

Pantheon Report

Generated at 2022-03-11 10:05:34 (UTC).

Tested in mahimahi: `mm-delay 1000 mm-link 12Mbps_trace 12Mbps_trace`

Repeated the test of 7 congestion control schemes once.

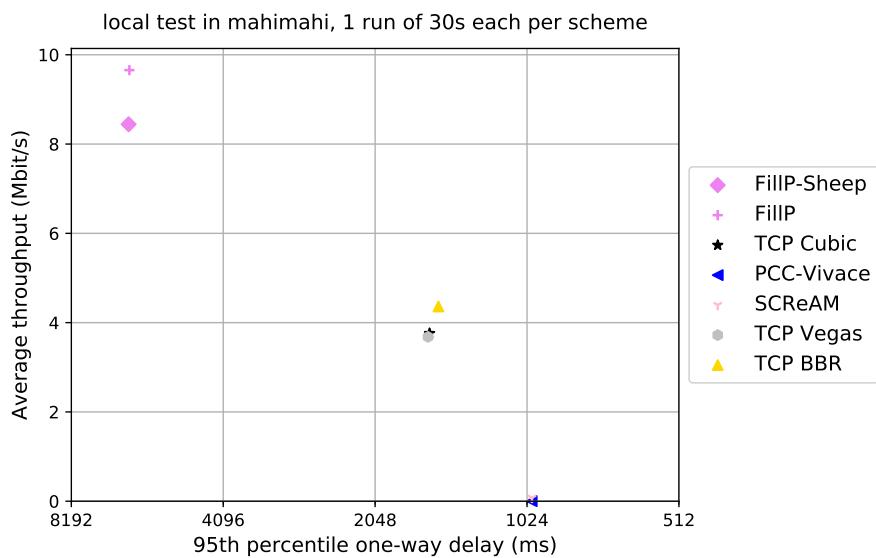
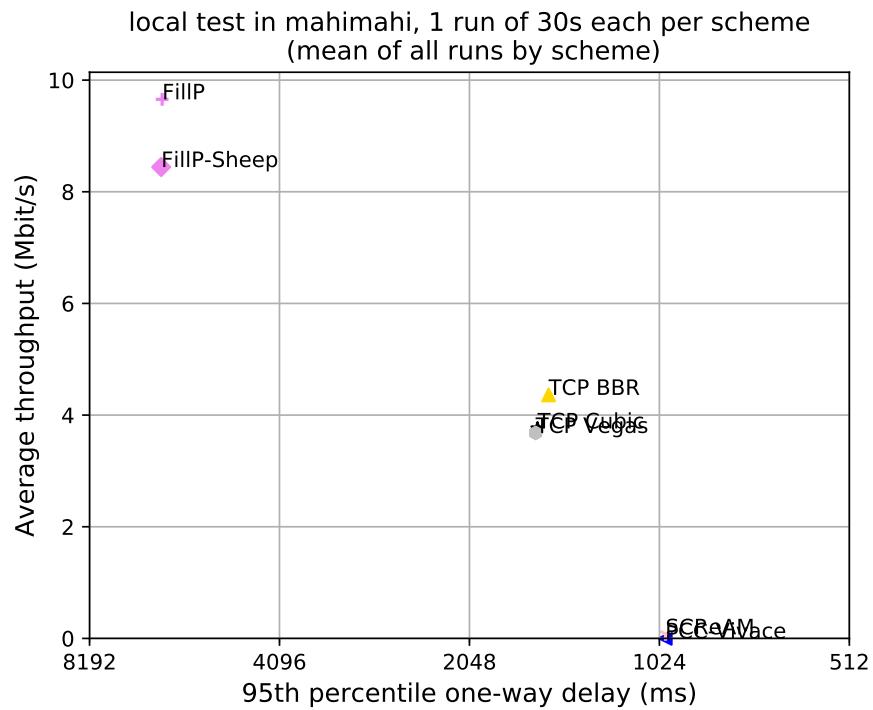
Each test lasted for 30 seconds running 1 flow.

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 @ af35ec4aa65926db47bff3418fa38ba70f781072
third_party/fillp @ d6da1459332fceef56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 463d89b09699a57bfdfbe351646df6a60040b90
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
```



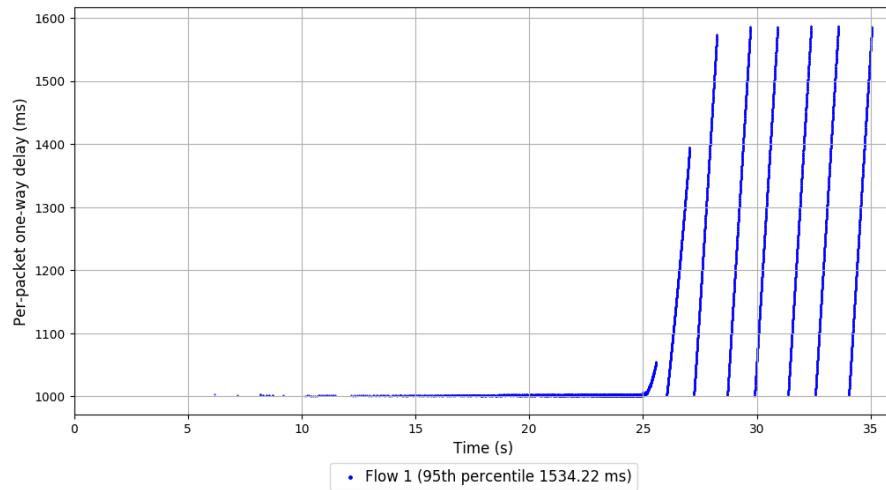
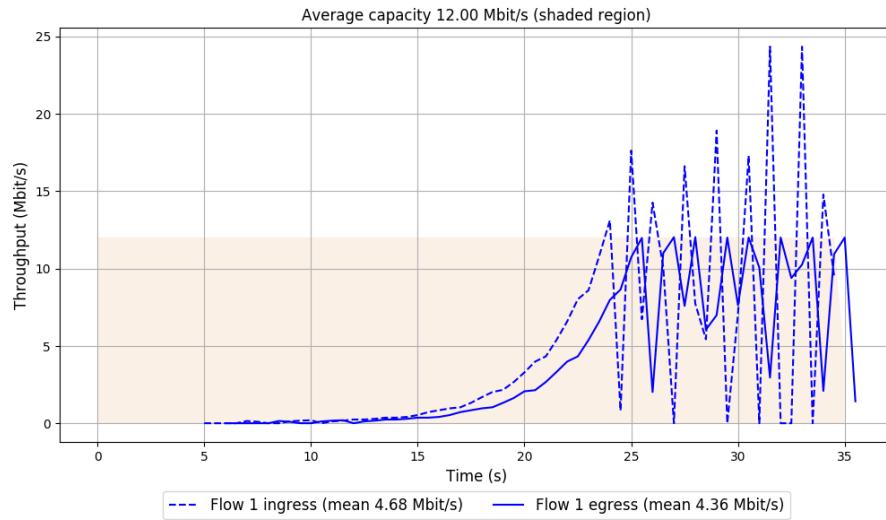
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	4.36	1534.22	8.80
TCP Cubic	1	3.76	1597.65	7.69
FillP	1	9.66	6285.24	5.03
FillP-Sheep	1	8.44	6307.46	4.67
SCReAM	1	0.07	1001.47	3.57
TCP Vegas	1	3.68	1608.46	7.34
PCC-Vivace	1	0.00	1002.48	2.11

```
Run 1: Statistics of TCP BBR

Start at: 2022-03-11 10:03:29
End at: 2022-03-11 10:03:59

# Below is generated by plot.py at 2022-03-11 10:05:29
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 4.36 Mbit/s (36.3% utilization)
95th percentile per-packet one-way delay: 1534.219 ms
Loss rate: 8.80%
-- Flow 1:
Average throughput: 4.36 Mbit/s
95th percentile per-packet one-way delay: 1534.219 ms
Loss rate: 8.80%
```

Run 1: Report of TCP BBR — Data Link

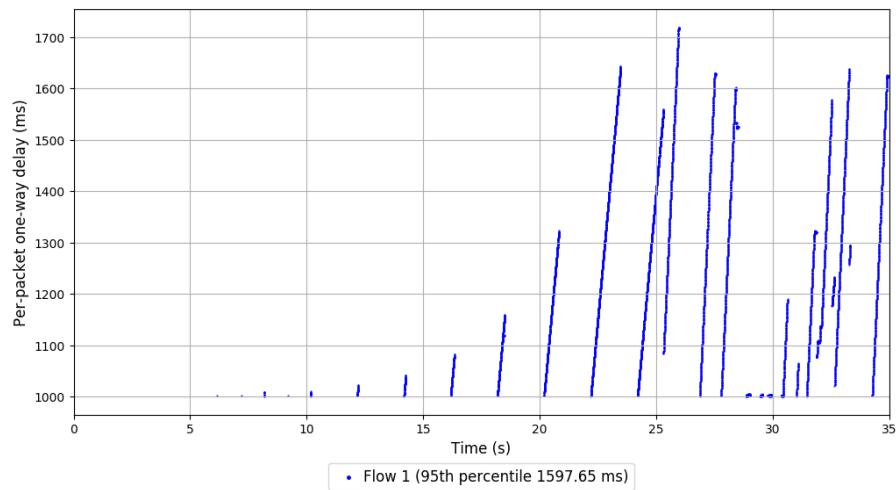
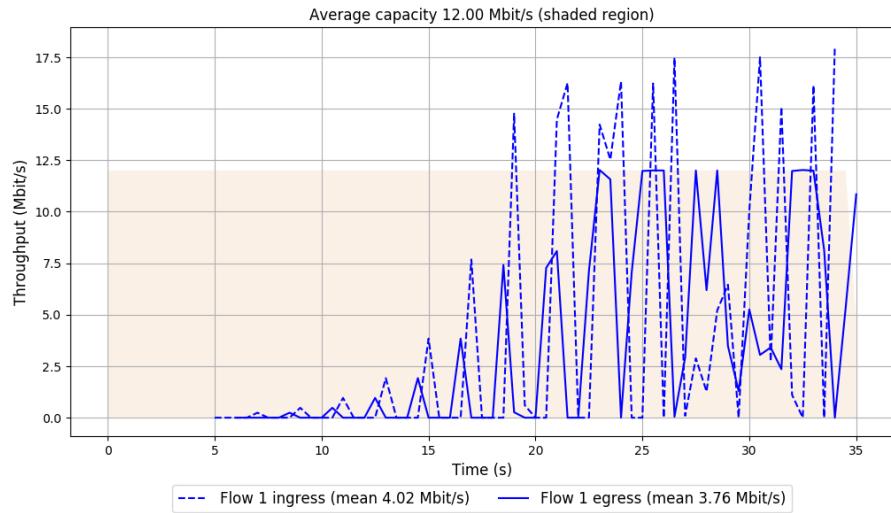


```
Run 1: Statistics of TCP Cubic

Start at: 2022-03-11 10:02:52
End at: 2022-03-11 10:03:22

# Below is generated by plot.py at 2022-03-11 10:05:29
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 3.76 Mbit/s (31.3% utilization)
95th percentile per-packet one-way delay: 1597.646 ms
Loss rate: 7.69%
-- Flow 1:
Average throughput: 3.76 Mbit/s
95th percentile per-packet one-way delay: 1597.646 ms
Loss rate: 7.69%
```

Run 1: Report of TCP Cubic — Data Link

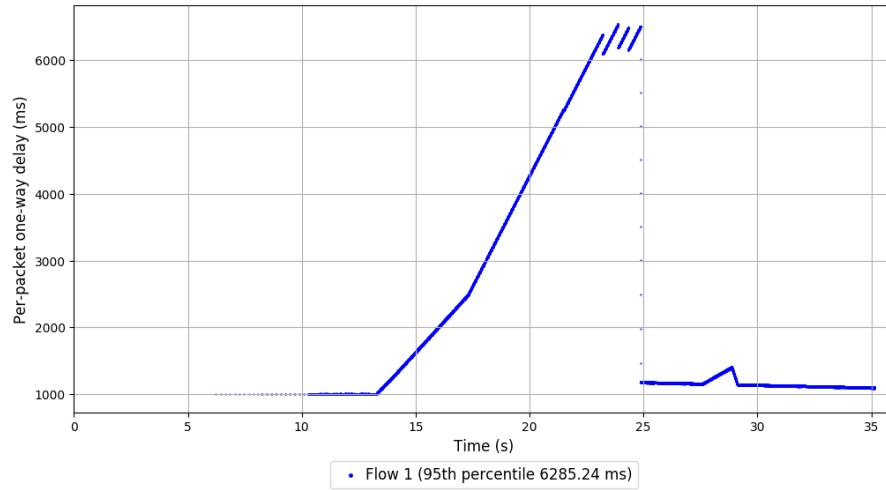
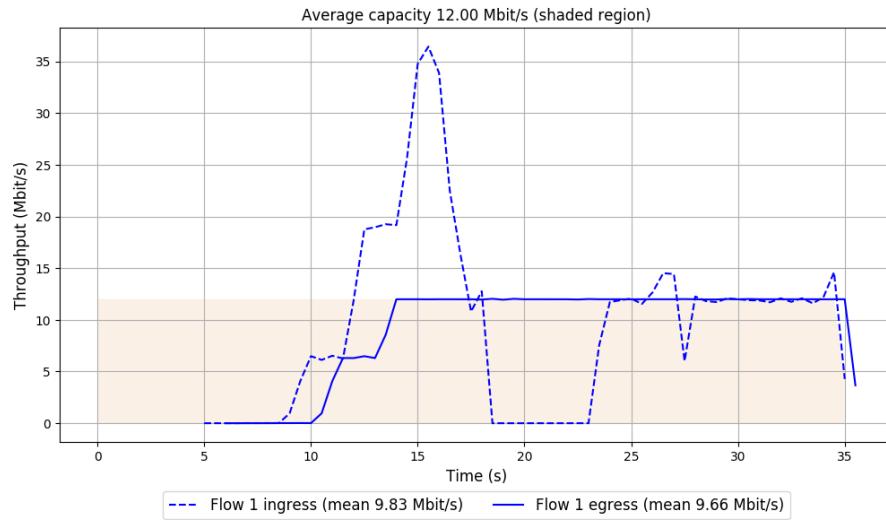


```
Run 1: Statistics of FillP

Start at: 2022-03-11 10:02:16
End at: 2022-03-11 10:02:46

# Below is generated by plot.py at 2022-03-11 10:05:32
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 9.66 Mbit/s (80.5% utilization)
95th percentile per-packet one-way delay: 6285.237 ms
Loss rate: 5.03%
-- Flow 1:
Average throughput: 9.66 Mbit/s
95th percentile per-packet one-way delay: 6285.237 ms
Loss rate: 5.03%
```

Run 1: Report of FillP — Data Link

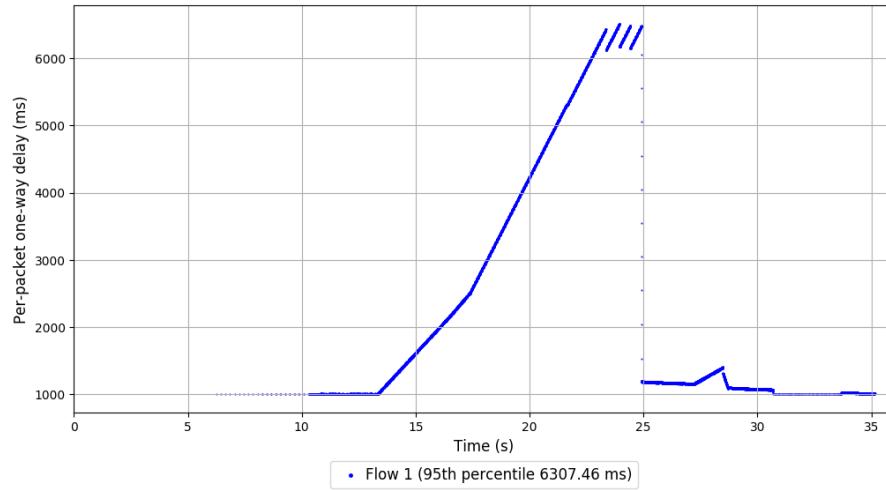
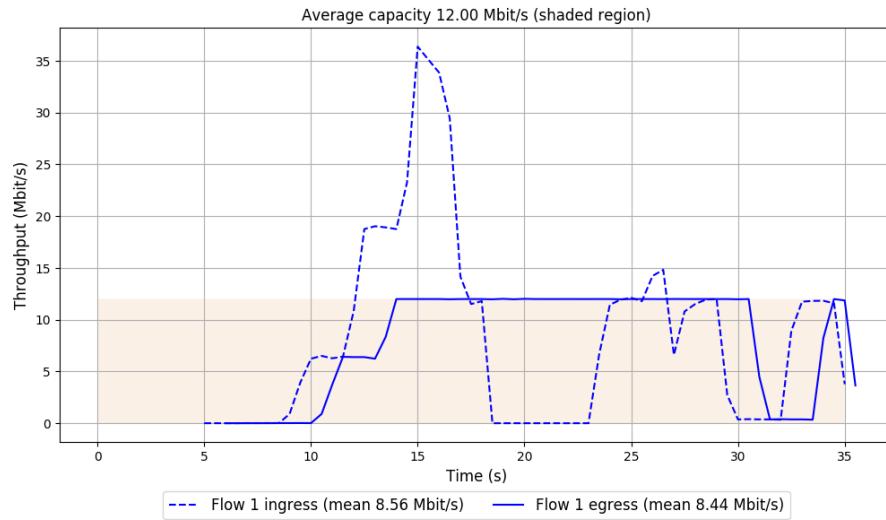


```
Run 1: Statistics of FillP-Sheep

Start at: 2022-03-11 10:01:03
End at: 2022-03-11 10:01:33

# Below is generated by plot.py at 2022-03-11 10:05:32
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 8.44 Mbit/s (70.4% utilization)
95th percentile per-packet one-way delay: 6307.459 ms
Loss rate: 4.67%
-- Flow 1:
Average throughput: 8.44 Mbit/s
95th percentile per-packet one-way delay: 6307.459 ms
Loss rate: 4.67%
```

Run 1: Report of FillP-Sheep — Data Link

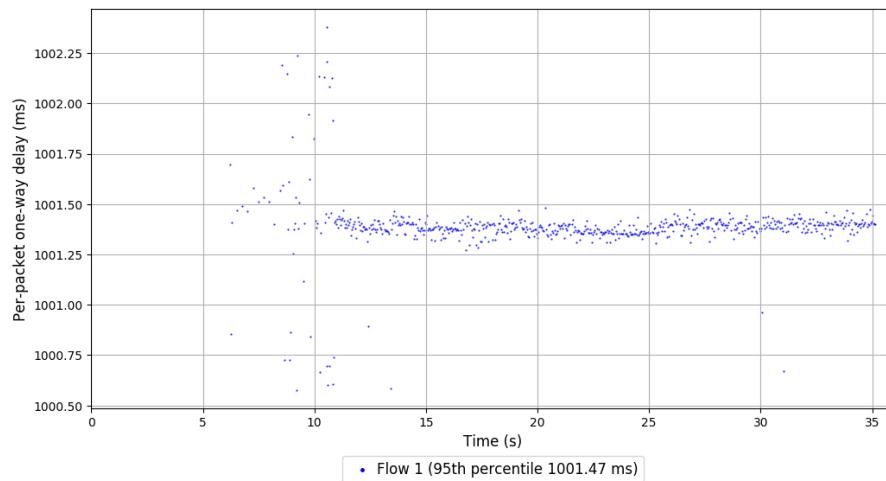
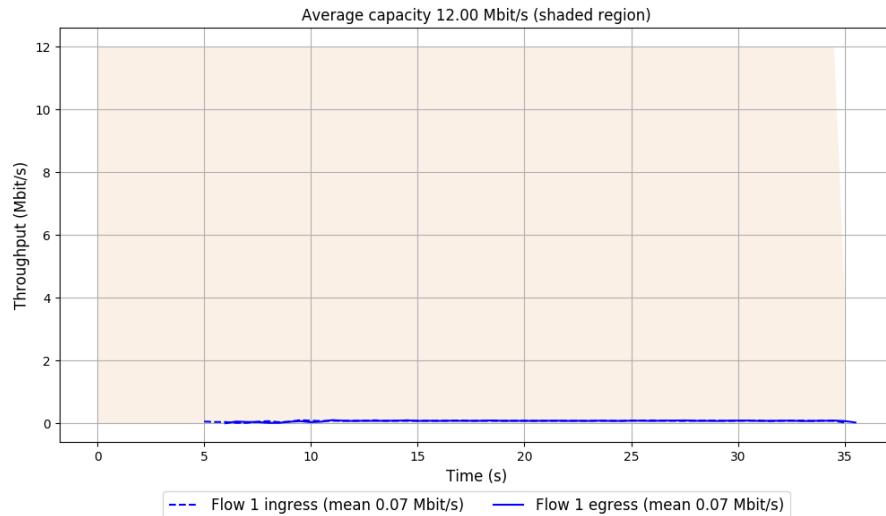


```
Run 1: Statistics of SCReAM

Start at: 2022-03-11 10:04:41
End at: 2022-03-11 10:05:11

# Below is generated by plot.py at 2022-03-11 10:05:32
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 0.07 Mbit/s (0.6% utilization)
95th percentile per-packet one-way delay: 1001.465 ms
Loss rate: 3.57%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 1001.465 ms
Loss rate: 3.57%
```

Run 1: Report of SCReAM — Data Link

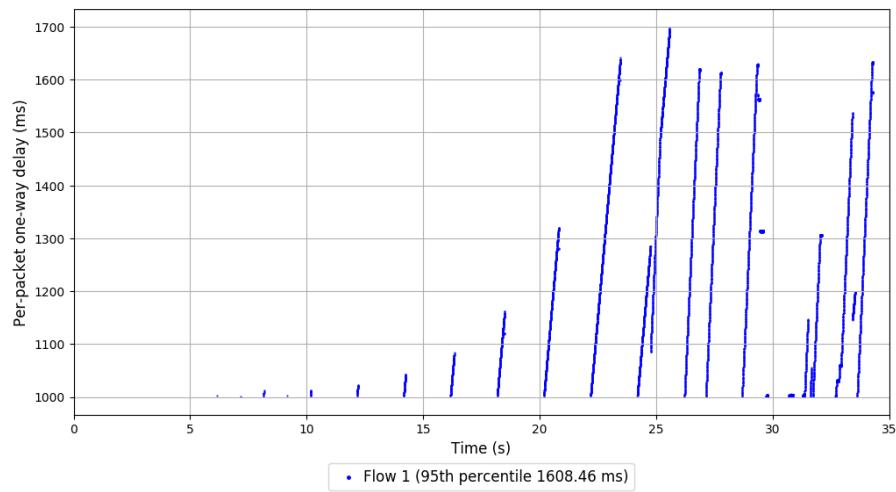
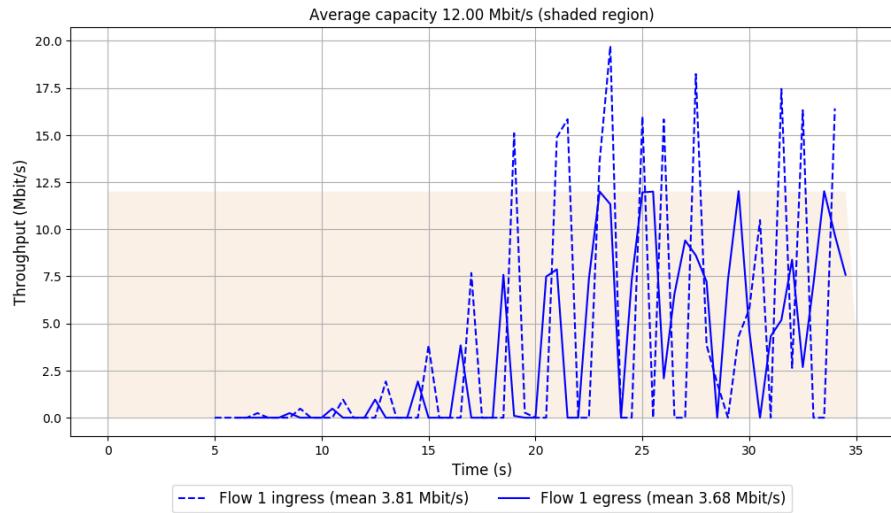


```
Run 1: Statistics of TCP Vegas

Start at: 2022-03-11 10:01:39
End at: 2022-03-11 10:02:09

# Below is generated by plot.py at 2022-03-11 10:05:32
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 3.68 Mbit/s (30.7% utilization)
95th percentile per-packet one-way delay: 1608.458 ms
Loss rate: 7.34%
-- Flow 1:
Average throughput: 3.68 Mbit/s
95th percentile per-packet one-way delay: 1608.458 ms
Loss rate: 7.34%
```

Run 1: Report of TCP Vegas — Data Link



```
Run 1: Statistics of PCC-Vivace

Start at: 2022-03-11 10:04:05
End at: 2022-03-11 10:04:35

# Below is generated by plot.py at 2022-03-11 10:05:32
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 0.00 Mbit/s (0.0% utilization)
95th percentile per-packet one-way delay: 1002.484 ms
Loss rate: 2.11%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1002.484 ms
Loss rate: 2.11%
```

Run 1: Report of PCC-Vivace — Data Link

