

MREŽNI SLOJ

VJEŽBA 3 SUBNETIRANJE

NIKO SKELIN I MARKO SIKIRIĆ 3.C

PRIPREMA ZA VJEŽBU

1. Koliko subneta možemo kreirati, ako smo unutar zadanog adresnog bloka 2 bita prebacili iz host dijela u mrežni dio IP adrese?
Možemo stvoriti 4 subneta, 00, 01, 10, 11.
2. Koliko bitova treba biti u host dijelu adrese, ako u nekoj mreži želimo osigurati IP adrese za 38 računala? Obrazloži izračun
Mora biti 6 bitova jer je $2^6=64$, pa je ovdje maksimalno moguće 64 hosta, da je bit manje bi bilo moguće samo 30 hosta pa to nebi bilo dovoljno.

IZVOĐENJE VJEŽBE

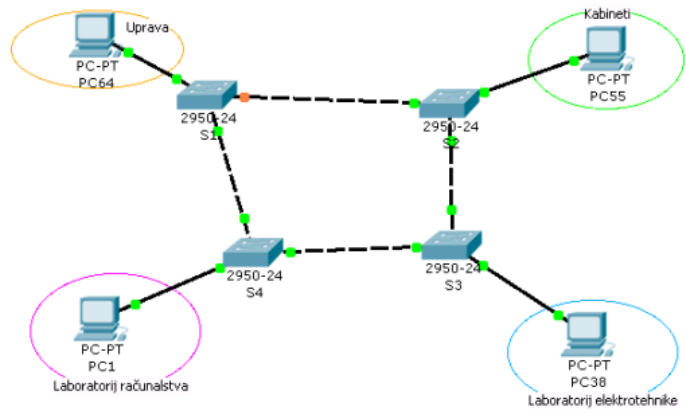
Zadaci:

1. Računala su do sada u školi bila raspoređena na slijedeći način:

Organizacijska jedinica	Broj računala	Naziv računala
Laboratorij računalstva	37	PC1 – PC37
Laboratorij elektrotehnike	17	PC38 – PC54
Kabineti	9	PC55 – PC63
Uprava	5	PC64 – PC68

Školi je dodijeljen adresni blok 192.168.100.0/24. Svaka organizacijska jedinica u svojem prostoru ima prespojnik. Prespojnici u zadanoj (default) konfiguraciji i međusobno su povezani Ethernet kabelom.

Formiraj LAN prema prikazanoj topologiji i provjeri veze između pojedinih dijelova mreže pinganjem. Zabilježi rezultat.



```
C:\>ping 192.168.100.1

Pinging 192.168.100.1 with 32 bytes of data:

Reply from 192.168.100.1: bytes=32 time<1ms TTL=128
Reply from 192.168.100.1: bytes=32 time<1ms TTL=128
Reply from 192.168.100.1: bytes=32 time<1ms TTL=128
Reply from 192.168.100.1: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.100.1:
    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 192.168.100.3

Pinging 192.168.100.3 with 32 bytes of data:

Reply from 192.168.100.3: bytes=32 time<1ms TTL=128
Reply from 192.168.100.3: bytes=32 time=1ms TTL=128
Reply from 192.168.100.3: bytes=32 time<1ms TTL=128
Reply from 192.168.100.3: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.100.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

```
C:\>ping 192.168.100.2

Pinging 192.168.100.2 with 32 bytes of data:

Reply from 192.168.100.2: bytes=32 time<1ms TTL=128
Reply from 192.168.100.2: bytes=32 time<1ms TTL=128
Reply from 192.168.100.2: bytes=32 time<1ms TTL=128
Reply from 192.168.100.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

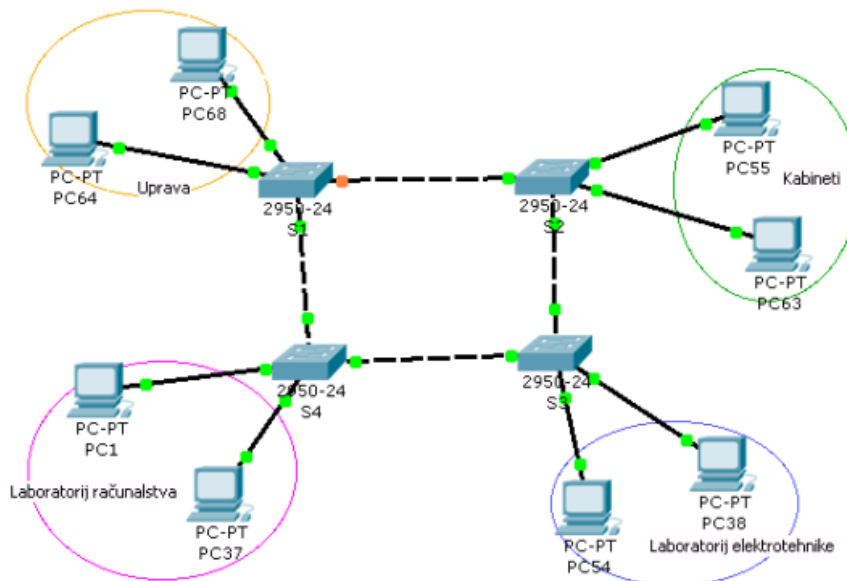
```
C:\>ping 192.168.100.4

Pinging 192.168.100.4 with 32 bytes of data:

Reply from 192.168.100.4: bytes=32 time<1ms TTL=128
Reply from 192.168.100.4: bytes=32 time=21ms TTL=128
Reply from 192.168.100.4: bytes=32 time<1ms TTL=128
Reply from 192.168.100.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 21ms, Average = 5ms
```

2. Uprava škole odlučila je da se izvrši subnetiranje postojeće mreže, kako bi svaka organizacijska cjelina imala neovisnu mrežu. Tehničari imaju zadatak da nakon subnetiranja prikažu i dokumentiraju novu adresnu shemu, te uporabom Packet Tracera provjere da li su mreže neovisne.



Napomena: U topologiji prikazati po dva računala iz svakog subneta, prvo i zadnje.

Koji je rezultat nakon subnetiranja u odnosu računala unutar pojedinog subneta i između pojedinih subneta?

192.168.100.0/24, postavimo na s tako da možemo napraviti 4 subneta.

	ADRESA PODMREŽE	ADRESA PRVOG HOSTA	ADRESA ZADNJEG HOSTA	BROADCAST ADRESA
1 podmreža	192.168.100.0/26	192.168.100.1	192.168.100.62	192.168.100.63
2 podmreža	192.168.100.64/26	192.168.100.65	192.168.100.126	192.168.100.127
3 podmreža	192.168.100.128/26	192.168.100.129	192.168.100.190	192.168.100.191
4 podmreža	192.168.100.192/26	192.168.100.193	192.168.100.254	192.168.100.255

Postavili smo ove IP adrese na svako računalo i postavili subnet mask na 255.255.255.192.

```
C:\>ping 192.168.100.65

Pinging 192.168.100.65 with 32 bytes of data:

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

Ping statistics for 192.168.100.65:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.100.62

Pinging 192.168.100.62 with 32 bytes of data:

Reply from 192.168.100.62: bytes=32 time<lms TTL=128
Reply from 192.168.100.62: bytes=32 time<lms TTL=128
Reply from 192.168.100.62: bytes=32 time<lms TTL=128
Reply from 192.168.100.62: bytes=32 time=lms TTL=128

Ping statistics for 192.168.100.62:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = lms, Average = 0ms
```

Kada smo pingali prvi host druge podmreže se nisu poslali paketi zato što su mreže neovisne. I uporabom packet tracer simulacije smo mogli vidjeti da se paket normalno poslao u zajedničkoj podmreži no između dve podmređe se paket nije poslao.

