CS144
An Introduction to Computer Networks

What the Internet is

The 4 Layer Internet Model

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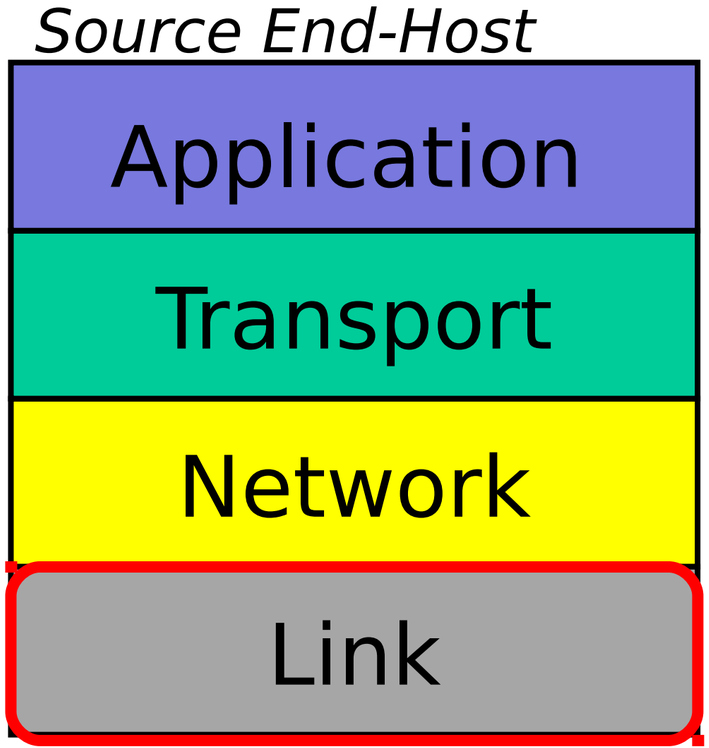
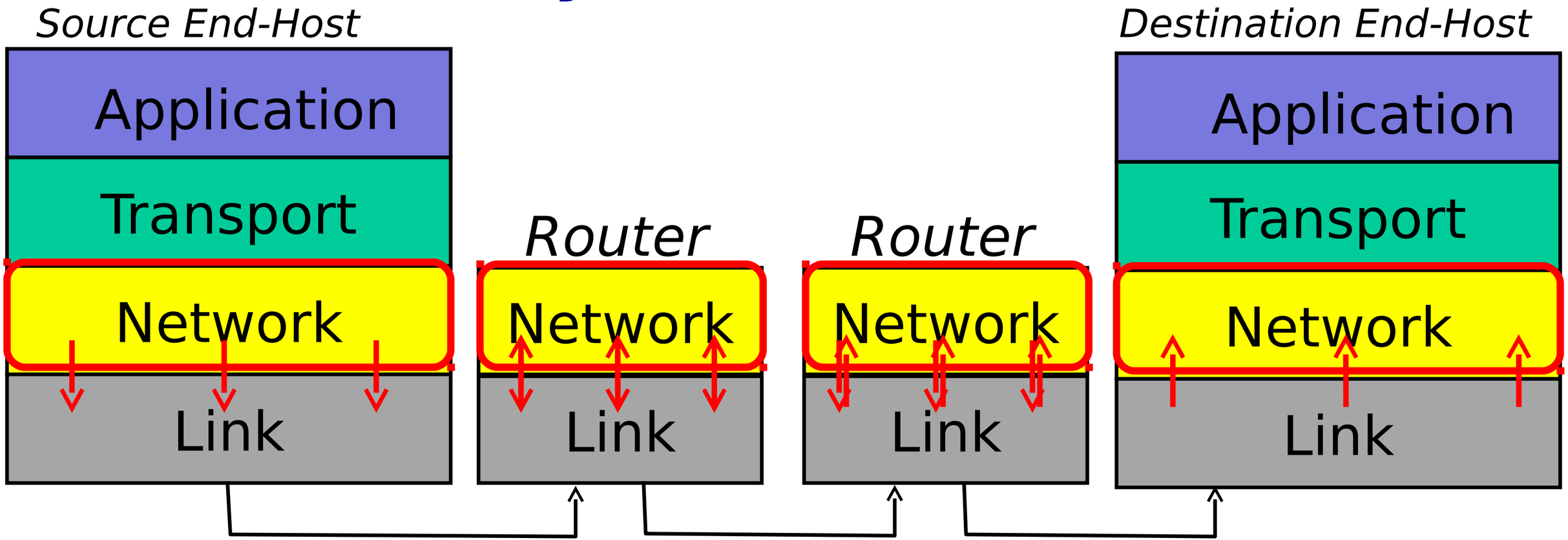
The 4 Layer Internet Model



The 4 Layer Internet Model

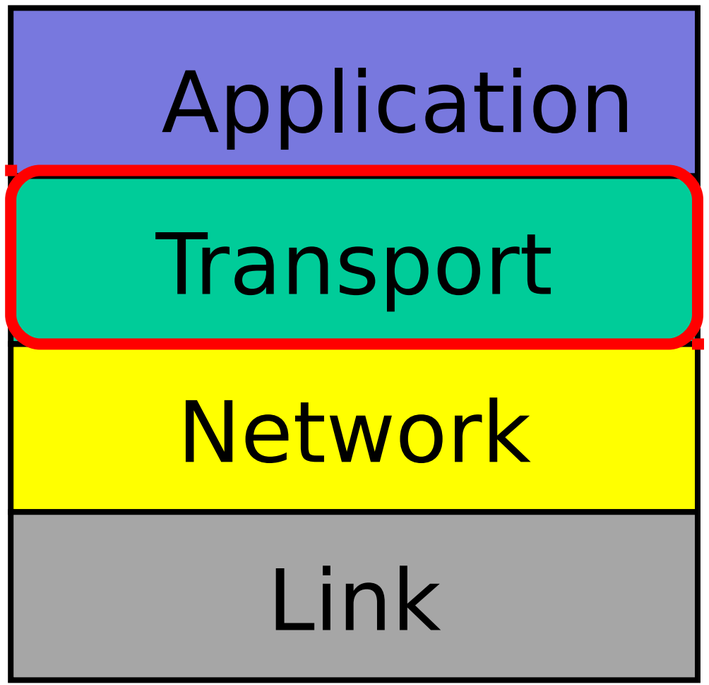


The network layer is “special”

We must use the Internet Protocol (IP)

- IP makes a best-effort attempt to deliver our datagrams to the other end. But it makes no promises.
- IP datagrams can get lost, can be delivered out of order, and can be corrupted. There are no guarantees.

The 4 Layer Internet Model



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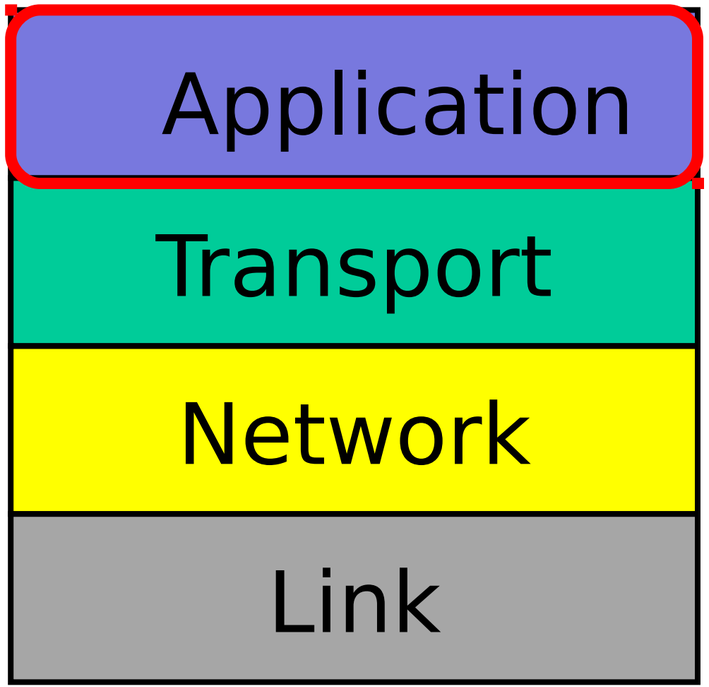
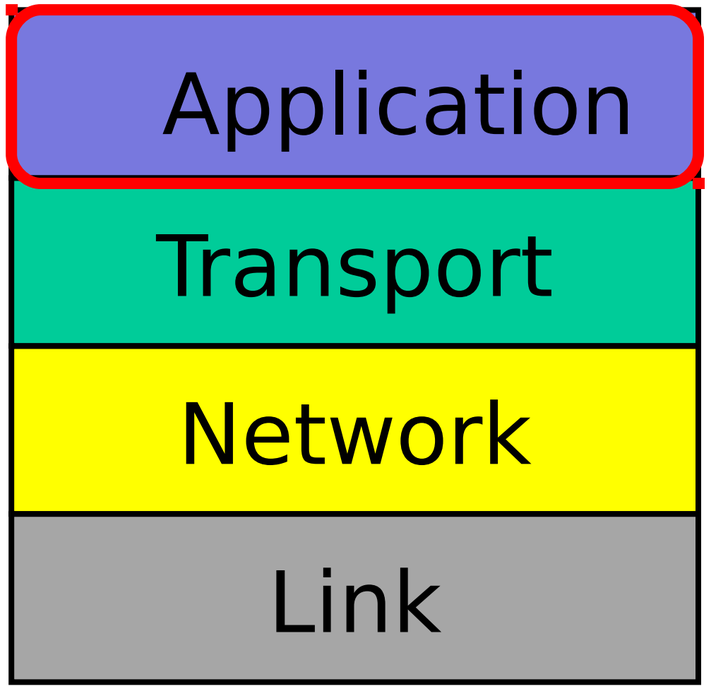
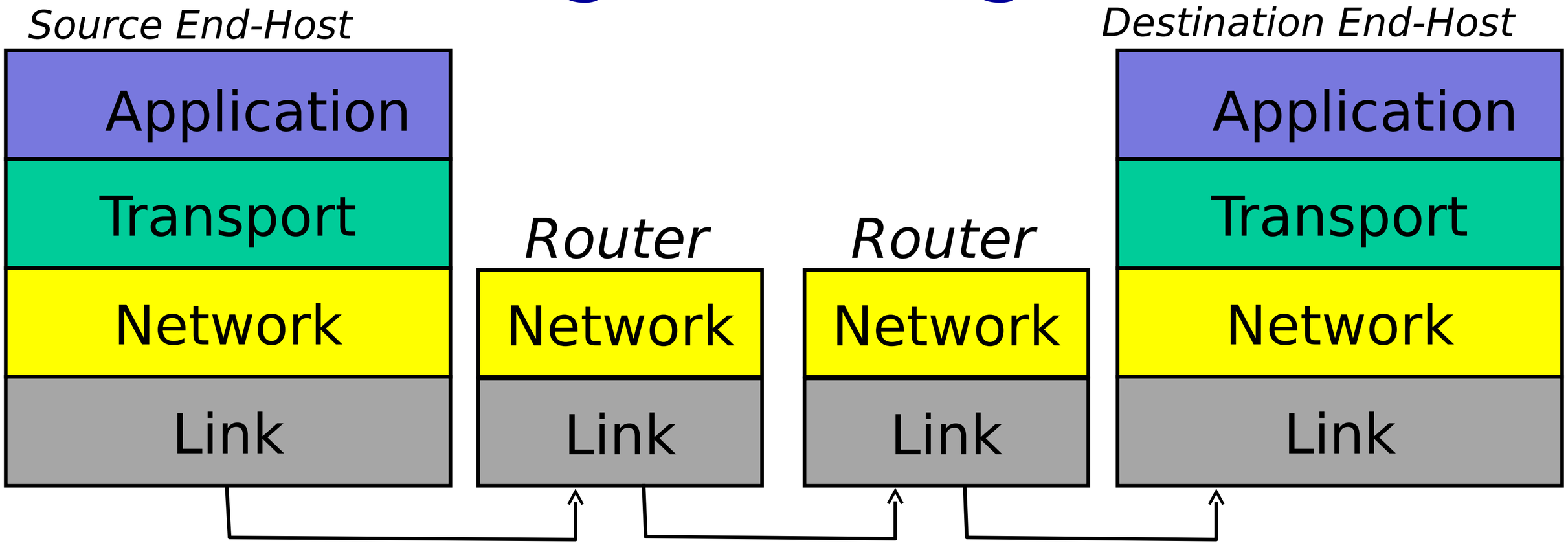
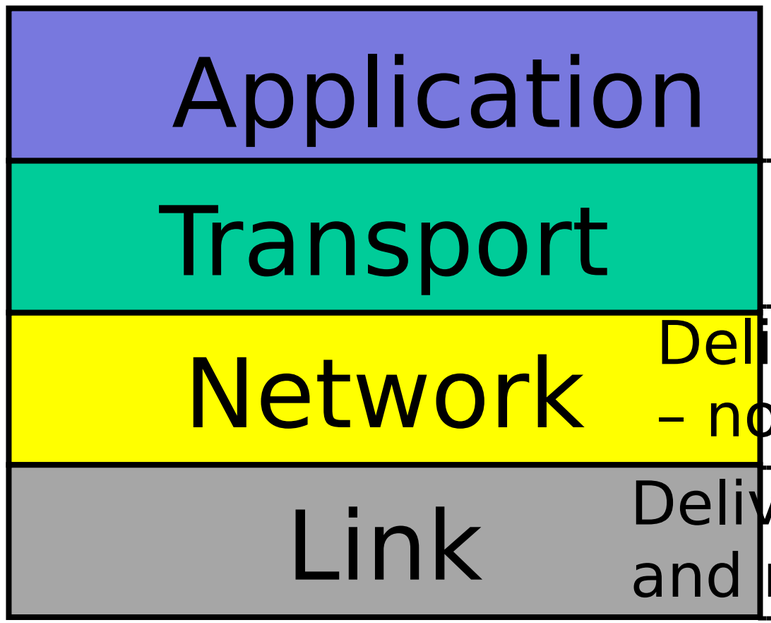




Putting it all together



Summary of 4 Layer Model



Bi-directional reliable byte stream between two applications, using application-specific semantics (e.g. http, bit torrent)

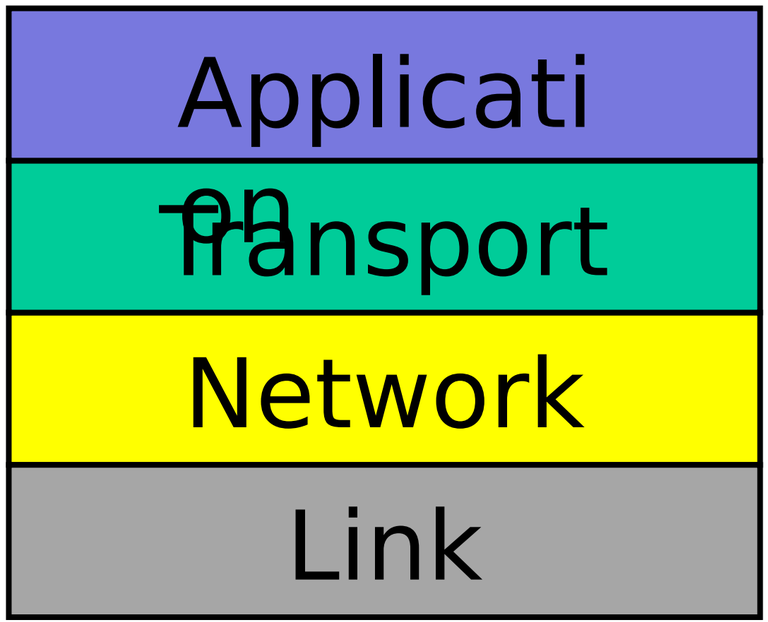
Guarantees correct, in-order delivery of data end-to-end. Controls congestion.

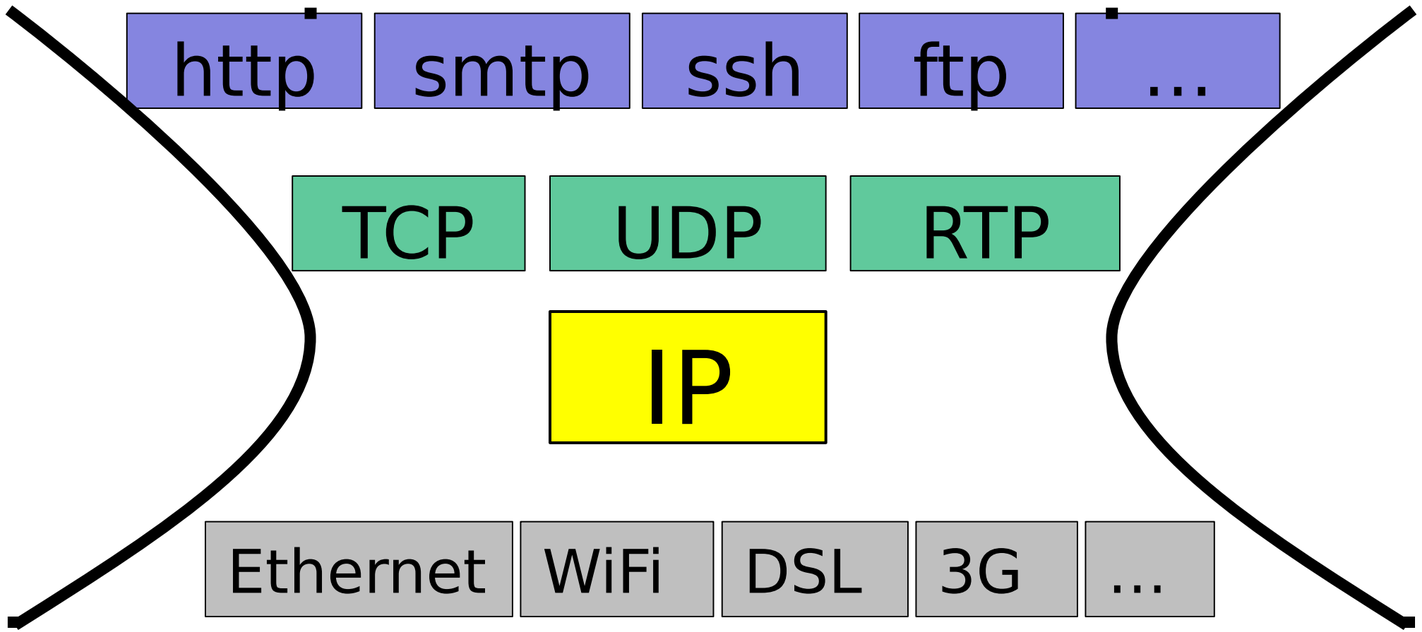
Delivers datagrams end-to-end. Best-effort delivery – no guarantees. Must use the Internet Protocol (IP).

Delivers data over a single link between an end host and router, or between routers

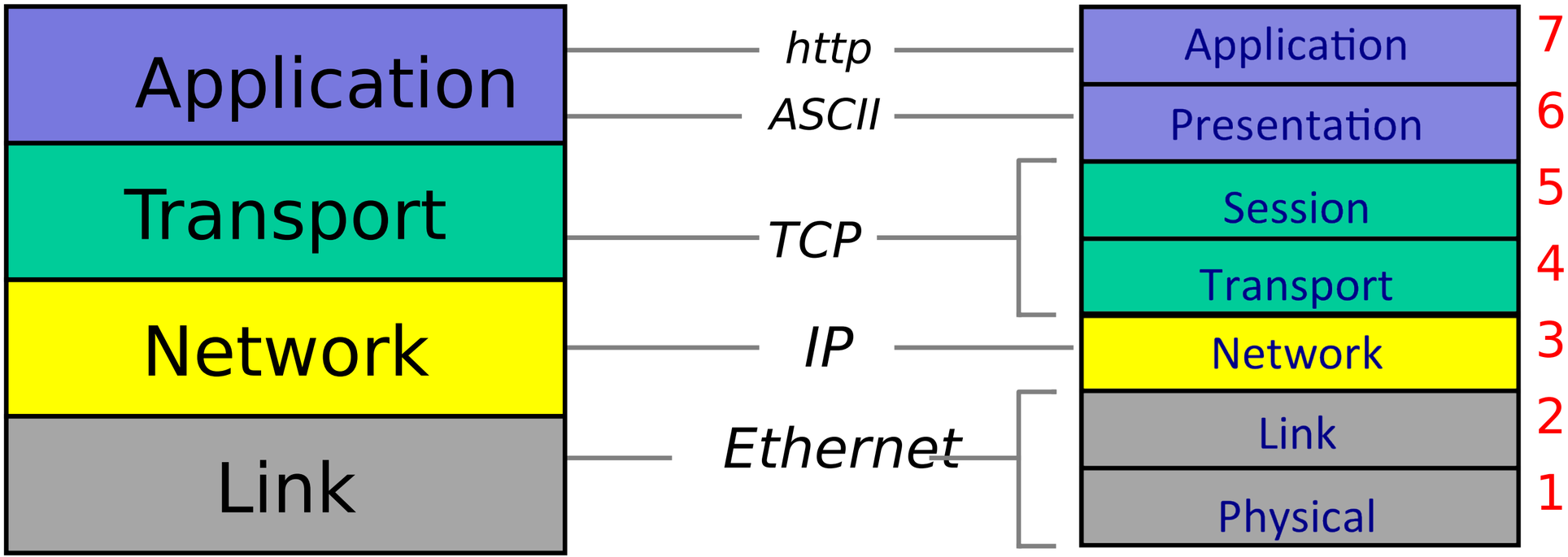
Two extra things you need to know…

IP is the “thin waist”





The 7-layer OSI Model



The 7-layer OSI Model

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