Multimedia Congestion Control: Circuit Breakers for Unicast RTP Sessions
draft-ietf-avtcore-rtp-circuit-breakers-05

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Recent Changes

• Changes in -04:
  • Keep-alive only, no technical changes

• Changes in -05:
  • Update recommendations for choice of TCP throughput equation in §4.3
  • Add media usability RTP circuit breaker
Choice of TCP Throughput Equation

• Two versions of TCP throughput equation used for congestion circuit breaker
  • Simple model due to Mathis; more complete model due to Padhye
  • Clarify that either throughput model can be used for RTP circuit breaker, although simple model is RECOMMENDED
  • Reference papers that discuss trade-off between two approaches:


Both sets of results have been presented at previous IETF meetings

• Expect different throughput models to be developed in future, that might be better suited to real-time applications, but current throughput models are good enough
Media Usability RTP Circuit Breaker

• Add RTP/AVP circuit breaker #4: media usability
  • Key text: “applications SHOULD monitor the reported packet loss and delay to estimate whether the media is suitable for the intended purpose. If the packet loss rate and/or latency is such that the media has become unusable for the application, and has remained unusable for a significant time period, then the application SHOULD cease transmission”
  • Does not define bounds on packet loss/latency → application specific

• Intended as a catch-all if other circuit breakers fail
  • If the quality is unacceptable, don’t feel you need to keep sending
Open Issues

• Magnus sent feedback to mailing list (27-2-2014)
  • Media timeout circuit breaker triggers if RTP sent, but RTCP SR/RR show no packets received; likelihood of triggering higher when few RTP packets sent per RTCP interval
    • Agree that this is a concern – can highlight issue in the draft
    • Should we add a threshold to counter this? If so, what? Suggestion: don’t trigger if sending less than 3 packets per reporting interval
  • Issue with reports from multiple remote SSRCs
    • Clarify that the circuit breaker operates per-SSRC, and be clear what reporting interval is used
  • When using RTP/AVPF, do we need to give advice for triggering interval when using T_rr_interval?
    • I expect this will be needed, but unclear what advice to give
    • Discuss offline with Magnus and simulate result, to ensure correct timeout used
  • Assorted requests for editorial clarifications that will be incorporated
Status and Next Steps

- Basic mechanism has been stable for some time
- Experiments show circuit breaker safe to deploy
  - Tends towards conservative; only triggers in extreme cases (preferable to overly sensitive)
- Resolve open issues from Magnus, then believe this is ready for working group last call