

Pantheon Report

Generated at 2018-08-09 00:59:19 (UTC).

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

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

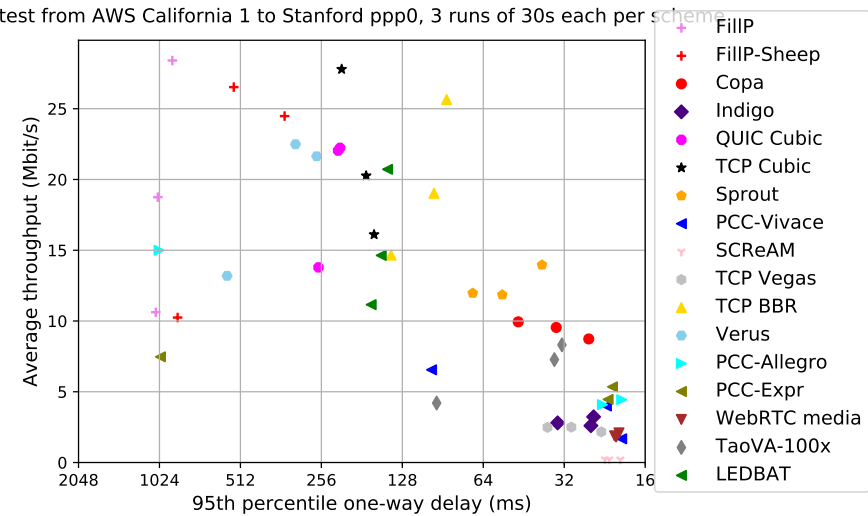
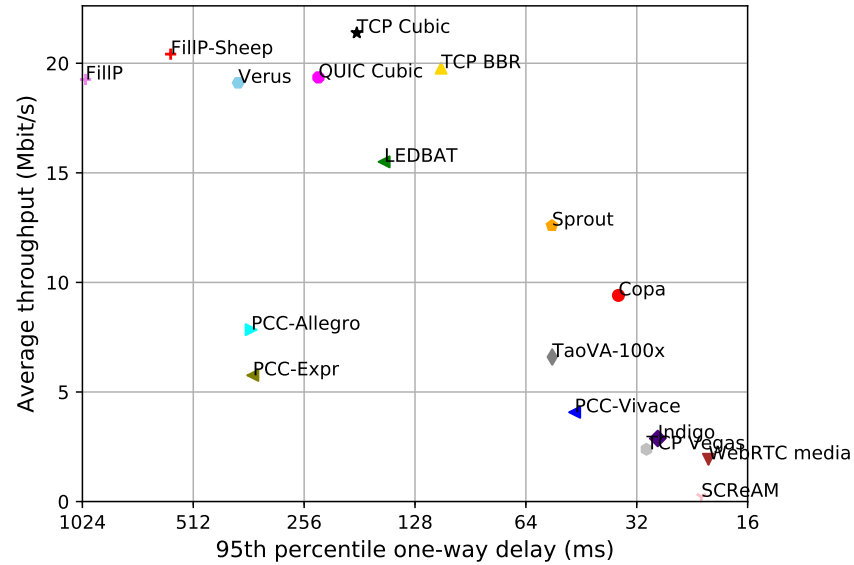
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

Git summary:

```
branch: master @ 7772df3413f4b07ba0096dfdd8e9d4c6dca623e3
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-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 California 1 to Stanford ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



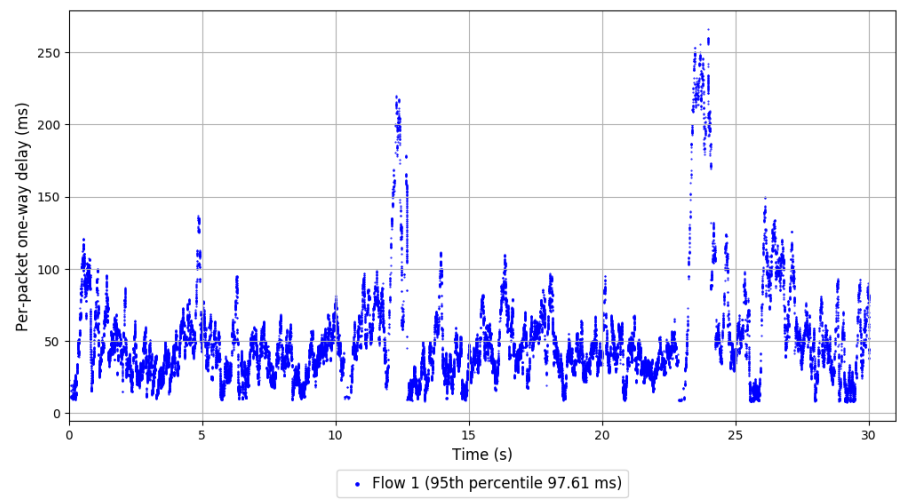
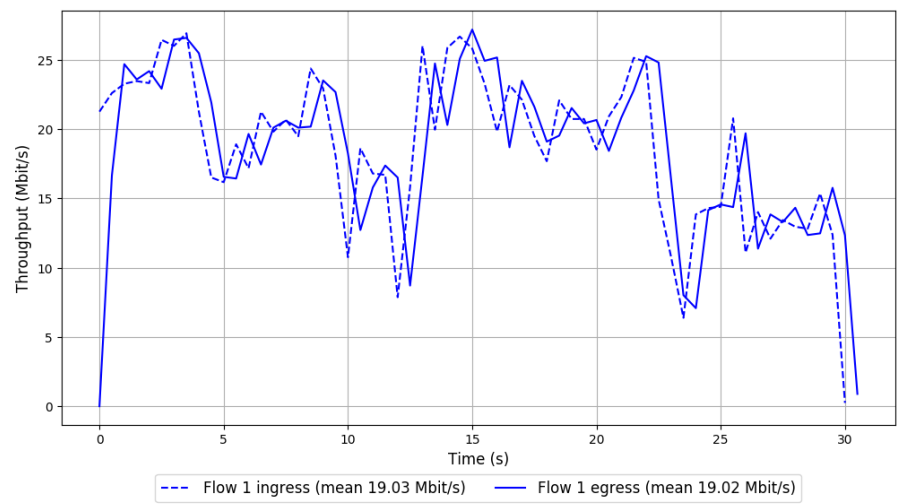
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	19.78	108.72	0.09
Copa	3	9.40	35.89	0.01
TCP Cubic	3	21.39	184.23	0.26
FillP	3	19.26	1004.19	37.78
FillP-Sheep	3	20.42	589.77	3.19
Indigo	3	2.88	28.07	0.00
LEDBAT	3	15.50	155.29	0.25
PCC-Allegro	3	7.84	356.60	2.31
PCC-Expr	3	5.76	352.91	1.03
QUIC Cubic	3	19.36	234.14	0.33
SCReAM	3	0.22	21.38	0.00
Sprout	3	12.59	54.39	0.00
TaoVA-100x	3	6.60	54.29	0.00
TCP Vegas	3	2.38	30.12	0.00
Verus	3	19.11	386.68	0.77
PCC-Vivace	3	4.07	47.19	0.00
WebRTC media	3	1.93	20.44	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-08-08 23:53:20
End at: 2018-08-08 23:53:50
Local clock offset: -10.401 ms
Remote clock offset: 1.555 ms

Below is generated by plot.py at 2018-08-09 00:58:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 19.02 Mbit/s
95th percentile per-packet one-way delay: 97.610 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 19.02 Mbit/s
95th percentile per-packet one-way delay: 97.610 ms
Loss rate: 0.03%

Run 1: Report of TCP BBR — Data Link

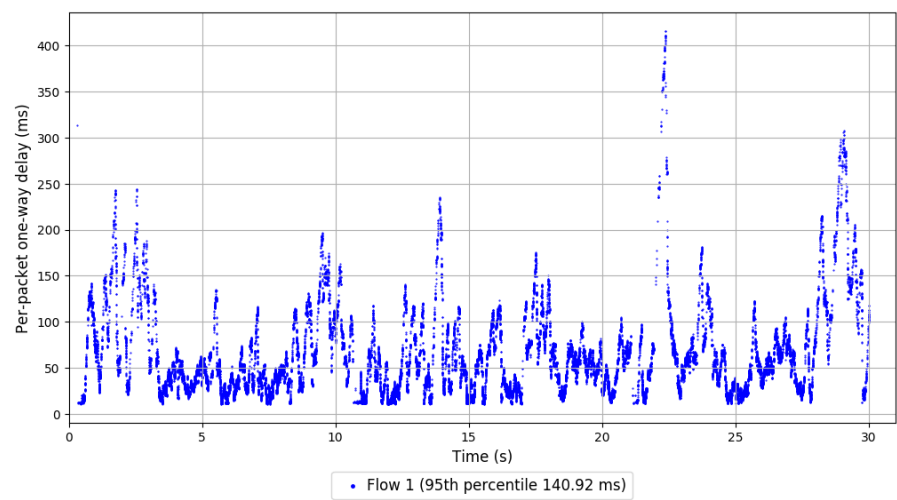
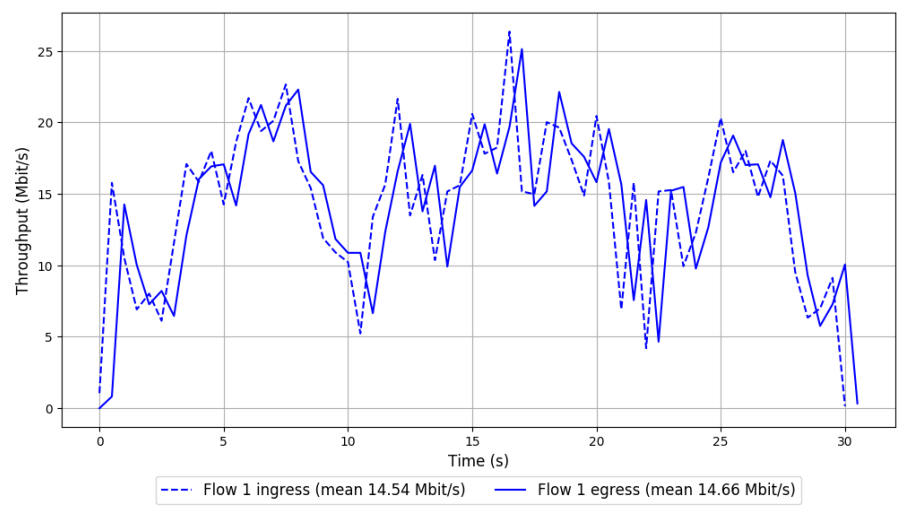


Run 2: Statistics of TCP BBR

Start at: 2018-08-09 00:15:27
End at: 2018-08-09 00:15:57
Local clock offset: -25.406 ms
Remote clock offset: -0.137 ms

Below is generated by plot.py at 2018-08-09 00:58:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 14.66 Mbit/s
95th percentile per-packet one-way delay: 140.920 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 14.66 Mbit/s
95th percentile per-packet one-way delay: 140.920 ms
Loss rate: 0.17%

Run 2: Report of TCP BBR — Data Link

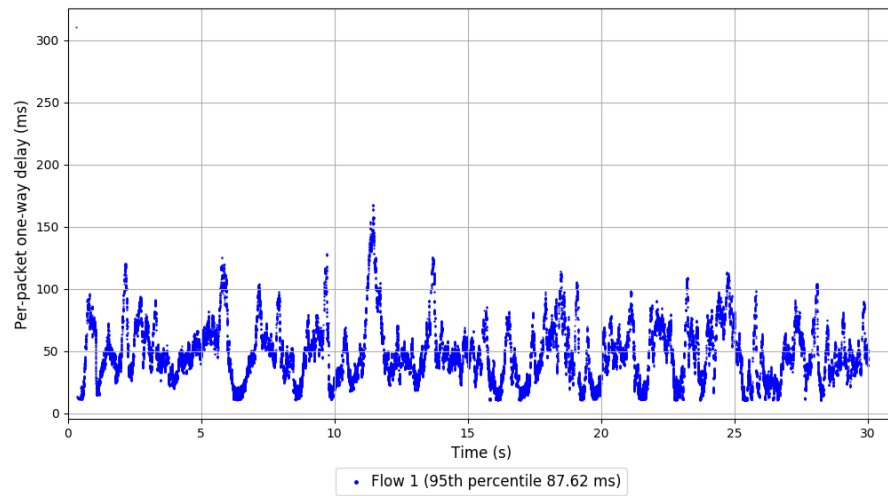
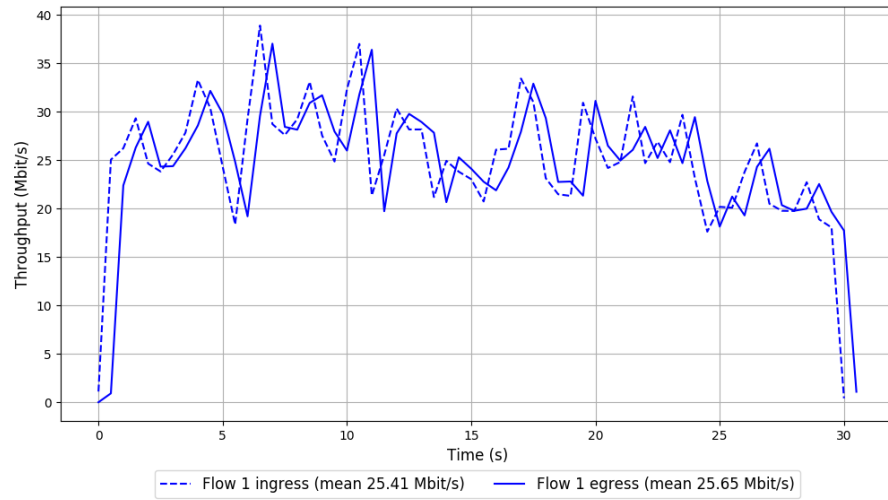


Run 3: Statistics of TCP BBR

Start at: 2018-08-09 00:37:39
End at: 2018-08-09 00:38:09
Local clock offset: -35.173 ms
Remote clock offset: 3.22 ms

Below is generated by plot.py at 2018-08-09 00:58:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 25.65 Mbit/s
95th percentile per-packet one-way delay: 87.625 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 25.65 Mbit/s
95th percentile per-packet one-way delay: 87.625 ms
Loss rate: 0.07%

Run 3: Report of TCP BBR — Data Link

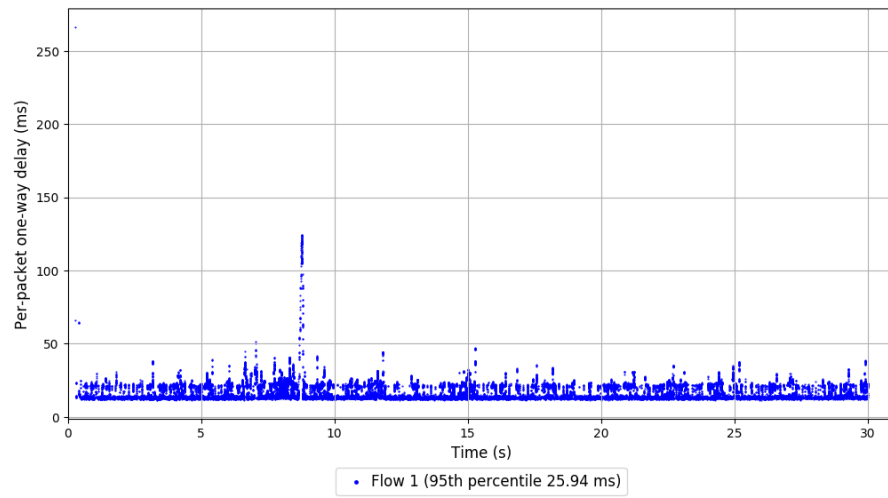
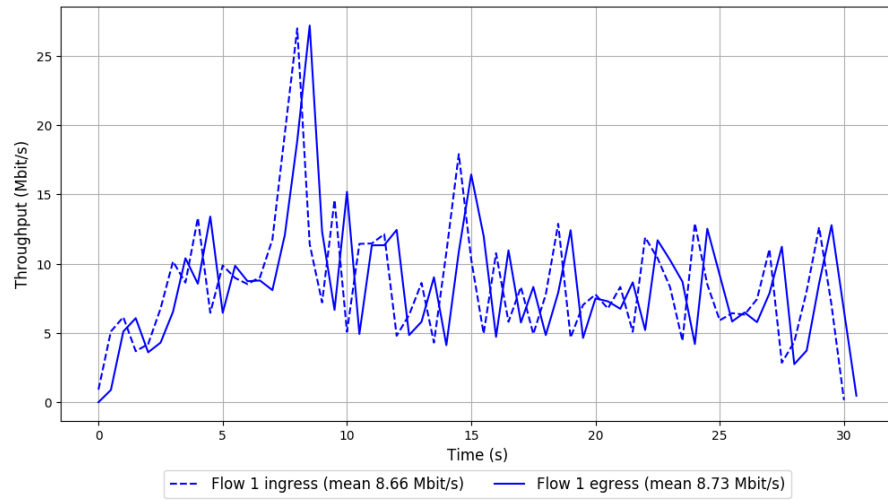


Run 1: Statistics of Copa

Start at: 2018-08-09 00:06:22
End at: 2018-08-09 00:06:52
Local clock offset: -17.387 ms
Remote clock offset: 0.234 ms

Below is generated by plot.py at 2018-08-09 00:58:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.73 Mbit/s
95th percentile per-packet one-way delay: 25.942 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 8.73 Mbit/s
95th percentile per-packet one-way delay: 25.942 ms
Loss rate: 0.02%

Run 1: Report of Copa — Data Link

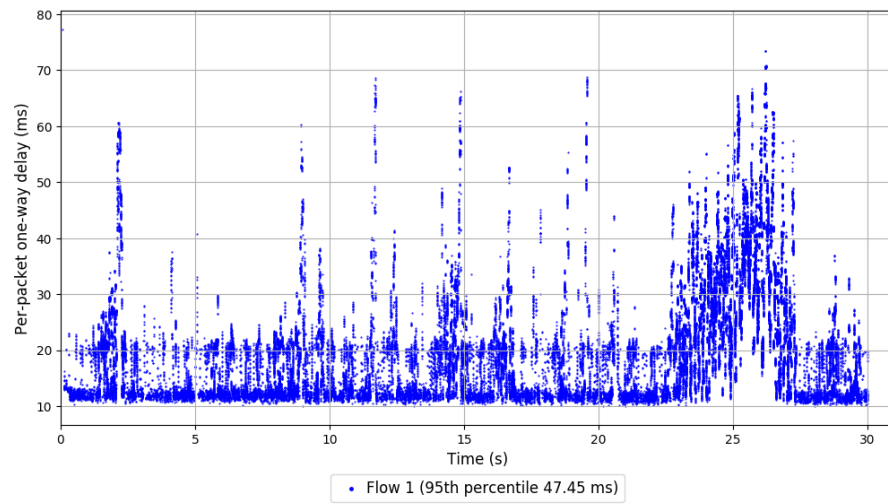
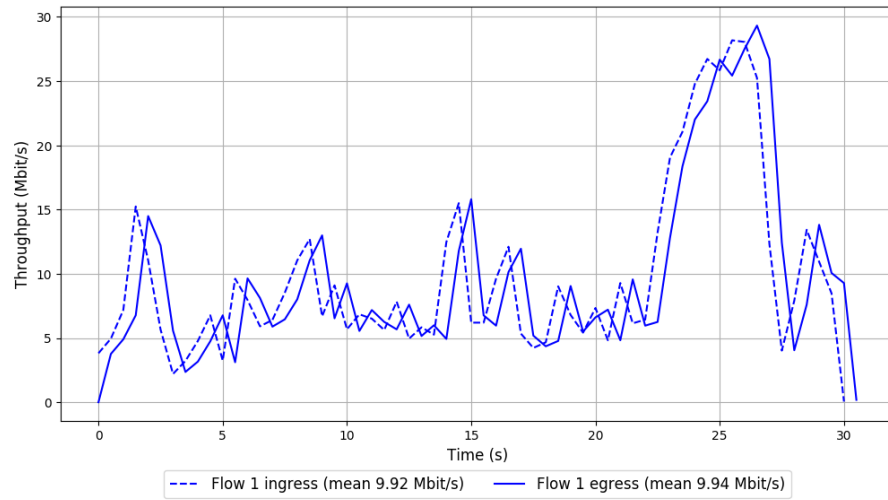


Run 2: Statistics of Copa

Start at: 2018-08-09 00:28:34
End at: 2018-08-09 00:29:04
Local clock offset: -24.453 ms
Remote clock offset: 2.085 ms

Below is generated by plot.py at 2018-08-09 00:58:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.94 Mbit/s
95th percentile per-packet one-way delay: 47.450 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.94 Mbit/s
95th percentile per-packet one-way delay: 47.450 ms
Loss rate: 0.00%

Run 2: Report of Copa — Data Link

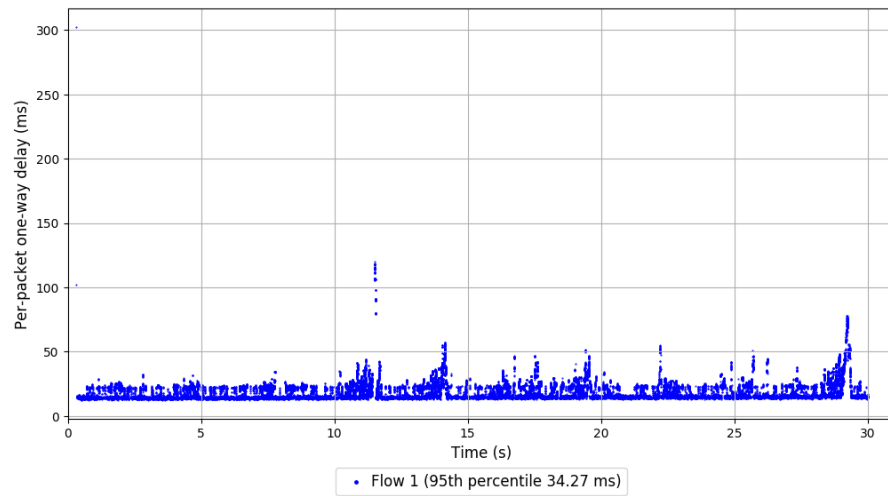
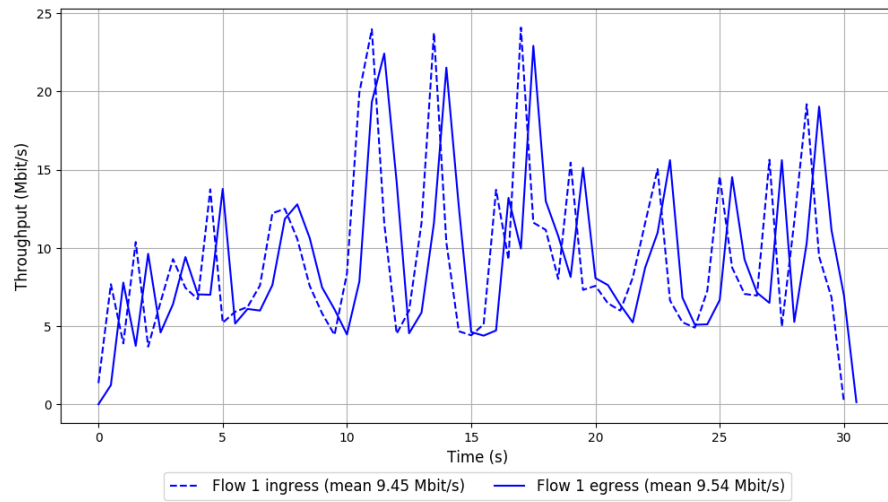


Run 3: Statistics of Copa

Start at: 2018-08-09 00:50:41
End at: 2018-08-09 00:51:11
Local clock offset: -32.351 ms
Remote clock offset: 4.368 ms

Below is generated by plot.py at 2018-08-09 00:58:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.54 Mbit/s
95th percentile per-packet one-way delay: 34.269 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.54 Mbit/s
95th percentile per-packet one-way delay: 34.269 ms
Loss rate: 0.00%

Run 3: Report of Copa — Data Link

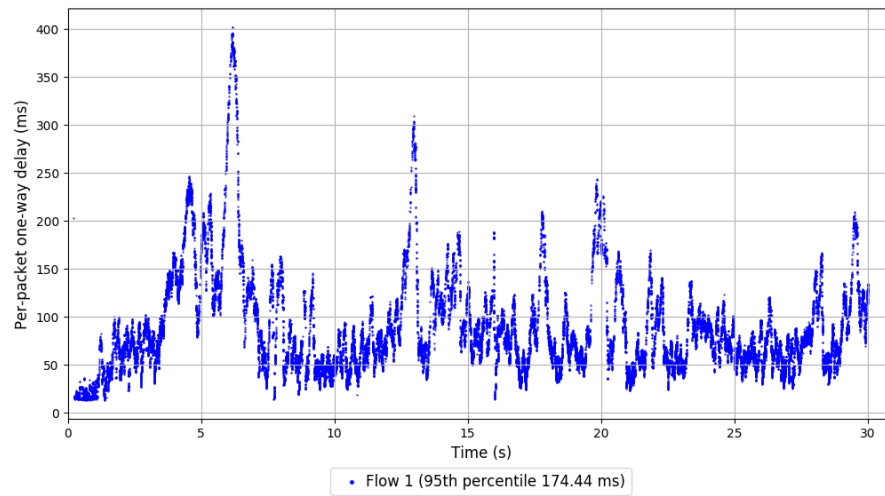
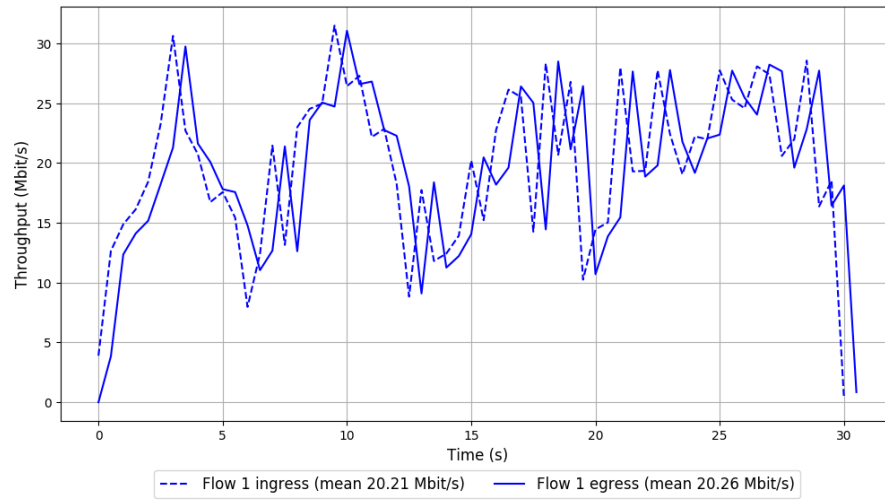


Run 1: Statistics of TCP Cubic

Start at: 2018-08-09 00:03:46
End at: 2018-08-09 00:04:16
Local clock offset: -21.542 ms
Remote clock offset: 0.408 ms

Below is generated by plot.py at 2018-08-09 00:58:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 20.26 Mbit/s
95th percentile per-packet one-way delay: 174.435 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 20.26 Mbit/s
95th percentile per-packet one-way delay: 174.435 ms
Loss rate: 0.35%

Run 1: Report of TCP Cubic — Data Link

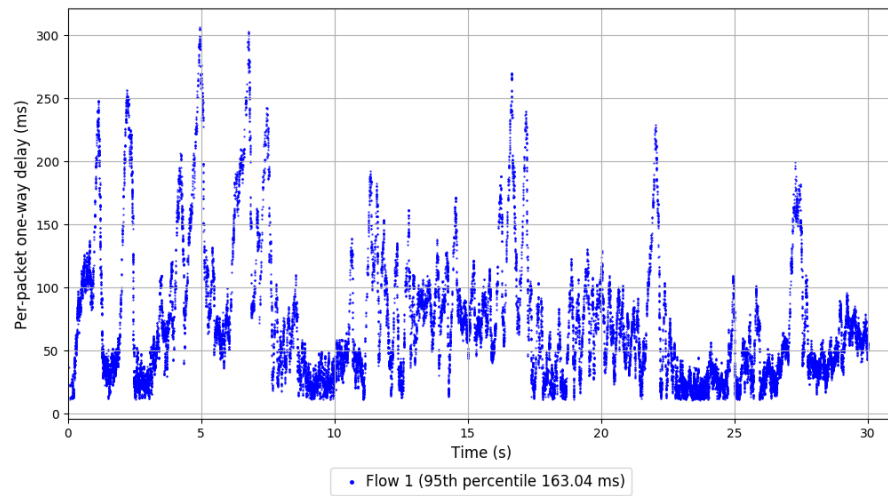
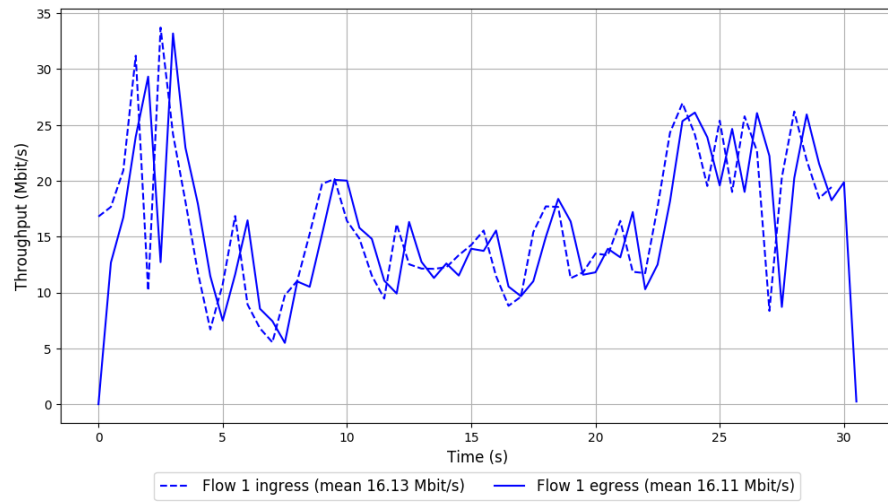


Run 2: Statistics of TCP Cubic

Start at: 2018-08-09 00:25:58
End at: 2018-08-09 00:26:28
Local clock offset: -22.675 ms
Remote clock offset: 1.631 ms

Below is generated by plot.py at 2018-08-09 00:58:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 16.11 Mbit/s
95th percentile per-packet one-way delay: 163.042 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 16.11 Mbit/s
95th percentile per-packet one-way delay: 163.042 ms
Loss rate: 0.19%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-08-09 00:48:05

End at: 2018-08-09 00:48:35

Local clock offset: -39.88 ms

Remote clock offset: 4.089 ms

Below is generated by plot.py at 2018-08-09 00:58:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 27.79 Mbit/s

95th percentile per-packet one-way delay: 215.227 ms

Loss rate: 0.25%

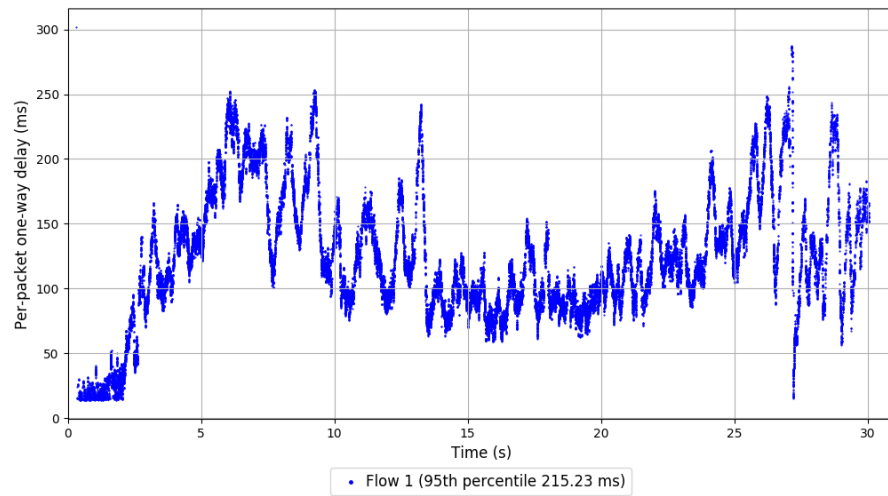
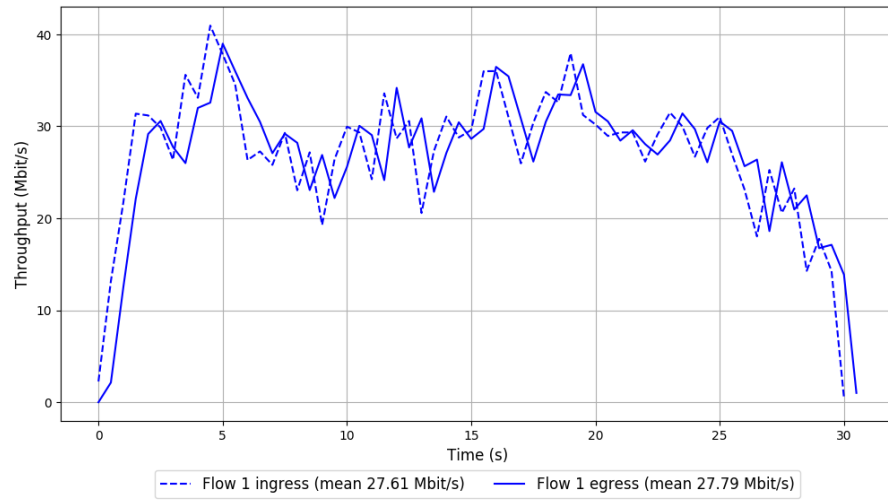
-- Flow 1:

Average throughput: 27.79 Mbit/s

95th percentile per-packet one-way delay: 215.227 ms

Loss rate: 0.25%

Run 3: Report of TCP Cubic — Data Link

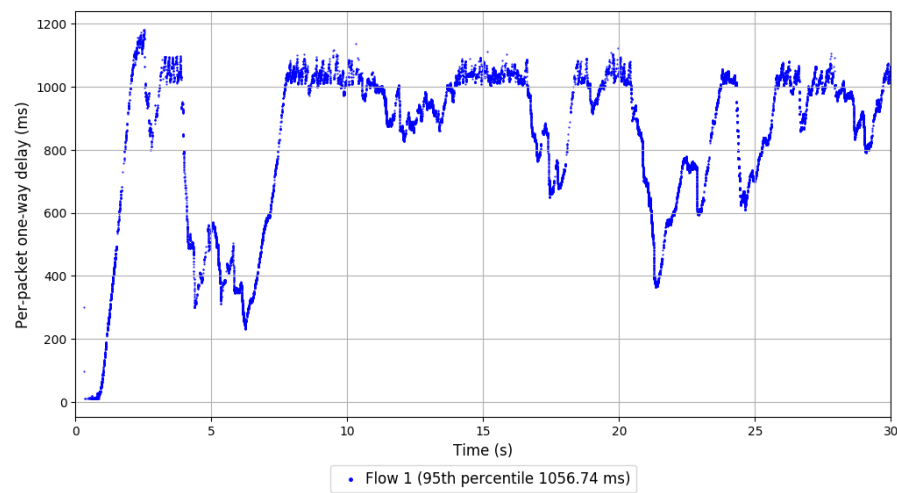
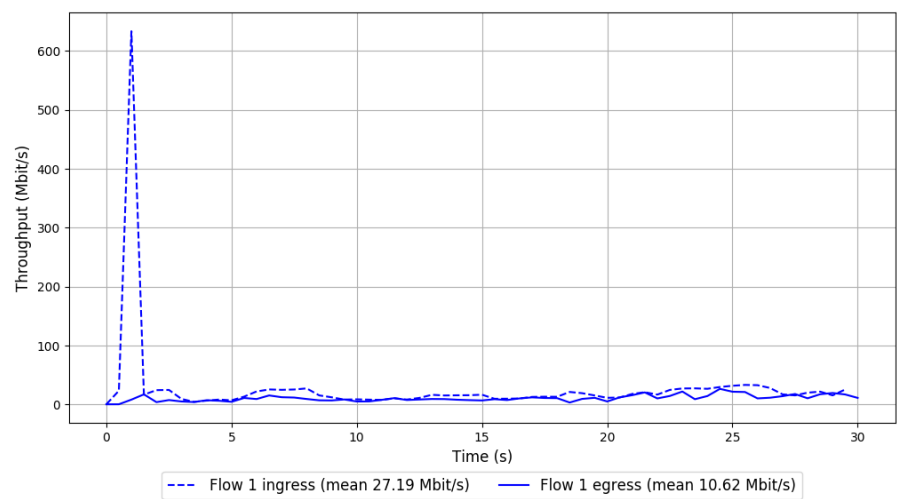


Run 1: Statistics of FillP

Start at: 2018-08-08 23:58:33
End at: 2018-08-08 23:59:03
Local clock offset: -12.832 ms
Remote clock offset: 0.865 ms

Below is generated by plot.py at 2018-08-09 00:58:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.62 Mbit/s
95th percentile per-packet one-way delay: 1056.740 ms
Loss rate: 61.30%
-- Flow 1:
Average throughput: 10.62 Mbit/s
95th percentile per-packet one-way delay: 1056.740 ms
Loss rate: 61.30%

Run 1: Report of FillP — Data Link

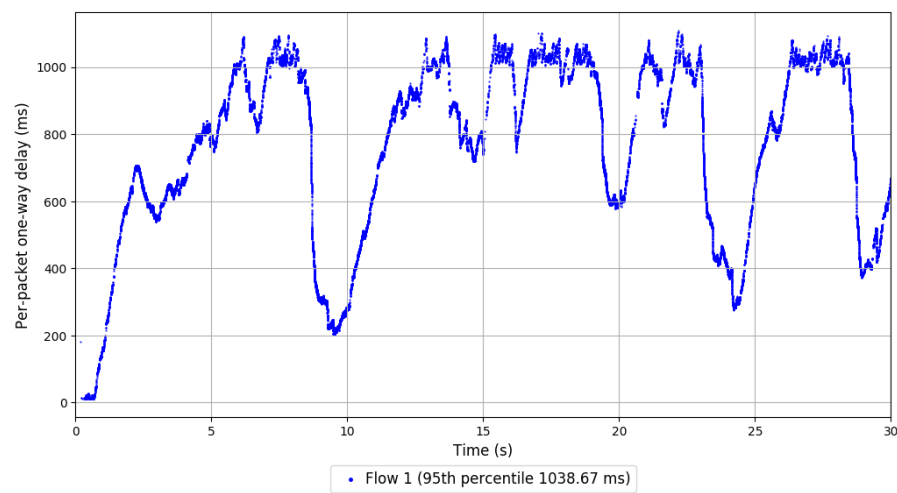
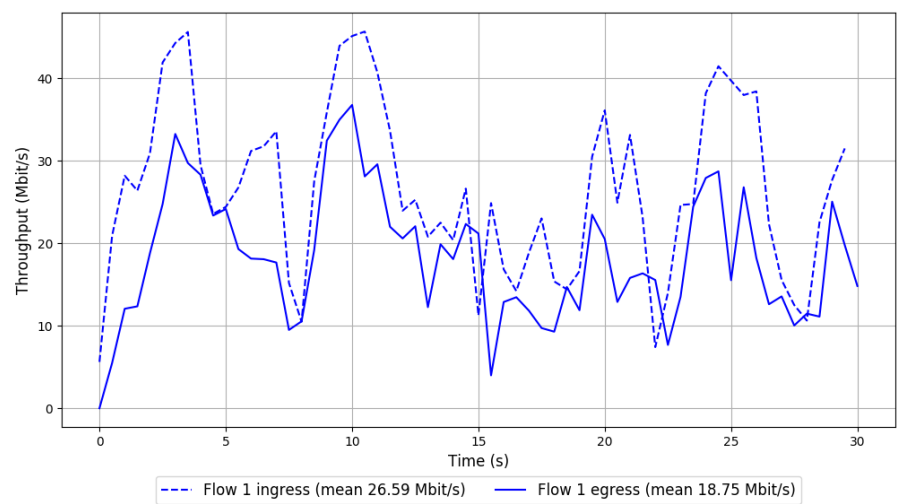


Run 2: Statistics of FillP

Start at: 2018-08-09 00:20:44
End at: 2018-08-09 00:21:14
Local clock offset: -21.904 ms
Remote clock offset: 0.083 ms

Below is generated by plot.py at 2018-08-09 00:58:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 18.75 Mbit/s
95th percentile per-packet one-way delay: 1038.671 ms
Loss rate: 29.87%
-- Flow 1:
Average throughput: 18.75 Mbit/s
95th percentile per-packet one-way delay: 1038.671 ms
Loss rate: 29.87%

Run 2: Report of FillP — Data Link

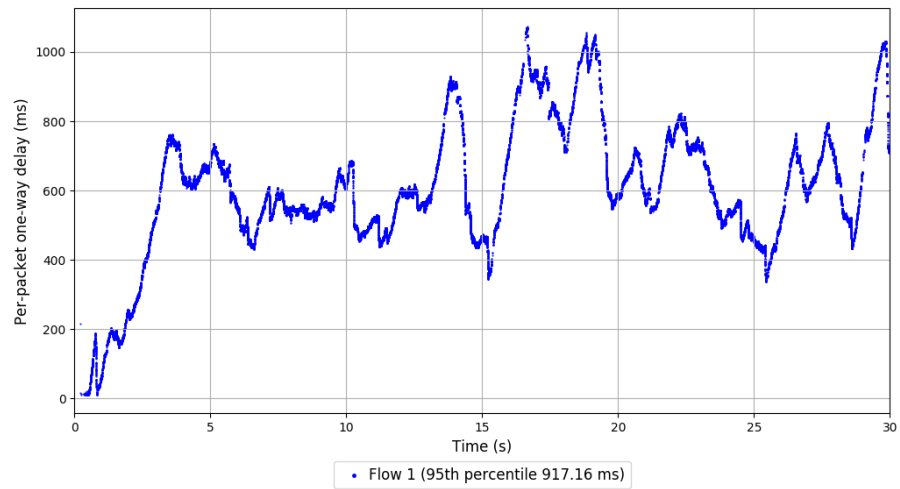
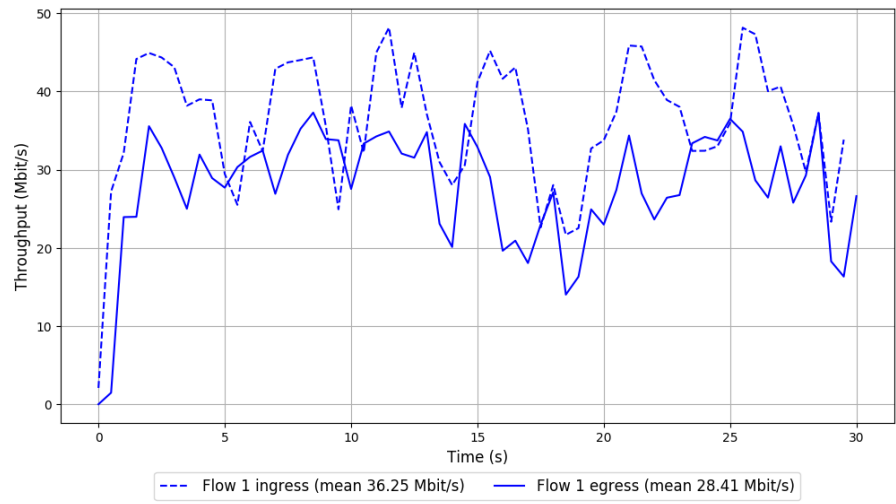


Run 3: Statistics of FillP

Start at: 2018-08-09 00:42:51
End at: 2018-08-09 00:43:21
Local clock offset: -42.793 ms
Remote clock offset: 3.776 ms

Below is generated by plot.py at 2018-08-09 00:58:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 28.41 Mbit/s
95th percentile per-packet one-way delay: 917.162 ms
Loss rate: 22.16%
-- Flow 1:
Average throughput: 28.41 Mbit/s
95th percentile per-packet one-way delay: 917.162 ms
Loss rate: 22.16%

Run 3: Report of FillP — Data Link

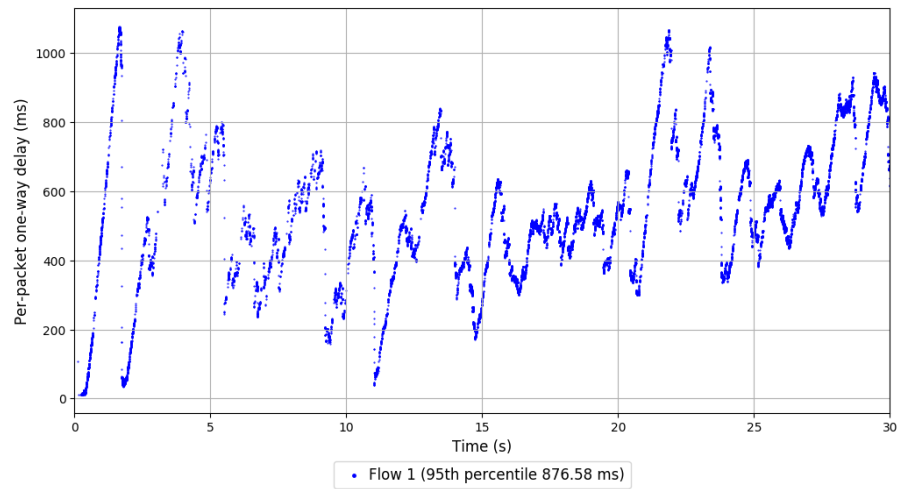
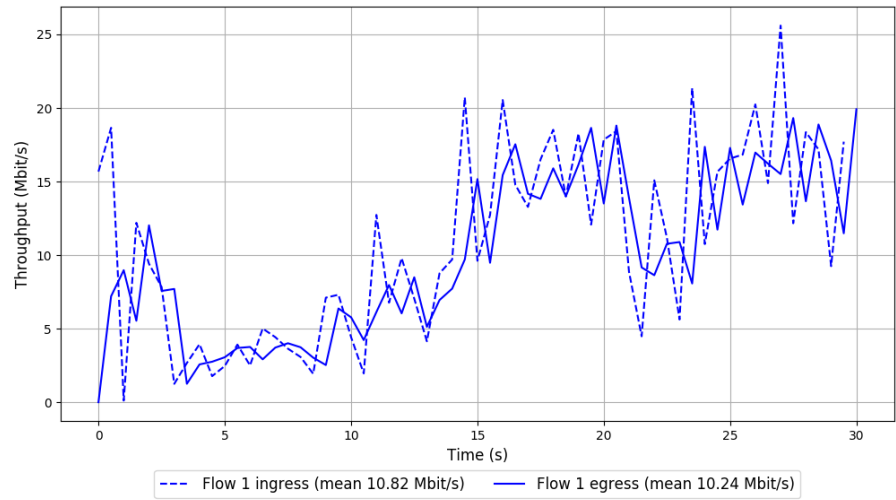


Run 1: Statistics of FillP-Sheep

Start at: 2018-08-09 00:08:58
End at: 2018-08-09 00:09:28
Local clock offset: -17.278 ms
Remote clock offset: 0.113 ms

Below is generated by plot.py at 2018-08-09 00:58:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.24 Mbit/s
95th percentile per-packet one-way delay: 876.581 ms
Loss rate: 5.63%
-- Flow 1:
Average throughput: 10.24 Mbit/s
95th percentile per-packet one-way delay: 876.581 ms
Loss rate: 5.63%

Run 1: Report of FillP-Sheep — Data Link

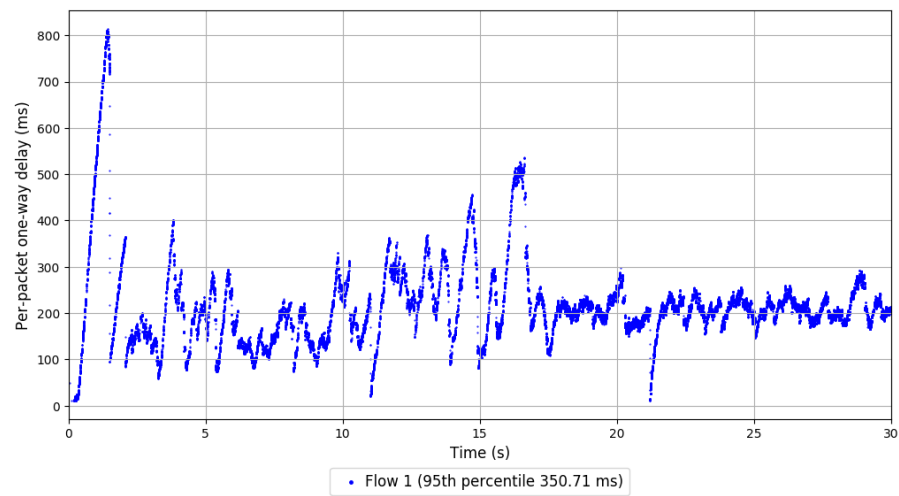
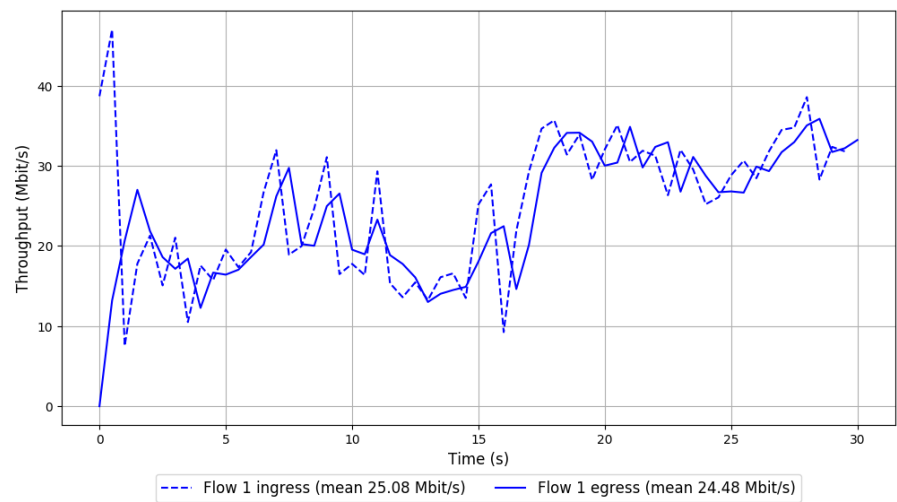


Run 2: Statistics of FillP-Sheep

Start at: 2018-08-09 00:31:10
End at: 2018-08-09 00:31:40
Local clock offset: -26.977 ms
Remote clock offset: 2.559 ms

Below is generated by plot.py at 2018-08-09 00:58:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 24.48 Mbit/s
95th percentile per-packet one-way delay: 350.711 ms
Loss rate: 2.47%
-- Flow 1:
Average throughput: 24.48 Mbit/s
95th percentile per-packet one-way delay: 350.711 ms
Loss rate: 2.47%

Run 2: Report of FillP-Sheep — Data Link

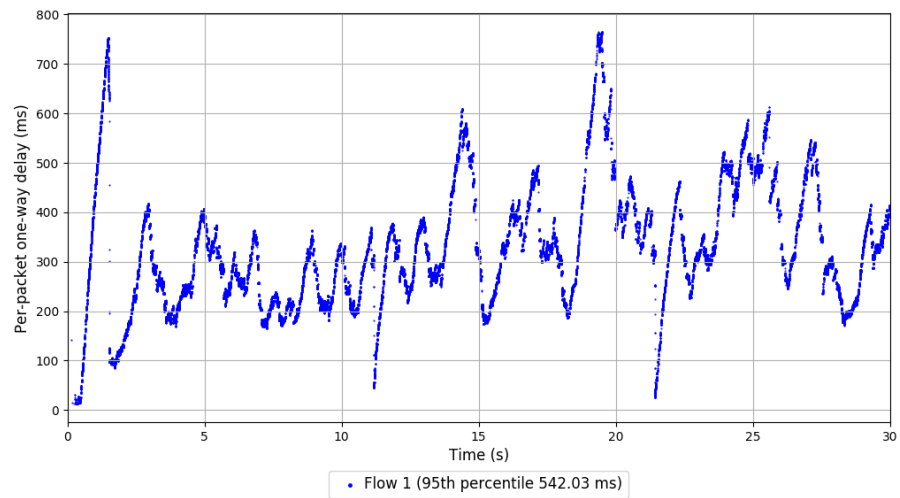
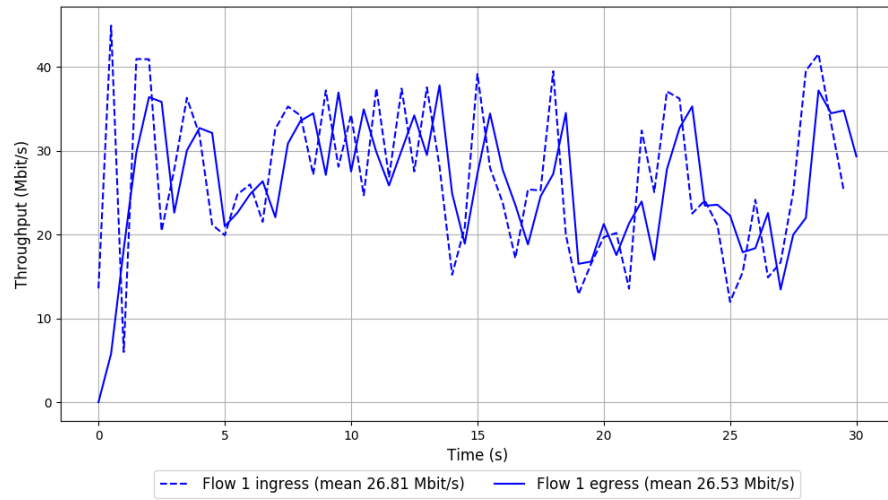


Run 3: Statistics of FillP-Sheep

Start at: 2018-08-09 00:53:17
End at: 2018-08-09 00:53:47
Local clock offset: -28.007 ms
Remote clock offset: 4.464 ms

Below is generated by plot.py at 2018-08-09 00:58:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 26.53 Mbit/s
95th percentile per-packet one-way delay: 542.030 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 26.53 Mbit/s
95th percentile per-packet one-way delay: 542.030 ms
Loss rate: 1.47%

Run 3: Report of FillP-Sheep — Data Link

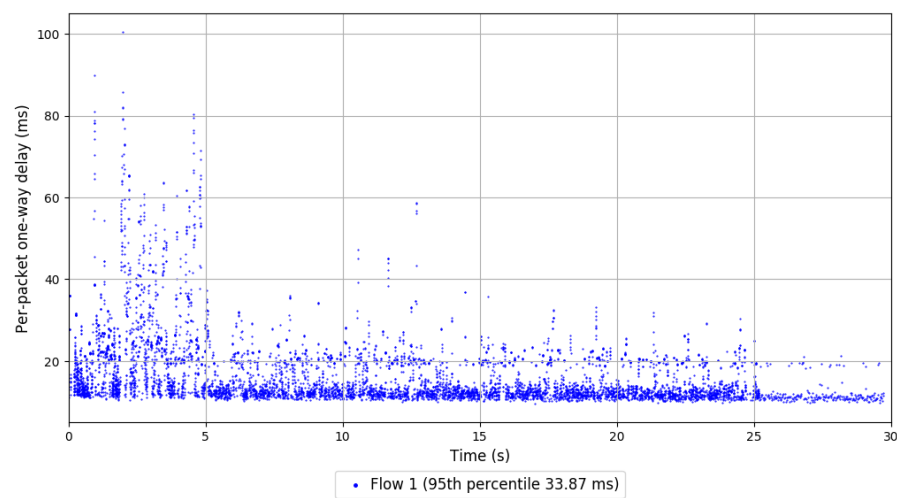
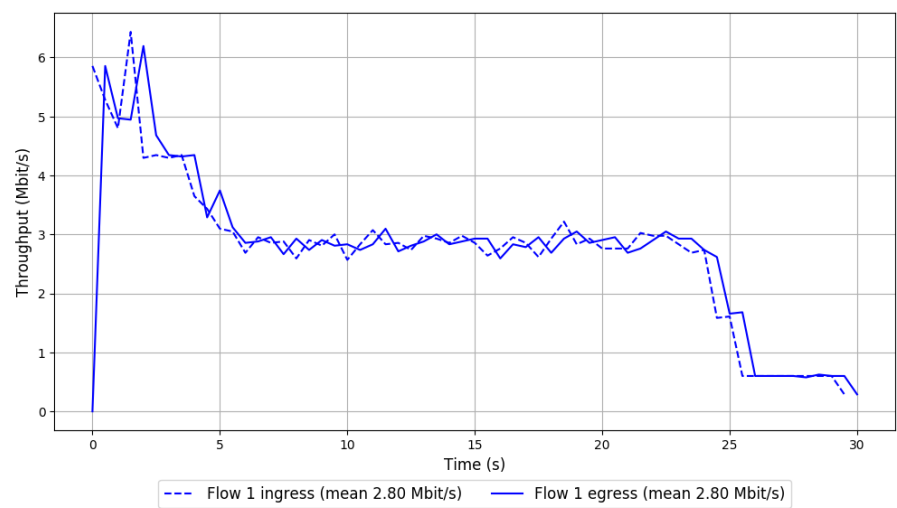


```
Run 1: Statistics of Indigo

Start at: 2018-08-09 00:12:51
End at: 2018-08-09 00:13:21
Local clock offset: -21.354 ms
Remote clock offset: -0.074 ms

# Below is generated by plot.py at 2018-08-09 00:58:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.80 Mbit/s
95th percentile per-packet one-way delay: 33.865 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.80 Mbit/s
95th percentile per-packet one-way delay: 33.865 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

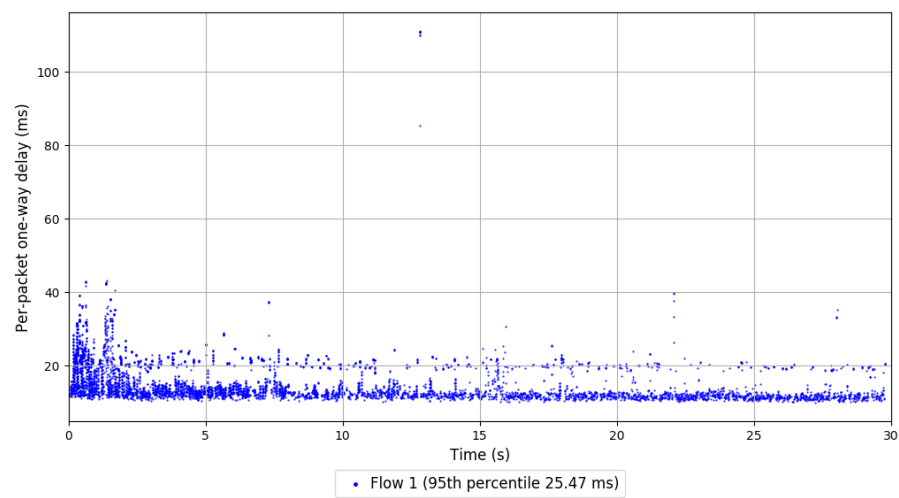
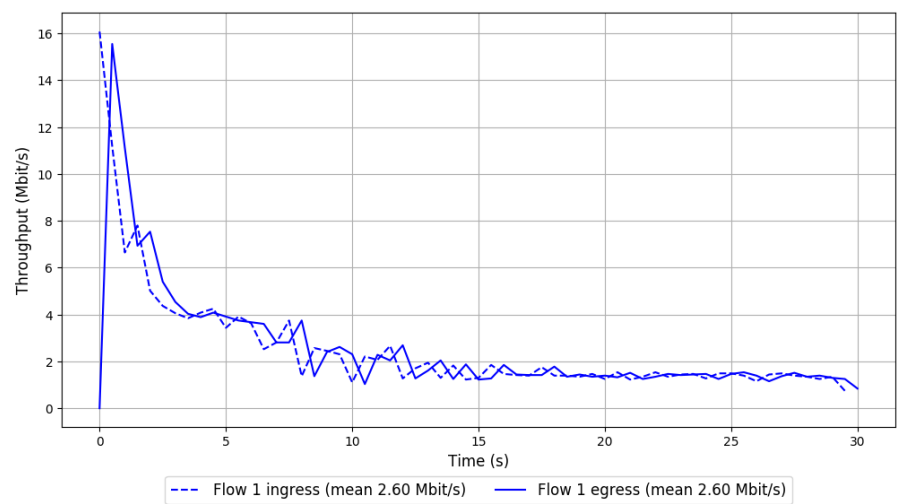


Run 2: Statistics of Indigo

Start at: 2018-08-09 00:35:04
End at: 2018-08-09 00:35:34
Local clock offset: -31.612 ms
Remote clock offset: 3.034 ms

Below is generated by plot.py at 2018-08-09 00:58:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.60 Mbit/s
95th percentile per-packet one-way delay: 25.468 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.60 Mbit/s
95th percentile per-packet one-way delay: 25.468 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link

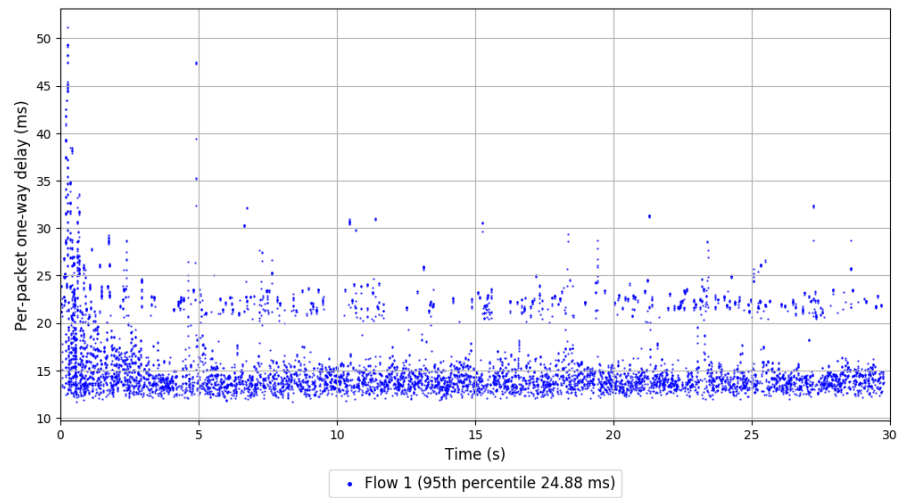
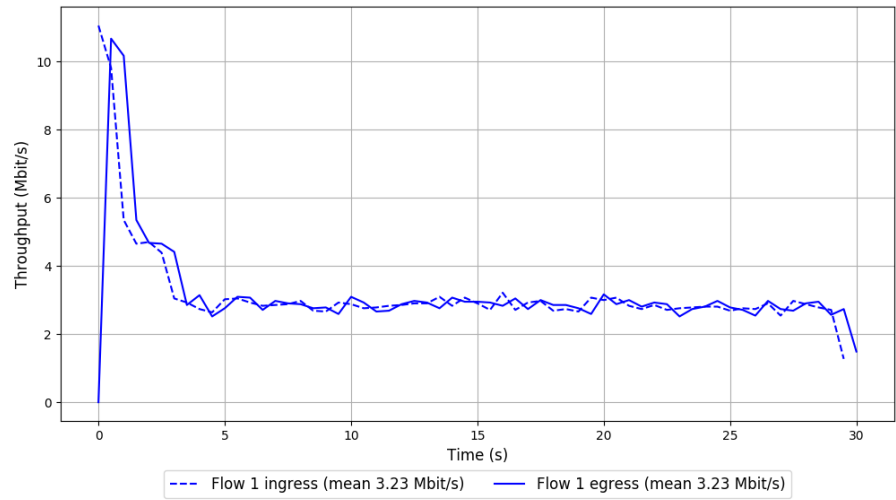


Run 3: Statistics of Indigo

Start at: 2018-08-09 00:57:11
End at: 2018-08-09 00:57:41
Local clock offset: -24.121 ms
Remote clock offset: 3.947 ms

Below is generated by plot.py at 2018-08-09 00:58:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 24.884 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 24.884 ms
Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

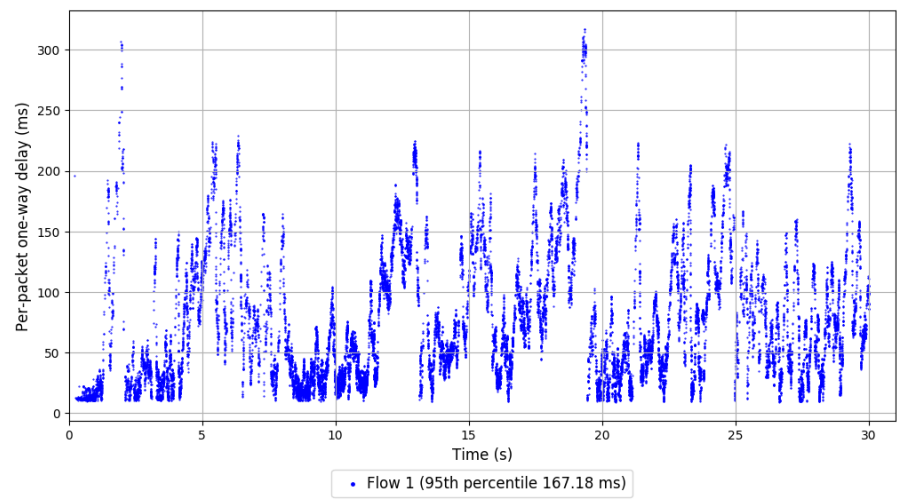
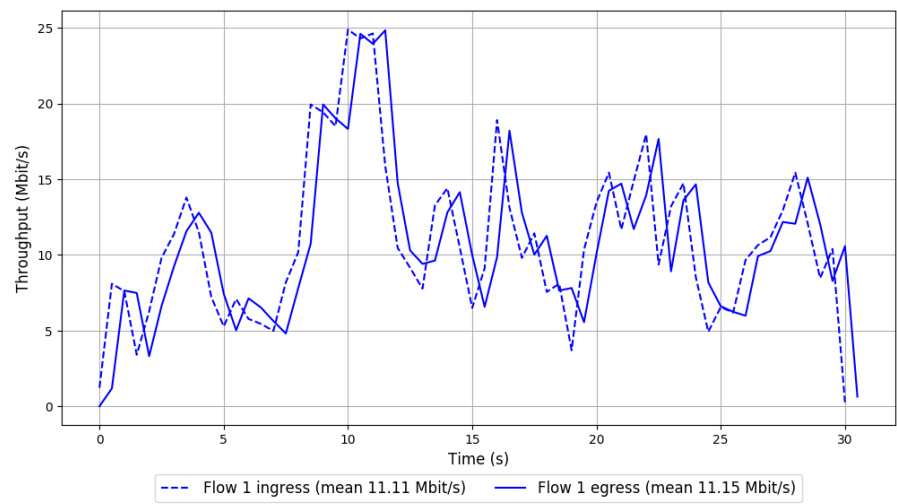


```
Run 1: Statistics of LEDBAT

Start at: 2018-08-09 00:01:10
End at: 2018-08-09 00:01:40
Local clock offset: -18.099 ms
Remote clock offset: 0.52 ms

# Below is generated by plot.py at 2018-08-09 00:58:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.15 Mbit/s
95th percentile per-packet one-way delay: 167.184 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 11.15 Mbit/s
95th percentile per-packet one-way delay: 167.184 ms
Loss rate: 0.23%
```

Run 1: Report of LEDBAT — Data Link

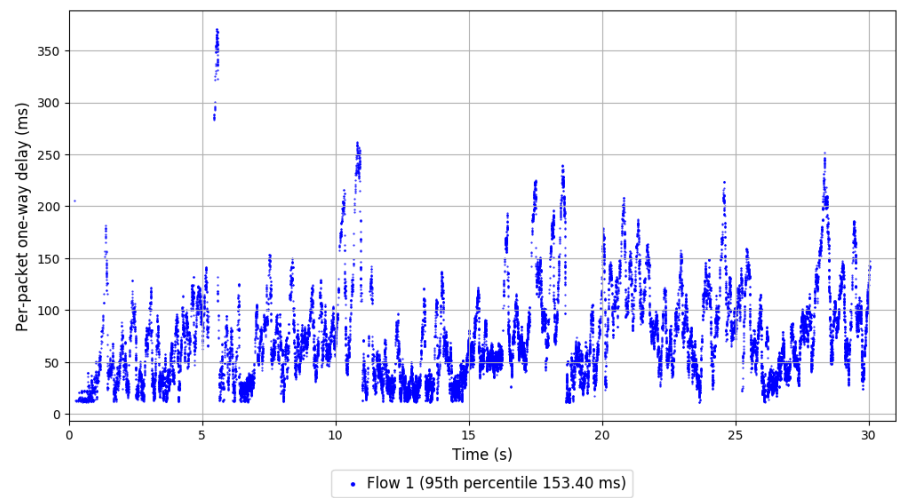
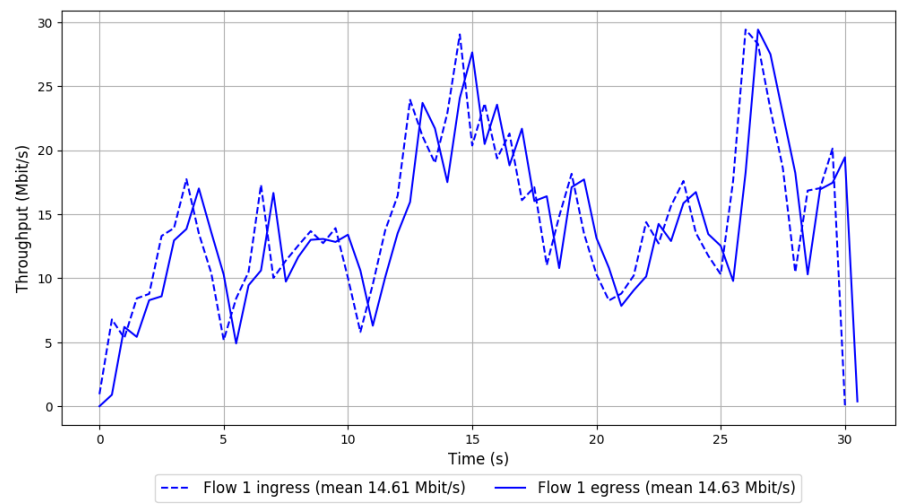


Run 2: Statistics of LEDBAT

Start at: 2018-08-09 00:23:21
End at: 2018-08-09 00:23:51
Local clock offset: -21.629 ms
Remote clock offset: 0.948 ms

Below is generated by plot.py at 2018-08-09 00:58:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 14.63 Mbit/s
95th percentile per-packet one-way delay: 153.401 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 14.63 Mbit/s
95th percentile per-packet one-way delay: 153.401 ms
Loss rate: 0.41%

Run 2: Report of LEDBAT — Data Link

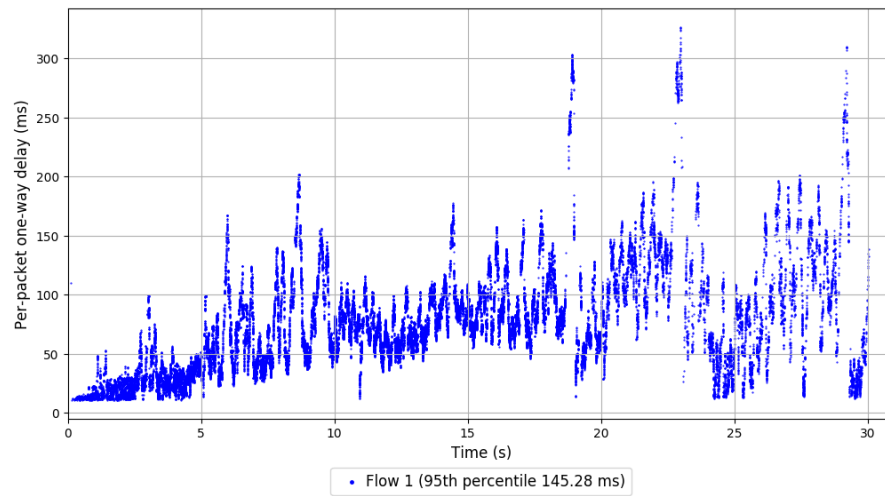
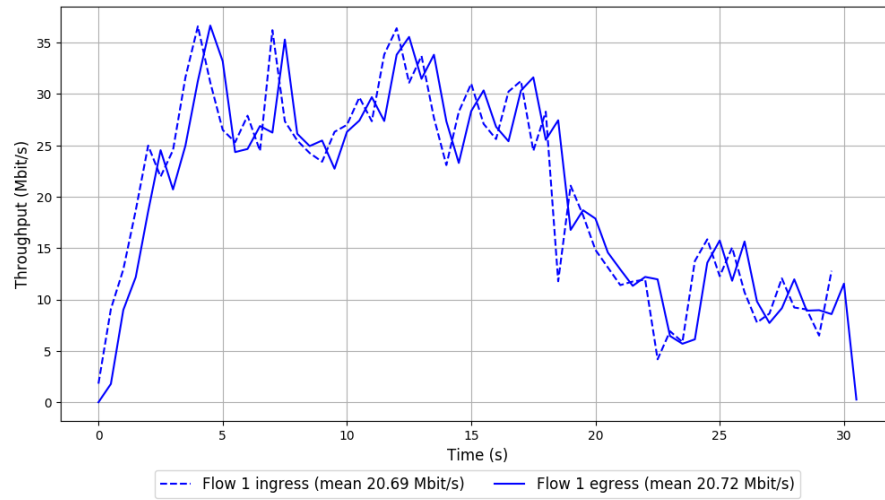


Run 3: Statistics of LEDBAT

Start at: 2018-08-09 00:45:28
End at: 2018-08-09 00:45:58
Local clock offset: -46.732 ms
Remote clock offset: 3.898 ms

Below is generated by plot.py at 2018-08-09 00:58:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 20.72 Mbit/s
95th percentile per-packet one-way delay: 145.275 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 20.72 Mbit/s
95th percentile per-packet one-way delay: 145.275 ms
Loss rate: 0.11%

Run 3: Report of LEDBAT — Data Link

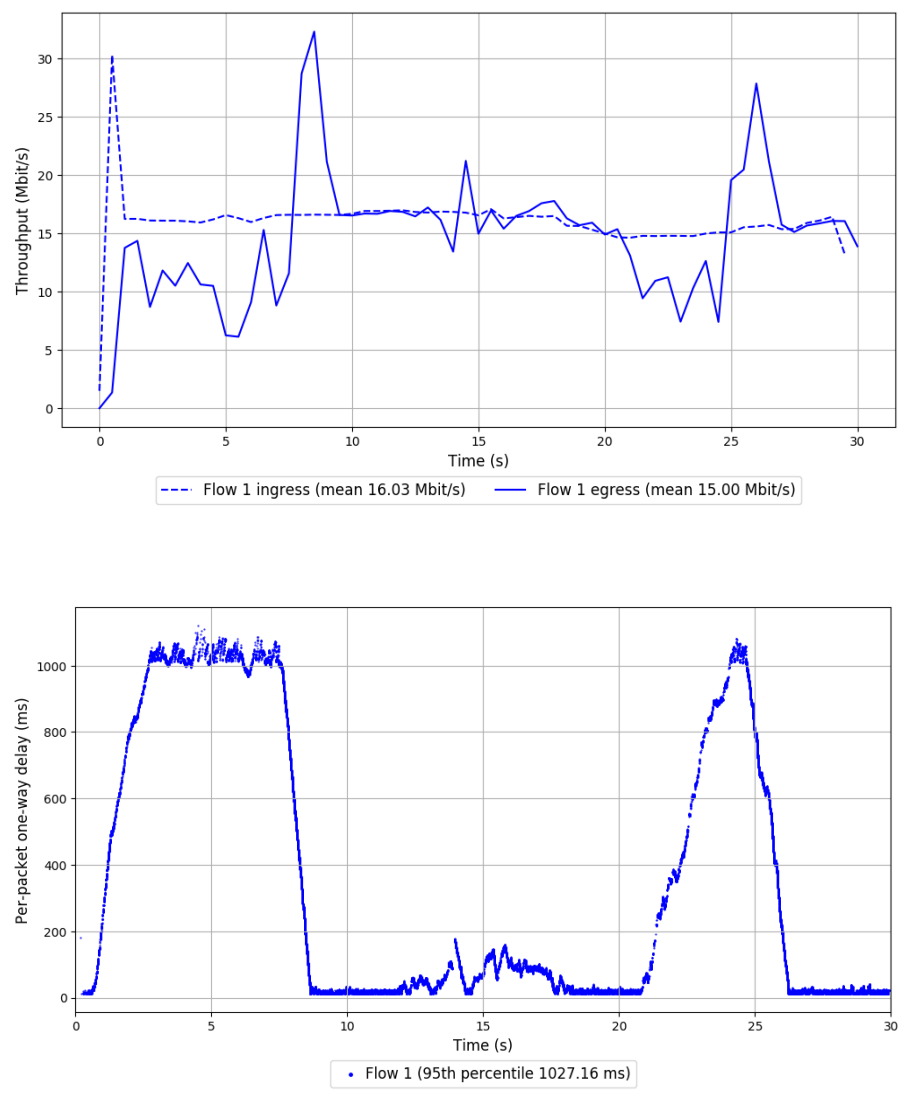


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-08-08 23:55:57
End at: 2018-08-08 23:56:27
Local clock offset: -11.806 ms
Remote clock offset: 1.132 ms

# Below is generated by plot.py at 2018-08-09 00:58:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.00 Mbit/s
95th percentile per-packet one-way delay: 1027.161 ms
Loss rate: 6.94%
-- Flow 1:
Average throughput: 15.00 Mbit/s
95th percentile per-packet one-way delay: 1027.161 ms
Loss rate: 6.94%
```

Run 1: Report of PCC-Allegro — Data Link

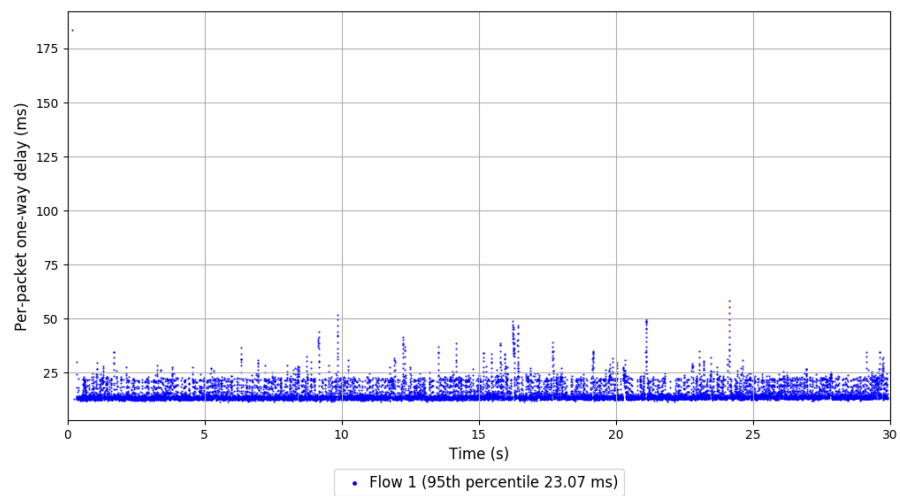
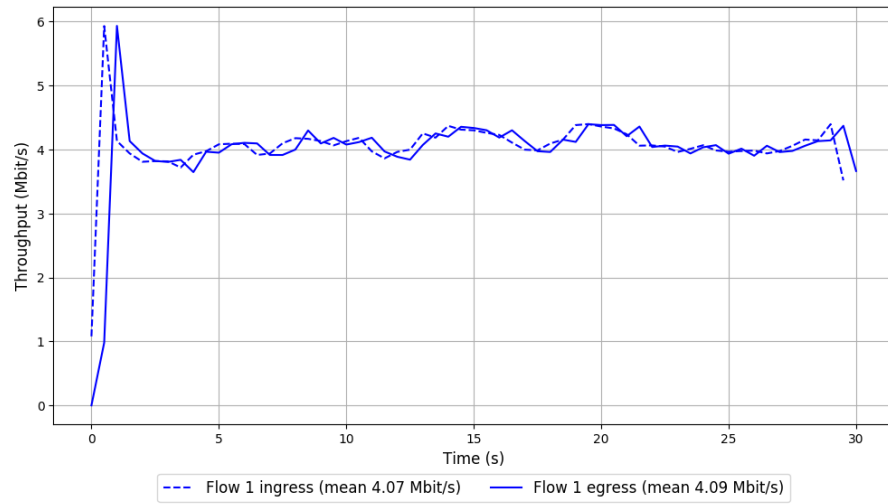


Run 2: Statistics of PCC-Allegro

Start at: 2018-08-09 00:18:08
End at: 2018-08-09 00:18:38
Local clock offset: -23.593 ms
Remote clock offset: -0.21 ms

Below is generated by plot.py at 2018-08-09 00:58:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.09 Mbit/s
95th percentile per-packet one-way delay: 23.070 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.09 Mbit/s
95th percentile per-packet one-way delay: 23.070 ms
Loss rate: 0.00%

Run 2: Report of PCC-Allegro — Data Link

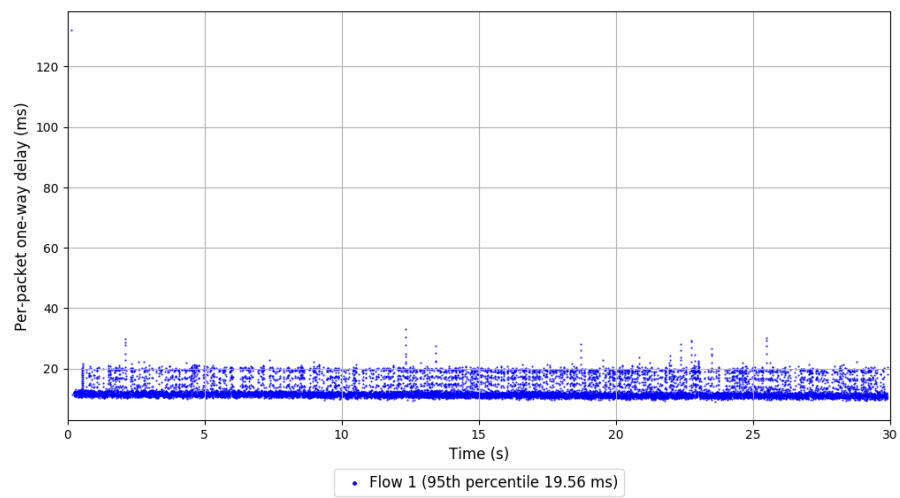
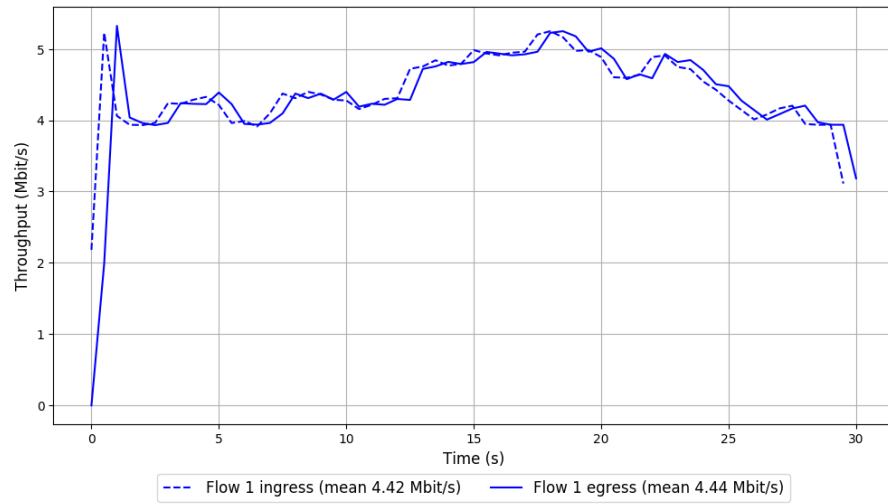


Run 3: Statistics of PCC-Allegro

Start at: 2018-08-09 00:40:16
End at: 2018-08-09 00:40:46
Local clock offset: -38.815 ms
Remote clock offset: 3.504 ms

Below is generated by plot.py at 2018-08-09 00:58:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.44 Mbit/s
95th percentile per-packet one-way delay: 19.560 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.44 Mbit/s
95th percentile per-packet one-way delay: 19.560 ms
Loss rate: 0.00%

Run 3: Report of PCC-Allegro — Data Link

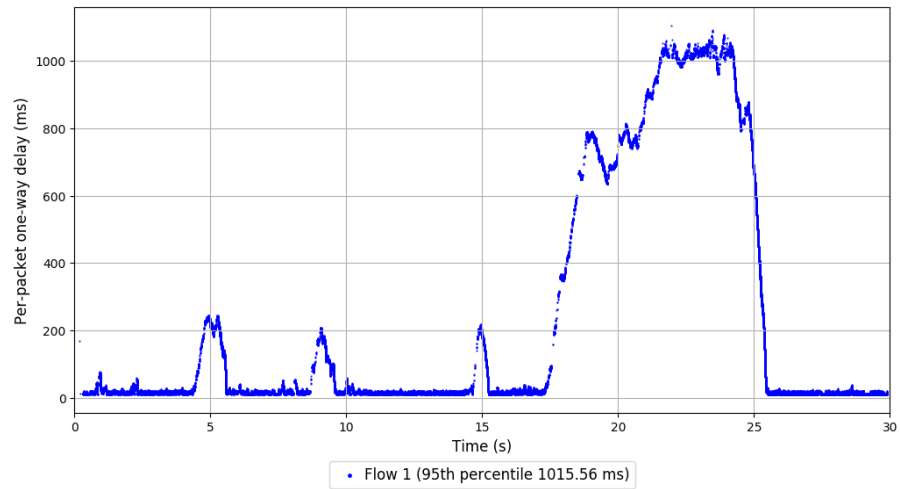
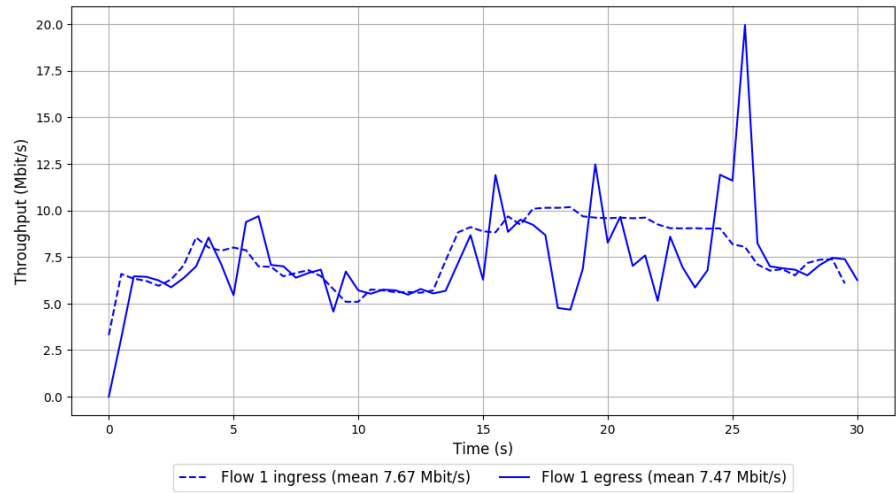


```
Run 1: Statistics of PCC-Expr

Start at: 2018-08-08 23:57:15
End at: 2018-08-08 23:57:45
Local clock offset: -11.556 ms
Remote clock offset: 0.998 ms

# Below is generated by plot.py at 2018-08-09 00:58:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.47 Mbit/s
95th percentile per-packet one-way delay: 1015.564 ms
Loss rate: 3.08%
-- Flow 1:
Average throughput: 7.47 Mbit/s
95th percentile per-packet one-way delay: 1015.564 ms
Loss rate: 3.08%
```

Run 1: Report of PCC-Expr — Data Link

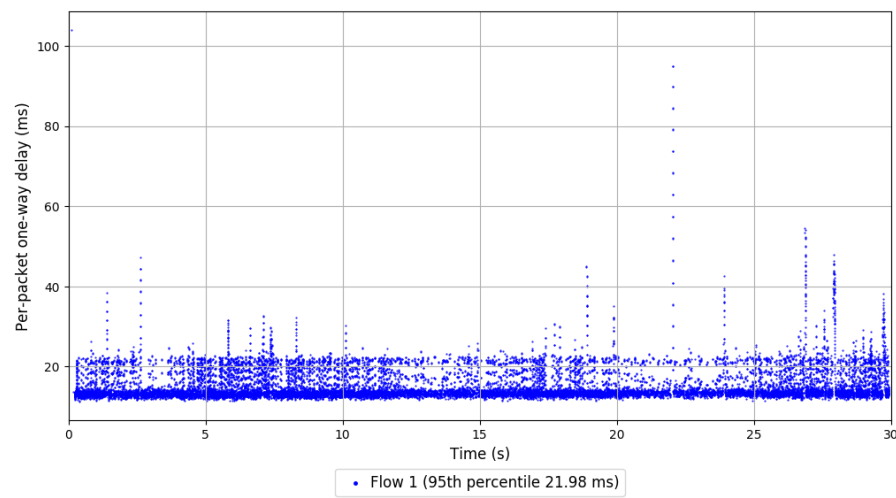
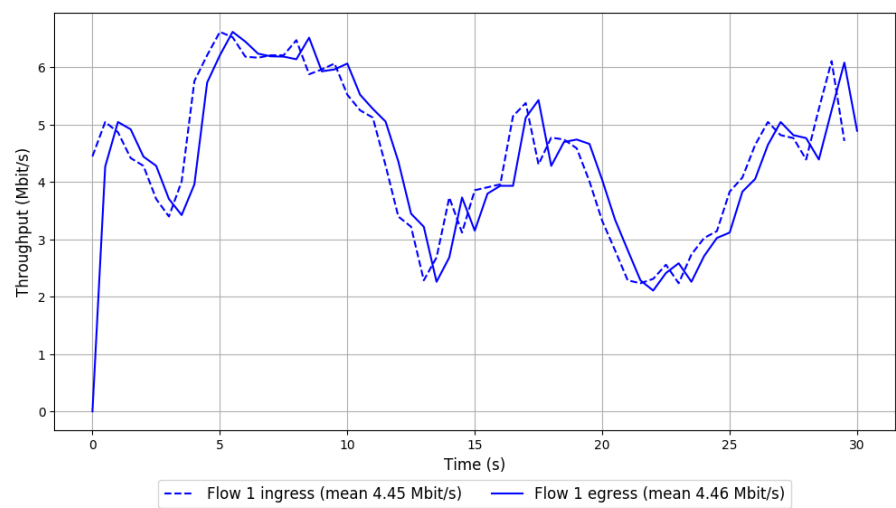


Run 2: Statistics of PCC-Expr

Start at: 2018-08-09 00:19:26
End at: 2018-08-09 00:19:56
Local clock offset: -22.609 ms
Remote clock offset: -0.209 ms

Below is generated by plot.py at 2018-08-09 00:58:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 21.985 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 21.985 ms
Loss rate: 0.00%

Run 2: Report of PCC-Expr — Data Link

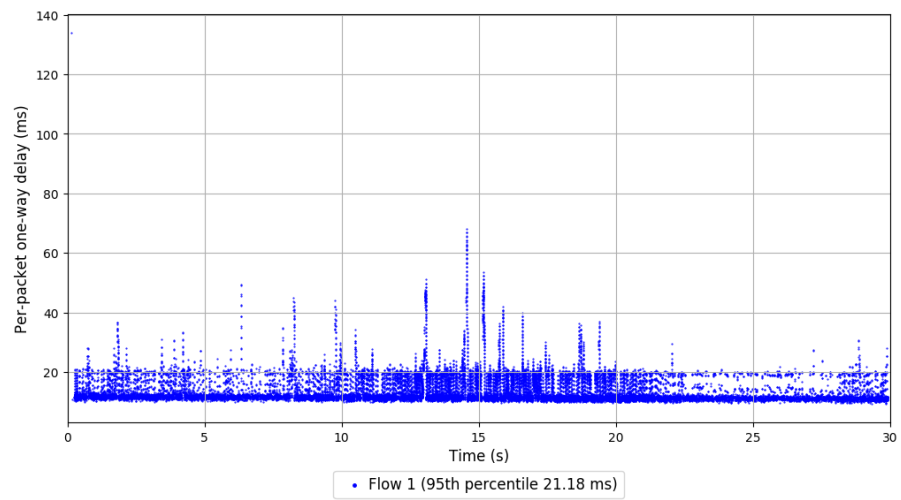
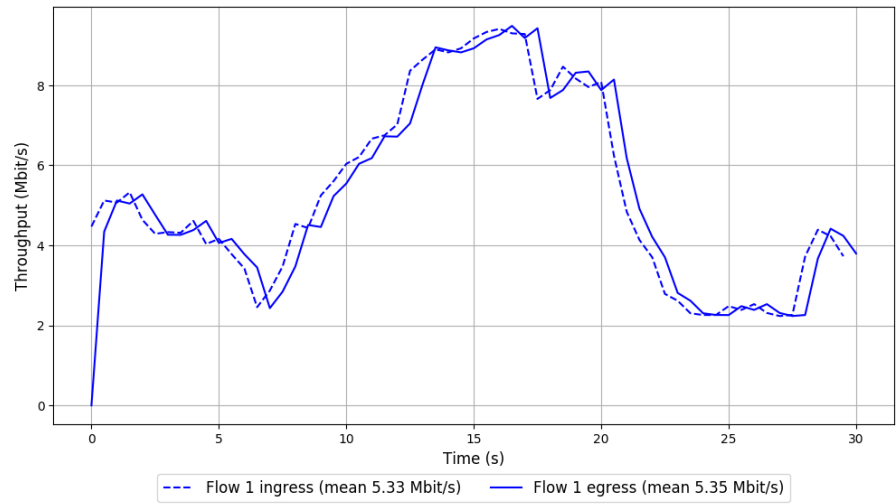


Run 3: Statistics of PCC-Expr

Start at: 2018-08-09 00:41:33
End at: 2018-08-09 00:42:03
Local clock offset: -40.853 ms
Remote clock offset: 3.669 ms

Below is generated by plot.py at 2018-08-09 00:58:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.35 Mbit/s
95th percentile per-packet one-way delay: 21.178 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.35 Mbit/s
95th percentile per-packet one-way delay: 21.178 ms
Loss rate: 0.00%

Run 3: Report of PCC-Expr — Data Link

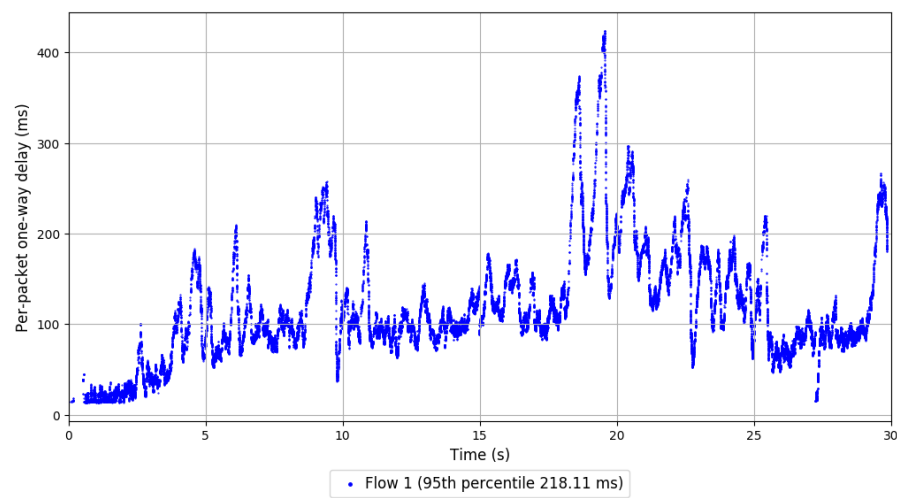
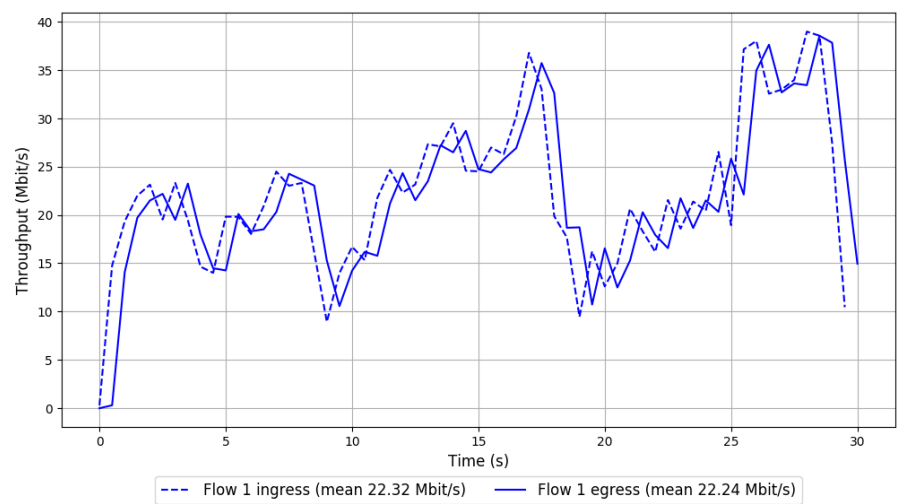


Run 1: Statistics of QUIC Cubic

Start at: 2018-08-08 23:54:39
End at: 2018-08-08 23:55:09
Local clock offset: -15.057 ms
Remote clock offset: 1.354 ms

Below is generated by plot.py at 2018-08-09 00:59:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 22.24 Mbit/s
95th percentile per-packet one-way delay: 218.114 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 22.24 Mbit/s
95th percentile per-packet one-way delay: 218.114 ms
Loss rate: 0.34%

Run 1: Report of QUIC Cubic — Data Link

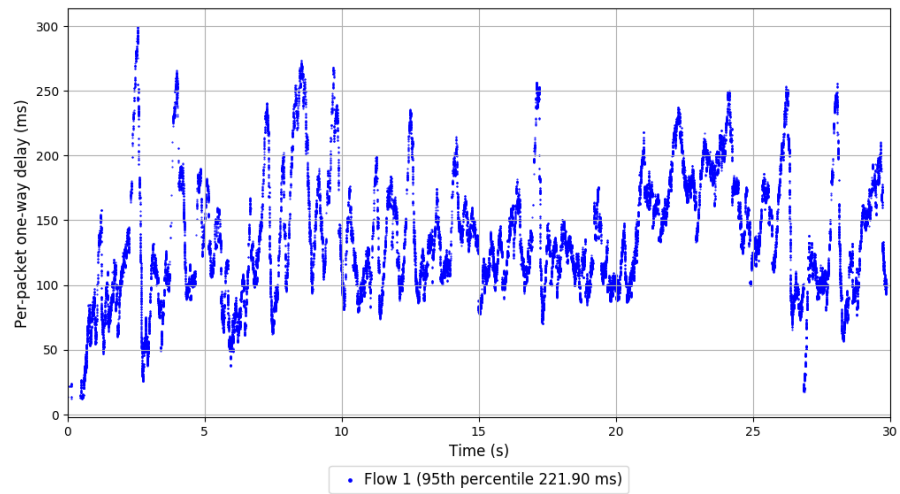
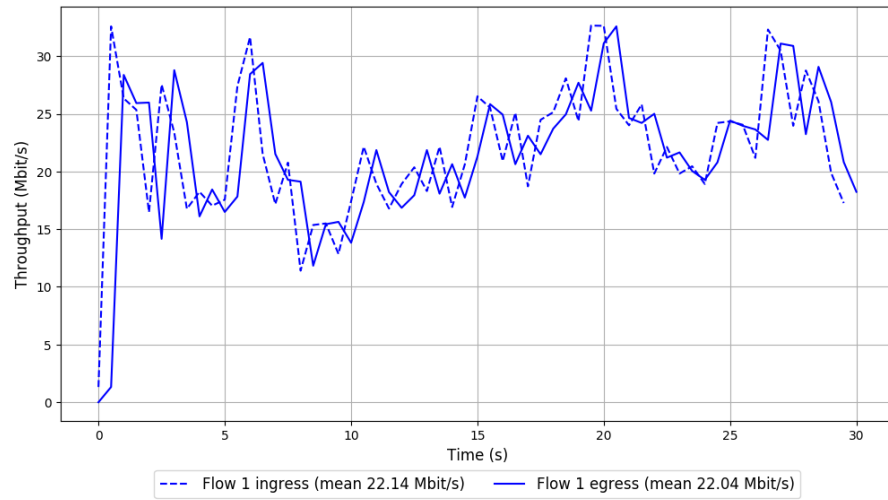


Run 2: Statistics of QUIC Cubic

Start at: 2018-08-09 00:16:50
End at: 2018-08-09 00:17:20
Local clock offset: -25.398 ms
Remote clock offset: -0.168 ms

Below is generated by plot.py at 2018-08-09 00:59:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 22.04 Mbit/s
95th percentile per-packet one-way delay: 221.900 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 22.04 Mbit/s
95th percentile per-packet one-way delay: 221.900 ms
Loss rate: 0.42%

Run 2: Report of QUIC Cubic — Data Link

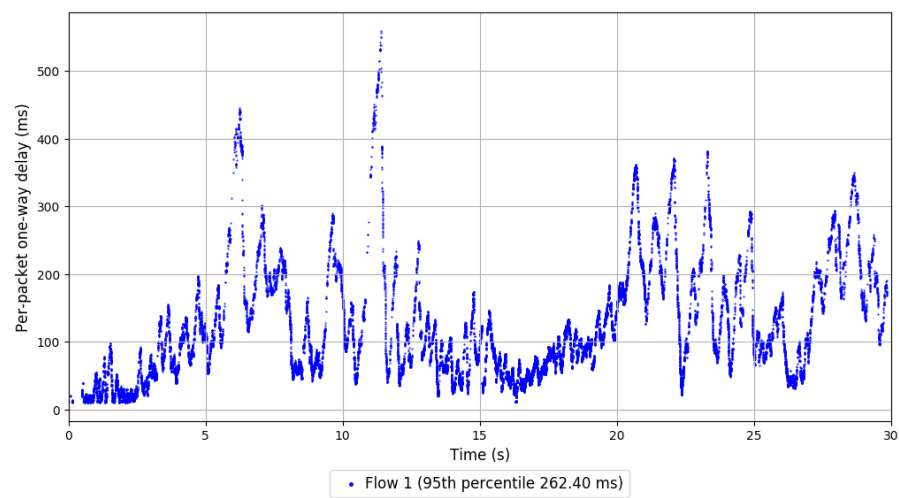
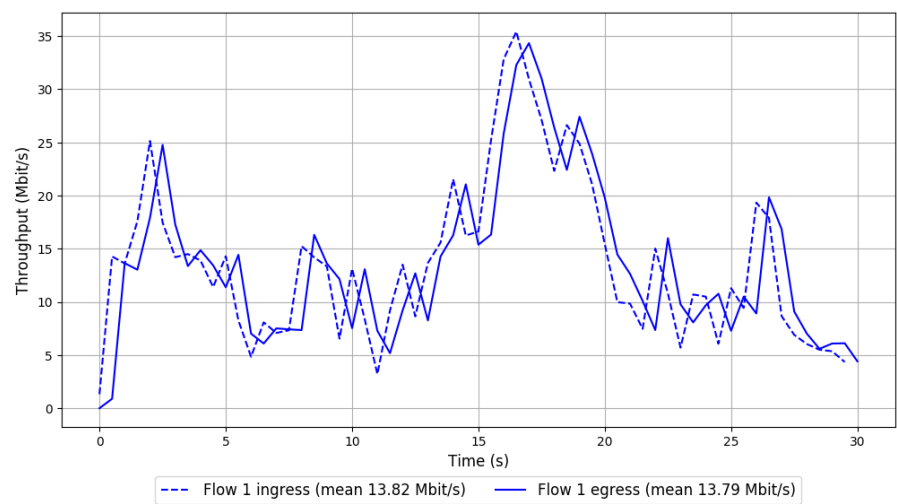


Run 3: Statistics of QUIC Cubic

Start at: 2018-08-09 00:38:58
End at: 2018-08-09 00:39:28
Local clock offset: -37.021 ms
Remote clock offset: 3.361 ms

Below is generated by plot.py at 2018-08-09 00:59:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.79 Mbit/s
95th percentile per-packet one-way delay: 262.404 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 13.79 Mbit/s
95th percentile per-packet one-way delay: 262.404 ms
Loss rate: 0.24%

Run 3: Report of QUIC Cubic — Data Link

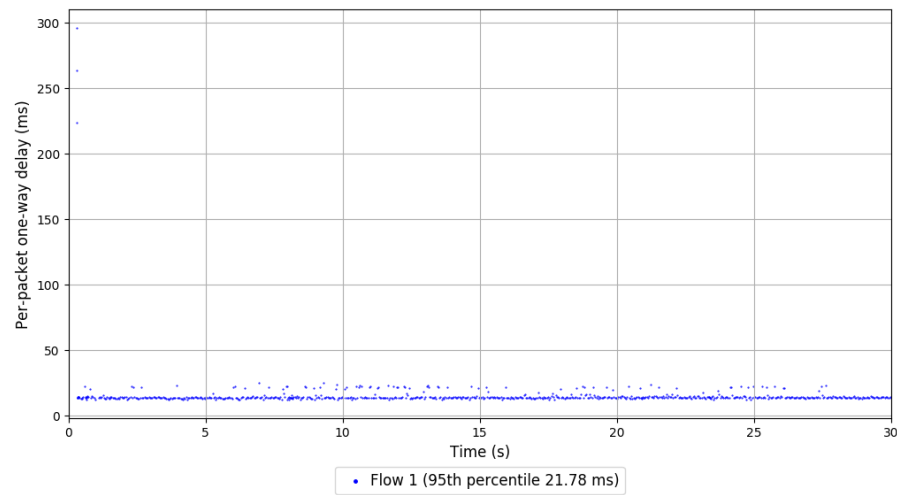
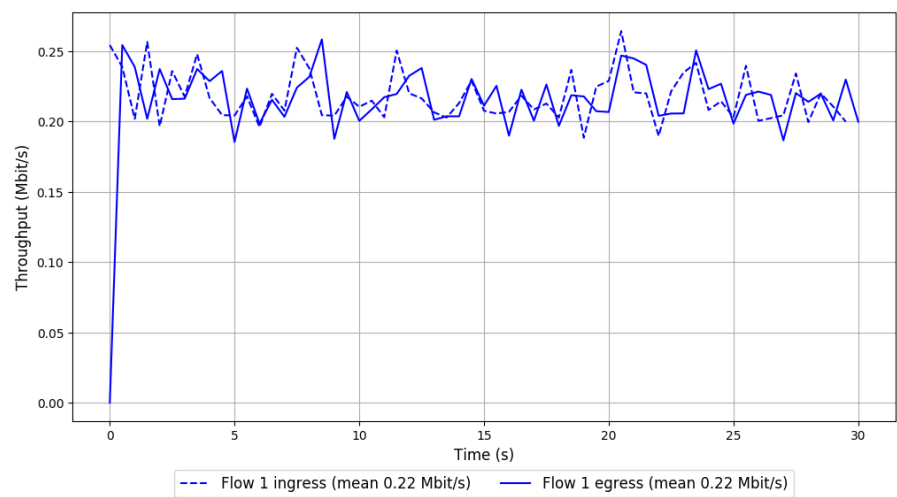


```
Run 1: Statistics of SCReAM

Start at: 2018-08-09 00:05:04
End at: 2018-08-09 00:05:34
Local clock offset: -18.599 ms
Remote clock offset: 0.243 ms

# Below is generated by plot.py at 2018-08-09 00:59:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 21.778 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 21.778 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

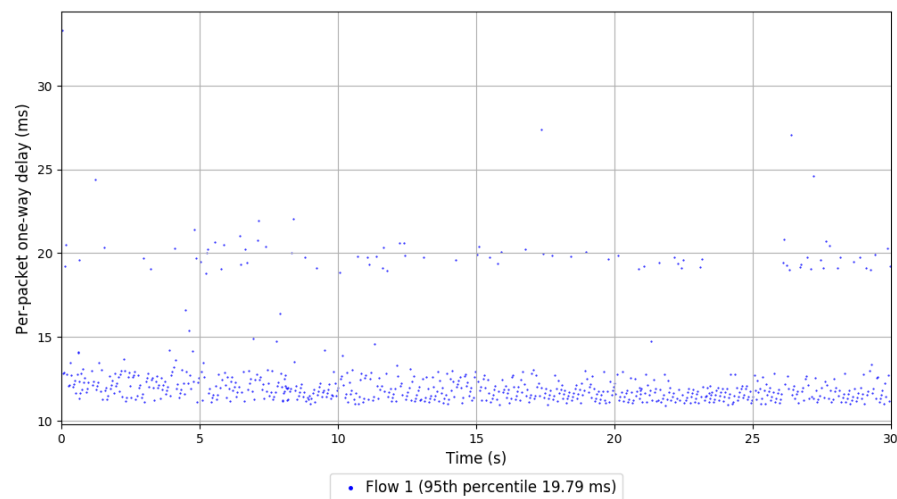
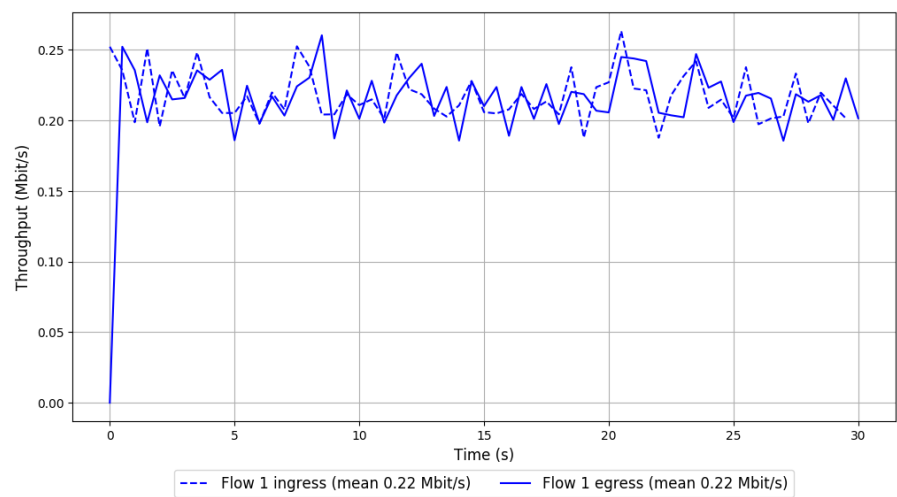


Run 2: Statistics of SCReAM

Start at: 2018-08-09 00:27:16
End at: 2018-08-09 00:27:46
Local clock offset: -23.519 ms
Remote clock offset: 1.795 ms

Below is generated by plot.py at 2018-08-09 00:59:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.791 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.791 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

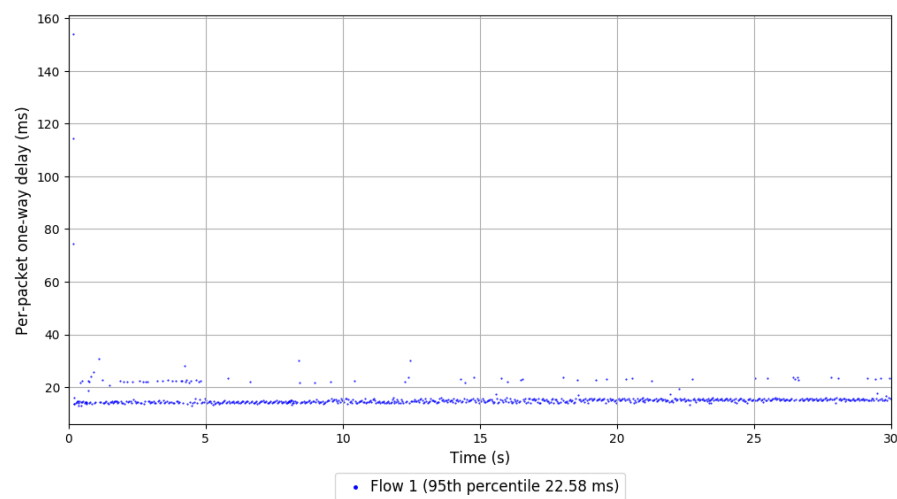
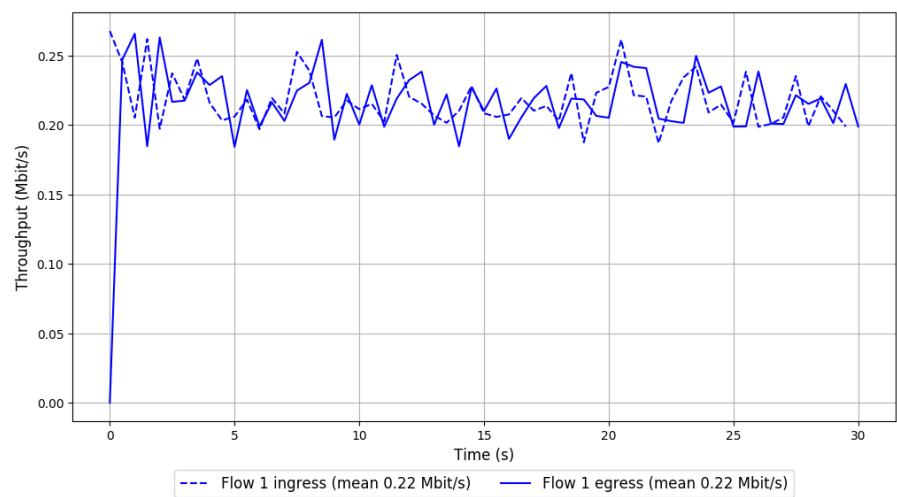


Run 3: Statistics of SCReAM

Start at: 2018-08-09 00:49:24
End at: 2018-08-09 00:49:54
Local clock offset: -35.561 ms
Remote clock offset: 4.24 ms

Below is generated by plot.py at 2018-08-09 00:59:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 22.576 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 22.576 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

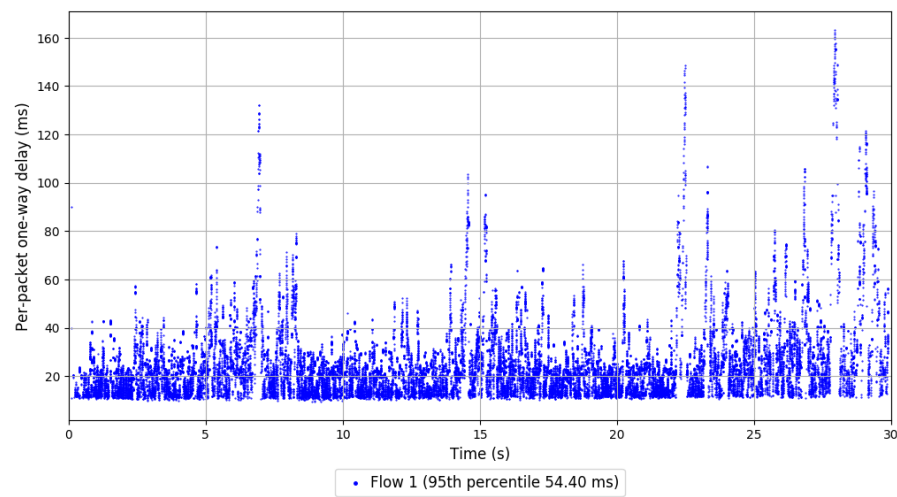
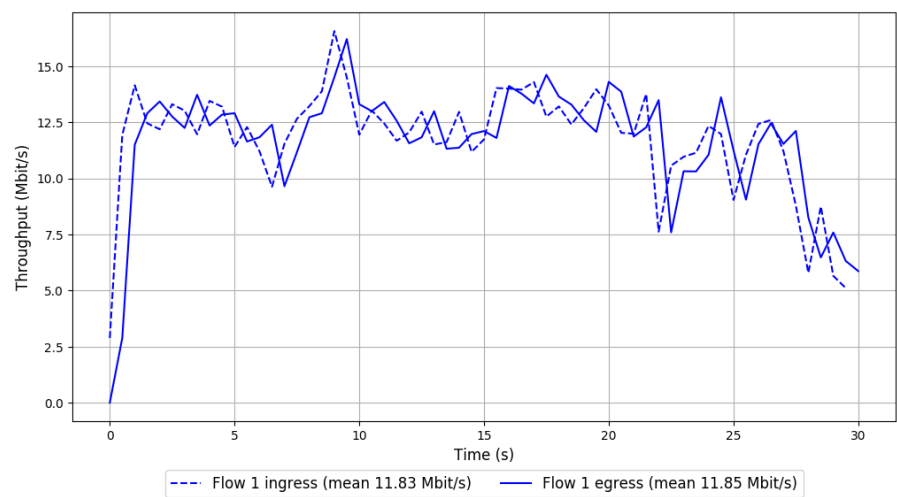


Run 1: Statistics of Sprout

Start at: 2018-08-09 00:02:28
End at: 2018-08-09 00:02:58
Local clock offset: -21.786 ms
Remote clock offset: 0.405 ms

Below is generated by plot.py at 2018-08-09 00:59:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 11.85 Mbit/s
95th percentile per-packet one-way delay: 54.395 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.85 Mbit/s
95th percentile per-packet one-way delay: 54.395 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

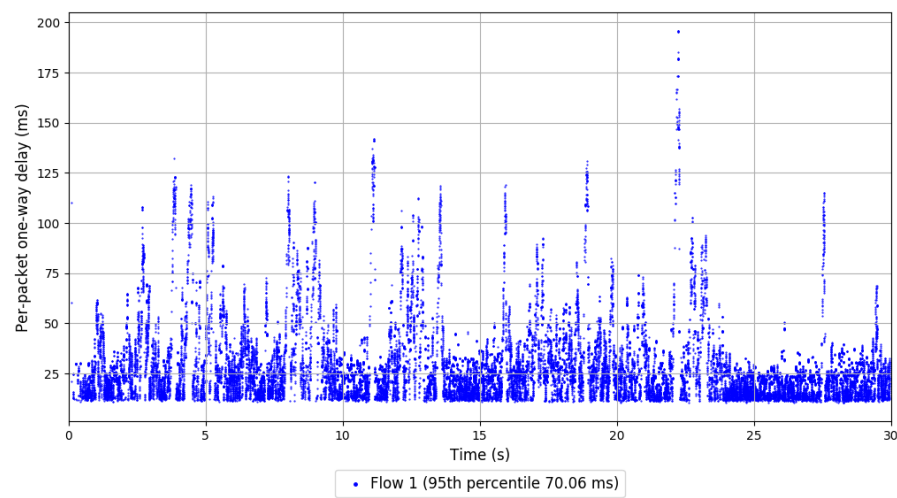
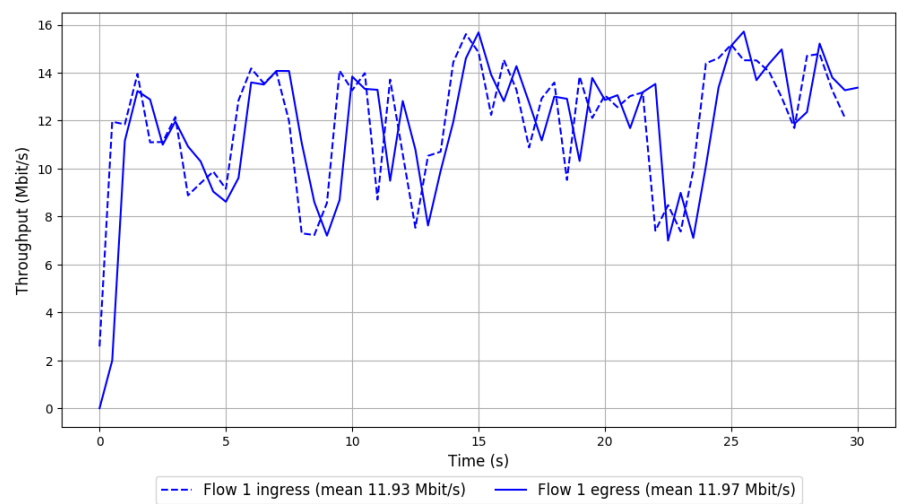


Run 2: Statistics of Sprout

Start at: 2018-08-09 00:24:39
End at: 2018-08-09 00:25:09
Local clock offset: -22.071 ms
Remote clock offset: 1.225 ms

Below is generated by plot.py at 2018-08-09 00:59:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 11.97 Mbit/s
95th percentile per-packet one-way delay: 70.061 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.97 Mbit/s
95th percentile per-packet one-way delay: 70.061 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

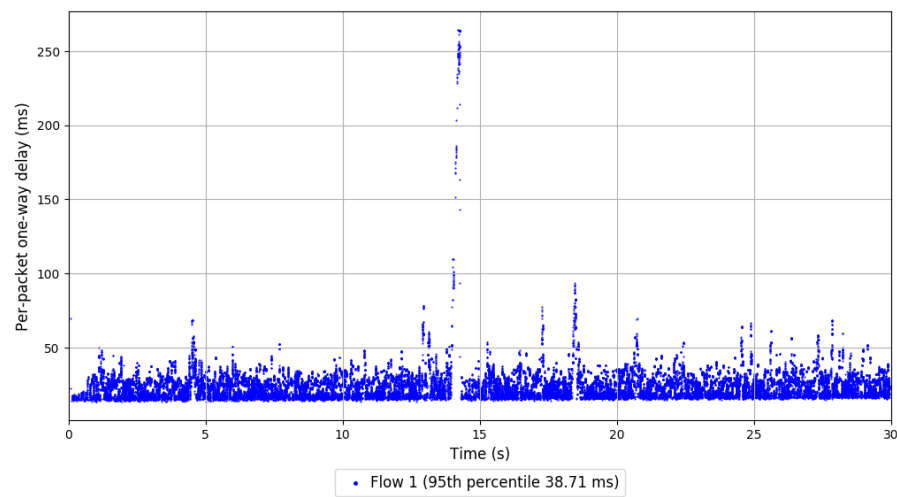
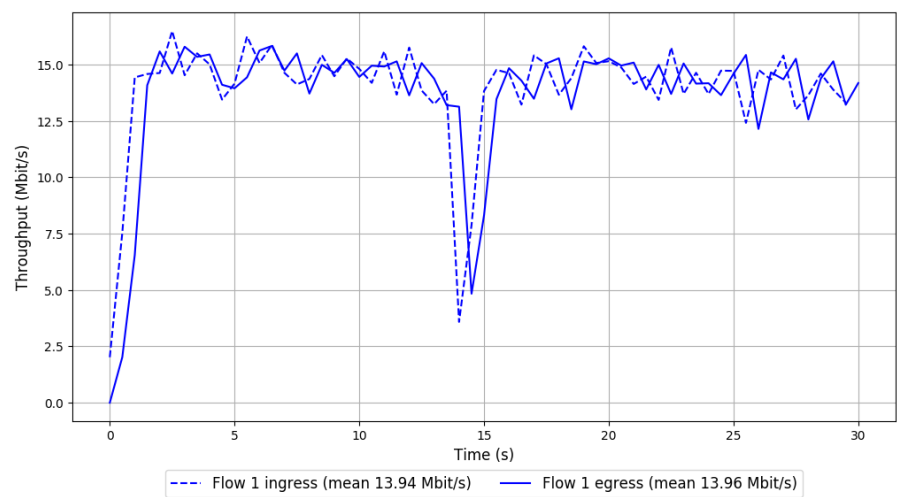


Run 3: Statistics of Sprout

Start at: 2018-08-09 00:46:47
End at: 2018-08-09 00:47:17
Local clock offset: -44.444 ms
Remote clock offset: 4.045 ms

Below is generated by plot.py at 2018-08-09 00:59:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.96 Mbit/s
95th percentile per-packet one-way delay: 38.707 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 13.96 Mbit/s
95th percentile per-packet one-way delay: 38.707 ms
Loss rate: 0.01%

Run 3: Report of Sprout — Data Link

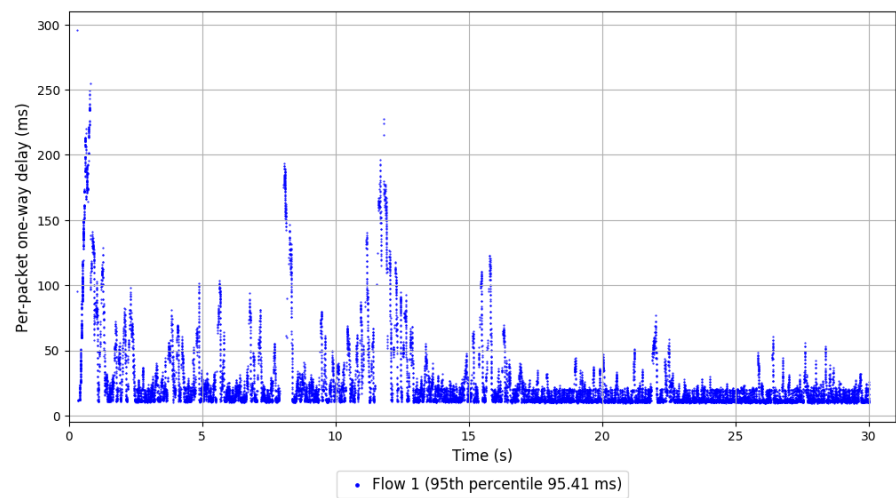
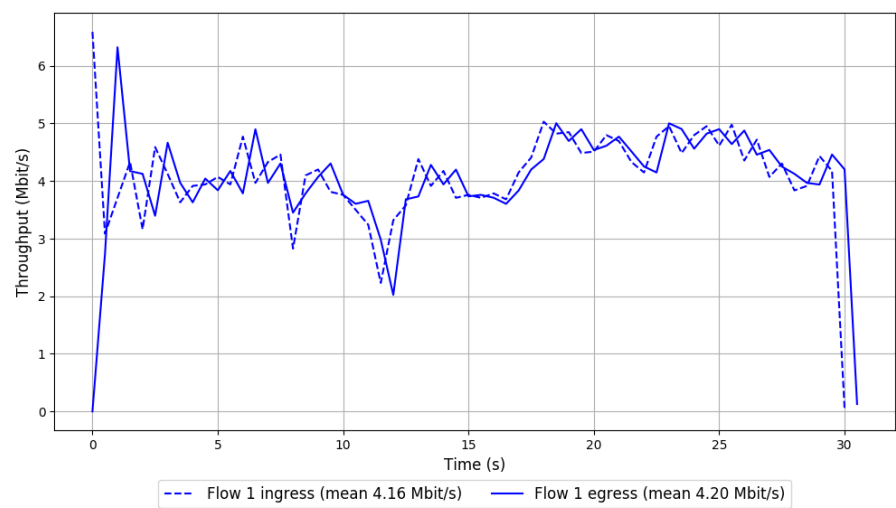


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-08-09 00:11:33
End at: 2018-08-09 00:12:03
Local clock offset: -19.625 ms
Remote clock offset: -0.042 ms

# Below is generated by plot.py at 2018-08-09 00:59:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.20 Mbit/s
95th percentile per-packet one-way delay: 95.413 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.20 Mbit/s
95th percentile per-packet one-way delay: 95.413 ms
Loss rate: 0.00%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-08-09 00:33:46

End at: 2018-08-09 00:34:16

Local clock offset: -30.06 ms

Remote clock offset: 2.838 ms

Below is generated by plot.py at 2018-08-09 00:59:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.32 Mbit/s

95th percentile per-packet one-way delay: 32.636 ms

Loss rate: 0.00%

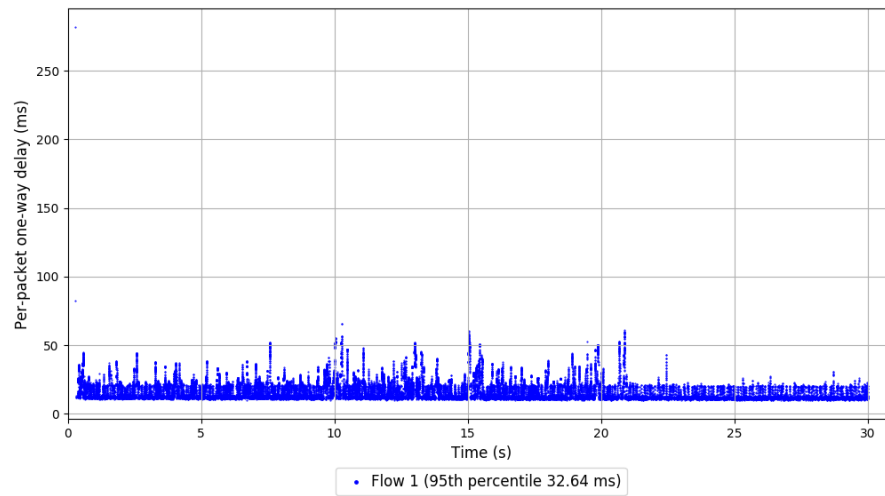
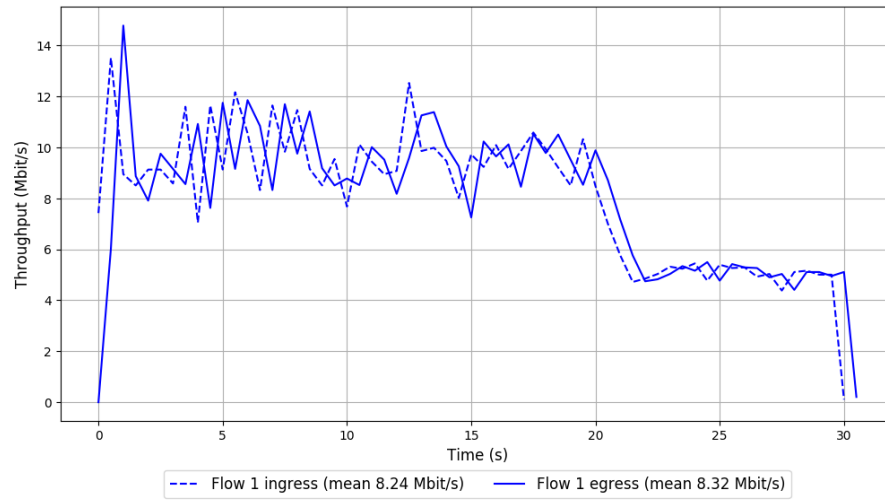
-- Flow 1:

Average throughput: 8.32 Mbit/s

95th percentile per-packet one-way delay: 32.636 ms

Loss rate: 0.00%

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

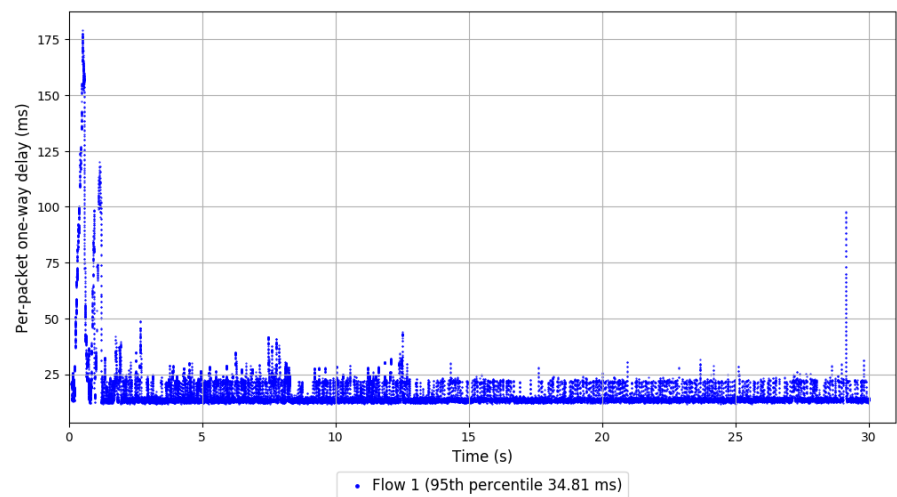
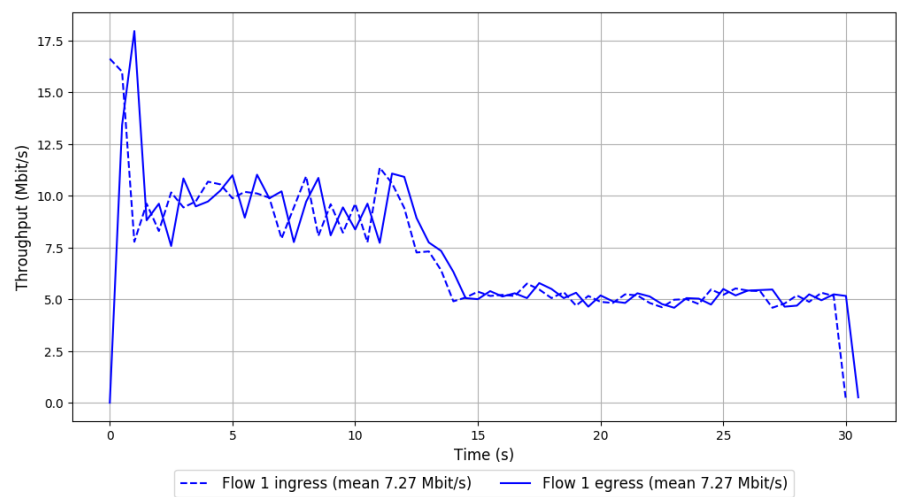


Run 3: Statistics of TaoVA-100x

Start at: 2018-08-09 00:55:53
End at: 2018-08-09 00:56:23
Local clock offset: -25.067 ms
Remote clock offset: 4.163 ms

Below is generated by plot.py at 2018-08-09 00:59:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 34.810 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 34.810 ms
Loss rate: 0.00%

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

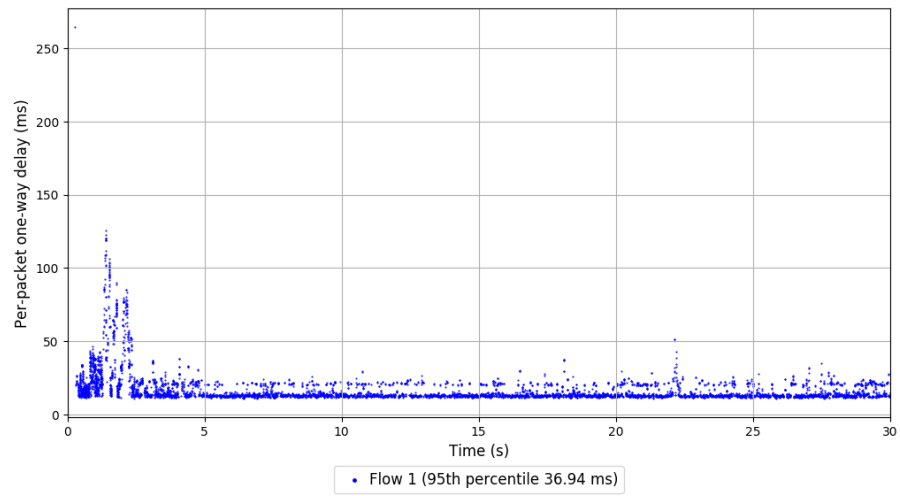
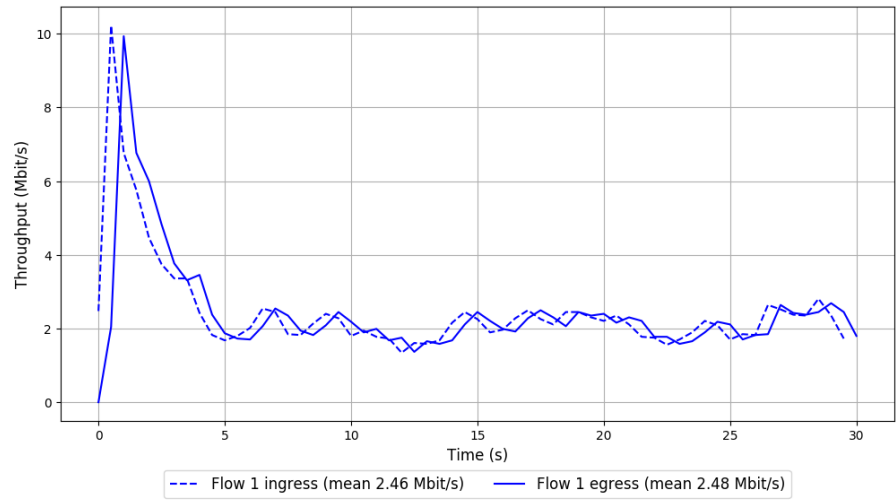


Run 1: Statistics of TCP Vegas

Start at: 2018-08-09 00:07:40
End at: 2018-08-09 00:08:10
Local clock offset: -16.898 ms
Remote clock offset: 0.147 ms

Below is generated by plot.py at 2018-08-09 00:59:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 36.937 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 36.937 ms
Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link

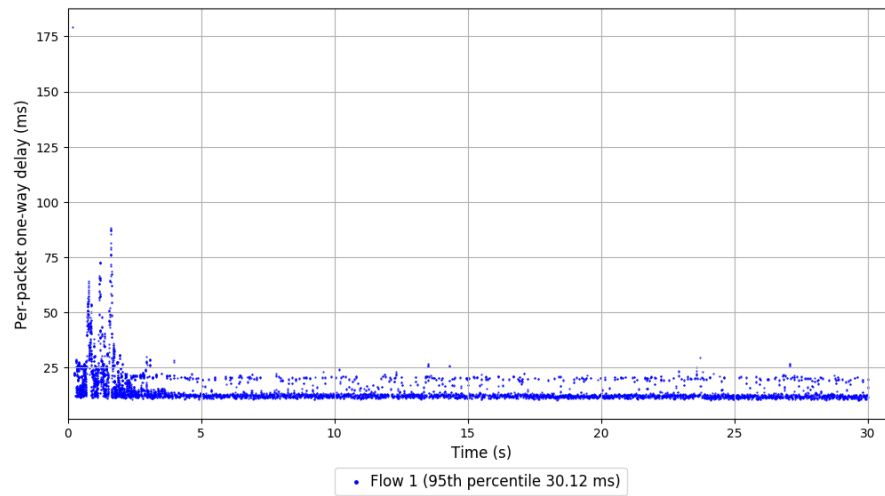
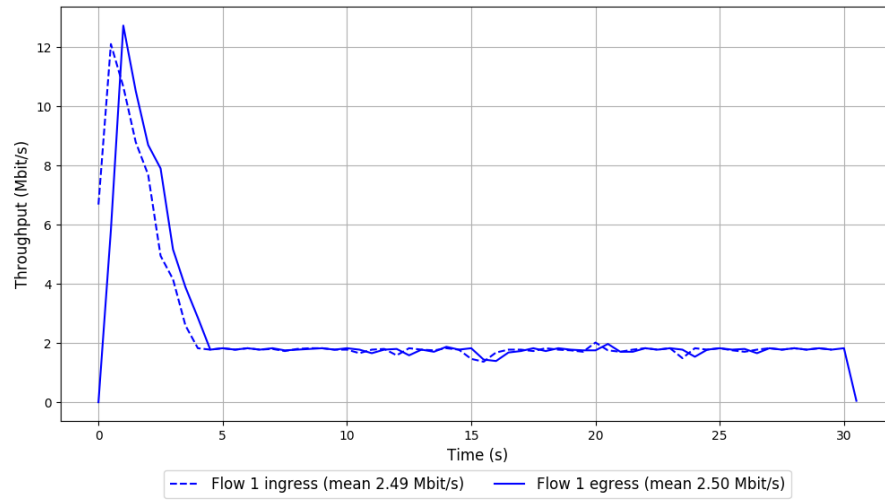


Run 2: Statistics of TCP Vegas

Start at: 2018-08-09 00:29:52
End at: 2018-08-09 00:30:22
Local clock offset: -25.626 ms
Remote clock offset: 2.368 ms

Below is generated by plot.py at 2018-08-09 00:59:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 30.116 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 30.116 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

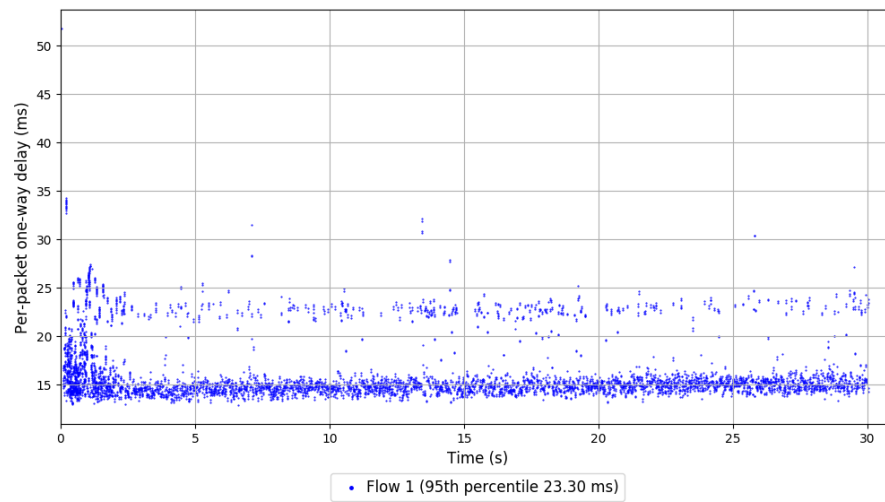
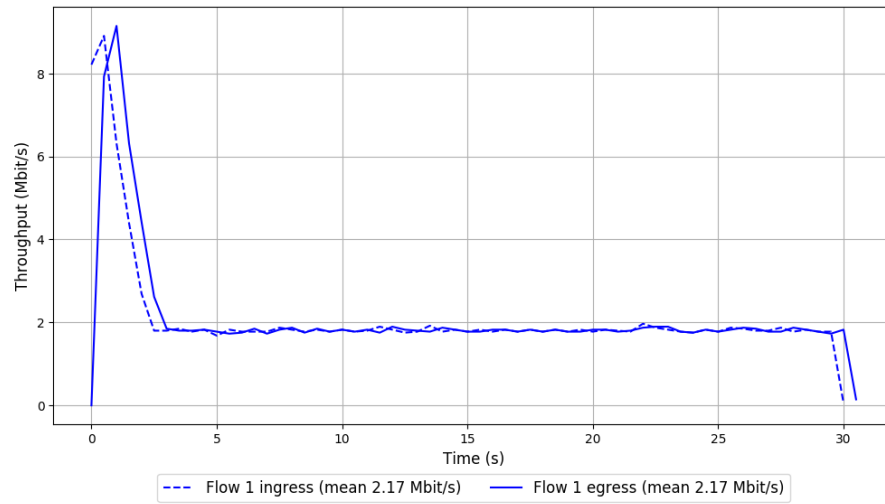


Run 3: Statistics of TCP Vegas

Start at: 2018-08-09 00:51:59
End at: 2018-08-09 00:52:29
Local clock offset: -30.125 ms
Remote clock offset: 4.348 ms

Below is generated by plot.py at 2018-08-09 00:59:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 23.295 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 23.295 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link

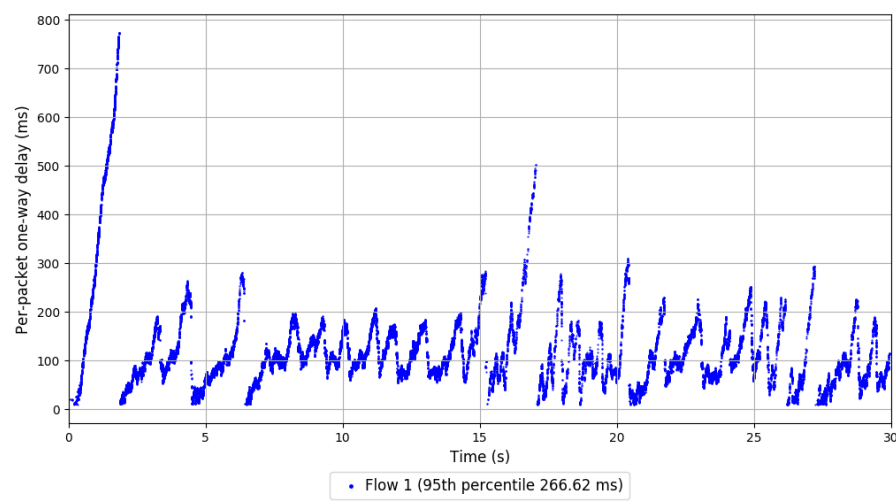
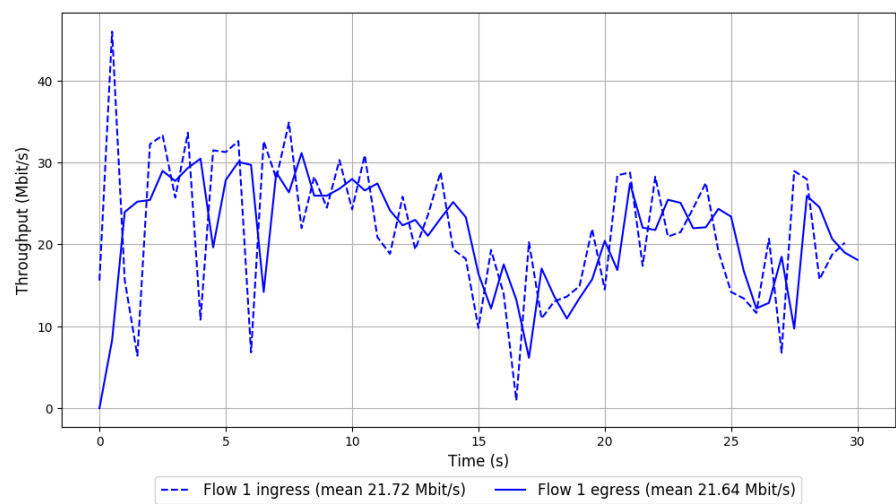


Run 1: Statistics of Verus

Start at: 2018-08-08 23:59:51
End at: 2018-08-09 00:00:21
Local clock offset: -15.533 ms
Remote clock offset: 0.733 ms

Below is generated by plot.py at 2018-08-09 00:59:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 21.64 Mbit/s
95th percentile per-packet one-way delay: 266.616 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 21.64 Mbit/s
95th percentile per-packet one-way delay: 266.616 ms
Loss rate: 0.35%

Run 1: Report of Verus — Data Link

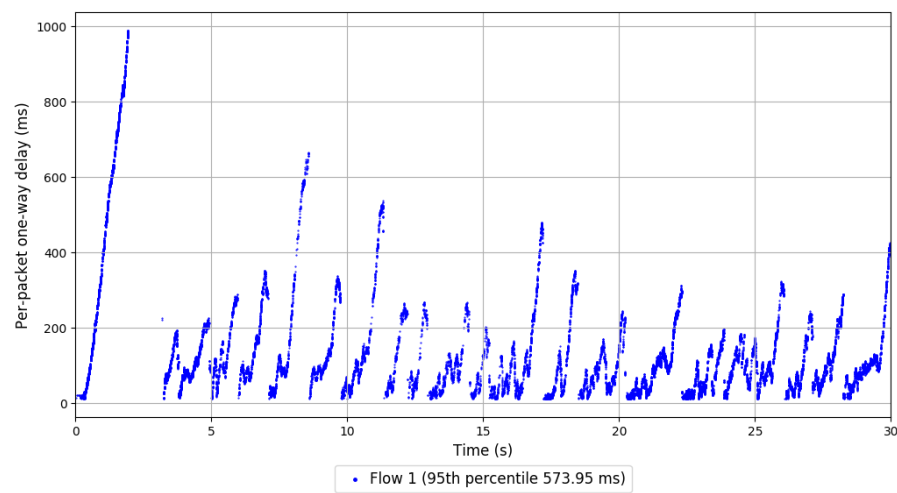
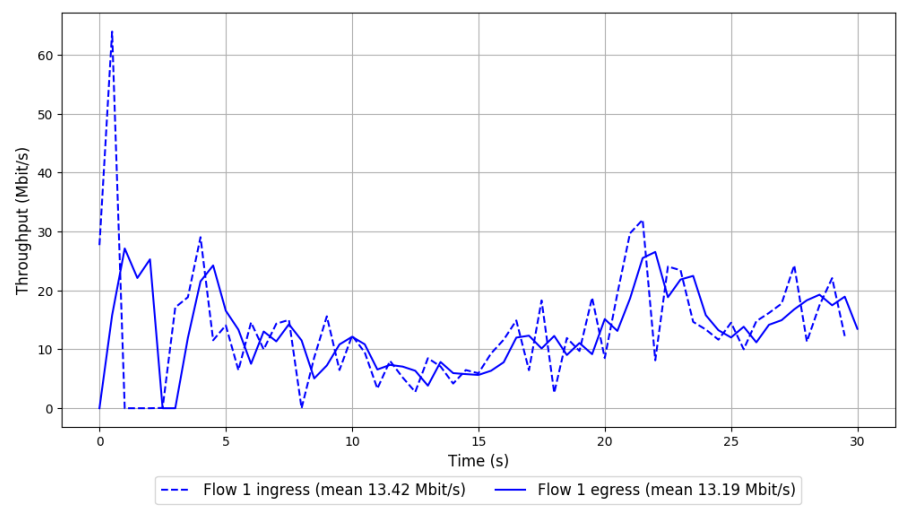


Run 2: Statistics of Verus

Start at: 2018-08-09 00:22:03
End at: 2018-08-09 00:22:33
Local clock offset: -21.564 ms
Remote clock offset: 0.55 ms

Below is generated by plot.py at 2018-08-09 00:59:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.19 Mbit/s
95th percentile per-packet one-way delay: 573.951 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 13.19 Mbit/s
95th percentile per-packet one-way delay: 573.951 ms
Loss rate: 0.75%

Run 2: Report of Verus — Data Link

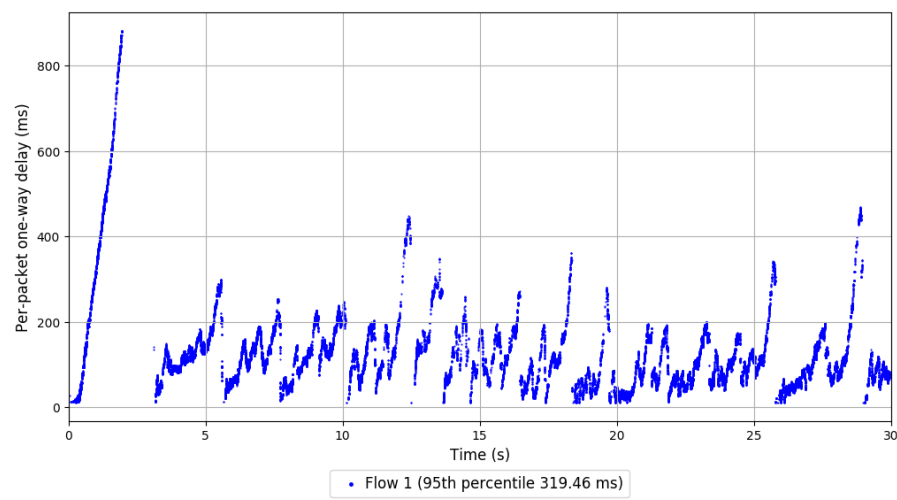
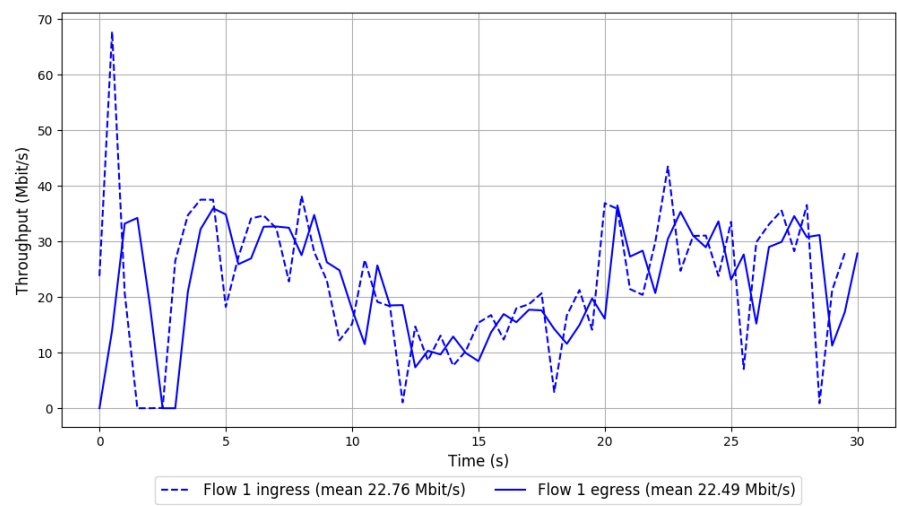


Run 3: Statistics of Verus

Start at: 2018-08-09 00:44:10
End at: 2018-08-09 00:44:40
Local clock offset: -45.042 ms
Remote clock offset: 3.8 ms

Below is generated by plot.py at 2018-08-09 00:59:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 22.49 Mbit/s
95th percentile per-packet one-way delay: 319.458 ms
Loss rate: 1.22%
-- Flow 1:
Average throughput: 22.49 Mbit/s
95th percentile per-packet one-way delay: 319.458 ms
Loss rate: 1.22%

Run 3: Report of Verus — Data Link

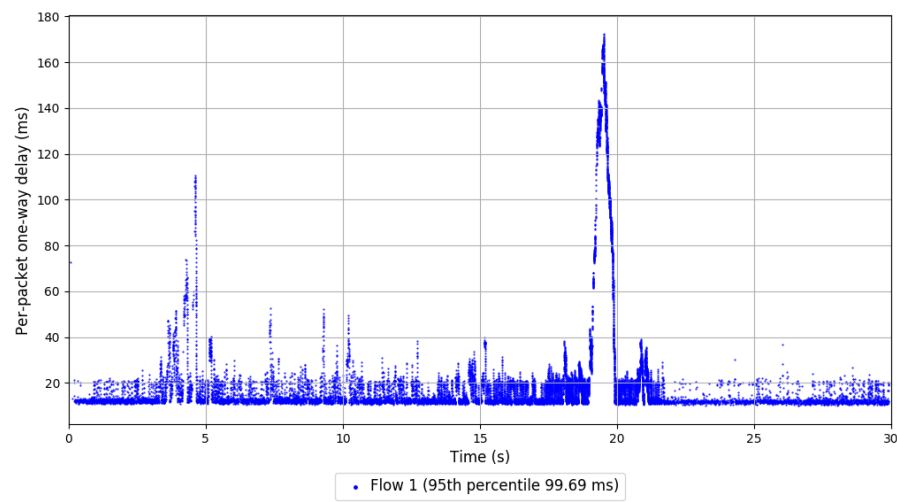
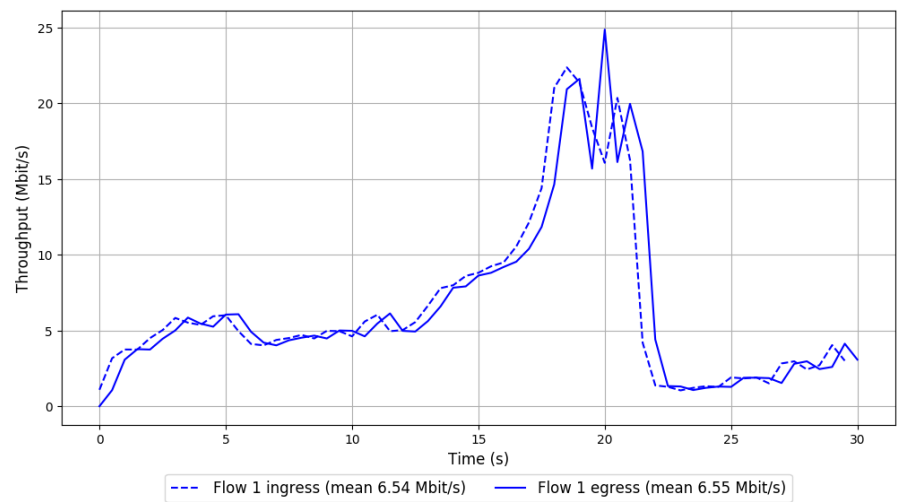


Run 1: Statistics of PCC-Vivace

Start at: 2018-08-09 00:10:15
End at: 2018-08-09 00:10:45
Local clock offset: -18.495 ms
Remote clock offset: 0.06 ms

Below is generated by plot.py at 2018-08-09 00:59:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.55 Mbit/s
95th percentile per-packet one-way delay: 99.689 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.55 Mbit/s
95th percentile per-packet one-way delay: 99.689 ms
Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link

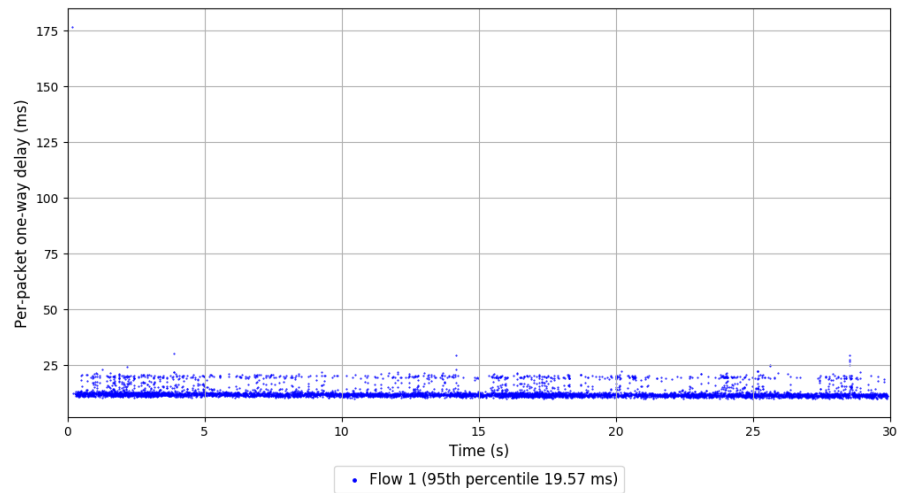
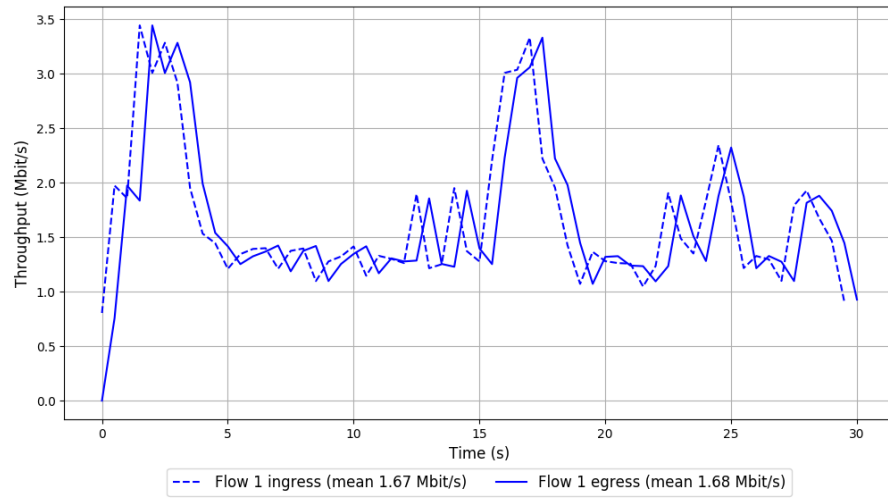


Run 2: Statistics of PCC-Vivace

Start at: 2018-08-09 00:32:28
End at: 2018-08-09 00:32:58
Local clock offset: -28.504 ms
Remote clock offset: 2.76 ms

Below is generated by plot.py at 2018-08-09 00:59:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 19.572 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 19.572 ms
Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link

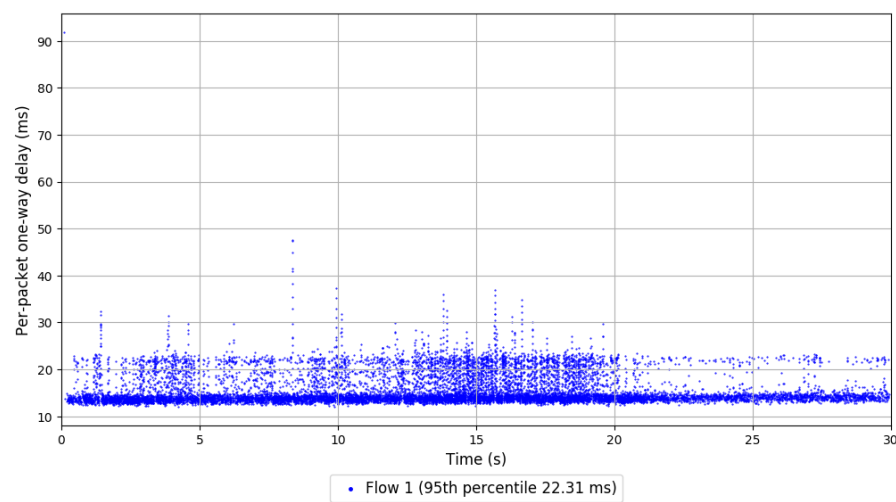
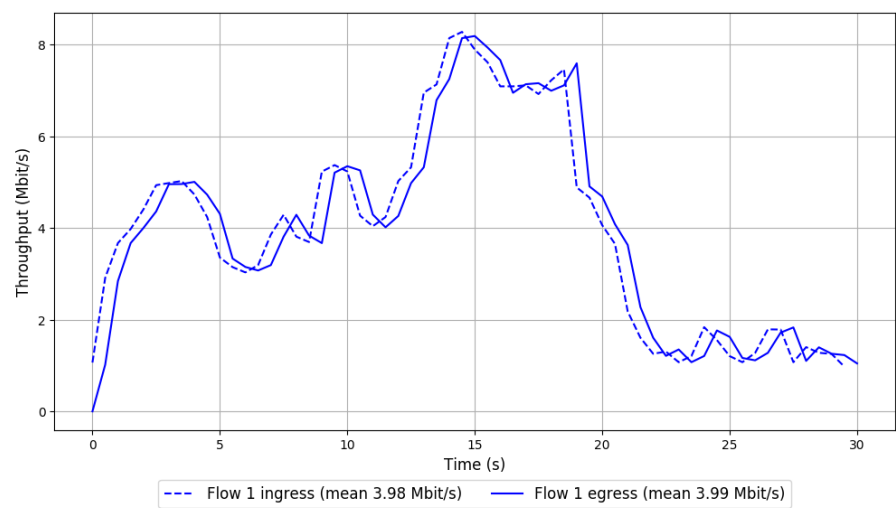


Run 3: Statistics of PCC-Vivace

Start at: 2018-08-09 00:54:35
End at: 2018-08-09 00:55:05
Local clock offset: -26.365 ms
Remote clock offset: 4.461 ms

Below is generated by plot.py at 2018-08-09 00:59:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.99 Mbit/s
95th percentile per-packet one-way delay: 22.306 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.99 Mbit/s
95th percentile per-packet one-way delay: 22.306 ms
Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-08-08 23:52:03

End at: 2018-08-08 23:52:33

Local clock offset: -7.177 ms

Remote clock offset: 1.84 ms

Below is generated by plot.py at 2018-08-09 00:59:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.09 Mbit/s

95th percentile per-packet one-way delay: 20.024 ms

Loss rate: 0.00%

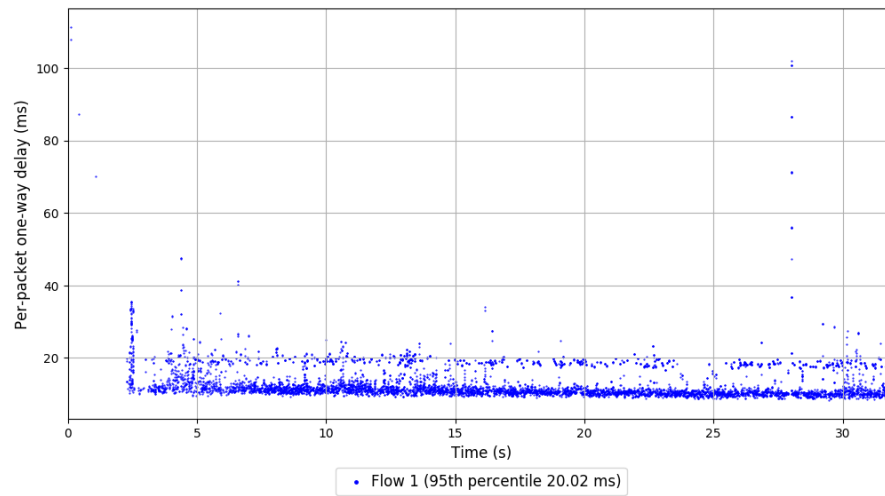
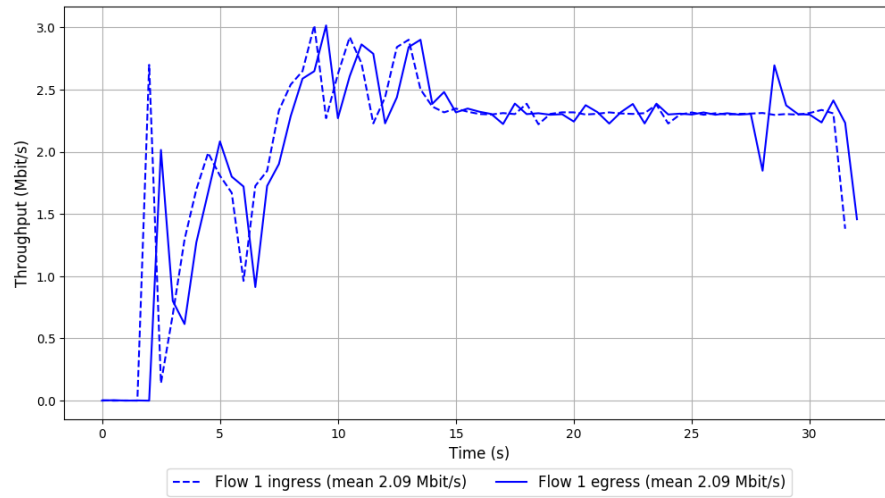
-- Flow 1:

Average throughput: 2.09 Mbit/s

95th percentile per-packet one-way delay: 20.024 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link

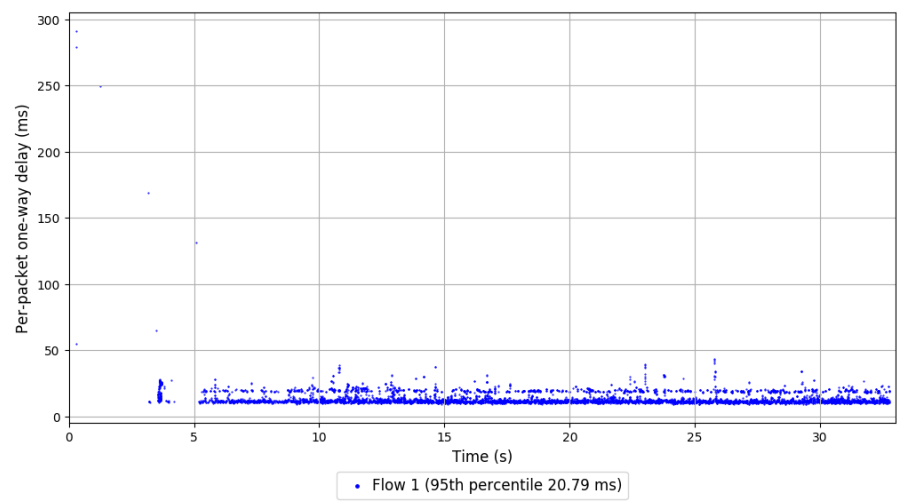
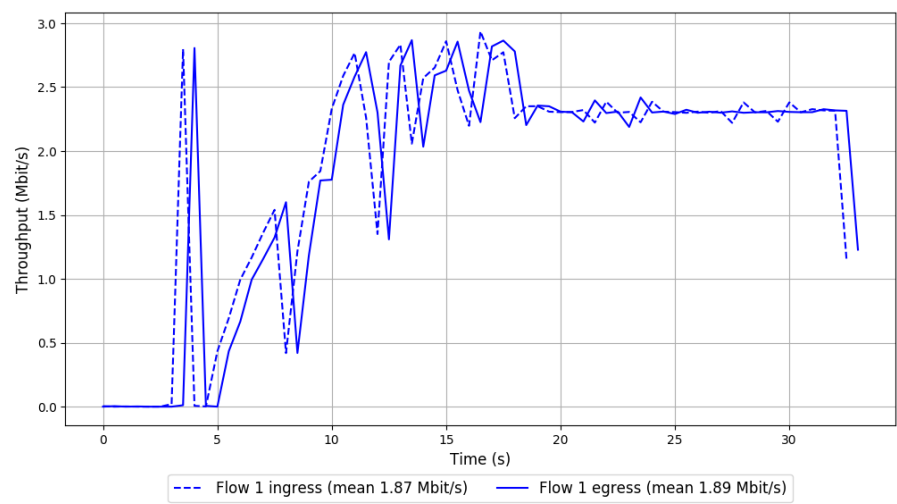


Run 2: Statistics of WebRTC media

Start at: 2018-08-09 00:14:09
End at: 2018-08-09 00:14:39
Local clock offset: -23.516 ms
Remote clock offset: -0.119 ms

Below is generated by plot.py at 2018-08-09 00:59:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 20.788 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 20.788 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-08-09 00:36:21
End at: 2018-08-09 00:36:52
Local clock offset: -33.311 ms
Remote clock offset: 3.142 ms

Below is generated by plot.py at 2018-08-09 00:59:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 20.510 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 20.510 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

