TCP: Odds and Ends

Network Layer (IPv4)

- Time to Live (TTL)
  - TCP: Maximum Segment Lifetime

- Congestion Control

Initial Sequence Number (text)

- Initial sequence number is not zero

Initial Sequence Number Attack

- Text & Picture

- What can you do with a sequence number?

TCP Timestamps

- RFC 7323

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RTTM

- Via Timestamps if available

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Protection Against Wrapped Sequences

- PAWS (RFC 7323)

No one will ever need more than 64KB!

- Max window size: 64 KB.
  - Goal:

Silly Window Syndrome

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Other Timers

- Persistence Timer

- Keepalive Timer

Congestion, RFC 3168 & 5681

- ECN: Explicit Congestion Notification
  - TCP Flag: ECE/CWR
  - Random Early Detection (RED)

ECN (picture)

In the Network