

## Pantheon Report

Generated at 2025-04-18 01:43:03 (UTC).

Tested in mahimahi: mm-delay 5 mm-link 50mbps.trace 50mbps.trace

Repeated the test of 3 congestion control schemes 5 times.

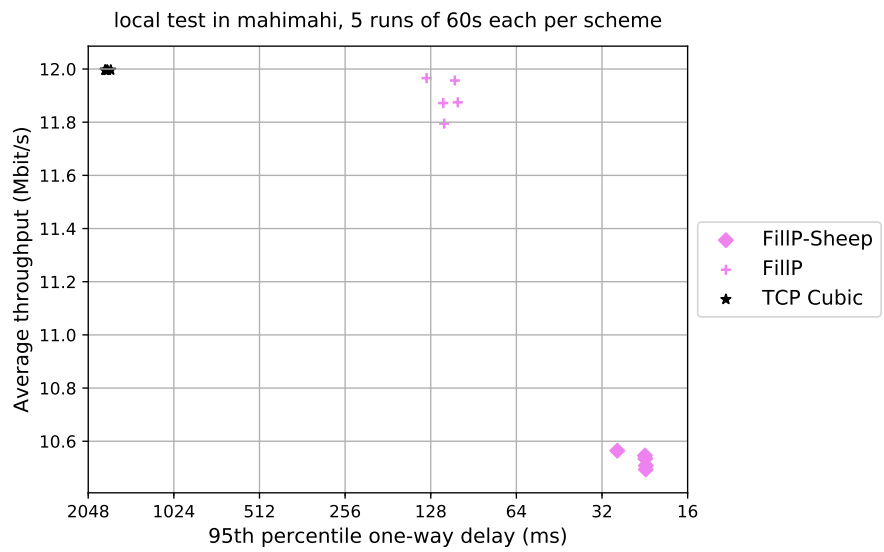
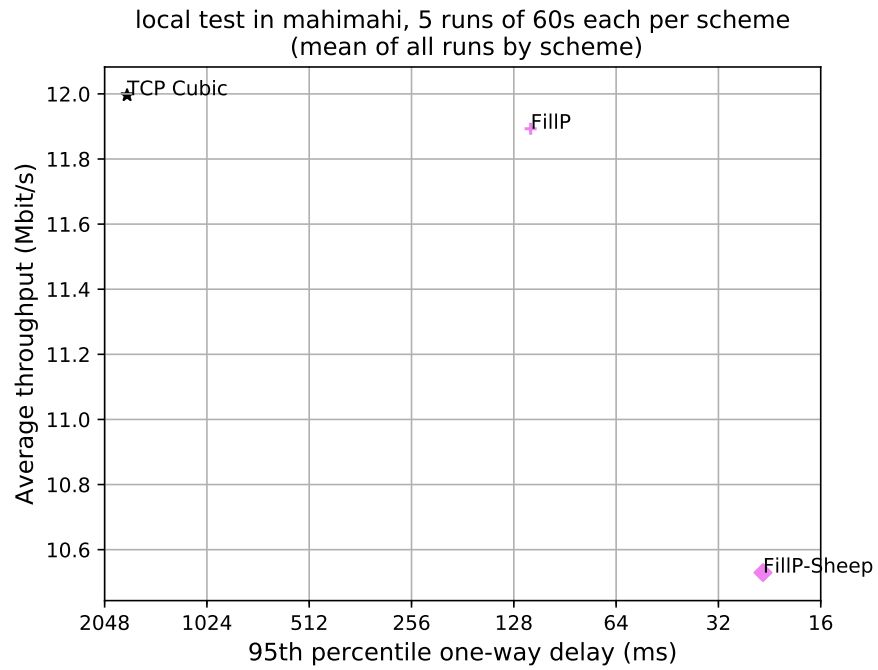
Each test lasted for 60 seconds running 1 flow.

### System info:

```
Linux 5.4.0-150-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 @ 23e738ce5acae1d36e321886cd613b0b9401ac11
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfef58e562f4
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
```



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP Cubic	5	12.00	1758.64	1.79
FillP	5	11.89	114.21	0.18
FillP-Sheep	5	10.53	23.66	0.04

Run 1: Statistics of TCP Cubic

Start at: 2025-04-18 01:24:07

End at: 2025-04-18 01:25:07

# Below is generated by plot.py at 2025-04-18 01:42:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 12.00 Mbit/s (100.0% utilization)

95th percentile per-packet one-way delay: 1751.888 ms

Loss rate: 1.80%

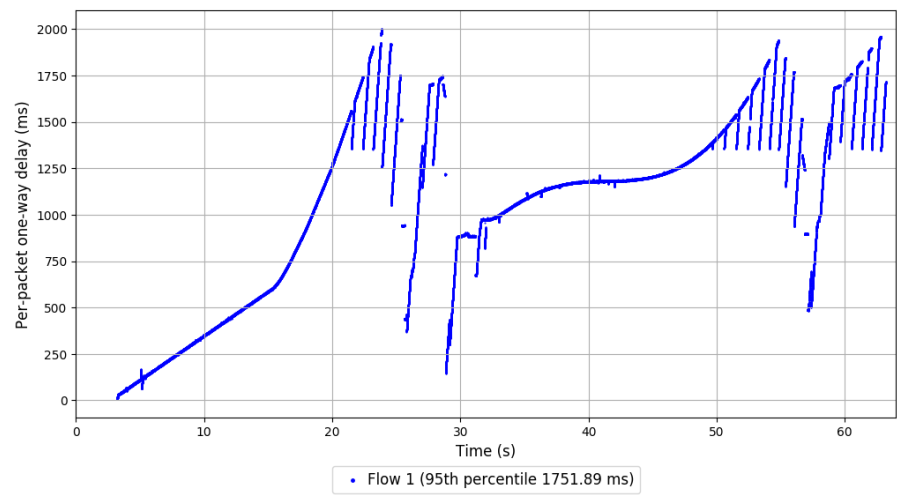
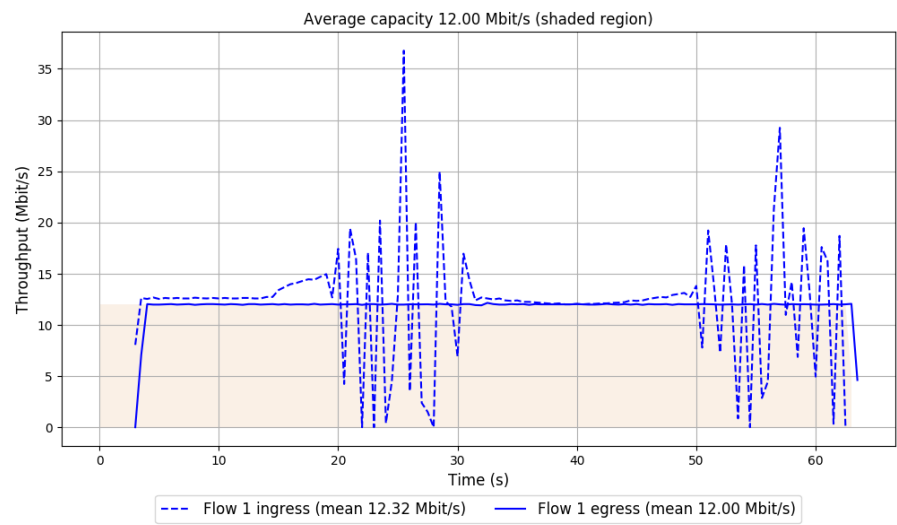
-- Flow 1:

Average throughput: 12.00 Mbit/s

95th percentile per-packet one-way delay: 1751.888 ms

Loss rate: 1.80%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2025-04-18 01:27:19

End at: 2025-04-18 01:28:19

# Below is generated by plot.py at 2025-04-18 01:42:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 12.00 Mbit/s (100.0% utilization)

95th percentile per-packet one-way delay: 1784.648 ms

Loss rate: 2.15%

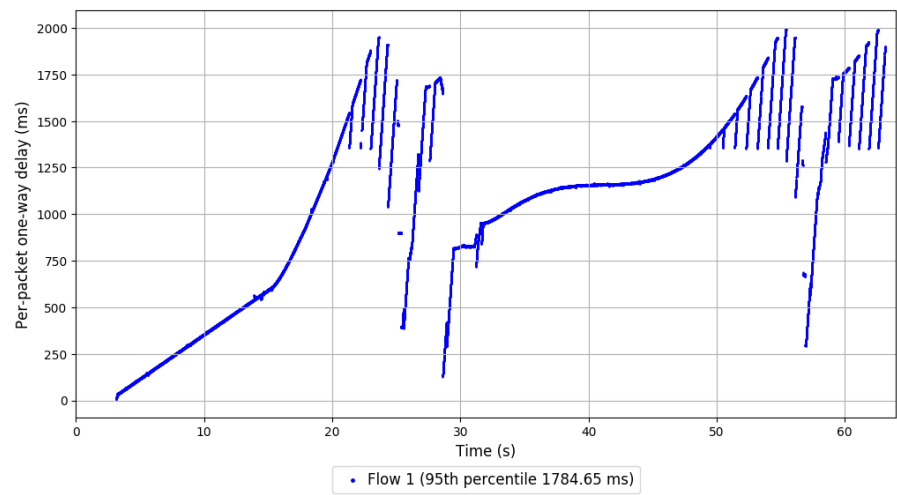
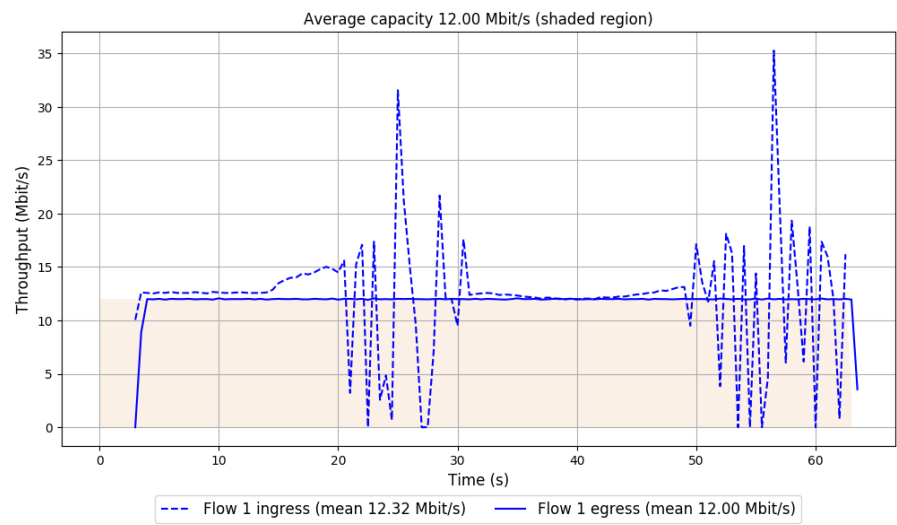
-- Flow 1:

Average throughput: 12.00 Mbit/s

95th percentile per-packet one-way delay: 1784.648 ms

Loss rate: 2.15%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2025-04-18 01:30:31

End at: 2025-04-18 01:31:31

# Below is generated by plot.py at 2025-04-18 01:42:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 12.00 Mbit/s (100.0% utilization)

95th percentile per-packet one-way delay: 1788.023 ms

Loss rate: 1.44%

-- Flow 1:

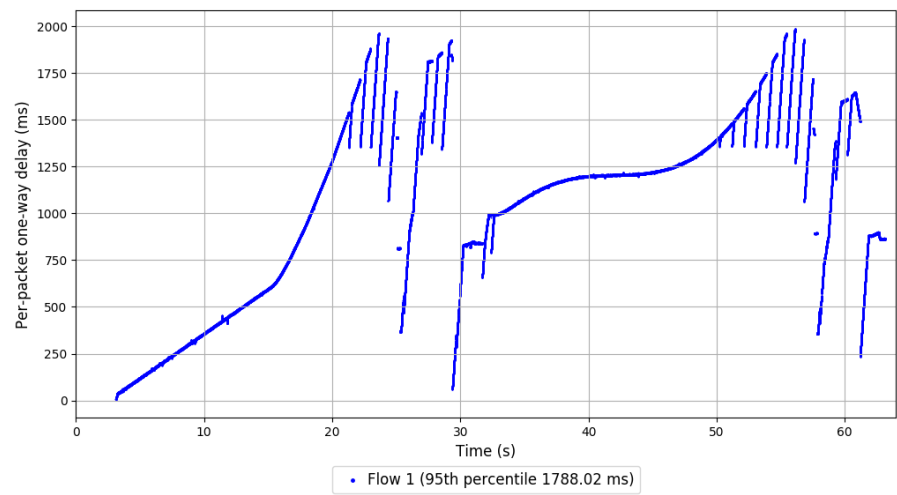
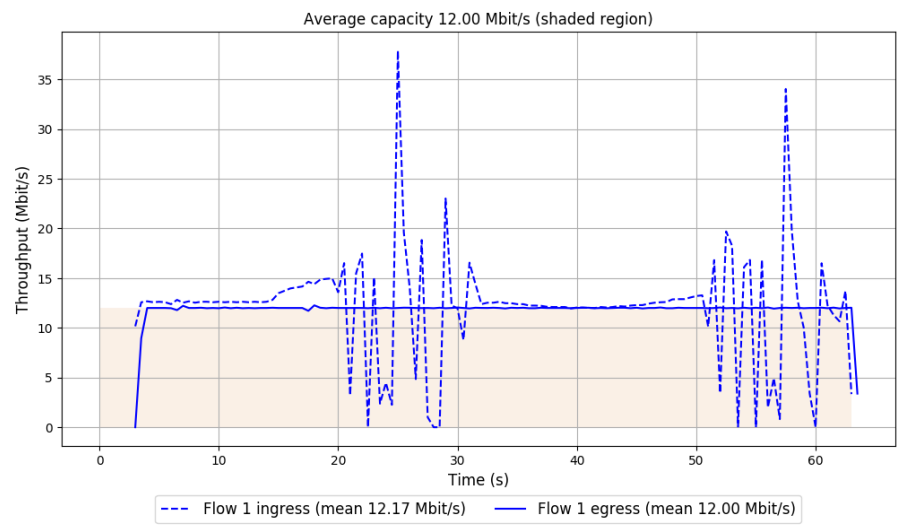
Average throughput: 12.00 Mbit/s

95th percentile per-packet one-way delay: 1788.023 ms

Loss rate: 1.44%



Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2025-04-18 01:33:44

End at: 2025-04-18 01:34:44

# Below is generated by plot.py at 2025-04-18 01:42:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 12.00 Mbit/s (100.0% utilization)

95th percentile per-packet one-way delay: 1706.851 ms

Loss rate: 1.48%

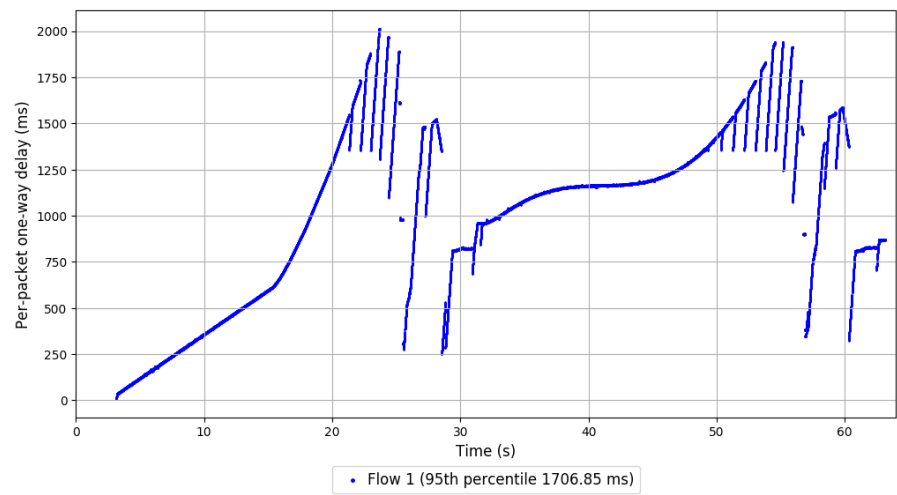
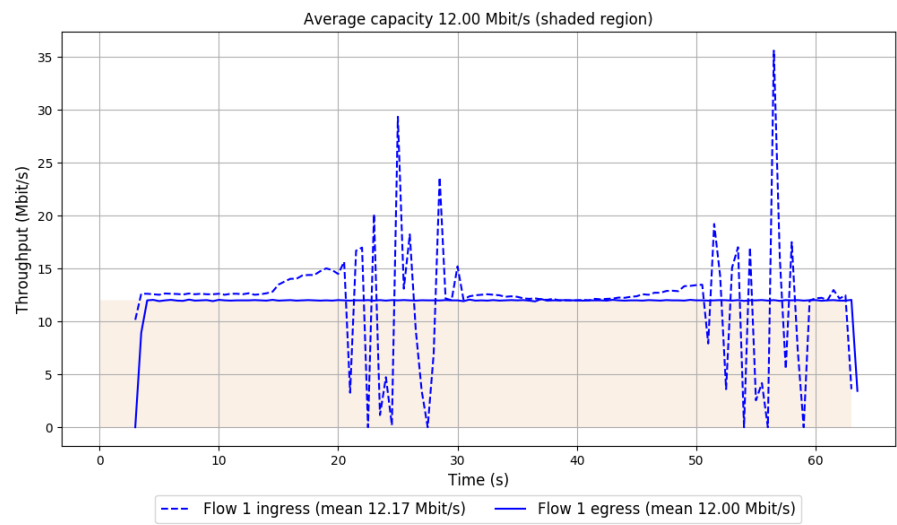
-- Flow 1:

Average throughput: 12.00 Mbit/s

95th percentile per-packet one-way delay: 1706.851 ms

Loss rate: 1.48%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2025-04-18 01:36:56

End at: 2025-04-18 01:37:56

# Below is generated by plot.py at 2025-04-18 01:42:48

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 12.00 Mbit/s (100.0% utilization)

95th percentile per-packet one-way delay: 1761.780 ms

Loss rate: 2.10%

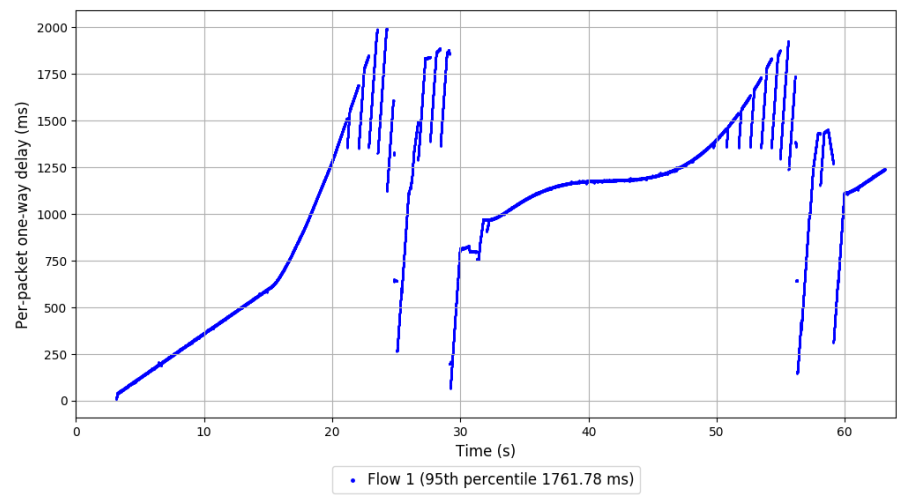
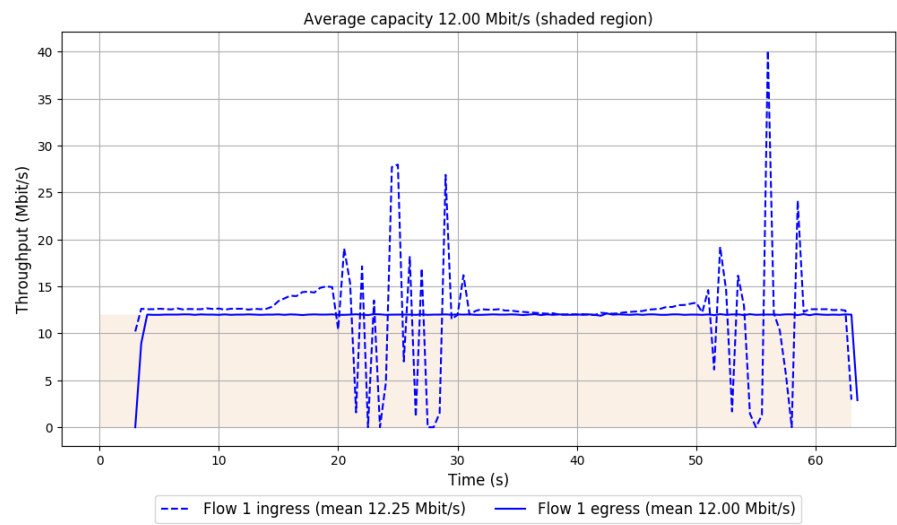
-- Flow 1:

Average throughput: 12.00 Mbit/s

95th percentile per-packet one-way delay: 1761.780 ms

Loss rate: 2.10%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2025-04-18 01:25:11

End at: 2025-04-18 01:26:11

# Below is generated by plot.py at 2025-04-18 01:42:49

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.97 Mbit/s (99.7% utilization)

95th percentile per-packet one-way delay: 132.361 ms

Loss rate: 0.19%

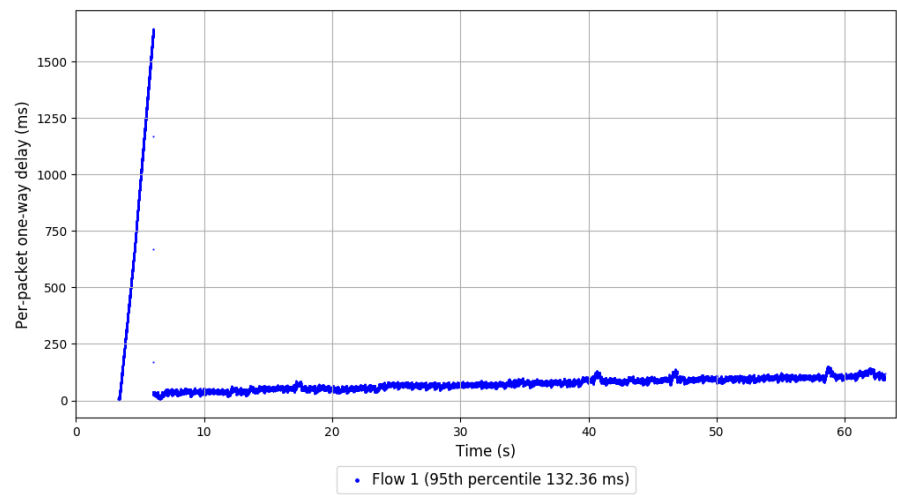
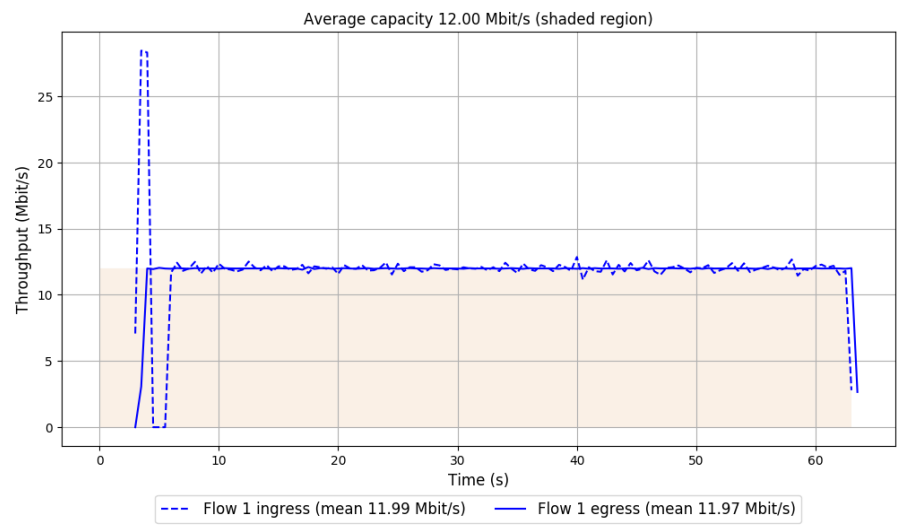
-- Flow 1:

Average throughput: 11.97 Mbit/s

95th percentile per-packet one-way delay: 132.361 ms

Loss rate: 0.19%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2025-04-18 01:28:23

End at: 2025-04-18 01:29:23

# Below is generated by plot.py at 2025-04-18 01:42:50

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.87 Mbit/s (98.9% utilization)

95th percentile per-packet one-way delay: 115.718 ms

Loss rate: 0.18%

-- Flow 1:

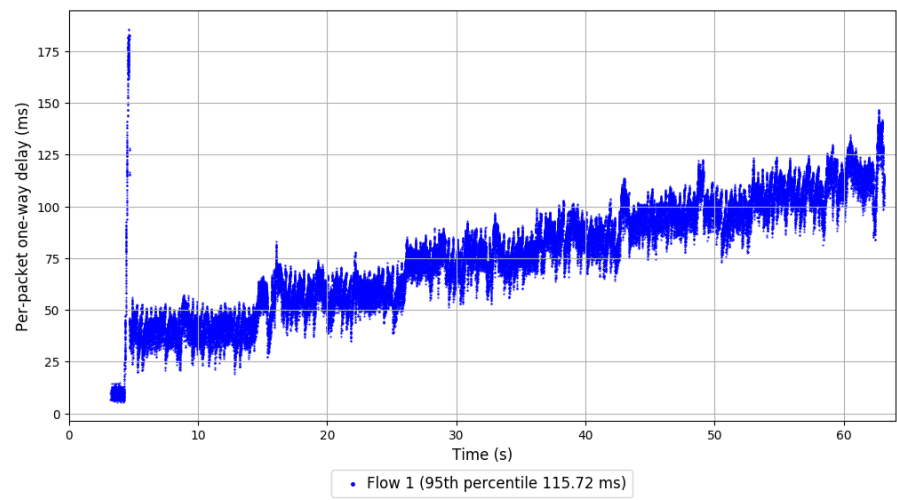
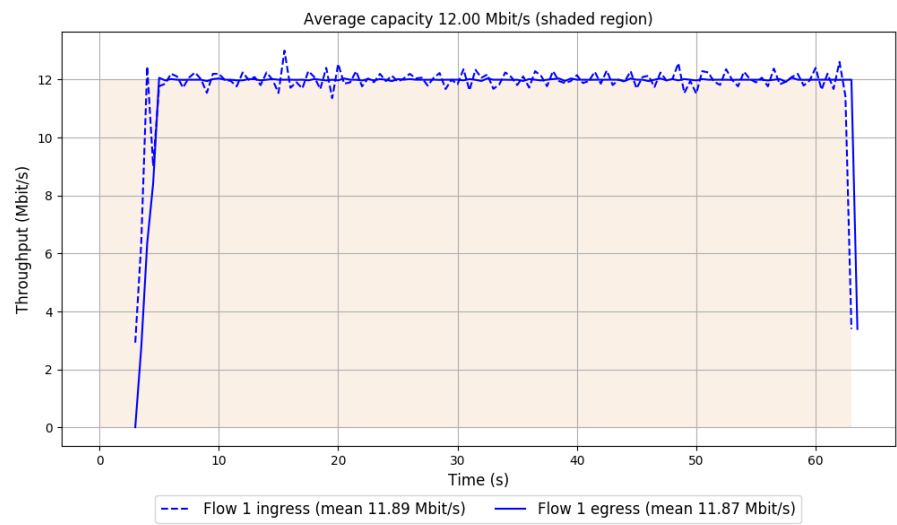
Average throughput: 11.87 Mbit/s

95th percentile per-packet one-way delay: 115.718 ms

Loss rate: 0.18%



Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2025-04-18 01:31:36

End at: 2025-04-18 01:32:36

# Below is generated by plot.py at 2025-04-18 01:42:50

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.87 Mbit/s (99.0% utilization)

95th percentile per-packet one-way delay: 102.841 ms

Loss rate: 0.19%

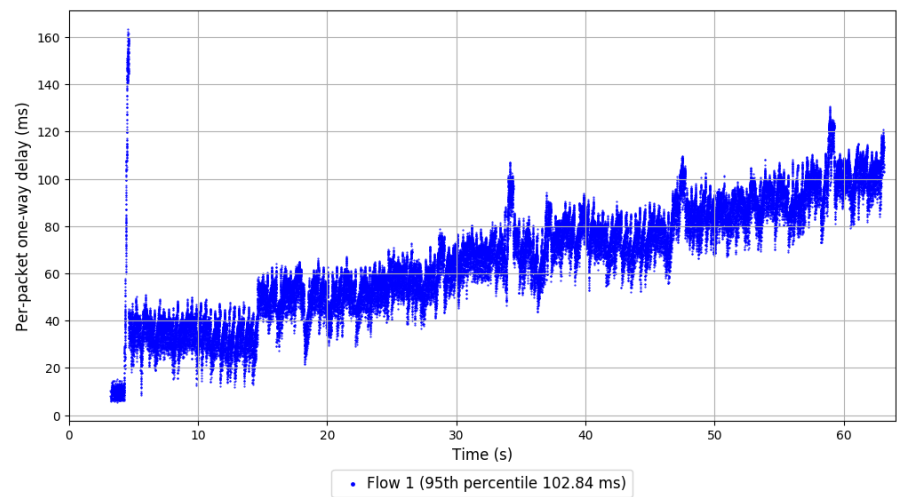
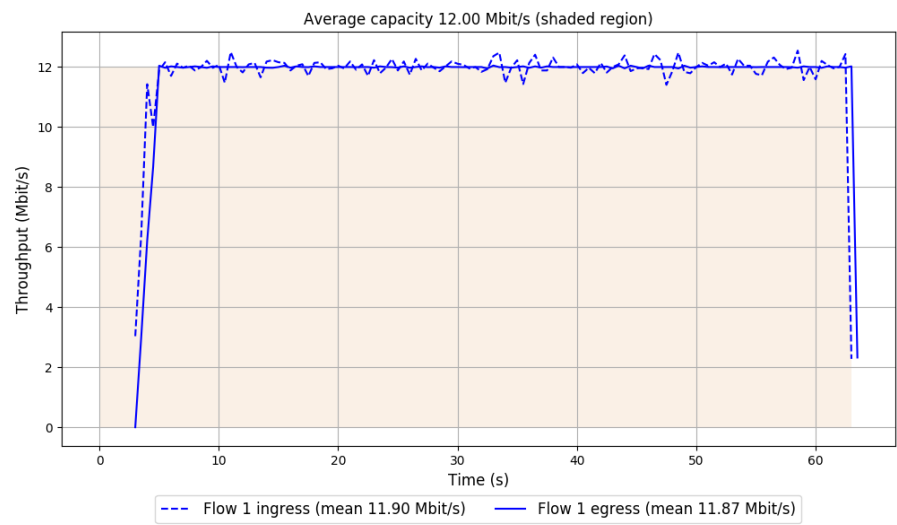
-- Flow 1:

Average throughput: 11.87 Mbit/s

95th percentile per-packet one-way delay: 102.841 ms

Loss rate: 0.19%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2025-04-18 01:34:48

End at: 2025-04-18 01:35:48

# Below is generated by plot.py at 2025-04-18 01:42:56

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.96 Mbit/s (99.6% utilization)

95th percentile per-packet one-way delay: 105.313 ms

Loss rate: 0.16%

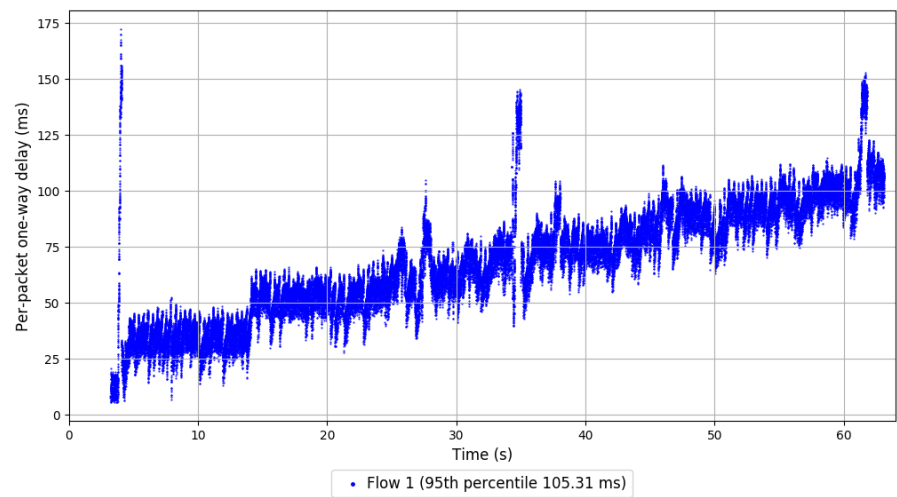
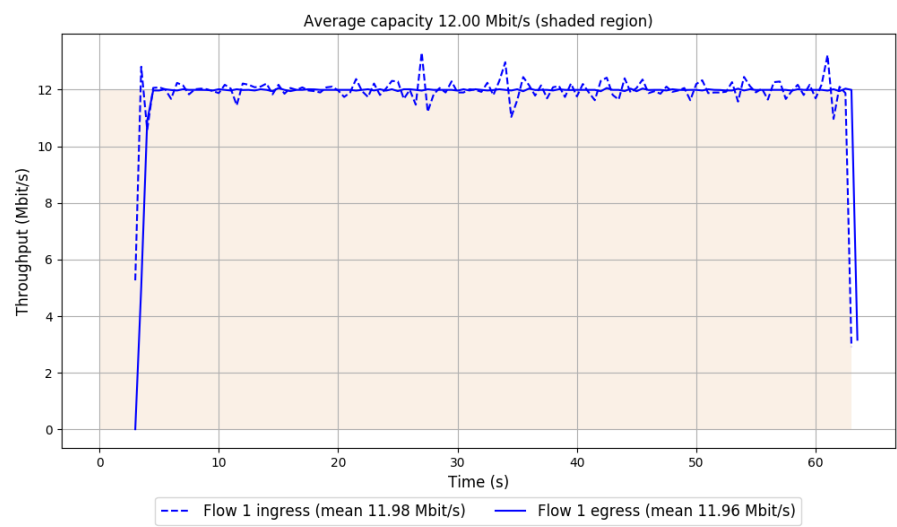
-- Flow 1:

Average throughput: 11.96 Mbit/s

95th percentile per-packet one-way delay: 105.313 ms

Loss rate: 0.16%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2025-04-18 01:38:00

End at: 2025-04-18 01:39:00

# Below is generated by plot.py at 2025-04-18 01:42:58

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.79 Mbit/s (98.3% utilization)

95th percentile per-packet one-way delay: 114.813 ms

Loss rate: 0.20%

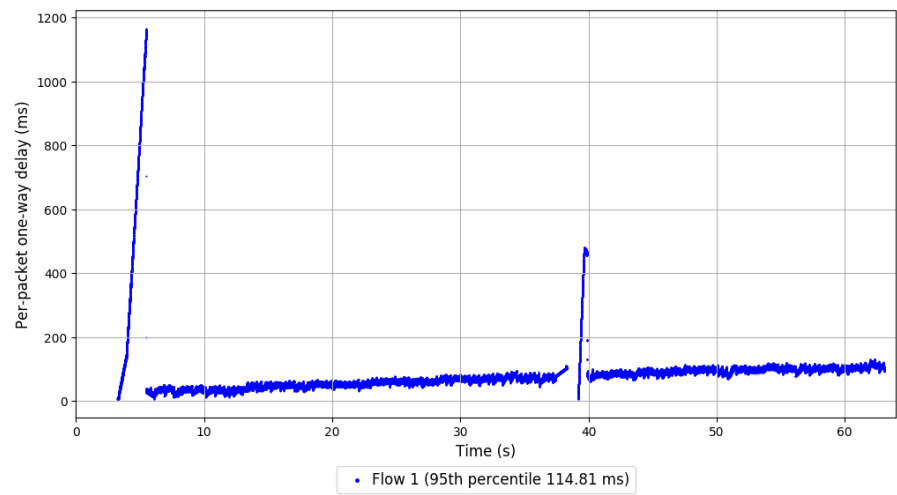
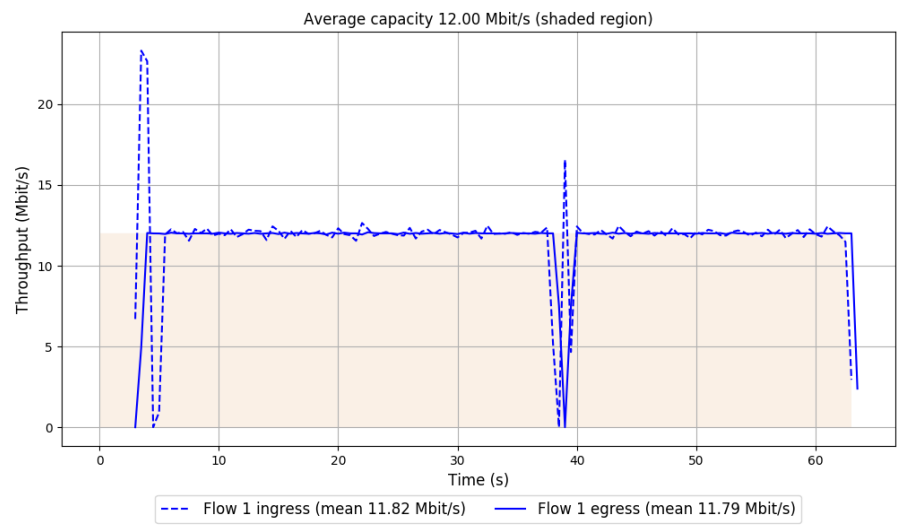
-- Flow 1:

Average throughput: 11.79 Mbit/s

95th percentile per-packet one-way delay: 114.813 ms

Loss rate: 0.20%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2025-04-18 01:26:15

End at: 2025-04-18 01:27:15

# Below is generated by plot.py at 2025-04-18 01:42:58

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.49 Mbit/s (87.4% utilization)

95th percentile per-packet one-way delay: 22.452 ms

Loss rate: 0.04%

-- Flow 1:

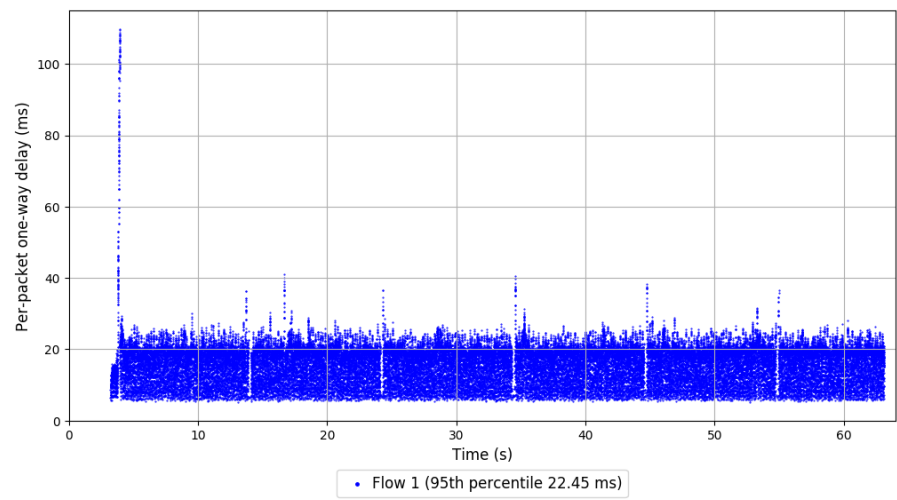
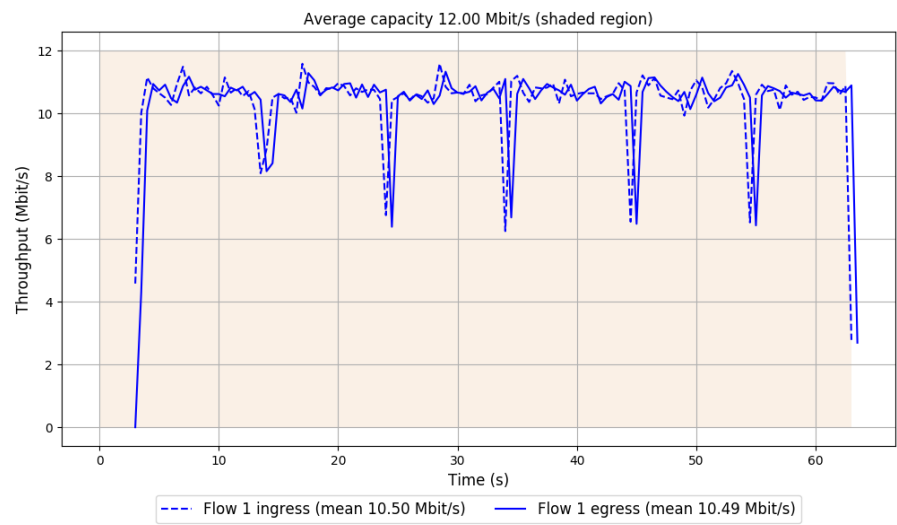
Average throughput: 10.49 Mbit/s

95th percentile per-packet one-way delay: 22.452 ms

Loss rate: 0.04%



Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2025-04-18 01:29:27

End at: 2025-04-18 01:30:27

# Below is generated by plot.py at 2025-04-18 01:42:58

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.53 Mbit/s (87.8% utilization)

95th percentile per-packet one-way delay: 22.538 ms

Loss rate: 0.03%

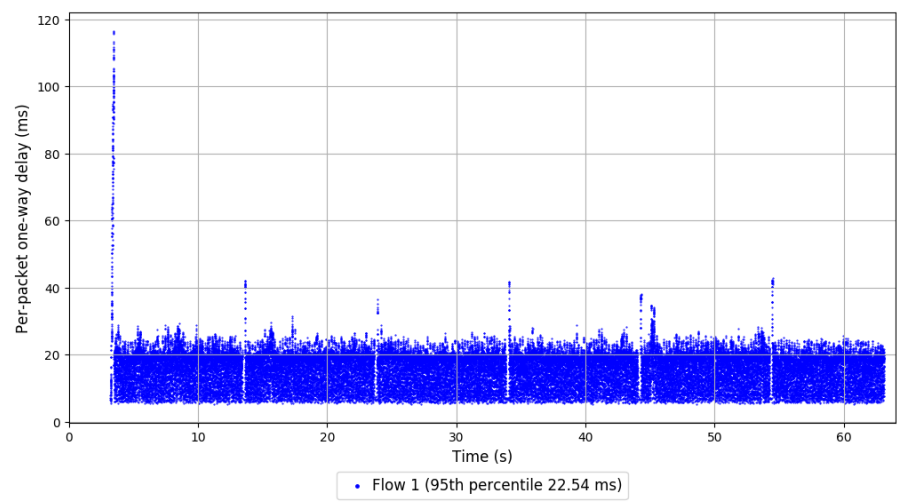
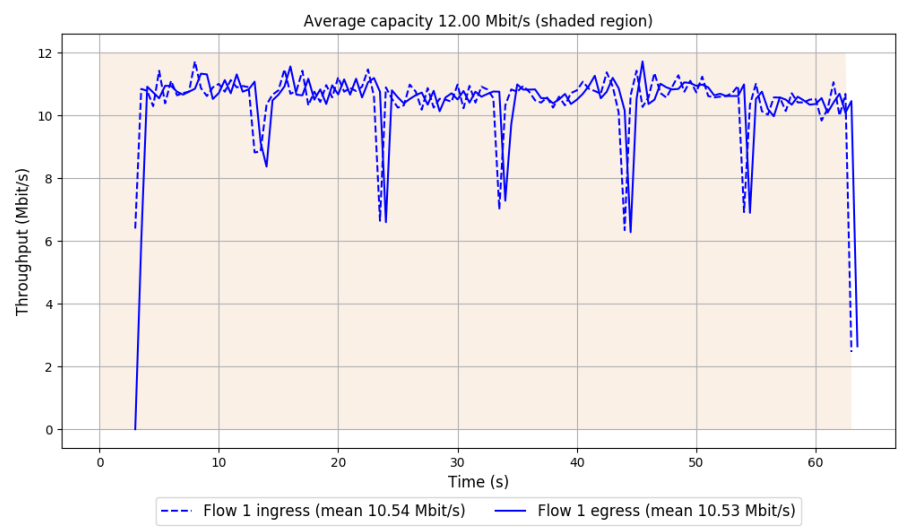
-- Flow 1:

Average throughput: 10.53 Mbit/s

95th percentile per-packet one-way delay: 22.538 ms

Loss rate: 0.03%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2025-04-18 01:32:40

End at: 2025-04-18 01:33:40

# Below is generated by plot.py at 2025-04-18 01:43:02

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.56 Mbit/s (88.0% utilization)

95th percentile per-packet one-way delay: 28.282 ms

Loss rate: 0.04%

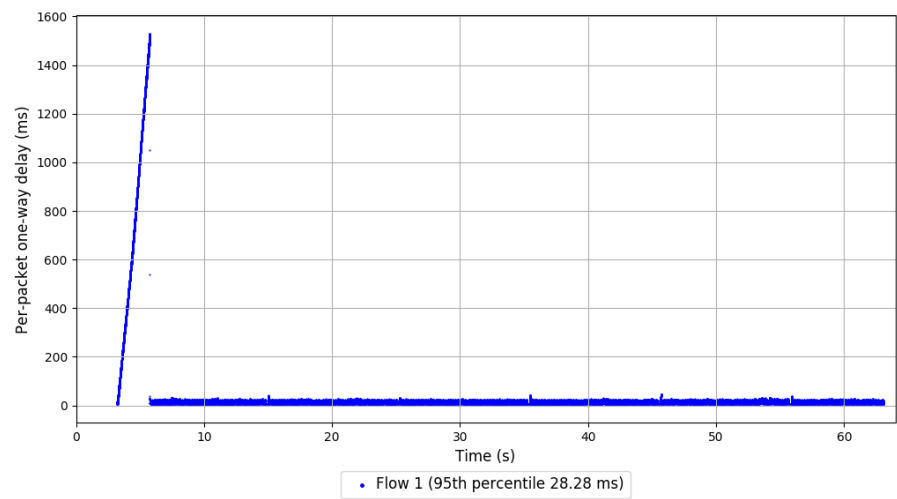
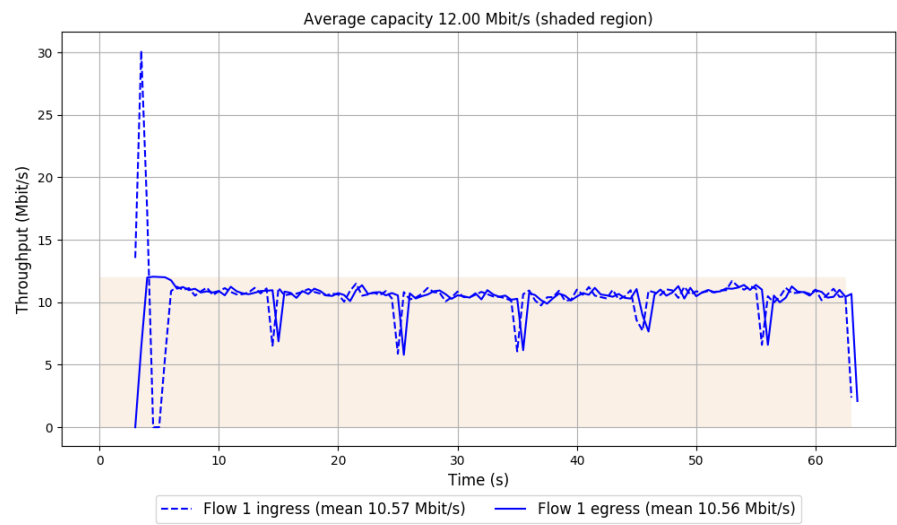
-- Flow 1:

Average throughput: 10.56 Mbit/s

95th percentile per-packet one-way delay: 28.282 ms

Loss rate: 0.04%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2025-04-18 01:35:52

End at: 2025-04-18 01:36:52

# Below is generated by plot.py at 2025-04-18 01:43:02

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.55 Mbit/s (87.9% utilization)

95th percentile per-packet one-way delay: 22.606 ms

Loss rate: 0.02%

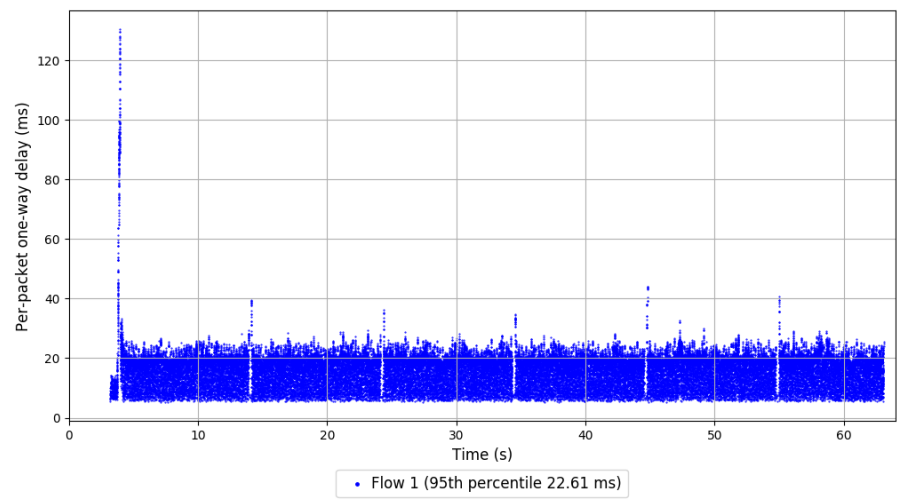
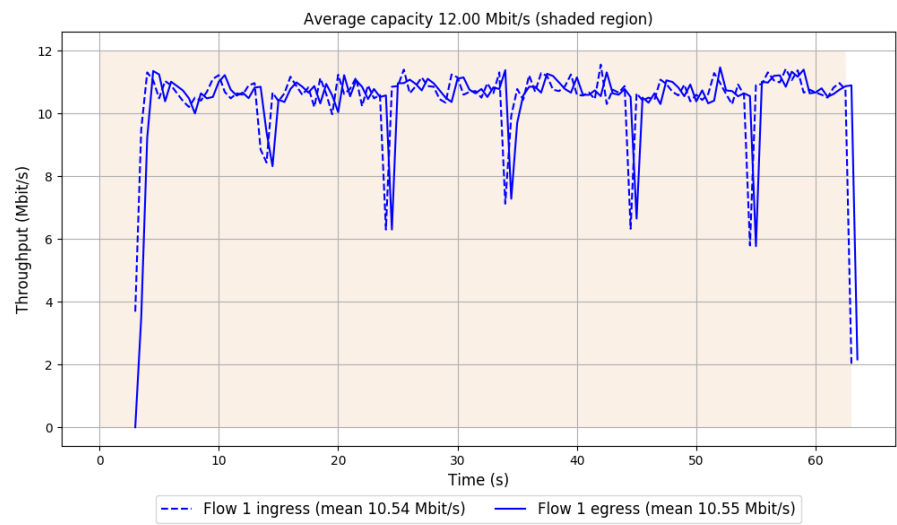
-- Flow 1:

Average throughput: 10.55 Mbit/s

95th percentile per-packet one-way delay: 22.606 ms

Loss rate: 0.02%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2025-04-18 01:39:05

End at: 2025-04-18 01:40:05

# Below is generated by plot.py at 2025-04-18 01:43:02

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.51 Mbit/s (87.6% utilization)

95th percentile per-packet one-way delay: 22.439 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 10.51 Mbit/s

95th percentile per-packet one-way delay: 22.439 ms

Loss rate: 0.05%



Run 5: Report of FillP-Sheep — Data Link

