TCP IW10 in Low Bandwidth Networks

IETF 81 – Paris, France

Hagen Paul Pfeifer
hagen.pfeifer@protocollabs.com
Emulation Setup

TCP IW10 in Low Bandwidth Networks
Scenarios

► One flow (IW3 to IW10)

► One (responsive) background flow, \( n \) short-lived flow (IW3 to IW10)
Metrics

▸ Efficiency
  • $\frac{\text{Number of total packets}}{\text{Retransmission}}$

▸ Transfer time

▸ Queue behavior

▸ Fairness (Jain’s fairness index)
Focus

- Bandwidth: \( \leq 10000 \) Byte/s
  - Note: large latency comes from low bandwidth

- Queue Disc:
  - FIFO (tail drop, head drop)
  - Special AQM queues
Start-Up Behaviour

- Bandwidth: 1000 Byte/s
- FIFO (tail drop)
- Queue length: $\infty$
- 100 kbyte bulk transfer
Whole Picture

- Bandwidth: 1000 Byte/s
- FIFO (tail drop)
- Queue length: $\infty$
- 100 kbyte bulk transfer
Summary

- We did not observe „major“ negative impact of IW10
- We do not believe that the IW should be a function of time
Thank You!

ProtocolLabs

Hagen Paul Pfeifer
hagen.pfeifer@protocollabs.com
Key-Id: 0x98350C22