Retransmission Timeout Requirements

draft-ietf-tcpm-rto-consider-04

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IETF-96, Berlin, Germany

July 18th, 2016

Overview

- Goal: High-level requirements for RTO behavior, protocol independent
- Relationship to other specifications and implementations
  - Currently standardized methods are not updated or obsoleted
  - Future standards SHOULD follow these requirements
  - If protocol design is not directly applicable to these requirements, an alternate specification is required
- We want to move forward soon

Requirements

- If no prior knowledge of latency, RTO MUST be set to no less than 1 second
- Setting RTO based on measurements
  - MUST be set based on recent observations of feedback time, and take RTT variance into account
  - MUST be taken regularly
  - MUST NOT use ambiguous samples
- RTO MUST back-off exponentially
- MUST be taken as indication of congestion

Relationship to RFC 6298 (RTO specification)

- Indicated as mandatory algorithm for TCP

- rto-guidelines seemingly loosens this requirement

- RFC 6298: "It expands on the discussion in Section 4.2.3.1 of RFC 1122 and upgrades the requirement of supporting the algorithm from a SHOULD to a MUST."

- **Is rto-considerations an "Update" to RFC 6298?**
(MUST → SHOULD/MAY)

Relationship to UDP Guidelines

- UDP Guidelines also give guidance about RTO
  - Rto-guidelines seem to be compatible
- Rfc5405bis refers informatively rto-considerations, is past IETF Last Call
- **Should rto-considerations informatively refer UDP Guidelines as primary UDP reference?**

Future Implementation Freedom

- Version -04: "(R.3) Alternatively, future RTO mechanism implementations may be made directly against the requirements in Section 3 without another protocol-specific specification."

- David Black proposal:

  - "(R.3) Alternatively, **implementations of future RTO mechanisms** may be made directly against the requirements in Section 3 without another protocol-specific specification."

- Another proposal: remove (R.3) entirely as unnecessary