

Pantheon Report

Generated at 2018-08-09 16:50:18 (UTC).

Data path: Colombia ppp0 ppp0 (*remote*) → AWS Brazil 2 Ethernet (*local*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

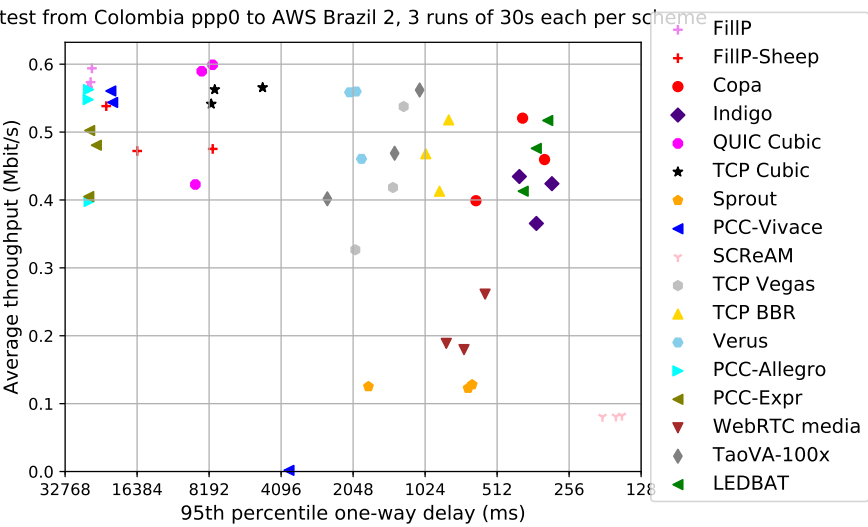
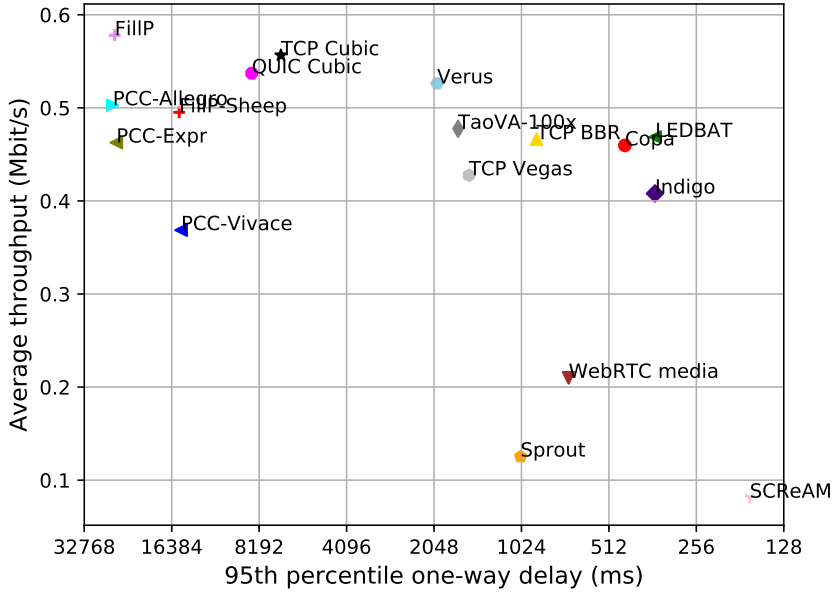
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.

Git summary:

```
branch: master @ 7772df3413f4b07ba0096dfdd8e9d4c6dca623e3
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
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-quirk @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
  M src/ScreamClient
  M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from Colombia ppp0 to AWS Brazil 2, 3 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	3	0.47	908.40	2.28
Copa	3	0.46	450.89	0.89
TCP Cubic	3	0.56	6893.02	28.48
FillP	3	0.58	25738.92	57.33
FillP-Sheep	3	0.50	15441.93	39.43
Indigo	3	0.41	355.40	1.45
LEDBAT	3	0.47	354.70	1.43
PCC-Allegro	3	0.50	26133.79	60.99
PCC-Expr	3	0.46	25408.58	92.00
QUIC Cubic	3	0.54	8687.45	31.75
SCReAM	3	0.08	167.62	0.79
Sprout	3	0.13	1031.61	0.74
TaoVA-100x	3	0.48	1692.51	2.96
TCP Vegas	3	0.43	1552.86	2.17
Verus	3	0.53	1998.40	8.28
PCC-Vivace	3	0.37	15211.04	48.23
WebRTC media	3	0.21	704.63	0.49

Run 1: Statistics of TCP BBR

Start at: 2018-08-09 16:05:11

End at: 2018-08-09 16:05:41

Local clock offset: -7.055 ms

Remote clock offset: 6.204 ms

Below is generated by plot.py at 2018-08-09 16:49:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 891.601 ms

Loss rate: 2.29%

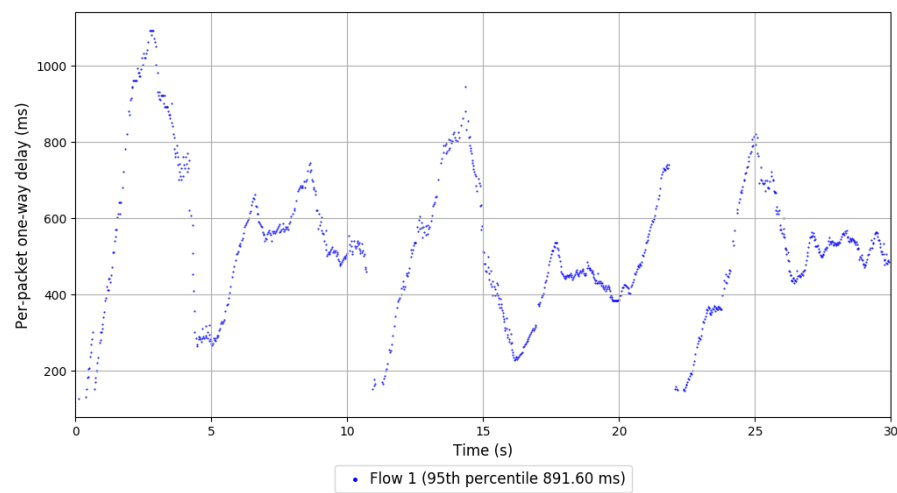
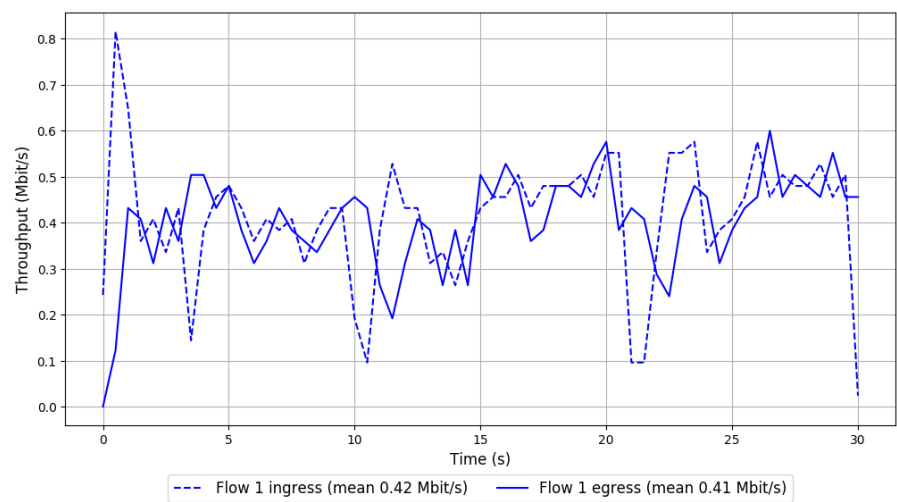
-- Flow 1:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 891.601 ms

Loss rate: 2.29%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-08-09 16:24:20

End at: 2018-08-09 16:24:50

Local clock offset: -4.766 ms

Remote clock offset: 6.869 ms

Below is generated by plot.py at 2018-08-09 16:49:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.52 Mbit/s

95th percentile per-packet one-way delay: 816.050 ms

Loss rate: 2.07%

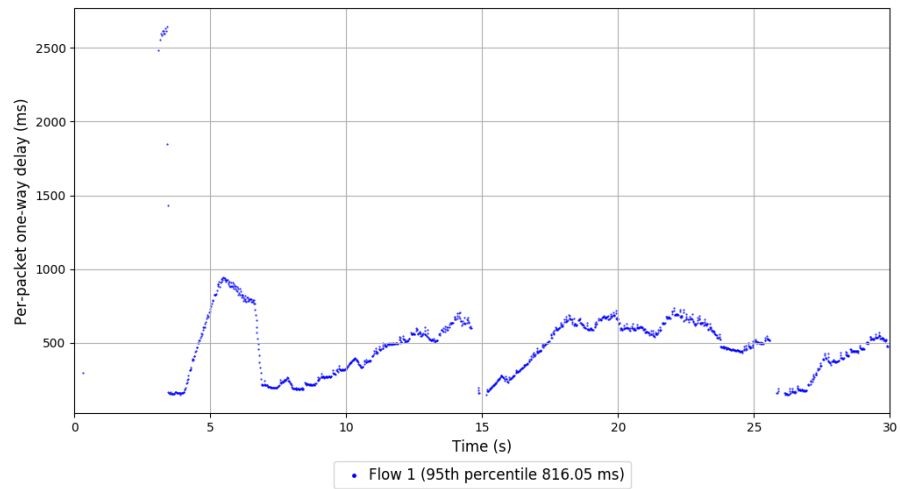
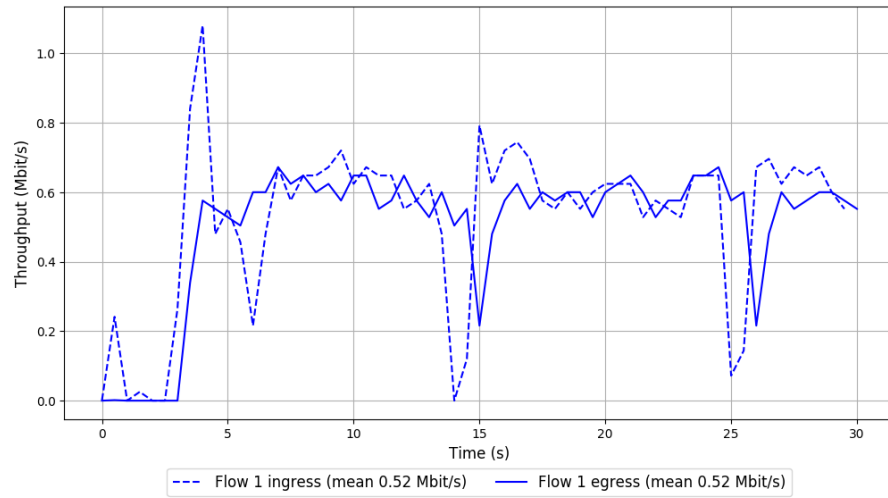
-- Flow 1:

Average throughput: 0.52 Mbit/s

95th percentile per-packet one-way delay: 816.050 ms

Loss rate: 2.07%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-08-09 16:43:33

End at: 2018-08-09 16:44:03

Local clock offset: -2.945 ms

Remote clock offset: 7.933 ms

Below is generated by plot.py at 2018-08-09 16:49:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 1017.551 ms

Loss rate: 2.49%

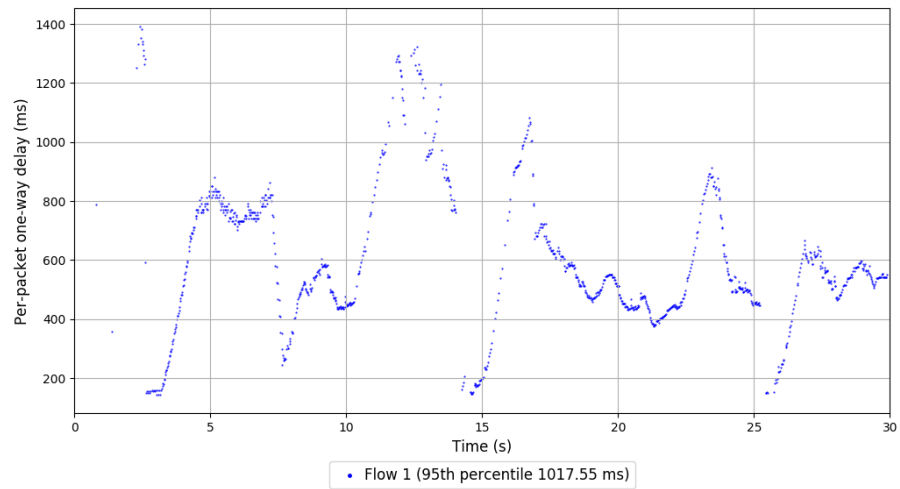
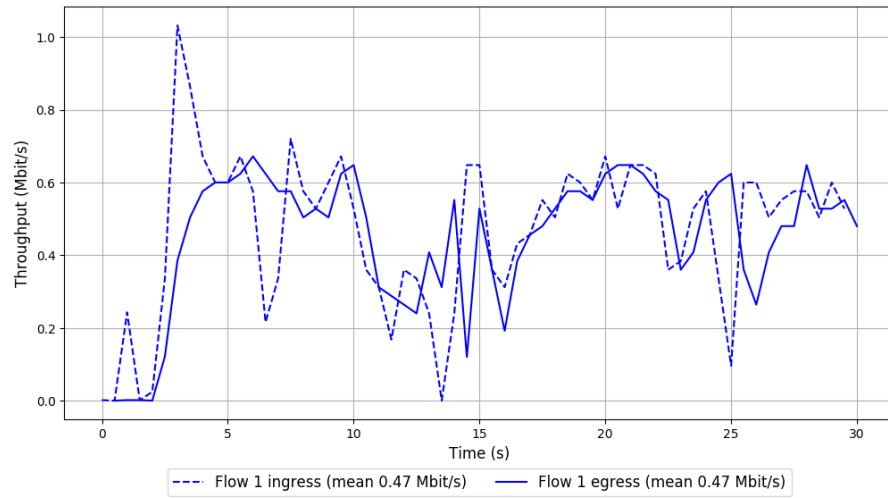
-- Flow 1:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 1017.551 ms

Loss rate: 2.49%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-08-09 16:01:45

End at: 2018-08-09 16:02:15

Local clock offset: -7.103 ms

Remote clock offset: 1.433 ms

Below is generated by plot.py at 2018-08-09 16:49:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 627.684 ms

Loss rate: 1.09%

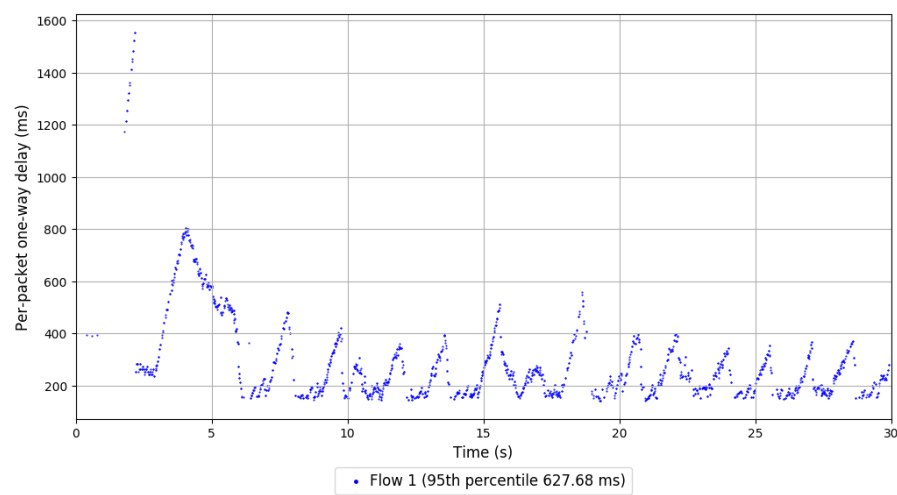
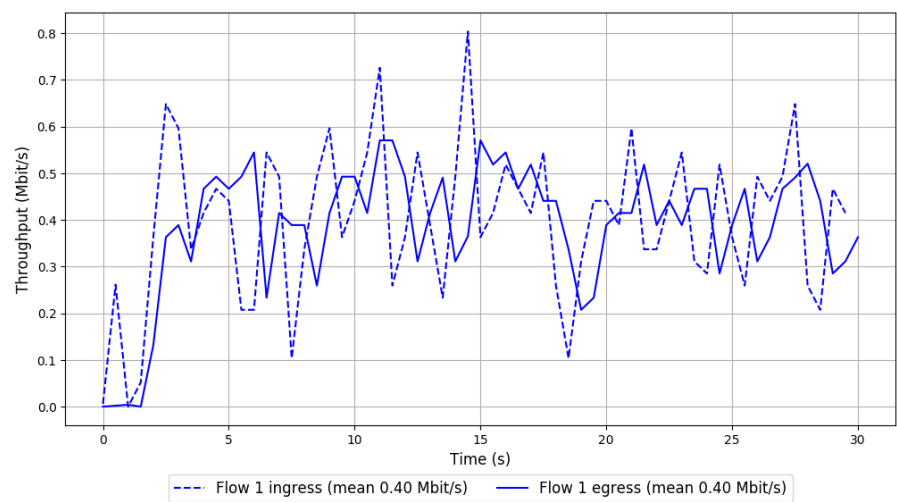
-- Flow 1:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 627.684 ms

Loss rate: 1.09%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-08-09 16:20:57

End at: 2018-08-09 16:21:27

Local clock offset: -5.458 ms

Remote clock offset: 2.525 ms

Below is generated by plot.py at 2018-08-09 16:49:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 324.344 ms

Loss rate: 0.66%

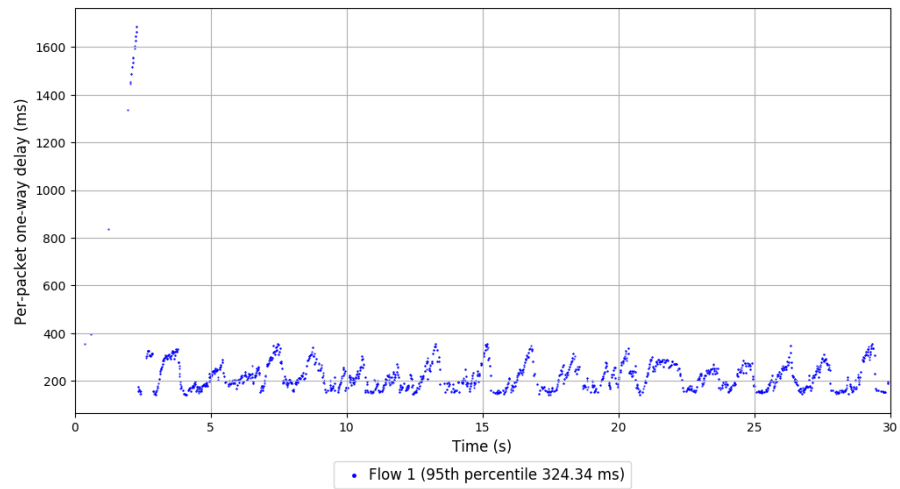
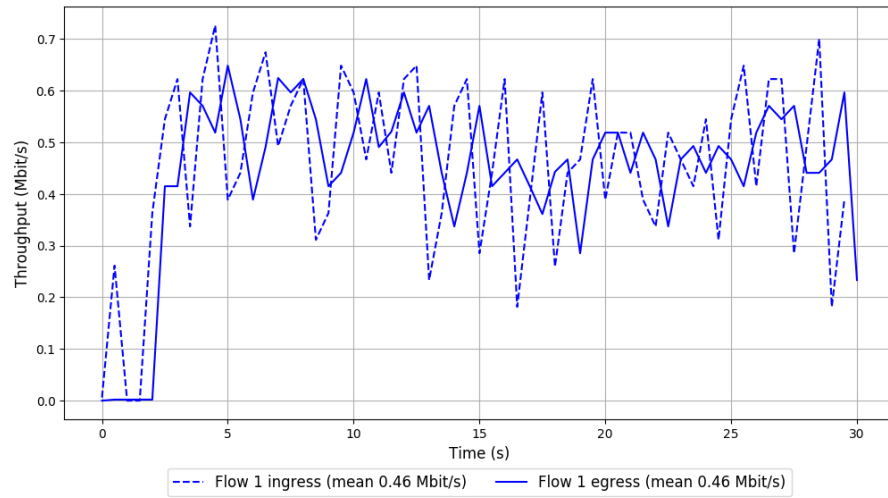
-- Flow 1:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 324.344 ms

Loss rate: 0.66%

Run 2: Report of Copa — Data Link

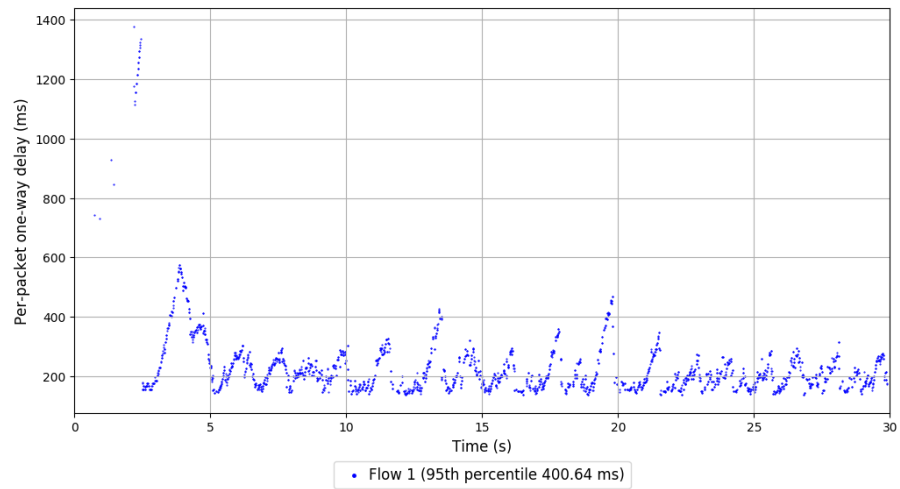
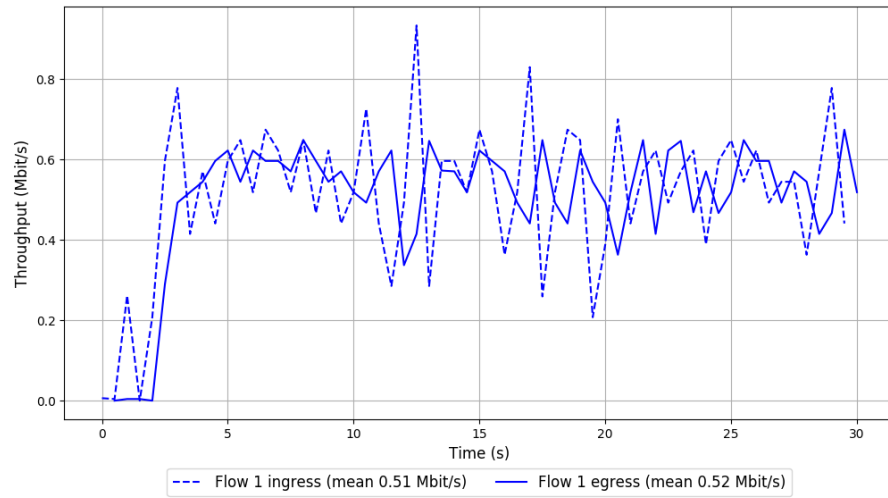


Run 3: Statistics of Copa

Start at: 2018-08-09 16:40:11
End at: 2018-08-09 16:40:41
Local clock offset: -3.186 ms
Remote clock offset: 7.818 ms

Below is generated by plot.py at 2018-08-09 16:49:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 400.645 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 400.645 ms
Loss rate: 0.93%

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-08-09 16:08:32

End at: 2018-08-09 16:09:02

Local clock offset: -7.035 ms

Remote clock offset: 1.492 ms

Below is generated by plot.py at 2018-08-09 16:49:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 8025.603 ms

Loss rate: 31.61%

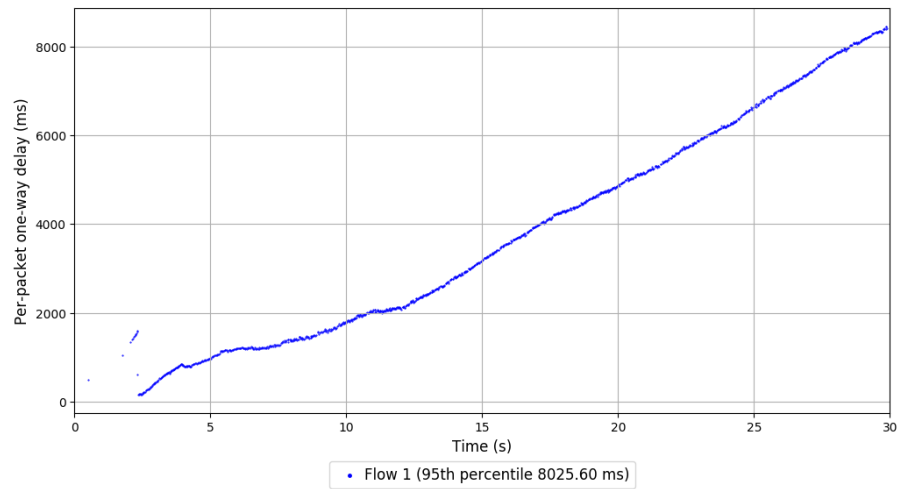
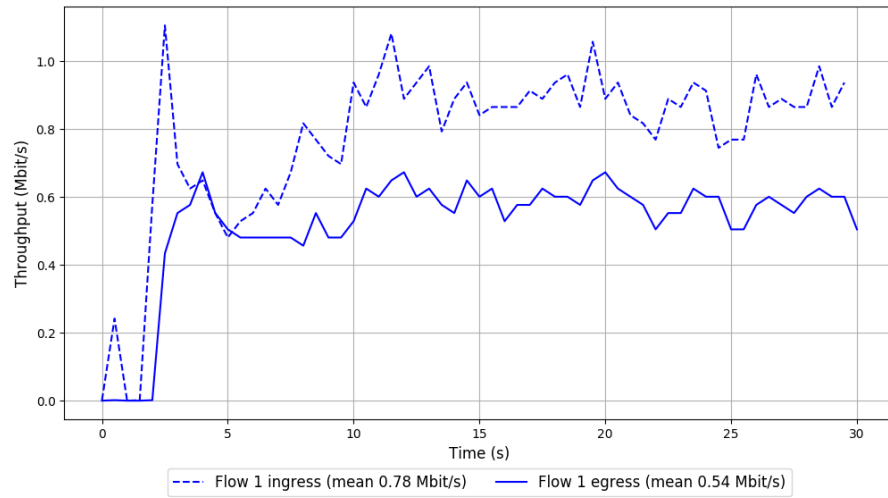
-- Flow 1:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 8025.603 ms

Loss rate: 31.61%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-08-09 16:27:44

End at: 2018-08-09 16:28:14

Local clock offset: -4.214 ms

Remote clock offset: 2.35 ms

Below is generated by plot.py at 2018-08-09 16:49:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 7759.859 ms

Loss rate: 31.03%

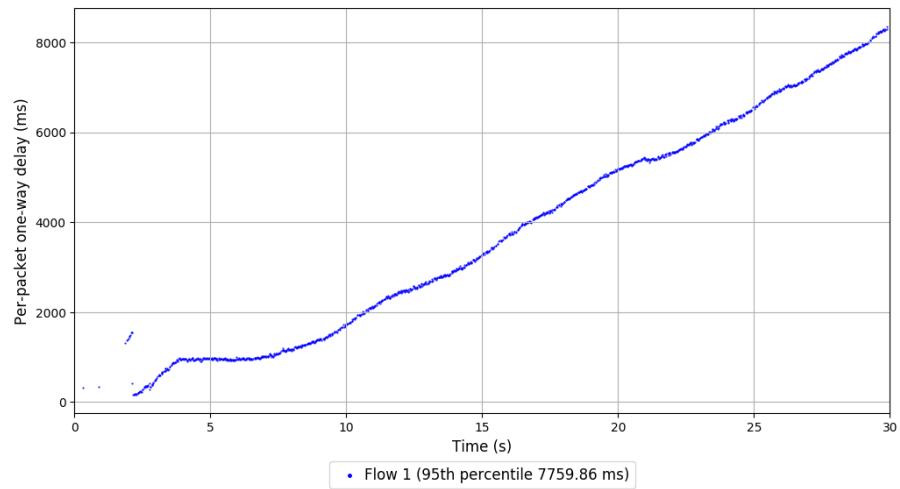
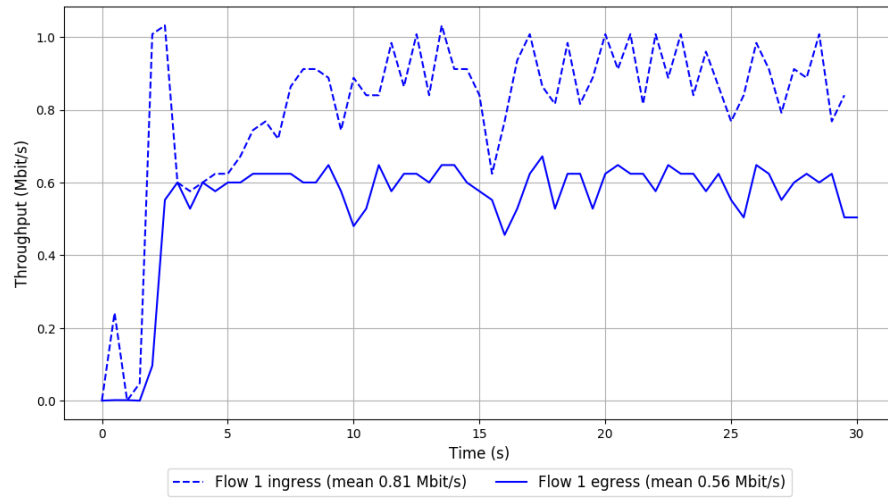
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 7759.859 ms

Loss rate: 31.03%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-08-09 16:46:57

End at: 2018-08-09 16:47:27

Local clock offset: -3.461 ms

Remote clock offset: 8.365 ms

Below is generated by plot.py at 2018-08-09 16:49:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 4893.592 ms

Loss rate: 22.80%

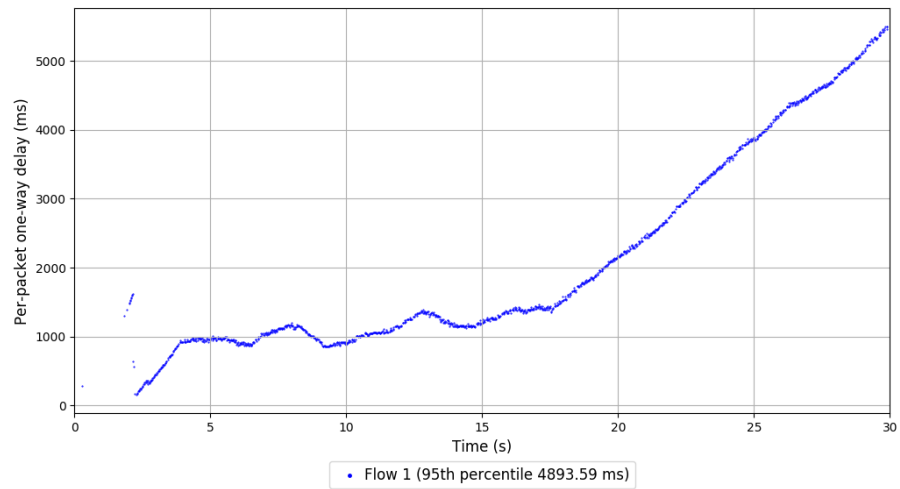
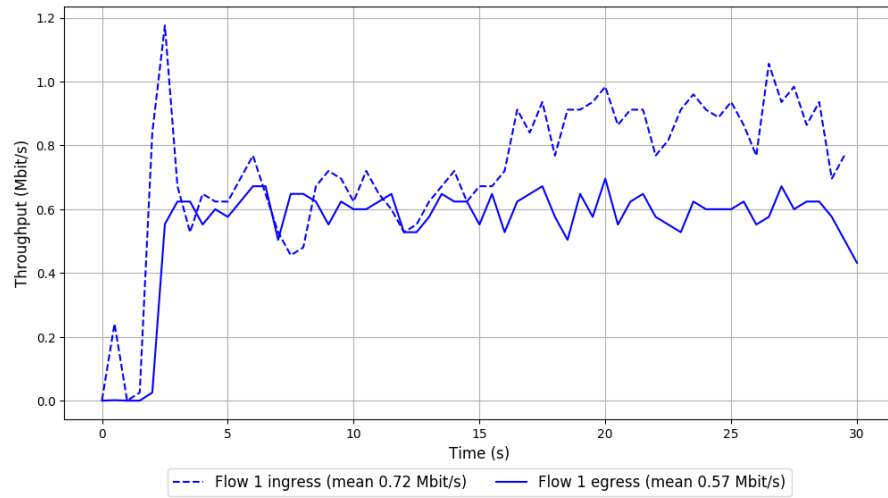
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 4893.592 ms

Loss rate: 22.80%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-08-09 15:59:25

End at: 2018-08-09 15:59:56

Local clock offset: -7.1 ms

Remote clock offset: 5.059 ms

Below is generated by plot.py at 2018-08-09 16:49:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 26267.460 ms

Loss rate: 56.89%

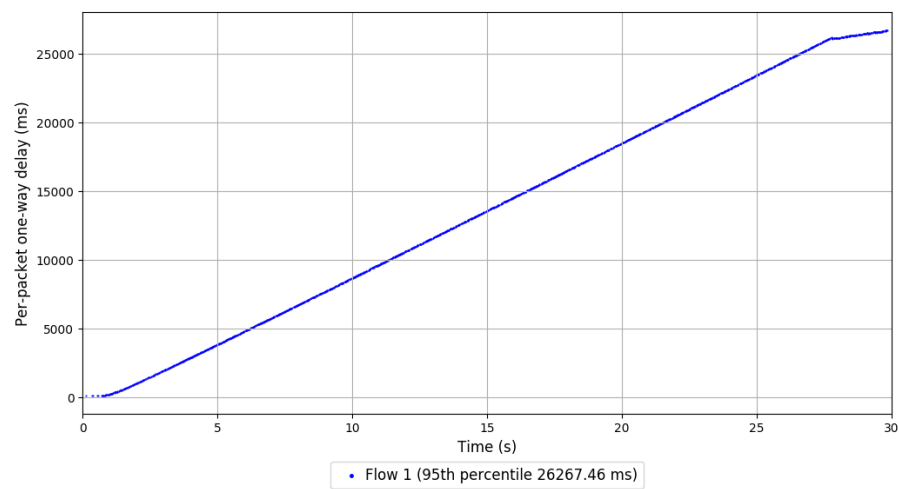
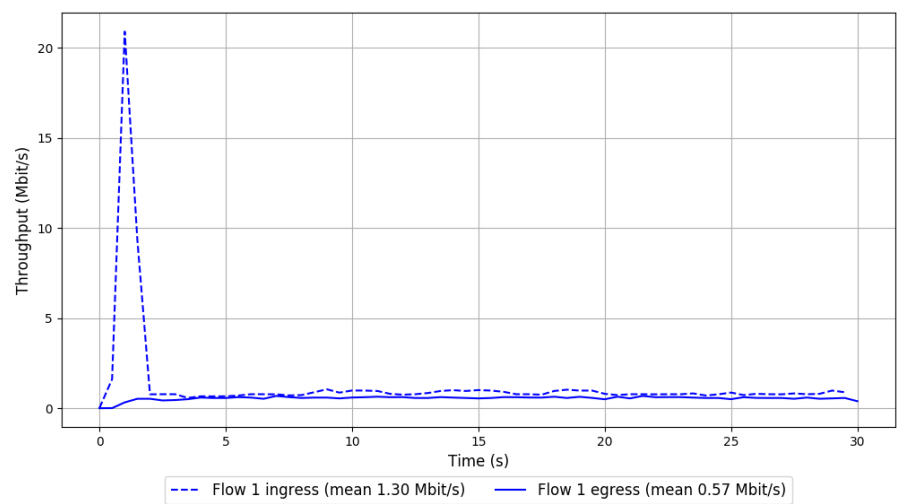
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 26267.460 ms

Loss rate: 56.89%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-08-09 16:18:42

End at: 2018-08-09 16:19:12

Local clock offset: -6.141 ms

Remote clock offset: 2.194 ms

Below is generated by plot.py at 2018-08-09 16:49:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 25313.027 ms

Loss rate: 54.72%

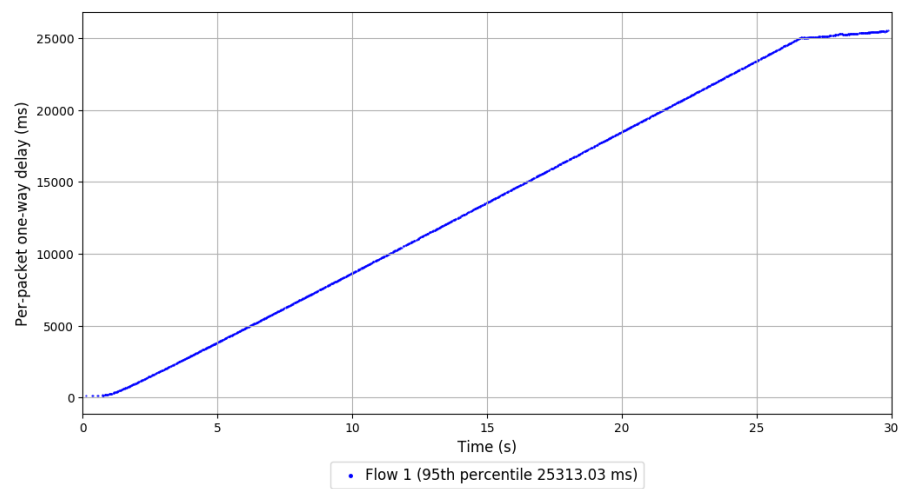
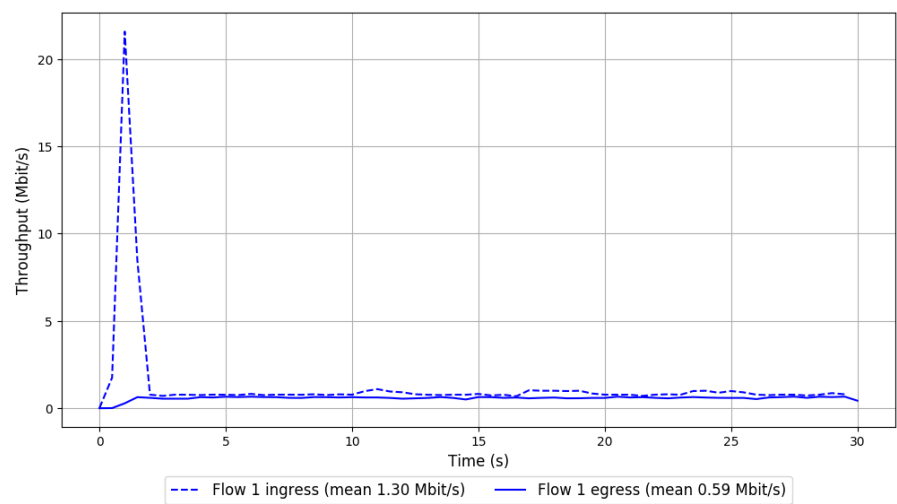
-- Flow 1:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 25313.027 ms

Loss rate: 54.72%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-08-09 16:37:54

End at: 2018-08-09 16:38:24

Local clock offset: -3.275 ms

Remote clock offset: 8.018 ms

Below is generated by plot.py at 2018-08-09 16:49:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 25636.288 ms

Loss rate: 60.39%

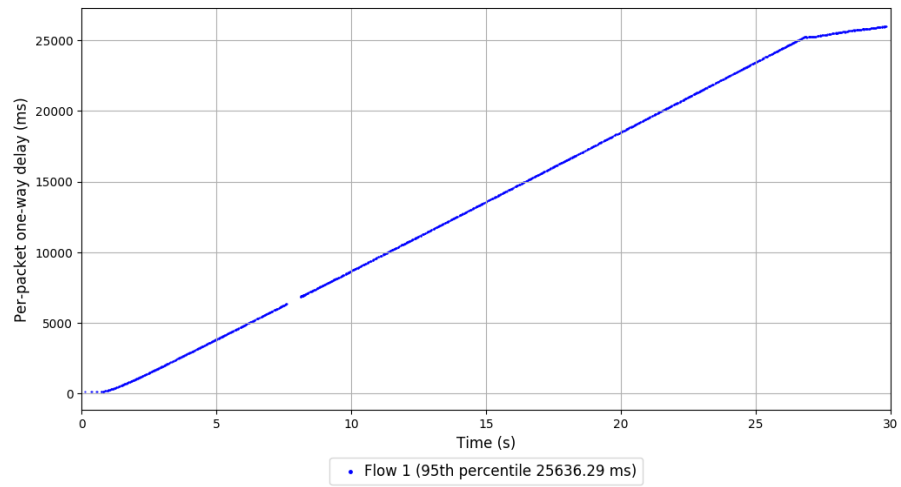
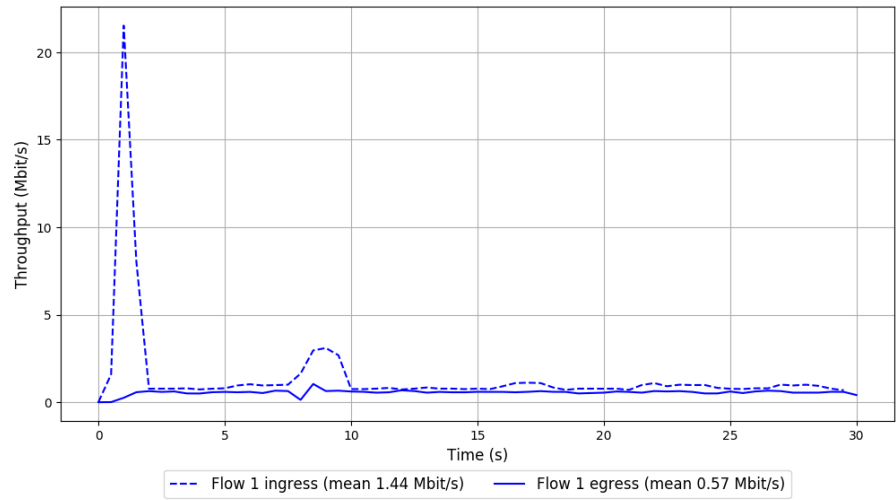
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 25636.288 ms

Loss rate: 60.39%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-08-09 15:57:07

End at: 2018-08-09 15:57:37

Local clock offset: -7.083 ms

Remote clock offset: 0.109 ms

Below is generated by plot.py at 2018-08-09 16:49:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 7911.385 ms

Loss rate: 27.26%

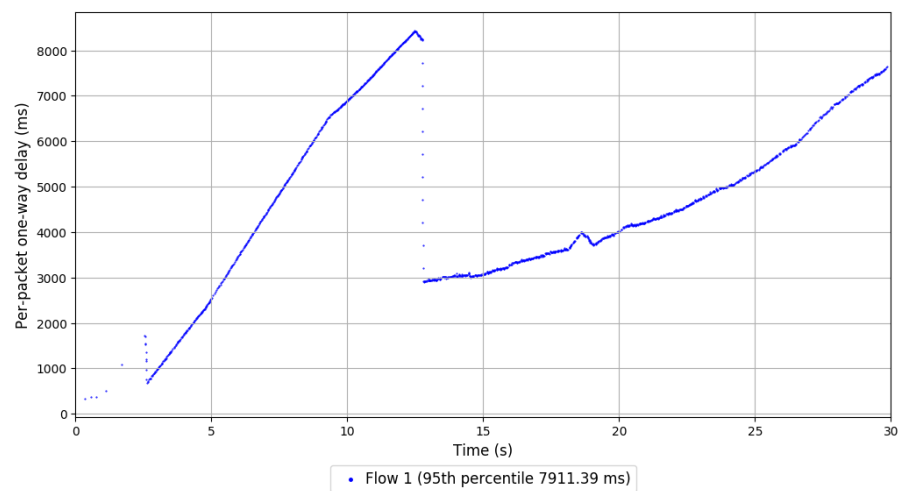
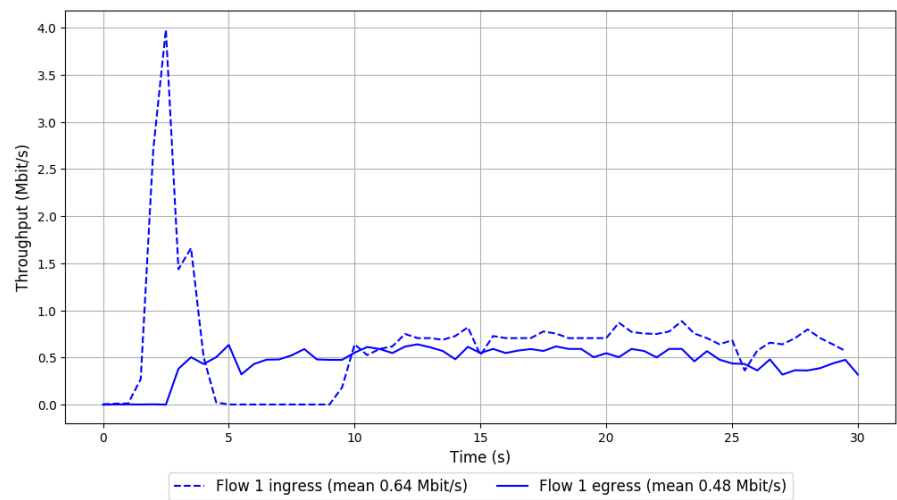
-- Flow 1:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 7911.385 ms

Loss rate: 27.26%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-08-09 16:16:26

End at: 2018-08-09 16:16:56

Local clock offset: -6.856 ms

Remote clock offset: 0.487 ms

Below is generated by plot.py at 2018-08-09 16:49:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 22050.082 ms

Loss rate: 48.96%

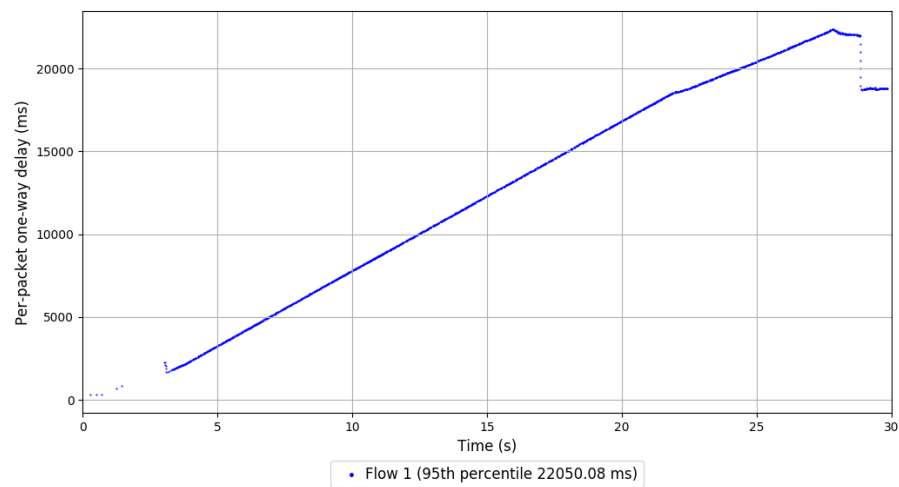
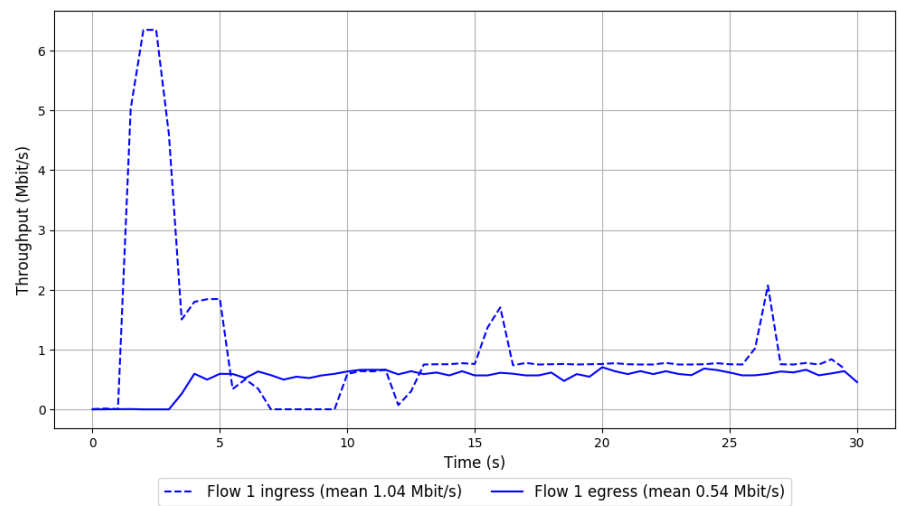
-- Flow 1:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 22050.082 ms

Loss rate: 48.96%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-08-09 16:35:35

End at: 2018-08-09 16:36:05

Local clock offset: -3.445 ms

Remote clock offset: 7.808 ms

Below is generated by plot.py at 2018-08-09 16:49:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 16364.331 ms

Loss rate: 42.06%

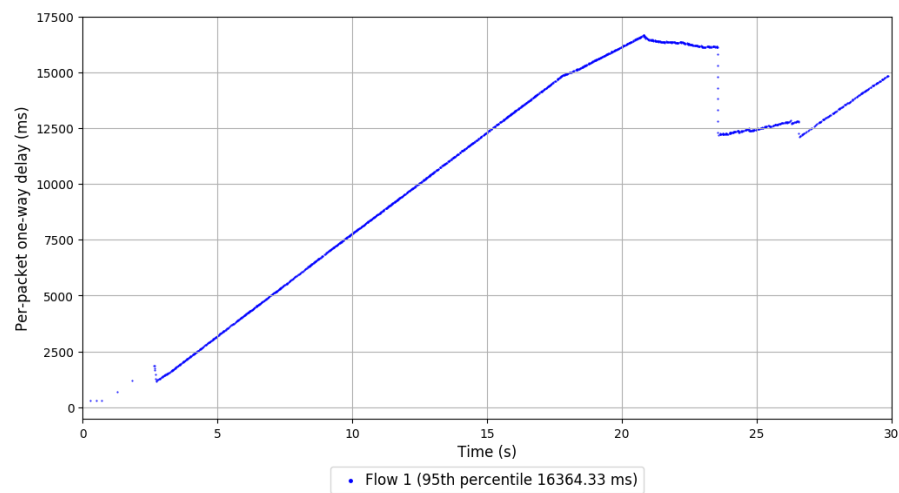
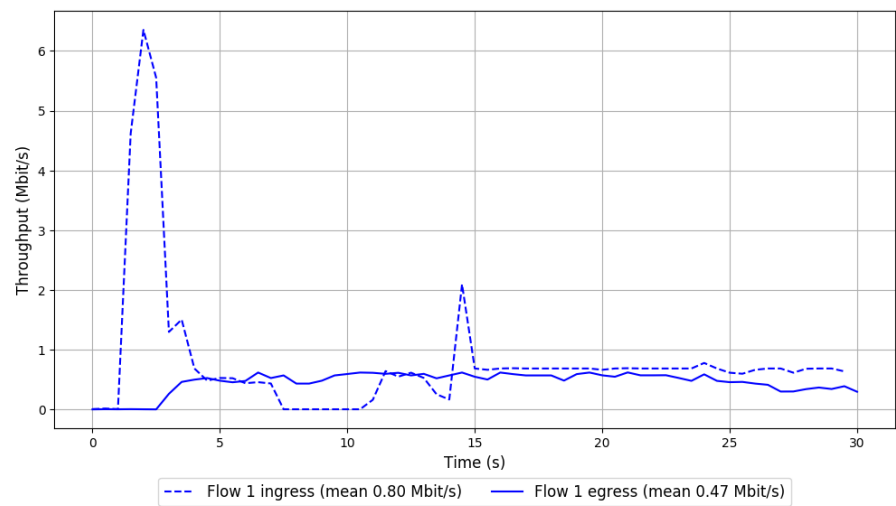
-- Flow 1:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 16364.331 ms

Loss rate: 42.06%

Run 3: Report of FillP-Sheep — Data Link

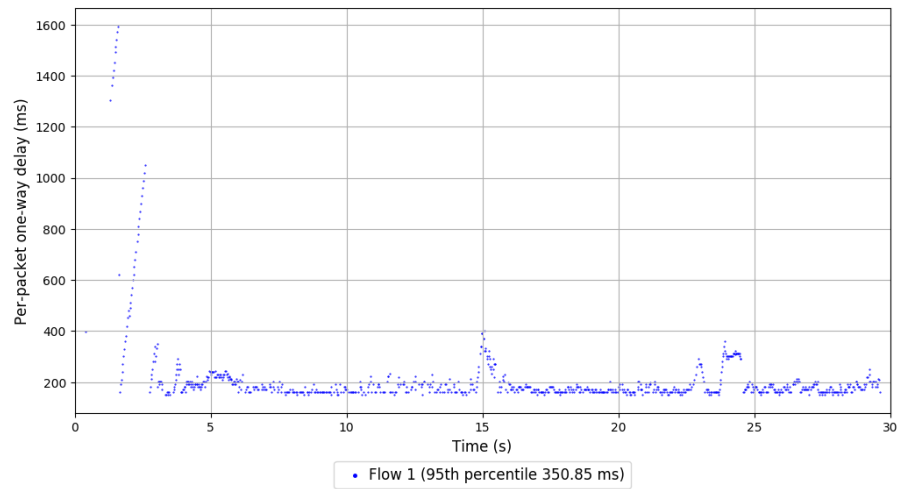
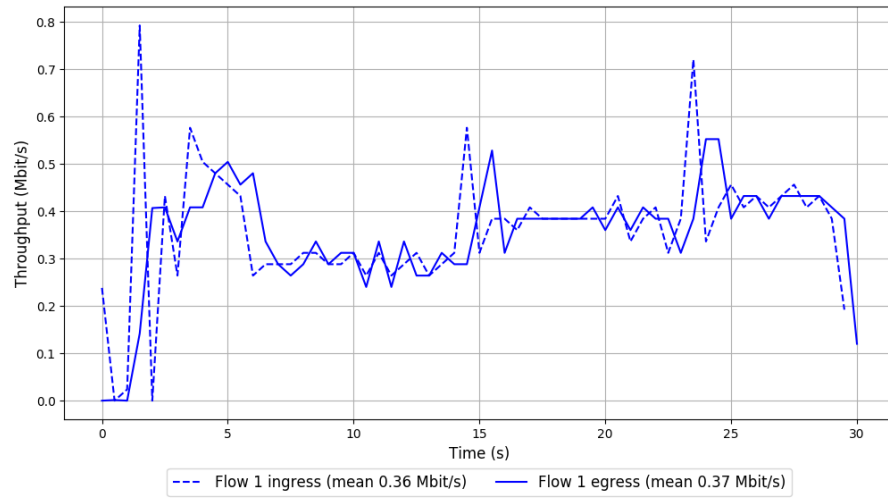


```
Run 1: Statistics of Indigo

Start at: 2018-08-09 16:07:25
End at: 2018-08-09 16:07:55
Local clock offset: -7.035 ms
Remote clock offset: 0.236 ms

# Below is generated by plot.py at 2018-08-09 16:49:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 350.851 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 350.851 ms
Loss rate: 1.11%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-08-09 16:26:37

End at: 2018-08-09 16:27:07

Local clock offset: -4.386 ms

Remote clock offset: 2.157 ms

Below is generated by plot.py at 2018-08-09 16:49:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 413.254 ms

Loss rate: 1.65%

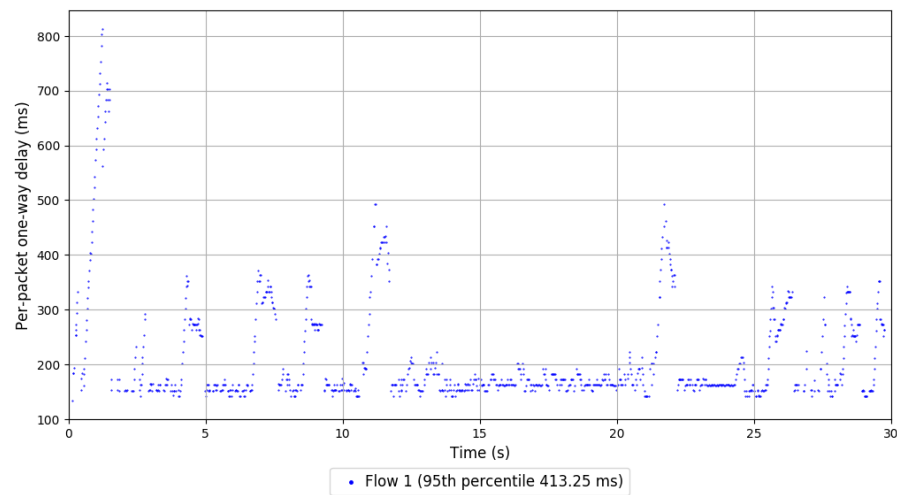
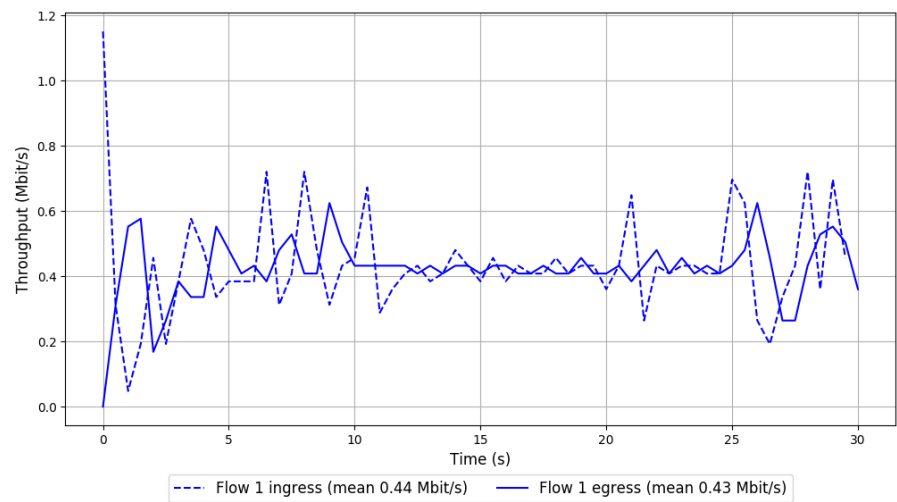
-- Flow 1:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 413.254 ms

Loss rate: 1.65%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-08-09 16:45:50

End at: 2018-08-09 16:46:20

Local clock offset: -2.895 ms

Remote clock offset: 8.297 ms

Below is generated by plot.py at 2018-08-09 16:49:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 302.085 ms

Loss rate: 1.60%

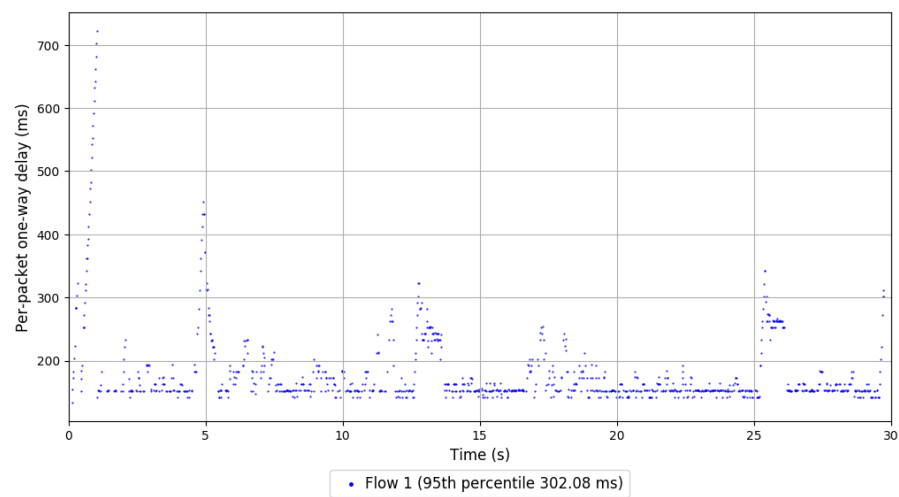
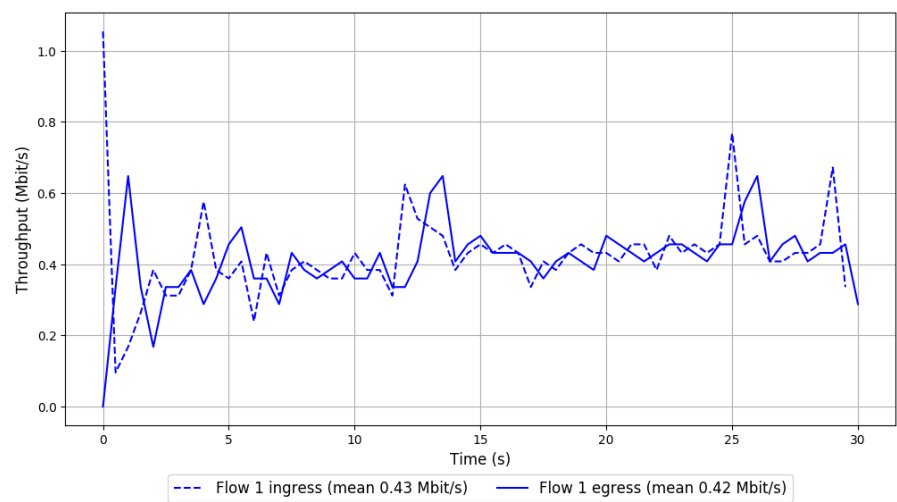
-- Flow 1:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 302.085 ms

Loss rate: 1.60%

Run 3: Report of Indigo — Data Link

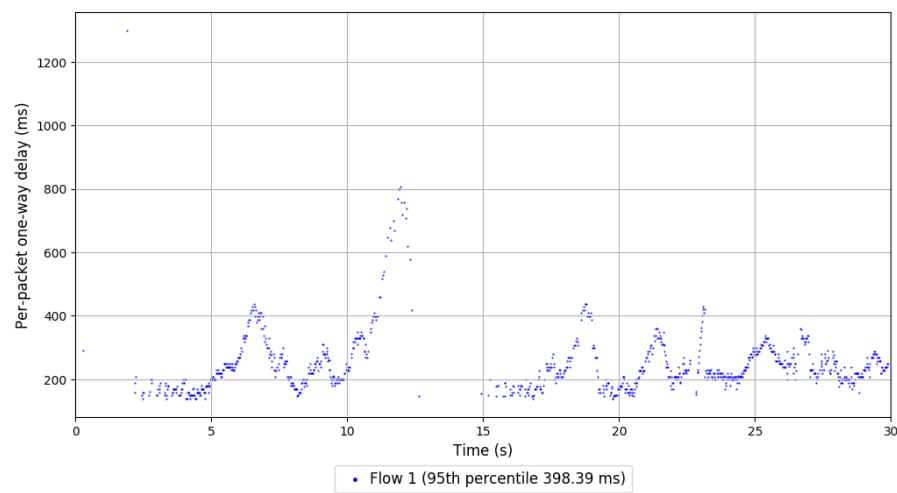
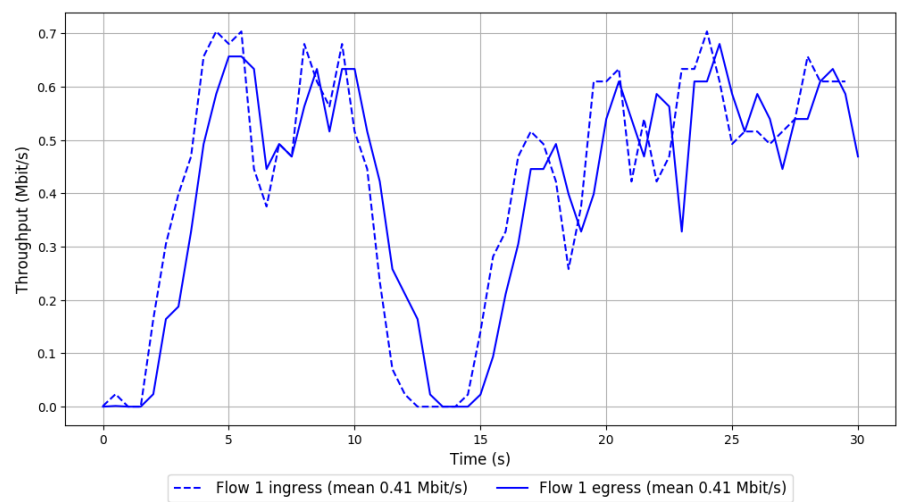


```
Run 1: Statistics of LEDBAT

Start at: 2018-08-09 16:09:39
End at: 2018-08-09 16:10:09
Local clock offset: -7.051 ms
Remote clock offset: 5.248 ms

# Below is generated by plot.py at 2018-08-09 16:49:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 398.389 ms
Loss rate: 1.70%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 398.389 ms
Loss rate: 1.70%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-08-09 16:28:52

End at: 2018-08-09 16:29:22

Local clock offset: -4.062 ms

Remote clock offset: 3.615 ms

Below is generated by plot.py at 2018-08-09 16:49:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 351.212 ms

Loss rate: 1.38%

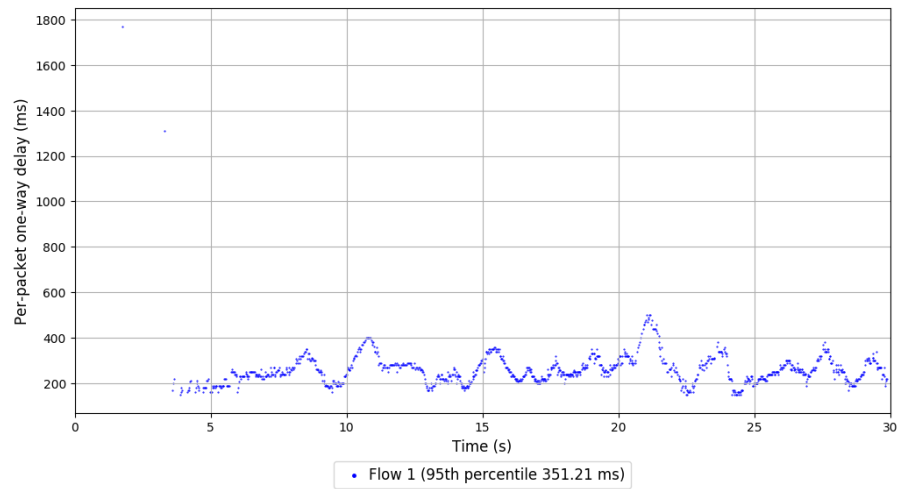
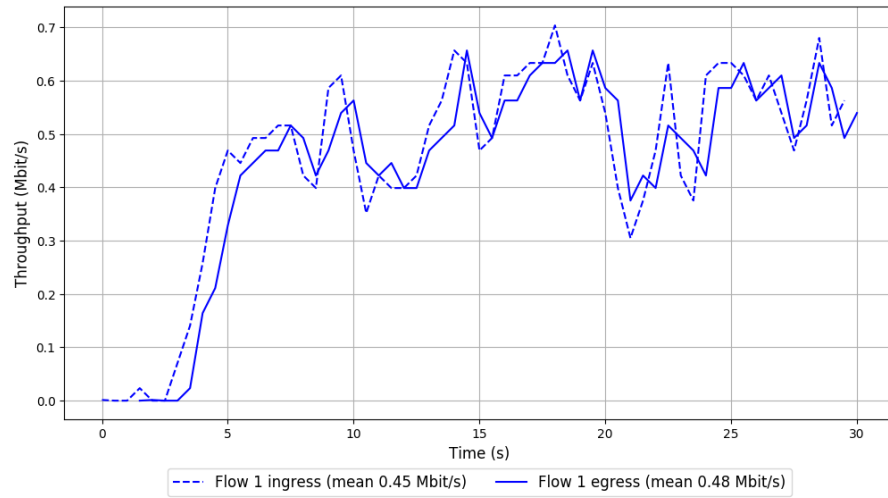
-- Flow 1:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 351.212 ms

Loss rate: 1.38%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-08-09 16:48:04

End at: 2018-08-09 16:48:34

Local clock offset: -4.185 ms

Remote clock offset: 8.526 ms

Below is generated by plot.py at 2018-08-09 16:49:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.52 Mbit/s

95th percentile per-packet one-way delay: 314.492 ms

Loss rate: 1.21%

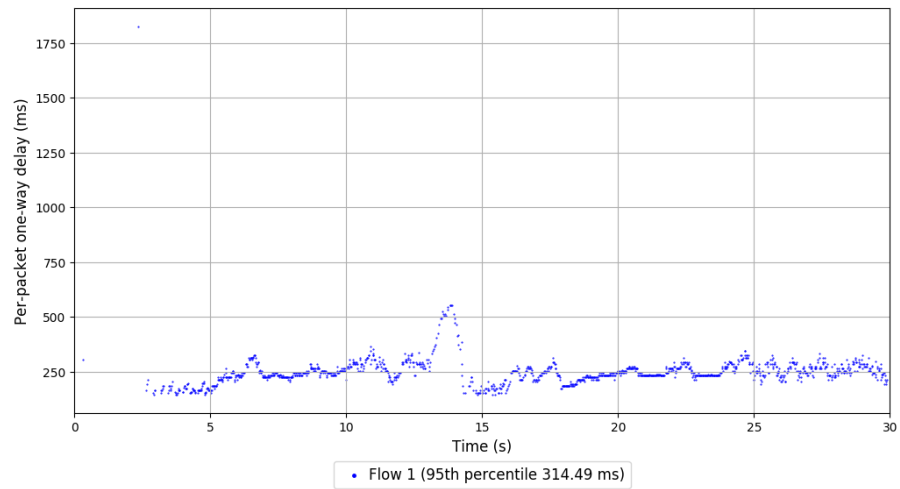
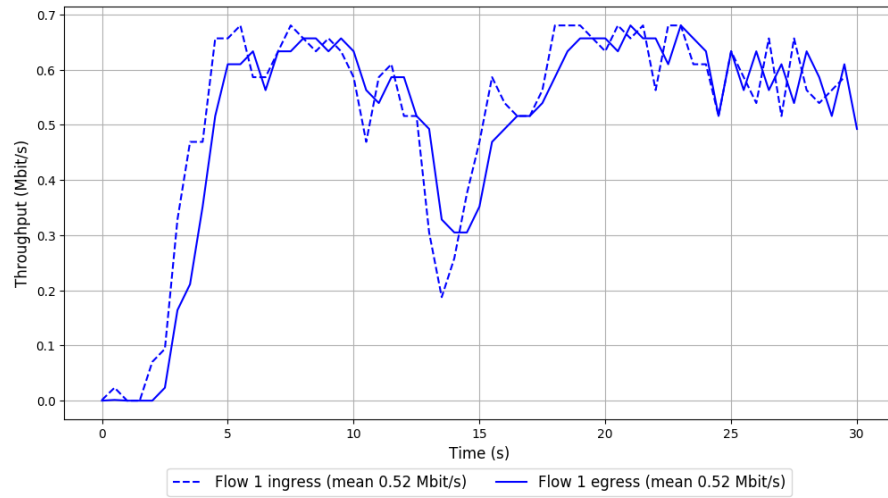
-- Flow 1:

Average throughput: 0.52 Mbit/s

95th percentile per-packet one-way delay: 314.492 ms

Loss rate: 1.21%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-08-09 16:04:00

End at: 2018-08-09 16:04:30

Local clock offset: -7.054 ms

Remote clock offset: 5.195 ms

Below is generated by plot.py at 2018-08-09 16:50:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 25996.871 ms

Loss rate: 68.20%

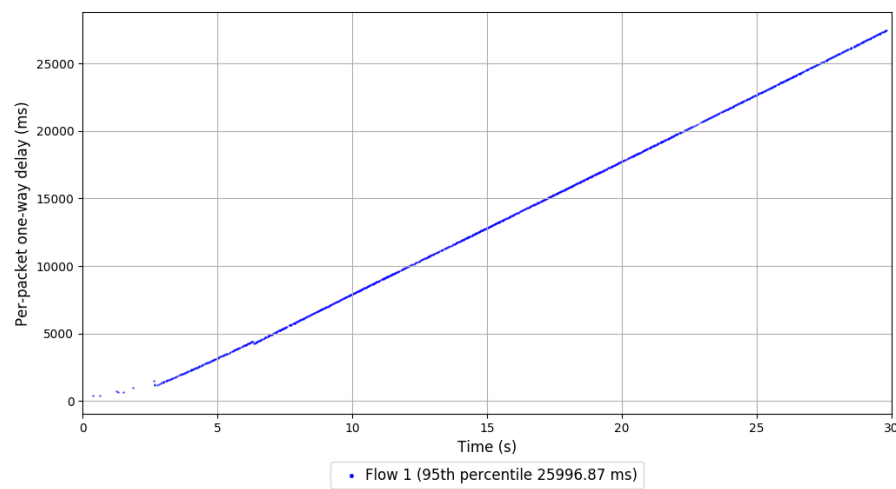
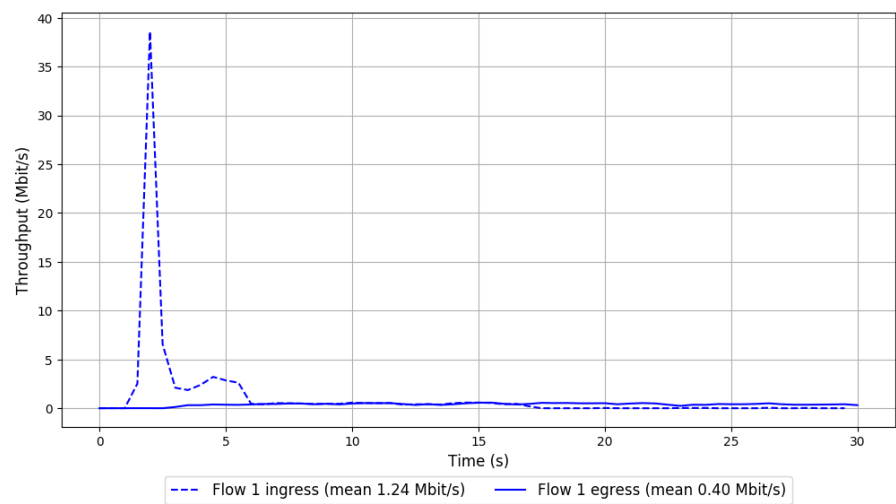
-- Flow 1:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 25996.871 ms

Loss rate: 68.20%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-08-09 16:23:12

End at: 2018-08-09 16:23:42

Local clock offset: -4.941 ms

Remote clock offset: 5.609 ms

Below is generated by plot.py at 2018-08-09 16:50:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 26245.575 ms

Loss rate: 59.52%

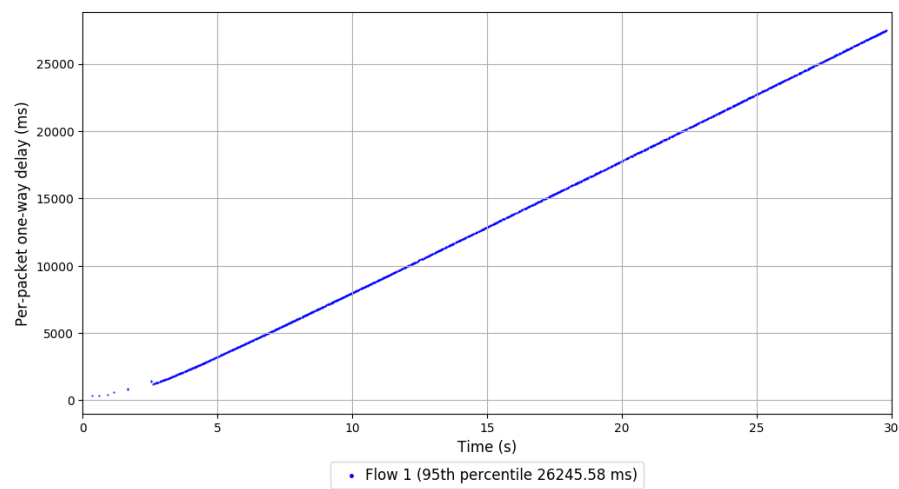
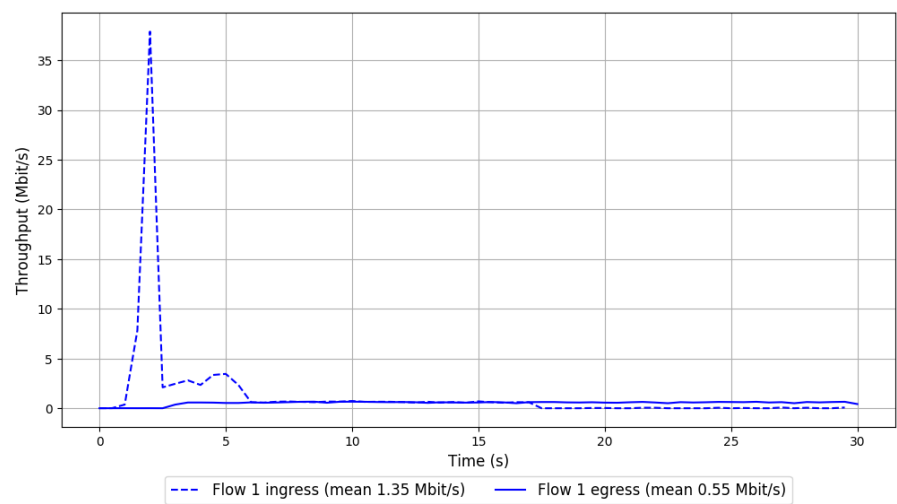
-- Flow 1:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 26245.575 ms

Loss rate: 59.52%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-08-09 16:42:26

End at: 2018-08-09 16:42:56

Local clock offset: -2.991 ms

Remote clock offset: 7.746 ms

Below is generated by plot.py at 2018-08-09 16:50:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 26158.930 ms

Loss rate: 55.24%

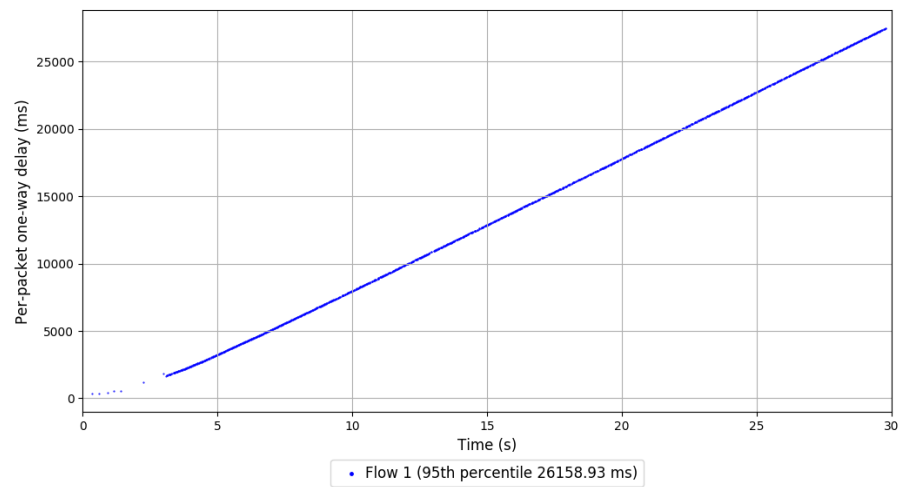
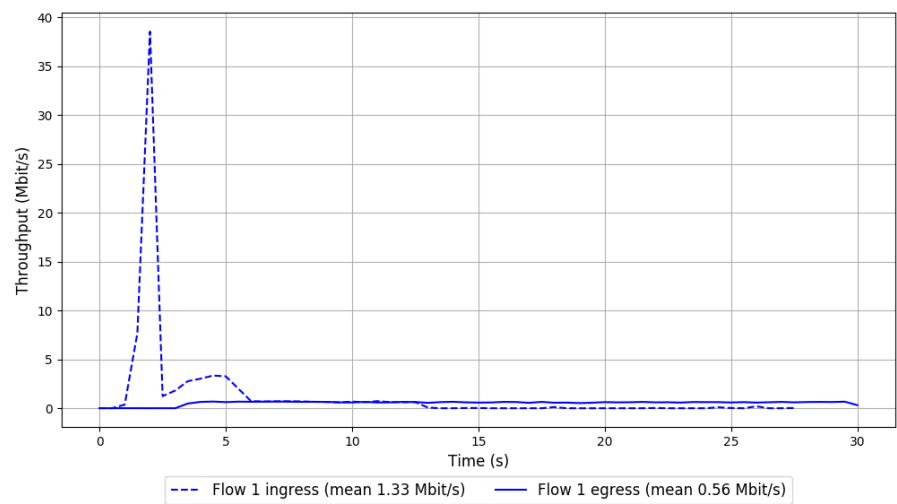
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 26158.930 ms

Loss rate: 55.24%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2018-08-09 15:58:15

End at: 2018-08-09 15:58:45

Local clock offset: -7.128 ms

Remote clock offset: 3.995 ms

Below is generated by plot.py at 2018-08-09 16:50:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 25869.622 ms

Loss rate: 91.32%

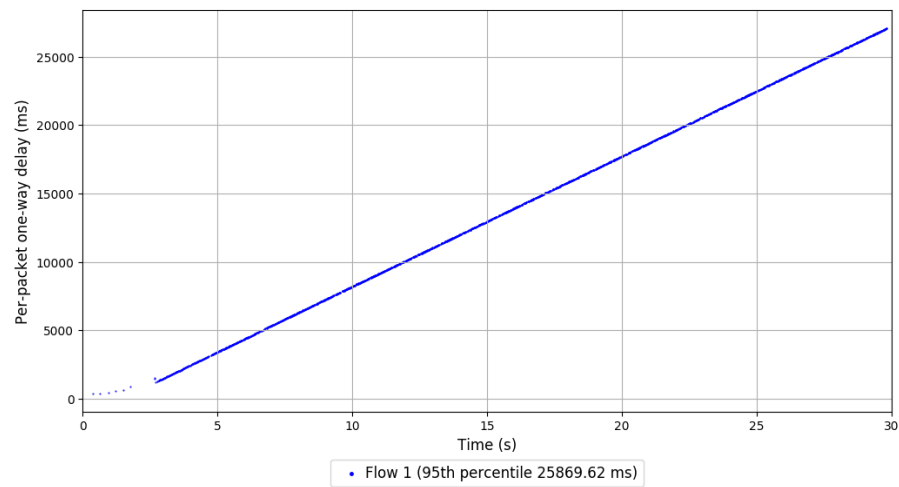
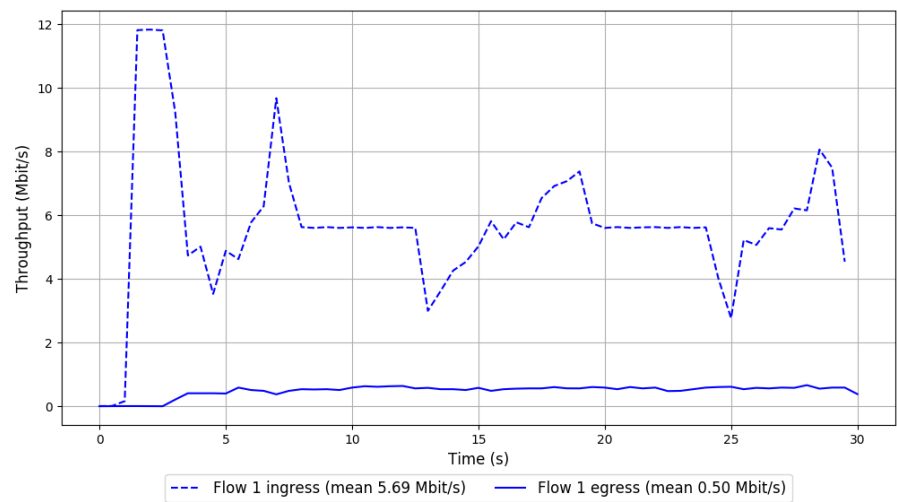
-- Flow 1:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 25869.622 ms

Loss rate: 91.32%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-08-09 16:17:33

End at: 2018-08-09 16:18:03

Local clock offset: -6.442 ms

Remote clock offset: 6.794 ms

Below is generated by plot.py at 2018-08-09 16:50:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 26096.840 ms

Loss rate: 92.80%

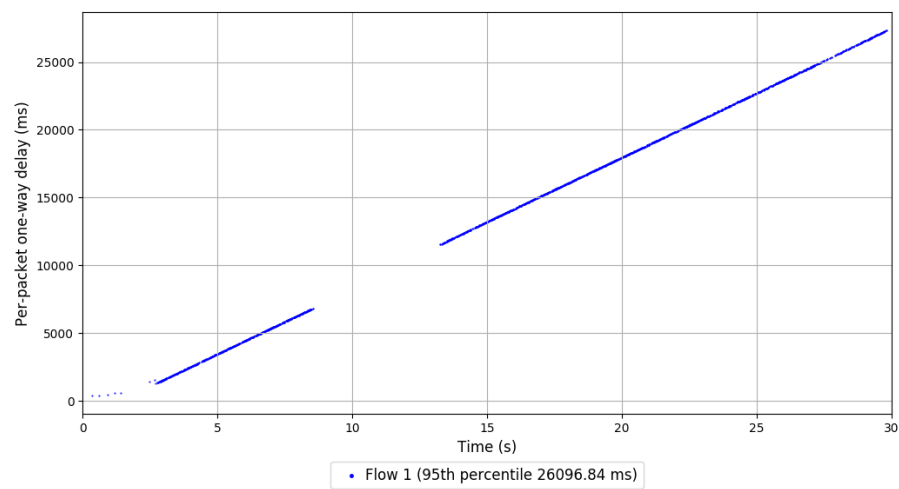
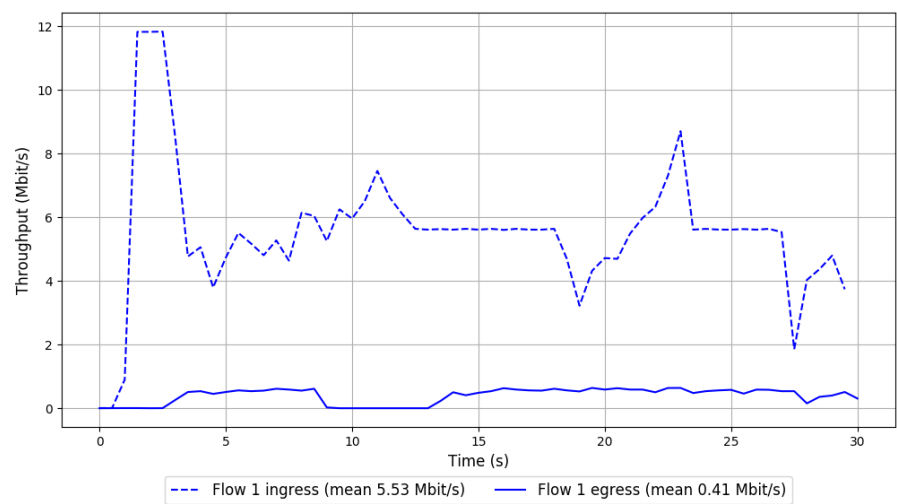
-- Flow 1:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 26096.840 ms

Loss rate: 92.80%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-08-09 16:36:43

End at: 2018-08-09 16:37:13

Local clock offset: -3.405 ms

Remote clock offset: 4.458 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 24259.289 ms

Loss rate: 91.88%

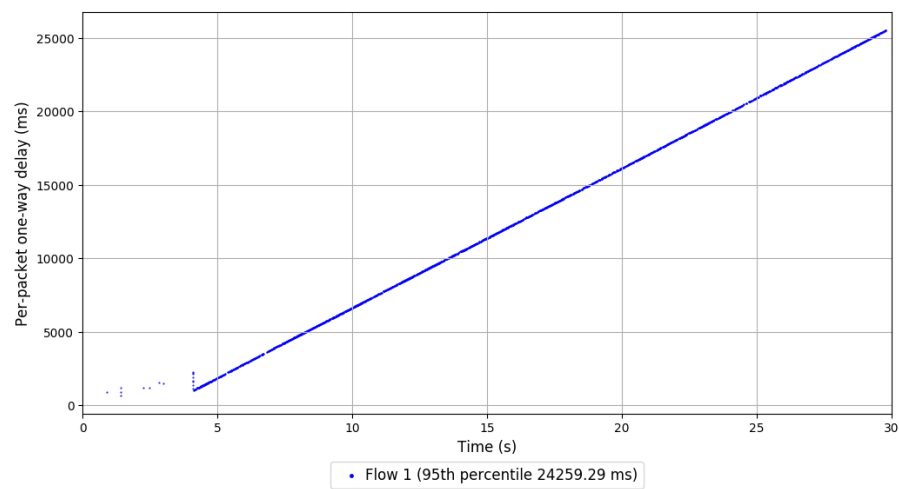
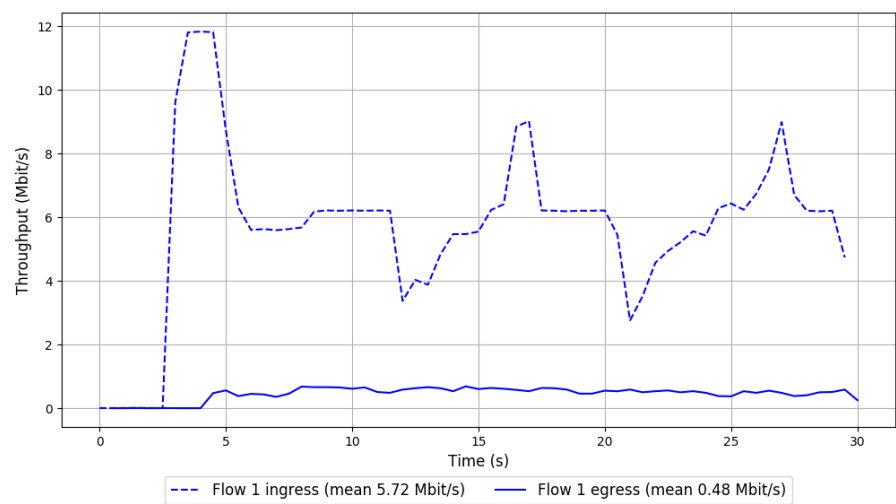
-- Flow 1:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 24259.289 ms

Loss rate: 91.88%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-08-09 16:02:53

End at: 2018-08-09 16:03:23

Local clock offset: -7.053 ms

Remote clock offset: 4.047 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 9349.209 ms

Loss rate: 32.17%

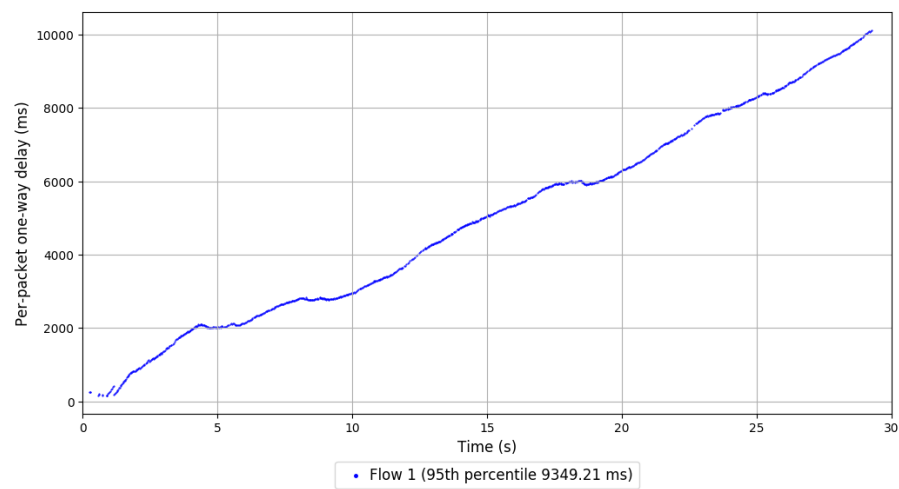
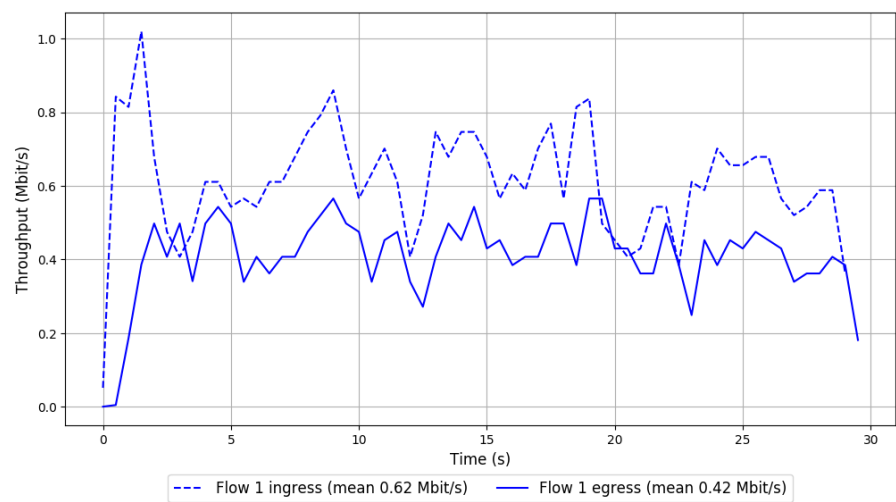
-- Flow 1:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 9349.209 ms

Loss rate: 32.17%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-08-09 16:22:05

End at: 2018-08-09 16:22:35

Local clock offset: -5.214 ms

Remote clock offset: 6.507 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 8794.876 ms

Loss rate: 32.83%

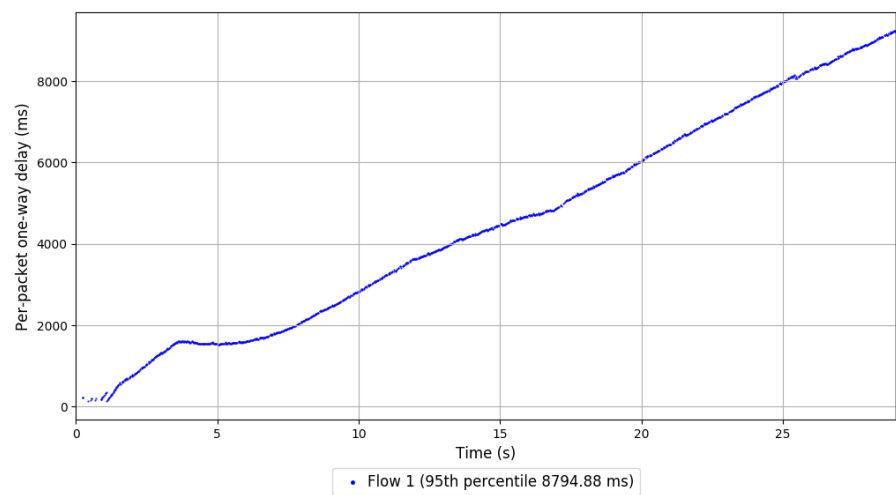
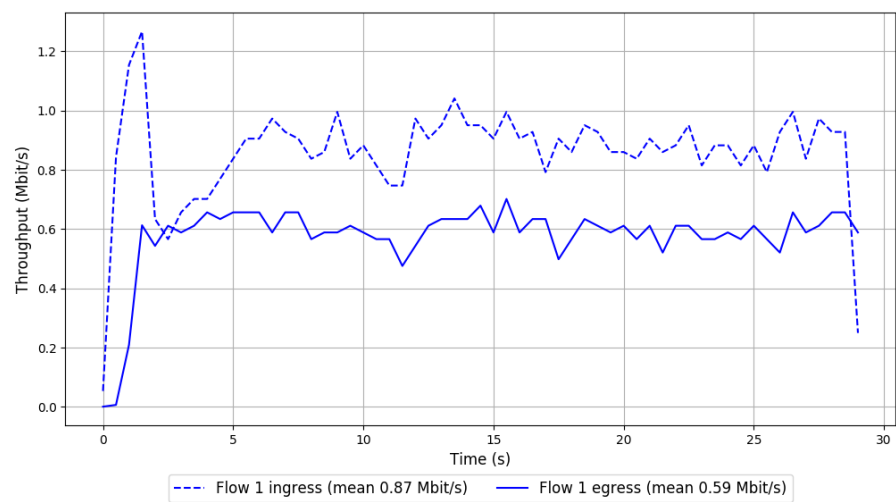
-- Flow 1:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 8794.876 ms

Loss rate: 32.83%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-08-09 16:41:18

End at: 2018-08-09 16:41:48

Local clock offset: -3.139 ms

Remote clock offset: 8.491 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7918.279 ms

Loss rate: 30.25%

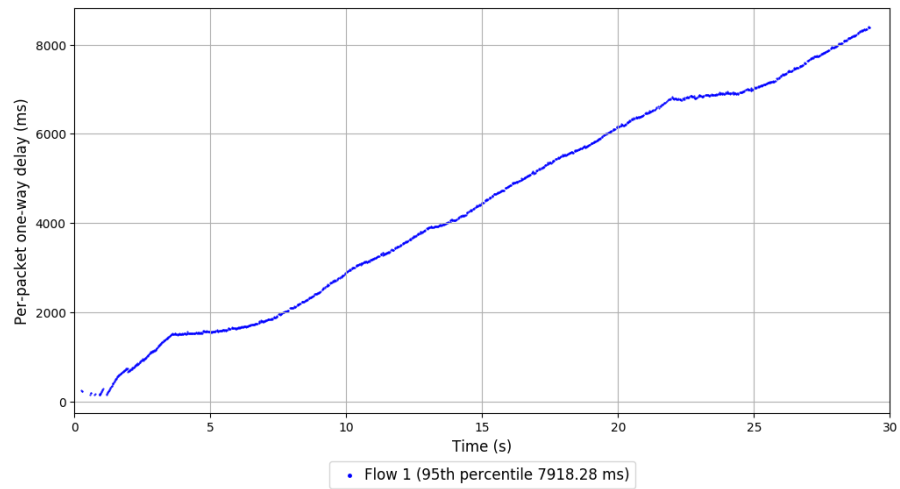
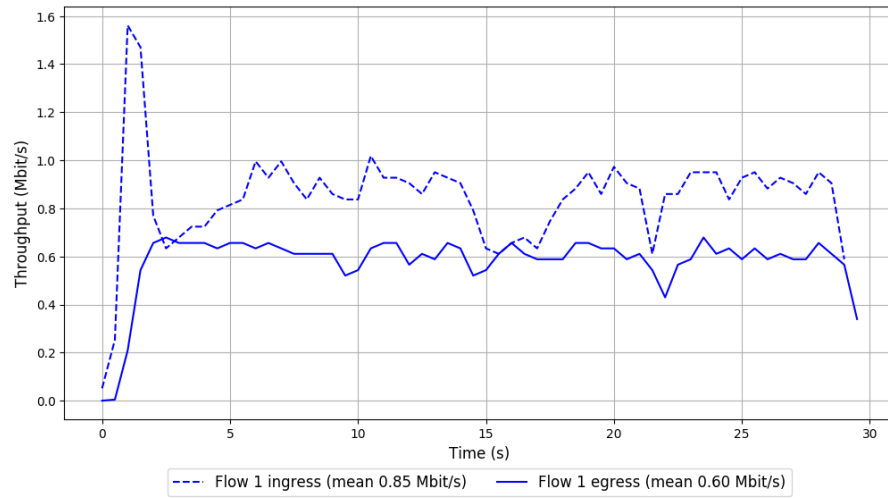
-- Flow 1:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7918.279 ms

Loss rate: 30.25%

Run 3: Report of QUIC Cubic — Data Link

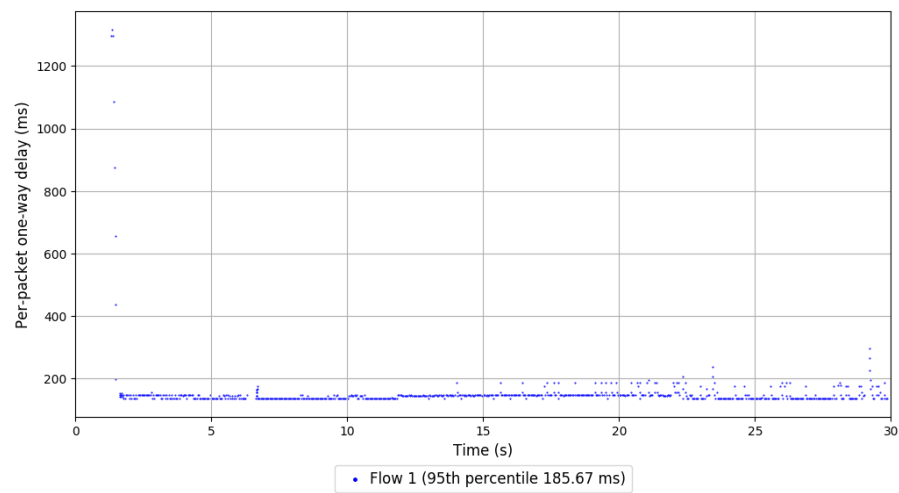
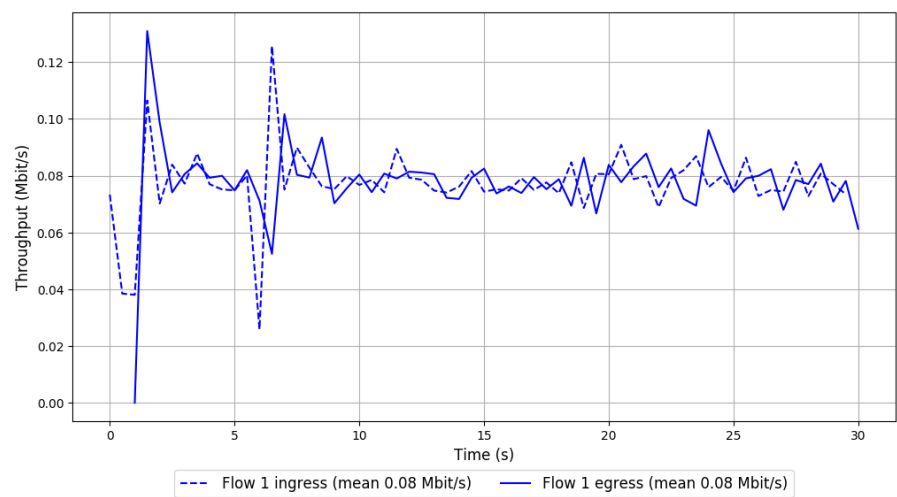


```
Run 1: Statistics of SCReAM

Start at: 2018-08-09 15:54:52
End at: 2018-08-09 15:55:22
Local clock offset: -7.105 ms
Remote clock offset: 0.026 ms

# Below is generated by plot.py at 2018-08-09 16:50:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 185.674 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 185.674 ms
Loss rate: 0.80%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-08-09 16:14:11

End at: 2018-08-09 16:14:41

Local clock offset: -7.099 ms

Remote clock offset: 0.436 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 163.198 ms

Loss rate: 0.79%

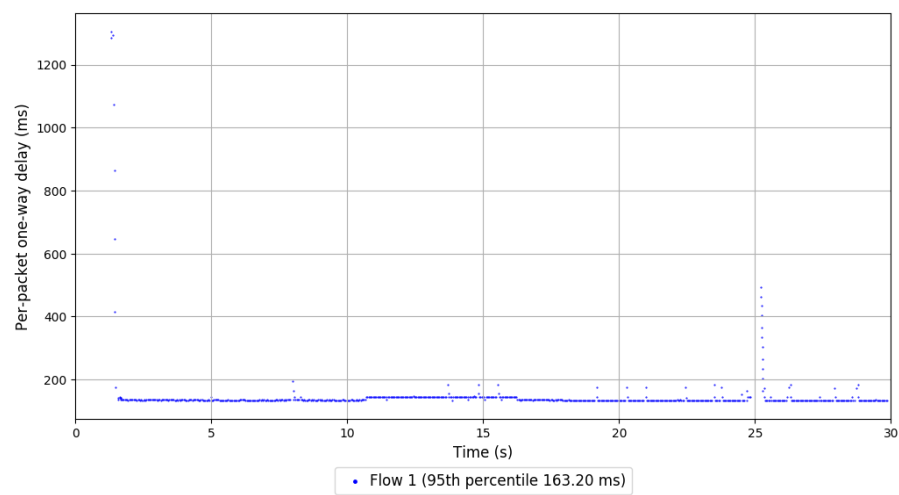
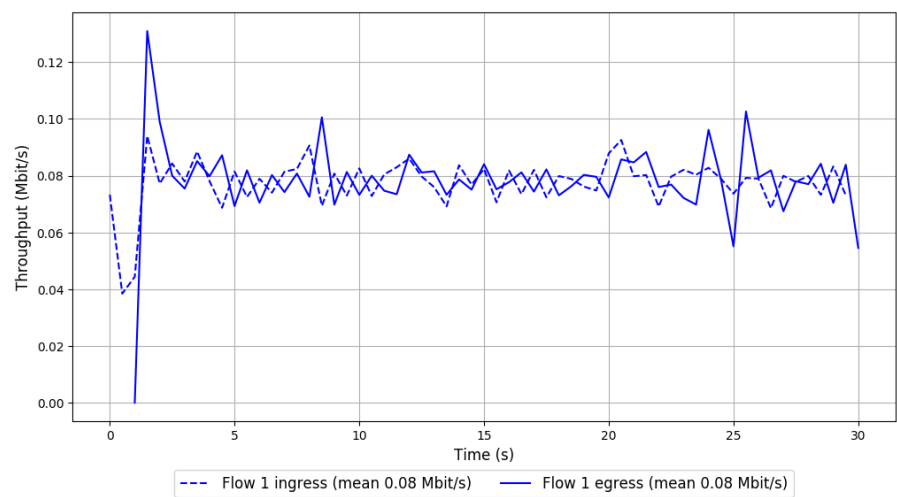
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 163.198 ms

Loss rate: 0.79%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-08-09 16:33:21

End at: 2018-08-09 16:33:51

Local clock offset: -3.599 ms

Remote clock offset: 8.091 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 153.978 ms

Loss rate: 0.78%

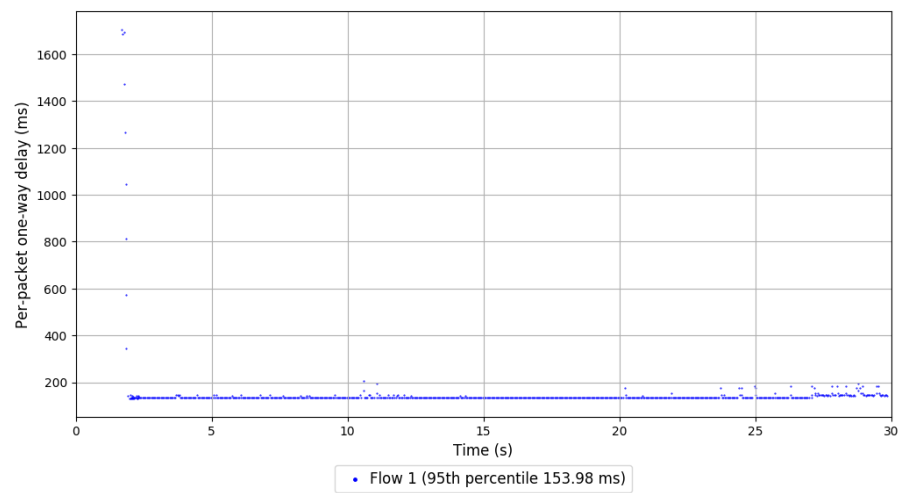
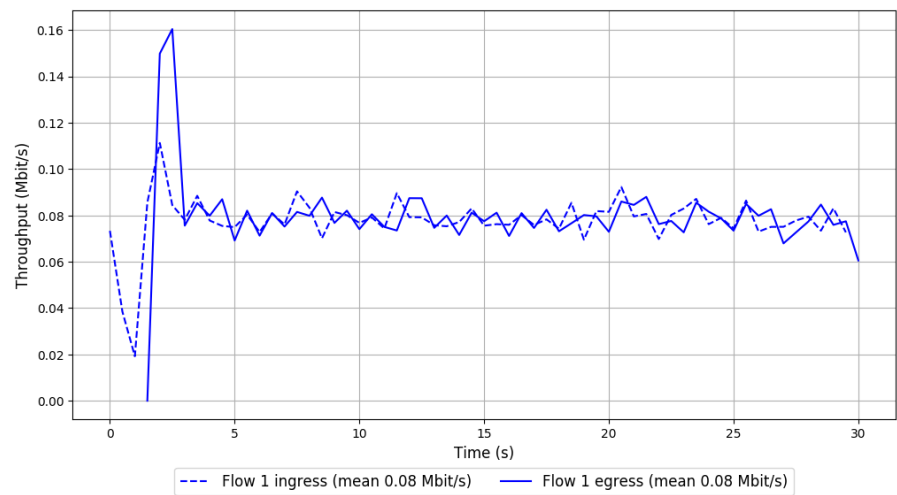
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 153.978 ms

Loss rate: 0.78%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-08-09 16:10:47

End at: 2018-08-09 16:11:17

Local clock offset: -7.052 ms

Remote clock offset: 6.358 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.12 Mbit/s

95th percentile per-packet one-way delay: 676.920 ms

Loss rate: 1.38%

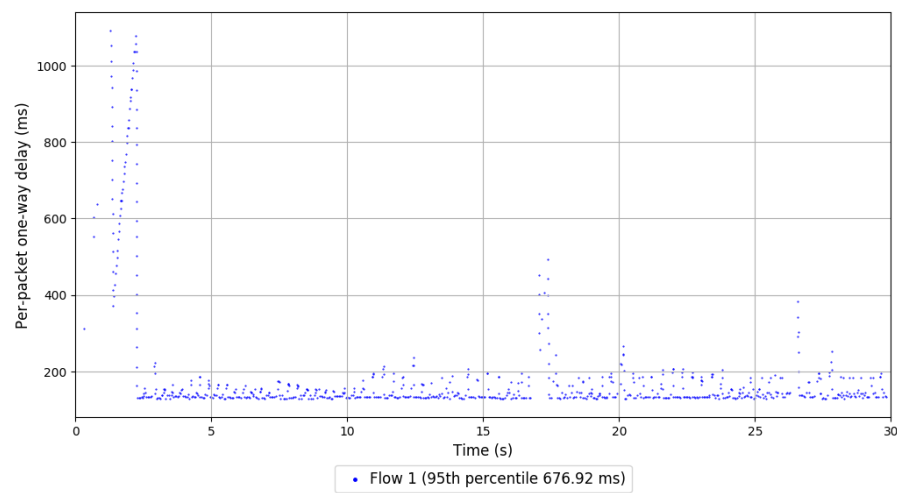
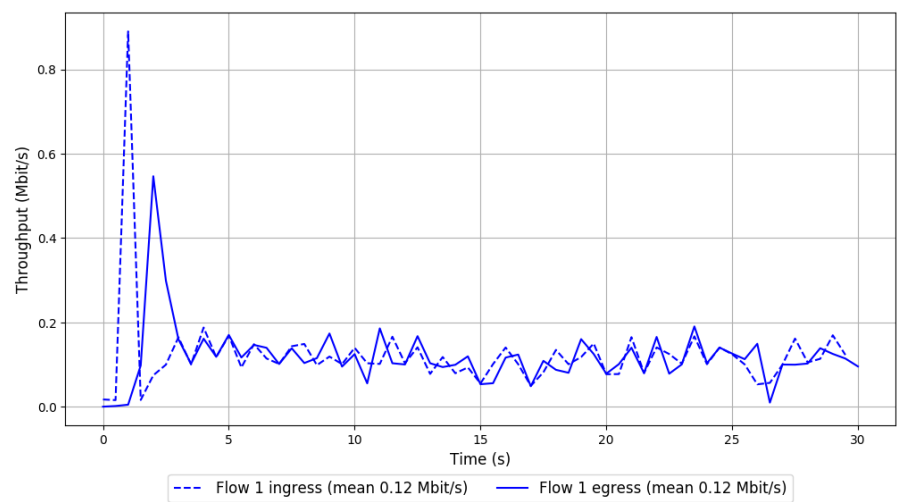
-- Flow 1:

Average throughput: 0.12 Mbit/s

95th percentile per-packet one-way delay: 676.920 ms

Loss rate: 1.38%

Run 1: Report of Sprout — Data Link

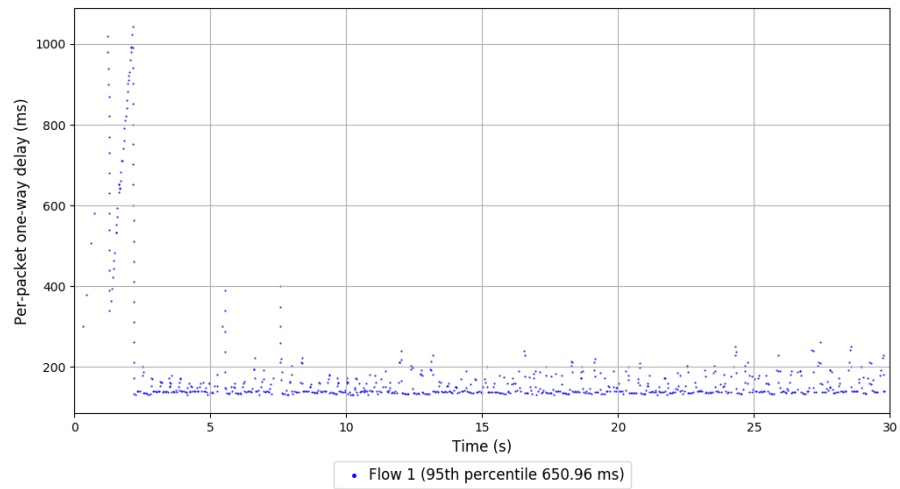
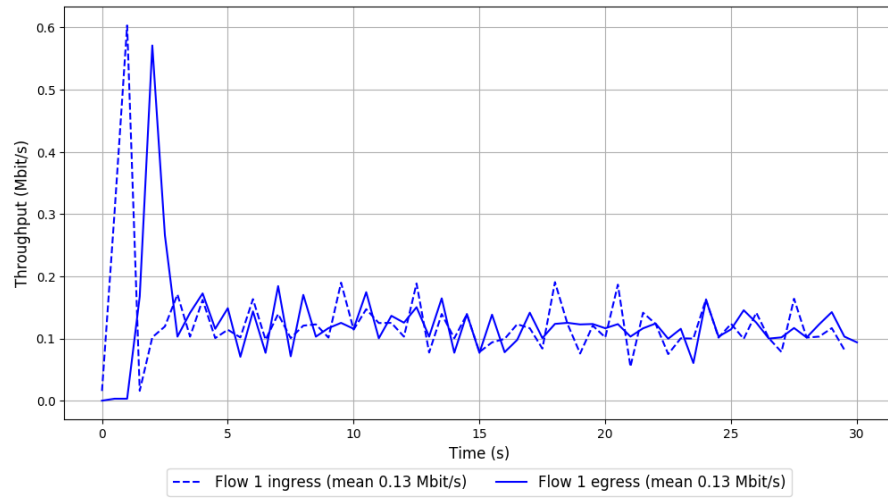


Run 2: Statistics of Sprout

Start at: 2018-08-09 16:29:59
End at: 2018-08-09 16:30:29
Local clock offset: -3.949 ms
Remote clock offset: 7.111 ms

Below is generated by plot.py at 2018-08-09 16:50:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 650.957 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 650.957 ms
Loss rate: 0.11%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-08-09 16:49:11

End at: 2018-08-09 16:49:41

Local clock offset: -4.572 ms

Remote clock offset: 5.079 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 1766.939 ms

Loss rate: 0.73%

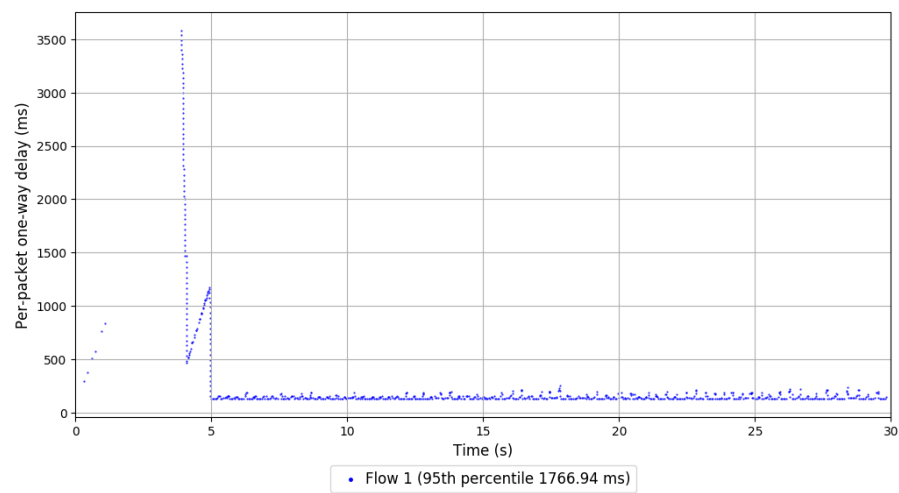
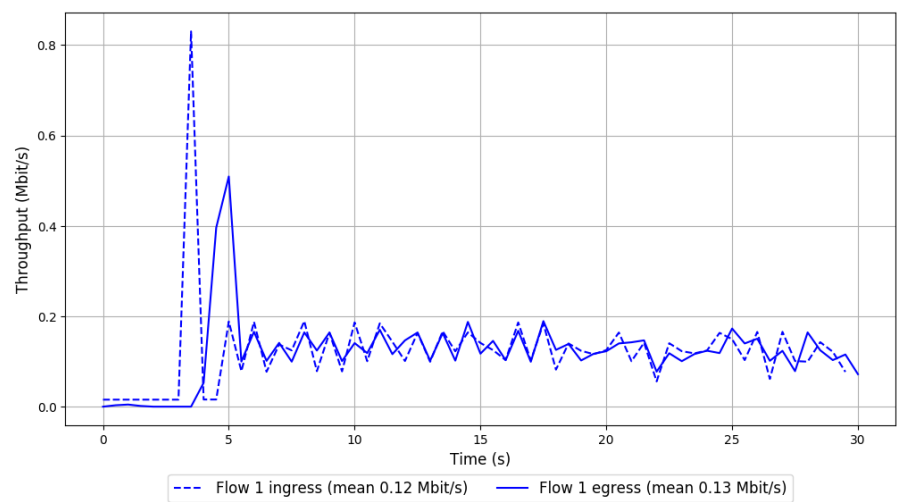
-- Flow 1:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 1766.939 ms

Loss rate: 0.73%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-08-09 15:55:59

End at: 2018-08-09 15:56:29

Local clock offset: -7.1 ms

Remote clock offset: 3.81 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 2624.918 ms

Loss rate: 3.48%

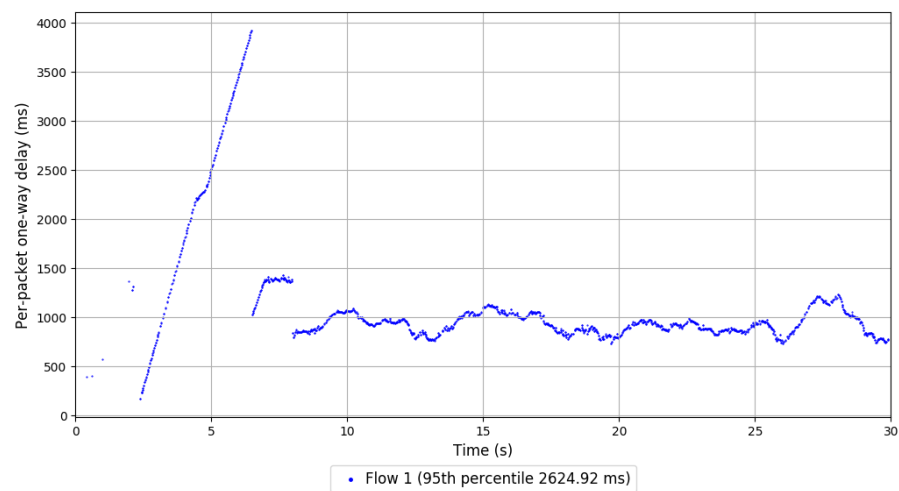
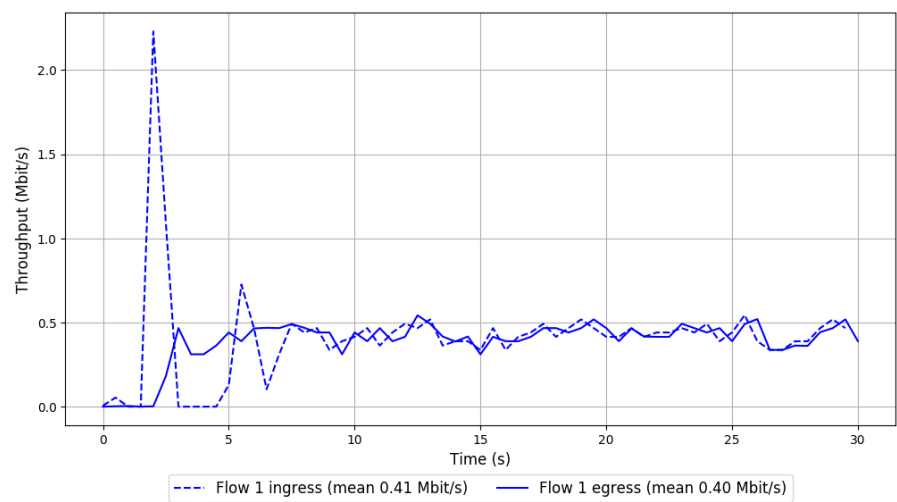
-- Flow 1:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 2624.918 ms

Loss rate: 3.48%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-08-09 16:15:18

End at: 2018-08-09 16:15:48

Local clock offset: -7.168 ms

Remote clock offset: 1.565 ms

Below is generated by plot.py at 2018-08-09 16:50:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 1373.155 ms

Loss rate: 2.95%

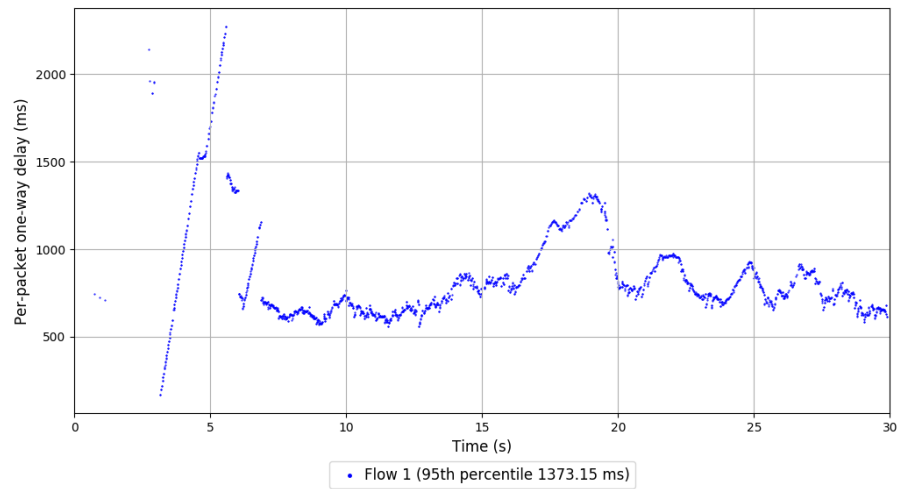
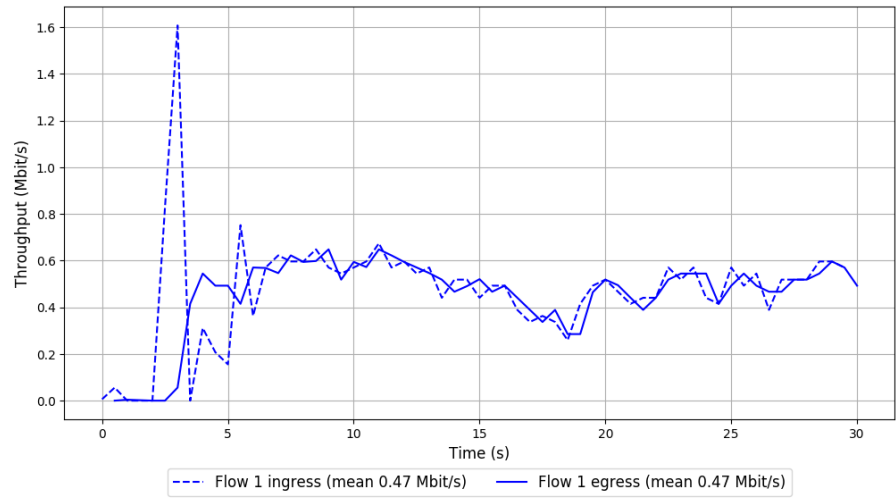
-- Flow 1:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 1373.155 ms

Loss rate: 2.95%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-08-09 16:34:28

End at: 2018-08-09 16:34:58

Local clock offset: -3.516 ms

Remote clock offset: 7.777 ms

Below is generated by plot.py at 2018-08-09 16:50:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 1079.446 ms

Loss rate: 2.44%

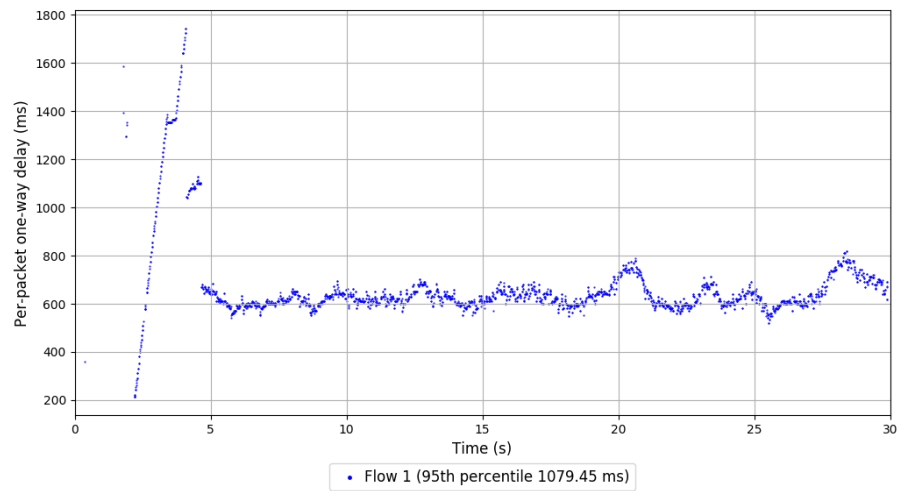
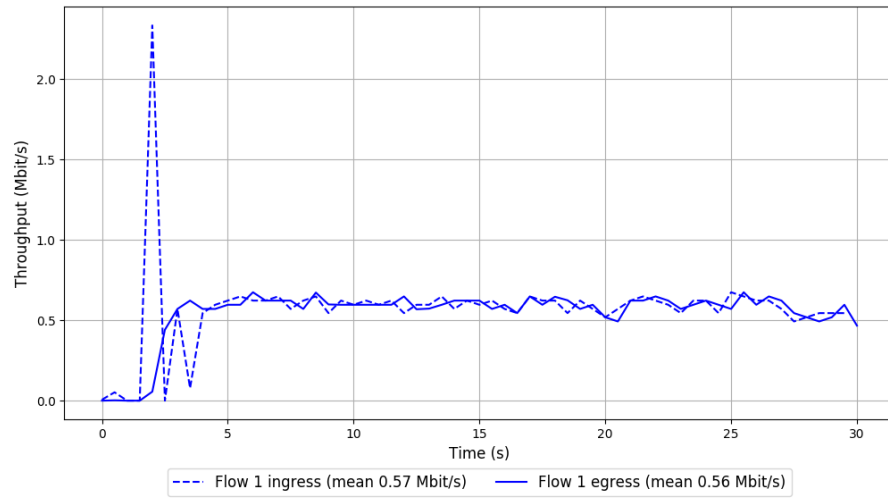
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 1079.446 ms

Loss rate: 2.44%

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

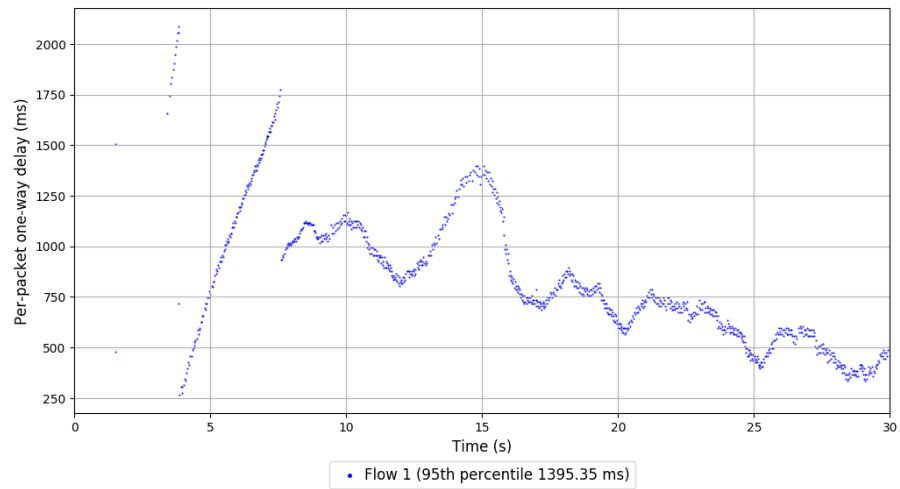
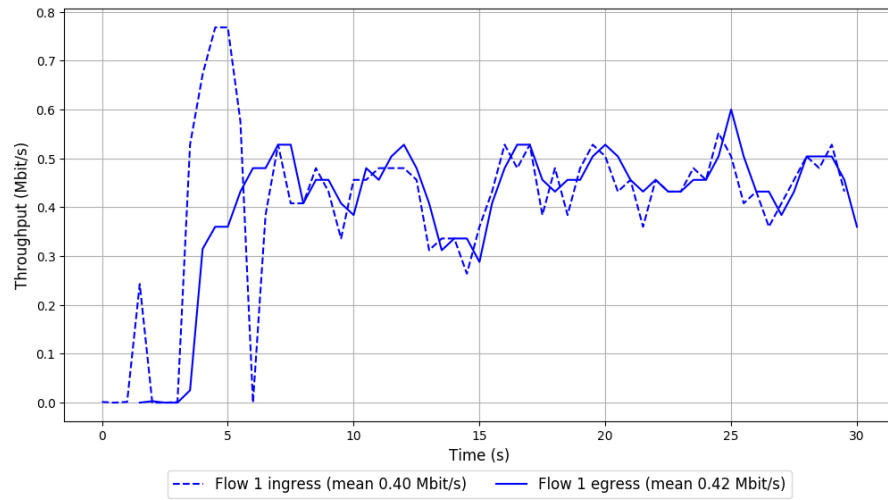


Run 1: Statistics of TCP Vegas

Start at: 2018-08-09 15:52:35
End at: 2018-08-09 15:53:05
Local clock offset: -7.125 ms
Remote clock offset: -0.191 ms

Below is generated by plot.py at 2018-08-09 16:50:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 1395.348 ms
Loss rate: 1.98%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 1395.348 ms
Loss rate: 1.98%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-08-09 16:11:54

End at: 2018-08-09 16:12:25

Local clock offset: -7.072 ms

Remote clock offset: 1.463 ms

Below is generated by plot.py at 2018-08-09 16:50:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 2004.547 ms

Loss rate: 3.27%

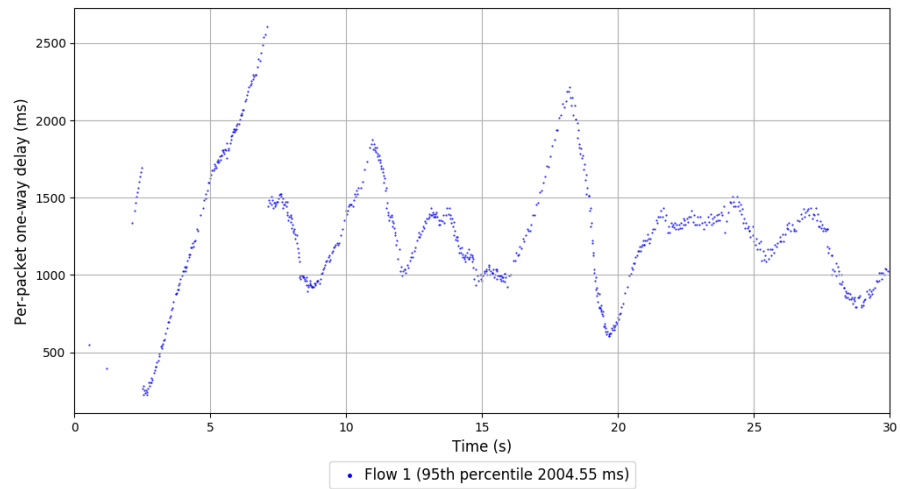
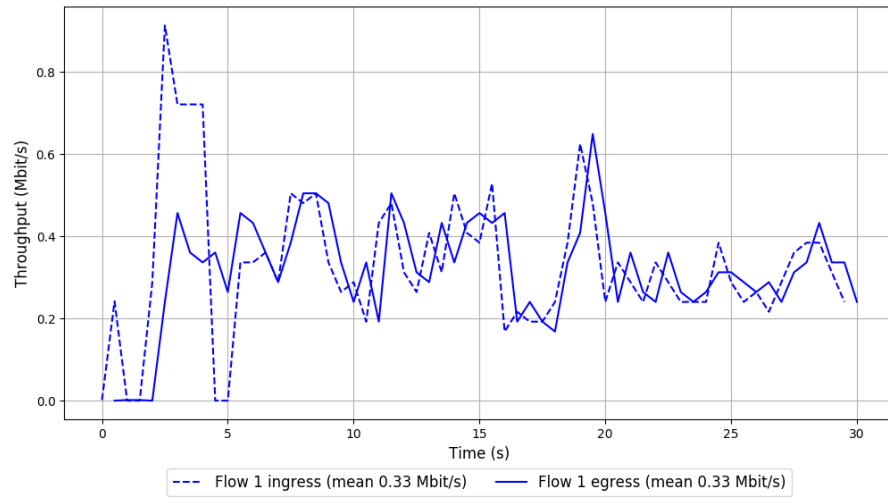
-- Flow 1:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 2004.547 ms

Loss rate: 3.27%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-08-09 16:31:06

End at: 2018-08-09 16:31:36

Local clock offset: -3.835 ms

Remote clock offset: 4.279 ms

Below is generated by plot.py at 2018-08-09 16:50:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 1258.686 ms

Loss rate: 1.27%

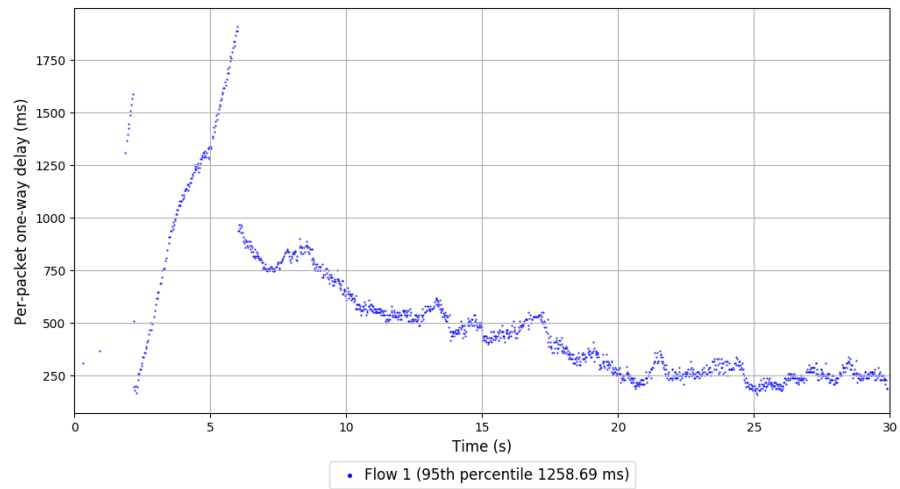
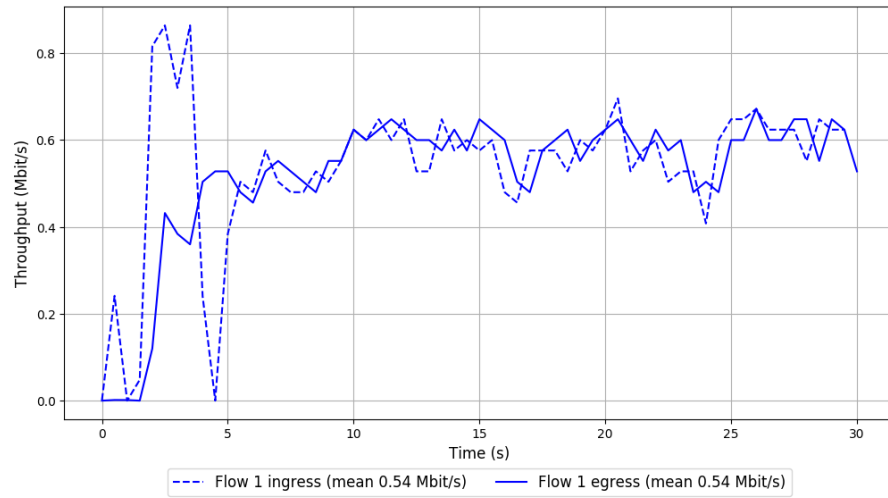
-- Flow 1:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 1258.686 ms

Loss rate: 1.27%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-08-09 15:53:42

End at: 2018-08-09 15:54:12

Local clock offset: -7.161 ms

Remote clock offset: 4.796 ms

Below is generated by plot.py at 2018-08-09 16:50:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 1888.789 ms

Loss rate: 14.61%

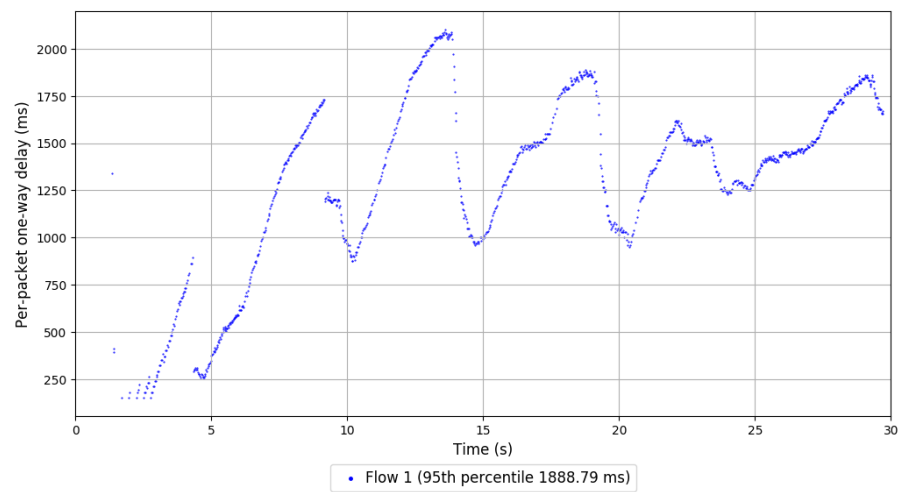
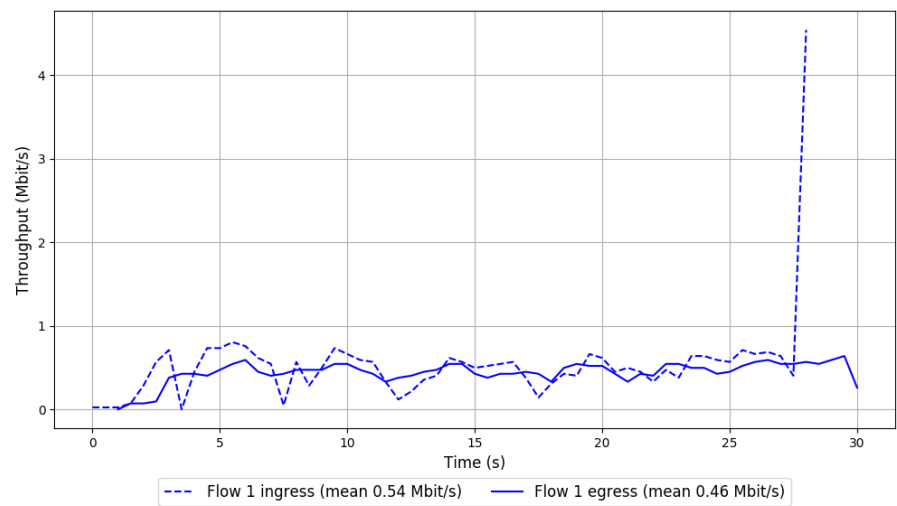
-- Flow 1:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 1888.789 ms

Loss rate: 14.61%

Run 1: Report of Verus — Data Link

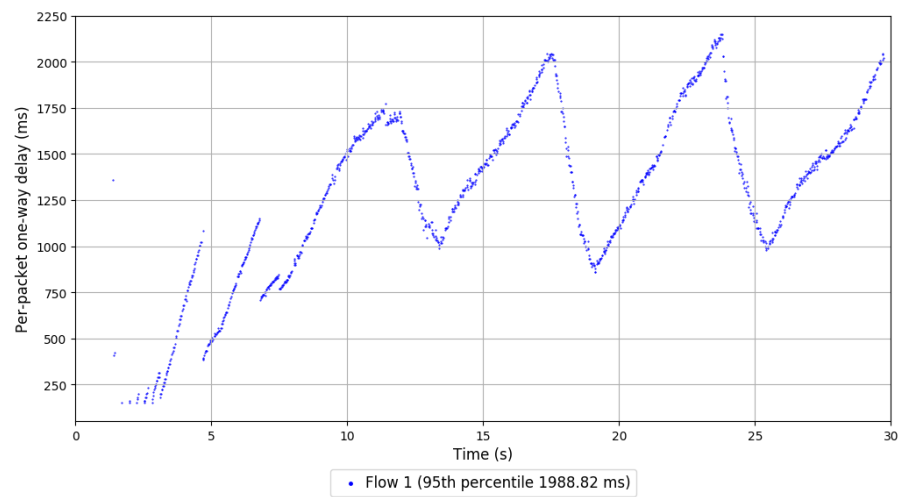
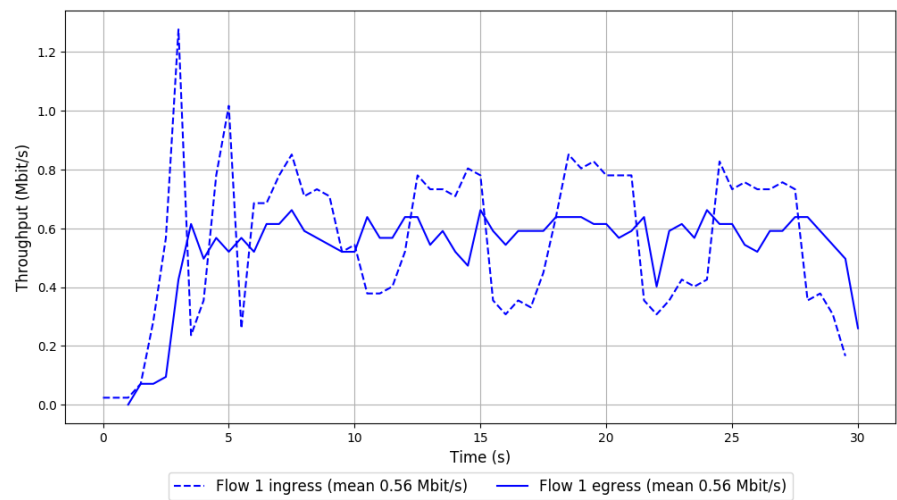


Run 2: Statistics of Verus

Start at: 2018-08-09 16:13:02
End at: 2018-08-09 16:13:32
Local clock offset: -7.077 ms
Remote clock offset: 5.354 ms

Below is generated by plot.py at 2018-08-09 16:50:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 1988.821 ms
Loss rate: 4.82%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 1988.821 ms
Loss rate: 4.82%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-08-09 16:32:14

End at: 2018-08-09 16:32:44

Local clock offset: -3.71 ms

Remote clock offset: 8.114 ms

Below is generated by plot.py at 2018-08-09 16:50:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 2117.586 ms

Loss rate: 5.42%

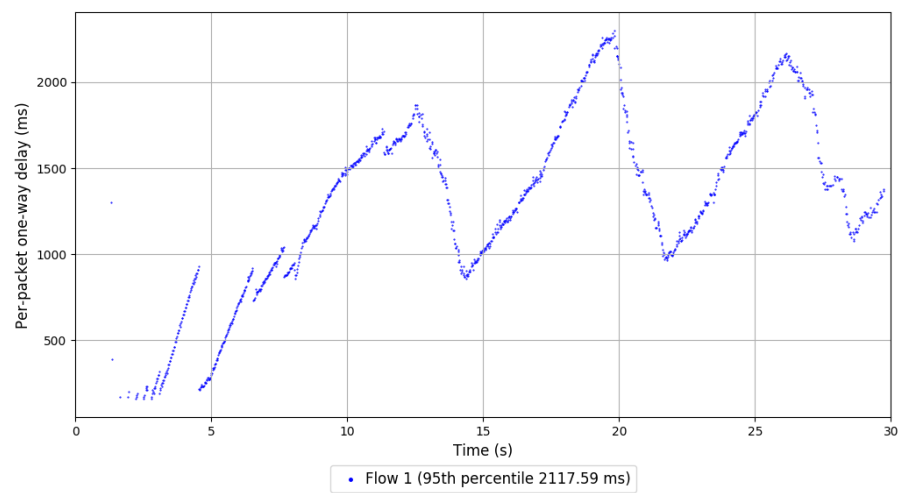
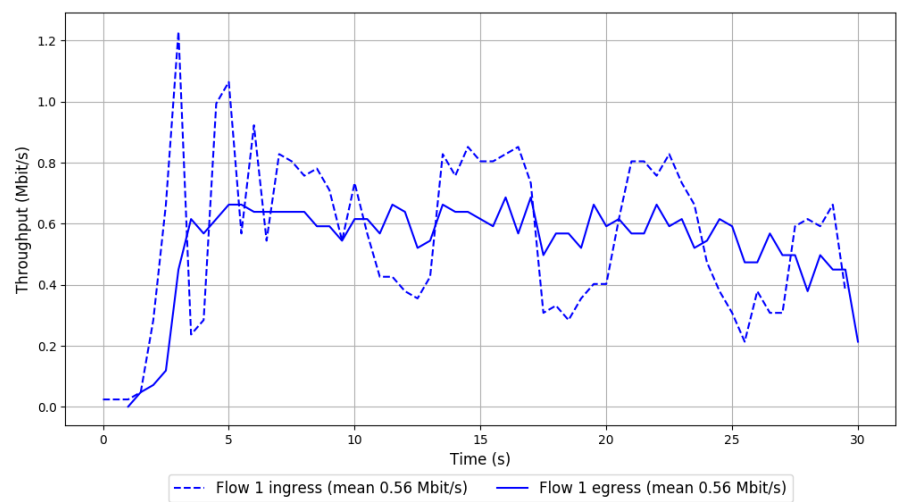
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 2117.586 ms

Loss rate: 5.42%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-08-09 16:06:18

End at: 2018-08-09 16:06:48

Local clock offset: -7.046 ms

Remote clock offset: 0.371 ms

Below is generated by plot.py at 2018-08-09 16:50:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 3798.201 ms

Loss rate: 0.00%

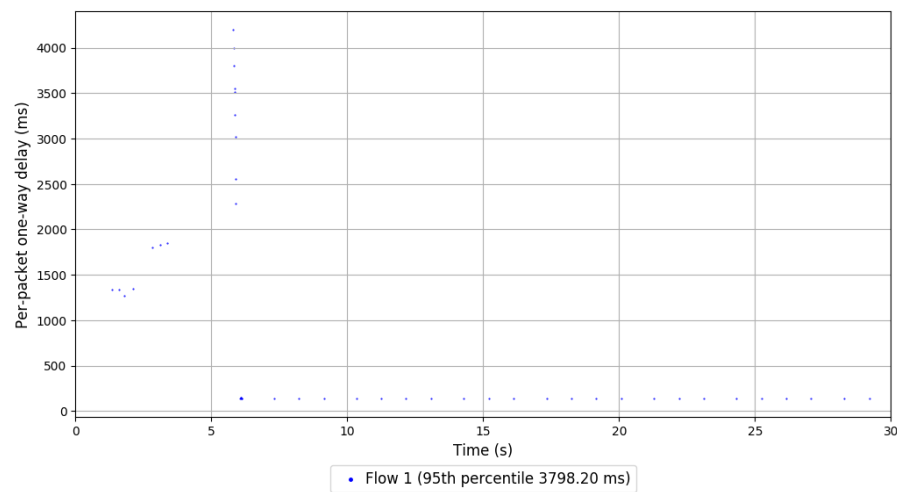
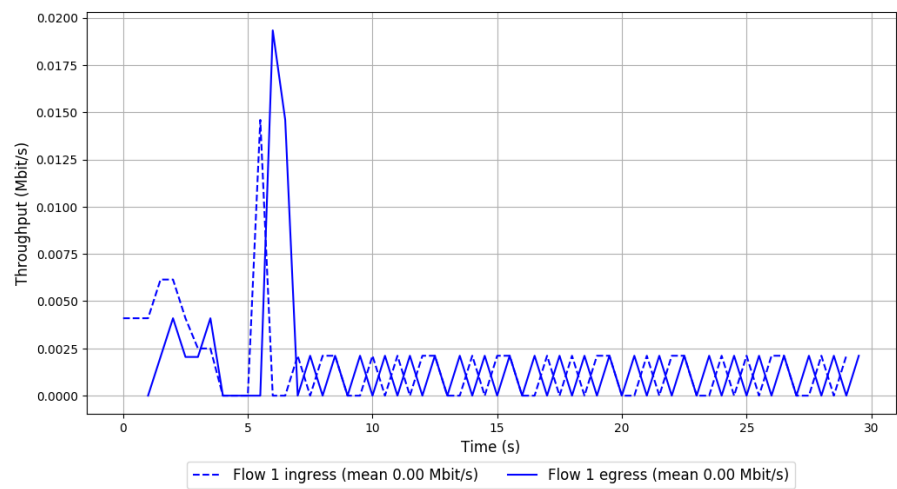
-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 3798.201 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-08-09 16:25:27

End at: 2018-08-09 16:25:57

Local clock offset: -4.578 ms

Remote clock offset: 5.941 ms

Below is generated by plot.py at 2018-08-09 16:50:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 20731.515 ms

Loss rate: 72.66%

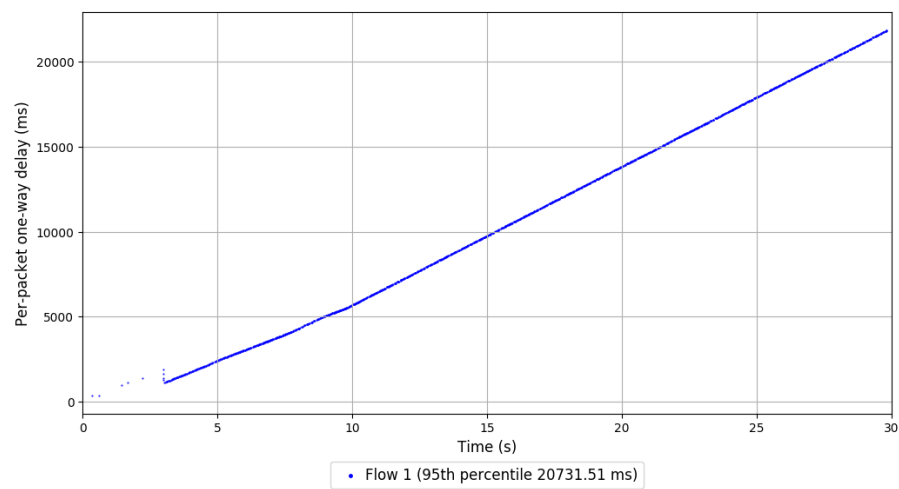
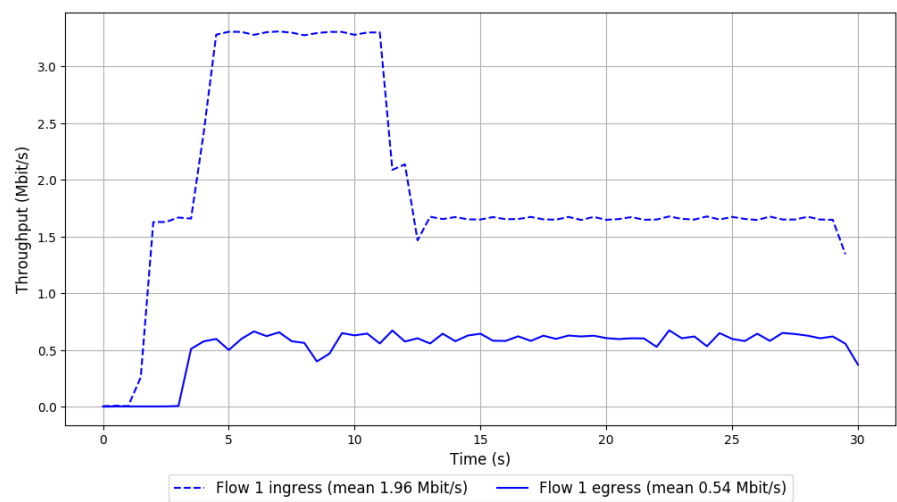
-- Flow 1:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 20731.515 ms

Loss rate: 72.66%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-08-09 16:44:40

End at: 2018-08-09 16:45:10

Local clock offset: -2.862 ms

Remote clock offset: 5.013 ms

Below is generated by plot.py at 2018-08-09 16:50:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 21103.392 ms

Loss rate: 72.03%

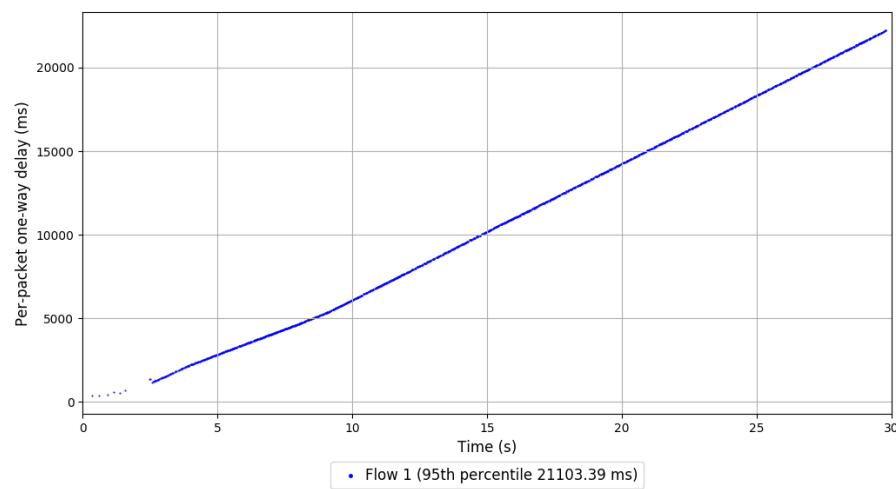
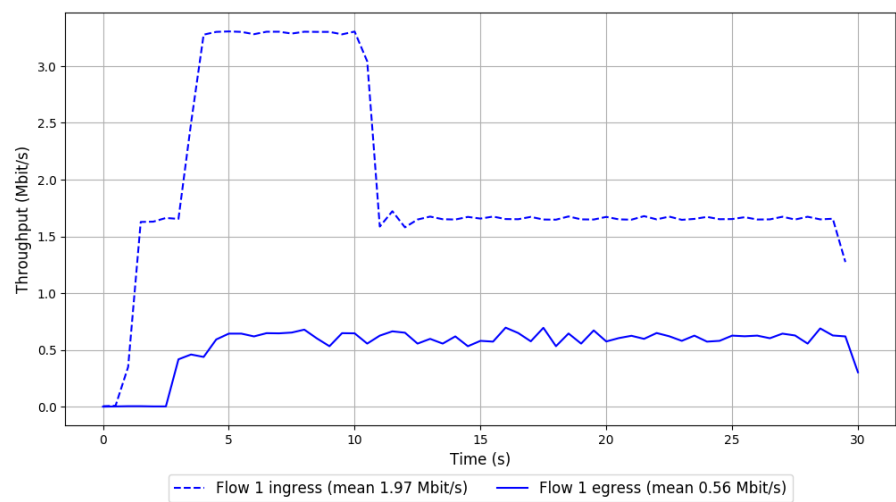
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 21103.392 ms

Loss rate: 72.03%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-08-09 16:00:38

End at: 2018-08-09 16:01:08

Local clock offset: -7.039 ms

Remote clock offset: 1.363 ms

Below is generated by plot.py at 2018-08-09 16:50:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.19 Mbit/s

95th percentile per-packet one-way delay: 834.995 ms

Loss rate: 0.36%

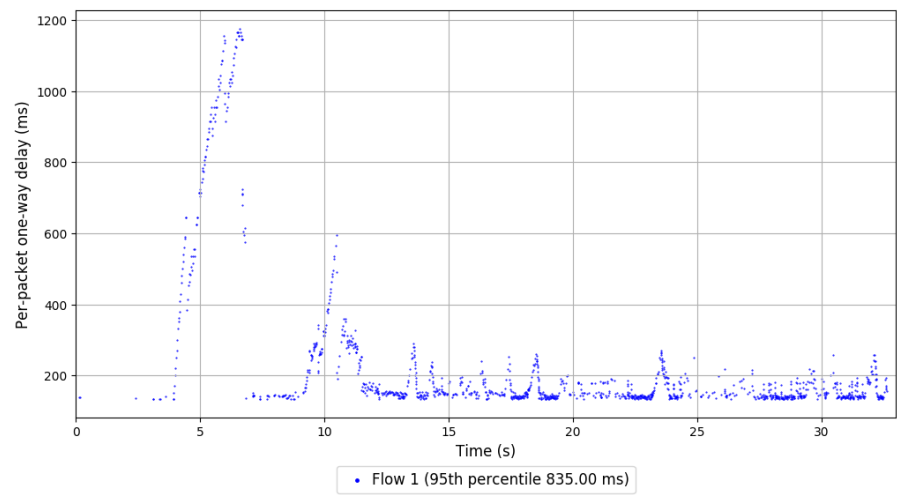
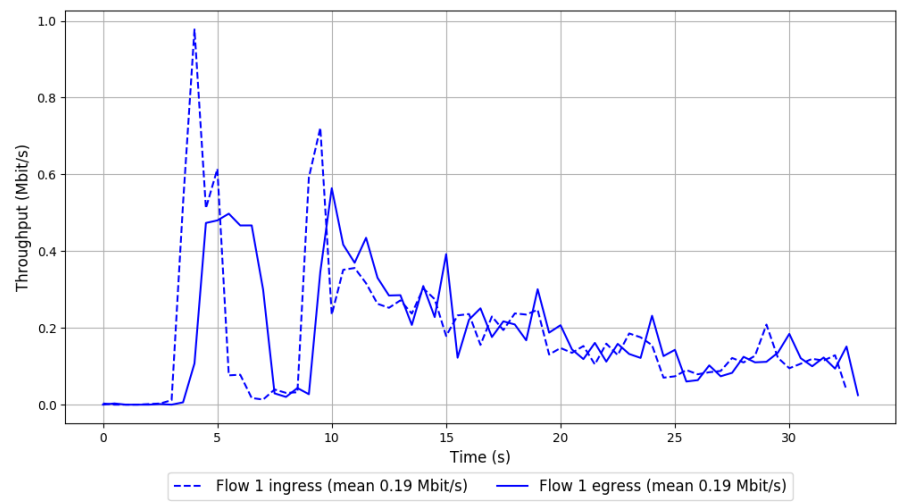
-- Flow 1:

Average throughput: 0.19 Mbit/s

95th percentile per-packet one-way delay: 834.995 ms

Loss rate: 0.36%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-08-09 16:19:50

End at: 2018-08-09 16:20:20

Local clock offset: -5.702 ms

Remote clock offset: 2.377 ms

Below is generated by plot.py at 2018-08-09 16:50:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 574.764 ms

Loss rate: 0.69%

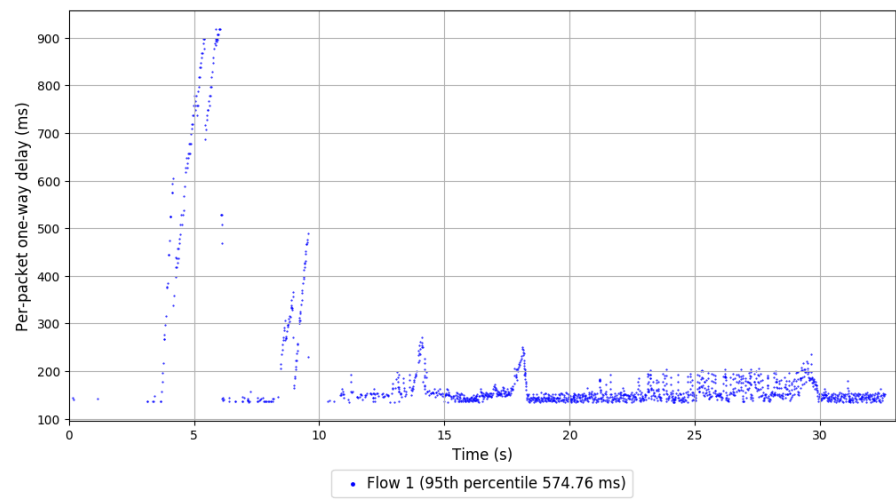
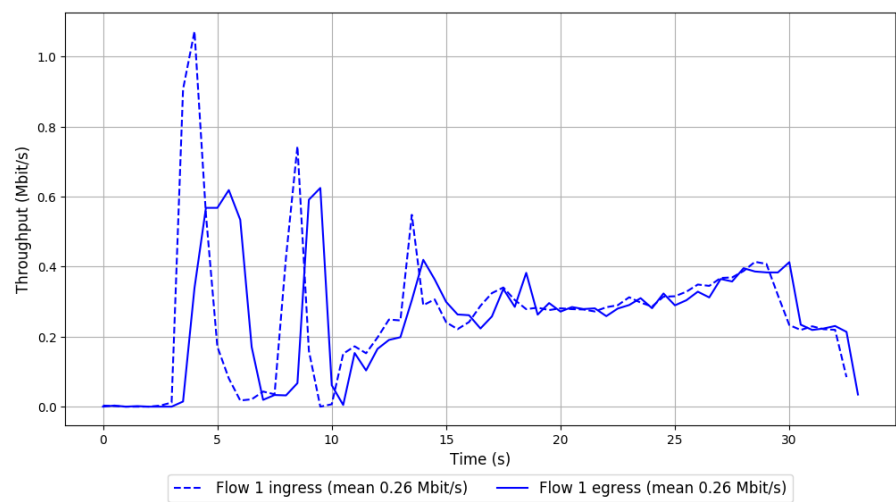
-- Flow 1:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 574.764 ms

Loss rate: 0.69%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-08-09 16:39:04

End at: 2018-08-09 16:39:34

Local clock offset: -3.199 ms

Remote clock offset: 7.959 ms

Below is generated by plot.py at 2018-08-09 16:50:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 704.140 ms

Loss rate: 0.43%

-- Flow 1:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 704.140 ms

Loss rate: 0.43%

Run 3: Report of WebRTC media — Data Link

