

Nastavni predmet RAČUNALNE MREŽE_3H

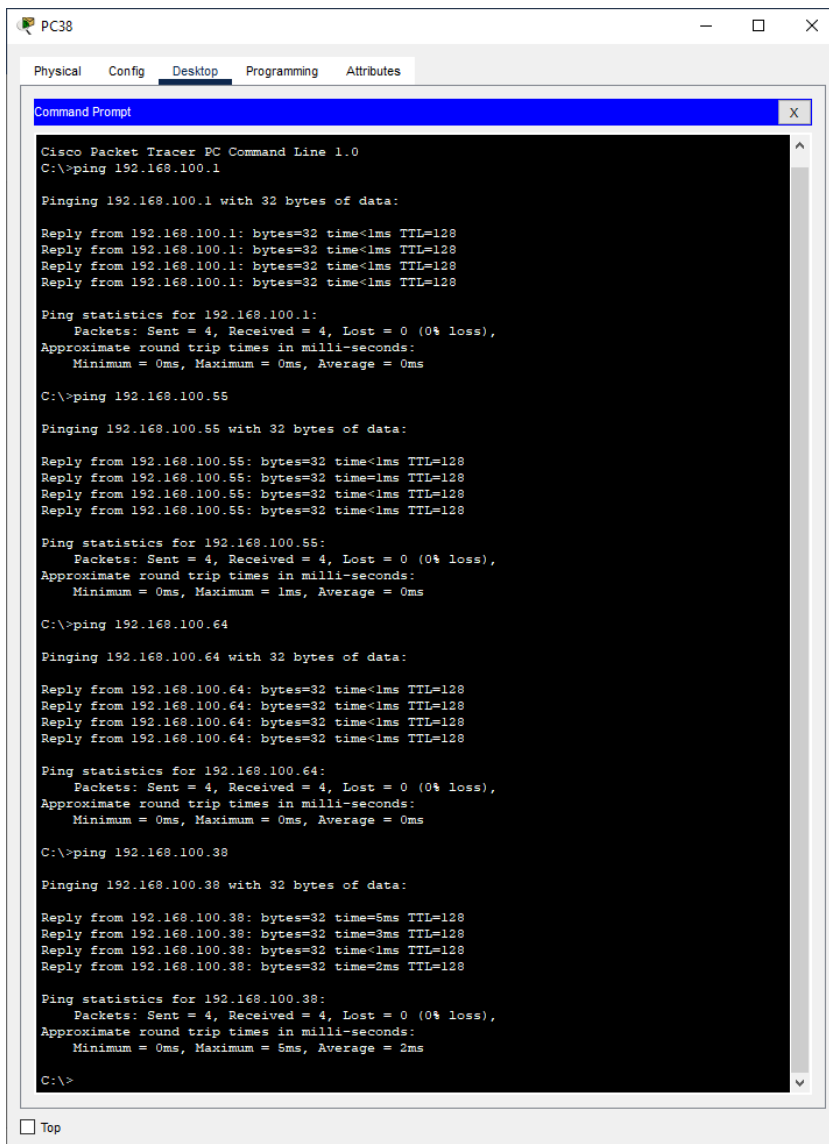
Naslov cjeline Djelovanje u mrežnom sloju

Naslov jedinice Vježba 4: Subnetiranje pomoću VLSM tehnike

Ime i Prezime Učenika: Matija Kovač 3.C i Pavel Golec 3.C

1. ZADATAK

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



```
PC38
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
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 = 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 = 1ms, Average = 0ms

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=5ms TTL=128
Reply from 192.168.100.38: bytes=32 time=3ms TTL=128
Reply from 192.168.100.38: bytes=32 time<1ms TTL=128
Reply from 192.168.100.38: bytes=32 time=2ms 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 = 5ms, Average = 2ms

C:\>
```

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 215, y: 597 Root 04:24:00

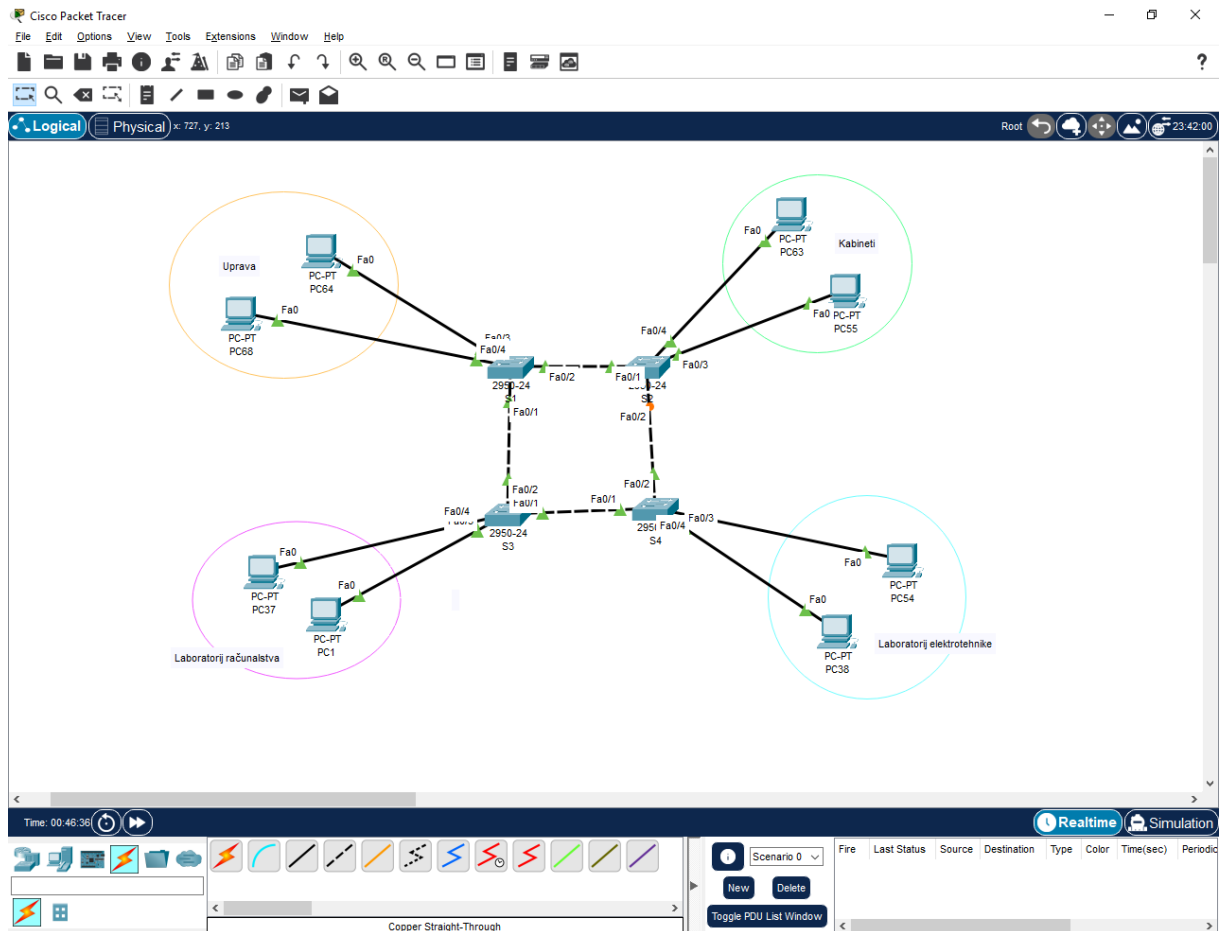
The diagram shows a network topology with four switches (S1, S2, S3, S4) and four PCs (PC1, PC38, PC84, PC55). The switches are arranged in a square mesh. S1 is at the top-left, S2 at the top-right, S3 at the bottom-left, and S4 at the bottom-right. Connections are as follows: S1-Fa0/1 to S2-Fa0/24; S1-Fa0/2 to S3-Fa0/24; S1-Fa0/3 to PC84-Fa0; S2-Fa0/3 to PC55-Fa0; S3-Fa0/1 to S4-Fa0/1; S3-Fa0/3 to PC1-Fa0; S4-Fa0/3 to PC38-Fa0. The interface labels on the switches are: S1 (Fa0/1, Fa0/2, Fa0/3), S2 (Fa0/1, Fa0/24, Fa0/3), S3 (Fa0/1, Fa0/2, Fa0/3, Fa0/24), and S4 (Fa0/1, Fa0/2, Fa0/3, Fa0/24).

Time: 00:08:43 Realtime Simulation

Multuser

(Select a Device to Drag and Drop to the Works)

2. ZADATAK



Podmrežna maska promjenjive duljine (VLSM) je podmreža -- segmentirani dio veće mreže -- strategija dizajna gdje sve podmrežne maske mogu imati različite veličine. Ovaj proces "podmreže podmreža" omogućuje mrežnim inženjerima korištenje više maski za različite podmreže jedne klase A, B ili C mreže.

Računanje:

1. Podmreža: Adresa mreže (192.168.100.0), Moguće adrese hosta (192.168.100.1 – 192.168.100.62), Dobivamo računanjem: $2^6 - 2 = 62$, Subnet maska: 255.255.255.192
2. Podmreža: Adresa mreže (192.168.100.64), Moguće adrese hosta (192.168.100.65 – 192.168.100.94), Dobivamo računanjem: $2^5 - 2 = 30$, Subnet maska: 255.255.255.224
3. Podmreža: Adresa mreže (192.168.100.96), Moguće adrese hosta (192.168.100.97 – 192.168.100.110), Dobivamo računanjem: $2^4 - 2 = 14$, Subnet maska: 255.255.255.240
4. Podmreža: Adresa mreže (192.168.100.112), Moguće adrese hosta (192.168.100.113 – 192.168.100.118), Dobivamo računanjem: $2^3 - 2 = 6$, Subnet maska: 255.255.255.248

Subnetting Successful

Major Network: **192.168.100.0/24**
Available IP addresses in major network: **254**
Number of IP addresses needed: **68**
Available IP addresses in allocated subnets: **112**
About **47%** of available major network address space is used
About **61%** of subnetted network address space is used

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

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