

Pantheon Report

Generated at 2018-12-20 02:47:09 (UTC).

Data path: GCE Tokyo on *ens4 (local)* → GCE London on *ens4 (remote)*.

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.

System info:

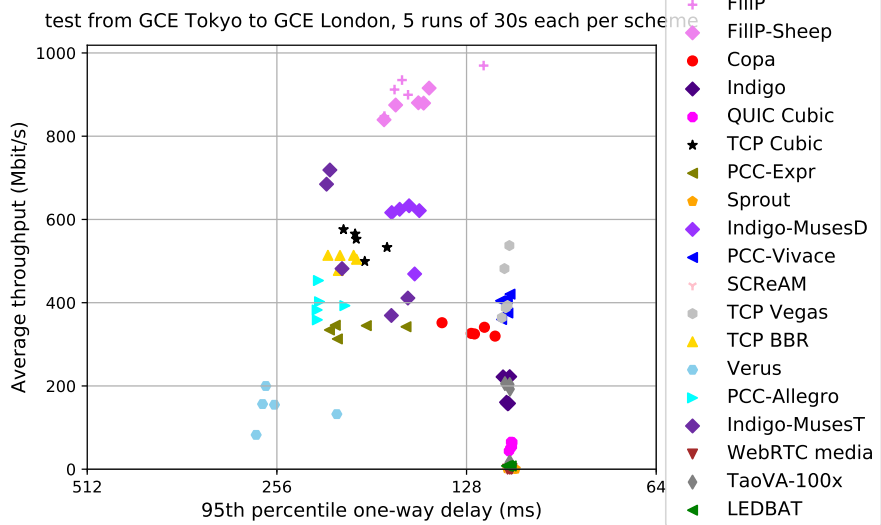
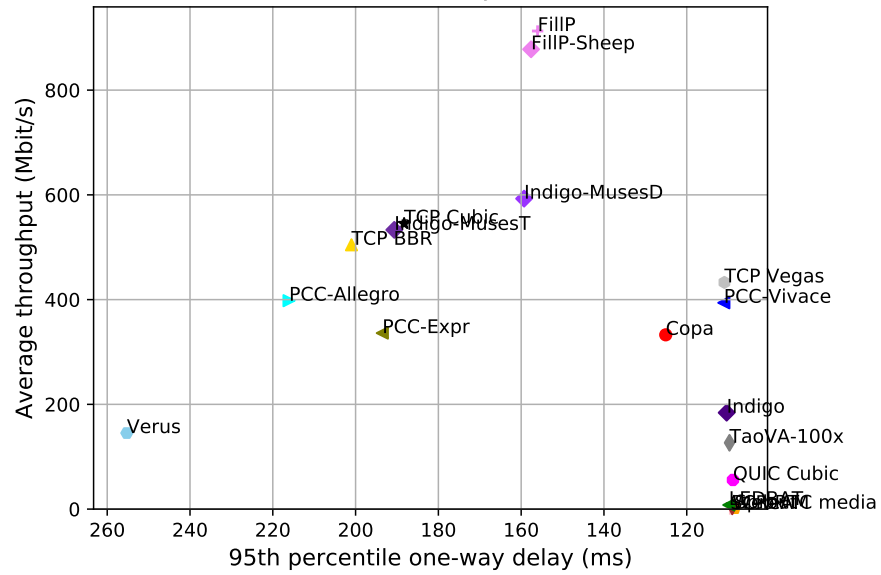
```
Linux 4.15.0-1025-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ c654af0b7d59d4ef4b914cfac404e1fc2e96dc68
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfc58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/muses-refactored @ 31f8f0ba8ef8b1da76c2bc0cd0a7850c33ff64fb
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from GCE Tokyo to GCE London, 5 runs of 30s each per scheme
(mean of all runs by scheme)



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	504.66	200.99	0.94
Copa	5	332.76	125.08	0.02
TCP Cubic	5	545.20	188.28	0.11
FillP	5	912.85	156.02	1.11
FillP-Sheep	5	877.93	157.61	0.94
Indigo	5	184.07	110.36	0.00
Indigo-MusesD	5	592.79	159.29	0.24
Indigo-MusesT	5	533.17	190.65	2.68
LEDBAT	5	7.85	109.84	0.00
PCC-Allegro	5	397.97	216.07	1.93
PCC-Expr	5	336.09	193.55	1.61
QUIC Cubic	5	55.64	108.84	0.00
SCReAM	5	0.22	109.46	0.00
Sprout	5	1.20	108.43	0.00
TaoVA-100x	5	126.62	109.67	0.00
TCP Vegas	5	432.84	110.90	0.00
Verus	5	145.20	255.27	12.46
PCC-Vivace	5	393.94	111.04	0.00
WebRTC media	5	0.78	109.01	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-12-19 22:38:12

End at: 2018-12-19 22:38:42

Local clock offset: 4.465 ms

Remote clock offset: 5.138 ms

Below is generated by plot.py at 2018-12-20 01:20:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 513.56 Mbit/s

95th percentile per-packet one-way delay: 203.265 ms

Loss rate: 0.92%

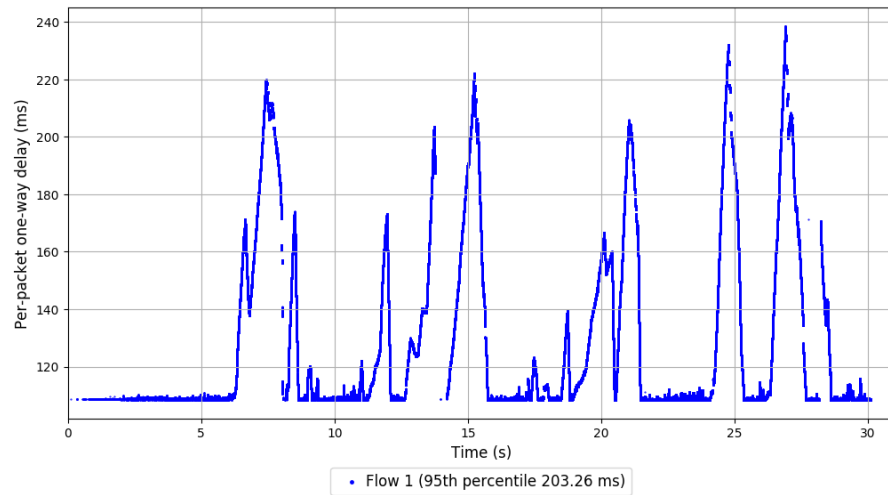
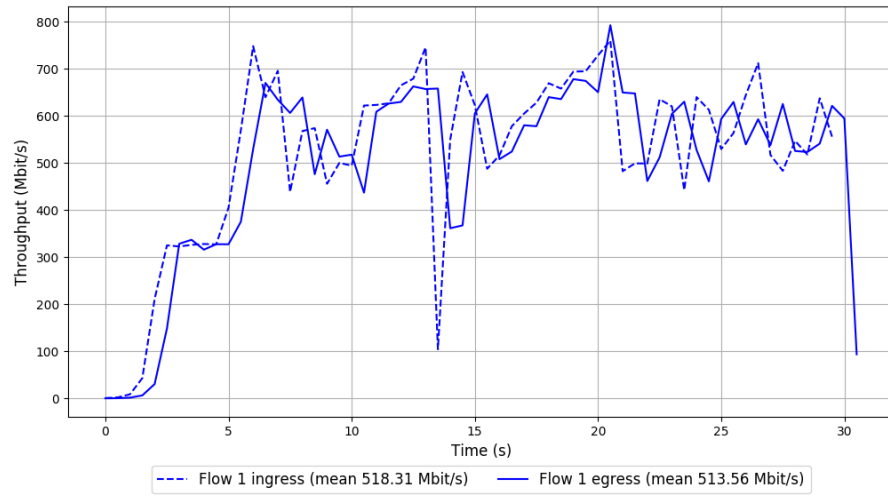
-- Flow 1:

Average throughput: 513.56 Mbit/s

95th percentile per-packet one-way delay: 203.265 ms

Loss rate: 0.92%

Run 1: Report of TCP BBR — Data Link

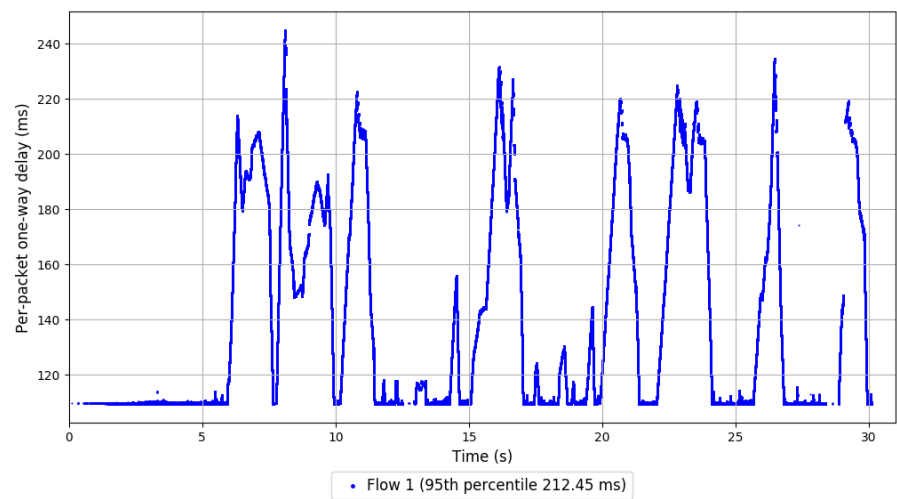
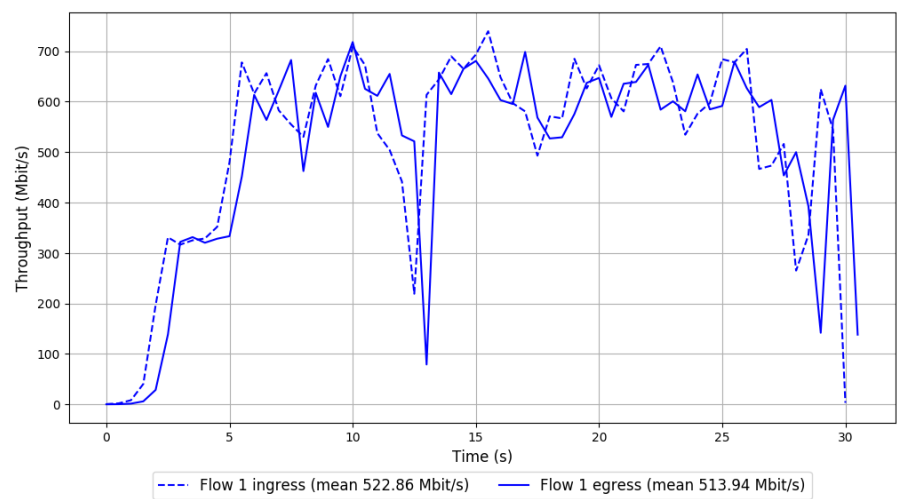


Run 2: Statistics of TCP BBR

Start at: 2018-12-19 23:07:01
End at: 2018-12-19 23:07:31
Local clock offset: 22.625 ms
Remote clock offset: 24.875 ms

Below is generated by plot.py at 2018-12-20 01:21:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 513.94 Mbit/s
95th percentile per-packet one-way delay: 212.453 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 513.94 Mbit/s
95th percentile per-packet one-way delay: 212.453 ms
Loss rate: 1.71%

Run 2: Report of TCP BBR — Data Link

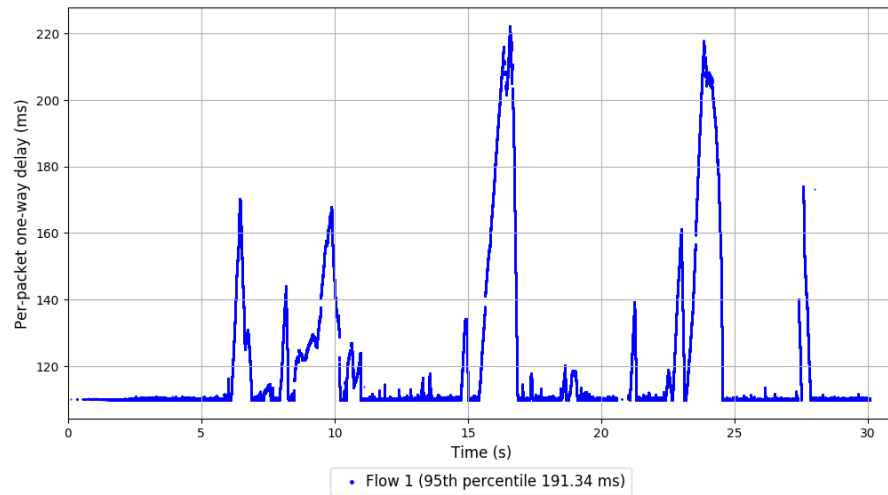
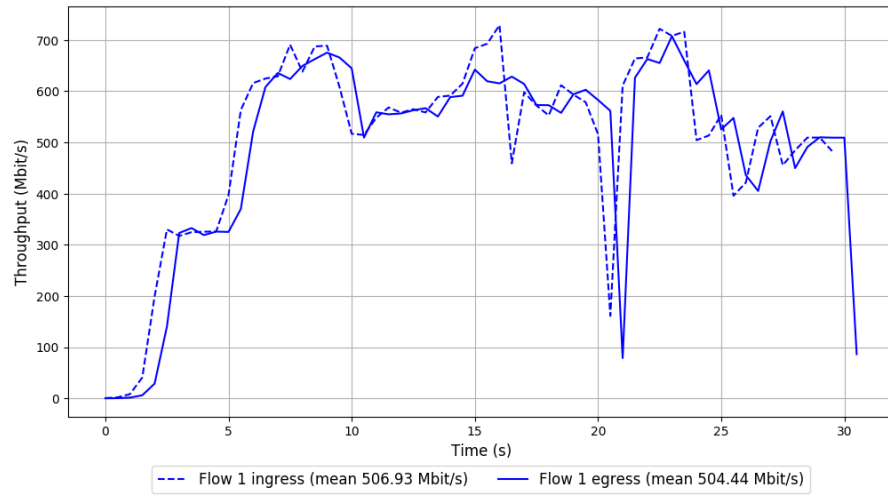


Run 3: Statistics of TCP BBR

Start at: 2018-12-19 23:36:49
End at: 2018-12-19 23:37:19
Local clock offset: 31.576 ms
Remote clock offset: 35.061 ms

Below is generated by plot.py at 2018-12-20 01:21:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 504.44 Mbit/s
95th percentile per-packet one-way delay: 191.341 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 504.44 Mbit/s
95th percentile per-packet one-way delay: 191.341 ms
Loss rate: 0.49%

Run 3: Report of TCP BBR — Data Link

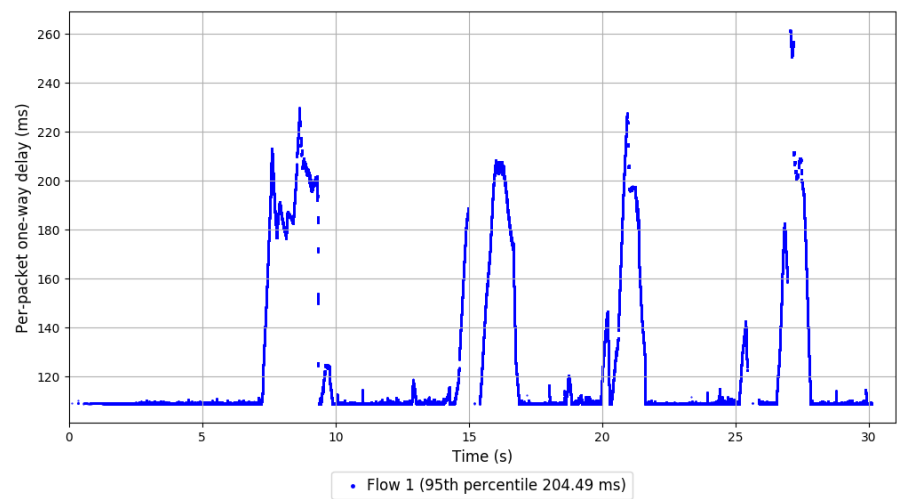
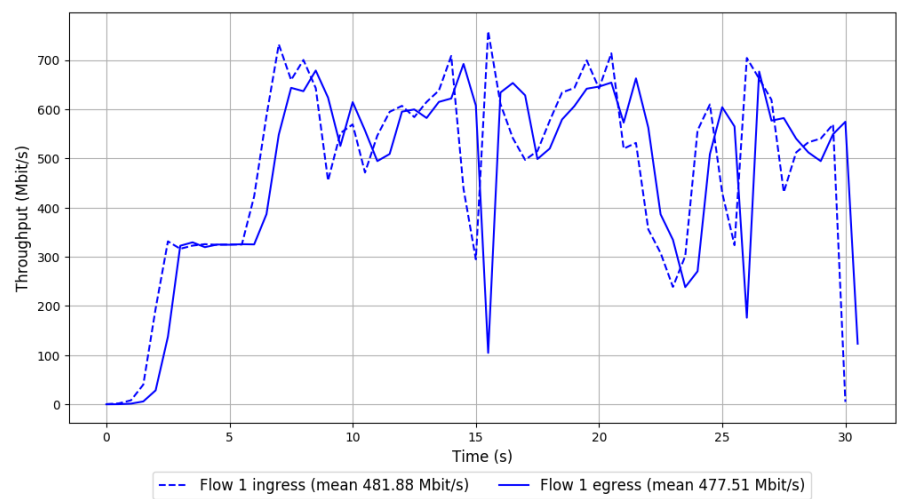


Run 4: Statistics of TCP BBR

Start at: 2018-12-20 00:05:08
End at: 2018-12-20 00:05:38
Local clock offset: 14.968 ms
Remote clock offset: 15.973 ms

Below is generated by plot.py at 2018-12-20 01:21:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 477.51 Mbit/s
95th percentile per-packet one-way delay: 204.488 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 477.51 Mbit/s
95th percentile per-packet one-way delay: 204.488 ms
Loss rate: 0.91%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-12-20 00:34:32

End at: 2018-12-20 00:35:02

Local clock offset: 7.046 ms

Remote clock offset: 7.628 ms

Below is generated by plot.py at 2018-12-20 01:21:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 513.86 Mbit/s

95th percentile per-packet one-way delay: 193.408 ms

Loss rate: 0.65%

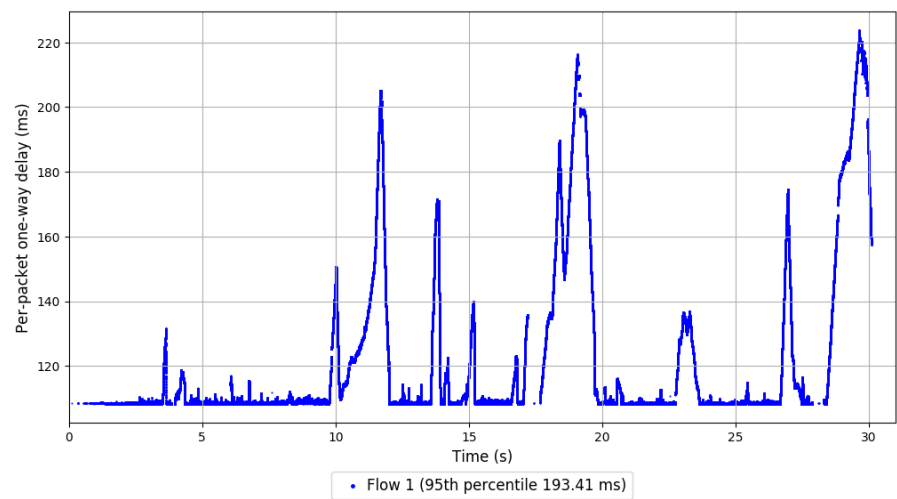
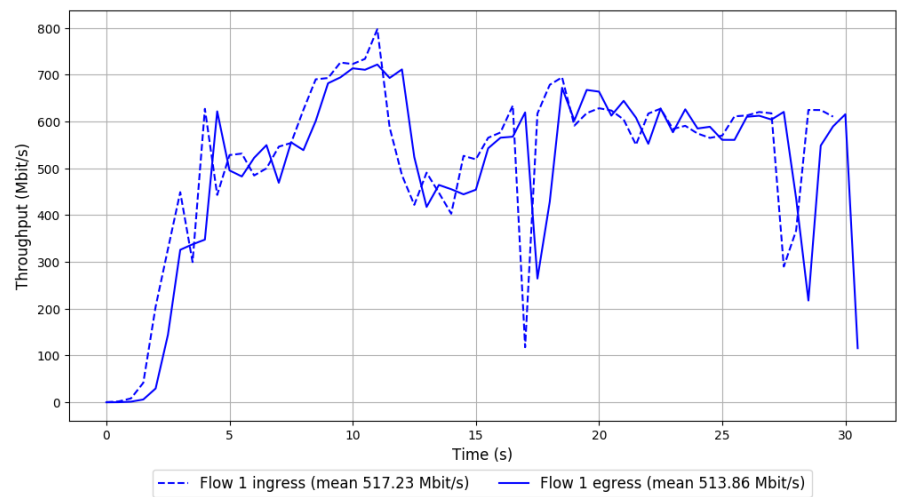
-- Flow 1:

Average throughput: 513.86 Mbit/s

95th percentile per-packet one-way delay: 193.408 ms

Loss rate: 0.65%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-12-19 22:36:28

End at: 2018-12-19 22:36:58

Local clock offset: 2.8 ms

Remote clock offset: 3.365 ms

Below is generated by plot.py at 2018-12-20 01:22:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 324.92 Mbit/s

95th percentile per-packet one-way delay: 124.341 ms

Loss rate: 0.00%

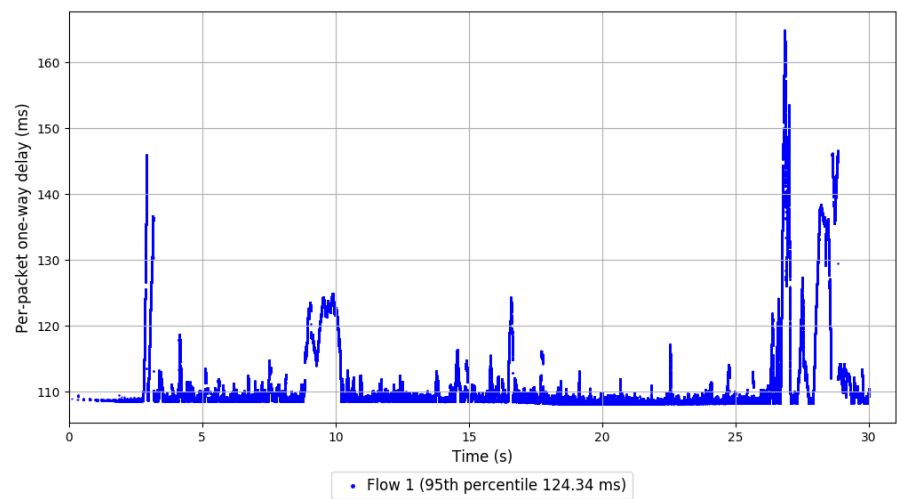
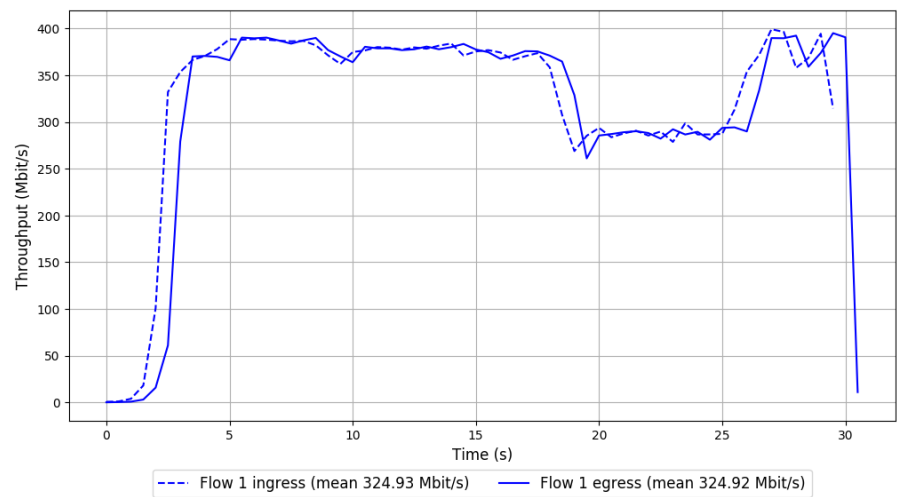
-- Flow 1:

Average throughput: 324.92 Mbit/s

95th percentile per-packet one-way delay: 124.341 ms

Loss rate: 0.00%

Run 1: Report of Copa — Data Link

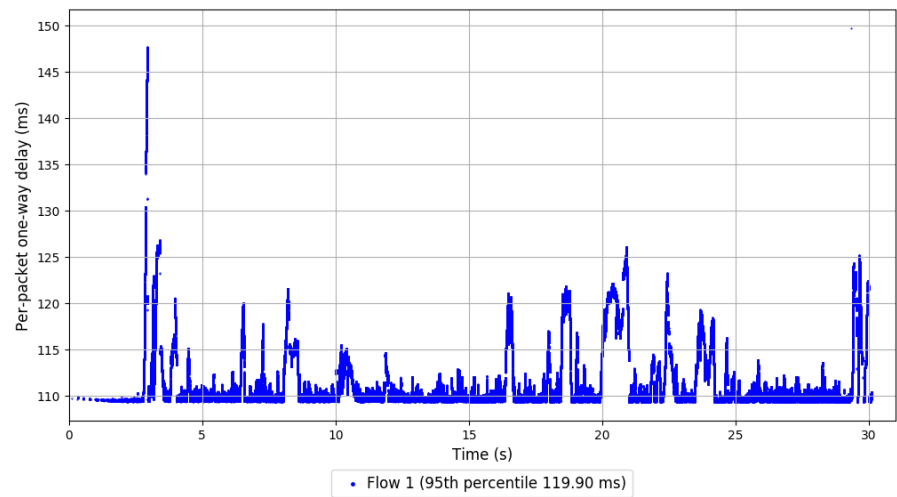
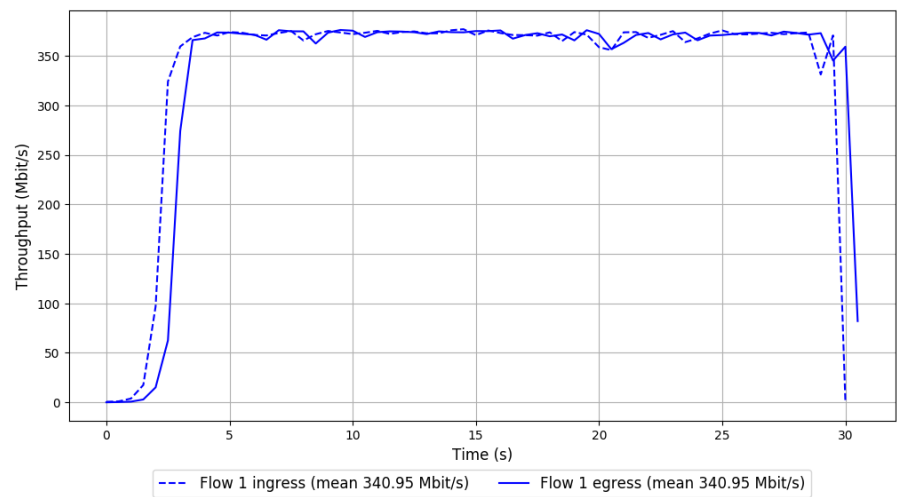


Run 2: Statistics of Copa

Start at: 2018-12-19 23:05:15
End at: 2018-12-19 23:05:45
Local clock offset: 19.516 ms
Remote clock offset: 22.062 ms

Below is generated by plot.py at 2018-12-20 01:22:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 340.95 Mbit/s
95th percentile per-packet one-way delay: 119.902 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 340.95 Mbit/s
95th percentile per-packet one-way delay: 119.902 ms
Loss rate: 0.00%

Run 2: Report of Copa — Data Link

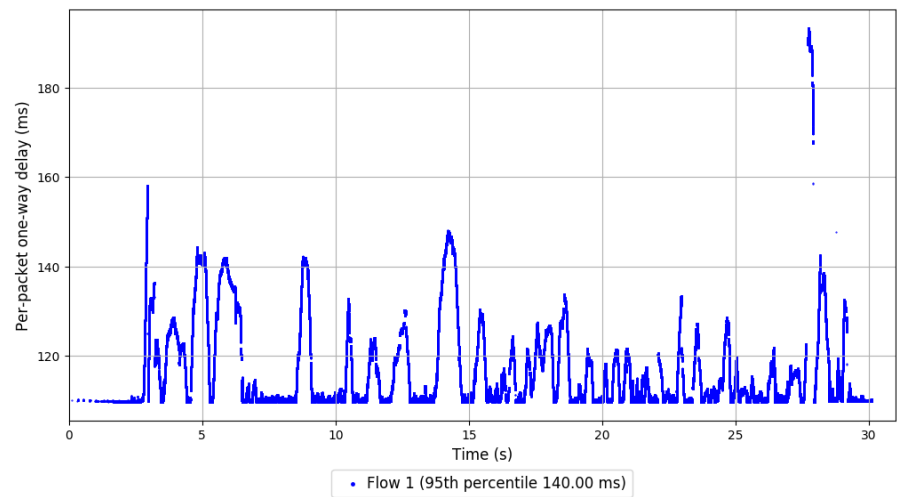
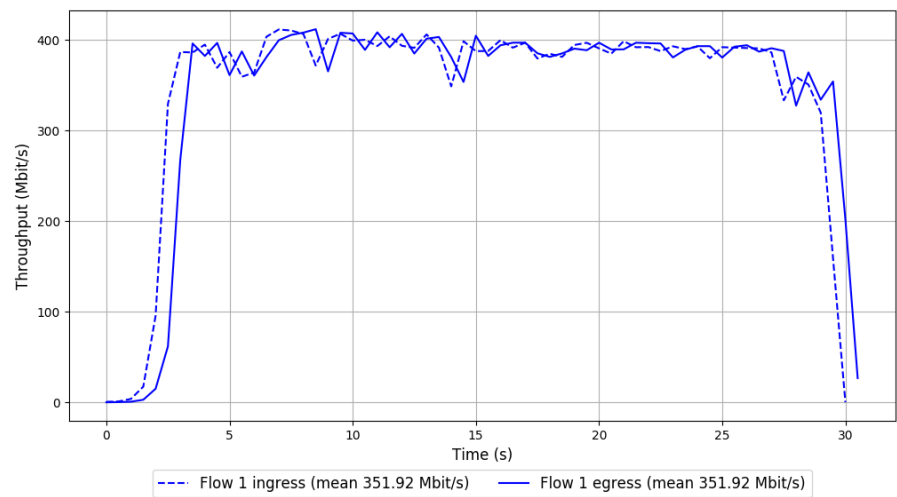


Run 3: Statistics of Copa

Start at: 2018-12-19 23:35:04
End at: 2018-12-19 23:35:34
Local clock offset: 29.373 ms
Remote clock offset: 32.849 ms

Below is generated by plot.py at 2018-12-20 01:22:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 351.92 Mbit/s
95th percentile per-packet one-way delay: 140.003 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 351.92 Mbit/s
95th percentile per-packet one-way delay: 140.003 ms
Loss rate: 0.00%

Run 3: Report of Copa — Data Link

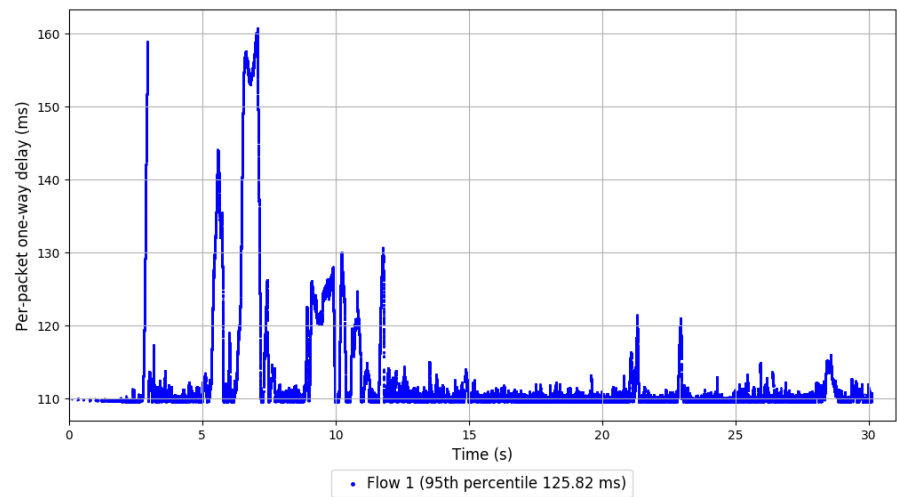
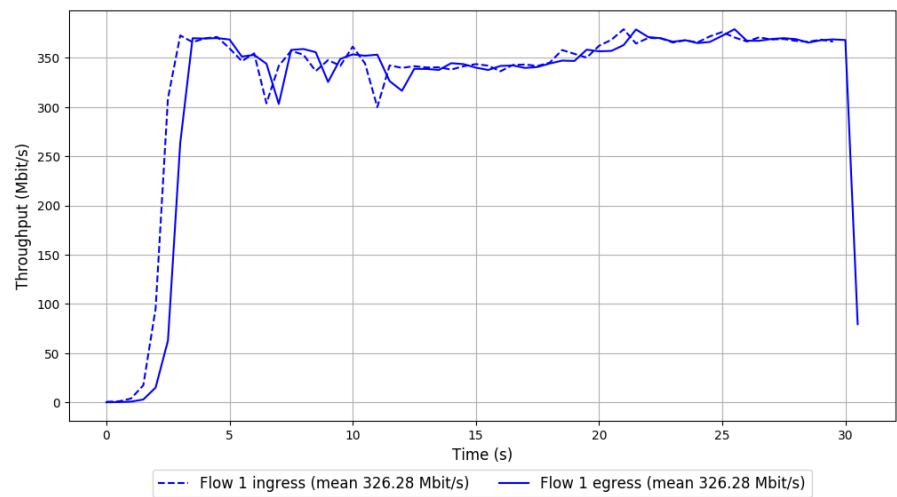


Run 4: Statistics of Copa

Start at: 2018-12-20 00:03:26
End at: 2018-12-20 00:03:56
Local clock offset: 14.377 ms
Remote clock offset: 15.996 ms

Below is generated by plot.py at 2018-12-20 01:31:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 326.28 Mbit/s
95th percentile per-packet one-way delay: 125.823 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 326.28 Mbit/s
95th percentile per-packet one-way delay: 125.823 ms
Loss rate: 0.00%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-12-20 00:32:49

End at: 2018-12-20 00:33:19

Local clock offset: 6.953 ms

Remote clock offset: 8.157 ms

Below is generated by plot.py at 2018-12-20 01:31:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 319.71 Mbit/s

95th percentile per-packet one-way delay: 115.321 ms

Loss rate: 0.08%

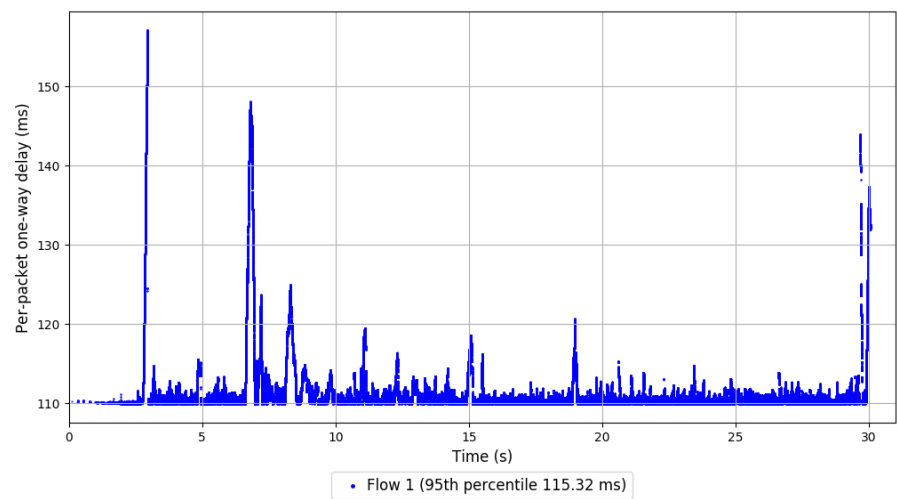
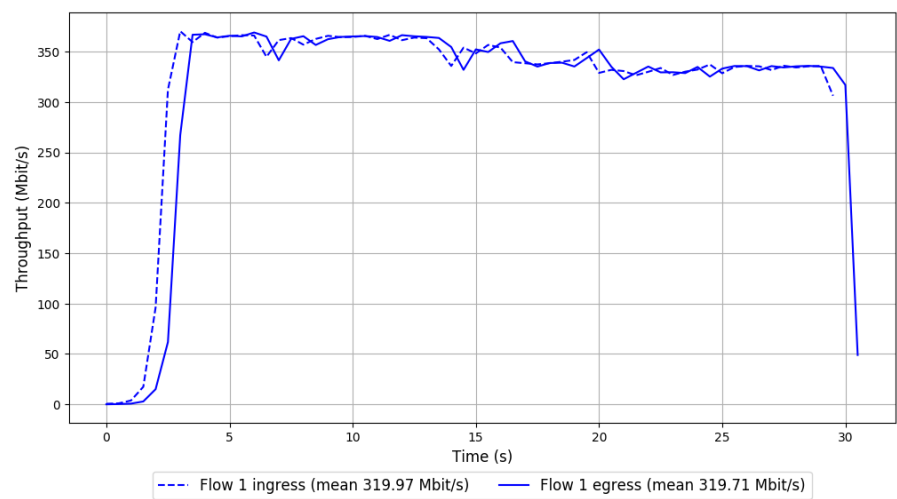
-- Flow 1:

Average throughput: 319.71 Mbit/s

95th percentile per-packet one-way delay: 115.321 ms

Loss rate: 0.08%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-12-19 22:46:30

End at: 2018-12-19 22:47:00

Local clock offset: 8.111 ms

Remote clock offset: 9.595 ms

Below is generated by plot.py at 2018-12-20 01:31:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 575.79 Mbit/s

95th percentile per-packet one-way delay: 200.660 ms

Loss rate: 0.15%

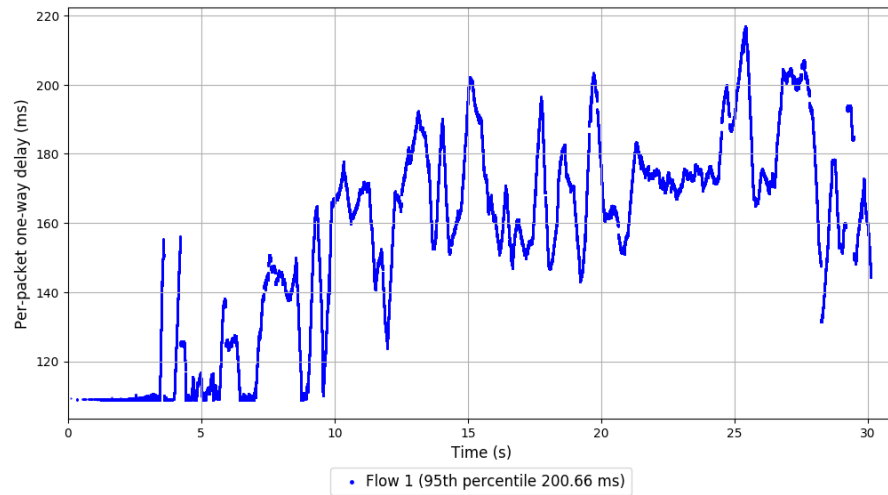
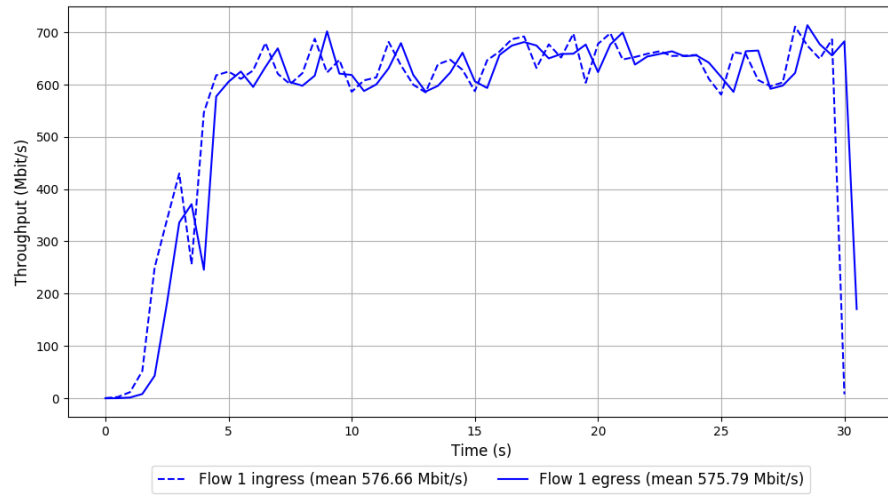
-- Flow 1:

Average throughput: 575.79 Mbit/s

95th percentile per-packet one-way delay: 200.660 ms

Loss rate: 0.15%

Run 1: Report of TCP Cubic — Data Link

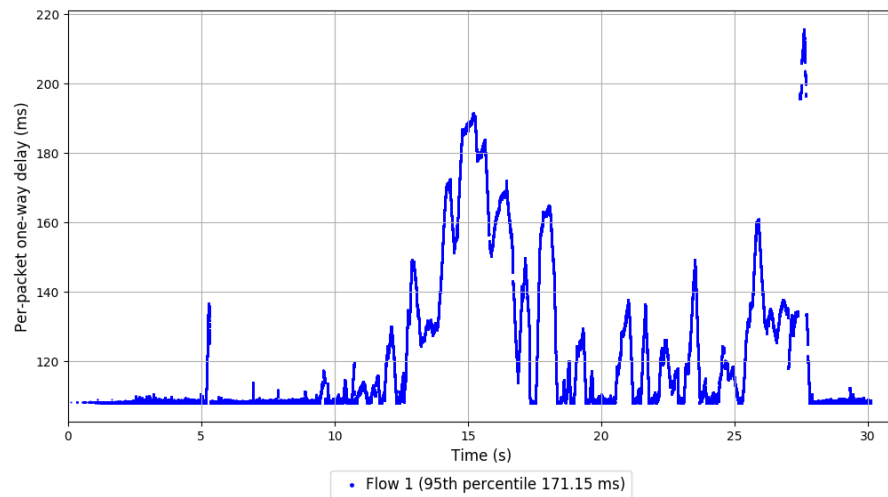
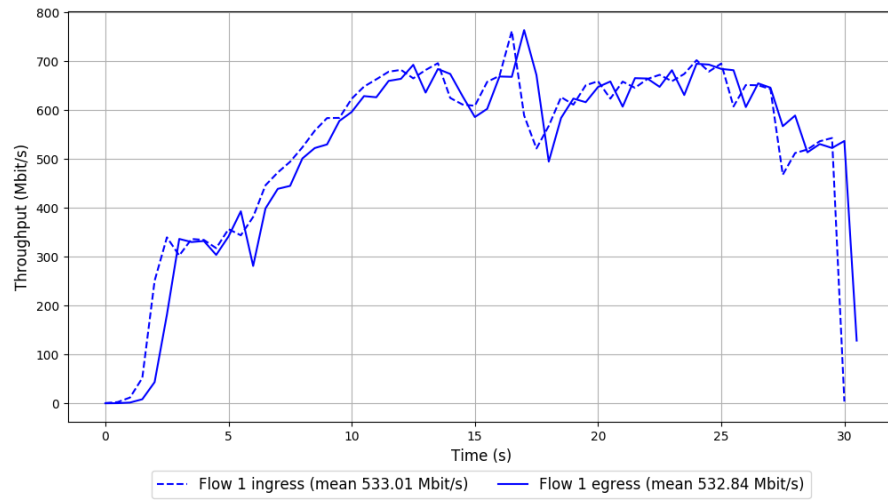


Run 2: Statistics of TCP Cubic

Start at: 2018-12-19 23:15:34
End at: 2018-12-19 23:16:04
Local clock offset: 19.337 ms
Remote clock offset: 20.922 ms

Below is generated by plot.py at 2018-12-20 01:31:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 532.84 Mbit/s
95th percentile per-packet one-way delay: 171.147 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 532.84 Mbit/s
95th percentile per-packet one-way delay: 171.147 ms
Loss rate: 0.03%

Run 2: Report of TCP Cubic — Data Link

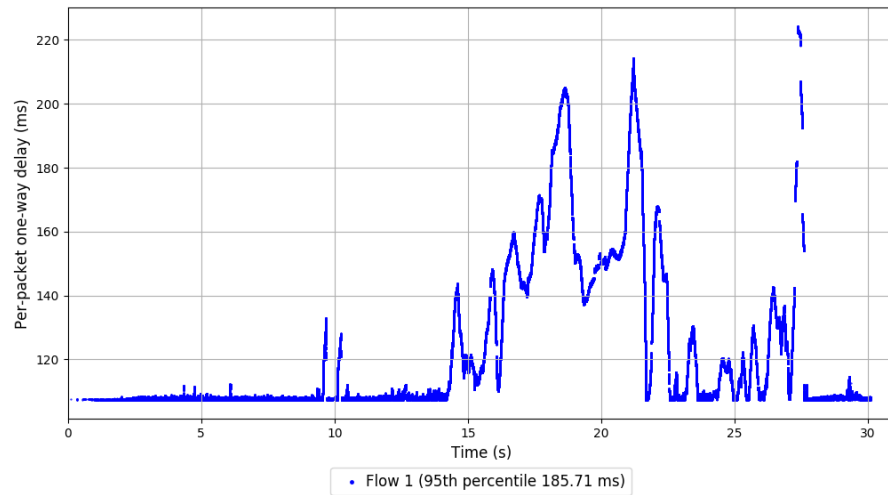
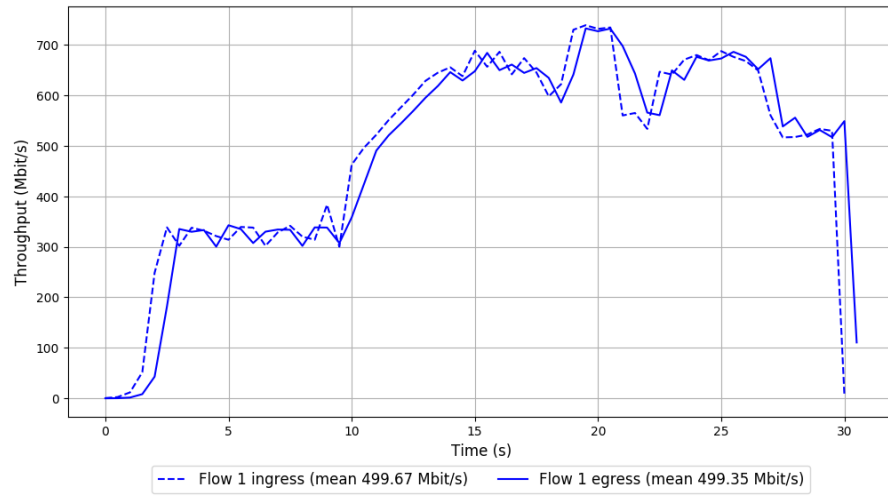


Run 3: Statistics of TCP Cubic

Start at: 2018-12-19 23:44:45
End at: 2018-12-19 23:45:15
Local clock offset: 33.488 ms
Remote clock offset: 35.398 ms

Below is generated by plot.py at 2018-12-20 01:31:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 499.35 Mbit/s
95th percentile per-packet one-way delay: 185.706 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 499.35 Mbit/s
95th percentile per-packet one-way delay: 185.706 ms
Loss rate: 0.06%

Run 3: Report of TCP Cubic — Data Link

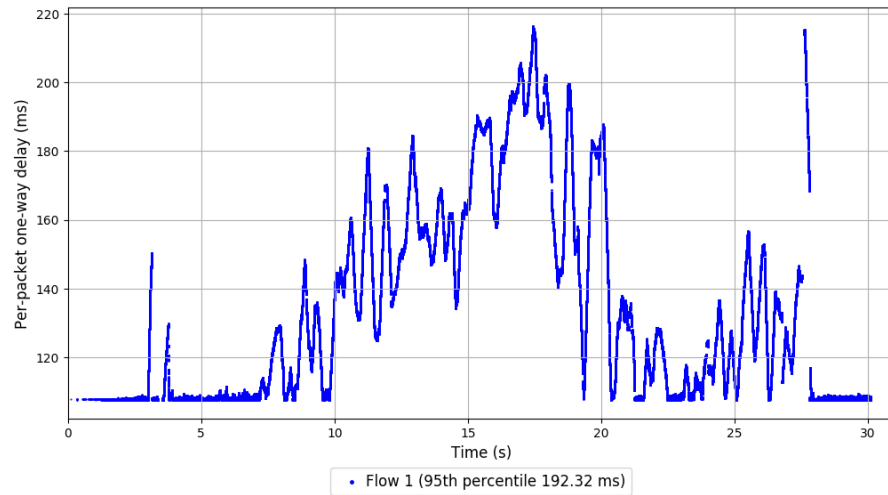
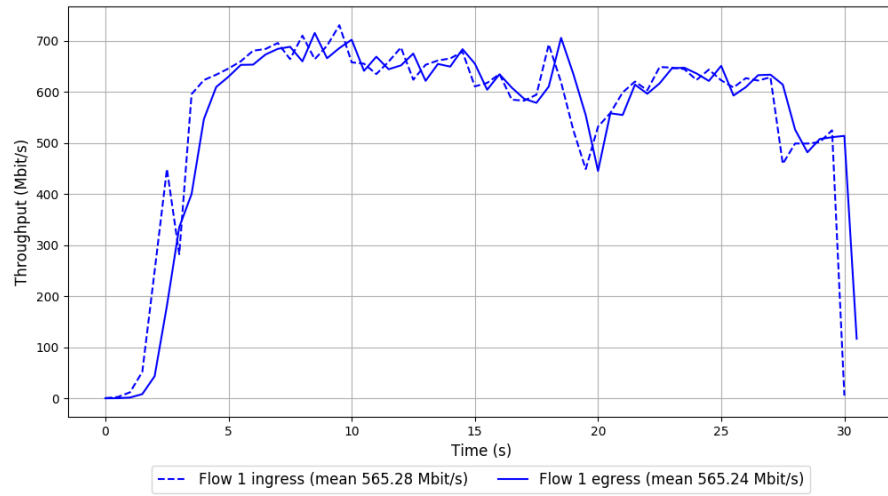


Run 4: Statistics of TCP Cubic

Start at: 2018-12-20 00:13:39
End at: 2018-12-20 00:14:09
Local clock offset: 18.289 ms
Remote clock offset: 19.364 ms

Below is generated by plot.py at 2018-12-20 01:32:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 565.24 Mbit/s
95th percentile per-packet one-way delay: 192.322 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 565.24 Mbit/s
95th percentile per-packet one-way delay: 192.322 ms
Loss rate: 0.01%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-12-20 00:42:39

End at: 2018-12-20 00:43:09

Local clock offset: 7.724 ms

Remote clock offset: 8.264 ms

Below is generated by plot.py at 2018-12-20 01:32:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 552.80 Mbit/s

95th percentile per-packet one-way delay: 191.545 ms

Loss rate: 0.29%

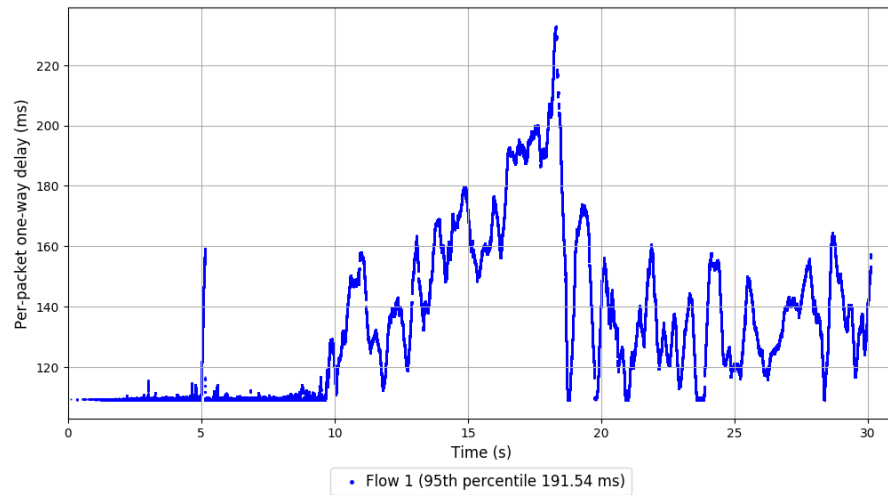
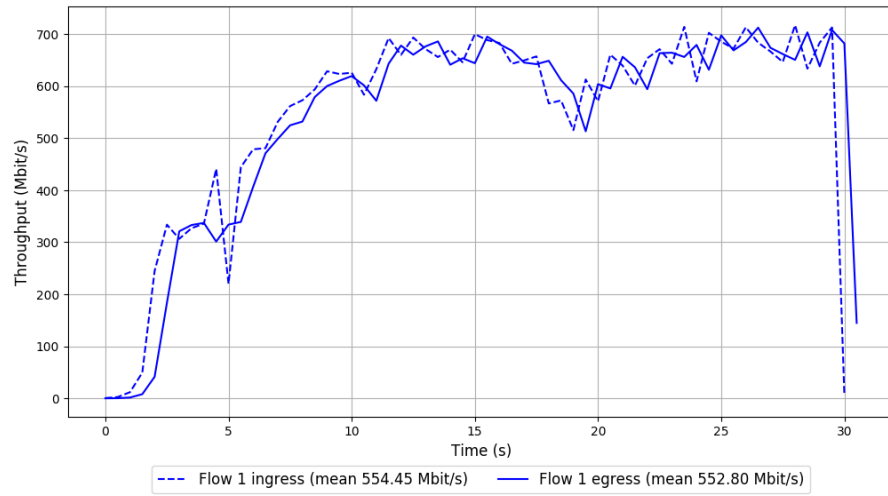
-- Flow 1:

Average throughput: 552.80 Mbit/s

95th percentile per-packet one-way delay: 191.545 ms

Loss rate: 0.29%

Run 5: Report of TCP Cubic — Data Link

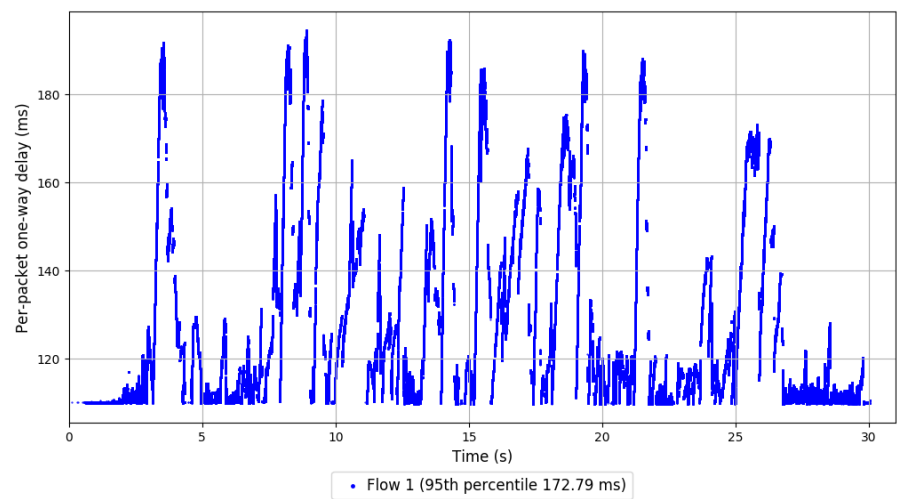
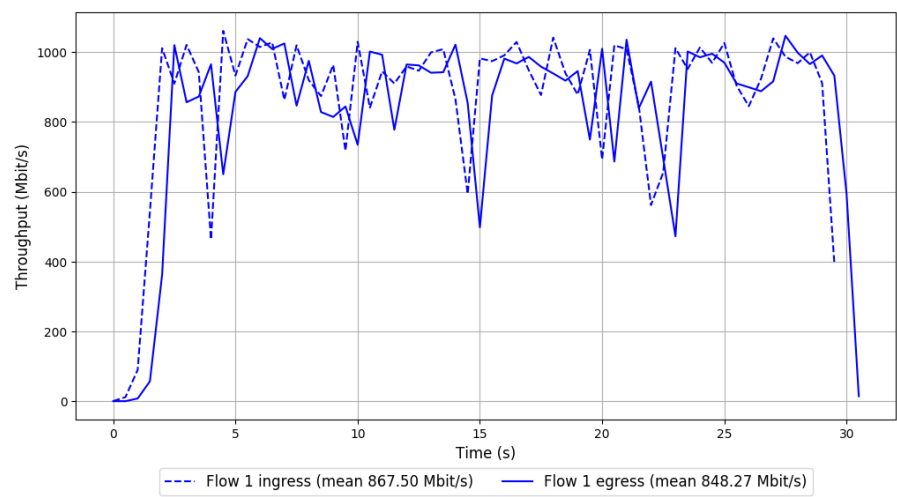


Run 1: Statistics of FillP

Start at: 2018-12-19 22:42:57
End at: 2018-12-19 22:43:27
Local clock offset: 9.675 ms
Remote clock offset: 11.462 ms

Below is generated by plot.py at 2018-12-20 01:39:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 848.27 Mbit/s
95th percentile per-packet one-way delay: 172.787 ms
Loss rate: 2.22%
-- Flow 1:
Average throughput: 848.27 Mbit/s
95th percentile per-packet one-way delay: 172.787 ms
Loss rate: 2.22%

Run 1: Report of FillP — Data Link

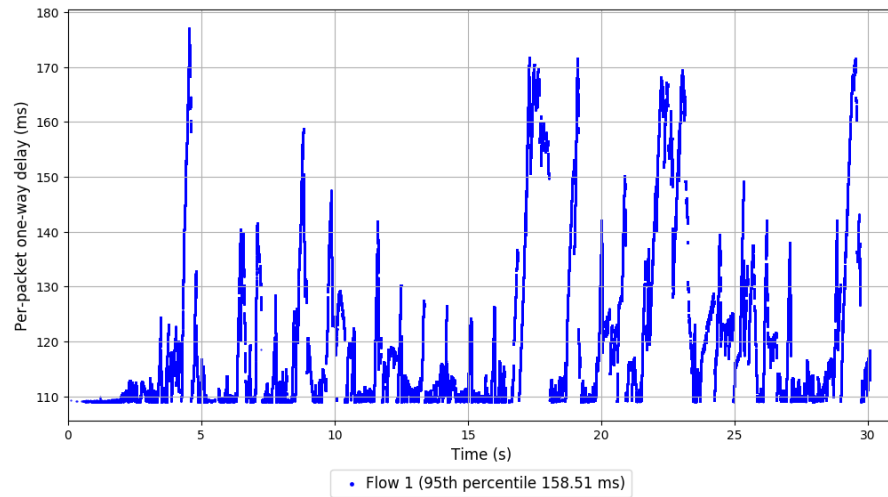
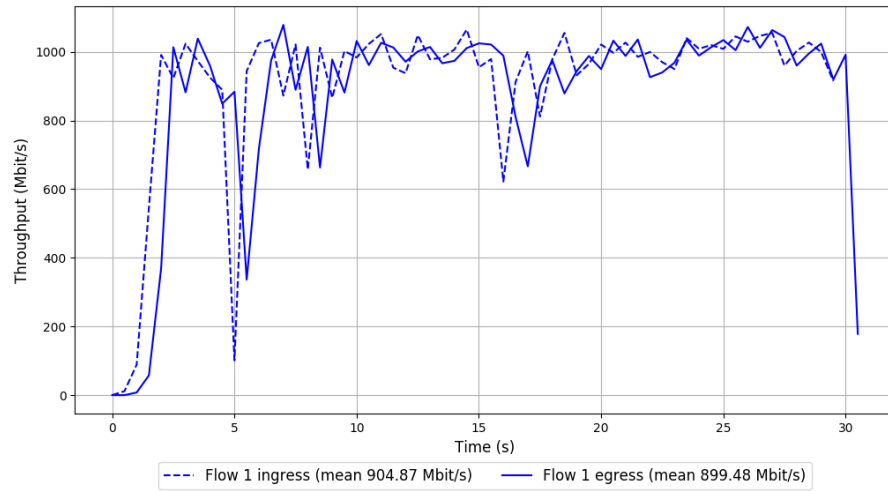


Run 2: Statistics of FillP

Start at: 2018-12-19 23:12:06
End at: 2018-12-19 23:12:36
Local clock offset: 21.095 ms
Remote clock offset: 23.041 ms

Below is generated by plot.py at 2018-12-20 01:50:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 899.48 Mbit/s
95th percentile per-packet one-way delay: 158.511 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 899.48 Mbit/s
95th percentile per-packet one-way delay: 158.511 ms
Loss rate: 0.60%

Run 2: Report of FillP — Data Link

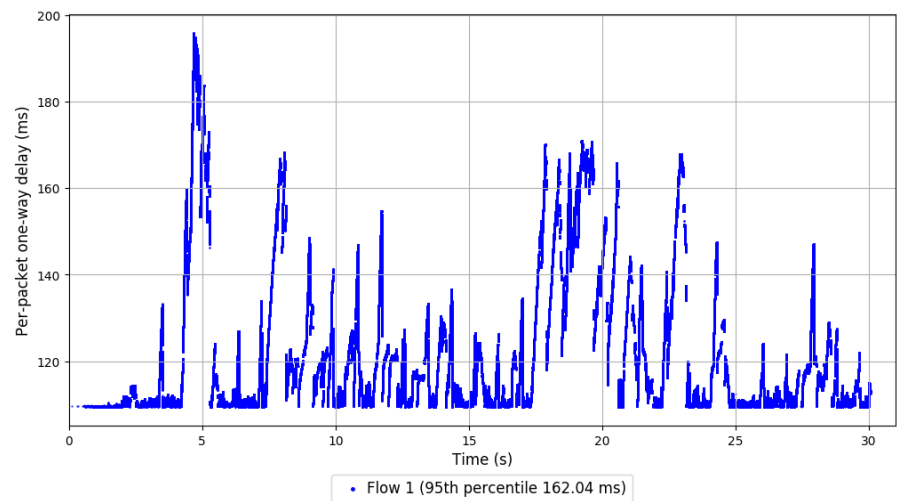
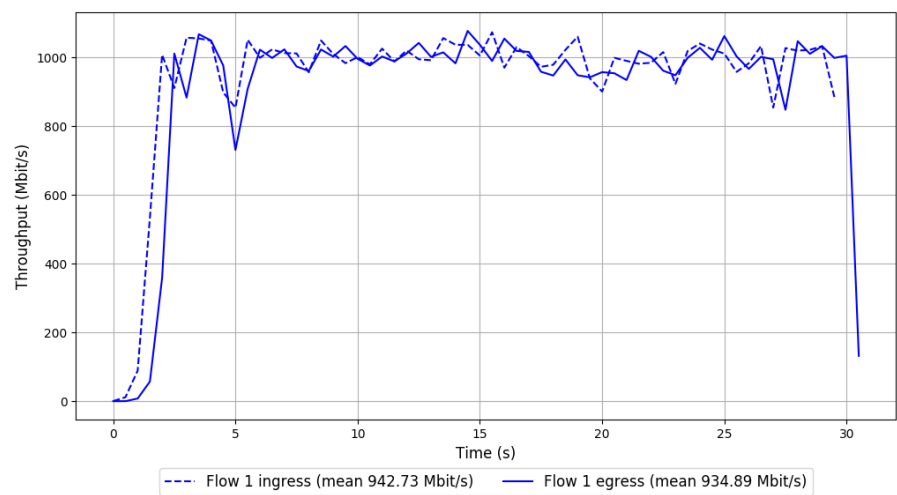


Run 3: Statistics of FillP

Start at: 2018-12-19 23:41:25
End at: 2018-12-19 23:41:55
Local clock offset: 36.379 ms
Remote clock offset: 40.031 ms

Below is generated by plot.py at 2018-12-20 01:51:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 934.89 Mbit/s
95th percentile per-packet one-way delay: 162.036 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 934.89 Mbit/s
95th percentile per-packet one-way delay: 162.036 ms
Loss rate: 0.83%

Run 3: Report of FillP — Data Link

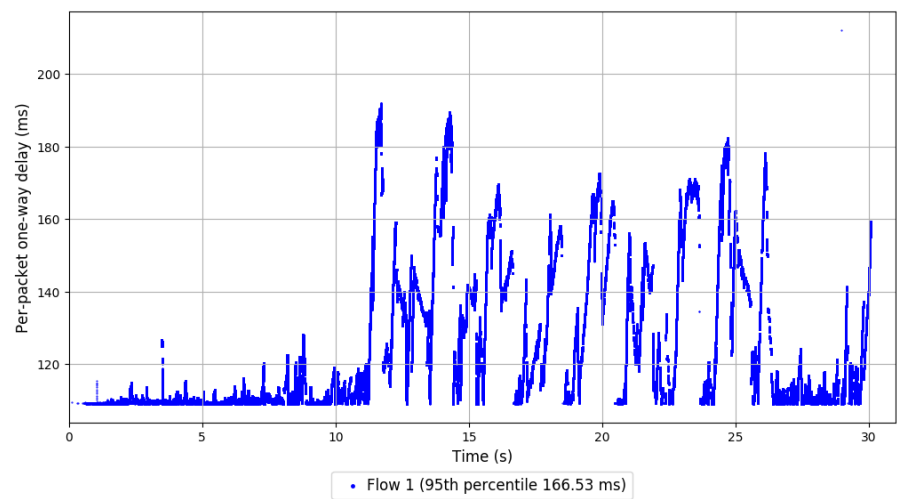
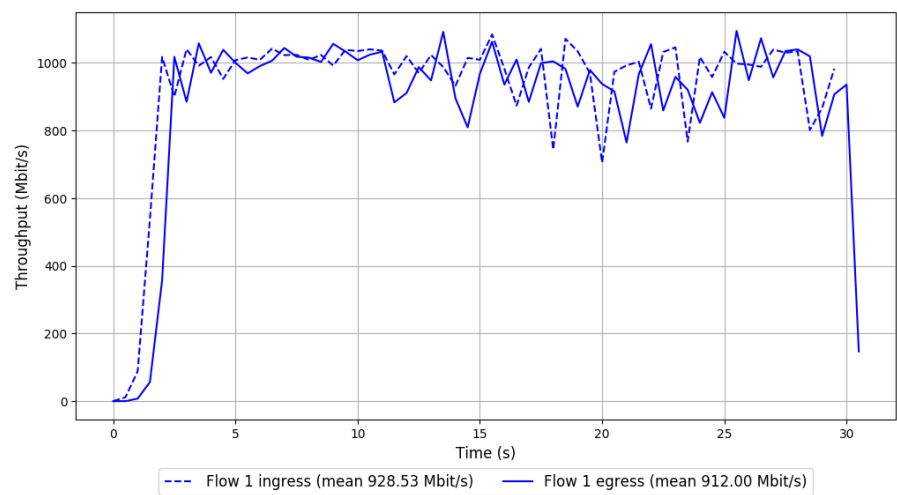


Run 4: Statistics of FillP

Start at: 2018-12-20 00:10:02
End at: 2018-12-20 00:10:32
Local clock offset: 16.131 ms
Remote clock offset: 17.469 ms

Below is generated by plot.py at 2018-12-20 01:51:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 912.00 Mbit/s
95th percentile per-packet one-way delay: 166.533 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 912.00 Mbit/s
95th percentile per-packet one-way delay: 166.533 ms
Loss rate: 1.77%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-12-20 00:39:11

End at: 2018-12-20 00:39:41

Local clock offset: 7.187 ms

Remote clock offset: 8.196 ms

Below is generated by plot.py at 2018-12-20 01:52:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 969.63 Mbit/s

95th percentile per-packet one-way delay: 120.247 ms

Loss rate: 0.14%

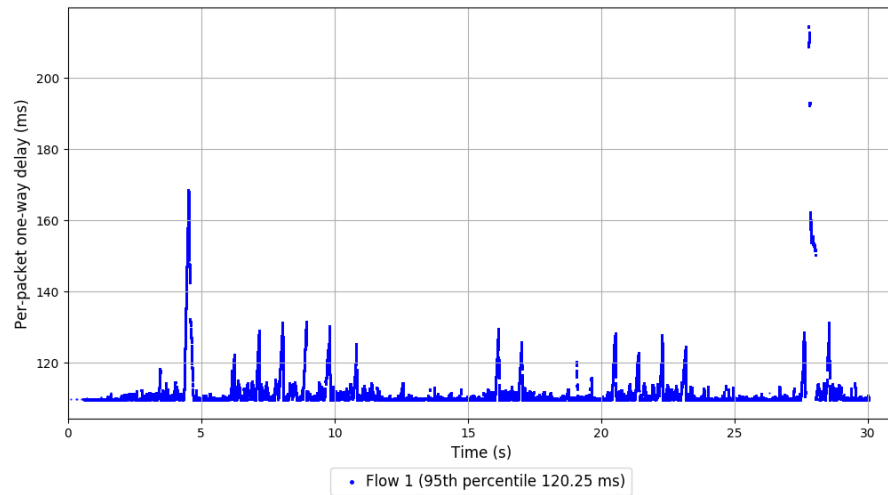
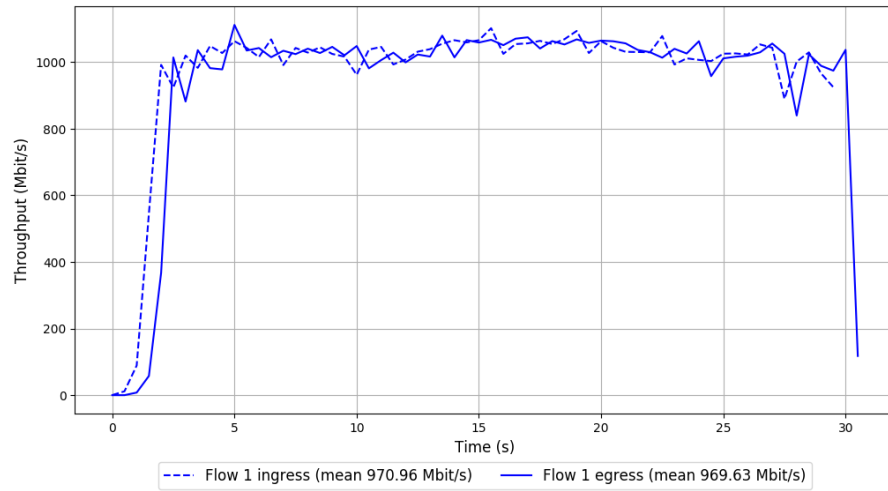
-- Flow 1:

Average throughput: 969.63 Mbit/s

95th percentile per-packet one-way delay: 120.247 ms

Loss rate: 0.14%

Run 5: Report of FillP — Data Link

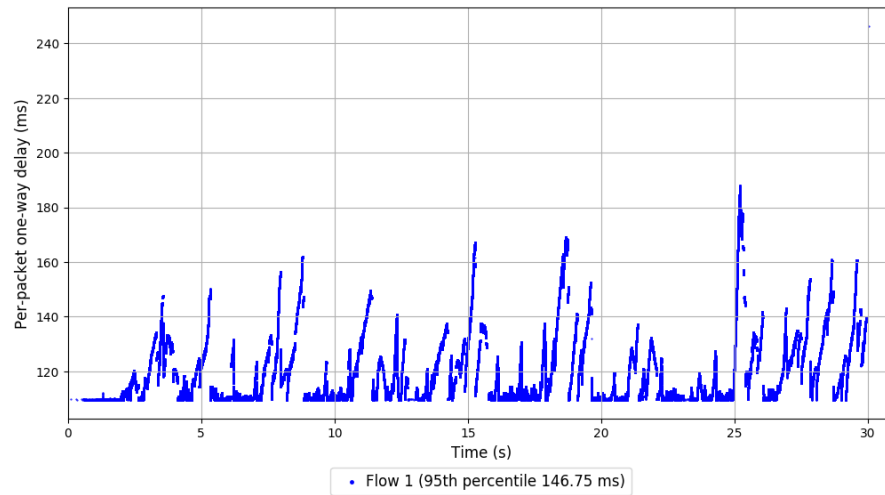
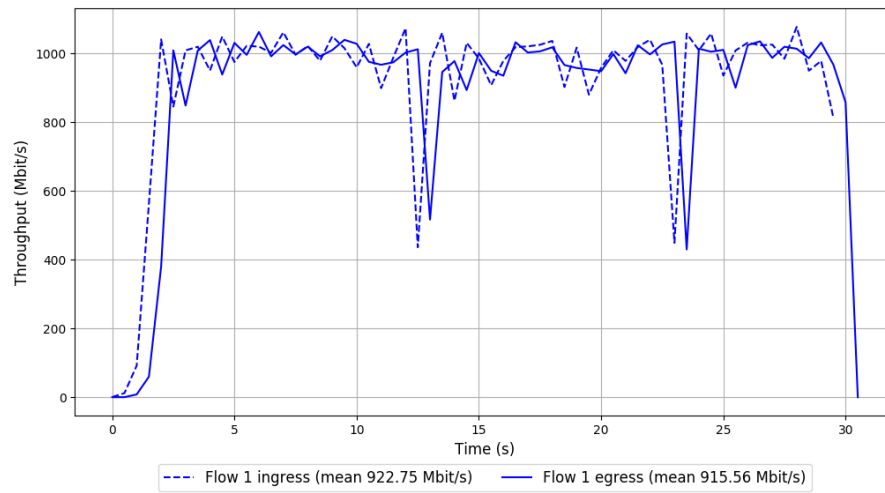


Run 1: Statistics of FillP-Sheep

Start at: 2018-12-19 22:59:16
End at: 2018-12-19 22:59:46
Local clock offset: 13.694 ms
Remote clock offset: 15.334 ms

Below is generated by plot.py at 2018-12-20 01:52:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 915.56 Mbit/s
95th percentile per-packet one-way delay: 146.753 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 915.56 Mbit/s
95th percentile per-packet one-way delay: 146.753 ms
Loss rate: 0.64%

Run 1: Report of FillP-Sheep — Data Link

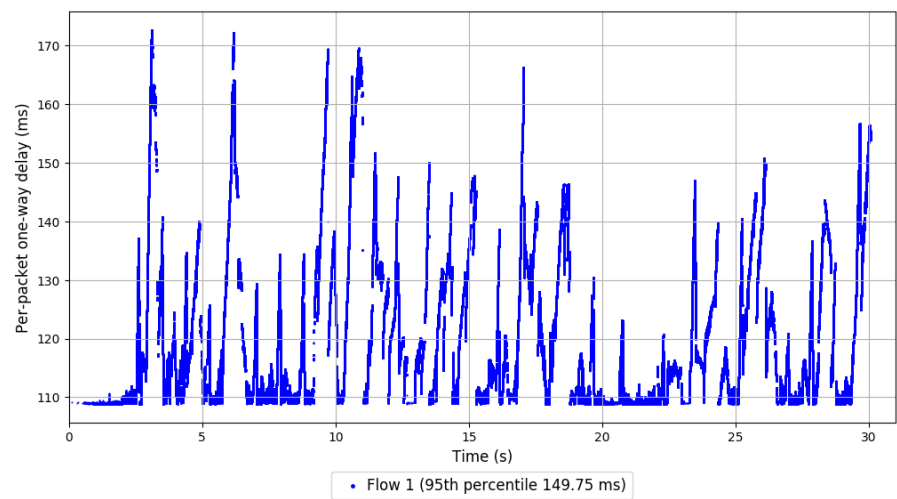
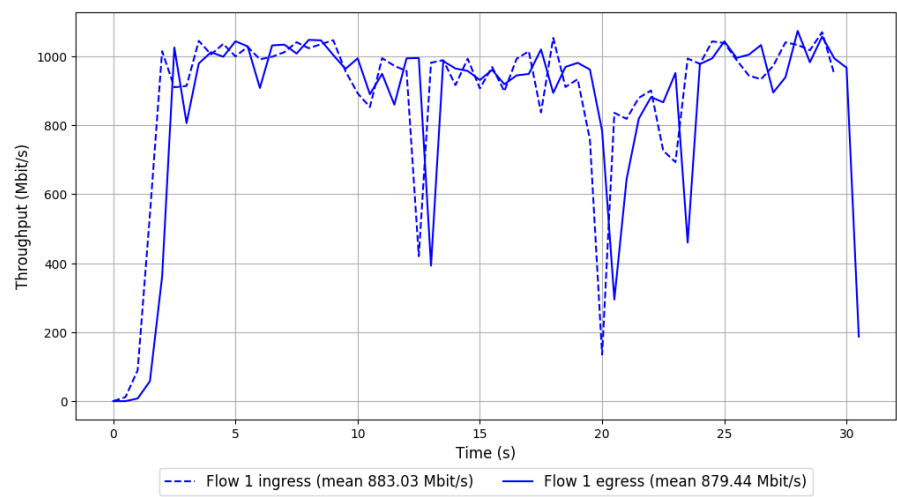


Run 2: Statistics of FillP-Sheep

Start at: 2018-12-19 23:29:08
End at: 2018-12-19 23:29:39
Local clock offset: 25.239 ms
Remote clock offset: 27.153 ms

Below is generated by plot.py at 2018-12-20 01:52:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 879.44 Mbit/s
95th percentile per-packet one-way delay: 149.750 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 879.44 Mbit/s
95th percentile per-packet one-way delay: 149.750 ms
Loss rate: 0.40%

Run 2: Report of FillP-Sheep — Data Link

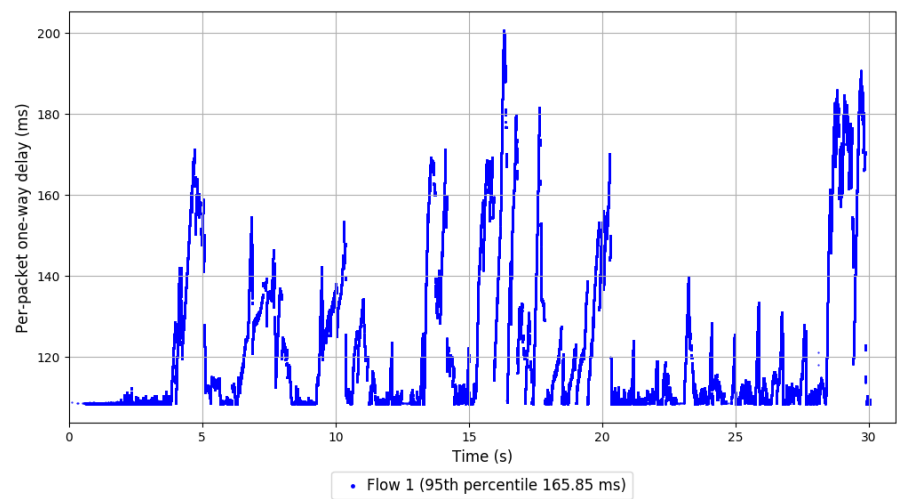
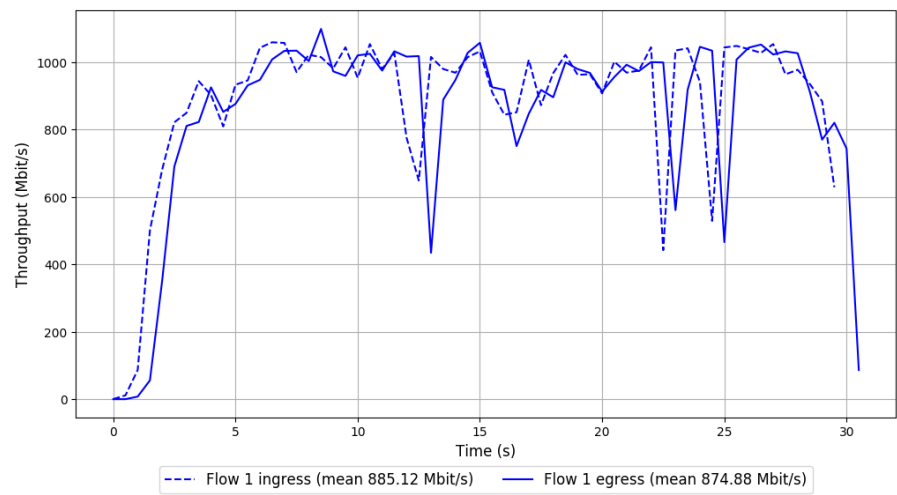


Run 3: Statistics of FillP-Sheep

Start at: 2018-12-19 23:57:22
End at: 2018-12-19 23:57:52
Local clock offset: 15.759 ms
Remote clock offset: 16.313 ms

Below is generated by plot.py at 2018-12-20 01:52:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 874.88 Mbit/s
95th percentile per-packet one-way delay: 165.855 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 874.88 Mbit/s
95th percentile per-packet one-way delay: 165.855 ms
Loss rate: 1.16%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-12-20 00:26:44

End at: 2018-12-20 00:27:14

Local clock offset: 8.693 ms

Remote clock offset: 9.543 ms

Below is generated by plot.py at 2018-12-20 02:01:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 880.29 Mbit/s

95th percentile per-packet one-way delay: 152.637 ms

Loss rate: 0.74%

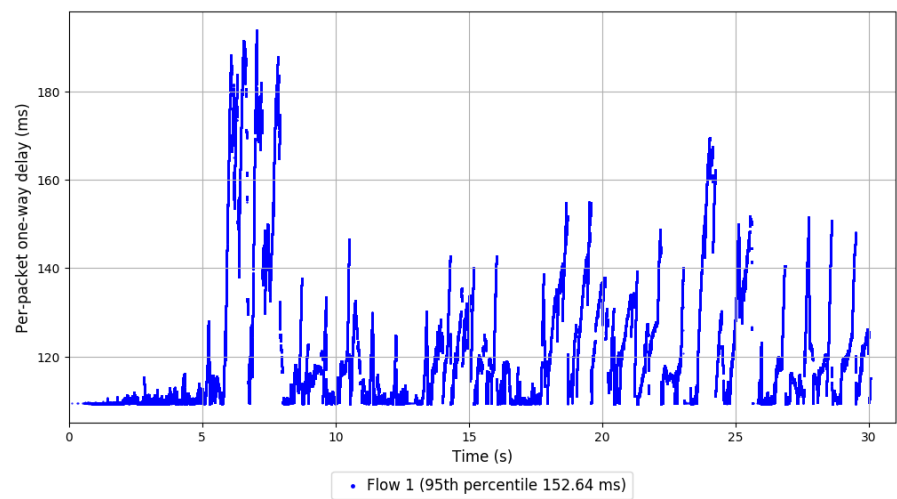
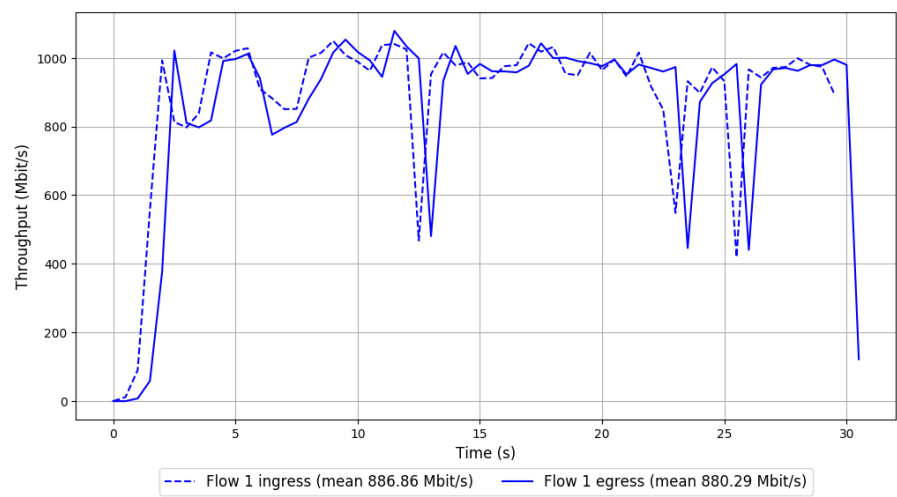
-- Flow 1:

Average throughput: 880.29 Mbit/s

95th percentile per-packet one-way delay: 152.637 ms

Loss rate: 0.74%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-12-20 00:55:22

End at: 2018-12-20 00:55:52

Local clock offset: 4.825 ms

Remote clock offset: 6.473 ms

Below is generated by plot.py at 2018-12-20 02:09:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 839.46 Mbit/s

95th percentile per-packet one-way delay: 173.042 ms

Loss rate: 1.77%

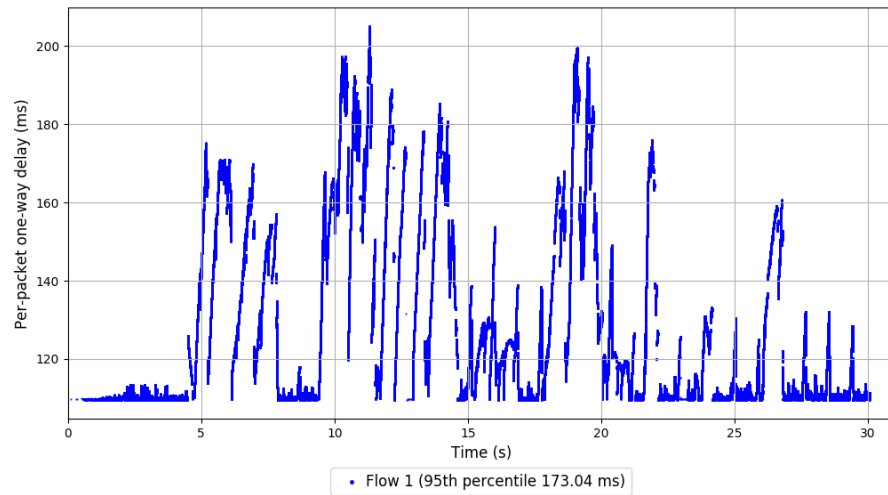
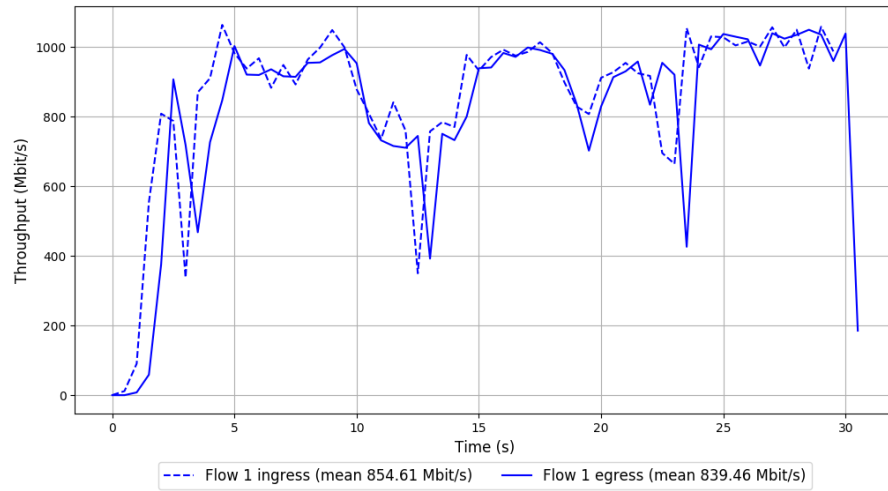
-- Flow 1:

Average throughput: 839.46 Mbit/s

95th percentile per-packet one-way delay: 173.042 ms

Loss rate: 1.77%

Run 5: Report of FillP-Sheep — Data Link



Run 1: Statistics of Indigo

Start at: 2018-12-19 22:50:34

End at: 2018-12-19 22:51:04

Local clock offset: 14.196 ms

Remote clock offset: 15.93 ms

Below is generated by plot.py at 2018-12-20 02:09:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 157.10 Mbit/s

95th percentile per-packet one-way delay: 110.089 ms

Loss rate: 0.00%

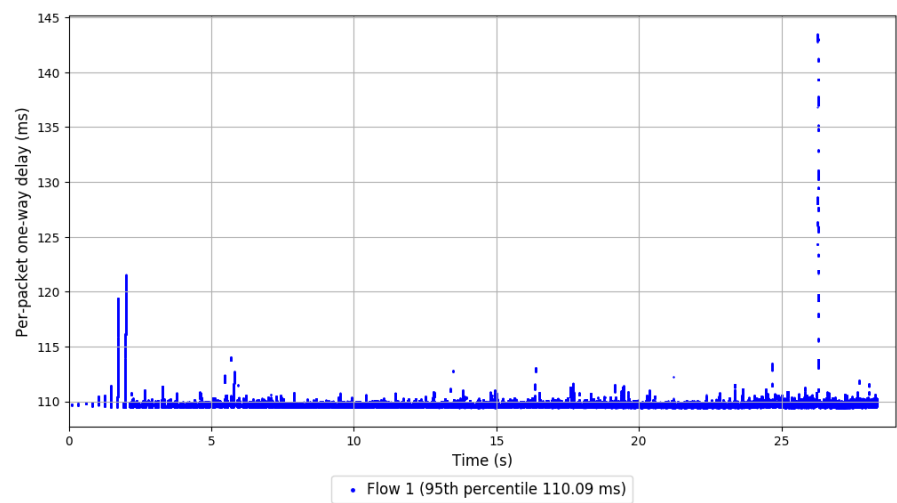
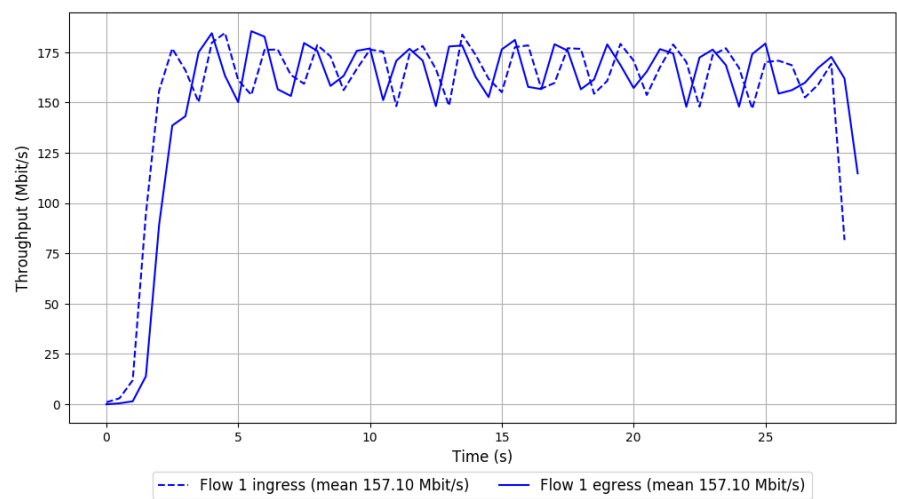
-- Flow 1:

Average throughput: 157.10 Mbit/s

95th percentile per-packet one-way delay: 110.089 ms

Loss rate: 0.00%

Run 1: Report of Indigo — Data Link

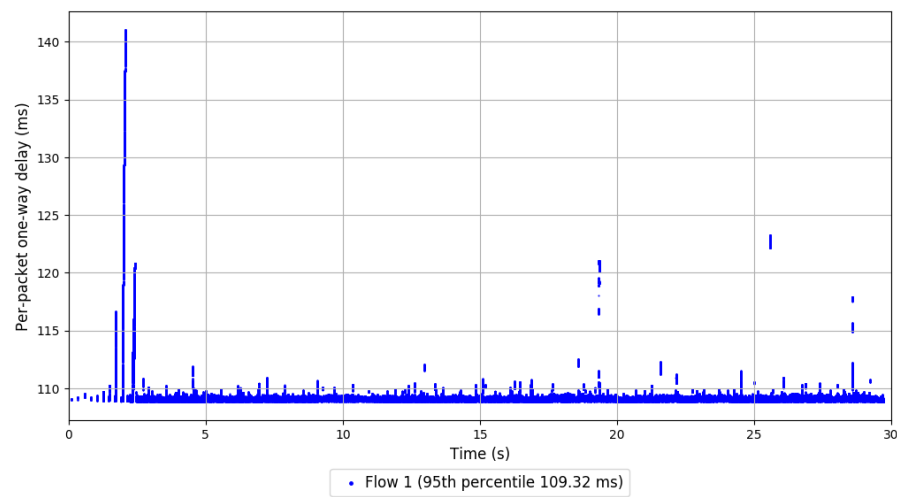
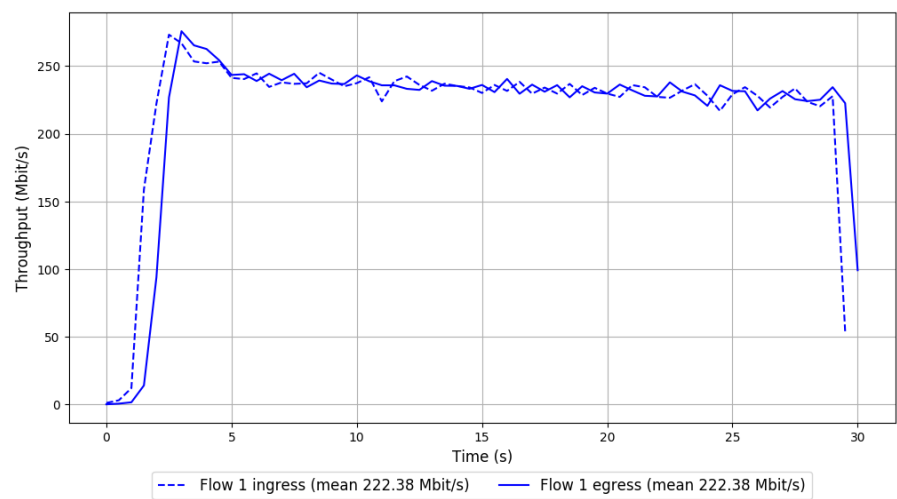


Run 2: Statistics of Indigo

Start at: 2018-12-19 23:19:43
End at: 2018-12-19 23:20:13
Local clock offset: 18.536 ms
Remote clock offset: 20.954 ms

Below is generated by plot.py at 2018-12-20 02:09:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 222.38 Mbit/s
95th percentile per-packet one-way delay: 109.324 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 222.38 Mbit/s
95th percentile per-packet one-way delay: 109.324 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link

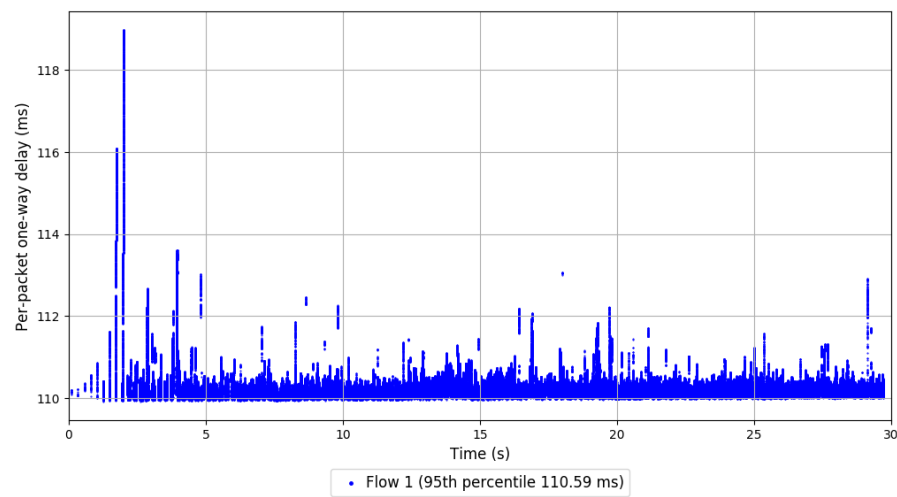
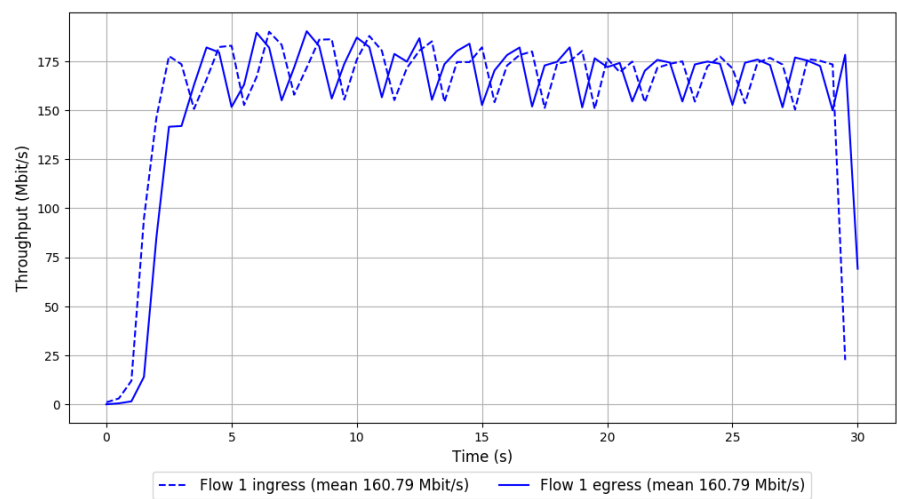


Run 3: Statistics of Indigo

Start at: 2018-12-19 23:48:47
End at: 2018-12-19 23:49:17
Local clock offset: 22.577 ms
Remote clock offset: 25.357 ms

Below is generated by plot.py at 2018-12-20 02:09:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 160.79 Mbit/s
95th percentile per-packet one-way delay: 110.593 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 160.79 Mbit/s
95th percentile per-packet one-way delay: 110.593 ms
Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

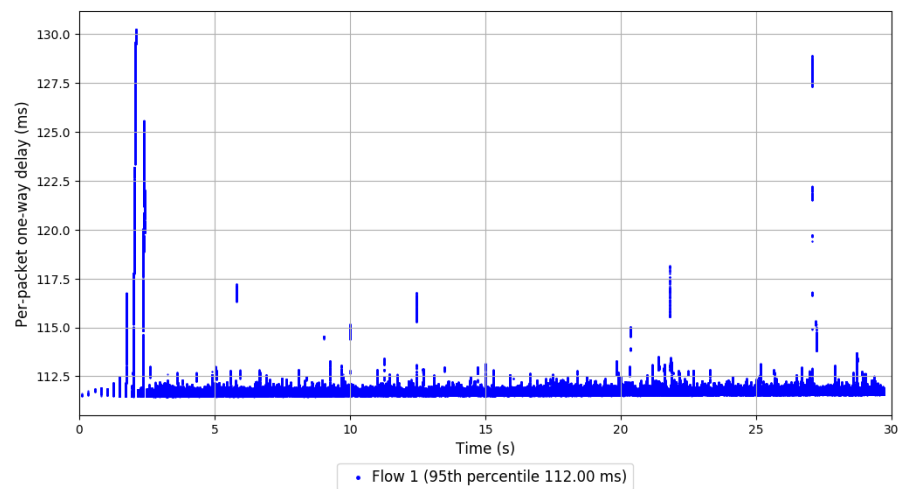
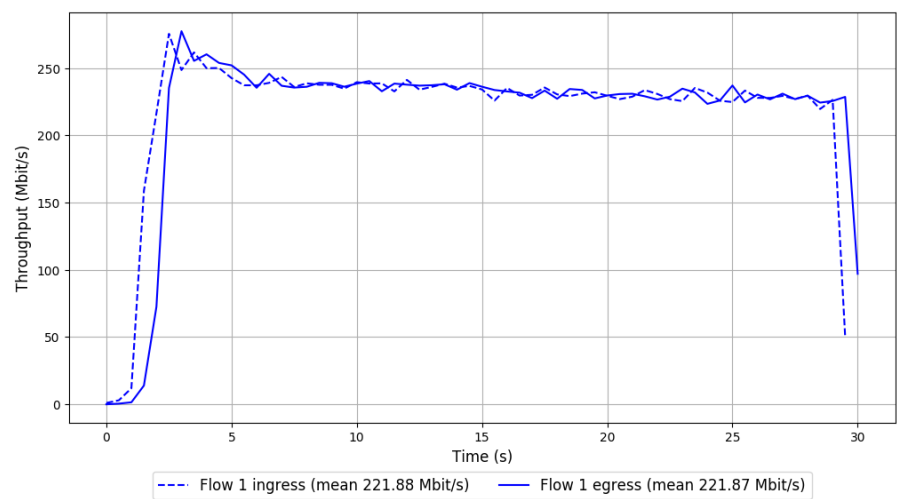


Run 4: Statistics of Indigo

Start at: 2018-12-20 00:17:43
End at: 2018-12-20 00:18:13
Local clock offset: 17.873 ms
Remote clock offset: 19.888 ms

Below is generated by plot.py at 2018-12-20 02:09:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 221.87 Mbit/s
95th percentile per-packet one-way delay: 112.004 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 221.87 Mbit/s
95th percentile per-packet one-way delay: 112.004 ms
Loss rate: 0.01%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-12-20 00:46:44

End at: 2018-12-20 00:47:14

Local clock offset: 8.473 ms

Remote clock offset: 9.047 ms

Below is generated by plot.py at 2018-12-20 02:09:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 158.20 Mbit/s

95th percentile per-packet one-way delay: 109.806 ms

Loss rate: 0.00%

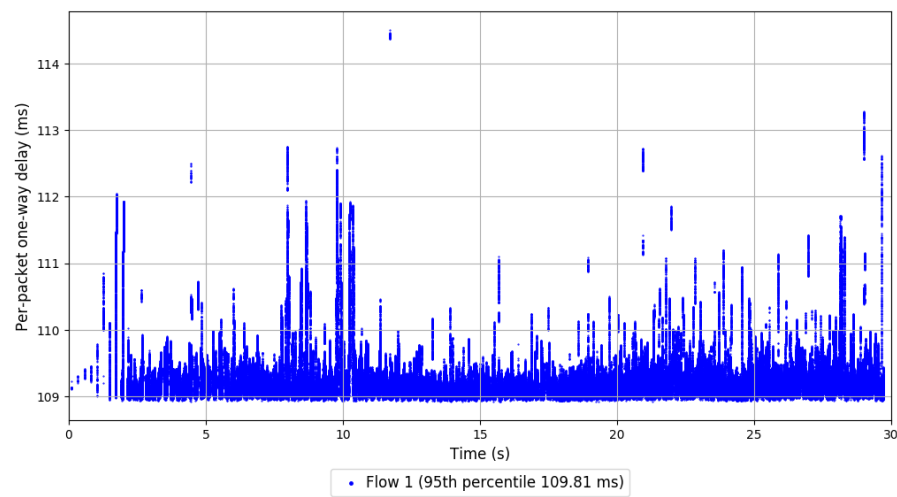
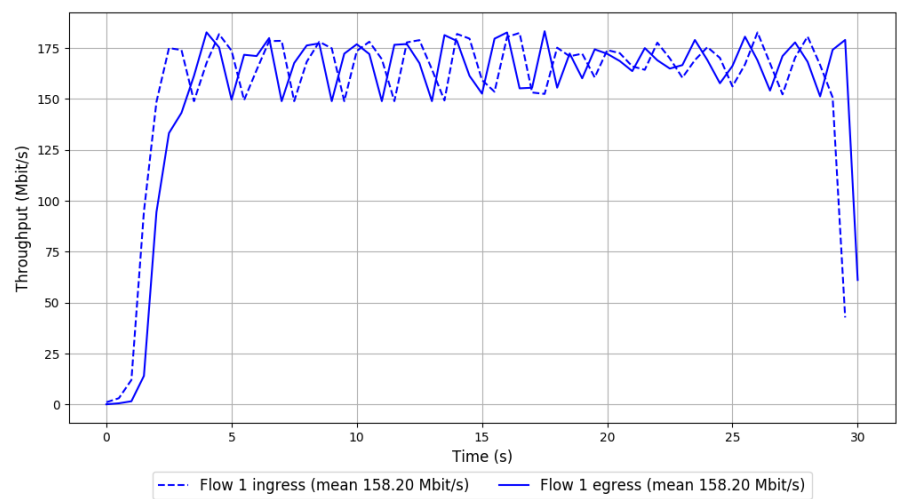
-- Flow 1:

Average throughput: 158.20 Mbit/s

95th percentile per-packet one-way delay: 109.806 ms

Loss rate: 0.00%

Run 5: Report of Indigo — Data Link

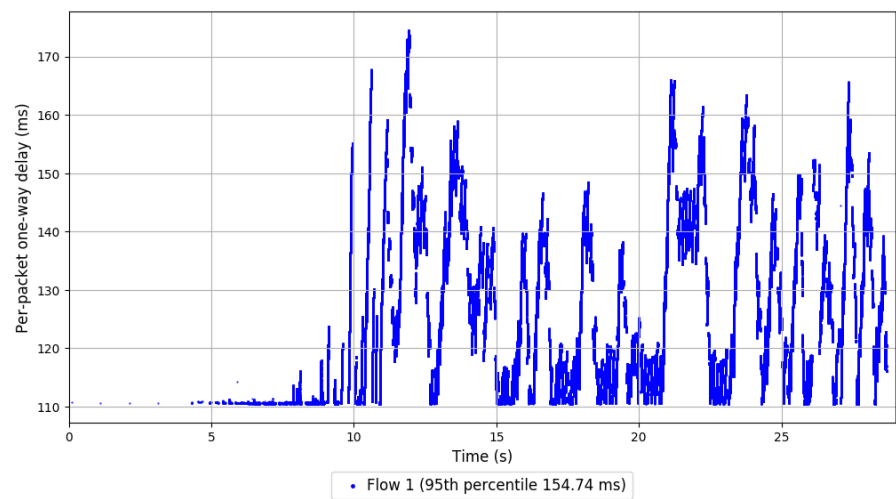
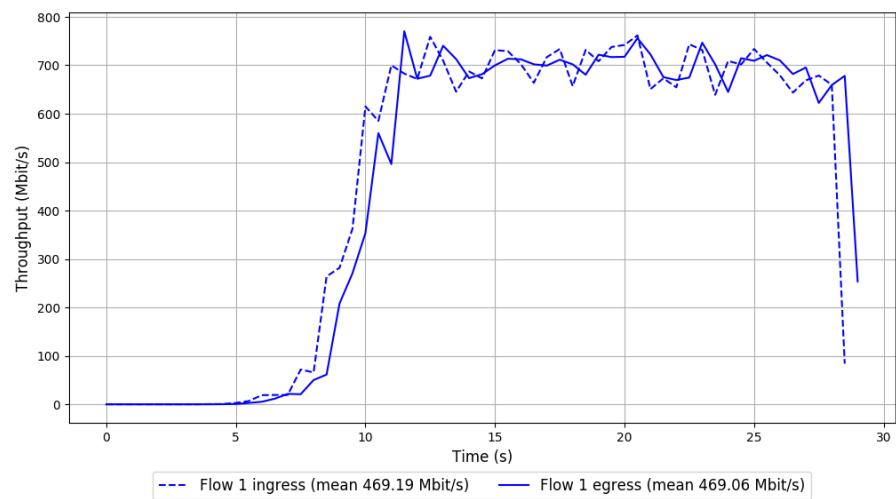



```
Run 1: Statistics of Indigo-MusesD

Start at: 2018-12-19 22:41:23
End at: 2018-12-19 22:41:53
Local clock offset: 5.847 ms
Remote clock offset: 7.854 ms

# Below is generated by plot.py at 2018-12-20 02:09:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 469.06 Mbit/s
95th percentile per-packet one-way delay: 154.737 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 469.06 Mbit/s
95th percentile per-packet one-way delay: 154.737 ms
Loss rate: 0.03%
```

Run 1: Report of Indigo-MusesD — Data Link

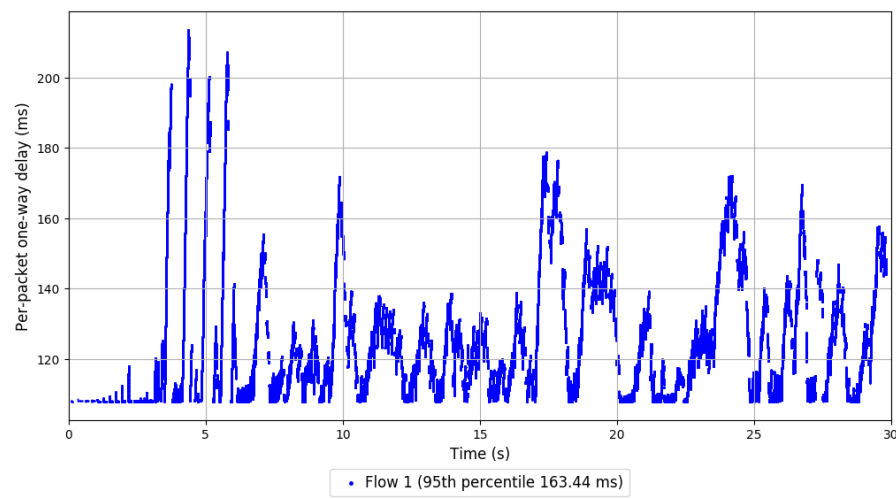
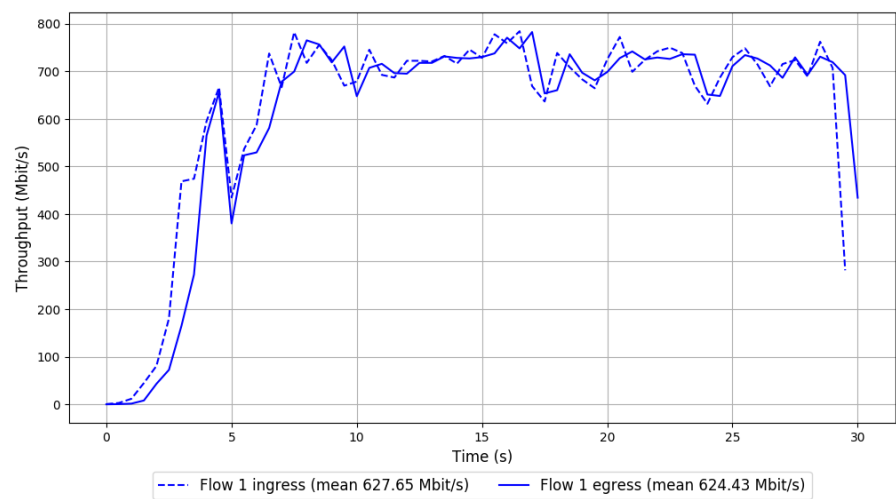


Run 2: Statistics of Indigo-MusesD

Start at: 2018-12-19 23:10:18
End at: 2018-12-19 23:10:48
Local clock offset: 24.005 ms
Remote clock offset: 26.002 ms

Below is generated by plot.py at 2018-12-20 02:09:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 624.43 Mbit/s
95th percentile per-packet one-way delay: 163.441 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 624.43 Mbit/s
95th percentile per-packet one-way delay: 163.441 ms
Loss rate: 0.51%

Run 2: Report of Indigo-MusesD — Data Link



Run 3: Statistics of Indigo-MusesD

Start at: 2018-12-19 23:39:42

End at: 2018-12-19 23:40:12

Local clock offset: 34.535 ms

Remote clock offset: 37.919 ms

Below is generated by plot.py at 2018-12-20 02:09:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 616.46 Mbit/s

95th percentile per-packet one-way delay: 168.261 ms

Loss rate: 0.23%

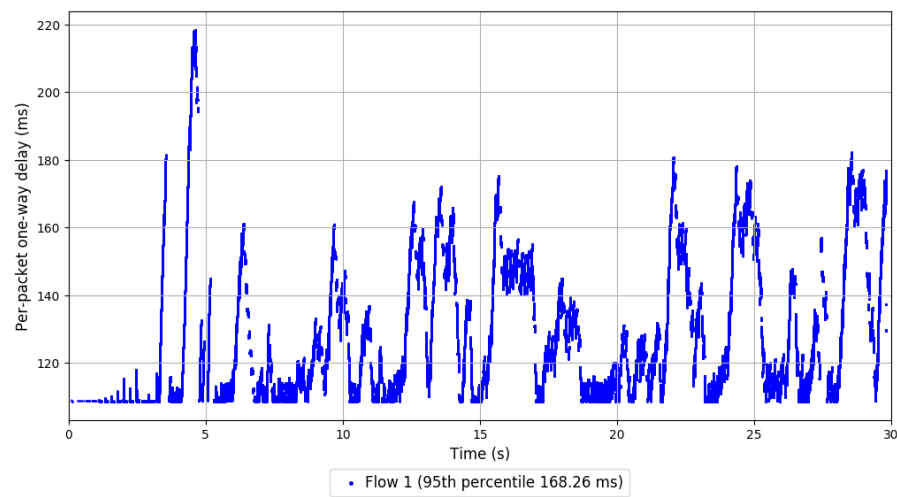
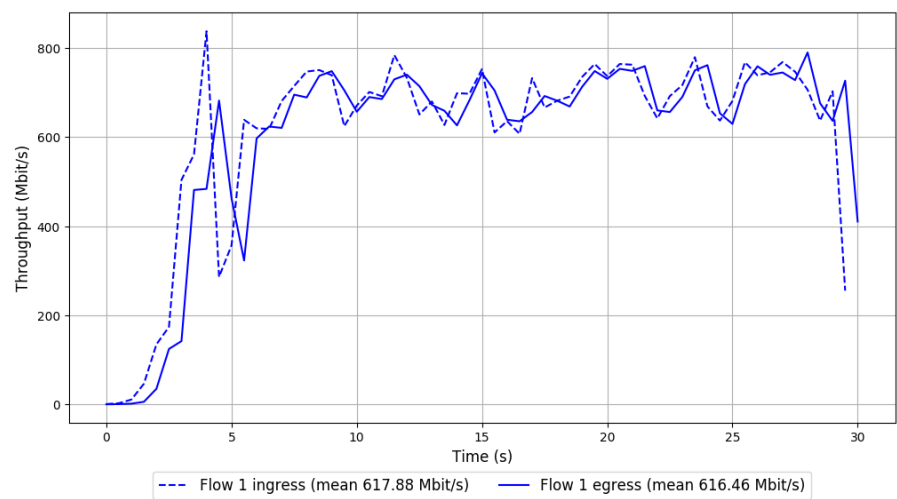
-- Flow 1:

Average throughput: 616.46 Mbit/s

95th percentile per-packet one-way delay: 168.261 ms

Loss rate: 0.23%

Run 3: Report of Indigo-MusesD — Data Link

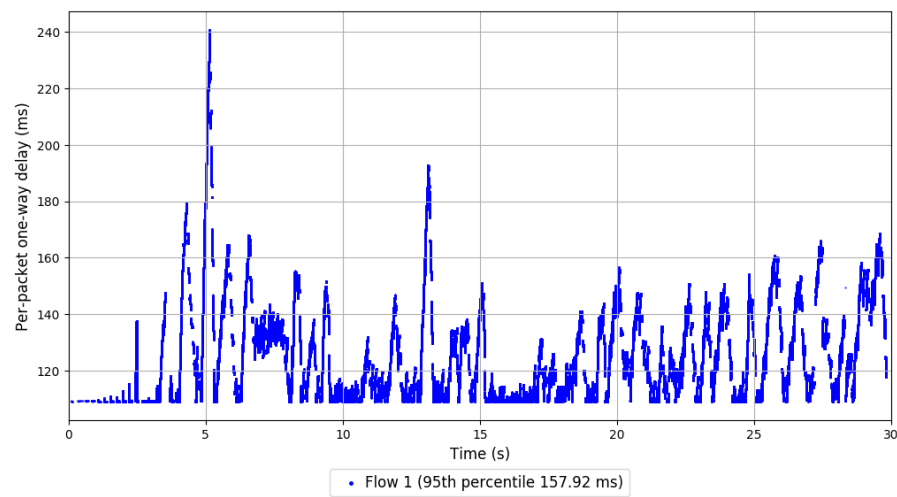
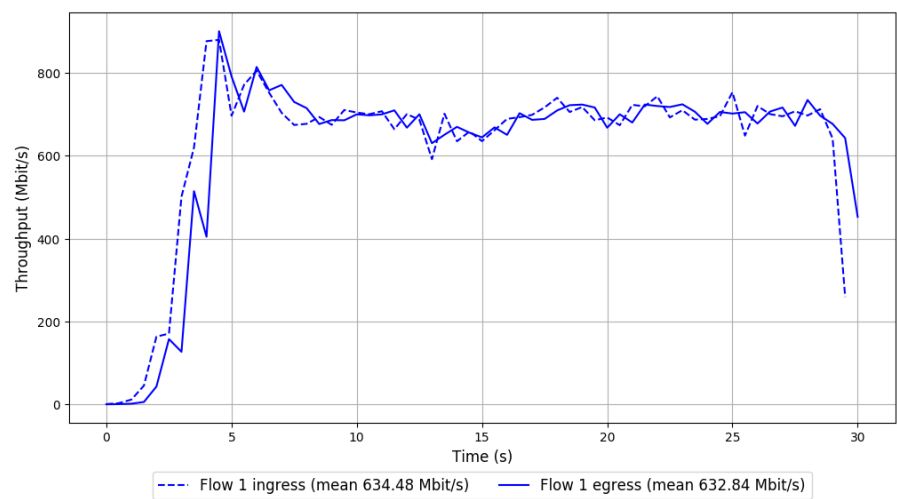


Run 4: Statistics of Indigo-MusesD

Start at: 2018-12-20 00:08:18
End at: 2018-12-20 00:08:48
Local clock offset: 15.975 ms
Remote clock offset: 17.227 ms

Below is generated by plot.py at 2018-12-20 02:11:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 632.84 Mbit/s
95th percentile per-packet one-way delay: 157.916 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 632.84 Mbit/s
95th percentile per-packet one-way delay: 157.916 ms
Loss rate: 0.26%

Run 4: Report of Indigo-MusesD — Data Link



Run 5: Statistics of Indigo-MusesD

Start at: 2018-12-20 00:37:27

End at: 2018-12-20 00:37:57

Local clock offset: 7.006 ms

Remote clock offset: 7.676 ms

Below is generated by plot.py at 2018-12-20 02:11:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 621.17 Mbit/s

95th percentile per-packet one-way delay: 152.117 ms

Loss rate: 0.18%

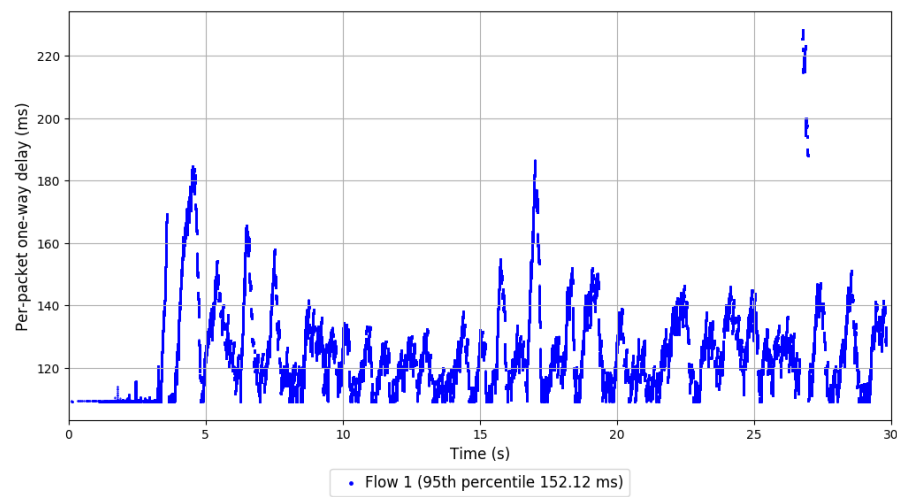
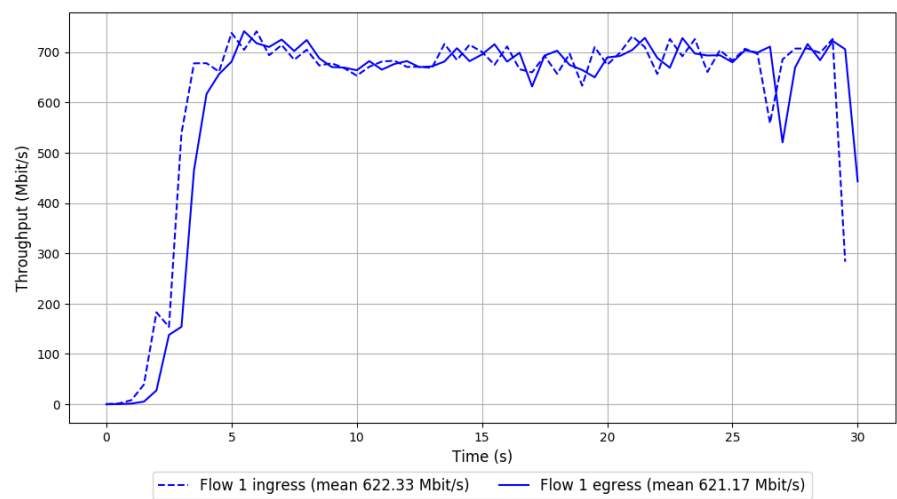
-- Flow 1:

Average throughput: 621.17 Mbit/s

95th percentile per-packet one-way delay: 152.117 ms

Loss rate: 0.18%

Run 5: Report of Indigo-MusesD — Data Link

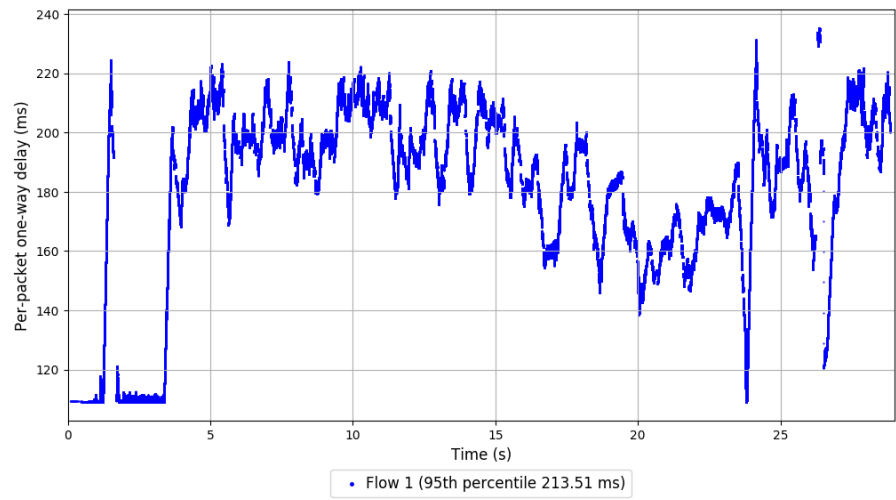
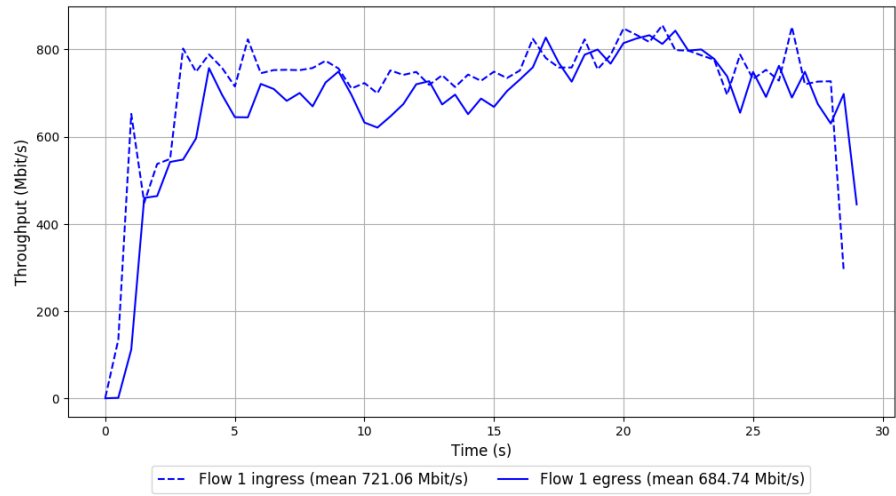


```
Run 1: Statistics of Indigo-MusesT

Start at: 2018-12-19 22:44:44
End at: 2018-12-19 22:45:14
Local clock offset: 8.749 ms
Remote clock offset: 9.472 ms

# Below is generated by plot.py at 2018-12-20 02:12:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 684.74 Mbit/s
95th percentile per-packet one-way delay: 213.508 ms
Loss rate: 5.17%
-- Flow 1:
Average throughput: 684.74 Mbit/s
95th percentile per-packet one-way delay: 213.508 ms
Loss rate: 5.17%
```

Run 1: Report of Indigo-MusesT — Data Link

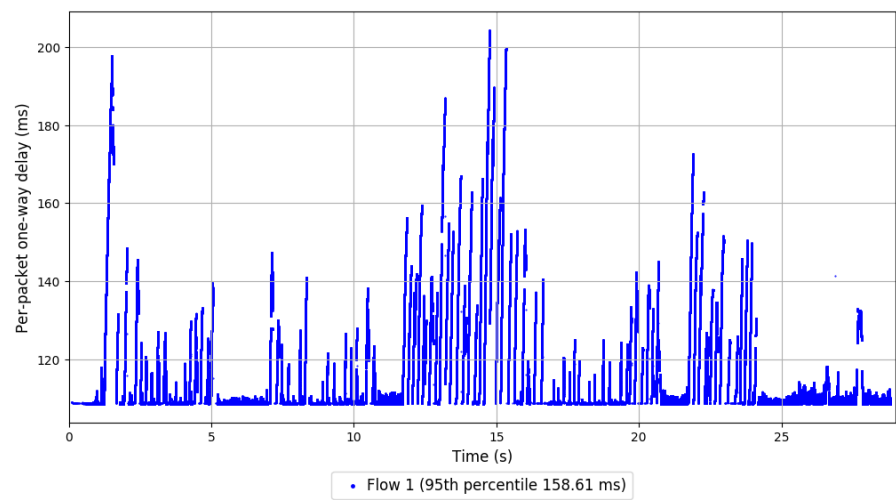
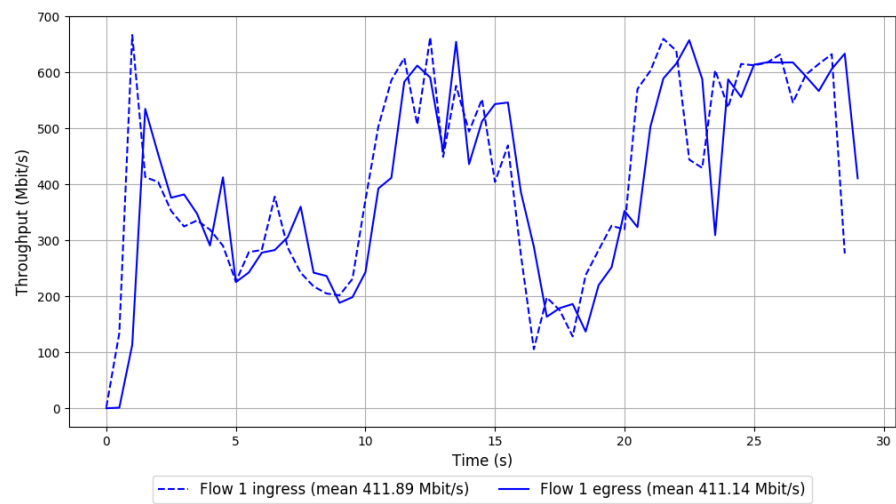


Run 2: Statistics of Indigo-MusesT

Start at: 2018-12-19 23:14:00
End at: 2018-12-19 23:14:30
Local clock offset: 19.387 ms
Remote clock offset: 21.623 ms

Below is generated by plot.py at 2018-12-20 02:12:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 411.14 Mbit/s
95th percentile per-packet one-way delay: 158.606 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 411.14 Mbit/s
95th percentile per-packet one-way delay: 158.606 ms
Loss rate: 0.18%

Run 2: Report of Indigo-MusesT — Data Link

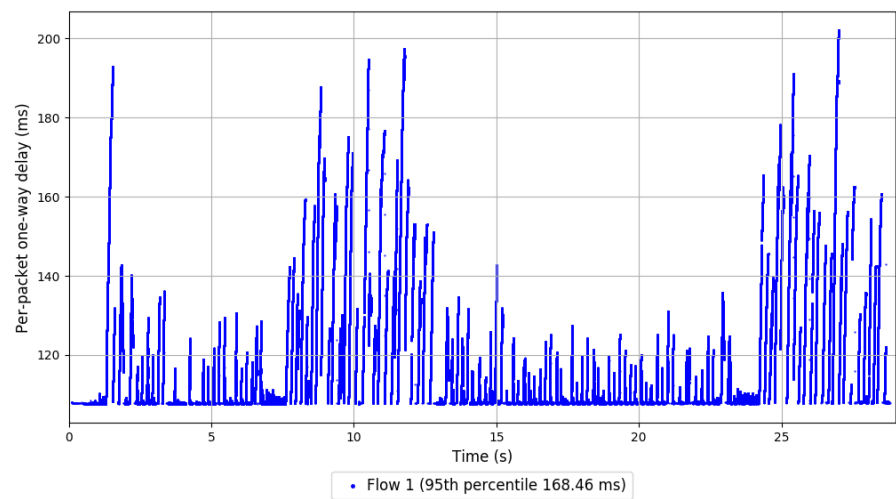
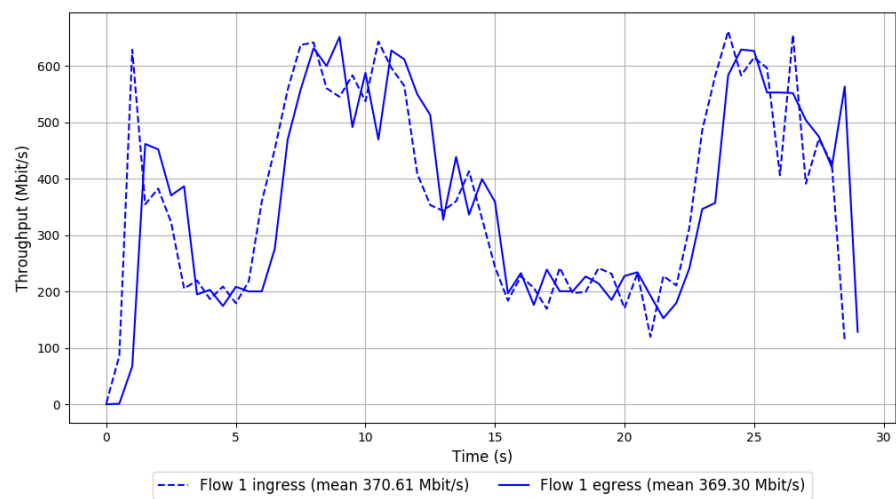


Run 3: Statistics of Indigo-MusesT

Start at: 2018-12-19 23:43:16
End at: 2018-12-19 23:43:46
Local clock offset: 39.431 ms
Remote clock offset: 41.019 ms

Below is generated by plot.py at 2018-12-20 02:12:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 369.30 Mbit/s
95th percentile per-packet one-way delay: 168.463 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 369.30 Mbit/s
95th percentile per-packet one-way delay: 168.463 ms
Loss rate: 0.35%

Run 3: Report of Indigo-MusesT — Data Link

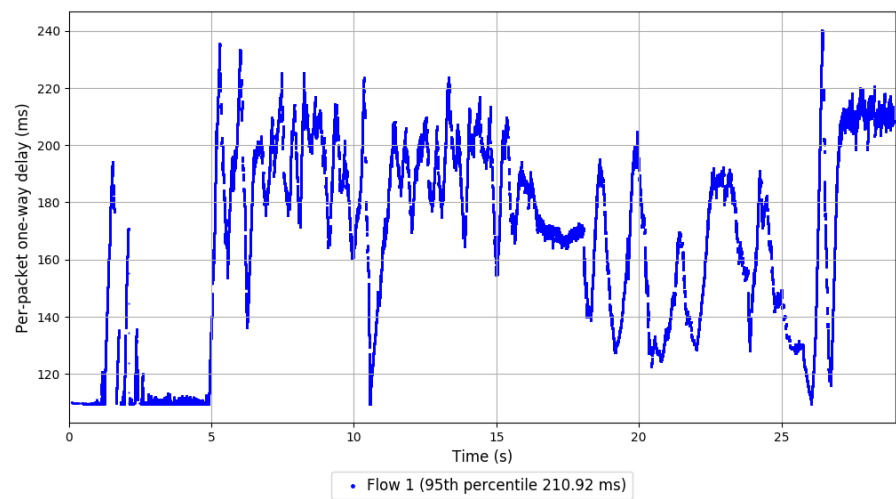
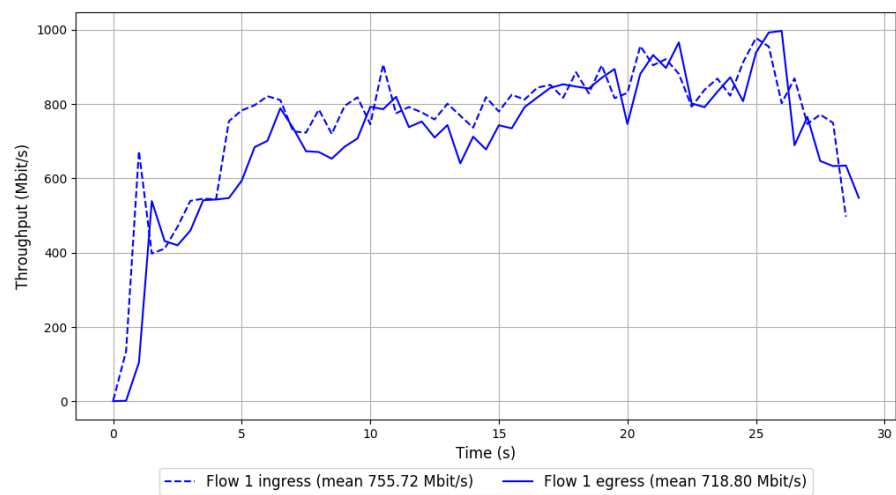


Run 4: Statistics of Indigo-MusesT

Start at: 2018-12-20 00:11:51
End at: 2018-12-20 00:12:21
Local clock offset: 16.823 ms
Remote clock offset: 18.605 ms

Below is generated by plot.py at 2018-12-20 02:22:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 718.80 Mbit/s
95th percentile per-packet one-way delay: 210.923 ms
Loss rate: 4.88%
-- Flow 1:
Average throughput: 718.80 Mbit/s
95th percentile per-packet one-way delay: 210.923 ms
Loss rate: 4.88%

Run 4: Report of Indigo-MusesT — Data Link



Run 5: Statistics of Indigo-MusesT

Start at: 2018-12-20 00:41:04

End at: 2018-12-20 00:41:34

Local clock offset: 7.93 ms

Remote clock offset: 8.078 ms

Below is generated by plot.py at 2018-12-20 02:22:30

Datalink statistics

-- Total of 1 flow:

Average throughput: 481.86 Mbit/s

95th percentile per-packet one-way delay: 201.752 ms

Loss rate: 2.81%

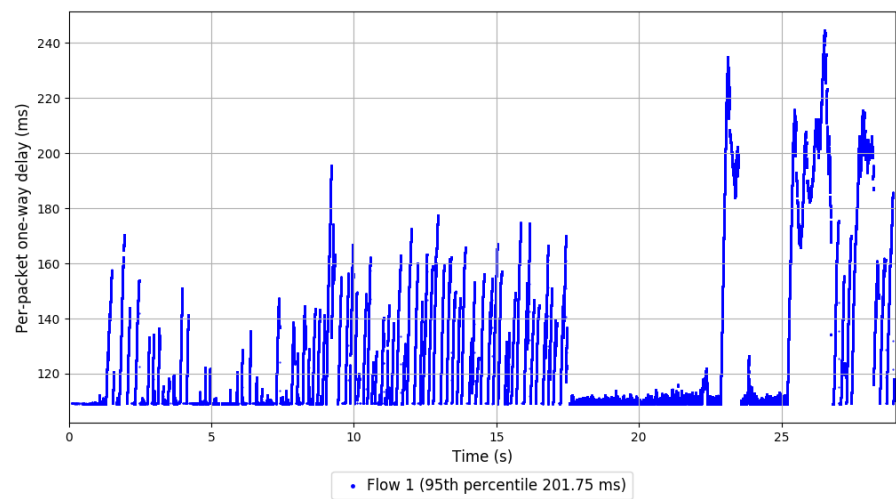
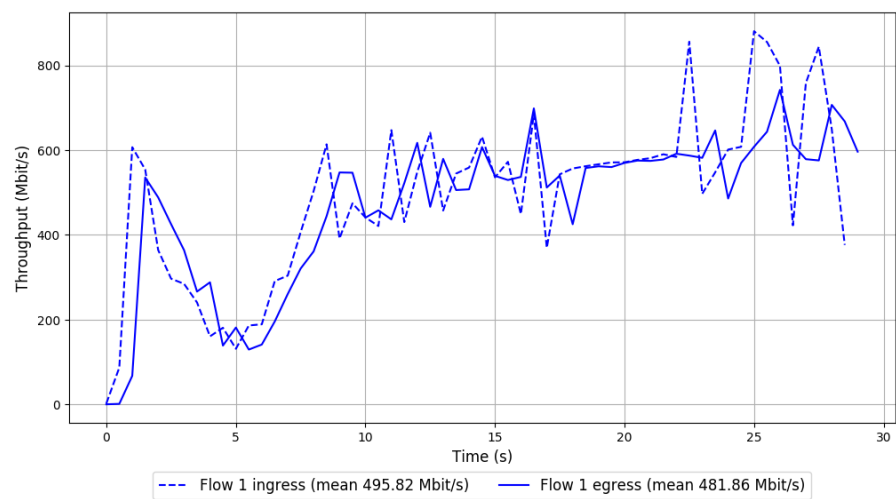
-- Flow 1:

Average throughput: 481.86 Mbit/s

95th percentile per-packet one-way delay: 201.752 ms

Loss rate: 2.81%

Run 5: Report of Indigo-MusesT — Data Link

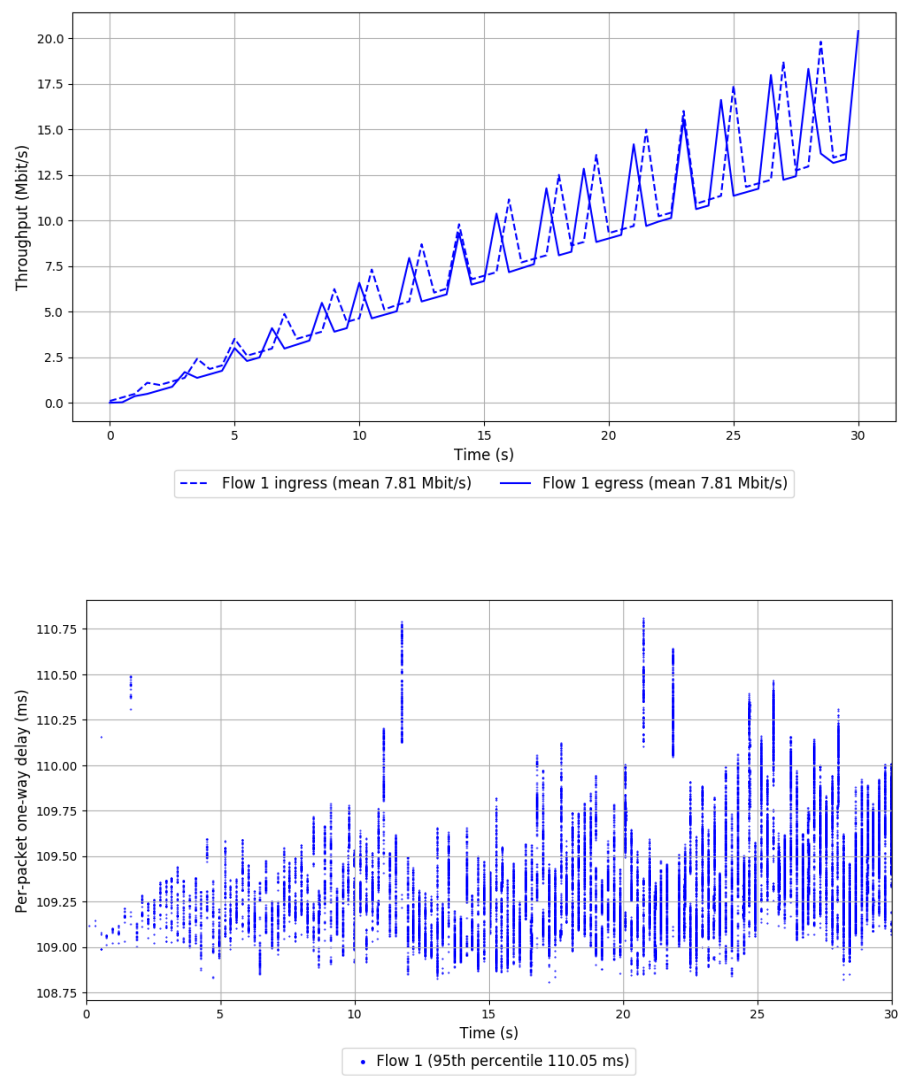


```
Run 1: Statistics of LEDBAT

Start at: 2018-12-19 22:53:40
End at: 2018-12-19 22:54:10
Local clock offset: 14.144 ms
Remote clock offset: 15.197 ms

# Below is generated by plot.py at 2018-12-20 02:22:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 110.051 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 110.051 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

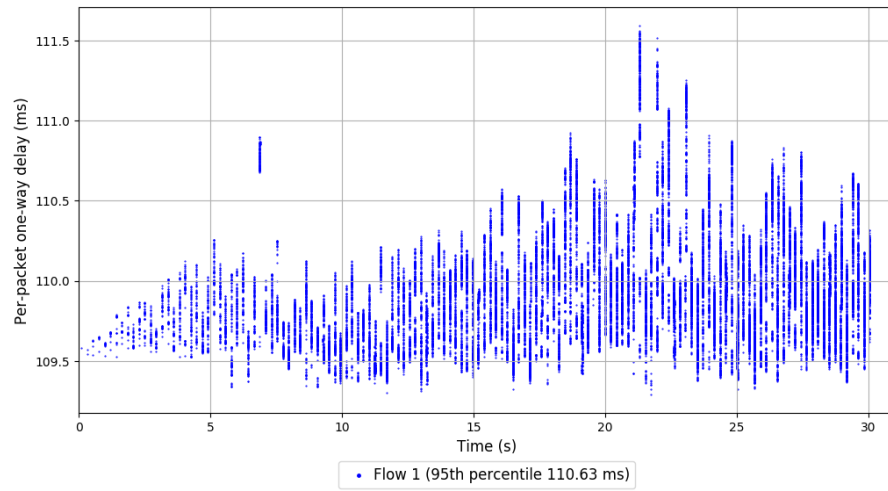
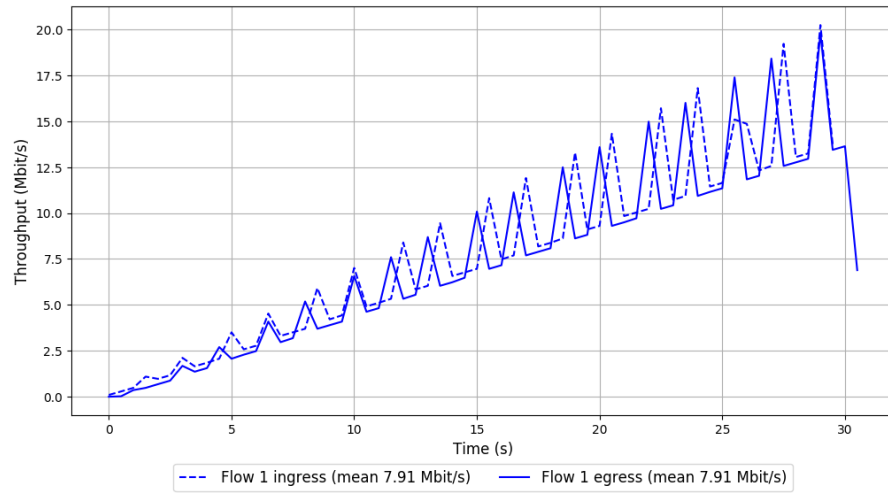


Run 2: Statistics of LEDBAT

Start at: 2018-12-19 23:23:34
End at: 2018-12-19 23:24:04
Local clock offset: 20.619 ms
Remote clock offset: 22.767 ms

Below is generated by plot.py at 2018-12-20 02:22:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 110.627 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 110.627 ms
Loss rate: 0.00%

Run 2: Report of LEDBAT — Data Link

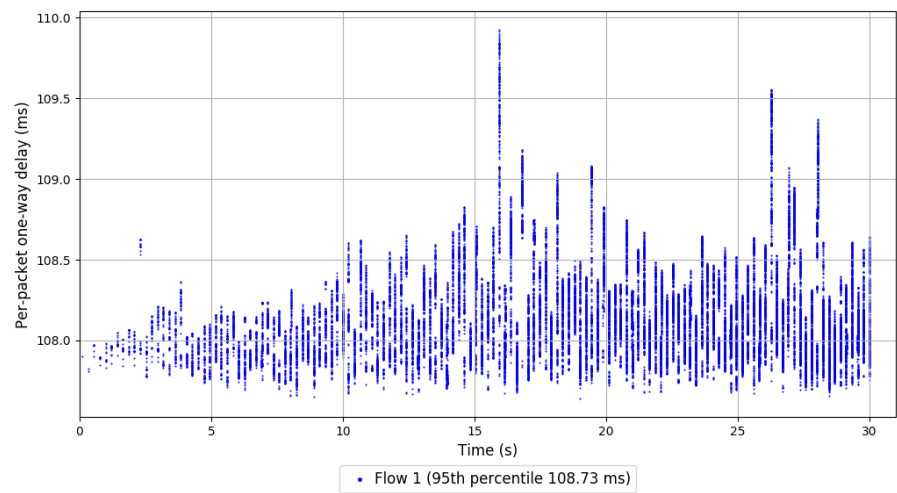
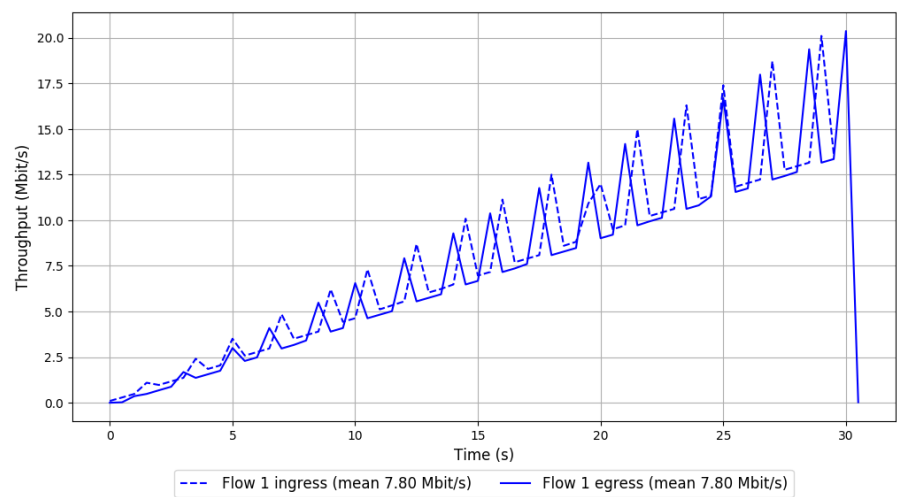


Run 3: Statistics of LEDBAT

Start at: 2018-12-19 23:51:55
End at: 2018-12-19 23:52:25
Local clock offset: 19.96 ms
Remote clock offset: 20.006 ms

Below is generated by plot.py at 2018-12-20 02:22:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.80 Mbit/s
95th percentile per-packet one-way delay: 108.734 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.80 Mbit/s
95th percentile per-packet one-way delay: 108.734 ms
Loss rate: 0.00%

Run 3: Report of LEDBAT — Data Link

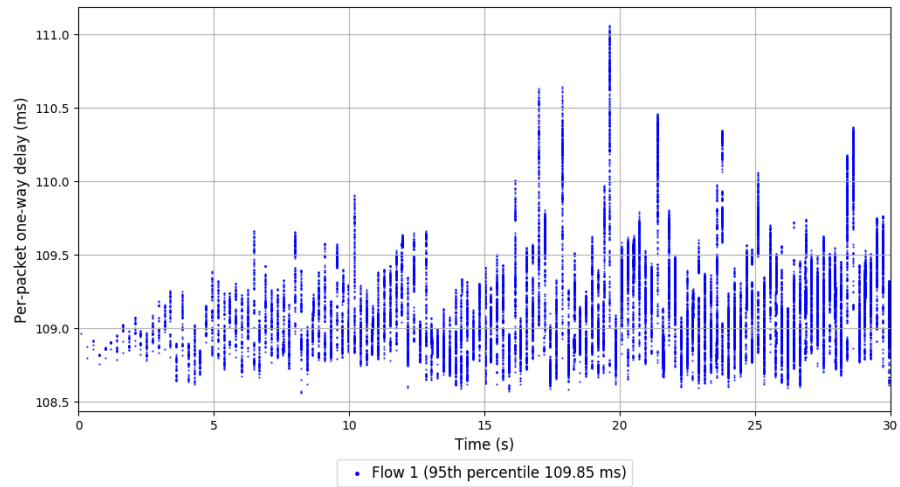
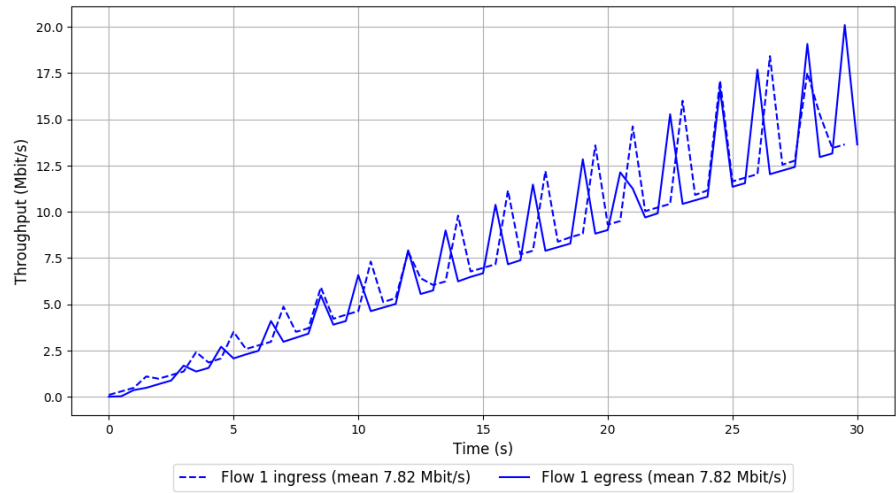


Run 4: Statistics of LEDBAT

Start at: 2018-12-20 00:21:00
End at: 2018-12-20 00:21:30
Local clock offset: 13.727 ms
Remote clock offset: 14.601 ms

Below is generated by plot.py at 2018-12-20 02:22:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.82 Mbit/s
95th percentile per-packet one-way delay: 109.850 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.82 Mbit/s
95th percentile per-packet one-way delay: 109.850 ms
Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-12-20 00:49:53

End at: 2018-12-20 00:50:23

Local clock offset: 8.928 ms

Remote clock offset: 9.771 ms

Below is generated by plot.py at 2018-12-20 02:22:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.91 Mbit/s

95th percentile per-packet one-way delay: 109.941 ms

Loss rate: 0.00%

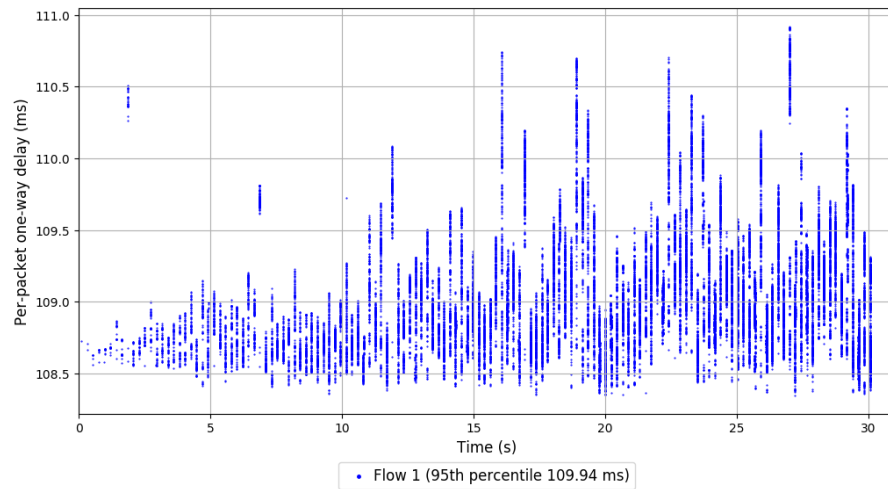
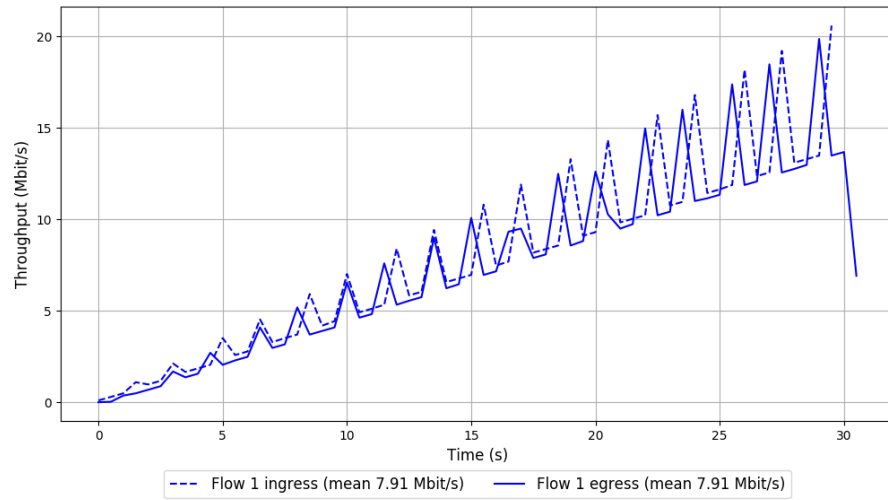
-- Flow 1:

Average throughput: 7.91 Mbit/s

95th percentile per-packet one-way delay: 109.941 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-12-19 23:01:05

End at: 2018-12-19 23:01:35

Local clock offset: 15.903 ms

Remote clock offset: 17.455 ms

Below is generated by plot.py at 2018-12-20 02:23:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 382.59 Mbit/s

95th percentile per-packet one-way delay: 220.938 ms

Loss rate: 2.91%

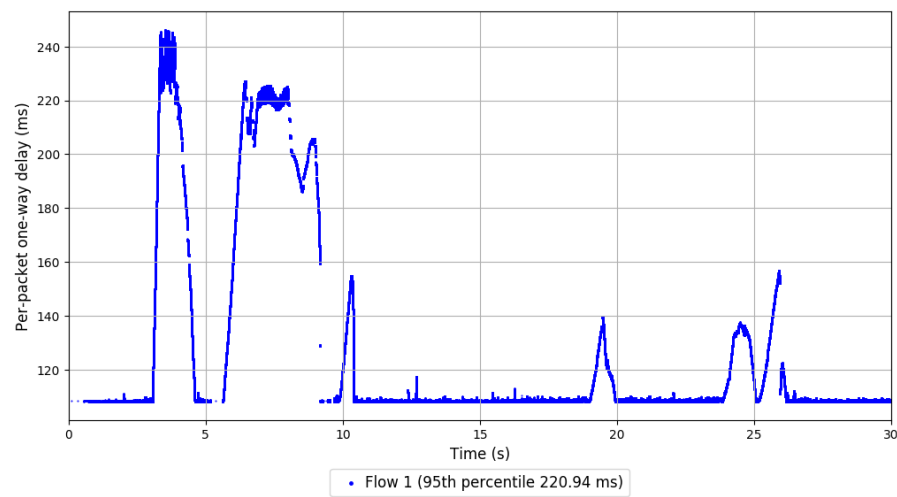
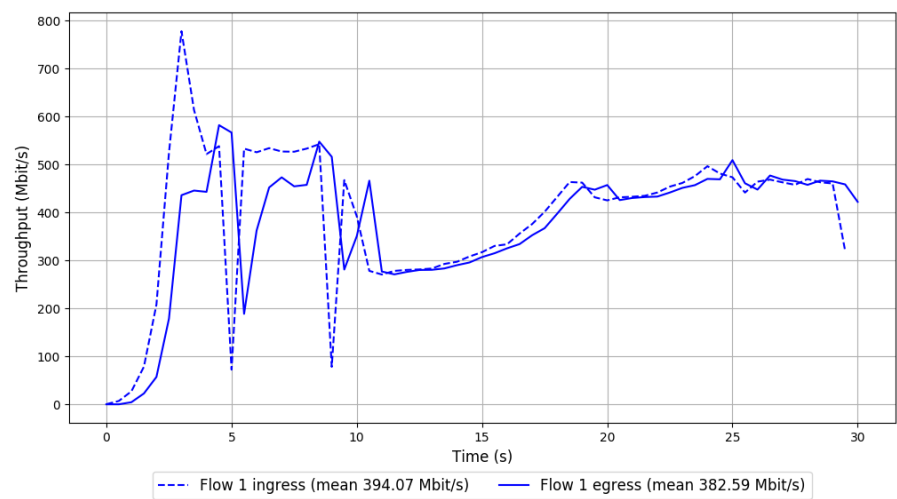
-- Flow 1:

Average throughput: 382.59 Mbit/s

95th percentile per-packet one-way delay: 220.938 ms

Loss rate: 2.91%

Run 1: Report of PCC-Allegro — Data Link

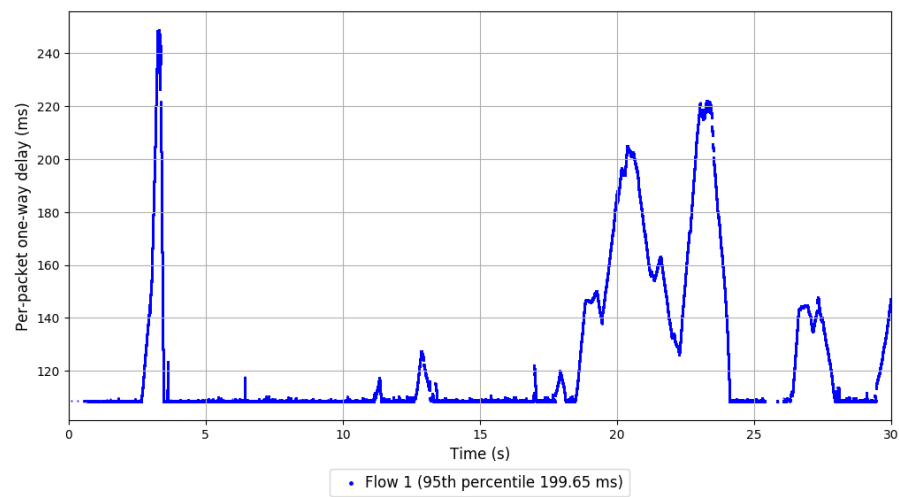
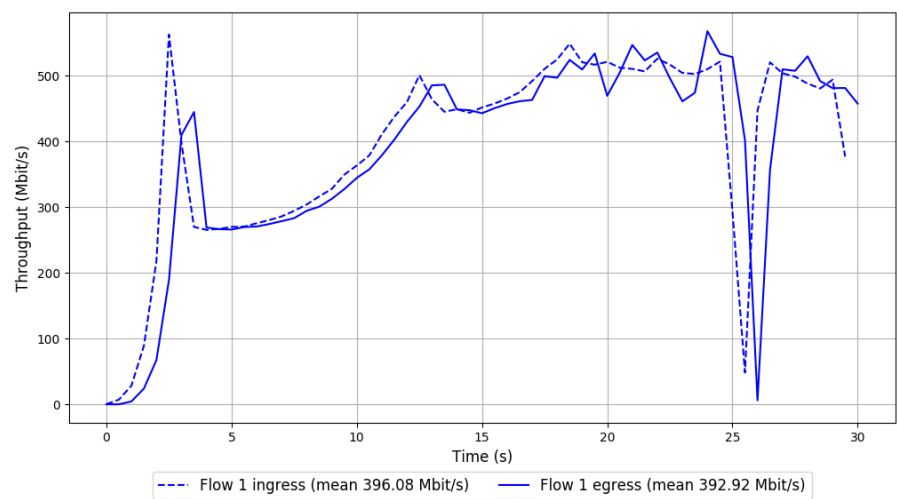


Run 2: Statistics of PCC-Allegro

Start at: 2018-12-19 23:30:57
End at: 2018-12-19 23:31:27
Local clock offset: 26.253 ms
Remote clock offset: 28.813 ms

Below is generated by plot.py at 2018-12-20 02:24:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 392.92 Mbit/s
95th percentile per-packet one-way delay: 199.649 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 392.92 Mbit/s
95th percentile per-packet one-way delay: 199.649 ms
Loss rate: 0.79%

Run 2: Report of PCC-Allegro — Data Link

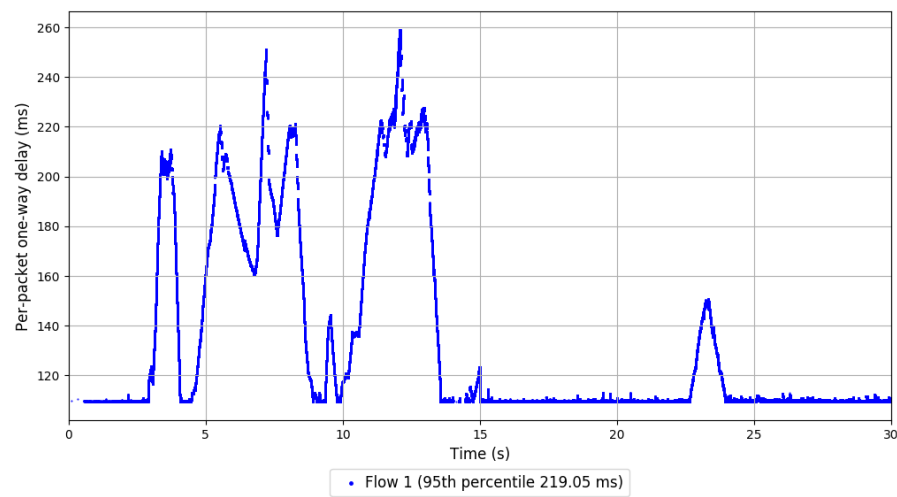
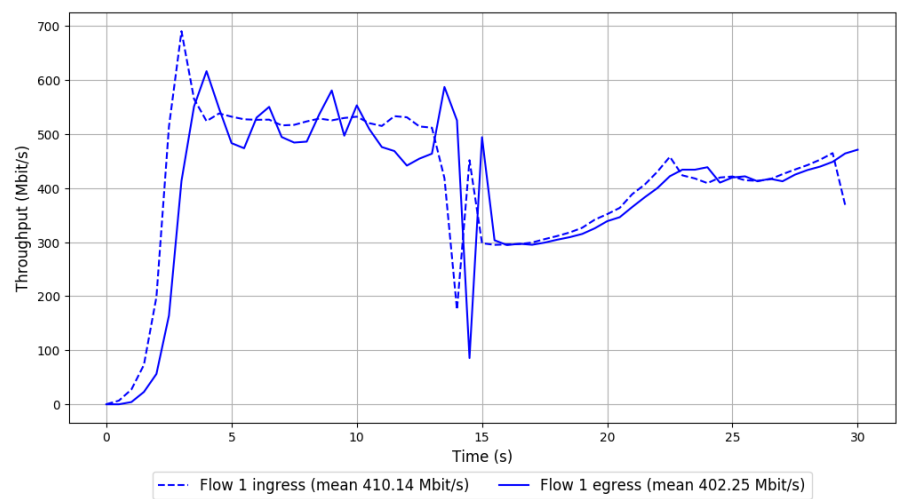


Run 3: Statistics of PCC-Allegro

Start at: 2018-12-19 23:59:11
End at: 2018-12-19 23:59:41
Local clock offset: 14.586 ms
Remote clock offset: 15.919 ms

Below is generated by plot.py at 2018-12-20 02:24:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 402.25 Mbit/s
95th percentile per-packet one-way delay: 219.046 ms
Loss rate: 1.92%
-- Flow 1:
Average throughput: 402.25 Mbit/s
95th percentile per-packet one-way delay: 219.046 ms
Loss rate: 1.92%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-12-20 00:28:32

End at: 2018-12-20 00:29:02

Local clock offset: 7.893 ms

Remote clock offset: 8.763 ms

Below is generated by plot.py at 2018-12-20 02:24:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 358.81 Mbit/s

95th percentile per-packet one-way delay: 220.800 ms

Loss rate: 2.24%

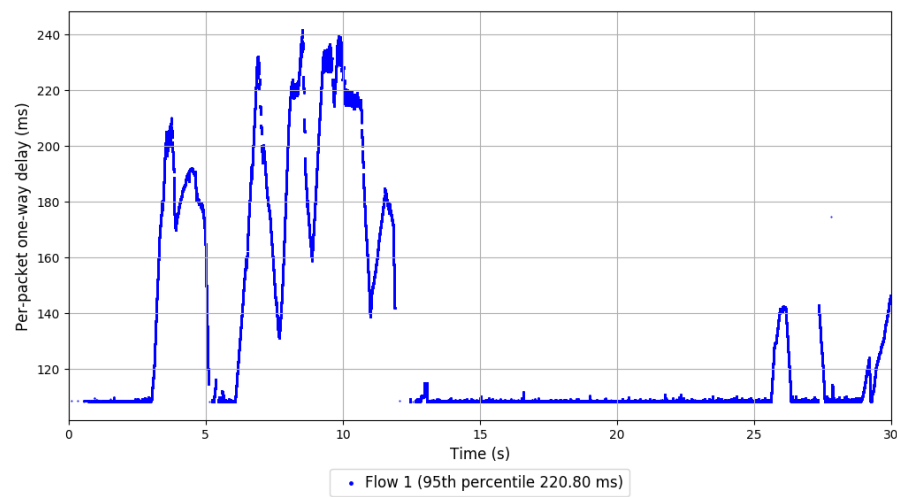
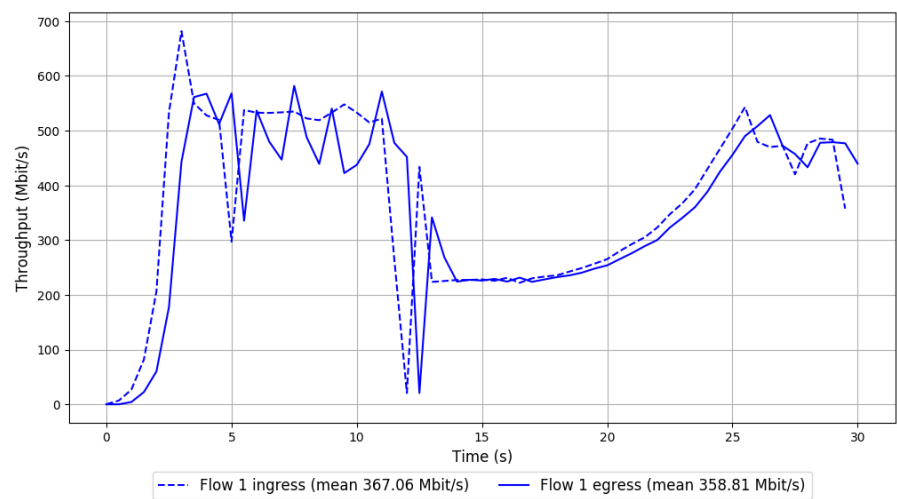
-- Flow 1:

Average throughput: 358.81 Mbit/s

95th percentile per-packet one-way delay: 220.800 ms

Loss rate: 2.24%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-12-20 00:57:08

End at: 2018-12-20 00:57:38

Local clock offset: 4.857 ms

Remote clock offset: 5.789 ms

Below is generated by plot.py at 2018-12-20 02:28:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 453.27 Mbit/s

95th percentile per-packet one-way delay: 219.927 ms

Loss rate: 1.78%

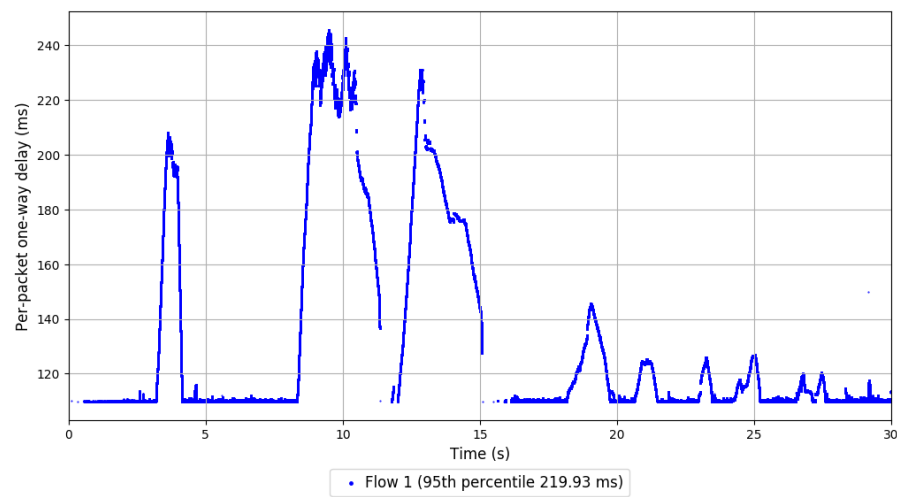
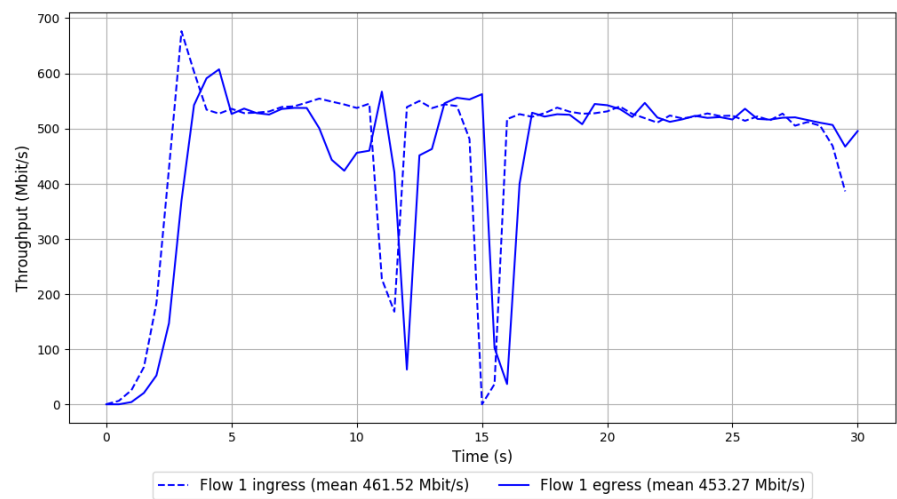
-- Flow 1:

Average throughput: 453.27 Mbit/s

95th percentile per-packet one-way delay: 219.927 ms

Loss rate: 1.78%

Run 5: Report of PCC-Allegro — Data Link

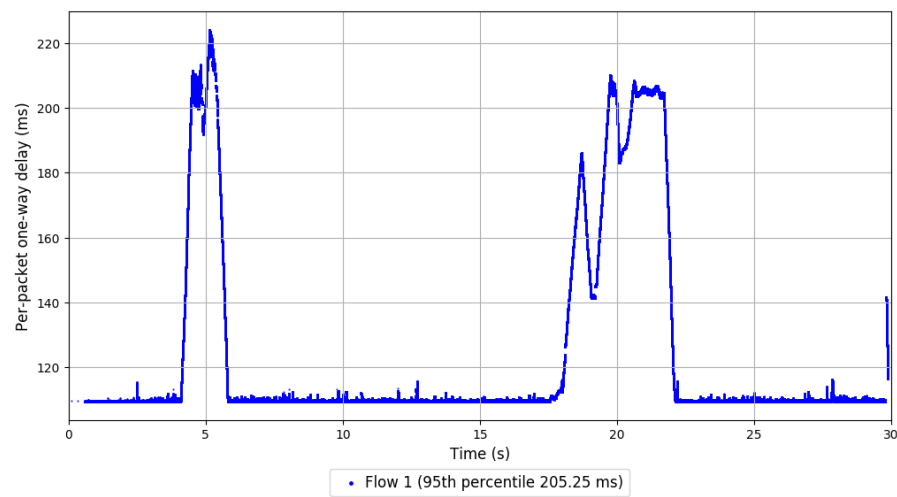
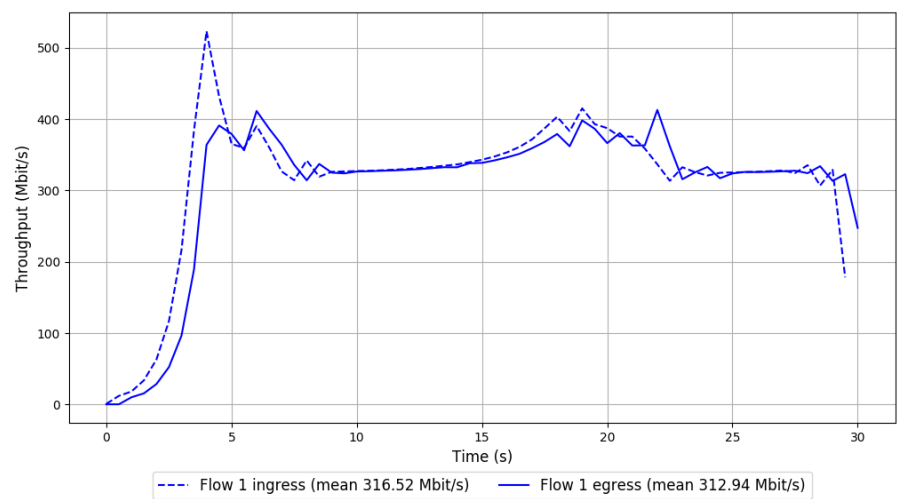


Run 1: Statistics of PCC-Expr

Start at: 2018-12-19 22:51:59
End at: 2018-12-19 22:52:29
Local clock offset: 16.598 ms
Remote clock offset: 18.685 ms

Below is generated by plot.py at 2018-12-20 02:28:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 312.94 Mbit/s
95th percentile per-packet one-way delay: 205.250 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 312.94 Mbit/s
95th percentile per-packet one-way delay: 205.250 ms
Loss rate: 1.13%

Run 1: Report of PCC-Expr — Data Link

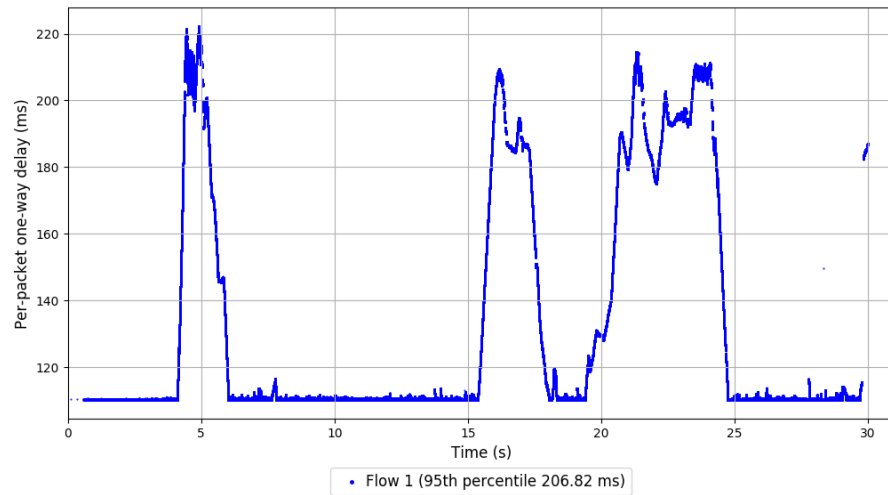
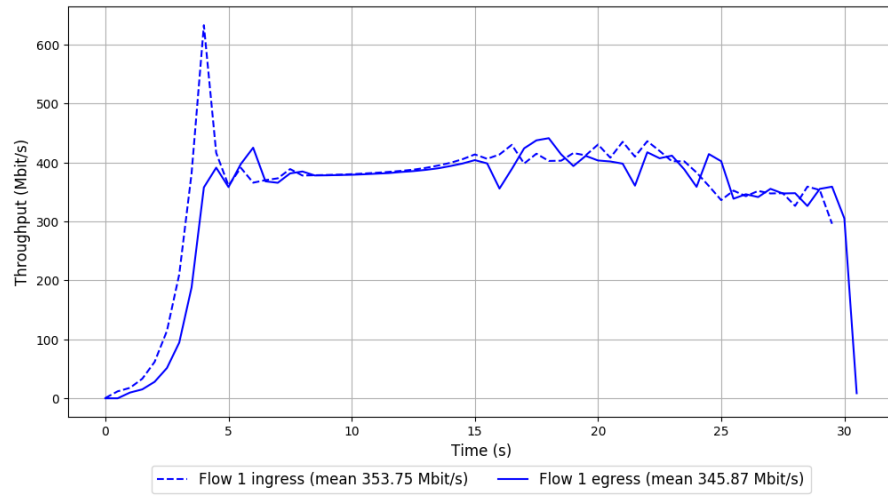


Run 2: Statistics of PCC-Expr

Start at: 2018-12-19 23:21:23
End at: 2018-12-19 23:21:53
Local clock offset: 19.83 ms
Remote clock offset: 21.542 ms

Below is generated by plot.py at 2018-12-20 02:29:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 345.87 Mbit/s
95th percentile per-packet one-way delay: 206.825 ms
Loss rate: 2.23%
-- Flow 1:
Average throughput: 345.87 Mbit/s
95th percentile per-packet one-way delay: 206.825 ms
Loss rate: 2.23%

Run 2: Report of PCC-Expr — Data Link

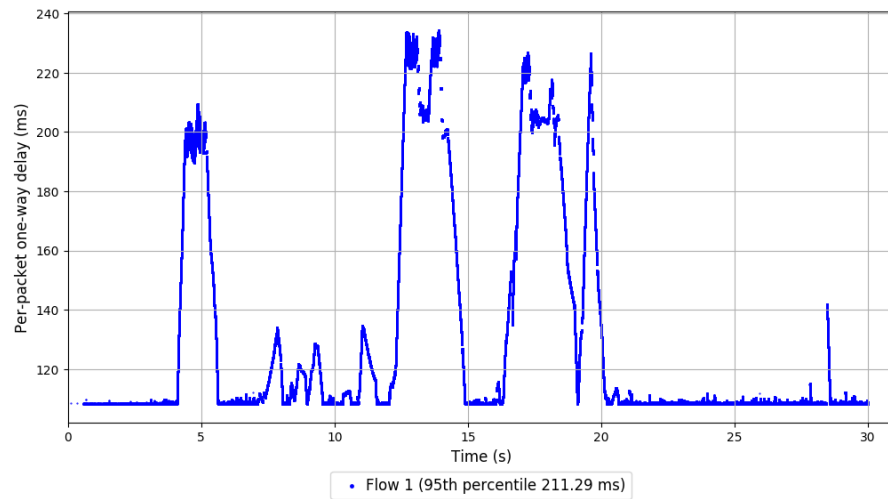
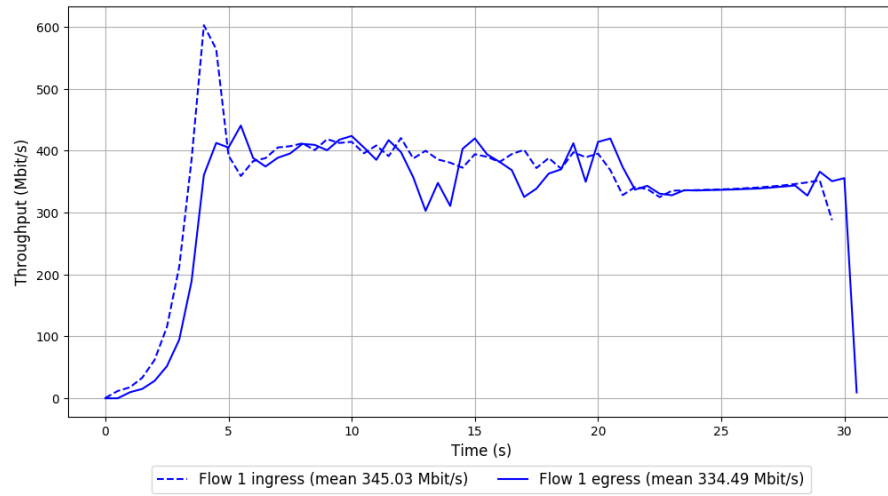


Run 3: Statistics of PCC-Expr

Start at: 2018-12-19 23:50:12
End at: 2018-12-19 23:50:43
Local clock offset: 22.017 ms
Remote clock offset: 22.864 ms

Below is generated by plot.py at 2018-12-20 02:34:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 334.49 Mbit/s
95th percentile per-packet one-way delay: 211.288 ms
Loss rate: 3.06%
-- Flow 1:
Average throughput: 334.49 Mbit/s
95th percentile per-packet one-way delay: 211.288 ms
Loss rate: 3.06%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-12-20 00:19:15

End at: 2018-12-20 00:19:45

Local clock offset: 16.255 ms

Remote clock offset: 17.34 ms

Below is generated by plot.py at 2018-12-20 02:35:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 342.25 Mbit/s

95th percentile per-packet one-way delay: 159.712 ms

Loss rate: 0.39%

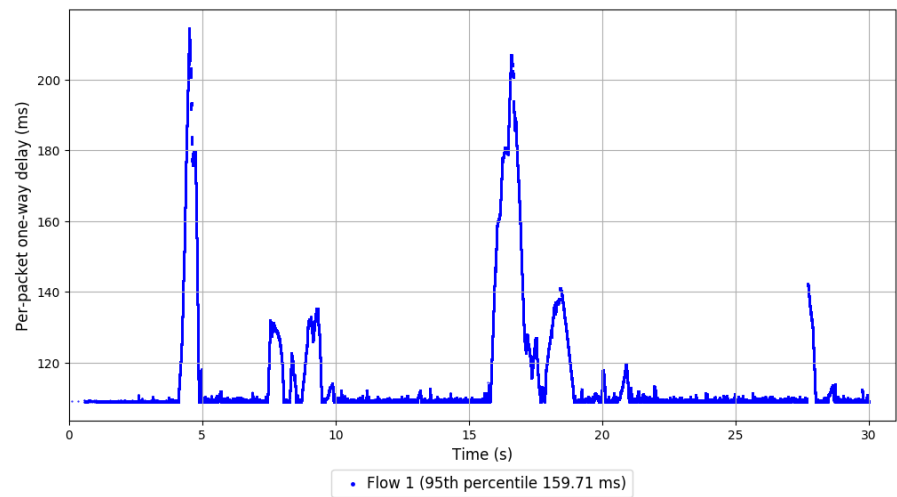
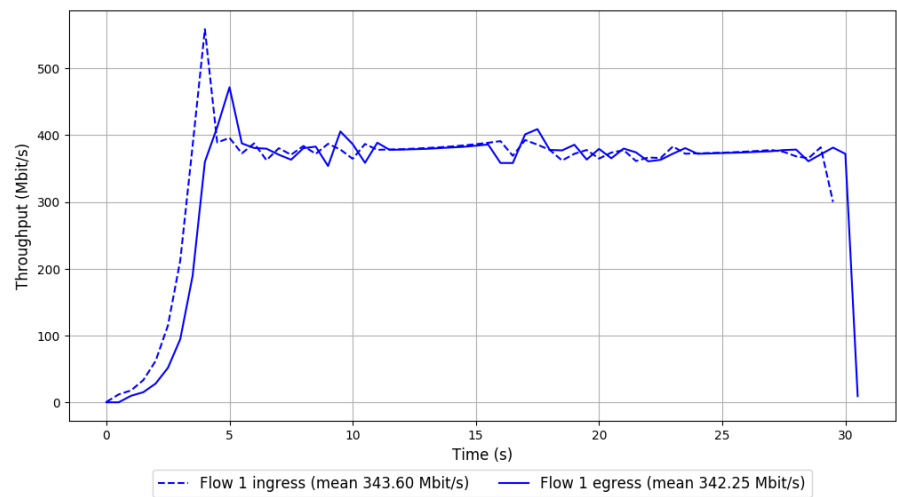
-- Flow 1:

Average throughput: 342.25 Mbit/s

95th percentile per-packet one-way delay: 159.712 ms

Loss rate: 0.39%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-12-20 00:48:10

End at: 2018-12-20 00:48:40

Local clock offset: 8.408 ms

Remote clock offset: 9.377 ms

Below is generated by plot.py at 2018-12-20 02:36:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 344.88 Mbit/s

95th percentile per-packet one-way delay: 184.658 ms

Loss rate: 1.23%

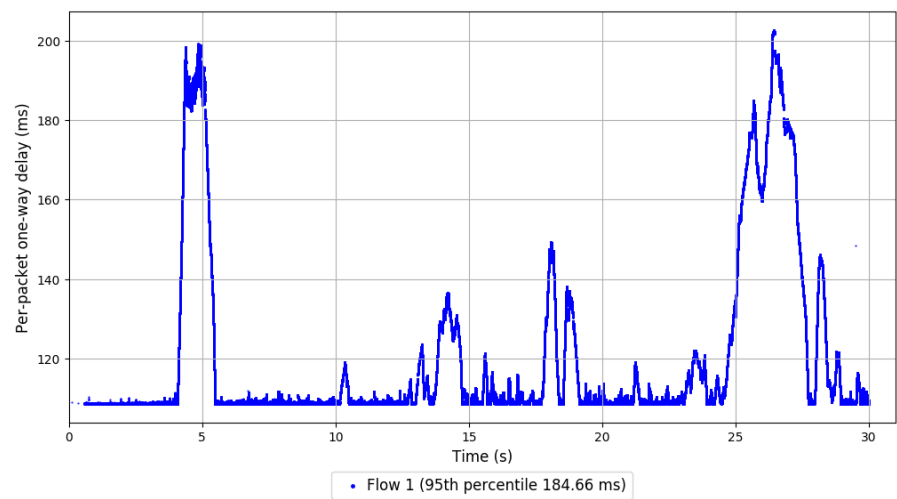
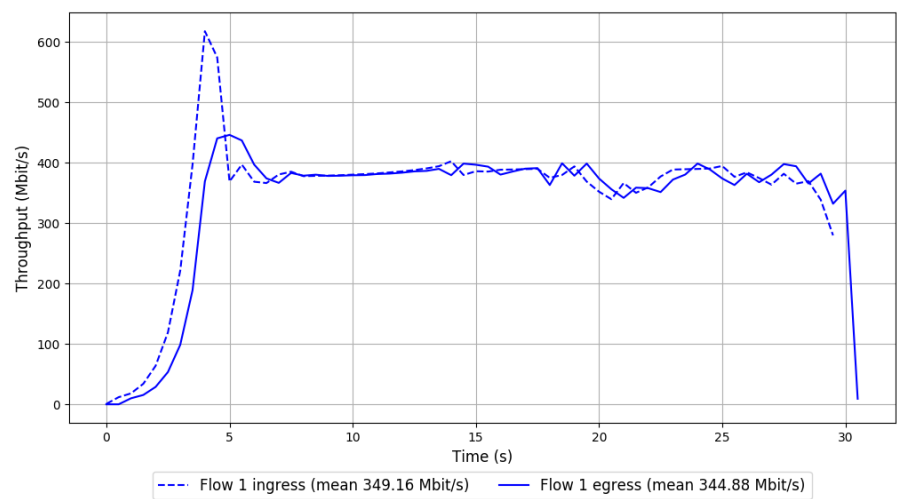
-- Flow 1:

Average throughput: 344.88 Mbit/s

95th percentile per-packet one-way delay: 184.658 ms

Loss rate: 1.23%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-12-19 22:49:22

End at: 2018-12-19 22:49:52

Local clock offset: 12.23 ms

Remote clock offset: 13.772 ms

Below is generated by plot.py at 2018-12-20 02:36:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 43.56 Mbit/s

95th percentile per-packet one-way delay: 109.611 ms

Loss rate: 0.00%

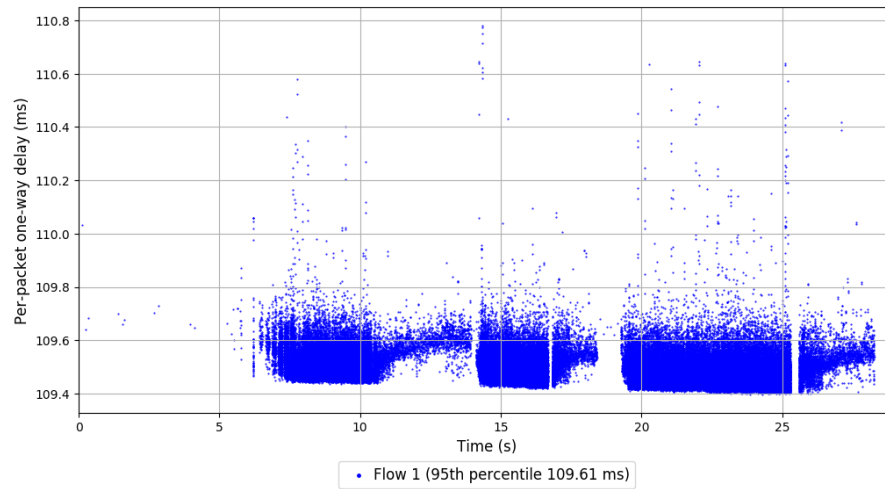
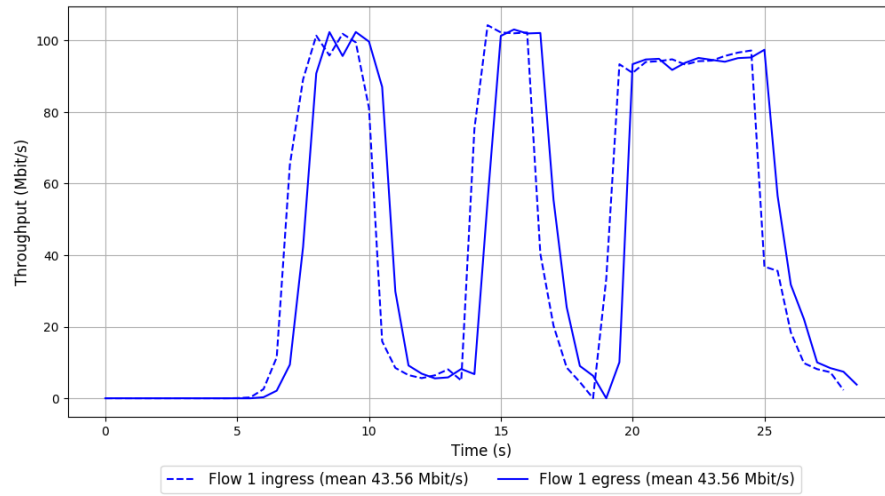
-- Flow 1:

Average throughput: 43.56 Mbit/s

95th percentile per-packet one-way delay: 109.611 ms

Loss rate: 0.00%

Run 1: Report of QUIC Cubic — Data Link

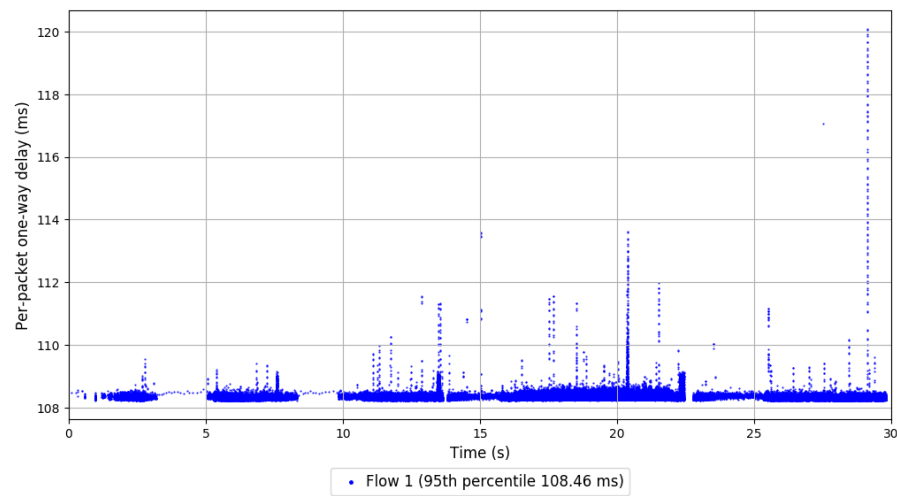
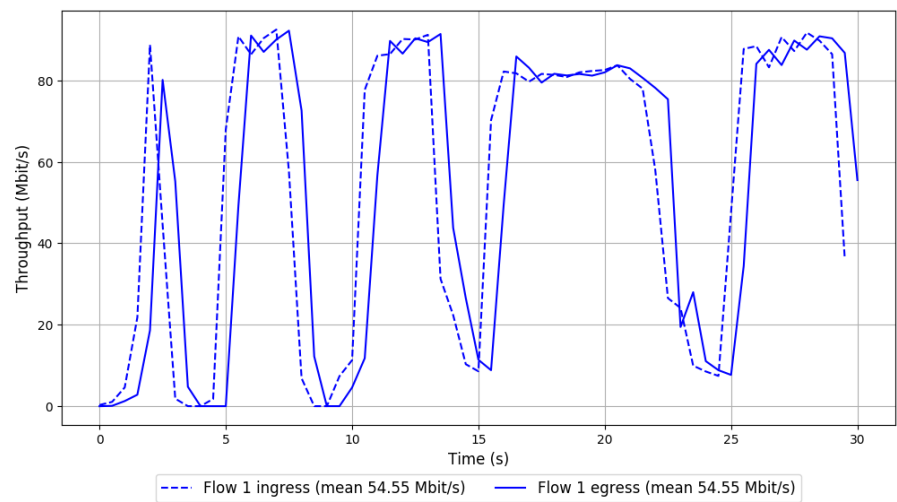


Run 2: Statistics of QUIC Cubic

Start at: 2018-12-19 23:18:29
End at: 2018-12-19 23:18:59
Local clock offset: 19.627 ms
Remote clock offset: 20.711 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 54.55 Mbit/s
95th percentile per-packet one-way delay: 108.456 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 54.55 Mbit/s
95th percentile per-packet one-way delay: 108.456 ms
Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-12-19 23:47:33

End at: 2018-12-19 23:48:03

Local clock offset: 26.284 ms

Remote clock offset: 27.479 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 64.75 Mbit/s

95th percentile per-packet one-way delay: 108.296 ms

Loss rate: 0.00%

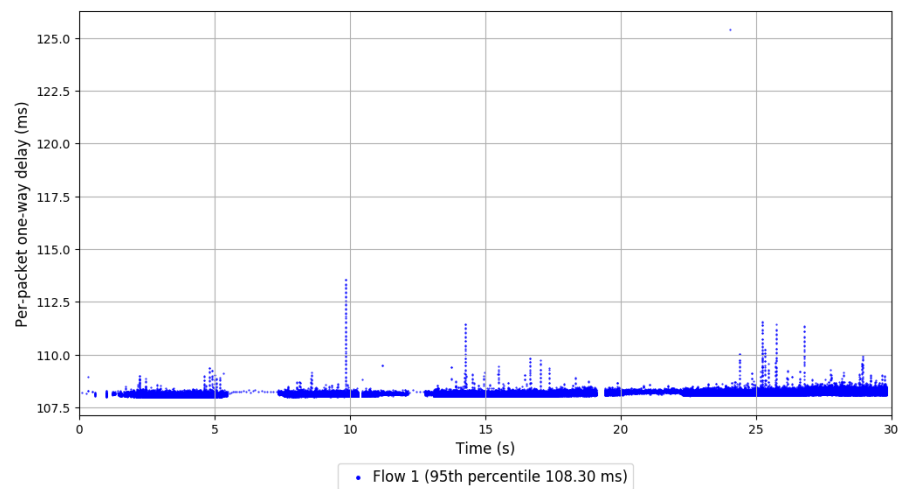
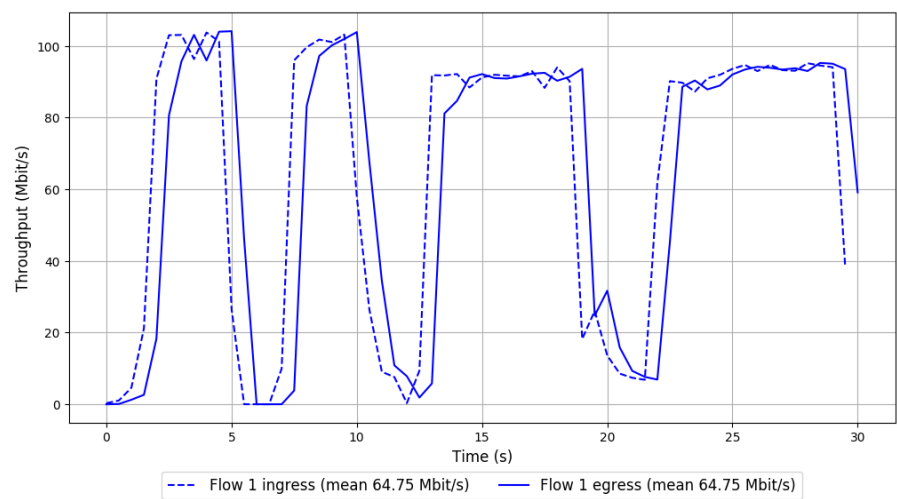
-- Flow 1:

Average throughput: 64.75 Mbit/s

95th percentile per-packet one-way delay: 108.296 ms

Loss rate: 0.00%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-12-20 00:16:30

End at: 2018-12-20 00:17:00

Local clock offset: 18.967 ms

Remote clock offset: 20.745 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 49.84 Mbit/s

95th percentile per-packet one-way delay: 109.074 ms

Loss rate: 0.00%

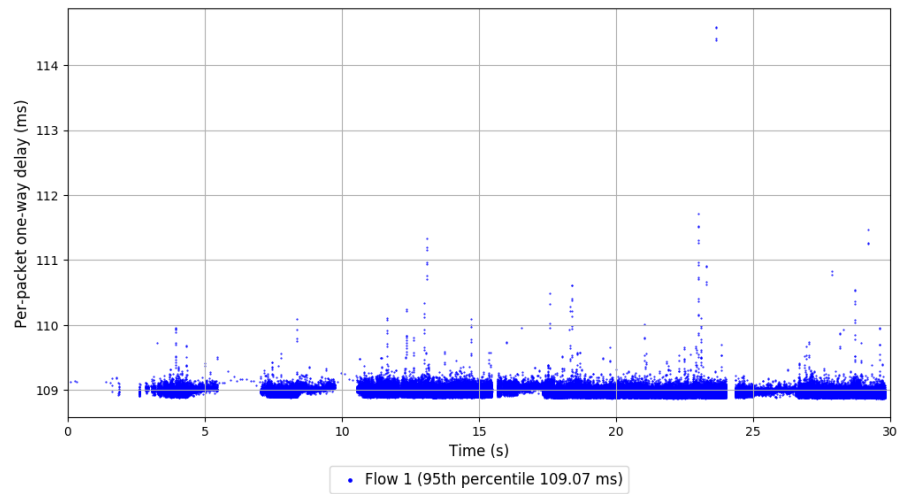
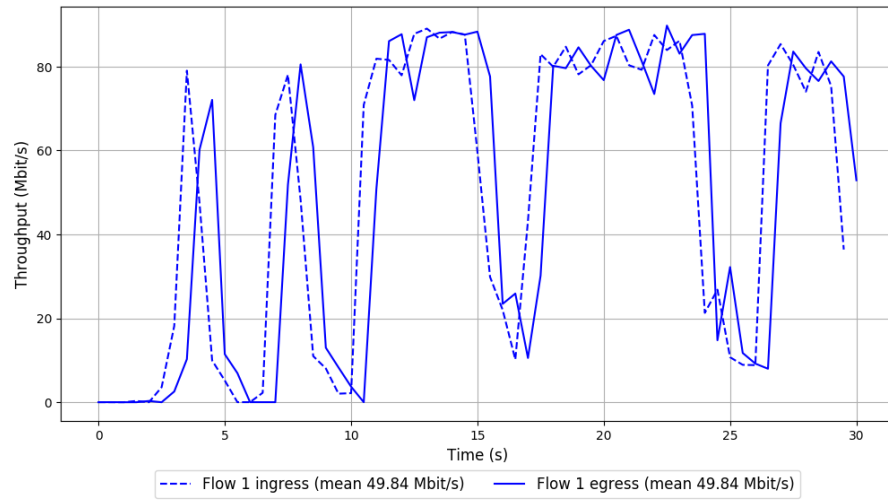
-- Flow 1:

Average throughput: 49.84 Mbit/s

95th percentile per-packet one-way delay: 109.074 ms

Loss rate: 0.00%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-12-20 00:45:30

End at: 2018-12-20 00:46:00

Local clock offset: 8.649 ms

Remote clock offset: 8.756 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 65.49 Mbit/s

95th percentile per-packet one-way delay: 108.770 ms

Loss rate: 0.00%

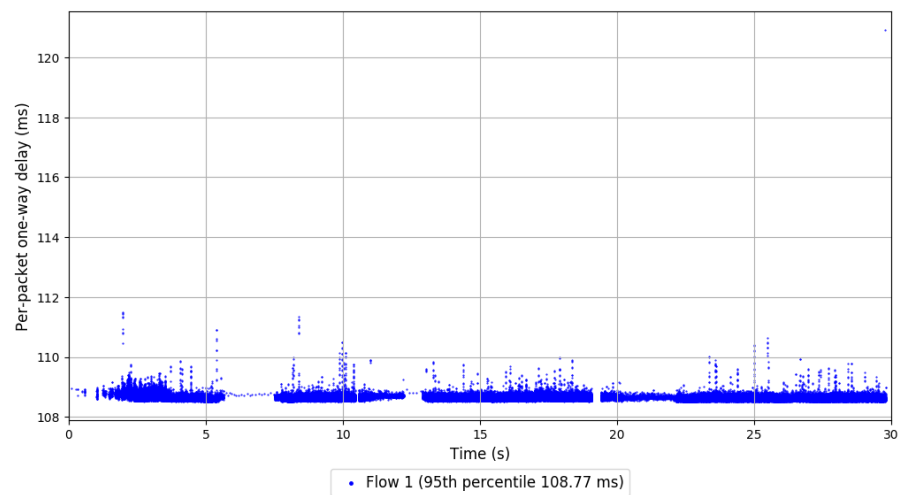
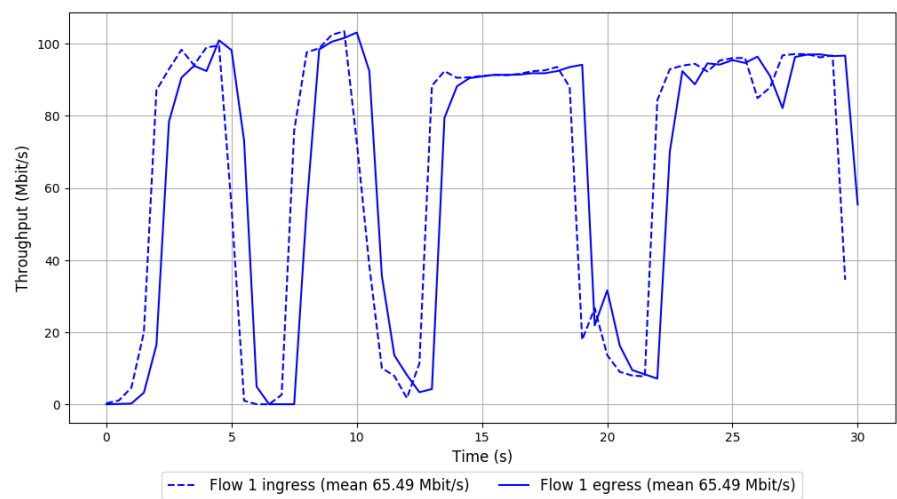
-- Flow 1:

Average throughput: 65.49 Mbit/s

95th percentile per-packet one-way delay: 108.770 ms

Loss rate: 0.00%

Run 5: Report of QUIC Cubic — Data Link

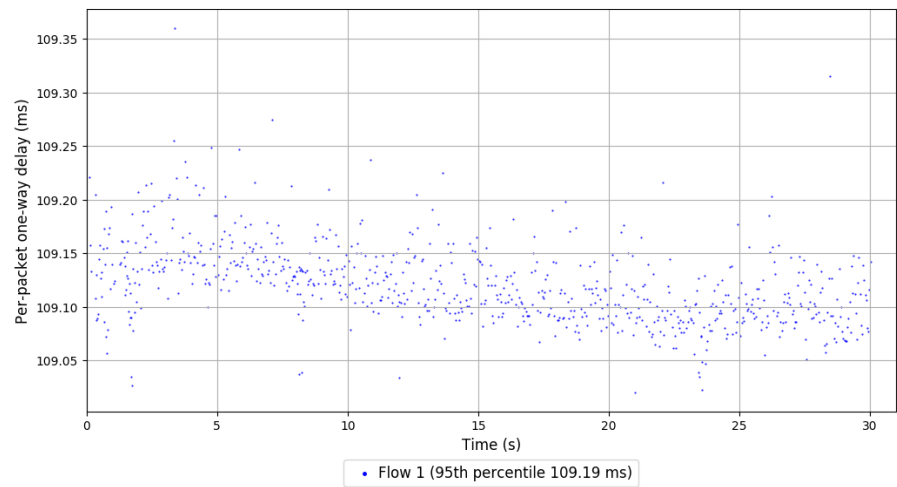
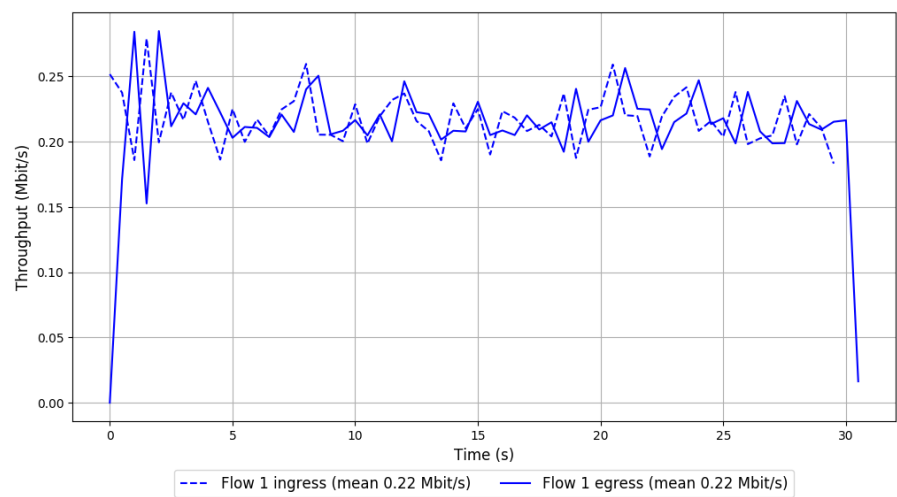


```
Run 1: Statistics of SCReAM

Start at: 2018-12-19 23:04:05
End at: 2018-12-19 23:04:35
Local clock offset: 18.202 ms
Remote clock offset: 20.814 ms

# Below is generated by plot.py at 2018-12-20 02:36:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.185 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.185 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

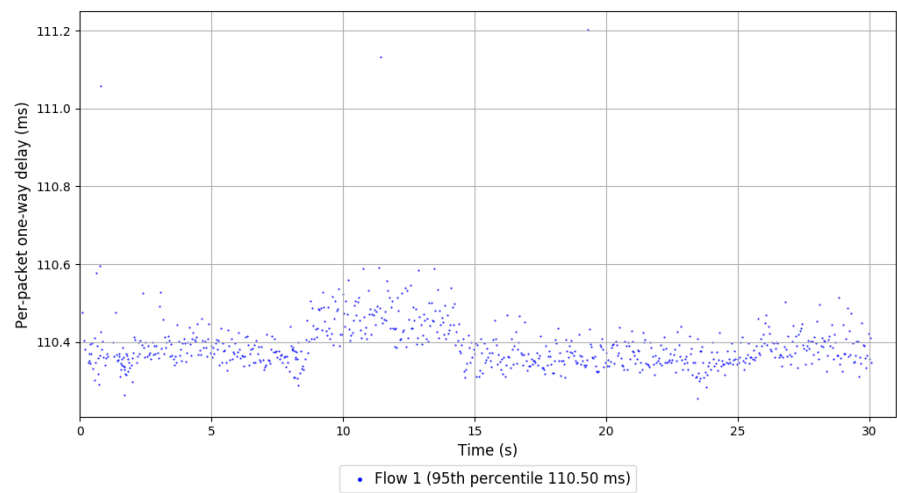
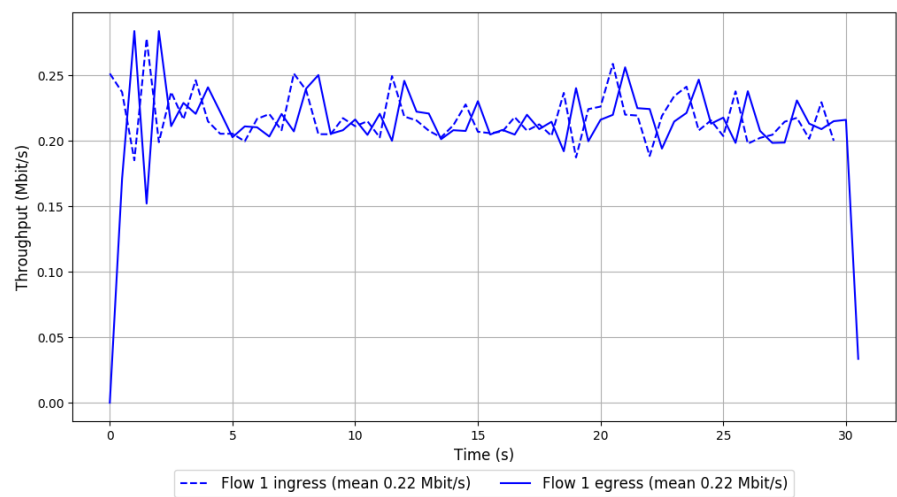


Run 2: Statistics of SCReAM

Start at: 2018-12-19 23:33:55
End at: 2018-12-19 23:34:25
Local clock offset: 28.141 ms
Remote clock offset: 31.627 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.496 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.496 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

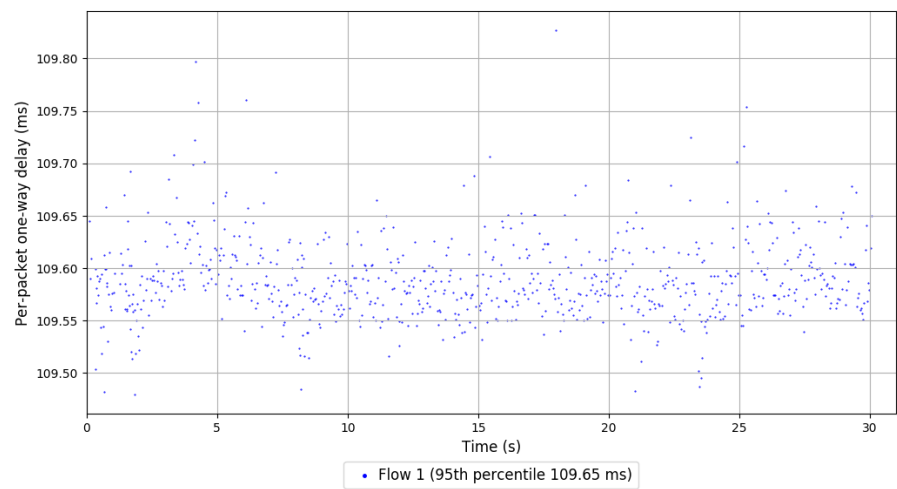
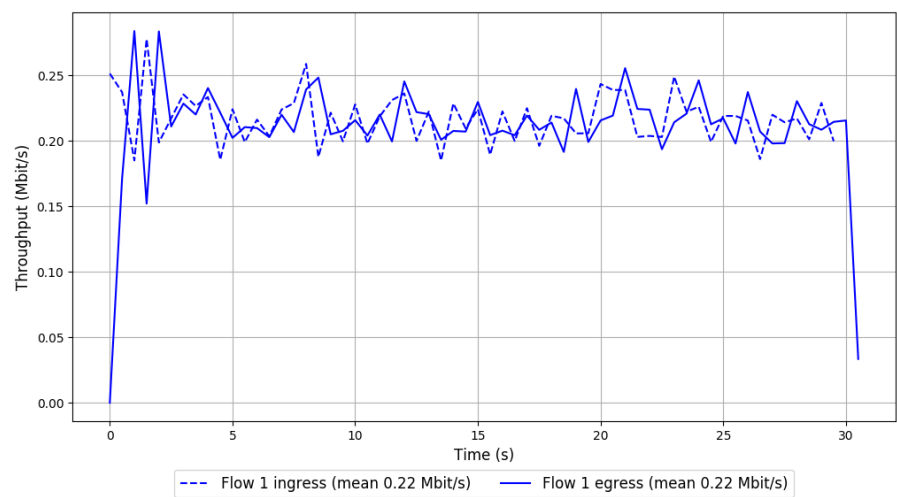


Run 3: Statistics of SCReAM

Start at: 2018-12-20 00:02:16
End at: 2018-12-20 00:02:46
Local clock offset: 14.465 ms
Remote clock offset: 15.847 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.653 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.653 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SCReAM

Start at: 2018-12-20 00:31:39

End at: 2018-12-20 00:32:09

Local clock offset: 7.506 ms

Remote clock offset: 7.951 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 108.363 ms

Loss rate: 0.00%

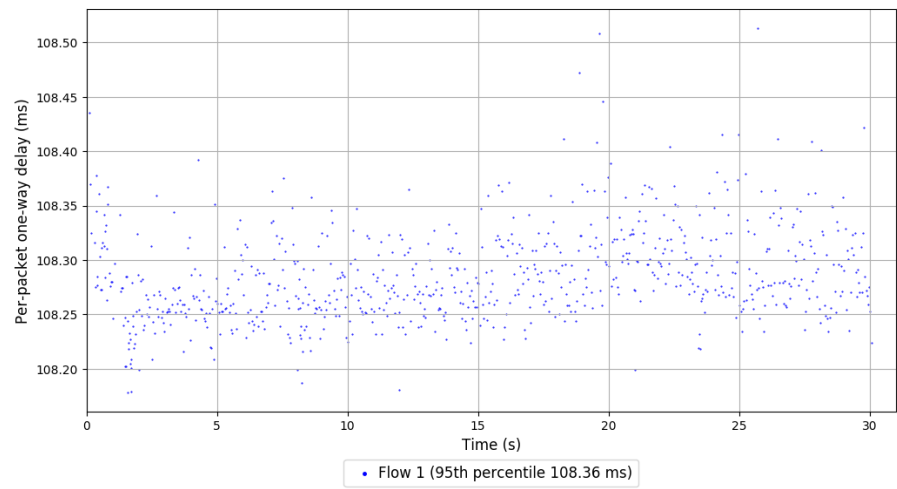
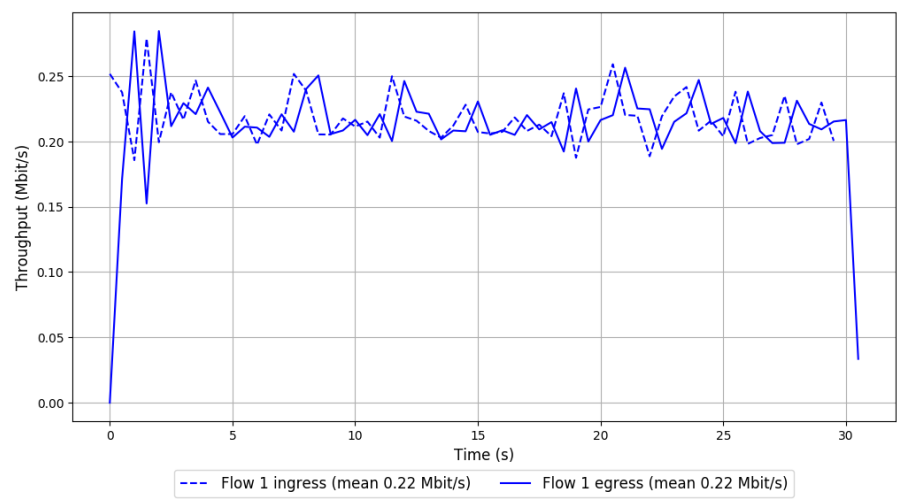
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 108.363 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-12-20 01:00:16

End at: 2018-12-20 01:00:46

Local clock offset: 3.873 ms

Remote clock offset: 3.993 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 109.612 ms

Loss rate: 0.00%

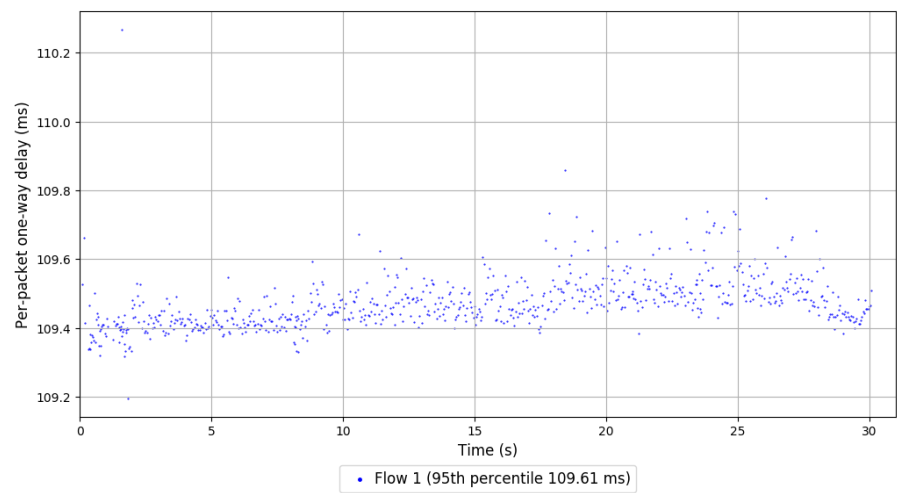
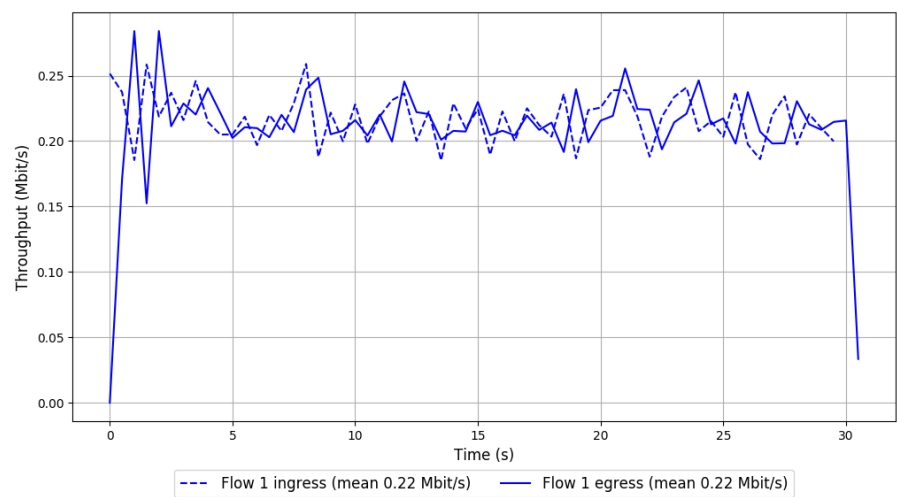
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 109.612 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link

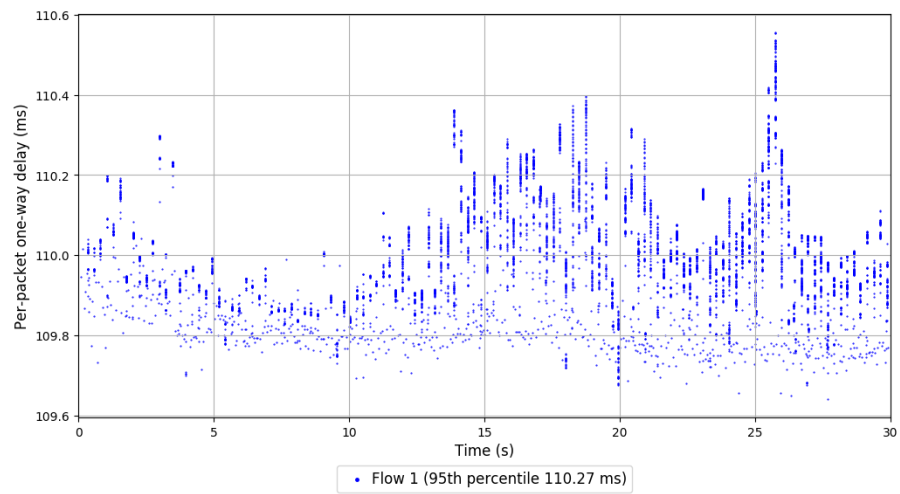
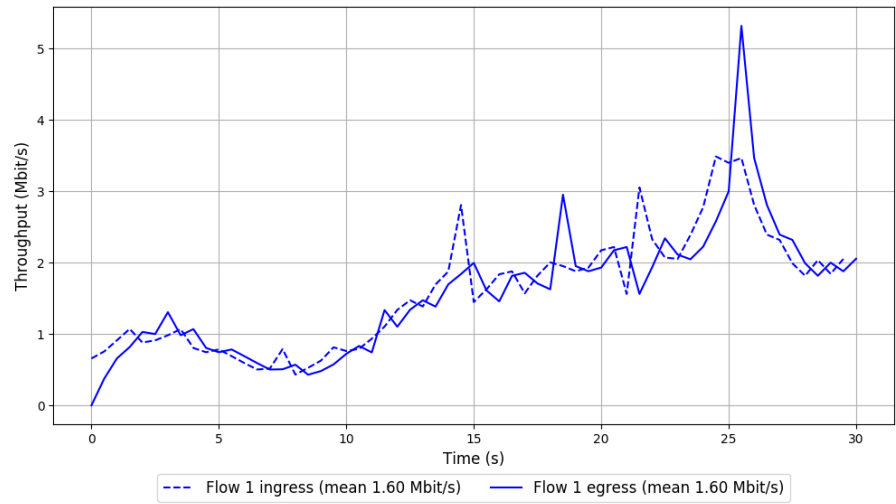


Run 1: Statistics of Sprout

Start at: 2018-12-19 22:48:12
End at: 2018-12-19 22:48:42
Local clock offset: 10.219 ms
Remote clock offset: 11.643 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 110.269 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 110.269 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

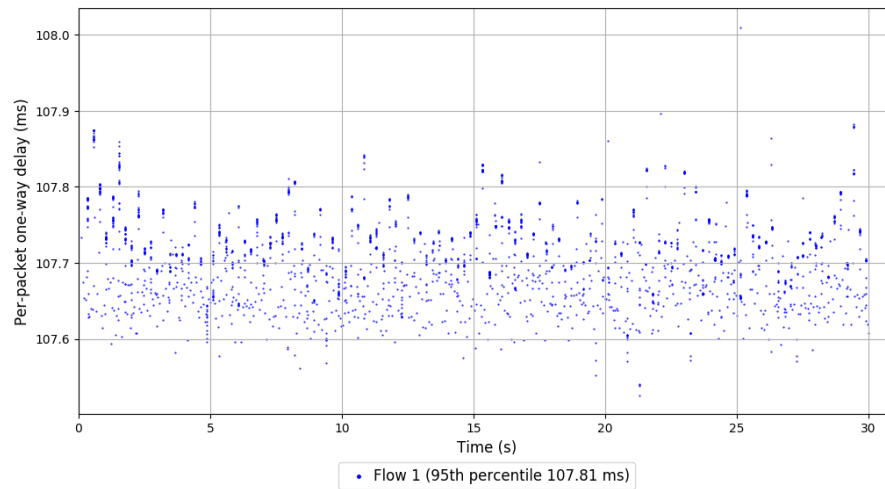
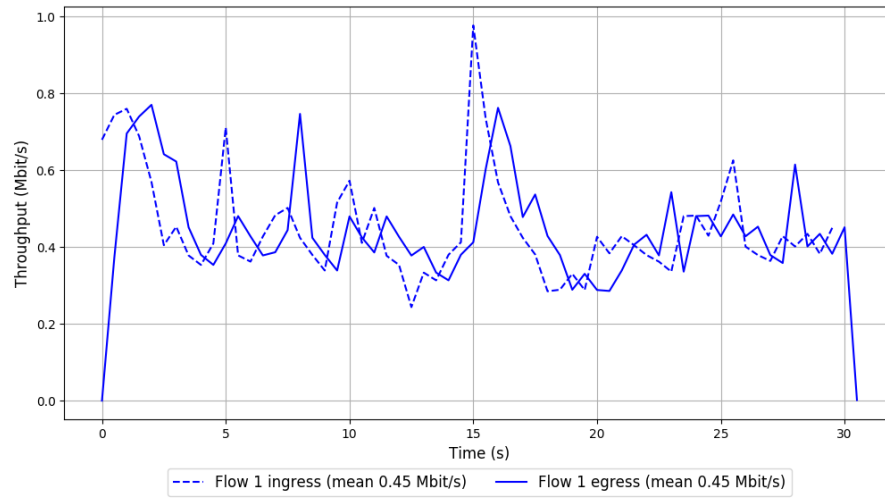


Run 2: Statistics of Sprout

Start at: 2018-12-19 23:17:19
End at: 2018-12-19 23:17:49
Local clock offset: 19.622 ms
Remote clock offset: 20.607 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 107.807 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 107.807 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

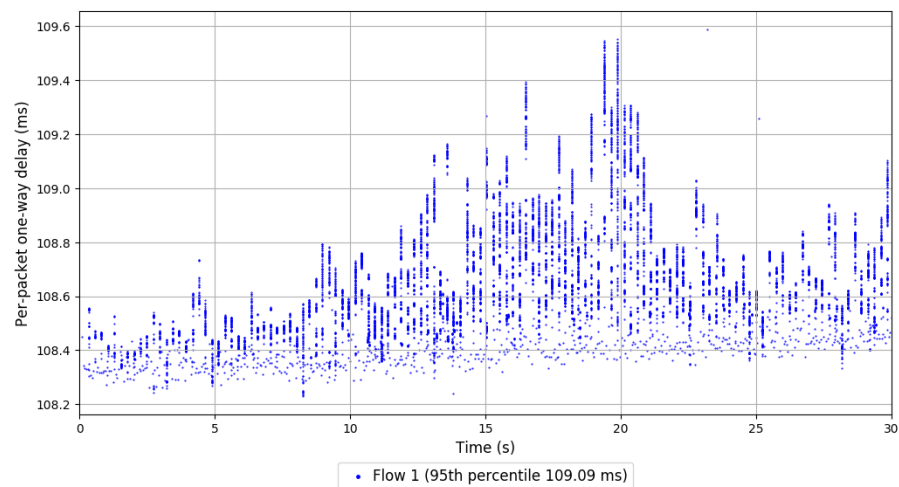
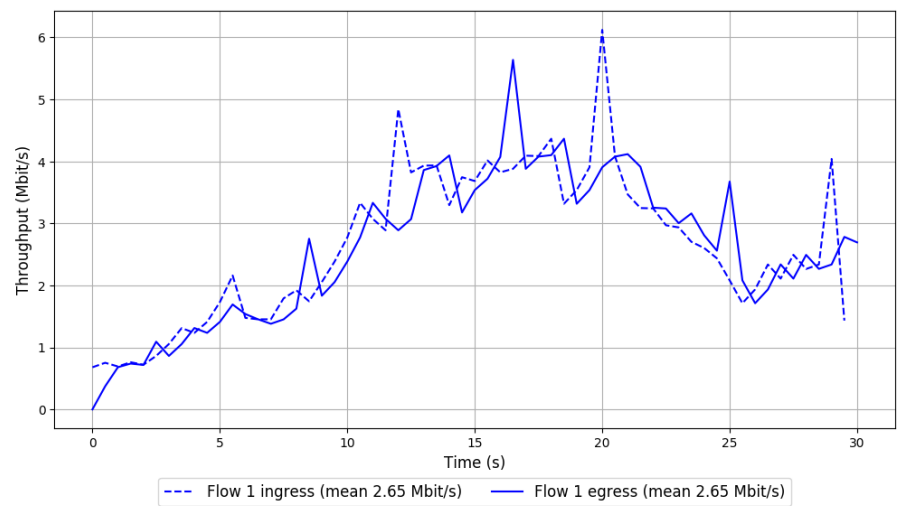


Run 3: Statistics of Sprout

Start at: 2018-12-19 23:46:22
End at: 2018-12-19 23:46:52
Local clock offset: 28.654 ms
Remote clock offset: 30.432 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.65 Mbit/s
95th percentile per-packet one-way delay: 109.095 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.65 Mbit/s
95th percentile per-packet one-way delay: 109.095 ms
Loss rate: 0.00%

Run 3: Report of Sprout — Data Link

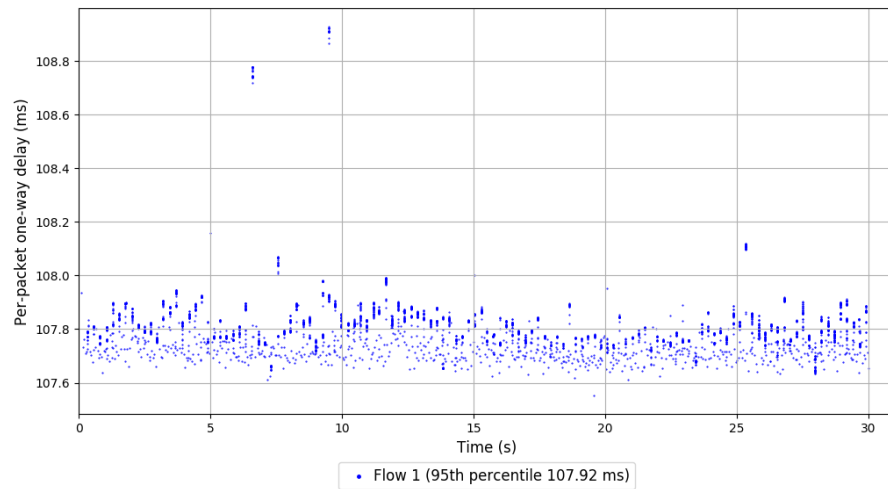
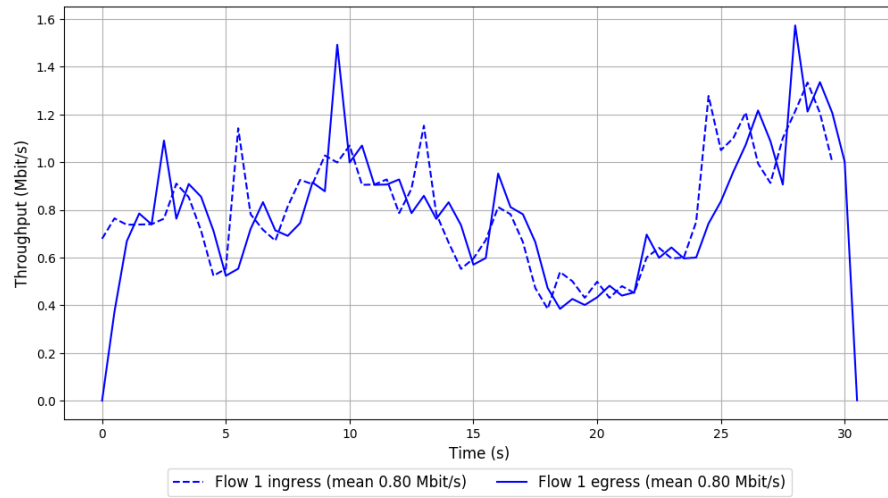


Run 4: Statistics of Sprout

Start at: 2018-12-20 00:15:20
End at: 2018-12-20 00:15:50
Local clock offset: 19.104 ms
Remote clock offset: 20.164 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 107.918 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 107.918 ms
Loss rate: 0.00%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-12-20 00:44:19

End at: 2018-12-20 00:44:49

Local clock offset: 9.101 ms

Remote clock offset: 8.225 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 107.038 ms

Loss rate: 0.00%

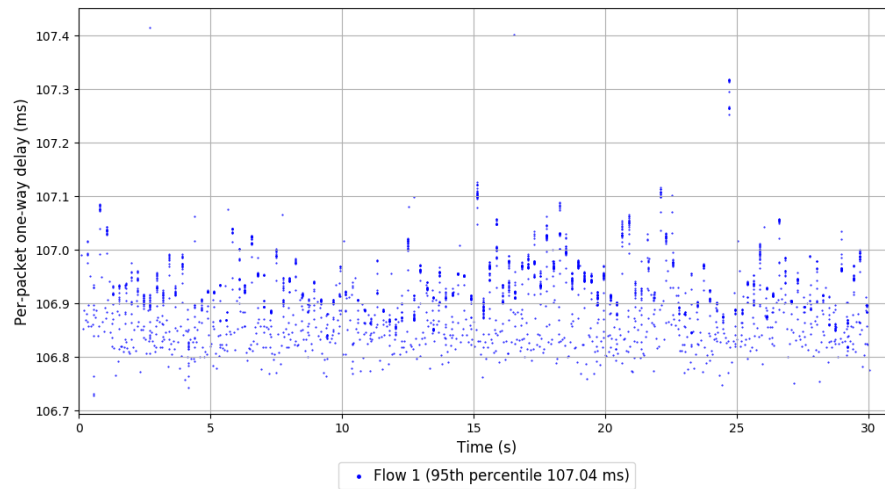
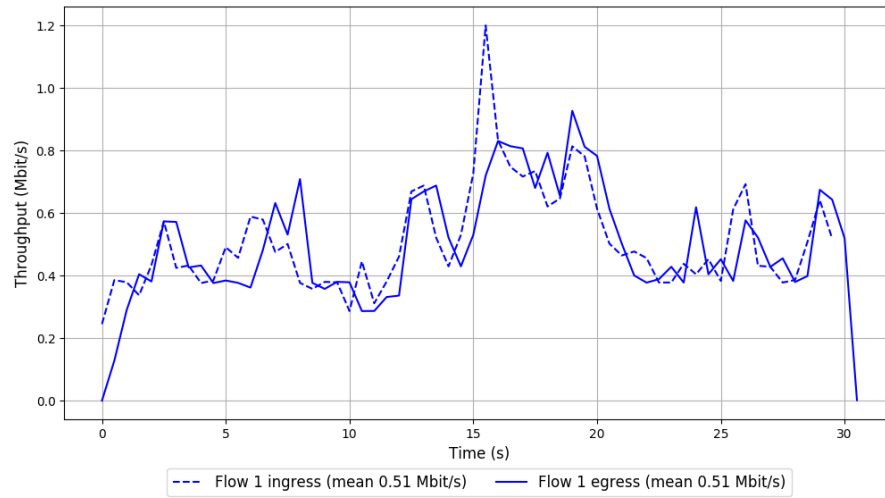
-- Flow 1:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 107.038 ms

Loss rate: 0.00%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-12-19 22:39:53

End at: 2018-12-19 22:40:23

Local clock offset: 5.895 ms

Remote clock offset: 6.226 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 192.42 Mbit/s

95th percentile per-packet one-way delay: 109.179 ms

Loss rate: 0.00%

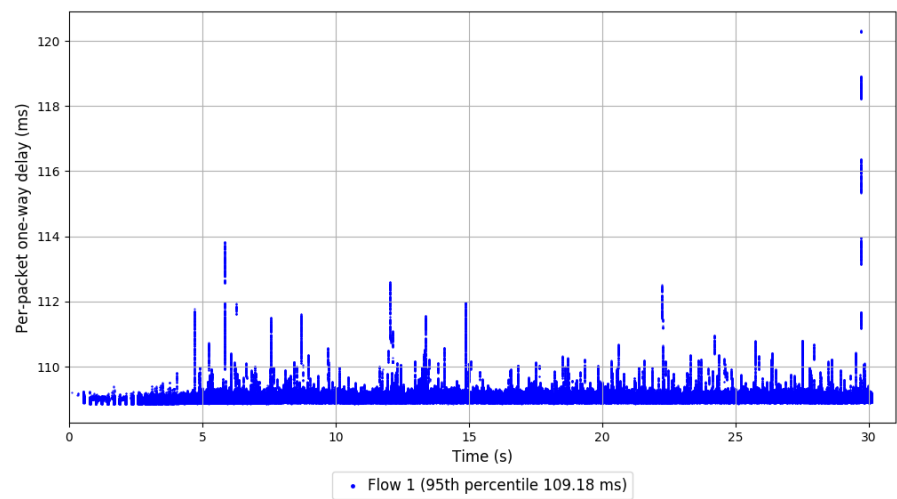
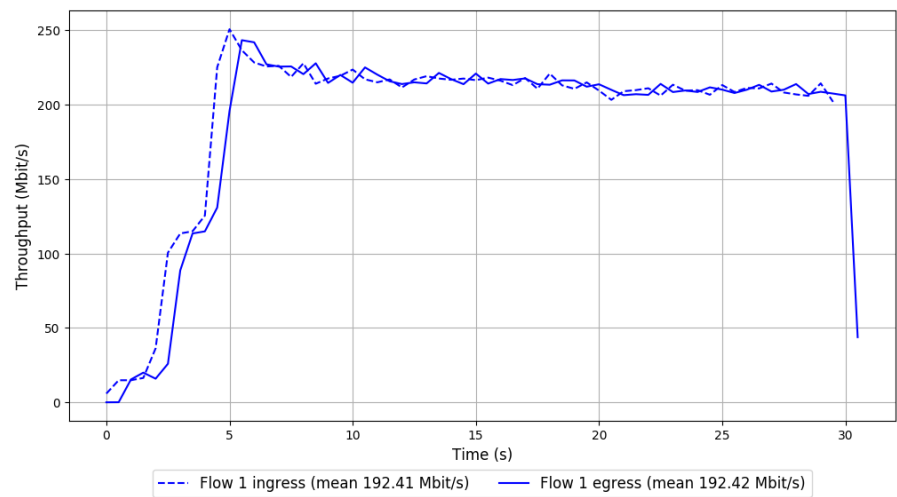
-- Flow 1:

Average throughput: 192.42 Mbit/s

95th percentile per-packet one-way delay: 109.179 ms

Loss rate: 0.00%

Run 1: Report of TaoVA-100x — Data Link

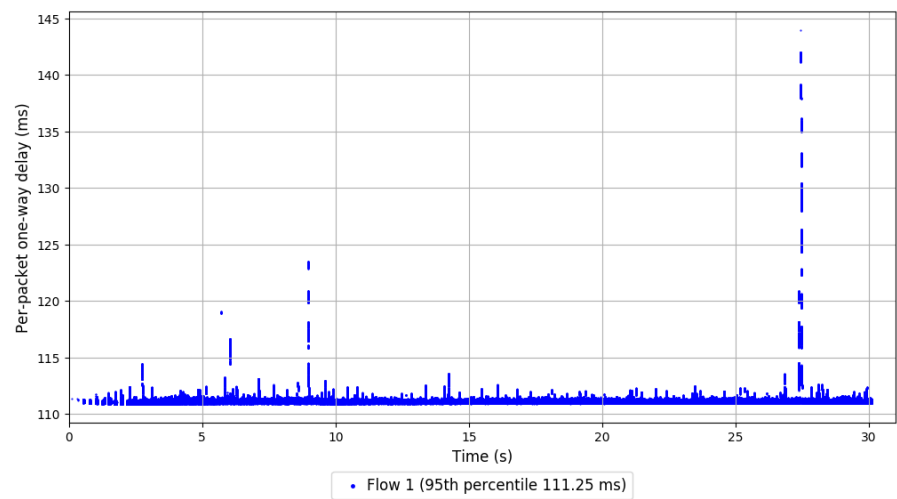
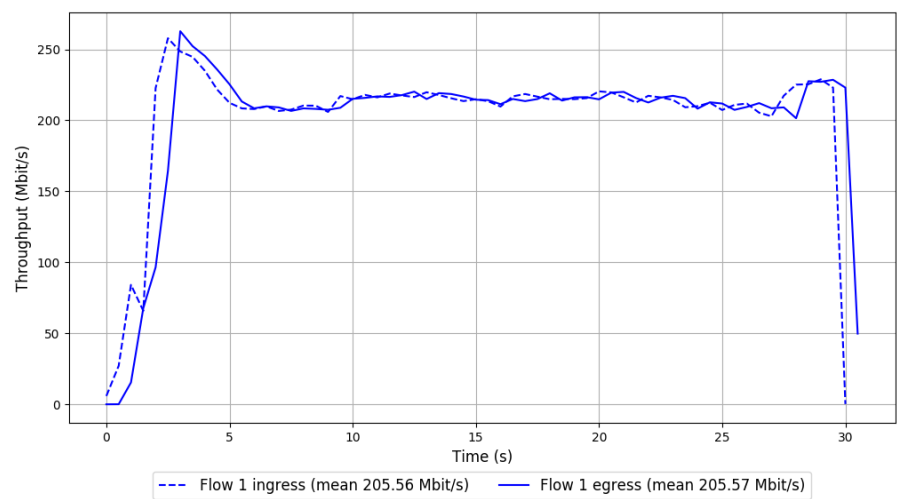


Run 2: Statistics of TaoVA-100x

Start at: 2018-12-19 23:08:46
End at: 2018-12-19 23:09:16
Local clock offset: 24.088 ms
Remote clock offset: 28.155 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 205.57 Mbit/s
95th percentile per-packet one-way delay: 111.249 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 205.57 Mbit/s
95th percentile per-packet one-way delay: 111.249 ms
Loss rate: 0.00%

Run 2: Report of TaoVA-100x — Data Link

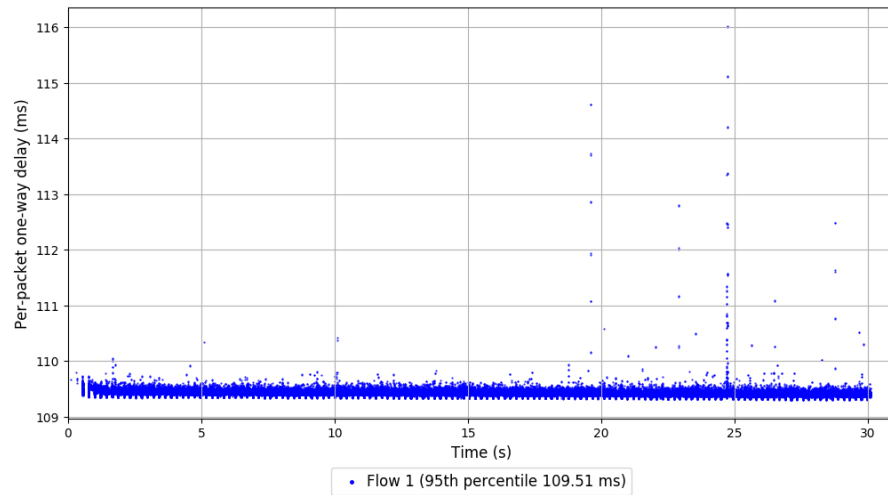
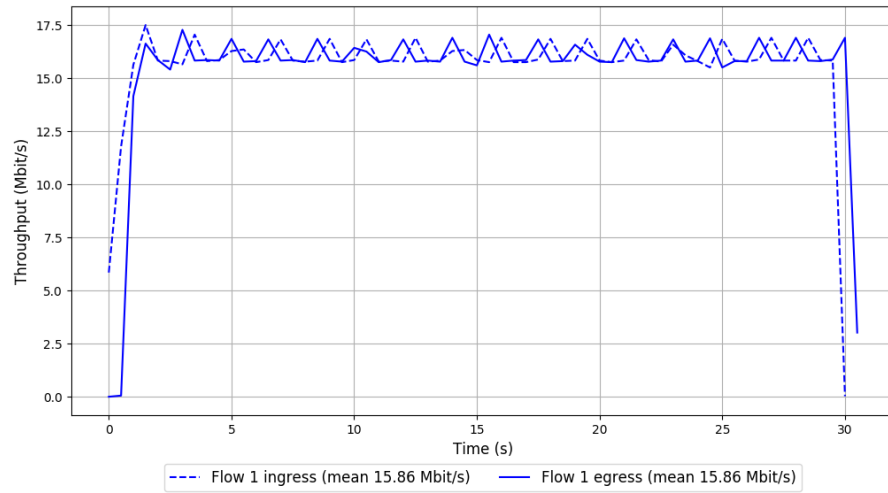


Run 3: Statistics of TaoVA-100x

Start at: 2018-12-19 23:38:30
End at: 2018-12-19 23:39:00
Local clock offset: 33.466 ms
Remote clock offset: 36.765 ms

Below is generated by plot.py at 2018-12-20 02:36:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.86 Mbit/s
95th percentile per-packet one-way delay: 109.507 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.86 Mbit/s
95th percentile per-packet one-way delay: 109.507 ms
Loss rate: 0.00%

Run 3: Report of TaoVA-100x — Data Link



Run 4: Statistics of TaoVA-100x

Start at: 2018-12-20 00:06:48

End at: 2018-12-20 00:07:18

Local clock offset: 15.603 ms

Remote clock offset: 16.76 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 203.37 Mbit/s

95th percentile per-packet one-way delay: 109.301 ms

Loss rate: 0.00%

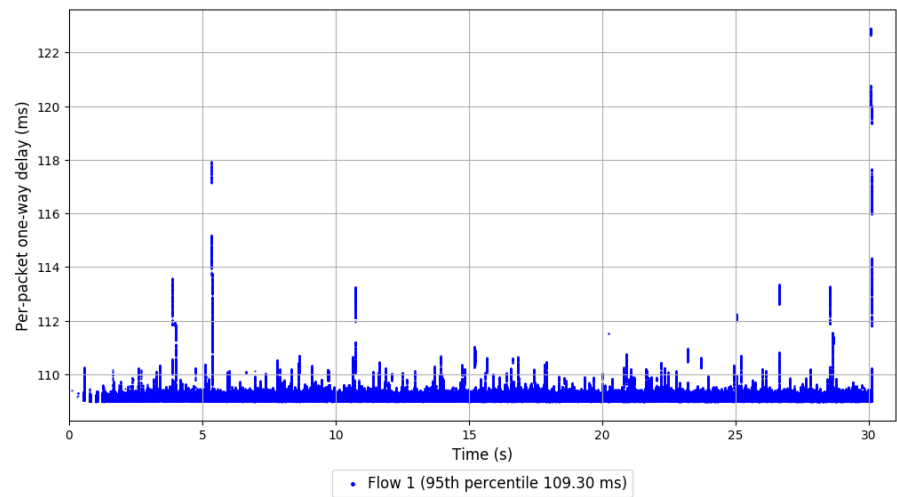
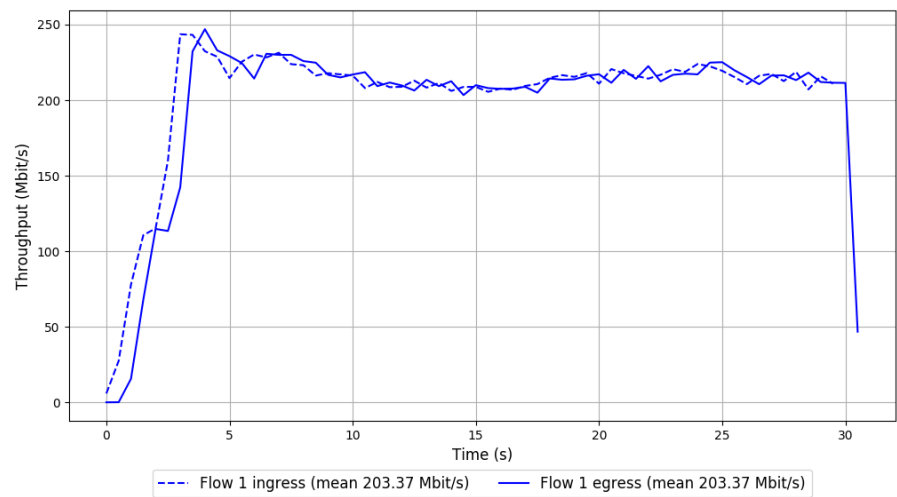
-- Flow 1:

Average throughput: 203.37 Mbit/s

95th percentile per-packet one-way delay: 109.301 ms

Loss rate: 0.00%

Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2018-12-20 00:36:14

End at: 2018-12-20 00:36:44

Local clock offset: 6.733 ms

Remote clock offset: 8.006 ms

Below is generated by plot.py at 2018-12-20 02:36:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 15.89 Mbit/s

95th percentile per-packet one-way delay: 109.139 ms

Loss rate: 0.00%

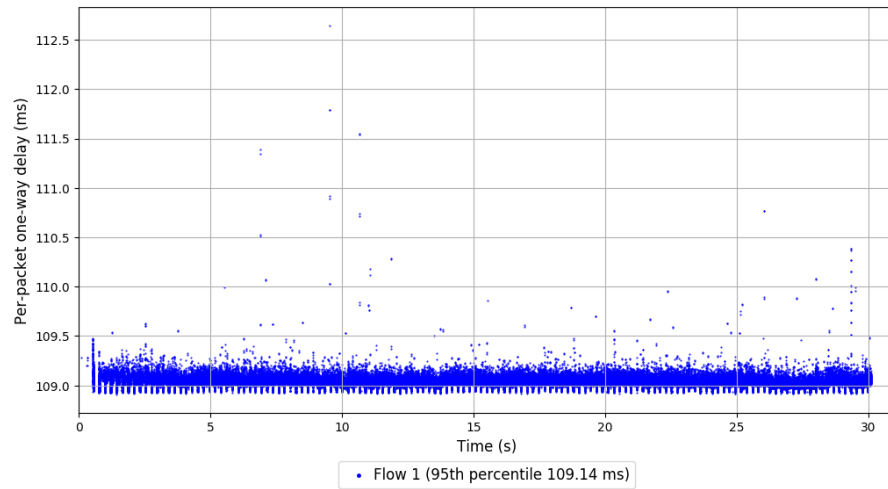
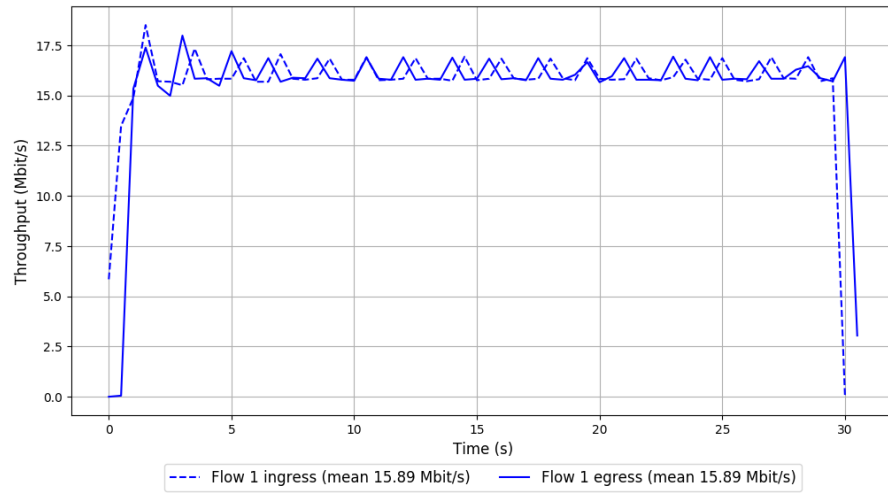
-- Flow 1:

Average throughput: 15.89 Mbit/s

95th percentile per-packet one-way delay: 109.139 ms

Loss rate: 0.00%

Run 5: Report of TaoVA-100x — Data Link

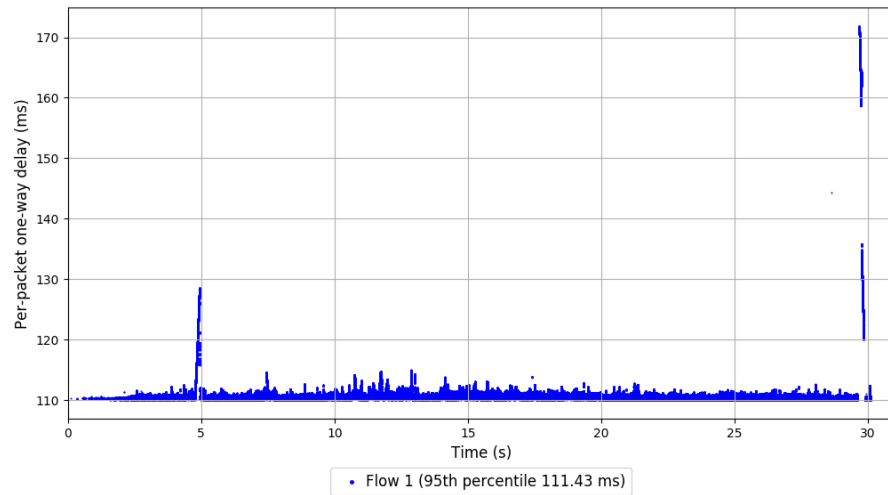
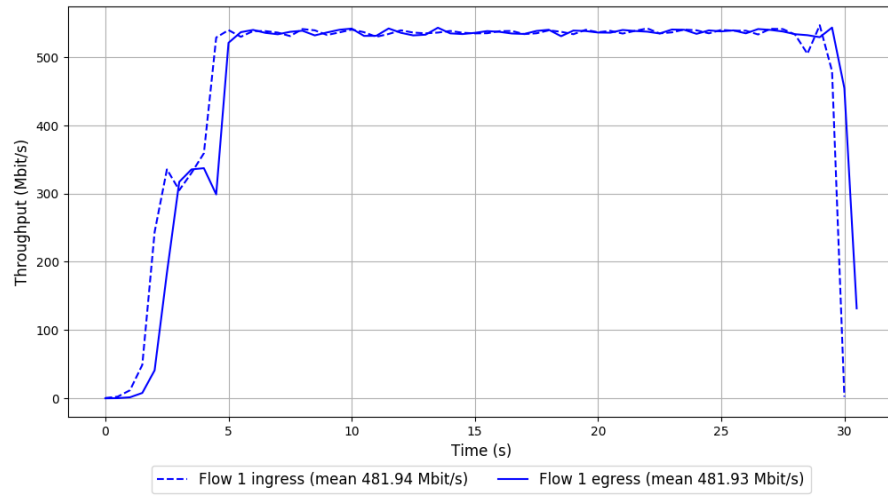


Run 1: Statistics of TCP Vegas

Start at: 2018-12-19 22:56:01
End at: 2018-12-19 22:56:31
Local clock offset: 12.097 ms
Remote clock offset: 14.151 ms

Below is generated by plot.py at 2018-12-20 02:38:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 481.93 Mbit/s
95th percentile per-packet one-way delay: 111.431 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 481.93 Mbit/s
95th percentile per-packet one-way delay: 111.431 ms
Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link

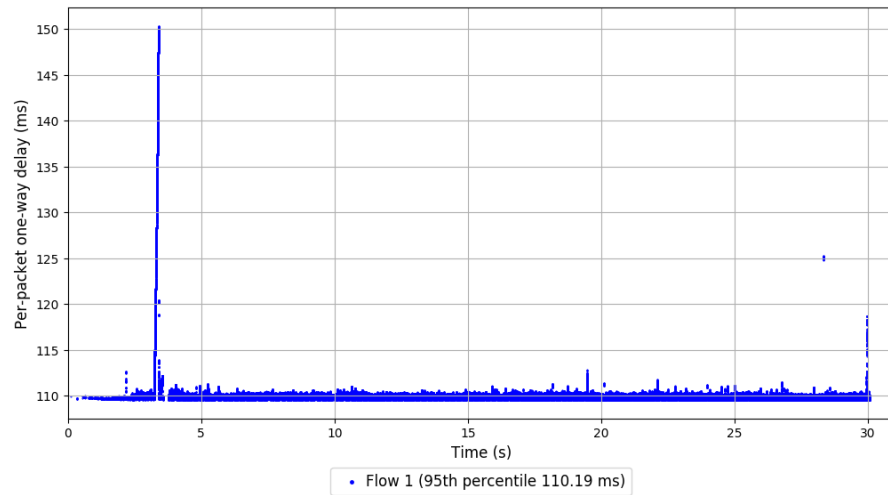
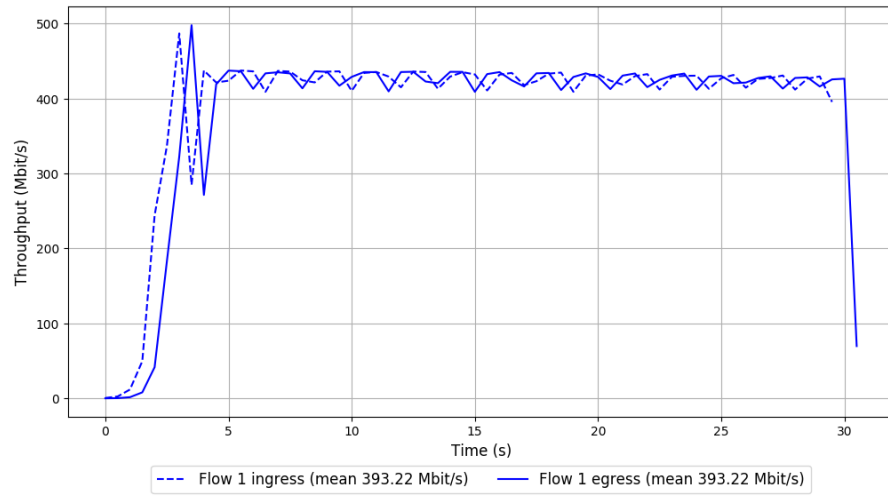


Run 2: Statistics of TCP Vegas

Start at: 2018-12-19 23:25:55
End at: 2018-12-19 23:26:25
Local clock offset: 21.781 ms
Remote clock offset: 24.307 ms

Below is generated by plot.py at 2018-12-20 02:38:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 393.22 Mbit/s
95th percentile per-packet one-way delay: 110.192 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 393.22 Mbit/s
95th percentile per-packet one-way delay: 110.192 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

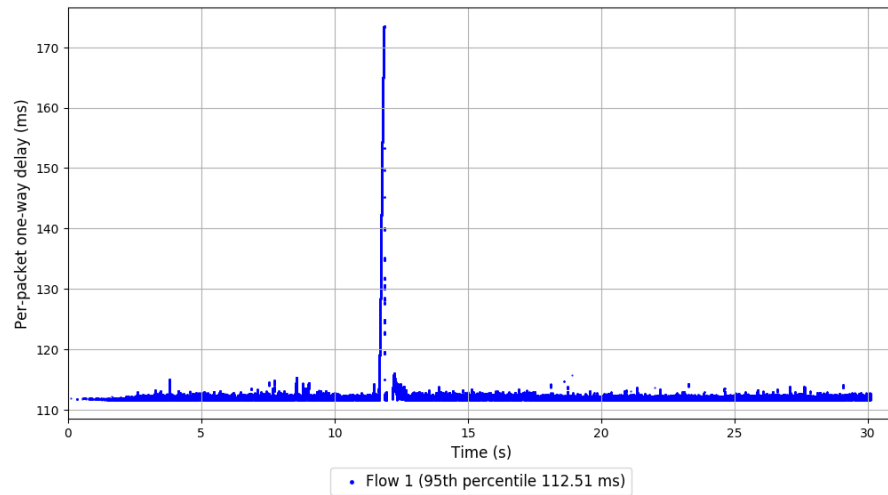
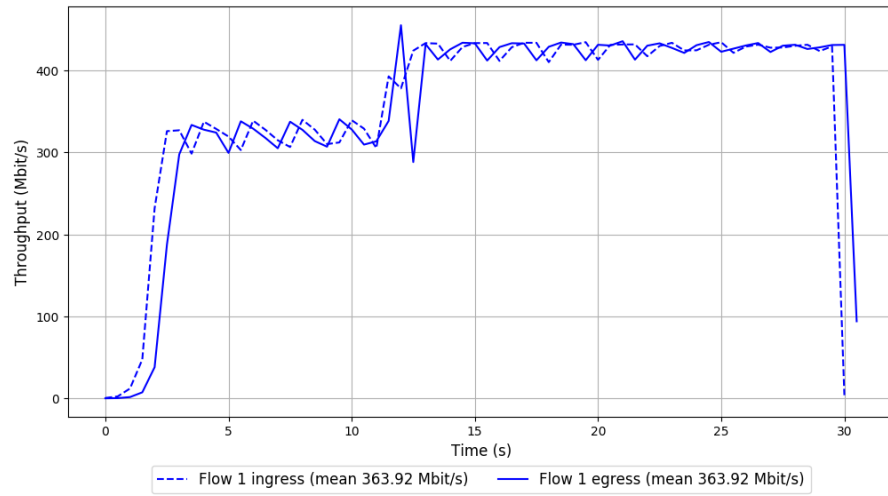


Run 3: Statistics of TCP Vegas

Start at: 2018-12-19 23:54:16
End at: 2018-12-19 23:54:46
Local clock offset: 15.859 ms
Remote clock offset: 17.934 ms

Below is generated by plot.py at 2018-12-20 02:40:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 363.92 Mbit/s
95th percentile per-packet one-way delay: 112.513 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 363.92 Mbit/s
95th percentile per-packet one-way delay: 112.513 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link

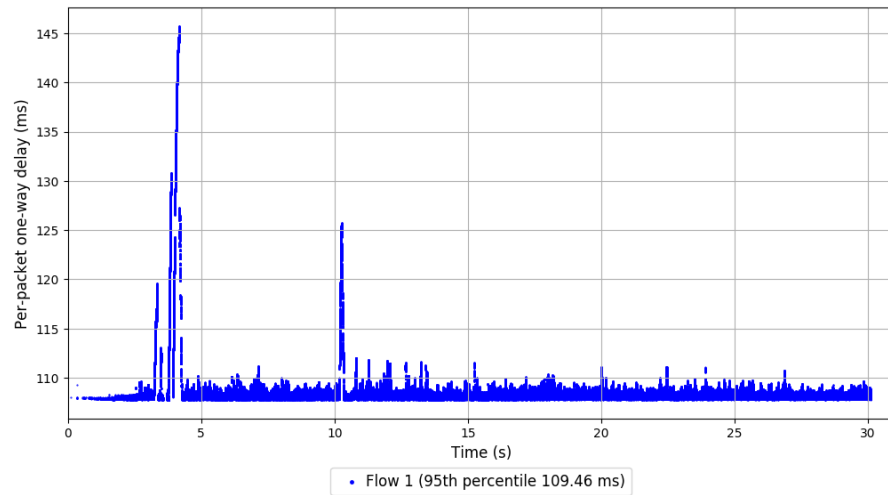
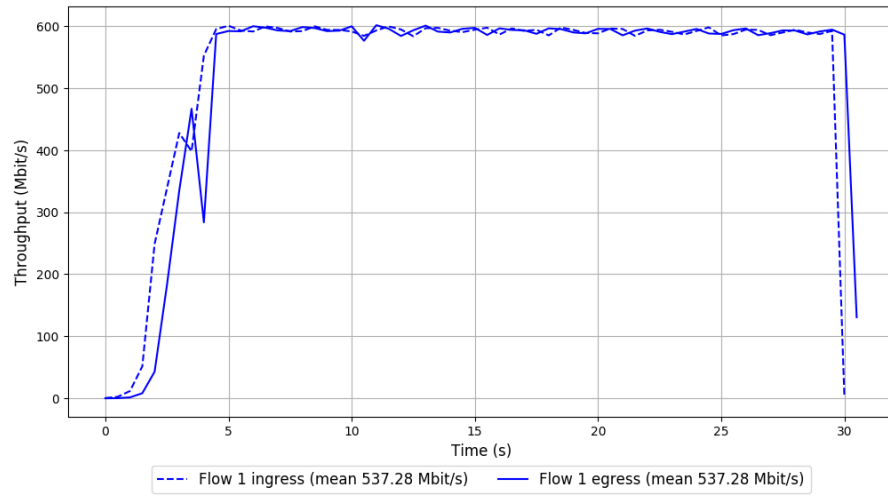


Run 4: Statistics of TCP Vegas

Start at: 2018-12-20 00:23:22
End at: 2018-12-20 00:23:52
Local clock offset: 11.167 ms
Remote clock offset: 11.695 ms

Below is generated by plot.py at 2018-12-20 02:44:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 537.28 Mbit/s
95th percentile per-packet one-way delay: 109.457 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 537.28 Mbit/s
95th percentile per-packet one-way delay: 109.457 ms
Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-12-20 00:52:14

End at: 2018-12-20 00:52:44

Local clock offset: 8.727 ms

Remote clock offset: 9.25 ms

Below is generated by plot.py at 2018-12-20 02:44:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 387.85 Mbit/s

95th percentile per-packet one-way delay: 110.931 ms

Loss rate: 0.00%

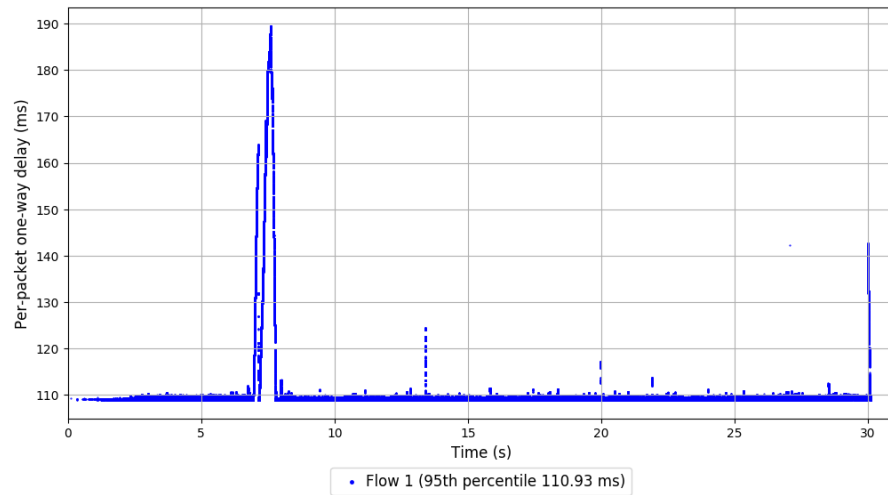
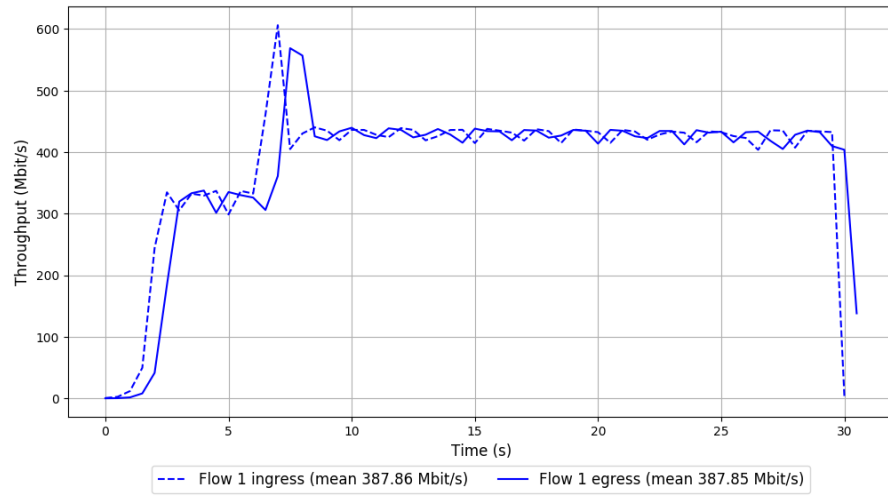
-- Flow 1:

Average throughput: 387.85 Mbit/s

95th percentile per-packet one-way delay: 110.931 ms

Loss rate: 0.00%

Run 5: Report of TCP Vegas — Data Link

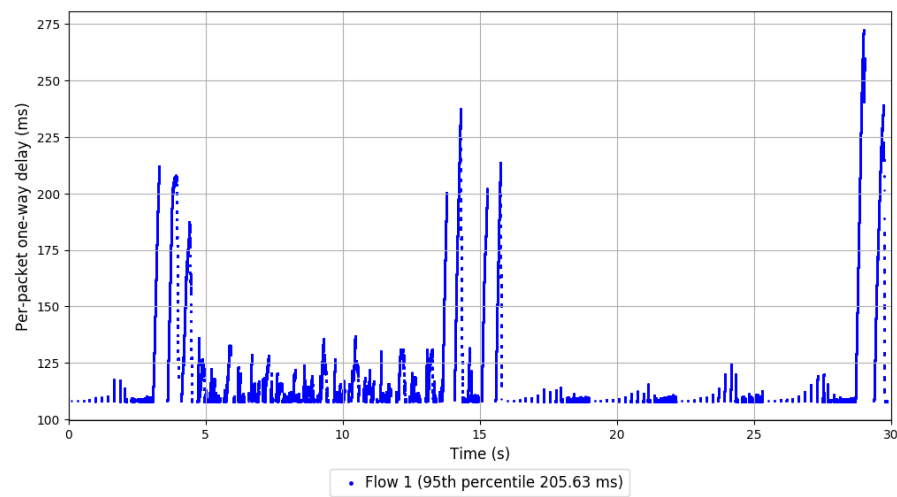
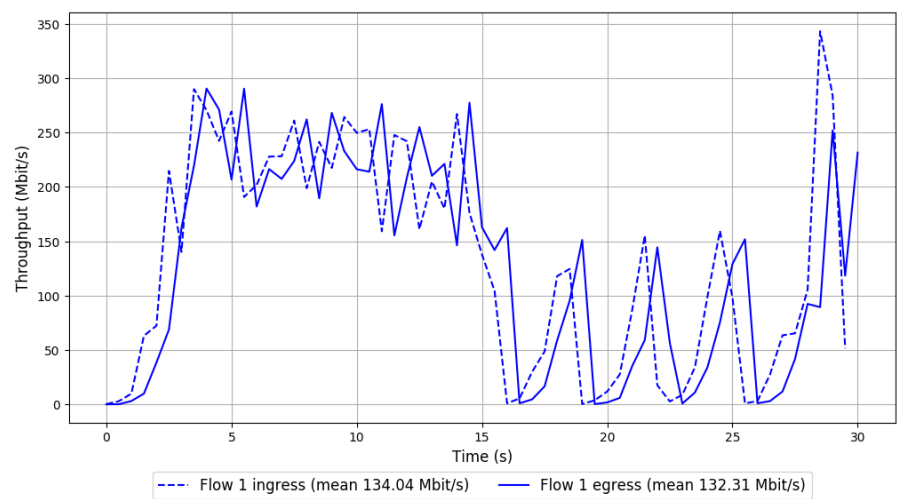


Run 1: Statistics of Verus

Start at: 2018-12-19 23:02:42
End at: 2018-12-19 23:03:12
Local clock offset: 18.25 ms
Remote clock offset: 18.492 ms

Below is generated by plot.py at 2018-12-20 02:44:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 132.31 Mbit/s
95th percentile per-packet one-way delay: 205.631 ms
Loss rate: 1.29%
-- Flow 1:
Average throughput: 132.31 Mbit/s
95th percentile per-packet one-way delay: 205.631 ms
Loss rate: 1.29%

Run 1: Report of Verus — Data Link

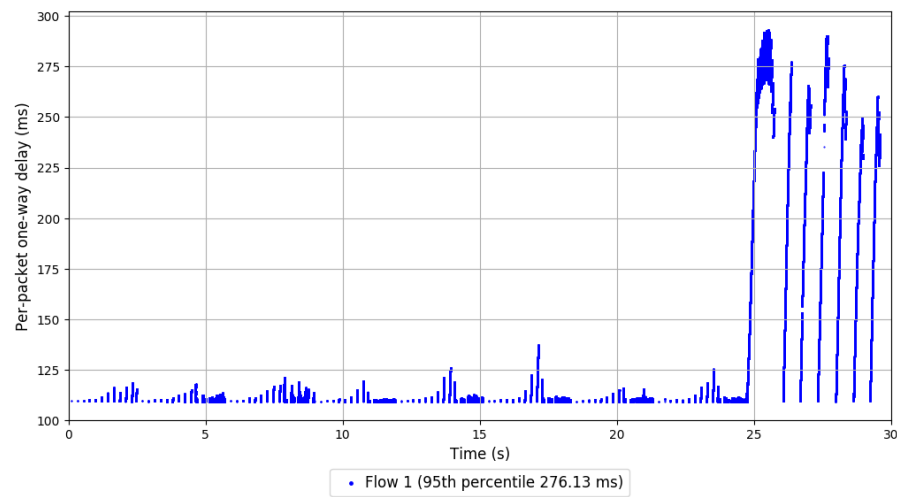
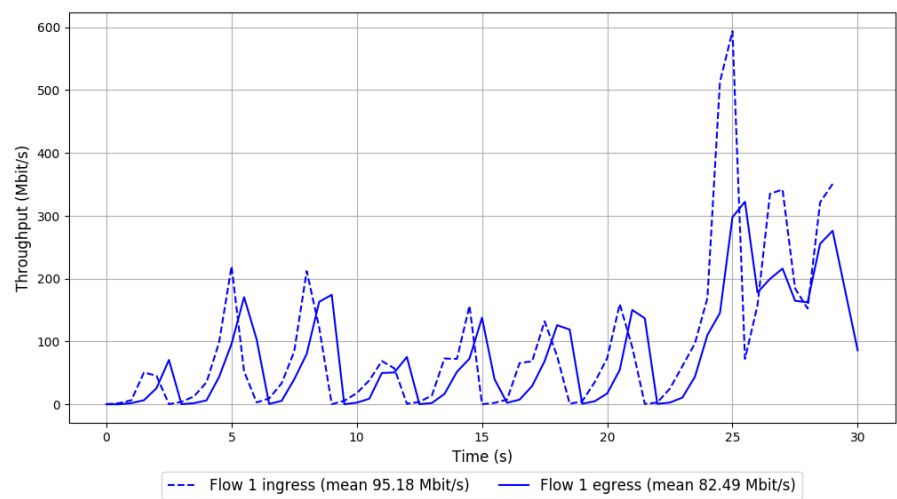


Run 2: Statistics of Verus

Start at: 2018-12-19 23:32:36
End at: 2018-12-19 23:33:06
Local clock offset: 27.489 ms
Remote clock offset: 30.211 ms

Below is generated by plot.py at 2018-12-20 02:44:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 82.49 Mbit/s
95th percentile per-packet one-way delay: 276.135 ms
Loss rate: 12.96%
-- Flow 1:
Average throughput: 82.49 Mbit/s
95th percentile per-packet one-way delay: 276.135 ms
Loss rate: 12.96%

Run 2: Report of Verus — Data Link

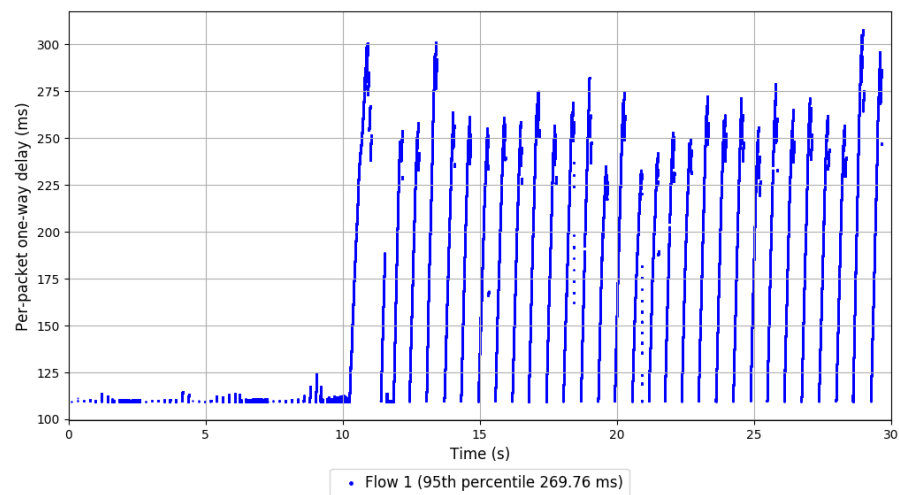
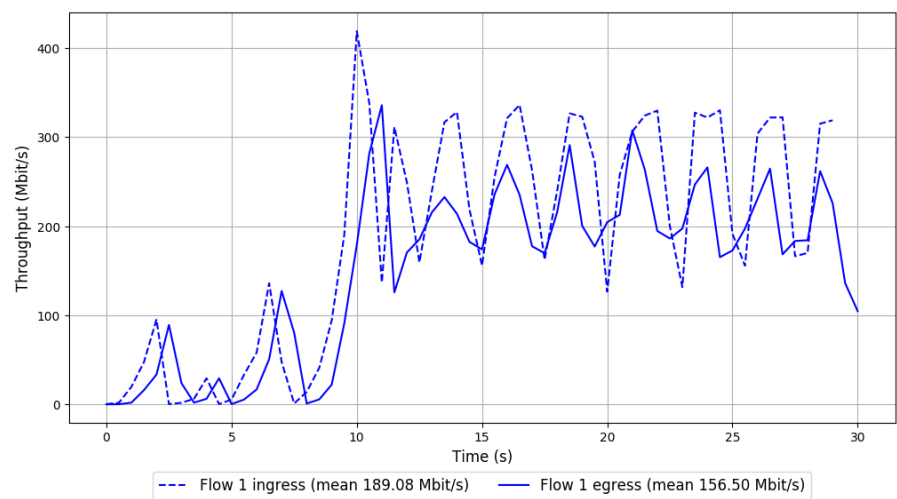


Run 3: Statistics of Verus

Start at: 2018-12-20 00:00:50
End at: 2018-12-20 00:01:20
Local clock offset: 14.393 ms
Remote clock offset: 15.799 ms

Below is generated by plot.py at 2018-12-20 02:44:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 156.50 Mbit/s
95th percentile per-packet one-way delay: 269.760 ms
Loss rate: 16.84%
-- Flow 1:
Average throughput: 156.50 Mbit/s
95th percentile per-packet one-way delay: 269.760 ms
Loss rate: 16.84%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-12-20 00:30:08

End at: 2018-12-20 00:30:38

Local clock offset: 7.748 ms

Remote clock offset: 8.624 ms

Below is generated by plot.py at 2018-12-20 02:45:30

Datalink statistics

-- Total of 1 flow:

Average throughput: 199.88 Mbit/s

95th percentile per-packet one-way delay: 266.550 ms

Loss rate: 16.20%

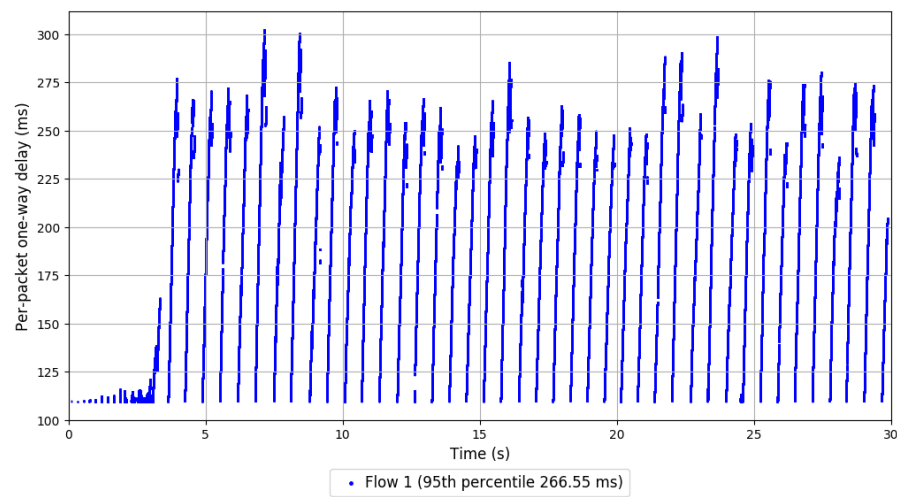
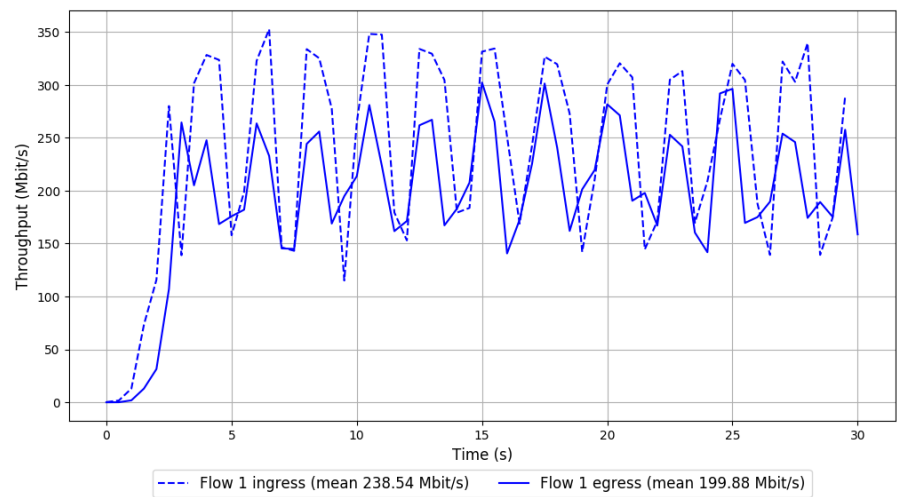
-- Flow 1:

Average throughput: 199.88 Mbit/s

95th percentile per-packet one-way delay: 266.550 ms

Loss rate: 16.20%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-12-20 00:58:50

End at: 2018-12-20 00:59:20

Local clock offset: 4.455 ms

Remote clock offset: 4.598 ms

Below is generated by plot.py at 2018-12-20 02:45:30

Datalink statistics

-- Total of 1 flow:

Average throughput: 154.83 Mbit/s

95th percentile per-packet one-way delay: 258.264 ms

Loss rate: 15.00%

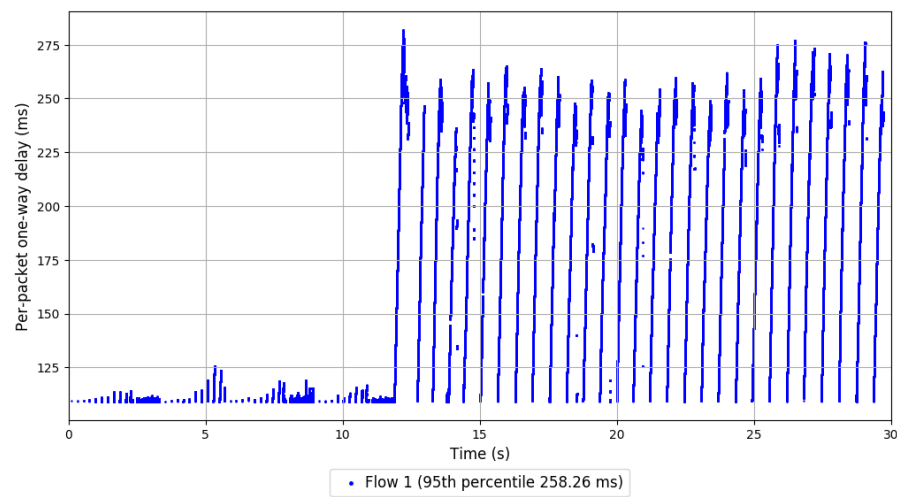
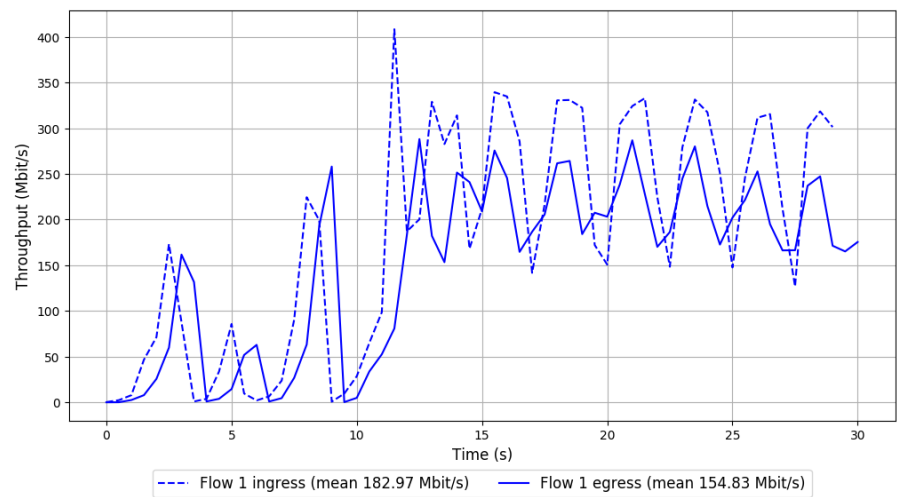
-- Flow 1:

Average throughput: 154.83 Mbit/s

95th percentile per-packet one-way delay: 258.264 ms

Loss rate: 15.00%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-12-19 22:57:36

End at: 2018-12-19 22:58:06

Local clock offset: 12.86 ms

Remote clock offset: 14.165 ms

Below is generated by plot.py at 2018-12-20 02:46:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 409.58 Mbit/s

95th percentile per-packet one-way delay: 110.284 ms

Loss rate: 0.00%

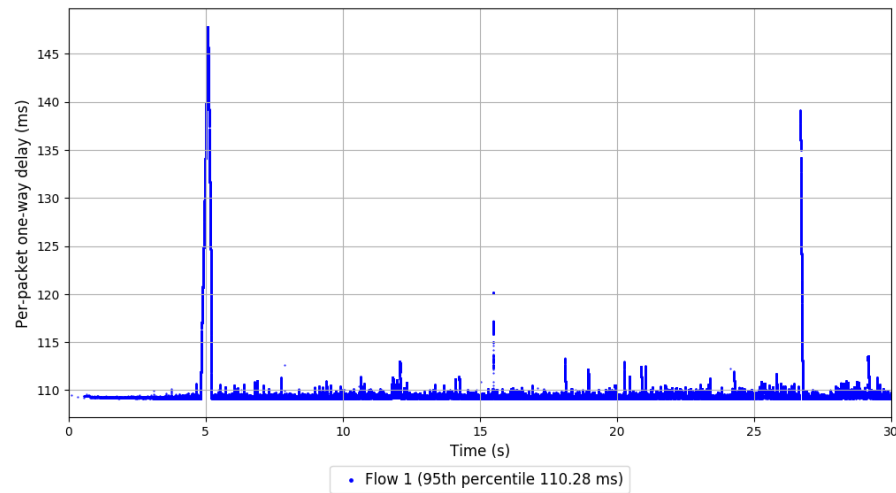
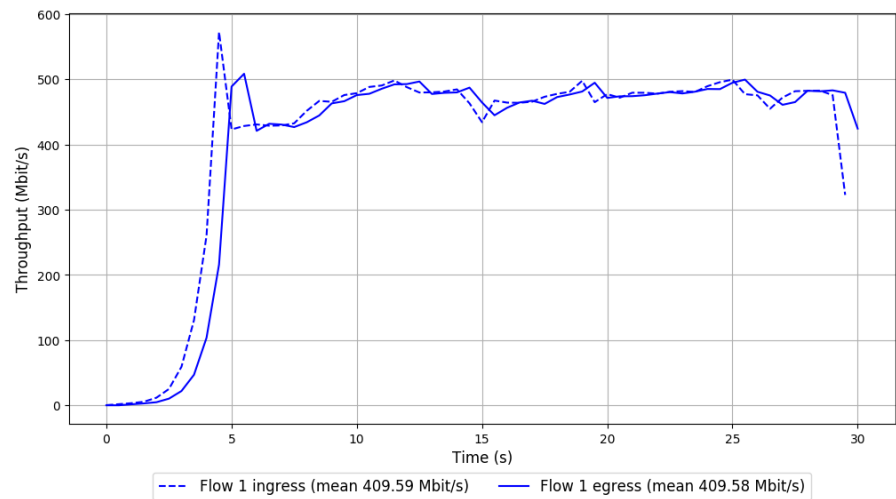
-- Flow 1:

Average throughput: 409.58 Mbit/s

95th percentile per-packet one-way delay: 110.284 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link

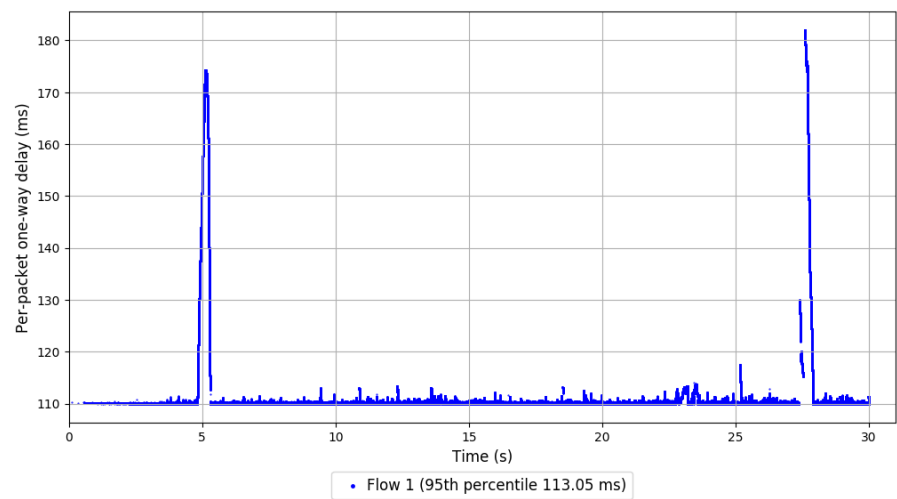
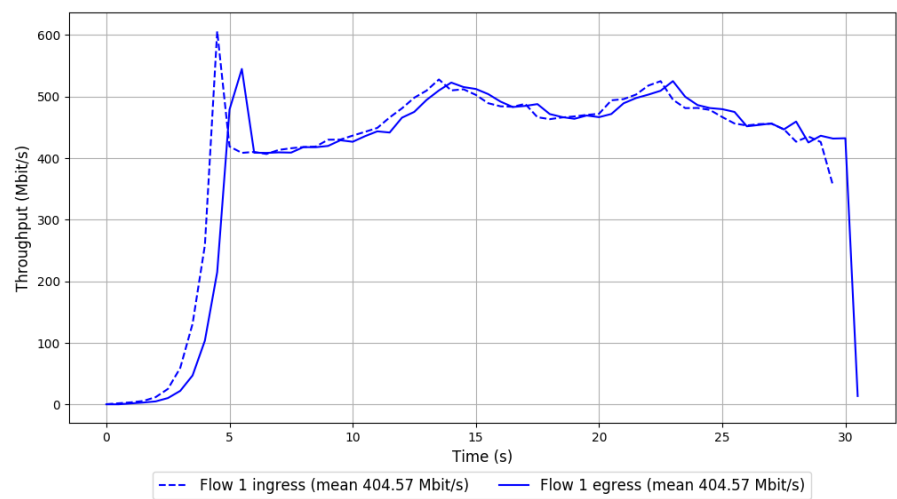


Run 2: Statistics of PCC-Vivace

Start at: 2018-12-19 23:27:29
End at: 2018-12-19 23:27:59
Local clock offset: 22.563 ms
Remote clock offset: 25.544 ms

Below is generated by plot.py at 2018-12-20 02:46:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 404.57 Mbit/s
95th percentile per-packet one-way delay: 113.052 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 404.57 Mbit/s
95th percentile per-packet one-way delay: 113.052 ms
Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link

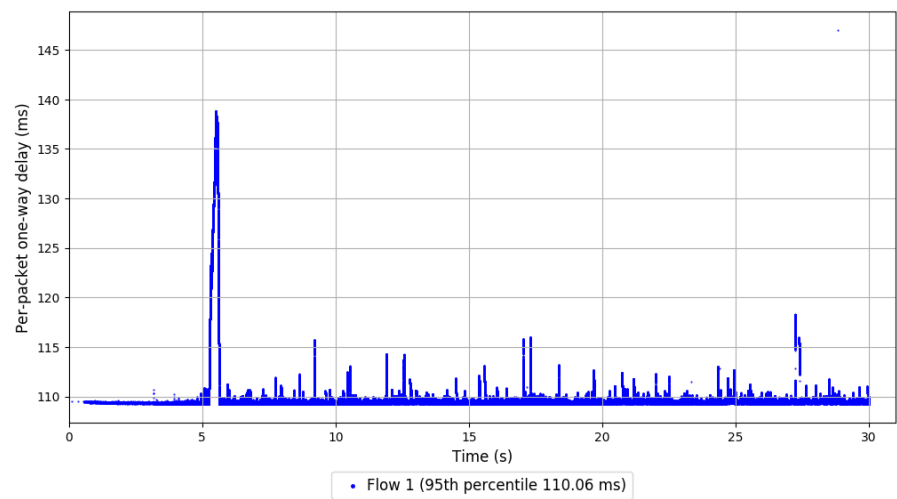
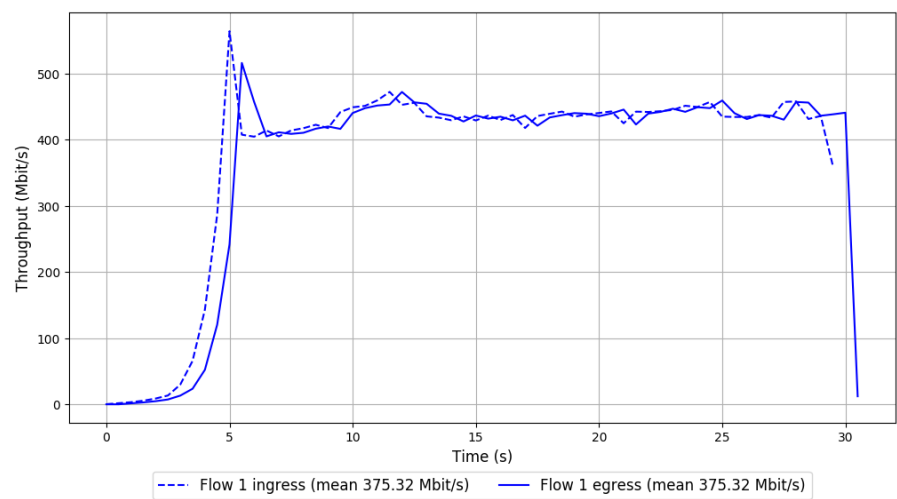


Run 3: Statistics of PCC-Vivace

Start at: 2018-12-19 23:55:45
End at: 2018-12-19 23:56:15
Local clock offset: 15.586 ms
Remote clock offset: 17.042 ms

Below is generated by plot.py at 2018-12-20 02:46:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 375.32 Mbit/s
95th percentile per-packet one-way delay: 110.064 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 375.32 Mbit/s
95th percentile per-packet one-way delay: 110.064 ms
Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link

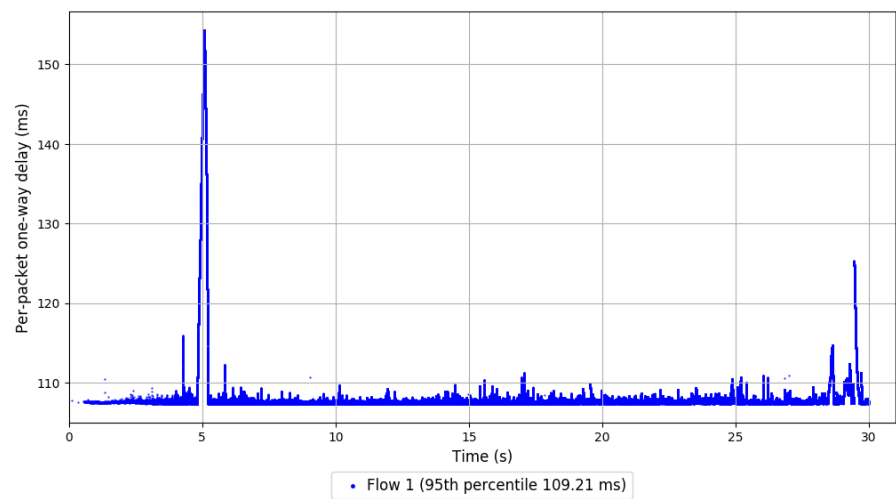
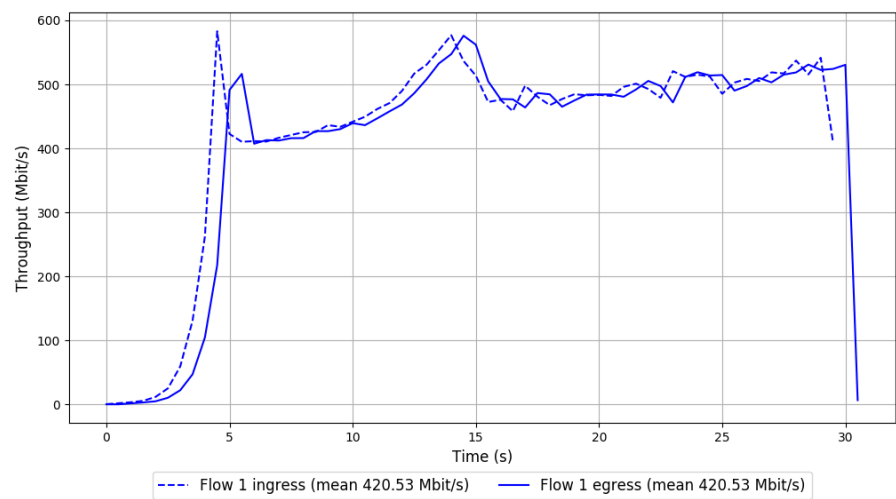


Run 4: Statistics of PCC-Vivace

Start at: 2018-12-20 00:25:02
End at: 2018-12-20 00:25:32
Local clock offset: 11.127 ms
Remote clock offset: 10.176 ms

Below is generated by plot.py at 2018-12-20 02:47:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 420.53 Mbit/s
95th percentile per-packet one-way delay: 109.208 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 420.53 Mbit/s
95th percentile per-packet one-way delay: 109.208 ms
Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-12-20 00:53:45

End at: 2018-12-20 00:54:15

Local clock offset: 7.095 ms

Remote clock offset: 7.671 ms

Below is generated by plot.py at 2018-12-20 02:47:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 359.69 Mbit/s

95th percentile per-packet one-way delay: 112.605 ms

Loss rate: 0.00%

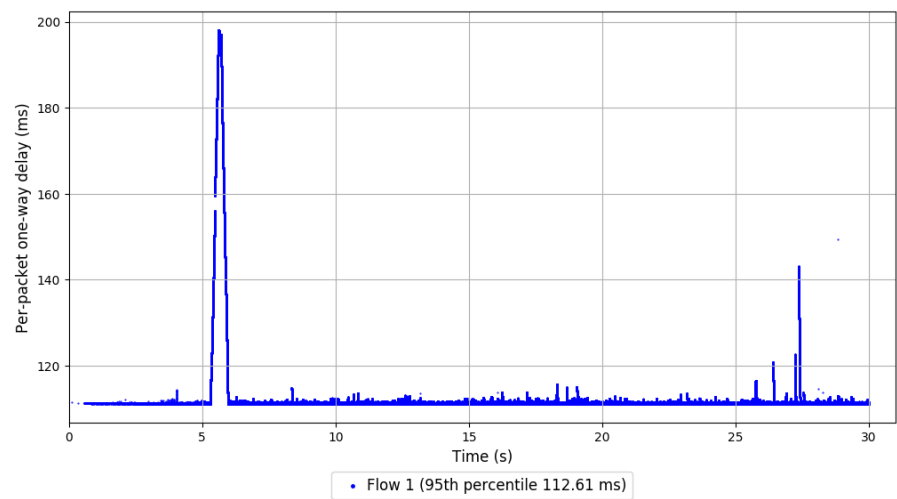
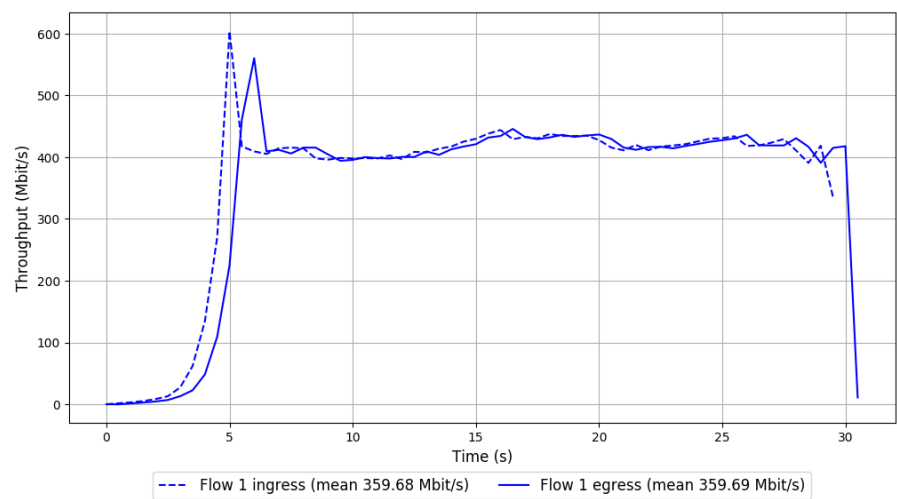
-- Flow 1:

Average throughput: 359.69 Mbit/s

95th percentile per-packet one-way delay: 112.605 ms

Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link

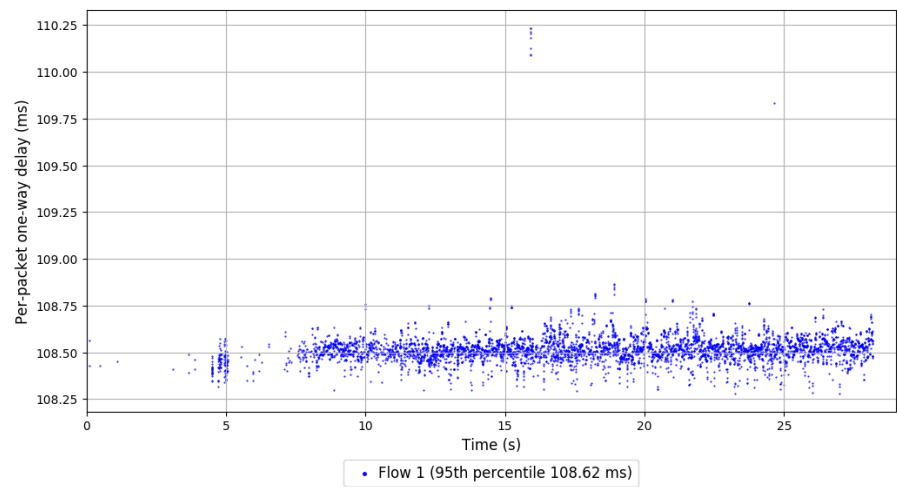
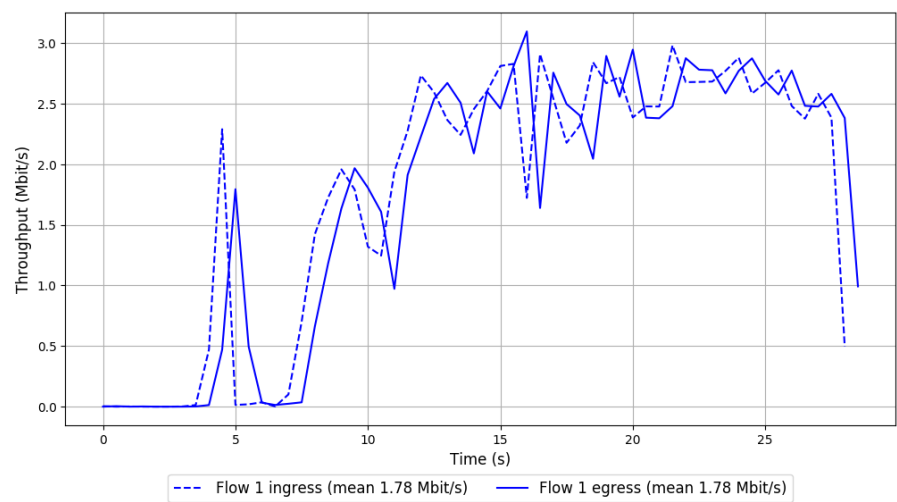



```
Run 1: Statistics of WebRTC media

Start at: 2018-12-19 22:54:51
End at: 2018-12-19 22:55:21
Local clock offset: 12.905 ms
Remote clock offset: 14.089 ms

# Below is generated by plot.py at 2018-12-20 02:47:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.78 Mbit/s
95th percentile per-packet one-way delay: 108.621 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.78 Mbit/s
95th percentile per-packet one-way delay: 108.621 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

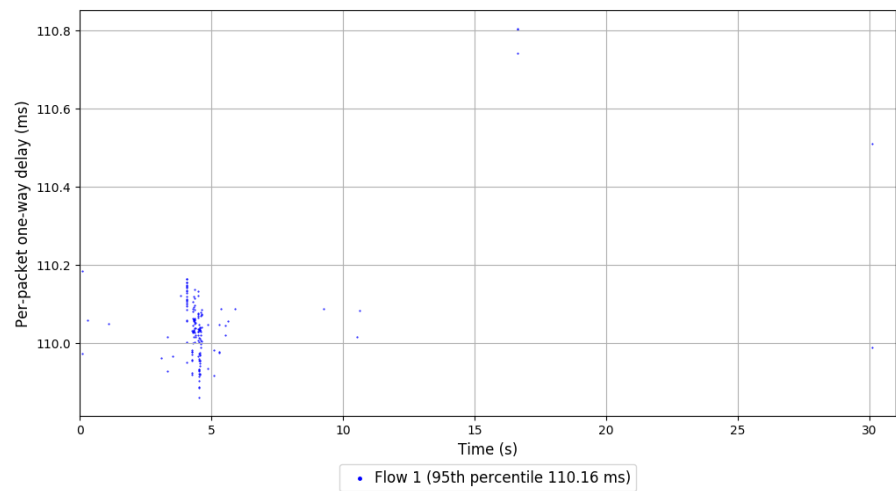
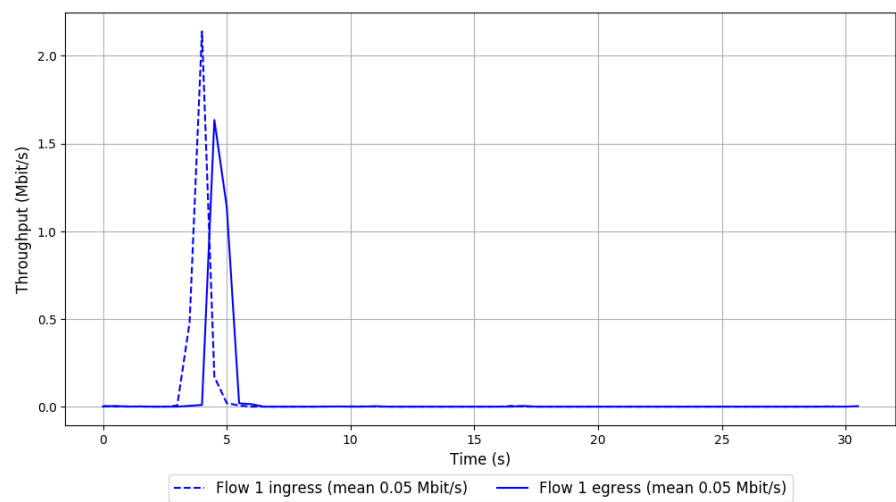


Run 2: Statistics of WebRTC media

Start at: 2018-12-19 23:24:45
End at: 2018-12-19 23:25:15
Local clock offset: 20.826 ms
Remote clock offset: 23.521 ms

Below is generated by plot.py at 2018-12-20 02:47:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 110.155 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 110.155 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

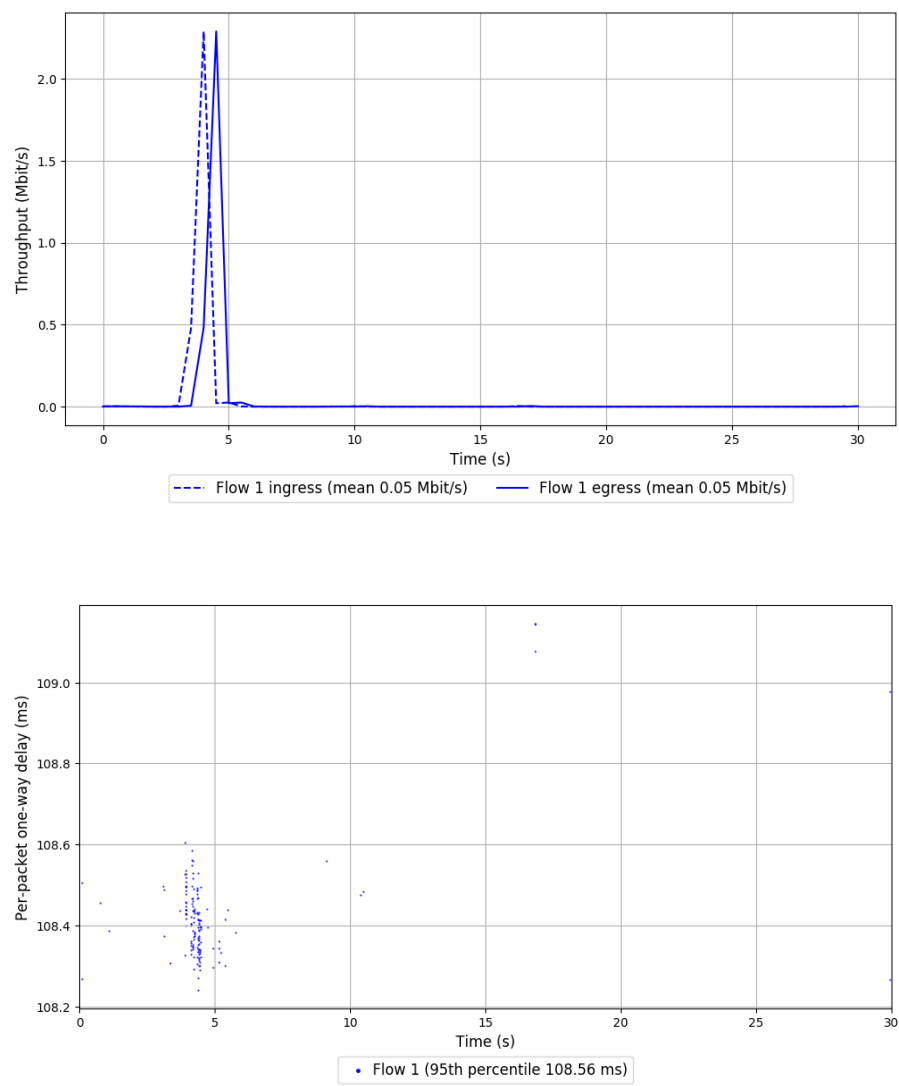


Run 3: Statistics of WebRTC media

Start at: 2018-12-19 23:53:06
End at: 2018-12-19 23:53:36
Local clock offset: 17.248 ms
Remote clock offset: 18.815 ms

Below is generated by plot.py at 2018-12-20 02:47:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 108.559 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 108.559 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

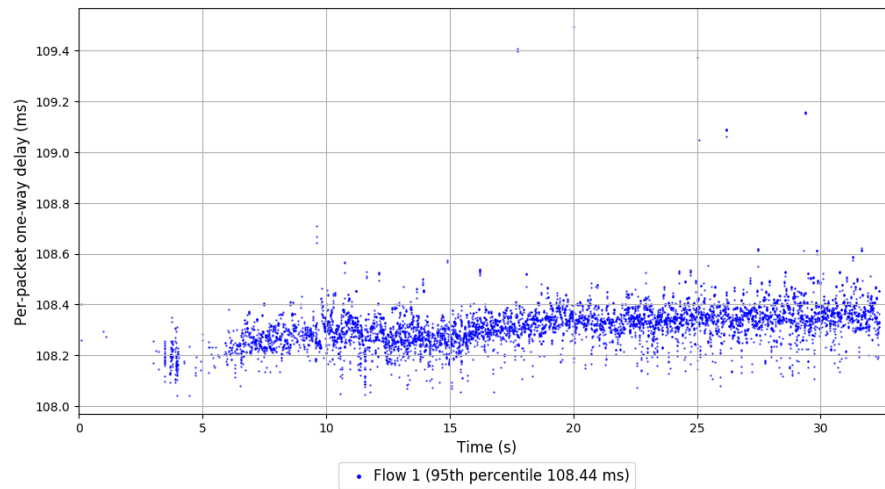
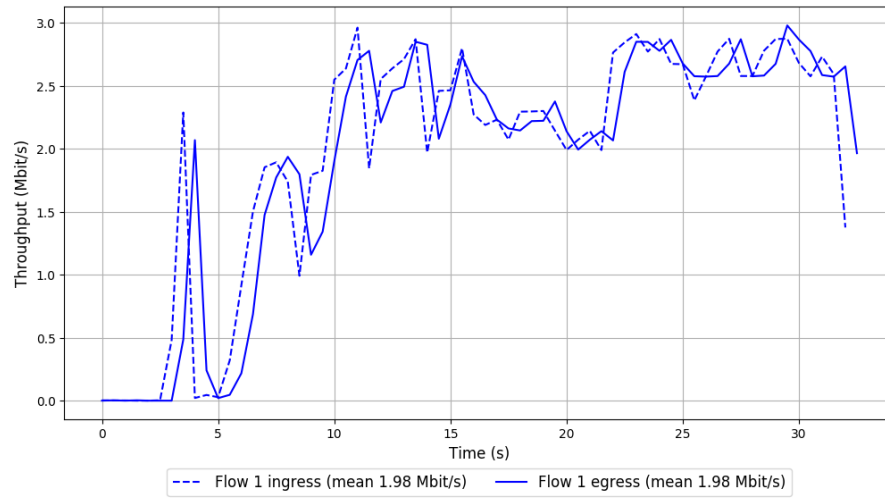


Run 4: Statistics of WebRTC media

Start at: 2018-12-20 00:22:12
End at: 2018-12-20 00:22:42
Local clock offset: 12.832 ms
Remote clock offset: 13.034 ms

Below is generated by plot.py at 2018-12-20 02:47:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 108.435 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 108.435 ms
Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-12-20 00:51:05

End at: 2018-12-20 00:51:35

Local clock offset: 9.233 ms

Remote clock offset: 9.644 ms

Below is generated by plot.py at 2018-12-20 02:47:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 109.279 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 109.279 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

