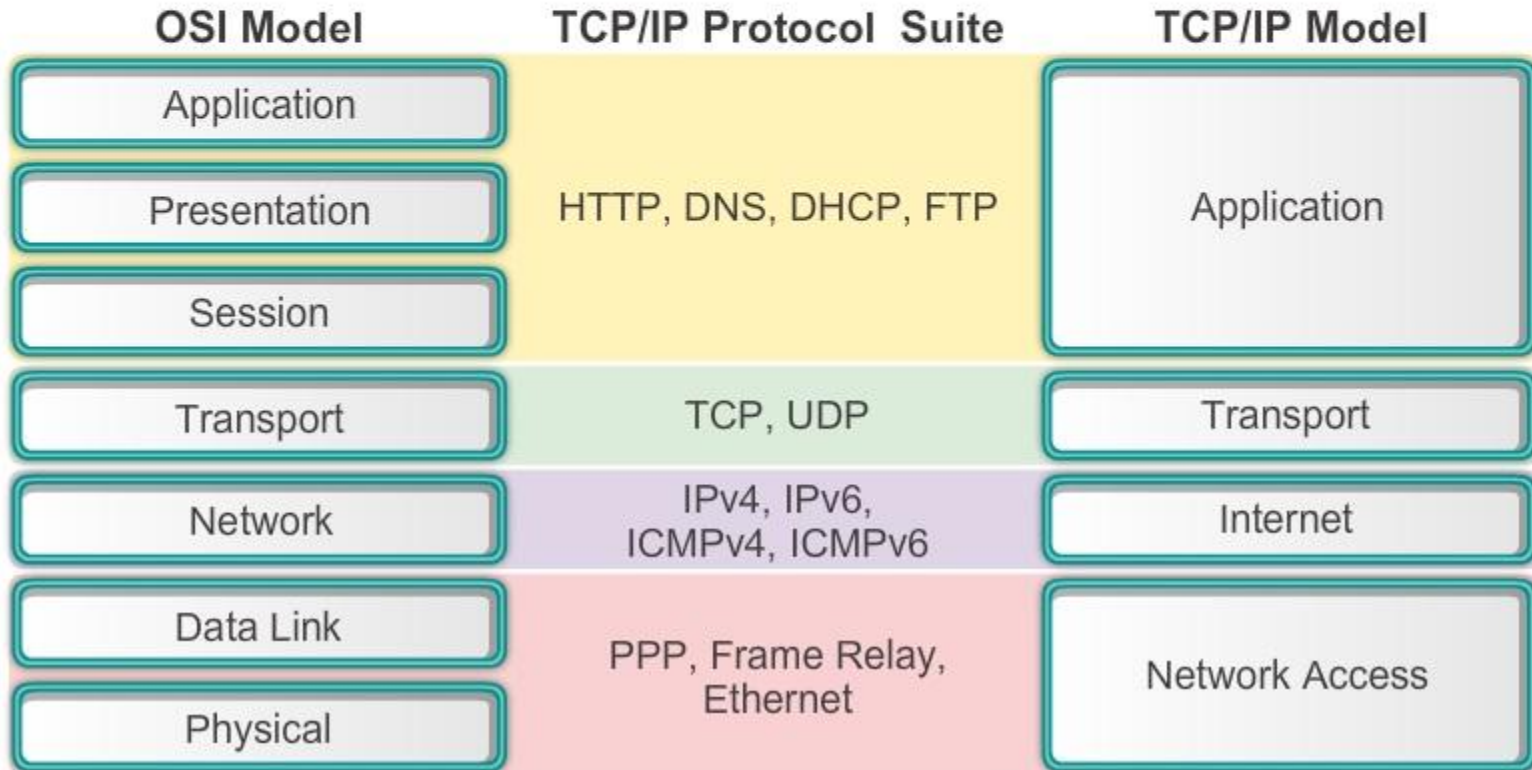




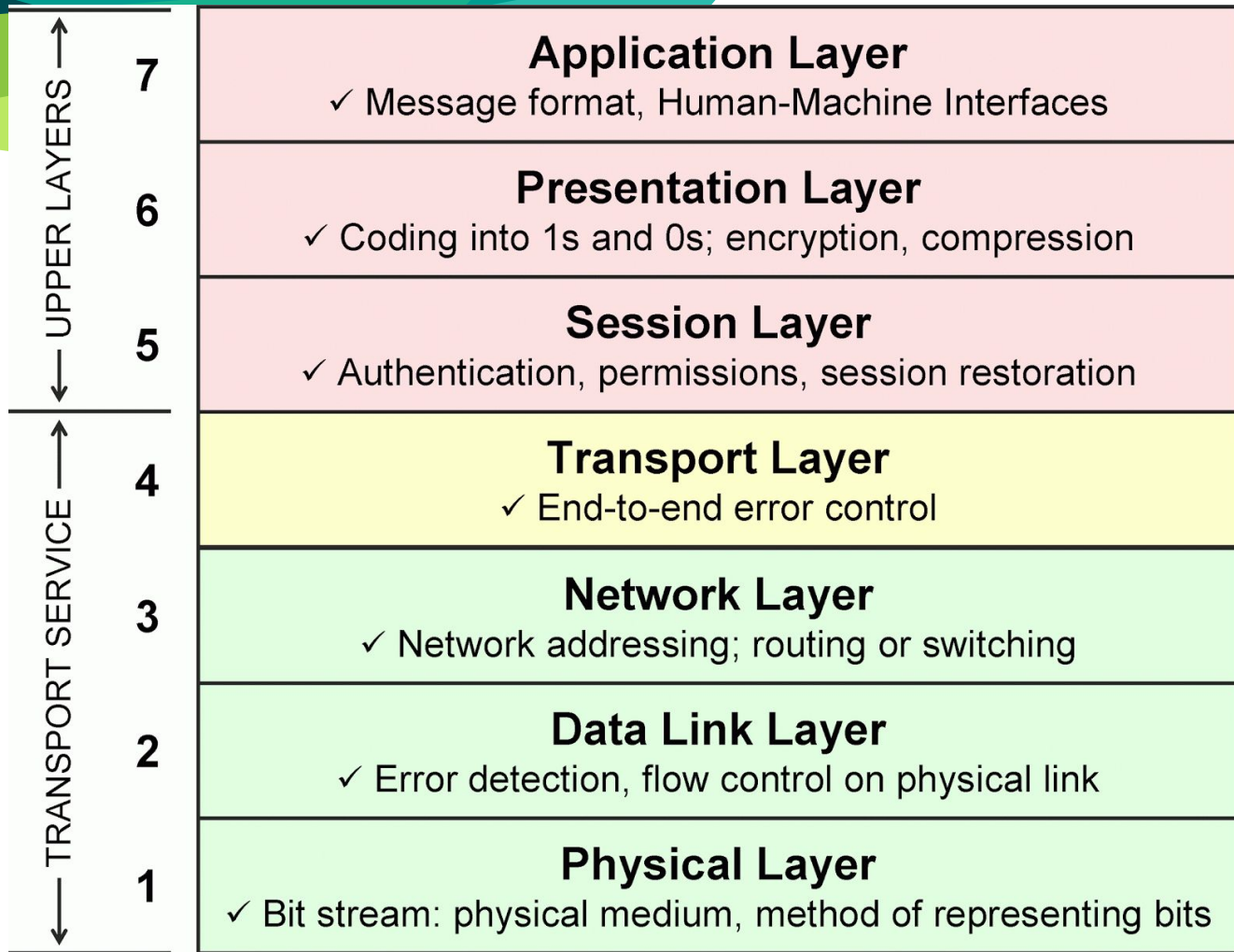
The OSI Model

Open Systems Interconnection

OSI vs. IP/TCP



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:

H	E	L	L	O
8	5	12	12	15

$$8 + 5 + 12 + 12 + 15 = 52$$
$$5 + 2 = 7$$

J	E	L	L	O
10	5	12	12	15

$$10 + 5 + 12 + 12 + 15 = 54$$
$$5 + 4 = 9$$
$$9 \neq 7$$



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:

- ◆ Presentation template by [SlidesCarnival](#)
- ◆ Photographs by [Unsplash](#)