

Pantheon Report

Generated at 2018-09-07 21:16:48 (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:

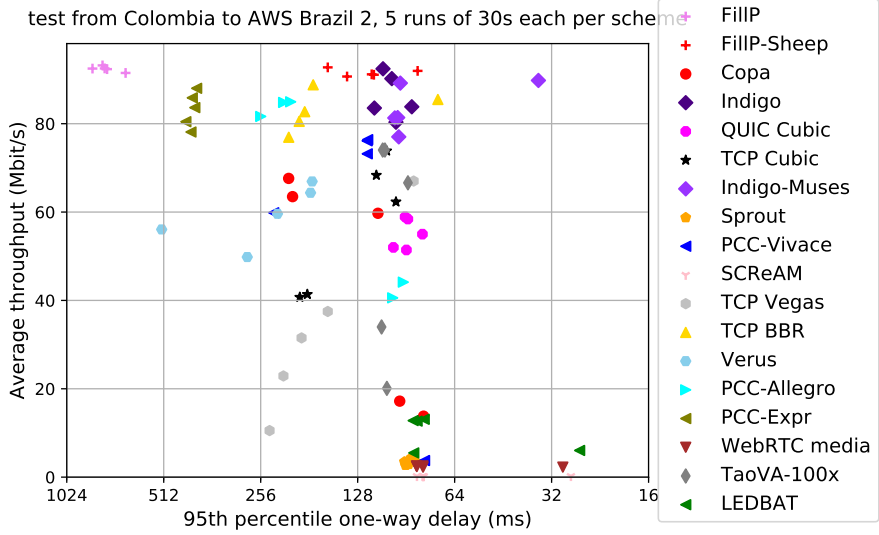
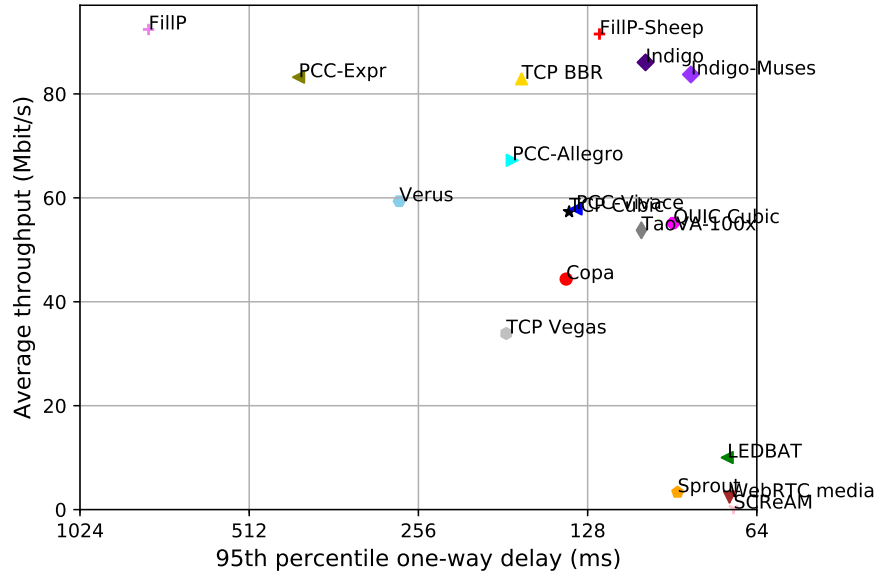
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912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

Git summary:

```
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
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)



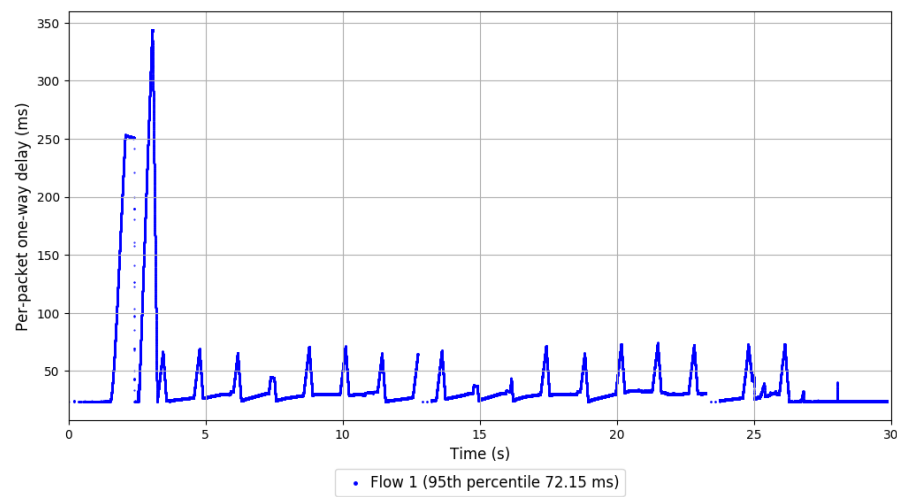
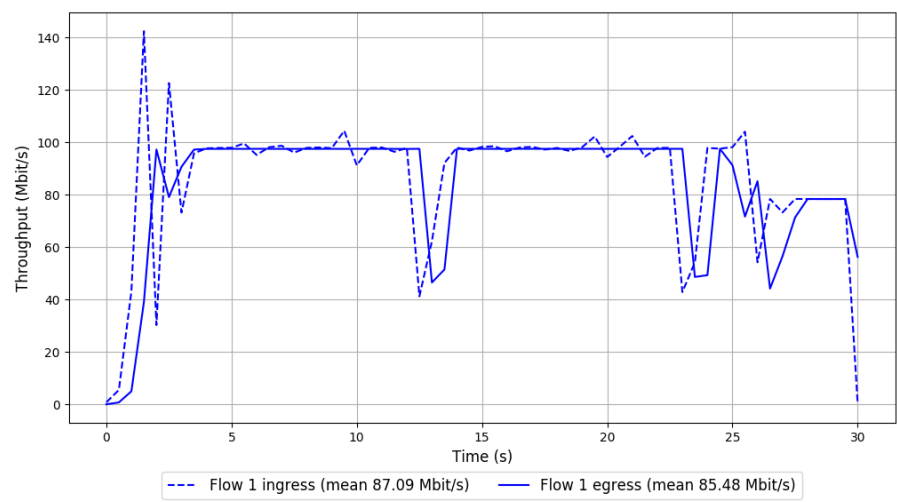
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	82.90	167.77	2.39
Copa	5	44.37	139.77	1.06
TCP Cubic	5	57.32	138.08	0.94
FillP	5	92.41	773.18	5.35
FillP-Sheep	5	91.53	121.94	2.14
Indigo	5	86.07	100.99	1.38
LEDBAT	5	10.02	72.26	1.27
Indigo-Muses	5	83.74	83.85	1.34
PCC-Allegro	5	67.23	174.34	1.77
PCC-Expr	5	83.22	418.22	1.45
QUIC Cubic	5	55.15	90.13	0.83
SCReAM	5	0.21	70.41	0.66
Sprout	5	3.35	88.56	0.88
TaoVA-100x	5	53.76	102.70	0.71
TCP Vegas	5	33.89	178.66	0.88
Verus	5	59.36	276.97	1.56
PCC-Vivace	5	57.86	134.21	1.15
WebRTC media	5	2.40	71.59	0.75

Run 1: Statistics of TCP BBR

Start at: 2018-09-07 19:24:11
End at: 2018-09-07 19:24:42
Local clock offset: -62.515 ms
Remote clock offset: 12.05 ms

Below is generated by plot.py at 2018-09-07 21:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 85.48 Mbit/s
95th percentile per-packet one-way delay: 72.146 ms
Loss rate: 2.39%
-- Flow 1:
Average throughput: 85.48 Mbit/s
95th percentile per-packet one-way delay: 72.146 ms
Loss rate: 2.39%

Run 1: Report of TCP BBR — Data Link

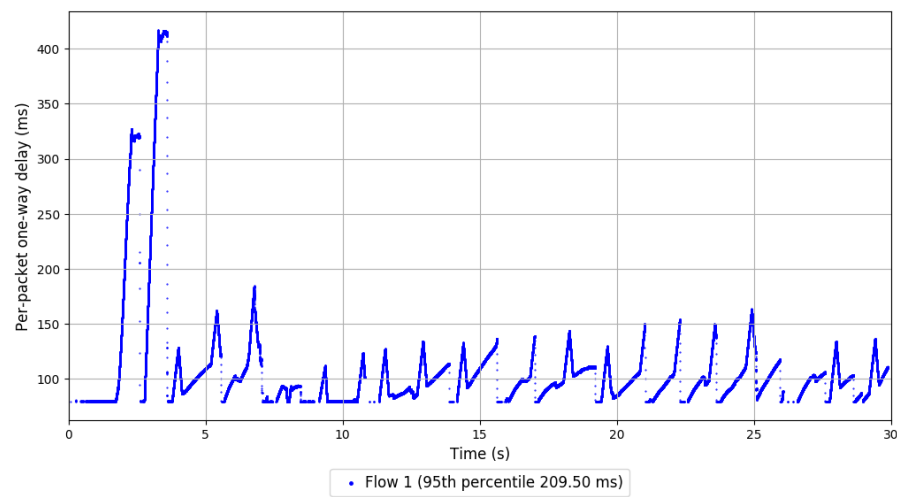
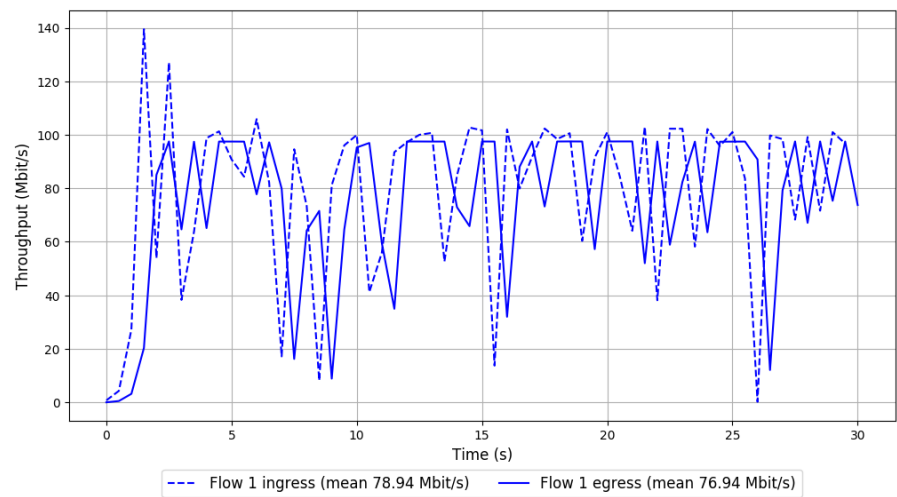


Run 2: Statistics of TCP BBR

Start at: 2018-09-07 19:45:30
End at: 2018-09-07 19:46:00
Local clock offset: -6.605 ms
Remote clock offset: 13.315 ms

Below is generated by plot.py at 2018-09-07 21:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 76.94 Mbit/s
95th percentile per-packet one-way delay: 209.500 ms
Loss rate: 3.08%
-- Flow 1:
Average throughput: 76.94 Mbit/s
95th percentile per-packet one-way delay: 209.500 ms
Loss rate: 3.08%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-07 20:06:42

End at: 2018-09-07 20:07:12

Local clock offset: 2.786 ms

Remote clock offset: 12.825 ms

Below is generated by plot.py at 2018-09-07 21:08:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.81 Mbit/s

95th percentile per-packet one-way delay: 175.890 ms

Loss rate: 1.96%

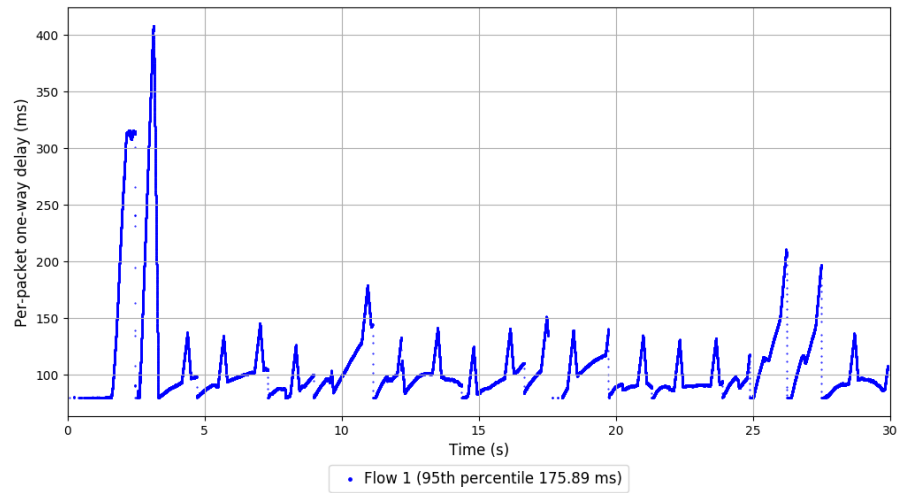
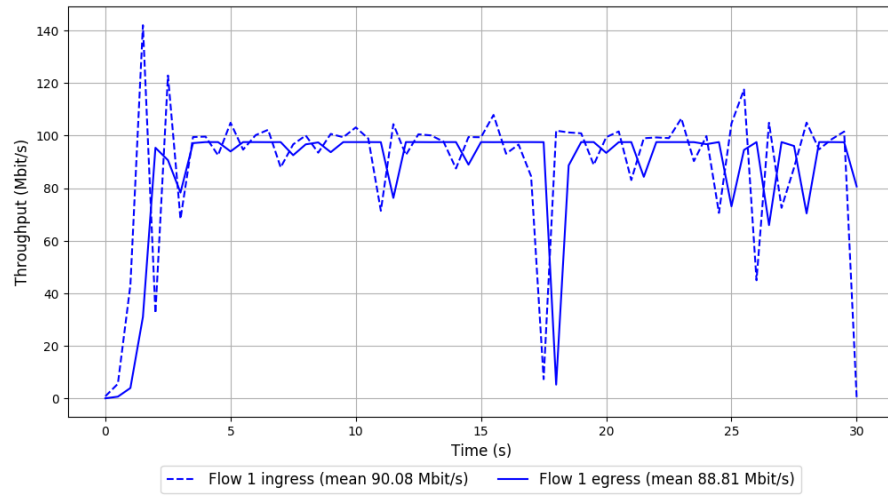
-- Flow 1:

Average throughput: 88.81 Mbit/s

95th percentile per-packet one-way delay: 175.890 ms

Loss rate: 1.96%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-07 20:28:07

End at: 2018-09-07 20:28:37

Local clock offset: 3.111 ms

Remote clock offset: 13.56 ms

Below is generated by plot.py at 2018-09-07 21:08:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 82.72 Mbit/s

95th percentile per-packet one-way delay: 186.916 ms

Loss rate: 1.54%

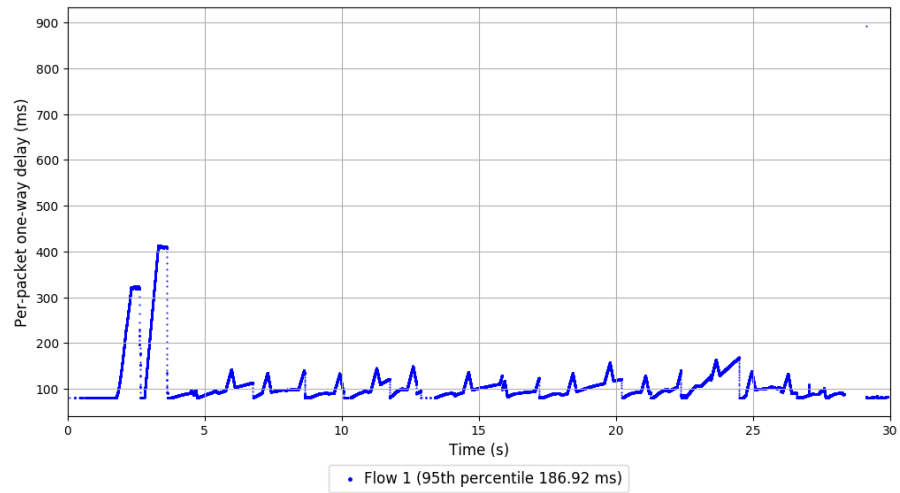
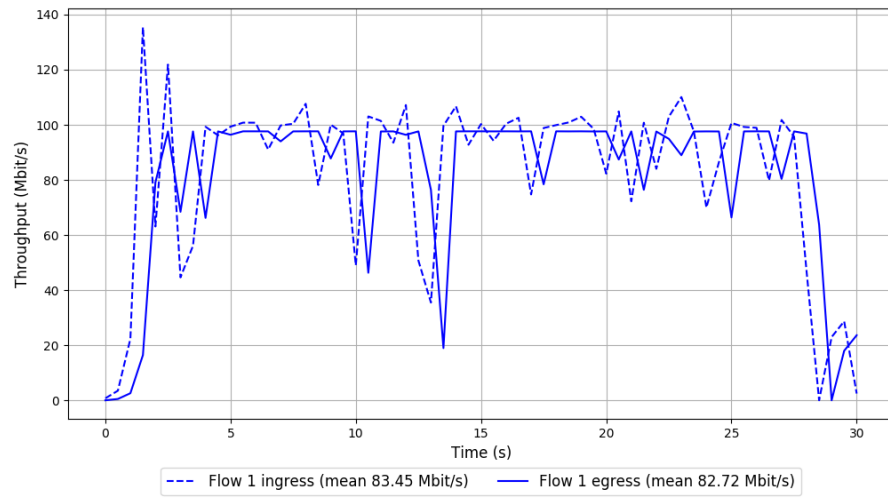
-- Flow 1:

Average throughput: 82.72 Mbit/s

95th percentile per-packet one-way delay: 186.916 ms

Loss rate: 1.54%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-07 20:49:26

End at: 2018-09-07 20:49:56

Local clock offset: -0.509 ms

Remote clock offset: 9.247 ms

Below is generated by plot.py at 2018-09-07 21:08:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 80.53 Mbit/s

95th percentile per-packet one-way delay: 194.403 ms

Loss rate: 2.98%

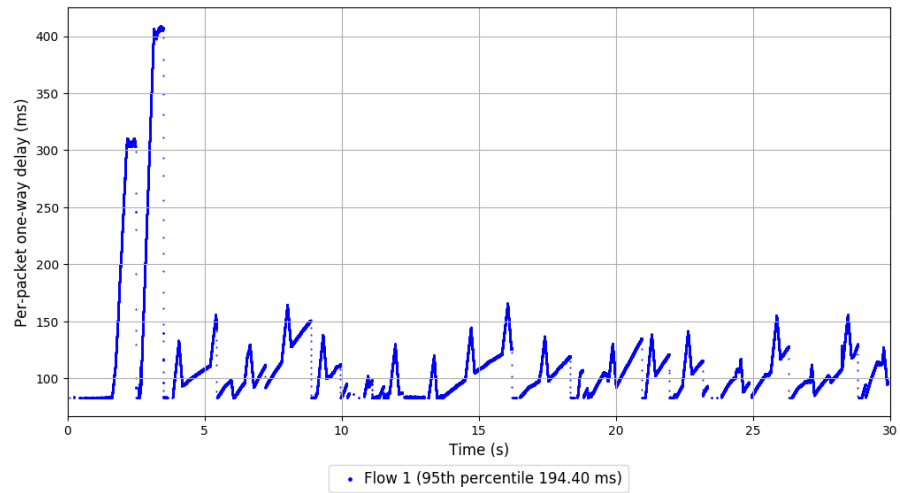
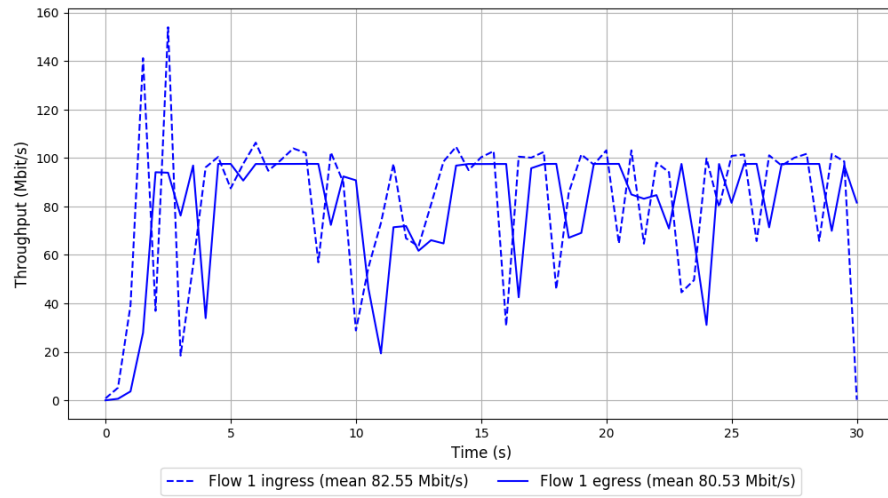
-- Flow 1:

Average throughput: 80.53 Mbit/s

95th percentile per-packet one-way delay: 194.403 ms

Loss rate: 2.98%

Run 5: Report of TCP BBR — Data Link

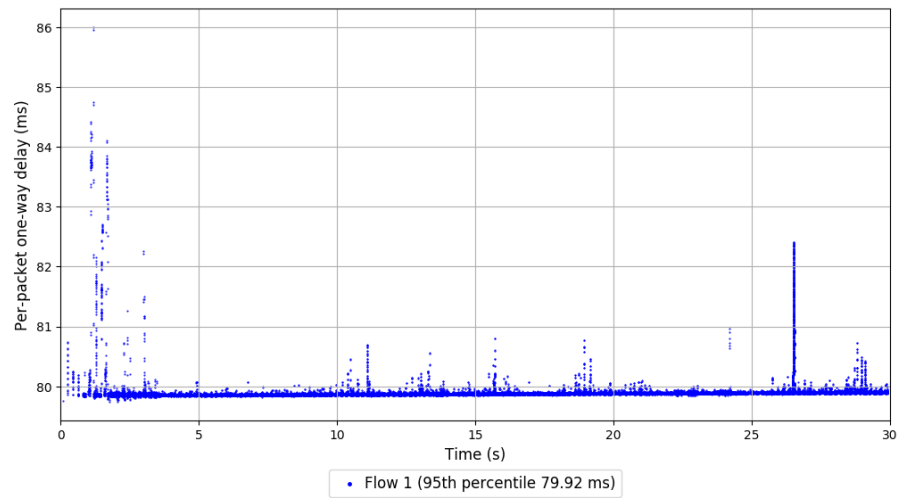
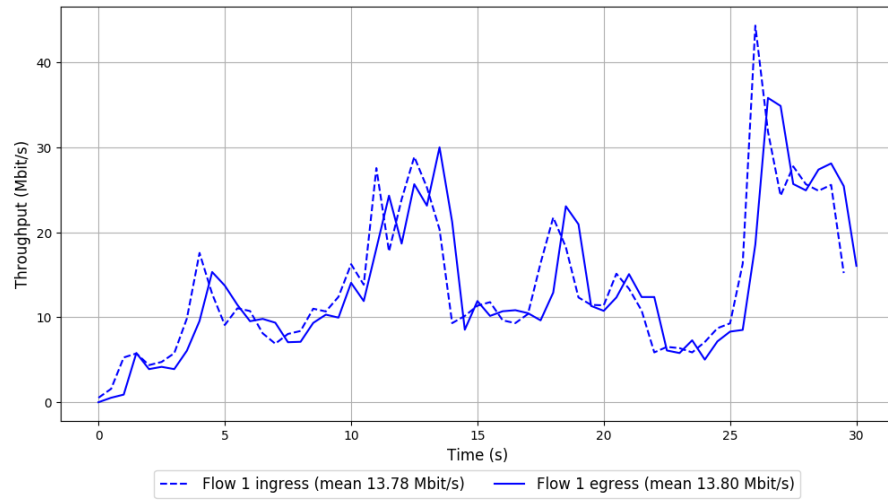


Run 1: Statistics of Copa

Start at: 2018-09-07 19:39:35
End at: 2018-09-07 19:40:05
Local clock offset: -7.877 ms
Remote clock offset: 12.974 ms

Below is generated by plot.py at 2018-09-07 21:08:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.80 Mbit/s
95th percentile per-packet one-way delay: 79.915 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 13.80 Mbit/s
95th percentile per-packet one-way delay: 79.915 ms
Loss rate: 0.41%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-07 20:00:46

End at: 2018-09-07 20:01:16

Local clock offset: 1.343 ms

Remote clock offset: 9.377 ms

Below is generated by plot.py at 2018-09-07 21:08:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 17.20 Mbit/s

95th percentile per-packet one-way delay: 94.765 ms

Loss rate: 0.77%

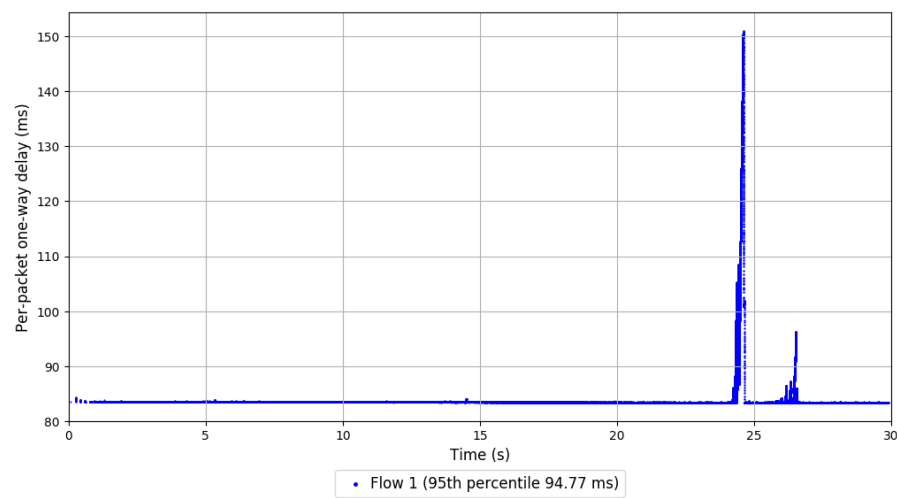
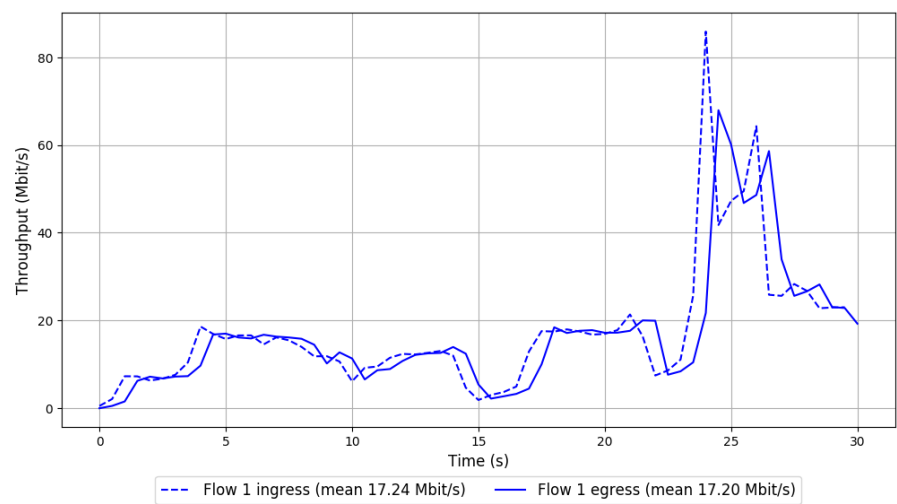
-- Flow 1:

Average throughput: 17.20 Mbit/s

95th percentile per-packet one-way delay: 94.765 ms

Loss rate: 0.77%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-07 20:22:12

End at: 2018-09-07 20:22:42

Local clock offset: 2.696 ms

Remote clock offset: 13.65 ms

Below is generated by plot.py at 2018-09-07 21:09:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 63.49 Mbit/s

95th percentile per-packet one-way delay: 203.838 ms

Loss rate: 2.11%

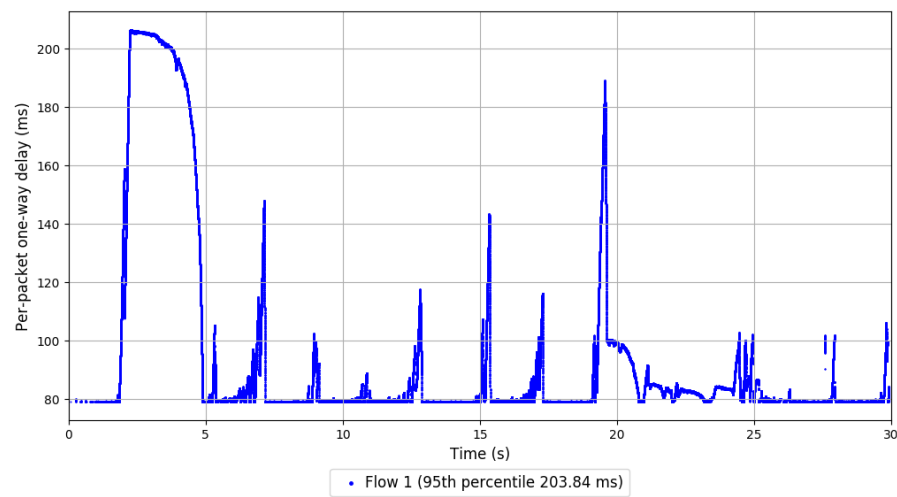
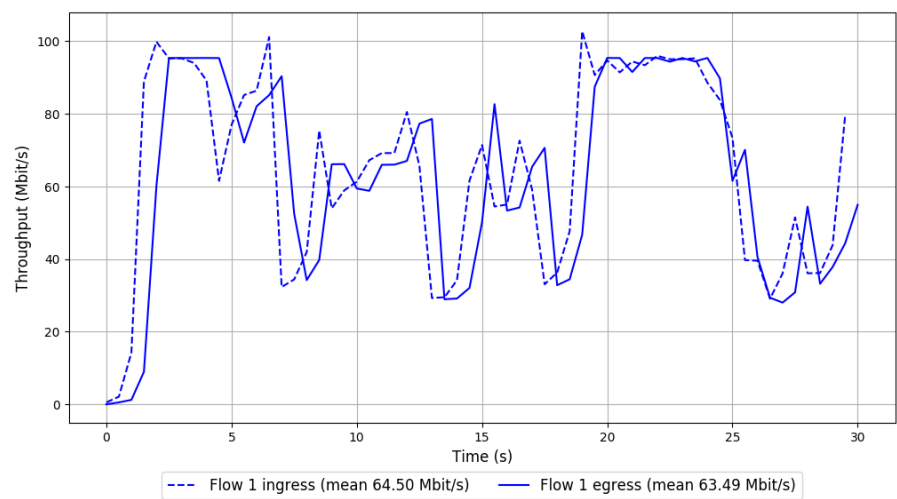
-- Flow 1:

Average throughput: 63.49 Mbit/s

95th percentile per-packet one-way delay: 203.838 ms

Loss rate: 2.11%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-07 20:43:20

End at: 2018-09-07 20:43:50

Local clock offset: 3.487 ms

Remote clock offset: 9.083 ms

Below is generated by plot.py at 2018-09-07 21:09:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 59.72 Mbit/s

95th percentile per-packet one-way delay: 110.722 ms

Loss rate: 1.60%

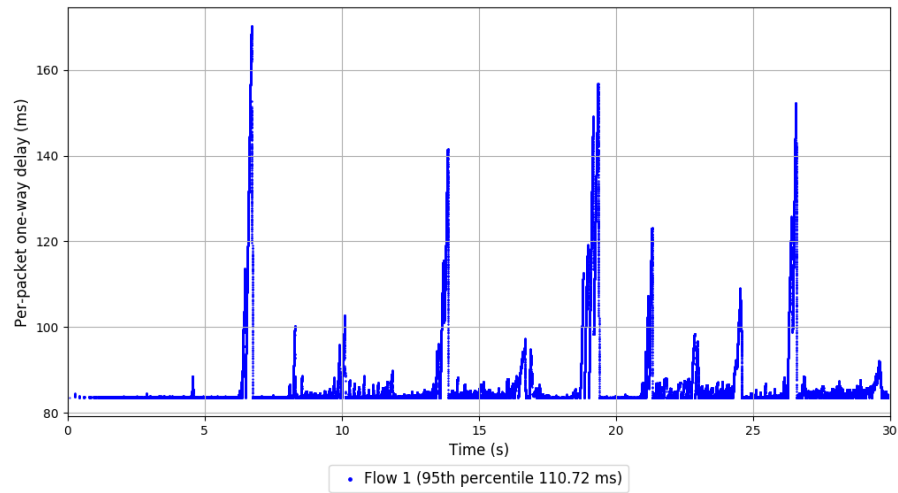
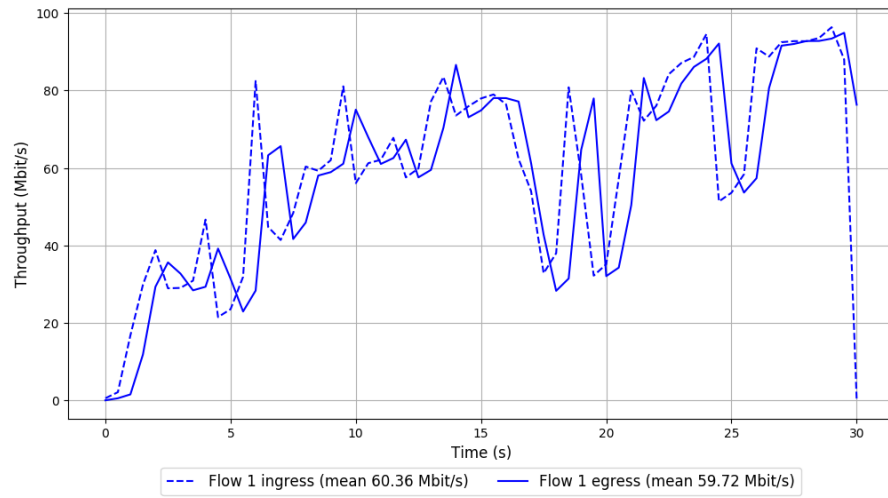
-- Flow 1:

Average throughput: 59.72 Mbit/s

95th percentile per-packet one-way delay: 110.722 ms

Loss rate: 1.60%

Run 4: Report of Copa — Data Link

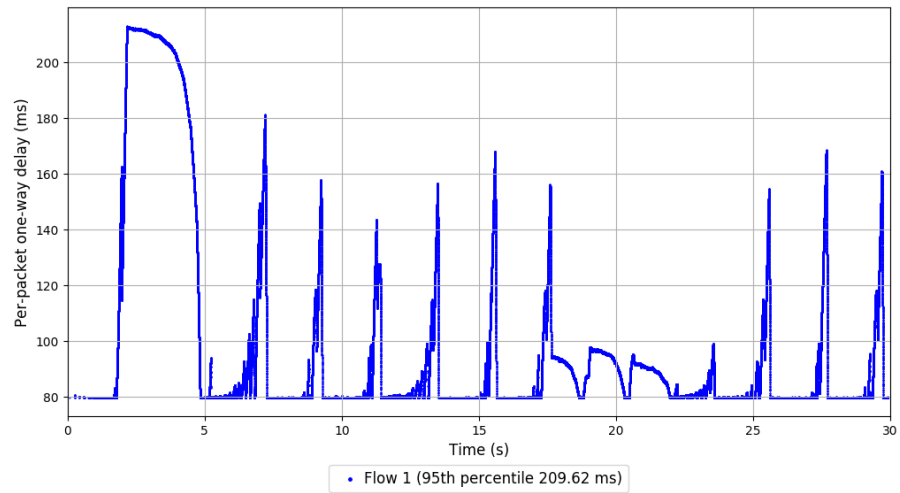
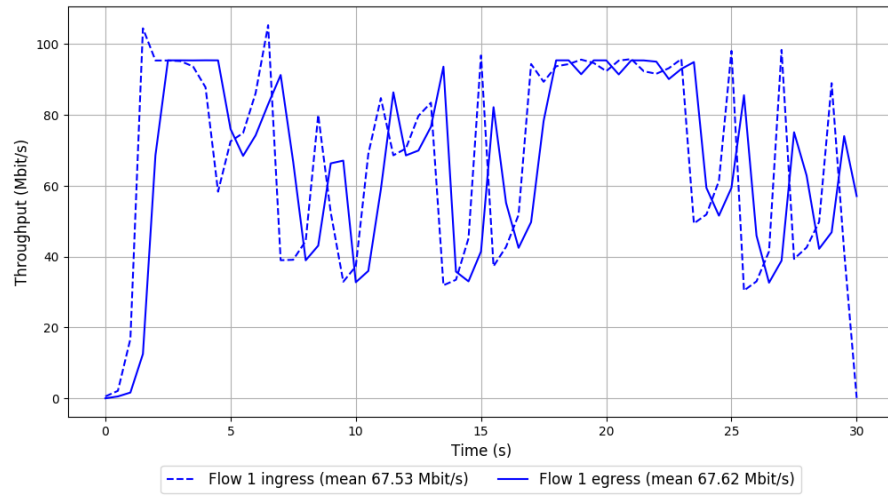


Run 5: Statistics of Copa

Start at: 2018-09-07 21:04:45
End at: 2018-09-07 21:05:15
Local clock offset: -4.751 ms
Remote clock offset: 11.674 ms

Below is generated by plot.py at 2018-09-07 21:09:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 67.62 Mbit/s
95th percentile per-packet one-way delay: 209.623 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 67.62 Mbit/s
95th percentile per-packet one-way delay: 209.623 ms
Loss rate: 0.42%

Run 5: Report of Copa — Data Link

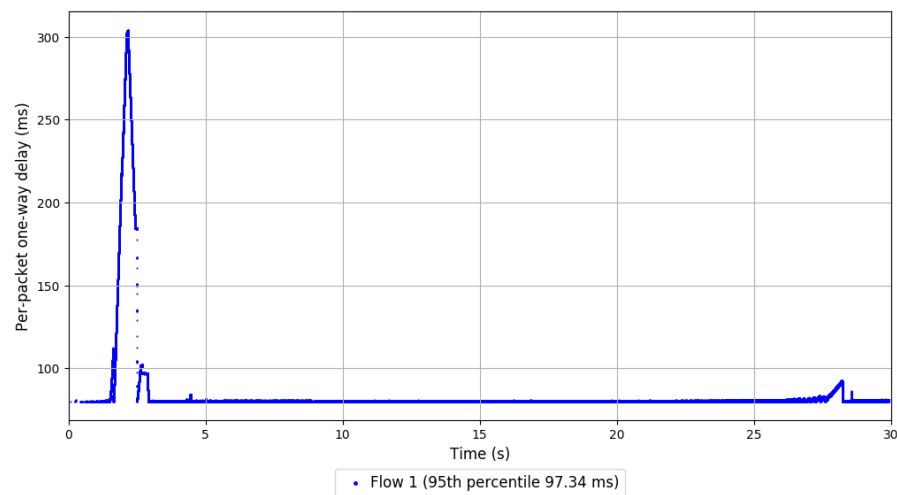
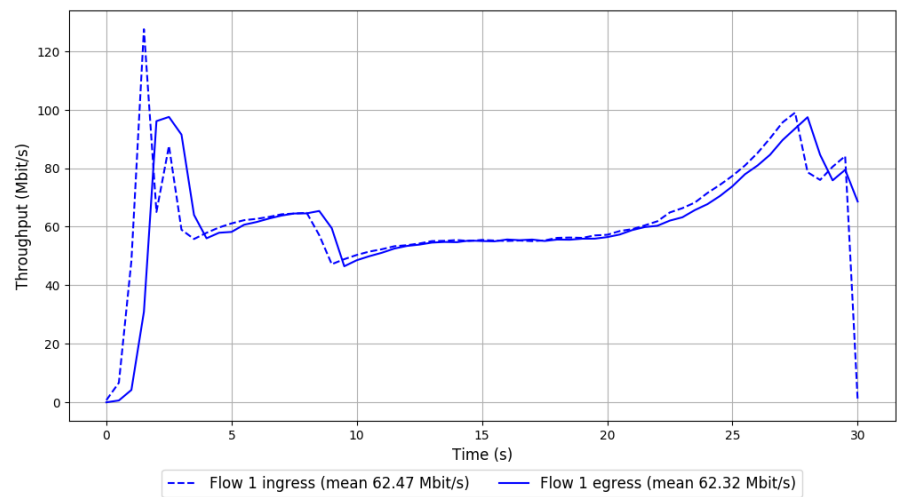


Run 1: Statistics of TCP Cubic

Start at: 2018-09-07 19:33:43
End at: 2018-09-07 19:34:13
Local clock offset: -6.825 ms
Remote clock offset: 12.494 ms

Below is generated by plot.py at 2018-09-07 21:09:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 62.32 Mbit/s
95th percentile per-packet one-way delay: 97.341 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 62.32 Mbit/s
95th percentile per-packet one-way delay: 97.341 ms
Loss rate: 0.81%

Run 1: Report of TCP Cubic — Data Link

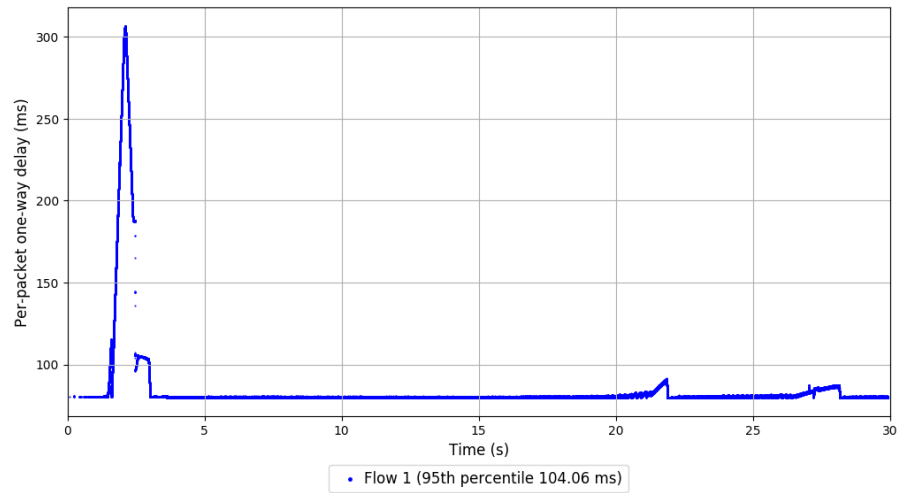
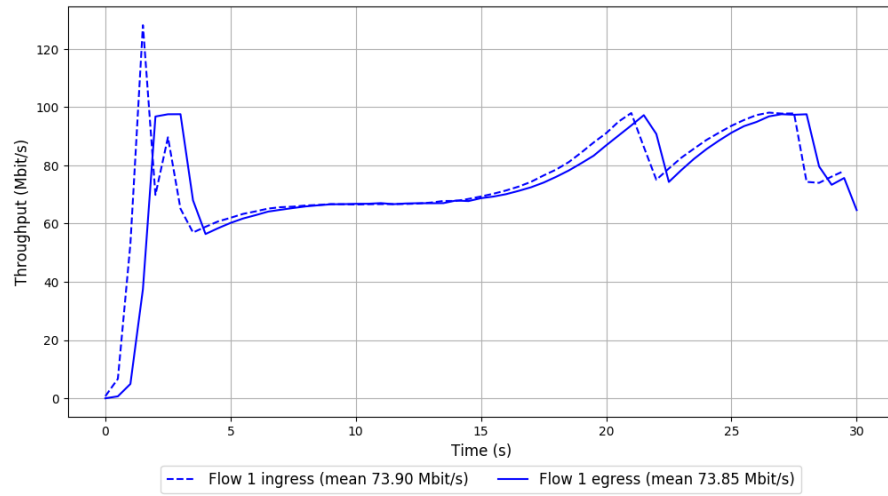


Run 2: Statistics of TCP Cubic

Start at: 2018-09-07 19:54:57
End at: 2018-09-07 19:55:27
Local clock offset: 0.015 ms
Remote clock offset: 13.645 ms

Below is generated by plot.py at 2018-09-07 21:09:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 73.85 Mbit/s
95th percentile per-packet one-way delay: 104.060 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 73.85 Mbit/s
95th percentile per-packet one-way delay: 104.060 ms
Loss rate: 0.62%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-07 20:16:22

End at: 2018-09-07 20:16:52

Local clock offset: 4.482 ms

Remote clock offset: 9.11 ms

Below is generated by plot.py at 2018-09-07 21:09:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 40.73 Mbit/s

95th percentile per-packet one-way delay: 193.591 ms

Loss rate: 1.23%

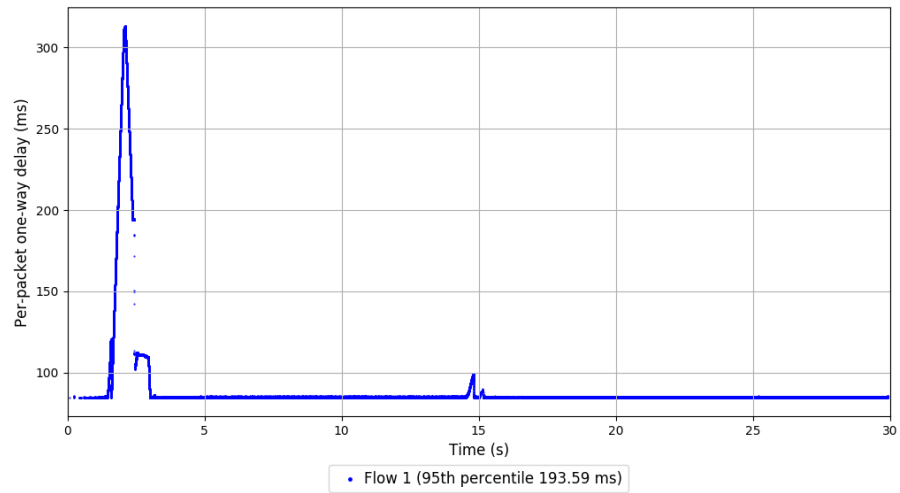
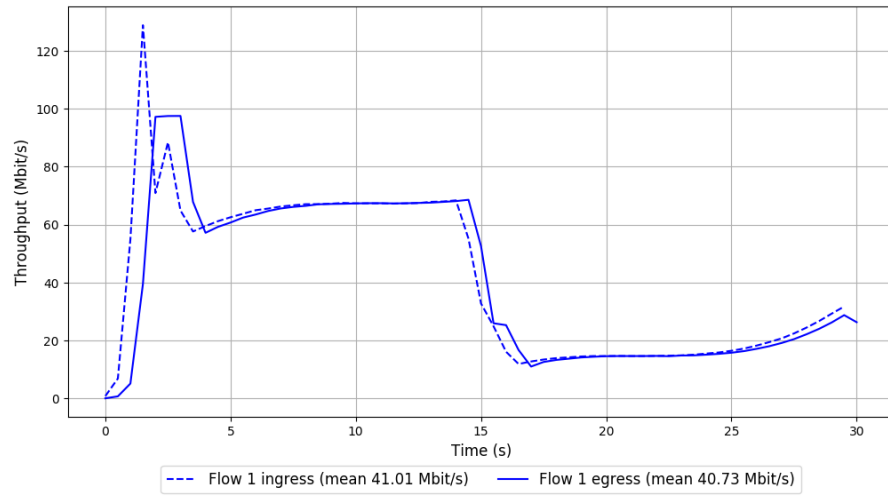
-- Flow 1:

Average throughput: 40.73 Mbit/s

95th percentile per-packet one-way delay: 193.591 ms

Loss rate: 1.23%

Run 3: Report of TCP Cubic — Data Link

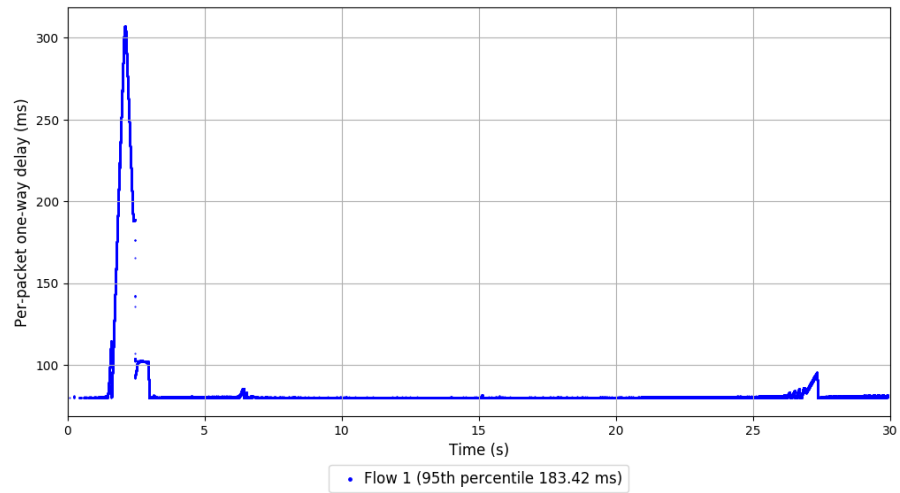
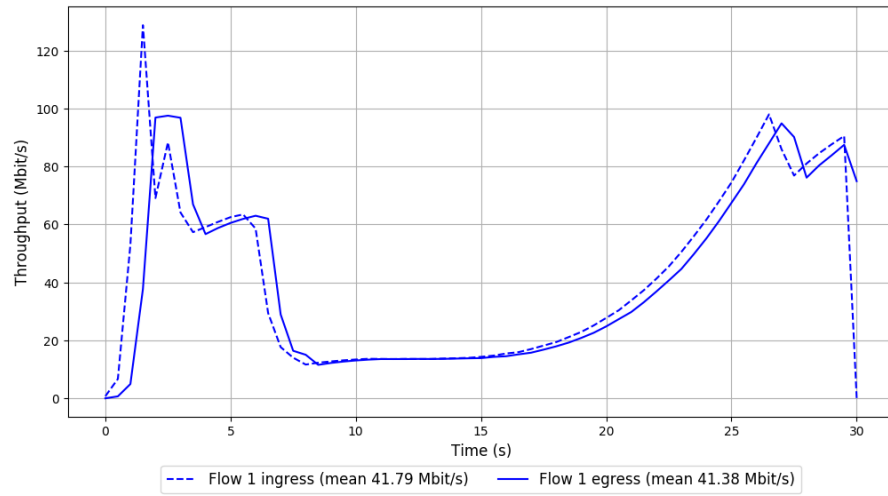


Run 4: Statistics of TCP Cubic

Start at: 2018-09-07 20:37:30
End at: 2018-09-07 20:38:00
Local clock offset: 2.456 ms
Remote clock offset: 13.834 ms

Below is generated by plot.py at 2018-09-07 21:09:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 41.38 Mbit/s
95th percentile per-packet one-way delay: 183.417 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 41.38 Mbit/s
95th percentile per-packet one-way delay: 183.417 ms
Loss rate: 1.53%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-07 20:58:55

End at: 2018-09-07 20:59:25

Local clock offset: -3.108 ms

Remote clock offset: 7.714 ms

Below is generated by plot.py at 2018-09-07 21:09:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 68.34 Mbit/s

95th percentile per-packet one-way delay: 111.973 ms

Loss rate: 0.53%

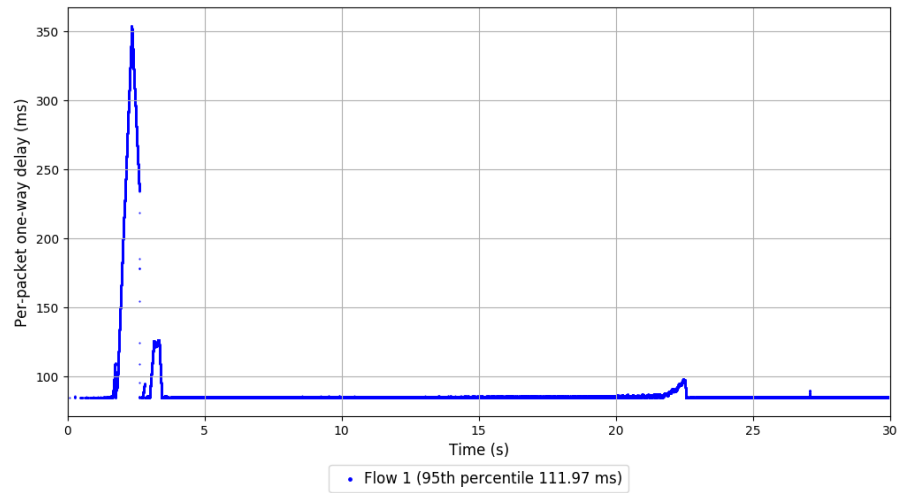
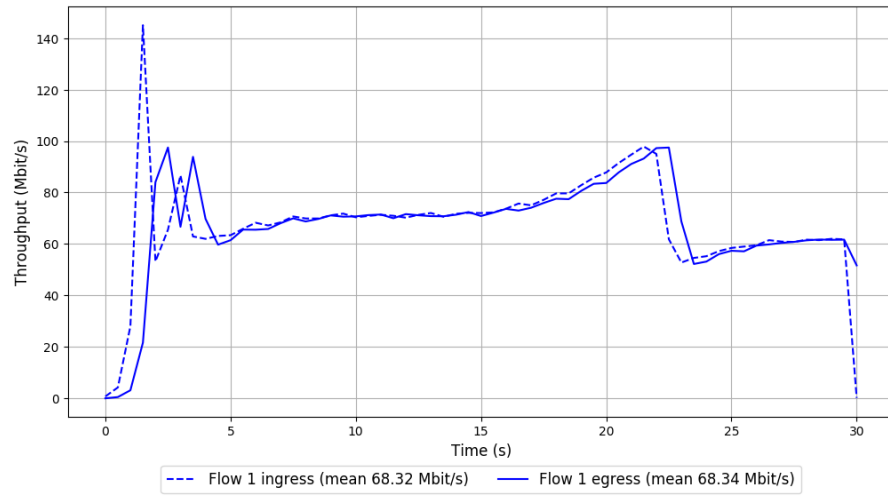
-- Flow 1:

Average throughput: 68.34 Mbit/s

95th percentile per-packet one-way delay: 111.973 ms

Loss rate: 0.53%

Run 5: Report of TCP Cubic — Data Link

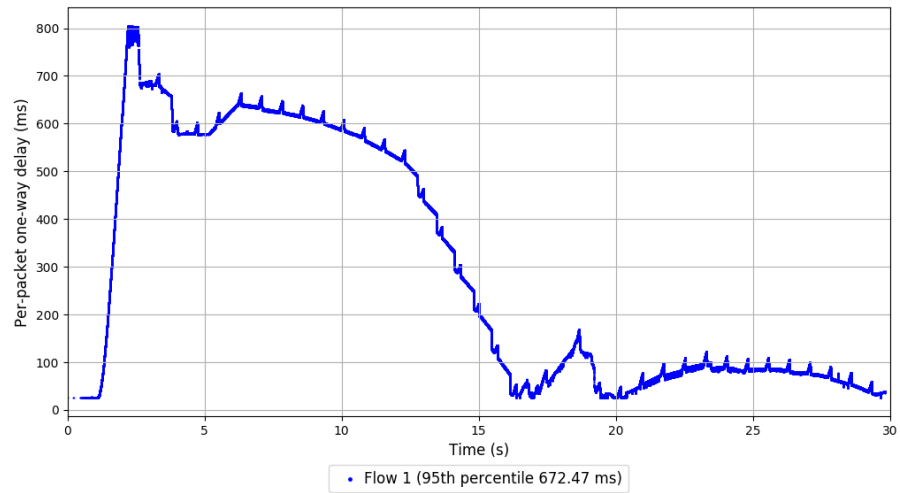
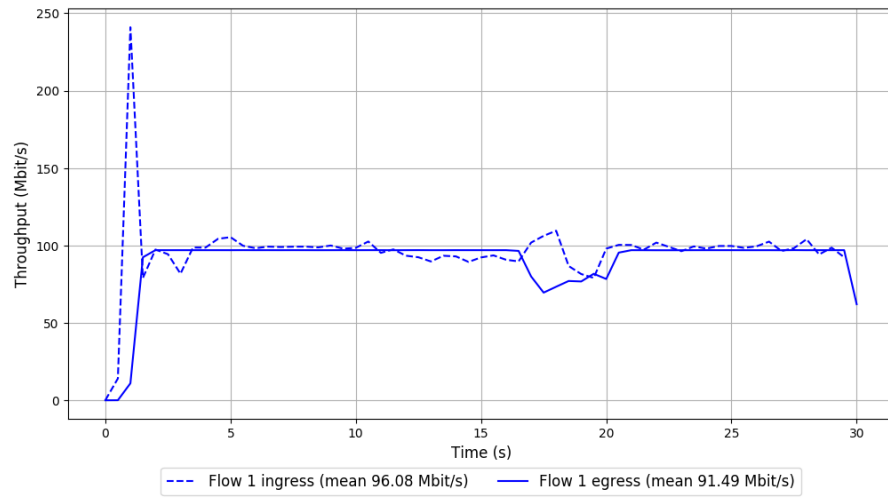


Run 1: Statistics of FillP

Start at: 2018-09-07 19:31:20
End at: 2018-09-07 19:31:50
Local clock offset: -62.864 ms
Remote clock offset: 12.437 ms

Below is generated by plot.py at 2018-09-07 21:10:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 91.49 Mbit/s
95th percentile per-packet one-way delay: 672.466 ms
Loss rate: 5.30%
-- Flow 1:
Average throughput: 91.49 Mbit/s
95th percentile per-packet one-way delay: 672.466 ms
Loss rate: 5.30%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-07 19:52:33

End at: 2018-09-07 19:53:03

Local clock offset: -1.155 ms

Remote clock offset: 9.236 ms

Below is generated by plot.py at 2018-09-07 21:10:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.48 Mbit/s

95th percentile per-packet one-way delay: 851.917 ms

Loss rate: 5.97%

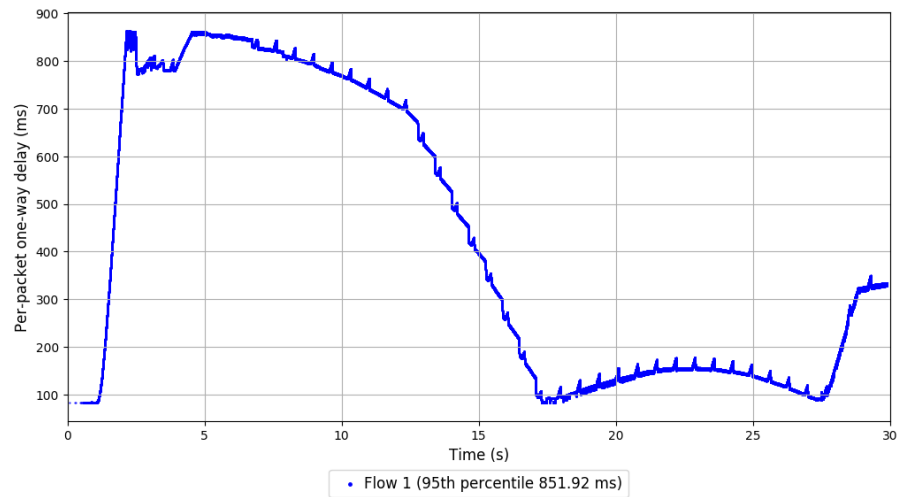
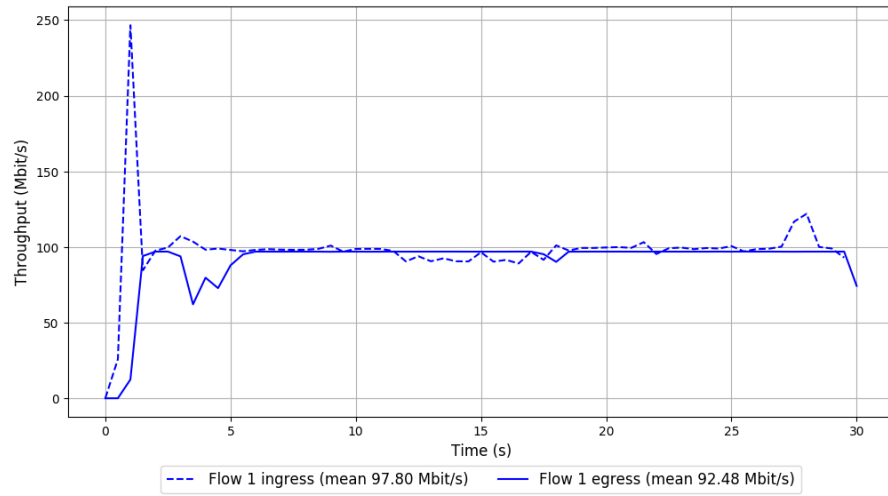
-- Flow 1:

Average throughput: 92.48 Mbit/s

95th percentile per-packet one-way delay: 851.917 ms

Loss rate: 5.97%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-07 20:13:57

End at: 2018-09-07 20:14:27

Local clock offset: 4.833 ms

Remote clock offset: 8.781 ms

Below is generated by plot.py at 2018-09-07 21:10:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 93.19 Mbit/s

95th percentile per-packet one-way delay: 792.996 ms

Loss rate: 3.68%

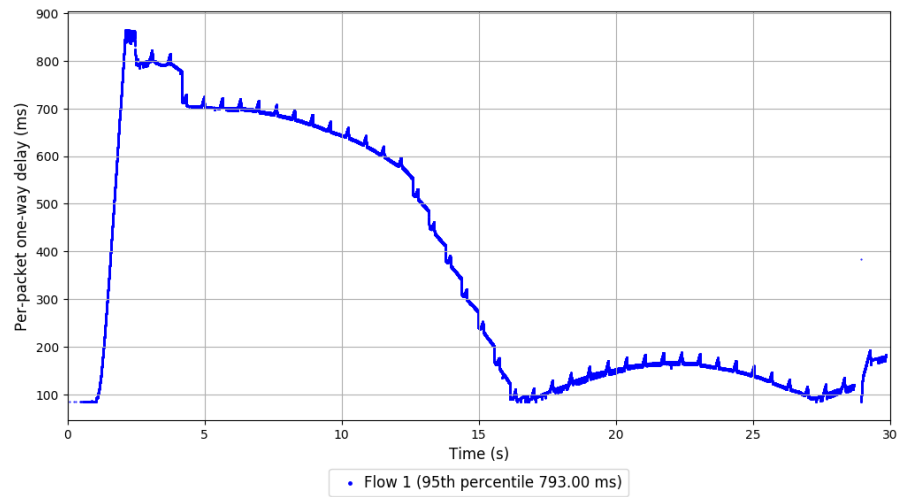
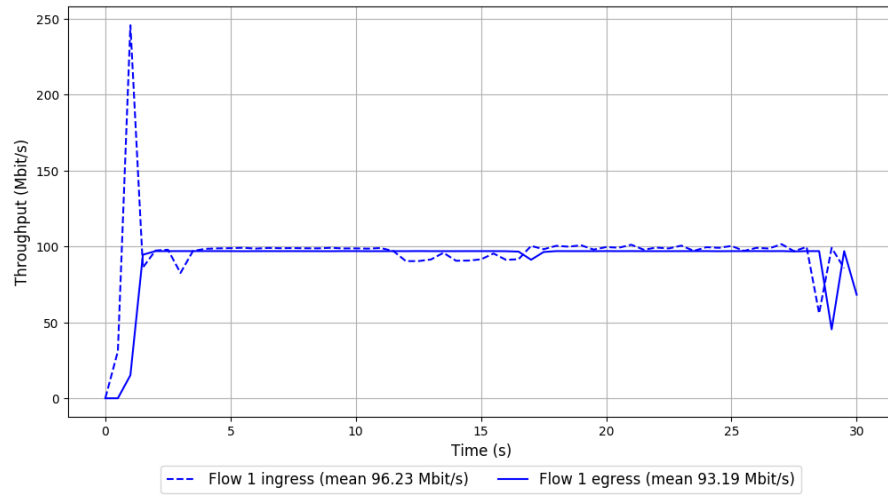
-- Flow 1:

Average throughput: 93.19 Mbit/s

95th percentile per-packet one-way delay: 792.996 ms

Loss rate: 3.68%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-07 20:35:10

End at: 2018-09-07 20:35:40

Local clock offset: 3.104 ms

Remote clock offset: 9.511 ms

Below is generated by plot.py at 2018-09-07 21:10:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.35 Mbit/s

95th percentile per-packet one-way delay: 767.509 ms

Loss rate: 5.97%

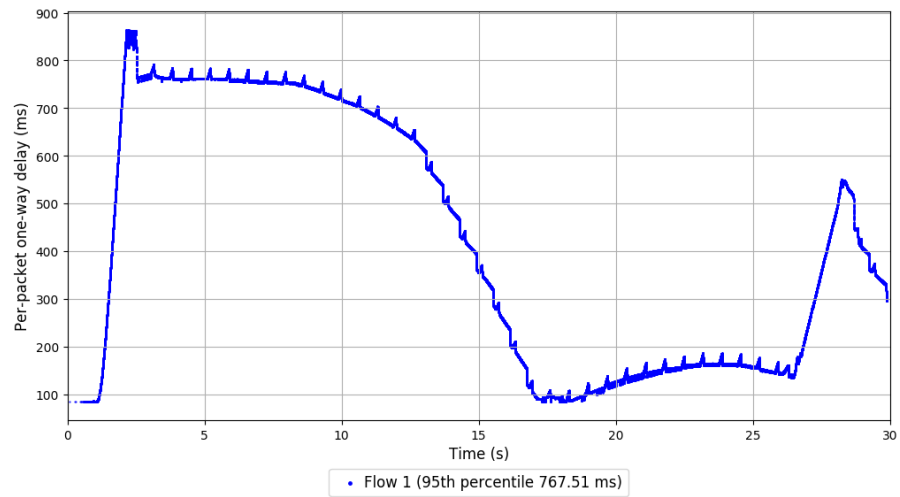
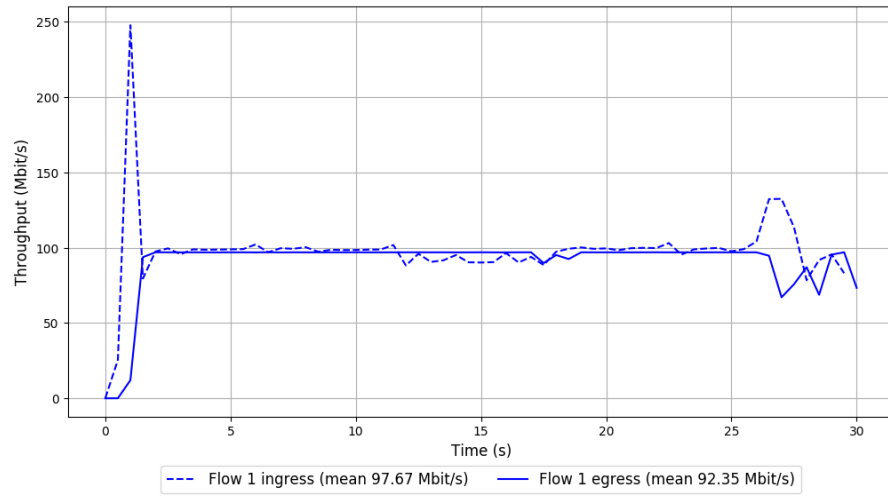
-- Flow 1:

Average throughput: 92.35 Mbit/s

95th percentile per-packet one-way delay: 767.509 ms

Loss rate: 5.97%

Run 4: Report of FillP — Data Link

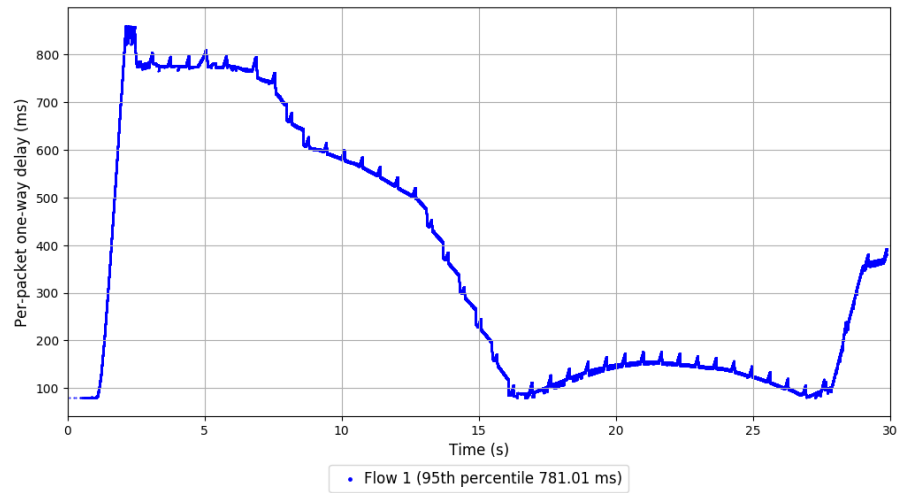
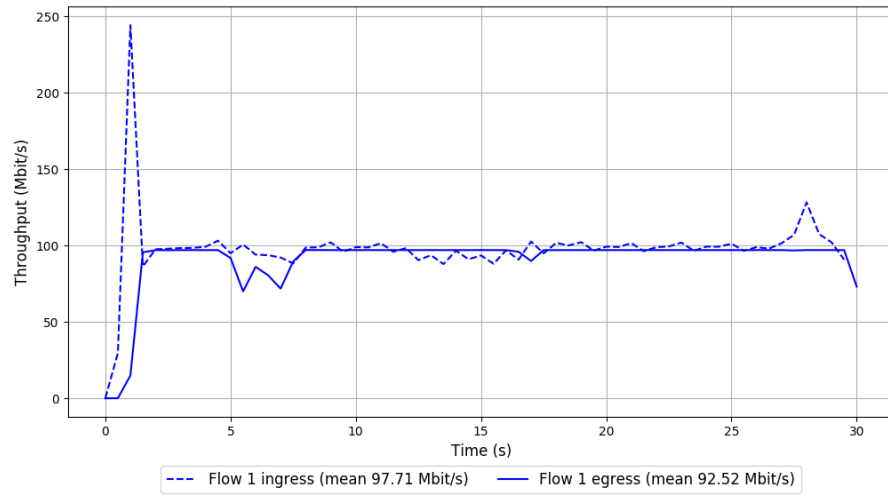


Run 5: Statistics of FillP

Start at: 2018-09-07 20:56:31
End at: 2018-09-07 20:57:02
Local clock offset: -3.207 ms
Remote clock offset: 12.366 ms

Below is generated by plot.py at 2018-09-07 21:10:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 92.52 Mbit/s
95th percentile per-packet one-way delay: 781.015 ms
Loss rate: 5.84%
-- Flow 1:
Average throughput: 92.52 Mbit/s
95th percentile per-packet one-way delay: 781.015 ms
Loss rate: 5.84%

Run 5: Report of FillP — Data Link

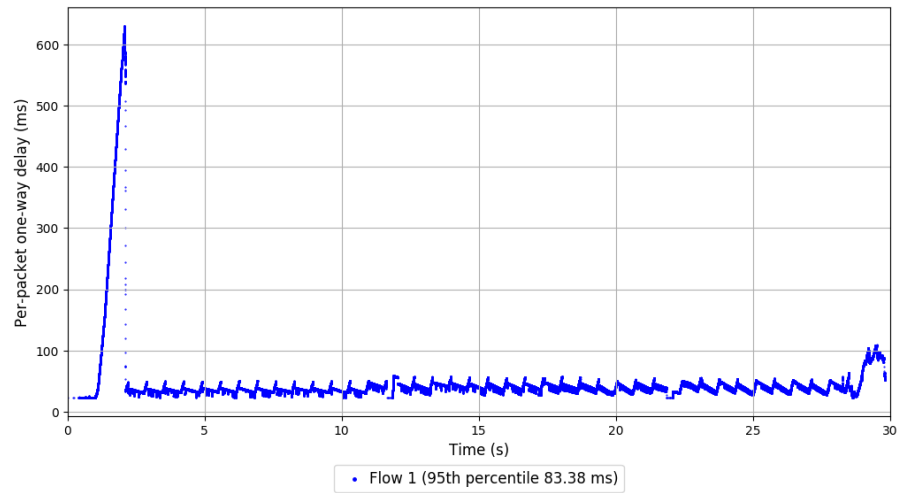
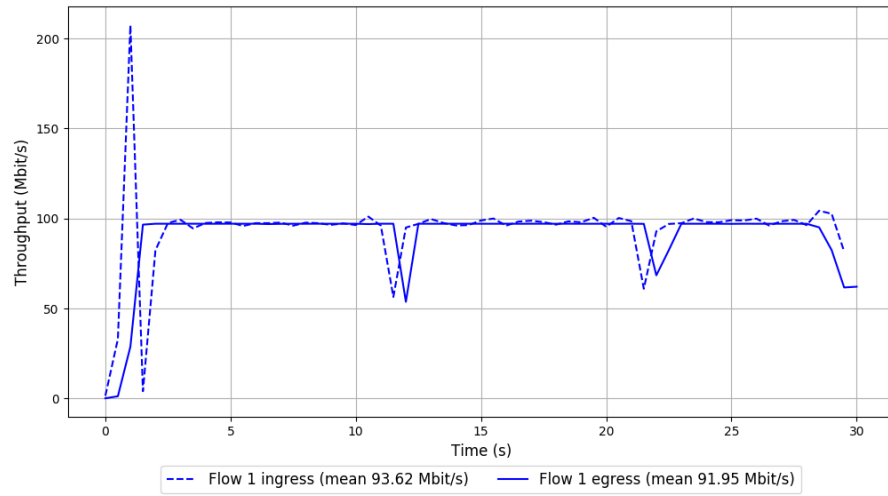


Run 1: Statistics of FillP-Sheep

Start at: 2018-09-07 19:30:08
End at: 2018-09-07 19:30:38
Local clock offset: -63.987 ms
Remote clock offset: 12.827 ms

Below is generated by plot.py at 2018-09-07 21:10:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 91.95 Mbit/s
95th percentile per-packet one-way delay: 83.380 ms
Loss rate: 2.31%
-- Flow 1:
Average throughput: 91.95 Mbit/s
95th percentile per-packet one-way delay: 83.380 ms
Loss rate: 2.31%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-07 19:51:22

End at: 2018-09-07 19:51:52

Local clock offset: -2.48 ms

Remote clock offset: 9.715 ms

Below is generated by plot.py at 2018-09-07 21:11:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 90.68 Mbit/s

95th percentile per-packet one-way delay: 138.070 ms

Loss rate: 3.19%

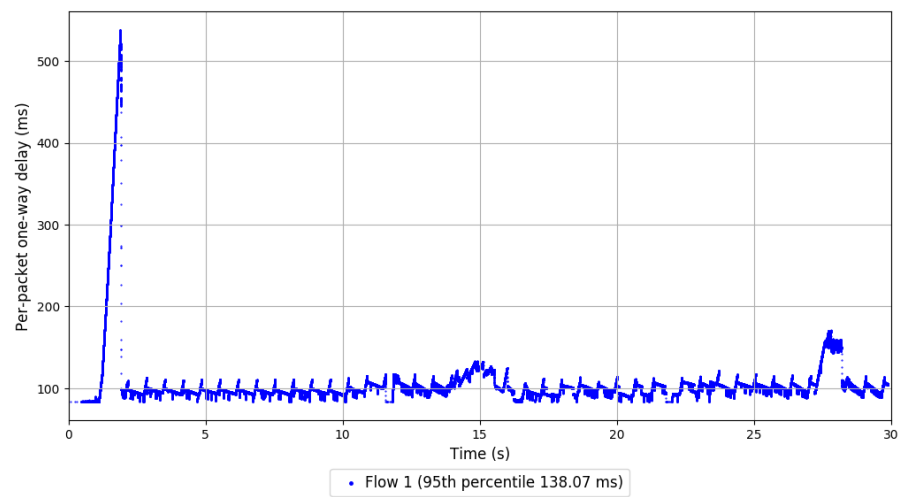
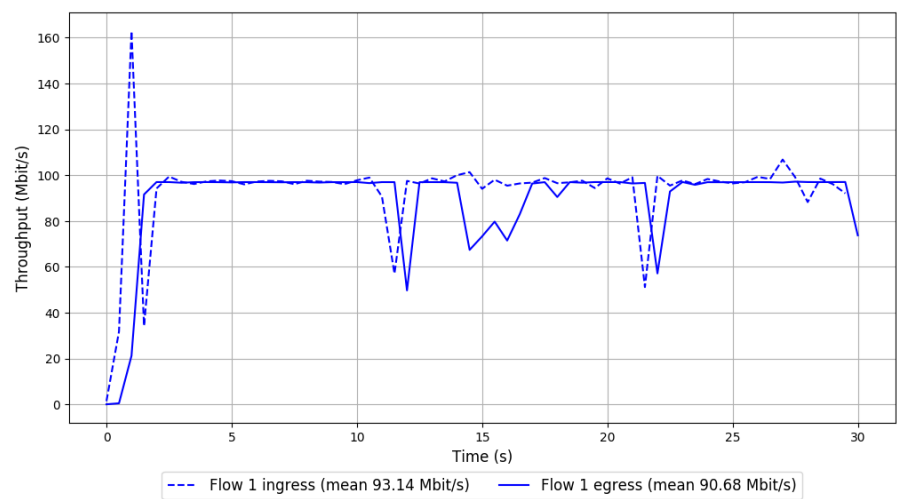
-- Flow 1:

Average throughput: 90.68 Mbit/s

95th percentile per-packet one-way delay: 138.070 ms

Loss rate: 3.19%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-07 20:12:46

End at: 2018-09-07 20:13:16

Local clock offset: 4.636 ms

Remote clock offset: 8.747 ms

Below is generated by plot.py at 2018-09-07 21:11:04

Datalink statistics

-- Total of 1 flow:

Average throughput: 91.08 Mbit/s

95th percentile per-packet one-way delay: 113.964 ms

Loss rate: 1.08%

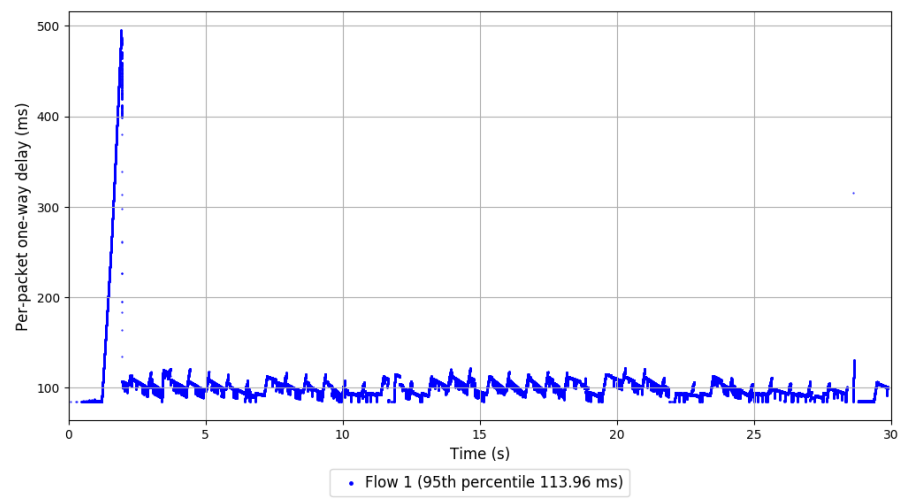
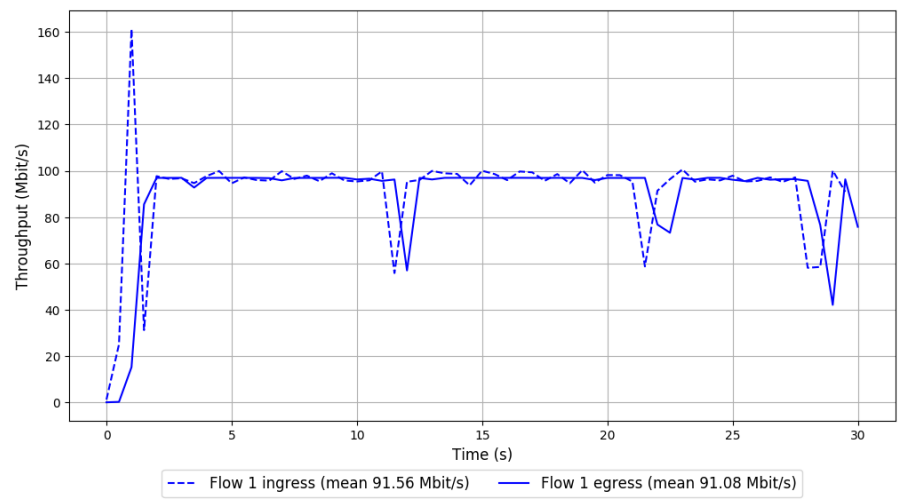
-- Flow 1:

Average throughput: 91.08 Mbit/s

95th percentile per-packet one-way delay: 113.964 ms

Loss rate: 1.08%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-07 20:33:59

End at: 2018-09-07 20:34:29

Local clock offset: 3.125 ms

Remote clock offset: 9.797 ms

Below is generated by plot.py at 2018-09-07 21:11:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 92.75 Mbit/s

95th percentile per-packet one-way delay: 158.499 ms

Loss rate: 1.42%

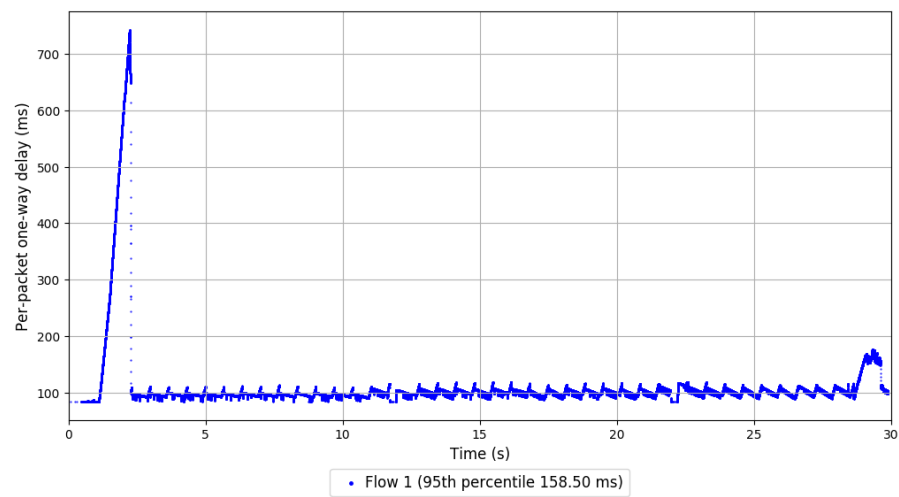
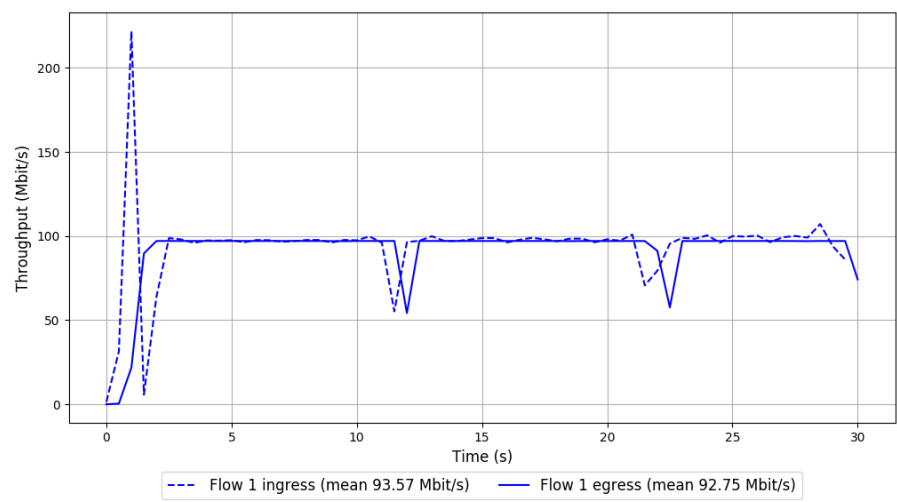
-- Flow 1:

Average throughput: 92.75 Mbit/s

95th percentile per-packet one-way delay: 158.499 ms

Loss rate: 1.42%

Run 4: Report of FillP-Sheep — Data Link

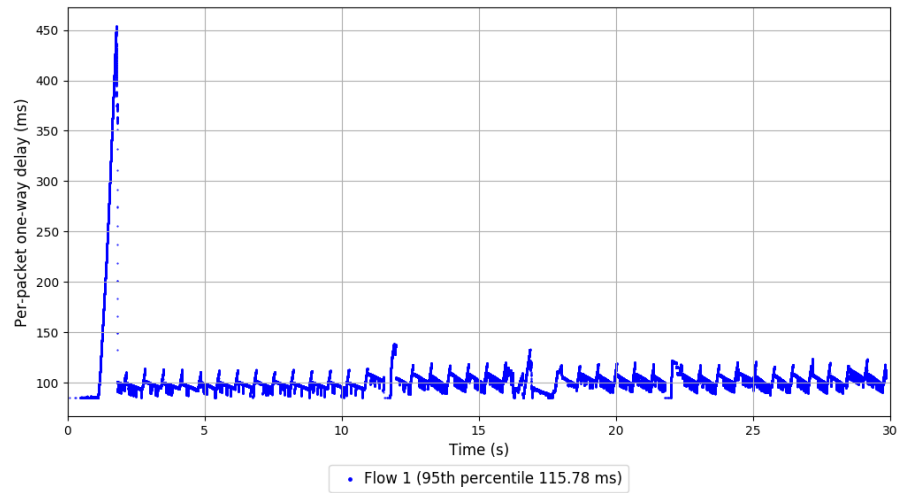
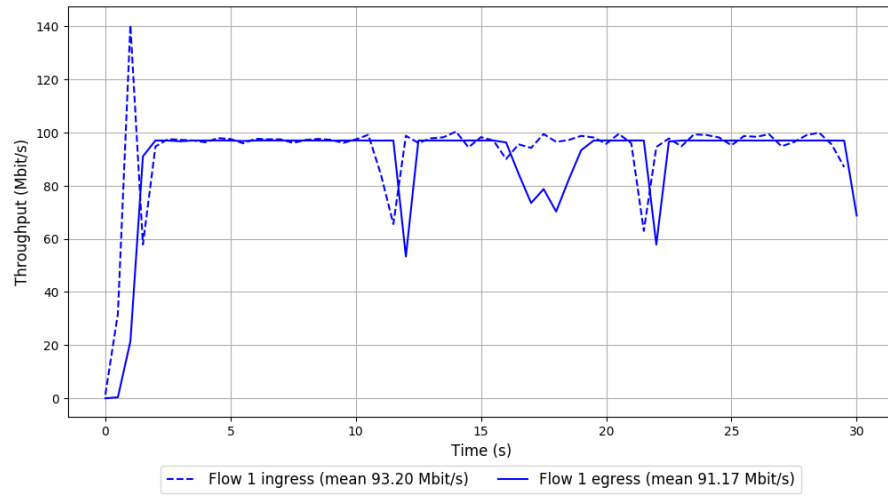


Run 5: Statistics of FillP-Sheep

Start at: 2018-09-07 20:55:20
End at: 2018-09-07 20:55:50
Local clock offset: -2.132 ms
Remote clock offset: 8.154 ms

Below is generated by plot.py at 2018-09-07 21:12:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 91.17 Mbit/s
95th percentile per-packet one-way delay: 115.783 ms
Loss rate: 2.72%
-- Flow 1:
Average throughput: 91.17 Mbit/s
95th percentile per-packet one-way delay: 115.783 ms
Loss rate: 2.72%

Run 5: Report of FillP-Sheep — Data Link

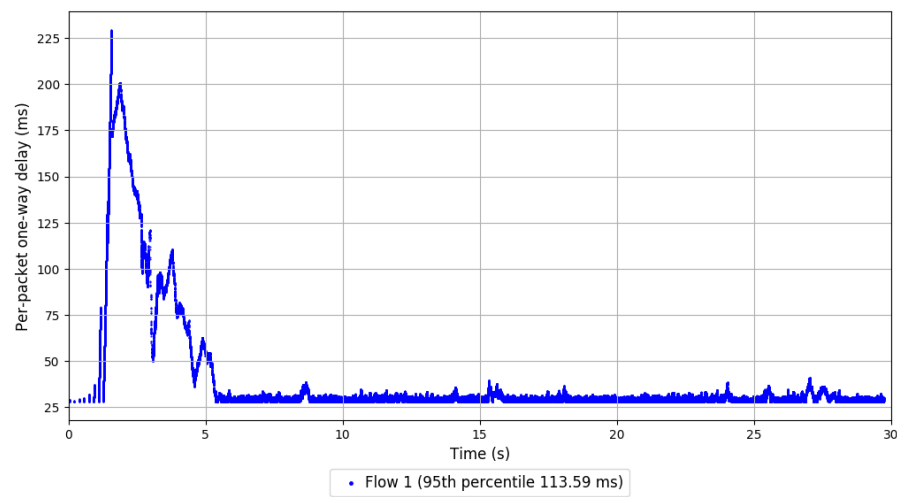
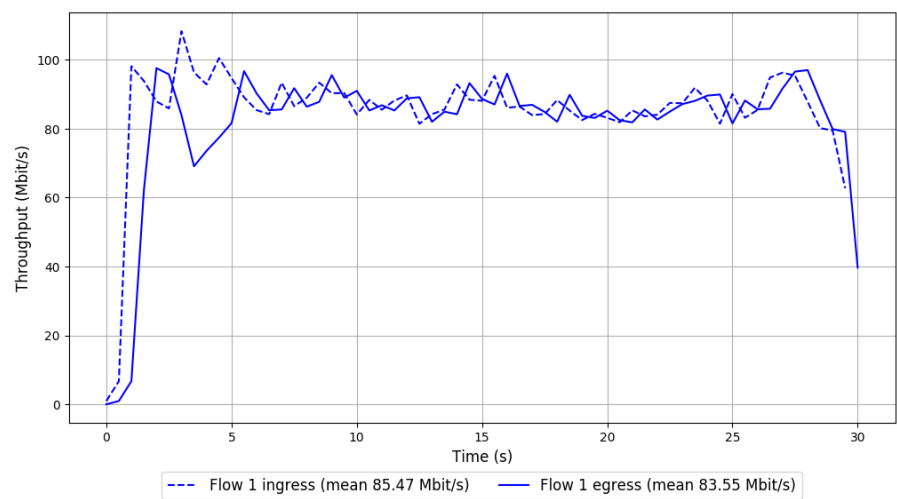


```
Run 1: Statistics of Indigo

Start at: 2018-09-07 19:20:34
End at: 2018-09-07 19:21:04
Local clock offset: -62.307 ms
Remote clock offset: 8.059 ms

# Below is generated by plot.py at 2018-09-07 21:12:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.55 Mbit/s
95th percentile per-packet one-way delay: 113.591 ms
Loss rate: 2.80%
-- Flow 1:
Average throughput: 83.55 Mbit/s
95th percentile per-packet one-way delay: 113.591 ms
Loss rate: 2.80%
```

Run 1: Report of Indigo — Data Link

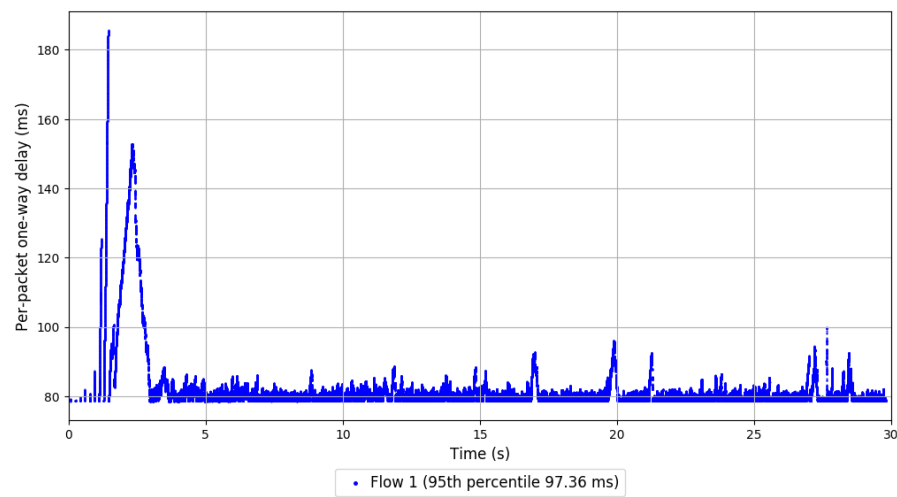
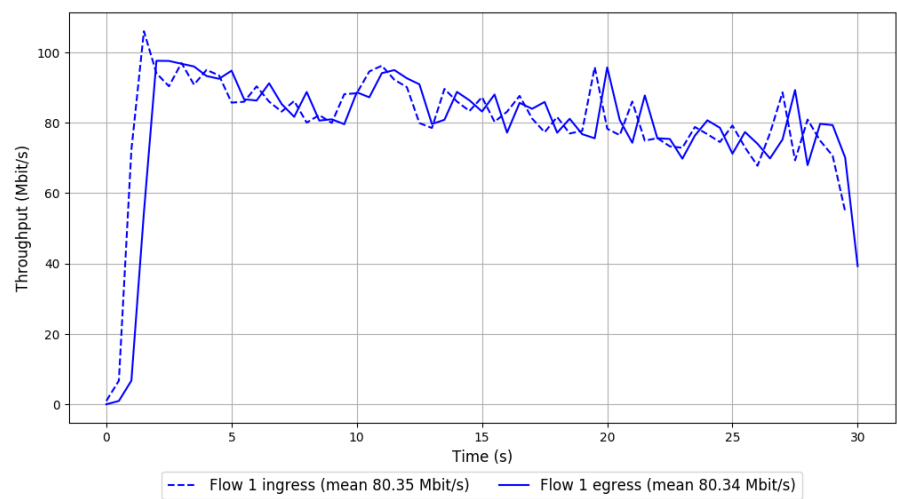


Run 2: Statistics of Indigo

Start at: 2018-09-07 19:41:58
End at: 2018-09-07 19:42:28
Local clock offset: -7.909 ms
Remote clock offset: 13.528 ms

Below is generated by plot.py at 2018-09-07 21:12:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 80.34 Mbit/s
95th percentile per-packet one-way delay: 97.356 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 80.34 Mbit/s
95th percentile per-packet one-way delay: 97.356 ms
Loss rate: 0.57%

Run 2: Report of Indigo — Data Link

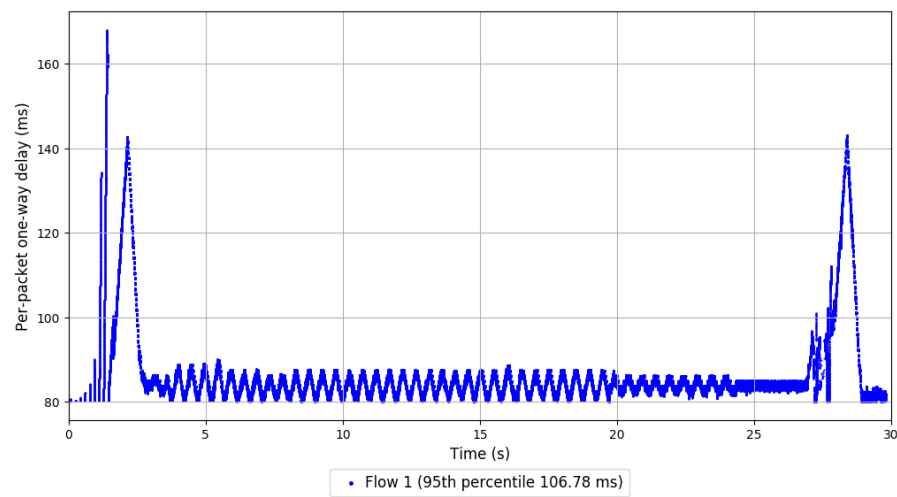
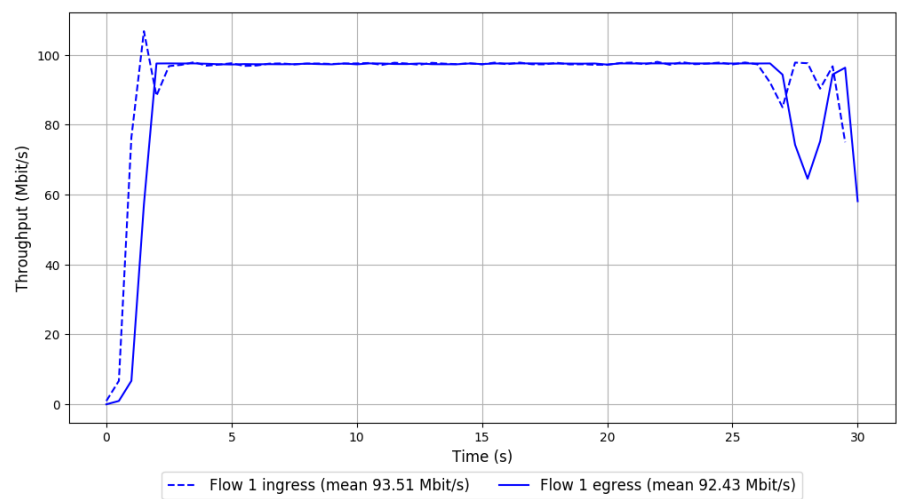


Run 3: Statistics of Indigo

Start at: 2018-09-07 20:03:09
End at: 2018-09-07 20:03:39
Local clock offset: 2.76 ms
Remote clock offset: 13.376 ms

Below is generated by plot.py at 2018-09-07 21:12:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 92.43 Mbit/s
95th percentile per-packet one-way delay: 106.782 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 92.43 Mbit/s
95th percentile per-packet one-way delay: 106.782 ms
Loss rate: 1.71%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-07 20:24:36

End at: 2018-09-07 20:25:06

Local clock offset: 3.224 ms

Remote clock offset: 9.145 ms

Below is generated by plot.py at 2018-09-07 21:12:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 83.83 Mbit/s

95th percentile per-packet one-way delay: 86.932 ms

Loss rate: 1.23%

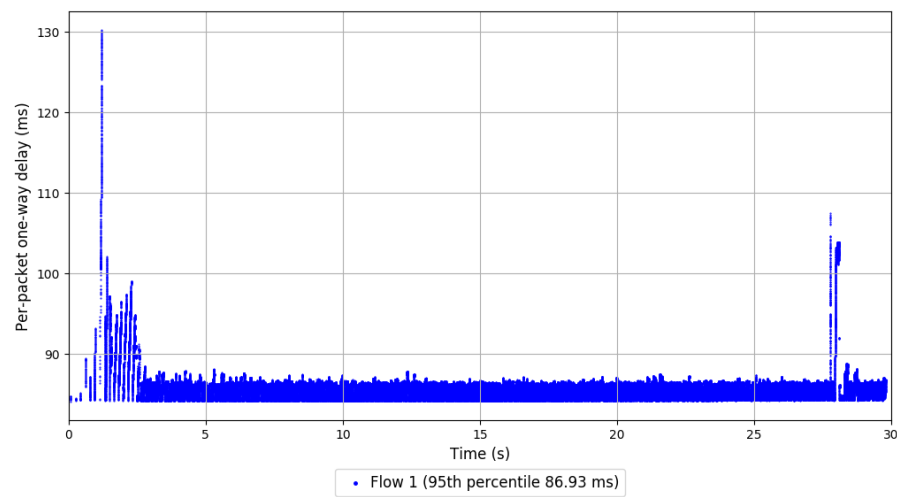
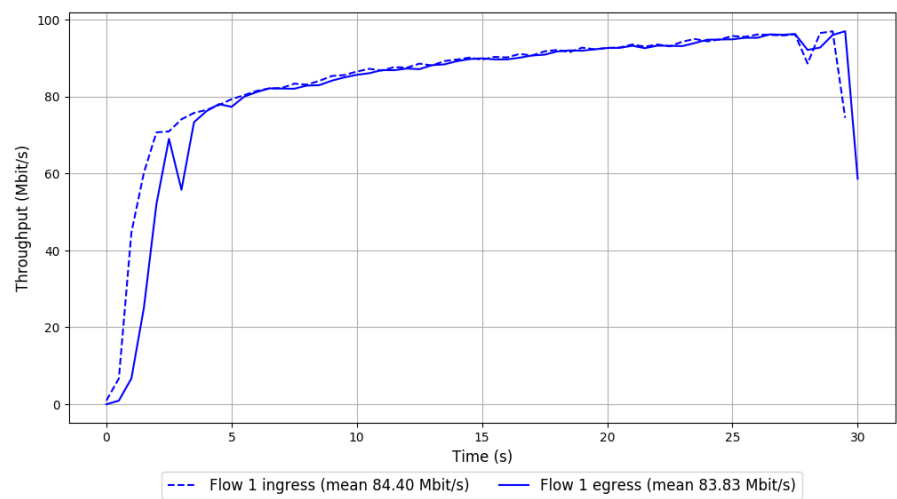
-- Flow 1:

Average throughput: 83.83 Mbit/s

95th percentile per-packet one-way delay: 86.932 ms

Loss rate: 1.23%

Run 4: Report of Indigo — Data Link

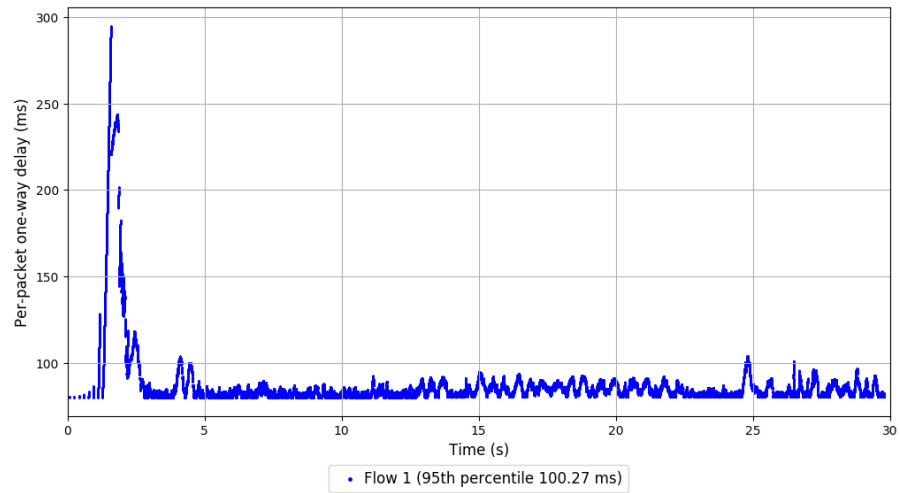
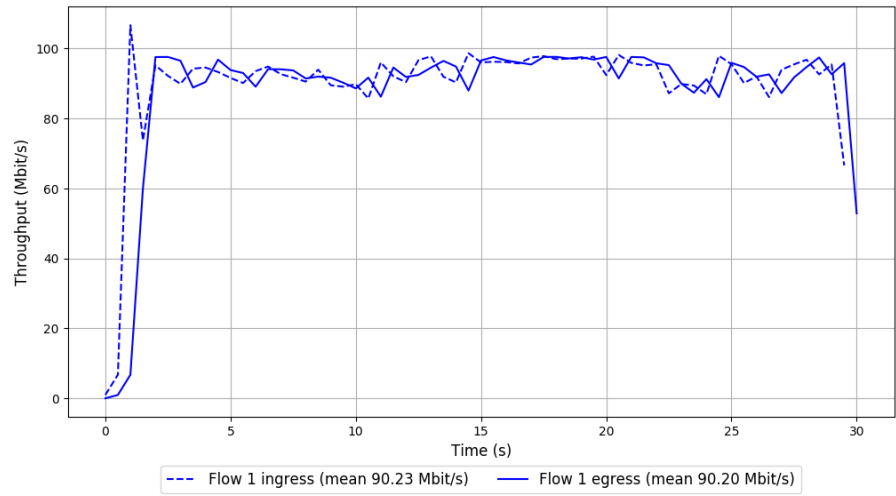


Run 5: Statistics of Indigo

Start at: 2018-09-07 20:45:42
End at: 2018-09-07 20:46:12
Local clock offset: 2.72 ms
Remote clock offset: 13.257 ms

Below is generated by plot.py at 2018-09-07 21:12:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 90.20 Mbit/s
95th percentile per-packet one-way delay: 100.268 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 90.20 Mbit/s
95th percentile per-packet one-way delay: 100.268 ms
Loss rate: 0.59%

Run 5: Report of Indigo — Data Link

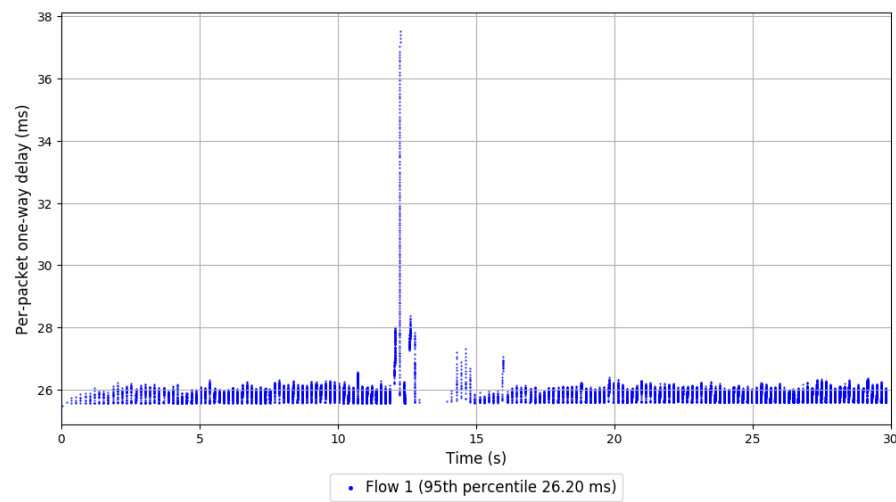
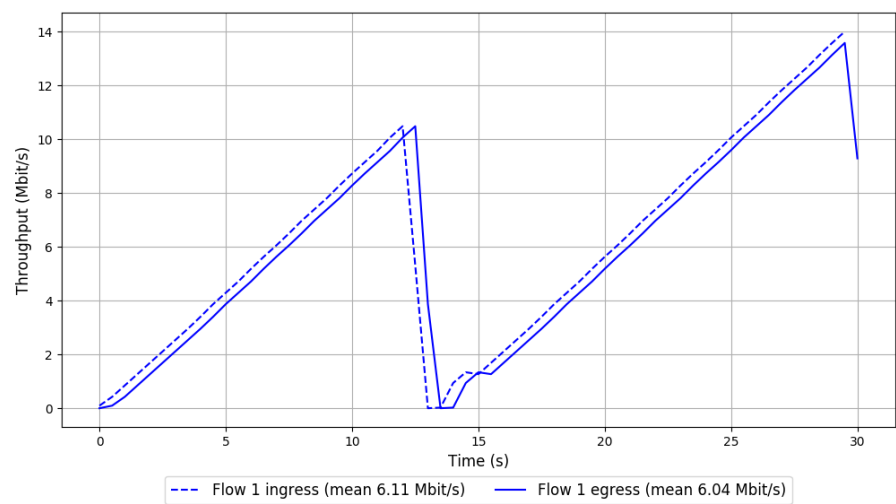



```
Run 1: Statistics of LEDBAT

Start at: 2018-09-07 19:25:24
End at: 2018-09-07 19:25:54
Local clock offset: -62.504 ms
Remote clock offset: 11.763 ms

# Below is generated by plot.py at 2018-09-07 21:12:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.04 Mbit/s
95th percentile per-packet one-way delay: 26.195 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 6.04 Mbit/s
95th percentile per-packet one-way delay: 26.195 ms
Loss rate: 1.68%
```

Run 1: Report of LEDBAT — Data Link

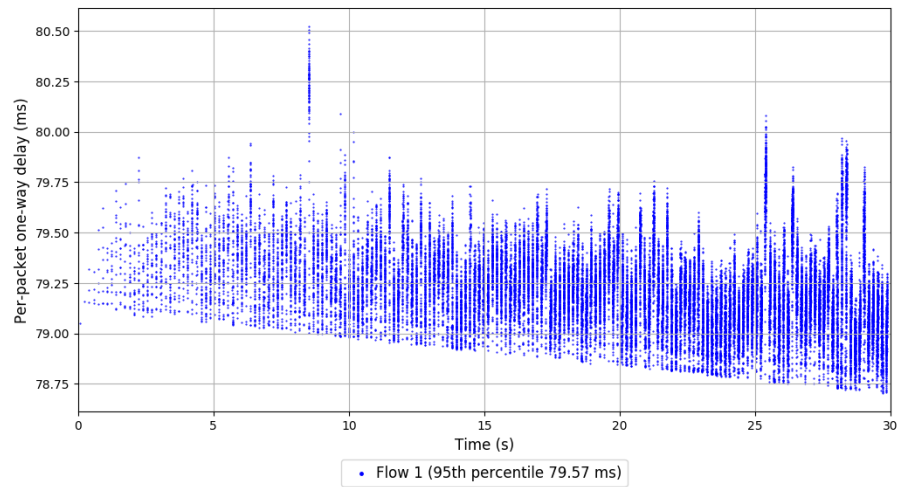
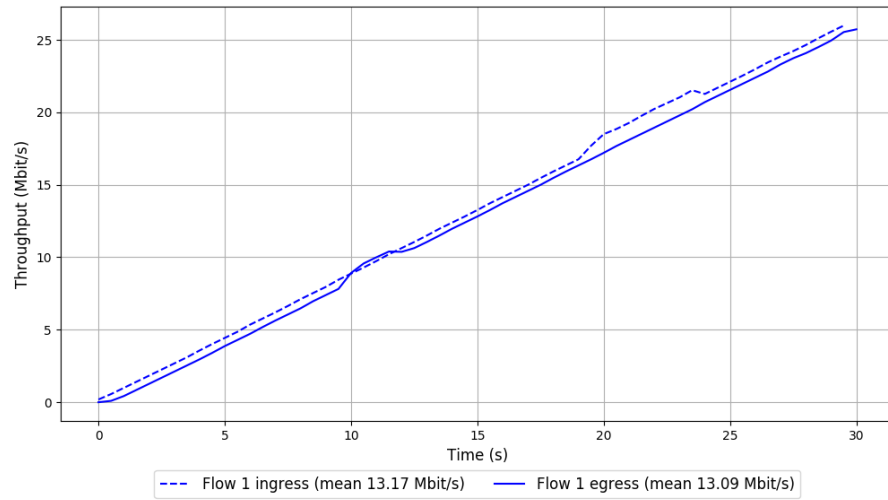


Run 2: Statistics of LEDBAT

Start at: 2018-09-07 19:46:42
End at: 2018-09-07 19:47:12
Local clock offset: -5.467 ms
Remote clock offset: 13.409 ms

Below is generated by plot.py at 2018-09-07 21:12:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.09 Mbit/s
95th percentile per-packet one-way delay: 79.571 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 13.09 Mbit/s
95th percentile per-packet one-way delay: 79.571 ms
Loss rate: 1.10%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-07 20:08:04

End at: 2018-09-07 20:08:34

Local clock offset: 3.058 ms

Remote clock offset: 9.128 ms

Below is generated by plot.py at 2018-09-07 21:12:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.68 Mbit/s

95th percentile per-packet one-way delay: 83.714 ms

Loss rate: 1.06%

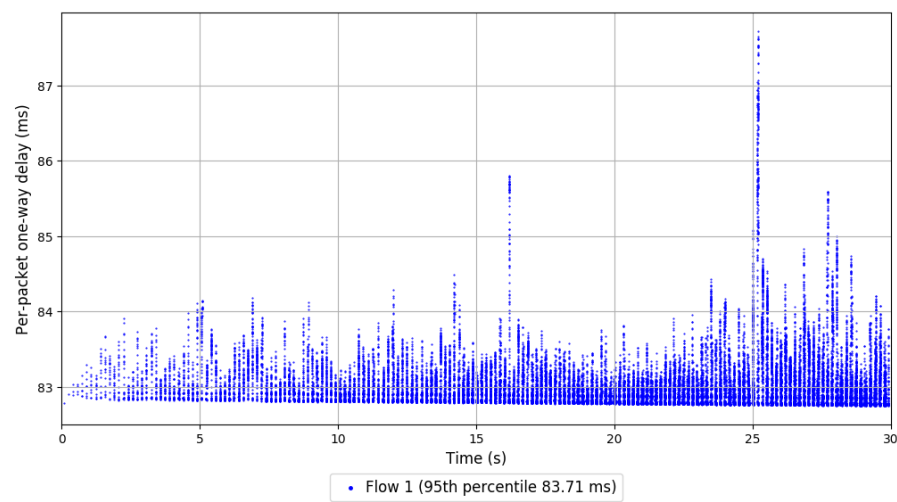
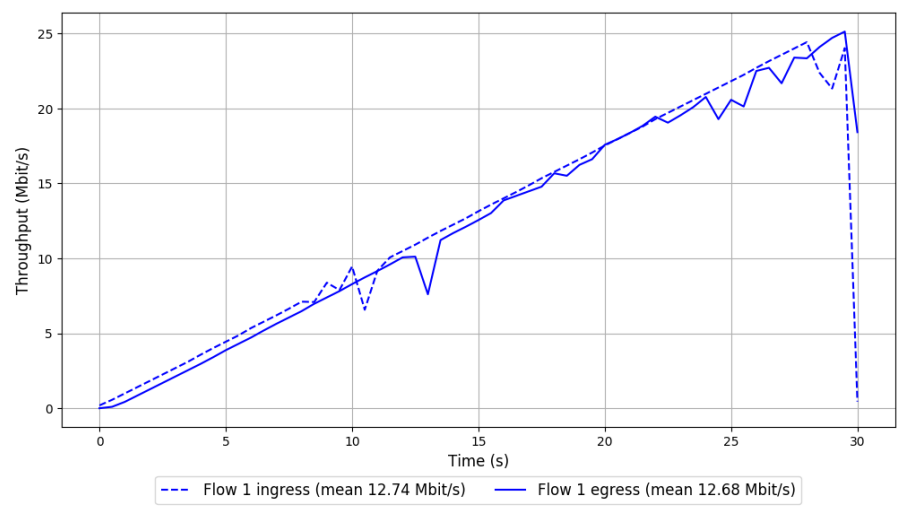
-- Flow 1:

Average throughput: 12.68 Mbit/s

95th percentile per-packet one-way delay: 83.714 ms

Loss rate: 1.06%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-07 20:29:20

End at: 2018-09-07 20:29:50

Local clock offset: 2.362 ms

Remote clock offset: 9.345 ms

Below is generated by plot.py at 2018-09-07 21:12:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.48 Mbit/s

95th percentile per-packet one-way delay: 85.736 ms

Loss rate: 1.42%

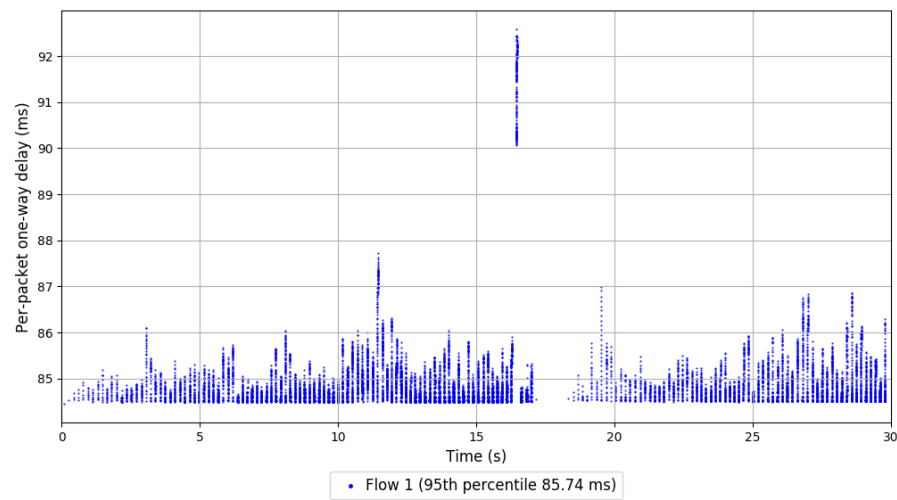
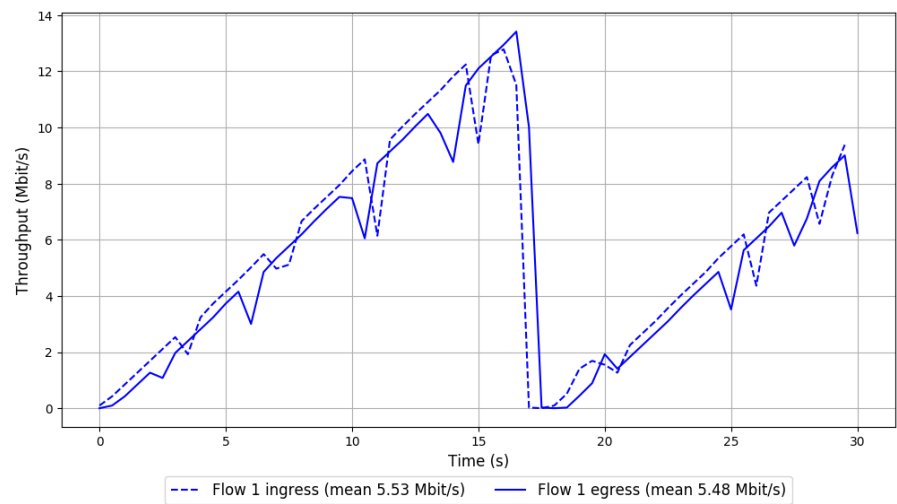
-- Flow 1:

Average throughput: 5.48 Mbit/s

95th percentile per-packet one-way delay: 85.736 ms

Loss rate: 1.42%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-07 20:50:38

End at: 2018-09-07 20:51:09

Local clock offset: -0.389 ms

Remote clock offset: 8.764 ms

Below is generated by plot.py at 2018-09-07 21:12:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.80 Mbit/s

95th percentile per-packet one-way delay: 86.107 ms

Loss rate: 1.11%

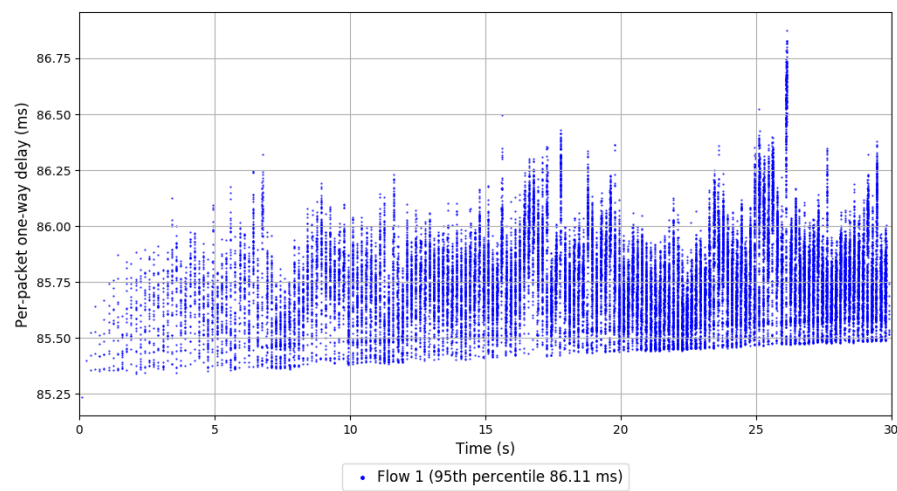
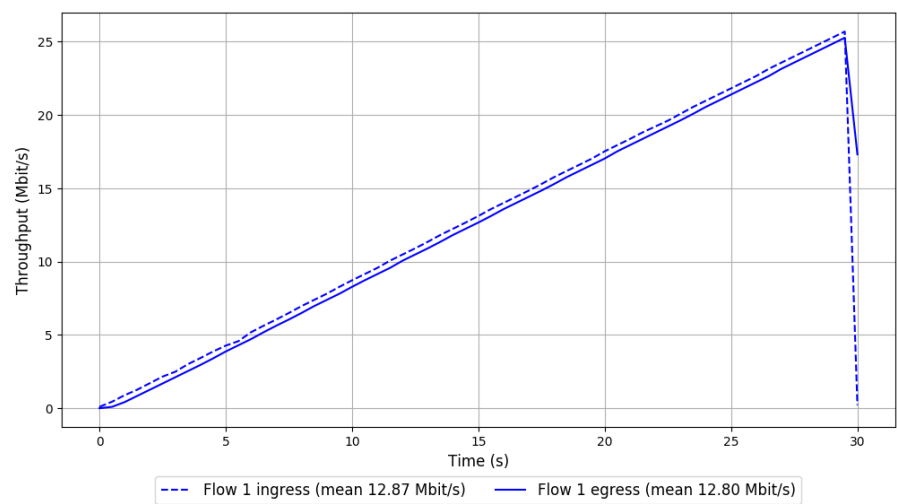
-- Flow 1:

Average throughput: 12.80 Mbit/s

95th percentile per-packet one-way delay: 86.107 ms

Loss rate: 1.11%

Run 5: Report of LEDBAT — Data Link

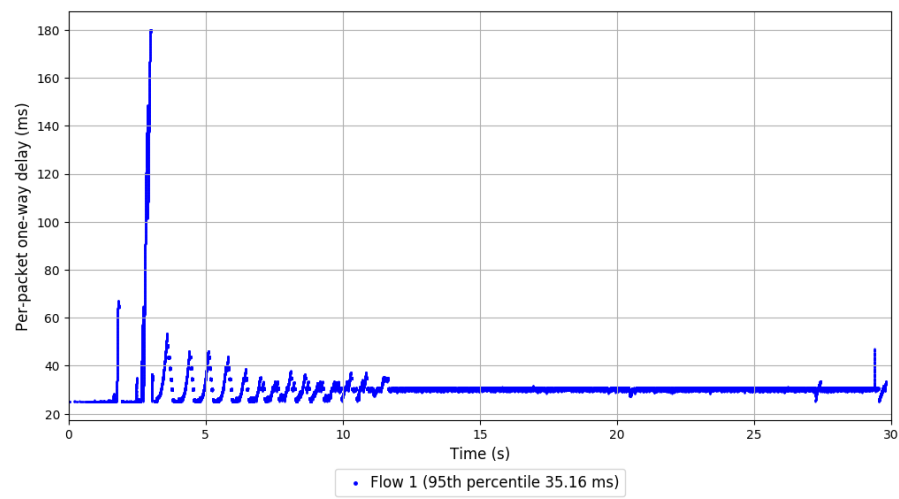
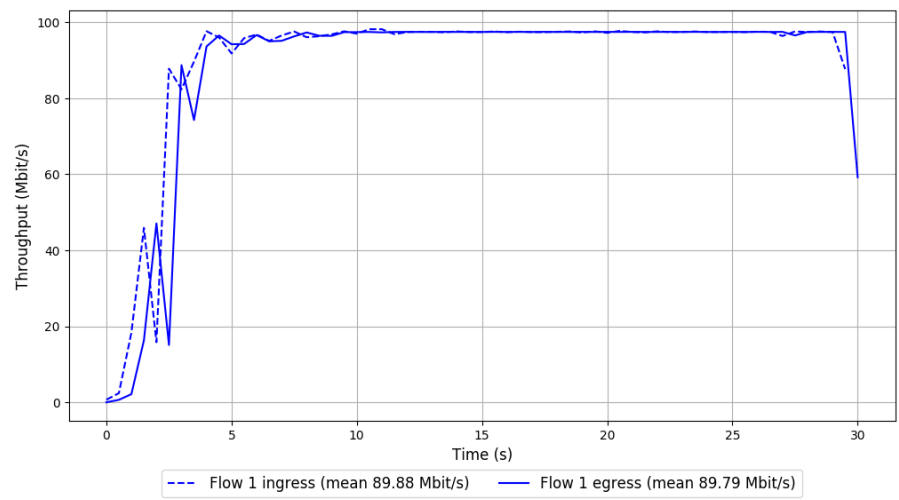


Run 1: Statistics of Indigo-Muses

Start at: 2018-09-07 19:22:58
End at: 2018-09-07 19:23:28
Local clock offset: -61.785 ms
Remote clock offset: 12.05 ms

Below is generated by plot.py at 2018-09-07 21:12:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 89.79 Mbit/s
95th percentile per-packet one-way delay: 35.163 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 89.79 Mbit/s
95th percentile per-packet one-way delay: 35.163 ms
Loss rate: 0.65%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-07 19:44:18

End at: 2018-09-07 19:44:48

Local clock offset: -8.008 ms

Remote clock offset: 8.962 ms

Below is generated by plot.py at 2018-09-07 21:12:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 81.39 Mbit/s

95th percentile per-packet one-way delay: 96.151 ms

Loss rate: 1.81%

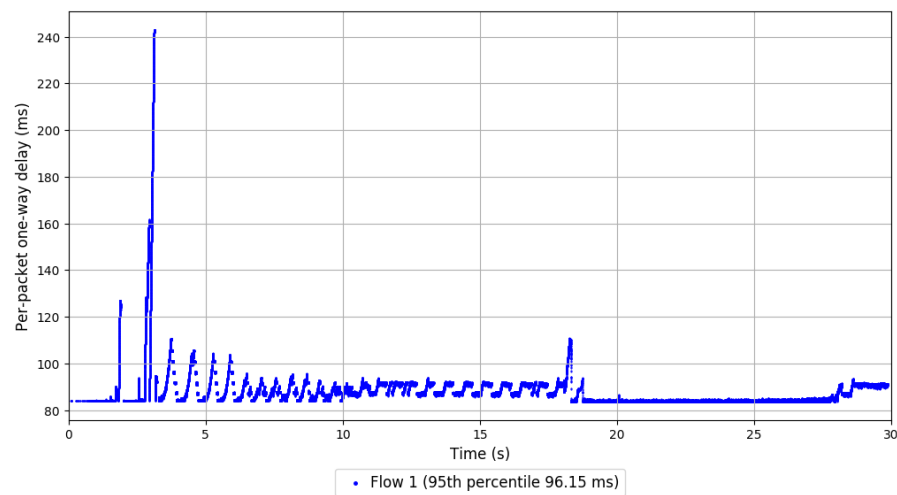
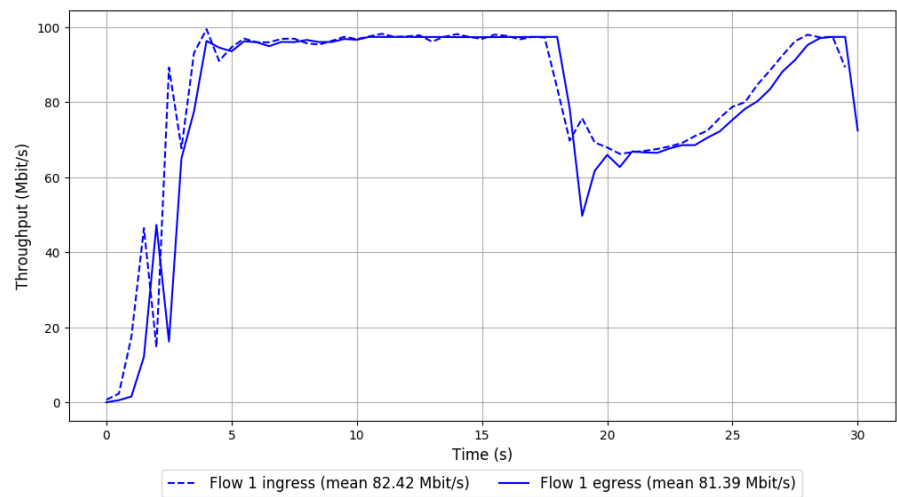
-- Flow 1:

Average throughput: 81.39 Mbit/s

95th percentile per-packet one-way delay: 96.151 ms

Loss rate: 1.81%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-07 20:05:29

End at: 2018-09-07 20:05:59

Local clock offset: 2.525 ms

Remote clock offset: 9.027 ms

Below is generated by plot.py at 2018-09-07 21:12:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 77.02 Mbit/s

95th percentile per-packet one-way delay: 95.417 ms

Loss rate: 1.81%

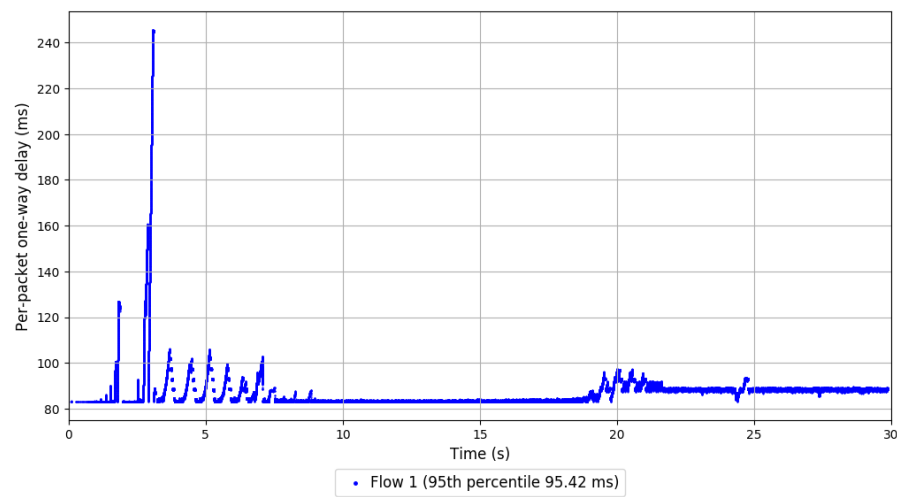
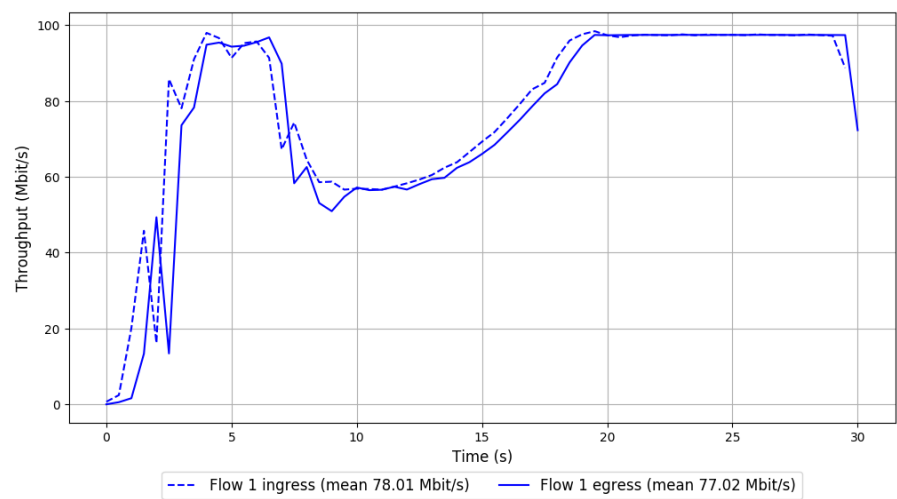
-- Flow 1:

Average throughput: 77.02 Mbit/s

95th percentile per-packet one-way delay: 95.417 ms

Loss rate: 1.81%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-07 20:26:55

End at: 2018-09-07 20:27:25

Local clock offset: 2.33 ms

Remote clock offset: 9.199 ms

Below is generated by plot.py at 2018-09-07 21:13:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 89.19 Mbit/s

95th percentile per-packet one-way delay: 94.355 ms

Loss rate: 0.65%

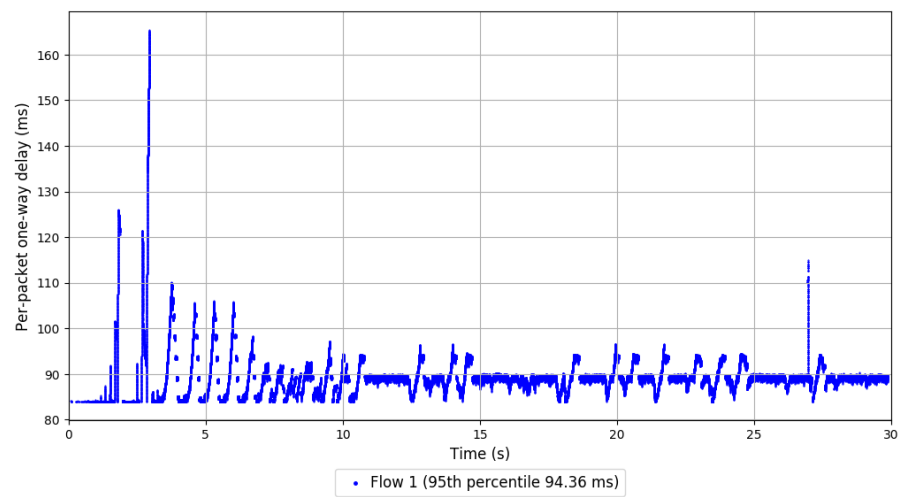
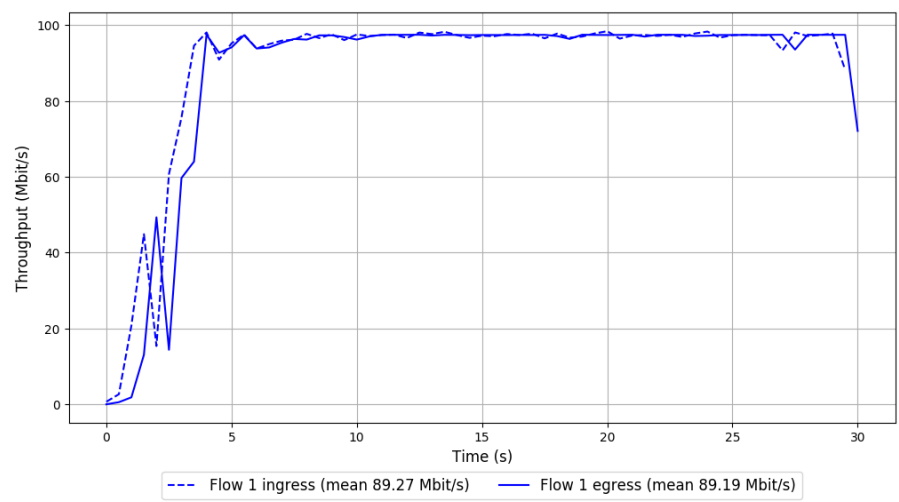
-- Flow 1:

Average throughput: 89.19 Mbit/s

95th percentile per-packet one-way delay: 94.355 ms

Loss rate: 0.65%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-07 20:48:14

End at: 2018-09-07 20:48:44

Local clock offset: 0.33 ms

Remote clock offset: 9.143 ms

Below is generated by plot.py at 2018-09-07 21:13:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 81.30 Mbit/s

95th percentile per-packet one-way delay: 98.176 ms

Loss rate: 1.76%

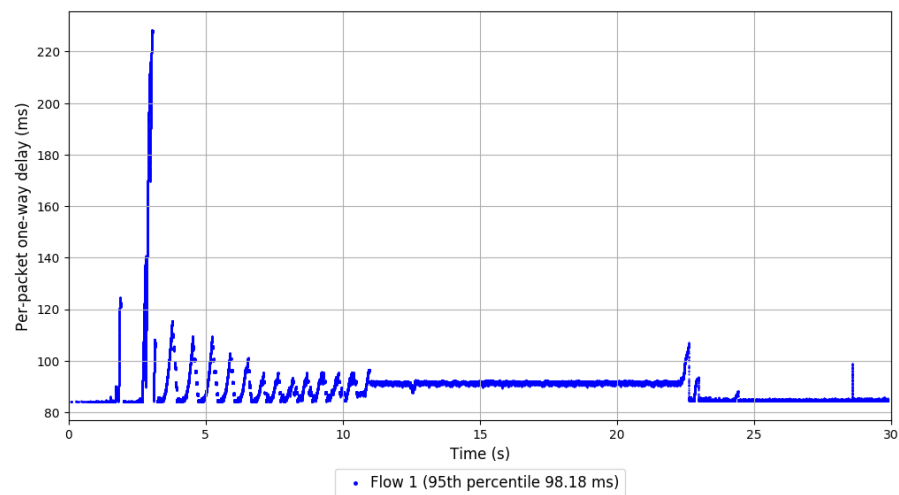
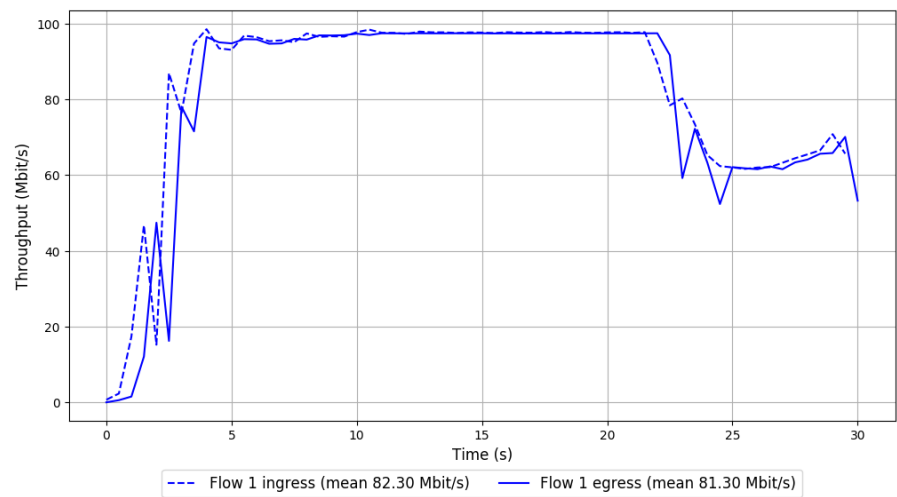
-- Flow 1:

Average throughput: 81.30 Mbit/s

95th percentile per-packet one-way delay: 98.176 ms

Loss rate: 1.76%

Run 5: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-09-07 19:38:25

End at: 2018-09-07 19:38:55

Local clock offset: -7.759 ms

Remote clock offset: 12.362 ms

Below is generated by plot.py at 2018-09-07 21:13:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 84.96 Mbit/s

95th percentile per-packet one-way delay: 206.578 ms

Loss rate: 2.82%

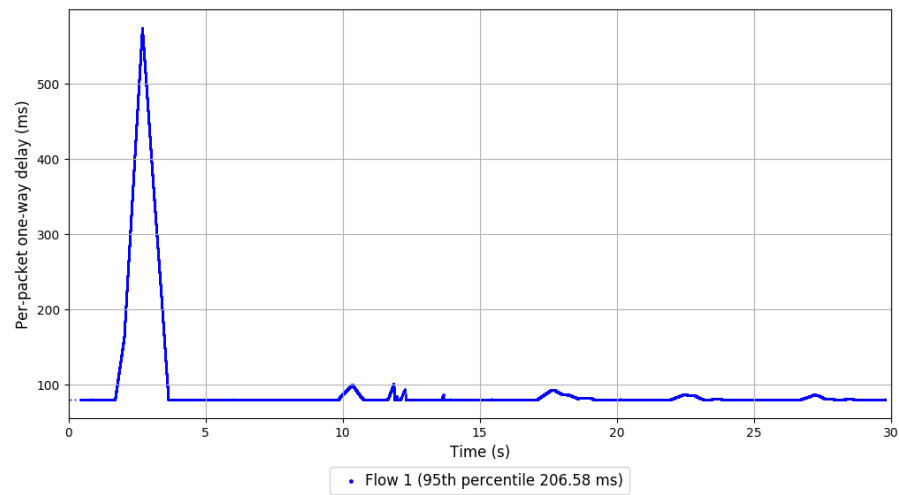
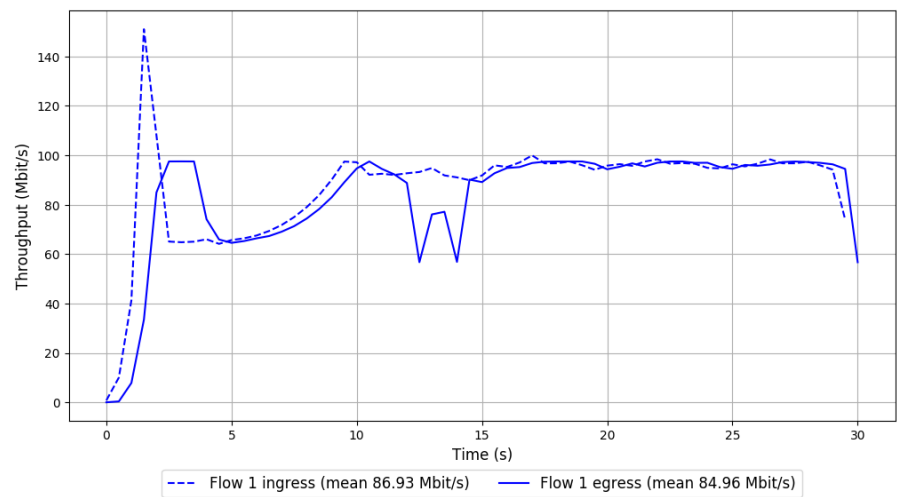
-- Flow 1:

Average throughput: 84.96 Mbit/s

95th percentile per-packet one-way delay: 206.578 ms

Loss rate: 2.82%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-07 19:59:37

End at: 2018-09-07 20:00:07

Local clock offset: 1.818 ms

Remote clock offset: 13.379 ms

Below is generated by plot.py at 2018-09-07 21:13:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 40.58 Mbit/s

95th percentile per-packet one-way delay: 99.631 ms

Loss rate: 1.41%

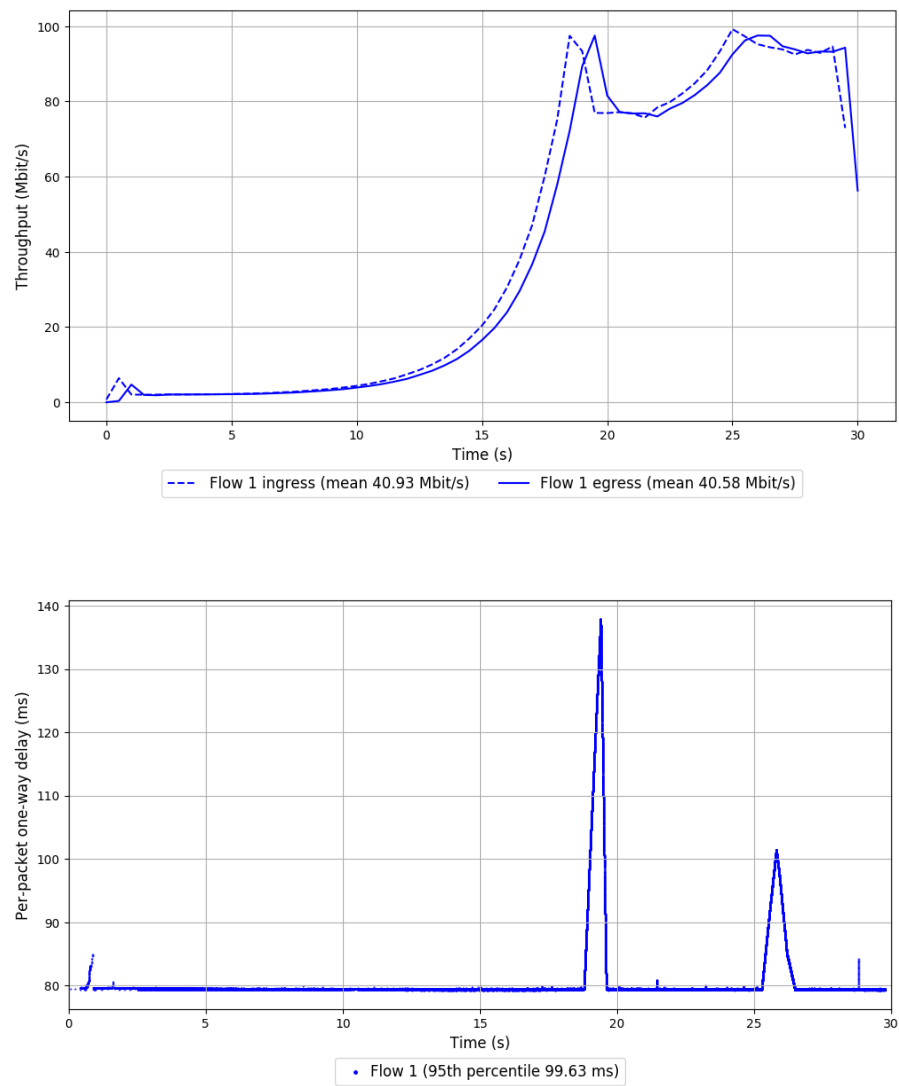
-- Flow 1:

Average throughput: 40.58 Mbit/s

95th percentile per-packet one-way delay: 99.631 ms

Loss rate: 1.41%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-07 20:21:02

End at: 2018-09-07 20:21:32

Local clock offset: 2.756 ms

Remote clock offset: 9.439 ms

Below is generated by plot.py at 2018-09-07 21:13:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 84.82 Mbit/s

95th percentile per-packet one-way delay: 217.269 ms

Loss rate: 0.70%

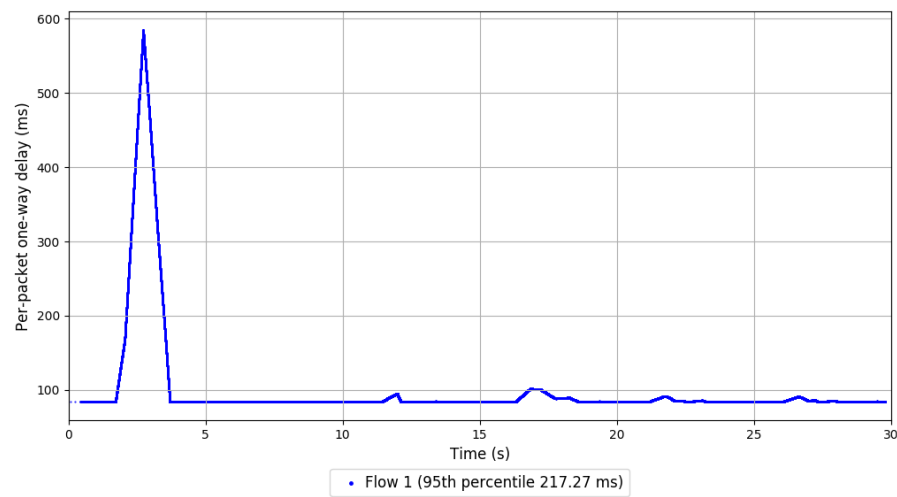
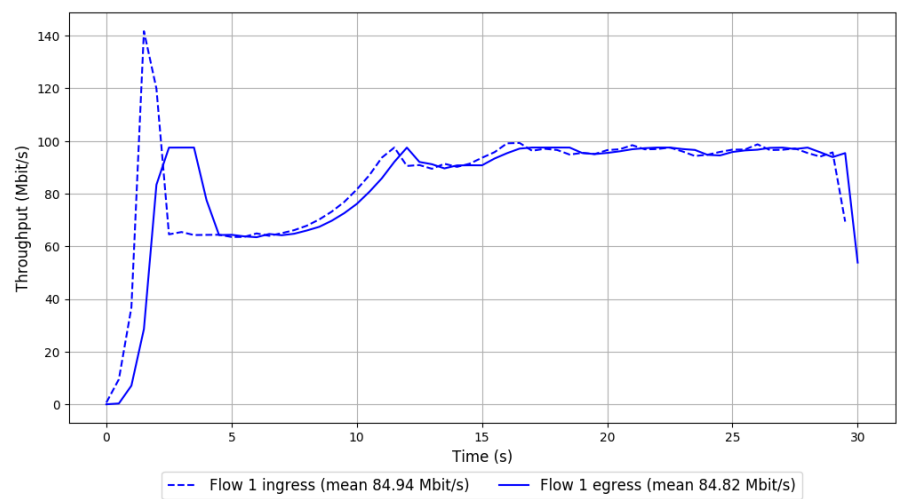
-- Flow 1:

Average throughput: 84.82 Mbit/s

95th percentile per-packet one-way delay: 217.269 ms

Loss rate: 0.70%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-07 20:42:09

End at: 2018-09-07 20:42:39

Local clock offset: 2.754 ms

Remote clock offset: 13.615 ms

Below is generated by plot.py at 2018-09-07 21:13:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 81.64 Mbit/s

95th percentile per-packet one-way delay: 255.868 ms

Loss rate: 2.62%

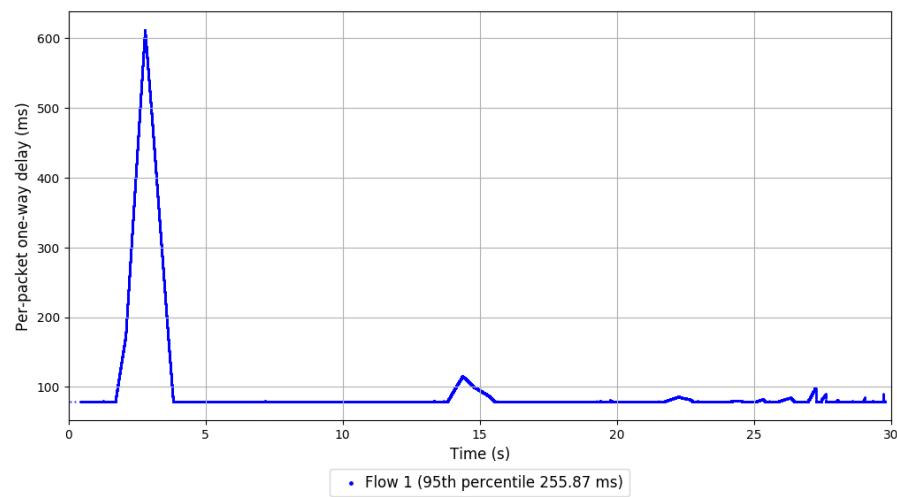
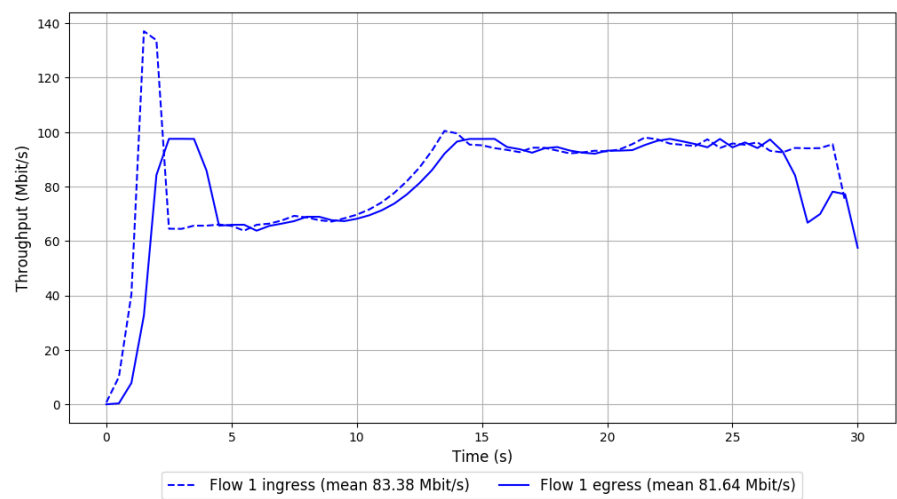
-- Flow 1:

Average throughput: 81.64 Mbit/s

95th percentile per-packet one-way delay: 255.868 ms

Loss rate: 2.62%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-07 21:03:36

End at: 2018-09-07 21:04:06

Local clock offset: -3.931 ms

Remote clock offset: 7.434 ms

Below is generated by plot.py at 2018-09-07 21:13:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 44.14 Mbit/s

95th percentile per-packet one-way delay: 92.340 ms

Loss rate: 1.29%

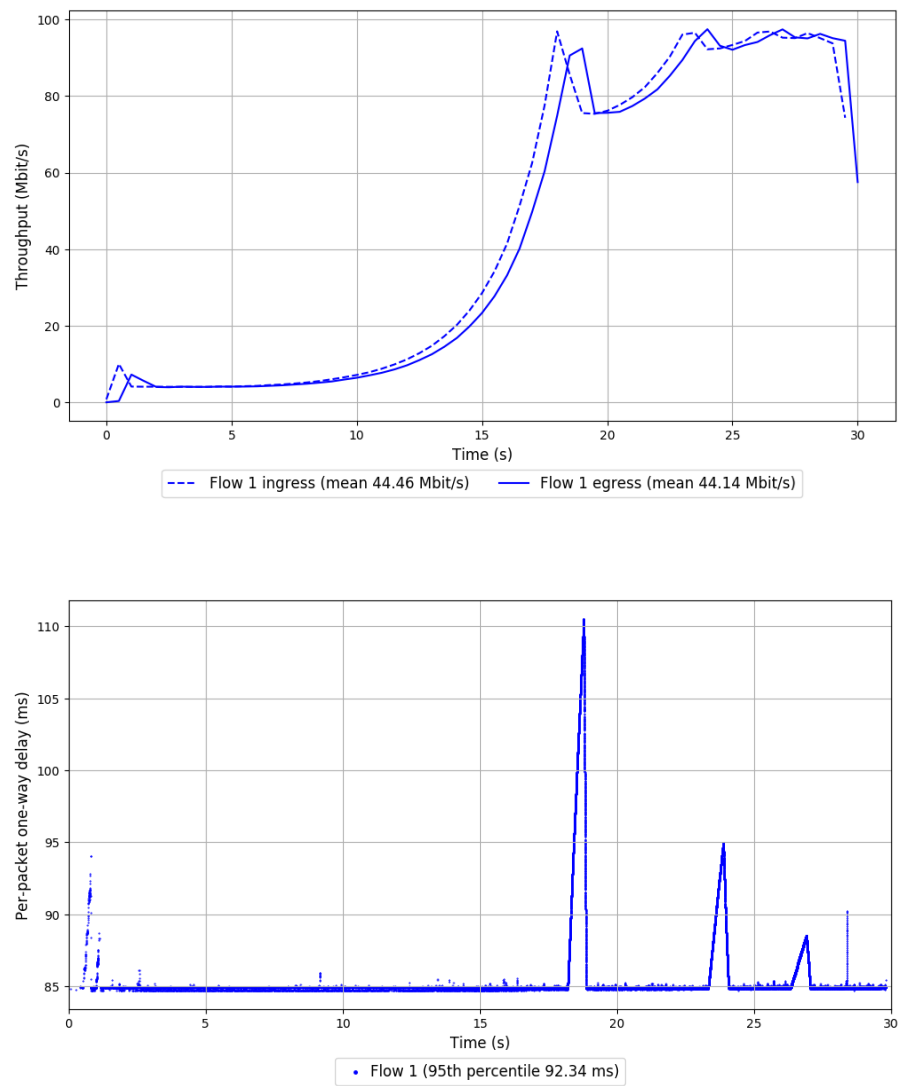
-- Flow 1:

Average throughput: 44.14 Mbit/s

95th percentile per-packet one-way delay: 92.340 ms

Loss rate: 1.29%

Run 5: Report of PCC-Allegro — Data Link

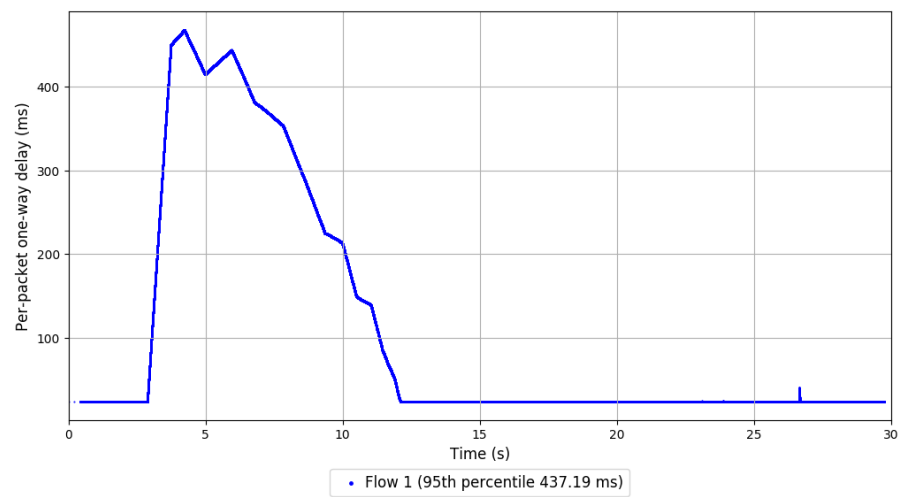
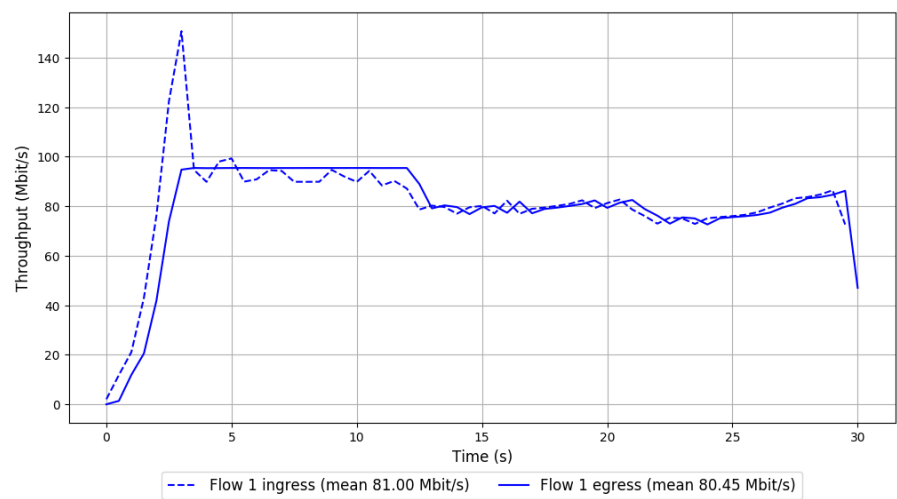


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-07 19:27:46
End at: 2018-09-07 19:28:16
Local clock offset: -62.636 ms
Remote clock offset: 12.153 ms

# Below is generated by plot.py at 2018-09-07 21:14:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.45 Mbit/s
95th percentile per-packet one-way delay: 437.186 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 80.45 Mbit/s
95th percentile per-packet one-way delay: 437.186 ms
Loss rate: 1.23%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-07 19:49:00

End at: 2018-09-07 19:49:30

Local clock offset: -4.154 ms

Remote clock offset: 9.295 ms

Below is generated by plot.py at 2018-09-07 21:14:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 83.64 Mbit/s

95th percentile per-packet one-way delay: 410.058 ms

Loss rate: 1.01%

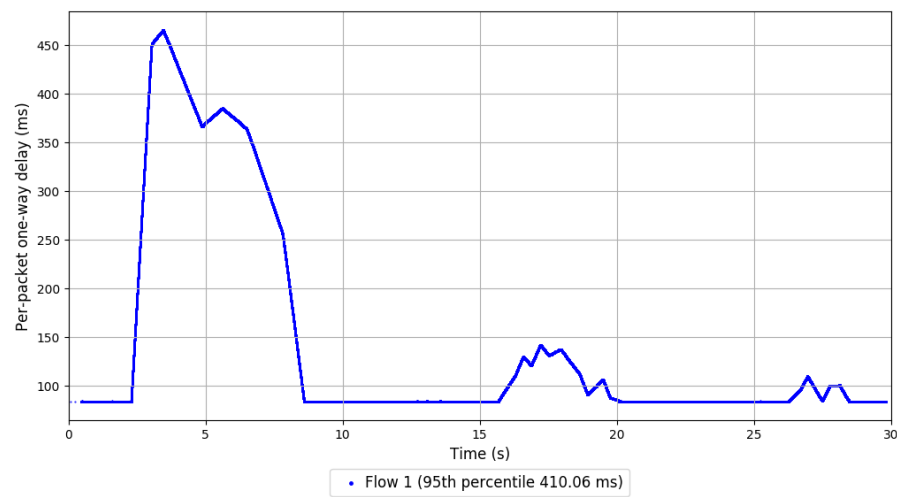
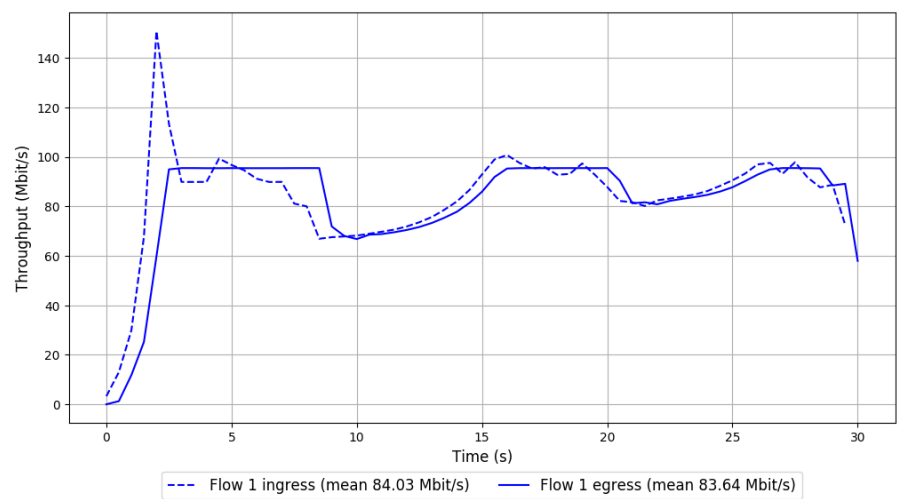
-- Flow 1:

Average throughput: 83.64 Mbit/s

95th percentile per-packet one-way delay: 410.058 ms

Loss rate: 1.01%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-07 20:10:22

End at: 2018-09-07 20:10:53

Local clock offset: 3.527 ms

Remote clock offset: 9.081 ms

Below is generated by plot.py at 2018-09-07 21:14:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 78.12 Mbit/s

95th percentile per-packet one-way delay: 421.520 ms

Loss rate: 2.33%

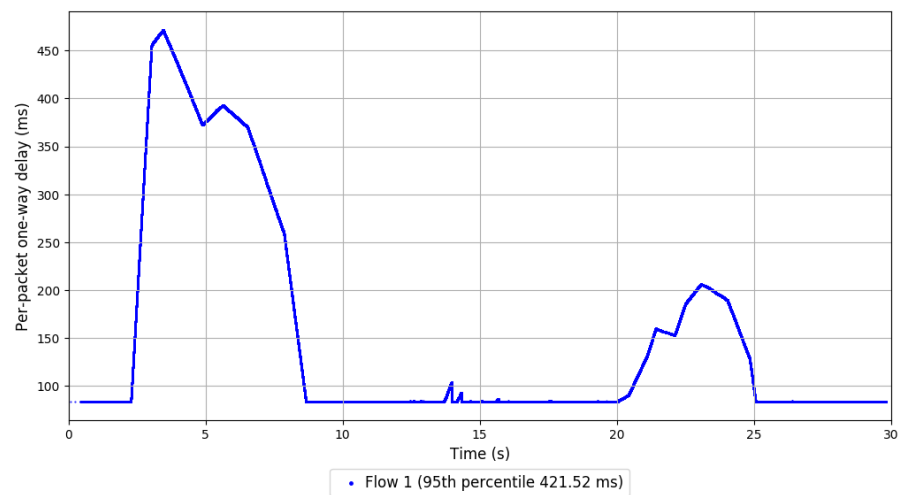
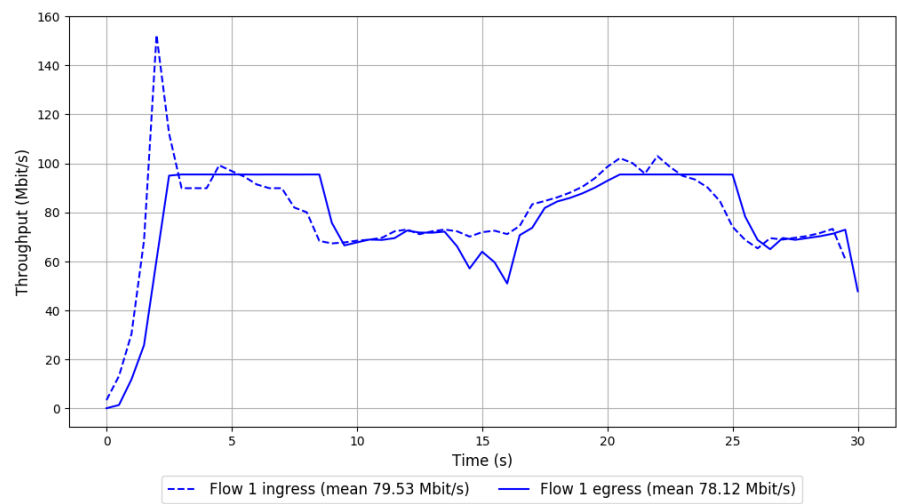
-- Flow 1:

Average throughput: 78.12 Mbit/s

95th percentile per-packet one-way delay: 421.520 ms

Loss rate: 2.33%

Run 3: Report of PCC-Expr — Data Link

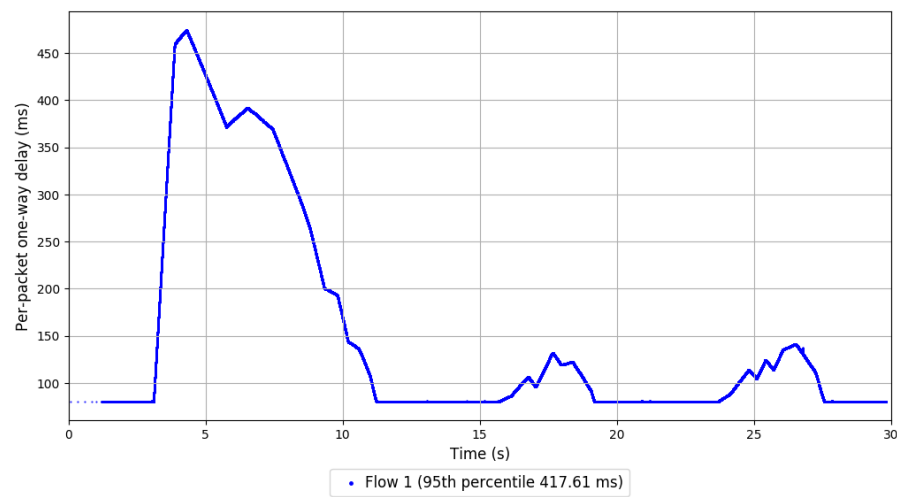
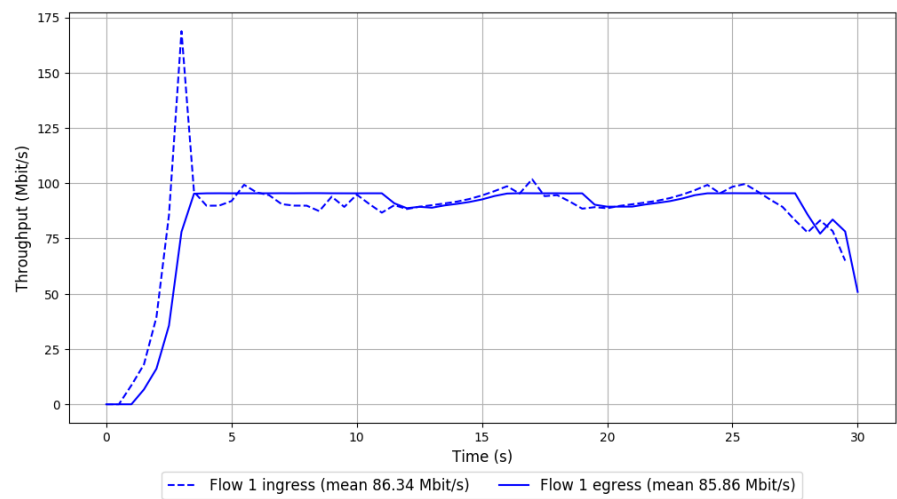


Run 4: Statistics of PCC-Expr

Start at: 2018-09-07 20:31:37
End at: 2018-09-07 20:32:07
Local clock offset: 2.357 ms
Remote clock offset: 13.213 ms

Below is generated by plot.py at 2018-09-07 21:14:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 85.86 Mbit/s
95th percentile per-packet one-way delay: 417.613 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 85.86 Mbit/s
95th percentile per-packet one-way delay: 417.613 ms
Loss rate: 1.11%

Run 4: Report of PCC-Expr — Data Link

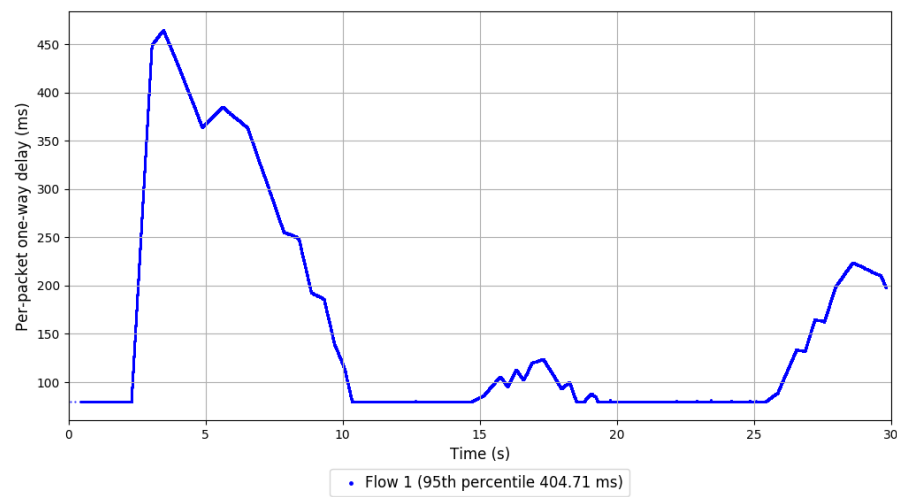
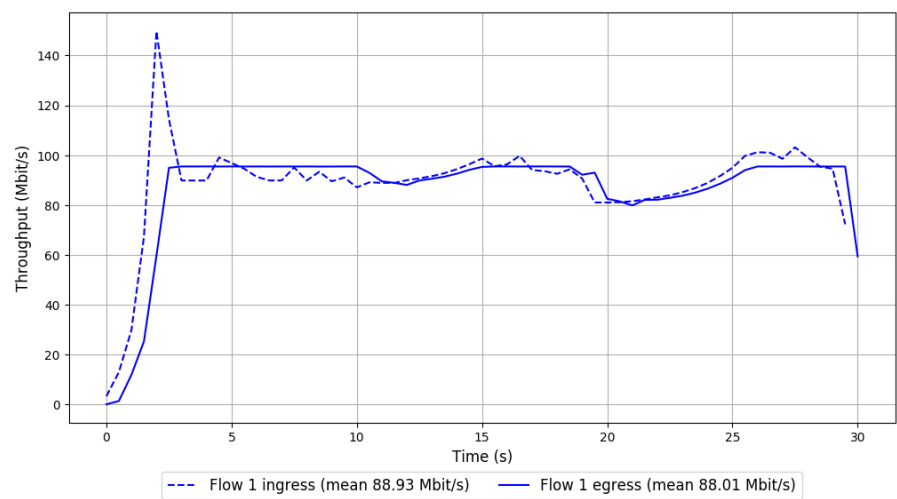


Run 5: Statistics of PCC-Expr

Start at: 2018-09-07 20:52:58
End at: 2018-09-07 20:53:28
Local clock offset: -2.152 ms
Remote clock offset: 13.124 ms

Below is generated by plot.py at 2018-09-07 21:15:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 88.01 Mbit/s
95th percentile per-packet one-way delay: 404.706 ms
Loss rate: 1.58%
-- Flow 1:
Average throughput: 88.01 Mbit/s
95th percentile per-packet one-way delay: 404.706 ms
Loss rate: 1.58%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-07 19:34:53

End at: 2018-09-07 19:35:23

Local clock offset: -7.676 ms

Remote clock offset: 8.332 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 58.91 Mbit/s

95th percentile per-packet one-way delay: 91.196 ms

Loss rate: 0.83%

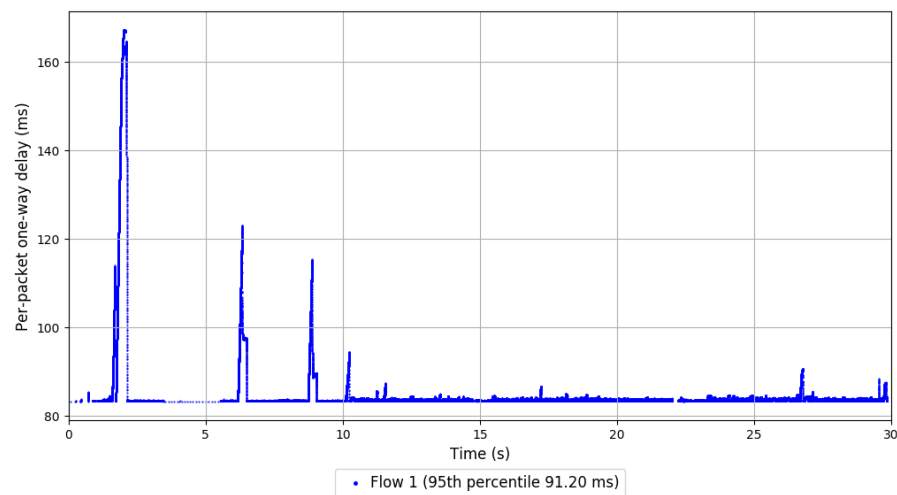
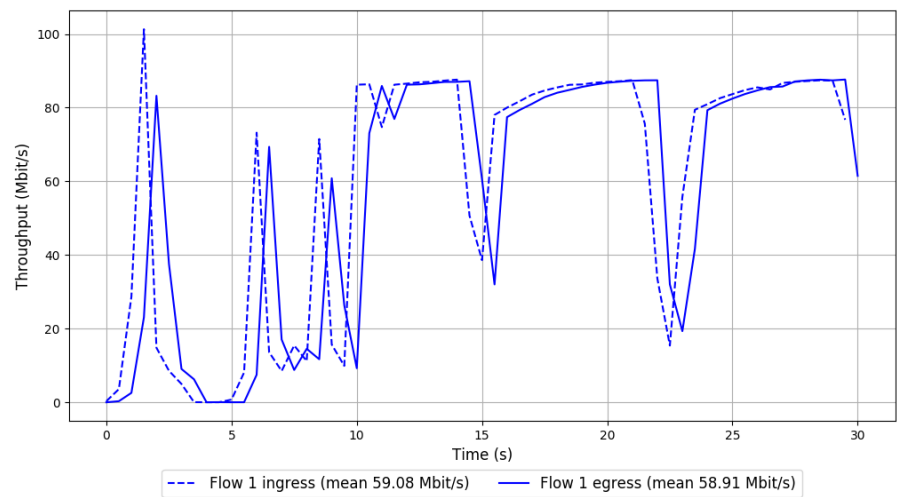
-- Flow 1:

Average throughput: 58.91 Mbit/s

95th percentile per-packet one-way delay: 91.196 ms

Loss rate: 0.83%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-07 19:56:08

End at: 2018-09-07 19:56:38

Local clock offset: 0.561 ms

Remote clock offset: 9.395 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 52.00 Mbit/s

95th percentile per-packet one-way delay: 99.157 ms

Loss rate: 0.47%

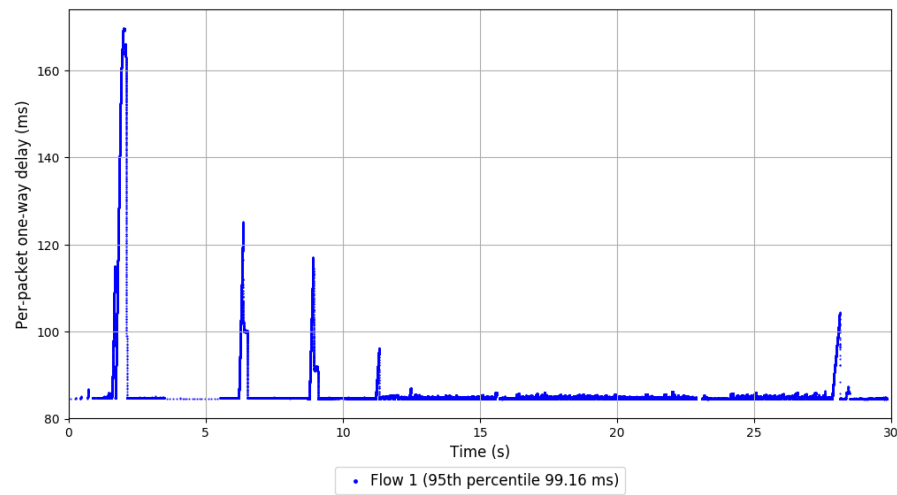
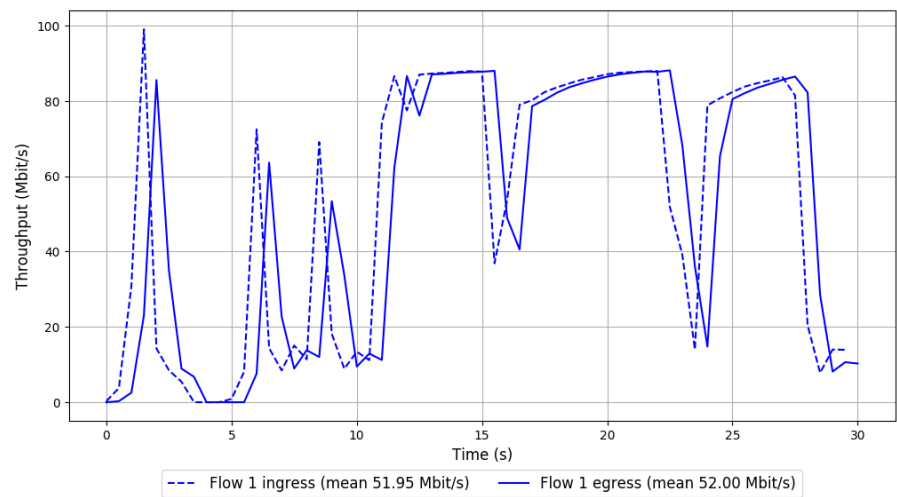
-- Flow 1:

Average throughput: 52.00 Mbit/s

95th percentile per-packet one-way delay: 99.157 ms

Loss rate: 0.47%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-07 20:17:32

End at: 2018-09-07 20:18:02

Local clock offset: 3.453 ms

Remote clock offset: 13.149 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 55.00 Mbit/s

95th percentile per-packet one-way delay: 80.559 ms

Loss rate: 0.93%

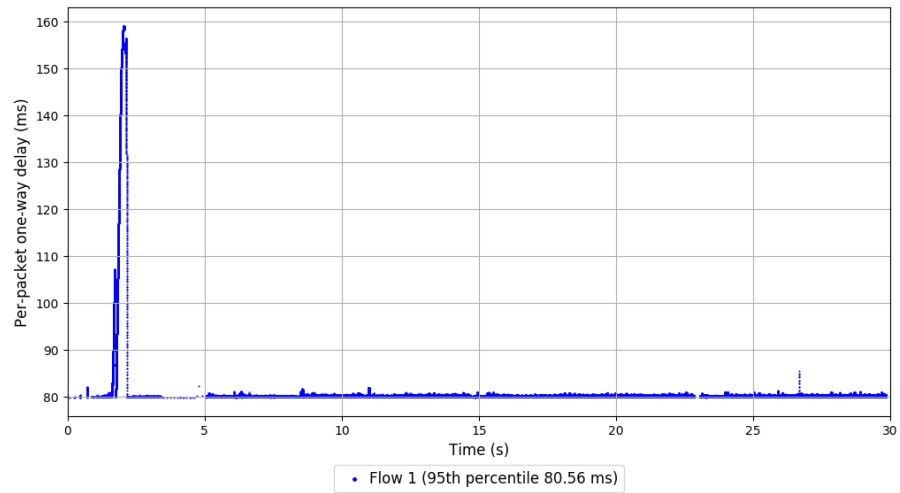
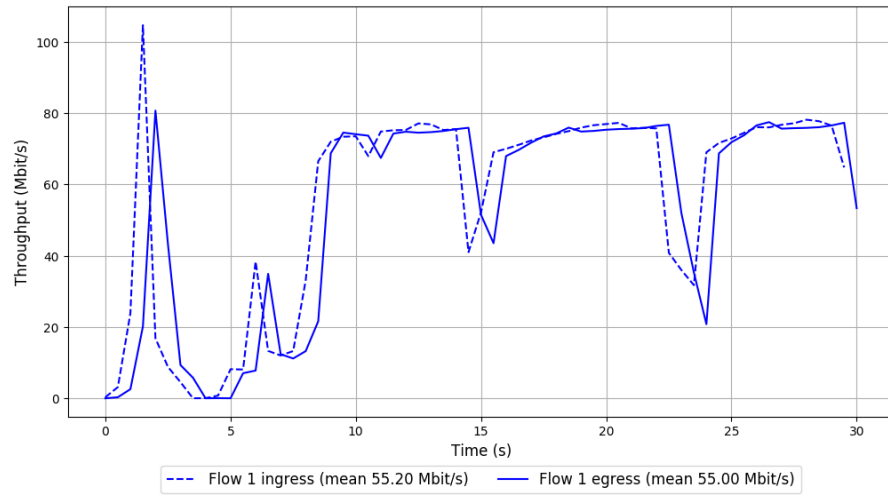
-- Flow 1:

Average throughput: 55.00 Mbit/s

95th percentile per-packet one-way delay: 80.559 ms

Loss rate: 0.93%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-09-07 20:38:40

End at: 2018-09-07 20:39:10

Local clock offset: 2.579 ms

Remote clock offset: 9.497 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 58.42 Mbit/s

95th percentile per-packet one-way delay: 89.413 ms

Loss rate: 0.81%

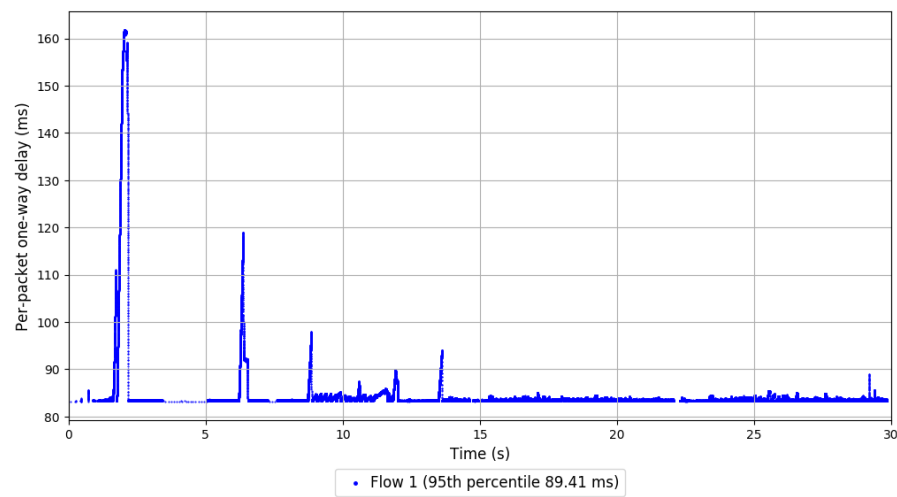
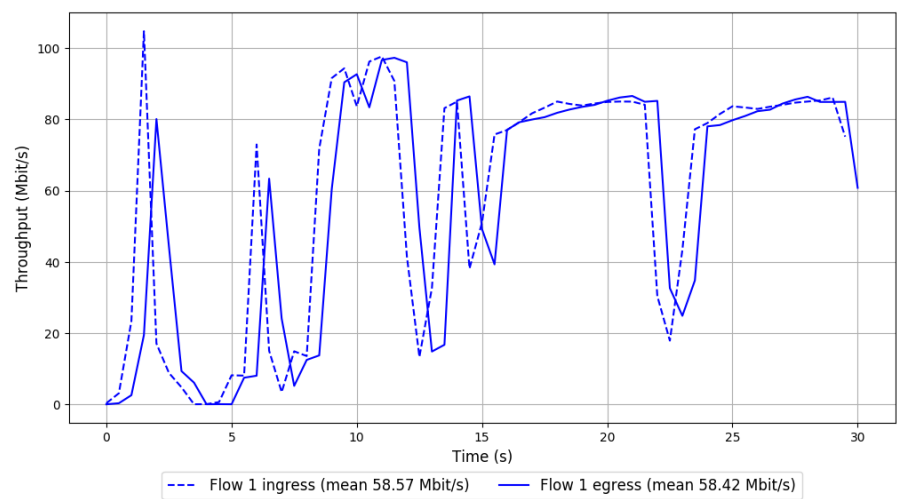
-- Flow 1:

Average throughput: 58.42 Mbit/s

95th percentile per-packet one-way delay: 89.413 ms

Loss rate: 0.81%

Run 4: Report of QUIC Cubic — Data Link

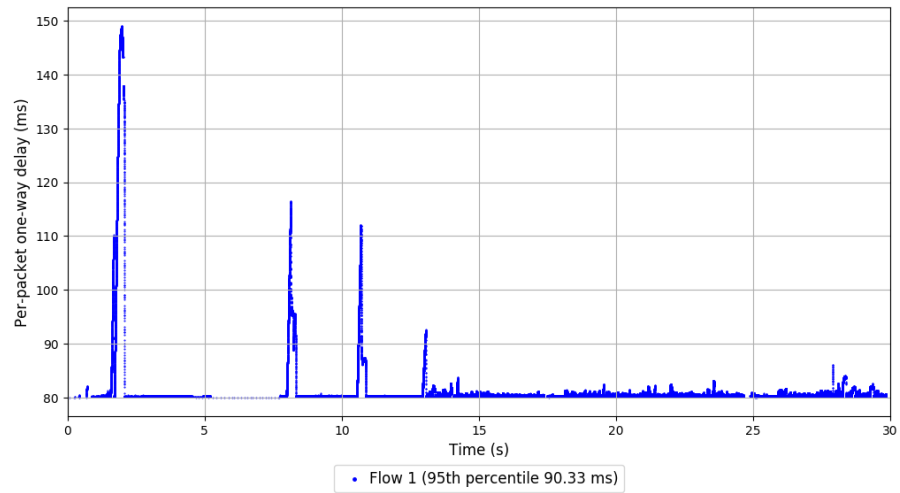
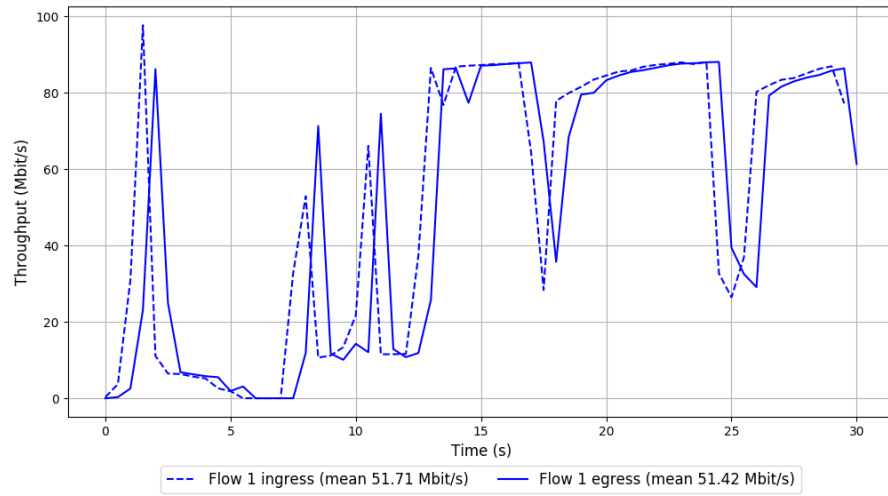


Run 5: Statistics of QUIC Cubic

Start at: 2018-09-07 21:00:06
End at: 2018-09-07 21:00:36
Local clock offset: -3.998 ms
Remote clock offset: 11.603 ms

Below is generated by plot.py at 2018-09-07 21:15:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 51.42 Mbit/s
95th percentile per-packet one-way delay: 90.333 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 51.42 Mbit/s
95th percentile per-packet one-way delay: 90.333 ms
Loss rate: 1.12%

Run 5: Report of QUIC Cubic — Data Link

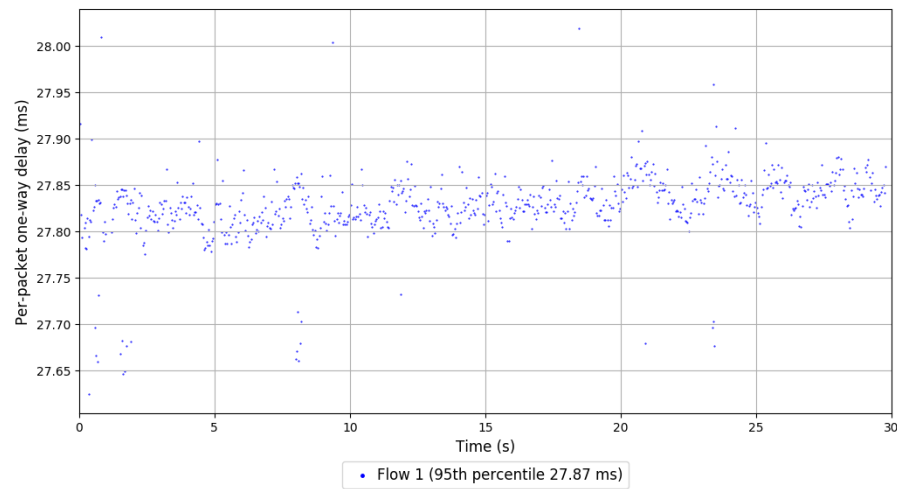
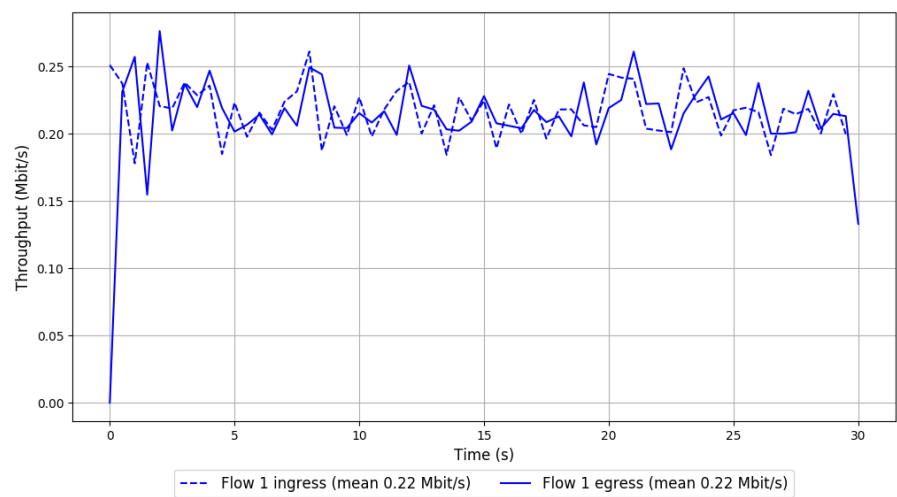


```
Run 1: Statistics of SCReAM

Start at: 2018-09-07 19:21:51
End at: 2018-09-07 19:22:21
Local clock offset: -62.369 ms
Remote clock offset: 8.016 ms

# Below is generated by plot.py at 2018-09-07 21:15:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 27.870 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 27.870 ms
Loss rate: 0.64%
```

Run 1: Report of SReAM — Data Link

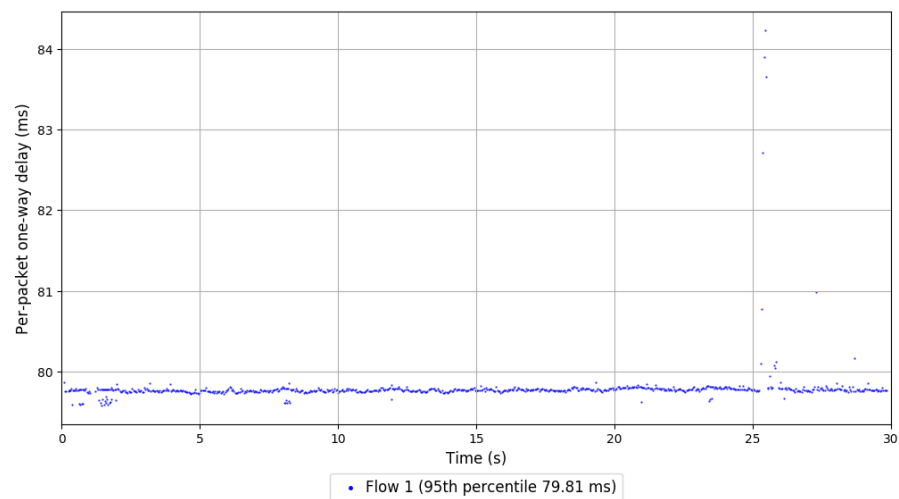
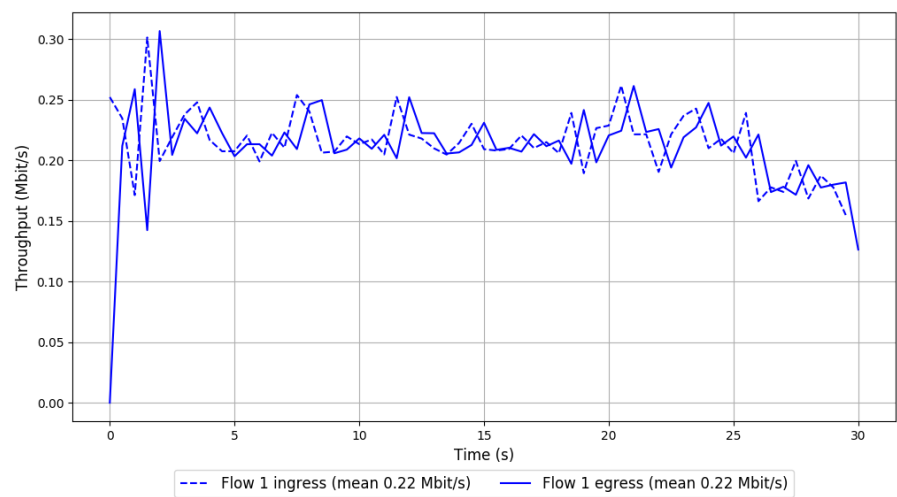


Run 2: Statistics of SCReAM

Start at: 2018-09-07 19:43:11
End at: 2018-09-07 19:43:41
Local clock offset: -7.966 ms
Remote clock offset: 13.142 ms

Below is generated by plot.py at 2018-09-07 21:15:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.811 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.811 ms
Loss rate: 0.58%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-09-07 20:04:22

End at: 2018-09-07 20:04:52

Local clock offset: 3.003 ms

Remote clock offset: 13.37 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 80.092 ms

Loss rate: 0.82%

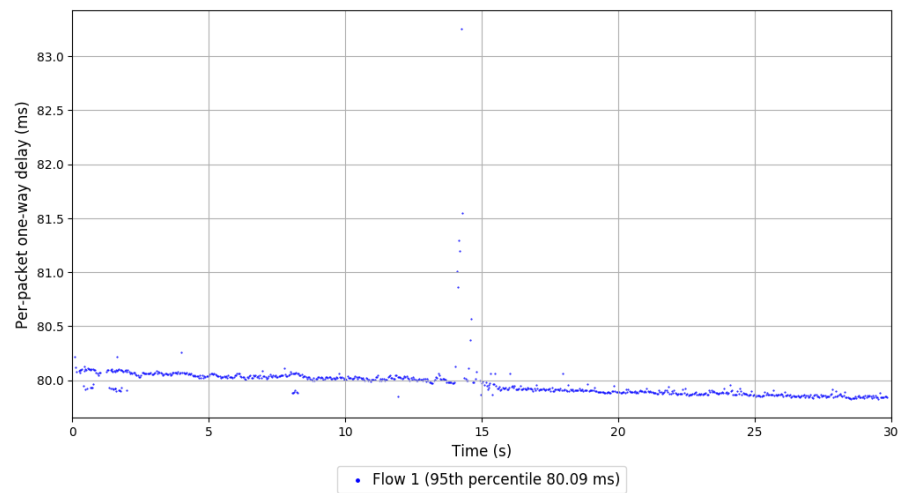
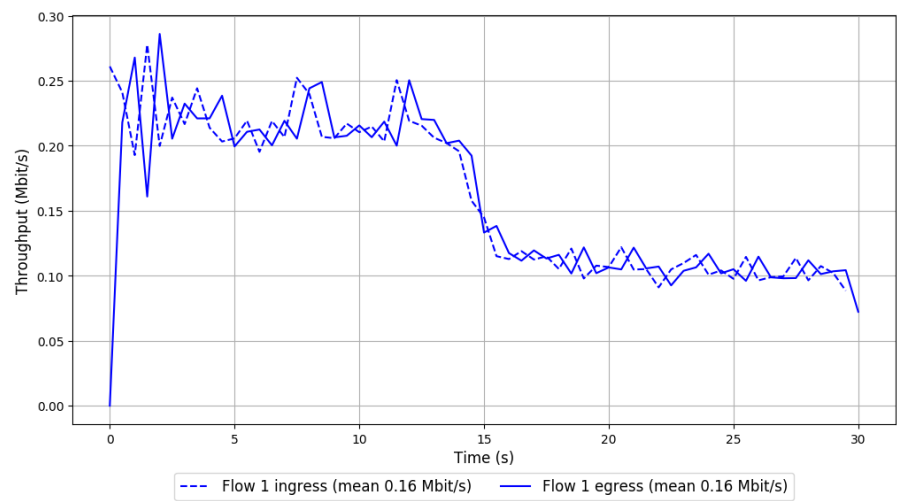
-- Flow 1:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 80.092 ms

Loss rate: 0.82%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SCReAM

Start at: 2018-09-07 20:25:48

End at: 2018-09-07 20:26:18

Local clock offset: 2.446 ms

Remote clock offset: 9.212 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 83.775 ms

Loss rate: 0.64%

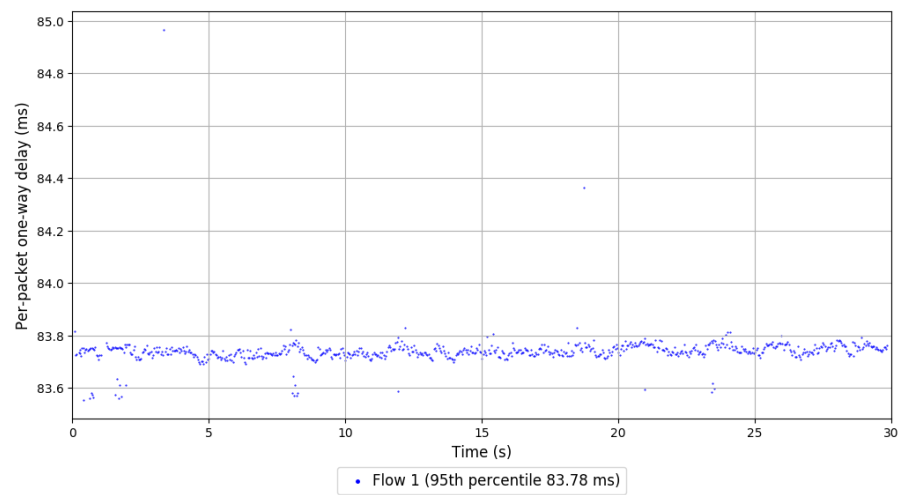
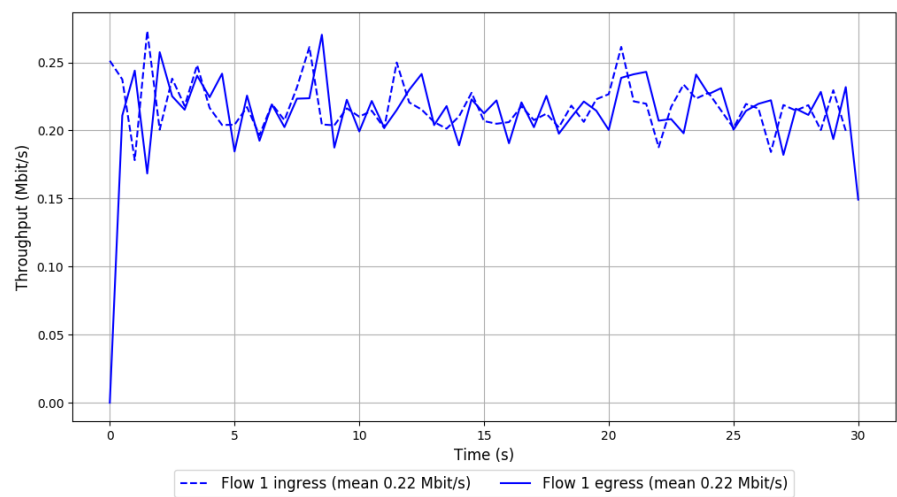
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 83.775 ms

Loss rate: 0.64%

Run 4: Report of SReAM — Data Link

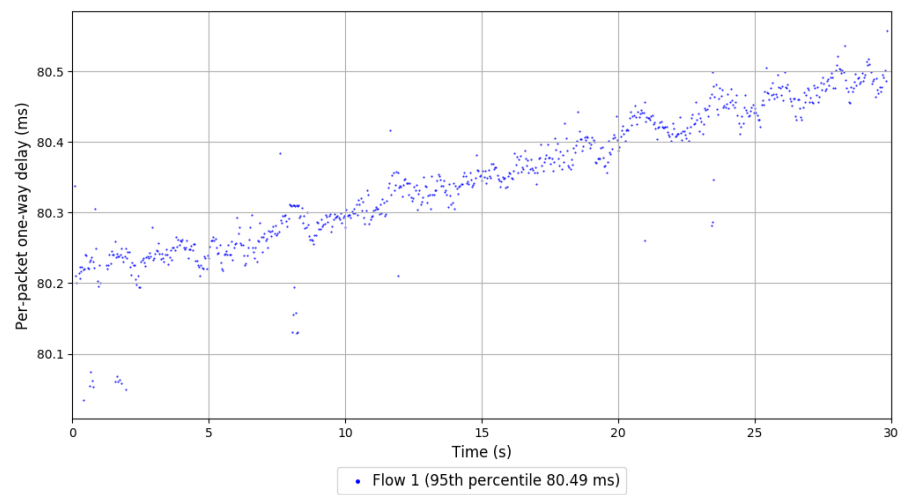
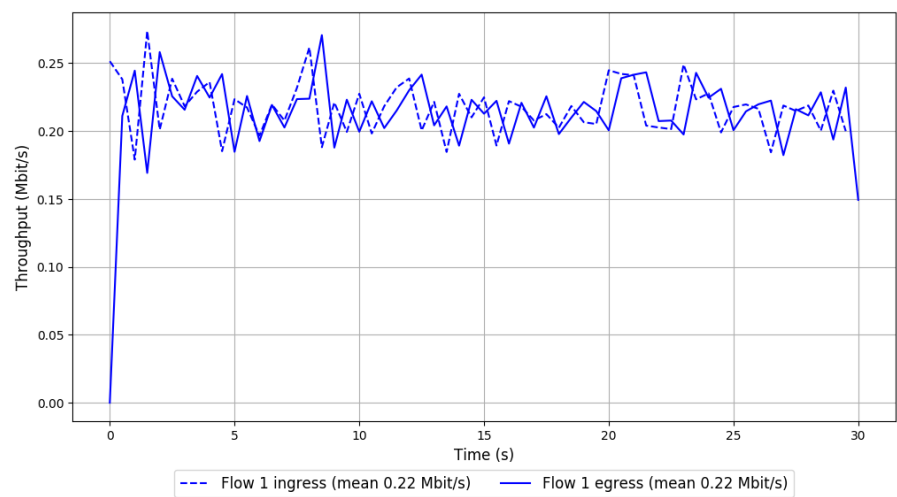


Run 5: Statistics of SCReAM

Start at: 2018-09-07 20:47:05
End at: 2018-09-07 20:47:36
Local clock offset: 1.892 ms
Remote clock offset: 13.641 ms

Below is generated by plot.py at 2018-09-07 21:15:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 80.486 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 80.486 ms
Loss rate: 0.64%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-07 19:37:17

End at: 2018-09-07 19:37:47

Local clock offset: -6.971 ms

Remote clock offset: 8.556 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.48 Mbit/s

95th percentile per-packet one-way delay: 91.624 ms

Loss rate: 1.31%

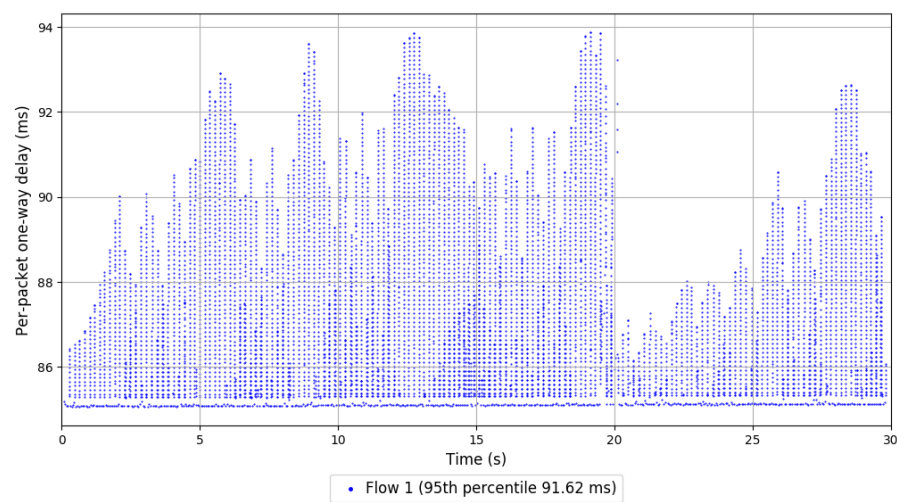
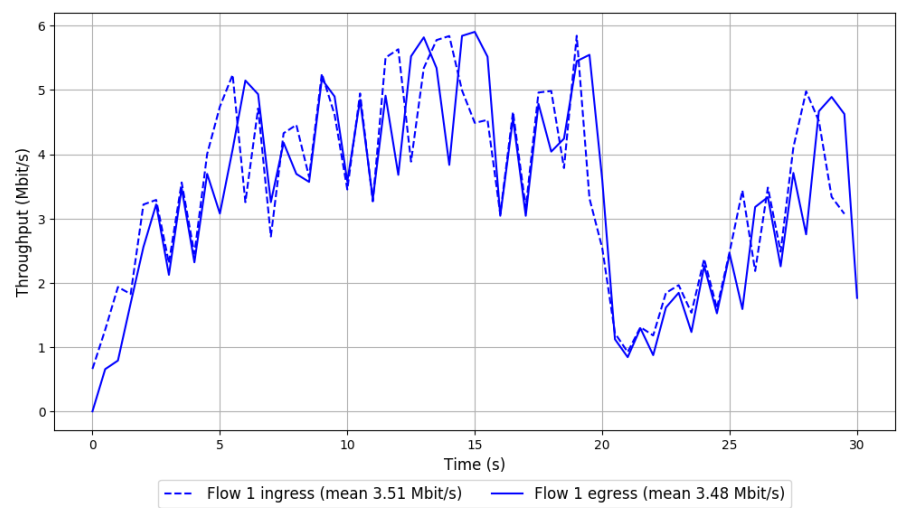
-- Flow 1:

Average throughput: 3.48 Mbit/s

95th percentile per-packet one-way delay: 91.624 ms

Loss rate: 1.31%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-09-07 19:58:29

End at: 2018-09-07 19:58:59

Local clock offset: 0.592 ms

Remote clock offset: 13.54 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.34 Mbit/s

95th percentile per-packet one-way delay: 84.005 ms

Loss rate: 1.24%

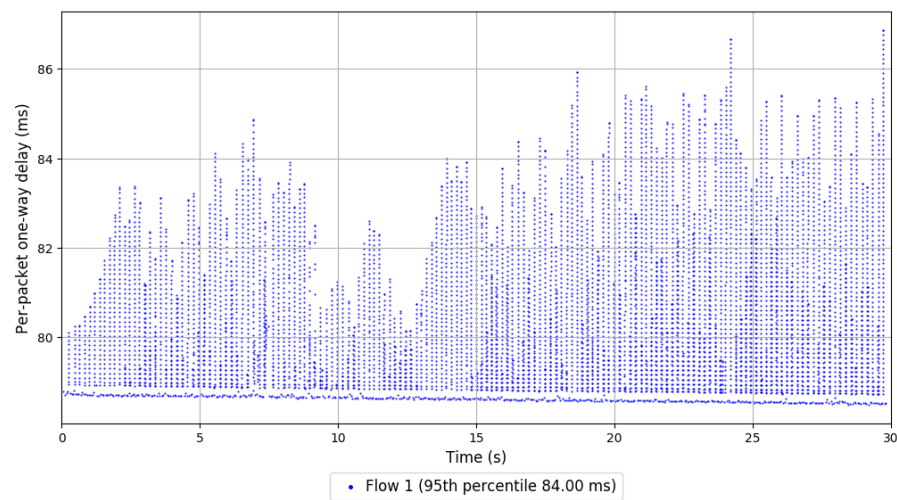
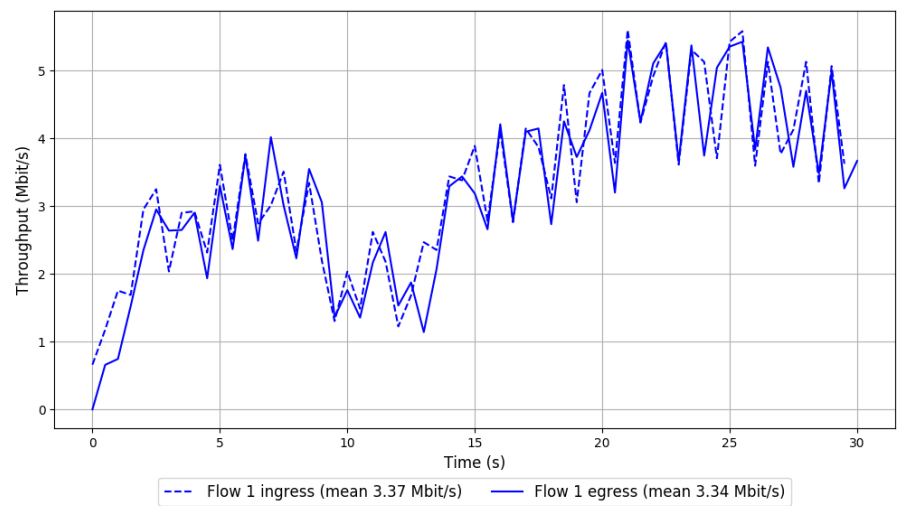
-- Flow 1:

Average throughput: 3.34 Mbit/s

95th percentile per-packet one-way delay: 84.005 ms

Loss rate: 1.24%

Run 2: Report of Sprout — Data Link

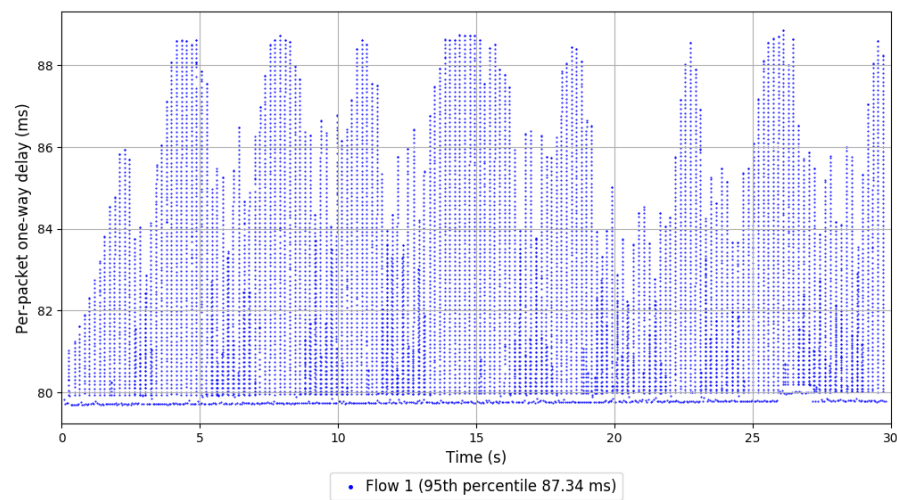
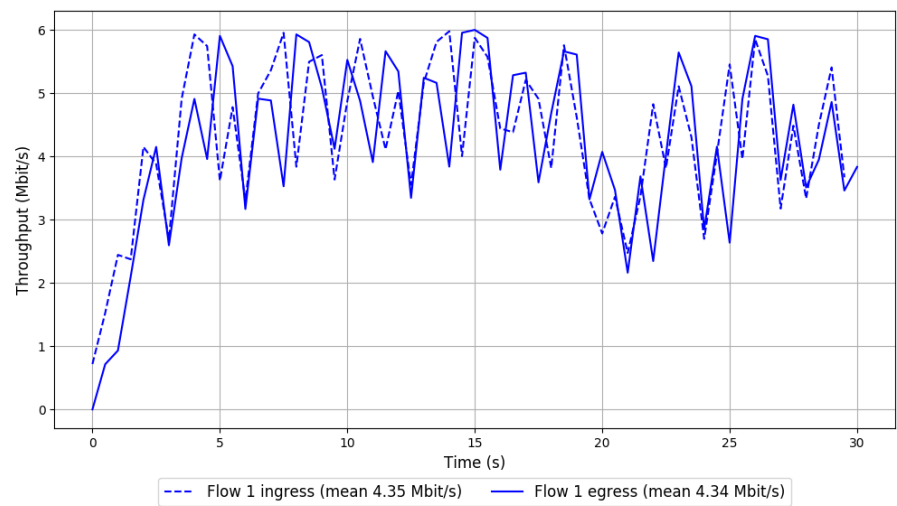


Run 3: Statistics of Sprout

Start at: 2018-09-07 20:19:54
End at: 2018-09-07 20:20:24
Local clock offset: 2.912 ms
Remote clock offset: 12.808 ms

Below is generated by plot.py at 2018-09-07 21:15:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.34 Mbit/s
95th percentile per-packet one-way delay: 87.337 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 4.34 Mbit/s
95th percentile per-packet one-way delay: 87.337 ms
Loss rate: 0.69%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-07 20:41:02

End at: 2018-09-07 20:41:32

Local clock offset: 3.412 ms

Remote clock offset: 9.641 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.91 Mbit/s

95th percentile per-packet one-way delay: 88.973 ms

Loss rate: 0.73%

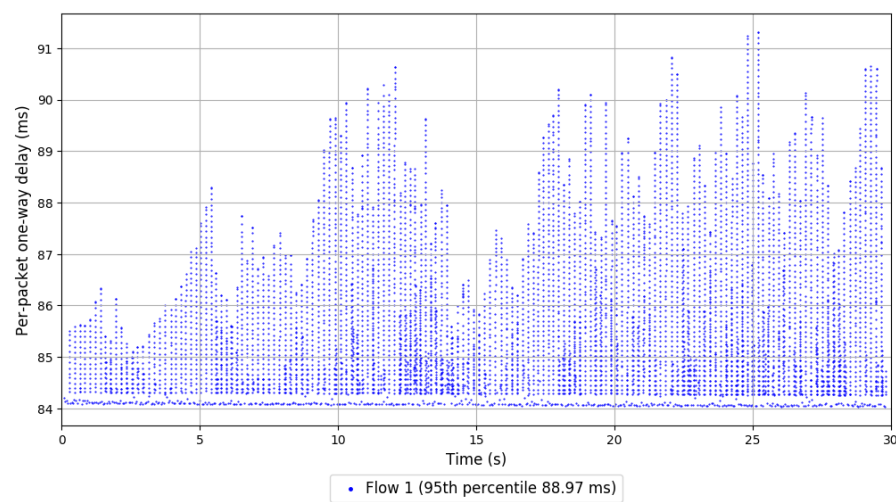
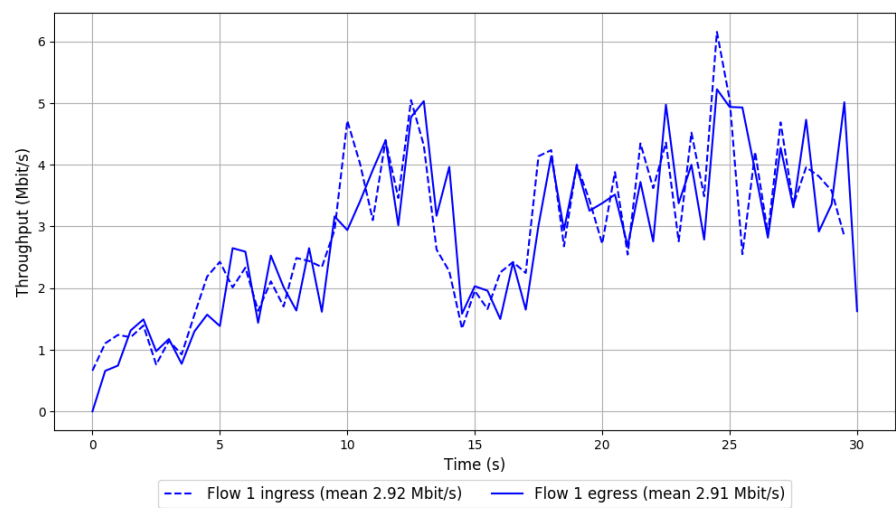
-- Flow 1:

Average throughput: 2.91 Mbit/s

95th percentile per-packet one-way delay: 88.973 ms

Loss rate: 0.73%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-07 21:02:28

End at: 2018-09-07 21:02:58

Local clock offset: -4.453 ms

Remote clock offset: 7.799 ms

Below is generated by plot.py at 2018-09-07 21:15:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.70 Mbit/s

95th percentile per-packet one-way delay: 90.844 ms

Loss rate: 0.43%

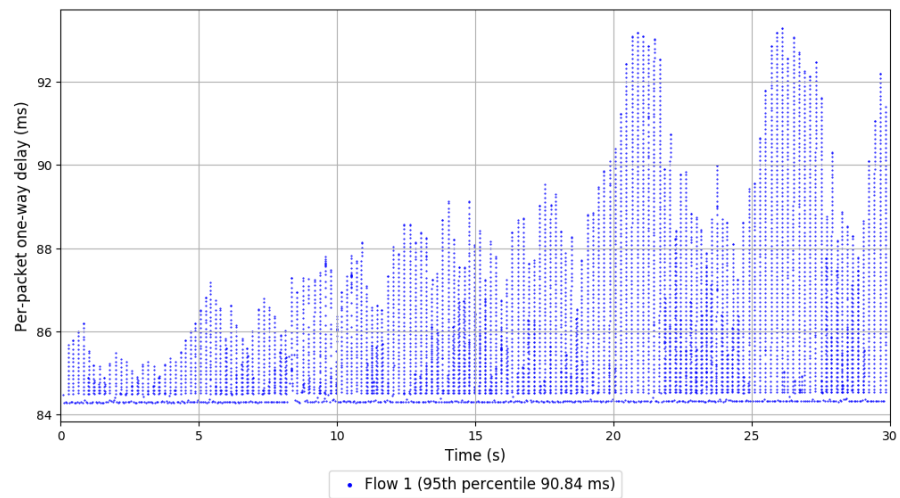
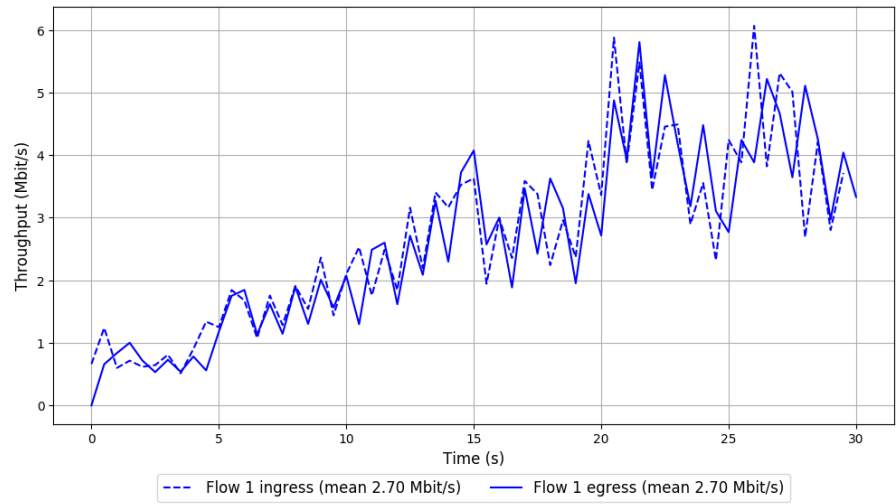
-- Flow 1:

Average throughput: 2.70 Mbit/s

95th percentile per-packet one-way delay: 90.844 ms

Loss rate: 0.43%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-07 19:40:44

End at: 2018-09-07 19:41:14

Local clock offset: -7.13 ms

Remote clock offset: 12.903 ms

Below is generated by plot.py at 2018-09-07 21:16:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 74.04 Mbit/s

95th percentile per-packet one-way delay: 107.031 ms

Loss rate: 0.62%

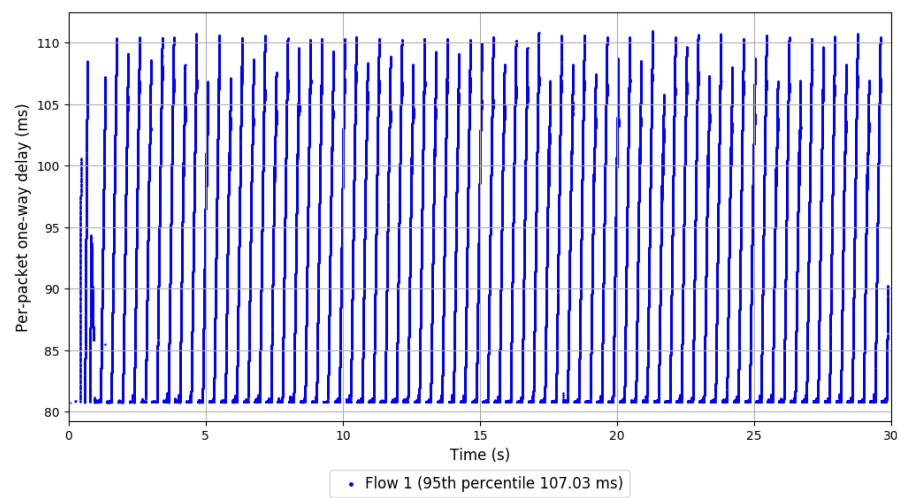
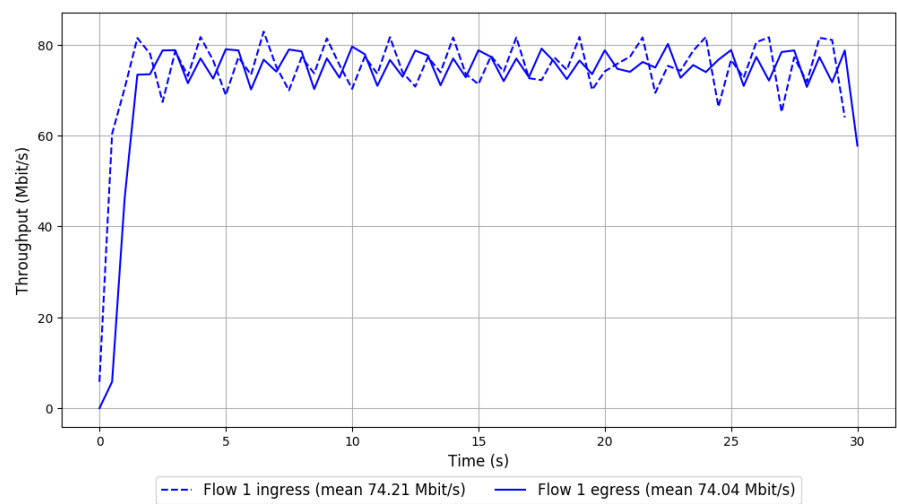
-- Flow 1:

Average throughput: 74.04 Mbit/s

95th percentile per-packet one-way delay: 107.031 ms

Loss rate: 0.62%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-07 20:01:56

End at: 2018-09-07 20:02:26

Local clock offset: 2.442 ms

Remote clock offset: 13.651 ms

Below is generated by plot.py at 2018-09-07 21:16:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 66.62 Mbit/s

95th percentile per-packet one-way delay: 89.355 ms

Loss rate: 0.86%

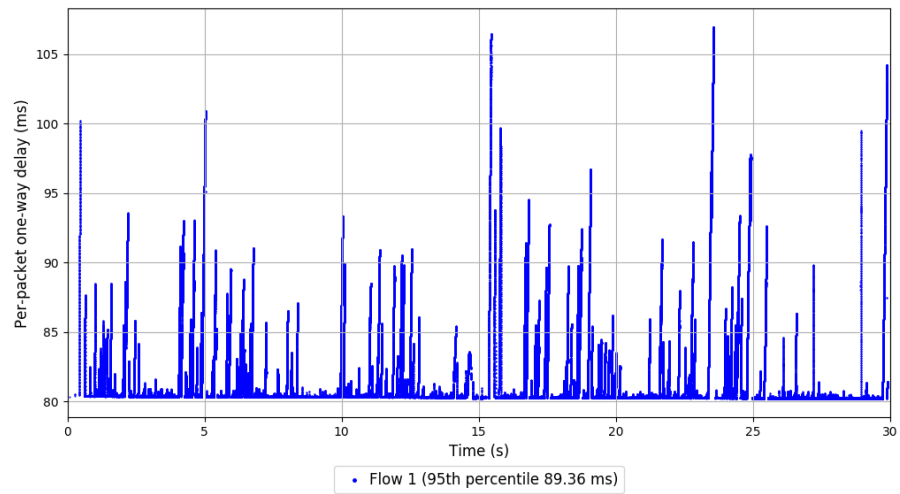
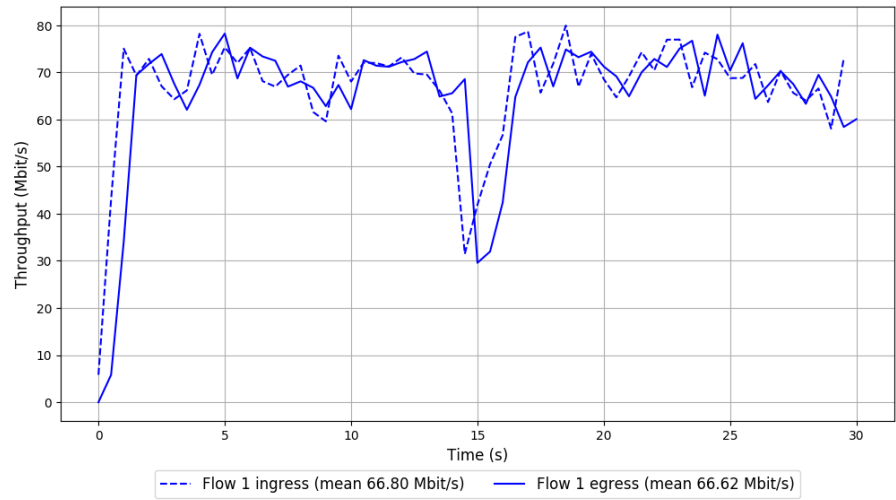
-- Flow 1:

Average throughput: 66.62 Mbit/s

95th percentile per-packet one-way delay: 89.355 ms

Loss rate: 0.86%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-07 20:23:25

End at: 2018-09-07 20:23:55

Local clock offset: 2.514 ms

Remote clock offset: 9.283 ms

Below is generated by plot.py at 2018-09-07 21:16:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 33.99 Mbit/s

95th percentile per-packet one-way delay: 107.900 ms

Loss rate: 0.56%

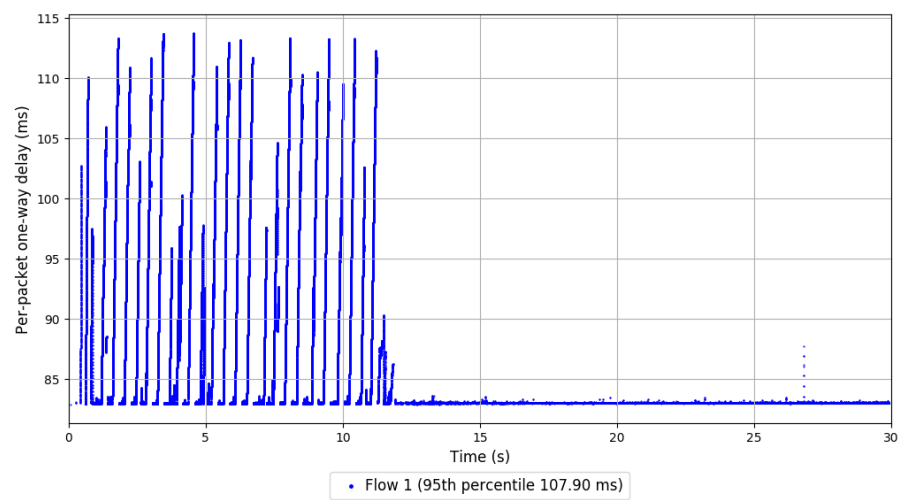
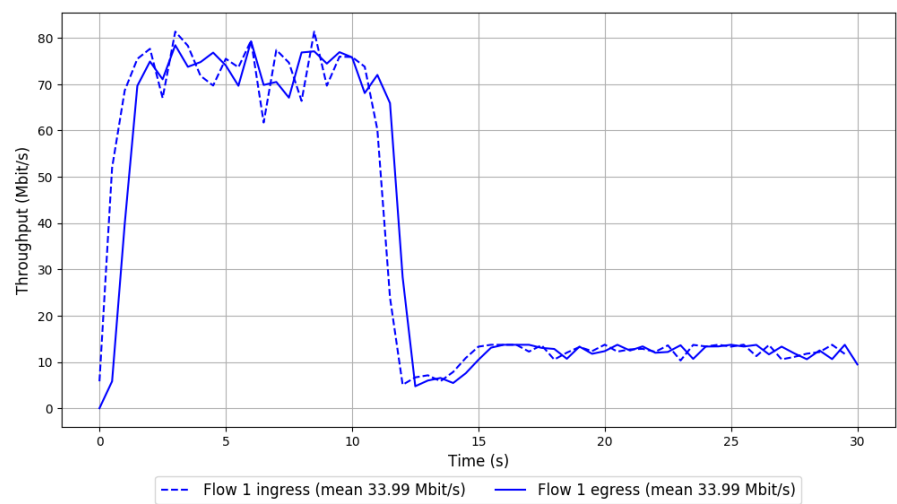
-- Flow 1:

Average throughput: 33.99 Mbit/s

95th percentile per-packet one-way delay: 107.900 ms

Loss rate: 0.56%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-07 20:44:32

End at: 2018-09-07 20:45:02

Local clock offset: 3.614 ms

Remote clock offset: 12.982 ms

Below is generated by plot.py at 2018-09-07 21:16:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 20.09 Mbit/s

95th percentile per-packet one-way delay: 103.889 ms

Loss rate: 0.71%

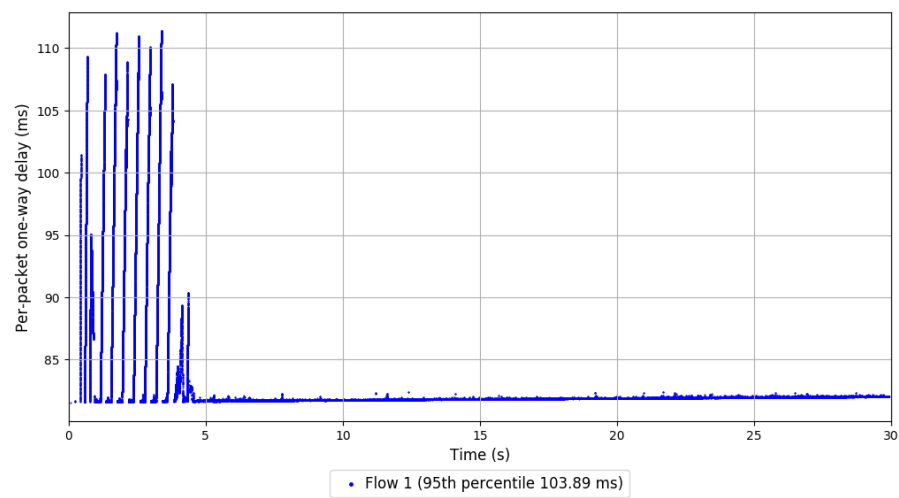
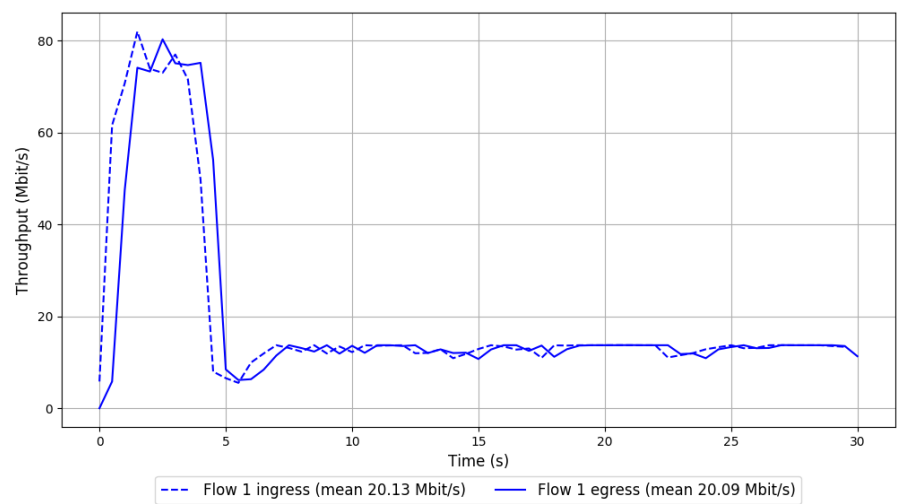
-- Flow 1:

Average throughput: 20.09 Mbit/s

95th percentile per-packet one-way delay: 103.889 ms

Loss rate: 0.71%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-07 21:05:58

End at: 2018-09-07 21:06:28

Local clock offset: -4.895 ms

Remote clock offset: 11.864 ms

Below is generated by plot.py at 2018-09-07 21:16:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 74.04 Mbit/s

95th percentile per-packet one-way delay: 105.333 ms

Loss rate: 0.81%

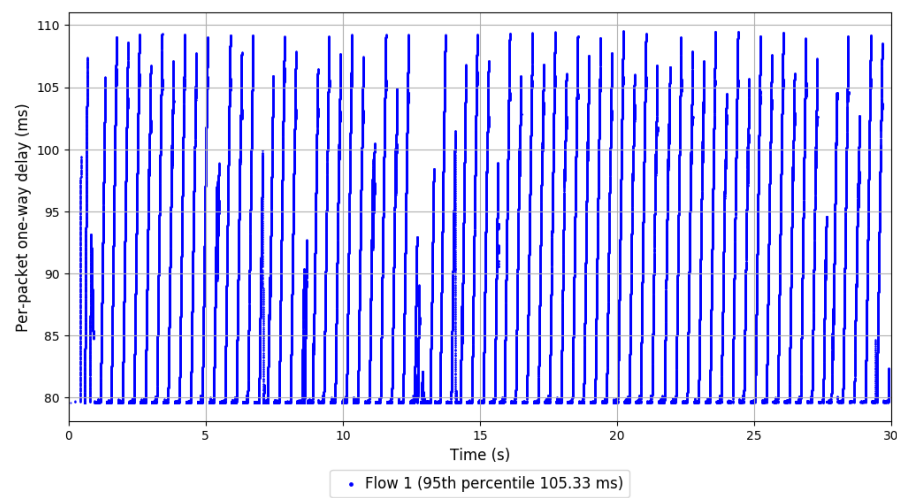
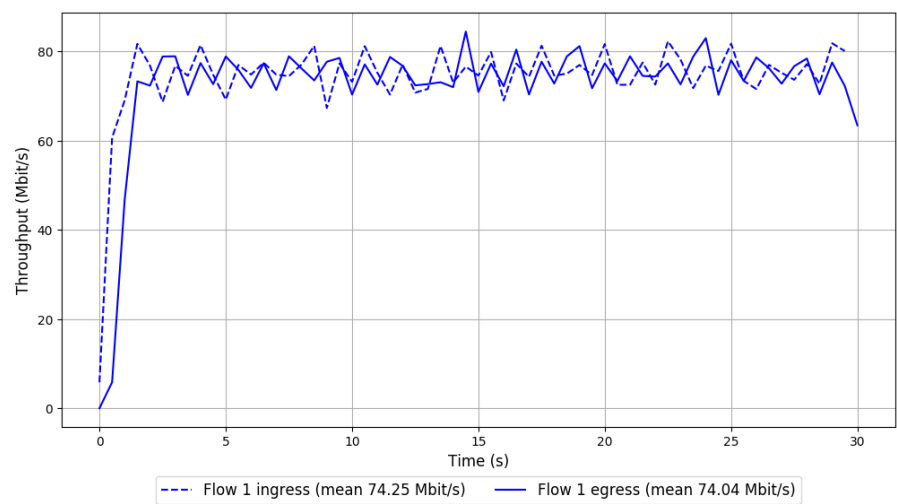
-- Flow 1:

Average throughput: 74.04 Mbit/s

95th percentile per-packet one-way delay: 105.333 ms

Loss rate: 0.81%

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

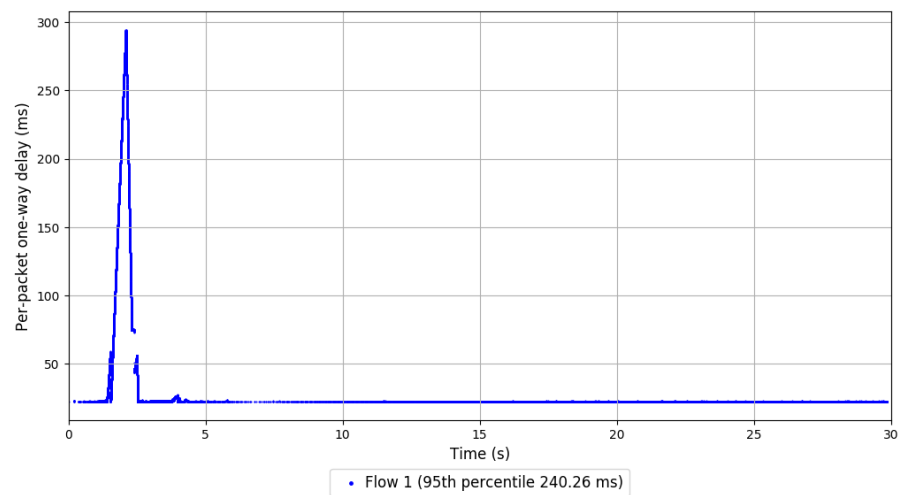
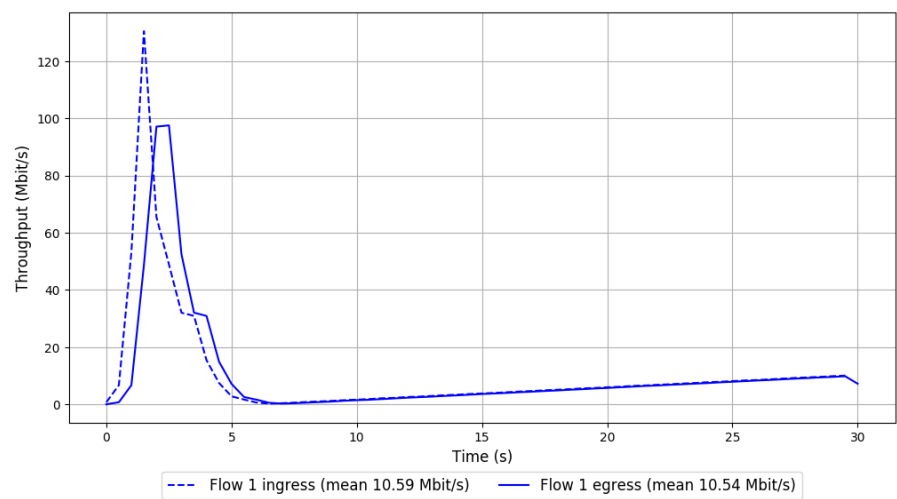


Run 1: Statistics of TCP Vegas

Start at: 2018-09-07 19:26:32
End at: 2018-09-07 19:27:02
Local clock offset: -63.794 ms
Remote clock offset: 12.198 ms

Below is generated by plot.py at 2018-09-07 21:16:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.54 Mbit/s
95th percentile per-packet one-way delay: 240.259 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 10.54 Mbit/s
95th percentile per-packet one-way delay: 240.259 ms
Loss rate: 1.07%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-09-07 19:47:50

End at: 2018-09-07 19:48:20

Local clock offset: -5.03 ms

Remote clock offset: 13.42 ms

Below is generated by plot.py at 2018-09-07 21:16:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 37.50 Mbit/s

95th percentile per-packet one-way delay: 158.492 ms

Loss rate: 0.64%

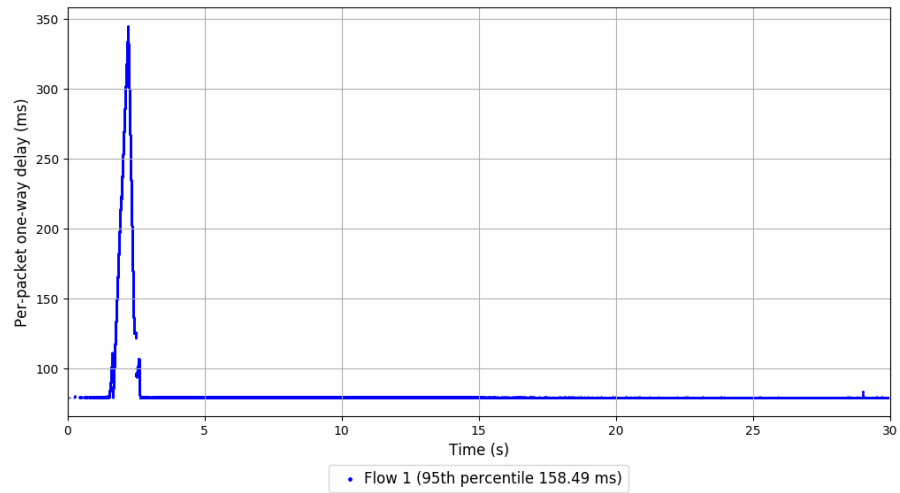
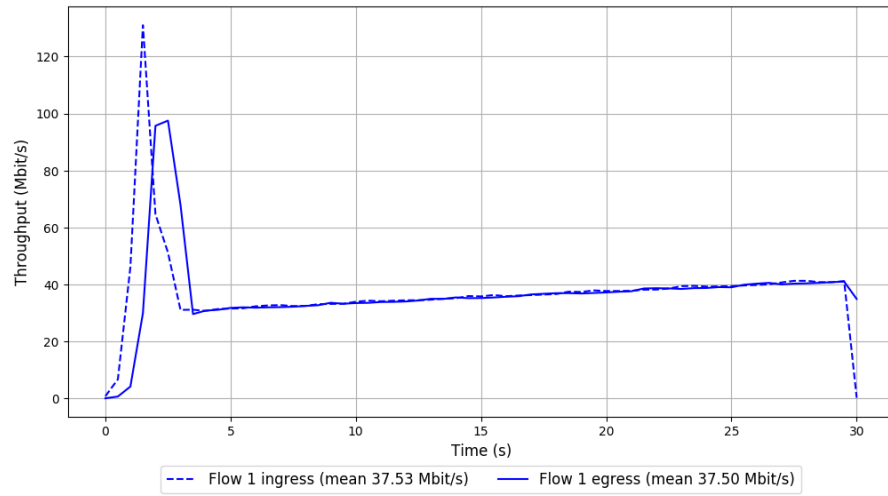
-- Flow 1:

Average throughput: 37.50 Mbit/s

95th percentile per-packet one-way delay: 158.492 ms

Loss rate: 0.64%

Run 2: Report of TCP Vegas — Data Link

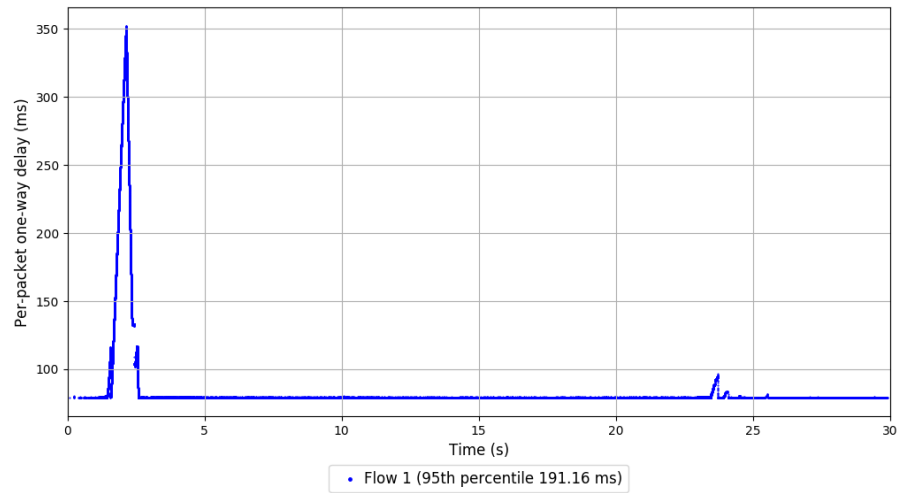
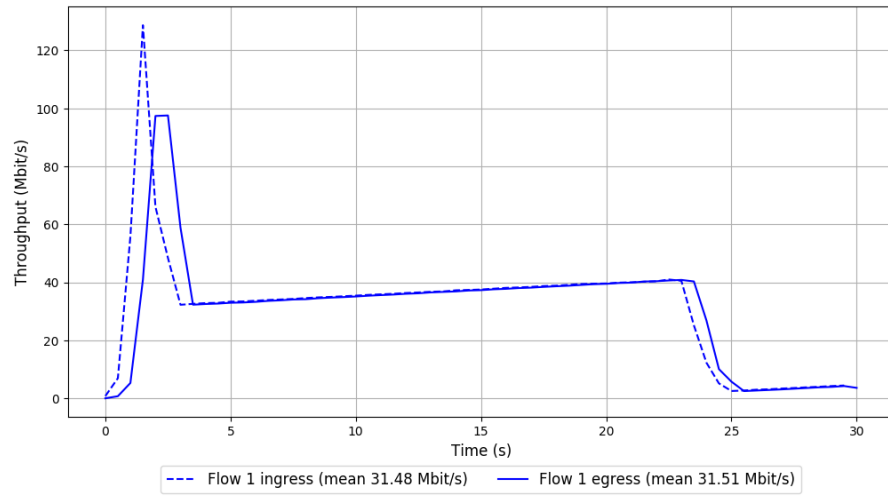


Run 3: Statistics of TCP Vegas

Start at: 2018-09-07 20:09:13
End at: 2018-09-07 20:09:43
Local clock offset: 3.253 ms
Remote clock offset: 12.867 ms

Below is generated by plot.py at 2018-09-07 21:16:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 31.51 Mbit/s
95th percentile per-packet one-way delay: 191.157 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 31.51 Mbit/s
95th percentile per-packet one-way delay: 191.157 ms
Loss rate: 0.44%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-07 20:30:28

End at: 2018-09-07 20:30:58

Local clock offset: 2.275 ms

Remote clock offset: 9.84 ms

Below is generated by plot.py at 2018-09-07 21:16:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 22.90 Mbit/s

95th percentile per-packet one-way delay: 217.589 ms

Loss rate: 1.62%

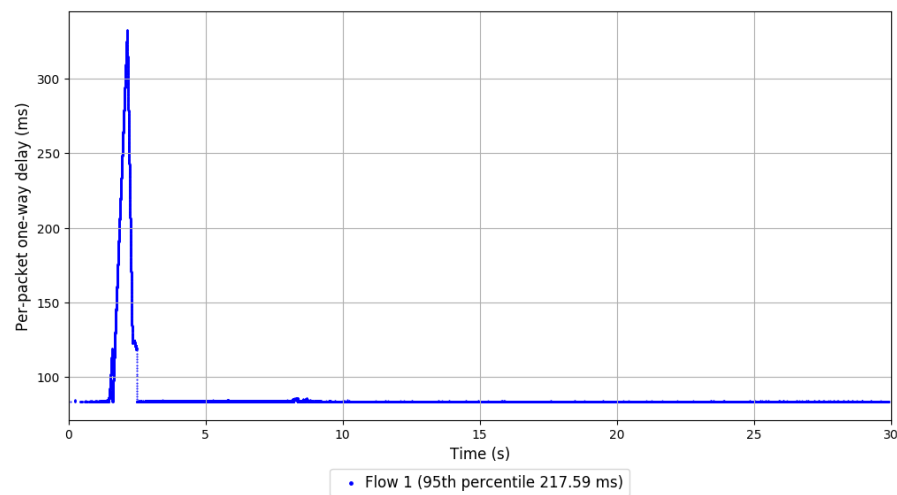
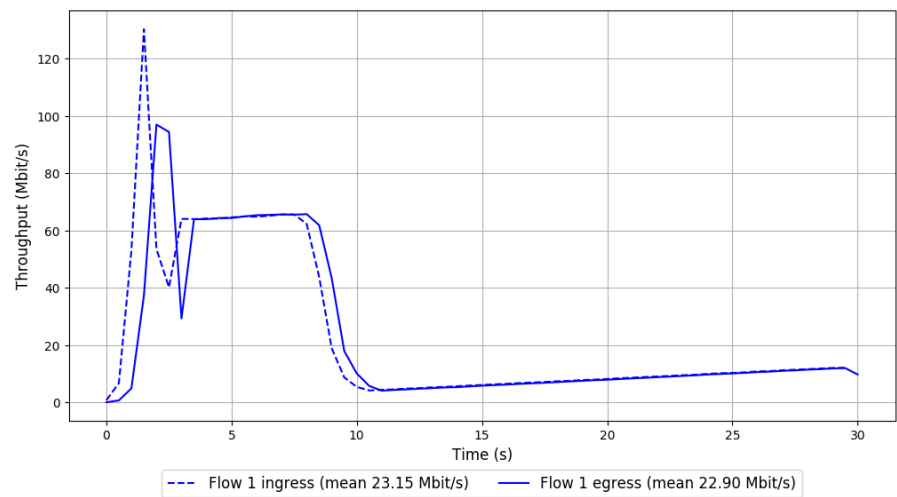
-- Flow 1:

Average throughput: 22.90 Mbit/s

95th percentile per-packet one-way delay: 217.589 ms

Loss rate: 1.62%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-07 20:51:47

End at: 2018-09-07 20:52:17

Local clock offset: -0.793 ms

Remote clock offset: 9.026 ms

Below is generated by plot.py at 2018-09-07 21:16:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 67.02 Mbit/s

95th percentile per-packet one-way delay: 85.788 ms

Loss rate: 0.64%

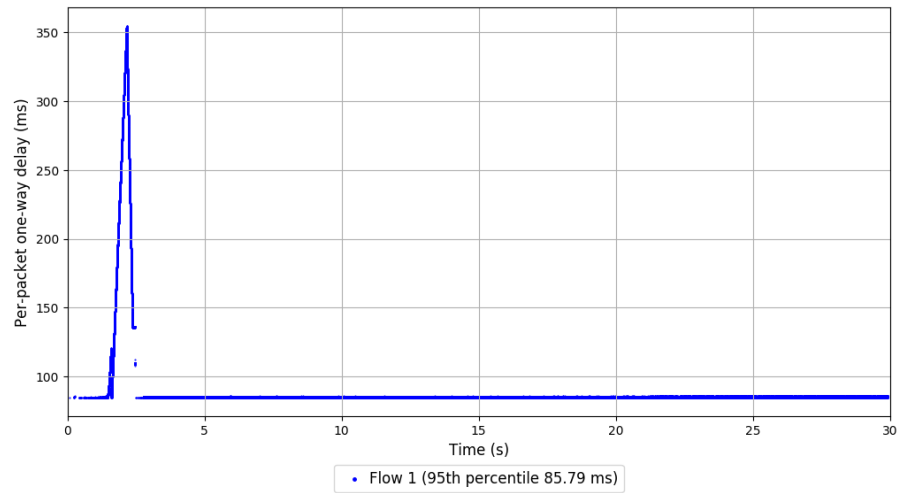
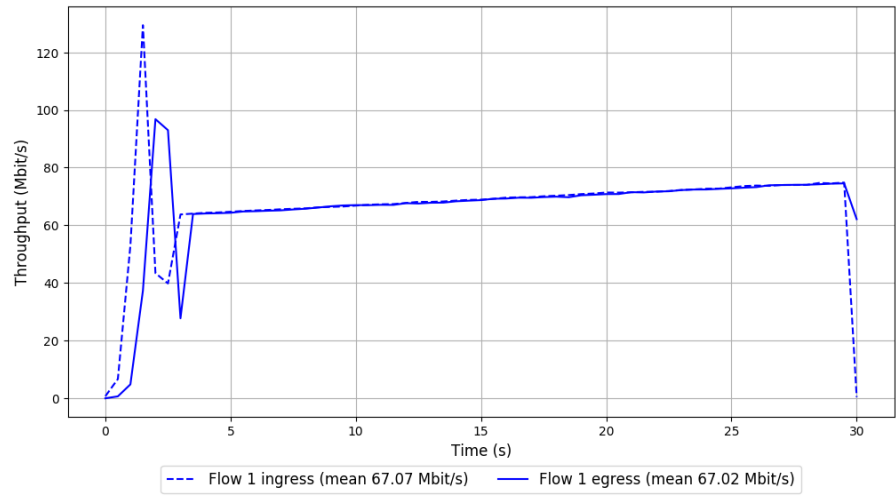
-- Flow 1:

Average throughput: 67.02 Mbit/s

95th percentile per-packet one-way delay: 85.788 ms

Loss rate: 0.64%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-09-07 19:36:04

End at: 2018-09-07 19:36:34

Local clock offset: -6.925 ms

Remote clock offset: 8.985 ms

Below is generated by plot.py at 2018-09-07 21:16:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 66.93 Mbit/s

95th percentile per-packet one-way delay: 177.221 ms

Loss rate: 1.89%

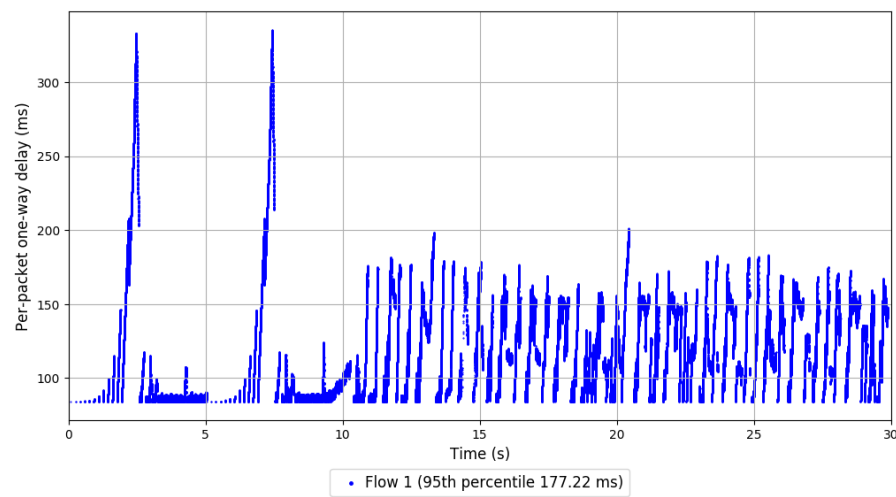
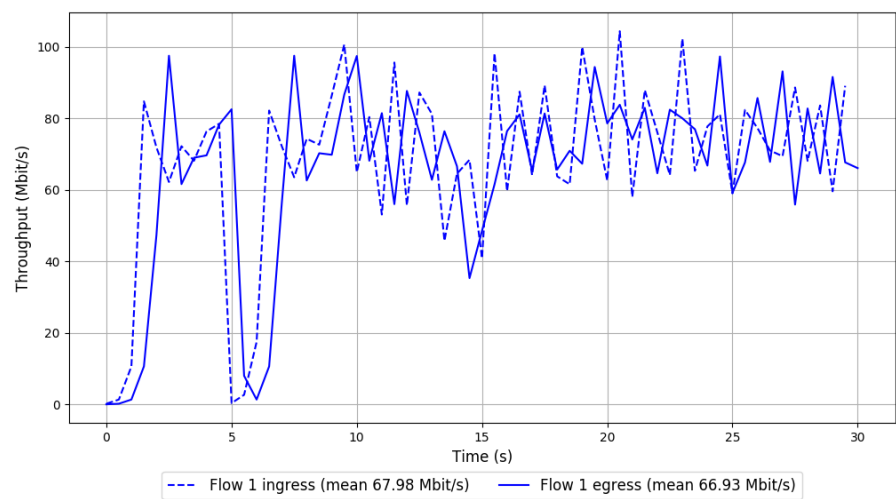
-- Flow 1:

Average throughput: 66.93 Mbit/s

95th percentile per-packet one-way delay: 177.221 ms

Loss rate: 1.89%

Run 1: Report of Verus — Data Link

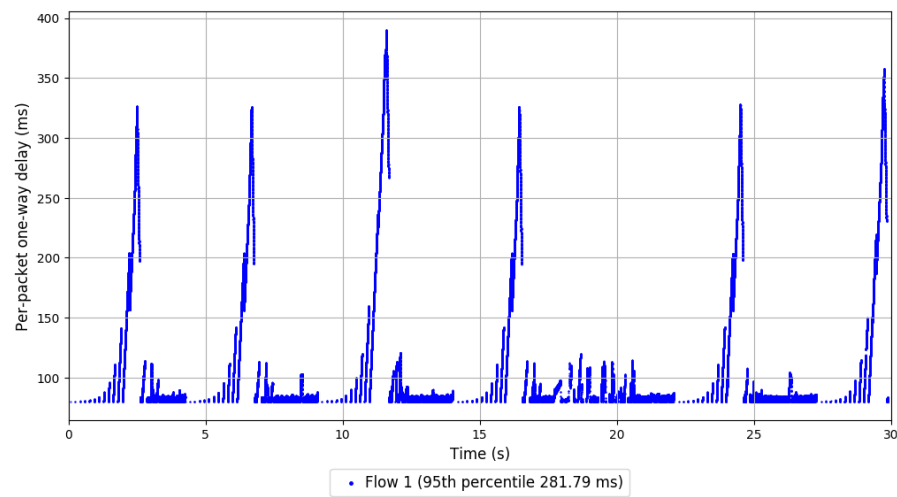
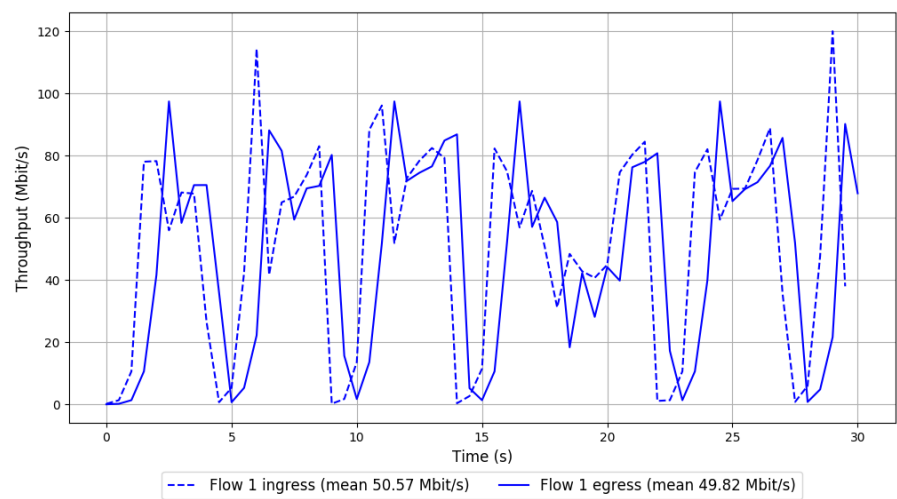


Run 2: Statistics of Verus

Start at: 2018-09-07 19:57:19
End at: 2018-09-07 19:57:49
Local clock offset: 0.885 ms
Remote clock offset: 14.107 ms

Below is generated by plot.py at 2018-09-07 21:16:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 49.82 Mbit/s
95th percentile per-packet one-way delay: 281.788 ms
Loss rate: 1.85%
-- Flow 1:
Average throughput: 49.82 Mbit/s
95th percentile per-packet one-way delay: 281.788 ms
Loss rate: 1.85%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-07 20:18:43

End at: 2018-09-07 20:19:13

Local clock offset: 3.201 ms

Remote clock offset: 8.953 ms

Below is generated by plot.py at 2018-09-07 21:16:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 56.07 Mbit/s

95th percentile per-packet one-way delay: 519.538 ms

Loss rate: 0.12%

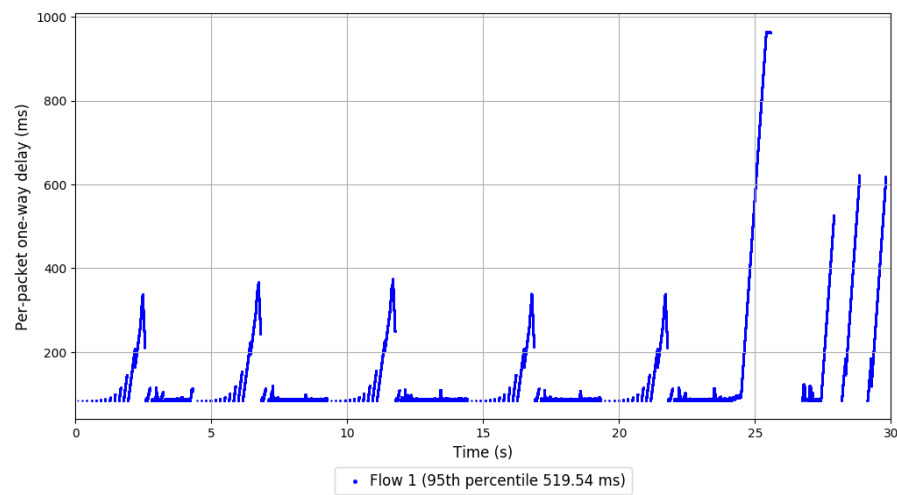
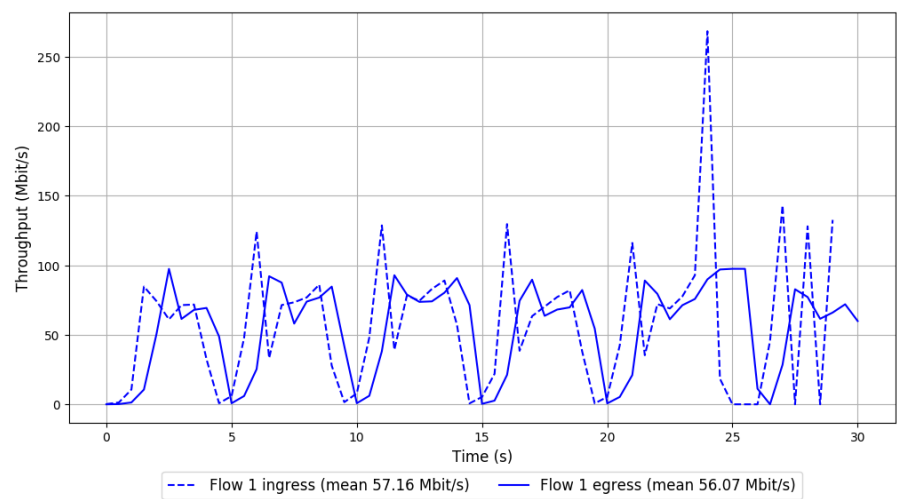
-- Flow 1:

Average throughput: 56.07 Mbit/s

95th percentile per-packet one-way delay: 519.538 ms

Loss rate: 0.12%

Run 3: Report of Verus — Data Link

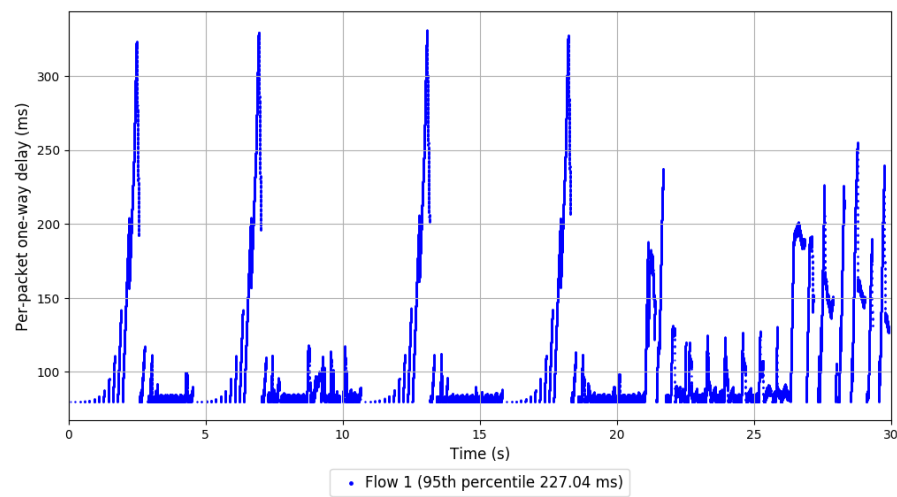
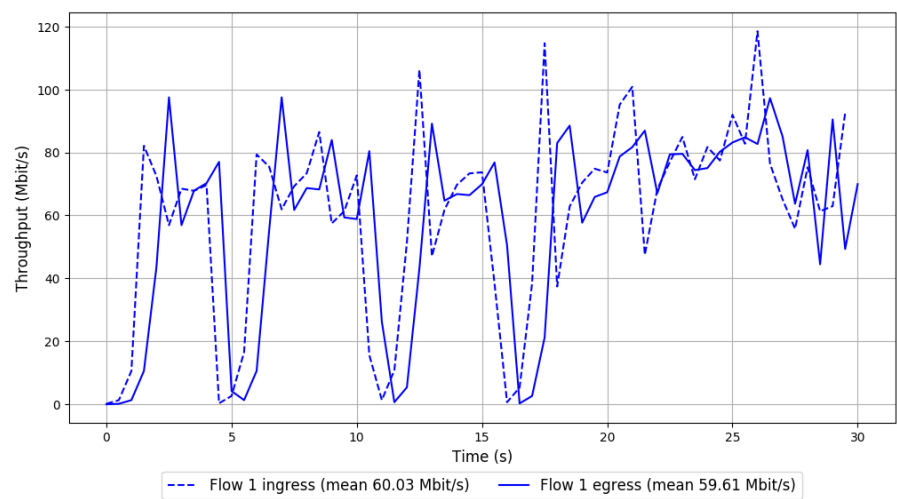


Run 4: Statistics of Verus

Start at: 2018-09-07 20:39:50
End at: 2018-09-07 20:40:20
Local clock offset: 3.374 ms
Remote clock offset: 13.542 ms

Below is generated by plot.py at 2018-09-07 21:16:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 227.045 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 227.045 ms
Loss rate: 1.25%

Run 4: Report of Verus — Data Link

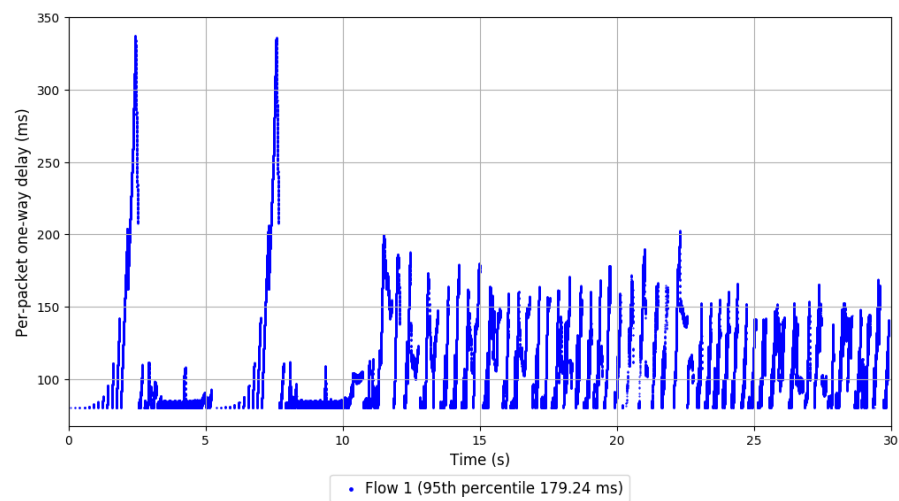
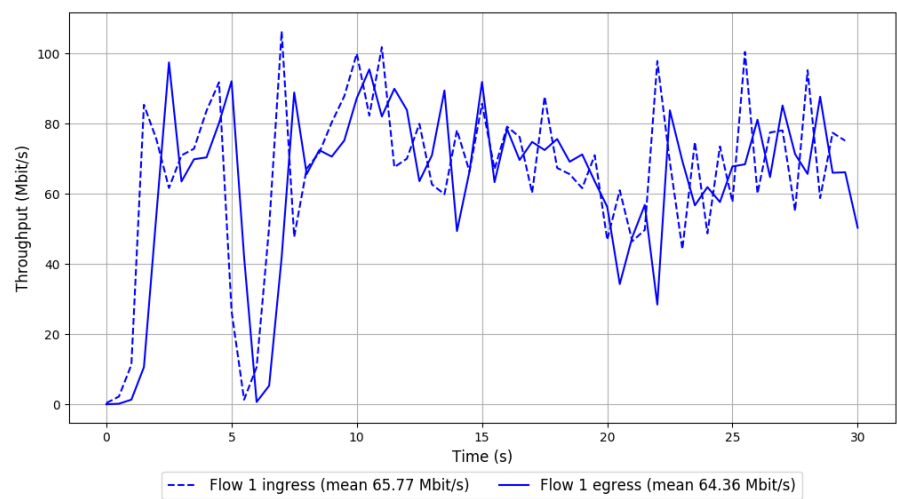


Run 5: Statistics of Verus

Start at: 2018-09-07 21:01:16
End at: 2018-09-07 21:01:47
Local clock offset: -4.256 ms
Remote clock offset: 11.454 ms

Below is generated by plot.py at 2018-09-07 21:16:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 64.36 Mbit/s
95th percentile per-packet one-way delay: 179.237 ms
Loss rate: 2.67%
-- Flow 1:
Average throughput: 64.36 Mbit/s
95th percentile per-packet one-way delay: 179.237 ms
Loss rate: 2.67%

Run 5: Report of Verus — Data Link

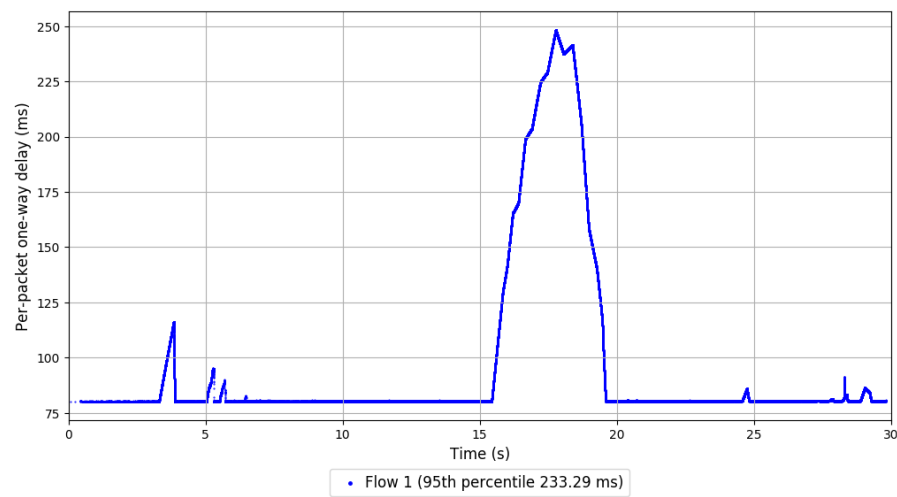
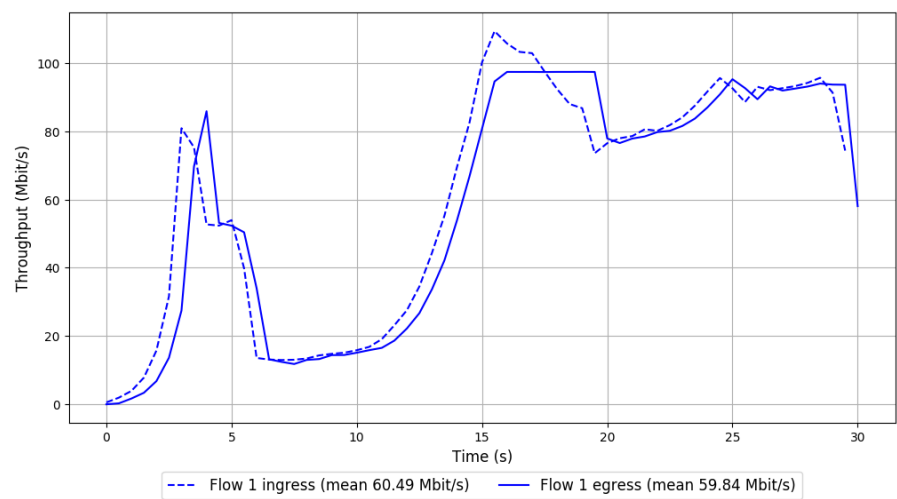


Run 1: Statistics of PCC-Vivace

Start at: 2018-09-07 19:32:31
End at: 2018-09-07 19:33:01
Local clock offset: -6.769 ms
Remote clock offset: 12.491 ms

Below is generated by plot.py at 2018-09-07 21:16:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 59.84 Mbit/s
95th percentile per-packet one-way delay: 233.295 ms
Loss rate: 1.62%
-- Flow 1:
Average throughput: 59.84 Mbit/s
95th percentile per-packet one-way delay: 233.295 ms
Loss rate: 1.62%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-07 19:53:45

End at: 2018-09-07 19:54:15

Local clock offset: -0.47 ms

Remote clock offset: 9.328 ms

Below is generated by plot.py at 2018-09-07 21:16:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 76.13 Mbit/s

95th percentile per-packet one-way delay: 119.661 ms

Loss rate: 0.82%

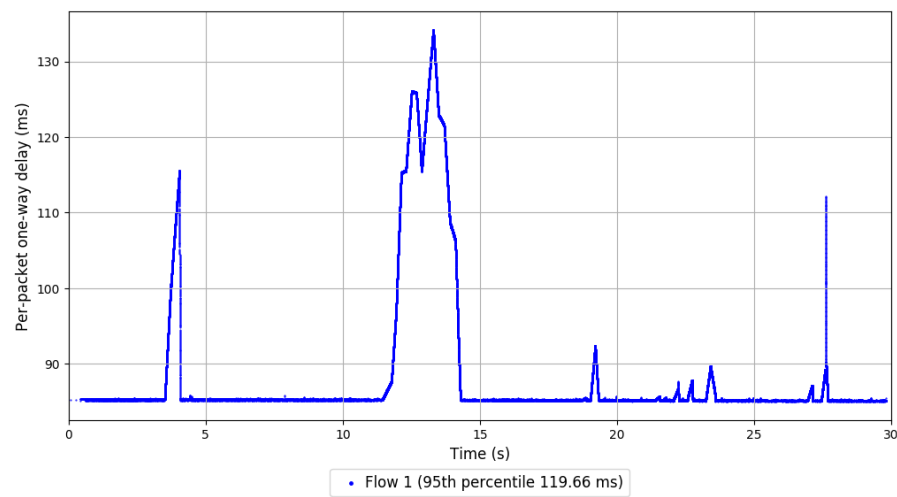
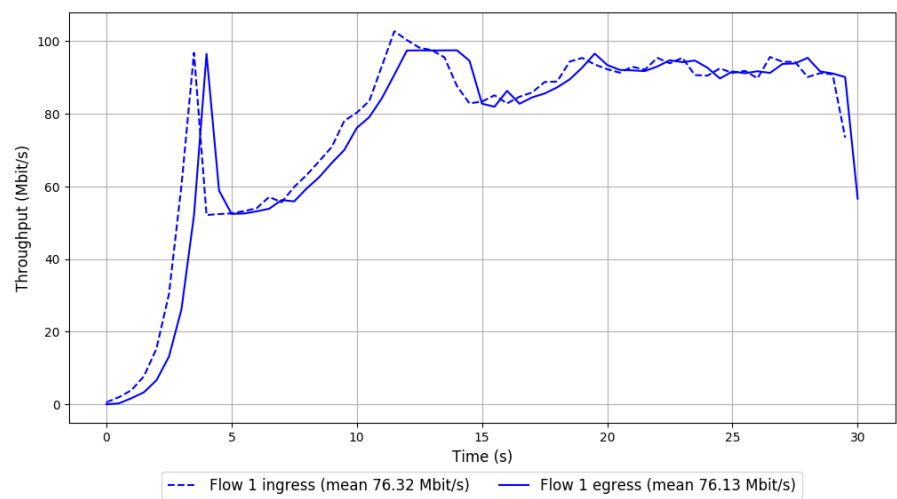
-- Flow 1:

Average throughput: 76.13 Mbit/s

95th percentile per-packet one-way delay: 119.661 ms

Loss rate: 0.82%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-07 20:15:09

End at: 2018-09-07 20:15:39

Local clock offset: 4.836 ms

Remote clock offset: 9.329 ms

Below is generated by plot.py at 2018-09-07 21:16:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 73.18 Mbit/s

95th percentile per-packet one-way delay: 119.553 ms

Loss rate: 1.61%

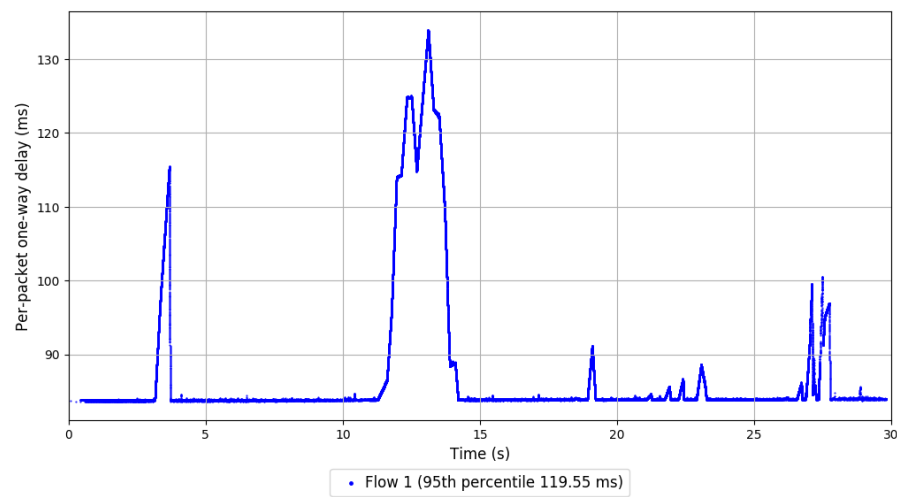
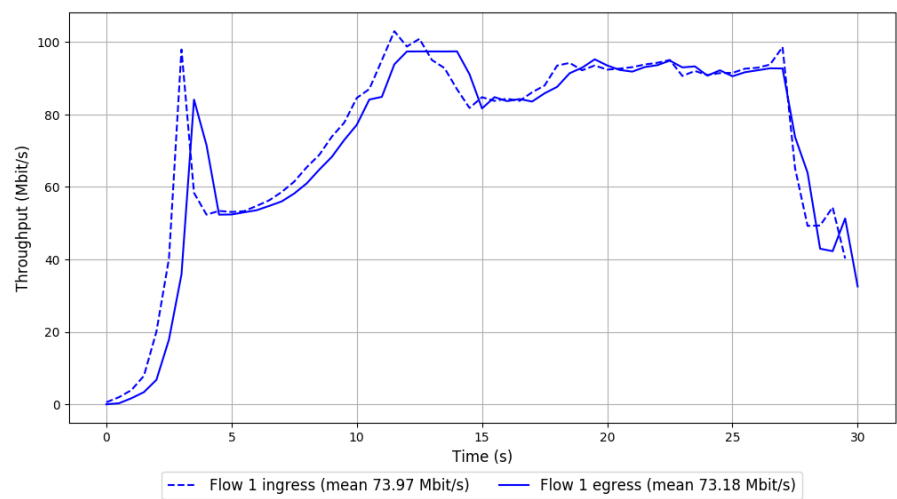
-- Flow 1:

Average throughput: 73.18 Mbit/s

95th percentile per-packet one-way delay: 119.553 ms

Loss rate: 1.61%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-07 20:36:22

End at: 2018-09-07 20:36:52

Local clock offset: 2.398 ms

Remote clock offset: 14.282 ms

Below is generated by plot.py at 2018-09-07 21:16:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.76 Mbit/s

95th percentile per-packet one-way delay: 79.363 ms

Loss rate: 0.81%

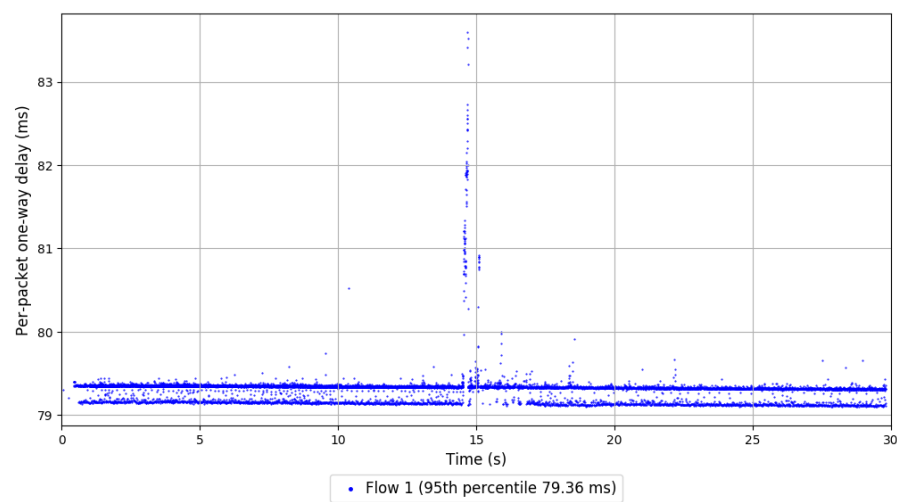
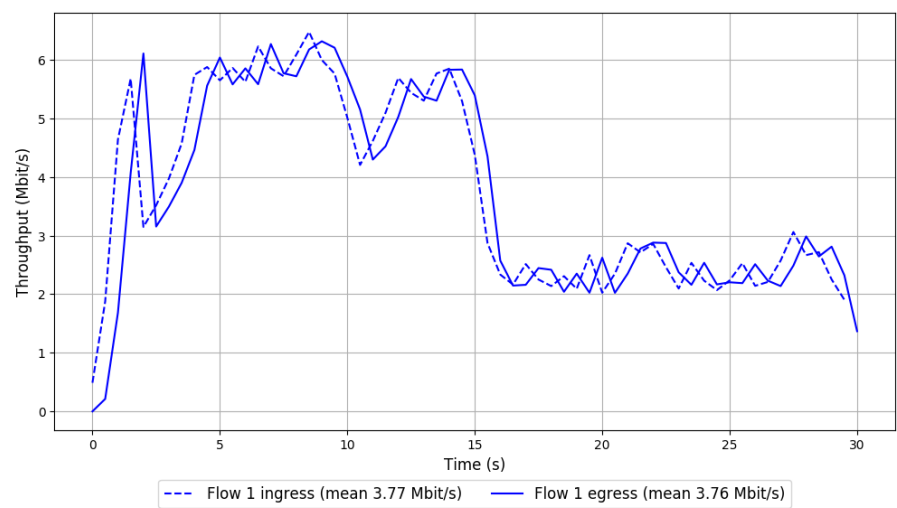
-- Flow 1:

Average throughput: 3.76 Mbit/s

95th percentile per-packet one-way delay: 79.363 ms

Loss rate: 0.81%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-07 20:57:43

End at: 2018-09-07 20:58:13

Local clock offset: -3.513 ms

Remote clock offset: 8.34 ms

Below is generated by plot.py at 2018-09-07 21:16:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 76.39 Mbit/s

95th percentile per-packet one-way delay: 119.165 ms

Loss rate: 0.88%

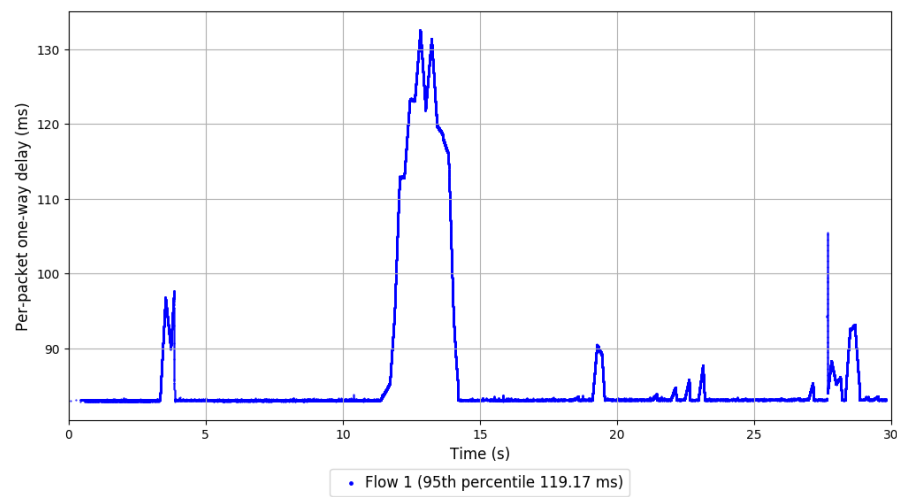
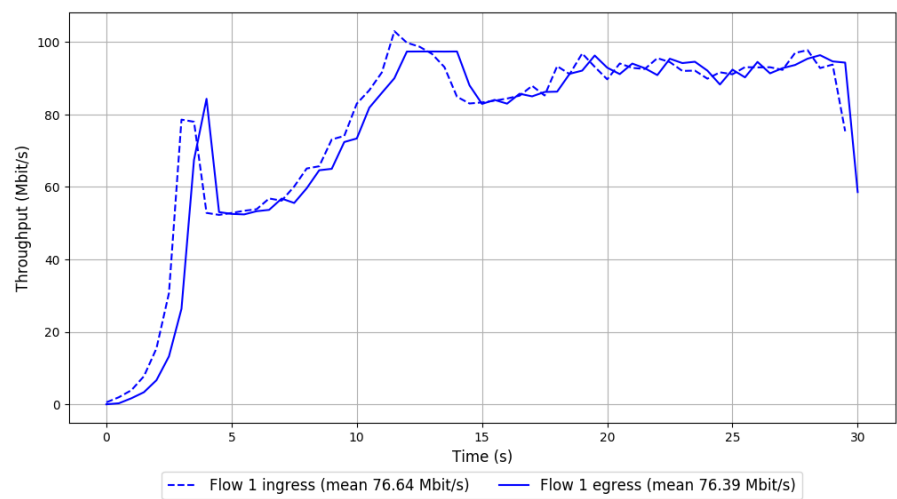
-- Flow 1:

Average throughput: 76.39 Mbit/s

95th percentile per-packet one-way delay: 119.165 ms

Loss rate: 0.88%

Run 5: Report of PCC-Vivace — Data Link

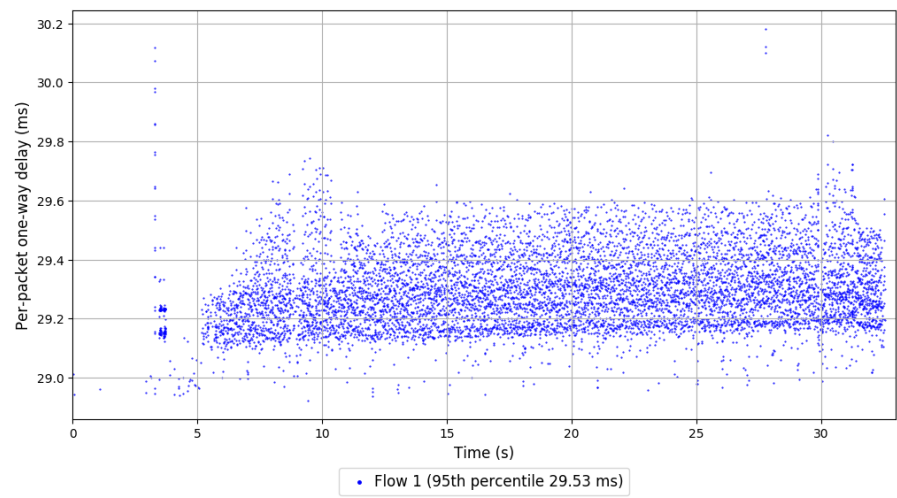
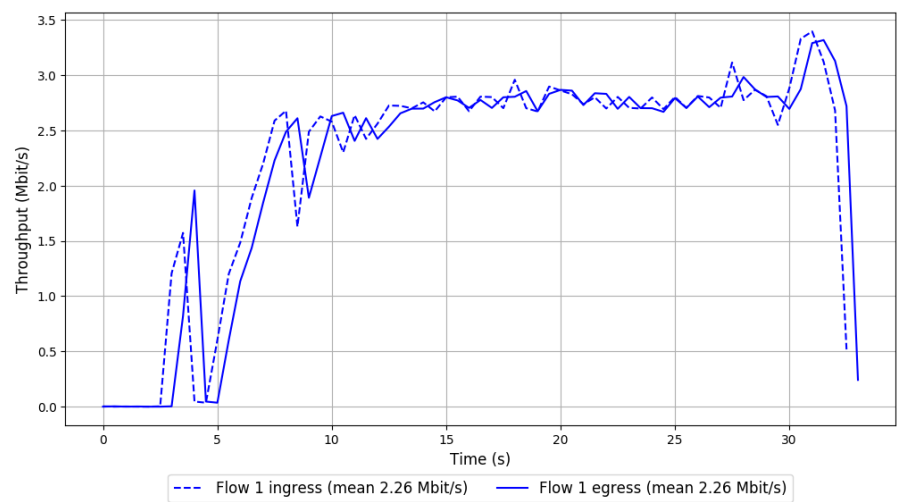


```
Run 1: Statistics of WebRTC media

Start at: 2018-09-07 19:29:00
End at: 2018-09-07 19:29:30
Local clock offset: -62.018 ms
Remote clock offset: 8.453 ms

# Below is generated by plot.py at 2018-09-07 21:16:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 29.532 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 29.532 ms
Loss rate: 0.30%
```

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-07 19:50:14

End at: 2018-09-07 19:50:44

Local clock offset: -3.2 ms

Remote clock offset: 9.672 ms

Below is generated by plot.py at 2018-09-07 21:16:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 84.084 ms

Loss rate: 1.30%

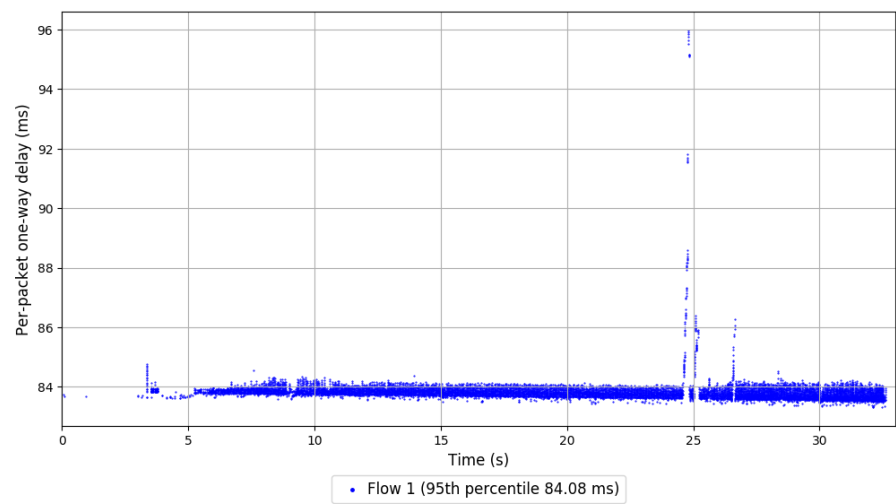
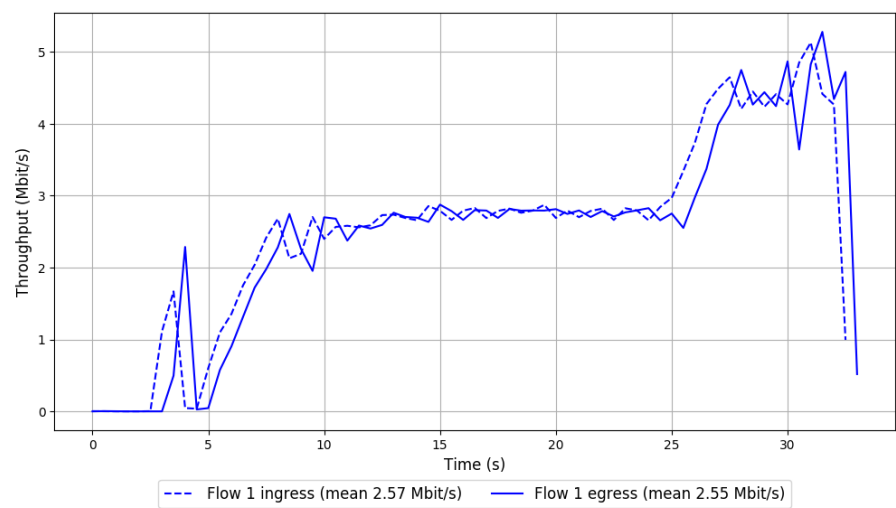
-- Flow 1:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 84.084 ms

Loss rate: 1.30%

Run 2: Report of WebRTC media — Data Link

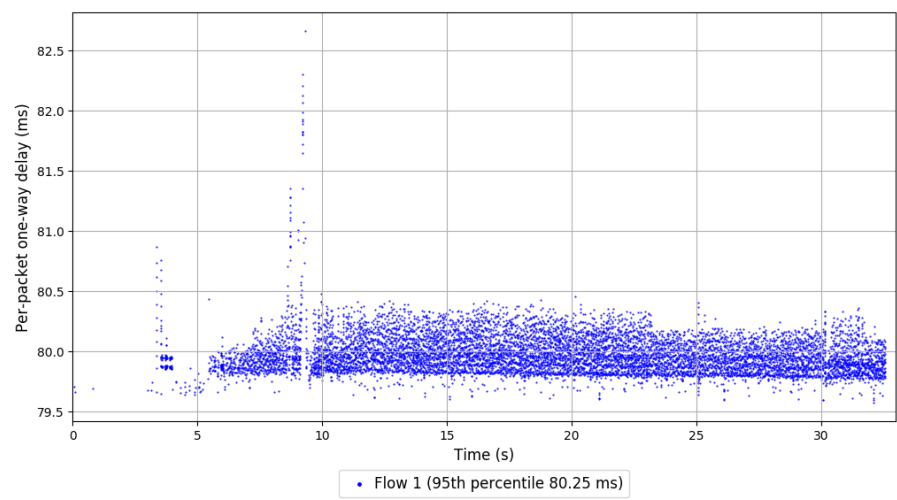
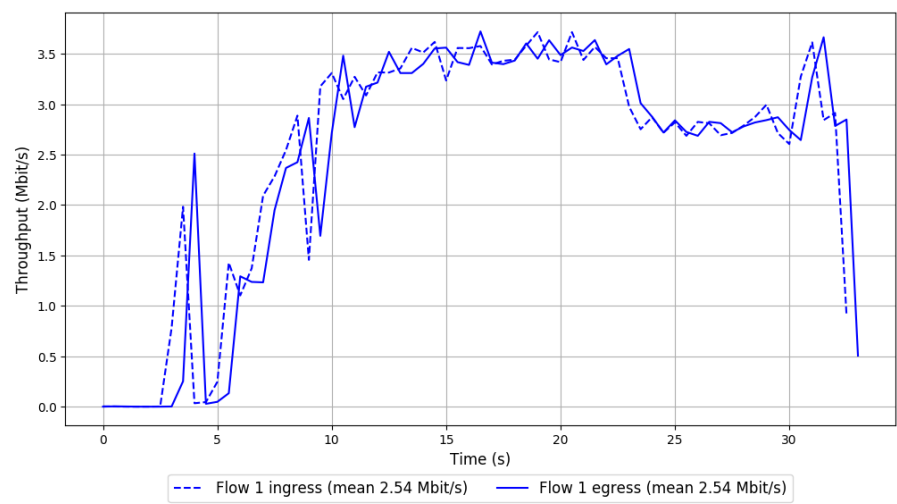


Run 3: Statistics of WebRTC media

Start at: 2018-09-07 20:11:38
End at: 2018-09-07 20:12:08
Local clock offset: 3.693 ms
Remote clock offset: 12.965 ms

Below is generated by plot.py at 2018-09-07 21:16:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 80.245 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 80.245 ms
Loss rate: 0.65%

Run 3: Report of WebRTC media — Data Link

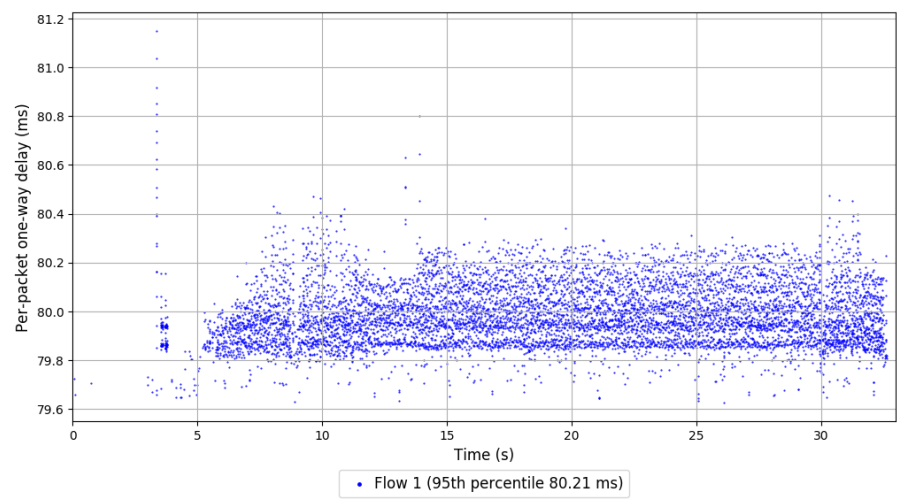
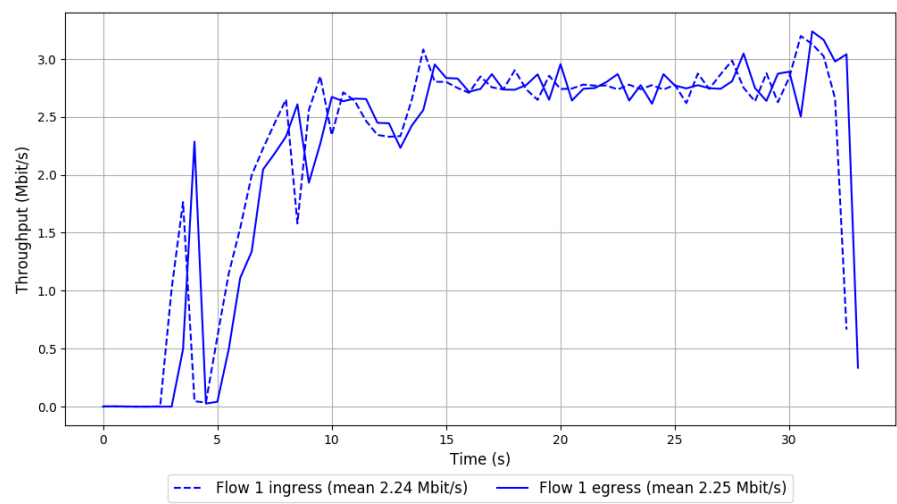


Run 4: Statistics of WebRTC media

Start at: 2018-09-07 20:32:51
End at: 2018-09-07 20:33:21
Local clock offset: 2.38 ms
Remote clock offset: 13.749 ms

Below is generated by plot.py at 2018-09-07 21:16:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 80.210 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 80.210 ms
Loss rate: 0.30%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-07 20:54:13

End at: 2018-09-07 20:54:43

Local clock offset: -2.567 ms

Remote clock offset: 8.383 ms

Below is generated by plot.py at 2018-09-07 21:16:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.39 Mbit/s

95th percentile per-packet one-way delay: 83.858 ms

Loss rate: 1.19%

-- Flow 1:

Average throughput: 2.39 Mbit/s

95th percentile per-packet one-way delay: 83.858 ms

Loss rate: 1.19%

Run 5: Report of WebRTC media — Data Link

