IETF-105 Hackathon

Low Loss
Low Latency
Scalable throughput
L4S

20-21 Jul 2019, Montreal

L4S Background

- Low Loss Low Latency Scalable throughput

- Pre-existing code via: https://riteproject.eu/dctth/#code
  - DualPI2 Linux qdisc
  - DCTCP
  - TCP Prague
  - Accurate ECN

- Specs via https://riteproject.eu/dctth/#stds-specs:
  - RFC8257 (DCTCP)
  - RFC8311 (ECN Experimentation)
  - draft-ietf-tsvwg-l4s-arch (architecture)
  - draft-ietf-tsvwg-aqm-dualq-coupled (coupled AQMs)
  - draft-ietf-tsvwg-ecn-l4s-id (L4S-ECN identifier)
  - draft-ietf-tcpm-accurate-ecn (TCP ECN feedback)

People & Projects

Olivier Tilmans (remote)	DualPI2 & TCP Prague Linux testbed interop
Koen De Schepper	DualPI2 & TCP Prague Linux testbed interop
Bob Briscoe	The management
Richard Scheffenegger	FreeBSD Accurate ECN implementation
Michael Tuexen (part-time)	Help with FreeBSD implementation
Asad Ahmed (remote)	TCP Prague sub-packet window
Tom Henderson (remote)	ns3 TCP Prague Faster Start-up
Joined with SCE team part-way through	
Jonathan Morton	L4S flent evaluation
Pete Heist	L4S flent evaluation
Rodney Grimes	L4S flent evaluation

Planned but didn't happen

Mohit Tahiliani (remote)	L4S ns3 implementation validation
Ankit Deepak (remote)	L4S ns3 implementation validation
Shravya KS (remote)	L4S ns3 implementation validation
Vivek Jain (remote)	L4S ns3 implementation validation
Viyom Mittal (remote)	L4S ns3 implementation validation
Koen, Olivier, Jonathan, Pete (see previous slide)	L4S & SCE testbed interop (TBA)

What got achieved

- L4S testbed with flent scenario(s) from SCE team

- Fast-start (paced chirping) added to ns3 DCTCP implementation

- FreeBSD implementation of Accurate ECN
  - handshake & feedback during established connection
  - added AccECN protocol fields to packetdrill

- Good working relationship between L4S & SCE teams

What we learned

- DCTCP behaviour keeps changing in recent Linux kernels
    - need to develop regression tests for the maintainers
- AccECN
    - Recent change to AccECN spec in question
    - ACE counter in TCP header across byte boundaries needs care
- Remote attendance at hackathon works for established team, but hard for new members