Retransmission Timeout Requirements

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History

- draft-ietf-tcpm-rto-consider-05.txt

- Started eons ago as a way to relax TCP RTO spec (RFC 6298)
  - we have learned what is important … … and what is not
  - so, explicitly give implementers latitude
  - reality check: they take the latitude anyway!
Status wrt TCP

• It seems that document has—for a good long while—had solid consensus
  • converged on the technical meat

• But …
History, part 2

• The requirements in the document actually seem quite general
  • i.e., what would not apply to some other protocol as a general statement?

• Hmm....
  • so, hacked on the draft to make it broad and general
  • i.e., no longer TCP specific
  ... although still applicable to TCP
History, part 2

- Document was foundation of a small subset of the UDP Guidelines document (RFC 8085)
- RFC 8085 & rto-consider agree in normative statements
  - …except RFC 8085 does not call for exponential backoff
  - … hmm … <grumble>
    (yes, I reviewed RFC 8085 extensively … alas)
Quick Overview

- Initial RTO MUST be at least 1 sec
- RTO SHOULD be based on recent measurements of feedback time
- RTO SHOULD be based on regular measurements of the feedback time
- feedback time MAY be measured with non-data segments (e.g., heartbeats)
- ambiguous feedback time sample MUST NOT be used
Quick Overview

• Exponential backoff MUST be used for repeated retransmissions

• Exponential backoff SHOULD be removed after successful repair of loss

• a maximum RTO MAY be used, but MUST NOT be less than 60sec

• Retransmissions triggered by the RTO MUST be taken as indications of congestion and trigger a some standard response
History, part 2

• Recent changes to relax a couple of MUSTs to SHOULDs
  • to explicitly give a little wiggle room to implementers
  • to sync w/ the UDP guidelines
The Plan We Agree On

- Get some feedback from non-TCP folks
  - SCTP feedback from Tuexen already (thanks!)

- WGLC …
  - … in TCPM because that is where this all started
  - … in TSVWG because the scope has widened

- Ultimately the more reviewing the better
The Unknown Part of The Plan


• General game plan:
  • write what we know to be our best advice
  • trust implementers to apply the advice as faithfully as possible within their own constraints
  • (suggested by Mirja)
Questions? Comments?

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