Prague Congestion Control

draft-briscoe-iccrg-prague-congestion-control-00 (TBA)

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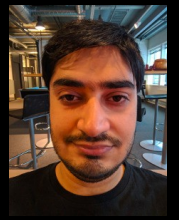

TSVWG, IETF-108, Jul 2020

Background

- Linux ‘reference’ implementation of TCP Prague Congestion Control
  - github.com/L4STeam
- Apr’20 tsvwg interim: asked for write-up as Internet Draft
- Body of draft written. To be posted shortly
  - github.com/bbriscoe/prague-cc

- This presentation: choices and *modus operandi*

Choices

- Transport independent?
  - Yes. But specifics for main transports included.
  - Hence “Prague” not “TCP Prague” in title
- Target WG: tsvwg? tcpm/quic? iccrg?
  - Propose iccrg; where the review expertise is concentrated
  - Chairs of tsvwg & iccrg agree. Will need iccrg adoption call (once posted)
- Implementation independent?
  - Yes. But with copious implementation notes (mostly based on Linux experience)
- Normative (Experimental track) or Informative (Informational track)?
  - draft-ietf-tsvwg-ecn-l4s-id already gives normative constraints on Prague CCs
  - Initial draft currently written with MUSTs and SHOULDs, but unnatural
  - Proposal (can be changed later):
    - EXP track with one normative statement: “MUST comply with draft-ietf-ecn-l4s-id”
    - Then informative style

Modus Operandi

- “One True Way” is not the intention
  - Prague CC is intended as a set of component parts
- Also note: L4S Prague Requirements are intended to encourage other Scalable CCs using different approaches to this Prague CC
- Evolution expected as L4S experiment proceeds
  - Body of draft structured for in two main parts
    - Prague CC (stable)
    - Variants and Future Plans
- Change requests / suggestions / discussion
  - either via tcpPrague@ietf.org for general Prague CC discussion
  - or iccrg@irtf.org for text-specific discussion
  - or pull requests via git repo for draft

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Q&A

and spare slide

Contents of Main Body

4. Prague Congestion Control

4.1. Packet Identification

4.2. Detecting and Measuring Congestion

4.2.1. Accurate ECN Feedback

4.2.2. Moving Average of ECN Feedback

4.2.3. Scaling Loss Det'n with Flow Rate

4.3. Congestion Response Algorithm

4.3.1. Fall-Back on Loss

4.3.2. Multiplicative Decrease on ECN F/b

4.3.3. Additive Increase and ECN F/b

4.3.4. Reduced RTT Dependence

4.4. Packet Pacing

4.5. Flow Start or Restart

5. Variants and Future Work

5.1. Faster than Additive Increase

5.2. Combination with Delay-Based Control

5.3. Fall-Back on Classic ECN

5.4. Scaling Down to Fractional Windows