TCP: Connection Management

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Background

- TCP is a connection oriented protocol
  - Processes can run on any type of machine in the Internet
- Connection establishment helps
  - Exchange and initiate state variables
    - MSS size, initial sequence number, ACK type
  - Allocate resources (buffer space)

send Buffer
4KB – MB

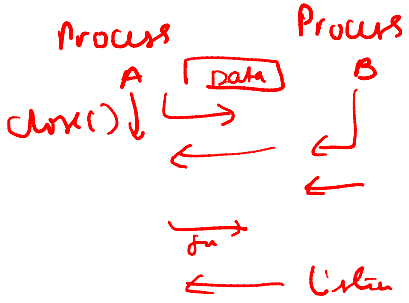
receive Buffer
8KB

Initial Sequence Number (ISN)

- Why not start with Seqno zero?
- Segments from different connections can get mixed up
- Security risk when ISN's are predictable
- Original solution: Use a clock (e.g. increments every 4 microsec) to choose ISN
  - 32 bit sequence number wraps around in 4 hrs
- Current implementations use random ISN

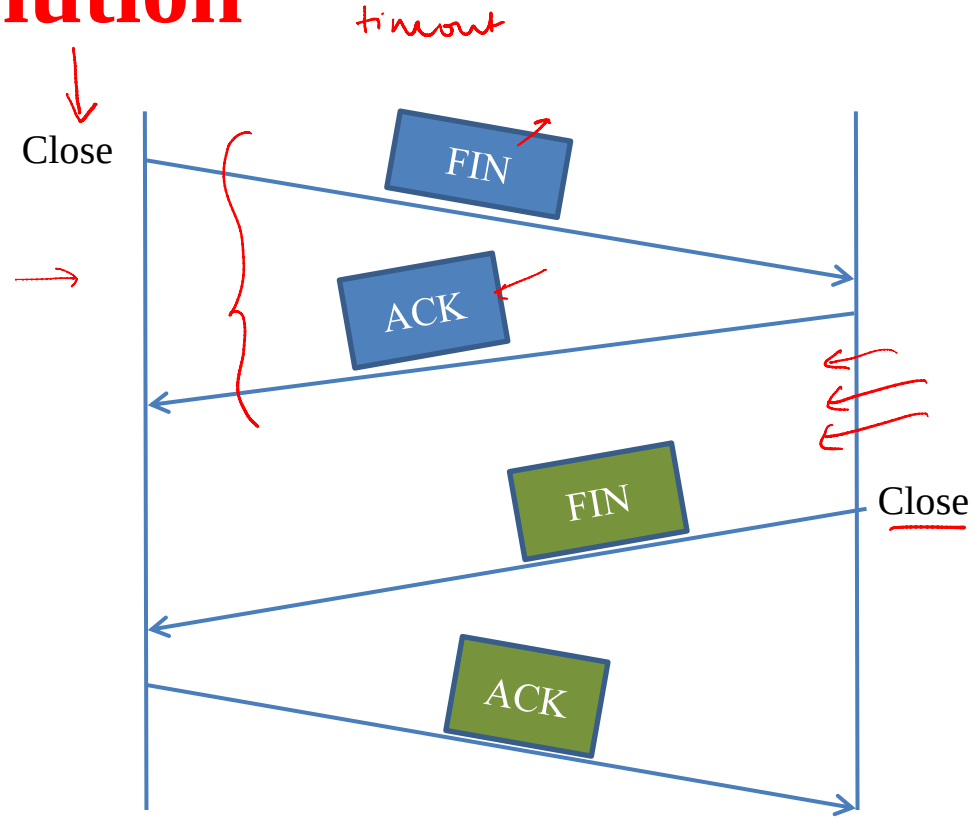
Connection Termination

- Asymmetric release (just hang-up) leads to loss of data
- Symmetric release
  - Treat connection as two separate unidirectional connections
  - Each side should be released separately



Solution

- Follows simple two-way handshake
- Each side independently closes connection



TCP State Diagram