Pantheon Report

Generated at 2022-03-11 09:54:09 (UTC).
Tested in mahimahi: `mm-delay 200 mm-link 12Mbps_trace 12Mbps_trace`
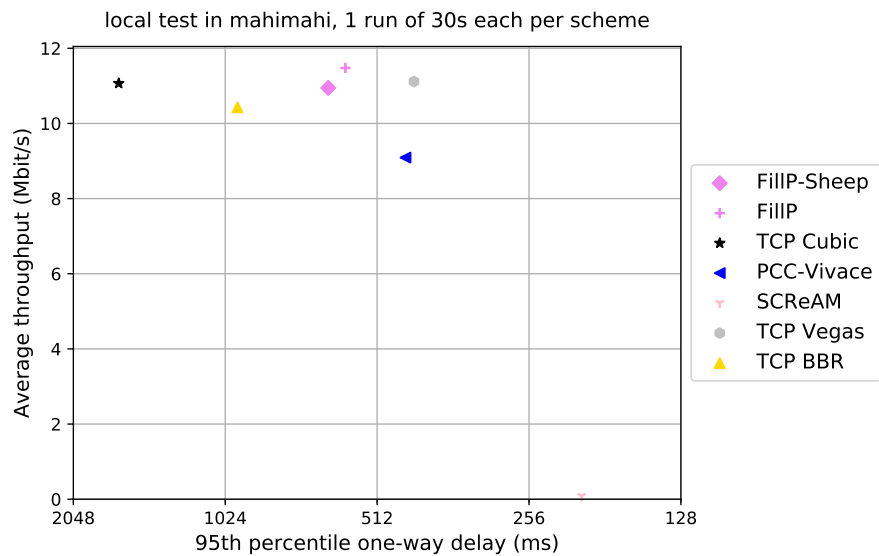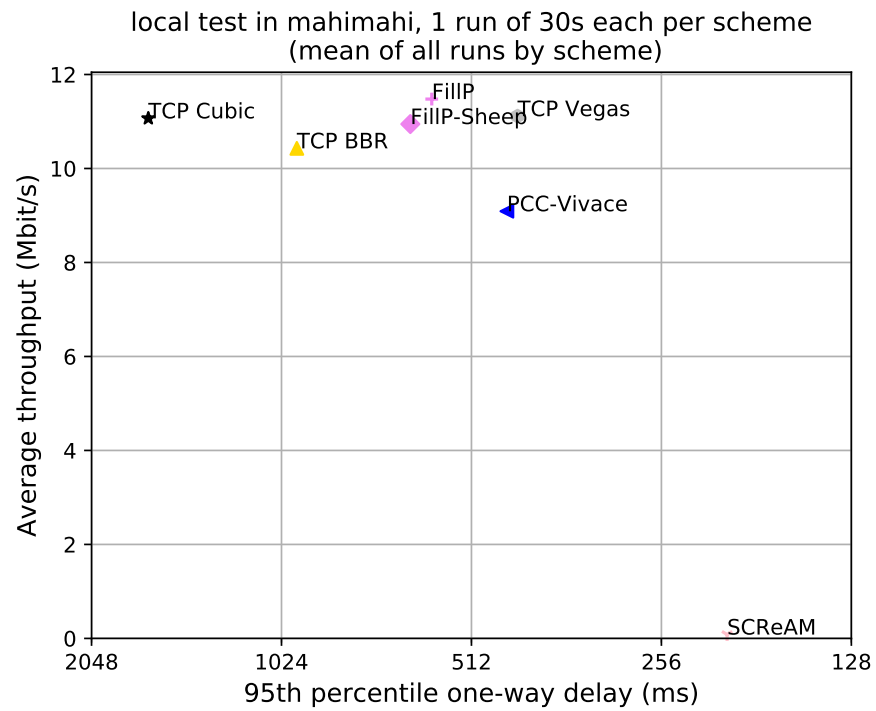Repeated the test of 7 congestion control schemes once.
Each test lasted for 30 seconds running 1 flow.

```
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 @ 0aaedc2523dc51f06fe71dbb1eaef857299d1ffb
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 30s each per scheme (mean of all runs by scheme)

local test in mahimahi, 1 run of 30s 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	10.43	968.27	1.10
TCP Cubic	1	11.07	1664.90	3.79
FillP	1	11.48	591.81	0.69
FillP-Sheep	1	10.95	639.91	0.77
SCReAM	1	0.08	201.43	0.62
TCP Vegas	1	11.11	432.76	1.40
PCC-Vivace	1	9.09	449.93	0.84

```
Run 1: Statistics of TCP BBR

Start at: 2022-03-11 09:50:18
End at: 2022-03-11 09:50:48

# Below is generated by plot.py at 2022-03-11 09:54:05
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.43 Mbit/s (86.9% utilization)
95th percentile per-packet one-way delay: 968.268 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 10.43 Mbit/s
95th percentile per-packet one-way delay: 968.268 ms
Loss rate: 1.10%
```
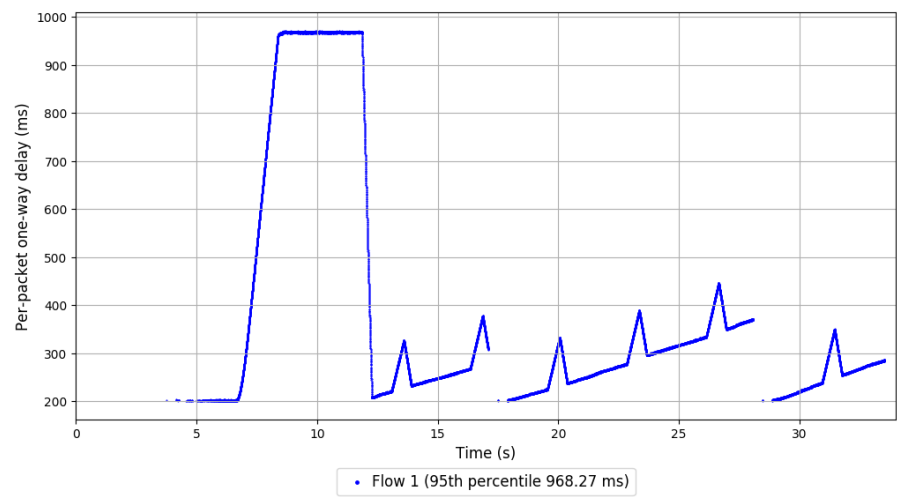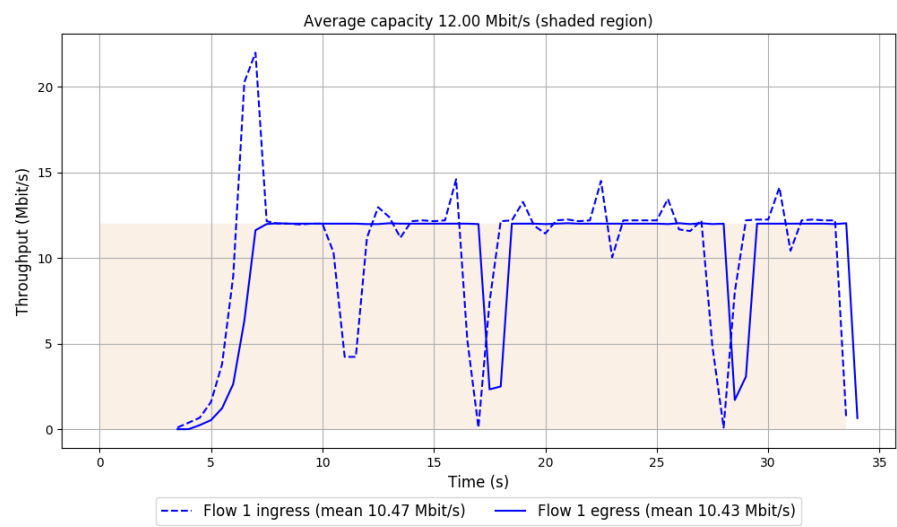
Run 1: Report of TCP BBR — Data Link

Average capacity 12.00 Mbit/s (shaded region)

Flow 1 ingress (mean 10.47 Mbit/s)   Flow 1 egress (mean 10.43 Mbit/s)

Flow 1 (95th percentile 968.27 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2022-03-11 09:49:43
End at: 2022-03-11 09:50:13


# Below is generated by plot.py at 2022-03-11 09:54:07
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.07 Mbit/s (92.2% utilization)
95th percentile per-packet one-way delay: 1664.905 ms
Loss rate: 3.79%
-- Flow 1:
Average throughput: 11.07 Mbit/s
95th percentile per-packet one-way delay: 1664.905 ms
Loss rate: 3.79%
```
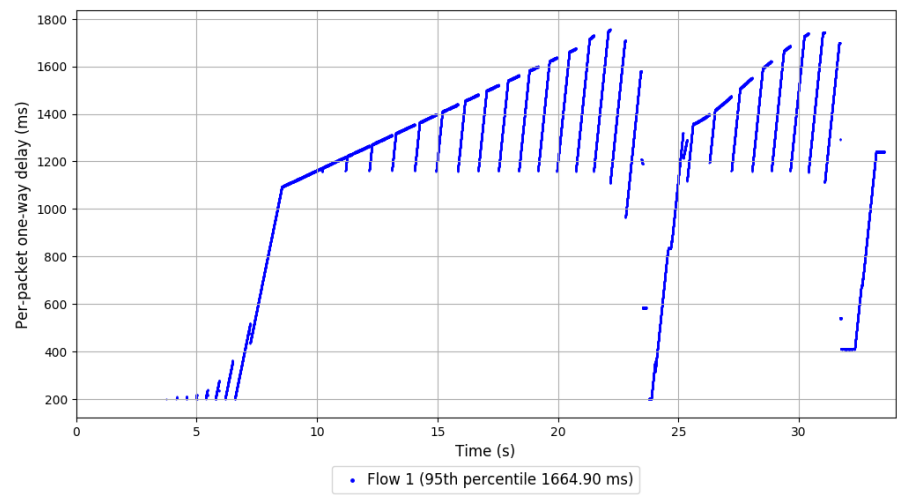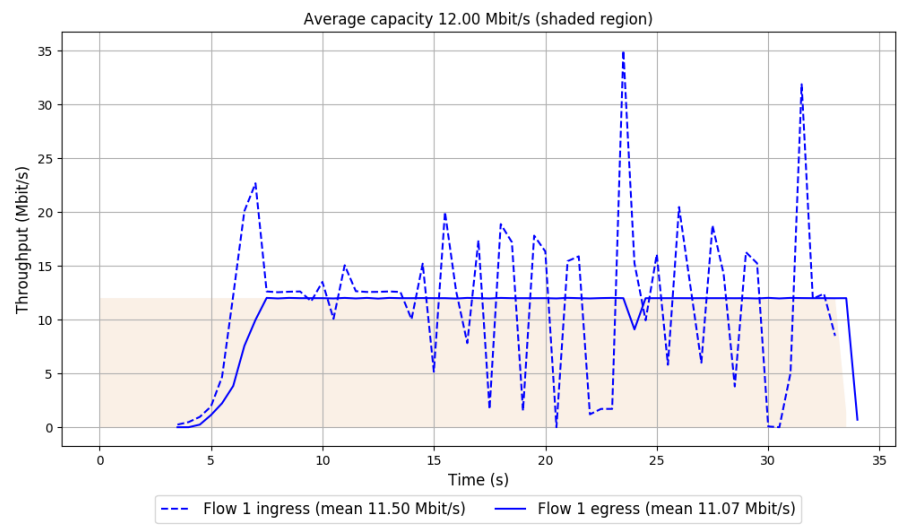
Run 1: Report of TCP Cubic — Data Link

Average capacity 12.00 Mbit/s (shaded region)

Flow 1 ingress (mean 11.50 Mbit/s) — Flow 1 egress (mean 11.07 Mbit/s)

Flow 1 (95th percentile 1664.90 ms)

```
Run 1: Statistics of FillP

Start at: 2022-03-11 09:49:08
End at: 2022-03-11 09:49:38

# Below is generated by plot.py at 2022-03-11 09:54:07
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.48 Mbit/s (95.6% utilization)
95th percentile per-packet one-way delay: 591.809 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 11.48 Mbit/s
95th percentile per-packet one-way delay: 591.809 ms
Loss rate: 0.69%
```
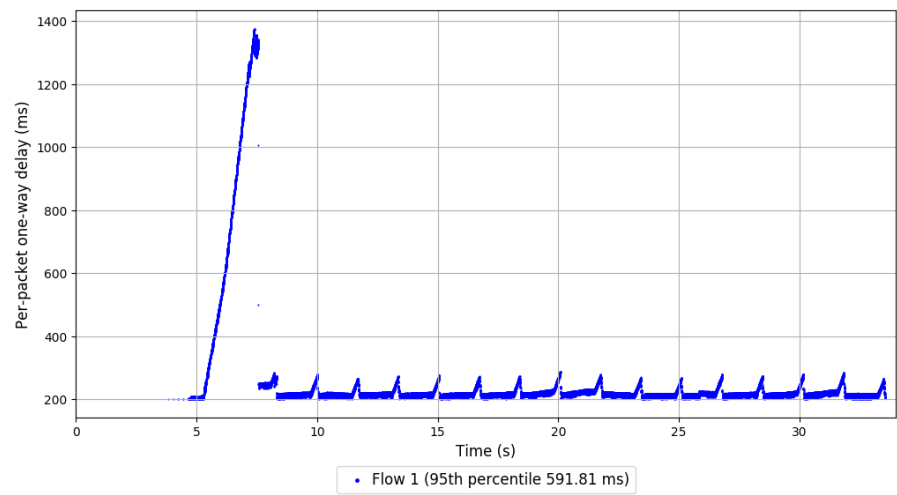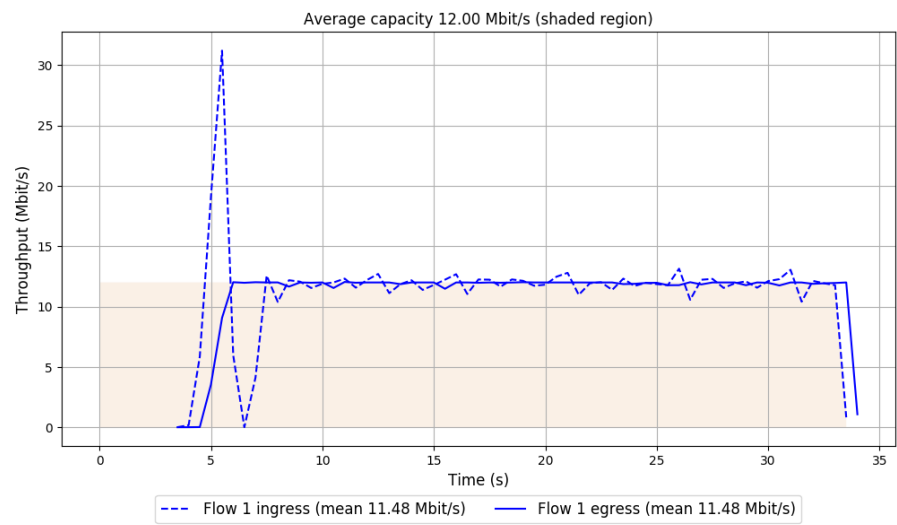
Run 1: Report of FillP — Data Link

Average capacity 12.00 Mbit/s (shaded region)

Flow 1 ingress (mean 11.48 Mbit/s)   Flow 1 egress (mean 11.48 Mbit/s)

Flow 1 (95th percentile 591.81 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2022-03-11 09:47:58
End at: 2022-03-11 09:48:28

# Below is generated by plot.py at 2022-03-11 09:54:07
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.95 Mbit/s (91.2% utilization)
95th percentile per-packet one-way delay: 639.911 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 10.95 Mbit/s
95th percentile per-packet one-way delay: 639.911 ms
Loss rate: 0.77%
```
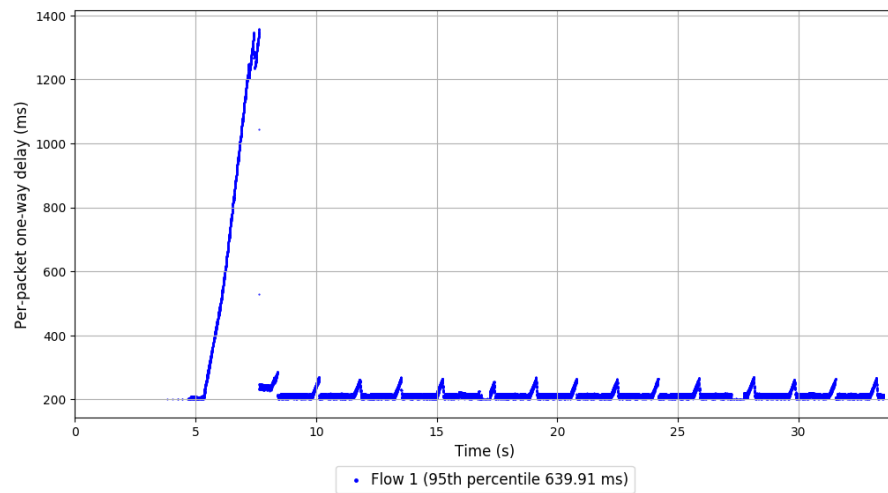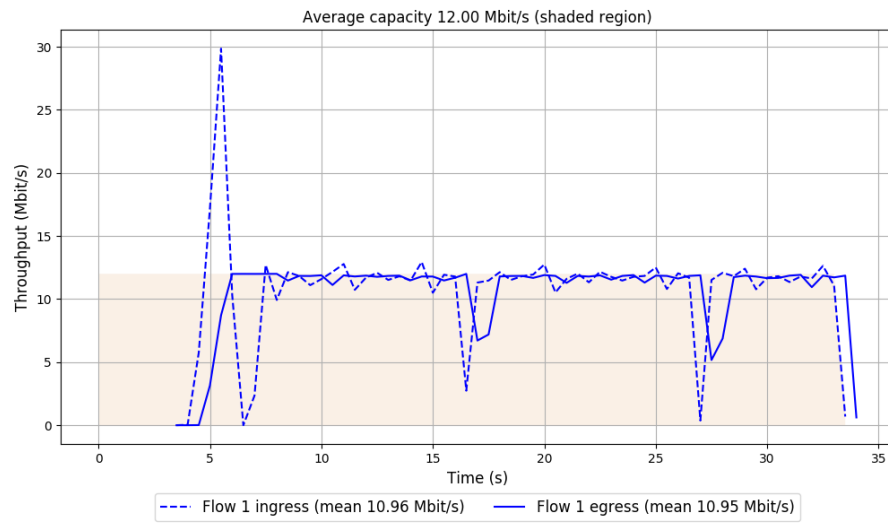
Run 1: Report of FillP-Sheep — Data Link

Average capacity 12.00 Mbit/s (shaded region)

Flow 1 ingress (mean 10.96 Mbit/s)   Flow 1 egress (mean 10.95 Mbit/s)

Flow 1 (95th percentile 639.91 ms)

```
Run 1: Statistics of SCReAM

Start at: 2022-03-11 09:51:28
End at: 2022-03-11 09:51:58

# Below is generated by plot.py at 2022-03-11 09:54:07
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 0.08 Mbit/s (0.7% utilization)
95th percentile per-packet one-way delay: 201.433 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 201.433 ms
Loss rate: 0.62%
```
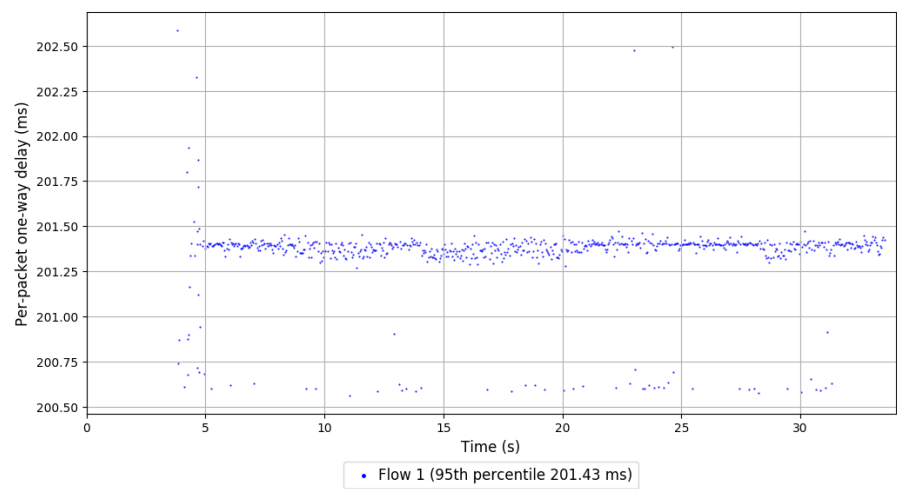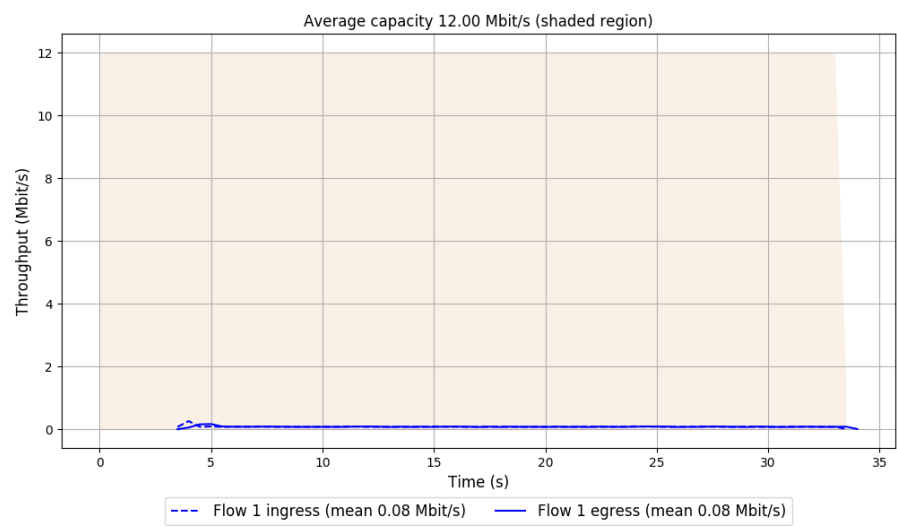
Run 1: Report of SCReAM — Data Link

Average capacity 12.00 Mbit/s (shaded region)

- - - Flow 1 ingress (mean 0.08 Mbit/s) ——— Flow 1 egress (mean 0.08 Mbit/s)

• Flow 1 (95th percentile 201.43 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2022-03-11 09:48:33
End at: 2022-03-11 09:49:03

# Below is generated by plot.py at 2022-03-11 09:54:07
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.11 Mbit/s (92.6% utilization)
95th percentile per-packet one-way delay: 432.759 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 11.11 Mbit/s
95th percentile per-packet one-way delay: 432.759 ms
Loss rate: 1.40%
```
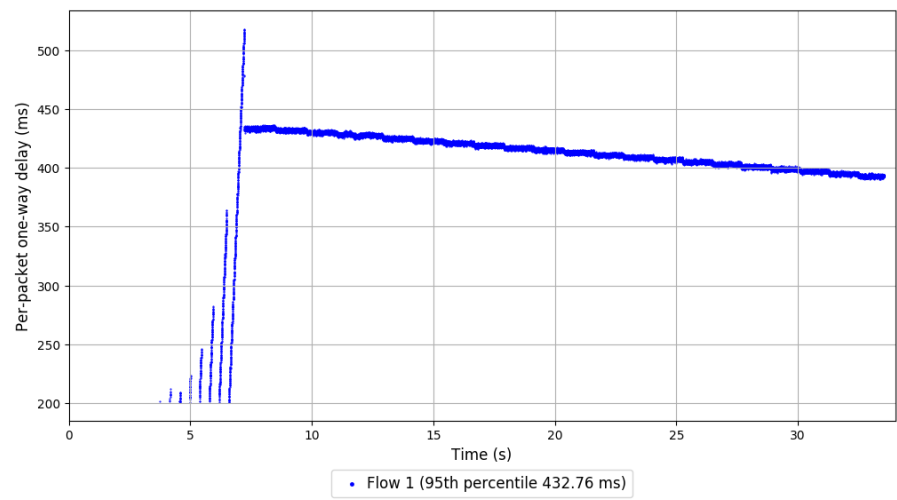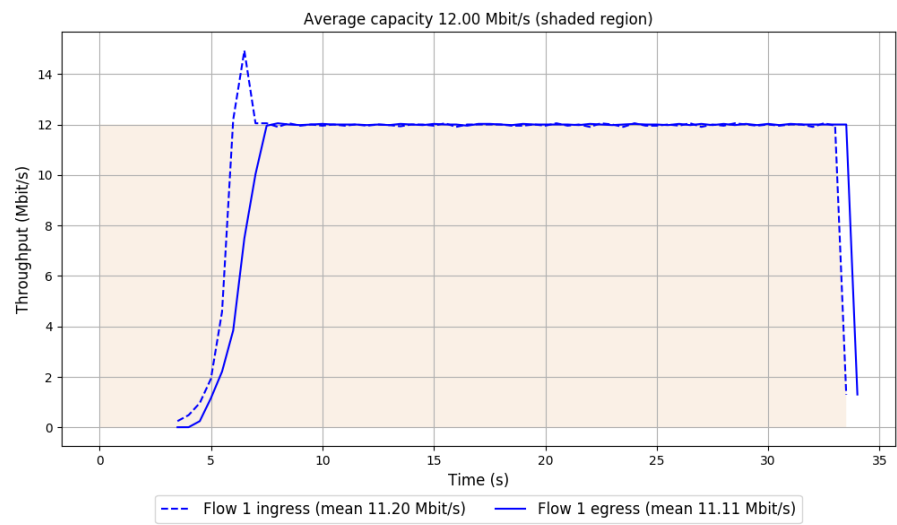
Run 1: Report of TCP Vegas — Data Link

Average capacity 12.00 Mbit/s (shaded region)

Flow 1 ingress (mean 11.20 Mbit/s)   Flow 1 egress (mean 11.11 Mbit/s)

Flow 1 (95th percentile 432.76 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2022-03-11 09:50:53
End at: 2022-03-11 09:51:23

# Below is generated by plot.py at 2022-03-11 09:54:07
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 9.09 Mbit/s (75.8% utilization)
95th percentile per-packet one-way delay: 449.929 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 9.09 Mbit/s
95th percentile per-packet one-way delay: 449.929 ms
Loss rate: 0.84%
```

Run 1: Report of PCC-Vivace — Data Link

Average capacity 12.00 Mbit/s (shaded region)

Flow 1 ingress (mean 9.11 Mbit/s)　　　Flow 1 egress (mean 9.09 Mbit/s)

Flow 1 (95th percentile 449.93 ms)