

Pantheon Report

Generated at 2018-06-18 08:32:11 (UTC).

Data path: AWS Brazil 2 Ethernet (*local*) → Colombia ppp0 ppp0 (*remote*).

Repeated the test of 16 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

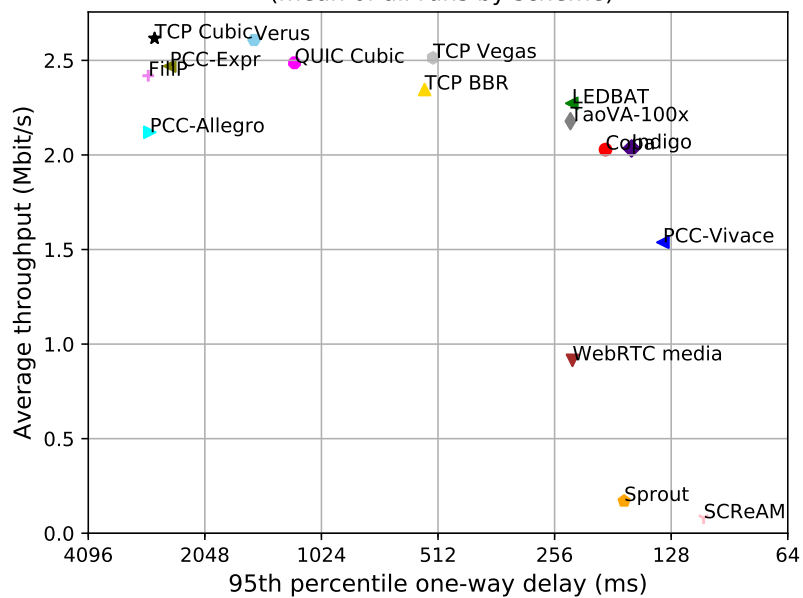
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.

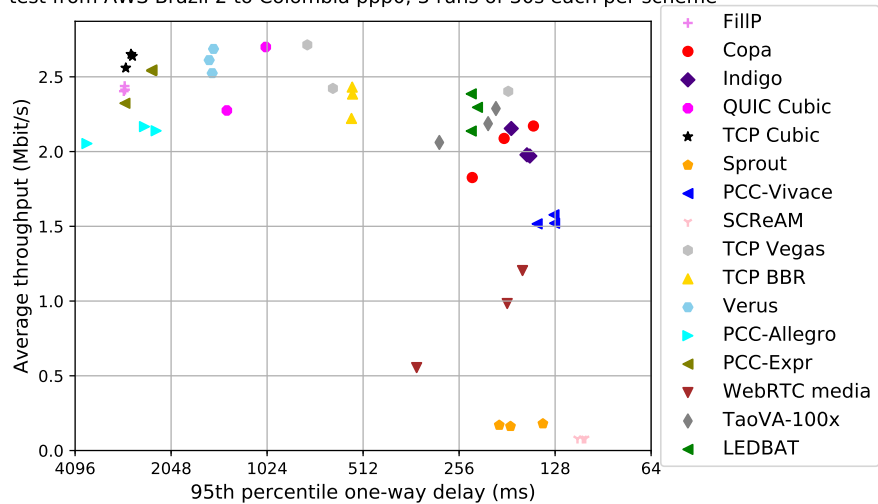
Git summary:

```
branch: master @ 9141c5f9450c85ea5ea2ea755a8e946998d3abf3
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/genericCC @ c7966e494a929986eaa5a9c169a7f381fe1bbbe5
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 Brazil 2 to Colombia ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS Brazil 2 to Colombia ppp0, 3 runs of 30s each per scheme



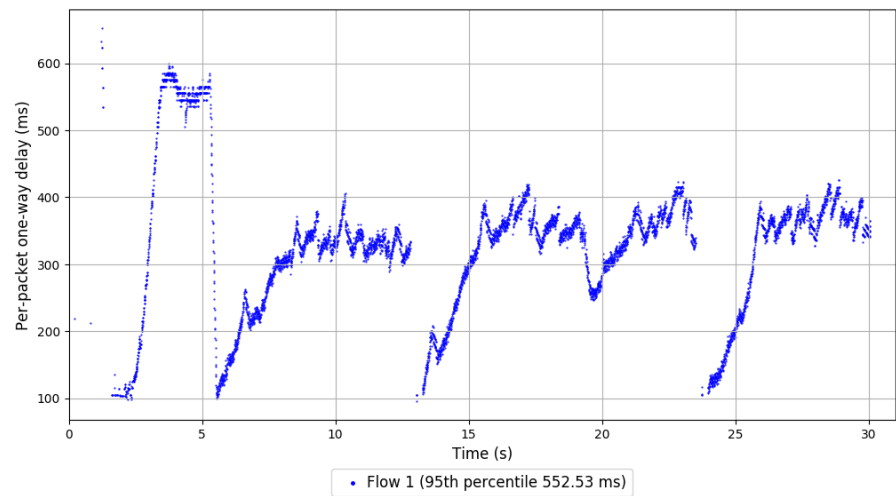
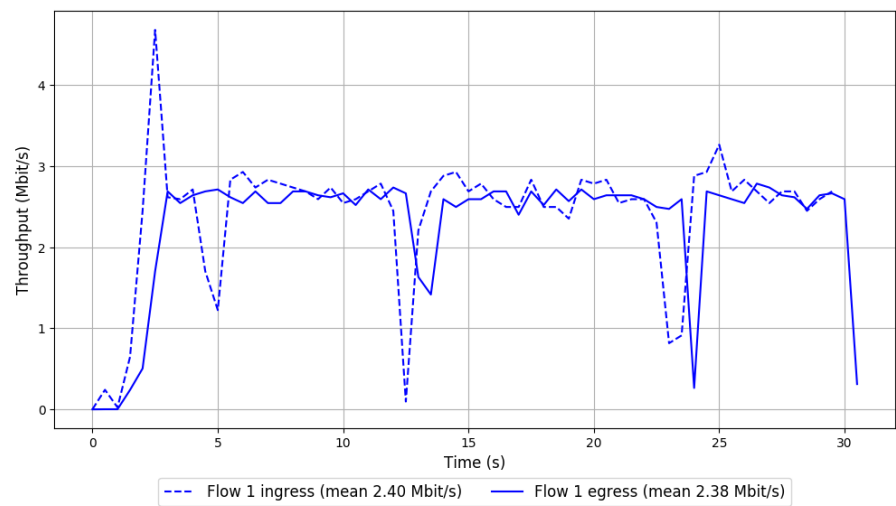
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	2.34	554.43	1.28
Copa	3	2.03	189.15	0.14
TCP Cubic	3	2.62	2761.26	11.89
FillP	3	2.42	2866.90	77.14
Indigo	3	2.03	162.05	0.18
LEDBAT	3	2.28	231.14	0.63
PCC-Allegro	3	2.12	2841.31	44.26
PCC-Expr	3	2.47	2523.43	57.86
QUIC Cubic	2	2.49	1201.55	4.20
SCReAM	3	0.08	105.56	0.09
Sprout	3	0.17	169.34	0.00
TaoVA-100x	3	2.18	233.04	0.09
TCP Vegas	3	2.51	527.46	1.08
Verus	3	2.61	1528.40	3.04
PCC-Vivace	3	1.54	134.45	0.82
WebRTC media	3	0.91	230.23	0.08

Run 1: Statistics of TCP BBR

Start at: 2018-06-18 07:39:06
End at: 2018-06-18 07:39:36
Local clock offset: -0.272 ms
Remote clock offset: 10.556 ms

Below is generated by plot.py at 2018-06-18 08:31:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 552.531 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 552.531 ms
Loss rate: 1.15%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-06-18 07:57:08

End at: 2018-06-18 07:57:38

Local clock offset: 1.865 ms

Remote clock offset: 5.942 ms

Below is generated by plot.py at 2018-06-18 08:31:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.43 Mbit/s

95th percentile per-packet one-way delay: 553.875 ms

Loss rate: 1.55%

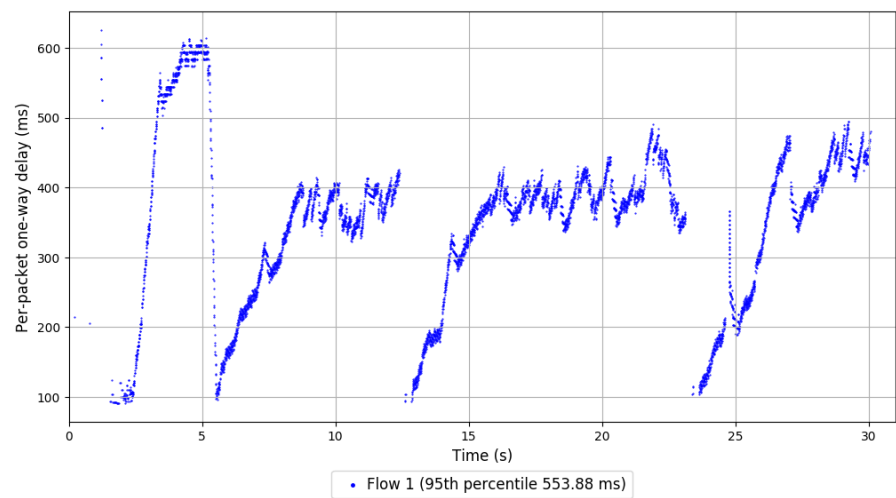
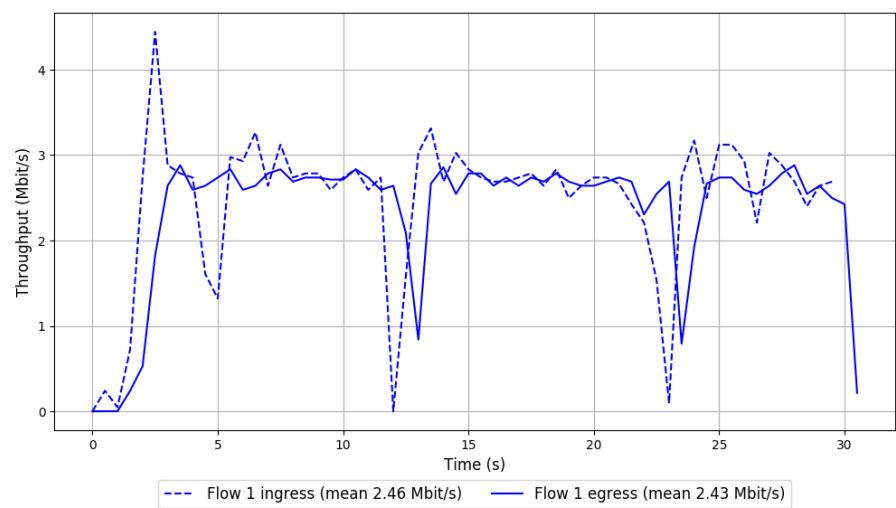
-- Flow 1:

Average throughput: 2.43 Mbit/s

95th percentile per-packet one-way delay: 553.875 ms

Loss rate: 1.55%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-06-18 08:15:09

End at: 2018-06-18 08:15:39

Local clock offset: 5.546 ms

Remote clock offset: 10.16 ms

Below is generated by plot.py at 2018-06-18 08:31:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.22 Mbit/s

95th percentile per-packet one-way delay: 556.872 ms

Loss rate: 1.13%

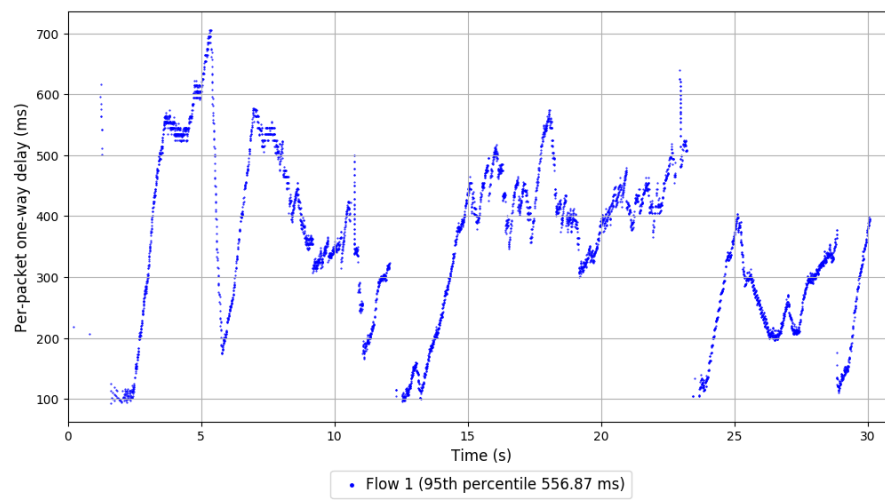
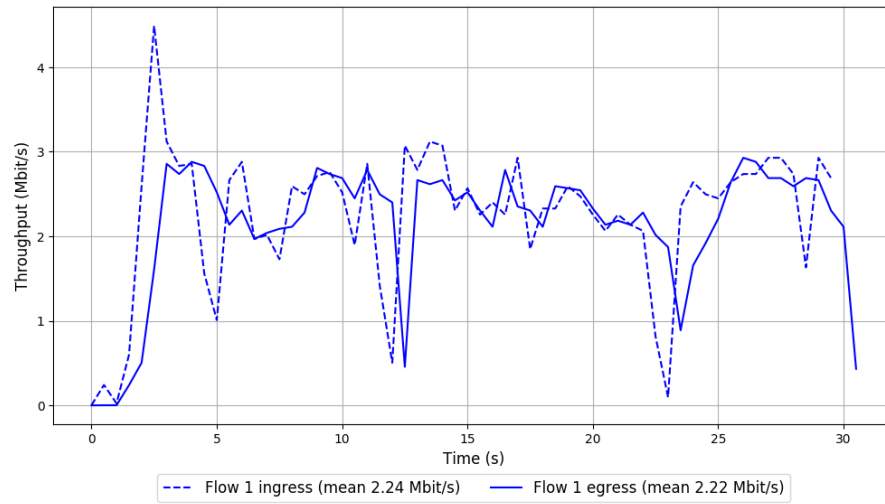
-- Flow 1:

Average throughput: 2.22 Mbit/s

95th percentile per-packet one-way delay: 556.872 ms

Loss rate: 1.13%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-06-18 07:37:58

End at: 2018-06-18 07:38:28

Local clock offset: -0.178 ms

Remote clock offset: 8.416 ms

Below is generated by plot.py at 2018-06-18 08:31:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.17 Mbit/s

95th percentile per-packet one-way delay: 149.673 ms

Loss rate: 0.04%

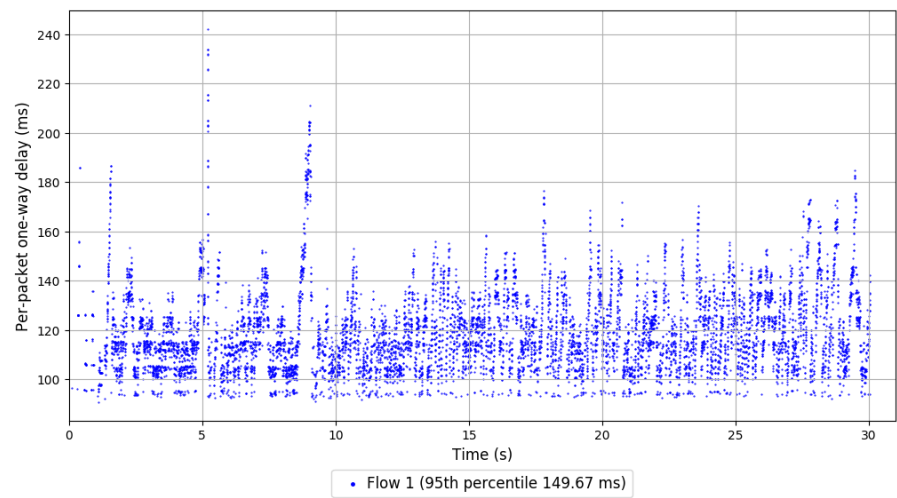
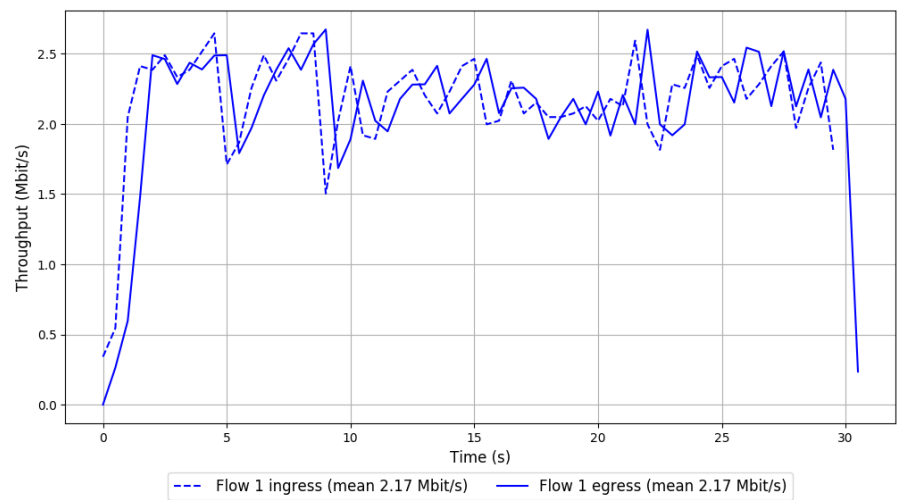
-- Flow 1:

Average throughput: 2.17 Mbit/s

95th percentile per-packet one-way delay: 149.673 ms

Loss rate: 0.04%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-06-18 07:56:00

End at: 2018-06-18 07:56:30

Local clock offset: 1.71 ms

Remote clock offset: 9.691 ms

Below is generated by plot.py at 2018-06-18 08:31:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.09 Mbit/s

95th percentile per-packet one-way delay: 184.967 ms

Loss rate: 0.31%

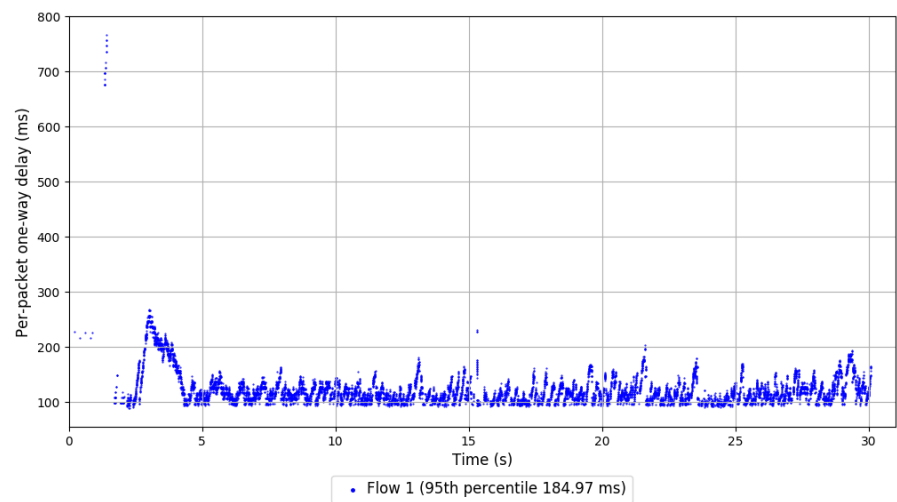
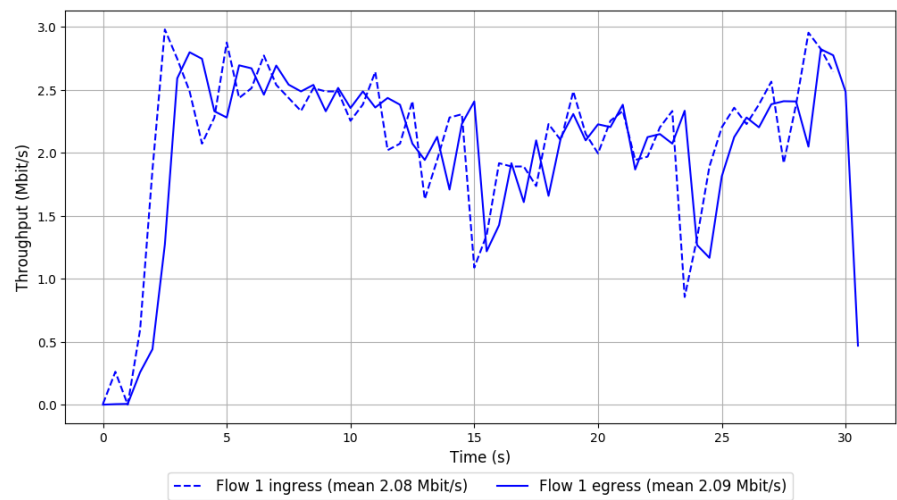
-- Flow 1:

Average throughput: 2.09 Mbit/s

95th percentile per-packet one-way delay: 184.967 ms

Loss rate: 0.31%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-06-18 08:14:01

End at: 2018-06-18 08:14:31

Local clock offset: 5.27 ms

Remote clock offset: 9.198 ms

Below is generated by plot.py at 2018-06-18 08:31:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.83 Mbit/s

95th percentile per-packet one-way delay: 232.808 ms

Loss rate: 0.07%

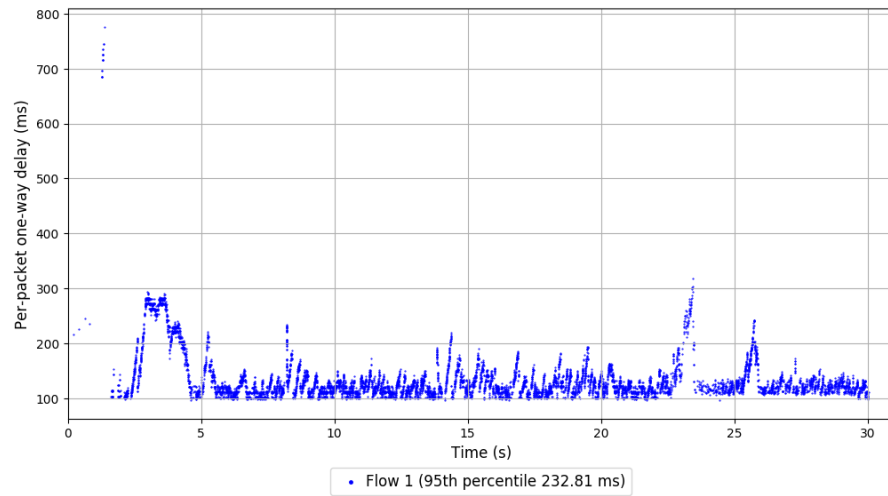
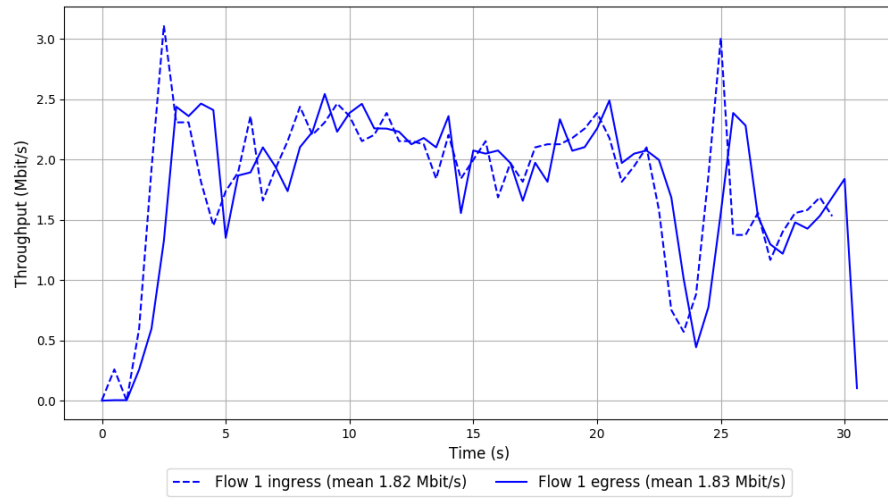
-- Flow 1:

Average throughput: 1.83 Mbit/s

95th percentile per-packet one-way delay: 232.808 ms

Loss rate: 0.07%

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-06-18 07:41:22

End at: 2018-06-18 07:41:52

Local clock offset: -0.189 ms

Remote clock offset: 4.427 ms

Below is generated by plot.py at 2018-06-18 08:31:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.56 Mbit/s

95th percentile per-packet one-way delay: 2841.055 ms

Loss rate: 11.94%

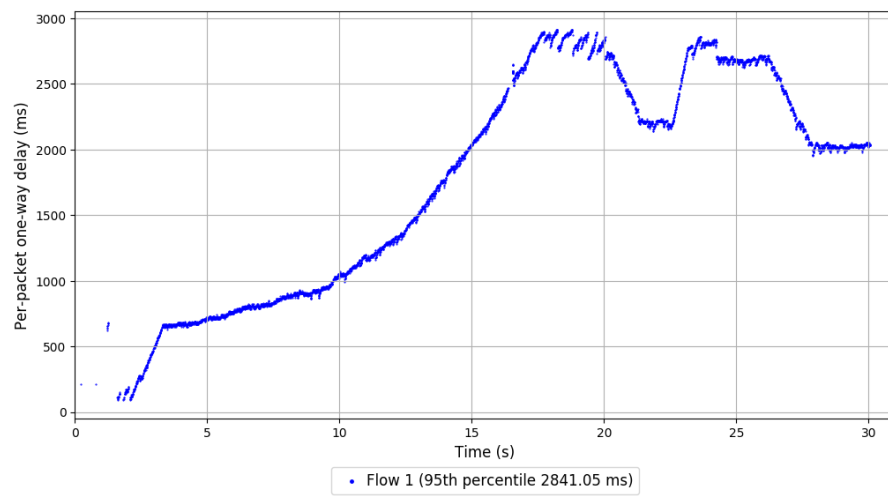
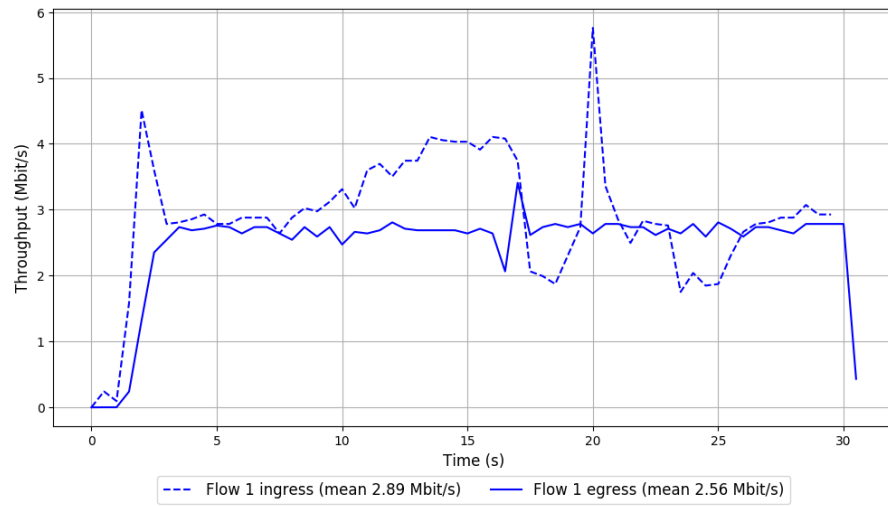
-- Flow 1:

Average throughput: 2.56 Mbit/s

95th percentile per-packet one-way delay: 2841.055 ms

Loss rate: 11.94%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-06-18 07:59:23

End at: 2018-06-18 07:59:53

Local clock offset: 2.337 ms

Remote clock offset: 8.798 ms

Below is generated by plot.py at 2018-06-18 08:31:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.64 Mbit/s

95th percentile per-packet one-way delay: 2706.611 ms

Loss rate: 12.21%

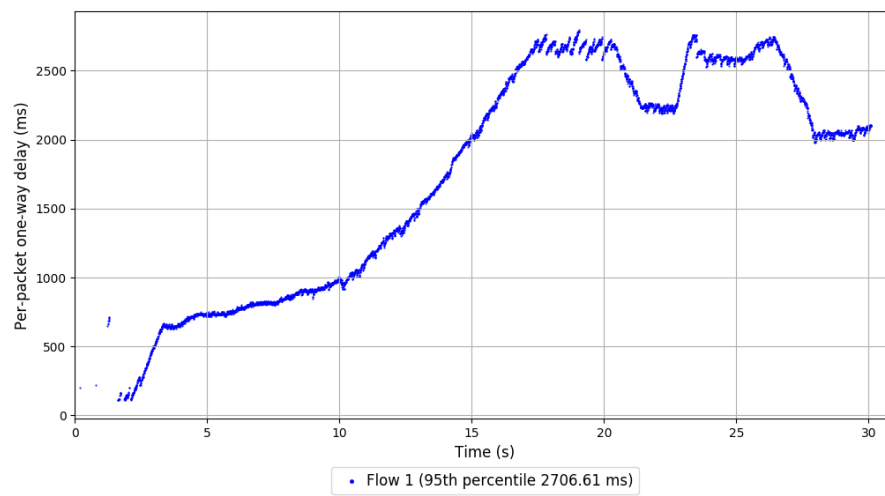
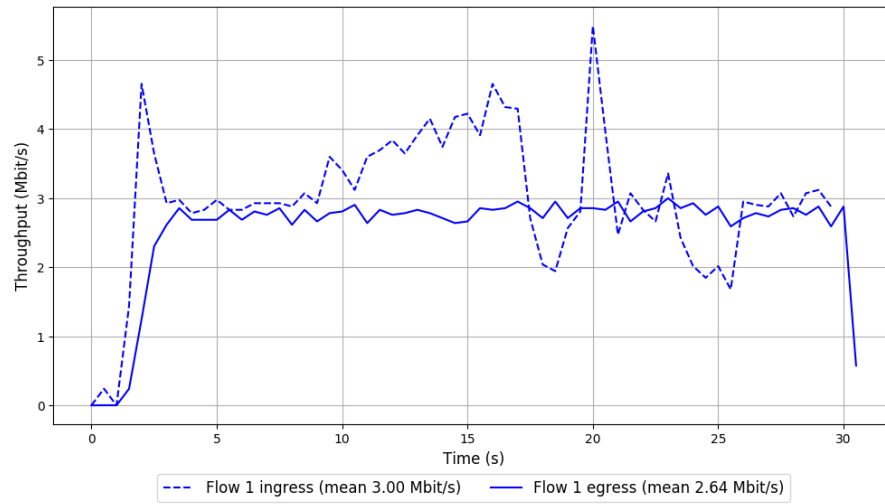
-- Flow 1:

Average throughput: 2.64 Mbit/s

95th percentile per-packet one-way delay: 2706.611 ms

Loss rate: 12.21%

Run 2: Report of TCP Cubic — Data Link

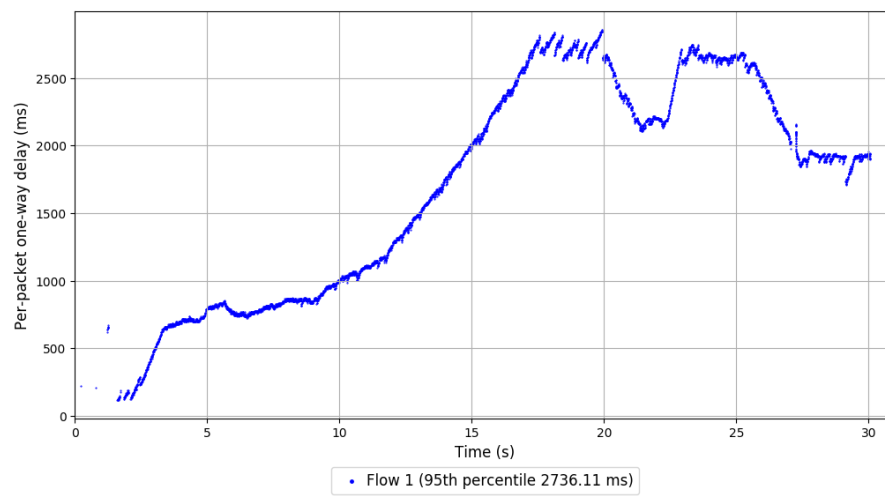
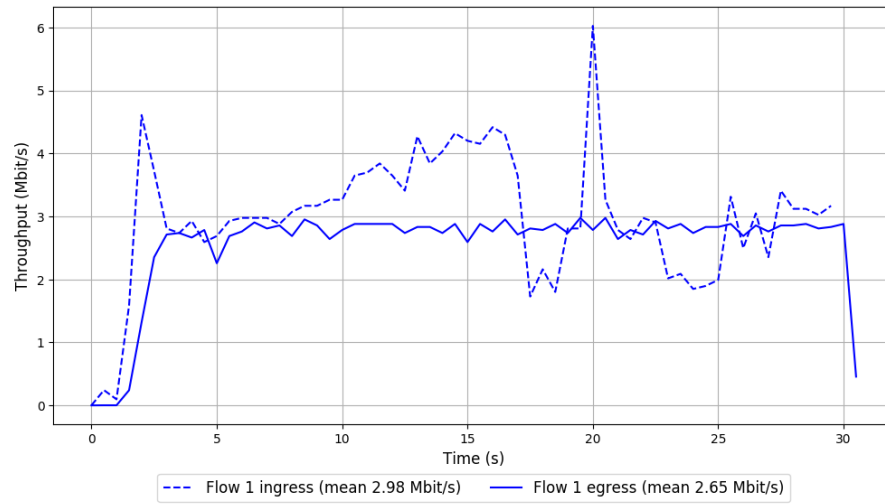


Run 3: Statistics of TCP Cubic

Start at: 2018-06-18 08:17:25
End at: 2018-06-18 08:17:55
Local clock offset: 5.989 ms
Remote clock offset: 11.335 ms

Below is generated by plot.py at 2018-06-18 08:31:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.65 Mbit/s
95th percentile per-packet one-way delay: 2736.114 ms
Loss rate: 11.51%
-- Flow 1:
Average throughput: 2.65 Mbit/s
95th percentile per-packet one-way delay: 2736.114 ms
Loss rate: 11.51%

Run 3: Report of TCP Cubic — Data Link

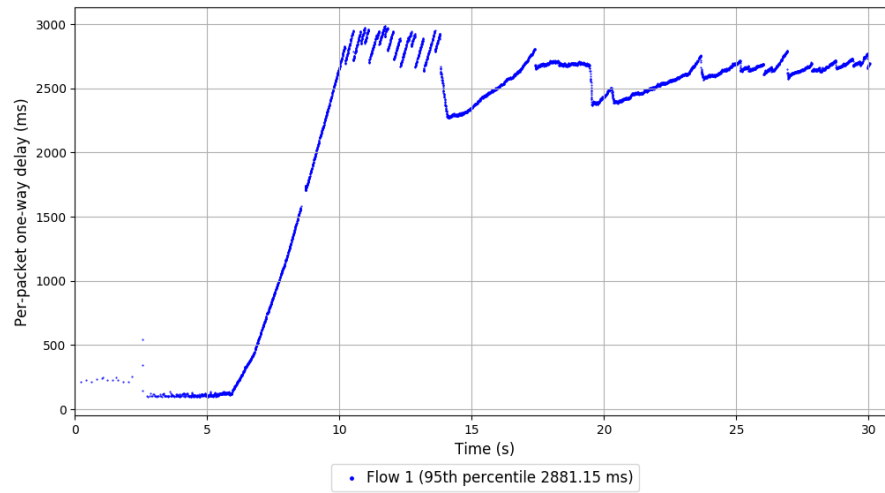
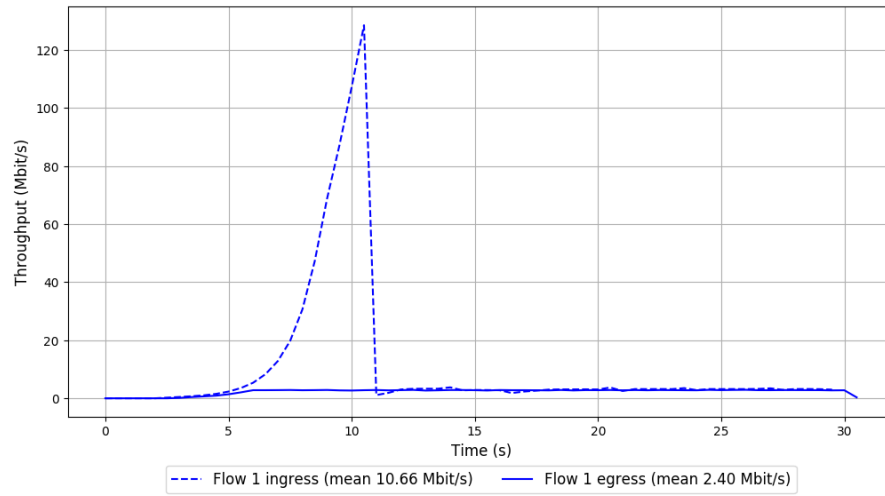


Run 1: Statistics of FillP

Start at: 2018-06-18 07:48:07
End at: 2018-06-18 07:48:37
Local clock offset: 0.438 ms
Remote clock offset: 10.599 ms

Below is generated by plot.py at 2018-06-18 08:31:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 2881.153 ms
Loss rate: 77.55%
-- Flow 1:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 2881.153 ms
Loss rate: 77.55%

Run 1: Report of FillP — Data Link

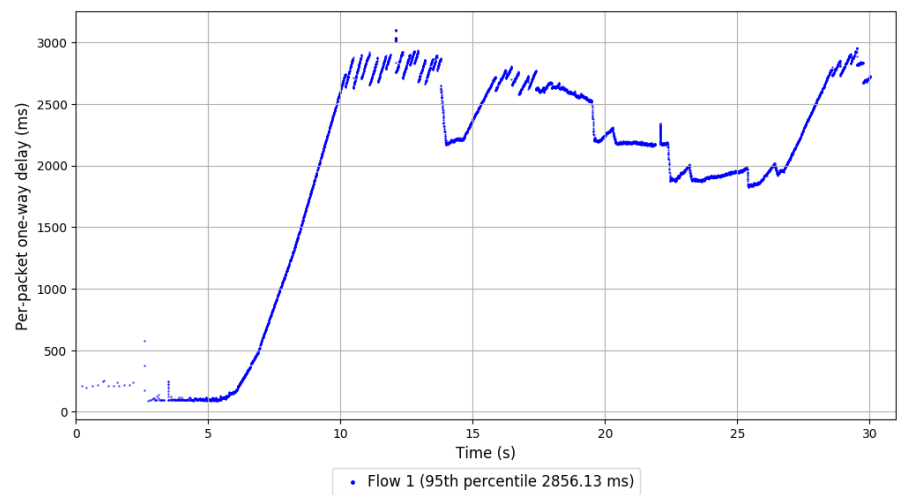
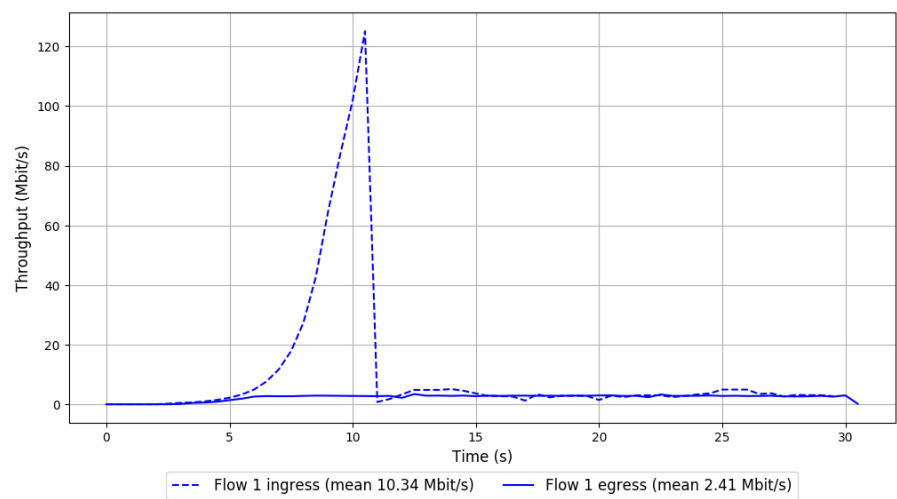


Run 2: Statistics of FillP

Start at: 2018-06-18 08:06:09
End at: 2018-06-18 08:06:39
Local clock offset: 3.676 ms
Remote clock offset: 10.022 ms

Below is generated by plot.py at 2018-06-18 08:31:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 2856.134 ms
Loss rate: 76.75%
-- Flow 1:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 2856.134 ms
Loss rate: 76.75%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-06-18 08:24:10

End at: 2018-06-18 08:24:40

Local clock offset: 7.41 ms

Remote clock offset: 5.322 ms

Below is generated by plot.py at 2018-06-18 08:31:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.44 Mbit/s

95th percentile per-packet one-way delay: 2863.404 ms

Loss rate: 77.12%

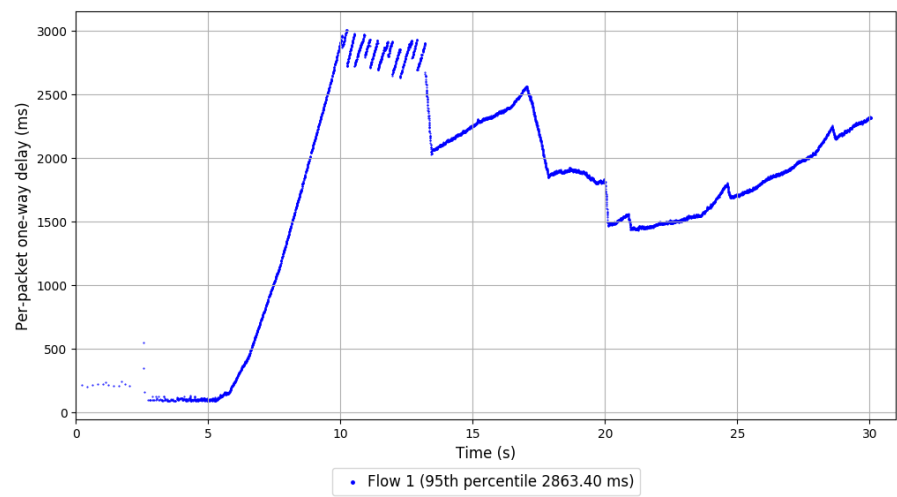
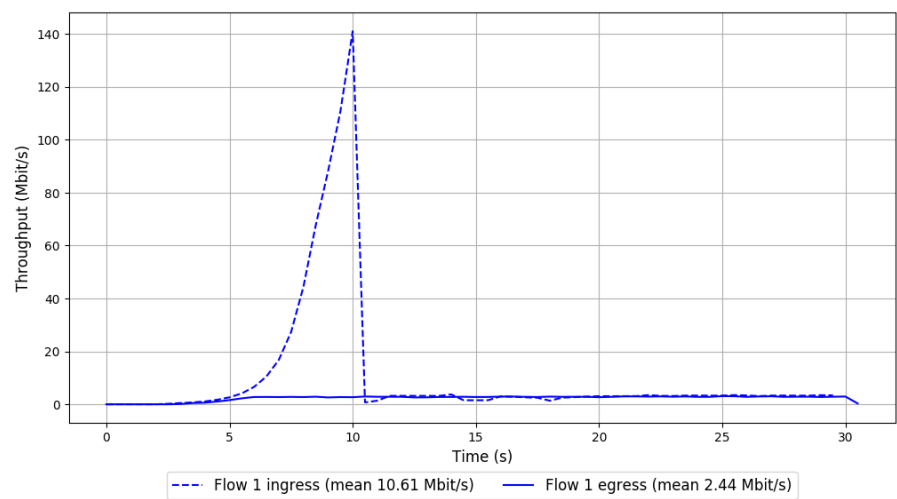
-- Flow 1:

Average throughput: 2.44 Mbit/s

95th percentile per-packet one-way delay: 2863.404 ms

Loss rate: 77.12%

Run 3: Report of FillP — Data Link



Run 1: Statistics of Indigo

Start at: 2018-06-18 07:50:22

End at: 2018-06-18 07:50:52

Local clock offset: 0.77 ms

Remote clock offset: 4.422 ms

Below is generated by plot.py at 2018-06-18 08:31:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.15 Mbit/s

95th percentile per-packet one-way delay: 175.664 ms

Loss rate: 0.17%

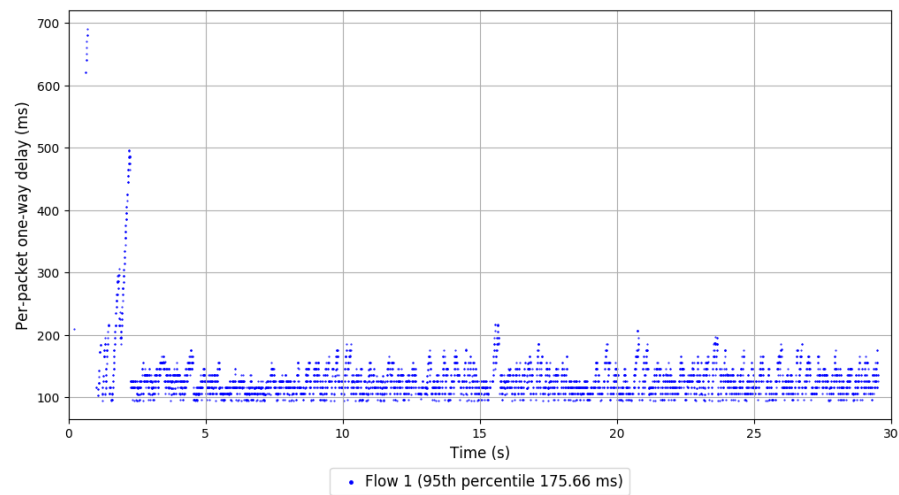
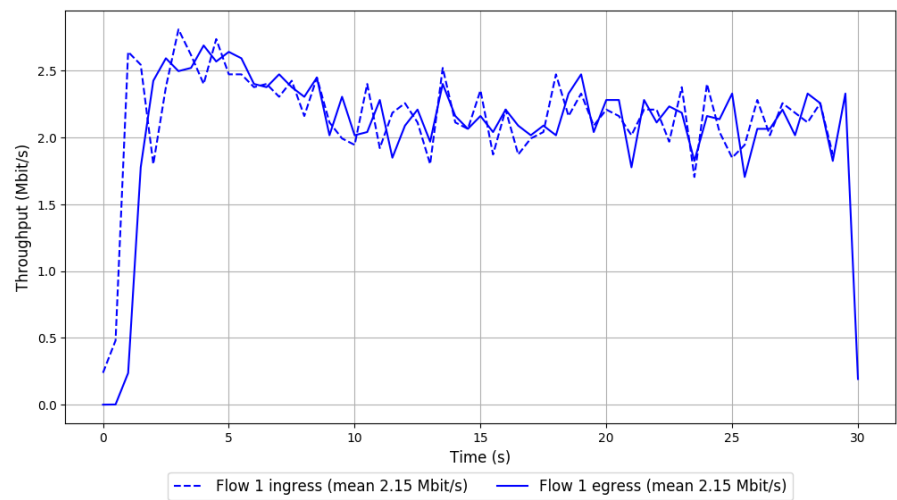
-- Flow 1:

Average throughput: 2.15 Mbit/s

95th percentile per-packet one-way delay: 175.664 ms

Loss rate: 0.17%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-06-18 08:08:23

End at: 2018-06-18 08:08:53

Local clock offset: 4.12 ms

Remote clock offset: 10.097 ms

Below is generated by plot.py at 2018-06-18 08:31:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.98 Mbit/s

95th percentile per-packet one-way delay: 156.868 ms

Loss rate: 0.10%

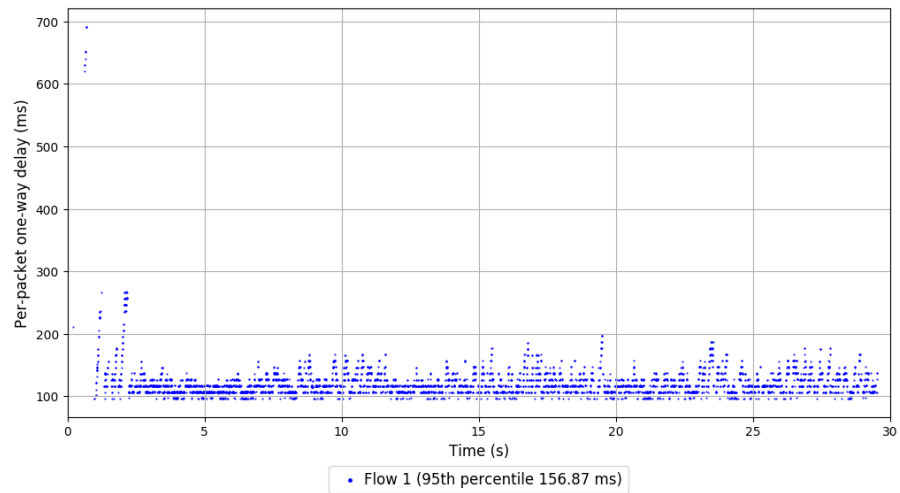
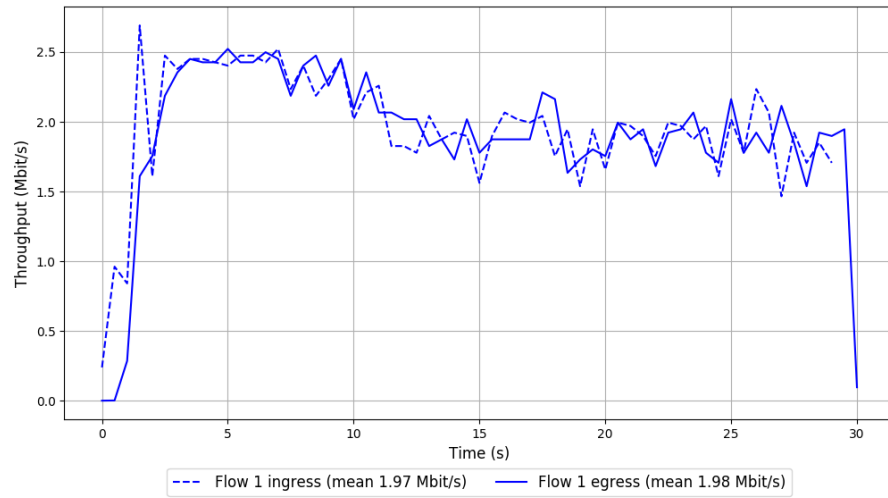
-- Flow 1:

Average throughput: 1.98 Mbit/s

95th percentile per-packet one-way delay: 156.868 ms

Loss rate: 0.10%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-06-18 08:26:25

End at: 2018-06-18 08:26:55

Local clock offset: 7.818 ms

Remote clock offset: 5.478 ms

Below is generated by plot.py at 2018-06-18 08:31:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.97 Mbit/s

95th percentile per-packet one-way delay: 153.632 ms

Loss rate: 0.27%

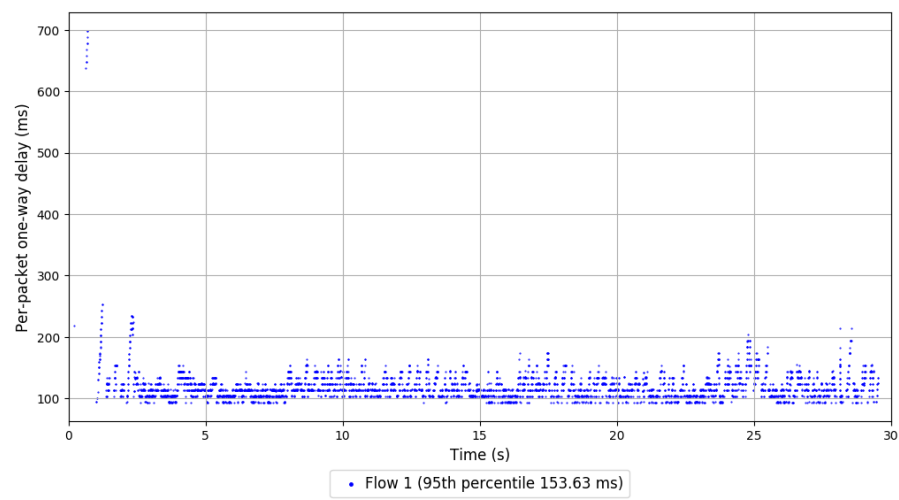
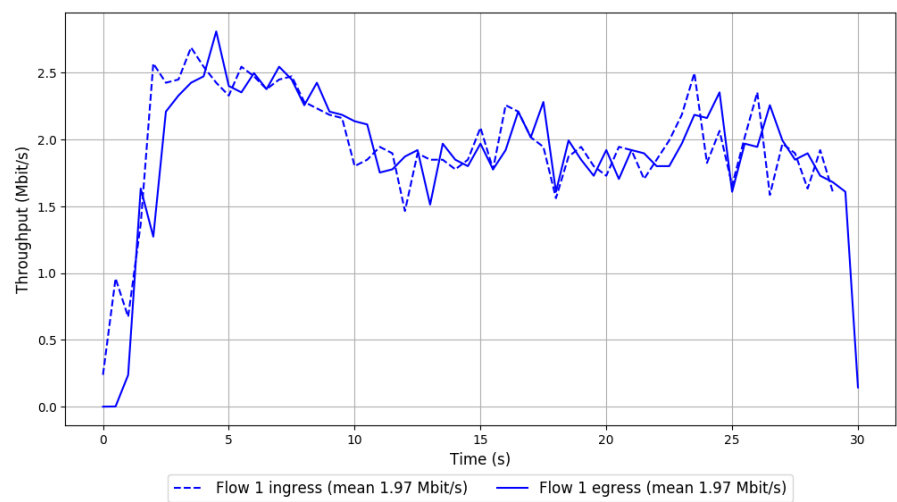
-- Flow 1:

Average throughput: 1.97 Mbit/s

95th percentile per-packet one-way delay: 153.632 ms

Loss rate: 0.27%

Run 3: Report of Indigo — Data Link

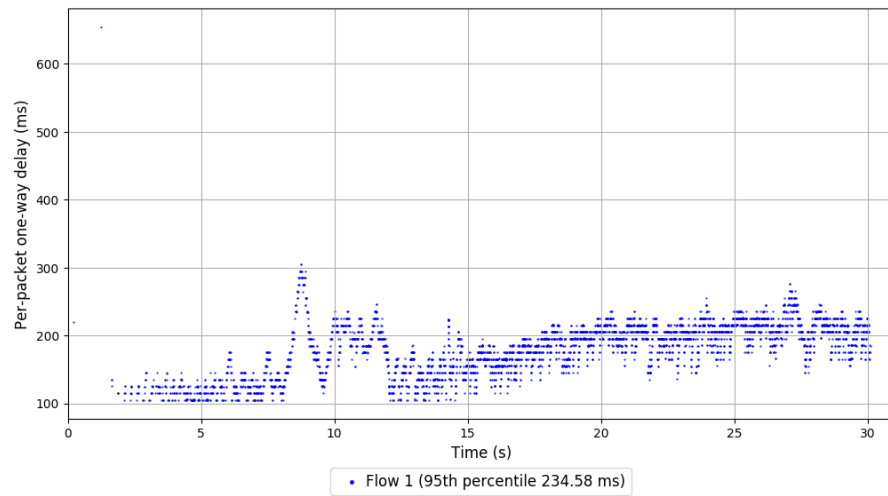
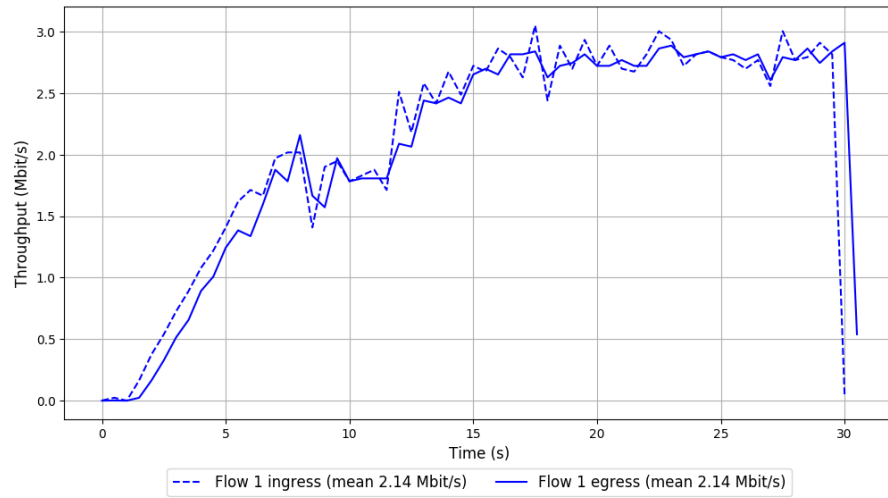


Run 1: Statistics of LEDBAT

Start at: 2018-06-18 07:45:53
End at: 2018-06-18 07:46:23
Local clock offset: 0.106 ms
Remote clock offset: 10.562 ms

Below is generated by plot.py at 2018-06-18 08:31:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 234.578 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 234.578 ms
Loss rate: 0.55%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-06-18 08:03:54

End at: 2018-06-18 08:04:24

Local clock offset: 3.21 ms

Remote clock offset: 5.994 ms

Below is generated by plot.py at 2018-06-18 08:31:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.30 Mbit/s

95th percentile per-packet one-way delay: 224.282 ms

Loss rate: 0.53%

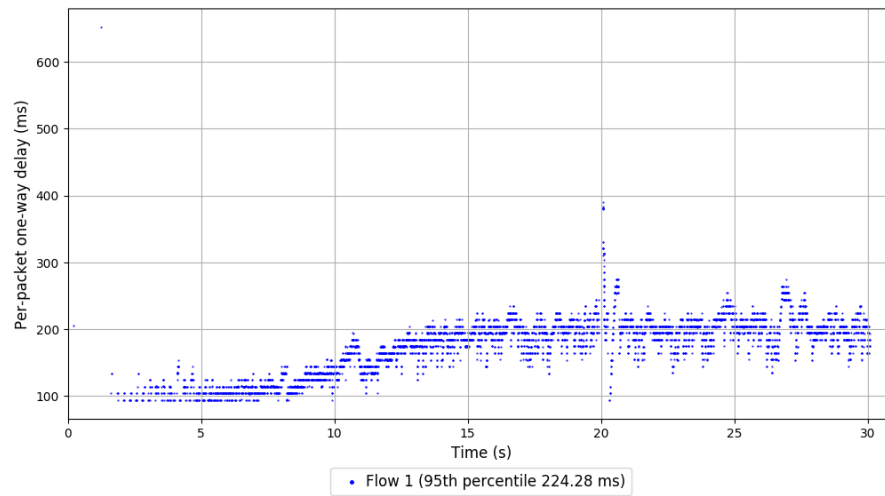
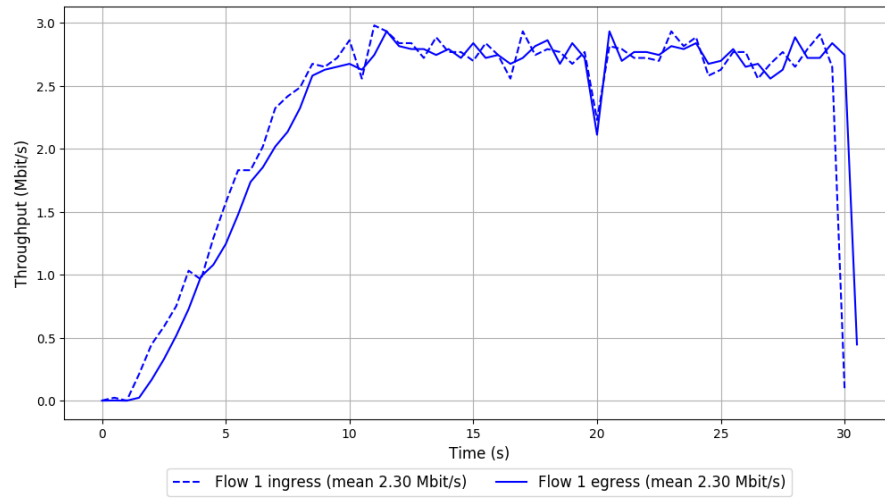
-- Flow 1:

Average throughput: 2.30 Mbit/s

95th percentile per-packet one-way delay: 224.282 ms

Loss rate: 0.53%

Run 2: Report of LEDBAT — Data Link

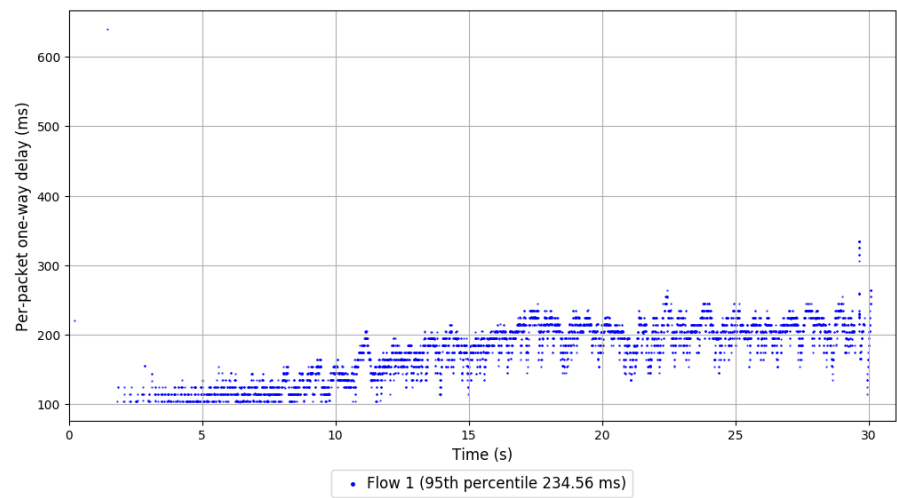
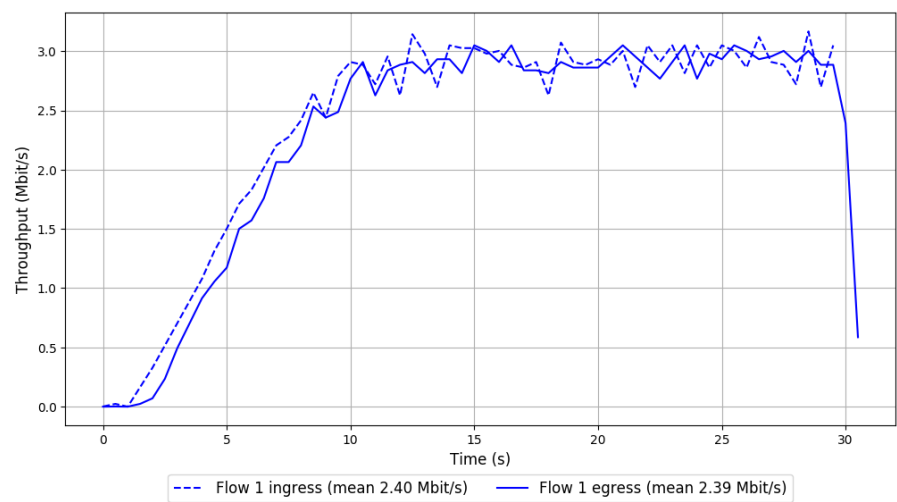


Run 3: Statistics of LEDBAT

Start at: 2018-06-18 08:21:56
End at: 2018-06-18 08:22:26
Local clock offset: 6.966 ms
Remote clock offset: 11.392 ms

Below is generated by plot.py at 2018-06-18 08:31:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 234.565 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 234.565 ms
Loss rate: 0.82%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-06-18 07:42:30

End at: 2018-06-18 07:43:00

Local clock offset: -0.105 ms

Remote clock offset: 4.466 ms

Below is generated by plot.py at 2018-06-18 08:31:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.17 Mbit/s

95th percentile per-packet one-way delay: 2481.838 ms

Loss rate: 41.04%

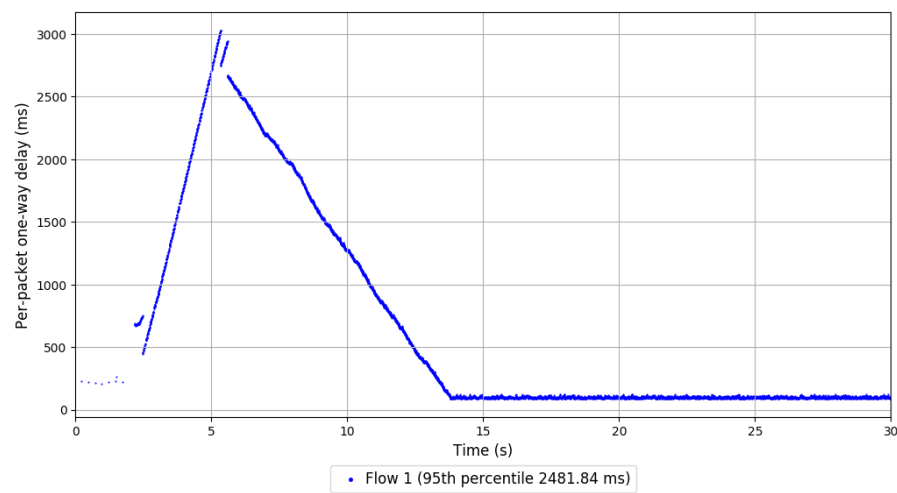
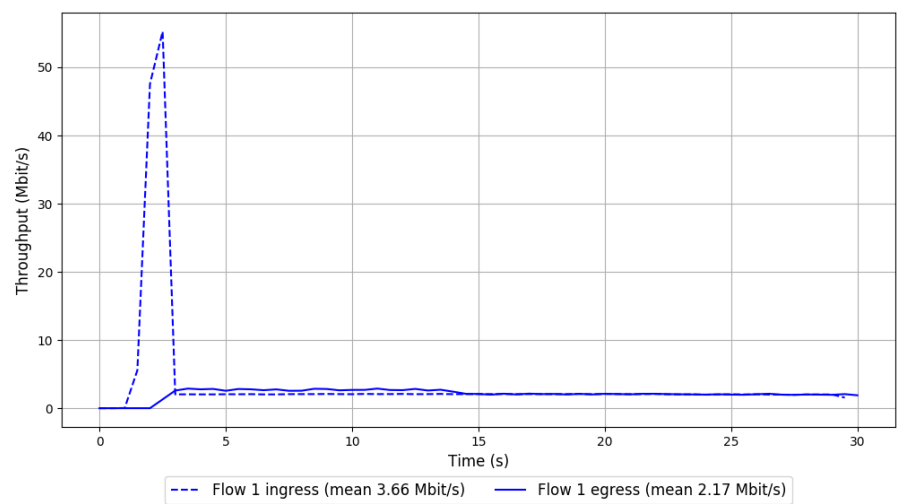
-- Flow 1:

Average throughput: 2.17 Mbit/s

95th percentile per-packet one-way delay: 2481.838 ms

Loss rate: 41.04%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-06-18 08:00:31

End at: 2018-06-18 08:01:01

Local clock offset: 2.57 ms

Remote clock offset: 4.892 ms

Below is generated by plot.py at 2018-06-18 08:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.05 Mbit/s

95th percentile per-packet one-way delay: 3760.346 ms

Loss rate: 59.80%

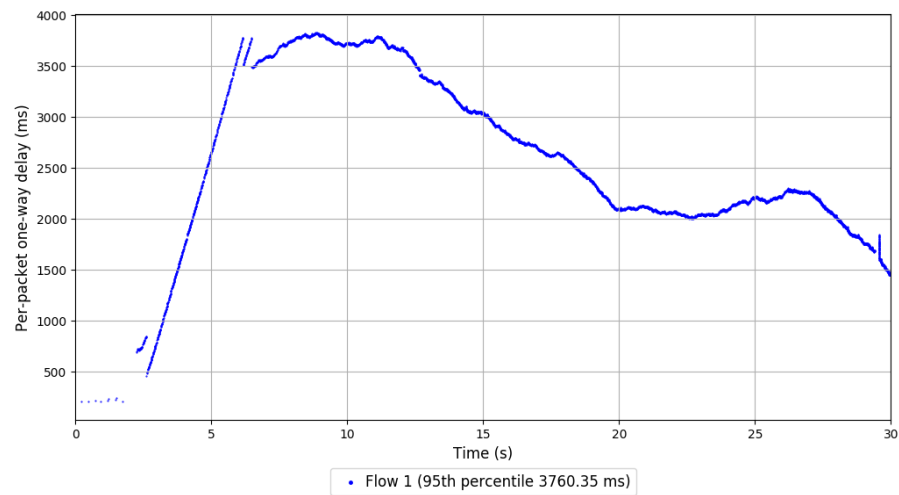
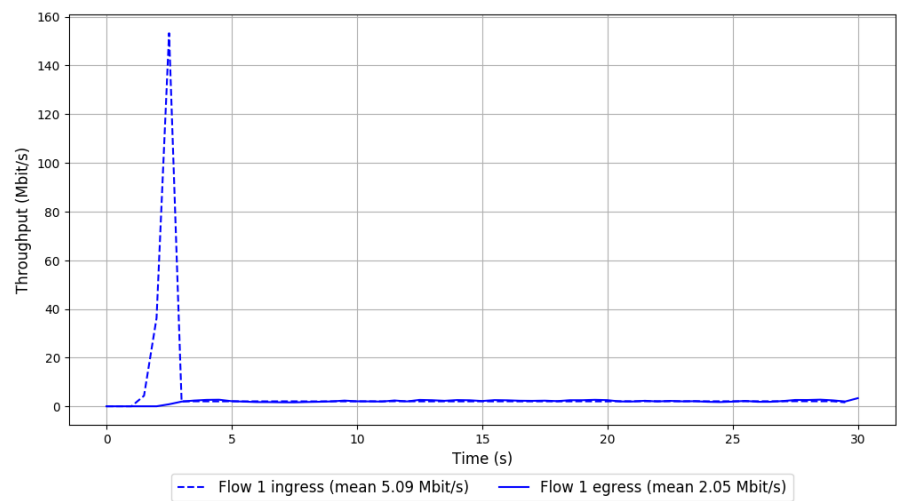
-- Flow 1:

Average throughput: 2.05 Mbit/s

95th percentile per-packet one-way delay: 3760.346 ms

Loss rate: 59.80%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-06-18 08:18:32

End at: 2018-06-18 08:19:02

Local clock offset: 6.226 ms

Remote clock offset: 5.26 ms

Below is generated by plot.py at 2018-06-18 08:31:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.14 Mbit/s

95th percentile per-packet one-way delay: 2281.759 ms

Loss rate: 31.95%

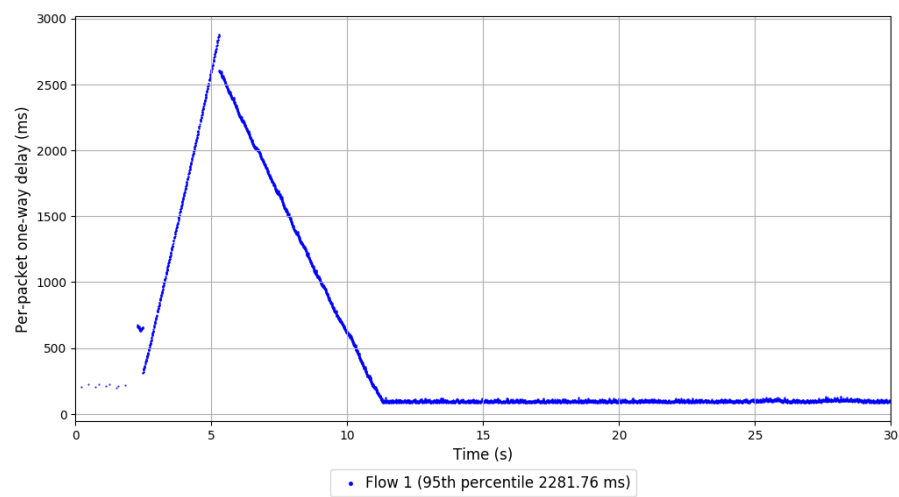
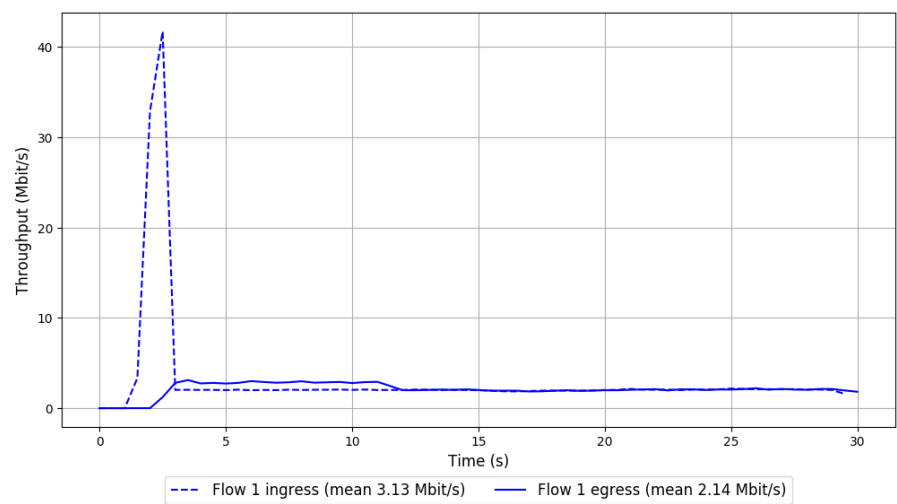
-- Flow 1:

Average throughput: 2.14 Mbit/s

95th percentile per-packet one-way delay: 2281.759 ms

Loss rate: 31.95%

Run 3: Report of PCC-Allegro — Data Link

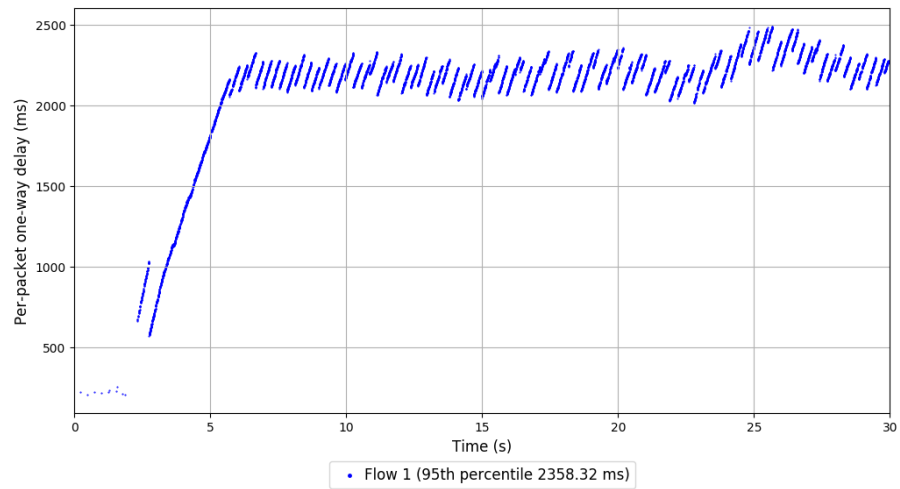
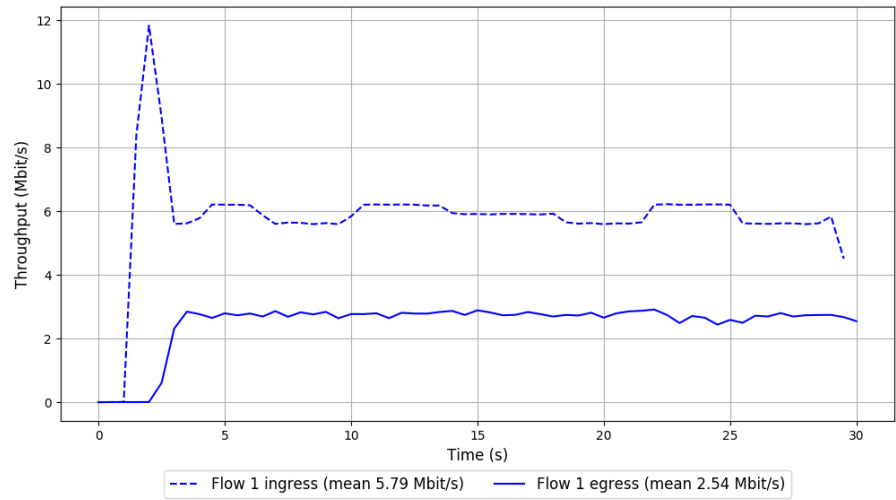


```
Run 1: Statistics of PCC-Expr

Start at: 2018-06-18 07:43:37
End at: 2018-06-18 07:44:07
Local clock offset: -0.033 ms
Remote clock offset: 5.525 ms

# Below is generated by plot.py at 2018-06-18 08:31:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 2358.324 ms
Loss rate: 56.32%
-- Flow 1:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 2358.324 ms
Loss rate: 56.32%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-06-18 08:01:38

End at: 2018-06-18 08:02:08

Local clock offset: 2.771 ms

Remote clock offset: 5.951 ms

Below is generated by plot.py at 2018-06-18 08:32:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 2352.786 ms

Loss rate: 56.22%

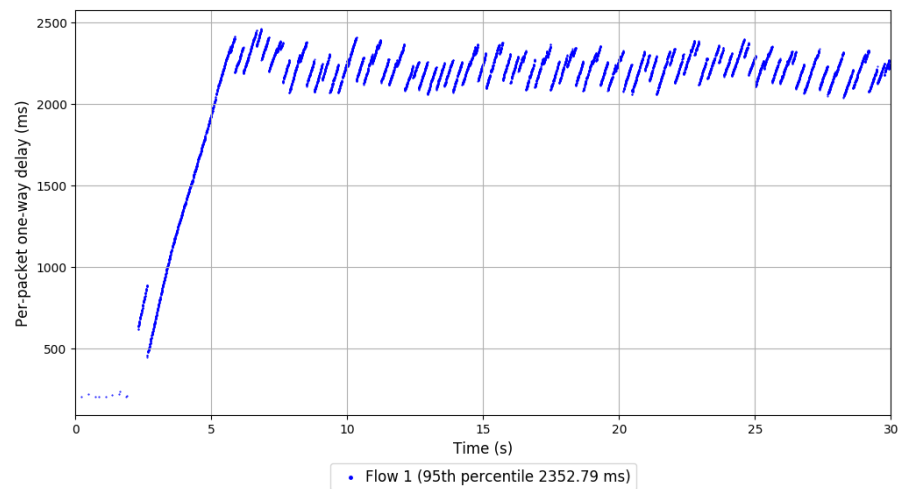
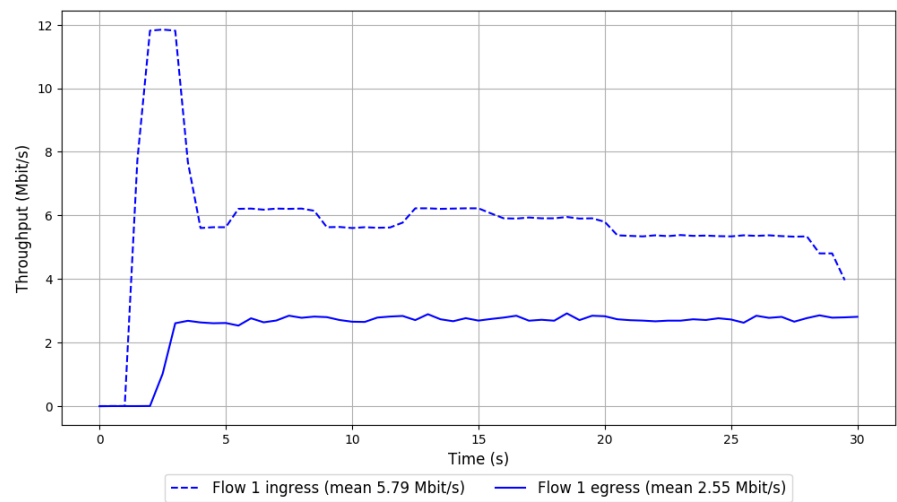
-- Flow 1:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 2352.786 ms

Loss rate: 56.22%

Run 2: Report of PCC-Expr — Data Link

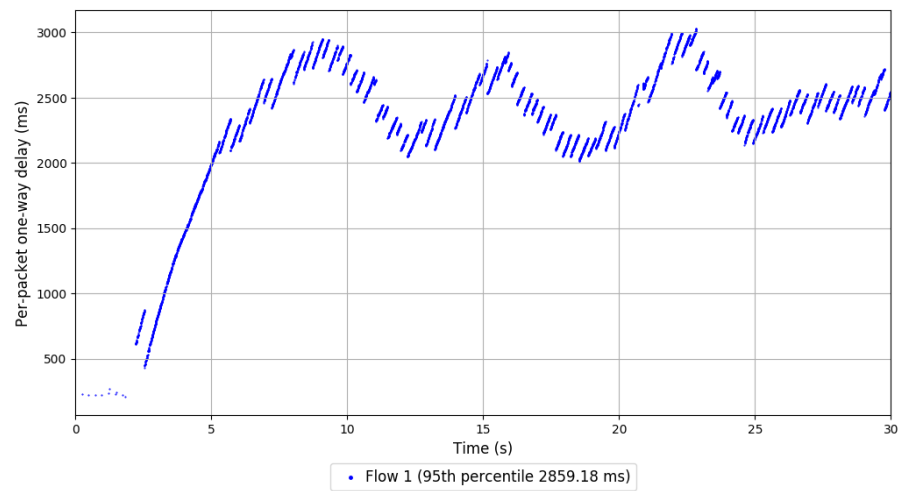
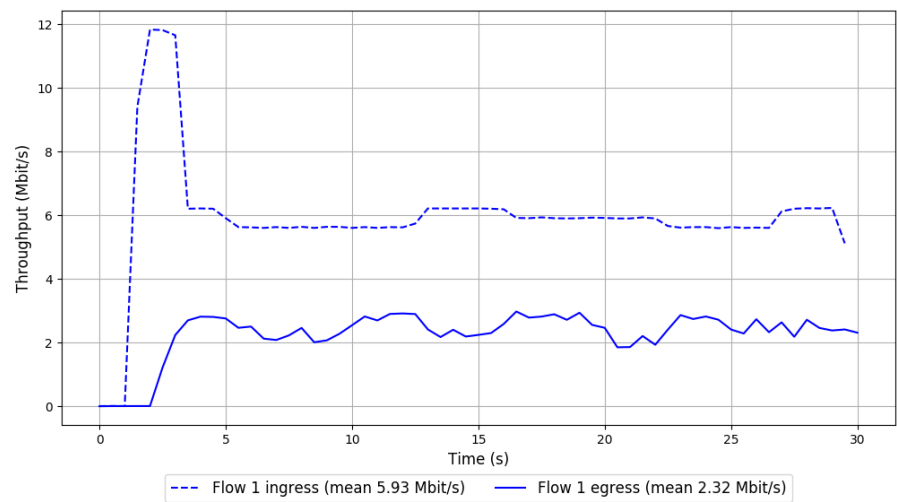


Run 3: Statistics of PCC-Expr

Start at: 2018-06-18 08:19:40
End at: 2018-06-18 08:20:10
Local clock offset: 6.495 ms
Remote clock offset: 10.385 ms

Below is generated by plot.py at 2018-06-18 08:32:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 2859.182 ms
Loss rate: 61.04%
-- Flow 1:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 2859.182 ms
Loss rate: 61.04%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

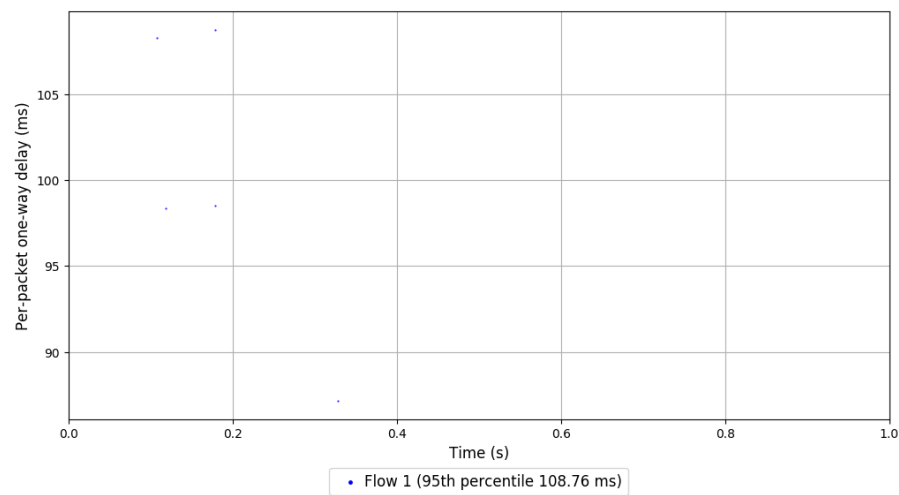
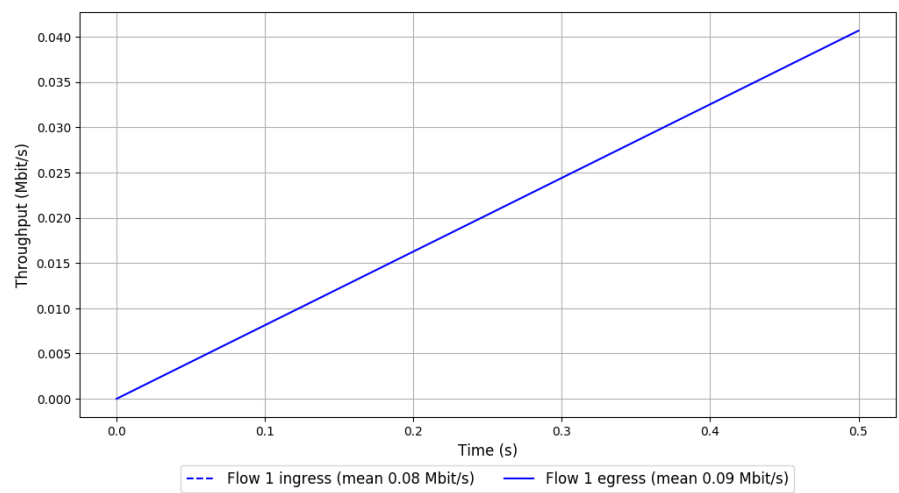
Start at: 2018-06-18 07:54:53

End at: 2018-06-18 07:55:23

Local clock offset: 1.526 ms

Remote clock offset: 4.597 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-06-18 08:12:54

End at: 2018-06-18 08:13:24

Local clock offset: 5.092 ms

Remote clock offset: 5.089 ms

Below is generated by plot.py at 2018-06-18 08:32:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.70 Mbit/s

95th percentile per-packet one-way delay: 1033.746 ms

Loss rate: 3.47%

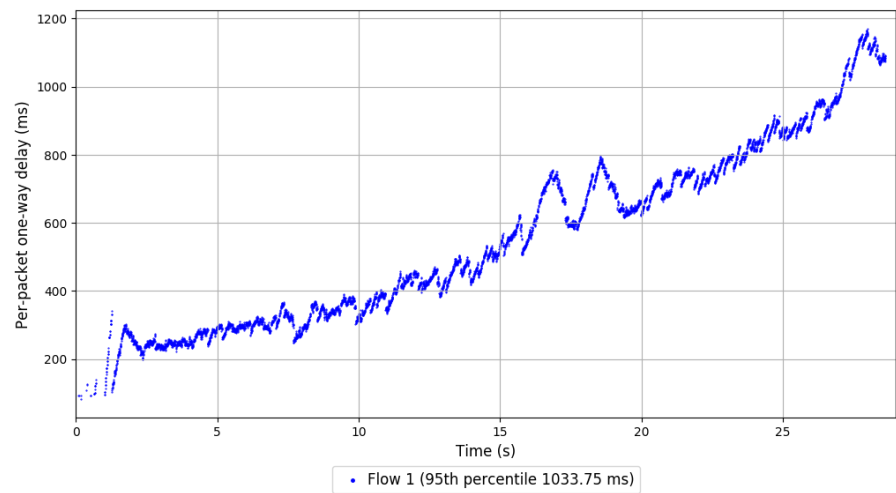
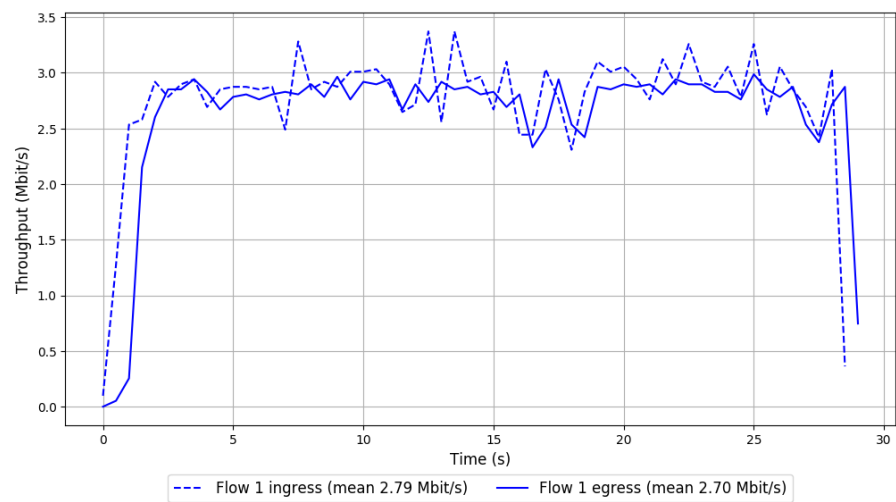
-- Flow 1:

Average throughput: 2.70 Mbit/s

95th percentile per-packet one-way delay: 1033.746 ms

Loss rate: 3.47%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-06-18 08:30:56

End at: 2018-06-18 08:31:26

Local clock offset: 8.858 ms

Remote clock offset: 9.188 ms

Below is generated by plot.py at 2018-06-18 08:32:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.27 Mbit/s

95th percentile per-packet one-way delay: 1369.350 ms

Loss rate: 4.92%

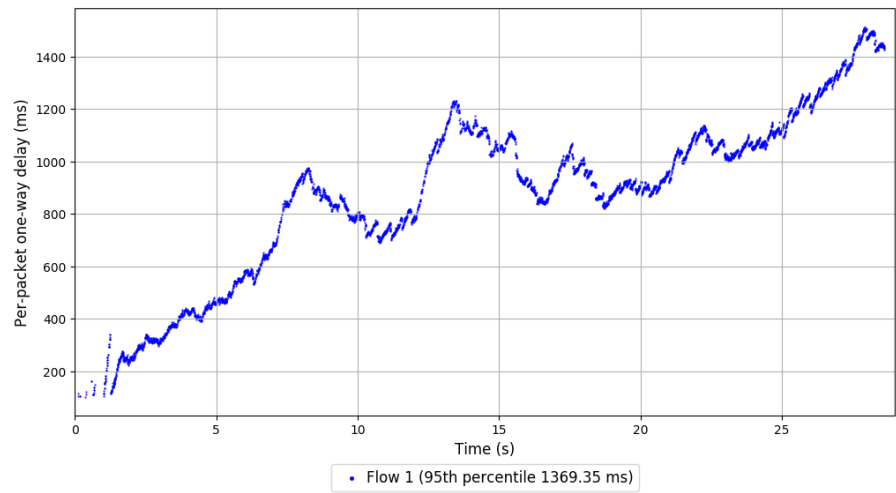
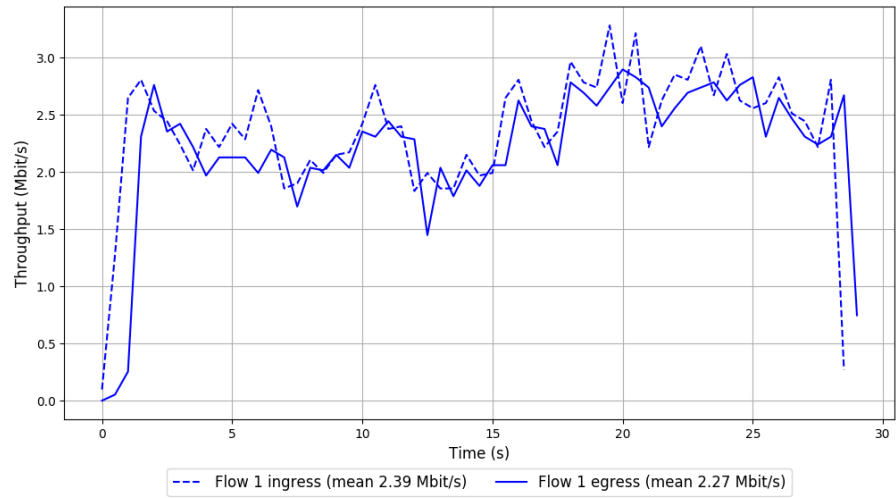
-- Flow 1:

Average throughput: 2.27 Mbit/s

95th percentile per-packet one-way delay: 1369.350 ms

Loss rate: 4.92%

Run 3: Report of QUIC Cubic — Data Link



Run 1: Statistics of SCReAM

Start at: 2018-06-18 07:49:15

End at: 2018-06-18 07:49:45

Local clock offset: 0.515 ms

Remote clock offset: 5.514 ms

Below is generated by plot.py at 2018-06-18 08:32:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 102.991 ms

Loss rate: 0.13%

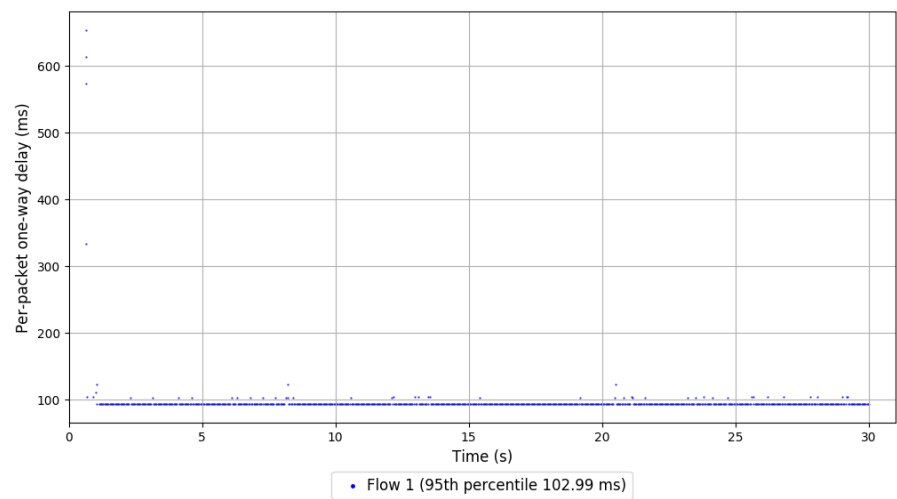
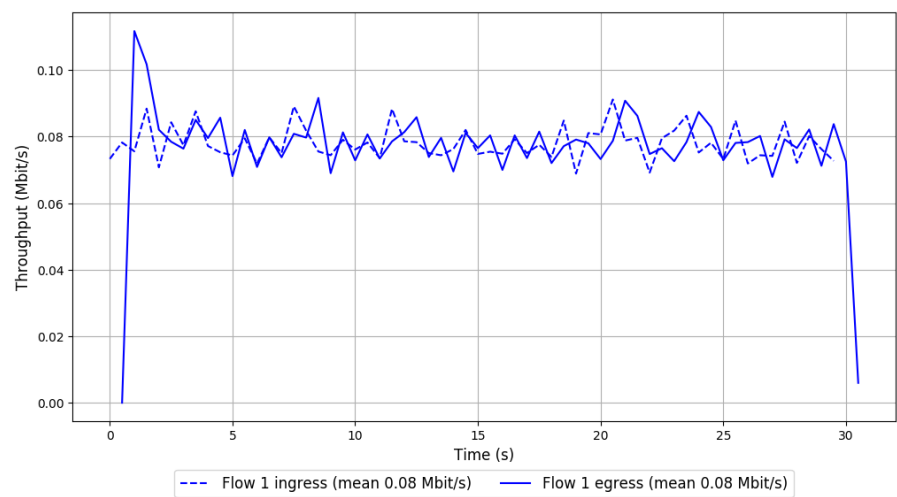
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 102.991 ms

Loss rate: 0.13%

Run 1: Report of SReAM — Data Link

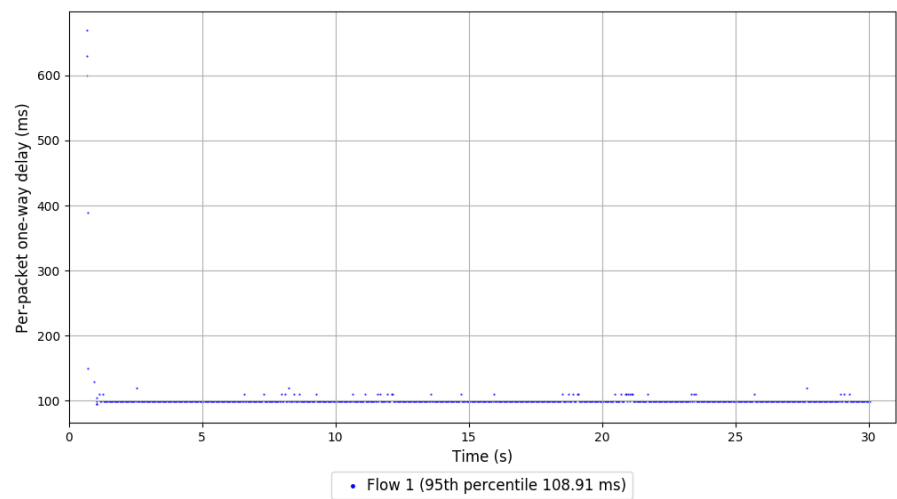
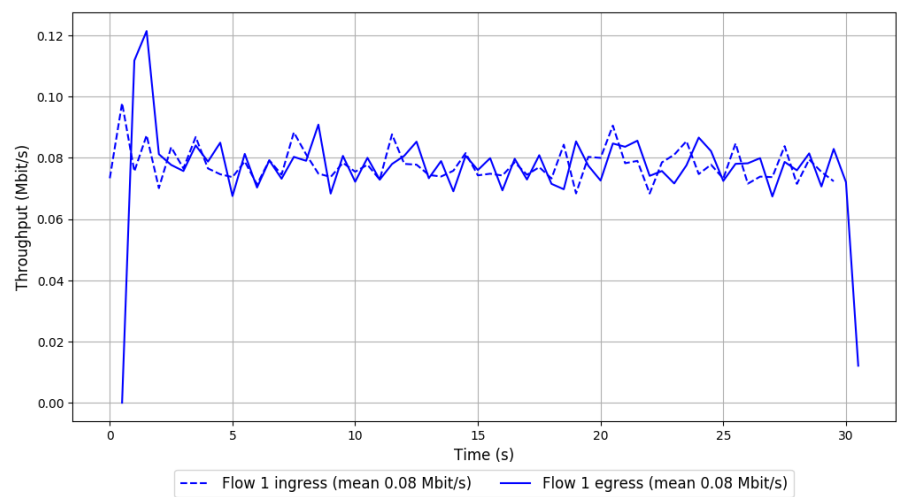


Run 2: Statistics of SCReAM

Start at: 2018-06-18 08:07:16
End at: 2018-06-18 08:07:46
Local clock offset: 3.906 ms
Remote clock offset: 10.054 ms

Below is generated by plot.py at 2018-06-18 08:32:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 108.913 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 108.913 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-06-18 08:25:18

End at: 2018-06-18 08:25:48

Local clock offset: 7.587 ms

Remote clock offset: 6.346 ms

Below is generated by plot.py at 2018-06-18 08:32:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 104.763 ms

Loss rate: 0.13%

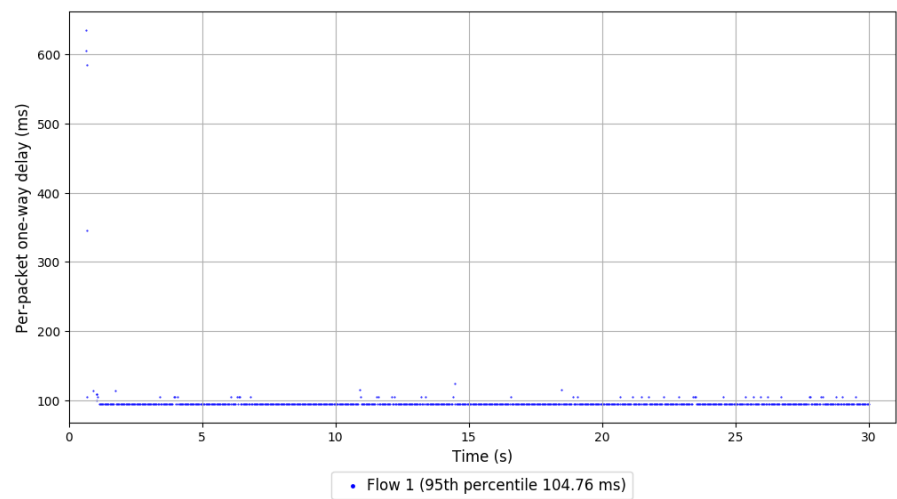
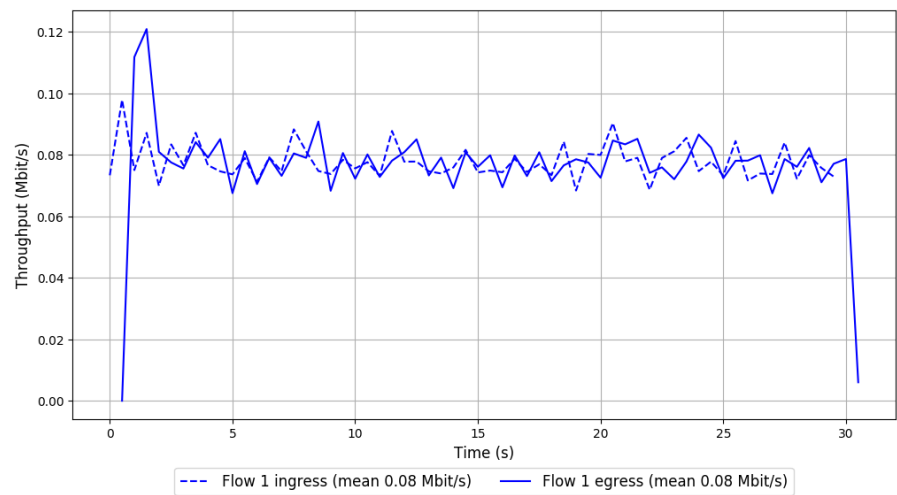
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 104.763 ms

Loss rate: 0.13%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-06-18 07:47:00

End at: 2018-06-18 07:47:30

Local clock offset: 0.283 ms

Remote clock offset: 8.314 ms

Below is generated by plot.py at 2018-06-18 08:32:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 139.795 ms

Loss rate: 0.00%

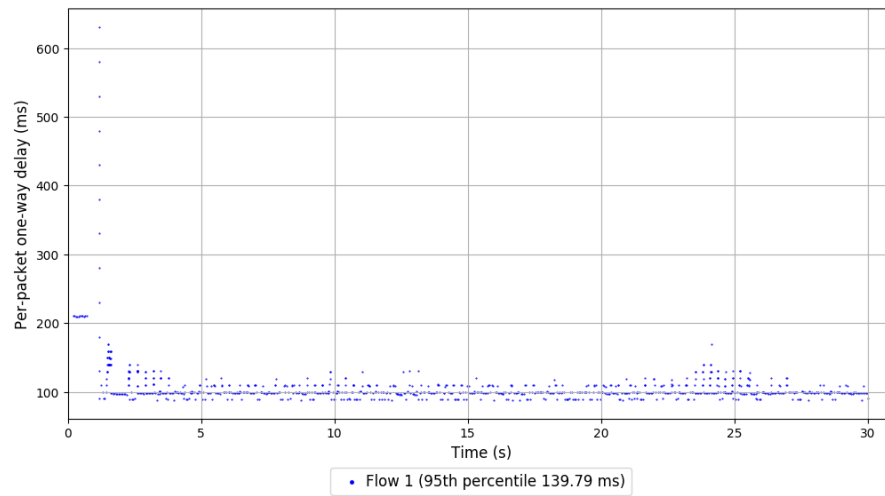
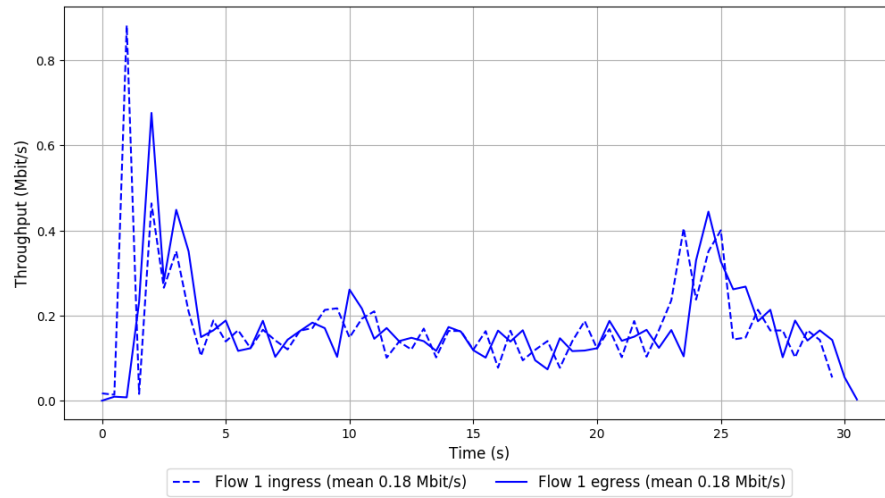
-- Flow 1:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 139.795 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

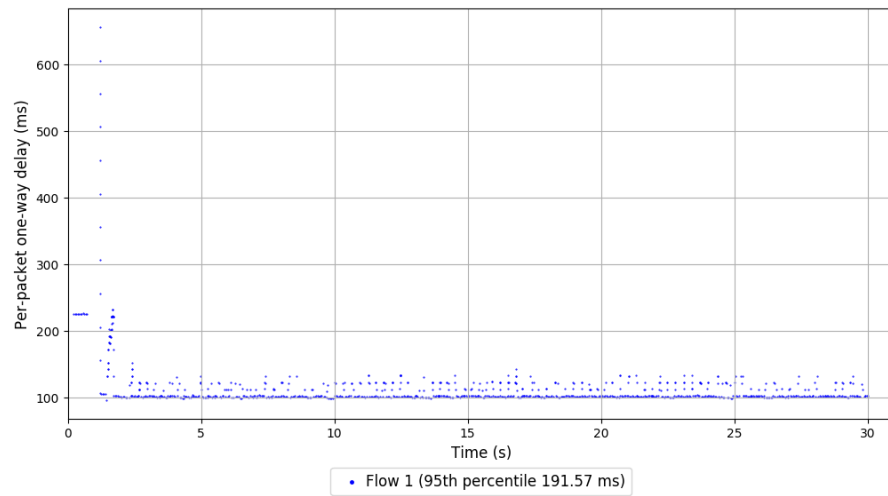
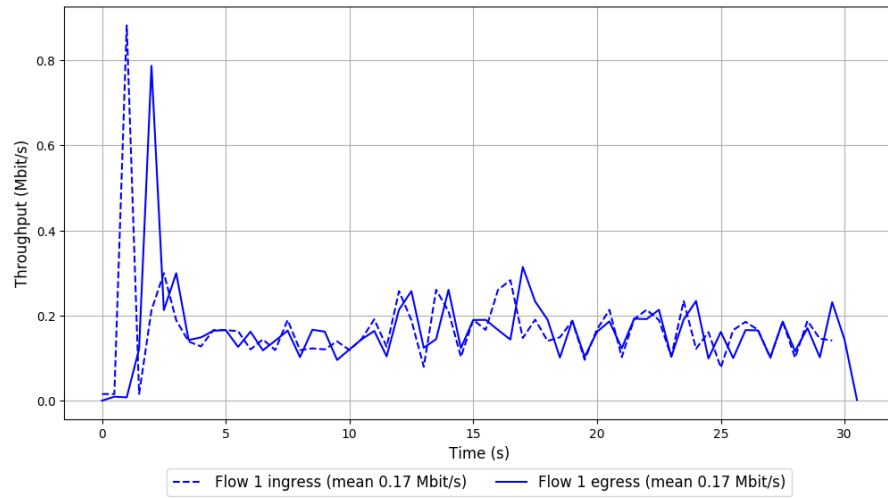


Run 2: Statistics of Sprout

Start at: 2018-06-18 08:05:01
End at: 2018-06-18 08:05:31
Local clock offset: 3.393 ms
Remote clock offset: 11.197 ms

Below is generated by plot.py at 2018-06-18 08:32:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 191.575 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 191.575 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-06-18 08:23:03

End at: 2018-06-18 08:23:33

Local clock offset: 7.155 ms

Remote clock offset: 6.355 ms

Below is generated by plot.py at 2018-06-18 08:32:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 176.648 ms

Loss rate: 0.00%

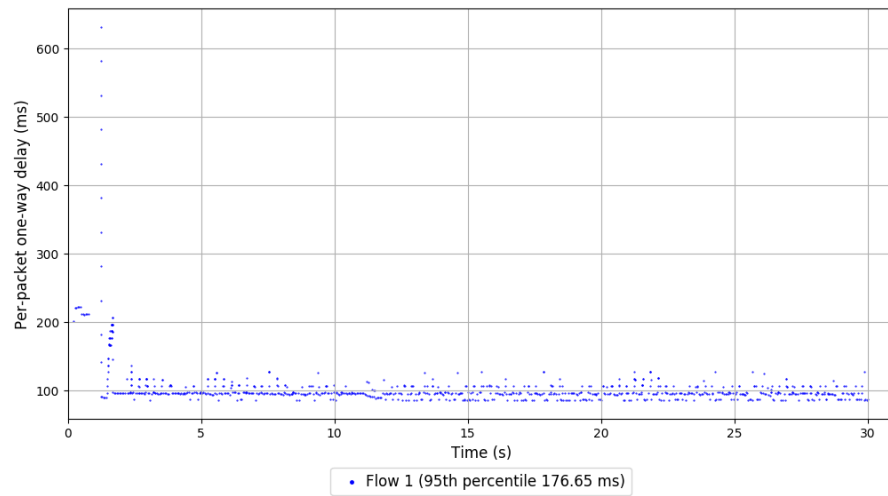
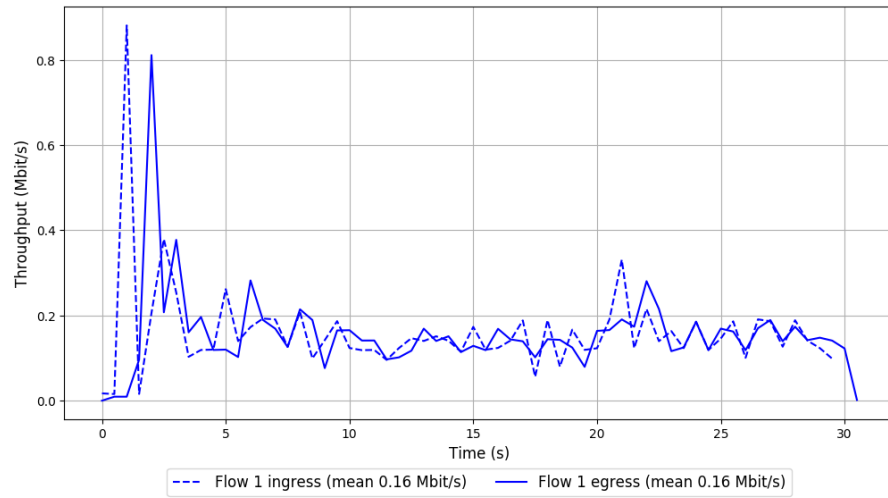
-- Flow 1:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 176.648 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-06-18 07:52:38

End at: 2018-06-18 07:53:08

Local clock offset: 1.143 ms

Remote clock offset: 5.64 ms

Below is generated by plot.py at 2018-06-18 08:32:02

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.19 Mbit/s

95th percentile per-packet one-way delay: 207.614 ms

Loss rate: 0.18%

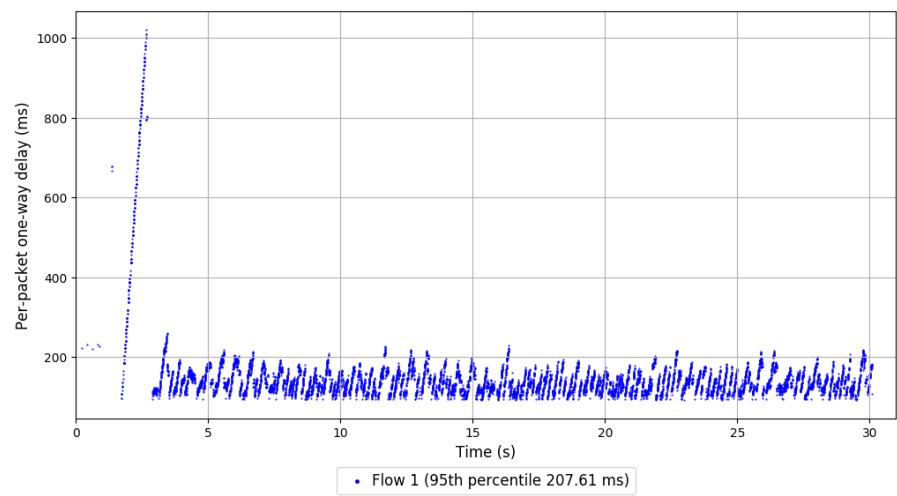
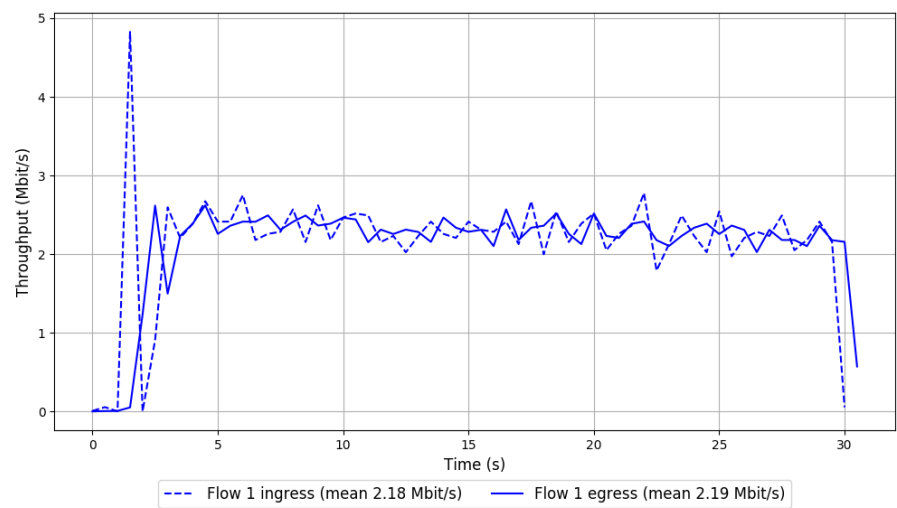
-- Flow 1:

Average throughput: 2.19 Mbit/s

95th percentile per-packet one-way delay: 207.614 ms

Loss rate: 0.18%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-06-18 08:10:39

End at: 2018-06-18 08:11:09

Local clock offset: 4.53 ms

Remote clock offset: 10.13 ms

Below is generated by plot.py at 2018-06-18 08:32:02

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.06 Mbit/s

95th percentile per-packet one-way delay: 295.281 ms

Loss rate: 0.10%

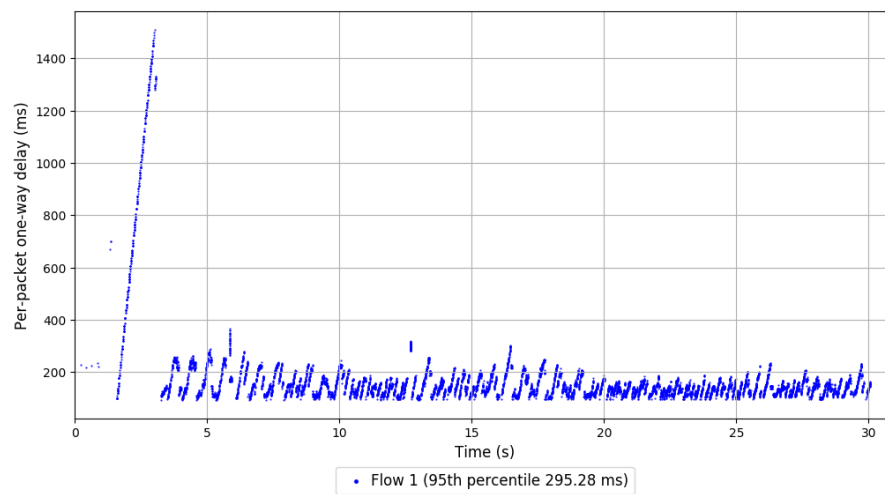
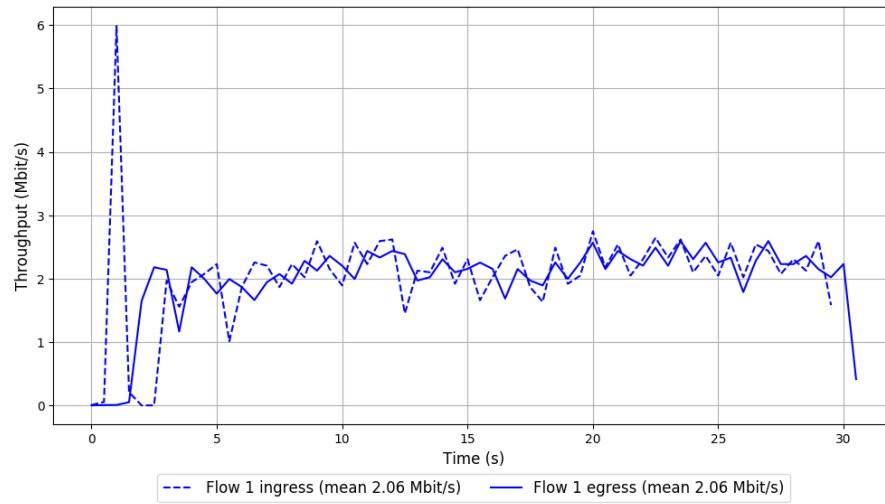
-- Flow 1:

Average throughput: 2.06 Mbit/s

95th percentile per-packet one-way delay: 295.281 ms

Loss rate: 0.10%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-06-18 08:28:40

End at: 2018-06-18 08:29:10

Local clock offset: 8.373 ms

Remote clock offset: 5.196 ms

Below is generated by plot.py at 2018-06-18 08:32:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.29 Mbit/s

95th percentile per-packet one-way delay: 196.230 ms

Loss rate: 0.00%

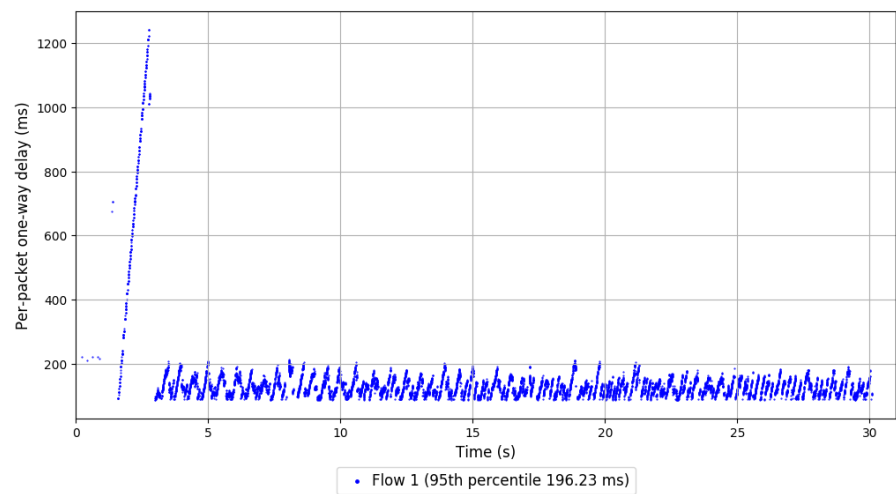
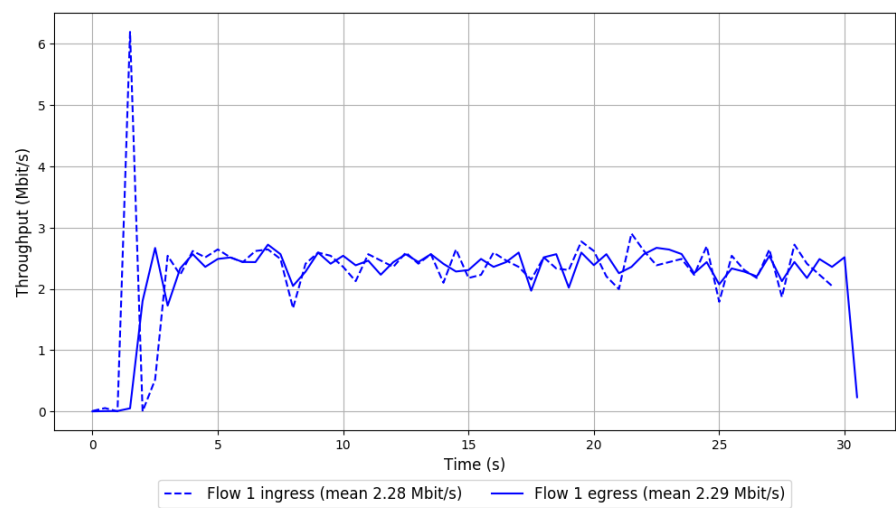
-- Flow 1:

Average throughput: 2.29 Mbit/s

95th percentile per-packet one-way delay: 196.230 ms

Loss rate: 0.00%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-06-18 07:44:45

End at: 2018-06-18 07:45:15

Local clock offset: 0.067 ms

Remote clock offset: 4.482 ms

Below is generated by plot.py at 2018-06-18 08:32:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.42 Mbit/s

95th percentile per-packet one-way delay: 636.796 ms

Loss rate: 1.10%

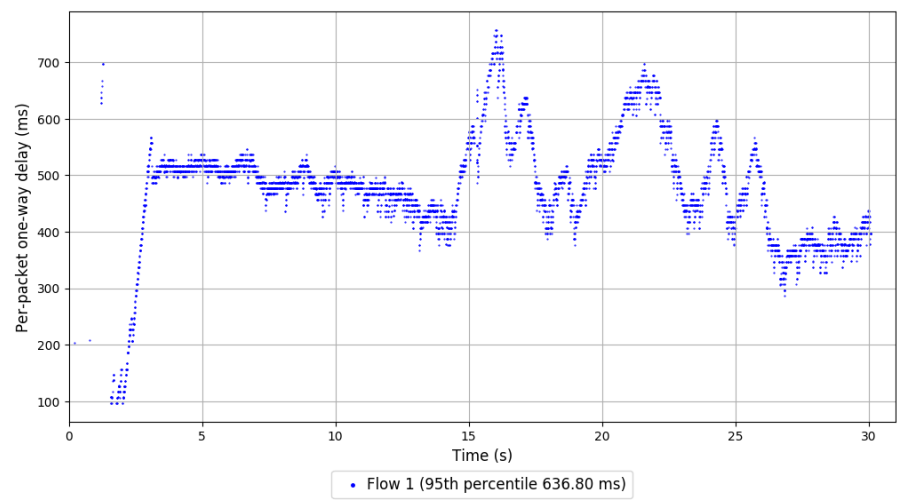
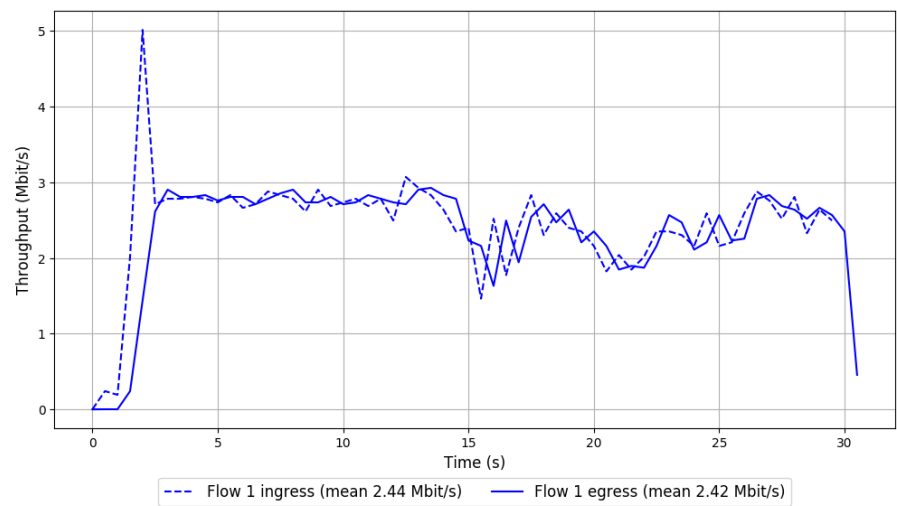
-- Flow 1:

Average throughput: 2.42 Mbit/s

95th percentile per-packet one-way delay: 636.796 ms

Loss rate: 1.10%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-06-18 08:02:46

End at: 2018-06-18 08:03:16

Local clock offset: 3.015 ms

Remote clock offset: 4.914 ms

Below is generated by plot.py at 2018-06-18 08:32:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.71 Mbit/s

95th percentile per-packet one-way delay: 766.041 ms

Loss rate: 1.87%

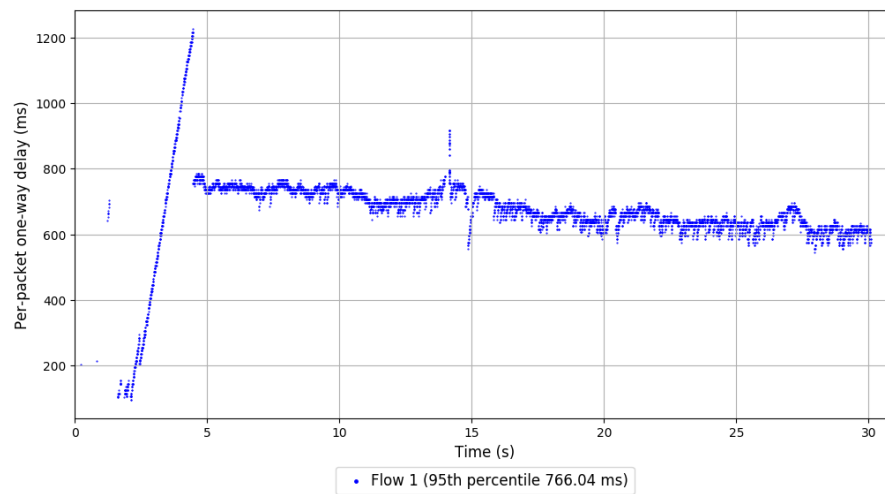
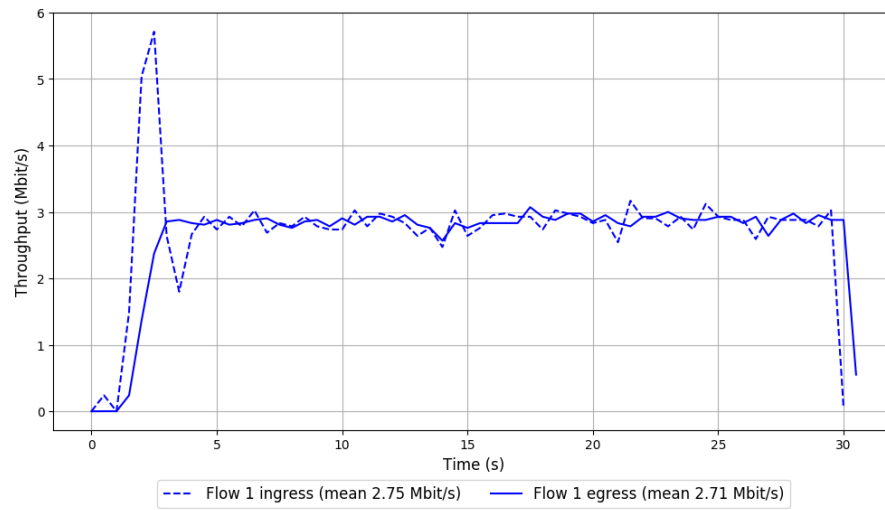
-- Flow 1:

Average throughput: 2.71 Mbit/s

95th percentile per-packet one-way delay: 766.041 ms

Loss rate: 1.87%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-06-18 08:20:48

End at: 2018-06-18 08:21:18

Local clock offset: 6.653 ms

Remote clock offset: 9.302 ms

Below is generated by plot.py at 2018-06-18 08:32:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.40 Mbit/s

95th percentile per-packet one-way delay: 179.546 ms

Loss rate: 0.27%

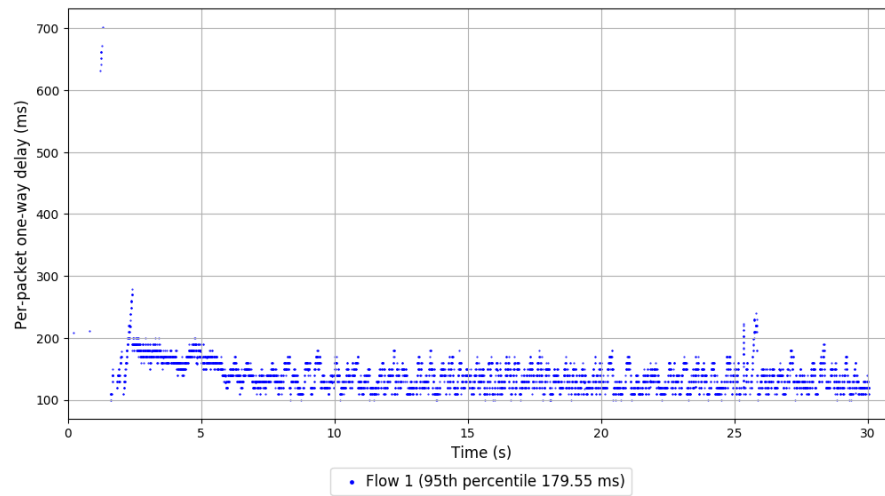
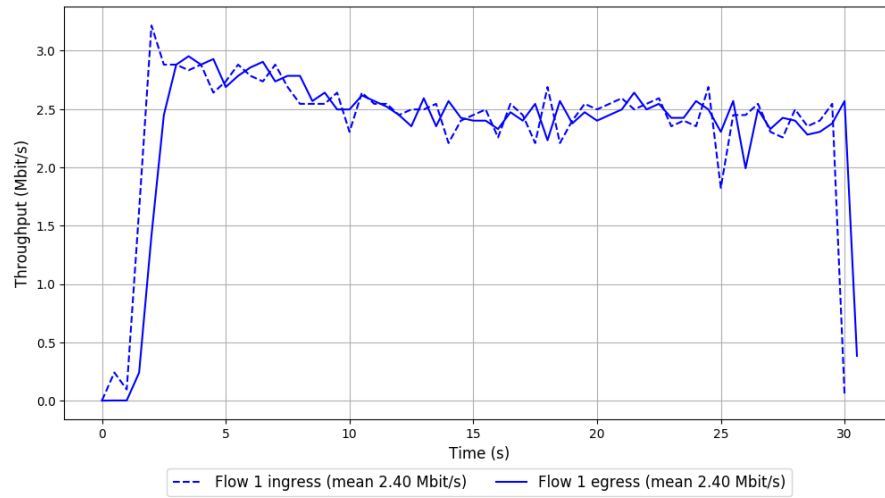
-- Flow 1:

Average throughput: 2.40 Mbit/s

95th percentile per-packet one-way delay: 179.546 ms

Loss rate: 0.27%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-06-18 07:40:14

End at: 2018-06-18 07:40:44

Local clock offset: -0.207 ms

Remote clock offset: 4.4 ms

Below is generated by plot.py at 2018-06-18 08:32:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.52 Mbit/s

95th percentile per-packet one-way delay: 1522.061 ms

Loss rate: 2.59%

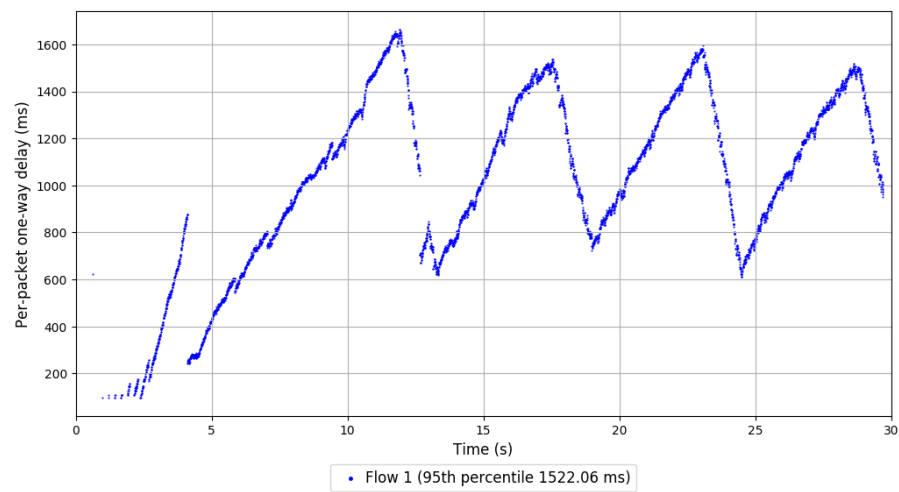
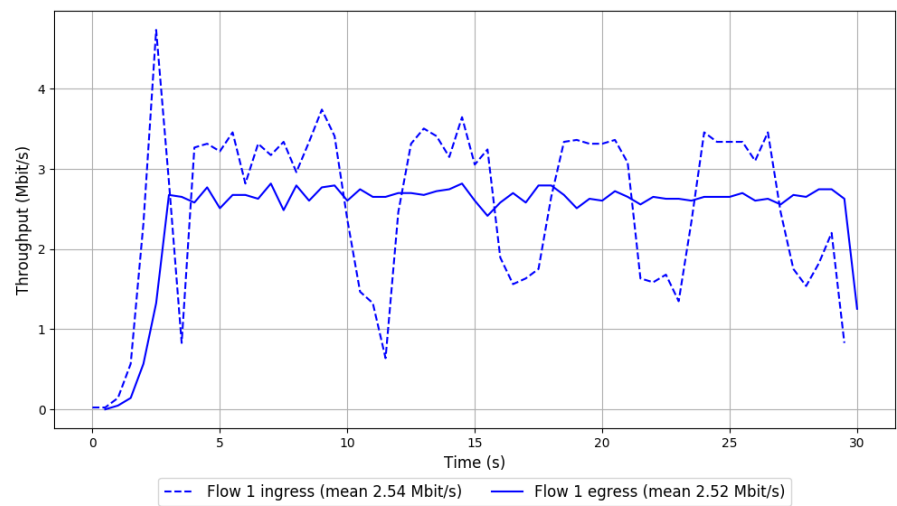
-- Flow 1:

Average throughput: 2.52 Mbit/s

95th percentile per-packet one-way delay: 1522.061 ms

Loss rate: 2.59%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-06-18 07:58:15

End at: 2018-06-18 07:58:45

Local clock offset: 2.122 ms

Remote clock offset: 8.741 ms

Below is generated by plot.py at 2018-06-18 08:32:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.61 Mbit/s

95th percentile per-packet one-way delay: 1555.650 ms

Loss rate: 2.93%

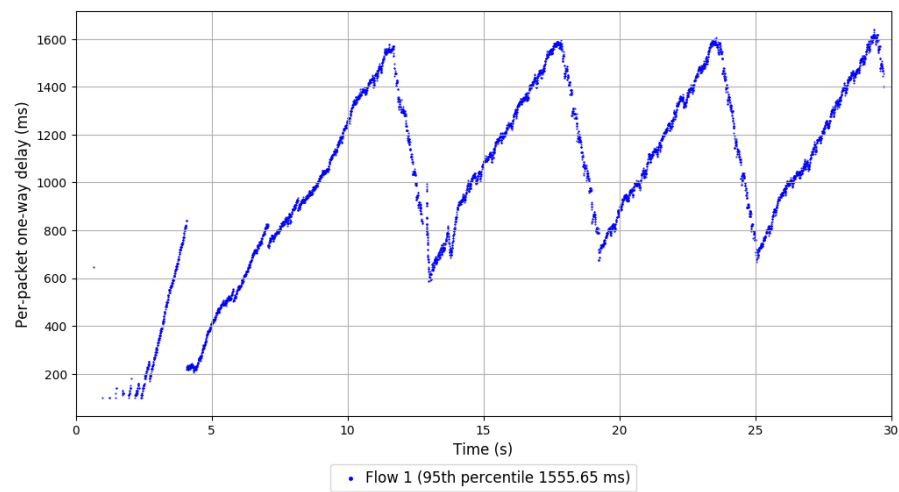
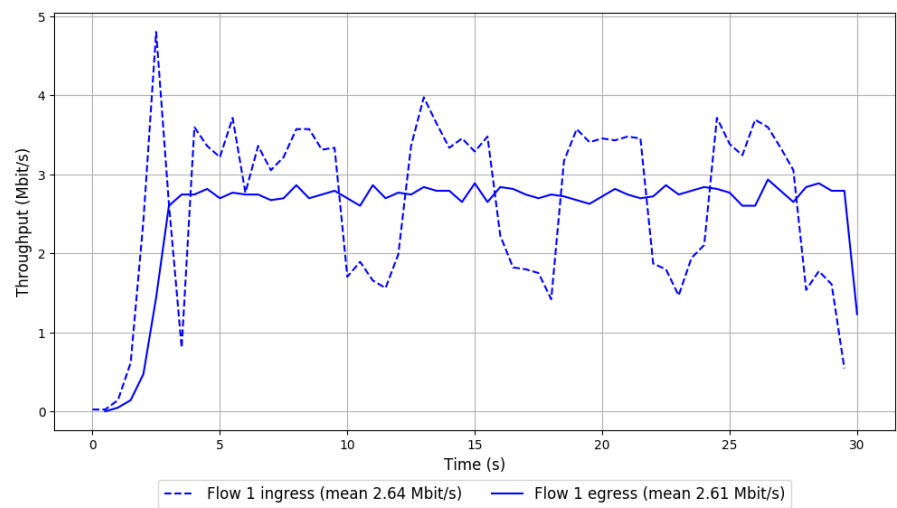
-- Flow 1:

Average throughput: 2.61 Mbit/s

95th percentile per-packet one-way delay: 1555.650 ms

Loss rate: 2.93%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-06-18 08:16:17

End at: 2018-06-18 08:16:47

Local clock offset: 5.79 ms

Remote clock offset: 9.118 ms

Below is generated by plot.py at 2018-06-18 08:32:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.69 Mbit/s

95th percentile per-packet one-way delay: 1507.499 ms

Loss rate: 3.61%

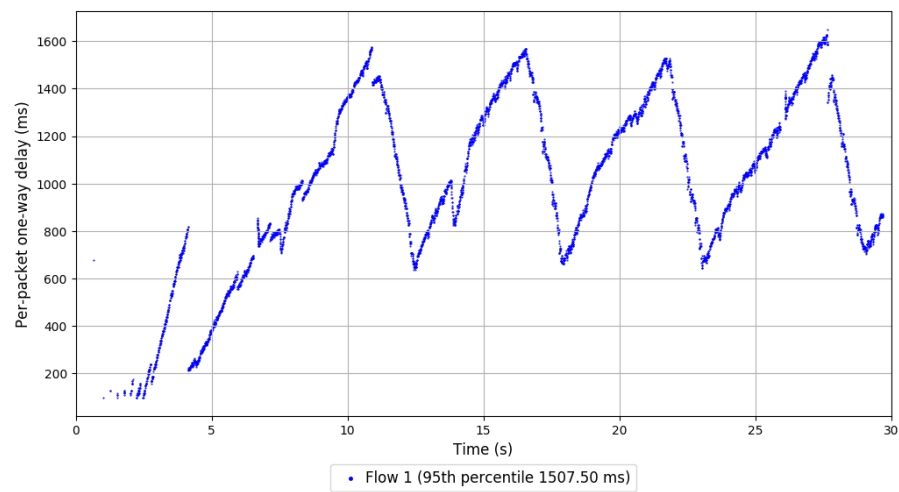
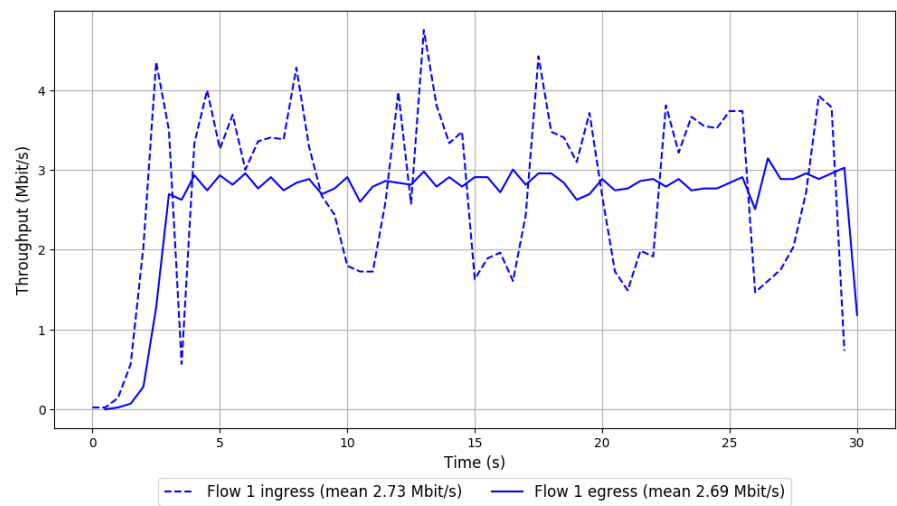
-- Flow 1:

Average throughput: 2.69 Mbit/s

95th percentile per-packet one-way delay: 1507.499 ms

Loss rate: 3.61%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-06-18 07:51:30

End at: 2018-06-18 07:52:00

Local clock offset: 0.939 ms

Remote clock offset: 8.321 ms

Below is generated by plot.py at 2018-06-18 08:32:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 129.088 ms

Loss rate: 0.77%

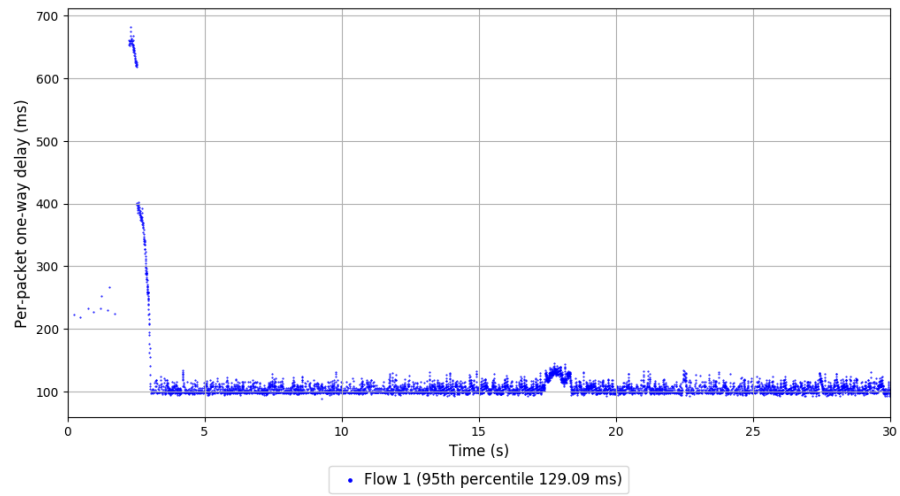
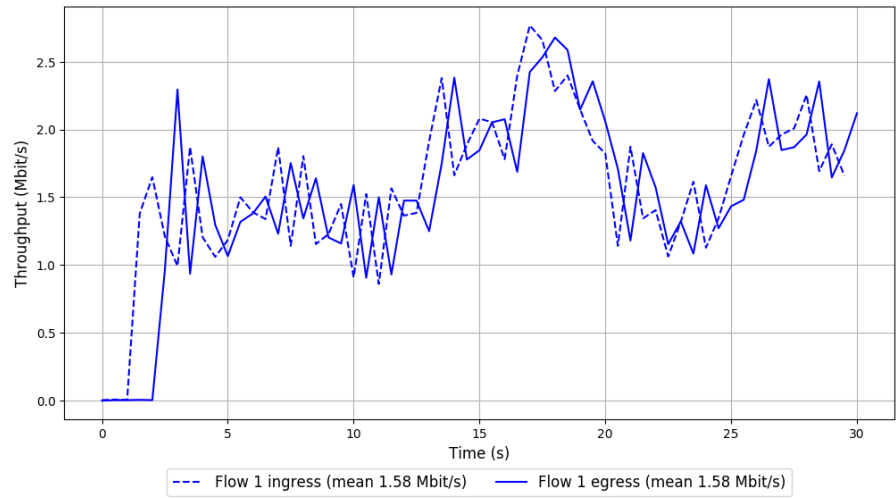
-- Flow 1:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 129.088 ms

Loss rate: 0.77%

Run 1: Report of PCC-Vivace — Data Link

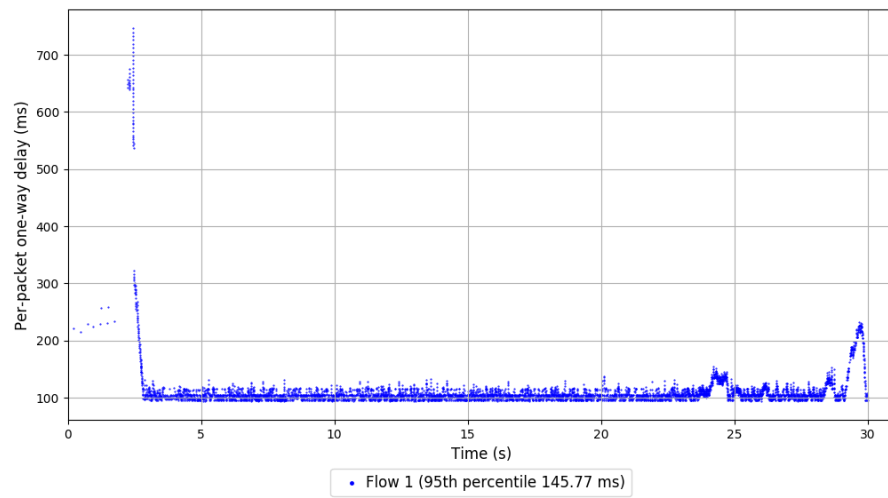
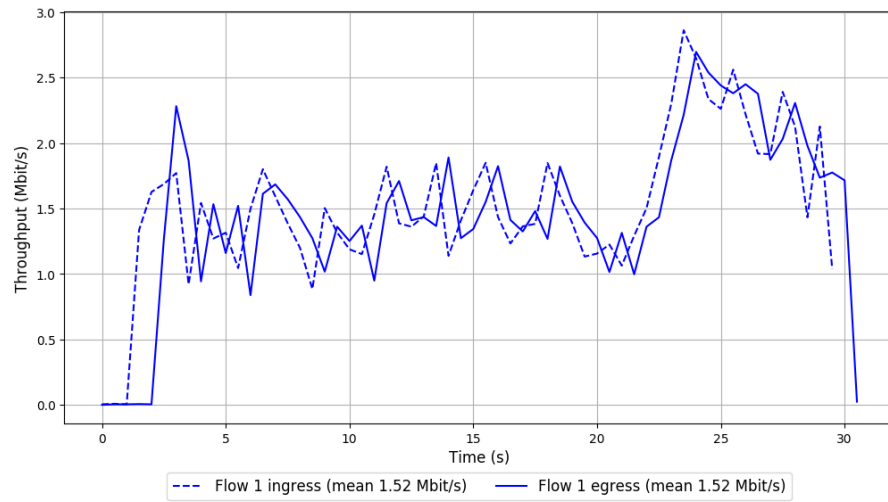


Run 2: Statistics of PCC-Vivace

Start at: 2018-06-18 08:09:31
End at: 2018-06-18 08:10:01
Local clock offset: 4.268 ms
Remote clock offset: 11.275 ms

Below is generated by plot.py at 2018-06-18 08:32:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 145.772 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 145.772 ms
Loss rate: 0.78%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-06-18 08:27:33

End at: 2018-06-18 08:28:03

Local clock offset: 8.135 ms

Remote clock offset: 9.286 ms

Below is generated by plot.py at 2018-06-18 08:32:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.52 Mbit/s

95th percentile per-packet one-way delay: 128.501 ms

Loss rate: 0.90%

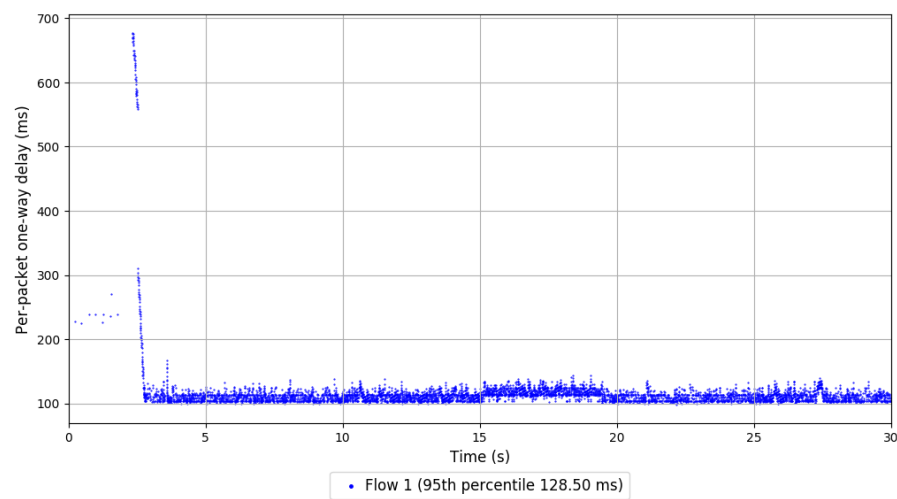
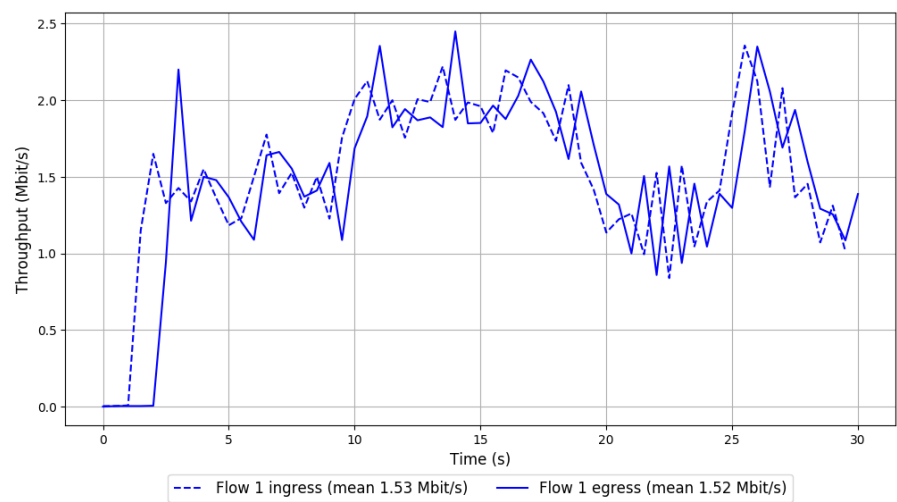
-- Flow 1:

Average throughput: 1.52 Mbit/s

95th percentile per-packet one-way delay: 128.501 ms

Loss rate: 0.90%

Run 3: Report of PCC-Vivace — Data Link

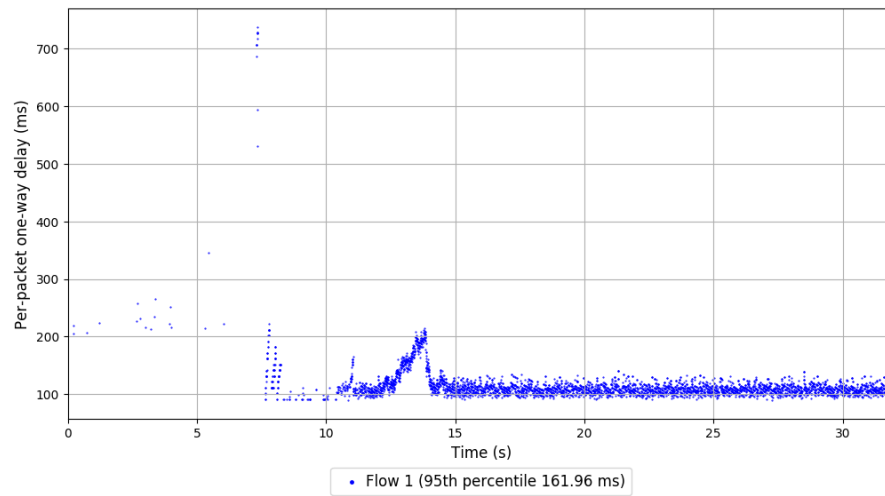
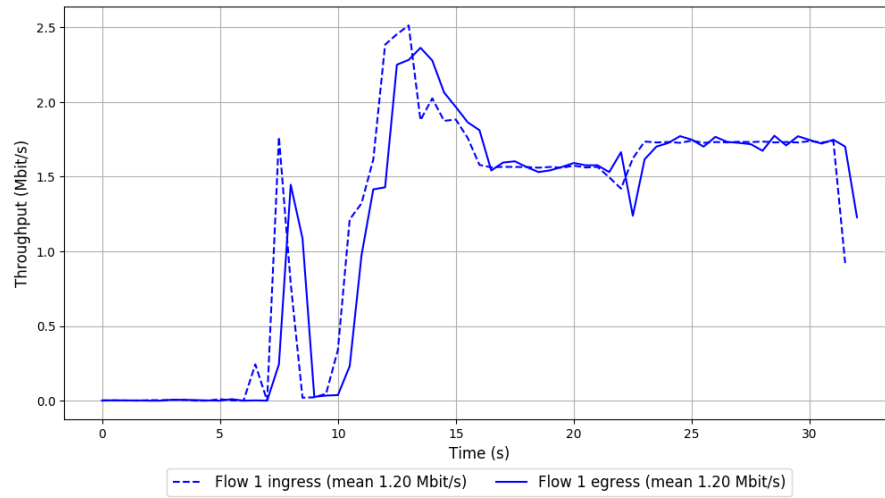


```
Run 1: Statistics of WebRTC media

Start at: 2018-06-18 07:53:45
End at: 2018-06-18 07:54:15
Local clock offset: 1.32 ms
Remote clock offset: 10.653 ms

# Below is generated by plot.py at 2018-06-18 08:32:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 161.959 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 161.959 ms
Loss rate: 0.10%
```

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-06-18 08:11:46

End at: 2018-06-18 08:12:16

Local clock offset: 4.749 ms

Remote clock offset: 6.25 ms

Below is generated by plot.py at 2018-06-18 08:32:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.98 Mbit/s

95th percentile per-packet one-way delay: 180.880 ms

Loss rate: 0.06%

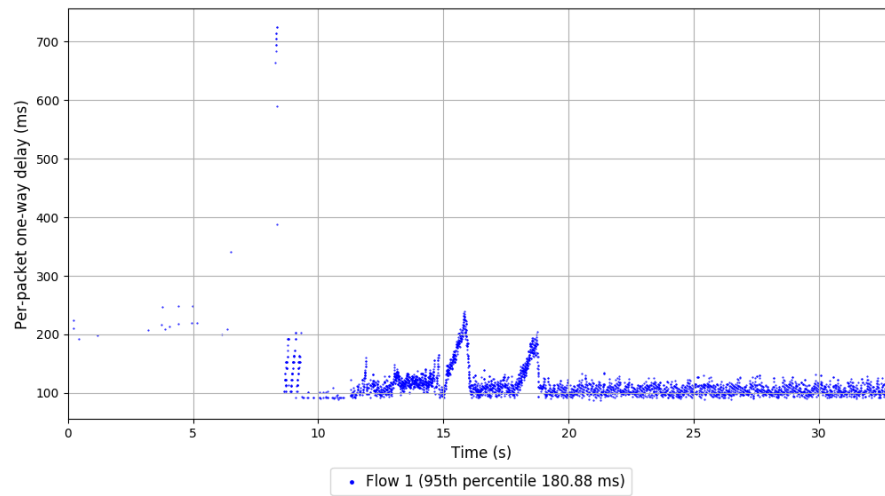
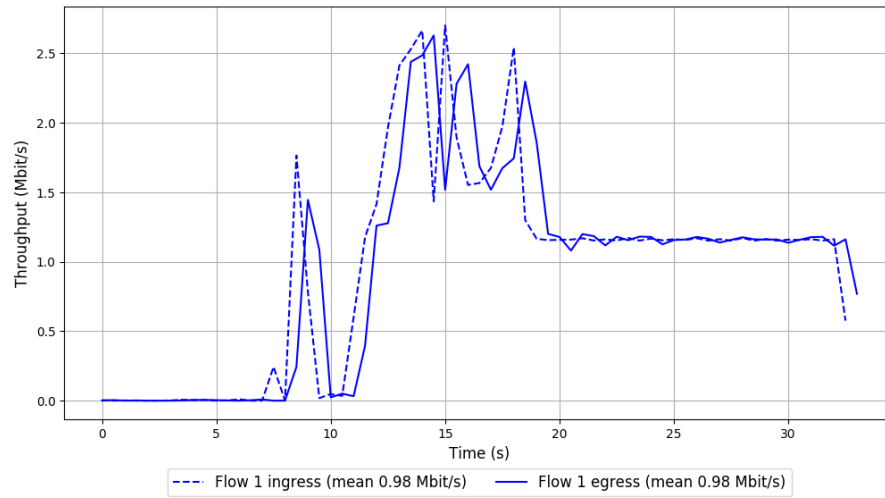
-- Flow 1:

Average throughput: 0.98 Mbit/s

95th percentile per-packet one-way delay: 180.880 ms

Loss rate: 0.06%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-06-18 08:29:48

End at: 2018-06-18 08:30:18

Local clock offset: 8.608 ms

Remote clock offset: 9.197 ms

Below is generated by plot.py at 2018-06-18 08:32:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 347.861 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 347.861 ms

Loss rate: 0.08%

Run 3: Report of WebRTC media — Data Link

