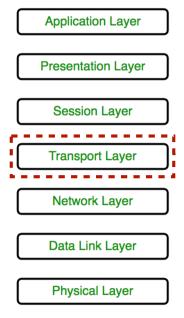
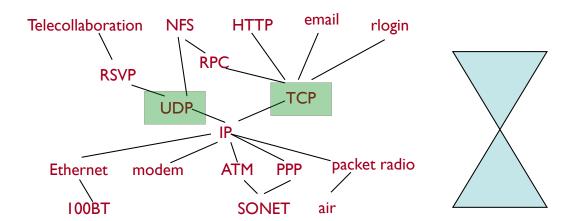
Transport Layer (Layer 4)



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IP Hourglass (redux)

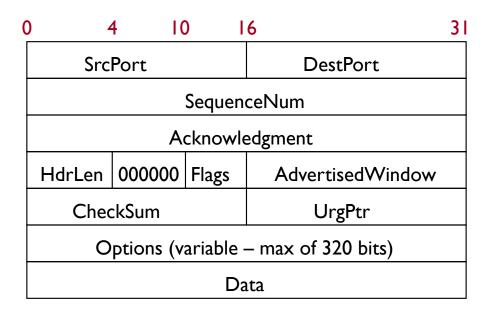


User Datagram Protocol (UDP)

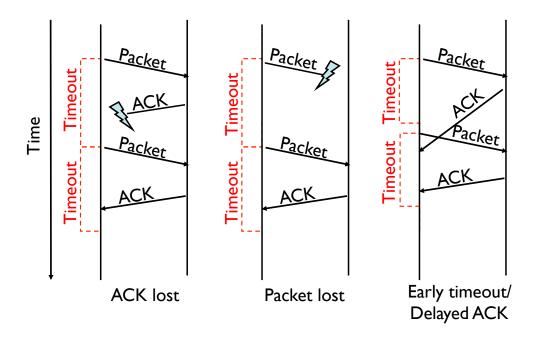


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Transmission Control Protocol (TCP)



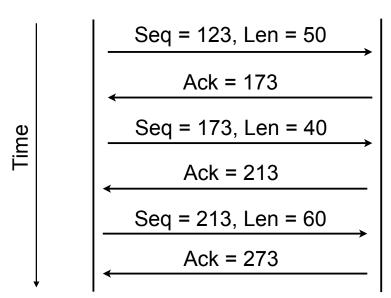
ACKs and Timeouts



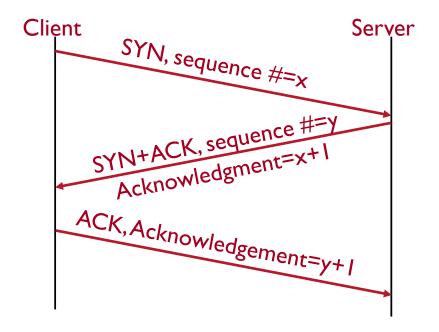
Bowdoin Sean Barker 5

Sequence and ACK Numbers



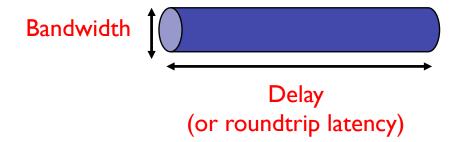


Three-Way Handshake



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Filling the Pipe



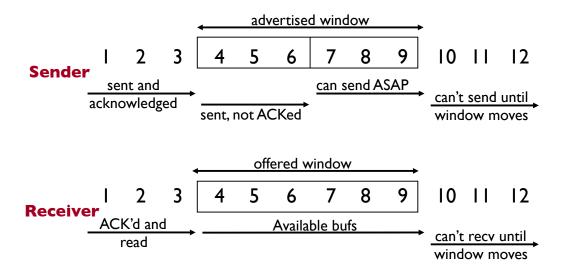
Lost Packets

Sender Seq = 123, Len = 50 Ack = 173 Seq = 173, Len = 40 Seq = 213, Len = 60 Ack = 173 Ack = 173 Seq = 173, Len = 40 Seq = 173, Len = 40 Ack = 173 Seq = 173, Len = 40

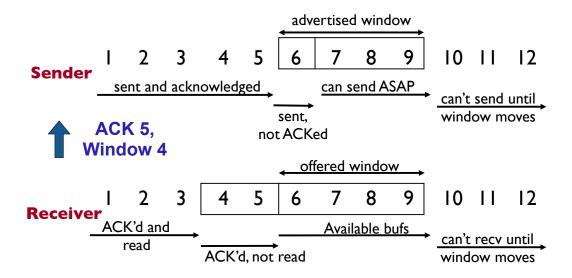
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Ack = 273

TCP Sliding Window (1)

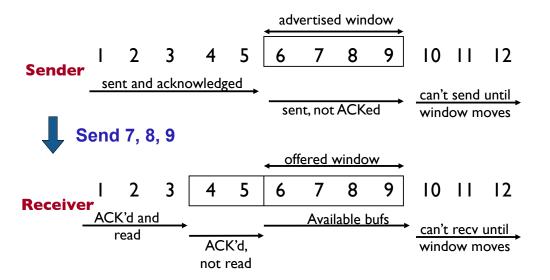


TCP Sliding Window (2)

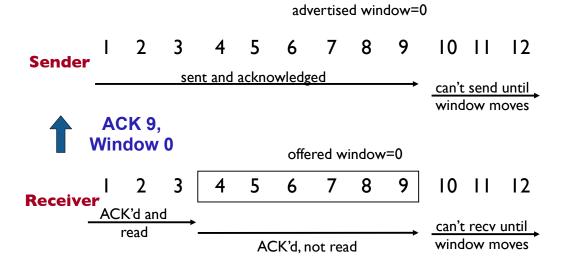


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TCP Sliding Window (3)

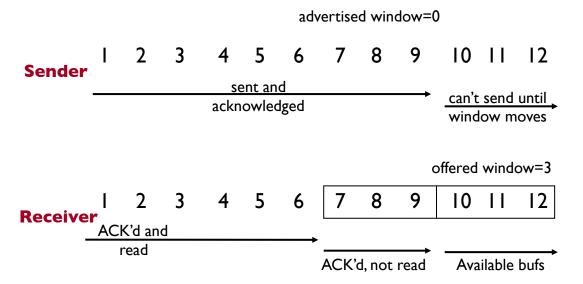


TCP Sliding Window (4)



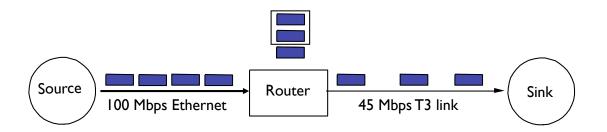
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TCP Sliding Window (5)



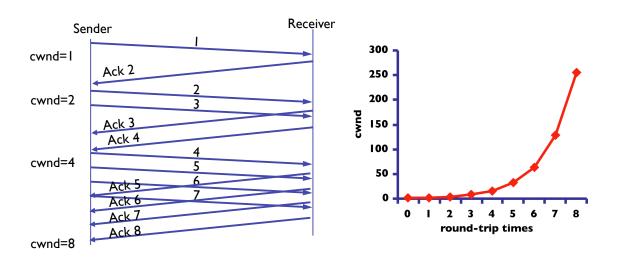
Read bytes 4, 5, 6

Congestion Control

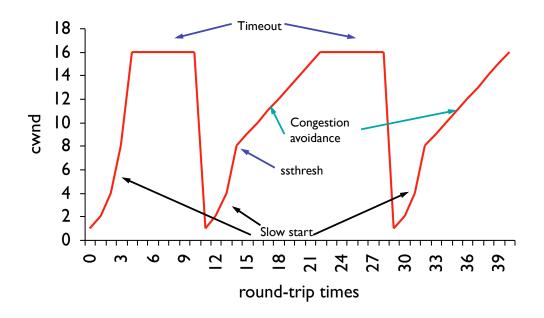


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Slow Start

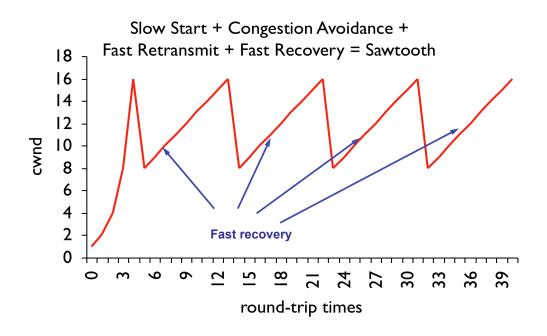


Slow Start + Congestion Avoidance

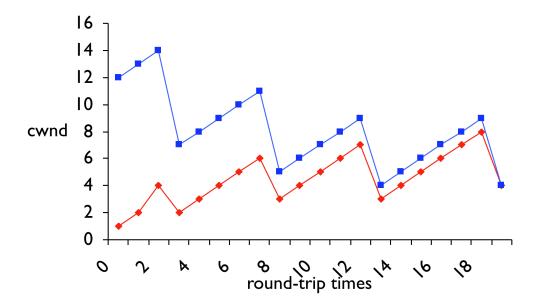


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TCP Sawtooth Pattern



TCP Link Sharing



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TCP/UDP Sharing

