

Data Link Layer

Jirasak Sittigorn

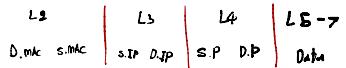
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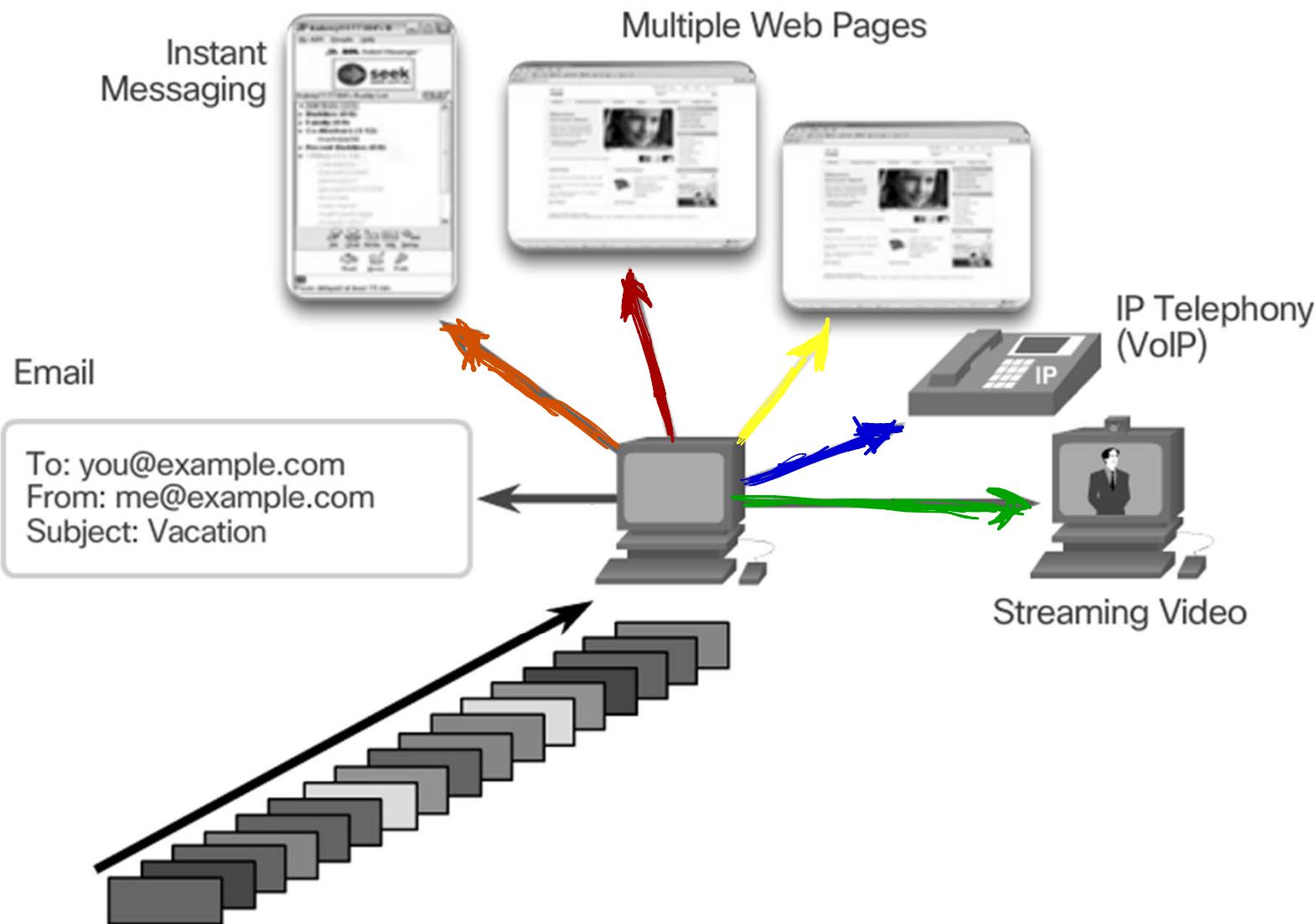
P20 Protocols

P44 HDLC

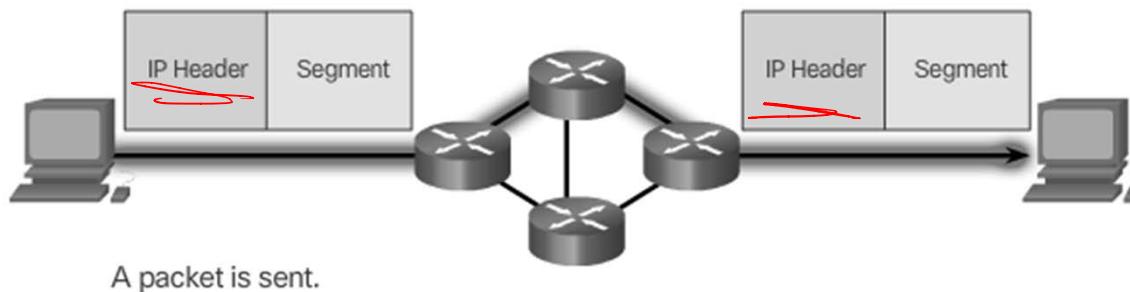
P57 PPP



Transport Layer OSI Model



Connectionless Communication



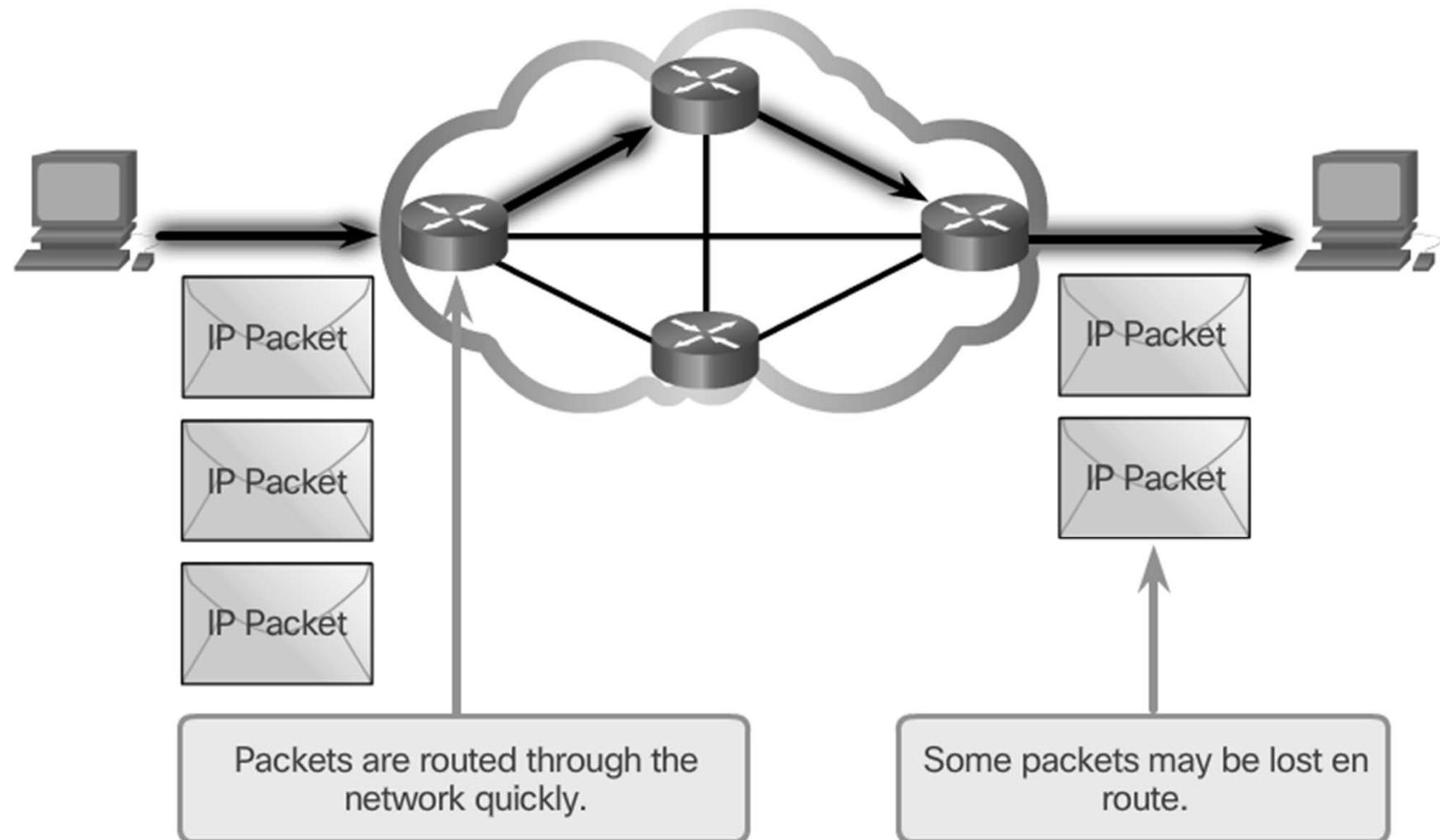
The sender doesn't know:

- If the receiver is present *receiver's address*
- If the packet arrived *receiver's address*
- If the receiver can read the packet *receiver's address*

The receiver doesn't know:

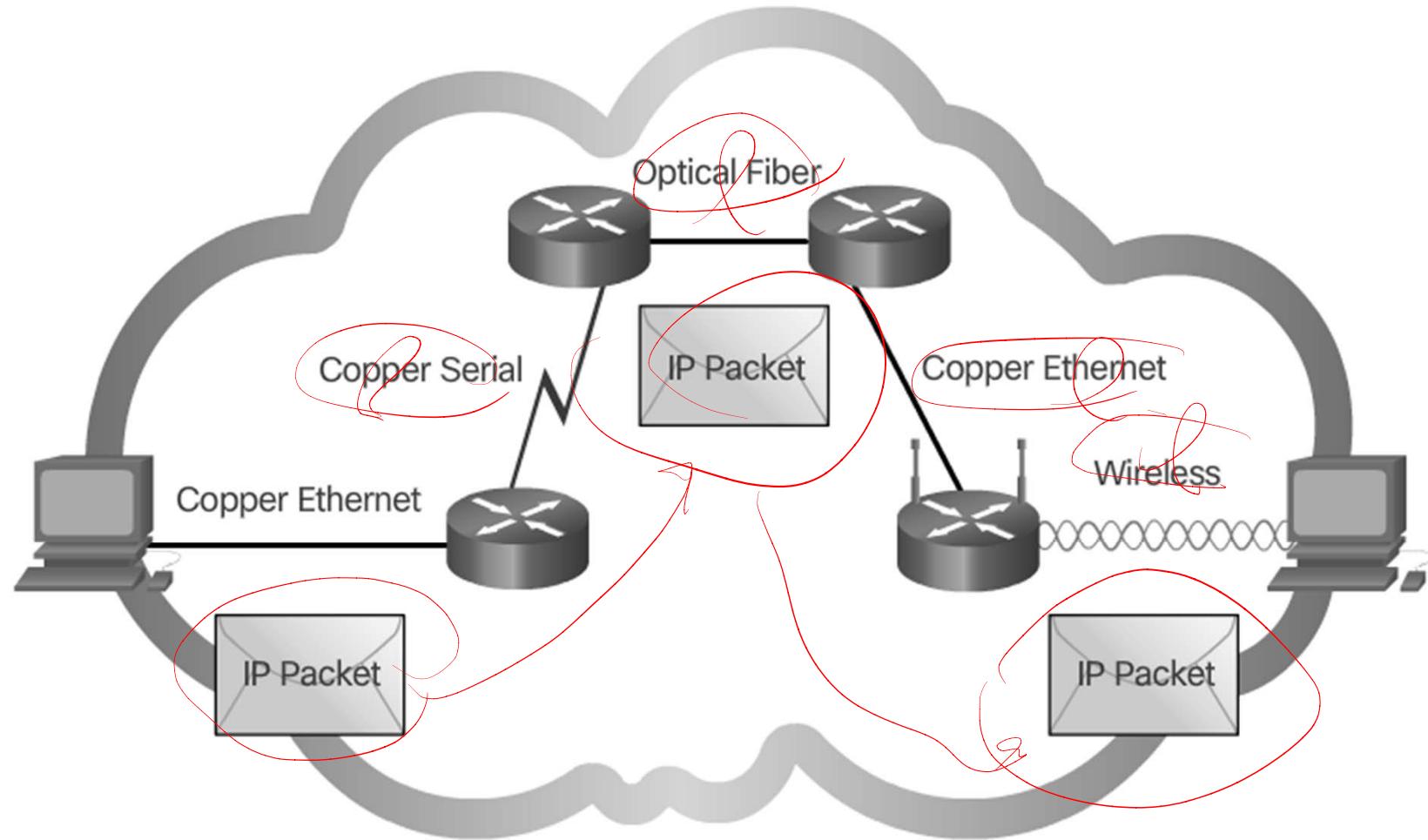
- When it is coming *sender's address*

Best Effort Process



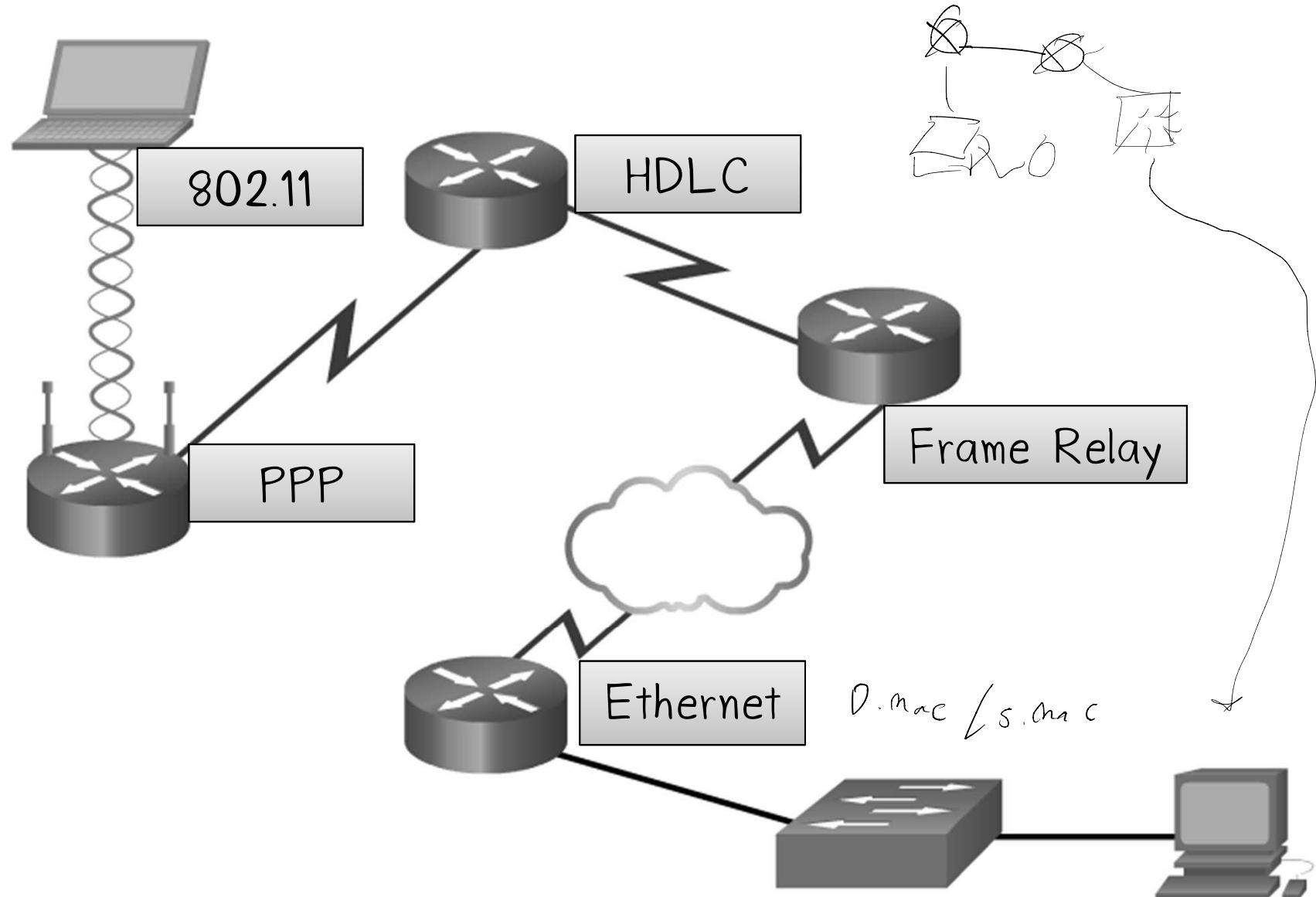
ပါတီအိမ်

Media Independent Process

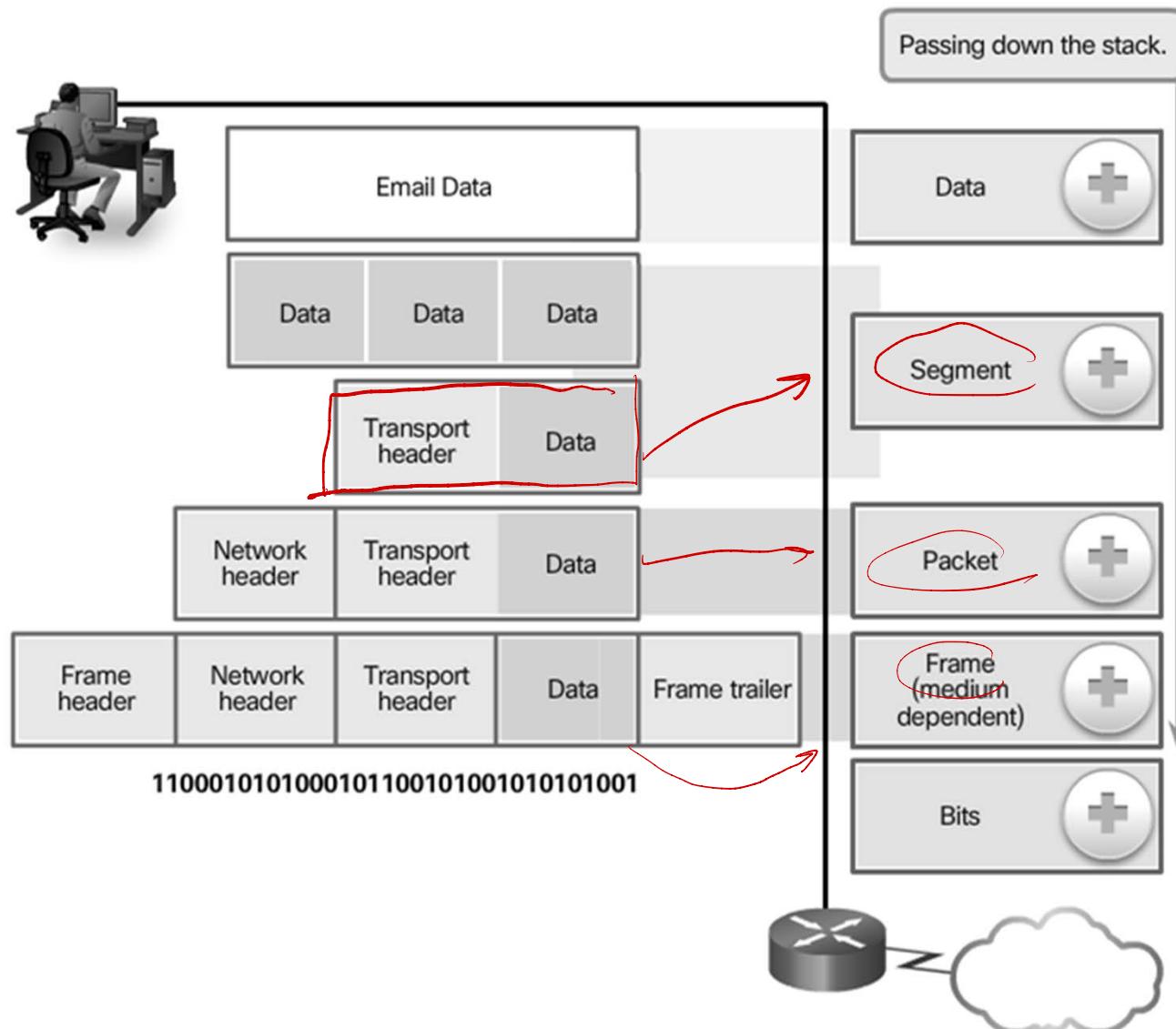


پروتکل media

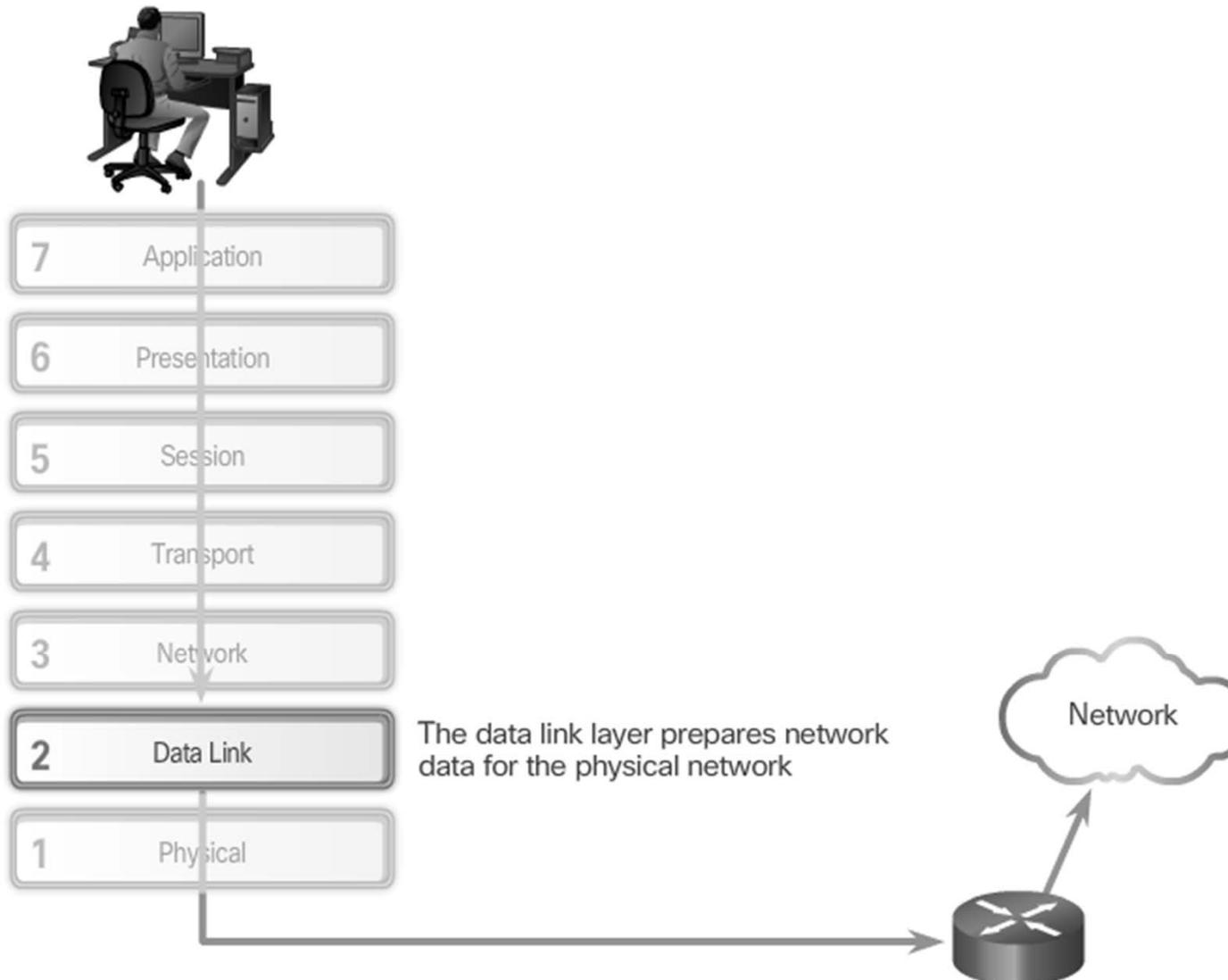
L2



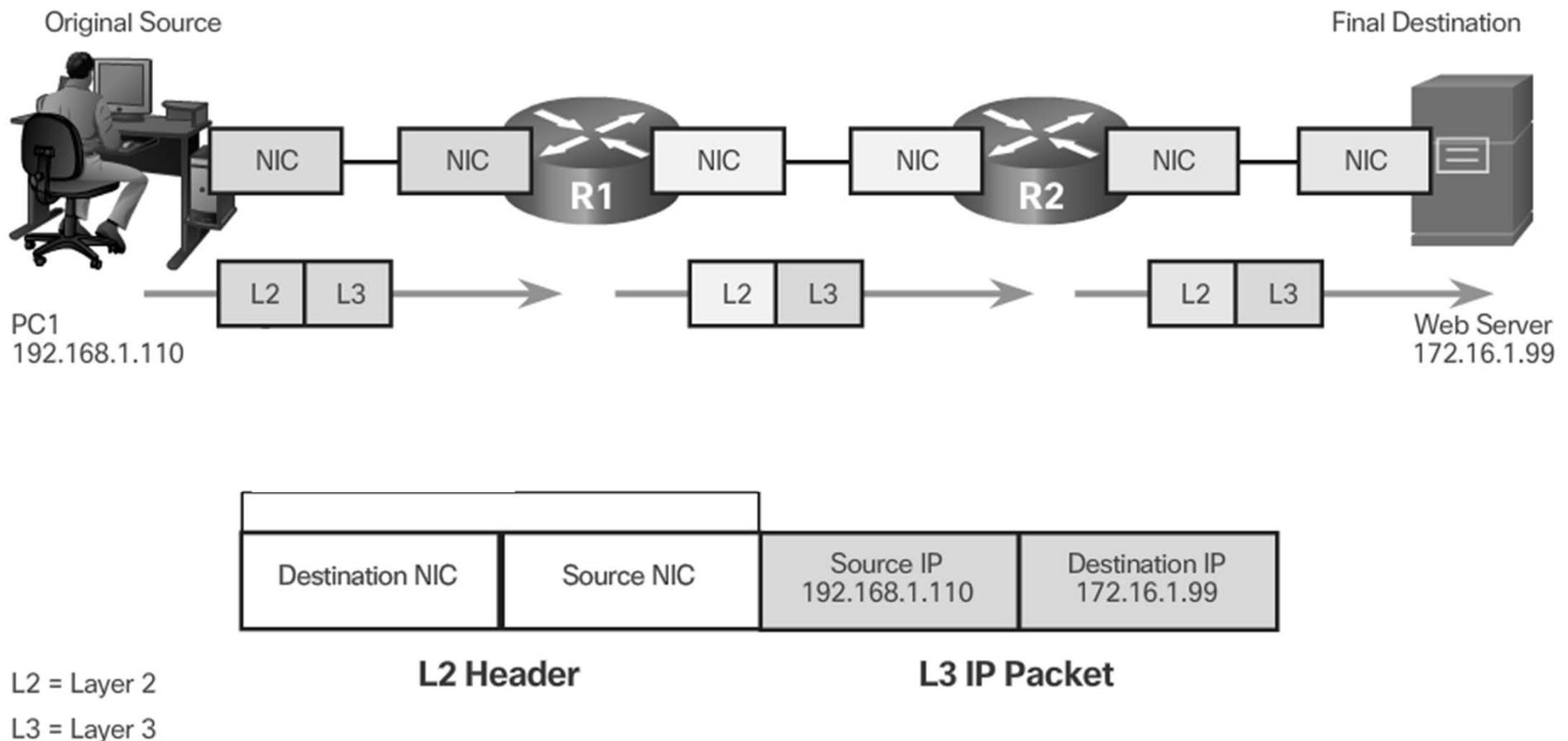
Protocol Data Units



Data Link Layer



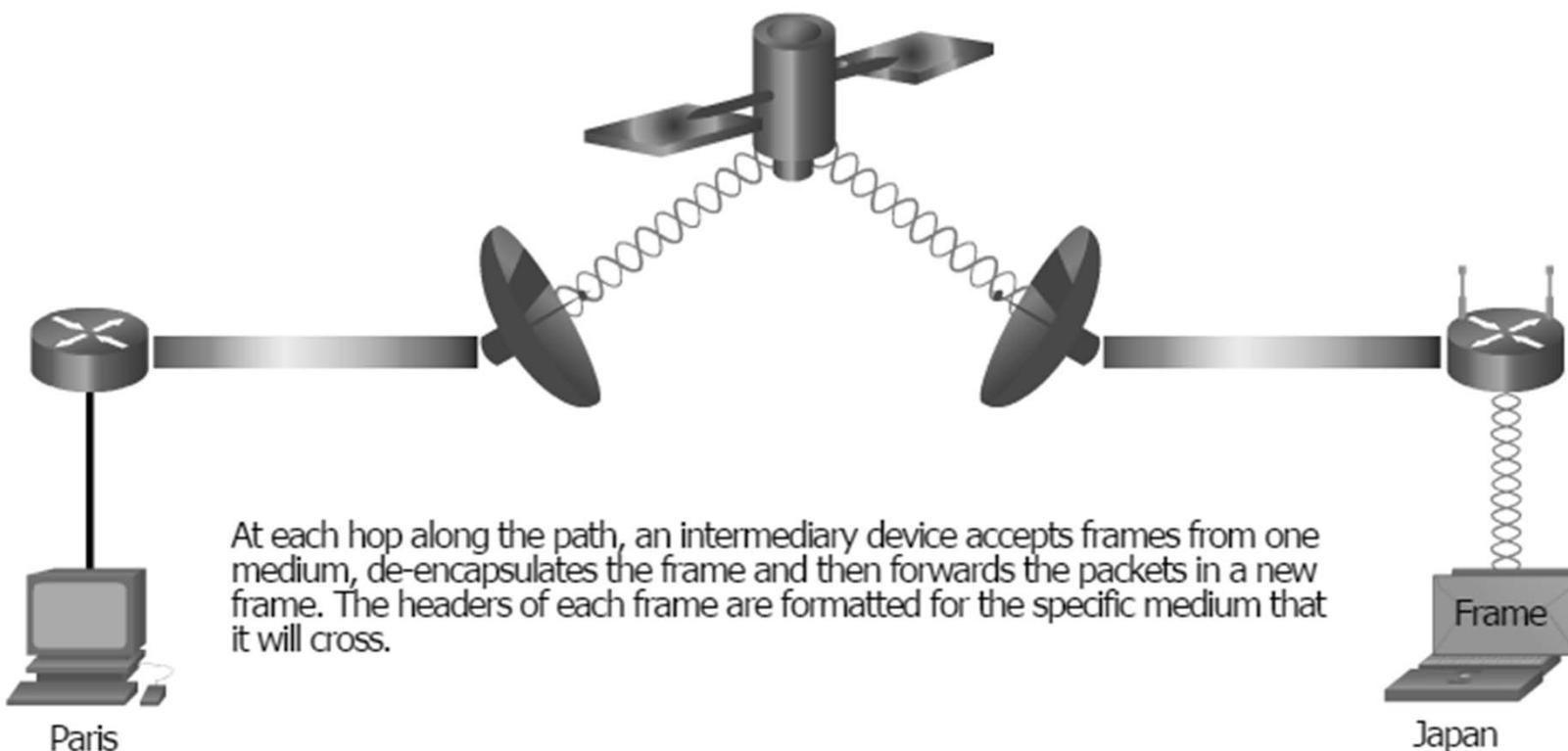
Data Link Layer



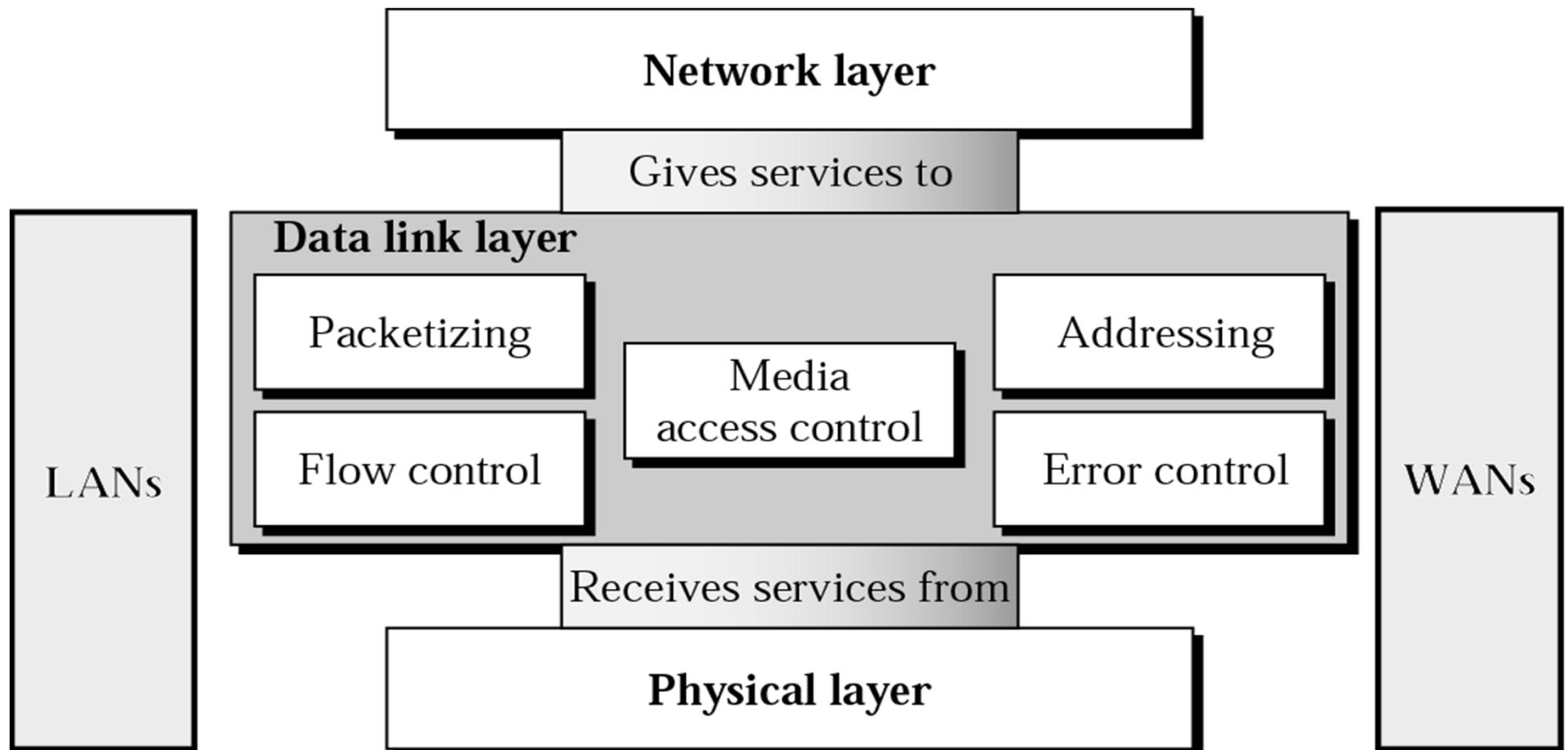
Data Link Layer

Data link layer protocols govern how to format a frame for use on different media.

Different protocols may be in use for different media.

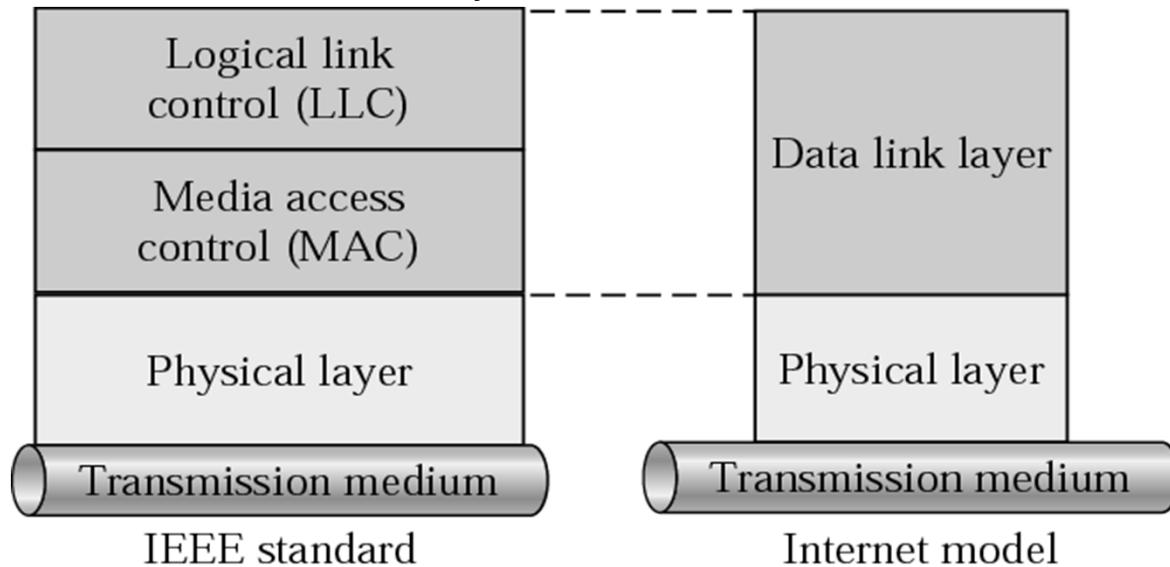


Position of the data-link layer

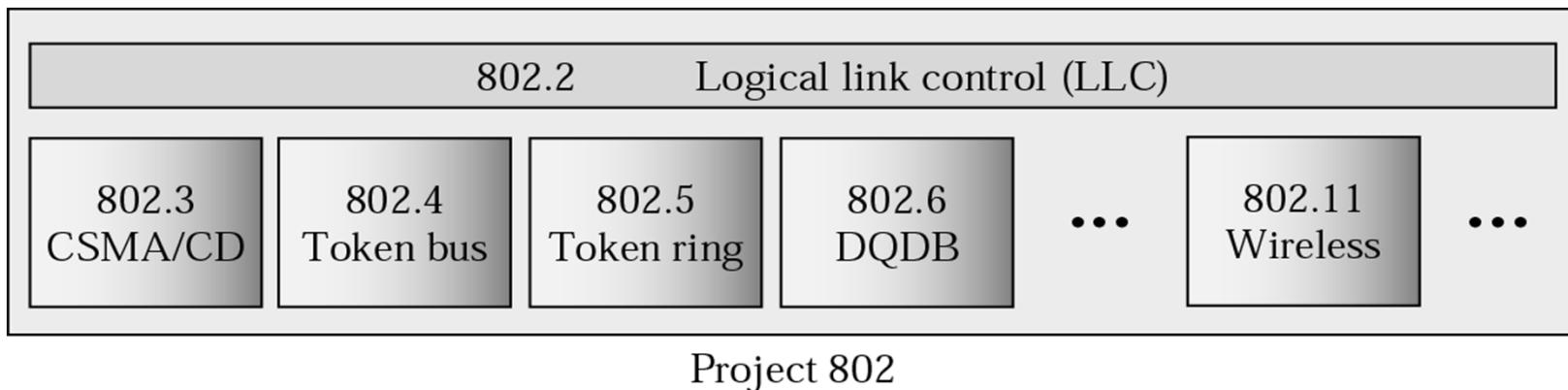


Sublayers

- LLC and MAC sublayers



- IEEE standards for LANs



Chapter 11

Data Link Control

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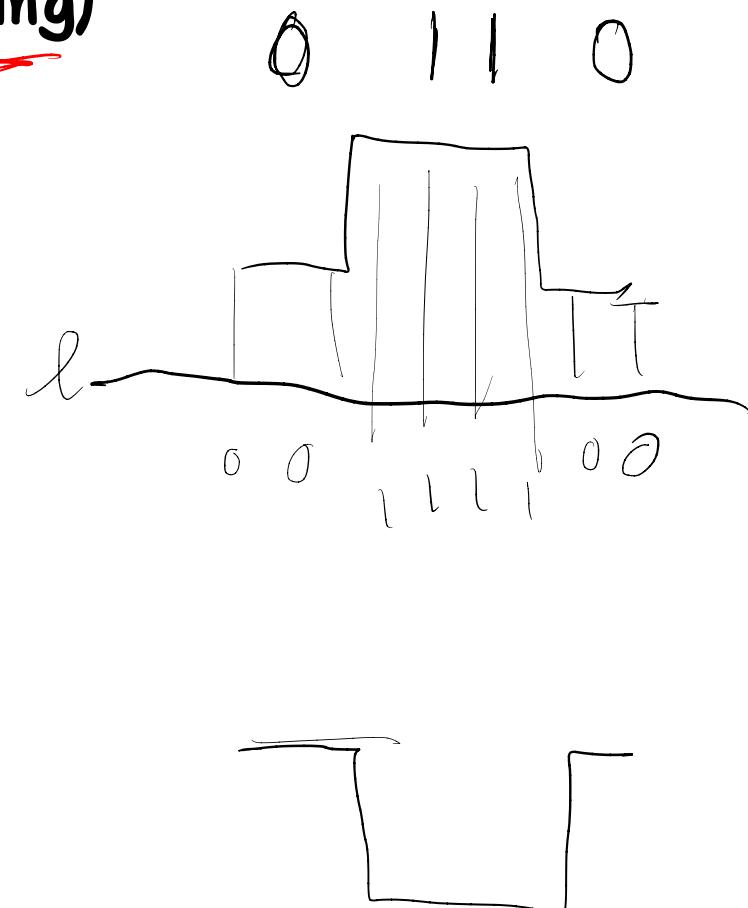
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Data Link Layer

- Main function
 - Data link control : node-to-node comm.
 - Framing
 - Flow control
 - Error control
 - Software-implemented protocols
 - Media access control : Share link comm.

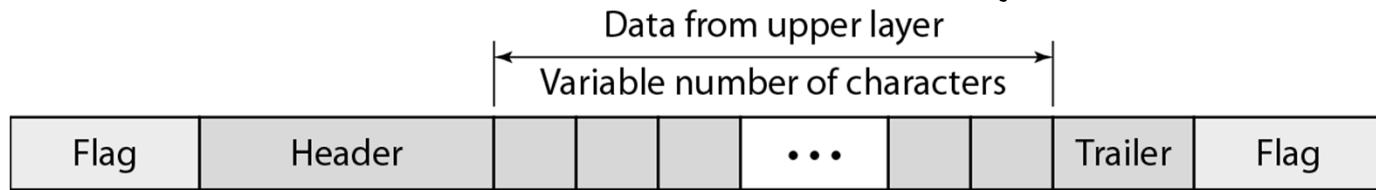
Framing

- Data Link Layer (bits) <-> Physical Layer (Signal)
- Physical Layer
 - Bit Synchronization (bit duration & timing)
- Data Link Layer
 - Addressing (Destination & Source)
 - Flow control & Error control
 - Framing (Size)
 - Fixed-Size Framing
 - Variable-Size Framing
 - Character-oriented protocol
 - Bit-Oriented Protocol

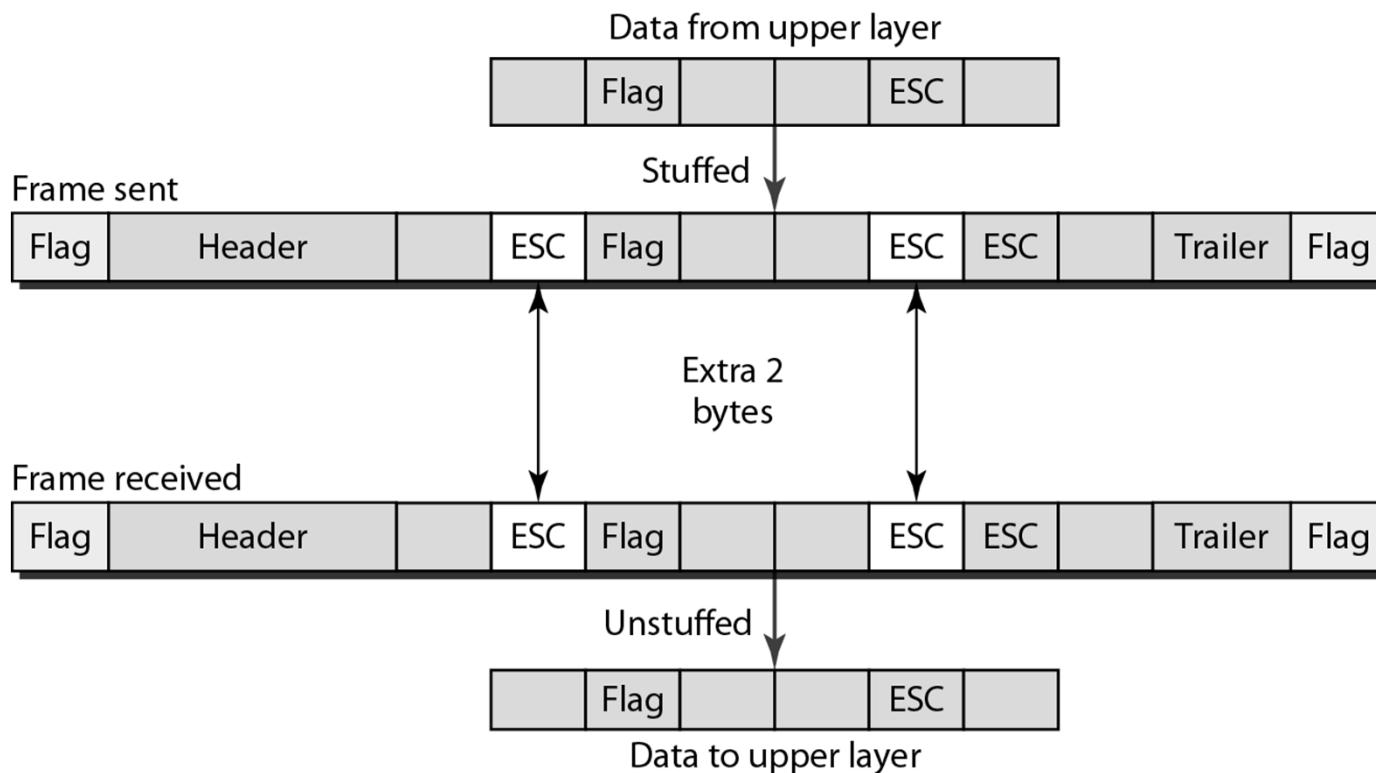


Character-oriented protocol

- A frame in a character-oriented protocol

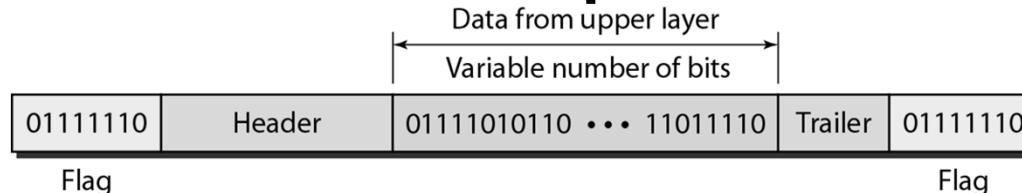


- Byte stuffing and unstuffing



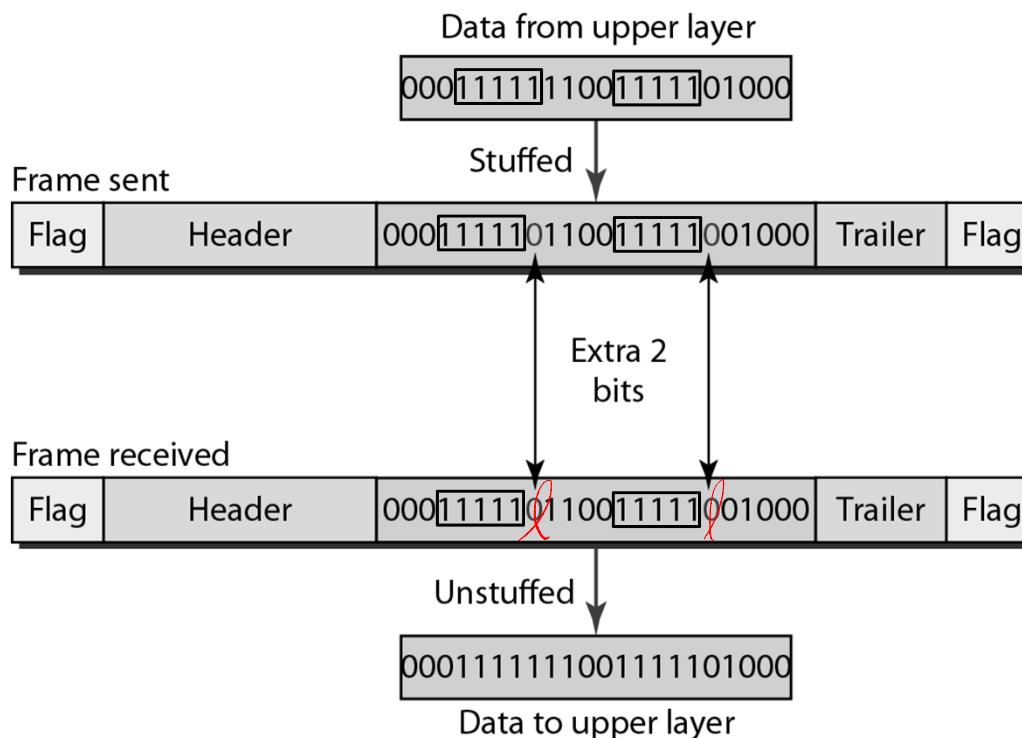
Bit-Oriented Protocol

- A frame in a bit-oriented protocol



- Bit stuffing and unstuffing

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Flow & Error control

- Flow control refers to a set of procedures used to restrict the amount of data that the sender can send before waiting for acknowledgment.
- Error control in the data link layer is based on automatic repeat request, which is the retransmission of data.

ARQ