

Pantheon Report

Generated at 2018-01-18 11:19:43 (UTC).

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

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

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

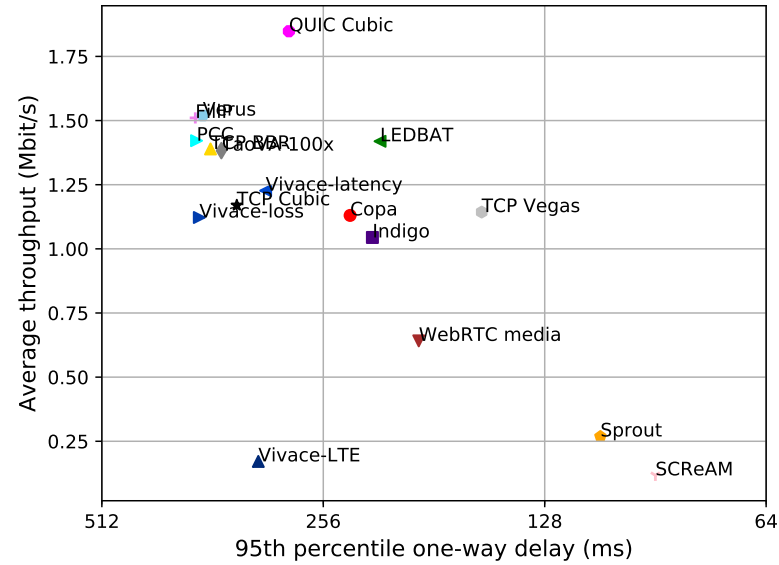
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

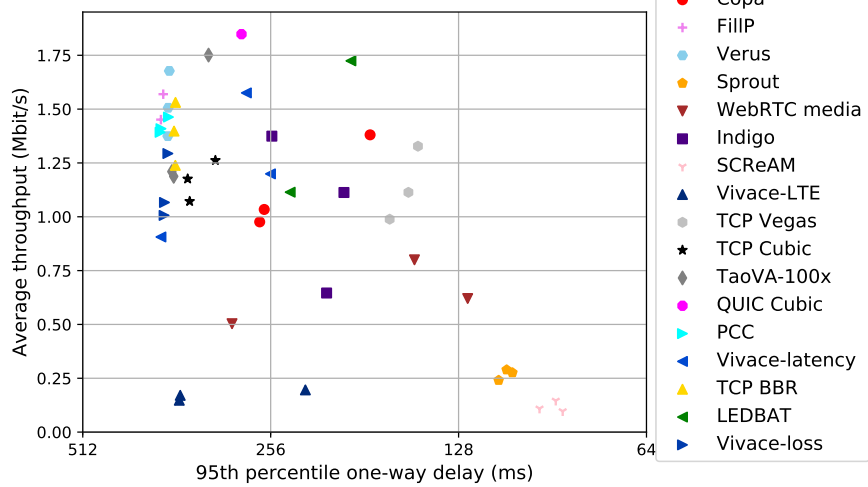
Git summary:

```
branch: master @ 54510ce29f849c716ac5c8199ca1604b6abdfbc3
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ ec9585325218d5048c4d4152fa42240af54c6e67
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
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/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaaeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  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 @ 423cbca3e8ea1d599e7b5cf725835e8a2b6bfac6
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from India ppp0 to AWS India 1 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from India ppp0 to AWS India 1 Ethernet, 3 runs of 30s each per



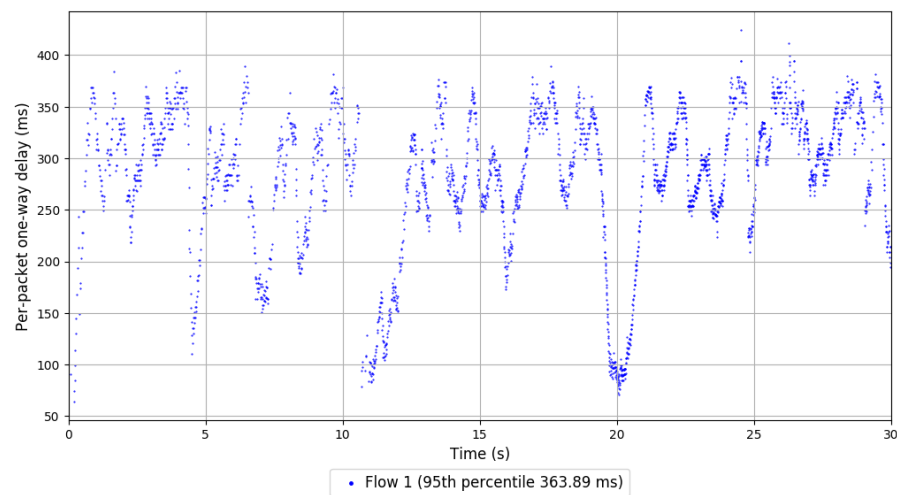
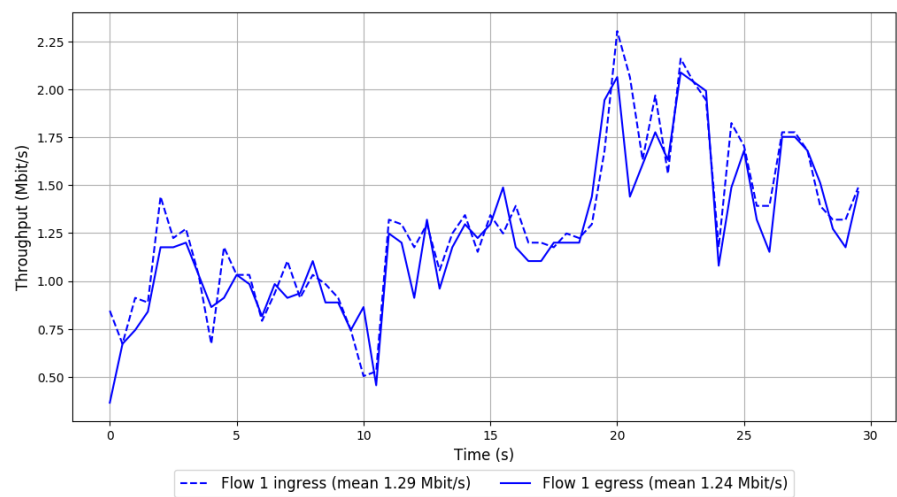
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	1.39	364.39	6.23
TCP Cubic	3	1.17	335.59	1.64
LEDBAT	2	1.42	214.34	0.67
PCC	3	1.42	380.61	46.81
QUIC Cubic	1	1.85	285.08	2.29
SCReAM	3	0.12	90.52	1.43
WebRTC media	3	0.64	189.87	1.68
Sprout	3	0.27	107.52	0.55
TaoVA-100x	3	1.38	352.22	5.92
TCP Vegas	3	1.14	155.92	0.85
Verus	3	1.52	373.26	16.97
Copa	3	1.13	235.38	1.24
FillP	2	1.51	382.14	95.45
Indigo	3	1.04	219.51	3.28
Vivace-latency	3	1.23	306.67	12.99
Vivace-loss	3	1.12	377.35	22.05
Vivace-LTE	3	0.17	313.74	13.18

Run 1: Statistics of TCP BBR

Start at: 2018-01-18 08:52:28
End at: 2018-01-18 08:52:58
Local clock offset: -1.077 ms
Remote clock offset: -19.283 ms

Below is generated by plot.py at 2018-01-18 11:19:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 363.888 ms
Loss rate: 4.40%
-- Flow 1:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 363.888 ms
Loss rate: 4.40%

Run 1: Report of TCP BBR — Data Link

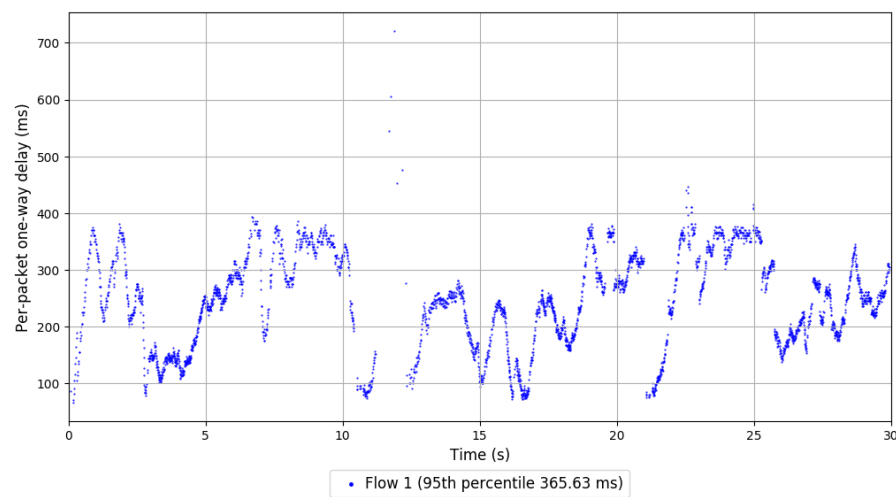
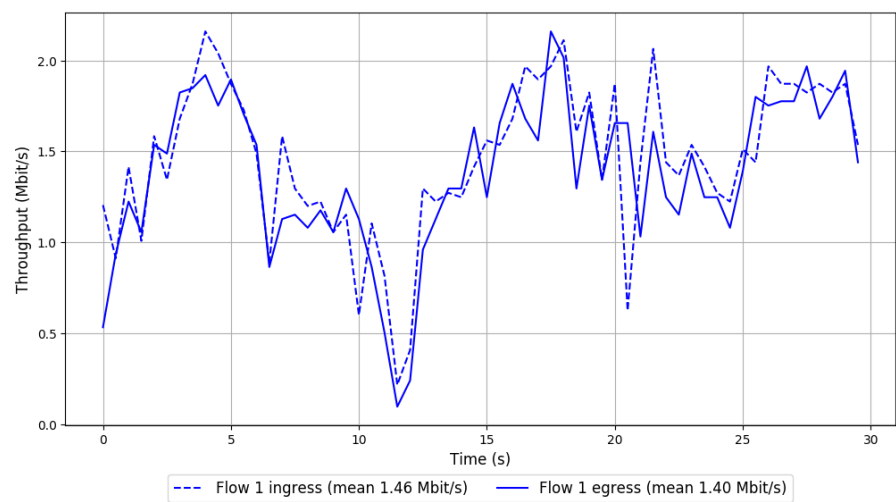


Run 2: Statistics of TCP BBR

Start at: 2018-01-18 09:12:38
End at: 2018-01-18 09:13:08
Local clock offset: -21.005 ms
Remote clock offset: -18.637 ms

Below is generated by plot.py at 2018-01-18 11:19:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 365.631 ms
Loss rate: 4.76%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 365.631 ms
Loss rate: 4.76%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-01-18 09:34:45

End at: 2018-01-18 09:35:15

Local clock offset: -10.511 ms

Below is generated by plot.py at 2018-01-18 11:19:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 363.661 ms

Loss rate: 9.52%

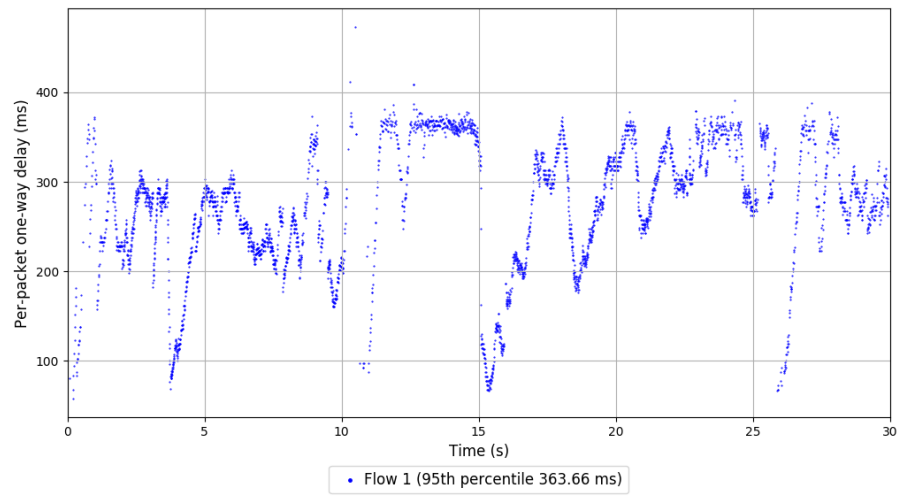
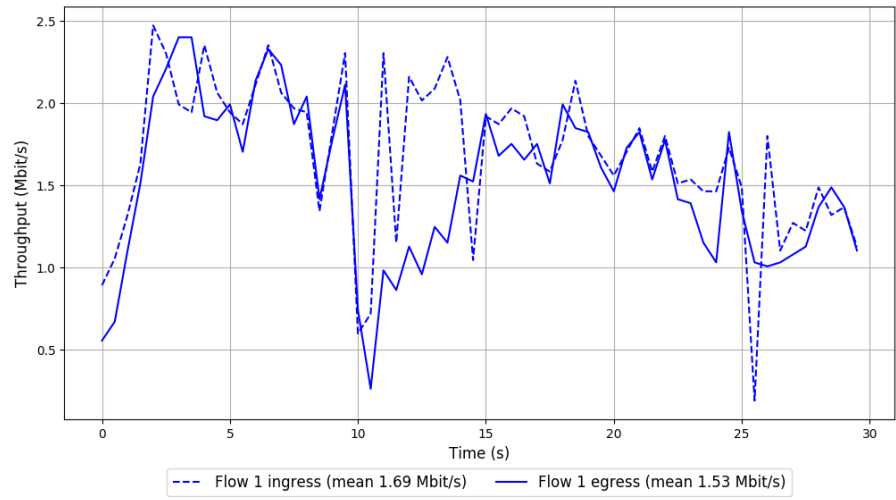
-- Flow 1:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 363.661 ms

Loss rate: 9.52%

Run 3: Report of TCP BBR — Data Link

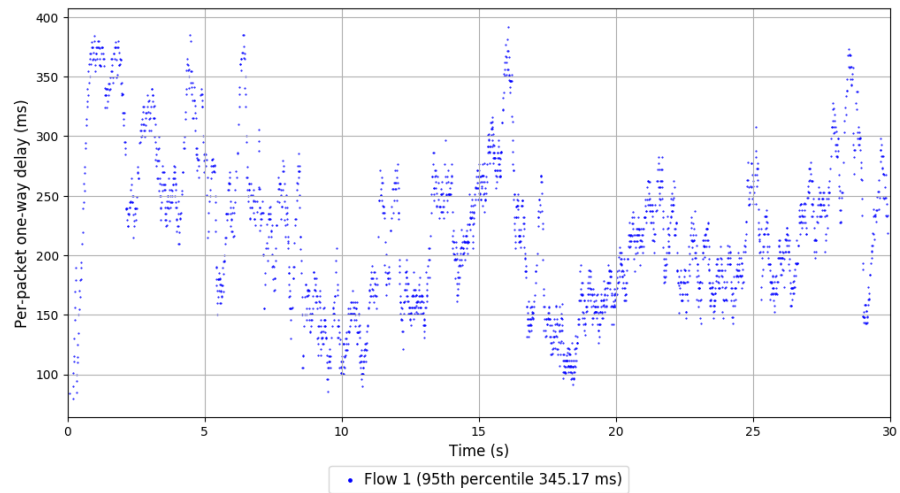
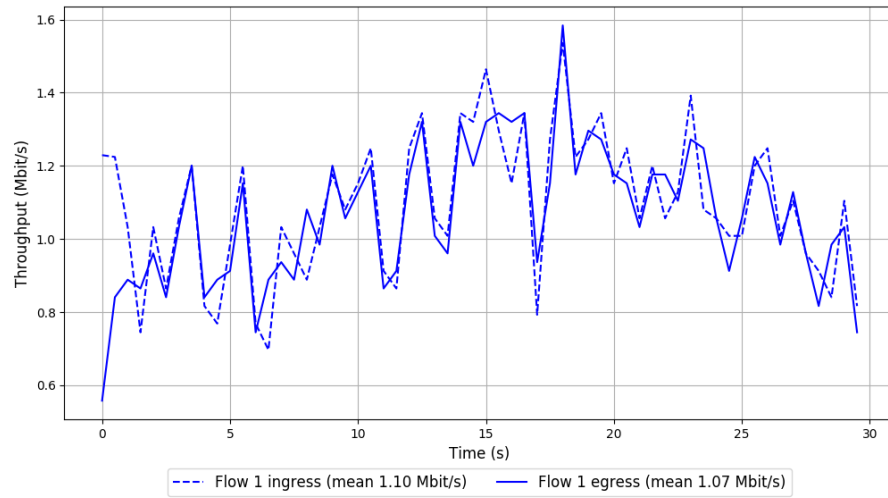


Run 1: Statistics of TCP Cubic

Start at: 2018-01-18 08:41:27
End at: 2018-01-18 08:41:57
Local clock offset: 71.443 ms
Remote clock offset: -18.715 ms

Below is generated by plot.py at 2018-01-18 11:19:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 345.167 ms
Loss rate: 2.42%
-- Flow 1:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 345.167 ms
Loss rate: 2.42%

Run 1: Report of TCP Cubic — Data Link

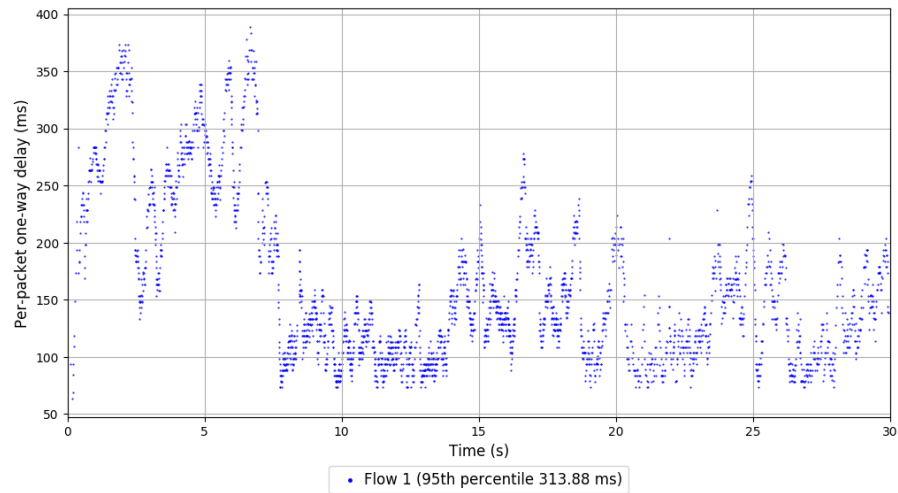
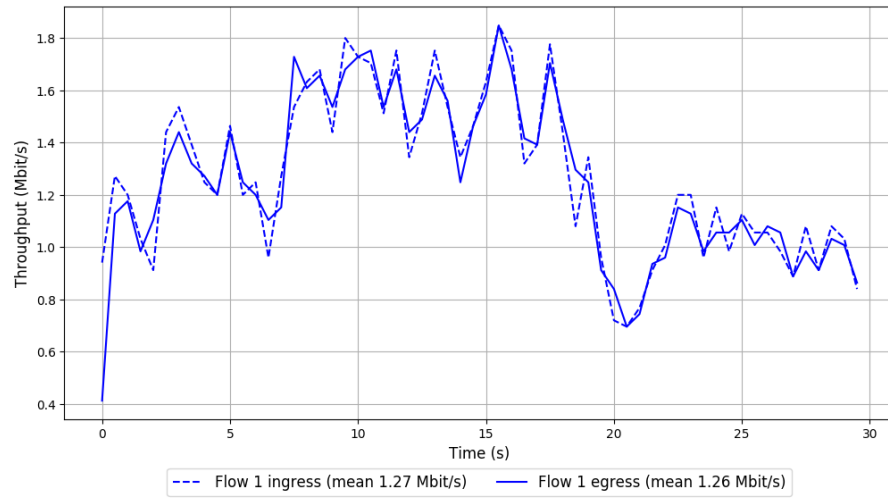


Run 2: Statistics of TCP Cubic

Start at: 2018-01-18 09:01:24
End at: 2018-01-18 09:01:54
Local clock offset: -7.808 ms
Remote clock offset: -18.347 ms

Below is generated by plot.py at 2018-01-18 11:19:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 313.883 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 313.883 ms
Loss rate: 1.23%

Run 2: Report of TCP Cubic — Data Link

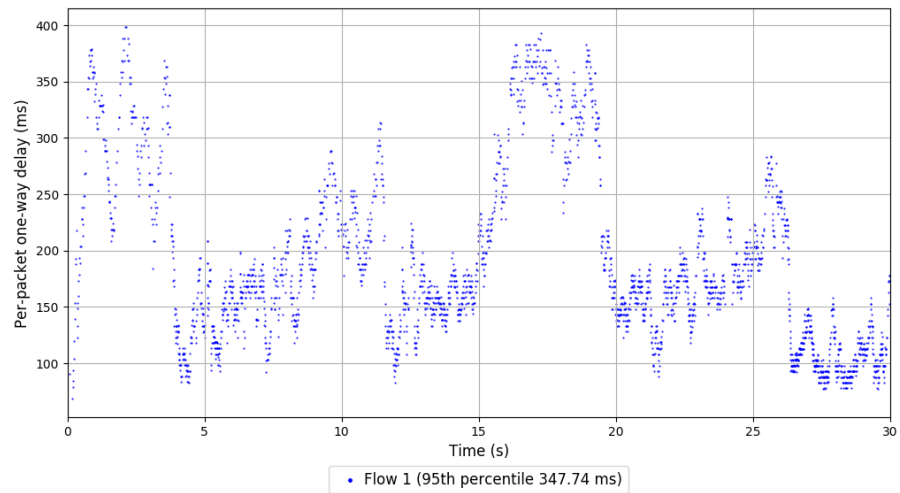
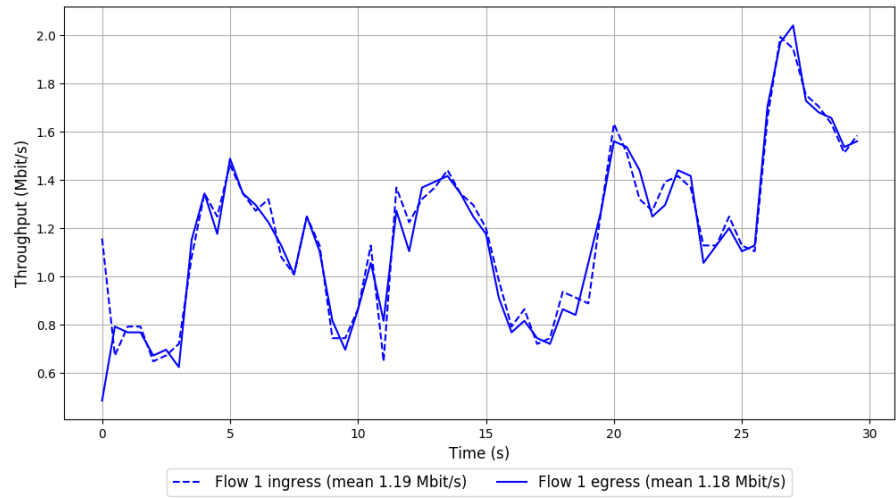


Run 3: Statistics of TCP Cubic

Start at: 2018-01-18 09:21:31
End at: 2018-01-18 09:22:01
Local clock offset: -12.883 ms
Remote clock offset: -19.771 ms

Below is generated by plot.py at 2018-01-18 11:19:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 347.735 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 347.735 ms
Loss rate: 1.28%

Run 3: Report of TCP Cubic — Data Link

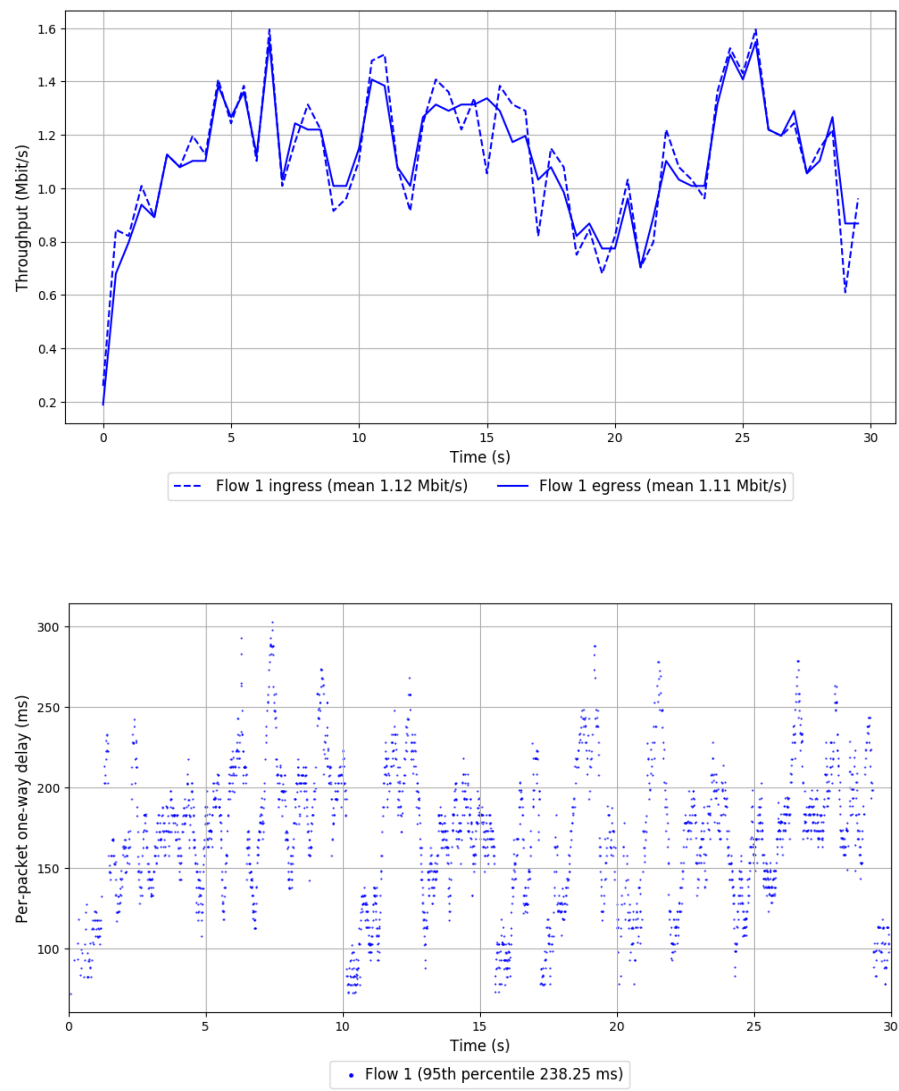


```
Run 1: Statistics of LEDBAT

Start at: 2018-01-18 08:55:46
End at: 2018-01-18 08:56:16
Local clock offset: -4.629 ms
Remote clock offset: -18.255 ms

# Below is generated by plot.py at 2018-01-18 11:19:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 238.249 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 238.249 ms
Loss rate: 0.56%
```


Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

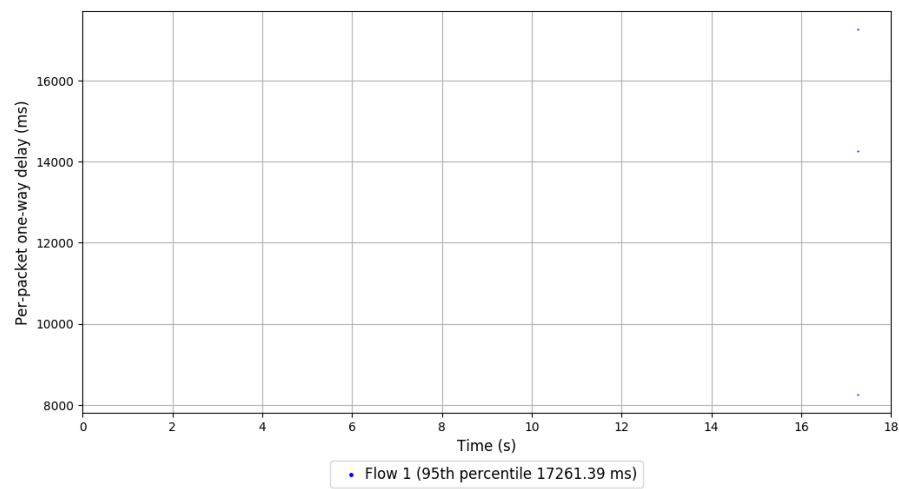
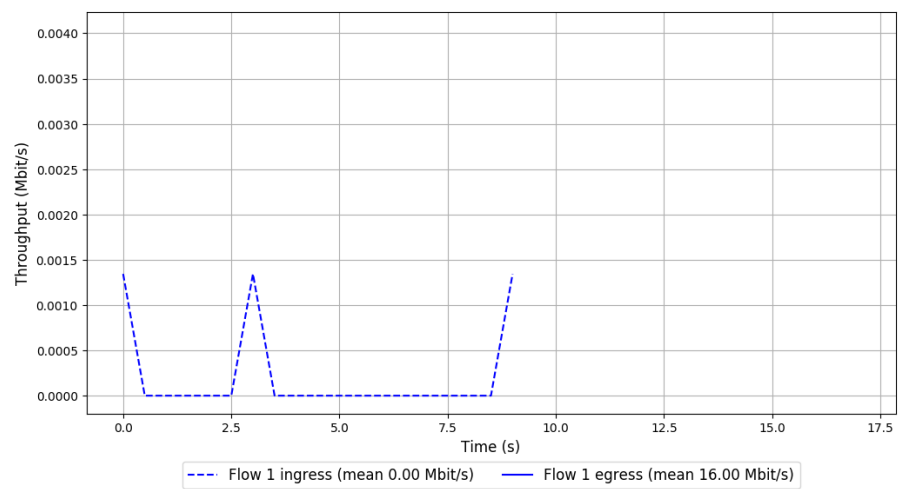
Start at: 2018-01-18 09:16:02

End at: 2018-01-18 09:16:32

Local clock offset: -21.46 ms

Remote clock offset: -17.644 ms

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-01-18 09:40:17

End at: 2018-01-18 09:40:47

Local clock offset: -13.229 ms

Below is generated by plot.py at 2018-01-18 11:19:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.72 Mbit/s

95th percentile per-packet one-way delay: 190.428 ms

Loss rate: 0.77%

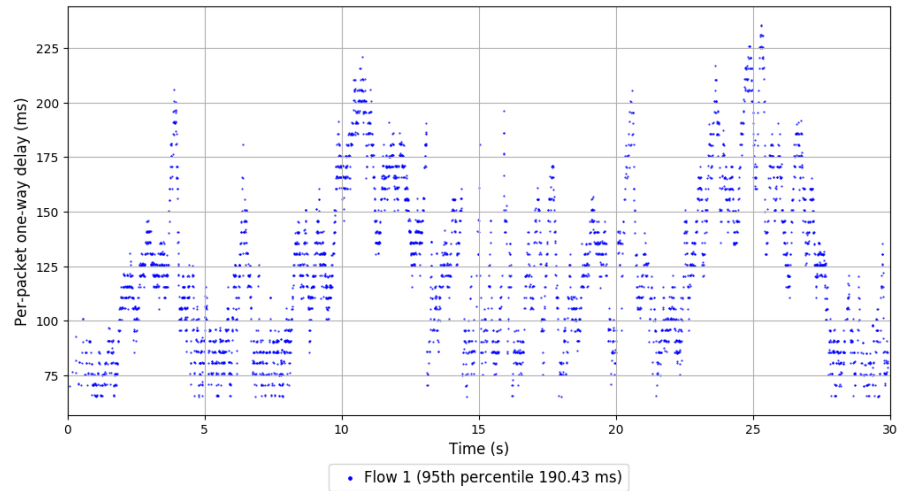
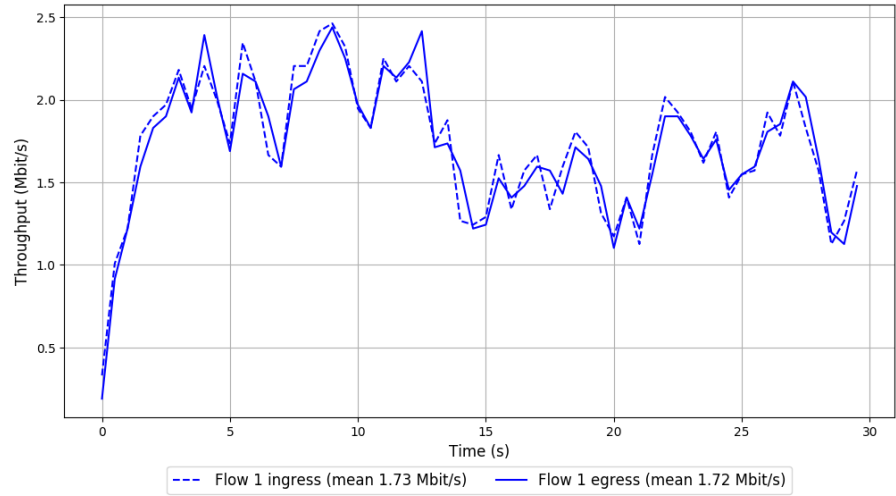
-- Flow 1:

Average throughput: 1.72 Mbit/s

95th percentile per-packet one-way delay: 190.428 ms

Loss rate: 0.77%

Run 3: Report of LEDBAT — Data Link

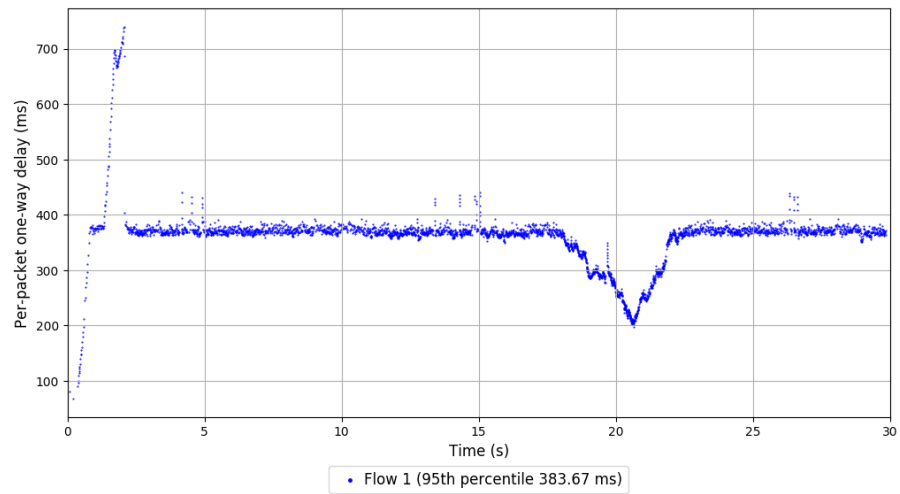
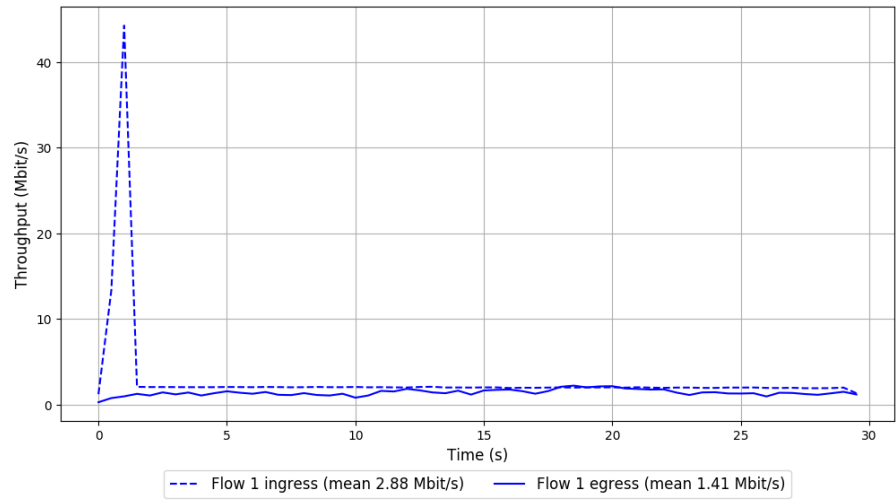


Run 1: Statistics of PCC

Start at: 2018-01-18 08:51:22
End at: 2018-01-18 08:51:52
Local clock offset: 4.599 ms
Remote clock offset: -19.474 ms

Below is generated by plot.py at 2018-01-18 11:19:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 383.665 ms
Loss rate: 51.24%
-- Flow 1:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 383.665 ms
Loss rate: 51.24%

Run 1: Report of PCC — Data Link

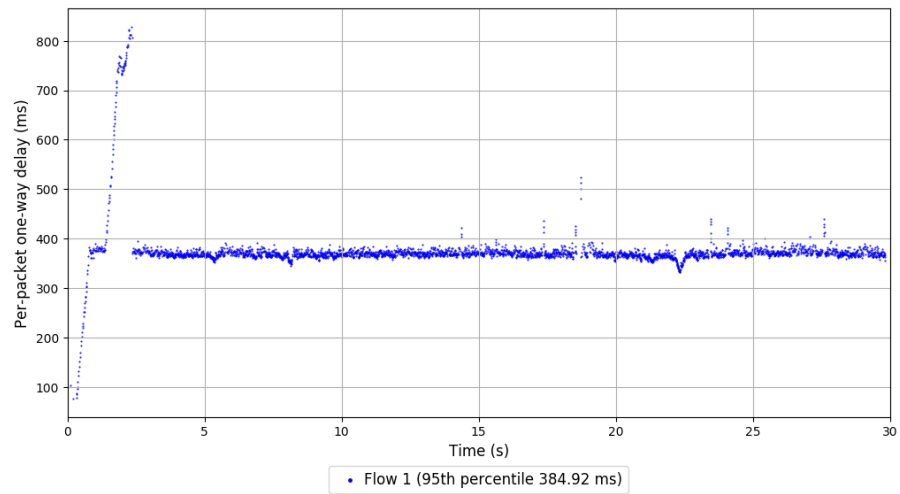
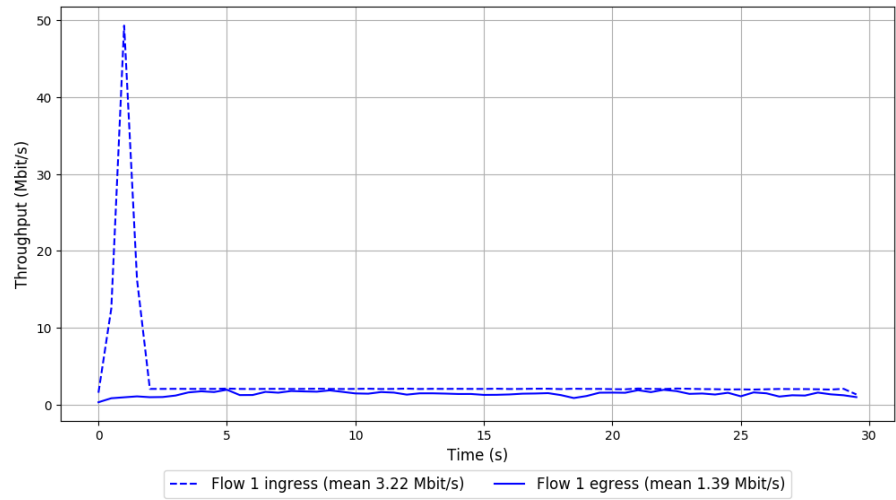


Run 2: Statistics of PCC

Start at: 2018-01-18 09:11:29
End at: 2018-01-18 09:11:59
Local clock offset: -18.627 ms
Remote clock offset: -18.169 ms

Below is generated by plot.py at 2018-01-18 11:19:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 384.923 ms
Loss rate: 56.93%
-- Flow 1:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 384.923 ms
Loss rate: 56.93%

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2018-01-18 09:32:54

End at: 2018-01-18 09:33:24

Local clock offset: -10.505 ms

Below is generated by plot.py at 2018-01-18 11:19:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.46 Mbit/s

95th percentile per-packet one-way delay: 373.246 ms

Loss rate: 32.25%

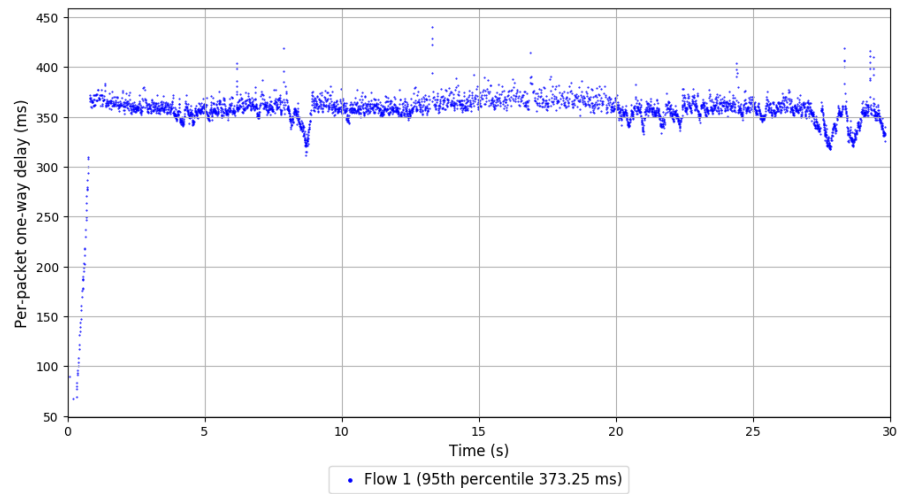
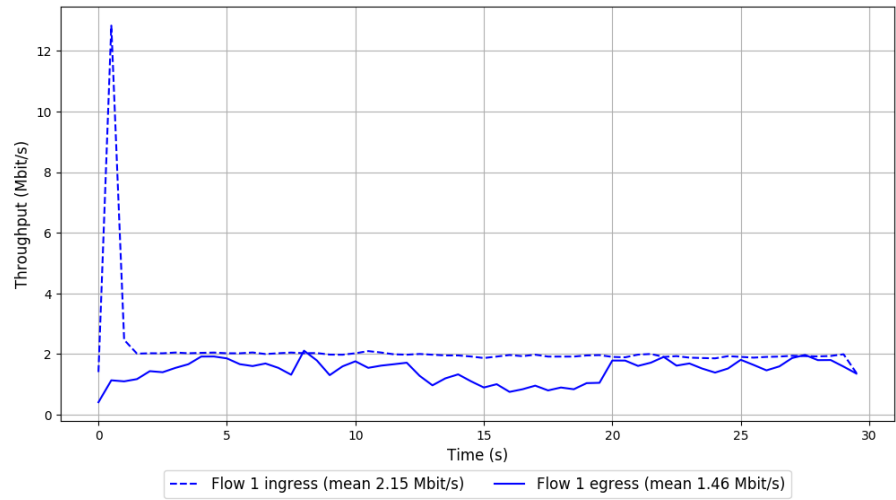
-- Flow 1:

Average throughput: 1.46 Mbit/s

95th percentile per-packet one-way delay: 373.246 ms

Loss rate: 32.25%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

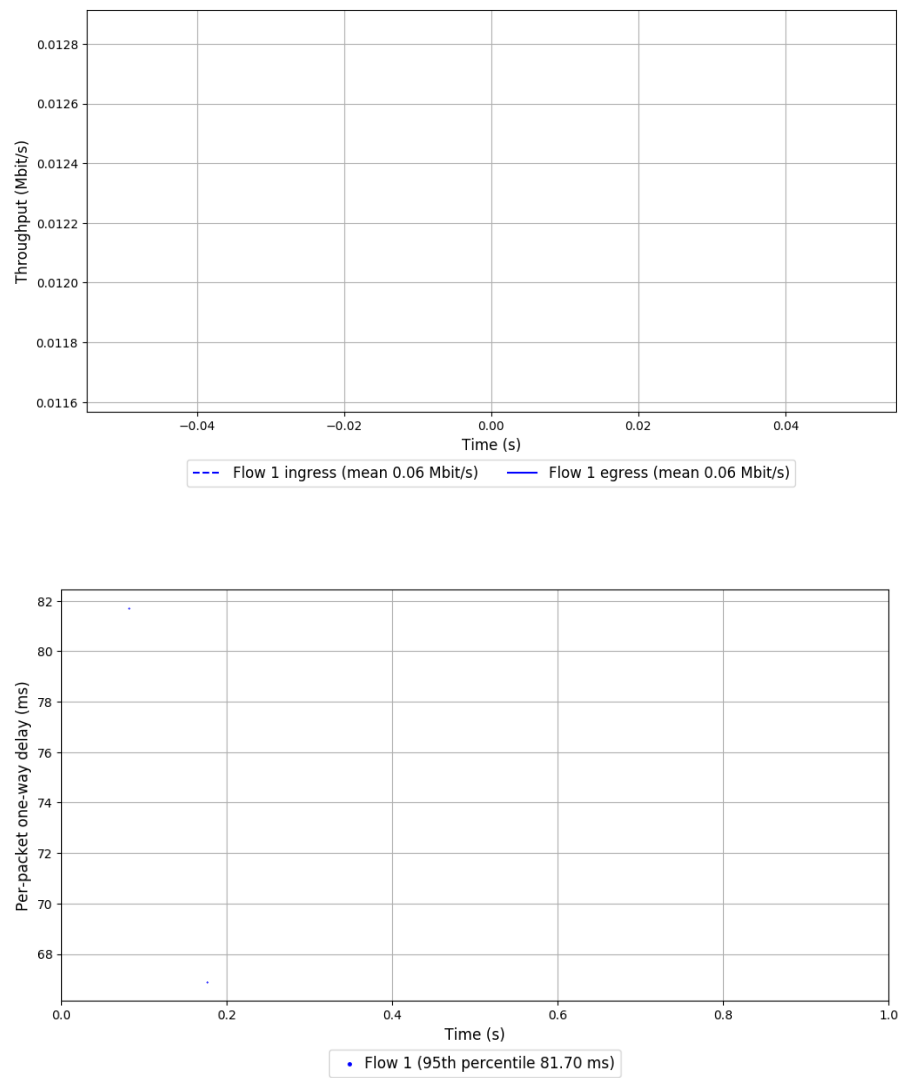
Start at: 2018-01-18 08:59:05

End at: 2018-01-18 08:59:35

Local clock offset: -8.65 ms

Remote clock offset: -18.075 ms

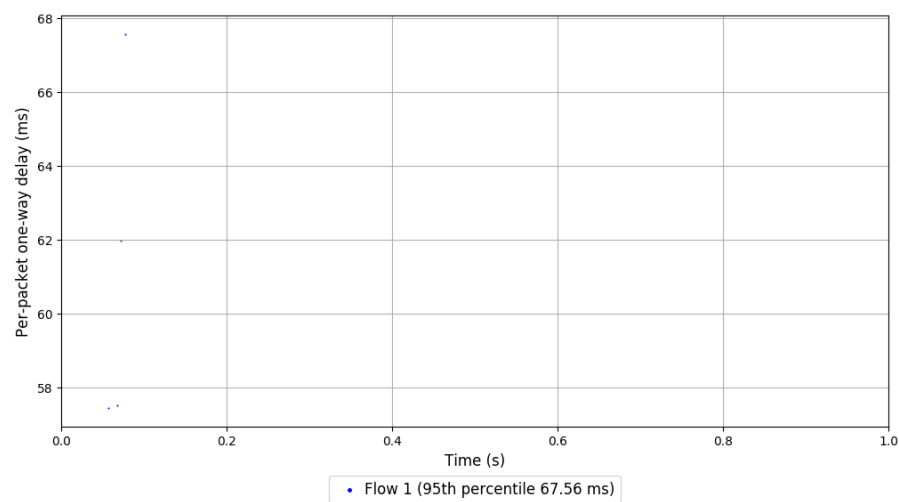
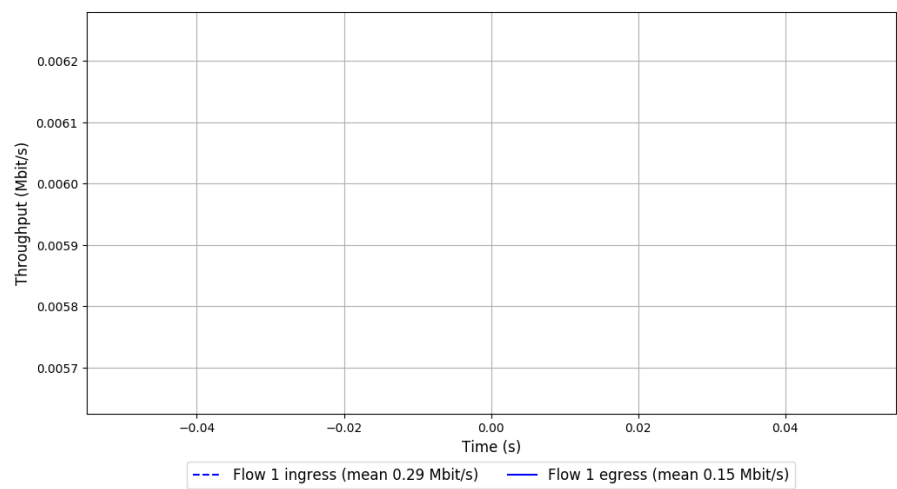
Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-01-18 09:19:20
End at: 2018-01-18 09:19:50
Local clock offset: -21.571 ms
Remote clock offset: -17.641 ms

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-01-18 09:46:00

End at: 2018-01-18 09:46:30

Local clock offset: -14.284 ms

Below is generated by plot.py at 2018-01-18 11:19:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 285.084 ms

Loss rate: 2.29%

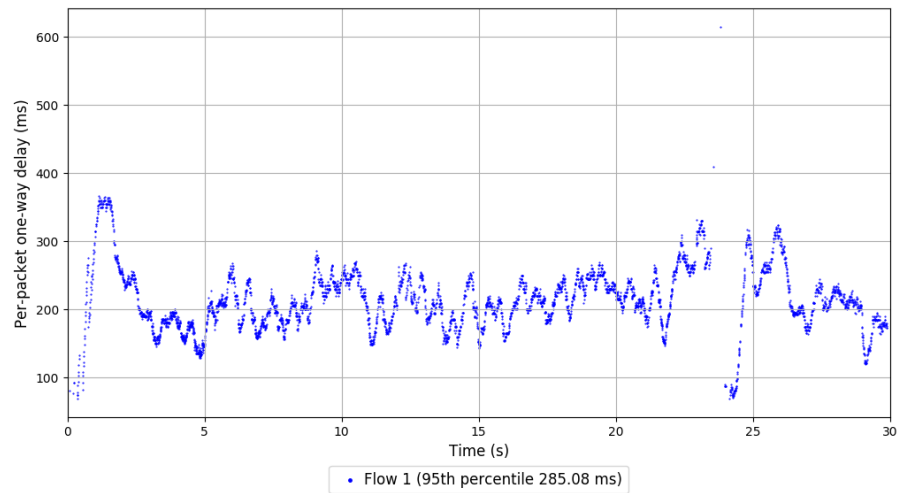
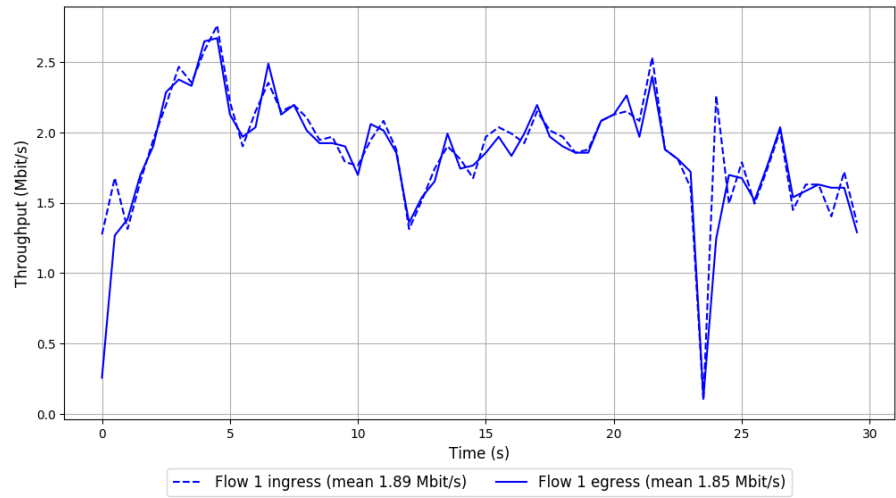
-- Flow 1:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 285.084 ms

Loss rate: 2.29%

Run 3: Report of QUIC Cubic — Data Link

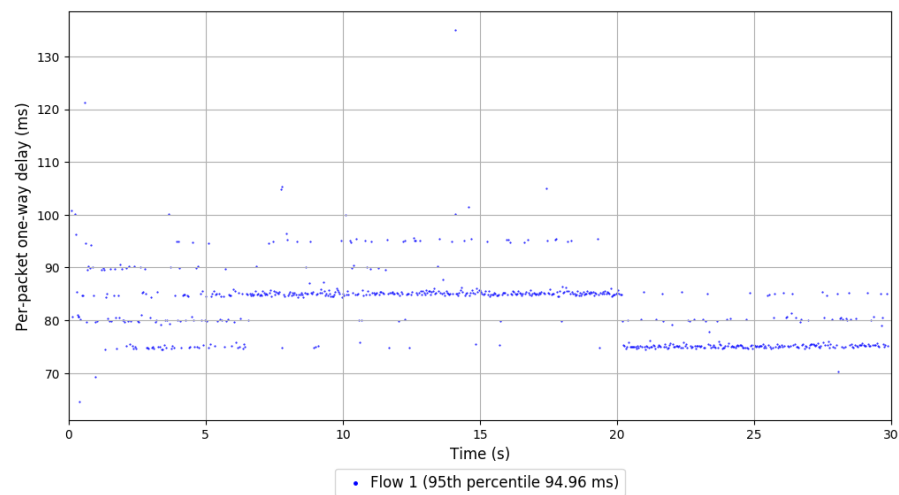
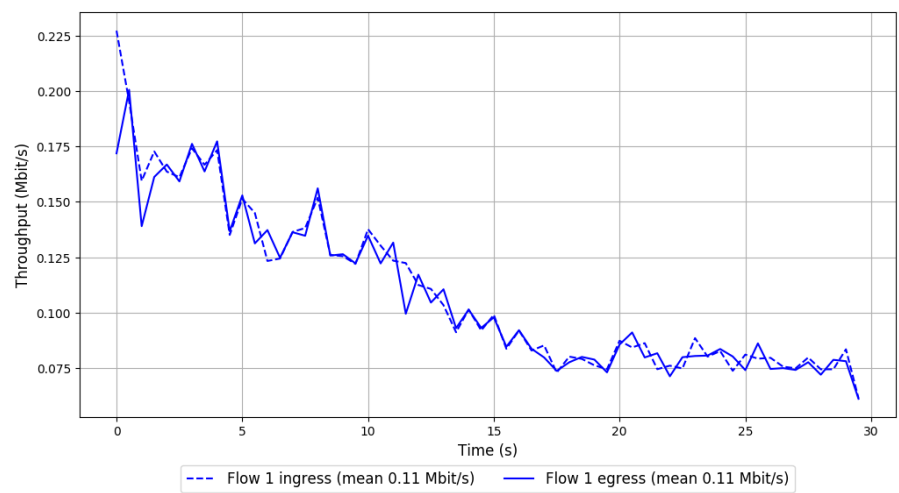


Run 1: Statistics of SCReAM

Start at: 2018-01-18 08:56:52
End at: 2018-01-18 08:57:22
Local clock offset: -6.047 ms
Remote clock offset: -20.72 ms

Below is generated by plot.py at 2018-01-18 11:19:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 94.961 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 94.961 ms
Loss rate: 1.53%

Run 1: Report of SReAM — Data Link

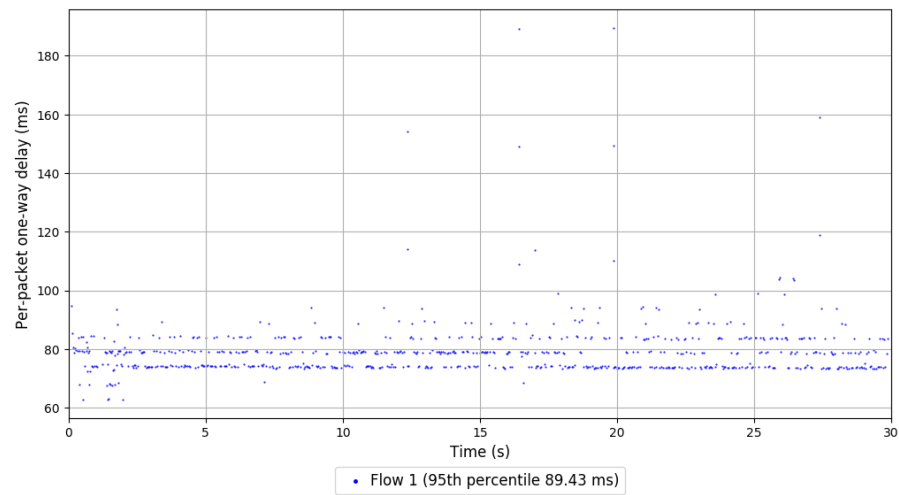
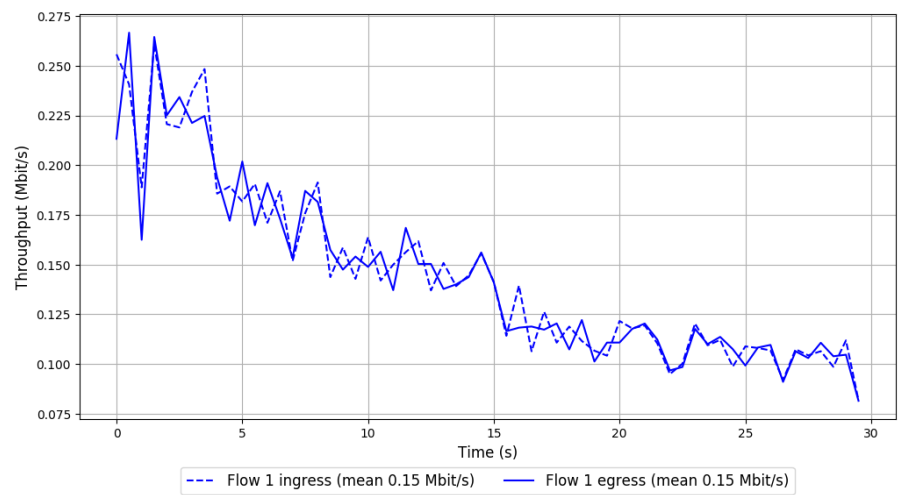


Run 2: Statistics of SCReAM

Start at: 2018-01-18 09:17:08
End at: 2018-01-18 09:17:38
Local clock offset: -22.899 ms
Remote clock offset: -19.038 ms

Below is generated by plot.py at 2018-01-18 11:19:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 89.434 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 89.434 ms
Loss rate: 0.81%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-01-18 09:42:14

End at: 2018-01-18 09:42:44

Local clock offset: -11.999 ms

Below is generated by plot.py at 2018-01-18 11:19:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.10 Mbit/s

95th percentile per-packet one-way delay: 87.180 ms

Loss rate: 1.95%

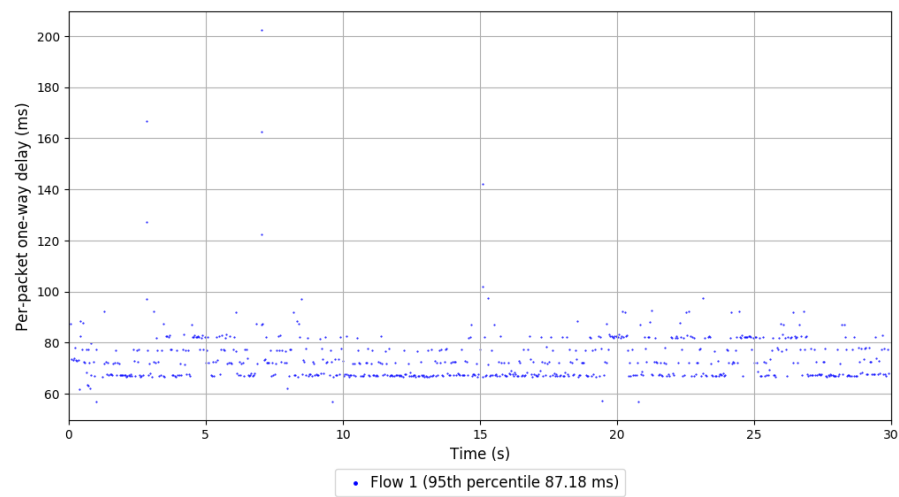
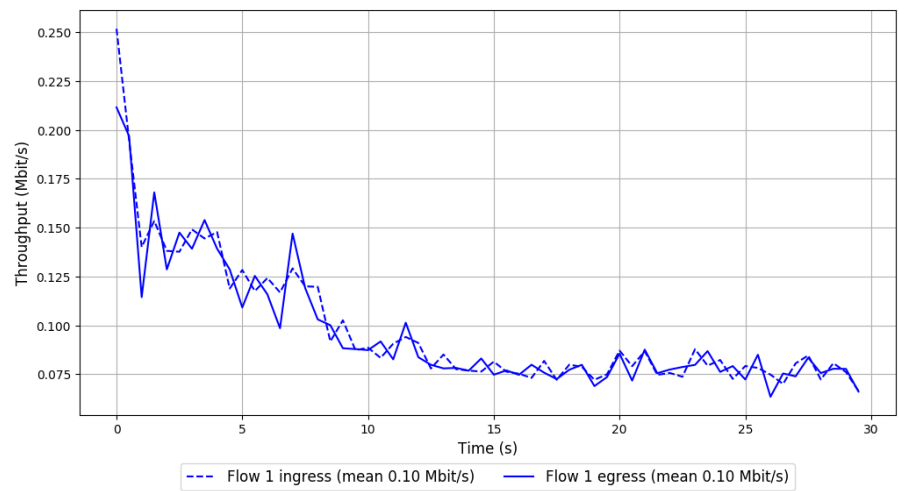
-- Flow 1:

Average throughput: 0.10 Mbit/s

95th percentile per-packet one-way delay: 87.180 ms

Loss rate: 1.95%

Run 3: Report of SReAM — Data Link

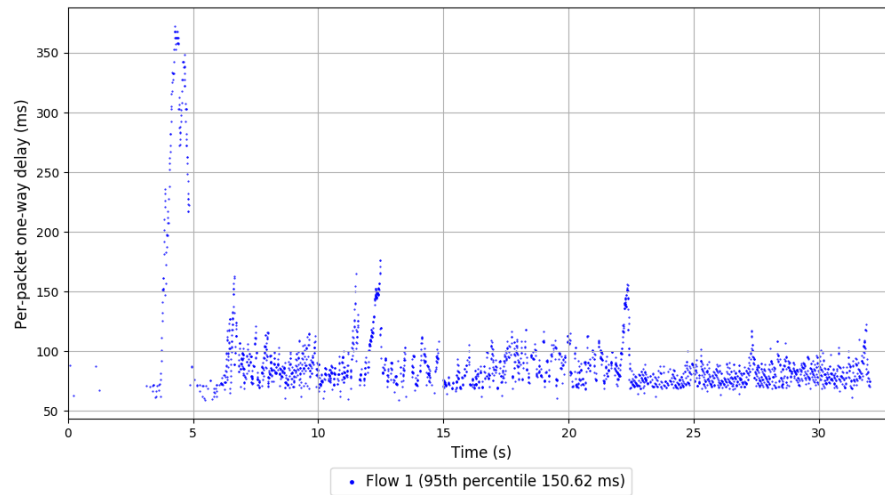
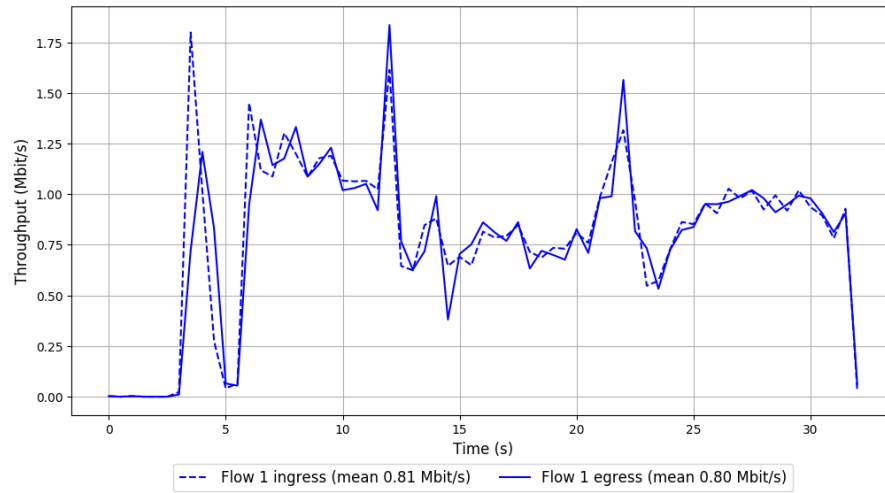


Run 1: Statistics of WebRTC media

Start at: 2018-01-18 08:57:59
End at: 2018-01-18 08:58:29
Local clock offset: -8.361 ms
Remote clock offset: -19.43 ms

Below is generated by plot.py at 2018-01-18 11:19:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 150.618 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 150.618 ms
Loss rate: 1.06%

Run 1: Report of WebRTC media — Data Link

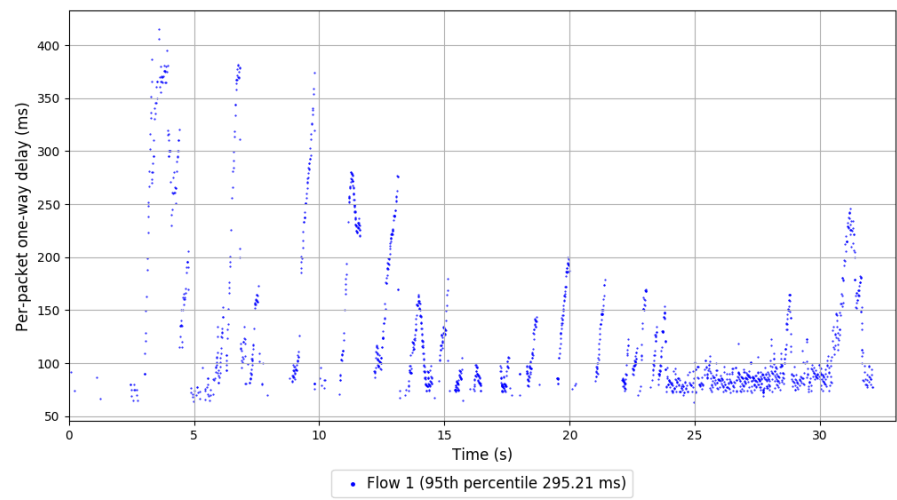
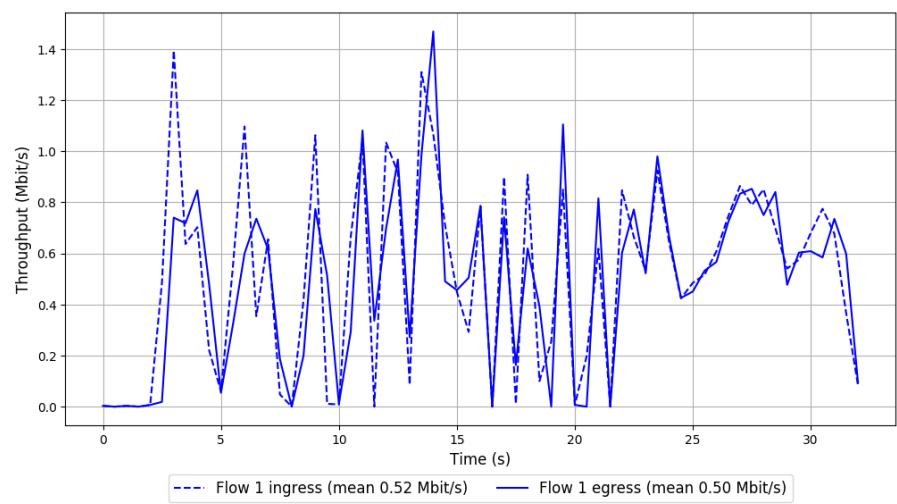


Run 2: Statistics of WebRTC media

Start at: 2018-01-18 09:18:14
End at: 2018-01-18 09:18:44
Local clock offset: -19.369 ms
Remote clock offset: -18.324 ms

Below is generated by plot.py at 2018-01-18 11:19:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 295.215 ms
Loss rate: 2.94%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 295.215 ms
Loss rate: 2.94%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-01-18 09:44:09

End at: 2018-01-18 09:44:39

Local clock offset: -13.864 ms

Below is generated by plot.py at 2018-01-18 11:19:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.62 Mbit/s

95th percentile per-packet one-way delay: 123.780 ms

Loss rate: 1.05%

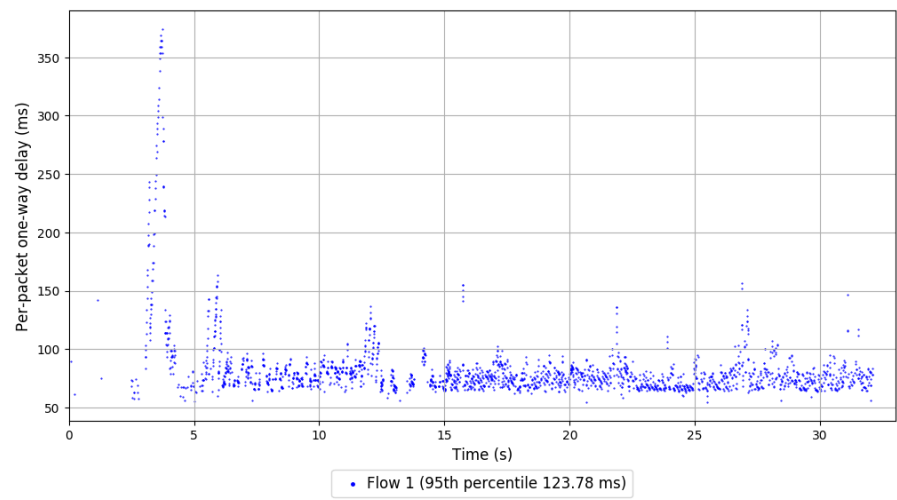
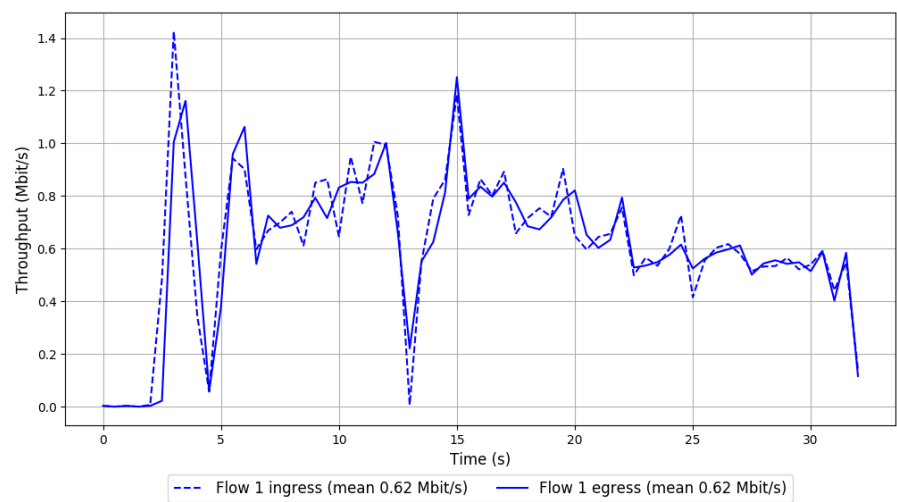
-- Flow 1:

Average throughput: 0.62 Mbit/s

95th percentile per-packet one-way delay: 123.780 ms

Loss rate: 1.05%

Run 3: Report of WebRTC media — Data Link

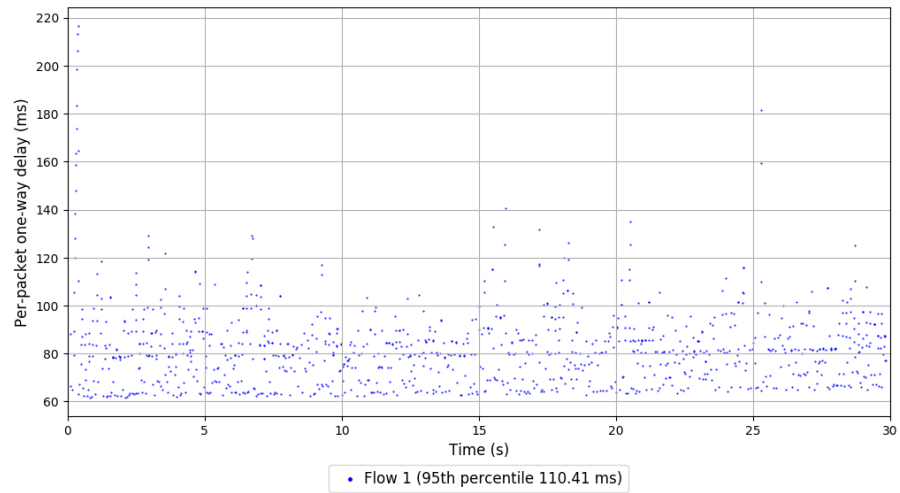
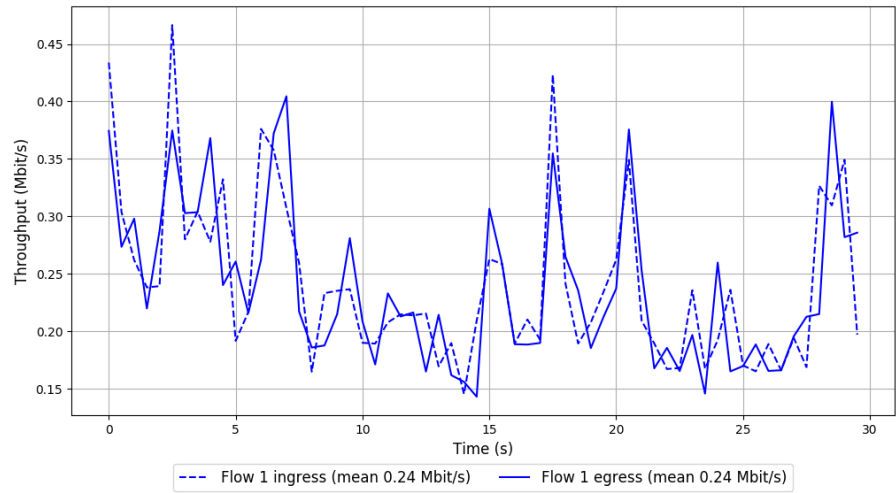


Run 1: Statistics of Sprout

Start at: 2018-01-18 08:45:51
End at: 2018-01-18 08:46:21
Local clock offset: 41.498 ms
Remote clock offset: -19.853 ms

Below is generated by plot.py at 2018-01-18 11:19:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 110.411 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 110.411 ms
Loss rate: 0.96%

Run 1: Report of Sprout — Data Link

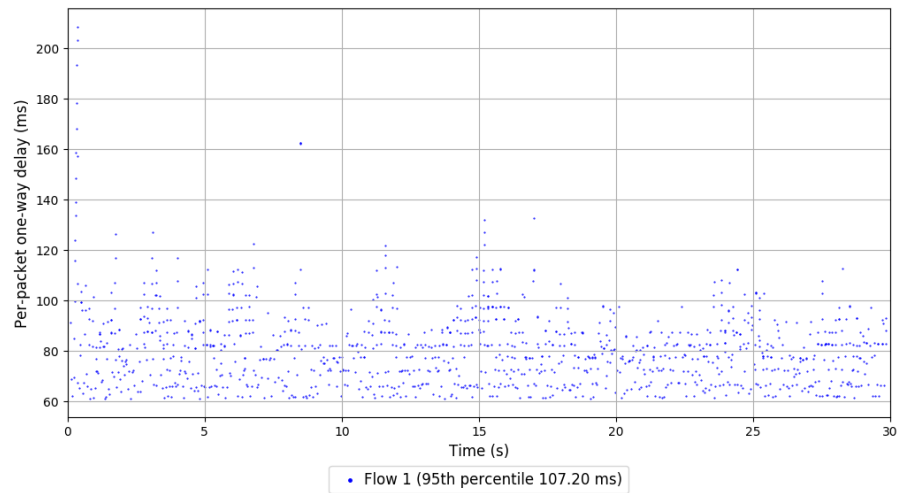
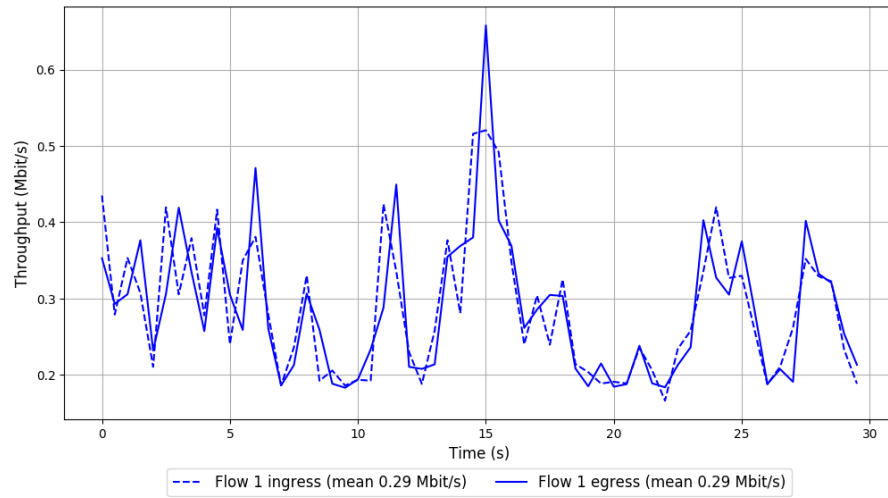


Run 2: Statistics of Sprout

Start at: 2018-01-18 09:05:56
End at: 2018-01-18 09:06:26
Local clock offset: -11.311 ms
Remote clock offset: -17.611 ms

Below is generated by plot.py at 2018-01-18 11:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 107.197 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 107.197 ms
Loss rate: 0.26%

Run 2: Report of Sprout — Data Link

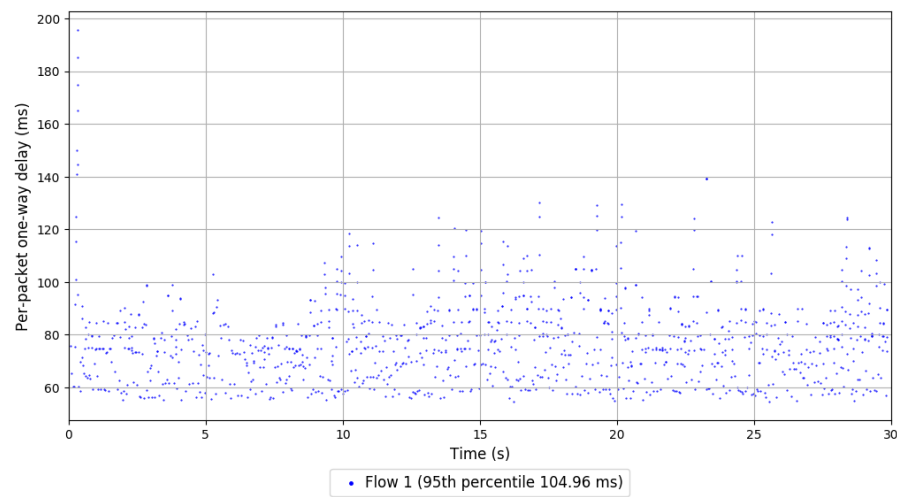
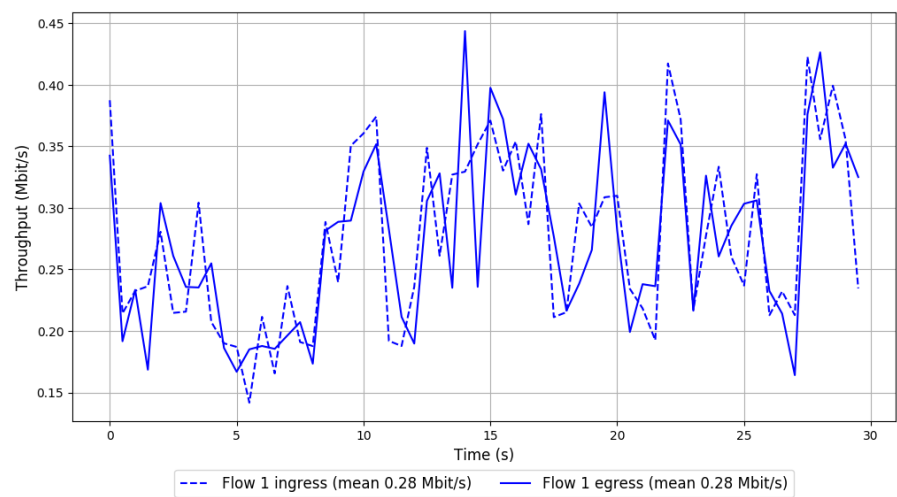


Run 3: Statistics of Sprout

Start at: 2018-01-18 09:25:52
End at: 2018-01-18 09:26:22
Local clock offset: -14.829 ms
Remote clock offset: -17.073 ms

Below is generated by plot.py at 2018-01-18 11:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 104.956 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 104.956 ms
Loss rate: 0.44%

Run 3: Report of Sprout — Data Link

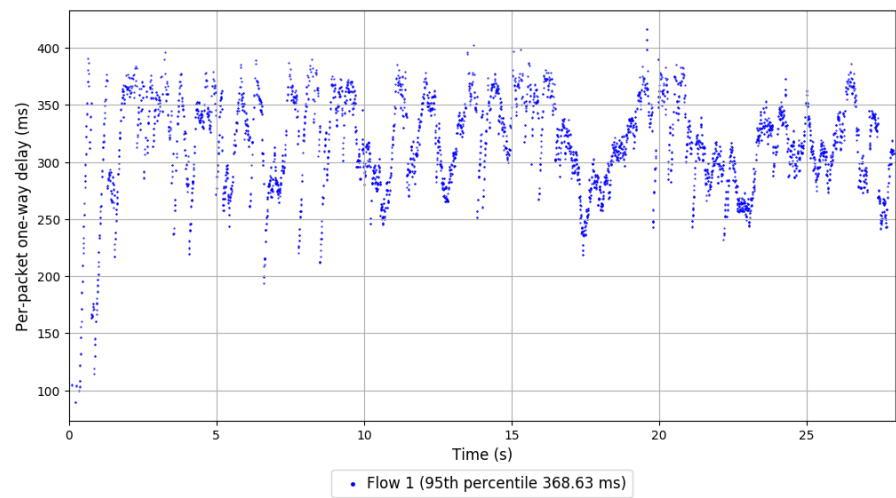
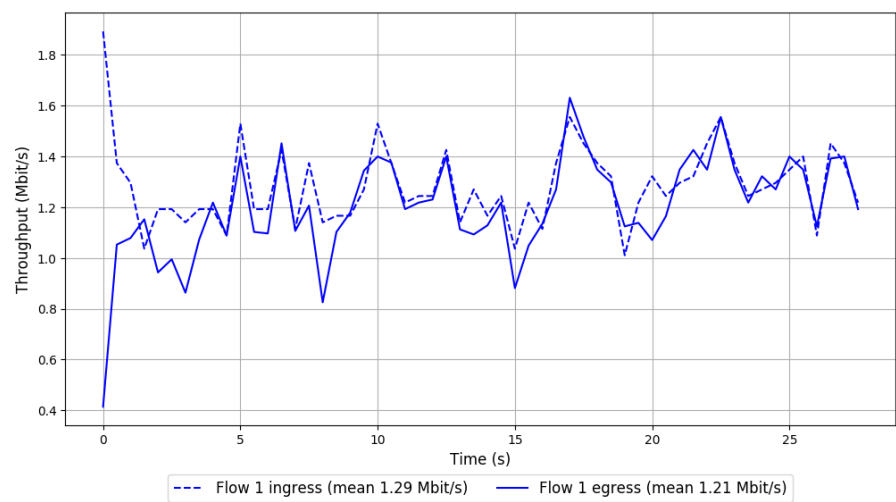


Run 1: Statistics of TaoVA-100x

Start at: 2018-01-18 08:48:01
End at: 2018-01-18 08:48:31
Local clock offset: 22.39 ms
Remote clock offset: -18.592 ms

Below is generated by plot.py at 2018-01-18 11:19:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 368.628 ms
Loss rate: 6.41%
-- Flow 1:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 368.628 ms
Loss rate: 6.41%

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

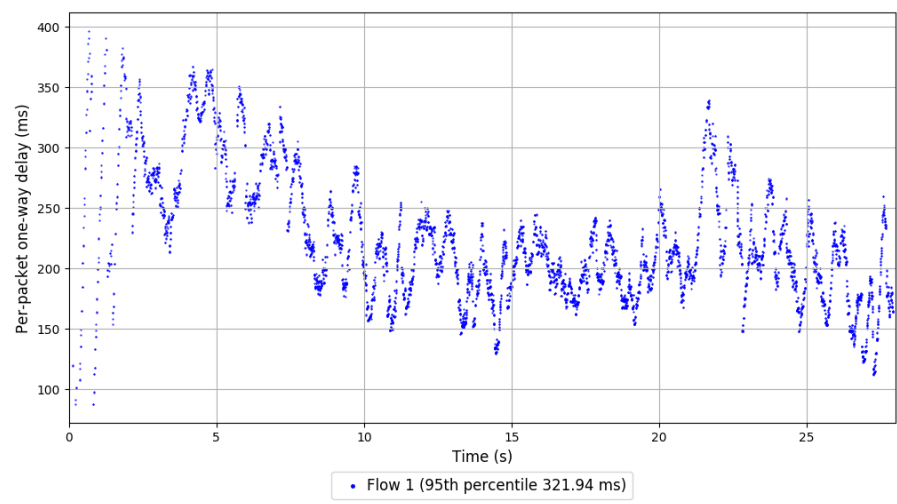
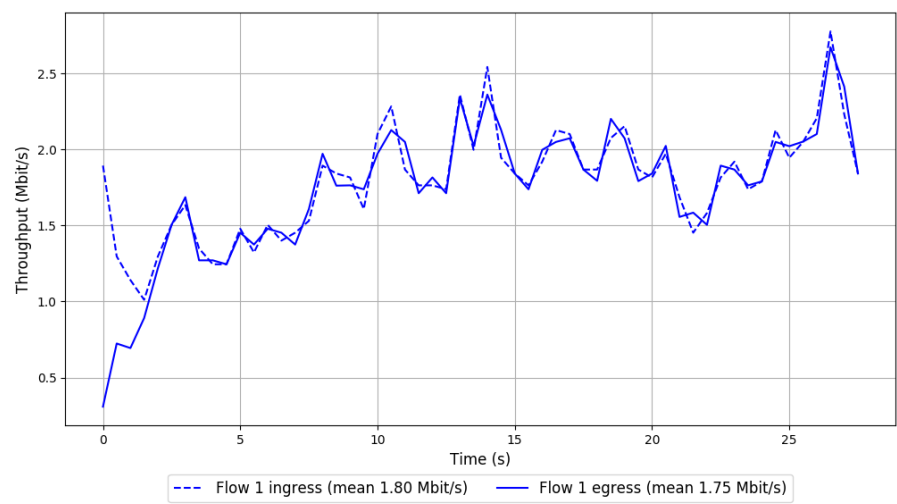


Run 2: Statistics of TaoVA-100x

Start at: 2018-01-18 09:08:08
End at: 2018-01-18 09:08:38
Local clock offset: -14.911 ms
Remote clock offset: -18.849 ms

Below is generated by plot.py at 2018-01-18 11:19:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 321.939 ms
Loss rate: 2.92%
-- Flow 1:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 321.939 ms
Loss rate: 2.92%

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

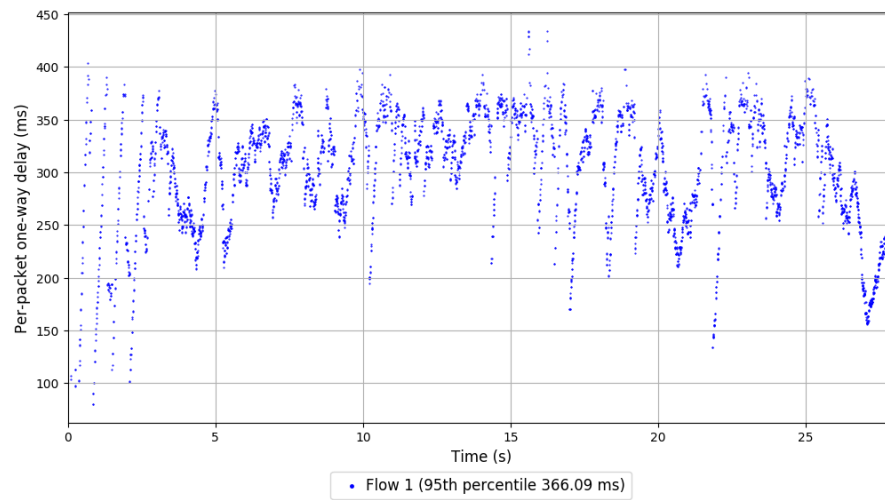
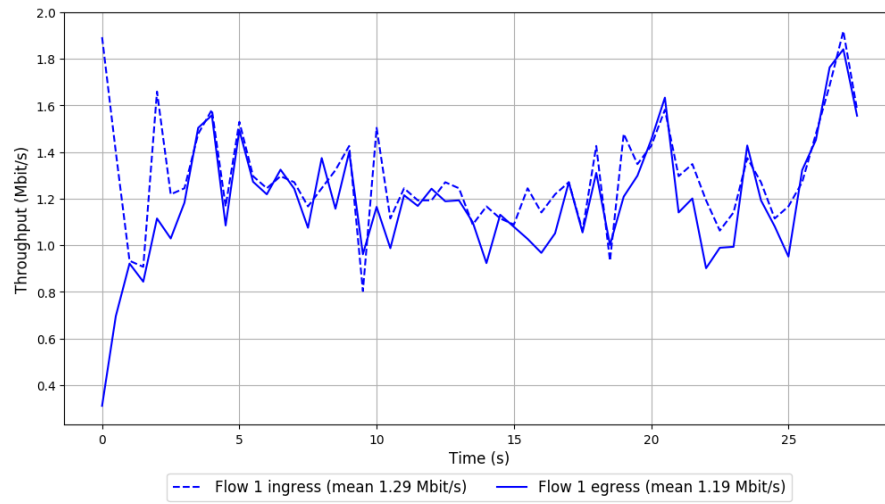


Run 3: Statistics of TaoVA-100x

Start at: 2018-01-18 09:28:03
End at: 2018-01-18 09:28:33
Local clock offset: -11.565 ms
Remote clock offset: -17.937 ms

Below is generated by plot.py at 2018-01-18 11:19:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 366.089 ms
Loss rate: 8.42%
-- Flow 1:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 366.089 ms
Loss rate: 8.42%

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

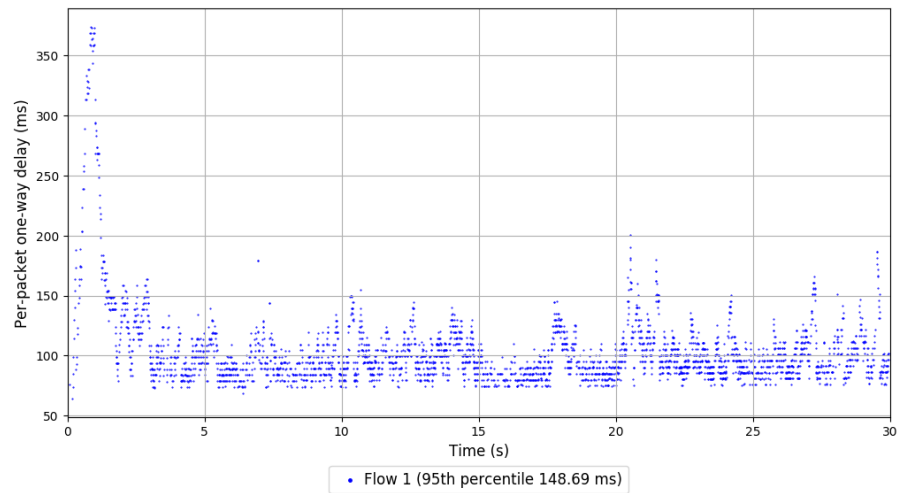
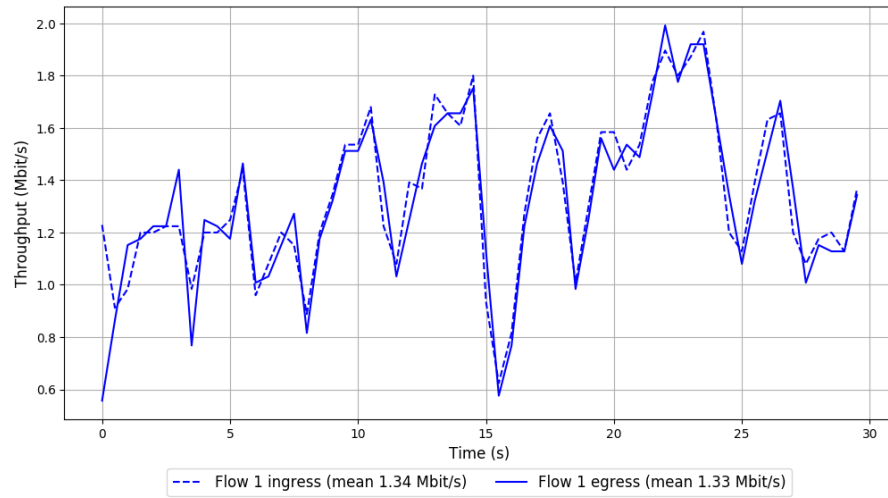


Run 1: Statistics of TCP Vegas

Start at: 2018-01-18 08:43:39
End at: 2018-01-18 08:44:09
Local clock offset: 56.013 ms
Remote clock offset: -19.294 ms

Below is generated by plot.py at 2018-01-18 11:19:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 148.694 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 148.694 ms
Loss rate: 1.17%

Run 1: Report of TCP Vegas — Data Link

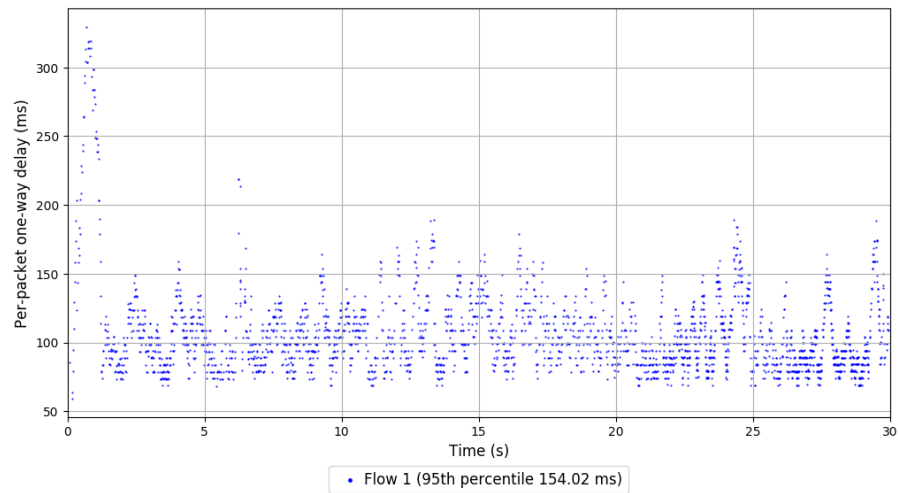
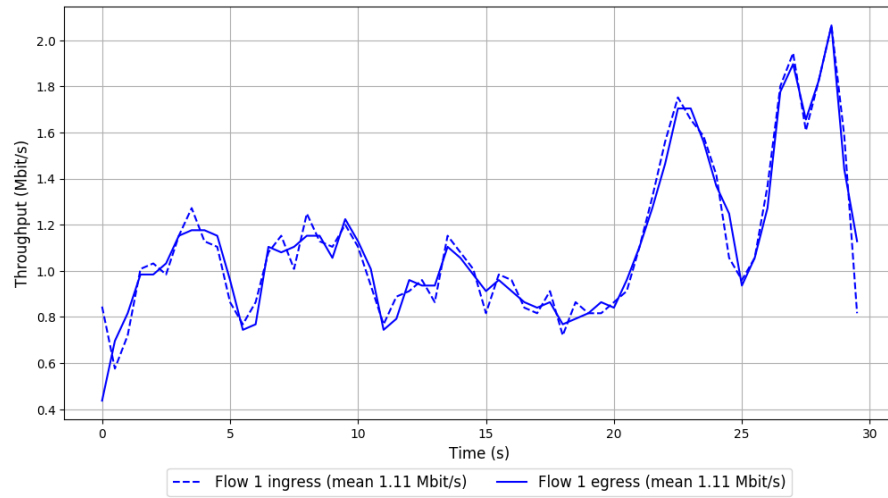


Run 2: Statistics of TCP Vegas

Start at: 2018-01-18 09:03:38
End at: 2018-01-18 09:04:08
Local clock offset: -13.487 ms
Remote clock offset: -17.801 ms

Below is generated by plot.py at 2018-01-18 11:19:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 154.022 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 154.022 ms
Loss rate: 0.36%

Run 2: Report of TCP Vegas — Data Link

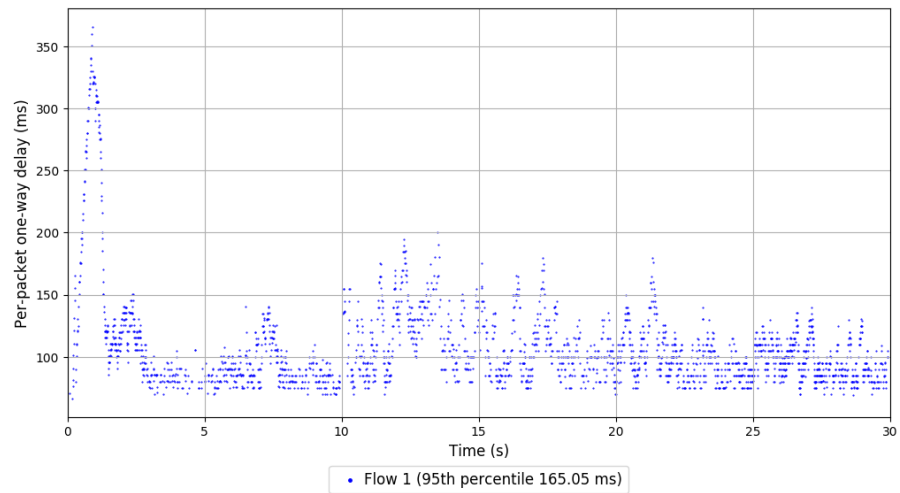
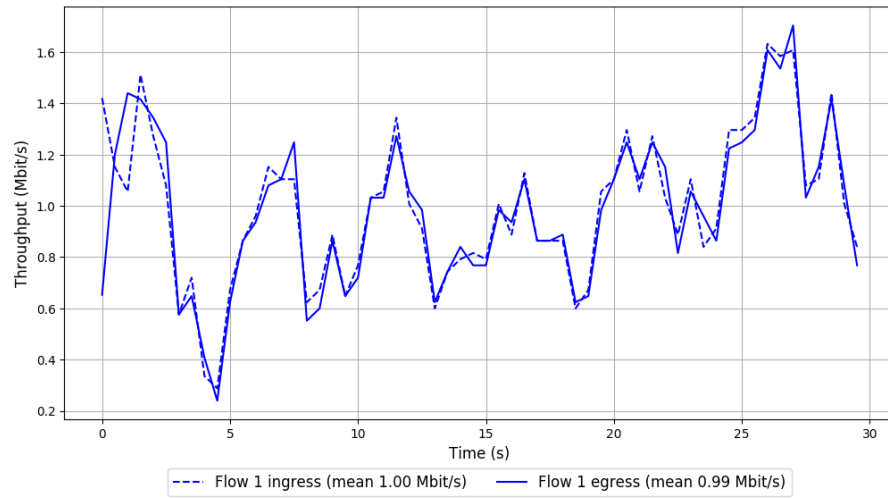


Run 3: Statistics of TCP Vegas

Start at: 2018-01-18 09:23:41
End at: 2018-01-18 09:24:11
Local clock offset: -12.128 ms
Remote clock offset: -17.436 ms

Below is generated by plot.py at 2018-01-18 11:19:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 165.050 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 165.050 ms
Loss rate: 1.01%

Run 3: Report of TCP Vegas — Data Link

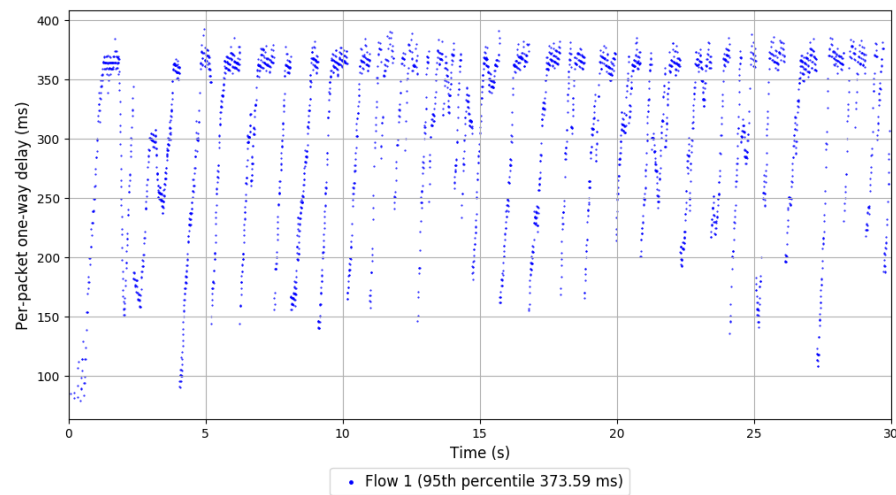
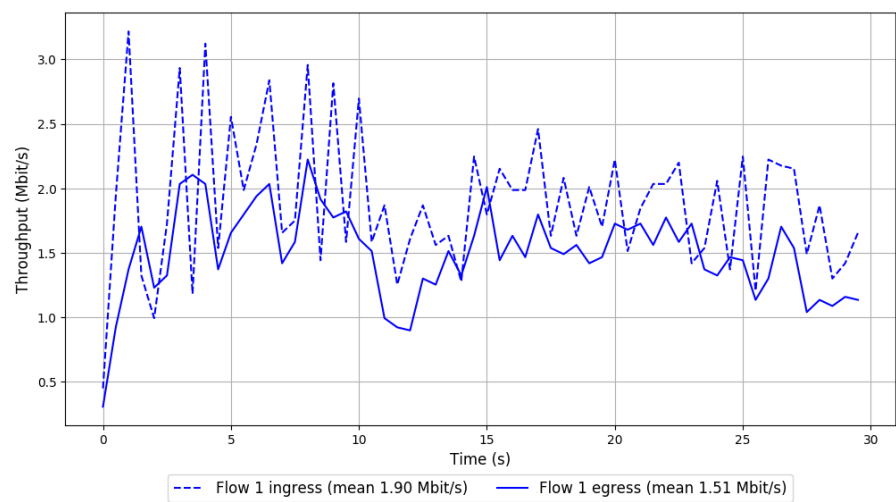


Run 1: Statistics of Verus

Start at: 2018-01-18 08:40:21
End at: 2018-01-18 08:40:51
Local clock offset: 73.149 ms
Remote clock offset: -19.017 ms

Below is generated by plot.py at 2018-01-18 11:19:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 373.588 ms
Loss rate: 20.63%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 373.588 ms
Loss rate: 20.63%

Run 1: Report of Verus — Data Link

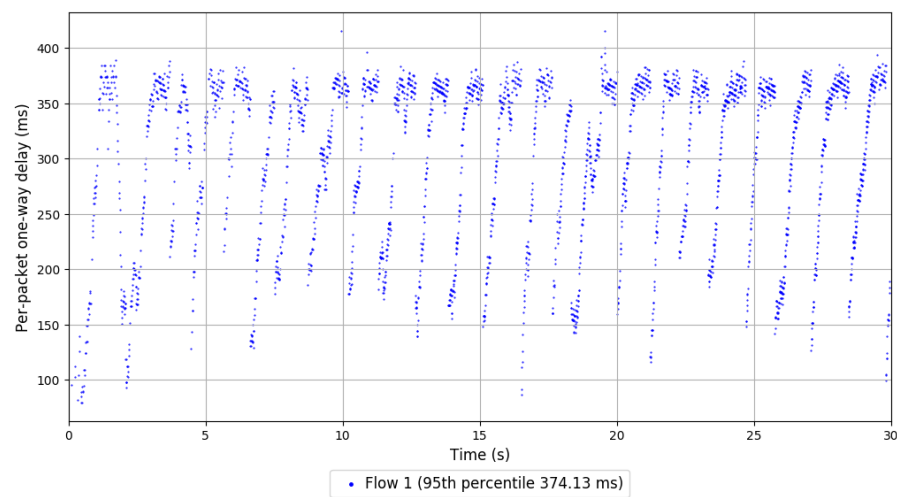
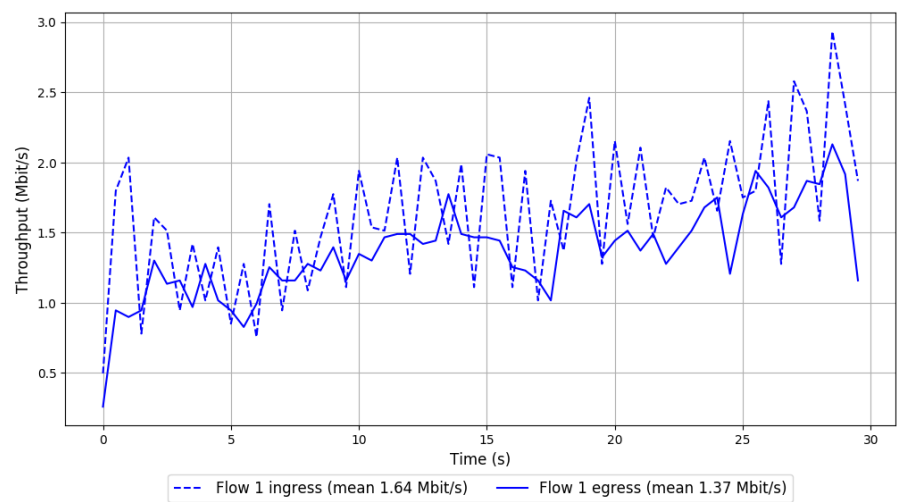


Run 2: Statistics of Verus

Start at: 2018-01-18 09:00:12
End at: 2018-01-18 09:00:42
Local clock offset: -6.847 ms
Remote clock offset: -18.724 ms

Below is generated by plot.py at 2018-01-18 11:19:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 374.130 ms
Loss rate: 16.68%
-- Flow 1:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 374.130 ms
Loss rate: 16.68%

Run 2: Report of Verus — Data Link

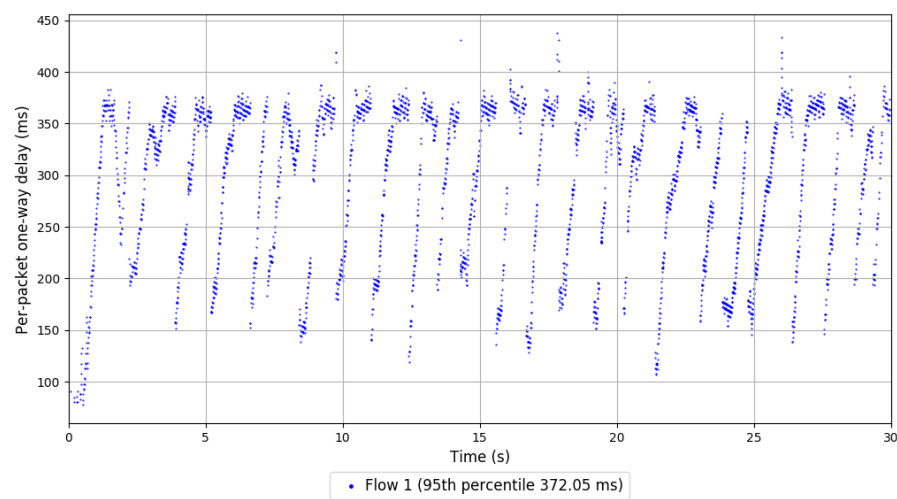
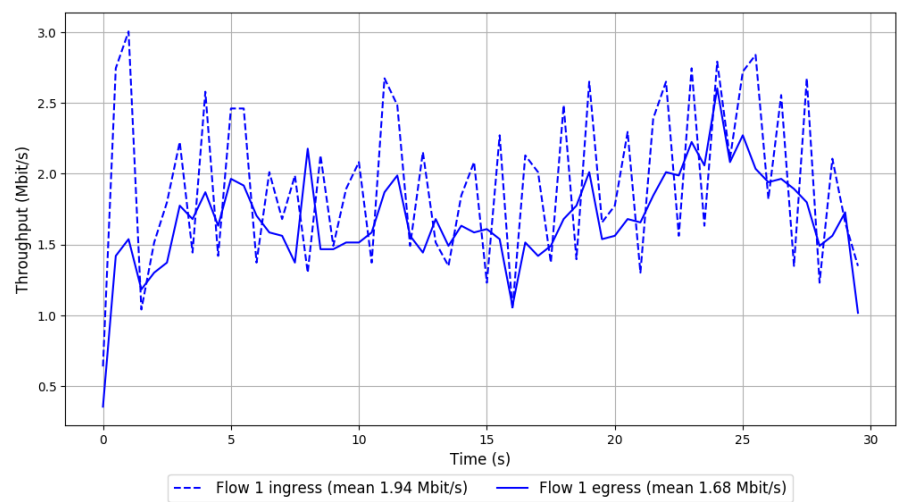


Run 3: Statistics of Verus

Start at: 2018-01-18 09:20:26
End at: 2018-01-18 09:20:56
Local clock offset: -16.089 ms
Remote clock offset: -18.938 ms

Below is generated by plot.py at 2018-01-18 11:19:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 372.050 ms
Loss rate: 13.60%
-- Flow 1:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 372.050 ms
Loss rate: 13.60%

Run 3: Report of Verus — Data Link

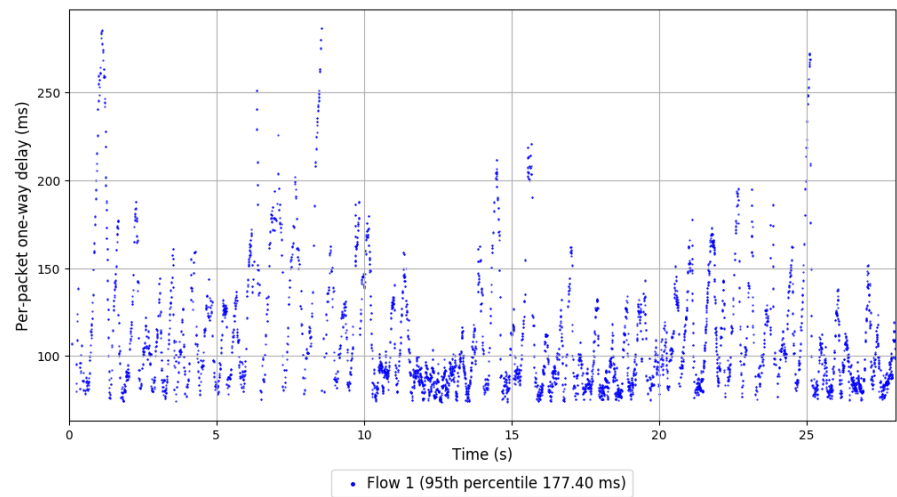
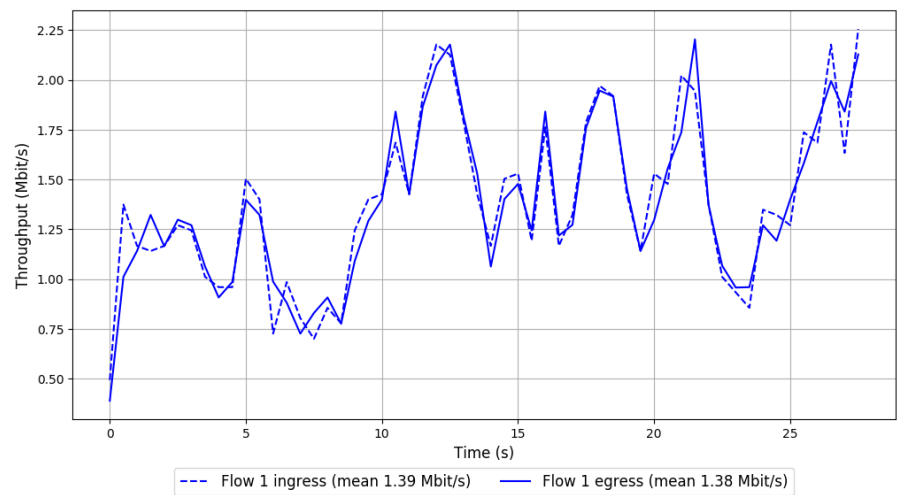


Run 1: Statistics of Copa

Start at: 2018-01-18 08:42:33
End at: 2018-01-18 08:43:03
Local clock offset: 64.056 ms
Remote clock offset: -19.691 ms

Below is generated by plot.py at 2018-01-18 11:19:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 177.404 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 177.404 ms
Loss rate: 0.84%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-01-18 09:02:31

End at: 2018-01-18 09:03:01

Local clock offset: -8.371 ms

Remote clock offset: 5.16 ms

Below is generated by plot.py at 2018-01-18 11:19:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 262.158 ms

Loss rate: 1.70%

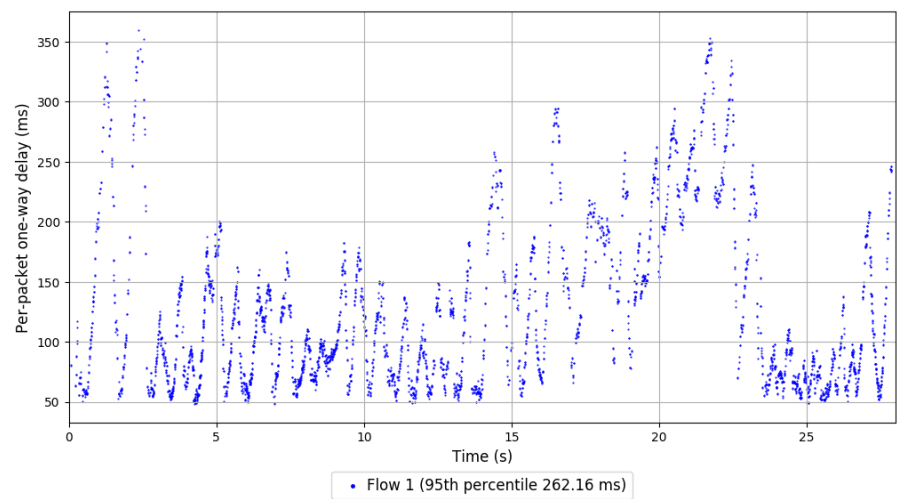
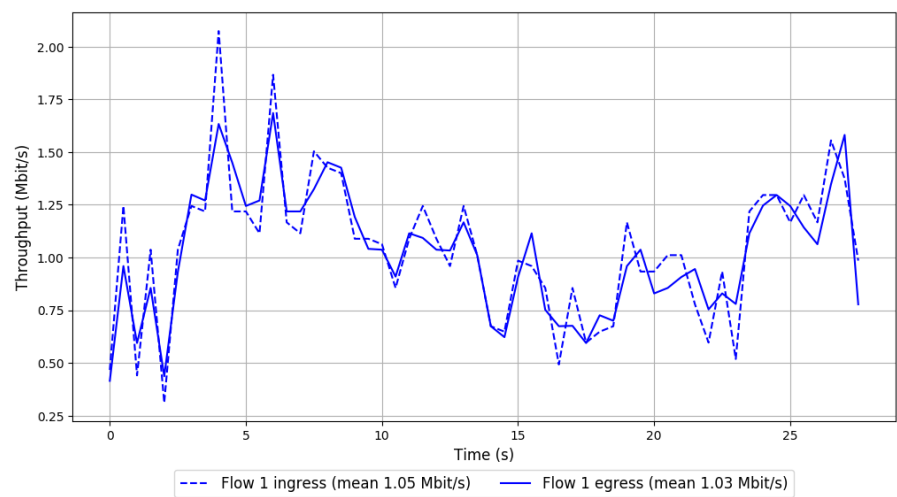
-- Flow 1:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 262.158 ms

Loss rate: 1.70%

Run 2: Report of Copa — Data Link

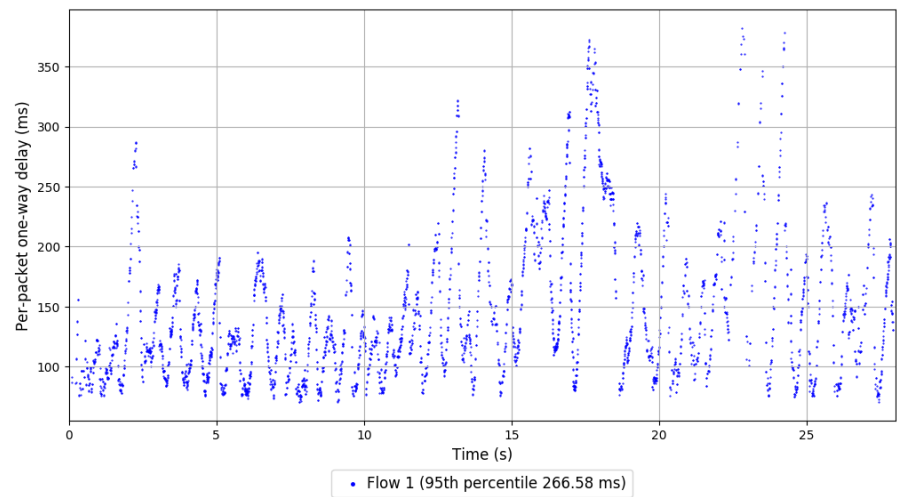
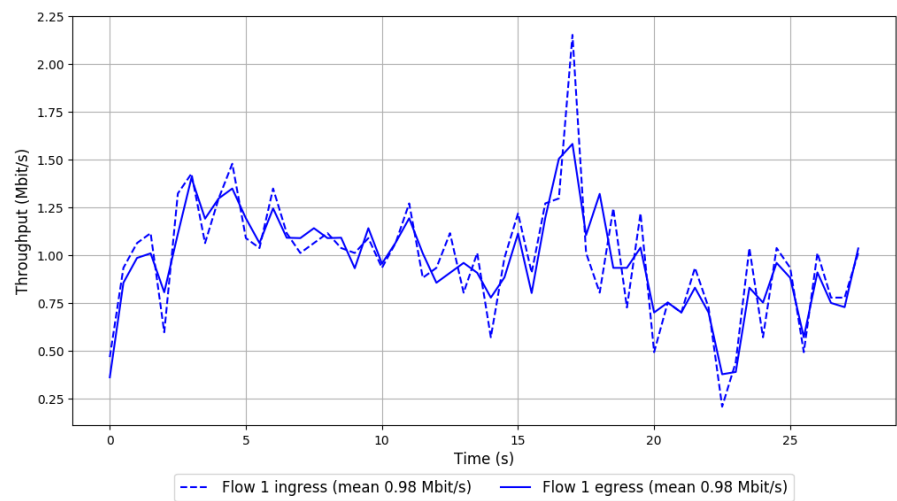


Run 3: Statistics of Copa

Start at: 2018-01-18 09:22:36
End at: 2018-01-18 09:23:06
Local clock offset: -14.38 ms
Remote clock offset: -19.544 ms

Below is generated by plot.py at 2018-01-18 11:19:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 266.580 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 266.580 ms
Loss rate: 1.18%

Run 3: Report of Copa — Data Link

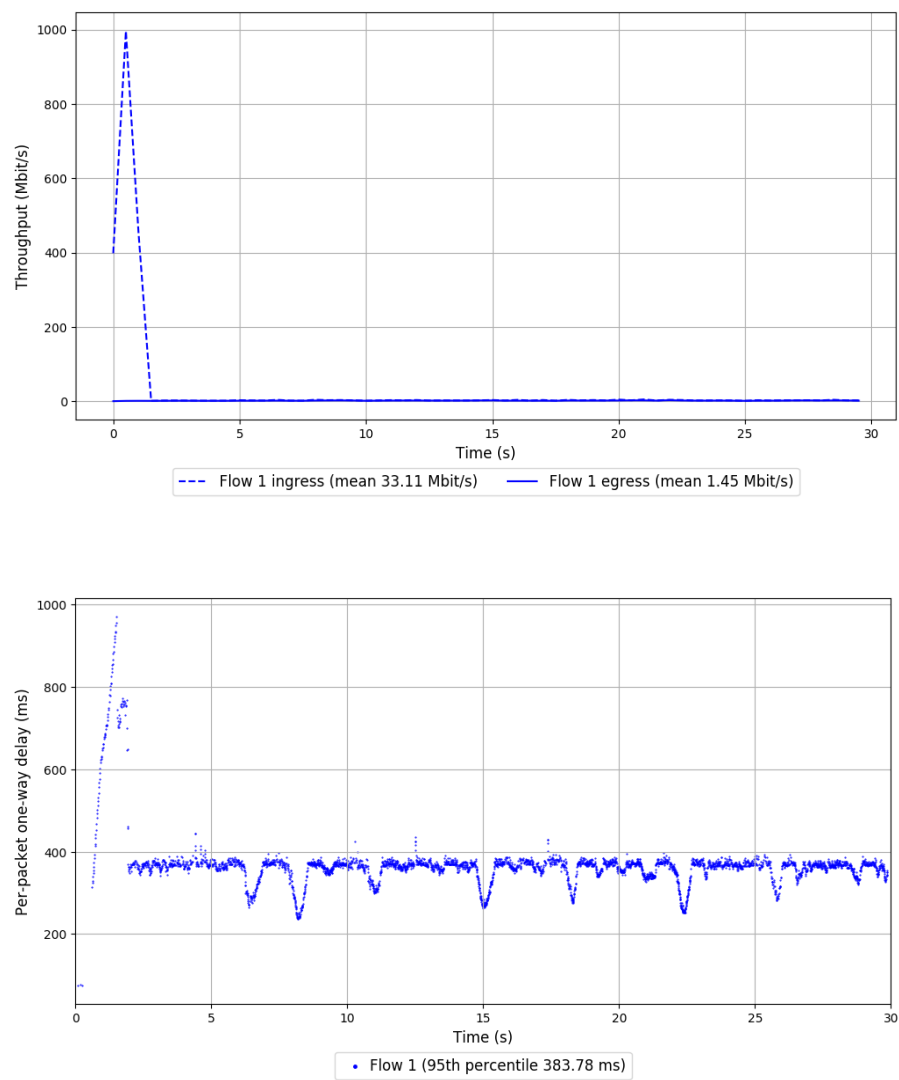


Run 1: Statistics of FillP

Start at: 2018-01-18 08:49:08
End at: 2018-01-18 08:49:38
Local clock offset: 8.928 ms
Remote clock offset: -25.596 ms

Below is generated by plot.py at 2018-01-18 11:19:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 383.781 ms
Loss rate: 95.63%
-- Flow 1:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 383.781 ms
Loss rate: 95.63%

Run 1: Report of FillP — Data Link

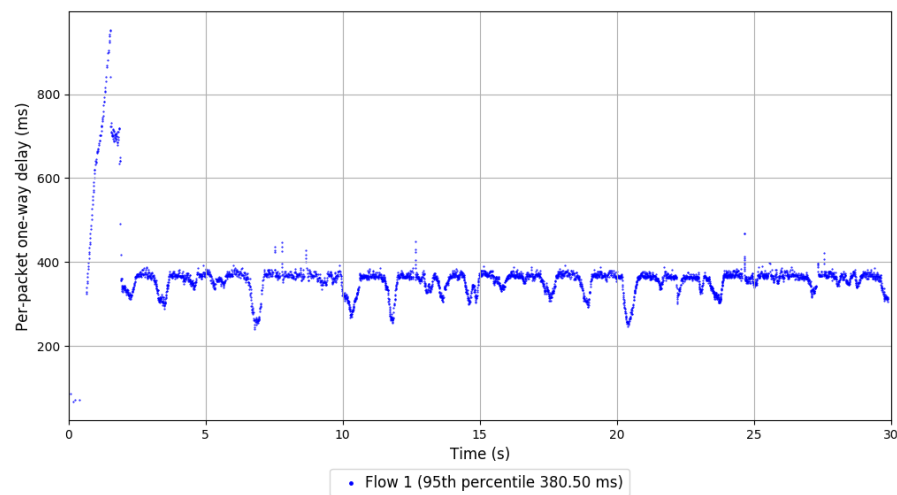
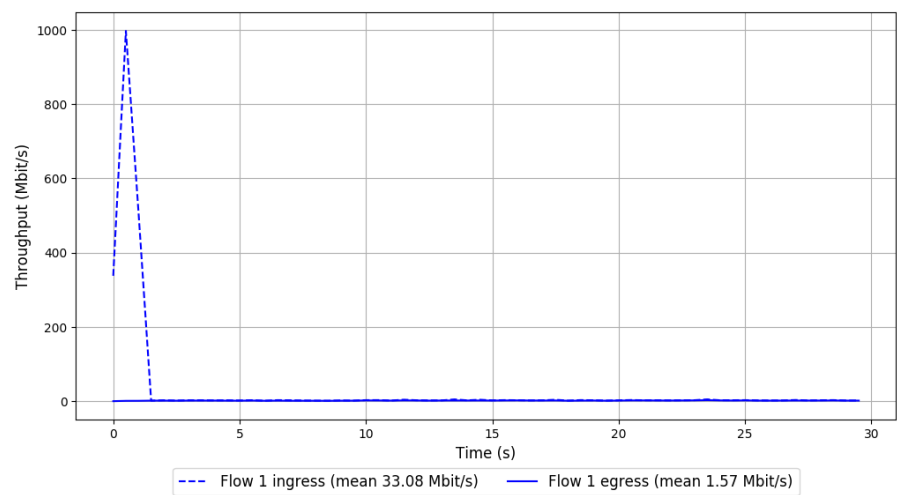


Run 2: Statistics of FillP

Start at: 2018-01-18 09:09:14
End at: 2018-01-18 09:09:44
Local clock offset: -17.194 ms
Remote clock offset: -18.255 ms

Below is generated by plot.py at 2018-01-18 11:19:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 380.498 ms
Loss rate: 95.27%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 380.498 ms
Loss rate: 95.27%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

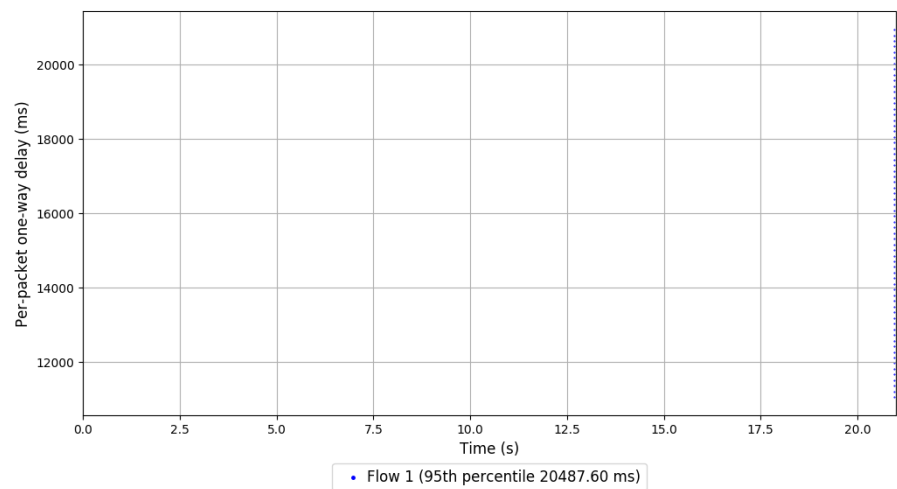
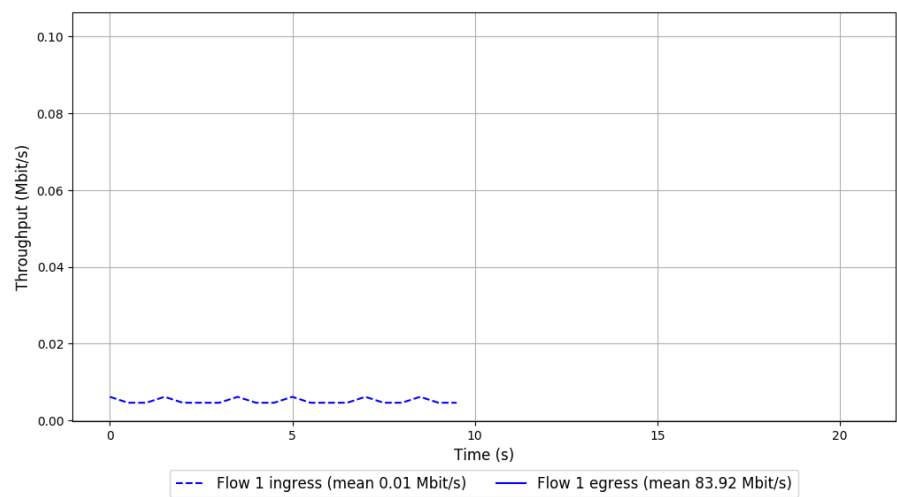
Start at: 2018-01-18 09:29:13

End at: 2018-01-18 09:29:43

Local clock offset: -11.594 ms

Remote clock offset: -18.326 ms

Run 3: Report of FillP — Data Link

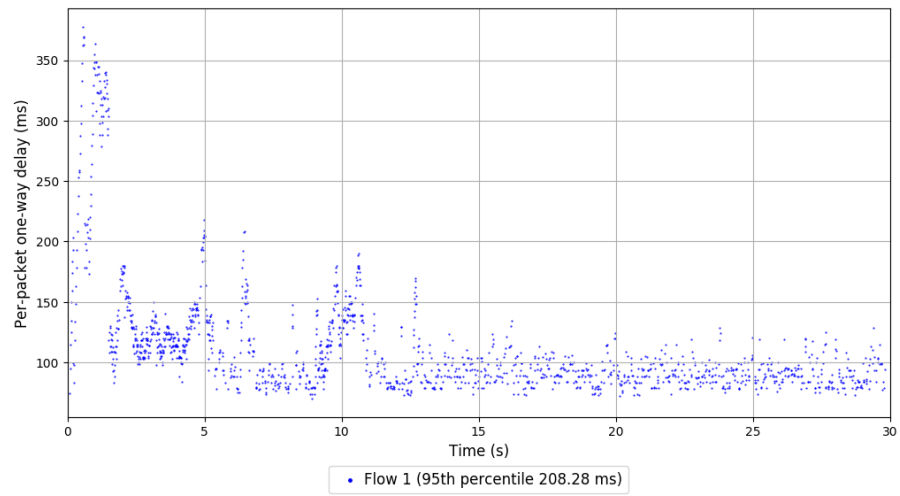
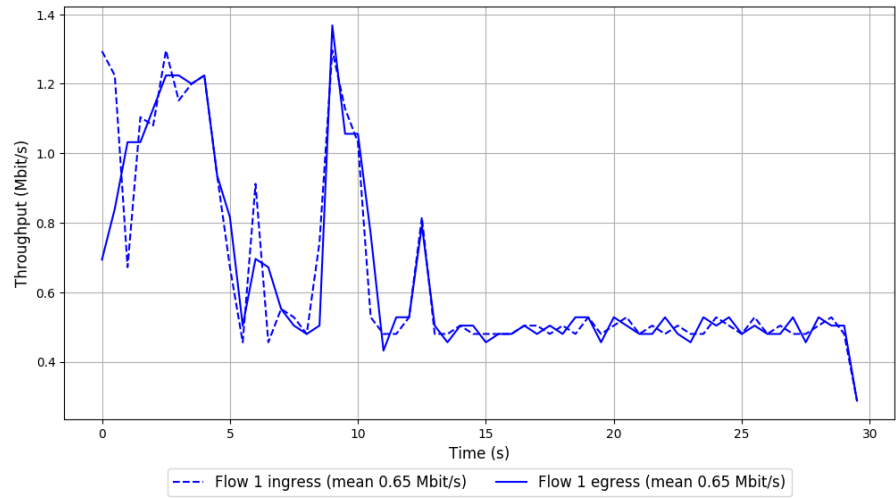


```
Run 1: Statistics of Indigo

Start at: 2018-01-18 08:53:34
End at: 2018-01-18 08:54:04
Local clock offset: -0.962 ms
Remote clock offset: -19.047 ms

# Below is generated by plot.py at 2018-01-18 11:19:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 208.280 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 208.280 ms
Loss rate: 1.17%
```

Run 1: Report of Indigo — Data Link

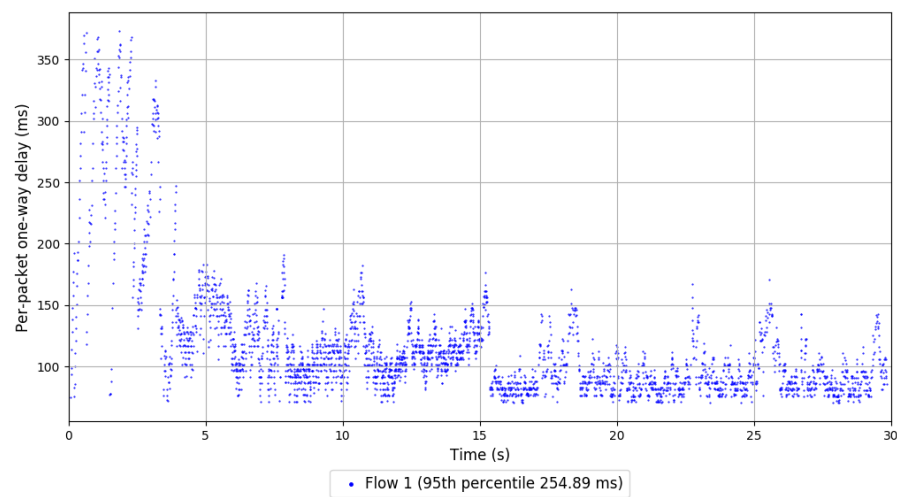
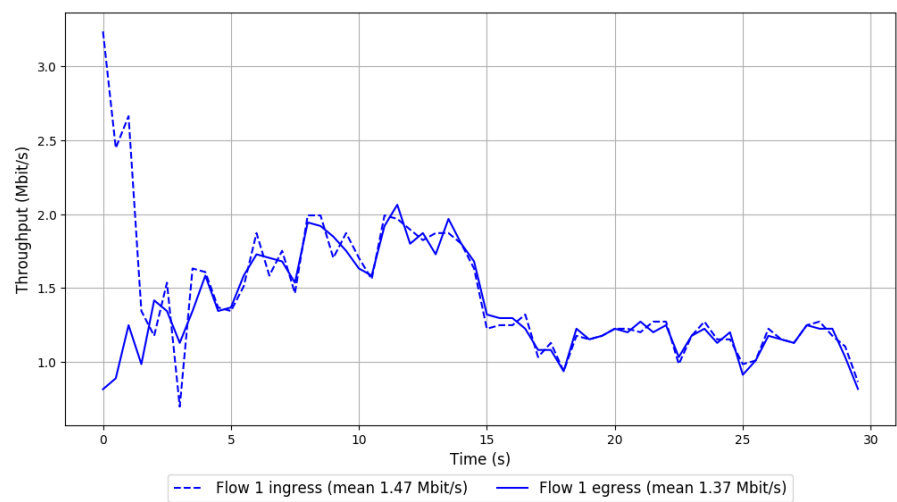


Run 2: Statistics of Indigo

Start at: 2018-01-18 09:13:47
End at: 2018-01-18 09:14:17
Local clock offset: -24.811 ms
Remote clock offset: -18.857 ms

Below is generated by plot.py at 2018-01-18 11:19:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 254.886 ms
Loss rate: 6.65%
-- Flow 1:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 254.886 ms
Loss rate: 6.65%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-01-18 09:36:35

End at: 2018-01-18 09:37:05

Local clock offset: -11.954 ms

Below is generated by plot.py at 2018-01-18 11:19:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 195.360 ms

Loss rate: 2.03%

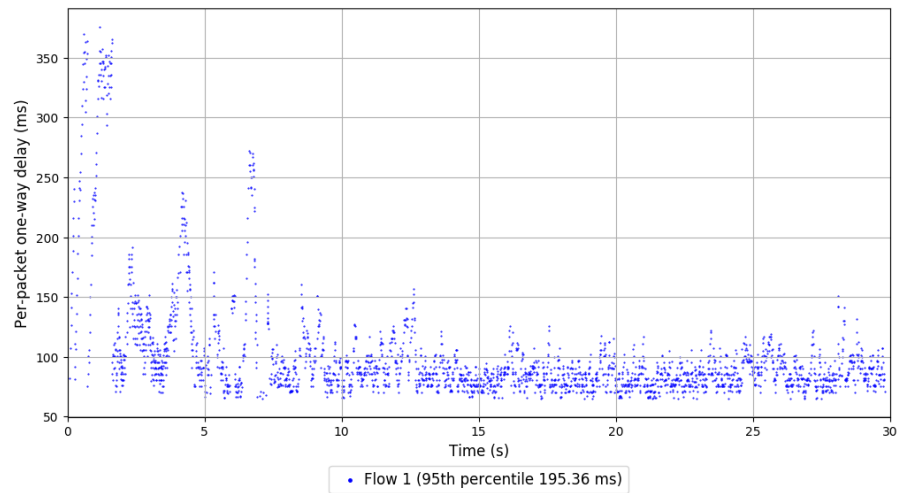
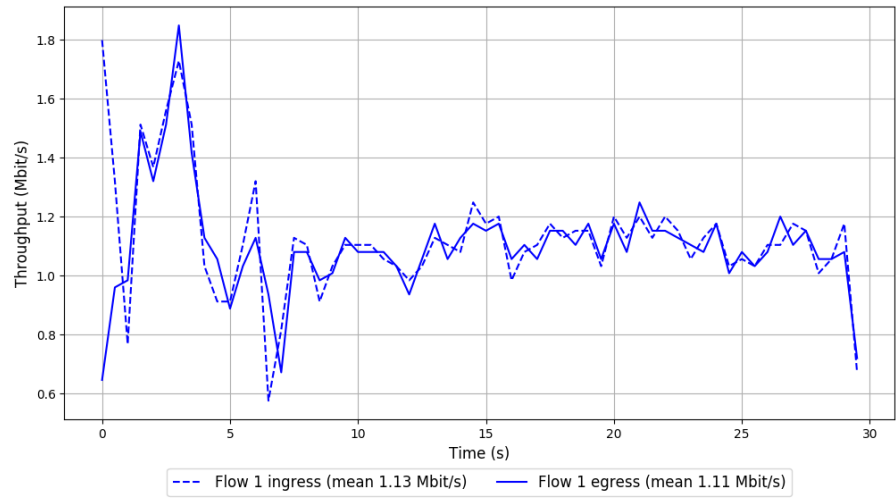
-- Flow 1:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 195.360 ms

Loss rate: 2.03%

Run 3: Report of Indigo — Data Link

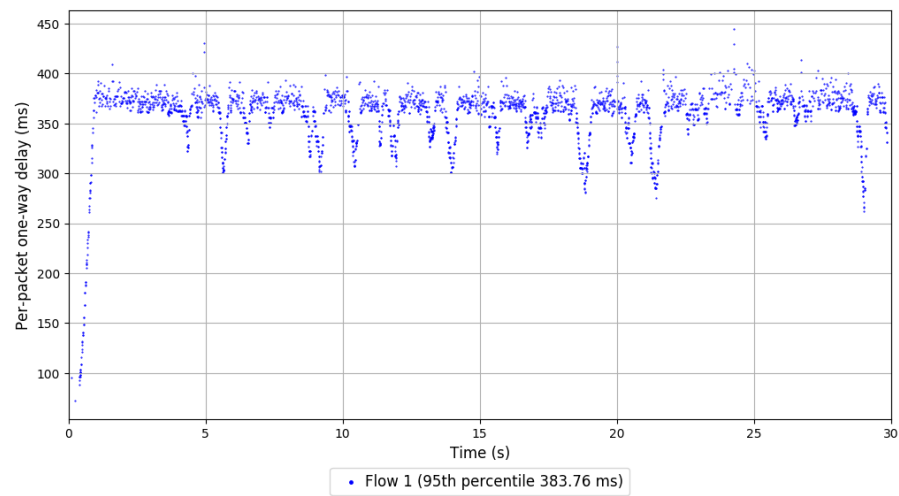
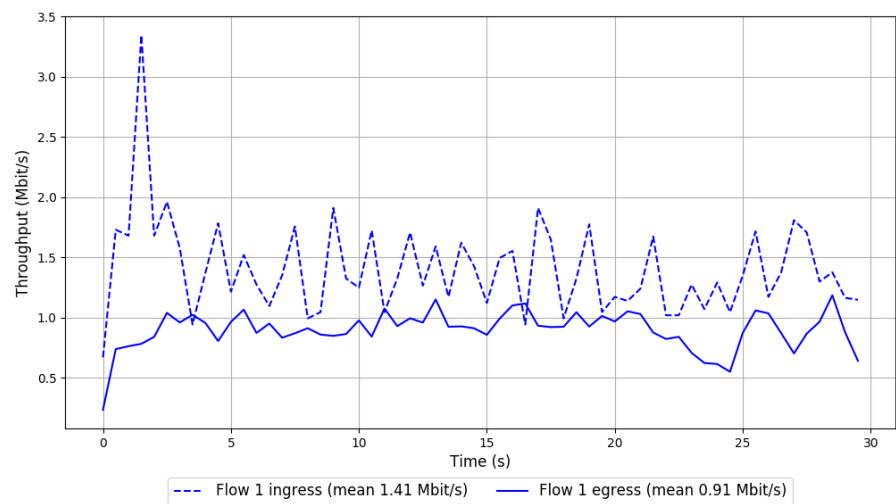


Run 1: Statistics of Vivace-latency

Start at: 2018-01-18 08:54:40
End at: 2018-01-18 08:55:10
Local clock offset: -0.392 ms
Remote clock offset: -18.63 ms

Below is generated by plot.py at 2018-01-18 11:19:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 383.765 ms
Loss rate: 36.04%
-- Flow 1:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 383.765 ms
Loss rate: 36.04%

Run 1: Report of Vivace-latency — Data Link

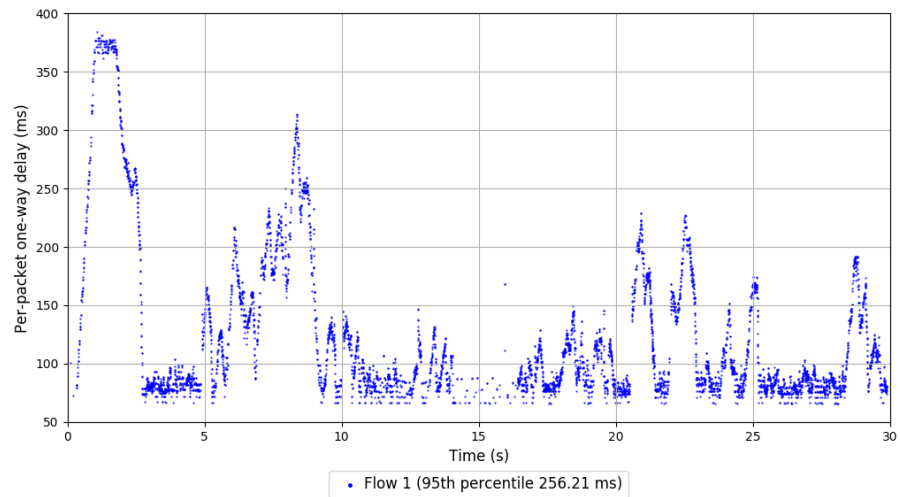
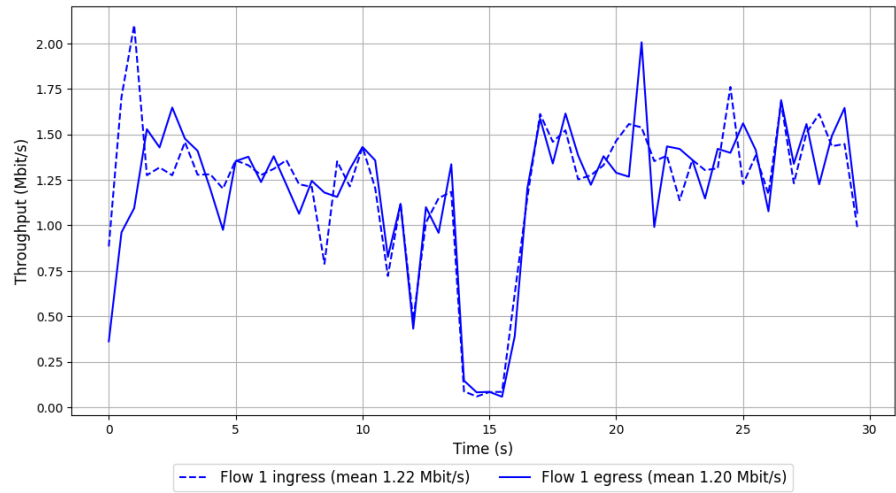


Run 2: Statistics of Vivace-latency

Start at: 2018-01-18 09:14:54
End at: 2018-01-18 09:15:24
Local clock offset: -22.463 ms
Remote clock offset: -18.809 ms

Below is generated by plot.py at 2018-01-18 11:19:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 256.213 ms
Loss rate: 1.98%
-- Flow 1:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 256.213 ms
Loss rate: 1.98%

Run 2: Report of Vivace-latency — Data Link



Run 3: Statistics of Vivace-latency

Start at: 2018-01-18 09:38:26

End at: 2018-01-18 09:38:56

Local clock offset: -9.776 ms

Below is generated by plot.py at 2018-01-18 11:19:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 280.029 ms

Loss rate: 0.94%

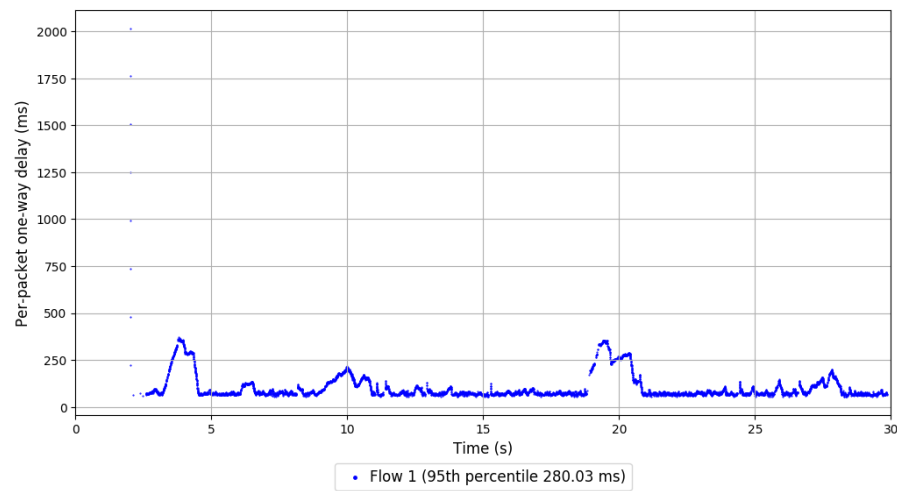
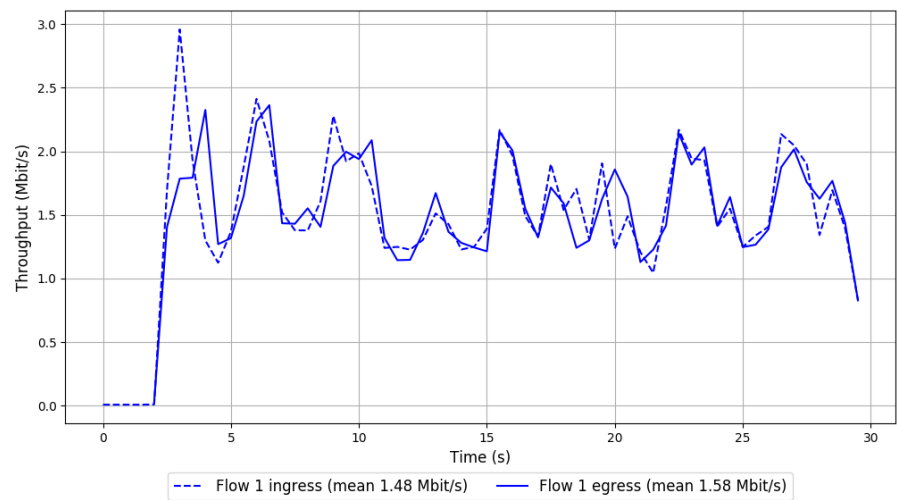
-- Flow 1:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 280.029 ms

Loss rate: 0.94%

Run 3: Report of Vivace-latency — Data Link

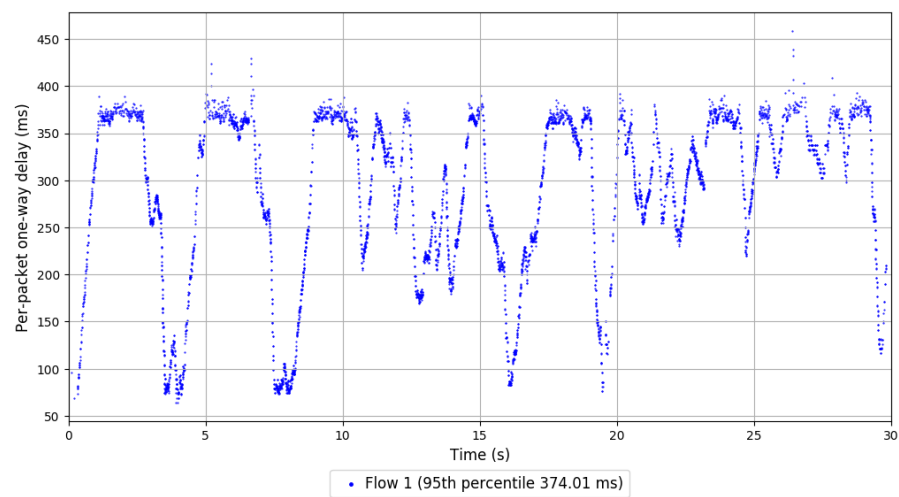
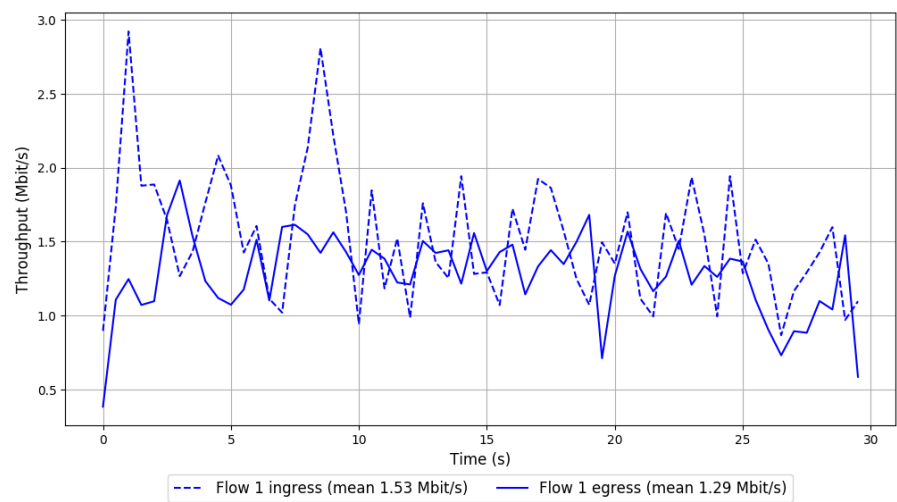


```
Run 1: Statistics of Vivace-loss

Start at: 2018-01-18 08:44:45
End at: 2018-01-18 08:45:15
Local clock offset: 49.33 ms
Remote clock offset: -18.465 ms

# Below is generated by plot.py at 2018-01-18 11:19:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 374.013 ms
Loss rate: 15.70%
-- Flow 1:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 374.013 ms
Loss rate: 15.70%
```

Run 1: Report of Vivace-loss — Data Link

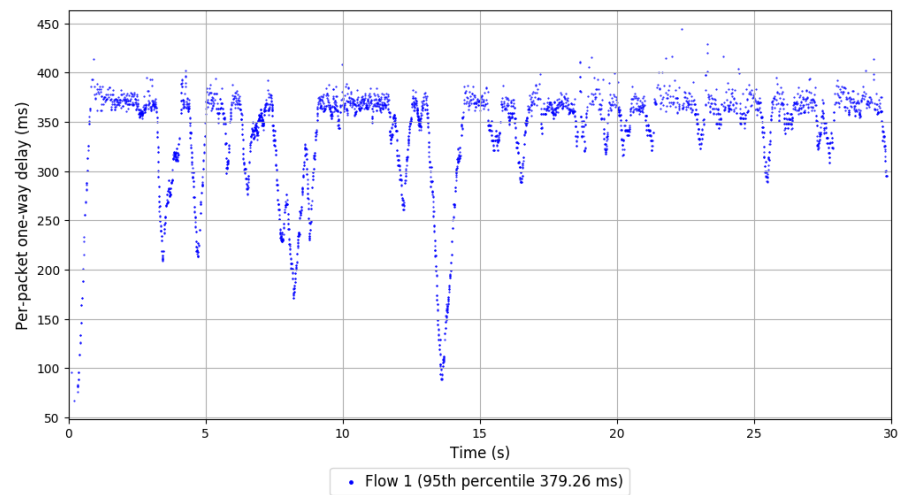
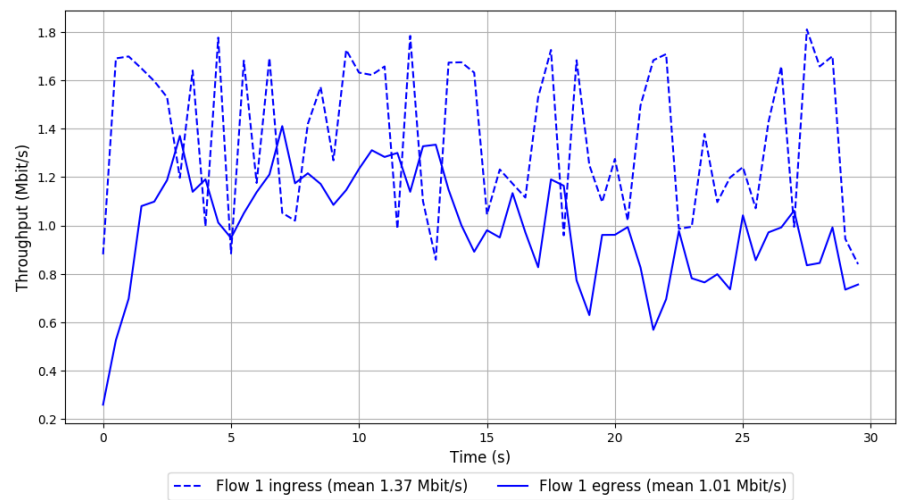


Run 2: Statistics of Vivace-loss

Start at: 2018-01-18 09:04:49
End at: 2018-01-18 09:05:19
Local clock offset: -12.535 ms
Remote clock offset: -18.801 ms

Below is generated by plot.py at 2018-01-18 11:19:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 379.263 ms
Loss rate: 26.78%
-- Flow 1:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 379.263 ms
Loss rate: 26.78%

Run 2: Report of Vivace-loss — Data Link

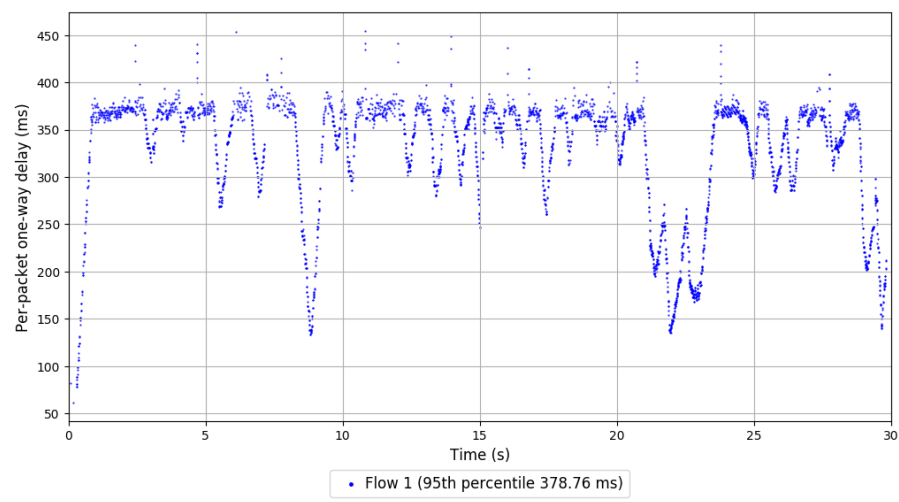
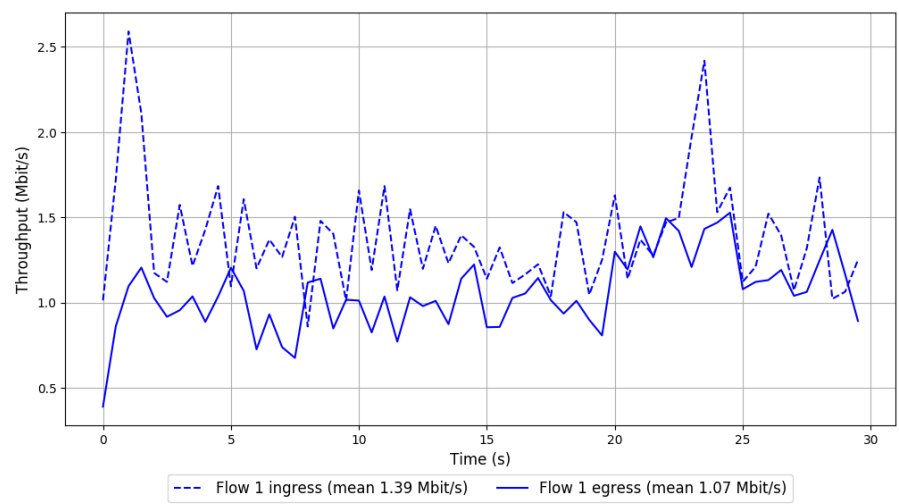


Run 3: Statistics of Vivace-loss

Start at: 2018-01-18 09:24:46
End at: 2018-01-18 09:25:16
Local clock offset: -11.585 ms
Remote clock offset: -18.04 ms

Below is generated by plot.py at 2018-01-18 11:19:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 378.764 ms
Loss rate: 23.66%
-- Flow 1:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 378.764 ms
Loss rate: 23.66%

Run 3: Report of Vivace-loss — Data Link



Run 1: Statistics of Vivace-LTE

Start at: 2018-01-18 08:50:16

End at: 2018-01-18 08:50:46

Local clock offset: 6.921 ms

Remote clock offset: -20.0 ms

Below is generated by plot.py at 2018-01-18 11:19:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 358.606 ms

Loss rate: 16.47%

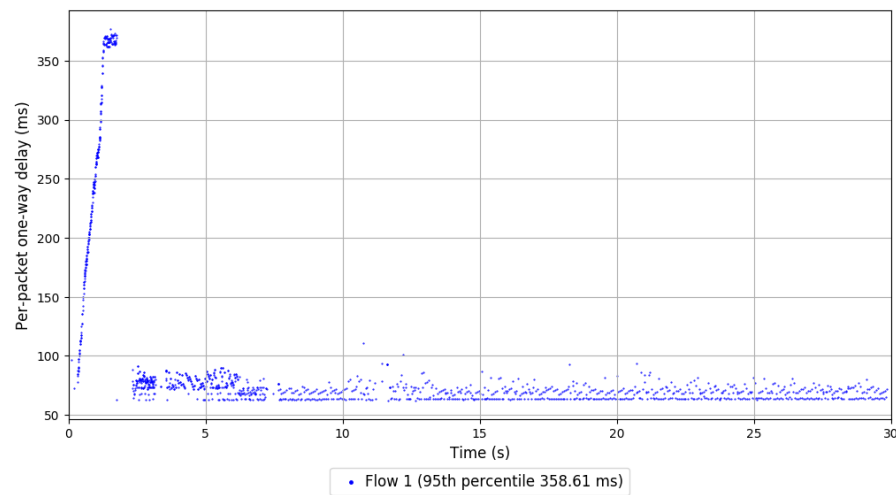
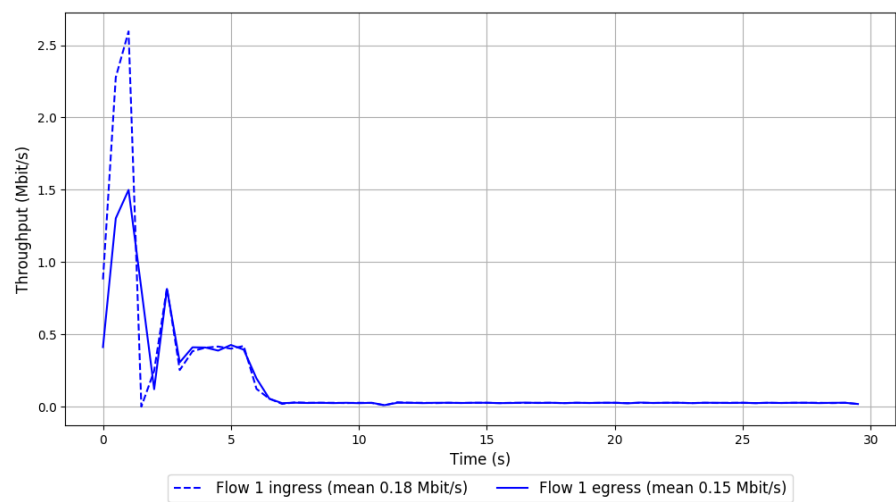
-- Flow 1:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 358.606 ms

Loss rate: 16.47%

Run 1: Report of Vivace-LTE — Data Link

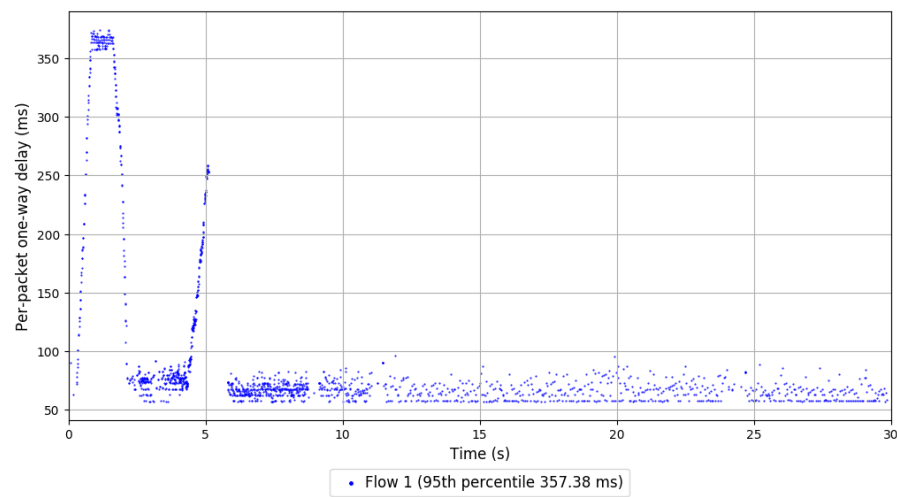
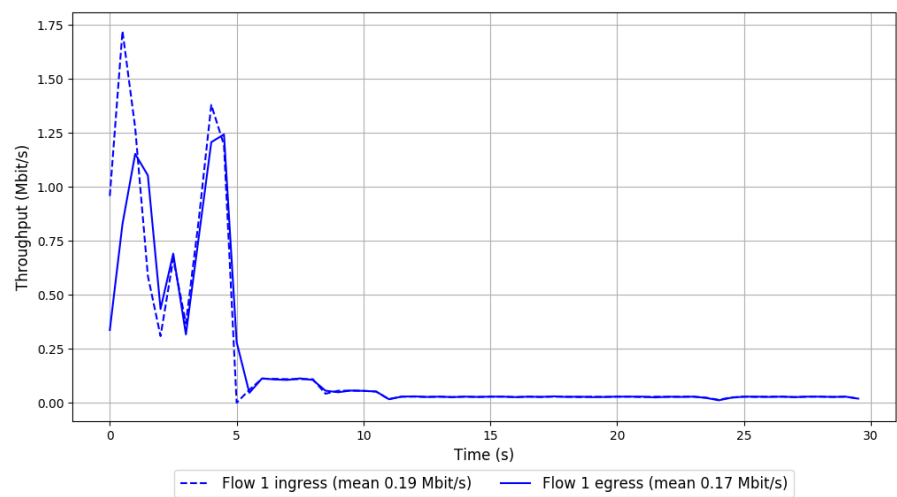


Run 2: Statistics of Vivace-LTE

Start at: 2018-01-18 09:10:23
End at: 2018-01-18 09:10:53
Local clock offset: -20.719 ms
Remote clock offset: -17.686 ms

Below is generated by plot.py at 2018-01-18 11:19:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 357.380 ms
Loss rate: 9.03%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 357.380 ms
Loss rate: 9.03%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-01-18 09:31:03

End at: 2018-01-18 09:31:33

Local clock offset: -11.072 ms

Below is generated by plot.py at 2018-01-18 11:19:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 225.228 ms

Loss rate: 14.04%

-- Flow 1:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 225.228 ms

Loss rate: 14.04%

Run 3: Report of Vivace-LTE — Data Link

