

CS 240 #14: Networking and the OSI Model

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Networking

Q: What do we expect out of networking?

...making this happen is **insanely complex**:

Hosts Routers Links Applications	Protocols Hardware Software Bit Errors	Packet Errors Link Failures Node Failures Message Delays	Out-of-Order Packets Eavesdropping ...and more...
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We define common _____ -- a message format and rules for exchanging messages. You know many protocols already:

Network Data

At the core, network data is simply a series of **0s** and **1s**. How do we translate those 0s and 1s into meaningful data in a way we can understand and make sense of?

OSI Model

The Open Systems Interconnection (OSI) model is a 7-layer view of networking that abstracts and encapsulates the functionality of each component of networking.

- Layer 1 (“Physical”) is the lowest layer and sees every bit.
- Layer 2 (“Data Link”) sits above Layer 1 and does not concern itself with any Layer 1 concerns or Layer 1 data.
- Likewise, this continues up to the “Upper Layers” (Layers 5-7) and does not concern itself with lower layers.

OSI Layer 5, 6, and 7:

OSI Layer 4:

OSI Layer 3:

OSI Layer 2:

OSI Layer 1:

