Early Retransmit for TCP

draft-allman-tcp-early-rexmt-05.txt

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There are cases when TCP cannot use fast retransmit to recover from loss which requires the use of the (often costly) RTO.

E.g., consider a TCP connection with a cwnd of 3 packets, 1 of which gets dropped and nothing new to send

there is no chance of getting 3 duplicate ACKs
Motivation (cont.)

- Limited Transmit (RFC 3042) helps if we can send new data
  - But, sometimes the app has nothing else to send
  - And, sometimes the receiver’s advertised window will not allow the sender to transmit new packets
Early Retransmit

- If the cwnd < 4*MSS and the sender cannot send new data via Limited Transmit:
  - trigger fast retransmit on cwnd - 1 duplicate ACKs
 Costs and Benefits

- **Benefits**
  - avoid RTOs in cases where we cannot currently trigger fast retransmit

- **Costs**
  - less robust to reordering
  - see "worst case" scenarios in the draft
Going Forward

- Should this be a WG item?
  - we let it die; but people keep asking ....
  - goal: experimental for people to gain experience with