

Pantheon Report

Generated at 2018-07-17 08:37:38 (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.

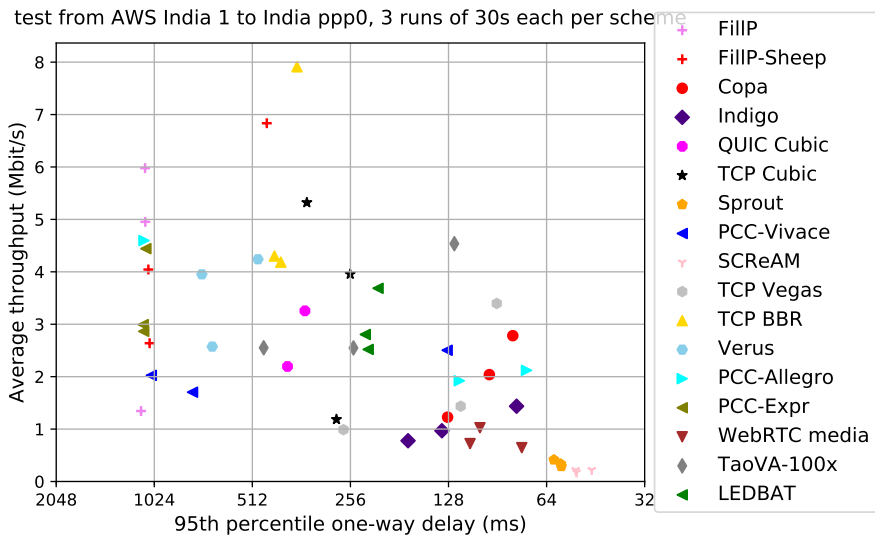
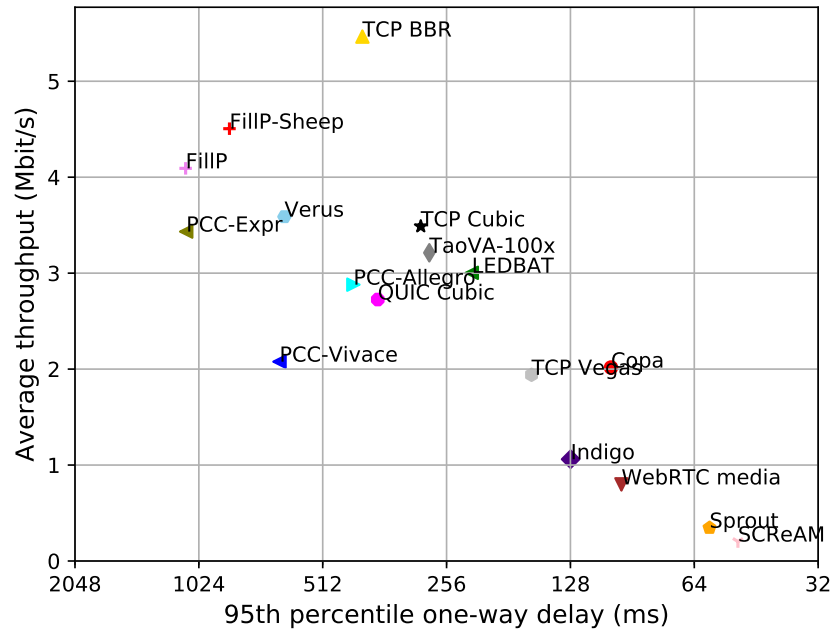
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

Git summary:

```
branch: master @ f7befc2d8410f41949e0ad8143a9aab40bab7edb
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	5.46	410.02	0.99
Copa	3	2.02	102.00	0.23
TCP Cubic	3	3.49	295.77	0.55
FillP	3	4.09	1102.70	59.25
FillP-Sheep	3	4.50	862.79	13.31
Indigo	3	1.06	127.86	0.33
LEDBAT	3	3.00	222.34	0.45
PCC-Allegro	3	2.88	431.18	15.81
PCC-Expr	3	3.43	1099.24	41.35
QUIC Cubic	2	2.72	376.21	0.94
SCReAM	3	0.20	50.14	0.13
Sprout	3	0.35	58.78	0.01
TaoVA-100x	3	3.21	281.97	0.20
TCP Vegas	3	1.94	159.11	0.21
Verus	3	3.59	634.42	17.61
PCC-Vivace	3	2.07	652.18	4.60
WebRTC media	3	0.80	96.22	0.08

Run 1: Statistics of TCP BBR

Start at: 2018-07-17 07:47:42

End at: 2018-07-17 07:48:12

Local clock offset: 2.501 ms

Remote clock offset: -3.976 ms

Below is generated by plot.py at 2018-07-17 08:37:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.30 Mbit/s

95th percentile per-packet one-way delay: 437.945 ms

Loss rate: 1.17%

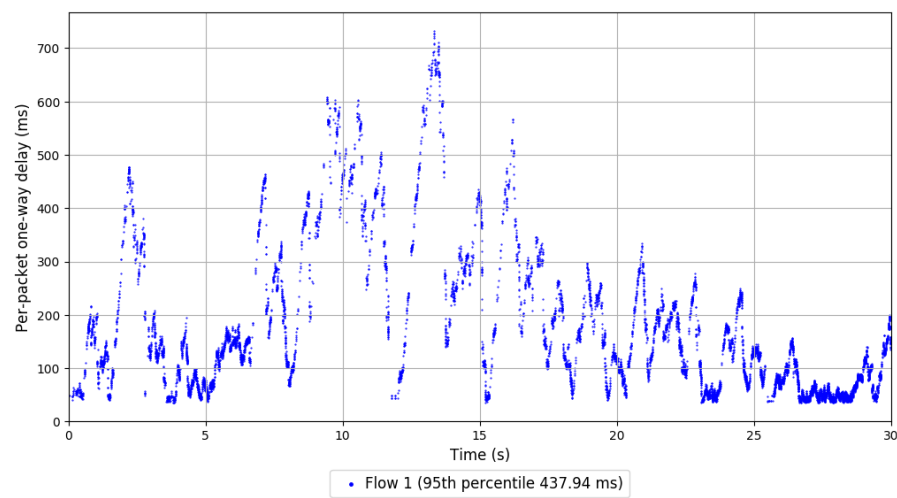
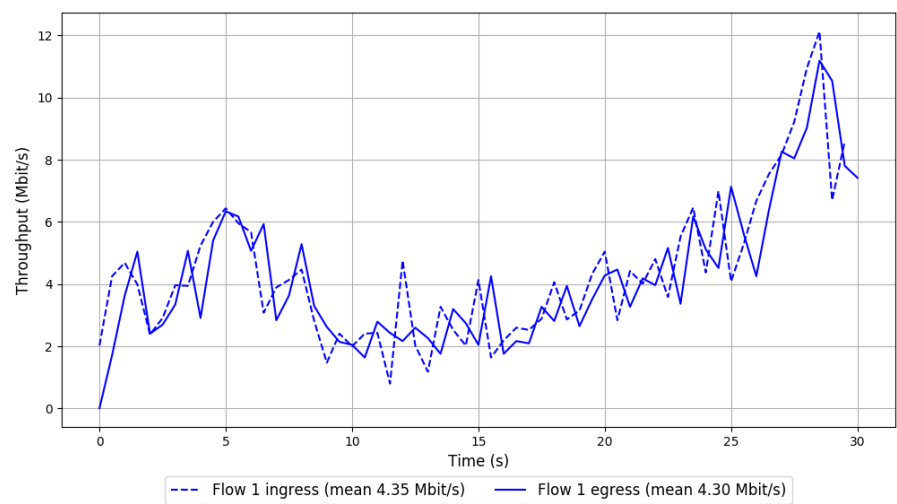
-- Flow 1:

Average throughput: 4.30 Mbit/s

95th percentile per-packet one-way delay: 437.945 ms

Loss rate: 1.17%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-07-17 08:06:05

End at: 2018-07-17 08:06:35

Local clock offset: 1.386 ms

Remote clock offset: -5.116 ms

Below is generated by plot.py at 2018-07-17 08:37:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.18 Mbit/s

95th percentile per-packet one-way delay: 418.683 ms

Loss rate: 1.20%

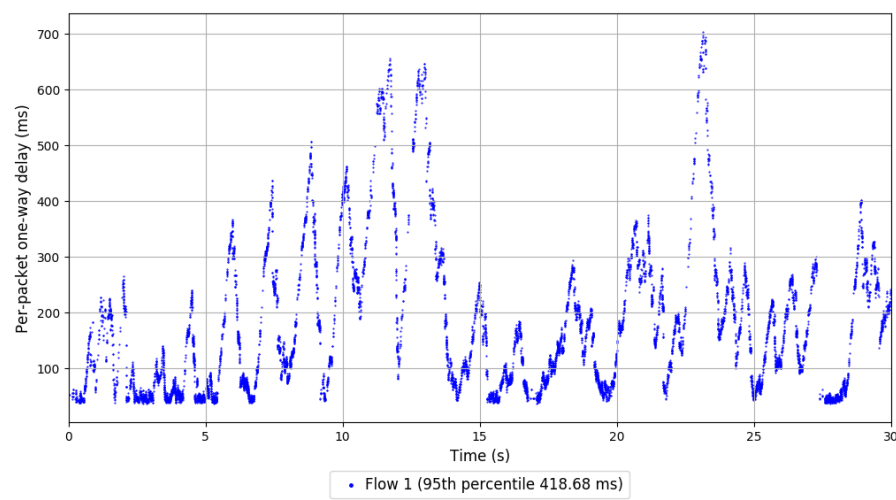
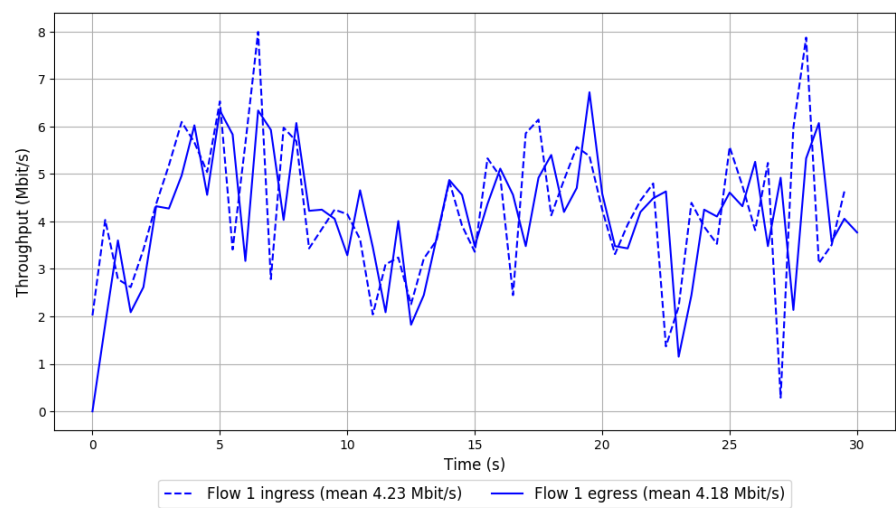
-- Flow 1:

Average throughput: 4.18 Mbit/s

95th percentile per-packet one-way delay: 418.683 ms

Loss rate: 1.20%

Run 2: Report of TCP BBR — Data Link

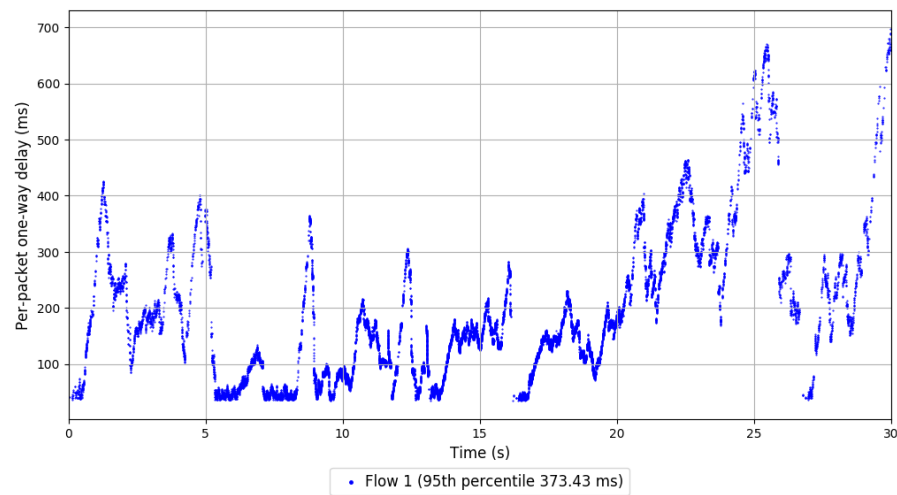
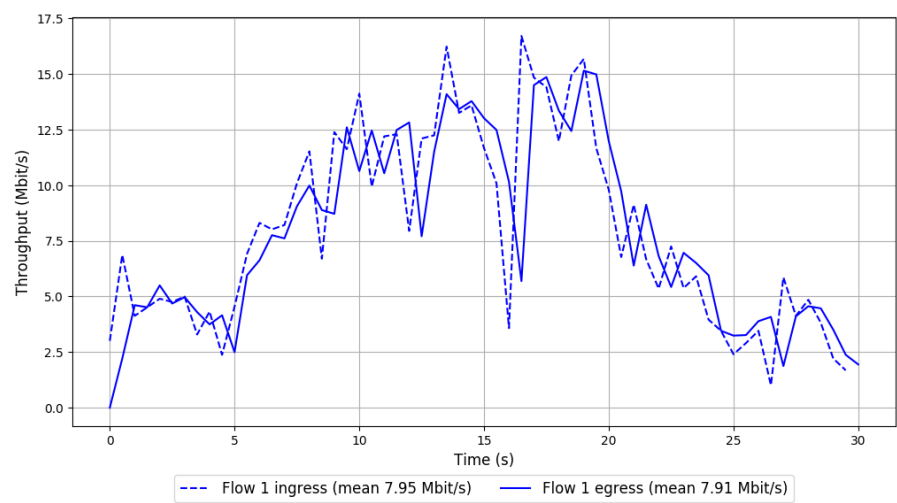


Run 3: Statistics of TCP BBR

Start at: 2018-07-17 08:24:26
End at: 2018-07-17 08:24:56
Local clock offset: -1.857 ms
Remote clock offset: -15.118 ms

Below is generated by plot.py at 2018-07-17 08:37:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 373.430 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 373.430 ms
Loss rate: 0.59%

Run 3: Report of TCP BBR — Data Link

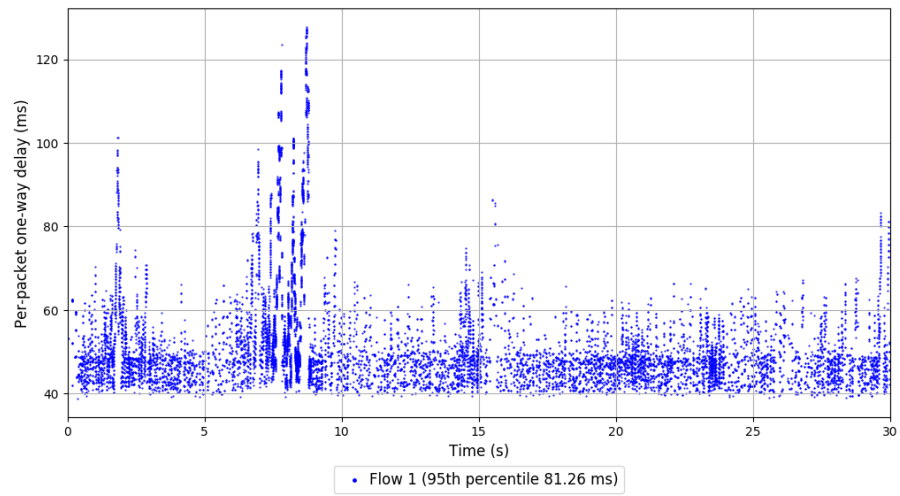
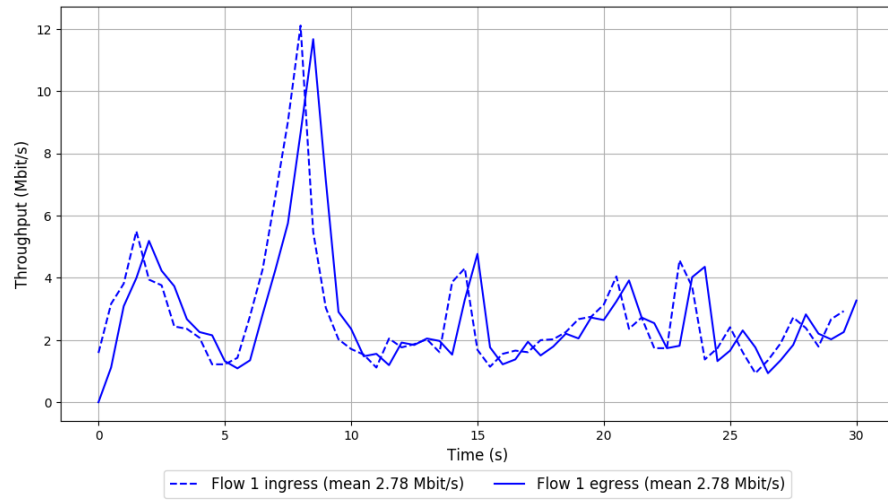


Run 1: Statistics of Copa

Start at: 2018-07-17 07:49:51
End at: 2018-07-17 07:50:21
Local clock offset: -0.705 ms
Remote clock offset: -2.256 ms

Below is generated by plot.py at 2018-07-17 08:37:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 81.260 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 81.260 ms
Loss rate: 0.09%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-07-17 08:08:14

End at: 2018-07-17 08:08:44

Local clock offset: 1.974 ms

Remote clock offset: -5.54 ms

Below is generated by plot.py at 2018-07-17 08:37:04

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 95.910 ms

Loss rate: 0.44%

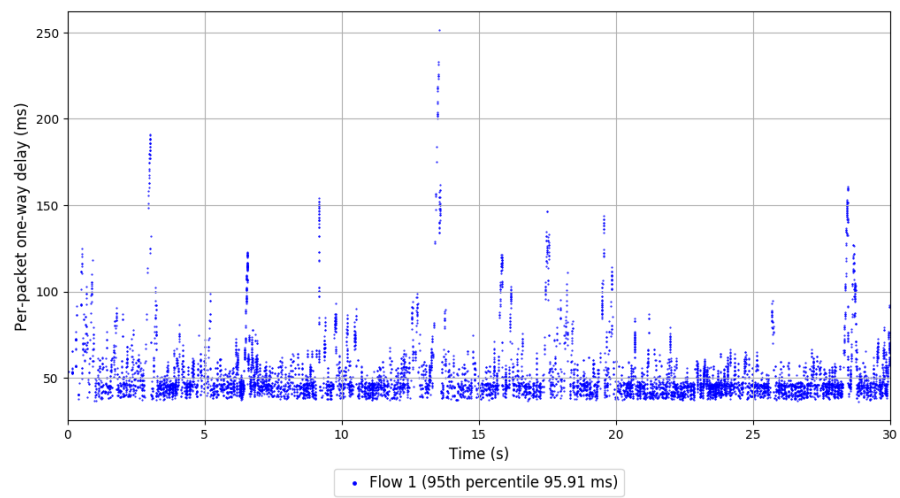
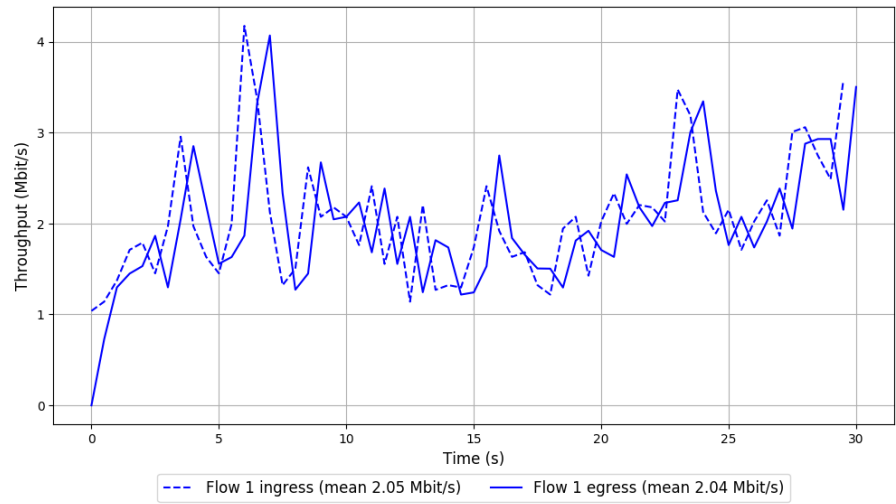
-- Flow 1:

Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 95.910 ms

Loss rate: 0.44%

Run 2: Report of Copa — Data Link

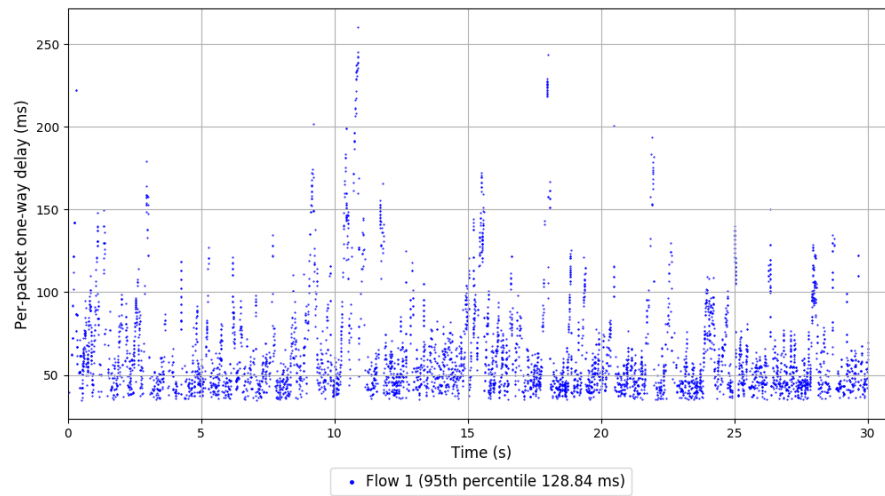
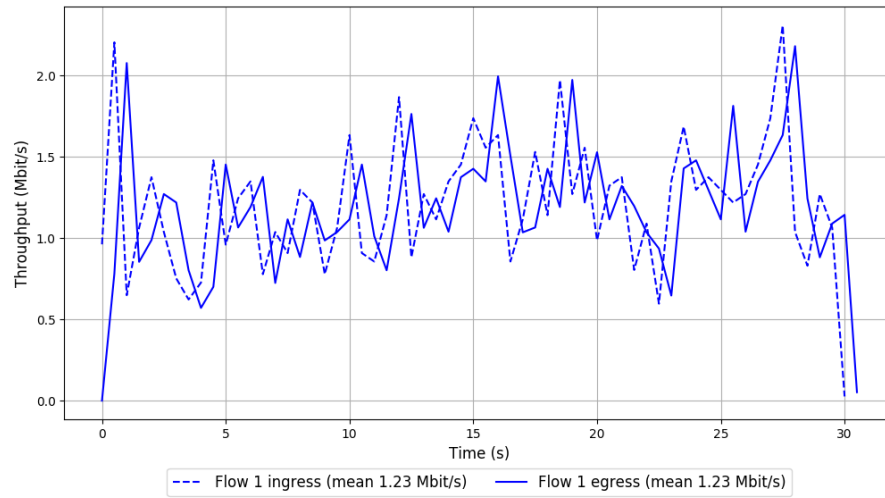


Run 3: Statistics of Copa

Start at: 2018-07-17 08:26:36
End at: 2018-07-17 08:27:06
Local clock offset: 3.566 ms
Remote clock offset: -8.822 ms

Below is generated by plot.py at 2018-07-17 08:37:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 128.841 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 128.841 ms
Loss rate: 0.17%

Run 3: Report of Copa — Data Link

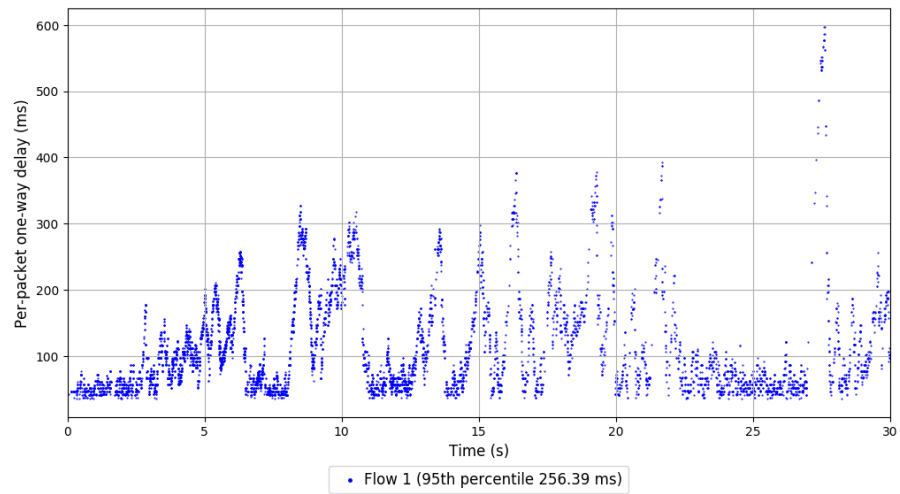
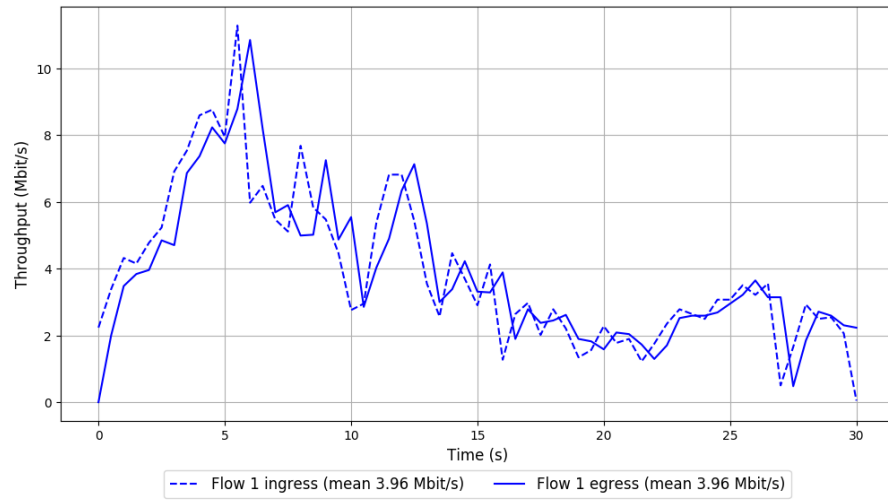


Run 1: Statistics of TCP Cubic

Start at: 2018-07-17 07:55:14
End at: 2018-07-17 07:55:44
Local clock offset: 2.453 ms
Remote clock offset: -2.778 ms

Below is generated by plot.py at 2018-07-17 08:37:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.96 Mbit/s
95th percentile per-packet one-way delay: 256.393 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 3.96 Mbit/s
95th percentile per-packet one-way delay: 256.393 ms
Loss rate: 0.40%

Run 1: Report of TCP Cubic — Data Link

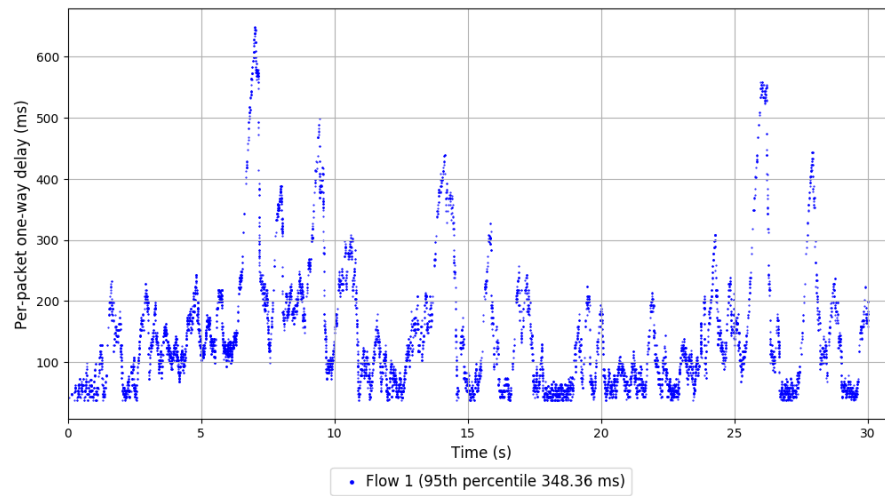
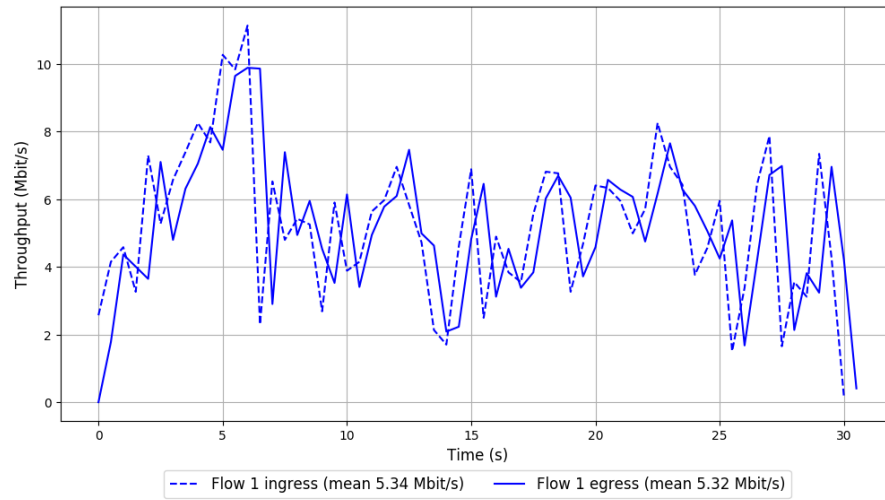


Run 2: Statistics of TCP Cubic

Start at: 2018-07-17 08:13:38
End at: 2018-07-17 08:14:08
Local clock offset: 1.469 ms
Remote clock offset: -8.564 ms

Below is generated by plot.py at 2018-07-17 08:37:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.32 Mbit/s
95th percentile per-packet one-way delay: 348.357 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 5.32 Mbit/s
95th percentile per-packet one-way delay: 348.357 ms
Loss rate: 0.39%

Run 2: Report of TCP Cubic — Data Link

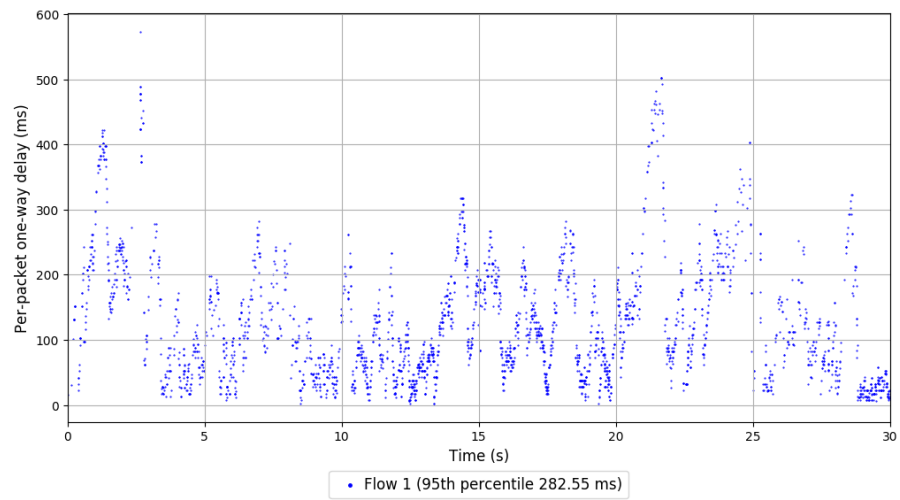
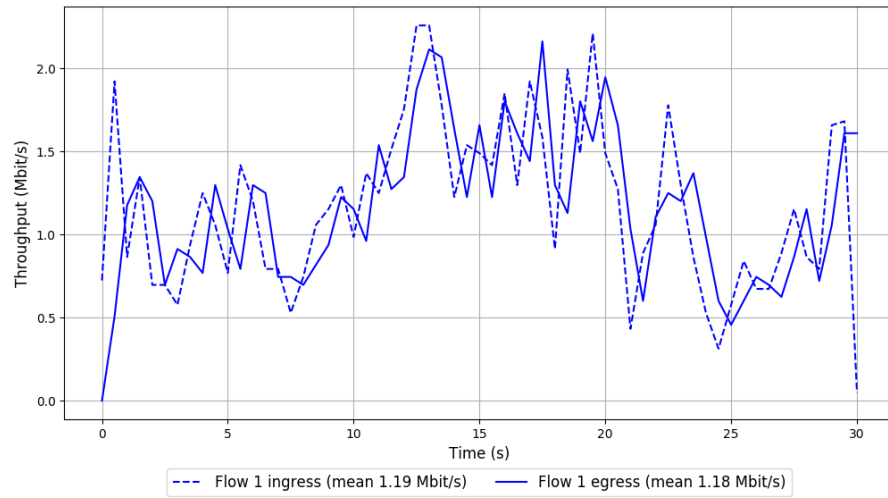


Run 3: Statistics of TCP Cubic

Start at: 2018-07-17 08:31:58
End at: 2018-07-17 08:32:28
Local clock offset: 5.514 ms
Remote clock offset: -43.291 ms

Below is generated by plot.py at 2018-07-17 08:37:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 282.553 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 282.553 ms
Loss rate: 0.87%

Run 3: Report of TCP Cubic — Data Link

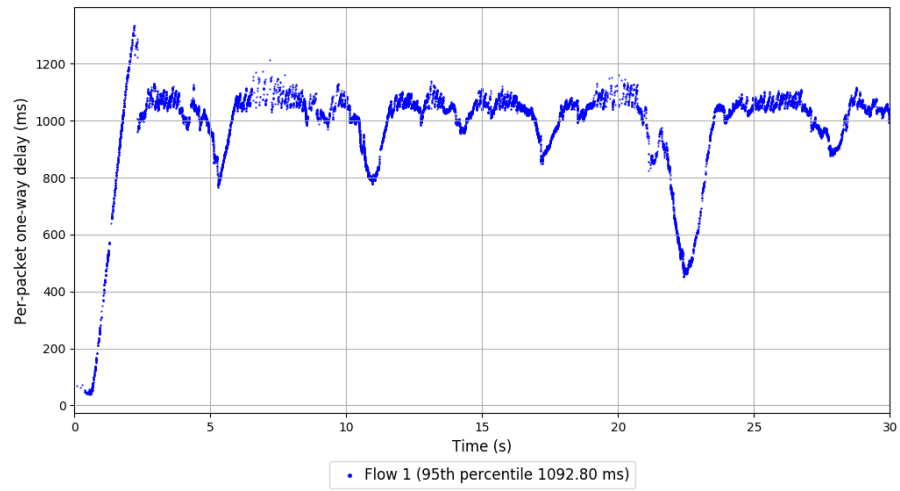
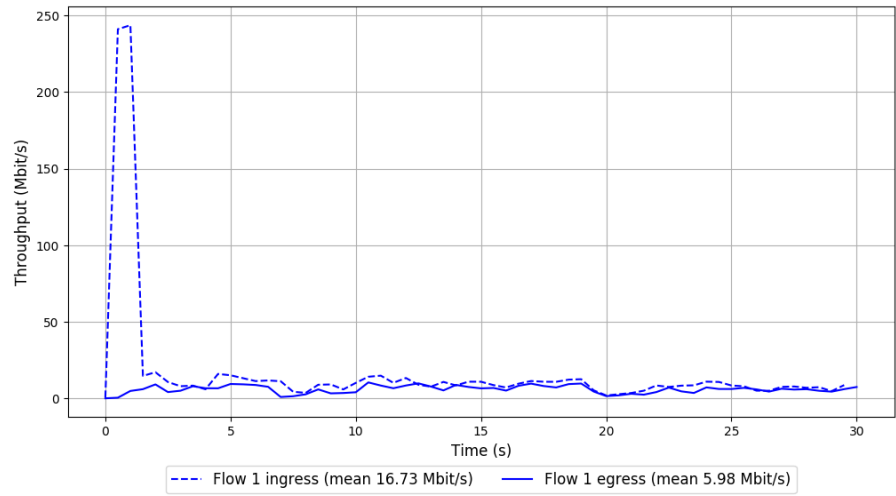


Run 1: Statistics of FillP

Start at: 2018-07-17 07:52:00
End at: 2018-07-17 07:52:30
Local clock offset: 0.833 ms
Remote clock offset: -2.369 ms

Below is generated by plot.py at 2018-07-17 08:37:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.98 Mbit/s
95th percentile per-packet one-way delay: 1092.801 ms
Loss rate: 64.32%
-- Flow 1:
Average throughput: 5.98 Mbit/s
95th percentile per-packet one-way delay: 1092.801 ms
Loss rate: 64.32%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-07-17 08:10:23

End at: 2018-07-17 08:10:53

Local clock offset: 2.32 ms

Remote clock offset: -6.3 ms

Below is generated by plot.py at 2018-07-17 08:37:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.95 Mbit/s

95th percentile per-packet one-way delay: 1091.128 ms

Loss rate: 42.99%

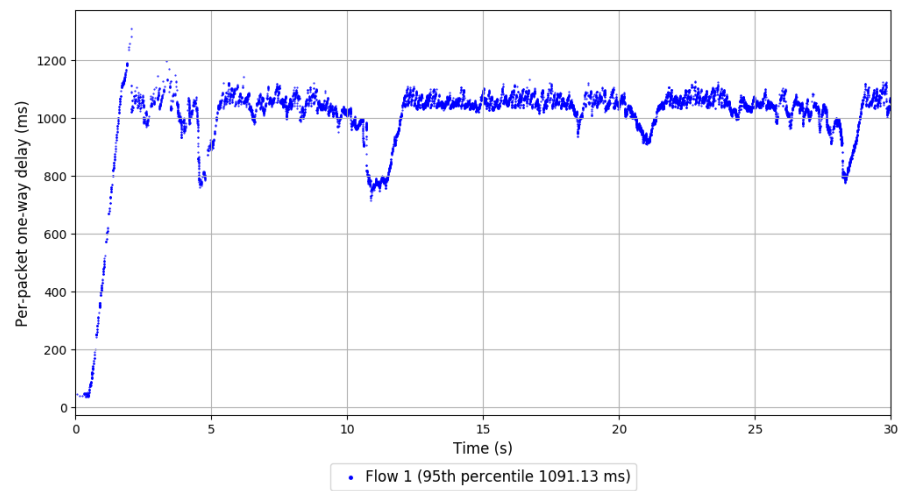
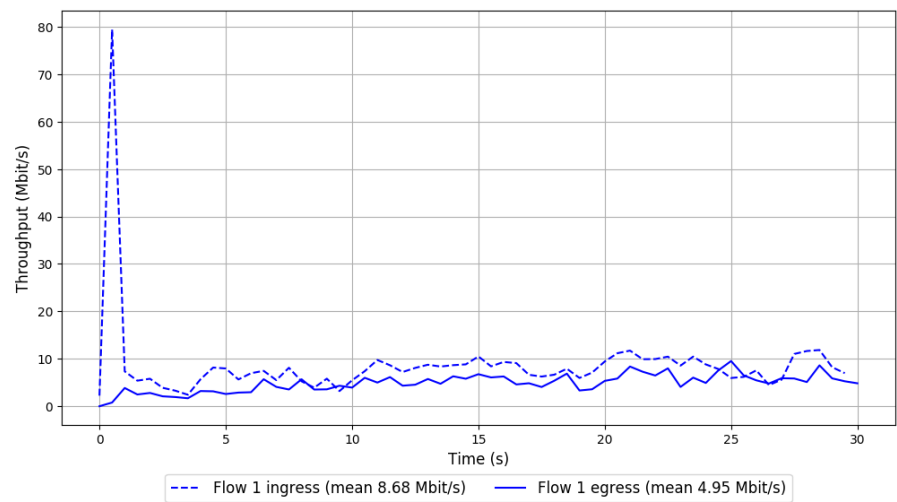
-- Flow 1:

Average throughput: 4.95 Mbit/s

95th percentile per-packet one-way delay: 1091.128 ms

Loss rate: 42.99%

Run 2: Report of FillP — Data Link

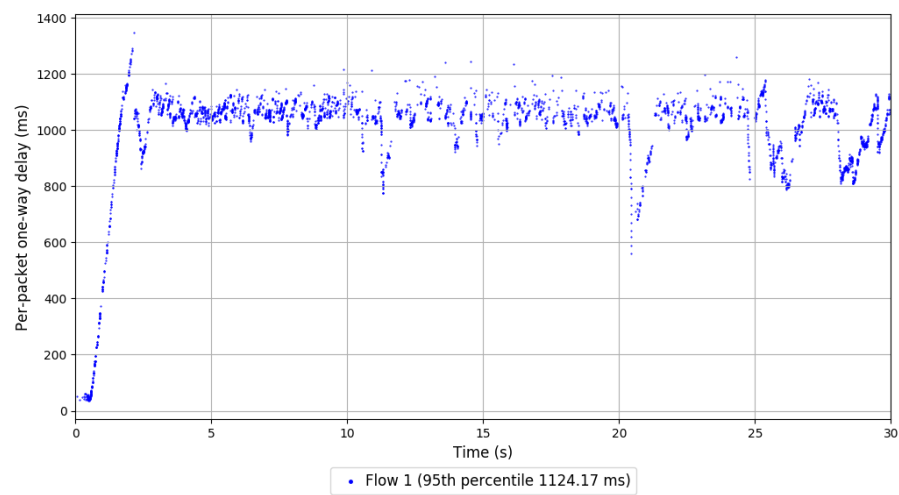
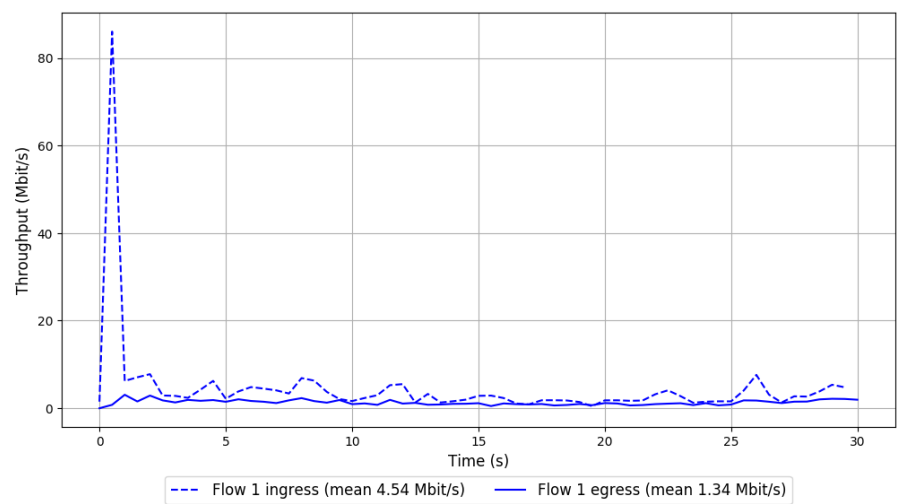


Run 3: Statistics of FillP

Start at: 2018-07-17 08:28:45
End at: 2018-07-17 08:29:15
Local clock offset: 4.361 ms
Remote clock offset: -9.985 ms

Below is generated by plot.py at 2018-07-17 08:37:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 1124.168 ms
Loss rate: 70.43%
-- Flow 1:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 1124.168 ms
Loss rate: 70.43%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-07-17 07:43:24

End at: 2018-07-17 07:43:54

Local clock offset: 2.436 ms

Remote clock offset: -3.807 ms

Below is generated by plot.py at 2018-07-17 08:37:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.83 Mbit/s

95th percentile per-packet one-way delay: 462.297 ms

Loss rate: 0.63%

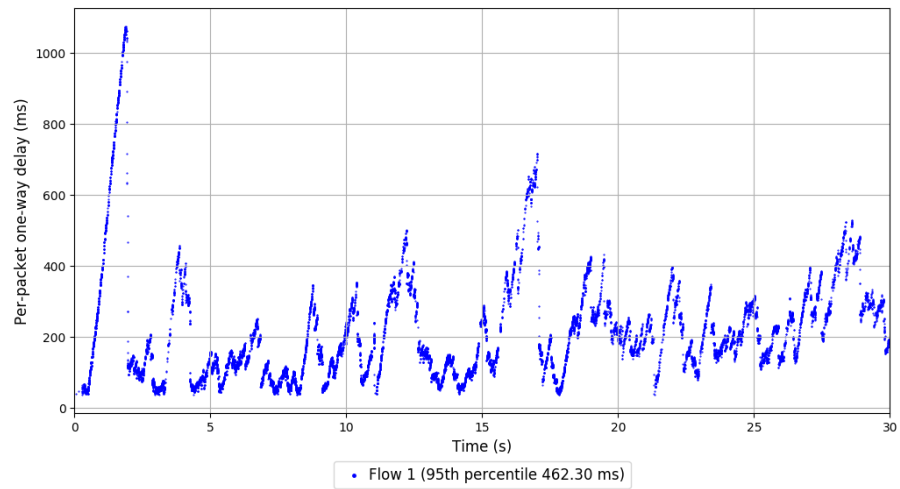
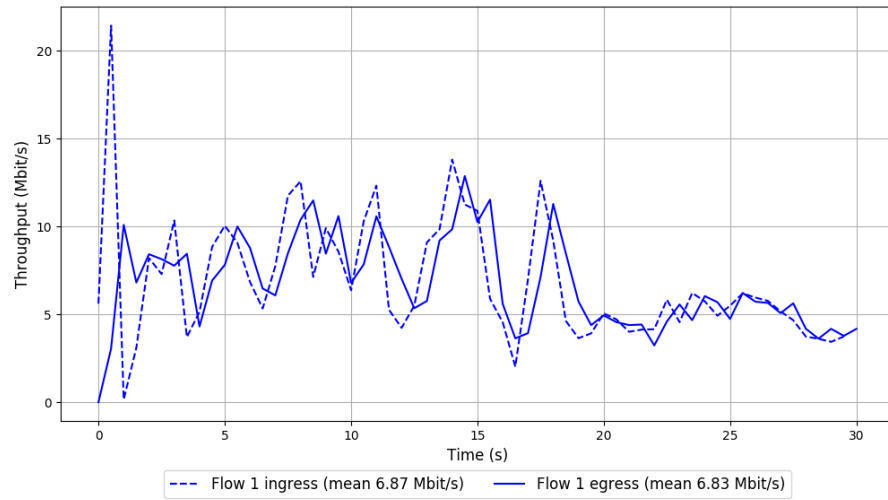
-- Flow 1:

Average throughput: 6.83 Mbit/s

95th percentile per-packet one-way delay: 462.297 ms

Loss rate: 0.63%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-07-17 08:01:47

End at: 2018-07-17 08:02:17

Local clock offset: 1.522 ms

Remote clock offset: -2.439 ms

Below is generated by plot.py at 2018-07-17 08:37:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.64 Mbit/s

95th percentile per-packet one-way delay: 1058.359 ms

Loss rate: 18.15%

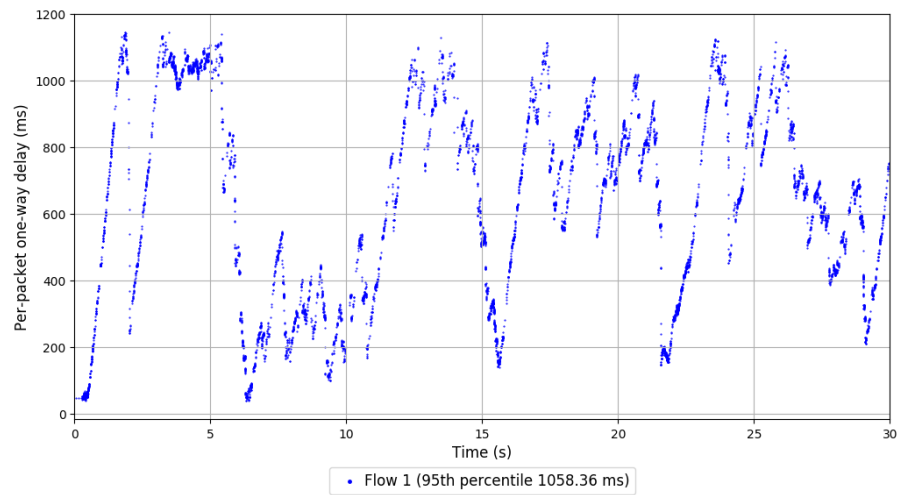
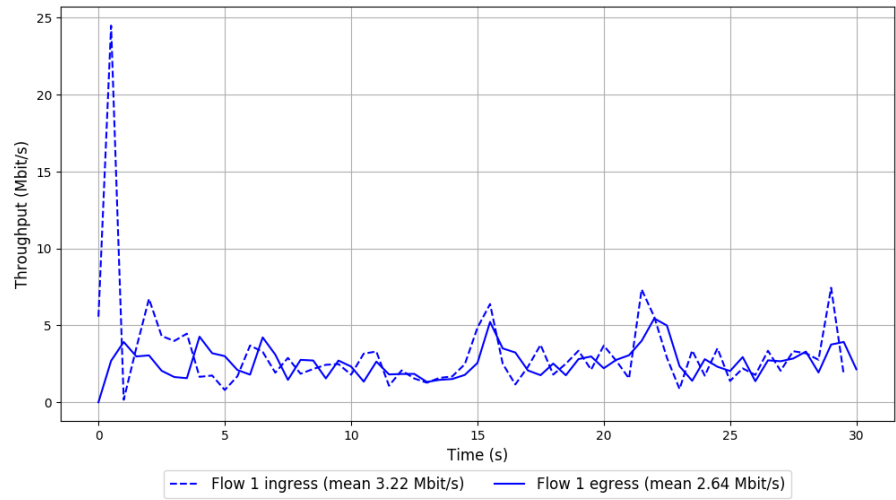
-- Flow 1:

Average throughput: 2.64 Mbit/s

95th percentile per-packet one-way delay: 1058.359 ms

Loss rate: 18.15%

Run 2: Report of FillP-Sheep — Data Link

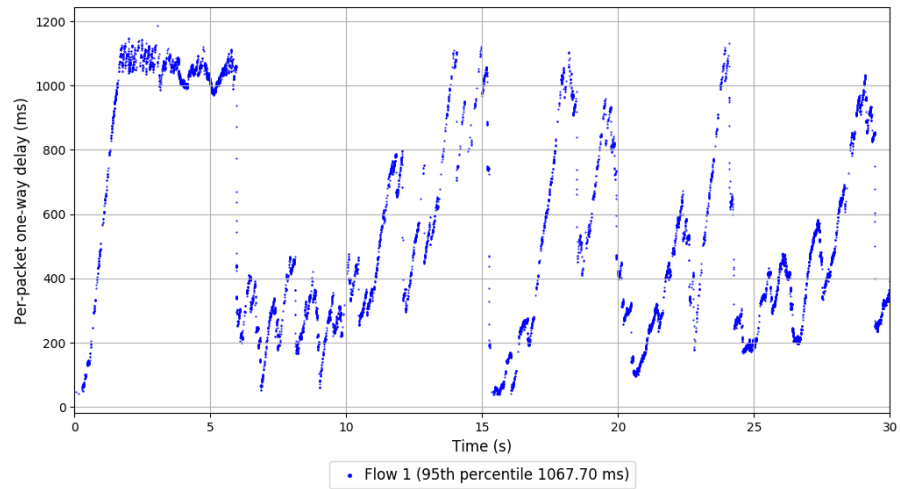
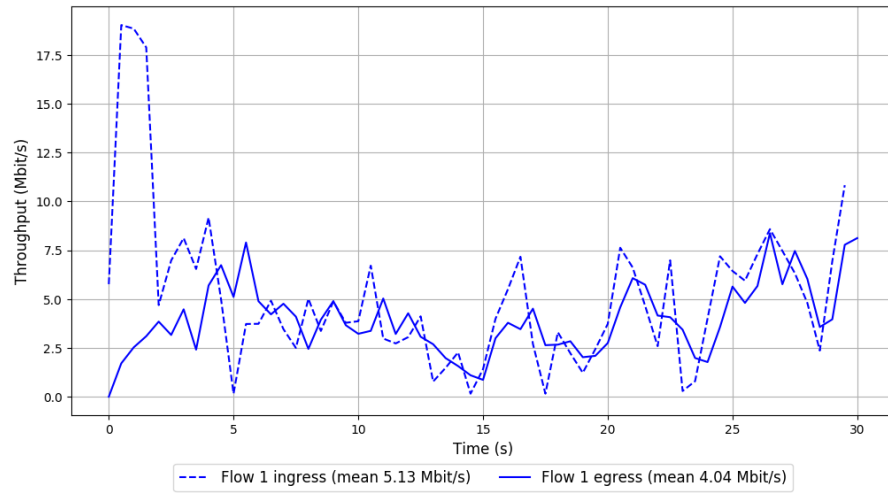


Run 3: Statistics of FillP-Sheep

Start at: 2018-07-17 08:20:07
End at: 2018-07-17 08:20:37
Local clock offset: 2.326 ms
Remote clock offset: -8.114 ms

Below is generated by plot.py at 2018-07-17 08:37:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.04 Mbit/s
95th percentile per-packet one-way delay: 1067.704 ms
Loss rate: 21.15%
-- Flow 1:
Average throughput: 4.04 Mbit/s
95th percentile per-packet one-way delay: 1067.704 ms
Loss rate: 21.15%

Run 3: Report of FillP-Sheep — Data Link

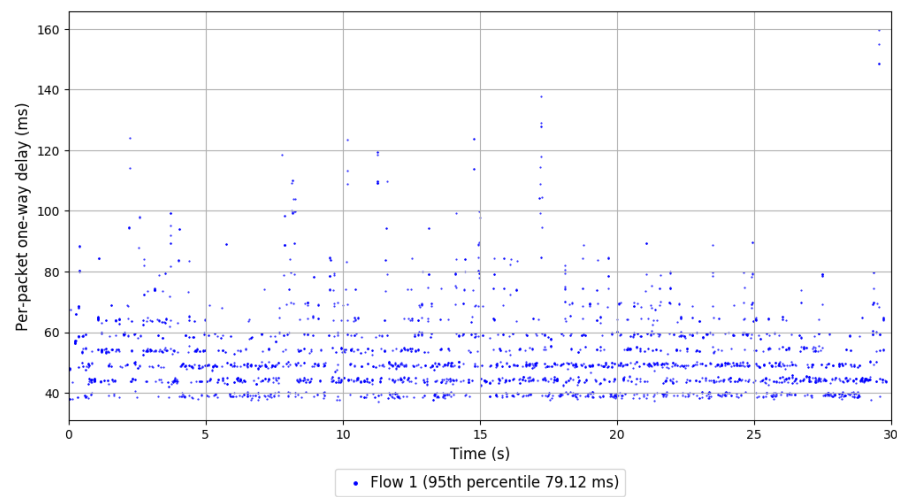
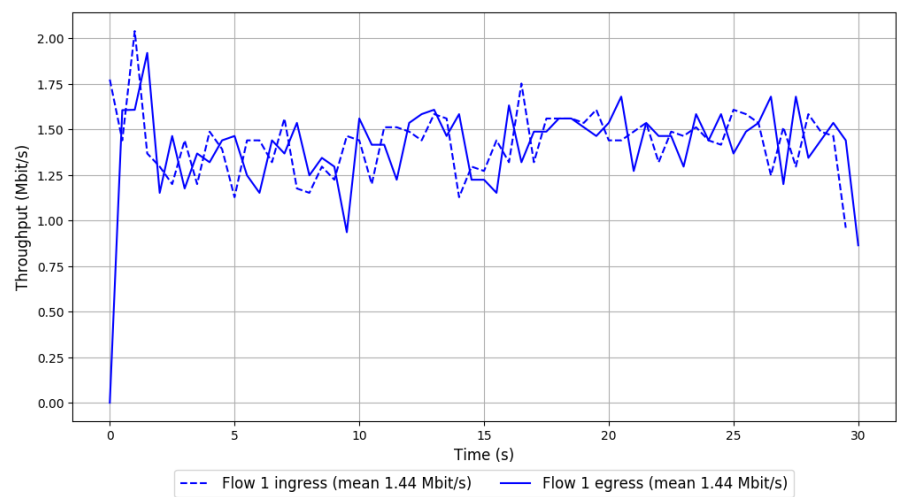


```
Run 1: Statistics of Indigo

Start at: 2018-07-17 07:48:47
End at: 2018-07-17 07:49:17
Local clock offset: 2.51 ms
Remote clock offset: -3.03 ms

# Below is generated by plot.py at 2018-07-17 08:37:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 79.119 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 79.119 ms
Loss rate: 0.25%
```

Run 1: Report of Indigo — Data Link

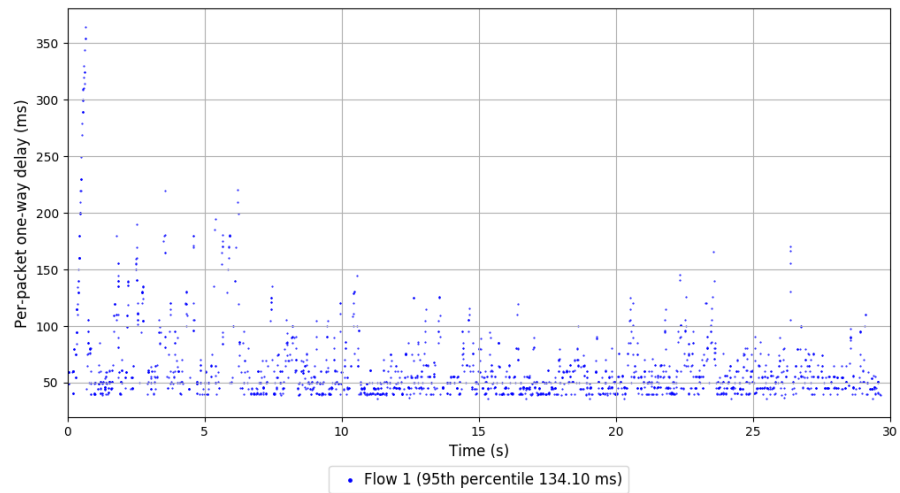
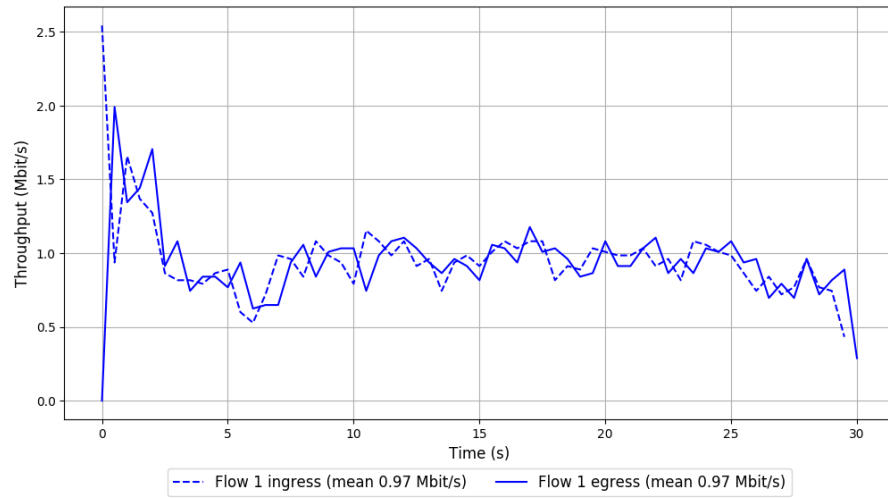


Run 2: Statistics of Indigo

Start at: 2018-07-17 08:07:10
End at: 2018-07-17 08:07:40
Local clock offset: 2.664 ms
Remote clock offset: -5.788 ms

Below is generated by plot.py at 2018-07-17 08:37:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 134.105 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 134.105 ms
Loss rate: 0.38%

Run 2: Report of Indigo — Data Link

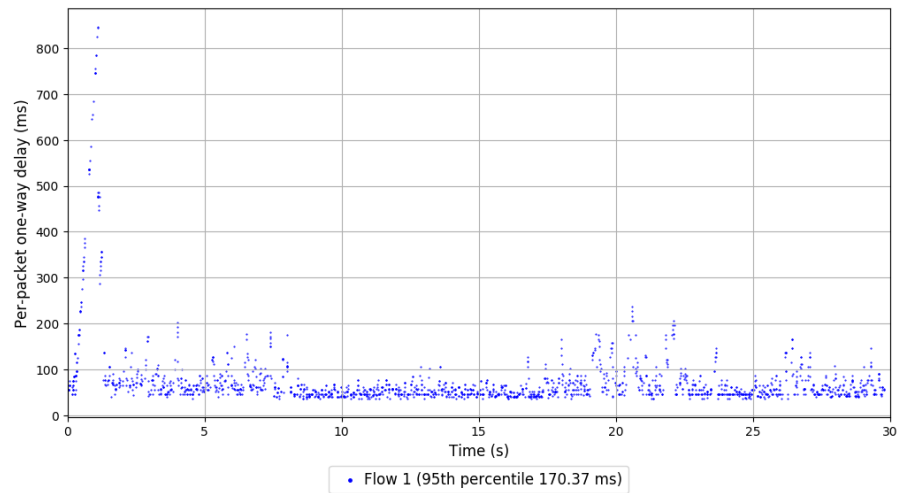
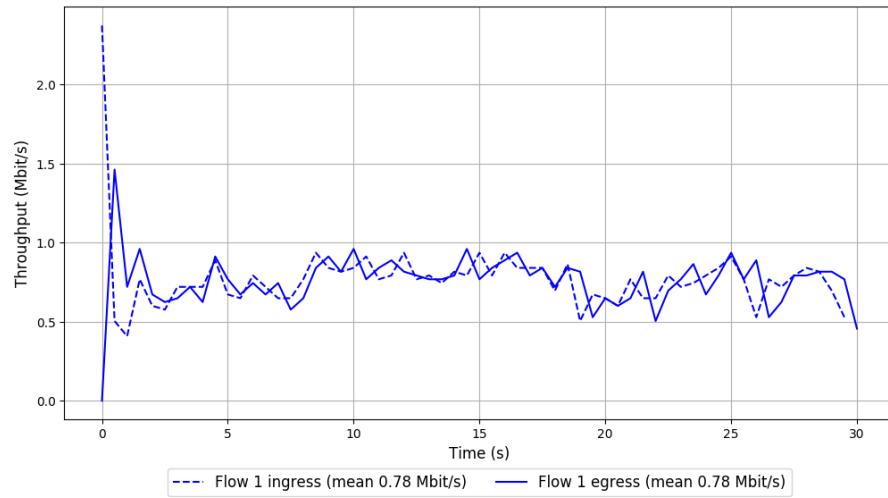


Run 3: Statistics of Indigo

Start at: 2018-07-17 08:25:31
End at: 2018-07-17 08:26:01
Local clock offset: 2.503 ms
Remote clock offset: -9.477 ms

Below is generated by plot.py at 2018-07-17 08:37:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 170.370 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 170.370 ms
Loss rate: 0.36%

Run 3: Report of Indigo — Data Link

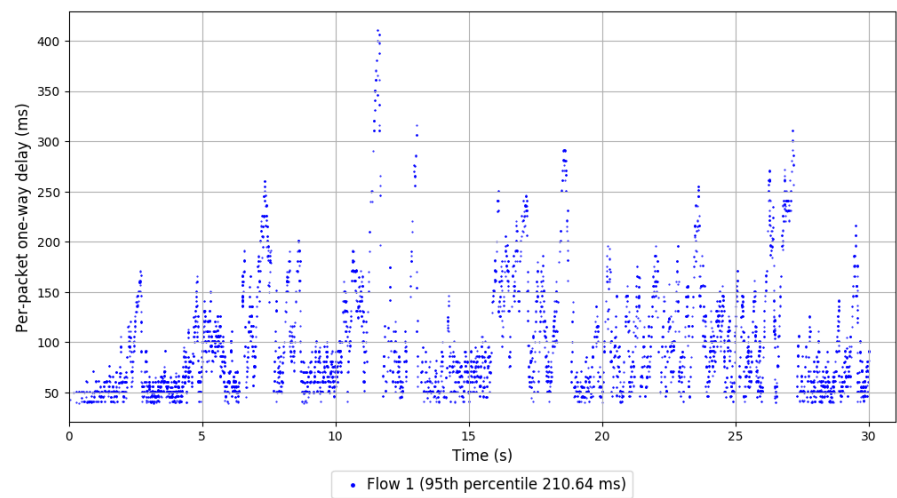
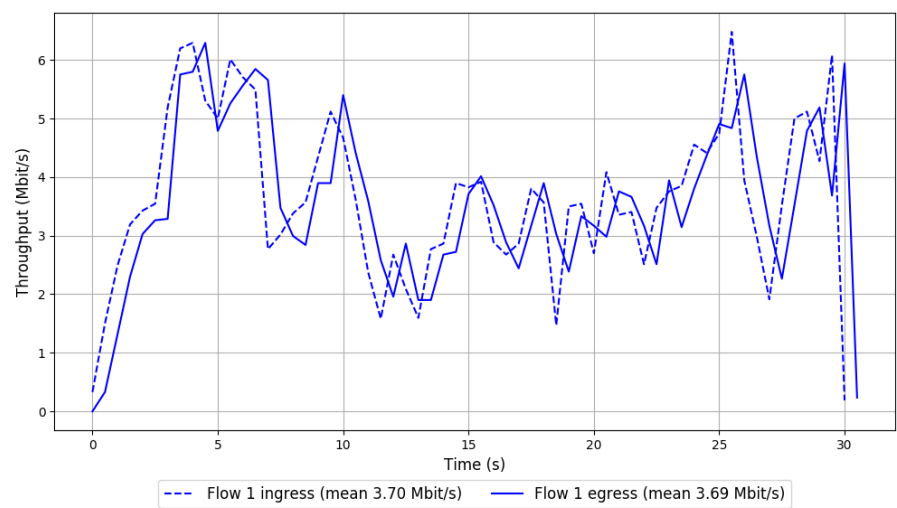


Run 1: Statistics of LEDBAT

Start at: 2018-07-17 07:44:29
End at: 2018-07-17 07:44:59
Local clock offset: -0.562 ms
Remote clock offset: -3.809 ms

Below is generated by plot.py at 2018-07-17 08:37:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.69 Mbit/s
95th percentile per-packet one-way delay: 210.642 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 3.69 Mbit/s
95th percentile per-packet one-way delay: 210.642 ms
Loss rate: 0.58%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-07-17 08:02:51

End at: 2018-07-17 08:03:21

Local clock offset: 1.859 ms

Remote clock offset: -2.39 ms

Below is generated by plot.py at 2018-07-17 08:37:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.52 Mbit/s

95th percentile per-packet one-way delay: 225.861 ms

Loss rate: 0.49%

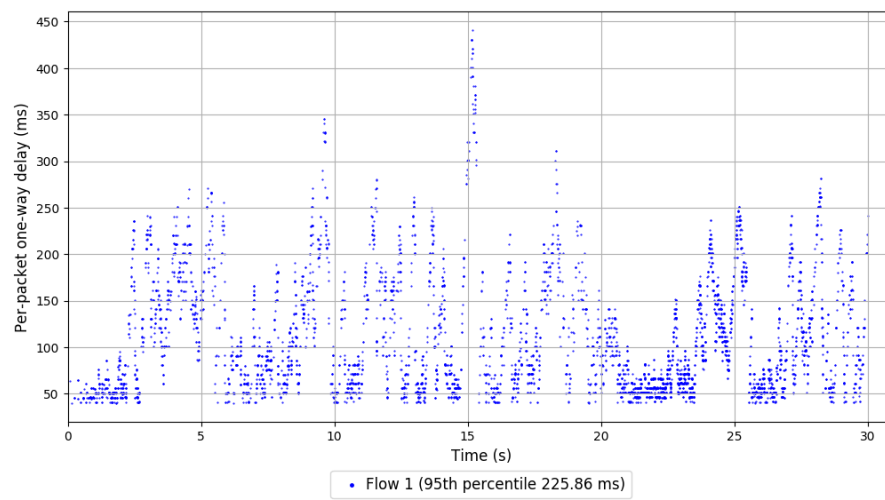
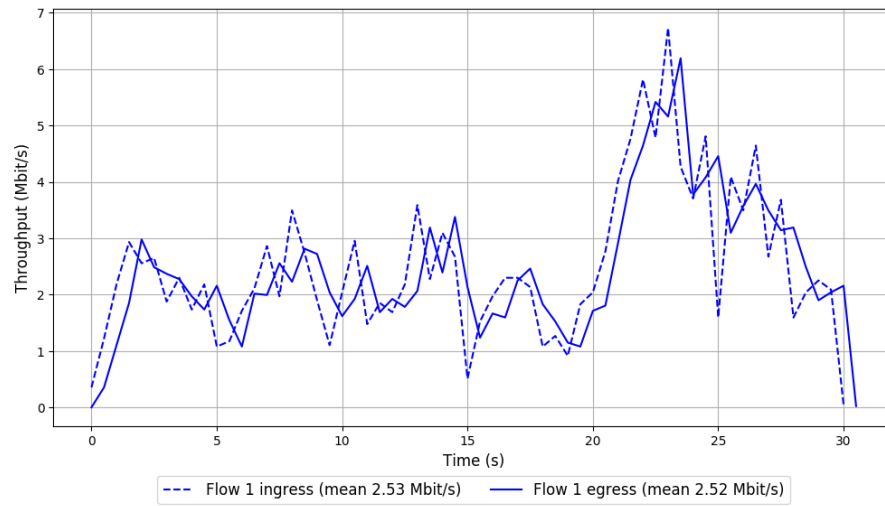
-- Flow 1:

Average throughput: 2.52 Mbit/s

95th percentile per-packet one-way delay: 225.861 ms

Loss rate: 0.49%

Run 2: Report of LEDBAT — Data Link

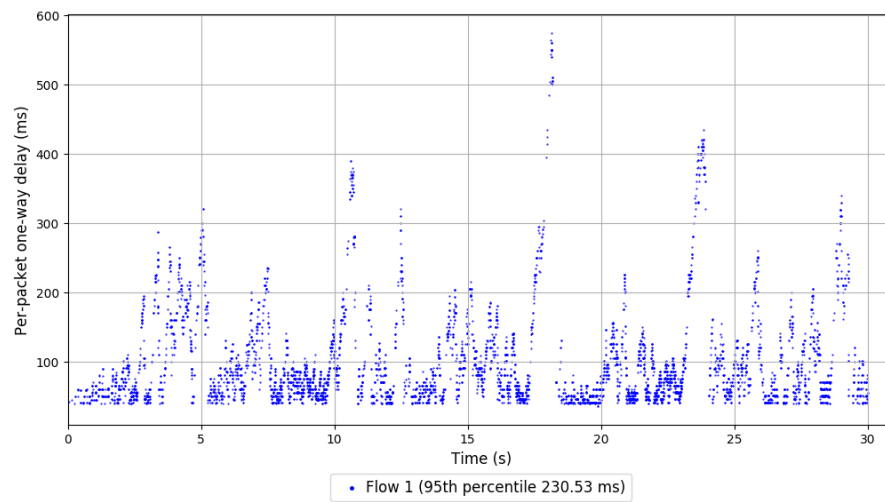
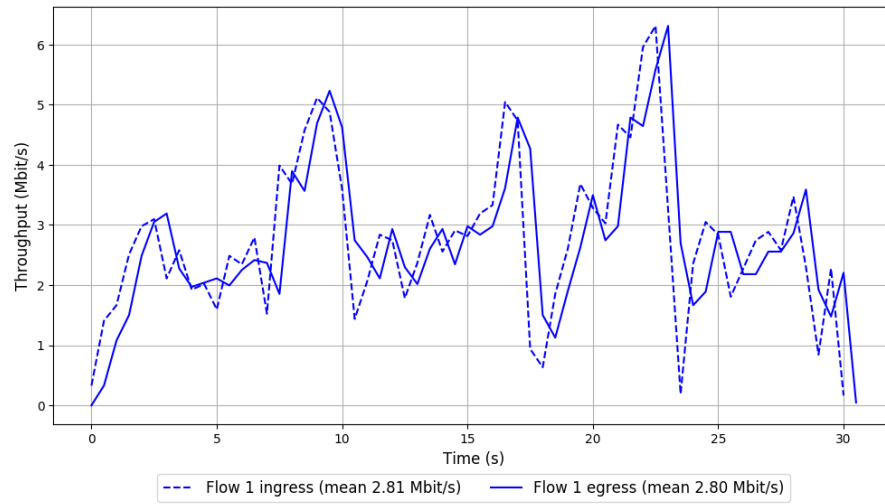


Run 3: Statistics of LEDBAT

Start at: 2018-07-17 08:21:12
End at: 2018-07-17 08:21:42
Local clock offset: 3.68 ms
Remote clock offset: -7.859 ms

Below is generated by plot.py at 2018-07-17 08:37:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.80 Mbit/s
95th percentile per-packet one-way delay: 230.530 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 2.80 Mbit/s
95th percentile per-packet one-way delay: 230.530 ms
Loss rate: 0.29%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-07-17 07:57:28

End at: 2018-07-17 07:57:58

Local clock offset: 1.659 ms

Remote clock offset: -1.674 ms

Below is generated by plot.py at 2018-07-17 08:37:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.60 Mbit/s

95th percentile per-packet one-way delay: 1101.183 ms

Loss rate: 47.15%

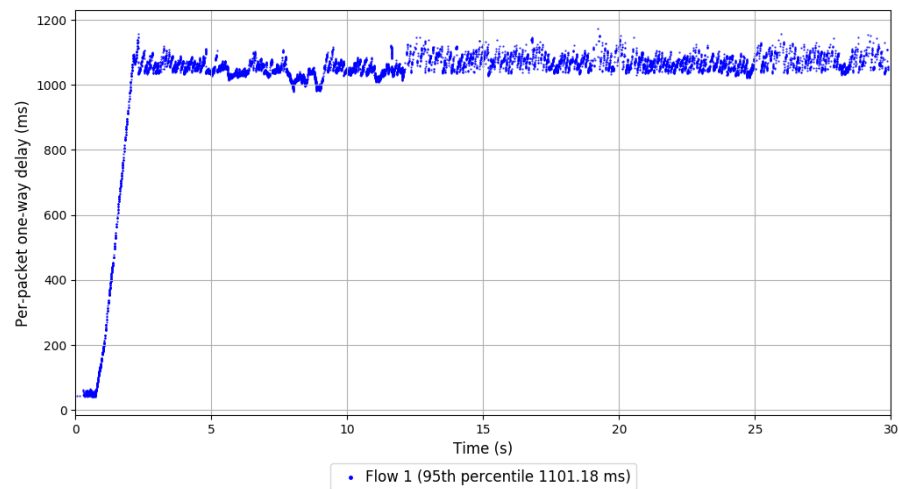
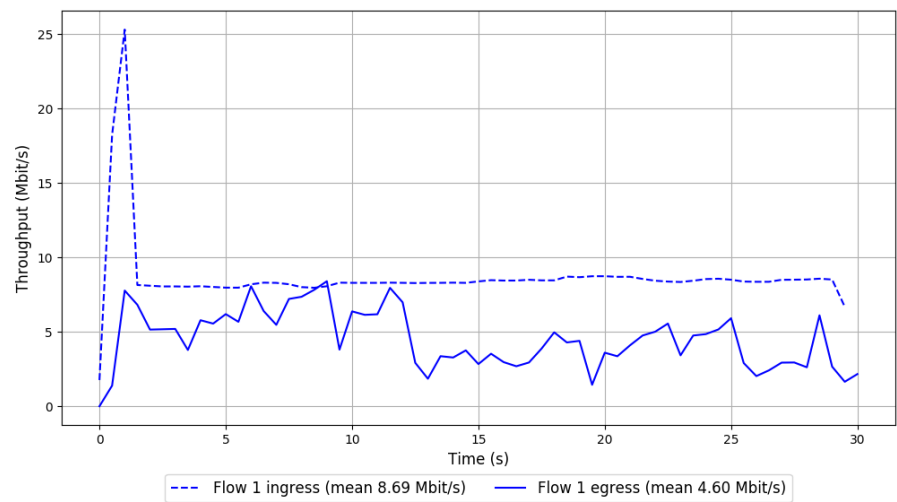
-- Flow 1:

Average throughput: 4.60 Mbit/s

95th percentile per-packet one-way delay: 1101.183 ms

Loss rate: 47.15%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-07-17 08:15:48

End at: 2018-07-17 08:16:18

Local clock offset: 3.58 ms

Remote clock offset: -8.276 ms

Below is generated by plot.py at 2018-07-17 08:37:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 118.593 ms

Loss rate: 0.15%

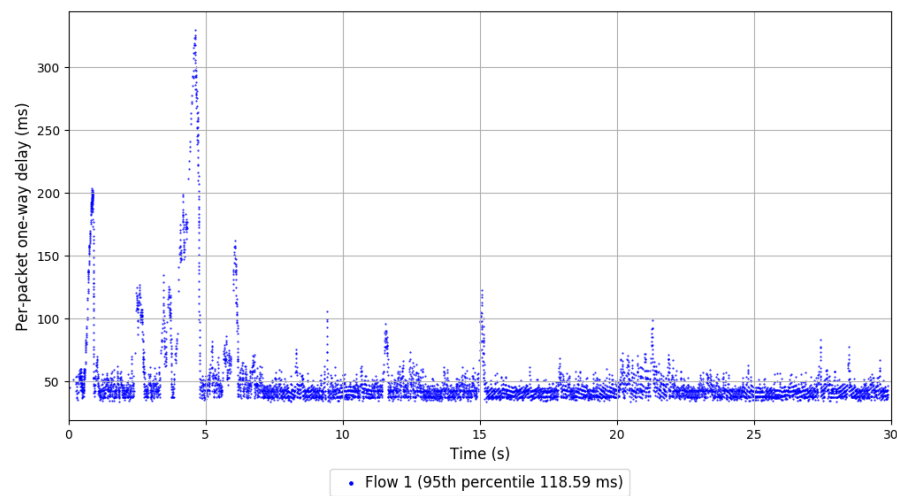
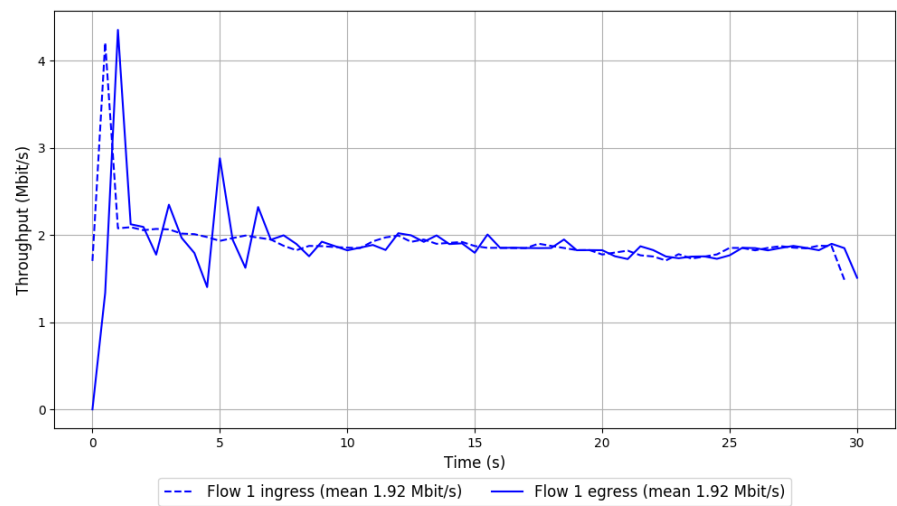
-- Flow 1:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 118.593 ms

Loss rate: 0.15%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-07-17 08:34:07

End at: 2018-07-17 08:34:37

Local clock offset: 2.545 ms

Remote clock offset: -9.53 ms

Below is generated by plot.py at 2018-07-17 08:37:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.12 Mbit/s

95th percentile per-packet one-way delay: 73.768 ms

Loss rate: 0.13%

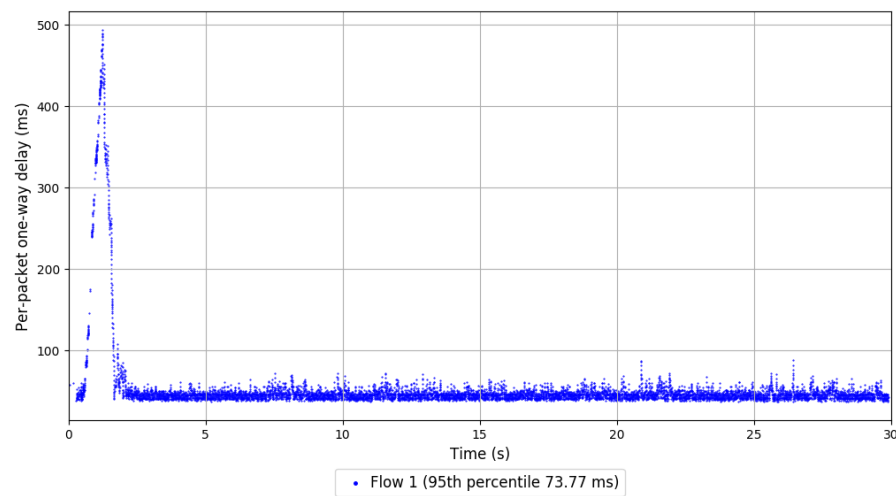
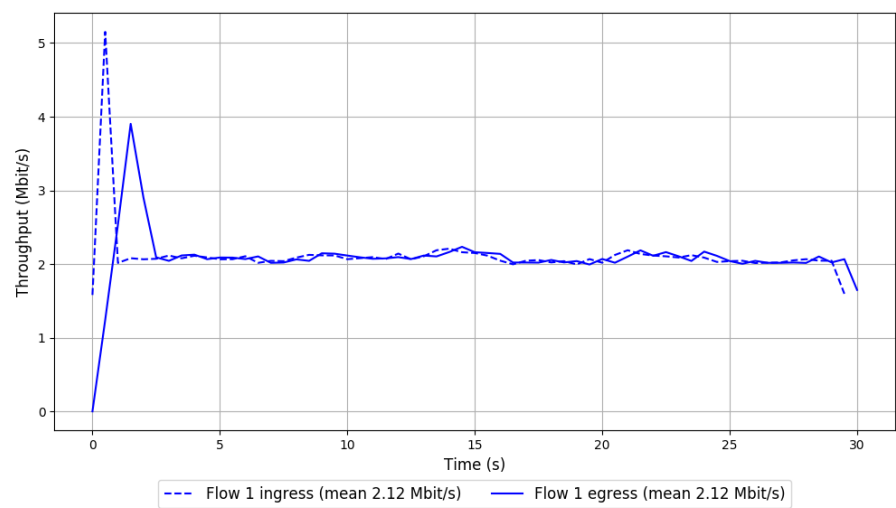
-- Flow 1:

Average throughput: 2.12 Mbit/s

95th percentile per-packet one-way delay: 73.768 ms

Loss rate: 0.13%

Run 3: Report of PCC-Allegro — Data Link

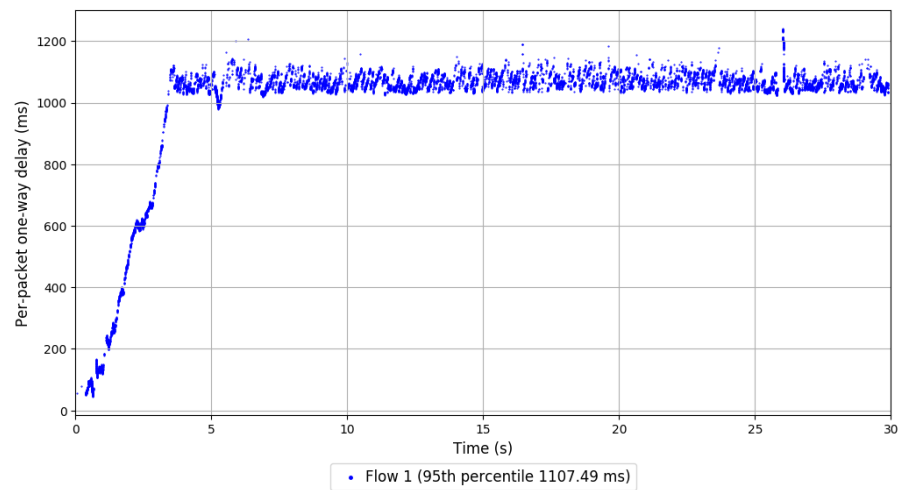
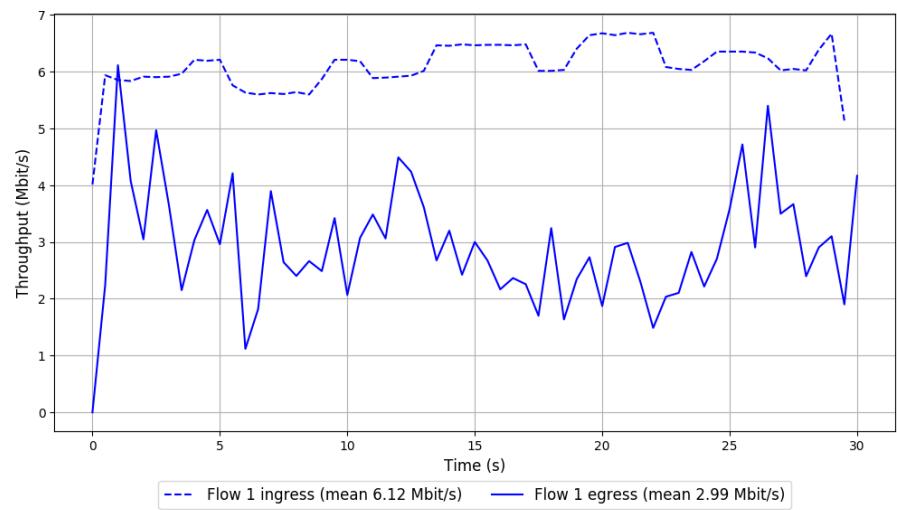


```
Run 1: Statistics of PCC-Expr

Start at: 2018-07-17 07:45:33
End at: 2018-07-17 07:46:03
Local clock offset: 1.64 ms
Remote clock offset: -3.927 ms

# Below is generated by plot.py at 2018-07-17 08:37:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 1107.491 ms
Loss rate: 51.20%
-- Flow 1:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 1107.491 ms
Loss rate: 51.20%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-07-17 08:03:56

End at: 2018-07-17 08:04:26

Local clock offset: 1.862 ms

Remote clock offset: -2.981 ms

Below is generated by plot.py at 2018-07-17 08:37:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.44 Mbit/s

95th percentile per-packet one-way delay: 1086.807 ms

Loss rate: 23.55%

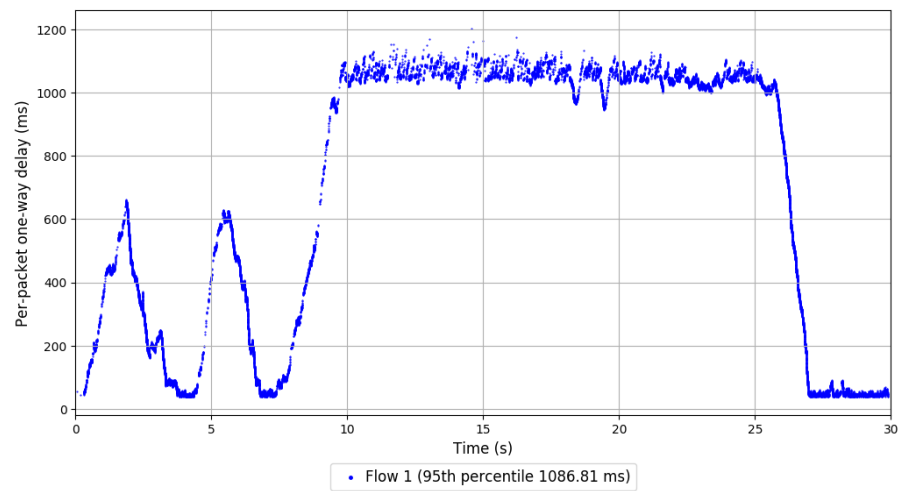
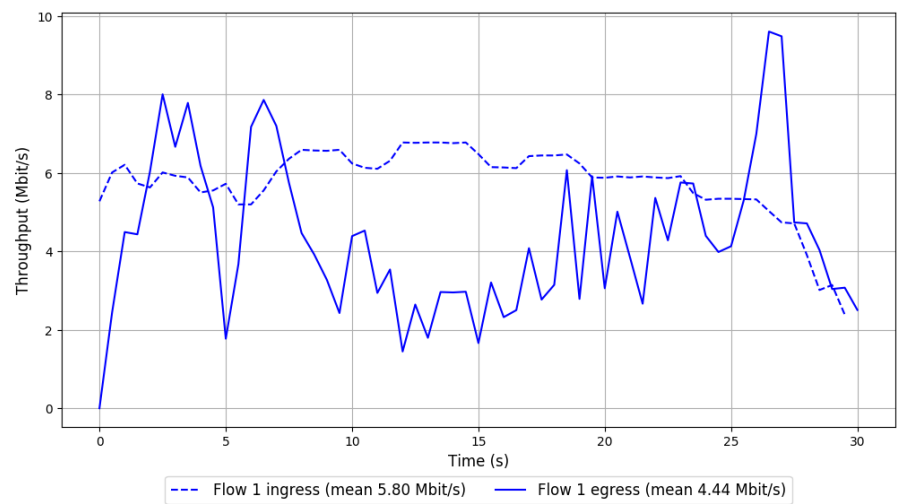
-- Flow 1:

Average throughput: 4.44 Mbit/s

95th percentile per-packet one-way delay: 1086.807 ms

Loss rate: 23.55%

Run 2: Report of PCC-Expr — Data Link

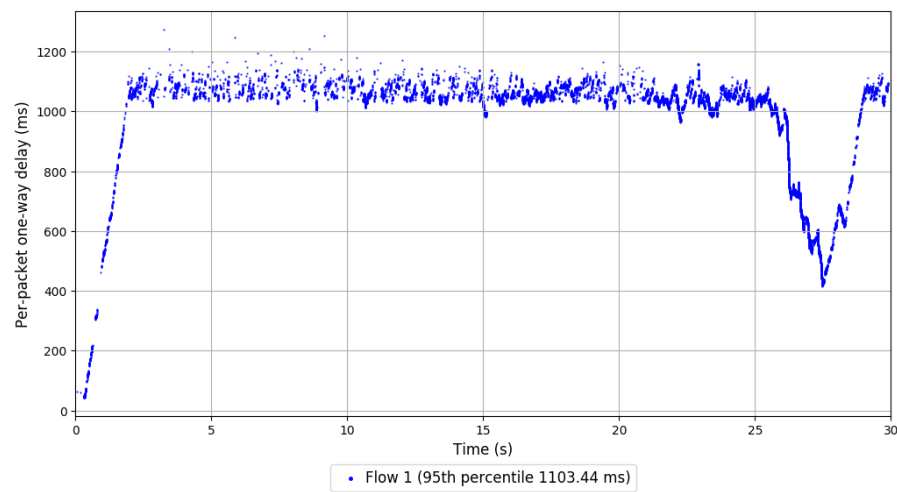
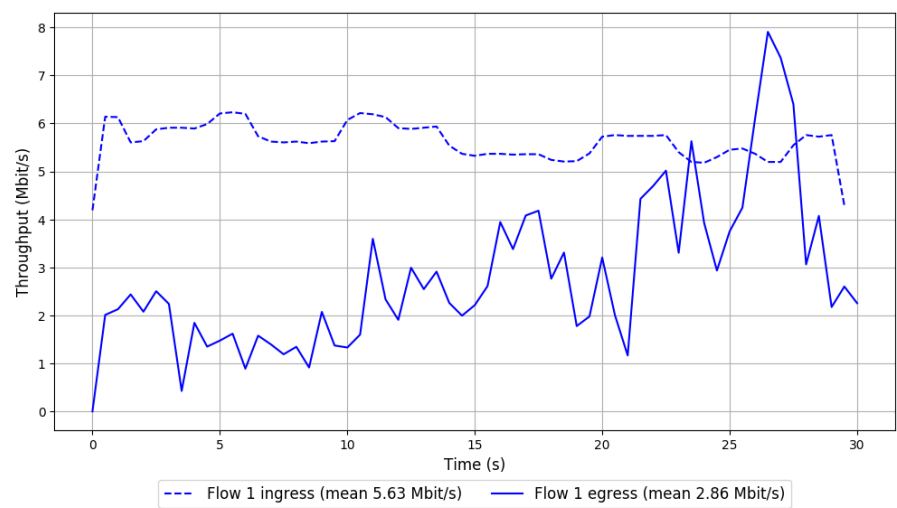


Run 3: Statistics of PCC-Expr

Start at: 2018-07-17 08:22:16
End at: 2018-07-17 08:22:46
Local clock offset: 2.541 ms
Remote clock offset: -8.863 ms

Below is generated by plot.py at 2018-07-17 08:37:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 1103.437 ms
Loss rate: 49.30%
-- Flow 1:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 1103.437 ms
Loss rate: 49.30%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

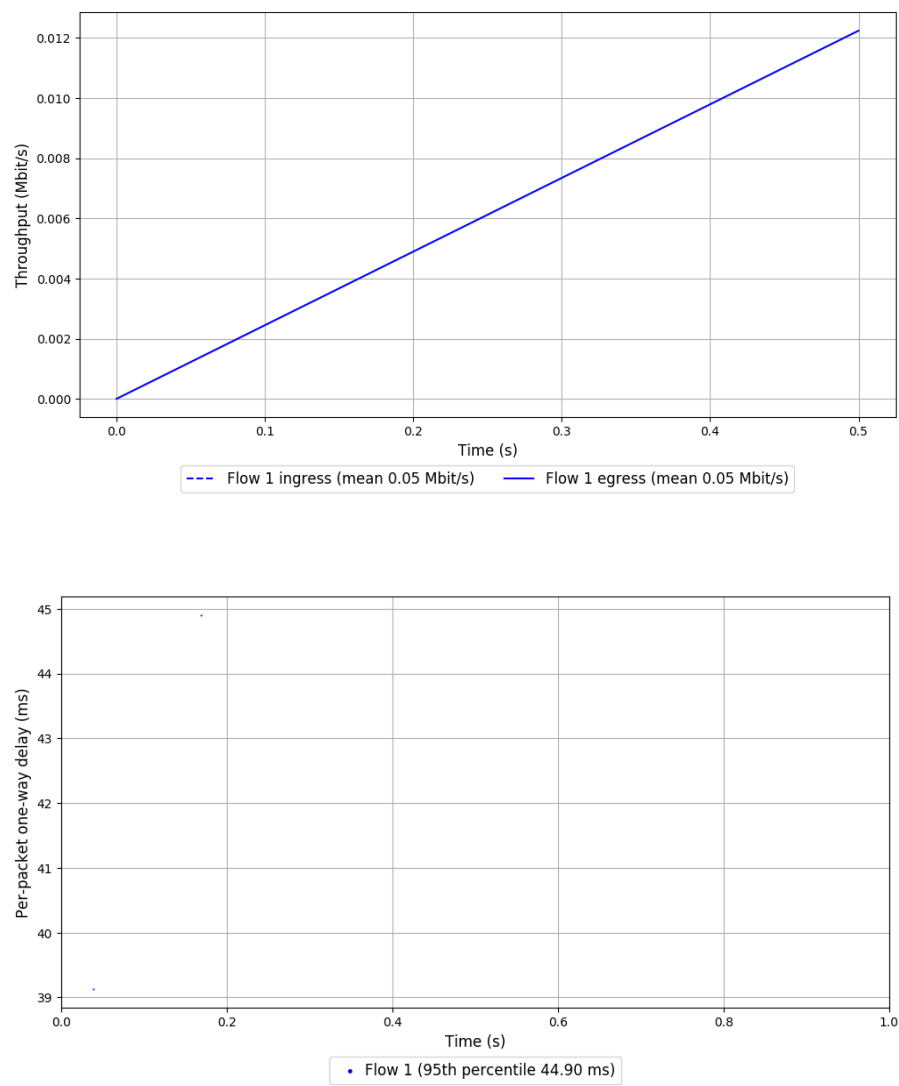
Start at: 2018-07-17 07:54:10

End at: 2018-07-17 07:54:40

Local clock offset: 2.46 ms

Remote clock offset: -3.023 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-07-17 08:12:33

End at: 2018-07-17 08:13:03

Local clock offset: 2.686 ms

Remote clock offset: -6.758 ms

Below is generated by plot.py at 2018-07-17 08:37:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.26 Mbit/s

95th percentile per-packet one-way delay: 353.116 ms

Loss rate: 0.61%

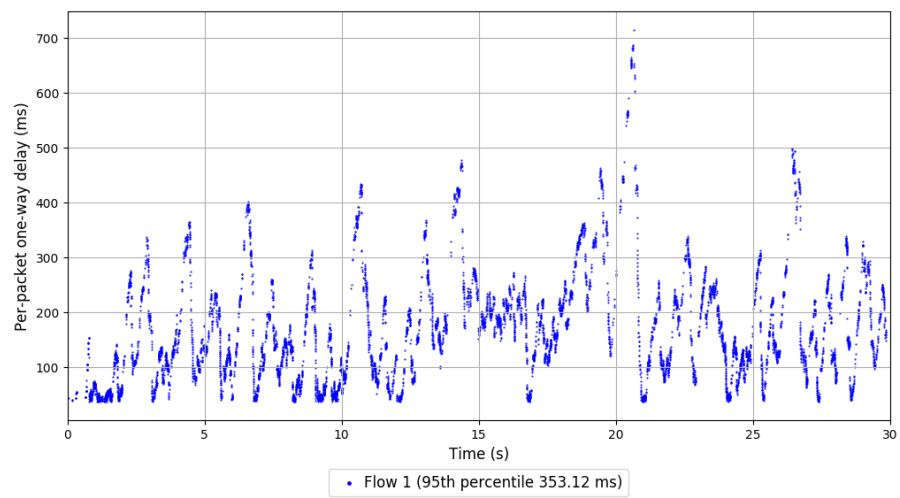
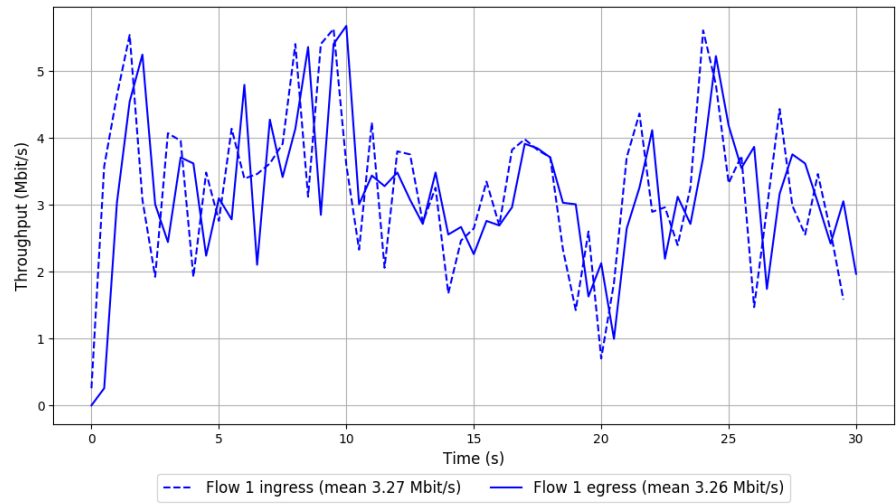
-- Flow 1:

Average throughput: 3.26 Mbit/s

95th percentile per-packet one-way delay: 353.116 ms

Loss rate: 0.61%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-07-17 08:30:54

End at: 2018-07-17 08:31:24

Local clock offset: 4.016 ms

Remote clock offset: -9.15 ms

Below is generated by plot.py at 2018-07-17 08:37:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.19 Mbit/s

95th percentile per-packet one-way delay: 399.313 ms

Loss rate: 1.26%

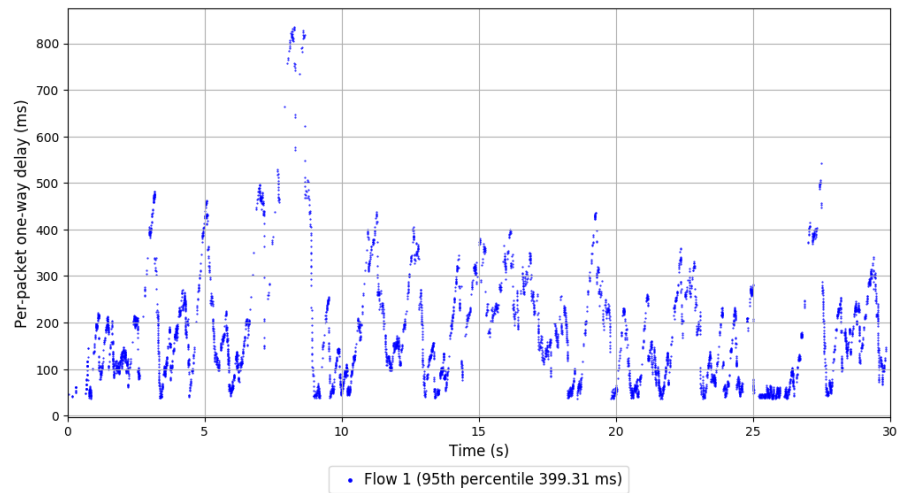
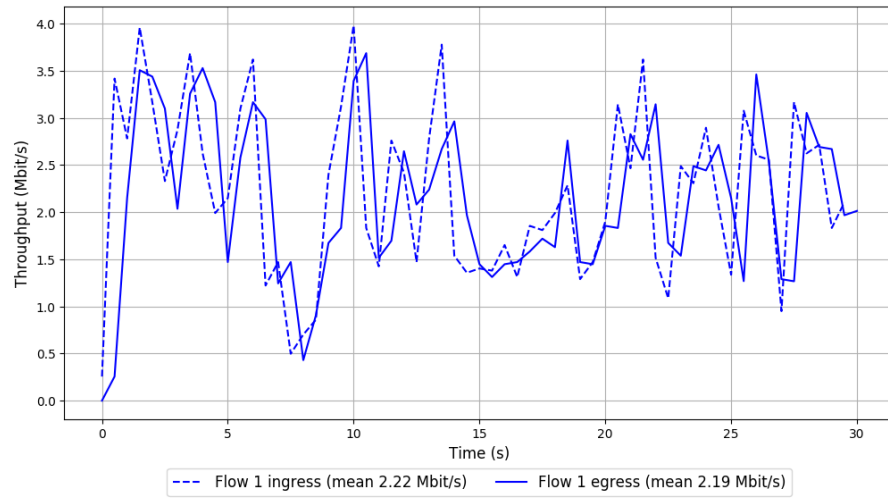
-- Flow 1:

Average throughput: 2.19 Mbit/s

95th percentile per-packet one-way delay: 399.313 ms

Loss rate: 1.26%

Run 3: Report of QUIC Cubic — Data Link

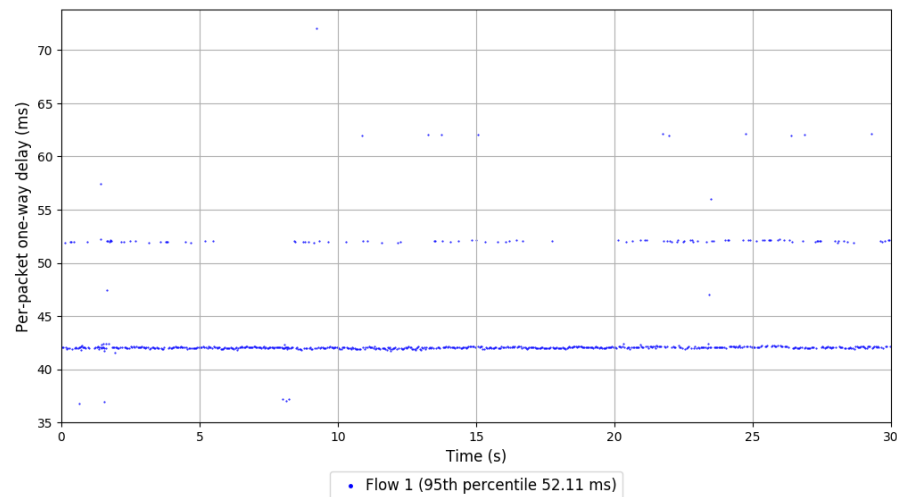
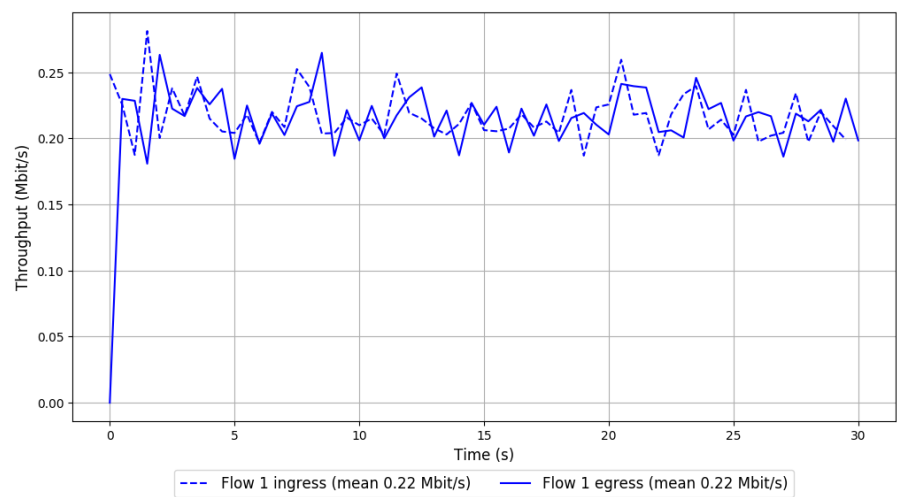


```
Run 1: Statistics of SCReAM

Start at: 2018-07-17 07:50:56
End at: 2018-07-17 07:51:26
Local clock offset: 0.265 ms
Remote clock offset: -3.3 ms

# Below is generated by plot.py at 2018-07-17 08:37:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 52.109 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 52.109 ms
Loss rate: 0.13%
```

Run 1: Report of SReAM — Data Link

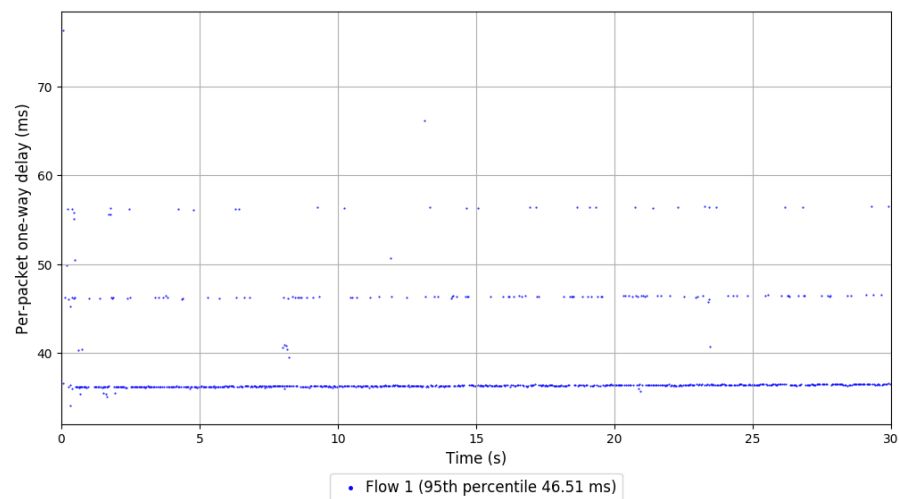
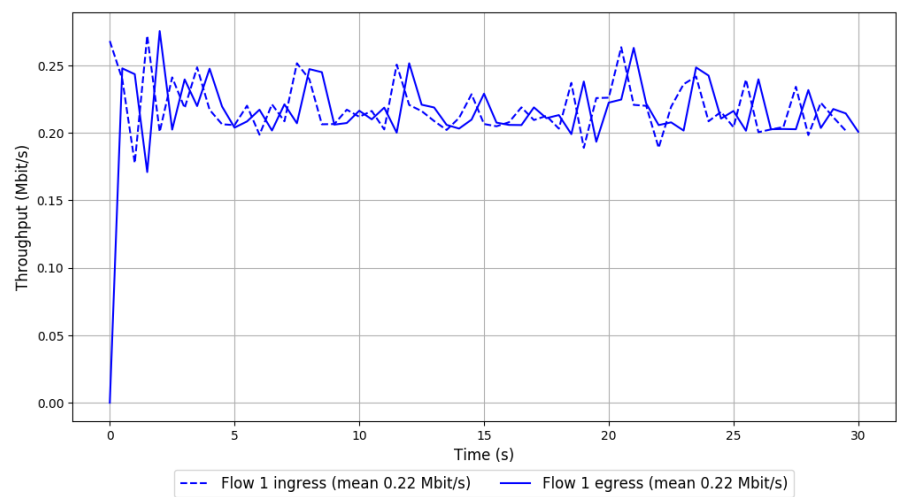


Run 2: Statistics of SCReAM

Start at: 2018-07-17 08:09:19
End at: 2018-07-17 08:09:49
Local clock offset: 2.547 ms
Remote clock offset: -6.901 ms

Below is generated by plot.py at 2018-07-17 08:37:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 46.511 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 46.511 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

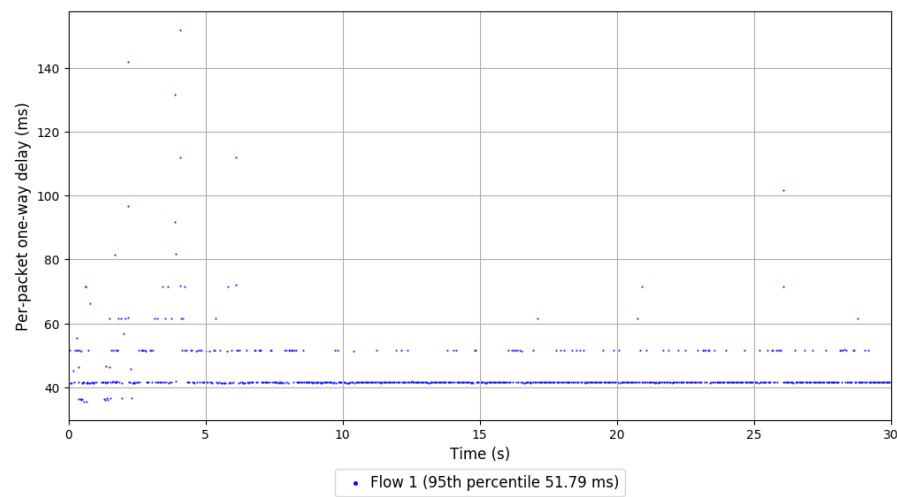
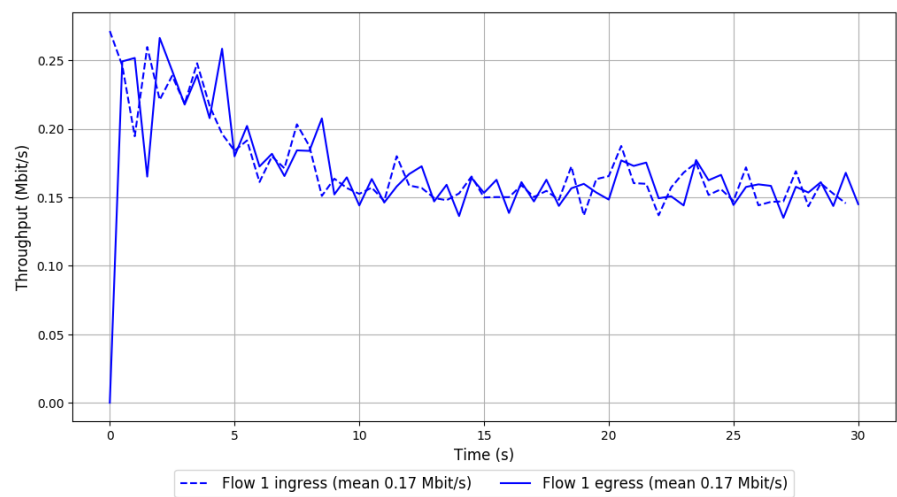


Run 3: Statistics of SCReAM

Start at: 2018-07-17 08:27:40
End at: 2018-07-17 08:28:10
Local clock offset: 4.001 ms
Remote clock offset: -8.875 ms

Below is generated by plot.py at 2018-07-17 08:37:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 51.794 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 51.794 ms
Loss rate: 0.12%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-07-17 07:58:33

End at: 2018-07-17 07:59:03

Local clock offset: 2.468 ms

Remote clock offset: -2.25 ms

Below is generated by plot.py at 2018-07-17 08:37:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.29 Mbit/s

95th percentile per-packet one-way delay: 57.667 ms

Loss rate: 0.01%

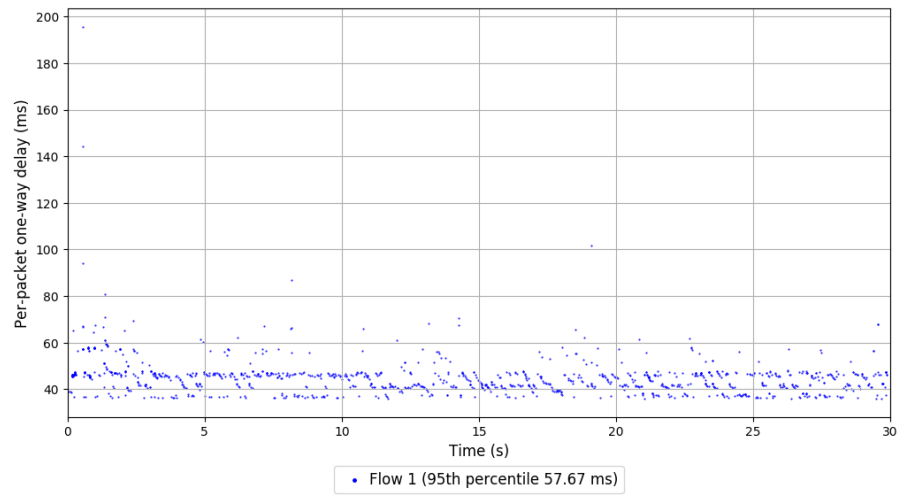
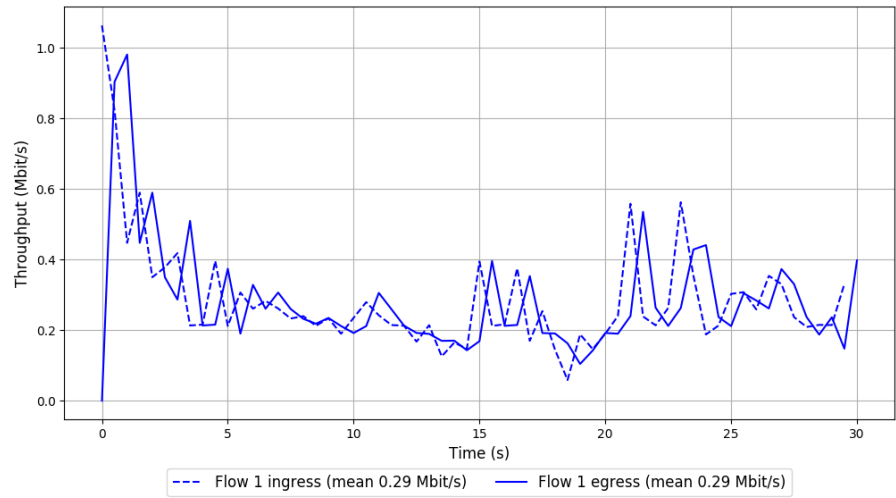
-- Flow 1:

Average throughput: 0.29 Mbit/s

95th percentile per-packet one-way delay: 57.667 ms

Loss rate: 0.01%

Run 1: Report of Sprout — Data Link

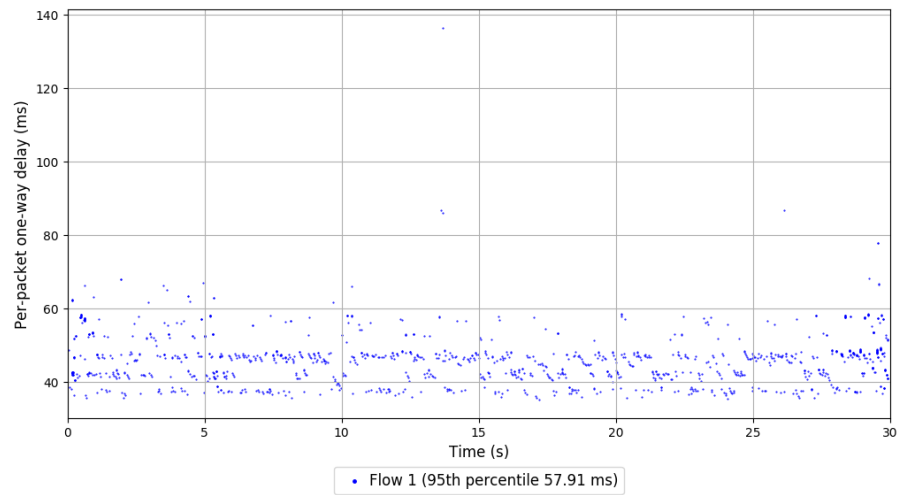
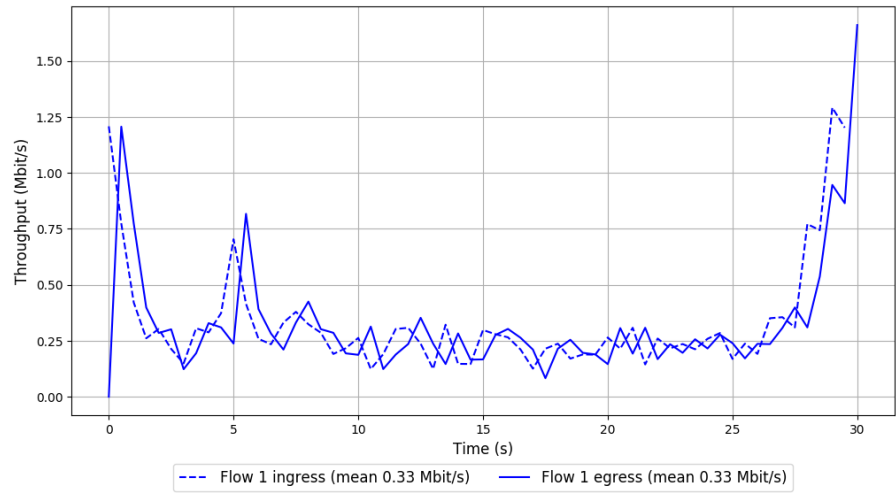


Run 2: Statistics of Sprout

Start at: 2018-07-17 08:16:52
End at: 2018-07-17 08:17:22
Local clock offset: 2.936 ms
Remote clock offset: -8.364 ms

Below is generated by plot.py at 2018-07-17 08:37:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 57.905 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 57.905 ms
Loss rate: 0.01%

Run 2: Report of Sprout — Data Link

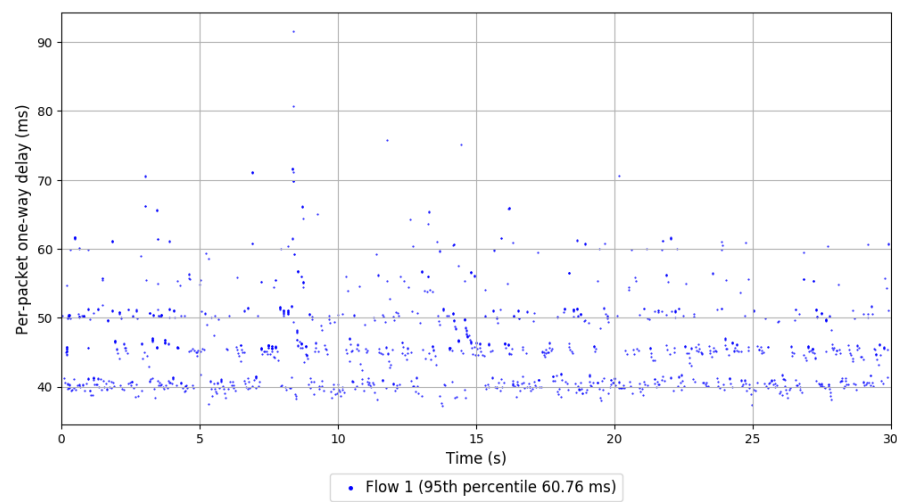
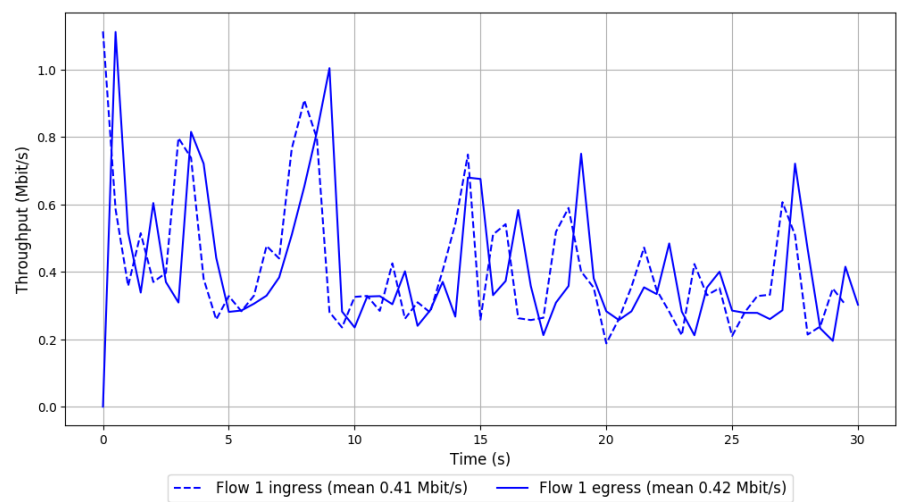


Run 3: Statistics of Sprout

Start at: 2018-07-17 08:35:12
End at: 2018-07-17 08:35:42
Local clock offset: 2.808 ms
Remote clock offset: -8.305 ms

Below is generated by plot.py at 2018-07-17 08:37:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 60.759 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 60.759 ms
Loss rate: 0.01%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-07-17 07:59:38

End at: 2018-07-17 08:00:08

Local clock offset: 0.769 ms

Remote clock offset: -2.58 ms

Below is generated by plot.py at 2018-07-17 08:37:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 250.529 ms

Loss rate: 0.08%

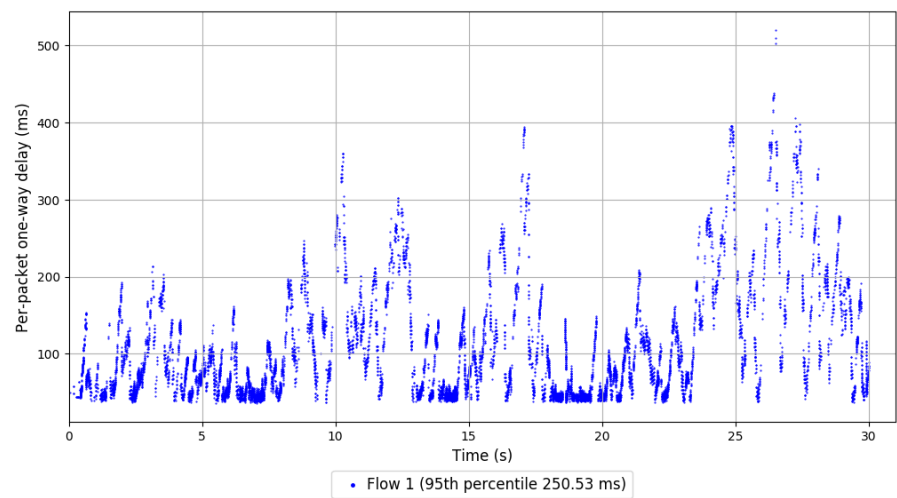
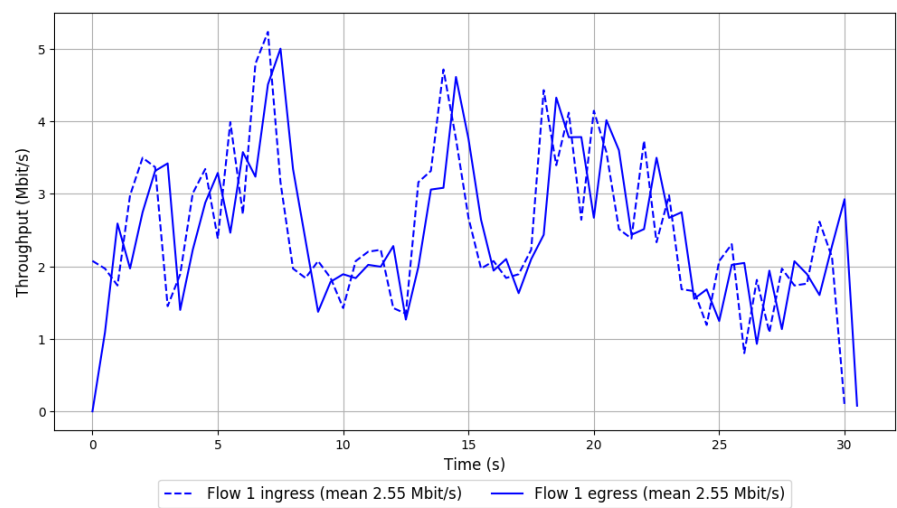
-- Flow 1:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 250.529 ms

Loss rate: 0.08%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-07-17 08:17:57

End at: 2018-07-17 08:18:27

Local clock offset: 2.528 ms

Remote clock offset: -8.271 ms

Below is generated by plot.py at 2018-07-17 08:37:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.54 Mbit/s

95th percentile per-packet one-way delay: 122.818 ms

Loss rate: 0.13%

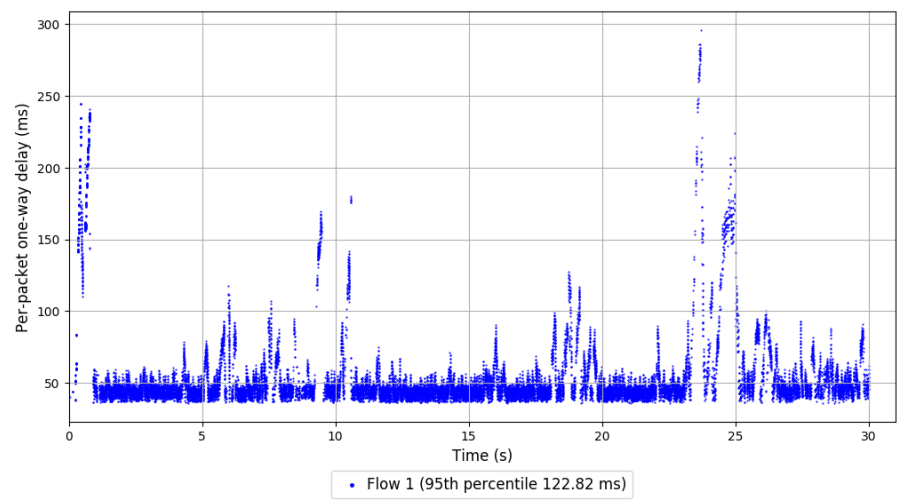
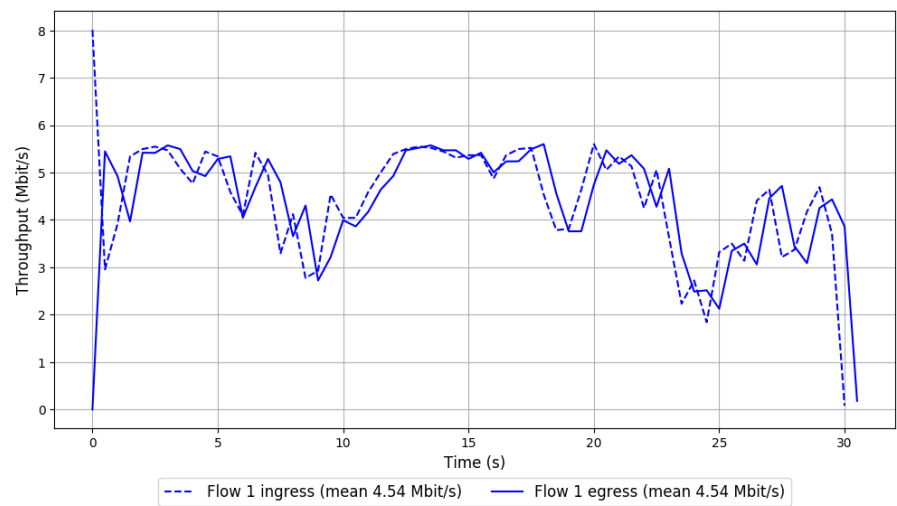
-- Flow 1:

Average throughput: 4.54 Mbit/s

95th percentile per-packet one-way delay: 122.818 ms

Loss rate: 0.13%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-07-17 08:36:17

End at: 2018-07-17 08:36:47

Local clock offset: 3.091 ms

Remote clock offset: -9.685 ms

Below is generated by plot.py at 2018-07-17 08:37:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 472.576 ms

Loss rate: 0.38%

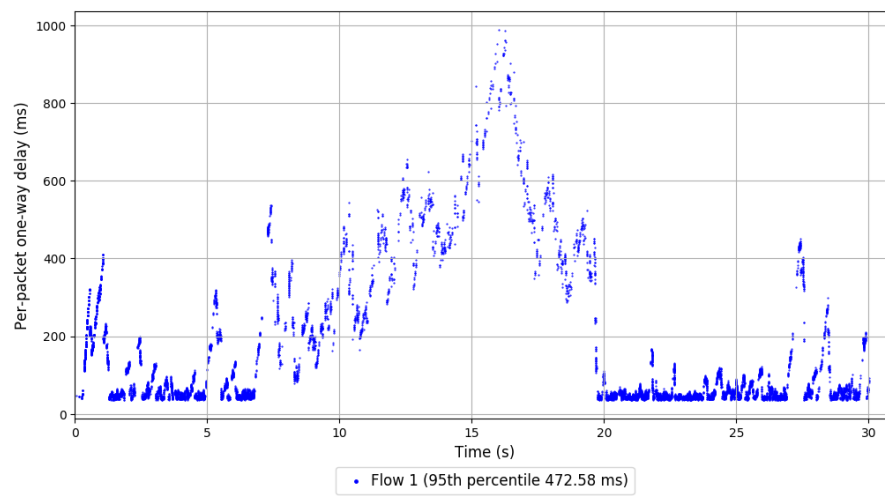
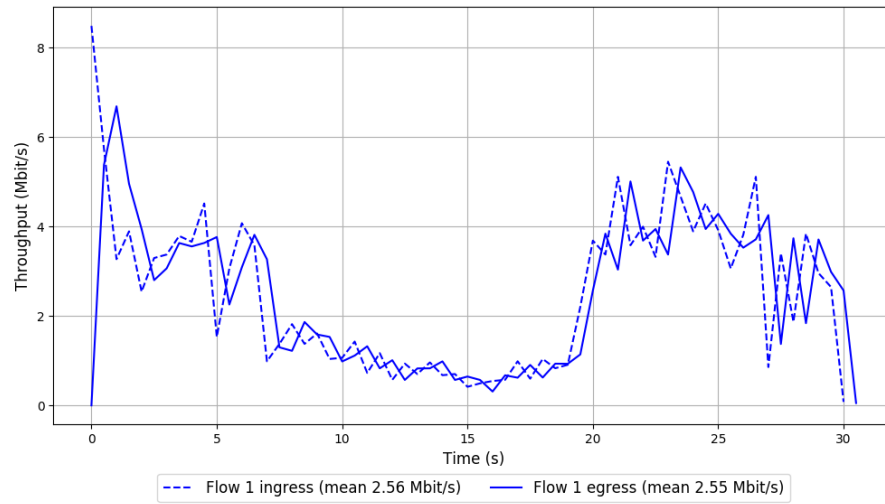
-- Flow 1:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 472.576 ms

Loss rate: 0.38%

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

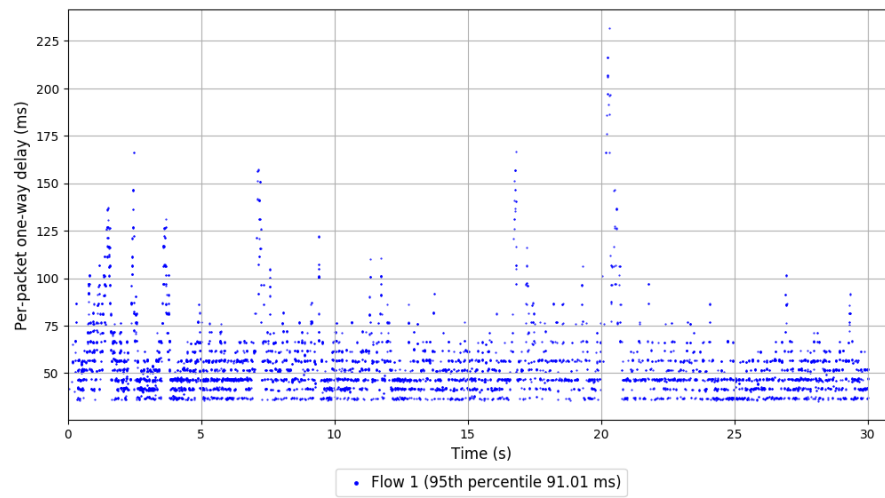
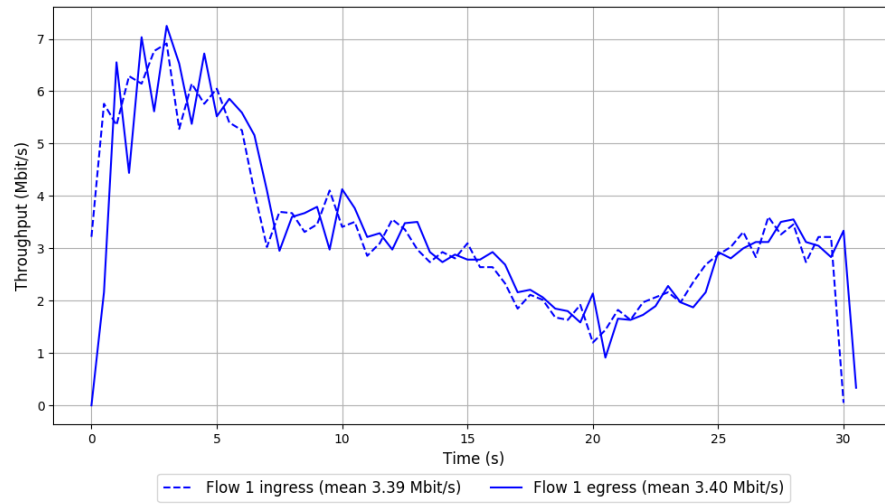


Run 1: Statistics of TCP Vegas

Start at: 2018-07-17 07:53:05
End at: 2018-07-17 07:53:35
Local clock offset: 2.611 ms
Remote clock offset: -2.496 ms

Below is generated by plot.py at 2018-07-17 08:37:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.40 Mbit/s
95th percentile per-packet one-way delay: 91.010 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 3.40 Mbit/s
95th percentile per-packet one-way delay: 91.010 ms
Loss rate: 0.05%

Run 1: Report of TCP Vegas — Data Link

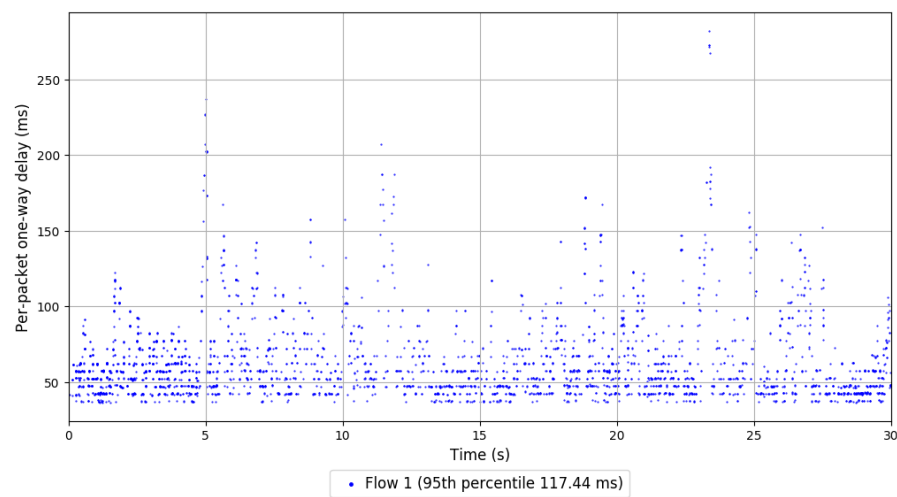
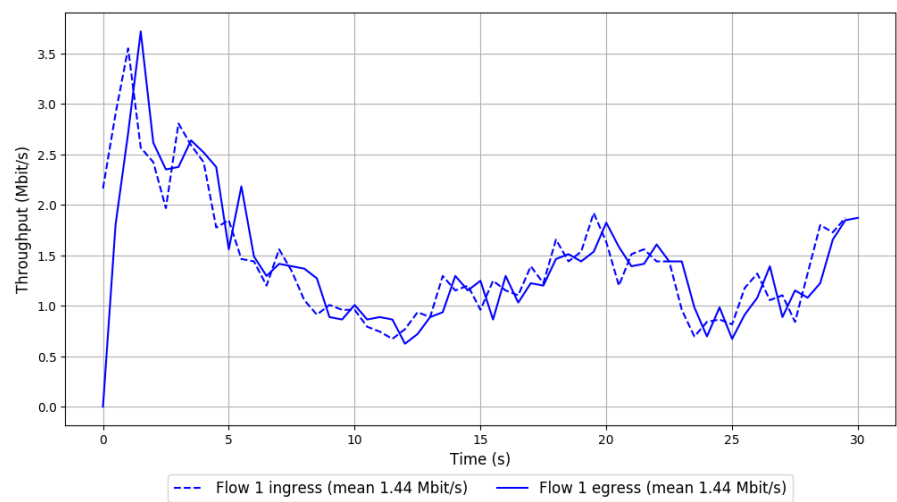


Run 2: Statistics of TCP Vegas

Start at: 2018-07-17 08:11:29
End at: 2018-07-17 08:11:59
Local clock offset: 1.928 ms
Remote clock offset: -7.442 ms

Below is generated by plot.py at 2018-07-17 08:37:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 117.441 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 117.441 ms
Loss rate: 0.17%

Run 2: Report of TCP Vegas — Data Link

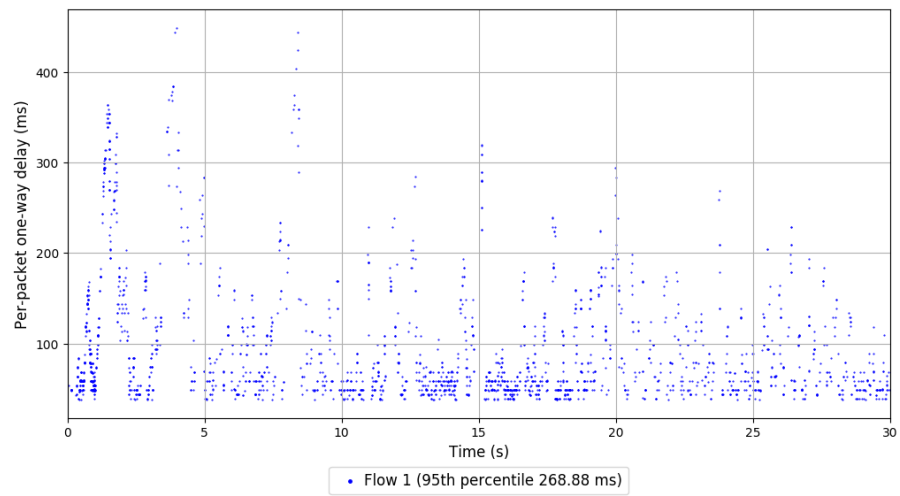
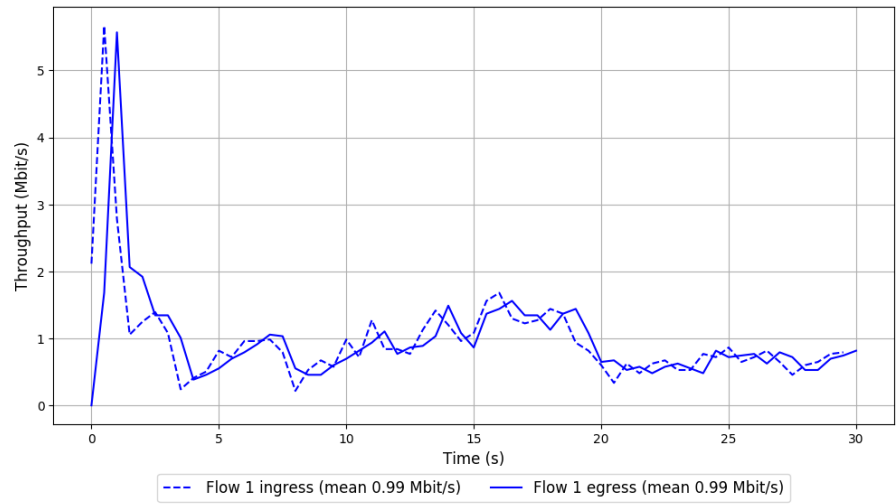


Run 3: Statistics of TCP Vegas

Start at: 2018-07-17 08:29:49
End at: 2018-07-17 08:30:19
Local clock offset: 2.315 ms
Remote clock offset: -9.135 ms

Below is generated by plot.py at 2018-07-17 08:37:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 268.882 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 268.882 ms
Loss rate: 0.40%

Run 3: Report of TCP Vegas — Data Link

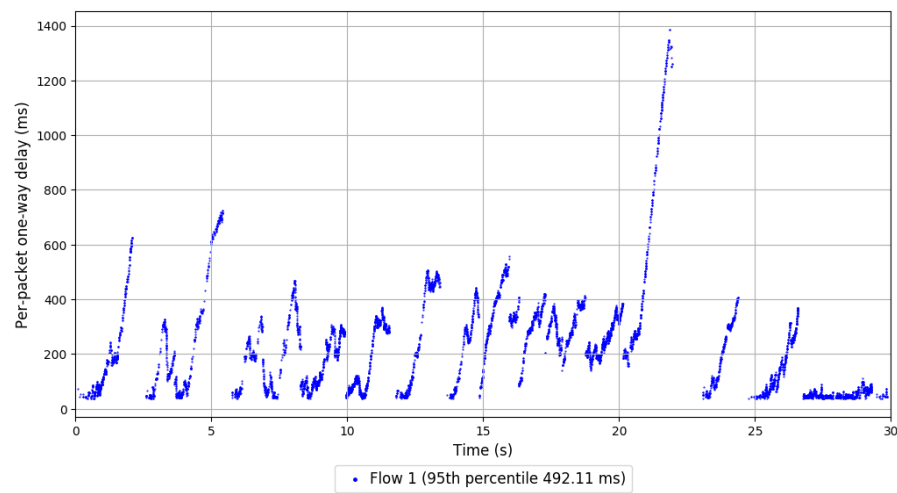
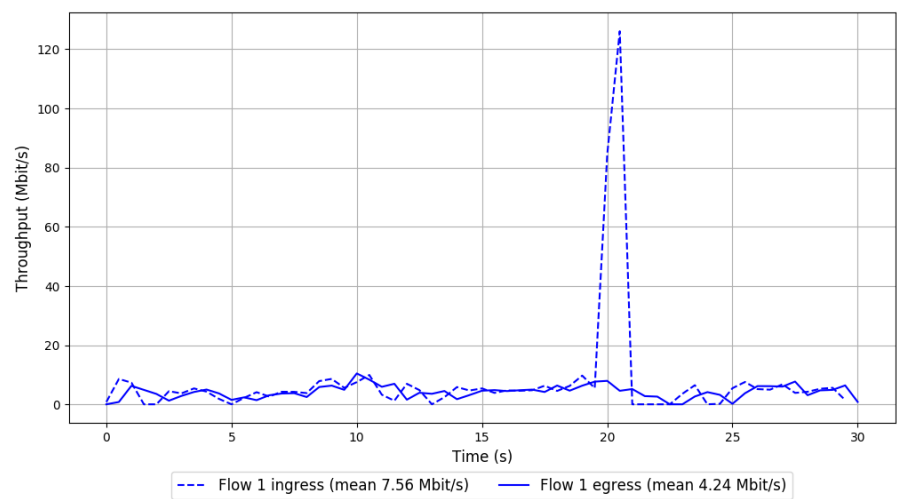


Run 1: Statistics of Verus

Start at: 2018-07-17 07:42:19
End at: 2018-07-17 07:42:49
Local clock offset: 1.717 ms
Remote clock offset: -3.301 ms

Below is generated by plot.py at 2018-07-17 08:37:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.24 Mbit/s
95th percentile per-packet one-way delay: 492.105 ms
Loss rate: 44.11%
-- Flow 1:
Average throughput: 4.24 Mbit/s
95th percentile per-packet one-way delay: 492.105 ms
Loss rate: 44.11%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-07-17 08:00:42

End at: 2018-07-17 08:01:12

Local clock offset: 2.843 ms

Remote clock offset: -1.1 ms

Below is generated by plot.py at 2018-07-17 08:37:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.57 Mbit/s

95th percentile per-packet one-way delay: 679.668 ms

Loss rate: 4.09%

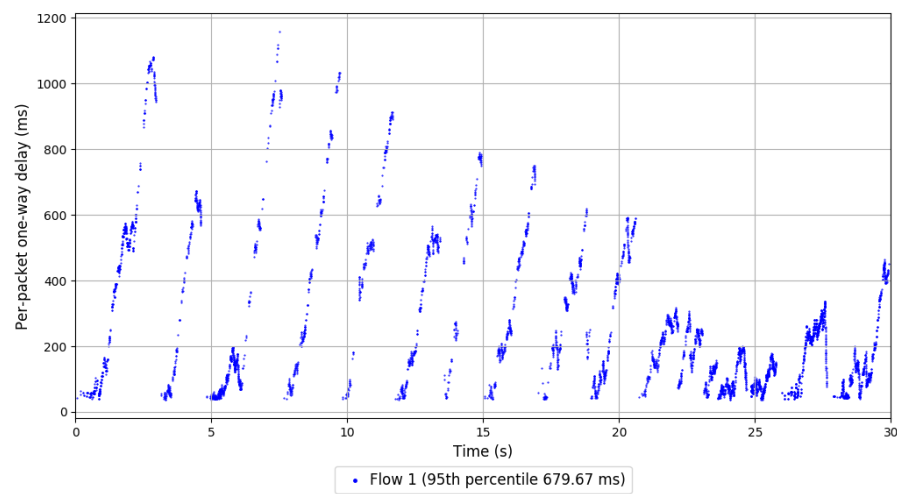
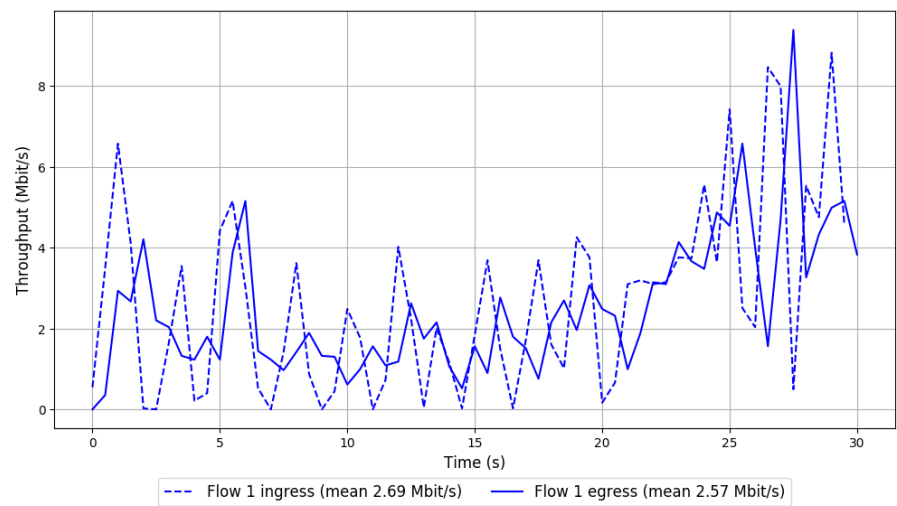
-- Flow 1:

Average throughput: 2.57 Mbit/s

95th percentile per-packet one-way delay: 679.668 ms

Loss rate: 4.09%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-07-17 08:19:02

End at: 2018-07-17 08:19:32

Local clock offset: 1.847 ms

Remote clock offset: -8.17 ms

Below is generated by plot.py at 2018-07-17 08:37:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.95 Mbit/s

95th percentile per-packet one-way delay: 731.501 ms

Loss rate: 4.64%

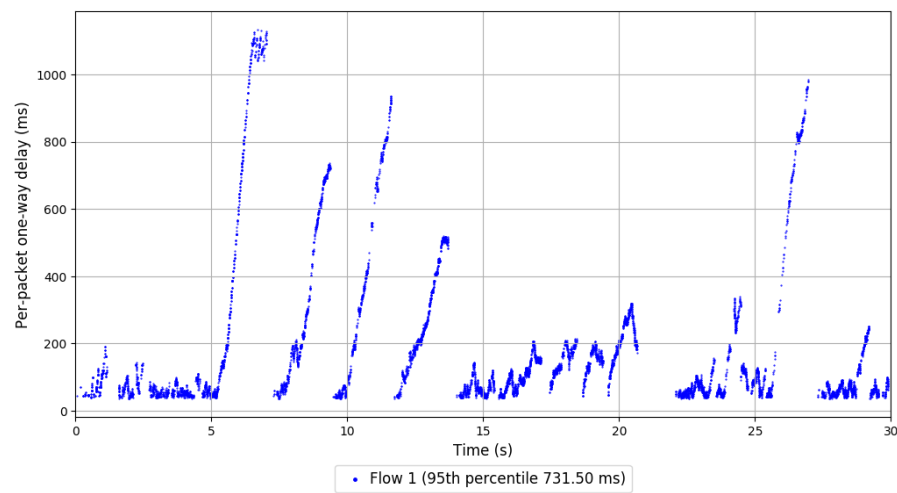
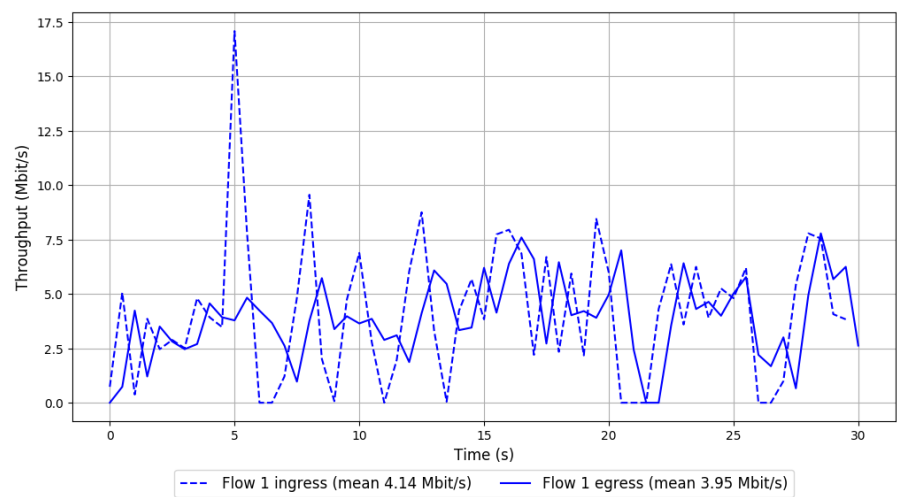
-- Flow 1:

Average throughput: 3.95 Mbit/s

95th percentile per-packet one-way delay: 731.501 ms

Loss rate: 4.64%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-07-17 07:56:18

End at: 2018-07-17 07:56:48

Local clock offset: 0.353 ms

Remote clock offset: -2.786 ms

Below is generated by plot.py at 2018-07-17 08:37:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.02 Mbit/s

95th percentile per-packet one-way delay: 1045.809 ms

Loss rate: 13.18%

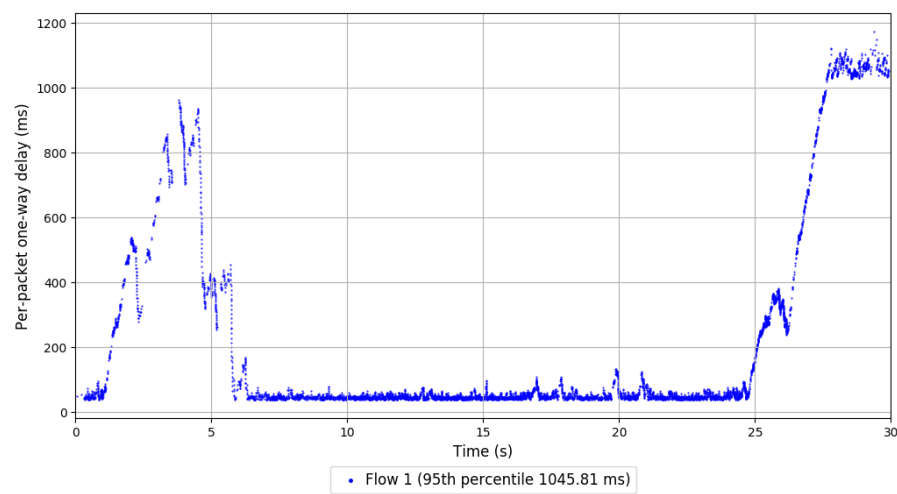
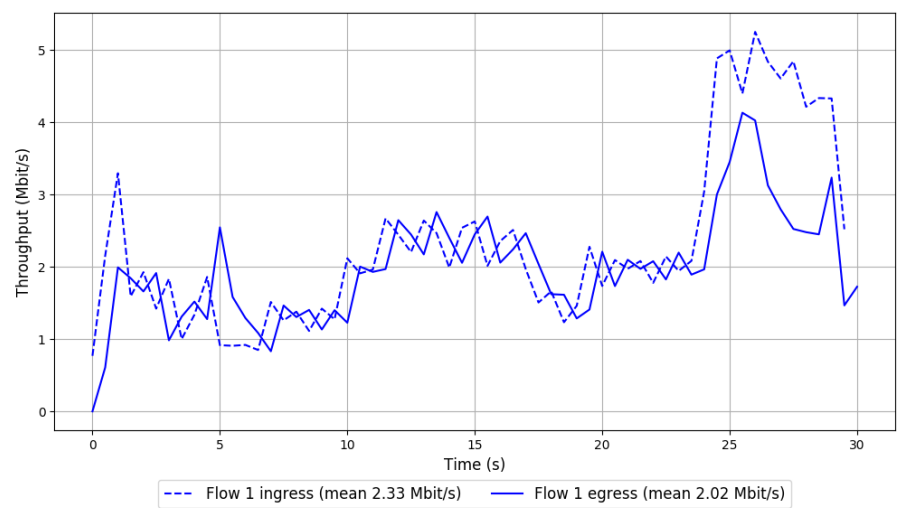
-- Flow 1:

Average throughput: 2.02 Mbit/s

95th percentile per-packet one-way delay: 1045.809 ms

Loss rate: 13.18%

Run 1: Report of PCC-Vivace — Data Link

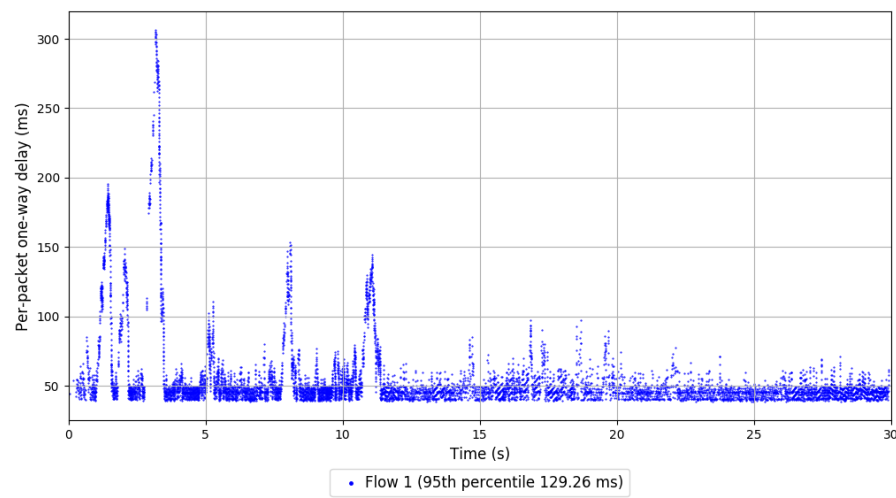
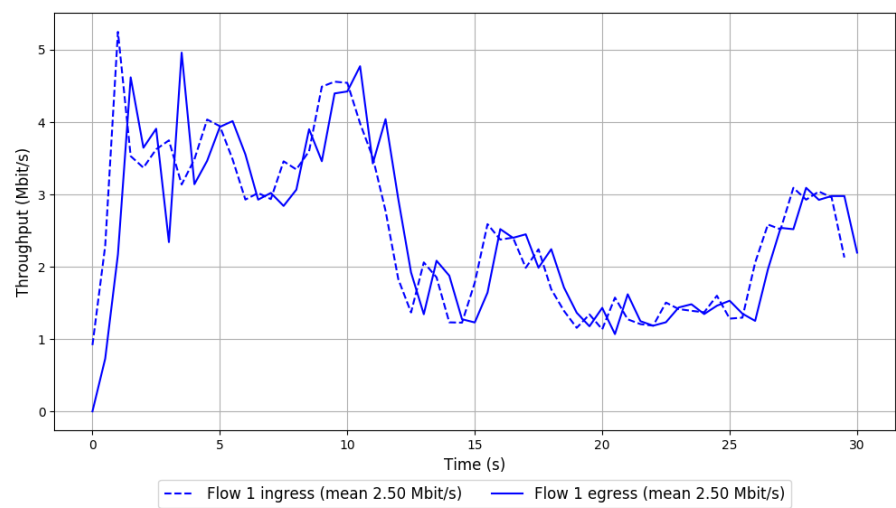


Run 2: Statistics of PCC-Vivace

Start at: 2018-07-17 08:14:43
End at: 2018-07-17 08:15:13
Local clock offset: 1.605 ms
Remote clock offset: -6.731 ms

Below is generated by plot.py at 2018-07-17 08:37:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 129.262 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 129.262 ms
Loss rate: 0.17%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-07-17 08:33:03

End at: 2018-07-17 08:33:33

Local clock offset: 3.359 ms

Remote clock offset: -9.275 ms

Below is generated by plot.py at 2018-07-17 08:37:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.70 Mbit/s

95th percentile per-packet one-way delay: 781.455 ms

Loss rate: 0.45%

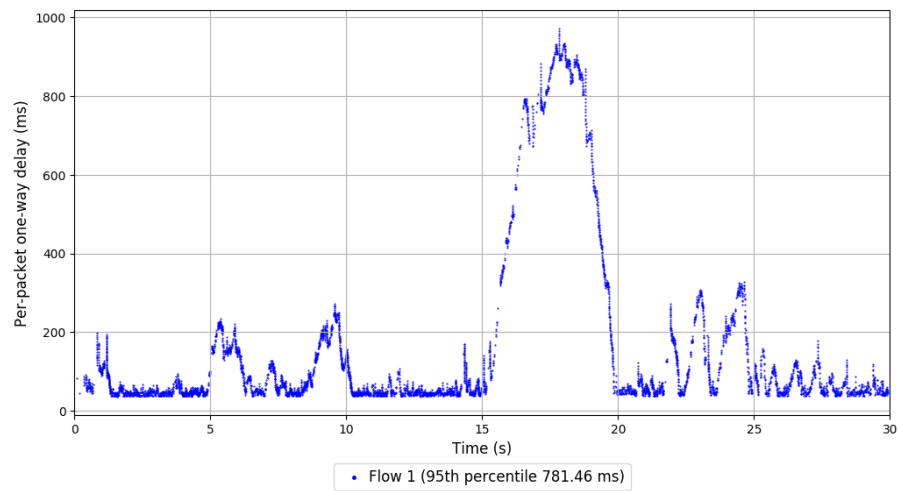
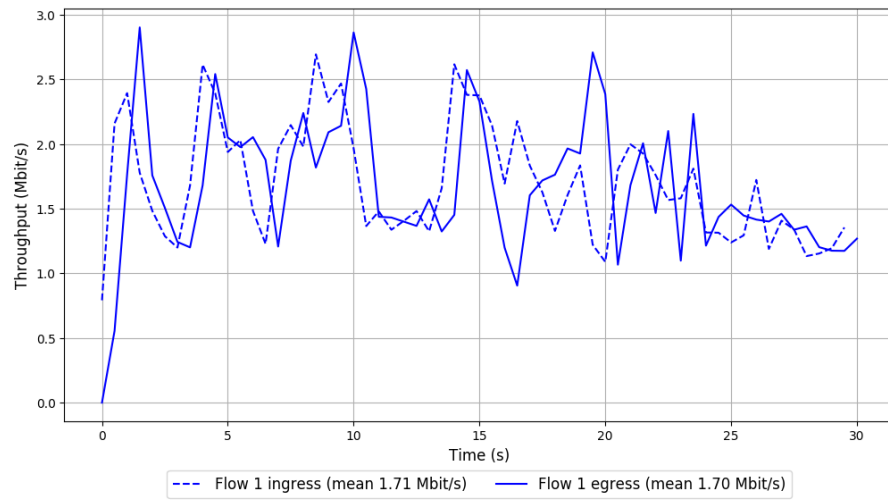
-- Flow 1:

Average throughput: 1.70 Mbit/s

95th percentile per-packet one-way delay: 781.455 ms

Loss rate: 0.45%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-07-17 07:46:38

End at: 2018-07-17 07:47:08

Local clock offset: 1.719 ms

Remote clock offset: -2.617 ms

Below is generated by plot.py at 2018-07-17 08:37:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 102.494 ms

Loss rate: 0.07%

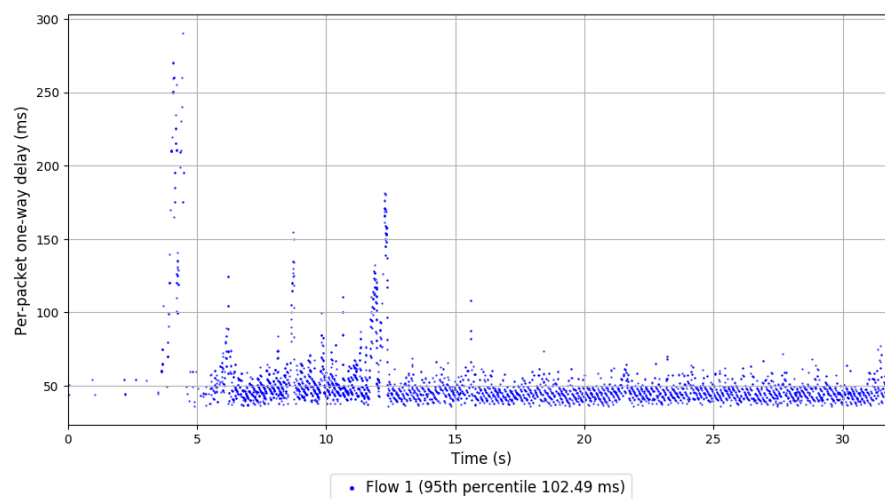
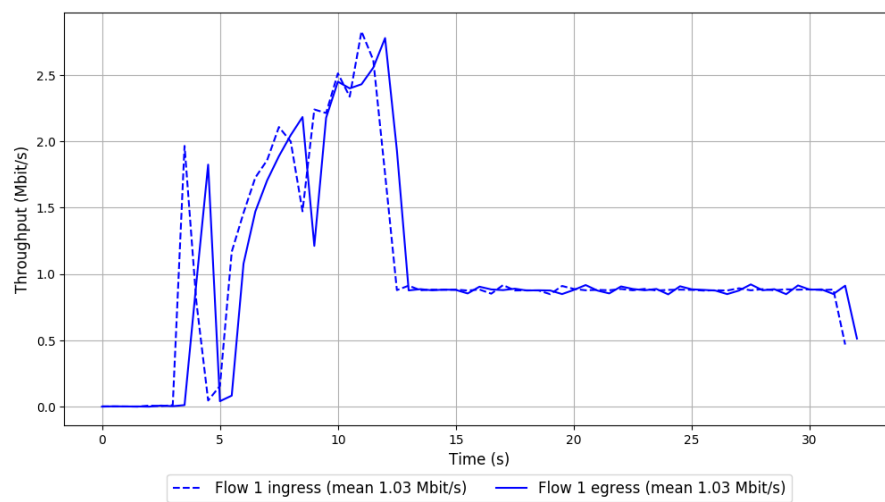
-- Flow 1:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 102.494 ms

Loss rate: 0.07%

Run 1: Report of WebRTC media — Data Link

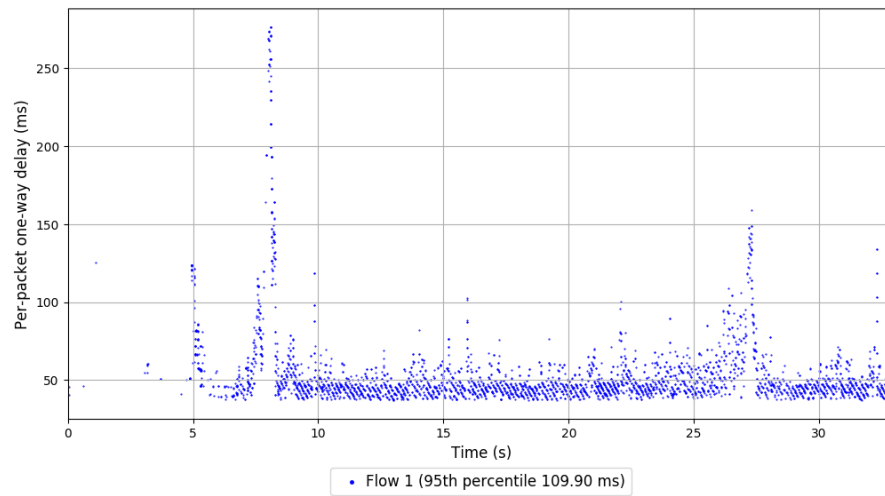
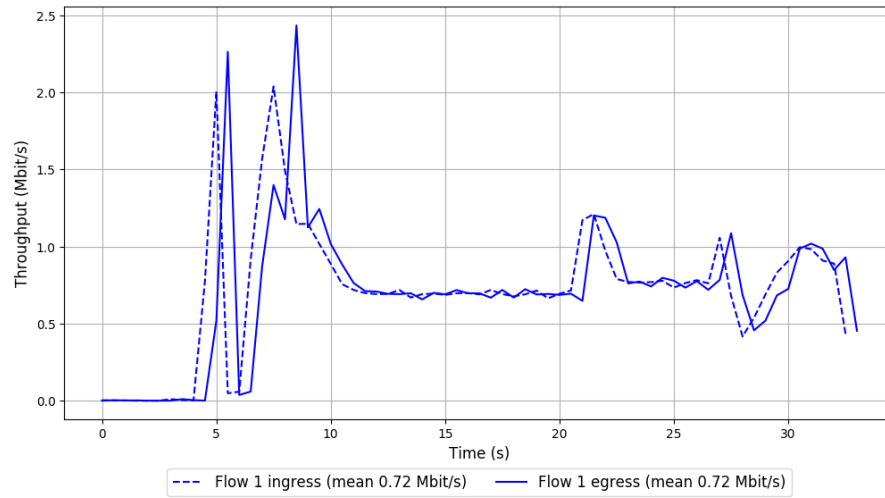


Run 2: Statistics of WebRTC media

Start at: 2018-07-17 08:05:00
End at: 2018-07-17 08:05:30
Local clock offset: 1.278 ms
Remote clock offset: -4.376 ms

Below is generated by plot.py at 2018-07-17 08:37:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 109.899 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 109.899 ms
Loss rate: 0.14%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-07-17 08:23:21
End at: 2018-07-17 08:23:51
Local clock offset: 2.683 ms
Remote clock offset: -7.793 ms

Below is generated by plot.py at 2018-07-17 08:37:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 76.268 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 76.268 ms
Loss rate: 0.04%

Run 3: Report of WebRTC media — Data Link

