

Pantheon Report

Generated at 2018-07-03 10:20:56 (UTC).

Data path: AWS California 1 Ethernet (*local*) →Stanford ppp0 ppp0 (*remote*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

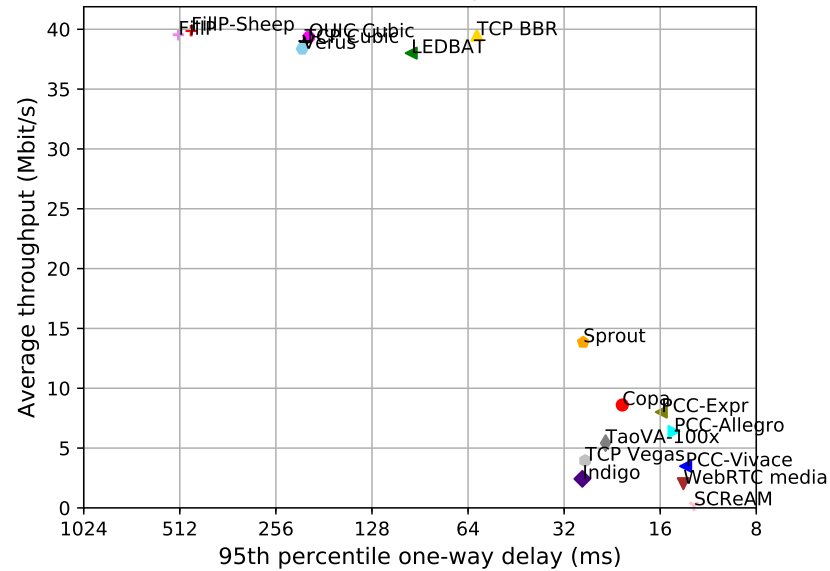
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

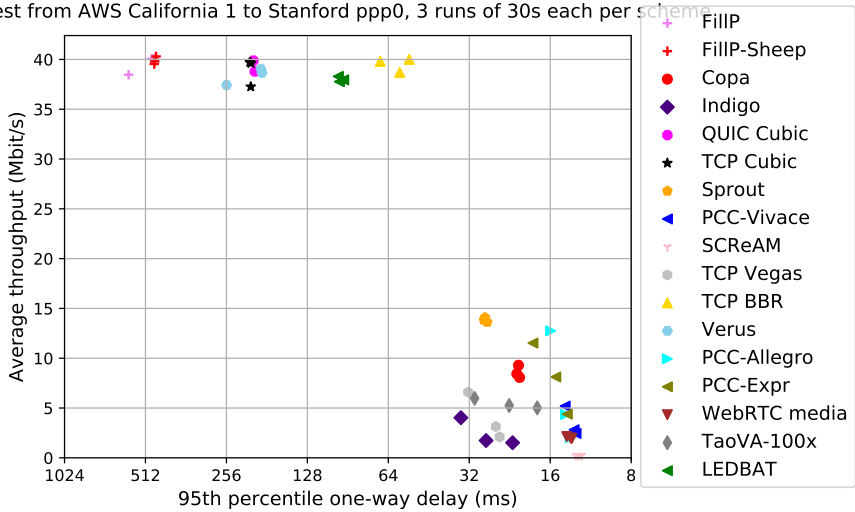
Git summary:

```
branch: master @ 9250dbeec7fb57193cdff1ba8c440b4e16ab30f0
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ 37162fe9af85249aeccac061c93e75640ef710b5
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
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-quick @ 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 AWS California 1 to Stanford ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS California 1 to Stanford ppp0, 3 runs of 30s each per 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	39.51	60.04	0.06
Copa	3	8.60	21.03	0.00
TCP Cubic	3	38.87	208.22	0.45
FillP	3	39.54	517.18	24.81
FillP-Sheep	3	39.88	471.77	7.07
Indigo	3	2.43	28.06	0.00
LEDBAT	3	38.01	96.45	0.23
PCC-Allegro	3	6.38	14.48	0.00
PCC-Expr	3	8.01	15.88	0.00
QUIC Cubic	2	39.34	201.95	0.43
SCReAM	3	0.22	12.54	0.00
Sprout	3	13.85	27.88	0.00
TaoVA-100x	3	5.42	23.73	0.00
TCP Vegas	3	3.94	27.50	0.00
Verus	3	38.37	211.63	1.25
PCC-Vivace	3	3.48	13.32	0.00
WebRTC media	3	2.02	13.54	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-07-03 09:13:47

End at: 2018-07-03 09:14:17

Local clock offset: 3.078 ms

Remote clock offset: 1.327 ms

Below is generated by plot.py at 2018-07-03 10:19:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 38.70 Mbit/s

95th percentile per-packet one-way delay: 58.044 ms

Loss rate: 0.03%

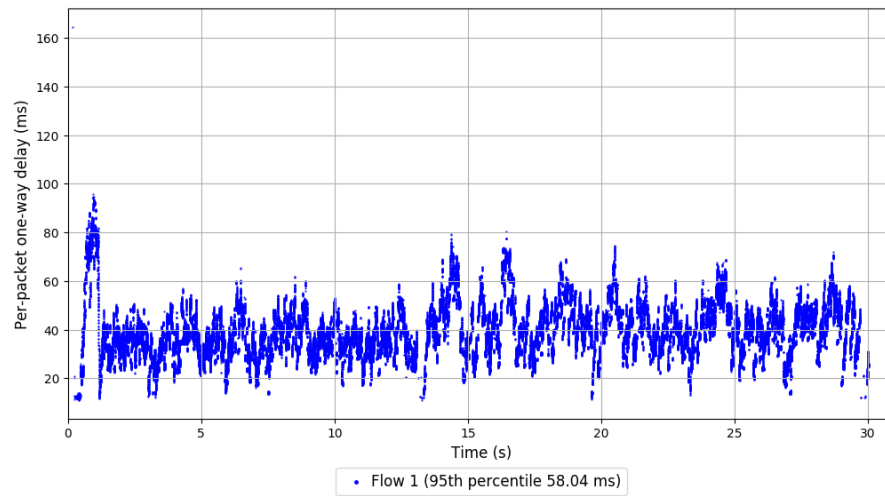
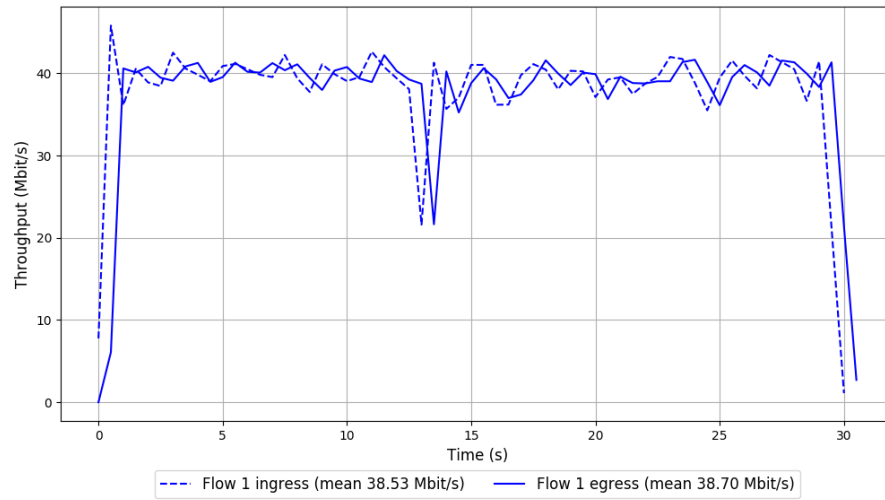
-- Flow 1:

Average throughput: 38.70 Mbit/s

95th percentile per-packet one-way delay: 58.044 ms

Loss rate: 0.03%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-07-03 09:36:02

End at: 2018-07-03 09:36:32

Local clock offset: 9.281 ms

Remote clock offset: 2.96 ms

Below is generated by plot.py at 2018-07-03 10:19:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 40.01 Mbit/s

95th percentile per-packet one-way delay: 53.519 ms

Loss rate: 0.02%

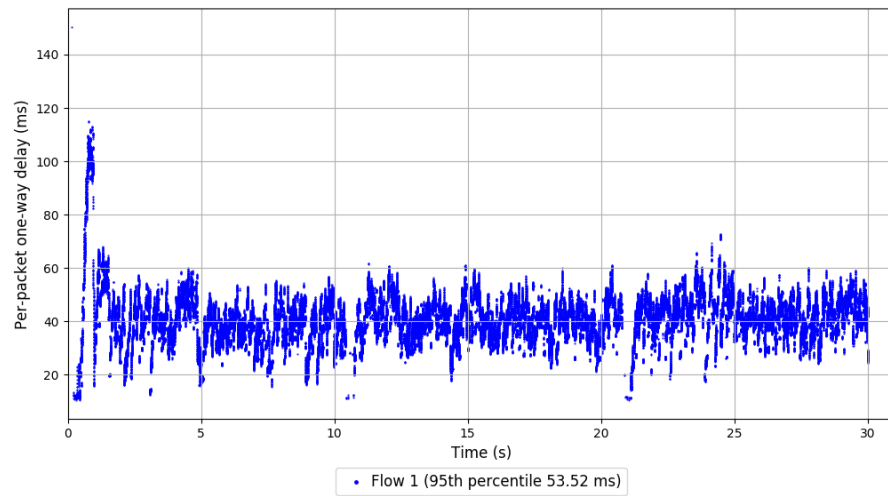
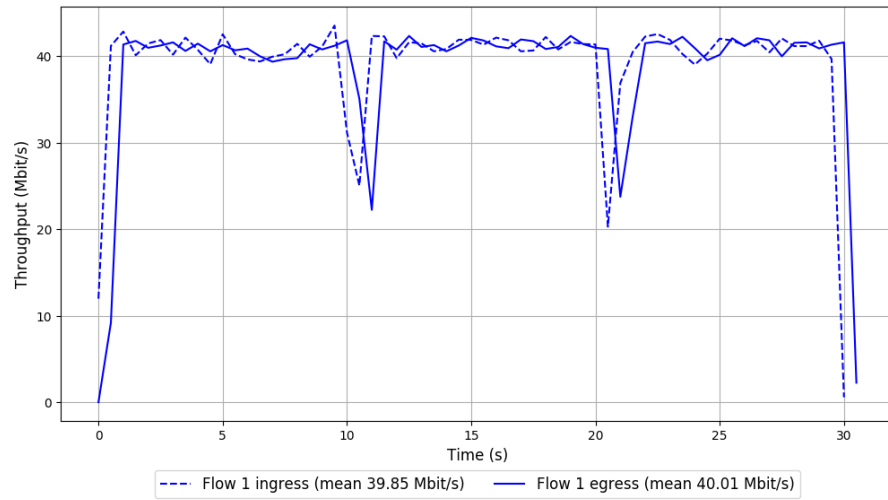
-- Flow 1:

Average throughput: 40.01 Mbit/s

95th percentile per-packet one-way delay: 53.519 ms

Loss rate: 0.02%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-07-03 09:58:24

End at: 2018-07-03 09:58:54

Local clock offset: 6.866 ms

Remote clock offset: 3.975 ms

Below is generated by plot.py at 2018-07-03 10:19:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 39.81 Mbit/s

95th percentile per-packet one-way delay: 68.560 ms

Loss rate: 0.12%

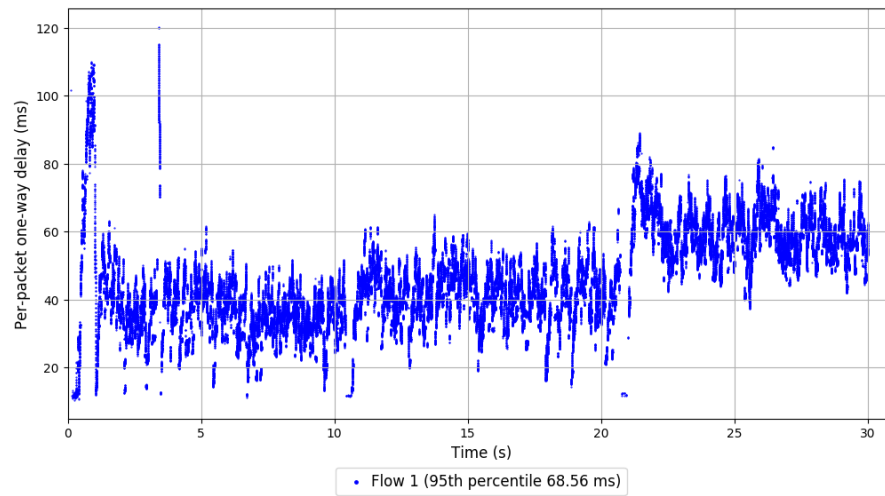
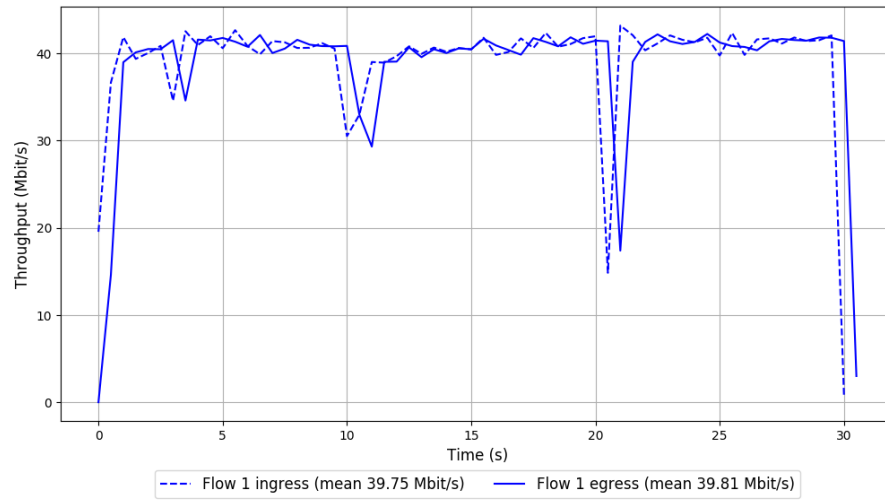
-- Flow 1:

Average throughput: 39.81 Mbit/s

95th percentile per-packet one-way delay: 68.560 ms

Loss rate: 0.12%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-07-03 09:24:16

End at: 2018-07-03 09:24:46

Local clock offset: 7.94 ms

Remote clock offset: 2.193 ms

Below is generated by plot.py at 2018-07-03 10:19:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.44 Mbit/s

95th percentile per-packet one-way delay: 21.298 ms

Loss rate: 0.00%

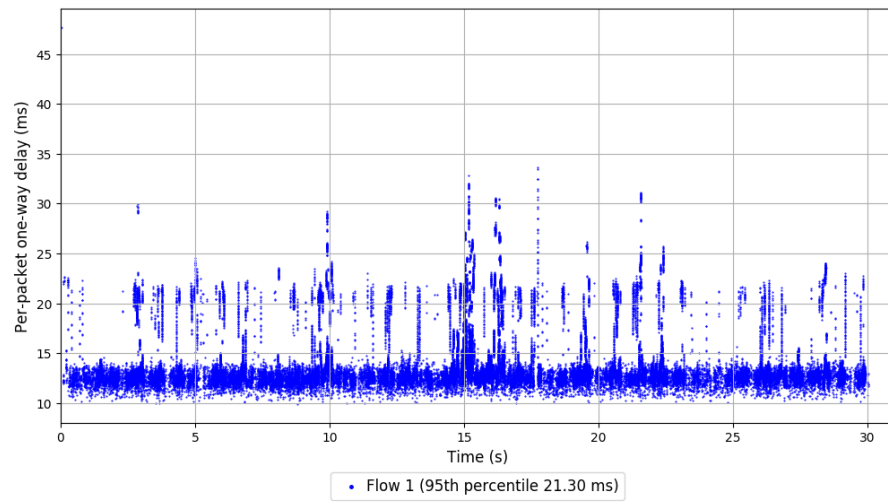
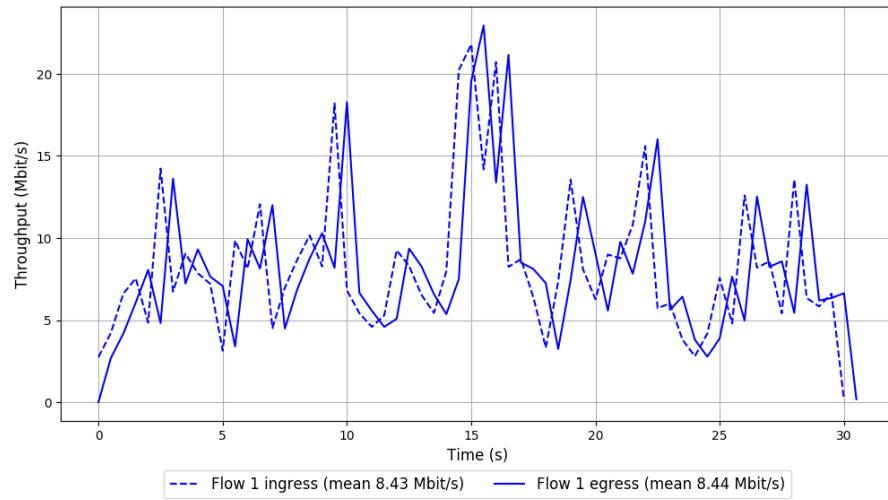
-- Flow 1:

Average throughput: 8.44 Mbit/s

95th percentile per-packet one-way delay: 21.298 ms

Loss rate: 0.00%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-07-03 09:46:32

End at: 2018-07-03 09:47:02

Local clock offset: 5.945 ms

Remote clock offset: 3.453 ms

Below is generated by plot.py at 2018-07-03 10:19:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.07 Mbit/s

95th percentile per-packet one-way delay: 20.802 ms

Loss rate: 0.00%

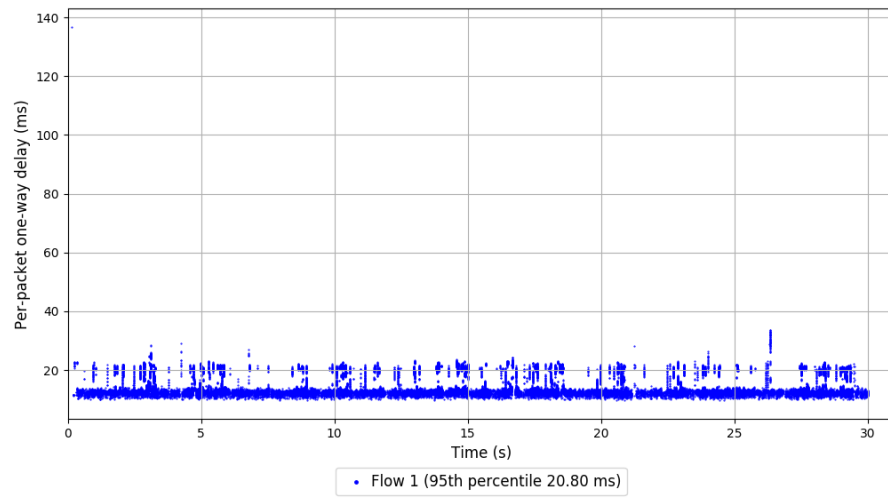
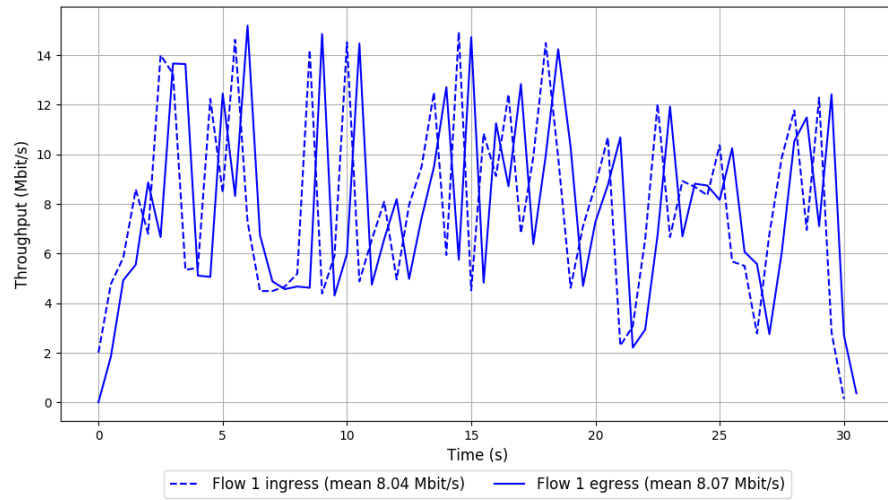
-- Flow 1:

Average throughput: 8.07 Mbit/s

95th percentile per-packet one-way delay: 20.802 ms

Loss rate: 0.00%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-07-03 10:08:54

End at: 2018-07-03 10:09:24

Local clock offset: 5.178 ms

Remote clock offset: 3.559 ms

Below is generated by plot.py at 2018-07-03 10:19:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.29 Mbit/s

95th percentile per-packet one-way delay: 21.003 ms

Loss rate: 0.00%

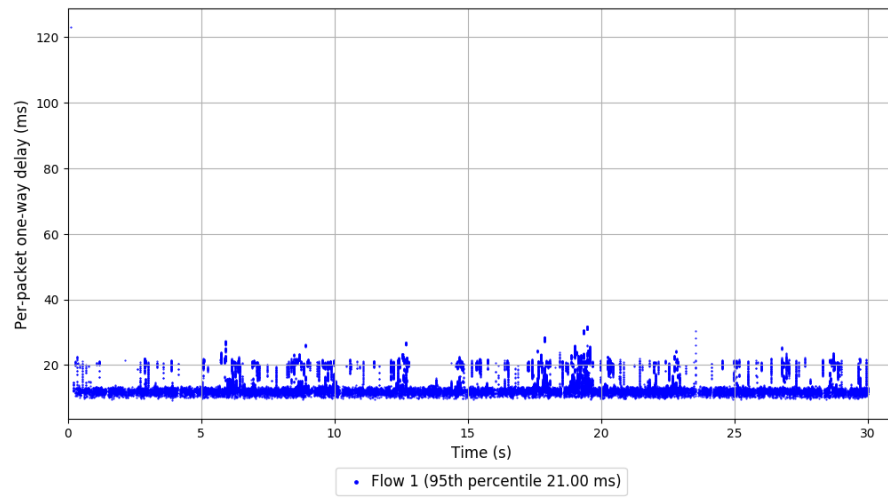
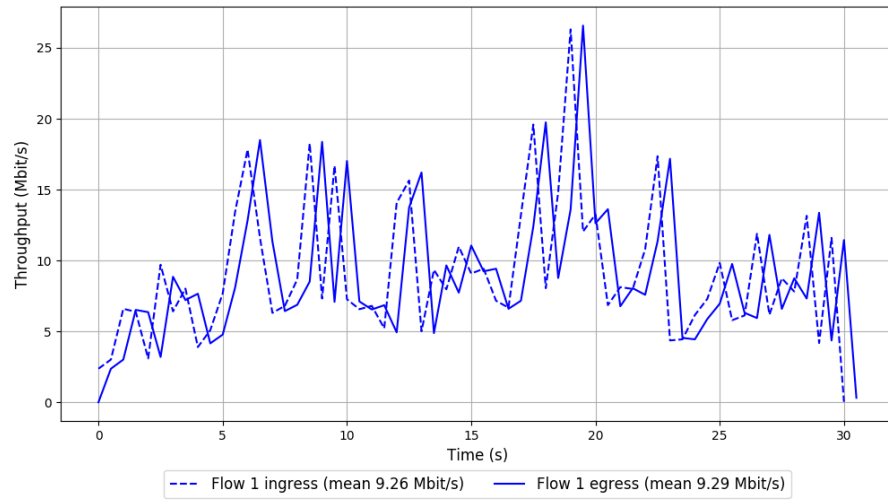
-- Flow 1:

Average throughput: 9.29 Mbit/s

95th percentile per-packet one-way delay: 21.003 ms

Loss rate: 0.00%

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-07-03 09:21:39

End at: 2018-07-03 09:22:09

Local clock offset: 6.842 ms

Remote clock offset: 2.016 ms

Below is generated by plot.py at 2018-07-03 10:19:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 39.72 Mbit/s

95th percentile per-packet one-way delay: 209.505 ms

Loss rate: 0.57%

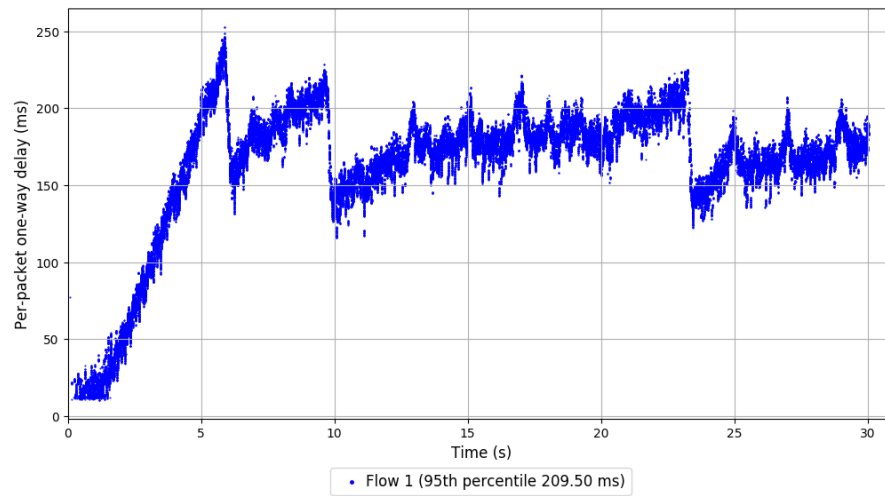
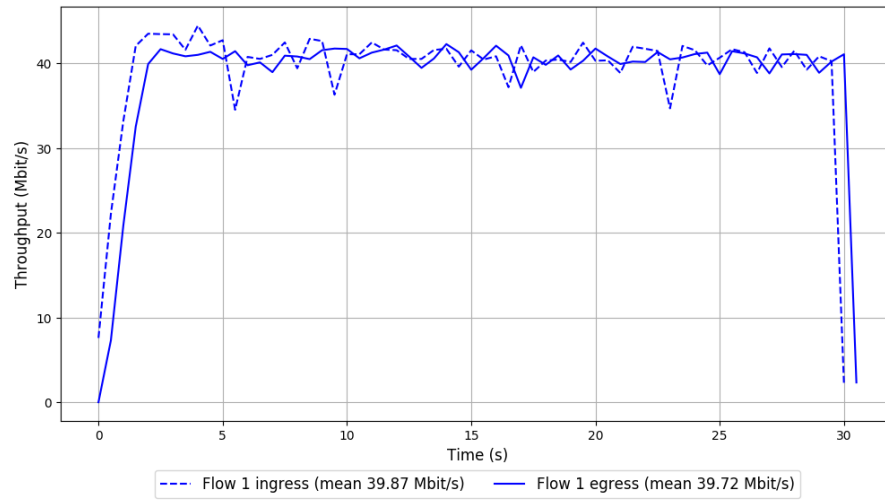
-- Flow 1:

Average throughput: 39.72 Mbit/s

95th percentile per-packet one-way delay: 209.505 ms

Loss rate: 0.57%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-07-03 09:43:54

End at: 2018-07-03 09:44:24

Local clock offset: 6.126 ms

Remote clock offset: 3.34 ms

Below is generated by plot.py at 2018-07-03 10:19:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 39.62 Mbit/s

95th percentile per-packet one-way delay: 207.336 ms

Loss rate: 0.52%

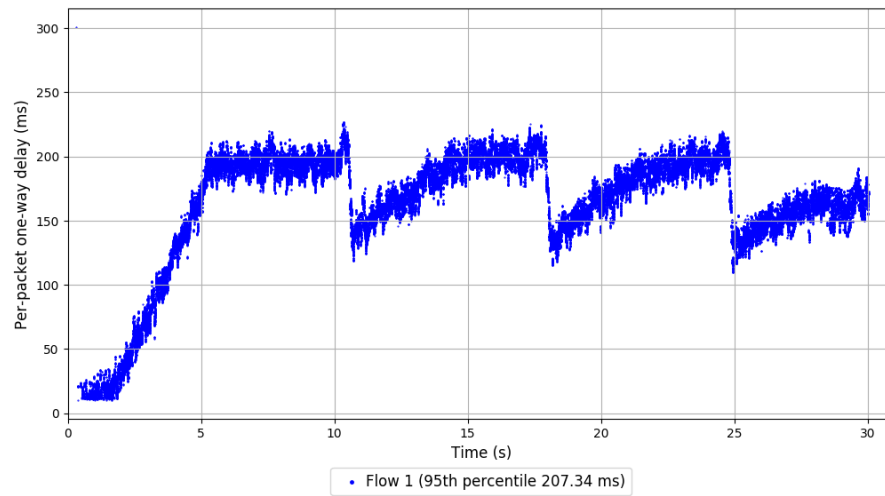
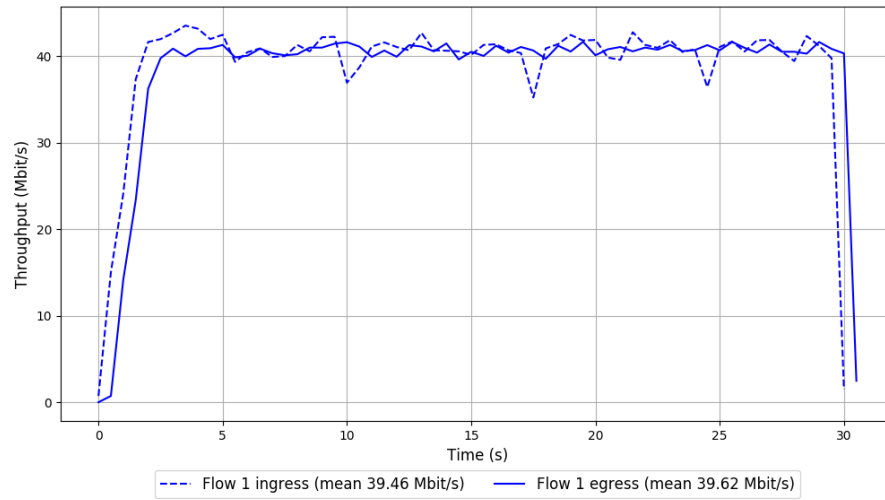
-- Flow 1:

Average throughput: 39.62 Mbit/s

95th percentile per-packet one-way delay: 207.336 ms

Loss rate: 0.52%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-07-03 10:06:16

End at: 2018-07-03 10:06:46

Local clock offset: 6.26 ms

Remote clock offset: 3.782 ms

Below is generated by plot.py at 2018-07-03 10:19:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 37.26 Mbit/s

95th percentile per-packet one-way delay: 207.830 ms

Loss rate: 0.27%

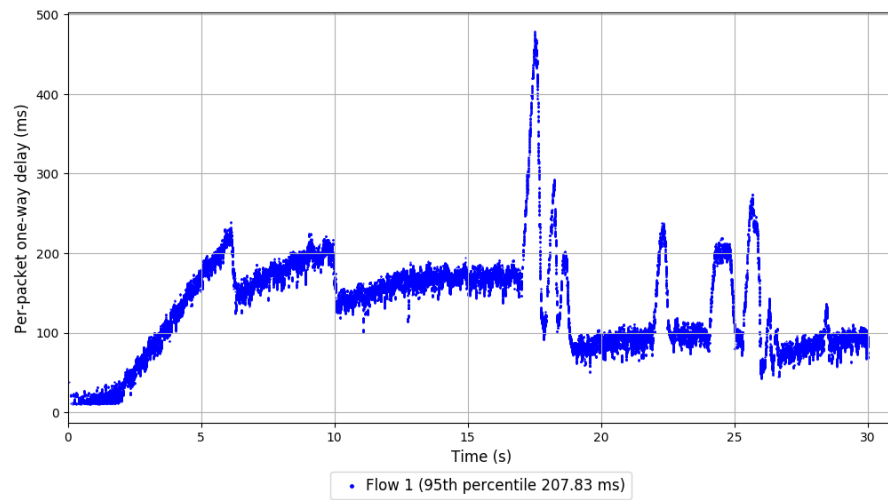
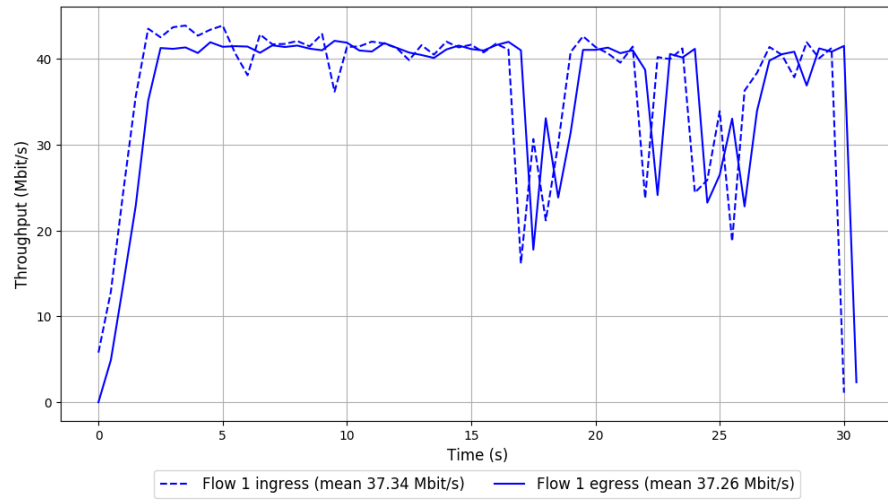
-- Flow 1:

Average throughput: 37.26 Mbit/s

95th percentile per-packet one-way delay: 207.830 ms

Loss rate: 0.27%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-07-03 09:19:01

End at: 2018-07-03 09:19:31

Local clock offset: 5.769 ms

Remote clock offset: 1.865 ms

Below is generated by plot.py at 2018-07-03 10:19:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 38.46 Mbit/s

95th percentile per-packet one-way delay: 591.566 ms

Loss rate: 10.55%

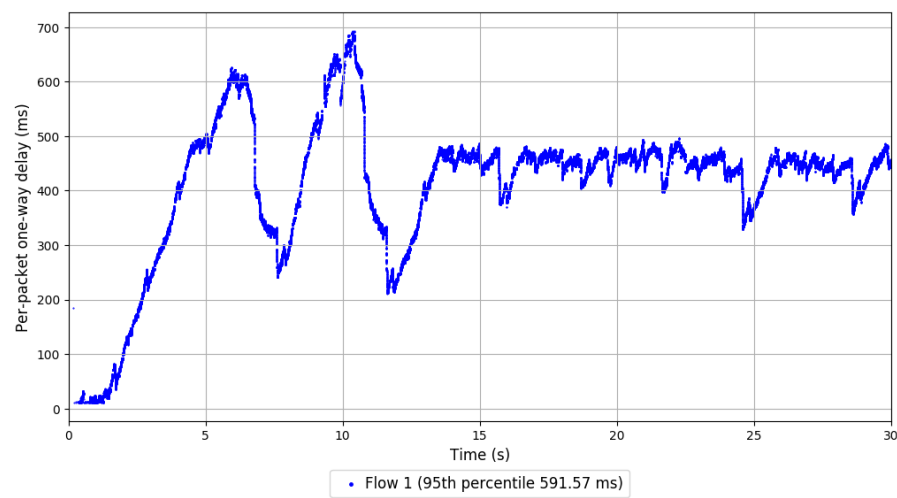
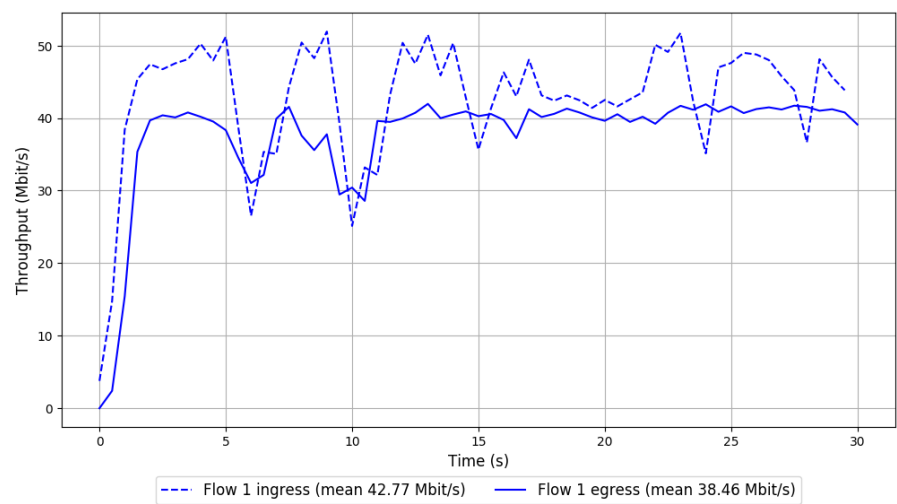
-- Flow 1:

Average throughput: 38.46 Mbit/s

95th percentile per-packet one-way delay: 591.566 ms

Loss rate: 10.55%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-07-03 09:41:16

End at: 2018-07-03 09:41:46

Local clock offset: 6.742 ms

Remote clock offset: 3.241 ms

Below is generated by plot.py at 2018-07-03 10:19:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 40.11 Mbit/s

95th percentile per-packet one-way delay: 474.336 ms

Loss rate: 32.07%

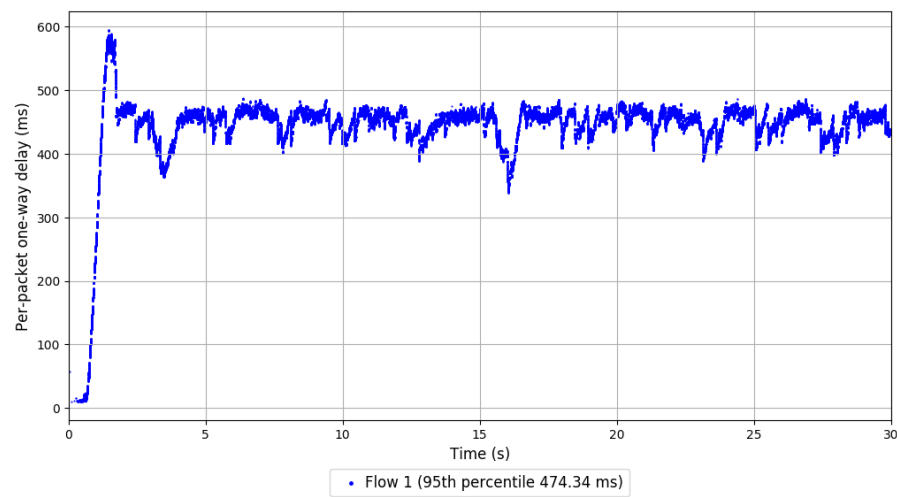
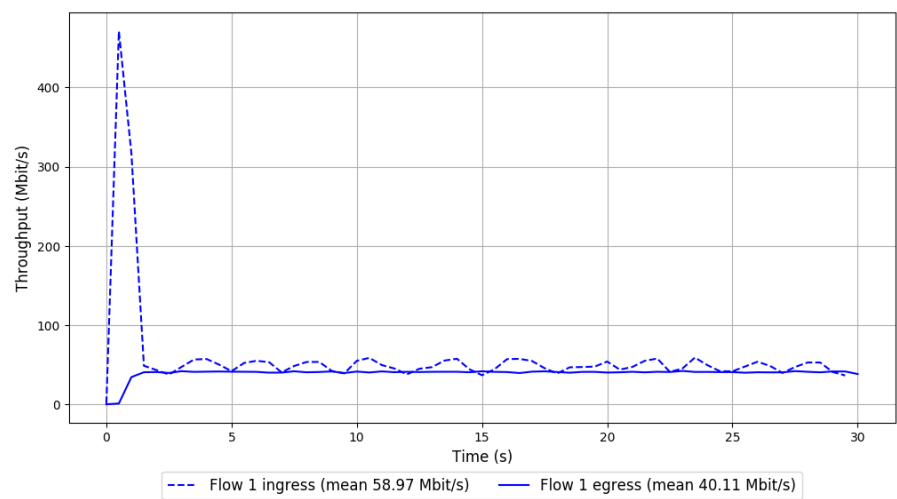
-- Flow 1:

Average throughput: 40.11 Mbit/s

95th percentile per-packet one-way delay: 474.336 ms

Loss rate: 32.07%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-07-03 10:03:38

End at: 2018-07-03 10:04:08

Local clock offset: 7.691 ms

Remote clock offset: 4.06 ms

Below is generated by plot.py at 2018-07-03 10:20:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 40.05 Mbit/s

95th percentile per-packet one-way delay: 485.623 ms

Loss rate: 31.82%

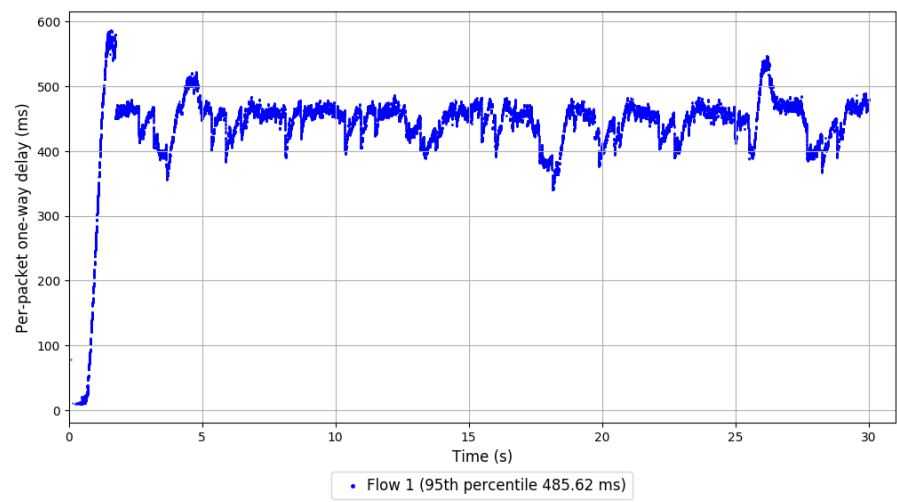
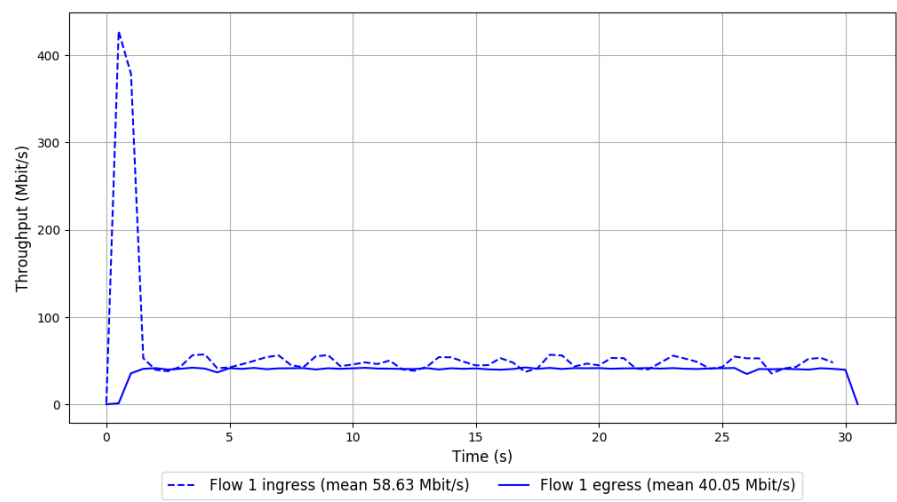
-- Flow 1:

Average throughput: 40.05 Mbit/s

95th percentile per-packet one-way delay: 485.623 ms

Loss rate: 31.82%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-07-03 09:20:20

End at: 2018-07-03 09:20:50

Local clock offset: 6.393 ms

Remote clock offset: 2.003 ms

Below is generated by plot.py at 2018-07-03 10:20:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 39.81 Mbit/s

95th percentile per-packet one-way delay: 472.962 ms

Loss rate: 7.56%

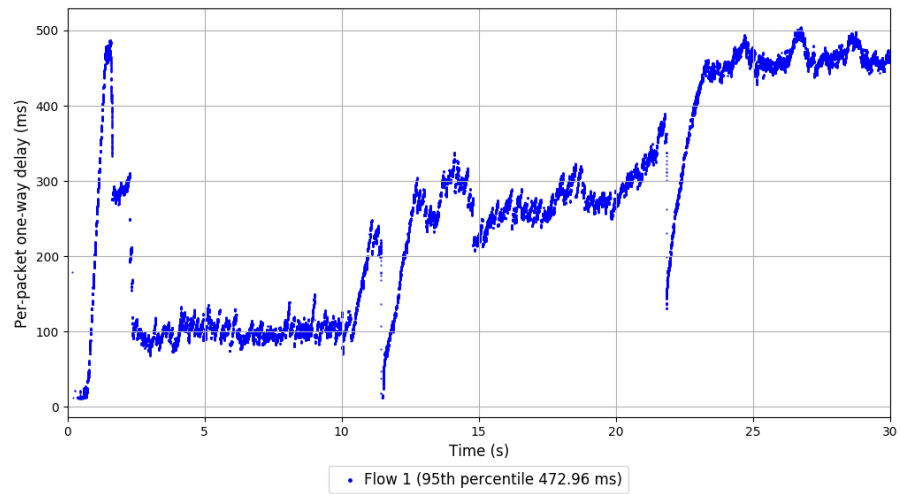
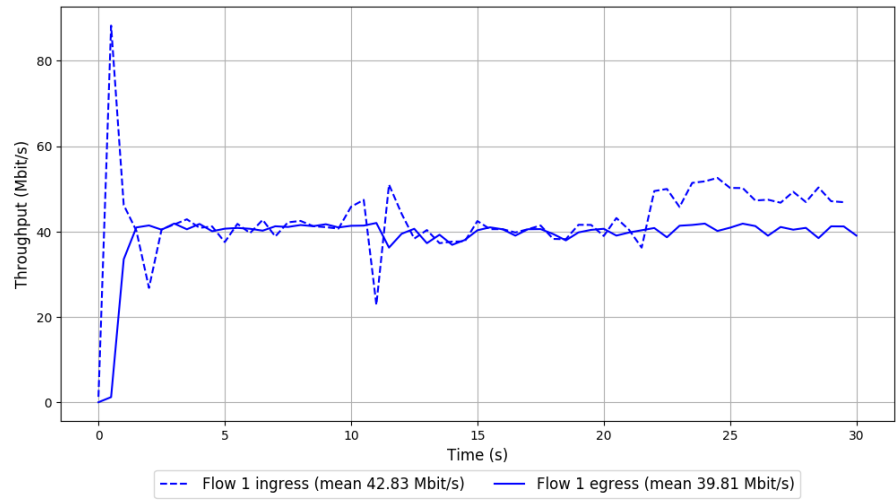
-- Flow 1:

Average throughput: 39.81 Mbit/s

95th percentile per-packet one-way delay: 472.962 ms

Loss rate: 7.56%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-07-03 09:42:35

End at: 2018-07-03 09:43:05

Local clock offset: 6.392 ms

Remote clock offset: 3.267 ms

Below is generated by plot.py at 2018-07-03 10:20:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 39.54 Mbit/s

95th percentile per-packet one-way delay: 474.733 ms

Loss rate: 6.02%

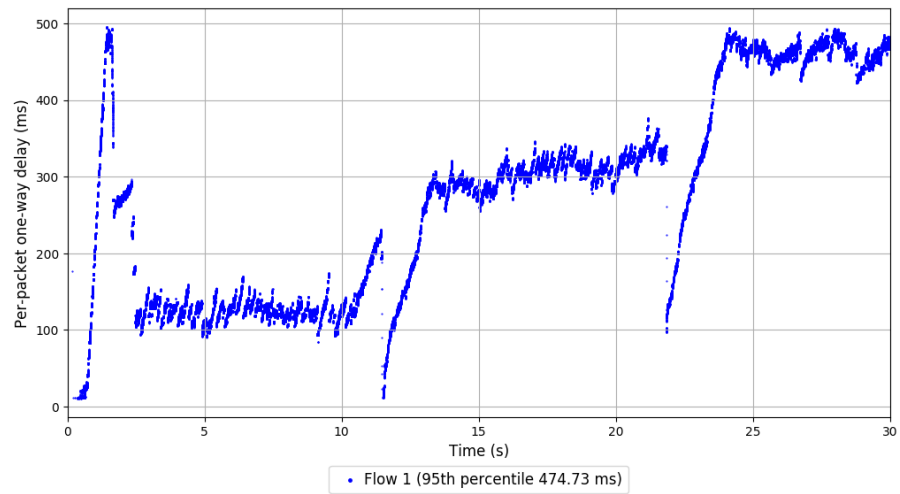
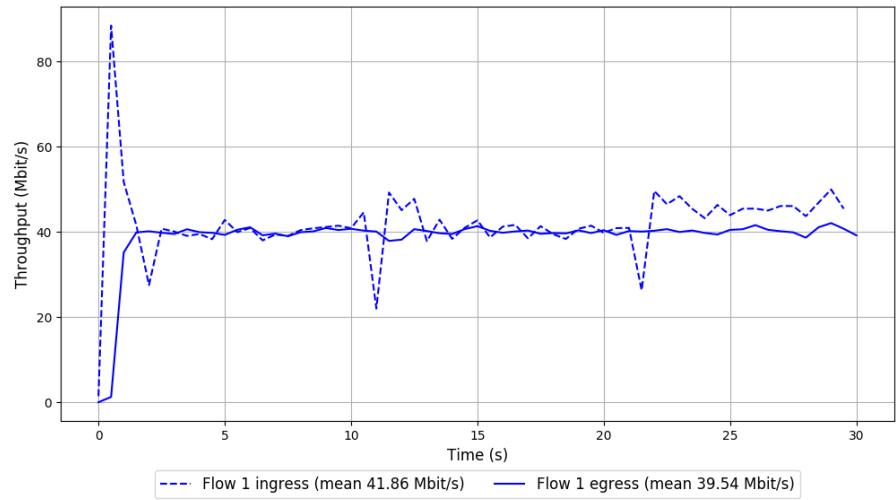
-- Flow 1:

Average throughput: 39.54 Mbit/s

95th percentile per-packet one-way delay: 474.733 ms

Loss rate: 6.02%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-07-03 10:04:57

End at: 2018-07-03 10:05:27

Local clock offset: 6.893 ms

Remote clock offset: 3.974 ms

Below is generated by plot.py at 2018-07-03 10:20:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 40.30 Mbit/s

95th percentile per-packet one-way delay: 467.607 ms

Loss rate: 7.64%

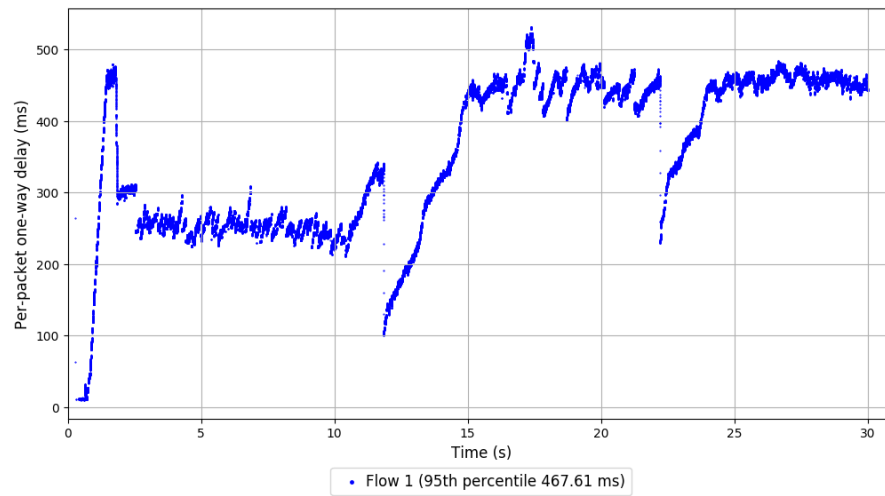
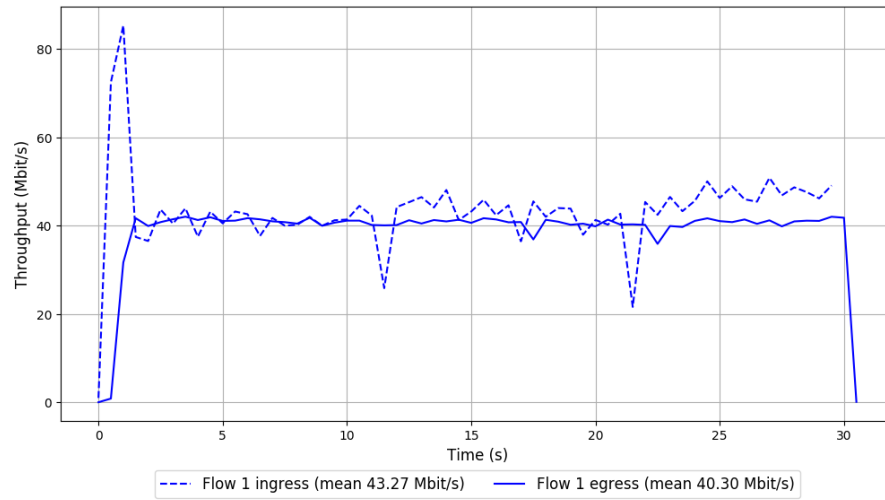
-- Flow 1:

Average throughput: 40.30 Mbit/s

95th percentile per-packet one-way delay: 467.607 ms

Loss rate: 7.64%

Run 3: Report of FillP-Sheep — Data Link

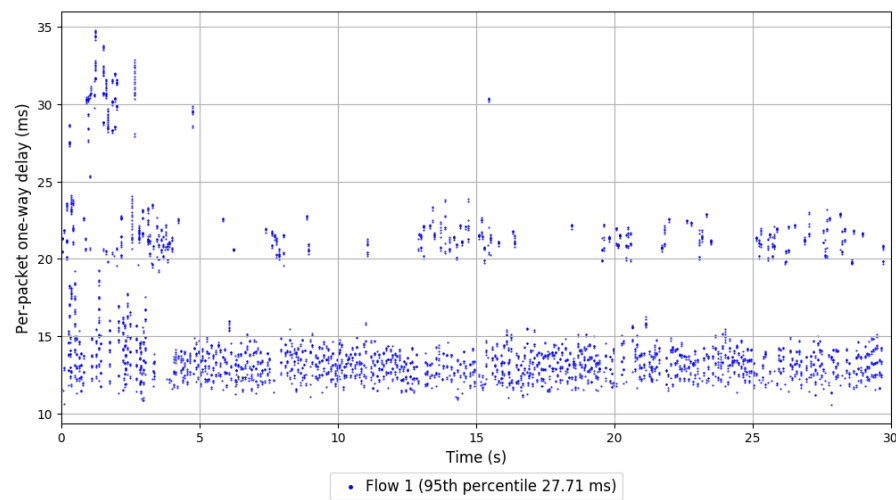
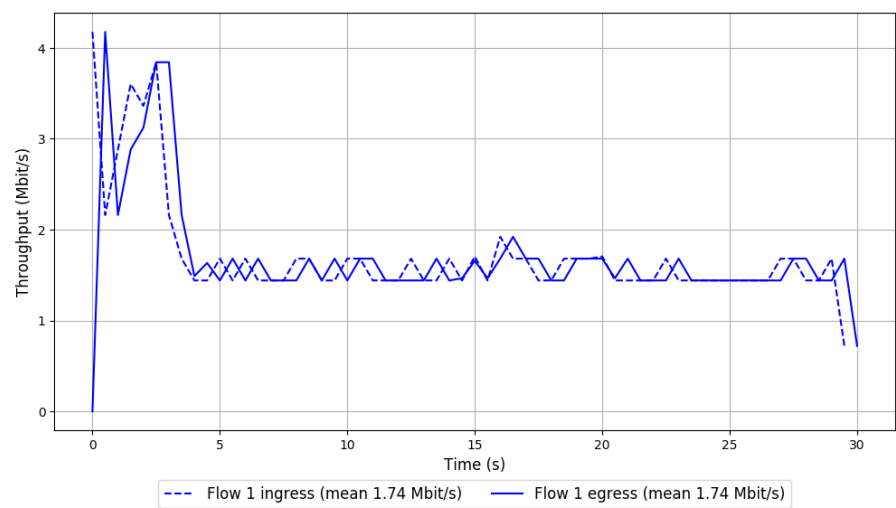


```
Run 1: Statistics of Indigo

Start at: 2018-07-03 09:22:58
End at: 2018-07-03 09:23:28
Local clock offset: 7.415 ms
Remote clock offset: 2.169 ms

# Below is generated by plot.py at 2018-07-03 10:20:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 27.709 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 27.709 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-07-03 09:45:14

End at: 2018-07-03 09:45:44

Local clock offset: 6.041 ms

Remote clock offset: 3.379 ms

Below is generated by plot.py at 2018-07-03 10:20:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.52 Mbit/s

95th percentile per-packet one-way delay: 22.084 ms

Loss rate: 0.00%

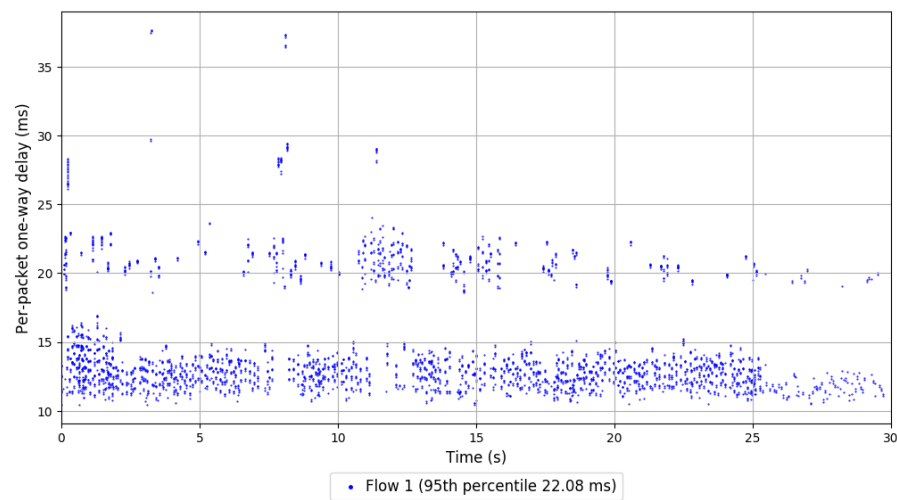
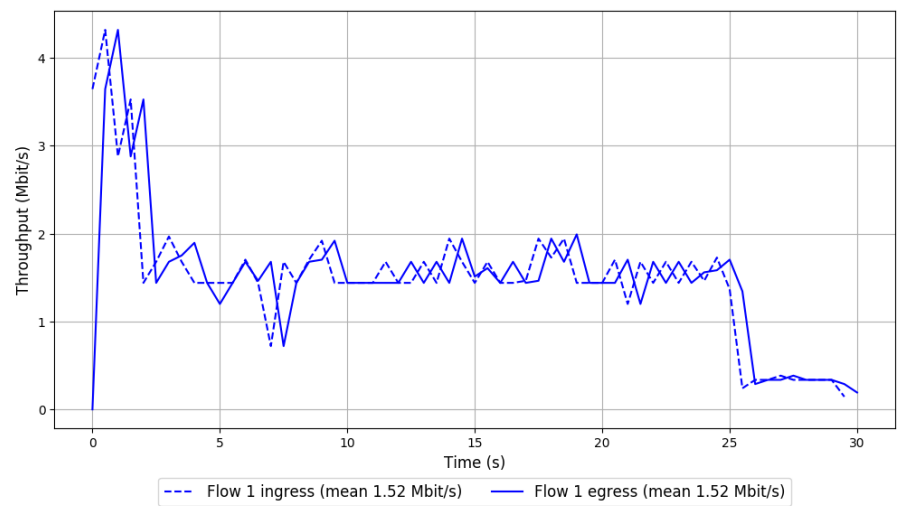
-- Flow 1:

Average throughput: 1.52 Mbit/s

95th percentile per-packet one-way delay: 22.084 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-07-03 10:07:36

End at: 2018-07-03 10:08:06

Local clock offset: 5.657 ms

Remote clock offset: 3.705 ms

Below is generated by plot.py at 2018-07-03 10:20:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.03 Mbit/s

95th percentile per-packet one-way delay: 34.382 ms

Loss rate: 0.00%

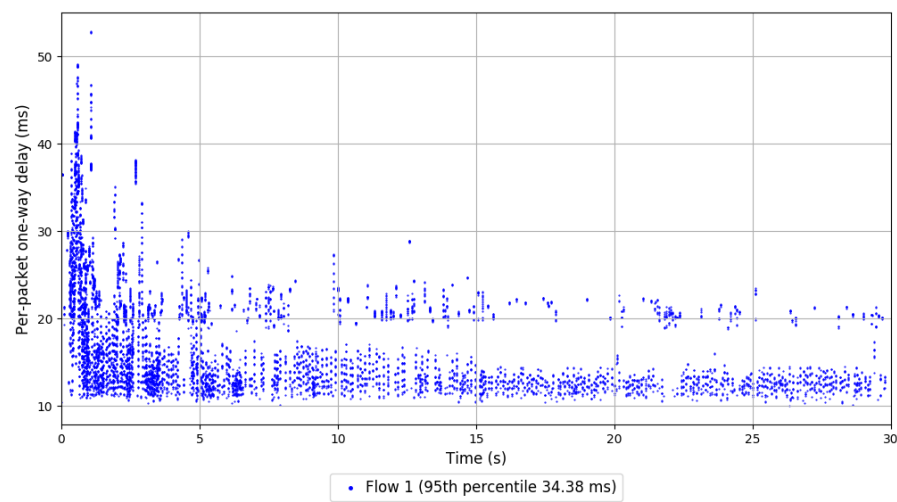
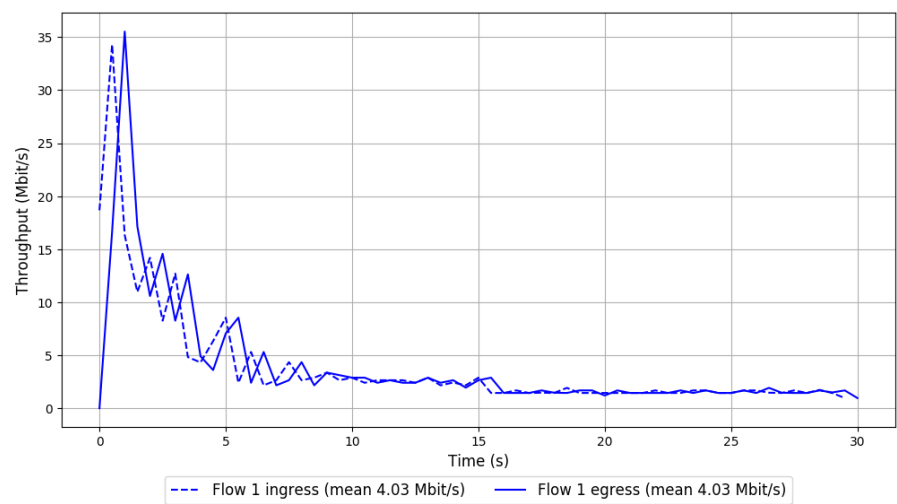
-- Flow 1:

Average throughput: 4.03 Mbit/s

95th percentile per-packet one-way delay: 34.382 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

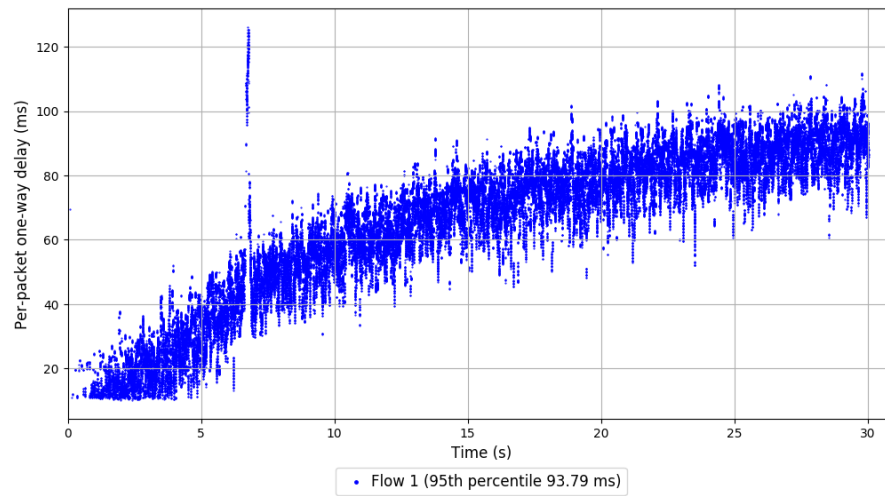
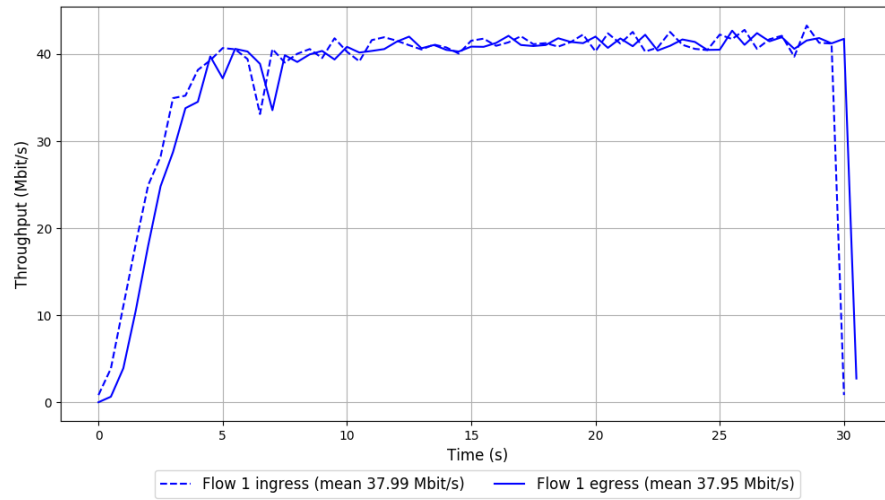


```
Run 1: Statistics of LEDBAT

Start at: 2018-07-03 09:33:23
End at: 2018-07-03 09:33:53
Local clock offset: 11.55 ms
Remote clock offset: 2.786 ms

# Below is generated by plot.py at 2018-07-03 10:20:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.95 Mbit/s
95th percentile per-packet one-way delay: 93.790 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 37.95 Mbit/s
95th percentile per-packet one-way delay: 93.790 ms
Loss rate: 0.24%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-07-03 09:55:45

End at: 2018-07-03 09:56:15

Local clock offset: 6.47 ms

Remote clock offset: 3.914 ms

Below is generated by plot.py at 2018-07-03 10:20:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 38.30 Mbit/s

95th percentile per-packet one-way delay: 98.202 ms

Loss rate: 0.23%

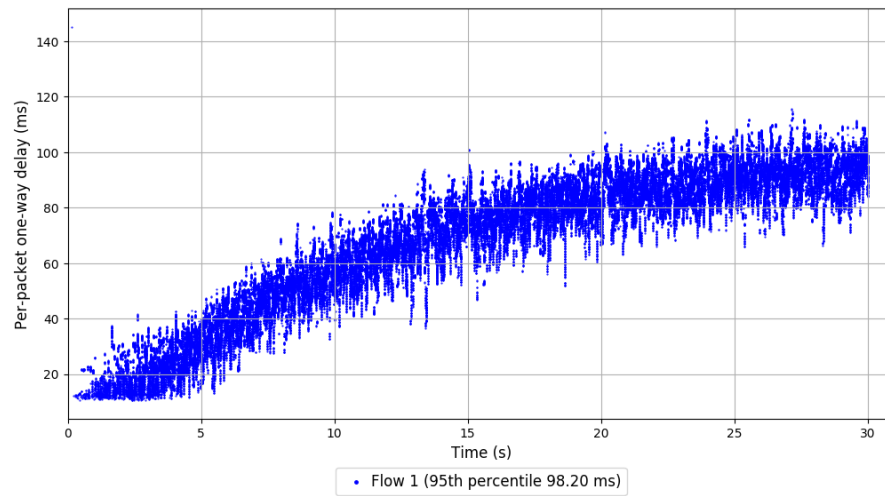
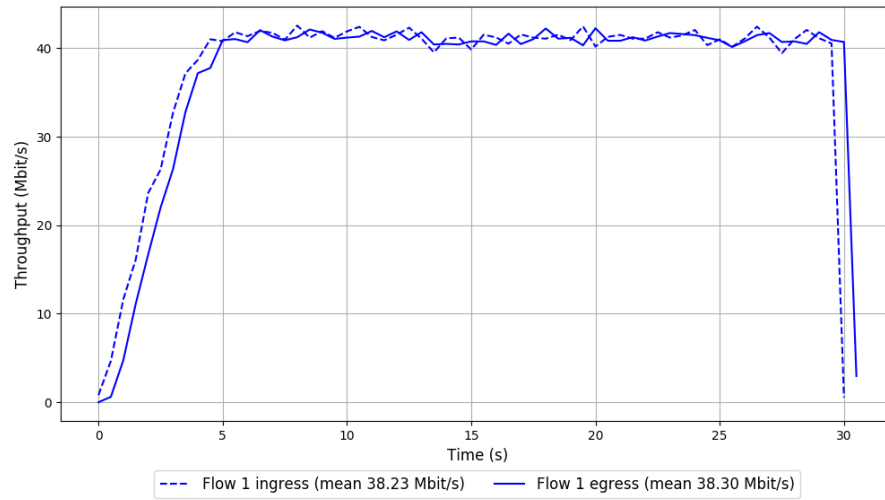
-- Flow 1:

Average throughput: 38.30 Mbit/s

95th percentile per-packet one-way delay: 98.202 ms

Loss rate: 0.23%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-07-03 10:18:03

End at: 2018-07-03 10:18:33

Local clock offset: 3.774 ms

Remote clock offset: 3.19 ms

Below is generated by plot.py at 2018-07-03 10:20:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 37.77 Mbit/s

95th percentile per-packet one-way delay: 97.357 ms

Loss rate: 0.21%

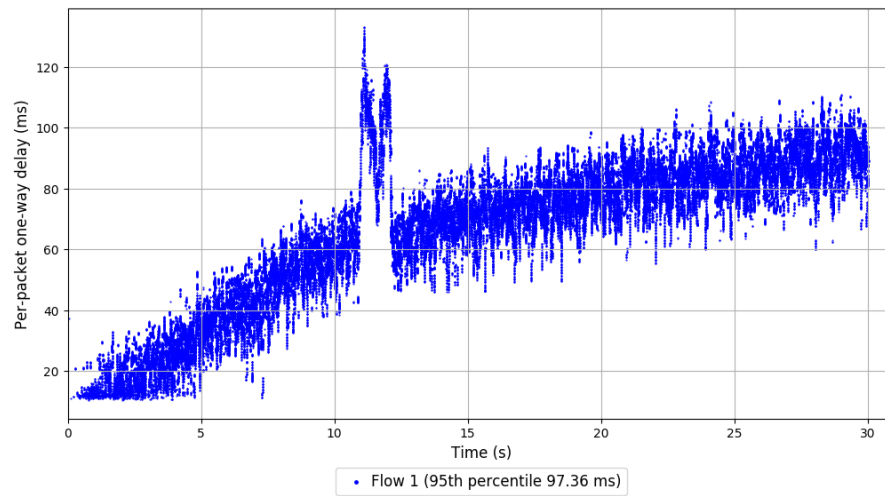
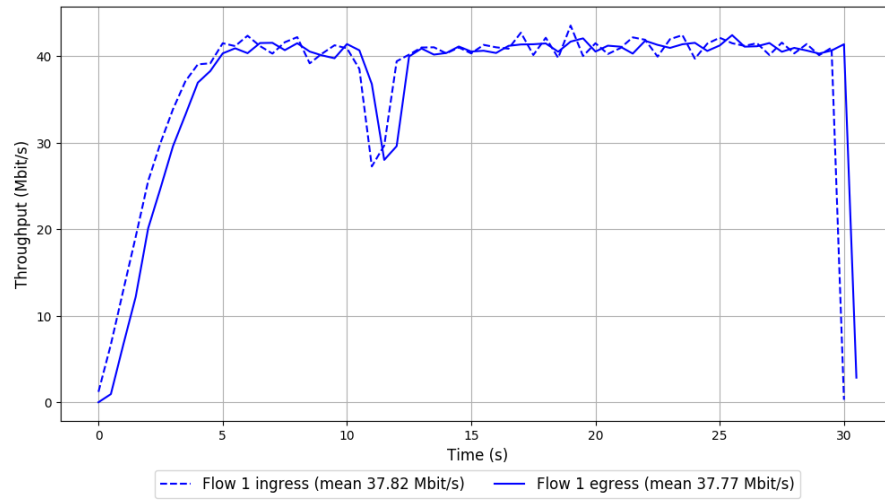
-- Flow 1:

Average throughput: 37.77 Mbit/s

95th percentile per-packet one-way delay: 97.357 ms

Loss rate: 0.21%

Run 3: Report of LEDBAT — Data Link

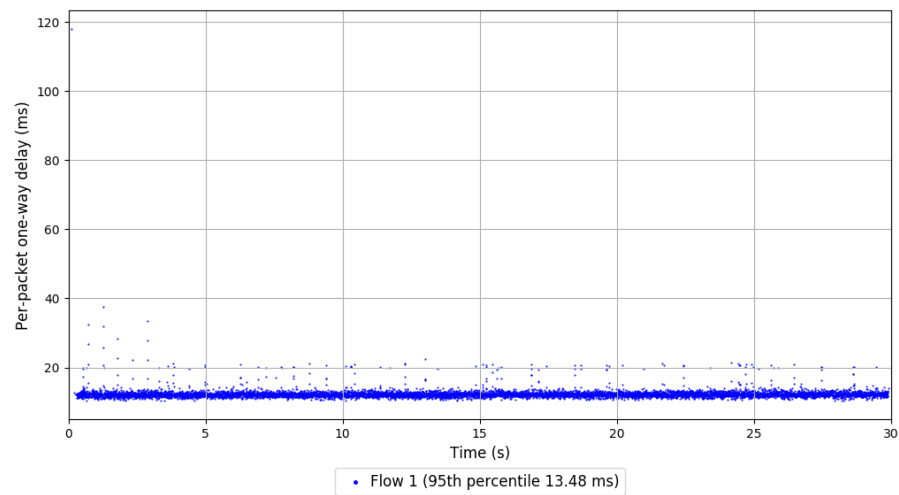
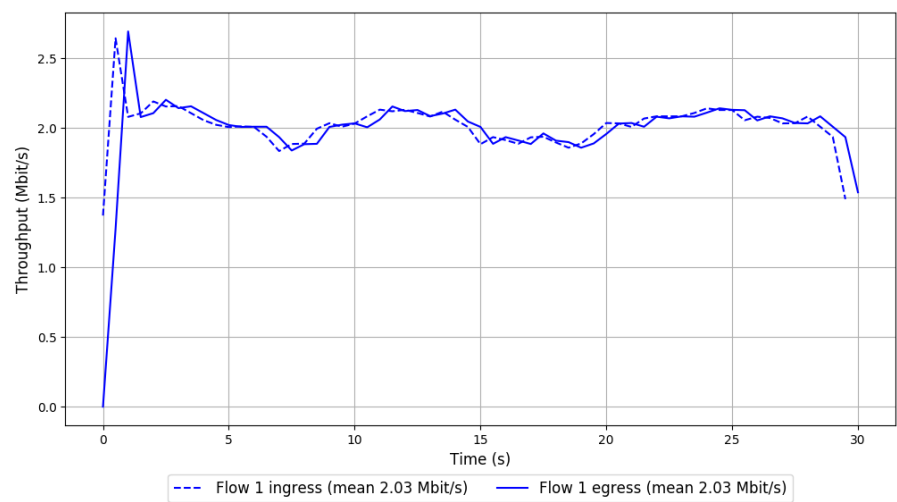


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-07-03 09:15:06
End at: 2018-07-03 09:15:36
Local clock offset: 3.82 ms
Remote clock offset: 1.541 ms

# Below is generated by plot.py at 2018-07-03 10:20:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 13.480 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 13.480 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-07-03 09:37:21

End at: 2018-07-03 09:37:51

Local clock offset: 8.48 ms

Remote clock offset: 2.986 ms

Below is generated by plot.py at 2018-07-03 10:20:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.75 Mbit/s

95th percentile per-packet one-way delay: 15.937 ms

Loss rate: 0.00%

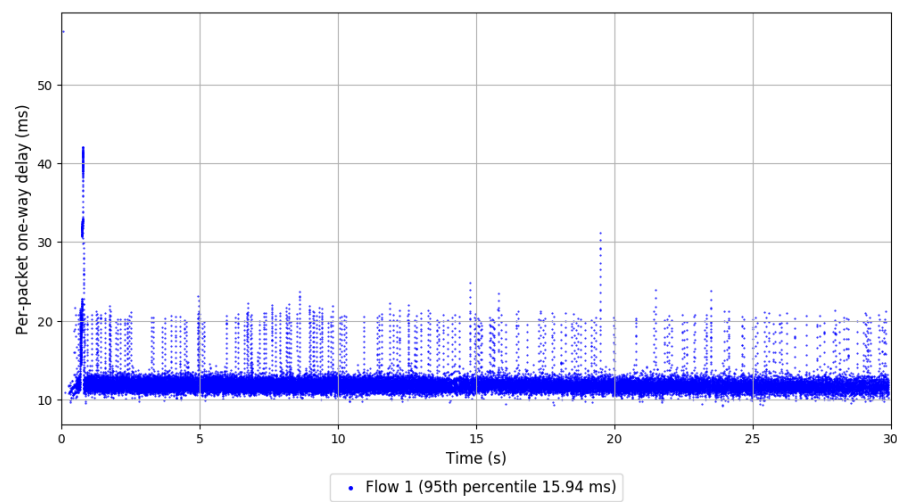
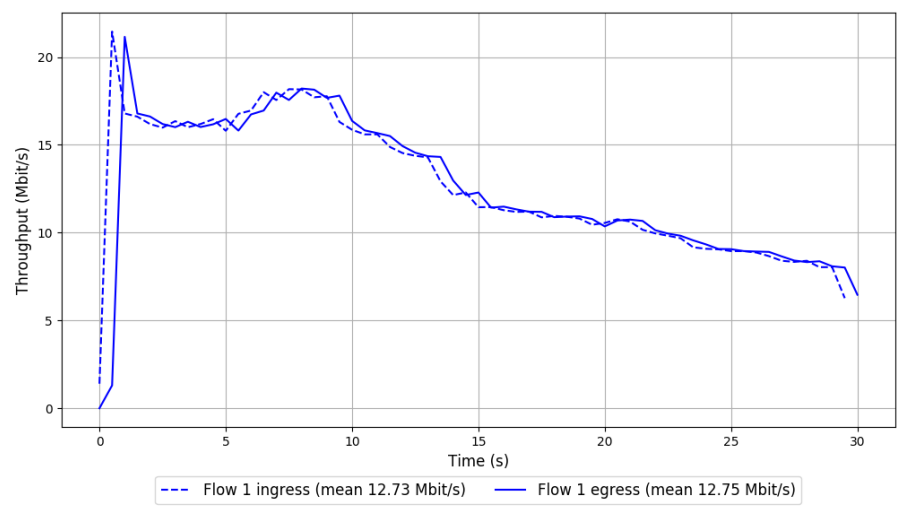
-- Flow 1:

Average throughput: 12.75 Mbit/s

95th percentile per-packet one-way delay: 15.937 ms

Loss rate: 0.00%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-07-03 09:59:44

End at: 2018-07-03 10:00:14

Local clock offset: 6.997 ms

Remote clock offset: 4.075 ms

Below is generated by plot.py at 2018-07-03 10:20:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.35 Mbit/s

95th percentile per-packet one-way delay: 14.031 ms

Loss rate: 0.00%

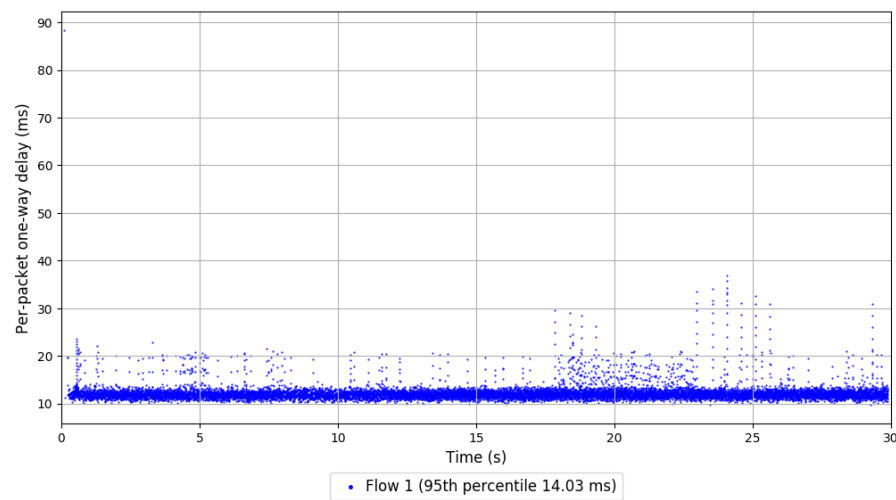
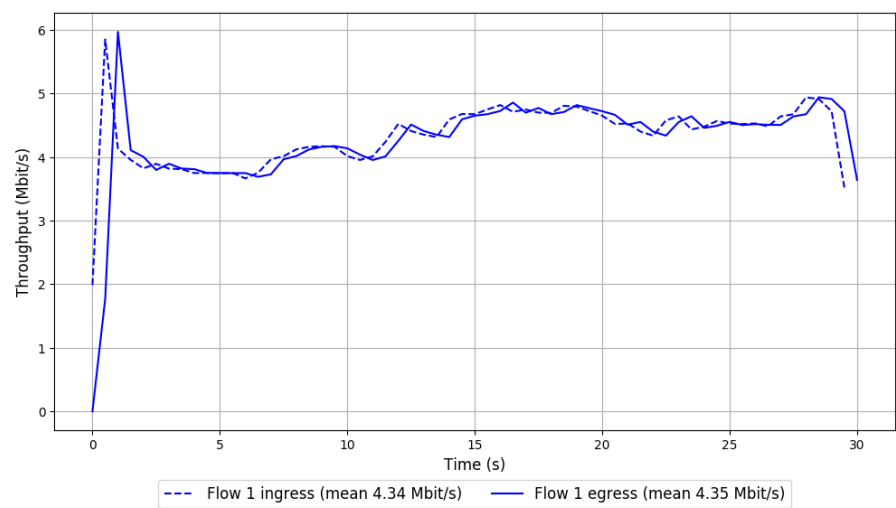
-- Flow 1:

Average throughput: 4.35 Mbit/s

95th percentile per-packet one-way delay: 14.031 ms

Loss rate: 0.00%

Run 3: Report of PCC-Allegro — Data Link

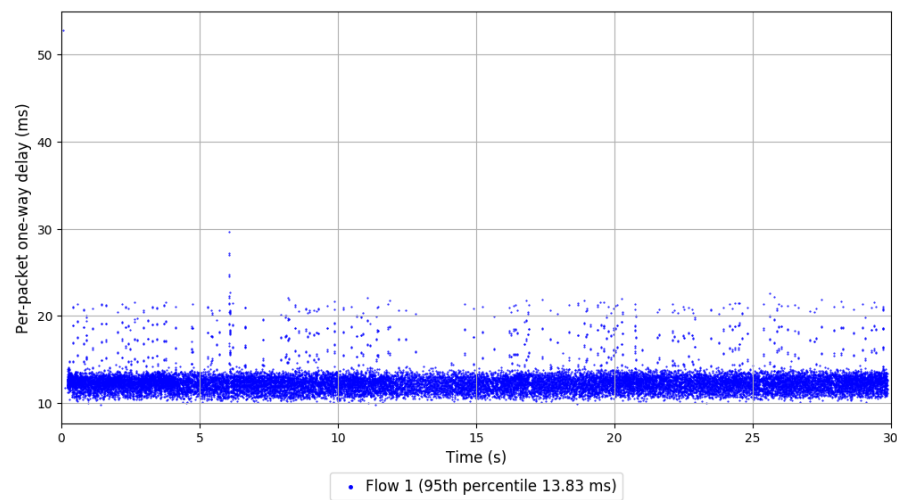
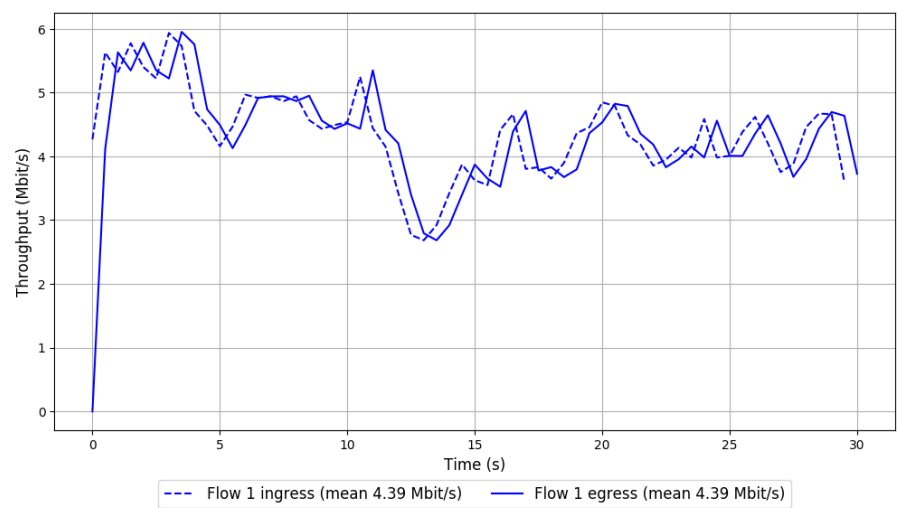


```
Run 1: Statistics of PCC-Expr

Start at: 2018-07-03 09:32:05
End at: 2018-07-03 09:32:35
Local clock offset: 11.015 ms
Remote clock offset: 2.741 ms

# Below is generated by plot.py at 2018-07-03 10:20:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.39 Mbit/s
95th percentile per-packet one-way delay: 13.827 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.39 Mbit/s
95th percentile per-packet one-way delay: 13.827 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-07-03 09:54:22

End at: 2018-07-03 09:54:52

Local clock offset: 6.194 ms

Remote clock offset: 3.787 ms

Below is generated by plot.py at 2018-07-03 10:20:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 11.52 Mbit/s

95th percentile per-packet one-way delay: 18.554 ms

Loss rate: 0.00%

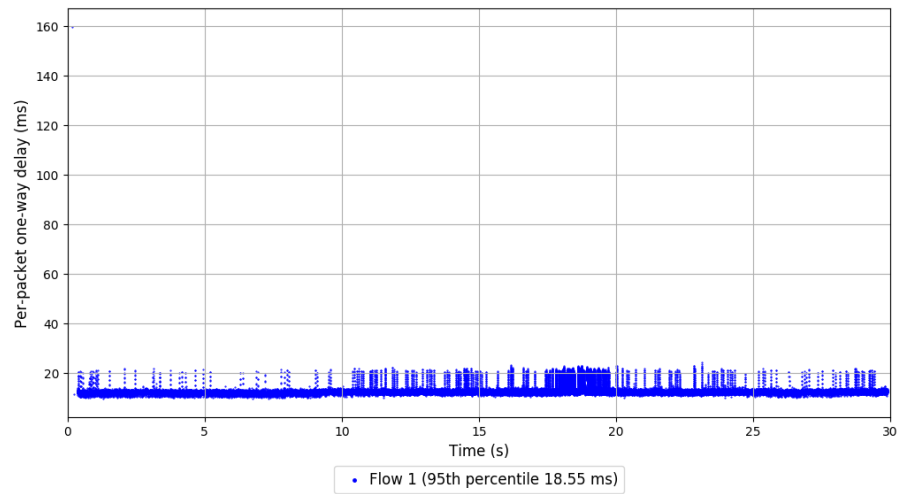
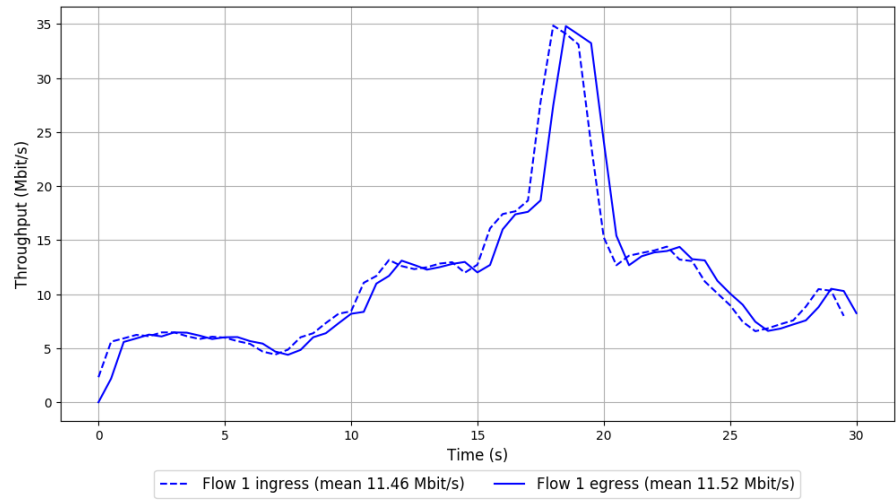
-- Flow 1:

Average throughput: 11.52 Mbit/s

95th percentile per-packet one-way delay: 18.554 ms

Loss rate: 0.00%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-07-03 10:16:44

End at: 2018-07-03 10:17:14

Local clock offset: 3.743 ms

Remote clock offset: 3.239 ms

Below is generated by plot.py at 2018-07-03 10:20:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.12 Mbit/s

95th percentile per-packet one-way delay: 15.258 ms

Loss rate: 0.00%

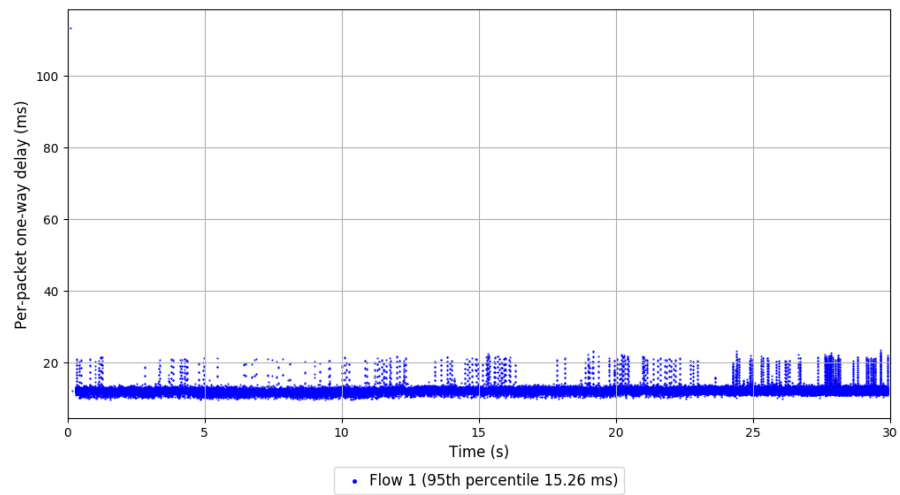
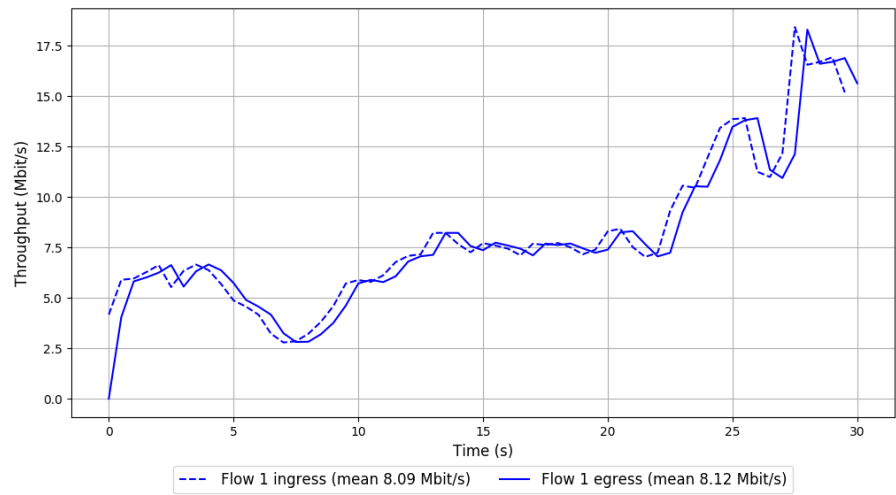
-- Flow 1:

Average throughput: 8.12 Mbit/s

95th percentile per-packet one-way delay: 15.258 ms

Loss rate: 0.00%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

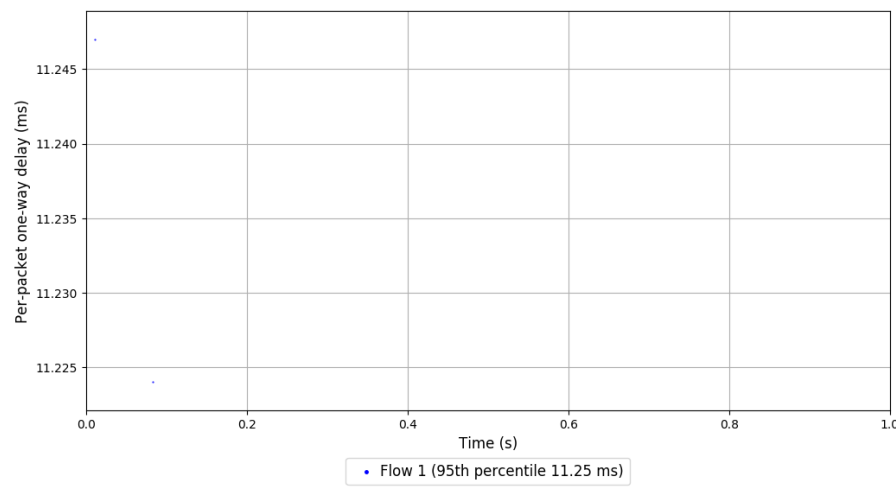
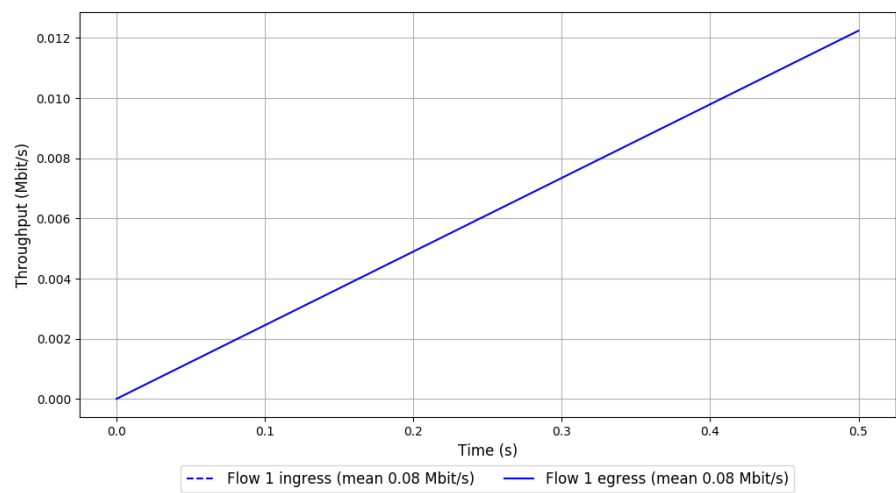
Start at: 2018-07-03 09:28:11

End at: 2018-07-03 09:28:41

Local clock offset: 9.461 ms

Remote clock offset: 2.407 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-07-03 09:50:27

End at: 2018-07-03 09:50:57

Local clock offset: 5.948 ms

Remote clock offset: 3.663 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 38.79 Mbit/s

95th percentile per-packet one-way delay: 200.845 ms

Loss rate: 0.29%

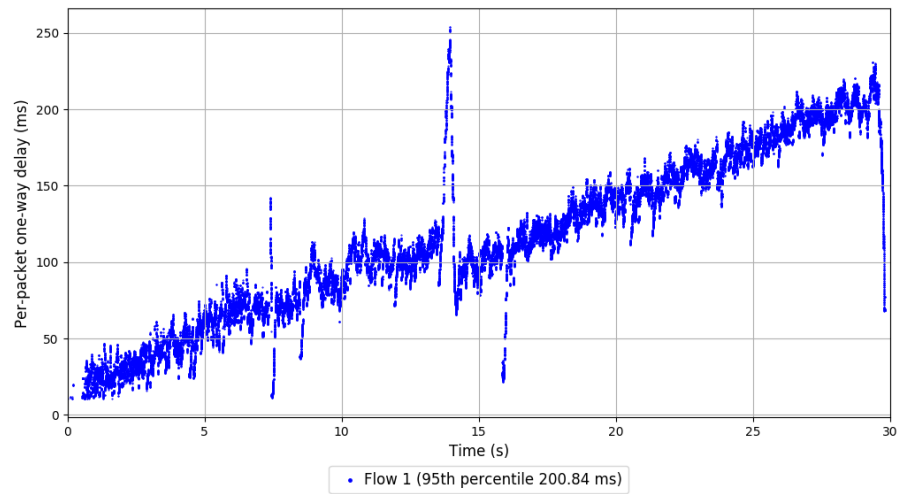
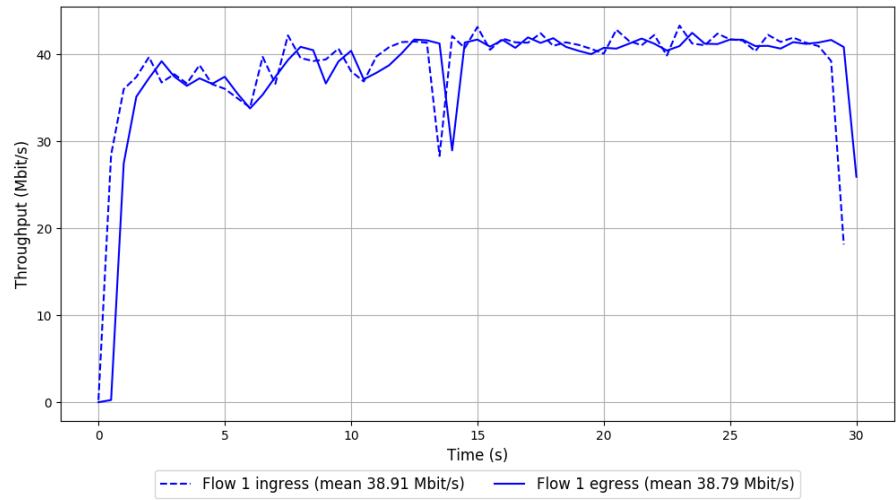
-- Flow 1:

Average throughput: 38.79 Mbit/s

95th percentile per-packet one-way delay: 200.845 ms

Loss rate: 0.29%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-07-03 10:12:49

End at: 2018-07-03 10:13:19

Local clock offset: 4.137 ms

Remote clock offset: 3.311 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 39.88 Mbit/s

95th percentile per-packet one-way delay: 203.062 ms

Loss rate: 0.57%

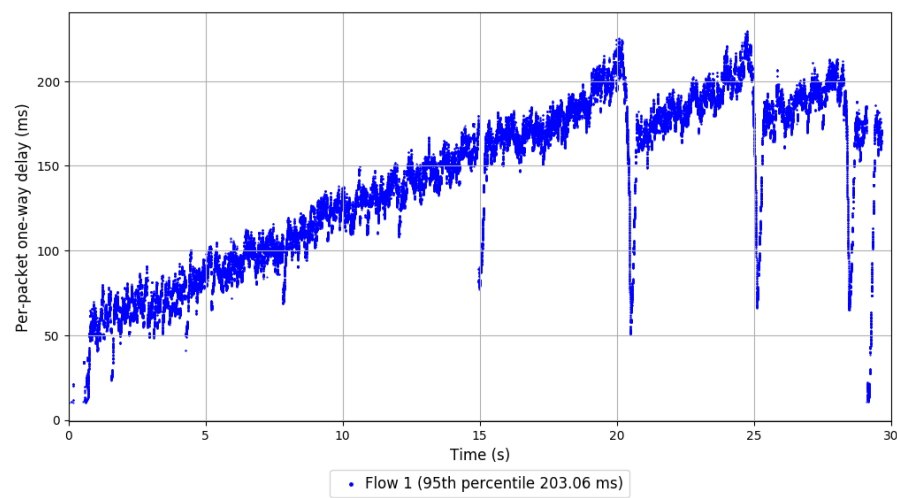
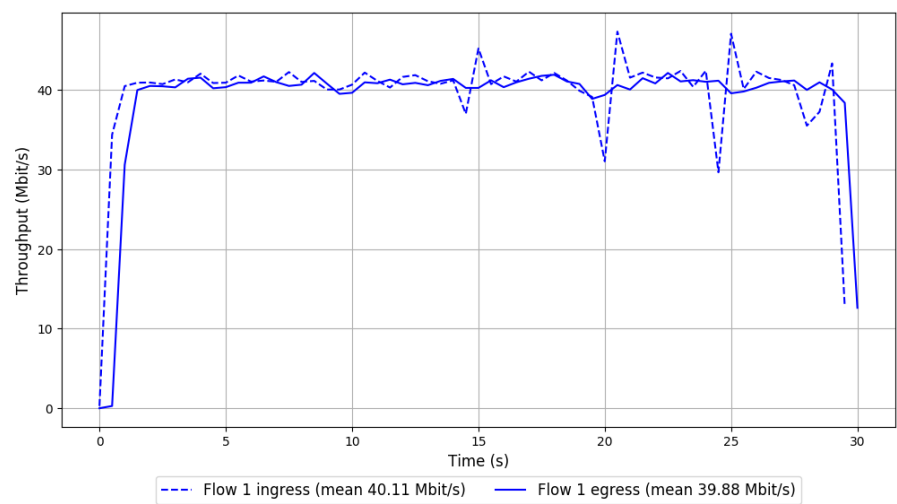
-- Flow 1:

Average throughput: 39.88 Mbit/s

95th percentile per-packet one-way delay: 203.062 ms

Loss rate: 0.57%

Run 3: Report of QUIC Cubic — Data Link

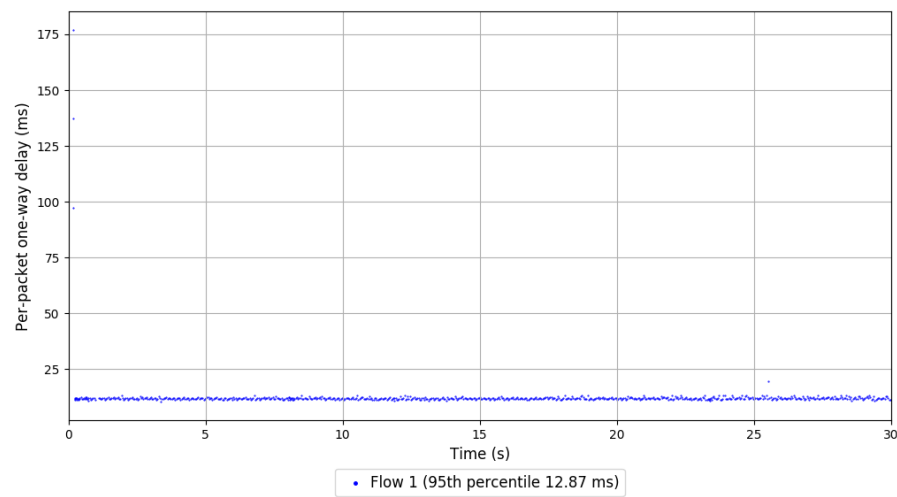
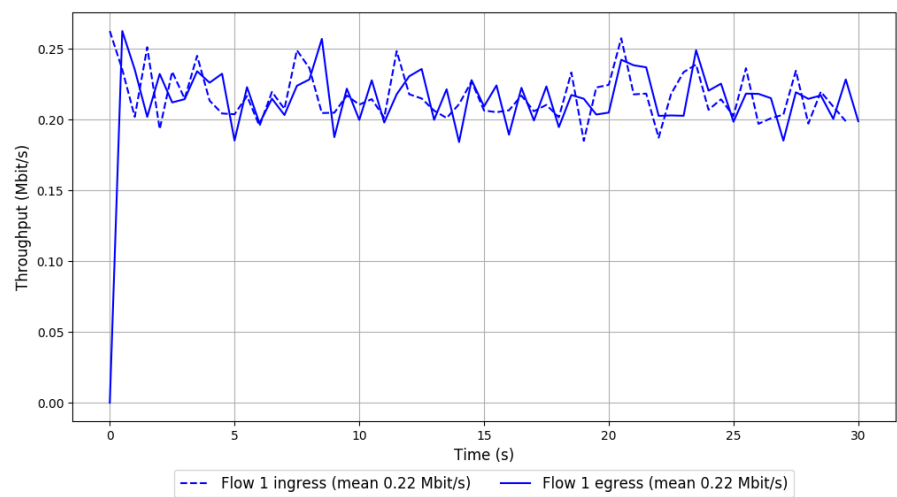


```
Run 1: Statistics of SCReAM

Start at: 2018-07-03 09:16:24
End at: 2018-07-03 09:16:54
Local clock offset: 4.51 ms
Remote clock offset: 1.699 ms

# Below is generated by plot.py at 2018-07-03 10:20:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 12.865 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 12.865 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-07-03 09:38:40

End at: 2018-07-03 09:39:10

Local clock offset: 7.862 ms

Remote clock offset: 3.04 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 12.218 ms

Loss rate: 0.00%

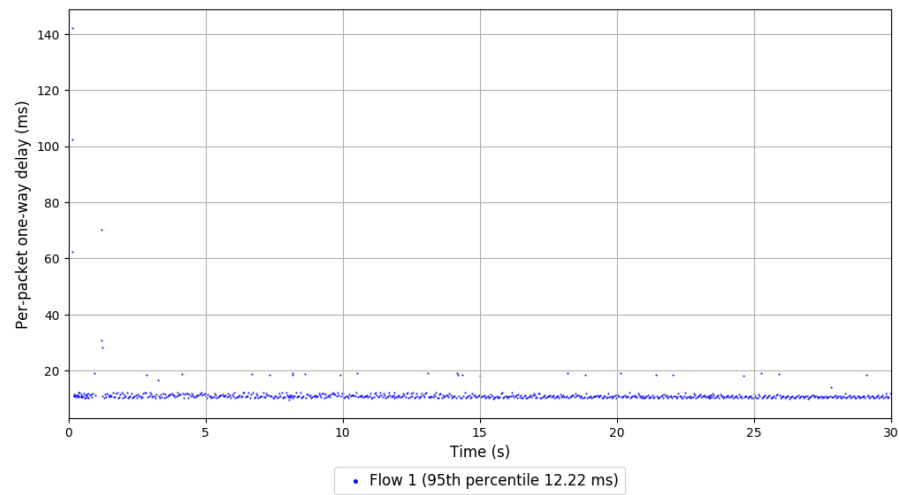
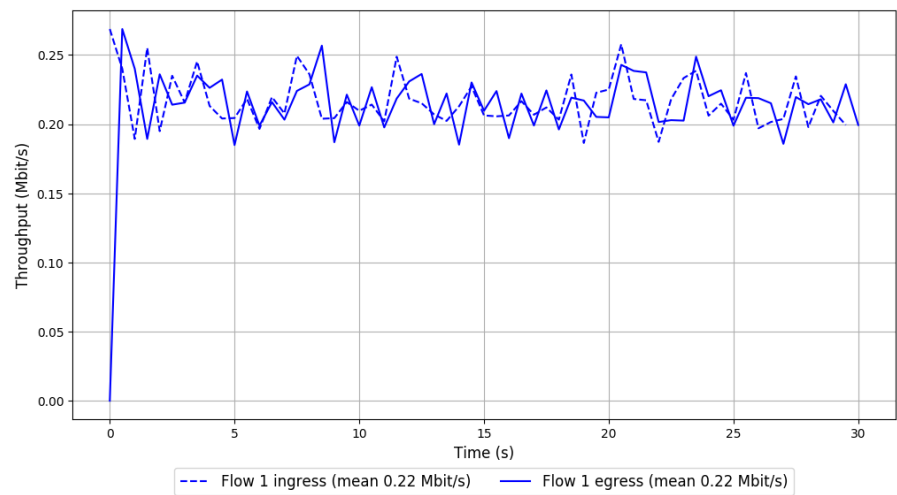
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 12.218 ms

Loss rate: 0.00%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-07-03 10:01:02

End at: 2018-07-03 10:01:32

Local clock offset: 7.329 ms

Remote clock offset: 4.146 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 12.542 ms

Loss rate: 0.00%

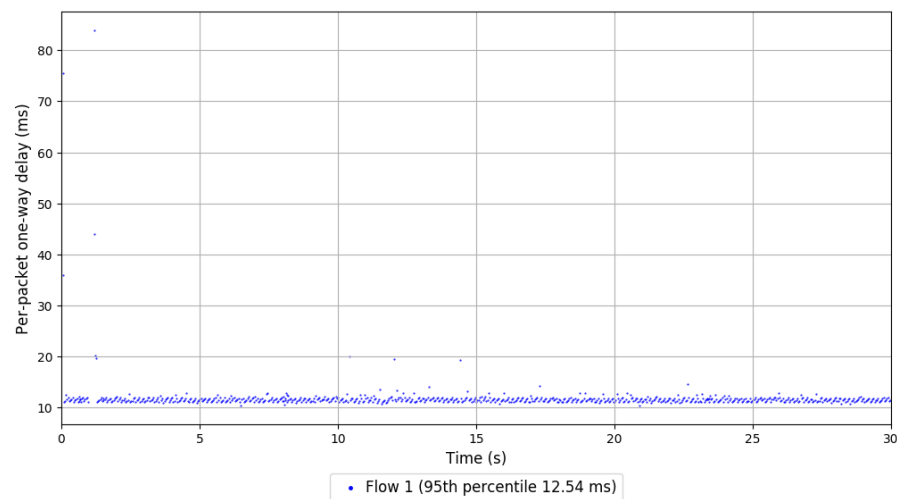
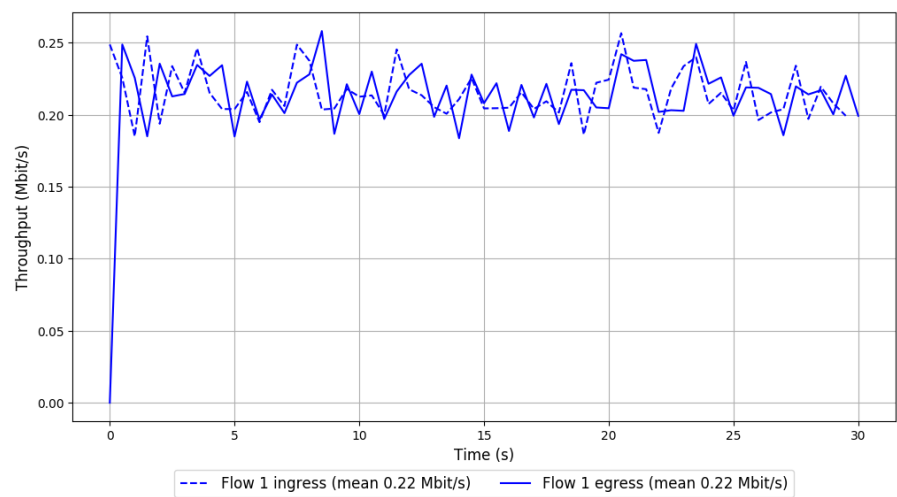
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 12.542 ms

Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-07-03 09:25:34

End at: 2018-07-03 09:26:04

Local clock offset: 8.338 ms

Remote clock offset: 2.284 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 14.09 Mbit/s

95th percentile per-packet one-way delay: 27.979 ms

Loss rate: 0.00%

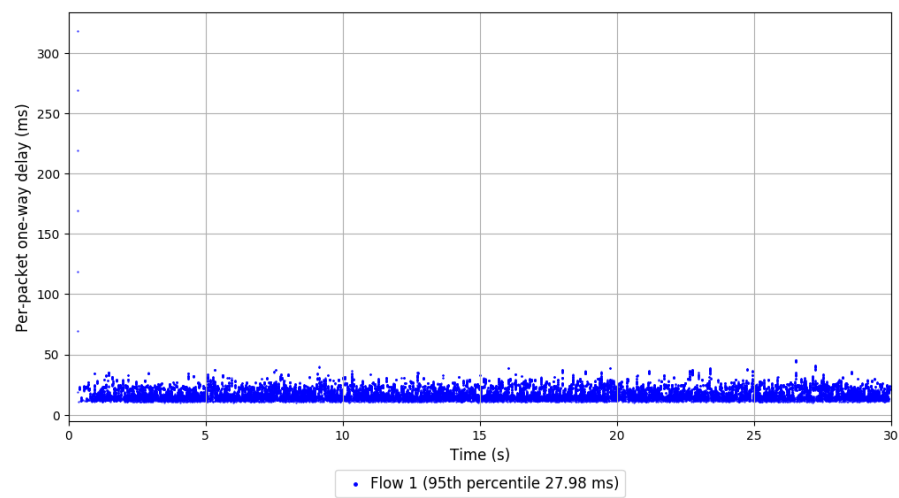
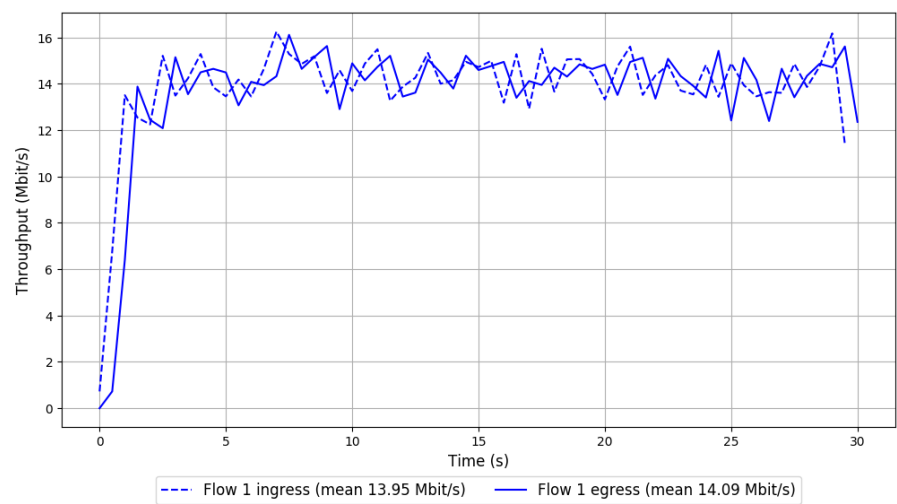
-- Flow 1:

Average throughput: 14.09 Mbit/s

95th percentile per-packet one-way delay: 27.979 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-07-03 09:47:50

End at: 2018-07-03 09:48:20

Local clock offset: 5.792 ms

Remote clock offset: 3.478 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.62 Mbit/s

95th percentile per-packet one-way delay: 27.443 ms

Loss rate: 0.00%

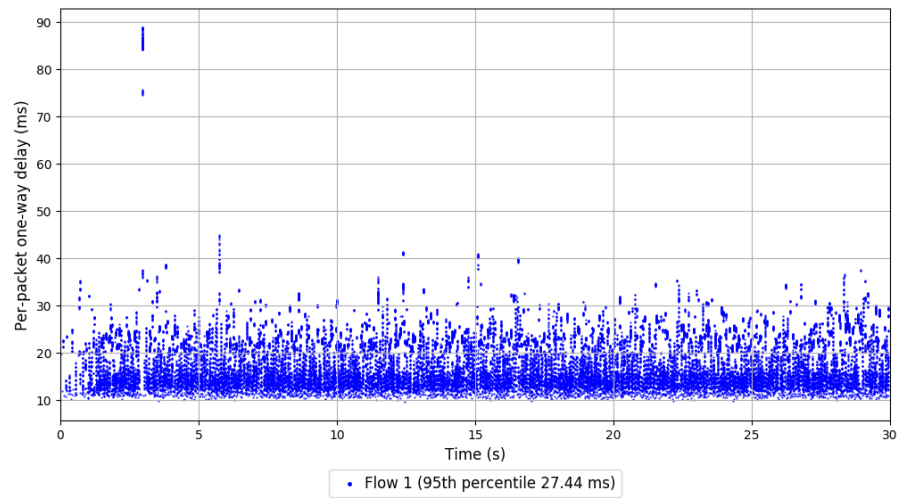
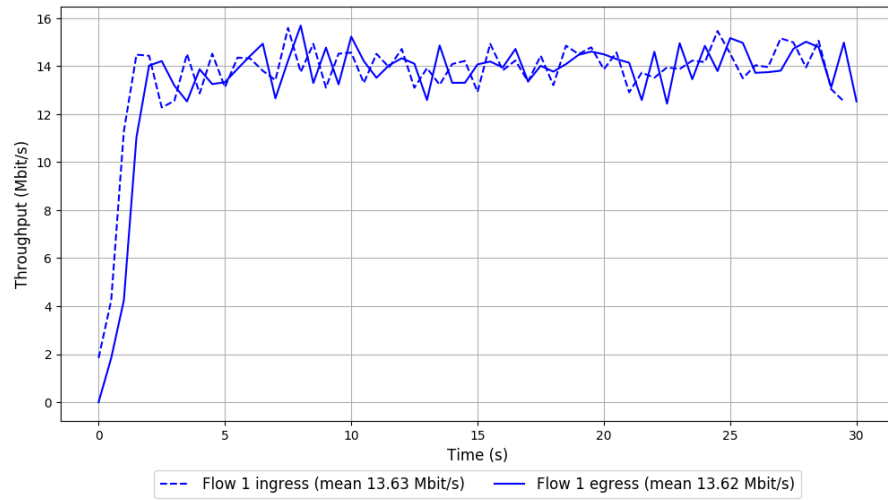
-- Flow 1:

Average throughput: 13.62 Mbit/s

95th percentile per-packet one-way delay: 27.443 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-07-03 10:10:12

End at: 2018-07-03 10:10:42

Local clock offset: 4.745 ms

Remote clock offset: 3.438 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.83 Mbit/s

95th percentile per-packet one-way delay: 28.223 ms

Loss rate: 0.00%

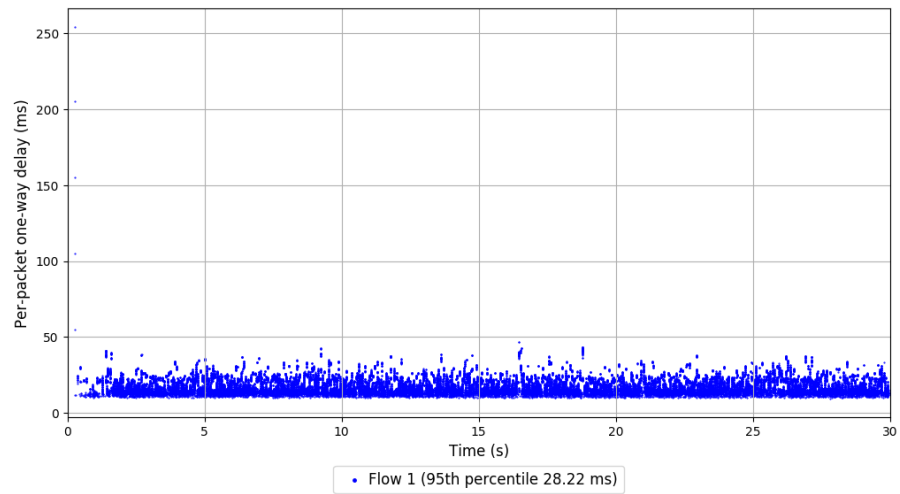
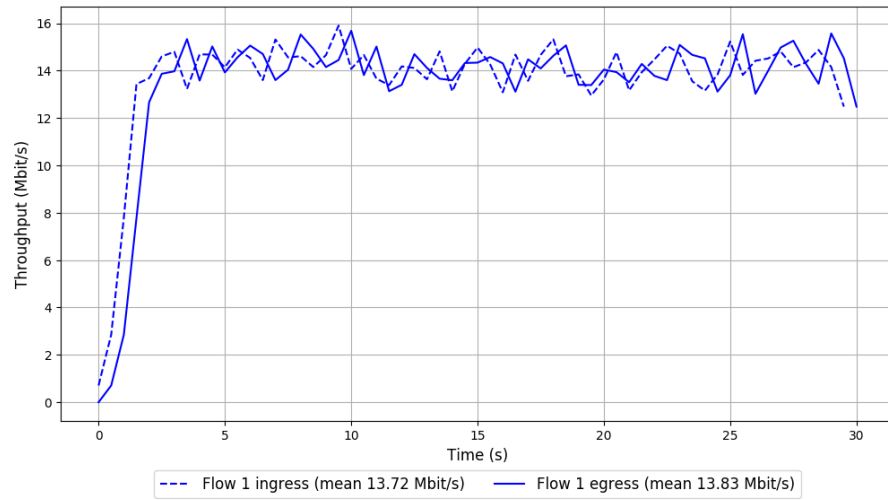
-- Flow 1:

Average throughput: 13.83 Mbit/s

95th percentile per-packet one-way delay: 28.223 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-07-03 09:17:42

End at: 2018-07-03 09:18:12

Local clock offset: 5.102 ms

Remote clock offset: 1.727 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.97 Mbit/s

95th percentile per-packet one-way delay: 30.576 ms

Loss rate: 0.00%

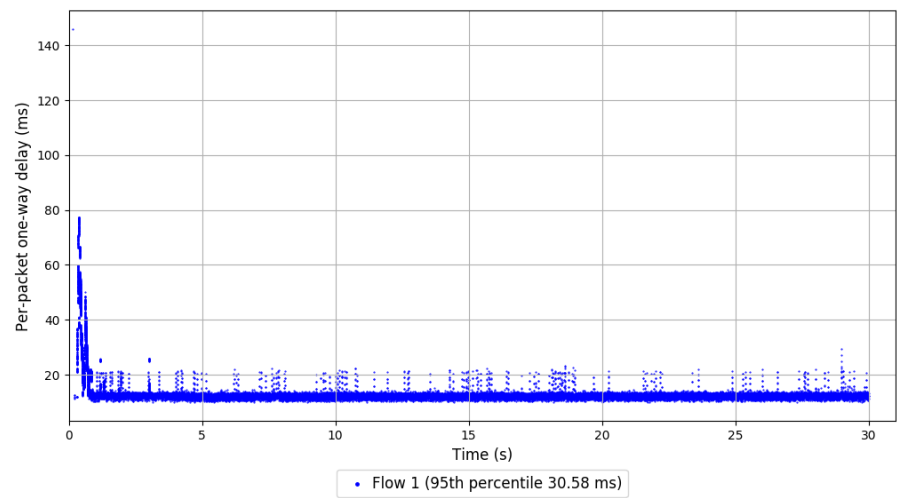
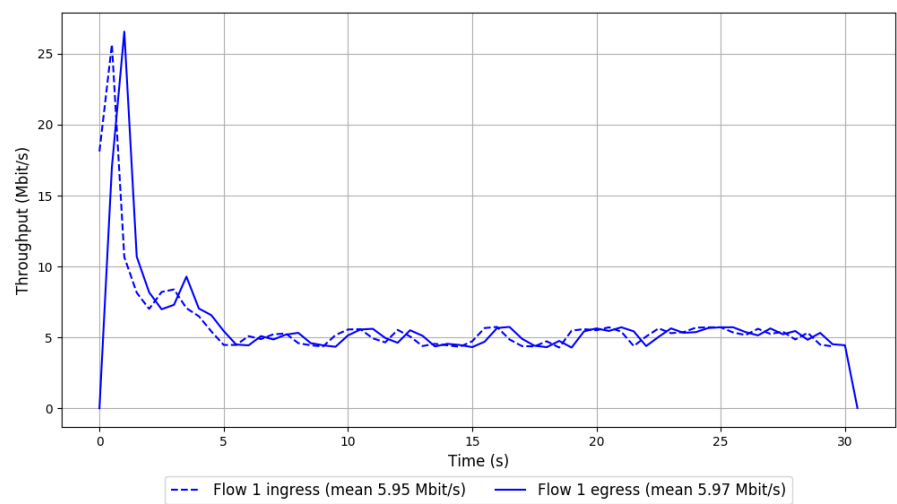
-- Flow 1:

Average throughput: 5.97 Mbit/s

95th percentile per-packet one-way delay: 30.576 ms

Loss rate: 0.00%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-07-03 09:39:58

End at: 2018-07-03 09:40:28

Local clock offset: 7.196 ms

Remote clock offset: 3.126 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.26 Mbit/s

95th percentile per-packet one-way delay: 22.734 ms

Loss rate: 0.00%

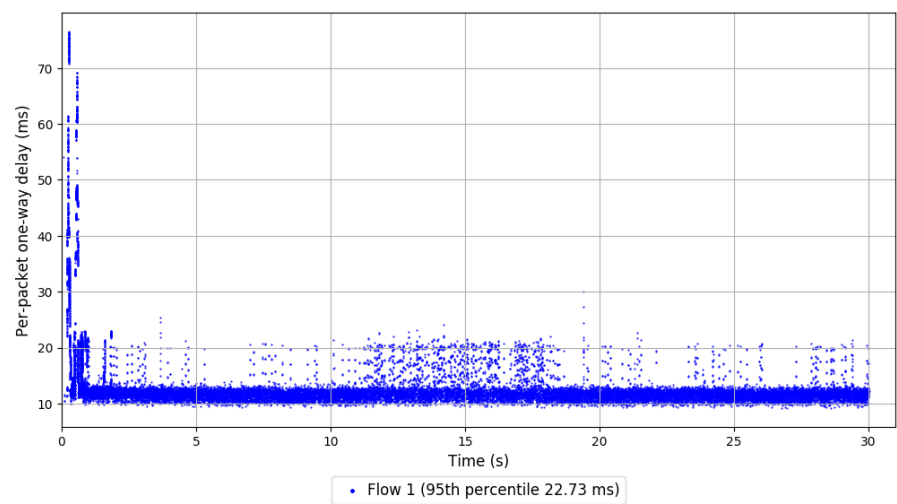
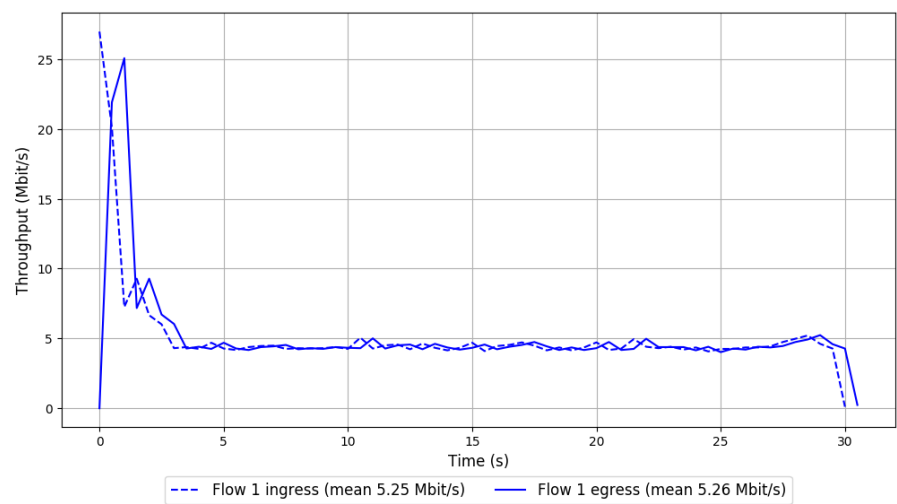
-- Flow 1:

Average throughput: 5.26 Mbit/s

95th percentile per-packet one-way delay: 22.734 ms

Loss rate: 0.00%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-07-03 10:02:20

End at: 2018-07-03 10:02:50

Local clock offset: 7.533 ms

Remote clock offset: 4.177 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.02 Mbit/s

95th percentile per-packet one-way delay: 17.886 ms

Loss rate: 0.00%

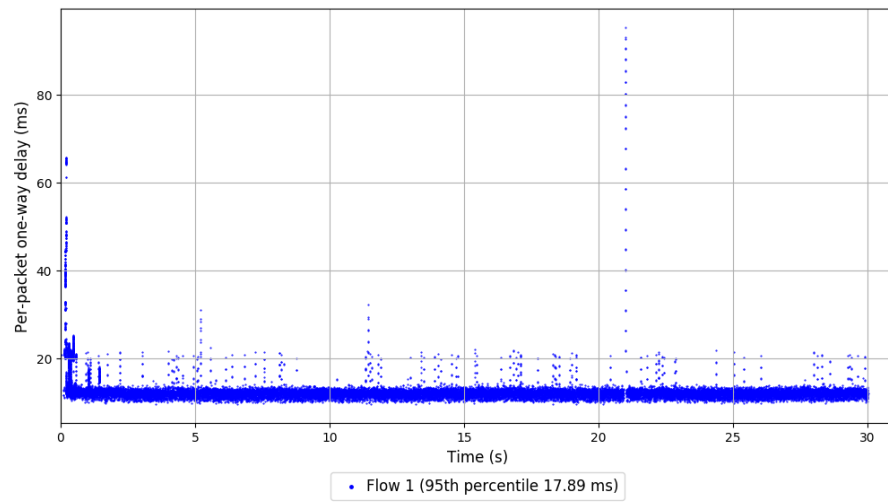
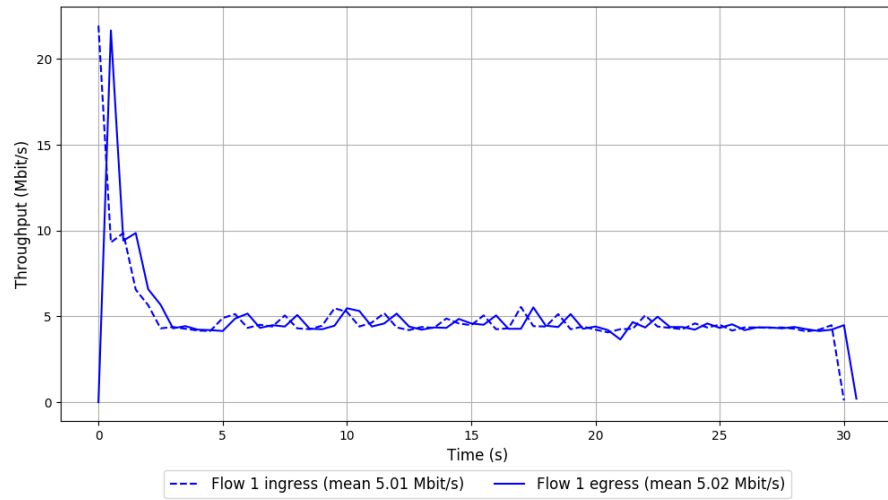
-- Flow 1:

Average throughput: 5.02 Mbit/s

95th percentile per-packet one-way delay: 17.886 ms

Loss rate: 0.00%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-07-03 09:29:28

End at: 2018-07-03 09:29:58

Local clock offset: 9.898 ms

Remote clock offset: 2.532 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.59 Mbit/s

95th percentile per-packet one-way delay: 32.330 ms

Loss rate: 0.00%

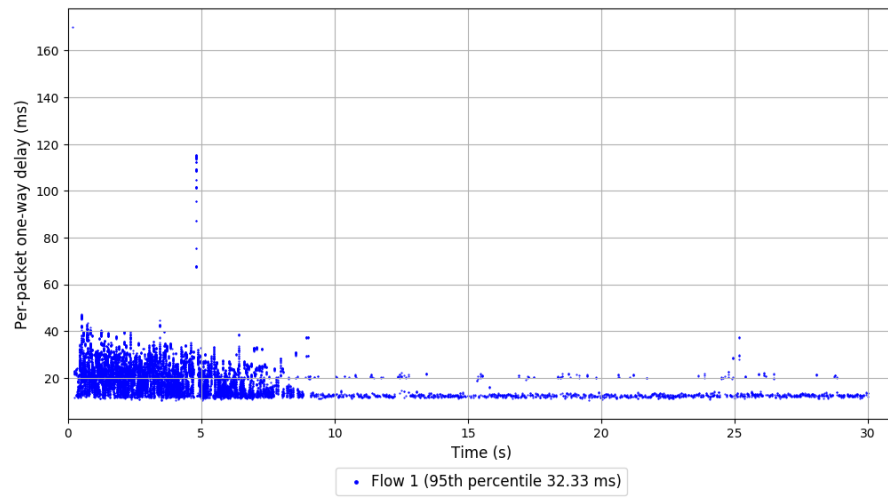
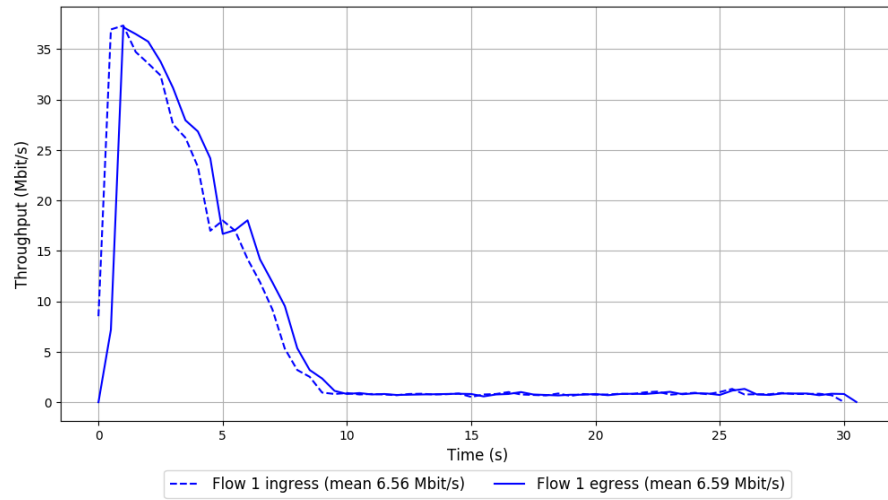
-- Flow 1:

Average throughput: 6.59 Mbit/s

95th percentile per-packet one-way delay: 32.330 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-07-03 09:51:46

End at: 2018-07-03 09:52:16

Local clock offset: 5.928 ms

Remote clock offset: 3.678 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.10 Mbit/s

95th percentile per-packet one-way delay: 24.670 ms

Loss rate: 0.00%

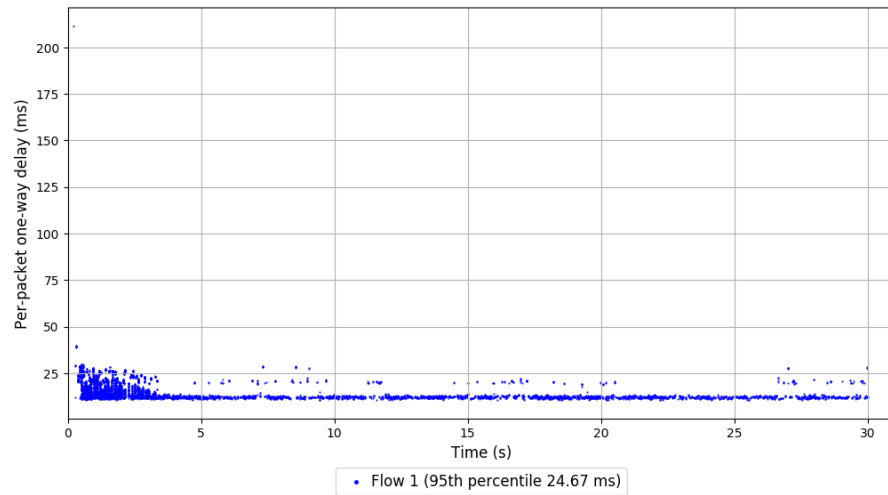
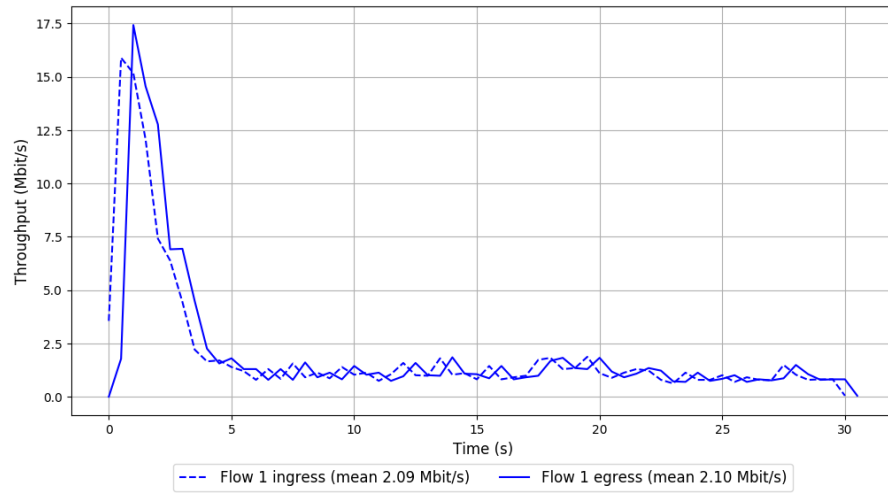
-- Flow 1:

Average throughput: 2.10 Mbit/s

95th percentile per-packet one-way delay: 24.670 ms

Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-07-03 10:14:08

End at: 2018-07-03 10:14:38

Local clock offset: 4.046 ms

Remote clock offset: 3.272 ms

Below is generated by plot.py at 2018-07-03 10:20:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.14 Mbit/s

95th percentile per-packet one-way delay: 25.497 ms

Loss rate: 0.00%

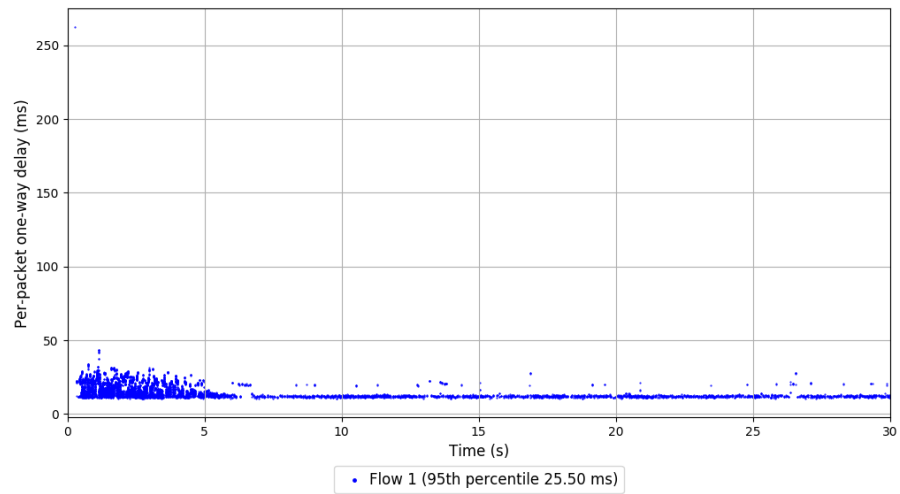
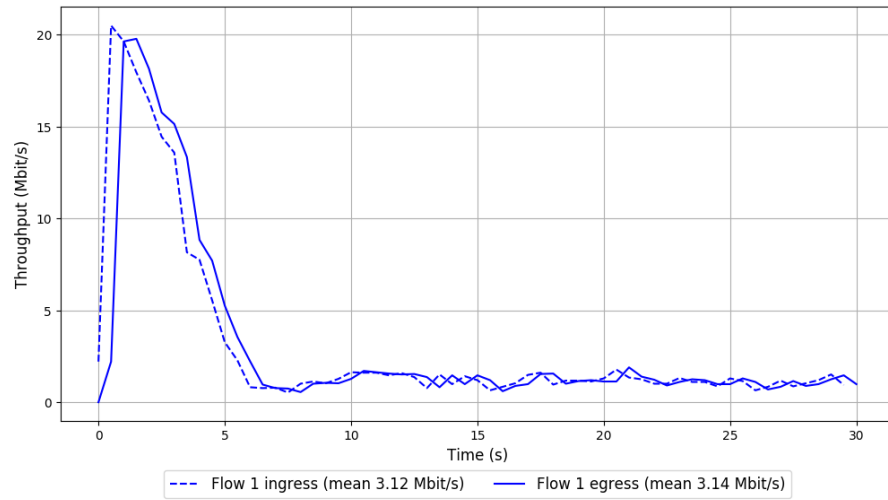
-- Flow 1:

Average throughput: 3.14 Mbit/s

95th percentile per-packet one-way delay: 25.497 ms

Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-07-03 09:12:27

End at: 2018-07-03 09:12:57

Local clock offset: 1.91 ms

Remote clock offset: 1.264 ms

Below is generated by plot.py at 2018-07-03 10:20:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 37.42 Mbit/s

95th percentile per-packet one-way delay: 255.683 ms

Loss rate: 1.48%

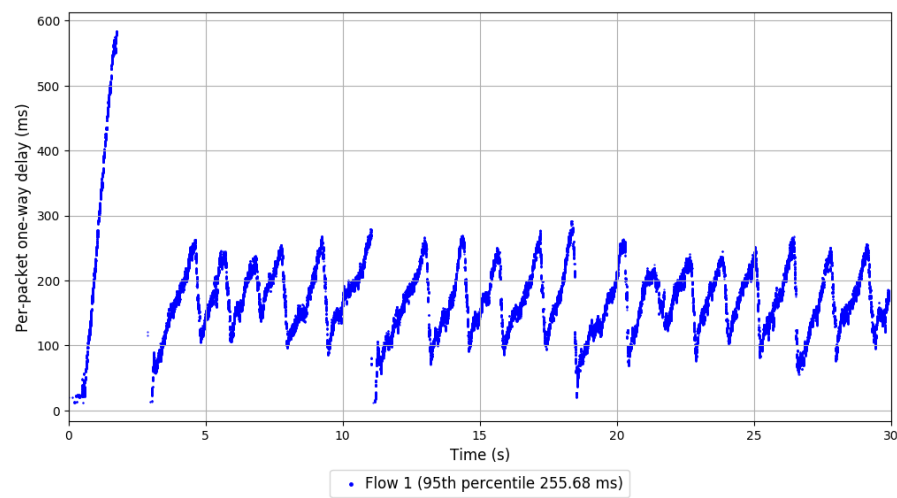
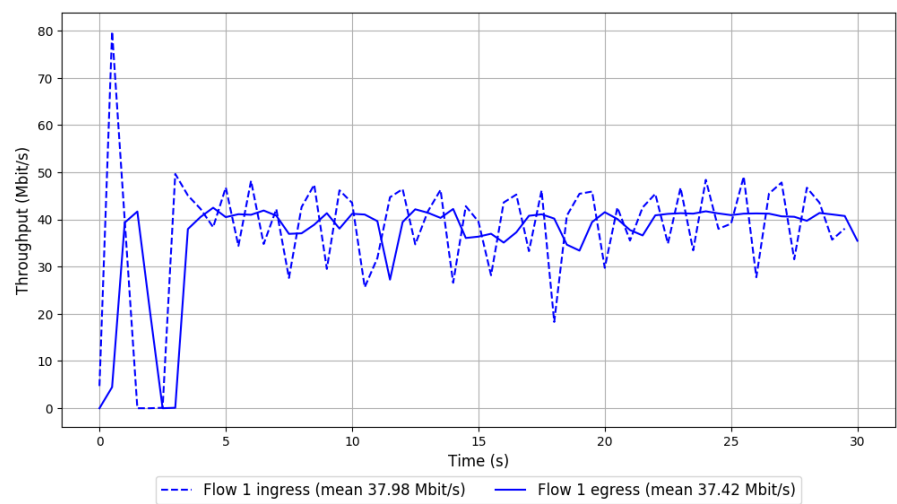
-- Flow 1:

Average throughput: 37.42 Mbit/s

95th percentile per-packet one-way delay: 255.683 ms

Loss rate: 1.48%

Run 1: Report of Verus — Data Link

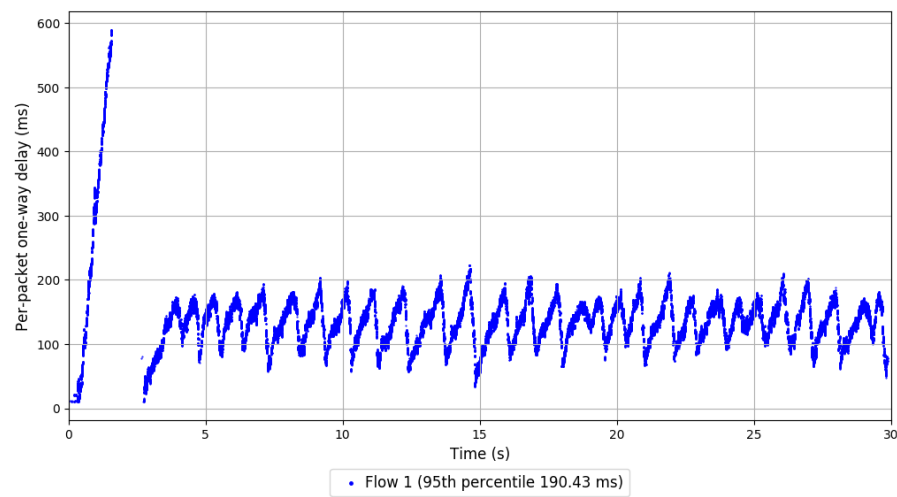
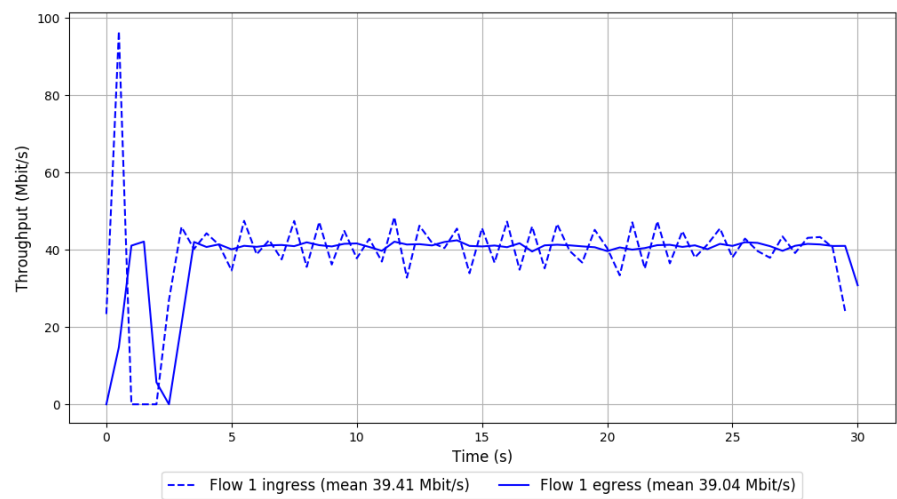


Run 2: Statistics of Verus

Start at: 2018-07-03 09:34:43
End at: 2018-07-03 09:35:13
Local clock offset: 10.631 ms
Remote clock offset: 2.899 ms

Below is generated by plot.py at 2018-07-03 10:20:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 39.04 Mbit/s
95th percentile per-packet one-way delay: 190.425 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 39.04 Mbit/s
95th percentile per-packet one-way delay: 190.425 ms
Loss rate: 0.94%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-07-03 09:57:05

End at: 2018-07-03 09:57:35

Local clock offset: 6.589 ms

Remote clock offset: 3.966 ms

Below is generated by plot.py at 2018-07-03 10:20:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 38.66 Mbit/s

95th percentile per-packet one-way delay: 188.782 ms

Loss rate: 1.34%

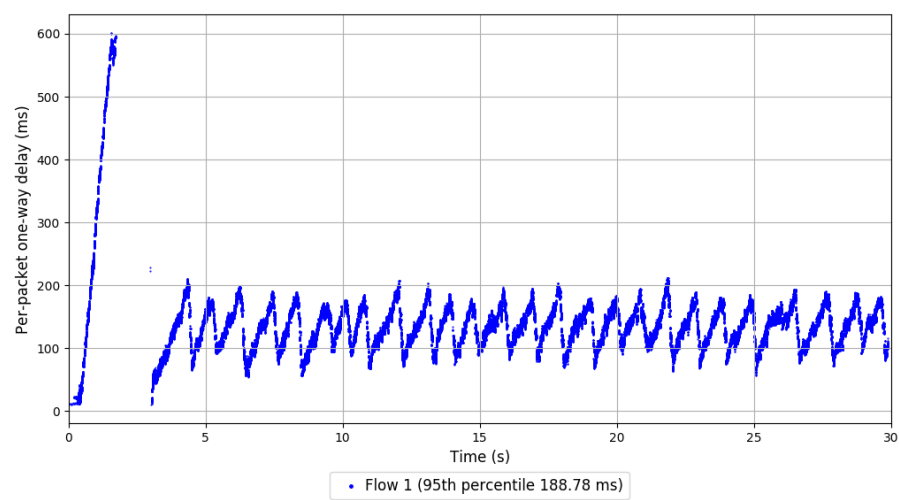
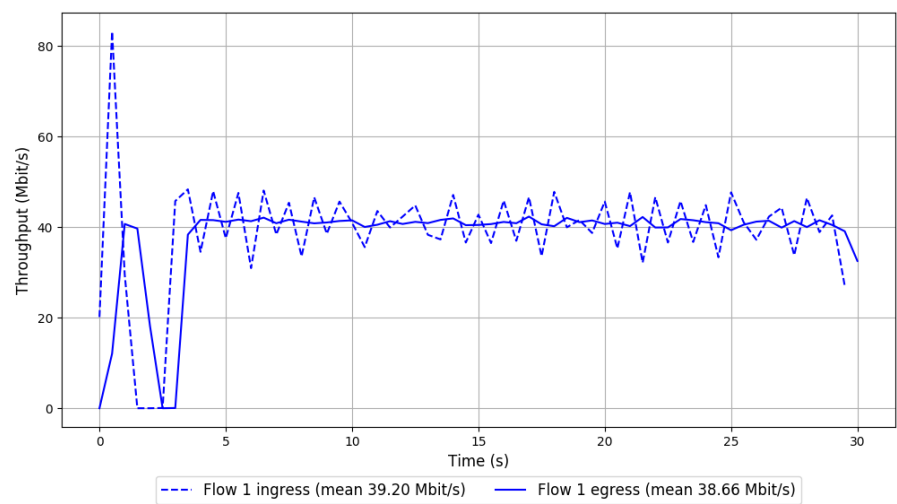
-- Flow 1:

Average throughput: 38.66 Mbit/s

95th percentile per-packet one-way delay: 188.782 ms

Loss rate: 1.34%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-07-03 09:30:47

End at: 2018-07-03 09:31:17

Local clock offset: 10.474 ms

Remote clock offset: 2.602 ms

Below is generated by plot.py at 2018-07-03 10:20:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.19 Mbit/s

95th percentile per-packet one-way delay: 14.081 ms

Loss rate: 0.00%

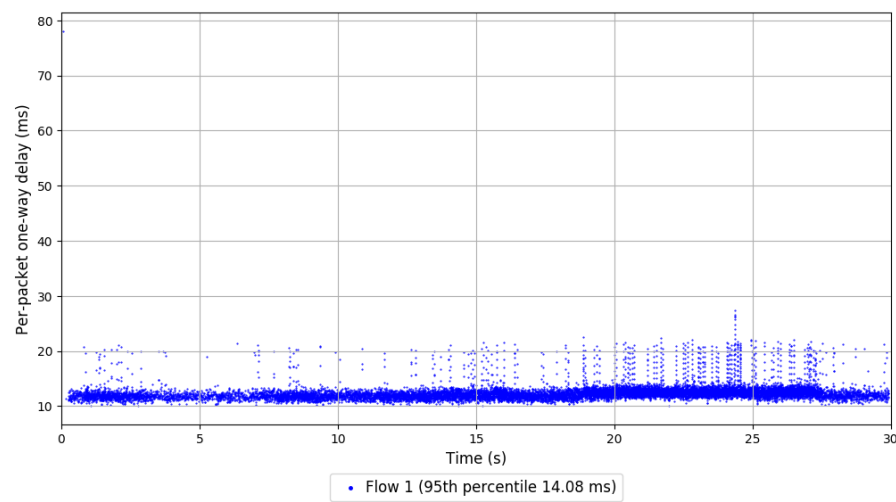
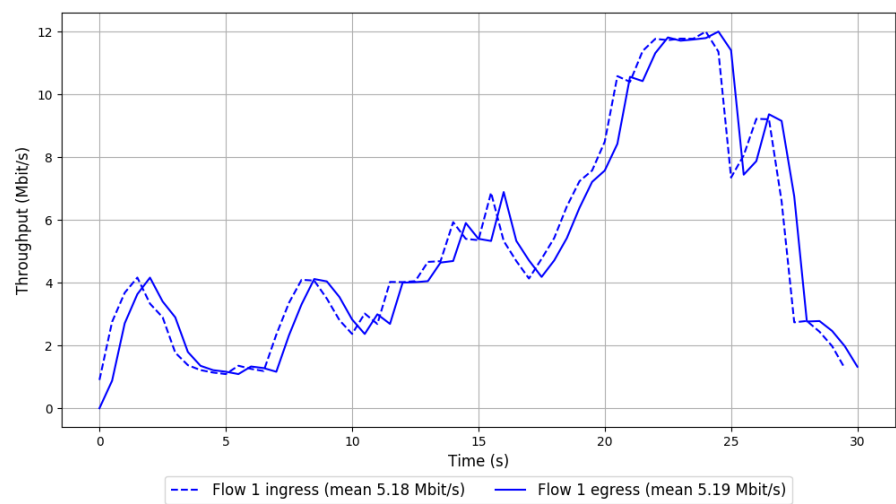
-- Flow 1:

Average throughput: 5.19 Mbit/s

95th percentile per-packet one-way delay: 14.081 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-07-03 09:53:04

End at: 2018-07-03 09:53:34

Local clock offset: 6.059 ms

Remote clock offset: 3.743 ms

Below is generated by plot.py at 2018-07-03 10:20:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.45 Mbit/s

95th percentile per-packet one-way delay: 12.834 ms

Loss rate: 0.00%

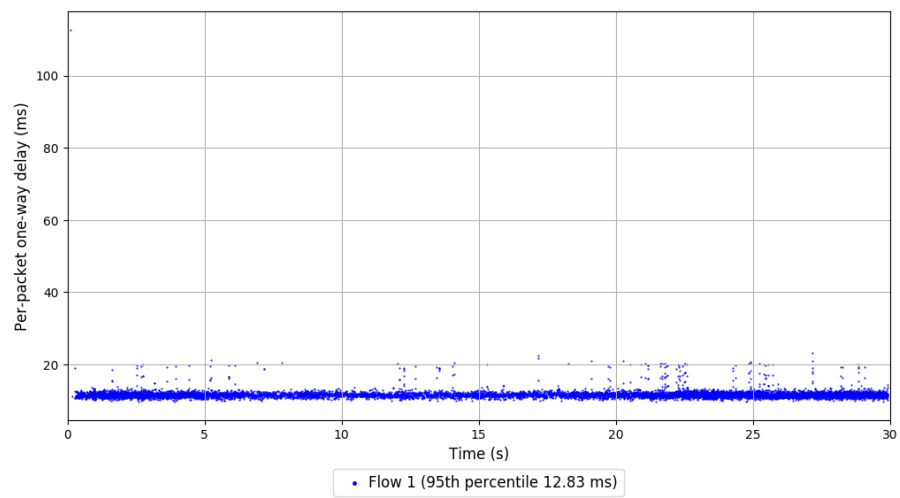
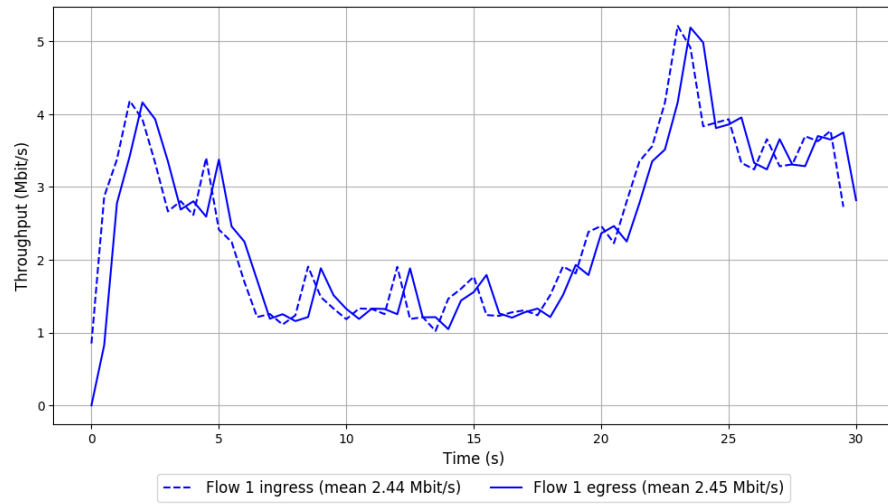
-- Flow 1:

Average throughput: 2.45 Mbit/s

95th percentile per-packet one-way delay: 12.834 ms

Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-07-03 10:15:26

End at: 2018-07-03 10:15:56

Local clock offset: 3.833 ms

Remote clock offset: 3.272 ms

Below is generated by plot.py at 2018-07-03 10:20:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.81 Mbit/s

95th percentile per-packet one-way delay: 13.048 ms

Loss rate: 0.00%

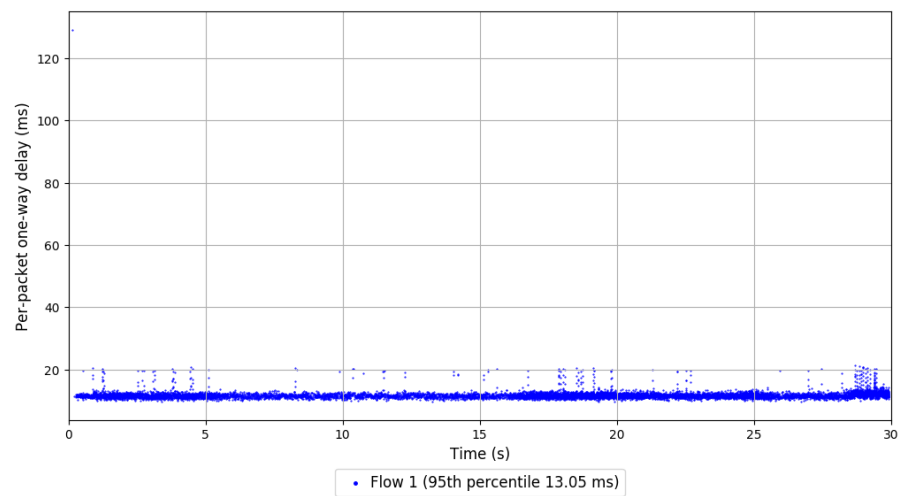
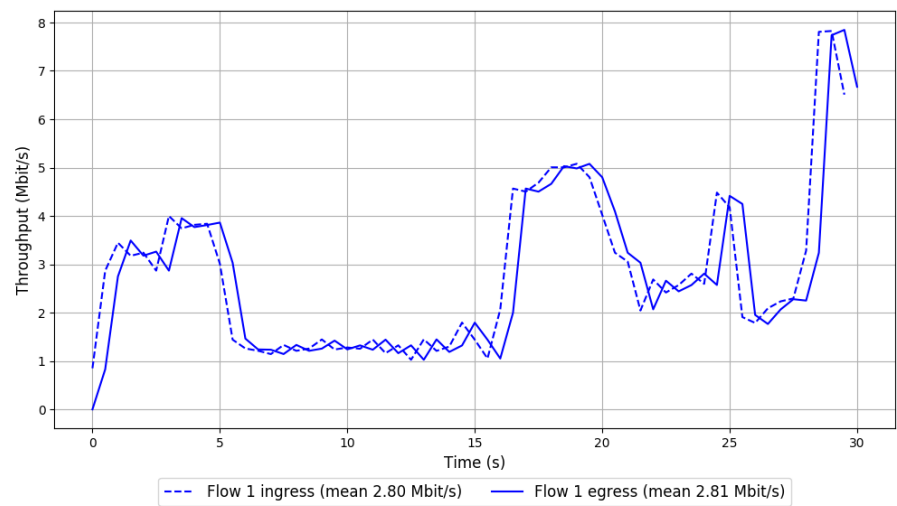
-- Flow 1:

Average throughput: 2.81 Mbit/s

95th percentile per-packet one-way delay: 13.048 ms

Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-07-03 09:26:53

End at: 2018-07-03 09:27:23

Local clock offset: 8.944 ms

Remote clock offset: 2.44 ms

Below is generated by plot.py at 2018-07-03 10:20:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.13 Mbit/s

95th percentile per-packet one-way delay: 13.891 ms

Loss rate: 0.00%

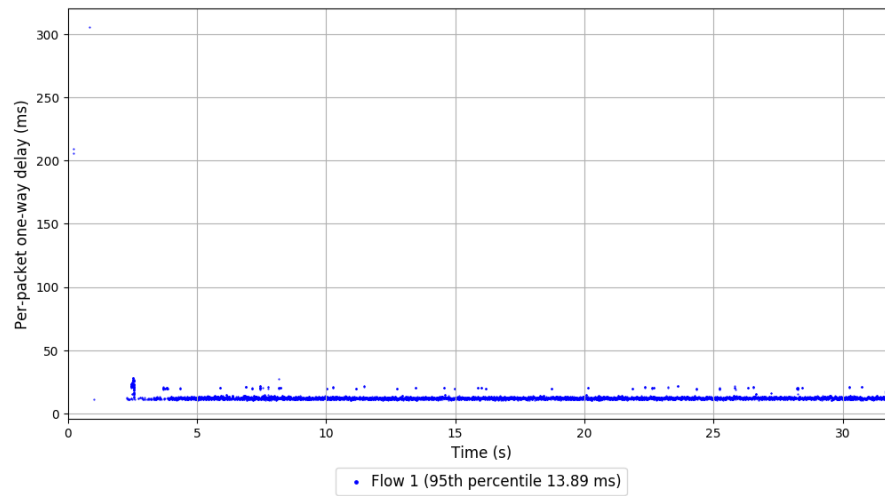
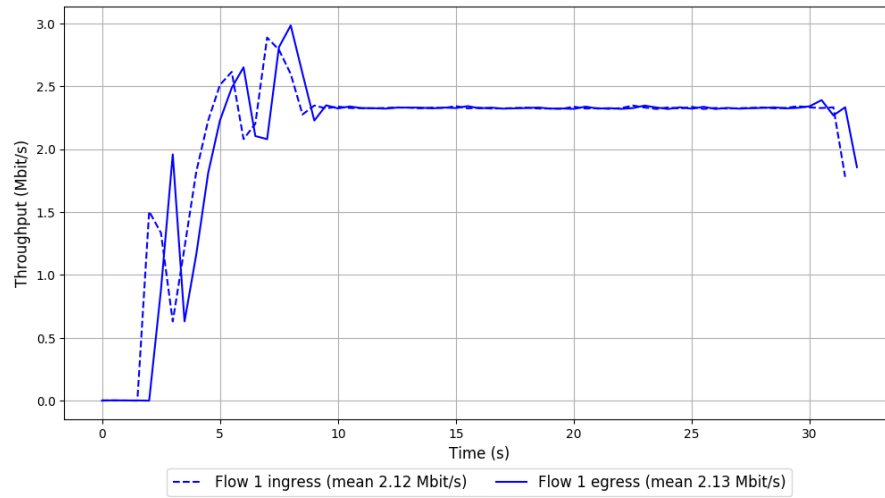
-- Flow 1:

Average throughput: 2.13 Mbit/s

95th percentile per-packet one-way delay: 13.891 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-07-03 09:49:09

End at: 2018-07-03 09:49:39

Local clock offset: 5.871 ms

Remote clock offset: 3.626 ms

Below is generated by plot.py at 2018-07-03 10:20:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 13.297 ms

Loss rate: 0.00%

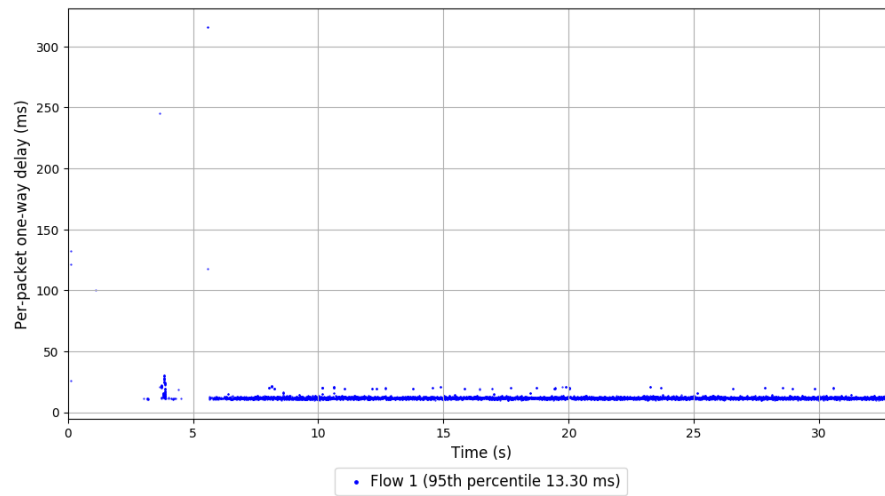
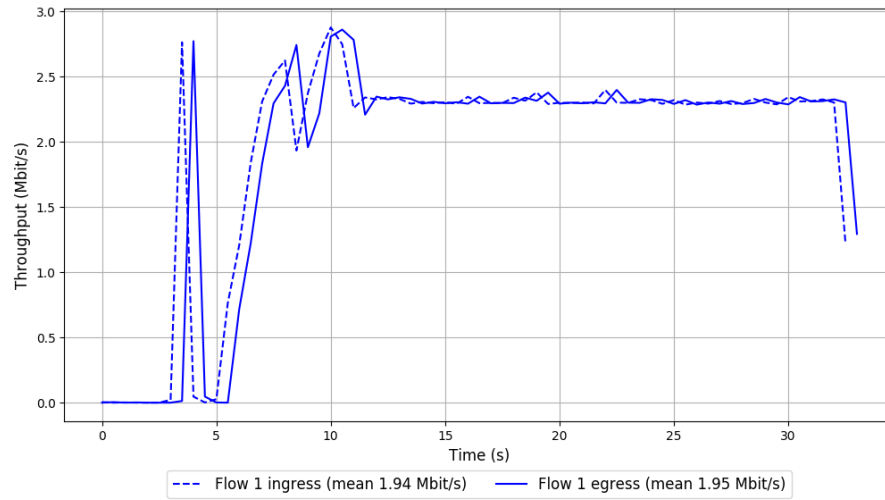
-- Flow 1:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 13.297 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-07-03 10:11:31

End at: 2018-07-03 10:12:01

Local clock offset: 4.459 ms

Remote clock offset: 3.37 ms

Below is generated by plot.py at 2018-07-03 10:20:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.98 Mbit/s

95th percentile per-packet one-way delay: 13.431 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.98 Mbit/s

95th percentile per-packet one-way delay: 13.431 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

