Pantheon Report

Generated at 2025-04-17 05:50:15 (UTC).

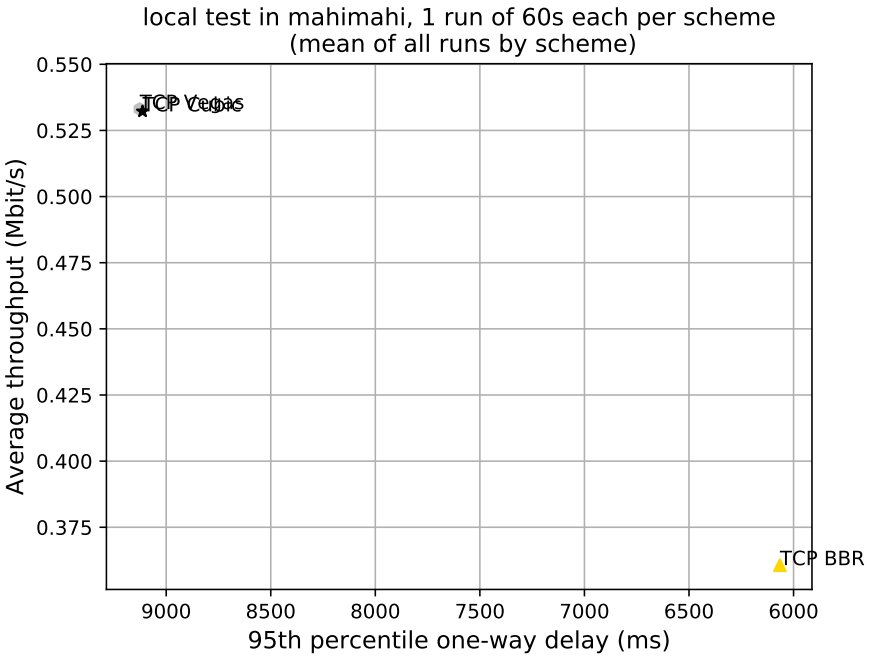
Tested in mahimahi: `mm-delay 100 mm-link 1mbps.trace 1mbps.trace --uplink-queue=droptail --downlink-queue=droptail --uplink-queue-args=packets=500 --downlink-queue-args=packets=500`

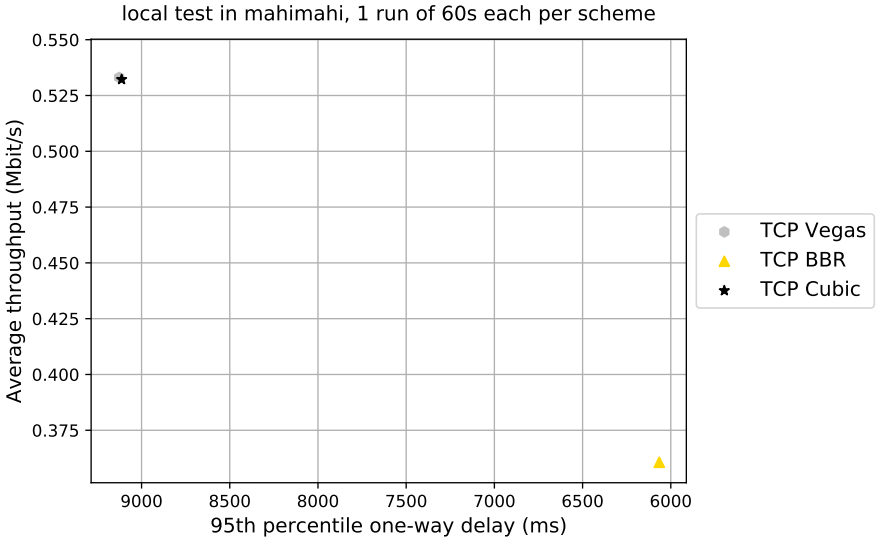
Repeated the test of 3 congestion control schemes once.

Each test lasted for 60 seconds running 1 flow.

```
System info:
Linux 5.15.0-136-generic
net.core.default_qdisc = fq_codel
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 @ f8c2a0e8e514493a1a3306f07f8357edf86b74f4
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
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
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)
Average throughput (Mbit/s)
95th percentile one-way delay (ms)
TCP Vegas
TCP Cubic
TCP BBR
0.550
0.525
0.500
0.475
0.450
0.425
0.400
0.375
9000
8500
8000
7500
7000
6500
6000


local test in mahimahi, 1 run of 60s each per scheme
Average throughput (Mbit/s)
95th percentile one-way delay (ms)
TCP Vegas
TCP BBR
TCP Cubic
0.550
0.525
0.500
0.475
0.450
0.425
0.400
0.375
9000
8500
8000
7500
7000
6500
6000

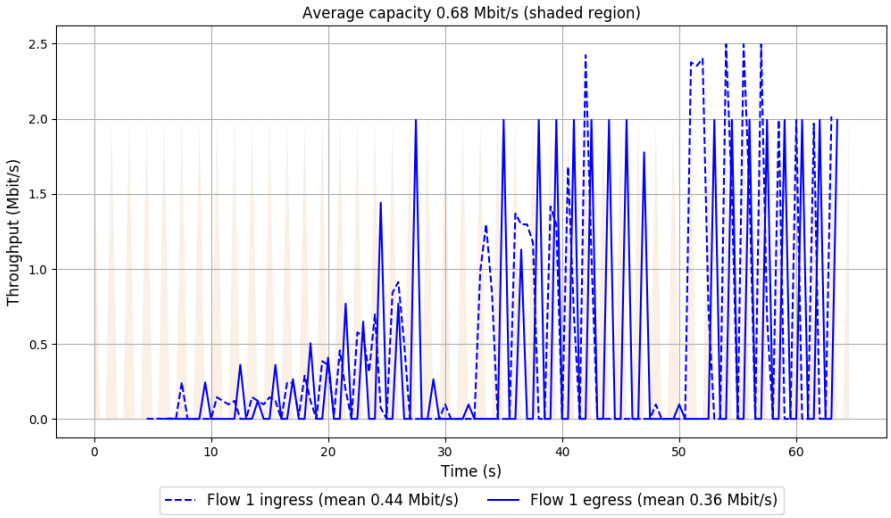
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	0.36	6065.29	21.13
TCP Cubic	1	0.53	9113.14	26.41
TCP Vegas	1	0.53	9126.67	11.09

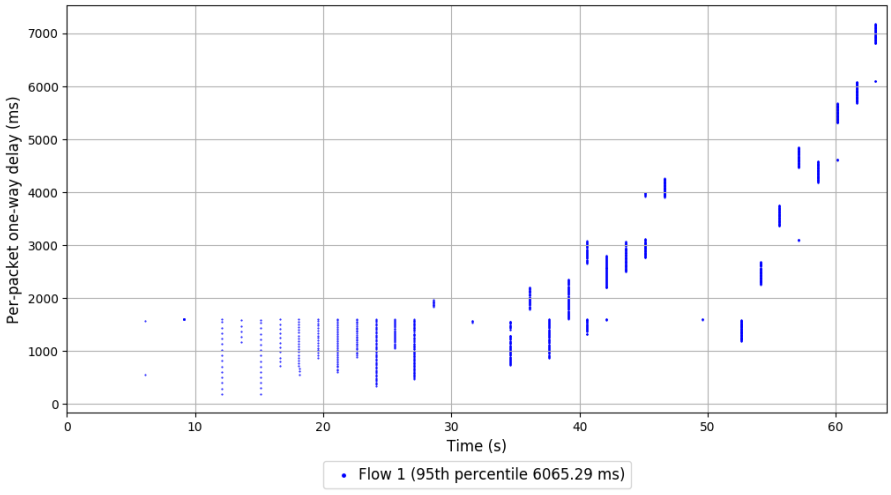
```
Run 1: Statistics of TCP BBR

Start at: 2025-04-17 05:47:20
End at: 2025-04-17 05:48:20

# Below is generated by plot.py at 2025-04-17 05:50:14
# Datalink statistics
-- Total of 1 flow:
Average capacity: 0.68 Mbit/s
Average throughput: 0.36 Mbit/s (53.1% utilization)
95th percentile per-packet one-way delay: 6065.286 ms
Loss rate: 21.13%
-- Flow 1:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 6065.286 ms
Loss rate: 21.13%
```

Run 1: Report of TCP BBR — Data Link



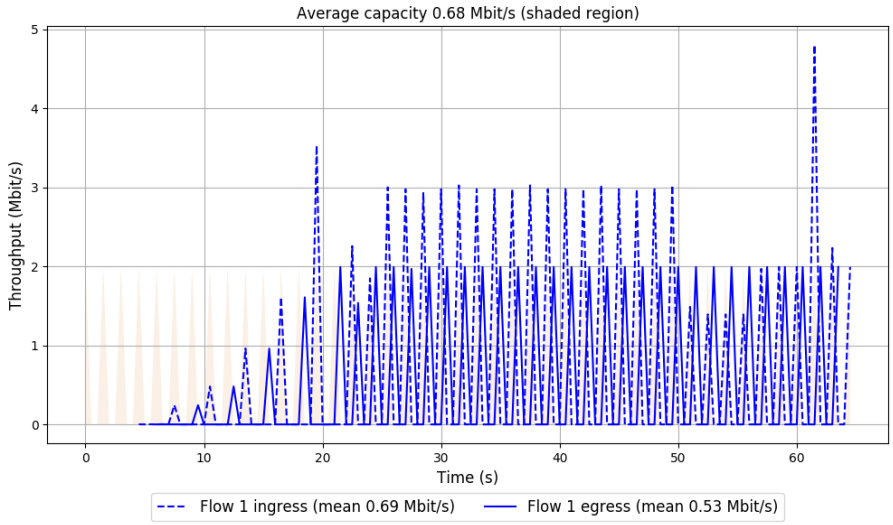


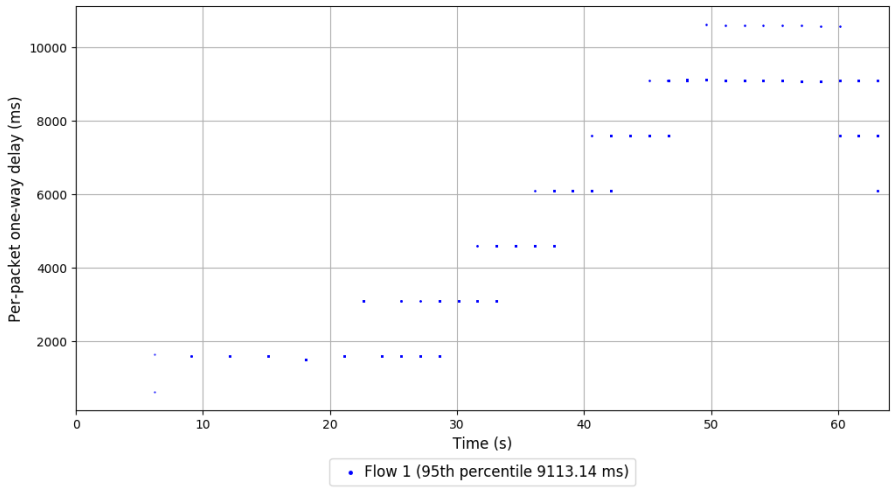
```
Run 1: Statistics of TCP Cubic

Start at: 2025-04-17 05:46:14
End at: 2025-04-17 05:47:14

# Below is generated by plot.py at 2025-04-17 05:50:14
# Datalink statistics
-- Total of 1 flow:
Average capacity: 0.68 Mbit/s
Average throughput: 0.53 Mbit/s (78.3% utilization)
95th percentile per-packet one-way delay: 9113.139 ms
Loss rate: 26.41%
-- Flow 1:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 9113.139 ms
Loss rate: 26.41%
```

Run 1: Report of TCP Cubic — Data Link





```
Run 1: Statistics of TCP Vegas

Start at: 2025-04-17 05:48:27
End at: 2025-04-17 05:49:27

# Below is generated by plot.py at 2025-04-17 05:50:14
# Datalink statistics
-- Total of 1 flow:
Average capacity: 0.68 Mbit/s
Average throughput: 0.53 Mbit/s (78.5% utilization)
95th percentile per-packet one-way delay: 9126.675 ms
Loss rate: 11.09%
-- Flow 1:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 9126.675 ms
Loss rate: 11.09%
```

Run 1: Report of TCP Vegas — Data Link