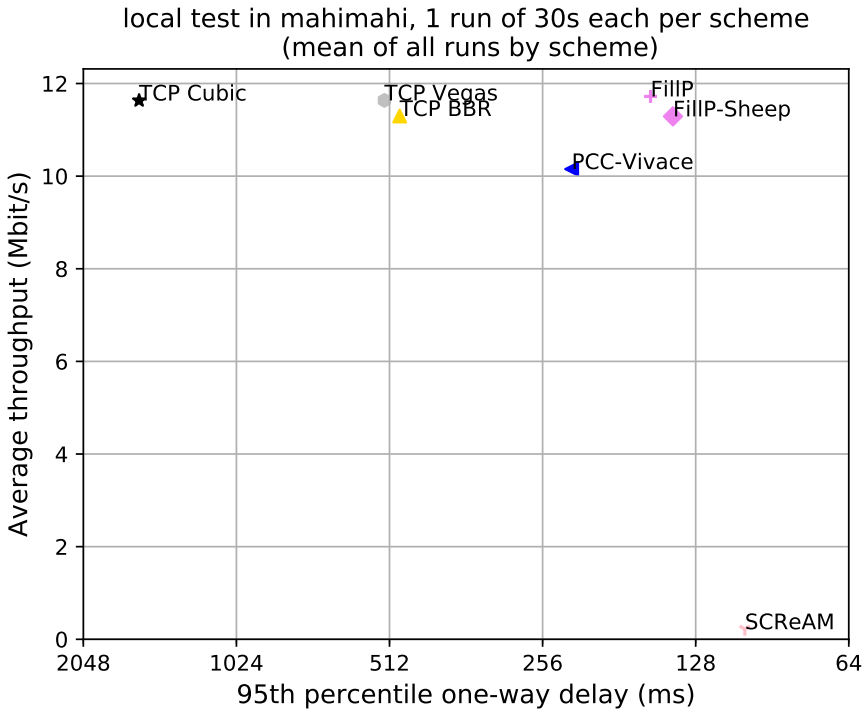
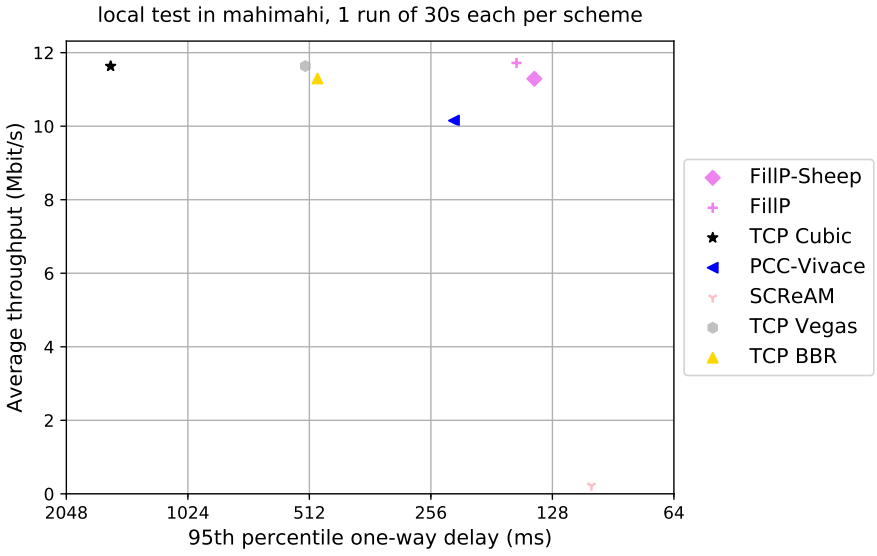
Pantheon Report

Generated at 2022-03-11 09:46:57 (UTC).
Tested in mahimahi: `mm-delay 100 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 @ 4a84291b727989f21424d2e449326bbaafe4b116
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)
Average throughput (Mbit/s)
95th percentile one-way delay (ms)
TCP Cubic
TCP Vegas
TCP BBR
FillP
FillP-Sheep
PCC-Vivace
SCReAM
0
2
4
6
8
10
12
2048
1024
512
256
128
64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FillP-Sheep
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TCP Cubic
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SCReAM
TCP Vegas
TCP BBR
0
2
4
6
8
10
12
2048
1024
512
256
128
64

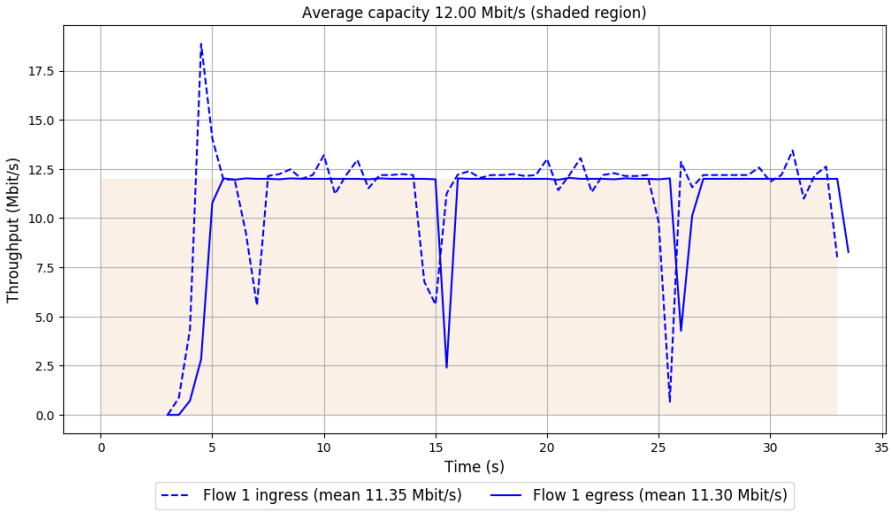
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	11.30	488.94	0.80
TCP Cubic	1	11.63	1591.04	2.97
FillP	1	11.72	157.04	0.40
FillP-Sheep	1	11.29	141.86	0.51
SCReAM	1	0.22	102.45	0.38
TCP Vegas	1	11.64	523.98	1.63
PCC-Vivace	1	10.15	224.49	0.40

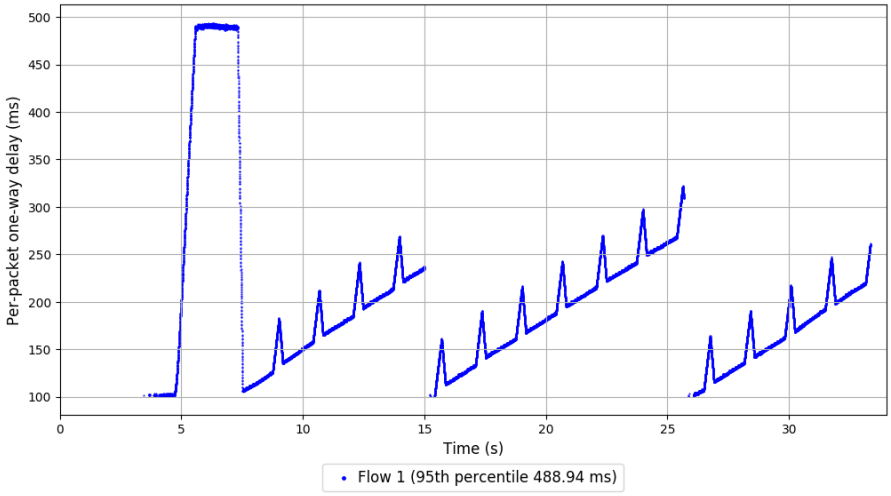
```
Run 1: Statistics of TCP BBR

Start at: 2022-03-11 09:41:07
End at: 2022-03-11 09:41:37

# Below is generated by plot.py at 2022-03-11 09:46:53
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.30 Mbit/s (94.2% utilization)
95th percentile per-packet one-way delay: 488.945 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 11.30 Mbit/s
95th percentile per-packet one-way delay: 488.945 ms
Loss rate: 0.80%
```

Run 1: Report of TCP BBR — Data Link



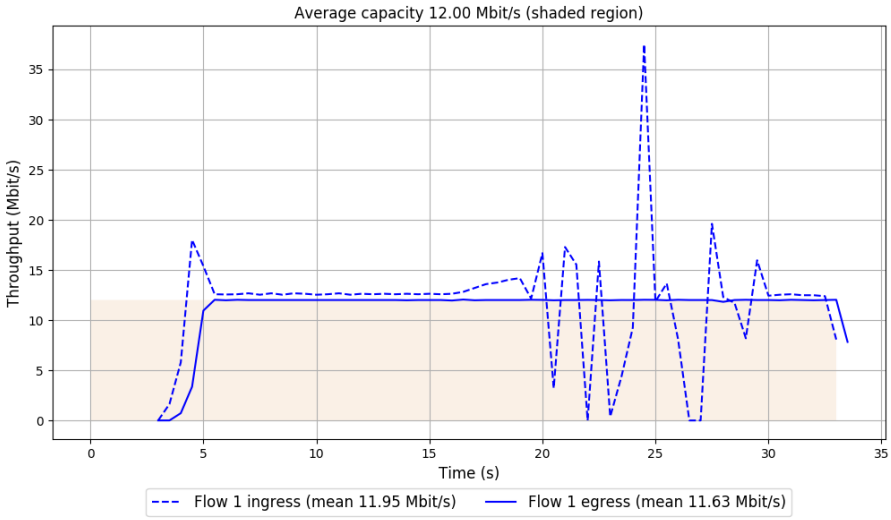


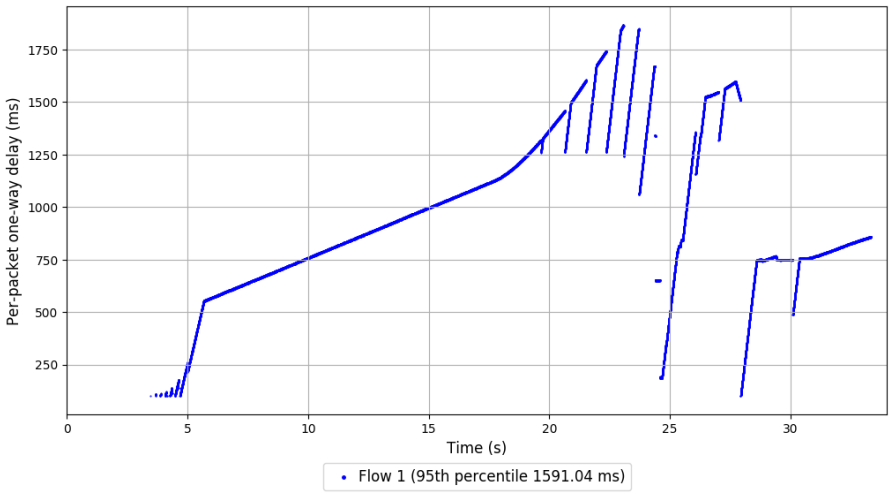
```
Run 1: Statistics of TCP Cubic

Start at: 2022-03-11 09:40:32
End at: 2022-03-11 09:41:02

# Below is generated by plot.py at 2022-03-11 09:46:54
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.63 Mbit/s (96.9% utilization)
95th percentile per-packet one-way delay: 1591.038 ms
Loss rate: 2.97%
-- Flow 1:
Average throughput: 11.63 Mbit/s
95th percentile per-packet one-way delay: 1591.038 ms
Loss rate: 2.97%
```

Run 1: Report of TCP Cubic — Data Link



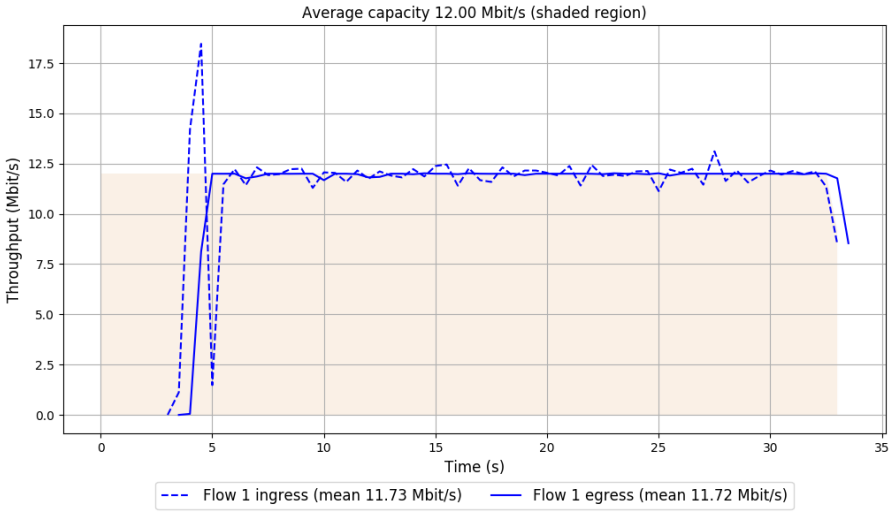


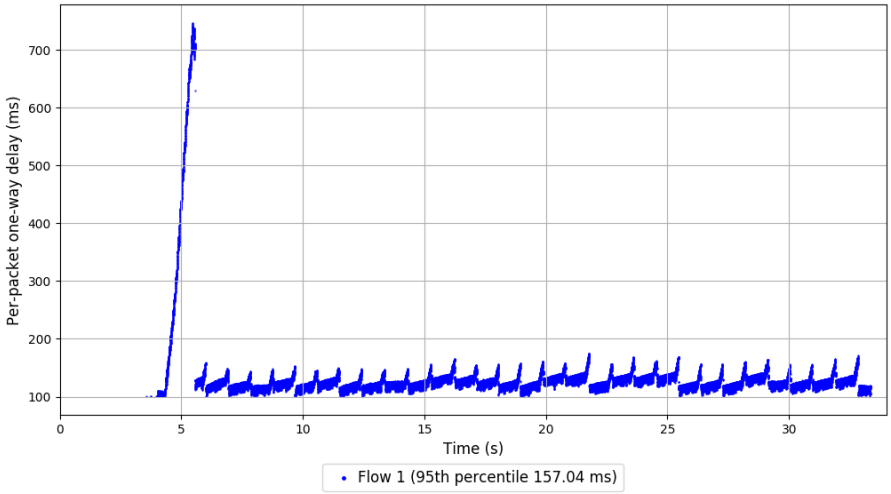
```
Run 1: Statistics of FillP

Start at: 2022-03-11 09:39:57
End at: 2022-03-11 09:40:28

# Below is generated by plot.py at 2022-03-11 09:46:55
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.72 Mbit/s (97.7% utilization)
95th percentile per-packet one-way delay: 157.041 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 11.72 Mbit/s
95th percentile per-packet one-way delay: 157.041 ms
Loss rate: 0.40%
```

Run 1: Report of FillP — Data Link



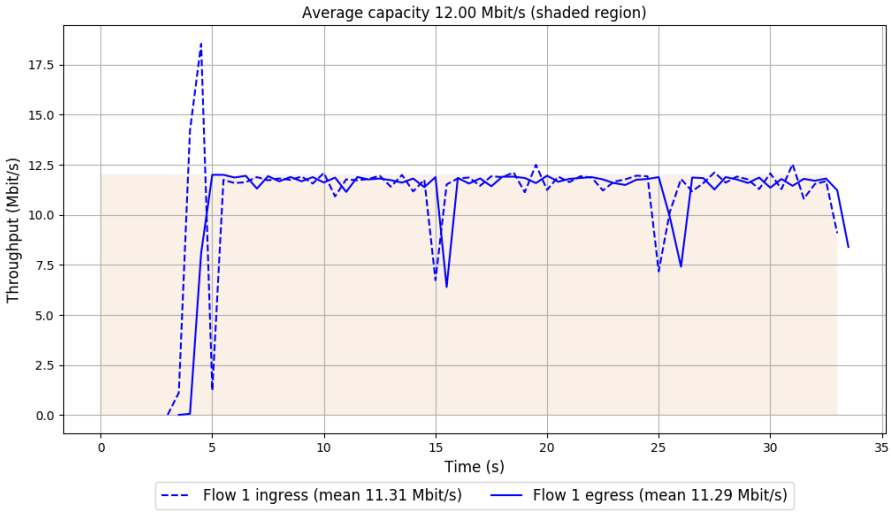


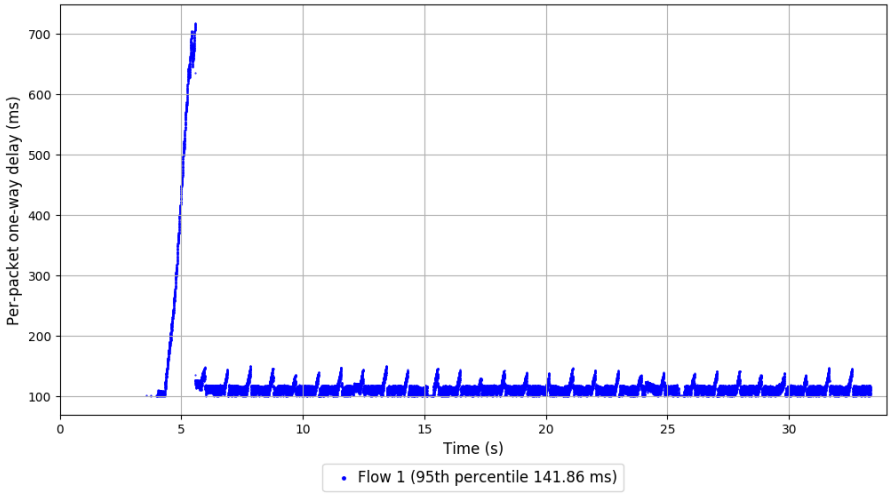
```
Run 1: Statistics of FillP-Sheep

Start at: 2022-03-11 09:38:48
End at: 2022-03-11 09:39:18

# Below is generated by plot.py at 2022-03-11 09:46:55
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.29 Mbit/s (94.1% utilization)
95th percentile per-packet one-way delay: 141.862 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 11.29 Mbit/s
95th percentile per-packet one-way delay: 141.862 ms
Loss rate: 0.51%
```

Run 1: Report of FillP-Sheep — Data Link



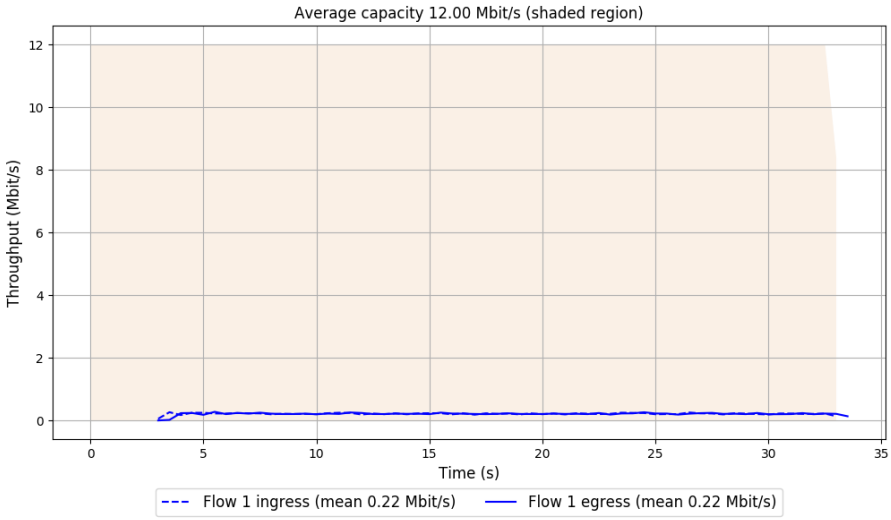


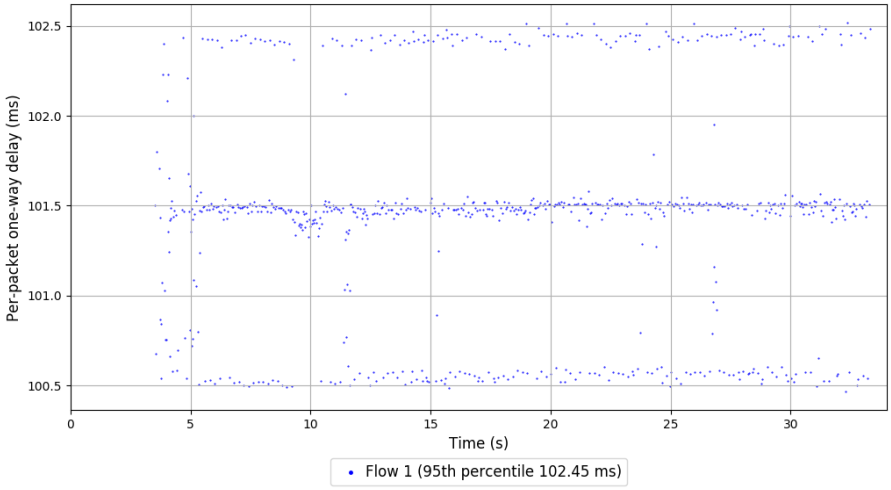
```
Run 1: Statistics of SCReAM

Start at: 2022-03-11 09:42:17
End at: 2022-03-11 09:42:47

# Below is generated by plot.py at 2022-03-11 09:46:55
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 0.22 Mbit/s (1.8% utilization)
95th percentile per-packet one-way delay: 102.450 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 102.450 ms
Loss rate: 0.38%
```

Run 1: Report of SCReAM — Data Link



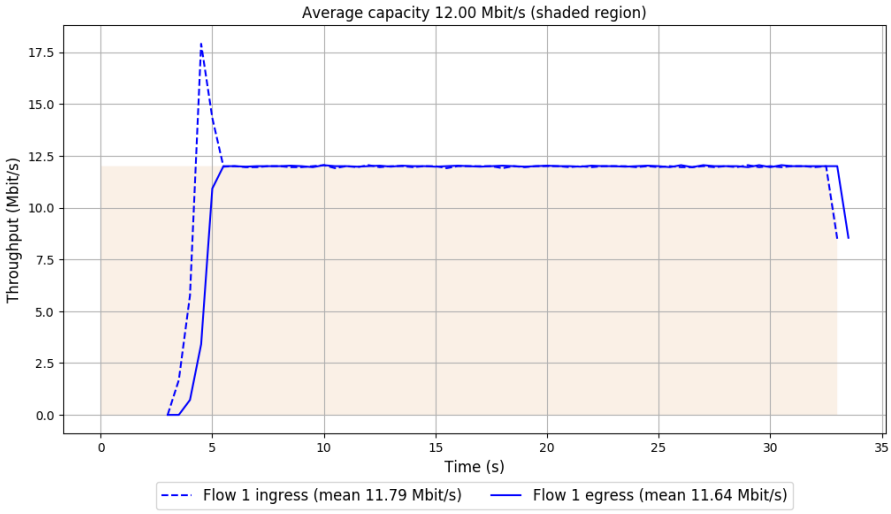


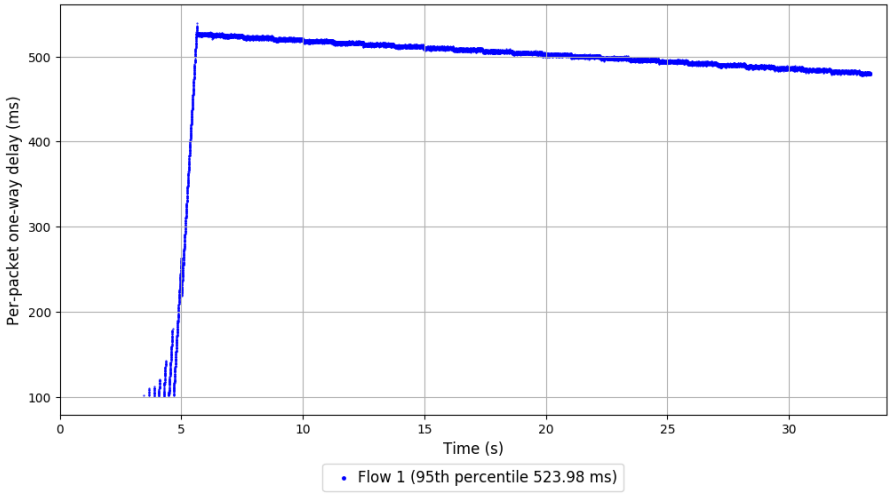
```
Run 1: Statistics of TCP Vegas

Start at: 2022-03-11 09:39:22
End at: 2022-03-11 09:39:52

# Below is generated by plot.py at 2022-03-11 09:46:55
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.64 Mbit/s (97.0% utilization)
95th percentile per-packet one-way delay: 523.978 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 11.64 Mbit/s
95th percentile per-packet one-way delay: 523.978 ms
Loss rate: 1.63%
```

Run 1: Report of TCP Vegas — Data Link





```
Run 1: Statistics of PCC-Vivace

Start at: 2022-03-11 09:41:42
End at: 2022-03-11 09:42:12

# Below is generated by plot.py at 2022-03-11 09:46:55
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.15 Mbit/s (84.6% utilization)
95th percentile per-packet one-way delay: 224.492 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 10.15 Mbit/s
95th percentile per-packet one-way delay: 224.492 ms
Loss rate: 0.40%
```

Run 1: Report of PCC-Vivace — Data Link