Advancing RFC 4138
<draft-ietf-tcpm-rfc4138bis-01>
<draft-kojo-tcpm-frto-eval-01>

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Problems with regular TCP

• On Spurious Timeouts:
  • Regular TCP sender retransmits whole window unnecessarily in slow start
  • Network resources are wasted
  • In many cases severe performance penalty to the TCP flow
  • Dishonors packet conservation principle
F-RTO: Detecting Spurious RTOs

• F-RTO slightly modifies TCP sender behavior
  • After RTO retransmission try to send a couple of new segments
  • If new acknowledgements for non-retransmitted segments flow in, assume RTO was spurious
  • Otherwise new segments trigger DupACKs, and sender should assume genuine RTO

• No TCP options required
• Compatible with existing TCP implementations
• Does not cause network congestion
• Might not detect spurious timeout in some cases
  • If F-RTO does not detect spurious RTO, it reverts back to traditional RTO recovery
Current Progress

- Revised RFC 4138 targeting at PS <draft-ietf-tcpm-rfc4138bis-01>
- No changes since last meeting
  - We consider draft ready
Evaluation of RFC 4138

• Accompanying draft evaluating RFC 4138
  • <draft-kojo-tcpm-frto-eval-01.txt>
  • Points out the problems with regular RTO recovery and usefulness of F-RTO
  • Evaluates F-RTO to show it is not harmful to the network, corner cases included
  • Summarizes experimentation results
Ready to advance?

• A number of known F-RTO implementations are out there
• Proposals and support to advance to PS have been expressed several times by implementors
• Experimentations have been carried with several implementations showing positive results
• All feedback has been positive
  • Implementors: no issues with the spec
  • Many implementations enable F-RTO by default
    • Windows Vista
      • Microsoft report at IETF-68 about their positive experiences
    • Linux:
      • basic F-RTO implemented since the early days of F-RTO algorithm
      • SACK enhanced F-RTO enabled by default from up-coming release of 2.6.24 and onward, and falls back to basic variant if SACK not negotiated
Next Steps

• Ready for WGLC?