

## **AĞ GÜVENLİĞİ VE SIZMA TESTİ**



## ~ cat network\_basics/introduction

Ağ nedir?



## ~ eog network\_basics/osi\_model.png

		OSI MODEL	
7		Application Layer  Type of communication: E-mail, file transfer, client/server.	
6	<b>•</b>	Presentation Layer Encryption, data conversion: ASCII to EBCDIC, BCD to binary, etc.	AYERS
5		Session Layer Starts, stops session. Maintains order.	UPPER LAYERS
4		Transport Layer Ensures delivery of entire file or message.	
3	7	Network Layer  Routes data to different LANs and WANs based on network address.	RS
2		Data Link (MAC) Layer Transmits packets from node to node based on station address.	LOWER LAYERS
1		Physical Layer Electrical signals and cabling.	LOW



## ~ eog network\_basics/tcp-ip\_model.png

#### The OSI Model

# Application Presentation Session Link Phisical

## The TCP/IP Model

DHCP, DNS, FTP, HTTP, HTTPS, POP, SMTP, SSH, etc	Application	
Segment		
TCP UDP	Transport	
IP Address: IPv4, IPv6	Internet	
MAC Address Frame	Network Access	
Ethernet cable, fibre, wireless, coax, etc		

This image is part of the Bioinformatics Web Development tutorial at http://www.cellbiol.com/bioinformatics\_web\_development/ © cellbiol.com, all rights reserved



## ~ cat network\_basics/Layer7-6-5.txt

- \*Data
- \*L7 App. Layer
  - → Son kullanıcıya arayüz sağlar
  - $\rightarrow$  FTP,SMTP,HTTP
- \*L6 Presantation
  - → Data Format(gzip,docx,jpg)
  - → encryption
  - → Compression
- \*L5 Session
  - → Dialogue Control
  - → Synch



## ~ cat network\_basics/Layer4.txt

```
*Segment/Datagram
```

\*UDP

\*TCP

#### \*Port

- $\rightarrow$  0-65535
- → 0-1023 --- Well Known(Contact) Ports
- → 1024-49151 --- Registered Ports
- → 49151-65535 --- Private and/or Dynamic ports



### ~ cat network\_basics/Layer4-UDP.txt

```
|UDP HEADER| DATA|
8 byte
Datagram
|Source Port|Dest. Port|4
| Lenght | Check Sum |4
| Data |
```

- 1)Connectionless
- 2)Unreliable
- 3)No Flow Control
- 4)Stateless Protocol



## ~ cat network\_basics/Laye4-TCP.txt

```
|TCP HEADER| DATA|
8 byte
Datagram
|Source Port | Dest. Port |4
| Sequence Number |4
|Acknowledgement Number|4
| Flags | Window size |4
| Checksum |4
| Data
```

- 1)Connection Oriented(3-way handshake)
- 2)Reliable
- 3)Flow Control(Akış hızının dinamik olarak ayarlanması)
- 4)Stateful Protocol



## ~ cat network\_basics/Layer3.txt

- \*Packet
- \*IPv4
- \*IPV6
- \*IPX
- \*..



## ~ cat network\_basics/Layer3-IPV4.txt

Version HeaderLenght QOS TD	L 4
Fragmention	
  TTL Protocol Header CheckSun	1 4
Dest. IP	_ 4
Sourc IP	4

- \*Classfull Adressing
- \*Classless Adressing
  - \*Subnet
  - \*Ağ adresi
  - \*Broadcast adresi
  - \*Private adresler



## ~ cat network\_basics/Layer3-IPV4vsIPV6.txt

```
*IPV4
    \rightarrow 32 Bit
       **4.3 Milyar IPV4 adresi
    → Daha akılda kalıcı
       **192.168.0.1
    → Daha eski
*IPV6
    \rightarrow 128 bit
       **340 desilyon
    → Hatırlaması daha zor
       **2022:00AA:0000:0000:AD10:0000:0012:1011
    → Daha modern bir protocol
```



## ~ cat network\_basics/Layer2.txt

- \*Frame
- \*Ethernet
  - → MAC address
  - $\rightarrow ARP$
  - $\rightarrow RARP$

Destination MAC	6
Source MAC	6
Type	2
Data	
FCS	4



## ~ cat network\_basics/Layer1.txt

```
*Signal

→ Bit

*Bakır kablo

→ CAT 5

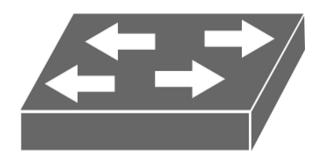
→ CAT 6

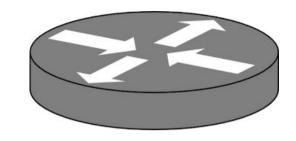
→ ...

*Fiberoptik kablo
```



## ~ eog network\_basics/Network\_devices.jpg





Switch

\*Layer 2
\*Aynı ağdaki
elemanları
bağlar.

Router

\*Layer 3
\*Farklı ağları
bağlar.