New tools for testing Congestion Control and Queue Management mechanisms

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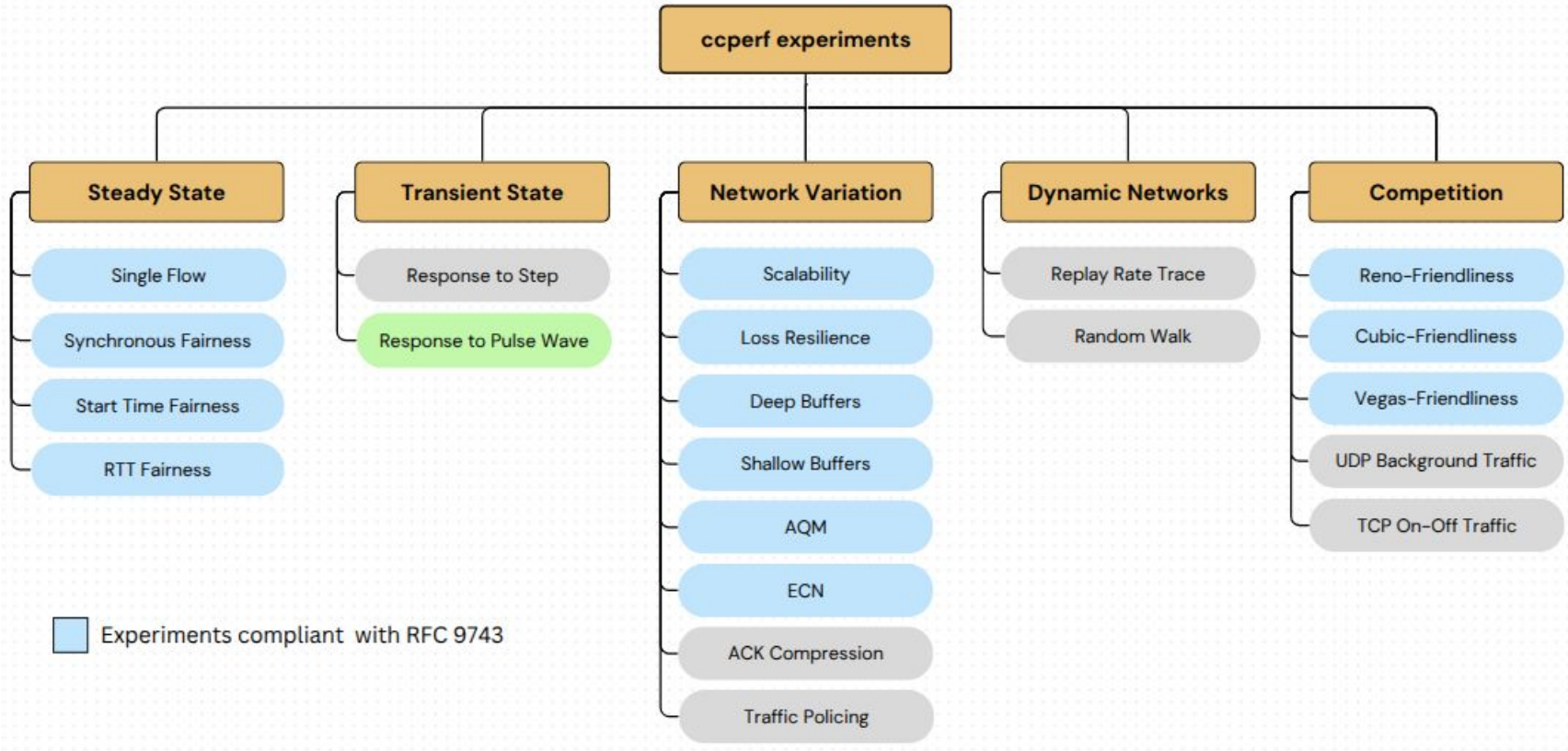
Tool #1

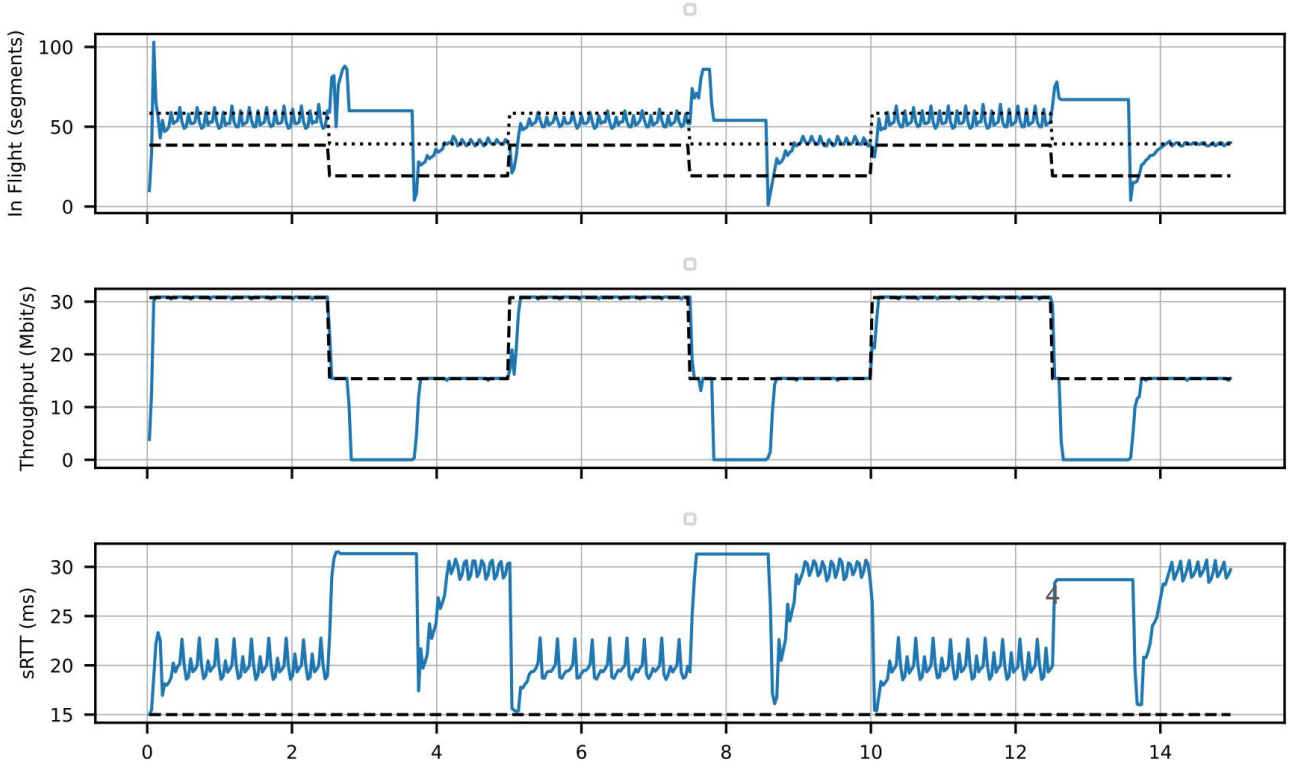
ccperf

- Evaluation framework for congestion control algorithms
- Built on top of ns-3
- Provides an environment to test and compare different congestion control algorithms under various network conditions
- Link: https://ccperf.net/

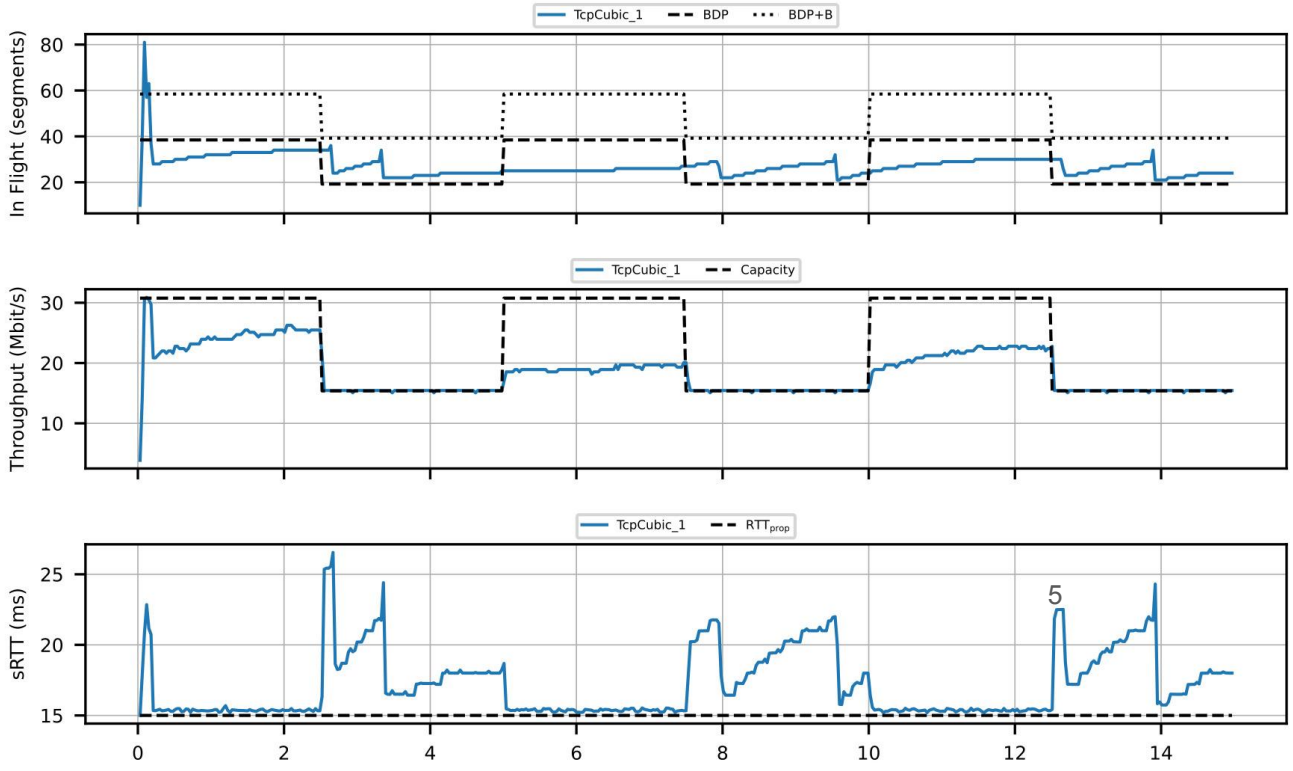
Alignment of experiments in ccperf with RFC 9743



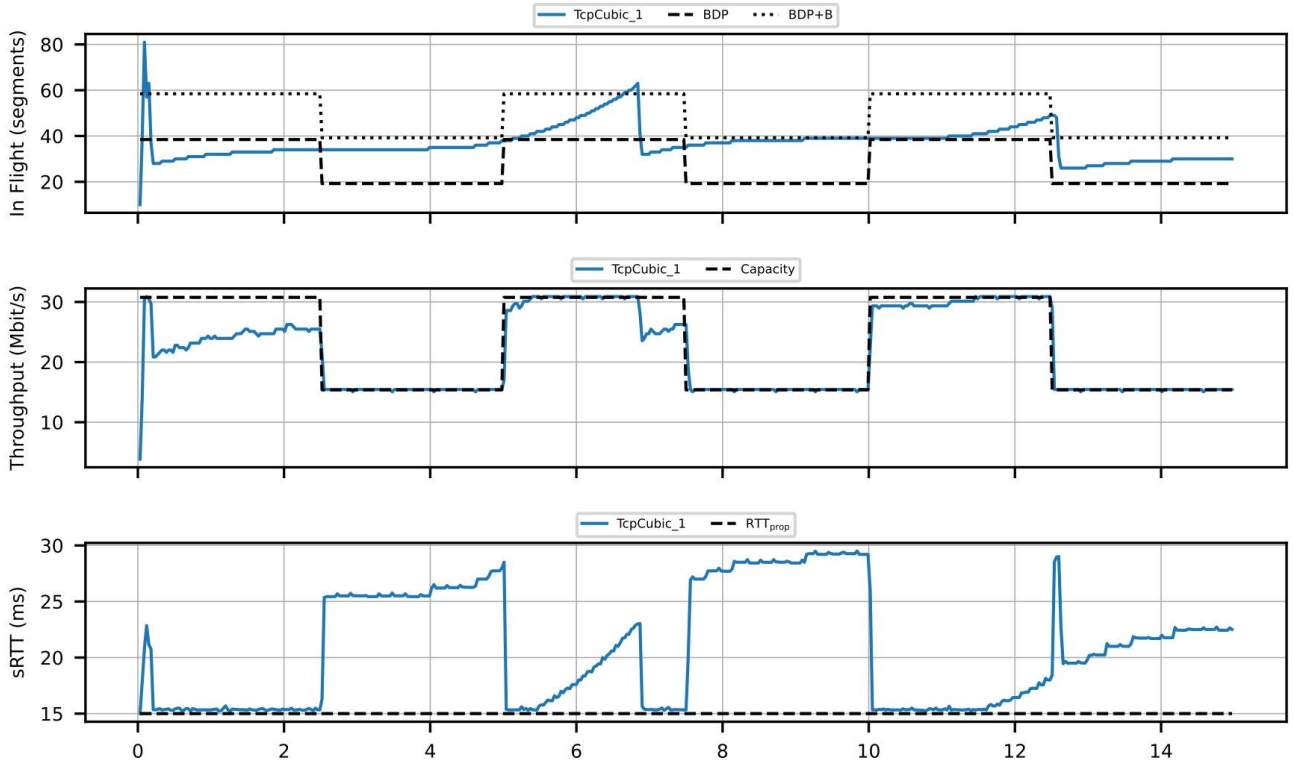
Response to Pulse wave: TCP BBR



Response to Pulse wave: FQ-CoDel



Response to Pulse wave: FQ-PIE



Join us at tsvwg: https://www.ietf.org/id/draft-tahiliani-tsvwg-fq-pie-01.html

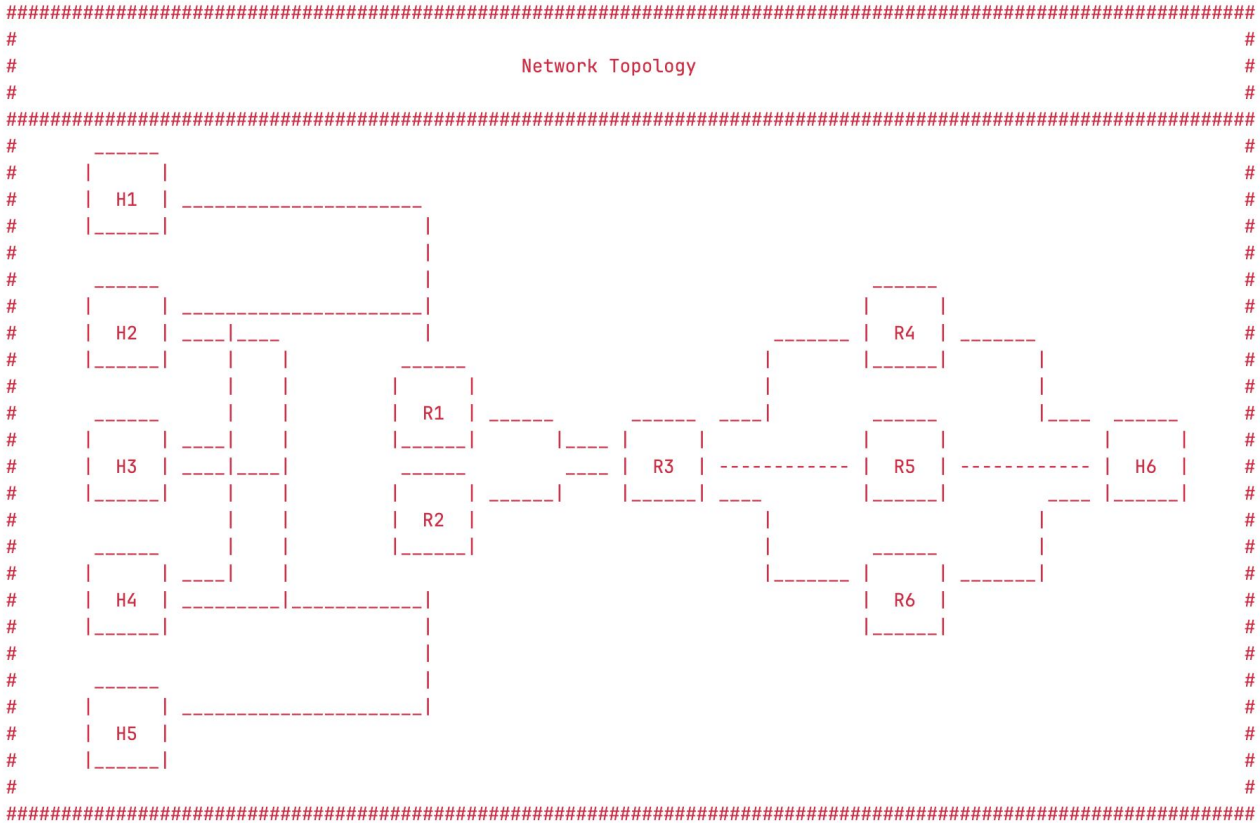
Tool #2

NeST
Network Stack Tester

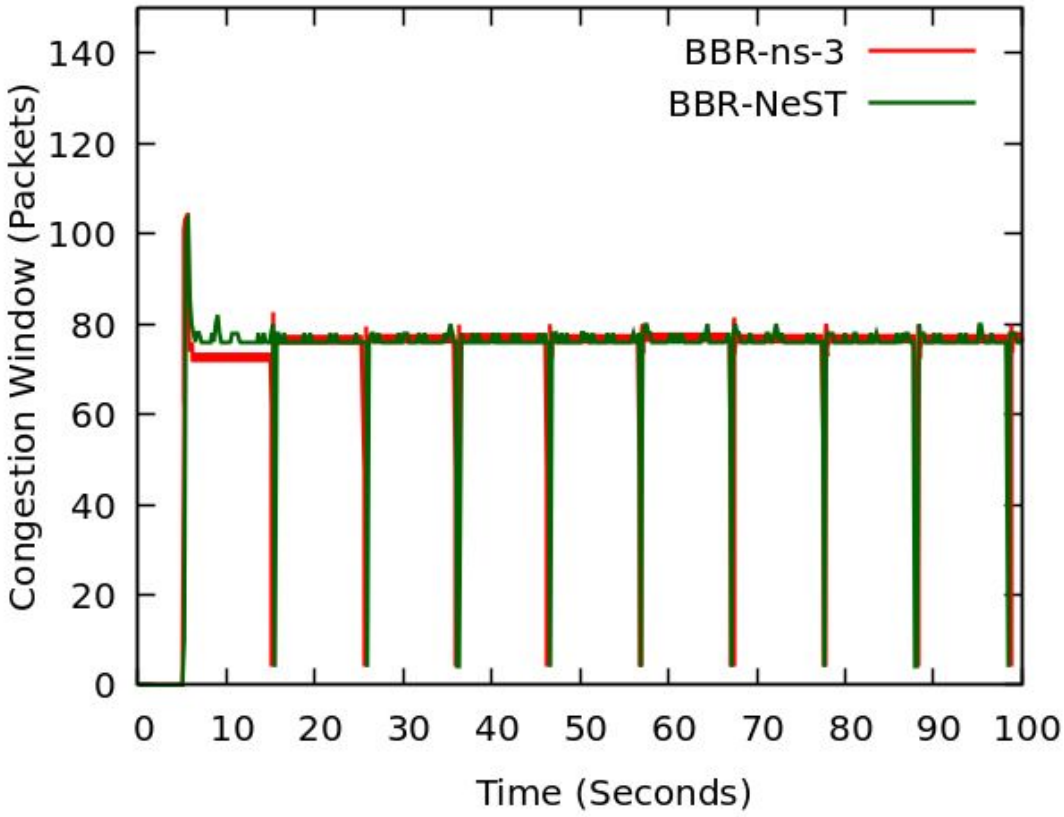
Network Stack Tester (NeST)

- Network emulator that provides a python wrapper on Linux network namespaces
- Supports emulations of MPTCP and CoAP
- APIs to configure TCP parameters: Slow Start Restart, TCP Fast Open, Window Scale Option, etc
- Supports emulations with MPEG-DASH, SIP flows, routing frameworks (FRR, BIRD)
- APIs to configure network environments: reorder/delay/duplicate/drop packets (uses netem internally)
- Link: https://gitlab.com/nitk-nest/nest
- Examples: https://nest.nitk.ac.in/docs/master/user/examples_index.html

Built-in examples for MPTCP in NeST



Sample results from NeST: TCP BBR



Thank you!