TCP ACK Rate Request (TARR) option

draft-ietf-tcpm-ack-rate-request-02

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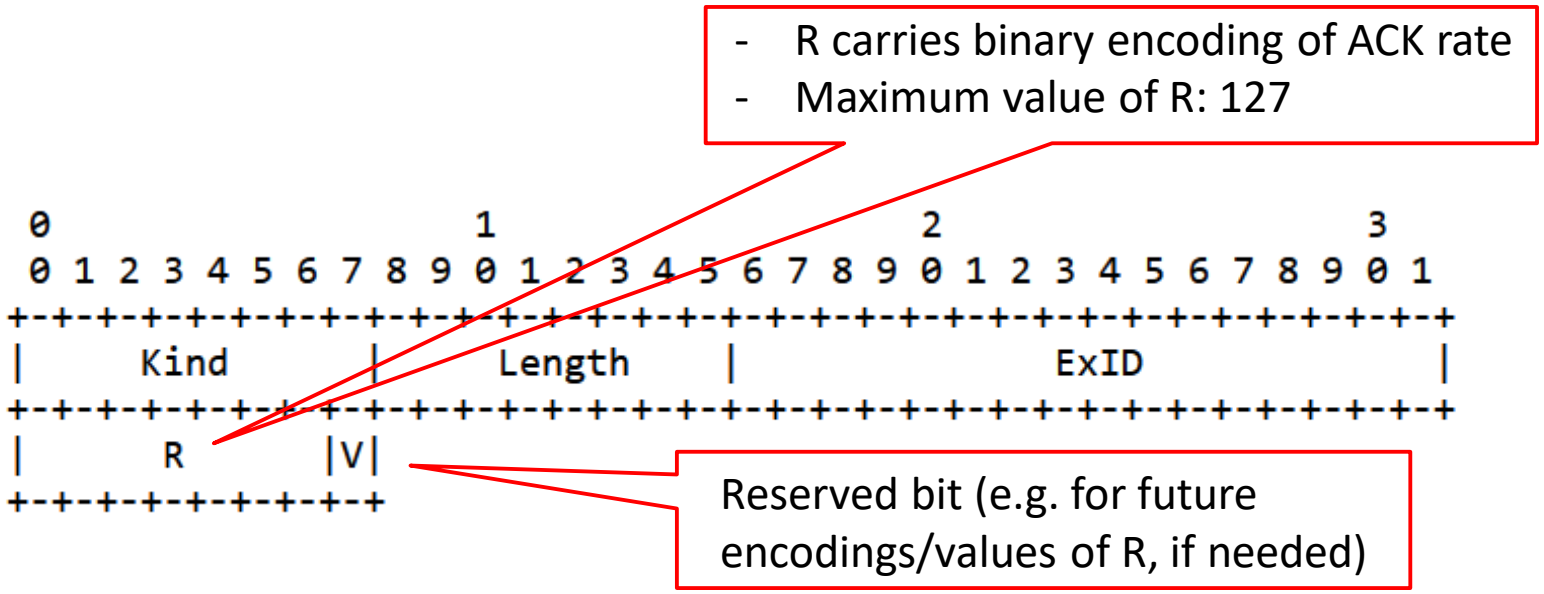
Intro: motivation

- Delayed ACKs
  - Intended to reduce protocol overhead
  - But may also contribute to suboptimal performance

- "Large" cwnd scenarios (i.e. cwnd >> MSS):
  - Saving more than 1 of every 2 ACKs may improve performance
- "Small" cwnd scenarios (i.e. cwnd up to ~1 MSS):
  - Delayed ACKs may incur delay, limit cwnd growth…

Intro: main TARR option format



- "R" is the requested ACK rate
  - R = 0: request an immediate ACK

Status

- WG adoption
  - draft-ietf-tcpm-ack-rate-request-00
    - Same content as draft-gomez-tcpm-ack-rate-request-06
  - February 2023

- Version -02
  - Aims to address comments from IETF 116

Updates (I/III)

- Section 5.1: “Sender burstiness”
  - Normative language to suggest use of TCP Sender Pacing to address sender burstiness (due to stretch ACKs)
  - OLD
    - One technique that can be used to mitigate…
  - NEW
    - One technique that a sender MAY use to mitigate…

Updates (II/III)

- Section 5.3: “Lower frequency of RTT samples”
  - OLD
    - A sender SHOULD trigger an ACK being sent by the receiver at least once per RTT.
  - NEW
    - A sender needs to trigger a sufficient number of ACKs per RTT. Such number depends on the specific scenario, with the best currently known value being roughly in the range of at least 1 - 4

Updates (III/III)

- Section 6: “Changing the ACK rate during the lifetime of a TCP connection”
  - cwnd may also change due to relatively sporadic phenomena, such as retransmission timer expiration
    - In such cases, ACK rate updates may be needed as well
  - Note that the sender may opt to request an ACK rate that it considers appropriate at any moment

Next steps

- No (further) outstanding issues we are aware of
  - Areas of improvement?
  - Other suggestions?
  - Reviews?

Thanks!
Questions? Comments?

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