

# Ethernet Frame Format (IEEE 802.3)

- Ethernet uses the **frame format** represented below. This format has **remained invariant** despite the rapid development in Ethernet speeds and different physical layer technologies.

|          |             |                        |                   |                  |                                |          |
|----------|-------------|------------------------|-------------------|------------------|--------------------------------|----------|
| 7        | 1           | 6                      | 6                 | 2                | 46-1500                        | 4 octets |
| Preamble | S<br>F<br>D | Destination<br>Address | Source<br>Address | Length<br>/ Type | Client data<br>(Payload) + Pad | FCS      |

- Preamble:** sequence of 7 octets (0101....) permits the recovery of the signal clock in the receiver, when it operates in burst mode.
- SFD (Start of Frame Delimiter):** Pattern of 8 bits (10101011) that indicates the beginning of the frame.
- The destination and source address are fields with 6 octets.
- Length/type:** sequence of 2 octets to indicate the length of the data field ( $\leq 1500$ ) or the type of frame ( $\geq 1536$ ) (ex: data frames (IPv4, IPv6, MPLS, etc.) , 802.1Q, 802.1ad, control frame (faults, flow, etc.))
- FCS (Frame Check Sequence):** Uses a four-octet CRC code calculated over all octets apart from the preamble and SFD fields.

CRC: Cyclic redundancy check