

## **OSI Model Explained**

OSI - Open Systems Interconnection  
Seven Layers

7. Application
6. Presentation
5. Session
4. Transport
3. Network
2. Datalink
1. Physical

OSI is heterogeneous means that it works on every platform.

(Source Google/Wikipedia 6-3-2019) Heterogeneous computing refers to systems that use more than one kind of processor or cores. These systems gain performance or energy efficiency not just by adding the same type of processors, but by adding dissimilar coprocessors, usually incorporating specialized processing capabilities to handle particular tasks.

Every layer adds a header on.

OSI is done mainly behind the scene and in milliseconds.

### **7. Application Layer**

Network applications like web browsers, email, Skype, use network services like HTML, SMTP, VoIP protocols, and connect by send and receive from next layer presentation.

## **6. Presentation**

Simplest functions like format conversion, encryption, decryption.

## **5. Session**

Manages by breaking down into sequence and flow.

## **4. Transport**

Delivers data across network, most common in TCP (Transmission Control Protocol)

## **3. Network**

Add routing frame by adding Destination IP and Source IP address (e.g. 192.168.1.7) DNS servers change domain names (like google.com) into IP address. This is where it is determine if data has reached it destination. Mapping of logical addresses and link to physical addresses.

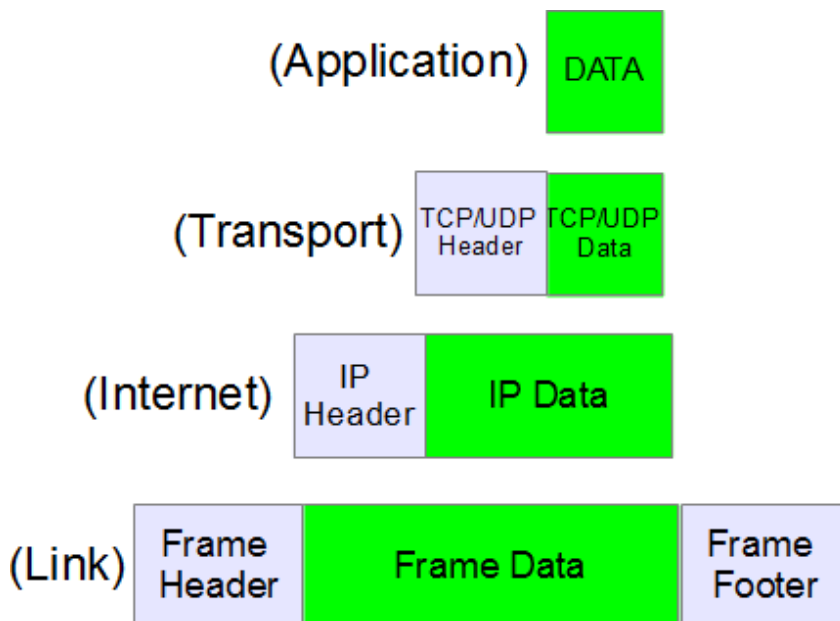
## **2. Datalink**

Checks physical layer transmission errors and packages into data frames by adding MAC destination address and MAC Source address (like my MAC address a8:be:27:cc:c8:98). Every network hardware has a unique 48bit MAC address, it is common that there is many MAC addresses for a single device (like Ethernet, WiFi, Bluetooth but not USB).

## **1. Physical**

Is the ones and zeros physical, send over network communication media like RJ45 cables, WiFi and Mobiles use radio frequency.

TCP/IP has 4 layers, 7-5 are joined called Application, 4, 3 separate, 2-1 are joined



<https://www.thegeekstuff.com/2012/03/ip-protocol-header/>

TCPIP Data Packets - (uses TCP, UDP, ICMP and IGMP data travels over the network)

## Data Packet

Destination MAC Address	Source MAC Address	Destination IP Address	Source IP Address	Payload	CRC
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<http://trustyetc.com/networking/TCPIP.htm>

## Questions

*Does USB used MAC Addresses?*

Each USB device is assigned with a descriptor ID not a MAC address

<https://www.quora.com/How-do-I-create-a-MAC-address-on-a-USB-drive>

*How do networking work on cell phones?*

Cell phones are actually radios. Cell phones use multiple frequencies.

One for sending information and one for receiving it. towers are built in large grids. (Physical)

<https://www.techwalla.com/articles/how-does-a-cell-phone-transmission-signal-work>