Convergence of Congestion Control from Retained State

aka Careful Resume

draft-ietf-tsvwg-careful-resume-07

N. Kuhn E. Stephan G. Fairhurst R. Secchi C. Huitema

TSVWG
IETF 119

Brisbane, March 2024
Major rewrite in drafts -05 and -06 (Dec 2023)

- -05 Rewrote description of Phases
  - Simplified the method

- -06 Added Notes on the Careful Resume Phases (Annexe A)
  - Example with No Loss
  - Example with No Loss, Rate-Limited
  - Example with Loss detected in the Reconnaissance

- -06 Added QLOG CDDL spec in Appendix
  - Thanks Ana, Robin, and Lucas
Current Qlog definition draft in -07

RecoveryCarefulResumePhaseUpdated = {
? old: CarefulResumePhase,
new: CarefulResumePhase,
state_data: CarefulResumeStateParameters,
? restored_data: CarefulResumeRestoredParameters,
? trigger:
  ; for the Safe Retreat phase
  "packet_loss" /
  ; for the Unvalidated phase
  "congestion_window_limited" /
  ; for the Validating or Normal phases
  "cr_mark_acknowledged" /
  ; for the Normal phase, when CR not allowed
  "rtt_not_validated" /
  ; for the Safe Retreat phase
  "ECN_CE" /
  ; for the Normal phase 1 RTT after a congestion event
  "exit_recovery"
} .... See draft

Concise Data Definition Language (CDDL) [RFC8610] [I-D.ietf-quic-qlog-quic-events].
Minor changes in draft in -06 to -07

• Finishing support for QLOG

• Updated to fix a corner case when in Entering Recovery
  • Previously: CWND was always set to FS
  • Currently: CWND is set to PS, transitioning to Normal if FS < PS

• Answered Comments from AC, JD and Q
  • Updated Table and examples in Appendix A
  • Updated CWND management during transition to Unvalidated phase
  • Unable to answer required no. of samples for estimating min RTT
Next Steps

• We’re currently completing unit tests

• There are minor edits pending relating to the Qlog CDDL

• We’ll next analyse performance with a “high BDP”

• We’d like feedback
  • We have work in a fork of Quiche (Joerg Deutschmann)
  • We know about PicoQUIC work (Joerg Deutschmann)
  • We are especially interested in other implementation experience

• We expect this to be ready for WGLC at the next meeting!