

Pantheon Report

Generated at 2018-09-06 04:25:51 (UTC).

Data path: AWS India 1 on `ens5` (*local*) → India cellular on `ppp0` (*remote*).

Repeated the test of 18 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

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

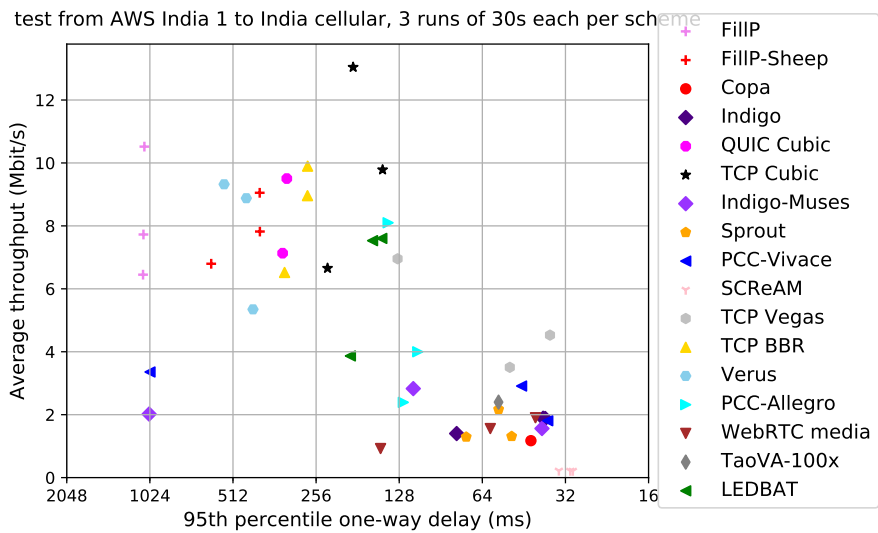
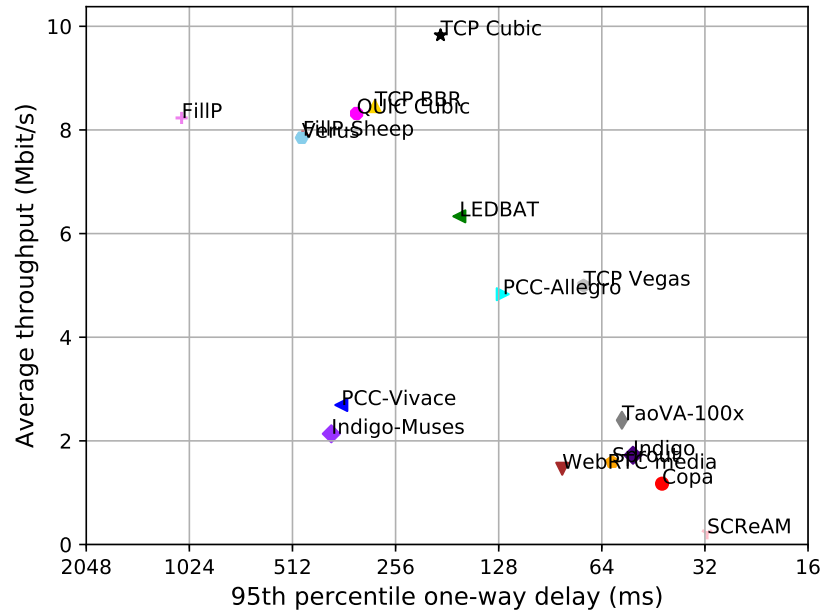
System info:

```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912 536870912
```

Git summary:

```
branch: muses @ f392ce15d580343f4432c3d7e068b3290f03eb4a
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e5e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ a28d20fb82a95a965a3da65fd1eb71b8994e9b84
third_party/pantheon-tunnel @ cbfce6db5ff5740d4fe1771f813cd646339e1952
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-quic @ 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 cellular, 3 runs of 30s each per scheme
(mean of all runs by scheme)



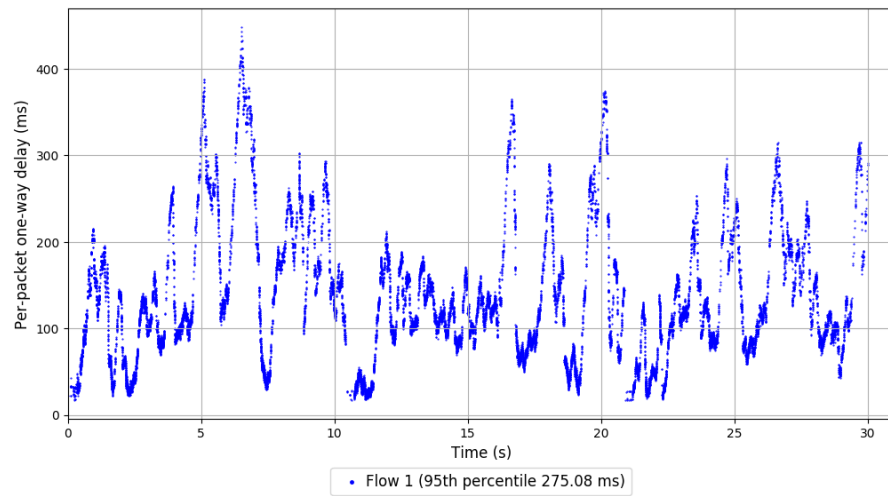
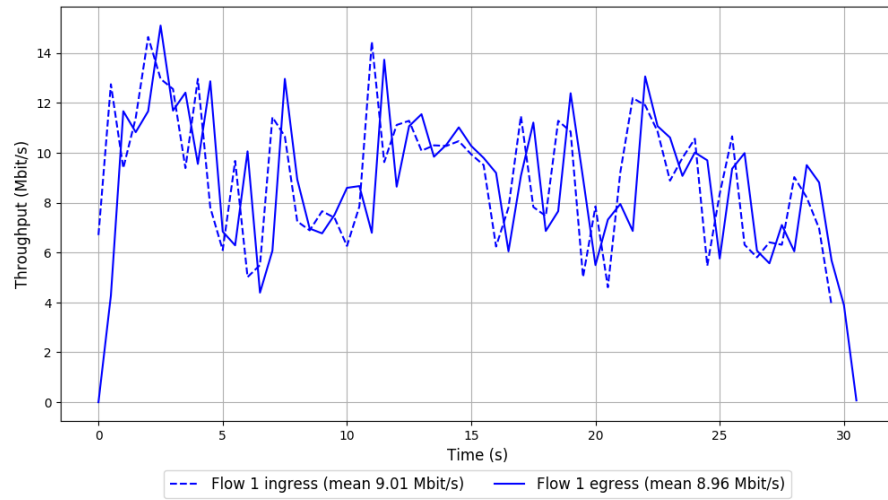
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	8.46	294.30	0.67
Copa	1	1.17	42.68	32.00
TCP Cubic	3	9.82	189.25	0.38
FillP	3	8.23	1078.79	52.16
FillP-Sheep	3	7.89	477.62	2.78
Indigo	3	1.72	51.90	0.05
LEDBAT	3	6.33	166.76	0.41
Indigo-Muses	3	2.14	394.40	9.37
PCC-Allegro	3	4.83	124.57	0.08
PCC-Expr	0	N/A	N/A	N/A
QUIC Cubic	2	8.31	332.65	0.72
SCReAM	3	0.22	31.55	0.13
Sprout	3	1.59	59.73	0.11
TaoVA-100x	1	2.40	55.91	48.09
TCP Vegas	3	4.99	72.36	0.05
Verus	3	7.85	480.88	0.98
PCC-Vivace	3	2.69	368.77	2.81
WebRTC media	3	1.46	83.51	0.03

Run 1: Statistics of TCP BBR

Start at: 2018-09-06 03:45:01
End at: 2018-09-06 03:45:31
Local clock offset: -2.858 ms
Remote clock offset: -3.905 ms

Below is generated by plot.py at 2018-09-06 04:25:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.96 Mbit/s
95th percentile per-packet one-way delay: 275.076 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 8.96 Mbit/s
95th percentile per-packet one-way delay: 275.076 ms
Loss rate: 0.54%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-06 04:04:43

End at: 2018-09-06 04:05:13

Local clock offset: -4.47 ms

Remote clock offset: -3.954 ms

Below is generated by plot.py at 2018-09-06 04:25:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.90 Mbit/s

95th percentile per-packet one-way delay: 274.782 ms

Loss rate: 0.77%

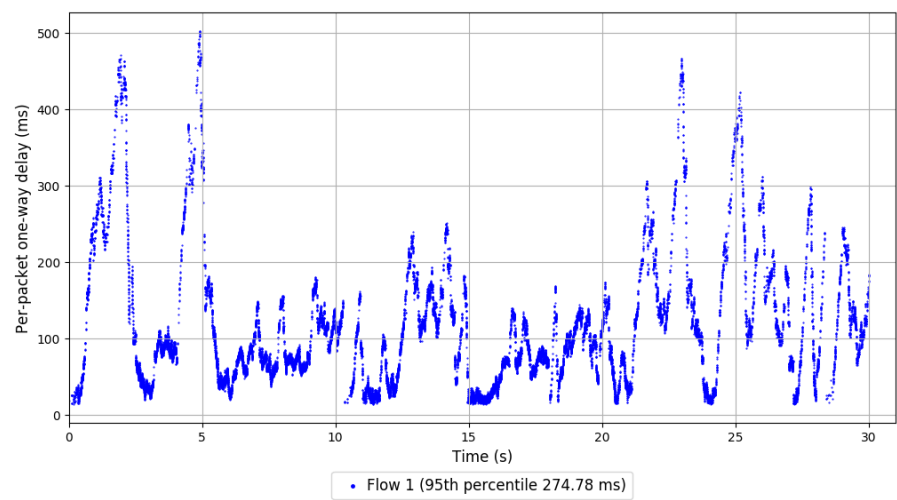
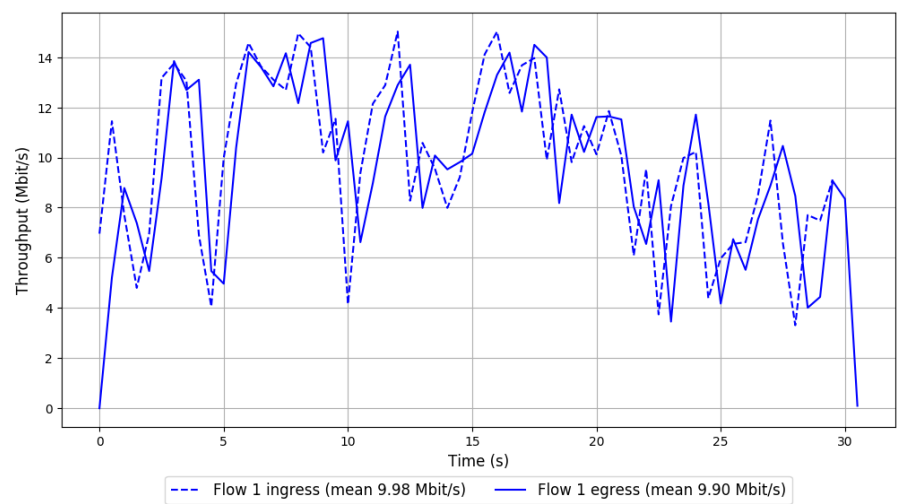
-- Flow 1:

Average throughput: 9.90 Mbit/s

95th percentile per-packet one-way delay: 274.782 ms

Loss rate: 0.77%

Run 2: Report of TCP BBR — Data Link

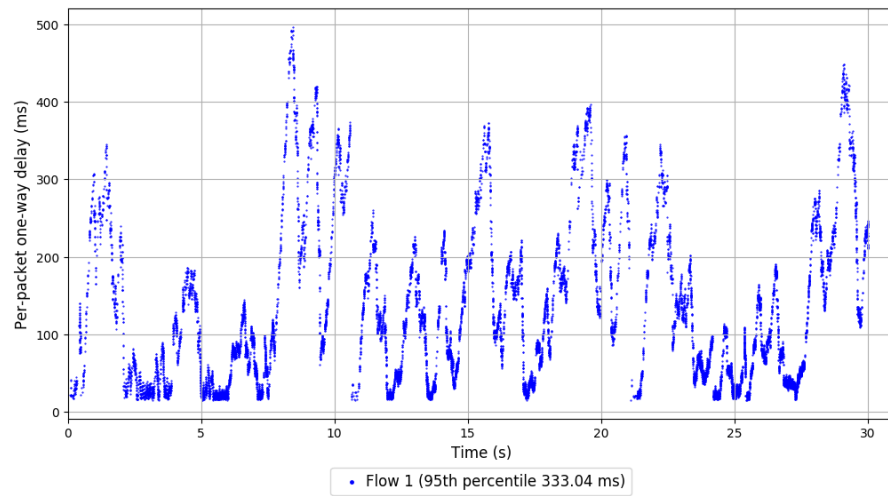
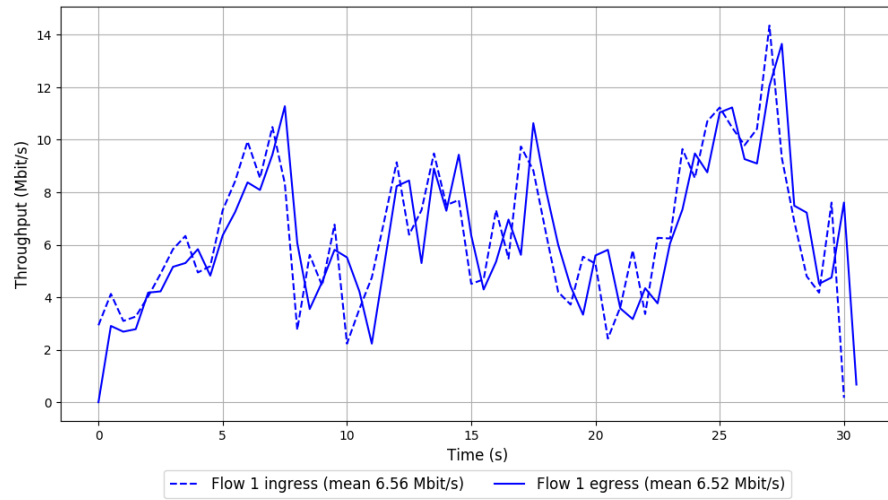


Run 3: Statistics of TCP BBR

Start at: 2018-09-06 04:24:20
End at: 2018-09-06 04:24:50
Local clock offset: -5.688 ms
Remote clock offset: -3.393 ms

Below is generated by plot.py at 2018-09-06 04:25:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.52 Mbit/s
95th percentile per-packet one-way delay: 333.039 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 6.52 Mbit/s
95th percentile per-packet one-way delay: 333.039 ms
Loss rate: 0.70%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

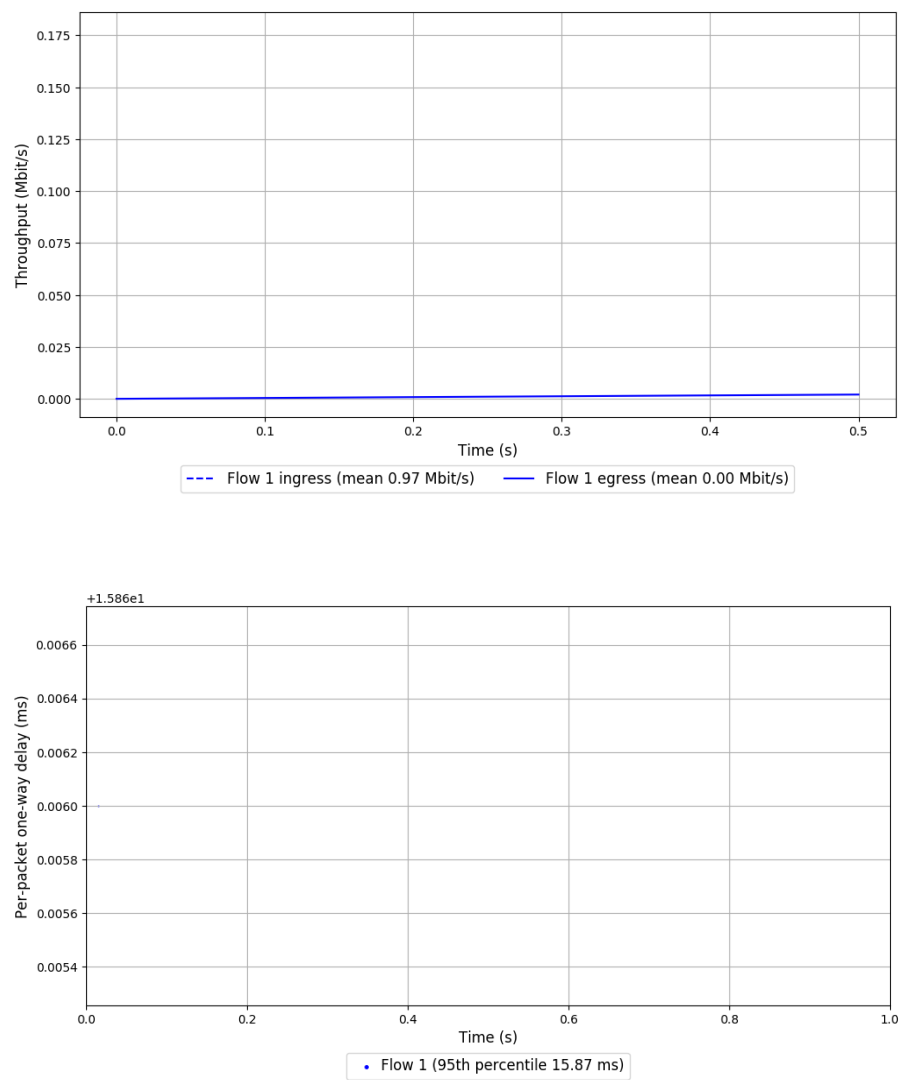
Start at: 2018-09-06 03:38:29

End at: 2018-09-06 03:38:59

Local clock offset: -0.404 ms

Remote clock offset: -4.176 ms

Run 1: Report of Copa — Data Link

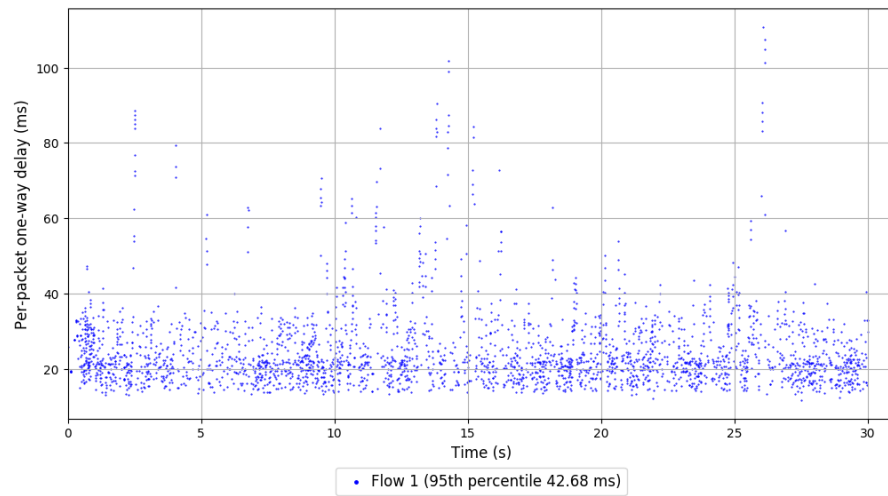
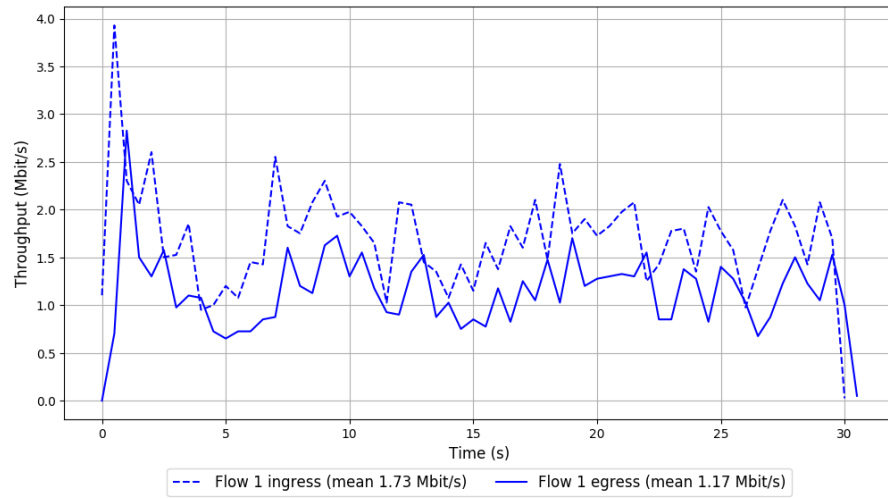


Run 2: Statistics of Copa

Start at: 2018-09-06 03:58:11
End at: 2018-09-06 03:58:41
Local clock offset: -1.854 ms
Remote clock offset: -4.036 ms

Below is generated by plot.py at 2018-09-06 04:25:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 42.683 ms
Loss rate: 32.00%
-- Flow 1:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 42.683 ms
Loss rate: 32.00%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

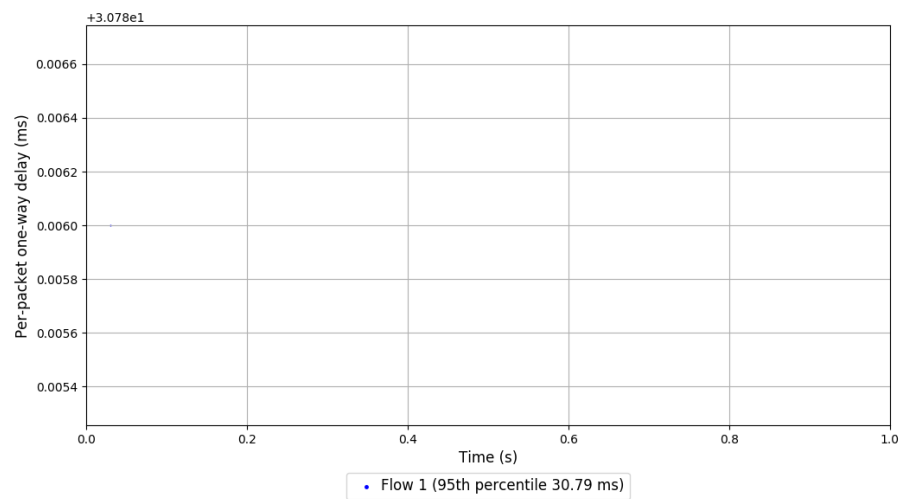
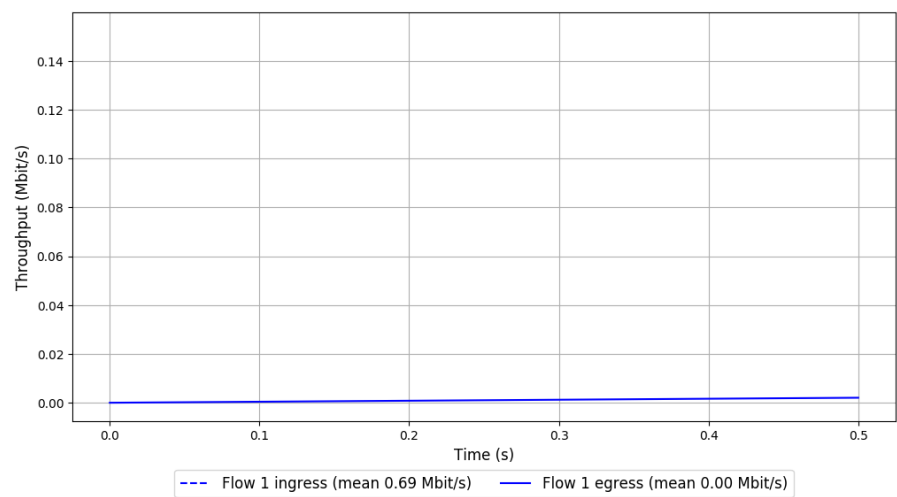
Start at: 2018-09-06 04:17:48

End at: 2018-09-06 04:18:18

Local clock offset: -7.929 ms

Remote clock offset: -3.405 ms

Run 3: Report of Copa — Data Link

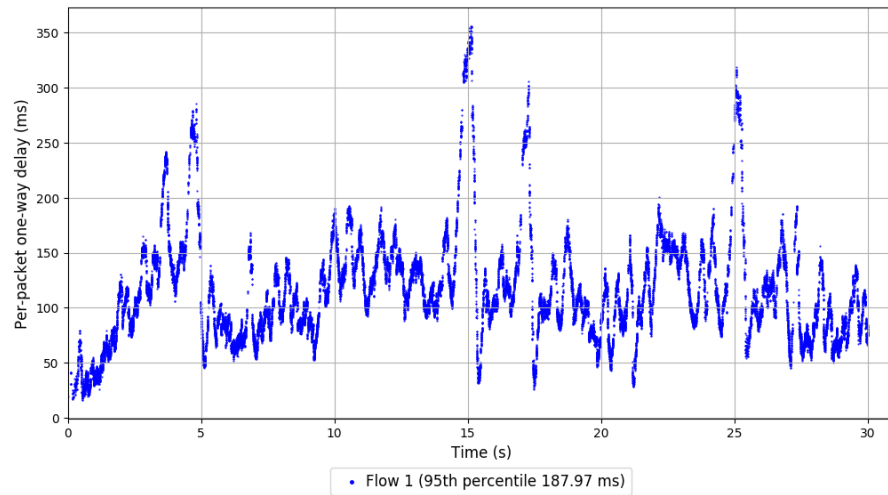
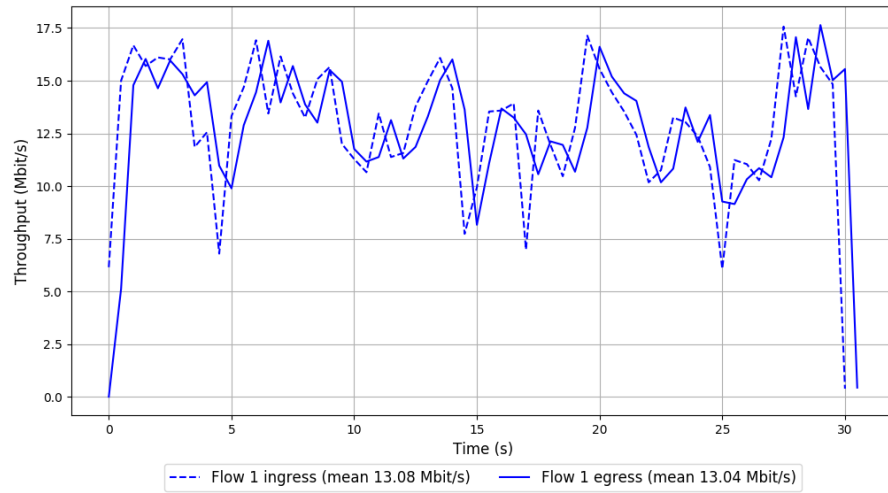


Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 03:26:30
End at: 2018-09-06 03:27:00
Local clock offset: -1.718 ms
Remote clock offset: -4.645 ms

Below is generated by plot.py at 2018-09-06 04:25:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.04 Mbit/s
95th percentile per-packet one-way delay: 187.969 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 13.04 Mbit/s
95th percentile per-packet one-way delay: 187.969 ms
Loss rate: 0.35%

Run 1: Report of TCP Cubic — Data Link

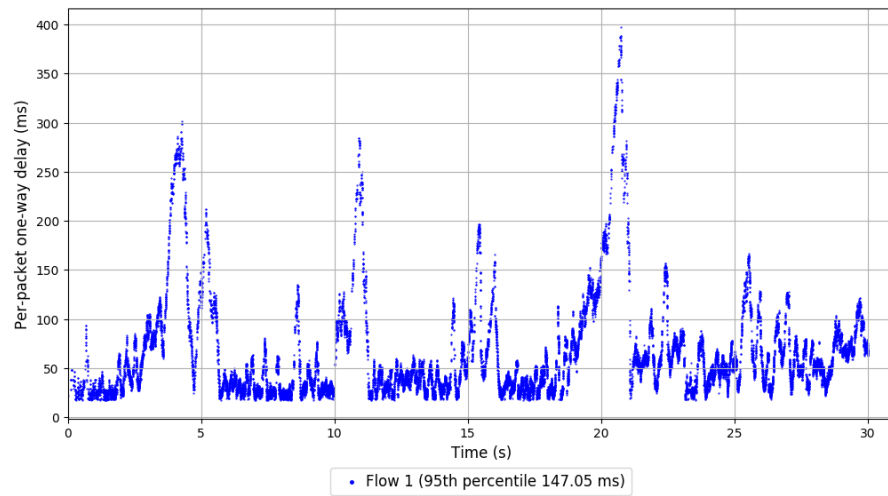
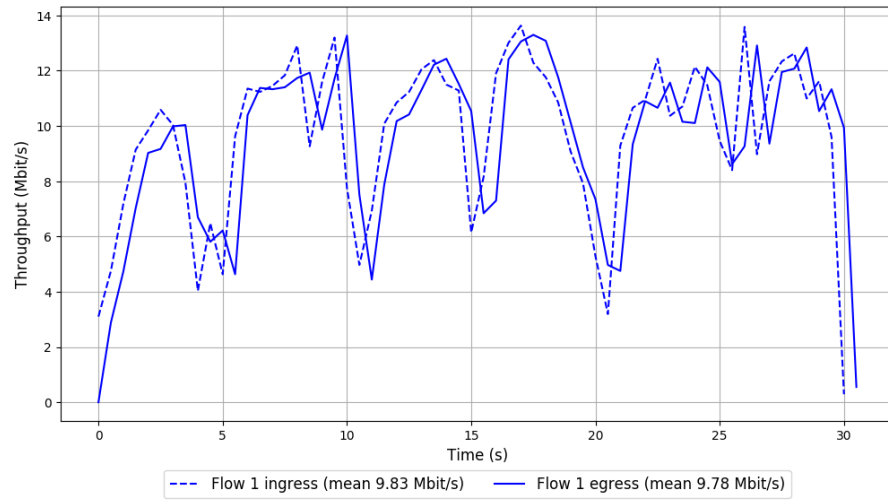


Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 03:46:07
End at: 2018-09-06 03:46:37
Local clock offset: -2.314 ms
Remote clock offset: -3.249 ms

Below is generated by plot.py at 2018-09-06 04:25:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.78 Mbit/s
95th percentile per-packet one-way delay: 147.051 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 9.78 Mbit/s
95th percentile per-packet one-way delay: 147.051 ms
Loss rate: 0.52%

Run 2: Report of TCP Cubic — Data Link

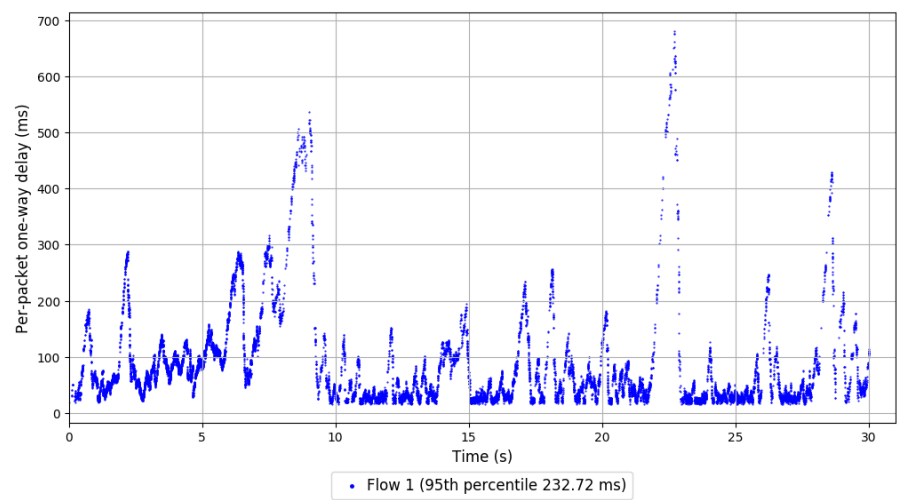
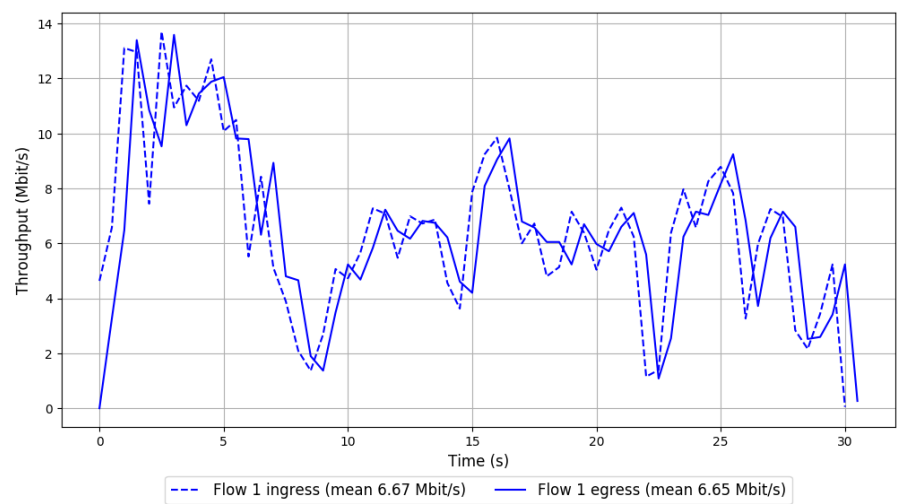


Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 04:05:49
End at: 2018-09-06 04:06:19
Local clock offset: -5.051 ms
Remote clock offset: -4.053 ms

Below is generated by plot.py at 2018-09-06 04:25:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.65 Mbit/s
95th percentile per-packet one-way delay: 232.717 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 6.65 Mbit/s
95th percentile per-packet one-way delay: 232.717 ms
Loss rate: 0.26%

Run 3: Report of TCP Cubic — Data Link

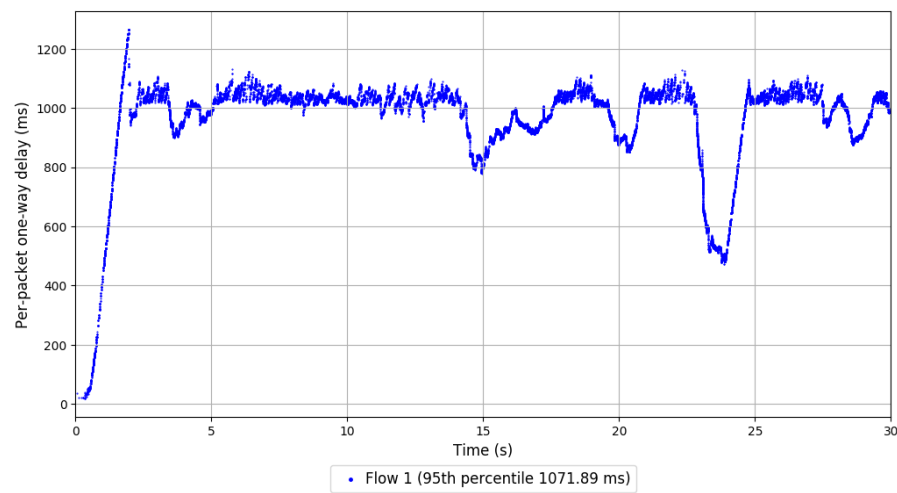
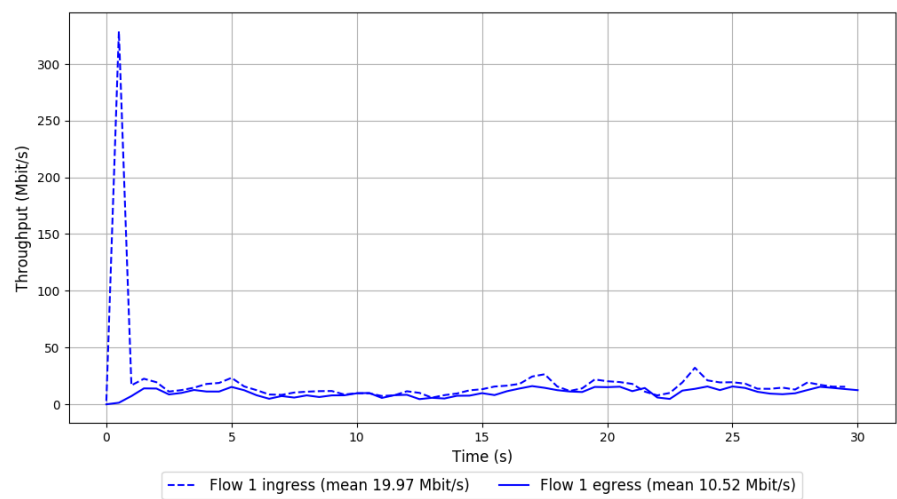


Run 1: Statistics of FillP

Start at: 2018-09-06 03:41:45
End at: 2018-09-06 03:42:15
Local clock offset: -2.585 ms
Remote clock offset: -3.717 ms

Below is generated by plot.py at 2018-09-06 04:25:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.52 Mbit/s
95th percentile per-packet one-way delay: 1071.892 ms
Loss rate: 47.39%
-- Flow 1:
Average throughput: 10.52 Mbit/s
95th percentile per-packet one-way delay: 1071.892 ms
Loss rate: 47.39%

Run 1: Report of FillP — Data Link

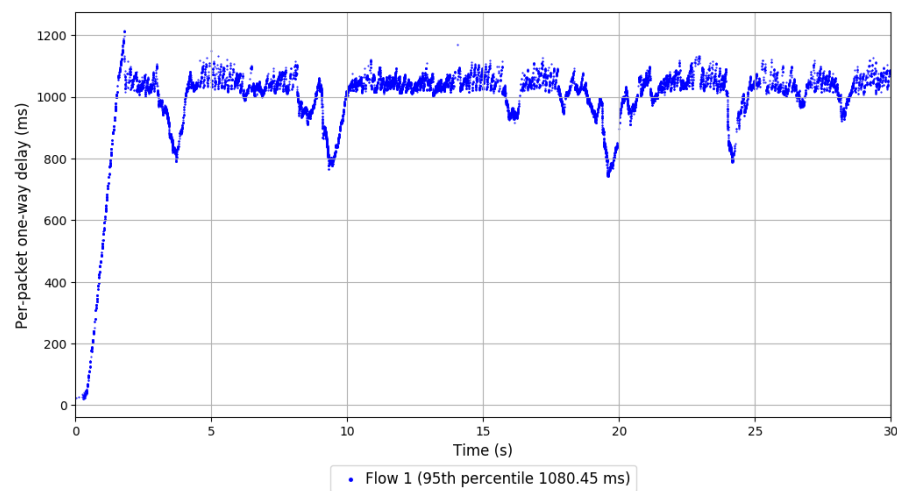
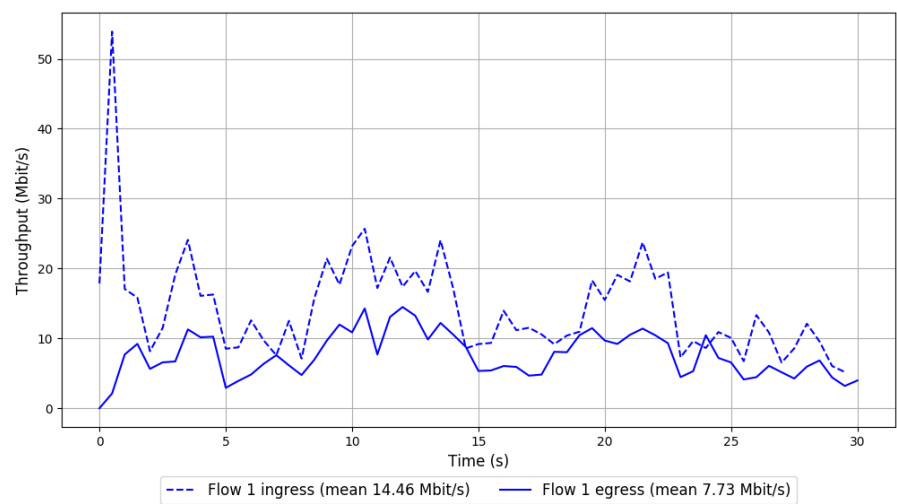


Run 2: Statistics of FillP

Start at: 2018-09-06 04:01:27
End at: 2018-09-06 04:01:57
Local clock offset: -5.164 ms
Remote clock offset: -4.151 ms

Below is generated by plot.py at 2018-09-06 04:25:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 1080.454 ms
Loss rate: 46.62%
-- Flow 1:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 1080.454 ms
Loss rate: 46.62%

Run 2: Report of FillP — Data Link

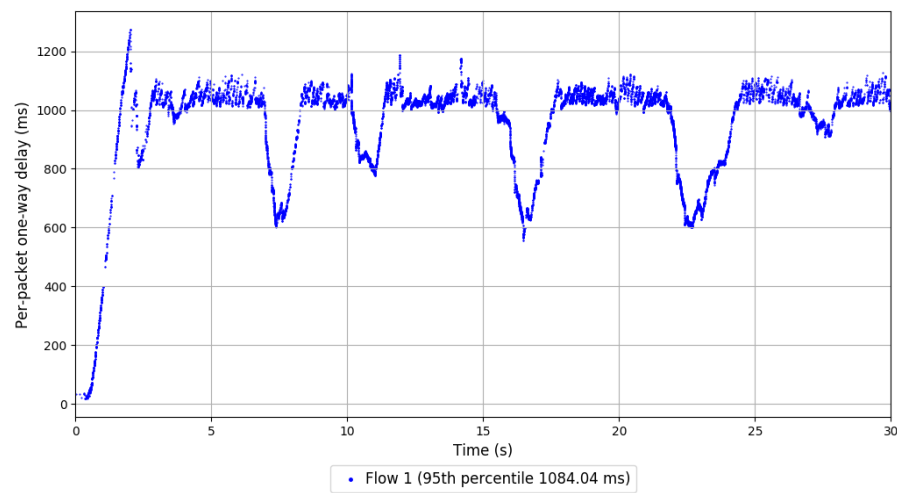
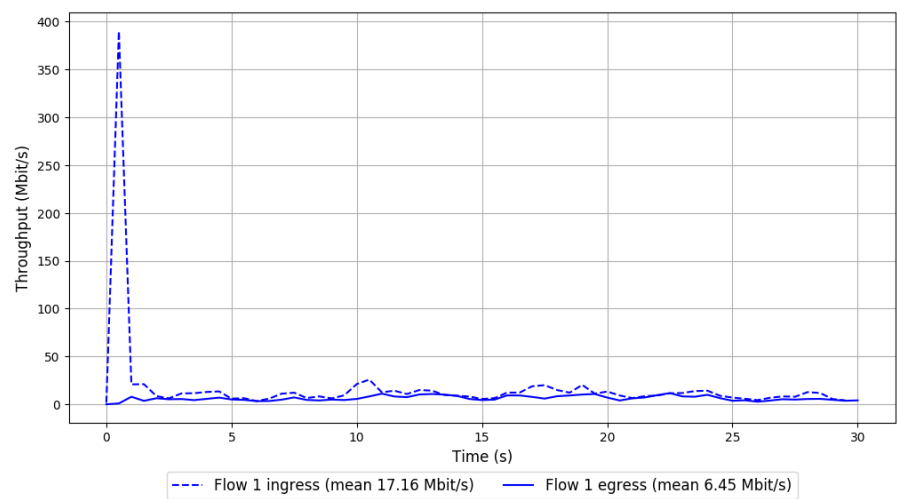


Run 3: Statistics of FillP

Start at: 2018-09-06 04:21:04
End at: 2018-09-06 04:21:34
Local clock offset: -5.816 ms
Remote clock offset: -3.788 ms

Below is generated by plot.py at 2018-09-06 04:25:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.45 Mbit/s
95th percentile per-packet one-way delay: 1084.036 ms
Loss rate: 62.46%
-- Flow 1:
Average throughput: 6.45 Mbit/s
95th percentile per-packet one-way delay: 1084.036 ms
Loss rate: 62.46%

Run 3: Report of FillP — Data Link

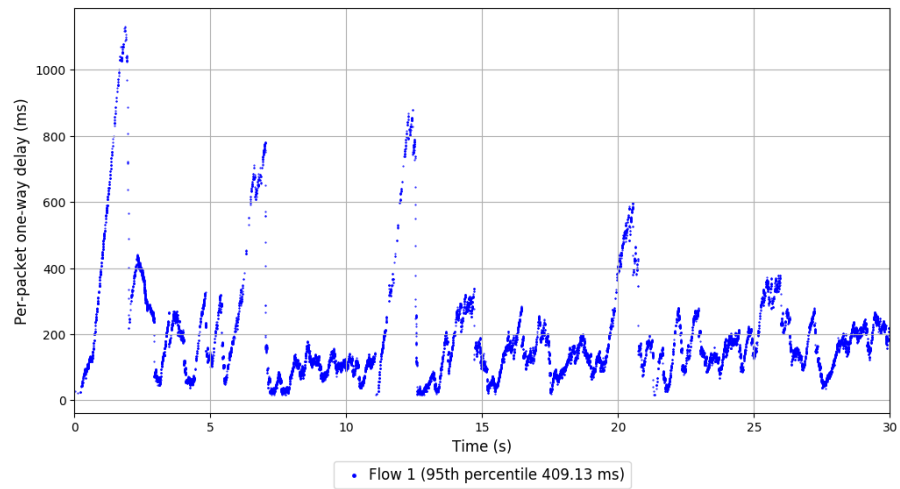
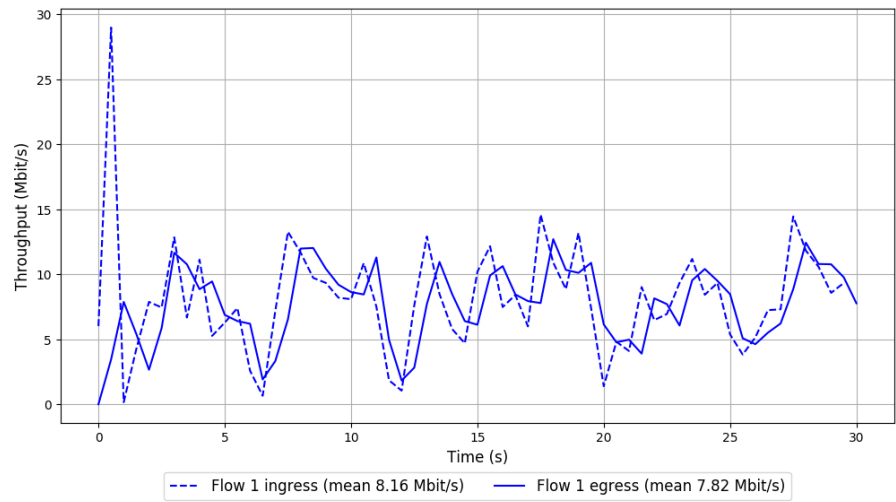


Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 03:30:51
End at: 2018-09-06 03:31:21
Local clock offset: -3.523 ms
Remote clock offset: -4.442 ms

Below is generated by plot.py at 2018-09-06 04:25:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.82 Mbit/s
95th percentile per-packet one-way delay: 409.128 ms
Loss rate: 4.28%
-- Flow 1:
Average throughput: 7.82 Mbit/s
95th percentile per-packet one-way delay: 409.128 ms
Loss rate: 4.28%

Run 1: Report of FillP-Sheep — Data Link

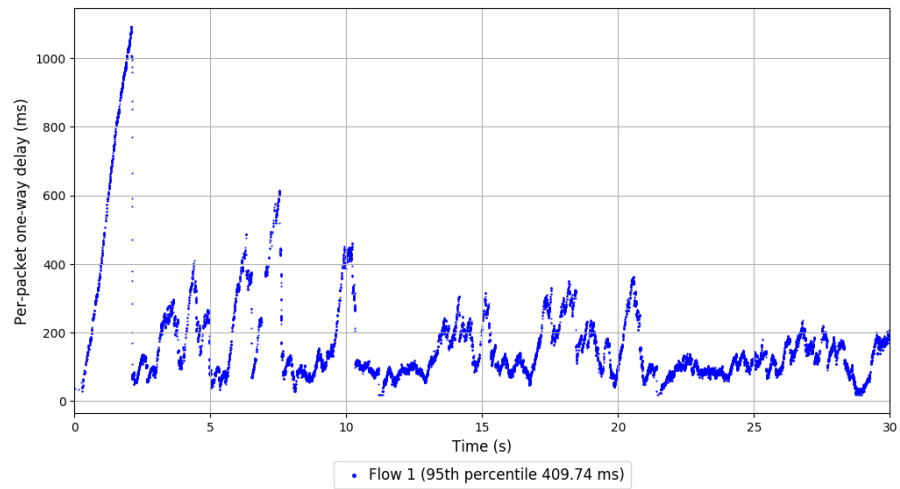
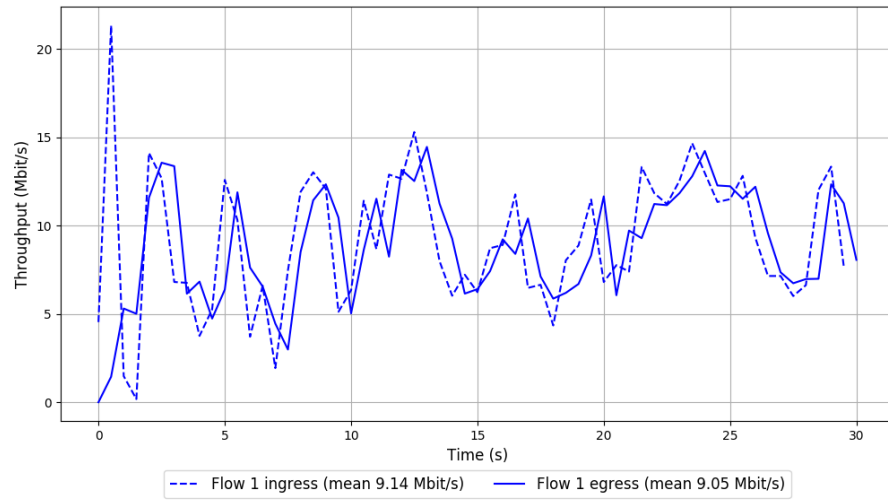


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 03:50:28
End at: 2018-09-06 03:50:58
Local clock offset: -4.782 ms
Remote clock offset: -4.189 ms

Below is generated by plot.py at 2018-09-06 04:25:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.05 Mbit/s
95th percentile per-packet one-way delay: 409.744 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 9.05 Mbit/s
95th percentile per-packet one-way delay: 409.744 ms
Loss rate: 0.86%

Run 2: Report of FillP-Sheep — Data Link

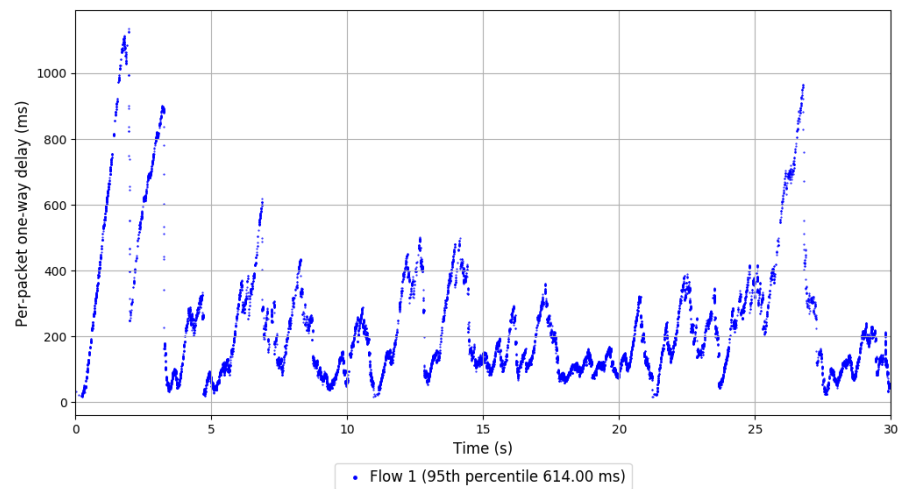
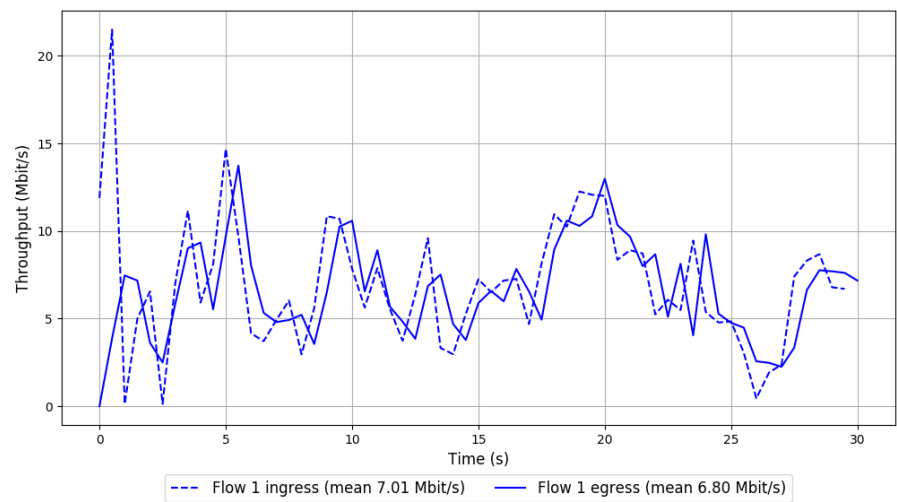


Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 04:10:10
End at: 2018-09-06 04:10:40
Local clock offset: -5.52 ms
Remote clock offset: -3.222 ms

Below is generated by plot.py at 2018-09-06 04:25:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.80 Mbit/s
95th percentile per-packet one-way delay: 613.995 ms
Loss rate: 3.20%
-- Flow 1:
Average throughput: 6.80 Mbit/s
95th percentile per-packet one-way delay: 613.995 ms
Loss rate: 3.20%

Run 3: Report of FillP-Sheep — Data Link

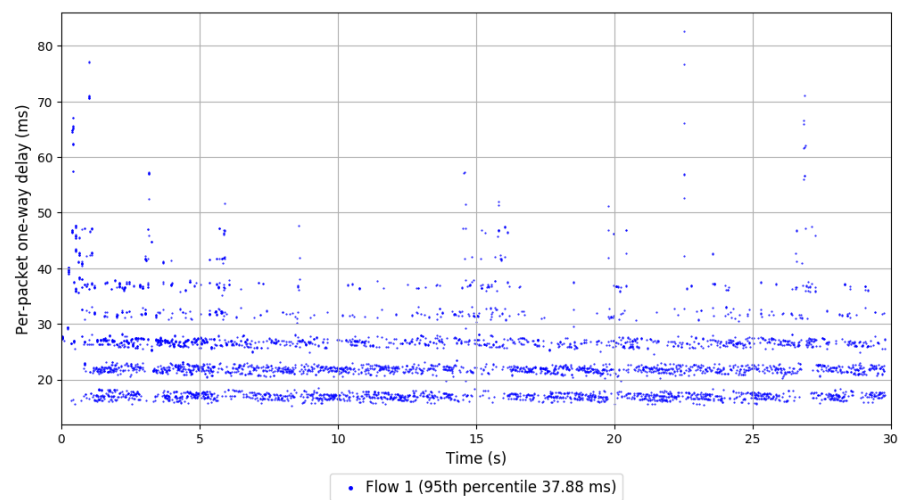
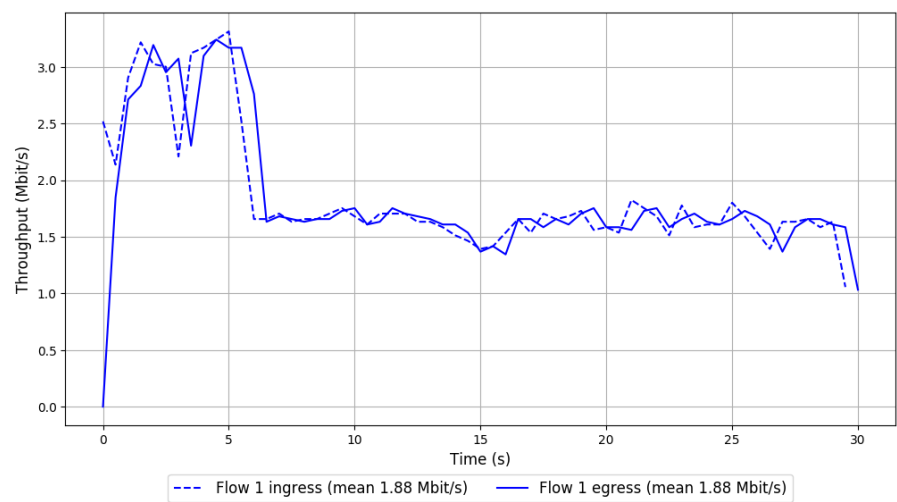


Run 1: Statistics of Indigo

Start at: 2018-09-06 03:28:41
End at: 2018-09-06 03:29:11
Local clock offset: -2.871 ms
Remote clock offset: -4.436 ms

Below is generated by plot.py at 2018-09-06 04:25:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 37.876 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 37.876 ms
Loss rate: 0.11%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-06 03:48:17

End at: 2018-09-06 03:48:47

Local clock offset: -4.162 ms

Remote clock offset: -3.82 ms

Below is generated by plot.py at 2018-09-06 04:25:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 38.542 ms

Loss rate: 0.00%

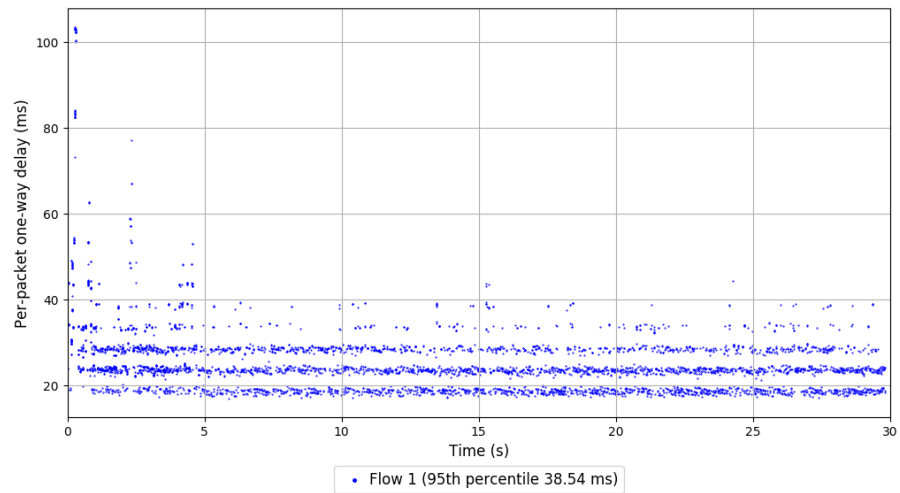
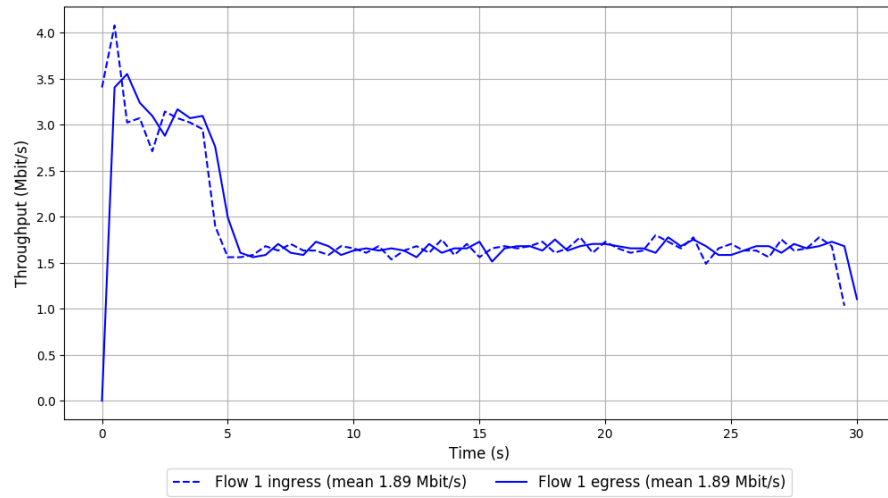
-- Flow 1:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 38.542 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link

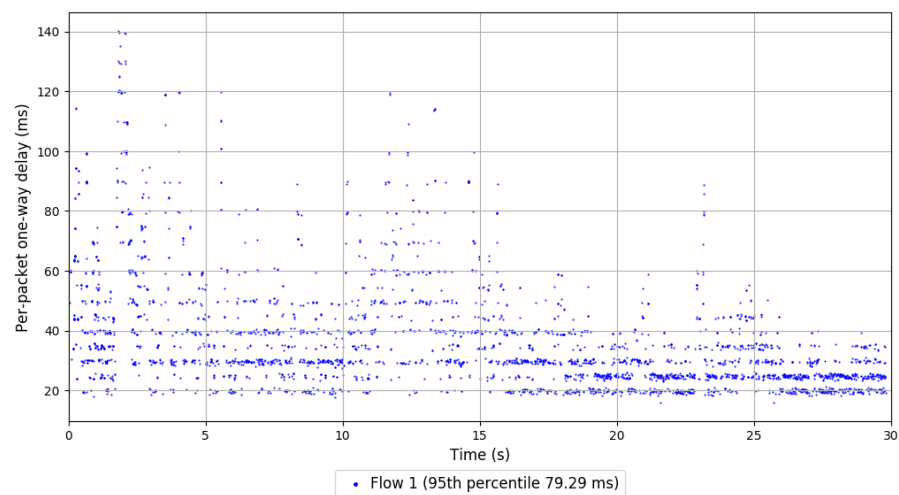
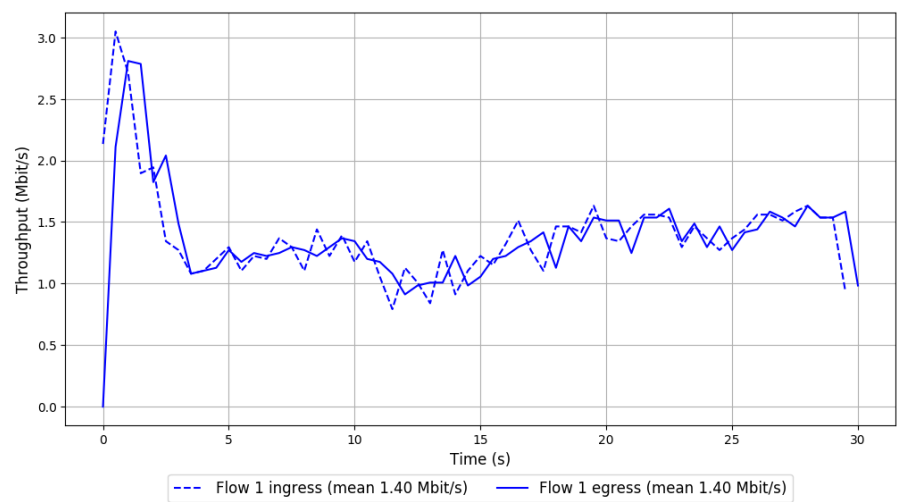


Run 3: Statistics of Indigo

Start at: 2018-09-06 04:07:59
End at: 2018-09-06 04:08:29
Local clock offset: -6.89 ms
Remote clock offset: -2.503 ms

Below is generated by plot.py at 2018-09-06 04:25:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 79.292 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 79.292 ms
Loss rate: 0.03%

Run 3: Report of Indigo — Data Link

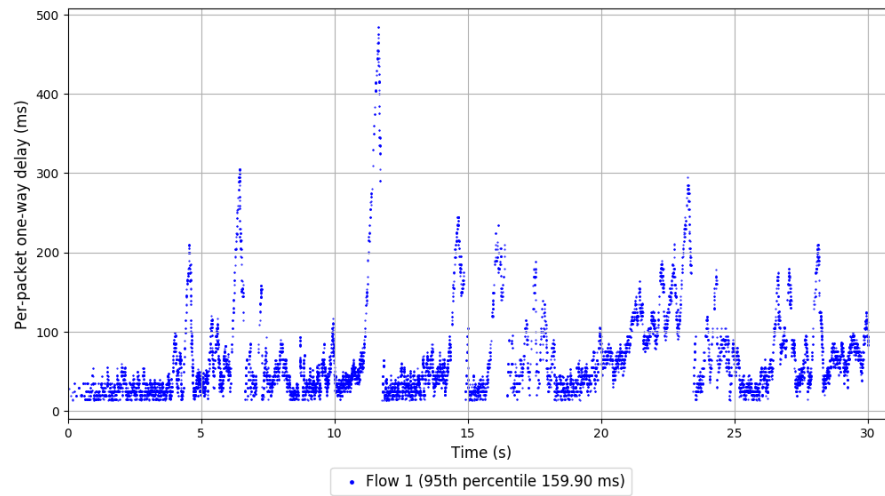
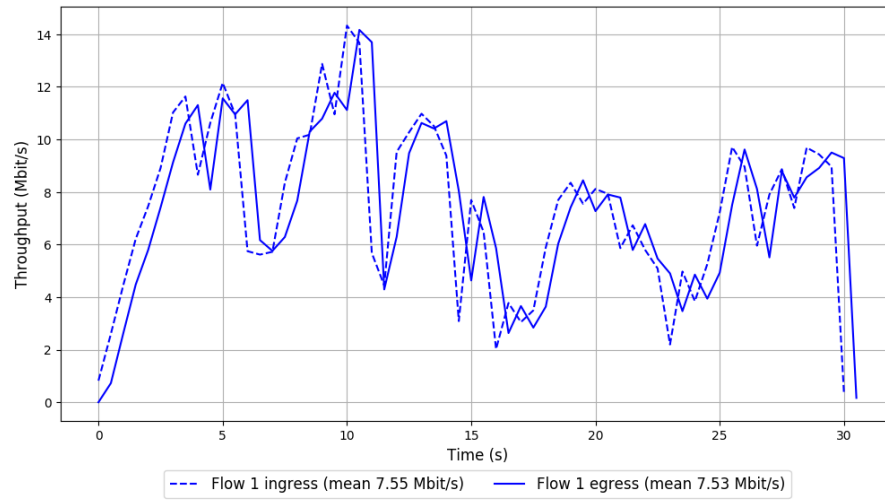


Run 1: Statistics of LEDBAT

Start at: 2018-09-06 03:40:39
End at: 2018-09-06 03:41:09
Local clock offset: -0.109 ms
Remote clock offset: -3.911 ms

Below is generated by plot.py at 2018-09-06 04:25:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.53 Mbit/s
95th percentile per-packet one-way delay: 159.903 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 7.53 Mbit/s
95th percentile per-packet one-way delay: 159.903 ms
Loss rate: 0.34%

Run 1: Report of LEDBAT — Data Link

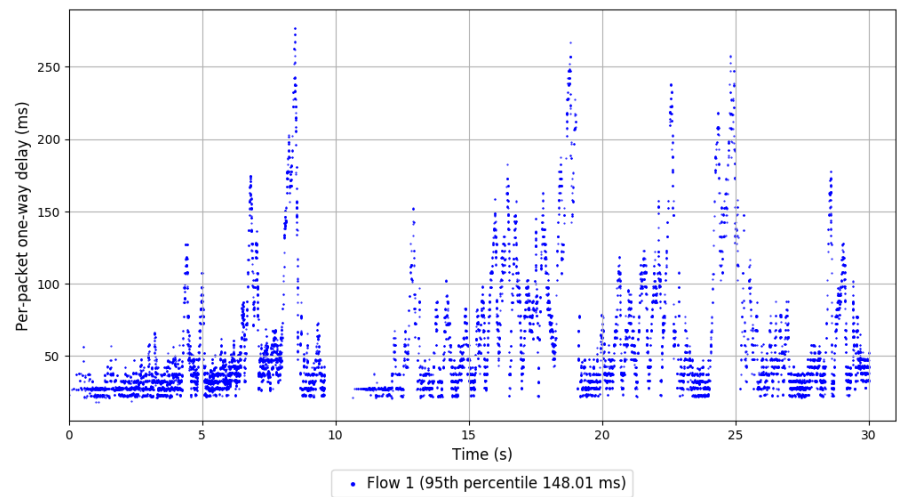
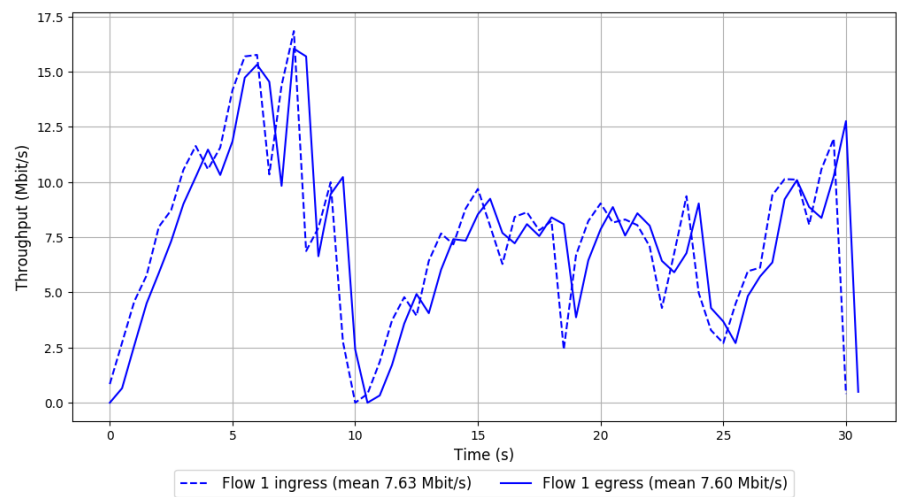


Run 2: Statistics of LEDBAT

Start at: 2018-09-06 04:00:21
End at: 2018-09-06 04:00:51
Local clock offset: -6.29 ms
Remote clock offset: -2.975 ms

Below is generated by plot.py at 2018-09-06 04:25:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.60 Mbit/s
95th percentile per-packet one-way delay: 148.011 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 7.60 Mbit/s
95th percentile per-packet one-way delay: 148.011 ms
Loss rate: 0.47%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-06 04:19:58

End at: 2018-09-06 04:20:28

Local clock offset: -4.77 ms

Remote clock offset: -3.06 ms

Below is generated by plot.py at 2018-09-06 04:25:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.87 Mbit/s

95th percentile per-packet one-way delay: 192.378 ms

Loss rate: 0.43%

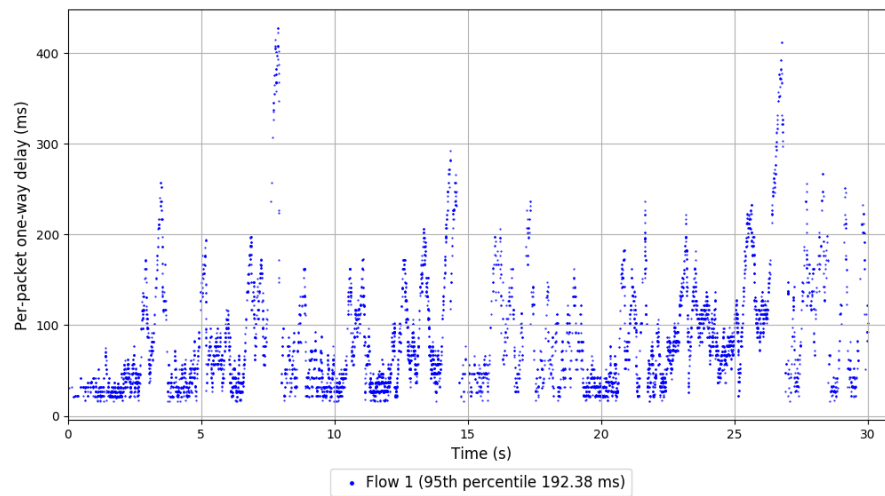
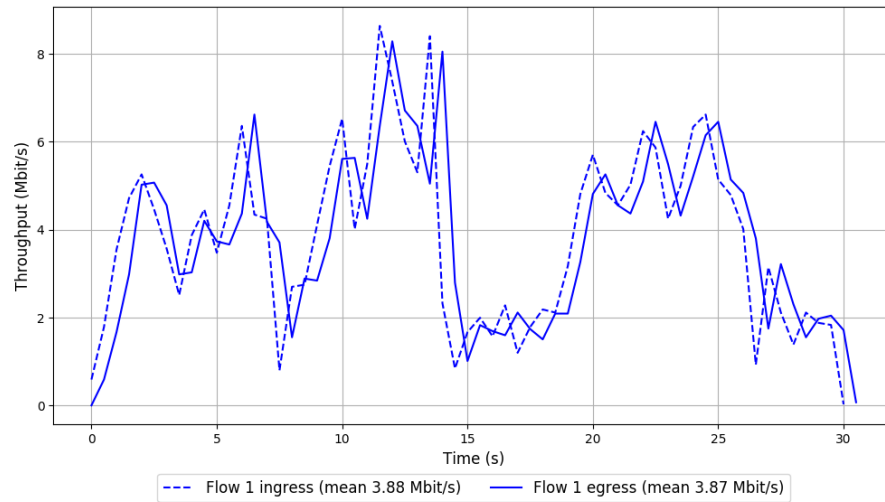
-- Flow 1:

Average throughput: 3.87 Mbit/s

95th percentile per-packet one-way delay: 192.378 ms

Loss rate: 0.43%

Run 3: Report of LEDBAT — Data Link

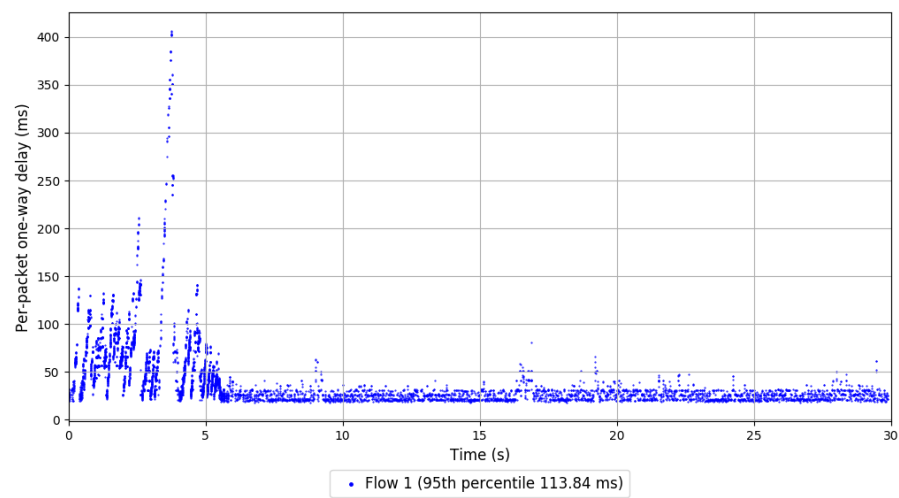
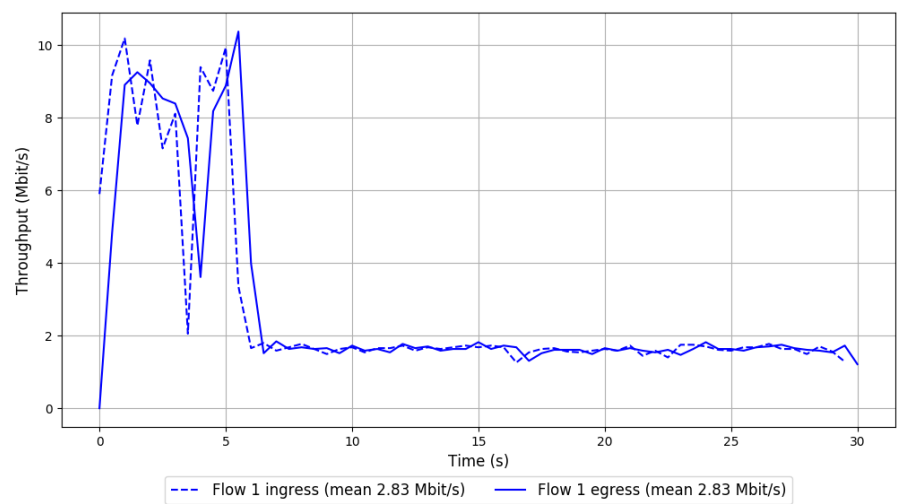


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 03:34:08
End at: 2018-09-06 03:34:38
Local clock offset: -4.123 ms
Remote clock offset: -3.566 ms

# Below is generated by plot.py at 2018-09-06 04:25:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.83 Mbit/s
95th percentile per-packet one-way delay: 113.840 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.83 Mbit/s
95th percentile per-packet one-way delay: 113.840 ms
Loss rate: 0.06%
```

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 03:53:44

End at: 2018-09-06 03:54:14

Local clock offset: -3.652 ms

Remote clock offset: -3.59 ms

Below is generated by plot.py at 2018-09-06 04:25:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.56 Mbit/s

95th percentile per-packet one-way delay: 38.926 ms

Loss rate: 0.05%

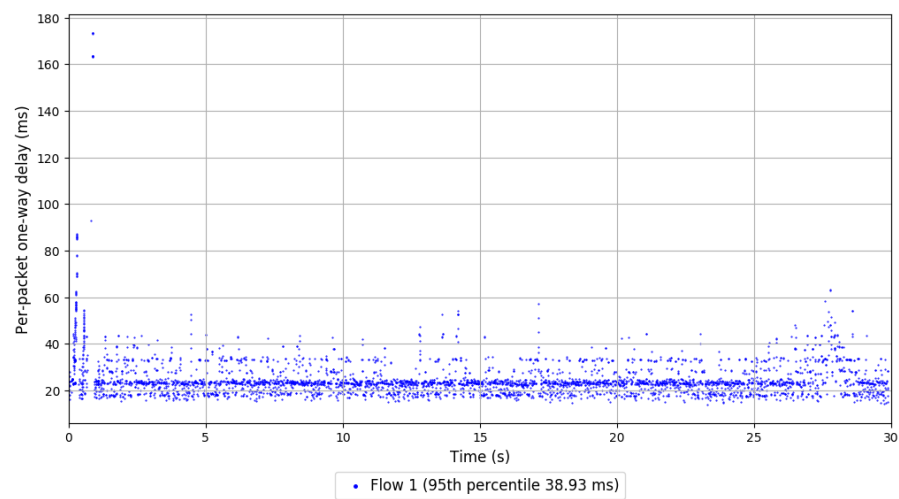
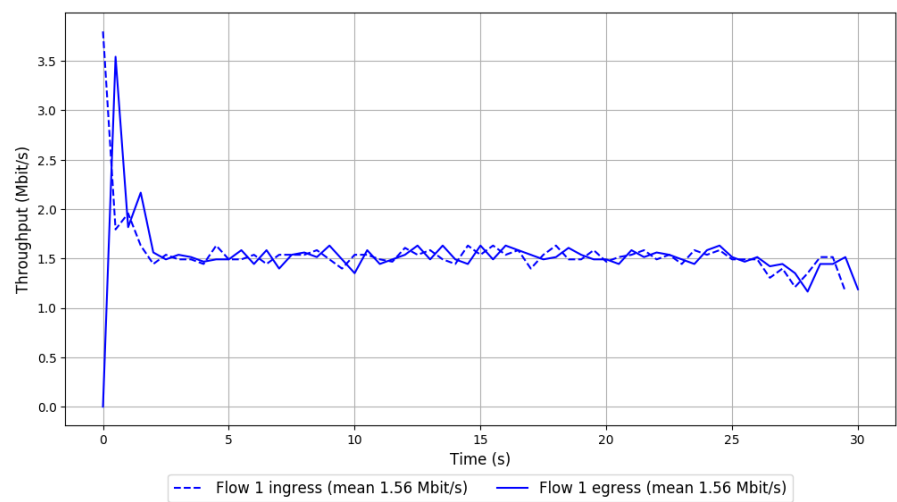
-- Flow 1:

Average throughput: 1.56 Mbit/s

95th percentile per-packet one-way delay: 38.926 ms

Loss rate: 0.05%

Run 2: Report of Indigo-Muses — Data Link

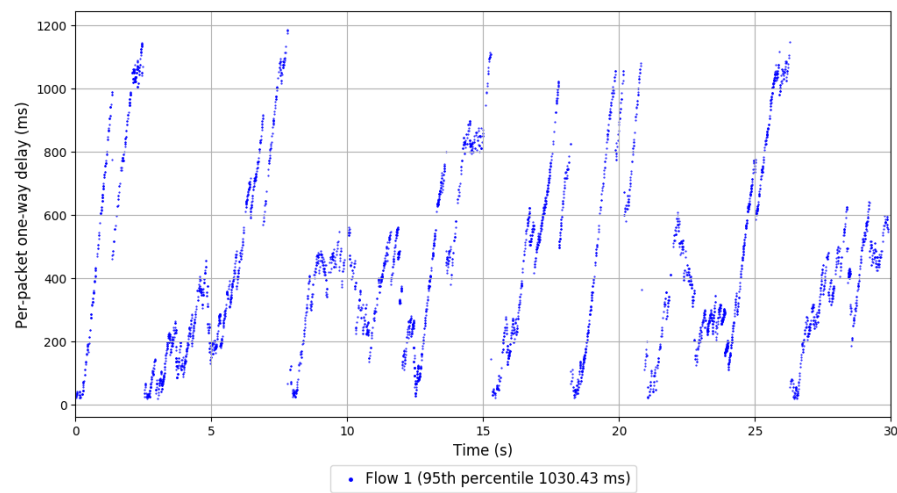
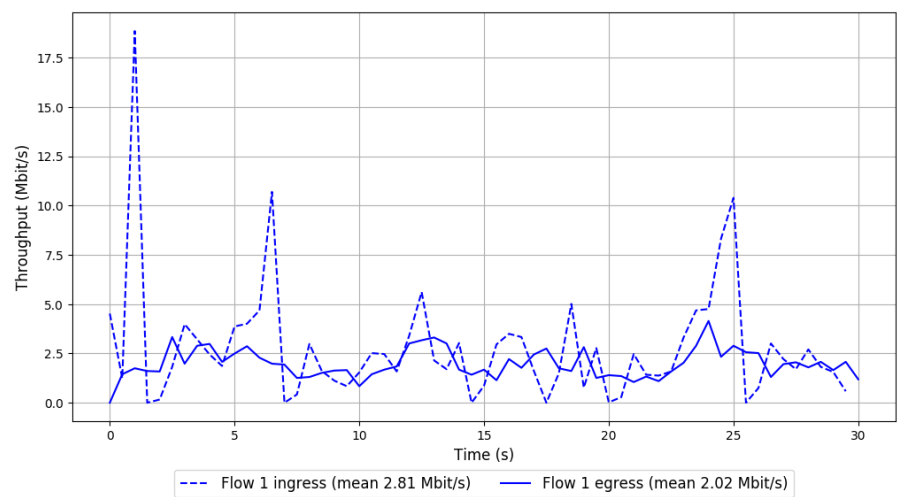


Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 04:13:27
End at: 2018-09-06 04:13:57
Local clock offset: -8.49 ms
Remote clock offset: -3.315 ms

Below is generated by plot.py at 2018-09-06 04:25:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 1030.427 ms
Loss rate: 27.99%
-- Flow 1:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 1030.427 ms
Loss rate: 27.99%

Run 3: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 03:35:13

End at: 2018-09-06 03:35:43

Local clock offset: -3.168 ms

Remote clock offset: -4.238 ms

Below is generated by plot.py at 2018-09-06 04:25:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.10 Mbit/s

95th percentile per-packet one-way delay: 140.396 ms

Loss rate: 0.06%

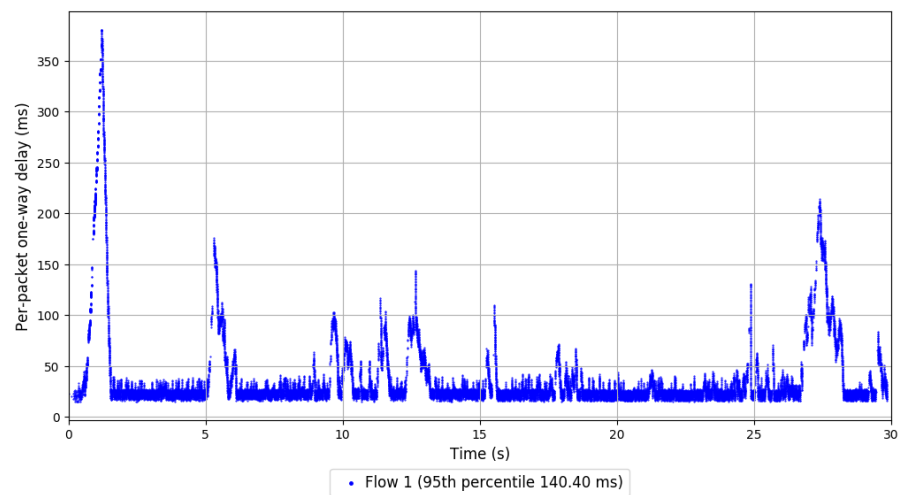
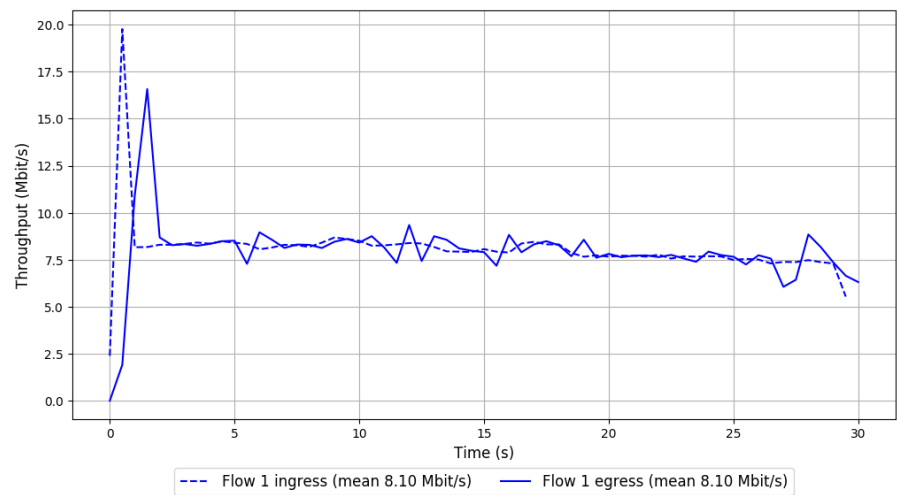
-- Flow 1:

Average throughput: 8.10 Mbit/s

95th percentile per-packet one-way delay: 140.396 ms

Loss rate: 0.06%

Run 1: Report of PCC-Allegro — Data Link

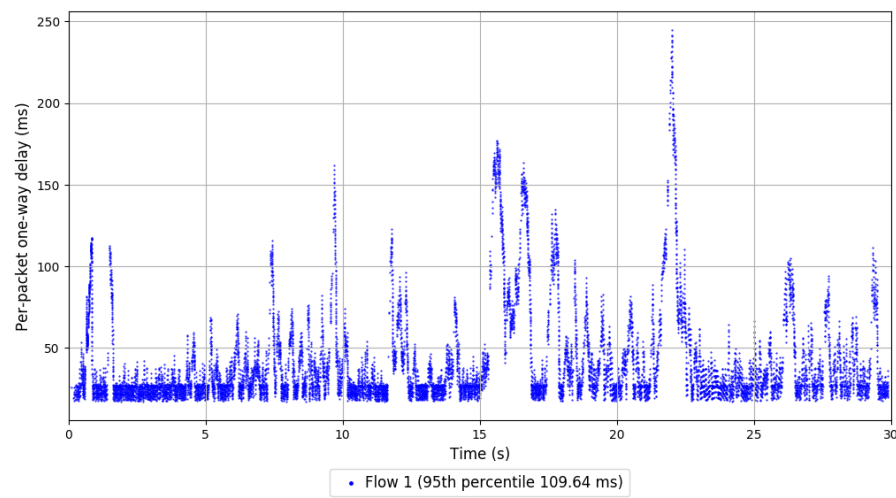
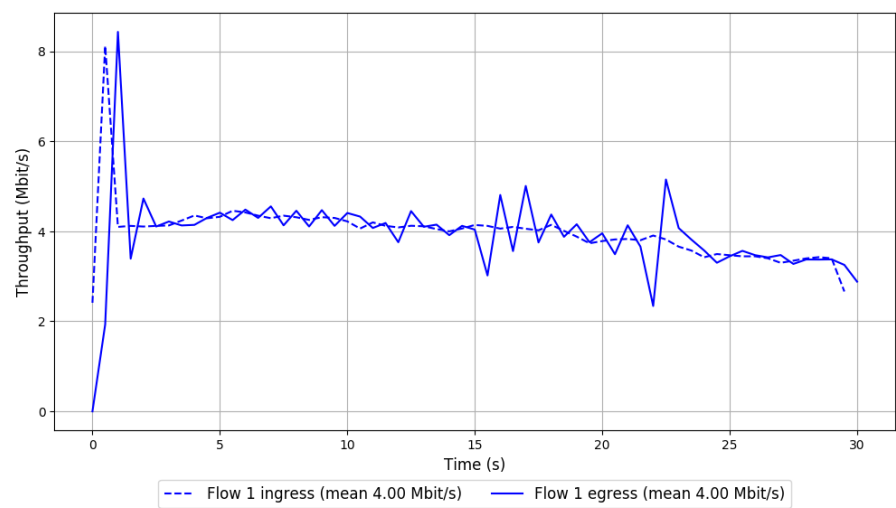


Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 03:54:49
End at: 2018-09-06 03:55:19
Local clock offset: -5.616 ms
Remote clock offset: -3.918 ms

Below is generated by plot.py at 2018-09-06 04:25:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.00 Mbit/s
95th percentile per-packet one-way delay: 109.638 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 4.00 Mbit/s
95th percentile per-packet one-way delay: 109.638 ms
Loss rate: 0.06%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 04:14:32

End at: 2018-09-06 04:15:02

Local clock offset: -8.49 ms

Remote clock offset: -3.449 ms

Below is generated by plot.py at 2018-09-06 04:25:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.39 Mbit/s

95th percentile per-packet one-way delay: 123.682 ms

Loss rate: 0.12%

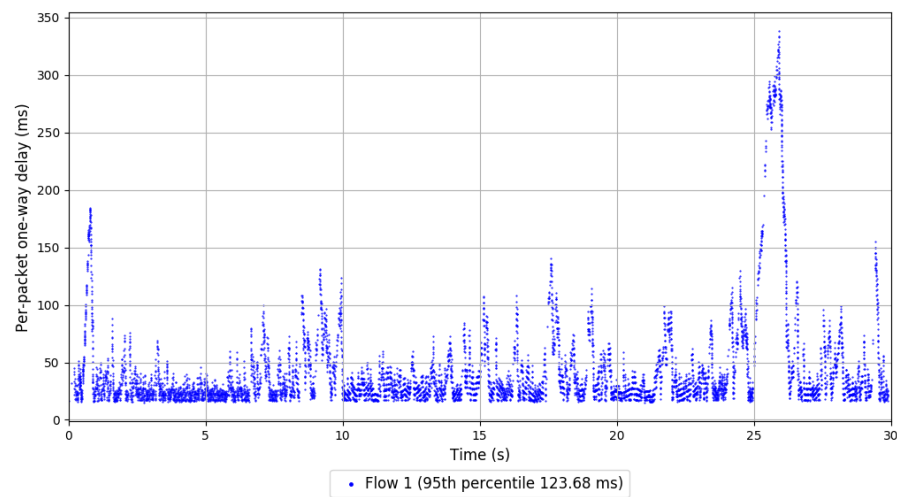
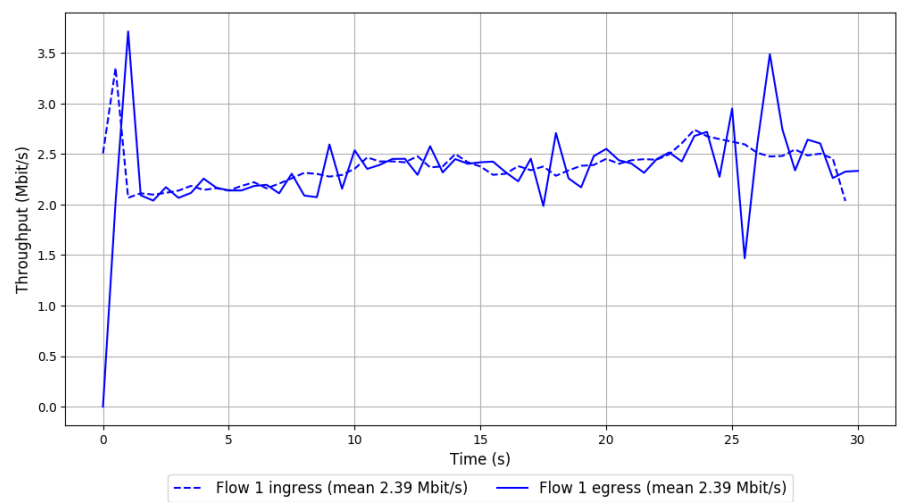
-- Flow 1:

Average throughput: 2.39 Mbit/s

95th percentile per-packet one-way delay: 123.682 ms

Loss rate: 0.12%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

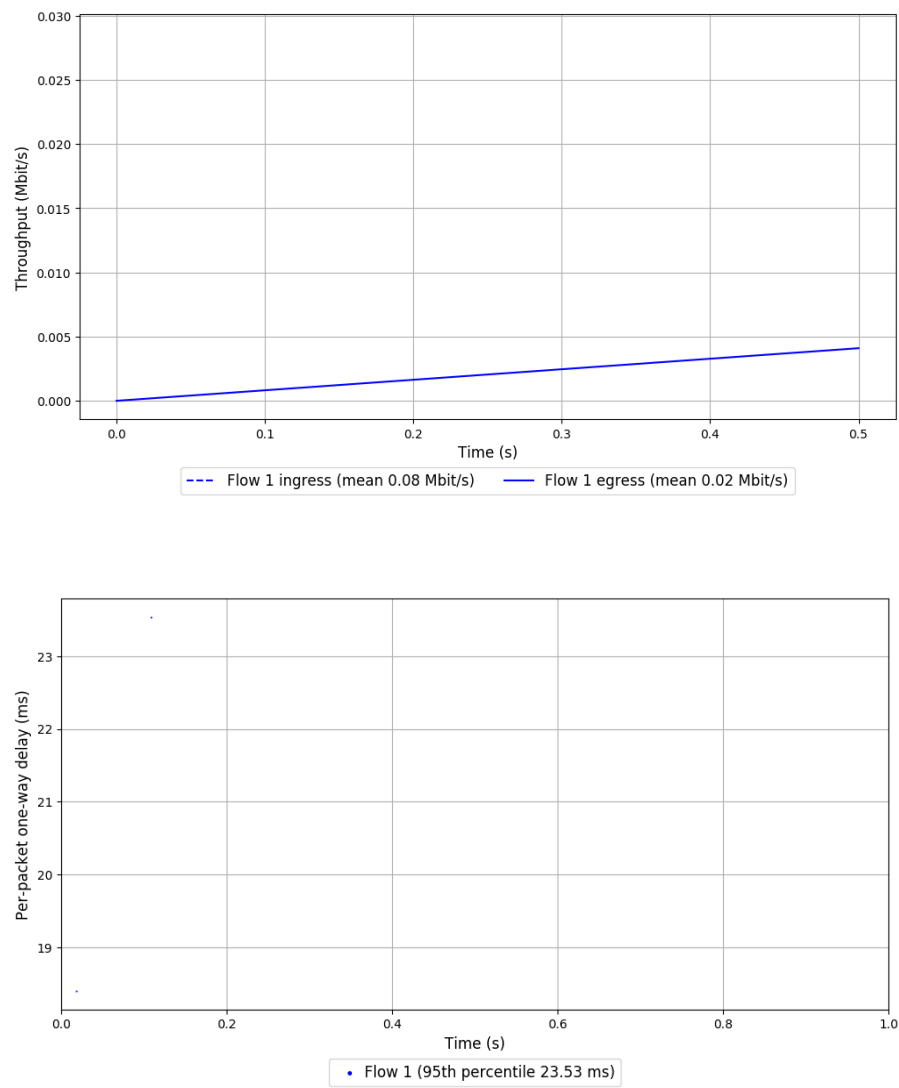
Start at: 2018-09-06 03:37:24

End at: 2018-09-06 03:37:54

Local clock offset: -0.536 ms

Remote clock offset: -3.812 ms

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

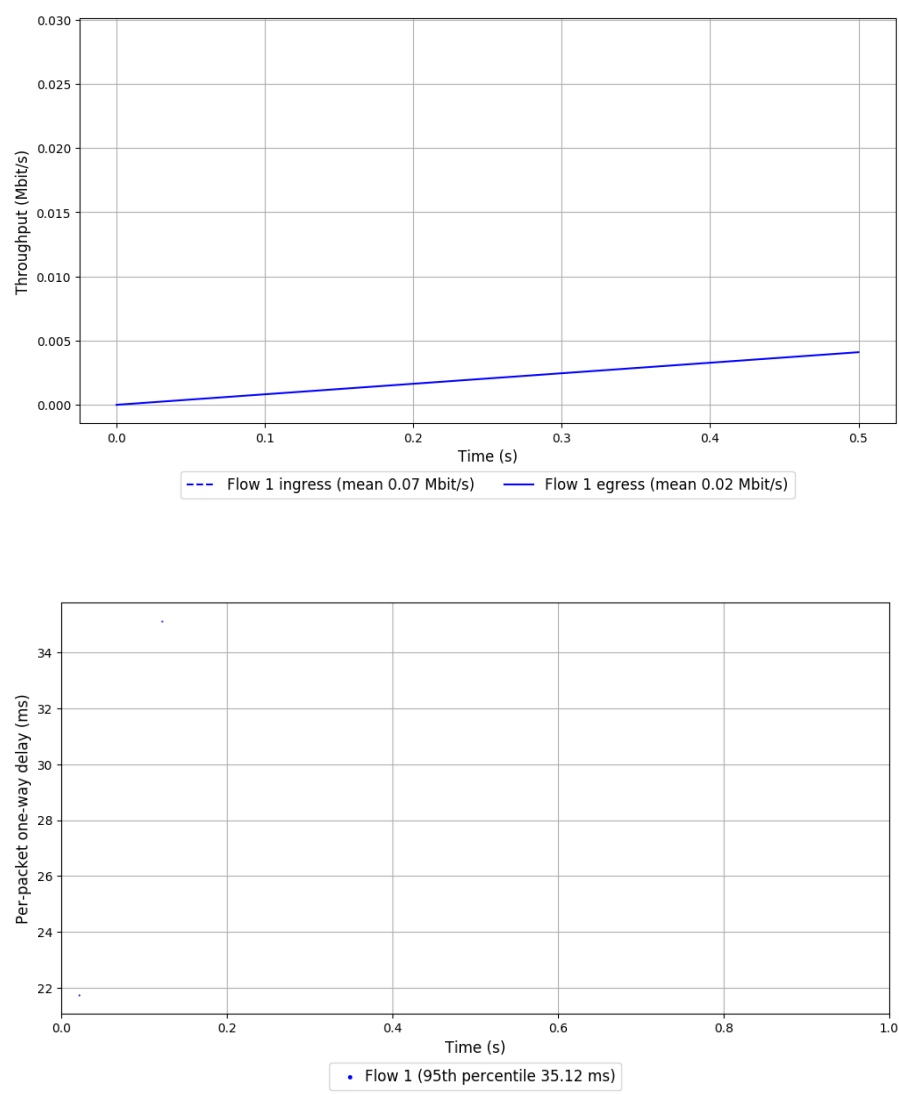
Start at: 2018-09-06 03:57:06

End at: 2018-09-06 03:57:36

Local clock offset: -4.034 ms

Remote clock offset: -3.311 ms

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

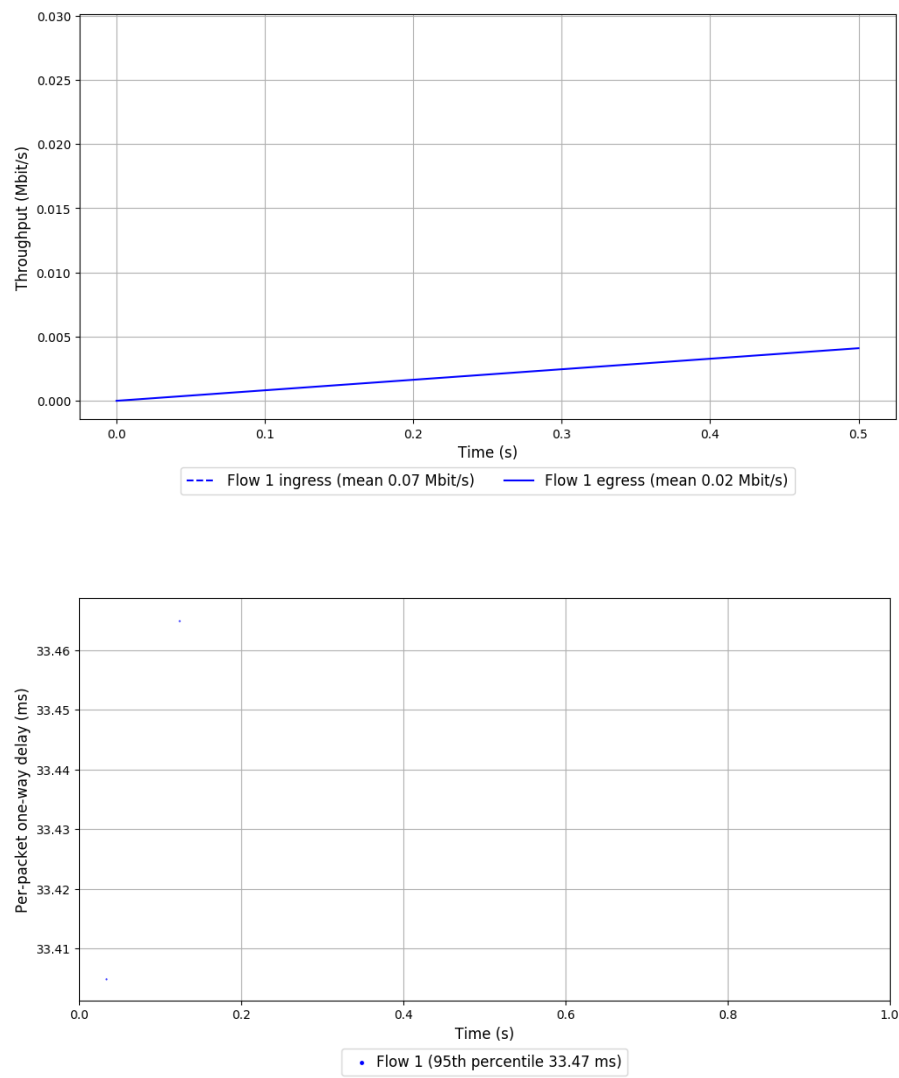
Start at: 2018-09-06 04:16:43

End at: 2018-09-06 04:17:13

Local clock offset: -8.837 ms

Remote clock offset: -3.882 ms

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

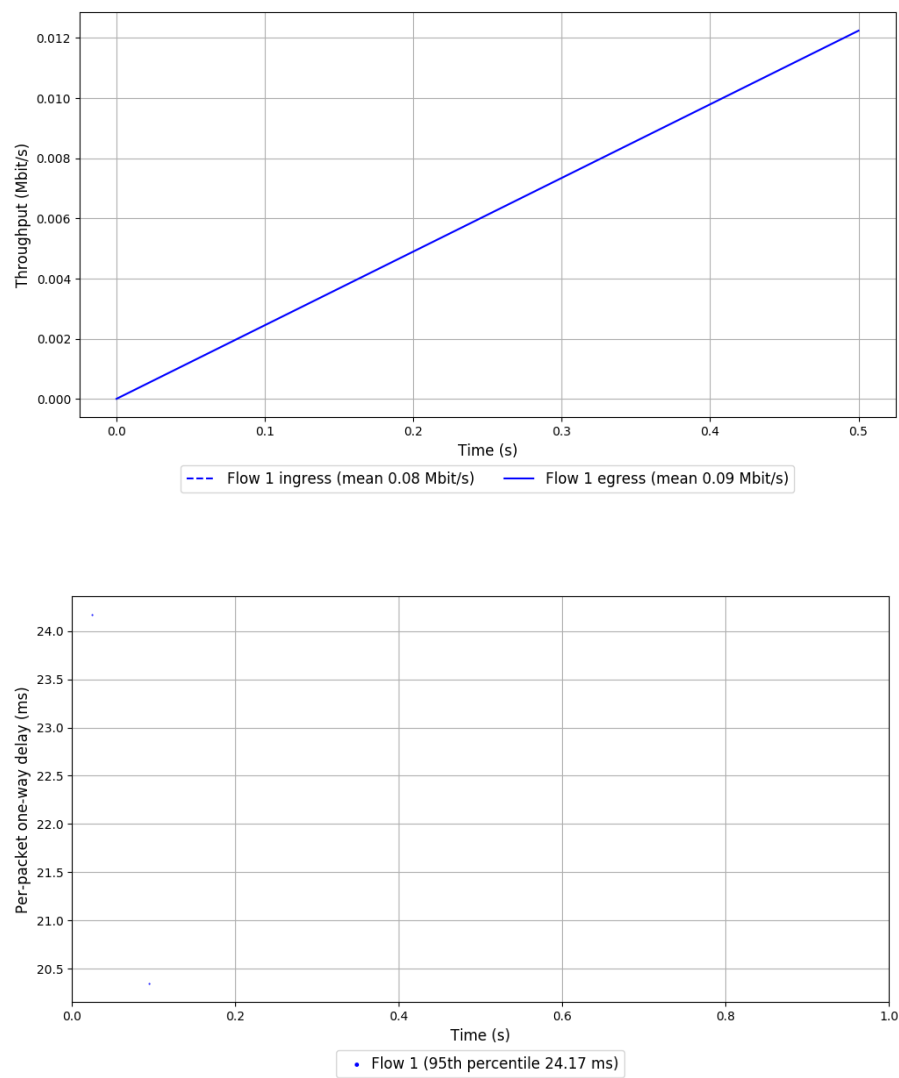
Start at: 2018-09-06 03:29:46

End at: 2018-09-06 03:30:16

Local clock offset: -1.083 ms

Remote clock offset: -4.364 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 03:49:22

End at: 2018-09-06 03:49:52

Local clock offset: -2.921 ms

Remote clock offset: -4.418 ms

Below is generated by plot.py at 2018-09-06 04:25:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.50 Mbit/s

95th percentile per-packet one-way delay: 326.844 ms

Loss rate: 0.42%

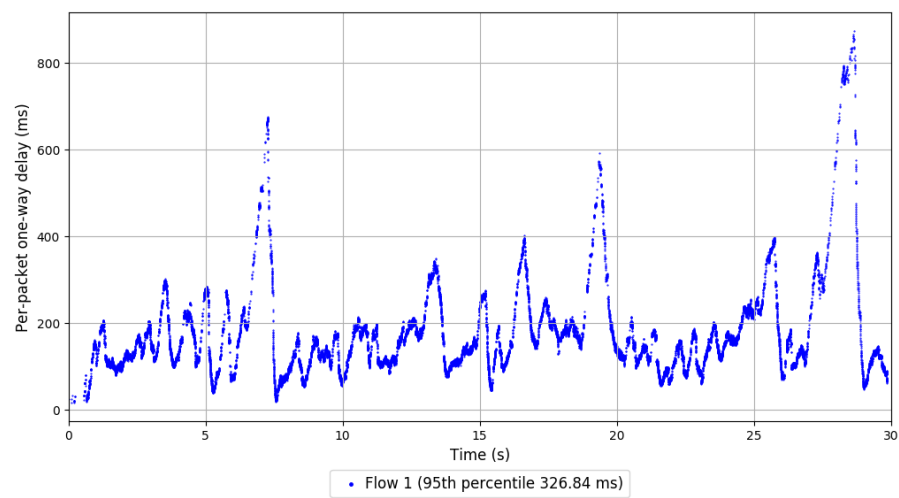
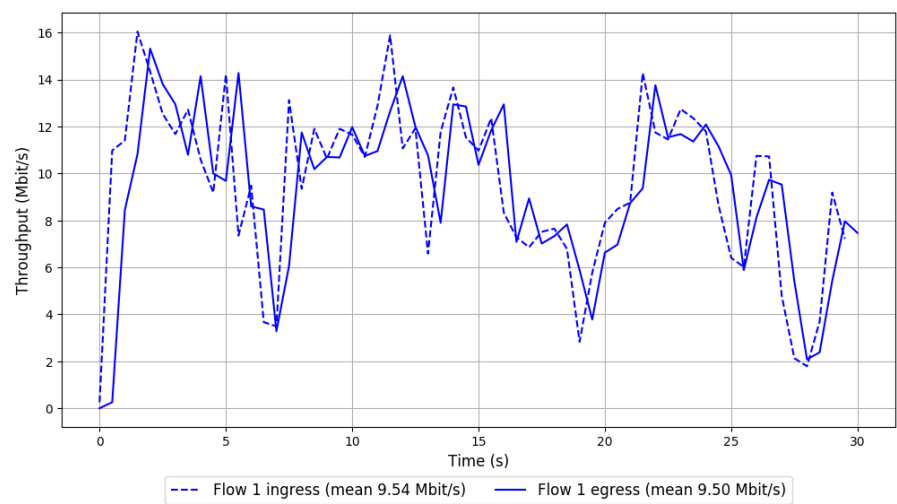
-- Flow 1:

Average throughput: 9.50 Mbit/s

95th percentile per-packet one-way delay: 326.844 ms

Loss rate: 0.42%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 04:09:05

End at: 2018-09-06 04:09:35

Local clock offset: -7.674 ms

Remote clock offset: -2.907 ms

Below is generated by plot.py at 2018-09-06 04:25:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.13 Mbit/s

95th percentile per-packet one-way delay: 338.461 ms

Loss rate: 1.03%

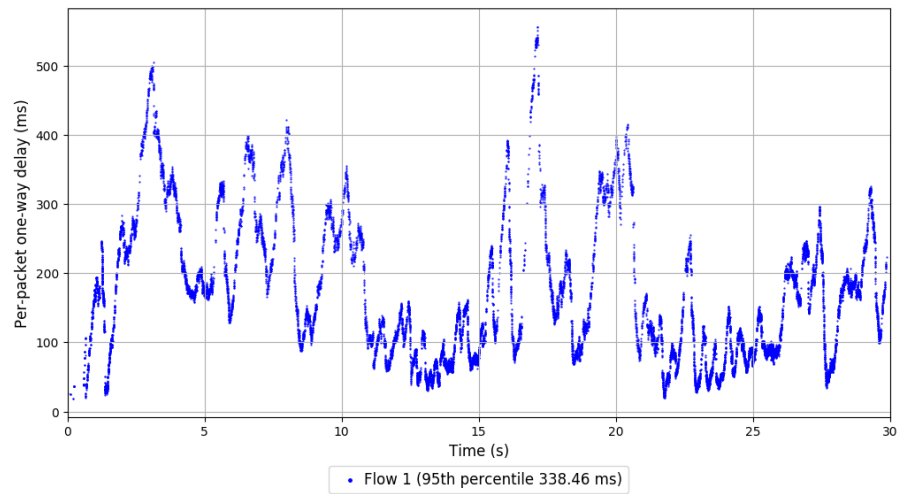
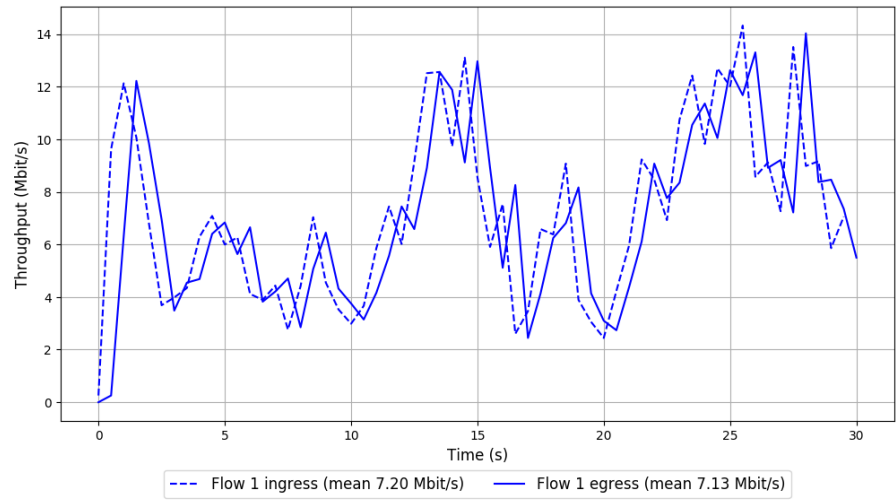
-- Flow 1:

Average throughput: 7.13 Mbit/s

95th percentile per-packet one-way delay: 338.461 ms

Loss rate: 1.03%

Run 3: Report of QUIC Cubic — Data Link

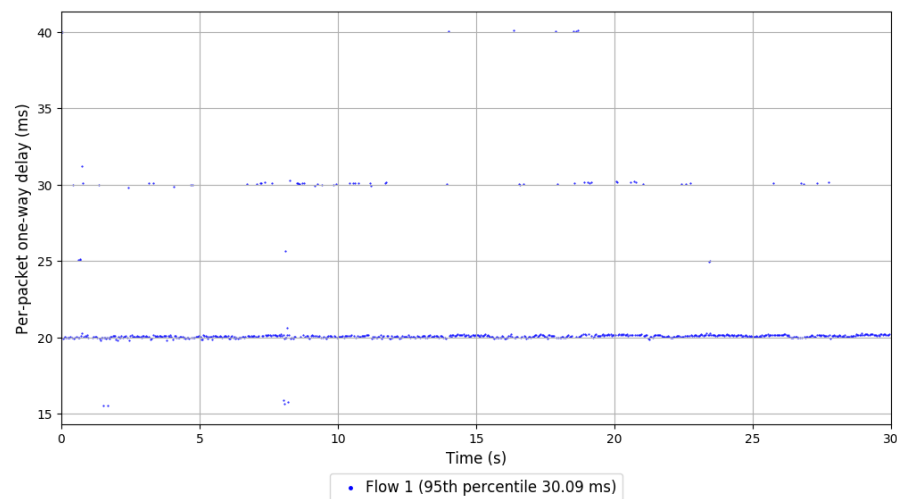
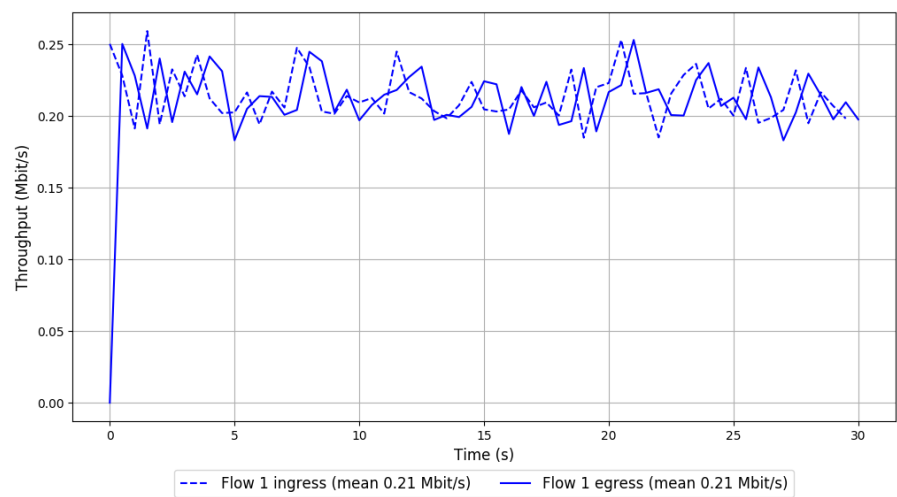


Run 1: Statistics of SCReAM

Start at: 2018-09-06 03:42:51
End at: 2018-09-06 03:43:21
Local clock offset: -2.24 ms
Remote clock offset: -3.646 ms

Below is generated by plot.py at 2018-09-06 04:25:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.091 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.091 ms
Loss rate: 0.13%

Run 1: Report of SReAM — Data Link

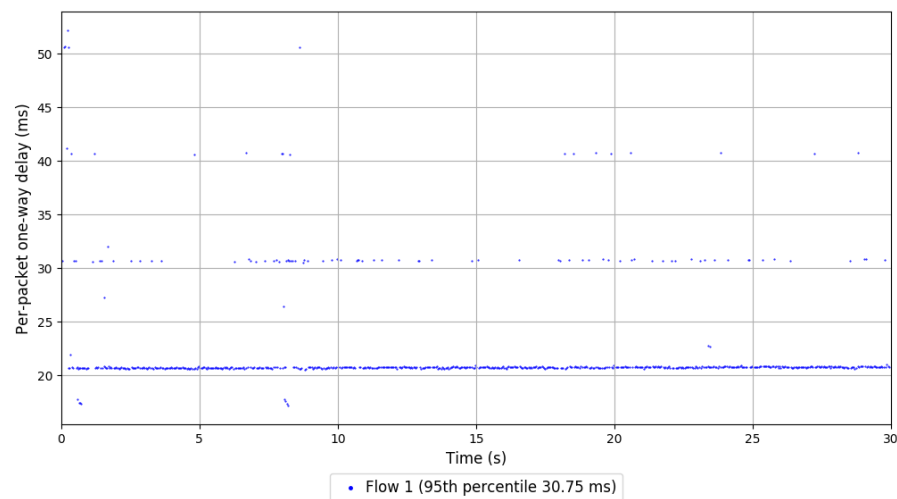
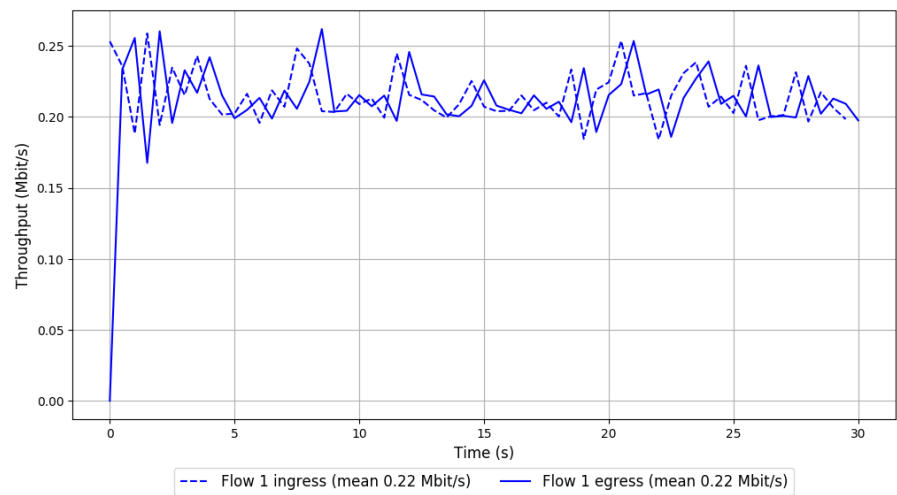


Run 2: Statistics of SCReAM

Start at: 2018-09-06 04:02:32
End at: 2018-09-06 04:03:02
Local clock offset: -5.255 ms
Remote clock offset: -3.434 ms

Below is generated by plot.py at 2018-09-06 04:25:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.746 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.746 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-09-06 04:22:10

End at: 2018-09-06 04:22:40

Local clock offset: -6.724 ms

Remote clock offset: -2.48 ms

Below is generated by plot.py at 2018-09-06 04:25:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 33.807 ms

Loss rate: 0.13%

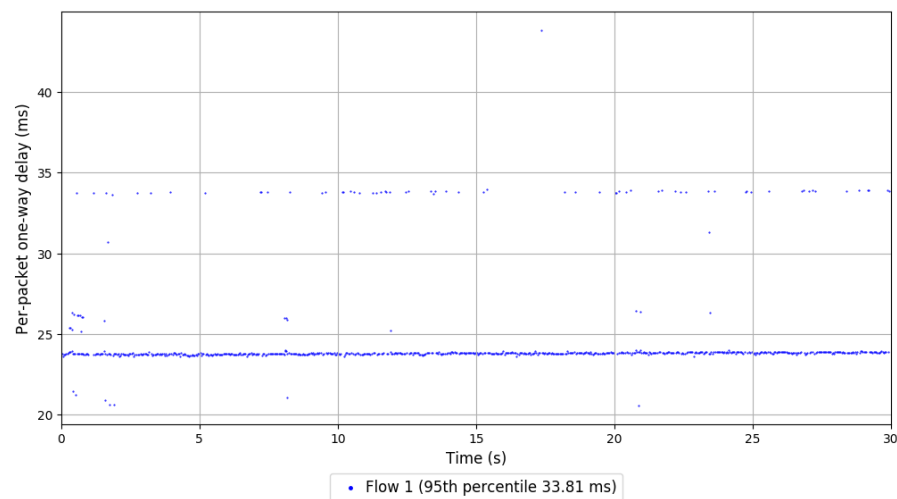
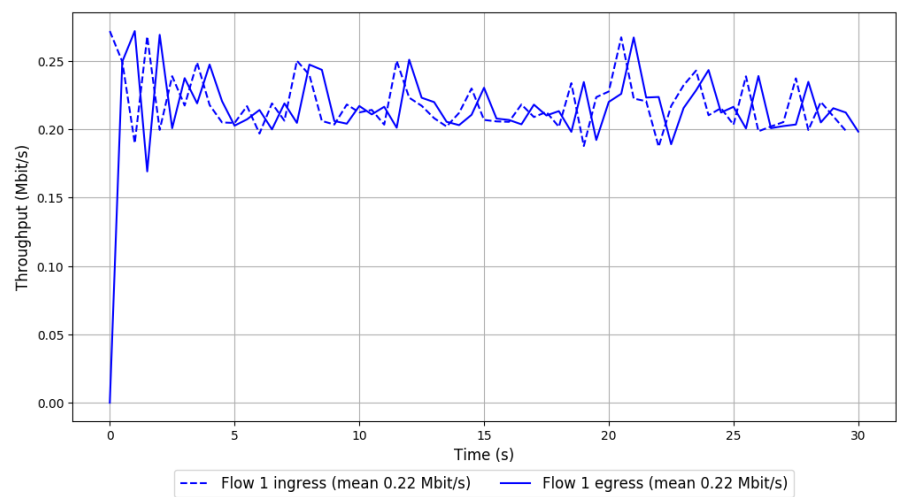
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 33.807 ms

Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

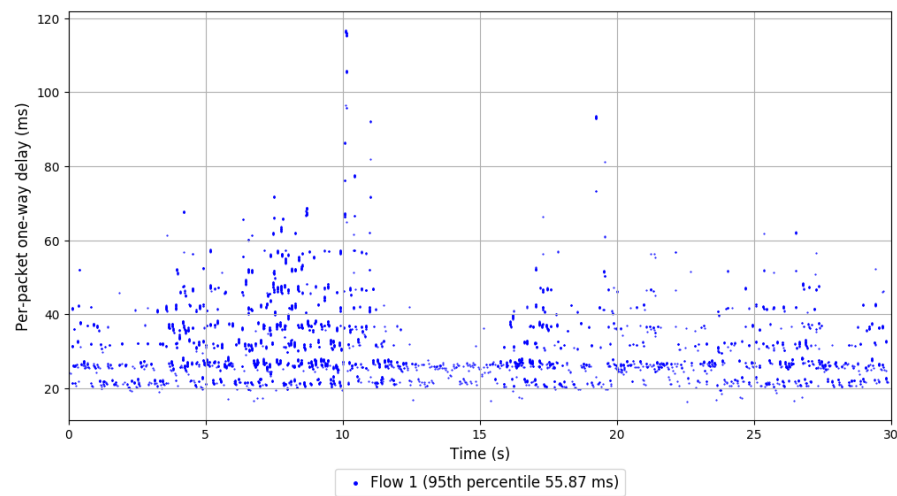
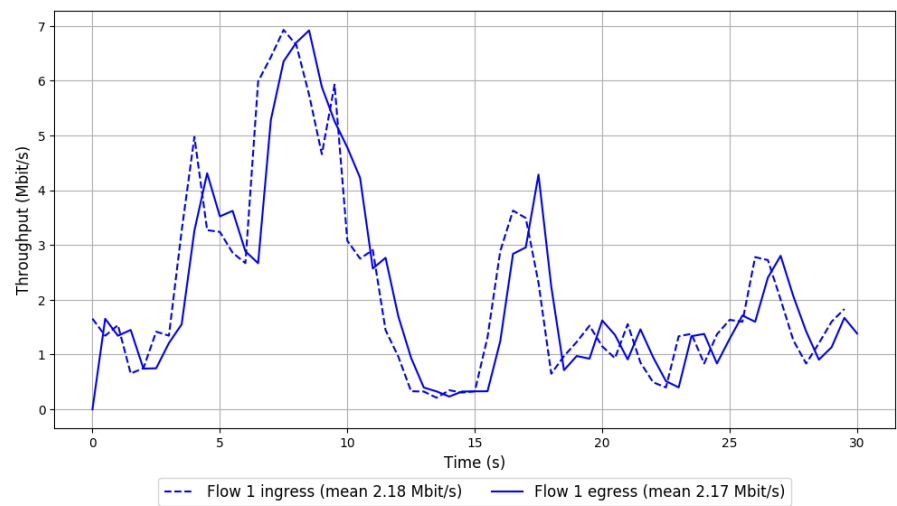


Run 1: Statistics of Sprout

Start at: 2018-09-06 03:27:36
End at: 2018-09-06 03:28:06
Local clock offset: -3.428 ms
Remote clock offset: -4.821 ms

Below is generated by plot.py at 2018-09-06 04:25:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 55.873 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 55.873 ms
Loss rate: 0.34%

Run 1: Report of Sprout — Data Link

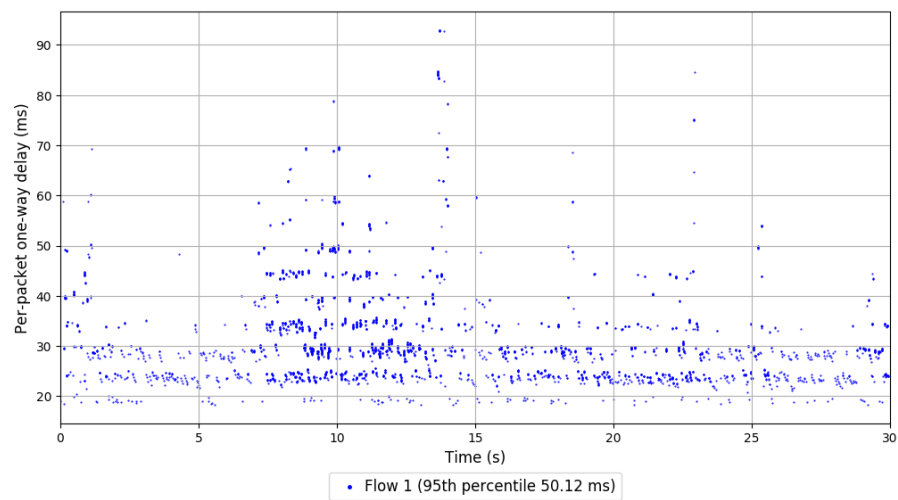
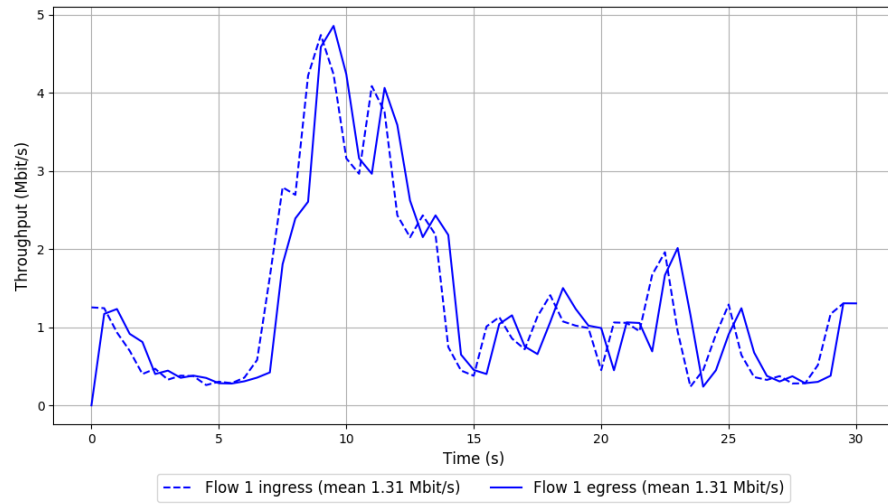


Run 2: Statistics of Sprout

Start at: 2018-09-06 03:47:12
End at: 2018-09-06 03:47:42
Local clock offset: -3.994 ms
Remote clock offset: -3.572 ms

Below is generated by plot.py at 2018-09-06 04:25:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 50.118 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 50.118 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

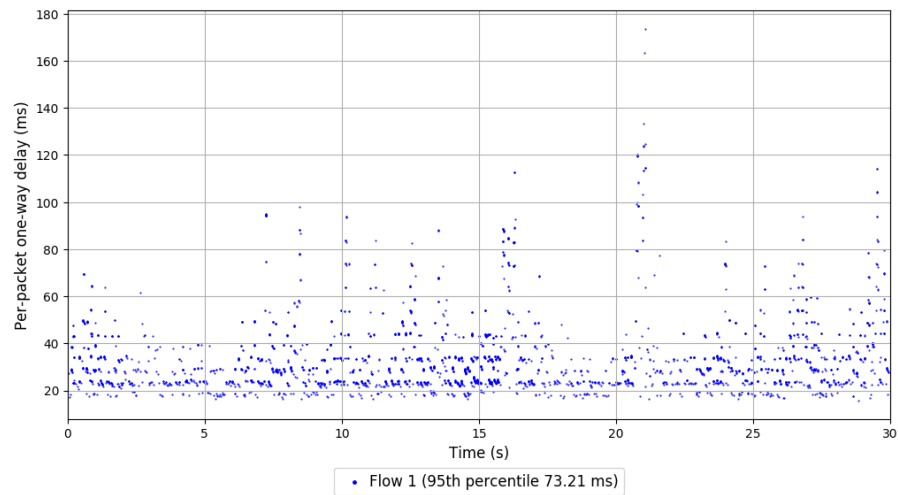
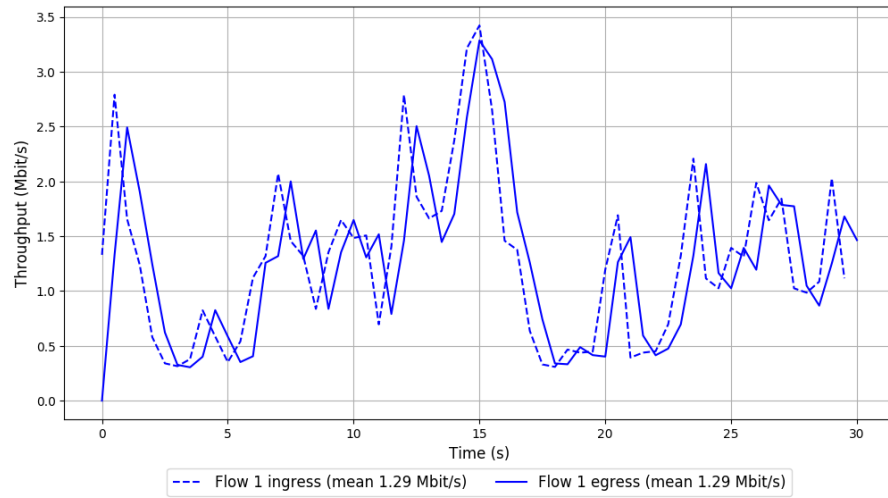


Run 3: Statistics of Sprout

Start at: 2018-09-06 04:06:54
End at: 2018-09-06 04:07:24
Local clock offset: -7.339 ms
Remote clock offset: -3.602 ms

Below is generated by plot.py at 2018-09-06 04:25:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 73.209 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 73.209 ms
Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-06 03:43:56

End at: 2018-09-06 03:44:26

Local clock offset: -1.927 ms

Remote clock offset: -4.182 ms

Below is generated by plot.py at 2018-09-06 04:25:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.40 Mbit/s

95th percentile per-packet one-way delay: 55.911 ms

Loss rate: 48.09%

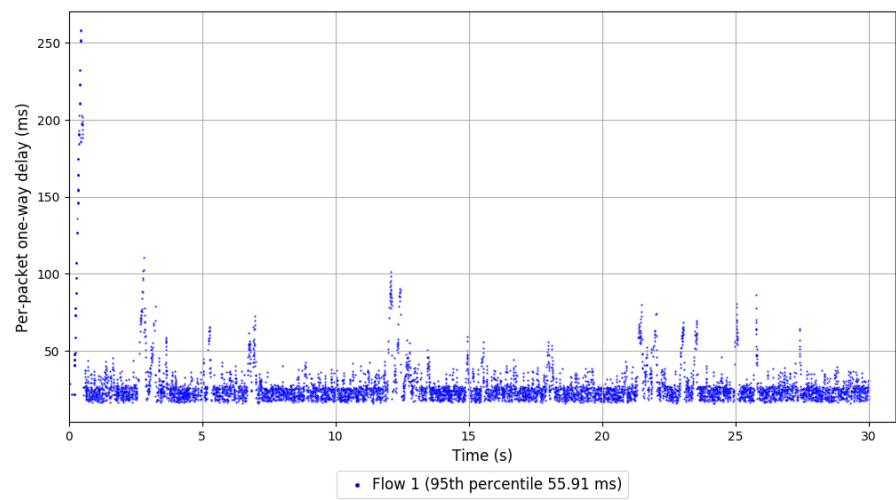
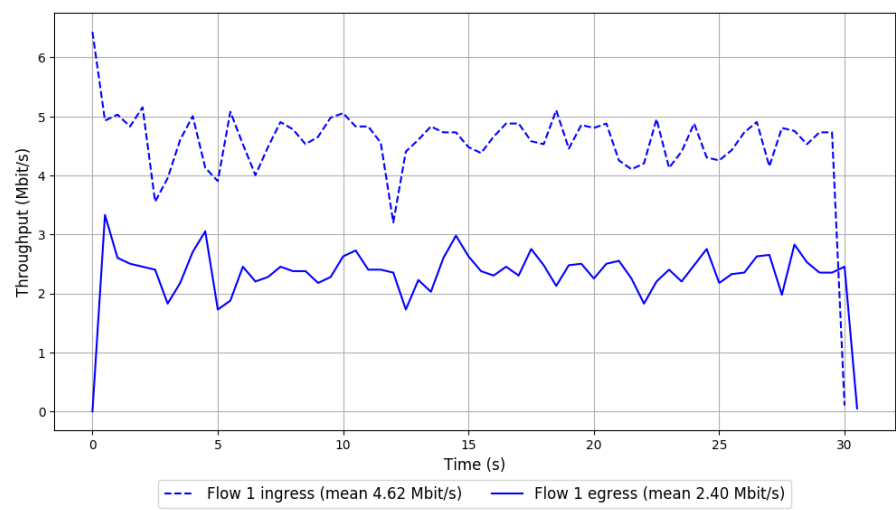
-- Flow 1:

Average throughput: 2.40 Mbit/s

95th percentile per-packet one-way delay: 55.911 ms

Loss rate: 48.09%

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



Run 2: Statistics of TaoVA-100x

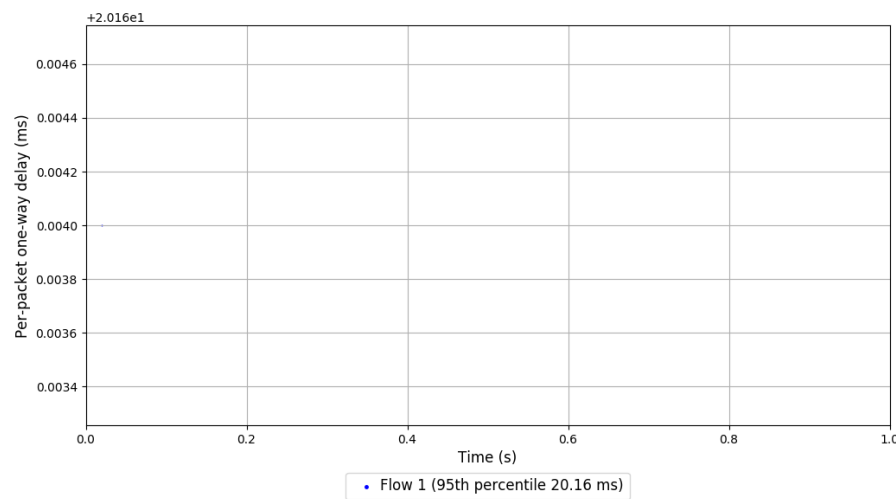
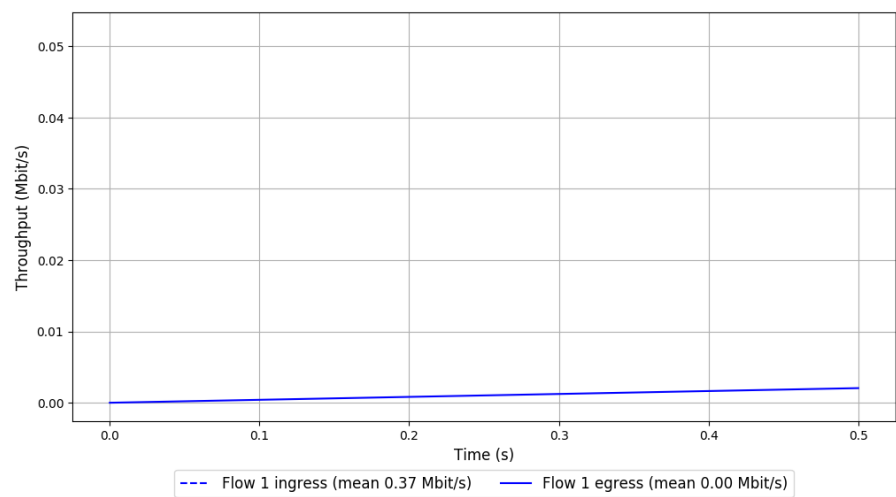
Start at: 2018-09-06 04:03:38

End at: 2018-09-06 04:04:08

Local clock offset: -6.412 ms

Remote clock offset: -2.839 ms

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



Run 3: Statistics of TaoVA-100x

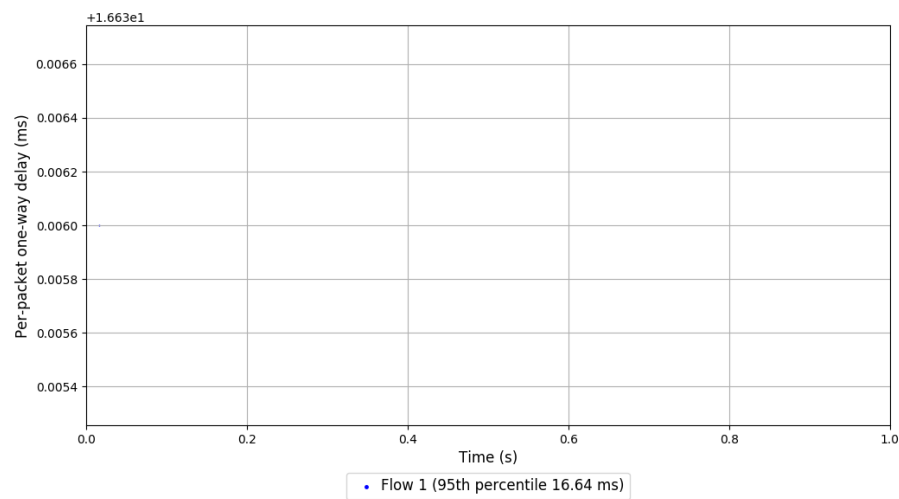
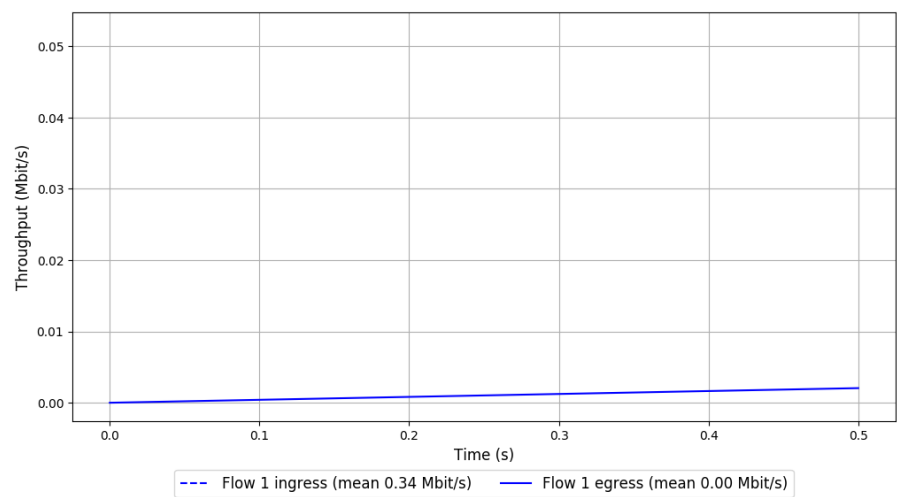
Start at: 2018-09-06 04:23:15

End at: 2018-09-06 04:23:45

Local clock offset: -2.575 ms

Remote clock offset: -3.68 ms

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

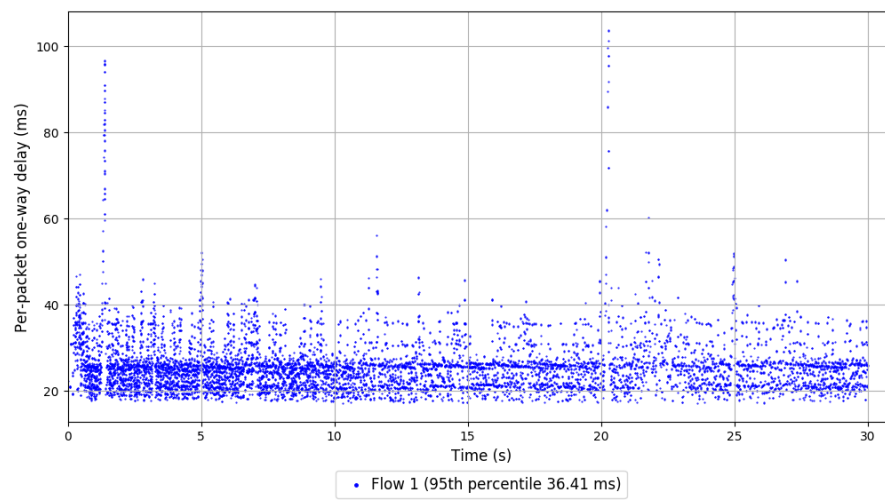
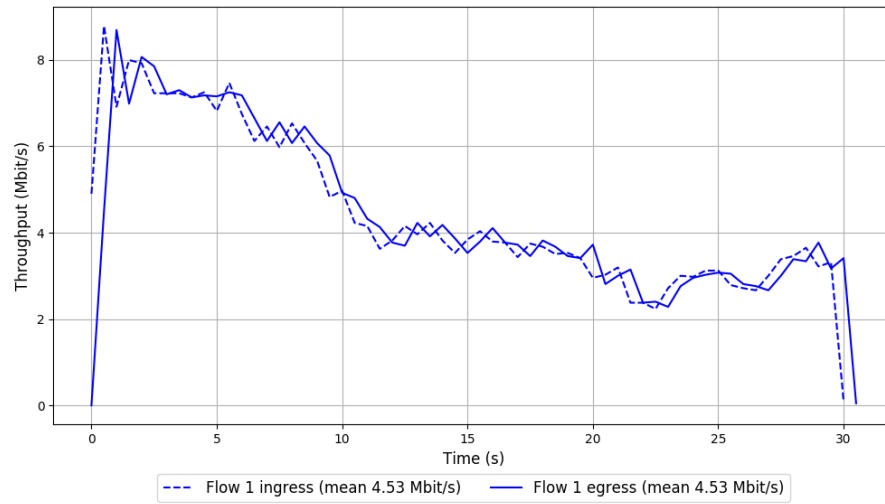


Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 03:36:19
End at: 2018-09-06 03:36:49
Local clock offset: -2.916 ms
Remote clock offset: -4.219 ms

Below is generated by plot.py at 2018-09-06 04:25:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.53 Mbit/s
95th percentile per-packet one-way delay: 36.405 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 4.53 Mbit/s
95th percentile per-packet one-way delay: 36.405 ms
Loss rate: 0.05%

Run 1: Report of TCP Vegas — Data Link

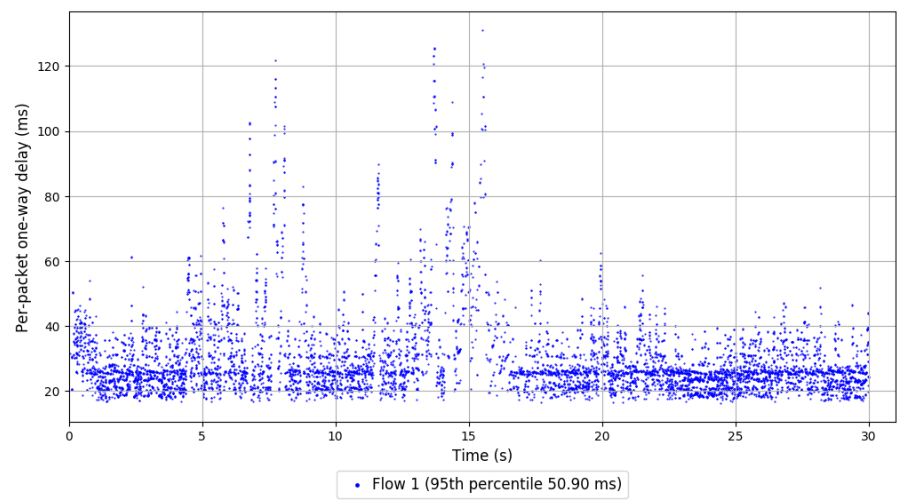
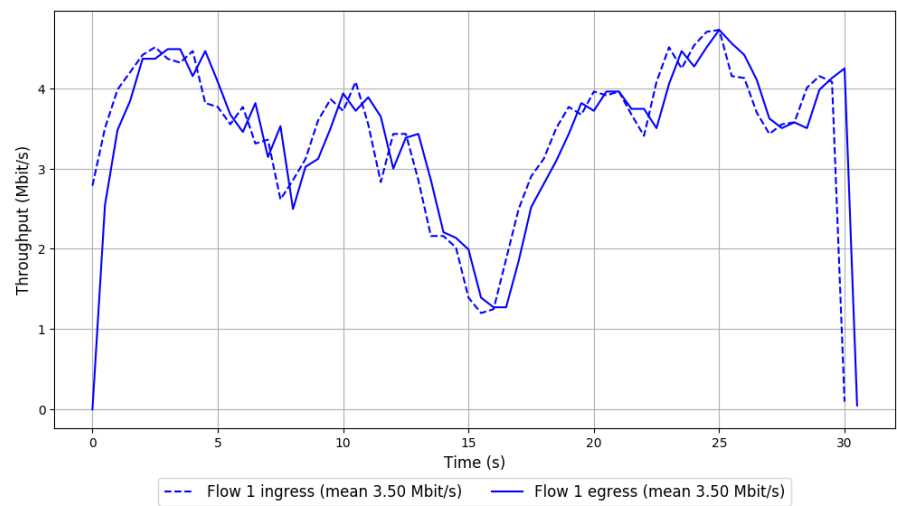


Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 03:55:55
End at: 2018-09-06 03:56:25
Local clock offset: -5.029 ms
Remote clock offset: -3.664 ms

Below is generated by plot.py at 2018-09-06 04:25:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.50 Mbit/s
95th percentile per-packet one-way delay: 50.900 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 3.50 Mbit/s
95th percentile per-packet one-way delay: 50.900 ms
Loss rate: 0.07%

Run 2: Report of TCP Vegas — Data Link

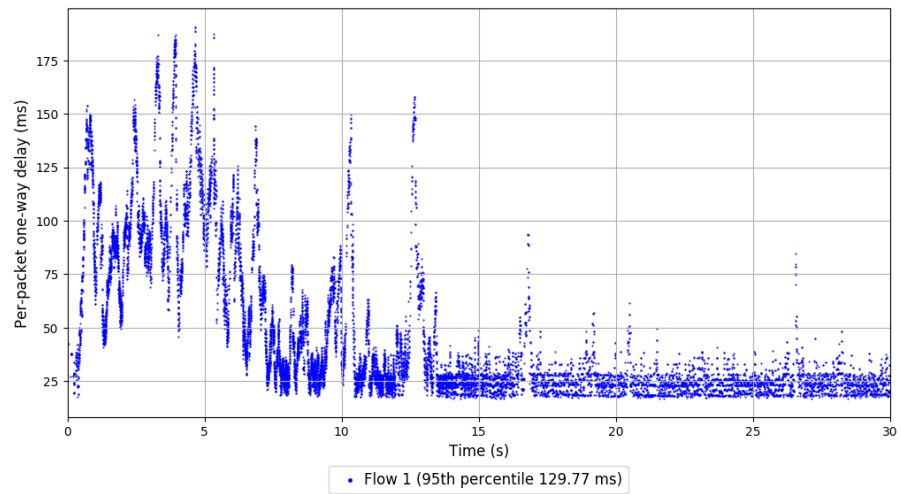
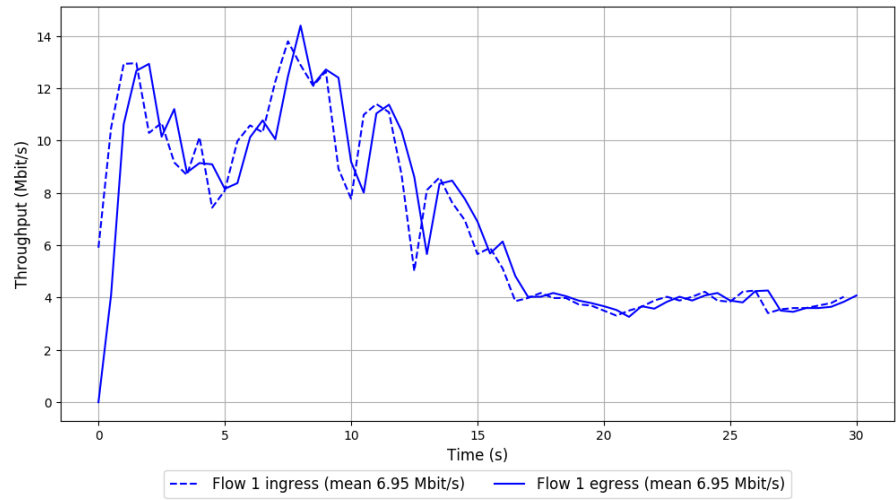


Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 04:15:37
End at: 2018-09-06 04:16:07
Local clock offset: -8.724 ms
Remote clock offset: -2.723 ms

Below is generated by plot.py at 2018-09-06 04:25:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.95 Mbit/s
95th percentile per-packet one-way delay: 129.772 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 6.95 Mbit/s
95th percentile per-packet one-way delay: 129.772 ms
Loss rate: 0.03%

Run 3: Report of TCP Vegas — Data Link

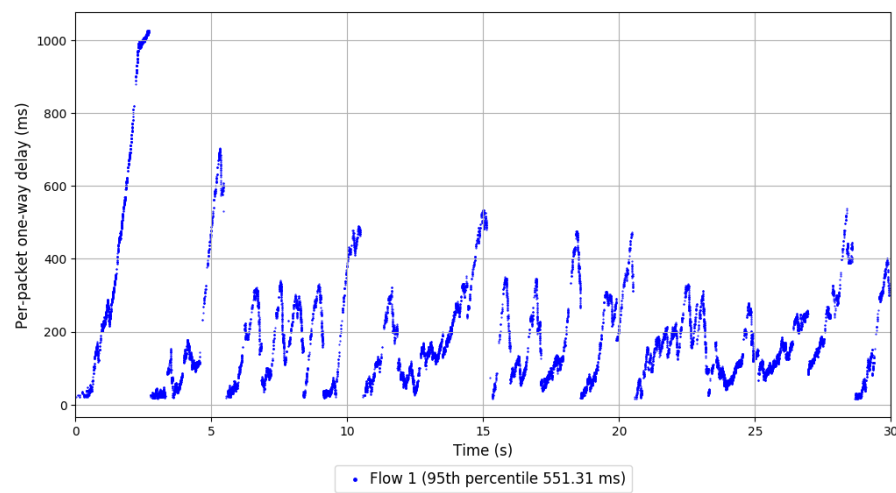
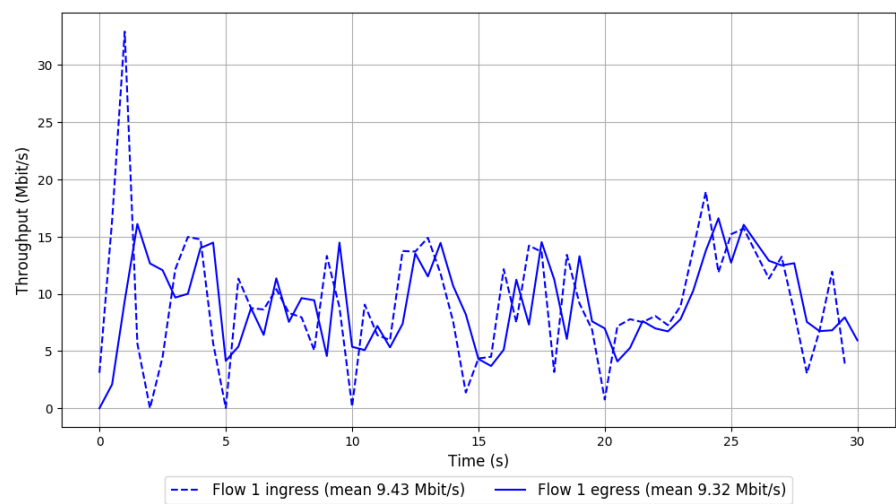


Run 1: Statistics of Verus

Start at: 2018-09-06 03:31:56
End at: 2018-09-06 03:32:26
Local clock offset: -3.417 ms
Remote clock offset: -4.868 ms

Below is generated by plot.py at 2018-09-06 04:25:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.32 Mbit/s
95th percentile per-packet one-way delay: 551.311 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 9.32 Mbit/s
95th percentile per-packet one-way delay: 551.311 ms
Loss rate: 0.70%

Run 1: Report of Verus — Data Link

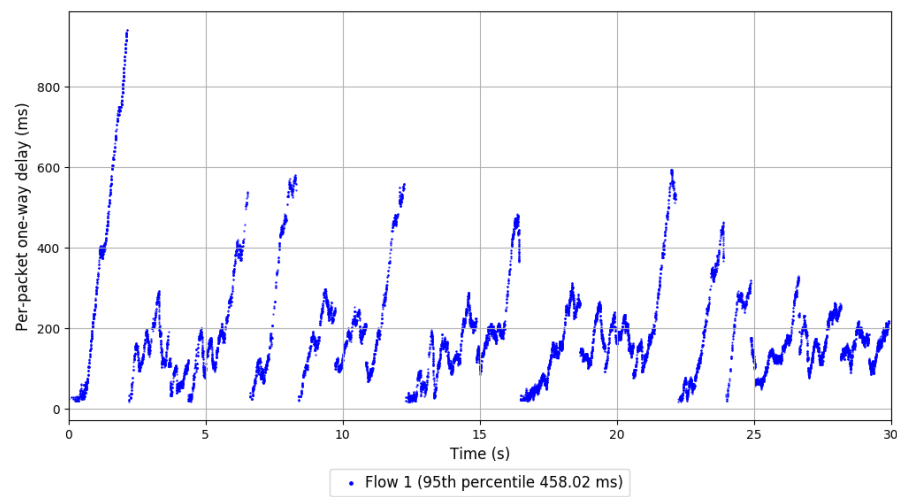
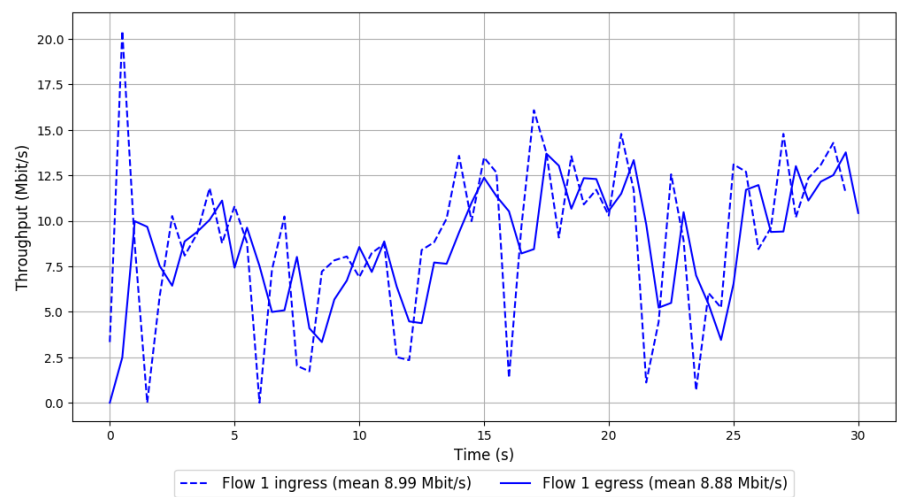


Run 2: Statistics of Verus

Start at: 2018-09-06 03:51:33
End at: 2018-09-06 03:52:03
Local clock offset: -4.071 ms
Remote clock offset: -3.013 ms

Below is generated by plot.py at 2018-09-06 04:25:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.88 Mbit/s
95th percentile per-packet one-way delay: 458.022 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 8.88 Mbit/s
95th percentile per-packet one-way delay: 458.022 ms
Loss rate: 1.39%

Run 2: Report of Verus — Data Link

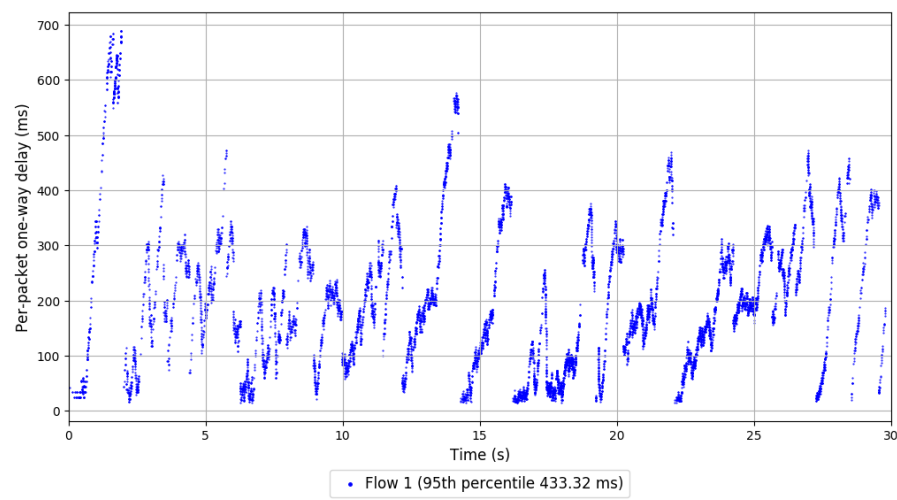
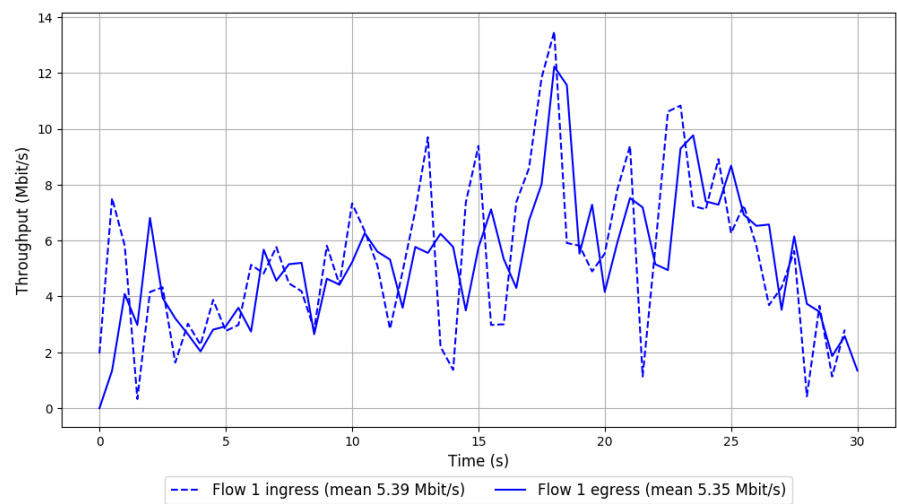


Run 3: Statistics of Verus

Start at: 2018-09-06 04:11:16
End at: 2018-09-06 04:11:46
Local clock offset: -5.519 ms
Remote clock offset: -2.783 ms

Below is generated by plot.py at 2018-09-06 04:25:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.35 Mbit/s
95th percentile per-packet one-way delay: 433.317 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 5.35 Mbit/s
95th percentile per-packet one-way delay: 433.317 ms
Loss rate: 0.85%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-06 03:33:03

End at: 2018-09-06 03:33:33

Local clock offset: -4.837 ms

Remote clock offset: -3.289 ms

Below is generated by plot.py at 2018-09-06 04:25:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.91 Mbit/s

95th percentile per-packet one-way delay: 46.140 ms

Loss rate: 0.06%

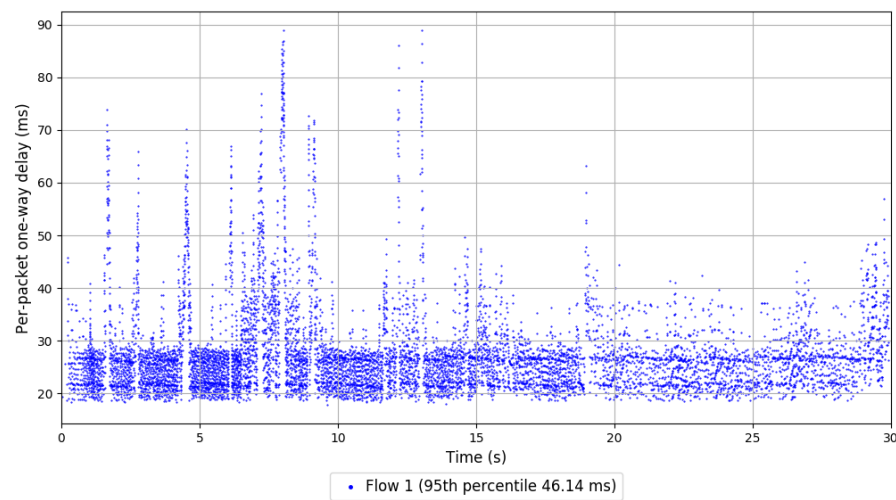
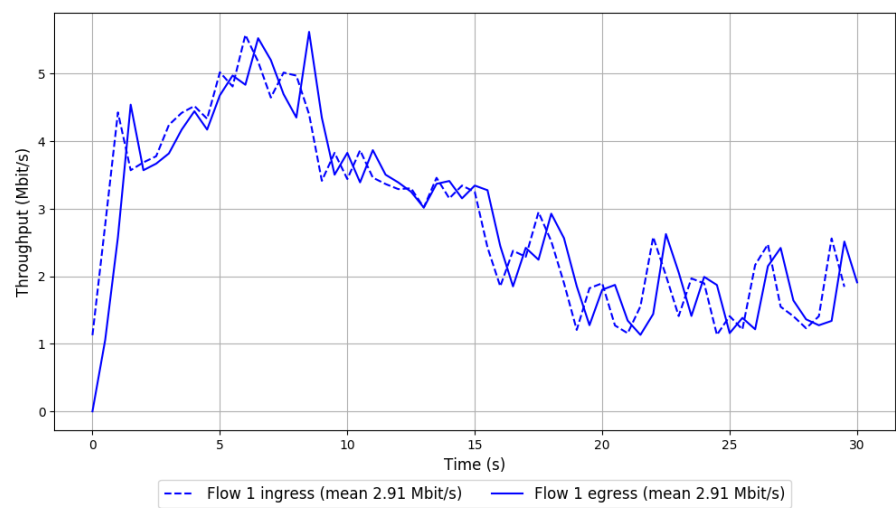
-- Flow 1:

Average throughput: 2.91 Mbit/s

95th percentile per-packet one-way delay: 46.140 ms

Loss rate: 0.06%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-06 03:52:39

End at: 2018-09-06 03:53:09

Local clock offset: -4.909 ms

Remote clock offset: -3.133 ms

Below is generated by plot.py at 2018-09-06 04:25:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.81 Mbit/s

95th percentile per-packet one-way delay: 37.091 ms

Loss rate: 0.07%

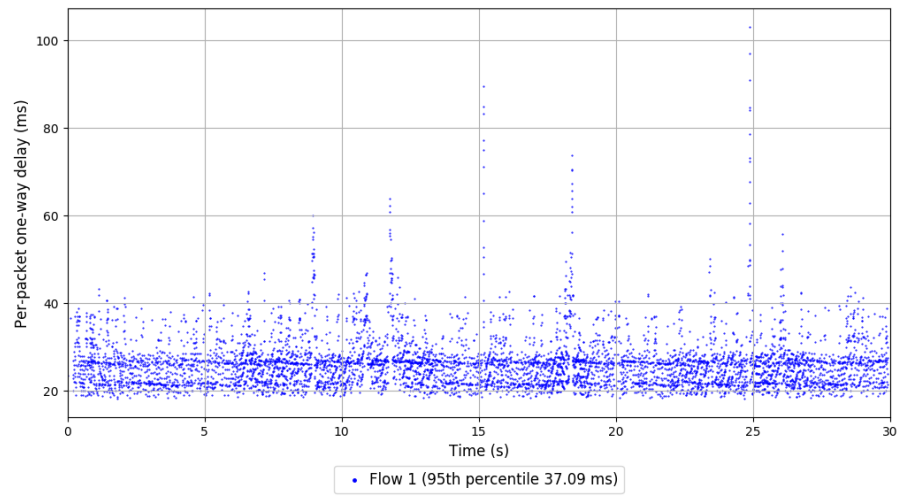
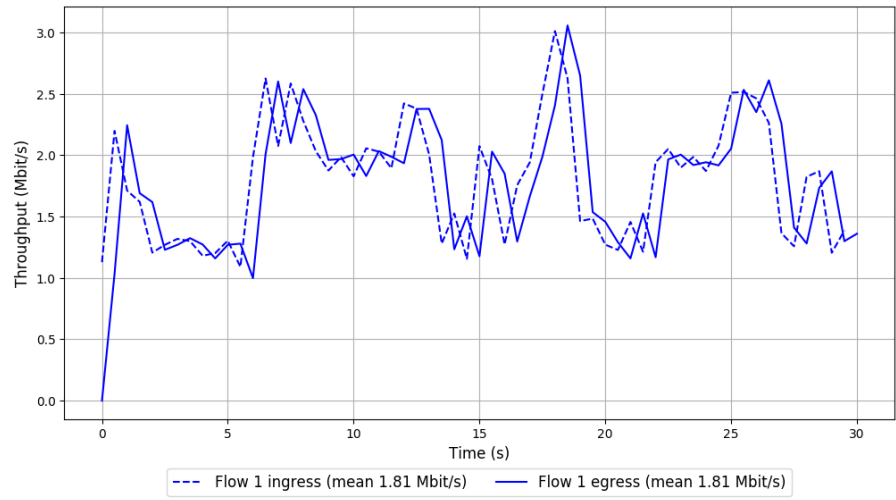
-- Flow 1:

Average throughput: 1.81 Mbit/s

95th percentile per-packet one-way delay: 37.091 ms

Loss rate: 0.07%

Run 2: Report of PCC-Vivace — Data Link

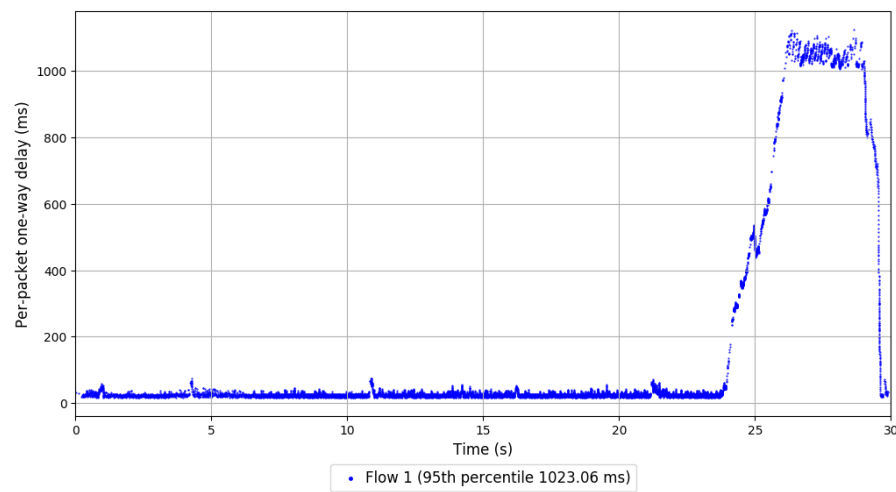
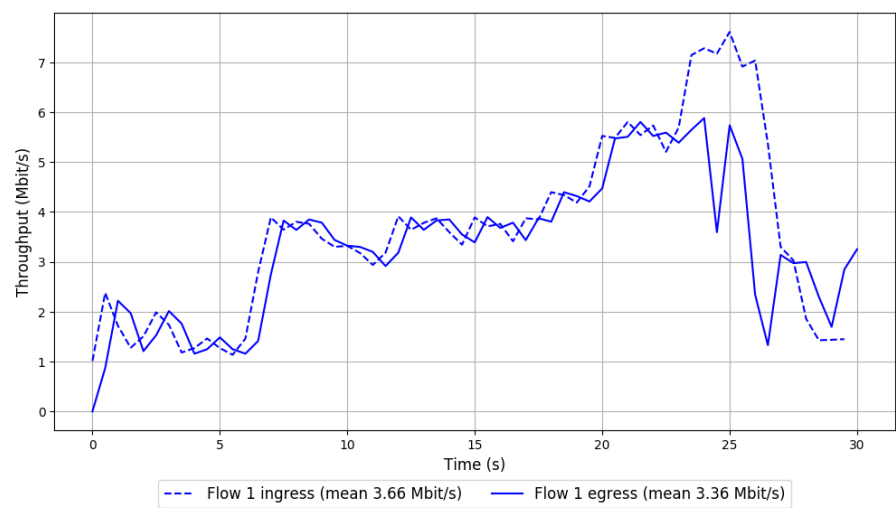


Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 04:12:21
End at: 2018-09-06 04:12:51
Local clock offset: -7.183 ms
Remote clock offset: -3.066 ms

Below is generated by plot.py at 2018-09-06 04:25:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.36 Mbit/s
95th percentile per-packet one-way delay: 1023.064 ms
Loss rate: 8.31%
-- Flow 1:
Average throughput: 3.36 Mbit/s
95th percentile per-packet one-way delay: 1023.064 ms
Loss rate: 8.31%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-09-06 03:39:34

End at: 2018-09-06 03:40:04

Local clock offset: -3.461 ms

Remote clock offset: -3.96 ms

Below is generated by plot.py at 2018-09-06 04:25:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.56 Mbit/s

95th percentile per-packet one-way delay: 59.879 ms

Loss rate: 0.00%

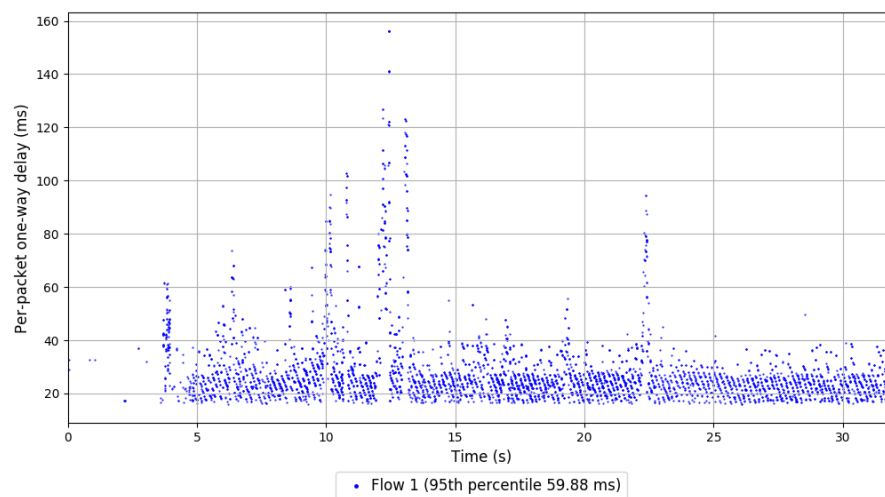
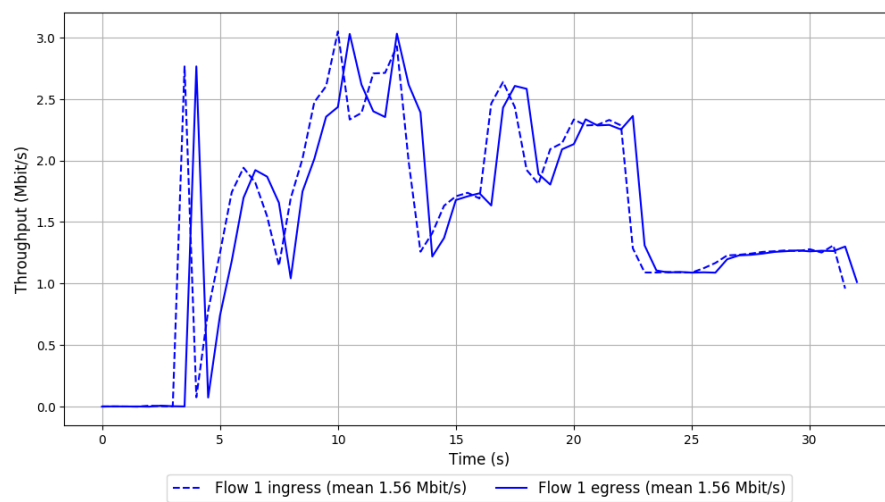
-- Flow 1:

Average throughput: 1.56 Mbit/s

95th percentile per-packet one-way delay: 59.879 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link

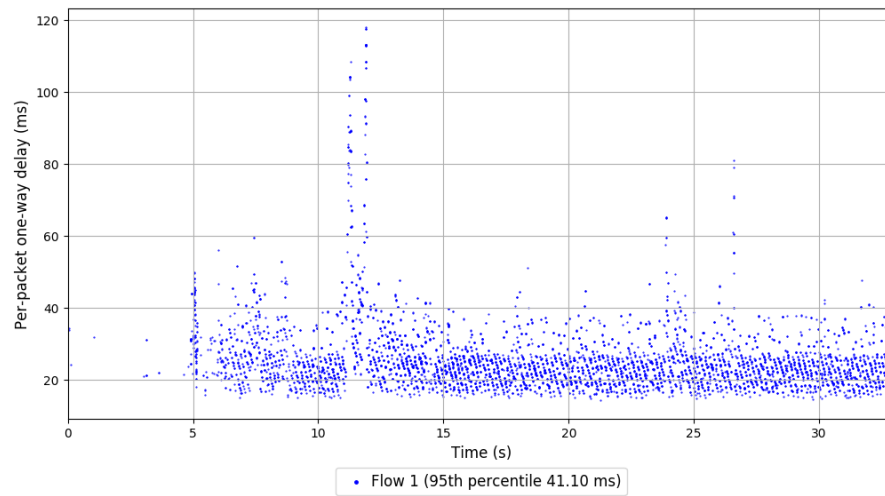
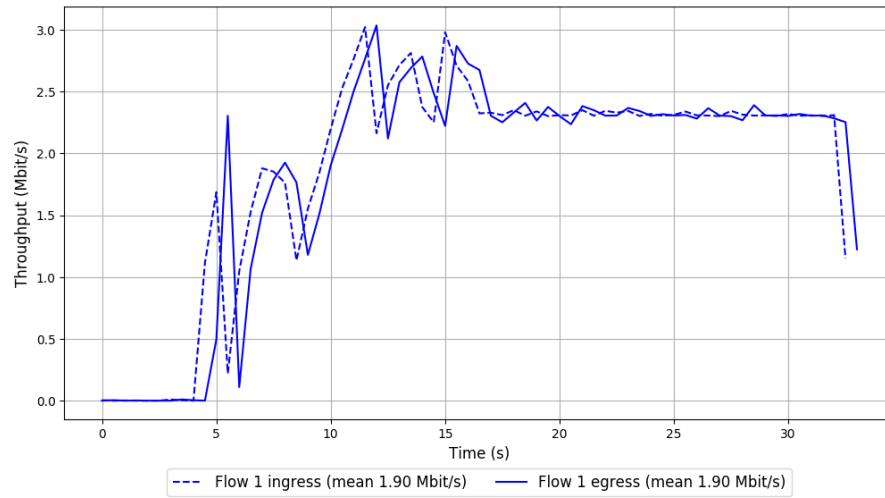


Run 2: Statistics of WebRTC media

Start at: 2018-09-06 03:59:16
End at: 2018-09-06 03:59:46
Local clock offset: -4.768 ms
Remote clock offset: -3.211 ms

Below is generated by plot.py at 2018-09-06 04:25:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 41.098 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 41.098 ms
Loss rate: 0.06%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-06 04:18:53
End at: 2018-09-06 04:19:23
Local clock offset: -7.171 ms
Remote clock offset: -3.462 ms

Below is generated by plot.py at 2018-09-06 04:25:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 149.546 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 149.546 ms
Loss rate: 0.03%

Run 3: Report of WebRTC media — Data Link

