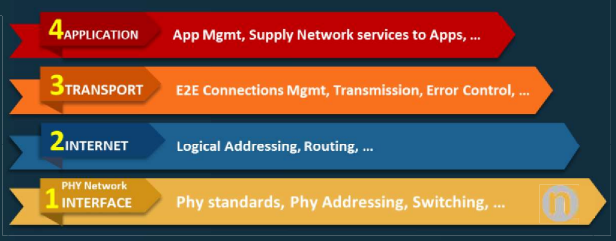
TCP/IP Model – Cheat Sheet (Network Walks) – Part-1 v1.2

What is TCP/IP Model ???

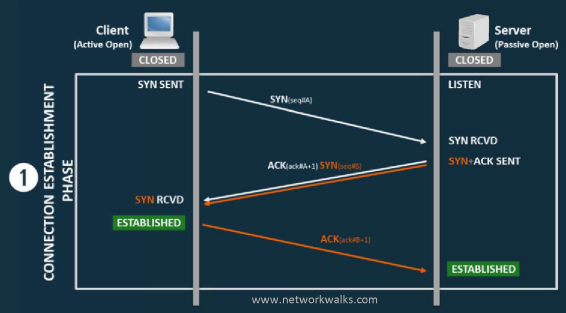
"TCP/IP Model is a standardised Reference Framework for conceptualising data communications between networks"

- ✓ Relevant RFC: RFC1122
- ✓ Also called 'Internet Model' or 'DoD Model'

TCP/IP Model Layers & their Functions



TCP 3-way Handshake Process



OSI Model Vs TCP/IP Model

OSI Model	TCP/IP Model
Mostly used for reference purposes only	Practical Model in use today
Released in 1984 by ISO	Released in 1970s by DARPA
Each layer participates in Error Handling	Only Transport Layer handles Errors
Not so simple Model (7 Layers)	Simple Model (4Layers only)
Session Layer does Connection Management	Transport Layer does Connection Mgmt
Data Formatting is done by Present. Layer	Data Formatting is done by Application Layer
Uses Horizontal Approach	Uses Vertical Approach
www.networkwalks.com	Trans Layer uses 3WHS + Sliding Windows
Transport Layer is Connection Oriented	Trans Layer can be Connection Oriented or not
Netw Layer can be Connection Oriented or not	Network Layer is always Connectionless
Services & protocols are clearly defined	Services & protocols are not clearly separated
A protocol independent Model	A Protocol dependent Model
Hosts do not handle network operations	Hosts participate in most network protocols

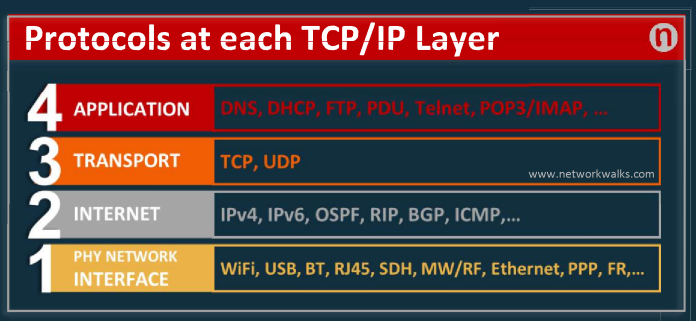
Transport Layer Ports

Category	Range	Comments
Well Known	0 - 1023	Used by system processes e.g. FTP(21)
Registered	1024 - 49151	For specific services e.g. Port 8080
Private	49152 – 65535	For Private purposes

Important Ports on Transport Layer

Port Number	Protocol	Application
20	TCP	FTP data
21	TCP	FTP control
22	TCP	SSH
23	TCP	Telnet
25	TCP	SMTP
53	UDP, TCP	DNS
67, 68	UDP	DHCP
69	UDP	TFTP
80	TCP	HTTP (WWW)
110	TCP	POP3
161	UDP	SNMP

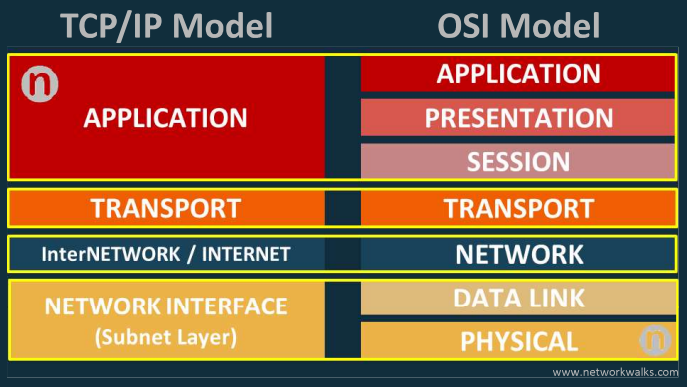
Protocols at each TCP/IP Layer



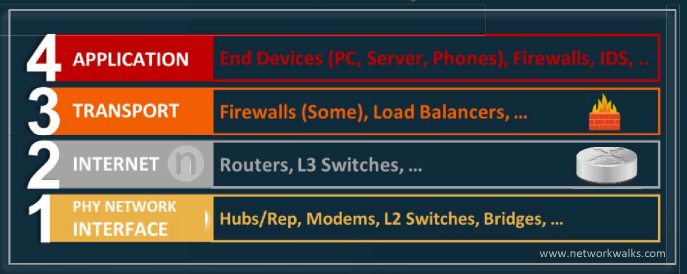
Encapsulation: "Preparing & passing the data by any Upper layer to the layer below it, is called Encapsulation"

(Means, going from the application layer all the way down to the physical layer)

Decapsulation: "Decoding data while going Upwards from the physical layer till application layer is called decapsulation"



Devices at each TCP/IP Layer



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