

Pantheon Report

Generated at 2018-08-21 18:55:51 (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.

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

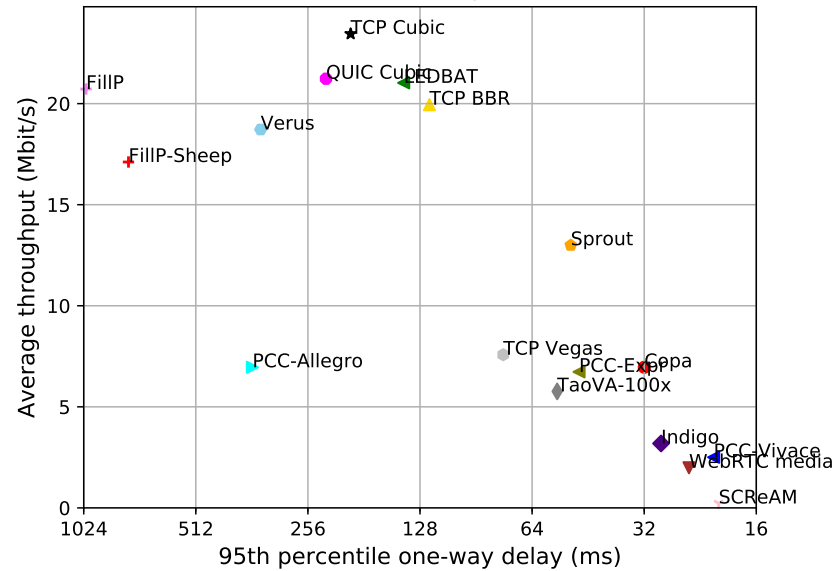
System info:

```
Linux 4.15.0-1017-aws
net.core.default_qdisc = fq_codel
net.core.rmem_default = 16777216
net.core.rmem_max = 33554432
net.core.wmem_default = 212992
net.core.wmem_max = 212992
net.ipv4.tcp_rmem = 4096 87380 6291456
net.ipv4.tcp_wmem = 4096 16384 4194304
```

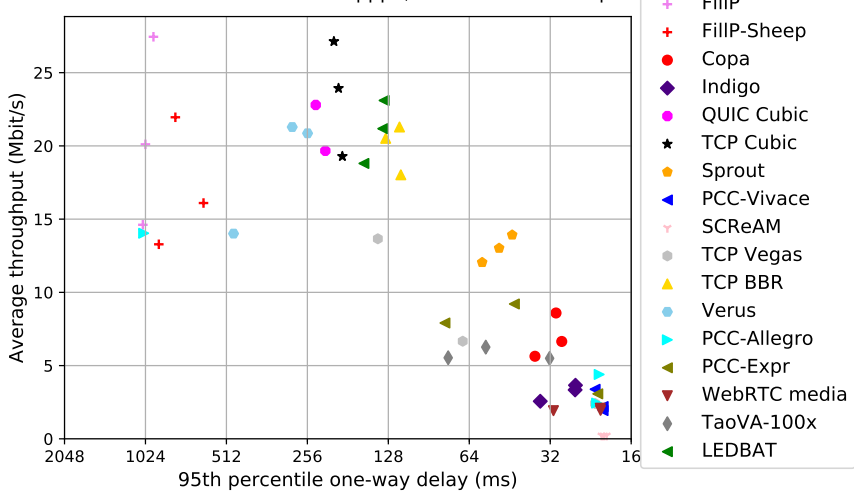
Git summary:

```
branch: master @ 7719b900495aa706f8452ab7d4a94dd562e9296e
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
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-quic @ 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	19.95	120.76	0.10
Copa	3	6.96	31.98	0.04
TCP Cubic	3	23.45	196.59	0.22
FillP	3	20.72	1009.36	39.40
FillP-Sheep	3	17.11	776.35	9.05
Indigo	3	3.19	28.83	0.00
LEDBAT	3	21.03	141.62	0.19
PCC-Allegro	3	6.96	360.76	5.05
PCC-Expr	3	6.73	47.89	0.00
QUIC Cubic	2	21.23	228.90	0.33
SCReAM	3	0.22	20.19	0.00
Sprout	3	13.00	50.40	0.00
TaoVA-100x	3	5.76	54.81	0.00
TCP Vegas	3	7.58	76.50	0.00
Verus	3	18.72	342.89	0.48
PCC-Vivace	3	2.50	20.83	0.00
WebRTC media	3	1.98	24.26	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-08-21 17:54:54

End at: 2018-08-21 17:55:24

Local clock offset: 4.383 ms

Remote clock offset: 2.287 ms

Below is generated by plot.py at 2018-08-21 18:54:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 18.03 Mbit/s

95th percentile per-packet one-way delay: 115.015 ms

Loss rate: 0.08%

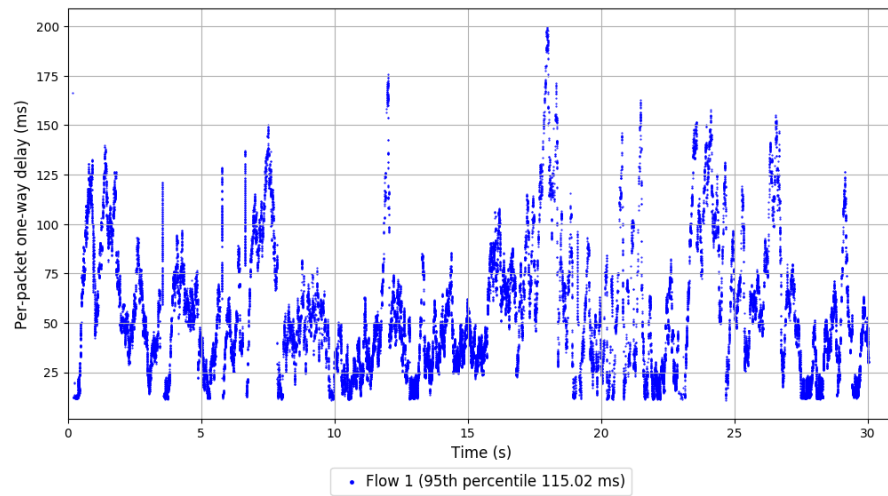
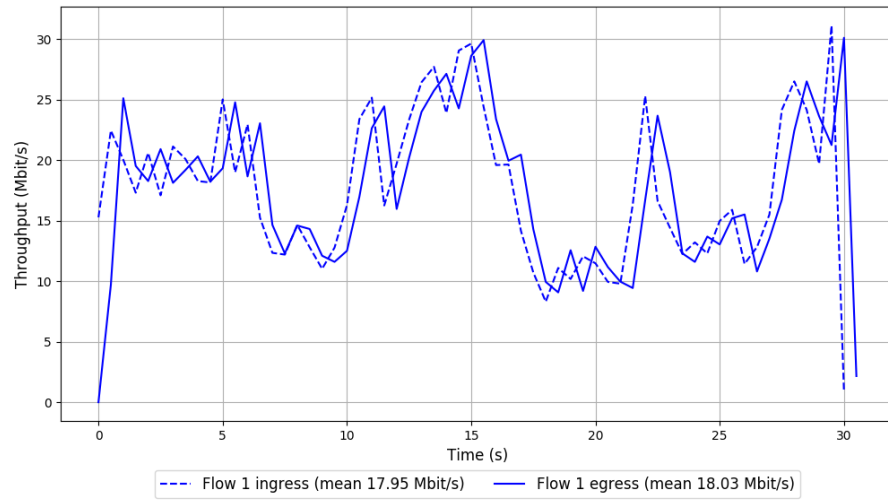
-- Flow 1:

Average throughput: 18.03 Mbit/s

95th percentile per-packet one-way delay: 115.015 ms

Loss rate: 0.08%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-08-21 18:17:08

End at: 2018-08-21 18:17:38

Local clock offset: 3.243 ms

Remote clock offset: 4.726 ms

Below is generated by plot.py at 2018-08-21 18:54:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 21.29 Mbit/s

95th percentile per-packet one-way delay: 116.325 ms

Loss rate: 0.16%

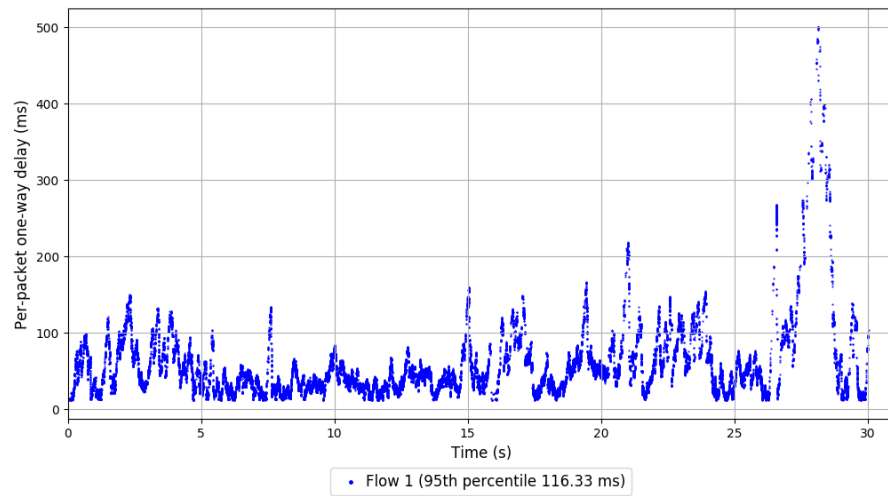
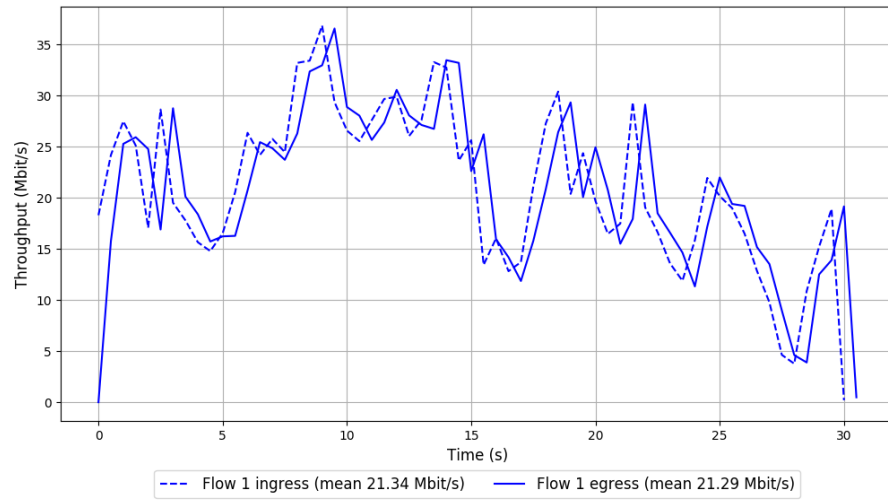
-- Flow 1:

Average throughput: 21.29 Mbit/s

95th percentile per-packet one-way delay: 116.325 ms

Loss rate: 0.16%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-08-21 18:39:19

End at: 2018-08-21 18:39:49

Local clock offset: 1.993 ms

Remote clock offset: 3.854 ms

Below is generated by plot.py at 2018-08-21 18:54:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 20.52 Mbit/s

95th percentile per-packet one-way delay: 130.929 ms

Loss rate: 0.07%

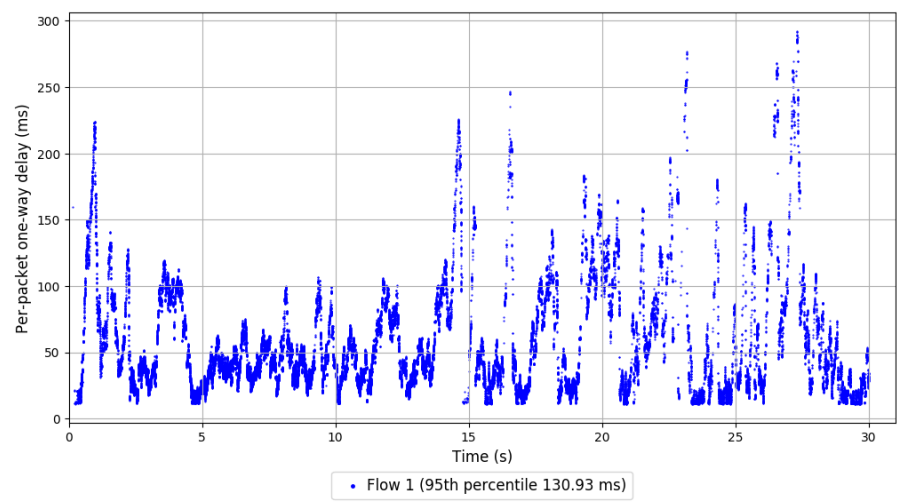
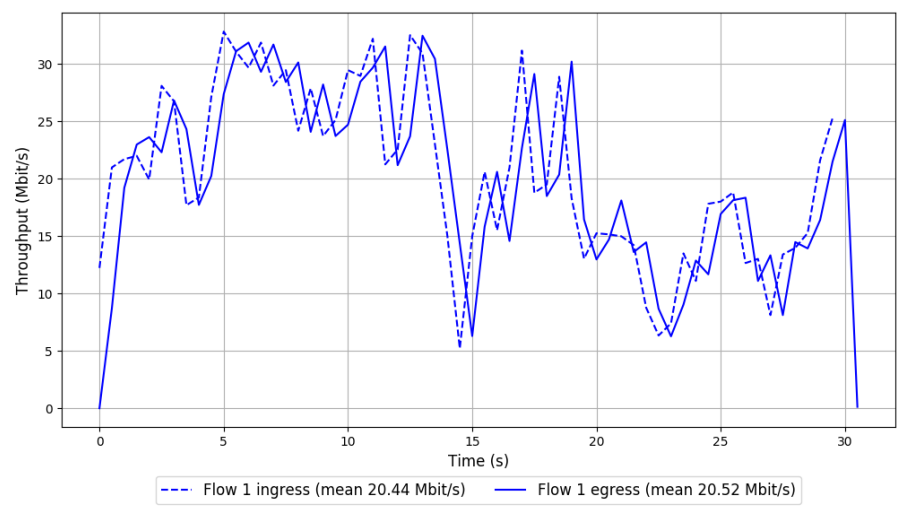
-- Flow 1:

Average throughput: 20.52 Mbit/s

95th percentile per-packet one-way delay: 130.929 ms

Loss rate: 0.07%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-08-21 17:52:18

End at: 2018-08-21 17:52:48

Local clock offset: 3.998 ms

Remote clock offset: 1.864 ms

Below is generated by plot.py at 2018-08-21 18:54:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.65 Mbit/s

95th percentile per-packet one-way delay: 28.998 ms

Loss rate: 0.02%

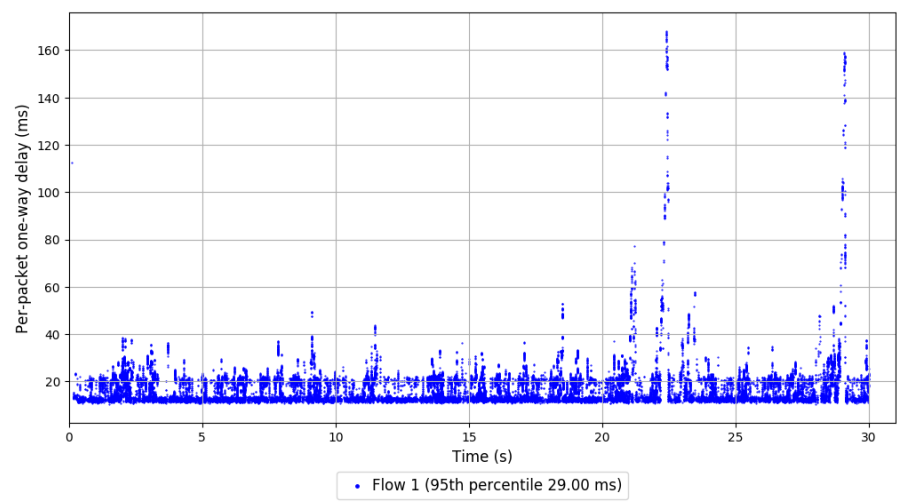
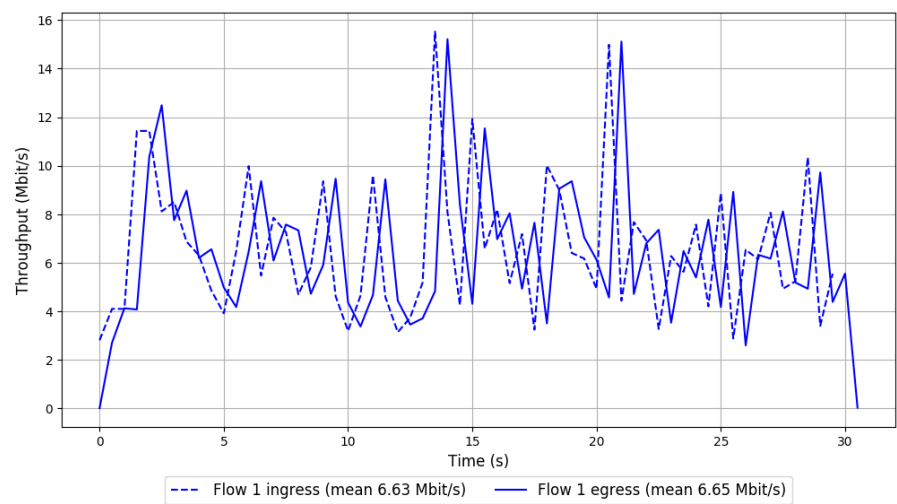
-- Flow 1:

Average throughput: 6.65 Mbit/s

95th percentile per-packet one-way delay: 28.998 ms

Loss rate: 0.02%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-08-21 18:14:27

End at: 2018-08-21 18:14:57

Local clock offset: 3.675 ms

Remote clock offset: 4.489 ms

Below is generated by plot.py at 2018-08-21 18:54:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.64 Mbit/s

95th percentile per-packet one-way delay: 36.472 ms

Loss rate: 0.10%

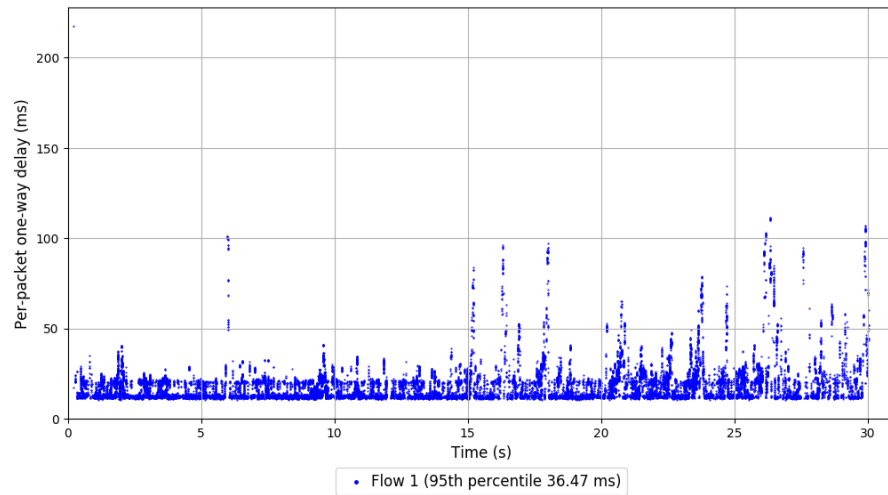
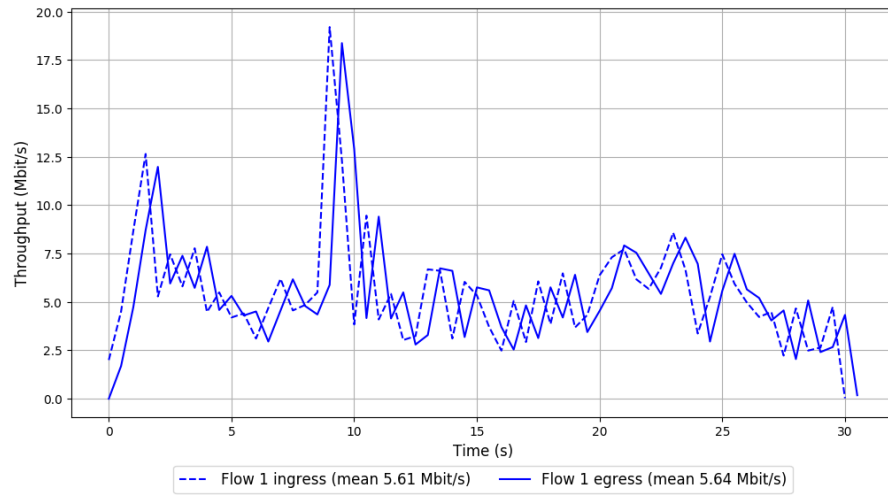
-- Flow 1:

Average throughput: 5.64 Mbit/s

95th percentile per-packet one-way delay: 36.472 ms

Loss rate: 0.10%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-08-21 18:36:43

End at: 2018-08-21 18:37:13

Local clock offset: 3.083 ms

Remote clock offset: 4.029 ms

Below is generated by plot.py at 2018-08-21 18:54:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.59 Mbit/s

95th percentile per-packet one-way delay: 30.457 ms

Loss rate: 0.00%

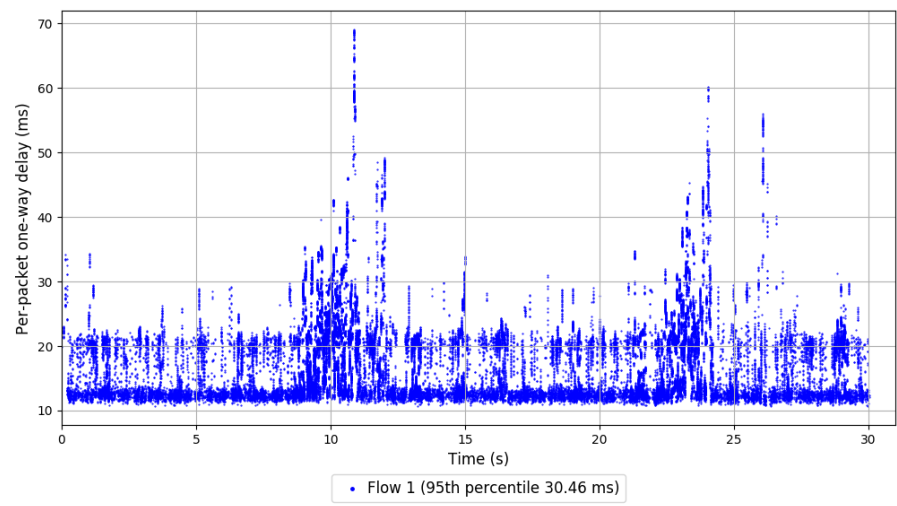
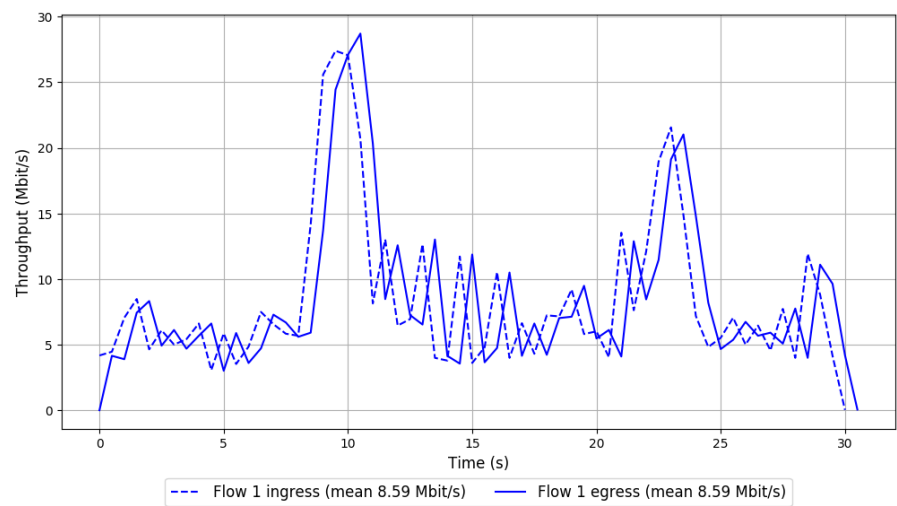
-- Flow 1:

Average throughput: 8.59 Mbit/s

95th percentile per-packet one-way delay: 30.457 ms

Loss rate: 0.00%

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-08-21 17:49:41

End at: 2018-08-21 17:50:11

Local clock offset: 3.712 ms

Remote clock offset: 1.552 ms

Below is generated by plot.py at 2018-08-21 18:54:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 19.29 Mbit/s

95th percentile per-packet one-way delay: 189.719 ms

Loss rate: 0.30%

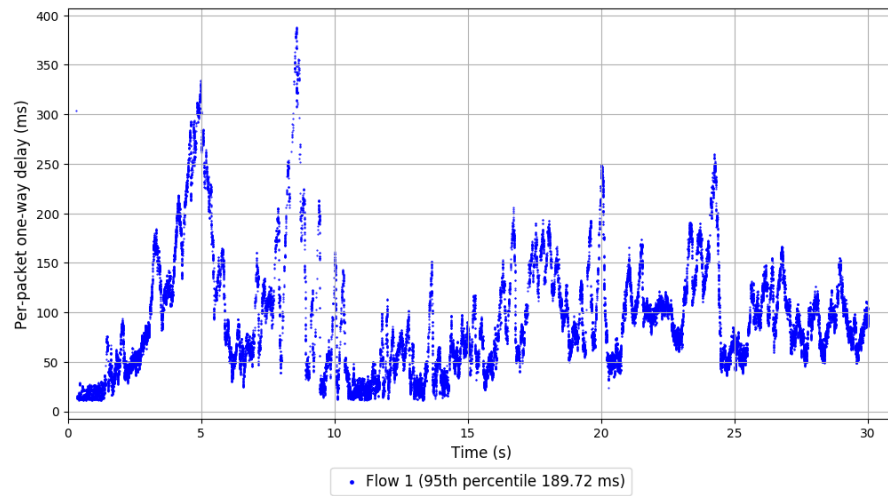
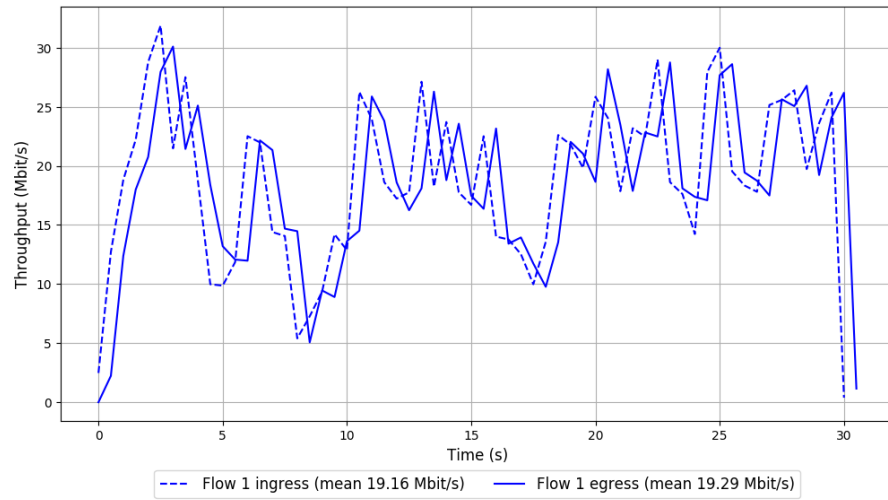
-- Flow 1:

Average throughput: 19.29 Mbit/s

95th percentile per-packet one-way delay: 189.719 ms

Loss rate: 0.30%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-08-21 18:11:50

End at: 2018-08-21 18:12:20

Local clock offset: 4.345 ms

Remote clock offset: 4.26 ms

Below is generated by plot.py at 2018-08-21 18:54:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 27.13 Mbit/s

95th percentile per-packet one-way delay: 203.986 ms

Loss rate: 0.04%

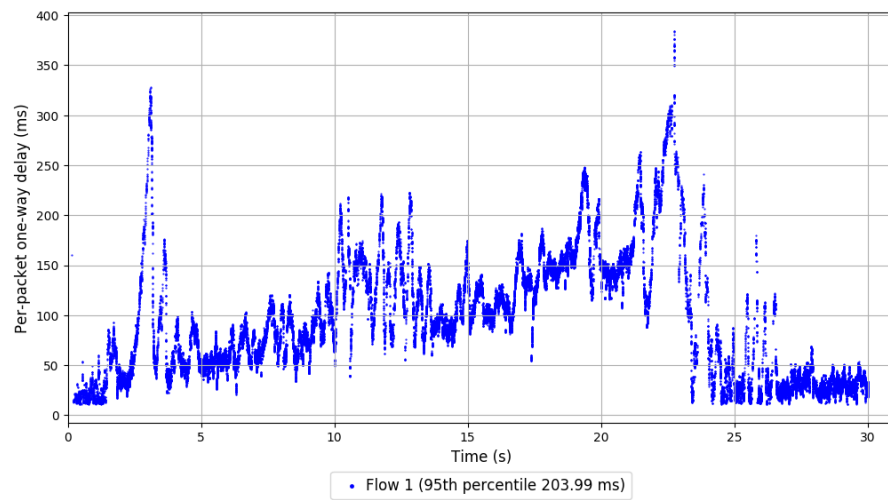
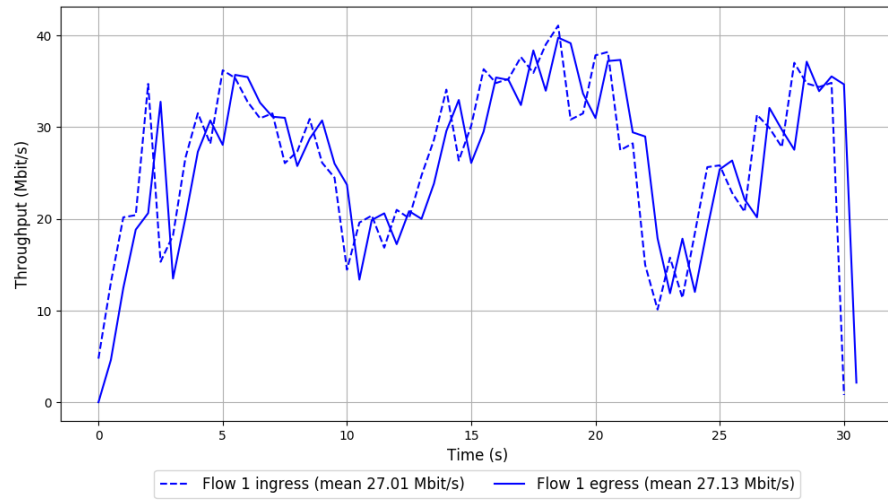
-- Flow 1:

Average throughput: 27.13 Mbit/s

95th percentile per-packet one-way delay: 203.986 ms

Loss rate: 0.04%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-08-21 18:34:06

End at: 2018-08-21 18:34:36

Local clock offset: 2.833 ms

Remote clock offset: 4.149 ms

Below is generated by plot.py at 2018-08-21 18:54:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 23.93 Mbit/s

95th percentile per-packet one-way delay: 196.060 ms

Loss rate: 0.31%

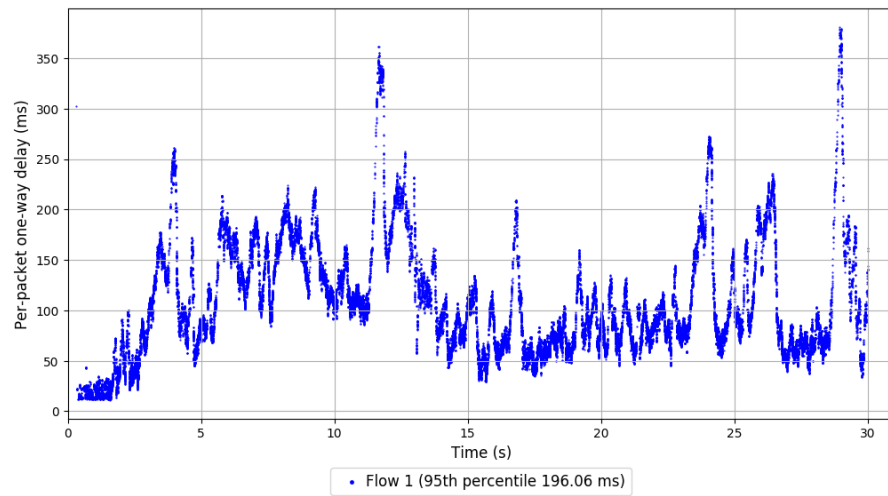
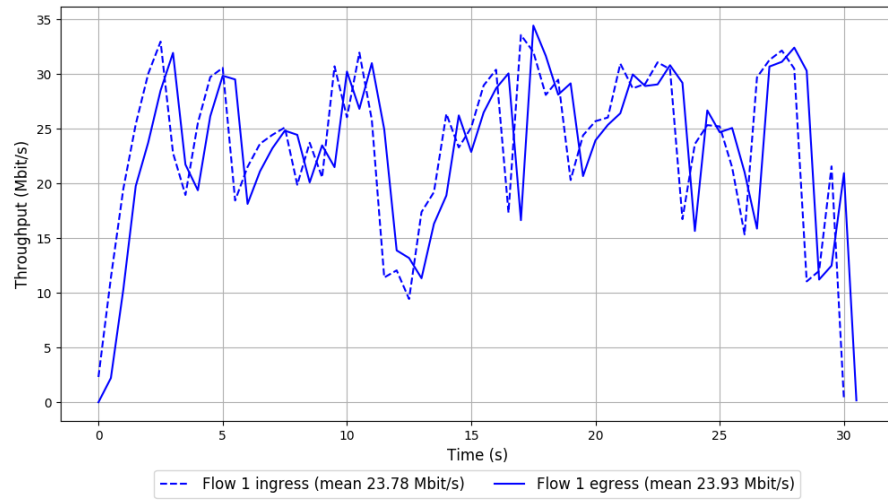
-- Flow 1:

Average throughput: 23.93 Mbit/s

95th percentile per-packet one-way delay: 196.060 ms

Loss rate: 0.31%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-08-21 18:01:24

End at: 2018-08-21 18:01:54

Local clock offset: 5.458 ms

Remote clock offset: 3.151 ms

Below is generated by plot.py at 2018-08-21 18:55:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 27.45 Mbit/s

95th percentile per-packet one-way delay: 956.368 ms

Loss rate: 35.90%

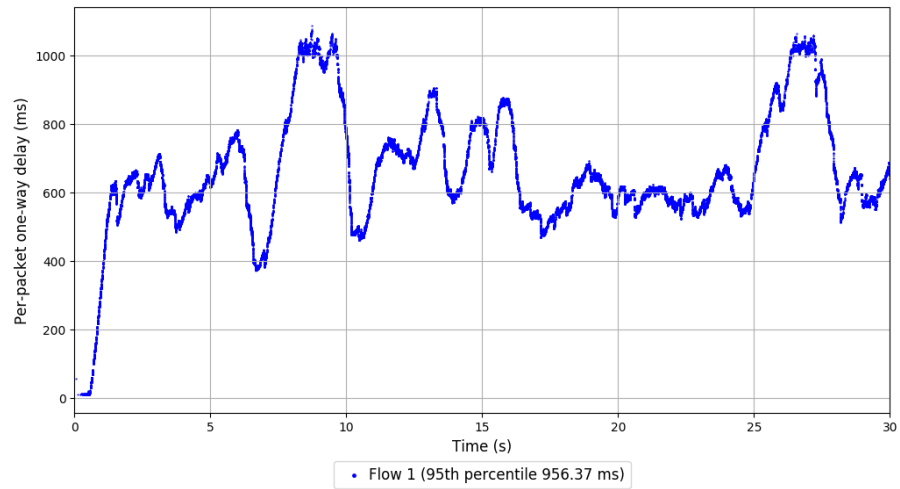
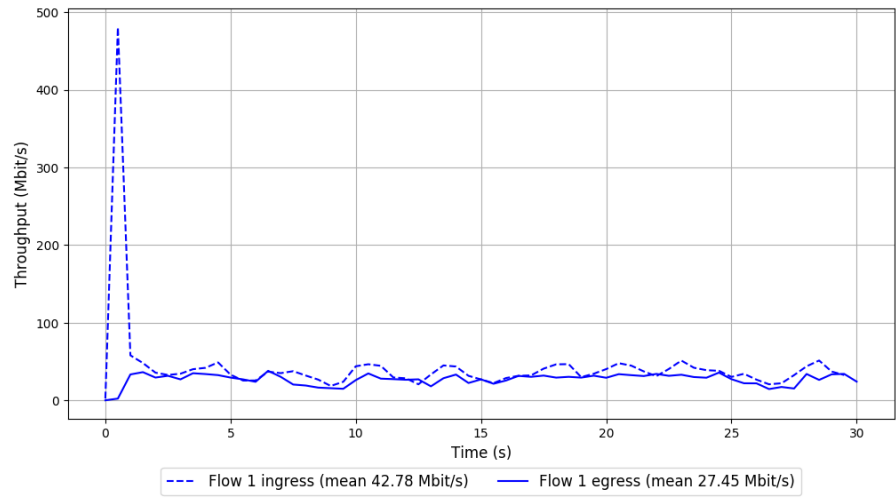
-- Flow 1:

Average throughput: 27.45 Mbit/s

95th percentile per-packet one-way delay: 956.368 ms

Loss rate: 35.90%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-08-21 18:23:39

End at: 2018-08-21 18:24:09

Local clock offset: 2.753 ms

Remote clock offset: 5.218 ms

Below is generated by plot.py at 2018-08-21 18:55:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 20.11 Mbit/s

95th percentile per-packet one-way delay: 1024.461 ms

Loss rate: 49.58%

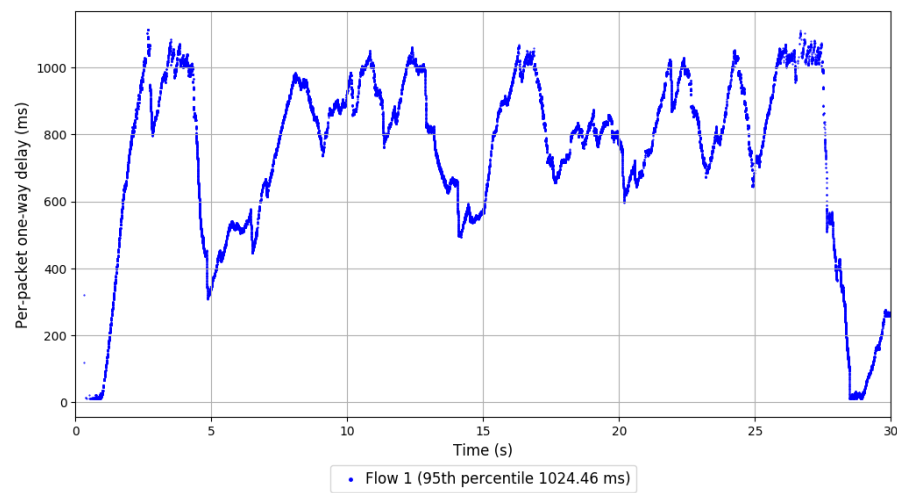
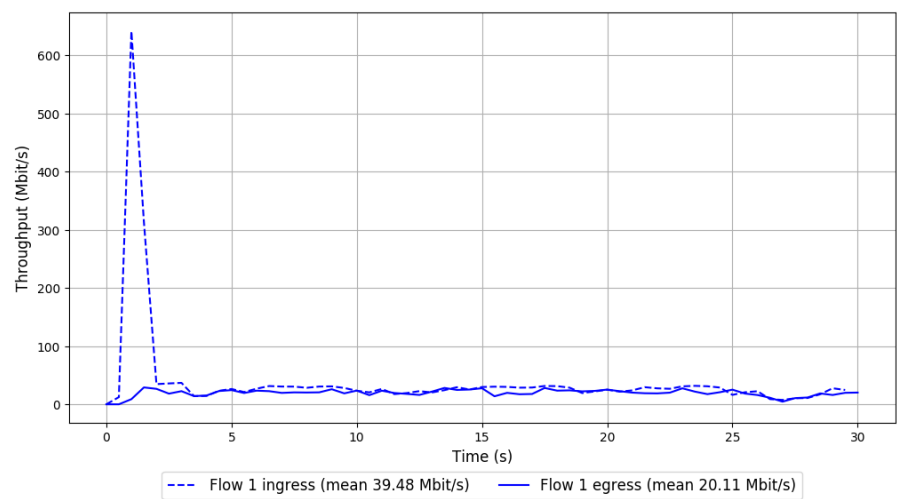
-- Flow 1:

Average throughput: 20.11 Mbit/s

95th percentile per-packet one-way delay: 1024.461 ms

Loss rate: 49.58%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-08-21 18:45:55

End at: 2018-08-21 18:46:25

Local clock offset: -0.38 ms

Remote clock offset: 3.892 ms

Below is generated by plot.py at 2018-08-21 18:55:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 14.61 Mbit/s

95th percentile per-packet one-way delay: 1047.252 ms

Loss rate: 32.73%

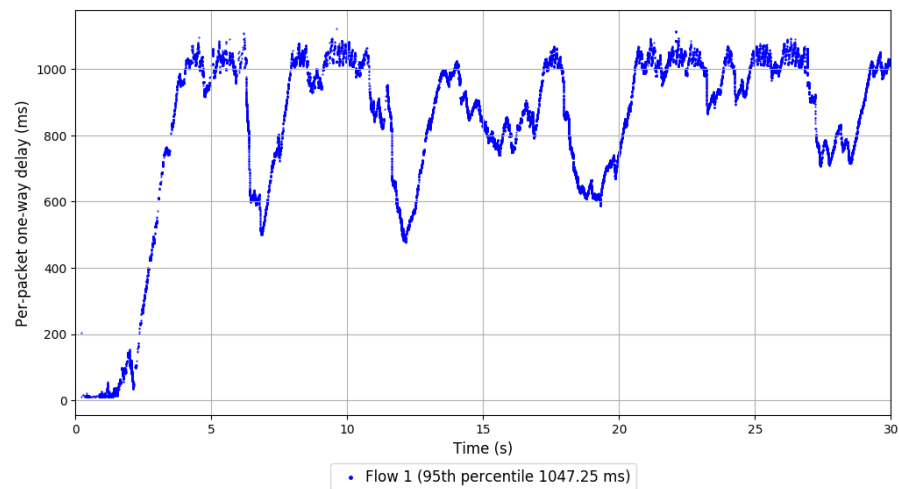
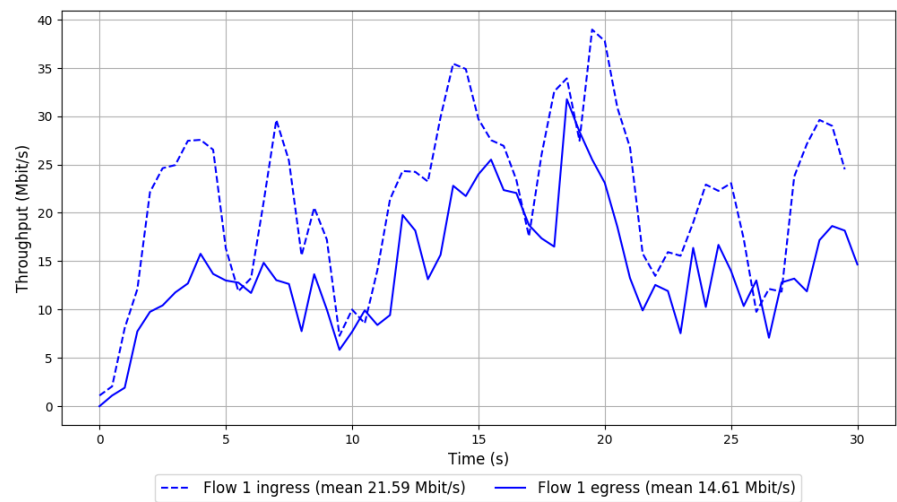
-- Flow 1:

Average throughput: 14.61 Mbit/s

95th percentile per-packet one-way delay: 1047.252 ms

Loss rate: 32.73%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-08-21 17:51:00

End at: 2018-08-21 17:51:30

Local clock offset: 3.863 ms

Remote clock offset: 1.627 ms

Below is generated by plot.py at 2018-08-21 18:55:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.28 Mbit/s

95th percentile per-packet one-way delay: 913.319 ms

Loss rate: 3.45%

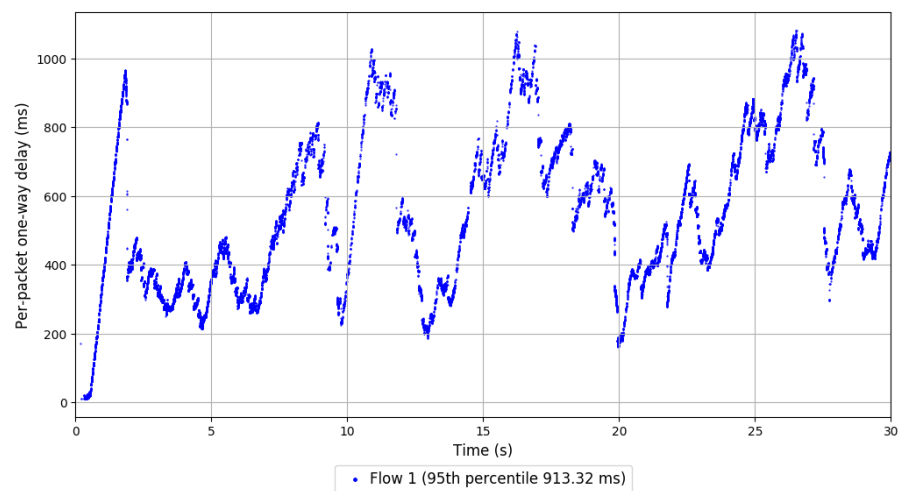
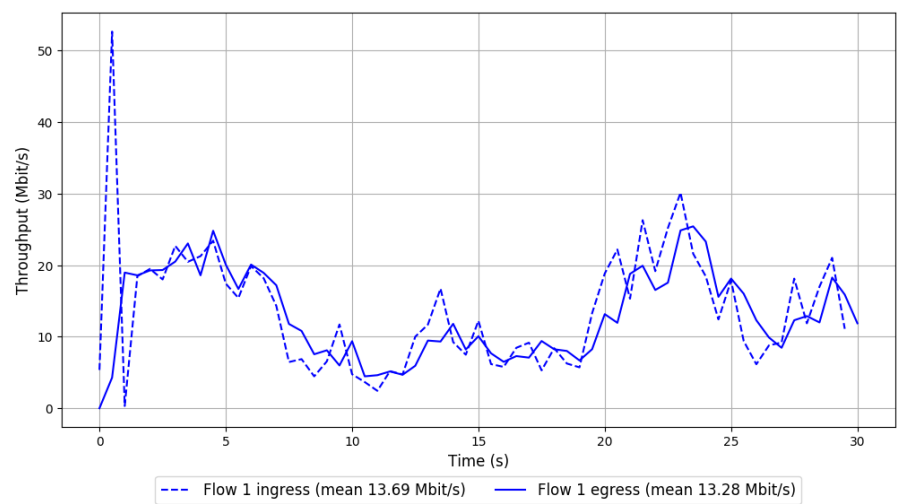
-- Flow 1:

Average throughput: 13.28 Mbit/s

95th percentile per-packet one-way delay: 913.319 ms

Loss rate: 3.45%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-08-21 18:13:09

End at: 2018-08-21 18:13:39

Local clock offset: 4.095 ms

Remote clock offset: 4.277 ms

Below is generated by plot.py at 2018-08-21 18:55:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 16.10 Mbit/s

95th percentile per-packet one-way delay: 622.989 ms

Loss rate: 1.96%

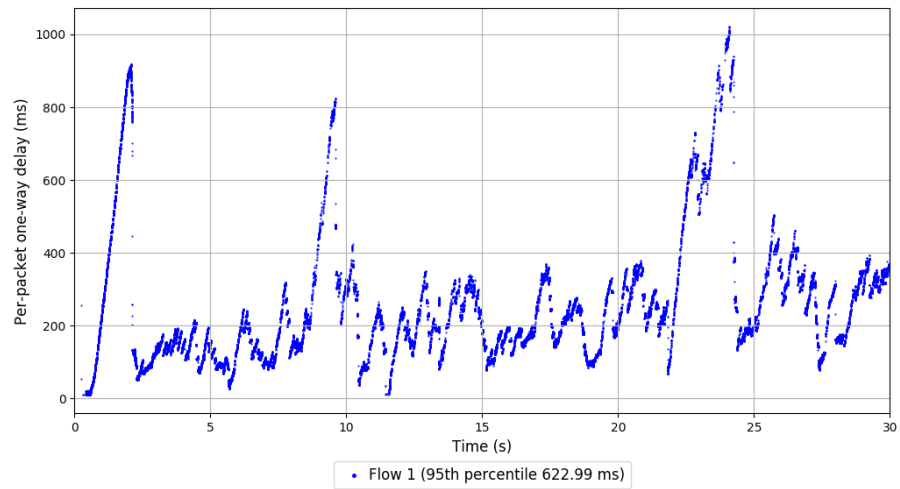
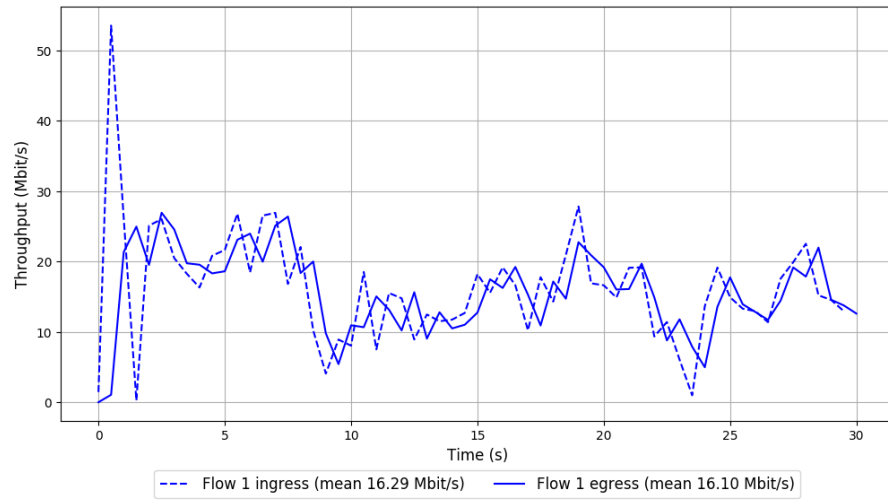
-- Flow 1:

Average throughput: 16.10 Mbit/s

95th percentile per-packet one-way delay: 622.989 ms

Loss rate: 1.96%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-08-21 18:35:24

End at: 2018-08-21 18:35:54

Local clock offset: 2.905 ms

Remote clock offset: 4.033 ms

Below is generated by plot.py at 2018-08-21 18:55:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 21.95 Mbit/s

95th percentile per-packet one-way delay: 792.741 ms

Loss rate: 21.75%

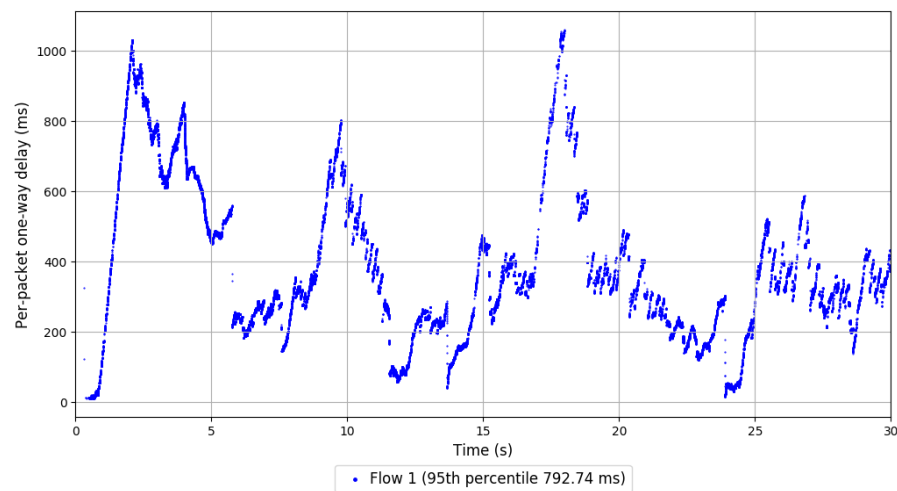
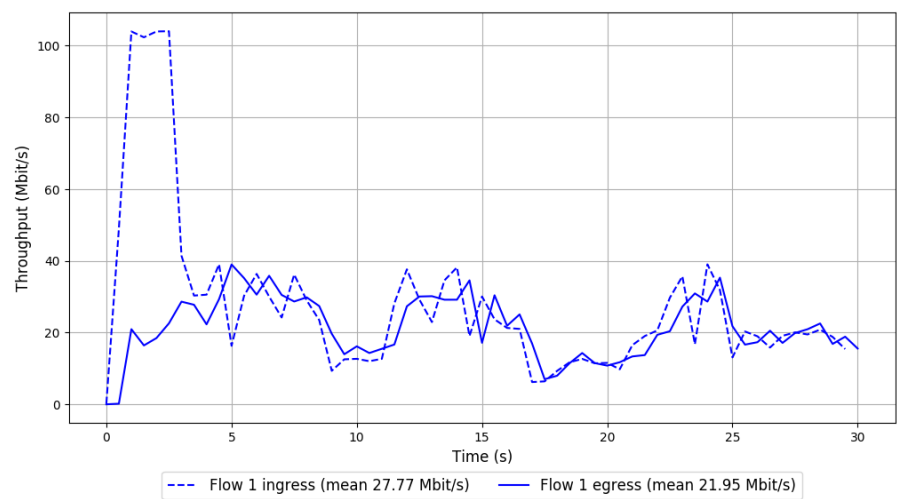
-- Flow 1:

Average throughput: 21.95 Mbit/s

95th percentile per-packet one-way delay: 792.741 ms

Loss rate: 21.75%

Run 3: Report of FillP-Sheep — Data Link

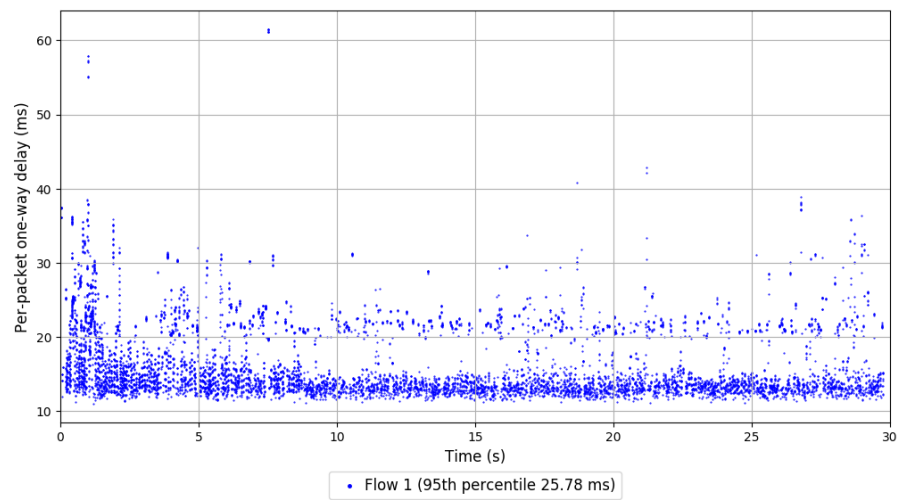
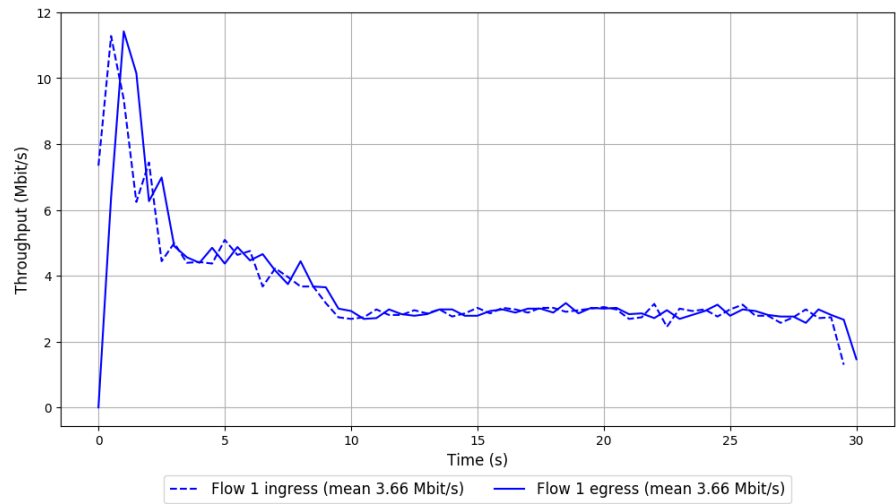


```
Run 1: Statistics of Indigo

Start at: 2018-08-21 18:00:06
End at: 2018-08-21 18:00:36
Local clock offset: 5.142 ms
Remote clock offset: 3.059 ms

# Below is generated by plot.py at 2018-08-21 18:55:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 25.782 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 25.782 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-08-21 18:22:21

End at: 2018-08-21 18:22:51

Local clock offset: 2.799 ms

Remote clock offset: 5.169 ms

Below is generated by plot.py at 2018-08-21 18:55:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.57 Mbit/s

95th percentile per-packet one-way delay: 34.853 ms

Loss rate: 0.00%

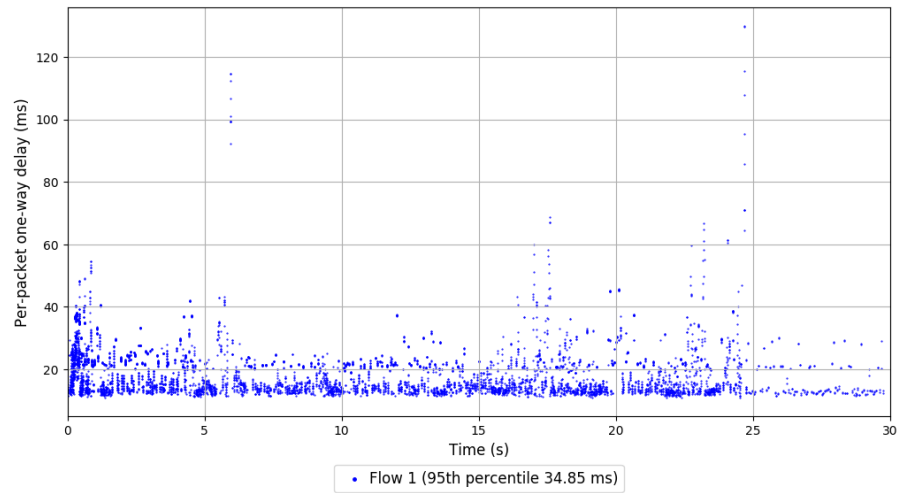
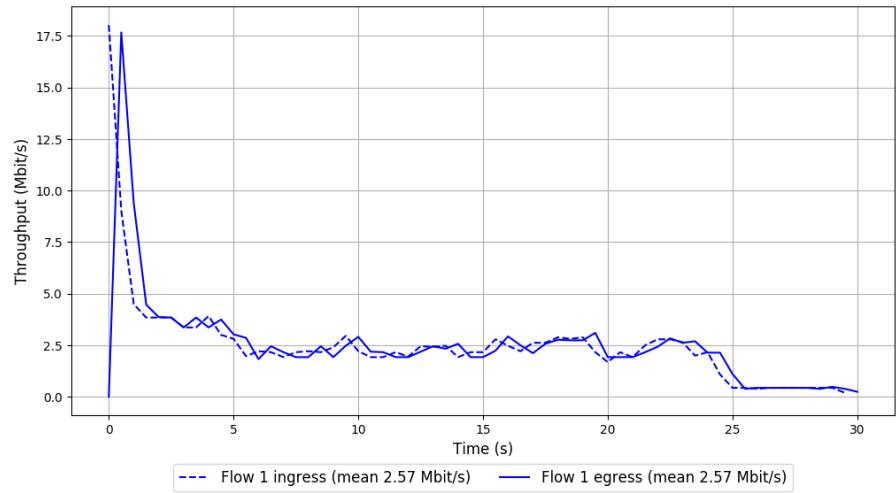
-- Flow 1:

Average throughput: 2.57 Mbit/s

95th percentile per-packet one-way delay: 34.853 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-08-21 18:44:37

End at: 2018-08-21 18:45:07

Local clock offset: 0.06 ms

Remote clock offset: 3.843 ms

Below is generated by plot.py at 2018-08-21 18:55:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.34 Mbit/s

95th percentile per-packet one-way delay: 25.859 ms

Loss rate: 0.00%

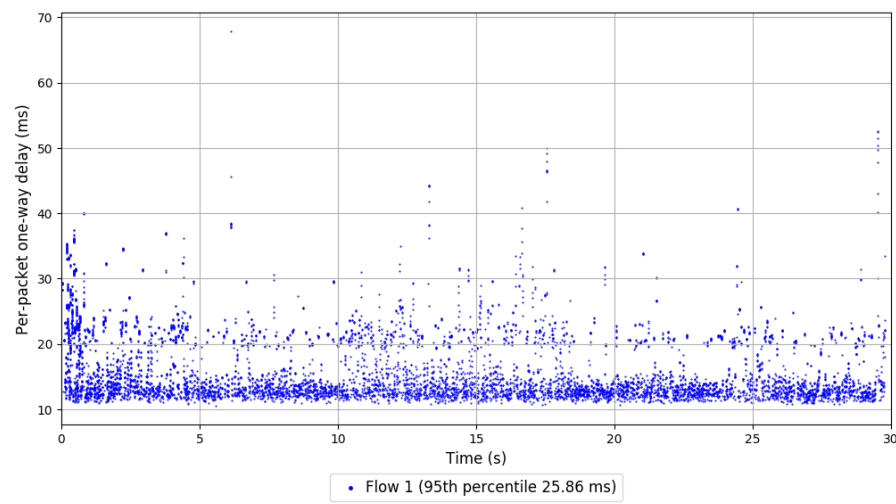
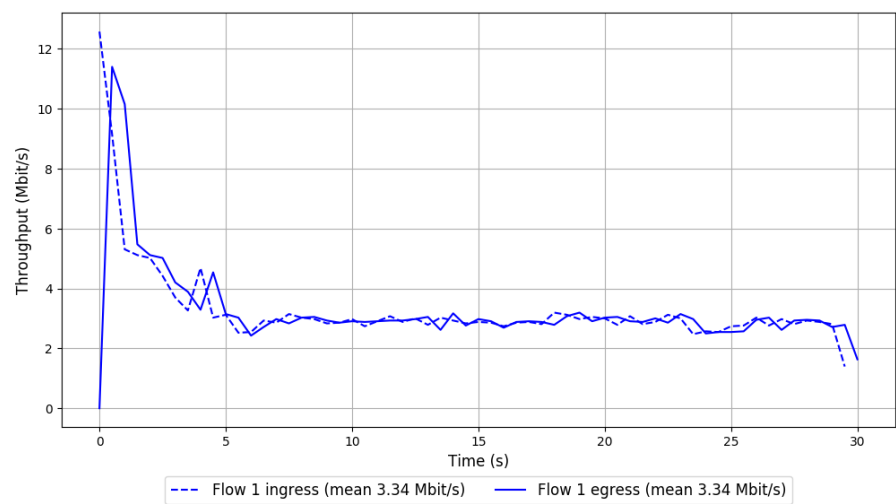
-- Flow 1:

Average throughput: 3.34 Mbit/s

95th percentile per-packet one-way delay: 25.859 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

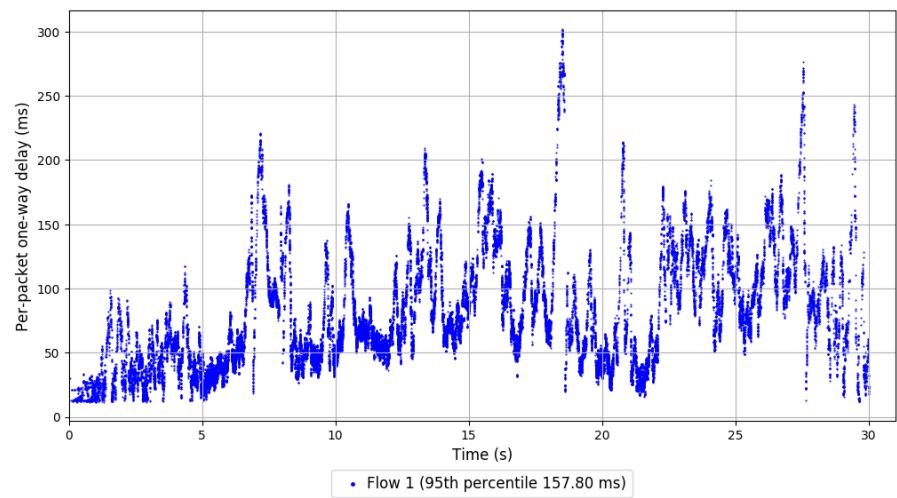
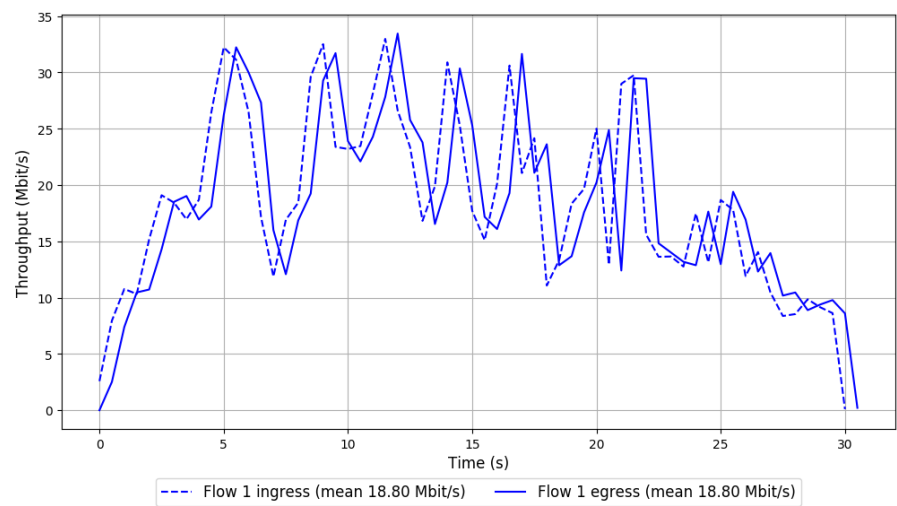


```
Run 1: Statistics of LEDBAT

Start at: 2018-08-21 17:48:23
End at: 2018-08-21 17:48:53
Local clock offset: 3.508 ms
Remote clock offset: 1.577 ms

# Below is generated by plot.py at 2018-08-21 18:55:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 18.80 Mbit/s
95th percentile per-packet one-way delay: 157.803 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 18.80 Mbit/s
95th percentile per-packet one-way delay: 157.803 ms
Loss rate: 0.08%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-08-21 18:10:32

End at: 2018-08-21 18:11:02

Local clock offset: 4.901 ms

Remote clock offset: 4.073 ms

Below is generated by plot.py at 2018-08-21 18:55:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 23.10 Mbit/s

95th percentile per-packet one-way delay: 132.775 ms

Loss rate: 0.17%

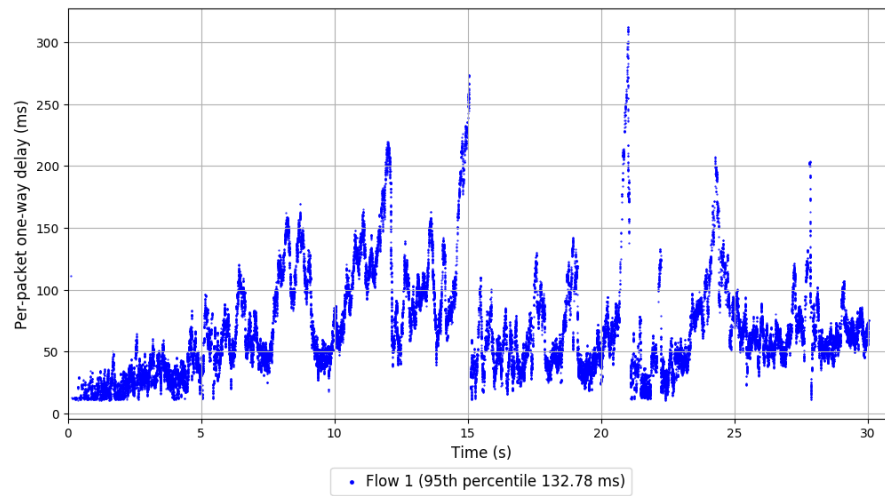
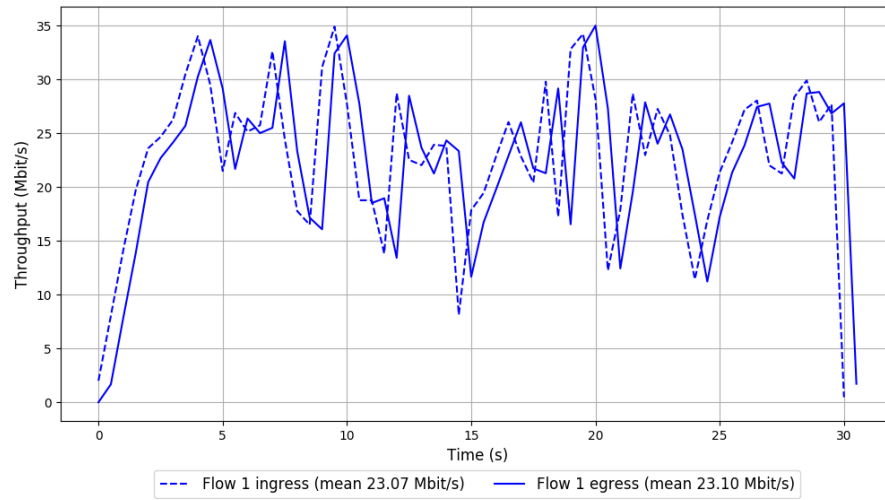
-- Flow 1:

Average throughput: 23.10 Mbit/s

95th percentile per-packet one-way delay: 132.775 ms

Loss rate: 0.17%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-08-21 18:32:47

End at: 2018-08-21 18:33:17

Local clock offset: 2.856 ms

Remote clock offset: 4.313 ms

Below is generated by plot.py at 2018-08-21 18:55:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 21.18 Mbit/s

95th percentile per-packet one-way delay: 134.294 ms

Loss rate: 0.31%

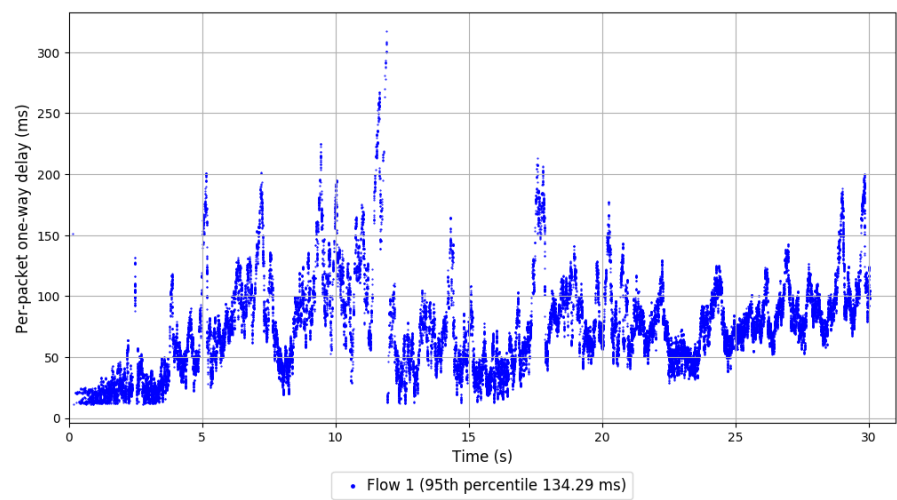
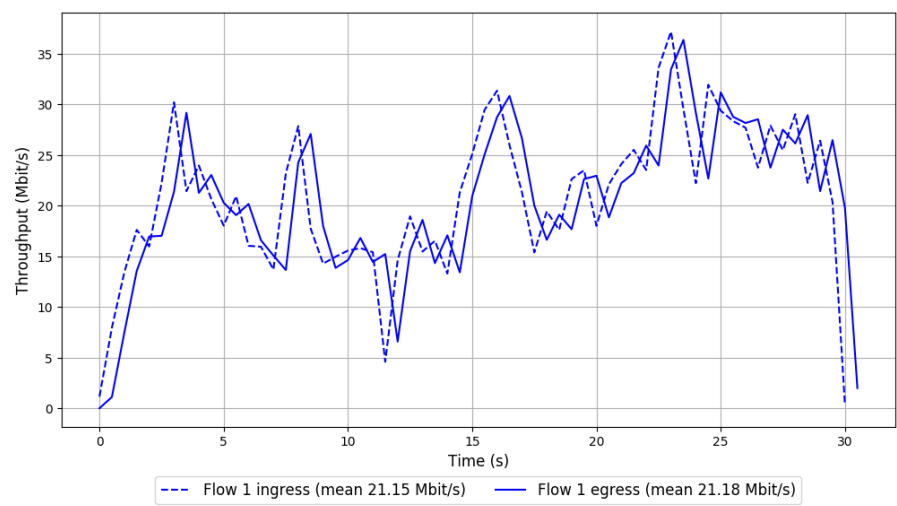
-- Flow 1:

Average throughput: 21.18 Mbit/s

95th percentile per-packet one-way delay: 134.294 ms

Loss rate: 0.31%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-08-21 18:06:37

End at: 2018-08-21 18:07:07

Local clock offset: 6.232 ms

Remote clock offset: 3.74 ms

Below is generated by plot.py at 2018-08-21 18:55:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.39 Mbit/s

95th percentile per-packet one-way delay: 21.043 ms

Loss rate: 0.00%

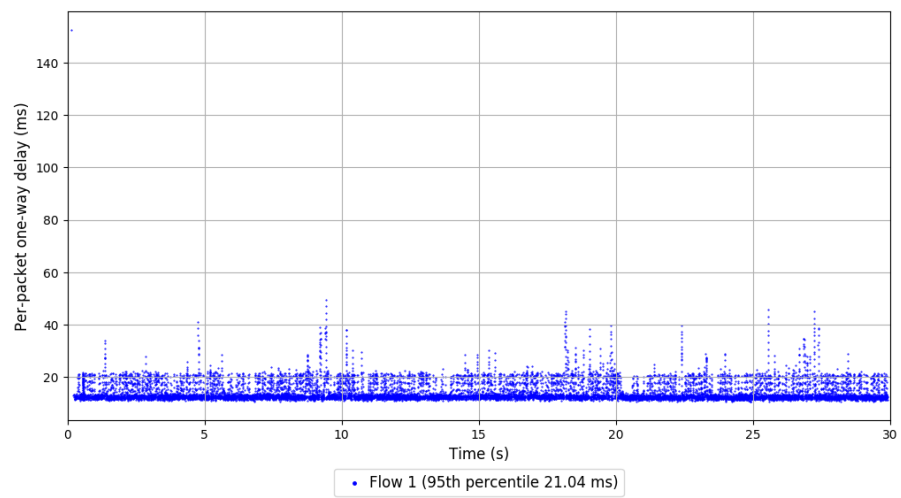
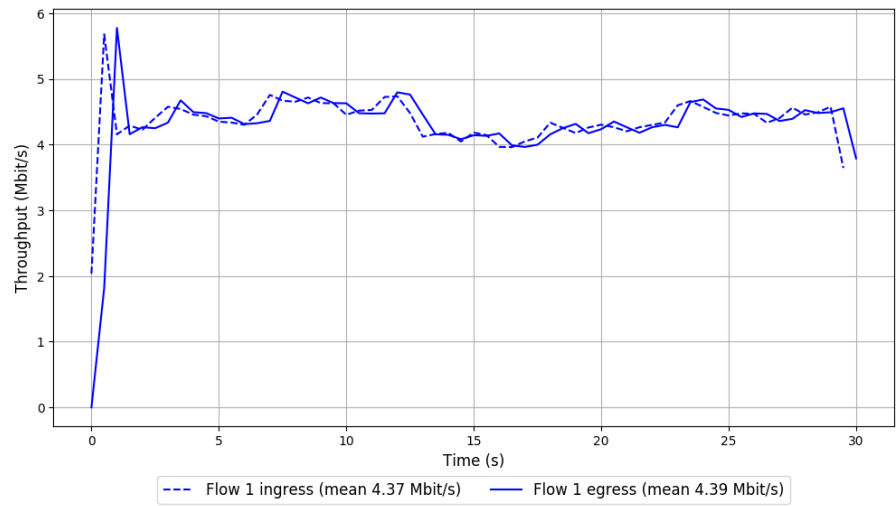
-- Flow 1:

Average throughput: 4.39 Mbit/s

95th percentile per-packet one-way delay: 21.043 ms

Loss rate: 0.00%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-08-21 18:28:52

End at: 2018-08-21 18:29:22

Local clock offset: 2.651 ms

Remote clock offset: 4.756 ms

Below is generated by plot.py at 2018-08-21 18:55:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 14.04 Mbit/s

95th percentile per-packet one-way delay: 1039.735 ms

Loss rate: 15.15%

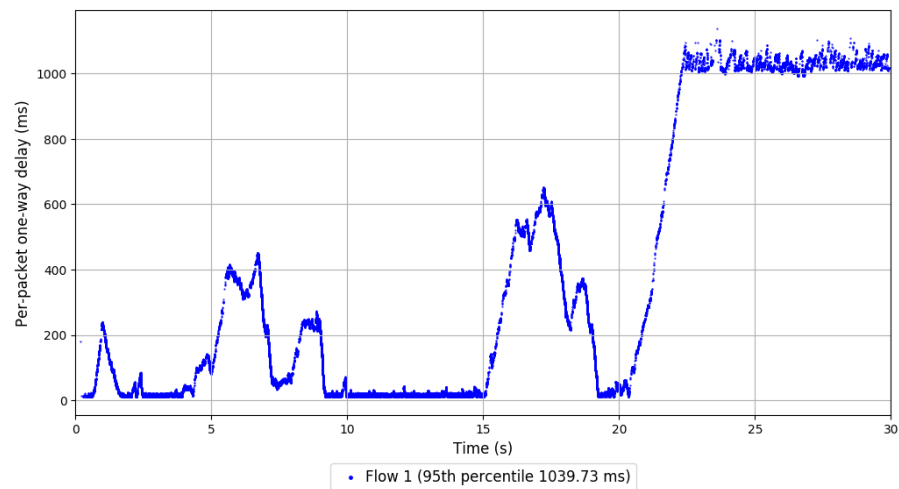
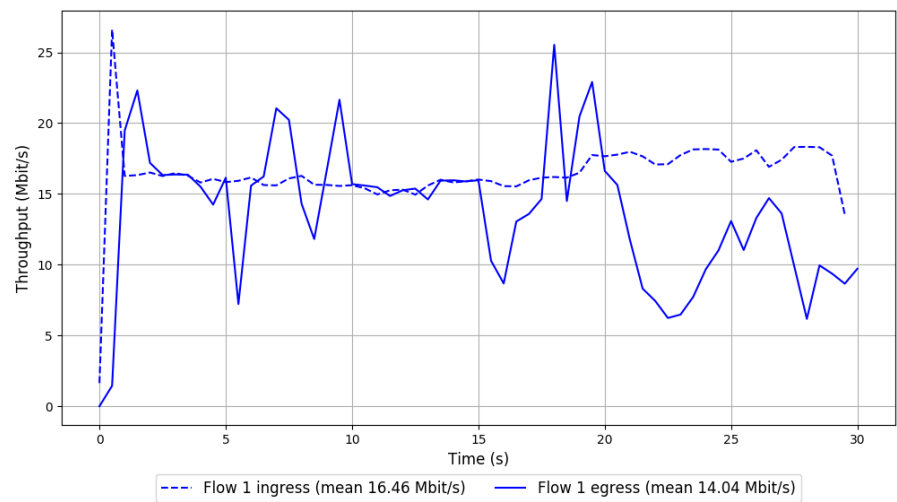
-- Flow 1:

Average throughput: 14.04 Mbit/s

95th percentile per-packet one-way delay: 1039.735 ms

Loss rate: 15.15%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-08-21 18:51:06

End at: 2018-08-21 18:51:36

Local clock offset: -1.303 ms

Remote clock offset: 4.071 ms

Below is generated by plot.py at 2018-08-21 18:55:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.44 Mbit/s

95th percentile per-packet one-way delay: 21.503 ms

Loss rate: 0.00%

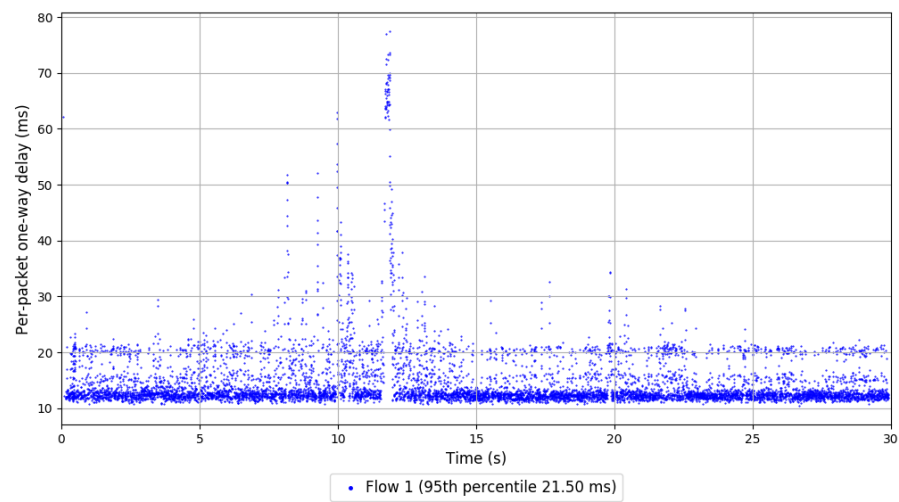
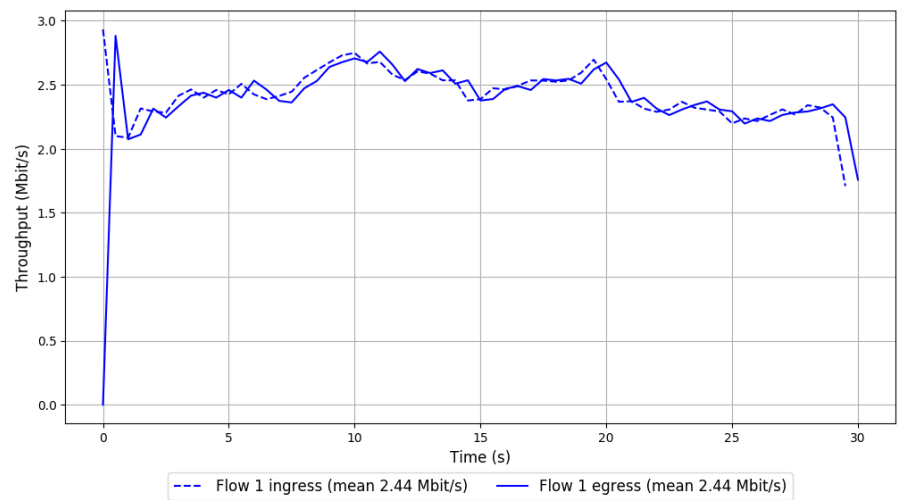
-- Flow 1:

Average throughput: 2.44 Mbit/s

95th percentile per-packet one-way delay: 21.503 ms

Loss rate: 0.00%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2018-08-21 18:02:43

End at: 2018-08-21 18:03:13

Local clock offset: 5.686 ms

Remote clock offset: 3.295 ms

Below is generated by plot.py at 2018-08-21 18:55:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.07 Mbit/s

95th percentile per-packet one-way delay: 21.303 ms

Loss rate: 0.00%

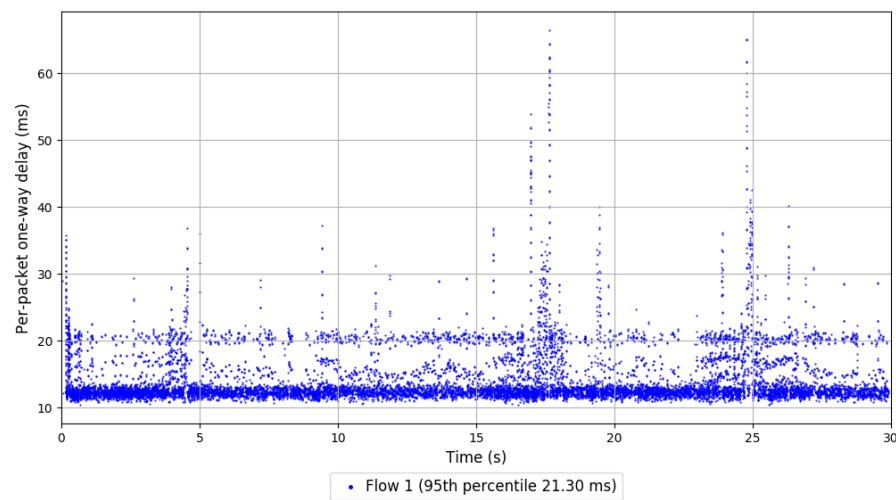
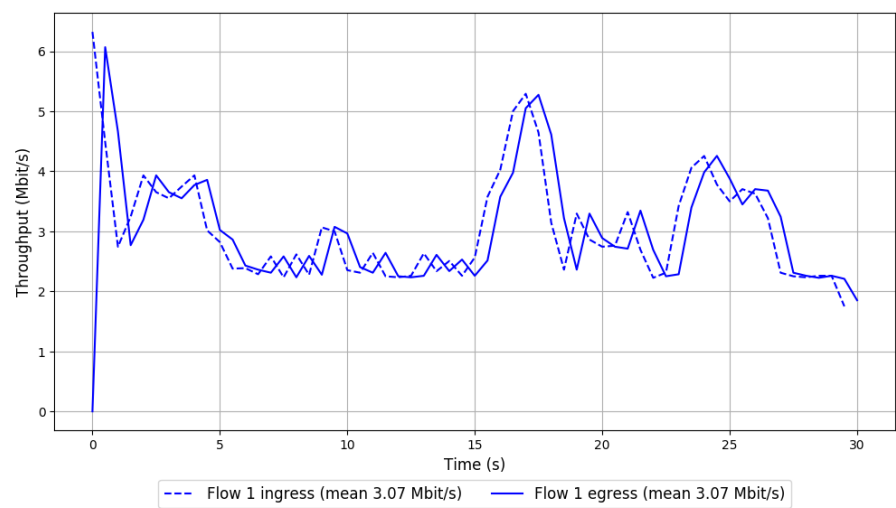
-- Flow 1:

Average throughput: 3.07 Mbit/s

95th percentile per-packet one-way delay: 21.303 ms

Loss rate: 0.00%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-08-21 18:24:58

End at: 2018-08-21 18:25:28

Local clock offset: 2.707 ms

Remote clock offset: 5.33 ms

Below is generated by plot.py at 2018-08-21 18:55:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.91 Mbit/s

95th percentile per-packet one-way delay: 78.843 ms

Loss rate: 0.01%

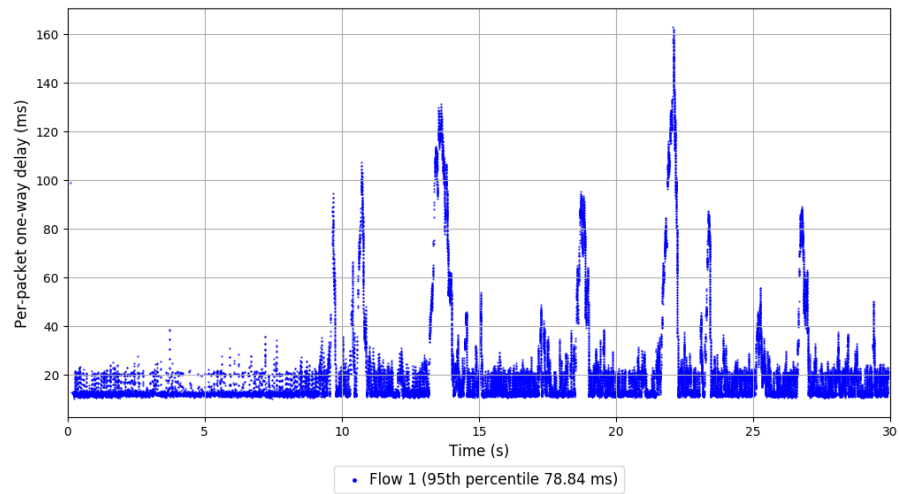
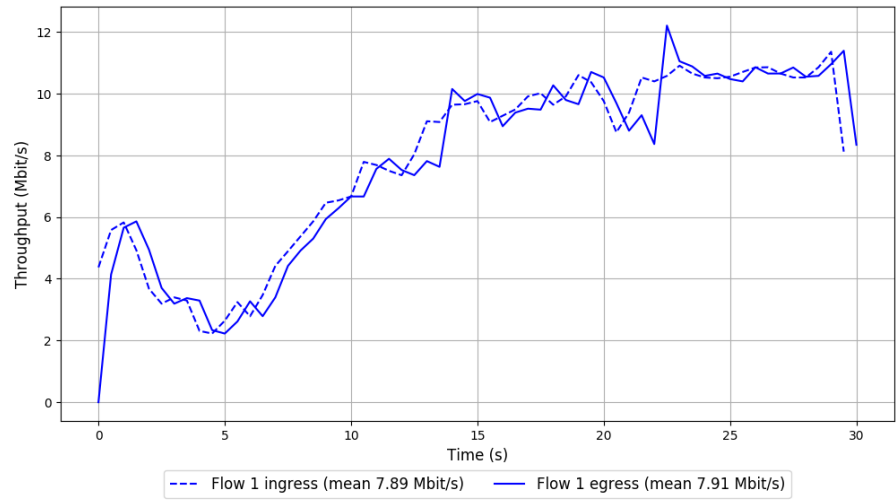
-- Flow 1:

Average throughput: 7.91 Mbit/s

95th percentile per-packet one-way delay: 78.843 ms

Loss rate: 0.01%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-08-21 18:47:13

End at: 2018-08-21 18:47:43

Local clock offset: -0.665 ms

Remote clock offset: 3.933 ms

Below is generated by plot.py at 2018-08-21 18:55:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.21 Mbit/s

95th percentile per-packet one-way delay: 43.513 ms

Loss rate: 0.00%

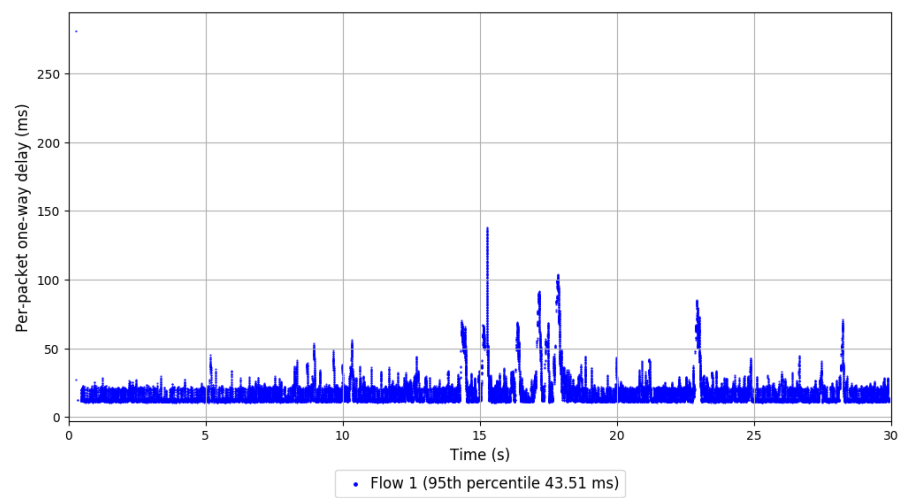
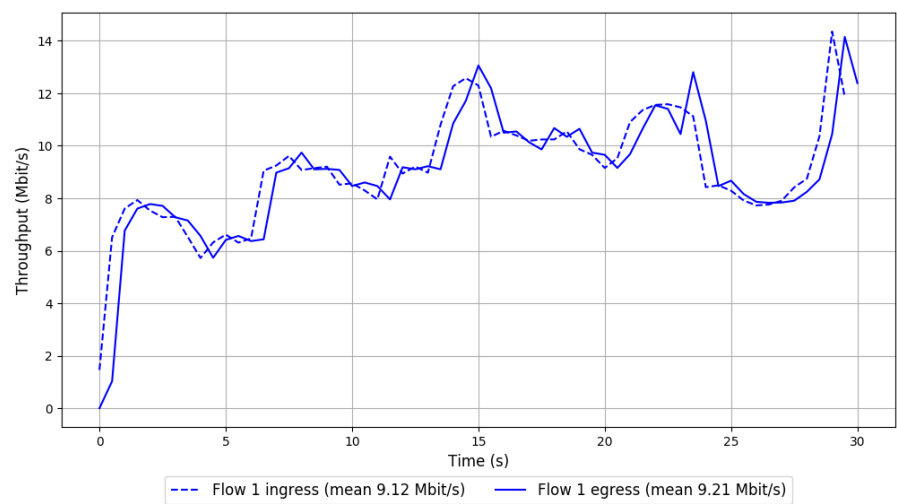
-- Flow 1:

Average throughput: 9.21 Mbit/s

95th percentile per-packet one-way delay: 43.513 ms

Loss rate: 0.00%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

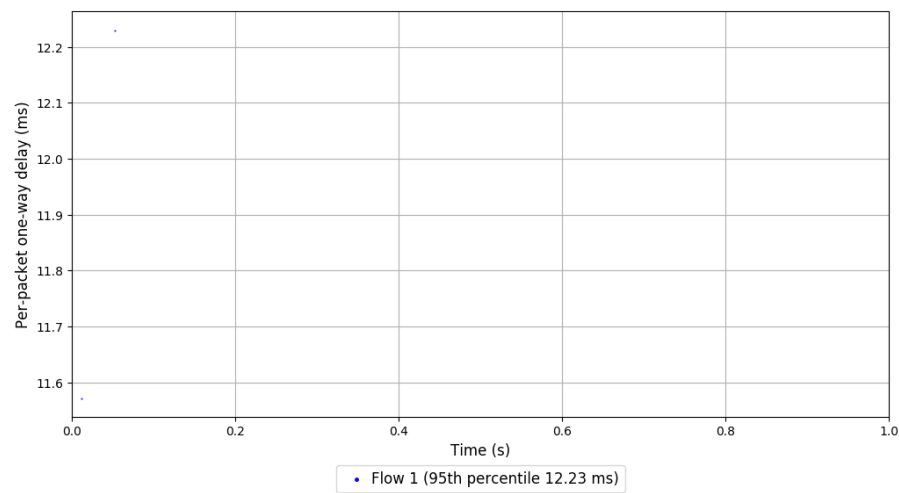
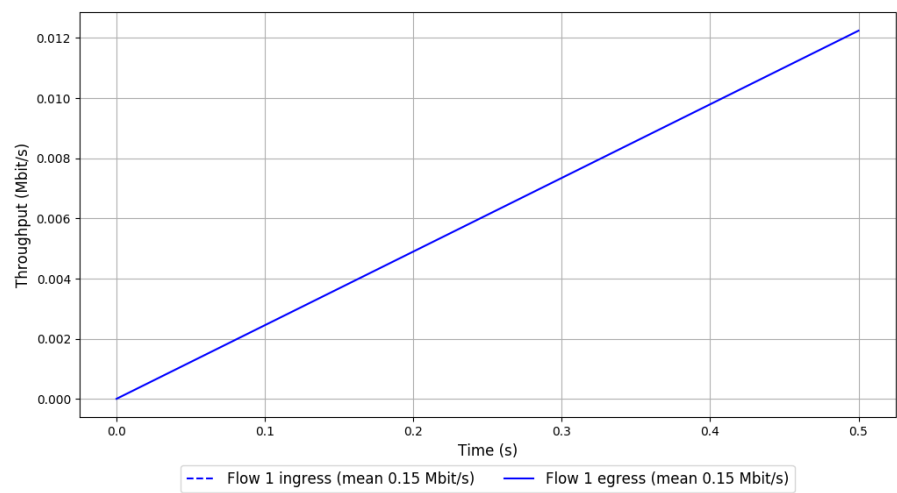
Start at: 2018-08-21 17:57:31

End at: 2018-08-21 17:58:01

Local clock offset: 4.804 ms

Remote clock offset: 2.732 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-08-21 18:19:45

End at: 2018-08-21 18:20:15

Local clock offset: 2.859 ms

Remote clock offset: 4.876 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 22.80 Mbit/s

95th percentile per-packet one-way delay: 238.282 ms

Loss rate: 0.35%

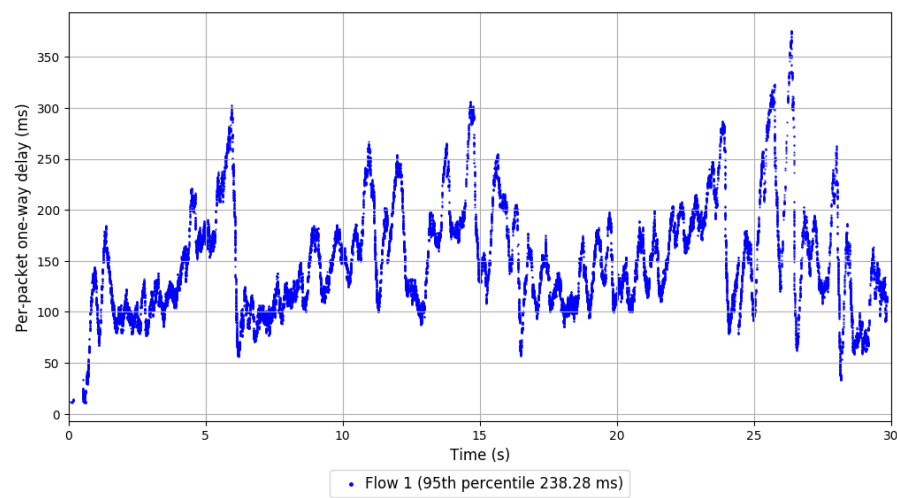
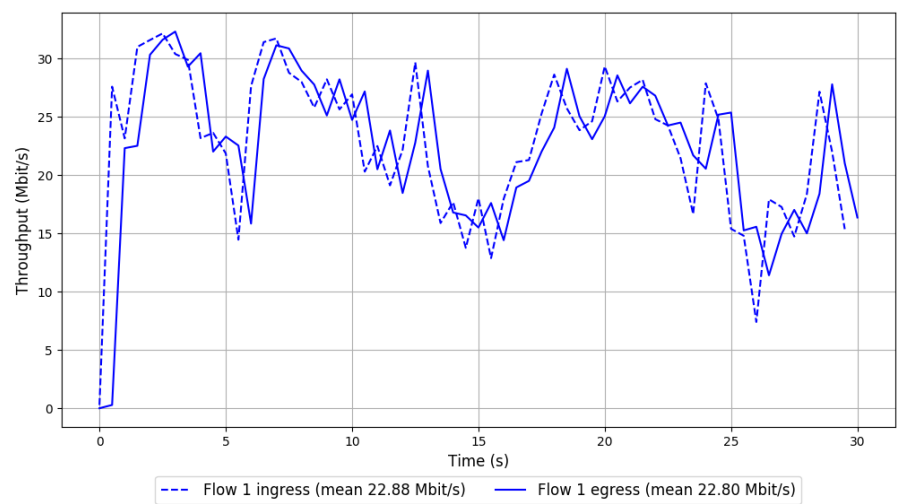
-- Flow 1:

Average throughput: 22.80 Mbit/s

95th percentile per-packet one-way delay: 238.282 ms

Loss rate: 0.35%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-08-21 18:41:56

End at: 2018-08-21 18:42:26

Local clock offset: 0.788 ms

Remote clock offset: 3.882 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 19.67 Mbit/s

95th percentile per-packet one-way delay: 219.508 ms

Loss rate: 0.32%

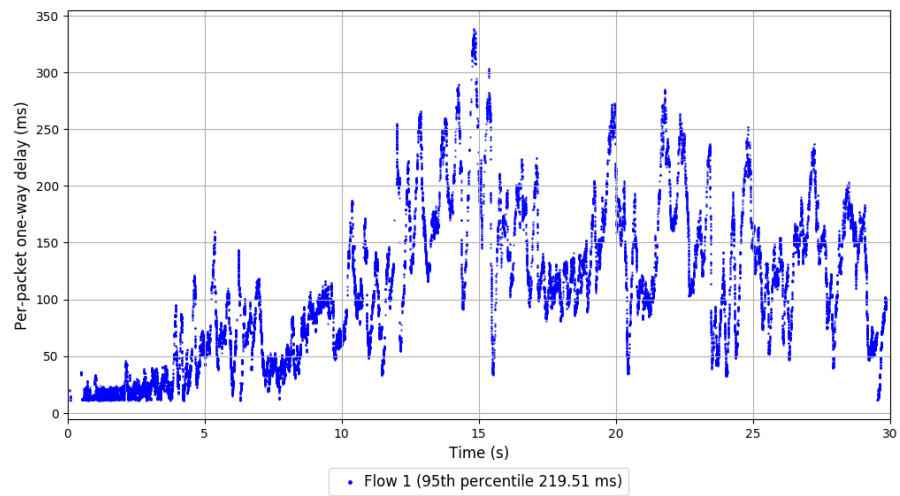
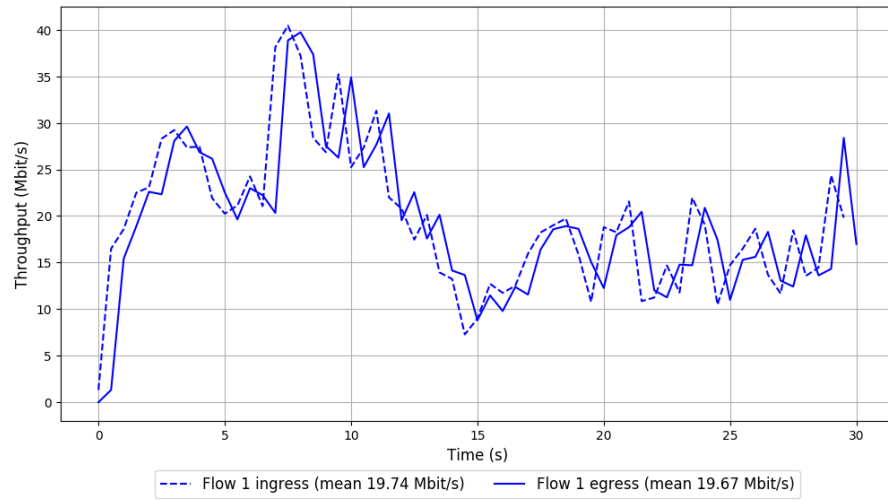
-- Flow 1:

Average throughput: 19.67 Mbit/s

95th percentile per-packet one-way delay: 219.508 ms

Loss rate: 0.32%

Run 3: Report of QUIC Cubic — Data Link

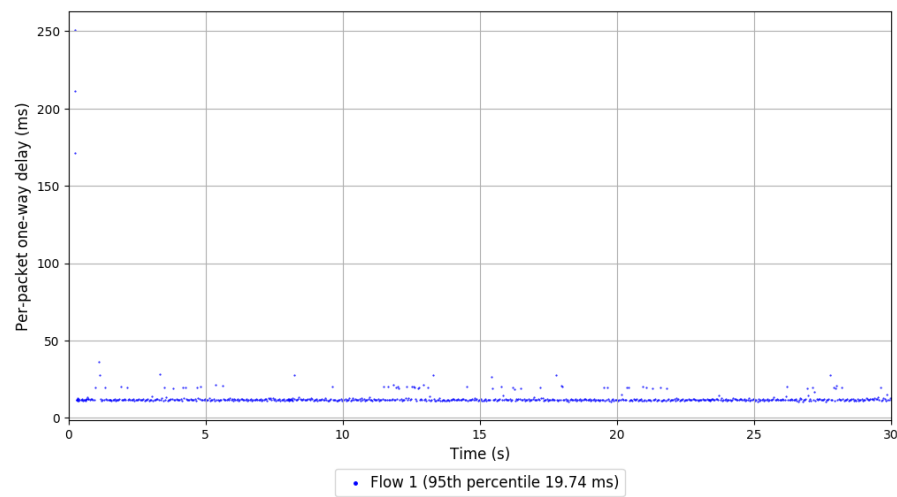
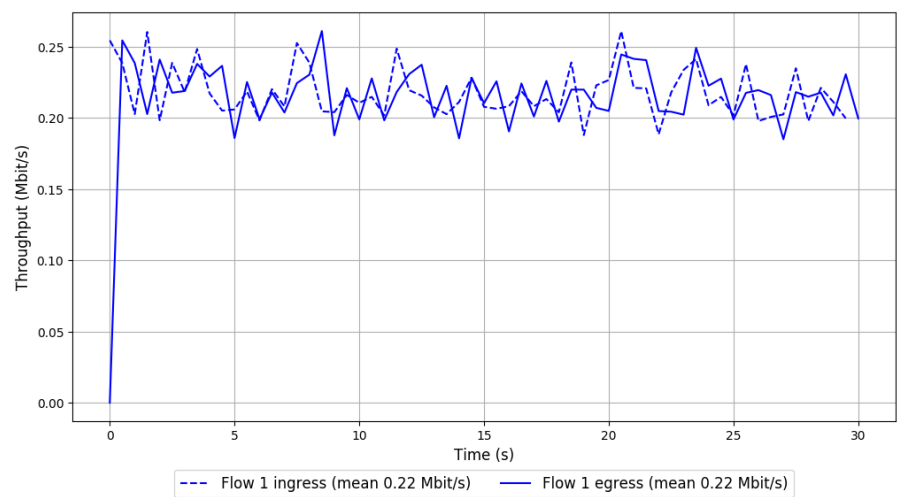


```
Run 1: Statistics of SCReAM

Start at: 2018-08-21 18:07:55
End at: 2018-08-21 18:08:25
Local clock offset: 6.231 ms
Remote clock offset: 3.822 ms

# Below is generated by plot.py at 2018-08-21 18:55:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.743 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.743 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-08-21 18:30:10

End at: 2018-08-21 18:30:41

Local clock offset: 2.787 ms

Remote clock offset: 4.602 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 20.609 ms

Loss rate: 0.00%

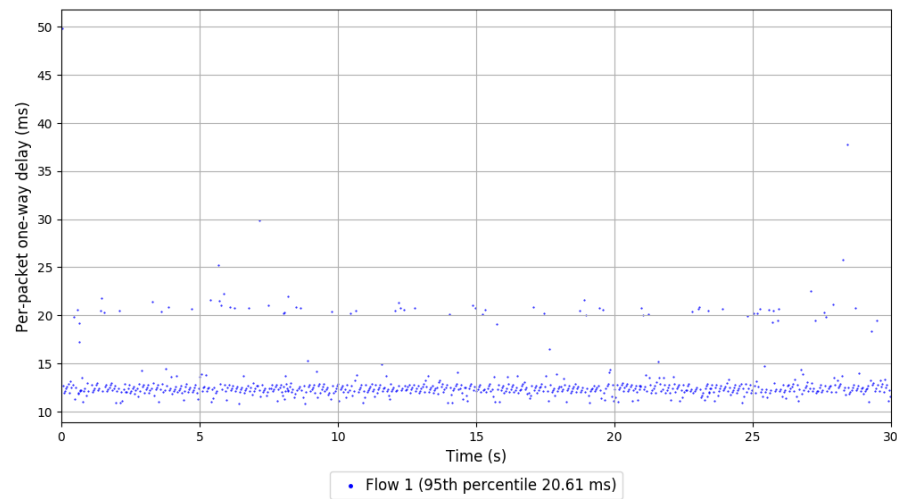
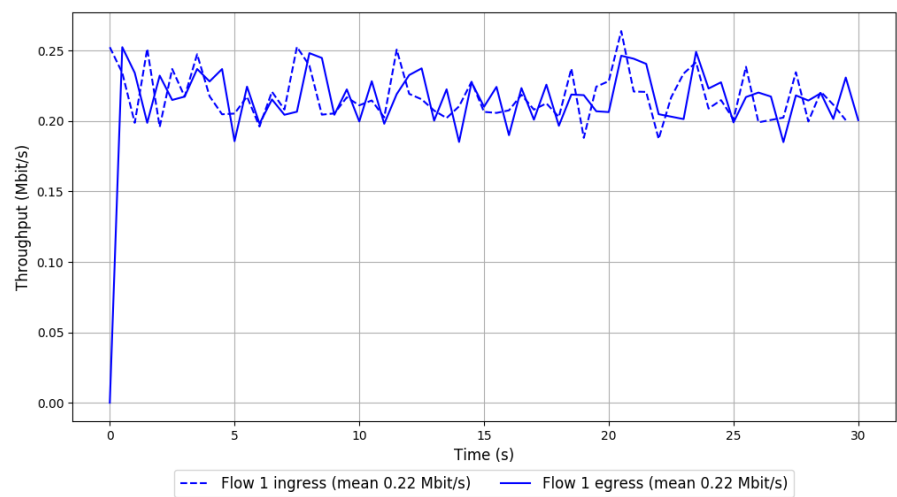
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 20.609 ms

Loss rate: 0.00%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-08-21 18:52:24

End at: 2018-08-21 18:52:54

Local clock offset: -1.378 ms

Remote clock offset: 4.016 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 20.227 ms

Loss rate: 0.00%

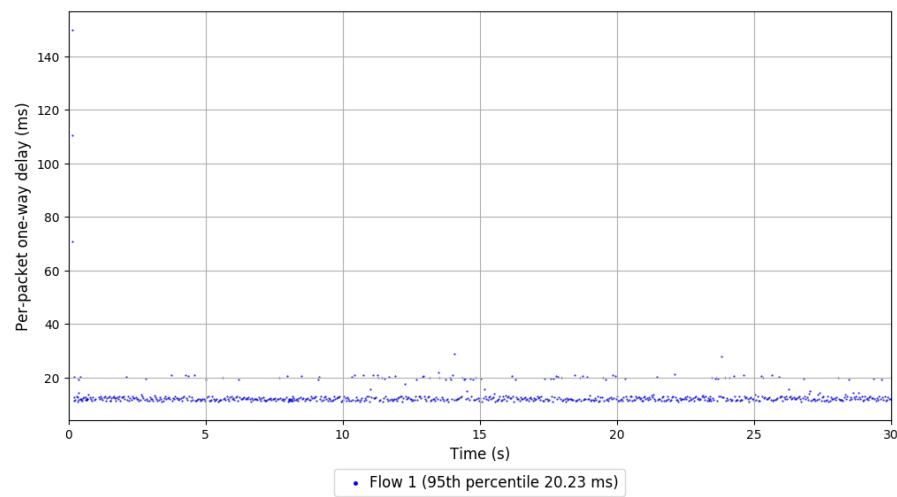
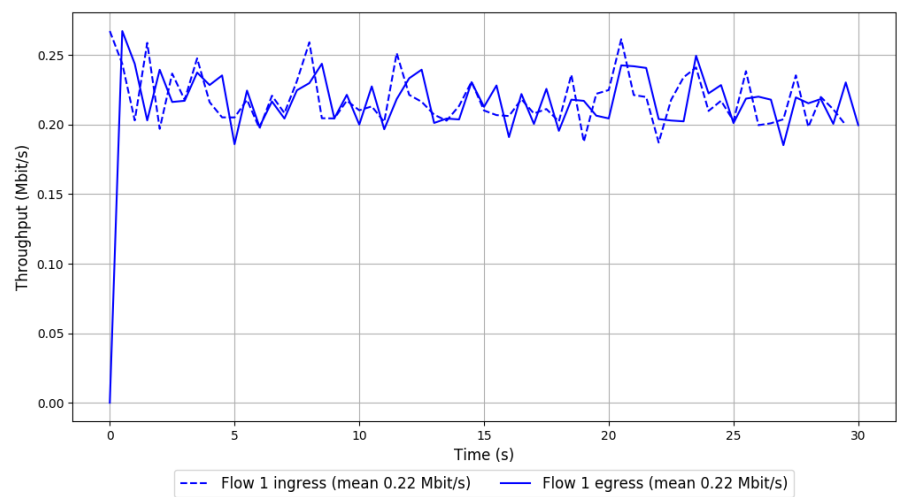
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 20.227 ms

Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-08-21 17:56:12

End at: 2018-08-21 17:56:42

Local clock offset: 4.581 ms

Remote clock offset: 2.49 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.05 Mbit/s

95th percentile per-packet one-way delay: 57.318 ms

Loss rate: 0.01%

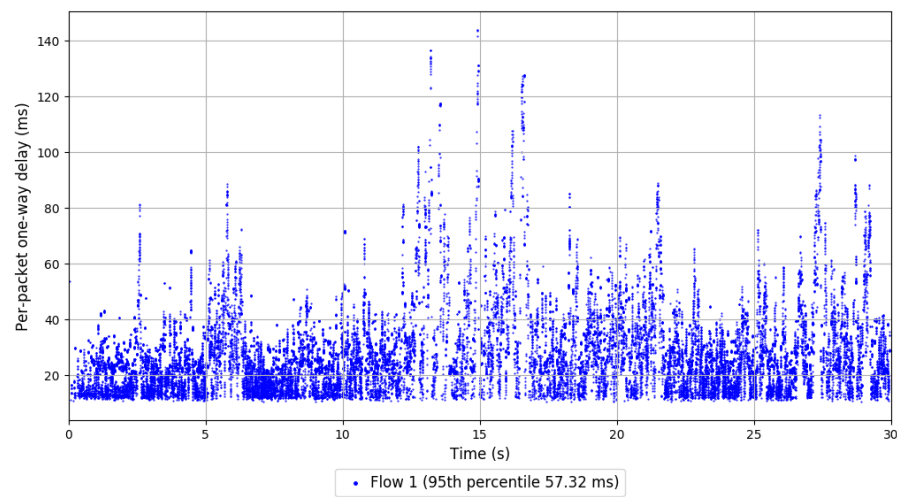
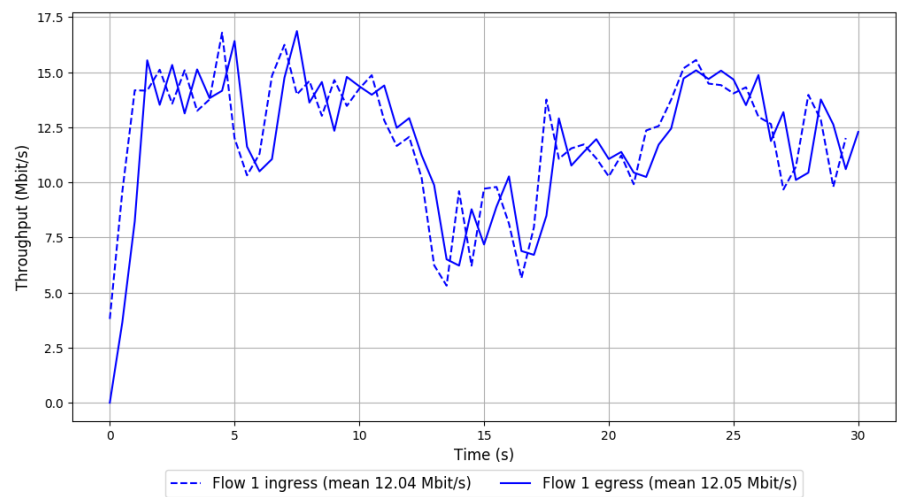
-- Flow 1:

Average throughput: 12.05 Mbit/s

95th percentile per-packet one-way delay: 57.318 ms

Loss rate: 0.01%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-08-21 18:18:26

End at: 2018-08-21 18:18:56

Local clock offset: 3.095 ms

Remote clock offset: 4.724 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.92 Mbit/s

95th percentile per-packet one-way delay: 44.327 ms

Loss rate: 0.00%

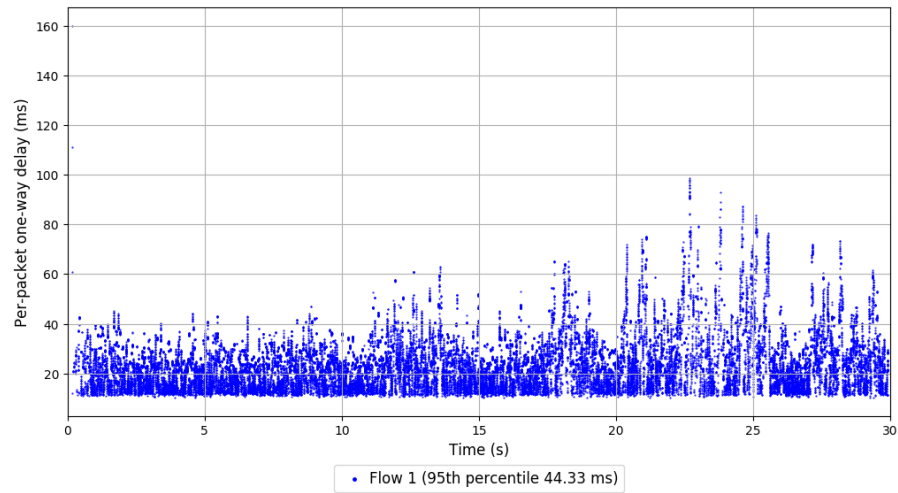
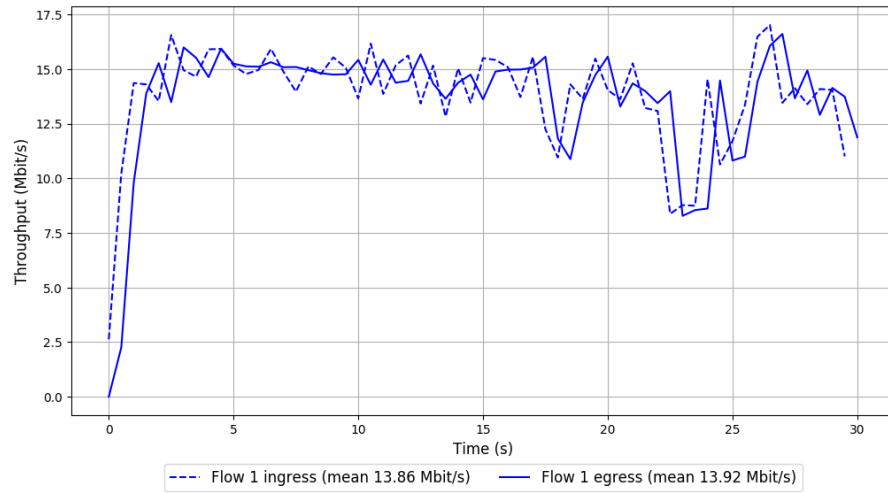
-- Flow 1:

Average throughput: 13.92 Mbit/s

95th percentile per-packet one-way delay: 44.327 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-08-21 18:40:37

End at: 2018-08-21 18:41:07

Local clock offset: 1.456 ms

Remote clock offset: 3.849 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.02 Mbit/s

95th percentile per-packet one-way delay: 49.566 ms

Loss rate: 0.00%

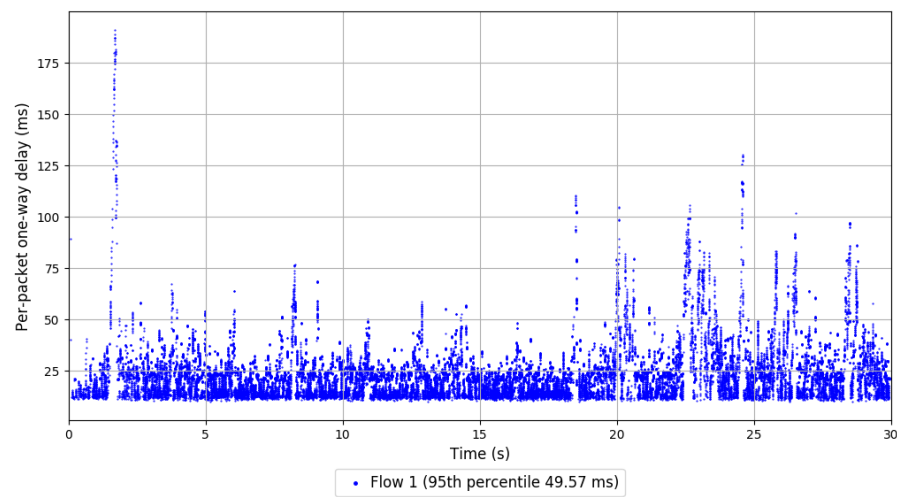
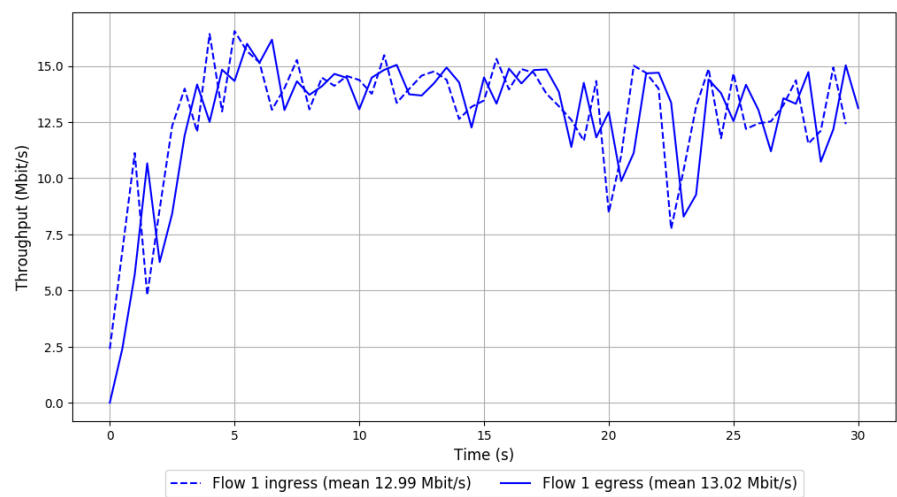
-- Flow 1:

Average throughput: 13.02 Mbit/s

95th percentile per-packet one-way delay: 49.566 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-08-21 18:04:01

End at: 2018-08-21 18:04:31

Local clock offset: 5.799 ms

Remote clock offset: 3.518 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.26 Mbit/s

95th percentile per-packet one-way delay: 55.582 ms

Loss rate: 0.00%

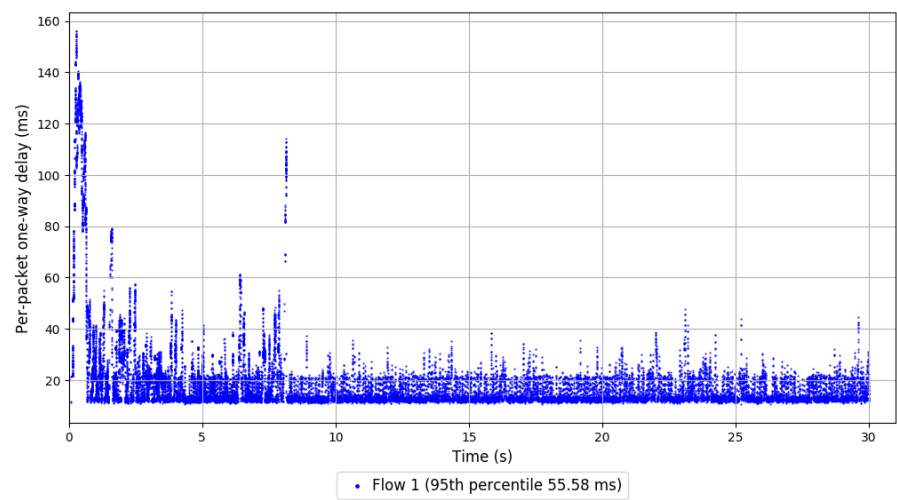
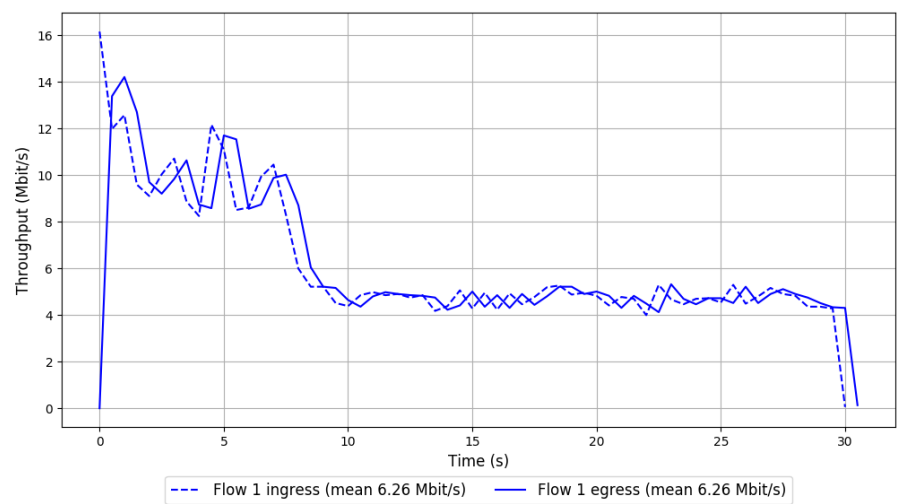
-- Flow 1:

Average throughput: 6.26 Mbit/s

95th percentile per-packet one-way delay: 55.582 ms

Loss rate: 0.00%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-08-21 18:26:16

End at: 2018-08-21 18:26:46

Local clock offset: 2.714 ms

Remote clock offset: 5.264 ms

Below is generated by plot.py at 2018-08-21 18:55:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.53 Mbit/s

95th percentile per-packet one-way delay: 76.666 ms

Loss rate: 0.00%

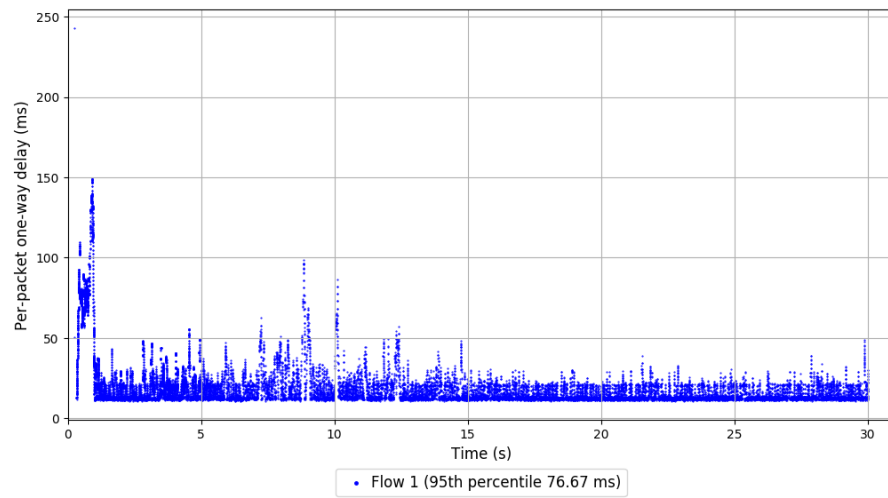
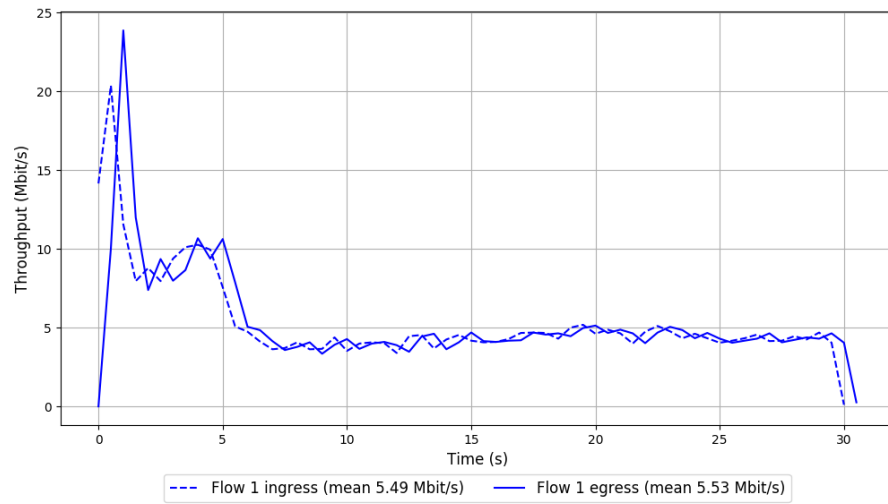
-- Flow 1:

Average throughput: 5.53 Mbit/s

95th percentile per-packet one-way delay: 76.666 ms

Loss rate: 0.00%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-08-21 18:48:31

End at: 2018-08-21 18:49:01

Local clock offset: -0.808 ms

Remote clock offset: 3.964 ms

Below is generated by plot.py at 2018-08-21 18:55:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.49 Mbit/s

95th percentile per-packet one-way delay: 32.170 ms

Loss rate: 0.00%

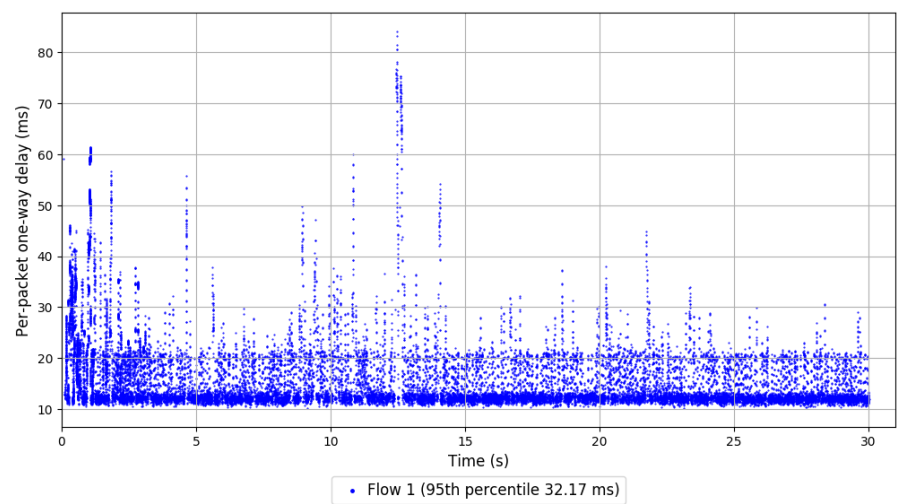
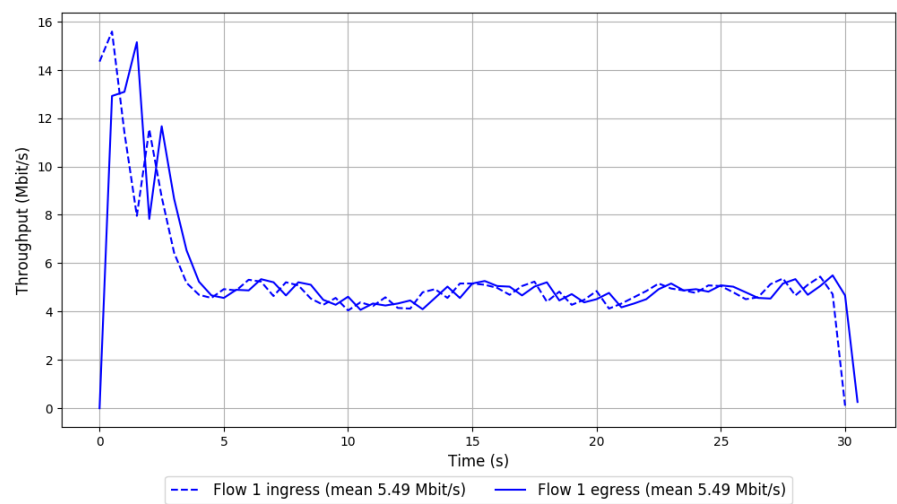
-- Flow 1:

Average throughput: 5.49 Mbit/s

95th percentile per-packet one-way delay: 32.170 ms

Loss rate: 0.00%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-08-21 18:05:19

End at: 2018-08-21 18:05:49

Local clock offset: 6.1 ms

Remote clock offset: 3.673 ms

Below is generated by plot.py at 2018-08-21 18:55:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.41 Mbit/s

95th percentile per-packet one-way delay: 21.793 ms

Loss rate: 0.00%

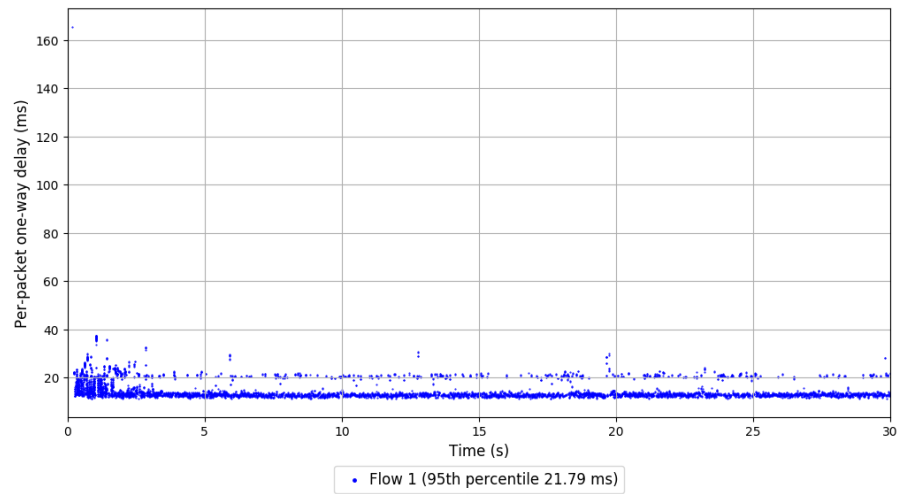
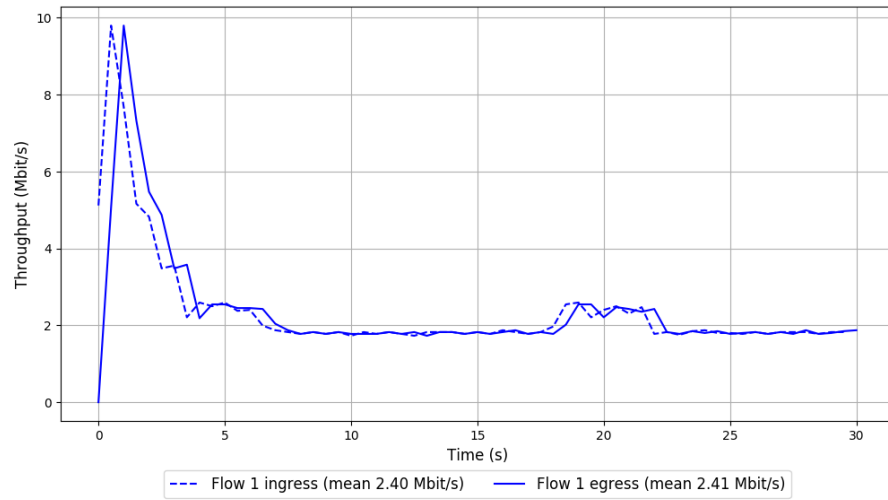
-- Flow 1:

Average throughput: 2.41 Mbit/s

95th percentile per-packet one-way delay: 21.793 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-08-21 18:27:34

End at: 2018-08-21 18:28:04

Local clock offset: 2.648 ms

Remote clock offset: 5.044 ms

Below is generated by plot.py at 2018-08-21 18:55:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.66 Mbit/s

95th percentile per-packet one-way delay: 67.700 ms

Loss rate: 0.00%

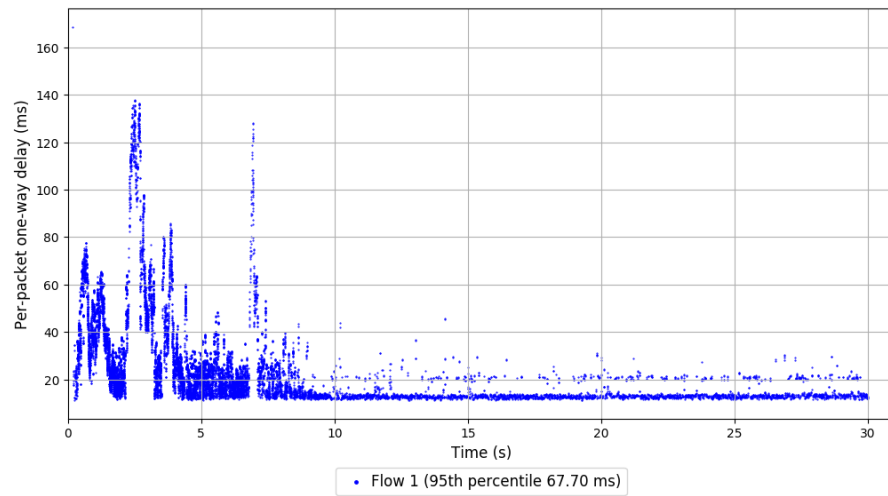
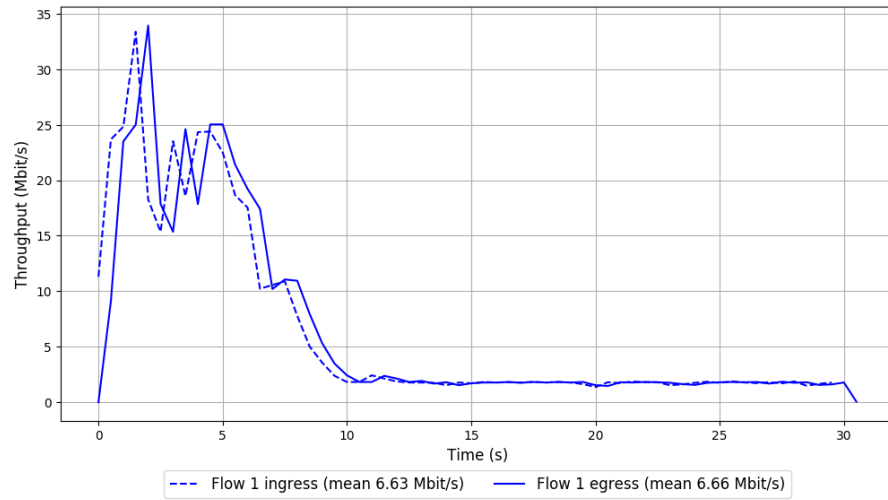
-- Flow 1:

Average throughput: 6.66 Mbit/s

95th percentile per-packet one-way delay: 67.700 ms

Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

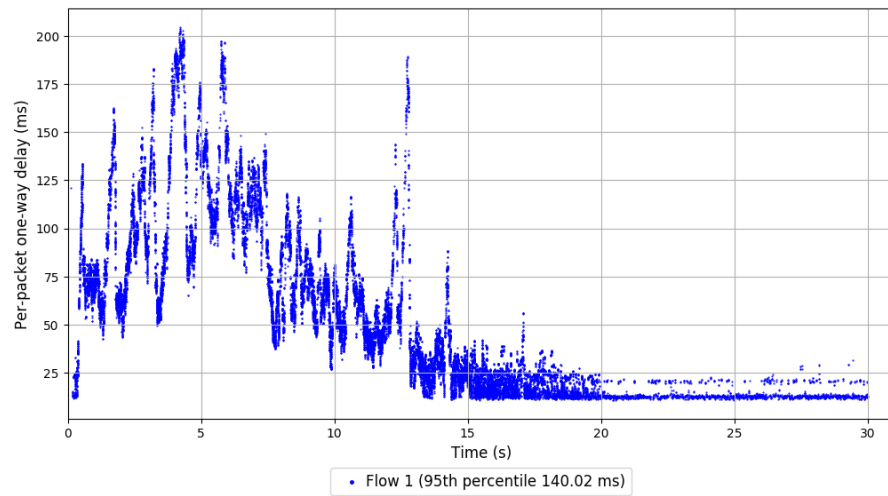
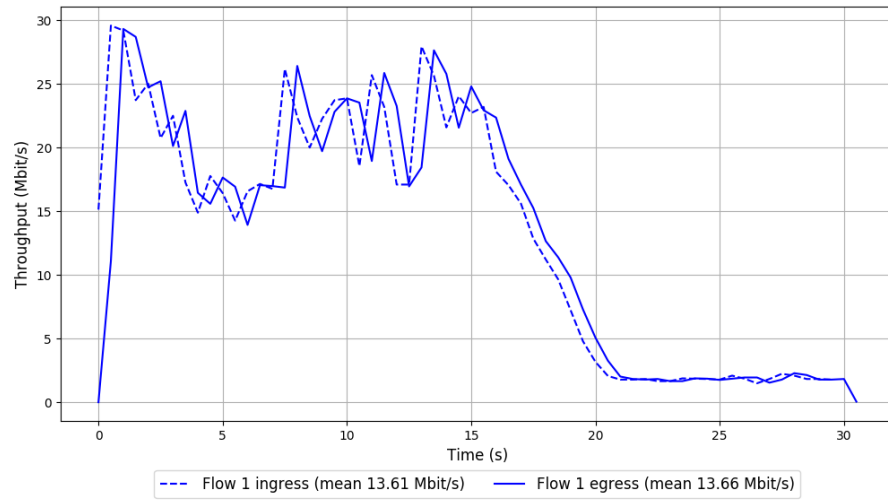


Run 3: Statistics of TCP Vegas

Start at: 2018-08-21 18:49:48
End at: 2018-08-21 18:50:18
Local clock offset: -1.017 ms
Remote clock offset: 4.026 ms

Below is generated by plot.py at 2018-08-21 18:55:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.66 Mbit/s
95th percentile per-packet one-way delay: 140.021 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.66 Mbit/s
95th percentile per-packet one-way delay: 140.021 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-08-21 18:09:13

End at: 2018-08-21 18:09:43

Local clock offset: 5.581 ms

Remote clock offset: 3.995 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 20.86 Mbit/s

95th percentile per-packet one-way delay: 255.566 ms

Loss rate: 0.55%

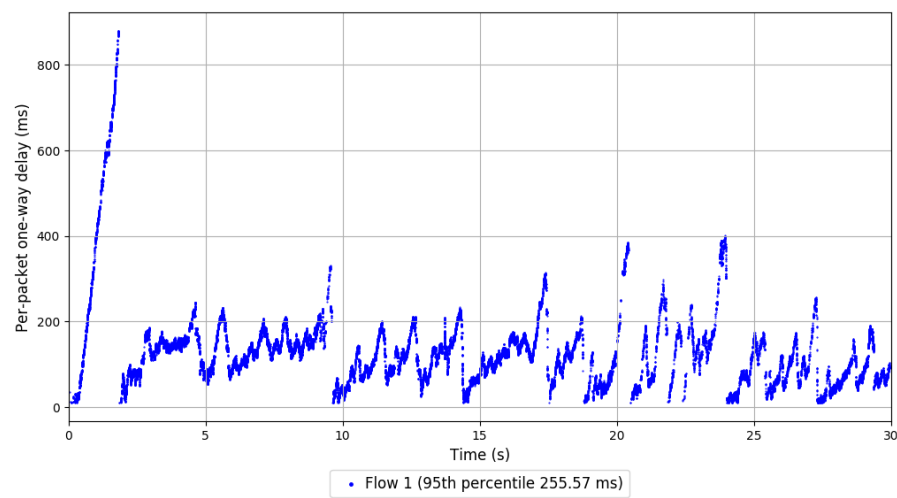
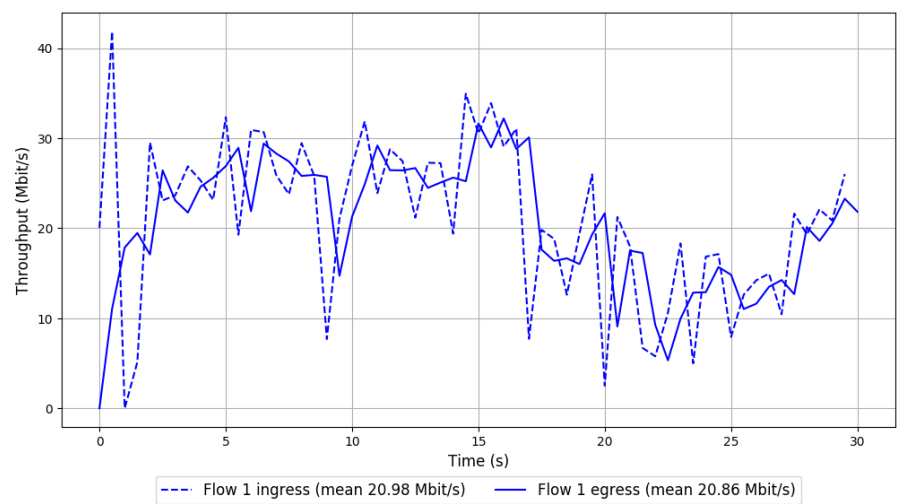
-- Flow 1:

Average throughput: 20.86 Mbit/s

95th percentile per-packet one-way delay: 255.566 ms

Loss rate: 0.55%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-08-21 18:31:28

End at: 2018-08-21 18:31:58

Local clock offset: 2.824 ms

Remote clock offset: 4.296 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 21.29 Mbit/s

95th percentile per-packet one-way delay: 291.458 ms

Loss rate: 0.31%

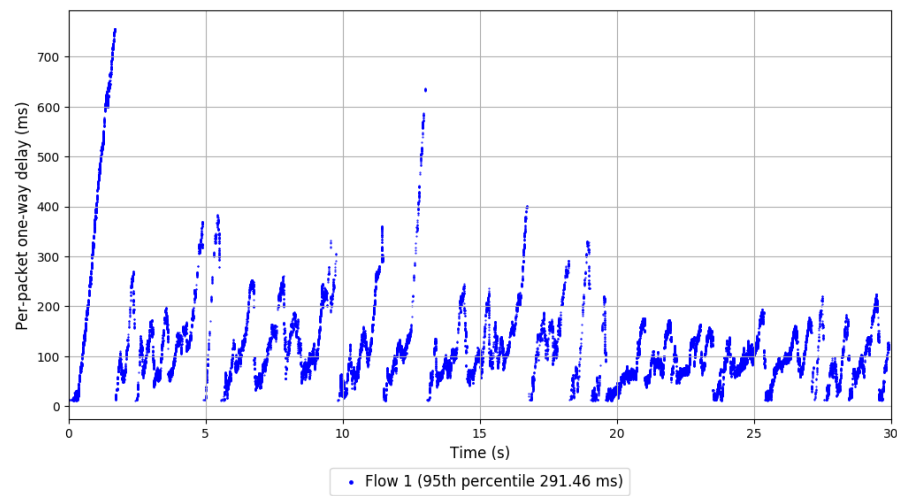
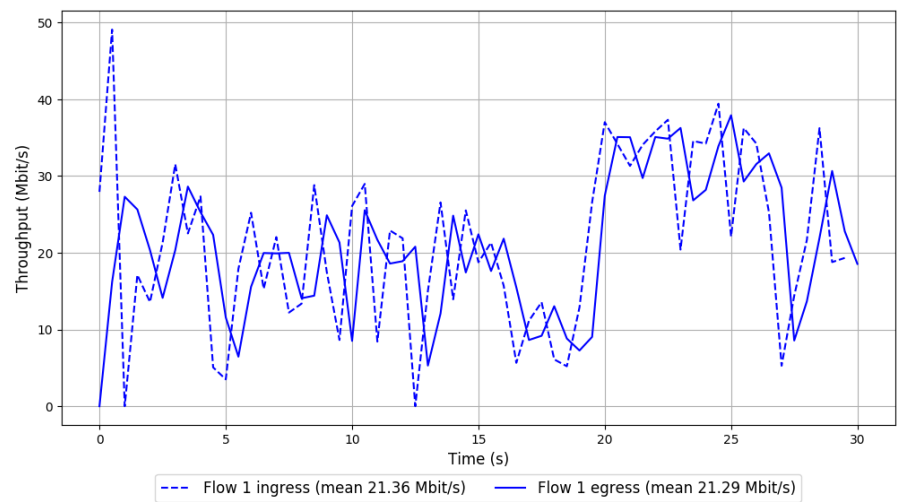
-- Flow 1:

Average throughput: 21.29 Mbit/s

95th percentile per-packet one-way delay: 291.458 ms

Loss rate: 0.31%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-08-21 18:53:41

End at: 2018-08-21 18:54:11

Local clock offset: -1.505 ms

Remote clock offset: 4.086 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 14.01 Mbit/s

95th percentile per-packet one-way delay: 481.640 ms

Loss rate: 0.58%

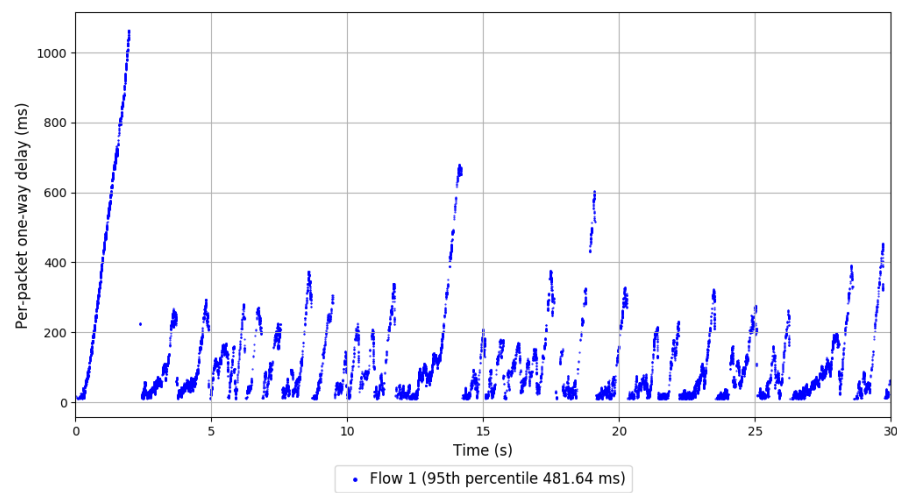
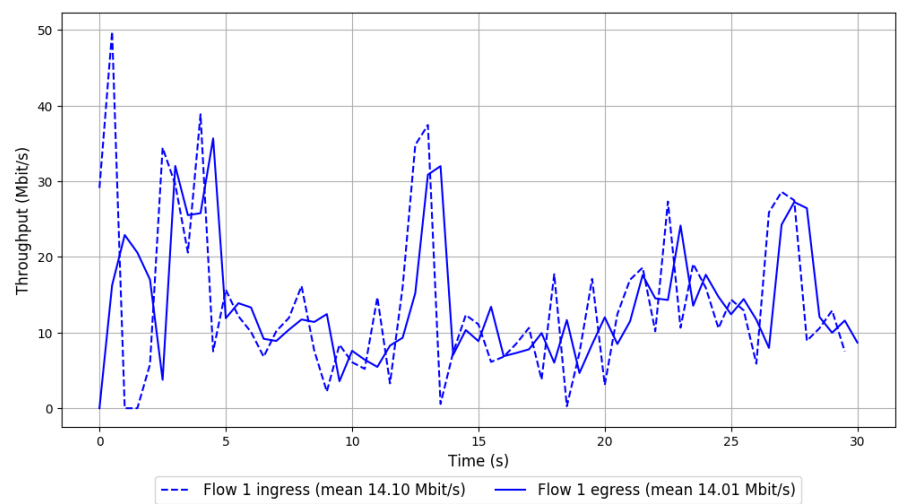
-- Flow 1:

Average throughput: 14.01 Mbit/s

95th percentile per-packet one-way delay: 481.640 ms

Loss rate: 0.58%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-08-21 17:58:48

End at: 2018-08-21 17:59:18

Local clock offset: 4.983 ms

Remote clock offset: 2.875 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 20.359 ms

Loss rate: 0.00%

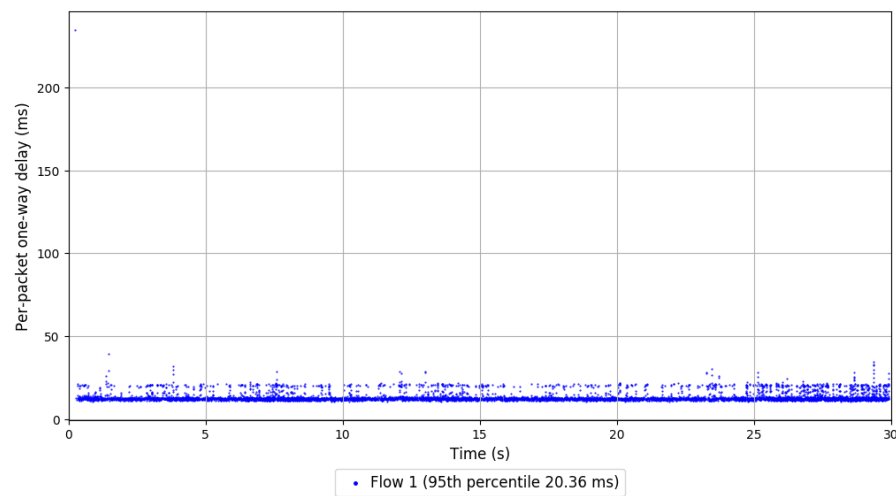
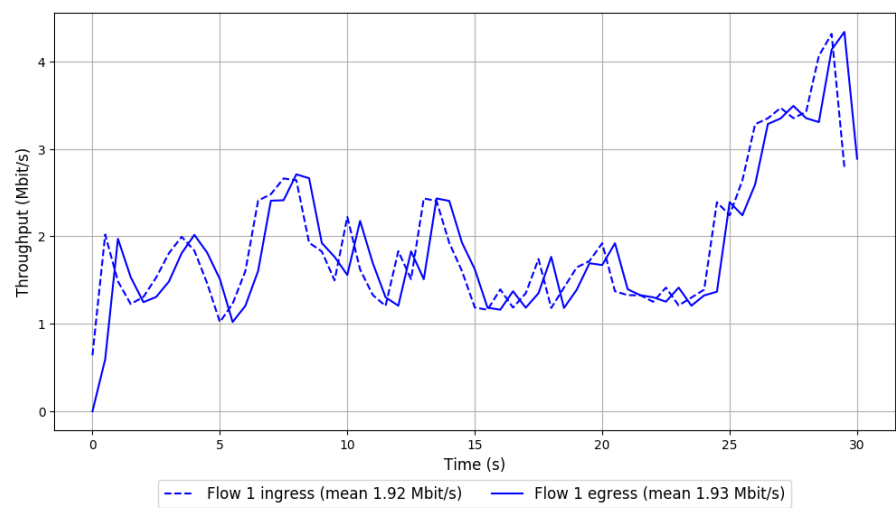
-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 20.359 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-08-21 18:21:03

End at: 2018-08-21 18:21:33

Local clock offset: 2.866 ms

Remote clock offset: 5.043 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.38 Mbit/s

95th percentile per-packet one-way delay: 21.797 ms

Loss rate: 0.00%

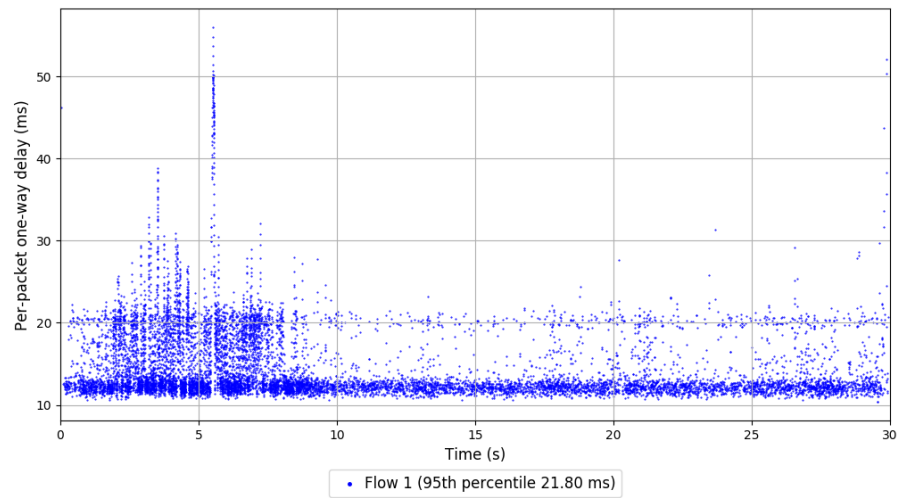
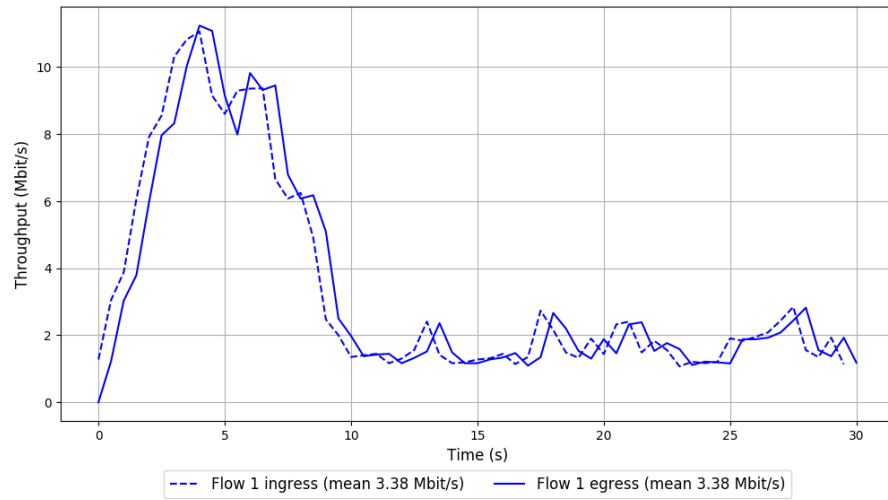
-- Flow 1:

Average throughput: 3.38 Mbit/s

95th percentile per-packet one-way delay: 21.797 ms

Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-08-21 18:43:14

End at: 2018-08-21 18:43:44

Local clock offset: 0.468 ms

Remote clock offset: 3.92 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.20 Mbit/s

95th percentile per-packet one-way delay: 20.344 ms

Loss rate: 0.00%

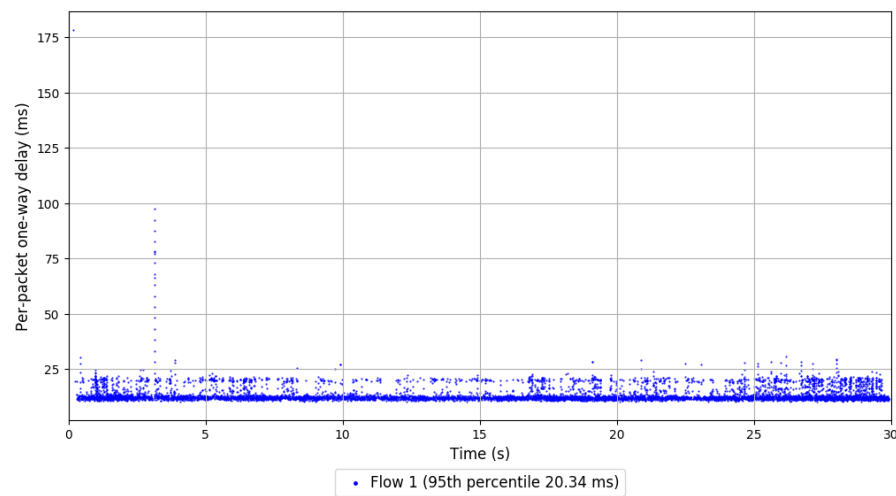
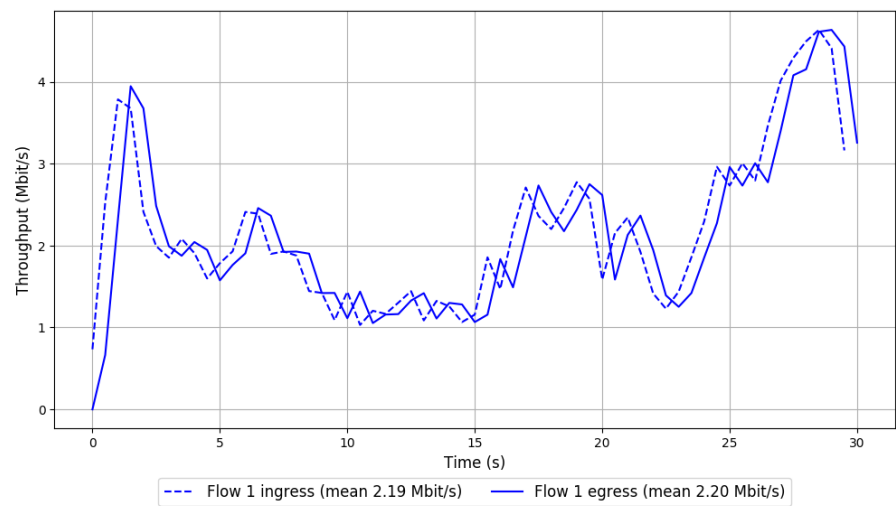
-- Flow 1:

Average throughput: 2.20 Mbit/s

95th percentile per-packet one-way delay: 20.344 ms

Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-08-21 17:53:36

End at: 2018-08-21 17:54:06

Local clock offset: 4.217 ms

Remote clock offset: 2.094 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.09 Mbit/s

95th percentile per-packet one-way delay: 20.849 ms

Loss rate: 0.00%

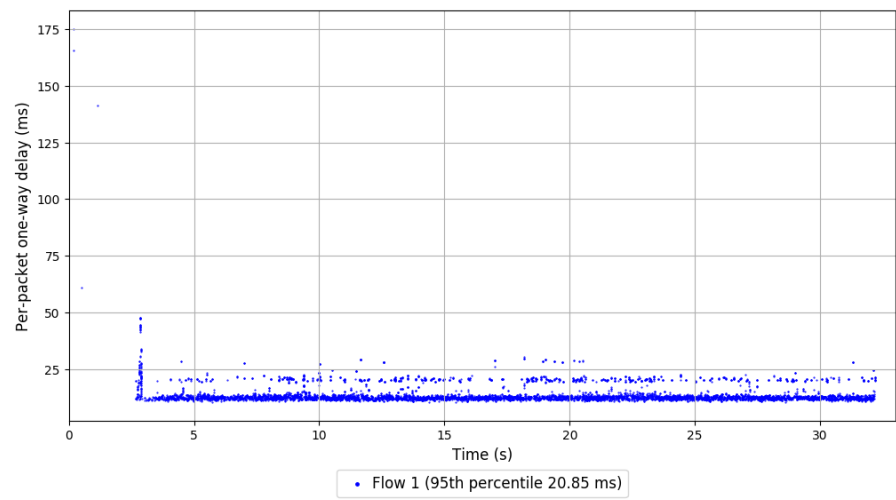
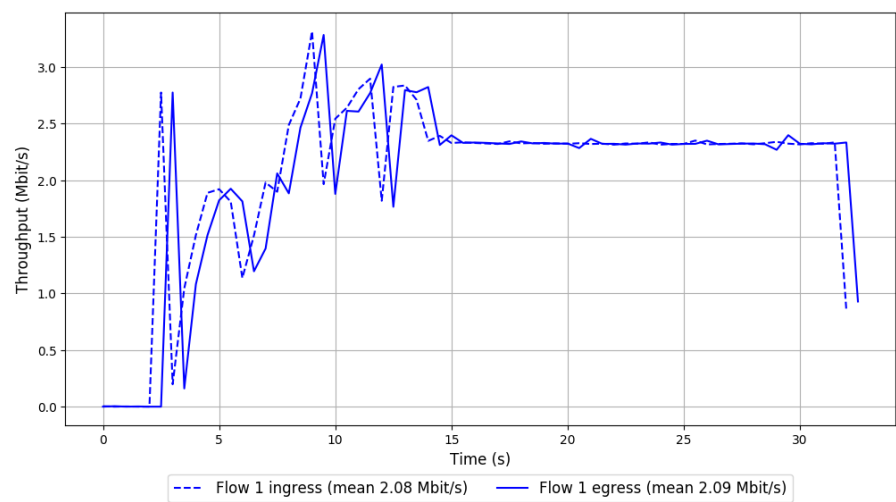
-- Flow 1:

Average throughput: 2.09 Mbit/s

95th percentile per-packet one-way delay: 20.849 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-08-21 18:15:45

End at: 2018-08-21 18:16:15

Local clock offset: 3.386 ms

Remote clock offset: 4.612 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 20.800 ms

Loss rate: 0.00%

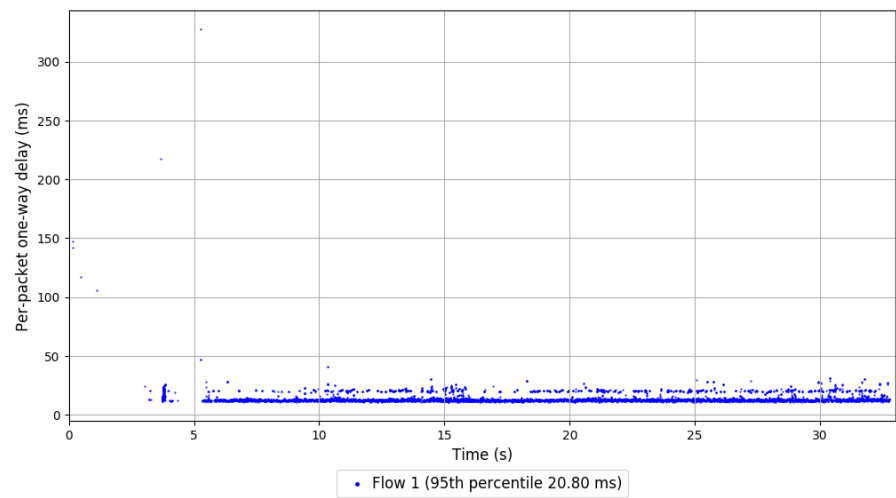
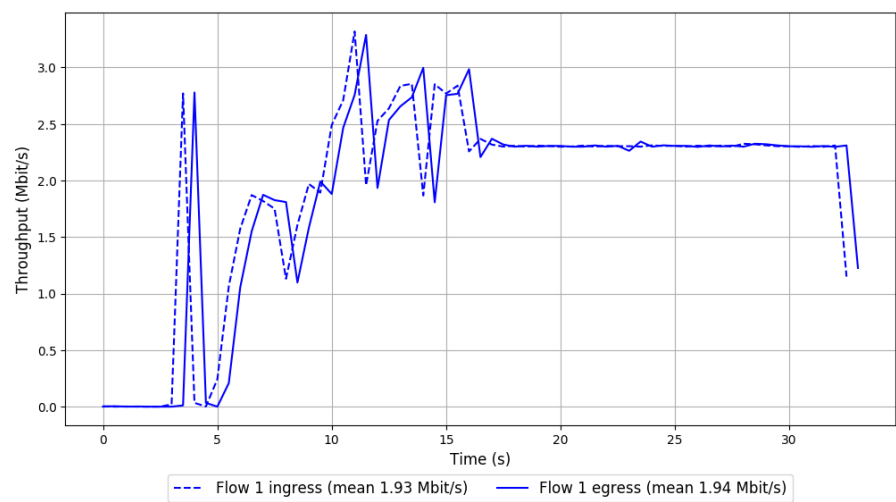
-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 20.800 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-08-21 18:38:01

End at: 2018-08-21 18:38:31

Local clock offset: 2.789 ms

Remote clock offset: 3.941 ms

Below is generated by plot.py at 2018-08-21 18:55:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 31.127 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 31.127 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

