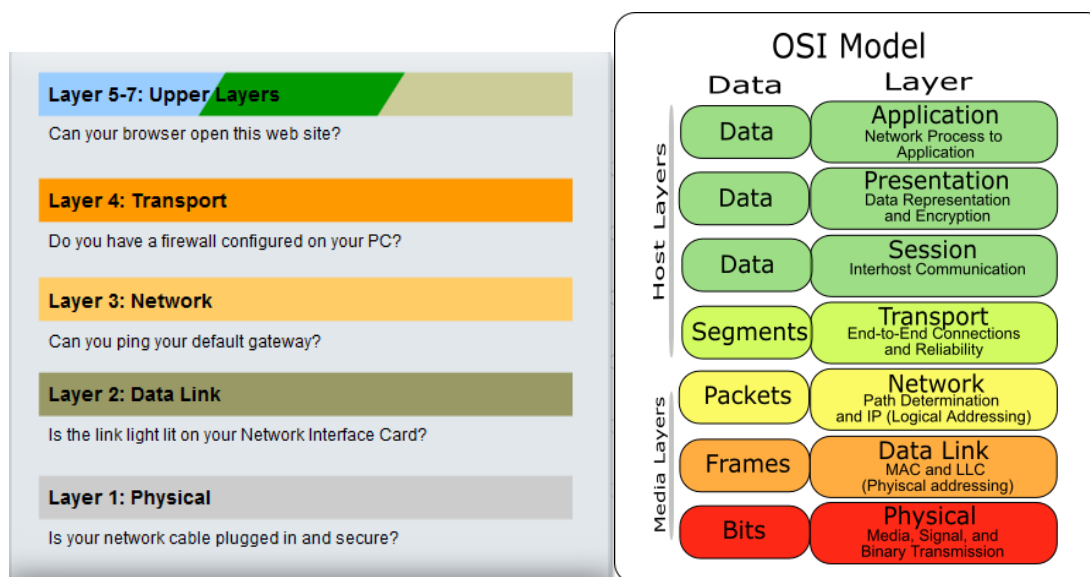


## OSI (Open Source Interconnection) 7 Layer Model

Μοντέλο OSI			
	Μονάδα δεδομένων	Επίπεδο	Λειτουργία
Λογισμικό	Δεδομένα	7. Εφαρμογών	Παρέχεται στις εφαρμογές πρόσβαση στο δίκτυο
		6. Παρουσίασης	Αναπαράσταση δεδομένων και κρυπτογράφηση
		5. Συνόδου	Έλεγχος του διαλόγου μεταξύ των άκρων της επικοινωνίας
	Πακέτο	4. Μεταφοράς	Αξιόπιστη επικοινωνία από άκρο σε άκρο
Υλικό	Πακέτο	3. Δικτύου	Καθορισμός διαδρομών και λογικών διευθύνσεων των κόμβων στα πλαίσια ενός διαδικτύου
	Πλαίσιο	2. Ζεύξης δεδομένων	Φυσική διευθυνσιοδότηση (MAC & LLC)
	Bit	1. Φυσικό	Διαδική μετάδοση σήματος μέσω του φυσικού μέσου

*All People Seem to Need Data Processing*

*Please Do Not Throw Sausage Pizza Away*



Group	#	Layer Name	Common Protocols and Technologies	Common Network Components Associated with this Layer
Upper Layers	7	Application	DNS, NFS, DHCP, SNMP, FTP, TFTP, SMTP, POP3, IMAP, HTTP, Telnet	Network aware applications, Email, Web Browsers and Servers, File Transfer, Name Resolution
	6	Presentation	SSL, Shells and Redirectors, MIME	
	5	Session	NetBIOS, Application Program Interfaces, Remote Procedure Calls	
Lower Layers	4	Transport	TCP and UDP	Video and Voice streaming mechanisms firewall filtering lists
	3	Network	IP, IPv6, IP NAT	IP Addressing, Routing
	2	Data Link	Ethernet Family, WLAN, Wi-Fi, ATM, PPP	Network Interface cards and Drivers, Network Switching, WAN connectivity
	1	Physical	Electrical Signaling, Light Wave Patterns, Radio Wave Patterns	Physical Medium (copper twisted pair, fiber optic cable, wireless transmitters), Hubs and

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Layer	Application/Example	Central Device/ Protocols	DOD4 Model
<b>Application (7)</b> Serves as the window for users and application processes to access the network services.	<b>End User layer</b> Program that opens what was sent or creates what is to be sent Resource sharing • Remote file access • Remote printer access • Directory services • Network management	<b>User Applications</b> SMTP	<b>GATEWAY</b> Process
<b>Presentation (6)</b> Formats the data to be presented to the Application layer. It can be viewed as the "Translator" for the network.	<b>Syntax layer</b> encrypt & decrypt (if needed) Character code translation • Data conversion • Data compression • Data encryption • <b>Character Set Translation</b>	JPEG/ASCII EBDIC/TIFF/GIF PICT	
<b>Session (5)</b> Allows session establishment between processes running on different stations.	<b>Synch &amp; send to ports</b> (logical ports) Session establishment, maintenance and termination • Session support - perform security, name recognition, logging, etc.	<b>Logical Ports</b> RPC/SQL/NFS NetBIOS names	
<b>Transport (4)</b> Ensures that messages are delivered error-free, in sequence, and with no losses or duplications.	<b>TCP</b> Host to Host, Flow Control Message segmentation • Message acknowledgement • Message traffic control • Session multiplexing	<b>PACKET FILTERING</b> TCP/SPX/UDP	Host to Host
<b>Network (3)</b> Controls the operations of the subnet, deciding which physical path the data takes.	<b>Packets</b> ("letter", contains IP address) Routing • Subnet traffic control • Frame fragmentation • Logical-physical address mapping • Subnet usage accounting		<b>Routers</b> IP/IPX/ICMP
<b>Data Link (2)</b> Provides error-free transfer of data frames from one node to another over the Physical layer.	<b>Frames</b> ("envelopes", contains MAC address) [NIC card — Switch — NIC card] (end to end) Establishes & terminates the logical link between nodes • Frame traffic control • Frame sequencing • Frame acknowledgment • Frame delimiting • Frame error checking • Media access control	<b>Switch Bridge WAP</b> PPP/SLIP	Can be used on all layers Network
<b>Physical (1)</b> Concerned with the transmission and reception of the unstructured raw bit stream over the physical medium.	<b>Physical structure</b> Cables, hubs, etc. Data Encoding • Physical medium attachment • Transmission technique - Baseband or Broadband • Physical medium transmission Bits & Volts	<b>Hub</b> Land Based Layers	

**Cables/Hubs/Repeaters** are found in the Physical Layer

**NICs/Switches /Bridges/Wireless Access Point** are found in the Data Link Layer

**Routers/Layer3 Switches** are found in the Network Layer

**Gateway** are found in All 7 of the OSI Layers

OSI OSI 7 Layer Model
7. Application Layer - DHCP, DNS, FTP, HTTP, IMAP4, NNTP, POP3, SMTP, SNMP, SSH, TELNET and NTP more)
6. Presentation layer – SSL, WEP, WPA, Kerberos,
5. Session layer – Logical Ports 21, 22, 23, 80 etc...
4. Transport - TCP, UDP more
3. Network - IPv4, IPV6, IPX, OSPF, ICMP, IGMP and ARPMP
2. Data Link- 802.11 (WLAN), Wi-Fi, WiMAX, ATM, Ethernet, Token Ring, Frame Relay, PPTP, L2TP and ISDN-ore, NICs
1. Physical-Hubs, Repeaters, Cables, Optical Fiber, SONET/SDN,Coaxial Cable, Twisted Pair Cable and Connectors (more)