

Early Retransmit for TCP

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

Mark Allman, Konstantin Avrachenkov, Urtzi Ayesta,
Josh Blanton

TCPM - IETF 69

Motivation

- 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 $\text{cwnd} < 4 * \text{MSS}$ and the sender cannot send new data via Limited Transmit:
 - ▶ trigger fast retransmit on $\text{cwnd} - 1$ 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