

Pantheon Report

Generated at 2018-11-30 06:54:15 (UTC).

Data path: AWS California 1 on `ens5` (*local*) → Stanford on `eno1` (*remote*).

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

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

System info:

```
Linux 4.15.0-1027-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 7b6dad87cde3ab65f7c4052140eb54098aa58e9d
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

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

Scatter plot showing Average throughput (Mbit/s) vs 95th percentile one-way delay (ms) for various congestion control algorithms. The plot shows a negative correlation between delay and throughput. Algorithms like FillIP and FillIP-Sheep achieve high throughput at low delay, while others like TCP Cubic and PCC-Allegro show higher throughput at higher delay. Sprout and QUIC-Exp have the lowest delay but also low throughput.

Algorithm	95th percentile one-way delay (ms)	Average throughput (Mbit/s)
FillIP	~18	~900
FillIP-Sheep	~6	~900
TCP Cubic	~28	~750
EDBAT	~18	~600
TCP BBR	~5	~720
PCC-Allegro	~4	~450
Verus	~12	~180
TCP Vegas	~1	~250
Indigo	~1	~220
PCC-Vivace	~1	~200
Indigo-96d2da3	~1	~180
Sprout	~4	~50
QUIC Cubic	~1	~80
Indigo-Muses	~1	~50
QUIC-Exp	~1	~20
CC-BW media	~1	~10



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	710.34	5.53	0.02
Copa	0	N/A	N/A	N/A
TCP Cubic	5	735.11	23.37	0.08
FillP	5	902.14	13.04	3.68
FillP-Sheep	5	895.11	6.50	2.49
Indigo	5	238.25	1.28	0.00
Indigo-96d2da3	5	184.37	1.28	0.00
LEDBAT	5	597.50	17.12	0.04
Indigo-Muses	5	50.58	1.12	0.00
PCC-Allegro	5	455.88	3.61	0.00
PCC-Expr	5	6.52	1.22	9.77
QUIC Cubic	5	77.16	0.94	0.00
SCReAM	5	0.22	1.25	0.00
Sprout	5	50.08	4.16	0.02
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	5	261.59	1.37	0.00
Verus	5	181.43	11.13	0.63
PCC-Vivace	5	213.91	1.06	0.00
WebRTC media	5	1.93	1.16	0.01

Run 1: Statistics of TCP BBR

Start at: 2018-11-30 03:56:35

End at: 2018-11-30 03:57:05

Local clock offset: 1.002 ms

Remote clock offset: 0.038 ms

Below is generated by plot.py at 2018-11-30 06:18:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 680.57 Mbit/s

95th percentile per-packet one-way delay: 5.960 ms

Loss rate: 0.01%

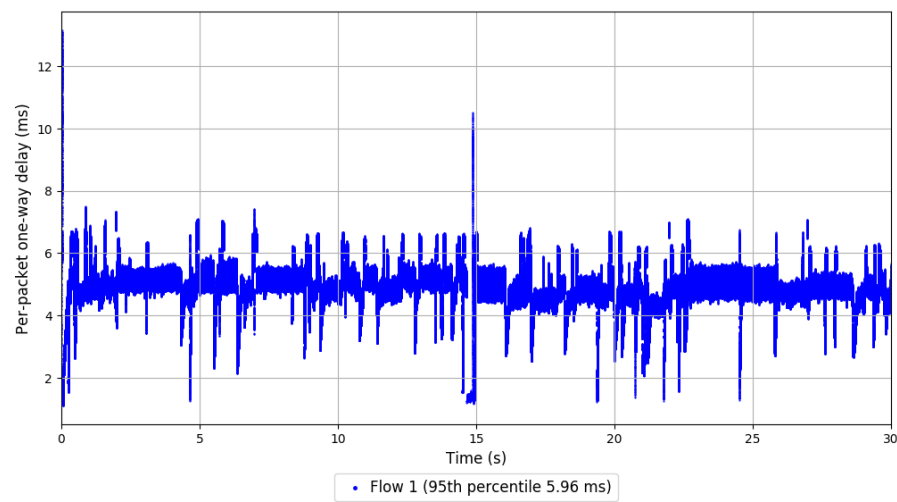
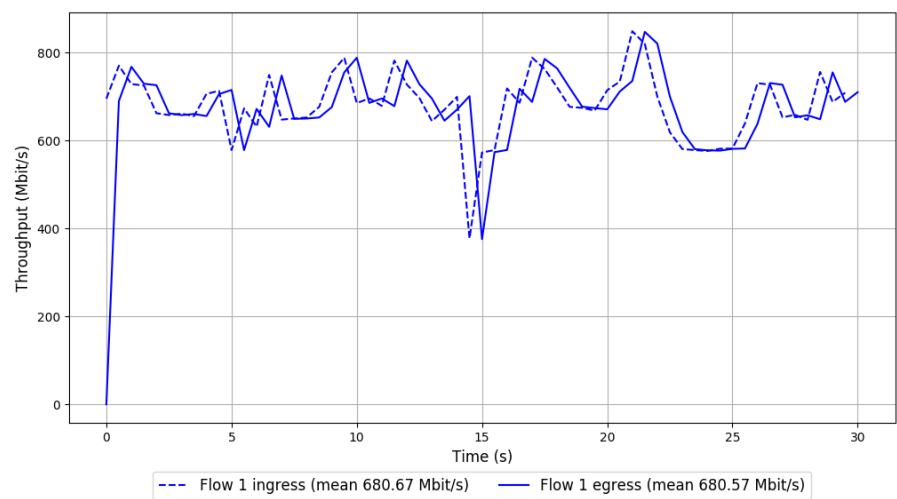
-- Flow 1:

Average throughput: 680.57 Mbit/s

95th percentile per-packet one-way delay: 5.960 ms

Loss rate: 0.01%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-11-30 04:22:48

End at: 2018-11-30 04:23:18

Local clock offset: 7.371 ms

Remote clock offset: 0.144 ms

Below is generated by plot.py at 2018-11-30 06:18:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 752.20 Mbit/s

95th percentile per-packet one-way delay: 5.397 ms

Loss rate: 0.01%

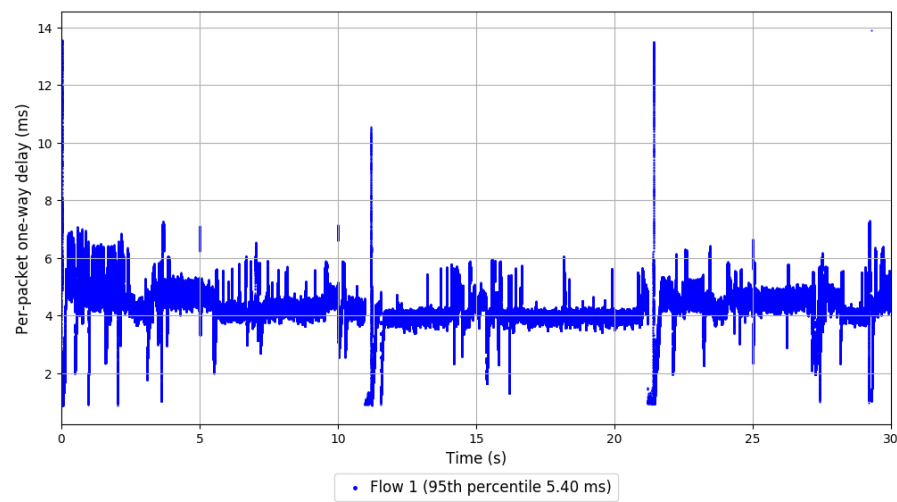
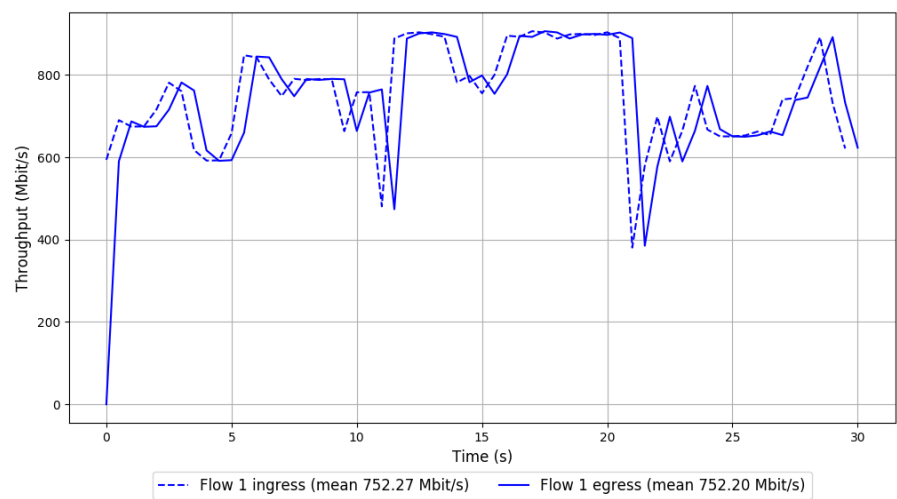
-- Flow 1:

Average throughput: 752.20 Mbit/s

95th percentile per-packet one-way delay: 5.397 ms

Loss rate: 0.01%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-11-30 04:48:44

End at: 2018-11-30 04:49:14

Local clock offset: 6.411 ms

Remote clock offset: 0.027 ms

Below is generated by plot.py at 2018-11-30 06:18:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 718.67 Mbit/s

95th percentile per-packet one-way delay: 4.973 ms

Loss rate: 0.01%

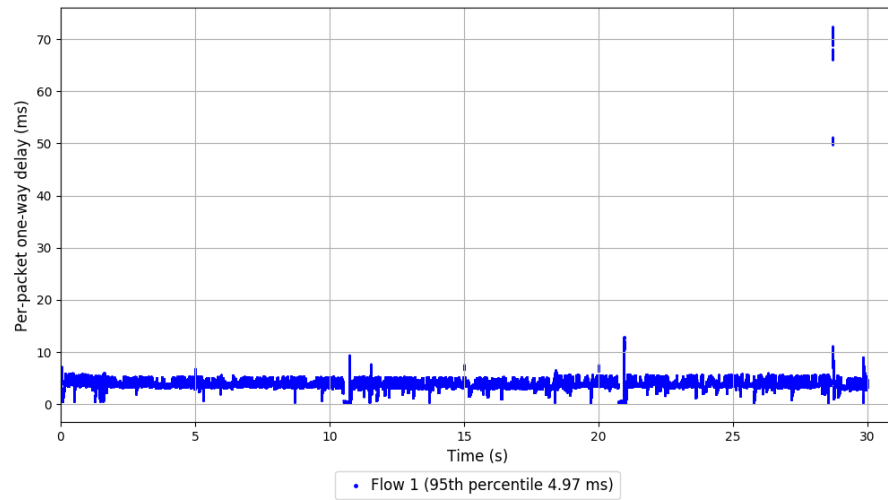
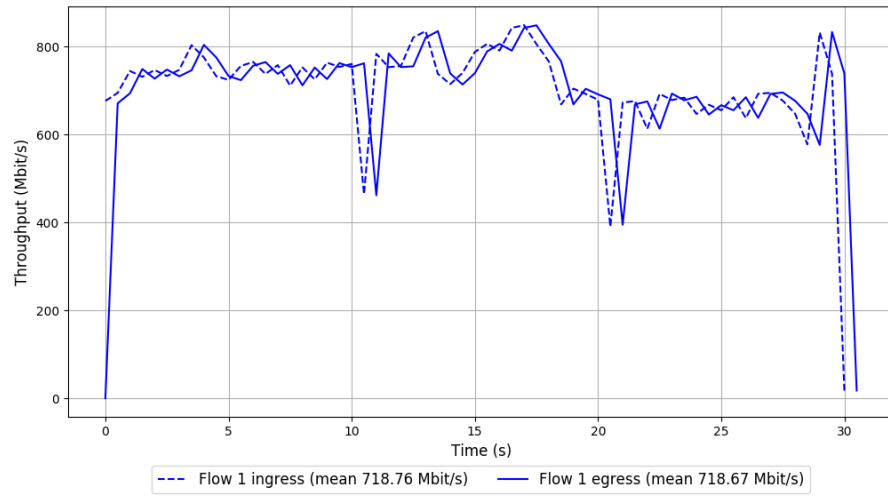
-- Flow 1:

Average throughput: 718.67 Mbit/s

95th percentile per-packet one-way delay: 4.973 ms

Loss rate: 0.01%

Run 3: Report of TCP BBR — Data Link

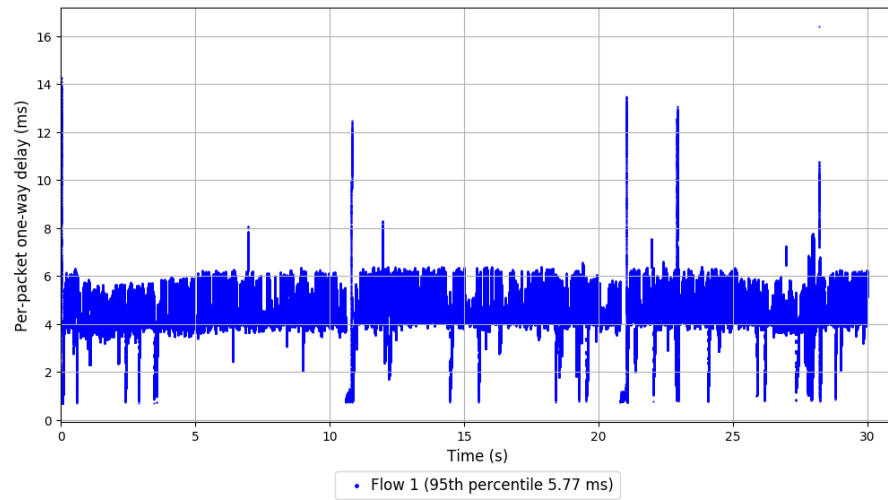
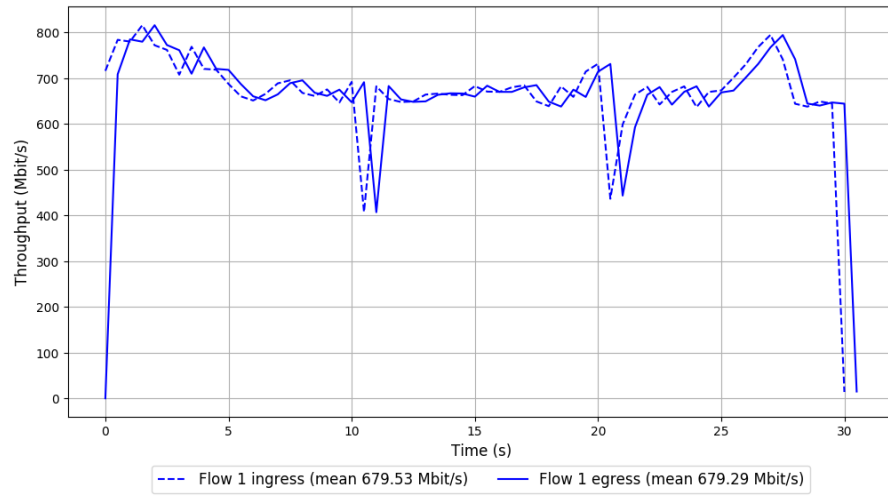


Run 4: Statistics of TCP BBR

Start at: 2018-11-30 05:14:47
End at: 2018-11-30 05:15:17
Local clock offset: -1.373 ms
Remote clock offset: -0.069 ms

Below is generated by plot.py at 2018-11-30 06:18:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 679.29 Mbit/s
95th percentile per-packet one-way delay: 5.768 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 679.29 Mbit/s
95th percentile per-packet one-way delay: 5.768 ms
Loss rate: 0.04%

Run 4: Report of TCP BBR — Data Link

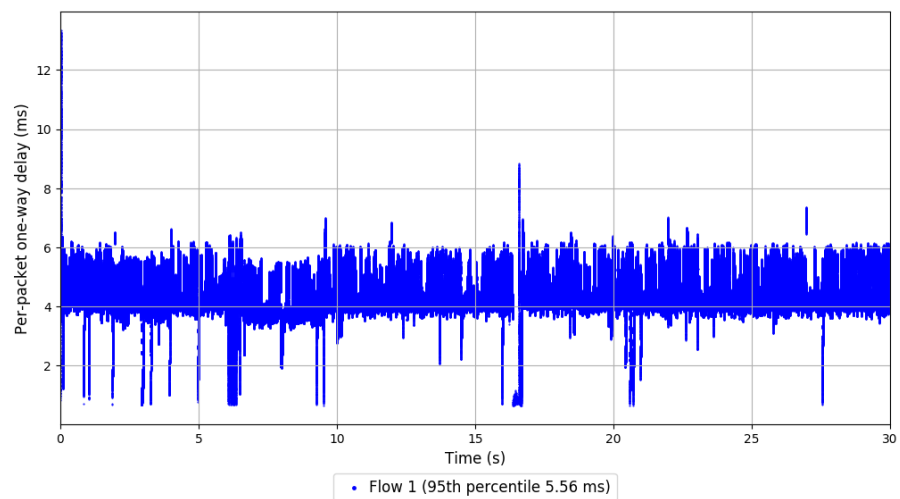
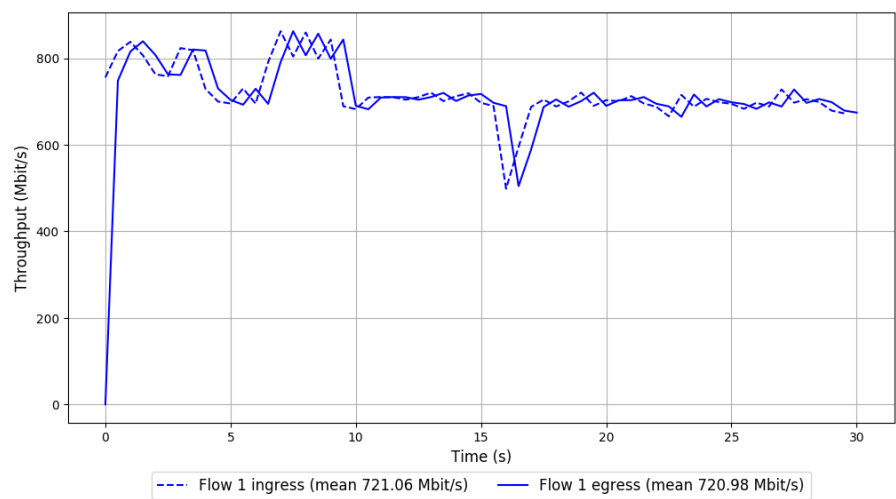


Run 5: Statistics of TCP BBR

Start at: 2018-11-30 05:40:39
End at: 2018-11-30 05:41:09
Local clock offset: -0.948 ms
Remote clock offset: -0.084 ms

Below is generated by plot.py at 2018-11-30 06:18:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 720.98 Mbit/s
95th percentile per-packet one-way delay: 5.559 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 720.98 Mbit/s
95th percentile per-packet one-way delay: 5.559 ms
Loss rate: 0.01%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

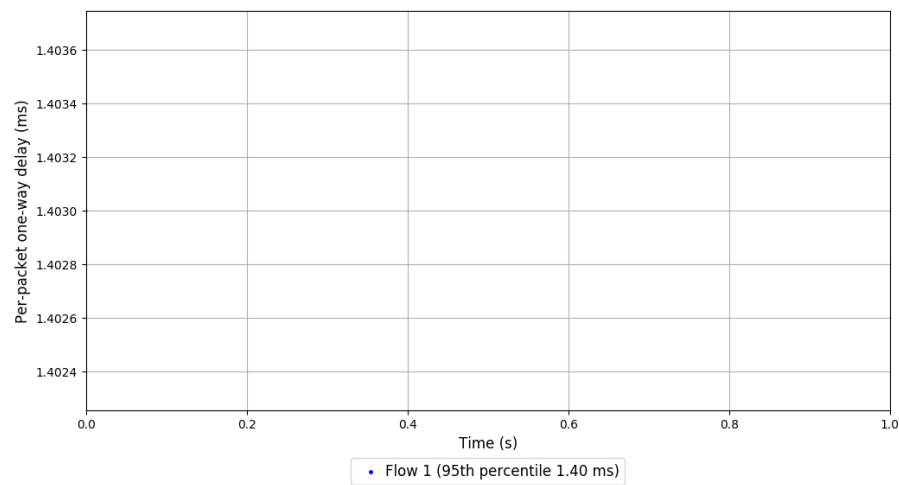
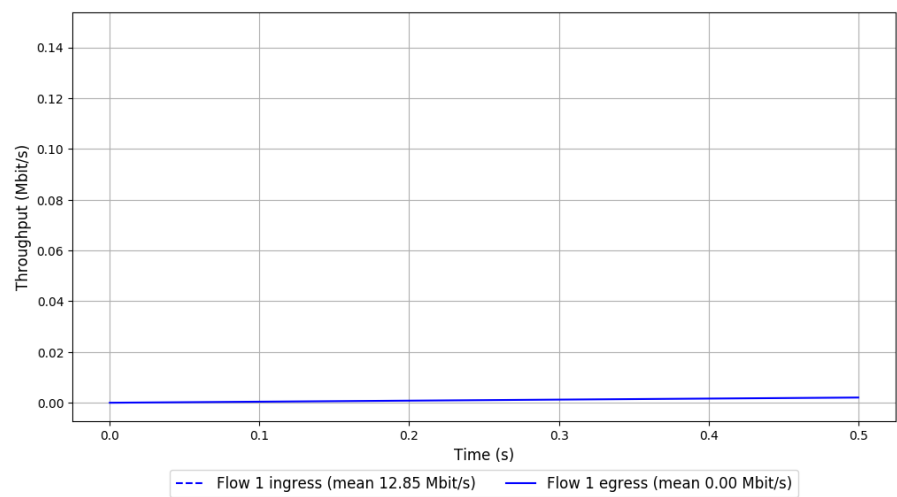
Start at: 2018-11-30 04:06:14

End at: 2018-11-30 04:06:44

Local clock offset: 4.483 ms

Remote clock offset: 0.143 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

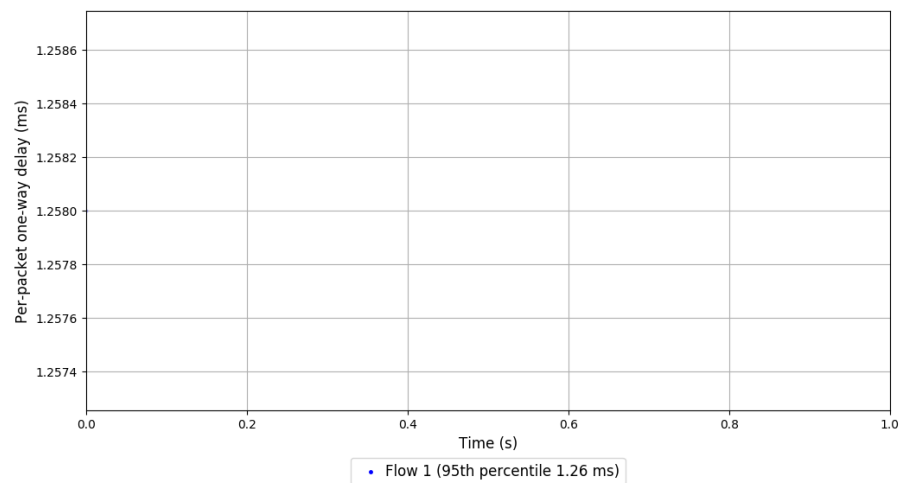
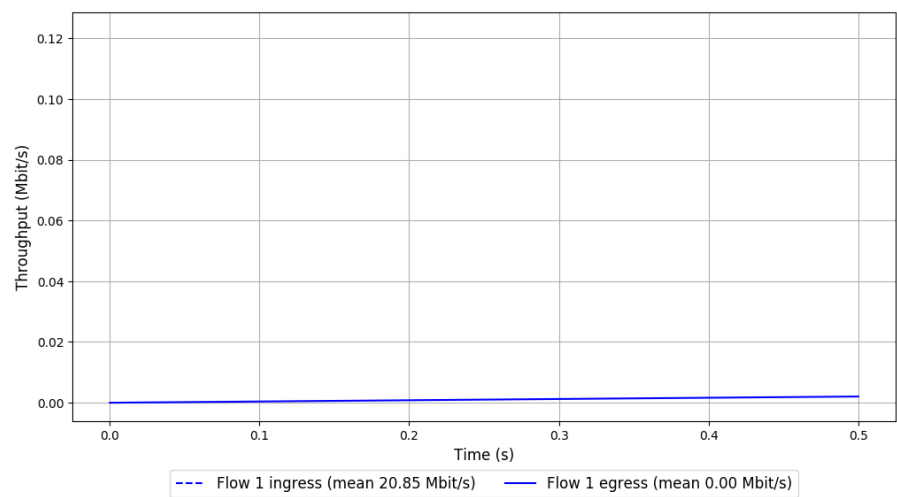
Start at: 2018-11-30 04:32:29

End at: 2018-11-30 04:32:59

Local clock offset: 8.63 ms

Remote clock offset: 0.133 ms

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

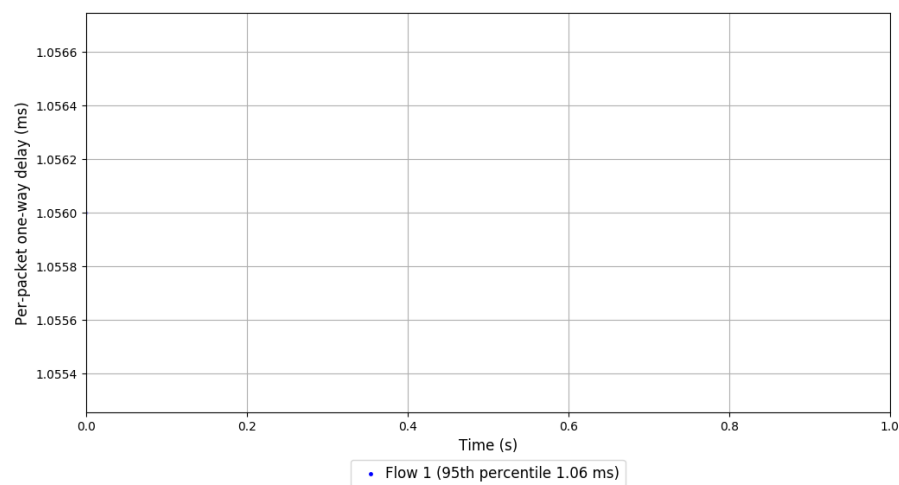
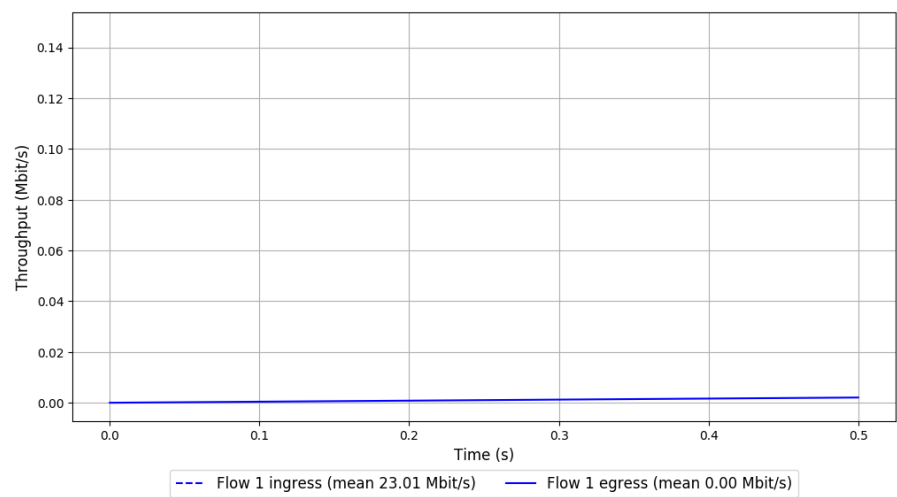
Start at: 2018-11-30 04:58:22

End at: 2018-11-30 04:58:52

Local clock offset: 1.46 ms

Remote clock offset: -0.002 ms

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

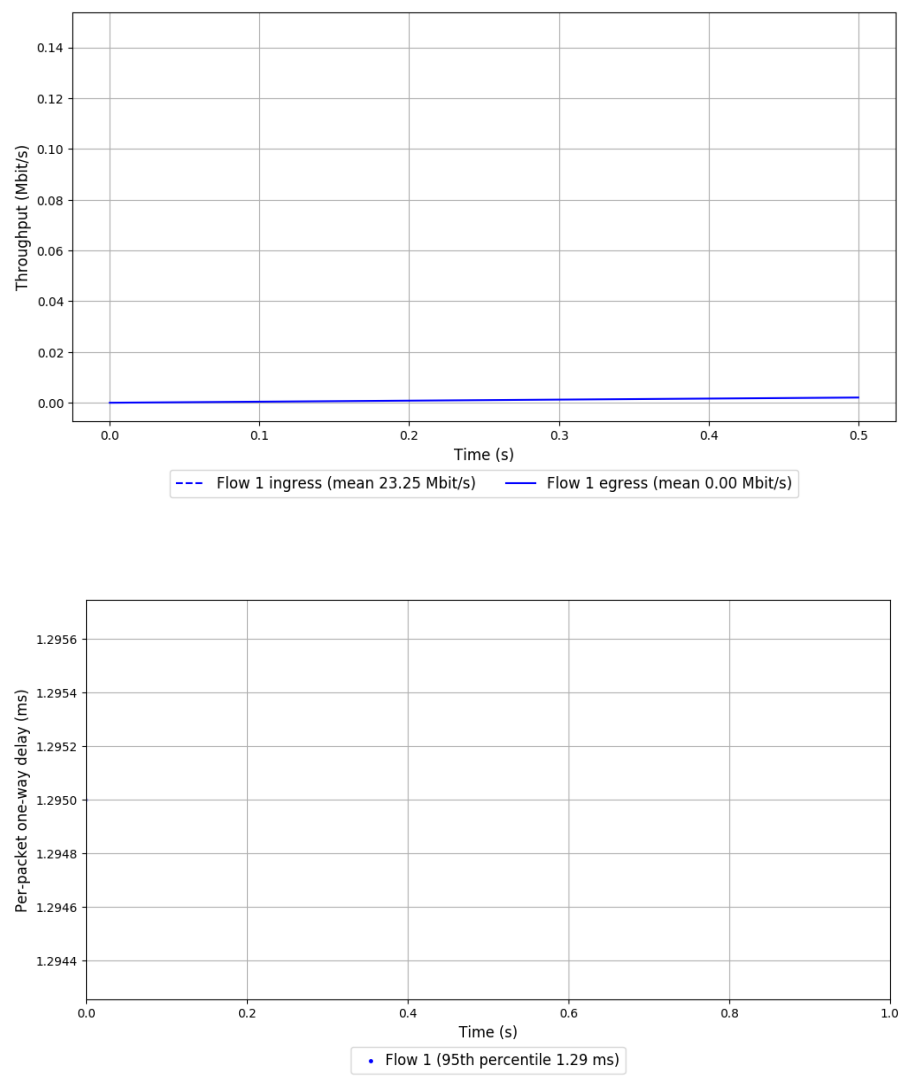
Start at: 2018-11-30 05:24:27

End at: 2018-11-30 05:24:57

Local clock offset: -0.738 ms

Remote clock offset: 0.058 ms

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

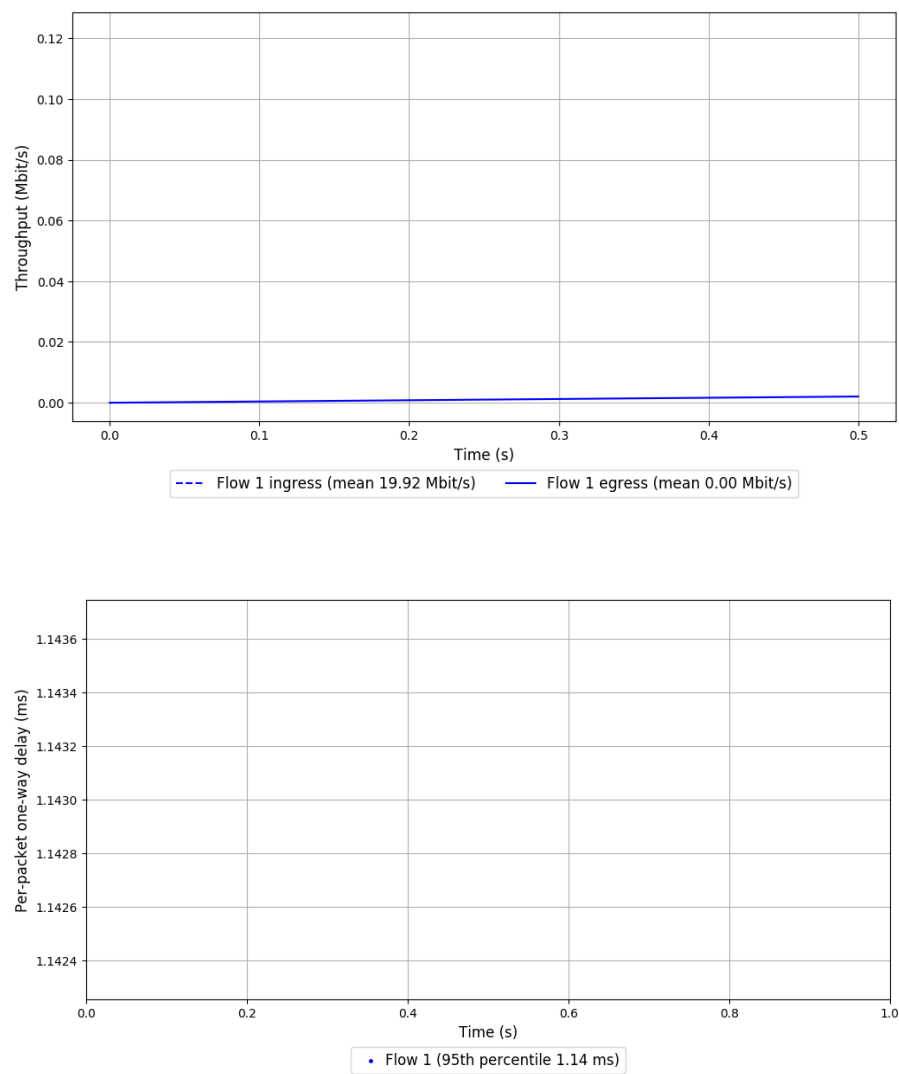
Start at: 2018-11-30 05:50:19

End at: 2018-11-30 05:50:49

Local clock offset: -0.605 ms

Remote clock offset: -0.052 ms

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-11-30 04:18:35

End at: 2018-11-30 04:19:05

Local clock offset: 6.729 ms

Remote clock offset: 0.091 ms

Below is generated by plot.py at 2018-11-30 06:18:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 780.08 Mbit/s

95th percentile per-packet one-way delay: 16.621 ms

Loss rate: 0.07%

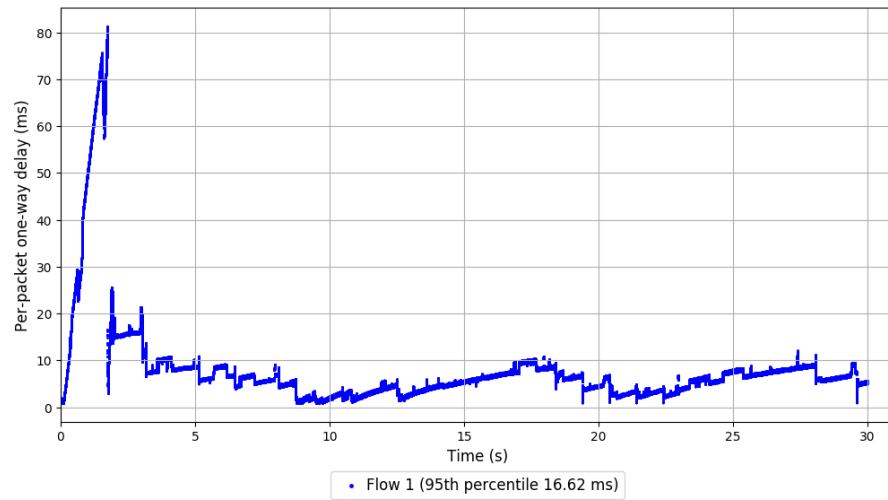
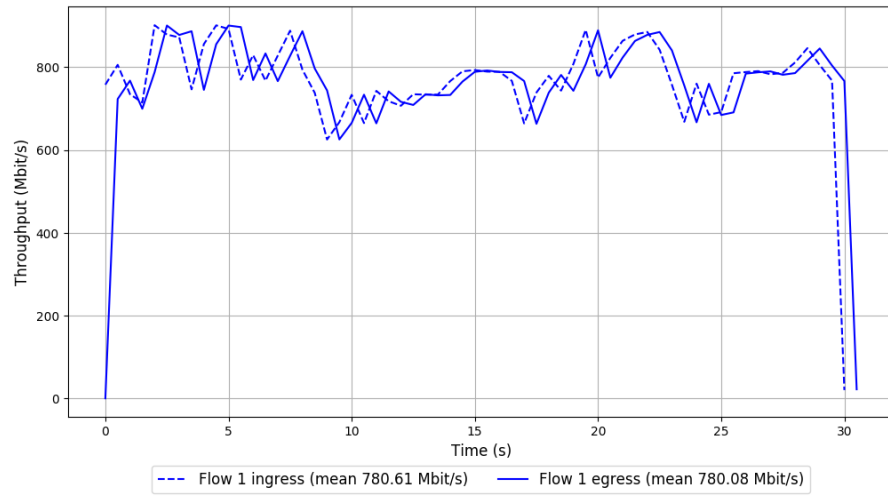
-- Flow 1:

Average throughput: 780.08 Mbit/s

95th percentile per-packet one-way delay: 16.621 ms

Loss rate: 0.07%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-11-30 04:44:38

End at: 2018-11-30 04:45:08

Local clock offset: 10.162 ms

Remote clock offset: 0.136 ms

Below is generated by plot.py at 2018-11-30 06:18:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 713.78 Mbit/s

95th percentile per-packet one-way delay: 47.588 ms

Loss rate: 0.07%

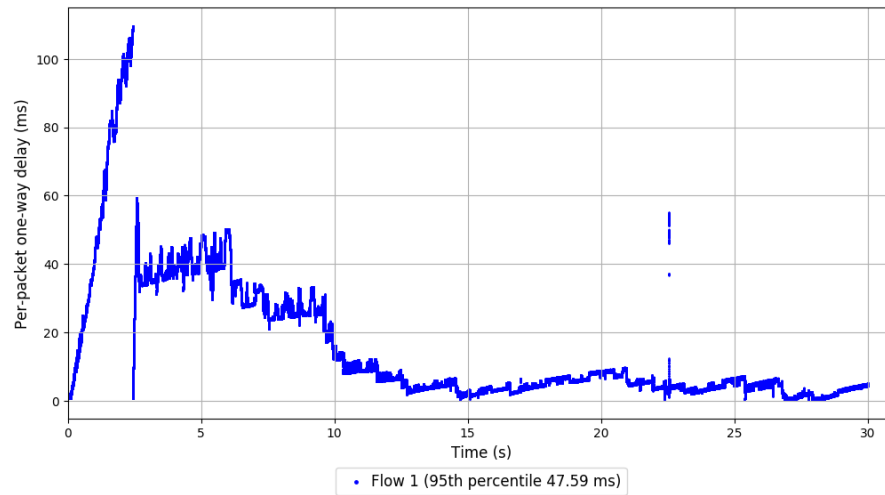
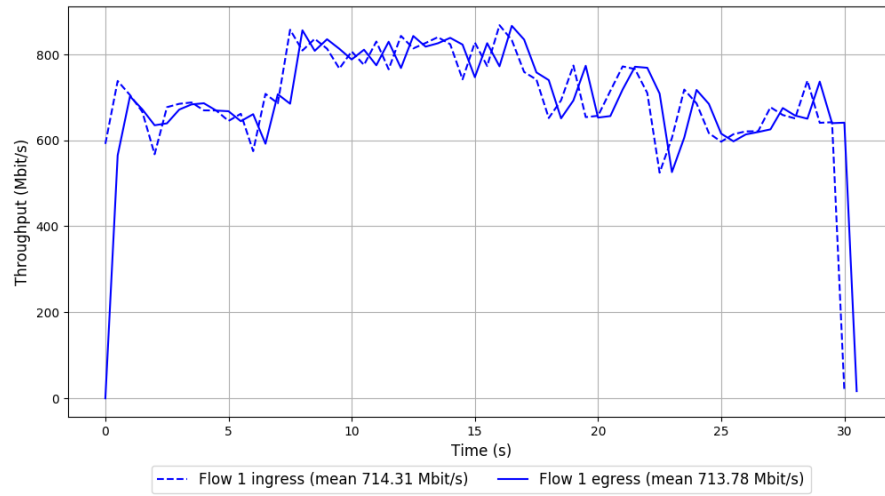
-- Flow 1:

Average throughput: 713.78 Mbit/s

95th percentile per-packet one-way delay: 47.588 ms

Loss rate: 0.07%

Run 2: Report of TCP Cubic — Data Link

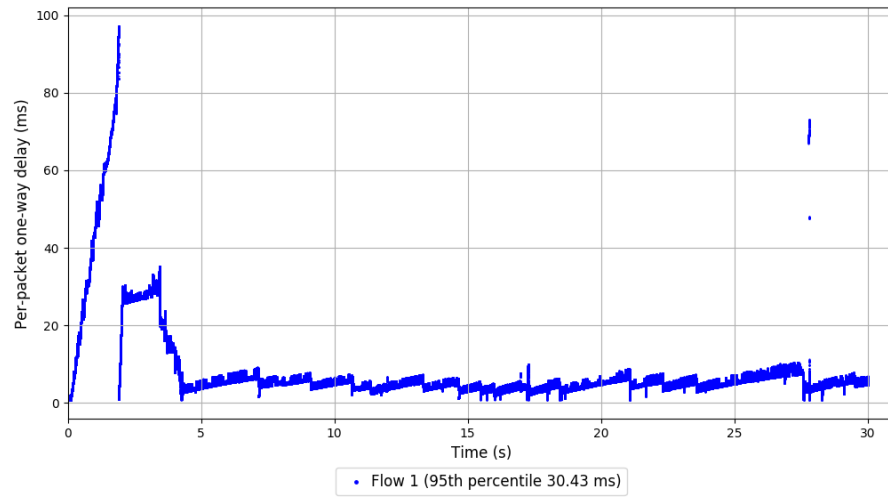
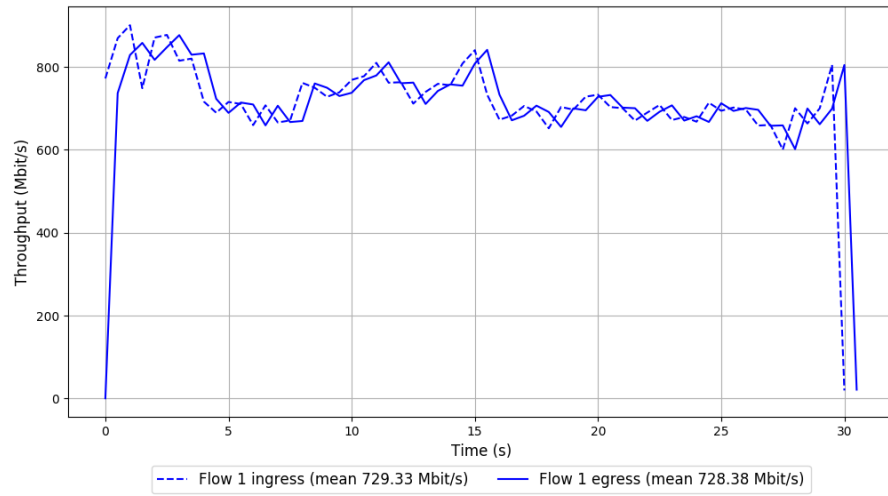


Run 3: Statistics of TCP Cubic

Start at: 2018-11-30 05:10:41
End at: 2018-11-30 05:11:11
Local clock offset: -0.938 ms
Remote clock offset: -0.073 ms

Below is generated by plot.py at 2018-11-30 06:18:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 728.38 Mbit/s
95th percentile per-packet one-way delay: 30.435 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 728.38 Mbit/s
95th percentile per-packet one-way delay: 30.435 ms
Loss rate: 0.13%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-11-30 05:36:31

End at: 2018-11-30 05:37:01

Local clock offset: -0.812 ms

Remote clock offset: 0.039 ms

Below is generated by plot.py at 2018-11-30 06:25:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 768.67 Mbit/s

95th percentile per-packet one-way delay: 15.593 ms

Loss rate: 0.08%

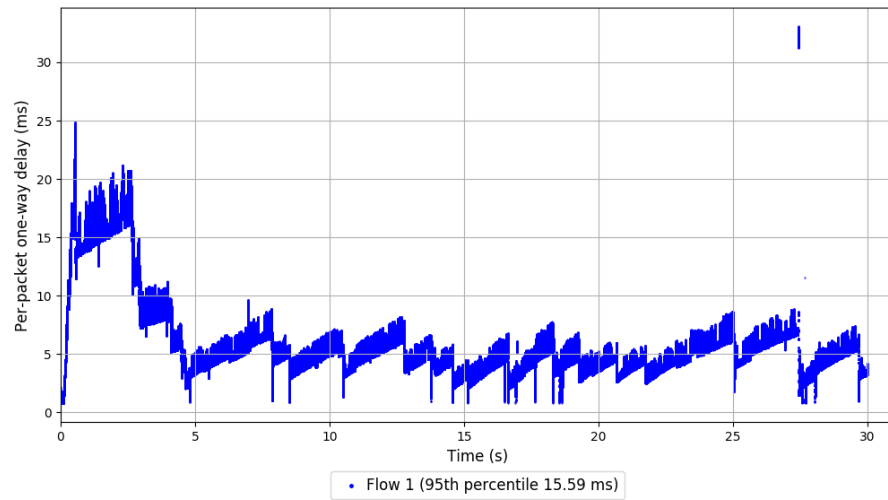
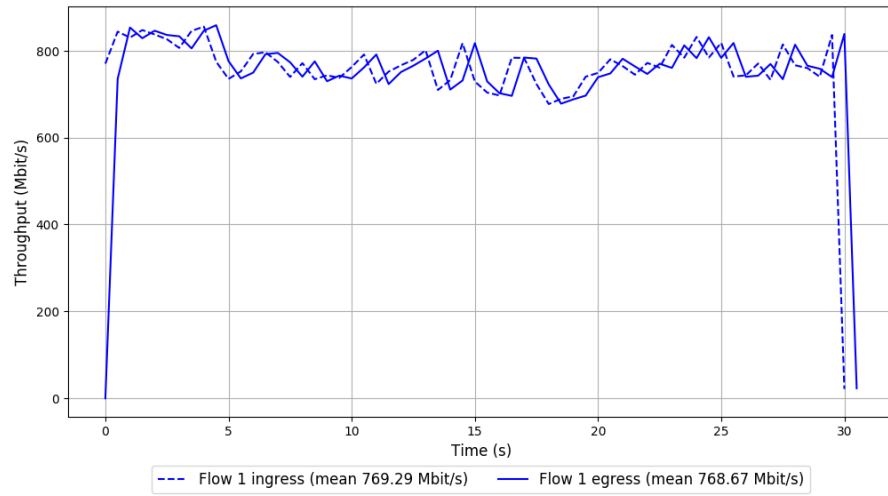
-- Flow 1:

Average throughput: 768.67 Mbit/s

95th percentile per-packet one-way delay: 15.593 ms

Loss rate: 0.08%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-30 06:02:35

End at: 2018-11-30 06:03:05

Local clock offset: -0.336 ms

Remote clock offset: 0.029 ms

Below is generated by plot.py at 2018-11-30 06:25:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 684.62 Mbit/s

95th percentile per-packet one-way delay: 6.614 ms

Loss rate: 0.03%

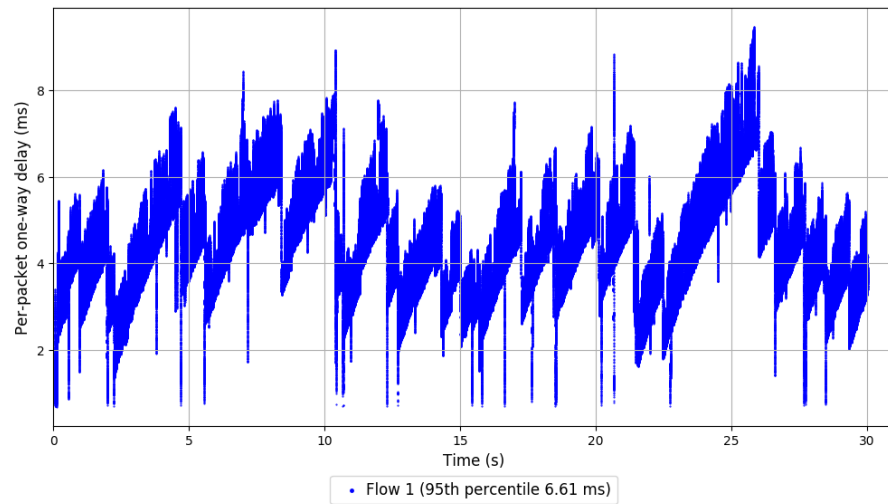
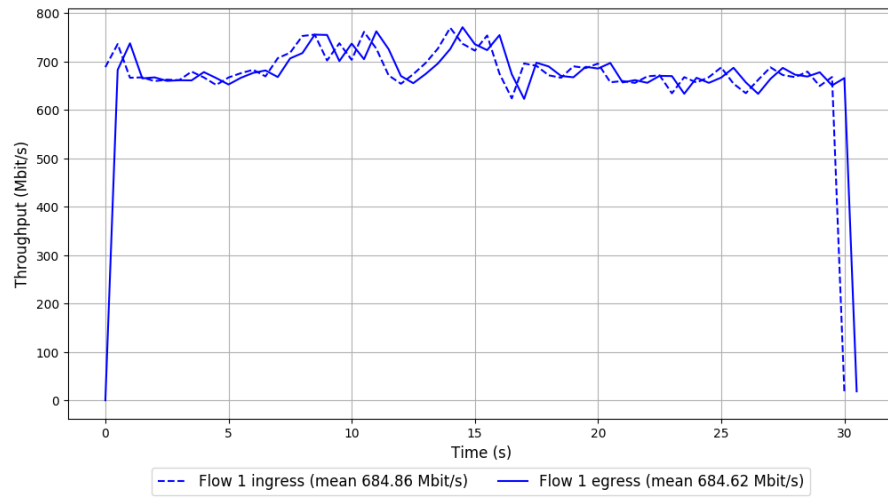
-- Flow 1:

Average throughput: 684.62 Mbit/s

95th percentile per-packet one-way delay: 6.614 ms

Loss rate: 0.03%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-11-30 04:04:36

End at: 2018-11-30 04:05:06

Local clock offset: 4.026 ms

Remote clock offset: 0.178 ms

Below is generated by plot.py at 2018-11-30 06:30:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 900.91 Mbit/s

95th percentile per-packet one-way delay: 10.887 ms

Loss rate: 3.17%

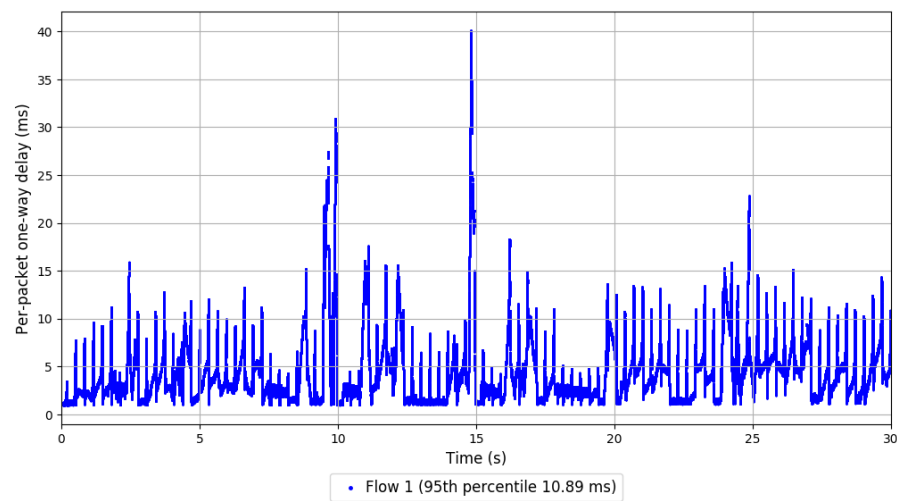
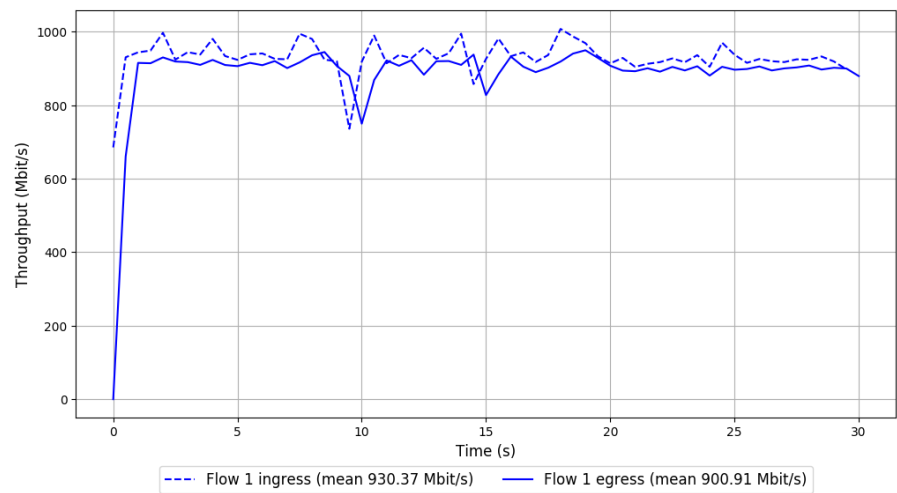
-- Flow 1:

Average throughput: 900.91 Mbit/s

95th percentile per-packet one-way delay: 10.887 ms

Loss rate: 3.17%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-11-30 04:30:51

End at: 2018-11-30 04:31:21

Local clock offset: 8.446 ms

Remote clock offset: 0.098 ms

Below is generated by plot.py at 2018-11-30 06:30:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 900.38 Mbit/s

95th percentile per-packet one-way delay: 13.538 ms

Loss rate: 2.94%

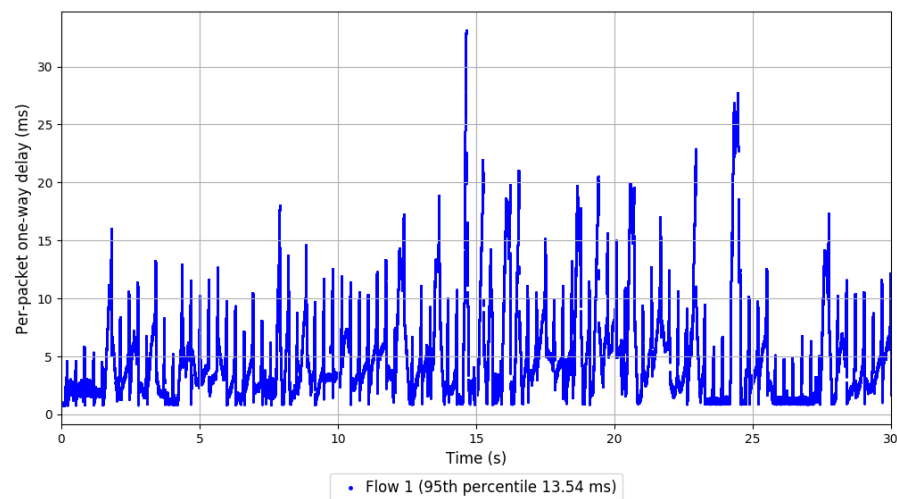
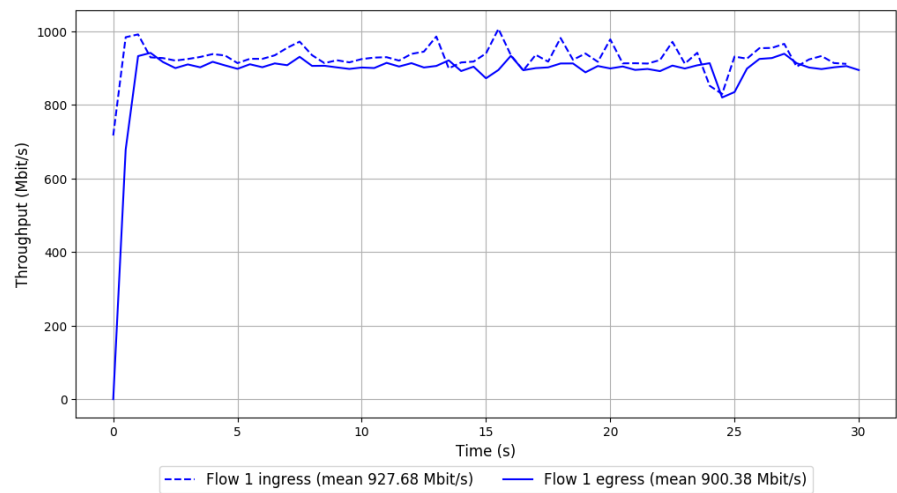
-- Flow 1:

Average throughput: 900.38 Mbit/s

95th percentile per-packet one-way delay: 13.538 ms

Loss rate: 2.94%

Run 2: Report of FillP — Data Link

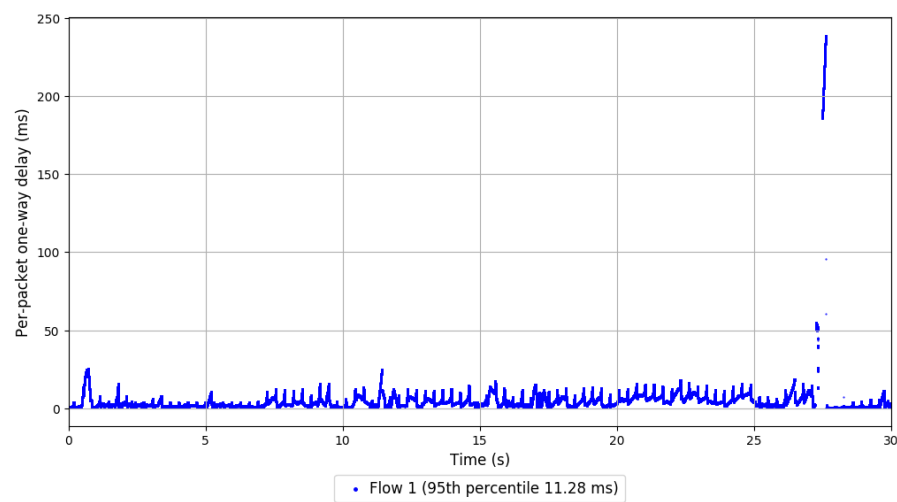
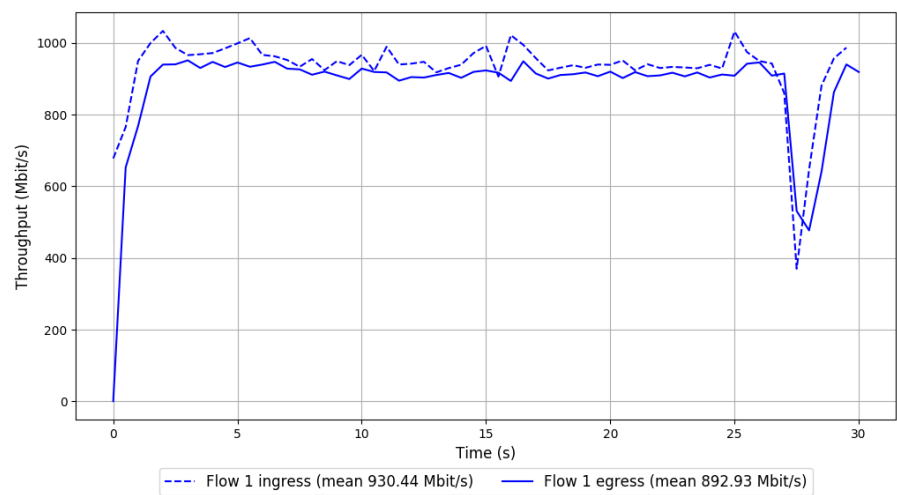


Run 3: Statistics of FillP

Start at: 2018-11-30 04:56:45
End at: 2018-11-30 04:57:15
Local clock offset: 1.986 ms
Remote clock offset: -0.007 ms

Below is generated by plot.py at 2018-11-30 06:30:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 892.93 Mbit/s
95th percentile per-packet one-way delay: 11.279 ms
Loss rate: 4.03%
-- Flow 1:
Average throughput: 892.93 Mbit/s
95th percentile per-packet one-way delay: 11.279 ms
Loss rate: 4.03%

Run 3: Report of FillP — Data Link

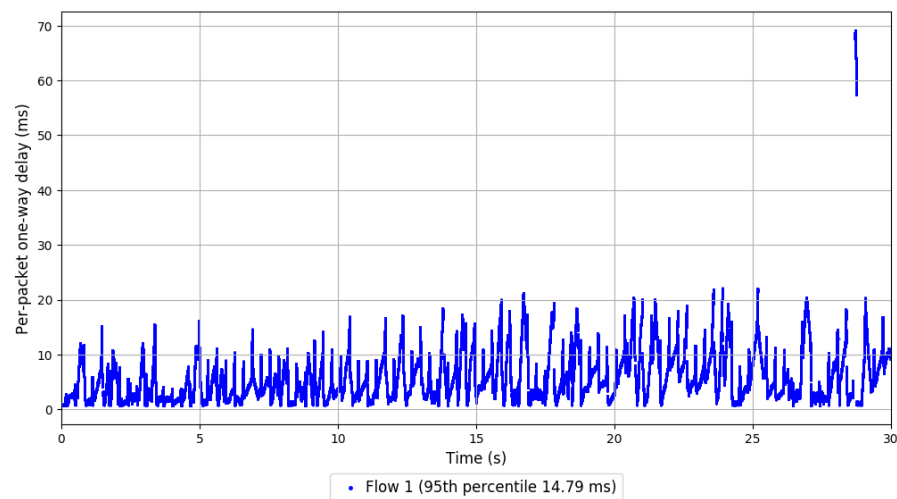
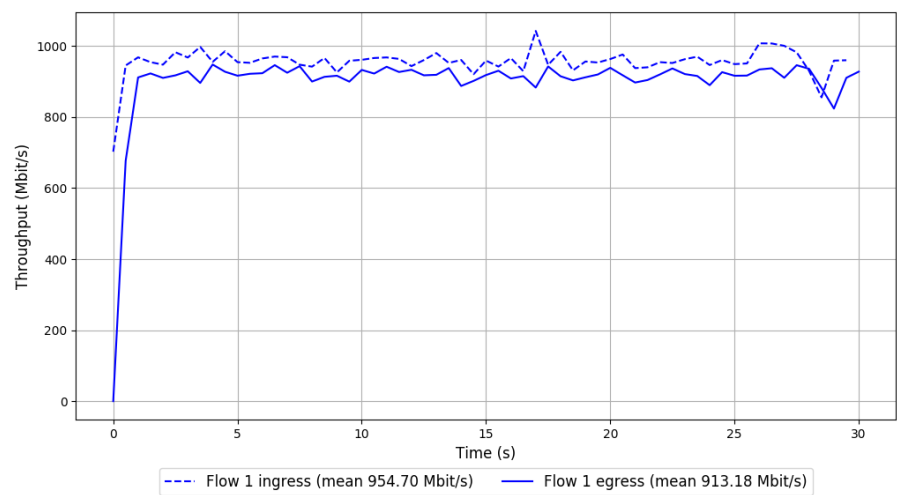


Run 4: Statistics of FillP

Start at: 2018-11-30 05:22:48
End at: 2018-11-30 05:23:18
Local clock offset: -0.779 ms
Remote clock offset: -0.068 ms

Below is generated by plot.py at 2018-11-30 06:31:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 913.18 Mbit/s
95th percentile per-packet one-way delay: 14.794 ms
Loss rate: 4.34%
-- Flow 1:
Average throughput: 913.18 Mbit/s
95th percentile per-packet one-way delay: 14.794 ms
Loss rate: 4.34%

Run 4: Report of FillP — Data Link

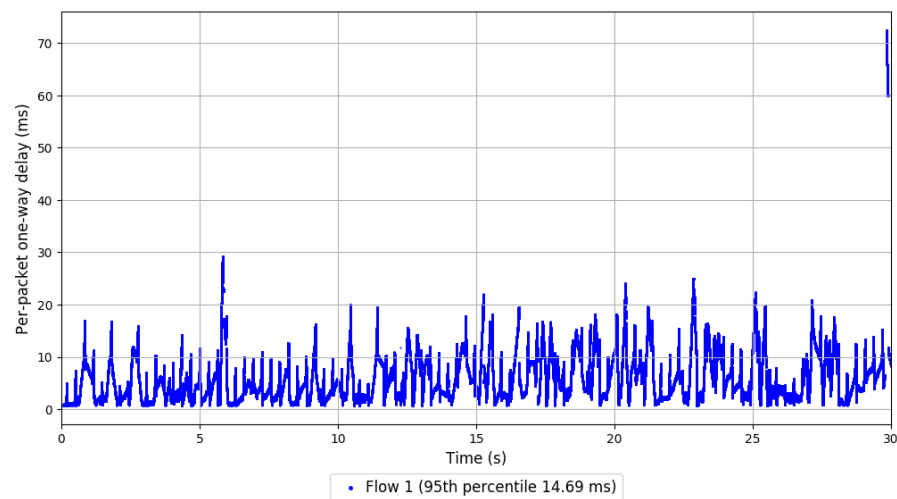
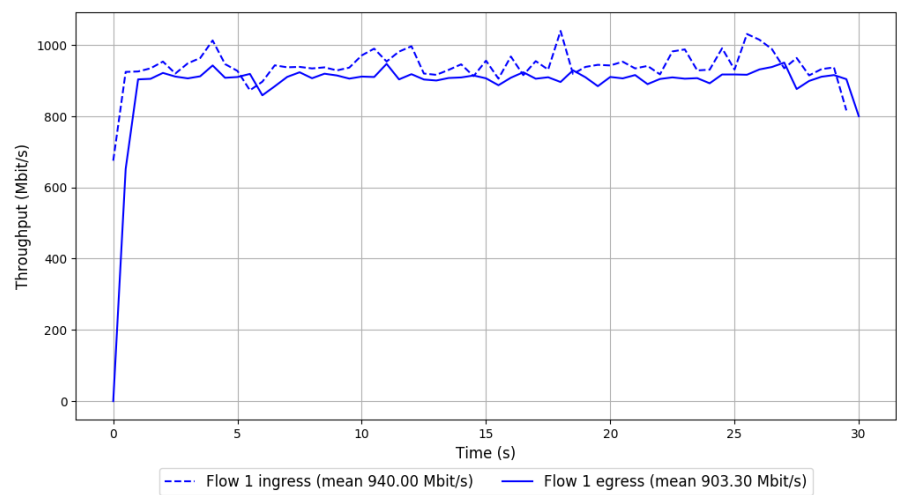


Run 5: Statistics of FillP

Start at: 2018-11-30 05:48:40
End at: 2018-11-30 05:49:11
Local clock offset: -0.71 ms
Remote clock offset: -0.075 ms

Below is generated by plot.py at 2018-11-30 06:31:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 903.30 Mbit/s
95th percentile per-packet one-way delay: 14.692 ms
Loss rate: 3.90%
-- Flow 1:
Average throughput: 903.30 Mbit/s
95th percentile per-packet one-way delay: 14.692 ms
Loss rate: 3.90%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-11-30 04:13:58

End at: 2018-11-30 04:14:28

Local clock offset: 6.003 ms

Remote clock offset: 0.01 ms

Below is generated by plot.py at 2018-11-30 06:31:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 902.71 Mbit/s

95th percentile per-packet one-way delay: 4.325 ms

Loss rate: 2.64%

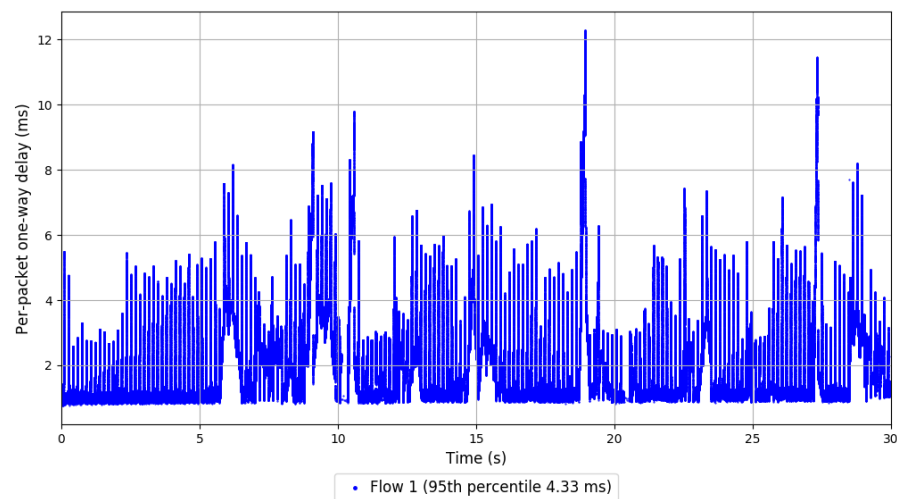
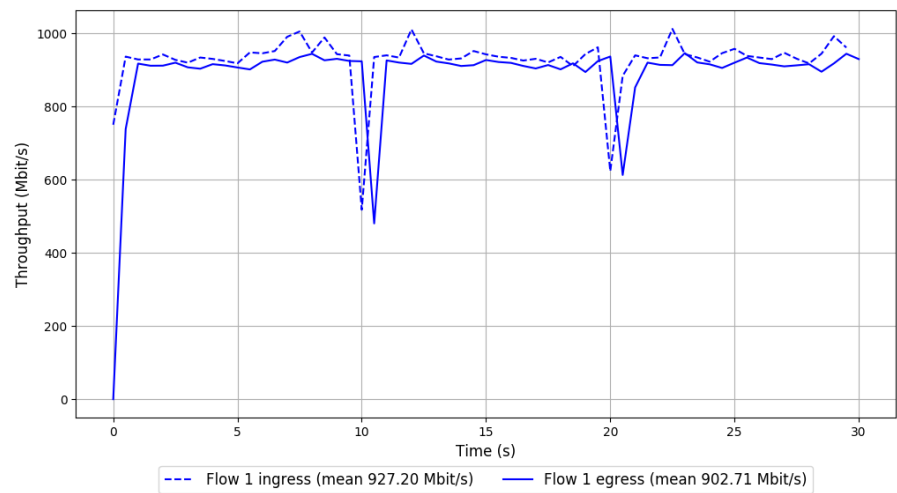
-- Flow 1:

Average throughput: 902.71 Mbit/s

95th percentile per-packet one-way delay: 4.325 ms

Loss rate: 2.64%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-11-30 04:40:01

End at: 2018-11-30 04:40:31

Local clock offset: 9.599 ms

Remote clock offset: 0.174 ms

Below is generated by plot.py at 2018-11-30 06:38:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 895.03 Mbit/s

95th percentile per-packet one-way delay: 6.200 ms

Loss rate: 2.24%

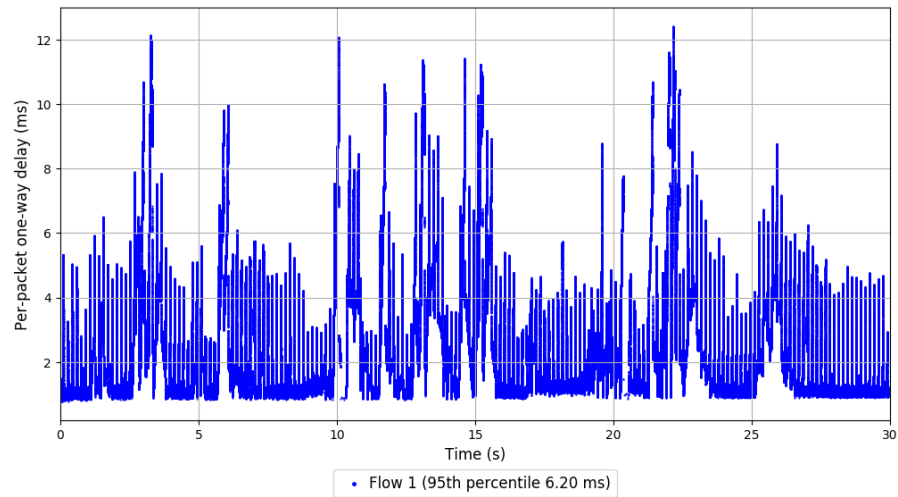
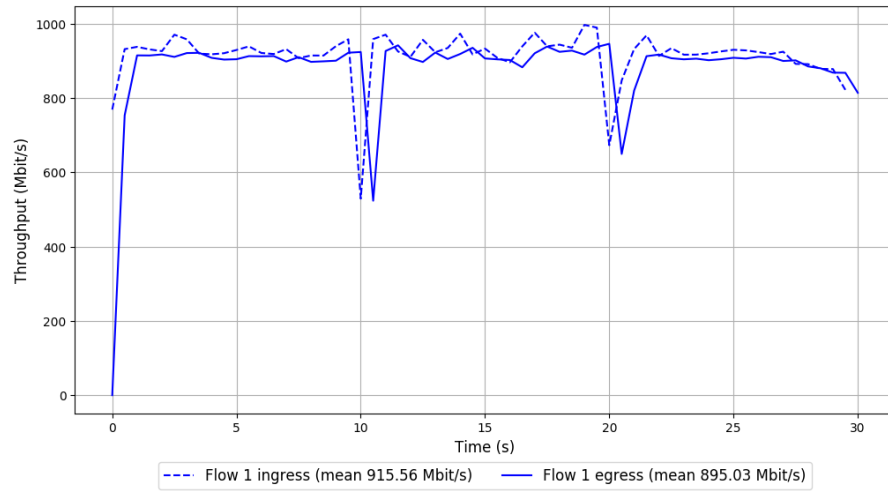
-- Flow 1:

Average throughput: 895.03 Mbit/s

95th percentile per-packet one-way delay: 6.200 ms

Loss rate: 2.24%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-11-30 05:06:08

End at: 2018-11-30 05:06:38

Local clock offset: -0.3 ms

Remote clock offset: 0.003 ms

Below is generated by plot.py at 2018-11-30 06:38:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 897.55 Mbit/s

95th percentile per-packet one-way delay: 7.121 ms

Loss rate: 2.74%

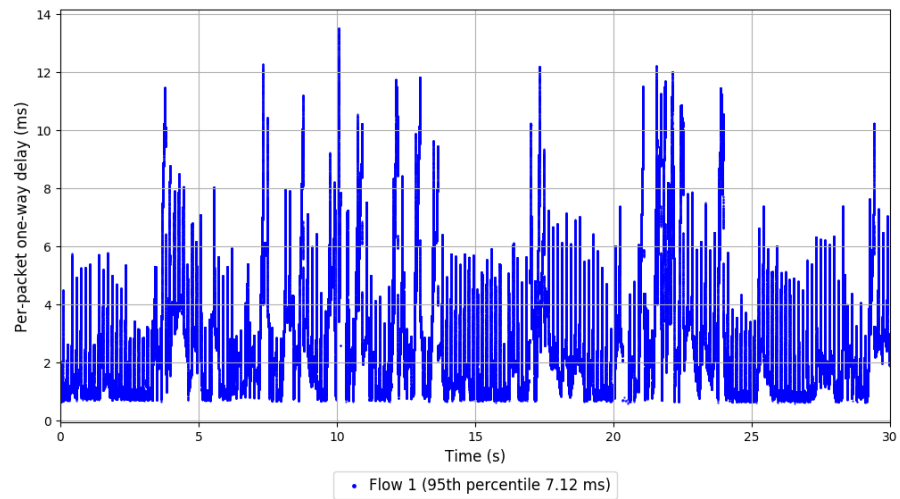
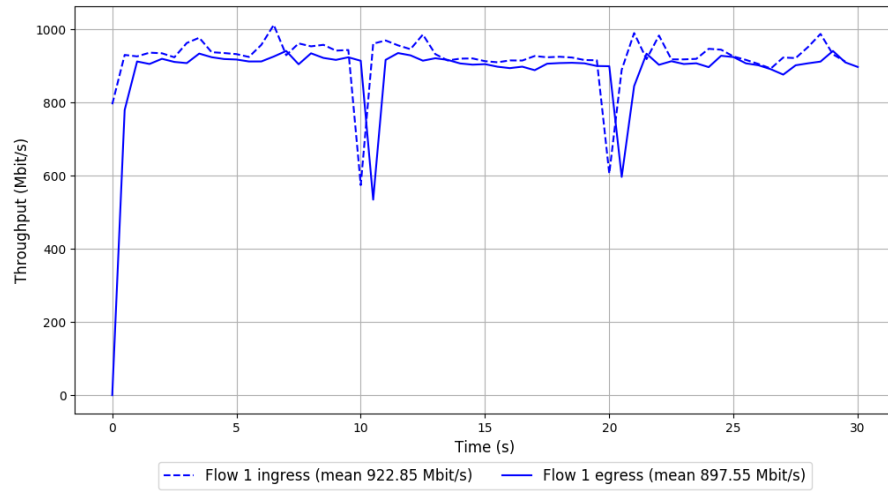
-- Flow 1:

Average throughput: 897.55 Mbit/s

95th percentile per-packet one-way delay: 7.121 ms

Loss rate: 2.74%

Run 3: Report of FillP-Sheep — Data Link

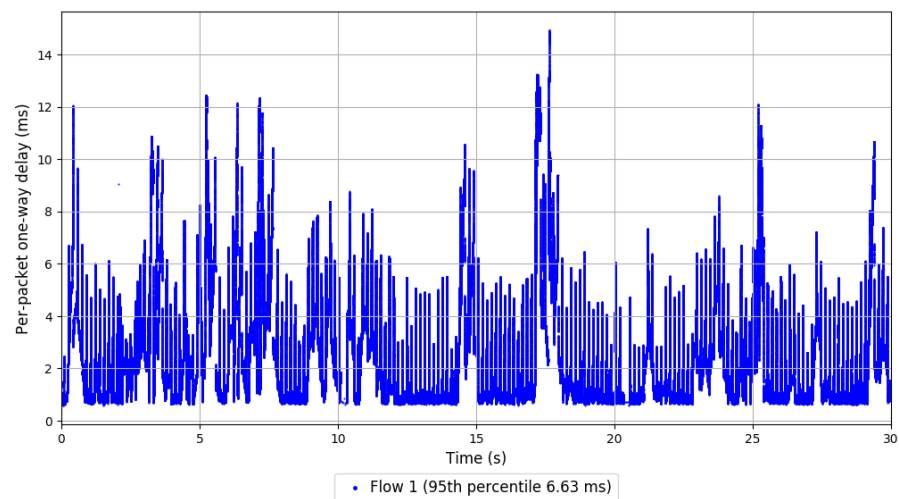
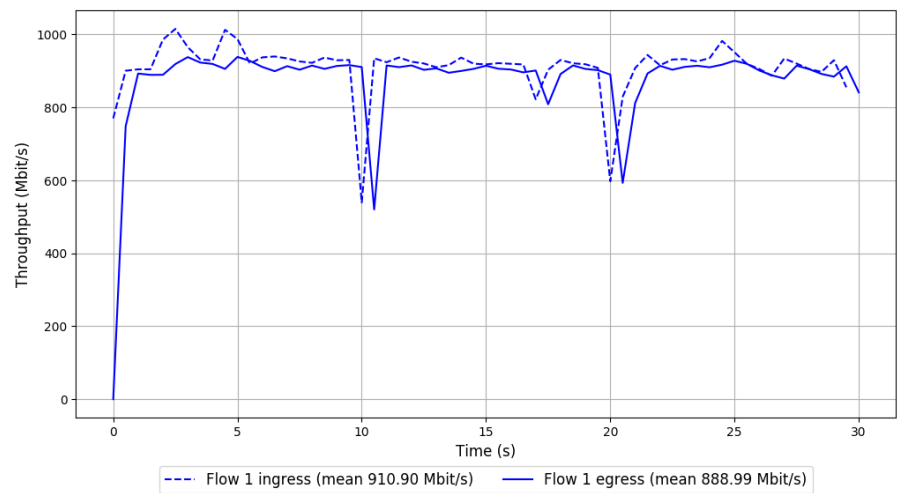


Run 4: Statistics of FillP-Sheep

Start at: 2018-11-30 05:31:58
End at: 2018-11-30 05:32:28
Local clock offset: -0.722 ms
Remote clock offset: -0.12 ms

Below is generated by plot.py at 2018-11-30 06:43:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 888.99 Mbit/s
95th percentile per-packet one-way delay: 6.626 ms
Loss rate: 2.40%
-- Flow 1:
Average throughput: 888.99 Mbit/s
95th percentile per-packet one-way delay: 6.626 ms
Loss rate: 2.40%

Run 4: Report of FillP-Sheep — Data Link

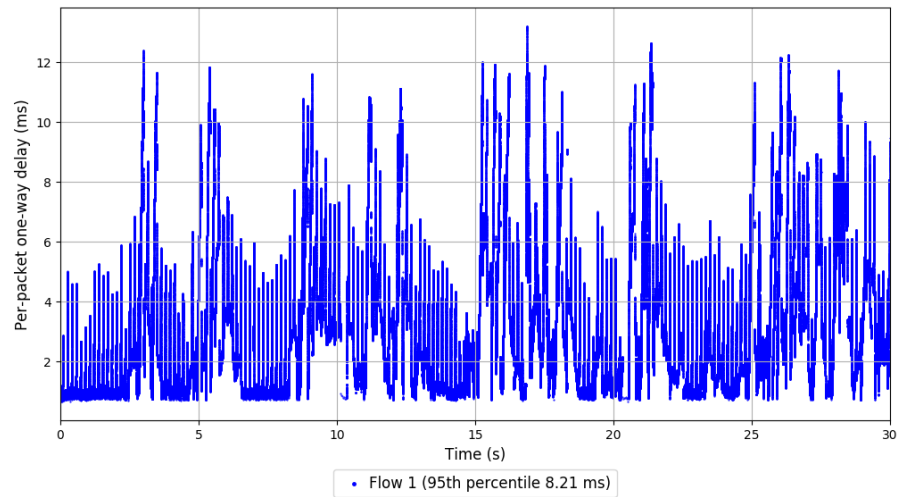
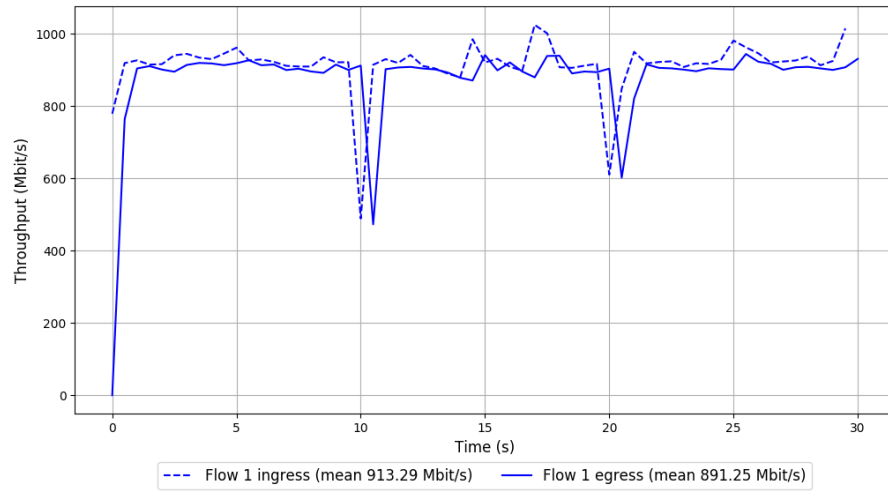


Run 5: Statistics of FillP-Sheep

Start at: 2018-11-30 05:57:57
End at: 2018-11-30 05:58:27
Local clock offset: -0.358 ms
Remote clock offset: -0.017 ms

Below is generated by plot.py at 2018-11-30 06:43:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 891.25 Mbit/s
95th percentile per-packet one-way delay: 8.212 ms
Loss rate: 2.41%
-- Flow 1:
Average throughput: 891.25 Mbit/s
95th percentile per-packet one-way delay: 8.212 ms
Loss rate: 2.41%

Run 5: Report of FillP-Sheep — Data Link

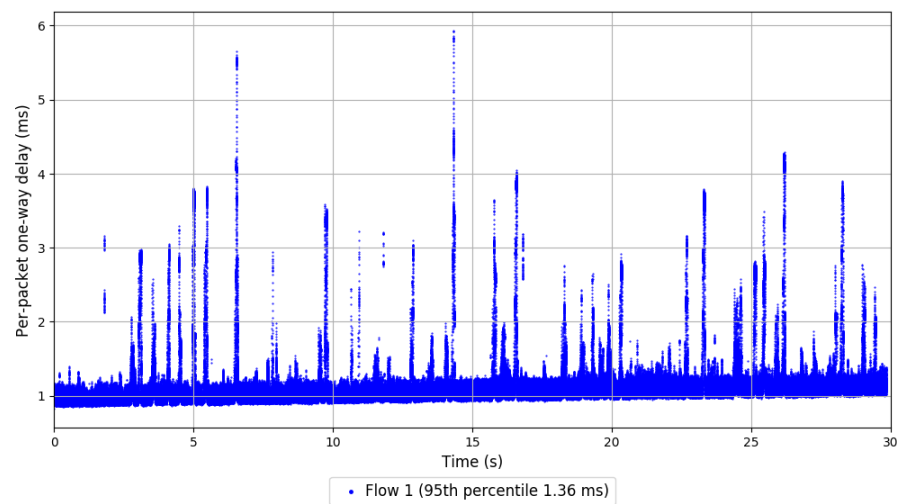
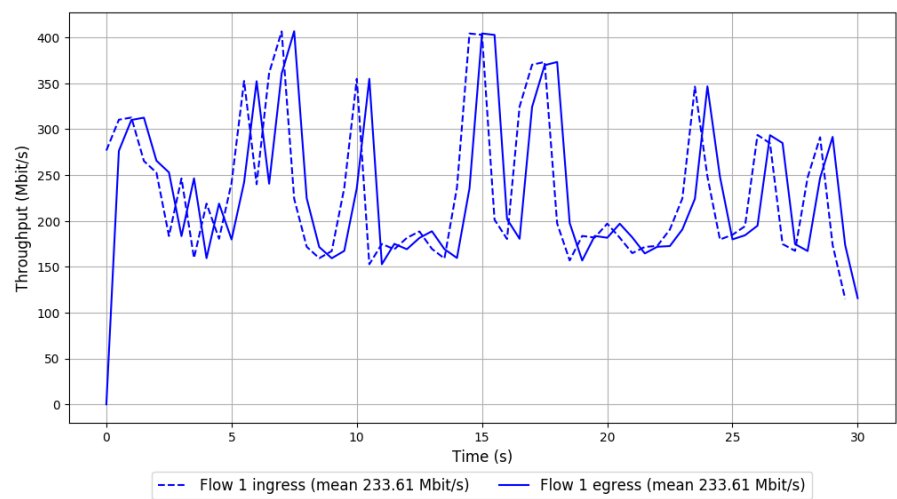


```
Run 1: Statistics of Indigo

Start at: 2018-11-30 04:03:13
End at: 2018-11-30 04:03:43
Local clock offset: 3.656 ms
Remote clock offset: 0.061 ms

# Below is generated by plot.py at 2018-11-30 06:43:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 233.61 Mbit/s
95th percentile per-packet one-way delay: 1.358 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 233.61 Mbit/s
95th percentile per-packet one-way delay: 1.358 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-11-30 04:29:28

End at: 2018-11-30 04:29:58

Local clock offset: 8.243 ms

Remote clock offset: 0.05 ms

Below is generated by plot.py at 2018-11-30 06:43:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 247.55 Mbit/s

95th percentile per-packet one-way delay: 1.241 ms

Loss rate: 0.00%

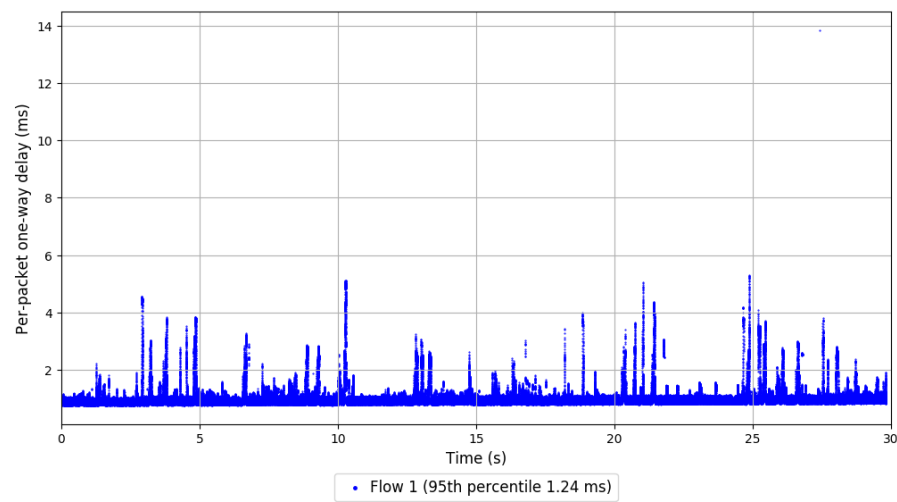
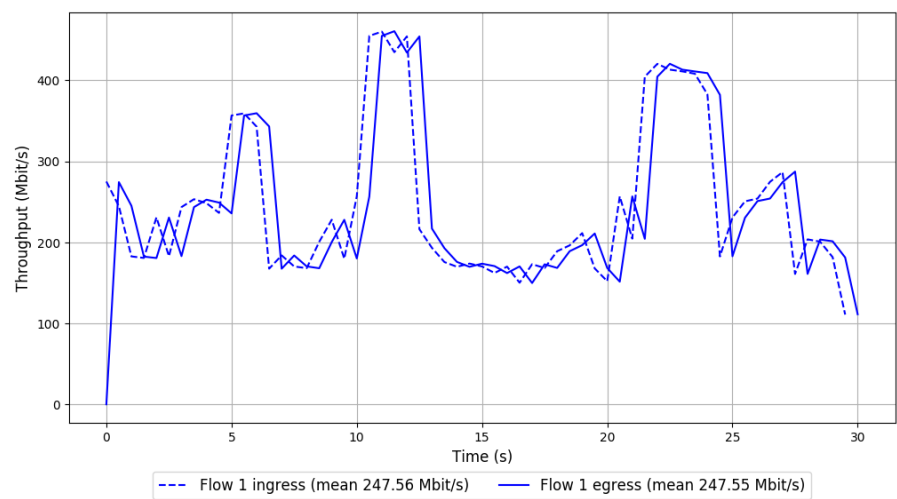
-- Flow 1:

Average throughput: 247.55 Mbit/s

95th percentile per-packet one-way delay: 1.241 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-11-30 04:55:23

End at: 2018-11-30 04:55:53

Local clock offset: 2.528 ms

Remote clock offset: -0.072 ms

Below is generated by plot.py at 2018-11-30 06:43:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 222.10 Mbit/s

95th percentile per-packet one-way delay: 0.711 ms

Loss rate: 0.00%

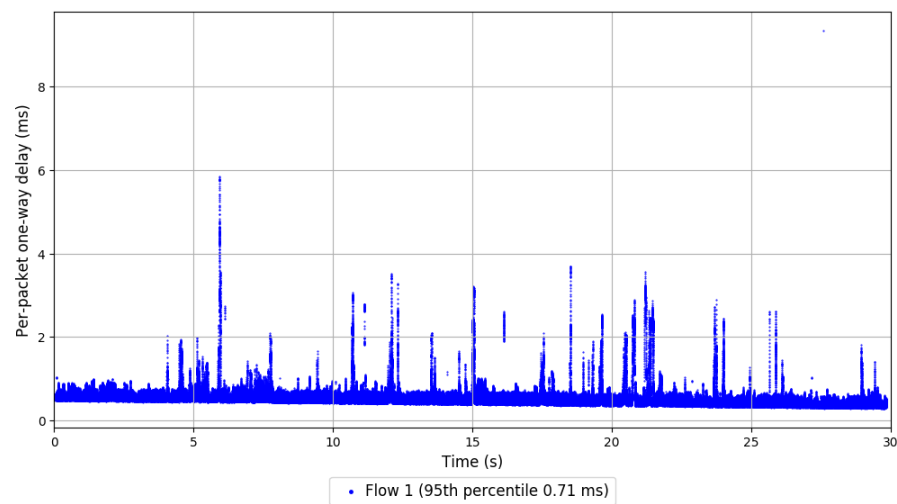
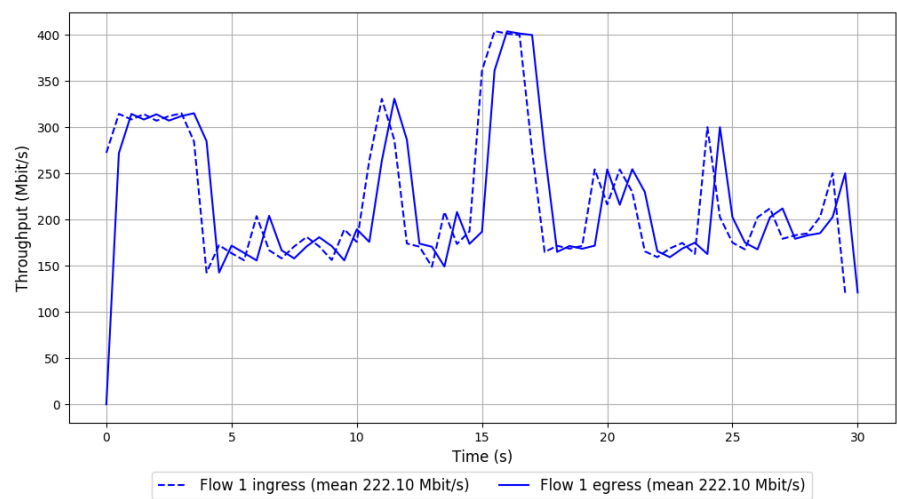
-- Flow 1:

Average throughput: 222.10 Mbit/s

95th percentile per-packet one-way delay: 0.711 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

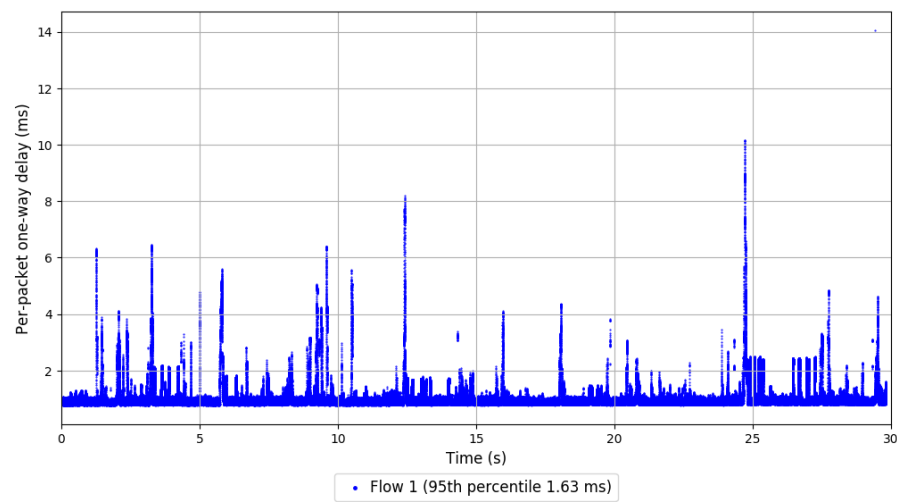
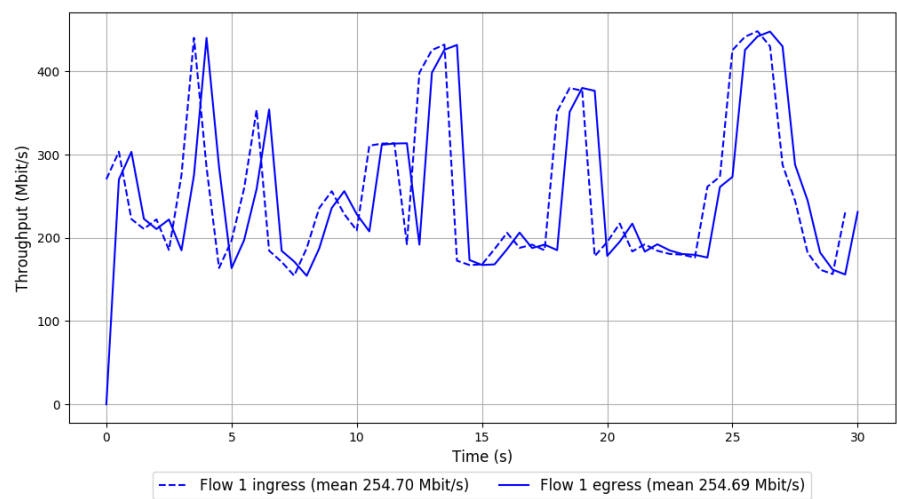


Run 4: Statistics of Indigo

Start at: 2018-11-30 05:21:25
End at: 2018-11-30 05:21:55
Local clock offset: -0.837 ms
Remote clock offset: -0.045 ms

Below is generated by plot.py at 2018-11-30 06:43:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 254.69 Mbit/s
95th percentile per-packet one-way delay: 1.629 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 254.69 Mbit/s
95th percentile per-packet one-way delay: 1.629 ms
Loss rate: 0.00%

Run 4: Report of Indigo — Data Link

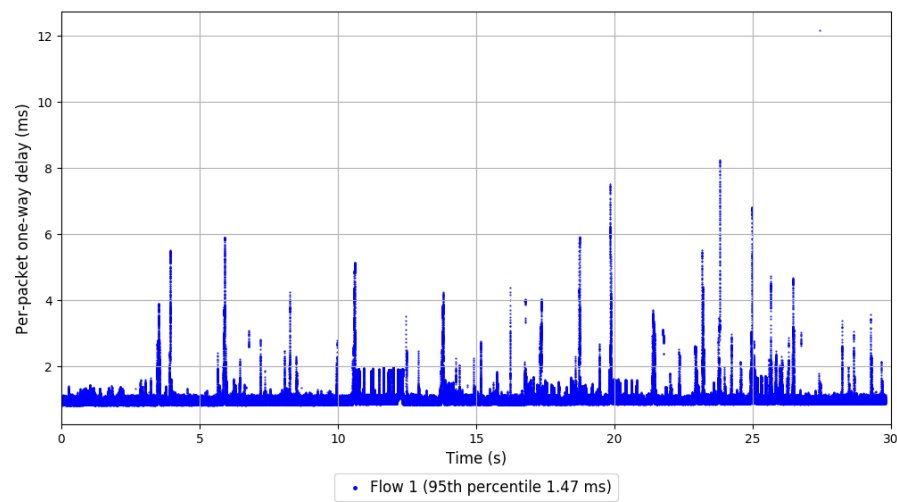
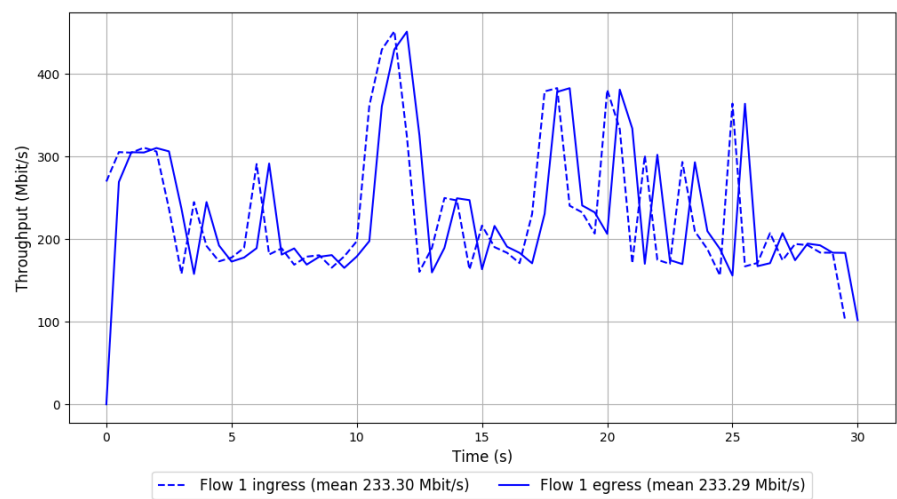


Run 5: Statistics of Indigo

Start at: 2018-11-30 05:47:18
End at: 2018-11-30 05:47:48
Local clock offset: -0.859 ms
Remote clock offset: -0.023 ms

Below is generated by plot.py at 2018-11-30 06:43:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 233.29 Mbit/s
95th percentile per-packet one-way delay: 1.468 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 233.29 Mbit/s
95th percentile per-packet one-way delay: 1.468 ms
Loss rate: 0.01%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-30 03:55:16

End at: 2018-11-30 03:55:46

Local clock offset: 0.456 ms

Remote clock offset: -0.001 ms

Below is generated by plot.py at 2018-11-30 06:43:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 177.29 Mbit/s

95th percentile per-packet one-way delay: 1.706 ms

Loss rate: 0.00%

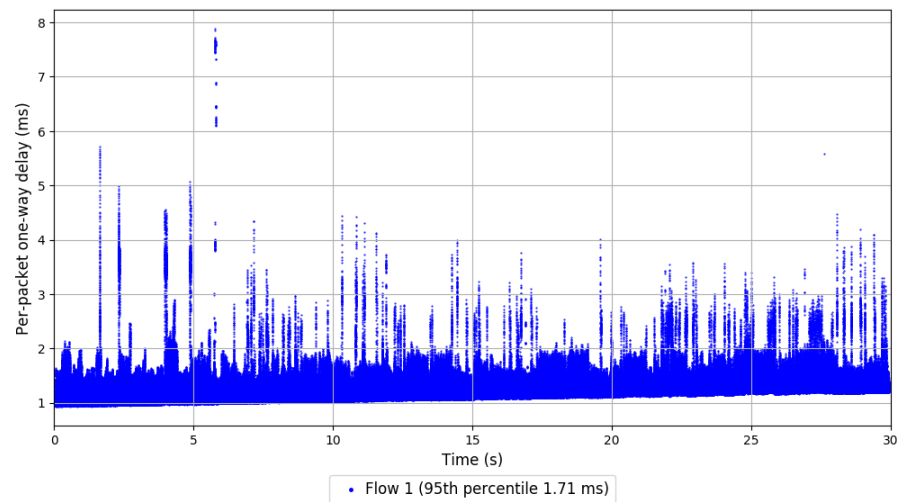
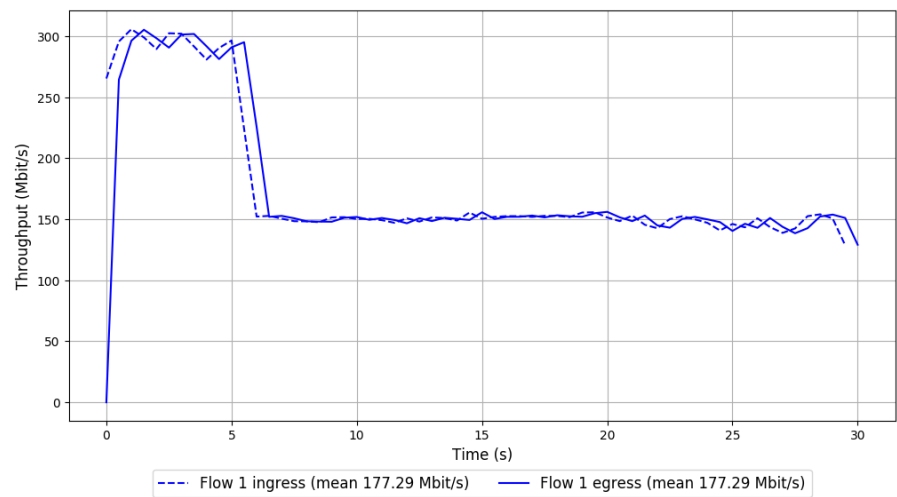
-- Flow 1:

Average throughput: 177.29 Mbit/s

95th percentile per-packet one-way delay: 1.706 ms

Loss rate: 0.00%

Run 1: Report of Indigo-96d2da3 — Data Link



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-30 04:21:26

End at: 2018-11-30 04:21:56

Local clock offset: 7.166 ms

Remote clock offset: 0.068 ms

Below is generated by plot.py at 2018-11-30 06:43:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 288.60 Mbit/s

95th percentile per-packet one-way delay: 1.576 ms

Loss rate: 0.00%

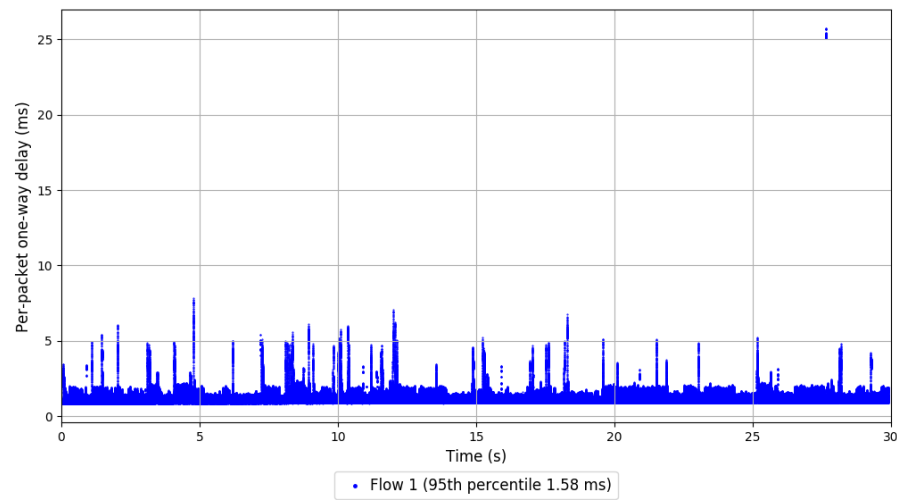
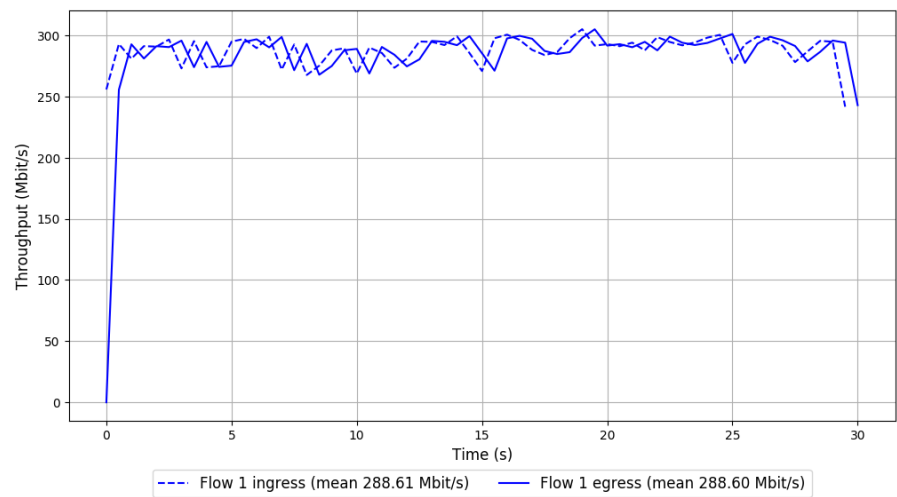
-- Flow 1:

Average throughput: 288.60 Mbit/s

95th percentile per-packet one-way delay: 1.576 ms

Loss rate: 0.00%

Run 2: Report of Indigo-96d2da3 — Data Link



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-30 04:47:26

End at: 2018-11-30 04:47:56

Local clock offset: 7.524 ms

Remote clock offset: 0.045 ms

Below is generated by plot.py at 2018-11-30 06:43:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 151.81 Mbit/s

95th percentile per-packet one-way delay: 0.727 ms

Loss rate: 0.00%

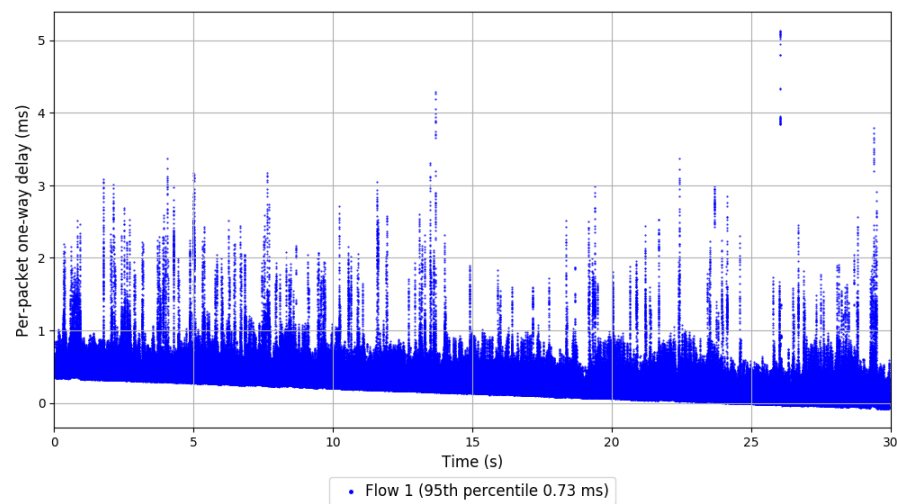
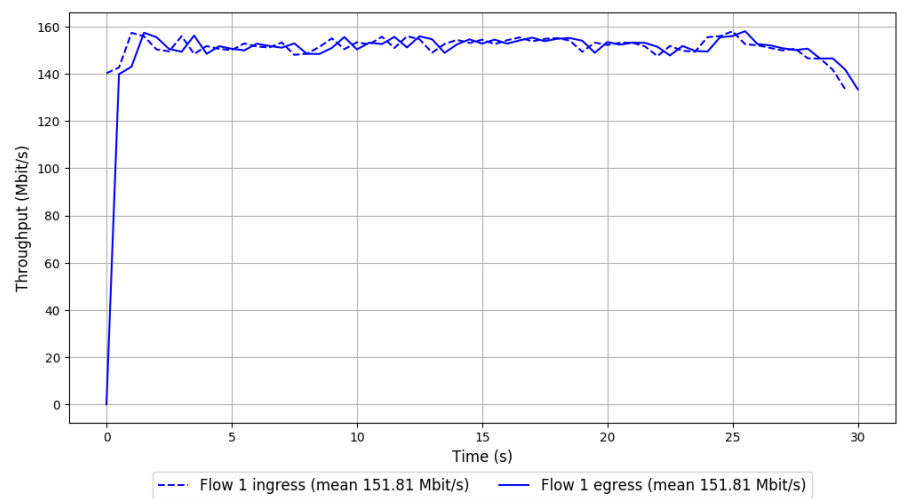
-- Flow 1:

Average throughput: 151.81 Mbit/s

95th percentile per-packet one-way delay: 0.727 ms

Loss rate: 0.00%

Run 3: Report of Indigo-96d2da3 — Data Link

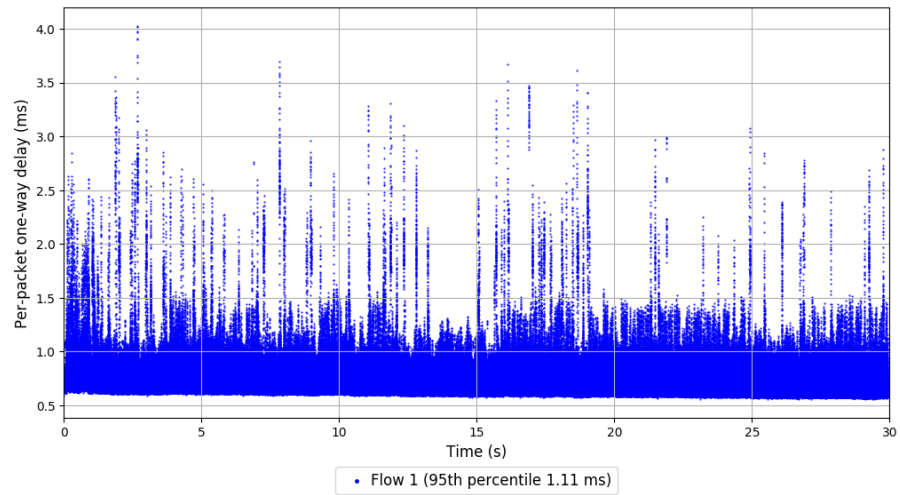
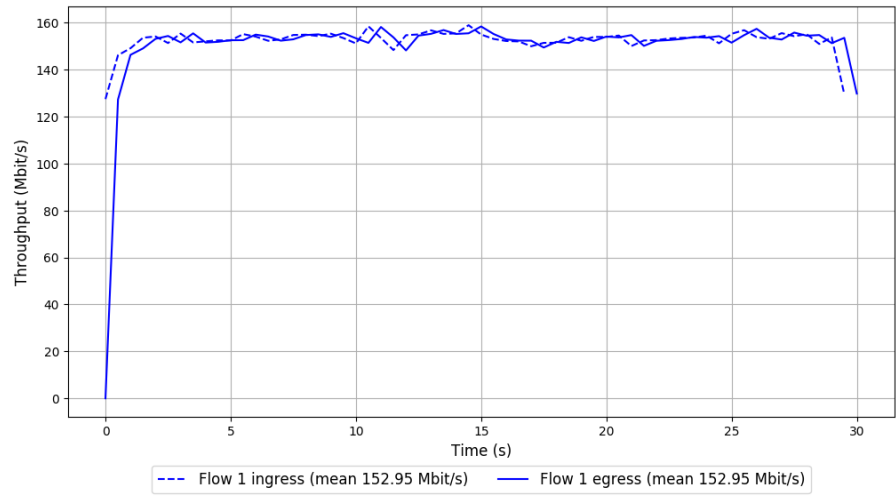


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-30 05:13:30
End at: 2018-11-30 05:14:00
Local clock offset: -1.254 ms
Remote clock offset: -0.089 ms

Below is generated by plot.py at 2018-11-30 06:43:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 152.95 Mbit/s
95th percentile per-packet one-way delay: 1.114 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 152.95 Mbit/s
95th percentile per-packet one-way delay: 1.114 ms
Loss rate: 0.00%

Run 4: Report of Indigo-96d2da3 — Data Link

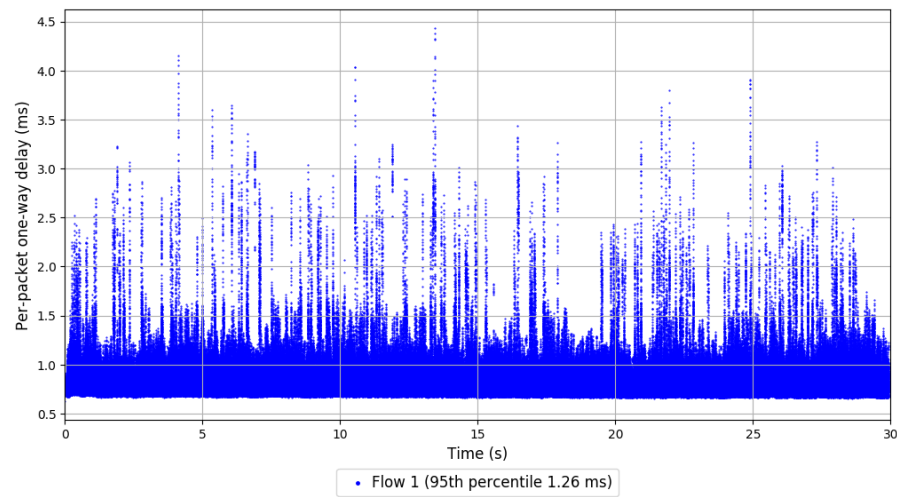
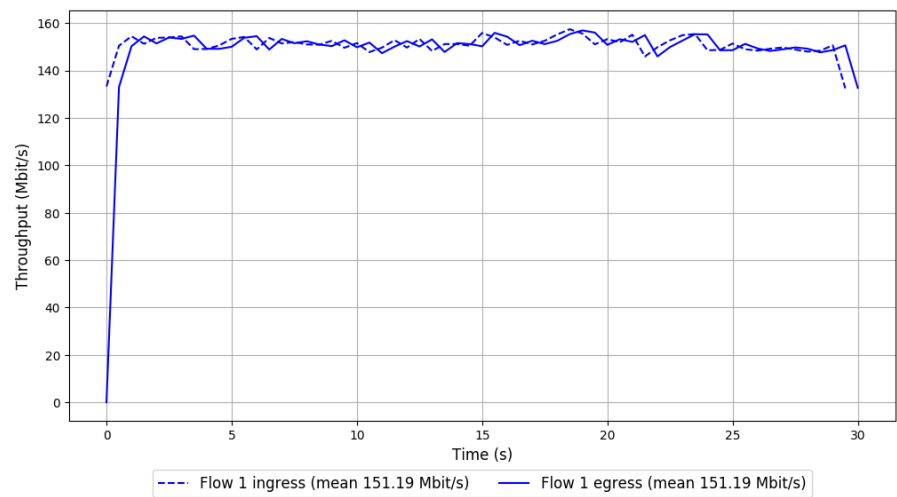


Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-30 05:39:21
End at: 2018-11-30 05:39:51
Local clock offset: -0.908 ms
Remote clock offset: -0.072 ms

Below is generated by plot.py at 2018-11-30 06:43:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 151.19 Mbit/s
95th percentile per-packet one-way delay: 1.262 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 151.19 Mbit/s
95th percentile per-packet one-way delay: 1.262 ms
Loss rate: 0.00%

Run 5: Report of Indigo-96d2da3 — Data Link



Run 1: Statistics of LEDBAT

Start at: 2018-11-30 04:15:35

End at: 2018-11-30 04:16:05

Local clock offset: 6.317 ms

Remote clock offset: 0.104 ms

Below is generated by plot.py at 2018-11-30 06:43:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 582.30 Mbit/s

95th percentile per-packet one-way delay: 17.692 ms

Loss rate: 0.04%

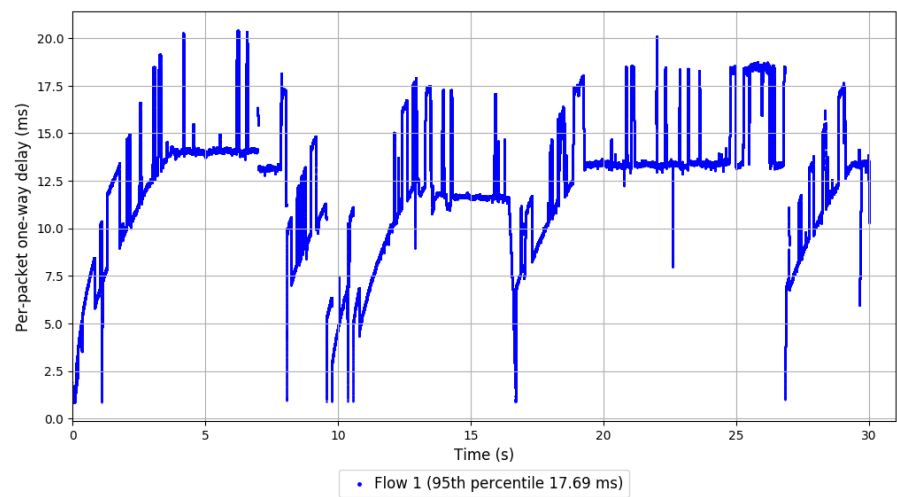
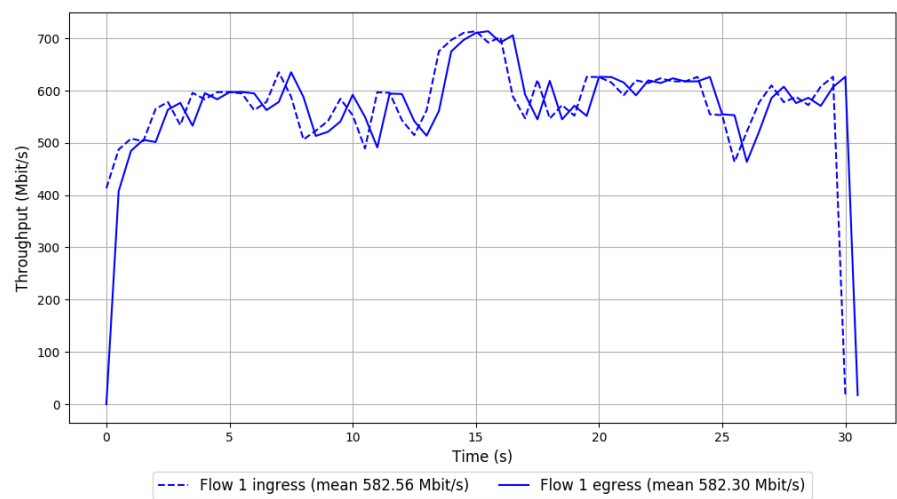
-- Flow 1:

Average throughput: 582.30 Mbit/s

95th percentile per-packet one-way delay: 17.692 ms

Loss rate: 0.04%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-11-30 04:41:37

End at: 2018-11-30 04:42:07

Local clock offset: 9.791 ms

Remote clock offset: 0.031 ms

Below is generated by plot.py at 2018-11-30 06:45:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 611.46 Mbit/s

95th percentile per-packet one-way delay: 16.707 ms

Loss rate: 0.04%

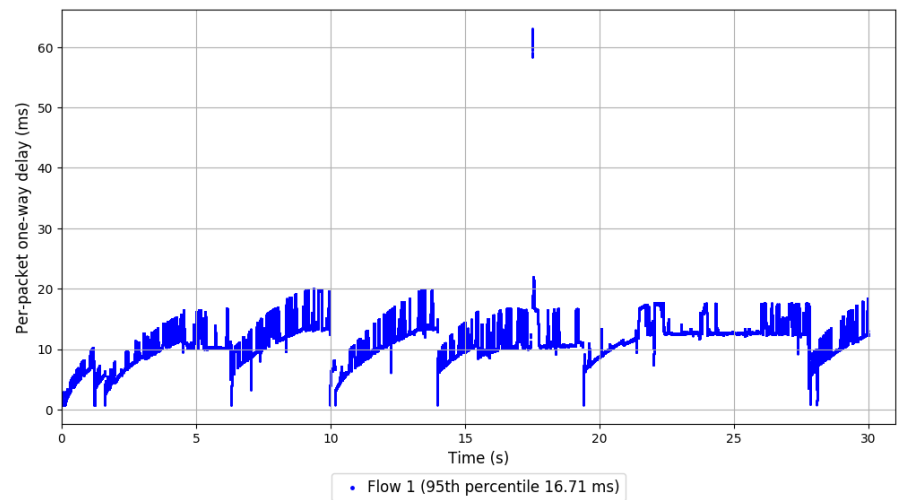
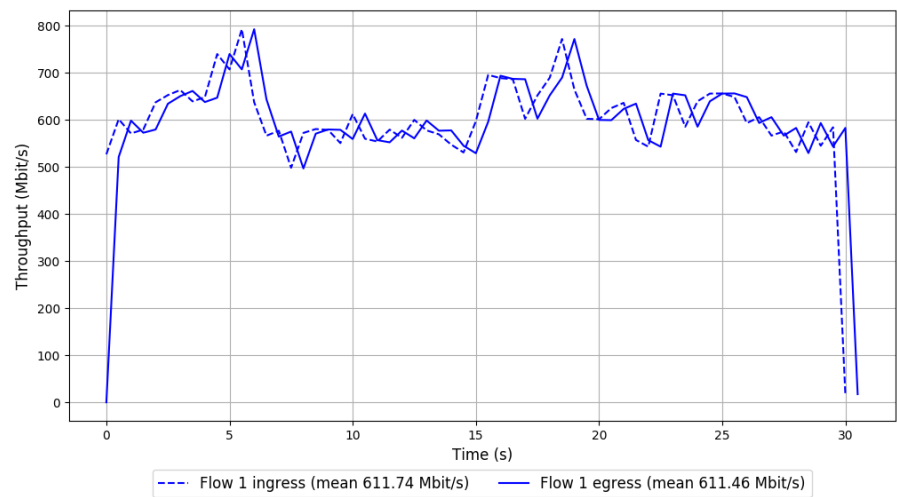
-- Flow 1:

Average throughput: 611.46 Mbit/s

95th percentile per-packet one-way delay: 16.707 ms

Loss rate: 0.04%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-11-30 05:07:45

End at: 2018-11-30 05:08:15

Local clock offset: -0.542 ms

Remote clock offset: -0.08 ms

Below is generated by plot.py at 2018-11-30 06:45:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 586.87 Mbit/s

95th percentile per-packet one-way delay: 17.143 ms

Loss rate: 0.01%

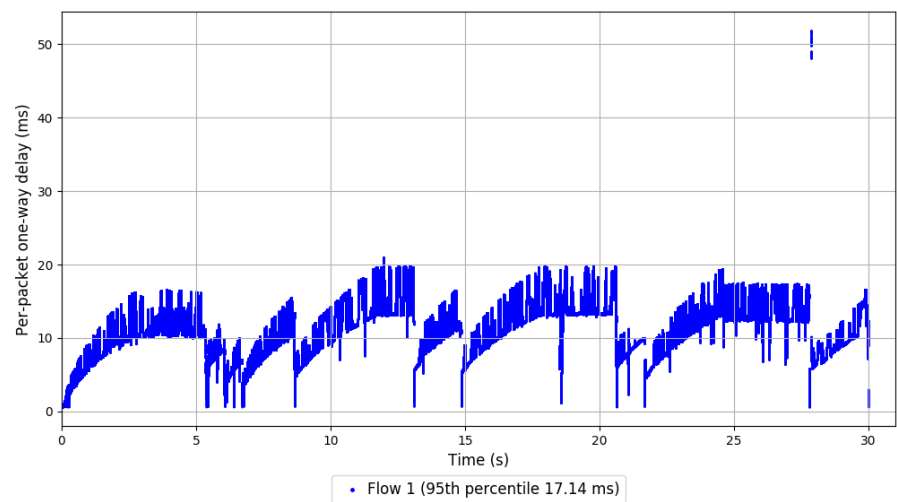
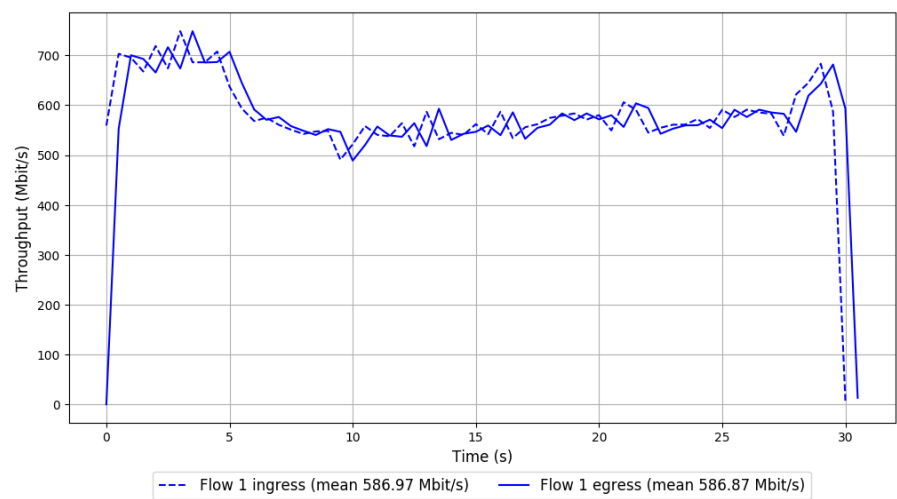
-- Flow 1:

Average throughput: 586.87 Mbit/s

95th percentile per-packet one-way delay: 17.143 ms

Loss rate: 0.01%

Run 3: Report of LEDBAT — Data Link

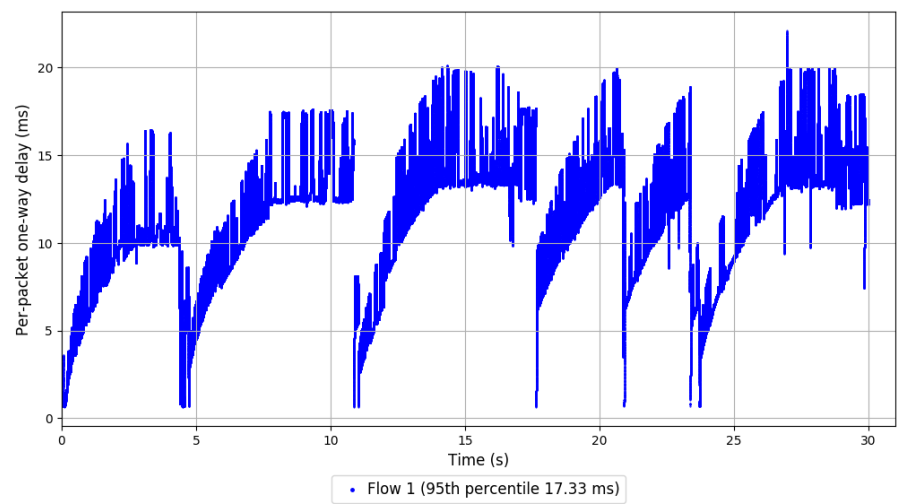
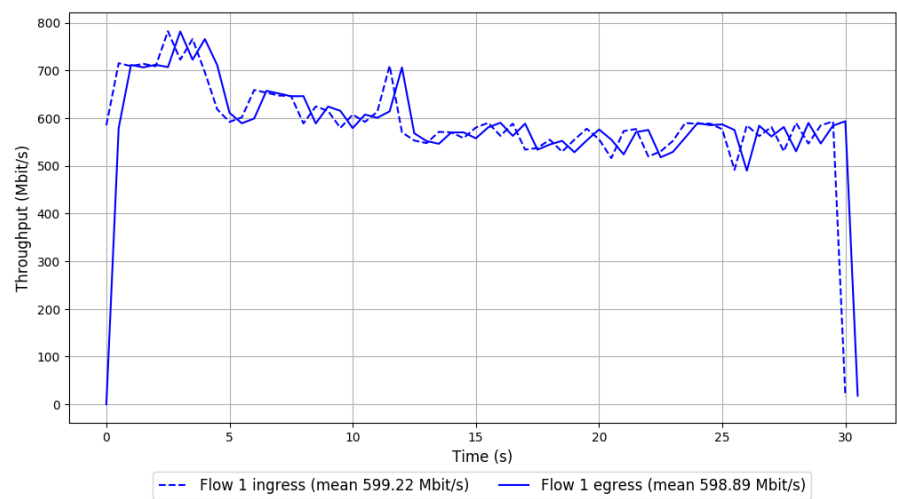


Run 4: Statistics of LEDBAT

Start at: 2018-11-30 05:33:34
End at: 2018-11-30 05:34:04
Local clock offset: -0.76 ms
Remote clock offset: -0.097 ms

Below is generated by plot.py at 2018-11-30 06:45:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 598.89 Mbit/s
95th percentile per-packet one-way delay: 17.332 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 598.89 Mbit/s
95th percentile per-packet one-way delay: 17.332 ms
Loss rate: 0.06%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-11-30 05:59:33

End at: 2018-11-30 06:00:03

Local clock offset: -0.343 ms

Remote clock offset: 0.132 ms

Below is generated by plot.py at 2018-11-30 06:45:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 608.00 Mbit/s

95th percentile per-packet one-way delay: 16.728 ms

Loss rate: 0.04%

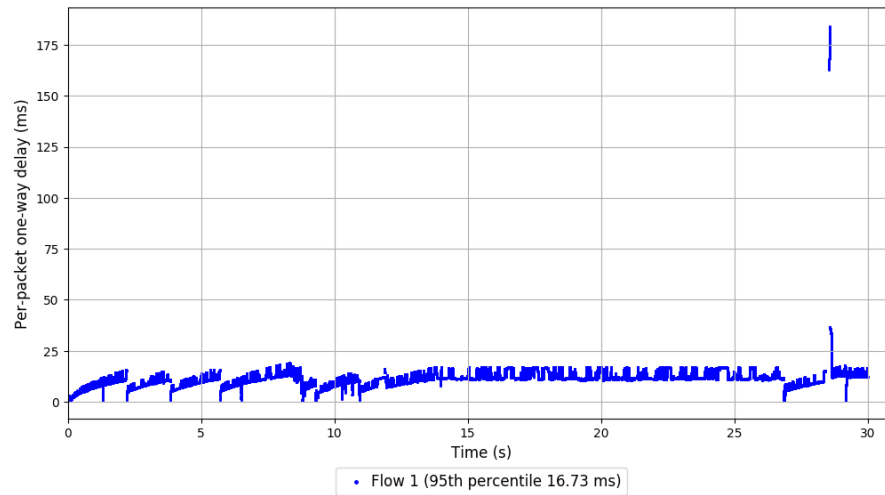
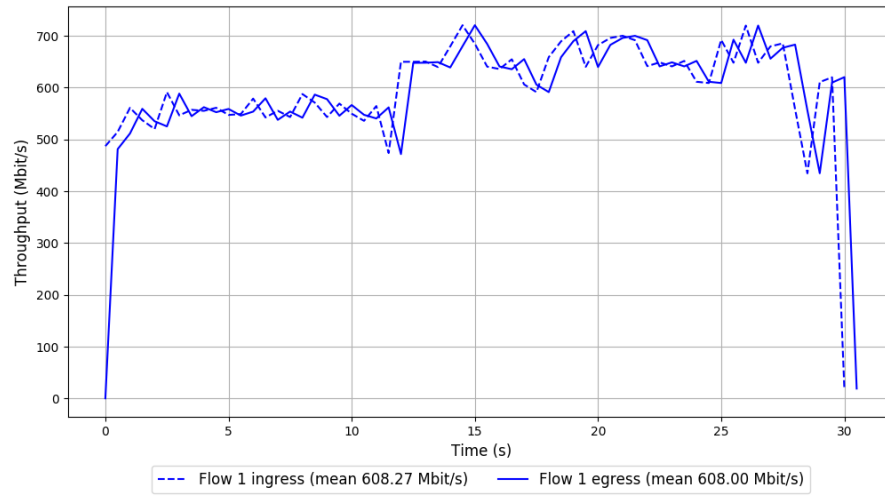
-- Flow 1:

Average throughput: 608.00 Mbit/s

95th percentile per-packet one-way delay: 16.728 ms

Loss rate: 0.04%

Run 5: Report of LEDBAT — Data Link

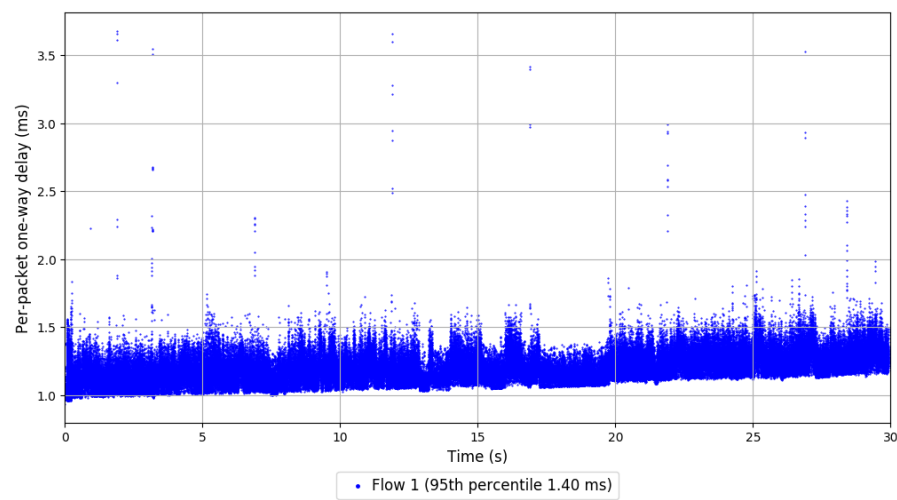
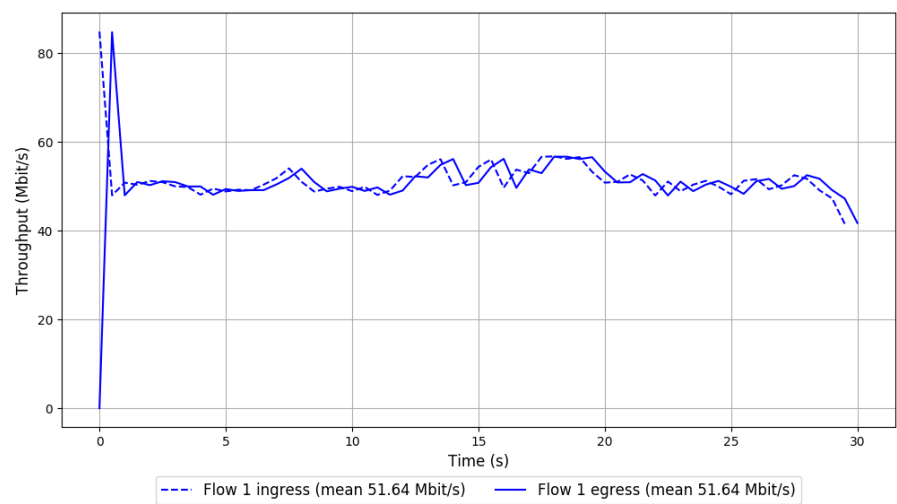


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-30 03:59:32
End at: 2018-11-30 04:00:02
Local clock offset: 2.436 ms
Remote clock offset: 0.13 ms

# Below is generated by plot.py at 2018-11-30 06:45:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 51.64 Mbit/s
95th percentile per-packet one-way delay: 1.396 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 51.64 Mbit/s
95th percentile per-packet one-way delay: 1.396 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-11-30 04:25:47

End at: 2018-11-30 04:26:17

Local clock offset: 7.791 ms

Remote clock offset: 0.079 ms

Below is generated by plot.py at 2018-11-30 06:45:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 51.07 Mbit/s

95th percentile per-packet one-way delay: 1.145 ms

Loss rate: 0.00%

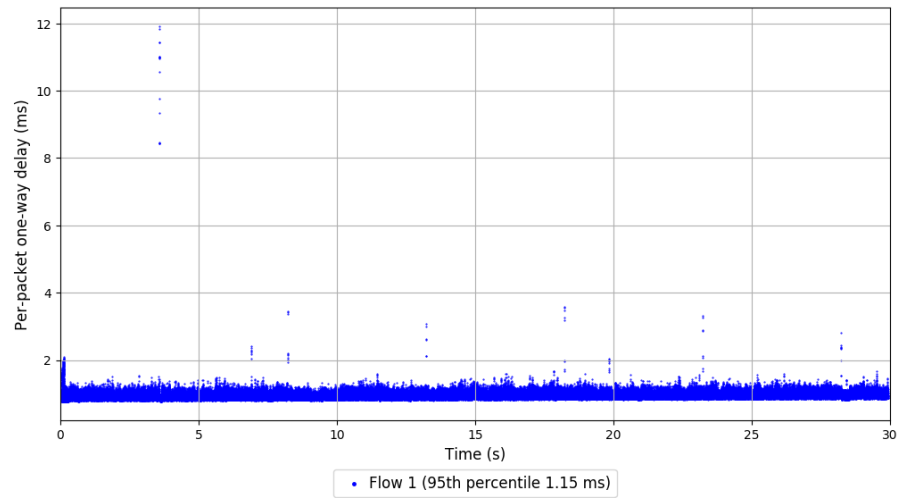
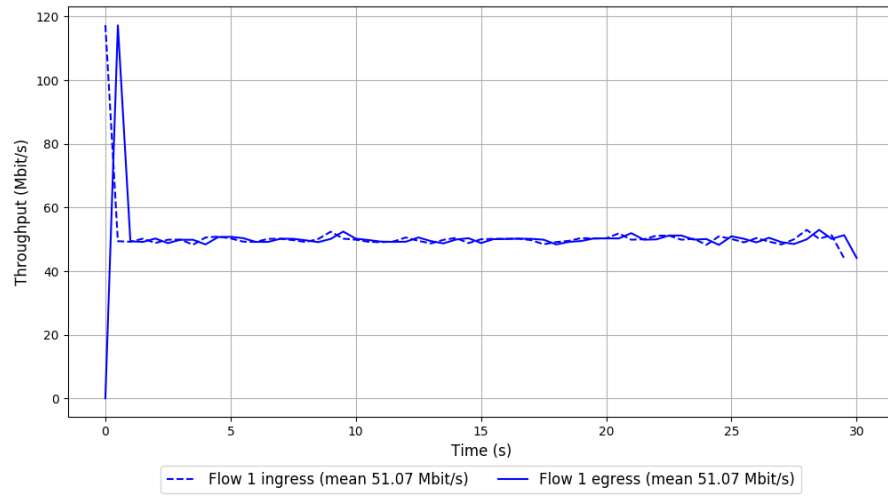
-- Flow 1:

Average throughput: 51.07 Mbit/s

95th percentile per-packet one-way delay: 1.145 ms

Loss rate: 0.00%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-11-30 04:51:42

End at: 2018-11-30 04:52:12

Local clock offset: 4.32 ms

Remote clock offset: 0.002 ms

Below is generated by plot.py at 2018-11-30 06:45:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 50.12 Mbit/s

95th percentile per-packet one-way delay: 0.752 ms

Loss rate: 0.00%

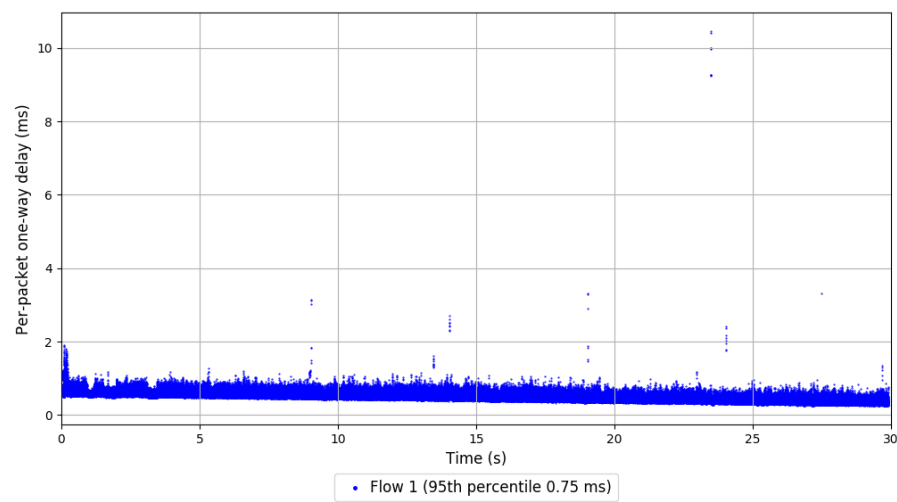
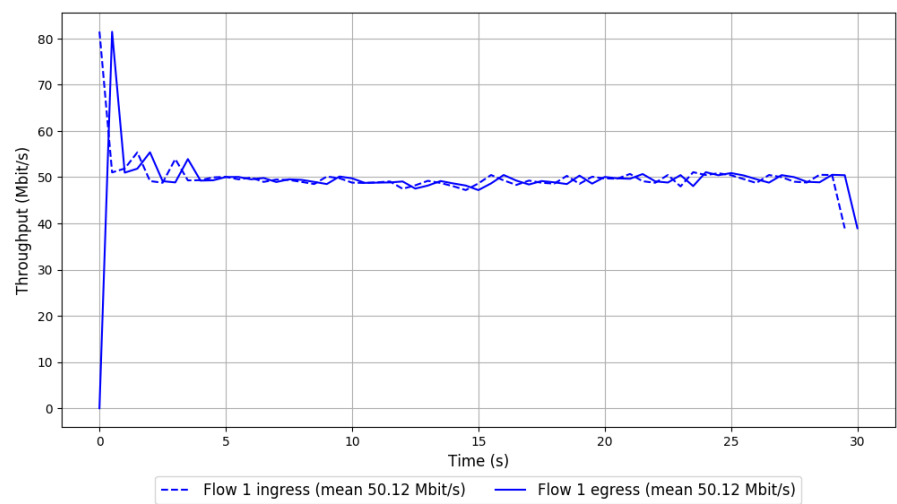
-- Flow 1:

Average throughput: 50.12 Mbit/s

95th percentile per-packet one-way delay: 0.752 ms

Loss rate: 0.00%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-11-30 05:17:44

End at: 2018-11-30 05:18:14

Local clock offset: -1.114 ms

Remote clock offset: 0.002 ms

Below is generated by plot.py at 2018-11-30 06:45:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 50.54 Mbit/s

95th percentile per-packet one-way delay: 1.190 ms

Loss rate: 0.00%

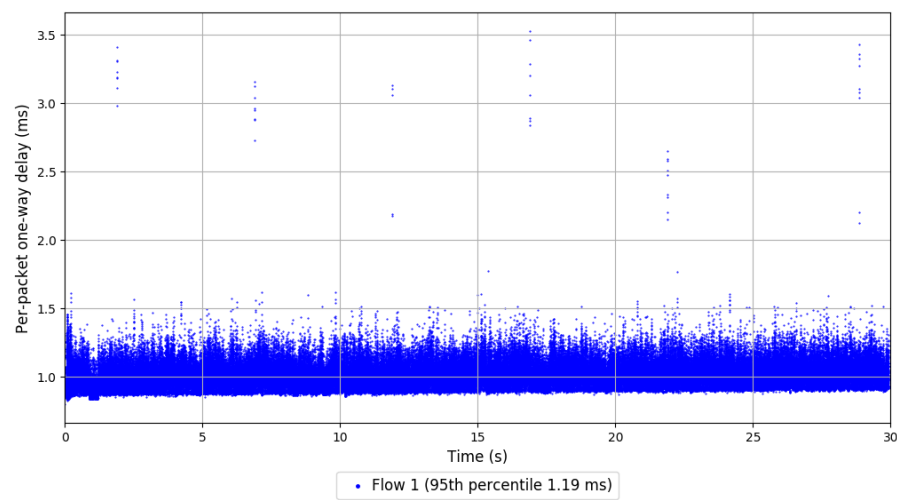
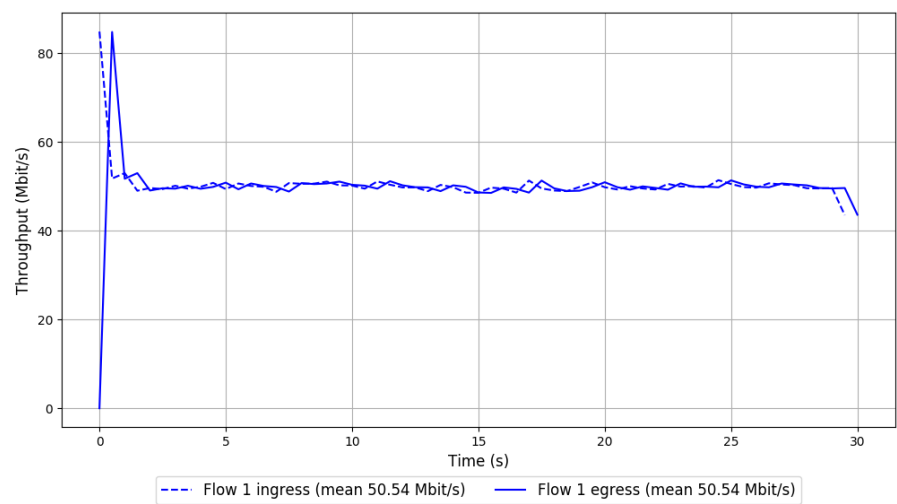
-- Flow 1:

Average throughput: 50.54 Mbit/s

95th percentile per-packet one-way delay: 1.190 ms

Loss rate: 0.00%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-30 05:43:37

End at: 2018-11-30 05:44:07

Local clock offset: -1.044 ms

Remote clock offset: 0.023 ms

Below is generated by plot.py at 2018-11-30 06:45:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 49.52 Mbit/s

95th percentile per-packet one-way delay: 1.107 ms

Loss rate: 0.00%

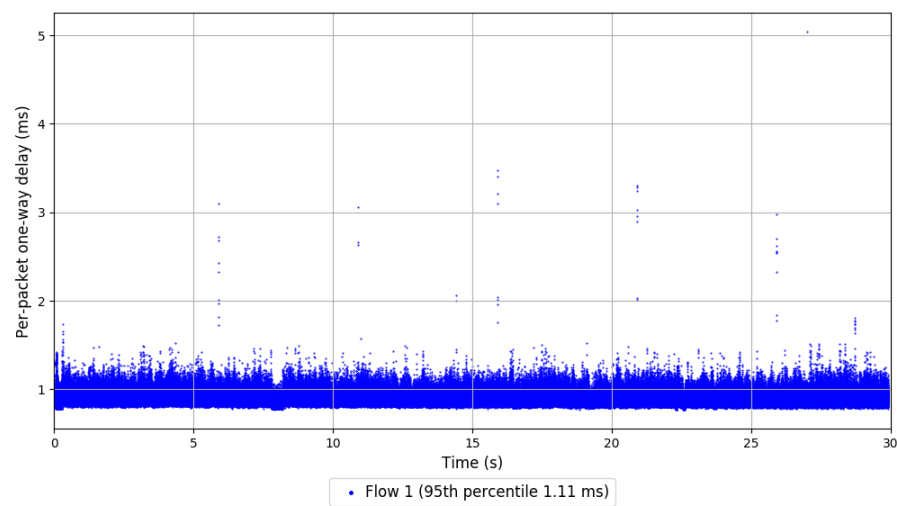
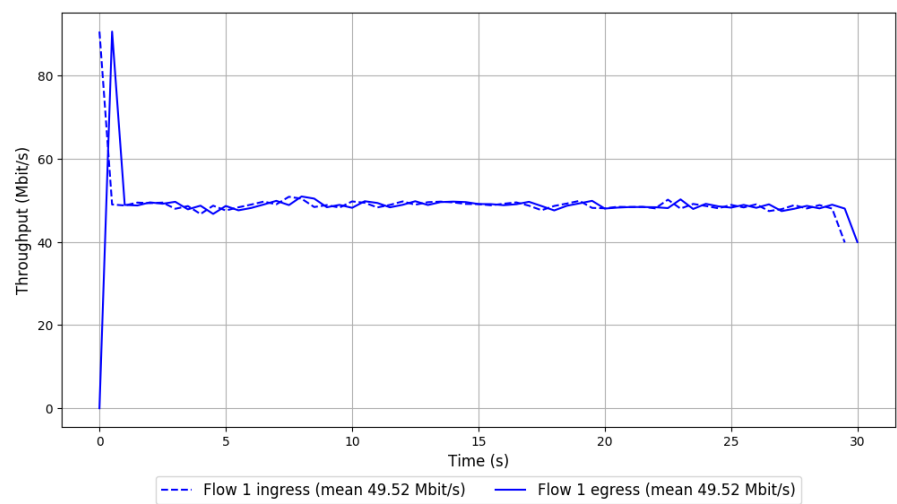
-- Flow 1:

Average throughput: 49.52 Mbit/s

95th percentile per-packet one-way delay: 1.107 ms

Loss rate: 0.00%

Run 5: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-11-30 04:07:26

End at: 2018-11-30 04:07:56

Local clock offset: 4.748 ms

Remote clock offset: 0.11 ms

Below is generated by plot.py at 2018-11-30 06:49:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 565.55 Mbit/s

95th percentile per-packet one-way delay: 7.786 ms

Loss rate: 0.00%

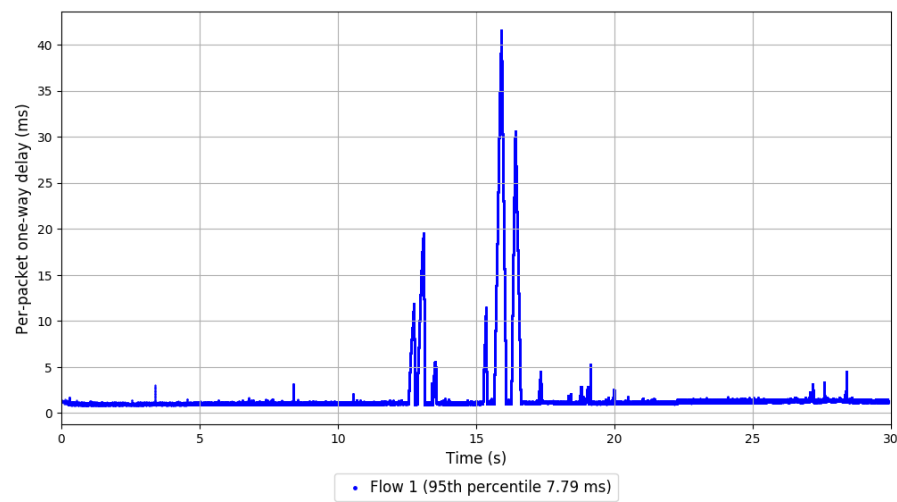
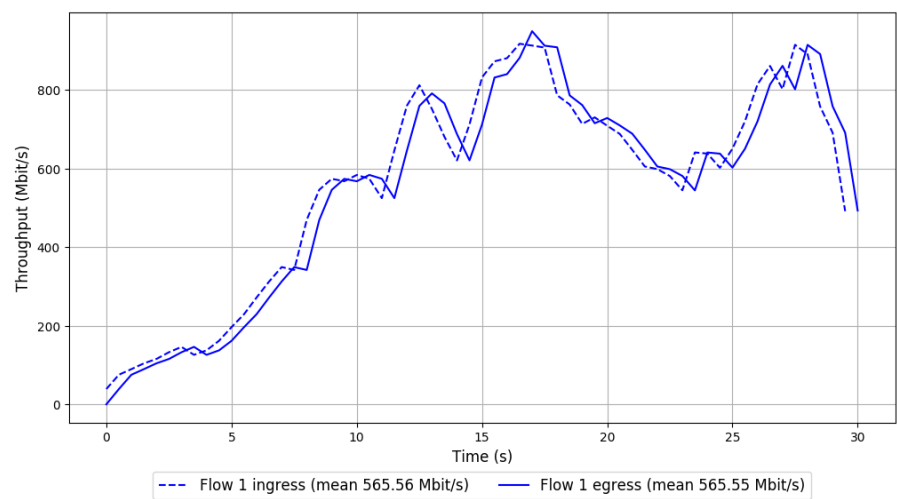
-- Flow 1:

Average throughput: 565.55 Mbit/s

95th percentile per-packet one-way delay: 7.786 ms

Loss rate: 0.00%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-11-30 04:33:41

End at: 2018-11-30 04:34:11

Local clock offset: 8.824 ms

Remote clock offset: 0.123 ms

Below is generated by plot.py at 2018-11-30 06:49:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 101.70 Mbit/s

95th percentile per-packet one-way delay: 1.019 ms

Loss rate: 0.00%

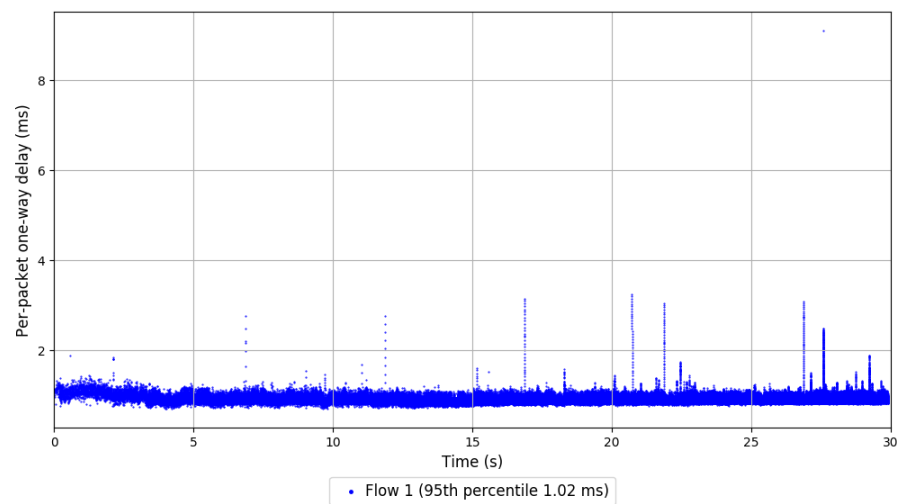
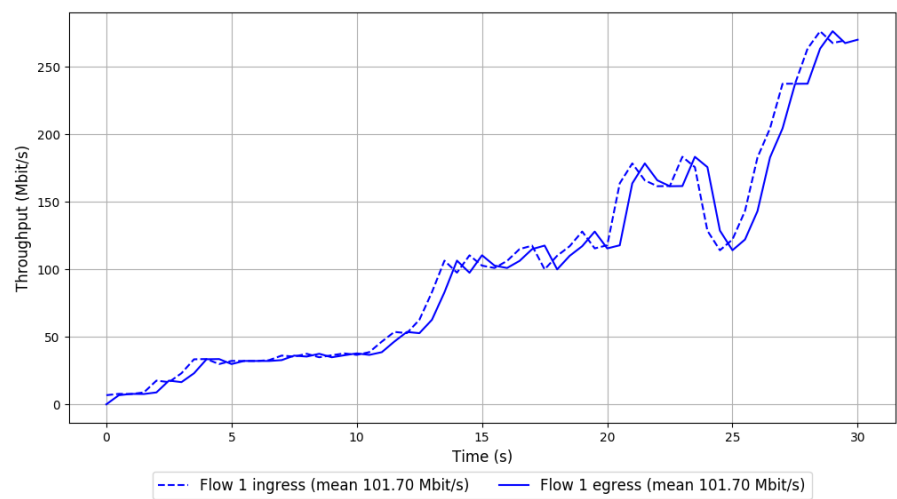
-- Flow 1:

Average throughput: 101.70 Mbit/s

95th percentile per-packet one-way delay: 1.019 ms

Loss rate: 0.00%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-11-30 04:59:35

End at: 2018-11-30 05:00:05

Local clock offset: 1.149 ms

Remote clock offset: -0.057 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 679.13 Mbit/s

95th percentile per-packet one-way delay: 6.457 ms

Loss rate: 0.00%

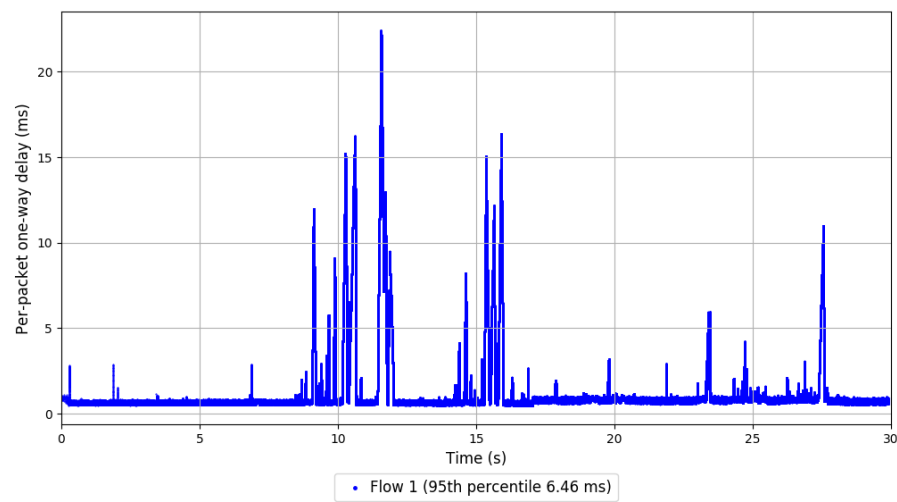
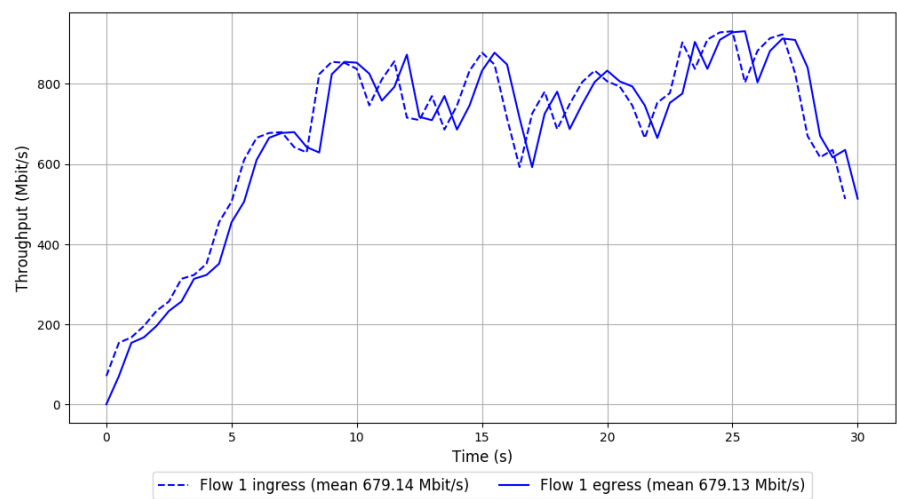
-- Flow 1:

Average throughput: 679.13 Mbit/s

95th percentile per-packet one-way delay: 6.457 ms

Loss rate: 0.00%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-11-30 05:25:40

End at: 2018-11-30 05:26:10

Local clock offset: -0.703 ms

Remote clock offset: 0.05 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 354.55 Mbit/s

95th percentile per-packet one-way delay: 1.331 ms

Loss rate: 0.00%

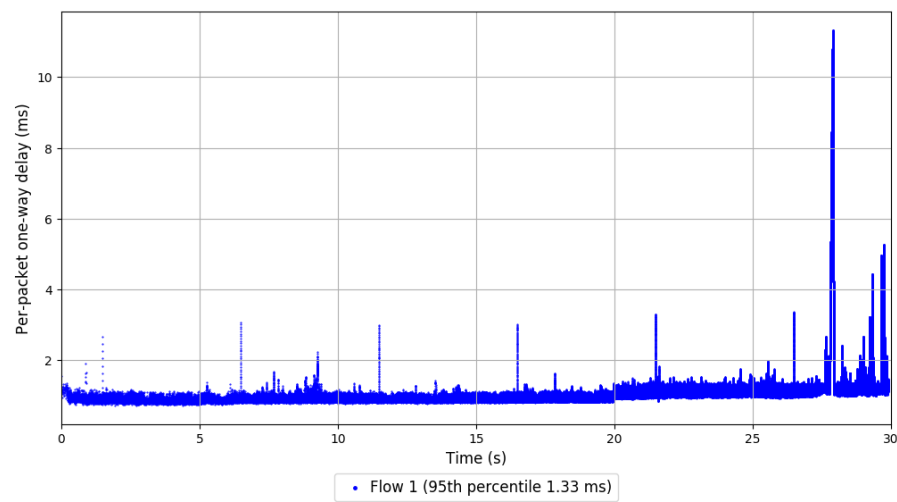
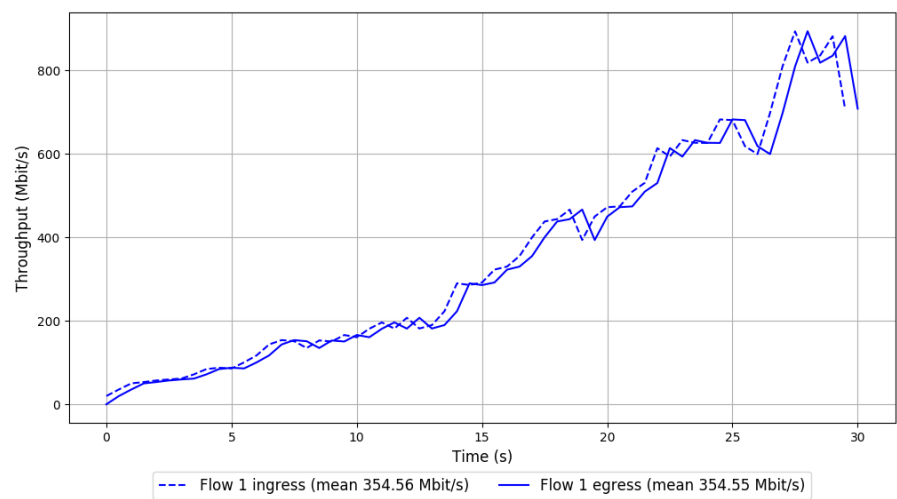
-- Flow 1:

Average throughput: 354.55 Mbit/s

95th percentile per-packet one-way delay: 1.331 ms

Loss rate: 0.00%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-11-30 05:51:31

End at: 2018-11-30 05:52:01

Local clock offset: -0.552 ms

Remote clock offset: 0.014 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 578.47 Mbit/s

95th percentile per-packet one-way delay: 1.445 ms

Loss rate: 0.00%

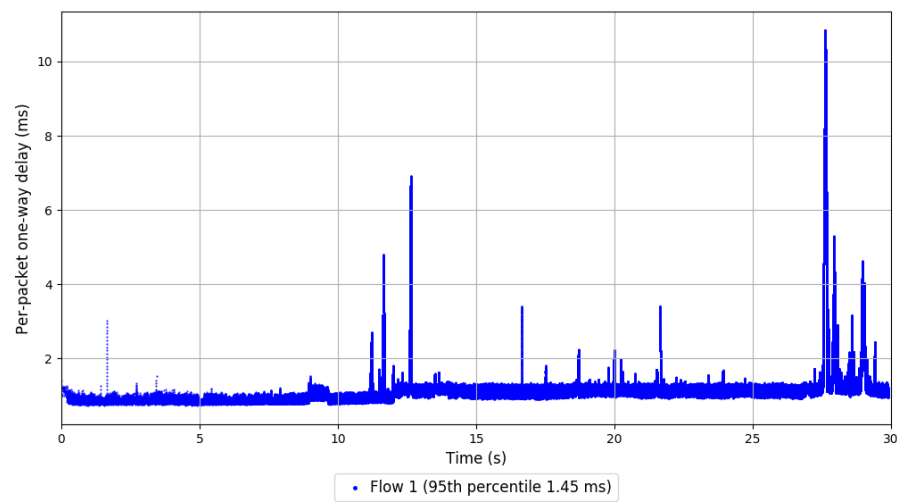
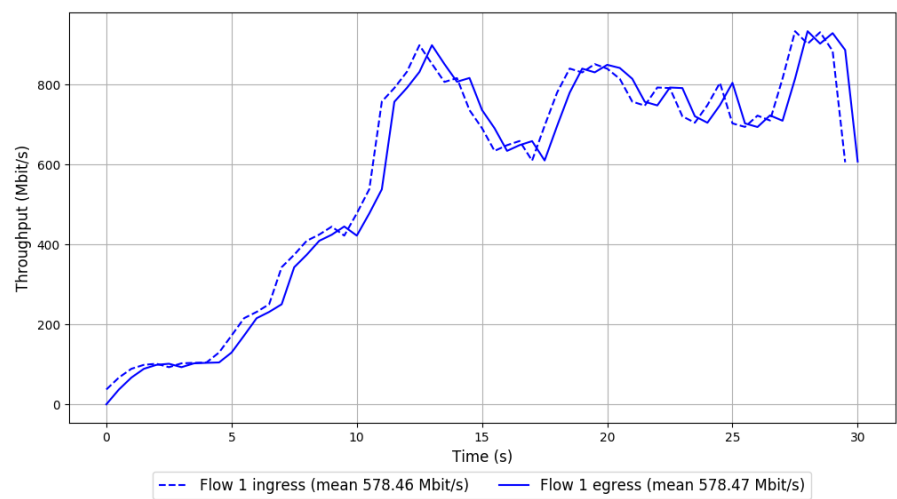
-- Flow 1:

Average throughput: 578.47 Mbit/s

95th percentile per-packet one-way delay: 1.445 ms

Loss rate: 0.00%

Run 5: Report of PCC-Allegro — Data Link

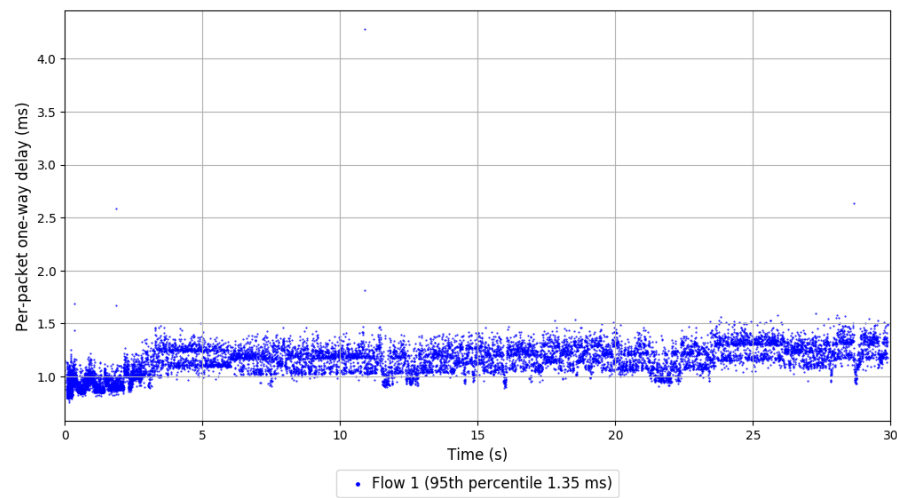
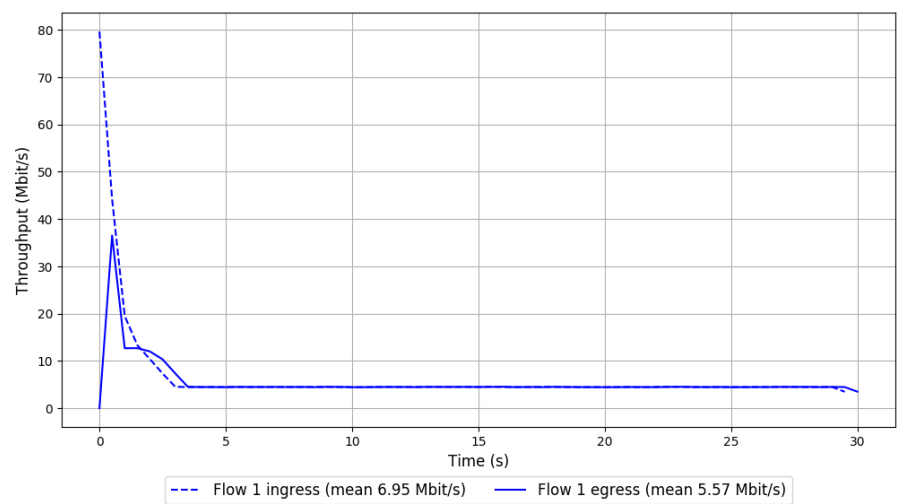


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-30 04:12:45
End at: 2018-11-30 04:13:15
Local clock offset: 5.804 ms
Remote clock offset: 0.012 ms

# Below is generated by plot.py at 2018-11-30 06:52:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.57 Mbit/s
95th percentile per-packet one-way delay: 1.355 ms
Loss rate: 19.91%
-- Flow 1:
Average throughput: 5.57 Mbit/s
95th percentile per-packet one-way delay: 1.355 ms
Loss rate: 19.91%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-11-30 04:38:48

End at: 2018-11-30 04:39:18

Local clock offset: 9.469 ms

Remote clock offset: 0.162 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.55 Mbit/s

95th percentile per-packet one-way delay: 1.331 ms

Loss rate: 0.00%

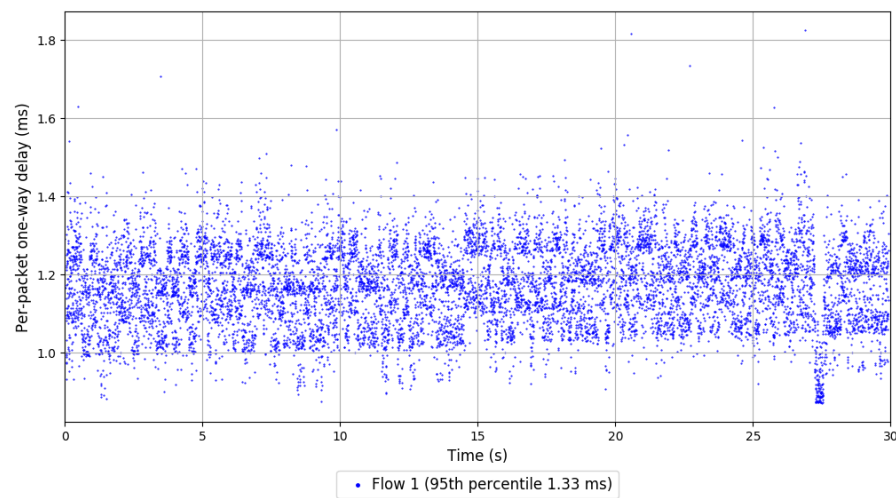
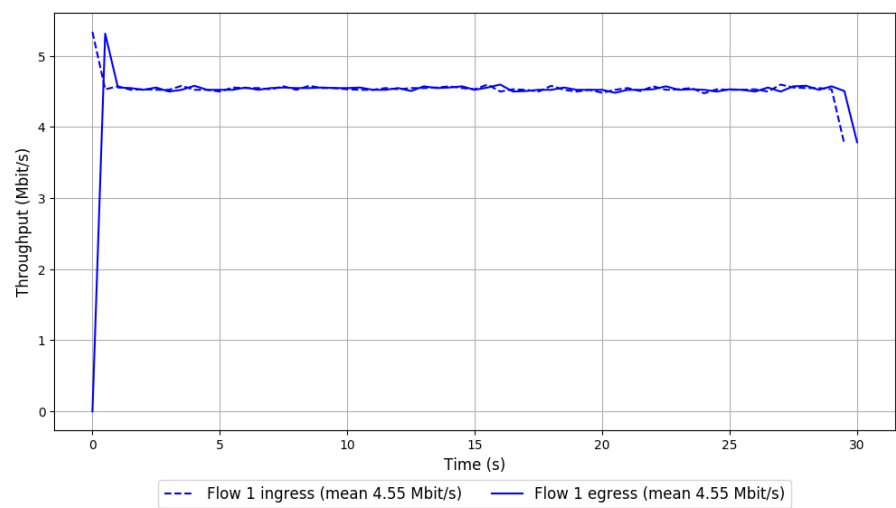
-- Flow 1:

Average throughput: 4.55 Mbit/s

95th percentile per-packet one-way delay: 1.331 ms

Loss rate: 0.00%

Run 2: Report of PCC-Expr — Data Link

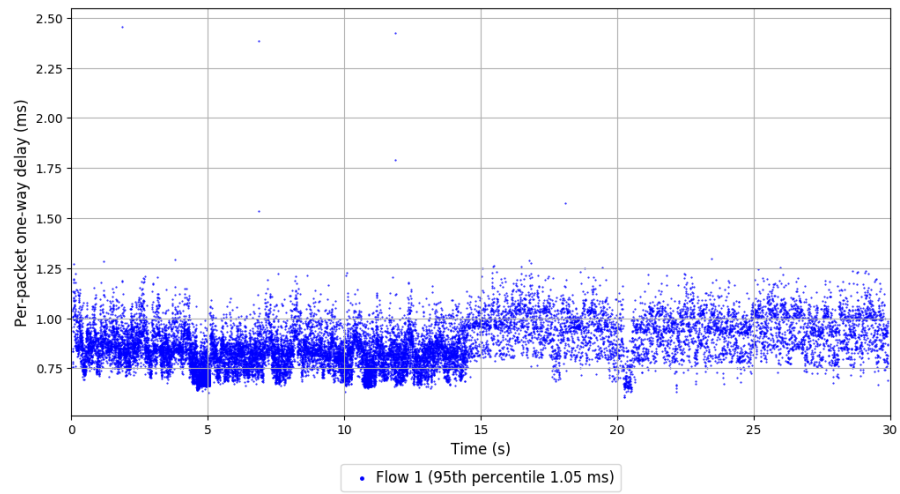
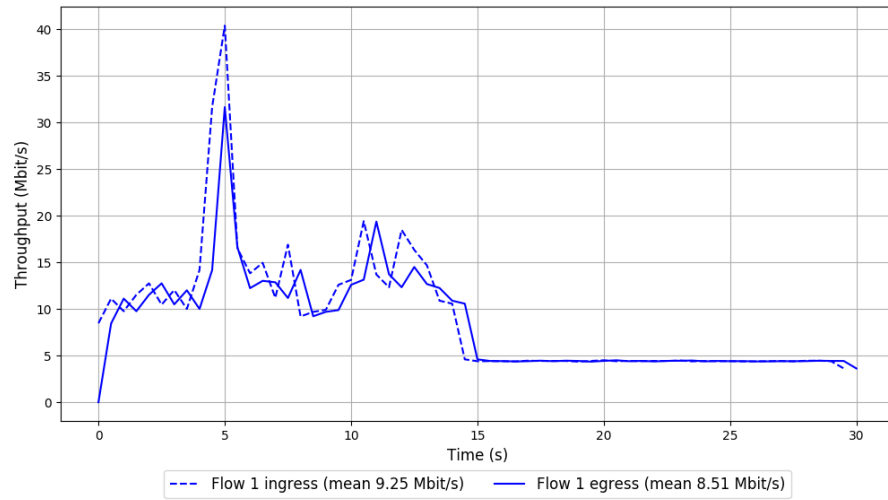


Run 3: Statistics of PCC-Expr

Start at: 2018-11-30 05:04:55
End at: 2018-11-30 05:05:25
Local clock offset: -0.087 ms
Remote clock offset: -0.045 ms

Below is generated by plot.py at 2018-11-30 06:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.51 Mbit/s
95th percentile per-packet one-way delay: 1.051 ms
Loss rate: 7.91%
-- Flow 1:
Average throughput: 8.51 Mbit/s
95th percentile per-packet one-way delay: 1.051 ms
Loss rate: 7.91%

Run 3: Report of PCC-Expr — Data Link

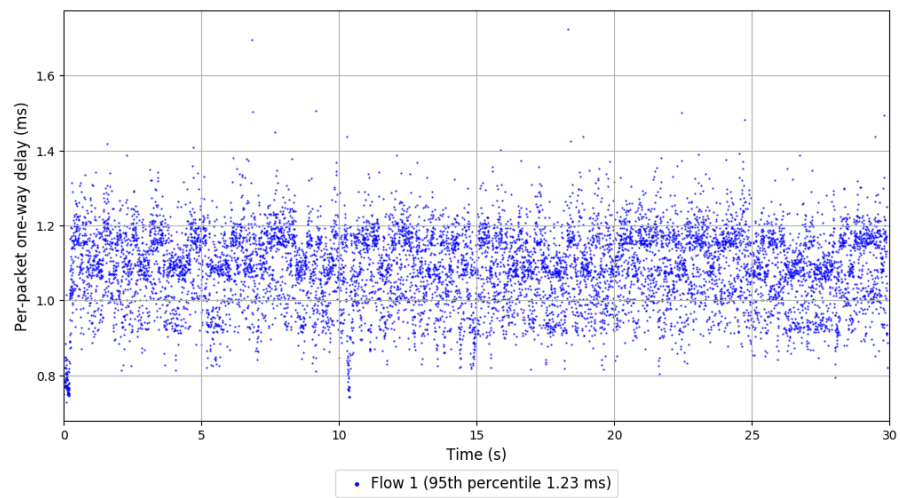
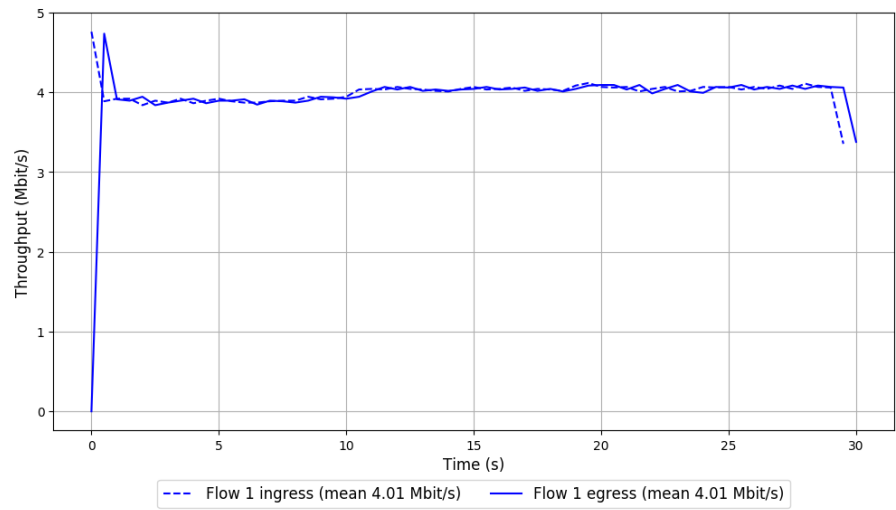


Run 4: Statistics of PCC-Expr

Start at: 2018-11-30 05:30:45
End at: 2018-11-30 05:31:15
Local clock offset: -0.735 ms
Remote clock offset: -0.069 ms

Below is generated by plot.py at 2018-11-30 06:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.01 Mbit/s
95th percentile per-packet one-way delay: 1.231 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.01 Mbit/s
95th percentile per-packet one-way delay: 1.231 ms
Loss rate: 0.00%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-30 05:56:43

End at: 2018-11-30 05:57:14

Local clock offset: -0.382 ms

Remote clock offset: -0.041 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.94 Mbit/s

95th percentile per-packet one-way delay: 1.115 ms

Loss rate: 21.01%

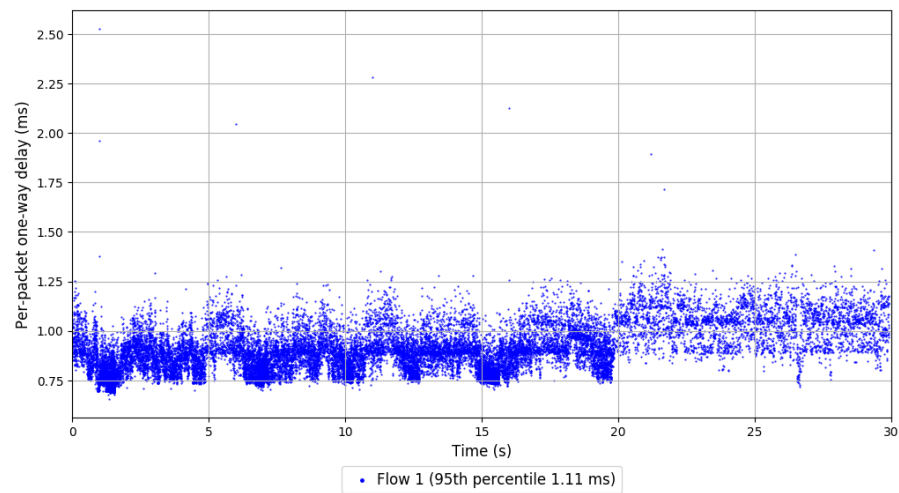
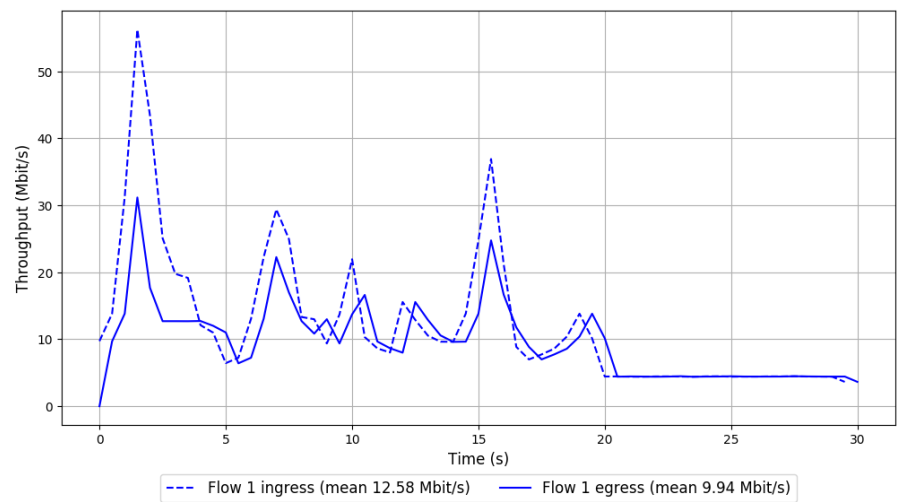
-- Flow 1:

Average throughput: 9.94 Mbit/s

95th percentile per-packet one-way delay: 1.115 ms

Loss rate: 21.01%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-11-30 04:08:52

End at: 2018-11-30 04:09:22

Local clock offset: 5.047 ms

Remote clock offset: 0.121 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 66.71 Mbit/s

95th percentile per-packet one-way delay: 1.153 ms

Loss rate: 0.00%

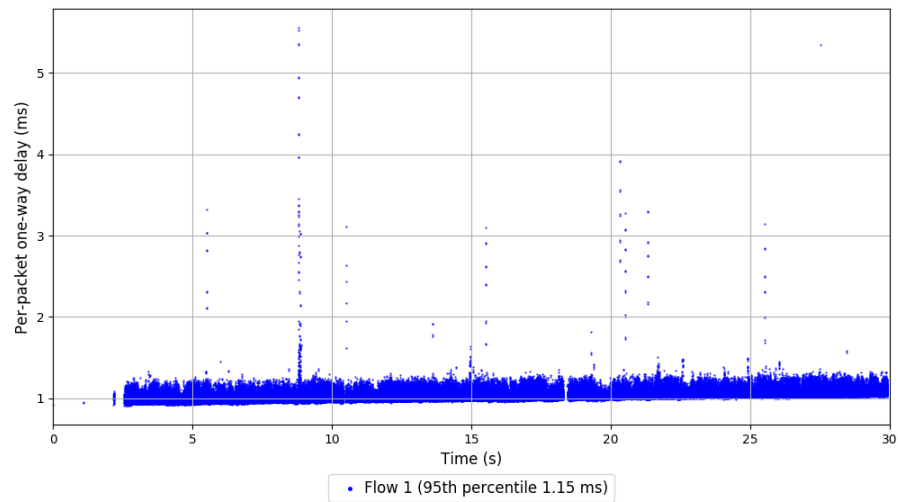
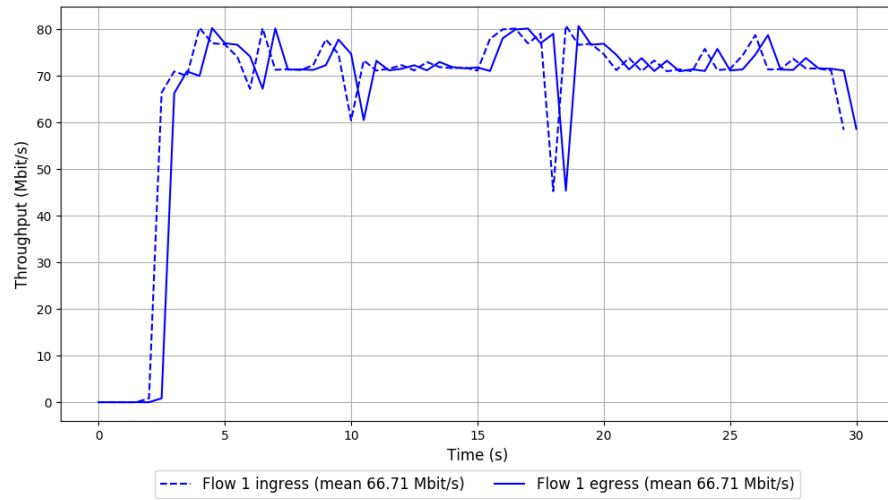
-- Flow 1:

Average throughput: 66.71 Mbit/s

95th percentile per-packet one-way delay: 1.153 ms

Loss rate: 0.00%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-11-30 04:34:56

End at: 2018-11-30 04:35:26

Local clock offset: 8.993 ms

Remote clock offset: 0.095 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 80.40 Mbit/s

95th percentile per-packet one-way delay: 0.940 ms

Loss rate: 0.00%

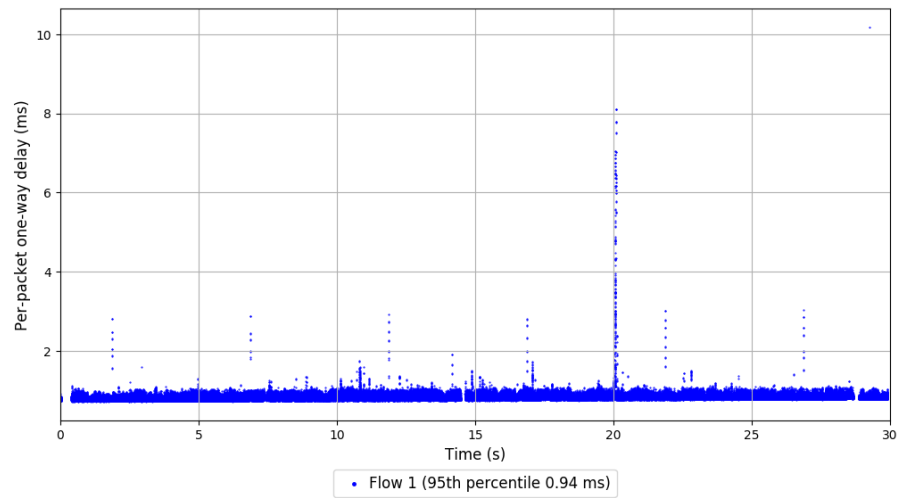
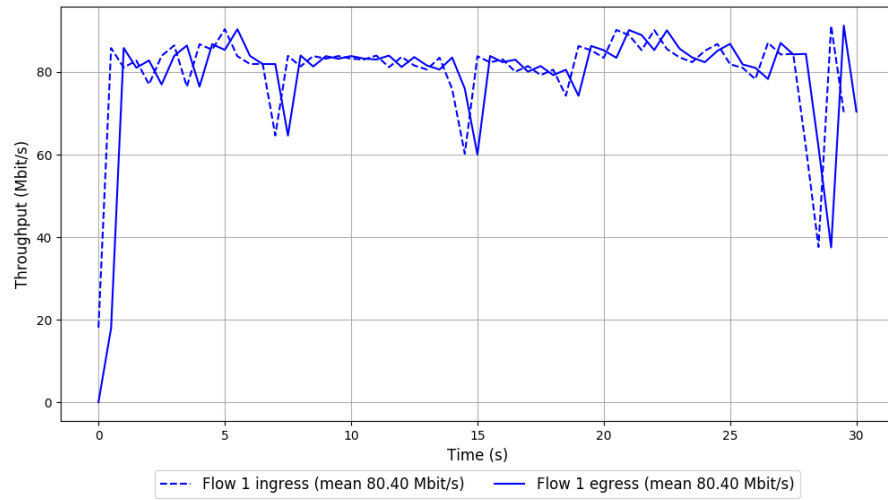
-- Flow 1:

Average throughput: 80.40 Mbit/s

95th percentile per-packet one-way delay: 0.940 ms

Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-11-30 05:01:04

End at: 2018-11-30 05:01:34

Local clock offset: 0.77 ms

Remote clock offset: 0.026 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 79.47 Mbit/s

95th percentile per-packet one-way delay: 0.756 ms

Loss rate: 0.00%

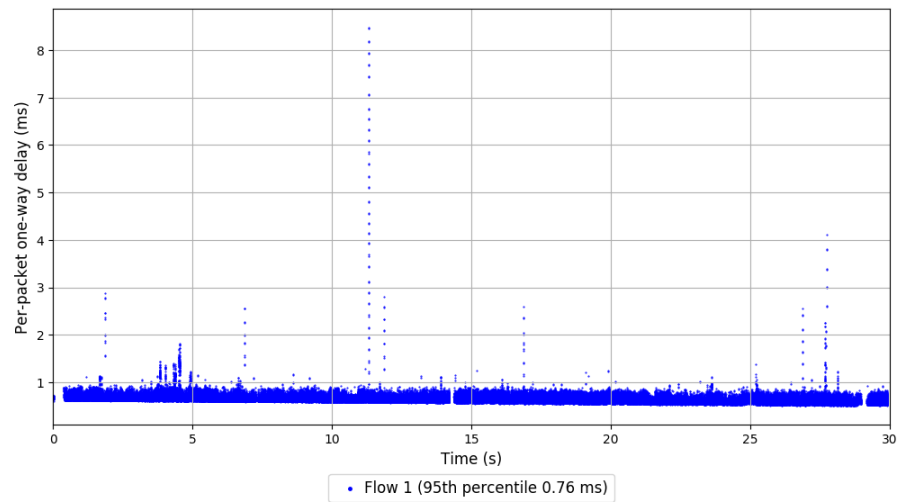
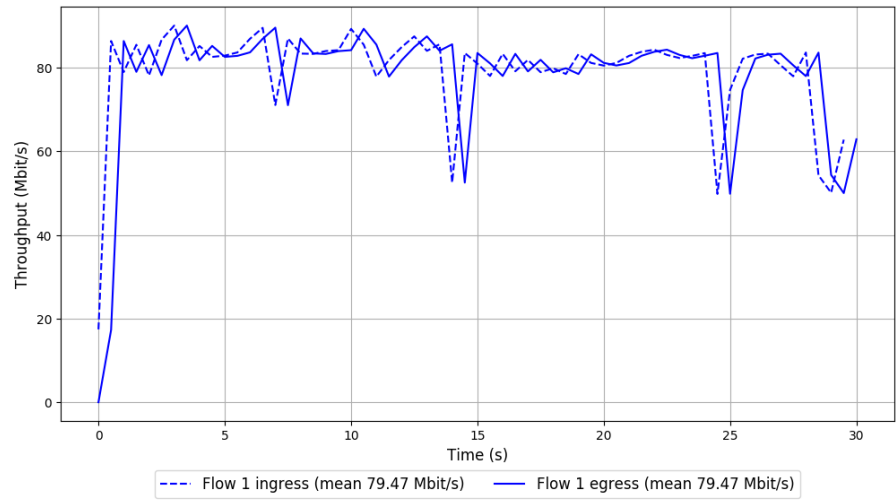
-- Flow 1:

Average throughput: 79.47 Mbit/s

95th percentile per-packet one-way delay: 0.756 ms

Loss rate: 0.00%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-11-30 05:27:01

End at: 2018-11-30 05:27:31

Local clock offset: -0.688 ms

Remote clock offset: -0.028 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 78.17 Mbit/s

95th percentile per-packet one-way delay: 0.901 ms

Loss rate: 0.00%

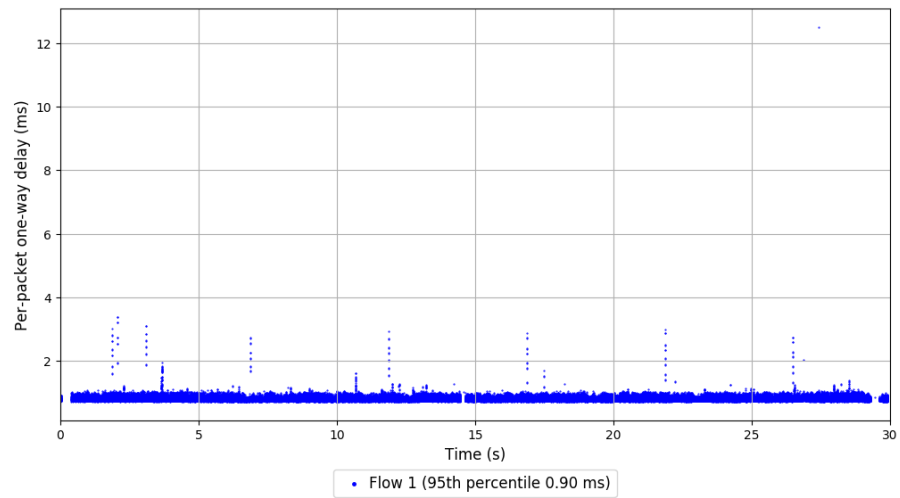
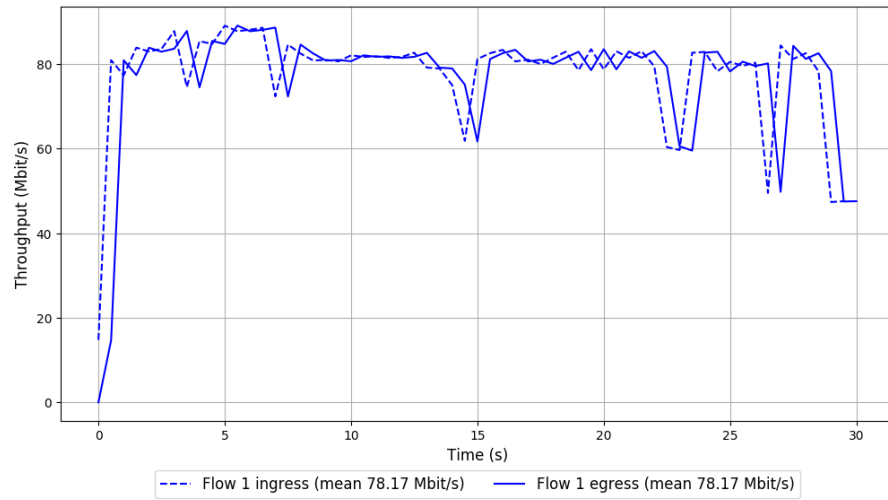
-- Flow 1:

Average throughput: 78.17 Mbit/s

95th percentile per-packet one-way delay: 0.901 ms

Loss rate: 0.00%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-11-30 05:52:58

End at: 2018-11-30 05:53:28

Local clock offset: -0.469 ms

Remote clock offset: 0.028 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 81.07 Mbit/s

95th percentile per-packet one-way delay: 0.975 ms

Loss rate: 0.00%

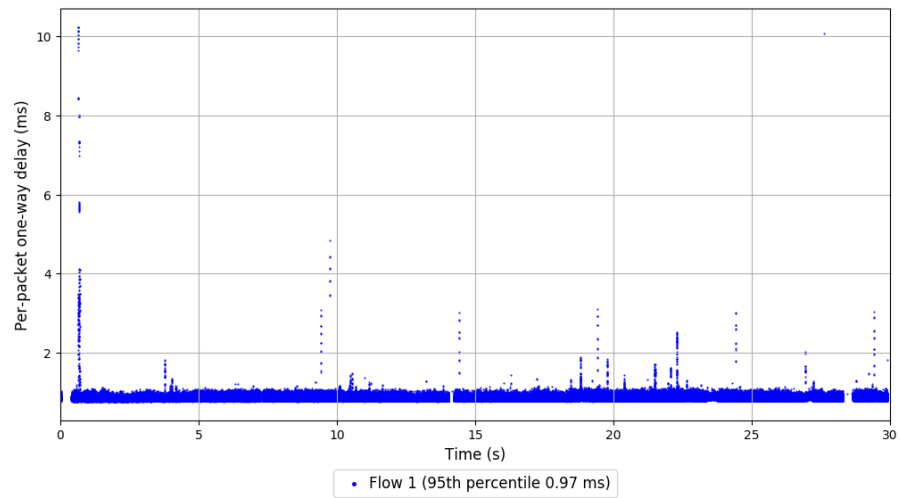
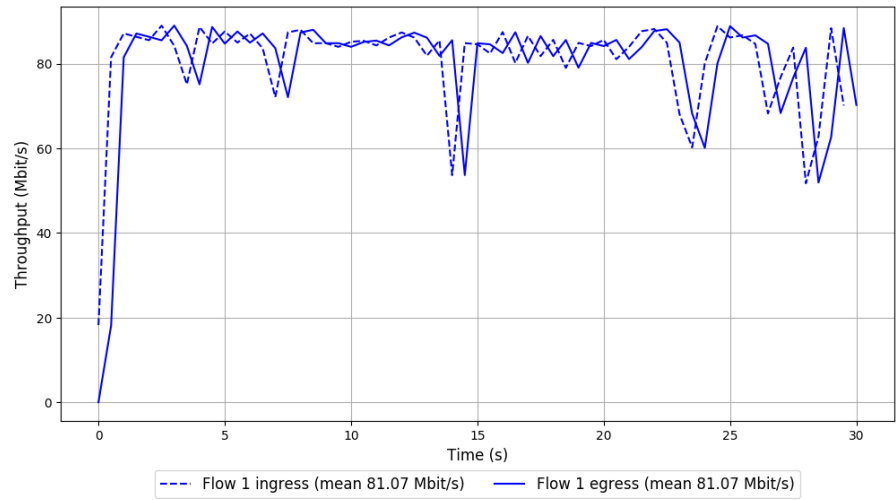
-- Flow 1:

Average throughput: 81.07 Mbit/s

95th percentile per-packet one-way delay: 0.975 ms

Loss rate: 0.00%

Run 5: Report of QUIC Cubic — Data Link

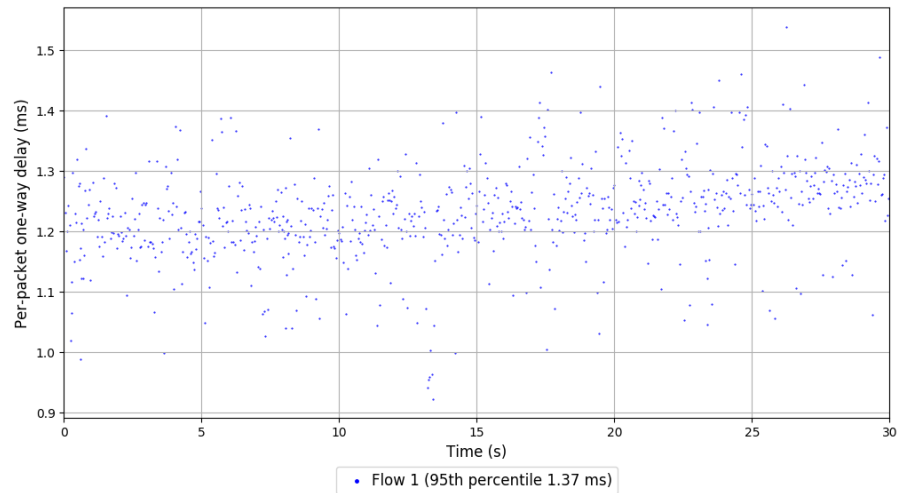
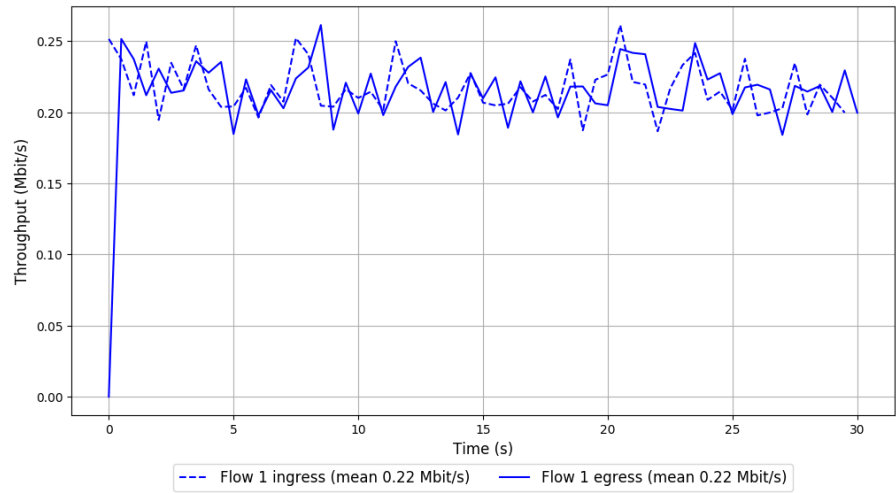


```
Run 1: Statistics of SCReAM

Start at: 2018-11-30 04:11:32
End at: 2018-11-30 04:12:02
Local clock offset: 5.567 ms
Remote clock offset: 0.06 ms

# Below is generated by plot.py at 2018-11-30 06:52:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.367 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.367 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-11-30 04:37:35

End at: 2018-11-30 04:38:05

Local clock offset: 9.315 ms

Remote clock offset: 0.146 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.371 ms

Loss rate: 0.00%

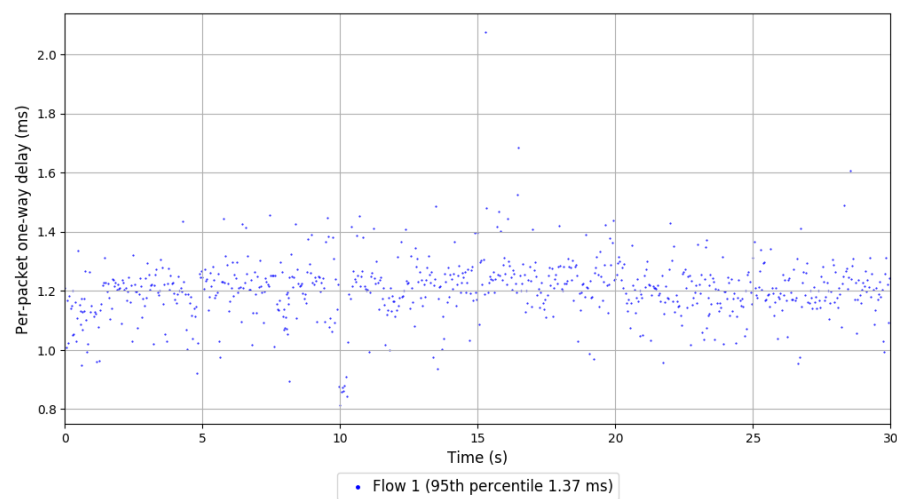
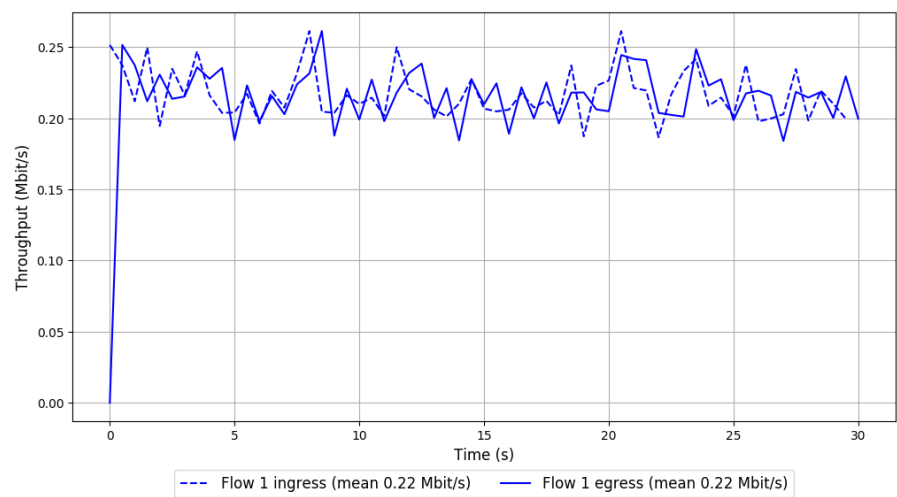
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.371 ms

Loss rate: 0.00%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-11-30 05:03:42

End at: 2018-11-30 05:04:12

Local clock offset: 0.145 ms

Remote clock offset: 0.007 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.129 ms

Loss rate: 0.00%

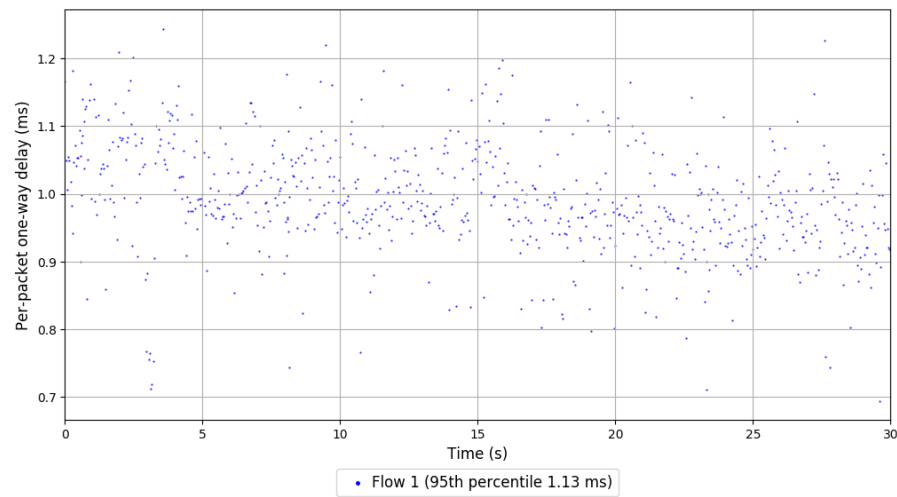
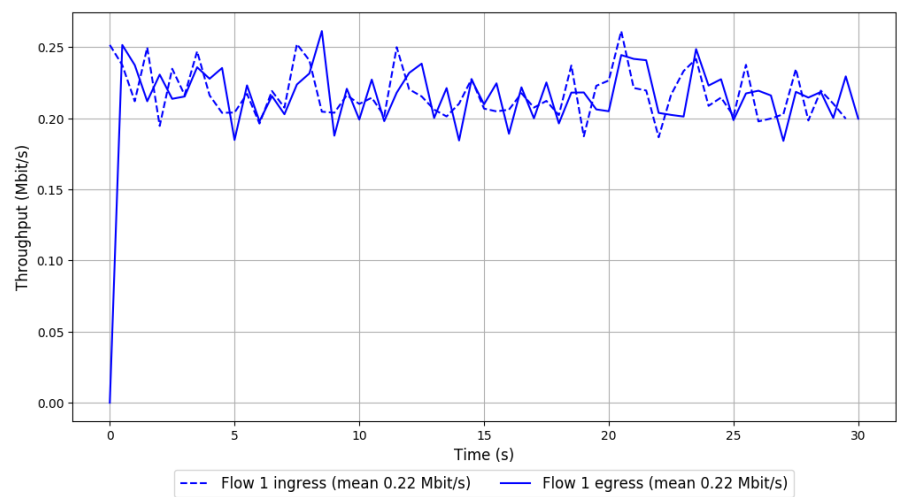
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.129 ms

Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

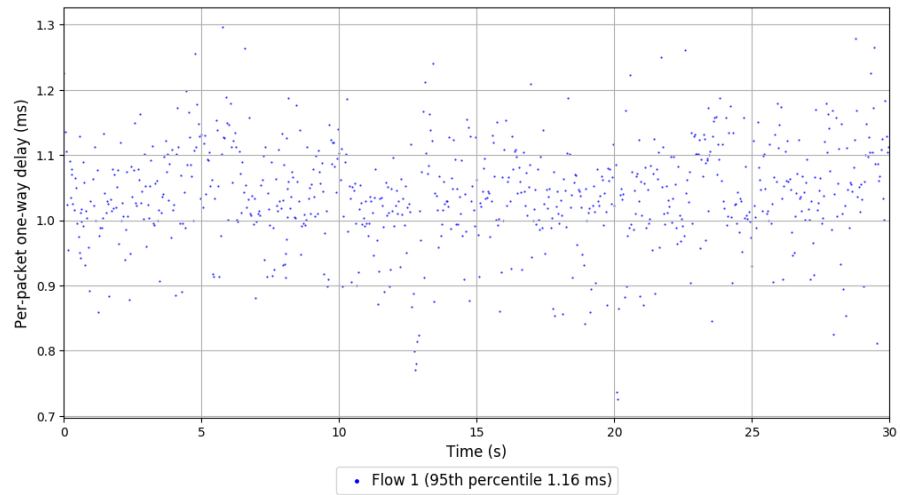
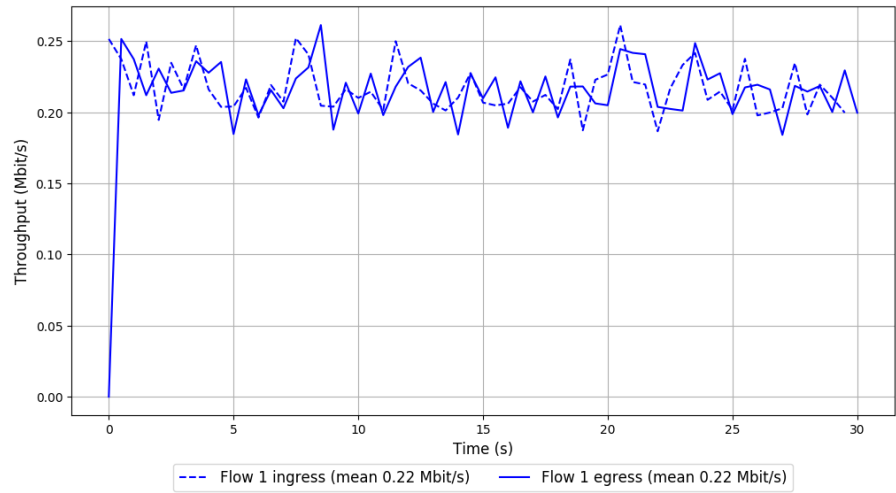


Run 4: Statistics of SCReAM

Start at: 2018-11-30 05:29:32
End at: 2018-11-30 05:30:02
Local clock offset: -0.693 ms
Remote clock offset: -0.087 ms

Below is generated by plot.py at 2018-11-30 06:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.163 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.163 ms
Loss rate: 0.00%

Run 4: Report of SReAM — Data Link

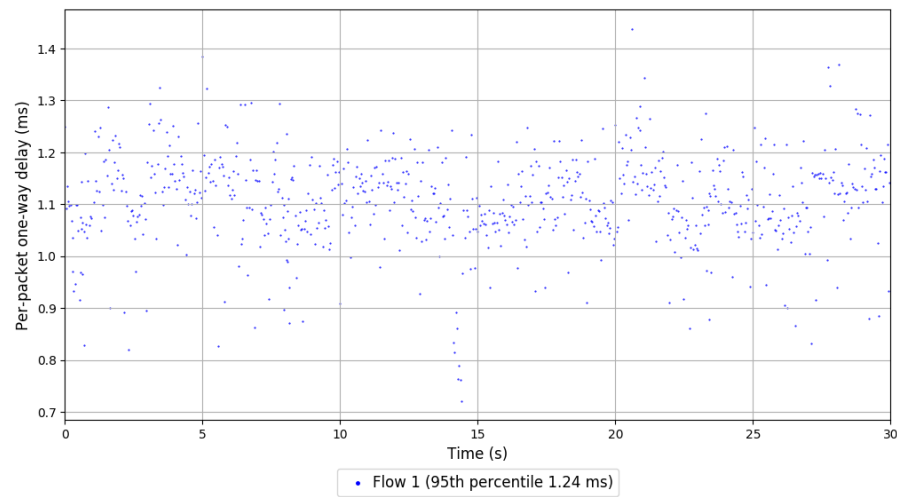
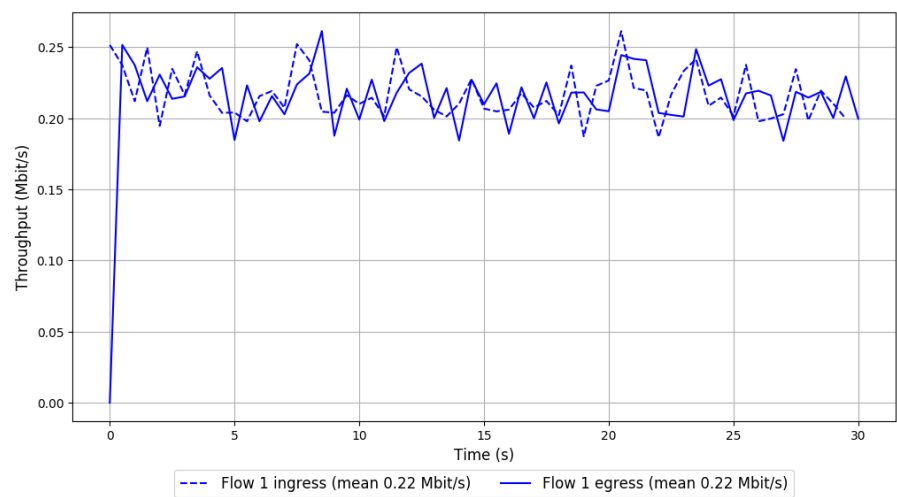


Run 5: Statistics of SCReAM

Start at: 2018-11-30 05:55:31
End at: 2018-11-30 05:56:01
Local clock offset: -0.392 ms
Remote clock offset: -0.014 ms

Below is generated by plot.py at 2018-11-30 06:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-11-30 04:00:47

End at: 2018-11-30 04:01:17

Local clock offset: 2.869 ms

Remote clock offset: 0.092 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 50.13 Mbit/s

95th percentile per-packet one-way delay: 4.470 ms

Loss rate: 0.02%

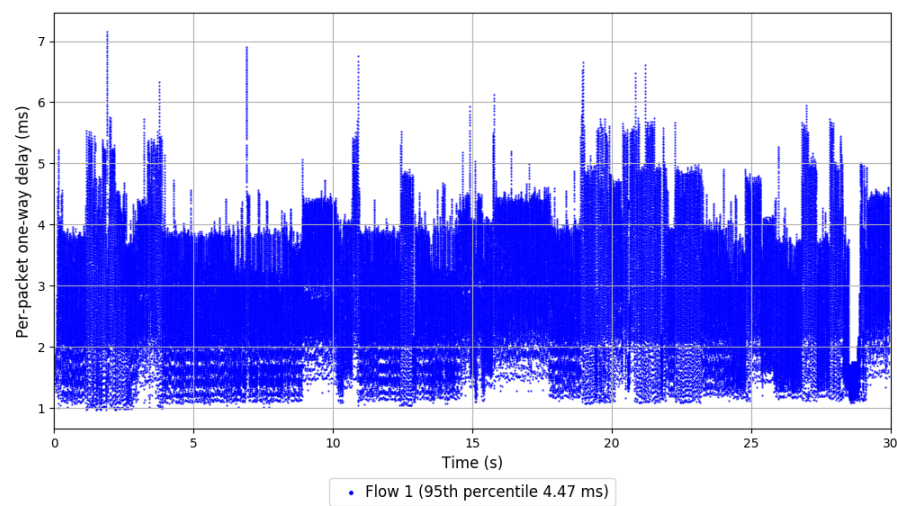
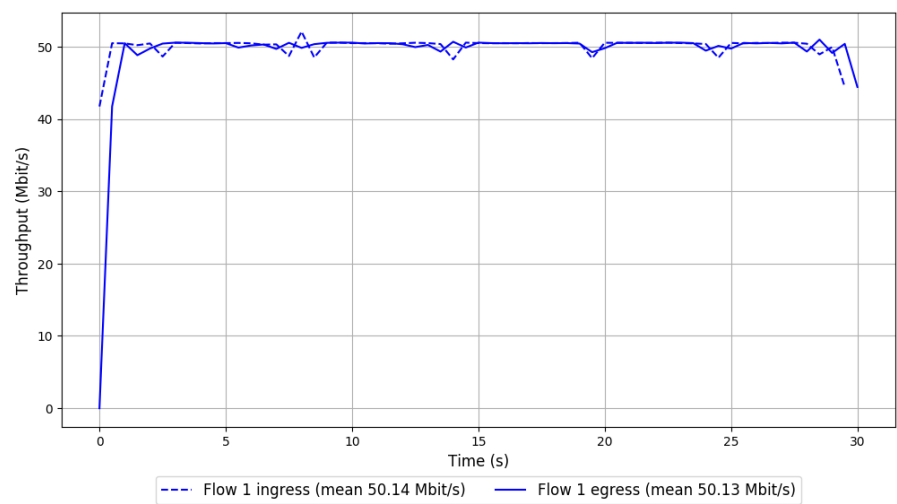
-- Flow 1:

Average throughput: 50.13 Mbit/s

95th percentile per-packet one-way delay: 4.470 ms

Loss rate: 0.02%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-11-30 04:27:01

End at: 2018-11-30 04:27:31

Local clock offset: 7.935 ms

Remote clock offset: 0.061 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 50.16 Mbit/s

95th percentile per-packet one-way delay: 3.989 ms

Loss rate: 0.02%

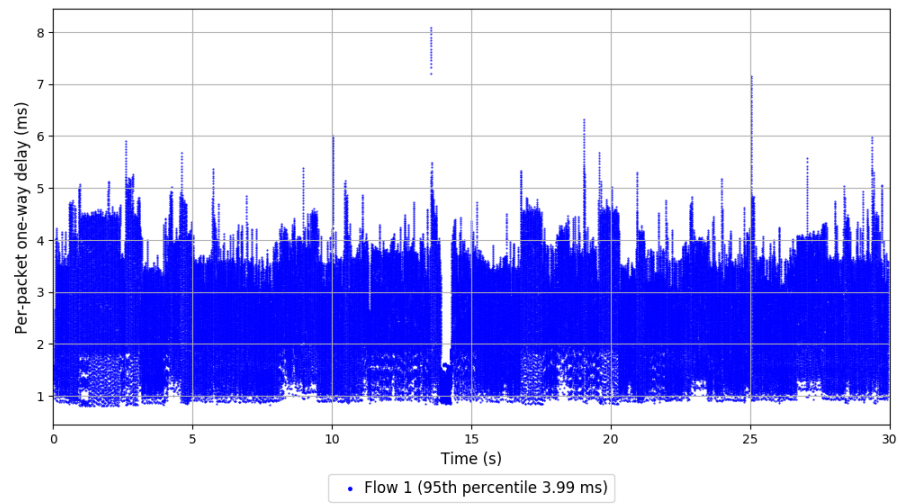
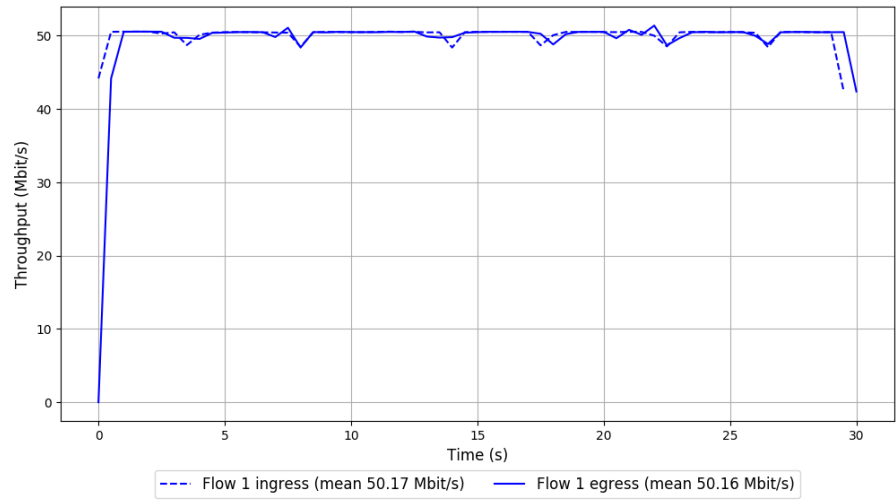
-- Flow 1:

Average throughput: 50.16 Mbit/s

95th percentile per-packet one-way delay: 3.989 ms

Loss rate: 0.02%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-11-30 04:52:56

End at: 2018-11-30 04:53:26

Local clock offset: 3.658 ms

Remote clock offset: 0.029 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 50.04 Mbit/s

95th percentile per-packet one-way delay: 3.679 ms

Loss rate: 0.00%

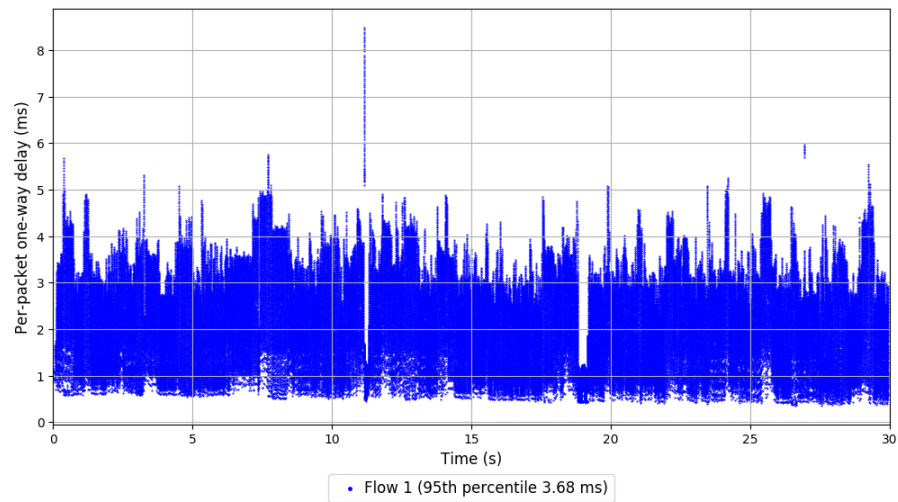
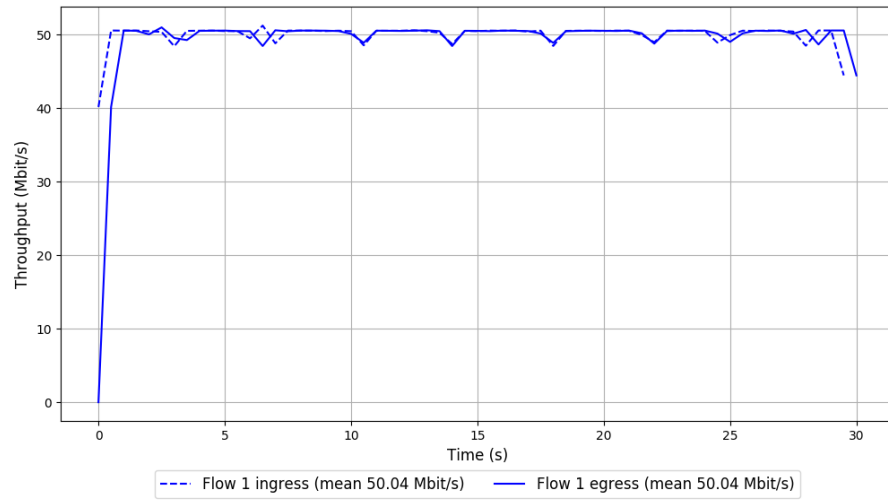
-- Flow 1:

Average throughput: 50.04 Mbit/s

95th percentile per-packet one-way delay: 3.679 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-11-30 05:18:58

End at: 2018-11-30 05:19:28

Local clock offset: -0.976 ms

Remote clock offset: 0.013 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 50.02 Mbit/s

95th percentile per-packet one-way delay: 4.150 ms

Loss rate: 0.04%

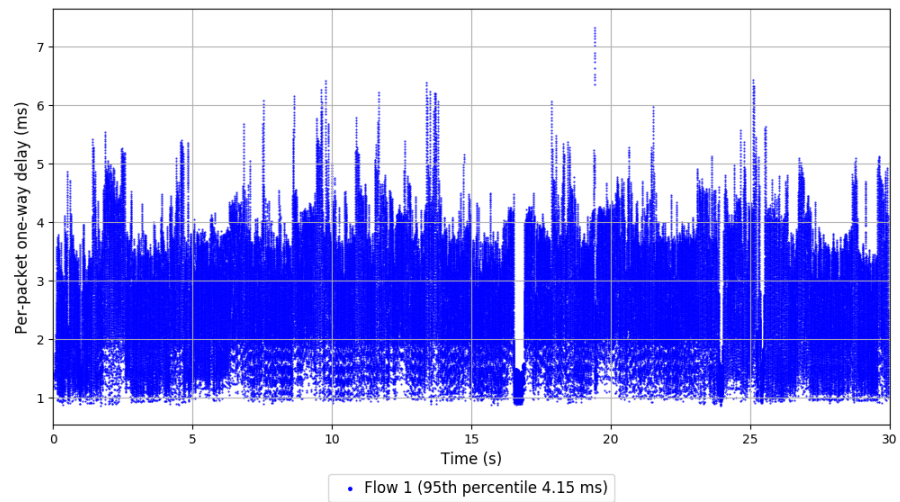
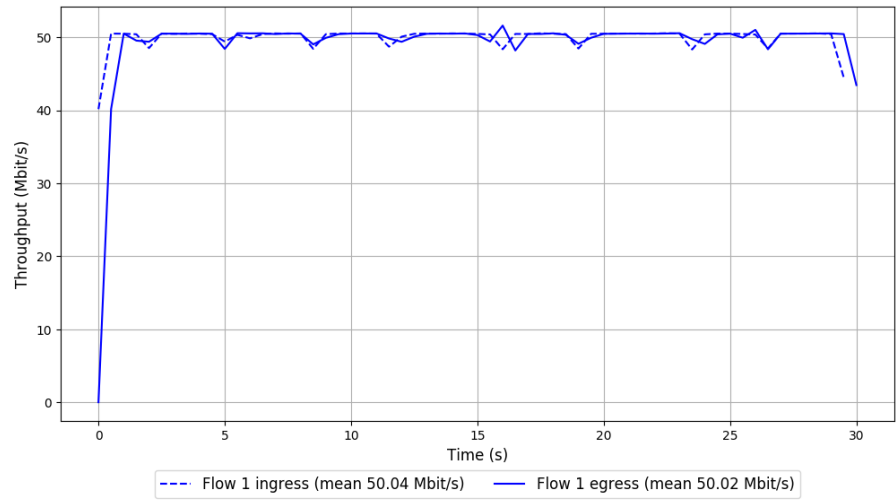
-- Flow 1:

Average throughput: 50.02 Mbit/s

95th percentile per-packet one-way delay: 4.150 ms

Loss rate: 0.04%

Run 4: Report of Sprout — Data Link

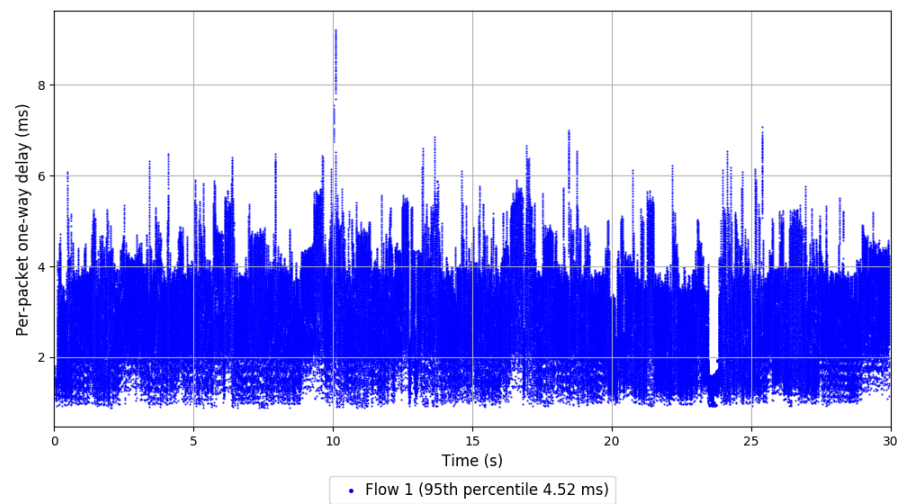
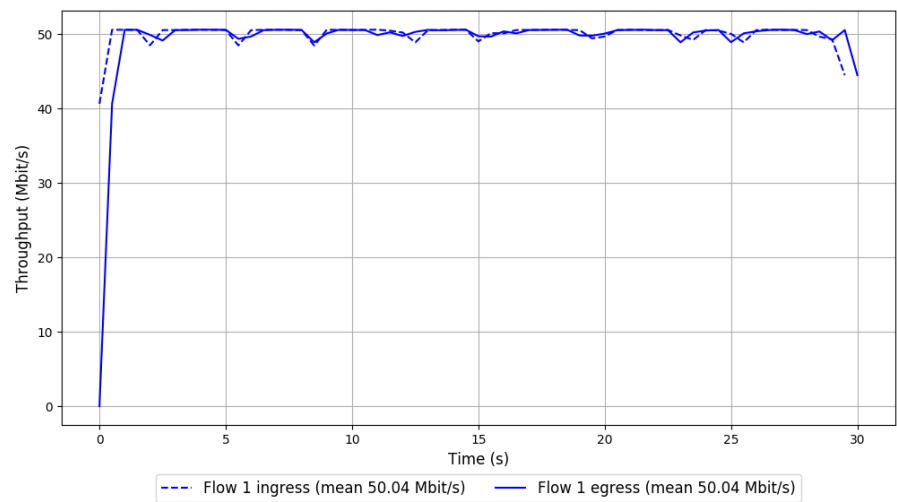


Run 5: Statistics of Sprout

Start at: 2018-11-30 05:44:51
End at: 2018-11-30 05:45:22
Local clock offset: -1.098 ms
Remote clock offset: -0.005 ms

Below is generated by plot.py at 2018-11-30 06:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 50.04 Mbit/s
95th percentile per-packet one-way delay: 4.523 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.04 Mbit/s
95th percentile per-packet one-way delay: 4.523 ms
Loss rate: 0.00%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

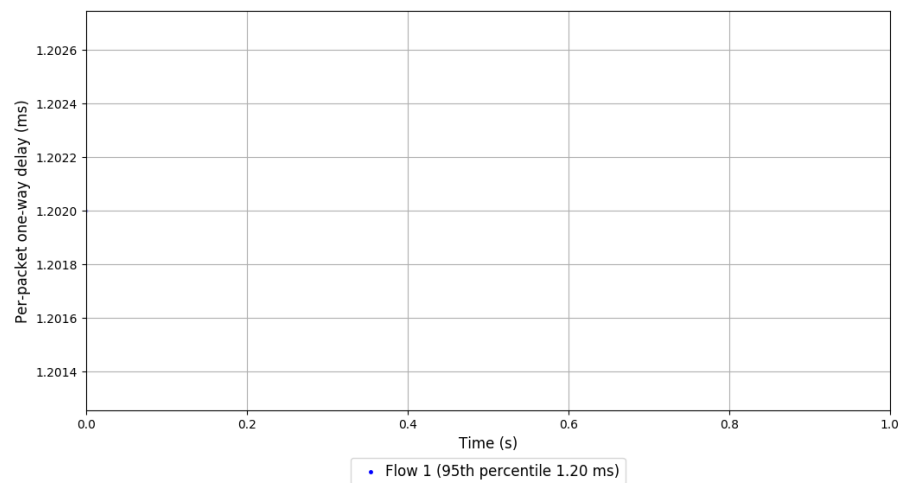
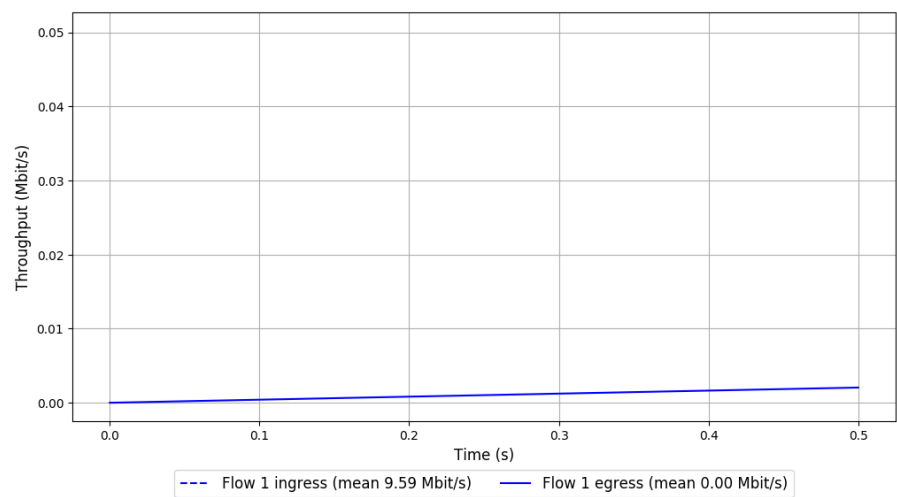
Start at: 2018-11-30 04:20:13

End at: 2018-11-30 04:20:43

Local clock offset: 7.01 ms

Remote clock offset: 0.119 ms

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



Run 2: Statistics of TaoVA-100x

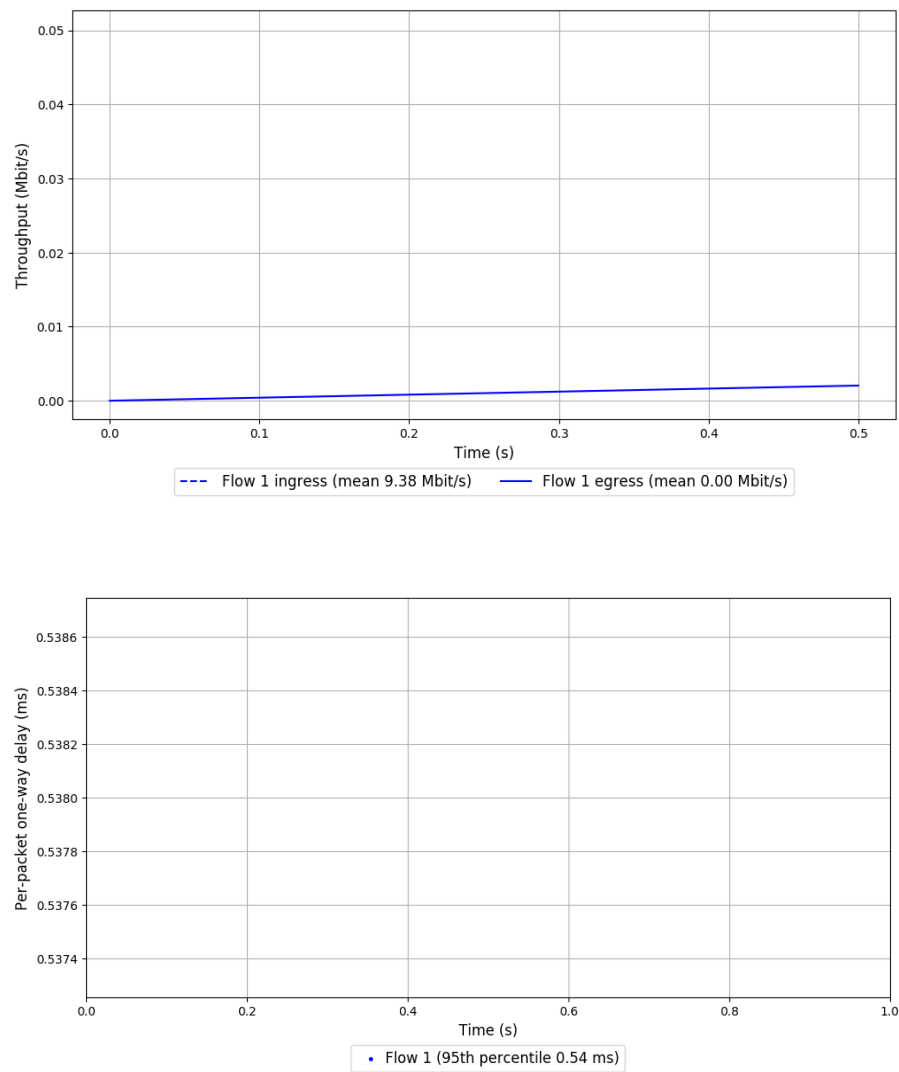
Start at: 2018-11-30 04:46:14

End at: 2018-11-30 04:46:44

Local clock offset: 8.919 ms

Remote clock offset: 0.048 ms

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



Run 3: Statistics of TaoVA-100x

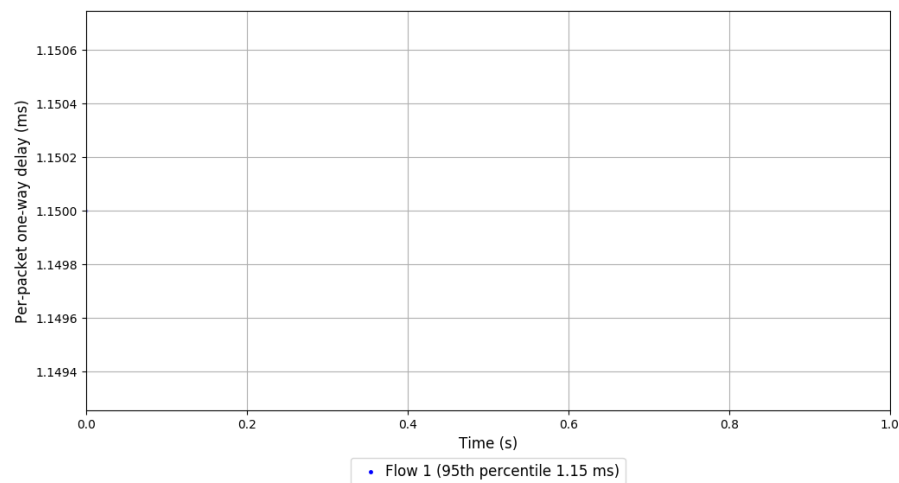
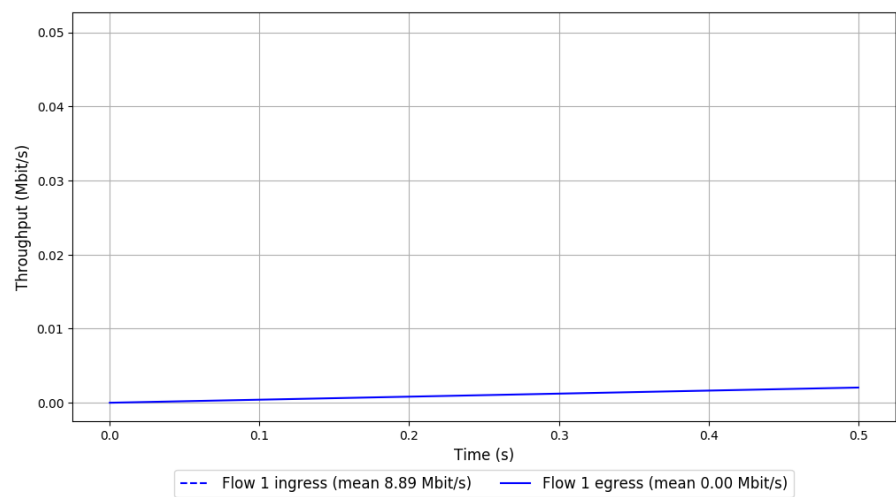
Start at: 2018-11-30 05:12:17

End at: 2018-11-30 05:12:47

Local clock offset: -1.139 ms

Remote clock offset: -0.055 ms

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



Run 4: Statistics of TaoVA-100x

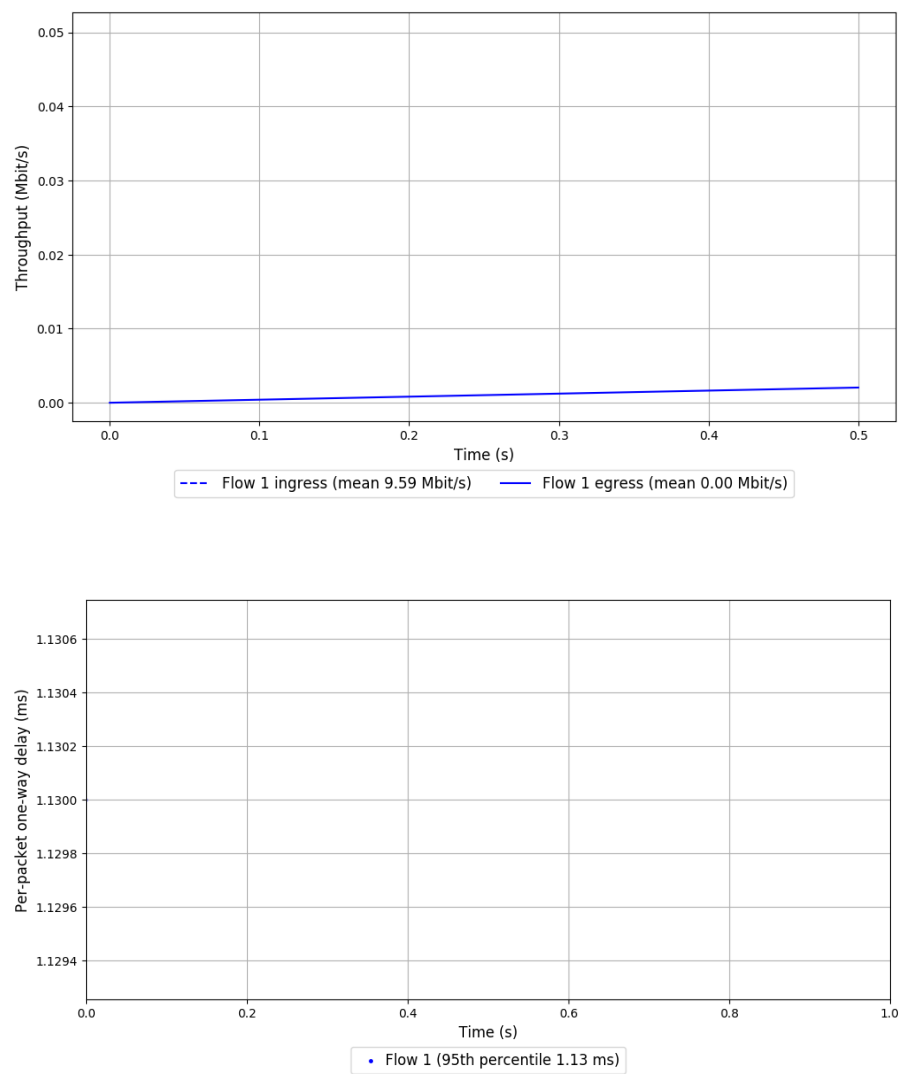
Start at: 2018-11-30 05:38:09

End at: 2018-11-30 05:38:39

Local clock offset: -0.88 ms

Remote clock offset: 0.01 ms

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



Run 5: Statistics of TaoVA-100x

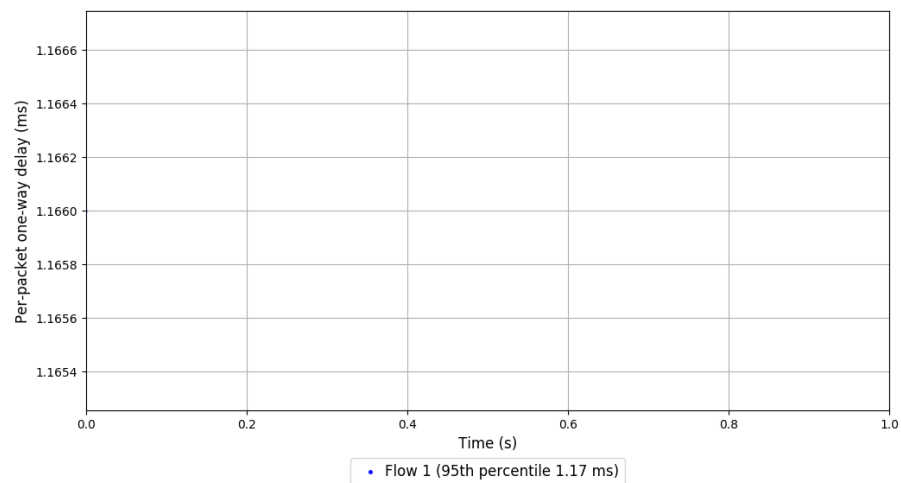
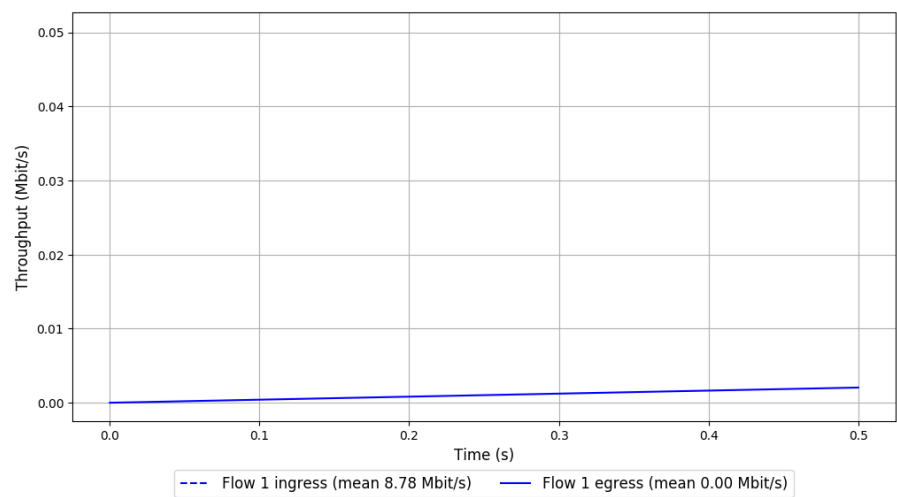
Start at: 2018-11-30 06:04:09

End at: 2018-11-30 06:04:39

Local clock offset: -0.335 ms

Remote clock offset: 0.033 ms

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



Run 1: Statistics of TCP Vegas

Start at: 2018-11-30 04:10:07

End at: 2018-11-30 04:10:37

Local clock offset: 5.326 ms

Remote clock offset: 0.079 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 369.72 Mbit/s

95th percentile per-packet one-way delay: 1.429 ms

Loss rate: 0.00%

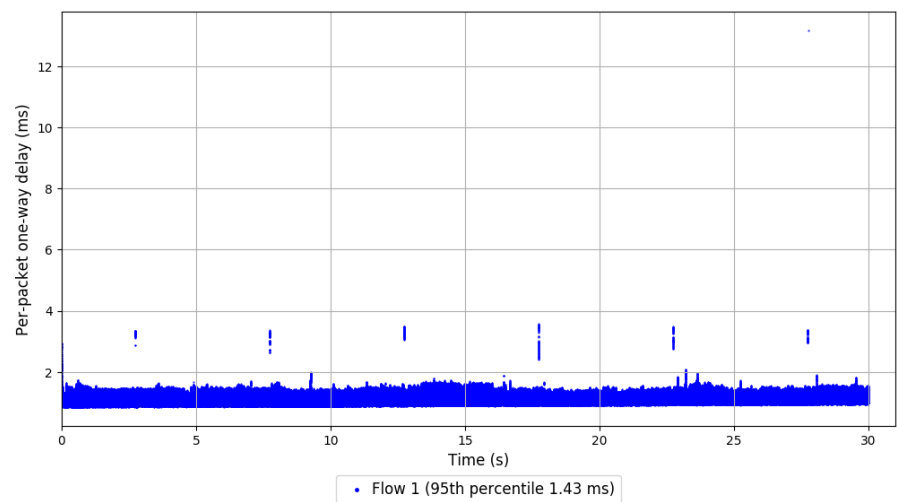
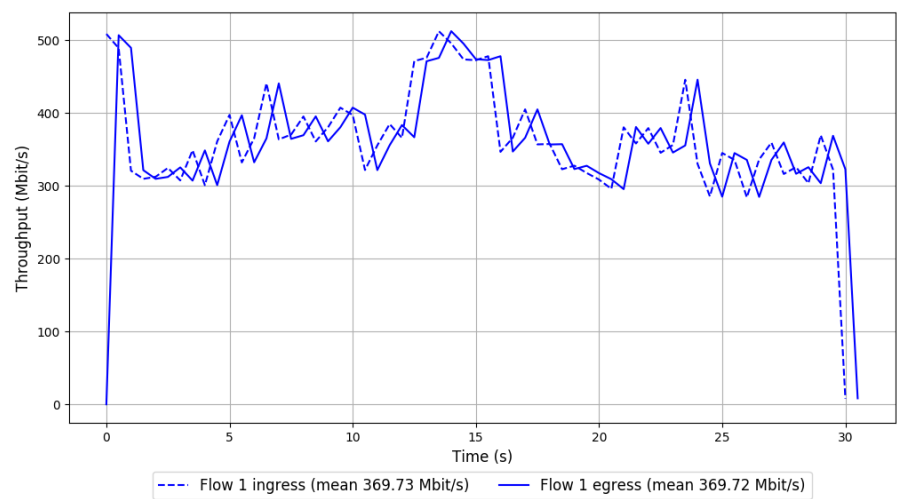
-- Flow 1:

Average throughput: 369.72 Mbit/s

95th percentile per-packet one-way delay: 1.429 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-11-30 04:36:12

End at: 2018-11-30 04:36:42

Local clock offset: 9.121 ms

Remote clock offset: 0.12 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 334.17 Mbit/s

95th percentile per-packet one-way delay: 1.297 ms

Loss rate: 0.00%

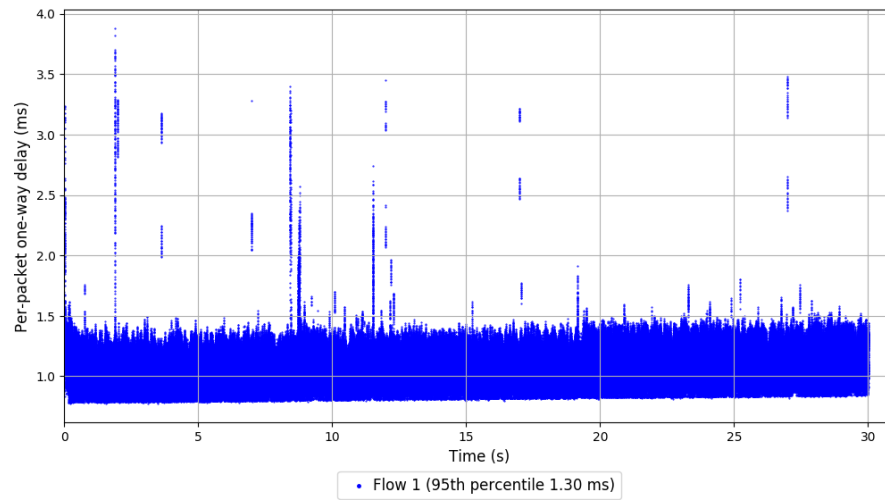
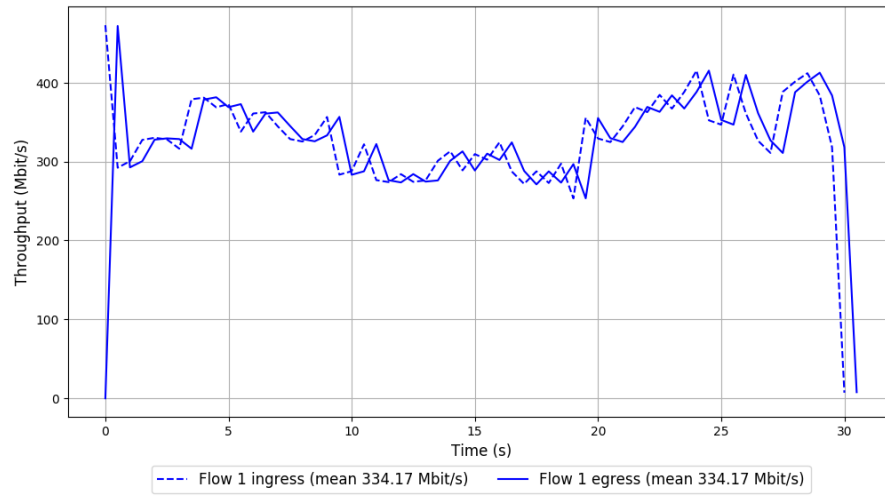
-- Flow 1:

Average throughput: 334.17 Mbit/s

95th percentile per-packet one-way delay: 1.297 ms

Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

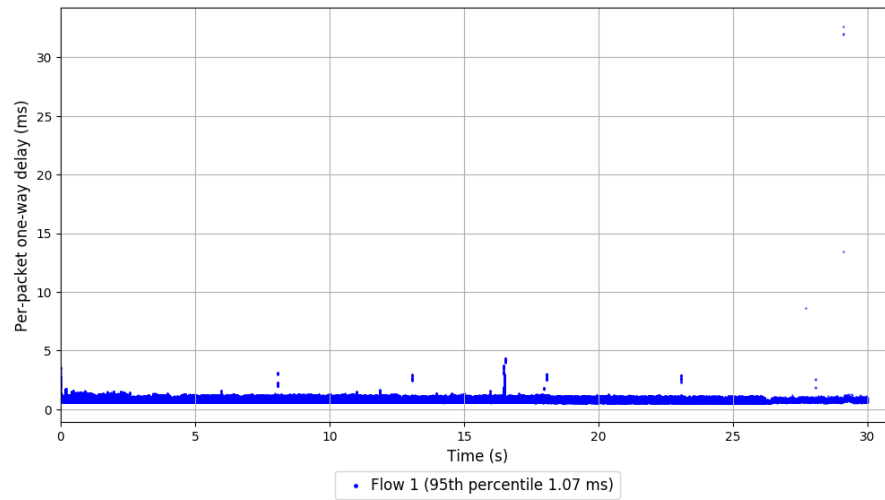
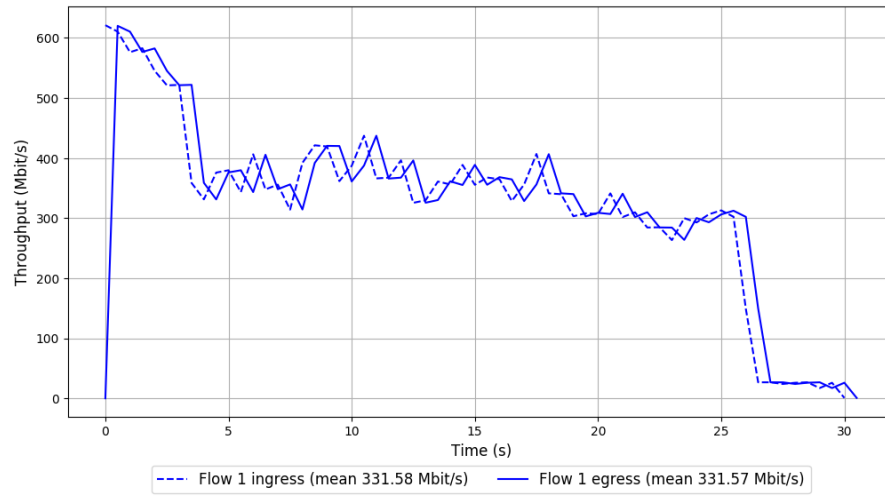


Run 3: Statistics of TCP Vegas

Start at: 2018-11-30 05:02:19
End at: 2018-11-30 05:02:49
Local clock offset: 0.441 ms
Remote clock offset: -0.055 ms

Below is generated by plot.py at 2018-11-30 06:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 331.57 Mbit/s
95th percentile per-packet one-way delay: 1.068 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 331.57 Mbit/s
95th percentile per-packet one-way delay: 1.068 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link

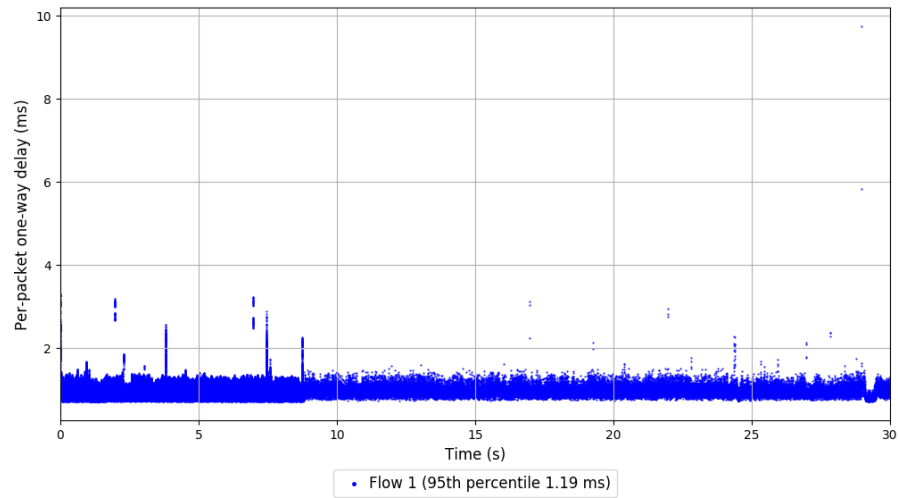
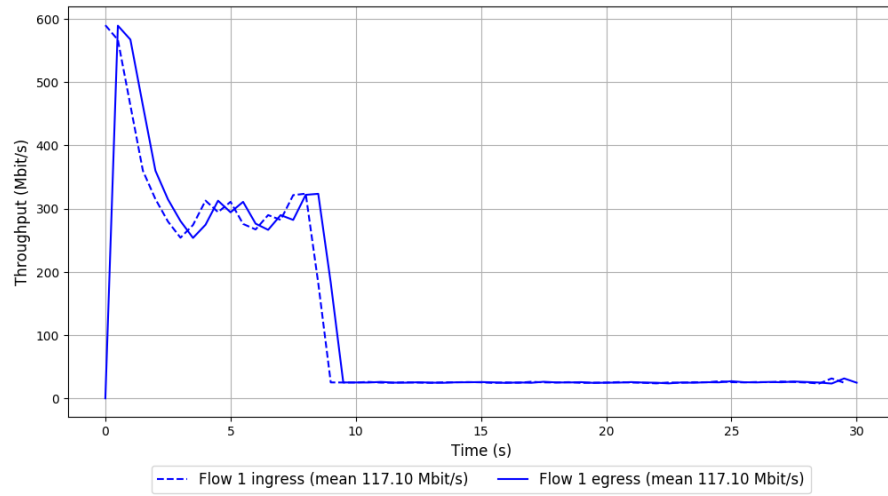


Run 4: Statistics of TCP Vegas

Start at: 2018-11-30 05:28:16
End at: 2018-11-30 05:28:46
Local clock offset: -0.695 ms
Remote clock offset: -0.054 ms

Below is generated by plot.py at 2018-11-30 06:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 117.10 Mbit/s
95th percentile per-packet one-way delay: 1.185 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 117.10 Mbit/s
95th percentile per-packet one-way delay: 1.185 ms
Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-11-30 05:54:13

End at: 2018-11-30 05:54:43

Local clock offset: -0.431 ms

Remote clock offset: 0.057 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 155.40 Mbit/s

95th percentile per-packet one-way delay: 1.886 ms

Loss rate: 0.00%

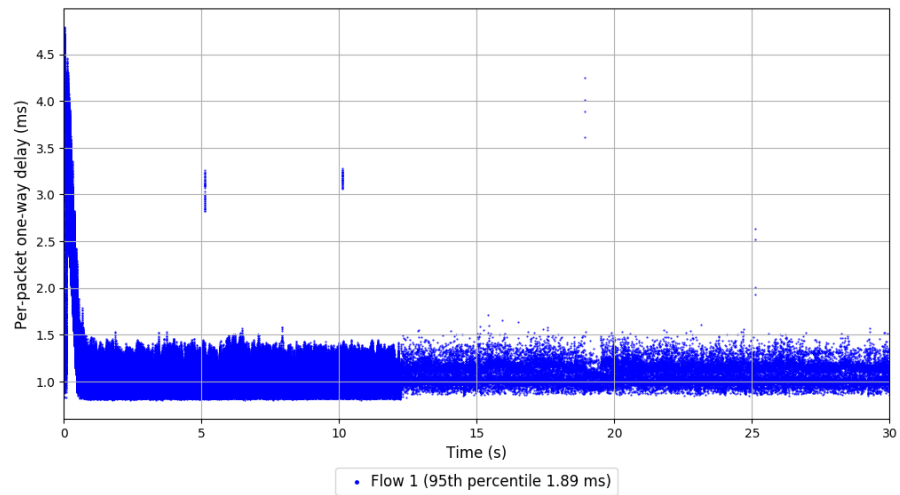
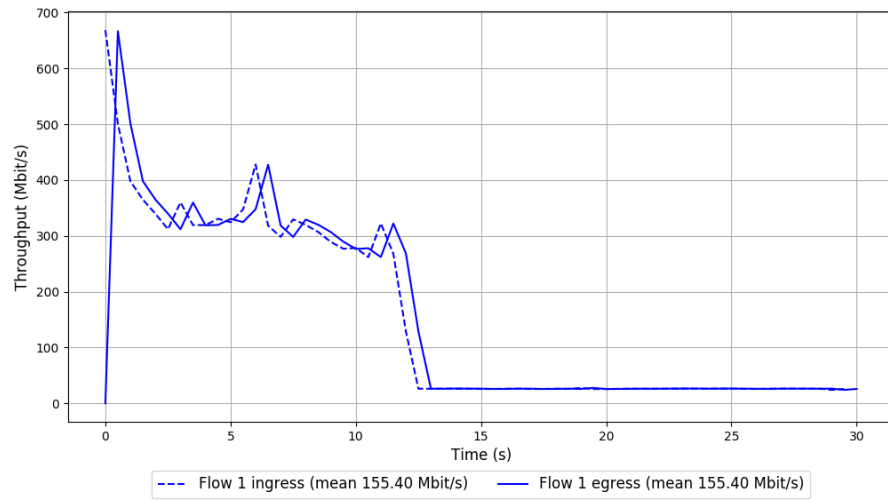
-- Flow 1:

Average throughput: 155.40 Mbit/s

95th percentile per-packet one-way delay: 1.886 ms

Loss rate: 0.00%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-11-30 04:17:13

End at: 2018-11-30 04:17:43

Local clock offset: 6.566 ms

Remote clock offset: 0.016 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 229.74 Mbit/s

95th percentile per-packet one-way delay: 5.891 ms

Loss rate: 0.67%

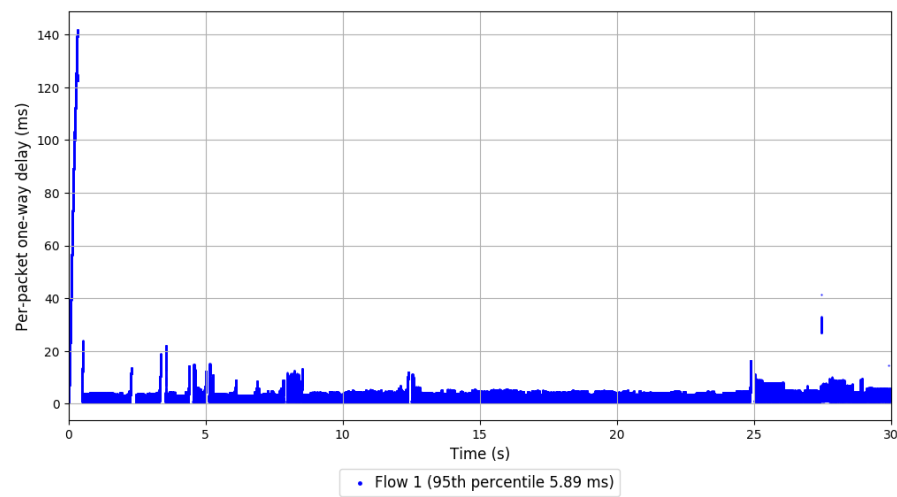
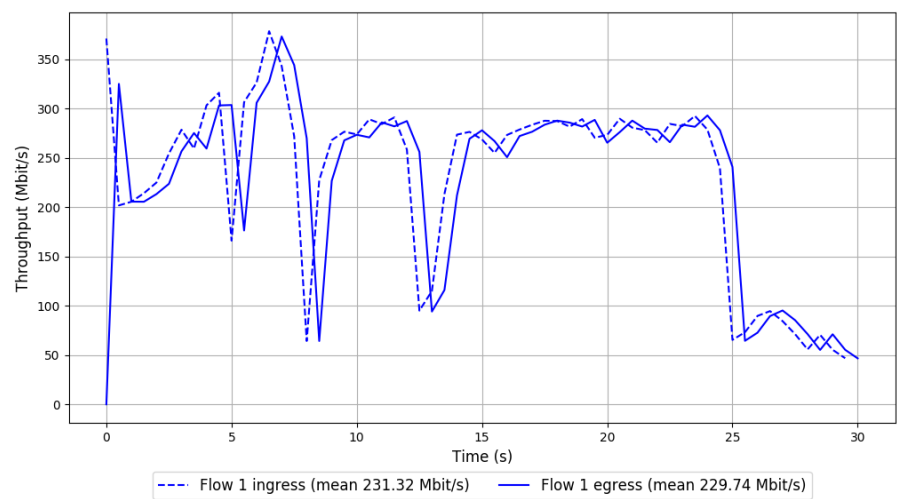
-- Flow 1:

Average throughput: 229.74 Mbit/s

95th percentile per-packet one-way delay: 5.891 ms

Loss rate: 0.67%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-11-30 04:43:17

End at: 2018-11-30 04:43:47

Local clock offset: 10.025 ms

Remote clock offset: 0.118 ms

Below is generated by plot.py at 2018-11-30 06:52:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 198.92 Mbit/s

95th percentile per-packet one-way delay: 7.157 ms

Loss rate: 0.02%

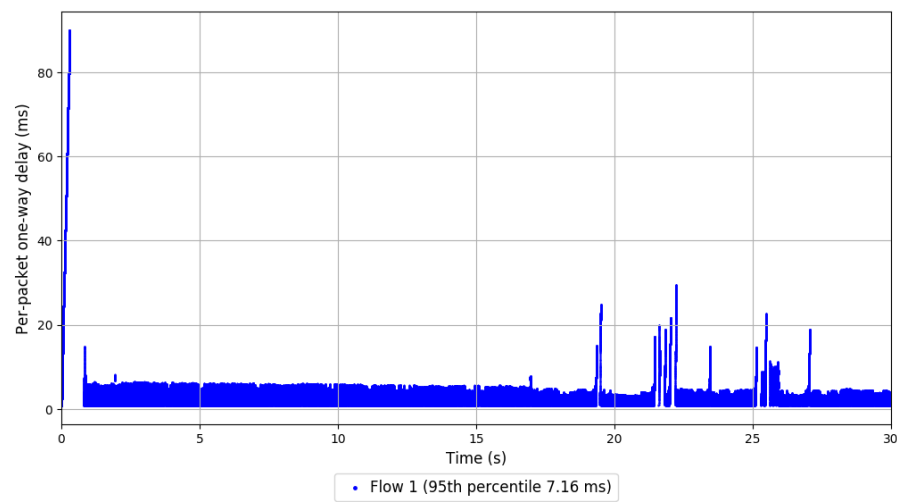
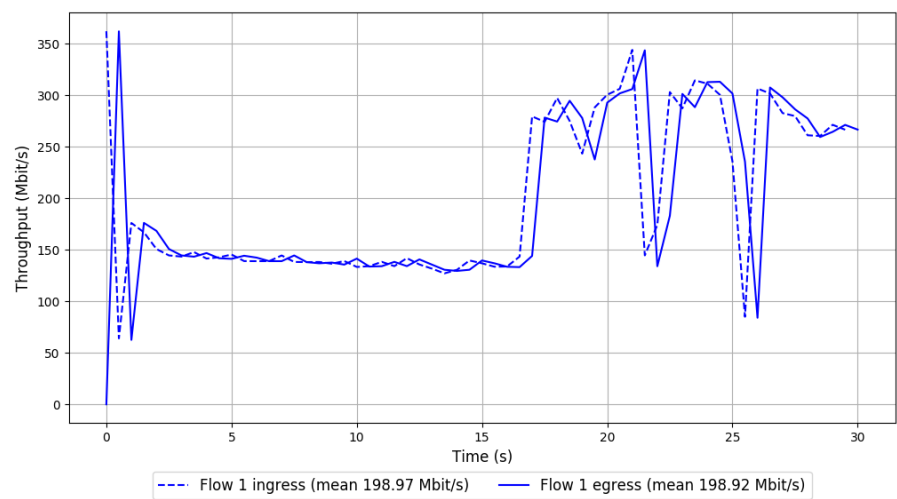
-- Flow 1:

Average throughput: 198.92 Mbit/s

95th percentile per-packet one-way delay: 7.157 ms

Loss rate: 0.02%

Run 2: Report of Verus — Data Link

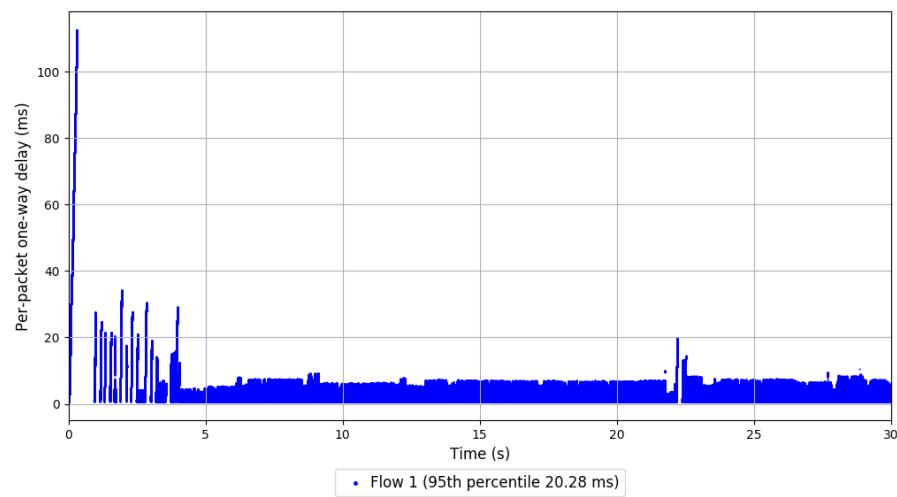
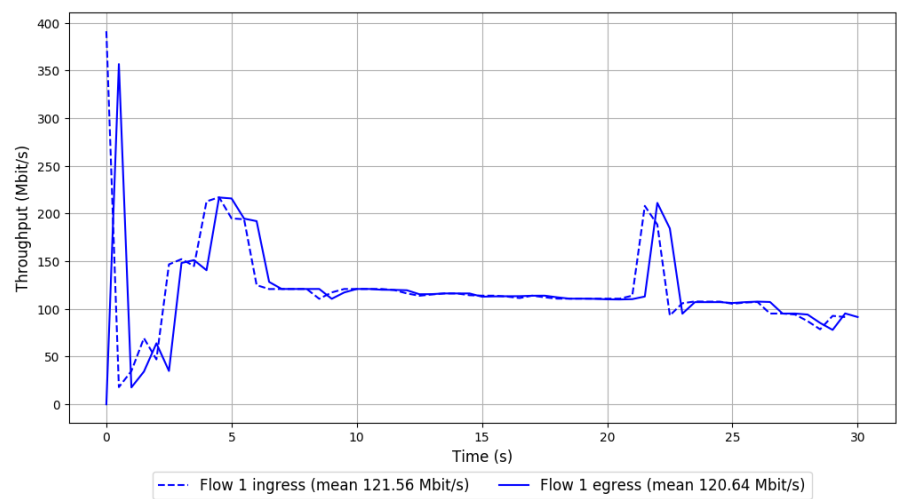


Run 3: Statistics of Verus

Start at: 2018-11-30 05:09:23
End at: 2018-11-30 05:09:53
Local clock offset: -0.754 ms
Remote clock offset: -0.012 ms

Below is generated by plot.py at 2018-11-30 06:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 120.64 Mbit/s
95th percentile per-packet one-way delay: 20.277 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 120.64 Mbit/s
95th percentile per-packet one-way delay: 20.277 ms
Loss rate: 0.74%

Run 3: Report of Verus — Data Link

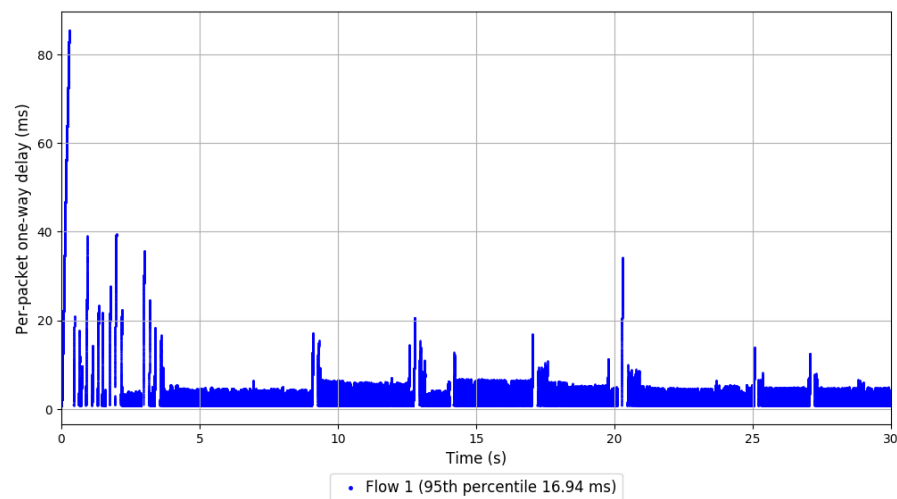
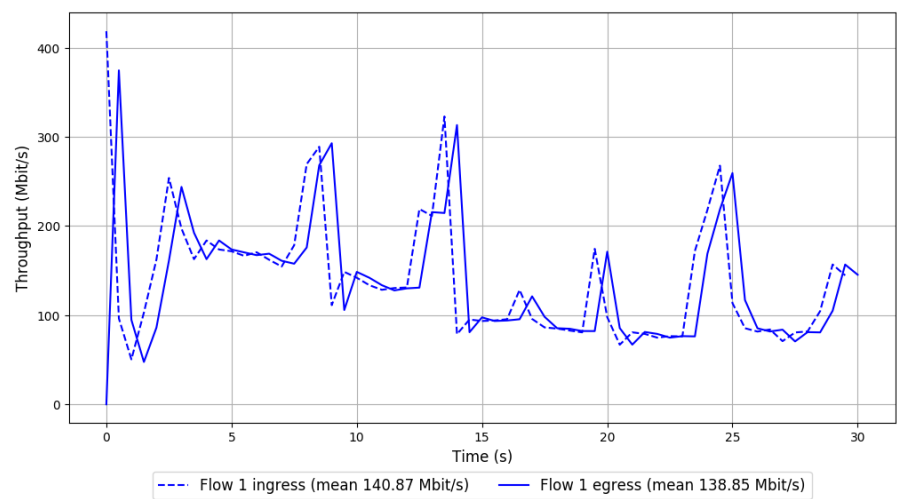


Run 4: Statistics of Verus

Start at: 2018-11-30 05:35:13
End at: 2018-11-30 05:35:43
Local clock offset: -0.794 ms
Remote clock offset: -0.023 ms

Below is generated by plot.py at 2018-11-30 06:52:59
Datalink statistics
-- Total of 1 flow:
Average throughput: 138.85 Mbit/s
95th percentile per-packet one-way delay: 16.937 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 138.85 Mbit/s
95th percentile per-packet one-way delay: 16.937 ms
Loss rate: 1.43%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-30 06:01:13

End at: 2018-11-30 06:01:43

Local clock offset: -0.359 ms

Remote clock offset: 0.009 ms

Below is generated by plot.py at 2018-11-30 06:54:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 218.98 Mbit/s

95th percentile per-packet one-way delay: 5.381 ms

Loss rate: 0.31%

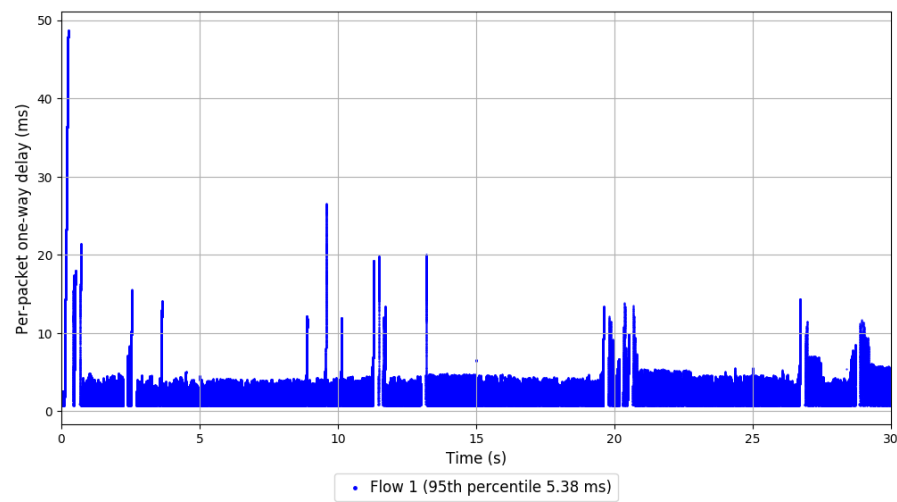
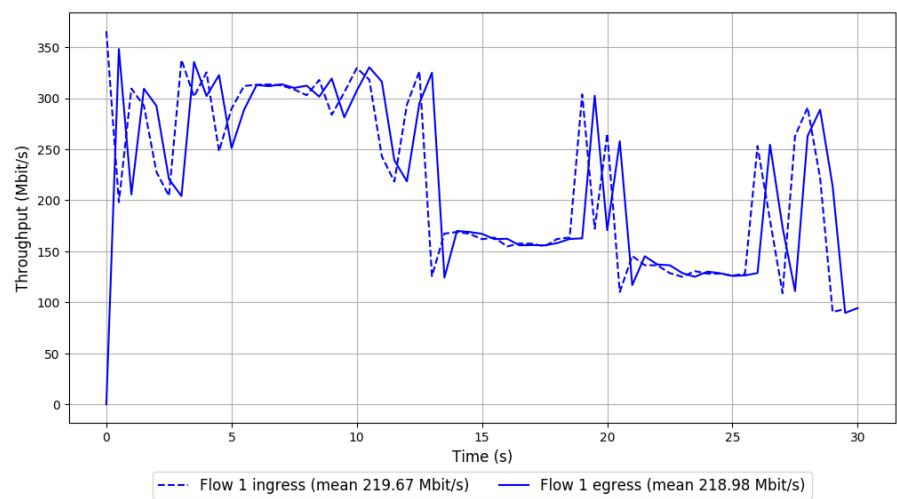
-- Flow 1:

Average throughput: 218.98 Mbit/s

95th percentile per-packet one-way delay: 5.381 ms

Loss rate: 0.31%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-11-30 03:58:09

End at: 2018-11-30 03:58:39

Local clock offset: 1.867 ms

Remote clock offset: 0.091 ms

Below is generated by plot.py at 2018-11-30 06:54:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 218.83 Mbit/s

95th percentile per-packet one-way delay: 1.329 ms

Loss rate: 0.00%

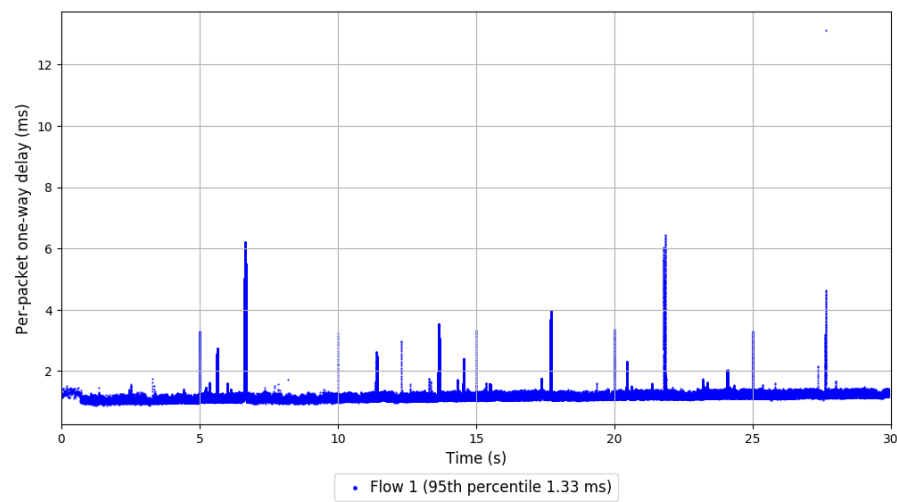
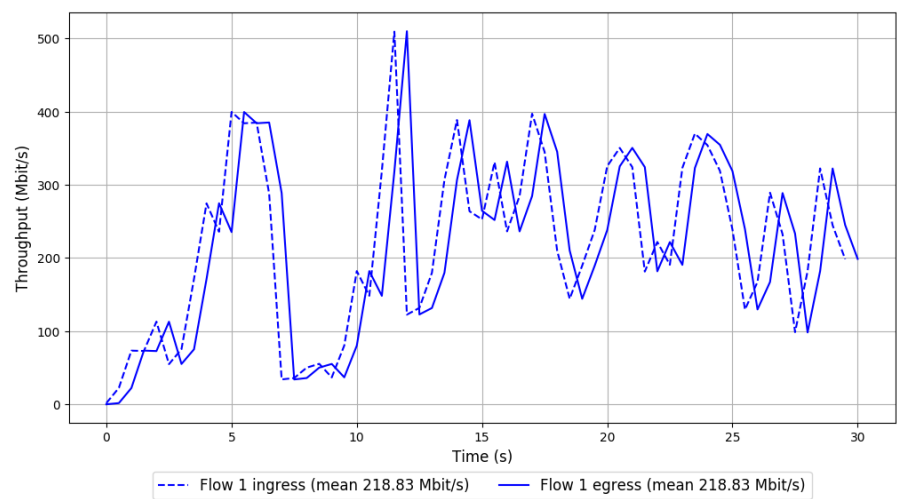
-- Flow 1:

Average throughput: 218.83 Mbit/s

95th percentile per-packet one-way delay: 1.329 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-11-30 04:24:25

End at: 2018-11-30 04:24:55

Local clock offset: 7.598 ms

Remote clock offset: 0.097 ms

Below is generated by plot.py at 2018-11-30 06:54:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 207.81 Mbit/s

95th percentile per-packet one-way delay: 1.076 ms

Loss rate: 0.00%

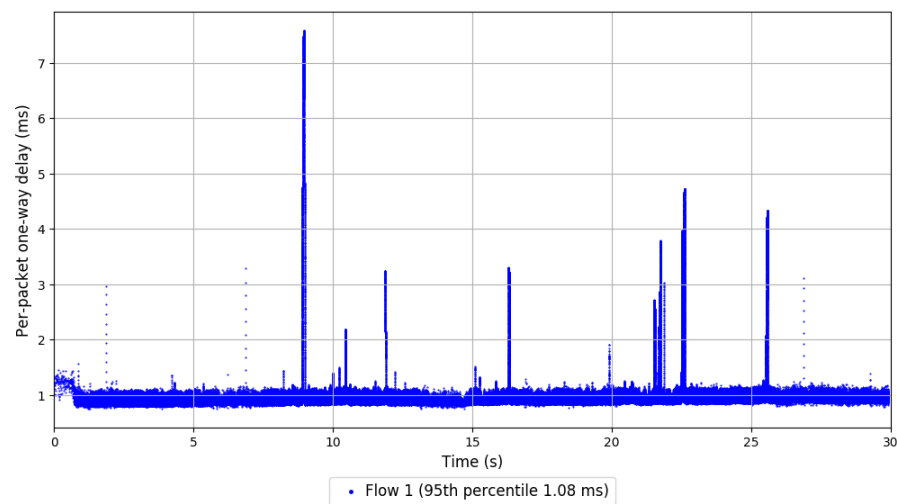
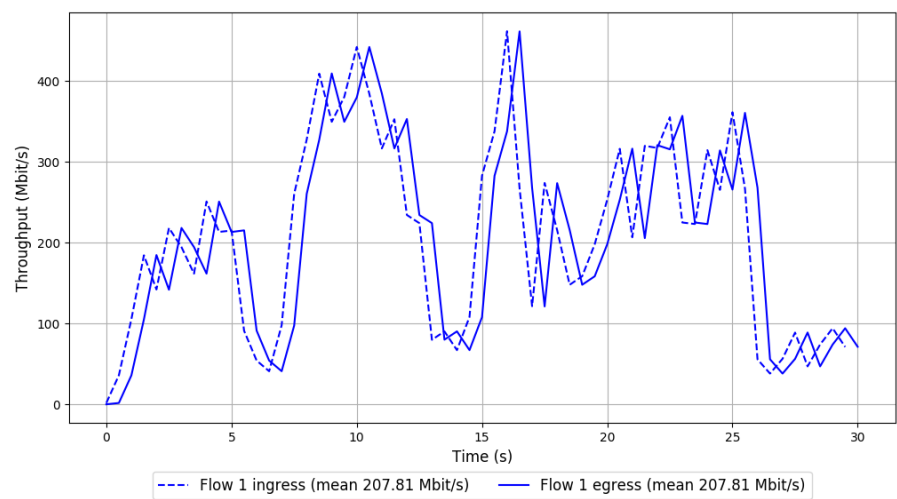
-- Flow 1:

Average throughput: 207.81 Mbit/s

95th percentile per-packet one-way delay: 1.076 ms

Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-11-30 04:50:20

End at: 2018-11-30 04:50:50

Local clock offset: 5.254 ms

Remote clock offset: 0.047 ms

Below is generated by plot.py at 2018-11-30 06:54:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 211.12 Mbit/s

95th percentile per-packet one-way delay: 0.555 ms

Loss rate: 0.00%

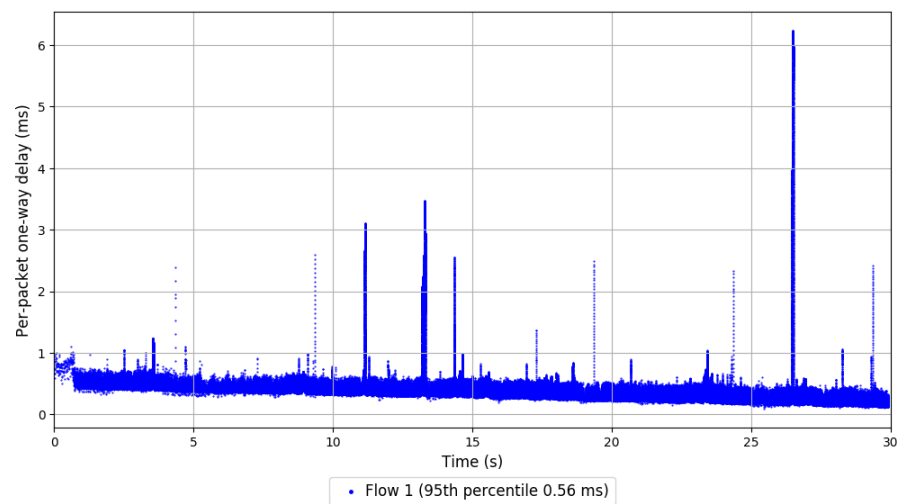
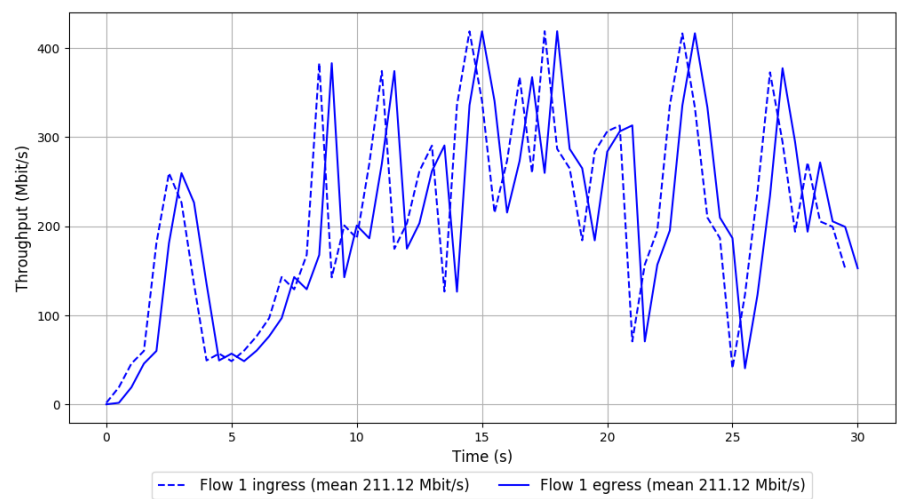
-- Flow 1:

Average throughput: 211.12 Mbit/s

95th percentile per-packet one-way delay: 0.555 ms

Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link

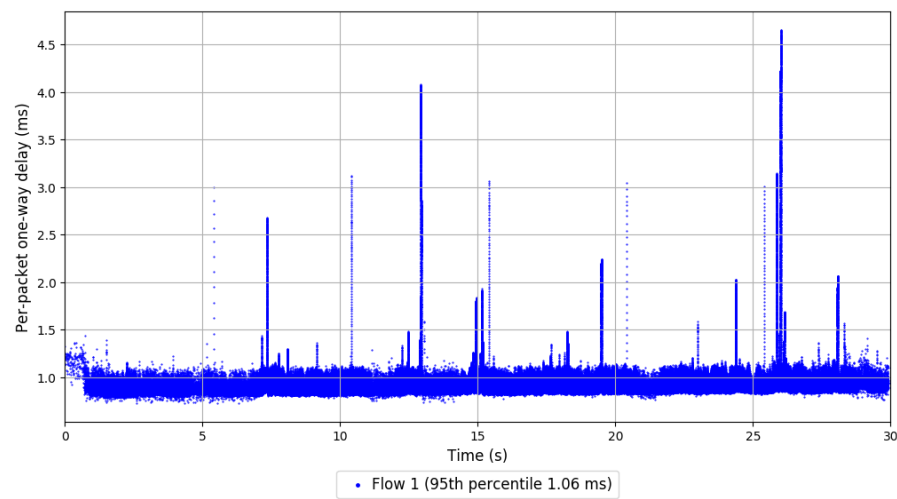
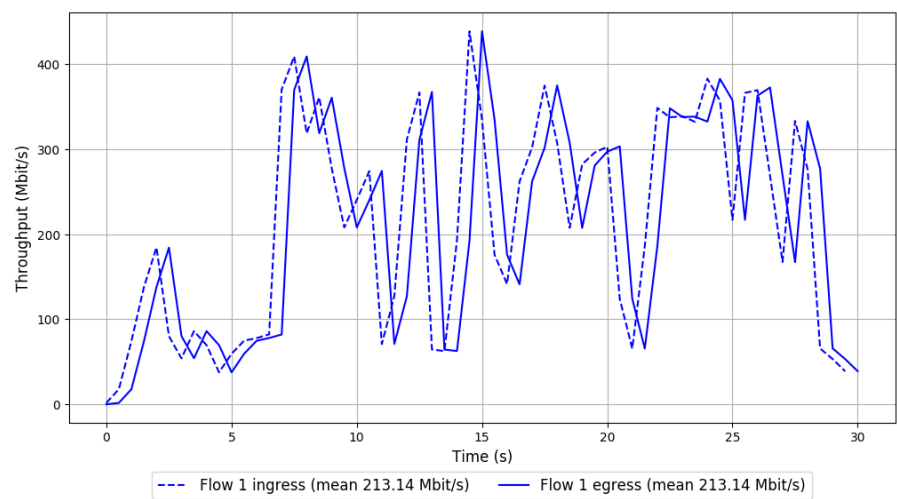


Run 4: Statistics of PCC-Vivace

Start at: 2018-11-30 05:16:22
End at: 2018-11-30 05:16:52
Local clock offset: -1.234 ms
Remote clock offset: -0.037 ms

Below is generated by plot.py at 2018-11-30 06:54:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 213.14 Mbit/s
95th percentile per-packet one-way delay: 1.062 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 213.14 Mbit/s
95th percentile per-packet one-way delay: 1.062 ms
Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link

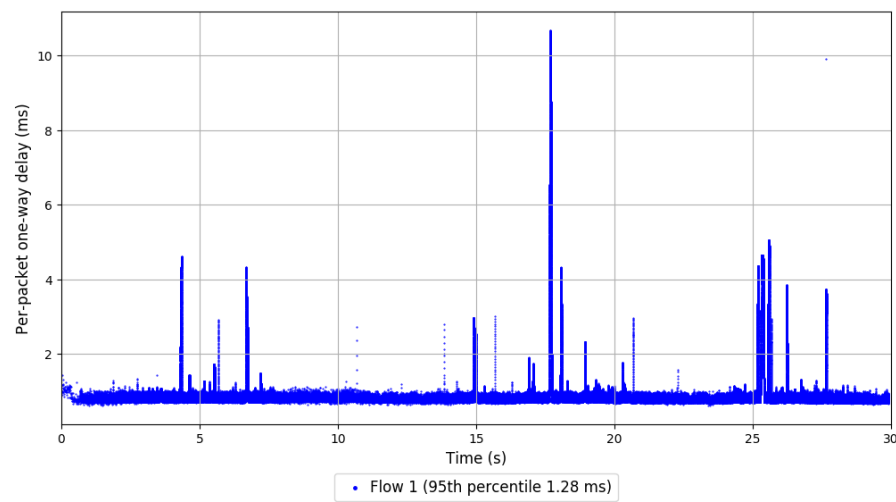
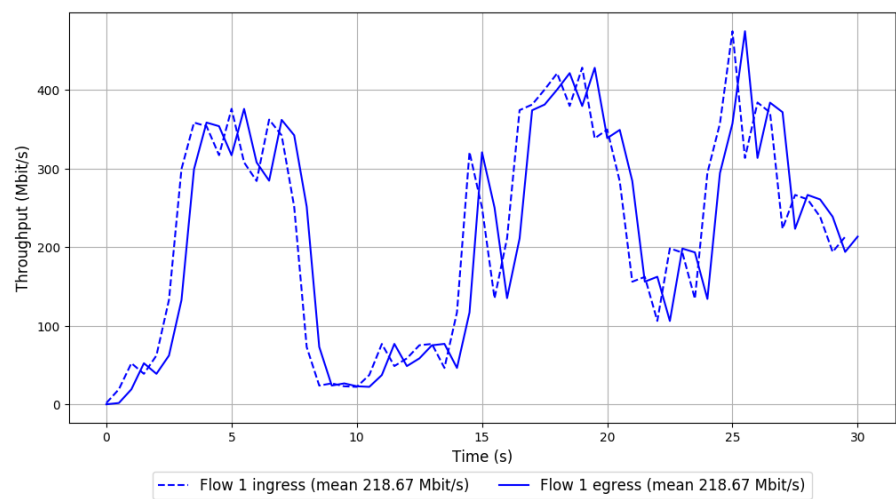


Run 5: Statistics of PCC-Vivace

Start at: 2018-11-30 05:42:15
End at: 2018-11-30 05:42:45
Local clock offset: -1.004 ms
Remote clock offset: -0.041 ms

Below is generated by plot.py at 2018-11-30 06:54:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 218.67 Mbit/s
95th percentile per-packet one-way delay: 1.279 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 218.67 Mbit/s
95th percentile per-packet one-way delay: 1.279 ms
Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-11-30 04:02:00

End at: 2018-11-30 04:02:30

Local clock offset: 3.286 ms

Remote clock offset: 0.138 ms

Below is generated by plot.py at 2018-11-30 06:54:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 1.450 ms

Loss rate: 0.03%

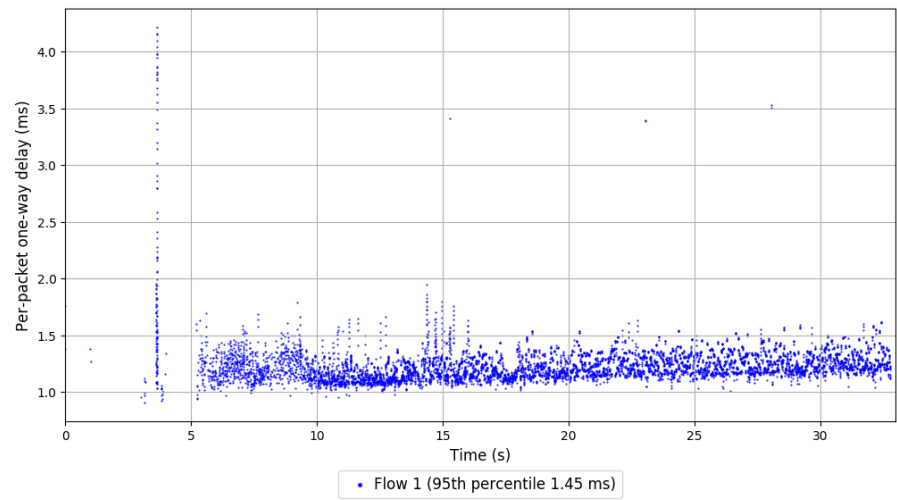
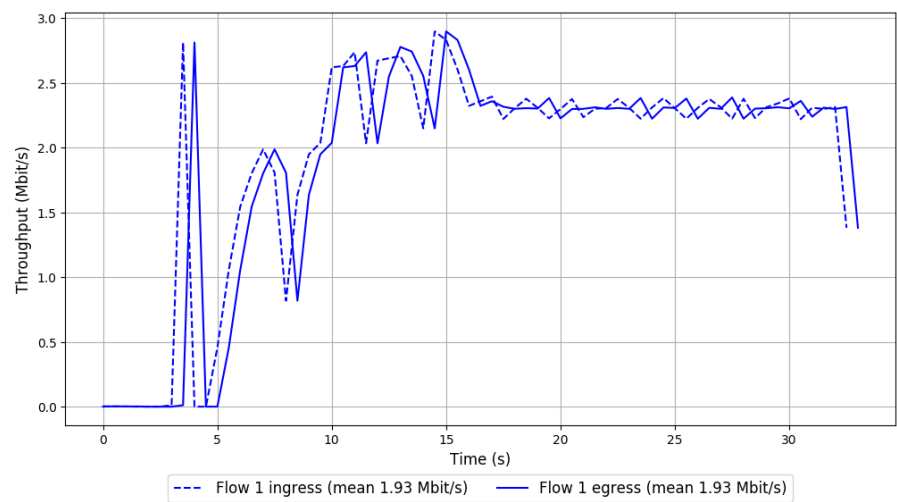
-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 1.450 ms

Loss rate: 0.03%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-11-30 04:28:15

End at: 2018-11-30 04:28:45

Local clock offset: 8.12 ms

Remote clock offset: 0.036 ms

Below is generated by plot.py at 2018-11-30 06:54:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 1.160 ms

Loss rate: 0.00%

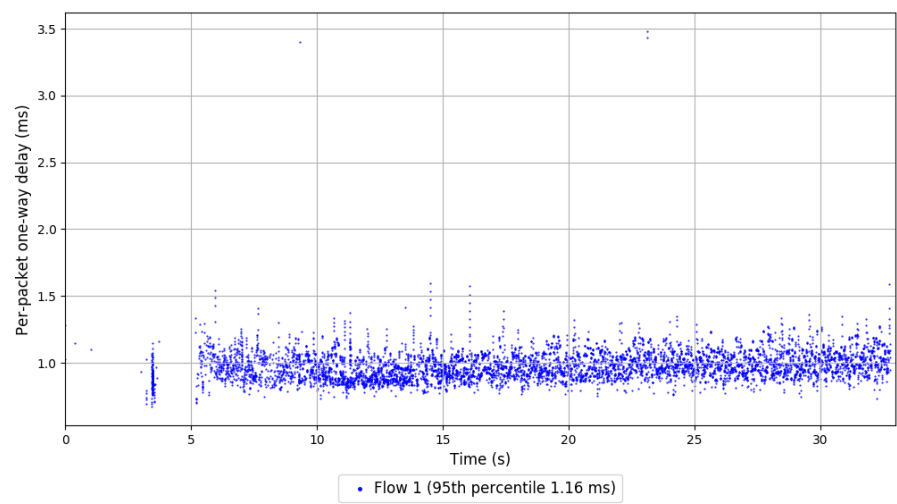
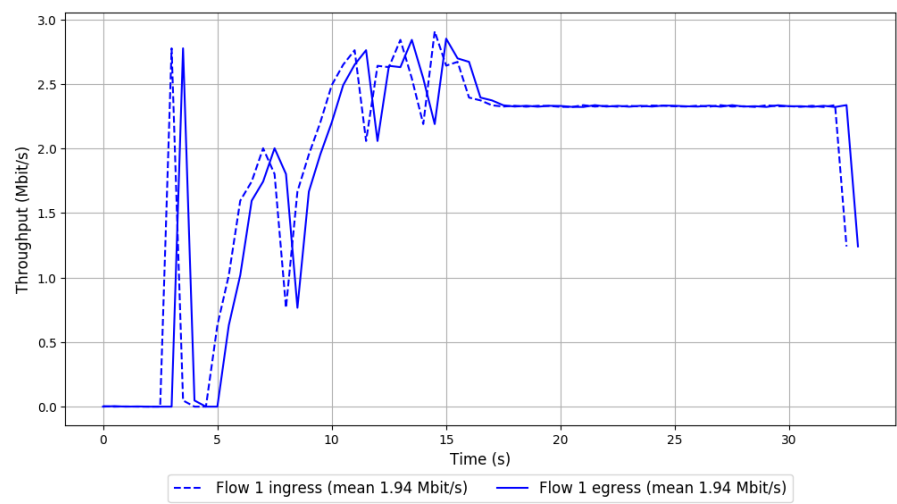
-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 1.160 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

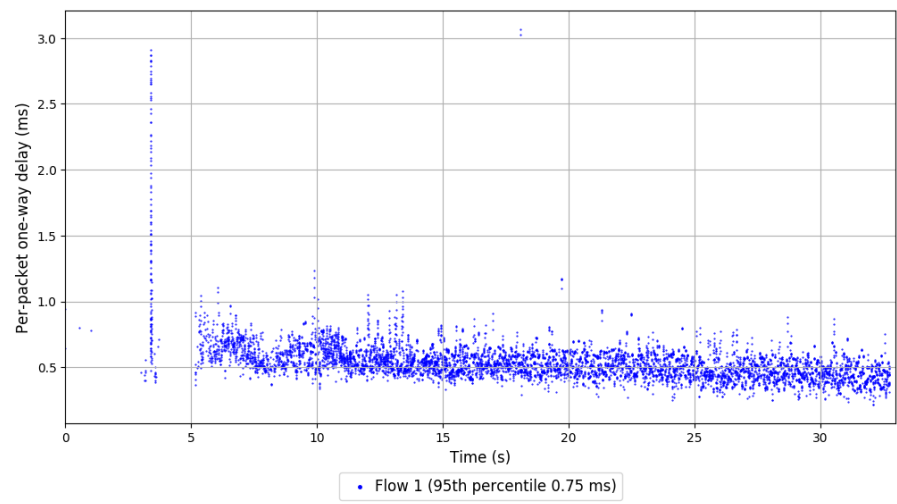
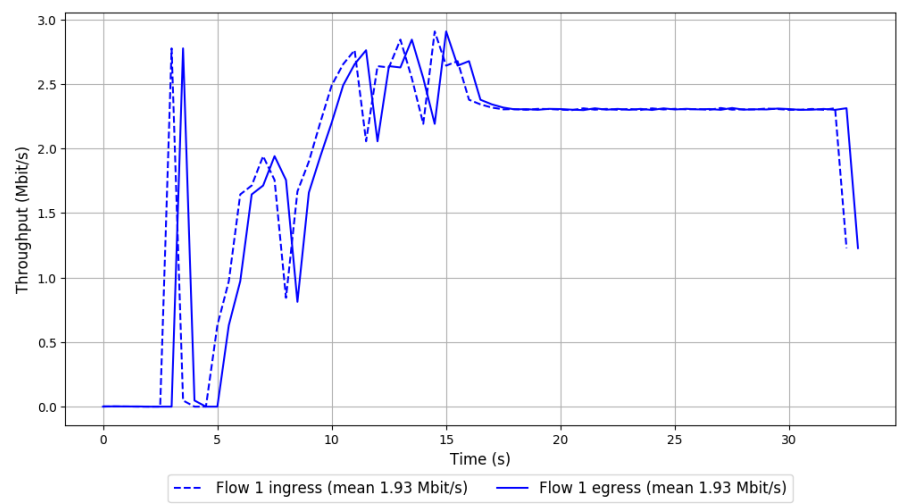


Run 3: Statistics of WebRTC media

Start at: 2018-11-30 04:54:10
End at: 2018-11-30 04:54:40
Local clock offset: 3.1 ms
Remote clock offset: -0.047 ms

Below is generated by plot.py at 2018-11-30 06:54:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 0.754 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 0.754 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

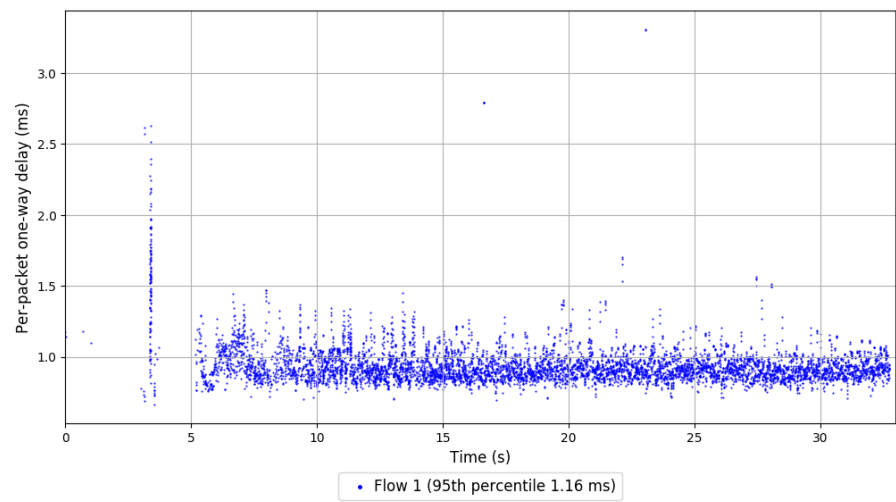
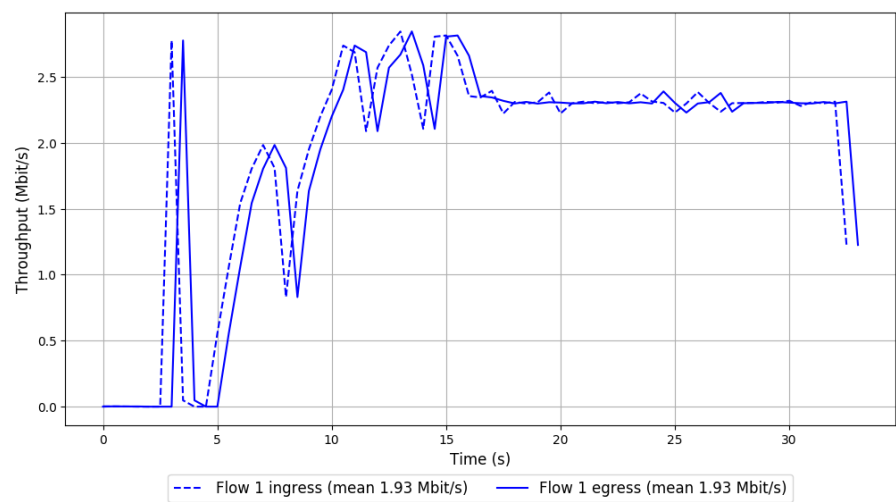


Run 4: Statistics of WebRTC media

Start at: 2018-11-30 05:20:12
End at: 2018-11-30 05:20:42
Local clock offset: -0.877 ms
Remote clock offset: -0.063 ms

Below is generated by plot.py at 2018-11-30 06:54:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1.157 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1.157 ms
Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-30 05:46:05

End at: 2018-11-30 05:46:35

Local clock offset: -1.0 ms

Remote clock offset: -0.05 ms

Below is generated by plot.py at 2018-11-30 06:54:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 1.258 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 1.258 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

