Pantheon Report

Generated at 2025-04-16 18:03:12 (UTC).

Tested in mahimahi: `mm-delay 5 mm-link 50mbps.trace 50mbps.trace --uplink-queue=droptail --downlink-queue=droptail --uplink-queue-args=packets=500 --downlink-queue-args=packets=500`
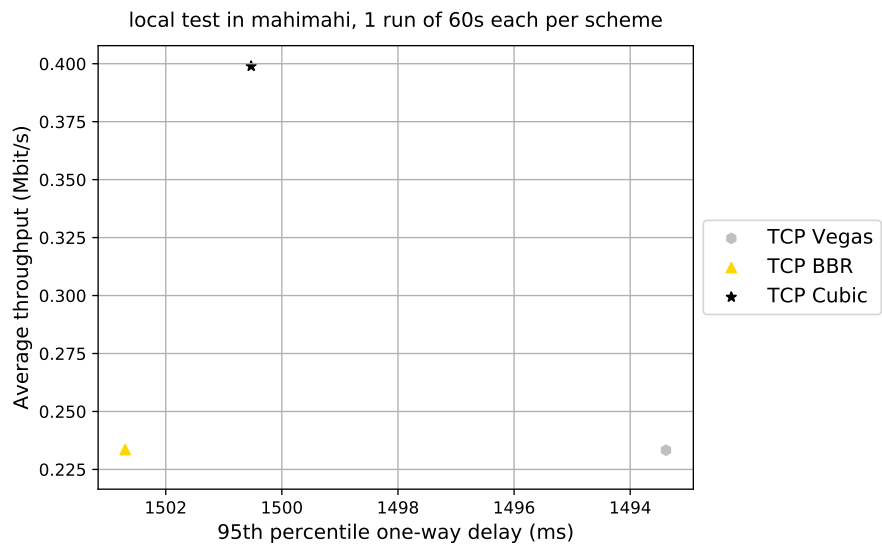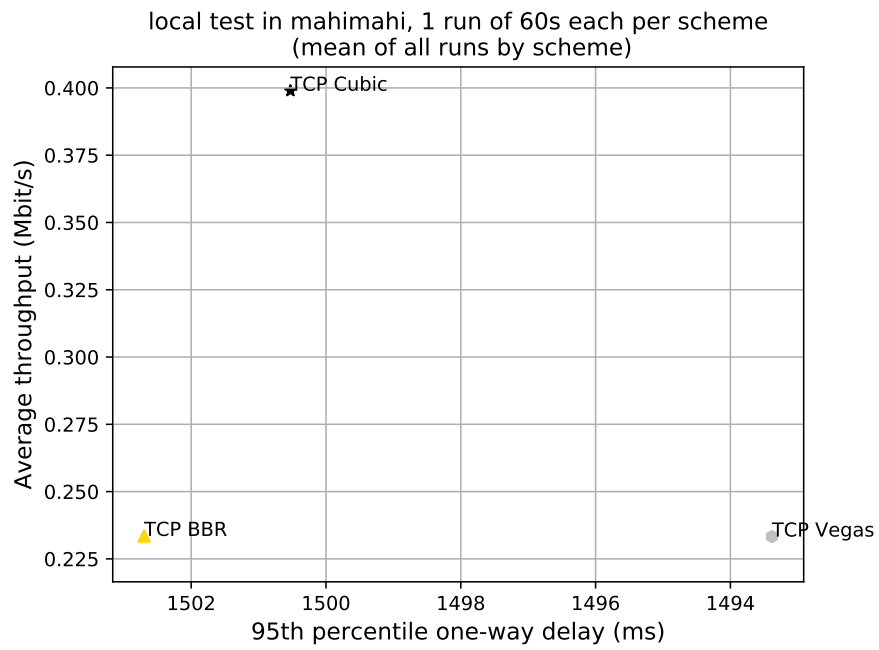
Repeated the test of 3 congestion control schemes once.

Each test lasted for 60 seconds running 1 flow.

```
System info:
Linux 5.15.0-136-generic
net.core.default_qdisc = fq
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 @ 8de2cd8fcb2150ed2a1ee06ea843d02d08d9da5b
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)

local test in mahimahi, 1 run of 60s each per scheme

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	0.23	1502.70	14.49
TCP Cubic	1	0.40	1500.53	13.74
TCP Vegas	1	0.23	1493.38	13.34

```
Run 1: Statistics of TCP BBR

Start at: 2025-04-16 17:59:07
End at: 2025-04-16 18:00:07

# Below is generated by plot.py at 2025-04-16 18:03:11
# Datalink statistics
-- Total of 1 flow:
Average capacity: 34.11 Mbit/s
Average throughput: 0.23 Mbit/s (0.7% utilization)
95th percentile per-packet one-way delay: 1502.698 ms
Loss rate: 14.49%
-- Flow 1:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 1502.698 ms
Loss rate: 14.49%
```
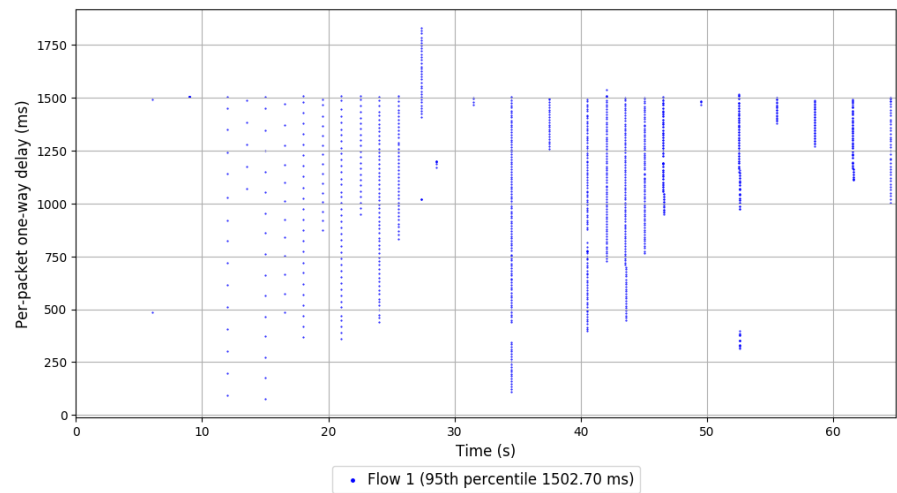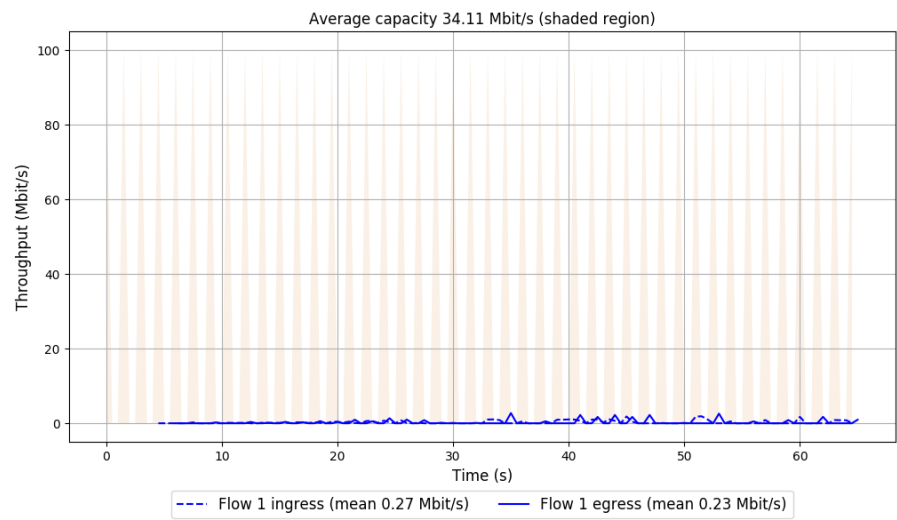
Run 1: Report of TCP BBR — Data Link

Average capacity 34.11 Mbit/s (shaded region)

Flow 1 ingress (mean 0.27 Mbit/s)   Flow 1 egress (mean 0.23 Mbit/s)

Flow 1 (95th percentile 1502.70 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2025-04-16 17:57:54
End at: 2025-04-16 17:58:54

# Below is generated by plot.py at 2025-04-16 18:03:11
# Datalink statistics
-- Total of 1 flow:
Average capacity: 34.11 Mbit/s
Average throughput: 0.40 Mbit/s (1.2% utilization)
95th percentile per-packet one-way delay: 1500.528 ms
Loss rate: 13.74%
-- Flow 1:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 1500.528 ms
Loss rate: 13.74%
```
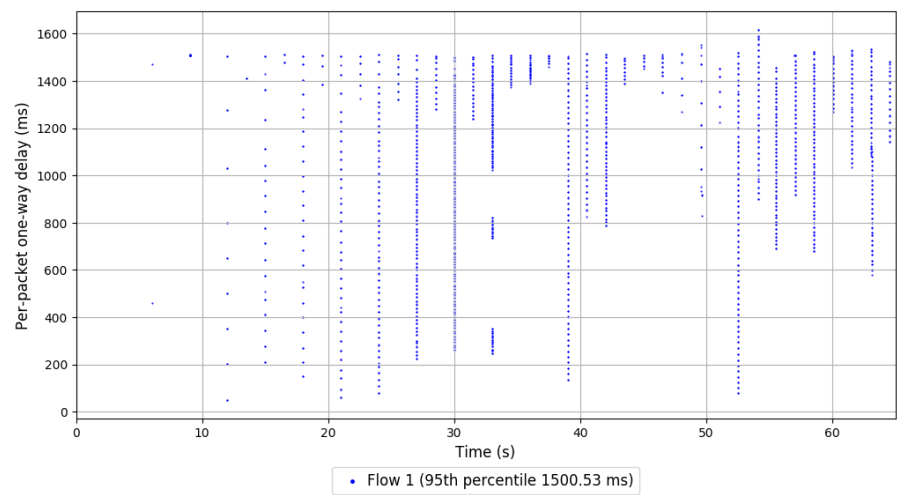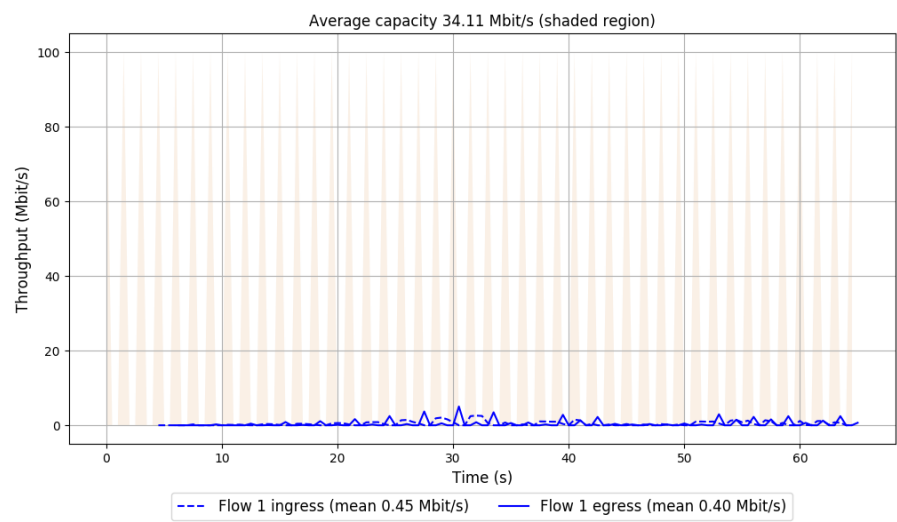
Run 1: Report of TCP Cubic — Data Link

Average capacity 34.11 Mbit/s (shaded region)

- - - Flow 1 ingress (mean 0.45 Mbit/s) —— Flow 1 egress (mean 0.40 Mbit/s)

• Flow 1 (95th percentile 1500.53 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2025-04-16 18:00:19
End at: 2025-04-16 18:01:19


# Below is generated by plot.py at 2025-04-16 18:03:11
# Datalink statistics
-- Total of 1 flow:
Average capacity: 34.11 Mbit/s
Average throughput: 0.23 Mbit/s (0.7% utilization)
95th percentile per-packet one-way delay: 1493.384 ms
Loss rate: 13.34%
-- Flow 1:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 1493.384 ms
Loss rate: 13.34%
```

Run 1: Report of TCP Vegas — Data Link

Average capacity 34.11 Mbit/s (shaded region)

--- Flow 1 ingress (mean 0.26 Mbit/s) —— Flow 1 egress (mean 0.23 Mbit/s)

• Flow 1 (95th percentile 1493.38 ms)

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