

Pantheon Report

Generated at 2018-07-31 23:49:30 (UTC).

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

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

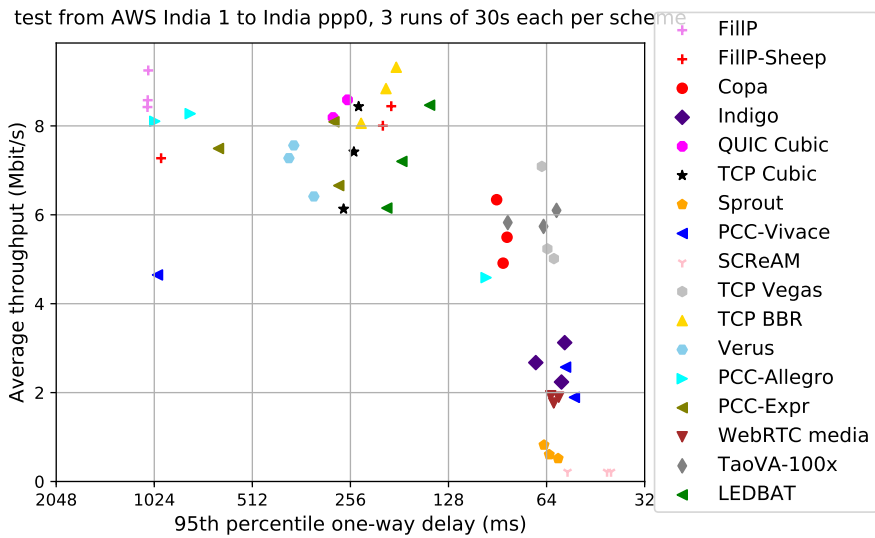
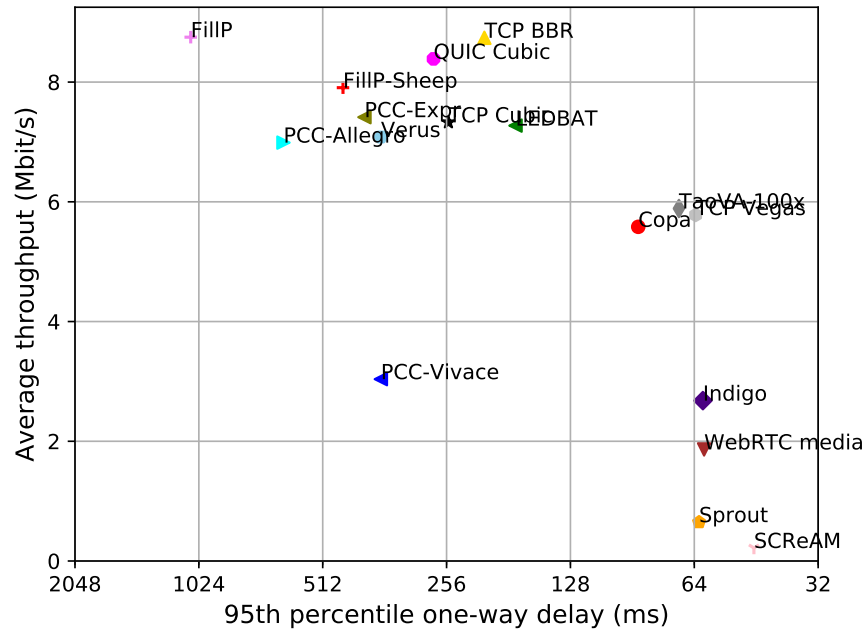
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against **nets.org.sg** and have been applied to correct the timestamps in logs.

Git summary:

```
branch: master @ 640164b5b17c7c6561fff57729b3b5935d8596ce
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quirk @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webRTC @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS India 1 to India ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



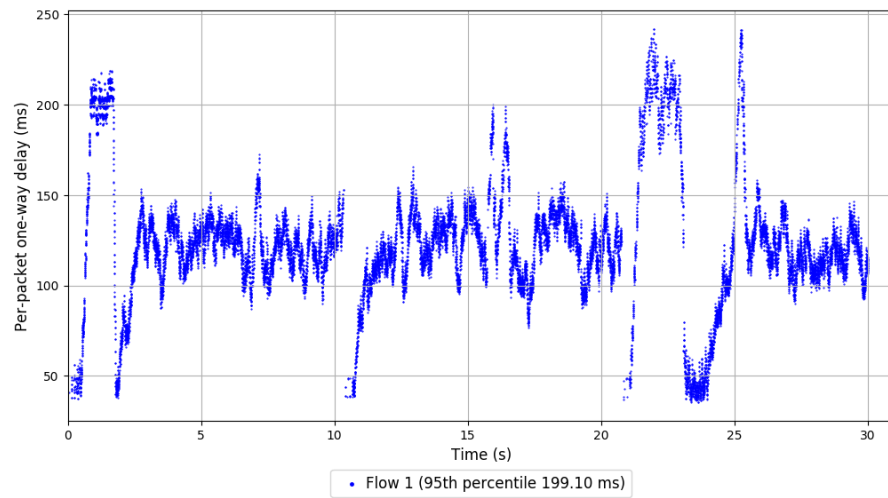
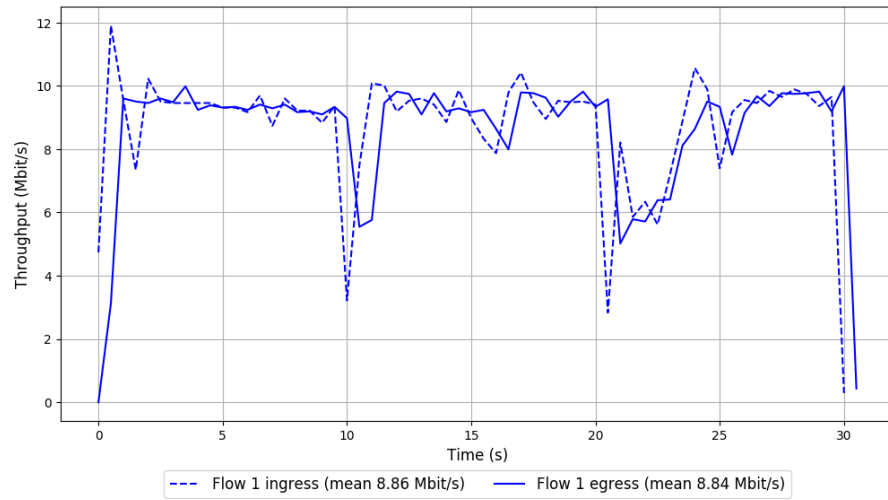
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	8.74	207.19	0.47
Copa	3	5.58	87.58	0.23
TCP Cubic	3	7.33	253.40	0.44
FillP	3	8.75	1071.78	32.03
FillP-Sheep	3	7.90	457.05	2.99
Indigo	3	2.68	60.99	0.15
LEDBAT	3	7.27	174.06	0.47
PCC-Allegro	3	6.99	637.70	1.42
PCC-Expr	3	7.41	405.39	0.43
QUIC Cubic	2	8.39	275.40	0.71
SCReAM	3	0.22	45.84	0.13
Sprout	3	0.65	62.32	0.16
TaoVA-100x	3	5.89	69.75	0.15
TCP Vegas	3	5.78	63.52	0.15
Verus	3	7.08	369.66	0.83
PCC-Vivace	3	3.04	369.83	0.89
WebRTC media	3	1.87	60.58	0.16

Run 1: Statistics of TCP BBR

Start at: 2018-07-31 22:54:41
End at: 2018-07-31 22:55:11
Local clock offset: 0.268 ms
Remote clock offset: -4.605 ms

Below is generated by plot.py at 2018-07-31 23:48:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.84 Mbit/s
95th percentile per-packet one-way delay: 199.098 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 8.84 Mbit/s
95th percentile per-packet one-way delay: 199.098 ms
Loss rate: 0.37%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-07-31 23:13:06

End at: 2018-07-31 23:13:36

Local clock offset: 3.298 ms

Remote clock offset: 1.385 ms

Below is generated by plot.py at 2018-07-31 23:48:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.06 Mbit/s

95th percentile per-packet one-way delay: 237.320 ms

Loss rate: 0.55%

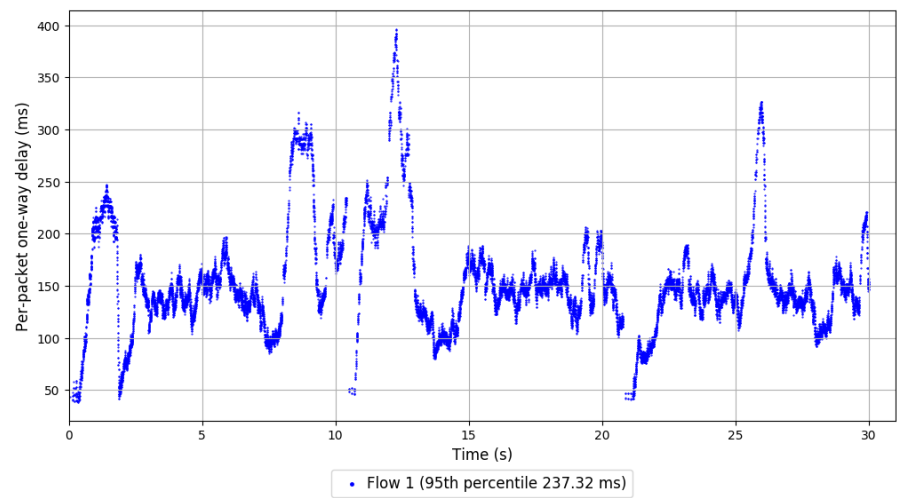
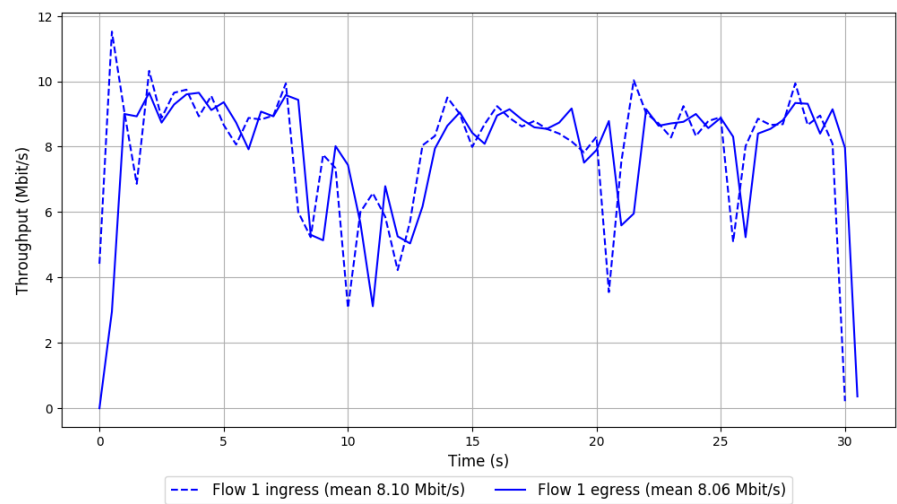
-- Flow 1:

Average throughput: 8.06 Mbit/s

95th percentile per-packet one-way delay: 237.320 ms

Loss rate: 0.55%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-07-31 23:31:33

End at: 2018-07-31 23:32:03

Local clock offset: 2.099 ms

Remote clock offset: -3.815 ms

Below is generated by plot.py at 2018-07-31 23:48:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.32 Mbit/s

95th percentile per-packet one-way delay: 185.161 ms

Loss rate: 0.50%

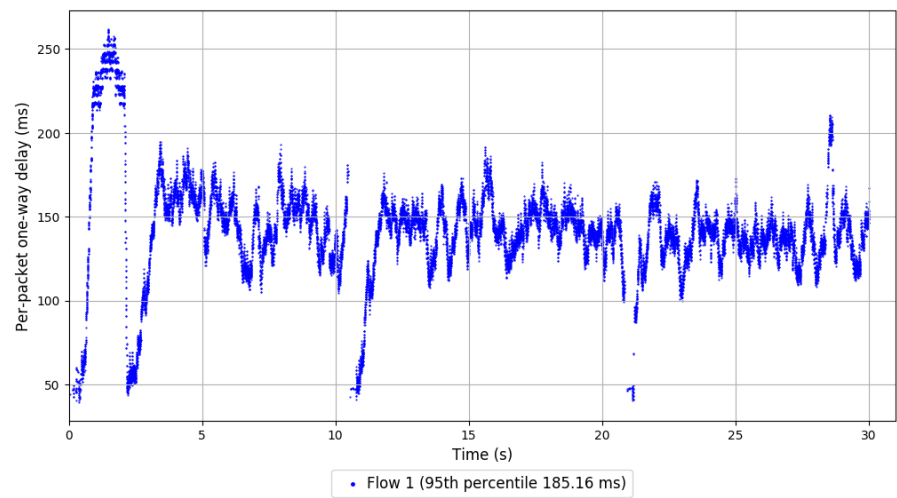
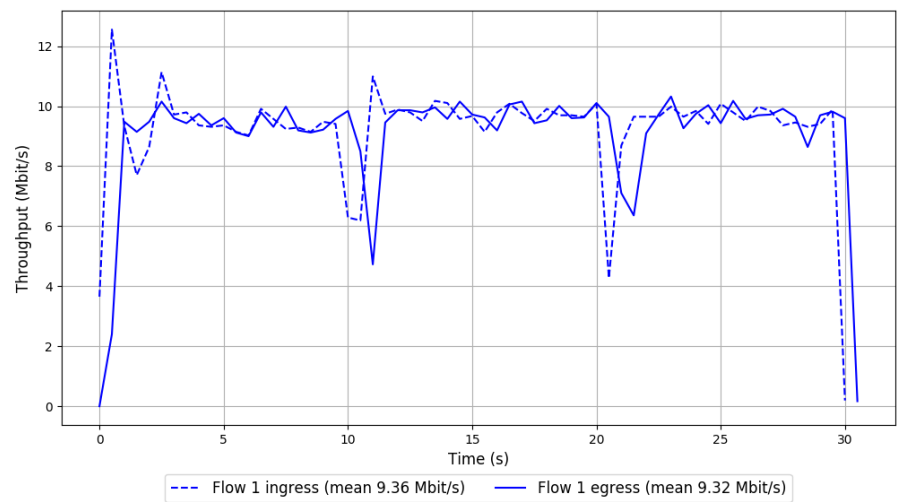
-- Flow 1:

Average throughput: 9.32 Mbit/s

95th percentile per-packet one-way delay: 185.161 ms

Loss rate: 0.50%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-07-31 23:09:52

End at: 2018-07-31 23:10:22

Local clock offset: 4.163 ms

Remote clock offset: -1.452 ms

Below is generated by plot.py at 2018-07-31 23:48:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.50 Mbit/s

95th percentile per-packet one-way delay: 84.637 ms

Loss rate: 0.32%

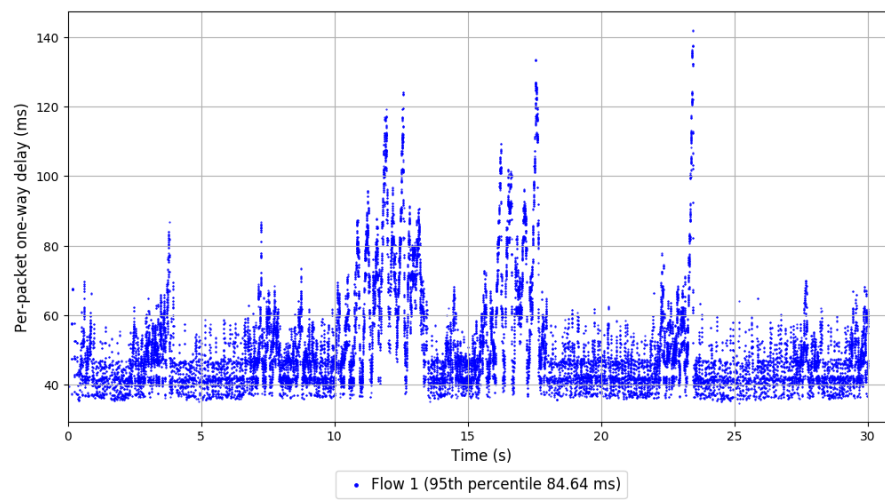
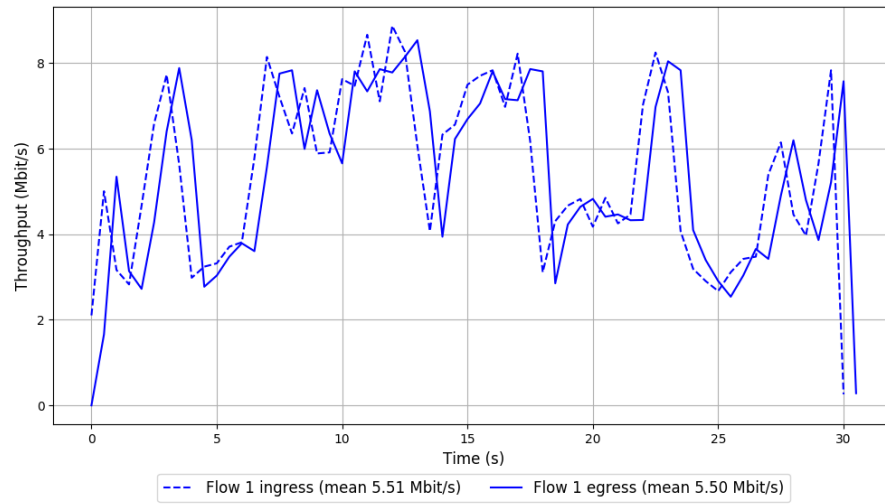
-- Flow 1:

Average throughput: 5.50 Mbit/s

95th percentile per-packet one-way delay: 84.637 ms

Loss rate: 0.32%

Run 1: Report of Copa — Data Link

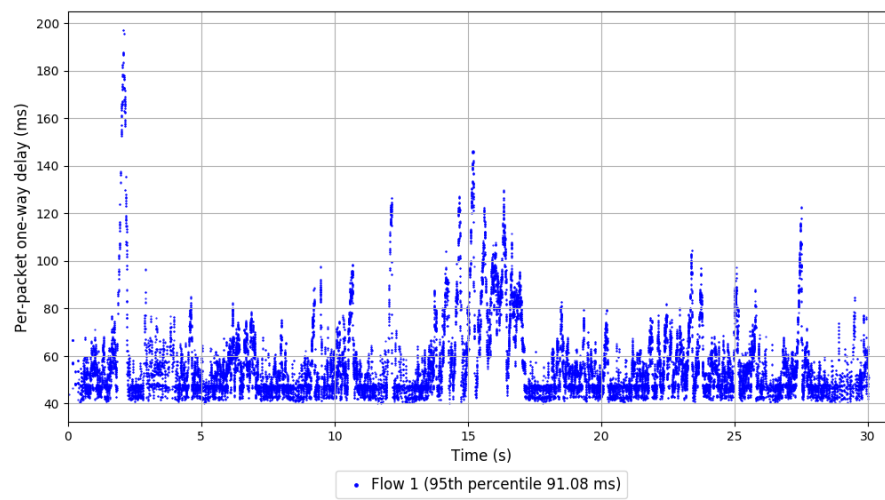
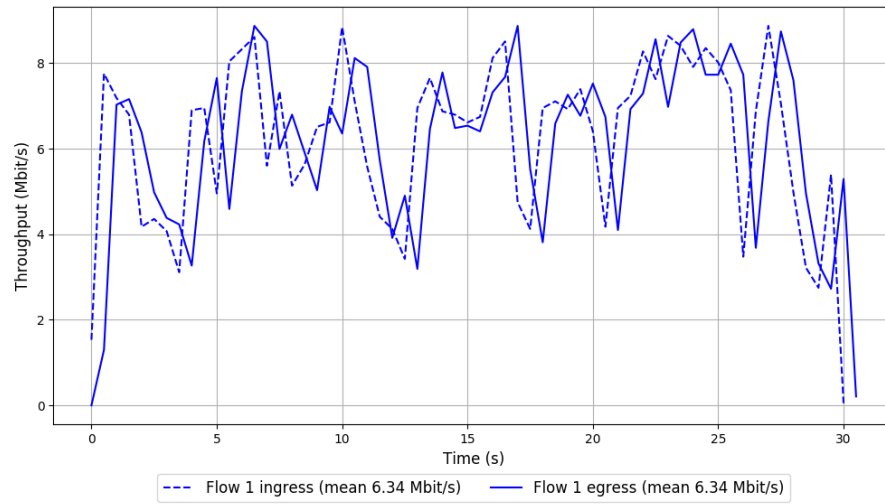


Run 2: Statistics of Copa

Start at: 2018-07-31 23:28:18
End at: 2018-07-31 23:28:48
Local clock offset: 0.699 ms
Remote clock offset: -3.282 ms

Below is generated by plot.py at 2018-07-31 23:48:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.34 Mbit/s
95th percentile per-packet one-way delay: 91.085 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 6.34 Mbit/s
95th percentile per-packet one-way delay: 91.085 ms
Loss rate: 0.06%

Run 2: Report of Copa — Data Link

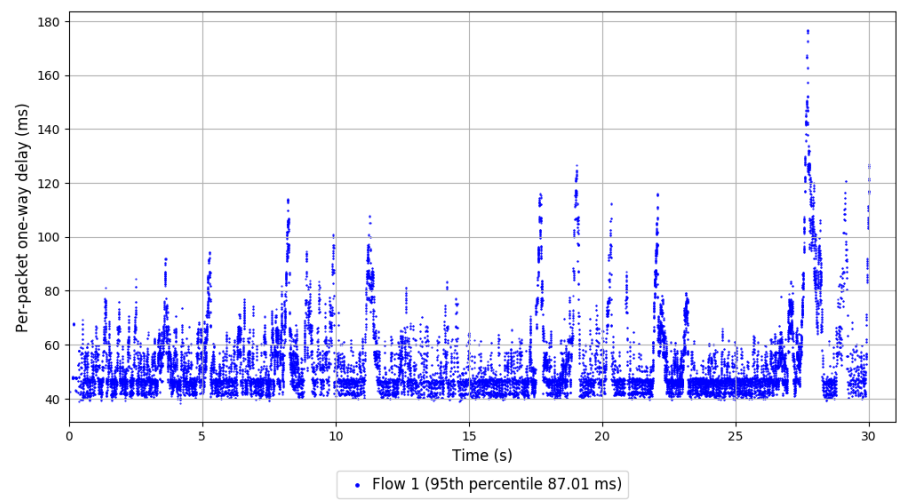
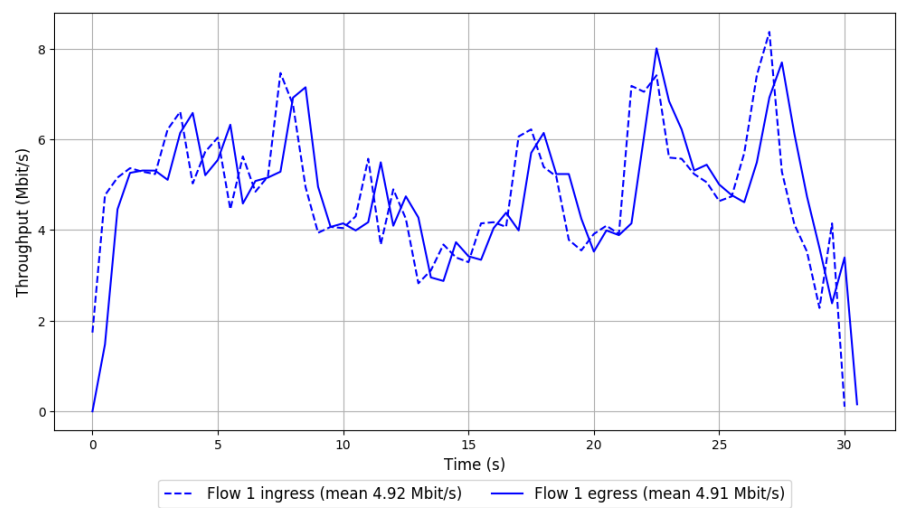


Run 3: Statistics of Copa

Start at: 2018-07-31 23:46:49
End at: 2018-07-31 23:47:19
Local clock offset: -3.233 ms
Remote clock offset: -11.272 ms

Below is generated by plot.py at 2018-07-31 23:48:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.91 Mbit/s
95th percentile per-packet one-way delay: 87.014 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 4.91 Mbit/s
95th percentile per-packet one-way delay: 87.014 ms
Loss rate: 0.32%

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-07-31 23:05:28

End at: 2018-07-31 23:05:58

Local clock offset: 0.55 ms

Remote clock offset: -3.111 ms

Below is generated by plot.py at 2018-07-31 23:48:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.13 Mbit/s

95th percentile per-packet one-way delay: 268.722 ms

Loss rate: 0.51%

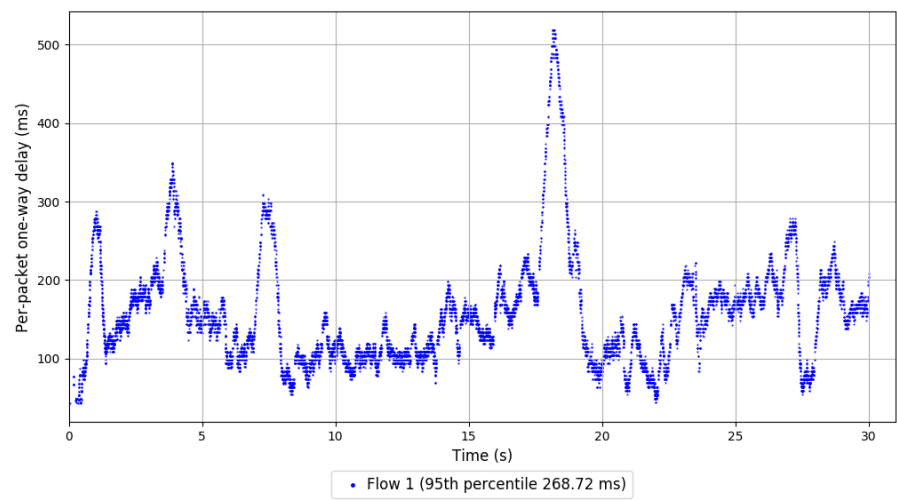
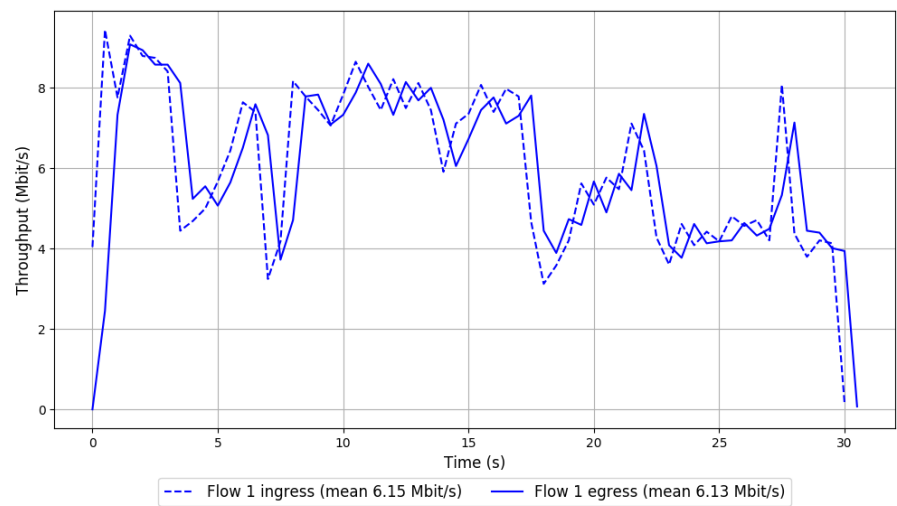
-- Flow 1:

Average throughput: 6.13 Mbit/s

95th percentile per-packet one-way delay: 268.722 ms

Loss rate: 0.51%

Run 1: Report of TCP Cubic — Data Link

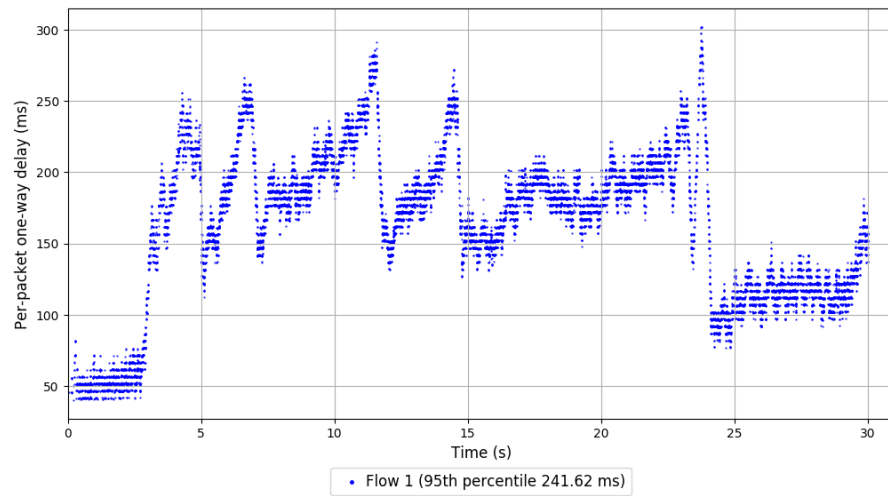
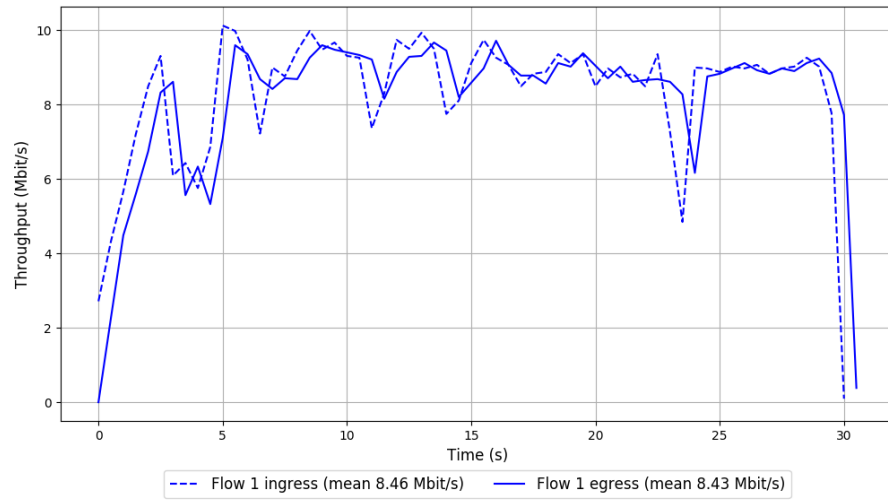


Run 2: Statistics of TCP Cubic

Start at: 2018-07-31 23:23:59
End at: 2018-07-31 23:24:29
Local clock offset: 1.375 ms
Remote clock offset: -2.038 ms

Below is generated by plot.py at 2018-07-31 23:48:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.43 Mbit/s
95th percentile per-packet one-way delay: 241.616 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 8.43 Mbit/s
95th percentile per-packet one-way delay: 241.616 ms
Loss rate: 0.42%

Run 2: Report of TCP Cubic — Data Link

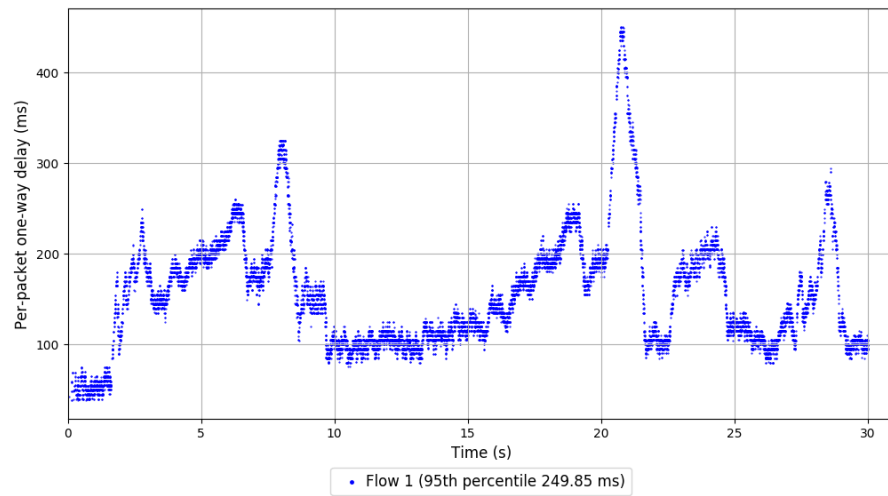
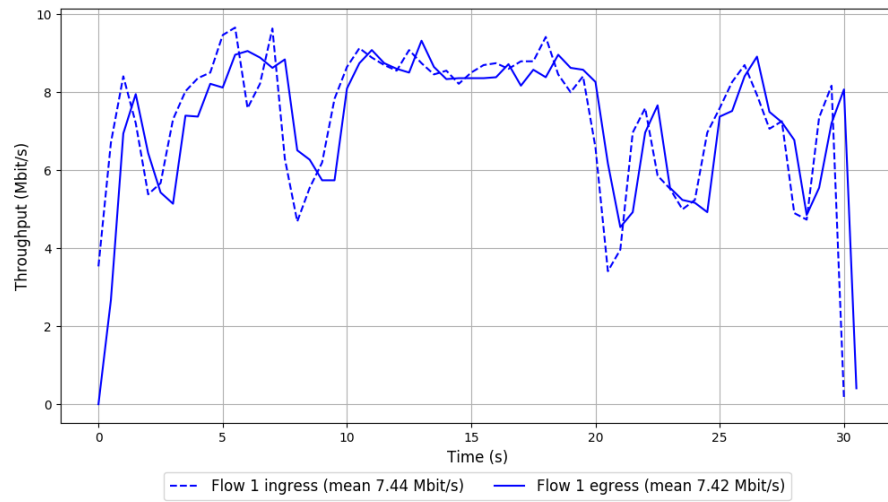


Run 3: Statistics of TCP Cubic

Start at: 2018-07-31 23:42:24
End at: 2018-07-31 23:42:54
Local clock offset: 4.072 ms
Remote clock offset: -4.915 ms

Below is generated by plot.py at 2018-07-31 23:48:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.42 Mbit/s
95th percentile per-packet one-way delay: 249.848 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 7.42 Mbit/s
95th percentile per-packet one-way delay: 249.848 ms
Loss rate: 0.38%

Run 3: Report of TCP Cubic — Data Link

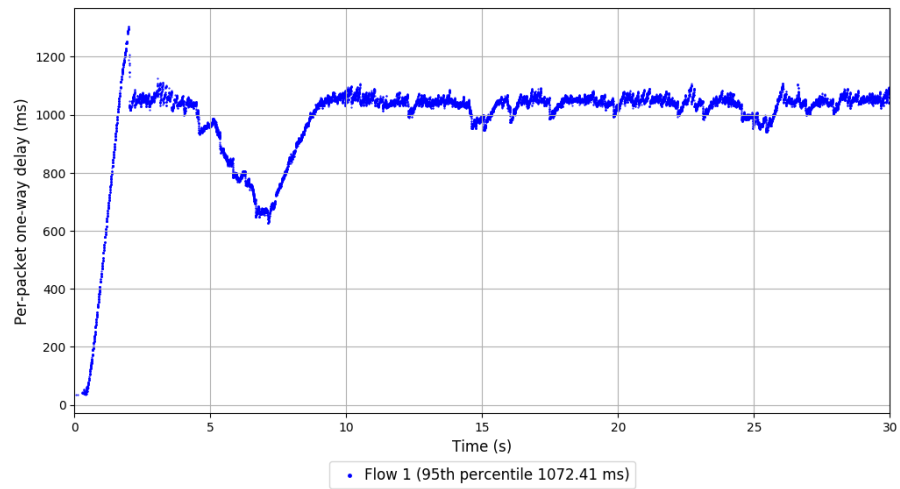
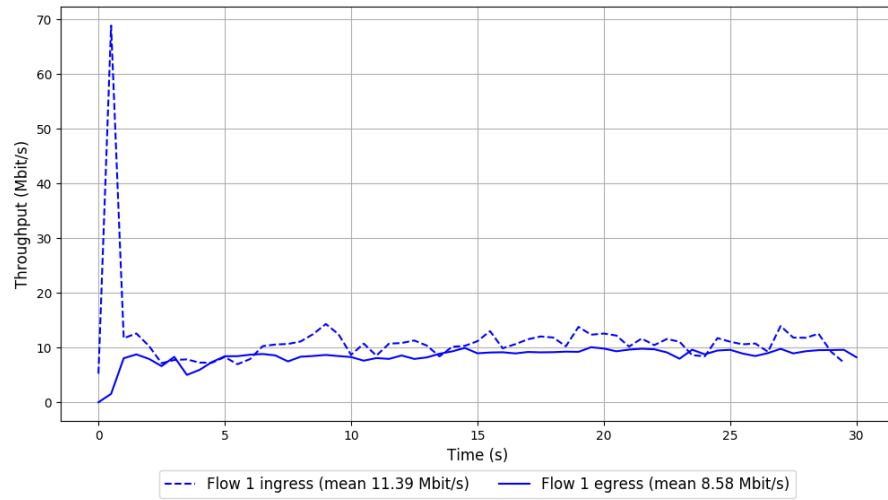


Run 1: Statistics of FillP

Start at: 2018-07-31 22:55:46
End at: 2018-07-31 22:56:16
Local clock offset: -0.944 ms
Remote clock offset: -6.604 ms

Below is generated by plot.py at 2018-07-31 23:48:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.58 Mbit/s
95th percentile per-packet one-way delay: 1072.411 ms
Loss rate: 24.76%
-- Flow 1:
Average throughput: 8.58 Mbit/s
95th percentile per-packet one-way delay: 1072.411 ms
Loss rate: 24.76%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-07-31 23:14:11

End at: 2018-07-31 23:14:41

Local clock offset: 1.049 ms

Remote clock offset: -1.09 ms

Below is generated by plot.py at 2018-07-31 23:48:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.42 Mbit/s

95th percentile per-packet one-way delay: 1074.358 ms

Loss rate: 25.99%

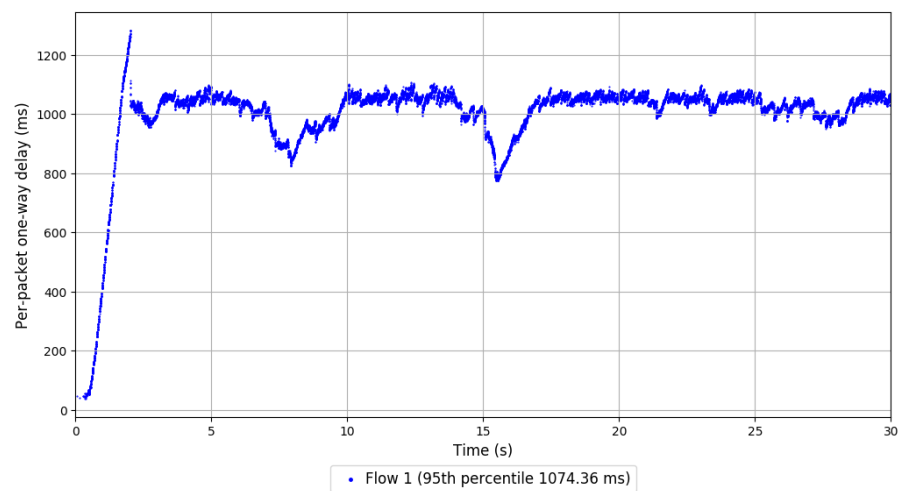
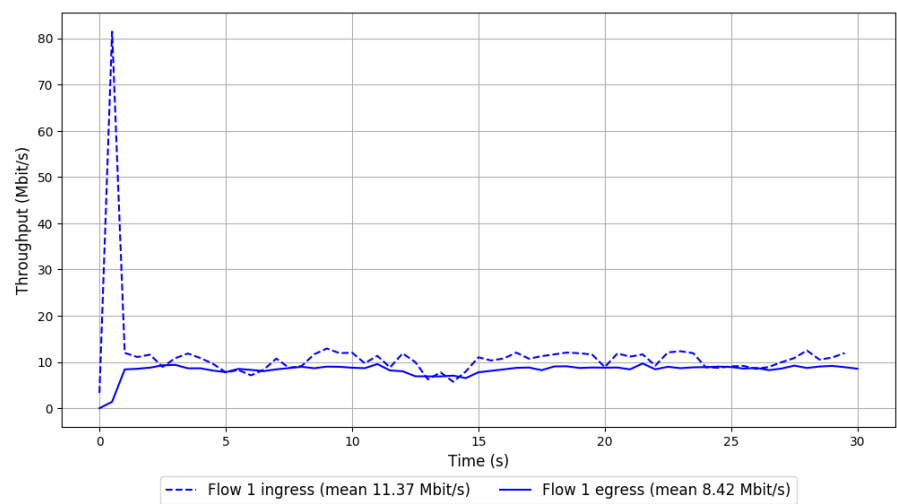
-- Flow 1:

Average throughput: 8.42 Mbit/s

95th percentile per-packet one-way delay: 1074.358 ms

Loss rate: 25.99%

Run 2: Report of FillP — Data Link

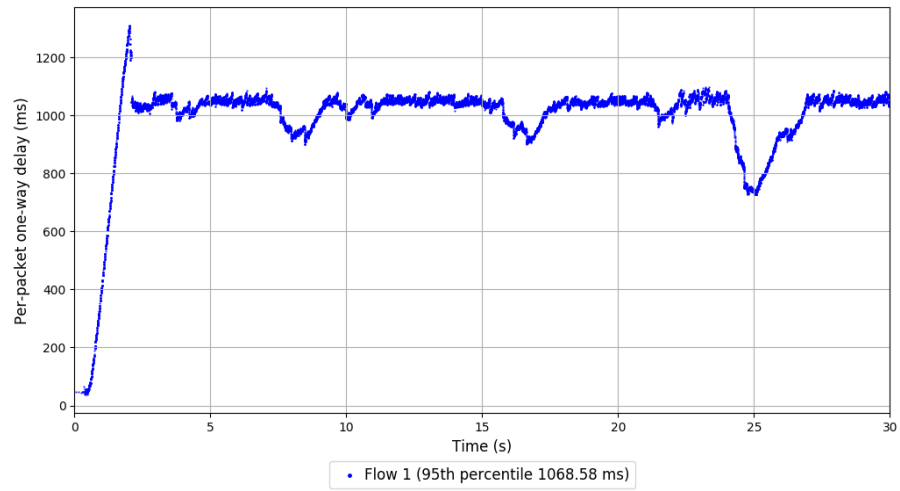
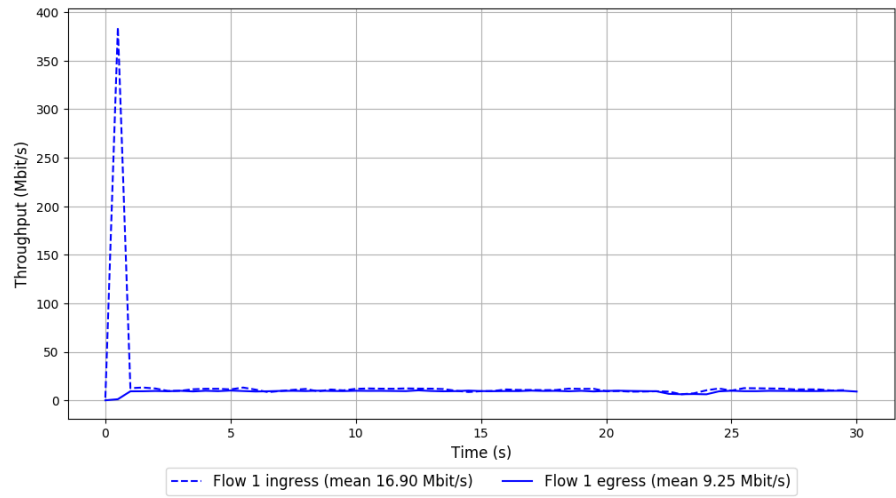


Run 3: Statistics of FillP

Start at: 2018-07-31 23:32:40
End at: 2018-07-31 23:33:10
Local clock offset: 3.355 ms
Remote clock offset: -3.879 ms

Below is generated by plot.py at 2018-07-31 23:48:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.25 Mbit/s
95th percentile per-packet one-way delay: 1068.583 ms
Loss rate: 45.34%
-- Flow 1:
Average throughput: 9.25 Mbit/s
95th percentile per-packet one-way delay: 1068.583 ms
Loss rate: 45.34%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-07-31 23:03:18

End at: 2018-07-31 23:03:48

Local clock offset: -0.51 ms

Remote clock offset: -2.122 ms

Below is generated by plot.py at 2018-07-31 23:48:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.27 Mbit/s

95th percentile per-packet one-way delay: 975.762 ms

Loss rate: 7.92%

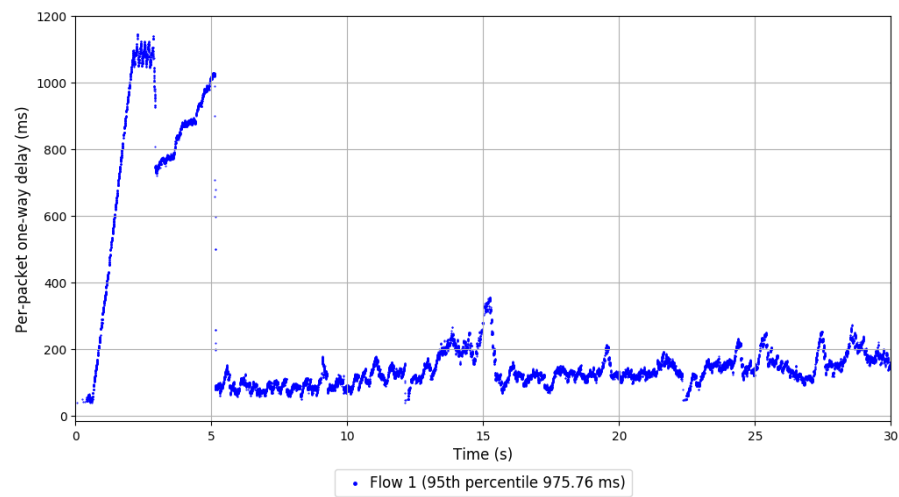
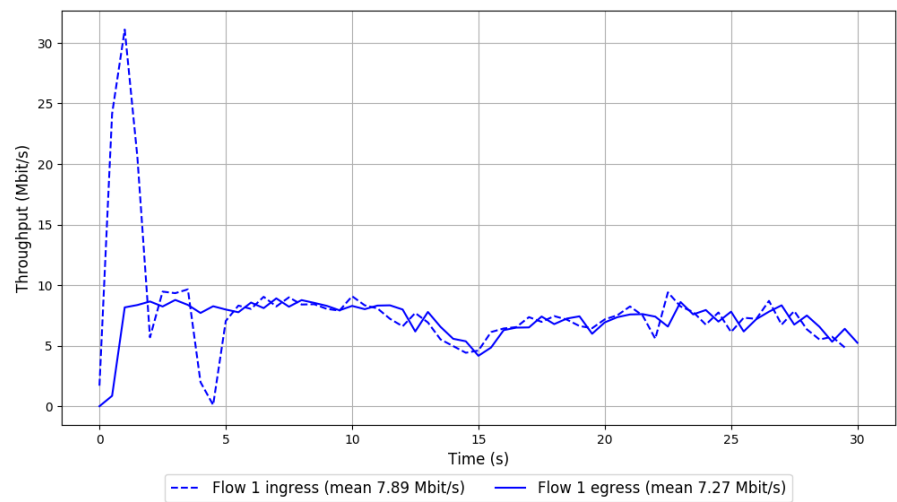
-- Flow 1:

Average throughput: 7.27 Mbit/s

95th percentile per-packet one-way delay: 975.762 ms

Loss rate: 7.92%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-07-31 23:21:44

End at: 2018-07-31 23:22:14

Local clock offset: 2.392 ms

Remote clock offset: -3.08 ms

Below is generated by plot.py at 2018-07-31 23:48:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.44 Mbit/s

95th percentile per-packet one-way delay: 191.838 ms

Loss rate: 0.47%

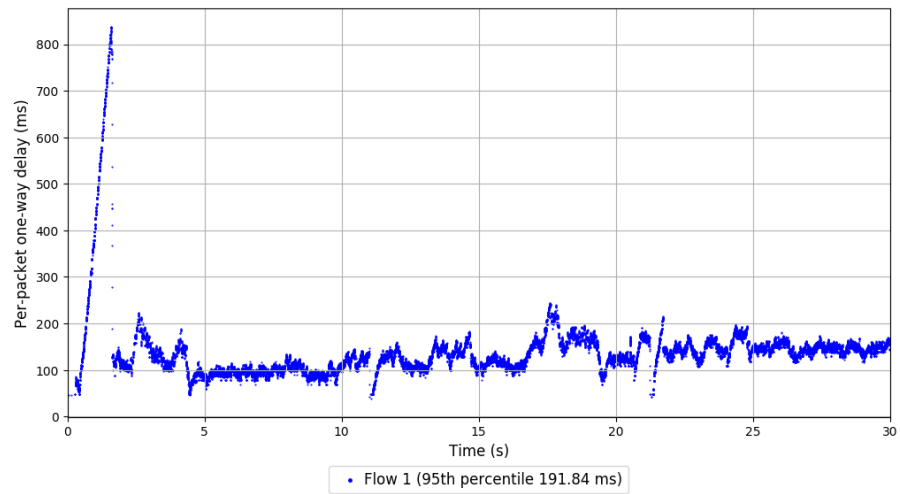
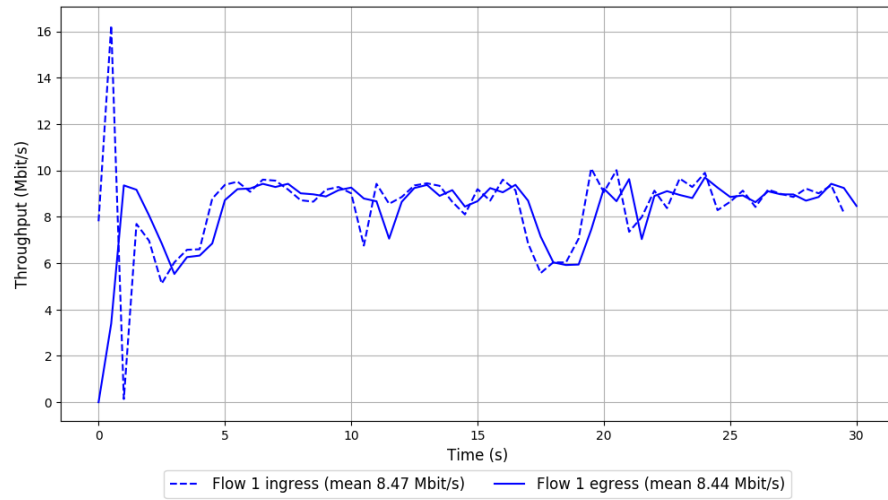
-- Flow 1:

Average throughput: 8.44 Mbit/s

95th percentile per-packet one-way delay: 191.838 ms

Loss rate: 0.47%

Run 2: Report of FillP-Sheep — Data Link

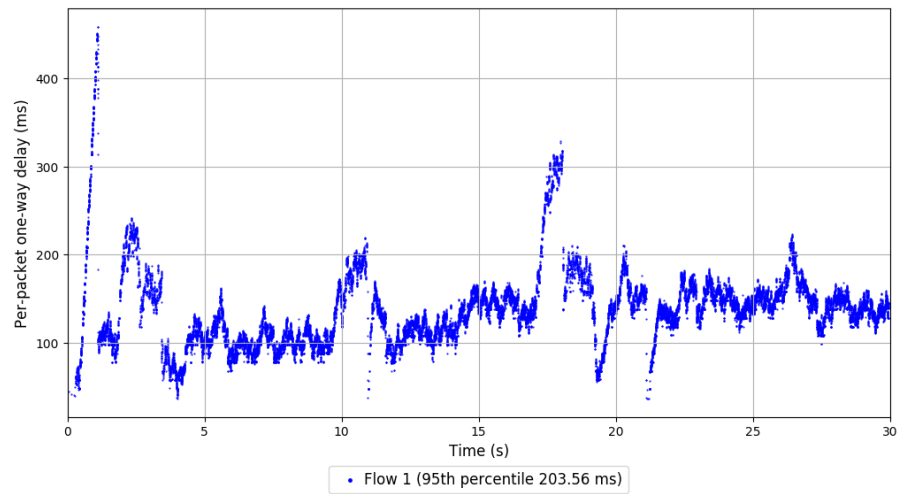
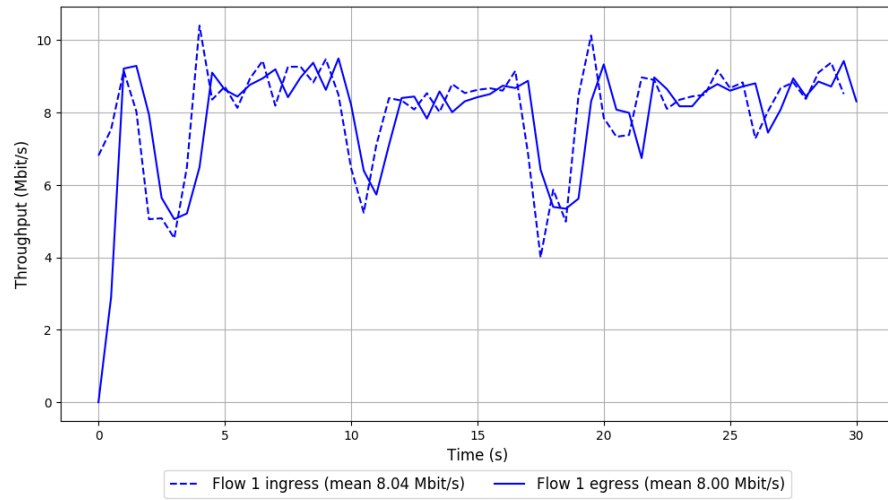


Run 3: Statistics of FillP-Sheep

Start at: 2018-07-31 23:40:15
End at: 2018-07-31 23:40:45
Local clock offset: 4.495 ms
Remote clock offset: -5.079 ms

Below is generated by plot.py at 2018-07-31 23:48:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.00 Mbit/s
95th percentile per-packet one-way delay: 203.564 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 8.00 Mbit/s
95th percentile per-packet one-way delay: 203.564 ms
Loss rate: 0.59%

Run 3: Report of FillP-Sheep — Data Link



Run 1: Statistics of Indigo

Start at: 2018-07-31 23:07:37

End at: 2018-07-31 23:08:07

Local clock offset: 0.538 ms

Remote clock offset: -2.901 ms

Below is generated by plot.py at 2018-07-31 23:48:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.68 Mbit/s

95th percentile per-packet one-way delay: 69.072 ms

Loss rate: 0.12%

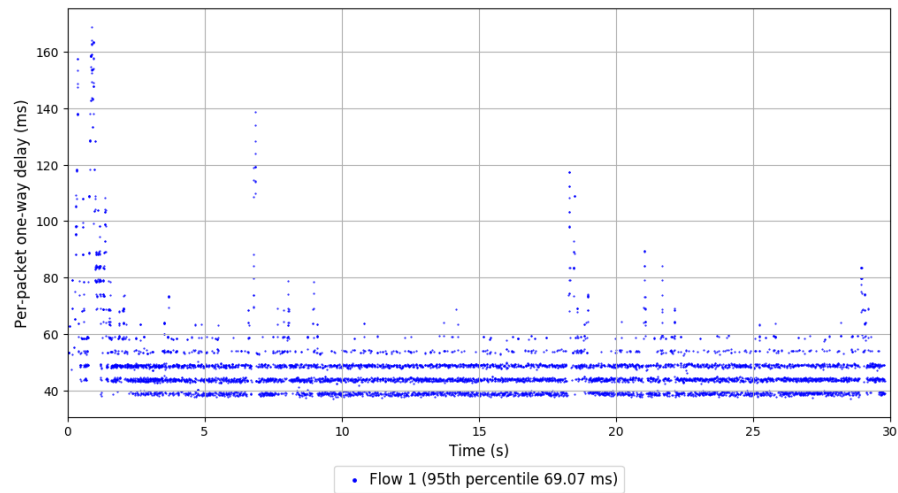
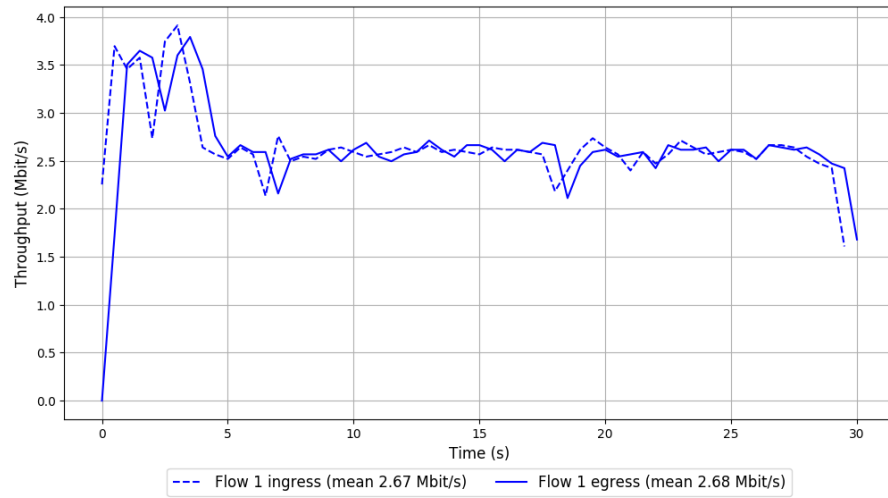
-- Flow 1:

Average throughput: 2.68 Mbit/s

95th percentile per-packet one-way delay: 69.072 ms

Loss rate: 0.12%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-07-31 23:26:09

End at: 2018-07-31 23:26:39

Local clock offset: 0.386 ms

Remote clock offset: -3.331 ms

Below is generated by plot.py at 2018-07-31 23:48:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.24 Mbit/s

95th percentile per-packet one-way delay: 57.602 ms

Loss rate: 0.20%

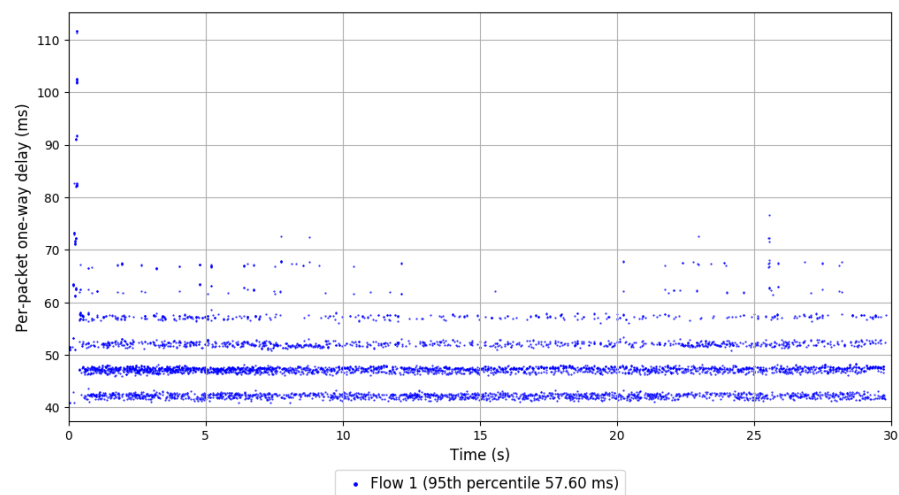
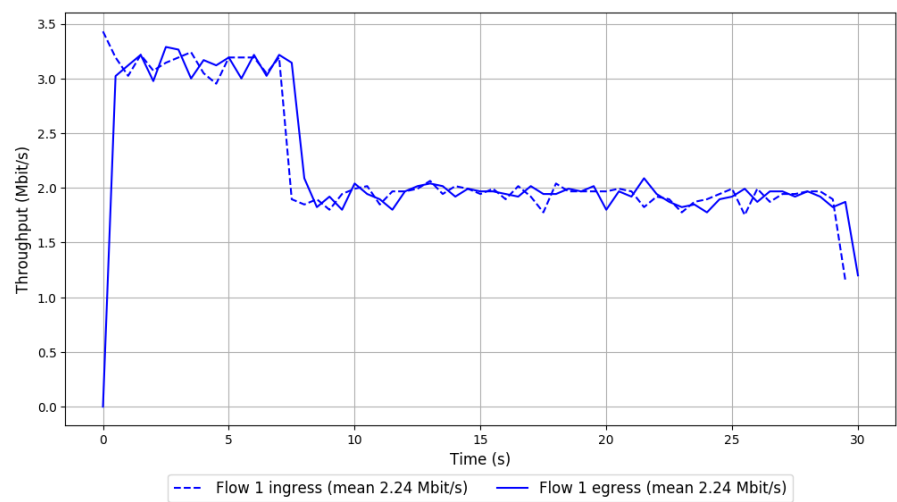
-- Flow 1:

Average throughput: 2.24 Mbit/s

95th percentile per-packet one-way delay: 57.602 ms

Loss rate: 0.20%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-07-31 23:44:34

End at: 2018-07-31 23:45:04

Local clock offset: 4.222 ms

Remote clock offset: -4.473 ms

Below is generated by plot.py at 2018-07-31 23:48:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.12 Mbit/s

95th percentile per-packet one-way delay: 56.308 ms

Loss rate: 0.12%

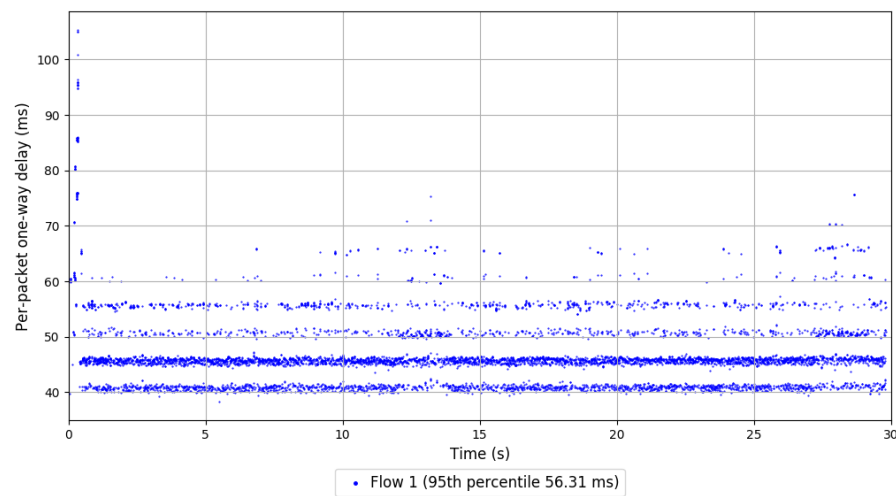
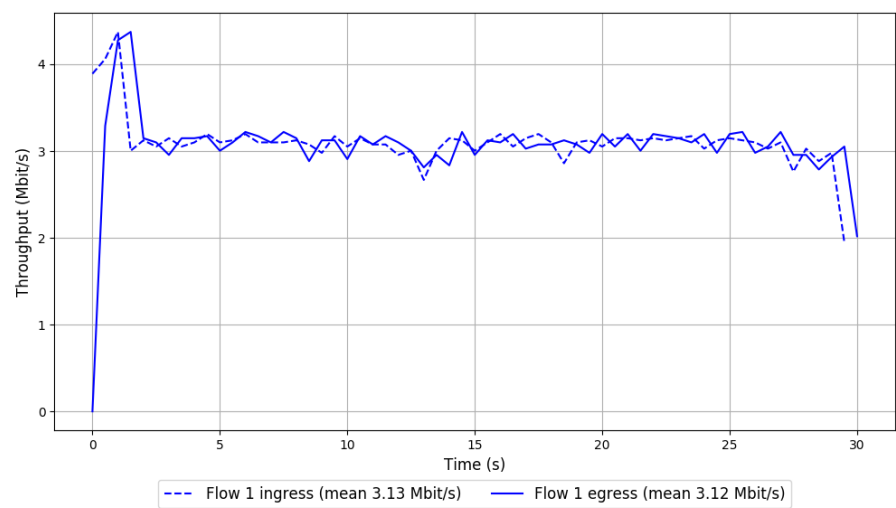
-- Flow 1:

Average throughput: 3.12 Mbit/s

95th percentile per-packet one-way delay: 56.308 ms

Loss rate: 0.12%

Run 3: Report of Indigo — Data Link

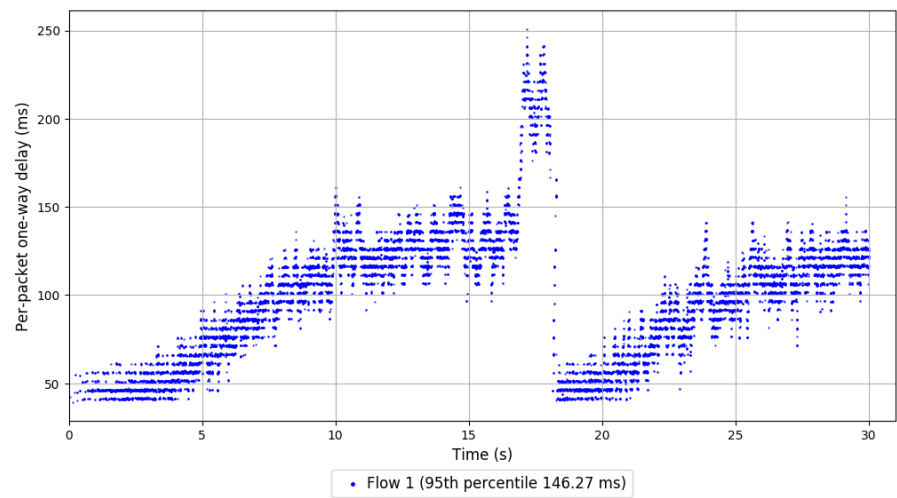
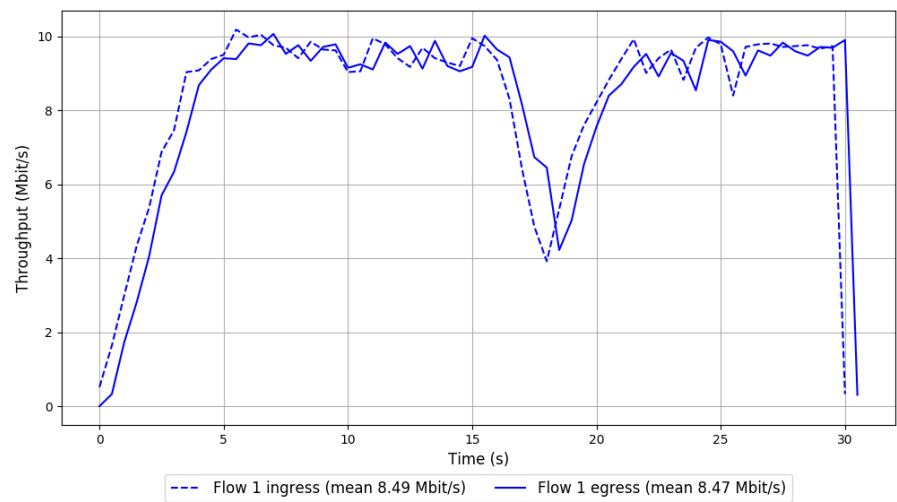


```
Run 1: Statistics of LEDBAT

Start at: 2018-07-31 22:59:00
End at: 2018-07-31 22:59:30
Local clock offset: 1.729 ms
Remote clock offset: -1.503 ms

# Below is generated by plot.py at 2018-07-31 23:49:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 146.269 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 146.269 ms
Loss rate: 0.46%
```


Run 1: Report of LEDBAT — Data Link

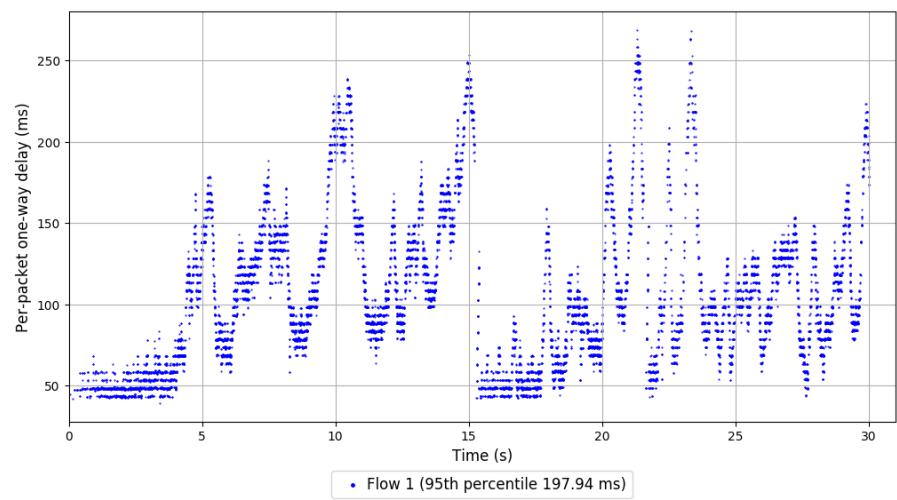
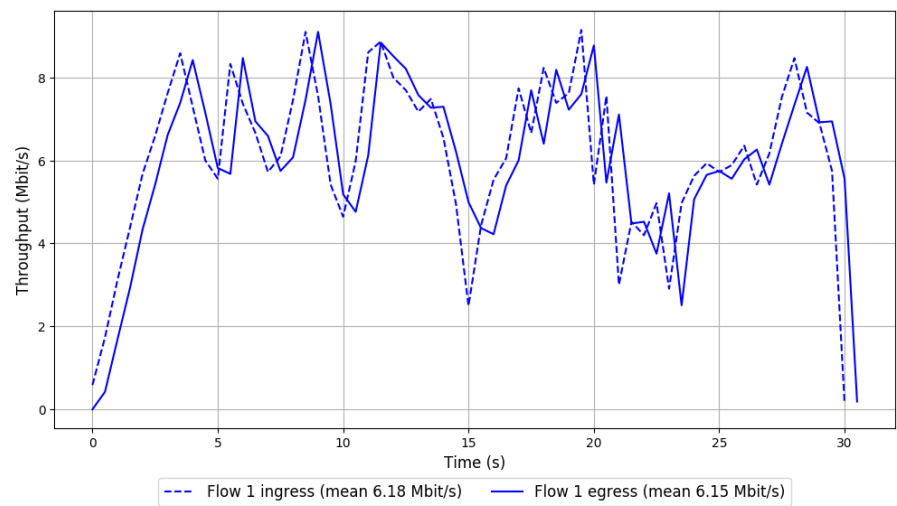


Run 2: Statistics of LEDBAT

Start at: 2018-07-31 23:17:25
End at: 2018-07-31 23:17:55
Local clock offset: 1.162 ms
Remote clock offset: -1.498 ms

Below is generated by plot.py at 2018-07-31 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.15 Mbit/s
95th percentile per-packet one-way delay: 197.936 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 6.15 Mbit/s
95th percentile per-packet one-way delay: 197.936 ms
Loss rate: 0.50%

Run 2: Report of LEDBAT — Data Link

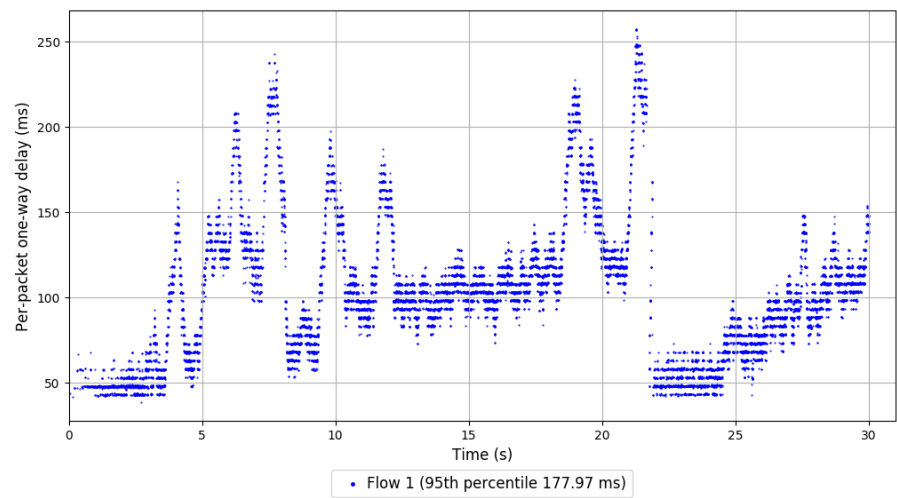
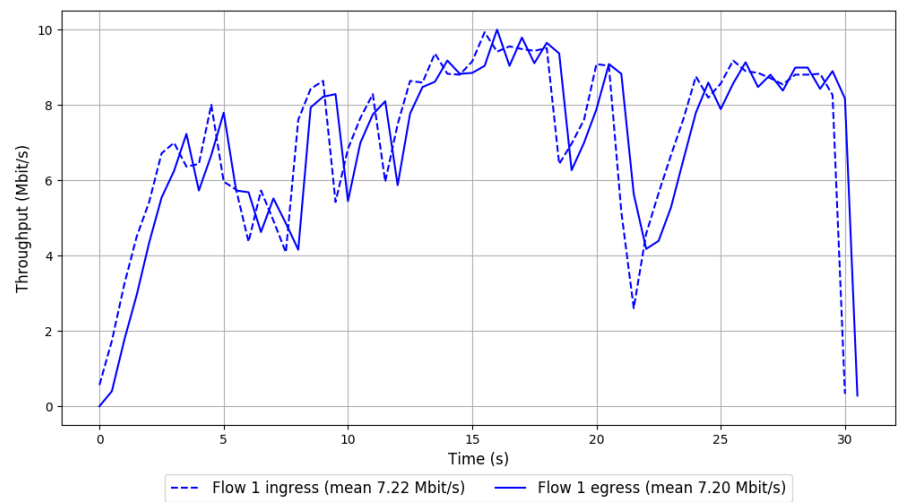


Run 3: Statistics of LEDBAT

Start at: 2018-07-31 23:35:55
End at: 2018-07-31 23:36:26
Local clock offset: 4.234 ms
Remote clock offset: -3.943 ms

Below is generated by plot.py at 2018-07-31 23:49:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.20 Mbit/s
95th percentile per-packet one-way delay: 177.972 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 7.20 Mbit/s
95th percentile per-packet one-way delay: 177.972 ms
Loss rate: 0.45%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-07-31 23:01:09

End at: 2018-07-31 23:01:39

Local clock offset: 1.807 ms

Remote clock offset: -3.303 ms

Below is generated by plot.py at 2018-07-31 23:49:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.59 Mbit/s

95th percentile per-packet one-way delay: 98.135 ms

Loss rate: 0.14%

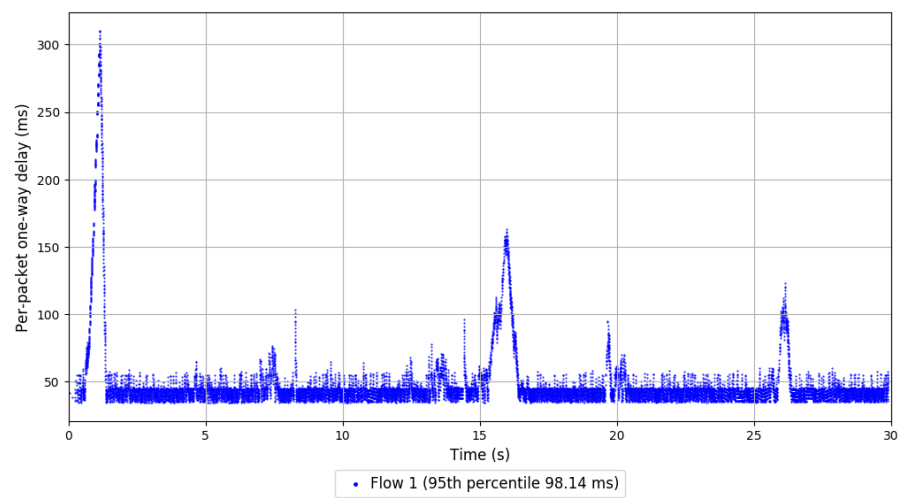
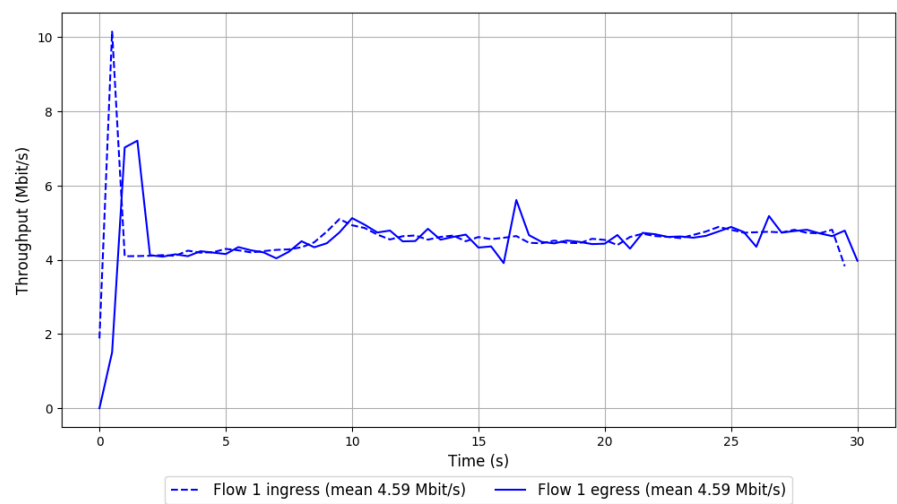
-- Flow 1:

Average throughput: 4.59 Mbit/s

95th percentile per-packet one-way delay: 98.135 ms

Loss rate: 0.14%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-07-31 23:19:35

End at: 2018-07-31 23:20:05

Local clock offset: 2.81 ms

Remote clock offset: -3.814 ms

Below is generated by plot.py at 2018-07-31 23:49:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.28 Mbit/s

95th percentile per-packet one-way delay: 794.441 ms

Loss rate: 0.91%

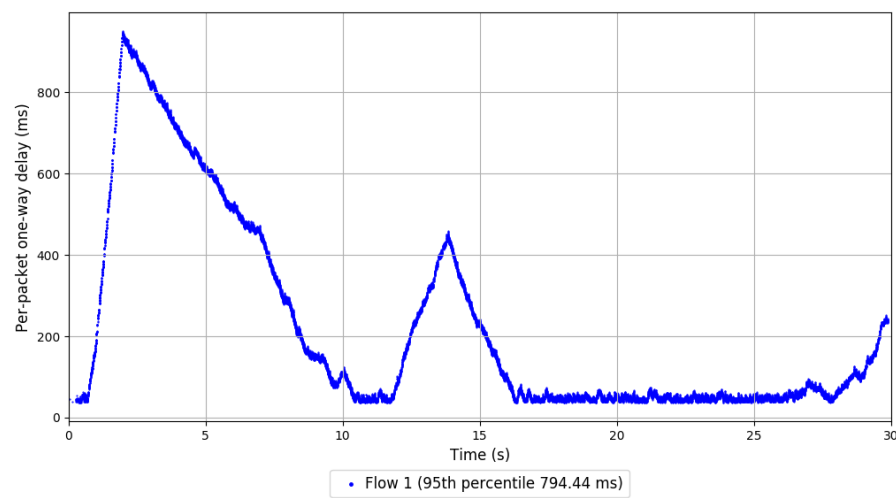
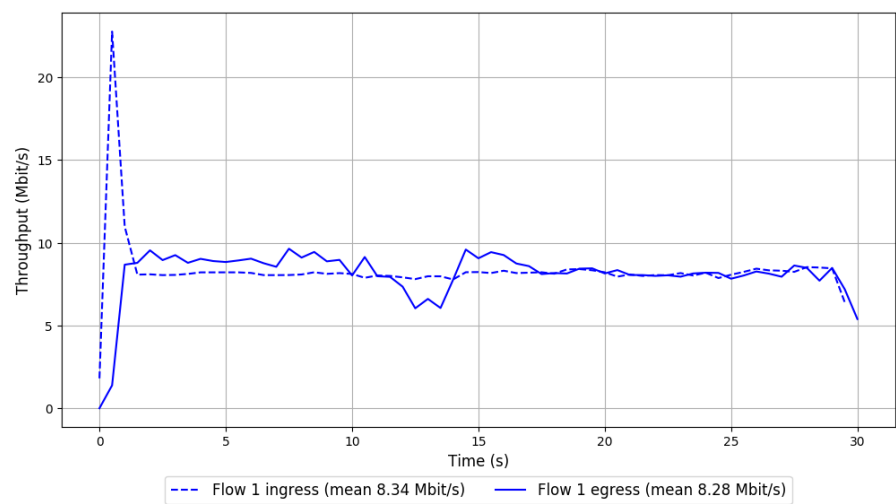
-- Flow 1:

Average throughput: 8.28 Mbit/s

95th percentile per-packet one-way delay: 794.441 ms

Loss rate: 0.91%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-07-31 23:38:05

End at: 2018-07-31 23:38:35

Local clock offset: 0.582 ms

Remote clock offset: -4.856 ms

Below is generated by plot.py at 2018-07-31 23:49:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.10 Mbit/s

95th percentile per-packet one-way delay: 1020.530 ms

Loss rate: 3.21%

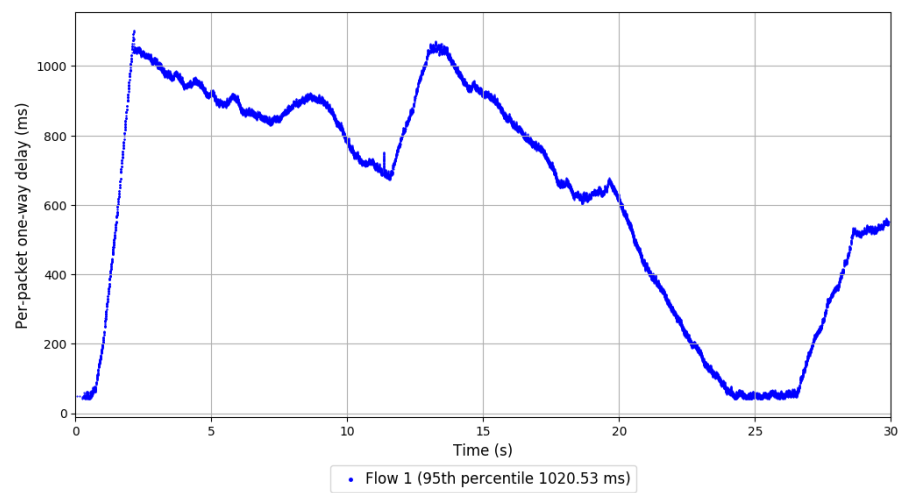
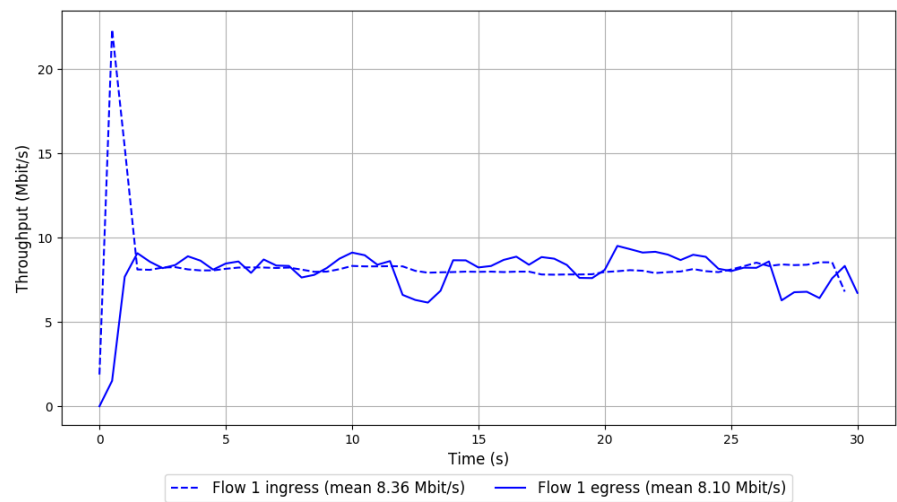
-- Flow 1:

Average throughput: 8.10 Mbit/s

95th percentile per-packet one-way delay: 1020.530 ms

Loss rate: 3.21%

Run 3: Report of PCC-Allegro — Data Link

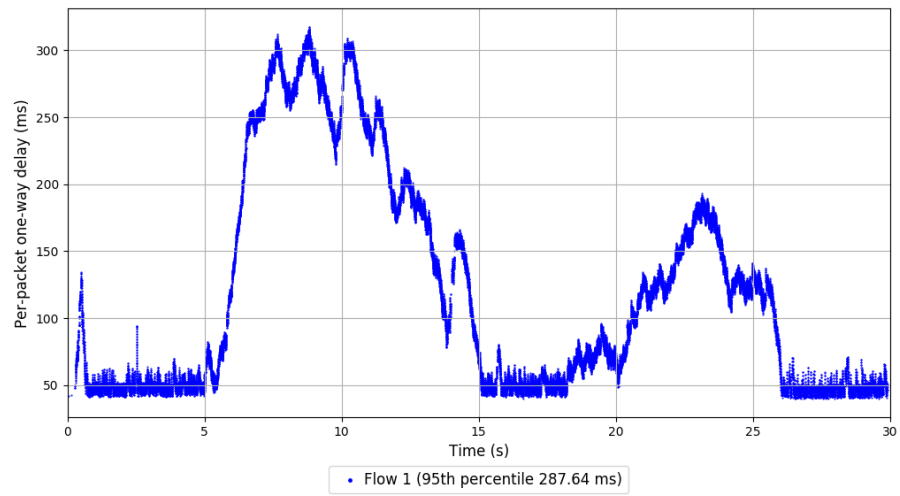
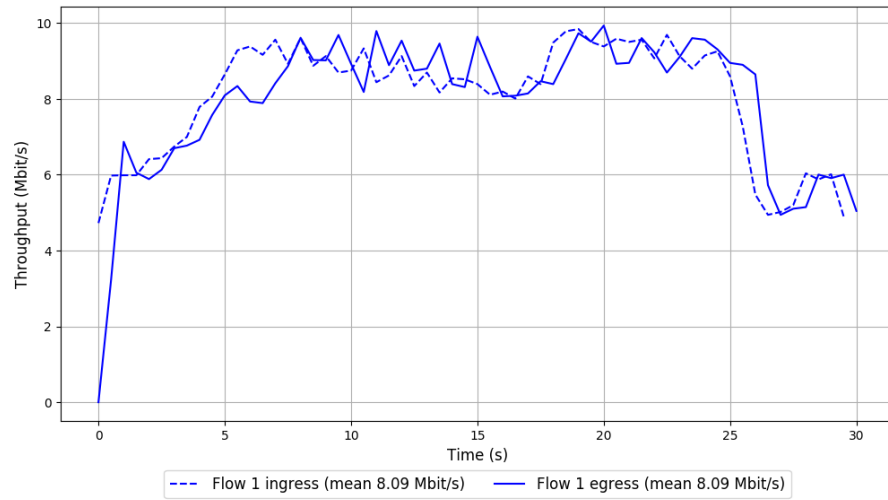


Run 1: Statistics of PCC-Expr

Start at: 2018-07-31 22:53:36
End at: 2018-07-31 22:54:06
Local clock offset: -0.974 ms
Remote clock offset: -1.813 ms

Below is generated by plot.py at 2018-07-31 23:49:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.09 Mbit/s
95th percentile per-packet one-way delay: 287.640 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 8.09 Mbit/s
95th percentile per-packet one-way delay: 287.640 ms
Loss rate: 0.08%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-07-31 23:12:01

End at: 2018-07-31 23:12:31

Local clock offset: 2.883 ms

Remote clock offset: 0.34 ms

Below is generated by plot.py at 2018-07-31 23:49:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.66 Mbit/s

95th percentile per-packet one-way delay: 278.029 ms

Loss rate: 1.10%

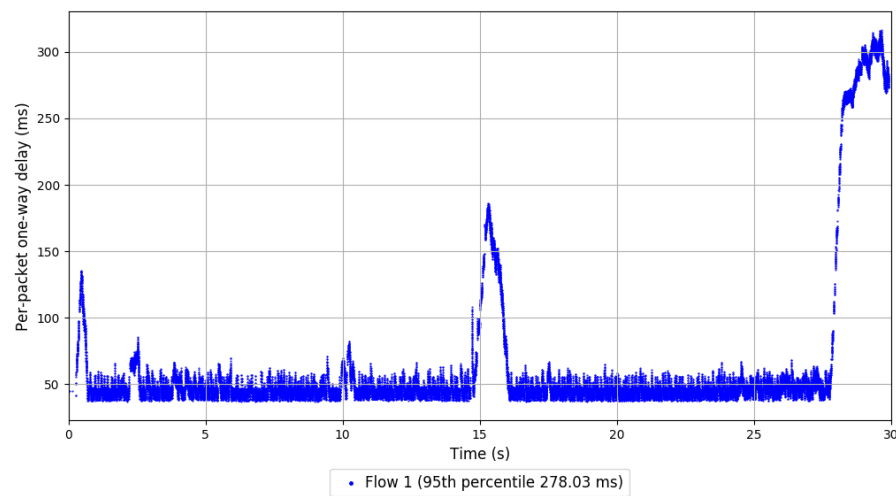
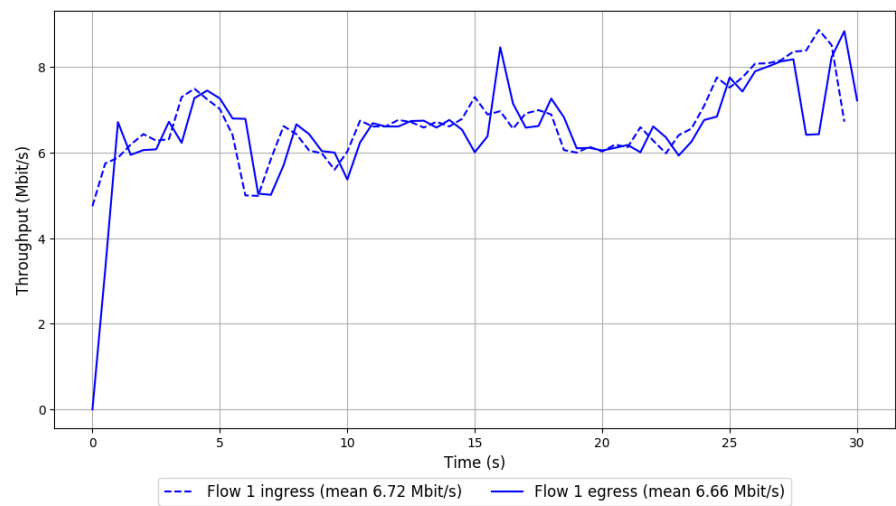
-- Flow 1:

Average throughput: 6.66 Mbit/s

95th percentile per-packet one-way delay: 278.029 ms

Loss rate: 1.10%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-07-31 23:30:28

End at: 2018-07-31 23:30:58

Local clock offset: 2.143 ms

Remote clock offset: -5.345 ms

Below is generated by plot.py at 2018-07-31 23:49:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.49 Mbit/s

95th percentile per-packet one-way delay: 650.514 ms

Loss rate: 0.11%

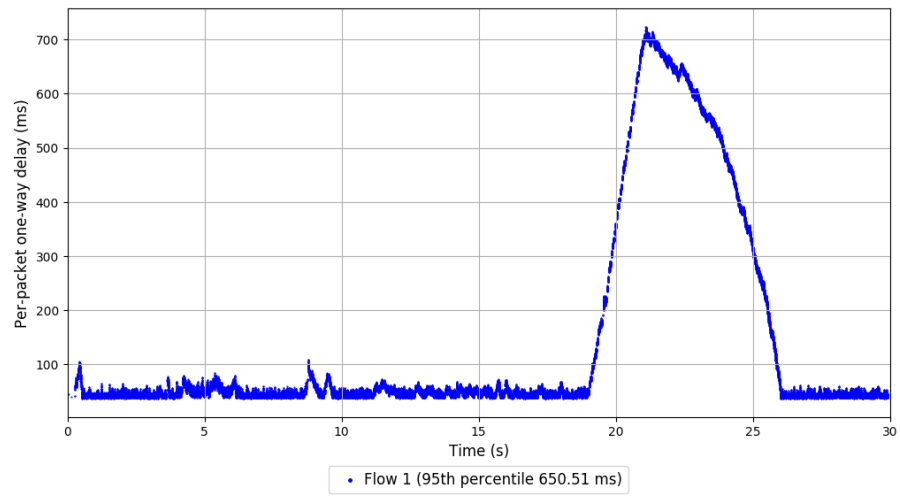
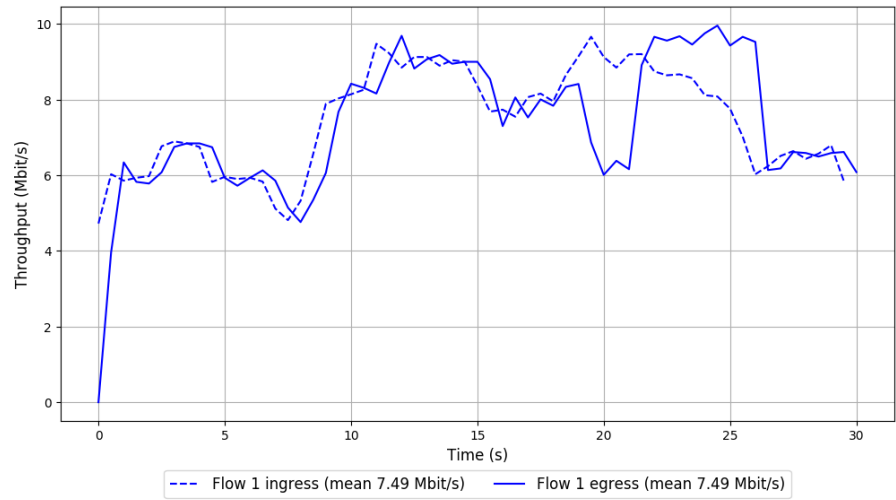
-- Flow 1:

Average throughput: 7.49 Mbit/s

95th percentile per-packet one-way delay: 650.514 ms

Loss rate: 0.11%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

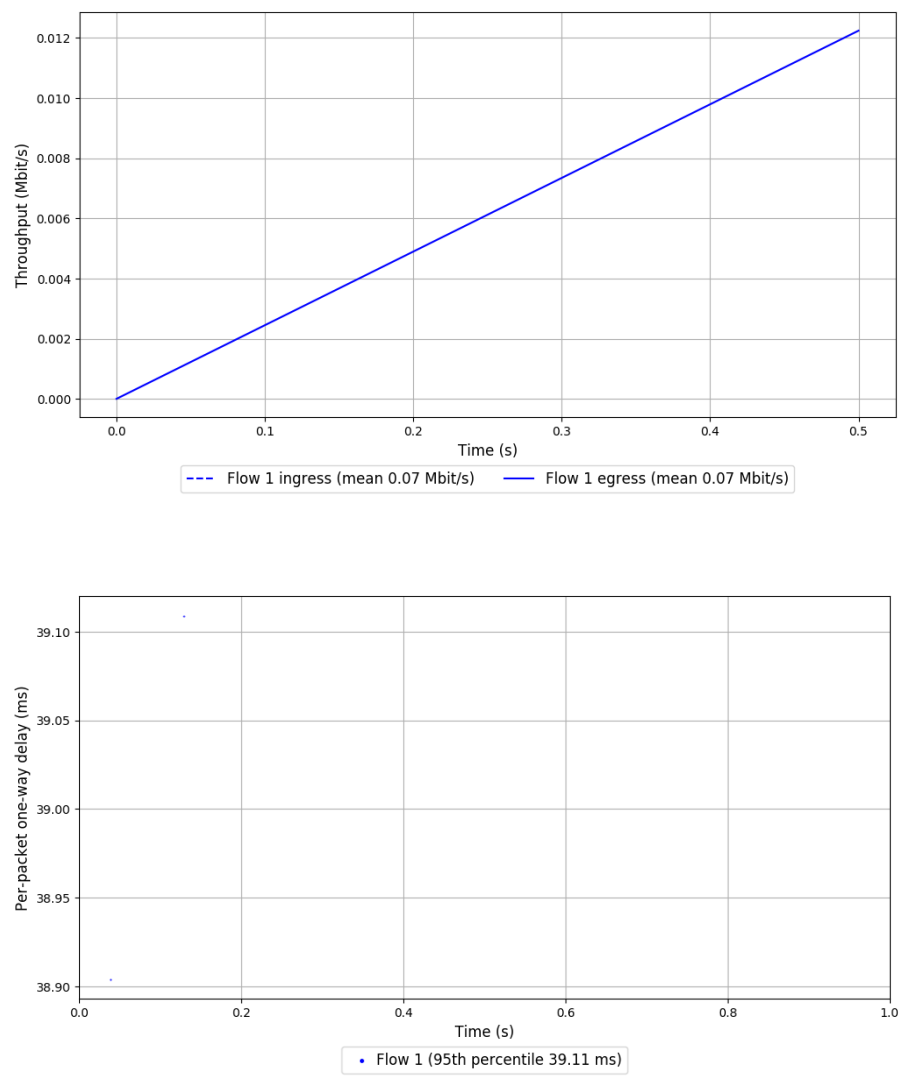
Start at: 2018-07-31 23:02:14

End at: 2018-07-31 23:02:44

Local clock offset: 1.607 ms

Remote clock offset: -3.35 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-07-31 23:20:39

End at: 2018-07-31 23:21:09

Local clock offset: 1.815 ms

Remote clock offset: -2.037 ms

Below is generated by plot.py at 2018-07-31 23:49:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.19 Mbit/s

95th percentile per-packet one-way delay: 289.438 ms

Loss rate: 0.55%

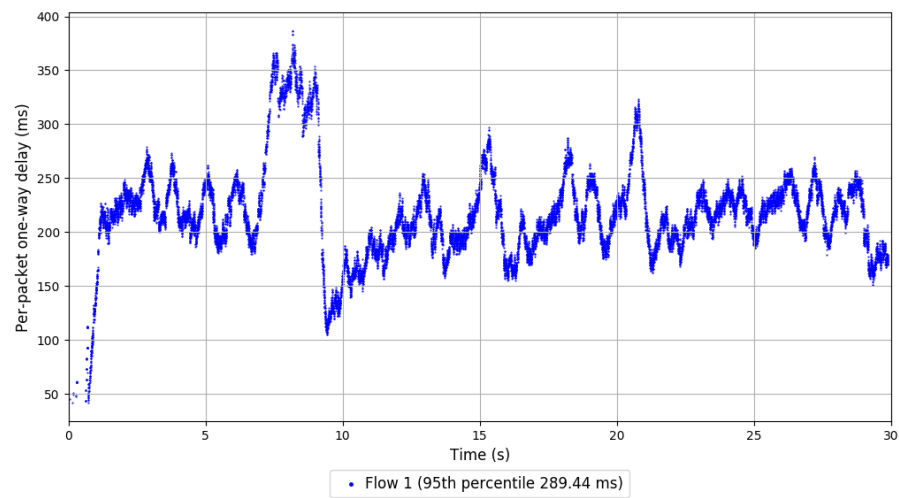
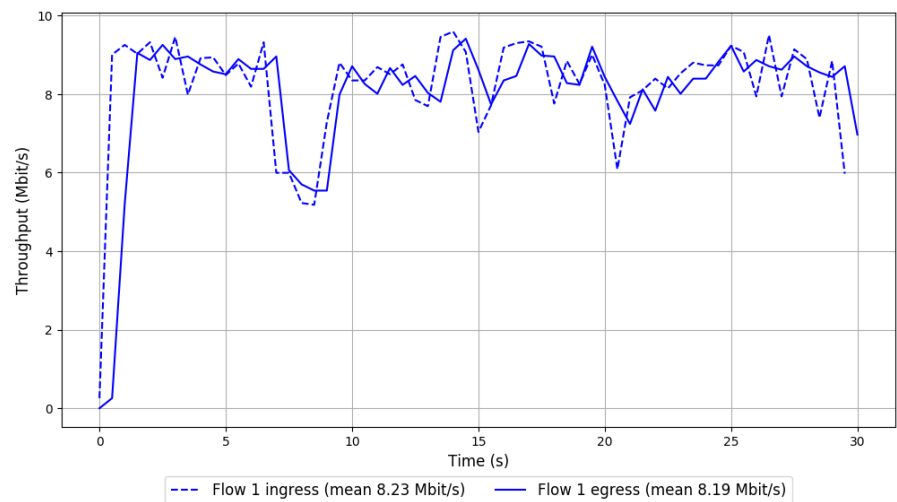
-- Flow 1:

Average throughput: 8.19 Mbit/s

95th percentile per-packet one-way delay: 289.438 ms

Loss rate: 0.55%

Run 2: Report of QUIC Cubic — Data Link

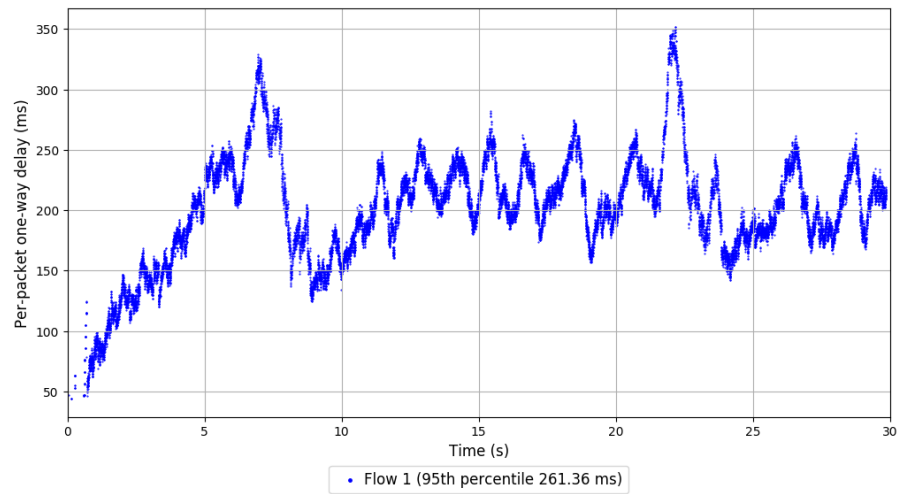
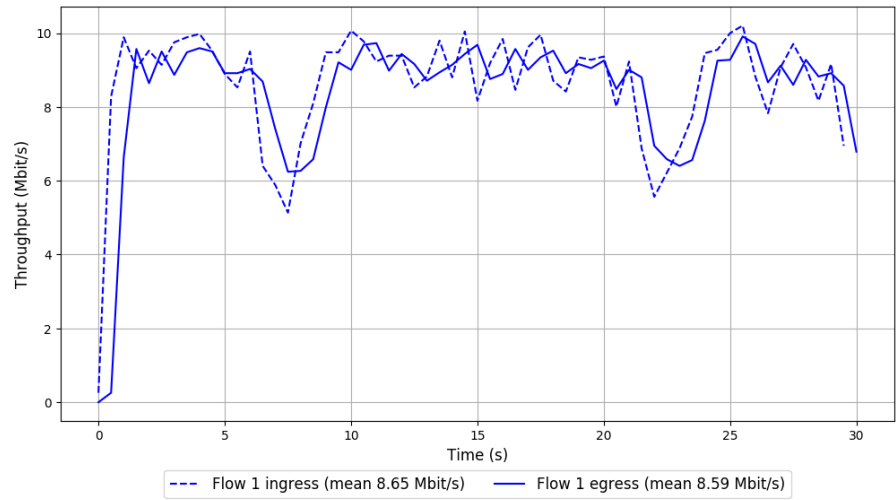


Run 3: Statistics of QUIC Cubic

Start at: 2018-07-31 23:39:10
End at: 2018-07-31 23:39:40
Local clock offset: 3.178 ms
Remote clock offset: -4.507 ms

Below is generated by plot.py at 2018-07-31 23:49:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.59 Mbit/s
95th percentile per-packet one-way delay: 261.361 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 8.59 Mbit/s
95th percentile per-packet one-way delay: 261.361 ms
Loss rate: 0.86%

Run 3: Report of QUIC Cubic — Data Link

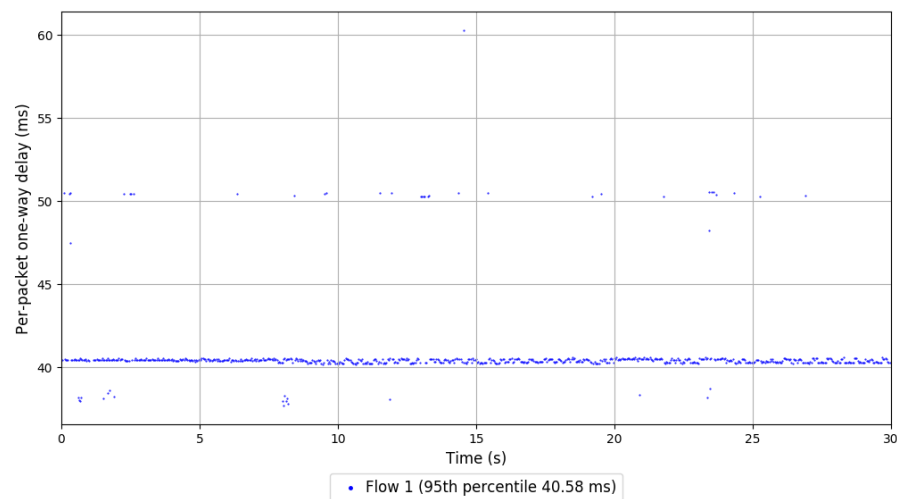
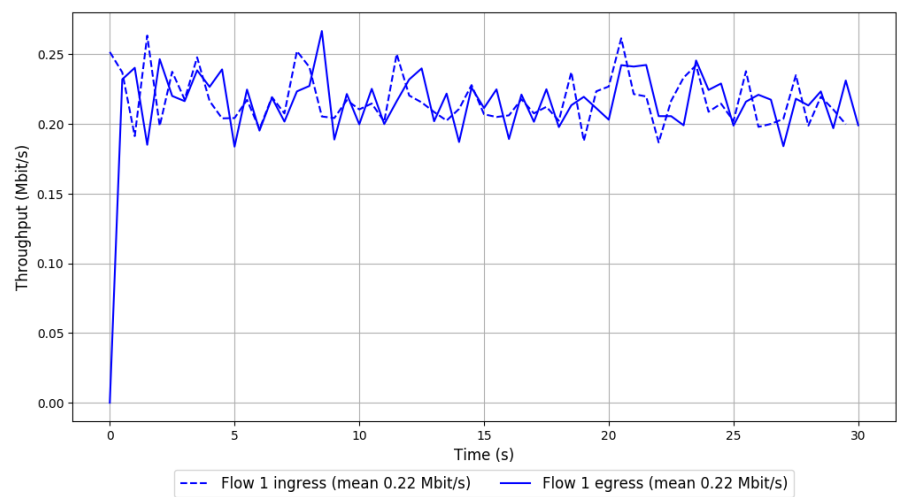


Run 1: Statistics of SCReAM

Start at: 2018-07-31 23:08:47
End at: 2018-07-31 23:09:17
Local clock offset: 1.122 ms
Remote clock offset: -3.417 ms

Below is generated by plot.py at 2018-07-31 23:49:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 40.584 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 40.584 ms
Loss rate: 0.13%

Run 1: Report of SReAM — Data Link

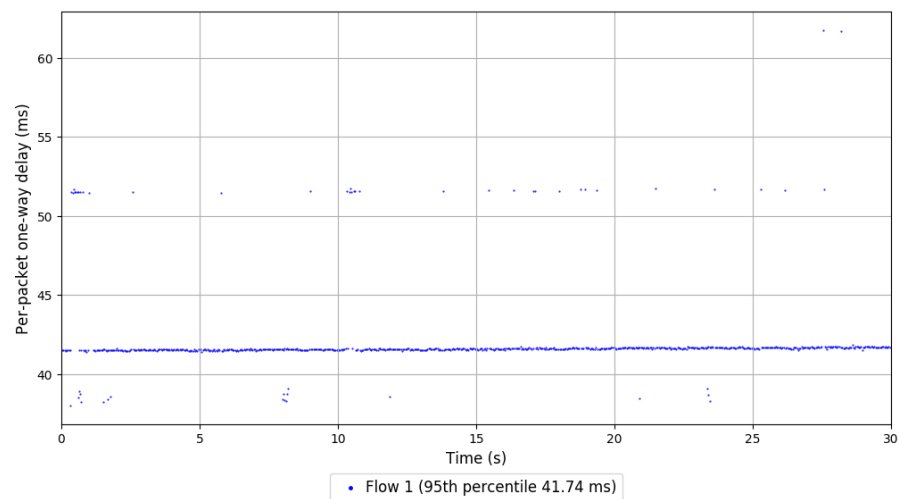
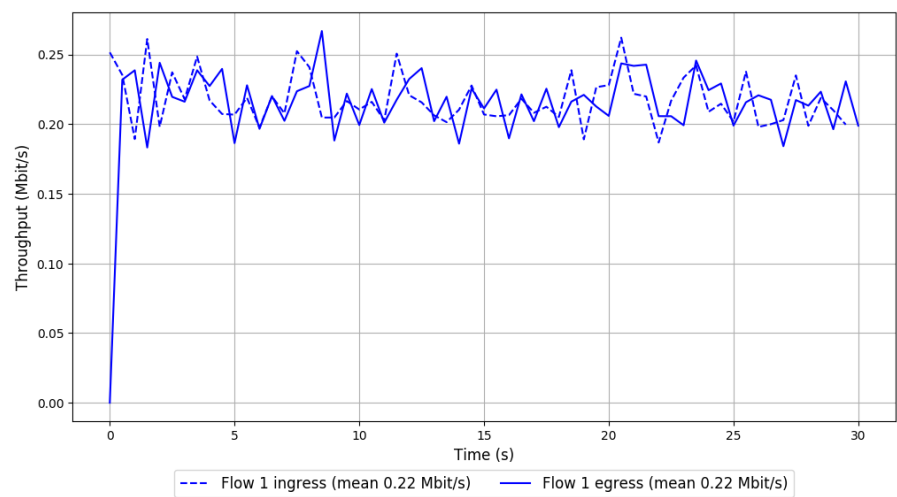


Run 2: Statistics of SCReAM

Start at: 2018-07-31 23:27:14
End at: 2018-07-31 23:27:44
Local clock offset: 1.914 ms
Remote clock offset: -6.022 ms

Below is generated by plot.py at 2018-07-31 23:49:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 41.741 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 41.741 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-07-31 23:45:40

End at: 2018-07-31 23:46:10

Local clock offset: 1.599 ms

Remote clock offset: -5.44 ms

Below is generated by plot.py at 2018-07-31 23:49:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 55.190 ms

Loss rate: 0.13%

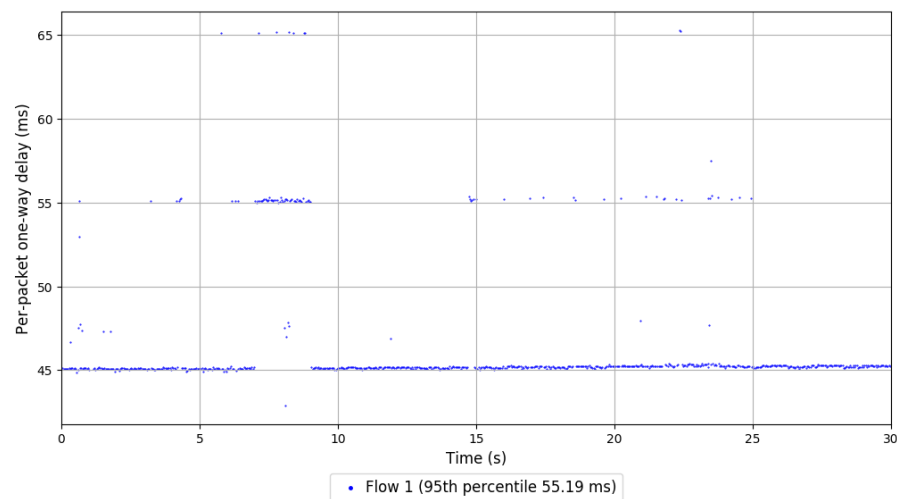
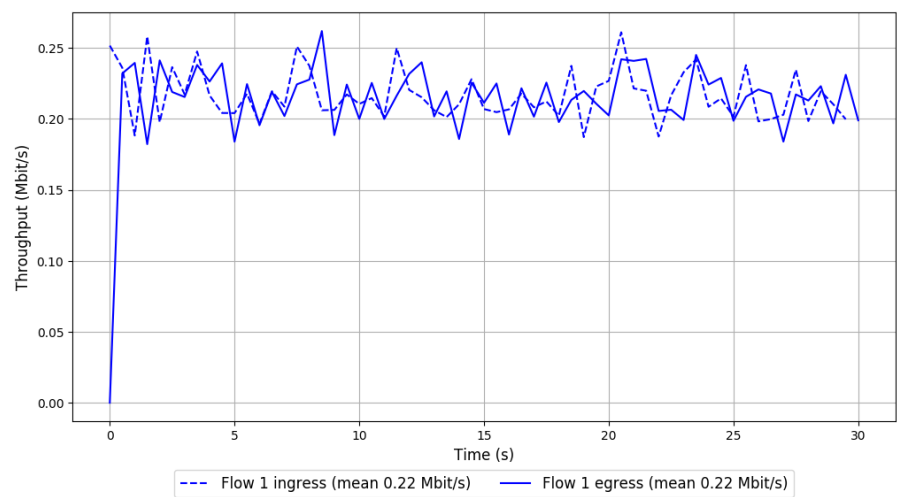
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 55.190 ms

Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

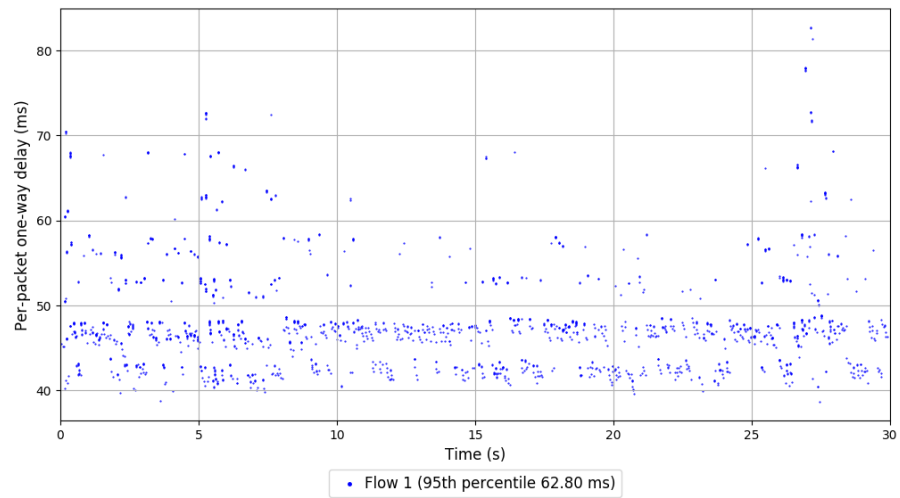
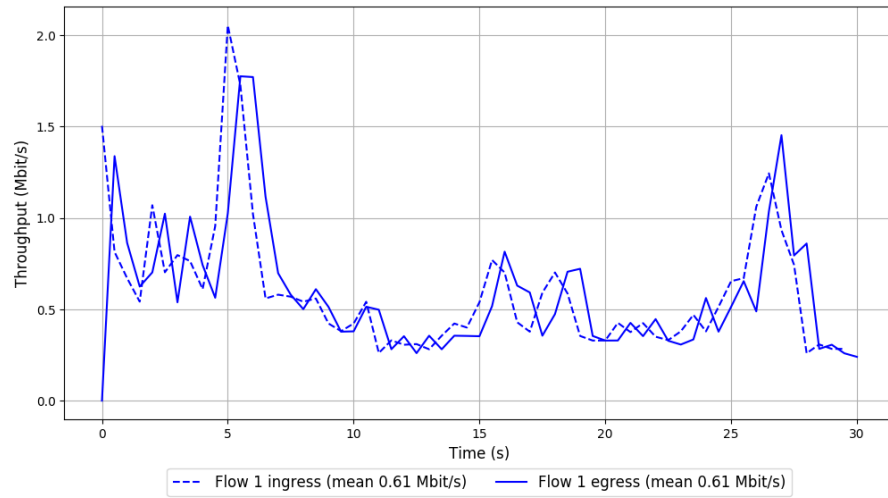


Run 1: Statistics of Sprout

Start at: 2018-07-31 23:00:05
End at: 2018-07-31 23:00:35
Local clock offset: 0.811 ms
Remote clock offset: -0.425 ms

Below is generated by plot.py at 2018-07-31 23:49:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 62.800 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 62.800 ms
Loss rate: 0.19%

Run 1: Report of Sprout — Data Link

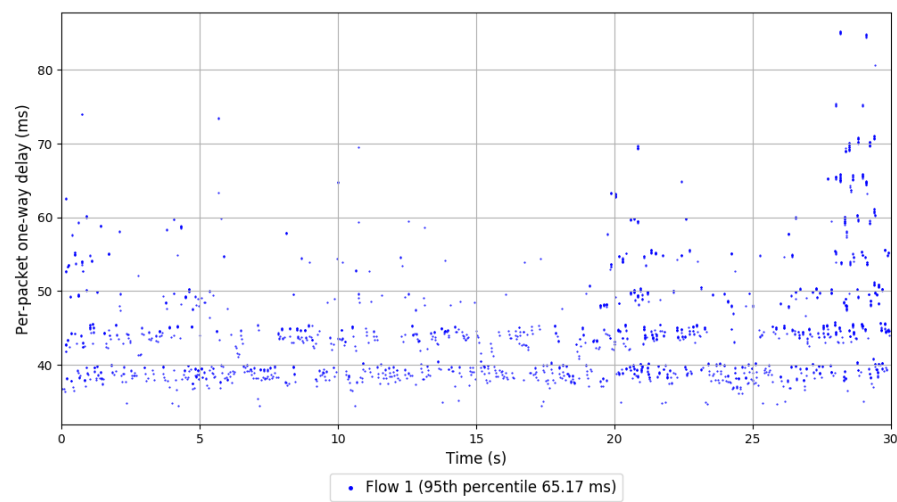
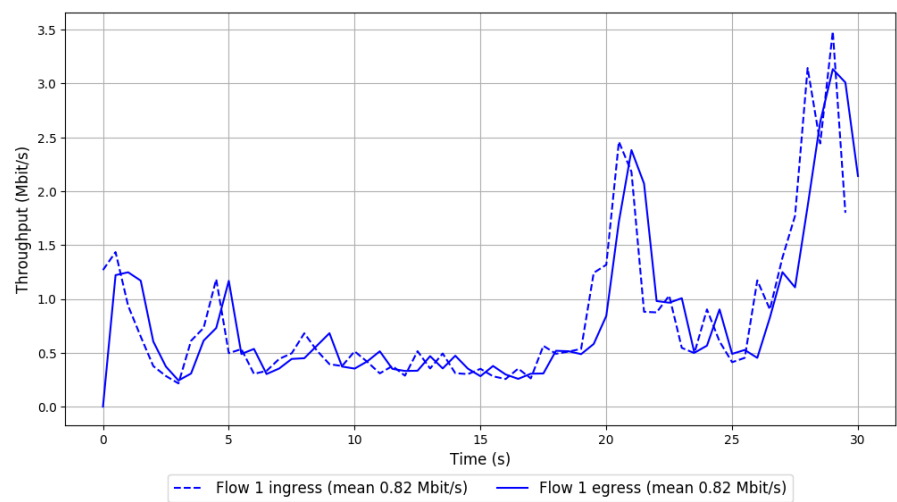


Run 2: Statistics of Sprout

Start at: 2018-07-31 23:18:30
End at: 2018-07-31 23:19:00
Local clock offset: 2.394 ms
Remote clock offset: -3.919 ms

Below is generated by plot.py at 2018-07-31 23:49:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 65.173 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 65.173 ms
Loss rate: 0.27%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-07-31 23:37:00

End at: 2018-07-31 23:37:30

Local clock offset: 3.528 ms

Remote clock offset: -5.79 ms

Below is generated by plot.py at 2018-07-31 23:49:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.52 Mbit/s

95th percentile per-packet one-way delay: 58.981 ms

Loss rate: 0.01%

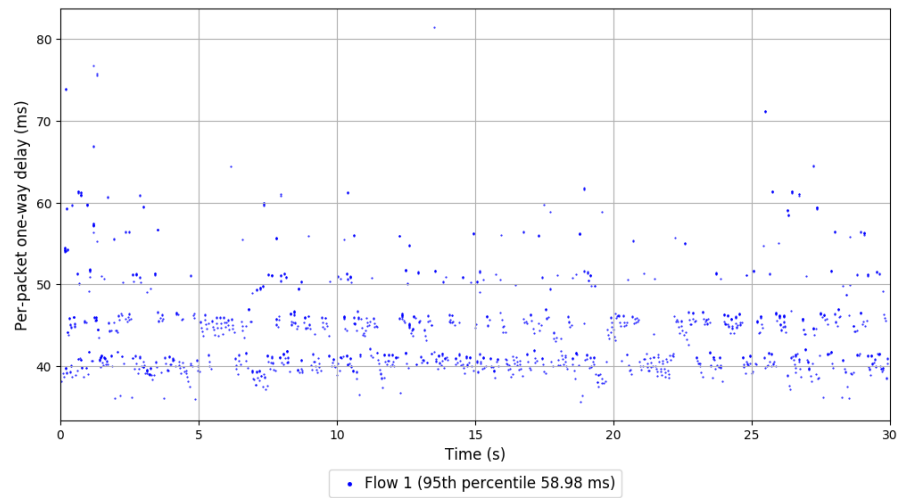
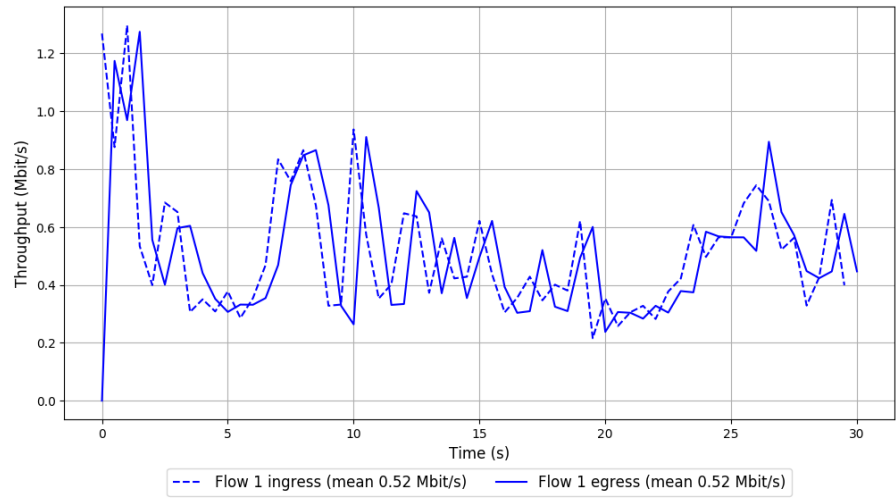
-- Flow 1:

Average throughput: 0.52 Mbit/s

95th percentile per-packet one-way delay: 58.981 ms

Loss rate: 0.01%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-07-31 23:06:32

End at: 2018-07-31 23:07:02

Local clock offset: 0.531 ms

Remote clock offset: -5.225 ms

Below is generated by plot.py at 2018-07-31 23:49:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.83 Mbit/s

95th percentile per-packet one-way delay: 84.195 ms

Loss rate: 0.13%

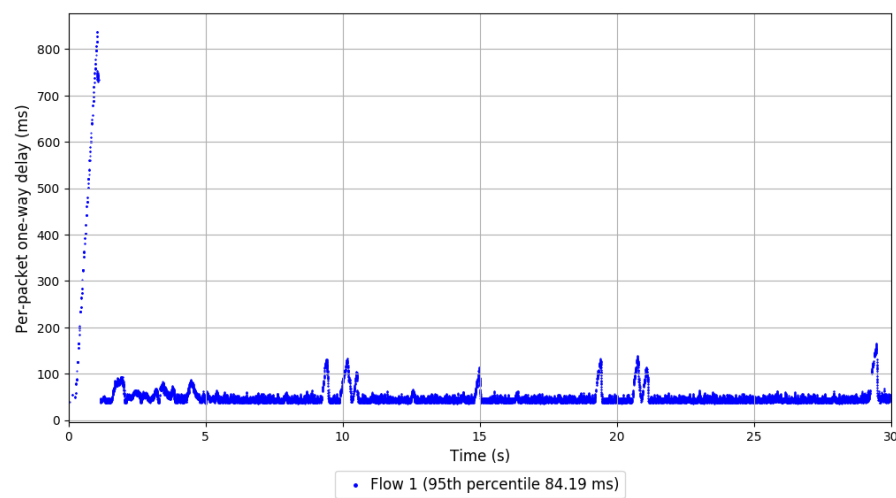
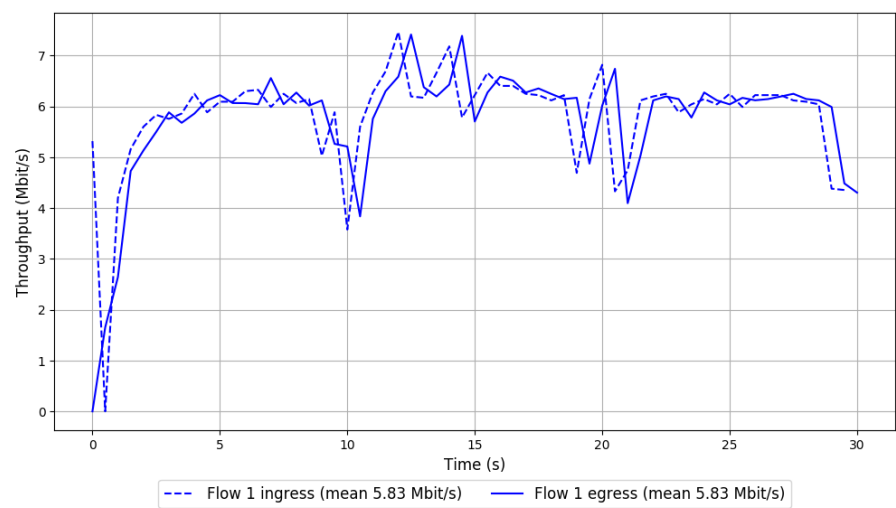
-- Flow 1:

Average throughput: 5.83 Mbit/s

95th percentile per-packet one-way delay: 84.195 ms

Loss rate: 0.13%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-07-31 23:25:04

End at: 2018-07-31 23:25:34

Local clock offset: 0.838 ms

Remote clock offset: -3.835 ms

Below is generated by plot.py at 2018-07-31 23:49:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.74 Mbit/s

95th percentile per-packet one-way delay: 65.389 ms

Loss rate: 0.17%

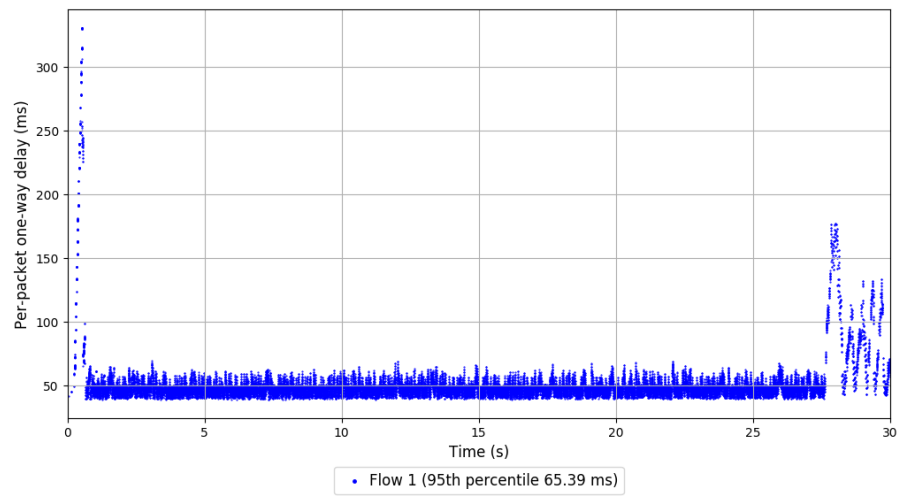
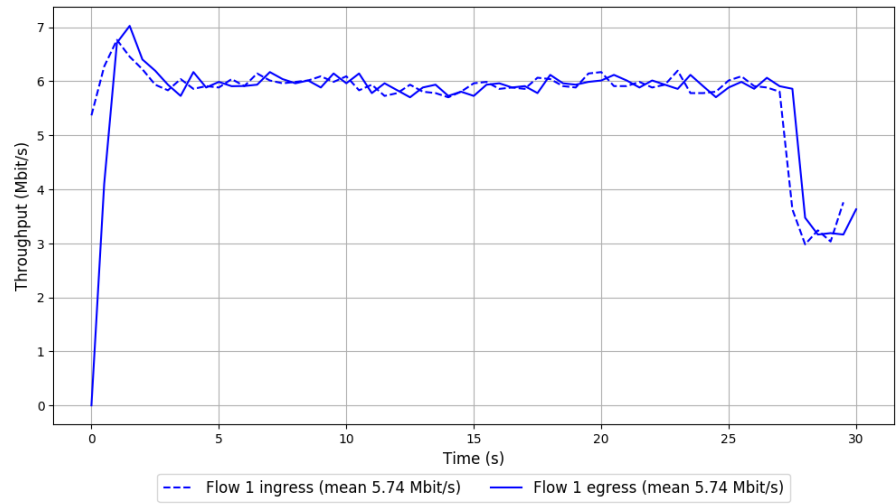
-- Flow 1:

Average throughput: 5.74 Mbit/s

95th percentile per-packet one-way delay: 65.389 ms

Loss rate: 0.17%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-07-31 23:43:29

End at: 2018-07-31 23:43:59

Local clock offset: 3.207 ms

Remote clock offset: -4.798 ms

Below is generated by plot.py at 2018-07-31 23:49:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.10 Mbit/s

95th percentile per-packet one-way delay: 59.653 ms

Loss rate: 0.15%

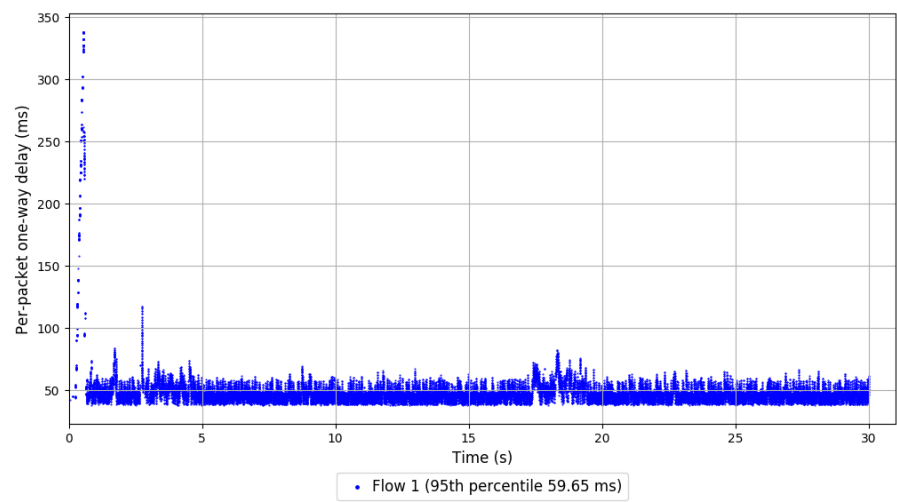
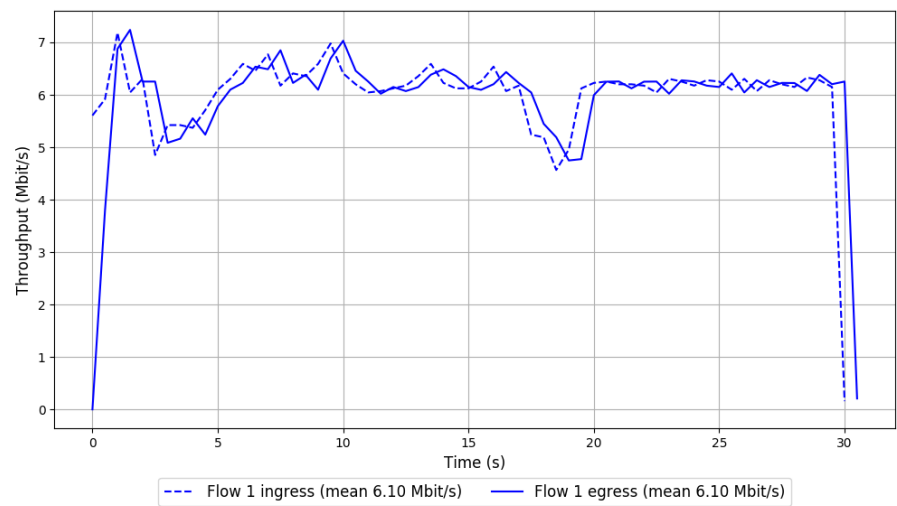
-- Flow 1:

Average throughput: 6.10 Mbit/s

95th percentile per-packet one-way delay: 59.653 ms

Loss rate: 0.15%

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

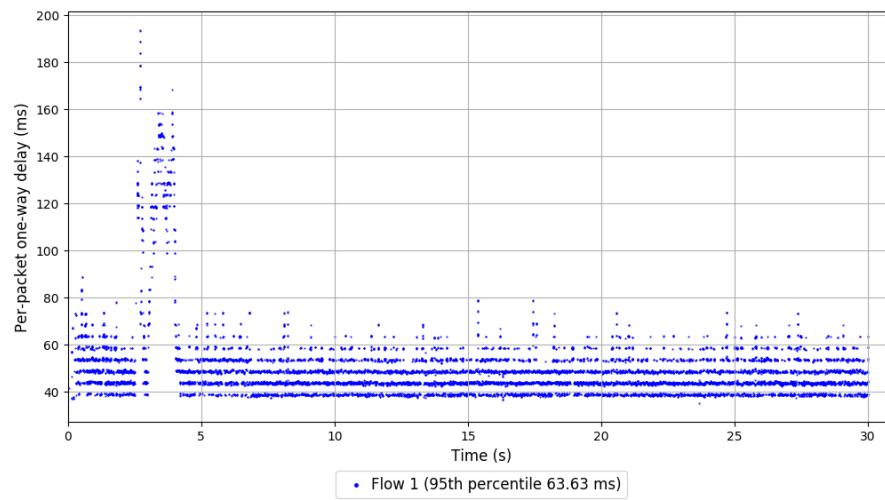
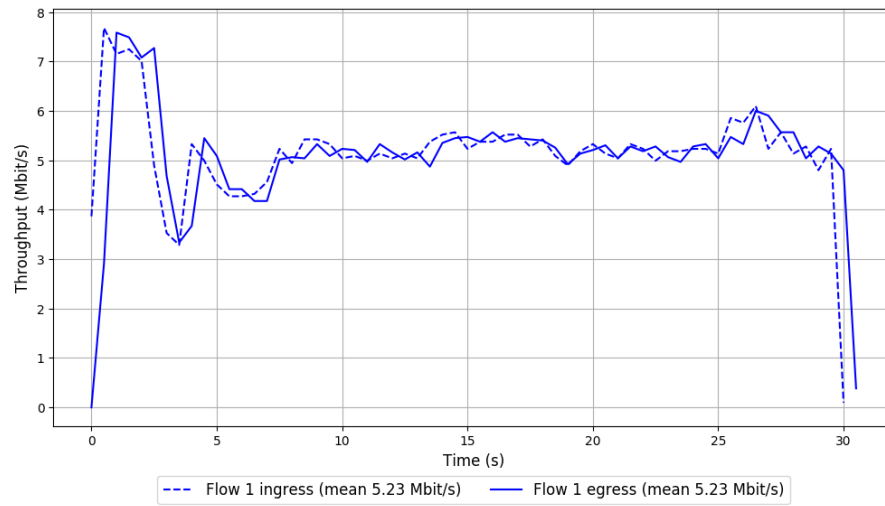


Run 1: Statistics of TCP Vegas

Start at: 2018-07-31 23:10:57
End at: 2018-07-31 23:11:27
Local clock offset: 2.712 ms
Remote clock offset: -1.931 ms

Below is generated by plot.py at 2018-07-31 23:49:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 63.632 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 63.632 ms
Loss rate: 0.11%

Run 1: Report of TCP Vegas — Data Link

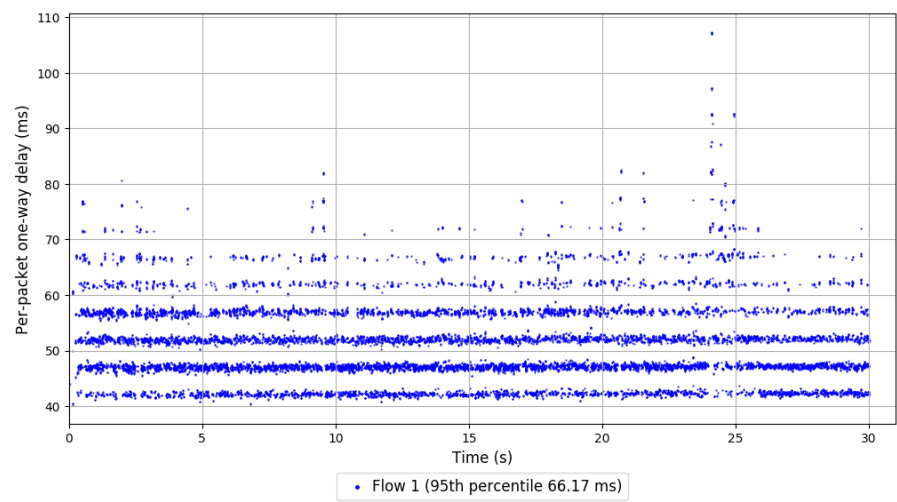
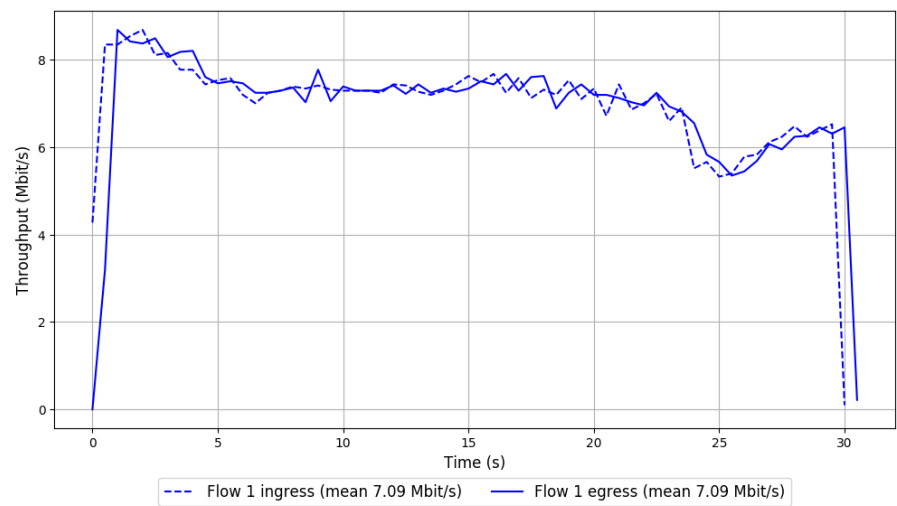


Run 2: Statistics of TCP Vegas

Start at: 2018-07-31 23:29:23
End at: 2018-07-31 23:29:53
Local clock offset: -0.067 ms
Remote clock offset: -6.004 ms

Below is generated by plot.py at 2018-07-31 23:49:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.09 Mbit/s
95th percentile per-packet one-way delay: 66.171 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 7.09 Mbit/s
95th percentile per-packet one-way delay: 66.171 ms
Loss rate: 0.15%

Run 2: Report of TCP Vegas — Data Link

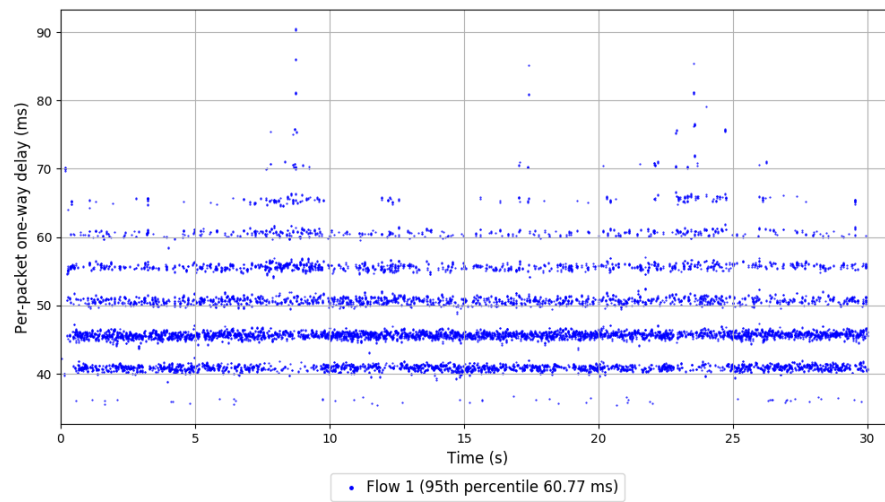
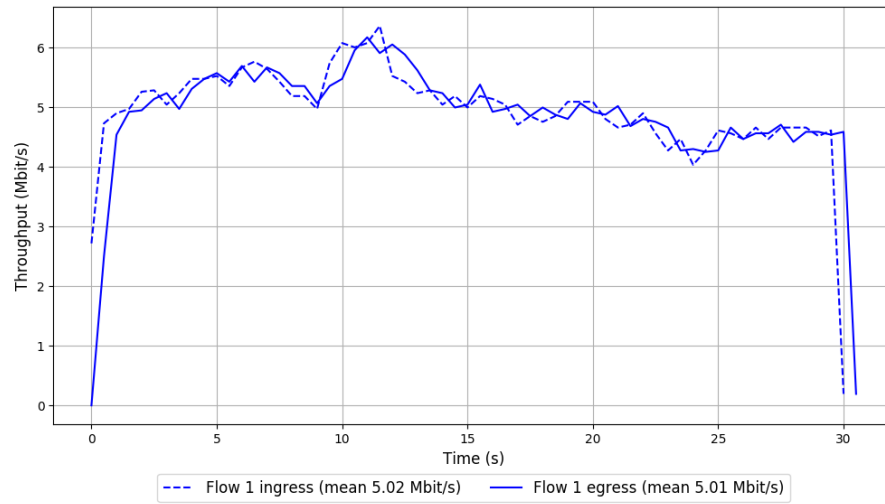


Run 3: Statistics of TCP Vegas

Start at: 2018-07-31 23:47:54
End at: 2018-07-31 23:48:24
Local clock offset: 3.557 ms
Remote clock offset: -6.792 ms

Below is generated by plot.py at 2018-07-31 23:49:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.01 Mbit/s
95th percentile per-packet one-way delay: 60.769 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 5.01 Mbit/s
95th percentile per-packet one-way delay: 60.769 ms
Loss rate: 0.19%

Run 3: Report of TCP Vegas — Data Link

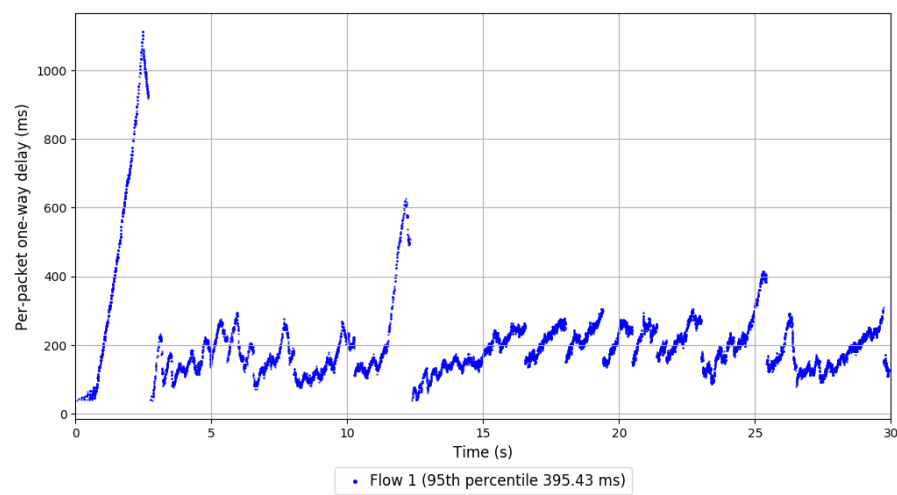
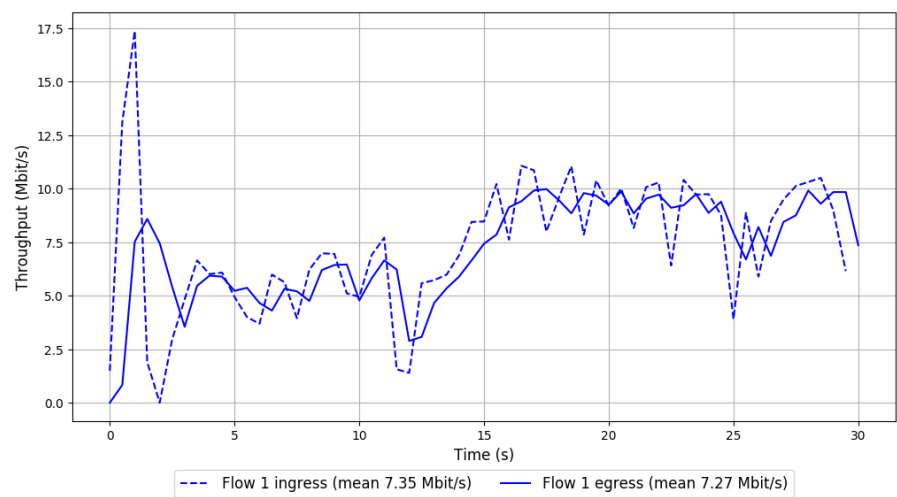


Run 1: Statistics of Verus

Start at: 2018-07-31 22:57:55
End at: 2018-07-31 22:58:25
Local clock offset: -0.41 ms
Remote clock offset: -4.086 ms

Below is generated by plot.py at 2018-07-31 23:49:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 395.426 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 395.426 ms
Loss rate: 1.10%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-07-31 23:16:21

End at: 2018-07-31 23:16:51

Local clock offset: 1.999 ms

Remote clock offset: -2.46 ms

Below is generated by plot.py at 2018-07-31 23:49:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.41 Mbit/s

95th percentile per-packet one-way delay: 331.522 ms

Loss rate: 0.68%

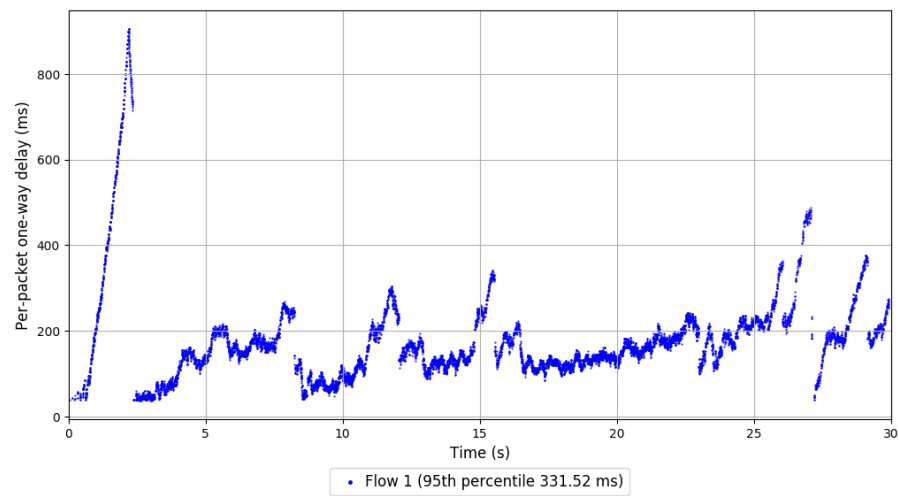
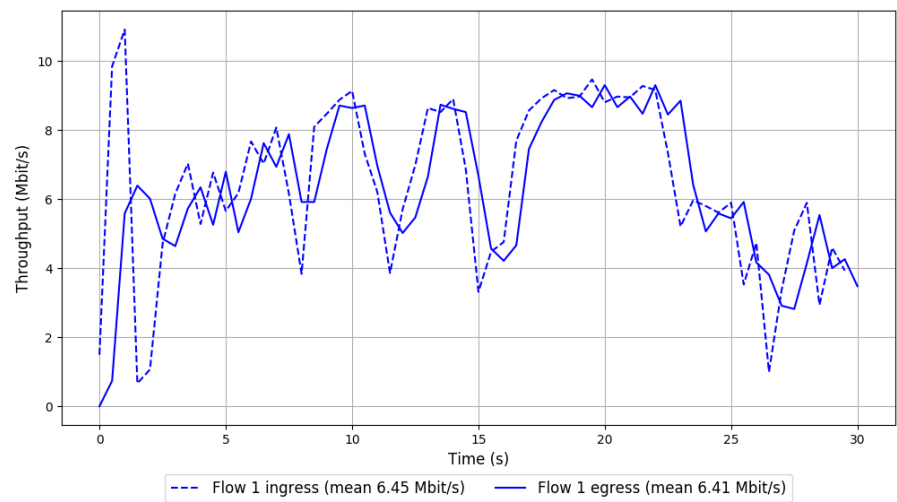
-- Flow 1:

Average throughput: 6.41 Mbit/s

95th percentile per-packet one-way delay: 331.522 ms

Loss rate: 0.68%

Run 2: Report of Verus — Data Link

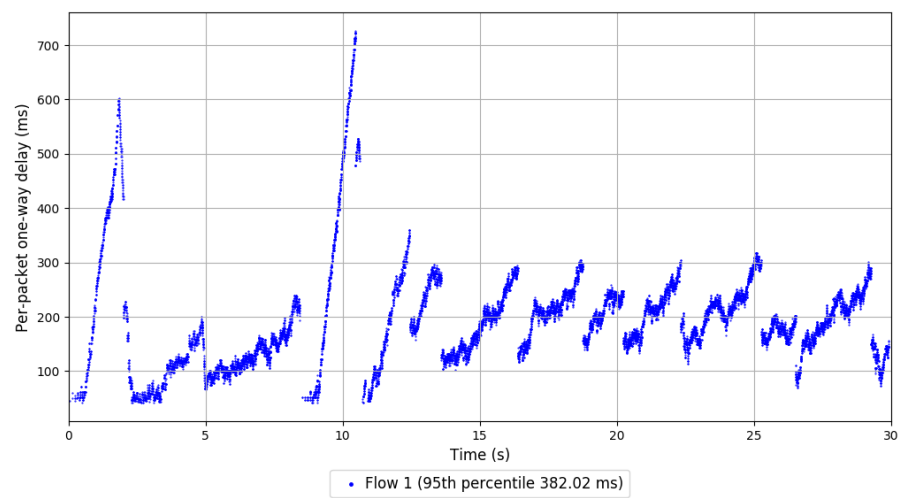
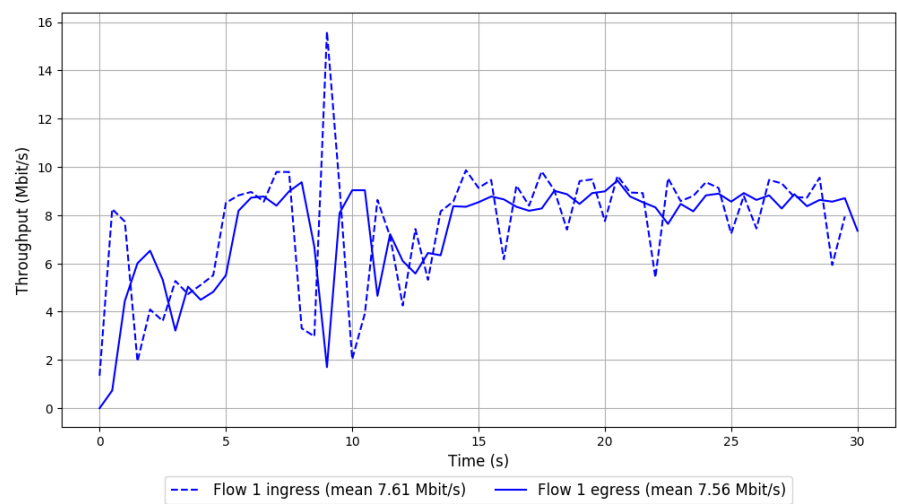


Run 3: Statistics of Verus

Start at: 2018-07-31 23:34:50
End at: 2018-07-31 23:35:20
Local clock offset: 0.071 ms
Remote clock offset: -3.323 ms

Below is generated by plot.py at 2018-07-31 23:49:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.56 Mbit/s
95th percentile per-packet one-way delay: 382.019 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 7.56 Mbit/s
95th percentile per-packet one-way delay: 382.019 ms
Loss rate: 0.71%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-07-31 22:56:50

End at: 2018-07-31 22:57:20

Local clock offset: 0.493 ms

Remote clock offset: -6.398 ms

Below is generated by plot.py at 2018-07-31 23:49:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.65 Mbit/s

95th percentile per-packet one-way delay: 1000.953 ms

Loss rate: 2.51%

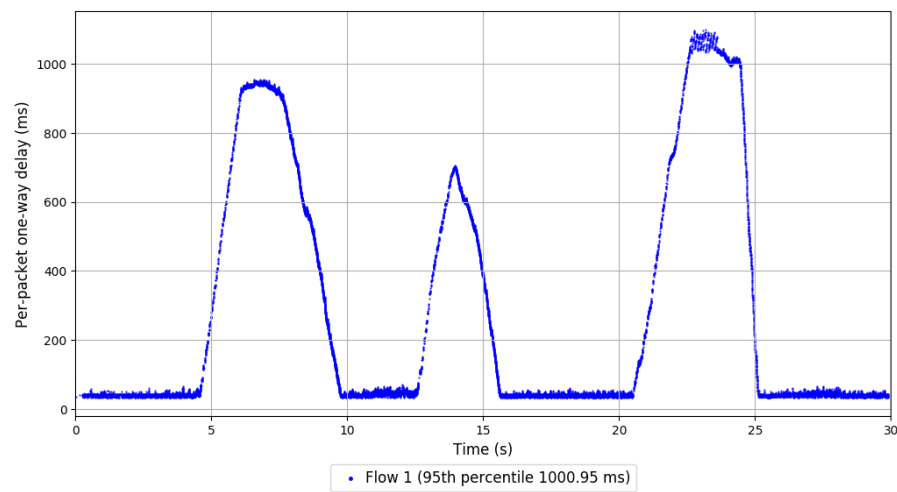
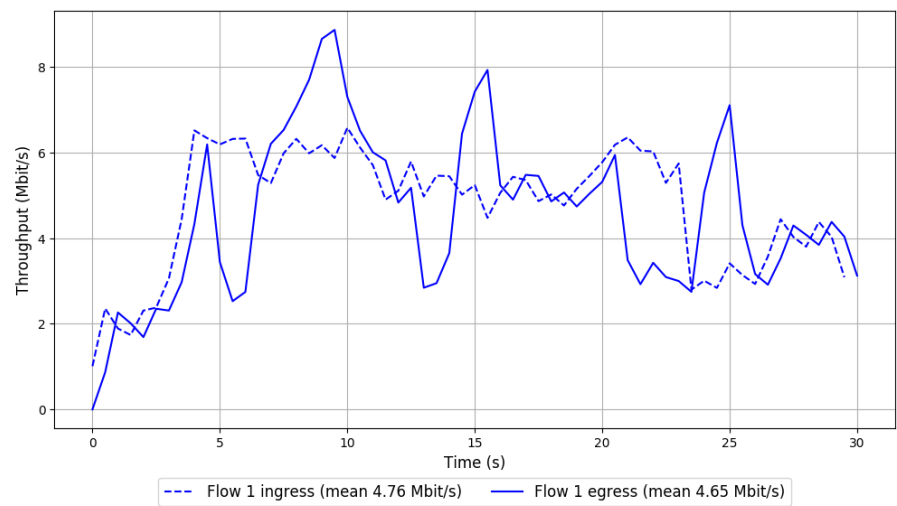
-- Flow 1:

Average throughput: 4.65 Mbit/s

95th percentile per-packet one-way delay: 1000.953 ms

Loss rate: 2.51%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-07-31 23:15:16

End at: 2018-07-31 23:15:46

Local clock offset: 0.994 ms

Remote clock offset: -2.226 ms

Below is generated by plot.py at 2018-07-31 23:49:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.57 Mbit/s

95th percentile per-packet one-way delay: 55.954 ms

Loss rate: 0.11%

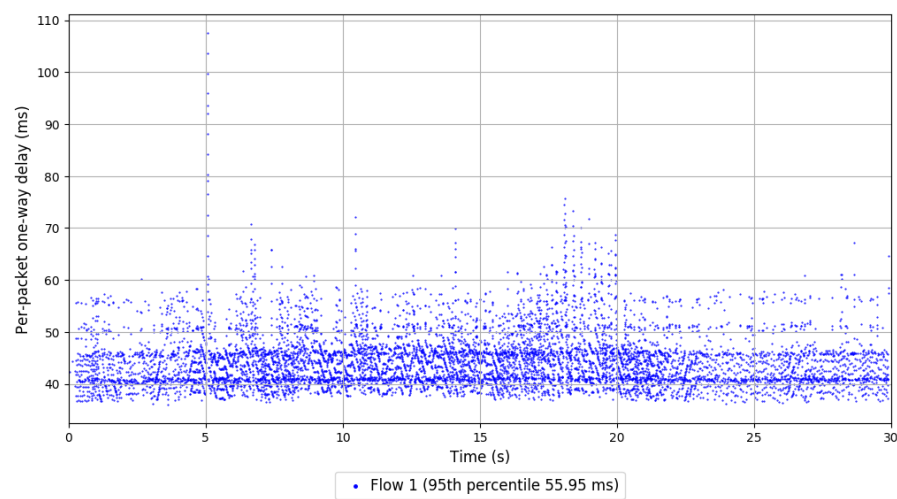
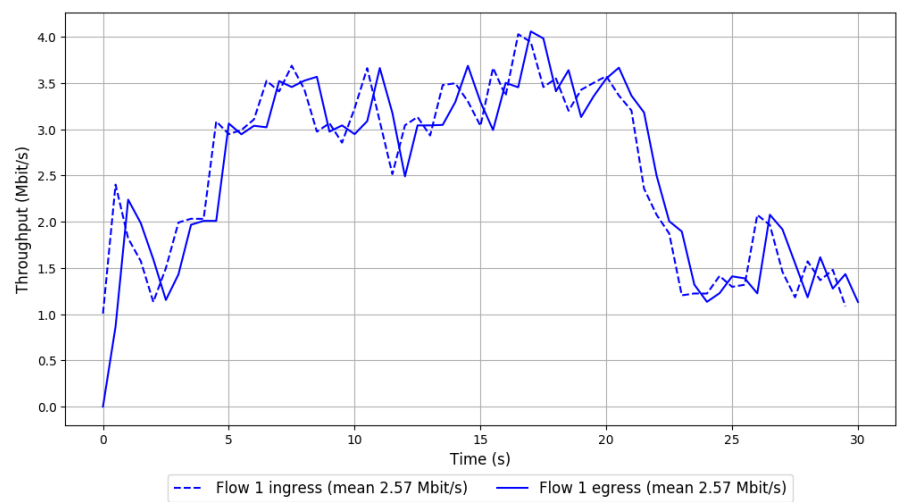
-- Flow 1:

Average throughput: 2.57 Mbit/s

95th percentile per-packet one-way delay: 55.954 ms

Loss rate: 0.11%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-07-31 23:33:46

End at: 2018-07-31 23:34:16

Local clock offset: 3.007 ms

Remote clock offset: -4.17 ms

Below is generated by plot.py at 2018-07-31 23:49:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 52.581 ms

Loss rate: 0.06%

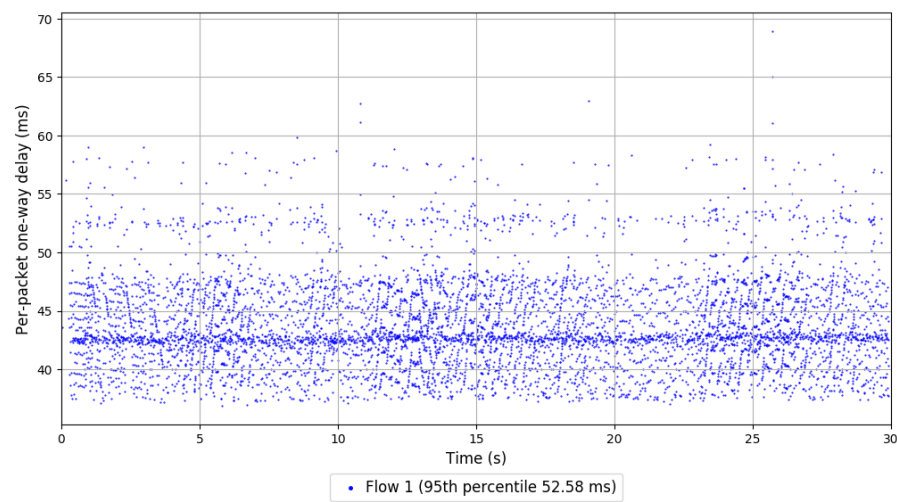
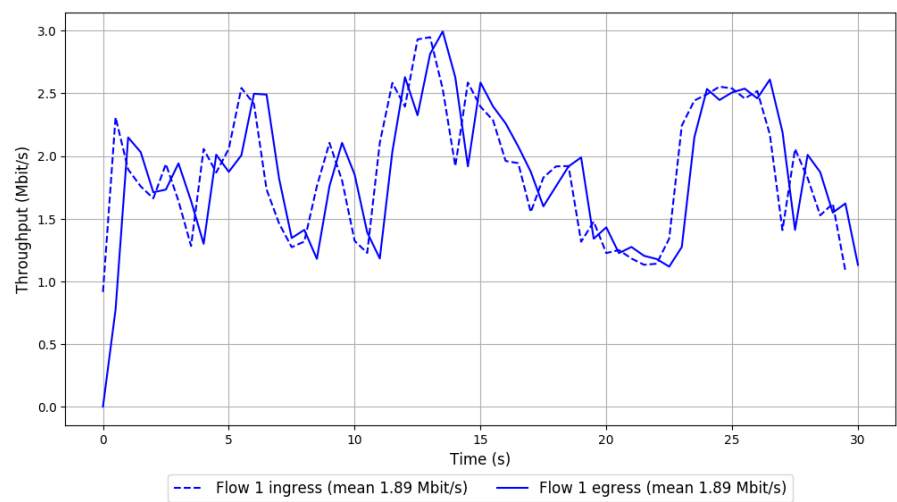
-- Flow 1:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 52.581 ms

Loss rate: 0.06%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-07-31 23:04:23

End at: 2018-07-31 23:04:53

Local clock offset: 0.976 ms

Remote clock offset: -4.265 ms

Below is generated by plot.py at 2018-07-31 23:49:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 62.164 ms

Loss rate: 0.17%

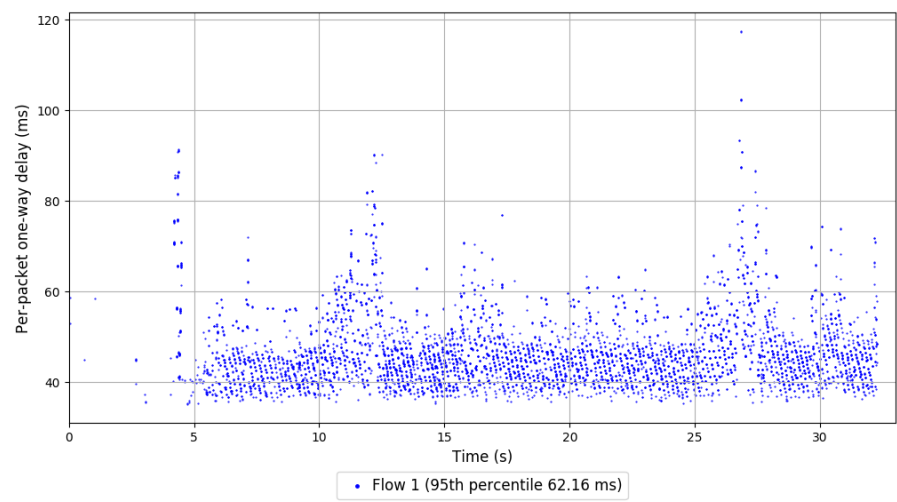
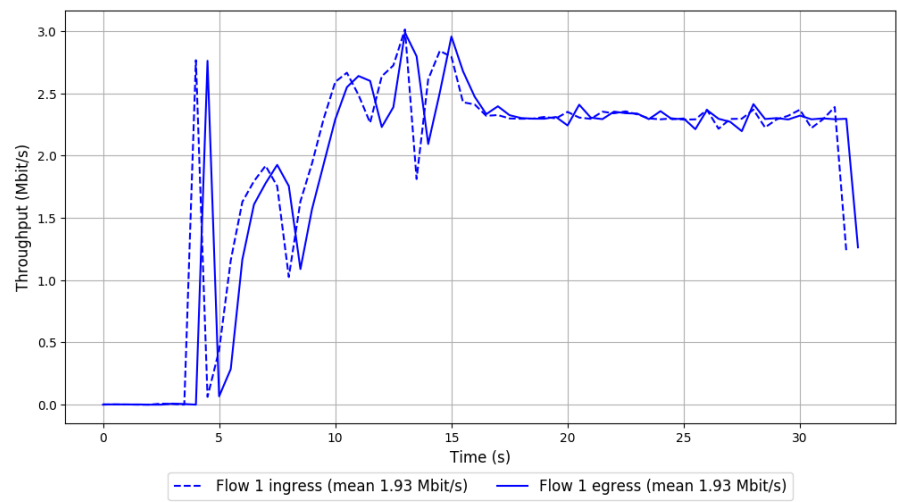
-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 62.164 ms

Loss rate: 0.17%

Run 1: Report of WebRTC media — Data Link

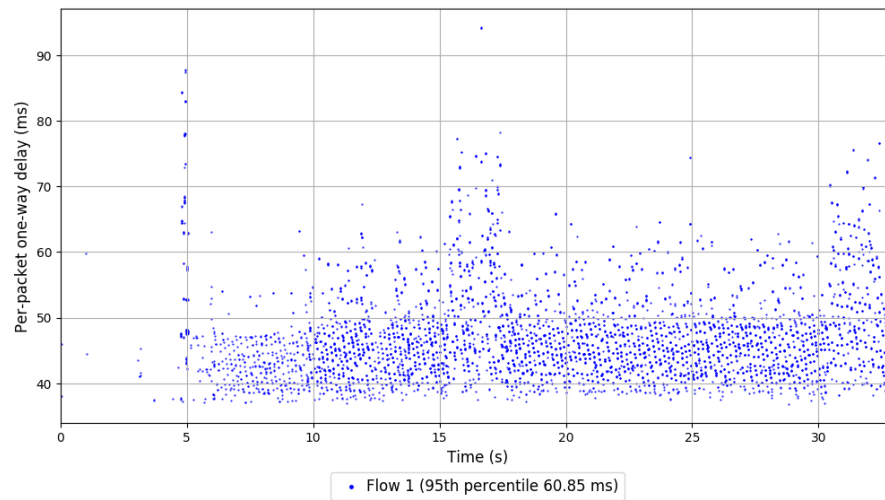
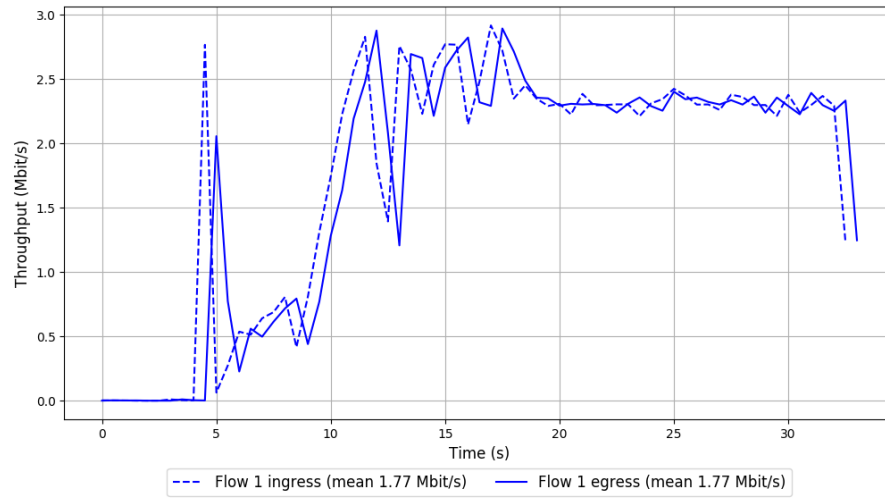


Run 2: Statistics of WebRTC media

Start at: 2018-07-31 23:22:49
End at: 2018-07-31 23:23:19
Local clock offset: 2.86 ms
Remote clock offset: -3.471 ms

Below is generated by plot.py at 2018-07-31 23:49:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 60.852 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 60.852 ms
Loss rate: 0.18%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-07-31 23:41:19
End at: 2018-07-31 23:41:49
Local clock offset: 2.205 ms
Remote clock offset: -6.779 ms

Below is generated by plot.py at 2018-07-31 23:49:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 58.734 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 58.734 ms
Loss rate: 0.12%

Run 3: Report of WebRTC media — Data Link

