

Pantheon Report

Generated at 2018-07-09 19:46:15 (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.

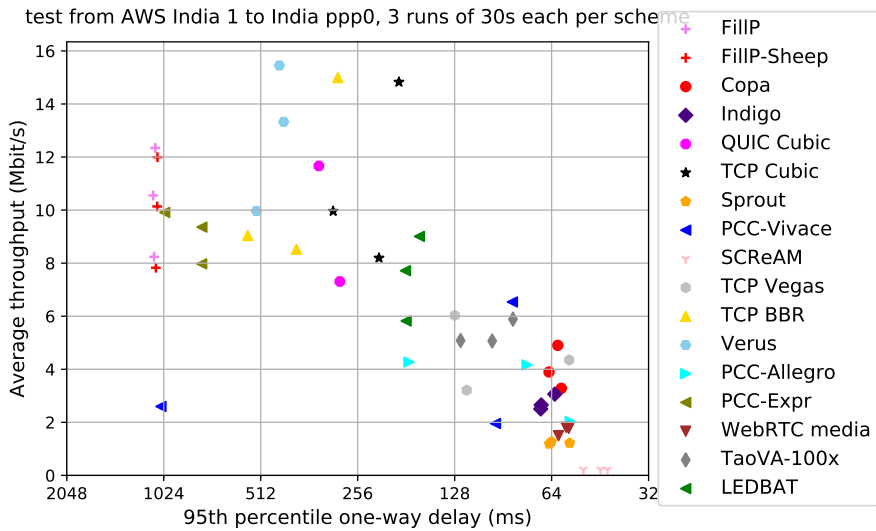
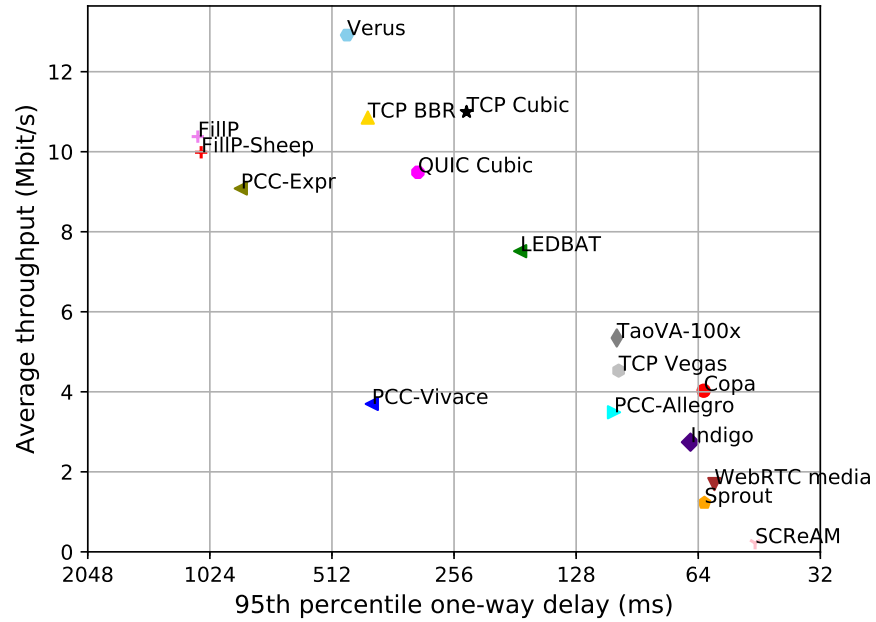
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against [nets.org.sg](https://www.nets.org.sg) and have been applied to correct the timestamps in logs.

Git summary:

```
branch: master @ 9250dbeec7fb57193cdff1ba8c440b4e16ab30f0
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ 37162fe9af85249aeccac061c93e75640ef710b5
third_party/genericCC @ 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-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
  M src/ScreamClient
  M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webRTC @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS 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	10.85	417.73	0.40
Copa	3	4.03	62.05	0.11
TCP Cubic	3	11.00	238.47	0.51
FillP	3	10.38	1096.31	50.95
FillP-Sheep	3	9.99	1075.77	19.53
Indigo	3	2.74	66.89	0.12
LEDBAT	3	7.52	175.89	0.21
PCC-Allegro	3	3.49	103.25	0.12
PCC-Expr	3	9.08	859.07	1.97
QUIC Cubic	2	9.48	314.31	0.84
SCReAM	3	0.22	46.35	0.13
Sprout	3	1.23	61.79	0.66
TaoVA-100x	3	5.35	101.63	0.10
TCP Vegas	3	4.53	100.56	0.18
Verus	3	12.91	470.25	1.50
PCC-Vivace	3	3.70	408.36	2.81
WebRTC media	3	1.69	58.41	0.15

Run 1: Statistics of TCP BBR

Start at: 2018-07-09 18:49:34

End at: 2018-07-09 18:50:04

Local clock offset: 2.034 ms

Remote clock offset: -3.91 ms

Below is generated by plot.py at 2018-07-09 19:45:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.04 Mbit/s

95th percentile per-packet one-way delay: 561.791 ms

Loss rate: 0.39%

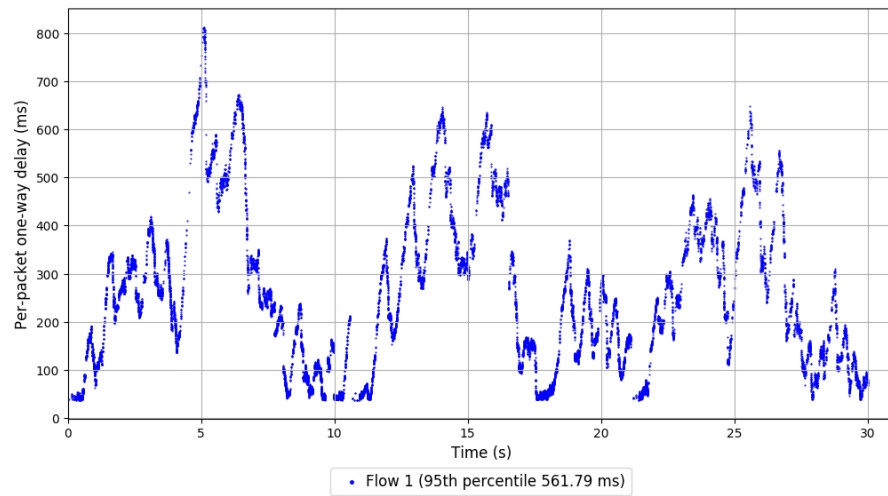
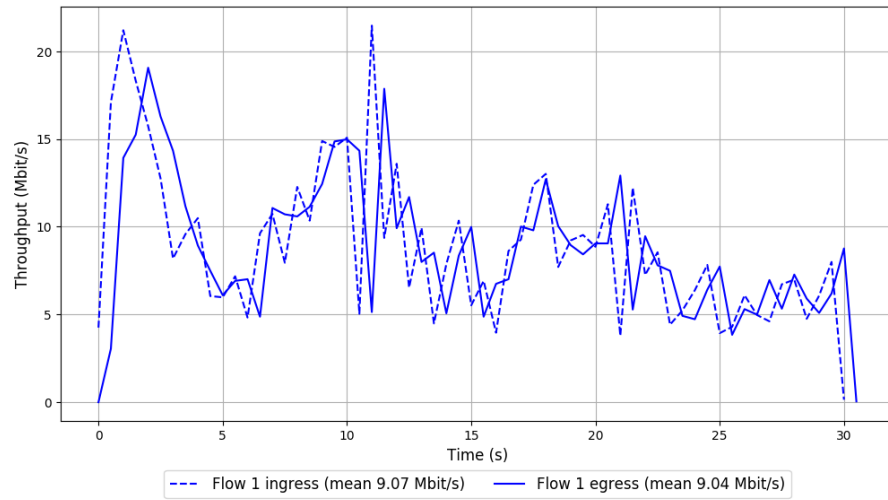
-- Flow 1:

Average throughput: 9.04 Mbit/s

95th percentile per-packet one-way delay: 561.791 ms

Loss rate: 0.39%

Run 1: Report of TCP BBR — Data Link

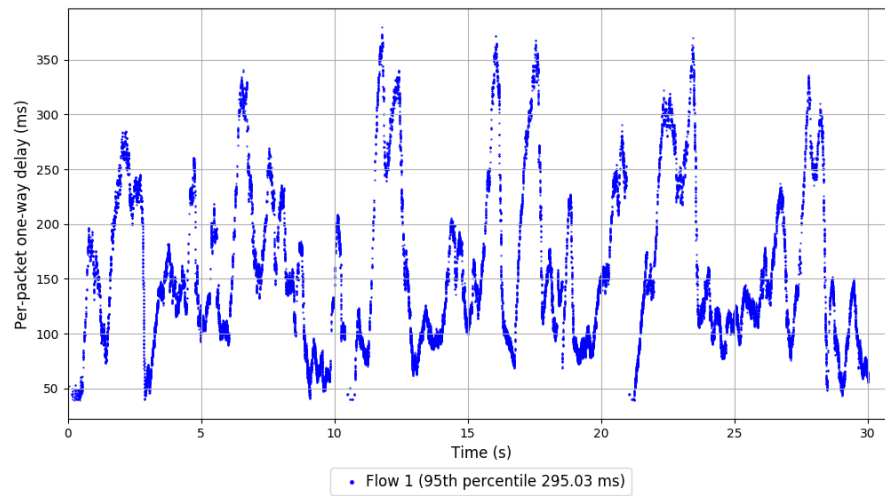
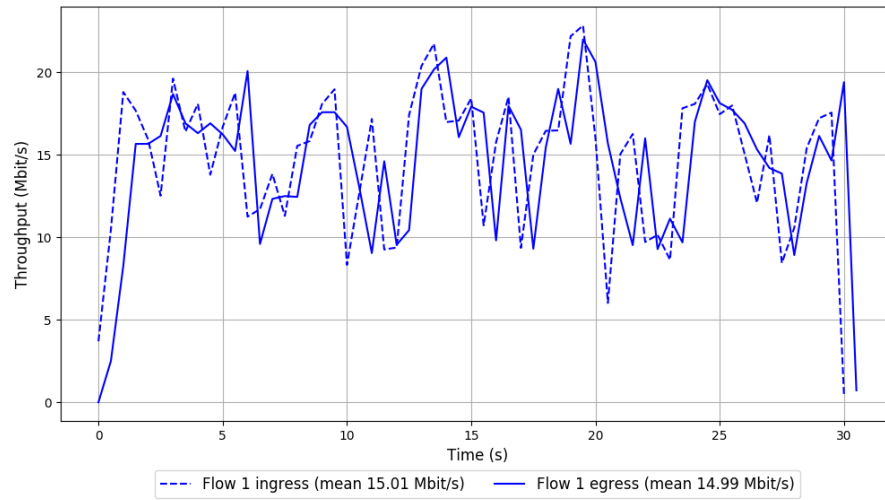


Run 2: Statistics of TCP BBR

Start at: 2018-07-09 19:08:11
End at: 2018-07-09 19:08:41
Local clock offset: 1.47 ms
Remote clock offset: -3.592 ms

Below is generated by plot.py at 2018-07-09 19:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 14.99 Mbit/s
95th percentile per-packet one-way delay: 295.027 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 14.99 Mbit/s
95th percentile per-packet one-way delay: 295.027 ms
Loss rate: 0.26%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-07-09 19:26:54

End at: 2018-07-09 19:27:24

Local clock offset: -0.22 ms

Remote clock offset: -4.196 ms

Below is generated by plot.py at 2018-07-09 19:45:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.52 Mbit/s

95th percentile per-packet one-way delay: 396.374 ms

Loss rate: 0.55%

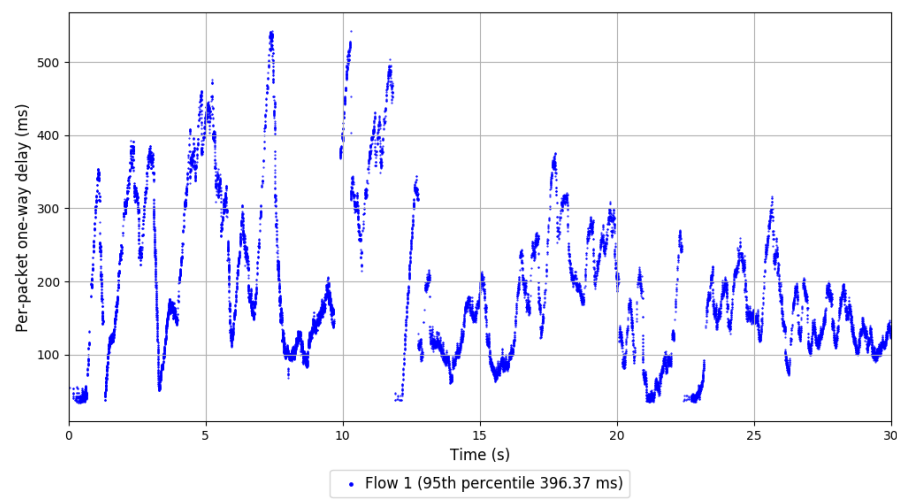
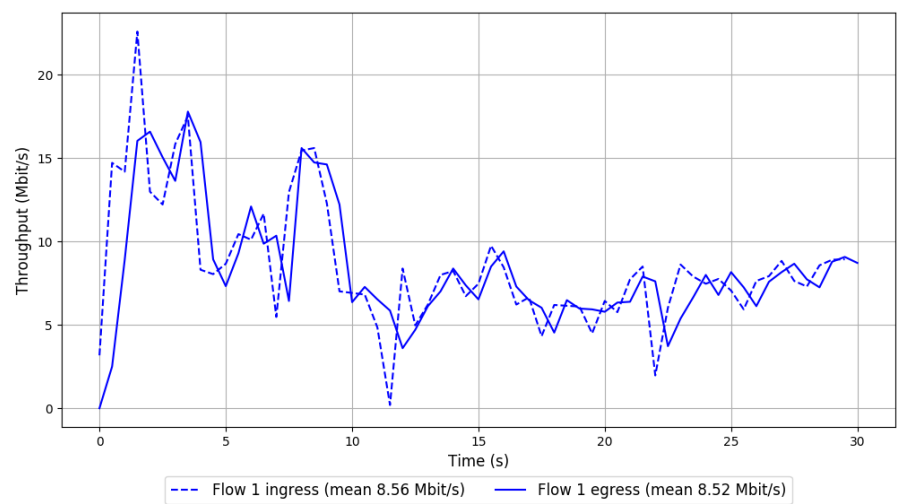
-- Flow 1:

Average throughput: 8.52 Mbit/s

95th percentile per-packet one-way delay: 396.374 ms

Loss rate: 0.55%

Run 3: Report of TCP BBR — Data Link

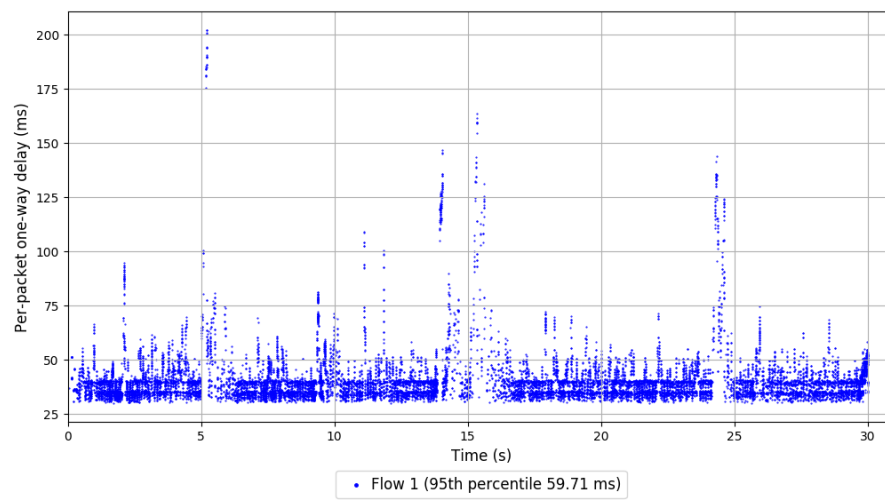
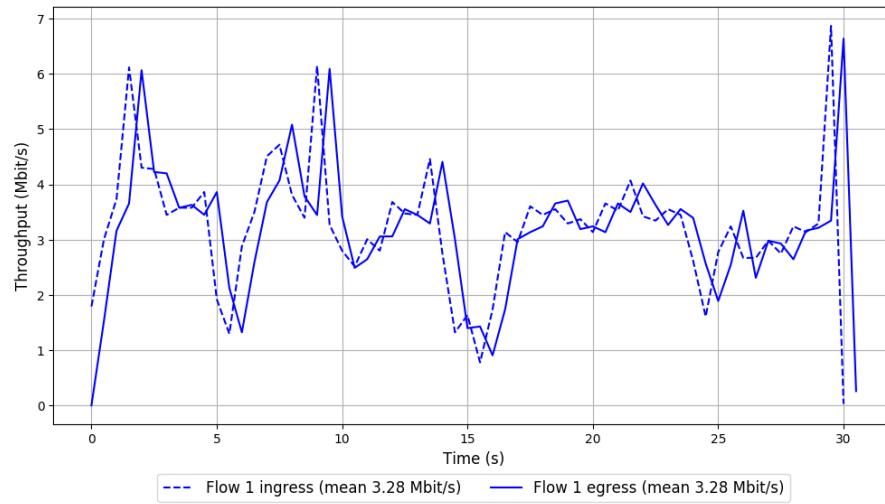


Run 1: Statistics of Copa

Start at: 2018-07-09 18:59:20
End at: 2018-07-09 18:59:50
Local clock offset: 1.135 ms
Remote clock offset: -2.885 ms

Below is generated by plot.py at 2018-07-09 19:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.28 Mbit/s
95th percentile per-packet one-way delay: 59.709 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 3.28 Mbit/s
95th percentile per-packet one-way delay: 59.709 ms
Loss rate: 0.09%

Run 1: Report of Copa — Data Link

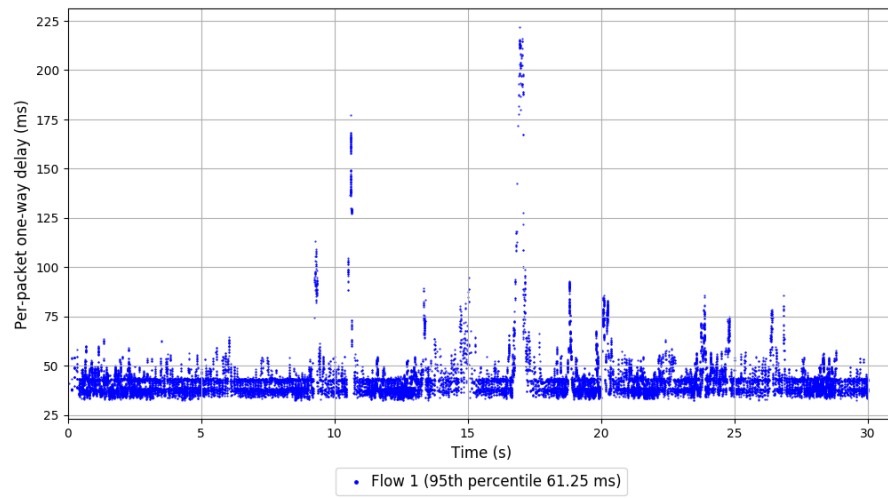
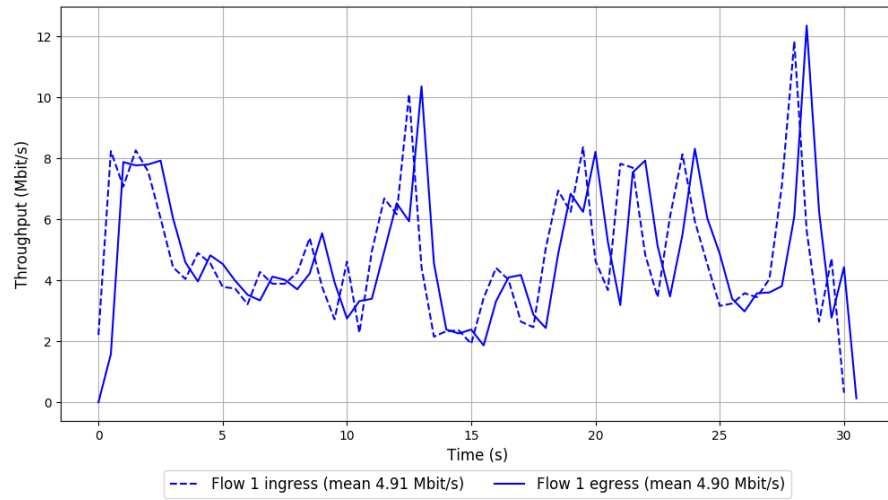


Run 2: Statistics of Copa

Start at: 2018-07-09 19:18:04
End at: 2018-07-09 19:18:34
Local clock offset: 1.003 ms
Remote clock offset: -4.829 ms

Below is generated by plot.py at 2018-07-09 19:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 61.251 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 61.251 ms
Loss rate: 0.21%

Run 2: Report of Copa — Data Link

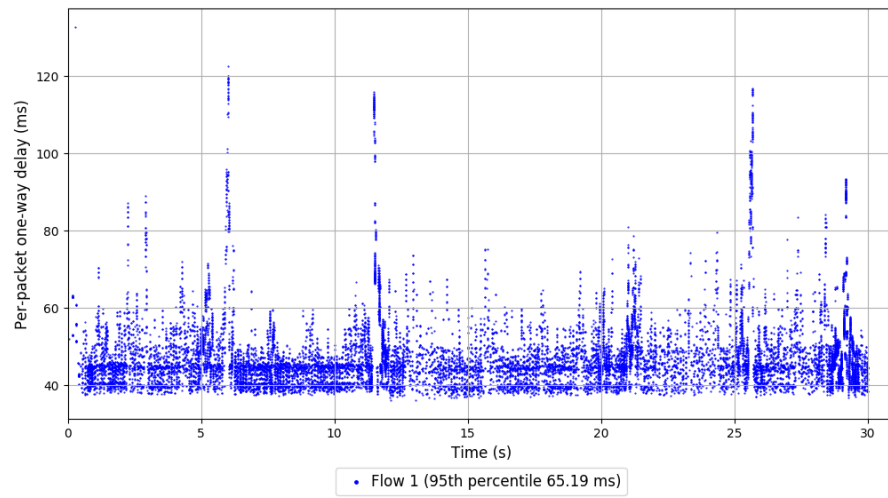
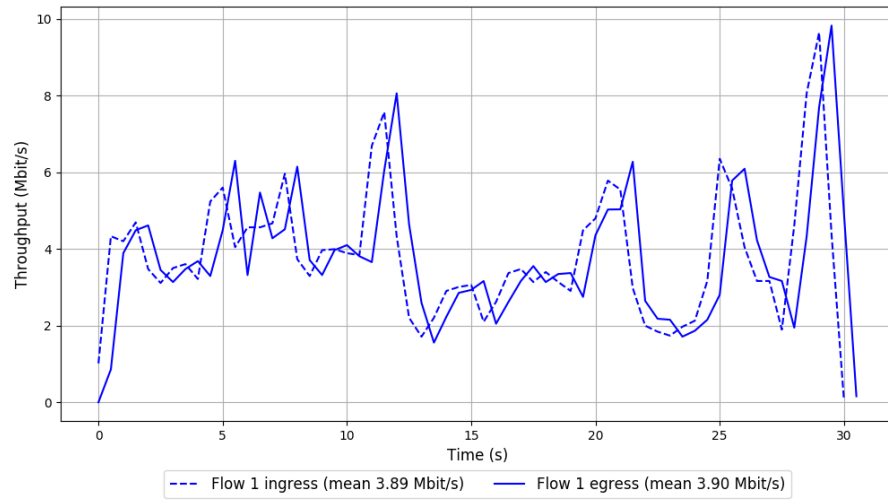


Run 3: Statistics of Copa

Start at: 2018-07-09 19:36:49
End at: 2018-07-09 19:37:19
Local clock offset: 1.057 ms
Remote clock offset: -3.259 ms

Below is generated by plot.py at 2018-07-09 19:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.90 Mbit/s
95th percentile per-packet one-way delay: 65.195 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 3.90 Mbit/s
95th percentile per-packet one-way delay: 65.195 ms
Loss rate: 0.03%

Run 3: Report of Copa — Data Link

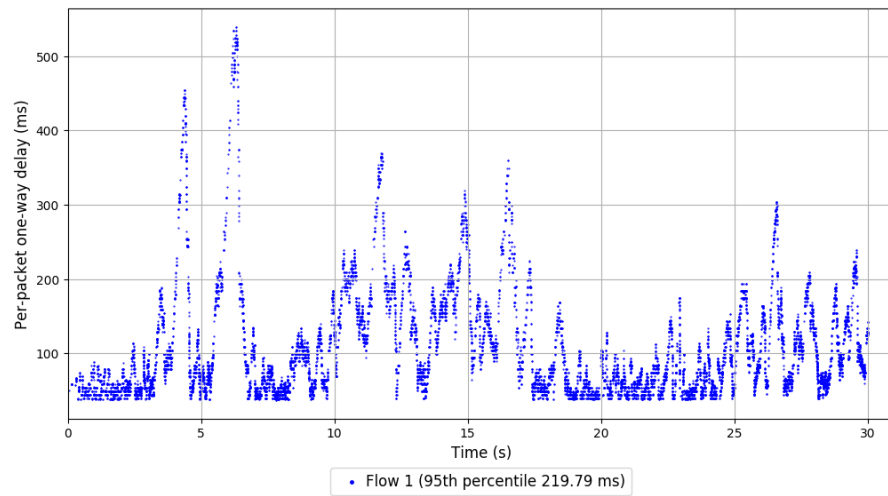
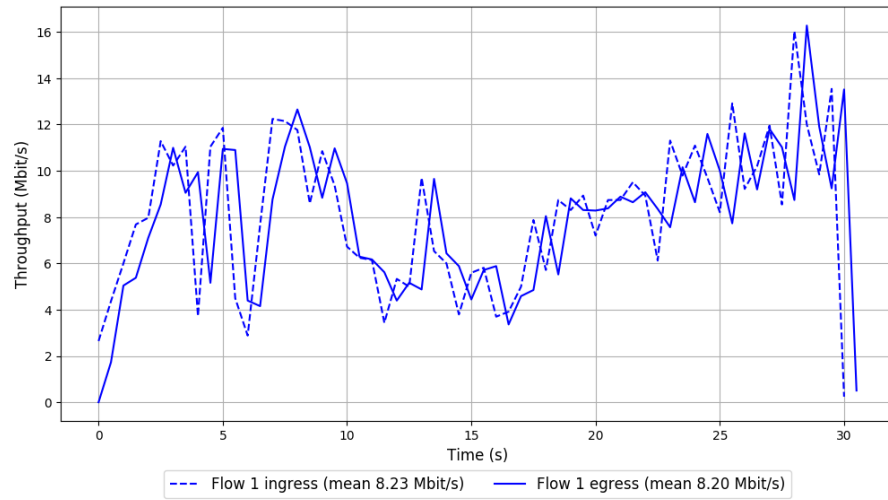


Run 1: Statistics of TCP Cubic

Start at: 2018-07-09 18:56:05
End at: 2018-07-09 18:56:35
Local clock offset: 3.299 ms
Remote clock offset: -2.168 ms

Below is generated by plot.py at 2018-07-09 19:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 219.791 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 219.791 ms
Loss rate: 0.59%

Run 1: Report of TCP Cubic — Data Link

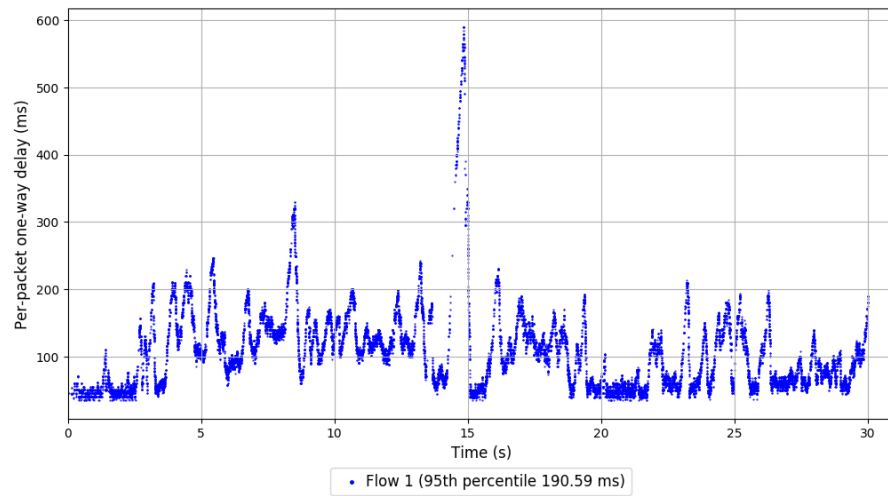
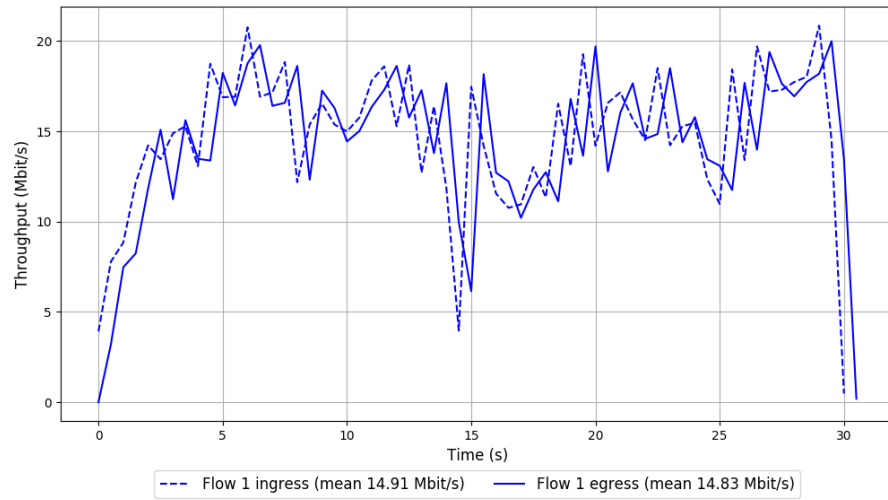


Run 2: Statistics of TCP Cubic

Start at: 2018-07-09 19:14:44
End at: 2018-07-09 19:15:14
Local clock offset: -0.119 ms
Remote clock offset: -3.578 ms

Below is generated by plot.py at 2018-07-09 19:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 14.83 Mbit/s
95th percentile per-packet one-way delay: 190.593 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 14.83 Mbit/s
95th percentile per-packet one-way delay: 190.593 ms
Loss rate: 0.71%

Run 2: Report of TCP Cubic — Data Link

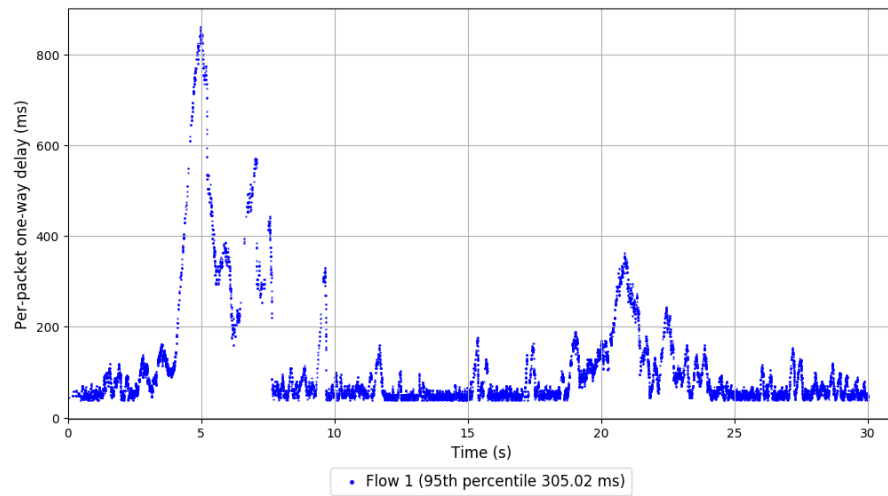
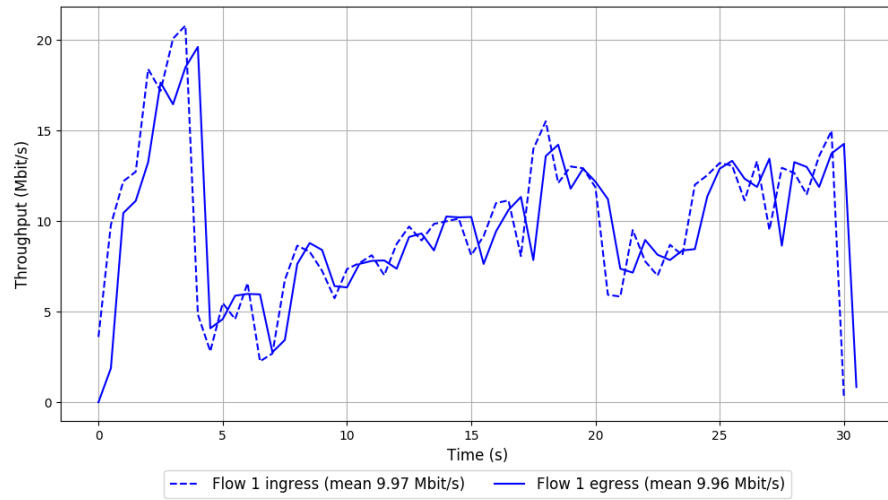


Run 3: Statistics of TCP Cubic

Start at: 2018-07-09 19:33:27
End at: 2018-07-09 19:33:57
Local clock offset: 1.719 ms
Remote clock offset: -3.181 ms

Below is generated by plot.py at 2018-07-09 19:45:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.96 Mbit/s
95th percentile per-packet one-way delay: 305.023 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 9.96 Mbit/s
95th percentile per-packet one-way delay: 305.023 ms
Loss rate: 0.22%

Run 3: Report of TCP Cubic — Data Link

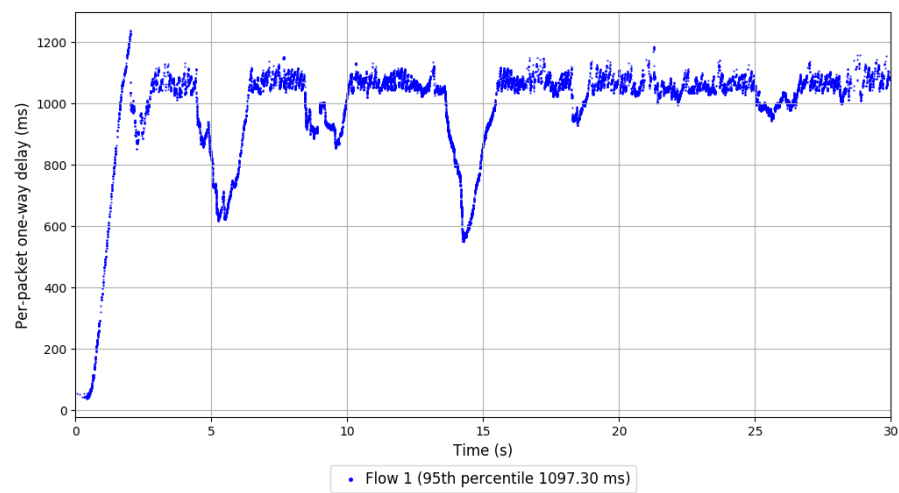
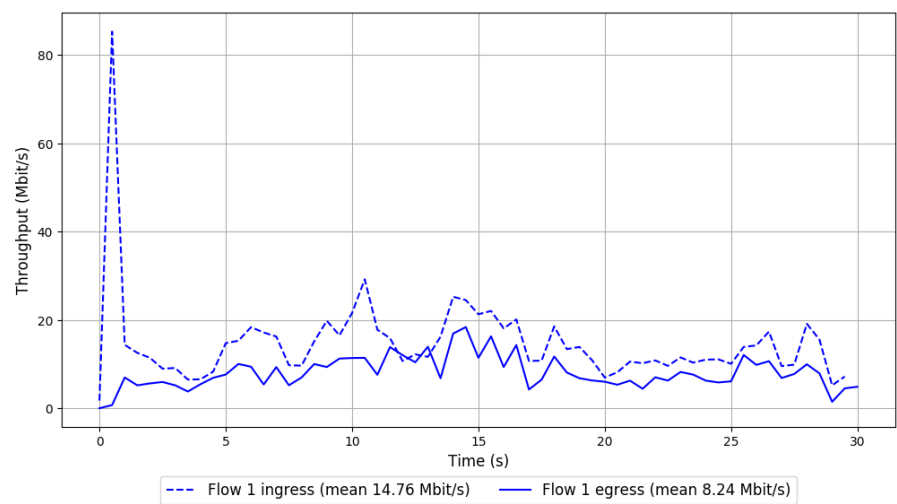


Run 1: Statistics of FillP

Start at: 2018-07-09 18:55:00
End at: 2018-07-09 18:55:30
Local clock offset: 4.851 ms
Remote clock offset: -3.228 ms

Below is generated by plot.py at 2018-07-09 19:45:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.24 Mbit/s
95th percentile per-packet one-way delay: 1097.295 ms
Loss rate: 44.26%
-- Flow 1:
Average throughput: 8.24 Mbit/s
95th percentile per-packet one-way delay: 1097.295 ms
Loss rate: 44.26%

Run 1: Report of FillP — Data Link

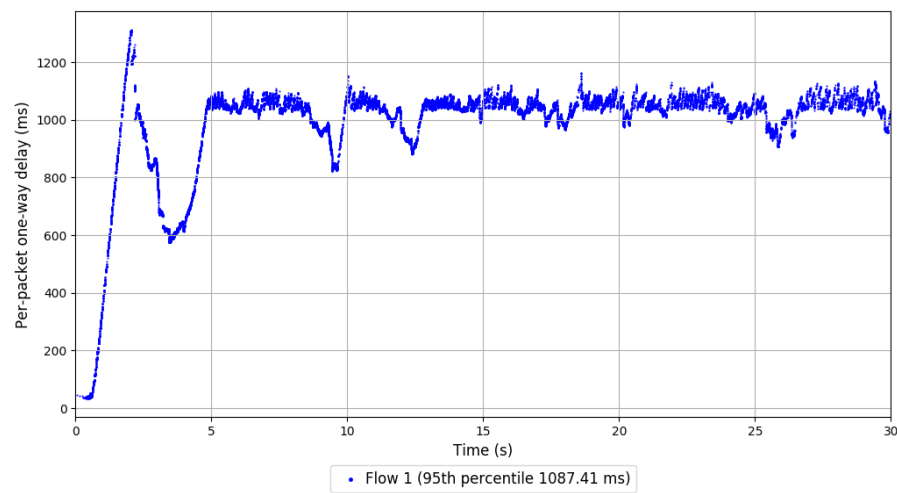
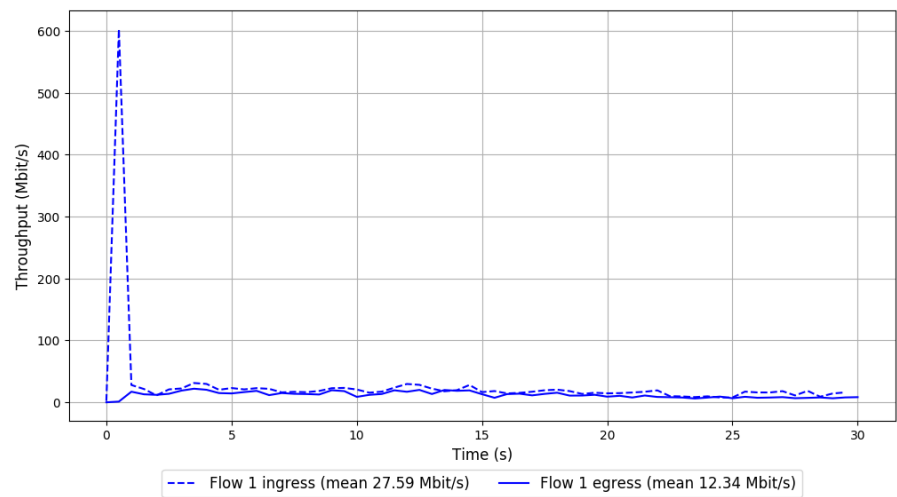


Run 2: Statistics of FillP

Start at: 2018-07-09 19:13:39
End at: 2018-07-09 19:14:09
Local clock offset: 0.431 ms
Remote clock offset: -4.604 ms

Below is generated by plot.py at 2018-07-09 19:45:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.34 Mbit/s
95th percentile per-packet one-way delay: 1087.410 ms
Loss rate: 55.31%
-- Flow 1:
Average throughput: 12.34 Mbit/s
95th percentile per-packet one-way delay: 1087.410 ms
Loss rate: 55.31%

Run 2: Report of FillP — Data Link

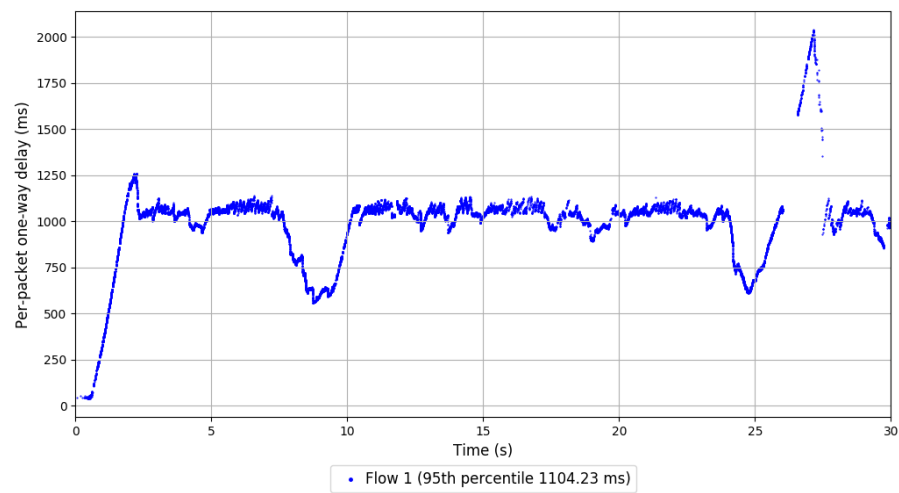
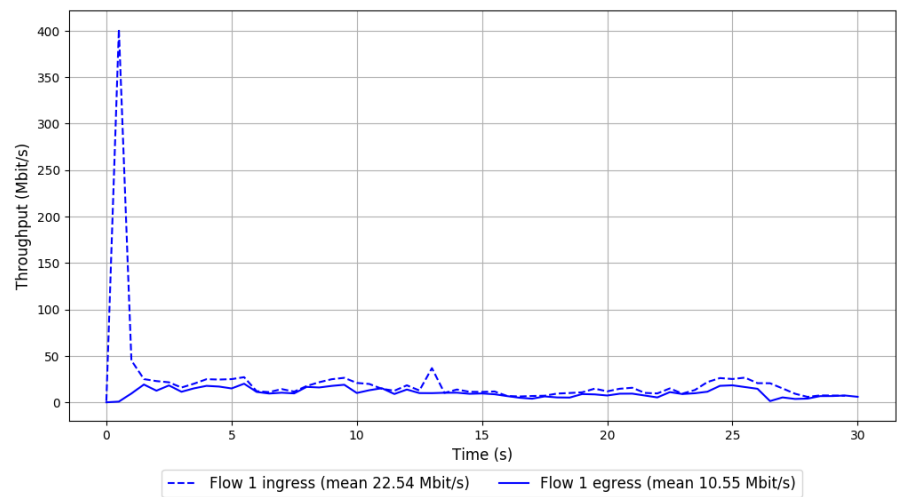


Run 3: Statistics of FillP

Start at: 2018-07-09 19:32:22
End at: 2018-07-09 19:32:52
Local clock offset: 0.924 ms
Remote clock offset: -4.033 ms

Below is generated by plot.py at 2018-07-09 19:45:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.55 Mbit/s
95th percentile per-packet one-way delay: 1104.233 ms
Loss rate: 53.27%
-- Flow 1:
Average throughput: 10.55 Mbit/s
95th percentile per-packet one-way delay: 1104.233 ms
Loss rate: 53.27%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-07-09 19:03:41

End at: 2018-07-09 19:04:11

Local clock offset: 0.312 ms

Remote clock offset: -2.13 ms

Below is generated by plot.py at 2018-07-09 19:45:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.83 Mbit/s

95th percentile per-packet one-way delay: 1083.457 ms

Loss rate: 28.61%

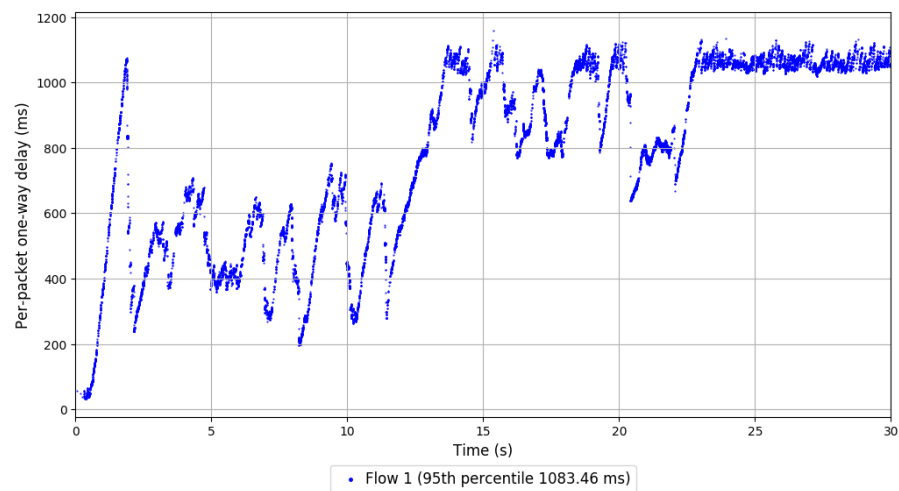
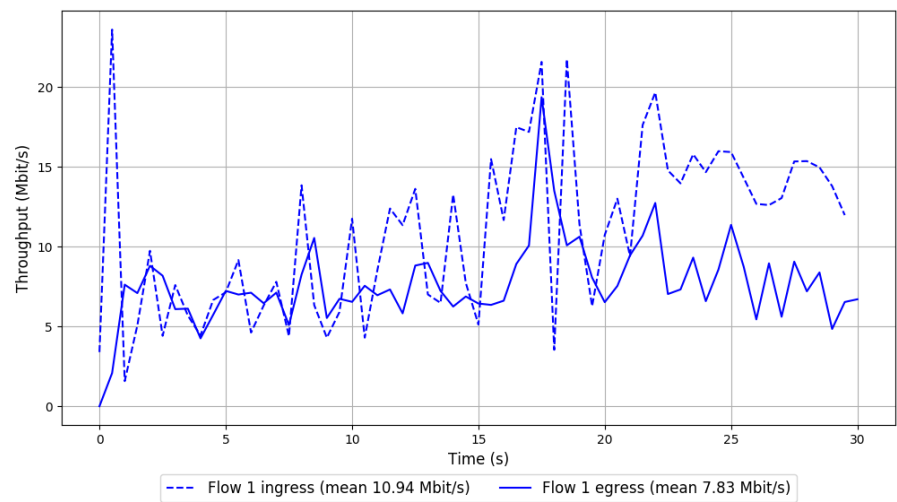
-- Flow 1:

Average throughput: 7.83 Mbit/s

95th percentile per-packet one-way delay: 1083.457 ms

Loss rate: 28.61%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-07-09 19:22:32

End at: 2018-07-09 19:23:02

Local clock offset: -0.7 ms

Remote clock offset: -3.794 ms

Below is generated by plot.py at 2018-07-09 19:45:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 11.99 Mbit/s

95th percentile per-packet one-way delay: 1070.852 ms

Loss rate: 12.30%

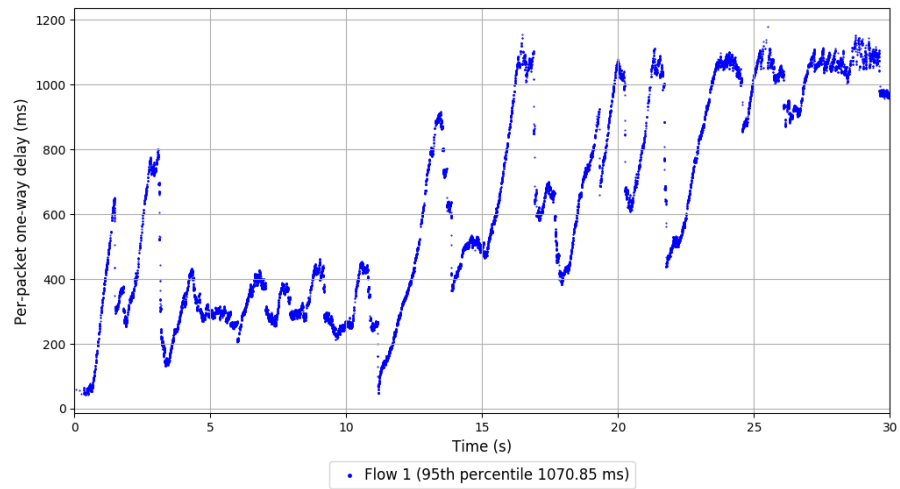
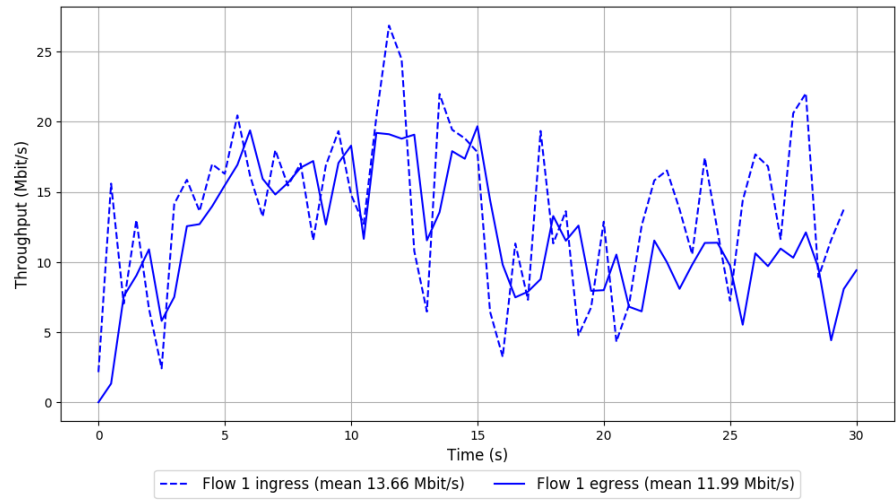
-- Flow 1:

Average throughput: 11.99 Mbit/s

95th percentile per-packet one-way delay: 1070.852 ms

Loss rate: 12.30%

Run 2: Report of FillP-Sheep — Data Link

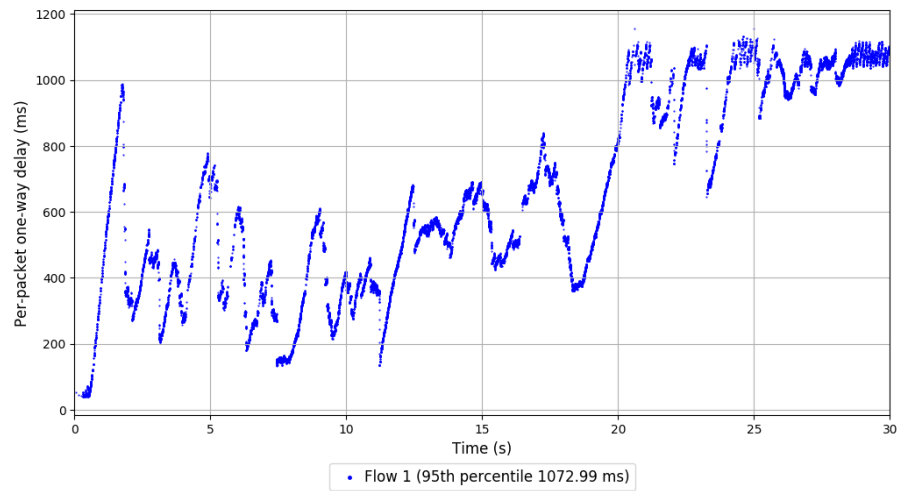
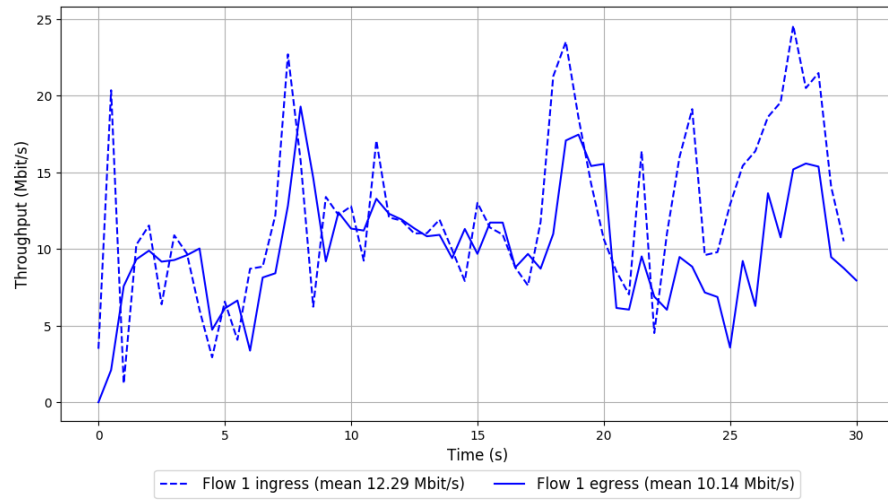


Run 3: Statistics of FillP-Sheep

Start at: 2018-07-09 19:41:12
End at: 2018-07-09 19:41:42
Local clock offset: 1.921 ms
Remote clock offset: -4.005 ms

Below is generated by plot.py at 2018-07-09 19:45:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.14 Mbit/s
95th percentile per-packet one-way delay: 1072.993 ms
Loss rate: 17.67%
-- Flow 1:
Average throughput: 10.14 Mbit/s
95th percentile per-packet one-way delay: 1072.993 ms
Loss rate: 17.67%

Run 3: Report of FillP-Sheep — Data Link



Run 1: Statistics of Indigo

Start at: 2018-07-09 18:51:45

End at: 2018-07-09 18:52:15

Local clock offset: 1.992 ms

Remote clock offset: -3.997 ms

Below is generated by plot.py at 2018-07-09 19:45:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.66 Mbit/s

95th percentile per-packet one-way delay: 68.922 ms

Loss rate: 0.14%

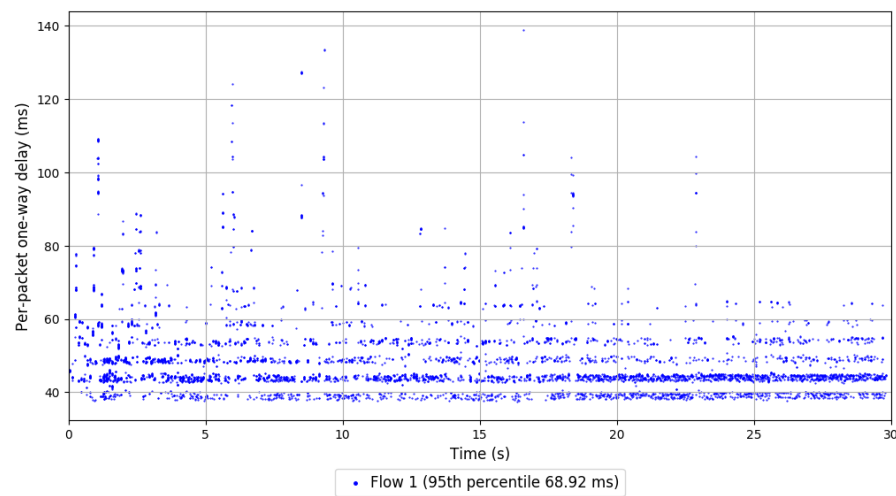
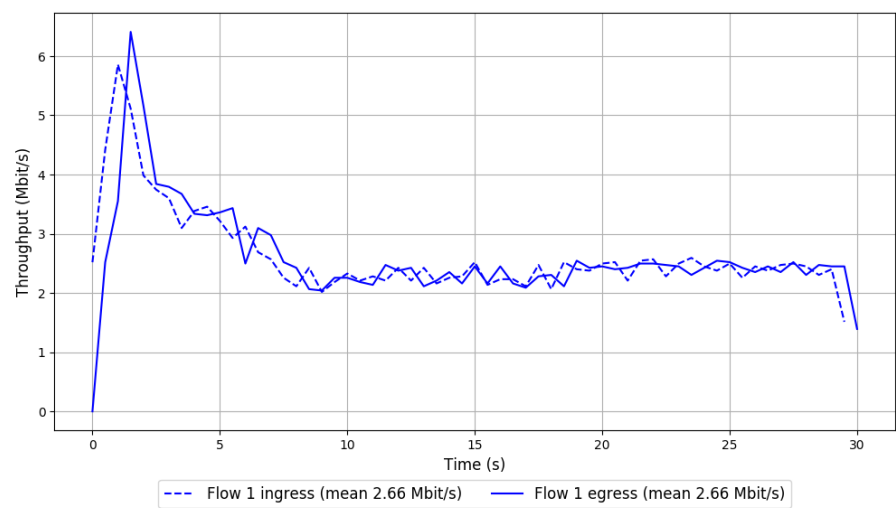
-- Flow 1:

Average throughput: 2.66 Mbit/s

95th percentile per-packet one-way delay: 68.922 ms

Loss rate: 0.14%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-07-09 19:10:24

End at: 2018-07-09 19:10:54

Local clock offset: 2.184 ms

Remote clock offset: -4.594 ms

Below is generated by plot.py at 2018-07-09 19:45:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.51 Mbit/s

95th percentile per-packet one-way delay: 69.182 ms

Loss rate: 0.16%

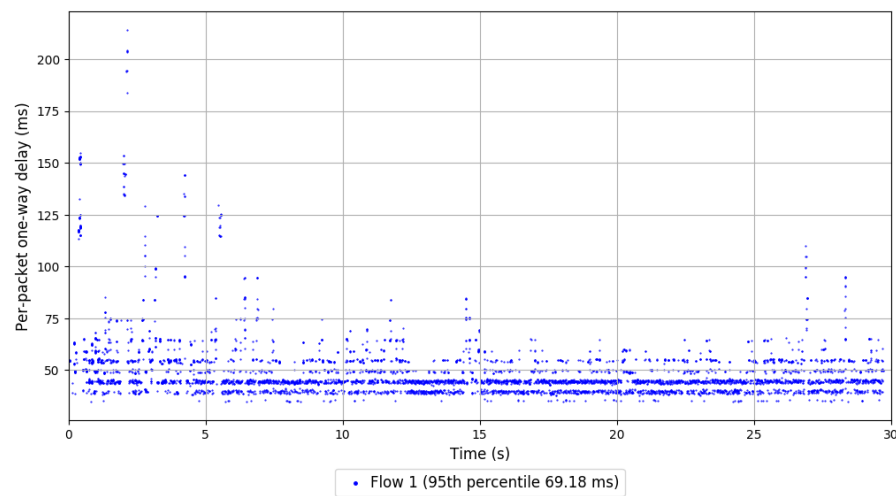
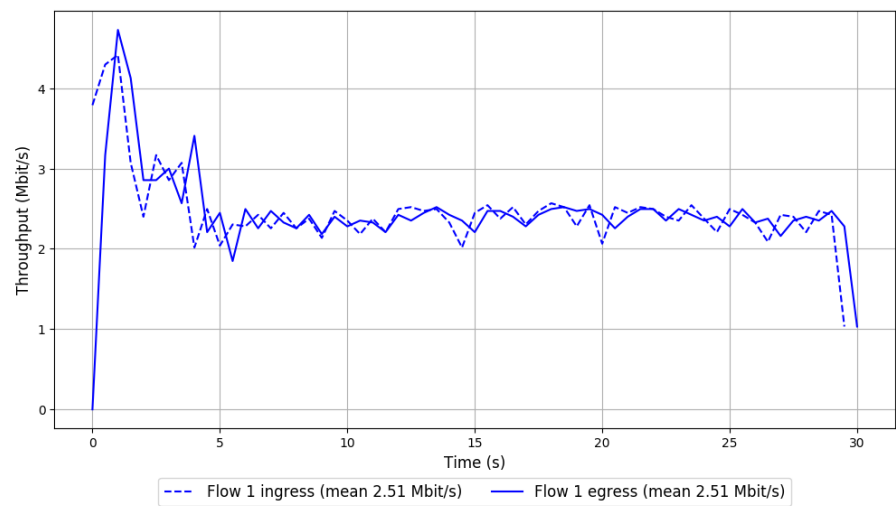
-- Flow 1:

Average throughput: 2.51 Mbit/s

95th percentile per-packet one-way delay: 69.182 ms

Loss rate: 0.16%

Run 2: Report of Indigo — Data Link

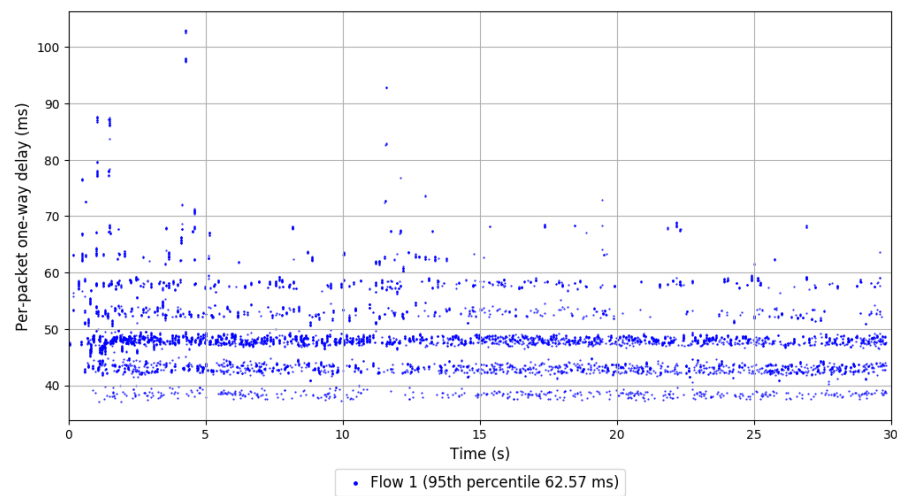
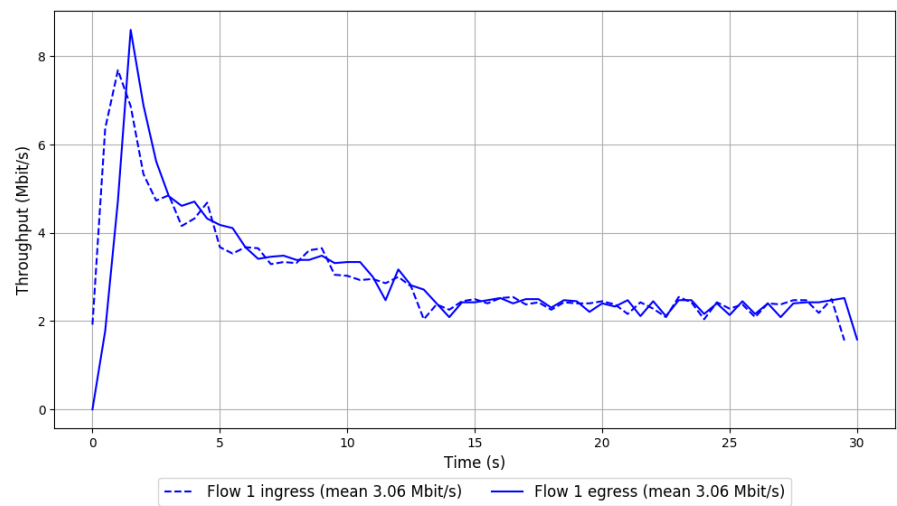


Run 3: Statistics of Indigo

Start at: 2018-07-09 19:29:05
End at: 2018-07-09 19:29:35
Local clock offset: -0.508 ms
Remote clock offset: -4.822 ms

Below is generated by plot.py at 2018-07-09 19:45:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.06 Mbit/s
95th percentile per-packet one-way delay: 62.566 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 3.06 Mbit/s
95th percentile per-packet one-way delay: 62.566 ms
Loss rate: 0.07%

Run 3: Report of Indigo — Data Link

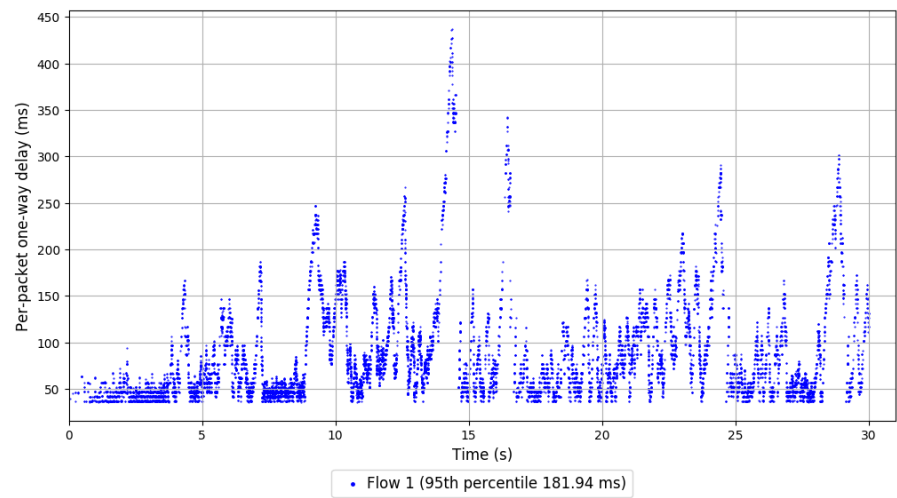
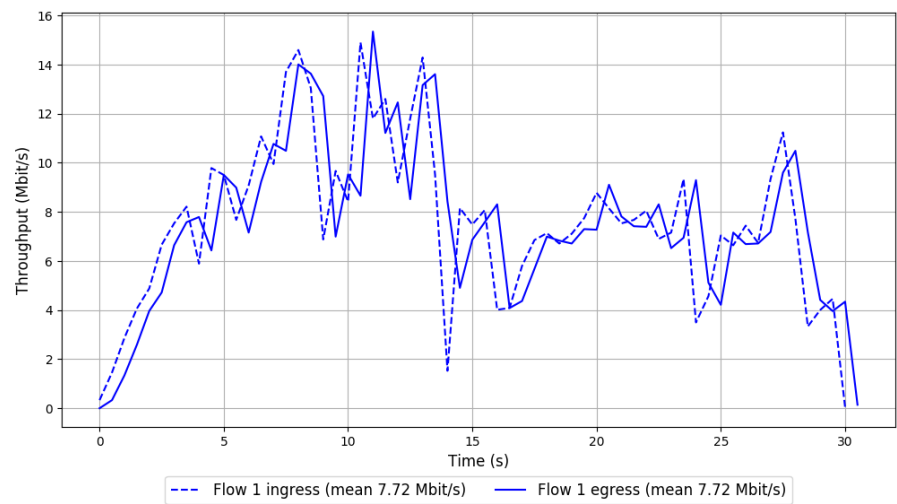


Run 1: Statistics of LEDBAT

Start at: 2018-07-09 19:00:26
End at: 2018-07-09 19:00:56
Local clock offset: 0.41 ms
Remote clock offset: -2.926 ms

Below is generated by plot.py at 2018-07-09 19:45:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.72 Mbit/s
95th percentile per-packet one-way delay: 181.936 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 7.72 Mbit/s
95th percentile per-packet one-way delay: 181.936 ms
Loss rate: 0.23%

Run 1: Report of LEDBAT — Data Link

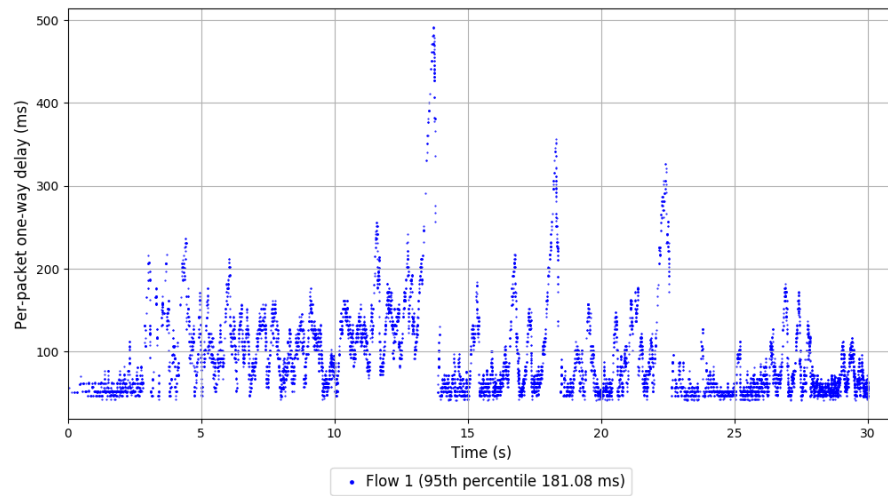
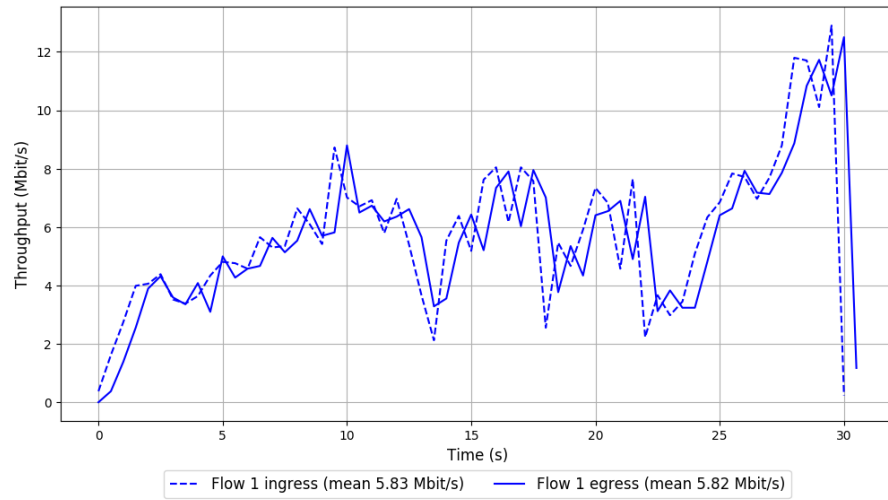


Run 2: Statistics of LEDBAT

Start at: 2018-07-09 19:19:09
End at: 2018-07-09 19:19:39
Local clock offset: -0.335 ms
Remote clock offset: -4.191 ms

Below is generated by plot.py at 2018-07-09 19:45:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 181.078 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 181.078 ms
Loss rate: 0.29%

Run 2: Report of LEDBAT — Data Link

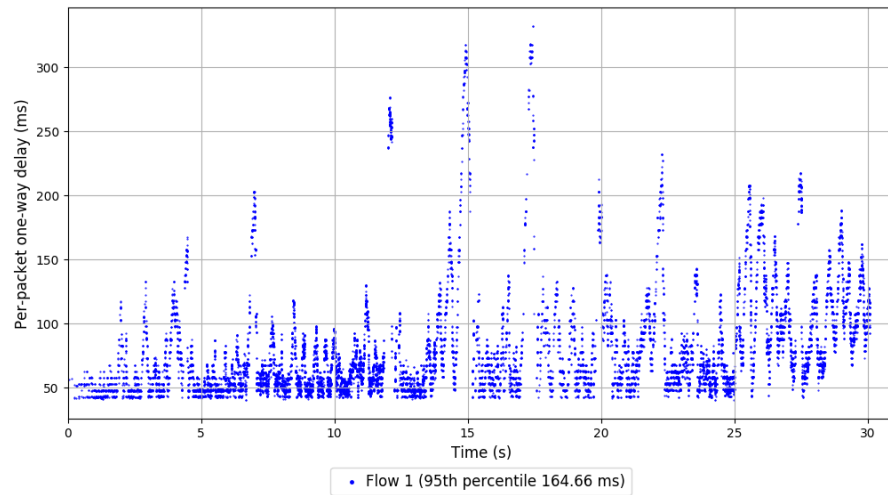
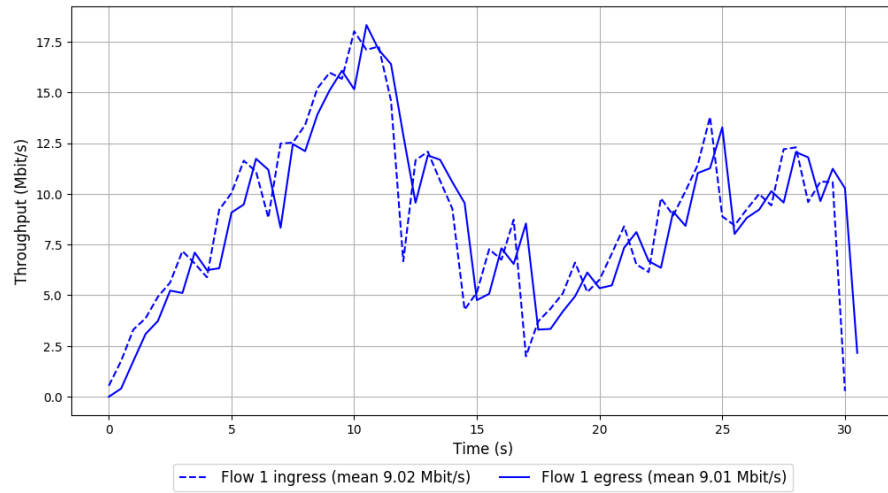


Run 3: Statistics of LEDBAT

Start at: 2018-07-09 19:37:55
End at: 2018-07-09 19:38:25
Local clock offset: -0.911 ms
Remote clock offset: -3.941 ms

Below is generated by plot.py at 2018-07-09 19:45:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.01 Mbit/s
95th percentile per-packet one-way delay: 164.659 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 9.01 Mbit/s
95th percentile per-packet one-way delay: 164.659 ms
Loss rate: 0.10%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-07-09 19:05:57

End at: 2018-07-09 19:06:27

Local clock offset: 0.697 ms

Remote clock offset: -3.338 ms

Below is generated by plot.py at 2018-07-09 19:45:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.16 Mbit/s

95th percentile per-packet one-way delay: 76.264 ms

Loss rate: 0.12%

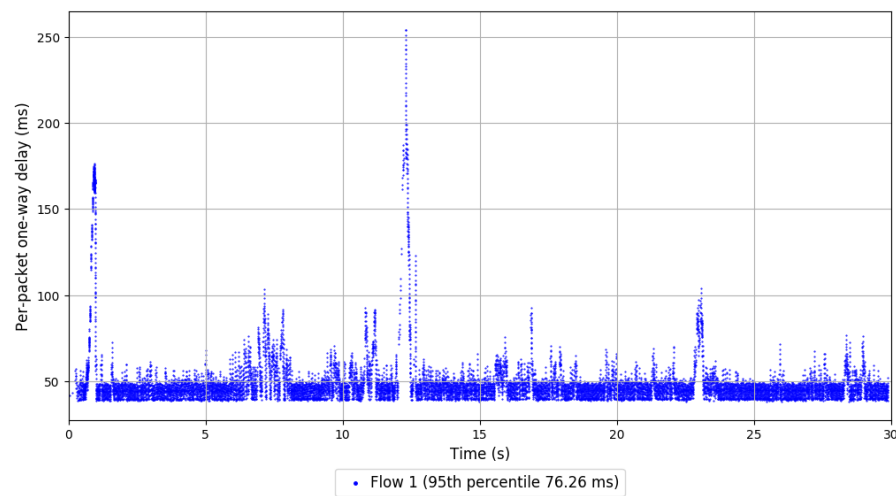
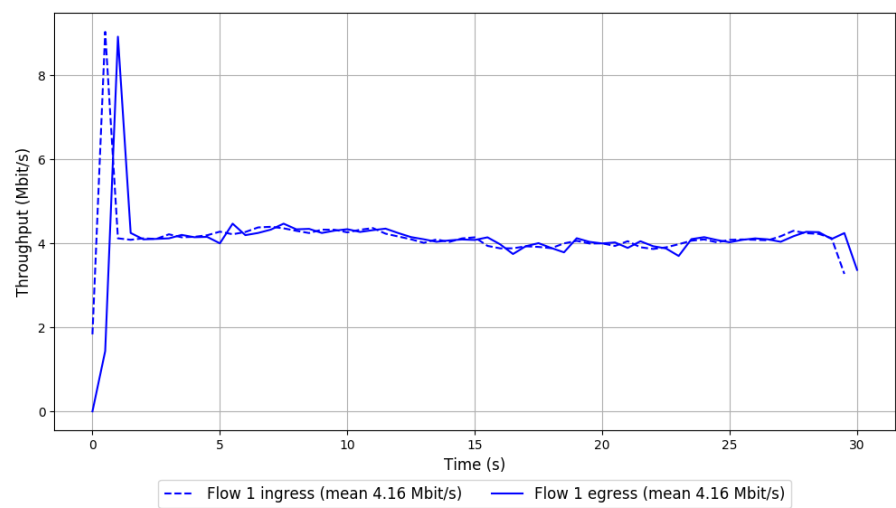
-- Flow 1:

Average throughput: 4.16 Mbit/s

95th percentile per-packet one-way delay: 76.264 ms

Loss rate: 0.12%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-07-09 19:24:43

End at: 2018-07-09 19:25:13

Local clock offset: 1.822 ms

Remote clock offset: -3.742 ms

Below is generated by plot.py at 2018-07-09 19:45:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.03 Mbit/s

95th percentile per-packet one-way delay: 56.006 ms

Loss rate: 0.12%

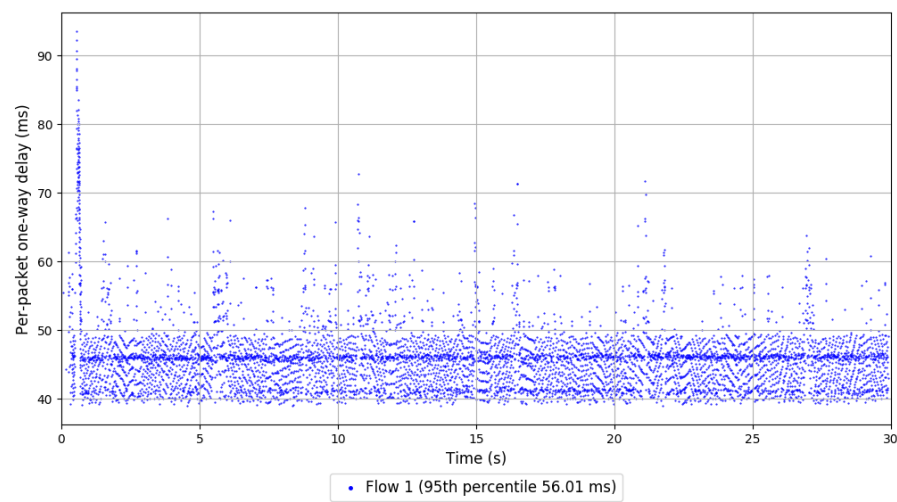
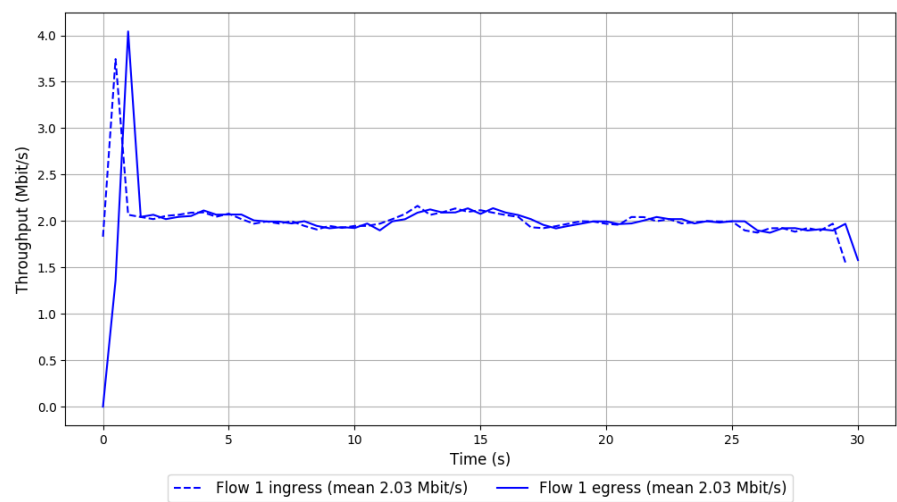
-- Flow 1:

Average throughput: 2.03 Mbit/s

95th percentile per-packet one-way delay: 56.006 ms

Loss rate: 0.12%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-07-09 19:43:22

End at: 2018-07-09 19:43:52

Local clock offset: -4.942 ms

Remote clock offset: -9.553 ms

Below is generated by plot.py at 2018-07-09 19:45:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.27 Mbit/s

95th percentile per-packet one-way delay: 177.473 ms

Loss rate: 0.13%

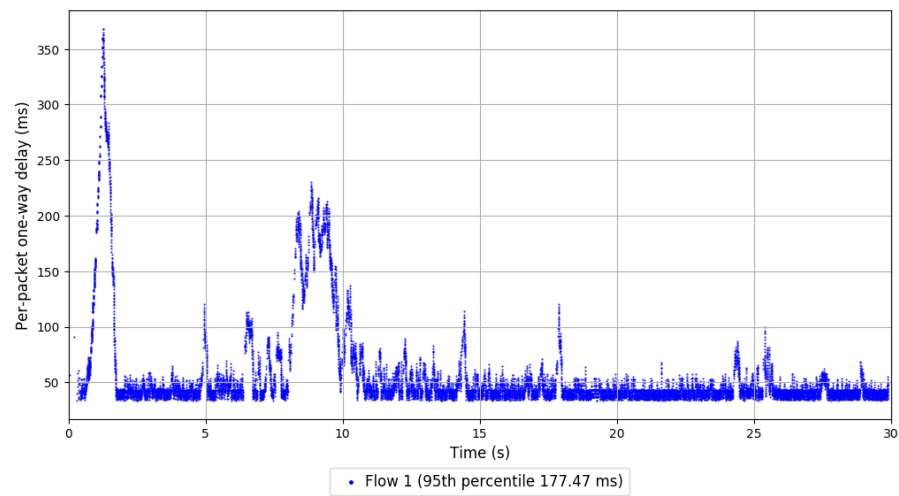
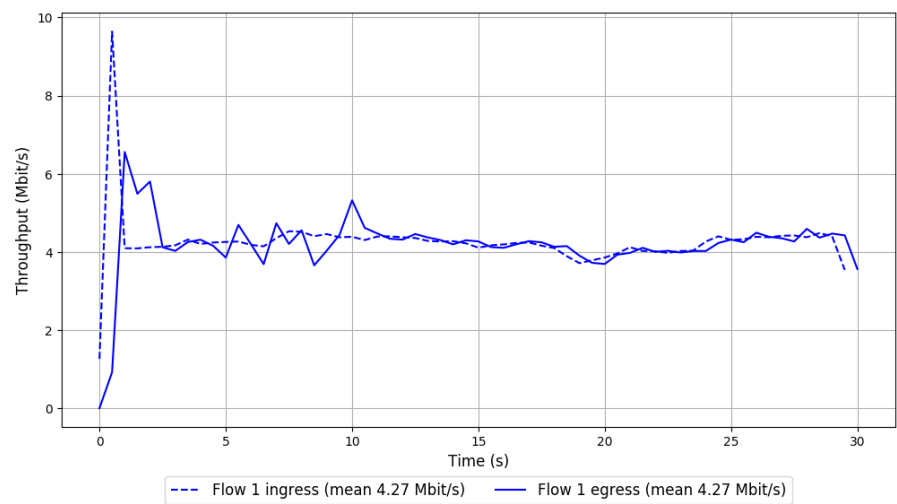
-- Flow 1:

Average throughput: 4.27 Mbit/s

95th percentile per-packet one-way delay: 177.473 ms

Loss rate: 0.13%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2018-07-09 19:07:02

End at: 2018-07-09 19:07:32

Local clock offset: 3.219 ms

Remote clock offset: -3.863 ms

Below is generated by plot.py at 2018-07-09 19:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.91 Mbit/s

95th percentile per-packet one-way delay: 1016.807 ms

Loss rate: 1.53%

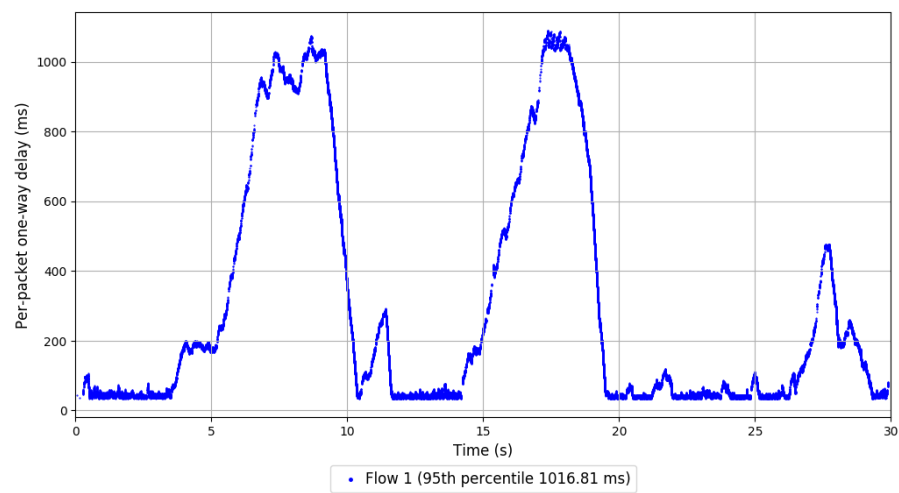
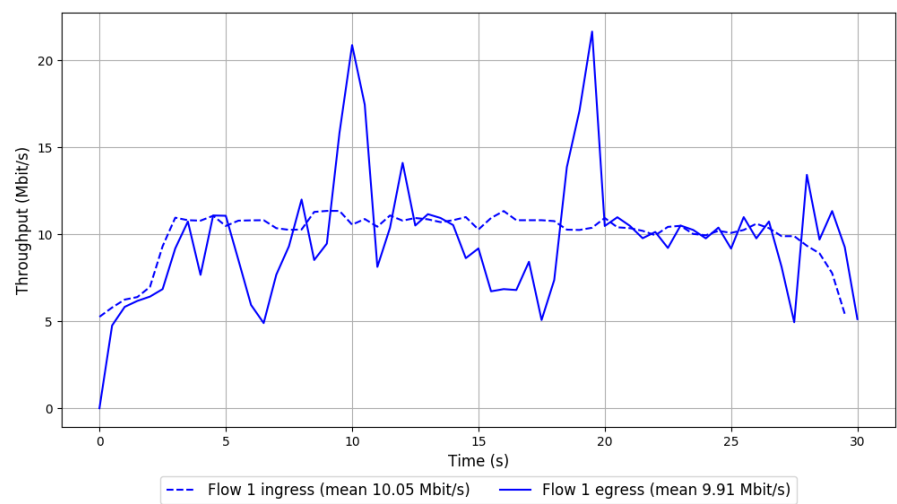
-- Flow 1:

Average throughput: 9.91 Mbit/s

95th percentile per-packet one-way delay: 1016.807 ms

Loss rate: 1.53%

Run 1: Report of PCC-Expr — Data Link

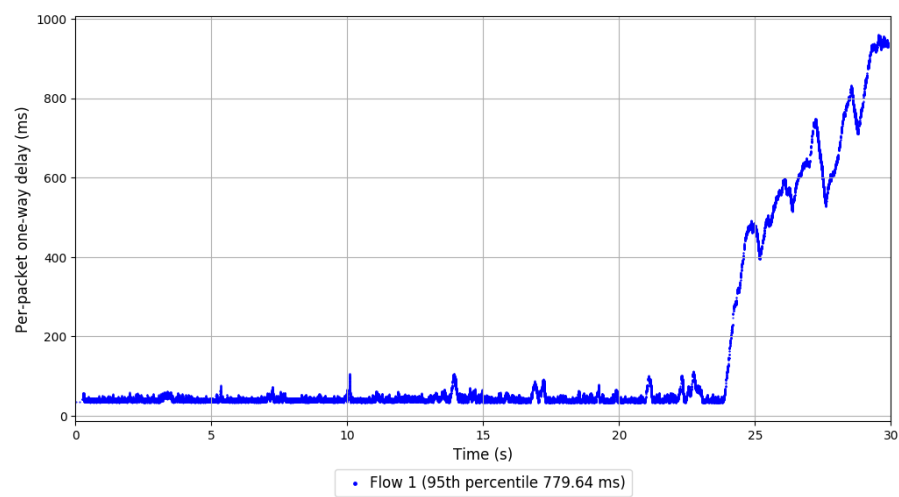
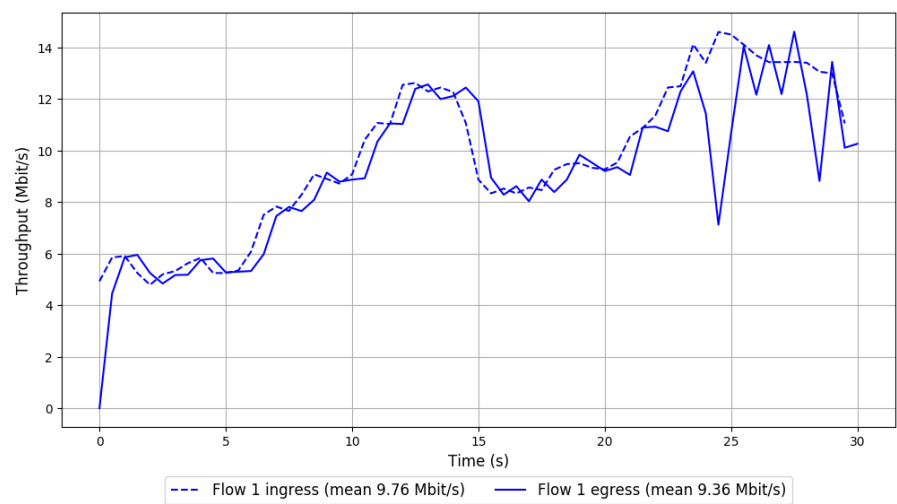


Run 2: Statistics of PCC-Expr

Start at: 2018-07-09 19:25:47
End at: 2018-07-09 19:26:17
Local clock offset: -0.544 ms
Remote clock offset: -4.976 ms

Below is generated by plot.py at 2018-07-09 19:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.36 Mbit/s
95th percentile per-packet one-way delay: 779.640 ms
Loss rate: 4.30%
-- Flow 1:
Average throughput: 9.36 Mbit/s
95th percentile per-packet one-way delay: 779.640 ms
Loss rate: 4.30%

Run 2: Report of PCC-Expr — Data Link

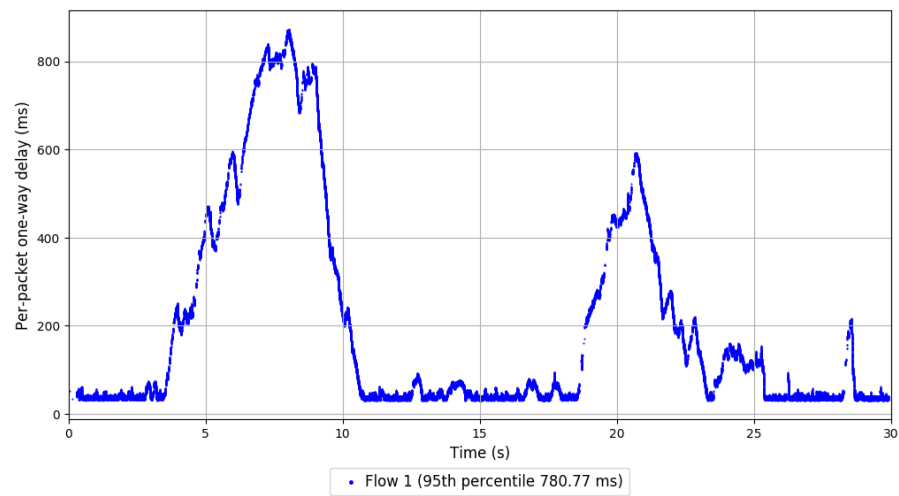
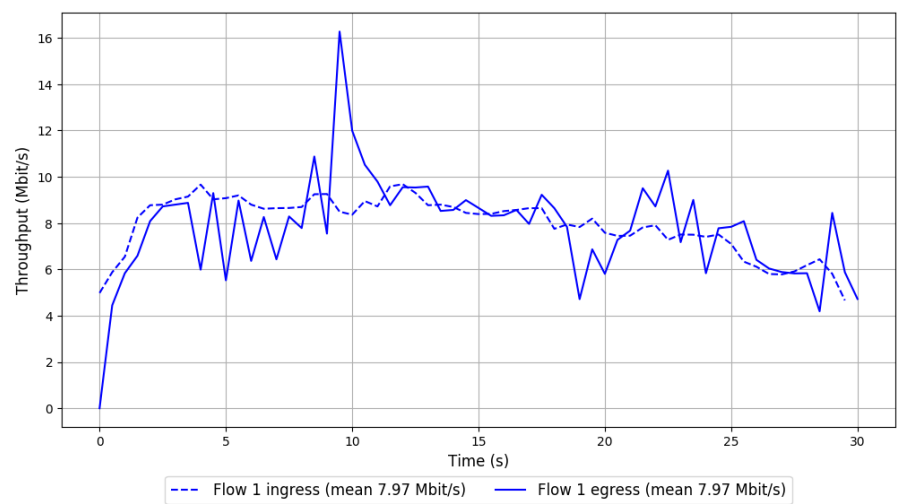


Run 3: Statistics of PCC-Expr

Start at: 2018-07-09 19:44:28
End at: 2018-07-09 19:44:58
Local clock offset: 2.581 ms
Remote clock offset: -4.608 ms

Below is generated by plot.py at 2018-07-09 19:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.97 Mbit/s
95th percentile per-packet one-way delay: 780.769 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 7.97 Mbit/s
95th percentile per-packet one-way delay: 780.769 ms
Loss rate: 0.08%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

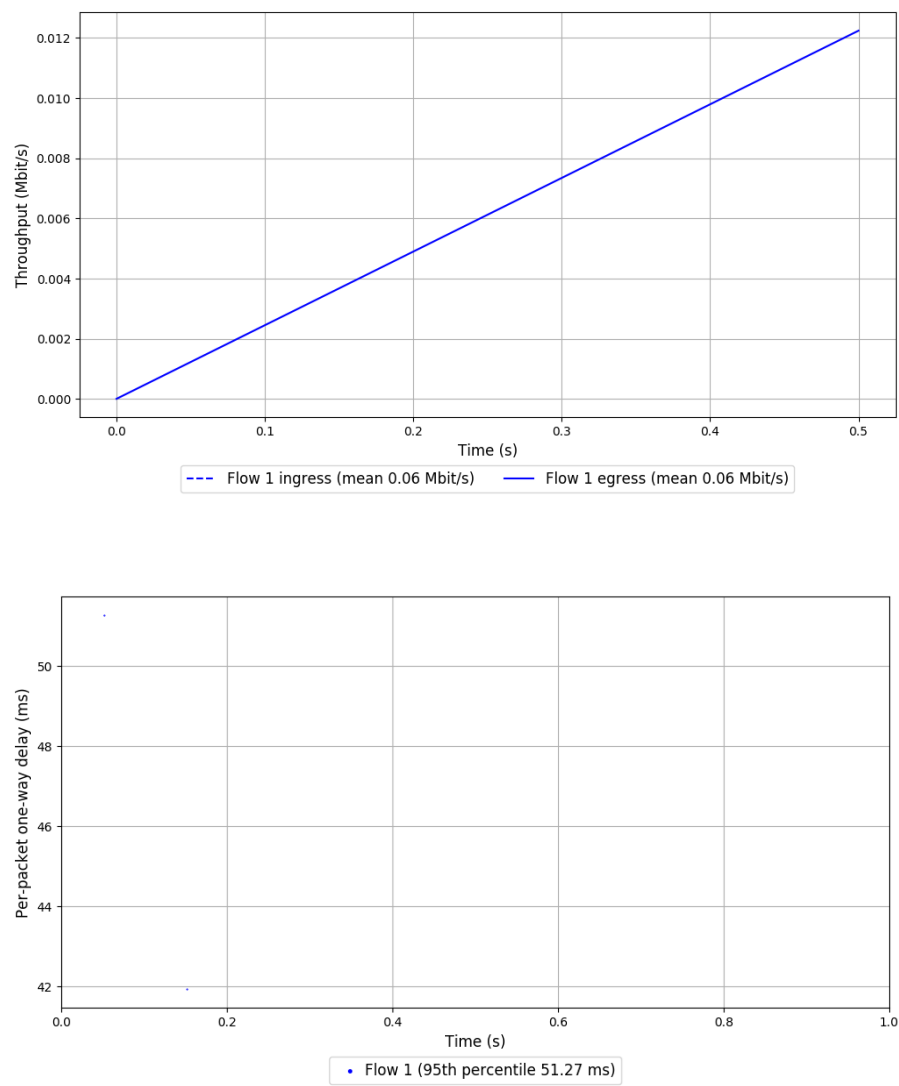
Start at: 2018-07-09 19:02:37

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

Local clock offset: 0.266 ms

Remote clock offset: -2.685 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-07-09 19:21:25

End at: 2018-07-09 19:21:56

Local clock offset: 3.382 ms

Remote clock offset: -4.581 ms

Below is generated by plot.py at 2018-07-09 19:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 11.66 Mbit/s

95th percentile per-packet one-way delay: 337.793 ms

Loss rate: 0.77%

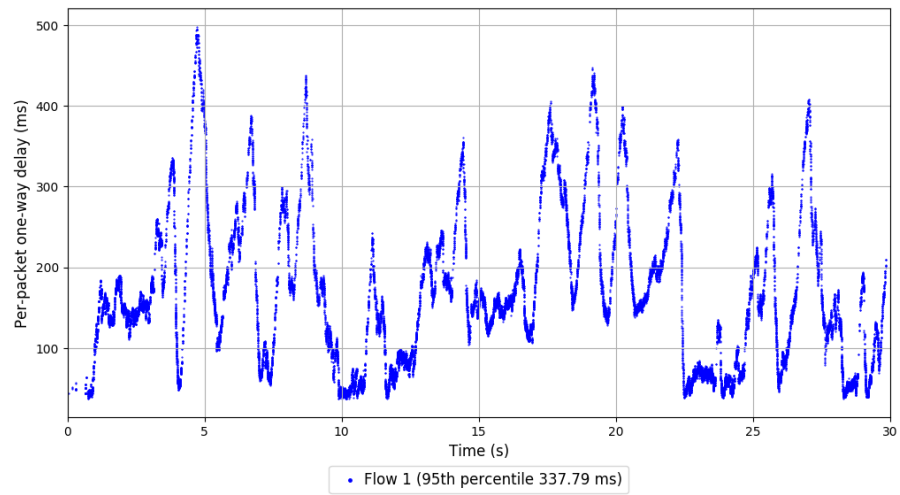
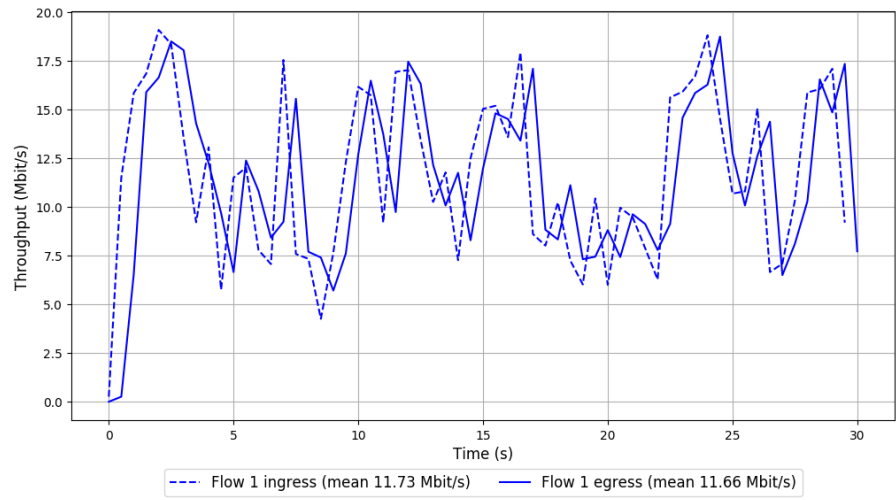
-- Flow 1:

Average throughput: 11.66 Mbit/s

95th percentile per-packet one-way delay: 337.793 ms

Loss rate: 0.77%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-07-09 19:40:06

End at: 2018-07-09 19:40:36

Local clock offset: 1.711 ms

Remote clock offset: -4.005 ms

Below is generated by plot.py at 2018-07-09 19:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.31 Mbit/s

95th percentile per-packet one-way delay: 290.828 ms

Loss rate: 0.92%

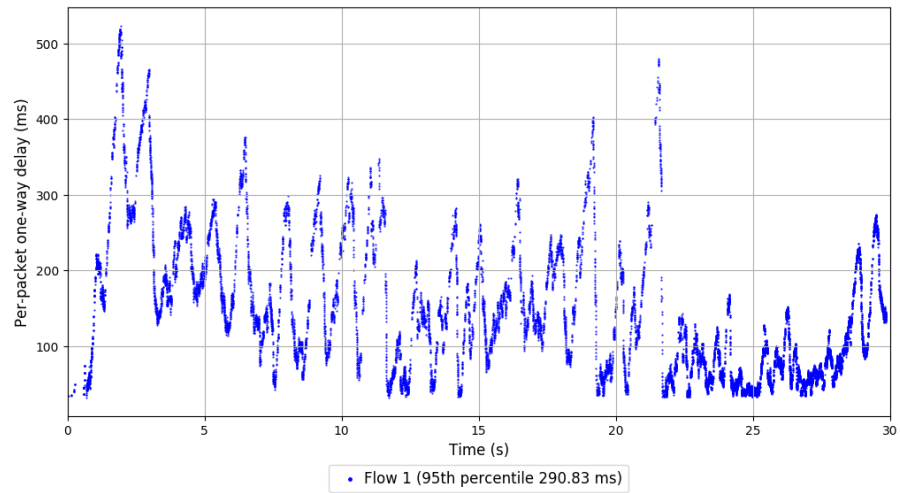
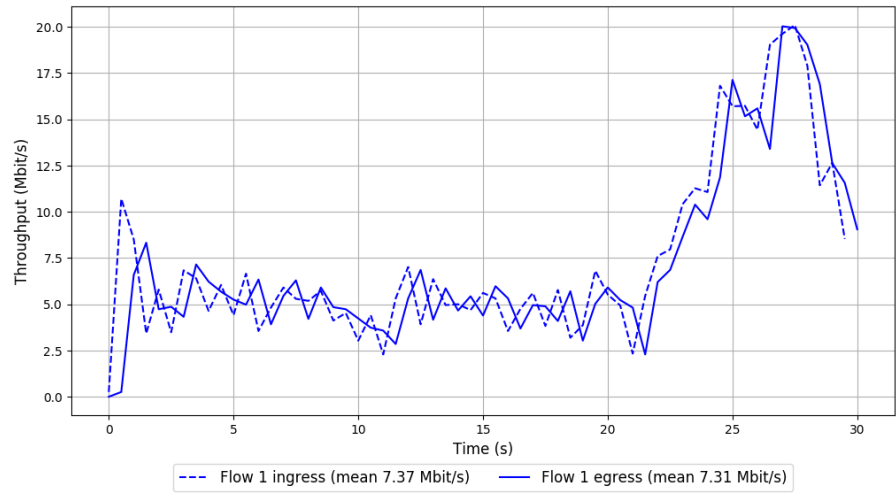
-- Flow 1:

Average throughput: 7.31 Mbit/s

95th percentile per-packet one-way delay: 290.828 ms

Loss rate: 0.92%

Run 3: Report of QUIC Cubic — Data Link

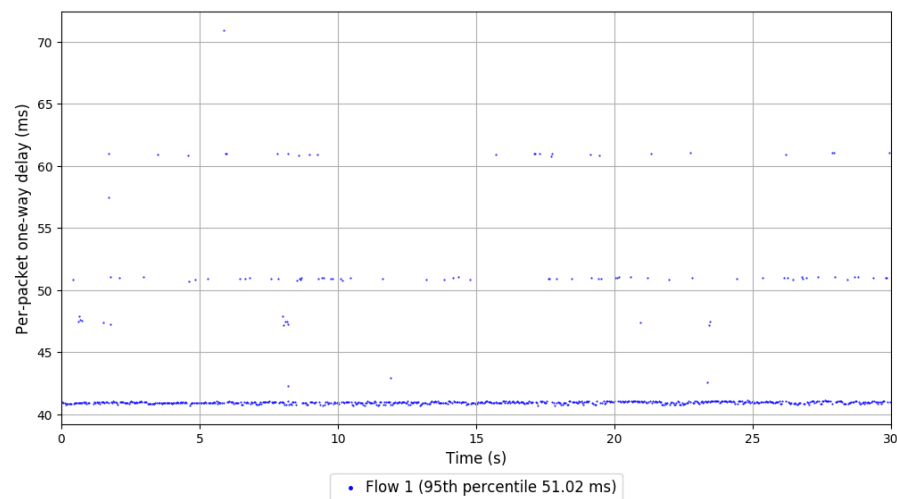
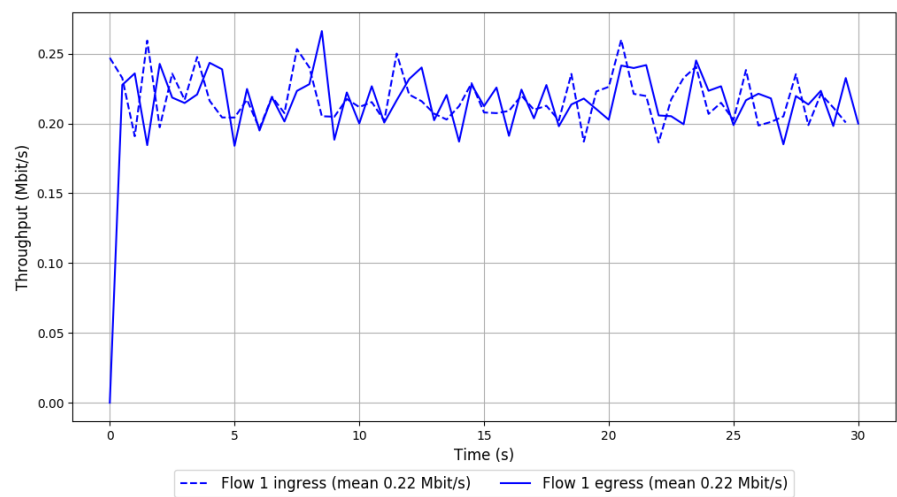


```
Run 1: Statistics of SCReAM

Start at: 2018-07-09 18:58:16
End at: 2018-07-09 18:58:46
Local clock offset: -0.84 ms
Remote clock offset: -2.7 ms

# Below is generated by plot.py at 2018-07-09 19:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 51.016 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 51.016 ms
Loss rate: 0.13%
```


Run 1: Report of SReAM — Data Link

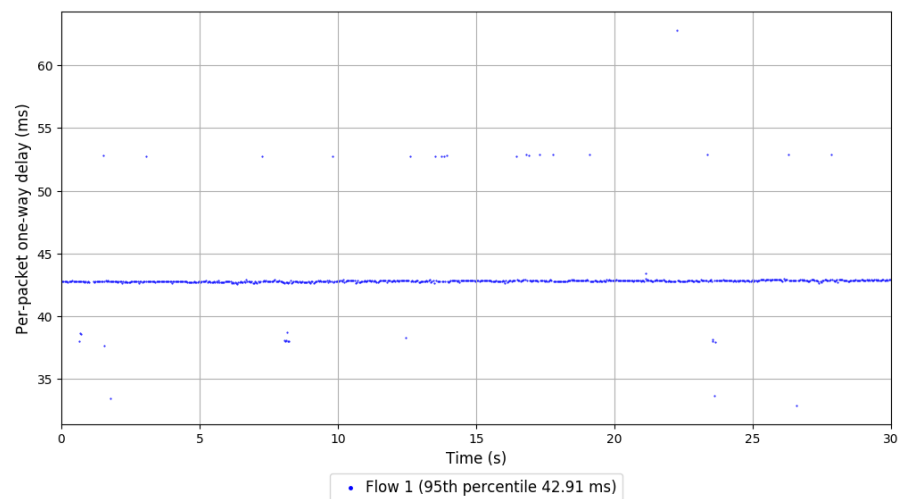
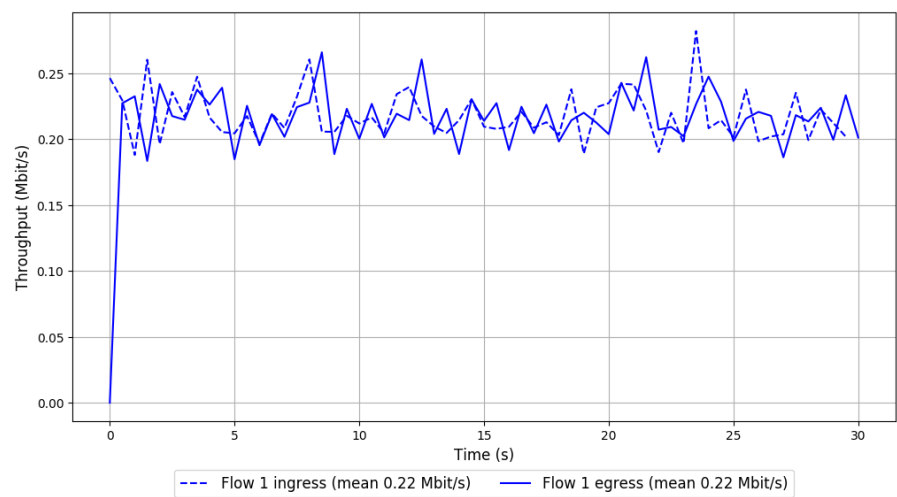


Run 2: Statistics of SCReAM

Start at: 2018-07-09 19:16:54
End at: 2018-07-09 19:17:24
Local clock offset: 1.004 ms
Remote clock offset: -4.929 ms

Below is generated by plot.py at 2018-07-09 19:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 42.915 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 42.915 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

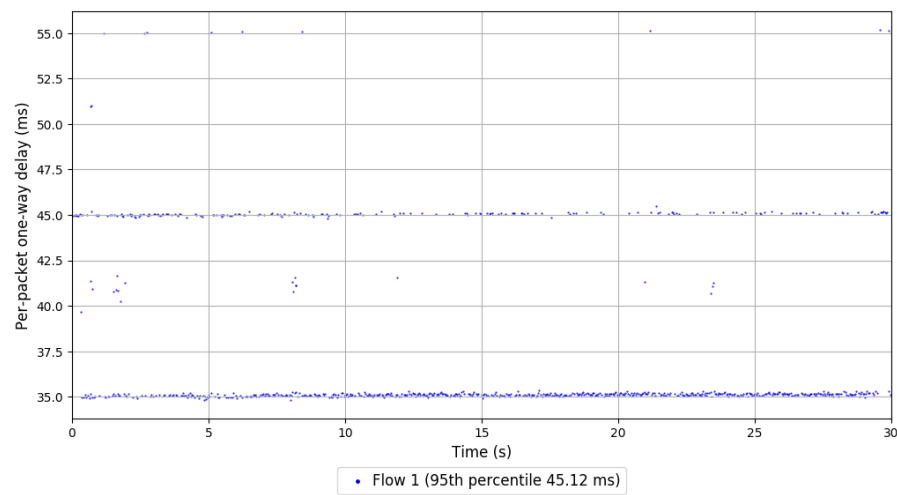
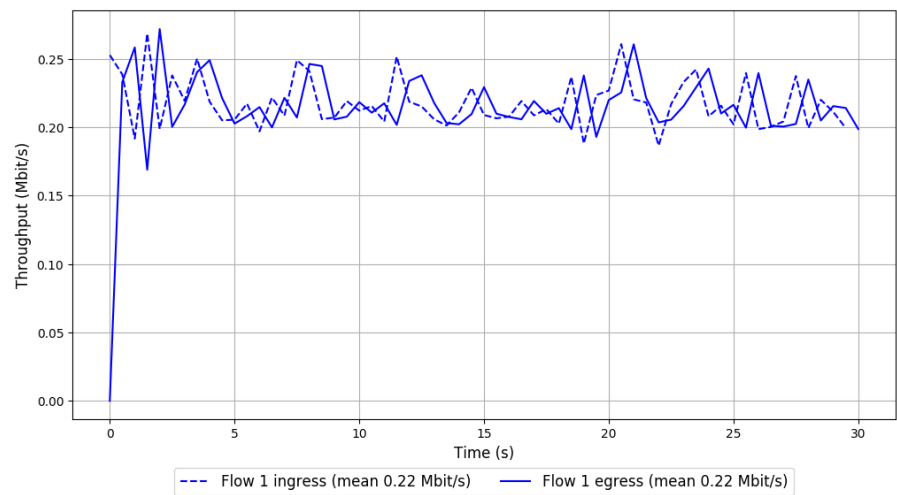


Run 3: Statistics of SCReAM

Start at: 2018-07-09 19:35:44
End at: 2018-07-09 19:36:14
Local clock offset: -0.907 ms
Remote clock offset: -4.159 ms

Below is generated by plot.py at 2018-07-09 19:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 45.123 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 45.123 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-07-09 18:57:12

End at: 2018-07-09 18:57:42

Local clock offset: 1.836 ms

Remote clock offset: -2.98 ms

Below is generated by plot.py at 2018-07-09 19:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.28 Mbit/s

95th percentile per-packet one-way delay: 64.064 ms

Loss rate: 0.45%

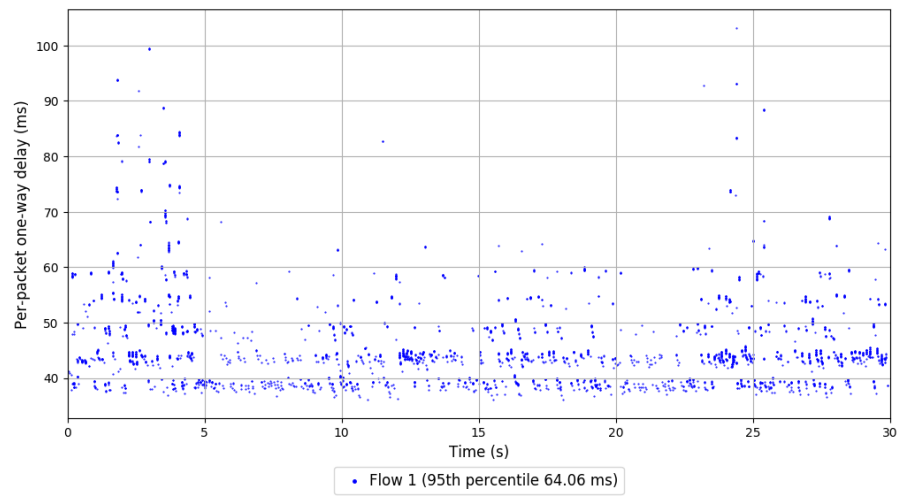
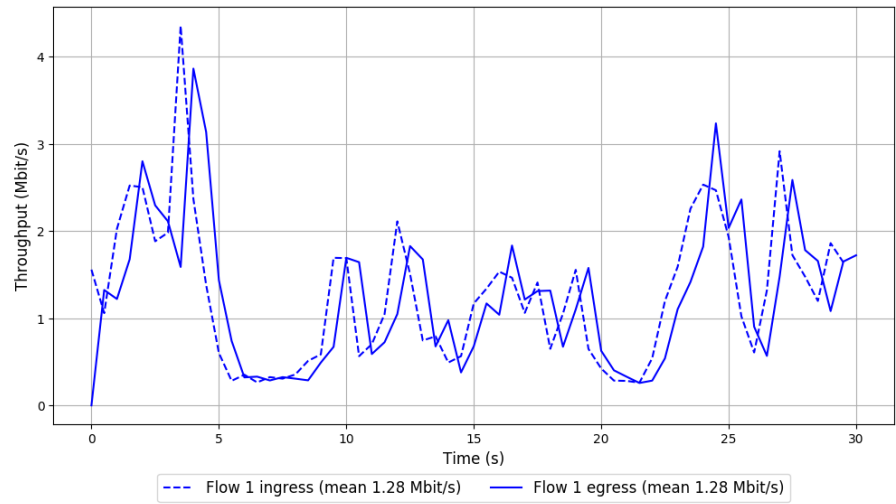
-- Flow 1:

Average throughput: 1.28 Mbit/s

95th percentile per-packet one-way delay: 64.064 ms

Loss rate: 0.45%

Run 1: Report of Sprout — Data Link

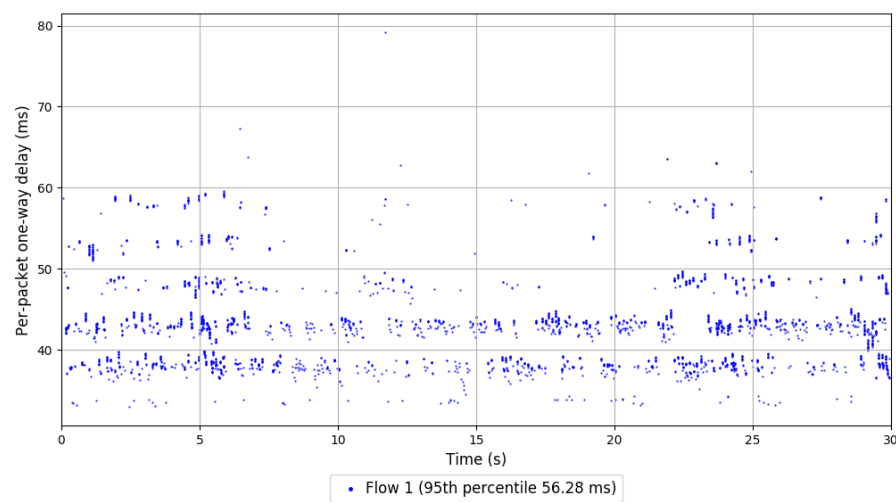
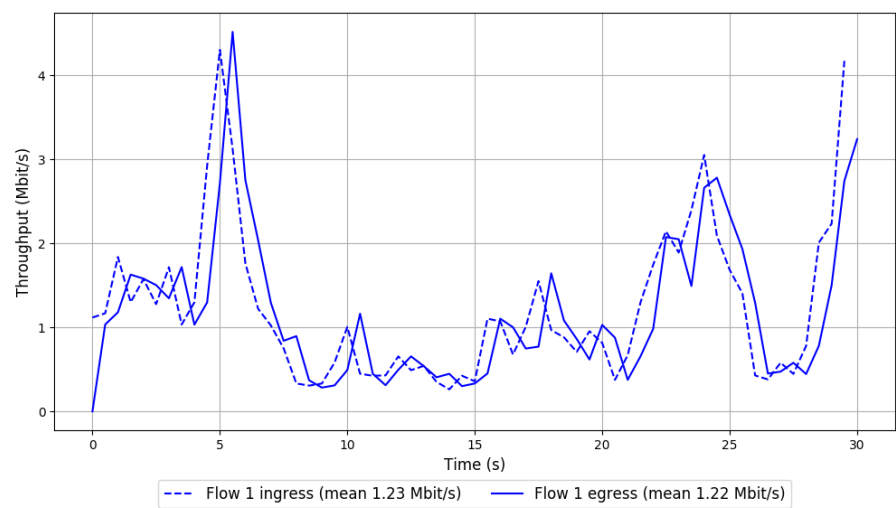


Run 2: Statistics of Sprout

Start at: 2018-07-09 19:15:50
End at: 2018-07-09 19:16:20
Local clock offset: 1.317 ms
Remote clock offset: -3.599 ms

Below is generated by plot.py at 2018-07-09 19:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 56.278 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 56.278 ms
Loss rate: 1.26%

Run 2: Report of Sprout — Data Link

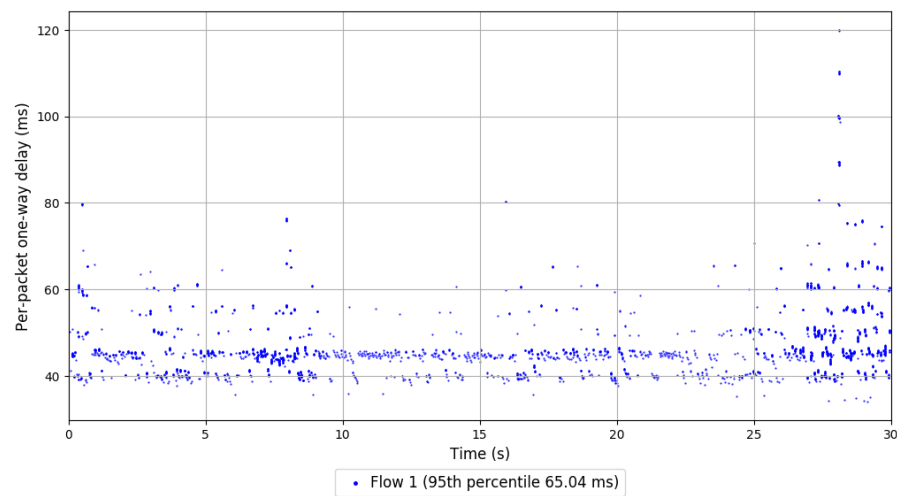
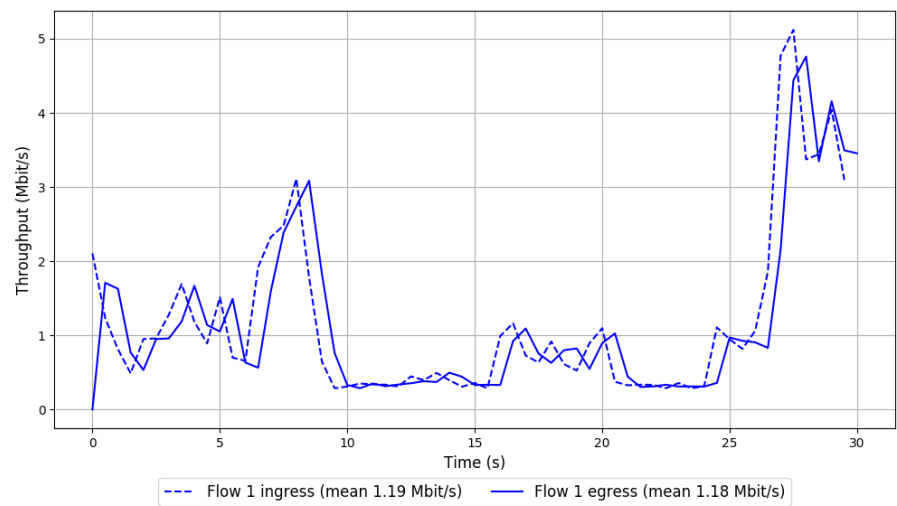


Run 3: Statistics of Sprout

Start at: 2018-07-09 19:34:39
End at: 2018-07-09 19:35:09
Local clock offset: -0.987 ms
Remote clock offset: -4.237 ms

Below is generated by plot.py at 2018-07-09 19:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 65.037 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 65.037 ms
Loss rate: 0.27%

Run 3: Report of Sprout — Data Link

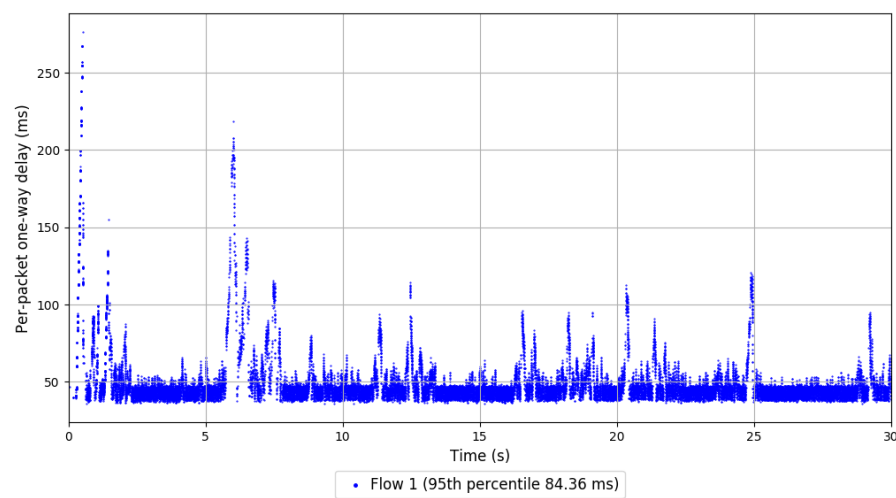
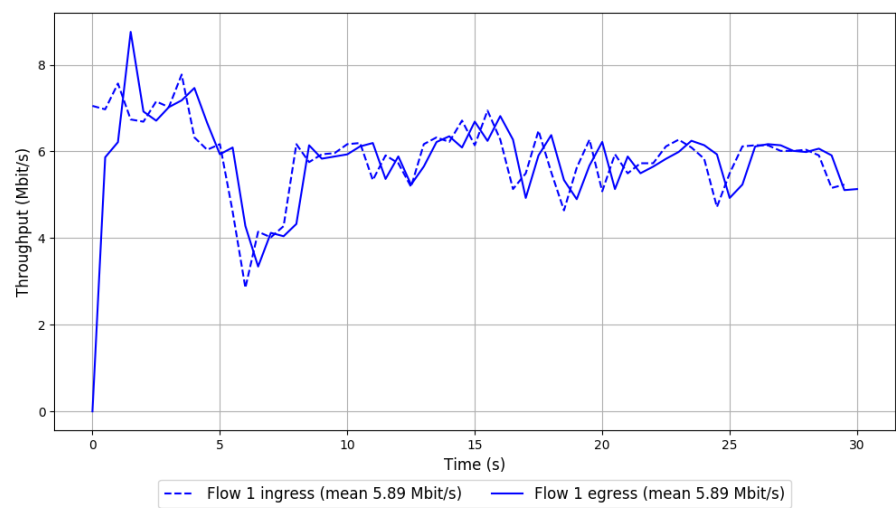


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-07-09 19:01:31
End at: 2018-07-09 19:02:01
Local clock offset: 1.959 ms
Remote clock offset: -3.103 ms

# Below is generated by plot.py at 2018-07-09 19:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.89 Mbit/s
95th percentile per-packet one-way delay: 84.359 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 5.89 Mbit/s
95th percentile per-packet one-way delay: 84.359 ms
Loss rate: 0.18%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-07-09 19:20:20

End at: 2018-07-09 19:20:50

Local clock offset: 1.306 ms

Remote clock offset: -4.093 ms

Below is generated by plot.py at 2018-07-09 19:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.08 Mbit/s

95th percentile per-packet one-way delay: 122.668 ms

Loss rate: 0.04%

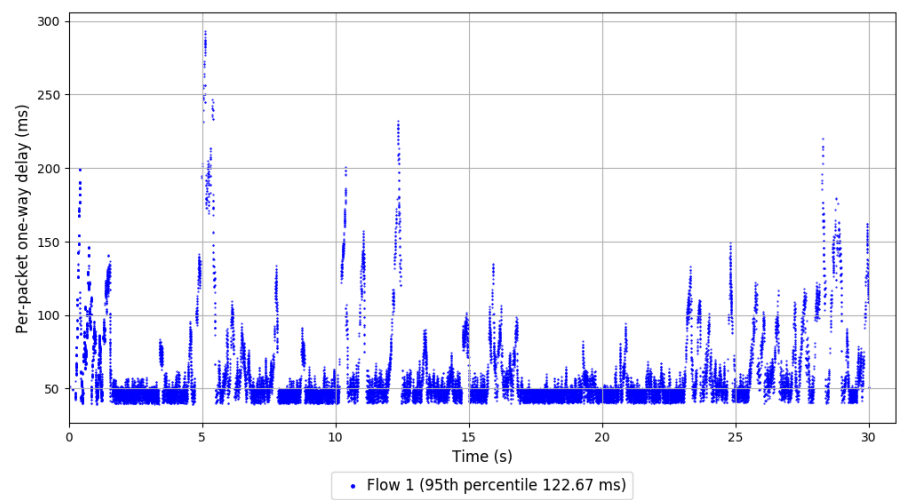
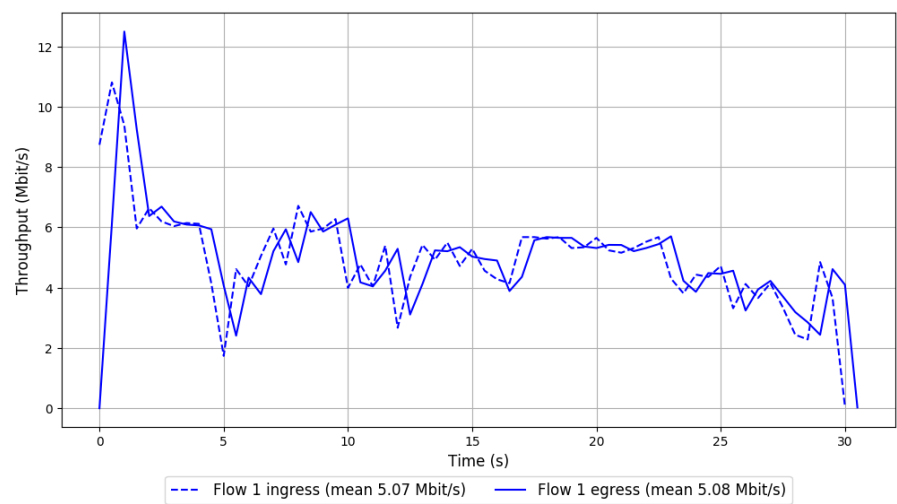
-- Flow 1:

Average throughput: 5.08 Mbit/s

95th percentile per-packet one-way delay: 122.668 ms

Loss rate: 0.04%

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

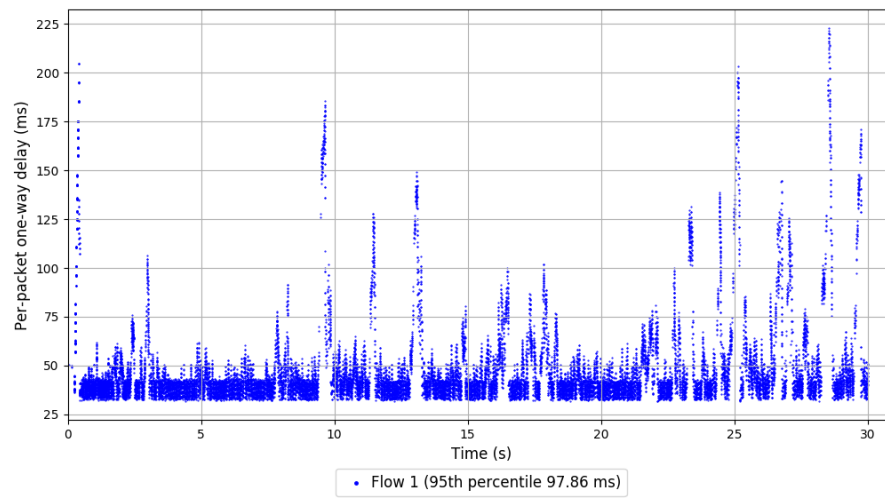
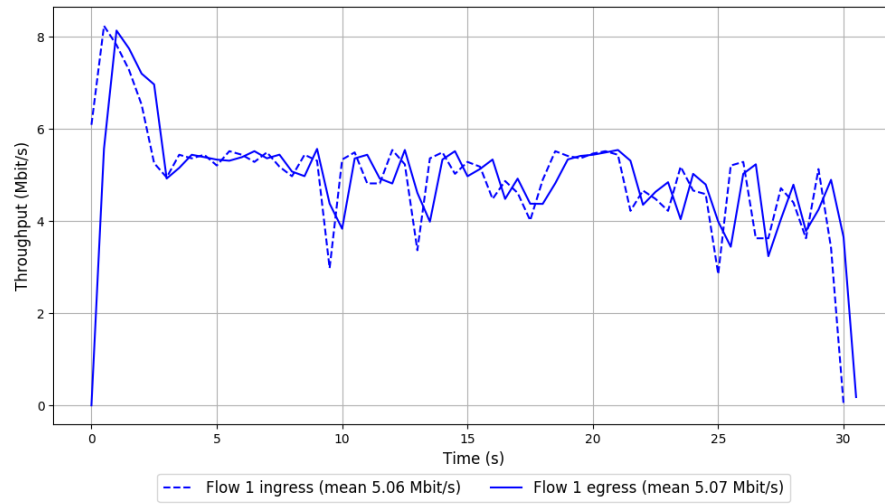


Run 3: Statistics of TaoVA-100x

Start at: 2018-07-09 19:39:00
End at: 2018-07-09 19:39:30
Local clock offset: 2.019 ms
Remote clock offset: -3.978 ms

Below is generated by plot.py at 2018-07-09 19:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.07 Mbit/s
95th percentile per-packet one-way delay: 97.857 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 5.07 Mbit/s
95th percentile per-packet one-way delay: 97.857 ms
Loss rate: 0.09%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-07-09 18:52:49

End at: 2018-07-09 18:53:19

Local clock offset: 2.078 ms

Remote clock offset: -3.76 ms

Below is generated by plot.py at 2018-07-09 19:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.03 Mbit/s

95th percentile per-packet one-way delay: 127.823 ms

Loss rate: 0.19%

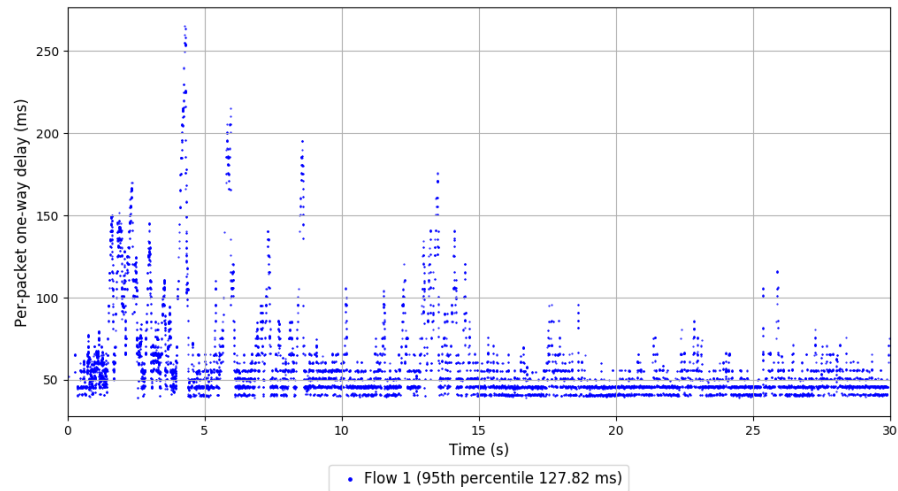
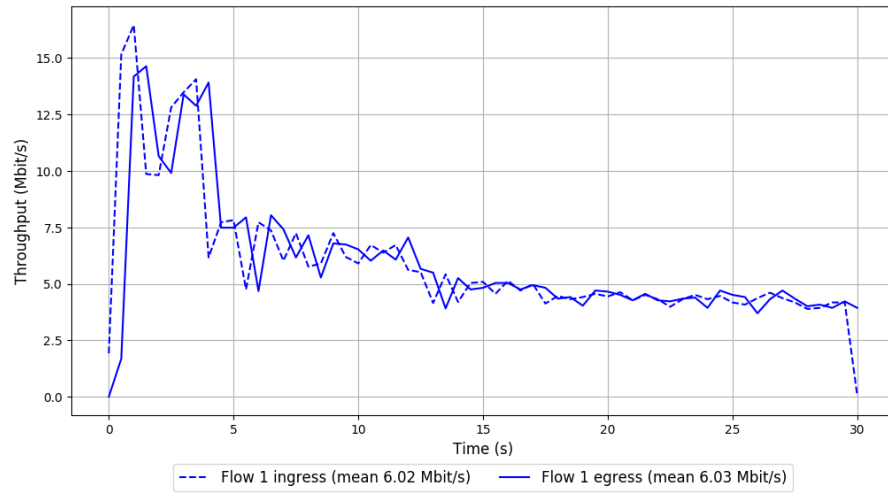
-- Flow 1:

Average throughput: 6.03 Mbit/s

95th percentile per-packet one-way delay: 127.823 ms

Loss rate: 0.19%

Run 1: Report of TCP Vegas — Data Link

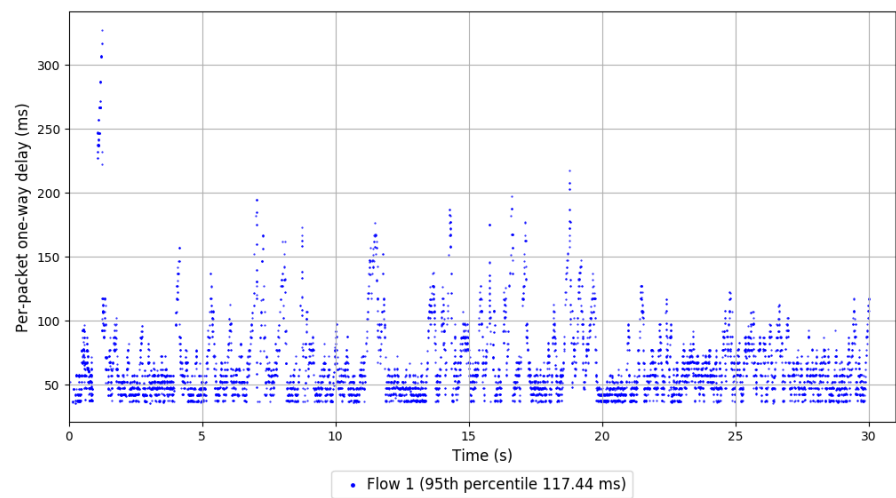
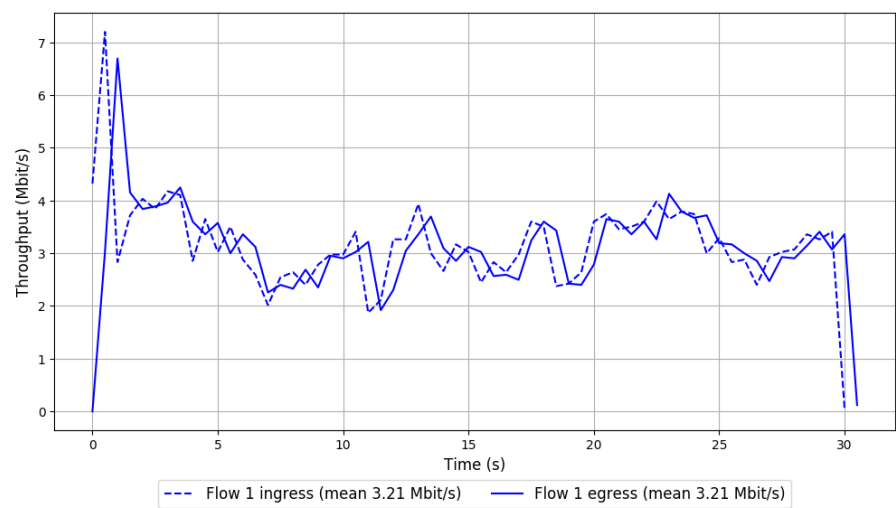


Run 2: Statistics of TCP Vegas

Start at: 2018-07-09 19:11:28
End at: 2018-07-09 19:11:58
Local clock offset: 0.96 ms
Remote clock offset: -4.413 ms

Below is generated by plot.py at 2018-07-09 19:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 117.436 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 117.436 ms
Loss rate: 0.25%

Run 2: Report of TCP Vegas — Data Link

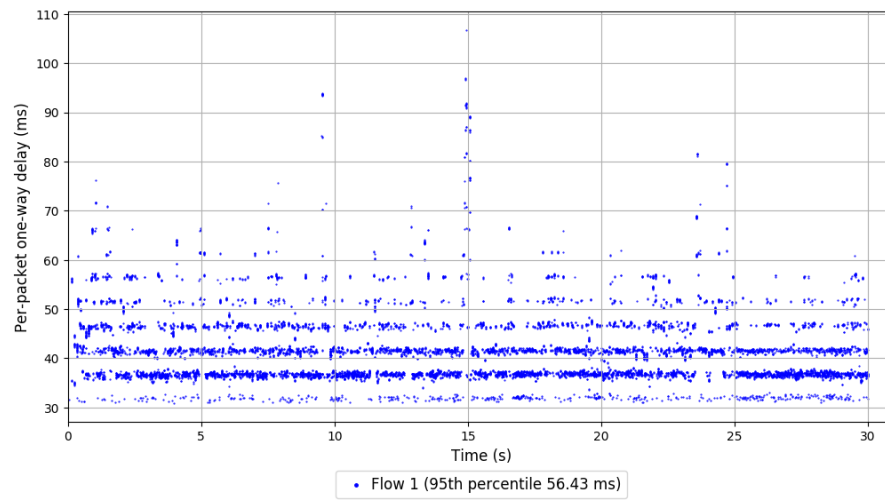
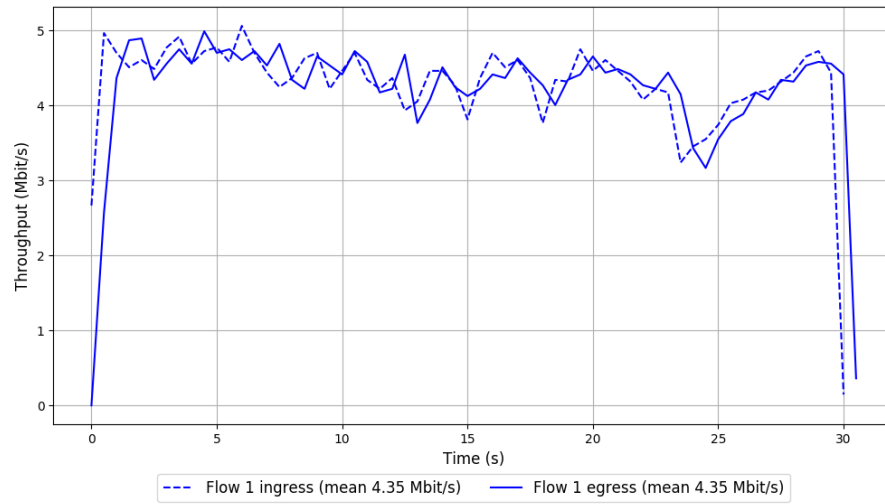


Run 3: Statistics of TCP Vegas

Start at: 2018-07-09 19:30:10
End at: 2018-07-09 19:30:40
Local clock offset: 1.961 ms
Remote clock offset: -4.631 ms

Below is generated by plot.py at 2018-07-09 19:46:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 56.430 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 56.430 ms
Loss rate: 0.11%

Run 3: Report of TCP Vegas — Data Link

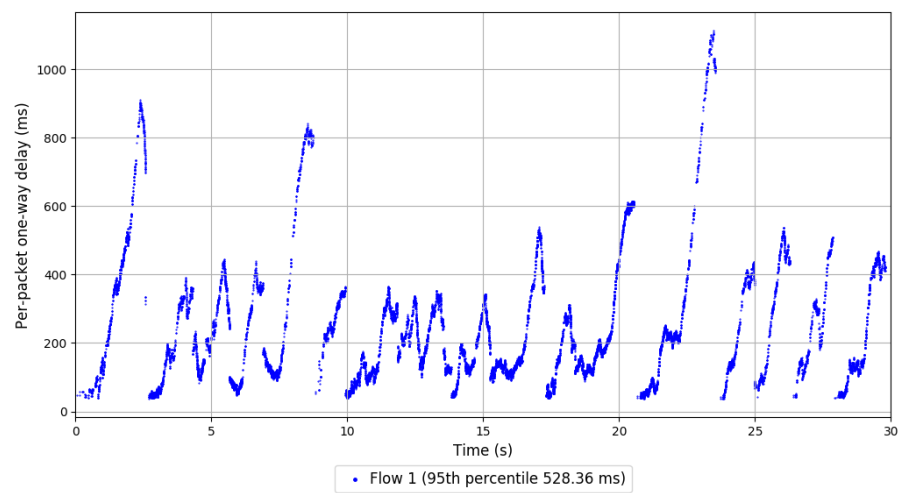
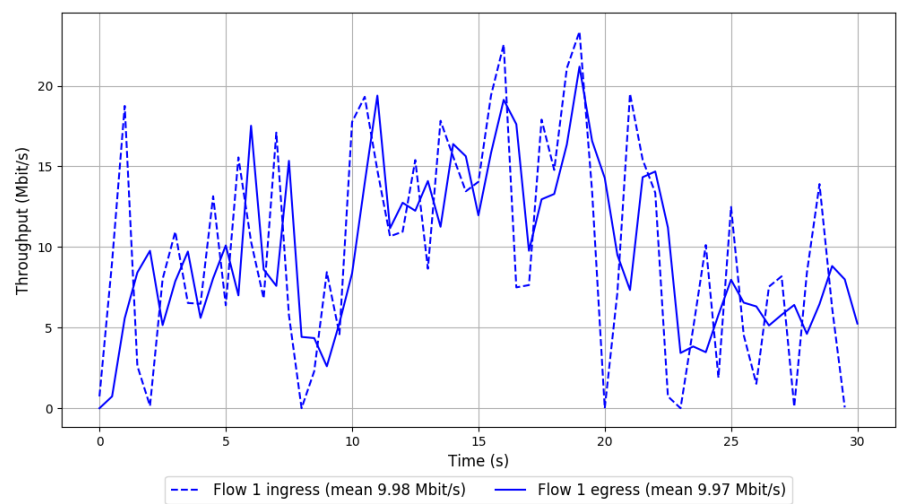


Run 1: Statistics of Verus

Start at: 2018-07-09 18:53:54
End at: 2018-07-09 18:54:24
Local clock offset: 4.143 ms
Remote clock offset: -3.425 ms

Below is generated by plot.py at 2018-07-09 19:46:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.97 Mbit/s
95th percentile per-packet one-way delay: 528.356 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 9.97 Mbit/s
95th percentile per-packet one-way delay: 528.356 ms
Loss rate: 0.51%

Run 1: Report of Verus — Data Link

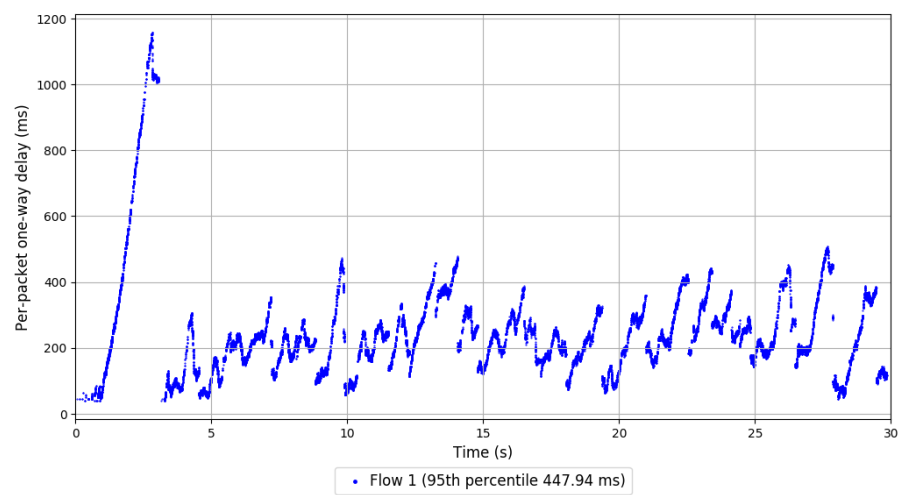
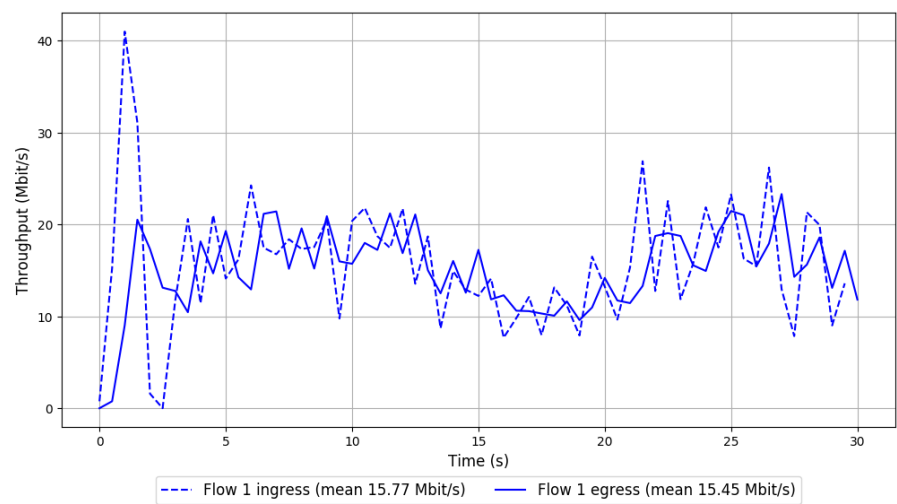


Run 2: Statistics of Verus

Start at: 2018-07-09 19:12:33
End at: 2018-07-09 19:13:03
Local clock offset: 2.833 ms
Remote clock offset: -4.105 ms

Below is generated by plot.py at 2018-07-09 19:46:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.45 Mbit/s
95th percentile per-packet one-way delay: 447.939 ms
Loss rate: 2.21%
-- Flow 1:
Average throughput: 15.45 Mbit/s
95th percentile per-packet one-way delay: 447.939 ms
Loss rate: 2.21%

Run 2: Report of Verus — Data Link

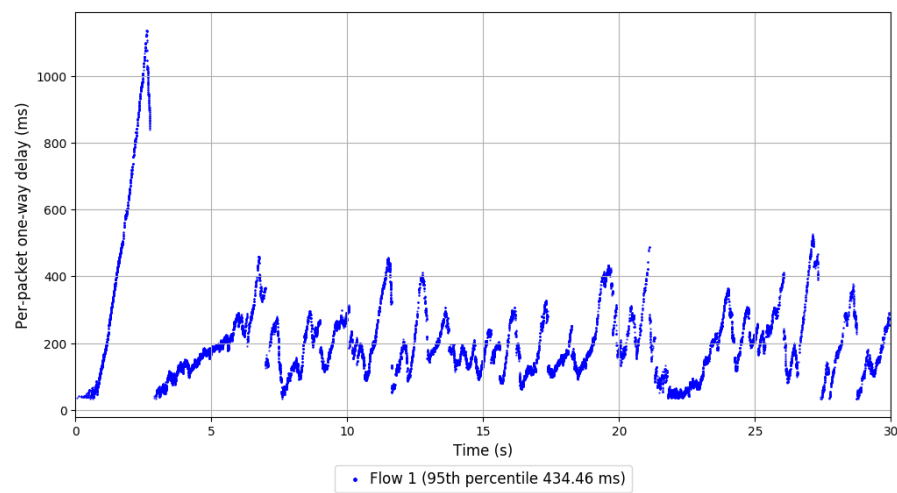
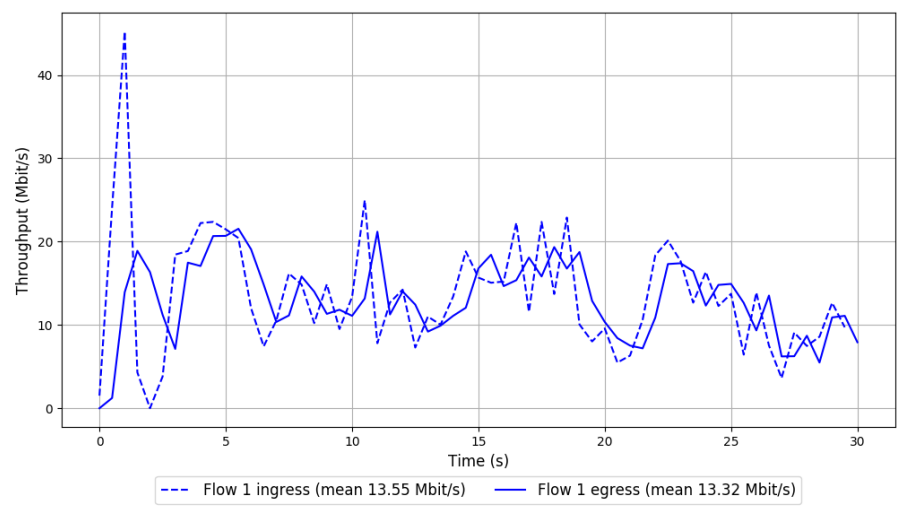


Run 3: Statistics of Verus

Start at: 2018-07-09 19:31:15
End at: 2018-07-09 19:31:45
Local clock offset: 0.492 ms
Remote clock offset: -4.465 ms

Below is generated by plot.py at 2018-07-09 19:46:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.32 Mbit/s
95th percentile per-packet one-way delay: 434.465 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 13.32 Mbit/s
95th percentile per-packet one-way delay: 434.465 ms
Loss rate: 1.77%

Run 3: Report of Verus — Data Link

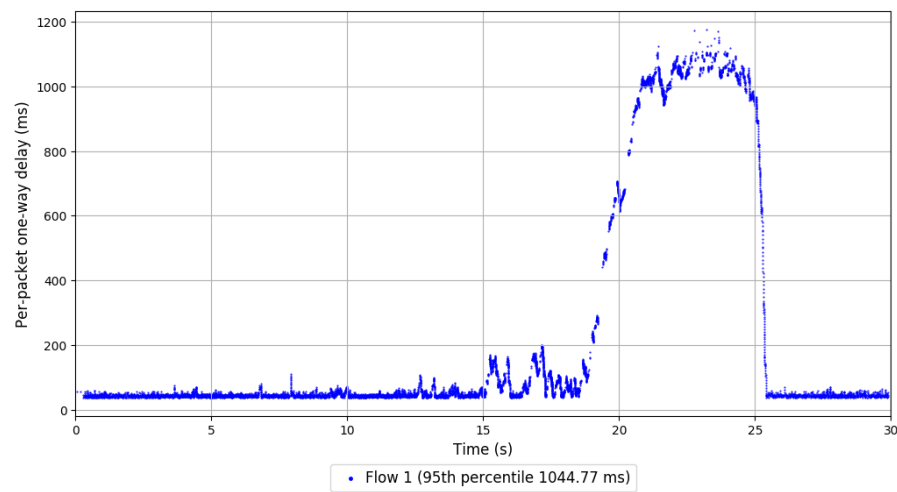
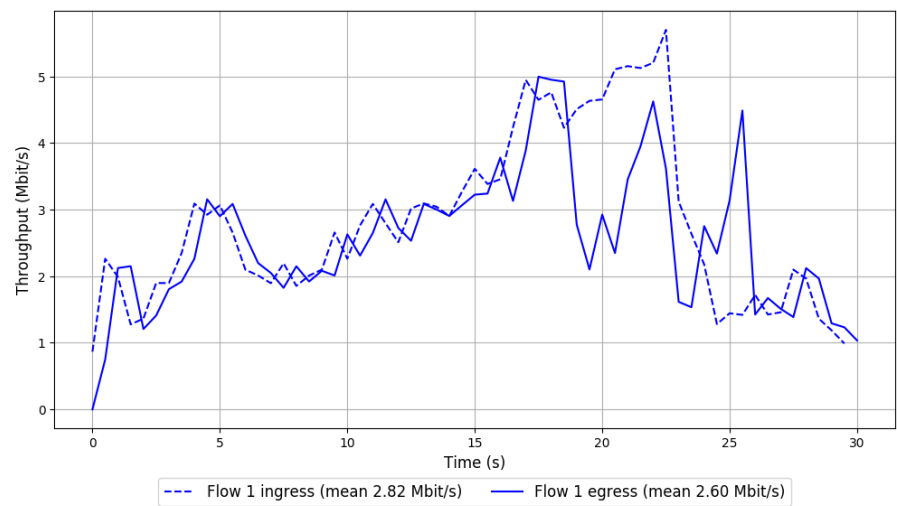


Run 1: Statistics of PCC-Vivace

Start at: 2018-07-09 18:50:40
End at: 2018-07-09 18:51:10
Local clock offset: 2.235 ms
Remote clock offset: -3.355 ms

Below is generated by plot.py at 2018-07-09 19:46:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.60 Mbit/s
95th percentile per-packet one-way delay: 1044.773 ms
Loss rate: 8.13%
-- Flow 1:
Average throughput: 2.60 Mbit/s
95th percentile per-packet one-way delay: 1044.773 ms
Loss rate: 8.13%

Run 1: Report of PCC-Vivace — Data Link

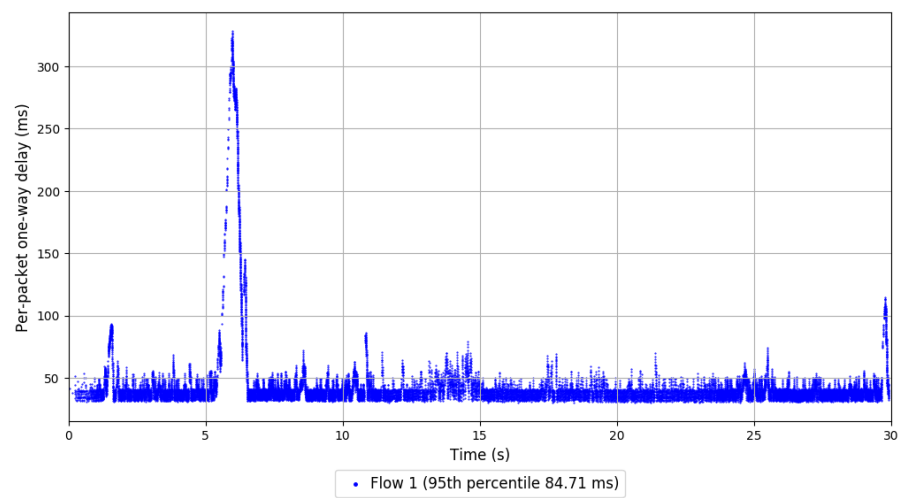
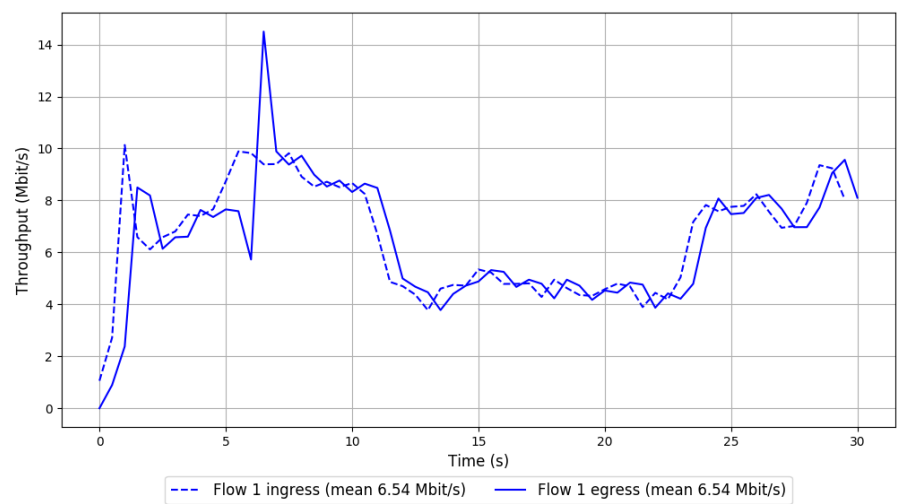


Run 2: Statistics of PCC-Vivace

Start at: 2018-07-09 19:09:18
End at: 2018-07-09 19:09:48
Local clock offset: 2.181 ms
Remote clock offset: -4.583 ms

Below is generated by plot.py at 2018-07-09 19:46:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.54 Mbit/s
95th percentile per-packet one-way delay: 84.709 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 6.54 Mbit/s
95th percentile per-packet one-way delay: 84.709 ms
Loss rate: 0.17%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-07-09 19:28:00

End at: 2018-07-09 19:28:30

Local clock offset: 0.837 ms

Remote clock offset: -4.22 ms

Below is generated by plot.py at 2018-07-09 19:46:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 95.599 ms

Loss rate: 0.14%

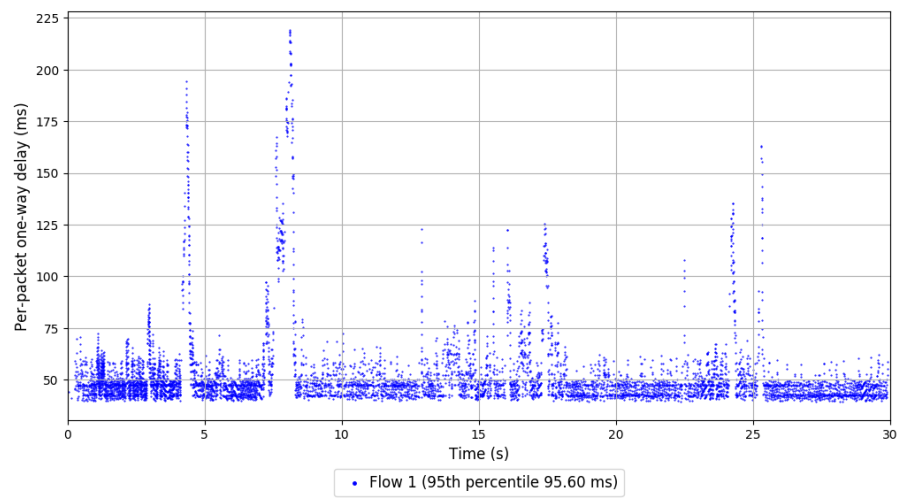
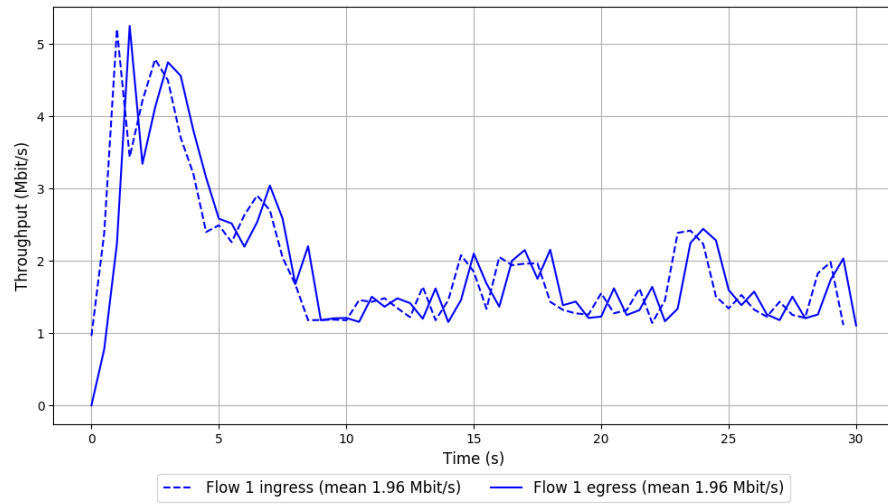
-- Flow 1:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 95.599 ms

Loss rate: 0.14%

Run 3: Report of PCC-Vivace — Data Link

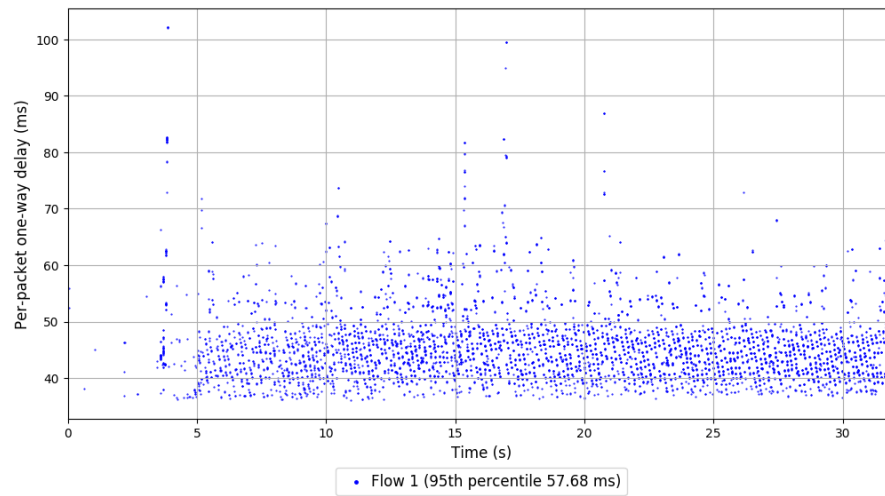
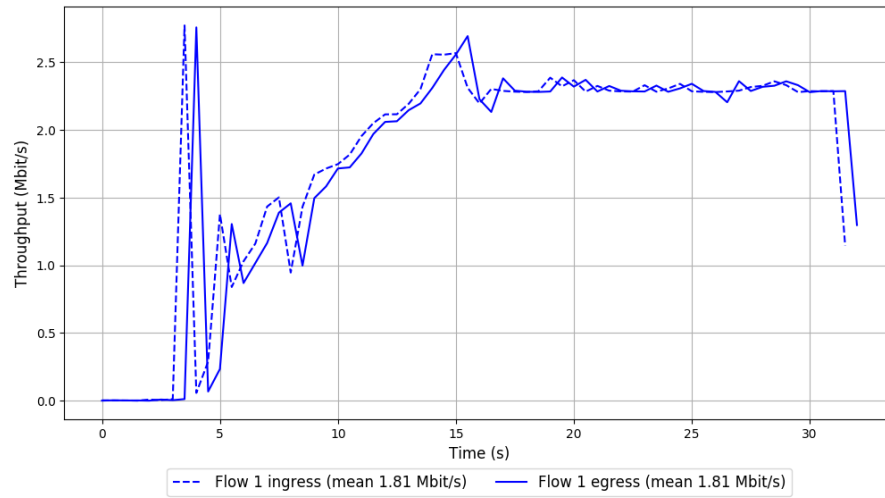


Run 1: Statistics of WebRTC media

Start at: 2018-07-09 19:04:51
End at: 2018-07-09 19:05:21
Local clock offset: 2.02 ms
Remote clock offset: -3.003 ms

Below is generated by plot.py at 2018-07-09 19:46:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 57.684 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 57.684 ms
Loss rate: 0.07%

Run 1: Report of WebRTC media — Data Link

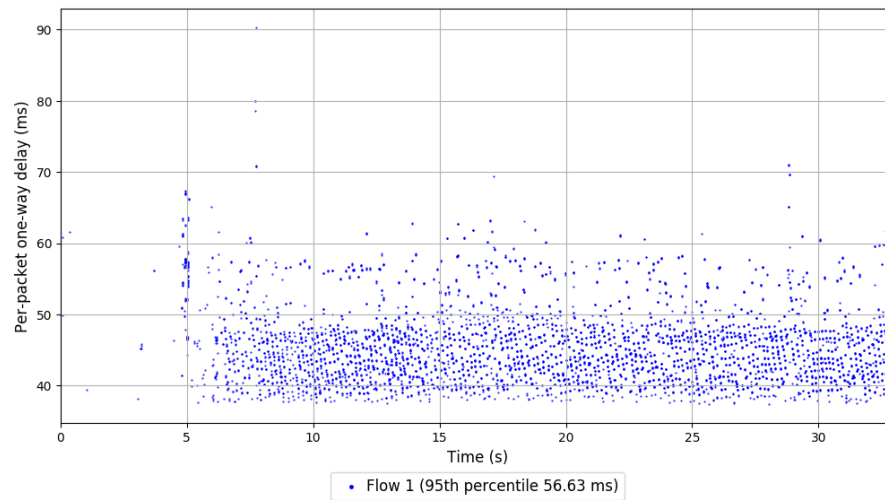
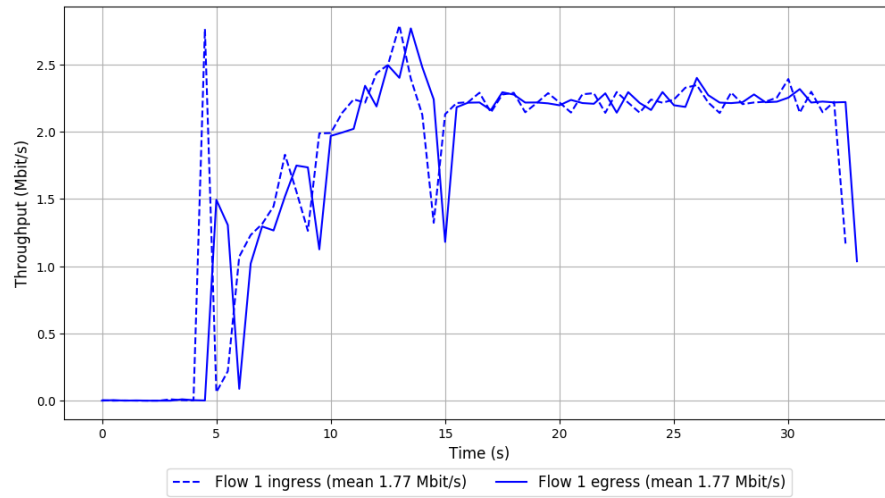


Run 2: Statistics of WebRTC media

Start at: 2018-07-09 19:23:38
End at: 2018-07-09 19:24:08
Local clock offset: -0.218 ms
Remote clock offset: -4.731 ms

Below is generated by plot.py at 2018-07-09 19:46:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 56.635 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 56.635 ms
Loss rate: 0.24%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-07-09 19:42:18
End at: 2018-07-09 19:42:48
Local clock offset: 1.358 ms
Remote clock offset: -3.936 ms

Below is generated by plot.py at 2018-07-09 19:46:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 60.922 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 60.922 ms
Loss rate: 0.15%

Run 3: Report of WebRTC media — Data Link

