

Pantheon Report

Generated at 2022-03-11 09:32:13 (UTC).

Tested in mahimahi: `mm-delay 10 mm-link 12Mbps_trace 12Mbps_trace`

Repeated the test of 7 congestion control schemes once.

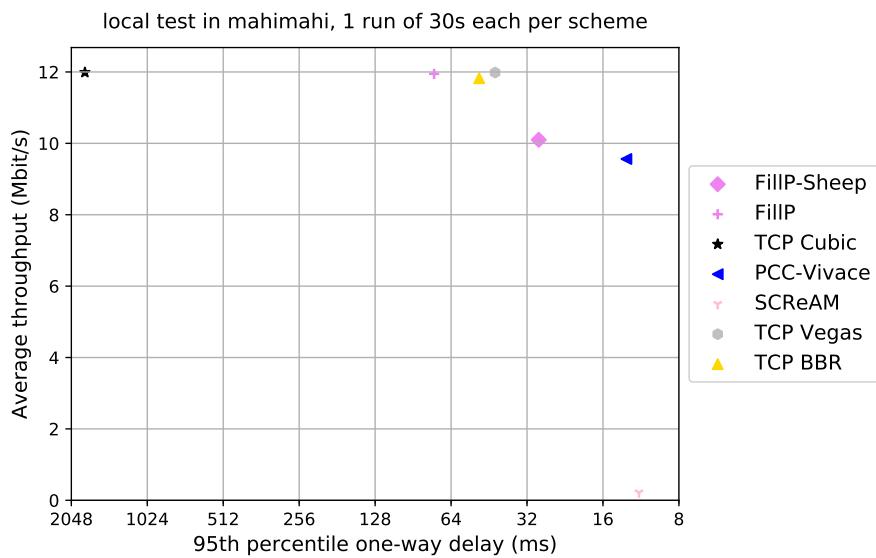
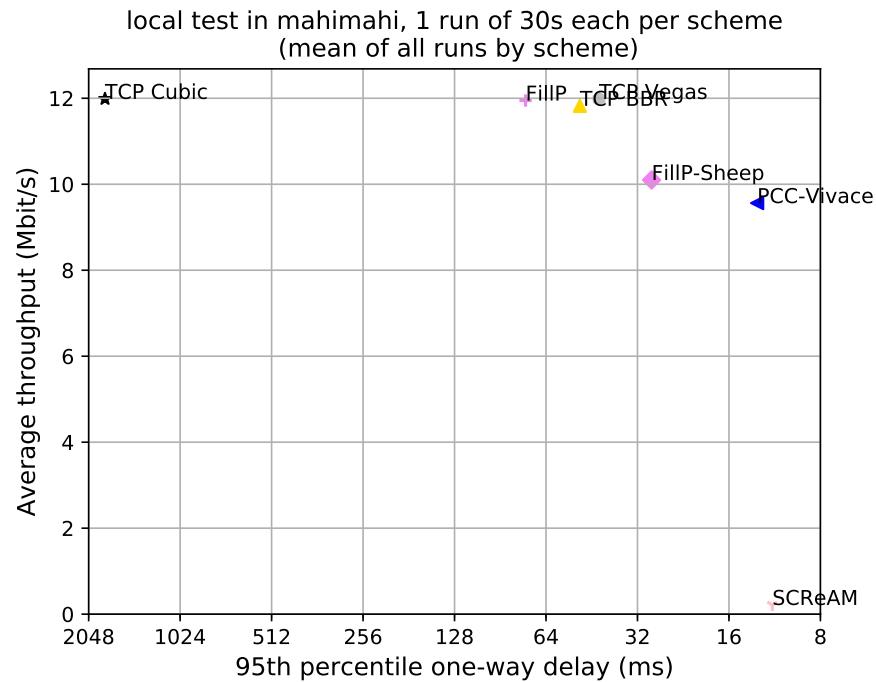
Each test lasted for 30 seconds running 1 flow.

System info:

```
Linux 4.15.0-159-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: master @ 95f11adf36a6e0b006d764a56f3026b3ca2f31
third_party/fillp @ d6da1459332fce56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 463d89b09699a57bfdfbae351646df6a60040b90
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ f866d3f58d27af942717625ee3a354cc2e802bd
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
```



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	11.82	49.51	0.15
TCP Cubic	1	11.99	1809.52	1.44
FillP	1	11.95	74.72	0.23
FillP-Sheep	1	10.10	28.75	0.03
SCReAM	1	0.21	11.52	0.00
TCP Vegas	1	11.98	42.82	0.05
PCC-Vivace	1	9.56	12.92	0.10

Run 1: Statistics of TCP BBR

Start at: 2022-03-11 09:30:07

End at: 2022-03-11 09:30:37

Below is generated by plot.py at 2022-03-11 09:32:09

Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.82 Mbit/s (98.5% utilization)

95th percentile per-packet one-way delay: 49.508 ms

Loss rate: 0.15%

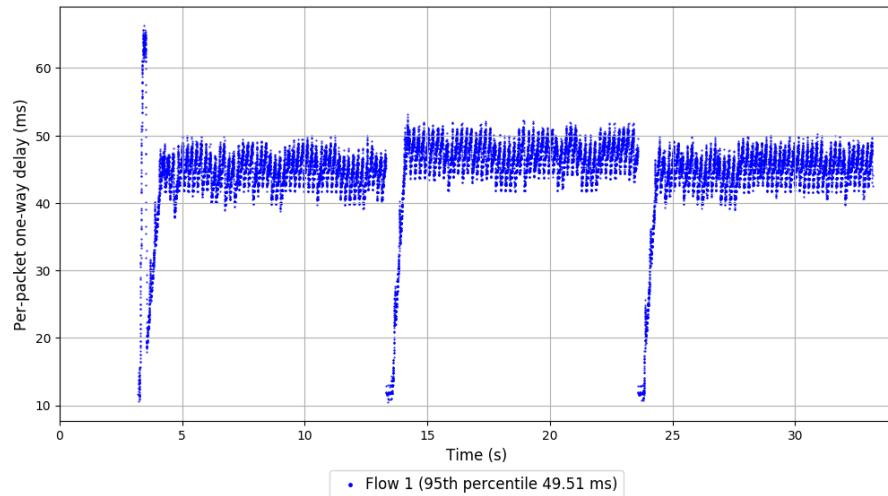
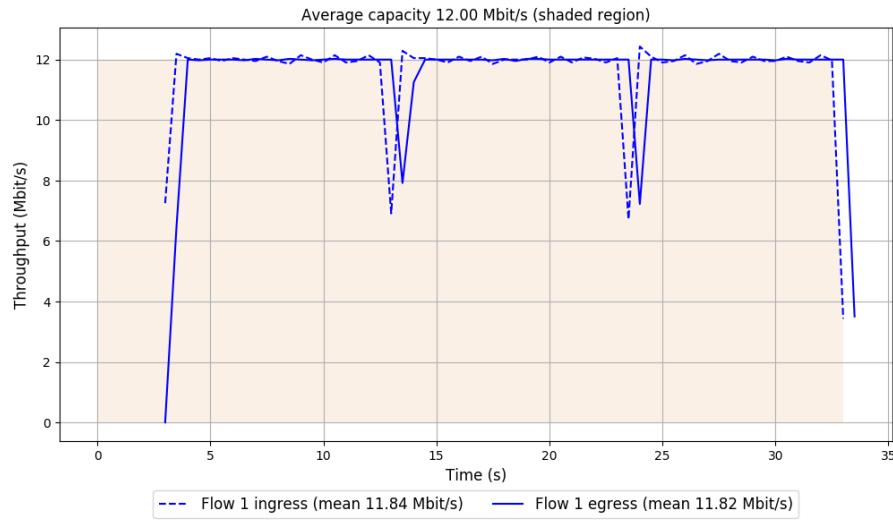
-- Flow 1:

Average throughput: 11.82 Mbit/s

95th percentile per-packet one-way delay: 49.508 ms

Loss rate: 0.15%

Run 1: Report of TCP BBR — Data Link

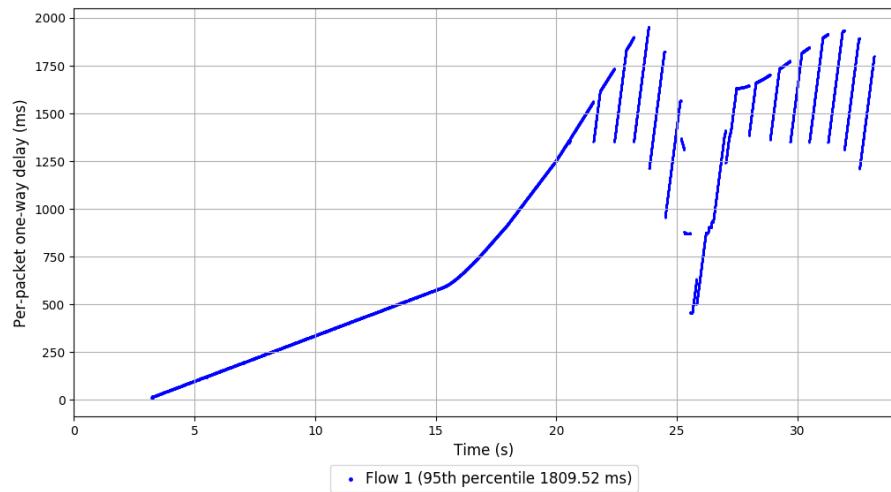
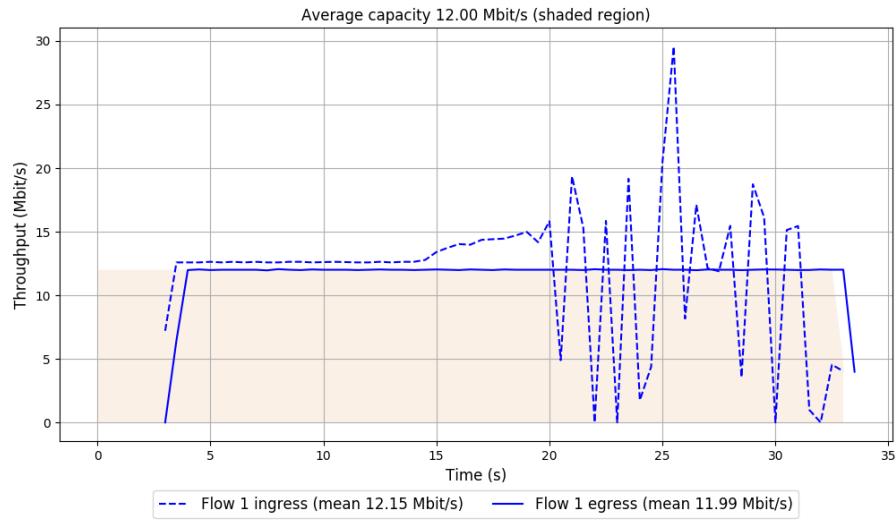


```
Run 1: Statistics of TCP Cubic

Start at: 2022-03-11 09:29:32
End at: 2022-03-11 09:30:02

# Below is generated by plot.py at 2022-03-11 09:32:10
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.99 Mbit/s (99.9% utilization)
95th percentile per-packet one-way delay: 1809.520 ms
Loss rate: 1.44%
-- Flow 1:
Average throughput: 11.99 Mbit/s
95th percentile per-packet one-way delay: 1809.520 ms
Loss rate: 1.44%
```

Run 1: Report of TCP Cubic — Data Link

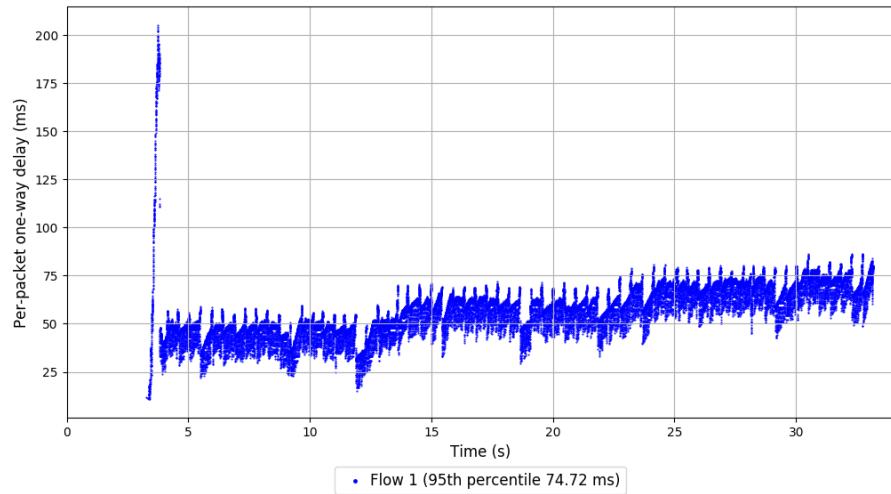
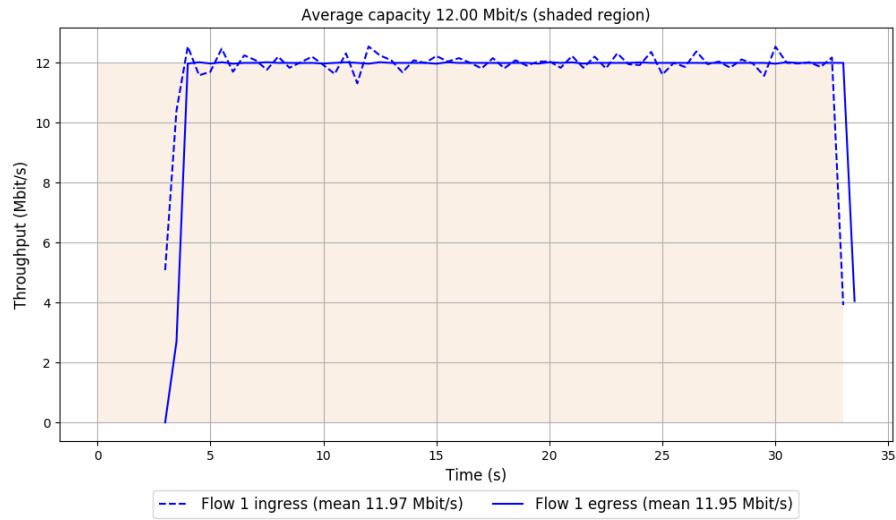


```
Run 1: Statistics of FillP

Start at: 2022-03-11 09:28:57
End at: 2022-03-11 09:29:27

# Below is generated by plot.py at 2022-03-11 09:32:11
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.95 Mbit/s (99.6% utilization)
95th percentile per-packet one-way delay: 74.718 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 11.95 Mbit/s
95th percentile per-packet one-way delay: 74.718 ms
Loss rate: 0.23%
```

Run 1: Report of FillP — Data Link

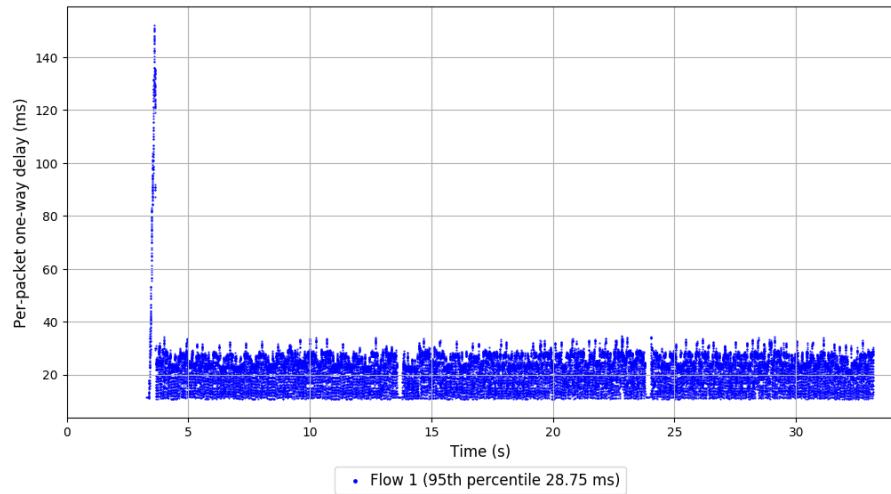
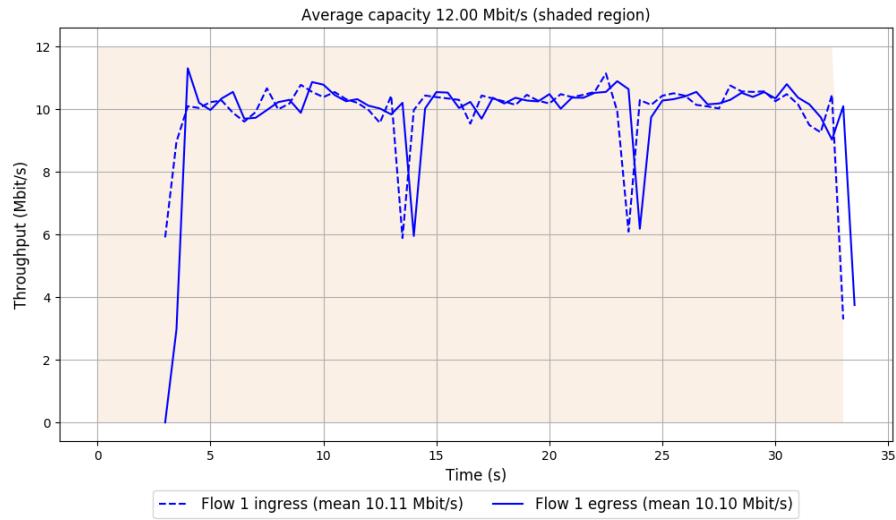


```
Run 1: Statistics of FillP-Sheep

Start at: 2022-03-11 09:27:48
End at: 2022-03-11 09:28:18

# Below is generated by plot.py at 2022-03-11 09:32:11
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.10 Mbit/s (84.2% utilization)
95th percentile per-packet one-way delay: 28.752 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 10.10 Mbit/s
95th percentile per-packet one-way delay: 28.752 ms
Loss rate: 0.03%
```

Run 1: Report of FillP-Sheep — Data Link

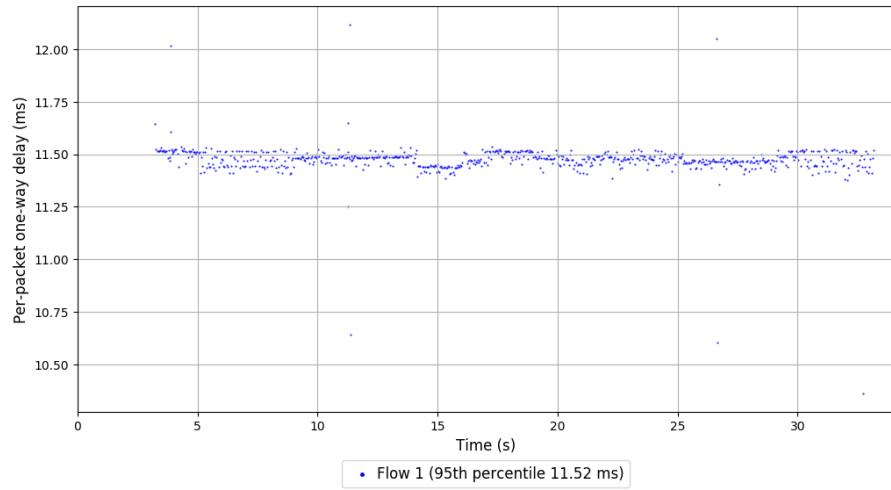
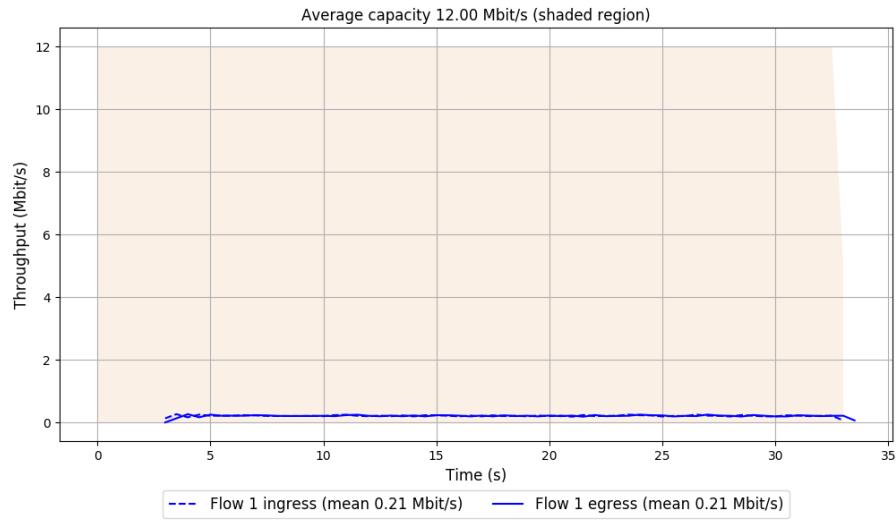


```
Run 1: Statistics of SCReAM

Start at: 2022-03-11 09:31:16
End at: 2022-03-11 09:31:46

# Below is generated by plot.py at 2022-03-11 09:32:11
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 0.21 Mbit/s (1.8% utilization)
95th percentile per-packet one-way delay: 11.520 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 11.520 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

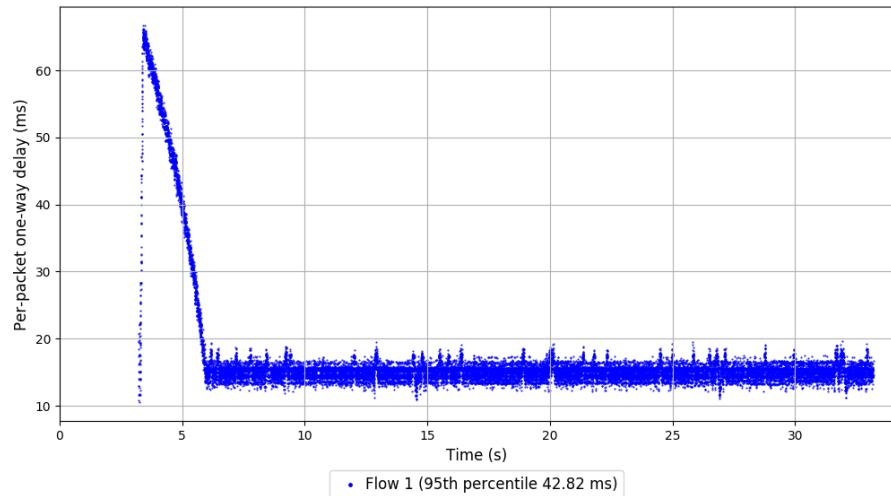
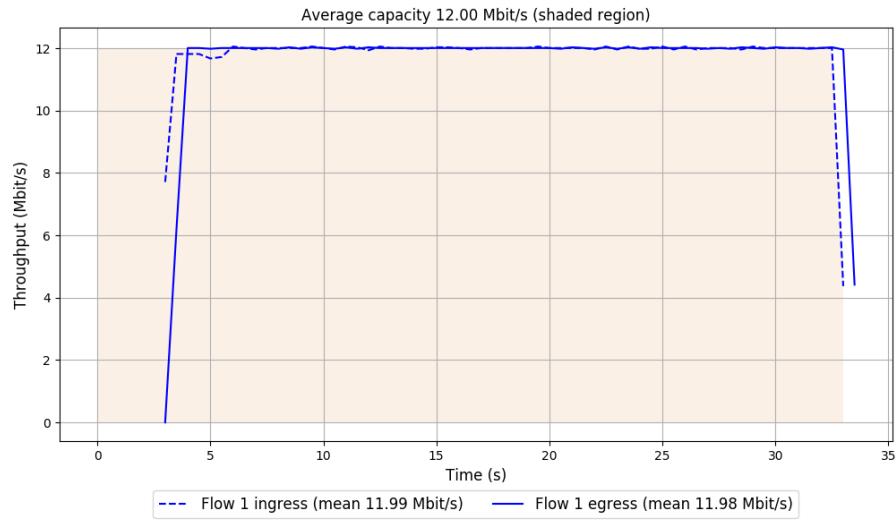


```
Run 1: Statistics of TCP Vegas

Start at: 2022-03-11 09:28:23
End at: 2022-03-11 09:28:53

# Below is generated by plot.py at 2022-03-11 09:32:11
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.98 Mbit/s (99.9% utilization)
95th percentile per-packet one-way delay: 42.821 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 11.98 Mbit/s
95th percentile per-packet one-way delay: 42.821 ms
Loss rate: 0.05%
```

Run 1: Report of TCP Vegas — Data Link



```
Run 1: Statistics of PCC-Vivace

Start at: 2022-03-11 09:30:41
End at: 2022-03-11 09:31:11

# Below is generated by plot.py at 2022-03-11 09:32:11
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 9.56 Mbit/s (79.7% utilization)
95th percentile per-packet one-way delay: 12.923 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 9.56 Mbit/s
95th percentile per-packet one-way delay: 12.923 ms
Loss rate: 0.10%
```

Run 1: Report of PCC-Vivace — Data Link

