Analysis of Key Management Protocols for Social Networks

ICNE532C - Computer Networks

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CDMA

- Orthogonal.
- Combining all the signals into one.
- Encoding and Decoding

Framing

- Frame Size
  - Fixed Size
  - Variable Sizes
- In variable size framing, we need a way to define the end of one frame and the beginning of the next.
- Approaches - Character oriented and bit oriented

Character-Oriented Framing

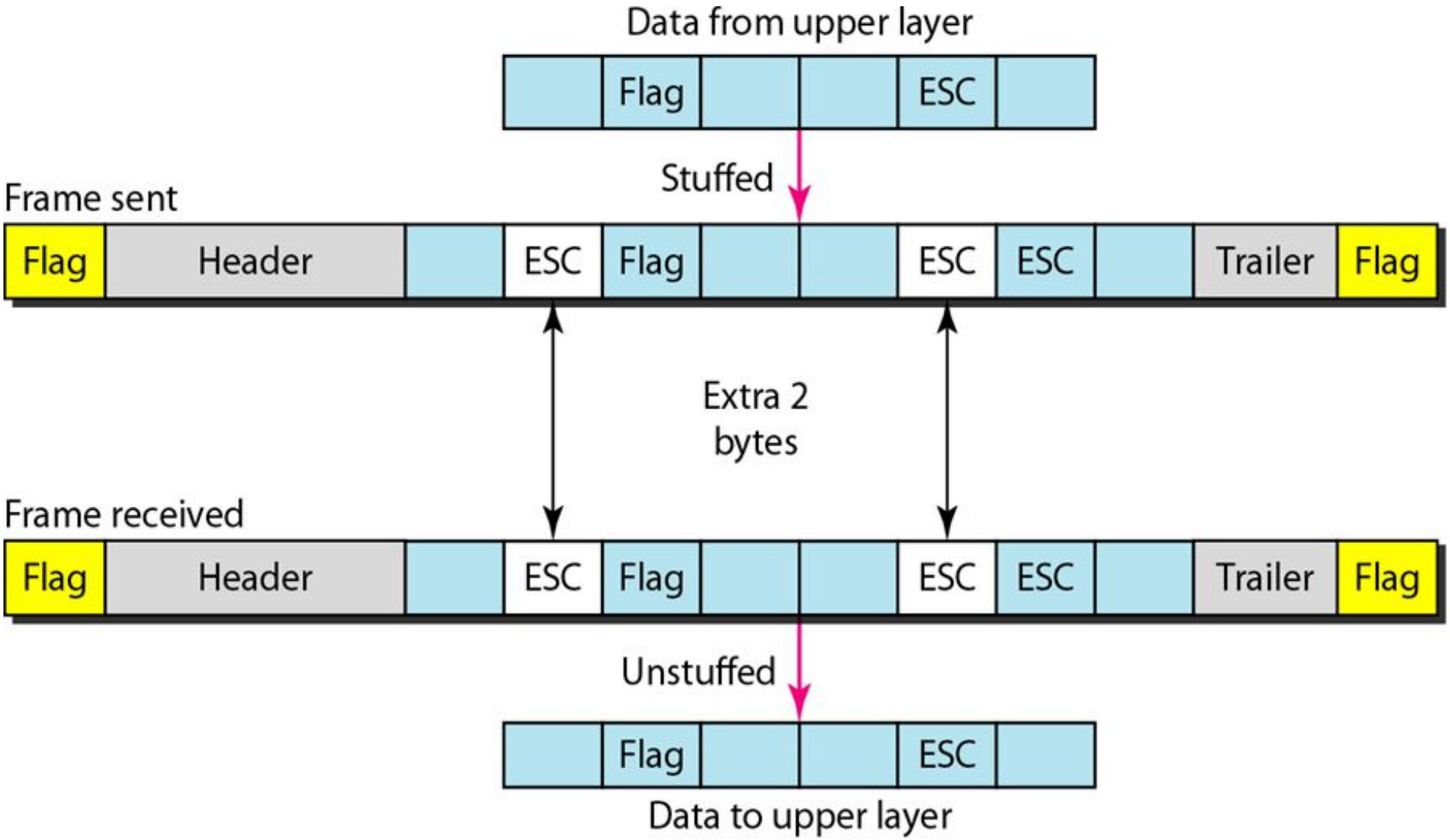


Figure: Byte stuffing

Framing

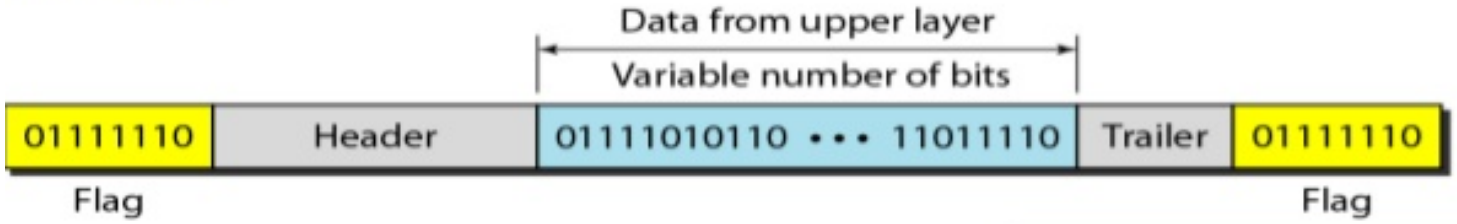
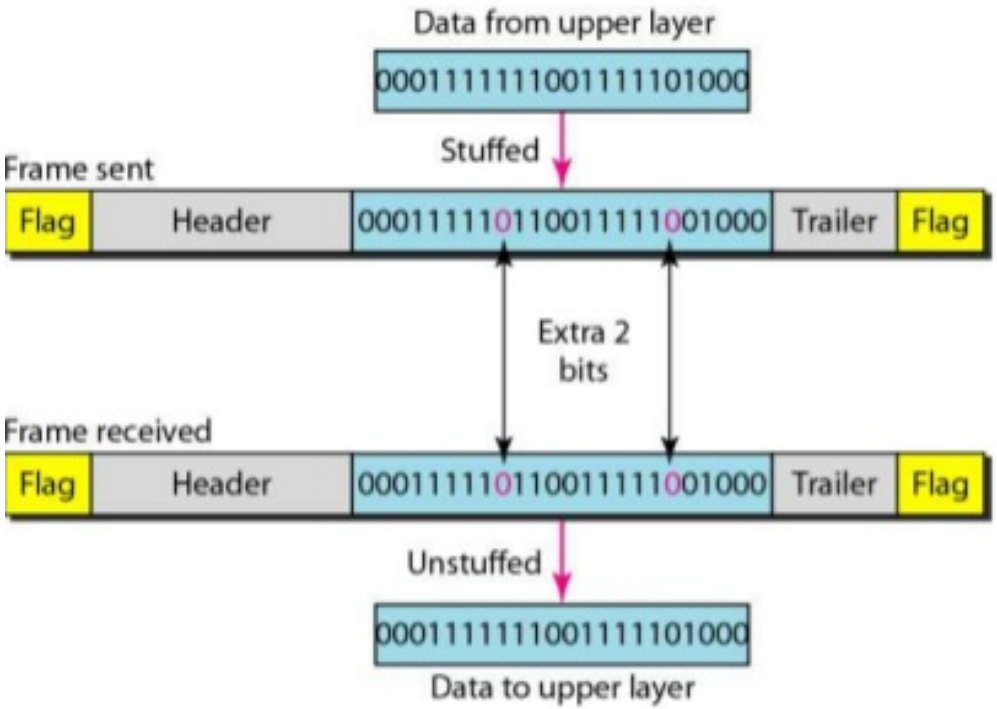


Figure 11.4 *Bit stuffing and unstuffing*



Bit stuffing is the process of adding one extra 0 whenever five consecutive 1s follow a 0 in the data, so that the receiver does not mistake the pattern 0111110 for a flag.

Figure: Bit Stuffing

Flow and Error Control

- Flow Control.
- Buffering.
- Error Control
- Combination of Flow and Error Control
- Connectionless and connection-oriented

Simple Protocol - Neither flow nor error control

- Receiver can immediately handle any frame it receives. In other words, the receiver can never be overwhelmed with incoming frames.

Stop and Wait Protocol

- Uses both error and flow control
- Timer
- Sequence and Acknowledgment Numbers.
- Piggybacking

Data Link Protocols

- High-level Data Link Control (HDLC)
  - Uses Stop-and-Wait protocol
  - Bit-oriented protocol
  - Transfer Modes - Normal Response Mode (NRM) and Asynchronous balanced mode (ABM)
  - Frames - Information frames (i-frame), Supervisory frames (S-frame), and unnumbered frames (U-frames)
- Point to Point Protocol (PPP)
  - It is open standard
  - Byte-oriented protocol
  - It supports compression and authentication

Bit-Oriented Framing

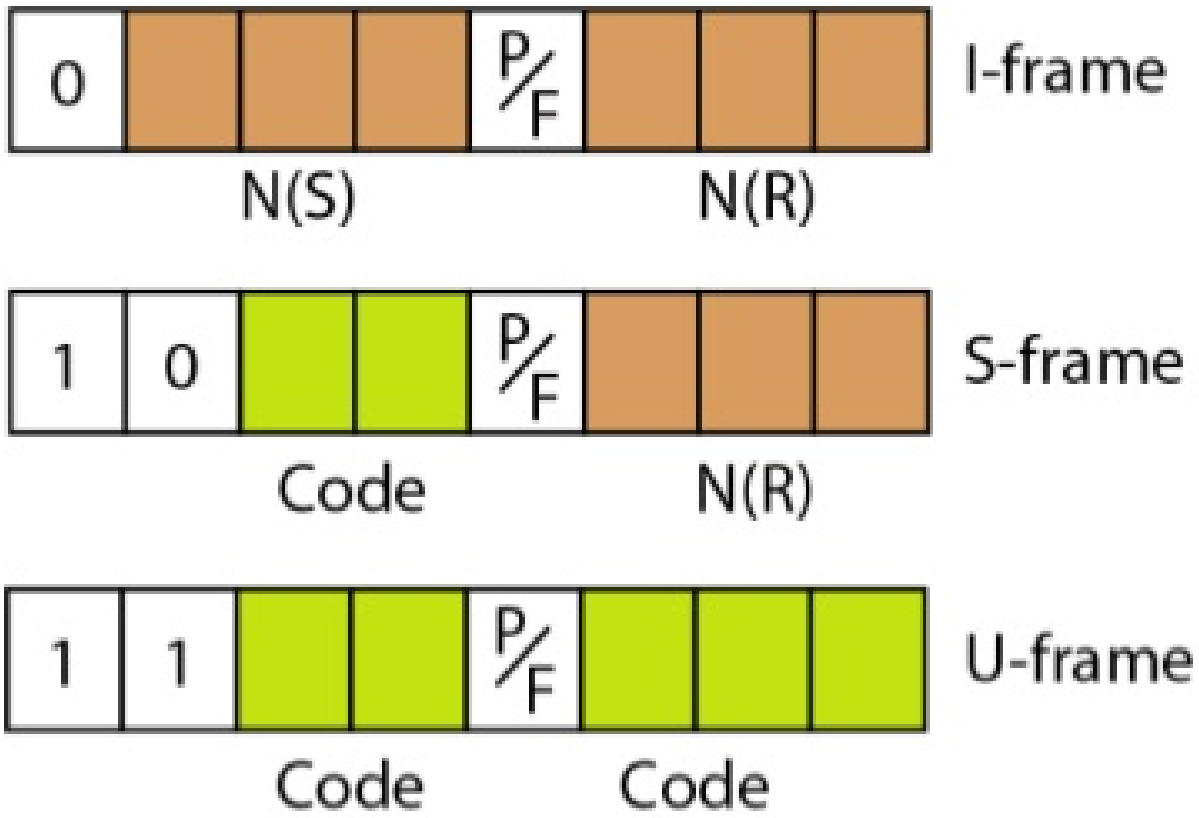


Figure: Framing

References

[1] Behrouz A. Forouzan *Data Communications and Networking*. McGraw-Hill fifth edition.