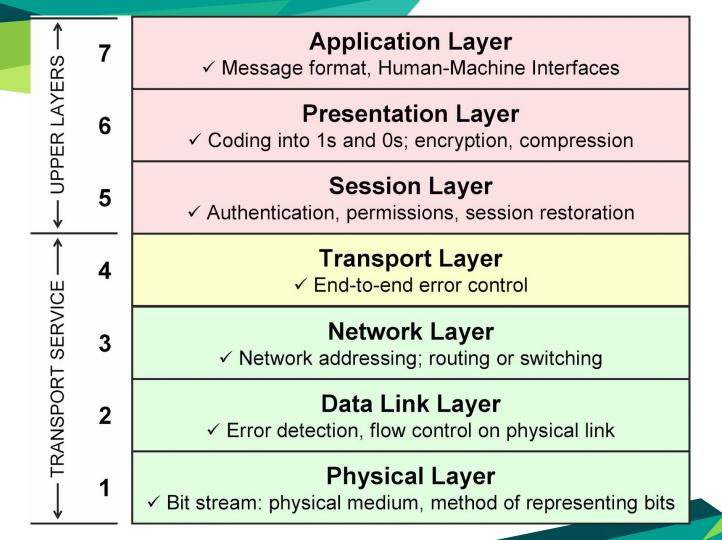
The OSI Model

Open Systems Interconnection

OSI vs. IP/TCP

OSI Model	TCP/IP Protocol Suite	TCP/IP Model	
Application			
Presentation	HTTP, DNS, DHCP, FTP	Application	
Session			
Transport	TCP, UDP	Transport	
Network	IPv4, IPv6, ICMPv4, ICMPv6	Internet	
Data Link	PPP, Frame Relay,	Network Access	
Physical	Ethernet		

OSI Layers



Error Checking

- Layer 2: Detects errors in ethernet transmission (rare)
- Discards erroneous frames
- Uses a checksum in the trailer
- ➤ Layer 4: Detects errors in overall transport using a checksum in the header
- Discards erroneous segments and requests any missing ones
- Only via TCP, not UDP

Checksum

- Metadata appended to a PDU (Protocol Data Unit)
- Calculated number to check for errors
- May use different calculation methods
- > Example:

Н	Е	L	L	0
8	5	12	12	15

$$8 + 5 + 12 + 12 + 15 = 52$$

 $5 + 2 = 7$

$$10 + 5 + 12 + 12 + 15 = 54$$

 $5 + 4 = 9$
 $9 \neq 7$

NetAcad: ITN 3.3

Packet Tracer Lab: ITN 1.2.4.5

Credits

Special thanks to all the people who made and released these **awesome resources** for free:

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