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CS2705

* Congestion
  + Retransmission Policy
  + Window Policy
  + Acknowledge Policy
* Connection Type
  + Connectionless
    - Out-of-order
    - No Acknowledgment
    - No flow/error/congestion control
  + Connection Oriented
    - Ordered
    - Acknowledgments
    - Flow/error control
* Fake Protocols
  + Simple
    - Stick on and Address
    - Encapsulate data
    - Send
  + Stop and Wait
    - Flow Control
    - Error Control
    - Send 1 message
    - Wait for ACK
    - Timeout
  + Go Back N
    - Send window 2^m - 1
      * m = based on how big sequence number is
  + Selective Repeat
    - Send 2 ^(m-1)
    - Receive 2^(m-1)
    - Acknowledge Specific Packets
* Possible Requirements
  + Addressing
  + Ports
  + Encapsulation
  + Physical
  + Multiplexing
  + Flow Control
  + Error Control
  + Congestion Control
* Actual Requirements
  + Addressing
  + Ports
  + Encapsulation
  + Multiplexing
    - allows us to have multiple processes communication on the transport layer at the same time.
* TCP
  + Stop and wait
  + Go back N
  + Selective Repeat
* UDP
  + Simple
  + You use UDP because its less to send and it’s faster. You don’t care if the other end actually get the data or all of the data.
  + Connectionless
  + Unreliable
  + Adds - Process to Process
    - Possibly error detection
      * Checksum
  + Header
    - 8 bytes - total
    - 2 bytes - source port
    - 2 bytes - destination port
    - 2 bytes - length
      * 2^16 = 65535
    - 2 bytes - checksum
* UDP Uses
  + Simple request/response
    - DNS
      * Port 52
    - Quote of the Day
      * Not used due to security
      * Port 17
    - Echo
  + Periodic Updates
    - RIP
    - NTP
  + Real-time Streaming
    - Video Streaming
    - Multiplayer Gaming