

Pantheon Report

Generated at 2018-02-27 08:07:50 (UTC).

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

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).

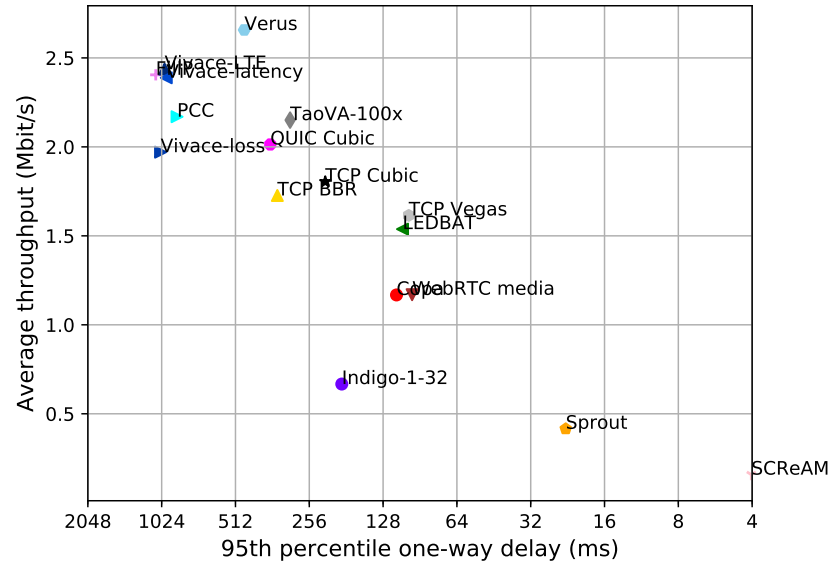
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

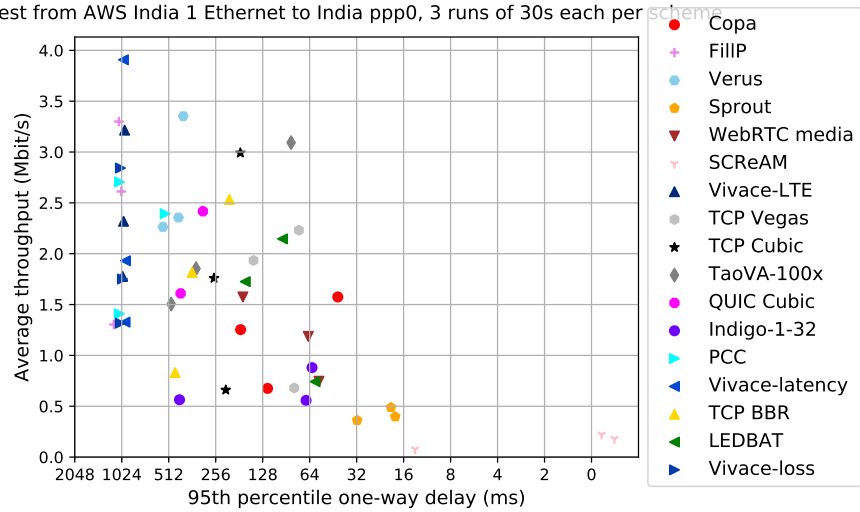
Git summary:

```
branch: master @ f12c42a2c63fdd9a862eefa0468859bf379b6623
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fixp @ 828bbf95fd4941149b5cec90f281d1c69ae1a5c6
third_party/genericCC @ 9249eea3238475c4d8cca1443d28df70bff6c4a2
third_party/indigo @ a9b2060d39e4da2e8987e893e3eca2a6c7cd0ab9
third_party/indigo-1-layer-128-unit @ 3ae9e4ef4230db7484501f82ce8b377695f2f66d
third_party/indigo-1-layer-32-unit @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-1-layer-32-unit-no-calib @ 1f3a7f75b41135ed5b540c0fd3505939528e2a5f
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-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeab30b267cde681
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 @ 7a4ba531e75b4a6f66f5c4580192120401784ce3
third_party/webRTC @ a488197ddd041ace68a42849b2540ad834825f42
```

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



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



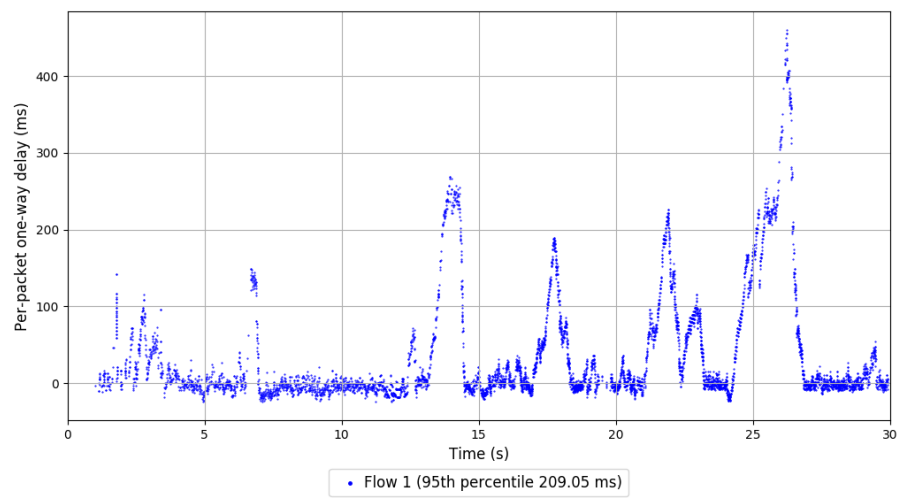
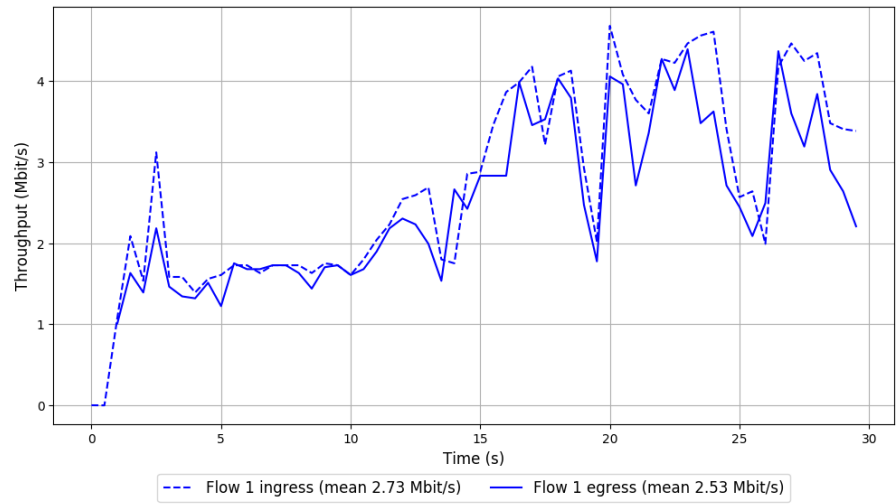
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	1.73	345.50	5.32
TCP Cubic	3	1.80	220.32	2.13
LEDBAT	3	1.54	106.68	2.18
PCC	3	2.17	886.07	38.32
QUIC Cubic	2	2.02	369.33	1.56
SCReAM	3	0.16	4.03	3.01
WebRTC media	3	1.17	97.48	0.82
Sprout	3	0.42	23.03	1.17
TaoVA-100x	3	2.15	306.56	5.39
TCP Vegas	3	1.61	100.60	1.29
Verus	3	2.66	471.45	2.57
Copa	3	1.17	112.85	5.12
FillP	3	2.40	1082.60	89.63
Indigo-1-32	3	0.67	188.65	0.52
Vivace-latency	3	2.39	980.99	8.35
Vivace-loss	3	1.97	1034.38	30.48
Vivace-LTE	3	2.44	996.66	7.24

Run 1: Statistics of TCP BBR

Start at: 2018-02-27 07:25:02
End at: 2018-02-27 07:25:32
Local clock offset: 0.495 ms
Remote clock offset: -80.873 ms

Below is generated by plot.py at 2018-02-27 08:07:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.53 Mbit/s
95th percentile per-packet one-way delay: 209.052 ms
Loss rate: 10.66%
-- Flow 1:
Average throughput: 2.53 Mbit/s
95th percentile per-packet one-way delay: 209.052 ms
Loss rate: 10.66%

Run 1: Report of TCP BBR — Data Link

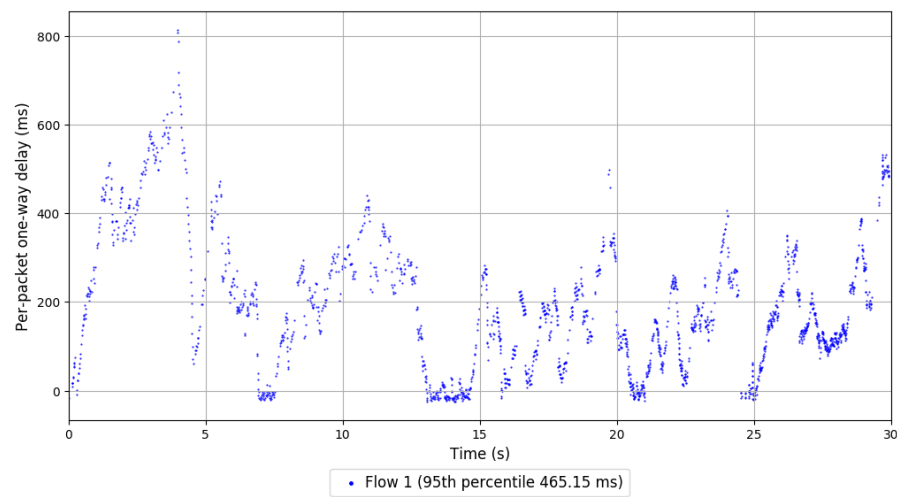
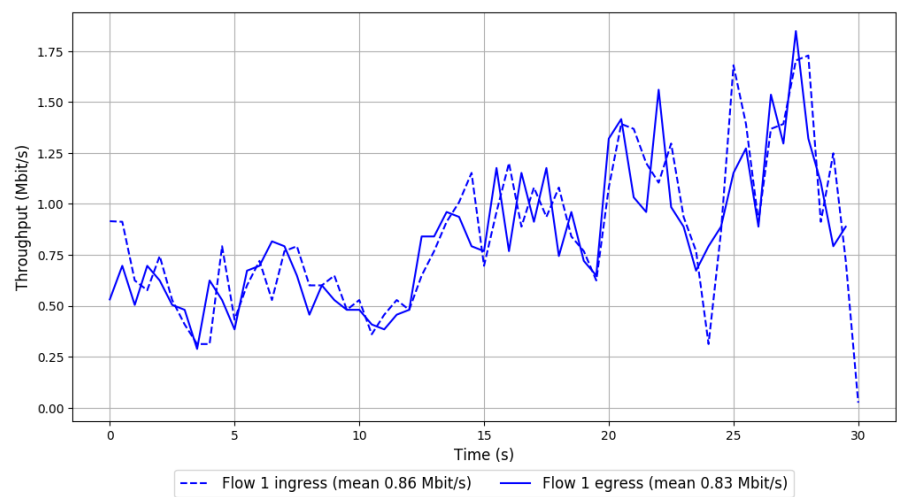


Run 2: Statistics of TCP BBR

Start at: 2018-02-27 07:44:46
End at: 2018-02-27 07:45:16
Local clock offset: 1.709 ms
Remote clock offset: -82.661 ms

Below is generated by plot.py at 2018-02-27 08:07:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 465.154 ms
Loss rate: 3.58%
-- Flow 1:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 465.154 ms
Loss rate: 3.58%

Run 2: Report of TCP BBR — Data Link

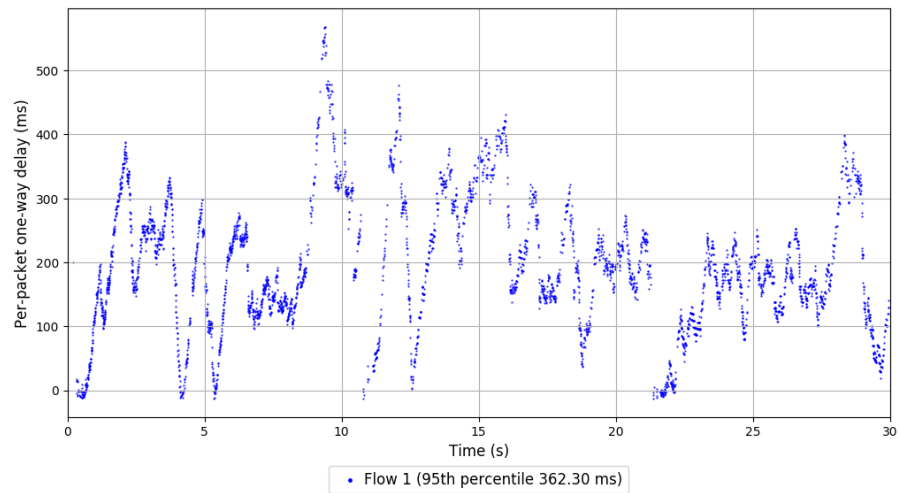
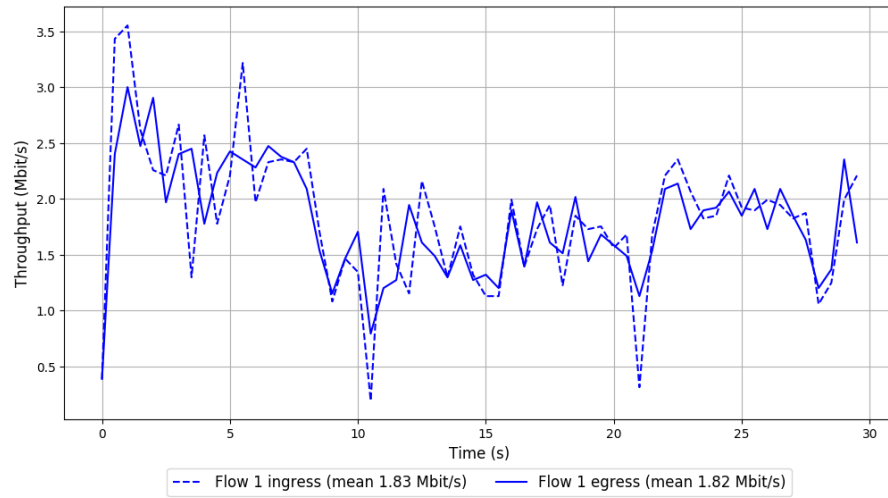


Run 3: Statistics of TCP BBR

Start at: 2018-02-27 08:04:33
End at: 2018-02-27 08:05:03
Local clock offset: 2.493 ms
Remote clock offset: -62.969 ms

Below is generated by plot.py at 2018-02-27 08:07:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 362.304 ms
Loss rate: 1.73%
-- Flow 1:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 362.304 ms
Loss rate: 1.73%

Run 3: Report of TCP BBR — Data Link

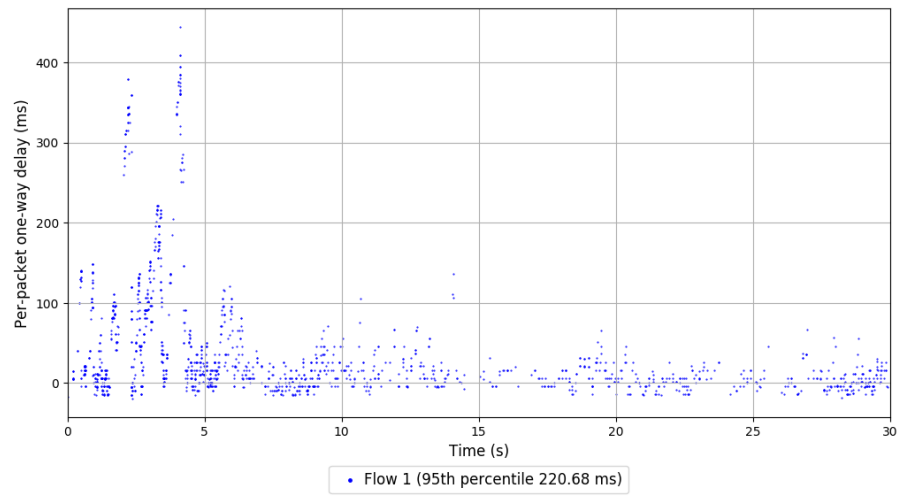
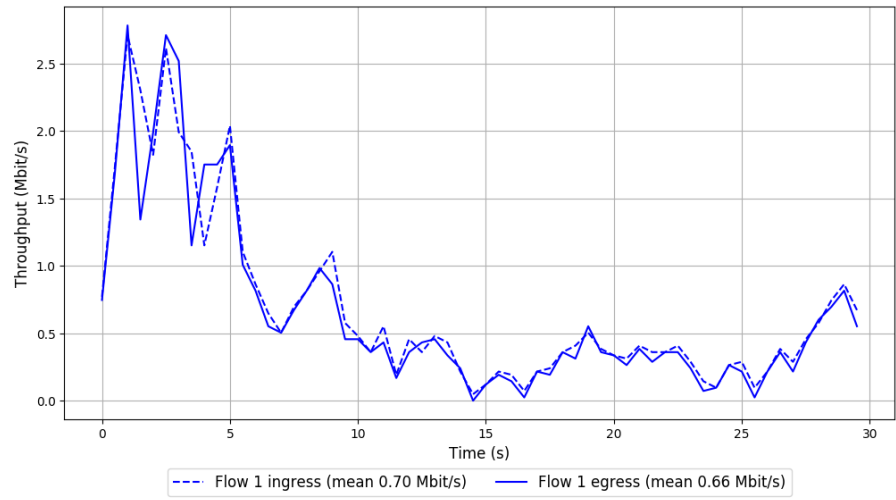


Run 1: Statistics of TCP Cubic

Start at: 2018-02-27 07:22:50
End at: 2018-02-27 07:23:20
Local clock offset: -2.128 ms
Remote clock offset: -78.377 ms

Below is generated by plot.py at 2018-02-27 08:07:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 220.678 ms
Loss rate: 5.24%
-- Flow 1:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 220.678 ms
Loss rate: 5.24%

Run 1: Report of TCP Cubic — Data Link

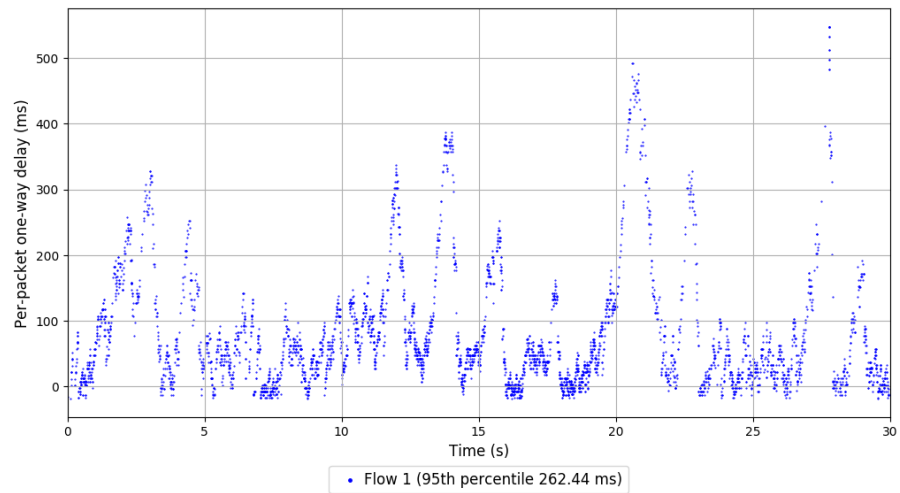
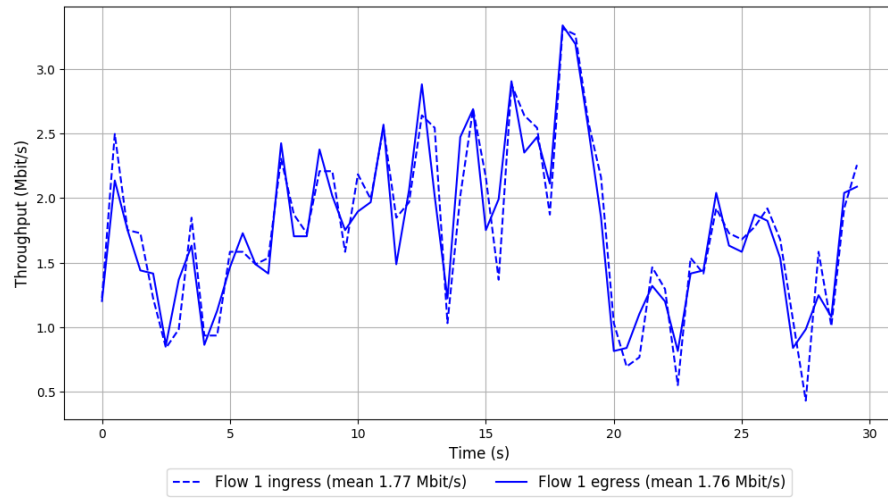


Run 2: Statistics of TCP Cubic

Start at: 2018-02-27 07:42:34
End at: 2018-02-27 07:43:04
Local clock offset: 0.152 ms
Remote clock offset: -78.812 ms

Below is generated by plot.py at 2018-02-27 08:07:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 262.442 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 262.442 ms
Loss rate: 0.63%

Run 2: Report of TCP Cubic — Data Link

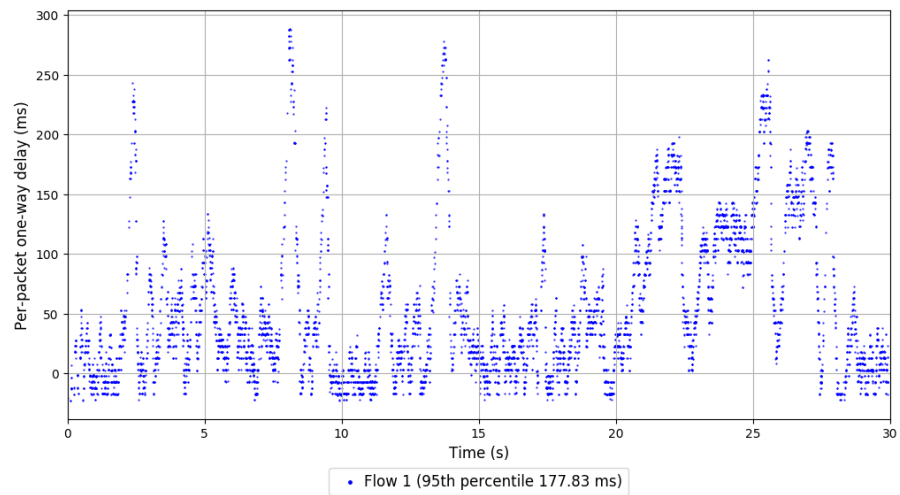
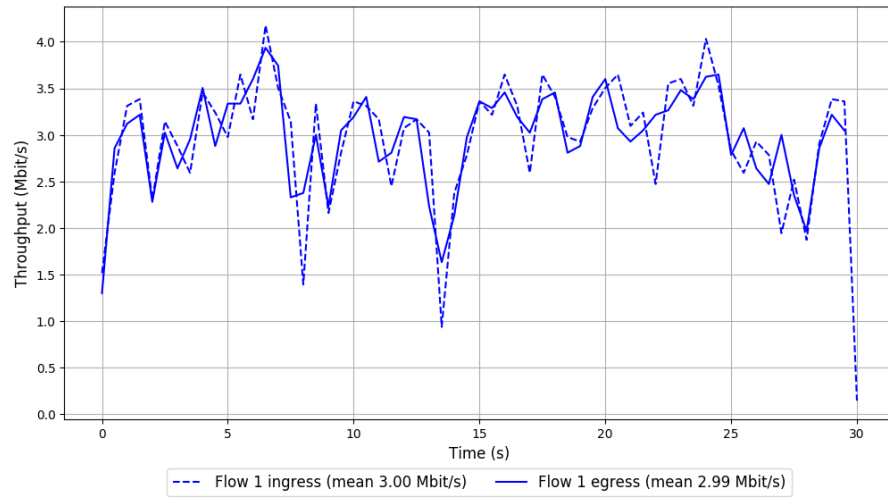


Run 3: Statistics of TCP Cubic

Start at: 2018-02-27 08:02:21
End at: 2018-02-27 08:02:51
Local clock offset: 0.436 ms
Remote clock offset: -76.096 ms

Below is generated by plot.py at 2018-02-27 08:07:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 177.829 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 177.829 ms
Loss rate: 0.51%

Run 3: Report of TCP Cubic — Data Link

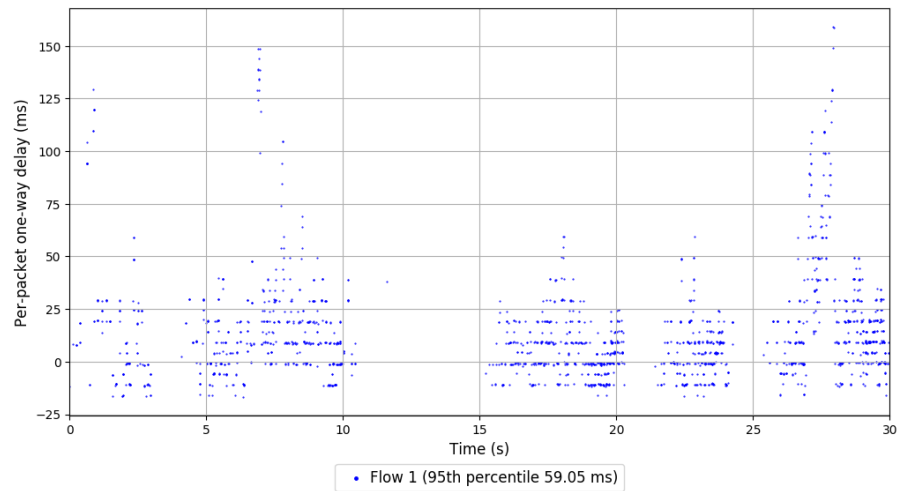
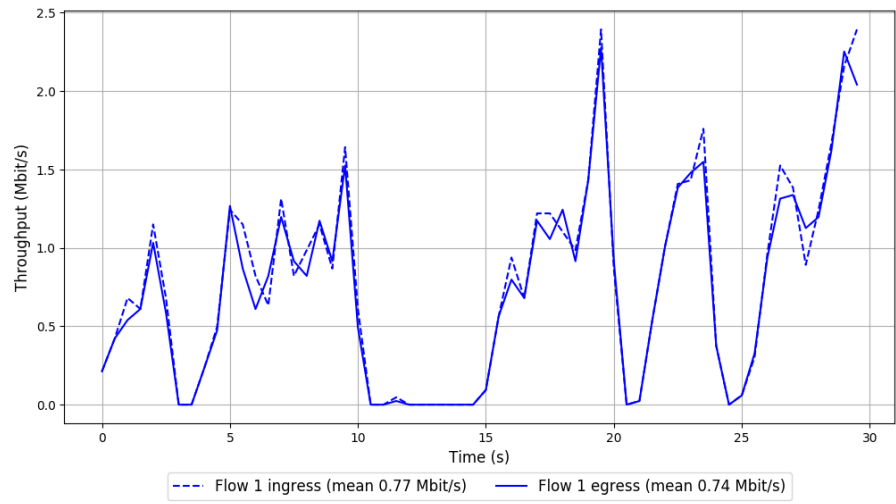


```
Run 1: Statistics of LEDBAT

Start at: 2018-02-27 07:18:26
End at: 2018-02-27 07:18:56
Local clock offset: 0.376 ms
Remote clock offset: -75.65 ms

# Below is generated by plot.py at 2018-02-27 08:07:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 59.055 ms
Loss rate: 4.20%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 59.055 ms
Loss rate: 4.20%
```


Run 1: Report of LEDBAT — Data Link

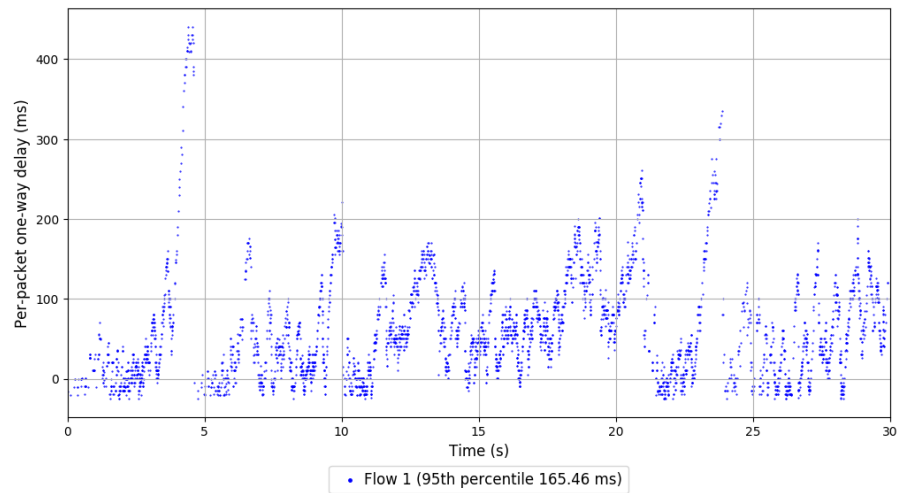
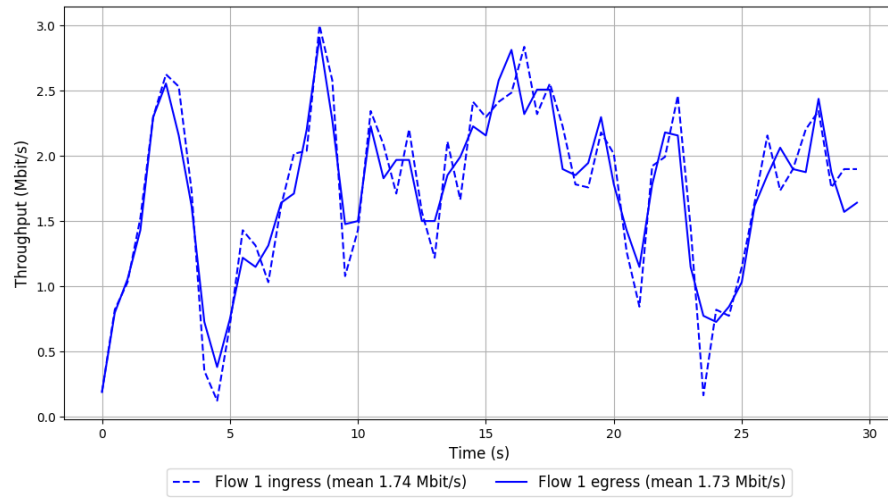


Run 2: Statistics of LEDBAT

Start at: 2018-02-27 07:38:12
End at: 2018-02-27 07:38:42
Local clock offset: -0.192 ms
Remote clock offset: -83.936 ms

Below is generated by plot.py at 2018-02-27 08:07:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 165.455 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 165.455 ms
Loss rate: 0.88%

Run 2: Report of LEDBAT — Data Link

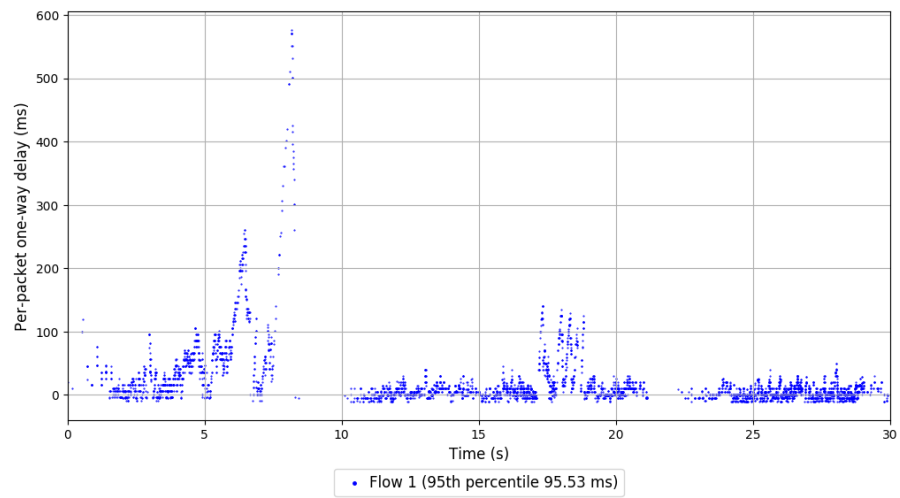
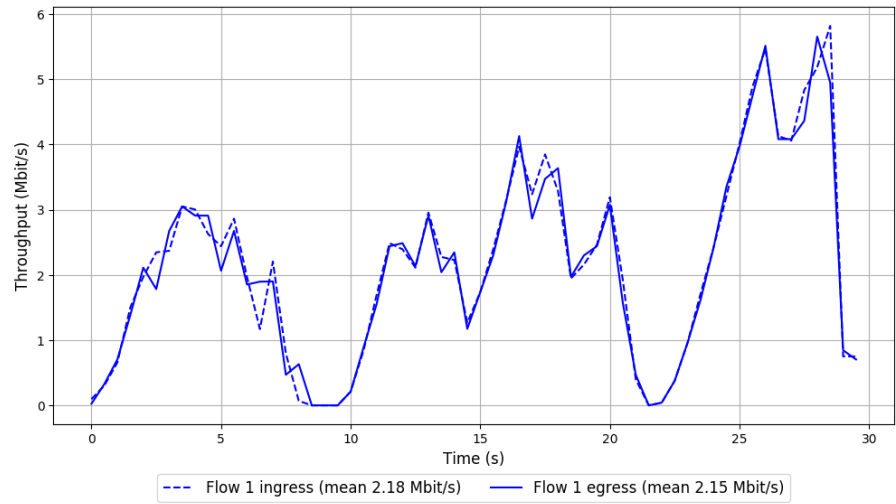


Run 3: Statistics of LEDBAT

Start at: 2018-02-27 07:57:55
End at: 2018-02-27 07:58:25
Local clock offset: -0.996 ms
Remote clock offset: -65.551 ms

Below is generated by plot.py at 2018-02-27 08:07:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.15 Mbit/s
95th percentile per-packet one-way delay: 95.534 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 2.15 Mbit/s
95th percentile per-packet one-way delay: 95.534 ms
Loss rate: 1.46%

Run 3: Report of LEDBAT — Data Link

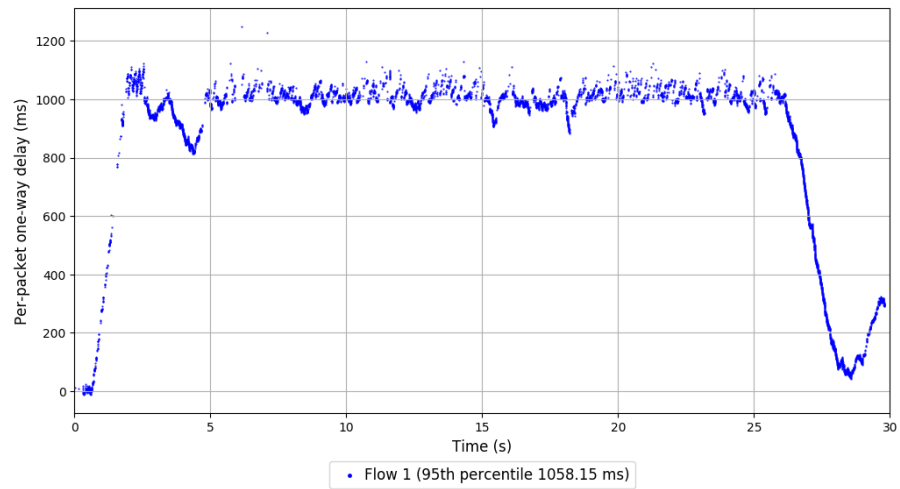
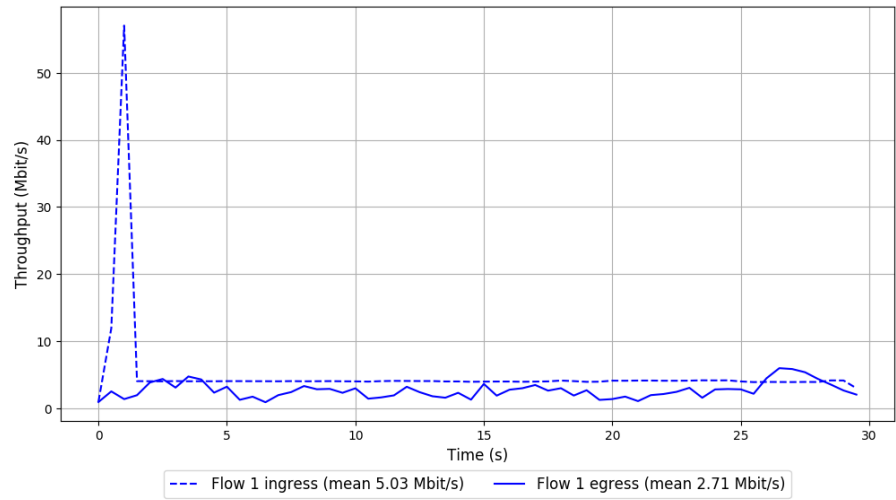


Run 1: Statistics of PCC

Start at: 2018-02-27 07:23:56
End at: 2018-02-27 07:24:26
Local clock offset: -1.395 ms
Remote clock offset: -74.751 ms

Below is generated by plot.py at 2018-02-27 08:07:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.71 Mbit/s
95th percentile per-packet one-way delay: 1058.151 ms
Loss rate: 46.38%
-- Flow 1:
Average throughput: 2.71 Mbit/s
95th percentile per-packet one-way delay: 1058.151 ms
Loss rate: 46.38%

Run 1: Report of PCC — Data Link

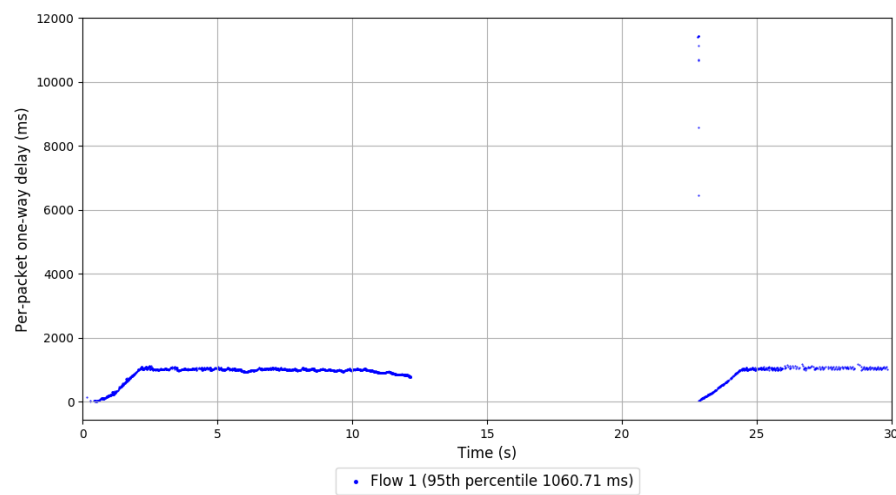
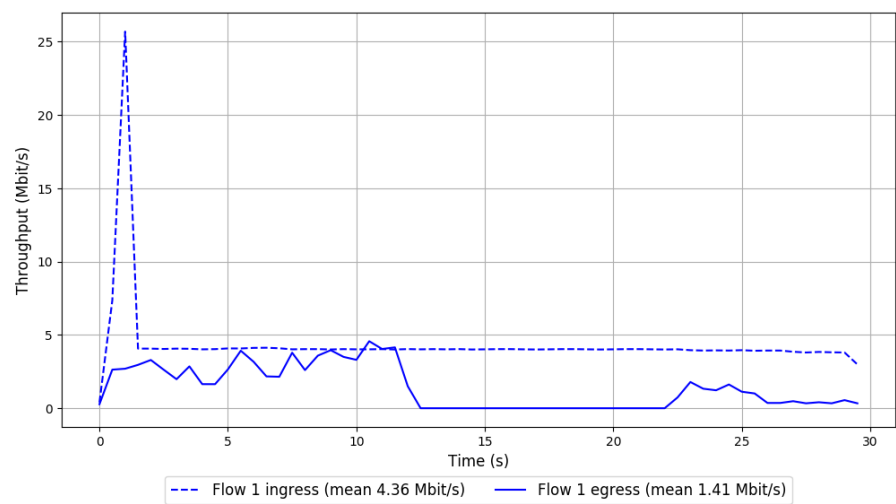


Run 2: Statistics of PCC

Start at: 2018-02-27 07:43:40
End at: 2018-02-27 07:44:10
Local clock offset: -6.747 ms
Remote clock offset: -79.274 ms

Below is generated by plot.py at 2018-02-27 08:07:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 1060.713 ms
Loss rate: 67.89%
-- Flow 1:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 1060.713 ms
Loss rate: 67.89%

Run 2: Report of PCC — Data Link

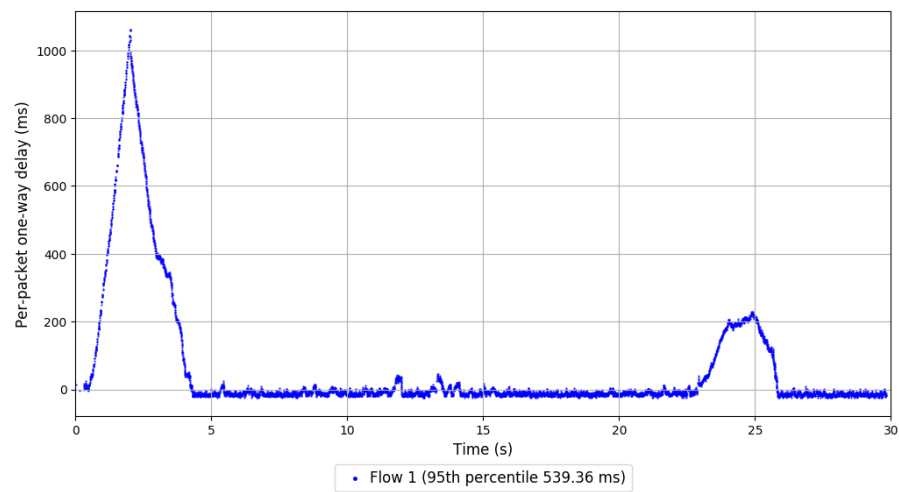
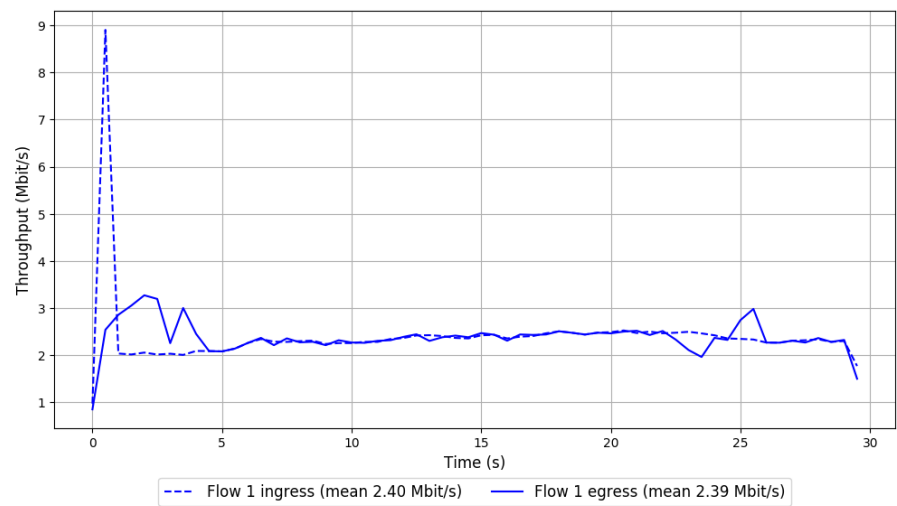


Run 3: Statistics of PCC

Start at: 2018-02-27 08:03:27
End at: 2018-02-27 08:03:57
Local clock offset: 1.434 ms
Remote clock offset: -70.925 ms

Below is generated by plot.py at 2018-02-27 08:07:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 539.357 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 539.357 ms
Loss rate: 0.69%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

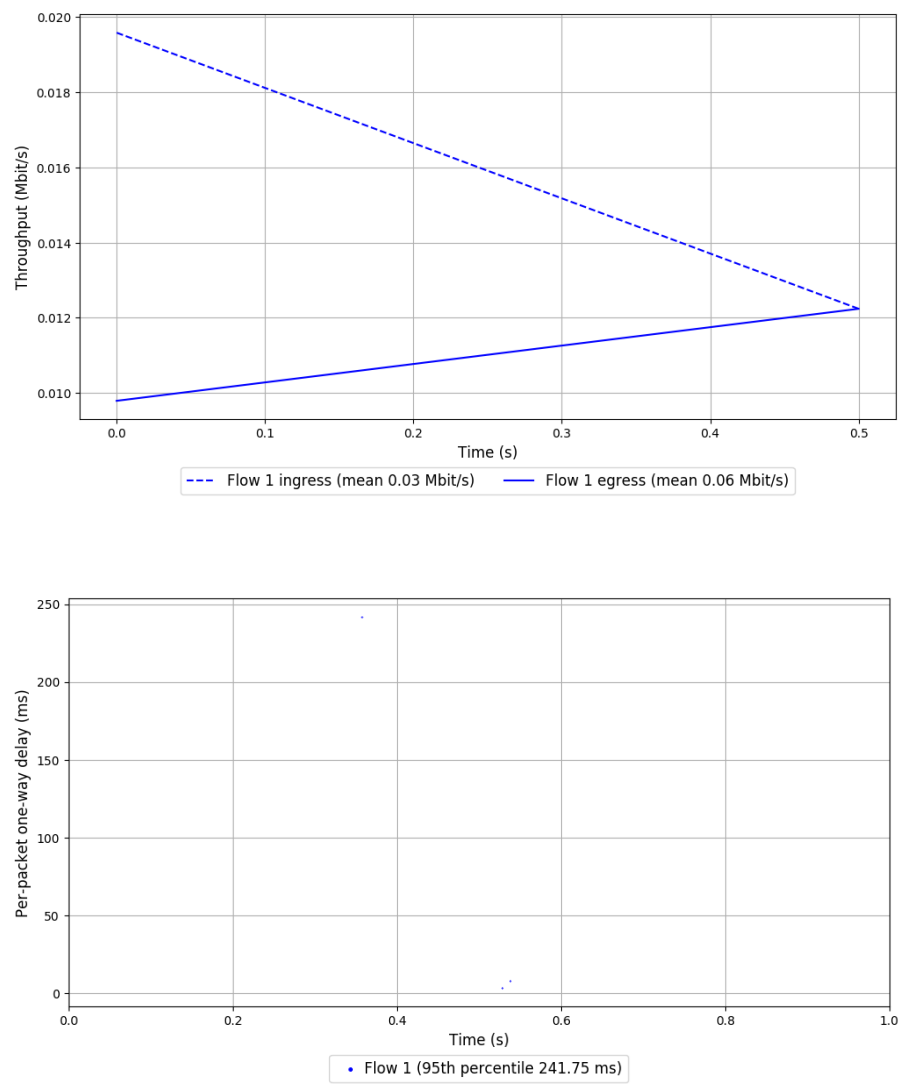
Start at: 2018-02-27 07:11:51

End at: 2018-02-27 07:12:21

Local clock offset: -1.658 ms

Remote clock offset: -73.625 ms

Run 1: Report of QUIC Cubic — Data Link

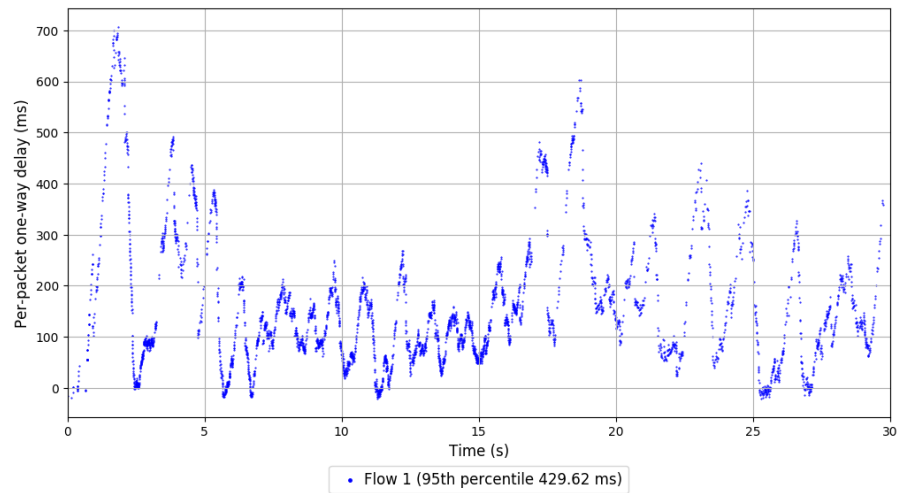
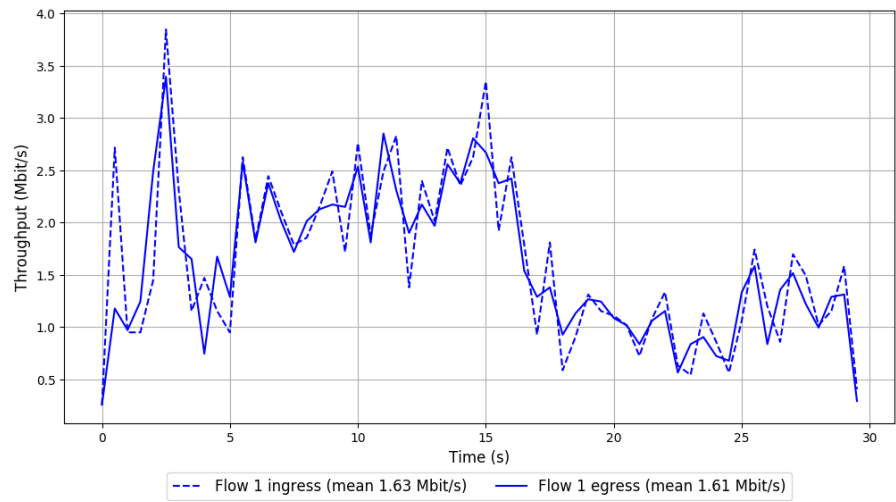


Run 2: Statistics of QUIC Cubic

Start at: 2018-02-27 07:31:37
End at: 2018-02-27 07:32:07
Local clock offset: 0.647 ms
Remote clock offset: -78.546 ms

Below is generated by plot.py at 2018-02-27 08:07:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 429.619 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 429.619 ms
Loss rate: 1.54%

Run 2: Report of QUIC Cubic — Data Link

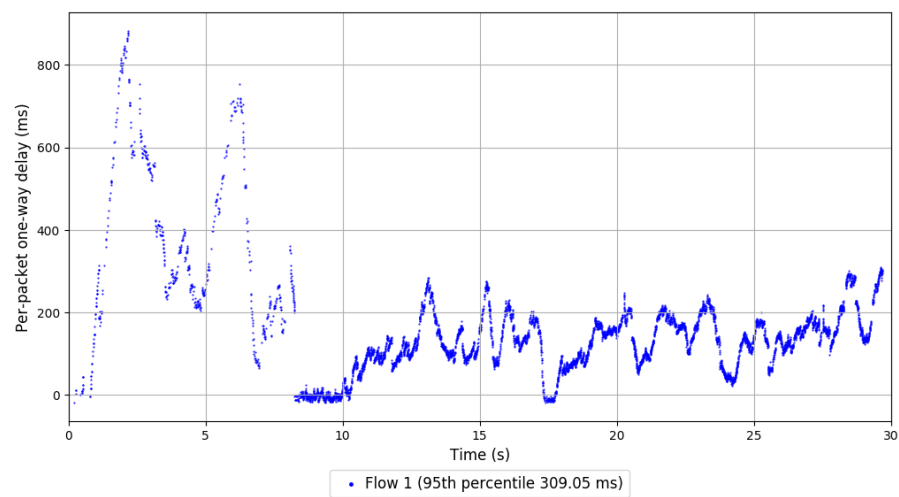
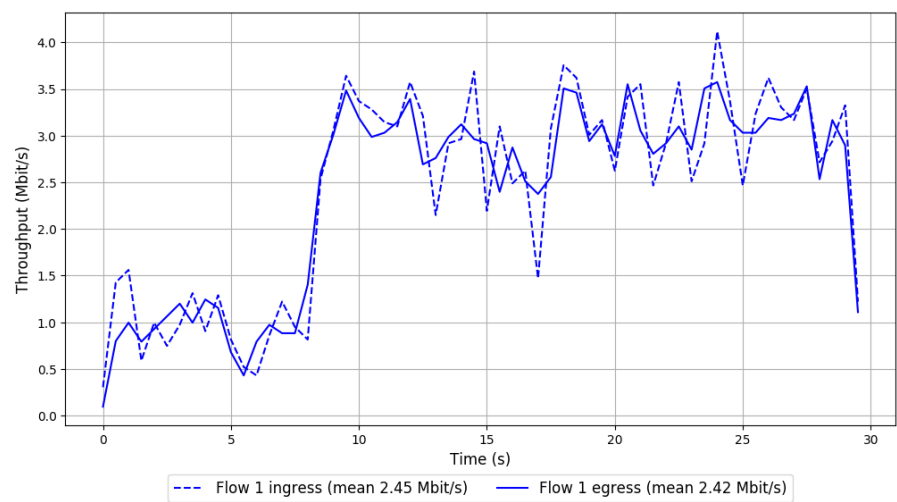


Run 3: Statistics of QUIC Cubic

Start at: 2018-02-27 07:51:21
End at: 2018-02-27 07:51:51
Local clock offset: 0.314 ms
Remote clock offset: -76.289 ms

Below is generated by plot.py at 2018-02-27 08:07:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 309.048 ms
Loss rate: 1.57%
-- Flow 1:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 309.048 ms
Loss rate: 1.57%

Run 3: Report of QUIC Cubic — Data Link

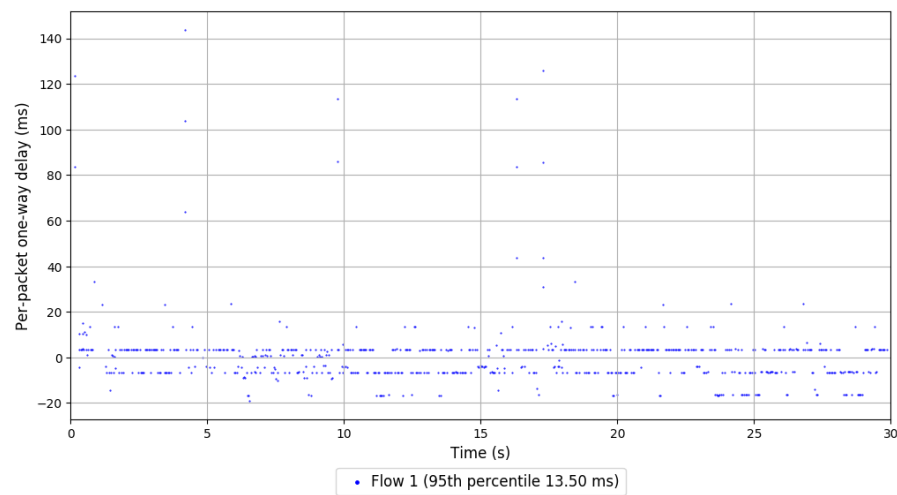
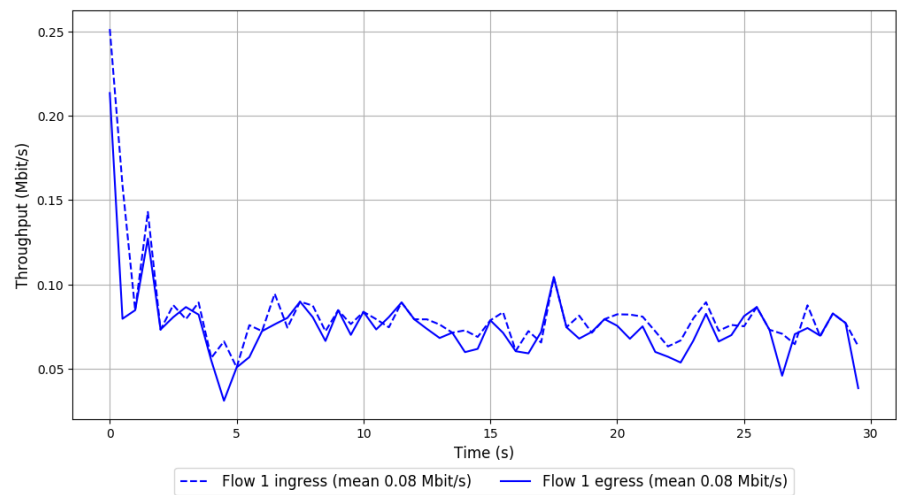


Run 1: Statistics of SCReAM

Start at: 2018-02-27 07:26:08
End at: 2018-02-27 07:26:38
Local clock offset: -1.082 ms
Remote clock offset: -79.211 ms

Below is generated by plot.py at 2018-02-27 08:07:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 13.502 ms
Loss rate: 8.80%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 13.502 ms
Loss rate: 8.80%

Run 1: Report of SReAM — Data Link

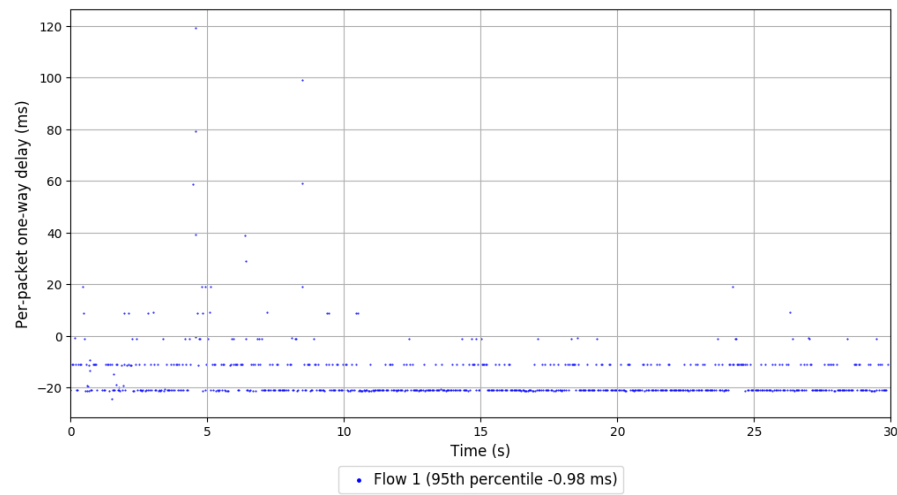
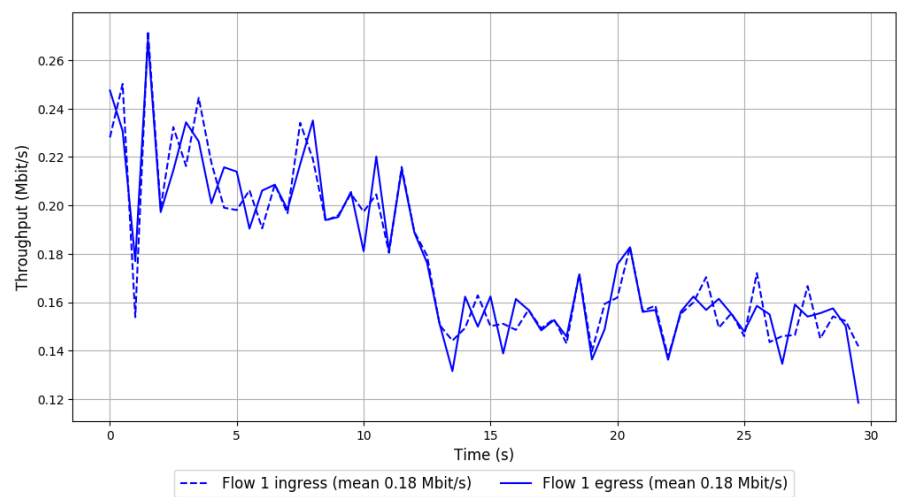


Run 2: Statistics of SCReAM

Start at: 2018-02-27 07:45:52
End at: 2018-02-27 07:46:22
Local clock offset: 3.214 ms
Remote clock offset: -82.943 ms

Below is generated by plot.py at 2018-02-27 08:07:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: -0.977 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: -0.977 ms
Loss rate: 0.11%

Run 2: Report of SReAM — Data Link

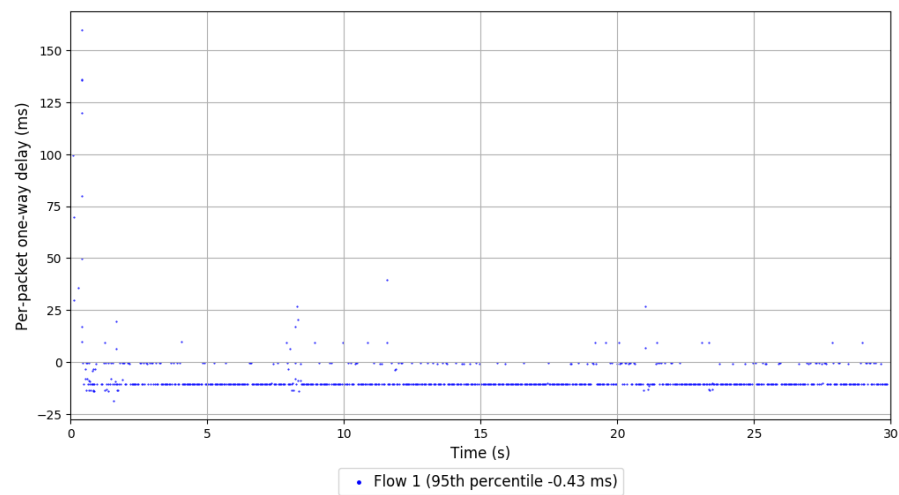
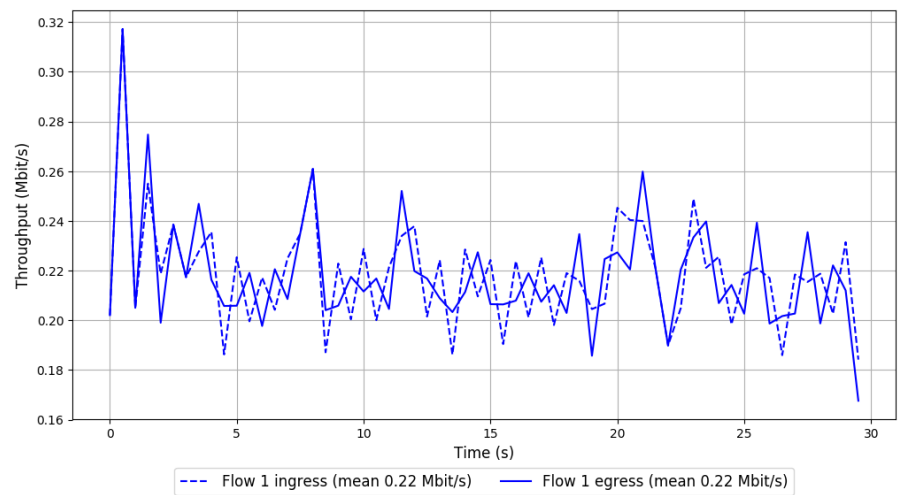


Run 3: Statistics of SCReAM

Start at: 2018-02-27 08:05:39
End at: 2018-02-27 08:06:09
Local clock offset: 1.017 ms
Remote clock offset: -65.127 ms

Below is generated by plot.py at 2018-02-27 08:07:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: -0.432 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: -0.432 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

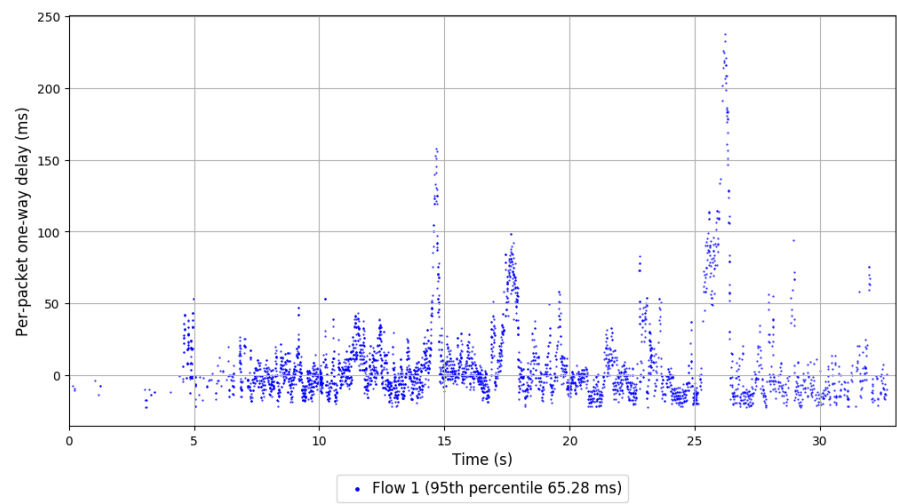
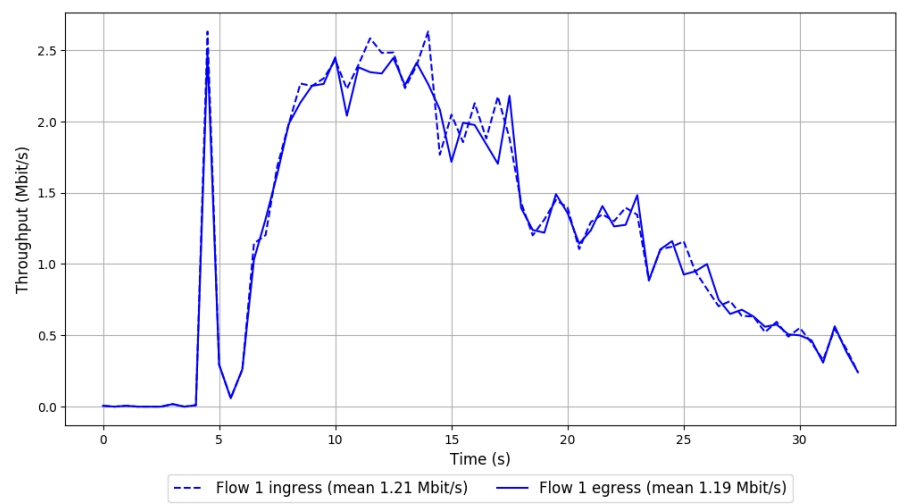


Run 1: Statistics of WebRTC media

Start at: 2018-02-27 07:20:38
End at: 2018-02-27 07:21:09
Local clock offset: -3.313 ms
Remote clock offset: -81.833 ms

Below is generated by plot.py at 2018-02-27 08:07:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 65.285 ms
Loss rate: 2.10%
-- Flow 1:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 65.285 ms
Loss rate: 2.10%

Run 1: Report of WebRTC media — Data Link

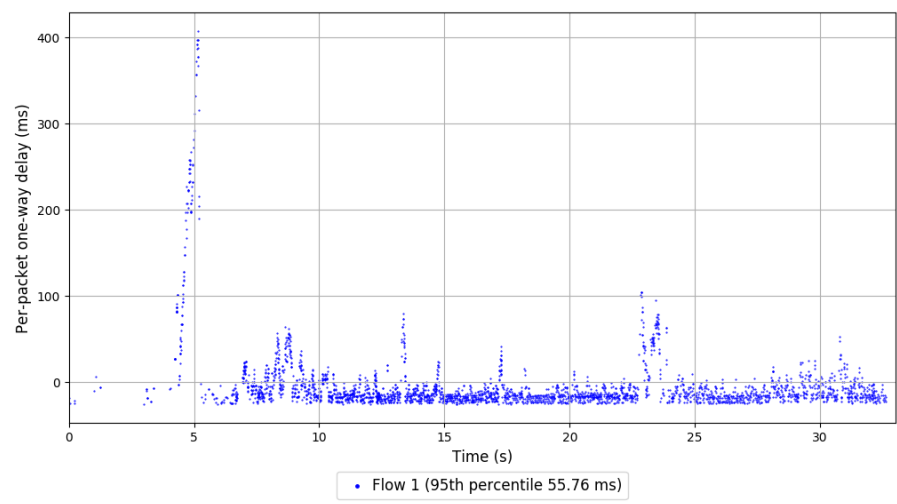
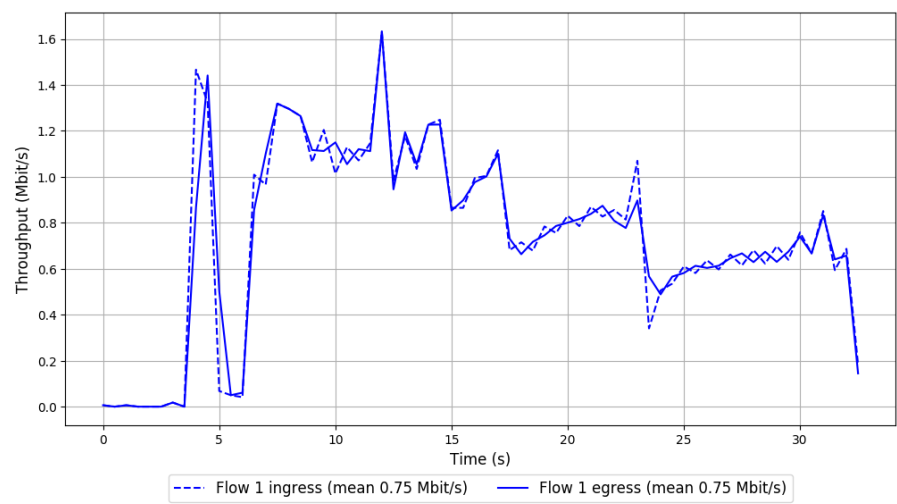


Run 2: Statistics of WebRTC media

Start at: 2018-02-27 07:40:23
End at: 2018-02-27 07:40:53
Local clock offset: 0.027 ms
Remote clock offset: -82.871 ms

Below is generated by plot.py at 2018-02-27 08:07:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 55.759 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 55.759 ms
Loss rate: 0.18%

Run 2: Report of WebRTC media — Data Link

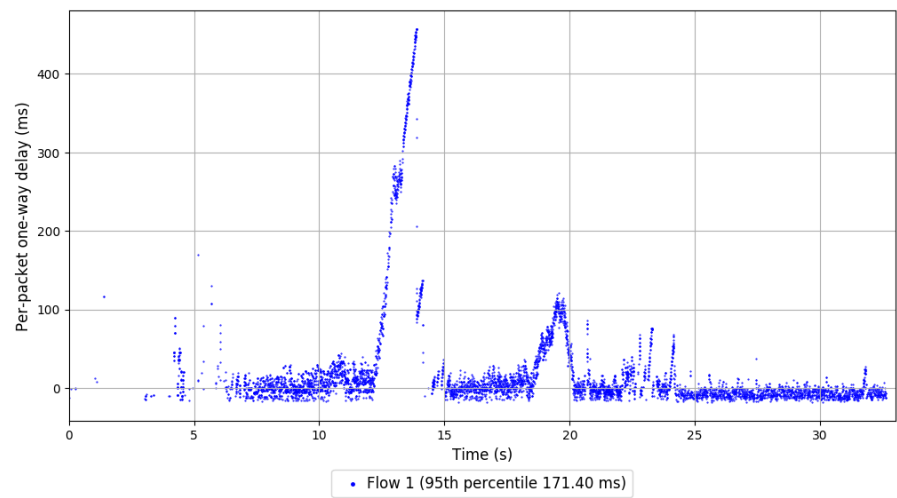
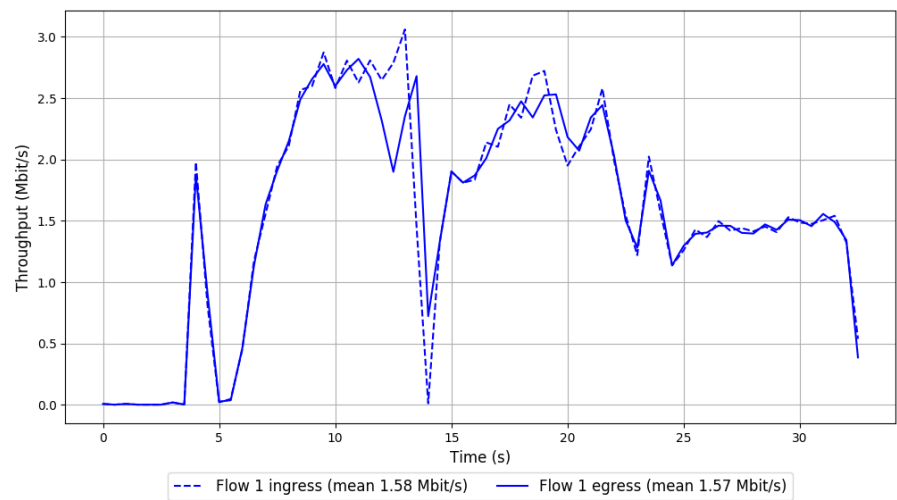


Run 3: Statistics of WebRTC media

Start at: 2018-02-27 08:00:07
End at: 2018-02-27 08:00:37
Local clock offset: 1.384 ms
Remote clock offset: -67.943 ms

Below is generated by plot.py at 2018-02-27 08:07:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 171.399 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 171.399 ms
Loss rate: 0.19%

Run 3: Report of WebRTC media — Data Link

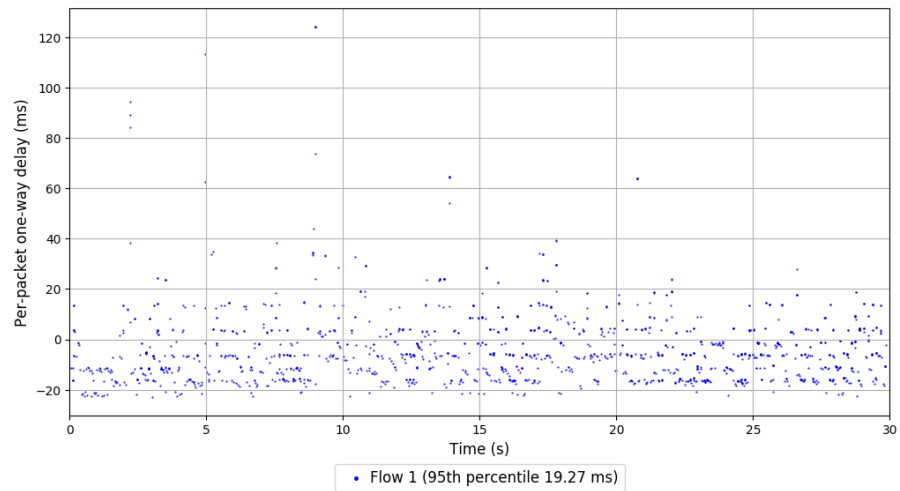
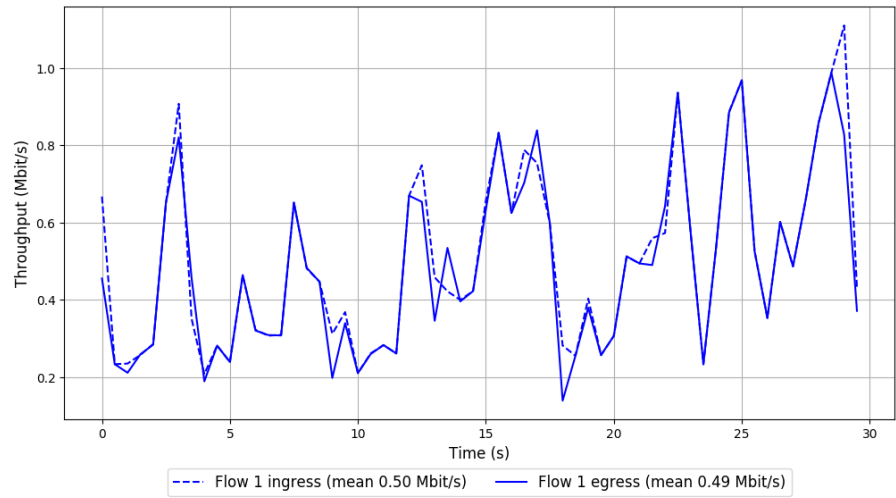


Run 1: Statistics of Sprout

Start at: 2018-02-27 07:12:57
End at: 2018-02-27 07:13:27
Local clock offset: 1.543 ms
Remote clock offset: -76.77 ms

Below is generated by plot.py at 2018-02-27 08:07:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 19.270 ms
Loss rate: 3.34%
-- Flow 1:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 19.270 ms
Loss rate: 3.34%

Run 1: Report of Sprout — Data Link

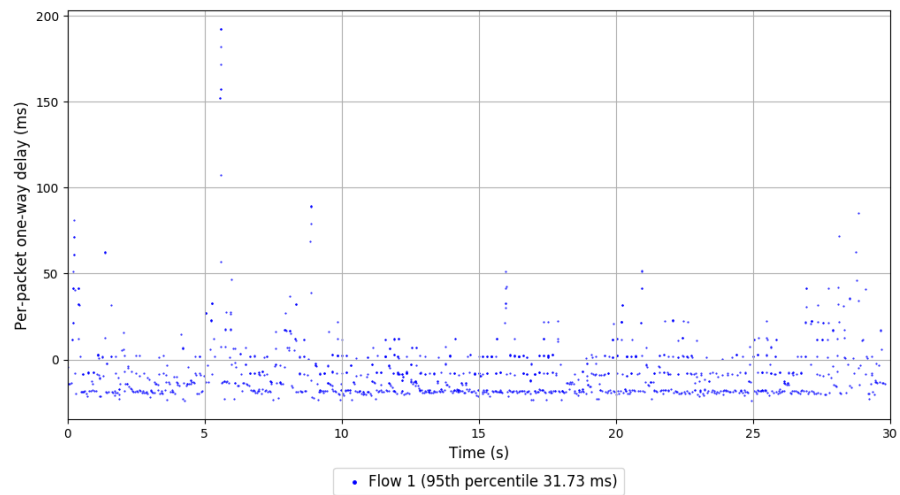
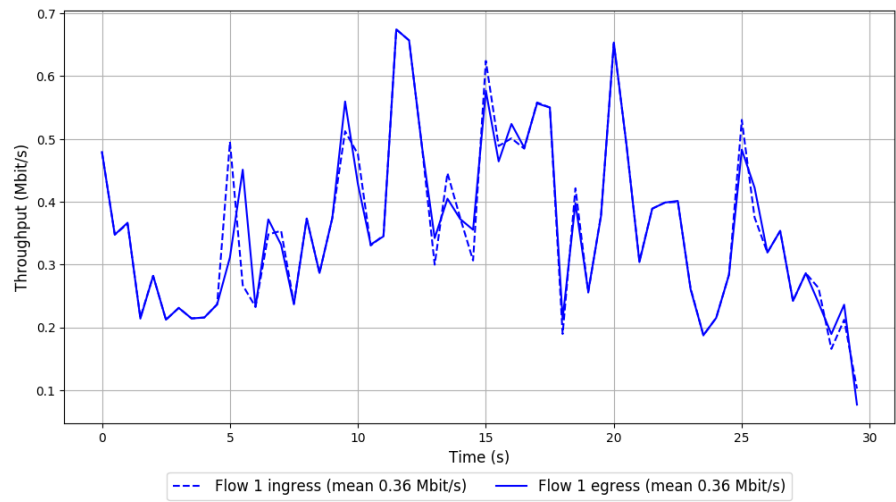


Run 2: Statistics of Sprout

Start at: 2018-02-27 07:32:43
End at: 2018-02-27 07:33:13
Local clock offset: -0.123 ms
Remote clock offset: -79.858 ms

Below is generated by plot.py at 2018-02-27 08:07:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 31.735 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 31.735 ms
Loss rate: 0.01%

Run 2: Report of Sprout — Data Link

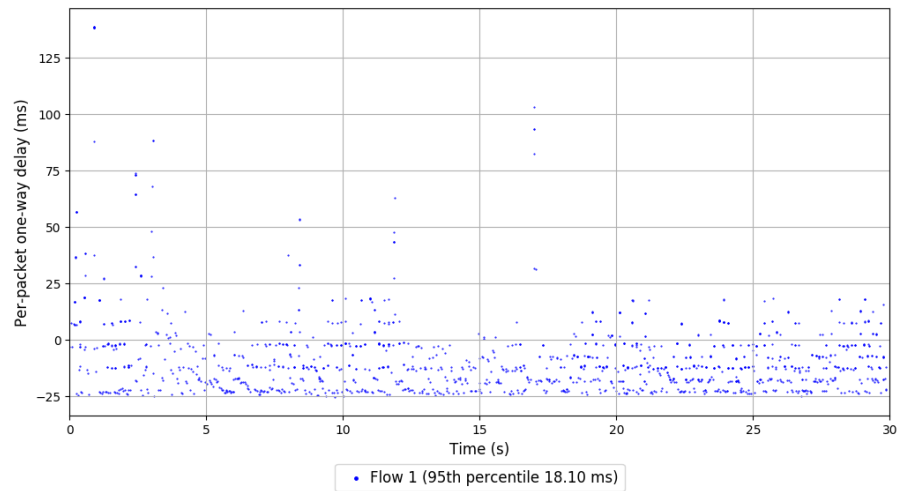
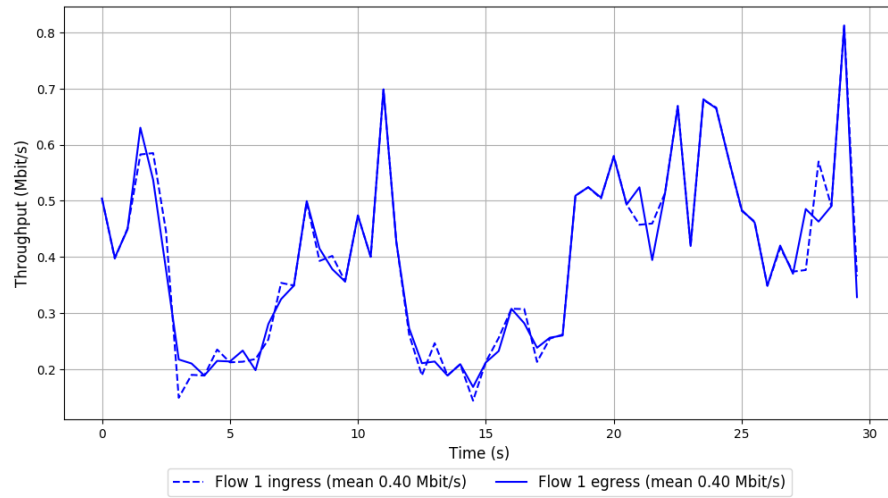


Run 3: Statistics of Sprout

Start at: 2018-02-27 07:52:27
End at: 2018-02-27 07:52:57
Local clock offset: -1.093 ms
Remote clock offset: -81.618 ms

Below is generated by plot.py at 2018-02-27 08:07:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 18.098 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 18.098 ms
Loss rate: 0.16%

Run 3: Report of Sprout — Data Link

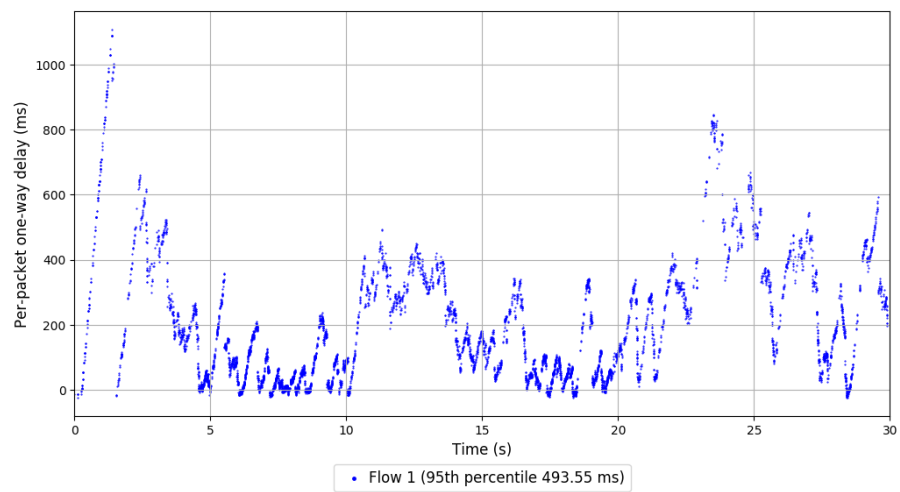
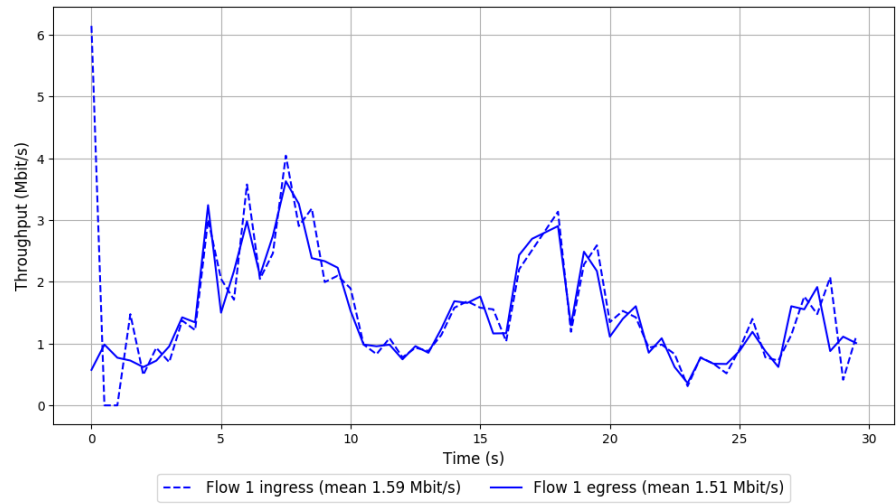


Run 1: Statistics of TaoVA-100x

Start at: 2018-02-27 07:07:23
End at: 2018-02-27 07:07:53
Local clock offset: -2.095 ms
Remote clock offset: -79.436 ms

Below is generated by plot.py at 2018-02-27 08:07:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 493.554 ms
Loss rate: 5.52%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 493.554 ms
Loss rate: 5.52%

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

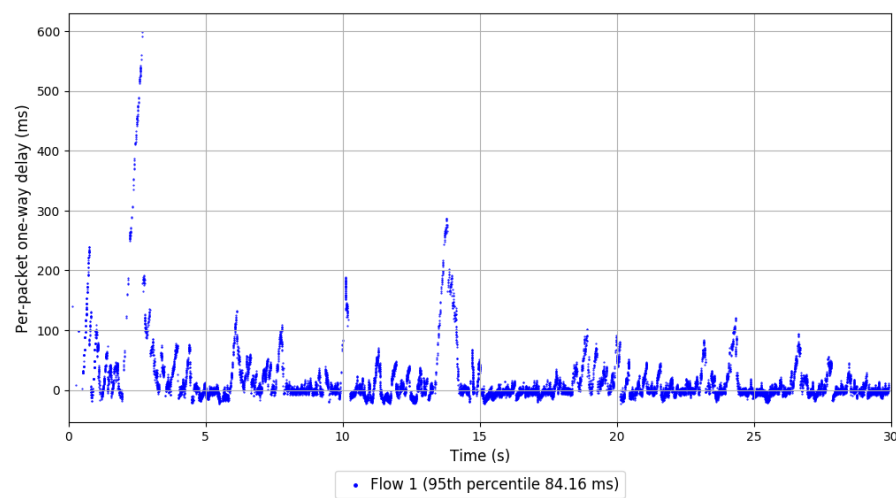
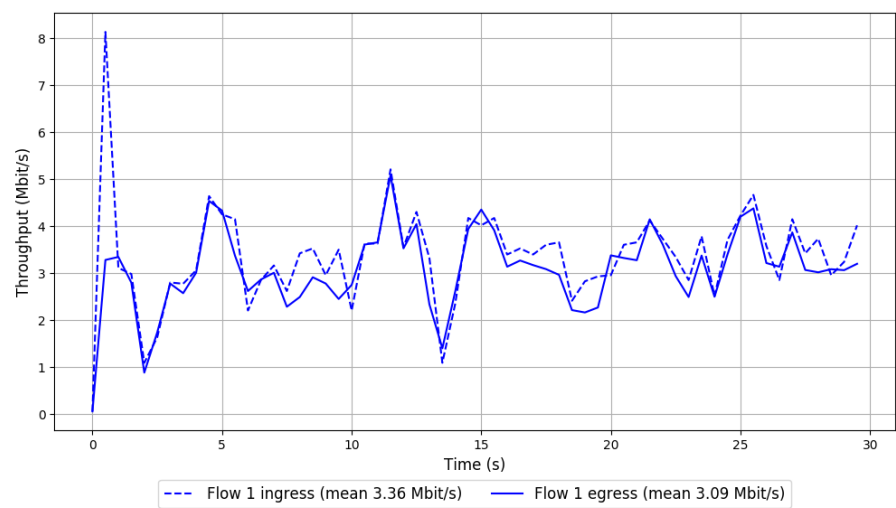


Run 2: Statistics of TaoVA-100x

Start at: 2018-02-27 07:27:14
End at: 2018-02-27 07:27:44
Local clock offset: -0.477 ms
Remote clock offset: -81.524 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.09 Mbit/s
95th percentile per-packet one-way delay: 84.157 ms
Loss rate: 8.54%
-- Flow 1:
Average throughput: 3.09 Mbit/s
95th percentile per-packet one-way delay: 84.157 ms
Loss rate: 8.54%

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

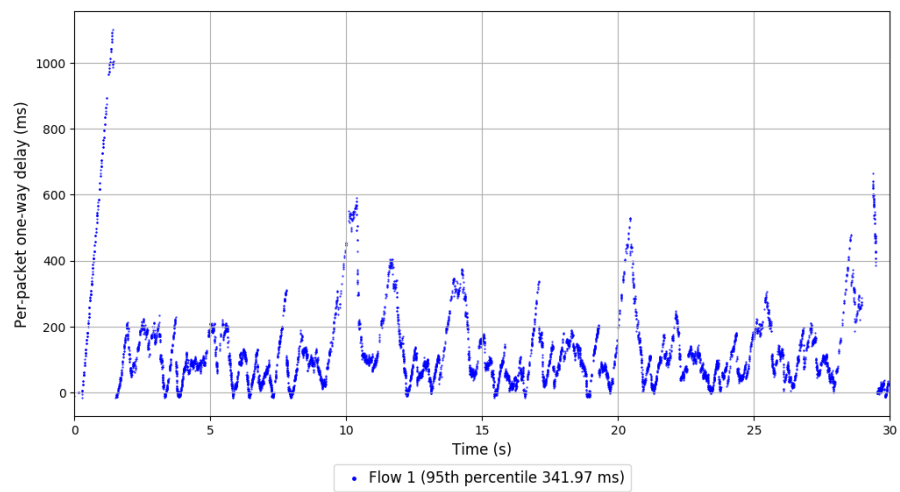
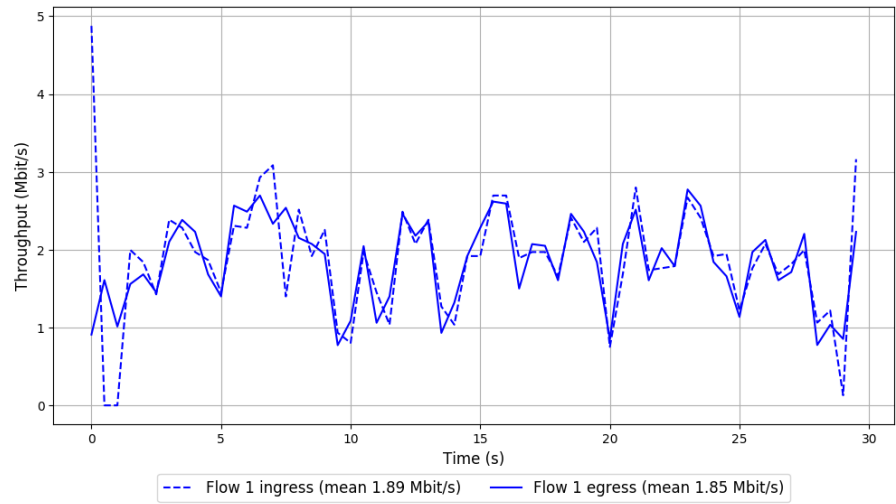


Run 3: Statistics of TaoVA-100x

Start at: 2018-02-27 07:46:57
End at: 2018-02-27 07:47:28
Local clock offset: 1.31 ms
Remote clock offset: -74.947 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 341.967 ms
Loss rate: 2.11%
-- Flow 1:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 341.967 ms
Loss rate: 2.11%

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

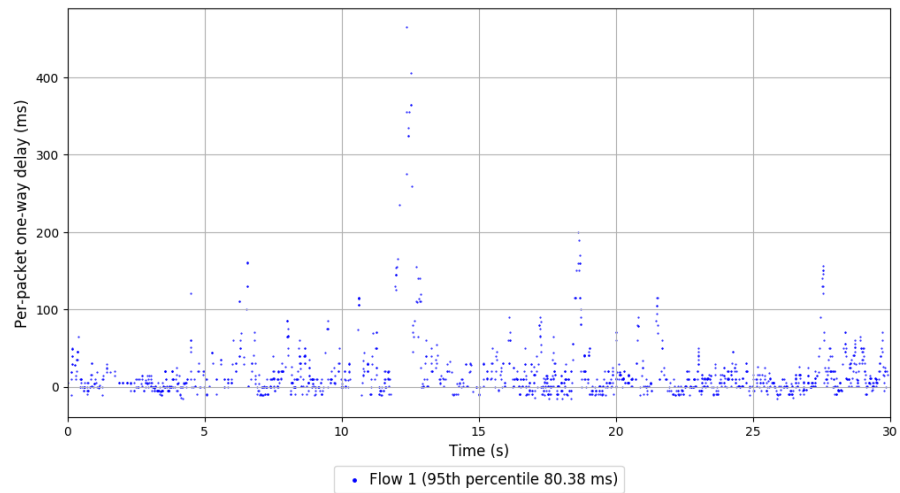
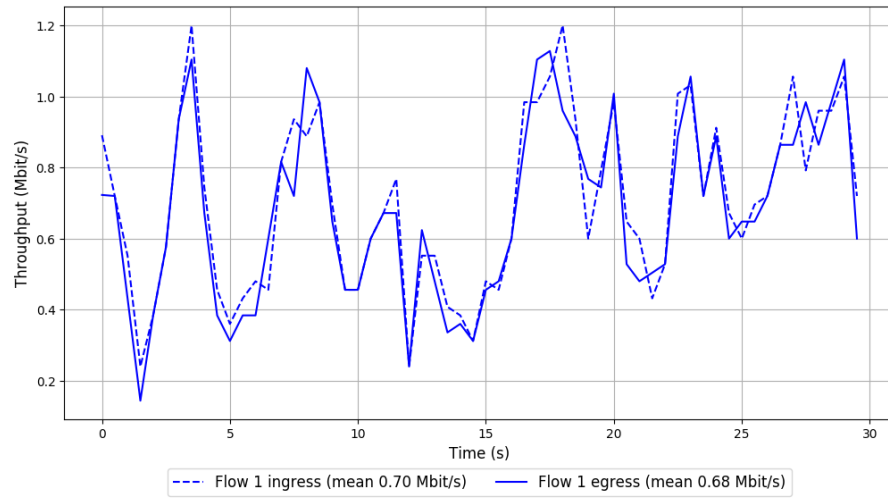


Run 1: Statistics of TCP Vegas

Start at: 2018-02-27 07:10:45
End at: 2018-02-27 07:11:15
Local clock offset: -1.412 ms
Remote clock offset: -72.339 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 80.381 ms
Loss rate: 3.58%
-- Flow 1:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 80.381 ms
Loss rate: 3.58%

Run 1: Report of TCP Vegas — Data Link

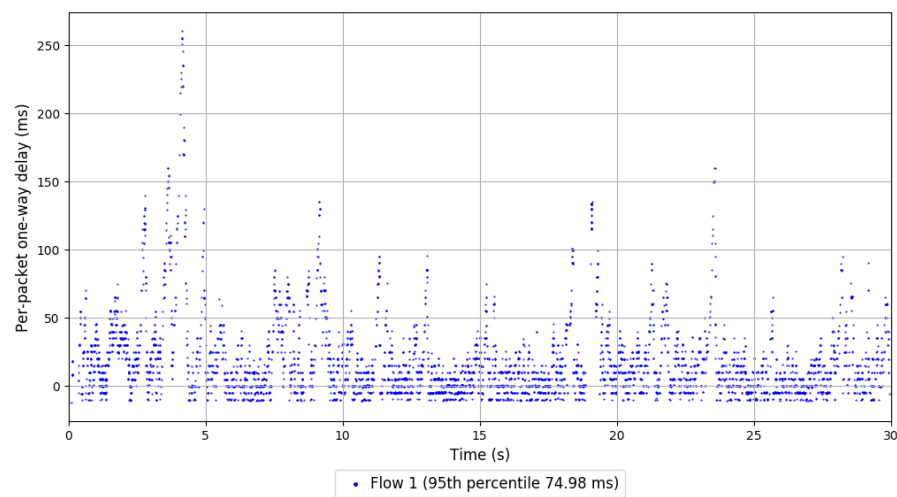
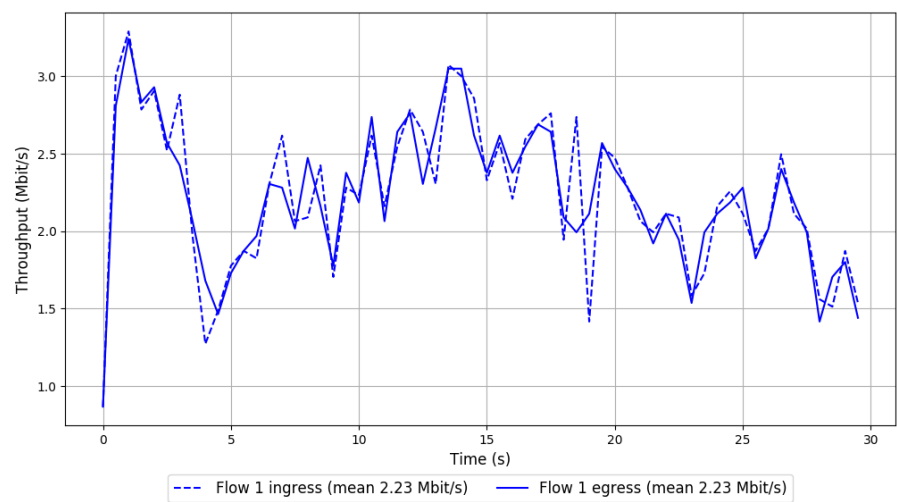


Run 2: Statistics of TCP Vegas

Start at: 2018-02-27 07:30:31
End at: 2018-02-27 07:31:01
Local clock offset: -1.132 ms
Remote clock offset: -71.991 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 74.977 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 74.977 ms
Loss rate: 0.14%

Run 2: Report of TCP Vegas — Data Link

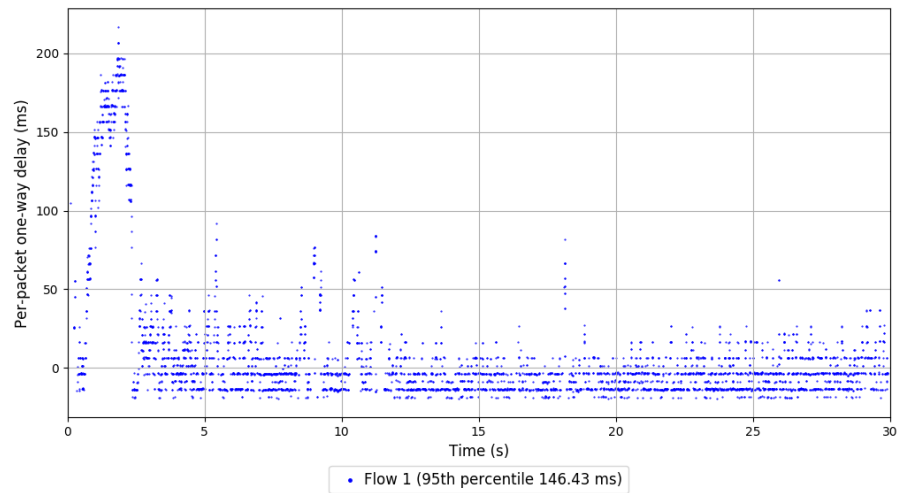
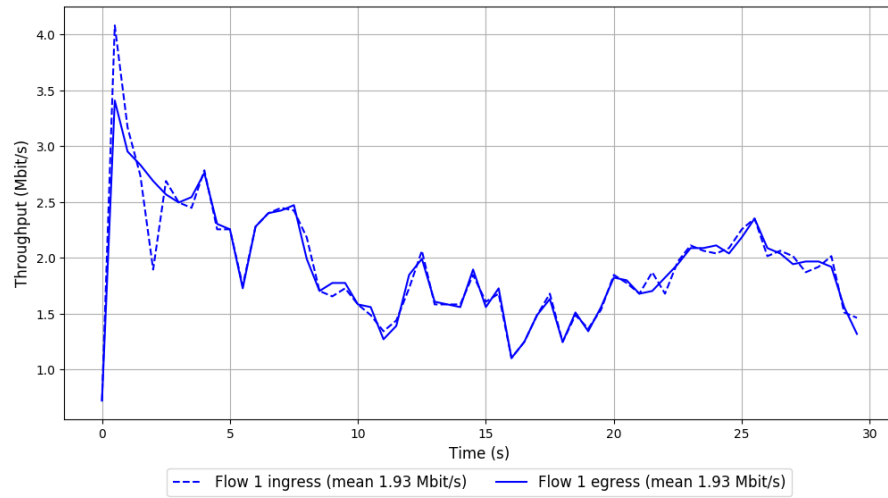


Run 3: Statistics of TCP Vegas

Start at: 2018-02-27 07:50:15
End at: 2018-02-27 07:50:45
Local clock offset: 1.174 ms
Remote clock offset: -81.487 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 146.431 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 146.431 ms
Loss rate: 0.15%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-02-27 07:15:09

End at: 2018-02-27 07:15:39

Local clock offset: -1.911 ms

Remote clock offset: -72.0 ms

Below is generated by plot.py at 2018-02-27 08:07:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.35 Mbit/s

95th percentile per-packet one-way delay: 413.251 ms

Loss rate: 4.03%

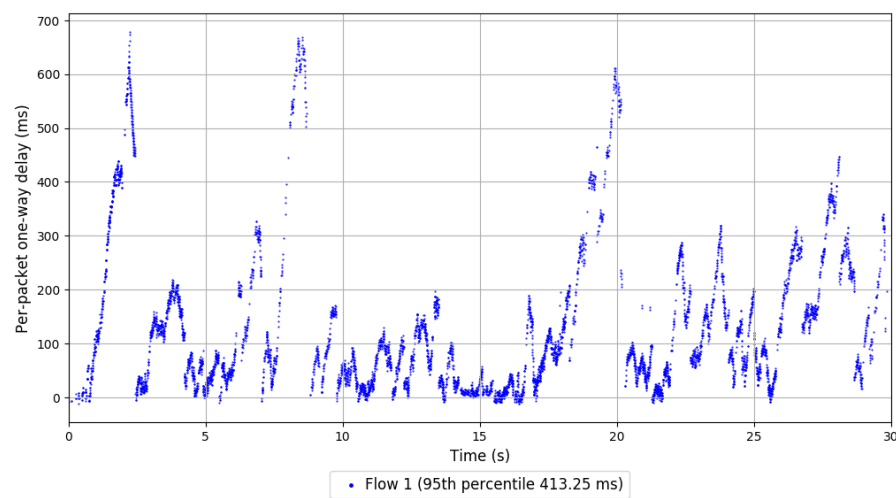
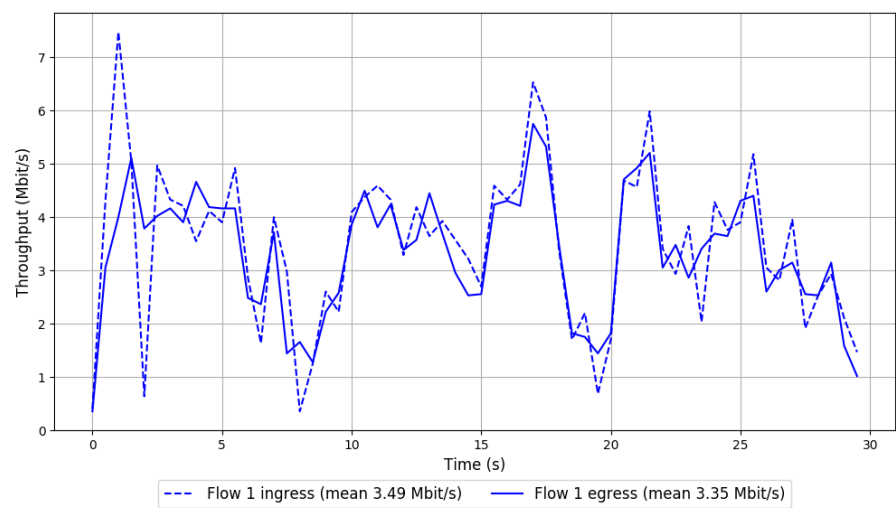
-- Flow 1:

Average throughput: 3.35 Mbit/s

95th percentile per-packet one-way delay: 413.251 ms

Loss rate: 4.03%

Run 1: Report of Verus — Data Link

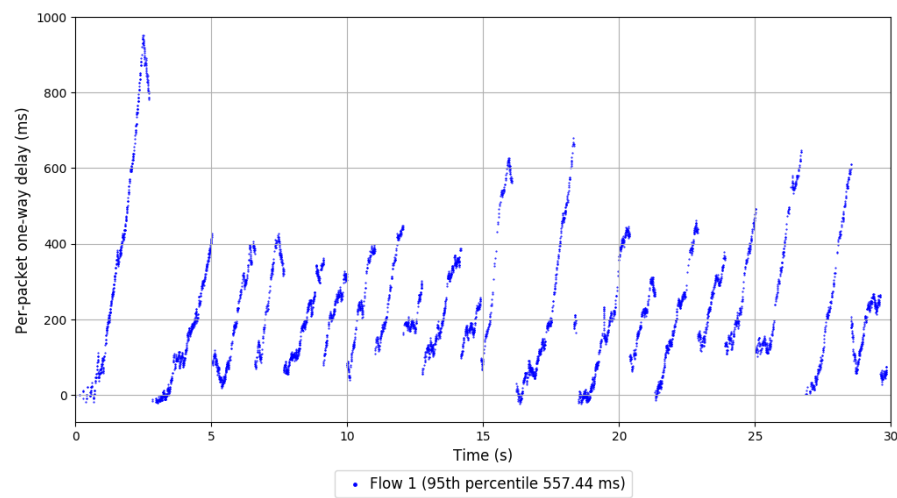
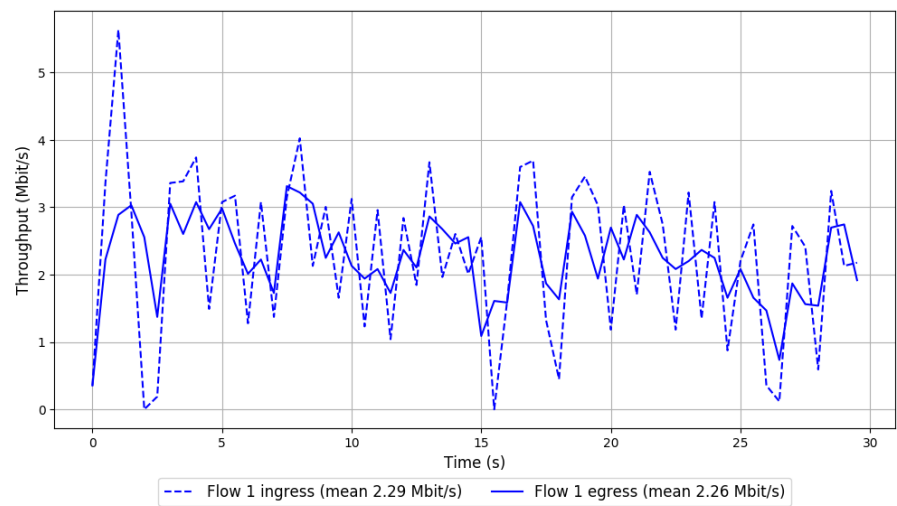


Run 2: Statistics of Verus

Start at: 2018-02-27 07:34:55
End at: 2018-02-27 07:35:25
Local clock offset: 0.449 ms
Remote clock offset: -80.597 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 557.440 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 557.440 ms
Loss rate: 1.43%

Run 2: Report of Verus — Data Link

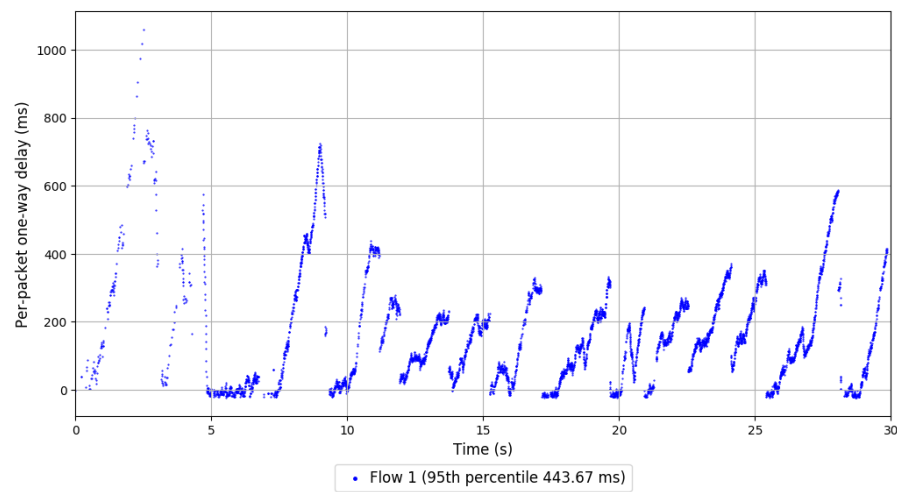
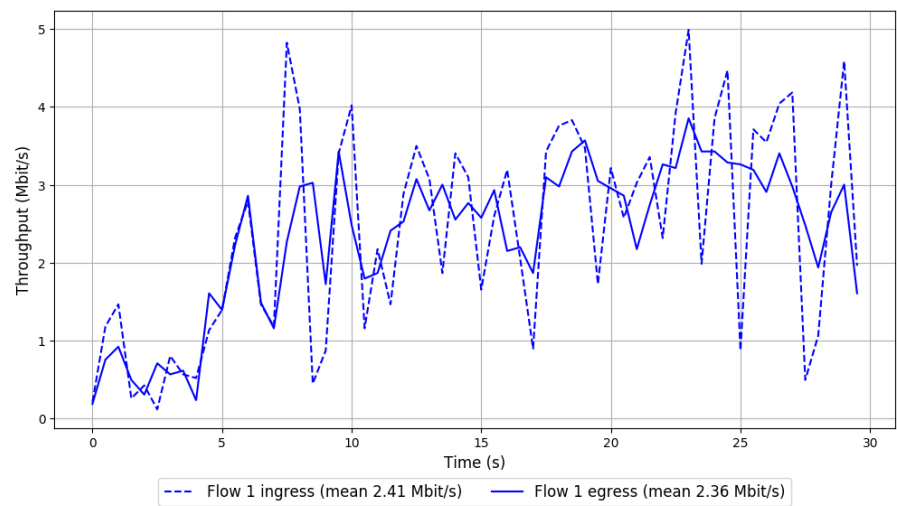


Run 3: Statistics of Verus

Start at: 2018-02-27 07:54:38
End at: 2018-02-27 07:55:08
Local clock offset: 1.198 ms
Remote clock offset: -77.356 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 443.673 ms
Loss rate: 2.24%
-- Flow 1:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 443.673 ms
Loss rate: 2.24%

Run 3: Report of Verus — Data Link

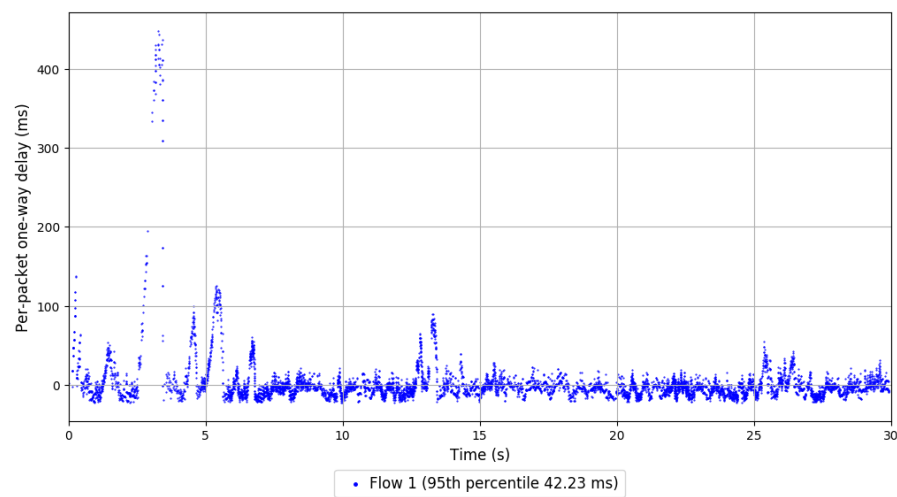
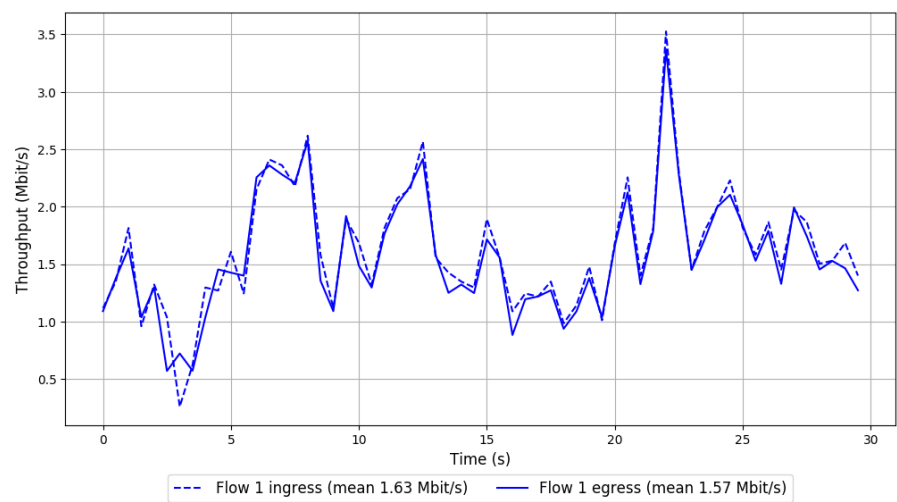


Run 1: Statistics of Copa

Start at: 2018-02-27 07:09:34
End at: 2018-02-27 07:10:04
Local clock offset: -4.302 ms
Remote clock offset: -80.652 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 42.233 ms
Loss rate: 3.36%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 42.233 ms
Loss rate: 3.36%

Run 1: Report of Copa — Data Link

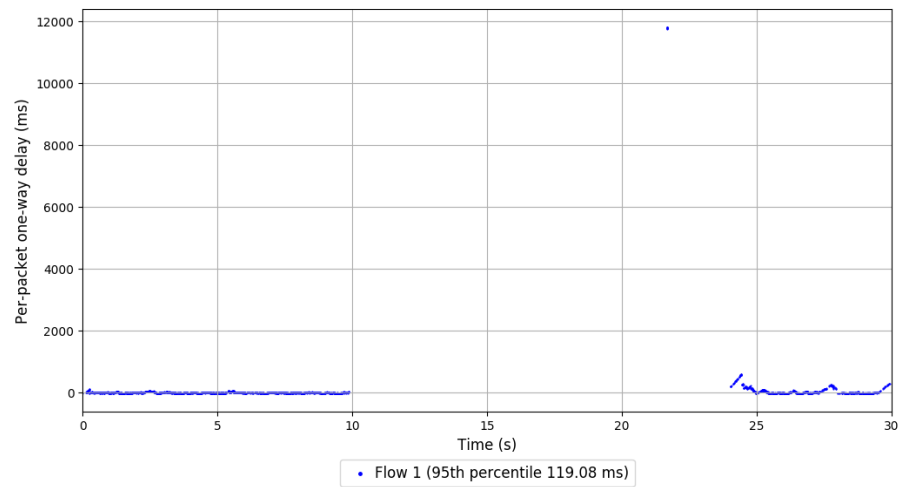
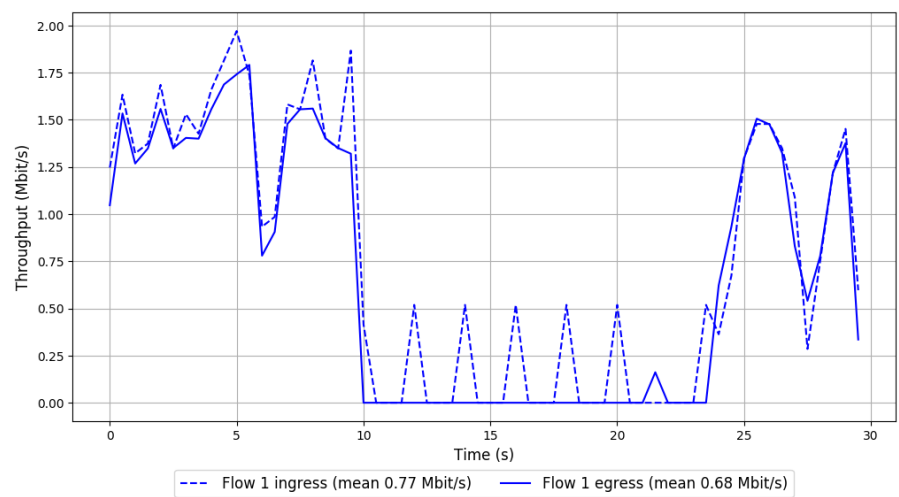


Run 2: Statistics of Copa

Start at: 2018-02-27 07:29:26
End at: 2018-02-27 07:29:56
Local clock offset: -1.289 ms
Remote clock offset: -79.413 ms

Below is generated by plot.py at 2018-02-27 08:07:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 119.077 ms
Loss rate: 11.70%
-- Flow 1:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 119.077 ms
Loss rate: 11.70%

Run 2: Report of Copa — Data Link

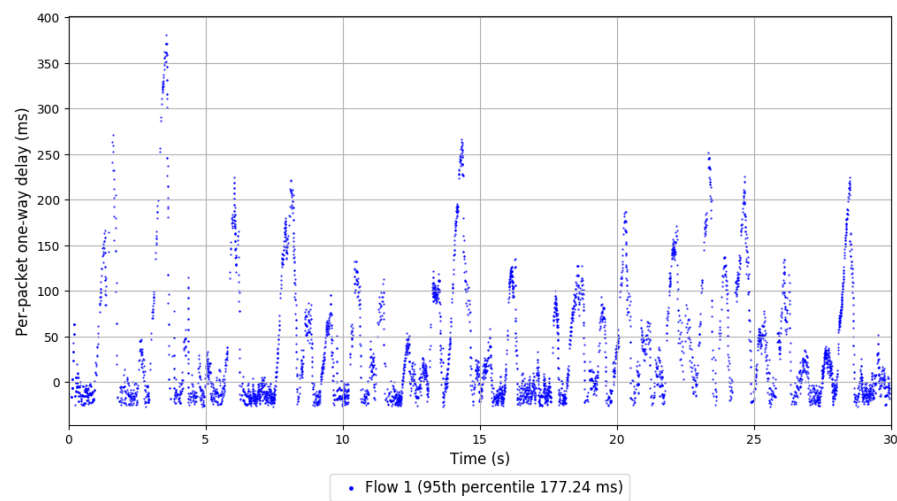
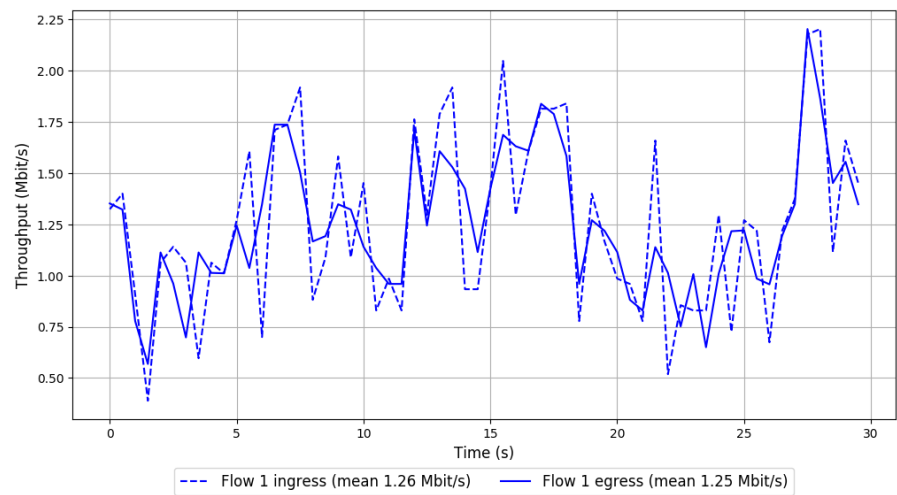


Run 3: Statistics of Copa

Start at: 2018-02-27 07:49:09
End at: 2018-02-27 07:49:39
Local clock offset: 1.866 ms
Remote clock offset: -82.124 ms

Below is generated by plot.py at 2018-02-27 08:07:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 177.237 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 177.237 ms
Loss rate: 0.29%

Run 3: Report of Copa — Data Link

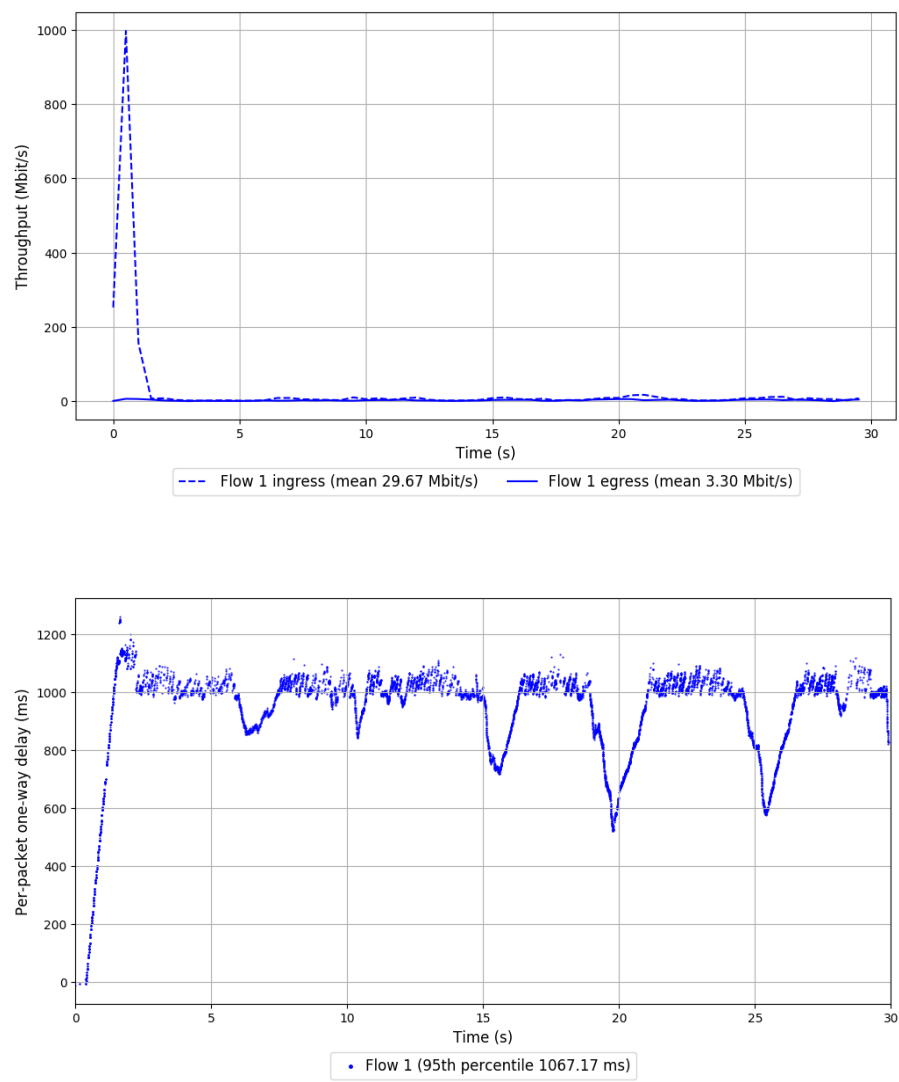


Run 1: Statistics of FillP

Start at: 2018-02-27 07:19:32
End at: 2018-02-27 07:20:02
Local clock offset: -1.649 ms
Remote clock offset: -77.813 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 1067.166 ms
Loss rate: 88.90%
-- Flow 1:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 1067.166 ms
Loss rate: 88.90%

Run 1: Report of FillP — Data Link

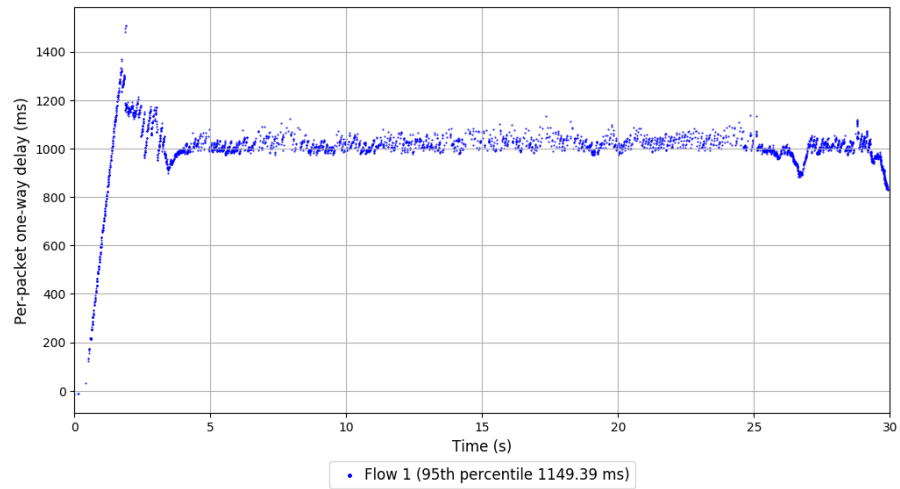
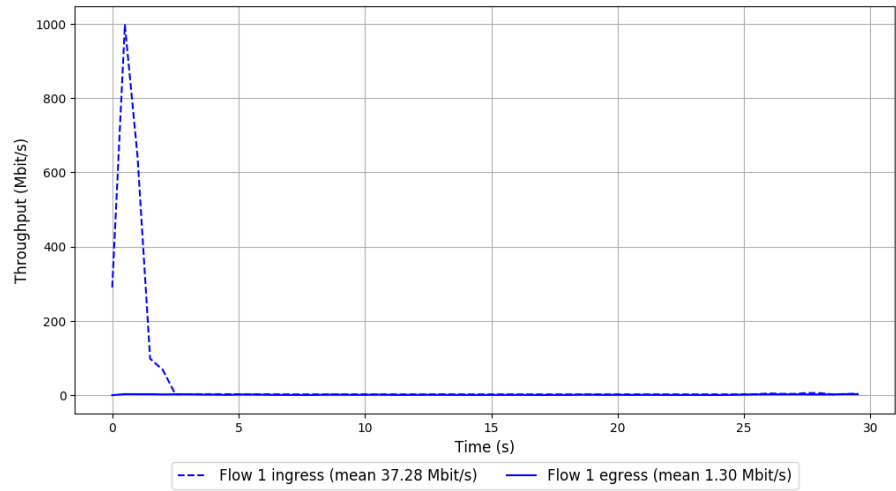


Run 2: Statistics of FillP

Start at: 2018-02-27 07:39:17
End at: 2018-02-27 07:39:47
Local clock offset: 1.207 ms
Remote clock offset: -73.906 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 1149.391 ms
Loss rate: 96.51%
-- Flow 1:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 1149.391 ms
Loss rate: 96.51%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-02-27 07:59:01

End at: 2018-02-27 07:59:31

Local clock offset: 3.447 ms

Remote clock offset: -73.619 ms

Below is generated by plot.py at 2018-02-27 08:07:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.61 Mbit/s

95th percentile per-packet one-way delay: 1031.238 ms

Loss rate: 83.47%

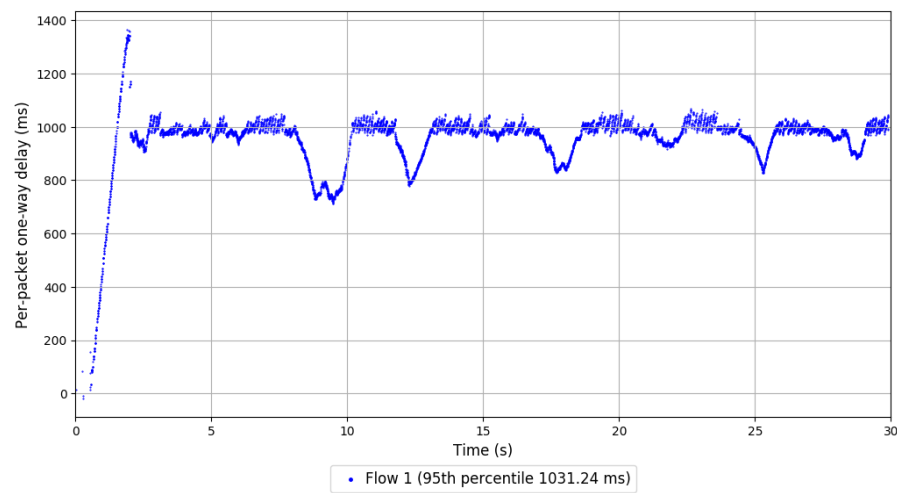
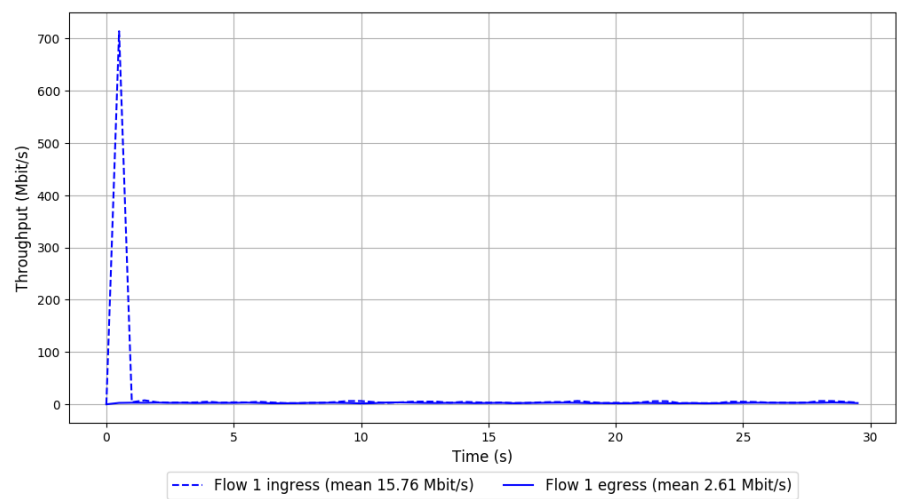
-- Flow 1:

Average throughput: 2.61 Mbit/s

95th percentile per-packet one-way delay: 1031.238 ms

Loss rate: 83.47%

Run 3: Report of FillP — Data Link

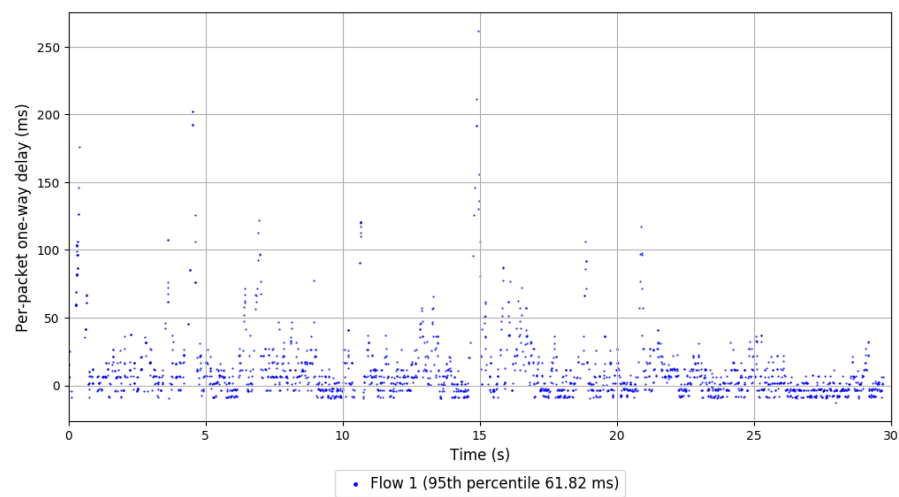
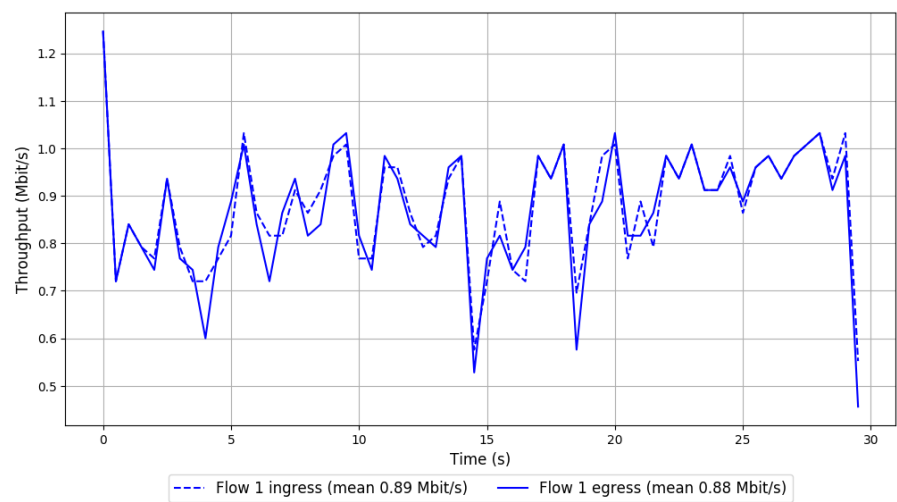


Run 1: Statistics of Indigo-1-32

Start at: 2018-02-27 07:16:15
End at: 2018-02-27 07:16:45
Local clock offset: -2.579 ms
Remote clock offset: -70.526 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 61.816 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 61.816 ms
Loss rate: 0.91%

Run 1: Report of Indigo-1-32 — Data Link



Run 2: Statistics of Indigo-1-32

Start at: 2018-02-27 07:36:01

End at: 2018-02-27 07:36:31

Local clock offset: -2.008 ms

Remote clock offset: -83.151 ms

Below is generated by plot.py at 2018-02-27 08:07:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 67.451 ms

Loss rate: 0.14%

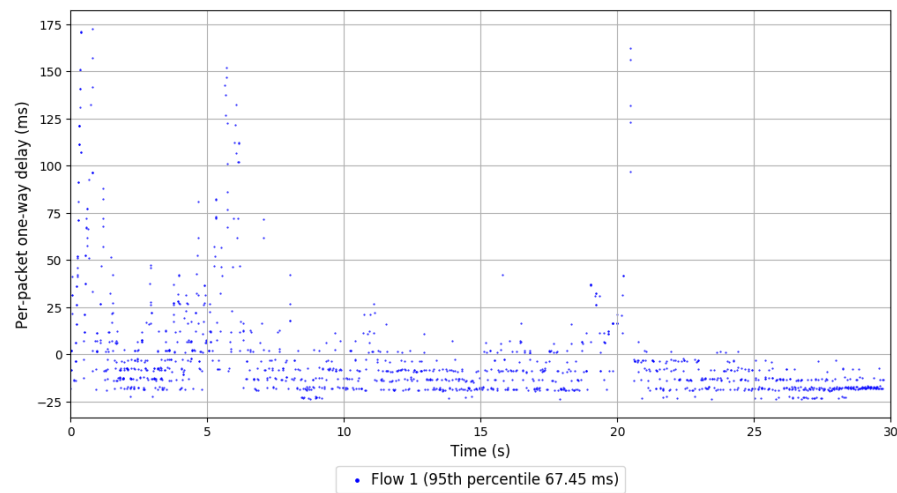
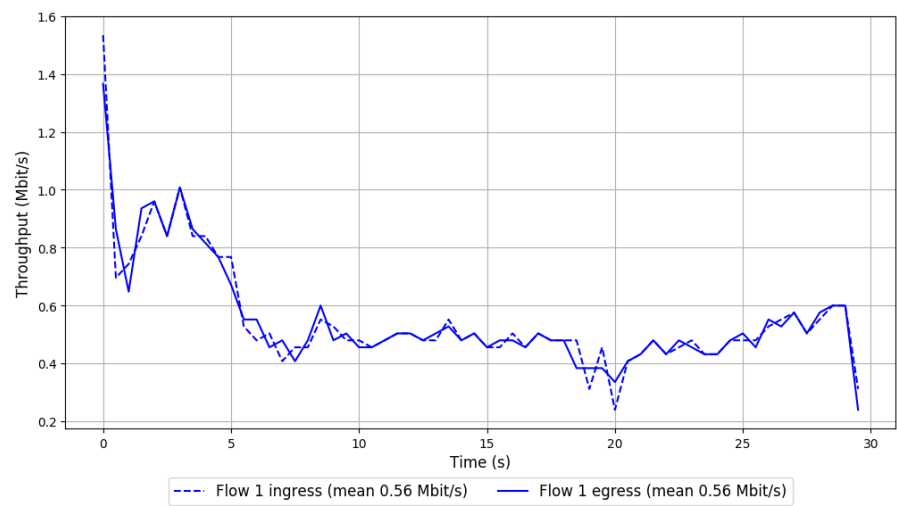
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 67.451 ms

Loss rate: 0.14%

Run 2: Report of Indigo-1-32 — Data Link



Run 3: Statistics of Indigo-1-32

Start at: 2018-02-27 07:55:45

End at: 2018-02-27 07:56:15

Local clock offset: 0.801 ms

Remote clock offset: -77.049 ms

Below is generated by plot.py at 2018-02-27 08:07:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 436.669 ms

Loss rate: 0.50%

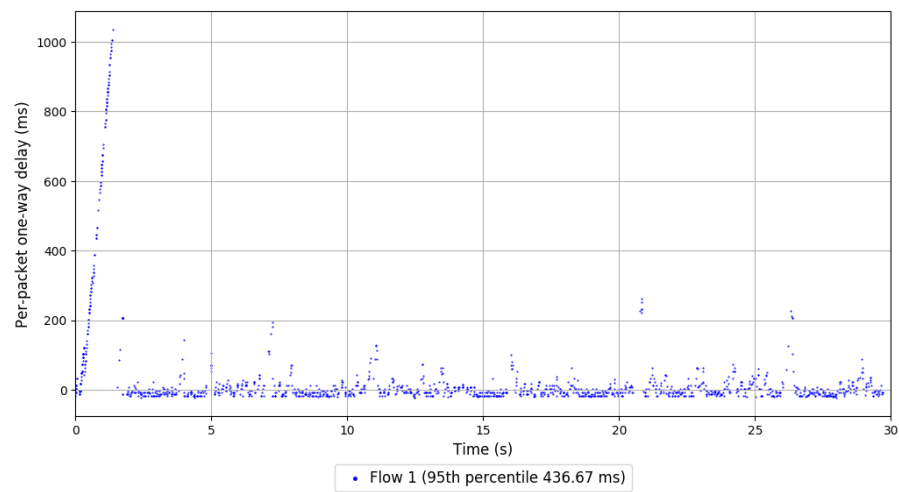
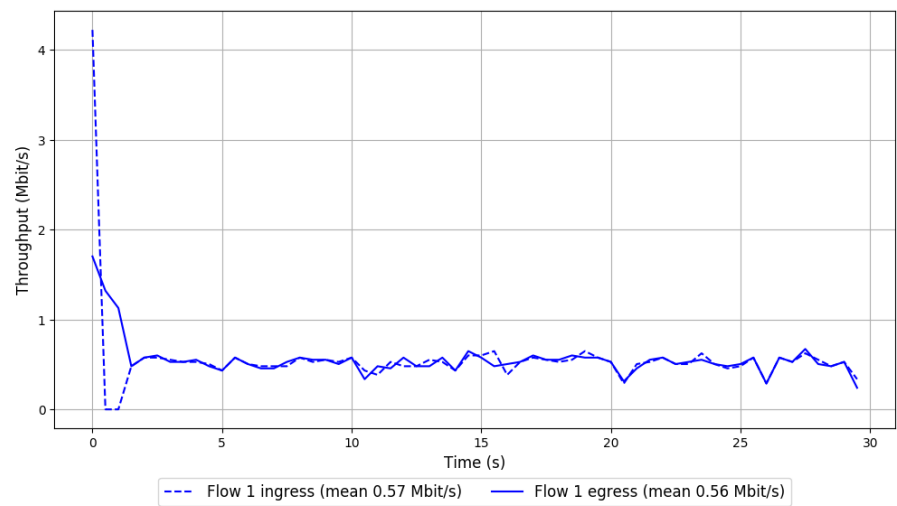
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 436.669 ms

Loss rate: 0.50%

Run 3: Report of Indigo-1-32 — Data Link

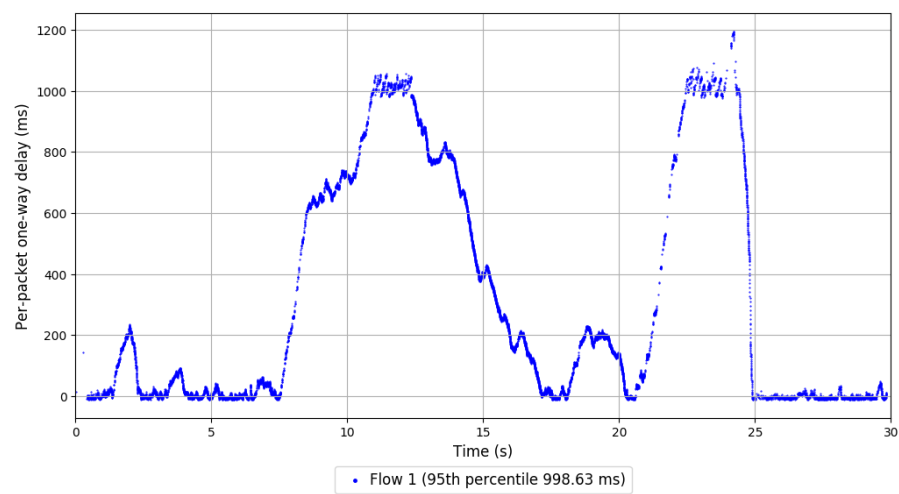
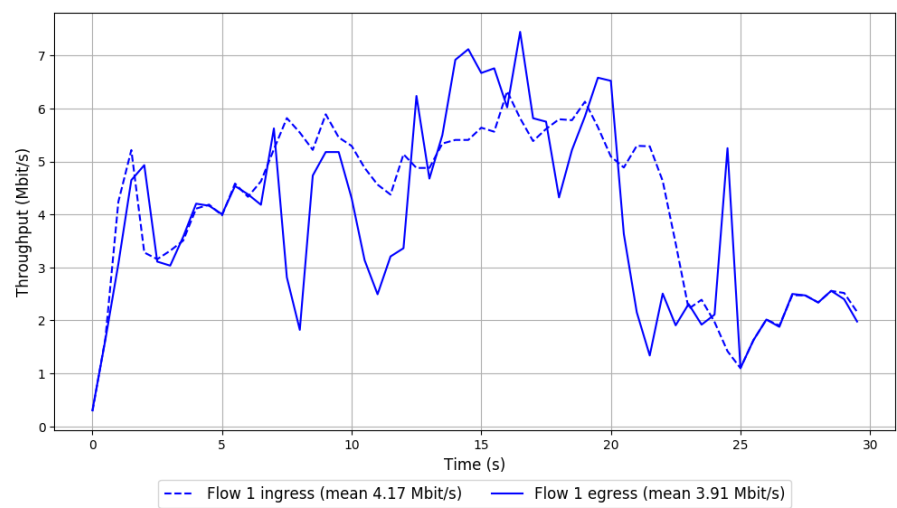


Run 1: Statistics of Vivace-latency

Start at: 2018-02-27 07:14:03
End at: 2018-02-27 07:14:33
Local clock offset: -3.6 ms
Remote clock offset: -71.782 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.91 Mbit/s
95th percentile per-packet one-way delay: 998.635 ms
Loss rate: 6.52%
-- Flow 1:
Average throughput: 3.91 Mbit/s
95th percentile per-packet one-way delay: 998.635 ms
Loss rate: 6.52%

Run 1: Report of Vivace-latency — Data Link

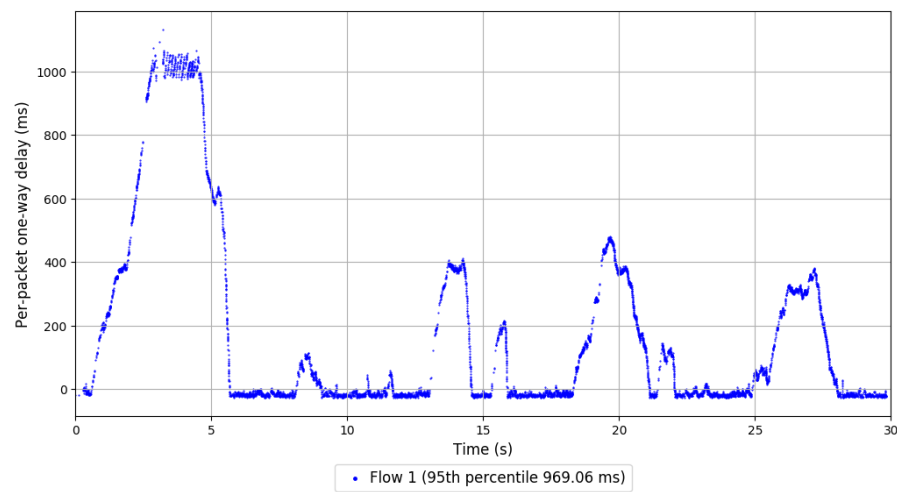
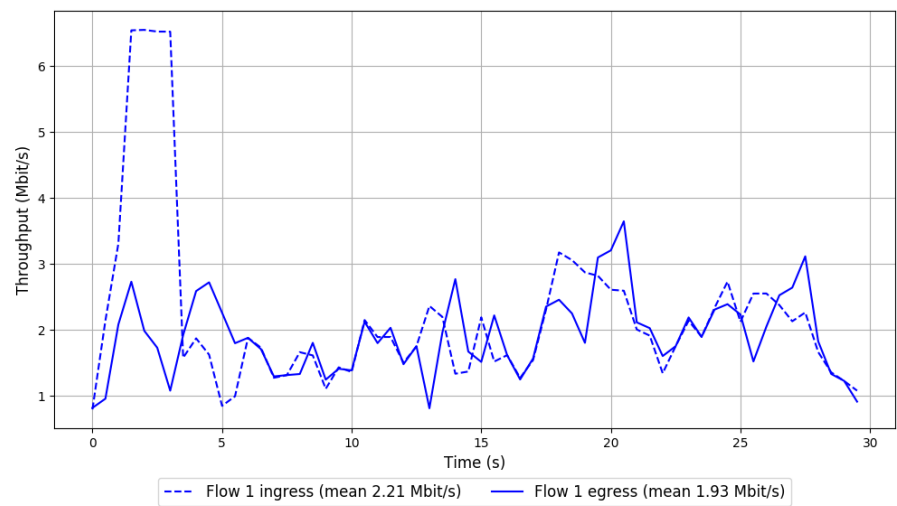


Run 2: Statistics of Vivace-latency

Start at: 2018-02-27 07:33:49
End at: 2018-02-27 07:34:19
Local clock offset: -1.59 ms
Remote clock offset: -84.406 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 969.063 ms
Loss rate: 12.90%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 969.063 ms
Loss rate: 12.90%

Run 2: Report of Vivace-latency — Data Link

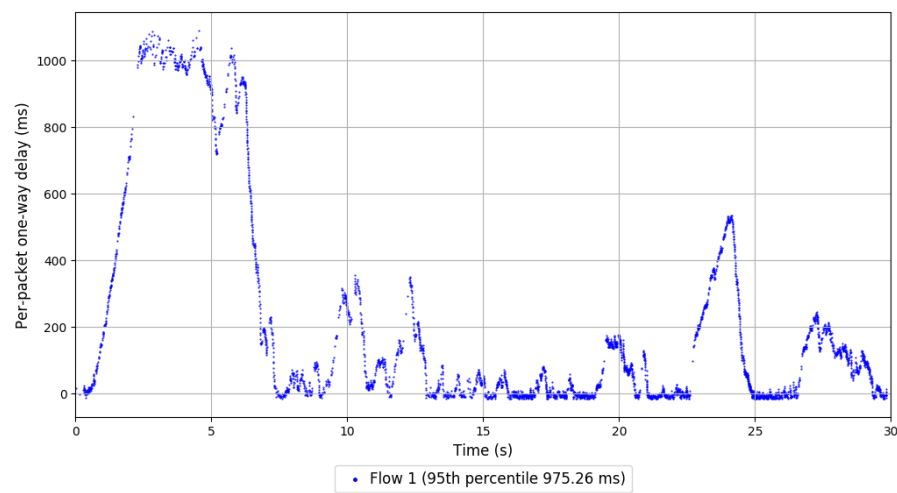
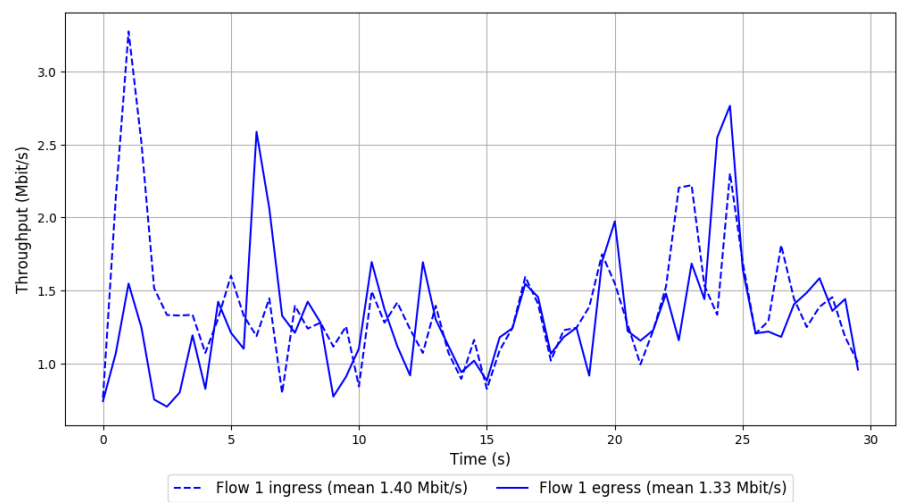


Run 3: Statistics of Vivace-latency

Start at: 2018-02-27 07:53:33
End at: 2018-02-27 07:54:03
Local clock offset: 1.206 ms
Remote clock offset: -71.234 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 975.263 ms
Loss rate: 5.63%
-- Flow 1:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 975.263 ms
Loss rate: 5.63%

Run 3: Report of Vivace-latency — Data Link



Run 1: Statistics of Vivace-loss

Start at: 2018-02-27 07:08:29

End at: 2018-02-27 07:08:59

Local clock offset: -2.954 ms

Remote clock offset: -78.982 ms

Below is generated by plot.py at 2018-02-27 08:07:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.75 Mbit/s

95th percentile per-packet one-way delay: 1012.927 ms

Loss rate: 18.63%

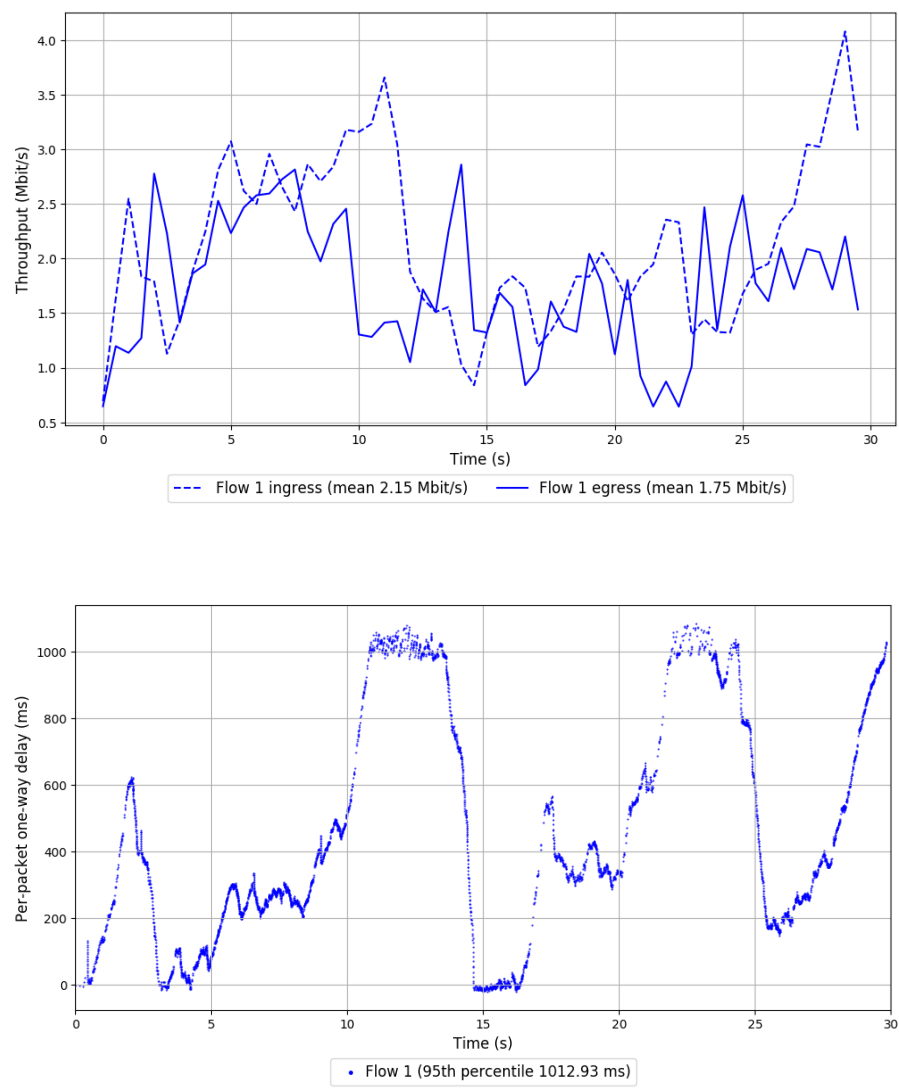
-- Flow 1:

Average throughput: 1.75 Mbit/s

95th percentile per-packet one-way delay: 1012.927 ms

Loss rate: 18.63%

Run 1: Report of Vivace-loss — Data Link



Run 2: Statistics of Vivace-loss

Start at: 2018-02-27 07:28:20

End at: 2018-02-27 07:28:50

Local clock offset: -0.287 ms

Remote clock offset: -72.267 ms

Below is generated by plot.py at 2018-02-27 08:07:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.84 Mbit/s

95th percentile per-packet one-way delay: 1043.922 ms

Loss rate: 32.41%

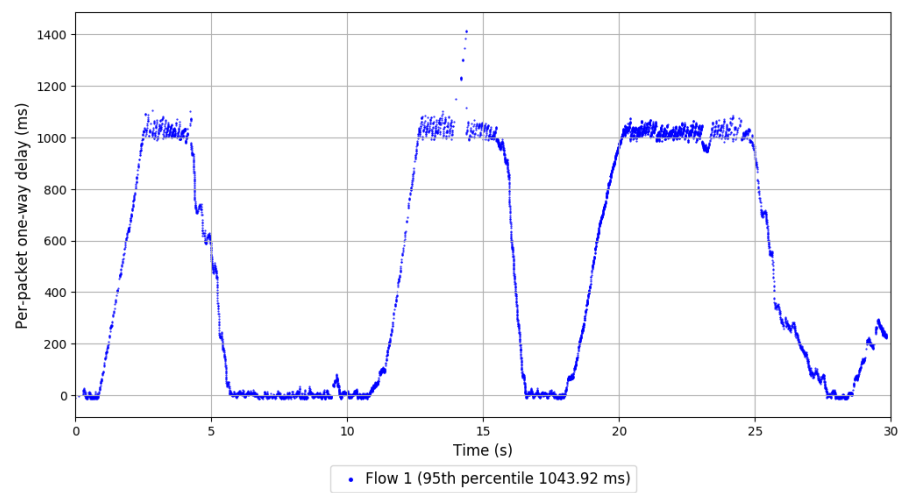
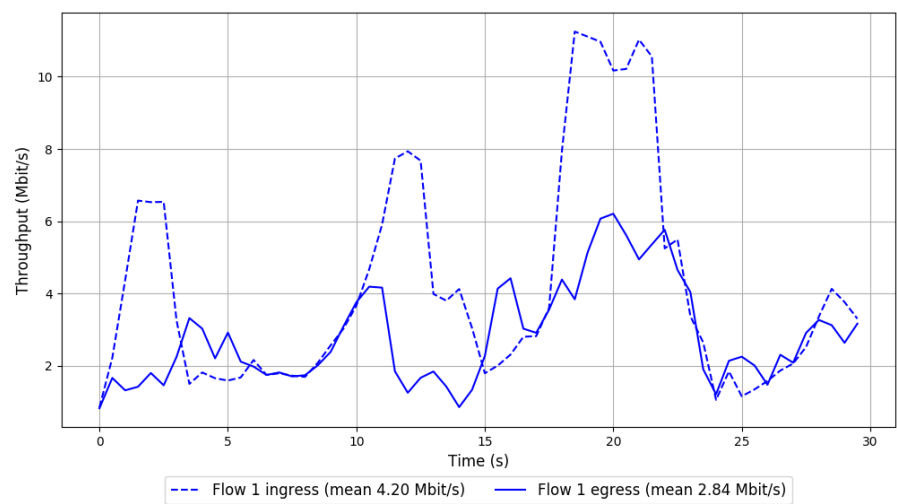
-- Flow 1:

Average throughput: 2.84 Mbit/s

95th percentile per-packet one-way delay: 1043.922 ms

Loss rate: 32.41%

Run 2: Report of Vivace-loss — Data Link

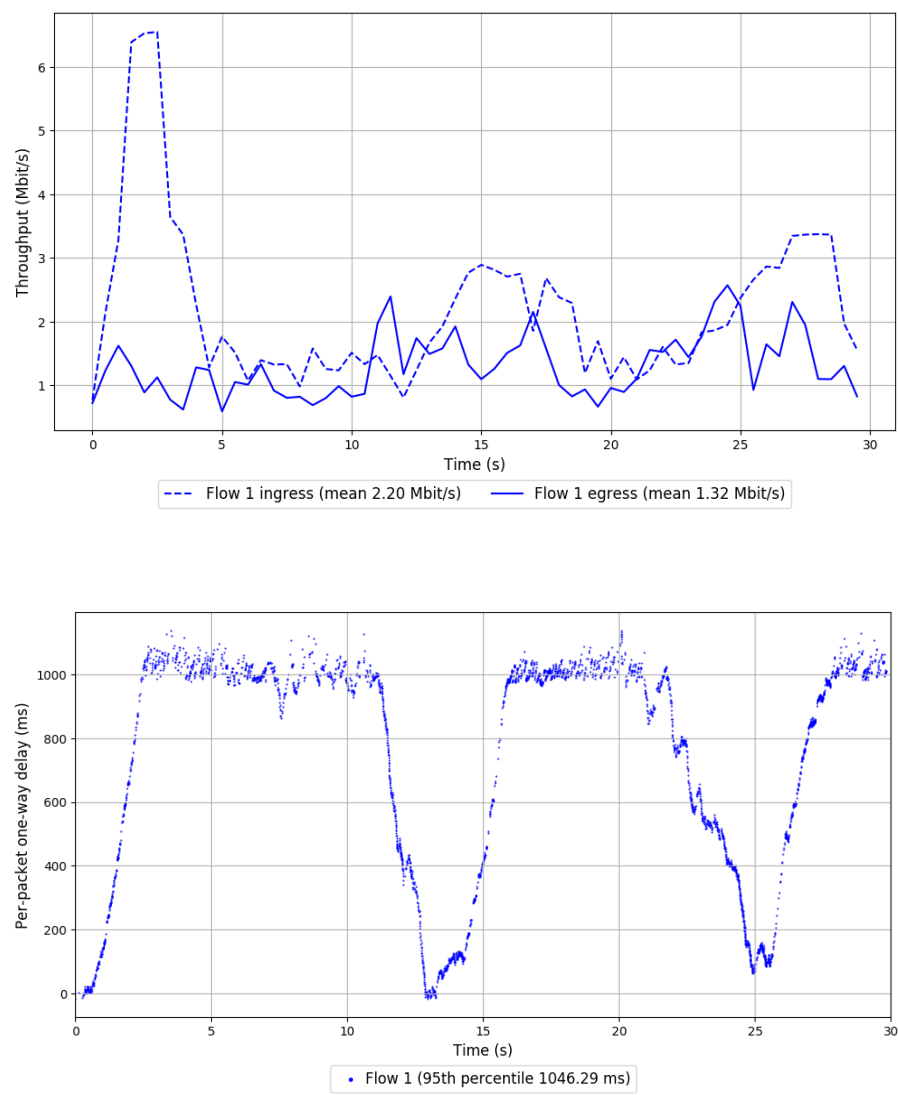


Run 3: Statistics of Vivace-loss

Start at: 2018-02-27 07:48:03
End at: 2018-02-27 07:48:33
Local clock offset: -1.906 ms
Remote clock offset: -77.628 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 1046.289 ms
Loss rate: 40.40%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 1046.289 ms
Loss rate: 40.40%

Run 3: Report of Vivace-loss — Data Link

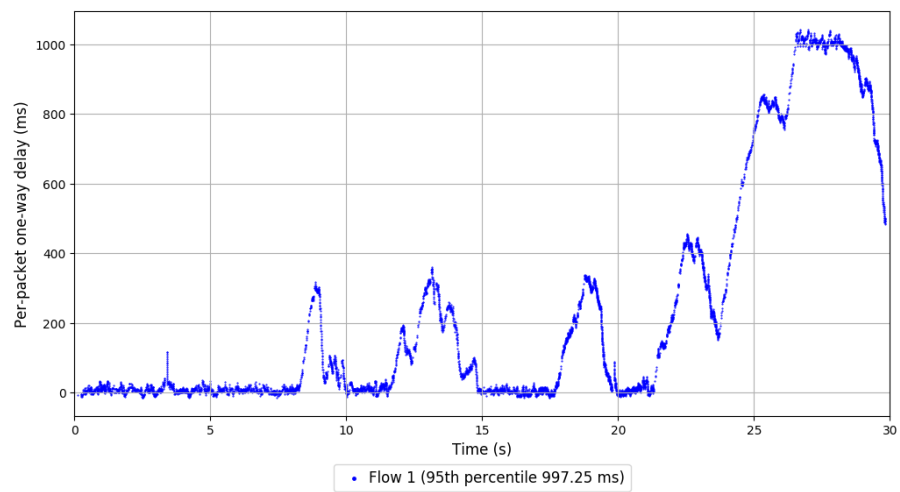
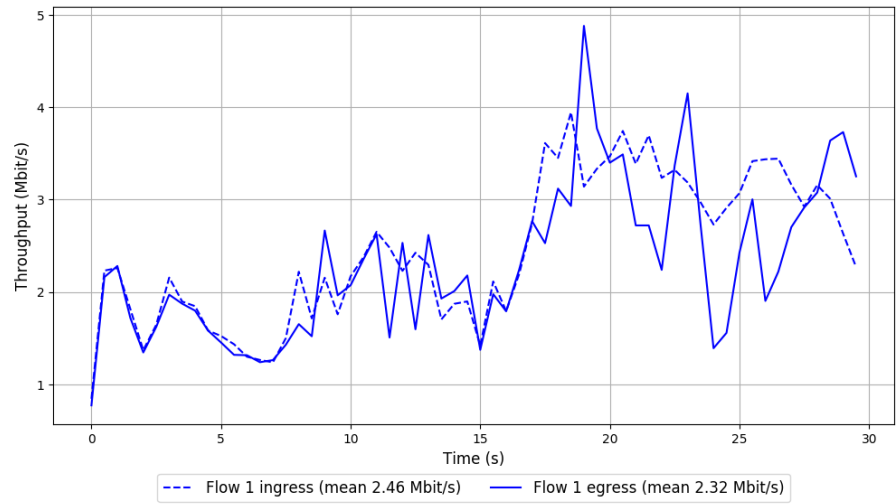


Run 1: Statistics of Vivace-LTE

Start at: 2018-02-27 07:21:44
End at: 2018-02-27 07:22:14
Local clock offset: -1.185 ms
Remote clock offset: -72.285 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 997.255 ms
Loss rate: 5.72%
-- Flow 1:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 997.255 ms
Loss rate: 5.72%

Run 1: Report of Vivace-LTE — Data Link

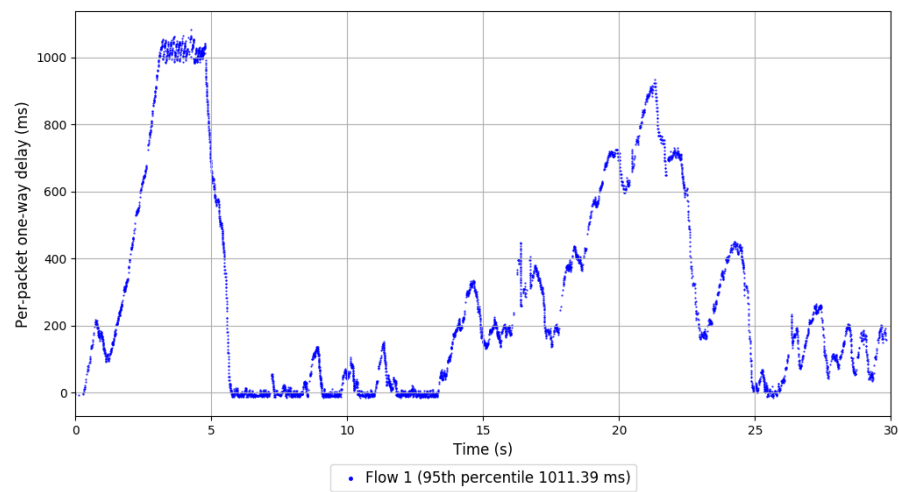
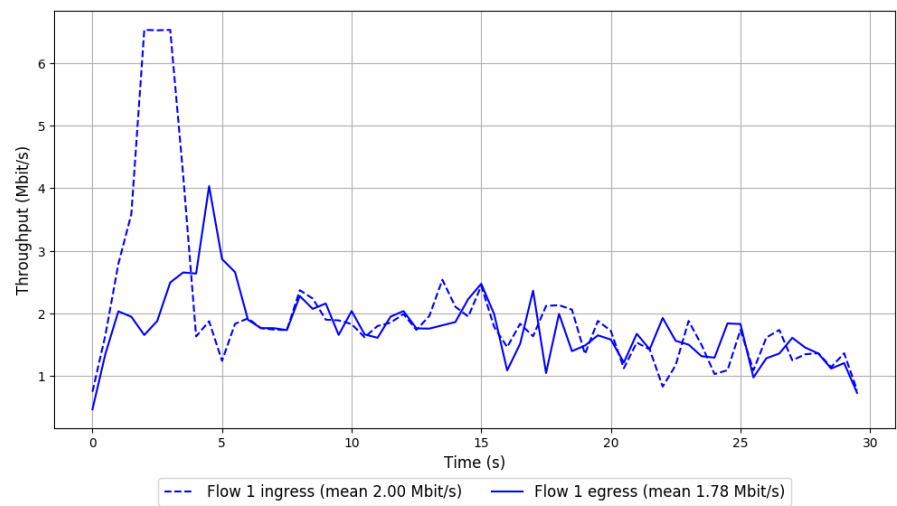


Run 2: Statistics of Vivace-LTE

Start at: 2018-02-27 07:41:28
End at: 2018-02-27 07:41:58
Local clock offset: -2.069 ms
Remote clock offset: -74.436 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.78 Mbit/s
95th percentile per-packet one-way delay: 1011.392 ms
Loss rate: 11.33%
-- Flow 1:
Average throughput: 1.78 Mbit/s
95th percentile per-packet one-way delay: 1011.392 ms
Loss rate: 11.33%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-02-27 08:01:14
End at: 2018-02-27 08:01:44
Local clock offset: -0.26 ms
Remote clock offset: -73.684 ms

Below is generated by plot.py at 2018-02-27 08:07:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 981.328 ms
Loss rate: 4.66%
-- Flow 1:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 981.328 ms
Loss rate: 4.66%

Run 3: Report of Vivace-LTE — Data Link

