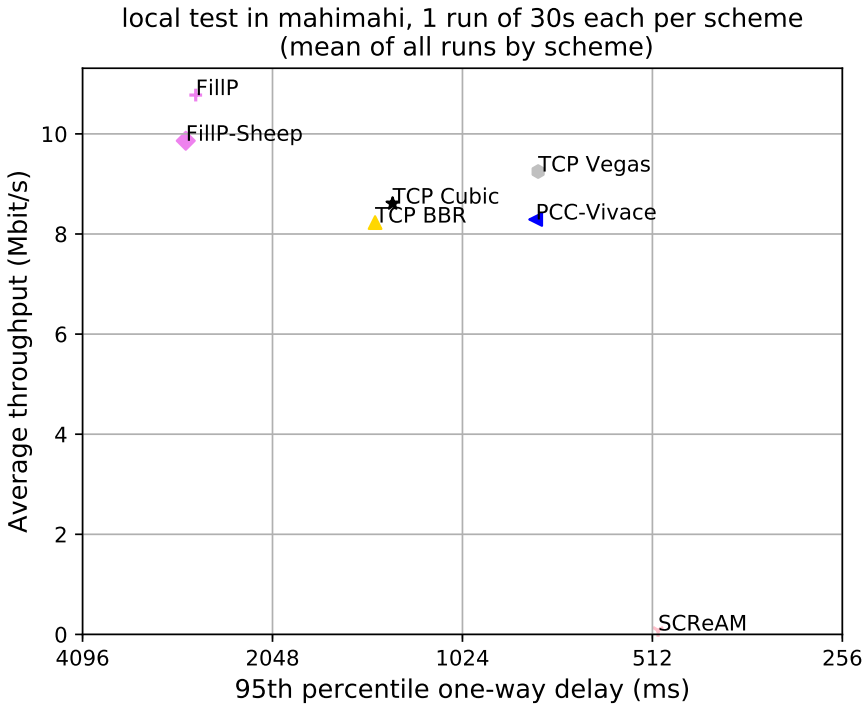
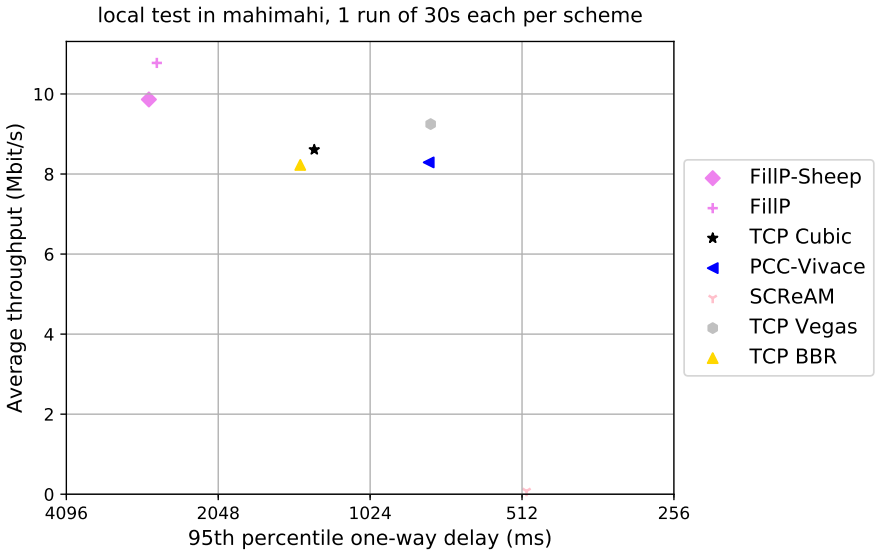
Pantheon Report

Generated at 2022-03-11 09:59:19 (UTC).
Tested in mahimahi: `mm-delay 500 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 @ 6bc48720158b3762556eebf0da71c99798febe18
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)
FillP
FillP-Sheep
TCP Vegas
TCP Cubic
TCP BBR
PCC-Vivace
SCReAM
Average throughput (Mbit/s)
95th percentile one-way delay (ms)
0
2
4
6
8
10
4096
2048
1024
512
256


local test in mahimahi, 1 run of 30s each per scheme
Average throughput (Mbit/s)
95th percentile one-way delay (ms)
FillP-Sheep
FillP
TCP Cubic
PCC-Vivace
SCReAM
TCP Vegas
TCP BBR

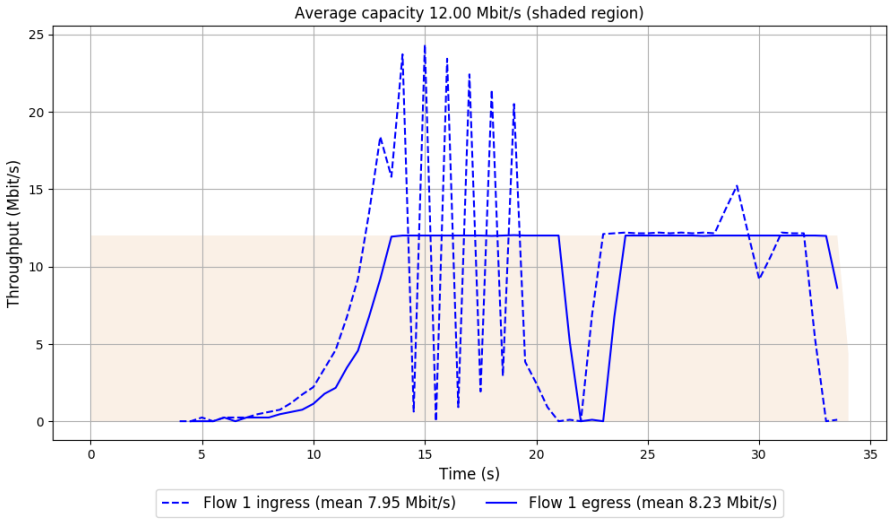
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	8.23	1408.46	0.02
TCP Cubic	1	8.61	1321.28	3.35
FillP	1	10.78	2710.23	1.91
FillP-Sheep	1	9.86	2810.51	1.25
SCReAM	1	0.08	501.57	1.68
TCP Vegas	1	9.25	776.88	3.24
PCC-Vivace	1	8.29	783.95	1.34

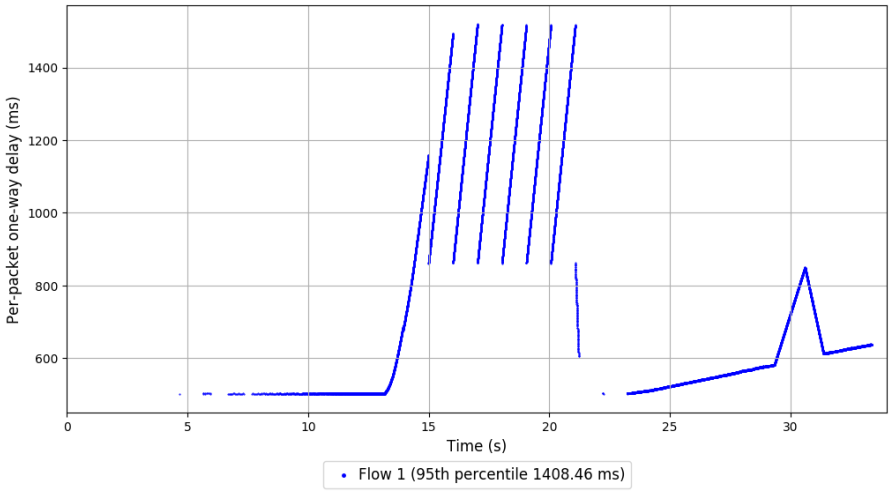
```
Run 1: Statistics of TCP BBR

Start at: 2022-03-11 09:57:14
End at: 2022-03-11 09:57:44

# Below is generated by plot.py at 2022-03-11 09:59:13
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 8.23 Mbit/s (68.6% utilization)
95th percentile per-packet one-way delay: 1408.458 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 8.23 Mbit/s
95th percentile per-packet one-way delay: 1408.458 ms
Loss rate: 0.02%
```

Run 1: Report of TCP BBR — Data Link



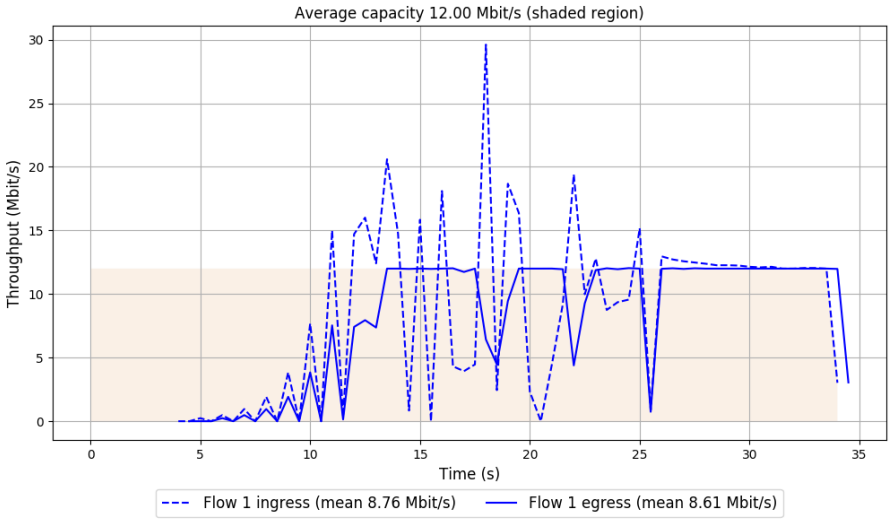


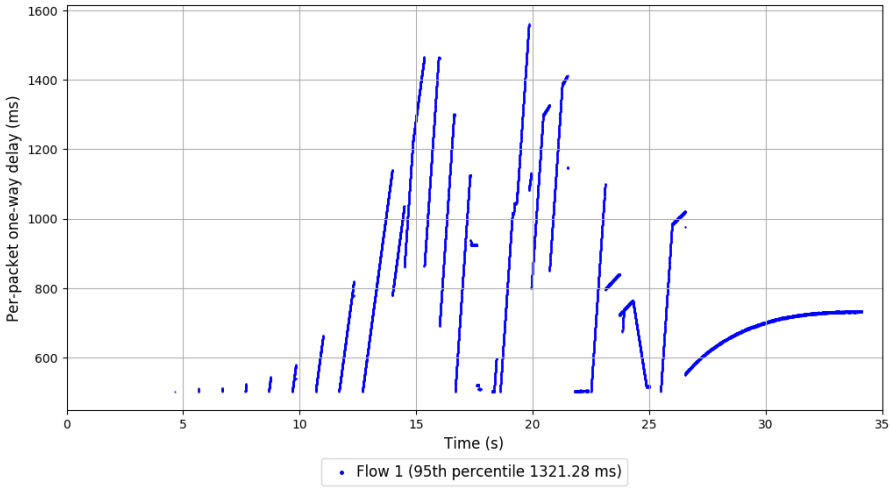
```
Run 1: Statistics of TCP Cubic

Start at: 2022-03-11 09:56:39
End at: 2022-03-11 09:57:09

# Below is generated by plot.py at 2022-03-11 09:59:14
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 8.61 Mbit/s (71.7% utilization)
95th percentile per-packet one-way delay: 1321.281 ms
Loss rate: 3.35%
-- Flow 1:
Average throughput: 8.61 Mbit/s
95th percentile per-packet one-way delay: 1321.281 ms
Loss rate: 3.35%
```

Run 1: Report of TCP Cubic — Data Link



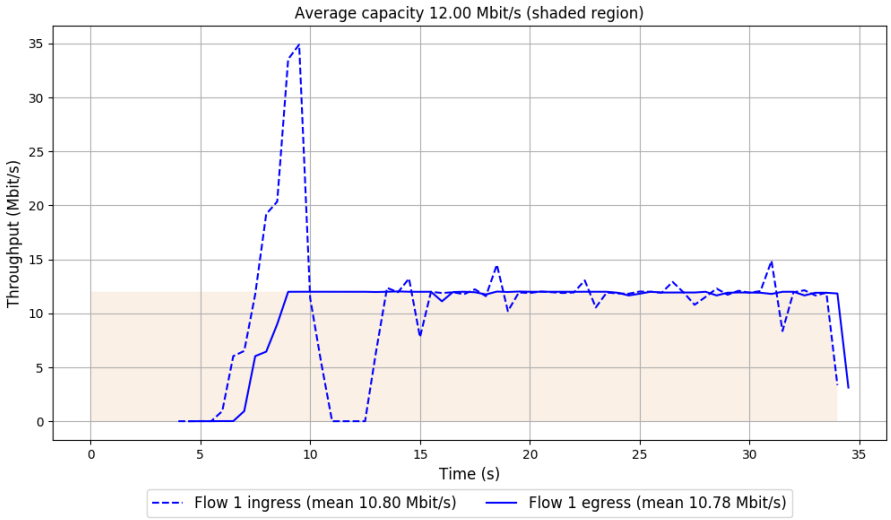


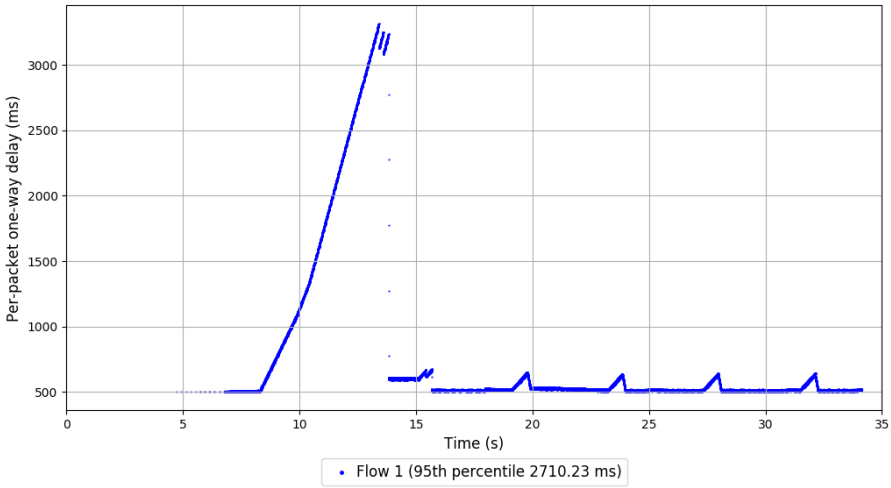
```
Run 1: Statistics of FillP

Start at: 2022-03-11 09:56:03
End at: 2022-03-11 09:56:33

# Below is generated by plot.py at 2022-03-11 09:59:17
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.78 Mbit/s (89.8% utilization)
95th percentile per-packet one-way delay: 2710.226 ms
Loss rate: 1.91%
-- Flow 1:
Average throughput: 10.78 Mbit/s
95th percentile per-packet one-way delay: 2710.226 ms
Loss rate: 1.91%
```

Run 1: Report of FillP — Data Link



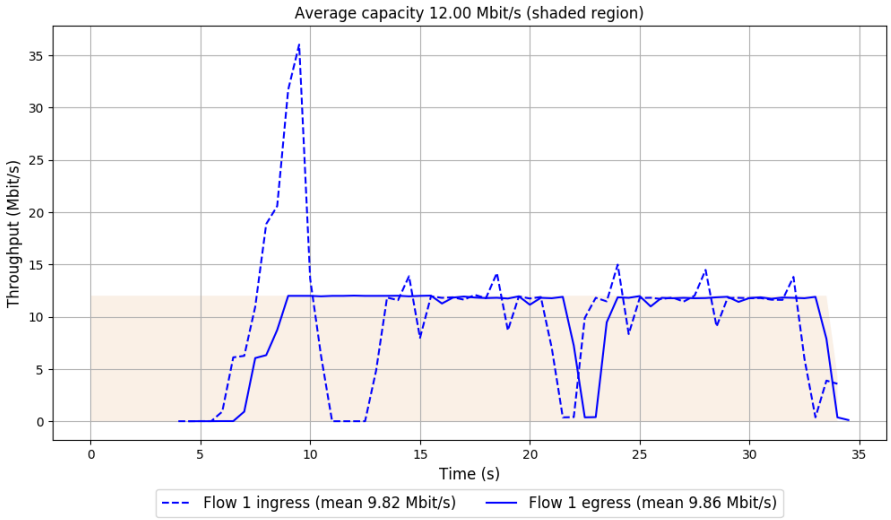


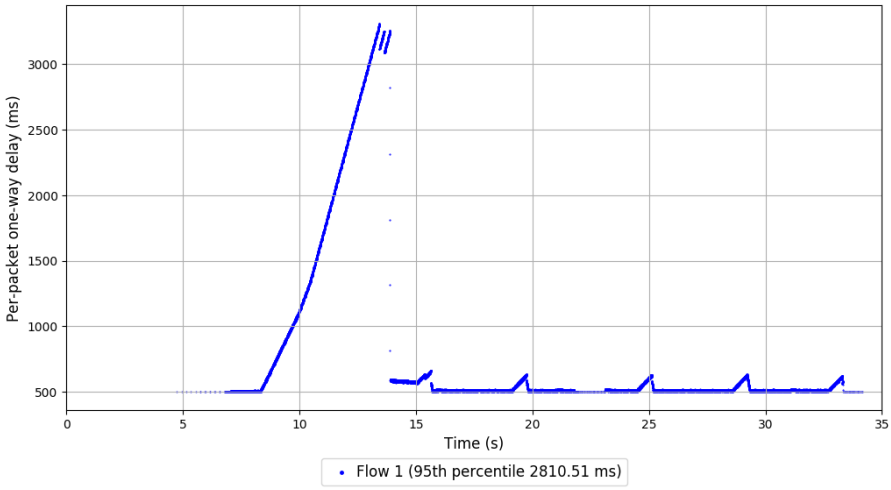
```
Run 1: Statistics of FillP-Sheep

Start at: 2022-03-11 09:54:52
End at: 2022-03-11 09:55:22

# Below is generated by plot.py at 2022-03-11 09:59:17
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 9.86 Mbit/s (82.2% utilization)
95th percentile per-packet one-way delay: 2810.510 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 9.86 Mbit/s
95th percentile per-packet one-way delay: 2810.510 ms
Loss rate: 1.25%
```

Run 1: Report of FillP-Sheep — Data Link



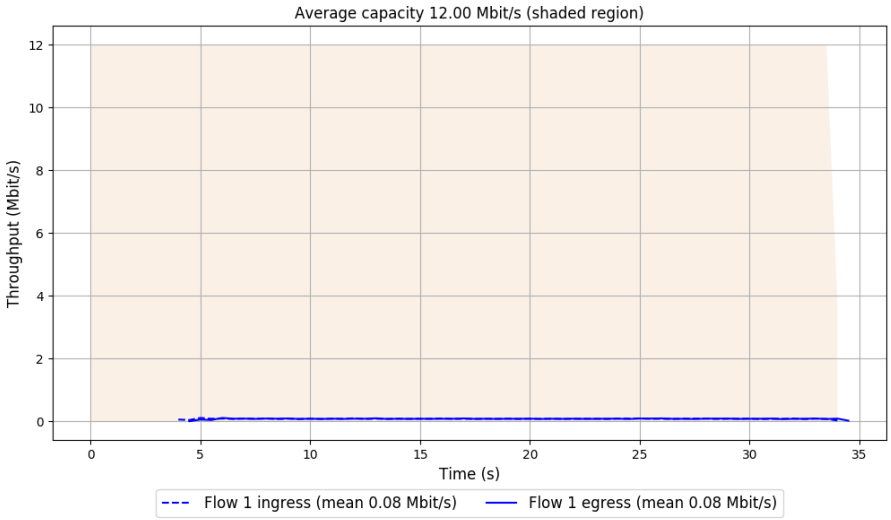


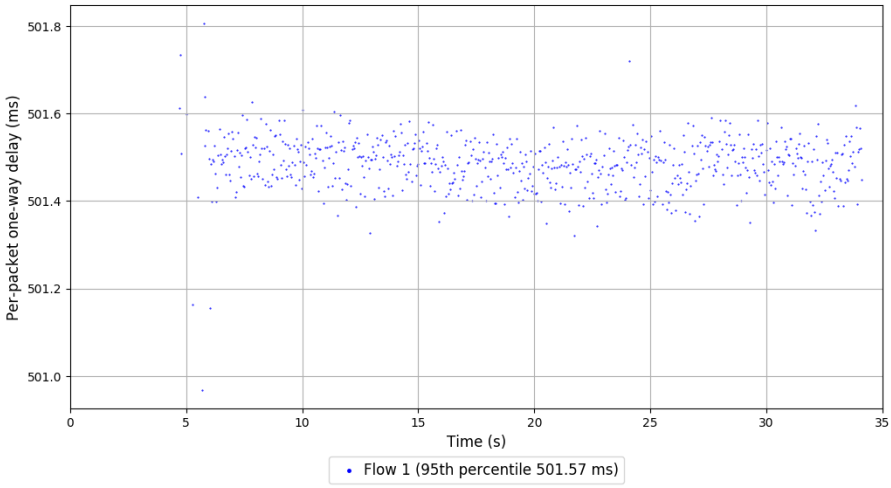
```
Run 1: Statistics of SCReAM

Start at: 2022-03-11 09:58:25
End at: 2022-03-11 09:58:55

# Below is generated by plot.py at 2022-03-11 09:59:17
# 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: 501.569 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 501.569 ms
Loss rate: 1.68%
```

Run 1: Report of SCReAM — Data Link



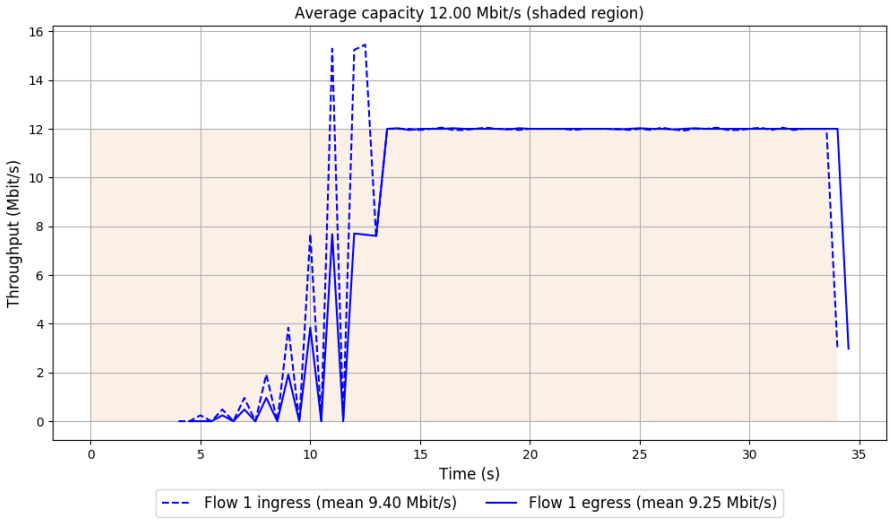


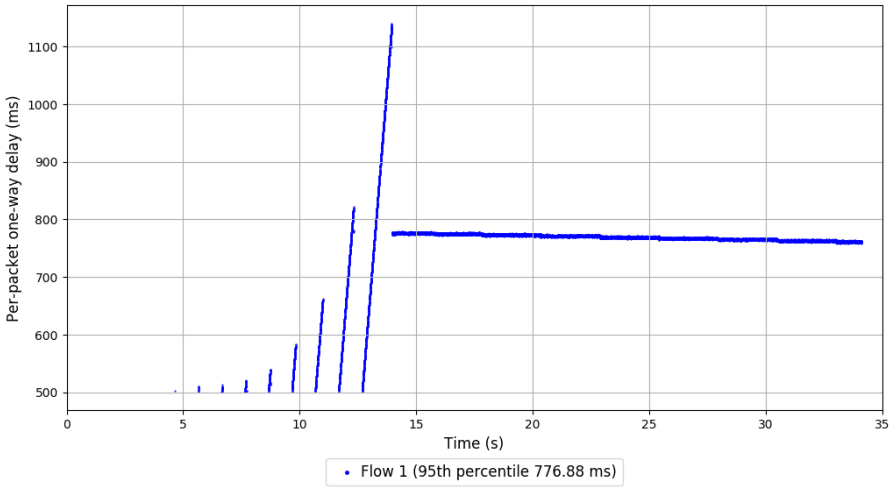
```
Run 1: Statistics of TCP Vegas

Start at: 2022-03-11 09:55:27
End at: 2022-03-11 09:55:57

# Below is generated by plot.py at 2022-03-11 09:59:17
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 9.25 Mbit/s (77.1% utilization)
95th percentile per-packet one-way delay: 776.877 ms
Loss rate: 3.24%
-- Flow 1:
Average throughput: 9.25 Mbit/s
95th percentile per-packet one-way delay: 776.877 ms
Loss rate: 3.24%
```

Run 1: Report of TCP Vegas — Data Link





```
Run 1: Statistics of PCC-Vivace

Start at: 2022-03-11 09:57:50
End at: 2022-03-11 09:58:20

# Below is generated by plot.py at 2022-03-11 09:59:17
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 8.29 Mbit/s (69.1% utilization)
95th percentile per-packet one-way delay: 783.947 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 783.947 ms
Loss rate: 1.34%
```

Run 1: Report of PCC-Vivace — Data Link