LV08-- Konfiguracija protokola OSPF

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## Priprema

1. Koje su karakteristike protokola OSPF?

1. Rutiranje prema najkraćoj putanji.
2. Hijerarhijsko rutiranje kroz područja.
3. Raspodjela topologije za brzu konvergenciju.
4. Podrška raznim tipovima mrežnih veza.
5. Autentikacija za sigurnost.
6. Efikasnost u upravljanju multi-access mrežama.

2. Što je Wildcard maska?

Wildcard maska pobliže definira mrežu o kojoj se radi i predstavlja inverziju subnet maske. Primjer Mreža 172.16.1.4/28 ima subnet masku: 255.255.255.240 ili
11111111.11111111.11111111.11110000 Invertirana subnet maska je:
00000000.00000000.00000000.00001111 ili u dekadskom zapisu: 0.0.0.15

Izvođenje vježbe

1. U PT-u spoji uređaje prema zadanoj topologiji i izvrši temeljnu konfiguraciju usmjernika, koristeći tab CLI u Packet Traceru
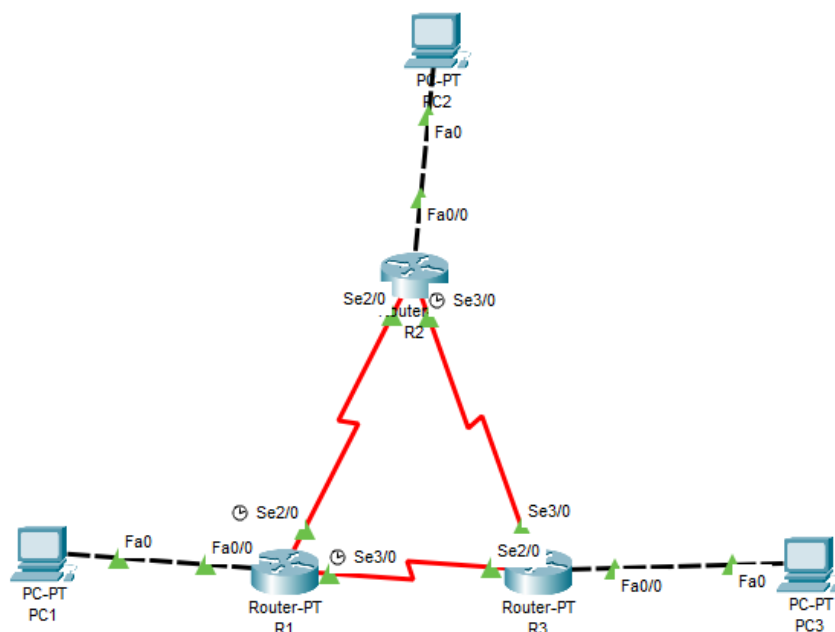
2. Konfiguriraj sučelja na usmjernicima R1, R2 i R3, koristeći priloženu tablicu adresa i zabilješke s prethodnih vježbi, pri čemu voditi računa da su IP adrese izmijenjene.

3. Pinganjem provjeri da li postoji povezanost između PC1 i PC2. Obrazloži zašto je tako.

```
C:\>ping 192.168.10.10

Pinging 192.168.10.10 with 32 bytes of data:

Reply from 10.10.10.1: Destination host unreachable.
Reply from 10.10.10.1: Destination host unreachable.
Reply from 10.10.10.1: Destination host unreachable.
Request timed out.

Ping statistics for 192.168.10.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

4. Pinganjem provjeri do koje razine povezanost postoji.

```
C:\>ping 10.10.10.1

Pinging 10.10.10.1 with 32 bytes of data:

Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.10.10.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.10.1

Pinging 192.168.10.1 with 32 bytes of data:

Reply from 10.10.10.1: Destination host unreachable.
Reply from 10.10.10.1: Destination host unreachable.
Reply from 10.10.10.1: Destination host unreachable.
Reply from 10.10.10.1: Destination host unreachable.

Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

5. Naredbom show ip route na ruteru R1 provjeri stanje ruting tablice. Ispiši koje su mreže navedene u tablici.

```
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

     10.0.0.0/28 is subnetted, 1 subnets
C       10.10.10.0 is directly connected, FastEthernet0/0
     172.16.0.0/30 is subnetted, 2 subnets
C       172.16.1.0 is directly connected, Serial2/0
C       172.16.1.4 is directly connected, Serial3/0

Router>
```

6. Konfiguriraj OSPF ruting prema sljedećim uputama čime će se omogućiti povezanost svih mreža.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 10.10.10.0 0.0.0.15 area 0
Router(config-router)#network 172.16.1.0 0.0.0.3 area 0
Router(config-router)#network 172.16.1.4 0.0.0.3 area 0
Router(config-router)#
```

7. Naredbom show ip route na svim usmjernicima provjeri stanje ruting tablica. Ispiši koje su mreže navedene u tablici.

R2:

```
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 are
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/30 is subnetted, 2 subnets
C       172.16.1.0 is directly connected, Serial2/0
C       172.16.1.8 is directly connected, Serial3/0
C     192.168.10.0/24 is directly connected, FastEthernet0/0

Router#
```

R3:

```
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

     10.0.0.0/29 is subnetted, 1 subnets
C       10.10.20.0 is directly connected, FastEthernet0/0
     172.16.0.0/30 is subnetted, 2 subnets
C       172.16.1.4 is directly connected, Serial2/0
C       172.16.1.8 is directly connected, Serial3/0

Router>
```

8. Postupak ponoviti na preostalim usmjernicima.

R2:

```
Router(config-router)#exit
Router(config)#router ospf 1
Router(config-router)#network 172.16.1.0 0.0.0.3 area 0
Router(config-router)#network 172.16.1.8 0.0.0.3 area 0
Router(config-router)#network 192.168.10.0 0.0.0.255 area 0
```

R3:

```
Router(config-if)#exit
Router(config)#router ospf 1
Router(config-router)#network 10.10.20.0 0.0.0.7 area 0
Router(config-router)#network 172.16.1.4 0.0.0.3 area 0
Router(config-router)#network 172.16.1.4 0.0.0.3 area 0
00:48:25: %OSPF-5-ADJCHG: Process 1, Nbr 172.16.1.6 on Serial2/0 fr
Router(config-router)#network 172.16.1.8 0.0.0.3 area 0
Router(config-router)#exit
Router(config)#exit
Router#
```

9. **Pinganjem provjeri povezanost između PC1, PC2 i PC3.**