Pantheon Report

Generated at 2025-04-17 20:37:55 (UTC).

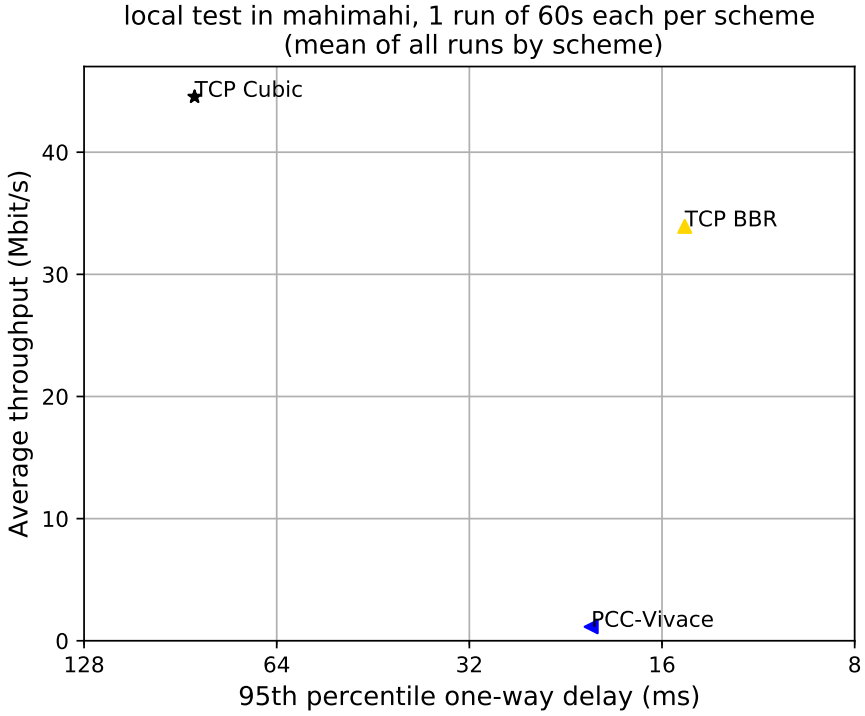
Tested in mahimahi: `mm-delay 5 mm-link 50mbps_10ms.trace 50mbps_10ms.trace --uplink-queue=droptail --uplink-queue-args=bytes=6250000`

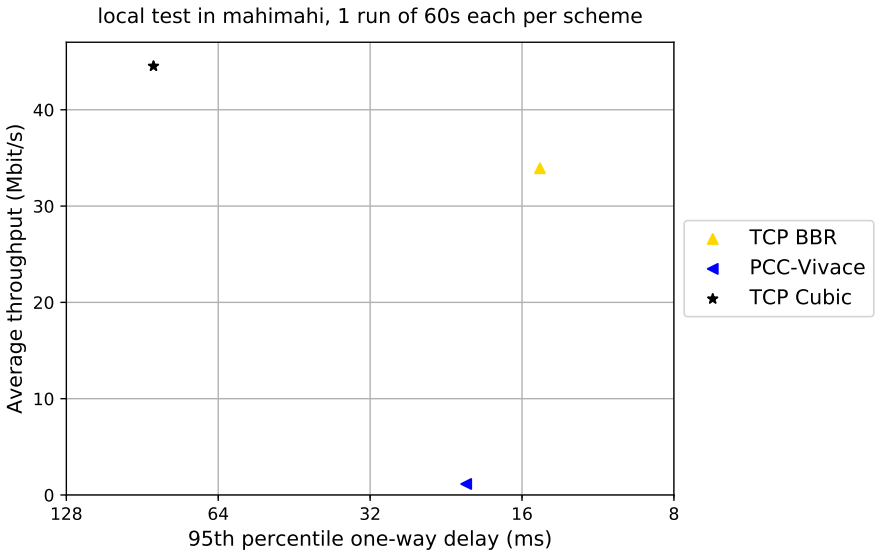
Repeated the test of 3 congestion control schemes once.

Each test lasted for 60 seconds running 1 flow.

```
System info:
Linux 5.4.0-150-generic
net.core.default_qdisc = fq
net.core.rmem_default = 212992
net.core.rmem_max = 212992
net.core.wmem_default = 212992
net.core.wmem_max = 212992
net.ipv4.tcp_rmem = 4096 131072 6291456
net.ipv4.tcp_wmem = 4096 16384 4194304

Git summary:
branch: main @ 8e1f00d040ee07d555e806128c3774c646a388b2
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 463d89b09699a57bfdfbae351646df6a60040b90
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```


local test in mahimahi, 1 run of 60s each per scheme
(mean of all runs by scheme)
TCP Cubic
TCP BBR
PCC-Vivace
Average throughput (Mbit/s)
0
10
20
30
40
128
64
32
16
8
95th percentile one-way delay (ms)


local test in mahimahi, 1 run of 60s each per scheme
Average throughput (Mbit/s)
0
10
20
30
40
128
64
32
16
8
95th percentile one-way delay (ms)
TCP BBR
PCC-Vivace
TCP Cubic

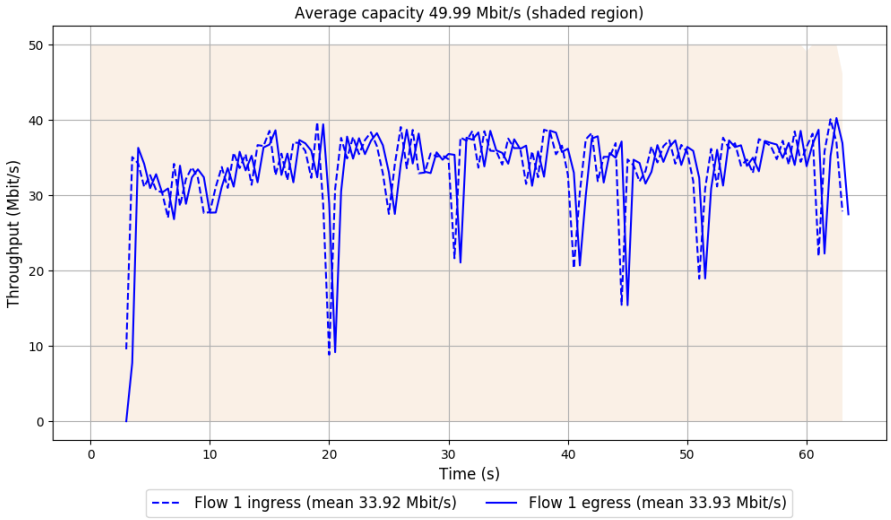
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	33.93	14.74	0.02
TCP Cubic	1	44.54	86.00	0.10
PCC-Vivace	1	1.14	20.65	0.03

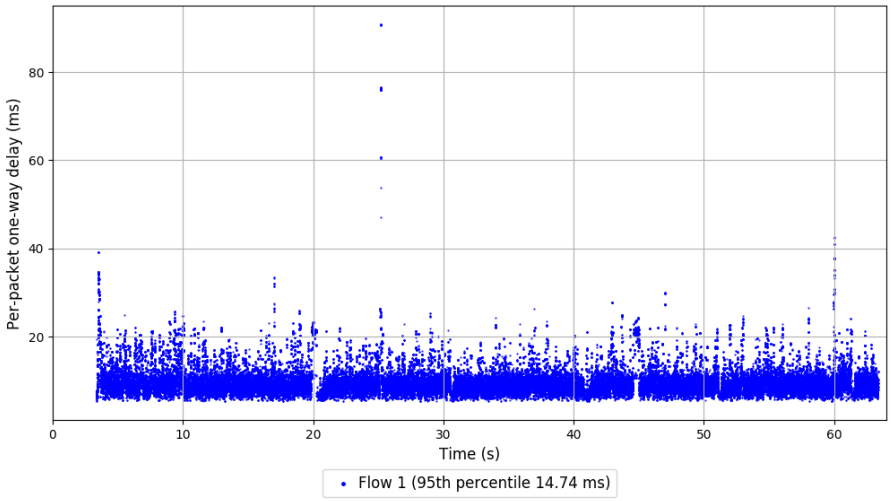
```
Run 1: Statistics of TCP BBR

Start at: 2025-04-17 20:35:18
End at: 2025-04-17 20:36:18

# Below is generated by plot.py at 2025-04-17 20:37:47
# Datalink statistics
-- Total of 1 flow:
Average capacity: 49.99 Mbit/s
Average throughput: 33.93 Mbit/s (67.9% utilization)
95th percentile per-packet one-way delay: 14.744 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 33.93 Mbit/s
95th percentile per-packet one-way delay: 14.744 ms
Loss rate: 0.02%
```

Run 1: Report of TCP BBR — Data Link



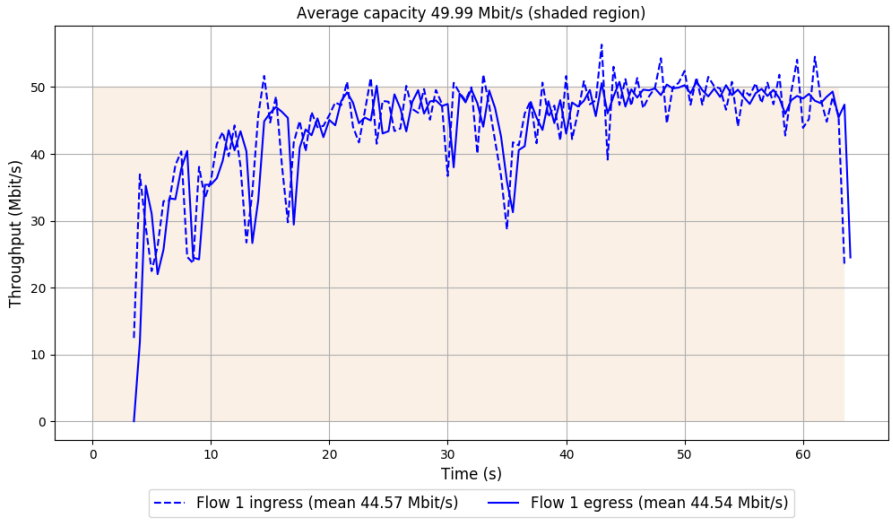


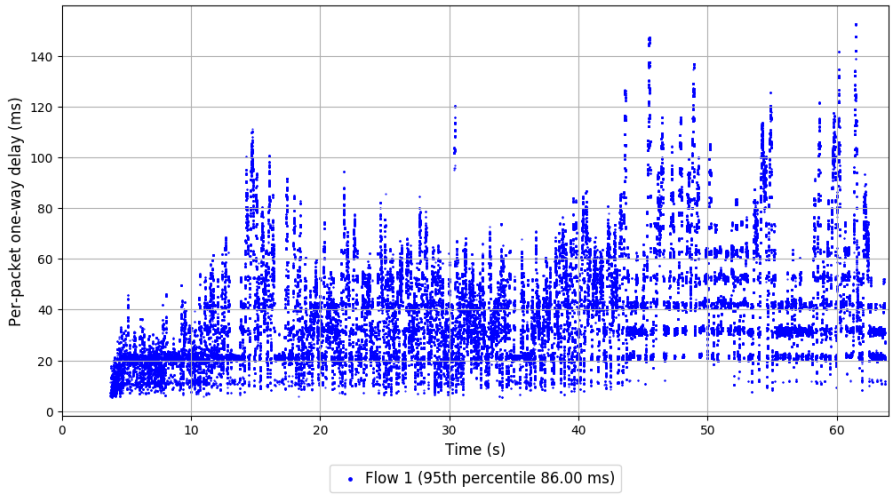
```
Run 1: Statistics of TCP Cubic

Start at: 2025-04-17 20:34:07
End at: 2025-04-17 20:35:07

# Below is generated by plot.py at 2025-04-17 20:37:52
# Datalink statistics
-- Total of 1 flow:
Average capacity: 49.99 Mbit/s
Average throughput: 44.54 Mbit/s (89.1% utilization)
95th percentile per-packet one-way delay: 85.998 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 44.54 Mbit/s
95th percentile per-packet one-way delay: 85.998 ms
Loss rate: 0.10%
```

Run 1: Report of TCP Cubic — Data Link





```
Run 1: Statistics of PCC-Vivace

Start at: 2025-04-17 20:36:28
End at: 2025-04-17 20:37:28

# Below is generated by plot.py at 2025-04-17 20:37:53
# Datalink statistics
-- Total of 1 flow:
Average capacity: 49.99 Mbit/s
Average throughput: 1.14 Mbit/s (2.3% utilization)
95th percentile per-packet one-way delay: 20.646 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 20.646 ms
Loss rate: 0.03%
```

Run 1: Report of PCC-Vivace — Data Link