

Pantheon Report

Generated at 2018-01-02 20:17:37 (UTC).

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

Repeated the test of 14 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).

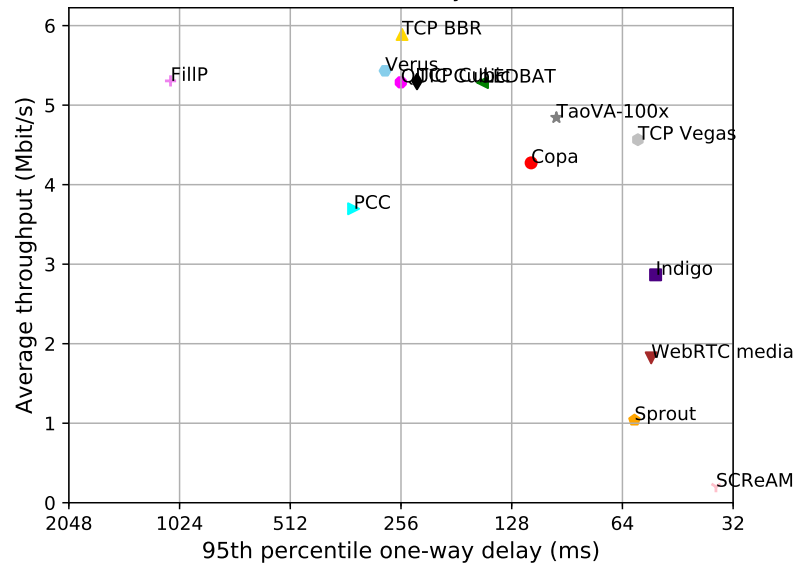
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

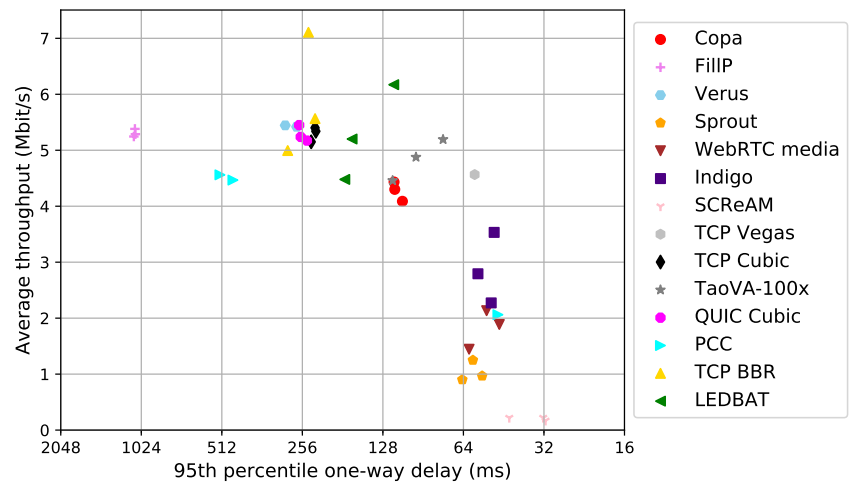
Git summary:

```
branch: master @ 904a5750834816b1e46a2c86405d707788d27c16
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ dcaef6b00654e660f73f7ed679d2eab61ce08639
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 @ 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/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



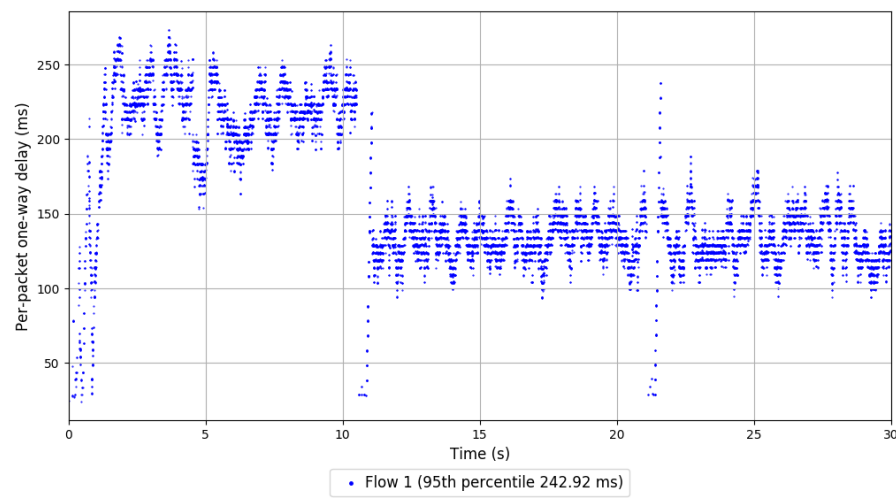
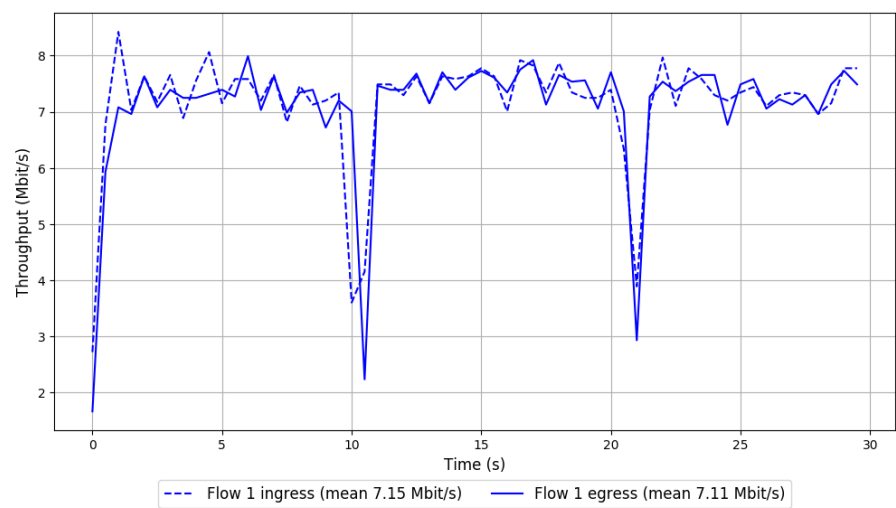
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	5.89	254.28	0.70
TCP Cubic	3	5.30	231.57	0.61
LEDBAT	3	5.28	153.73	0.58
PCC	3	3.70	344.37	0.20
QUIC Cubic	3	5.29	256.32	1.03
SCReAM	3	0.20	35.64	0.20
WebRTC media	3	1.82	53.45	0.24
Sprout	3	1.04	59.36	0.22
TaoVA-100x	3	4.84	96.75	0.64
TCP Vegas	1	4.57	58.09	0.25
Verus	2	5.43	282.83	0.70
Copa	3	4.27	113.35	0.27
FillP	3	5.31	1083.56	87.54
Indigo	3	2.86	52.00	0.16

Run 1: Statistics of TCP BBR

Start at: 2018-01-02 19:29:26
End at: 2018-01-02 19:29:56
Local clock offset: -1.258 ms
Remote clock offset: -14.085 ms

Below is generated by plot.py at 2018-01-02 20:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.11 Mbit/s
95th percentile per-packet one-way delay: 242.922 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 7.11 Mbit/s
95th percentile per-packet one-way delay: 242.922 ms
Loss rate: 0.77%

Run 1: Report of TCP BBR — Data Link

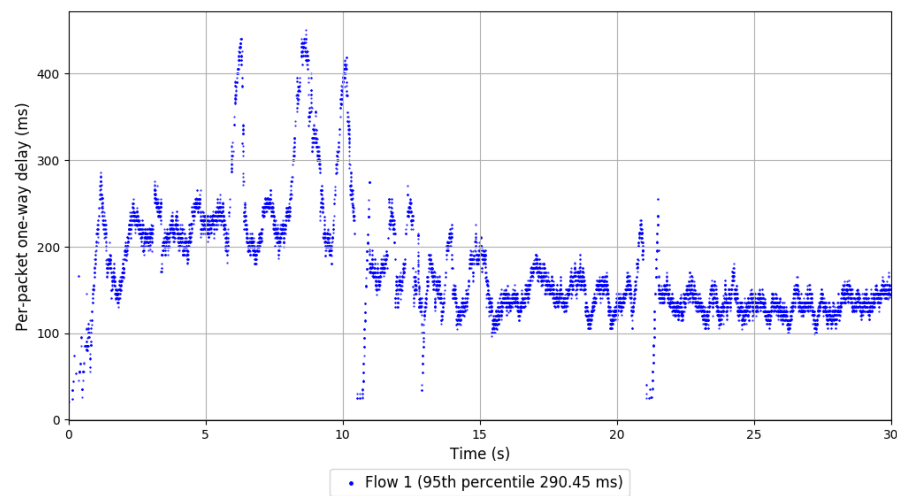
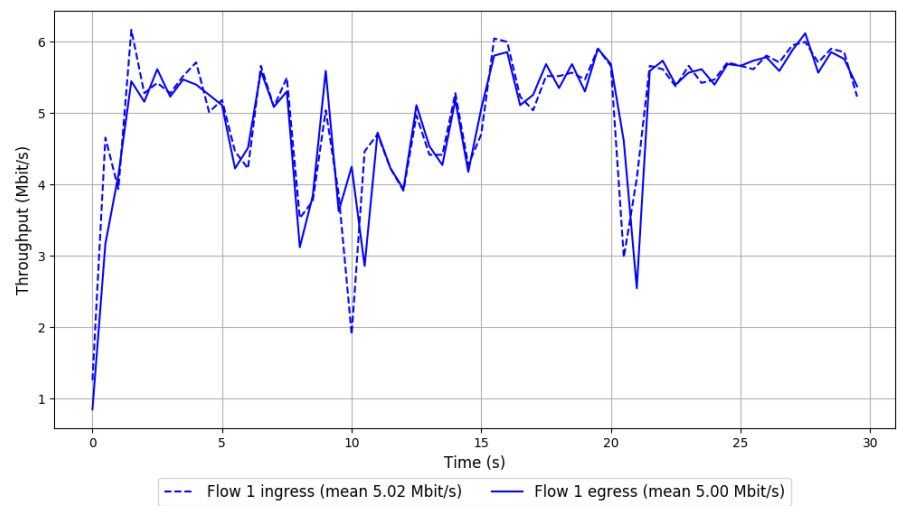


Run 2: Statistics of TCP BBR

Start at: 2018-01-02 19:45:49
End at: 2018-01-02 19:46:19
Local clock offset: 0.749 ms
Remote clock offset: -15.31 ms

Below is generated by plot.py at 2018-01-02 20:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.00 Mbit/s
95th percentile per-packet one-way delay: 290.455 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 5.00 Mbit/s
95th percentile per-packet one-way delay: 290.455 ms
Loss rate: 0.67%

Run 2: Report of TCP BBR — Data Link

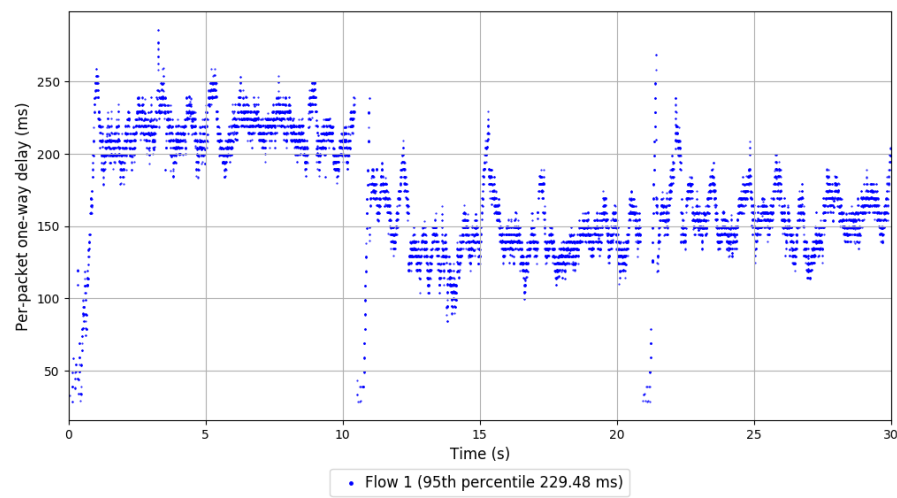
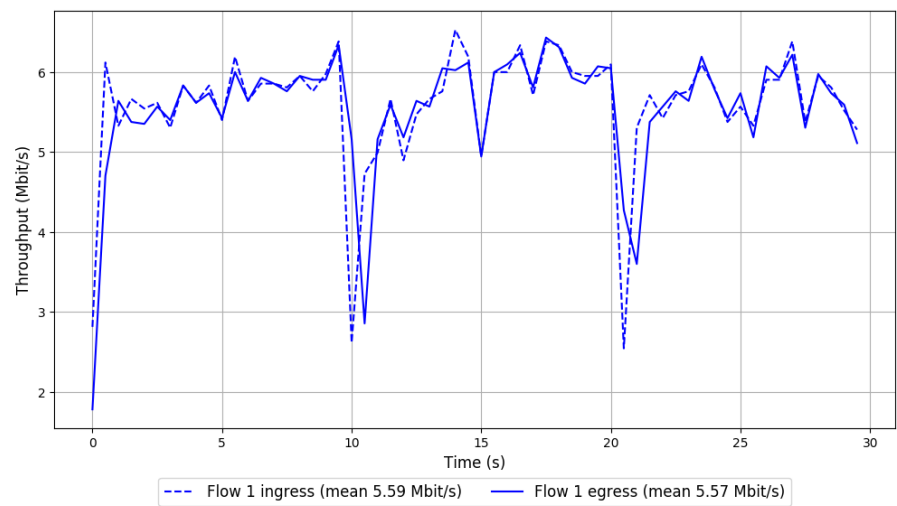


Run 3: Statistics of TCP BBR

Start at: 2018-01-02 20:02:16
End at: 2018-01-02 20:02:46
Local clock offset: 0.946 ms
Remote clock offset: -12.102 ms

Below is generated by plot.py at 2018-01-02 20:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.57 Mbit/s
95th percentile per-packet one-way delay: 229.477 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 5.57 Mbit/s
95th percentile per-packet one-way delay: 229.477 ms
Loss rate: 0.66%

Run 3: Report of TCP BBR — Data Link

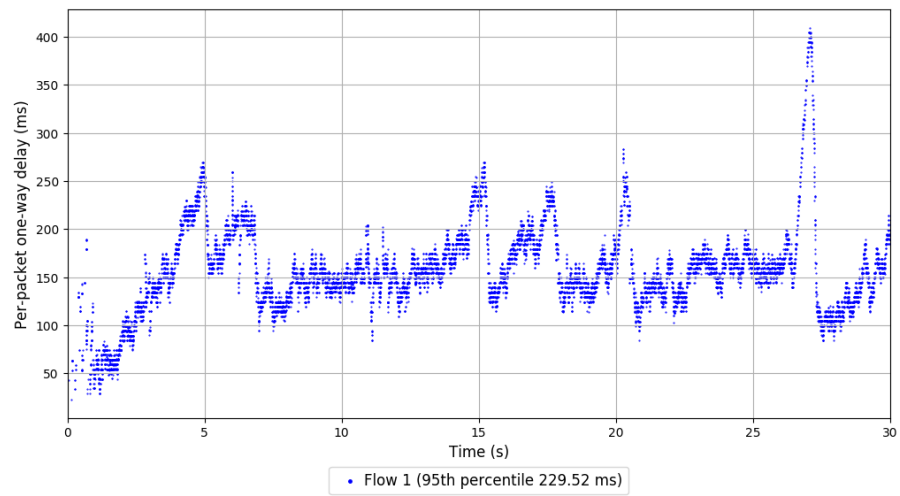
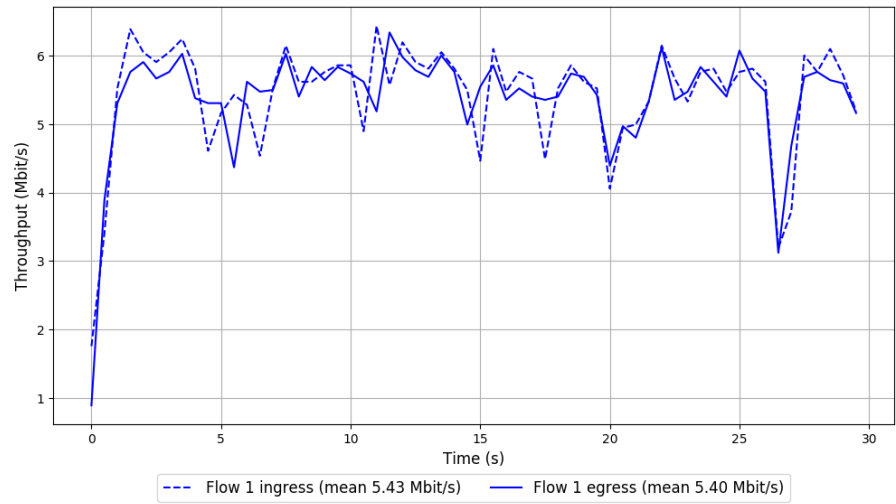


Run 1: Statistics of TCP Cubic

Start at: 2018-01-02 19:32:43
End at: 2018-01-02 19:33:13
Local clock offset: -0.449 ms
Remote clock offset: -13.773 ms

Below is generated by plot.py at 2018-01-02 20:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.40 Mbit/s
95th percentile per-packet one-way delay: 229.524 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 5.40 Mbit/s
95th percentile per-packet one-way delay: 229.524 ms
Loss rate: 0.65%

Run 1: Report of TCP Cubic — Data Link

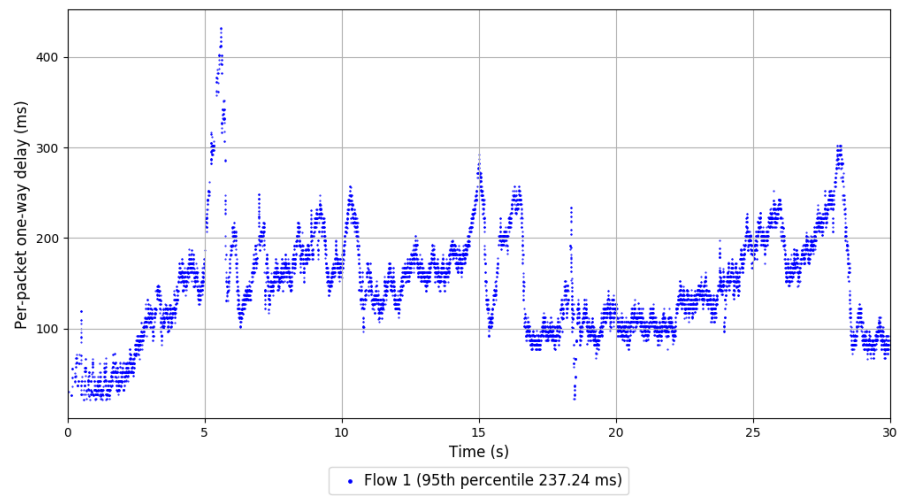
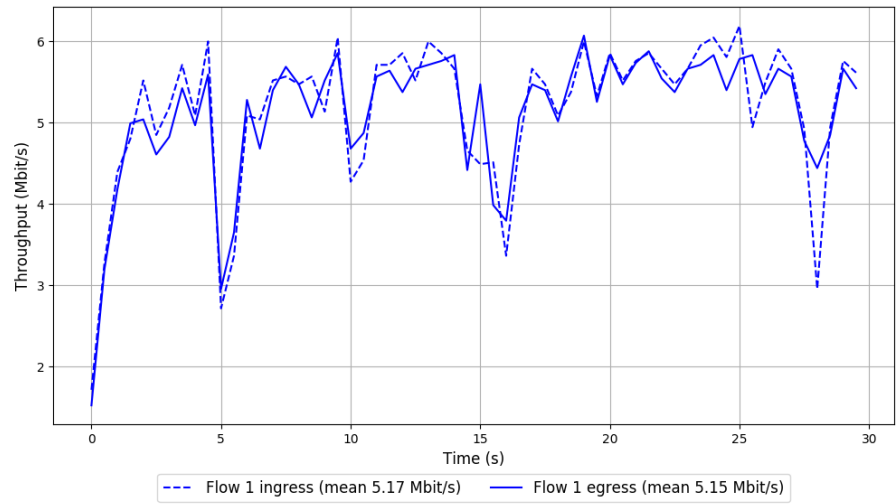


Run 2: Statistics of TCP Cubic

Start at: 2018-01-02 19:49:06
End at: 2018-01-02 19:49:36
Local clock offset: 2.059 ms
Remote clock offset: -13.54 ms

Below is generated by plot.py at 2018-01-02 20:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 237.241 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 237.241 ms
Loss rate: 0.49%

Run 2: Report of TCP Cubic — Data Link

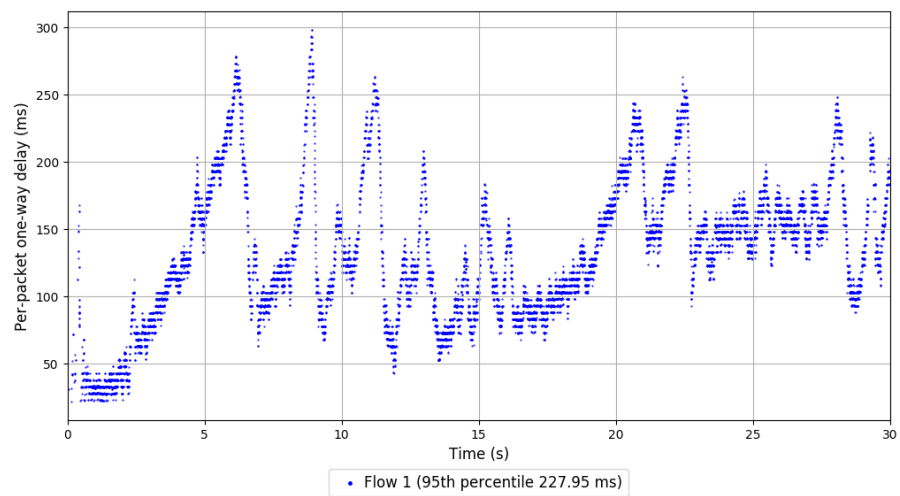
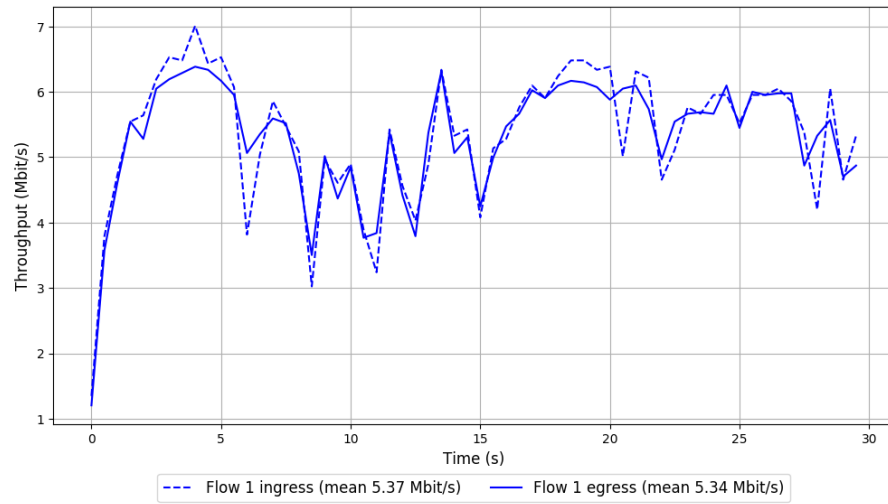


Run 3: Statistics of TCP Cubic

Start at: 2018-01-02 20:05:34
End at: 2018-01-02 20:06:04
Local clock offset: 1.394 ms
Remote clock offset: -13.449 ms

Below is generated by plot.py at 2018-01-02 20:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.34 Mbit/s
95th percentile per-packet one-way delay: 227.947 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 5.34 Mbit/s
95th percentile per-packet one-way delay: 227.947 ms
Loss rate: 0.69%

Run 3: Report of TCP Cubic — Data Link

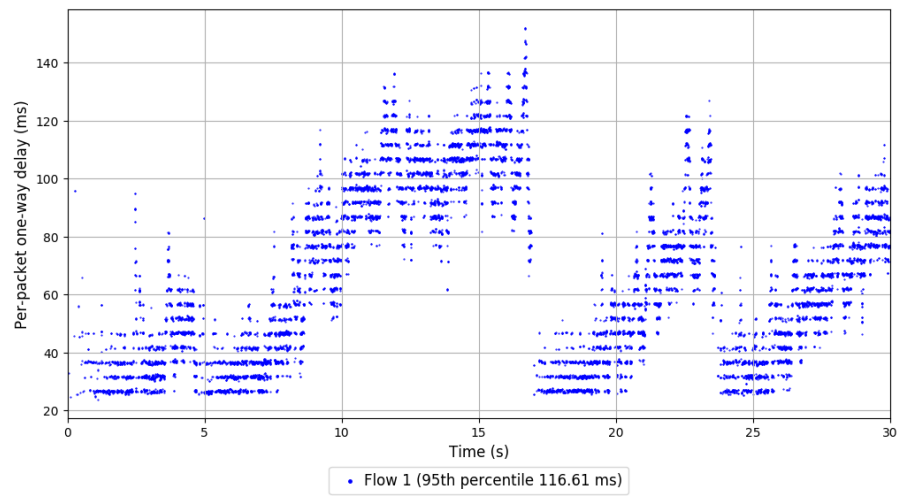
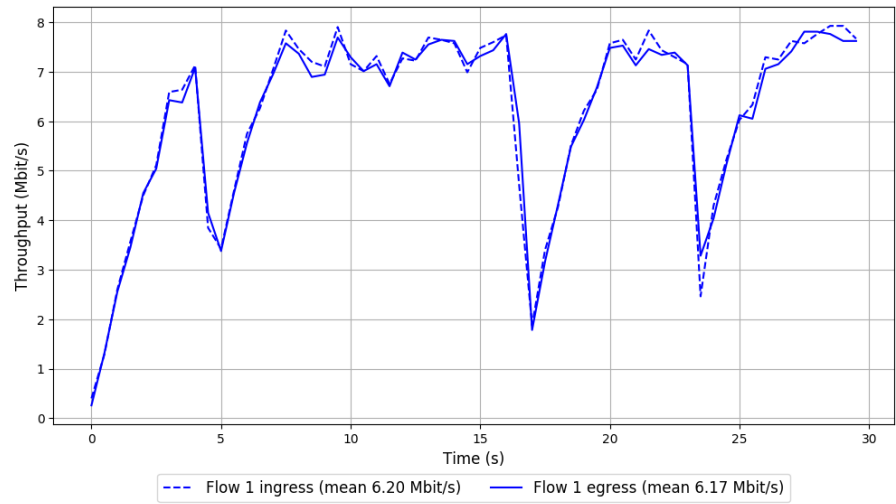


```
Run 1: Statistics of LEDBAT

Start at: 2018-01-02 19:27:15
End at: 2018-01-02 19:27:45
Local clock offset: 0.836 ms
Remote clock offset: -13.446 ms

# Below is generated by plot.py at 2018-01-02 20:16:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.17 Mbit/s
95th percentile per-packet one-way delay: 116.607 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 6.17 Mbit/s
95th percentile per-packet one-way delay: 116.607 ms
Loss rate: 0.63%
```


Run 1: Report of LEDBAT — Data Link

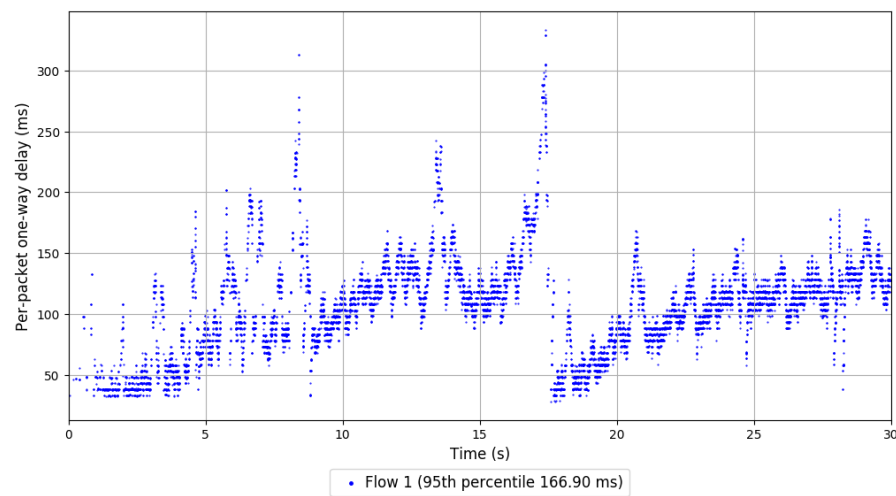
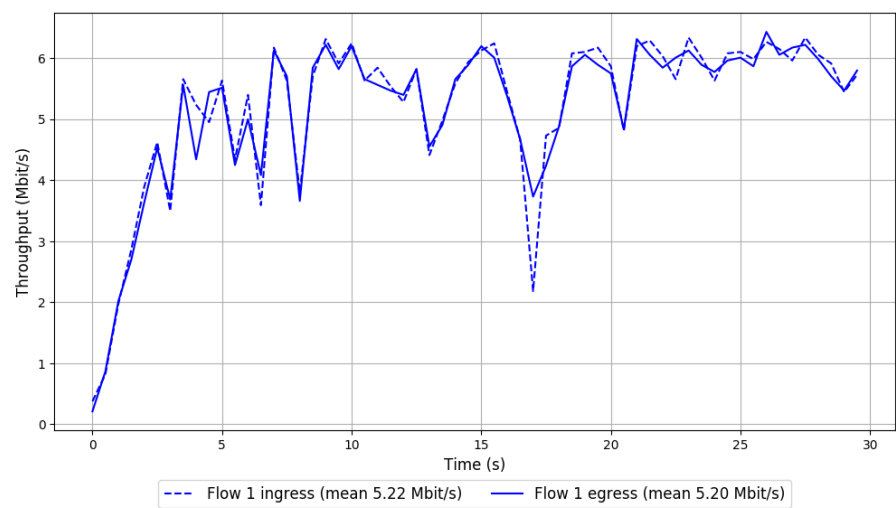


Run 2: Statistics of LEDBAT

Start at: 2018-01-02 19:43:38
End at: 2018-01-02 19:44:08
Local clock offset: -1.268 ms
Remote clock offset: -14.333 ms

Below is generated by plot.py at 2018-01-02 20:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.20 Mbit/s
95th percentile per-packet one-way delay: 166.901 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 5.20 Mbit/s
95th percentile per-packet one-way delay: 166.901 ms
Loss rate: 0.52%

Run 2: Report of LEDBAT — Data Link

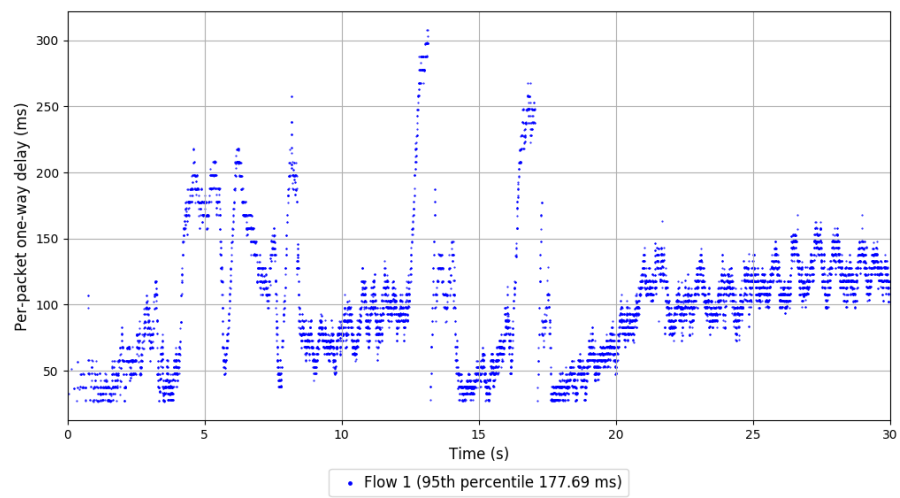
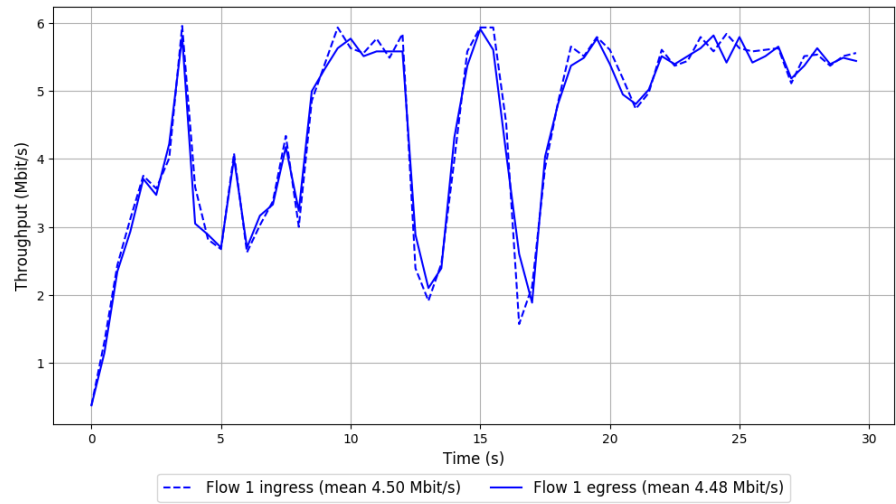


Run 3: Statistics of LEDBAT

Start at: 2018-01-02 20:00:05
End at: 2018-01-02 20:00:35
Local clock offset: -1.133 ms
Remote clock offset: -14.82 ms

Below is generated by plot.py at 2018-01-02 20:17:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.48 Mbit/s
95th percentile per-packet one-way delay: 177.688 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 4.48 Mbit/s
95th percentile per-packet one-way delay: 177.688 ms
Loss rate: 0.60%

Run 3: Report of LEDBAT — Data Link

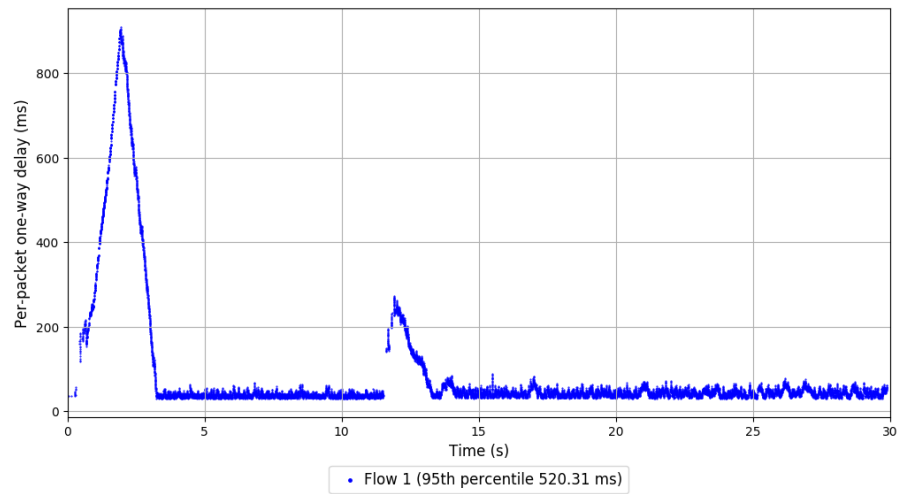
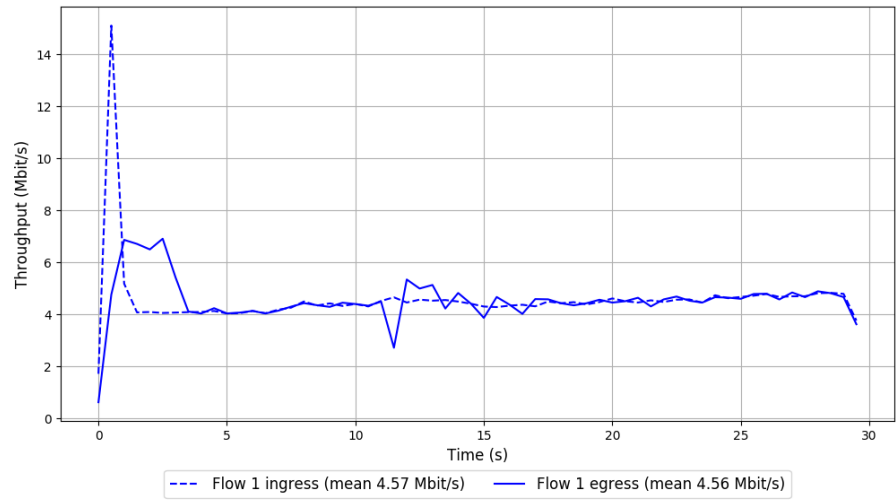


Run 1: Statistics of PCC

Start at: 2018-01-02 19:30:32
End at: 2018-01-02 19:31:02
Local clock offset: -1.916 ms
Remote clock offset: -12.346 ms

Below is generated by plot.py at 2018-01-02 20:17:07
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.56 Mbit/s
95th percentile per-packet one-way delay: 520.308 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 4.56 Mbit/s
95th percentile per-packet one-way delay: 520.308 ms
Loss rate: 0.28%

Run 1: Report of PCC — Data Link

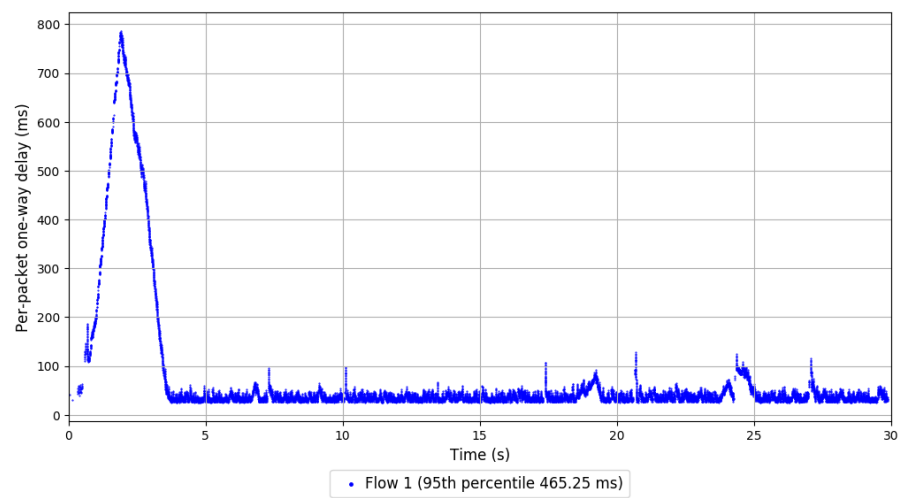
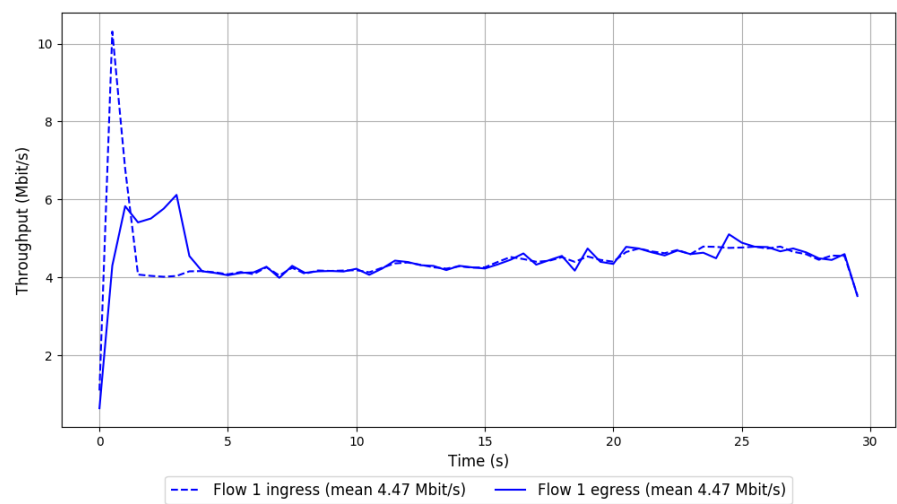


Run 2: Statistics of PCC

Start at: 2018-01-02 19:46:55
End at: 2018-01-02 19:47:25
Local clock offset: -0.186 ms
Remote clock offset: -14.571 ms

Below is generated by plot.py at 2018-01-02 20:17:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.47 Mbit/s
95th percentile per-packet one-way delay: 465.249 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 4.47 Mbit/s
95th percentile per-packet one-way delay: 465.249 ms
Loss rate: 0.19%

Run 2: Report of PCC — Data Link

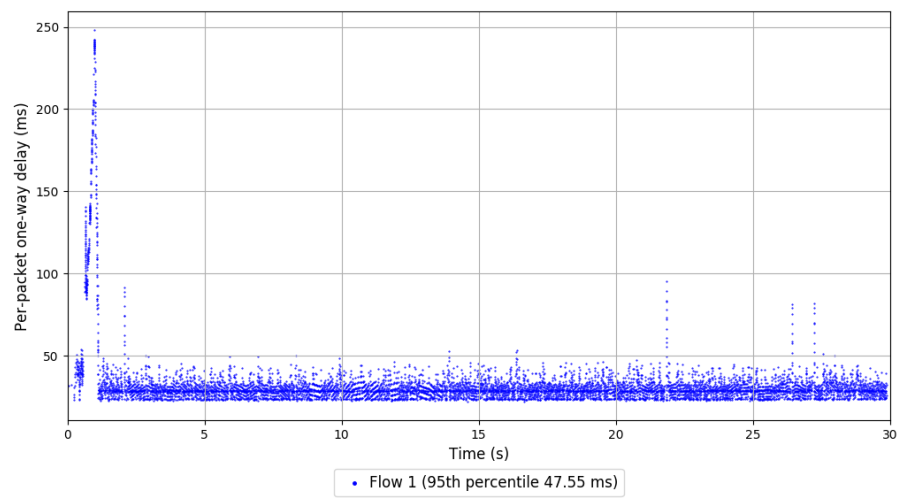
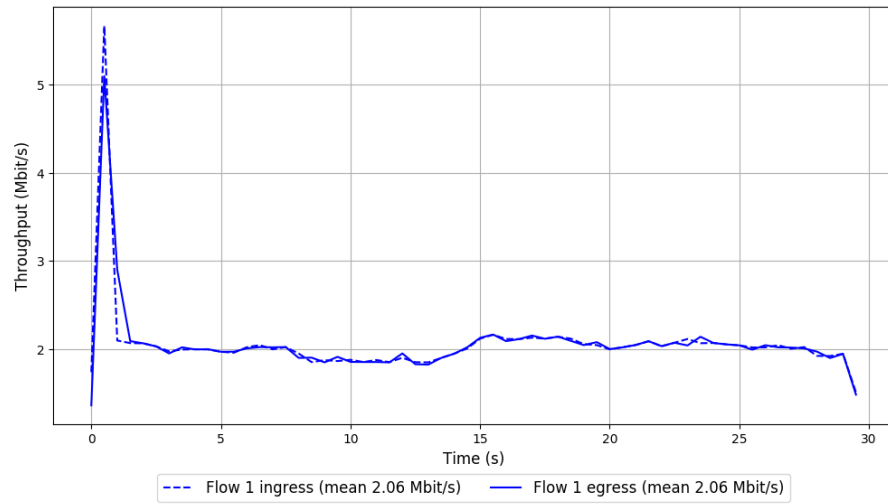


Run 3: Statistics of PCC

Start at: 2018-01-02 20:03:22
End at: 2018-01-02 20:03:52
Local clock offset: 1.359 ms
Remote clock offset: -12.485 ms

Below is generated by plot.py at 2018-01-02 20:17:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 47.551 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 47.551 ms
Loss rate: 0.12%

Run 3: Report of PCC — Data Link

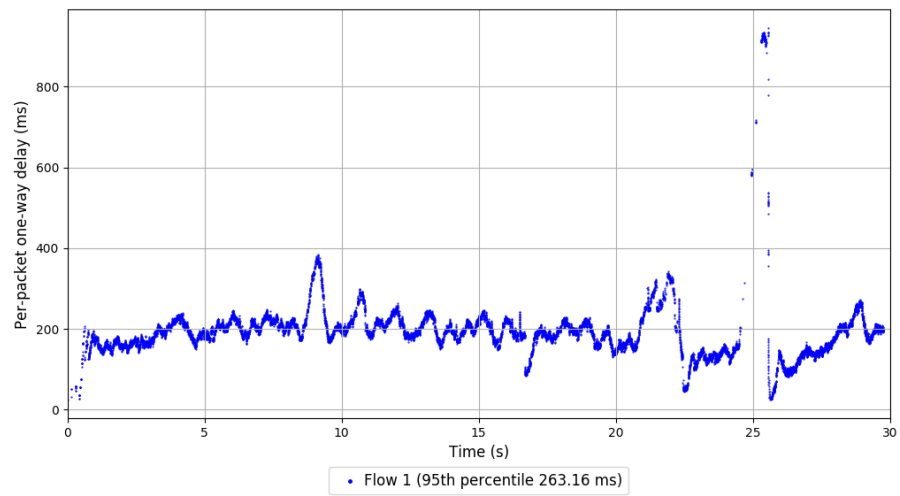
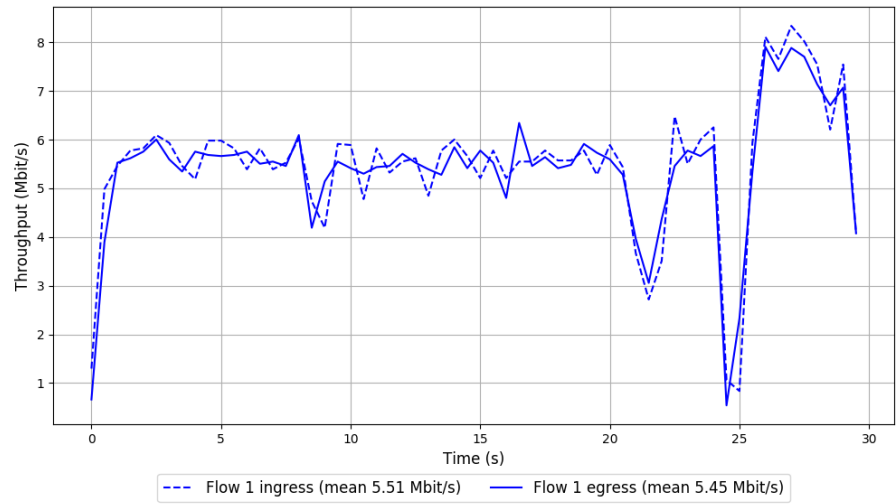


Run 1: Statistics of QUIC Cubic

Start at: 2018-01-02 19:37:05
End at: 2018-01-02 19:37:35
Local clock offset: -0.11 ms
Remote clock offset: -13.457 ms

Below is generated by plot.py at 2018-01-02 20:17:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.45 Mbit/s
95th percentile per-packet one-way delay: 263.156 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 5.45 Mbit/s
95th percentile per-packet one-way delay: 263.156 ms
Loss rate: 1.13%

Run 1: Report of QUIC Cubic — Data Link

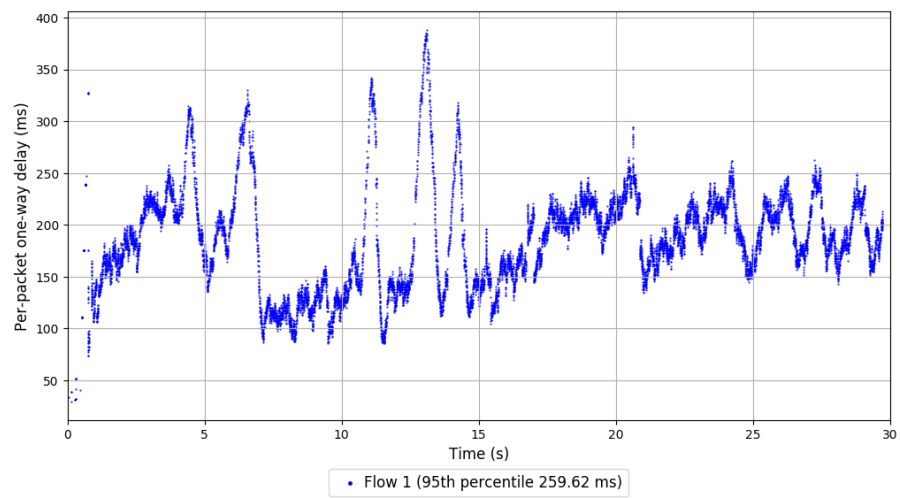
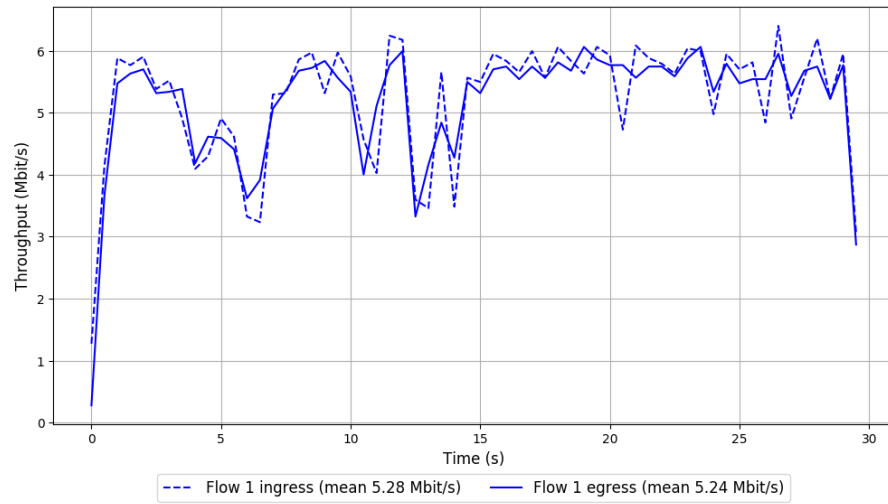


Run 2: Statistics of QUIC Cubic

Start at: 2018-01-02 19:53:31
End at: 2018-01-02 19:54:01
Local clock offset: 1.69 ms
Remote clock offset: -12.067 ms

Below is generated by plot.py at 2018-01-02 20:17:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.24 Mbit/s
95th percentile per-packet one-way delay: 259.617 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 5.24 Mbit/s
95th percentile per-packet one-way delay: 259.617 ms
Loss rate: 0.98%

Run 2: Report of QUIC Cubic — Data Link

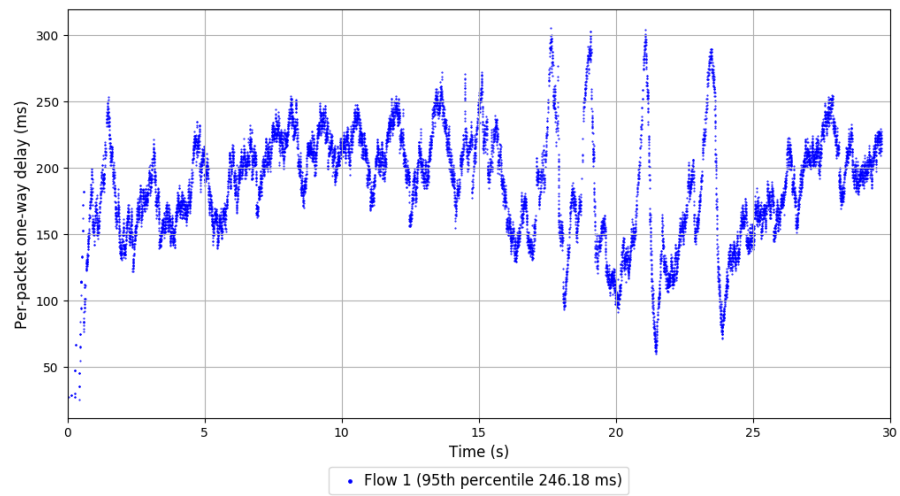
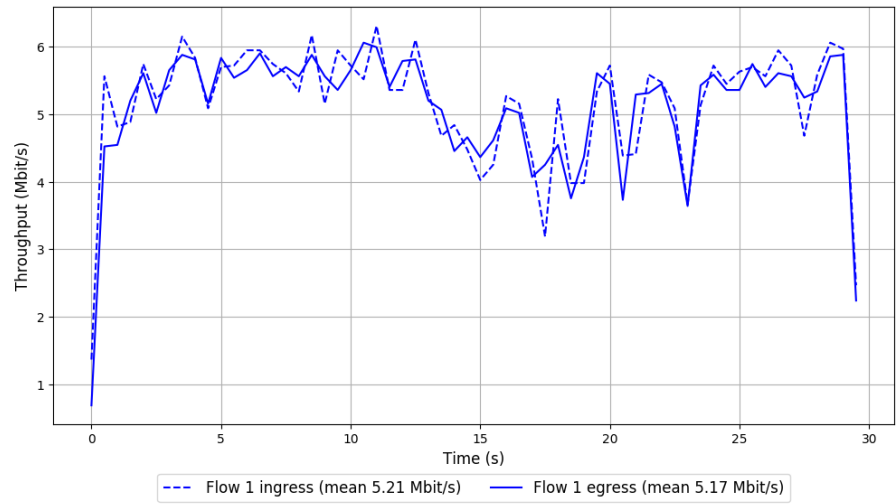


Run 3: Statistics of QUIC Cubic

Start at: 2018-01-02 20:09:58
End at: 2018-01-02 20:10:28
Local clock offset: 2.965 ms
Remote clock offset: -12.193 ms

Below is generated by plot.py at 2018-01-02 20:17:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.17 Mbit/s
95th percentile per-packet one-way delay: 246.179 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 5.17 Mbit/s
95th percentile per-packet one-way delay: 246.179 ms
Loss rate: 0.99%

Run 3: Report of QUIC Cubic — Data Link

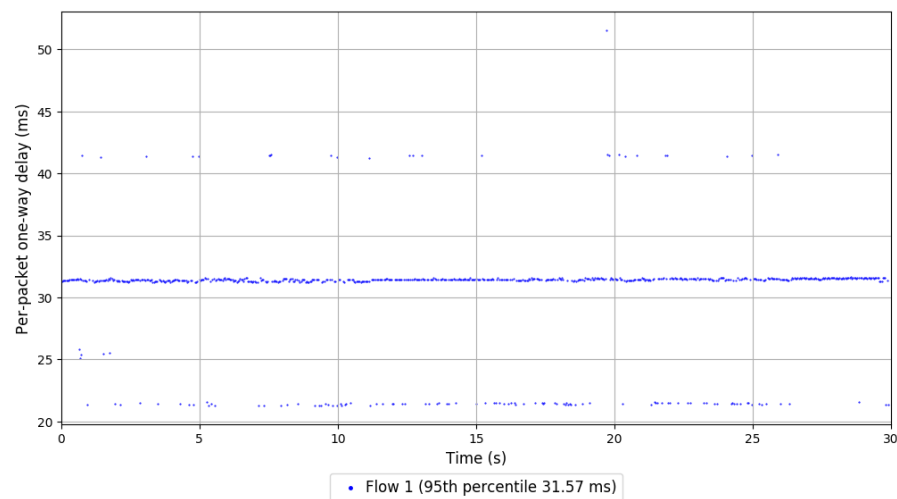
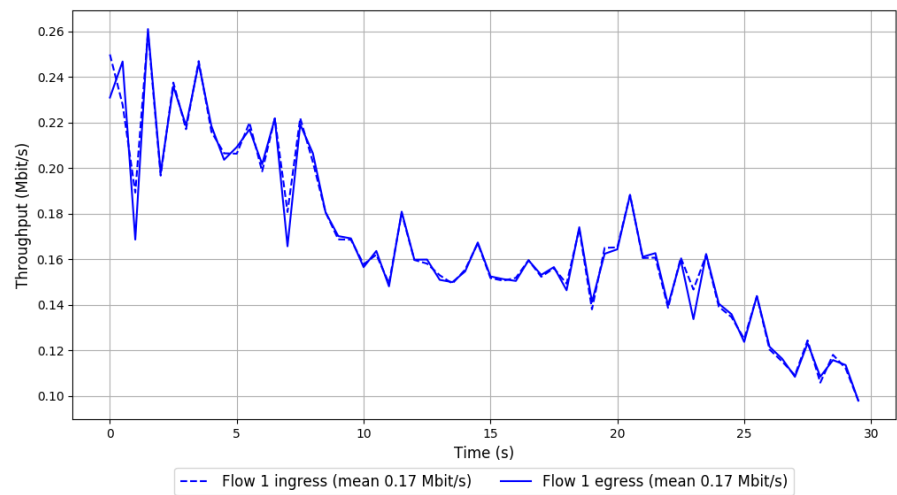


Run 1: Statistics of SCReAM

Start at: 2018-01-02 19:41:27
End at: 2018-01-02 19:41:57
Local clock offset: -0.613 ms
Remote clock offset: -15.348 ms

Below is generated by plot.py at 2018-01-02 20:17:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 31.565 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 31.565 ms
Loss rate: 0.35%

Run 1: Report of SReAM — Data Link

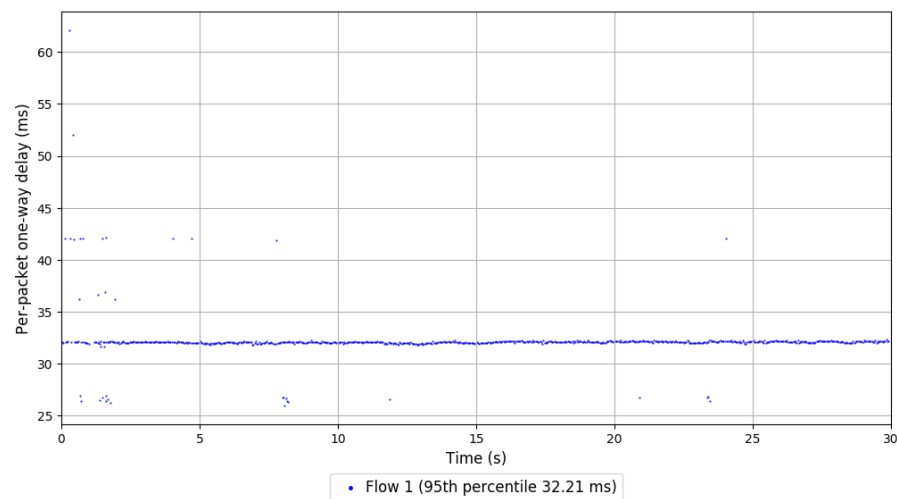
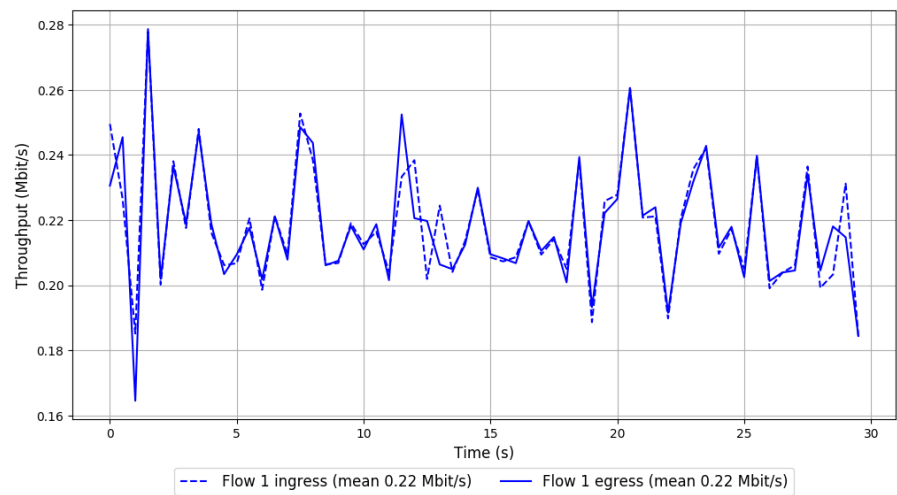


Run 2: Statistics of SCReAM

Start at: 2018-01-02 19:57:54
End at: 2018-01-02 19:58:24
Local clock offset: 2.346 ms
Remote clock offset: -11.113 ms

Below is generated by plot.py at 2018-01-02 20:17:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 32.209 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 32.209 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

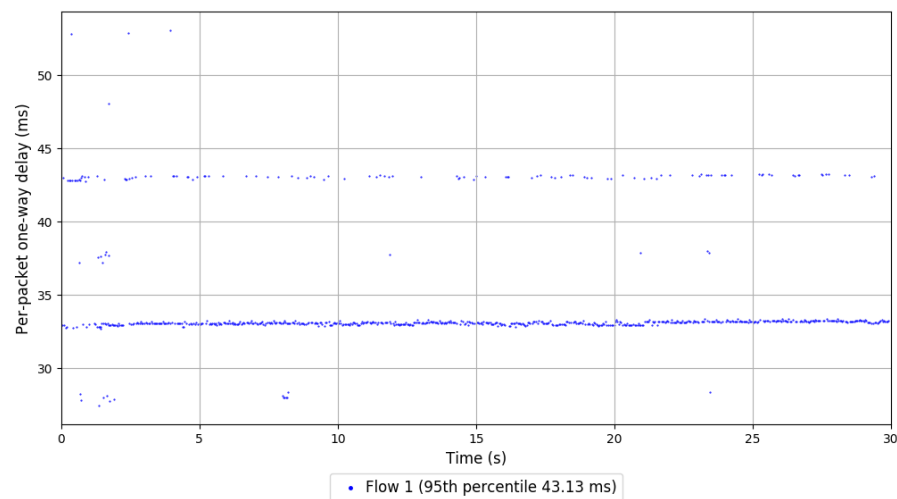
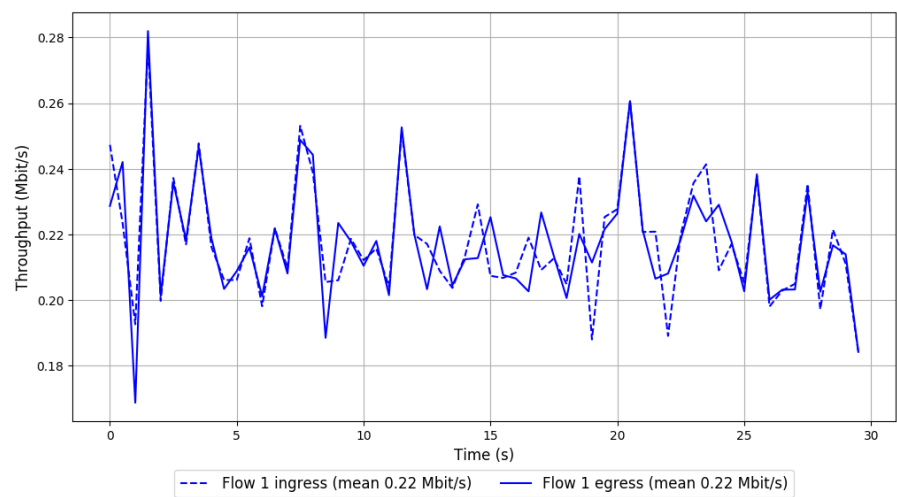


Run 3: Statistics of SCReAM

Start at: 2018-01-02 20:14:21
End at: 2018-01-02 20:14:51
Local clock offset: -0.116 ms
Remote clock offset: -13.329 ms

Below is generated by plot.py at 2018-01-02 20:17:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 43.135 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 43.135 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

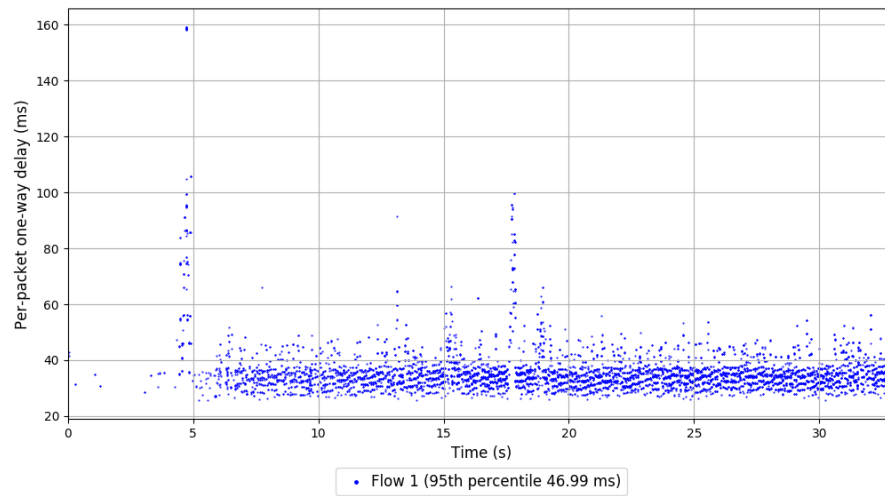
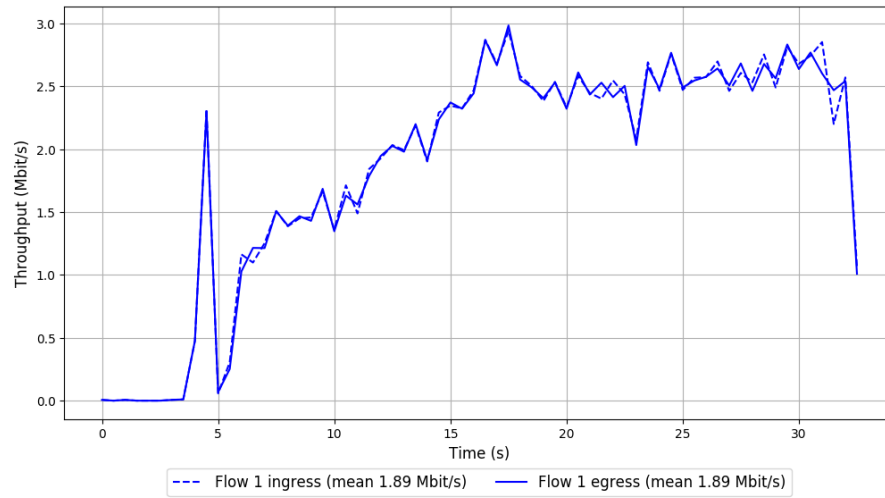


Run 1: Statistics of WebRTC media

Start at: 2018-01-02 19:40:21
End at: 2018-01-02 19:40:51
Local clock offset: 0.276 ms
Remote clock offset: -13.76 ms

Below is generated by plot.py at 2018-01-02 20:17:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 46.987 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 46.987 ms
Loss rate: 0.22%

Run 1: Report of WebRTC media — Data Link

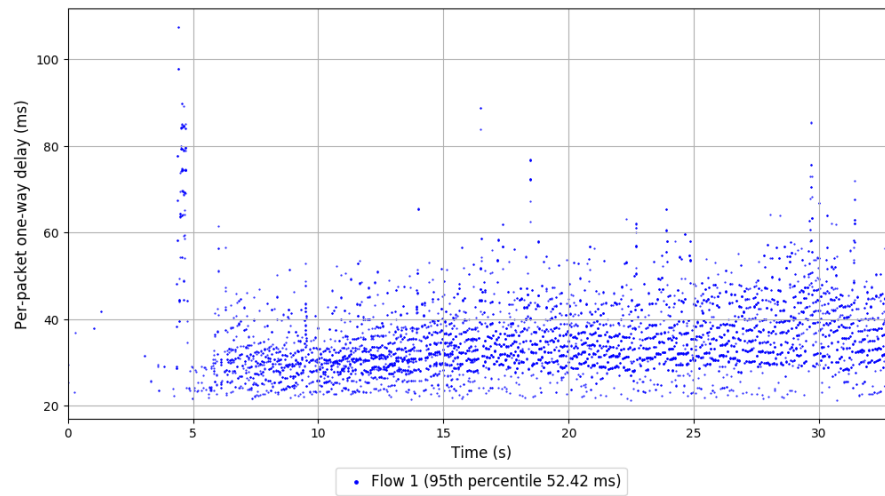
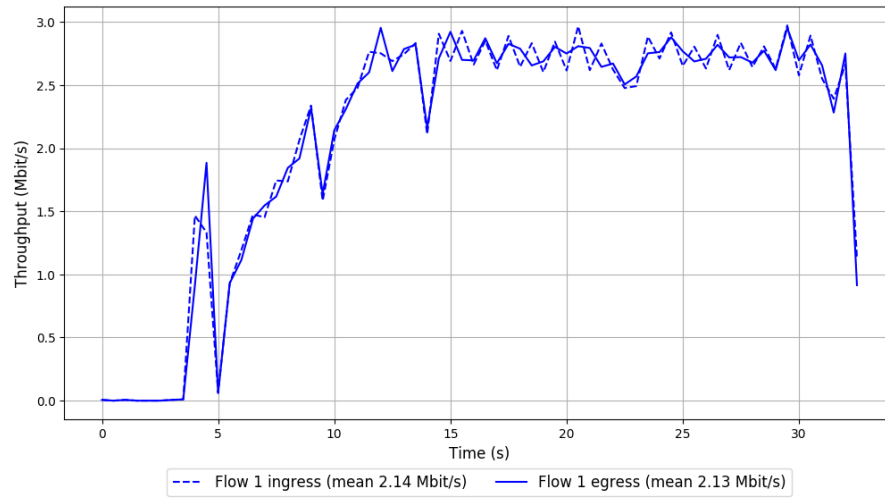


Run 2: Statistics of WebRTC media

Start at: 2018-01-02 19:56:48
End at: 2018-01-02 19:57:18
Local clock offset: 1.636 ms
Remote clock offset: -13.838 ms

Below is generated by plot.py at 2018-01-02 20:17:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 52.424 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 52.424 ms
Loss rate: 0.24%

Run 2: Report of WebRTC media — Data Link

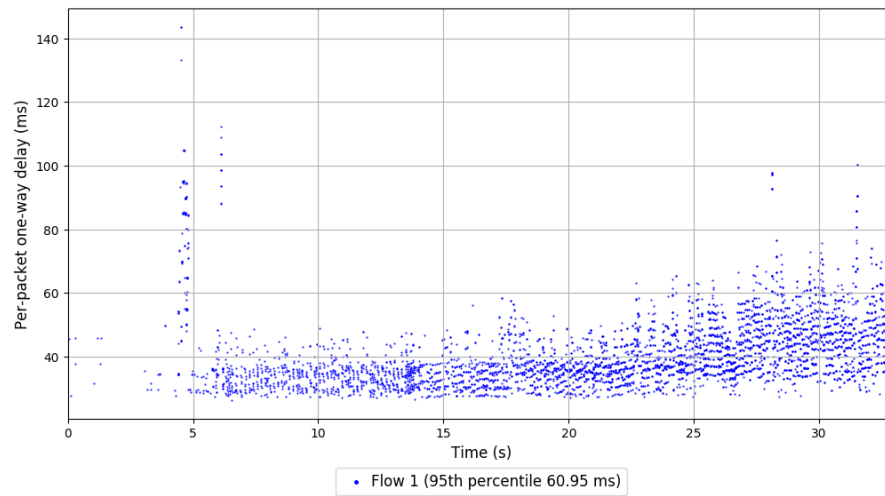
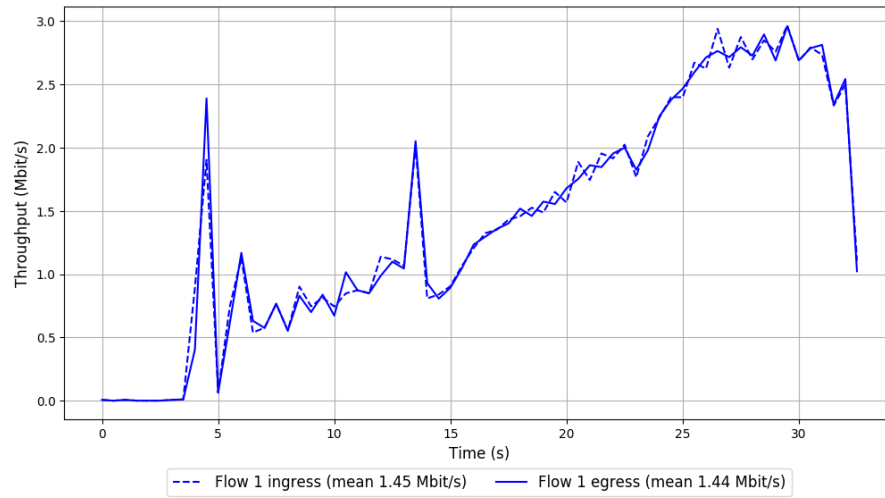


Run 3: Statistics of WebRTC media

Start at: 2018-01-02 20:13:16
End at: 2018-01-02 20:13:46
Local clock offset: -0.883 ms
Remote clock offset: -11.895 ms

Below is generated by plot.py at 2018-01-02 20:17:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 60.945 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 60.945 ms
Loss rate: 0.25%

Run 3: Report of WebRTC media — Data Link

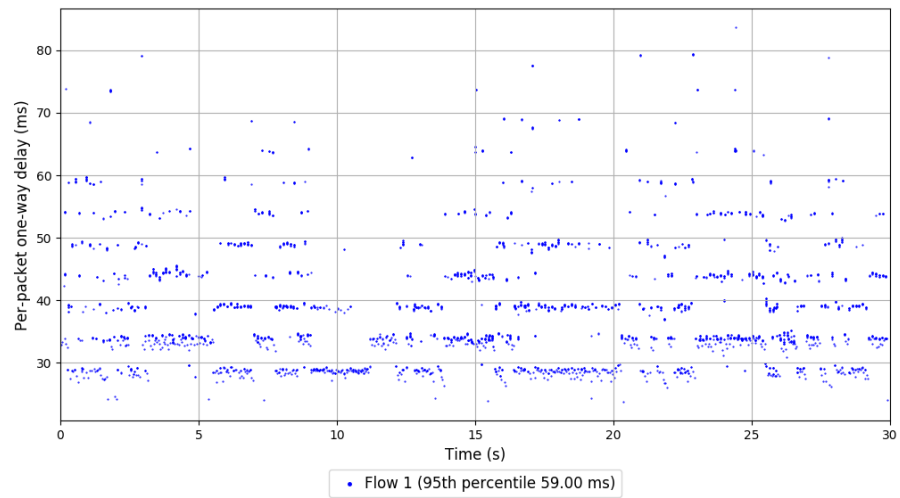
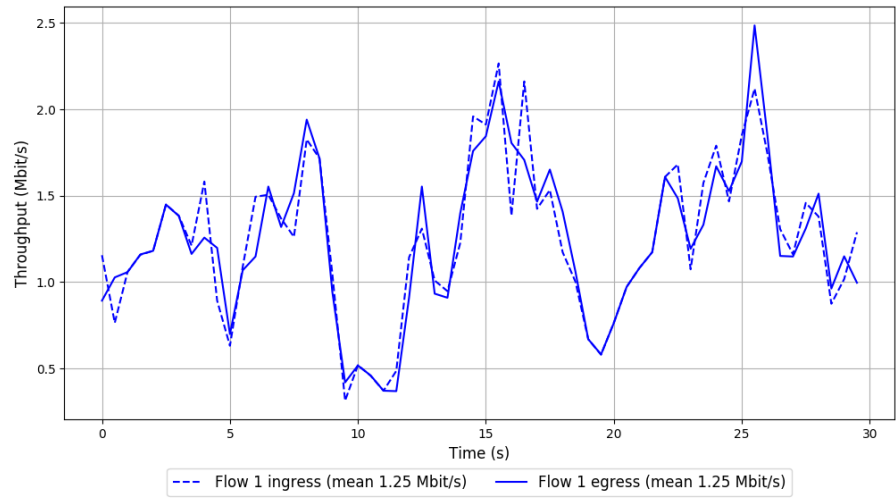


Run 1: Statistics of Sprout

Start at: 2018-01-02 19:39:16
End at: 2018-01-02 19:39:46
Local clock offset: 0.319 ms
Remote clock offset: -14.613 ms

Below is generated by plot.py at 2018-01-02 20:17:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 58.997 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 58.997 ms
Loss rate: 0.42%

Run 1: Report of Sprout — Data Link

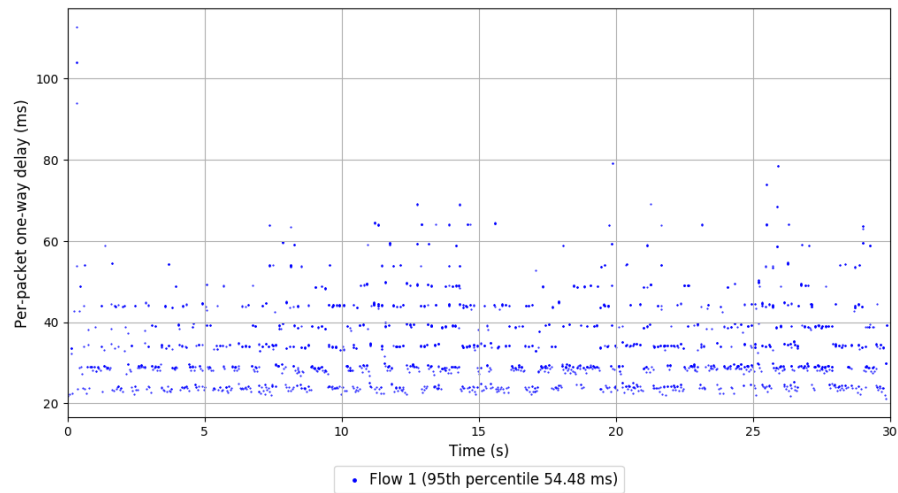
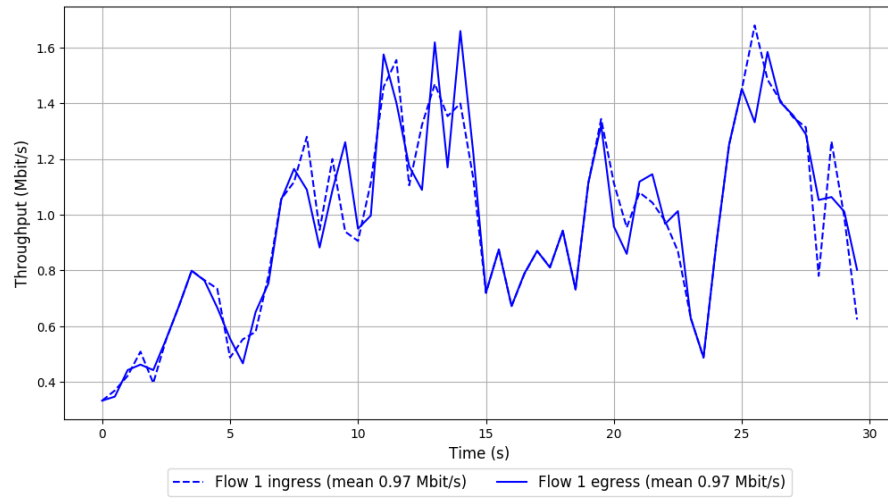


Run 2: Statistics of Sprout

Start at: 2018-01-02 19:55:42
End at: 2018-01-02 19:56:12
Local clock offset: 1.717 ms
Remote clock offset: -13.313 ms

Below is generated by plot.py at 2018-01-02 20:17:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 54.477 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 54.477 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

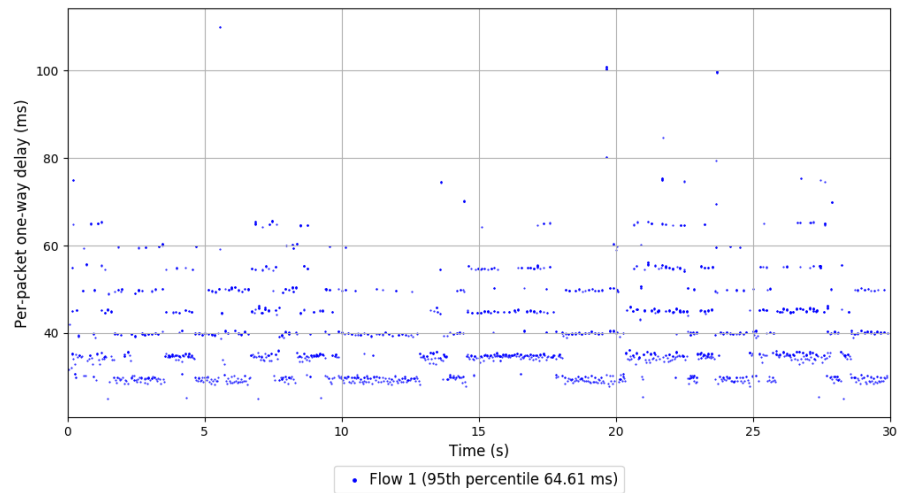
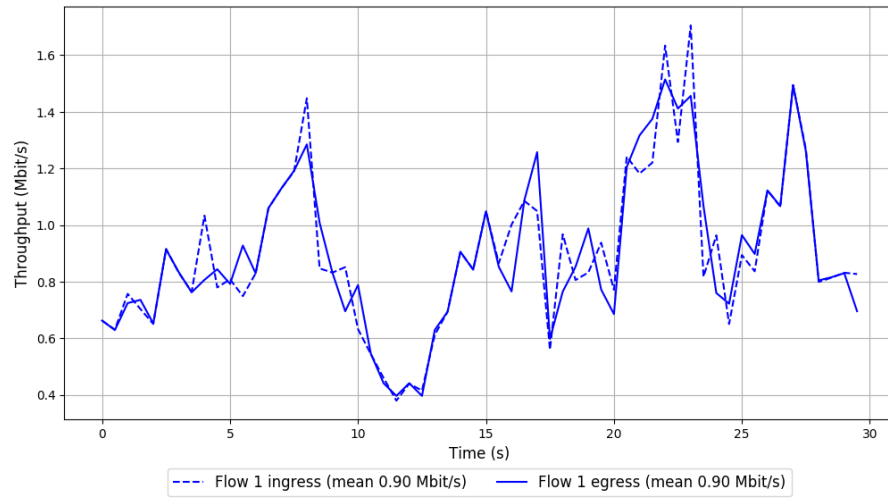


Run 3: Statistics of Sprout

Start at: 2018-01-02 20:12:09
End at: 2018-01-02 20:12:39
Local clock offset: 2.447 ms
Remote clock offset: -12.959 ms

Below is generated by plot.py at 2018-01-02 20:17:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 64.605 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 64.605 ms
Loss rate: 0.25%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-01-02 19:42:32

End at: 2018-01-02 19:43:02

Local clock offset: -0.932 ms

Remote clock offset: -13.76 ms

Below is generated by plot.py at 2018-01-02 20:17:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.88 Mbit/s

95th percentile per-packet one-way delay: 96.275 ms

Loss rate: 0.16%

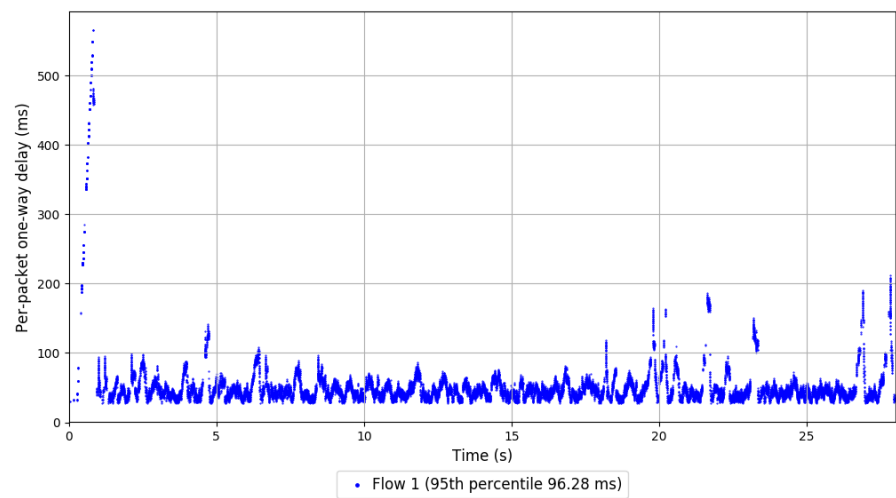
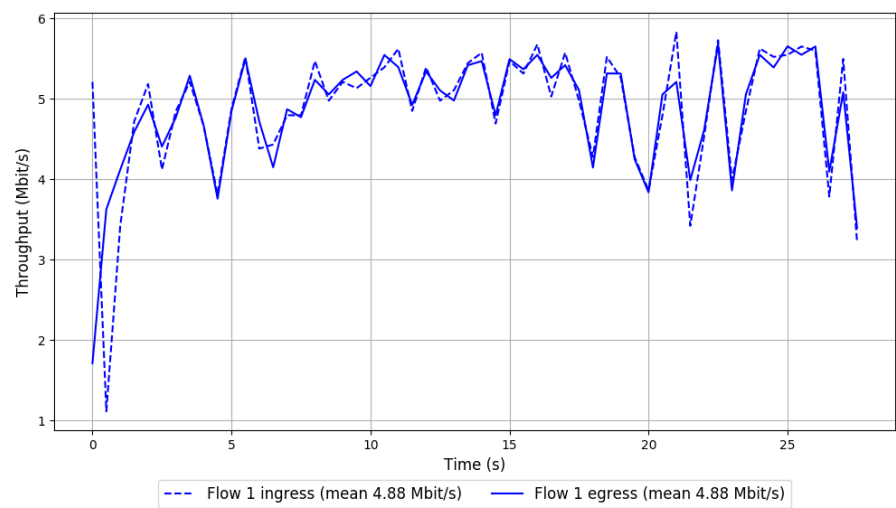
-- Flow 1:

Average throughput: 4.88 Mbit/s

95th percentile per-packet one-way delay: 96.275 ms

Loss rate: 0.16%

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

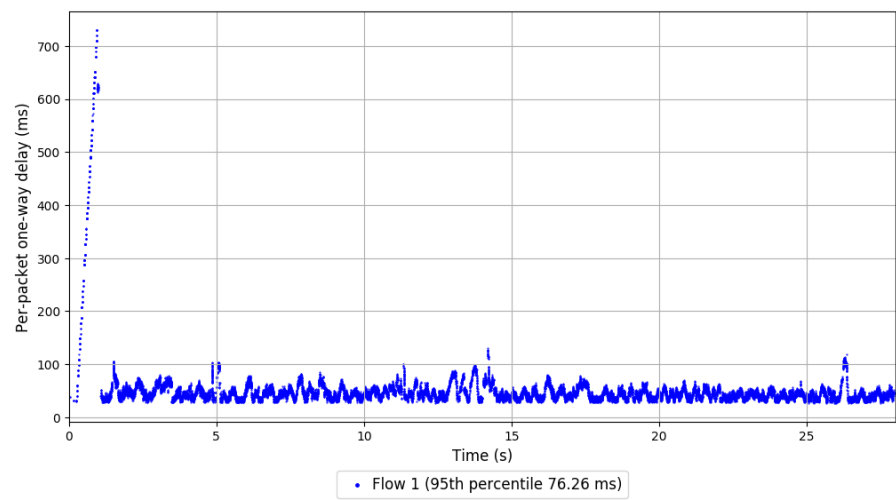
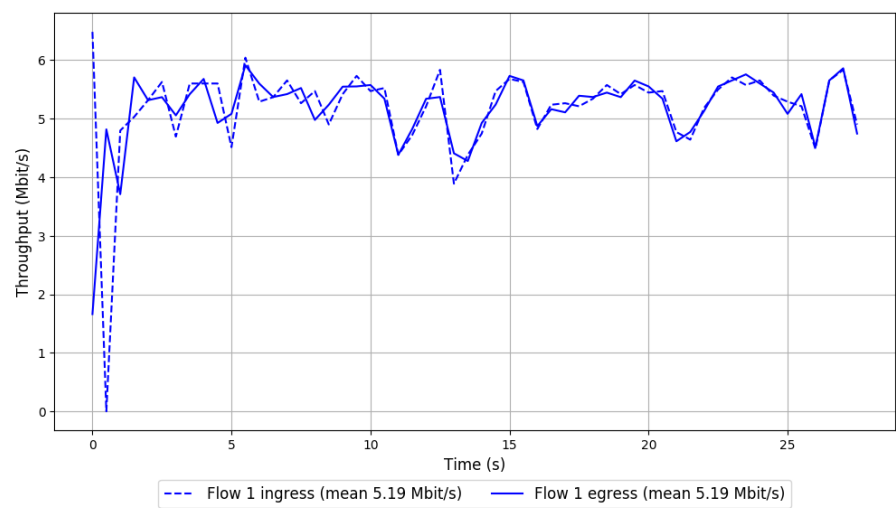


Run 2: Statistics of TaoVA-100x

Start at: 2018-01-02 19:58:59
End at: 2018-01-02 19:59:29
Local clock offset: -0.106 ms
Remote clock offset: -13.244 ms

Below is generated by plot.py at 2018-01-02 20:17:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.19 Mbit/s
95th percentile per-packet one-way delay: 76.261 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 5.19 Mbit/s
95th percentile per-packet one-way delay: 76.261 ms
Loss rate: 0.17%

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

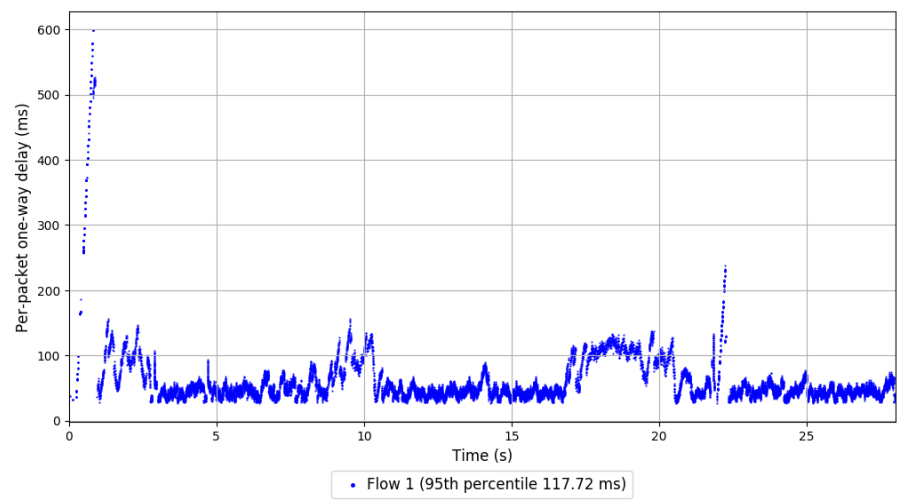
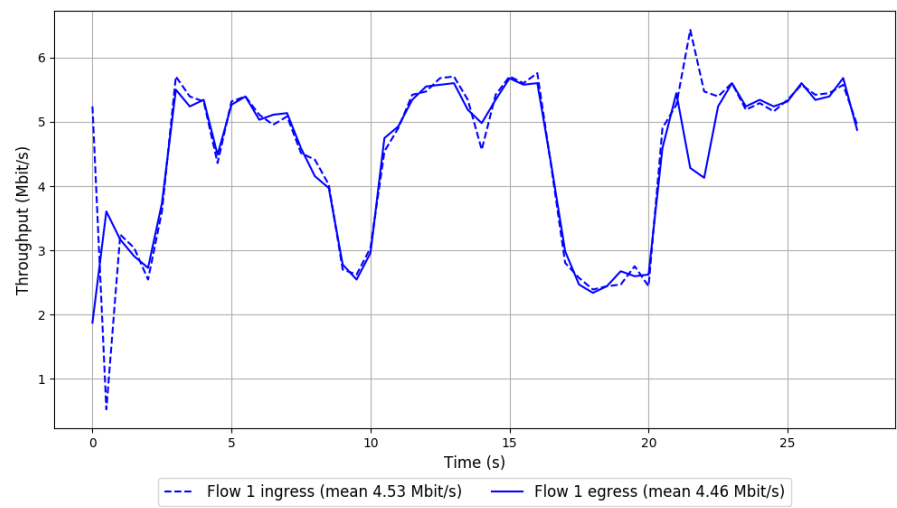


Run 3: Statistics of TaoVA-100x

Start at: 2018-01-02 20:15:26
End at: 2018-01-02 20:15:56
Local clock offset: 0.204 ms
Remote clock offset: -13.818 ms

Below is generated by plot.py at 2018-01-02 20:17:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 117.718 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 117.718 ms
Loss rate: 1.60%

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



Run 1: Statistics of TCP Vegas

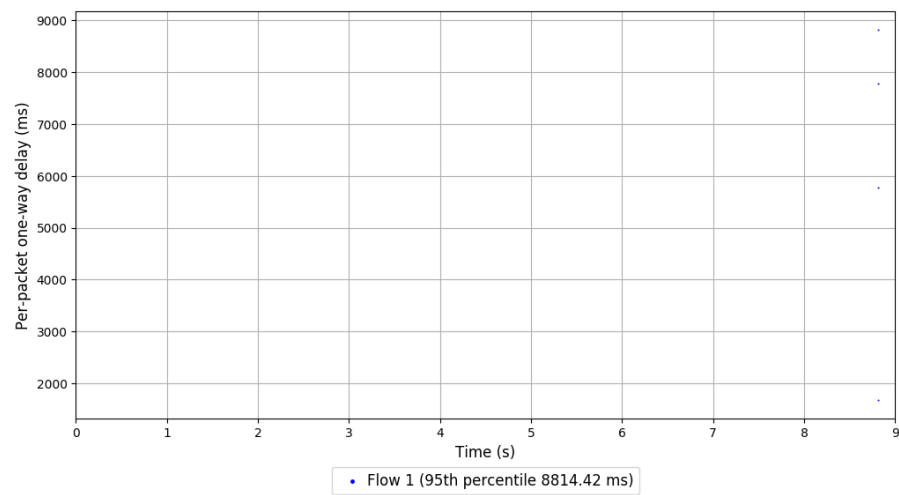
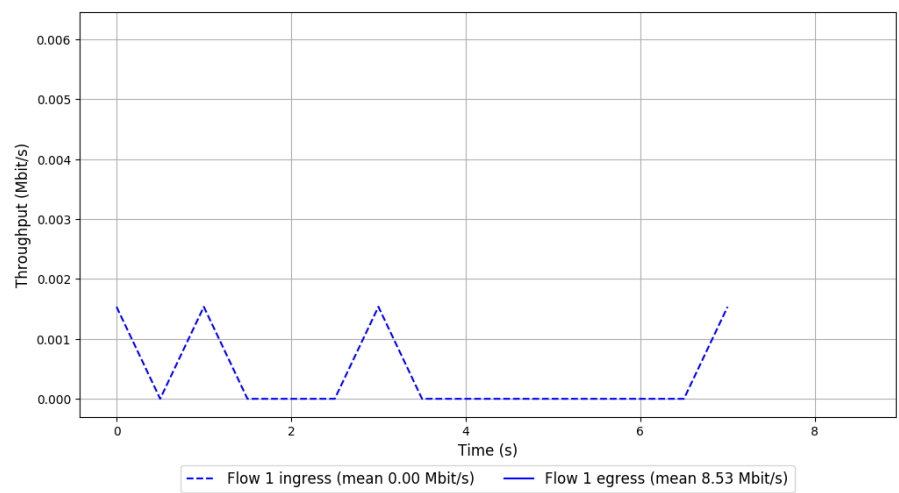
Start at: 2018-01-02 19:38:11

End at: 2018-01-02 19:38:41

Local clock offset: -0.257 ms

Remote clock offset: -13.954 ms

Run 1: Report of TCP Vegas — Data Link

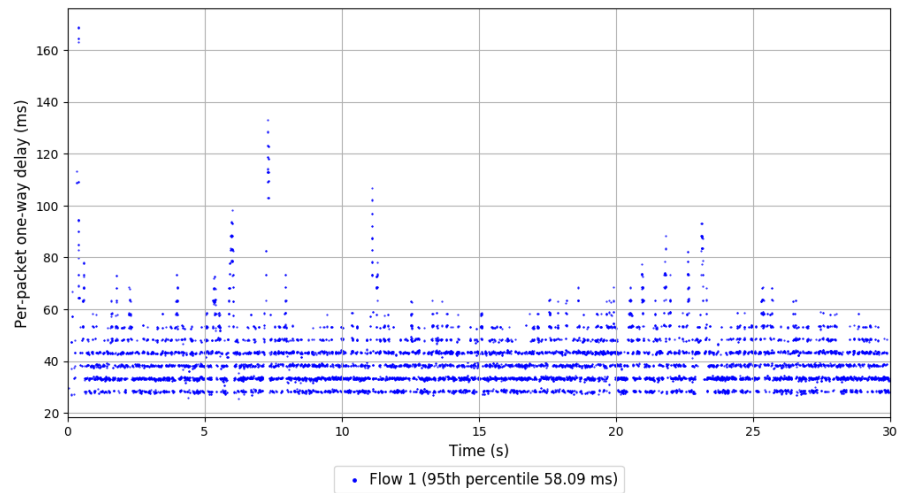
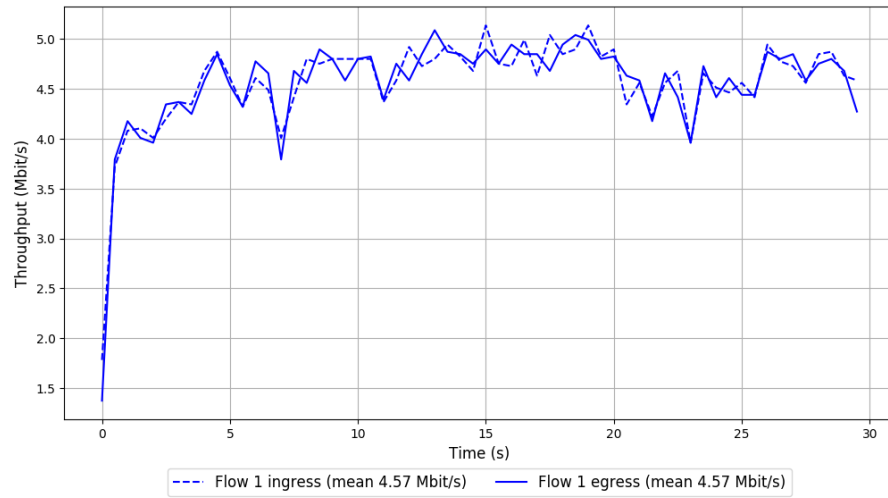


Run 2: Statistics of TCP Vegas

Start at: 2018-01-02 19:54:37
End at: 2018-01-02 19:55:07
Local clock offset: 2.649 ms
Remote clock offset: -13.688 ms

Below is generated by plot.py at 2018-01-02 20:17:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.57 Mbit/s
95th percentile per-packet one-way delay: 58.093 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 4.57 Mbit/s
95th percentile per-packet one-way delay: 58.093 ms
Loss rate: 0.25%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

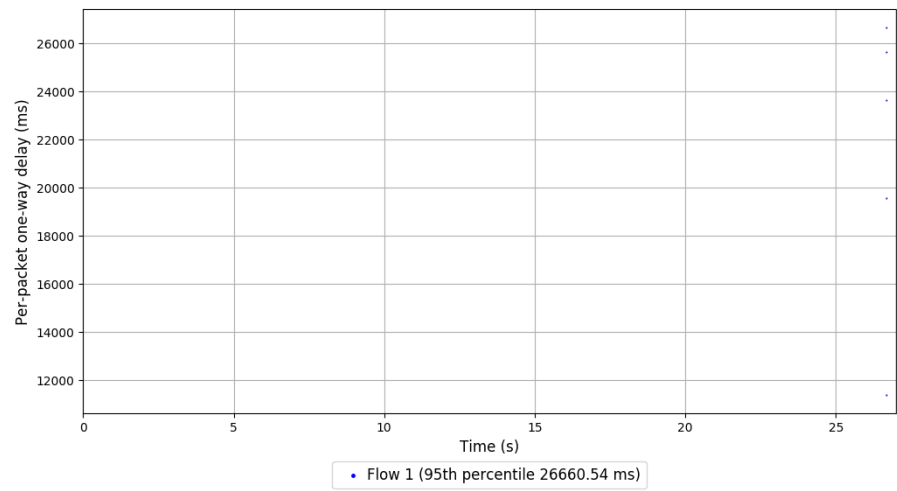
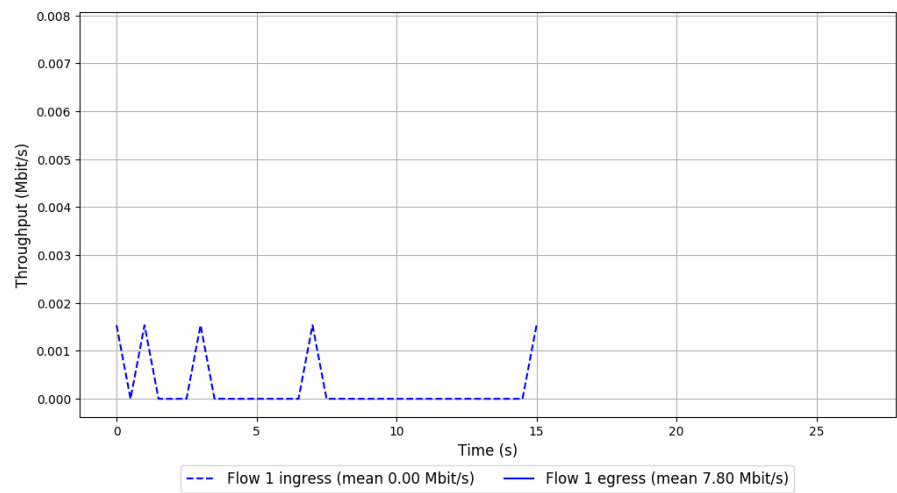
Start at: 2018-01-02 20:11:04

End at: 2018-01-02 20:11:34

Local clock offset: 0.949 ms

Remote clock offset: -12.865 ms

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

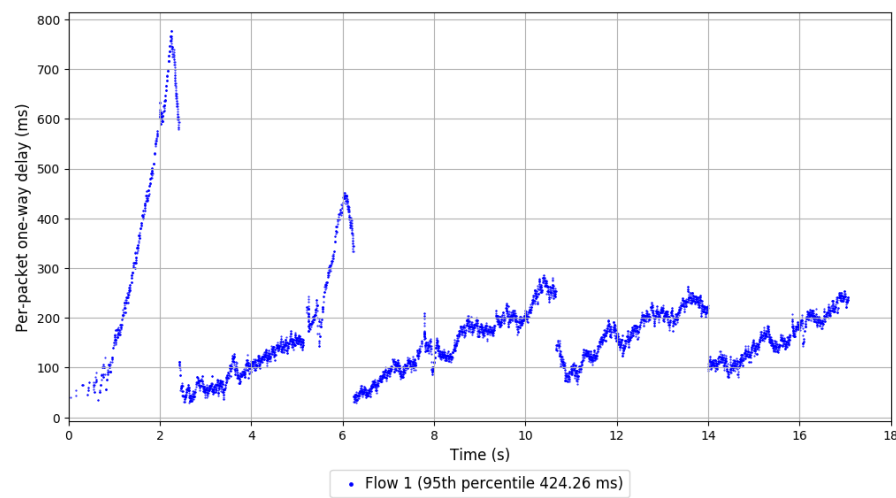
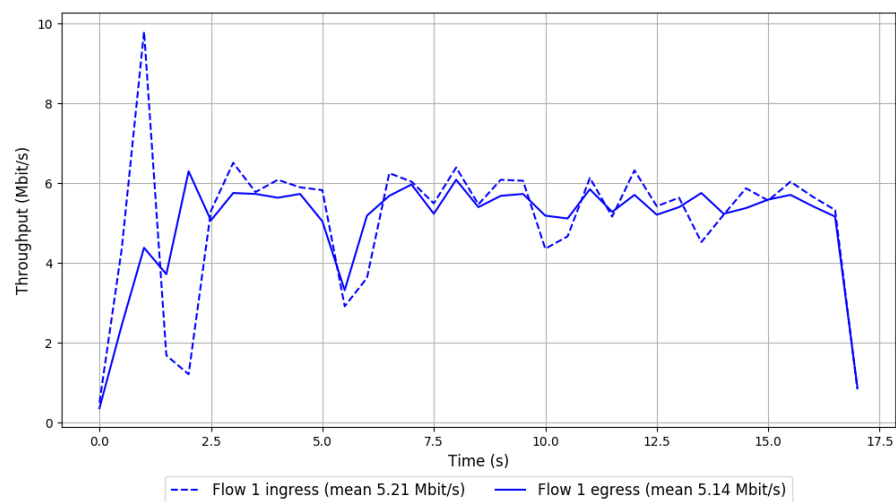
Start at: 2018-01-02 19:34:53

End at: 2018-01-02 19:35:23

Local clock offset: -1.627 ms

Remote clock offset: -13.757 ms

Run 1: Report of Verus — Data Link

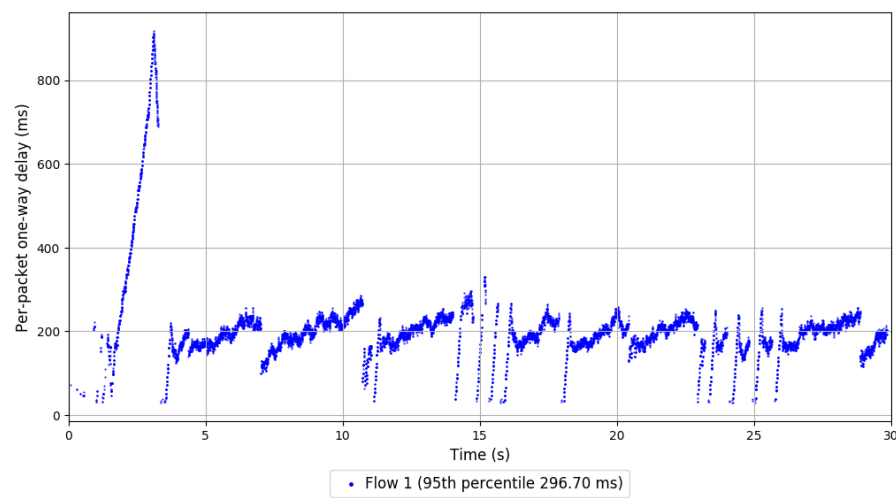
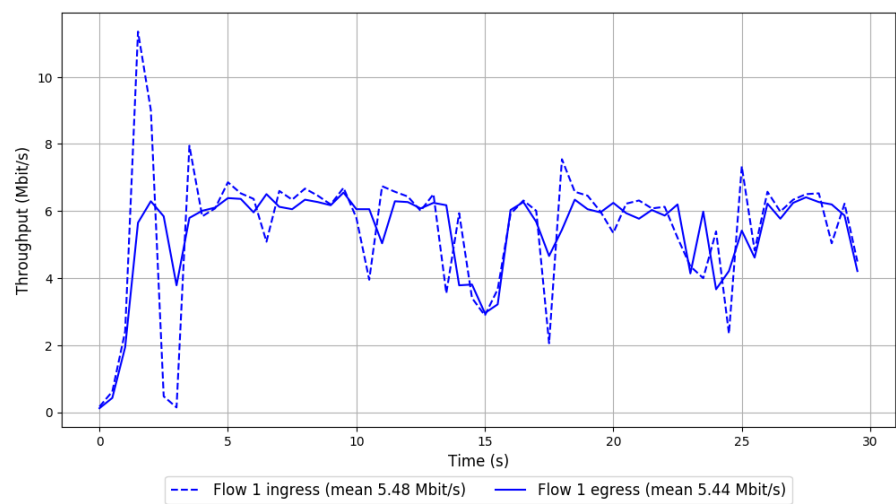


Run 2: Statistics of Verus

Start at: 2018-01-02 19:51:18
End at: 2018-01-02 19:51:48
Local clock offset: -0.604 ms
Remote clock offset: -12.199 ms

Below is generated by plot.py at 2018-01-02 20:17:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.44 Mbit/s
95th percentile per-packet one-way delay: 296.698 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 5.44 Mbit/s
95th percentile per-packet one-way delay: 296.698 ms
Loss rate: 0.92%

Run 2: Report of Verus — Data Link

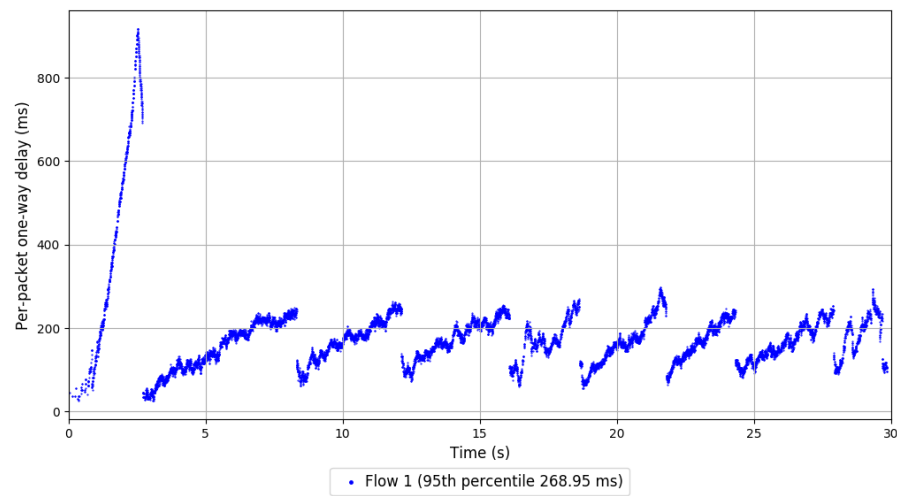
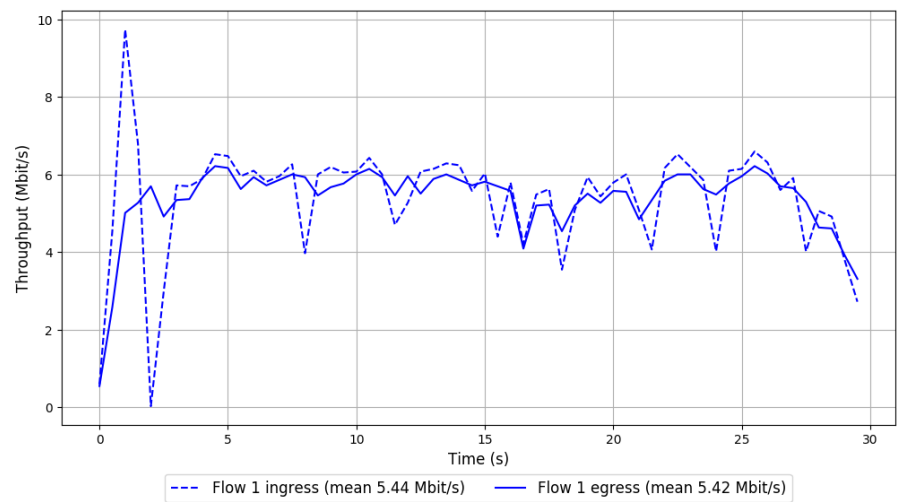


Run 3: Statistics of Verus

Start at: 2018-01-02 20:07:45
End at: 2018-01-02 20:08:15
Local clock offset: -1.103 ms
Remote clock offset: -12.404 ms

Below is generated by plot.py at 2018-01-02 20:17:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.42 Mbit/s
95th percentile per-packet one-way delay: 268.954 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 5.42 Mbit/s
95th percentile per-packet one-way delay: 268.954 ms
Loss rate: 0.47%

Run 3: Report of Verus — Data Link

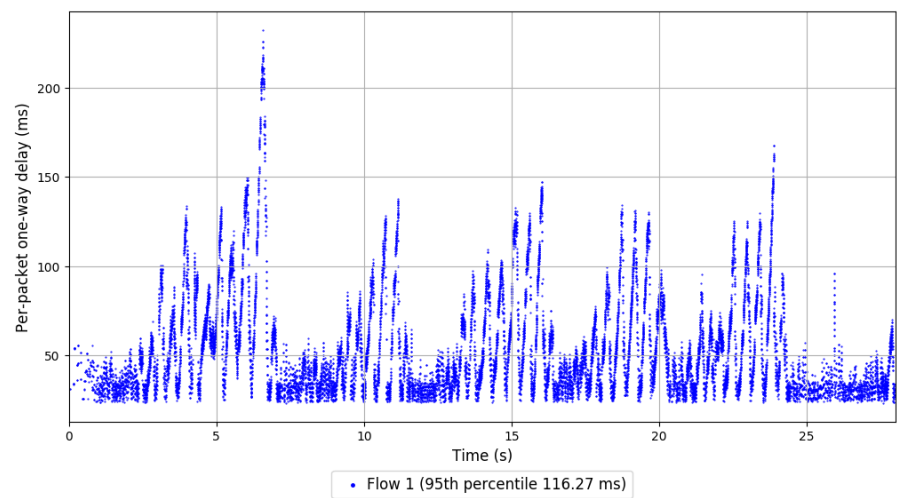
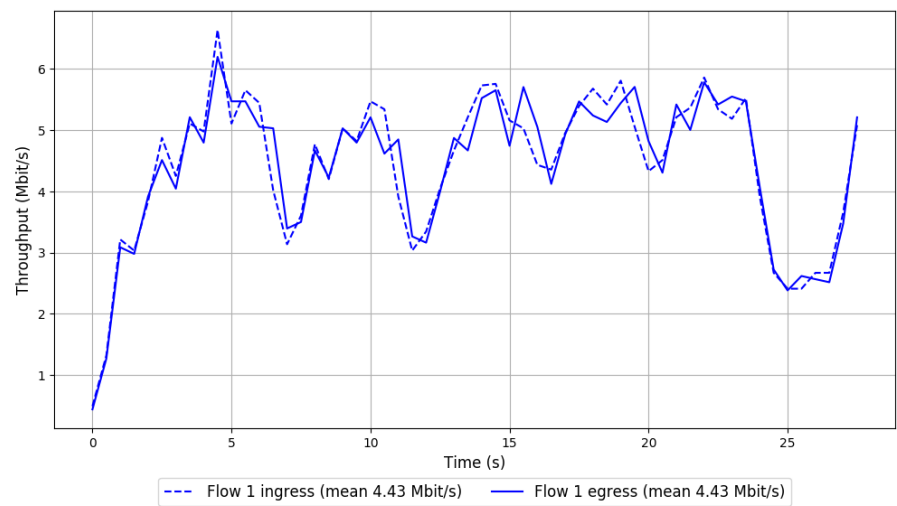


Run 1: Statistics of Copa

Start at: 2018-01-02 19:31:37
End at: 2018-01-02 19:32:07
Local clock offset: -2.017 ms
Remote clock offset: -13.444 ms

Below is generated by plot.py at 2018-01-02 20:17:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.43 Mbit/s
95th percentile per-packet one-way delay: 116.272 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 4.43 Mbit/s
95th percentile per-packet one-way delay: 116.272 ms
Loss rate: 0.15%

Run 1: Report of Copa — Data Link

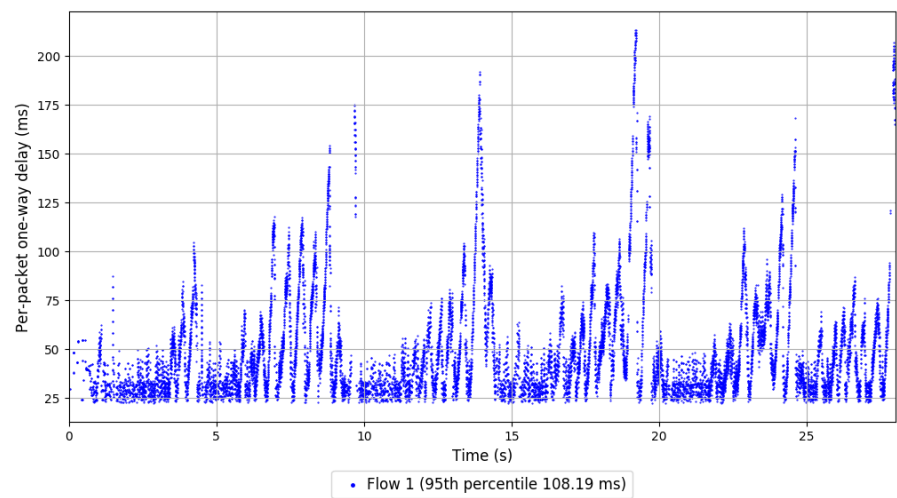
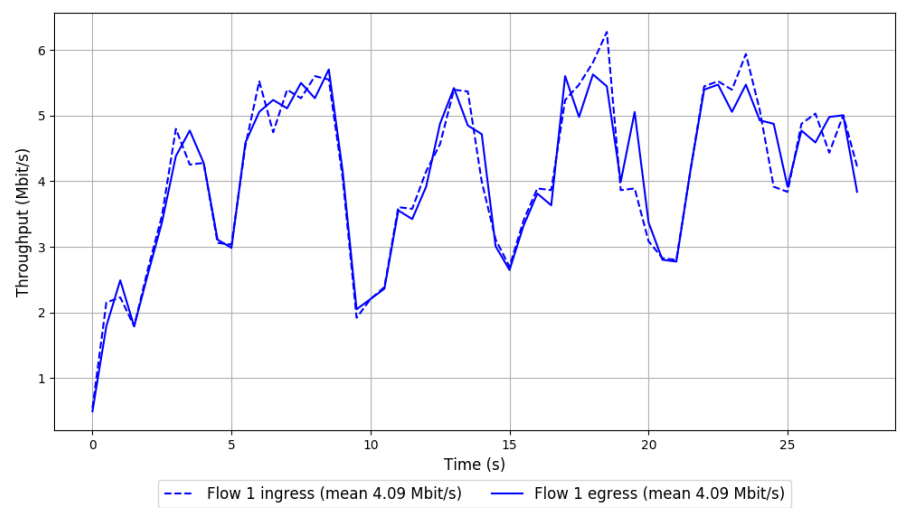


Run 2: Statistics of Copa

Start at: 2018-01-02 19:48:00
End at: 2018-01-02 19:48:30
Local clock offset: -1.307 ms
Remote clock offset: -14.222 ms

Below is generated by plot.py at 2018-01-02 20:17:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.09 Mbit/s
95th percentile per-packet one-way delay: 108.194 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 4.09 Mbit/s
95th percentile per-packet one-way delay: 108.194 ms
Loss rate: 0.28%

Run 2: Report of Copa — Data Link

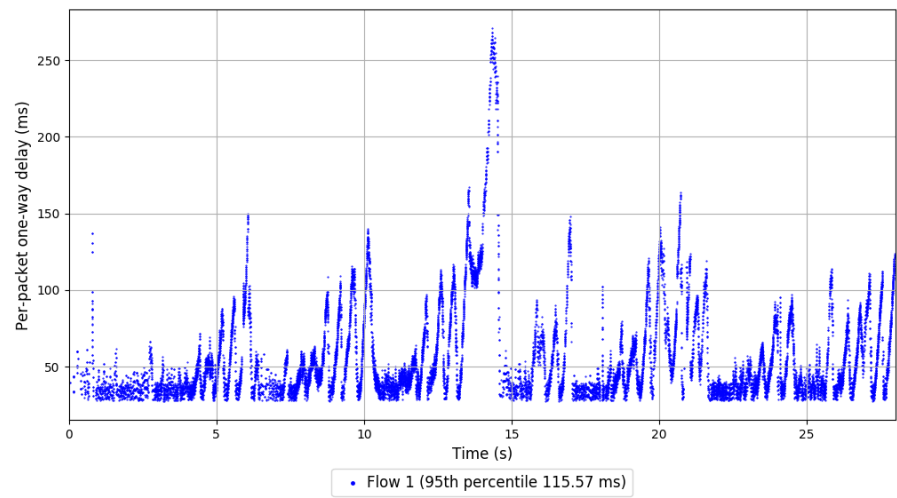
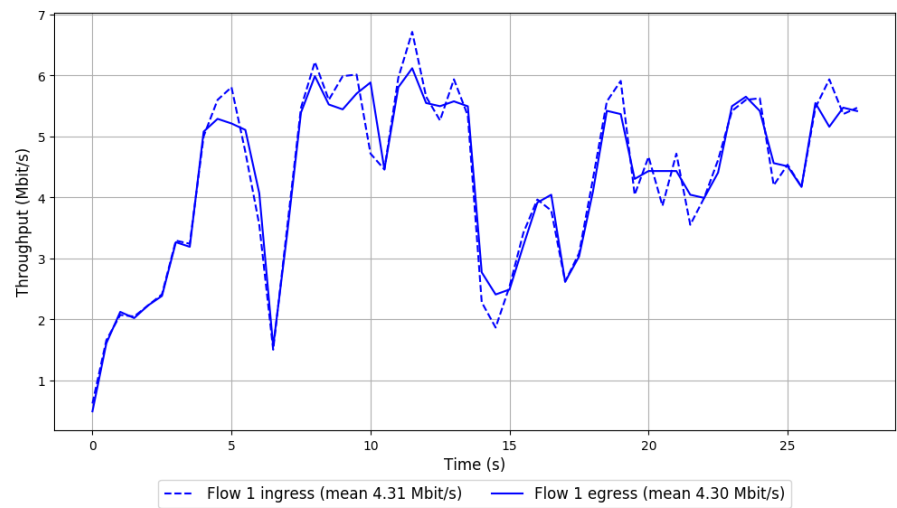


Run 3: Statistics of Copa

Start at: 2018-01-02 20:04:27
End at: 2018-01-02 20:04:57
Local clock offset: 0.515 ms
Remote clock offset: -11.854 ms

Below is generated by plot.py at 2018-01-02 20:17:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.30 Mbit/s
95th percentile per-packet one-way delay: 115.574 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 4.30 Mbit/s
95th percentile per-packet one-way delay: 115.574 ms
Loss rate: 0.39%

Run 3: Report of Copa — Data Link

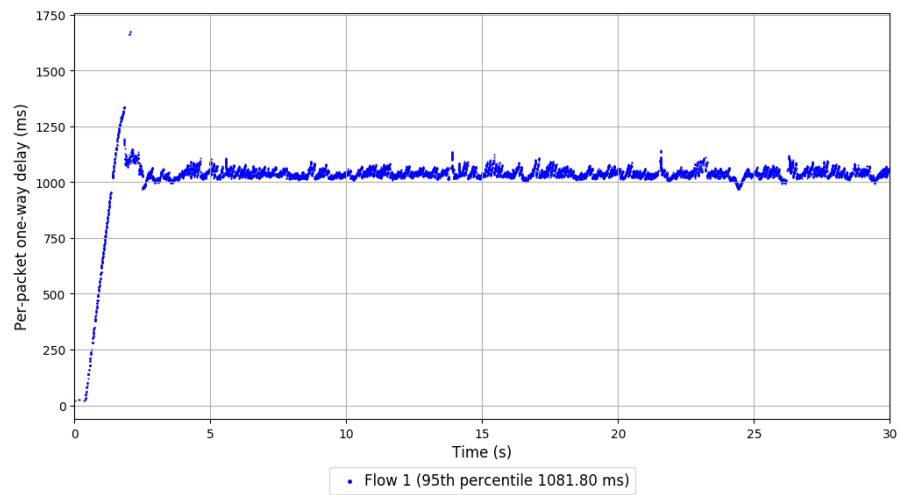
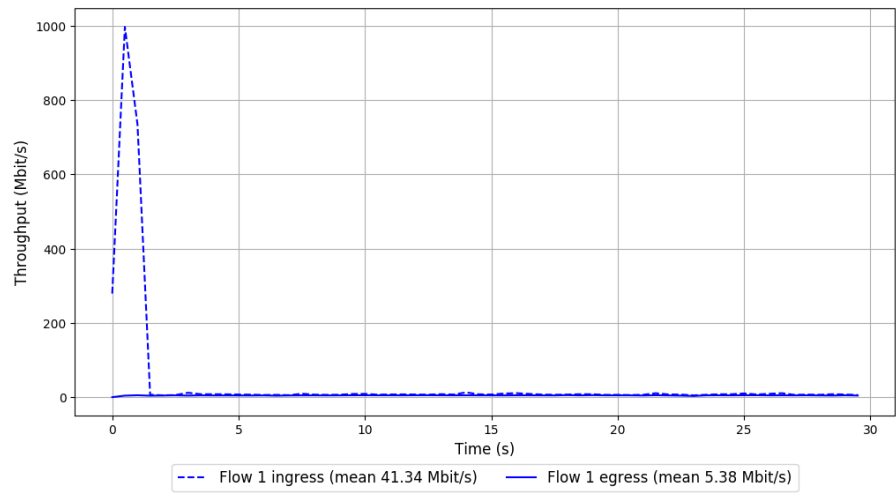


Run 1: Statistics of FillP

Start at: 2018-01-02 19:35:59
End at: 2018-01-02 19:36:29
Local clock offset: 0.959 ms
Remote clock offset: -14.565 ms

Below is generated by plot.py at 2018-01-02 20:17:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.38 Mbit/s
95th percentile per-packet one-way delay: 1081.801 ms
Loss rate: 87.00%
-- Flow 1:
Average throughput: 5.38 Mbit/s
95th percentile per-packet one-way delay: 1081.801 ms
Loss rate: 87.00%

Run 1: Report of FillP — Data Link

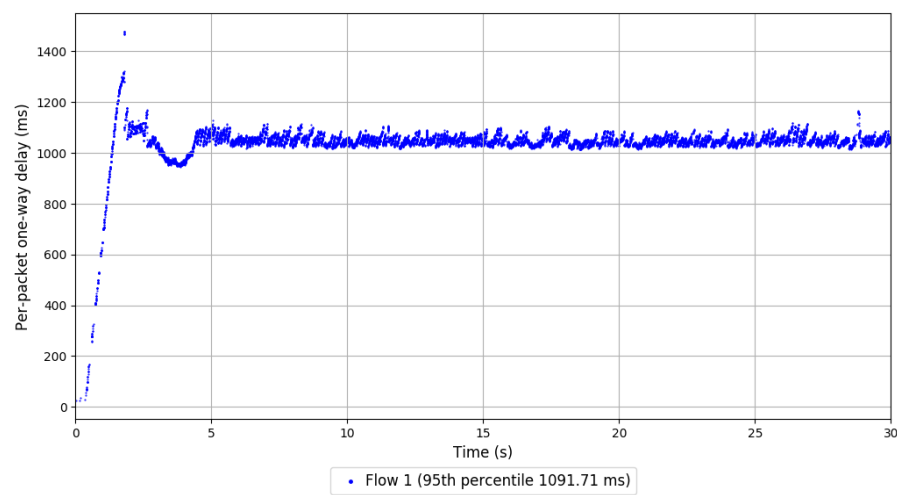
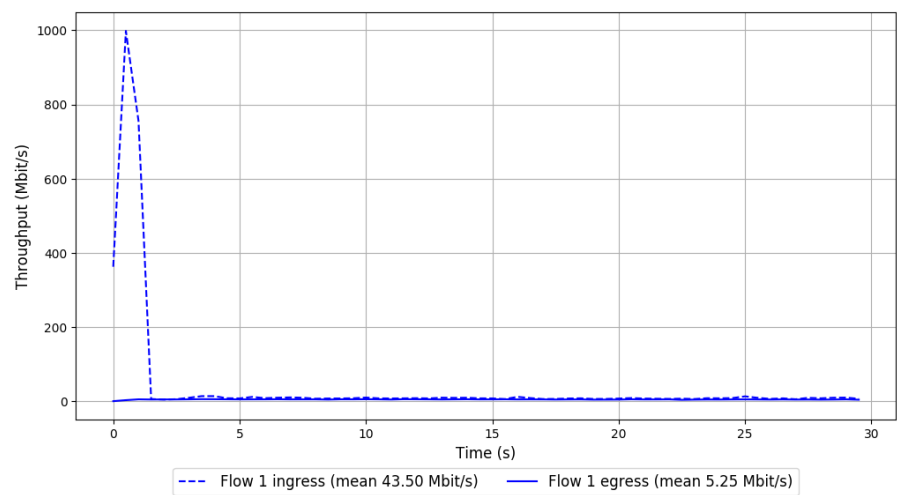


Run 2: Statistics of FillP

Start at: 2018-01-02 19:52:25
End at: 2018-01-02 19:52:55
Local clock offset: 1.725 ms
Remote clock offset: -13.545 ms

Below is generated by plot.py at 2018-01-02 20:17:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 1091.706 ms
Loss rate: 87.96%
-- Flow 1:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 1091.706 ms
Loss rate: 87.96%

Run 2: Report of FillP — Data Link

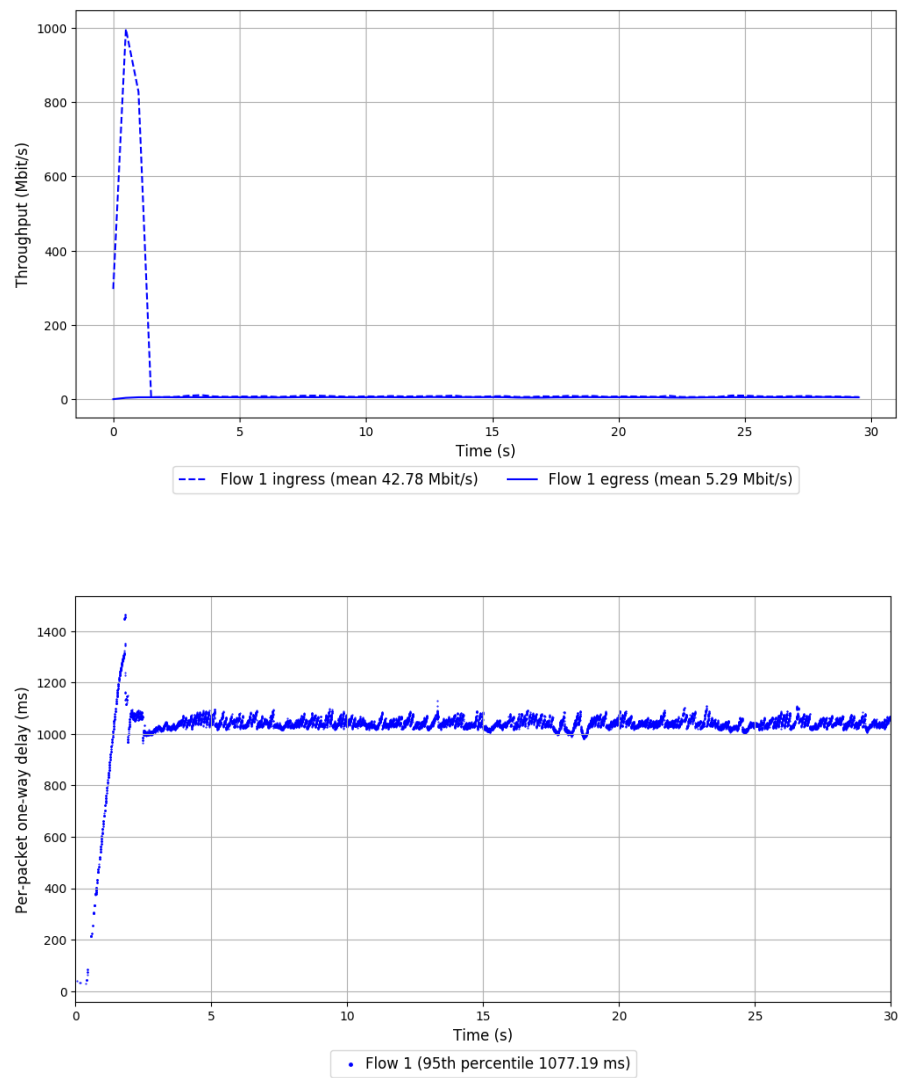


Run 3: Statistics of FillP

Start at: 2018-01-02 20:08:51
End at: 2018-01-02 20:09:21
Local clock offset: 2.271 ms
Remote clock offset: -12.935 ms

Below is generated by plot.py at 2018-01-02 20:17:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.29 Mbit/s
95th percentile per-packet one-way delay: 1077.187 ms
Loss rate: 87.66%
-- Flow 1:
Average throughput: 5.29 Mbit/s
95th percentile per-packet one-way delay: 1077.187 ms
Loss rate: 87.66%

Run 3: Report of FillP — Data Link

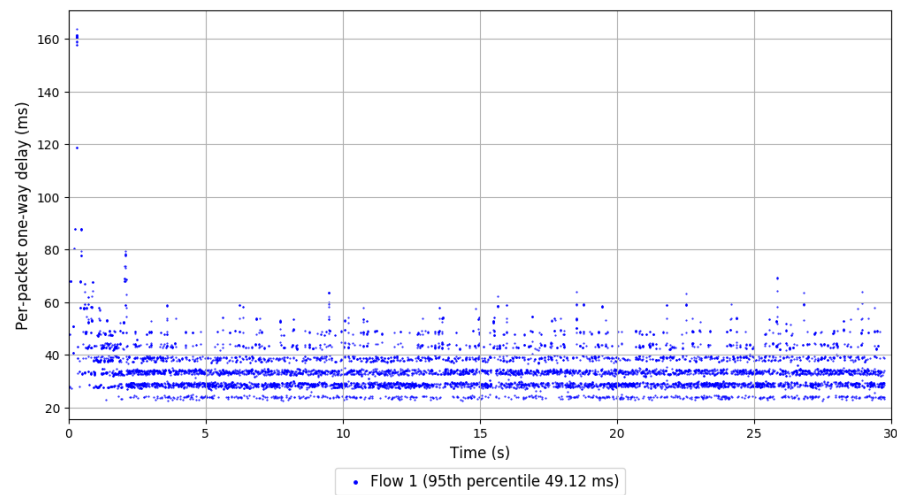
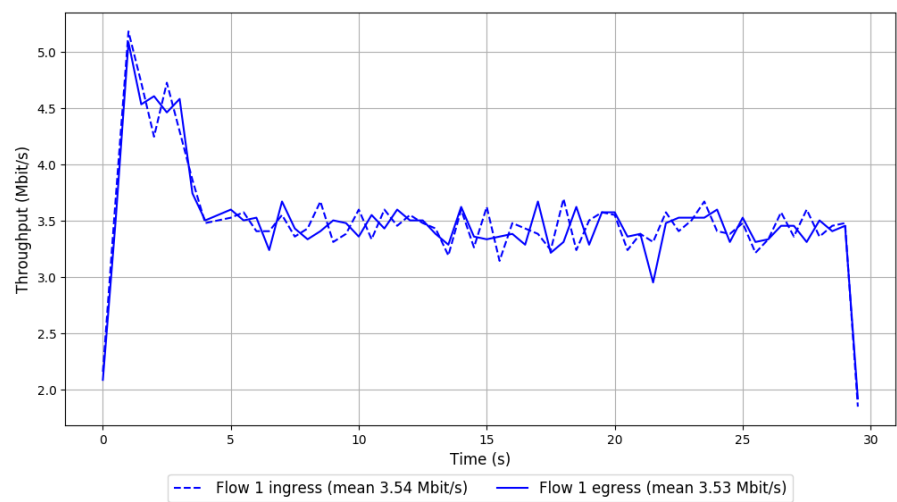


```
Run 1: Statistics of Indigo

Start at: 2018-01-02 19:28:21
End at: 2018-01-02 19:28:51
Local clock offset: -0.937 ms
Remote clock offset: -12.762 ms

# Below is generated by plot.py at 2018-01-02 20:17:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.53 Mbit/s
95th percentile per-packet one-way delay: 49.118 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 3.53 Mbit/s
95th percentile per-packet one-way delay: 49.118 ms
Loss rate: 0.25%
```

Run 1: Report of Indigo — Data Link

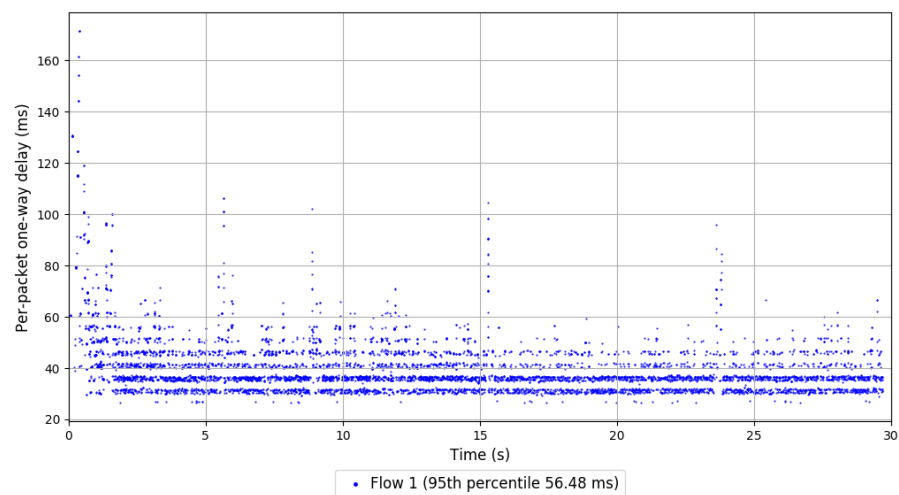
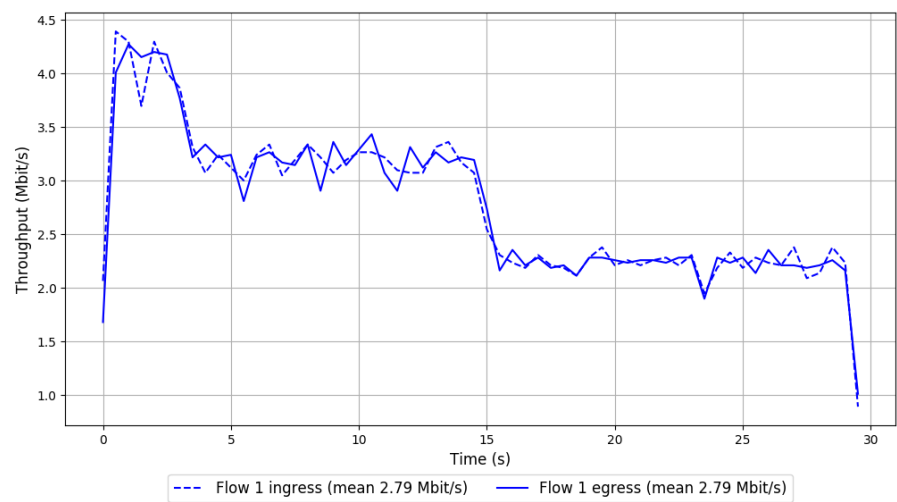


Run 2: Statistics of Indigo

Start at: 2018-01-02 19:44:43
End at: 2018-01-02 19:45:13
Local clock offset: 1.152 ms
Remote clock offset: -13.736 ms

Below is generated by plot.py at 2018-01-02 20:17:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.79 Mbit/s
95th percentile per-packet one-way delay: 56.483 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 2.79 Mbit/s
95th percentile per-packet one-way delay: 56.483 ms
Loss rate: 0.13%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-01-02 20:01:10
End at: 2018-01-02 20:01:41
Local clock offset: -1.534 ms
Remote clock offset: -12.413 ms

Below is generated by plot.py at 2018-01-02 20:17:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 50.389 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 50.389 ms
Loss rate: 0.09%

Run 3: Report of Indigo — Data Link

