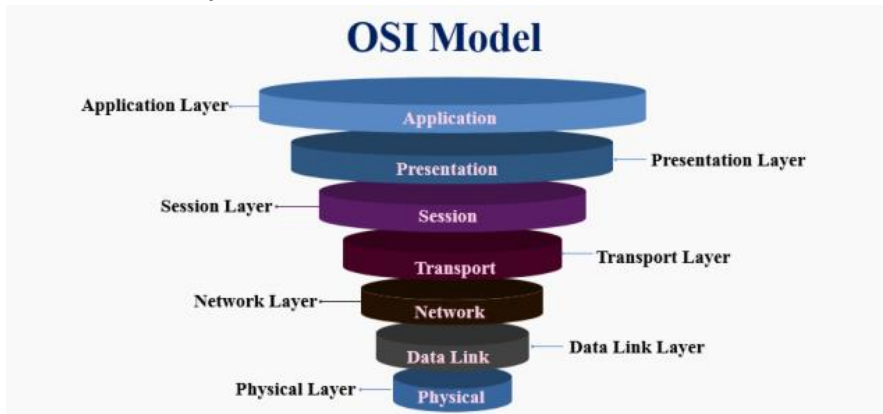


LV01 - Enkapsulacija podataka kroz slojeve OSI modela

Priprema:

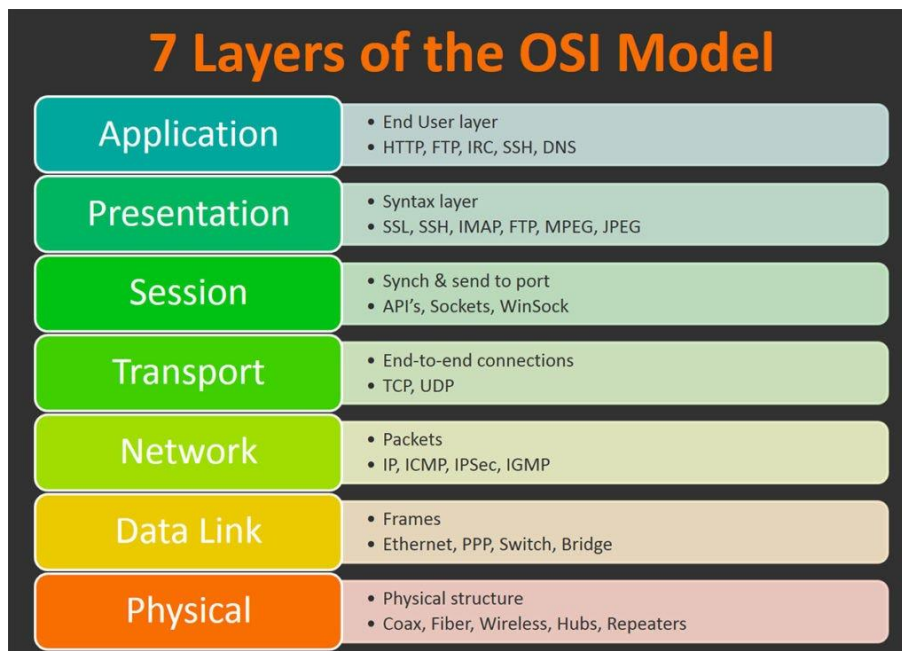
1. Nacrtaj OSI model



2. Definiraj enkapsulaciju.

Postupak pakiranja podataka u oblik pogodan za prijenos komunikacijskim vezama

3. Za svaki od slojeva napiši najvažnije protokole



Vježba:

1. zadatak

a. pronaći protokol na aplikacijskom sloju koji sudjeluje u prijenosu web stranice

- HTTP

b. pronaći protokol koji na transportnom sloju enkapsulira web stranicu

- TCP

c. kako se zove PDU na transportnom sloju?

- Segment

2. zadatak

a. koji protokol na mrežnom sloju enkapsulira segmente s transportnog sloja?

- IP

b. Kako se zove PDU na mrežnom sloju?

- Paket

c. Napiši ishodišnu i odredišnu IP adresu paketa koji nosi web stranicu

- Ishodišna: 142.250.180.132

- Odredišna: 192.168.50.21

d. Pročitati i komentirati ostala polja zaglavlja jednog od paketa

```
Internet Protocol Version 4, Src: 142.250.180.132, Dst: 192.168.50.21
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0xa4 (DSCP: Unknown, ECN: Not-ECT)
  Total Length: 1278
  Identification: 0x0000 (0)
  > Flags: 0x4000, Don't fragment
  Time to live: 53
  Protocol: UDP (17)
  Header checksum: 0x0a0f [validation disabled]
  [Header checksum status: Unverified]
  Source: 142.250.180.132
  Destination: 192.168.50.21
  > User Datagram Protocol, Src Port: 443, Dst Port: 61159
  > Data (1258 bytes)
```

3. zadatak

a. zapiši naziv okvira u koji je enkapsuliran paket na drugom sloju OSI modela

- Ethernet frame

b. napiši ishodišnu i odredišnu MAC adresu mrežnih kartica

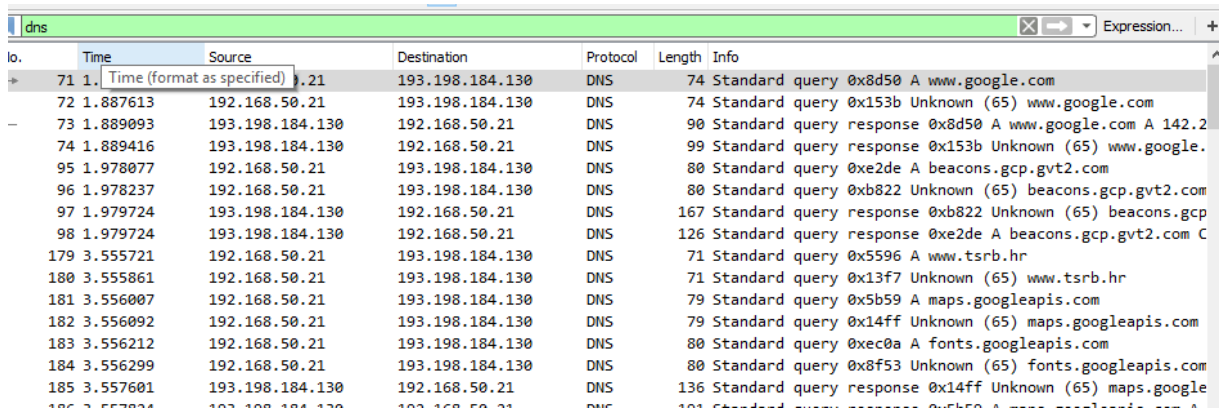
- Ishodišna: 74:4d:28:a6:8c:7f

- Odredišna: 70:85:c2:ce:9b:92

4. zadatak

a. pronaći protokol na aplikacijskom sloju koji je sudjelovao u traženju određene IP adrese za zadano ime web stranice

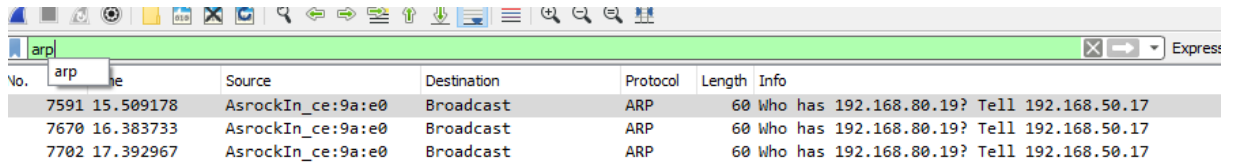
- DNS



No.	Time	Source	Destination	Protocol	Length	Info
71	1.1887613	192.168.50.21	193.198.184.130	DNS	74	Standard query 0x8d50 A www.google.com
72	1.887613	192.168.50.21	193.198.184.130	DNS	74	Standard query 0x153b Unknown (65) www.google.com
73	1.889093	193.198.184.130	192.168.50.21	DNS	90	Standard query response 0x8d50 A www.google.com A 142.2
74	1.889416	193.198.184.130	192.168.50.21	DNS	99	Standard query response 0x153b Unknown (65) www.google.
95	1.978077	192.168.50.21	193.198.184.130	DNS	80	Standard query 0xe2de A beacons.gcp.gvt2.com
96	1.978237	192.168.50.21	193.198.184.130	DNS	80	Standard query 0xb822 Unknown (65) beacons.gcp.gvt2.com
97	1.979724	193.198.184.130	192.168.50.21	DNS	167	Standard query response 0xb822 Unknown (65) beacons.gcp
98	1.979724	193.198.184.130	192.168.50.21	DNS	126	Standard query response 0xe2de A beacons.gcp.gvt2.com C
179	3.555721	192.168.50.21	193.198.184.130	DNS	71	Standard query 0x5596 A www.tsrb.hr
180	3.555861	192.168.50.21	193.198.184.130	DNS	71	Standard query 0x13f7 Unknown (65) www.tsrb.hr
181	3.556007	192.168.50.21	193.198.184.130	DNS	79	Standard query 0x5b59 A maps.googleapis.com
182	3.556092	192.168.50.21	193.198.184.130	DNS	79	Standard query 0x14ff Unknown (65) maps.googleapis.com
183	3.556212	192.168.50.21	193.198.184.130	DNS	80	Standard query 0xec0a A fonts.googleapis.com
184	3.556299	192.168.50.21	193.198.184.130	DNS	80	Standard query 0x8f53 Unknown (65) fonts.googleapis.com
185	3.557601	193.198.184.130	192.168.50.21	DNS	136	Standard query response 0x14ff Unknown (65) maps.google
186	3.557824	193.198.184.130	192.168.50.21	DNS	101	Standard query response 0x7f50 A www.googleapis.com A

b. pronaći protokol koji vraća određenu fizičku adresu (MAC adresu) za određenu IP adresu mrežne kartice (veza fizičke i logičke adrese)

- ARP



No.	Time	Source	Destination	Protocol	Length	Info
7591	15.509178	AsrockIn_ce:9a:e0	Broadcast	ARP	60	Who has 192.168.80.19? Tell 192.168.50.17
7670	16.383733	AsrockIn_ce:9a:e0	Broadcast	ARP	60	Who has 192.168.80.19? Tell 192.168.50.17
7702	17.392967	AsrockIn_ce:9a:e0	Broadcast	ARP	60	Who has 192.168.80.19? Tell 192.168.50.17