Error Control

Error control refers to mechanisms to detect and correct errors that occur in the transmission of frames. The most common techniques for error control are based on some or all of the following:

1. Error detection

2. Positive acknowledgement

3. Retransmission after time-out

4. Negative acknowledgement and retransmission.

These mechanisms are also referred as automatic repeat request (ARQ).

The bit stream transmitted by the physical layer is not guaranteed to be error free. The data link layer is responsible for error detection and correction.

The most common error control method is to compute and append some form of a checksum to each outgoing frame at the sender's data link layer and to recomputed the checksum and verifies it with the received checksum at the receiver's side.

If both of them match, then the frame is correctly received; else it is erroneous.