

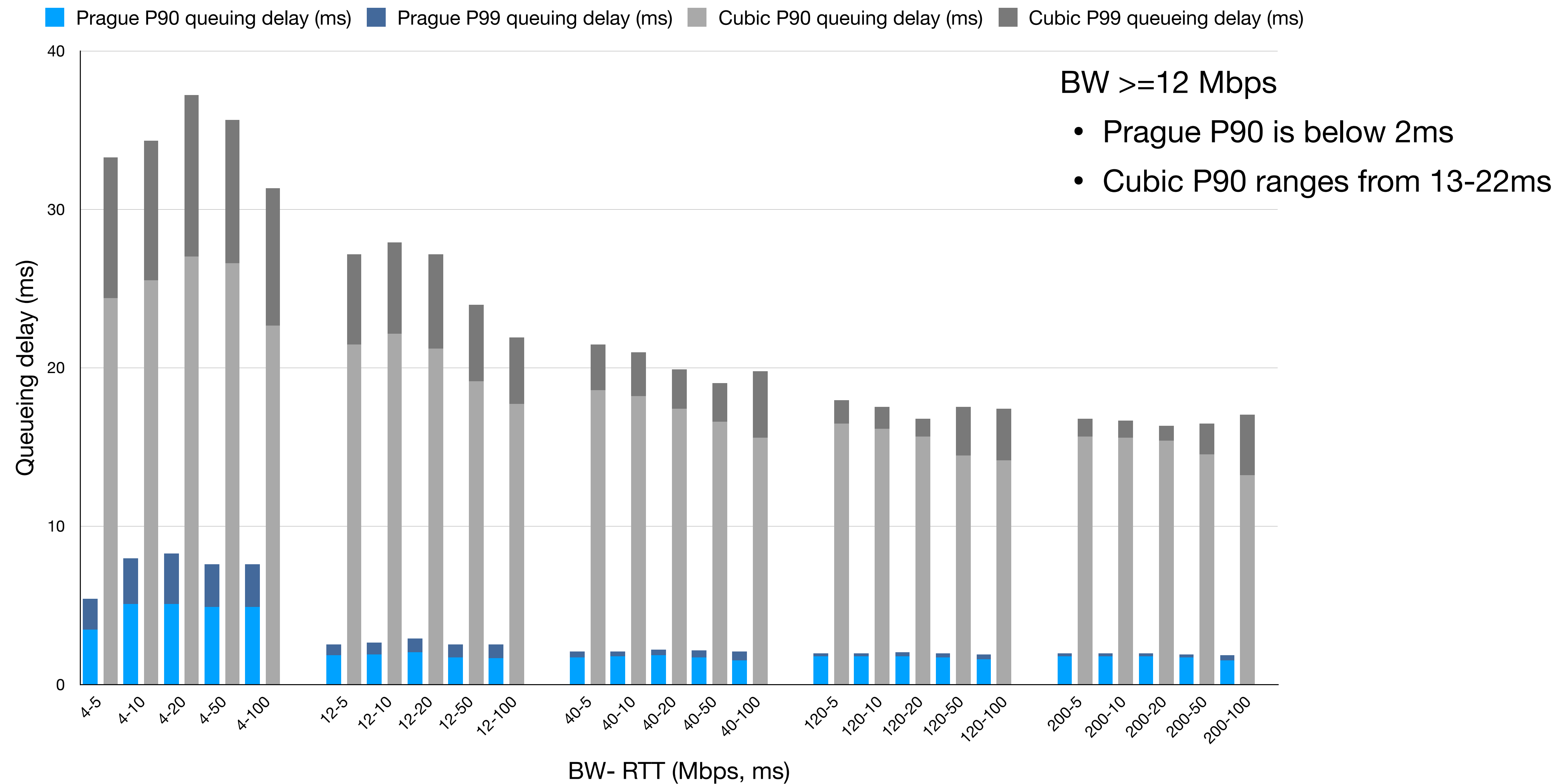
Prague lab testing

ICCRG, IETF 114

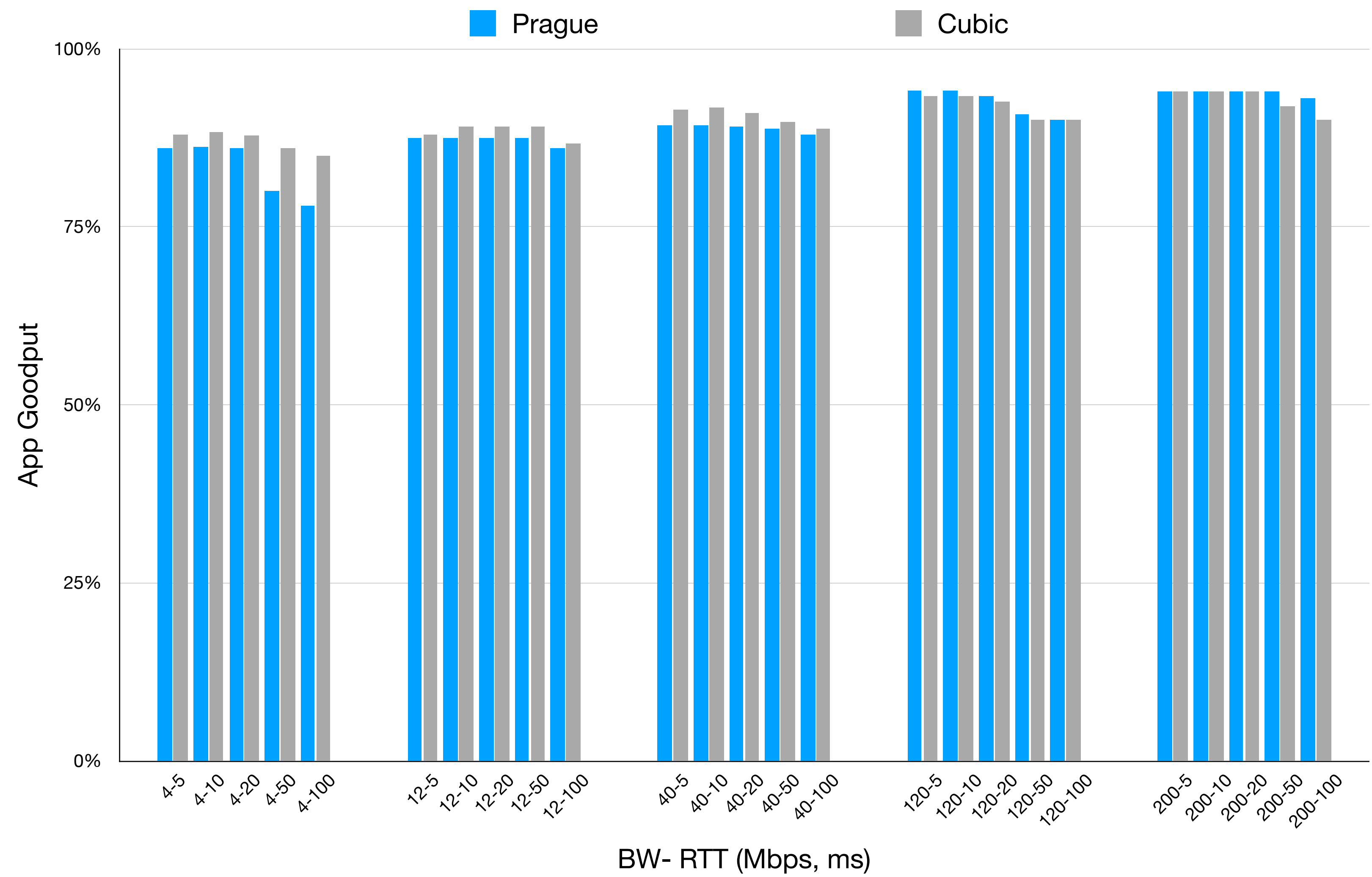
Vidhi Goel

Upstream over Ethernet

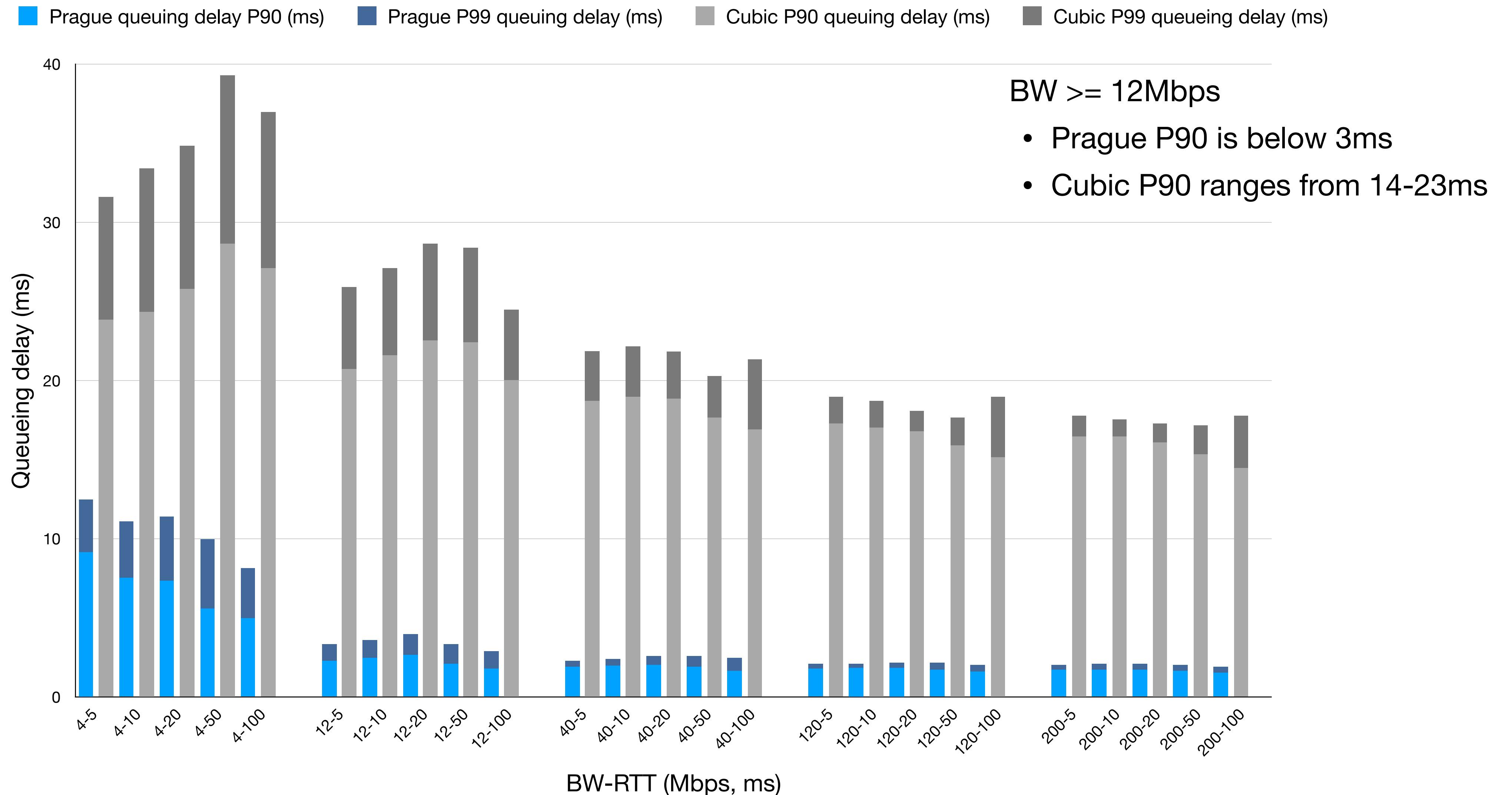
Standalone flow



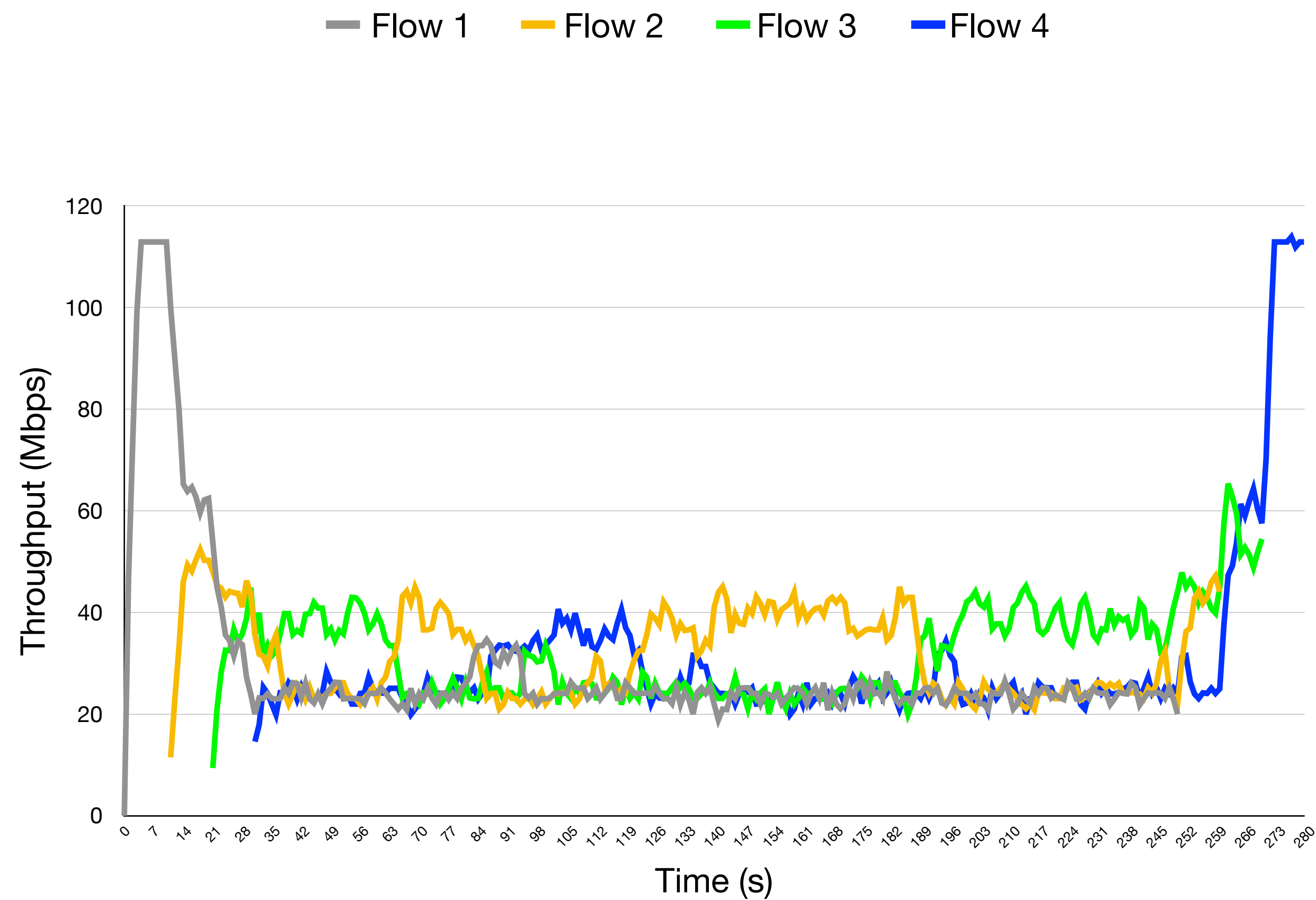
Standalone flow



Single flow against a competing flow



Multiple staggered flows

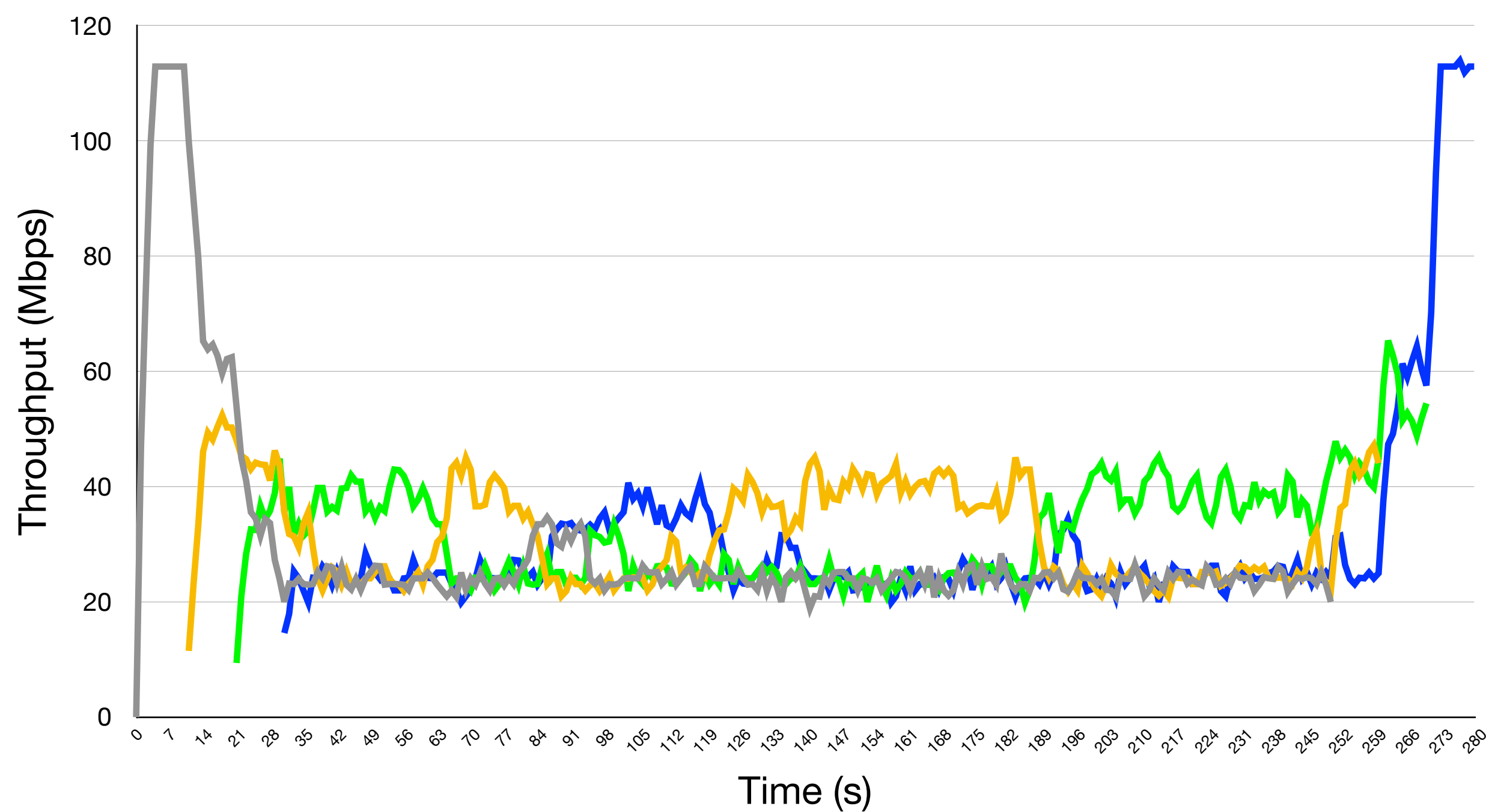


Prague

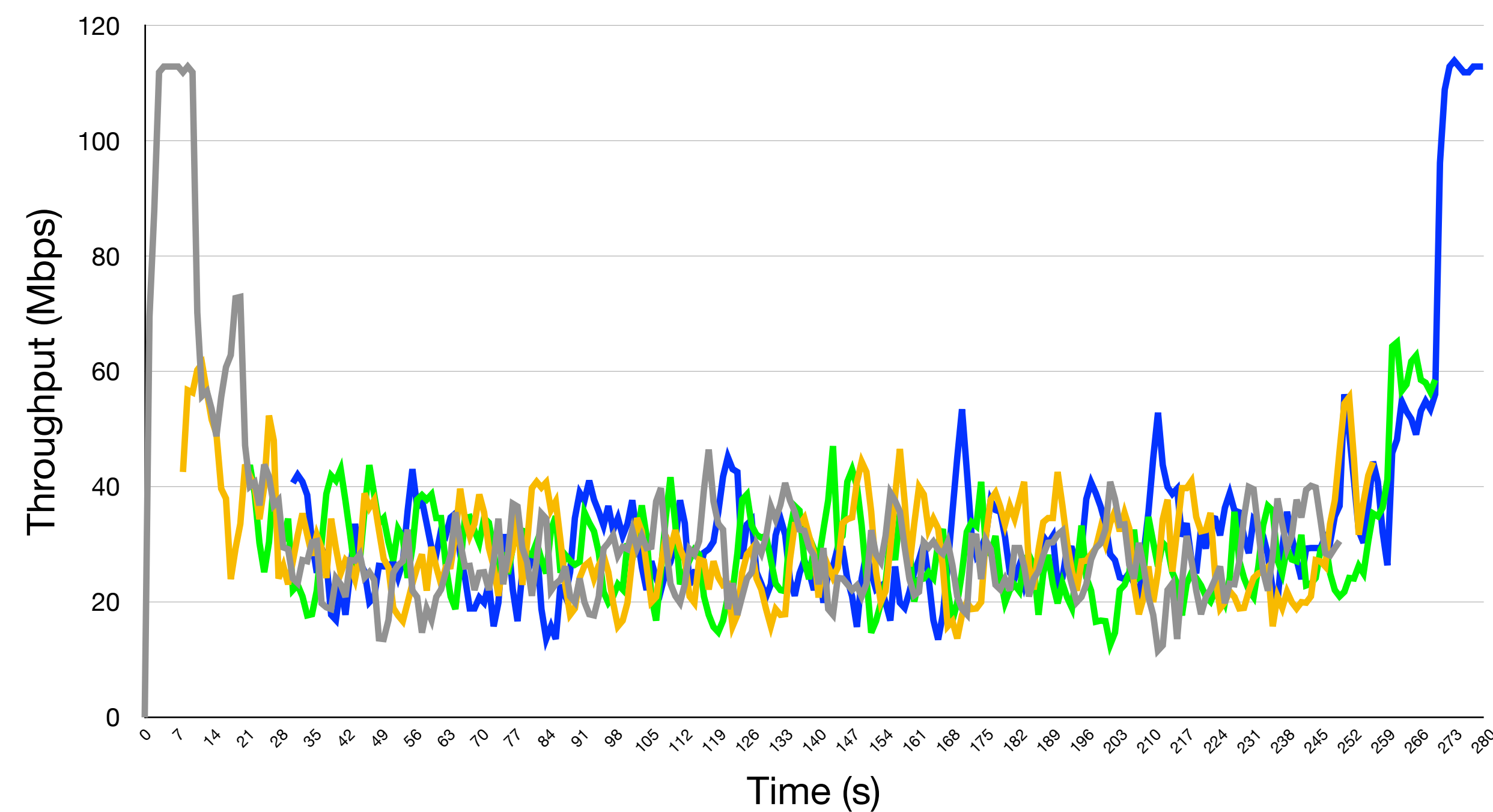
120 Mbps, 20ms RTT

Multiple staggered flows

— Flow 1 — Flow 2 — Flow 3 — Flow 4



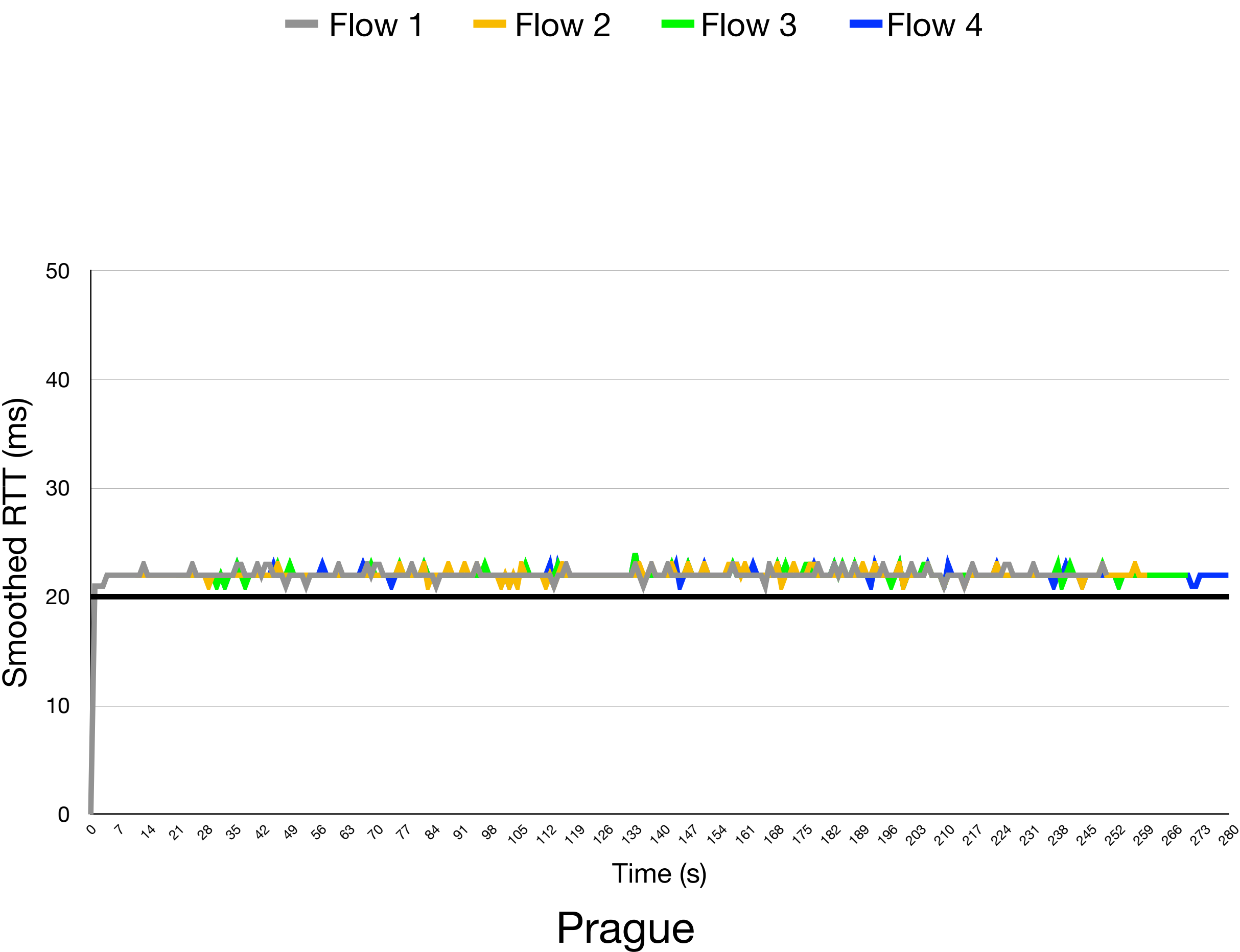
Prague



Cubic

120 Mbps, 20ms RTT

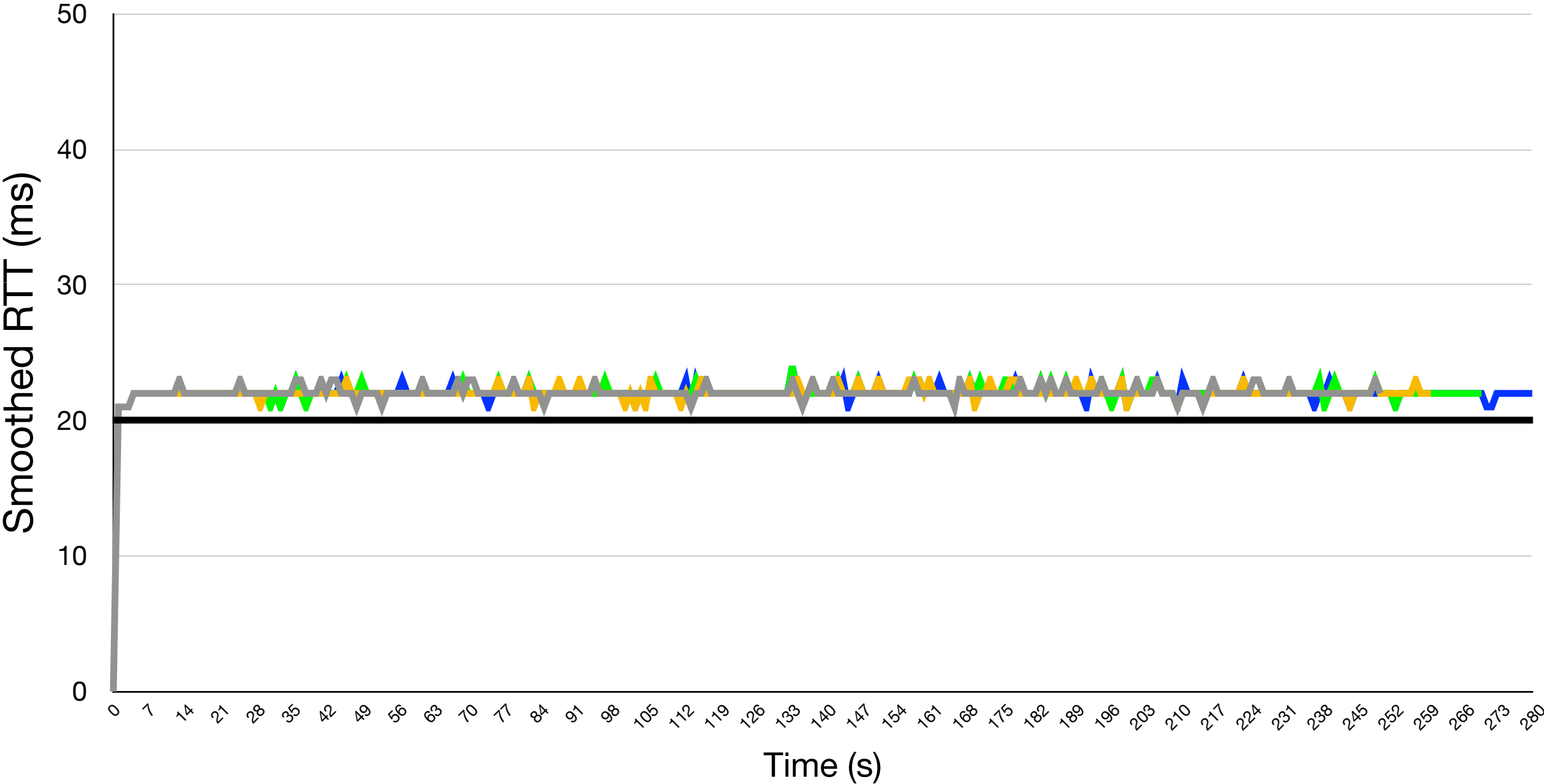
Multiple staggered flows



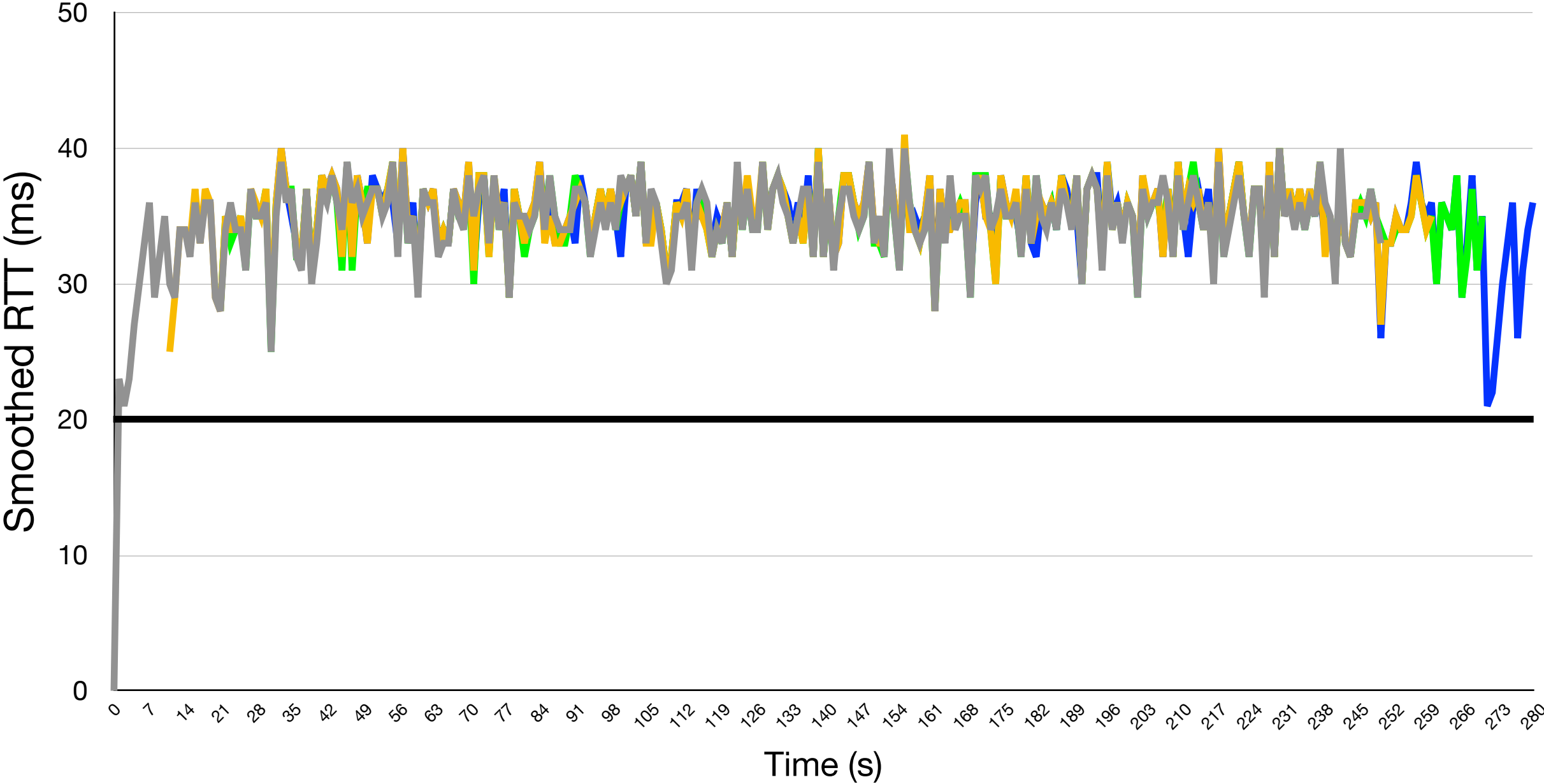
120 Mbps, 20ms RTT

Multiple staggered flows

Flow 1 Flow 2 Flow 3 Flow 4



Prague



Cubic

120 Mbps, 20ms RTT

Prague IETF draft

Loss behavior

Use Cubic or Reno for reduction as well as increase during CA

(Investigate) Combine reduction due loss and CE in the same round

Pacing considerations

- Congestion control in user space (eg. QUIC Cubic)
 - Skew in user space timers
 - On linux, offload to kernel
 - SO_MAX_PACING_RATE and FQ qdisc
 - SO_TXTIME (qdisc should support timestamp)
- Congestion control in kernel (eg. TCP Prague)
 - On linux, set sk_pacing_rate and tso_segs