RAČUNALNE MREŽE

Djelovanje u mrežnom sloju

Vježba 8: Statičko usmjeravanje

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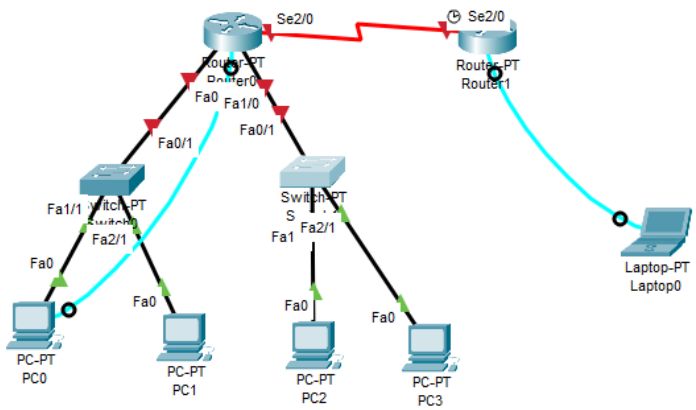
Uređaj	Adresa fastethernet sučelja	Oznaka sučelja	Mrežna maska	Oznaka Serijskog sučelja	Tip serijskog sučelja	Adresa serijskog sučelja	Mrežna maska	Default gateway
R1	192.168.20.193	0/0	255.255.255.192	S2/0	DCE	172.16.30.1	255.255.255.252	
	192.168.80.65	1/0	255.255.255.192					
R2				S2/0	DTE	172.16.30.2	255.255.255.252	
PC1	192.168.20.194							192.168.20.193
PC2	192.168.20.195							192.168.20.193
PC3	192.168.80.66							192.168.80.65
PC4	192.168.80.67							192.168.80.65

1. U PT-u spoji uređaje prema zadanoj topologiji i izvrši temeljnu konfiguraciju usmjernika, koristeći spojena računala kao terminale (rollover kabel). Na R2 također dodaj terminal radi konfiguracije.



2. Konfiguriraj sučelja na usmjerniku R1, koristeći priloženu tablicu adresa

Postupak za usmjernik R1:

a) Konfiguracija fastethernet sučelja

R1(config)#interface fastethernet 0/0

R1(config-if)#ip address 192.168.20.193 255.255.255.192

R1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

Ponoviti postupak i za sučelje FE 1/0

b) Konfiguracija serijskog sučelja 2/0 (DCE)

R1(config)#interface serial 2/0

R1(config-if)#ip address 172.16.30.1 255.255.255.252

R1(config-if)#clock rate 64000

R1(config-if)#no shutdown

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

R1(config-if)#

3. Konfiguriraj sučelje na usmjerniku R2, uz pomoć tablice adresa

a) Konfiguracija serijskog sučelja 2/0

R2(config)#interface serial 2/0

R2(config-if)#ip address 172.16.30.2 255.255.255.252

R2(config-if)#no shutdown

R2(config-if)#

4. Pinganjem provjeri da li postoji povezanost između računala u jednoj i drugoj Ethernet mreži. Rezultate zapiši u bilježnicu.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.195

Pinging 192.168.20.195 with 32 bytes of data:

Reply from 192.168.20.195: bytes=32 time=8ms TTL=128
Reply from 192.168.20.195: bytes=32 time<1ms TTL=128
Reply from 192.168.20.195: bytes=32 time<1ms TTL=128
Reply from 192.168.20.195: bytes=32 time=18ms TTL=128

Ping statistics for 192.168.20.195:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 18ms, Average = 6ms

C:\>ping 192.168.80.66

Pinging 192.168.80.66 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.80.66:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

- Pinganje računala iste mreže i različite

5. Pinganjem provjeri dohvatljivost default gatewaya za svaku mrežu. Rezultate zapiši u bilježnicu.

```
Pinging 192.168.80.65 with 32 bytes of data:

Reply from 192.168.80.65: bytes=32 time<1ms TTL=255
Reply from 192.168.80.65: bytes=32 time<1ms TTL=255
Reply from 192.168.80.65: bytes=32 time<1ms TTL=255
Reply from 192.168.80.65: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.80.65:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Iz prve mreže u drugu

```
Pinging 192.168.20.193 with 32 bytes of data:

Reply from 192.168.20.193: bytes=32 time<1ms TTL=255
Reply from 192.168.20.193: bytes=32 time<1ms TTL=255
Reply from 192.168.20.193: bytes=32 time=4ms TTL=255
Reply from 192.168.20.193: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.20.193:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\>
```

Pinganje iz druge u prvu mrežu

6. Pinganjem sa bilo kojeg računala provjeri dohvatljivost serijskog sučelja S2/0 usmjernika R2 (iz naredbenog retka -cmd). Obrazloži rezultat pinganja.

```
C:\>ping 172.16.30.2

Pinging 172.16.30.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 172.16.30.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Niti jednim računalom ne možemo pingati S2/0 R2 usmjernika – ruta je jednosmjerna

7. U simulation modu uputi ICMP paket sa bilo kojeg računala na R1, a zatim na R2. Opiši što se je dogodilo. Zbog čega ICMP request dohvaća R2, ali se reply ne vraća natrag?

U R1 usmjerniku postoji promet jer ima konfiguriranu statičku rutu.

8. Naredbom show ip route na usmjernicima R1 i R2 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

     172.16.0.0/30 is subnetted, 1 subnets
C       172.16.30.0 is directly connected, Serial2/0
     192.168.20.0/26 is subnetted, 1 subnets
C       192.168.20.192 is directly connected, FastEthernet0/0
     192.168.80.0/26 is subnetted, 1 subnets
C       192.168.80.64 is directly connected, FastEthernet1/0
```

R1

```
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

     172.16.0.0/30 is subnetted, 1 subnets
C       172.16.30.0 is directly connected, Serial2/0
```

R2