

Course Name: A Level (2nd Sem)

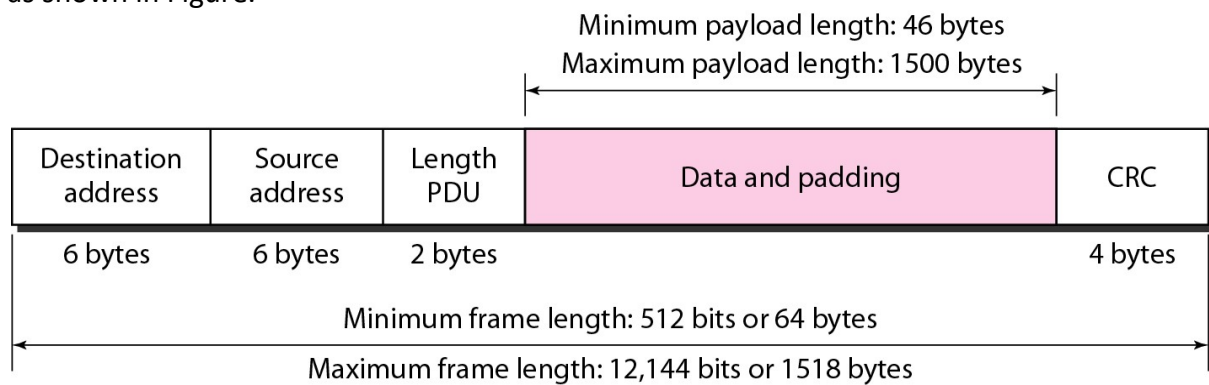
Subject: DCN

Topic: Ethernet contd.
(Frame Length and Addressing)

Date: 26-05-20

Frame Length:

Ethernet has imposed restrictions on both the minimum and maximum lengths of a frame, as shown in Figure.



Addressing:

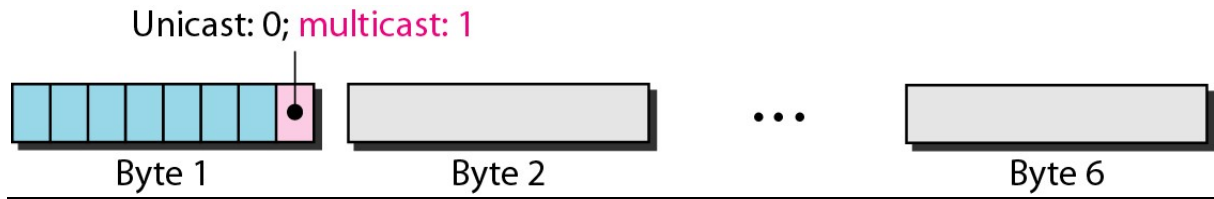
Each station on an Ethernet network (such as a PC, workstation, or printer) has its own network interface card (NIC). The NIC fits inside the station and provides the station with a 6-byte physical address. As shown in Figure 13.6, the Ethernet address is 6 bytes (48 bits), generally written in hexadecimal notation, with a colon between the bytes.

06 : 01 : 02 : 01 : 2C : 4B

6 bytes = 12 hex digits = 48 bits

Unicast, Multicast, and Broadcast Addresses:

- A source address is always a unicast address-the frame comes from only one station. The destination address, however, can be unicast, multicast, or broadcast. Figure shows how to distinguish a unicast address from a multicast address.
- If the least significant bit of the first byte in a destination address is 0, the address is unicast; otherwise, it is multicast.



- A unicast destination address defines only one recipient; the relationship between the sender and the receiver is one-to-one.
- A multicast destination address defines a group of addresses; the relationship between the sender and the receivers is one-to-many.
- The broadcast address is a special case of the multicast address; the recipients are all the stations on the LAN. A broadcast destination address is forty-eight 1s.

Exercises:

1. What are the minimum and maximum lengths in Ethernet frame?
2. Define the type of the following destination addresses:
 - A. 4A:30:10:21:10:1A
 - B. 47:20:1B:2E:08:EE
 - C. FF:FF:FF:FF:FF:FF