

Pantheon Report

Generated at 2018-09-11 09:10:08 (UTC).

Data path: Colombia on **p4p1** (*remote*) → AWS Brazil 2 on **ens5** (*local*).

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

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

System info:

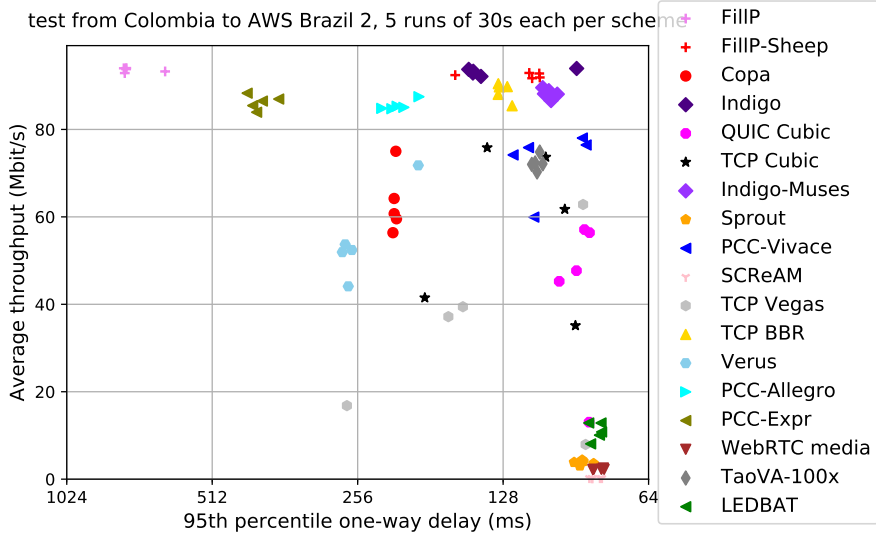
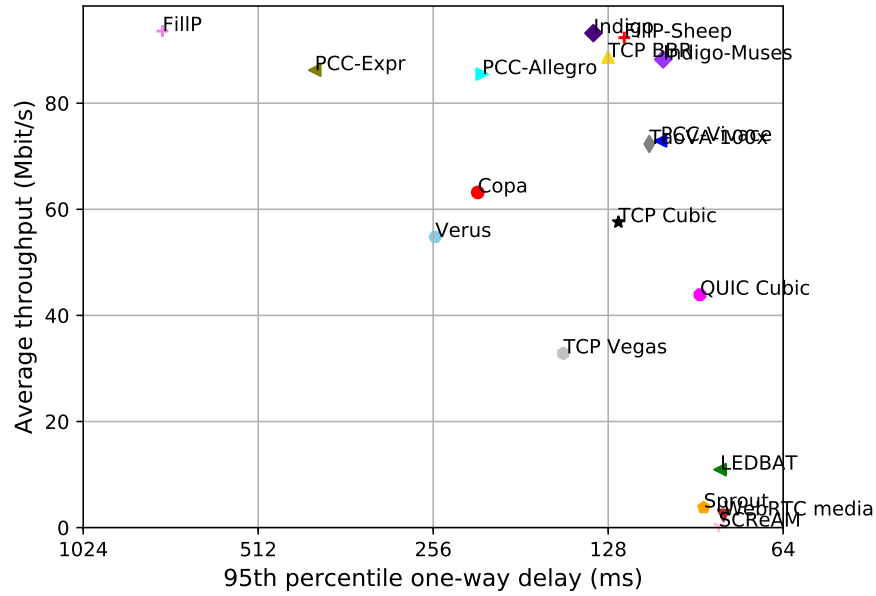
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 184101 245469 368202
```

Git summary:

```
branch: muses @ f30bceca2aec2ef14a3cf71e25642f4a30905a03
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfc58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
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
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from Colombia to AWS Brazil 2, 5 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	5	88.69	128.08	1.46
Copa	5	63.18	214.57	1.11
TCP Cubic	5	57.58	122.92	0.90
FillP	5	93.60	748.08	4.17
FillP-Sheep	5	92.35	120.11	1.78
Indigo	5	93.21	135.72	1.70
LEDBAT	5	10.93	82.15	1.21
Indigo-Muses	5	88.25	102.96	1.21
PCC-Allegro	5	85.48	210.85	1.31
PCC-Expr	5	86.23	409.27	1.67
QUIC Cubic	5	43.90	88.97	0.84
SCReAM	5	0.21	82.61	0.62
Sprout	5	3.79	87.67	0.65
TaoVA-100x	5	72.31	108.78	1.08
TCP Vegas	5	32.84	152.90	0.68
Verus	5	54.79	253.95	1.02
PCC-Vivace	5	72.89	104.01	1.21
WebRTC media	5	2.30	81.05	0.42

Run 1: Statistics of TCP BBR

Start at: 2018-09-11 07:27:18

End at: 2018-09-11 07:27:48

Local clock offset: -4.464 ms

Remote clock offset: 0.197 ms

Below is generated by plot.py at 2018-09-11 09:01:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 89.74 Mbit/s

95th percentile per-packet one-way delay: 130.332 ms

Loss rate: 0.20%

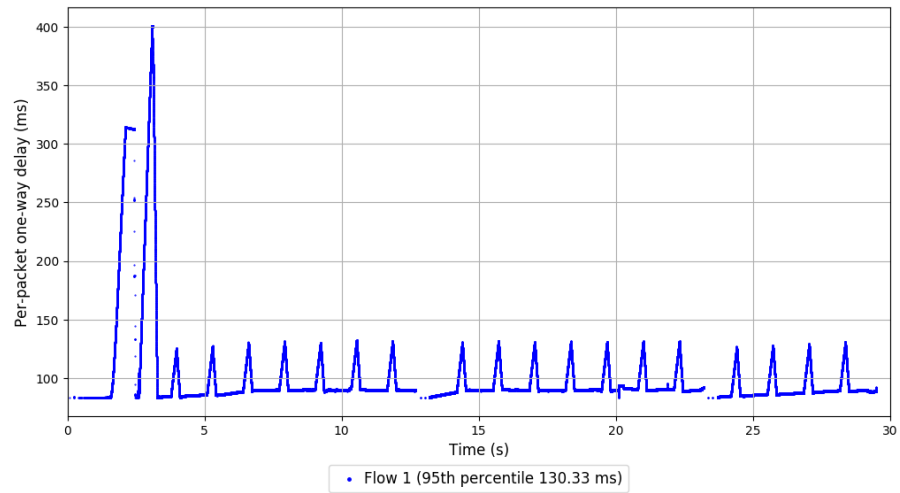
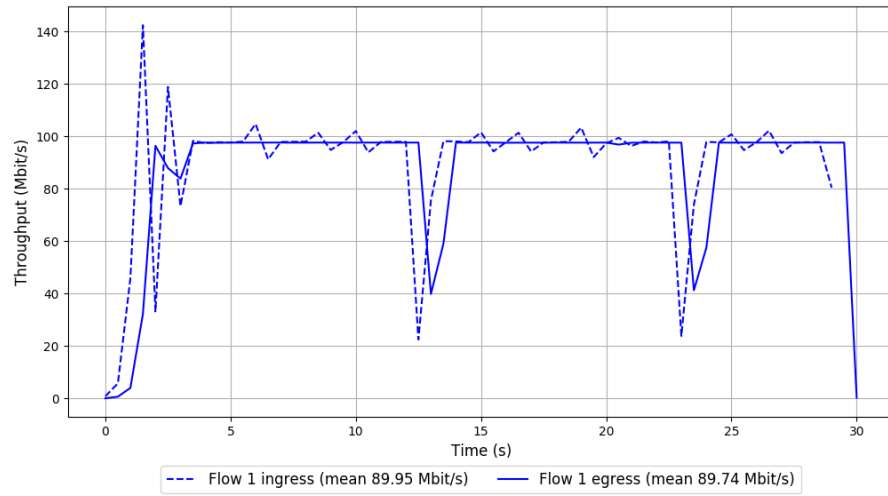
-- Flow 1:

Average throughput: 89.74 Mbit/s

95th percentile per-packet one-way delay: 130.332 ms

Loss rate: 0.20%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-11 07:48:44

End at: 2018-09-11 07:49:14

Local clock offset: -4.766 ms

Remote clock offset: 4.827 ms

Below is generated by plot.py at 2018-09-11 09:01:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 85.42 Mbit/s

95th percentile per-packet one-way delay: 122.613 ms

Loss rate: 2.46%

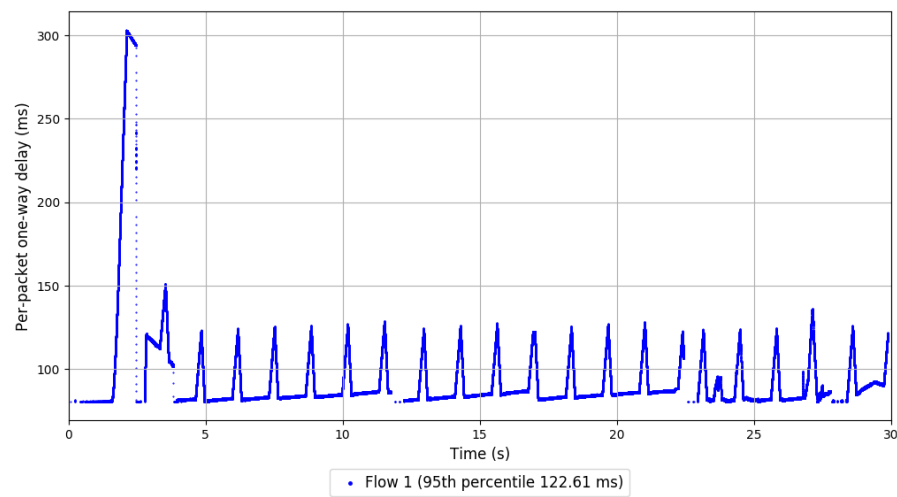
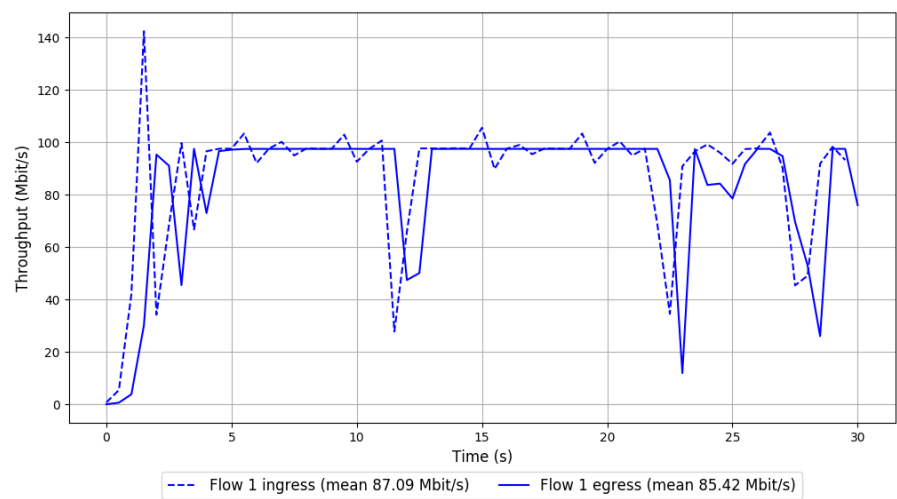
-- Flow 1:

Average throughput: 85.42 Mbit/s

95th percentile per-packet one-way delay: 122.613 ms

Loss rate: 2.46%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-11 08:10:04

End at: 2018-09-11 08:10:34

Local clock offset: -6.001 ms

Remote clock offset: 4.71 ms

Below is generated by plot.py at 2018-09-11 09:01:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.02 Mbit/s

95th percentile per-packet one-way delay: 131.014 ms

Loss rate: 2.24%

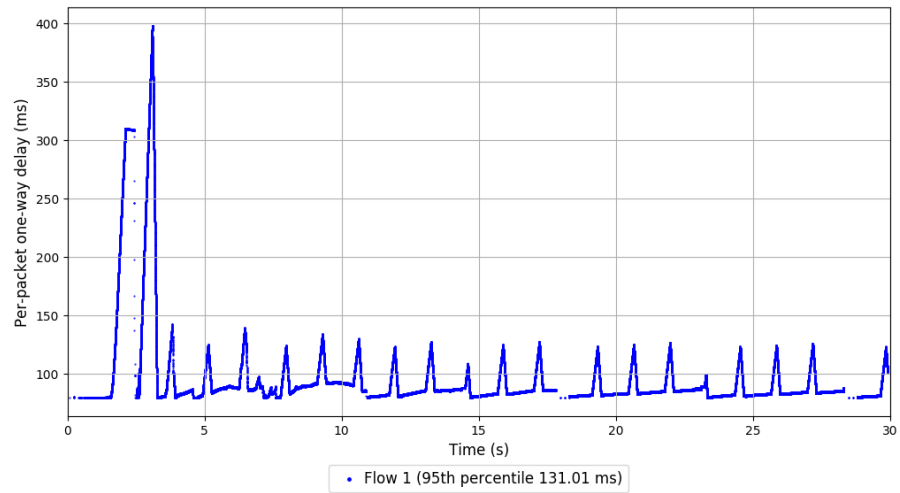
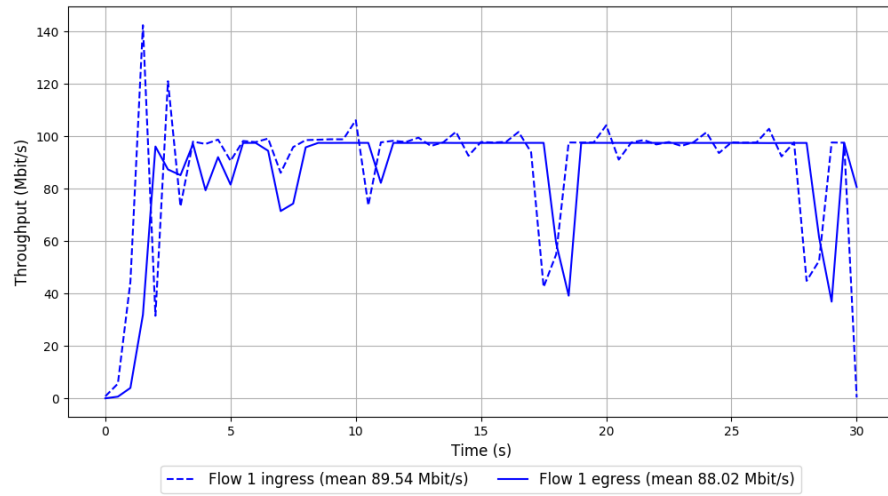
-- Flow 1:

Average throughput: 88.02 Mbit/s

95th percentile per-packet one-way delay: 131.014 ms

Loss rate: 2.24%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-11 08:31:27

End at: 2018-09-11 08:31:57

Local clock offset: -5.93 ms

Remote clock offset: 5.61 ms

Below is generated by plot.py at 2018-09-11 09:01:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 89.80 Mbit/s

95th percentile per-packet one-way delay: 125.480 ms

Loss rate: 0.73%

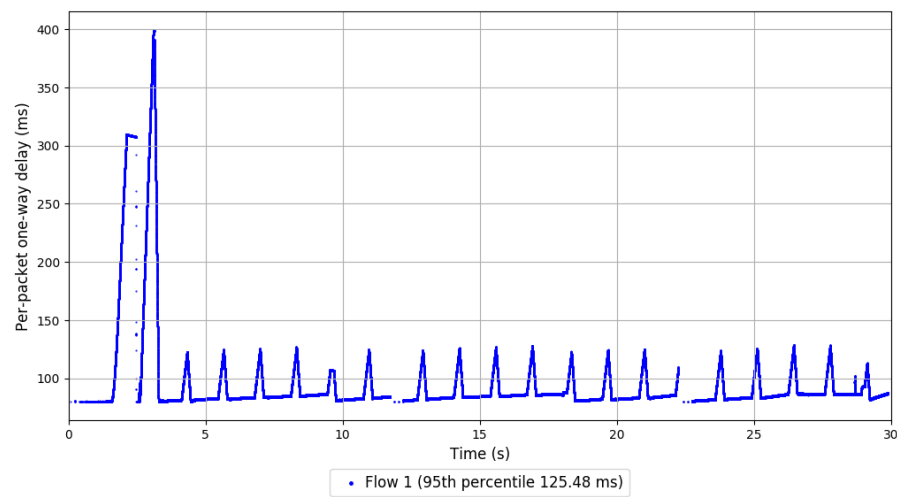
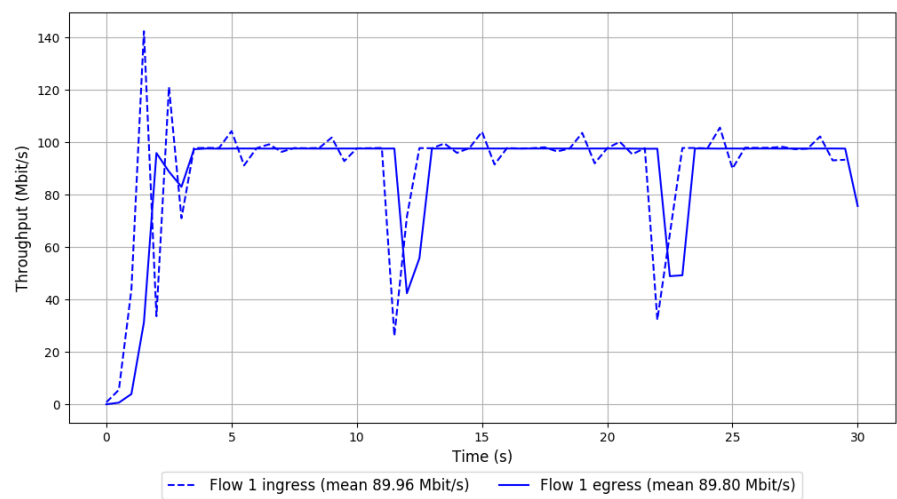
-- Flow 1:

Average throughput: 89.80 Mbit/s

95th percentile per-packet one-way delay: 125.480 ms

Loss rate: 0.73%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-11 08:53:00

End at: 2018-09-11 08:53:30

Local clock offset: -5.373 ms

Remote clock offset: 1.374 ms

Below is generated by plot.py at 2018-09-11 09:01:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 90.47 Mbit/s

95th percentile per-packet one-way delay: 130.964 ms

Loss rate: 1.67%

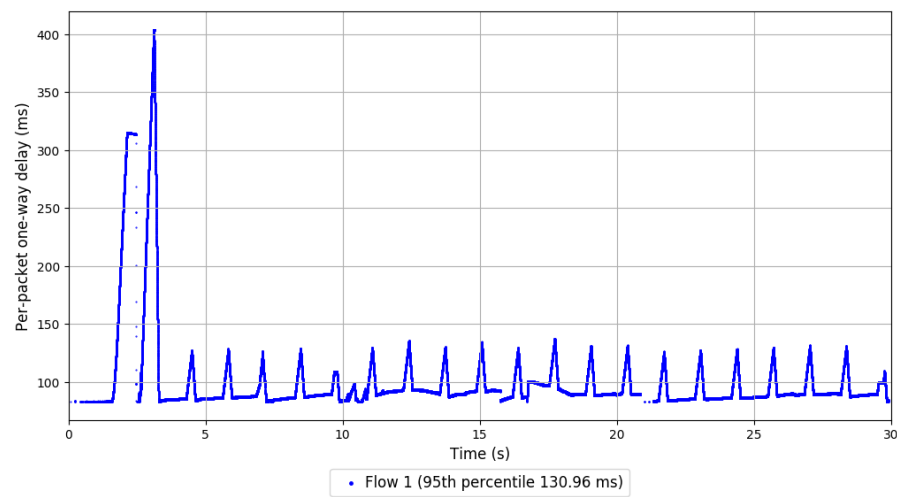
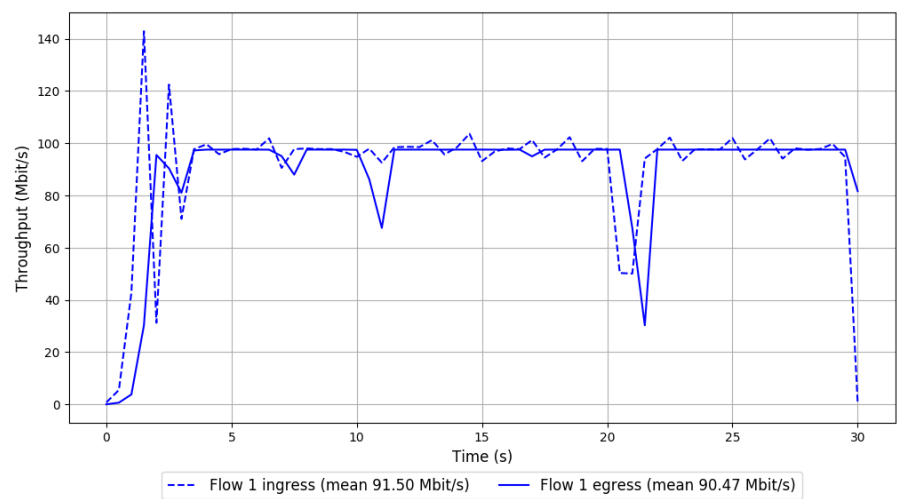
-- Flow 1:

Average throughput: 90.47 Mbit/s

95th percentile per-packet one-way delay: 130.964 ms

Loss rate: 1.67%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-09-11 07:17:52

End at: 2018-09-11 07:18:22

Local clock offset: -4.222 ms

Remote clock offset: 0.606 ms

Below is generated by plot.py at 2018-09-11 09:01:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 64.21 Mbit/s

95th percentile per-packet one-way delay: 215.136 ms

Loss rate: 1.59%

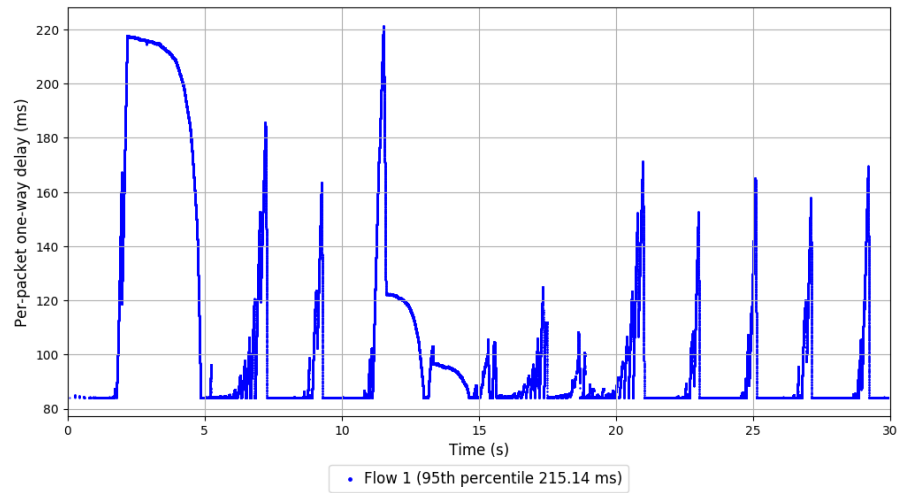
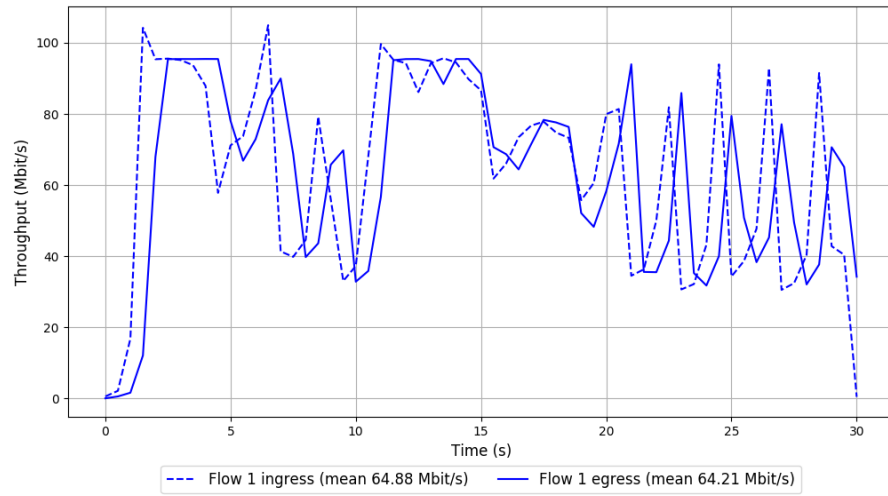
-- Flow 1:

Average throughput: 64.21 Mbit/s

95th percentile per-packet one-way delay: 215.136 ms

Loss rate: 1.59%

Run 1: Report of Copa — Data Link

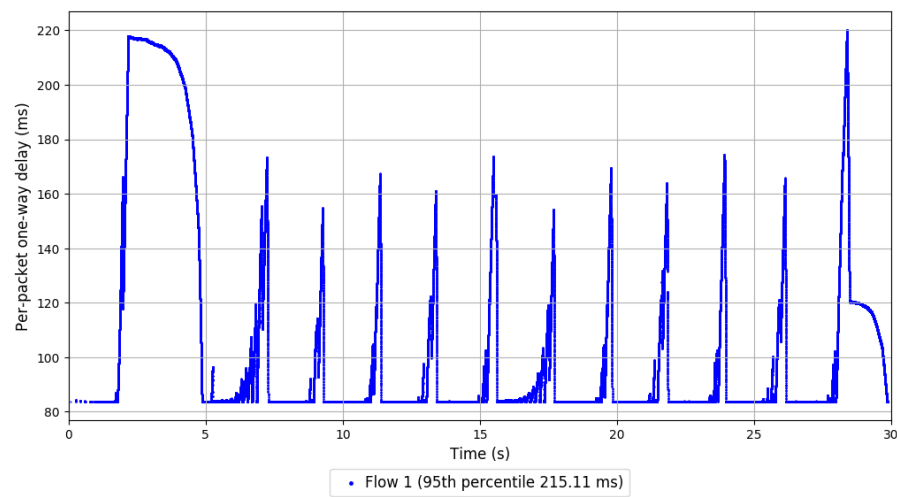
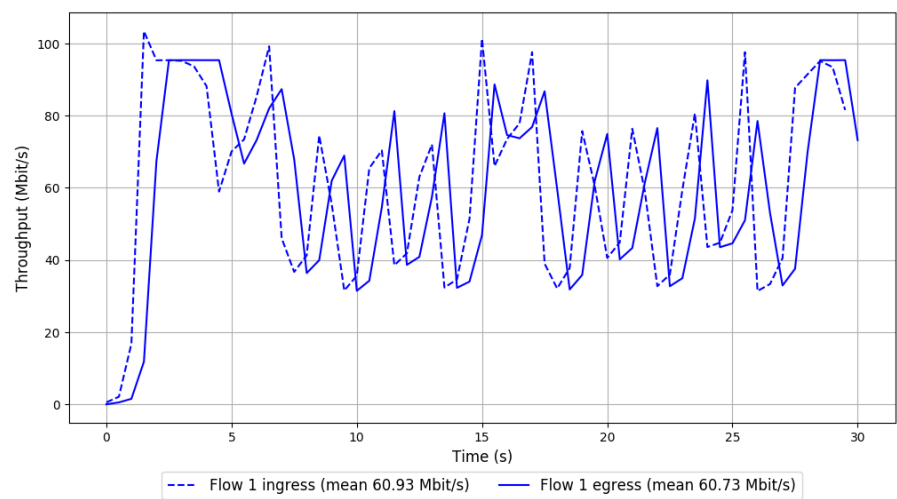


Run 2: Statistics of Copa

Start at: 2018-09-11 07:39:15
End at: 2018-09-11 07:39:45
Local clock offset: -5.325 ms
Remote clock offset: 0.912 ms

Below is generated by plot.py at 2018-09-11 09:01:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 60.73 Mbit/s
95th percentile per-packet one-way delay: 215.111 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 60.73 Mbit/s
95th percentile per-packet one-way delay: 215.111 ms
Loss rate: 0.89%

Run 2: Report of Copa — Data Link

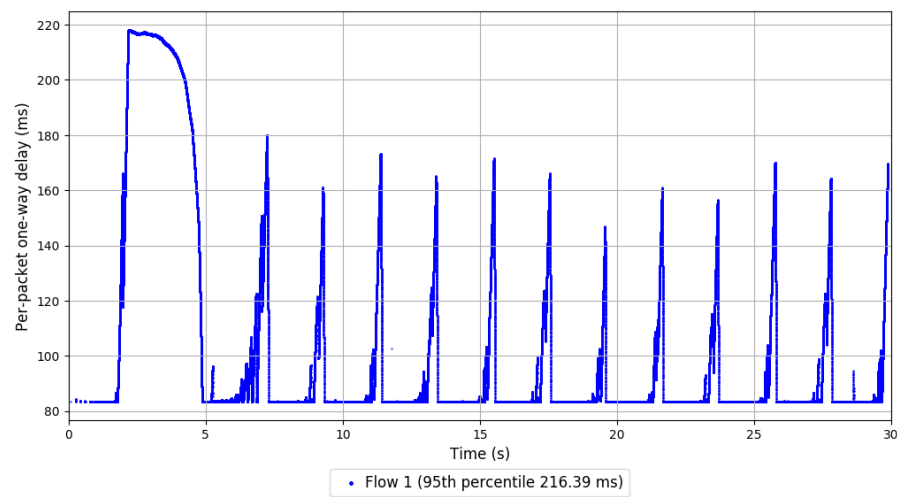
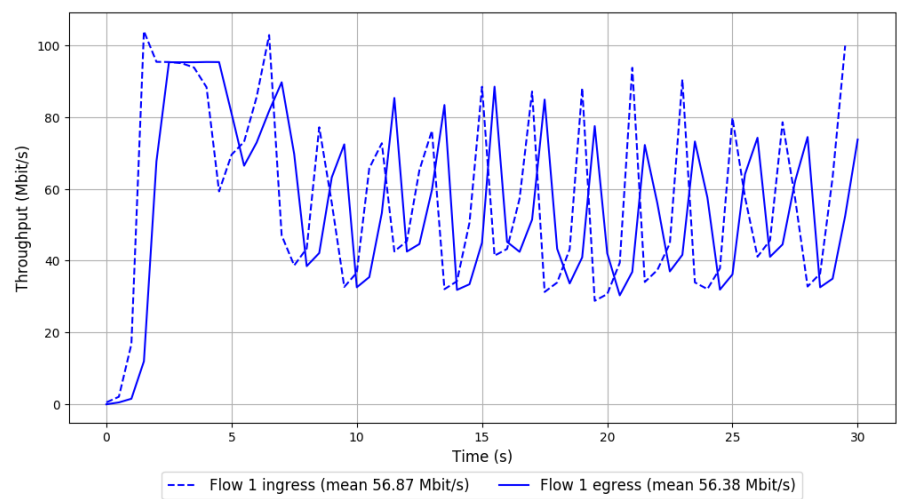


Run 3: Statistics of Copa

Start at: 2018-09-11 08:00:34
End at: 2018-09-11 08:01:04
Local clock offset: -5.673 ms
Remote clock offset: 0.339 ms

Below is generated by plot.py at 2018-09-11 09:01:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 56.38 Mbit/s
95th percentile per-packet one-way delay: 216.394 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 56.38 Mbit/s
95th percentile per-packet one-way delay: 216.394 ms
Loss rate: 1.40%

Run 3: Report of Copa — Data Link

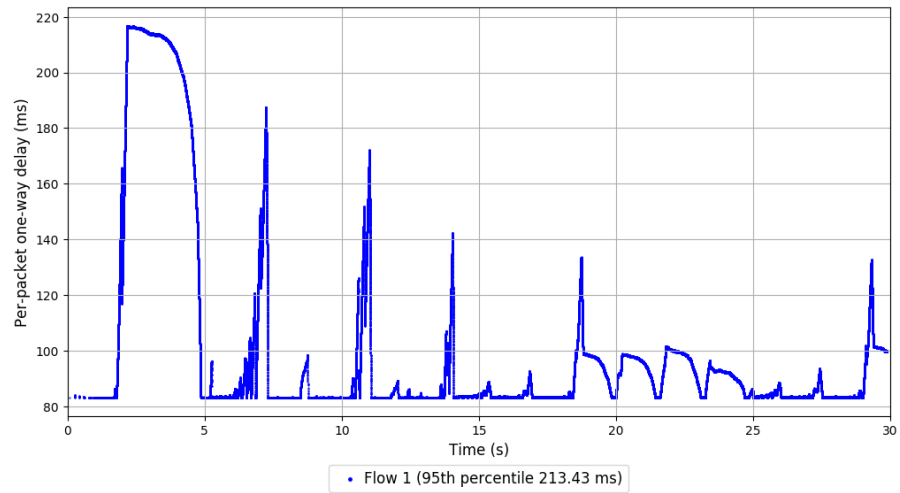
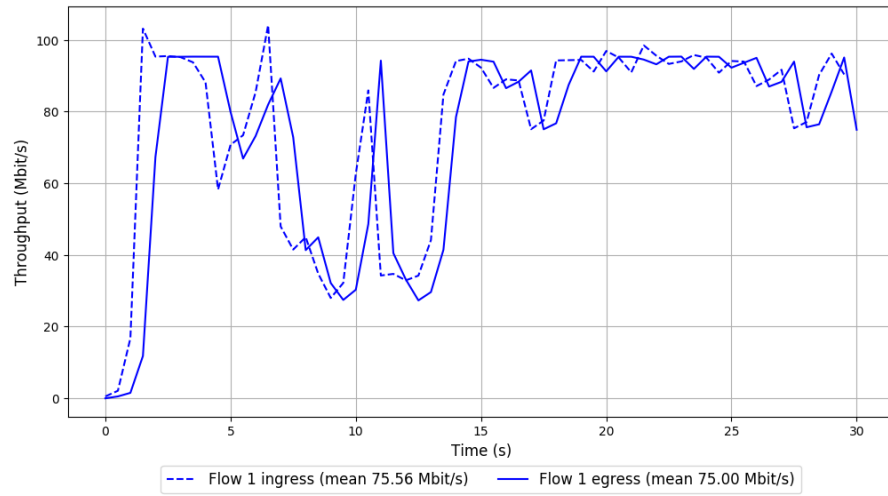


Run 4: Statistics of Copa

Start at: 2018-09-11 08:21:59
End at: 2018-09-11 08:22:29
Local clock offset: -6.034 ms
Remote clock offset: 1.037 ms

Below is generated by plot.py at 2018-09-11 09:02:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 75.00 Mbit/s
95th percentile per-packet one-way delay: 213.432 ms
Loss rate: 1.29%
-- Flow 1:
Average throughput: 75.00 Mbit/s
95th percentile per-packet one-way delay: 213.432 ms
Loss rate: 1.29%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-11 08:43:30

End at: 2018-09-11 08:44:00

Local clock offset: -4.727 ms

Remote clock offset: 6.065 ms

Below is generated by plot.py at 2018-09-11 09:02:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 59.56 Mbit/s

95th percentile per-packet one-way delay: 212.770 ms

Loss rate: 0.38%

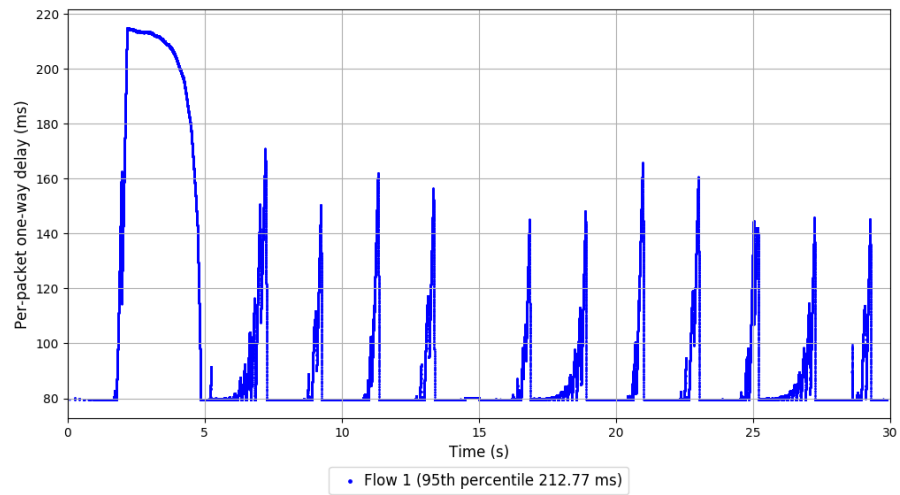
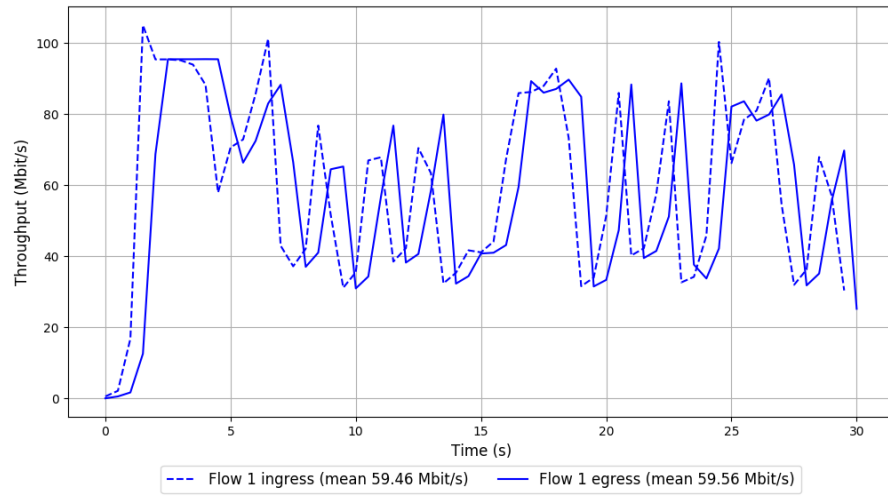
-- Flow 1:

Average throughput: 59.56 Mbit/s

95th percentile per-packet one-way delay: 212.770 ms

Loss rate: 0.38%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-11 07:21:27

End at: 2018-09-11 07:21:57

Local clock offset: -4.695 ms

Remote clock offset: 0.904 ms

Below is generated by plot.py at 2018-09-11 09:02:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 73.68 Mbit/s

95th percentile per-packet one-way delay: 104.486 ms

Loss rate: 0.62%

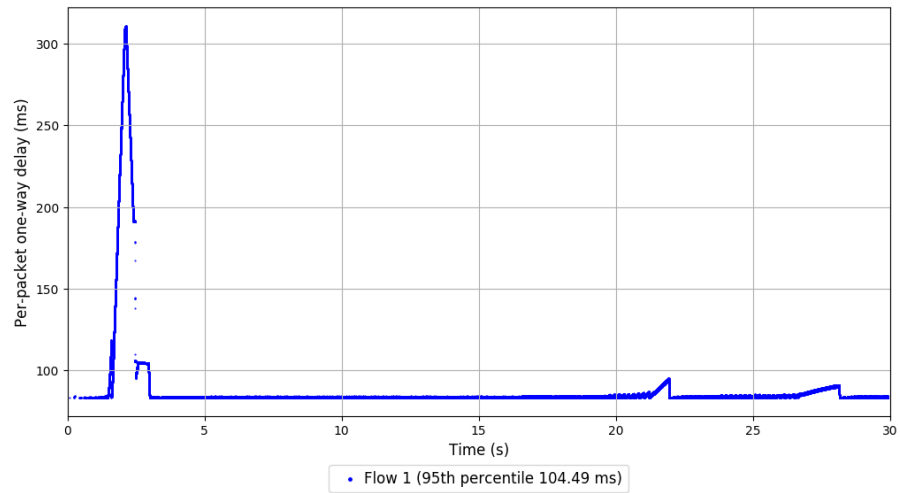
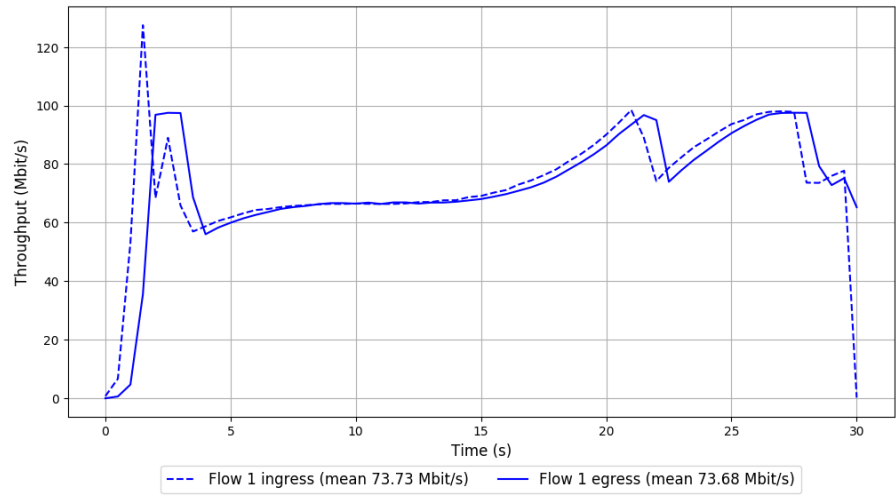
-- Flow 1:

Average throughput: 73.68 Mbit/s

95th percentile per-packet one-way delay: 104.486 ms

Loss rate: 0.62%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-11 07:42:52

End at: 2018-09-11 07:43:22

Local clock offset: -5.435 ms

Remote clock offset: 0.548 ms

Below is generated by plot.py at 2018-09-11 09:02:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 41.50 Mbit/s

95th percentile per-packet one-way delay: 185.900 ms

Loss rate: 0.65%

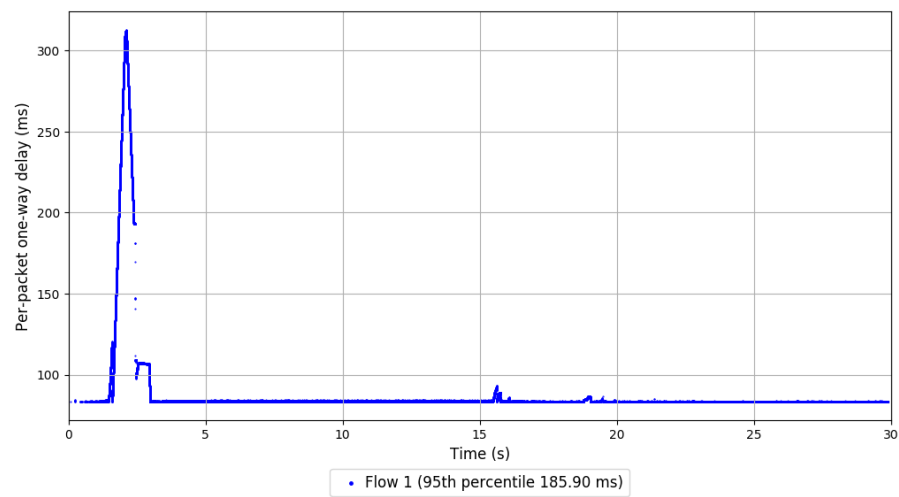
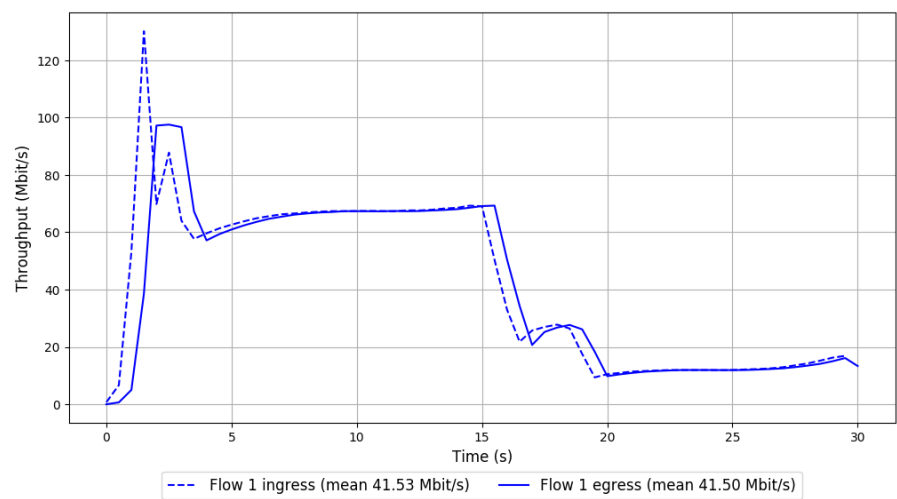
-- Flow 1:

Average throughput: 41.50 Mbit/s

95th percentile per-packet one-way delay: 185.900 ms

Loss rate: 0.65%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-11 08:04:08

End at: 2018-09-11 08:04:38

Local clock offset: -5.113 ms

Remote clock offset: -0.21 ms

Below is generated by plot.py at 2018-09-11 09:02:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 61.75 Mbit/s

95th percentile per-packet one-way delay: 95.409 ms

Loss rate: 1.12%

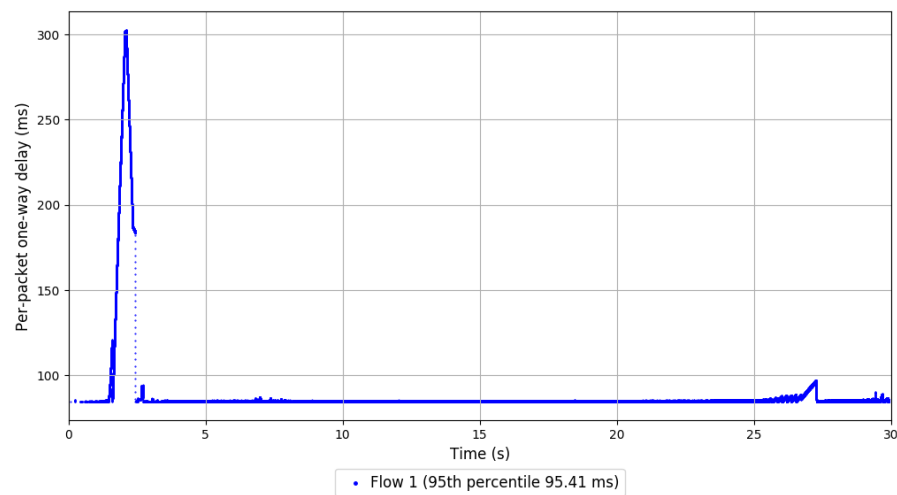
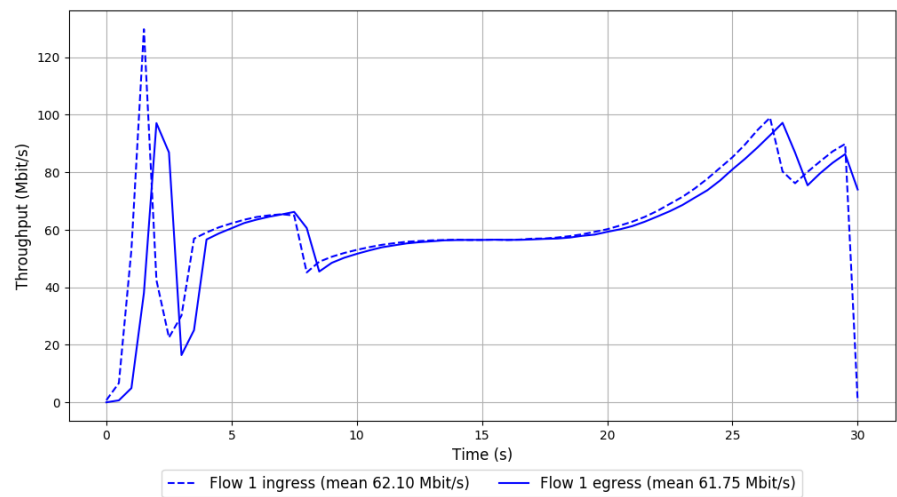
-- Flow 1:

Average throughput: 61.75 Mbit/s

95th percentile per-packet one-way delay: 95.409 ms

Loss rate: 1.12%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-11 08:25:34

End at: 2018-09-11 08:26:04

Local clock offset: -6.134 ms

Remote clock offset: 5.883 ms

Below is generated by plot.py at 2018-09-11 09:02:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 75.83 Mbit/s

95th percentile per-packet one-way delay: 138.099 ms

Loss rate: 0.84%

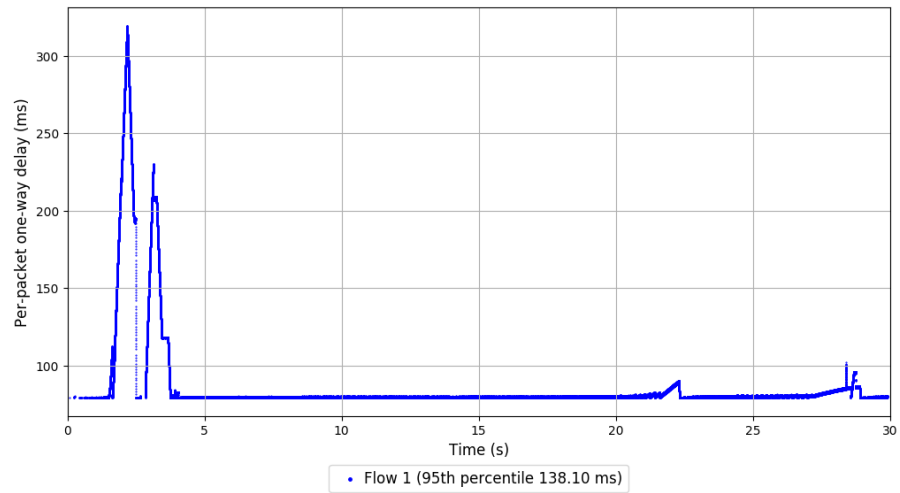
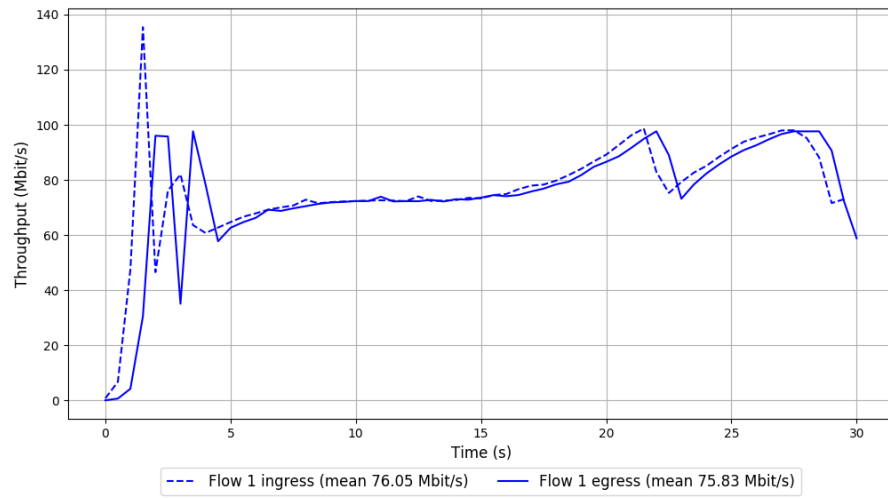
-- Flow 1:

Average throughput: 75.83 Mbit/s

95th percentile per-packet one-way delay: 138.099 ms

Loss rate: 0.84%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-11 08:47:06

End at: 2018-09-11 08:47:36

Local clock offset: -4.67 ms

Remote clock offset: 1.392 ms

Below is generated by plot.py at 2018-09-11 09:02:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 35.13 Mbit/s

95th percentile per-packet one-way delay: 90.681 ms

Loss rate: 1.26%

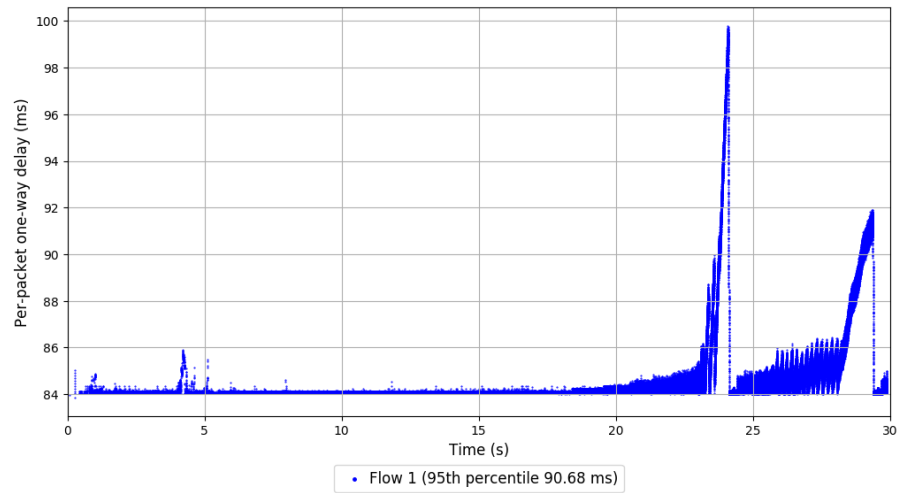
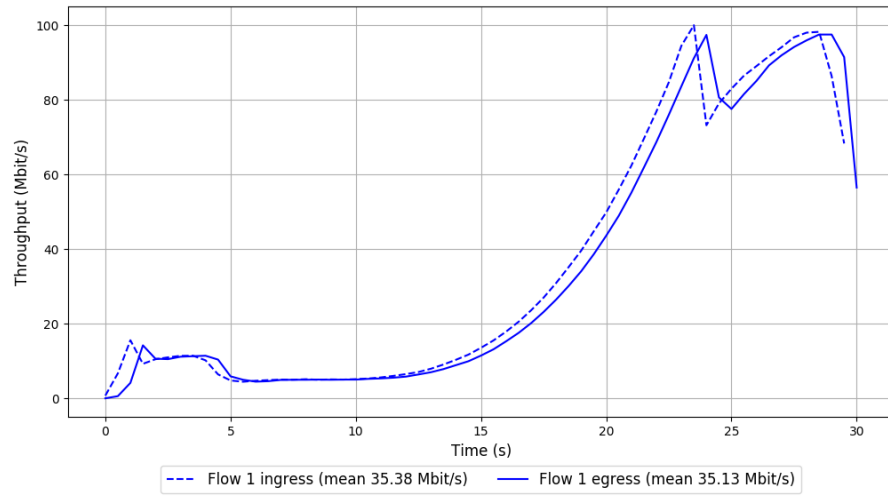
-- Flow 1:

Average throughput: 35.13 Mbit/s

95th percentile per-packet one-way delay: 90.681 ms

Loss rate: 1.26%

Run 5: Report of TCP Cubic — Data Link

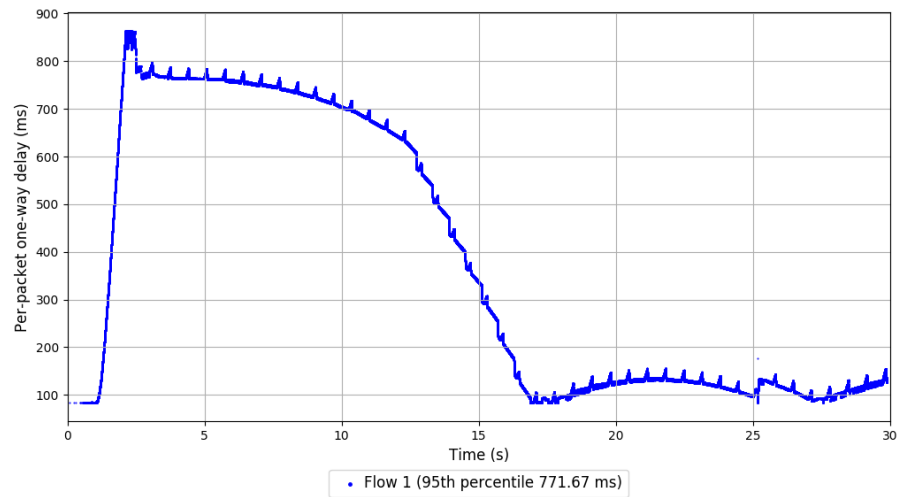
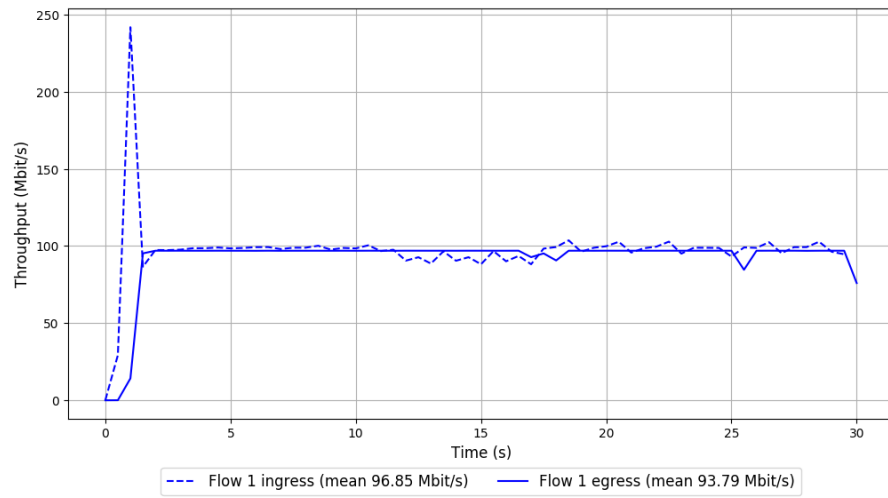


Run 1: Statistics of FillP

Start at: 2018-09-11 07:28:30
End at: 2018-09-11 07:29:00
Local clock offset: -3.717 ms
Remote clock offset: -0.036 ms

Below is generated by plot.py at 2018-09-11 09:02:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 93.79 Mbit/s
95th percentile per-packet one-way delay: 771.671 ms
Loss rate: 3.70%
-- Flow 1:
Average throughput: 93.79 Mbit/s
95th percentile per-packet one-way delay: 771.671 ms
Loss rate: 3.70%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-11 07:49:56

End at: 2018-09-11 07:50:26

Local clock offset: -5.548 ms

Remote clock offset: 0.418 ms

Below is generated by plot.py at 2018-09-11 09:03:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.89 Mbit/s

95th percentile per-packet one-way delay: 776.661 ms

Loss rate: 4.68%

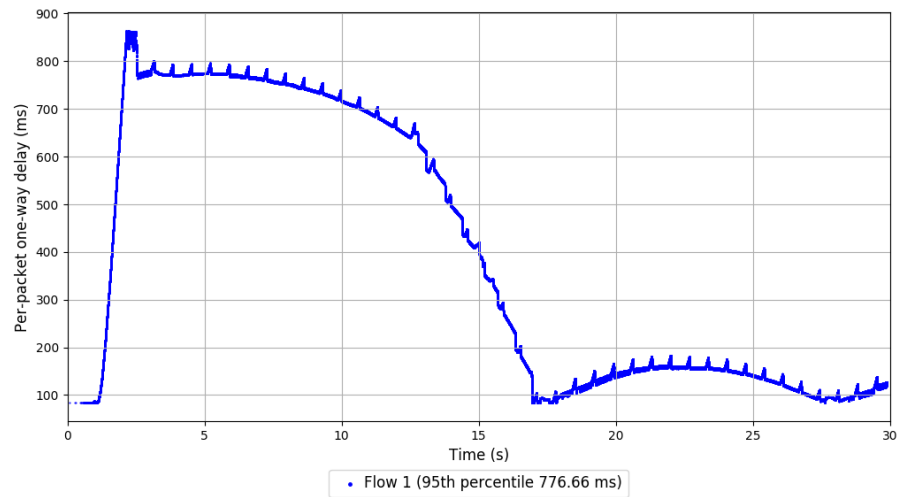
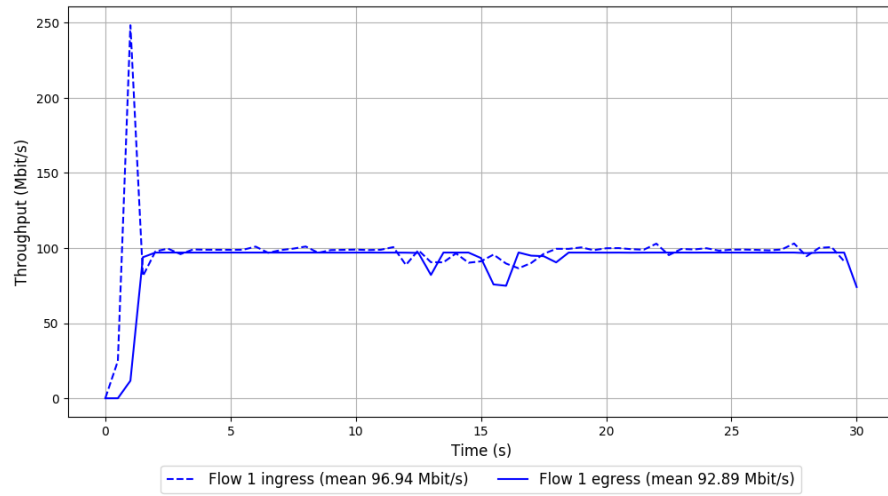
-- Flow 1:

Average throughput: 92.89 Mbit/s

95th percentile per-packet one-way delay: 776.661 ms

Loss rate: 4.68%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-11 08:11:18

End at: 2018-09-11 08:11:48

Local clock offset: -5.173 ms

Remote clock offset: 0.667 ms

Below is generated by plot.py at 2018-09-11 09:03:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 93.99 Mbit/s

95th percentile per-packet one-way delay: 780.239 ms

Loss rate: 3.64%

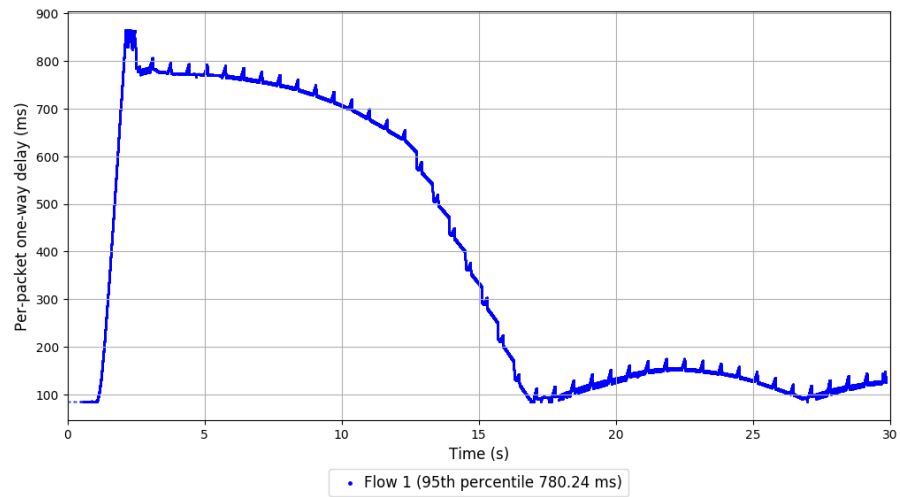
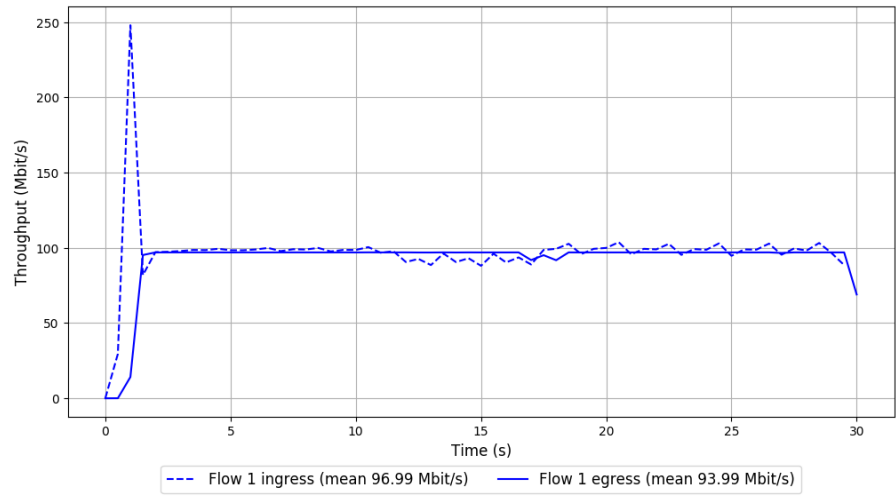
-- Flow 1:

Average throughput: 93.99 Mbit/s

95th percentile per-packet one-way delay: 780.239 ms

Loss rate: 3.64%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-11 08:32:40

End at: 2018-09-11 08:33:10

Local clock offset: -5.8 ms

Remote clock offset: 1.291 ms

Below is generated by plot.py at 2018-09-11 09:03:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 93.27 Mbit/s

95th percentile per-packet one-way delay: 640.769 ms

Loss rate: 5.31%

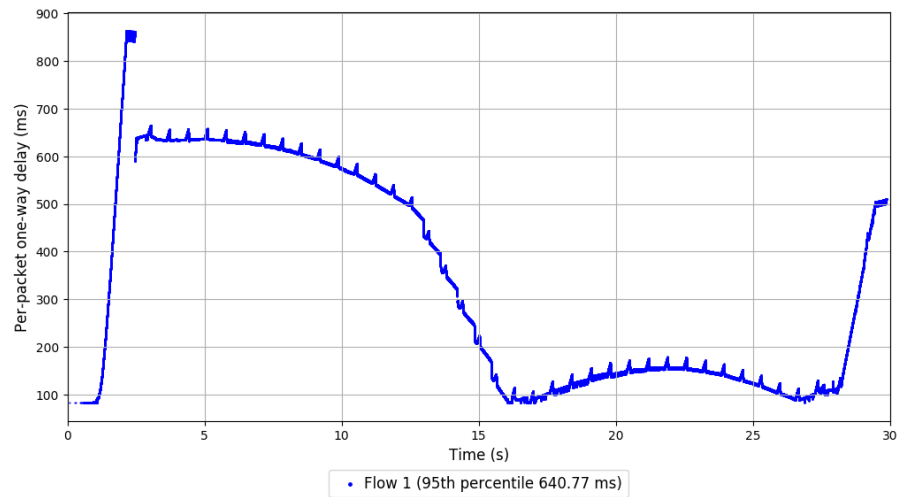
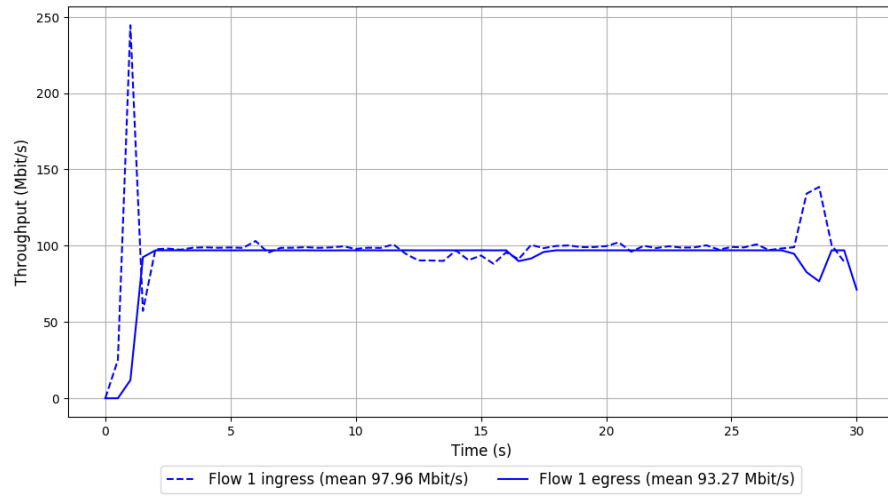
-- Flow 1:

Average throughput: 93.27 Mbit/s

95th percentile per-packet one-way delay: 640.769 ms

Loss rate: 5.31%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-11 08:54:15

End at: 2018-09-11 08:54:45

Local clock offset: -5.354 ms

Remote clock offset: 1.327 ms

Below is generated by plot.py at 2018-09-11 09:03:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 94.04 Mbit/s

95th percentile per-packet one-way delay: 771.067 ms

Loss rate: 3.50%

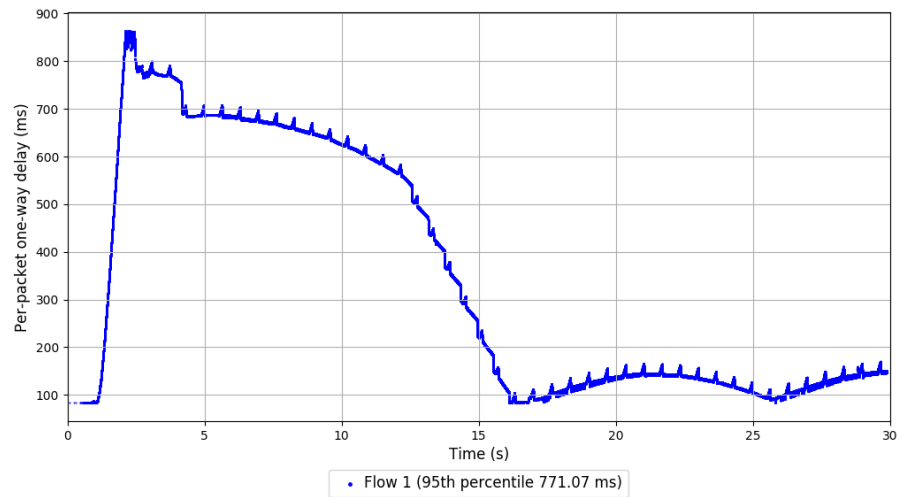
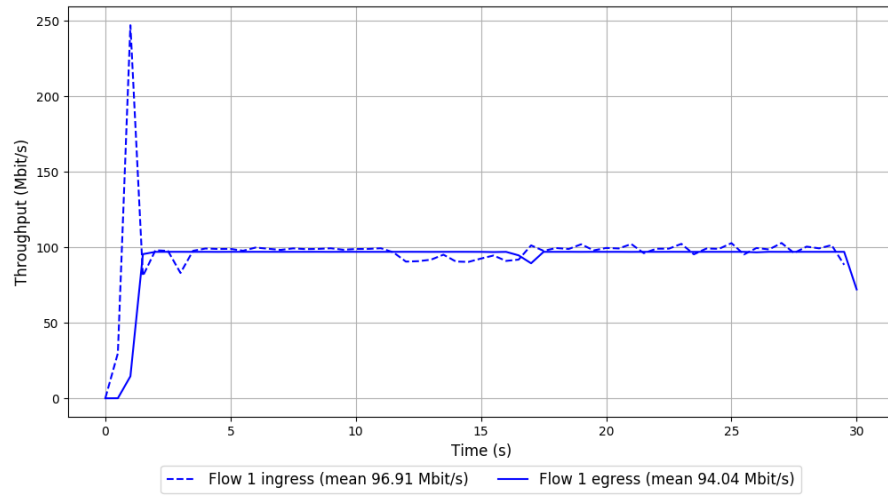
-- Flow 1:

Average throughput: 94.04 Mbit/s

95th percentile per-packet one-way delay: 771.067 ms

Loss rate: 3.50%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-11 07:19:05

End at: 2018-09-11 07:19:35

Local clock offset: -4.853 ms

Remote clock offset: 4.963 ms

Below is generated by plot.py at 2018-09-11 09:03:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 91.89 Mbit/s

95th percentile per-packet one-way delay: 107.487 ms

Loss rate: 2.38%

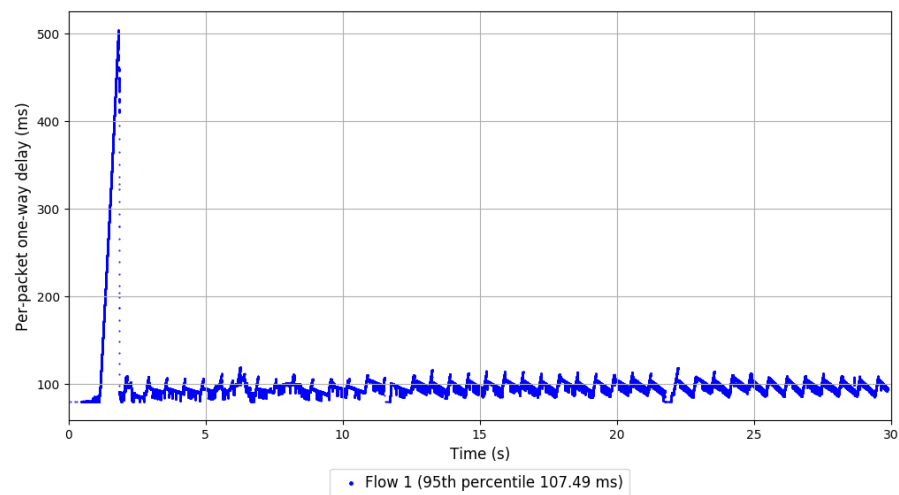
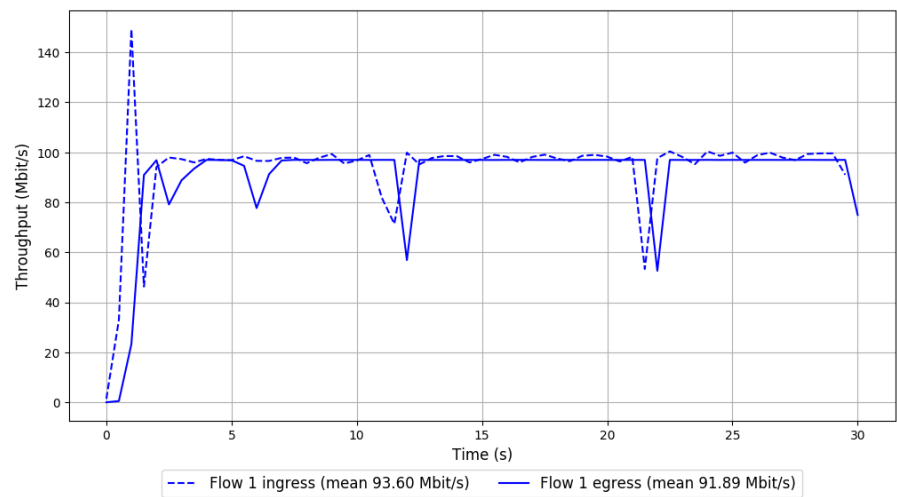
-- Flow 1:

Average throughput: 91.89 Mbit/s

95th percentile per-packet one-way delay: 107.487 ms

Loss rate: 2.38%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-11 07:40:29

End at: 2018-09-11 07:40:59

Local clock offset: -5.446 ms

Remote clock offset: 4.455 ms

Below is generated by plot.py at 2018-09-11 09:03:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.80 Mbit/s

95th percentile per-packet one-way delay: 107.747 ms

Loss rate: 1.17%

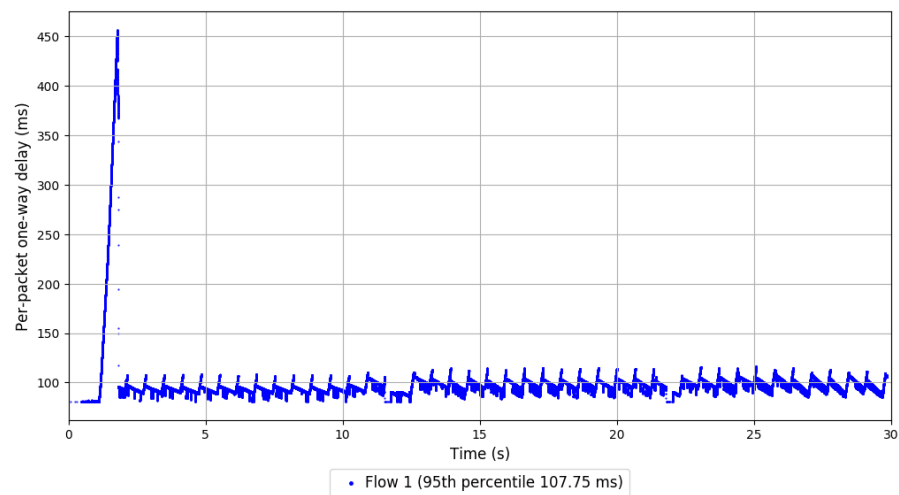
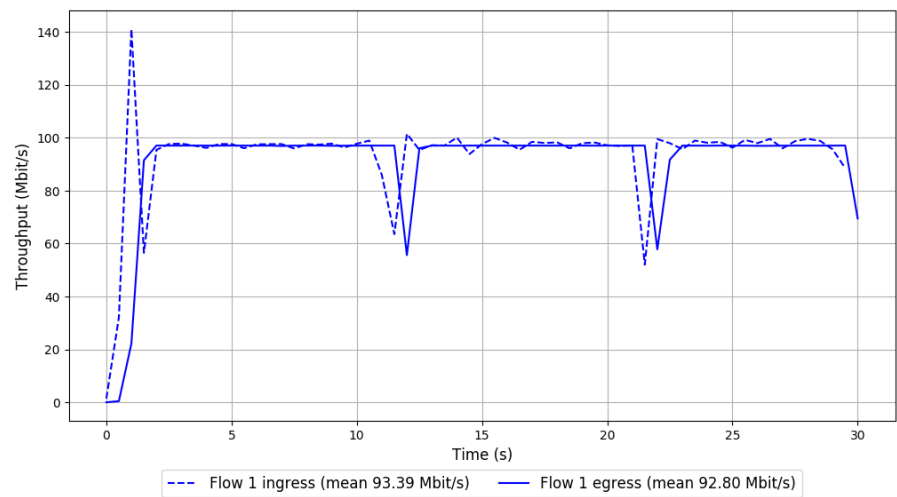
-- Flow 1:

Average throughput: 92.80 Mbit/s

95th percentile per-packet one-way delay: 107.747 ms

Loss rate: 1.17%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-11 08:01:46

End at: 2018-09-11 08:02:16

Local clock offset: -5.733 ms

Remote clock offset: 0.321 ms

Below is generated by plot.py at 2018-09-11 09:04:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.43 Mbit/s

95th percentile per-packet one-way delay: 160.817 ms

Loss rate: 1.69%

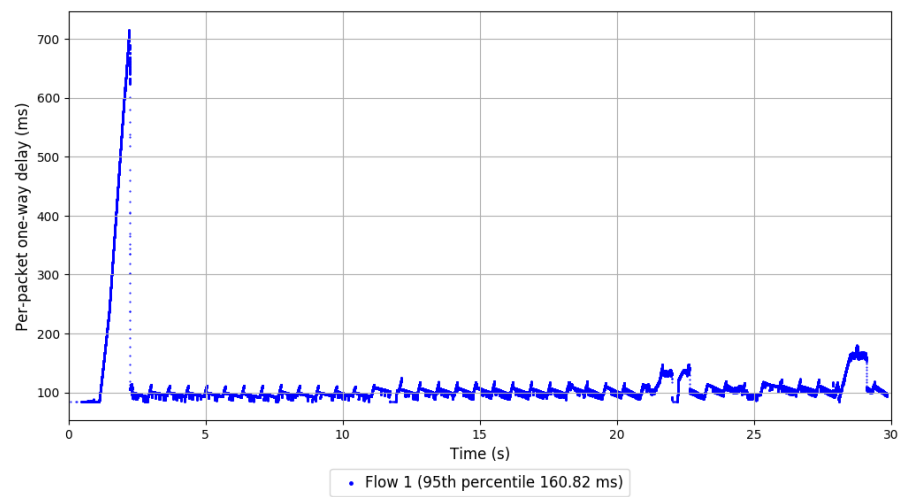
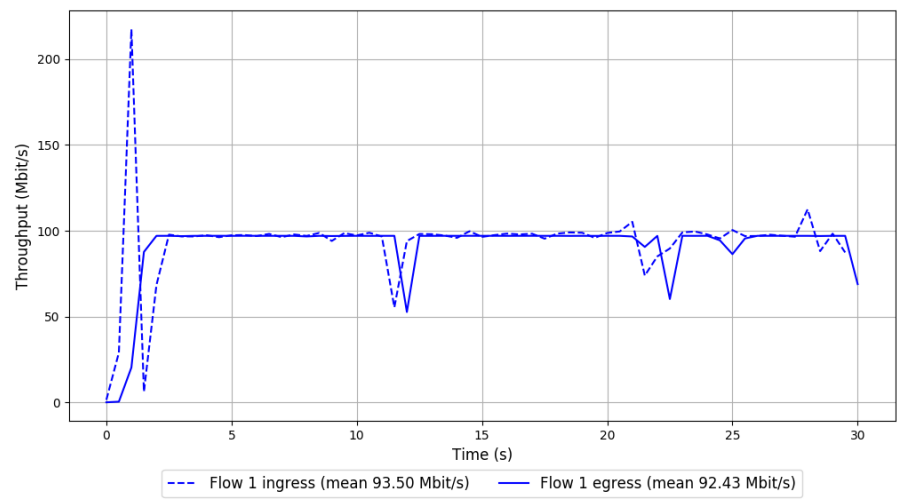
-- Flow 1:

Average throughput: 92.43 Mbit/s

95th percentile per-packet one-way delay: 160.817 ms

Loss rate: 1.69%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-11 08:23:12

End at: 2018-09-11 08:23:42

Local clock offset: -6.121 ms

Remote clock offset: 5.412 ms

Below is generated by plot.py at 2018-09-11 09:04:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.92 Mbit/s

95th percentile per-packet one-way delay: 113.012 ms

Loss rate: 1.41%

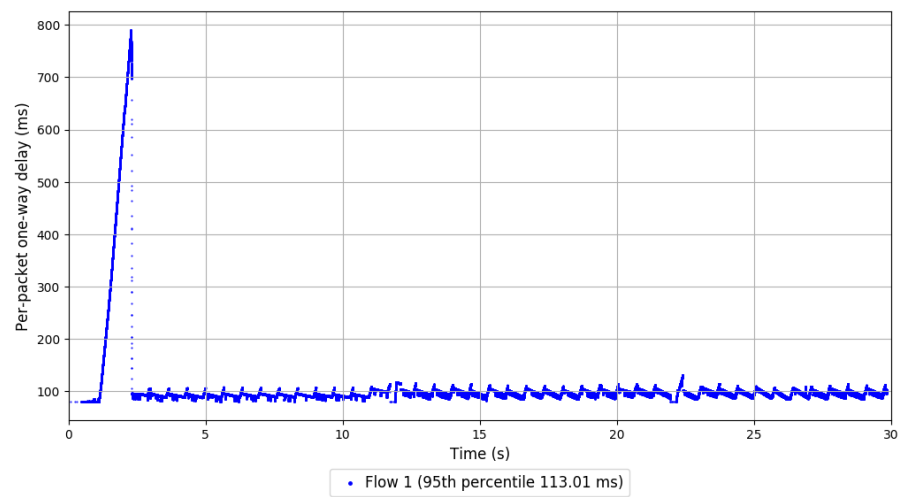
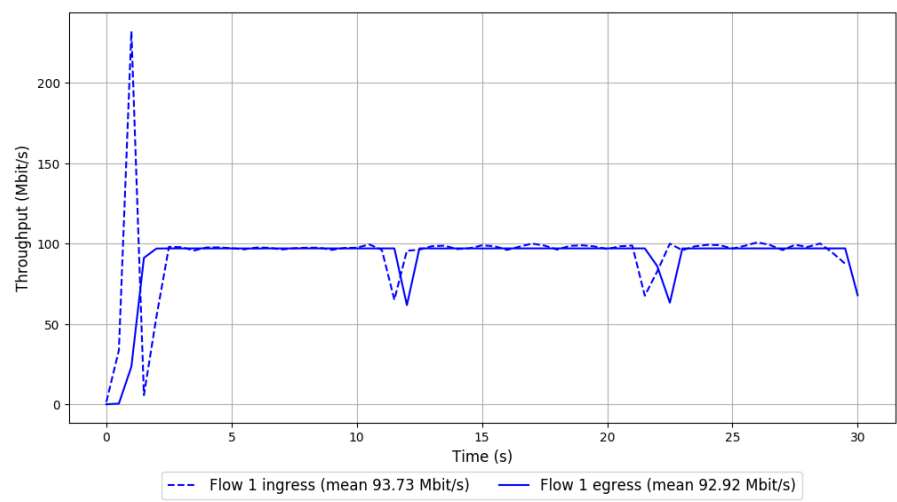
-- Flow 1:

Average throughput: 92.92 Mbit/s

95th percentile per-packet one-way delay: 113.012 ms

Loss rate: 1.41%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-11 08:44:44

End at: 2018-09-11 08:45:14

Local clock offset: -5.48 ms

Remote clock offset: 5.736 ms

Below is generated by plot.py at 2018-09-11 09:04:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 91.71 Mbit/s

95th percentile per-packet one-way delay: 111.467 ms

Loss rate: 2.27%

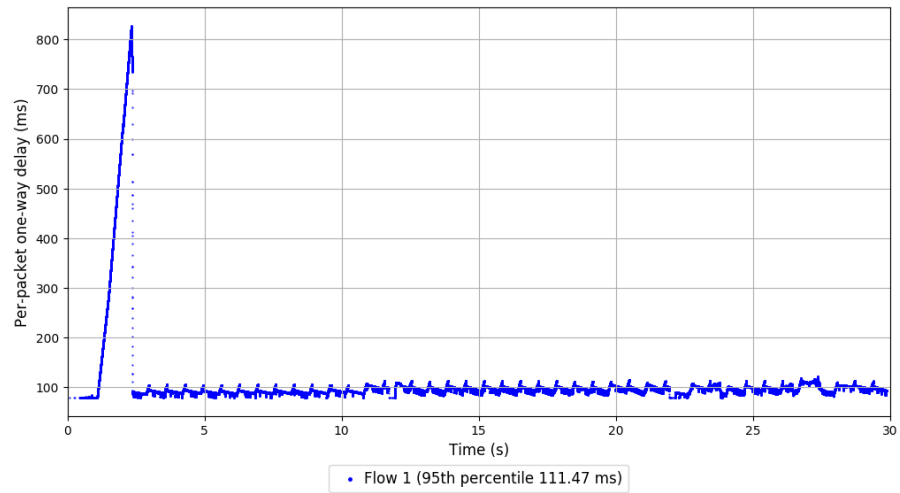
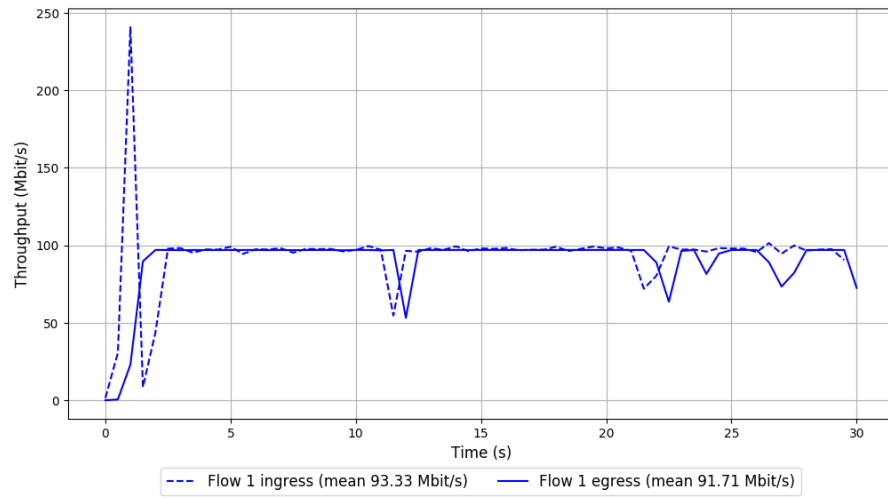
-- Flow 1:

Average throughput: 91.71 Mbit/s

95th percentile per-packet one-way delay: 111.467 ms

Loss rate: 2.27%

Run 5: Report of FillP-Sheep — Data Link



Run 1: Statistics of Indigo

Start at: 2018-09-11 07:15:28

End at: 2018-09-11 07:15:58

Local clock offset: -5.14 ms

Remote clock offset: 0.716 ms

Below is generated by plot.py at 2018-09-11 09:04:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 93.31 Mbit/s

95th percentile per-packet one-way delay: 147.555 ms

Loss rate: 0.92%

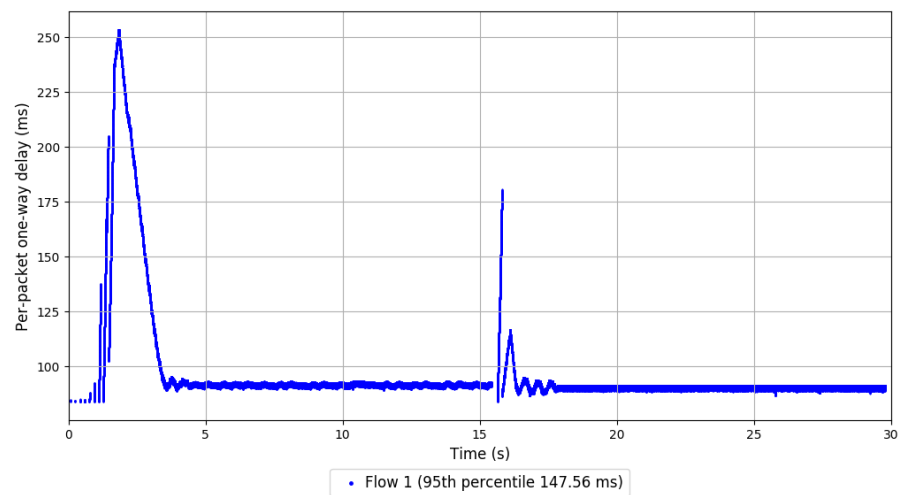
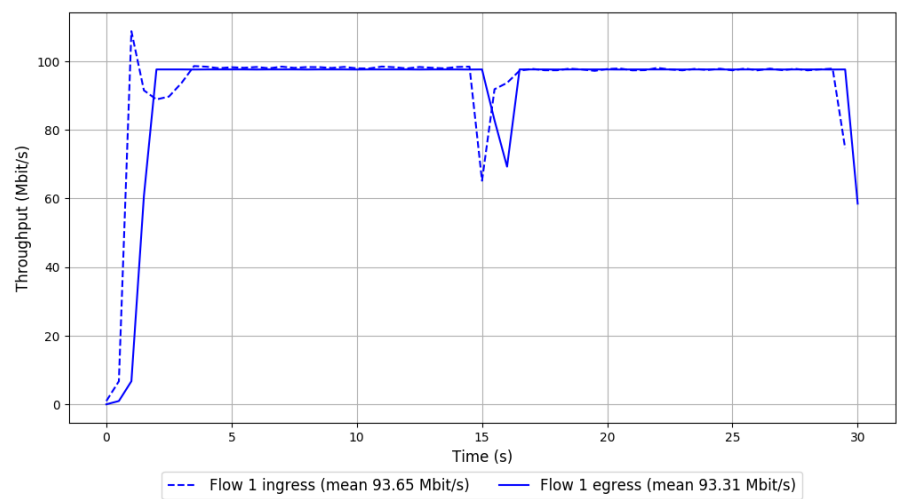
-- Flow 1:

Average throughput: 93.31 Mbit/s

95th percentile per-packet one-way delay: 147.555 ms

Loss rate: 0.92%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-11 07:36:45

End at: 2018-09-11 07:37:15

Local clock offset: -4.429 ms

Remote clock offset: 4.553 ms

Below is generated by plot.py at 2018-09-11 09:04:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.90 Mbit/s

95th percentile per-packet one-way delay: 147.825 ms

Loss rate: 3.16%

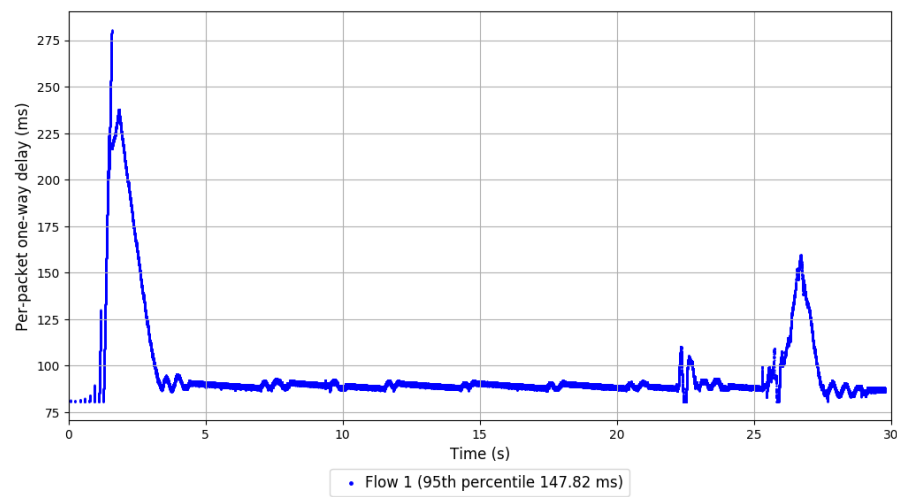
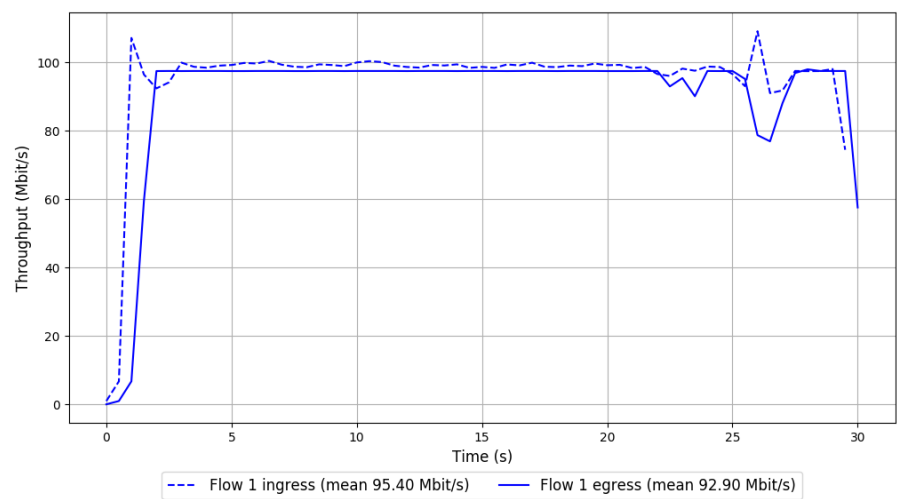
-- Flow 1:

Average throughput: 92.90 Mbit/s

95th percentile per-packet one-way delay: 147.825 ms

Loss rate: 3.16%

Run 2: Report of Indigo — Data Link

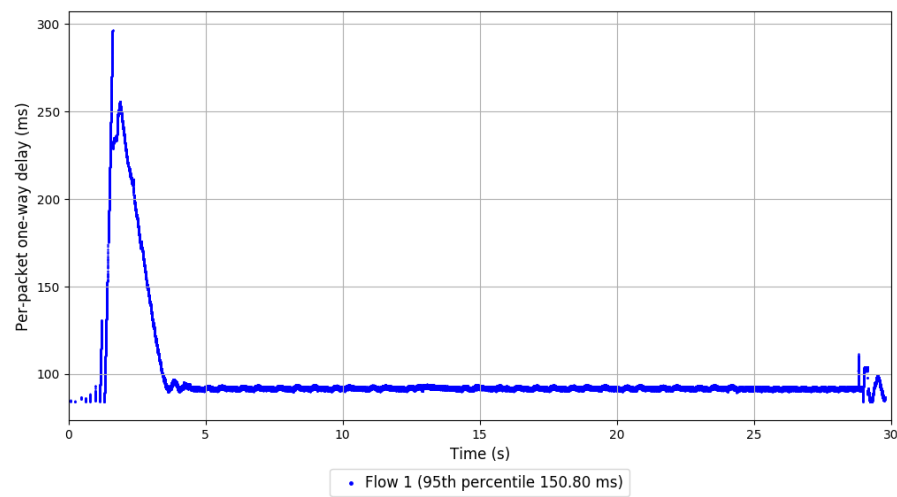
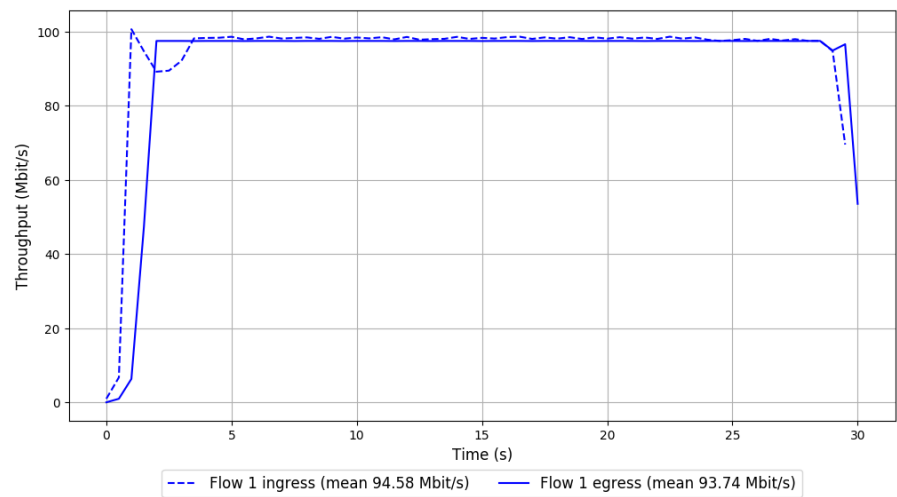


Run 3: Statistics of Indigo

Start at: 2018-09-11 07:58:10
End at: 2018-09-11 07:58:40
Local clock offset: -5.574 ms
Remote clock offset: -0.063 ms

Below is generated by plot.py at 2018-09-11 09:04:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 93.74 Mbit/s
95th percentile per-packet one-way delay: 150.801 ms
Loss rate: 1.44%
-- Flow 1:
Average throughput: 93.74 Mbit/s
95th percentile per-packet one-way delay: 150.801 ms
Loss rate: 1.44%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-11 08:19:34

End at: 2018-09-11 08:20:05

Local clock offset: -5.258 ms

Remote clock offset: 5.568 ms

Below is generated by plot.py at 2018-09-11 09:04:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 93.95 Mbit/s

95th percentile per-packet one-way delay: 90.168 ms

Loss rate: 0.63%

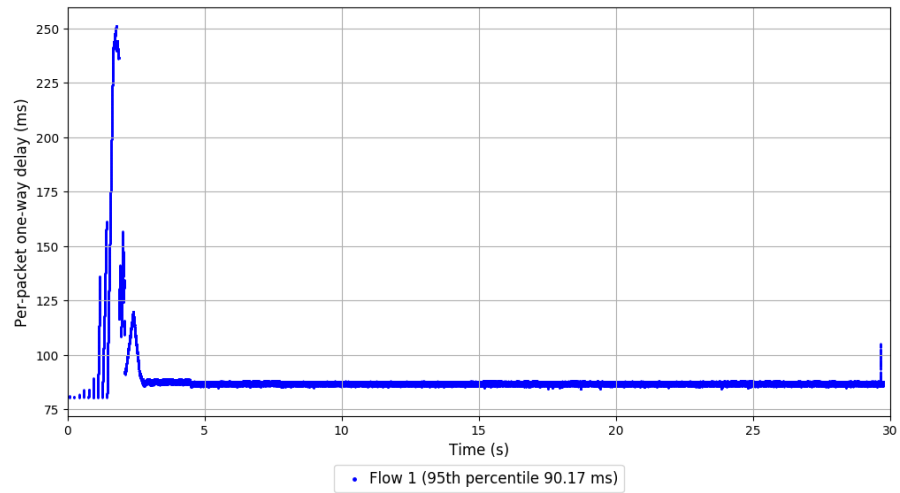
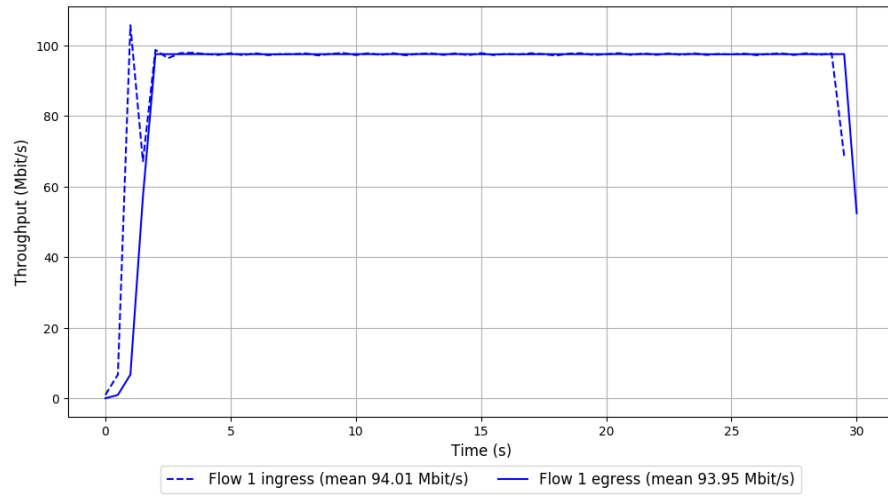
-- Flow 1:

Average throughput: 93.95 Mbit/s

95th percentile per-packet one-way delay: 90.168 ms

Loss rate: 0.63%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-11 08:41:06

End at: 2018-09-11 08:41:36

Local clock offset: -4.779 ms

Remote clock offset: 5.987 ms

Below is generated by plot.py at 2018-09-11 09:04:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.13 Mbit/s

95th percentile per-packet one-way delay: 142.249 ms

Loss rate: 2.34%

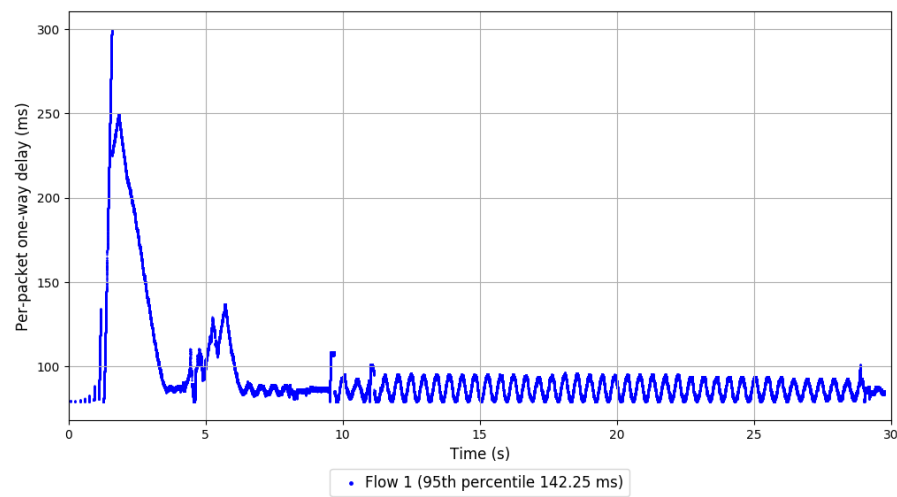
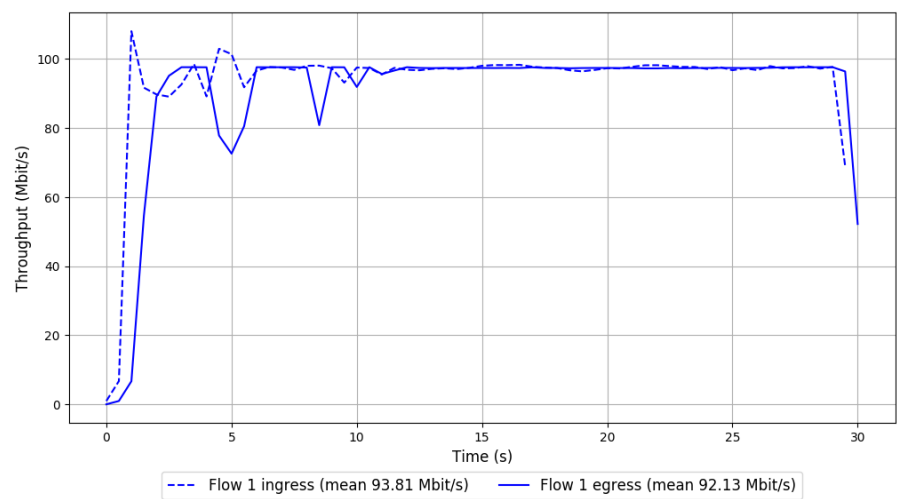
-- Flow 1:

Average throughput: 92.13 Mbit/s

95th percentile per-packet one-way delay: 142.249 ms

Loss rate: 2.34%

Run 5: Report of Indigo — Data Link

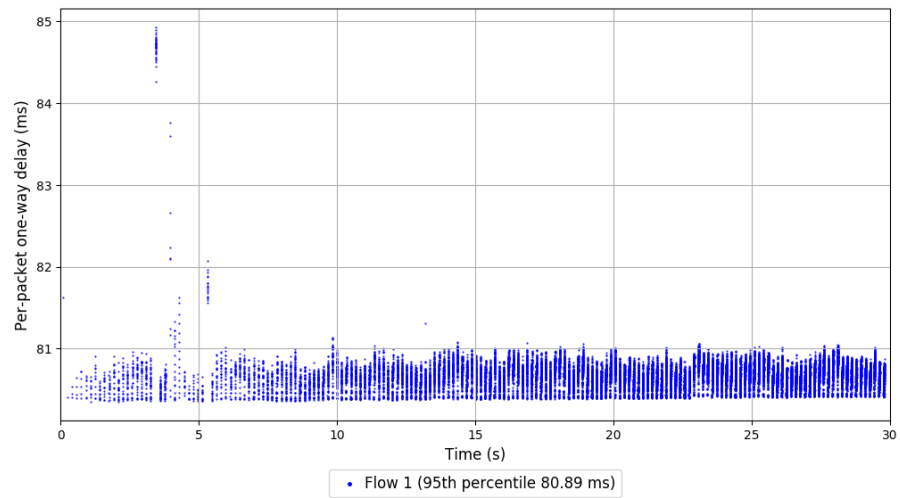
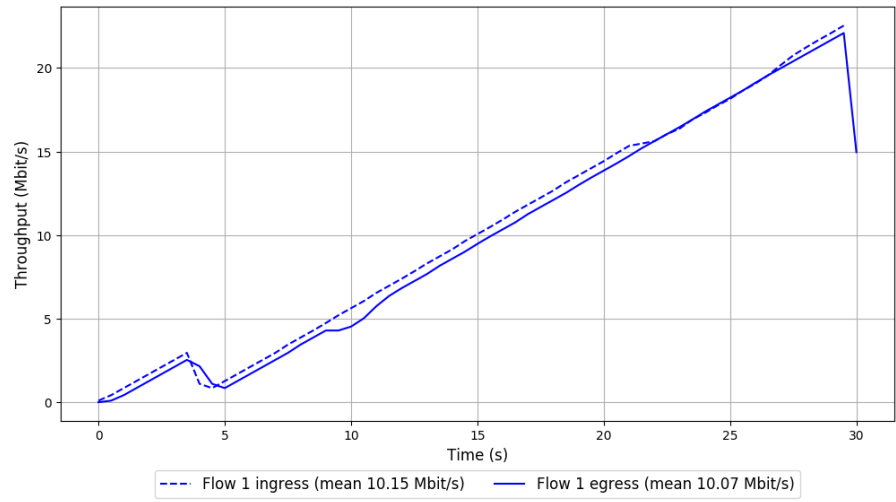


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-11 07:32:07
End at: 2018-09-11 07:32:37
Local clock offset: -4.851 ms
Remote clock offset: 4.018 ms

# Below is generated by plot.py at 2018-09-11 09:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.07 Mbit/s
95th percentile per-packet one-way delay: 80.890 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 10.07 Mbit/s
95th percentile per-packet one-way delay: 80.890 ms
Loss rate: 1.38%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-11 07:53:32

End at: 2018-09-11 07:54:02

Local clock offset: -4.794 ms

Remote clock offset: 4.487 ms

Below is generated by plot.py at 2018-09-11 09:04:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.85 Mbit/s

95th percentile per-packet one-way delay: 80.295 ms

Loss rate: 1.12%

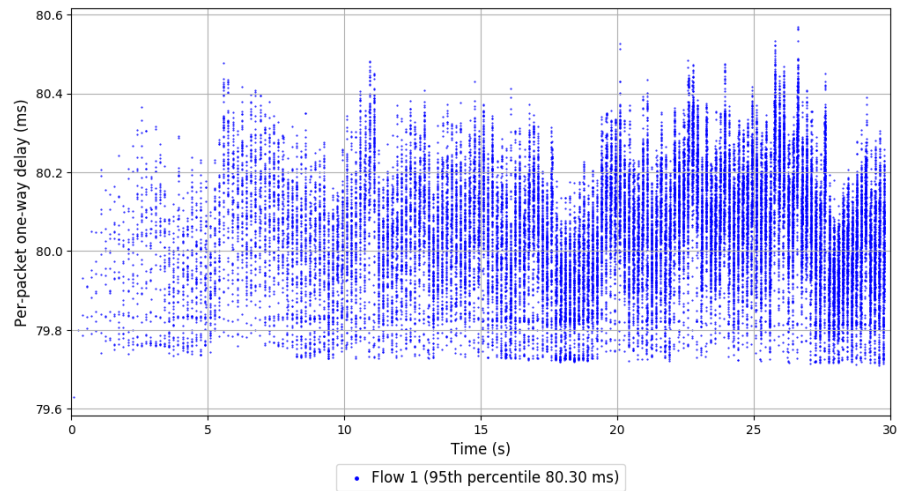
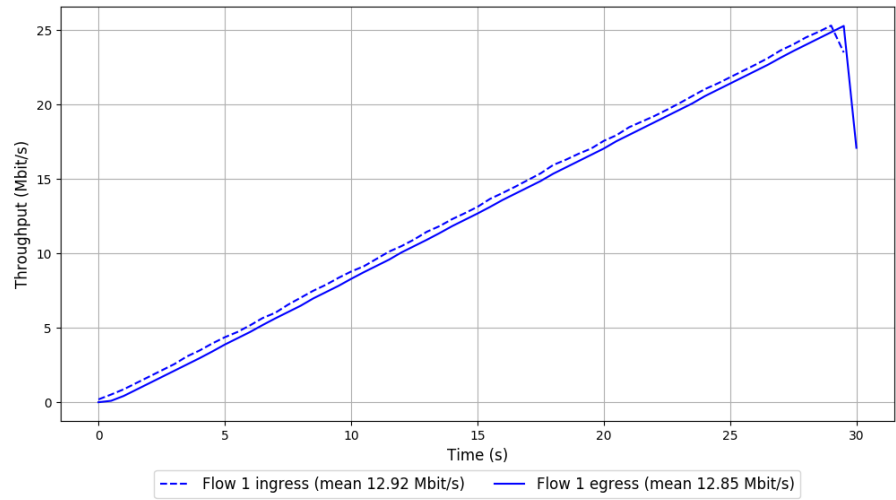
-- Flow 1:

Average throughput: 12.85 Mbit/s

95th percentile per-packet one-way delay: 80.295 ms

Loss rate: 1.12%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-11 08:14:57

End at: 2018-09-11 08:15:27

Local clock offset: -5.228 ms

Remote clock offset: 0.982 ms

Below is generated by plot.py at 2018-09-11 09:04:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.08 Mbit/s

95th percentile per-packet one-way delay: 84.361 ms

Loss rate: 1.20%

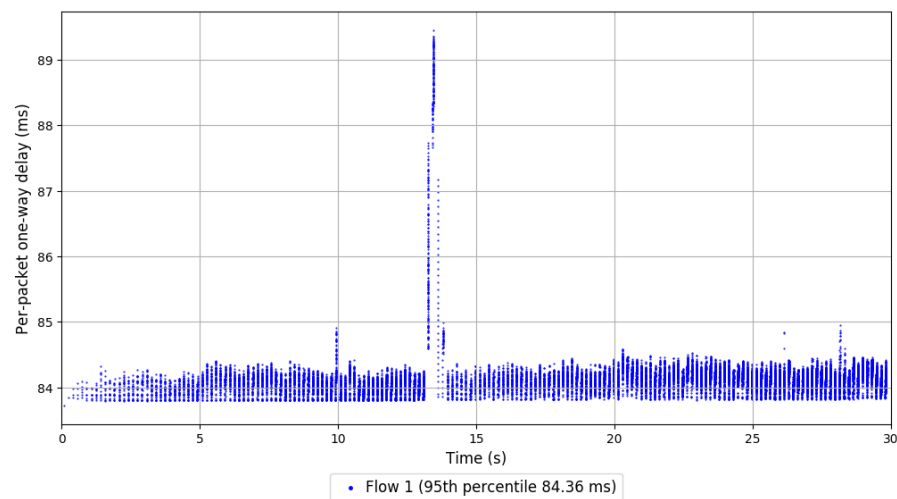
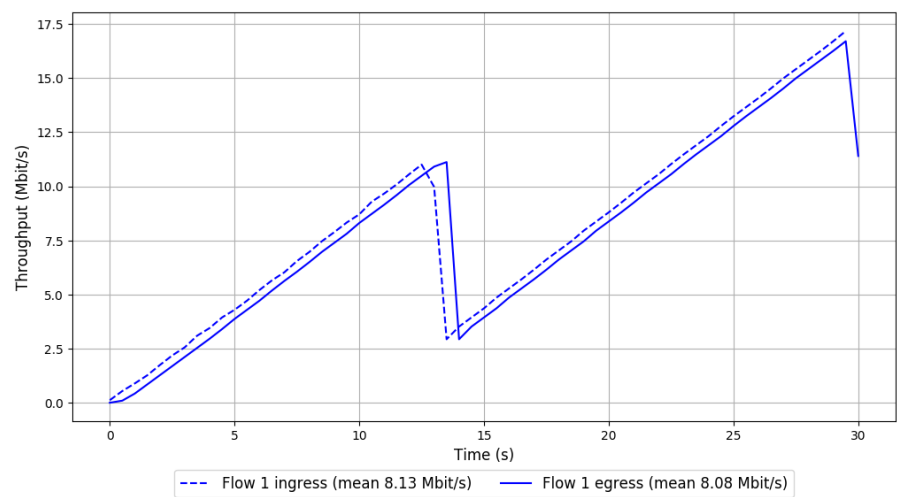
-- Flow 1:

Average throughput: 8.08 Mbit/s

95th percentile per-packet one-way delay: 84.361 ms

Loss rate: 1.20%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-11 08:36:28

End at: 2018-09-11 08:36:58

Local clock offset: -4.974 ms

Remote clock offset: 1.733 ms

Below is generated by plot.py at 2018-09-11 09:04:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.85 Mbit/s

95th percentile per-packet one-way delay: 85.134 ms

Loss rate: 1.11%

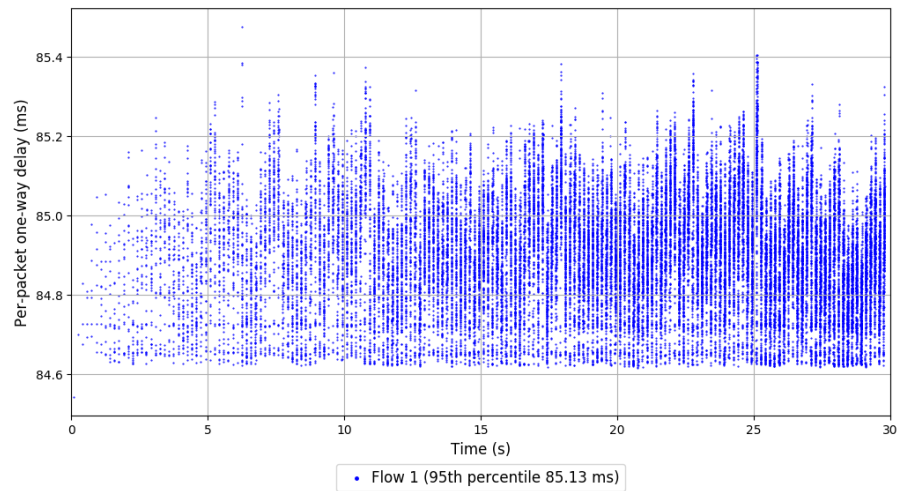
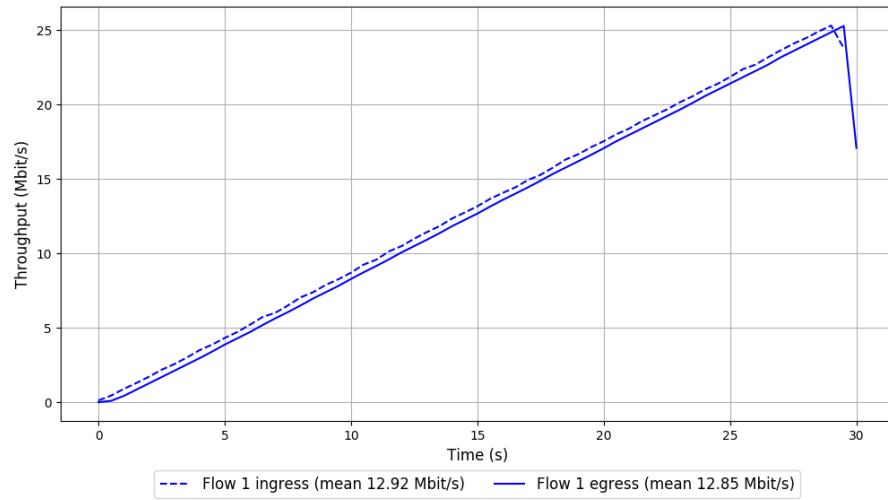
-- Flow 1:

Average throughput: 12.85 Mbit/s

95th percentile per-packet one-way delay: 85.134 ms

Loss rate: 1.11%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-11 08:58:06

End at: 2018-09-11 08:58:36

Local clock offset: -4.535 ms

Remote clock offset: 5.147 ms

Below is generated by plot.py at 2018-09-11 09:04:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 10.79 Mbit/s

95th percentile per-packet one-way delay: 80.074 ms

Loss rate: 1.22%

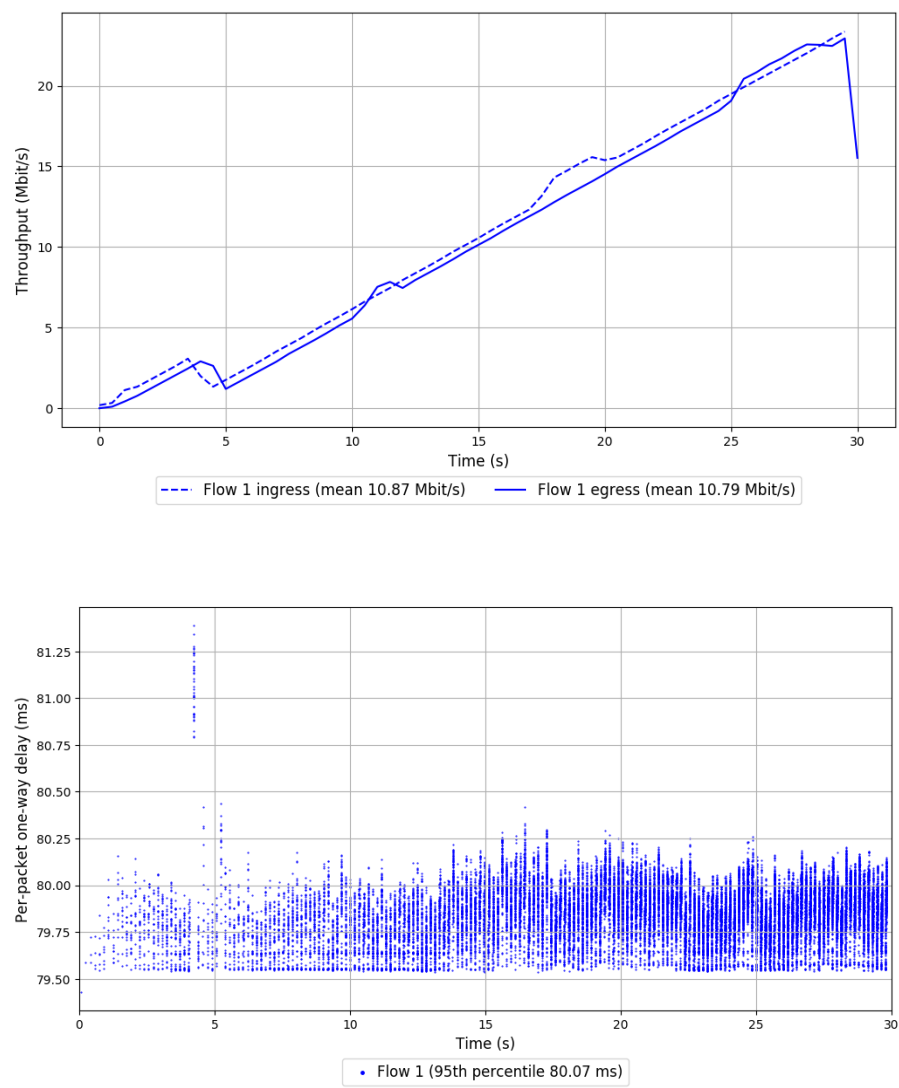
-- Flow 1:

Average throughput: 10.79 Mbit/s

95th percentile per-packet one-way delay: 80.074 ms

Loss rate: 1.22%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-11 07:23:46

End at: 2018-09-11 07:24:16

Local clock offset: -3.845 ms

Remote clock offset: 4.565 ms

Below is generated by plot.py at 2018-09-11 09:05:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.15 Mbit/s

95th percentile per-packet one-way delay: 105.128 ms

Loss rate: 2.20%

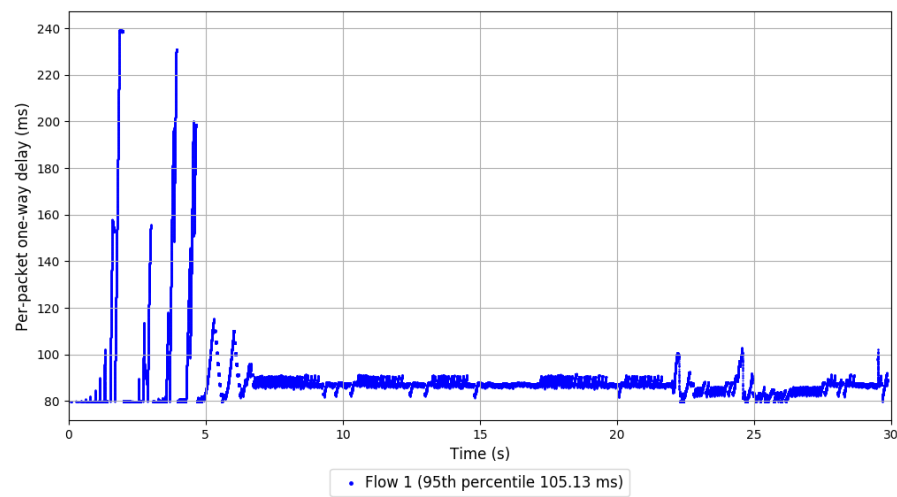
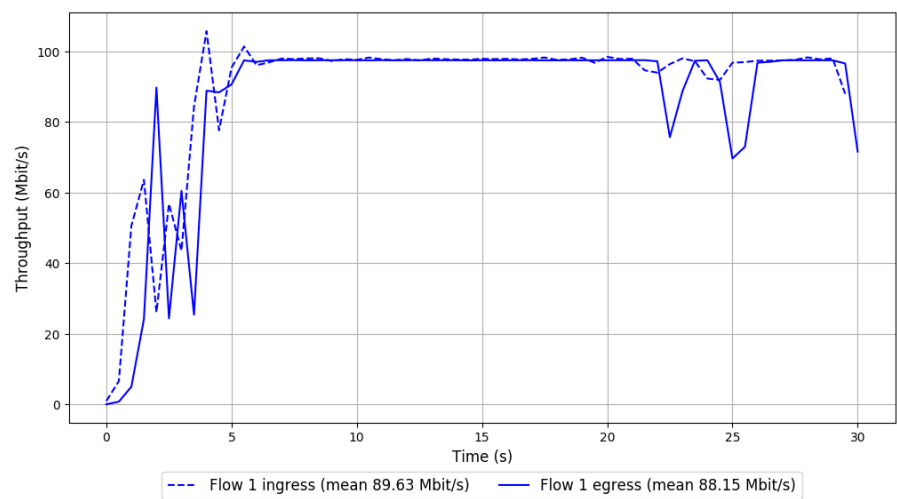
-- Flow 1:

Average throughput: 88.15 Mbit/s

95th percentile per-packet one-way delay: 105.128 ms

Loss rate: 2.20%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-11 07:45:09

End at: 2018-09-11 07:45:39

Local clock offset: -5.486 ms

Remote clock offset: 0.668 ms

Below is generated by plot.py at 2018-09-11 09:05:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.07 Mbit/s

95th percentile per-packet one-way delay: 98.883 ms

Loss rate: 0.84%

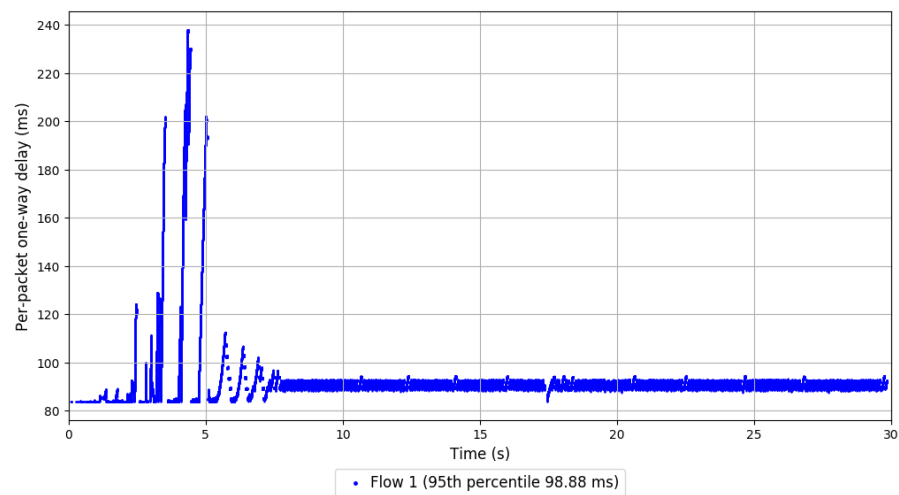
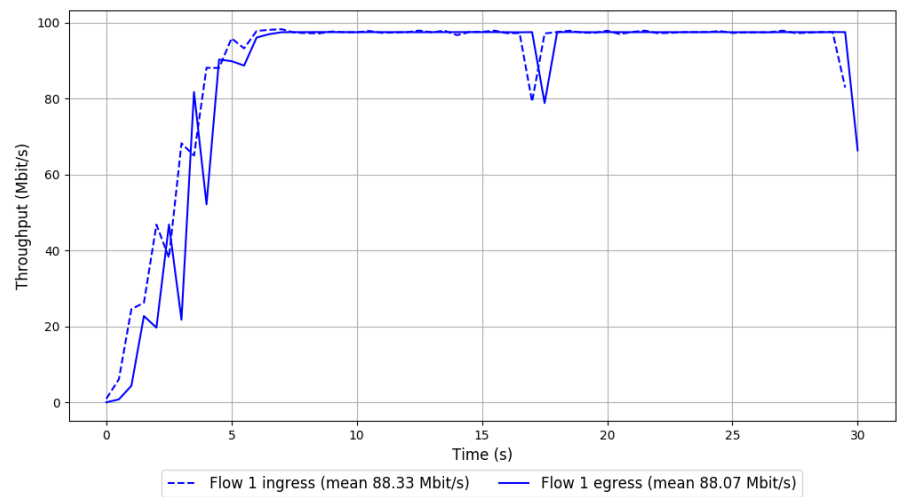
-- Flow 1:

Average throughput: 88.07 Mbit/s

95th percentile per-packet one-way delay: 98.883 ms

Loss rate: 0.84%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-11 08:06:27

End at: 2018-09-11 08:06:57

Local clock offset: -5.084 ms

Remote clock offset: 4.247 ms

Below is generated by plot.py at 2018-09-11 09:05:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 86.61 Mbit/s

95th percentile per-packet one-way delay: 101.872 ms

Loss rate: 0.69%

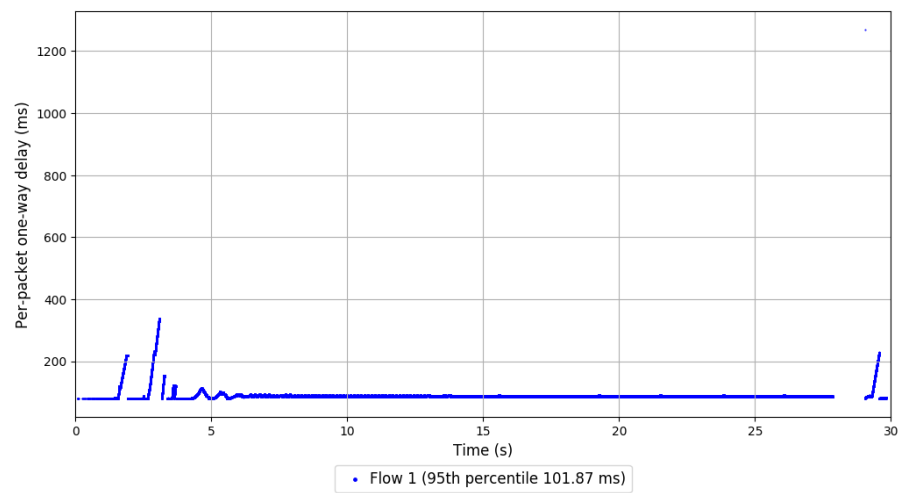
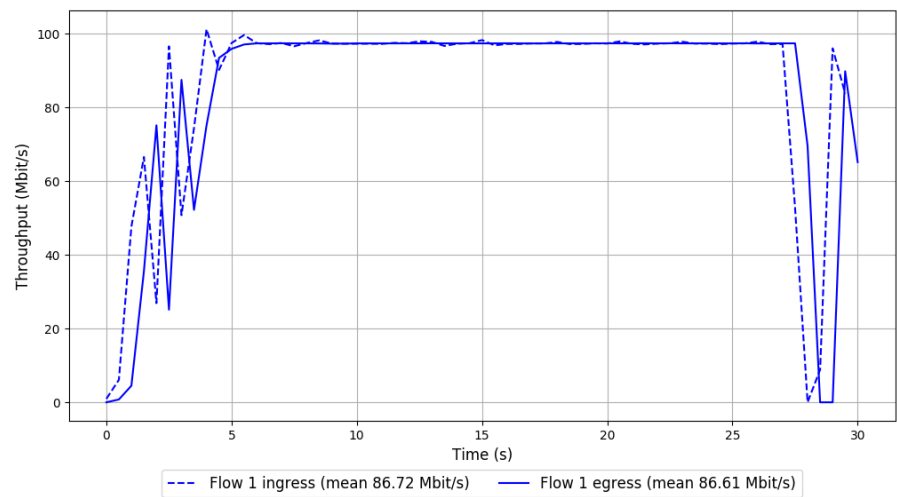
-- Flow 1:

Average throughput: 86.61 Mbit/s

95th percentile per-packet one-way delay: 101.872 ms

Loss rate: 0.69%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-11 08:27:54

End at: 2018-09-11 08:28:24

Local clock offset: -5.284 ms

Remote clock offset: 5.285 ms

Below is generated by plot.py at 2018-09-11 09:05:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.87 Mbit/s

95th percentile per-packet one-way delay: 102.940 ms

Loss rate: 1.67%

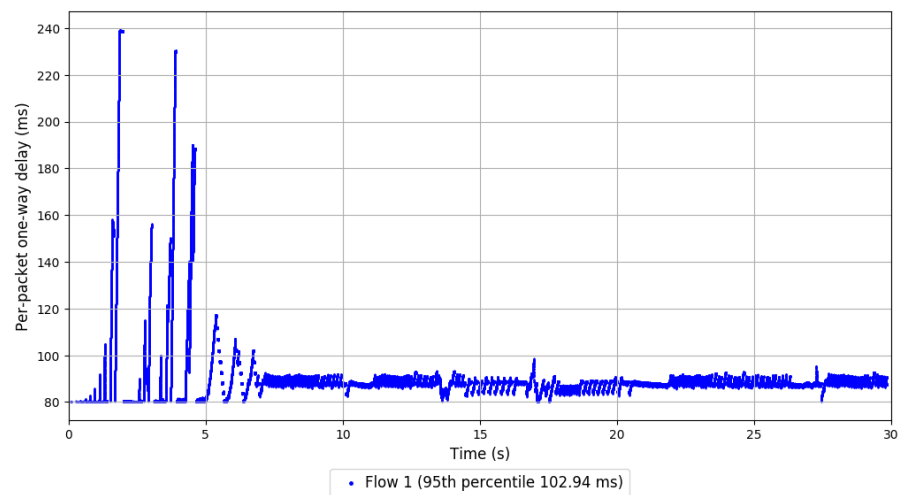
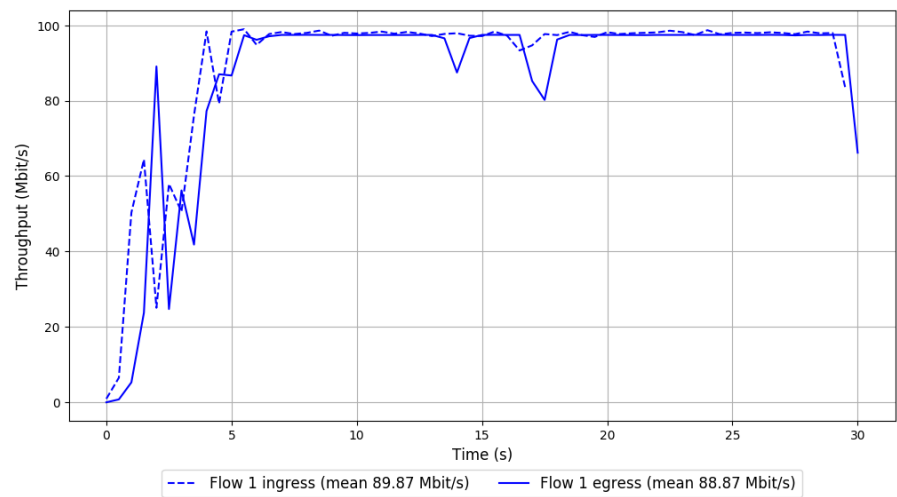
-- Flow 1:

Average throughput: 88.87 Mbit/s

95th percentile per-packet one-way delay: 102.940 ms

Loss rate: 1.67%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-11 08:49:24

End at: 2018-09-11 08:49:54

Local clock offset: -5.404 ms

Remote clock offset: 1.465 ms

Below is generated by plot.py at 2018-09-11 09:05:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 89.55 Mbit/s

95th percentile per-packet one-way delay: 105.994 ms

Loss rate: 0.65%

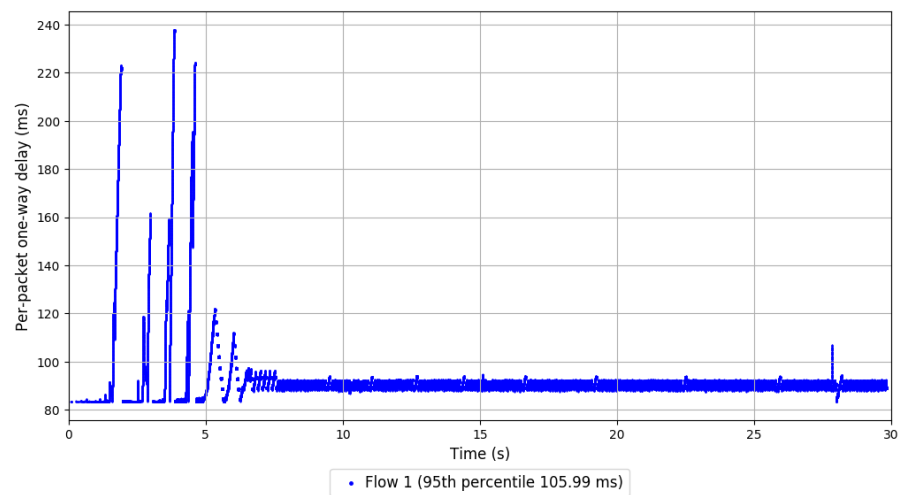
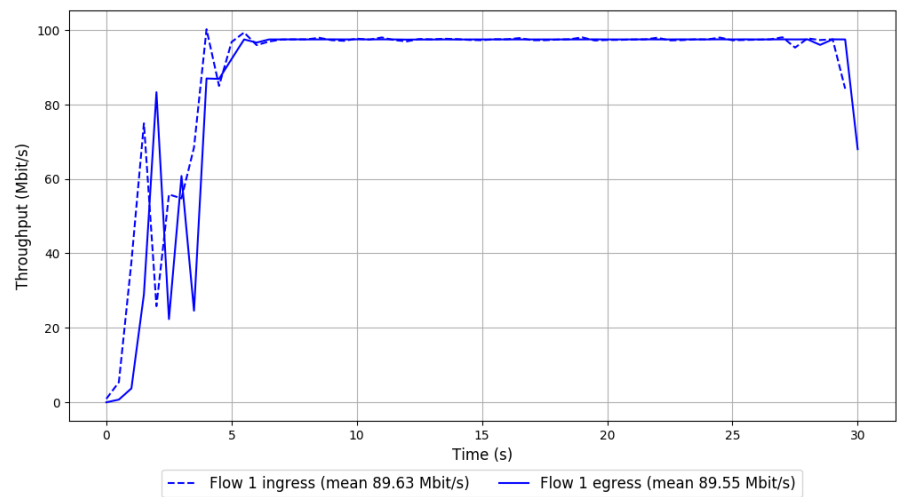
-- Flow 1:

Average throughput: 89.55 Mbit/s

95th percentile per-packet one-way delay: 105.994 ms

Loss rate: 0.65%

Run 5: Report of Indigo-Muses — Data Link

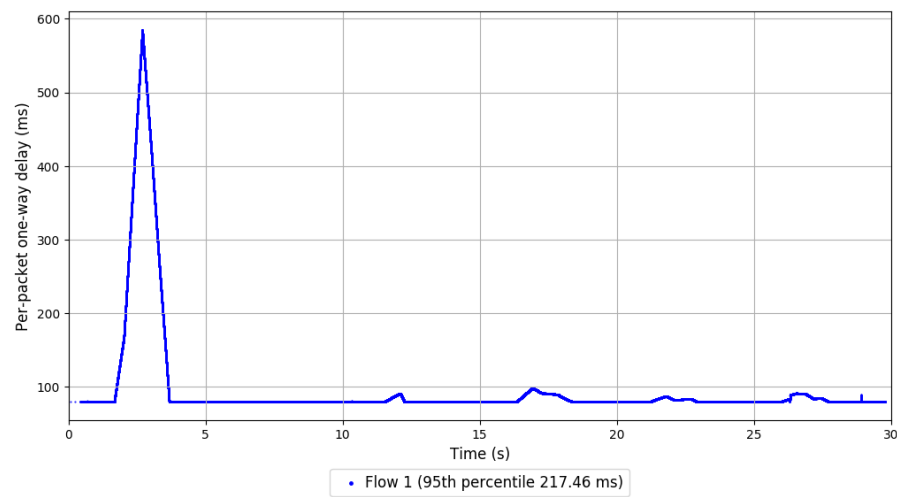
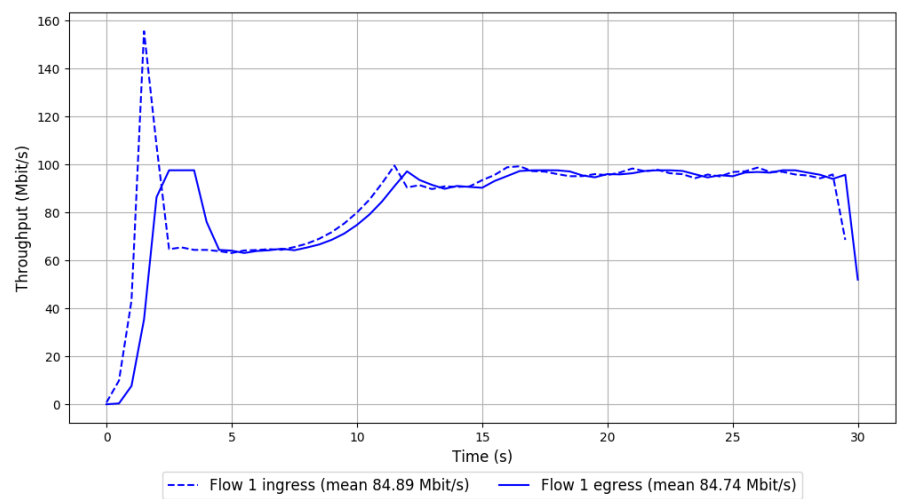


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-11 07:20:16
End at: 2018-09-11 07:20:46
Local clock offset: -4.01 ms
Remote clock offset: 4.72 ms

# Below is generated by plot.py at 2018-09-11 09:05:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.74 Mbit/s
95th percentile per-packet one-way delay: 217.459 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 84.74 Mbit/s
95th percentile per-packet one-way delay: 217.459 ms
Loss rate: 0.73%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-11 07:41:41

End at: 2018-09-11 07:42:11

Local clock offset: -4.686 ms

Remote clock offset: 4.358 ms

Below is generated by plot.py at 2018-09-11 09:05:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 85.30 Mbit/s

95th percentile per-packet one-way delay: 212.098 ms

Loss rate: 2.01%

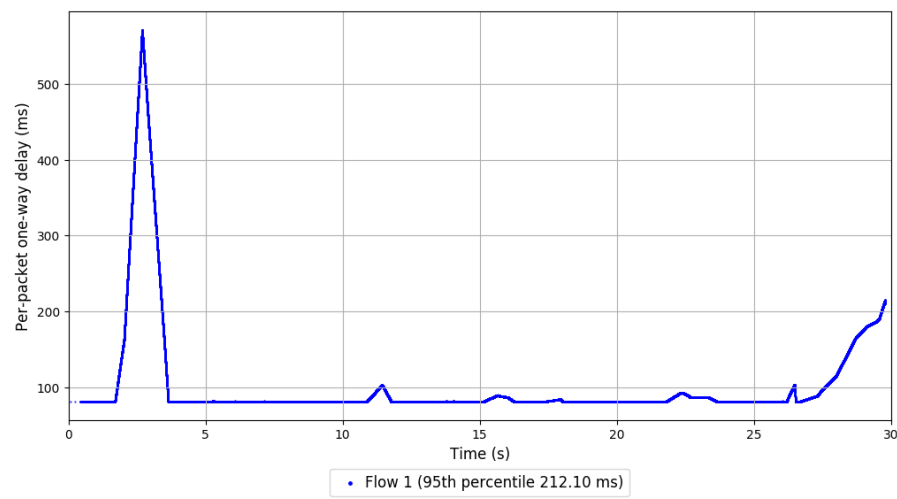
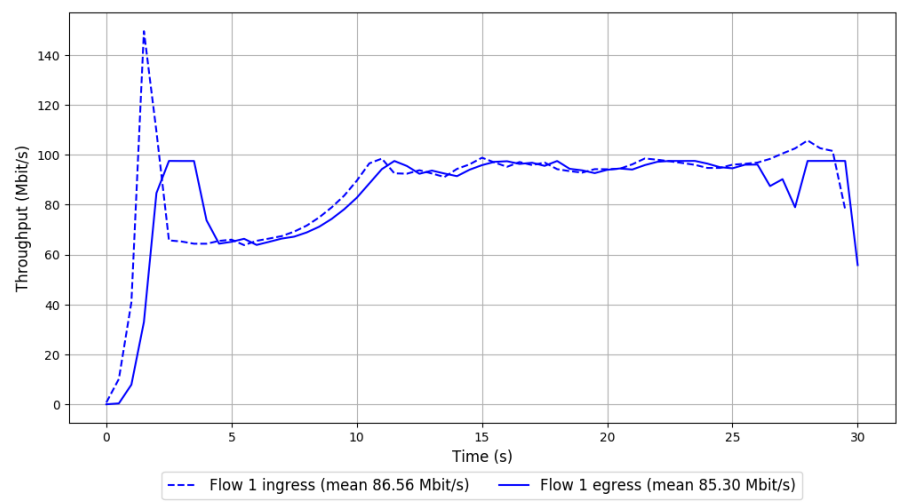
-- Flow 1:

Average throughput: 85.30 Mbit/s

95th percentile per-packet one-way delay: 212.098 ms

Loss rate: 2.01%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-11 08:02:57

End at: 2018-09-11 08:03:27

Local clock offset: -5.763 ms

Remote clock offset: 4.562 ms

Below is generated by plot.py at 2018-09-11 09:06:04

Datalink statistics

-- Total of 1 flow:

Average throughput: 85.05 Mbit/s

95th percentile per-packet one-way delay: 205.378 ms

Loss rate: 1.26%

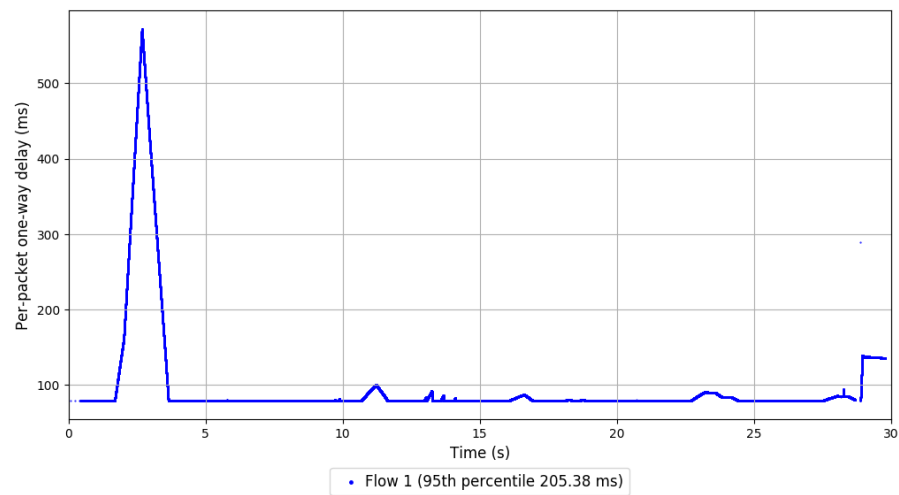
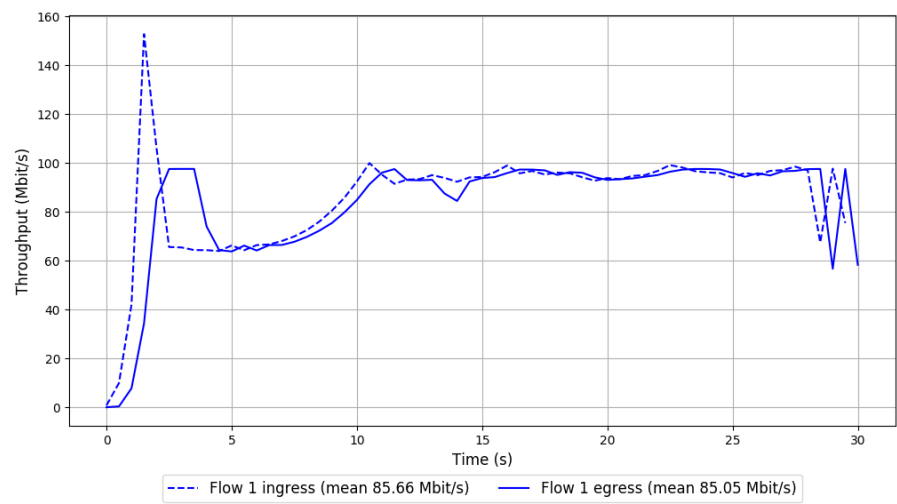
-- Flow 1:

Average throughput: 85.05 Mbit/s

95th percentile per-packet one-way delay: 205.378 ms

Loss rate: 1.26%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-11 08:24:24

End at: 2018-09-11 08:24:54

Local clock offset: -5.36 ms

Remote clock offset: 1.603 ms

Below is generated by plot.py at 2018-09-11 09:06:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 84.82 Mbit/s

95th percentile per-packet one-way delay: 228.197 ms

Loss rate: 0.72%

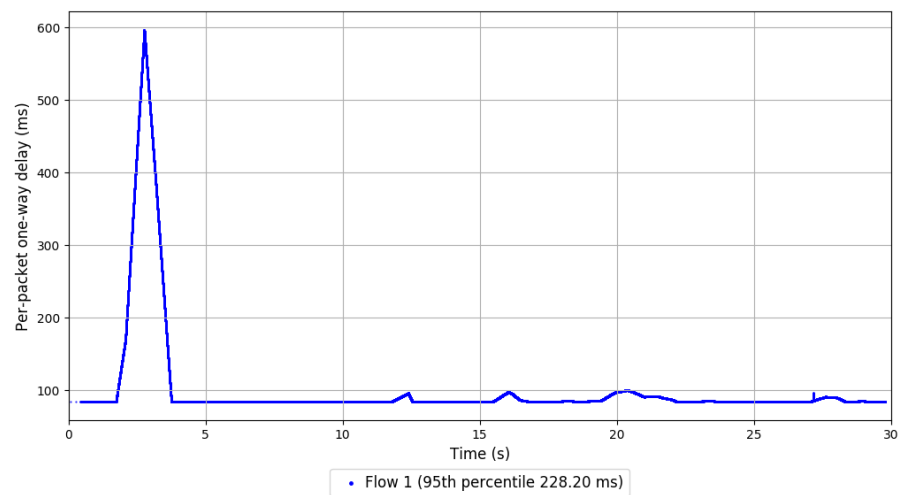
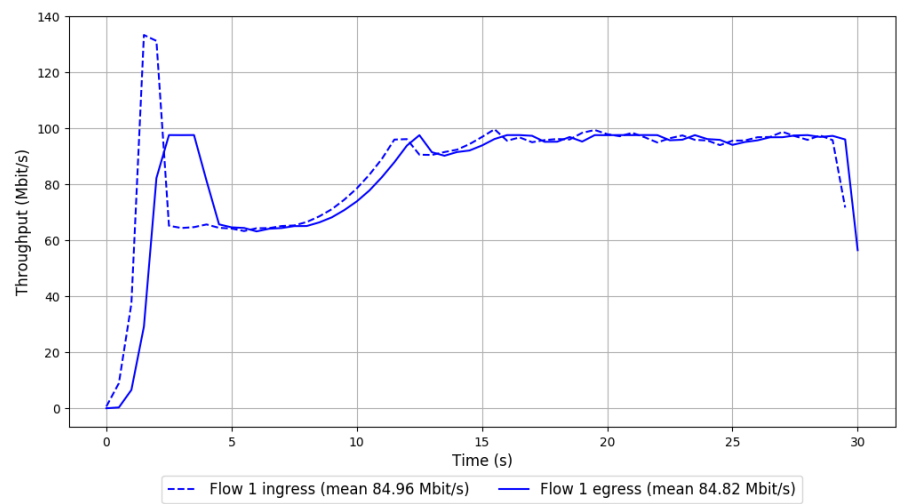
-- Flow 1:

Average throughput: 84.82 Mbit/s

95th percentile per-packet one-way delay: 228.197 ms

Loss rate: 0.72%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-11 08:45:56

End at: 2018-09-11 08:46:26

Local clock offset: -4.677 ms

Remote clock offset: 5.993 ms

Below is generated by plot.py at 2018-09-11 09:06:30

Datalink statistics

-- Total of 1 flow:

Average throughput: 87.49 Mbit/s

95th percentile per-packet one-way delay: 191.130 ms

Loss rate: 1.82%

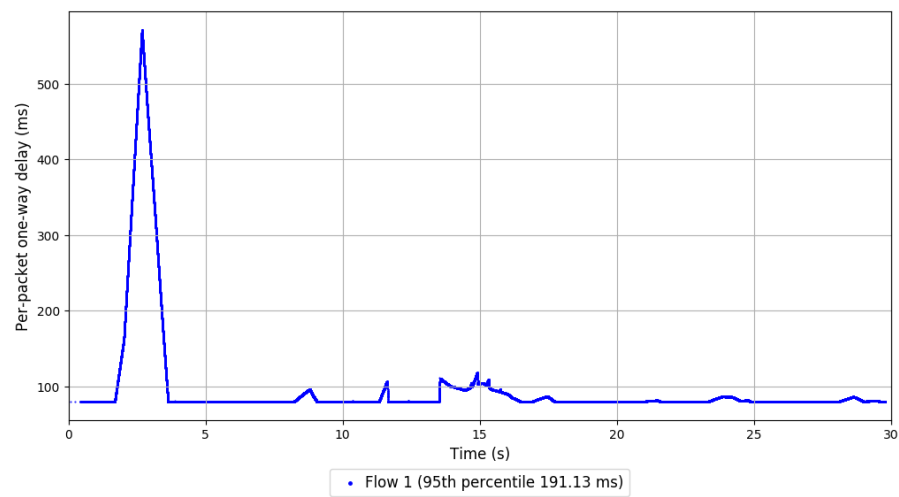
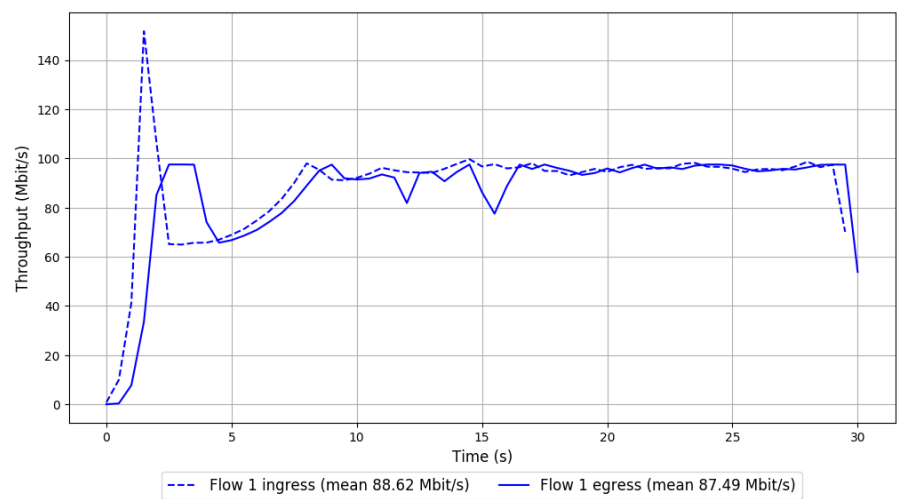
-- Flow 1:

Average throughput: 87.49 Mbit/s

95th percentile per-packet one-way delay: 191.130 ms

Loss rate: 1.82%

Run 5: Report of PCC-Allegro — Data Link

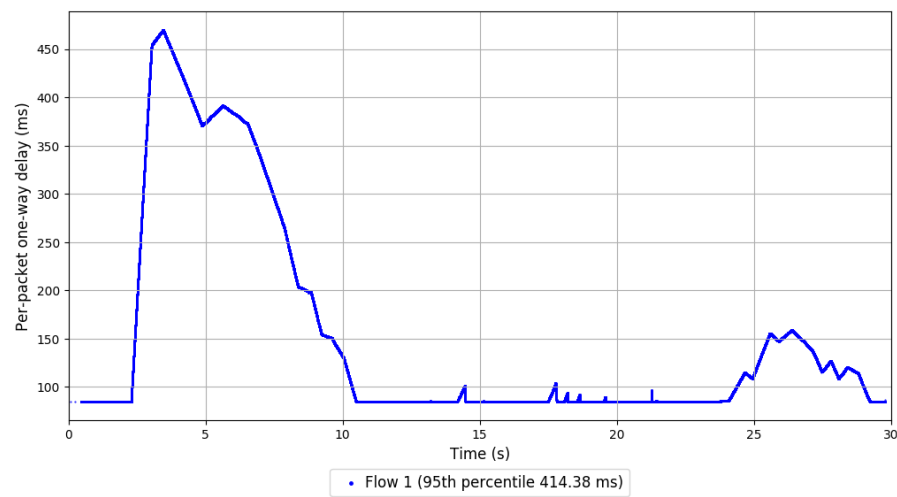
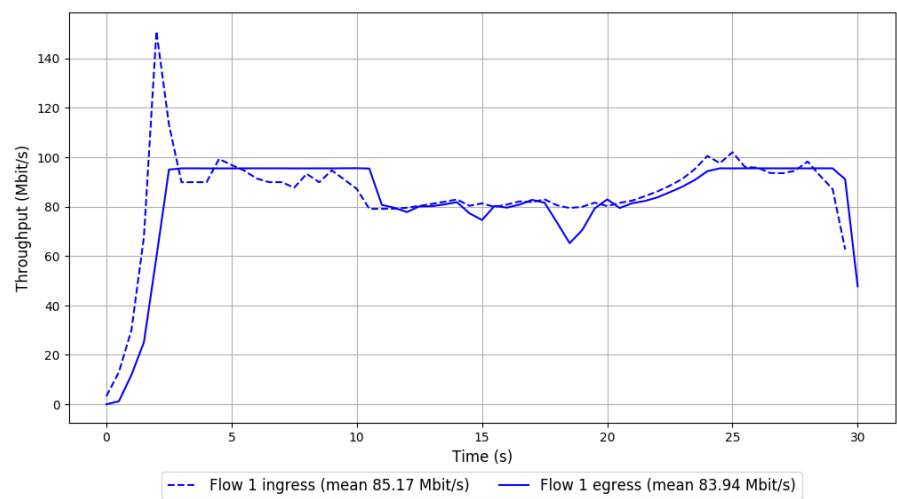


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-11 07:30:53
End at: 2018-09-11 07:31:23
Local clock offset: -3.952 ms
Remote clock offset: 0.011 ms

# Below is generated by plot.py at 2018-09-11 09:07:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.94 Mbit/s
95th percentile per-packet one-way delay: 414.384 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 83.94 Mbit/s
95th percentile per-packet one-way delay: 414.384 ms
Loss rate: 1.99%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-11 07:52:18

End at: 2018-09-11 07:52:48

Local clock offset: -5.556 ms

Remote clock offset: 0.692 ms

Below is generated by plot.py at 2018-09-11 09:07:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 86.95 Mbit/s

95th percentile per-packet one-way delay: 373.007 ms

Loss rate: 1.87%

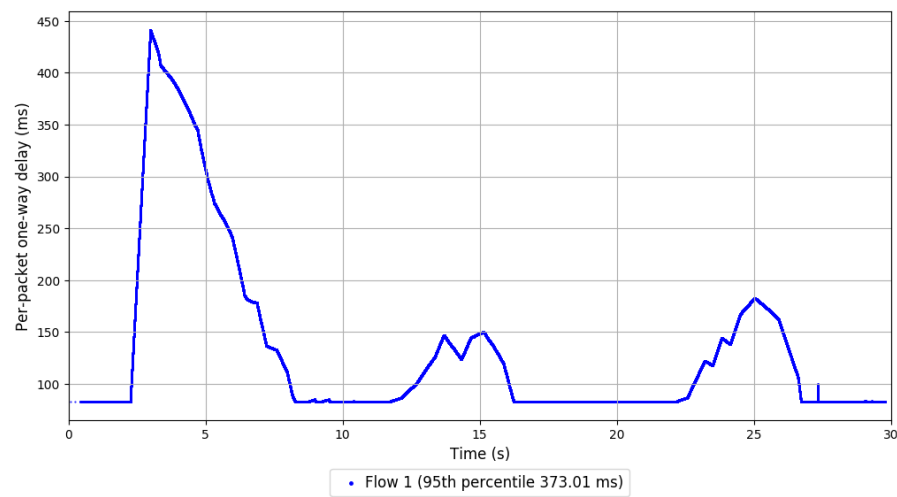
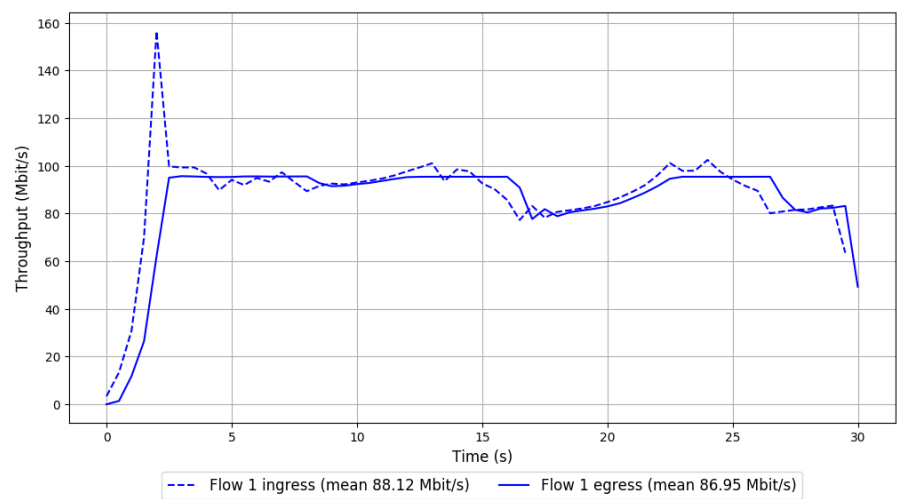
-- Flow 1:

Average throughput: 86.95 Mbit/s

95th percentile per-packet one-way delay: 373.007 ms

Loss rate: 1.87%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-11 08:13:42

End at: 2018-09-11 08:14:12

Local clock offset: -5.992 ms

Remote clock offset: 4.391 ms

Below is generated by plot.py at 2018-09-11 09:07:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.29 Mbit/s

95th percentile per-packet one-way delay: 433.566 ms

Loss rate: 1.50%

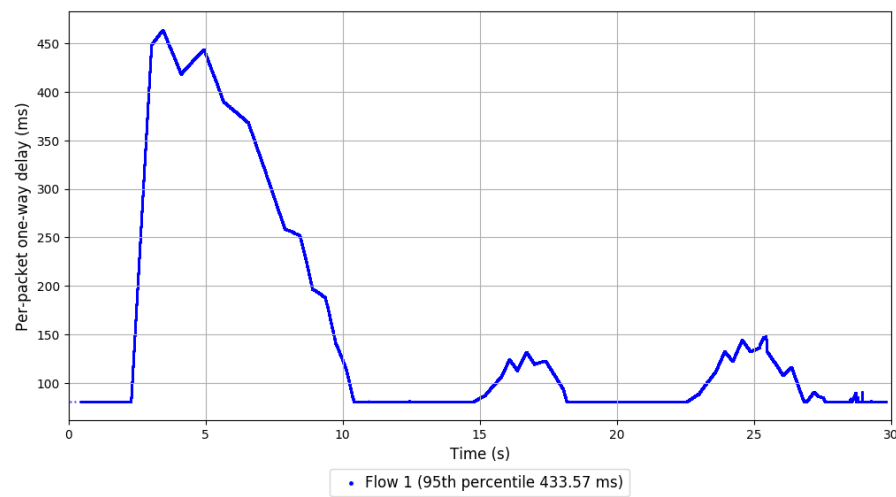
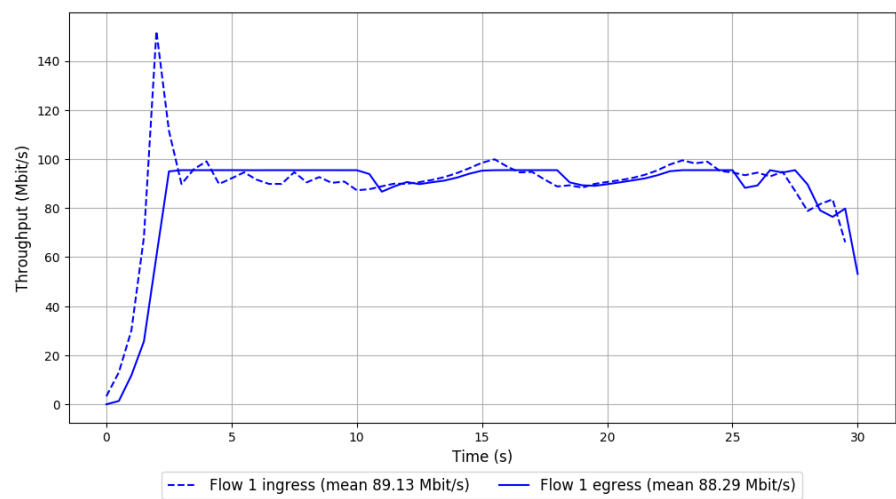
-- Flow 1:

Average throughput: 88.29 Mbit/s

95th percentile per-packet one-way delay: 433.566 ms

Loss rate: 1.50%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-11 08:35:13

End at: 2018-09-11 08:35:43

Local clock offset: -5.69 ms

Remote clock offset: 1.413 ms

Below is generated by plot.py at 2018-09-11 09:07:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 86.49 Mbit/s

95th percentile per-packet one-way delay: 403.180 ms

Loss rate: 1.21%

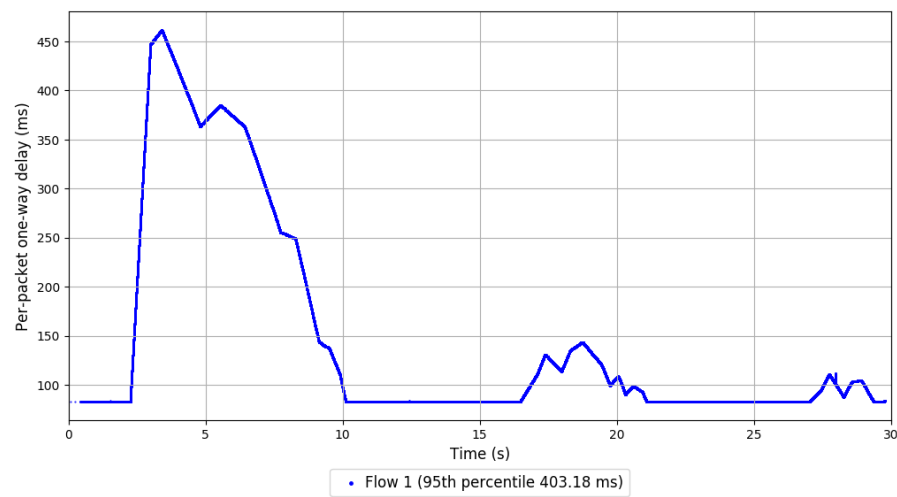
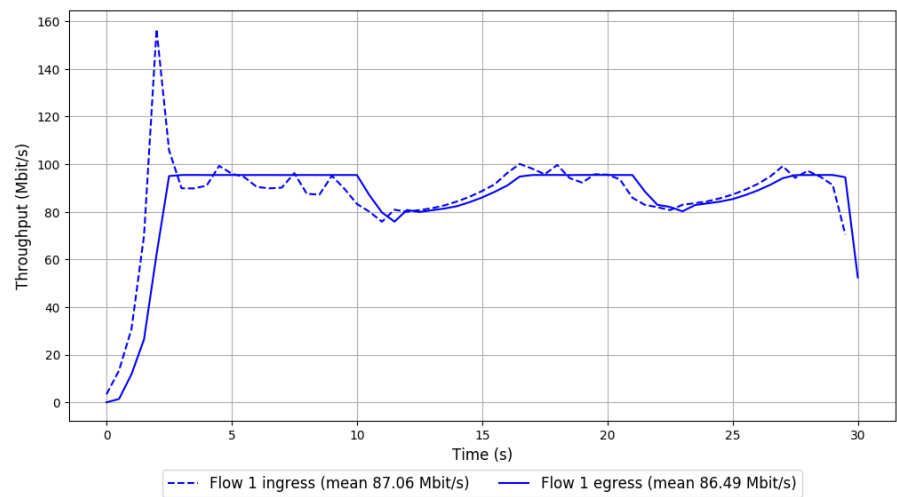
-- Flow 1:

Average throughput: 86.49 Mbit/s

95th percentile per-packet one-way delay: 403.180 ms

Loss rate: 1.21%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-11 08:56:40

End at: 2018-09-11 08:57:10

Local clock offset: -5.382 ms

Remote clock offset: 5.694 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 85.46 Mbit/s

95th percentile per-packet one-way delay: 422.213 ms

Loss rate: 1.79%

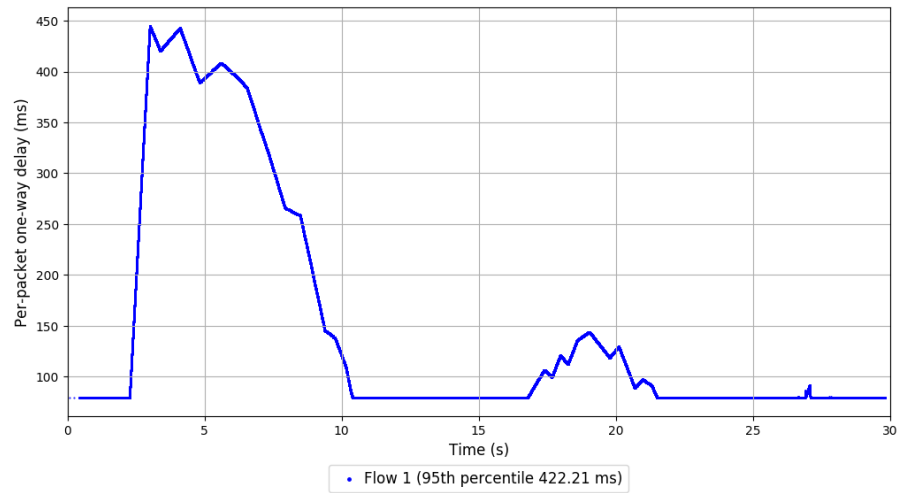
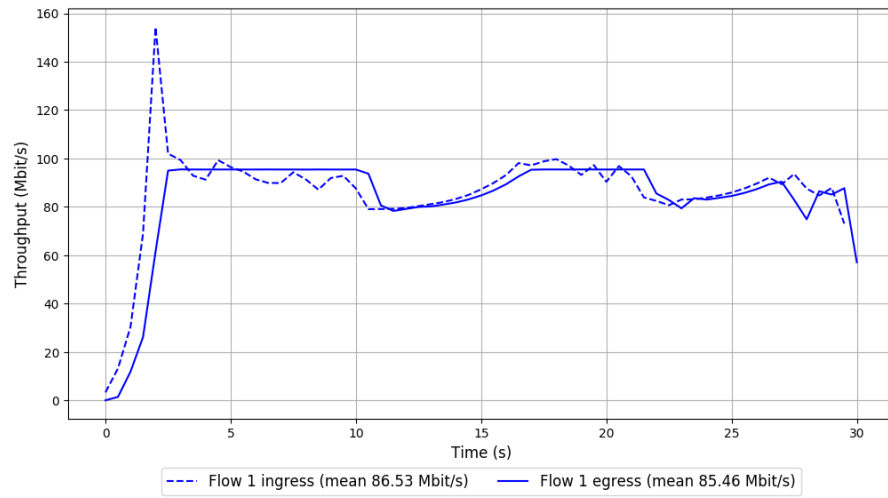
-- Flow 1:

Average throughput: 85.46 Mbit/s

95th percentile per-packet one-way delay: 422.213 ms

Loss rate: 1.79%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-11 07:16:42

End at: 2018-09-11 07:17:12

Local clock offset: -4.315 ms

Remote clock offset: 5.049 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 47.70 Mbit/s

95th percentile per-packet one-way delay: 90.243 ms

Loss rate: 0.53%

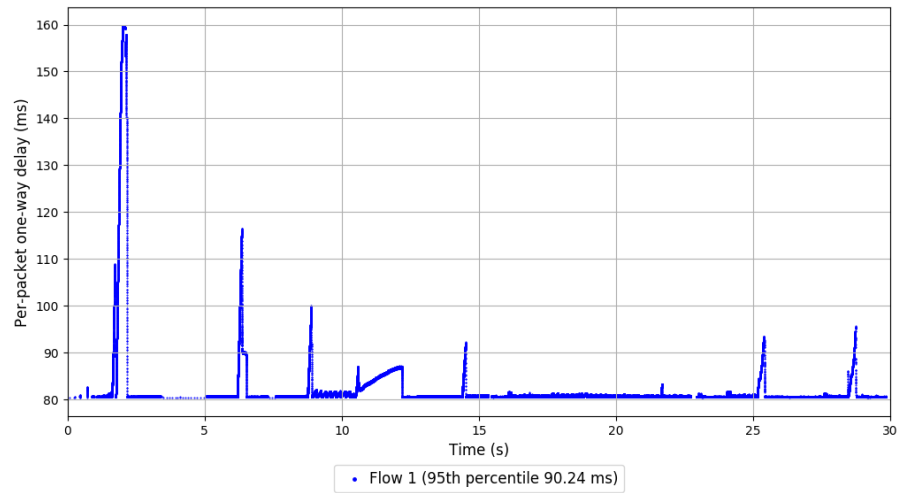
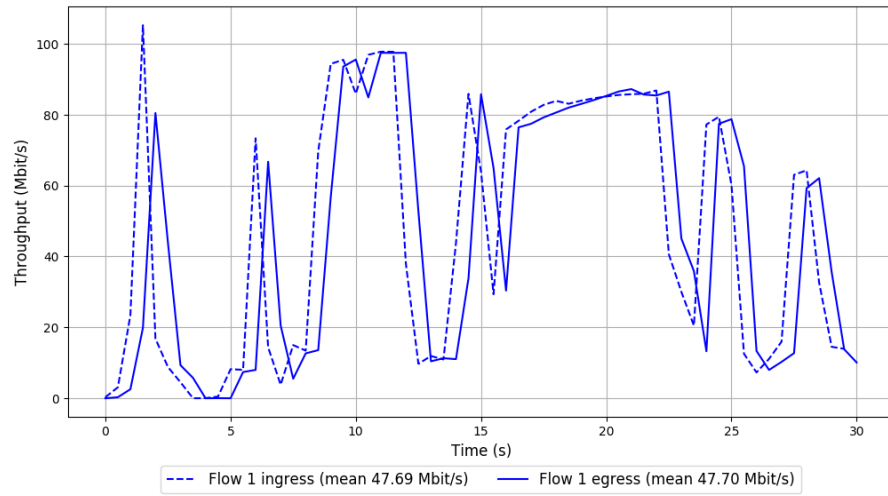
-- Flow 1:

Average throughput: 47.70 Mbit/s

95th percentile per-packet one-way delay: 90.243 ms

Loss rate: 0.53%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-11 07:38:06

End at: 2018-09-11 07:38:36

Local clock offset: -4.501 ms

Remote clock offset: 0.841 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.04 Mbit/s

95th percentile per-packet one-way delay: 84.983 ms

Loss rate: 1.18%

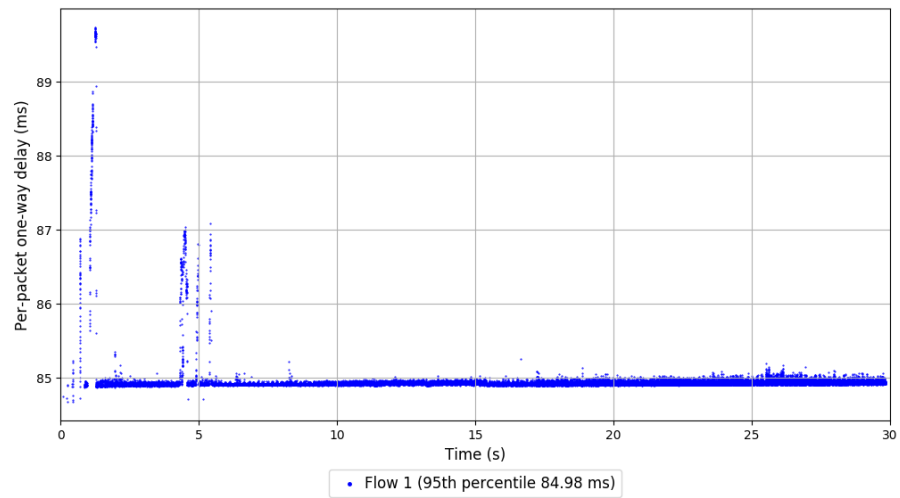
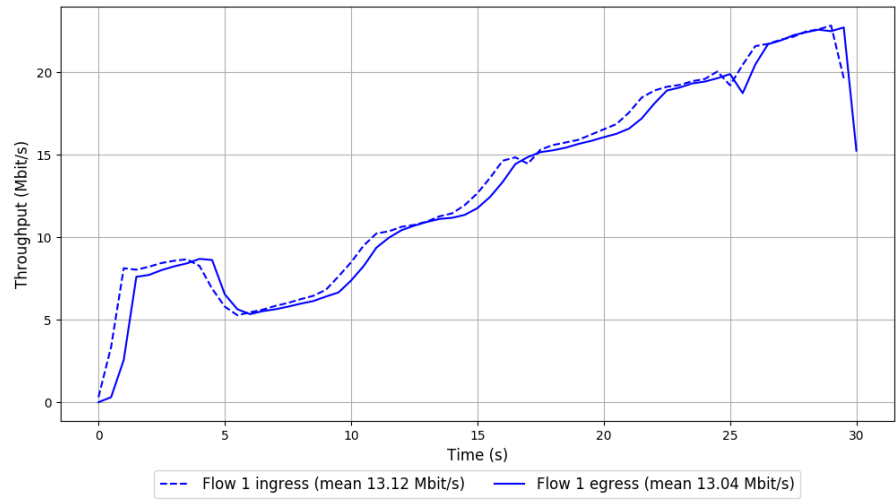
-- Flow 1:

Average throughput: 13.04 Mbit/s

95th percentile per-packet one-way delay: 84.983 ms

Loss rate: 1.18%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-11 07:59:23

End at: 2018-09-11 07:59:53

Local clock offset: -4.848 ms

Remote clock offset: 4.206 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 57.10 Mbit/s

95th percentile per-packet one-way delay: 86.862 ms

Loss rate: 0.85%

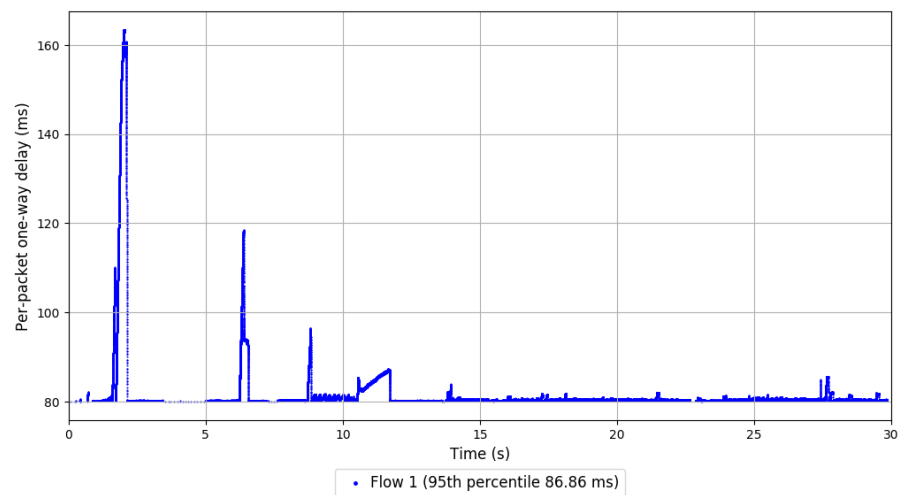
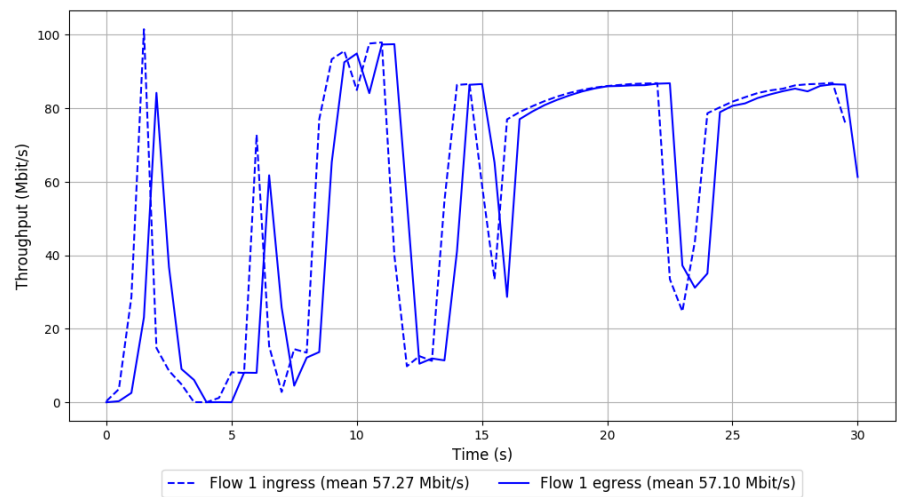
-- Flow 1:

Average throughput: 57.10 Mbit/s

95th percentile per-packet one-way delay: 86.862 ms

Loss rate: 0.85%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-09-11 08:20:48

End at: 2018-09-11 08:21:18

Local clock offset: -6.086 ms

Remote clock offset: 0.851 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 45.25 Mbit/s

95th percentile per-packet one-way delay: 97.978 ms

Loss rate: 0.85%

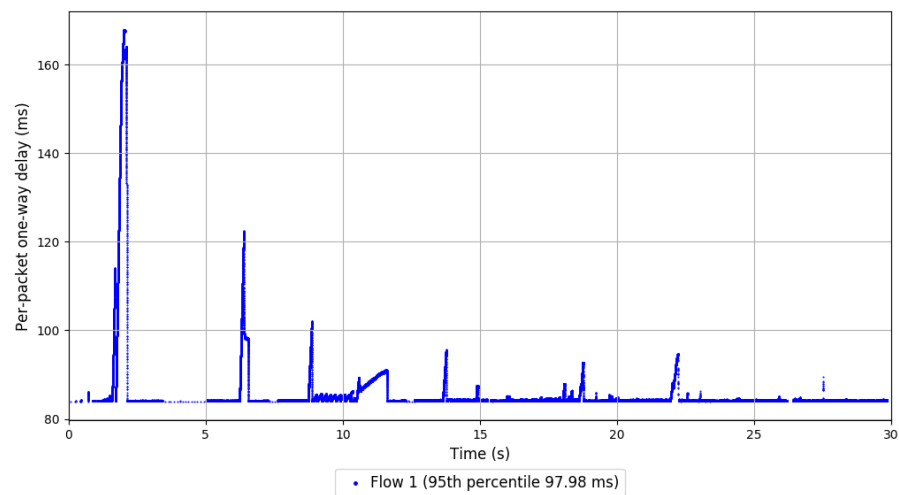
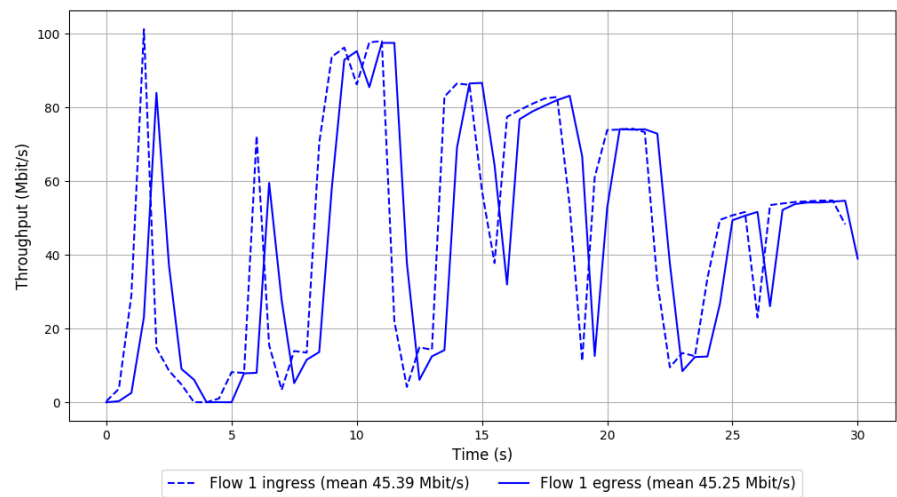
-- Flow 1:

Average throughput: 45.25 Mbit/s

95th percentile per-packet one-way delay: 97.978 ms

Loss rate: 0.85%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-11 08:42:19

End at: 2018-09-11 08:42:49

Local clock offset: -5.506 ms

Remote clock offset: 5.652 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 56.39 Mbit/s

95th percentile per-packet one-way delay: 84.809 ms

Loss rate: 0.81%

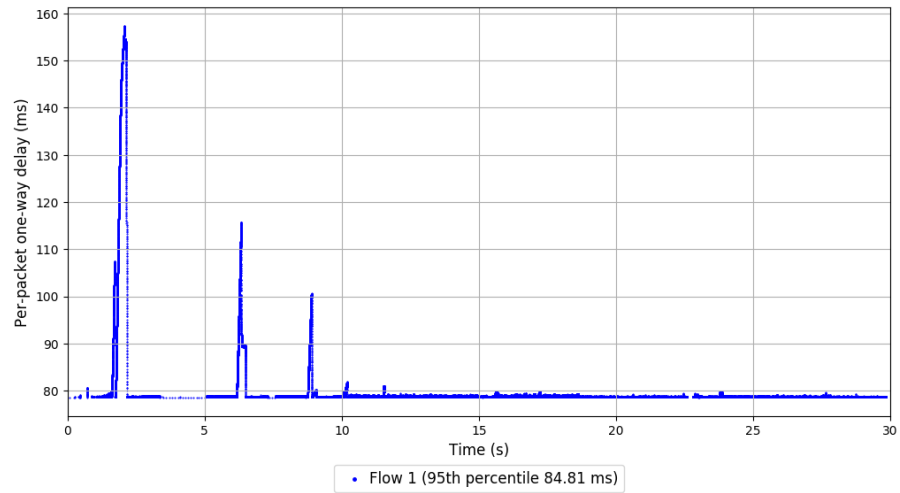
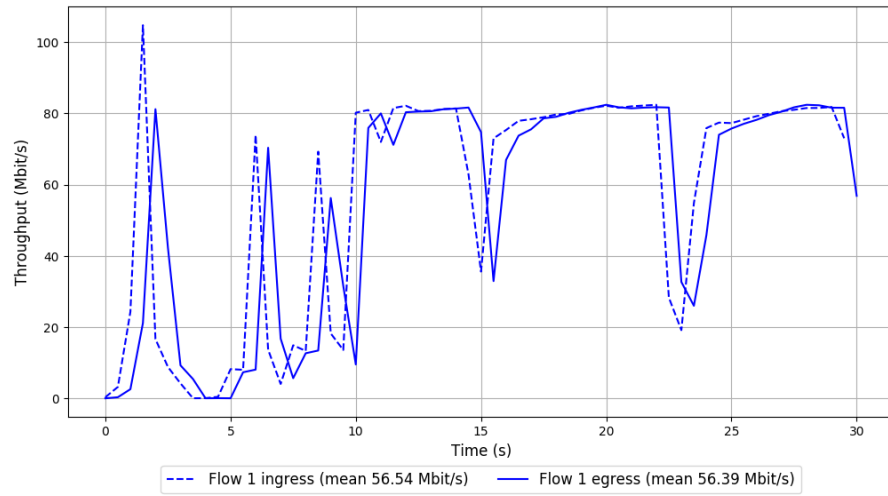
-- Flow 1:

Average throughput: 56.39 Mbit/s

95th percentile per-packet one-way delay: 84.809 ms

Loss rate: 0.81%

Run 5: Report of QUIC Cubic — Data Link

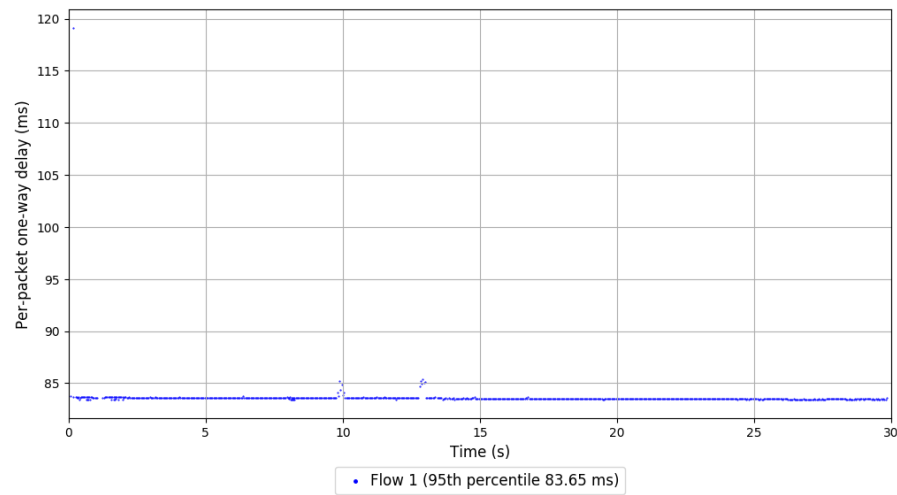
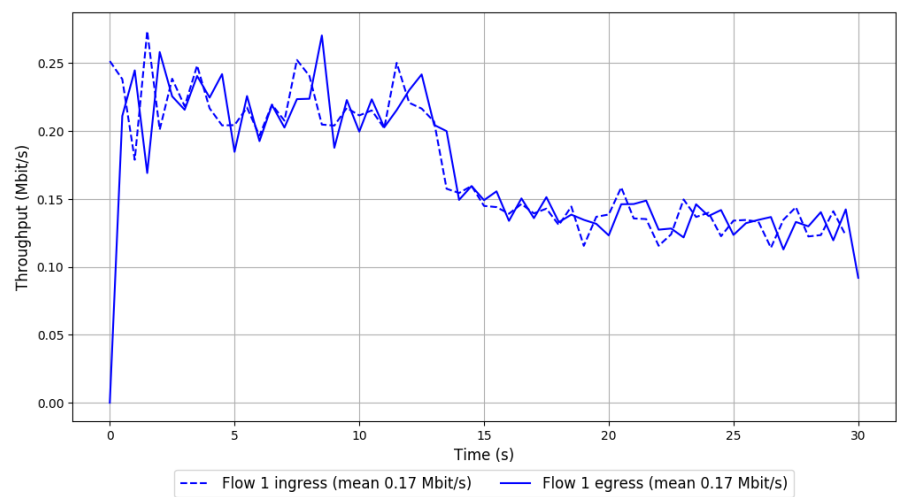


```
Run 1: Statistics of SCReAM

Start at: 2018-09-11 07:11:58
End at: 2018-09-11 07:12:28
Local clock offset: -5.509 ms
Remote clock offset: 1.185 ms

# Below is generated by plot.py at 2018-09-11 09:07:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 83.647 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 83.647 ms
Loss rate: 0.81%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-09-11 07:33:16

End at: 2018-09-11 07:33:46

Local clock offset: -4.956 ms

Remote clock offset: 0.125 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 84.876 ms

Loss rate: 0.64%

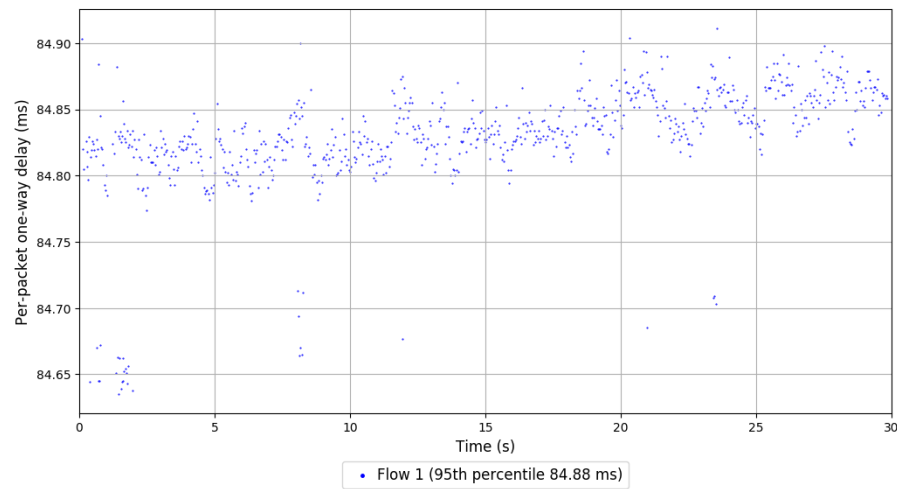
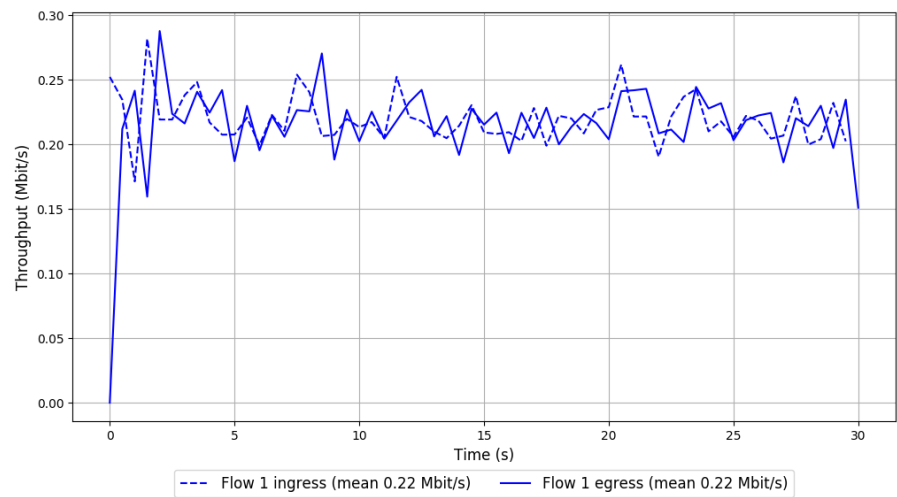
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 84.876 ms

Loss rate: 0.64%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-09-11 07:54:41

End at: 2018-09-11 07:55:11

Local clock offset: -4.783 ms

Remote clock offset: 4.471 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 79.948 ms

Loss rate: 0.64%

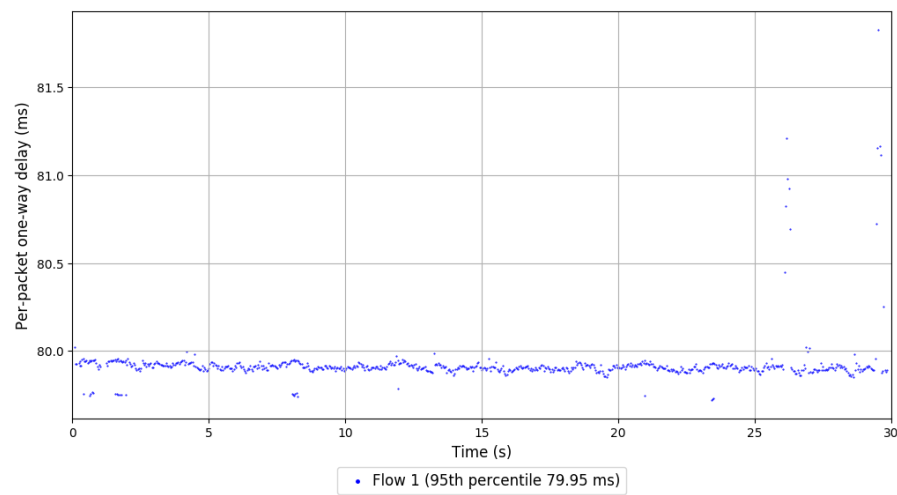
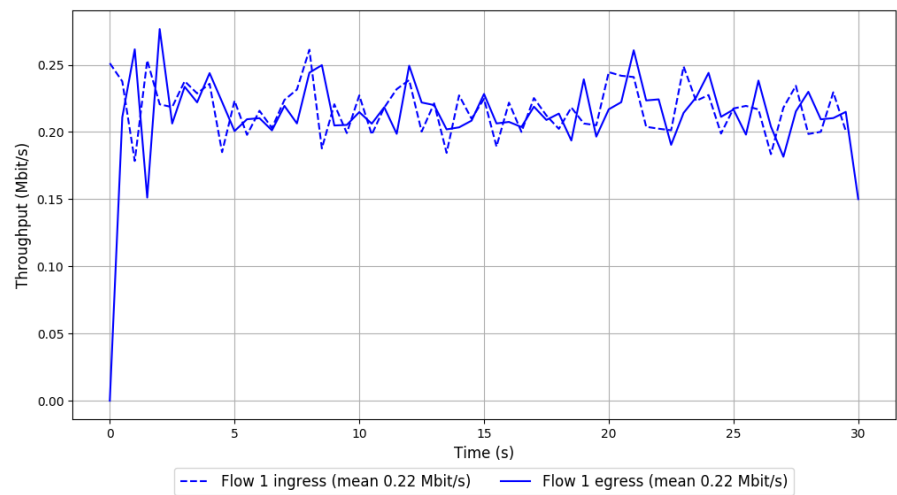
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 79.948 ms

Loss rate: 0.64%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SCReAM

Start at: 2018-09-11 08:16:05

End at: 2018-09-11 08:16:35

Local clock offset: -6.007 ms

Remote clock offset: 0.749 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 83.906 ms

Loss rate: 0.51%

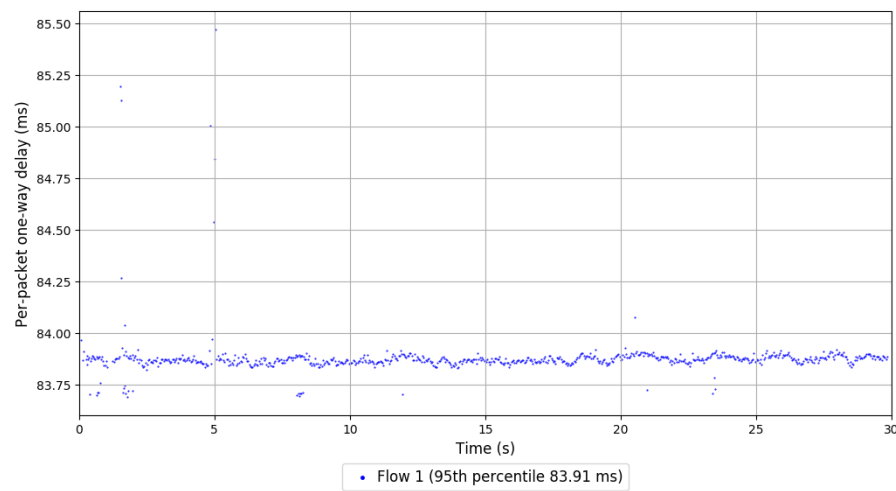
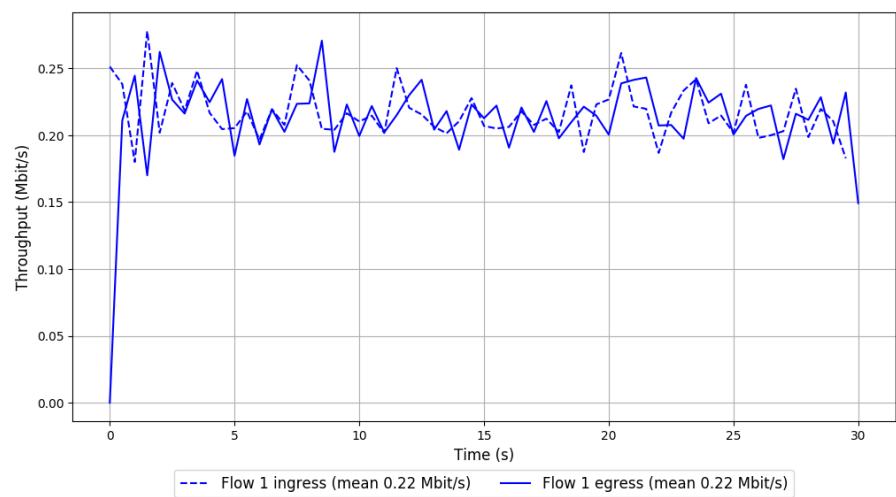
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 83.906 ms

Loss rate: 0.51%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-09-11 08:37:37

End at: 2018-09-11 08:38:07

Local clock offset: -4.846 ms

Remote clock offset: 5.613 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 80.680 ms

Loss rate: 0.51%

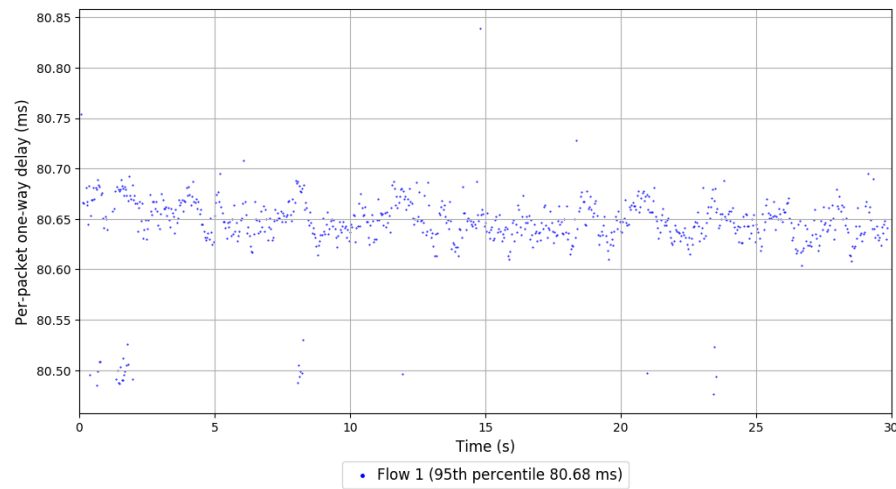
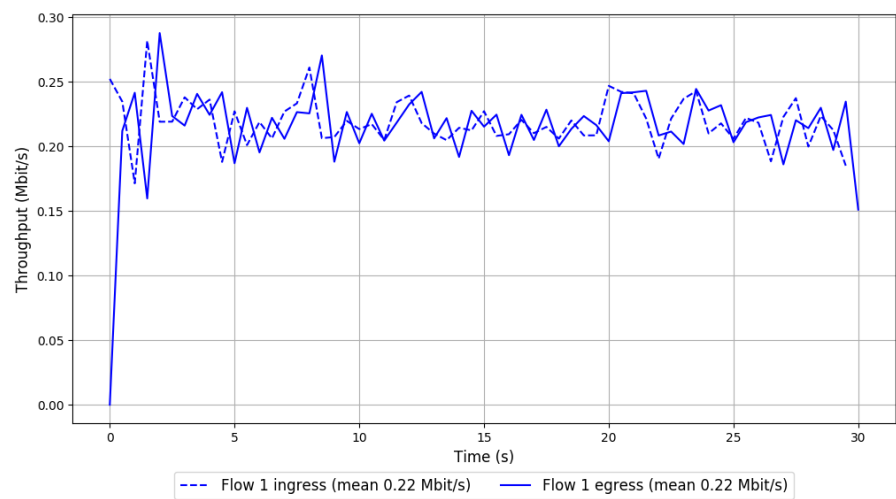
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 80.680 ms

Loss rate: 0.51%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-11 07:22:38

End at: 2018-09-11 07:23:08

Local clock offset: -3.846 ms

Remote clock offset: 4.96 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.39 Mbit/s

95th percentile per-packet one-way delay: 87.817 ms

Loss rate: 0.59%

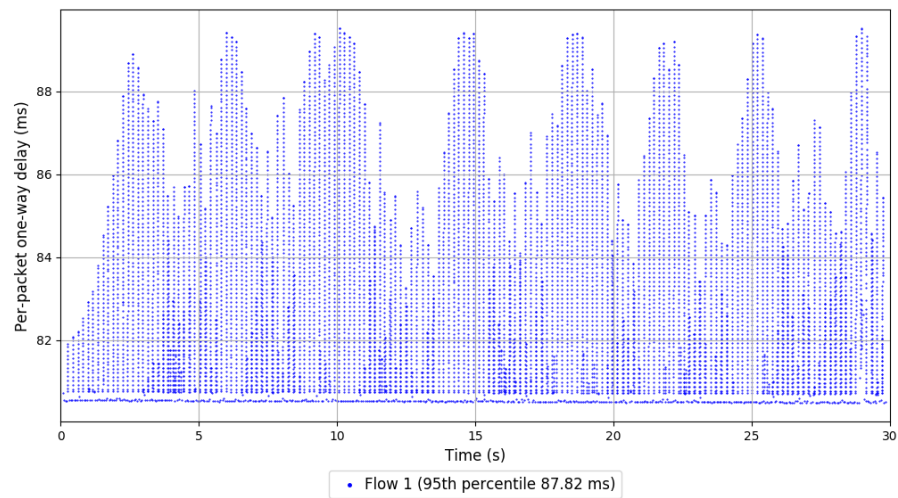
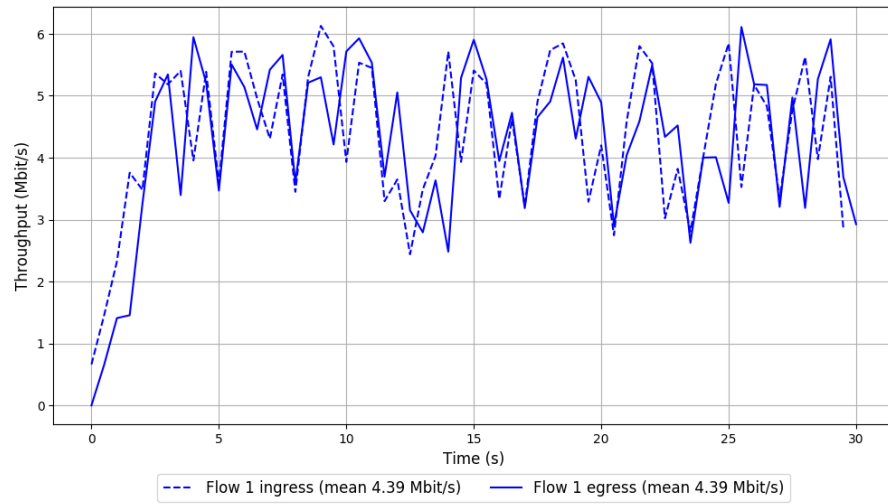
-- Flow 1:

Average throughput: 4.39 Mbit/s

95th percentile per-packet one-way delay: 87.817 ms

Loss rate: 0.59%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-09-11 07:44:01

End at: 2018-09-11 07:44:32

Local clock offset: -4.685 ms

Remote clock offset: 1.154 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.05 Mbit/s

95th percentile per-packet one-way delay: 88.790 ms

Loss rate: 0.50%

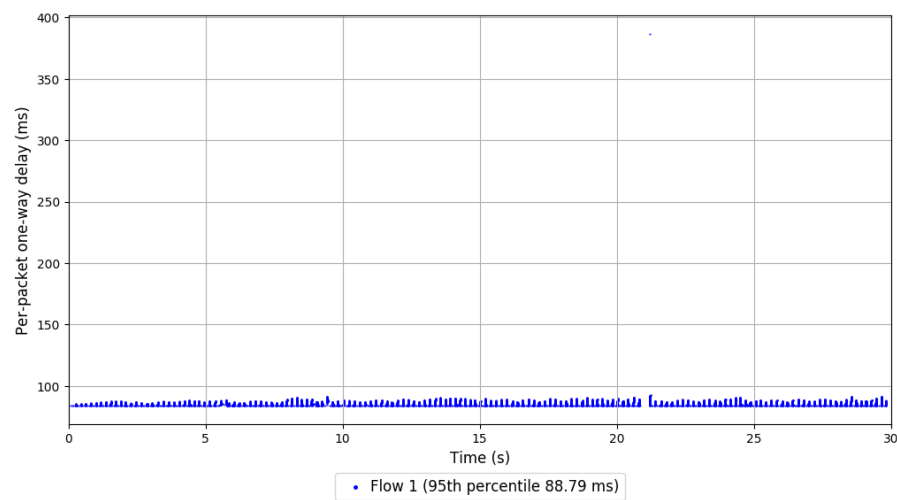
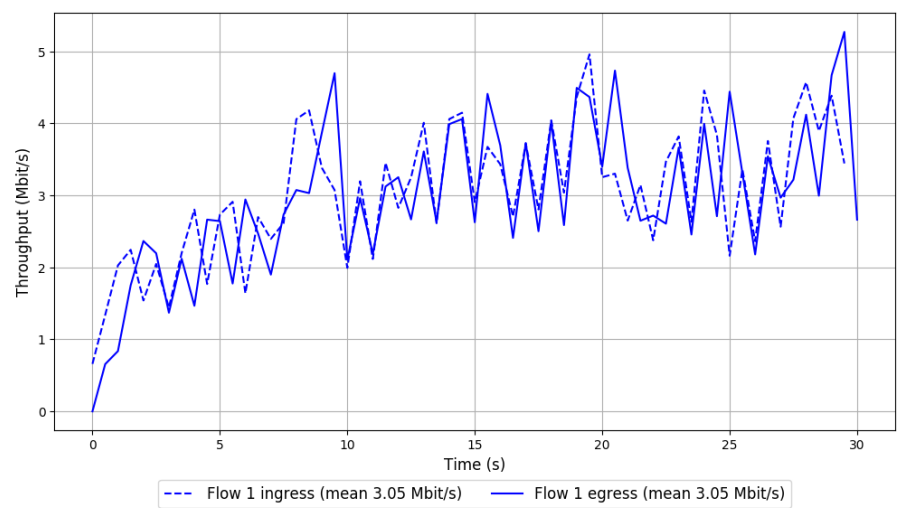
-- Flow 1:

Average throughput: 3.05 Mbit/s

95th percentile per-packet one-way delay: 88.790 ms

Loss rate: 0.50%

Run 2: Report of Sprout — Data Link

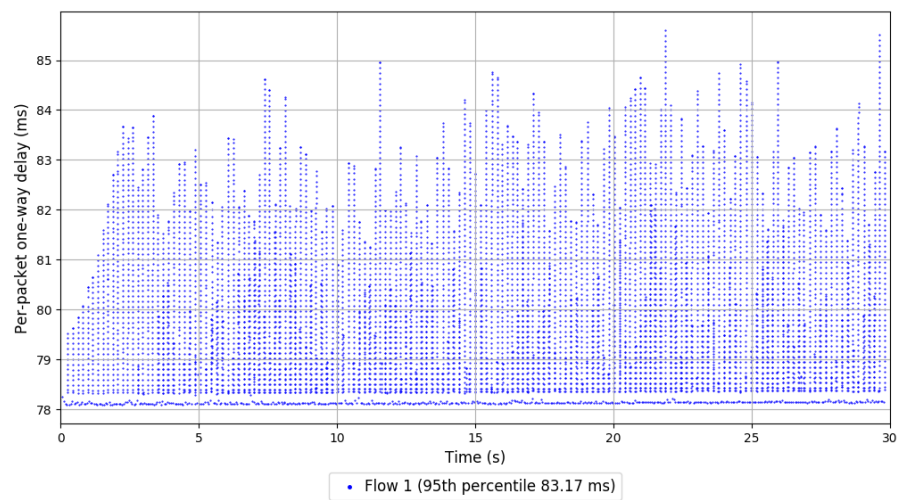
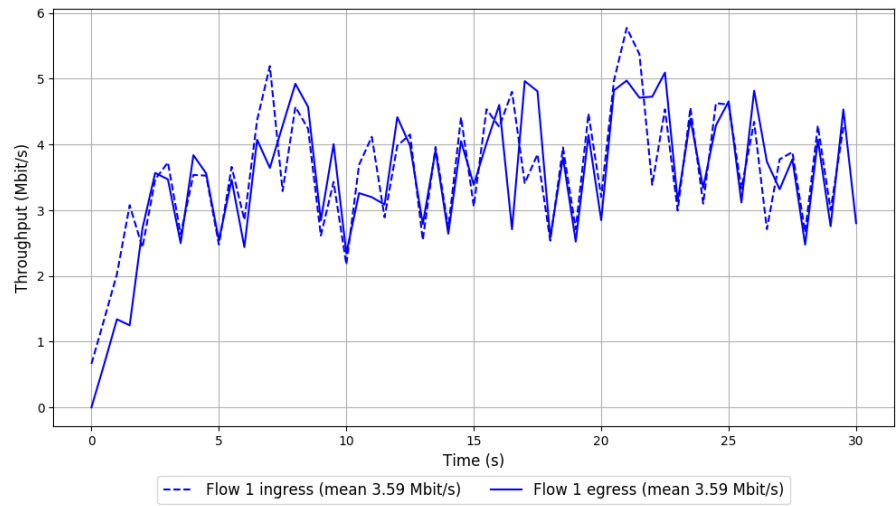


Run 3: Statistics of Sprout

Start at: 2018-09-11 08:05:18
End at: 2018-09-11 08:05:48
Local clock offset: -5.835 ms
Remote clock offset: 4.507 ms

Below is generated by plot.py at 2018-09-11 09:07:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.59 Mbit/s
95th percentile per-packet one-way delay: 83.173 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 3.59 Mbit/s
95th percentile per-packet one-way delay: 83.173 ms
Loss rate: 0.68%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-11 08:26:46

End at: 2018-09-11 08:27:16

Local clock offset: -6.054 ms

Remote clock offset: 1.256 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.86 Mbit/s

95th percentile per-packet one-way delay: 91.245 ms

Loss rate: 0.71%

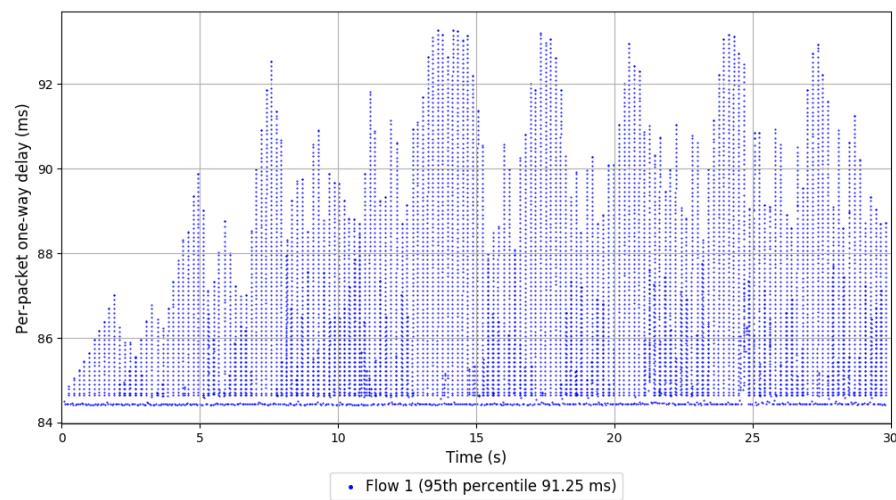
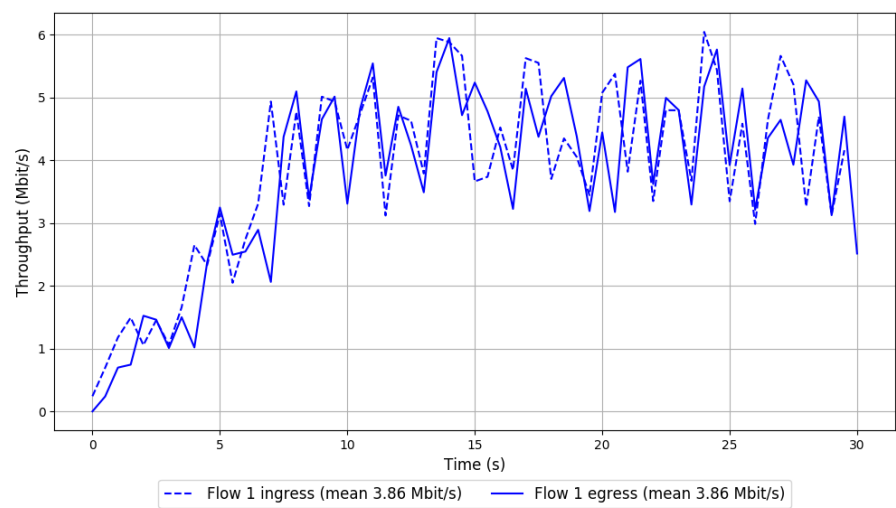
-- Flow 1:

Average throughput: 3.86 Mbit/s

95th percentile per-packet one-way delay: 91.245 ms

Loss rate: 0.71%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-11 08:48:16

End at: 2018-09-11 08:48:46

Local clock offset: -4.645 ms

Remote clock offset: 6.171 ms

Below is generated by plot.py at 2018-09-11 09:07:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.07 Mbit/s

95th percentile per-packet one-way delay: 87.339 ms

Loss rate: 0.79%

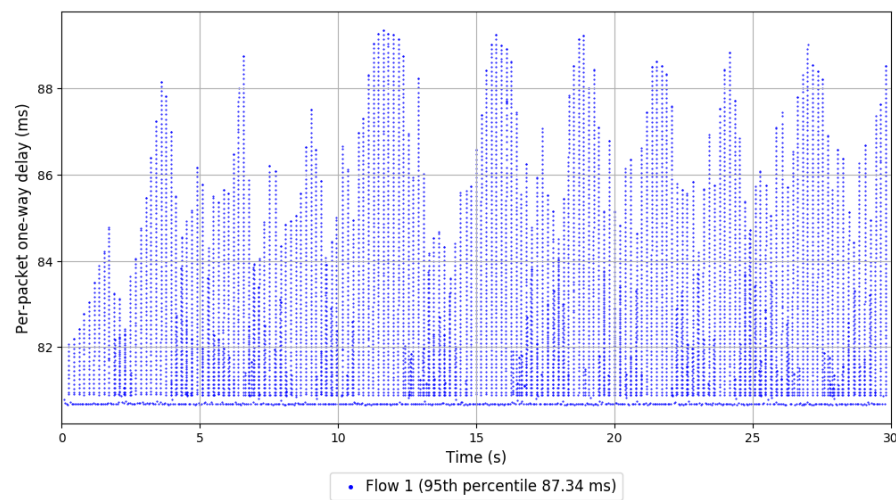
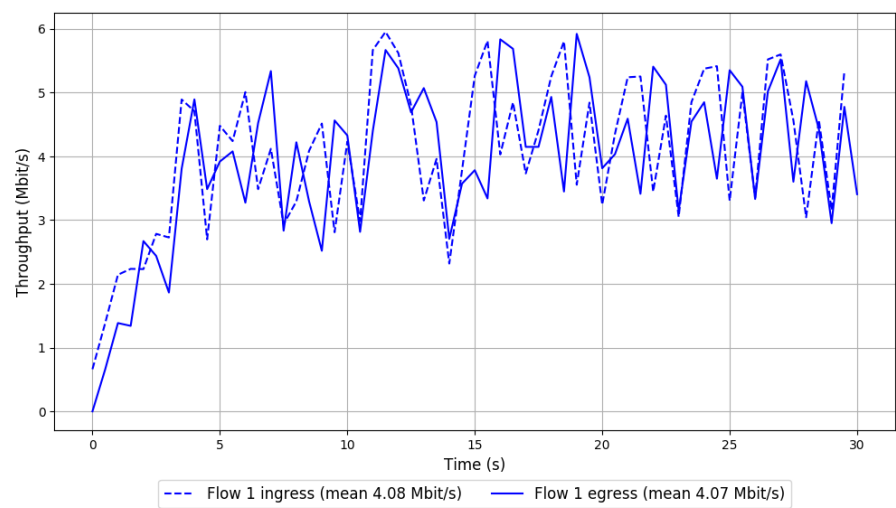
-- Flow 1:

Average throughput: 4.07 Mbit/s

95th percentile per-packet one-way delay: 87.339 ms

Loss rate: 0.79%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-11 07:13:05

End at: 2018-09-11 07:13:35

Local clock offset: -5.356 ms

Remote clock offset: 1.448 ms

Below is generated by plot.py at 2018-09-11 09:09:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 70.28 Mbit/s

95th percentile per-packet one-way delay: 108.870 ms

Loss rate: 1.29%

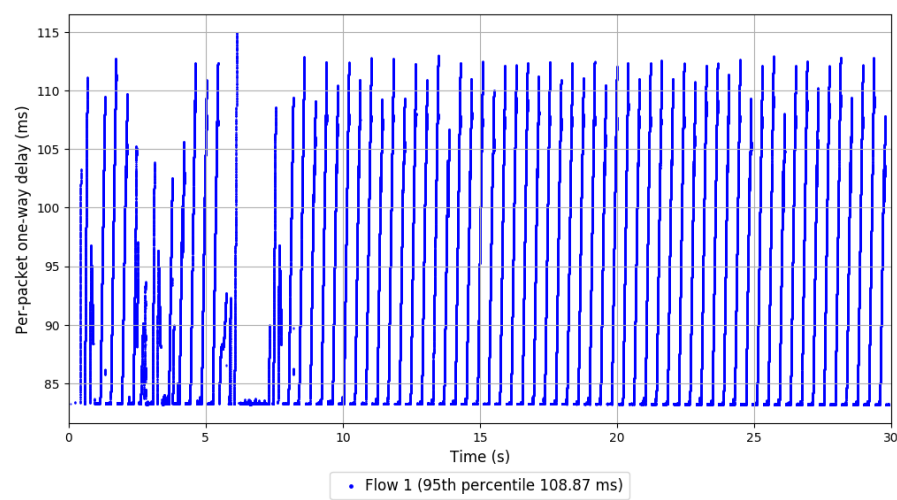
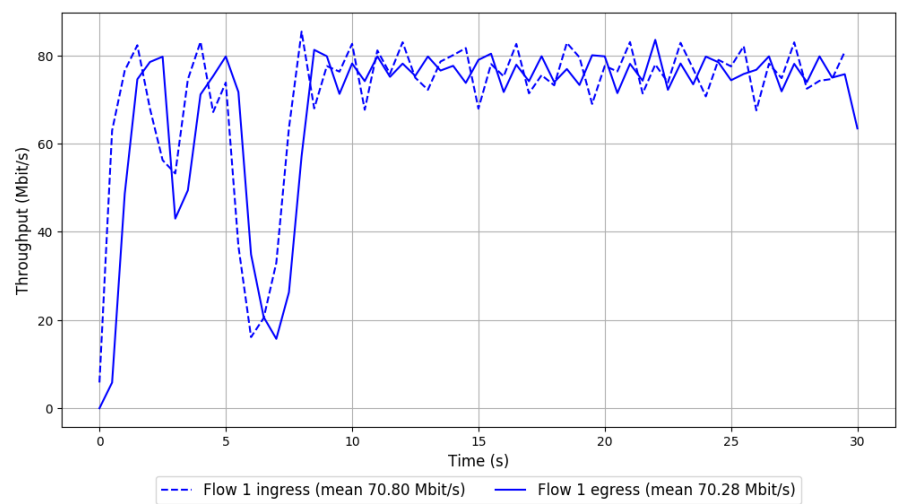
-- Flow 1:

Average throughput: 70.28 Mbit/s

95th percentile per-packet one-way delay: 108.870 ms

Loss rate: 1.29%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-11 07:34:23

End at: 2018-09-11 07:34:53

Local clock offset: -4.27 ms

Remote clock offset: 4.416 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 74.82 Mbit/s

95th percentile per-packet one-way delay: 107.523 ms

Loss rate: 0.55%

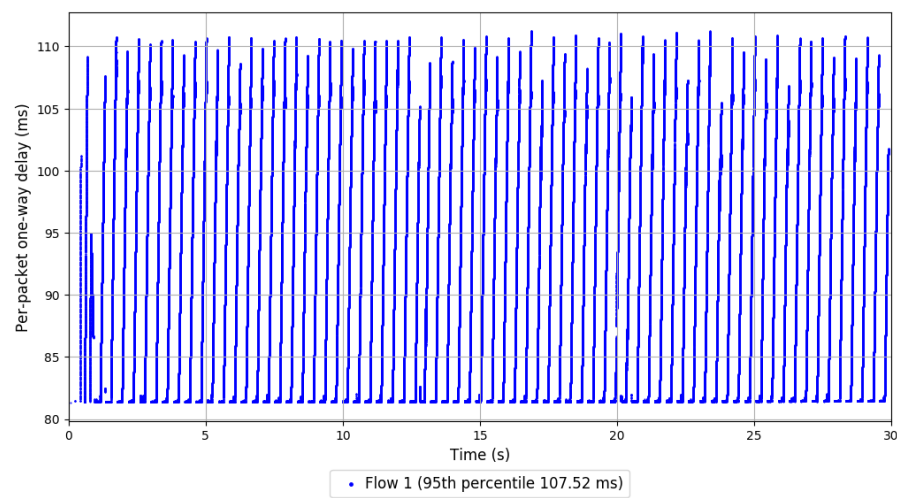
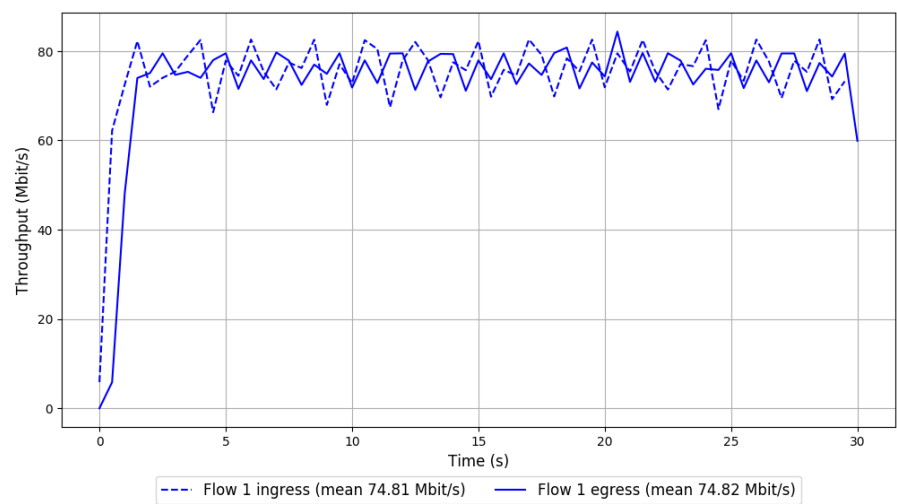
-- Flow 1:

Average throughput: 74.82 Mbit/s

95th percentile per-packet one-way delay: 107.523 ms

Loss rate: 0.55%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-11 07:55:48

End at: 2018-09-11 07:56:18

Local clock offset: -4.791 ms

Remote clock offset: 0.182 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 72.33 Mbit/s

95th percentile per-packet one-way delay: 109.883 ms

Loss rate: 1.32%

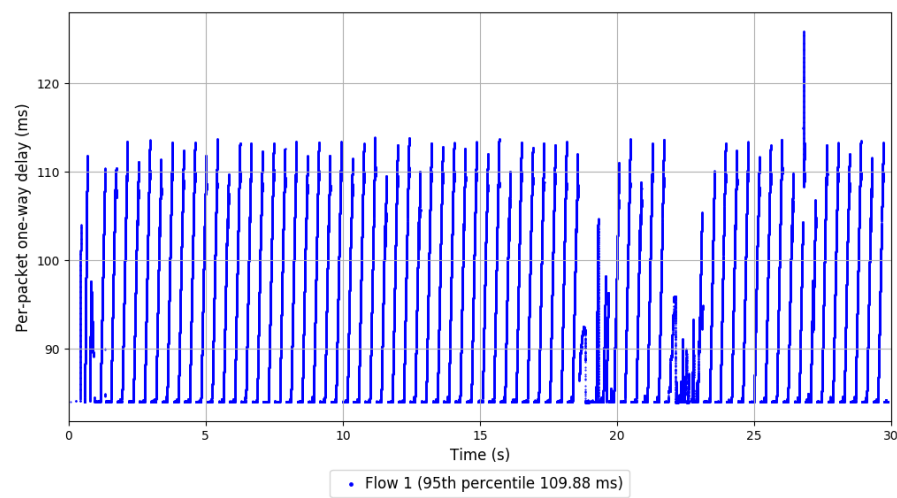
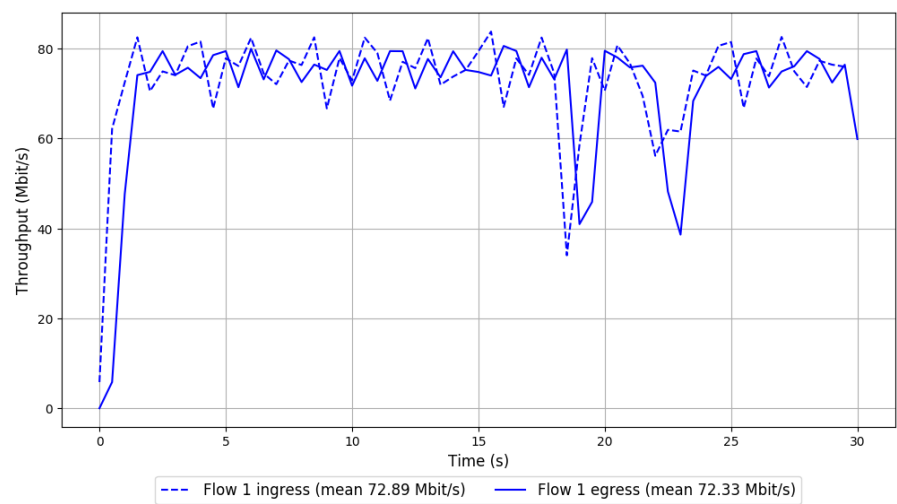
-- Flow 1:

Average throughput: 72.33 Mbit/s

95th percentile per-packet one-way delay: 109.883 ms

Loss rate: 1.32%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-11 08:17:13

End at: 2018-09-11 08:17:43

Local clock offset: -5.254 ms

Remote clock offset: 1.156 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 72.00 Mbit/s

95th percentile per-packet one-way delay: 111.658 ms

Loss rate: 0.88%

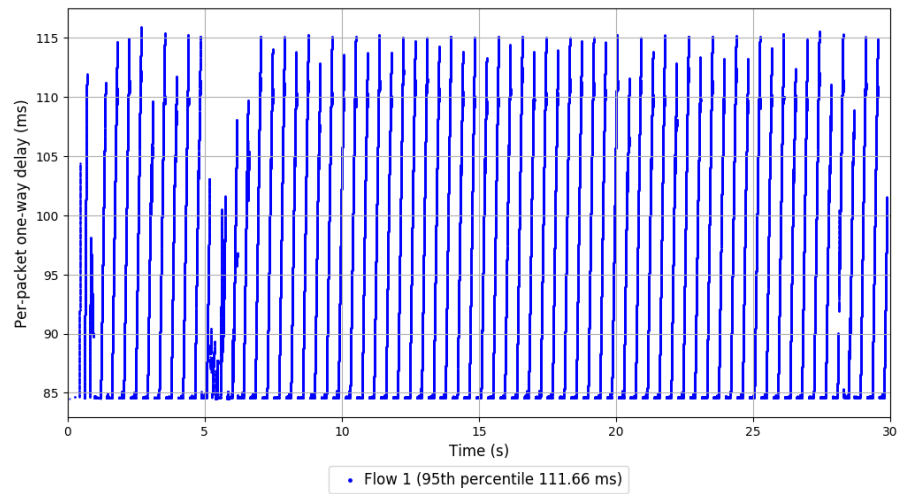
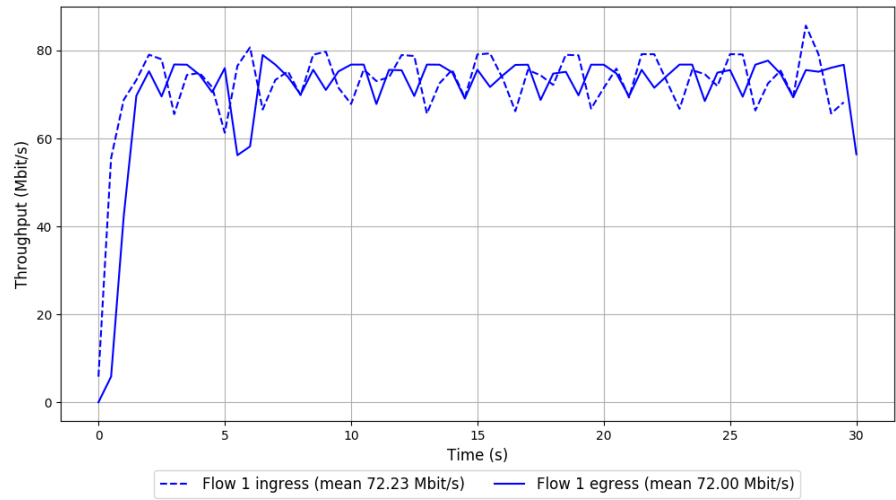
-- Flow 1:

Average throughput: 72.00 Mbit/s

95th percentile per-packet one-way delay: 111.658 ms

Loss rate: 0.88%

Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-11 08:38:44

End at: 2018-09-11 08:39:14

Local clock offset: -4.817 ms

Remote clock offset: 5.789 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 72.14 Mbit/s

95th percentile per-packet one-way delay: 105.975 ms

Loss rate: 1.36%

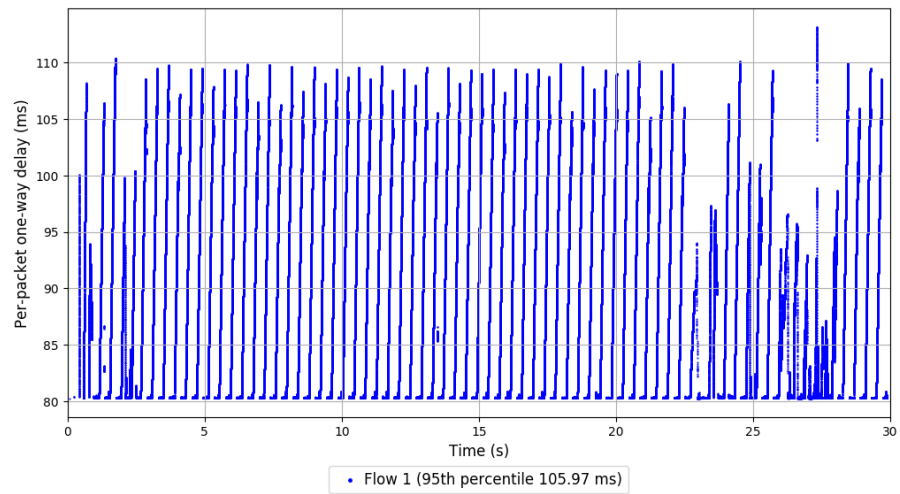
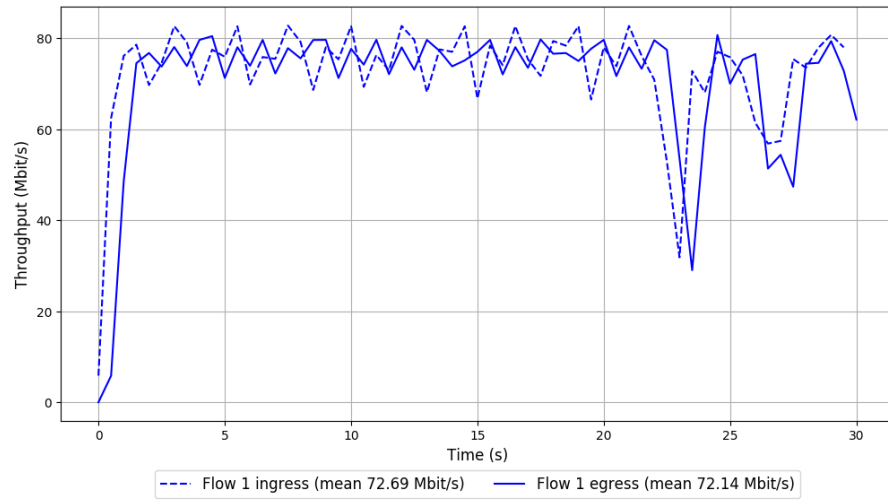
-- Flow 1:

Average throughput: 72.14 Mbit/s

95th percentile per-packet one-way delay: 105.975 ms

Loss rate: 1.36%

Run 5: Report of TaoVA-100x — Data Link



Run 1: Statistics of TCP Vegas

Start at: 2018-09-11 07:24:58

End at: 2018-09-11 07:25:28

Local clock offset: -4.581 ms

Remote clock offset: 0.231 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 16.82 Mbit/s

95th percentile per-packet one-way delay: 269.457 ms

Loss rate: 0.60%

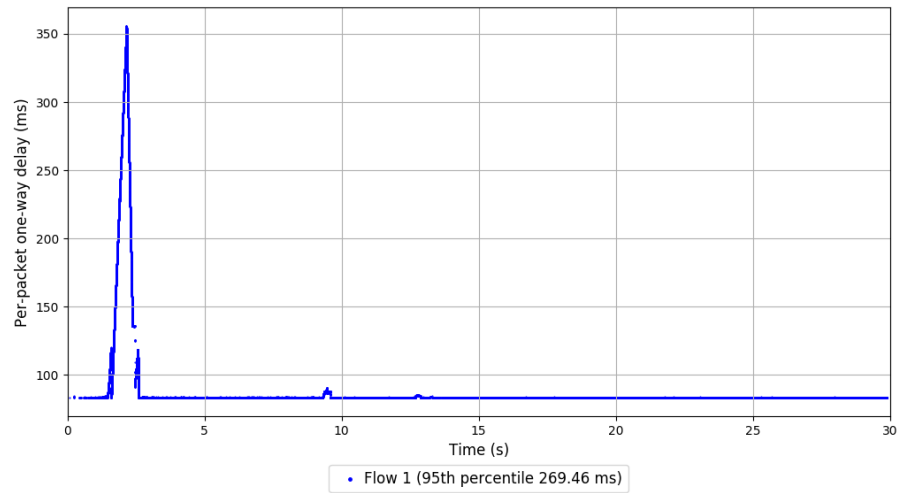
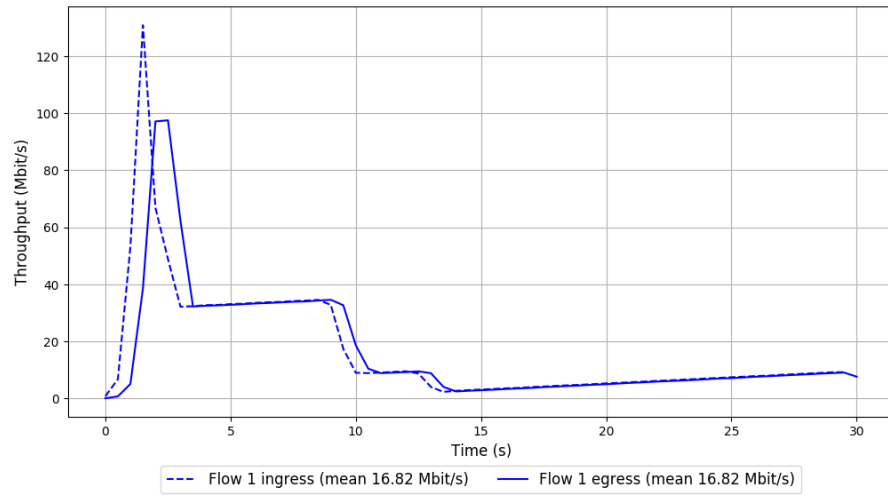
-- Flow 1:

Average throughput: 16.82 Mbit/s

95th percentile per-packet one-way delay: 269.457 ms

Loss rate: 0.60%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-09-11 07:46:21

End at: 2018-09-11 07:46:51

Local clock offset: -5.502 ms

Remote clock offset: 0.93 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 39.44 Mbit/s

95th percentile per-packet one-way delay: 155.042 ms

Loss rate: 0.64%

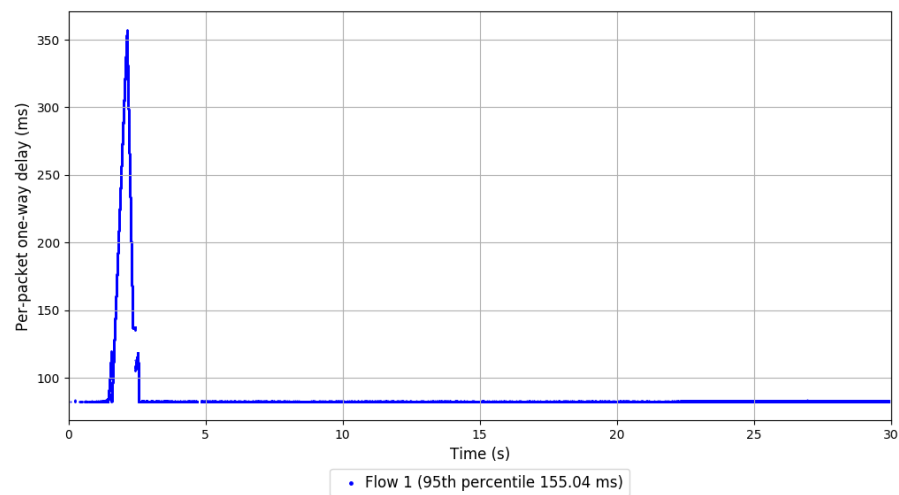
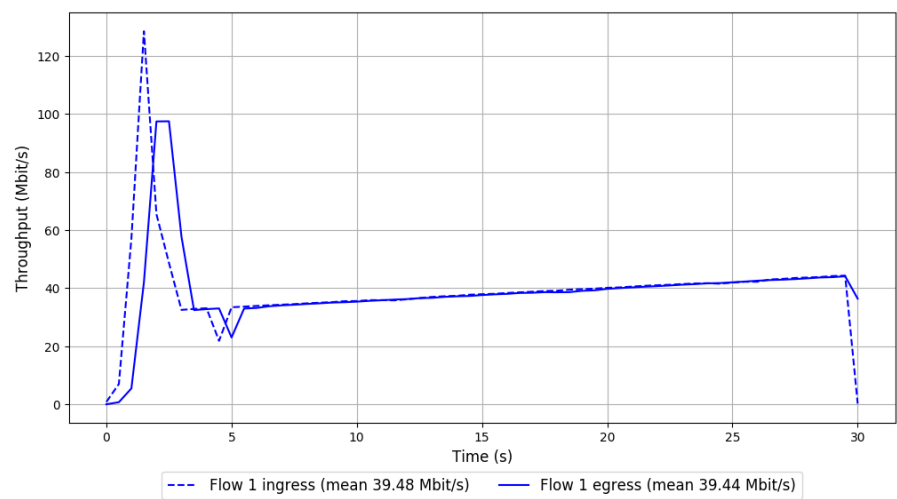
-- Flow 1:

Average throughput: 39.44 Mbit/s

95th percentile per-packet one-way delay: 155.042 ms

Loss rate: 0.64%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-09-11 08:07:39

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

Local clock offset: -5.123 ms

Remote clock offset: 4.691 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 62.83 Mbit/s

95th percentile per-packet one-way delay: 87.441 ms

Loss rate: 0.30%

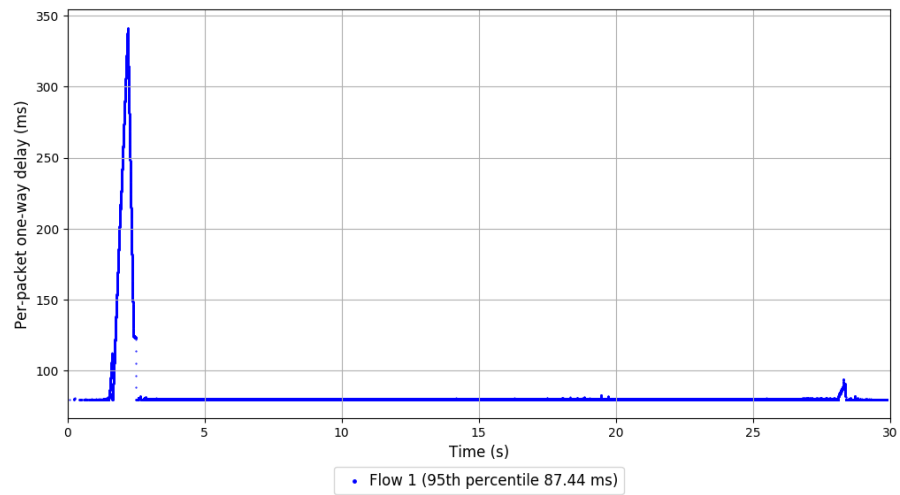
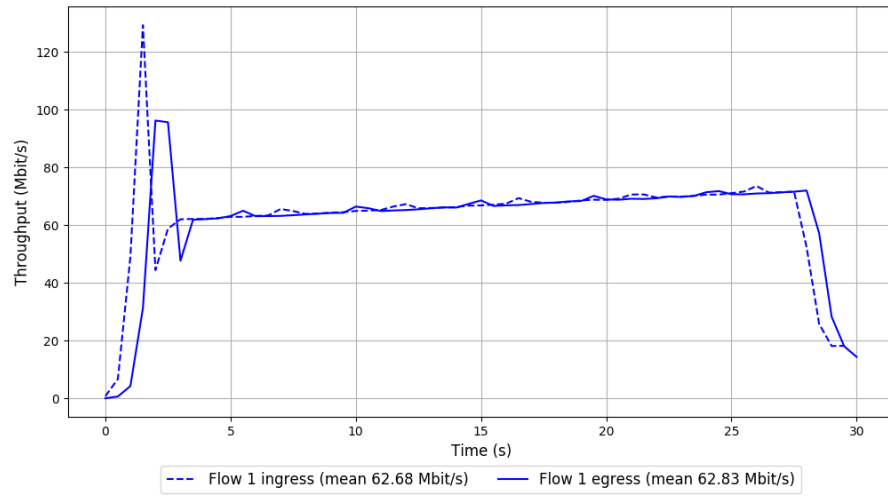
-- Flow 1:

Average throughput: 62.83 Mbit/s

95th percentile per-packet one-way delay: 87.441 ms

Loss rate: 0.30%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-11 08:29:06

End at: 2018-09-11 08:29:36

Local clock offset: -5.235 ms

Remote clock offset: 5.175 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.93 Mbit/s

95th percentile per-packet one-way delay: 86.398 ms

Loss rate: 1.22%

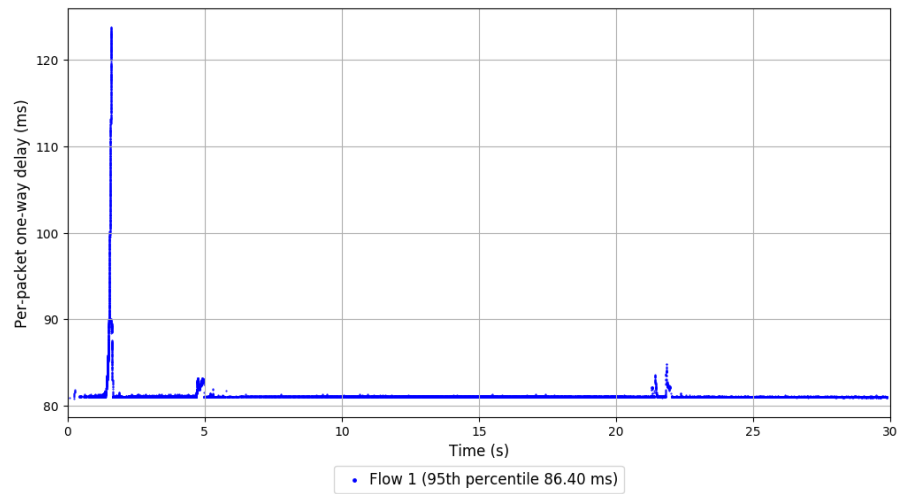
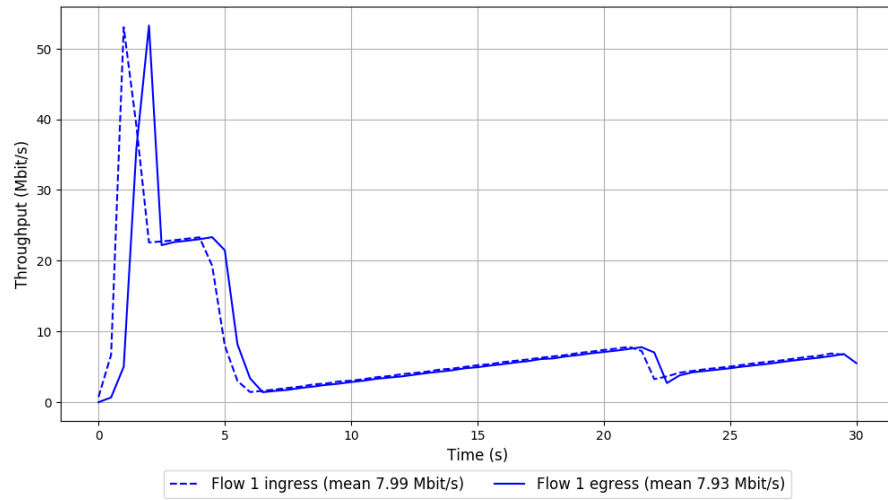
-- Flow 1:

Average throughput: 7.93 Mbit/s

95th percentile per-packet one-way delay: 86.398 ms

Loss rate: 1.22%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-11 08:50:36

End at: 2018-09-11 08:51:06

Local clock offset: -4.612 ms

Remote clock offset: 1.895 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 37.17 Mbit/s

95th percentile per-packet one-way delay: 166.168 ms

Loss rate: 0.62%

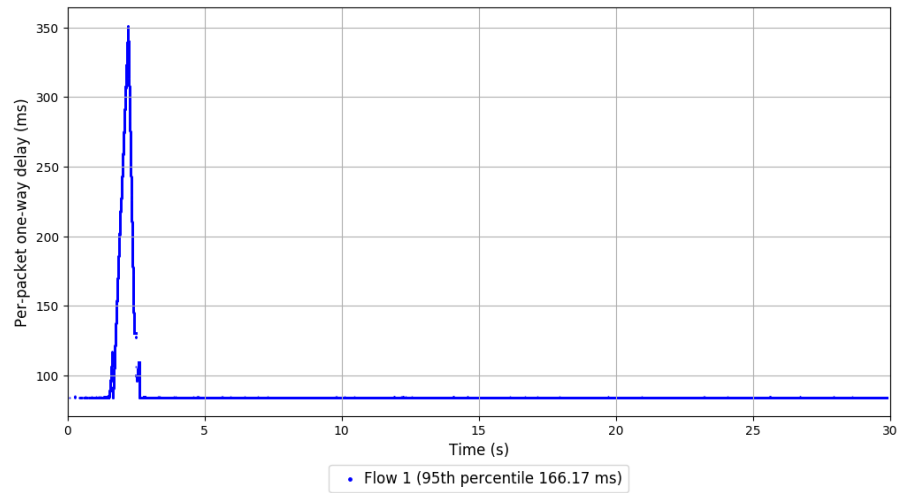
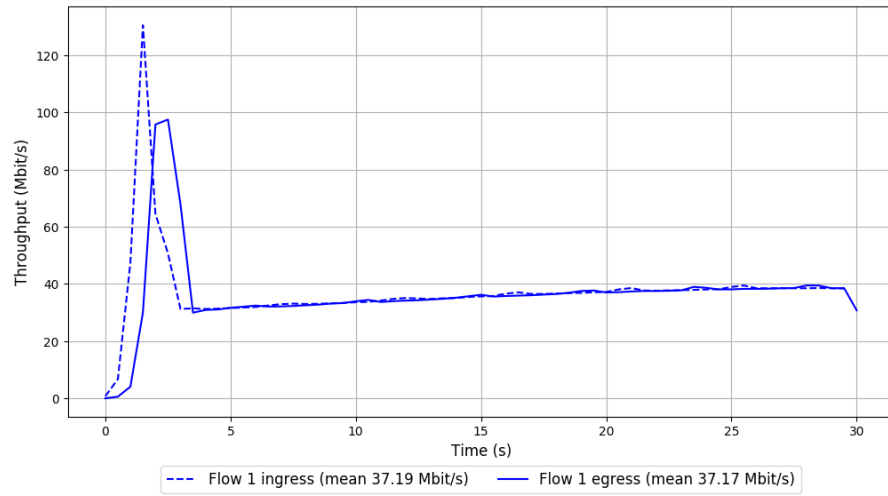
-- Flow 1:

Average throughput: 37.17 Mbit/s

95th percentile per-packet one-way delay: 166.168 ms

Loss rate: 0.62%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-09-11 07:29:42

End at: 2018-09-11 07:30:12

Local clock offset: -4.561 ms

Remote clock offset: -0.08 ms

Below is generated by plot.py at 2018-09-11 09:09:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 53.71 Mbit/s

95th percentile per-packet one-way delay: 271.710 ms

Loss rate: 1.35%

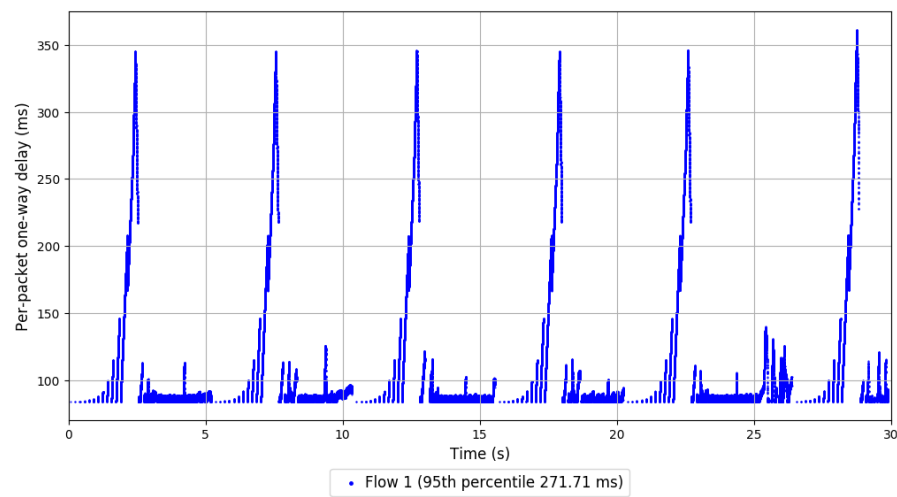
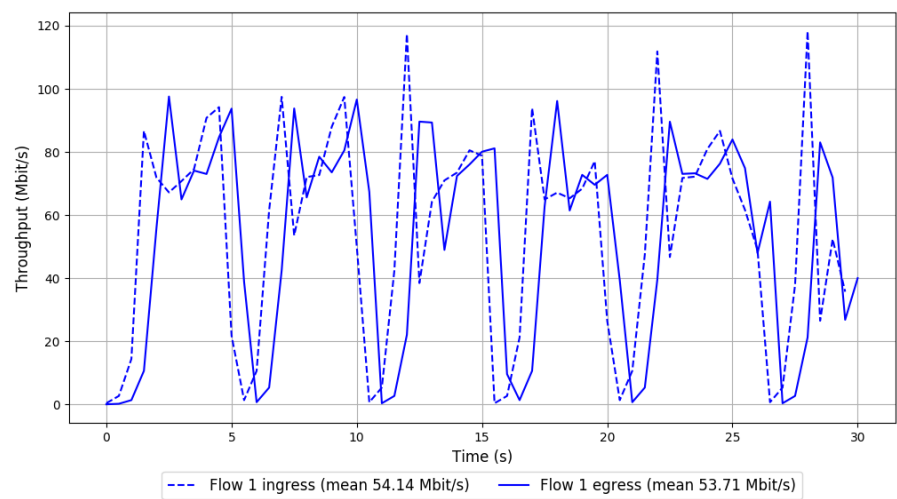
-- Flow 1:

Average throughput: 53.71 Mbit/s

95th percentile per-packet one-way delay: 271.710 ms

Loss rate: 1.35%

Run 1: Report of Verus — Data Link

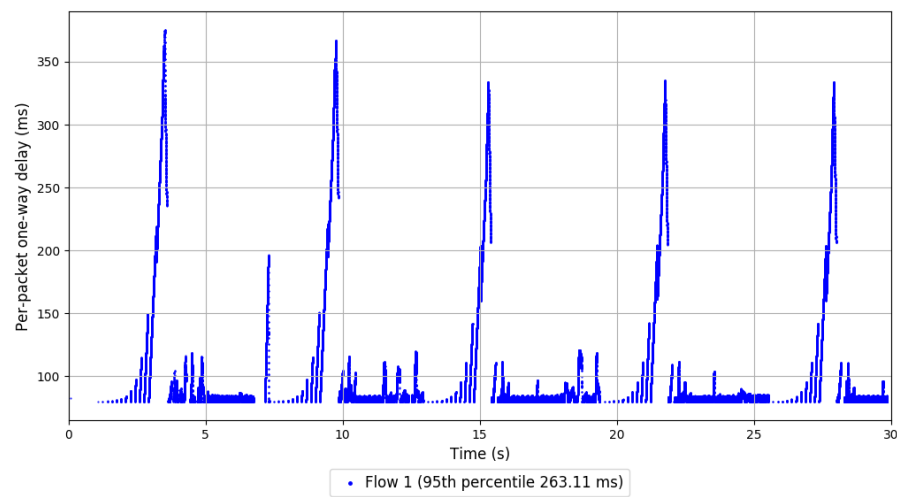
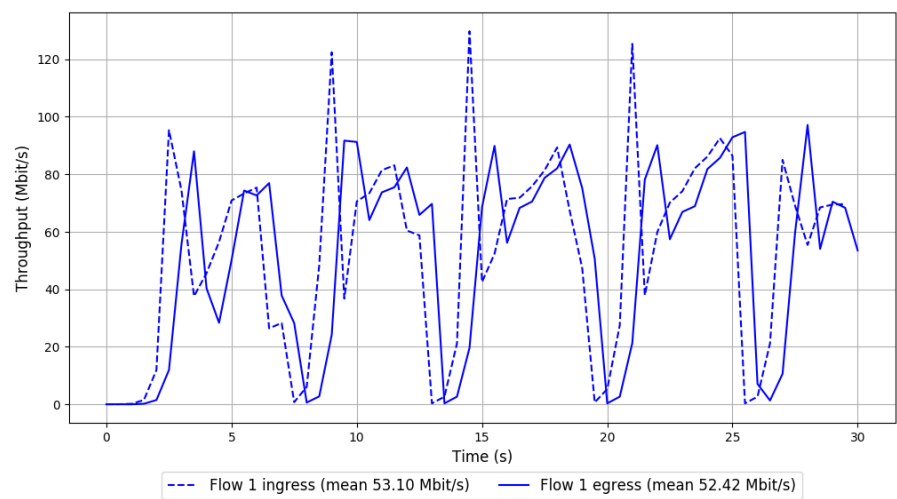


Run 2: Statistics of Verus

Start at: 2018-09-11 07:51:07
End at: 2018-09-11 07:51:37
Local clock offset: -5.605 ms
Remote clock offset: 4.682 ms

Below is generated by plot.py at 2018-09-11 09:09:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 52.42 Mbit/s
95th percentile per-packet one-way delay: 263.108 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 52.42 Mbit/s
95th percentile per-packet one-way delay: 263.108 ms
Loss rate: 1.83%

Run 2: Report of Verus — Data Link

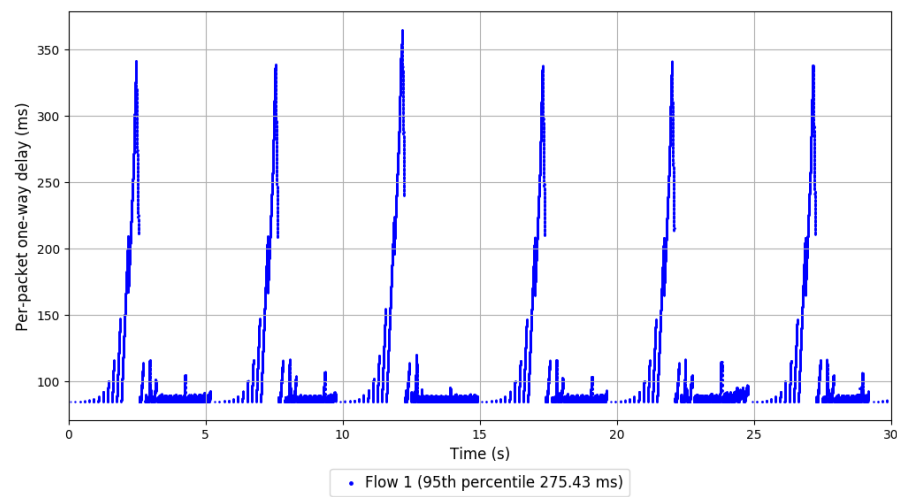
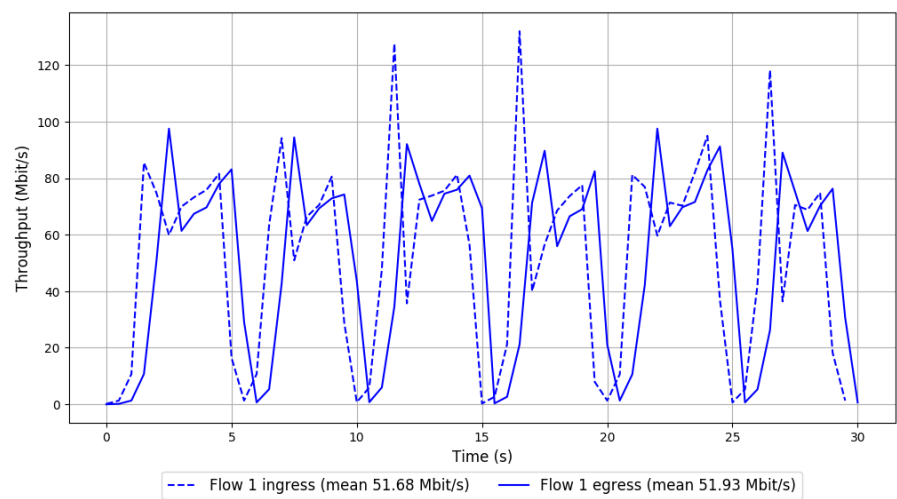


Run 3: Statistics of Verus

Start at: 2018-09-11 08:12:30
End at: 2018-09-11 08:13:00
Local clock offset: -5.201 ms
Remote clock offset: 0.686 ms

Below is generated by plot.py at 2018-09-11 09:09:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 51.93 Mbit/s
95th percentile per-packet one-way delay: 275.426 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 51.93 Mbit/s
95th percentile per-packet one-way delay: 275.426 ms
Loss rate: 0.08%

Run 3: Report of Verus — Data Link

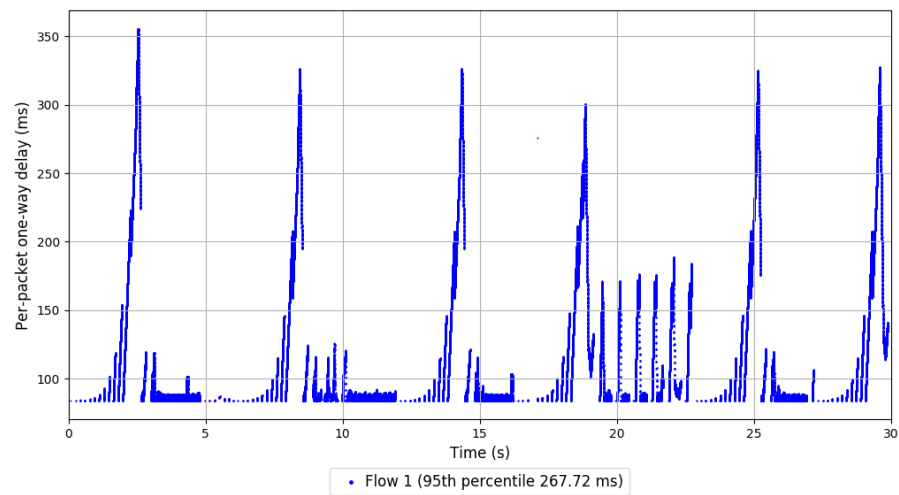
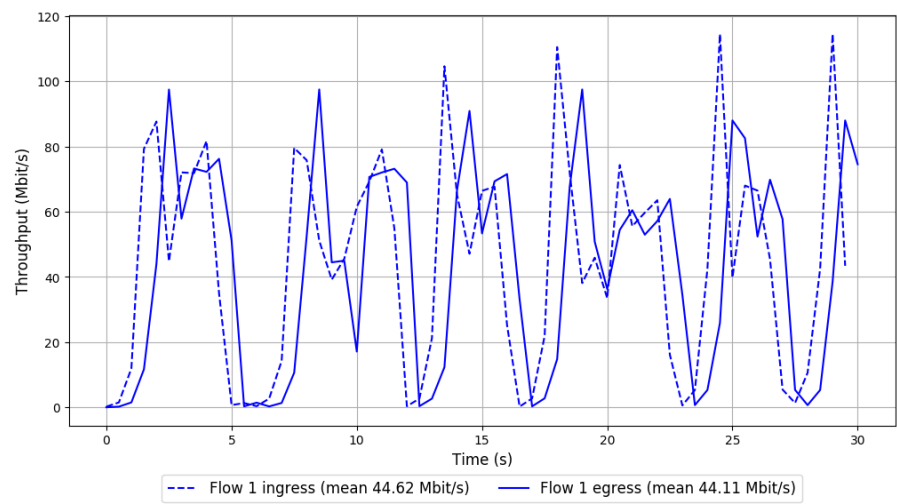


Run 4: Statistics of Verus

Start at: 2018-09-11 08:34:02
End at: 2018-09-11 08:34:32
Local clock offset: -5.752 ms
Remote clock offset: 1.444 ms

Below is generated by plot.py at 2018-09-11 09:09:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 44.11 Mbit/s
95th percentile per-packet one-way delay: 267.723 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 44.11 Mbit/s
95th percentile per-packet one-way delay: 267.723 ms
Loss rate: 1.00%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-11 08:55:27

End at: 2018-09-11 08:55:57

Local clock offset: -4.563 ms

Remote clock offset: 1.624 ms

Below is generated by plot.py at 2018-09-11 09:10:02

Datalink statistics

-- Total of 1 flow:

Average throughput: 71.79 Mbit/s

95th percentile per-packet one-way delay: 191.770 ms

Loss rate: 0.85%

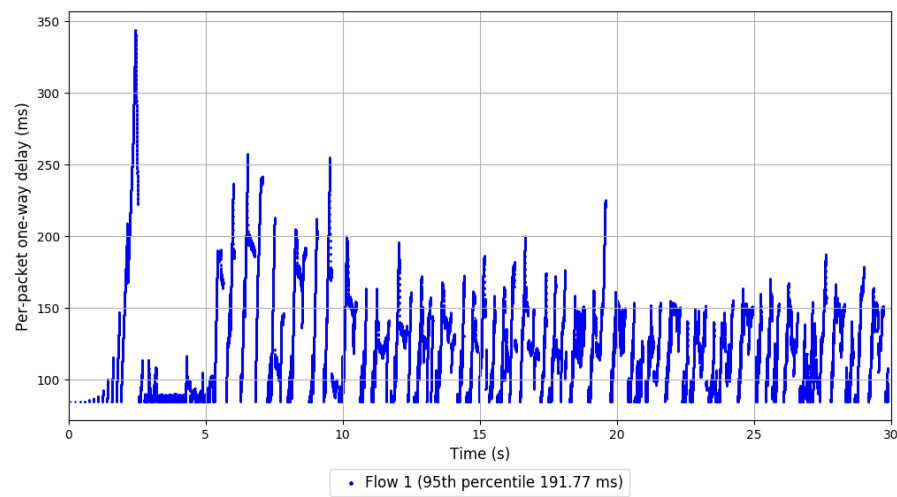
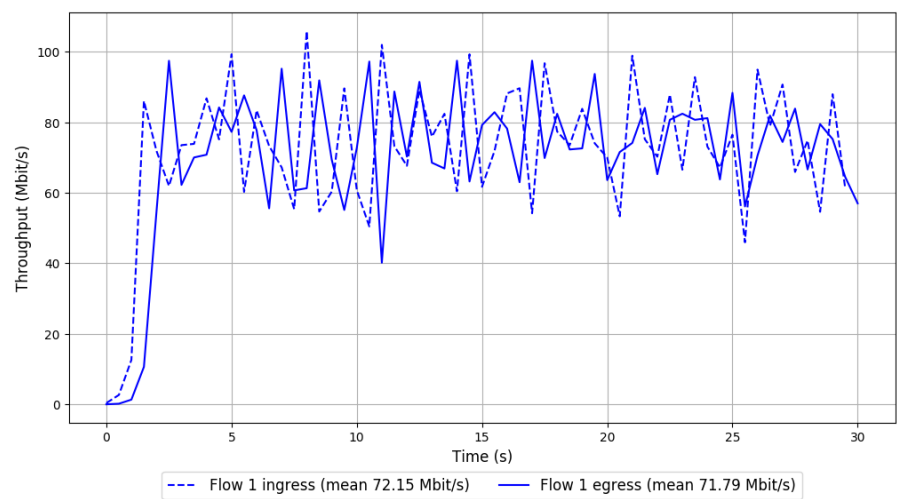
-- Flow 1:

Average throughput: 71.79 Mbit/s

95th percentile per-packet one-way delay: 191.770 ms

Loss rate: 0.85%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-11 07:26:06

End at: 2018-09-11 07:26:36

Local clock offset: -4.433 ms

Remote clock offset: 4.128 ms

Below is generated by plot.py at 2018-09-11 09:10:02

Datalink statistics

-- Total of 1 flow:

Average throughput: 59.94 Mbit/s

95th percentile per-packet one-way delay: 110.589 ms

Loss rate: 0.92%

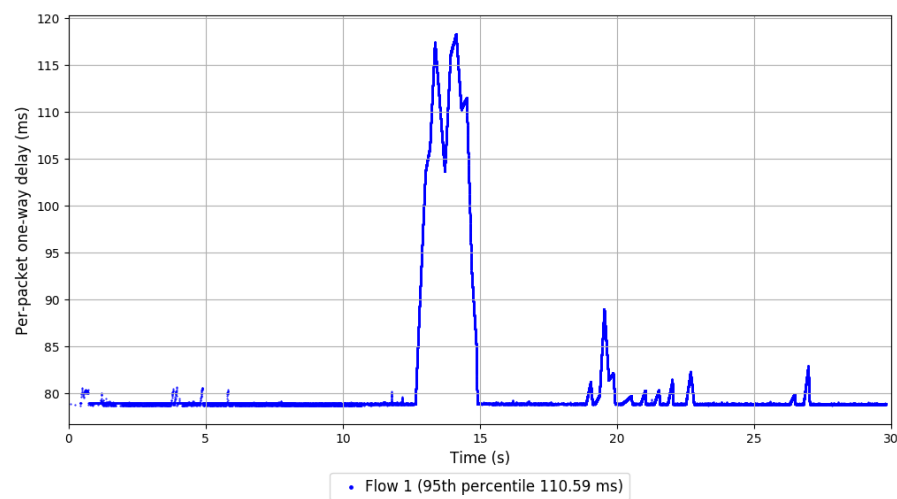
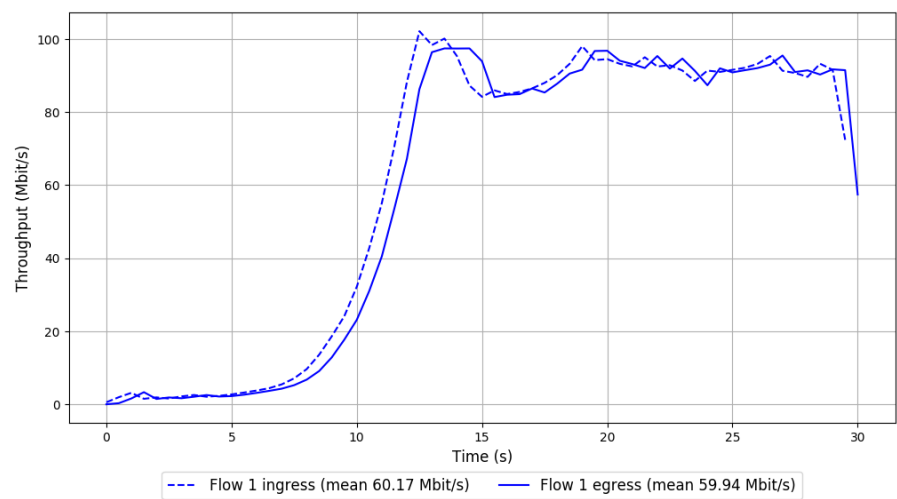
-- Flow 1:

Average throughput: 59.94 Mbit/s

95th percentile per-packet one-way delay: 110.589 ms

Loss rate: 0.92%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-11 07:47:31

End at: 2018-09-11 07:48:01

Local clock offset: -4.822 ms

Remote clock offset: 1.033 ms

Below is generated by plot.py at 2018-09-11 09:10:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 75.85 Mbit/s

95th percentile per-packet one-way delay: 113.432 ms

Loss rate: 0.72%

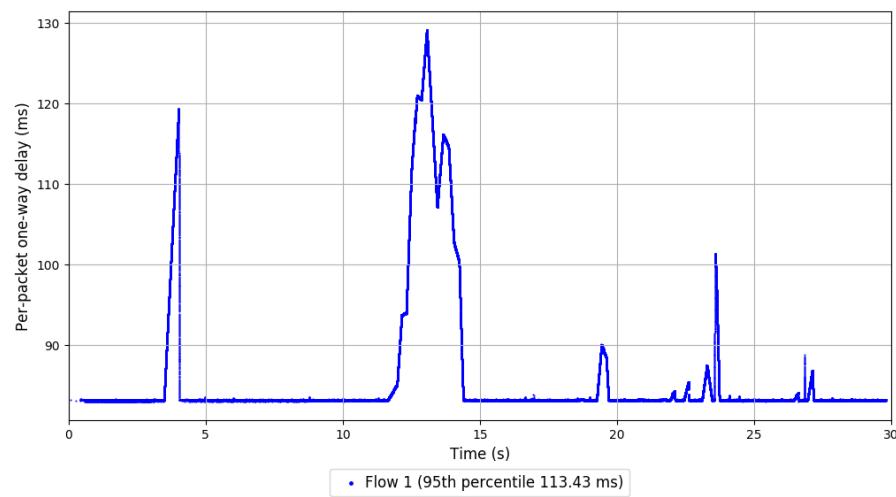
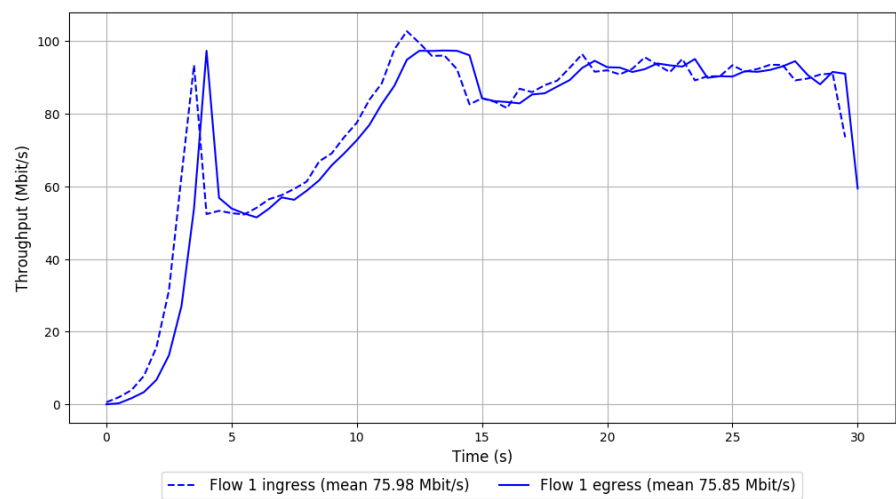
-- Flow 1:

Average throughput: 75.85 Mbit/s

95th percentile per-packet one-way delay: 113.432 ms

Loss rate: 0.72%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-11 08:08:50

End at: 2018-09-11 08:09:20

Local clock offset: -5.216 ms

Remote clock offset: 4.093 ms

Below is generated by plot.py at 2018-09-11 09:10:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 76.45 Mbit/s

95th percentile per-packet one-way delay: 86.201 ms

Loss rate: 1.50%

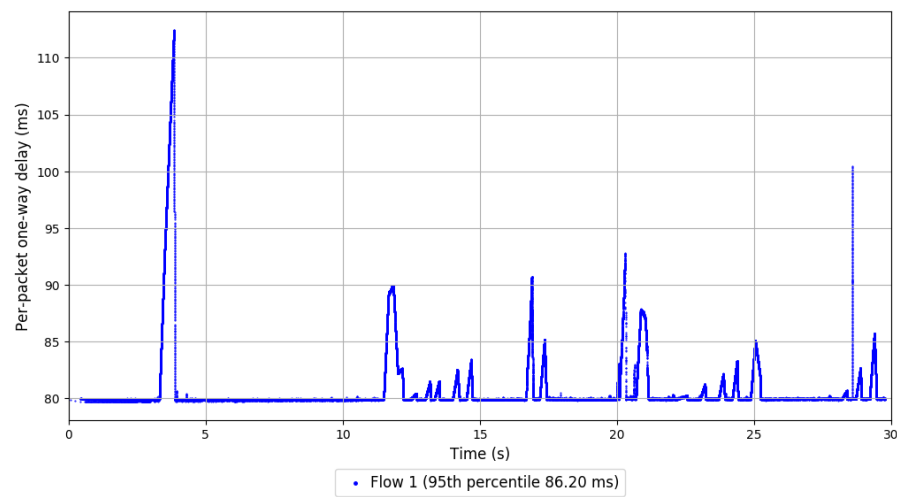
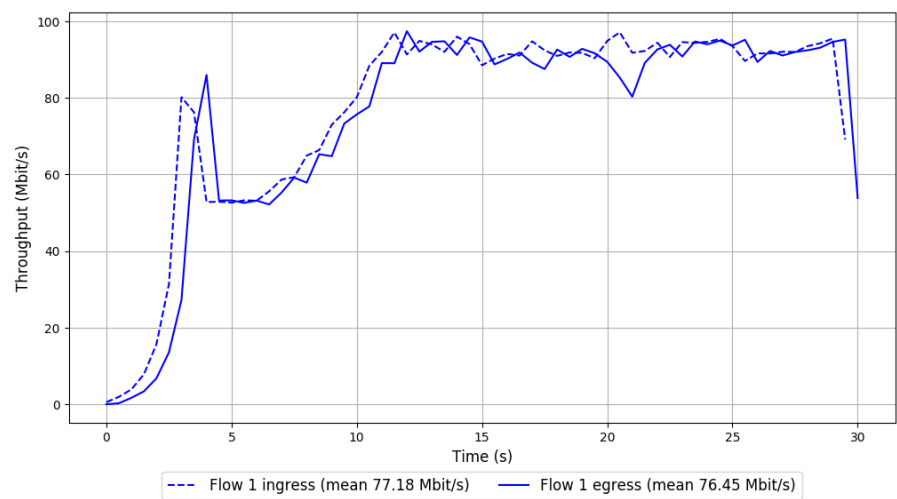
-- Flow 1:

Average throughput: 76.45 Mbit/s

95th percentile per-packet one-way delay: 86.201 ms

Loss rate: 1.50%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-11 08:30:14

End at: 2018-09-11 08:30:44

Local clock offset: -5.991 ms

Remote clock offset: 5.615 ms

Below is generated by plot.py at 2018-09-11 09:10:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 78.03 Mbit/s

95th percentile per-packet one-way delay: 87.763 ms

Loss rate: 0.65%

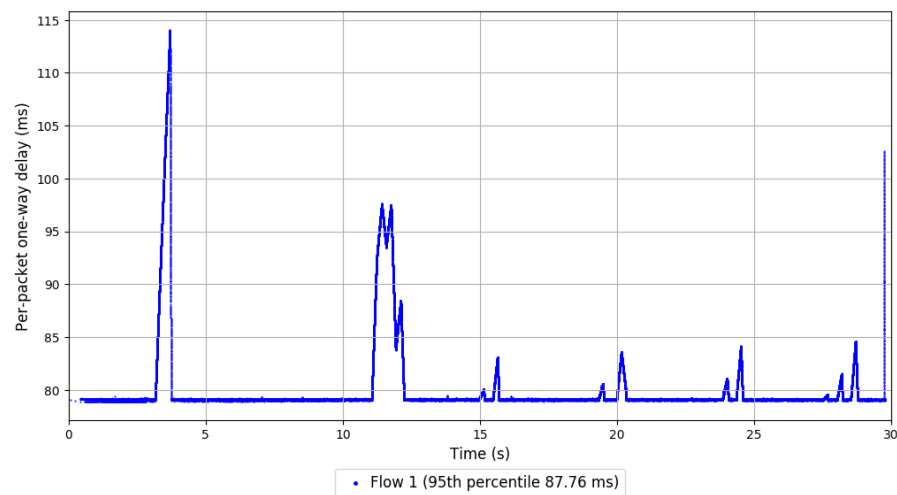
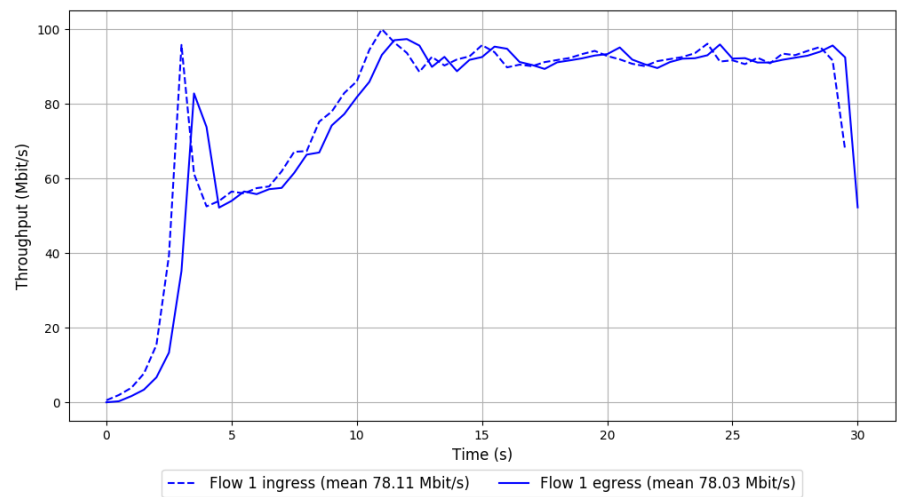
-- Flow 1:

Average throughput: 78.03 Mbit/s

95th percentile per-packet one-way delay: 87.763 ms

Loss rate: 0.65%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-11 08:51:46

End at: 2018-09-11 08:52:16

Local clock offset: -4.604 ms

Remote clock offset: 1.326 ms

Below is generated by plot.py at 2018-09-11 09:10:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 74.17 Mbit/s

95th percentile per-packet one-way delay: 122.086 ms

Loss rate: 2.27%

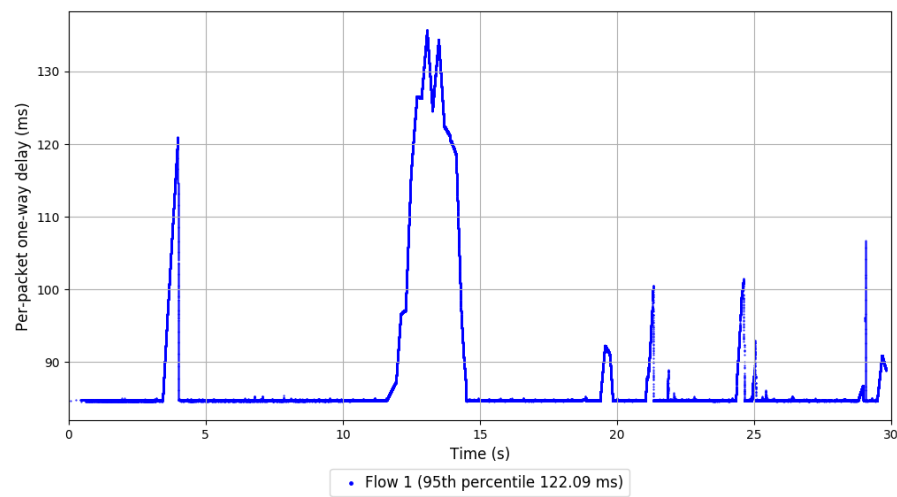
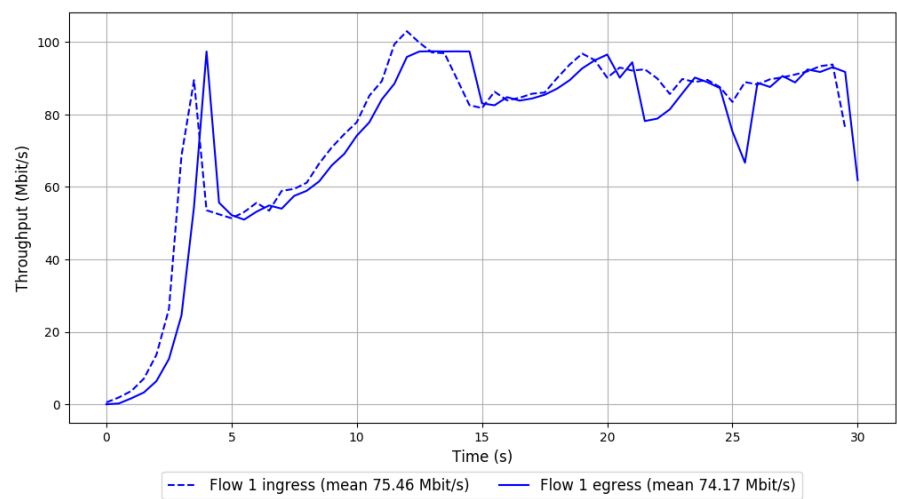
-- Flow 1:

Average throughput: 74.17 Mbit/s

95th percentile per-packet one-way delay: 122.086 ms

Loss rate: 2.27%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-09-11 07:14:21

End at: 2018-09-11 07:14:51

Local clock offset: -4.487 ms

Remote clock offset: 5.271 ms

Below is generated by plot.py at 2018-09-11 09:10:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.25 Mbit/s

95th percentile per-packet one-way delay: 80.126 ms

Loss rate: 0.34%

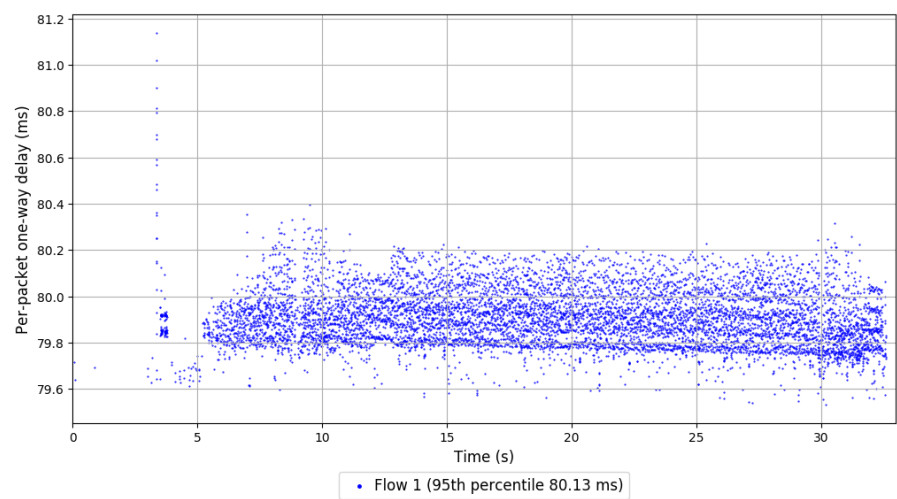
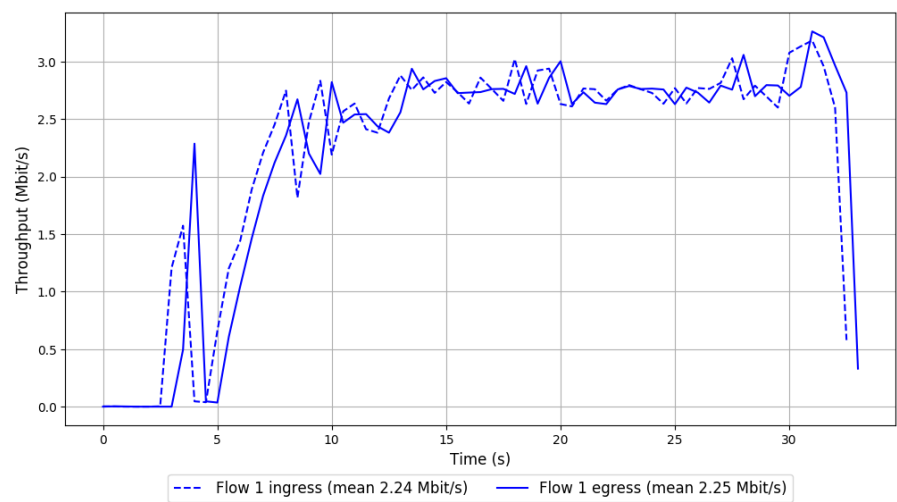
-- Flow 1:

Average throughput: 2.25 Mbit/s

95th percentile per-packet one-way delay: 80.126 ms

Loss rate: 0.34%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-11 07:35:37

End at: 2018-09-11 07:36:07

Local clock offset: -5.139 ms

Remote clock offset: 0.745 ms

Below is generated by plot.py at 2018-09-11 09:10:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.26 Mbit/s

95th percentile per-packet one-way delay: 83.129 ms

Loss rate: 0.30%

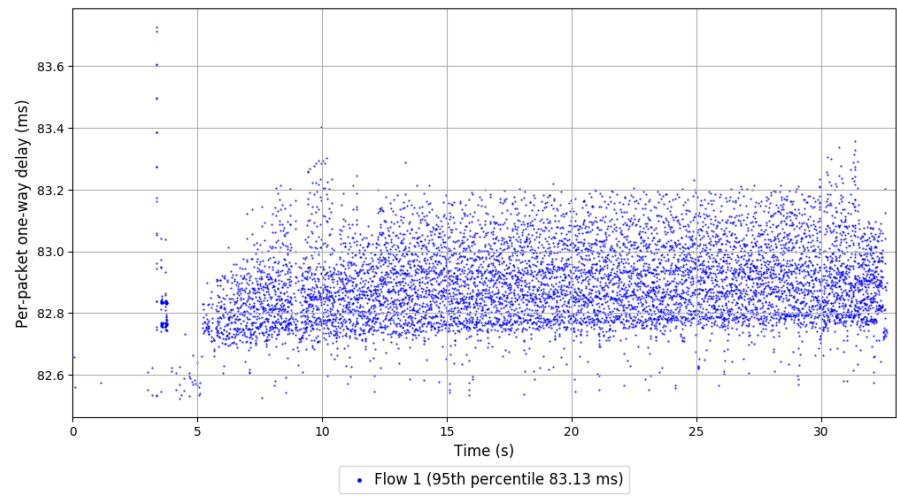
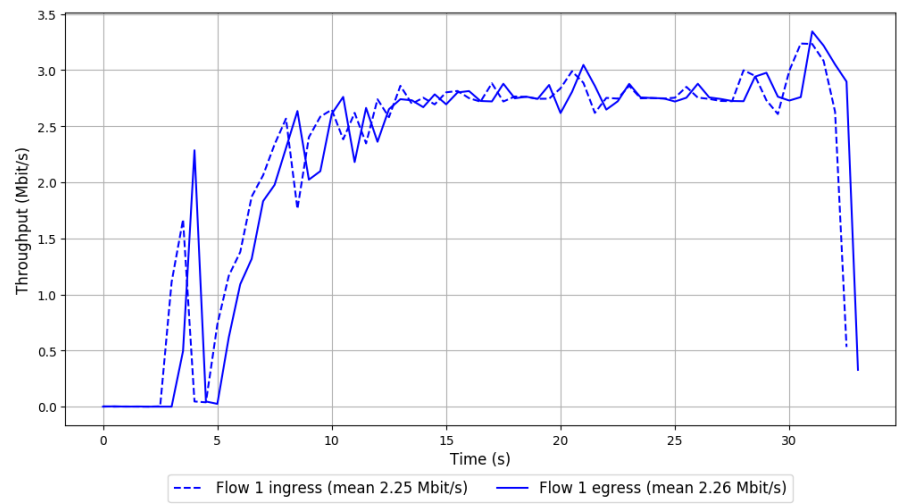
-- Flow 1:

Average throughput: 2.26 Mbit/s

95th percentile per-packet one-way delay: 83.129 ms

Loss rate: 0.30%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-11 07:57:02

End at: 2018-09-11 07:57:32

Local clock offset: -5.561 ms

Remote clock offset: 0.136 ms

Below is generated by plot.py at 2018-09-11 09:10:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.20 Mbit/s

95th percentile per-packet one-way delay: 83.483 ms

Loss rate: 0.72%

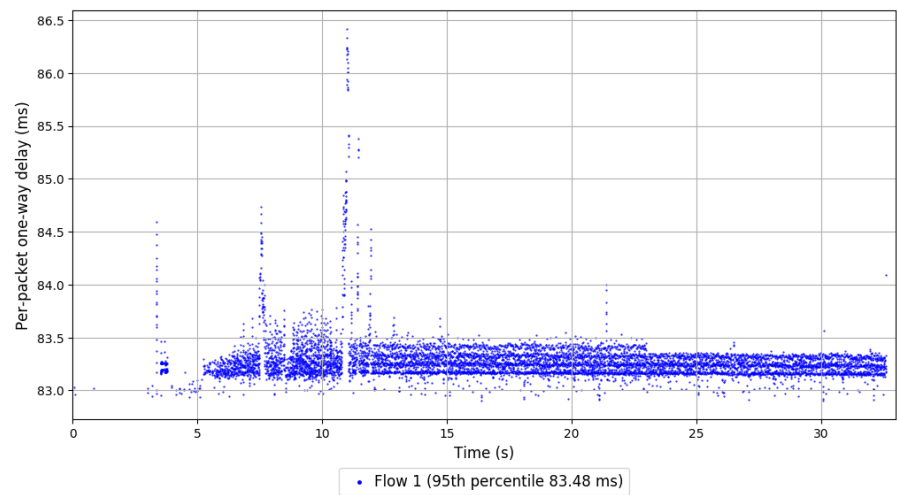
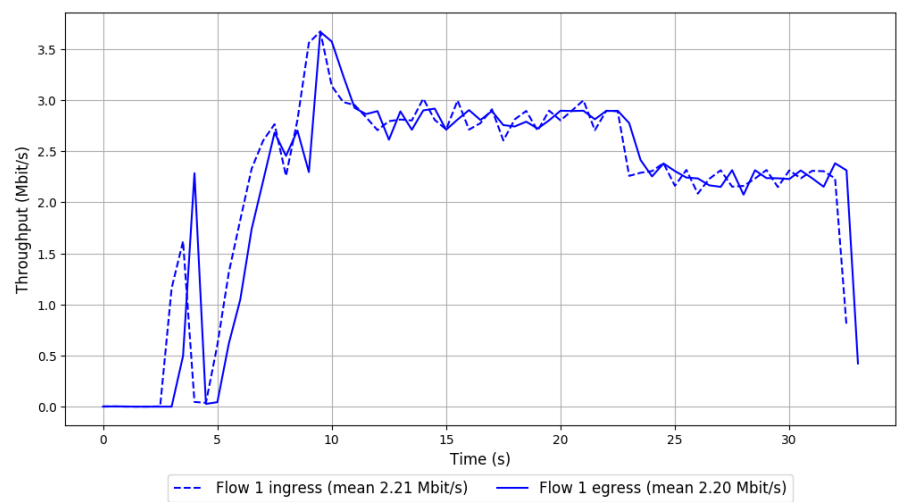
-- Flow 1:

Average throughput: 2.20 Mbit/s

95th percentile per-packet one-way delay: 83.483 ms

Loss rate: 0.72%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-11 08:18:27

End at: 2018-09-11 08:18:57

Local clock offset: -6.007 ms

Remote clock offset: 5.135 ms

Below is generated by plot.py at 2018-09-11 09:10:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.24 Mbit/s

95th percentile per-packet one-way delay: 79.109 ms

Loss rate: 0.35%

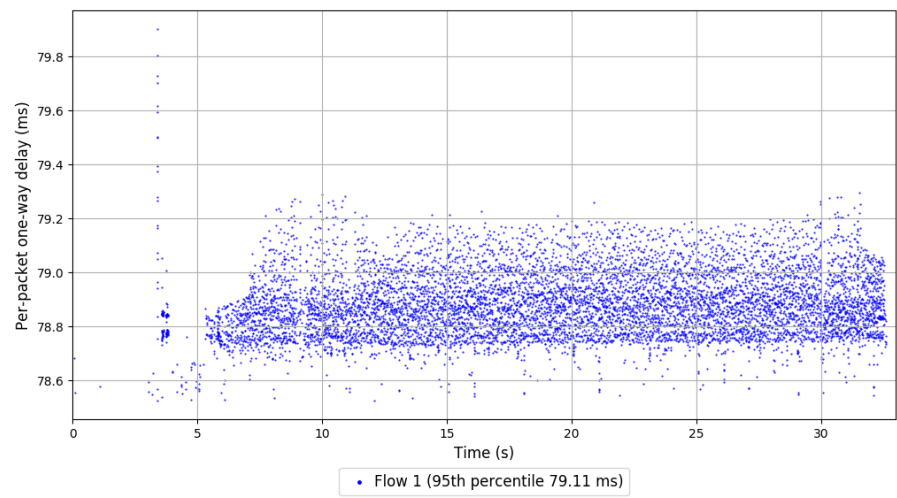
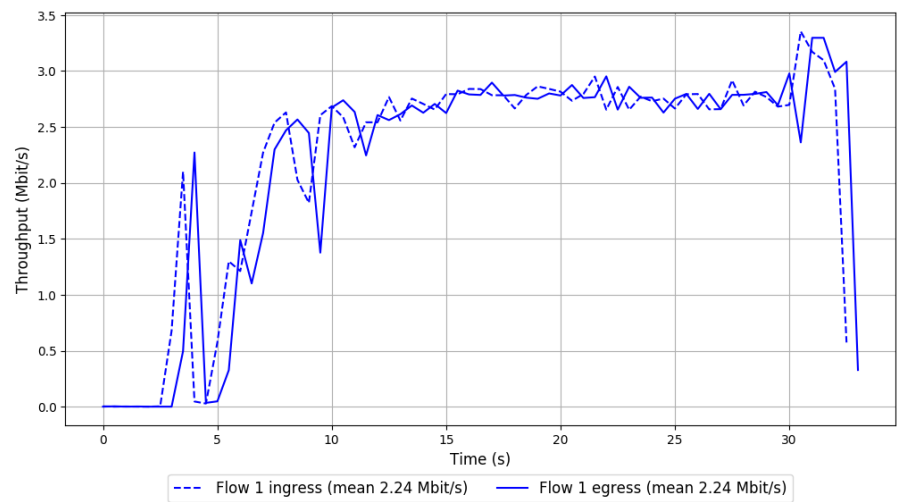
-- Flow 1:

Average throughput: 2.24 Mbit/s

95th percentile per-packet one-way delay: 79.109 ms

Loss rate: 0.35%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-11 08:39:58

End at: 2018-09-11 08:40:28

Local clock offset: -5.568 ms

Remote clock offset: 5.669 ms

Below is generated by plot.py at 2018-09-11 09:10:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 79.383 ms

Loss rate: 0.41%

-- Flow 1:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 79.383 ms

Loss rate: 0.41%

Run 5: Report of WebRTC media — Data Link

