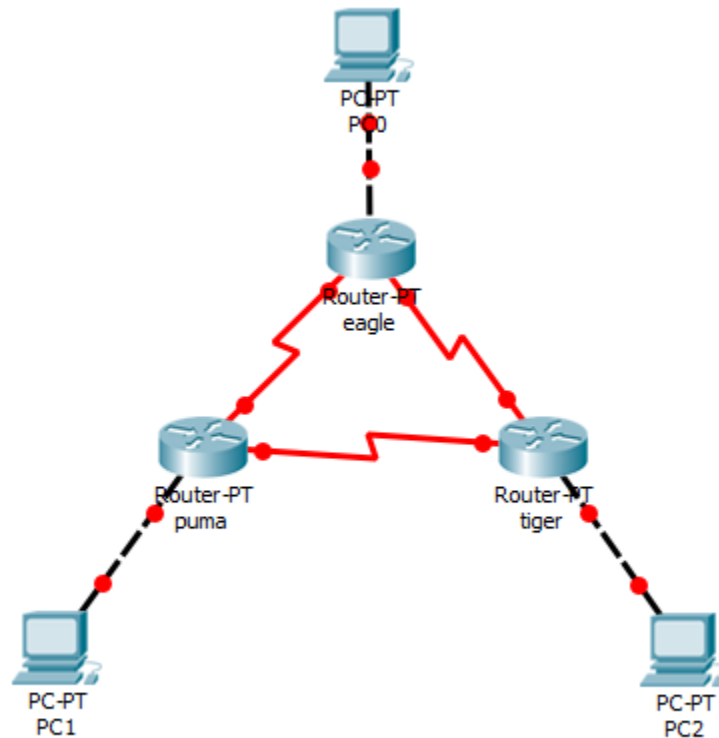
Static Route, RIP dan IGRP

Kegiatan 1. Topologi 1 (Static Routing)

1. Topologi.



2. Memberi nama masing-masing router.



3. Melakukan konfigurasi masing-masing interface pada tiap router.

a. 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 shut

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
```

b. Eagle (serial 0) = 172.21.1.1/24

```
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 shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
```

c. Eagle (serial 1) = 172.21.2.1/24

```
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 shut

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

d. 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 shut

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
```

e. Puma (serial 0) = 172.21.1.2/24

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

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

Router(config-if)#int se3/0
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
```

f. Puma (serial 1) = 172.21.3.2/24

```
Router(config-if)#int se3/0
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#clock rate 2000000
Router(config-if)#ip add 172.21.3.2 255.255.255.0
Router(config-if)#no shut

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

g. 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 shut

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
```

h. Tiger (serial 0) = 172.21.2.3/24

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

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

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

i. Tiger (serial 1) = 172.21.3.3/24

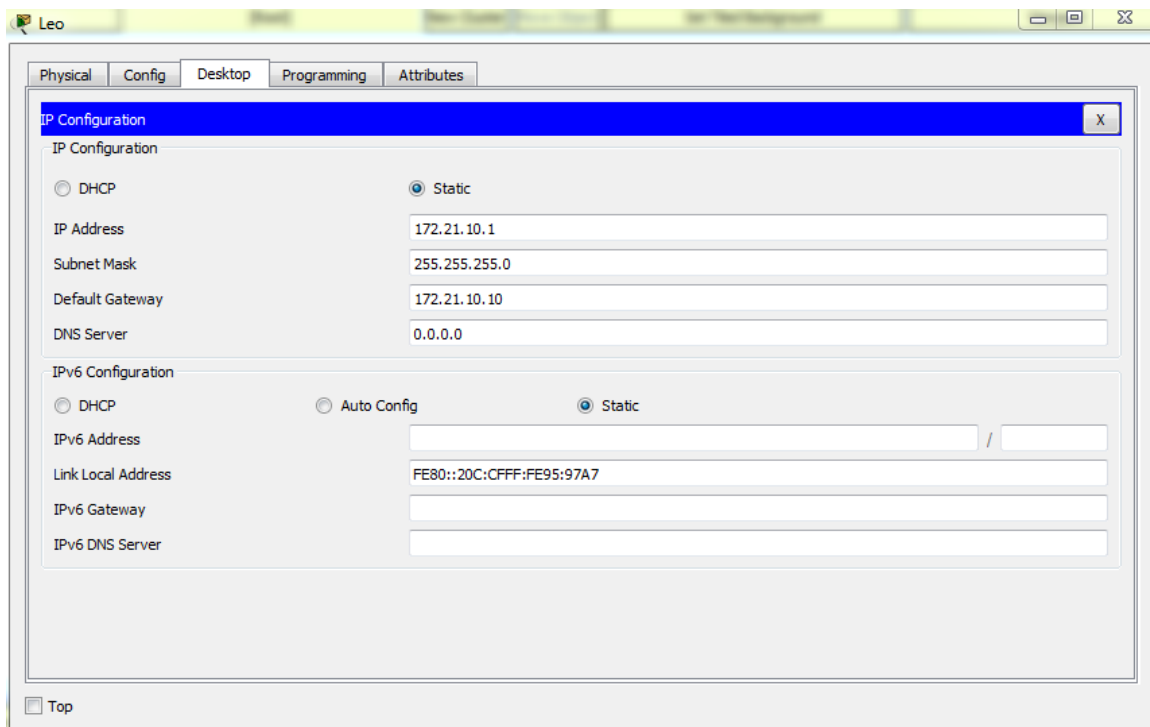
```
Router(config-if)#int se3/0
Router(config-if)#ip add 172.21.3.3 255.255.255.0
Router(config-if)#no shut

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
```

4. Melakukan konfigurasi masing-masing PC dengan nama dan alamat IP.

a. PC 1 (Leo) = 172.21.10.1/24 dan default gateway (ipconfig/dg) 172.21.10.10



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

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 172.21.20.2

Subnet Mask: 255.255.255.0

Default Gateway: 172.21.20.20

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::201:97FF:FE96:E1A4

IPv6 Gateway:

IPv6 DNS Server:

☐ Top

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

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 172.21.30.3

Subnet Mask: 255.255.255.0

Default Gateway: 172.21.30.30

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::2D0:97FF:FE82:5B29

IPv6 Gateway:

IPv6 DNS Server:

☐ Top

5. Memastikan kesesuaian konfigurasi.

a. Ping dari PC Leo ke Router Eagle.

```
C:\>ping 172.21.1.1

Pinging 172.21.1.1 with 32 bytes of data:

Reply from 172.21.1.1: bytes=32 time=1ms TTL=255
Reply from 172.21.1.1: bytes=32 time<1ms TTL=255
Reply from 172.21.1.1: bytes=32 time<1ms TTL=255
Reply from 172.21.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.21.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>|
```

b. Ping dari PC Aries ke Router Puma.

```
C:\>ping 172.21.1.2

Pinging 172.21.1.2 with 32 bytes of data:

Reply from 172.21.1.2: bytes=32 time=1ms TTL=255
Reply from 172.21.1.2: bytes=32 time<1ms TTL=255
Reply from 172.21.1.2: bytes=32 time<1ms TTL=255
Reply from 172.21.1.2: bytes=32 time<1ms TTL=255

Ping statistics for 172.21.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

c. Ping dari PC Virgo ke Router Tiger.

```
C:\>ping 172.21.3.3

Pinging 172.21.3.3 with 32 bytes of data:

Reply from 172.21.3.3: bytes=32 time=1ms TTL=255
Reply from 172.21.3.3: bytes=32 time<1ms TTL=255
Reply from 172.21.3.3: bytes=32 time<1ms TTL=255
Reply from 172.21.3.3: bytes=32 time<1ms TTL=255

Ping statistics for 172.21.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>|
```

d. Ping dari Router Eagle ke Router Puma.

```
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 =
1/2/10 ms
```

e. Ping dari Router Eagle ke Router Tiger.

```
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 = 1/1/2
ms
```

f. Ping dari Router Puma ke Router Tiger.

```
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 = 1/2/8
ms
```

6. Menyimpan konfigurasi seluruh device.

7. Melihat route table pada masing-masing router.

a. Router Eagle.

```
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 = 1/2/10 ms

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 = 1/1/2 ms

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
```

b. Router Puma.

```
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 = 1/2/8 ms

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
```


b. Router Tiger.

```
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
```

8. Ping dari Router Eagle ke alamat interface s0 Router Puma.

```
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)
```

9. Trace PC Leo 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      *          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  *          0 ms      *          Request timed out.
 10 0 ms      *          0 ms      172.21.10.10
 11 *          0 ms      *          Request timed out.
 12 0 ms      *          0 ms      172.21.10.10
 13 *          0 ms      *          Request timed out.
 14 0 ms      *          0 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      *          0 ms      172.21.10.10
 19 *          0 ms      *          Request timed out.
 20 0 ms      *          0 ms      172.21.10.10
 21 *          1 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      *          0 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.
```

10. Trace PC Leo ke alamat interface s0 Router Eagle.

```
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.
```

11. Menambahkan route table pada masing-masing router untuk setiap alamat jaringan yang tidak terhubung secara langsung dengan interface router.

a. Router Eagle

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
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
```

b. Router 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
```

c. Router 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
```

12. Ping PC Leo ke PC Aries dan trace PC Leo ke PC Aries.

a. Ping PC Leo ke PC 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=2ms 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=3ms 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 = 3ms, Average = 2ms
```

b. Trace dari PC Leo ke PC Aries

```
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

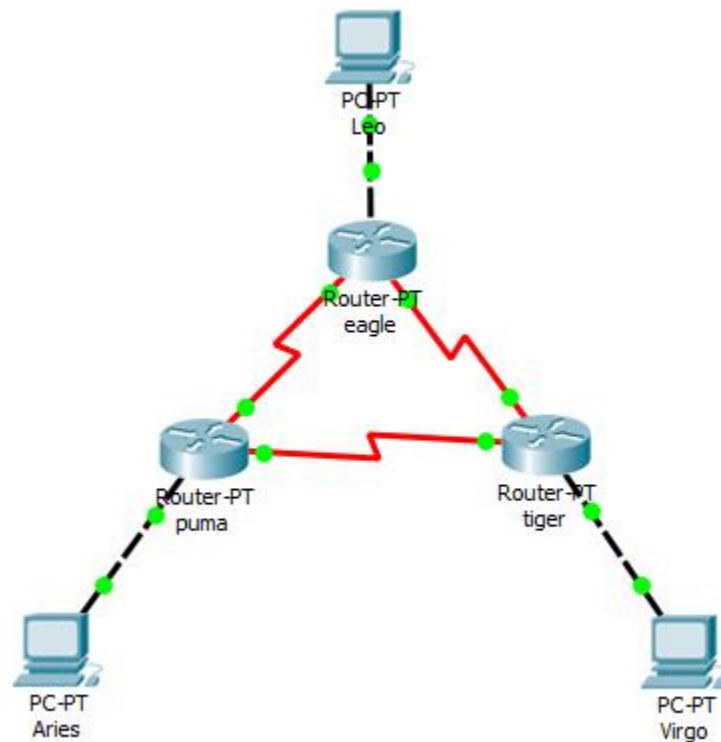
  1  6 ms    0 ms    0 ms    172.21.10.10
  2  3 ms    1 ms    3 ms    172.21.1.2
  3  1 ms    0 ms    0 ms    172.21.20.2

Trace complete.
```

c.

Kegiatan 2. RIP (Routing Information Protocol)

1. Topologi



2. Melakukan load konfigurasi seluruh device yang disimpan dalam Kegiatan1.

3. Melakukan konfigurasi routing 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
Router(config-router)#
```

4. Melihat konfigurasi routing RIP yang telah dibuat.

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

Current configuration : 889 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
!
!
--More-- |
```

5. Melihat proses update routing RIP pada Router Eagle.

```
Router#debug ip rip
RIP protocol debugging is on
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
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
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
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
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
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: 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
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
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

```

6. Melakukan konfigurasi routing RIP pada Router Puma dan Tiger.

a. Router 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)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

```

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

```
Current configuration : 869 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
!
!
```

```
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
    172.21.30.0 in 2 hops
RIP: received v1 update from 172.21.3.3 on Serial3/0
    172.21.2.0 in 1 hops
    172.21.10.0 in 2 hops
    172.21.30.0 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
    network 172.21.30.0 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
    network 172.21.30.0 metric 2
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 172.21.10.0 metric 2
    network 172.21.20.0 metric 1
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
    172.21.30.0 in 2 hops
RIP: received v1 update from 172.21.3.3 on Serial3/0
    172.21.2.0 in 1 hops
    172.21.10.0 in 2 hops
    172.21.30.0 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
```

b. Router 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)#
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show running-config
Building configuration...

Current configuration : 851 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
!
!
```

```

Router#debug ip rip
RIP protocol debugging is on
Router#RIP: received v1 update from 172.21.2.1 on Serial2/0
      172.21.10.0 in 1 hops
RIP: received v1 update from 172.21.3.2 on Serial3/0
      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 172.21.2.0 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
RIP: received v1 update from 172.21.2.1 on Serial2/0
      172.21.10.0 in 1 hops
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (172.21.30.30)
RIP: build update entries
      network 172.21.2.0 metric 1
      network 172.21.3.0 metric 1
      network 172.21.10.0 metric 2
      network 172.21.20.0 metric 2

```

7. Trace dari PC Leo ke PC Aries

```

C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

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

Trace complete.

```

8. Membuat hubungan antara Router Eagle dan Puma terputus.

```

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

```

9. Trace dari PC Leo ke PC Aries

```
C:\>tracert 172.21.20.2

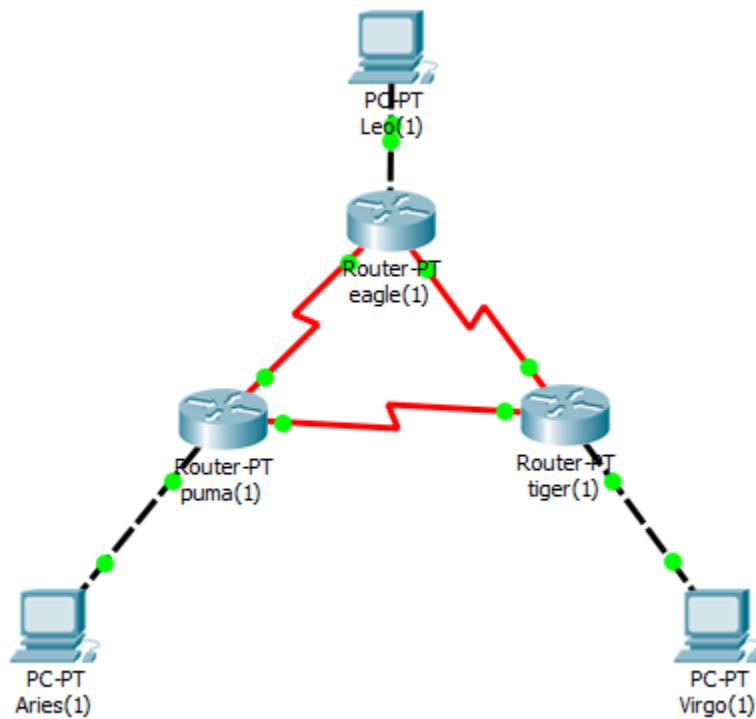
Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1  0 ms    0 ms    0 ms    172.21.10.10
  2  3 ms    0 ms    0 ms    172.21.2.3
  3  2 ms    4 ms    1 ms    172.21.3.2
  4  0 ms    1 ms    2 ms    172.21.20.2

Trace complete.
```

Kegiatan 3. EIGRP (Interior Gateway Routing Protocol)

1. Topologi



2. Melakukan load konfigurasi seluruh device yang disimpan dalam Kegiatan1.

3. Melakukan 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
Router(config-router)#exit
Router(config)#exit
Router#
```

4. Melihat konfigurasi routing EIGRP yang telah dibuat.

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

Current configuration : 909 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
!
!
```

5. Melihat proses transaksi routing EIGRP pada Router Eagle.

```
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 Serial3/0
  AS 10, 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 Serial2/0
  AS 10, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on FastEthernet0/0
  AS 10, 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

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 Serial3/0
  AS 10, 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 10, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial2/0
  AS 10, 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
```

6. Menonaktifkan debug.

```
EIGRP Packets debugging is off
Router#
```

7. Melakukan konfigurasi routing EIGRP pada Router Puma dan Router Tiger.

a. Router 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(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show running-config
Building configuration...

Current configuration : 889 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
!
!
```



```
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 1/0 idbQ 0/0 iidbQ un/rely 0/0

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

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 Serial3/0
  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
```

b. Router Tiger.

```
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 172.21.3.2 (Serial3/0) is up: new adjacency

Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show running-config
Building configuration...

Current configuration : 871 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
!
!
```

```

Router#debug eigrp packets
EIGRP Packets debugging is on
  (UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
EIGRP: Sending HELLO on Serial2/0
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iadbQ un/rely 0/0

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

EIGRP: Received HELLO on Serial3/0 nbr 172.21.3.2
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0

EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iadbQ un/rely 0/0

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

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

EIGRP: Received HELLO on Serial3/0 nbr 172.21.3.2
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0
|
EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iadbQ un/rely 0/0

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

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

```

8. Trace dari PC Leo ke PC Aries.

```

C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1  57 ms    0 ms      0 ms      172.21.10.10
  2  1 ms     1 ms      2 ms      172.21.1.2
  3  *         0 ms      2 ms      172.21.20.2

Trace complete.

```

9. Memutus hubungan antara Router Eagle dan Router Puma.

```

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

```

10. Trace dari PC Leo ke PC Aries.

```
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	*	0 ms	*	Request timed out.
10	0 ms	*	0 ms	172.21.10.10
11	*	0 ms	*	Request timed out.
12	0 ms	*	0 ms	172.21.10.10
13	*	0 ms	*	Request timed out.
14	0 ms	*	0 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	*	3 ms	*	Request timed out.
24	0 ms	*	0 ms	172.21.10.10
25	*	0 ms	*	Request timed out.
26	0 ms	*	0 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.