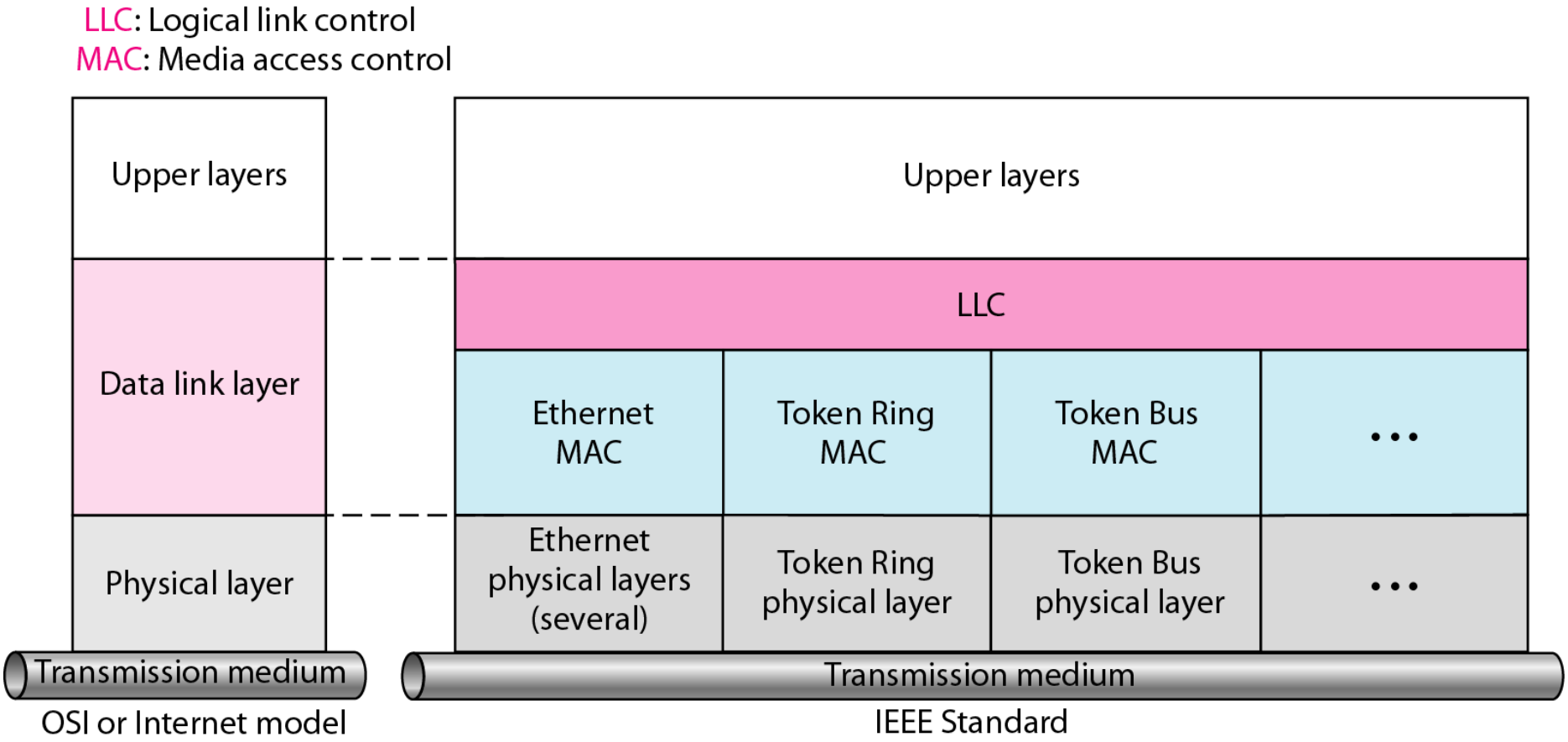
IEEE standard for LANs



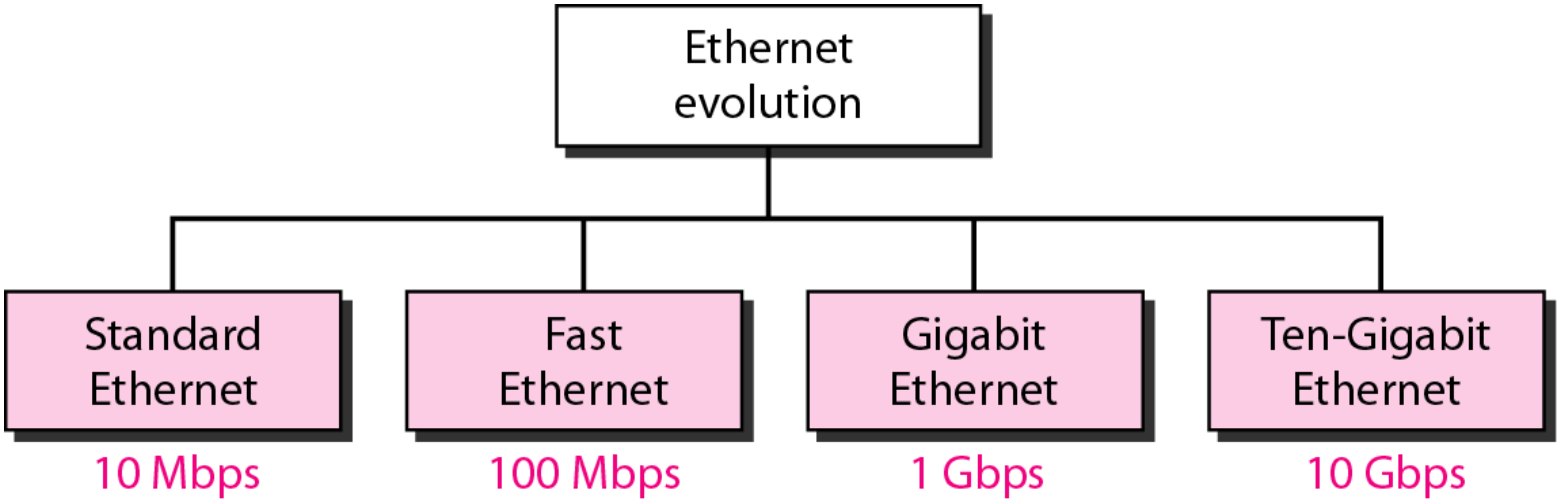
STANDARD ETHERNET

The original Ethernet was created in 1976 at Xerox's Palo Alto Research Center (PARC). Since then, it has gone through four generations. We briefly discuss the Standard (or traditional) Ethernet in this section.

Topics discussed in this section:

MAC Sublayer
Physical Layer

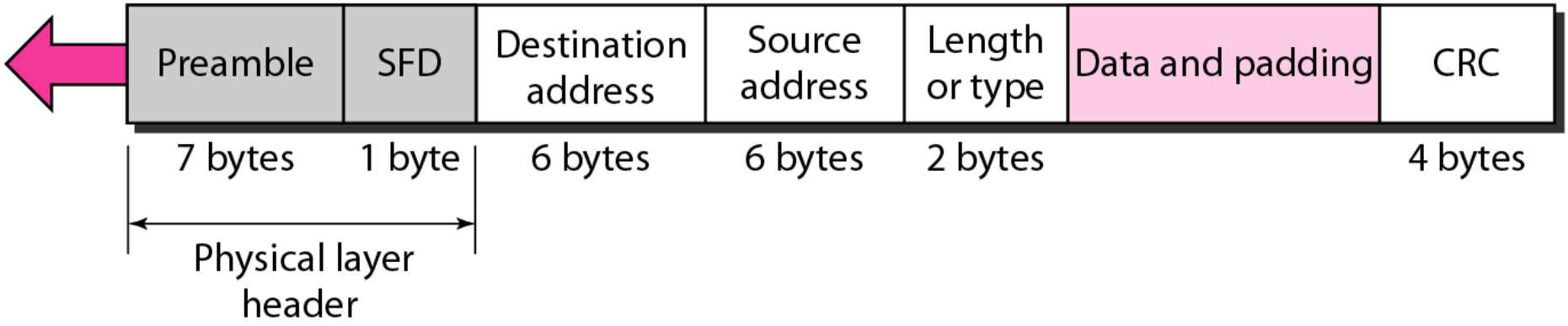
Ethernet evolution through four generations



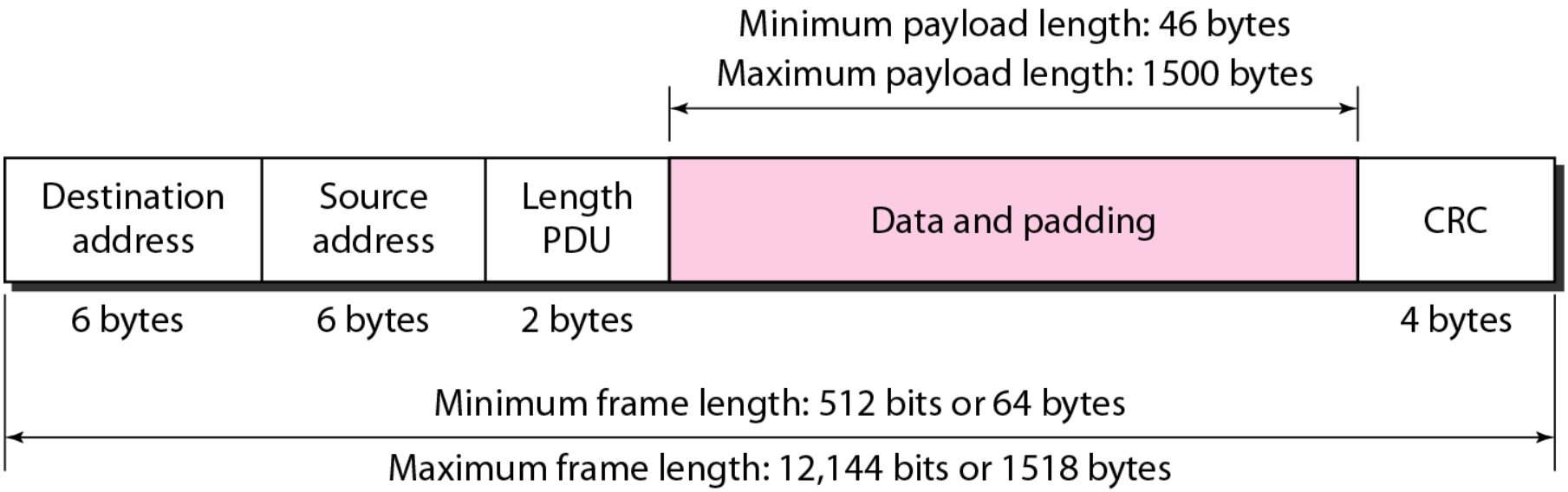
802.3 MAC frame

Preamble: 56 bits of alternating 1s and 0s.

SFD: Start frame delimiter, flag (10101011)



Minimum and maximum lengths



Note

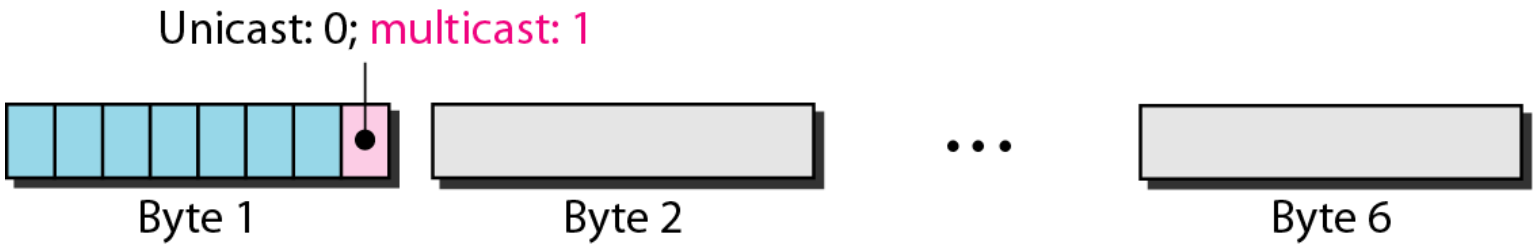
Frame length:

Minimum: 64 bytes (512 bits)

Maximum: 1518 bytes (12,144 bits)

Example of an Ethernet address in hexadecimal notation

Unicast and multicast addresses



Note

The least significant bit of the first byte defines the type of address. If the bit is 0, the address is unicast; otherwise, it is multicast.

Note

The broadcast destination address is a special case of the multicast address in which all bits are 1s.