TEHNIČKA ŠKOLA RUĐERA BOŠKOVIĆA
Zagreb, Getaldićeva 4

Nastavni predmet	RAČUNALNE MREŽE_3H
Naslov cjeline	Djelovanje u mrežnom sloju
Naslov jedinice	Vježba 4: Subnetiranje pomoću VLSM tehnike

Marko Dalić, Filip Ćorković, 3.C

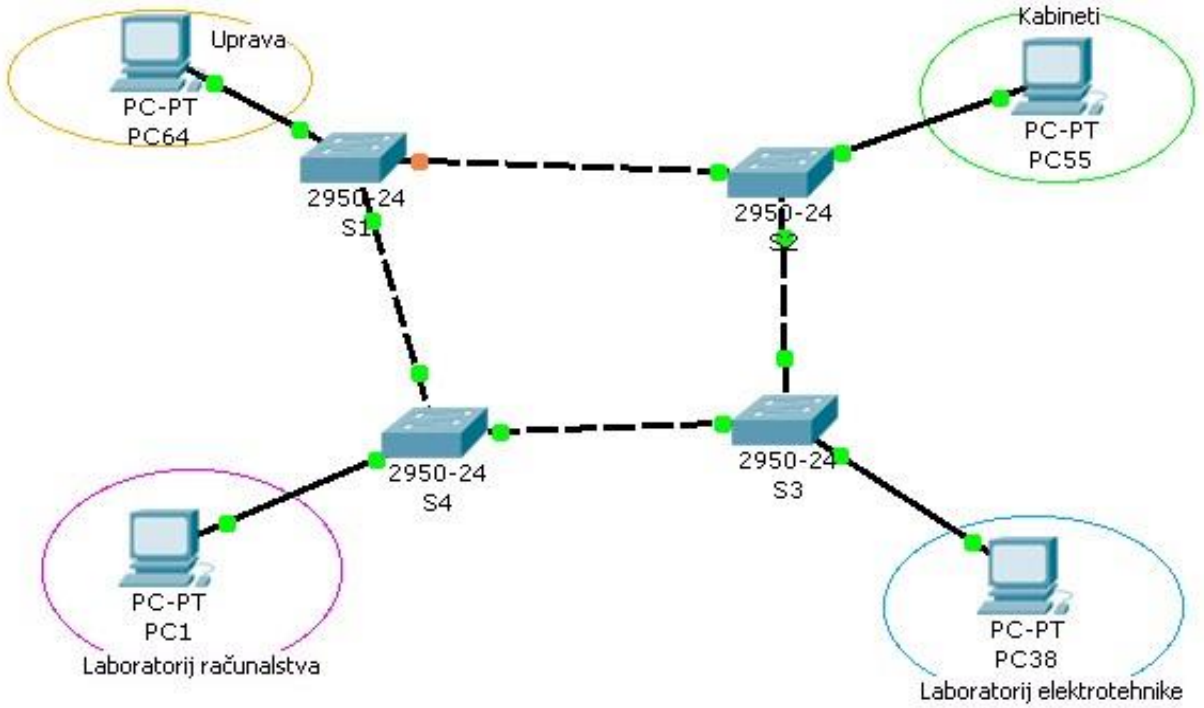
IZVOĐENJE VJEŽBE

Situacija: Za potrebe tehničke škole koristi se 68 računala koja su raspoređena u četiri organizacijske cjeline. Postojeća mreža ne zadovoljava u pogledu efikasnosti pa će je biti potrebno reorganizirati.

1. U tehničkoj školi je u uporabi 68 računala, prema slijedećem rasporedu: ✓

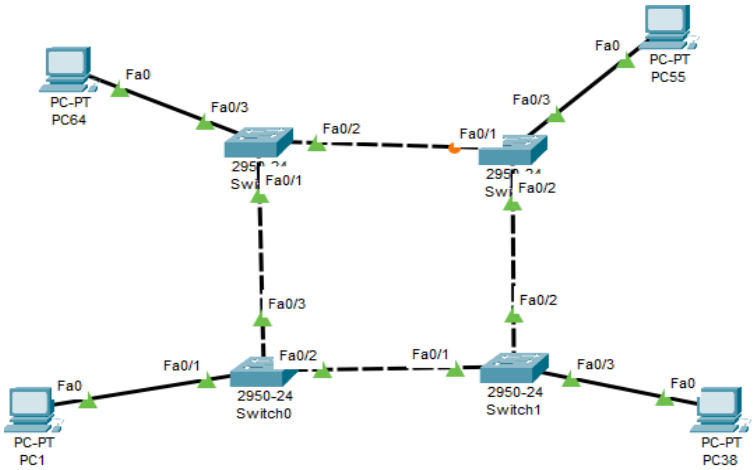
Organizacijska jedinica	Broj računala	Naziv računala
Laboratorij računarstva	37	PC1 – PC37
Laboratorij elektrotehnike	17	PC38 – PC54
Kabineti	9	PC55 – PC63
Uprava	5	PC64 – PC68

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

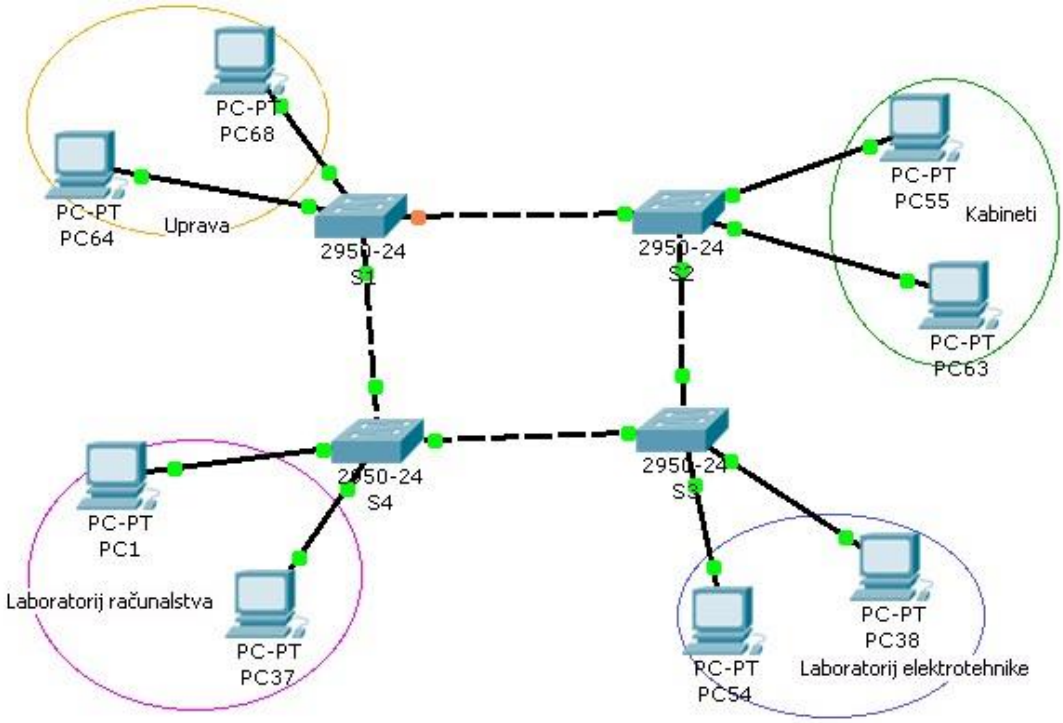


Formiraj LAN prema prikazanoj topologiji i provjeri veze između pojedinih dijelova mreže pinganjem. Zabilježi rezultat. ✓

```
C:\>ping 192.168.100.64

Pinging 192.168.100.64 with 32 bytes of data:

Reply from 192.168.100.64: bytes=32 time<1ms TTL=128
Reply from 192.168.100.64: bytes=32 time<1ms TTL=128
Reply from 192.168.100.64: bytes=32 time<1ms TTL=128
Reply from 192.168.100.64: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.64:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.100.38

Pinging 192.168.100.38 with 32 bytes of data:

Reply from 192.168.100.38: bytes=32 time<1ms TTL=128
Reply from 192.168.100.38: bytes=32 time<1ms TTL=128
Reply from 192.168.100.38: bytes=32 time<1ms TTL=128
Reply from 192.168.100.38: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.38:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.100.55

Pinging 192.168.100.55 with 32 bytes of data:

Reply from 192.168.100.55: bytes=32 time<1ms TTL=128
Reply from 192.168.100.55: bytes=32 time<1ms TTL=128
Reply from 192.168.100.55: bytes=32 time<1ms TTL=128
Reply from 192.168.100.55: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.55:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```



2. Uprava škole odlučila je da se izvrši subnetiranje postojeće mreže uporabom VLSM, 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. ✓

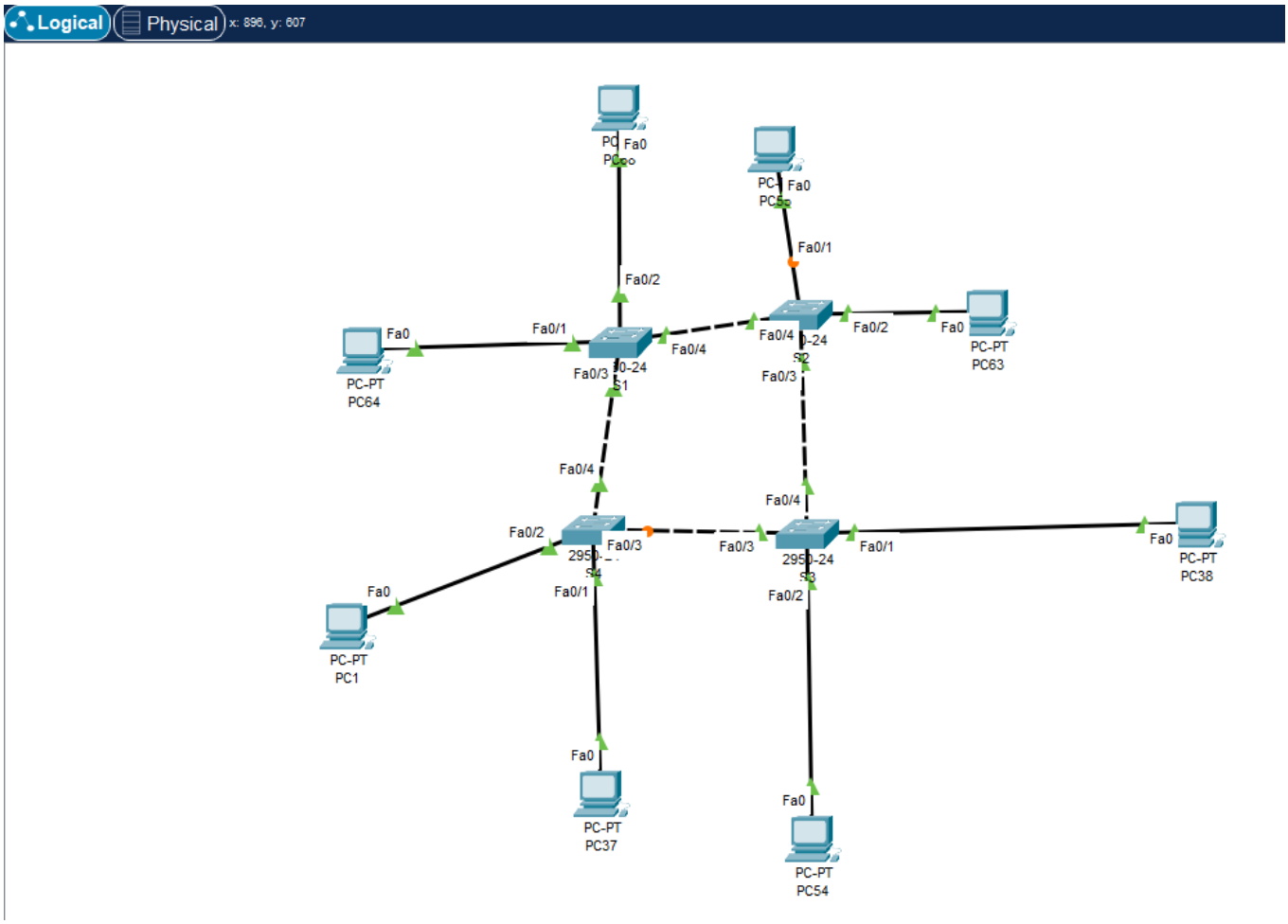


Napomena: U topologiji prikazati po dva računala iz svakog subneta, prvo i zadnje. ✓

Nakon obavljenih zadataka u ovoj vježbi učenik će znati samostalno (ili uz manju pomoć zabilješki): ✓

- Odrediti subnet masku za bilo koju mrežu na osnovu prefiksa.
- Odrediti subnet masku (i prefiks) na osnovu broja potrebnih IP adresa.
- Precizno dokumentirati IP adrese za sve organizacijske jedinice i za sve hostove

```
C:\>ping 192.168.100.1

Pinging 192.168.100.1 with 32 bytes of data:

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

Ping statistics for 192.168.100.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.100.97

Pinging 192.168.100.97 with 32 bytes of data:

Reply from 192.168.100.97: bytes=32 time<1ms TTL=128
Reply from 192.168.100.97: bytes=32 time<1ms TTL=128
Reply from 192.168.100.97: bytes=32 time<1ms TTL=128
Reply from 192.168.100.97: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.97:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```



Subnet Name	Needed Size	Allocated Size	Address	Mask	Dec Mask	Assignable Range	Broadcast
A	37	62	192.168.100.0	/26	255.255.255.192	192.168.100.1 - 192.168.100.62	192.168.100.63
B	17	30	192.168.100.64	/27	255.255.255.224	192.168.100.65 - 192.168.100.94	192.168.100.95
C	9	14	192.168.100.96	/28	255.255.255.240	192.168.100.97 - 192.168.100.110	192.168.100.111
D	5	6	192.168.100.112	/29	255.255.255.248	192.168.100.113 - 192.168.100.118	192.168.100.119