

Pantheon Report

Generated at 2018-03-20 07:44:38 (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).

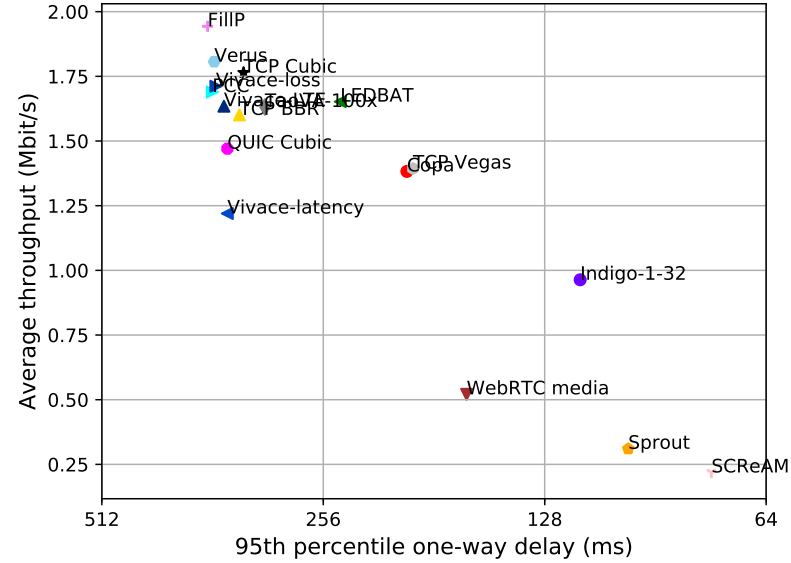
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

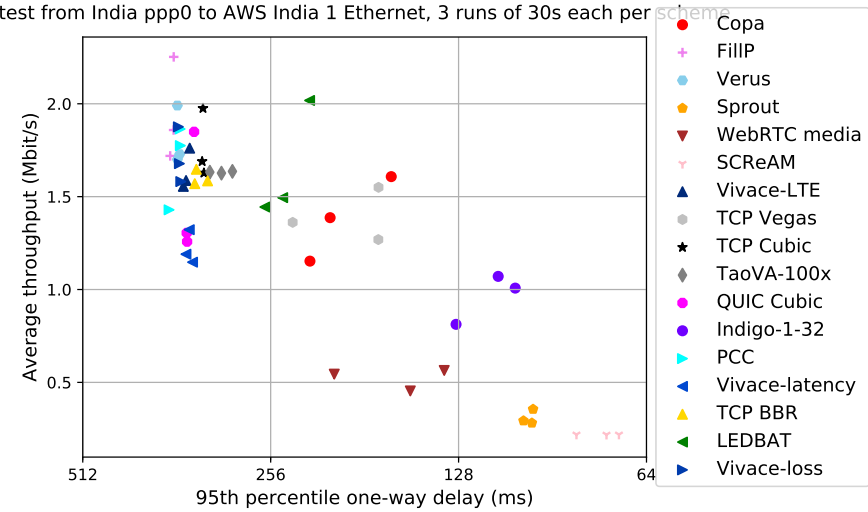
Git summary:

```
branch: master @ f12c42a2c63fdd9a862eefa0468859bf379b6623
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ 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-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eae30b267cde681
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 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	1.60	332.85	2.21
TCP Cubic	3	1.77	328.58	1.94
LEDBAT	3	1.65	242.76	0.64
PCC	3	1.69	362.35	44.88
QUIC Cubic	3	1.47	345.64	5.24
SCReAM	3	0.22	75.96	0.17
WebRTC media	3	0.52	163.46	1.14
Sprout	3	0.31	98.55	0.37
TaoVA-100x	3	1.63	307.39	4.60
TCP Vegas	3	1.39	193.37	0.72
Verus	3	1.81	360.15	32.66
Copa	3	1.38	197.05	1.07
FillP	3	1.94	367.73	93.99
Indigo-1-32	3	0.96	114.55	0.90
Vivace-latency	3	1.22	345.74	7.44
Vivace-loss	3	1.71	358.29	19.43
Vivace-LTE	3	1.64	349.41	8.97

Run 1: Statistics of TCP BBR

Start at: 2018-03-20 05:49:53

End at: 2018-03-20 05:50:23

Local clock offset: -8.921 ms

Remote clock offset: 0.813 ms

Below is generated by plot.py at 2018-03-20 07:43:59

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.65 Mbit/s

95th percentile per-packet one-way delay: 336.729 ms

Loss rate: 1.75%

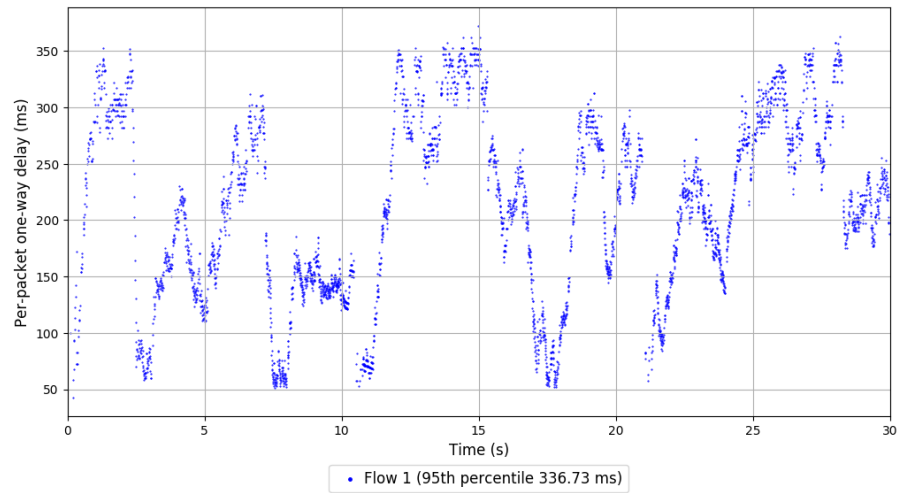
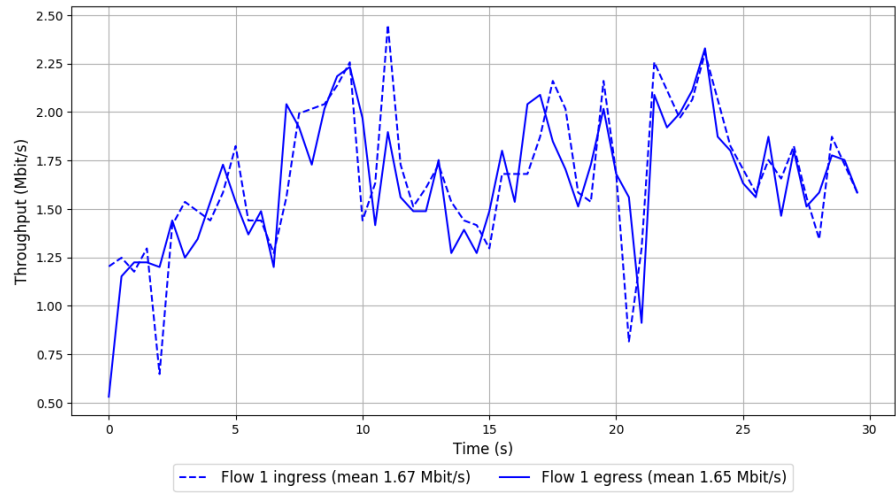
-- Flow 1:

Average throughput: 1.65 Mbit/s

95th percentile per-packet one-way delay: 336.729 ms

Loss rate: 1.75%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-03-20 06:09:28

End at: 2018-03-20 06:09:58

Local clock offset: -10.5 ms

Remote clock offset: 0.886 ms

Below is generated by plot.py at 2018-03-20 07:44:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.57 Mbit/s

95th percentile per-packet one-way delay: 338.730 ms

Loss rate: 3.12%

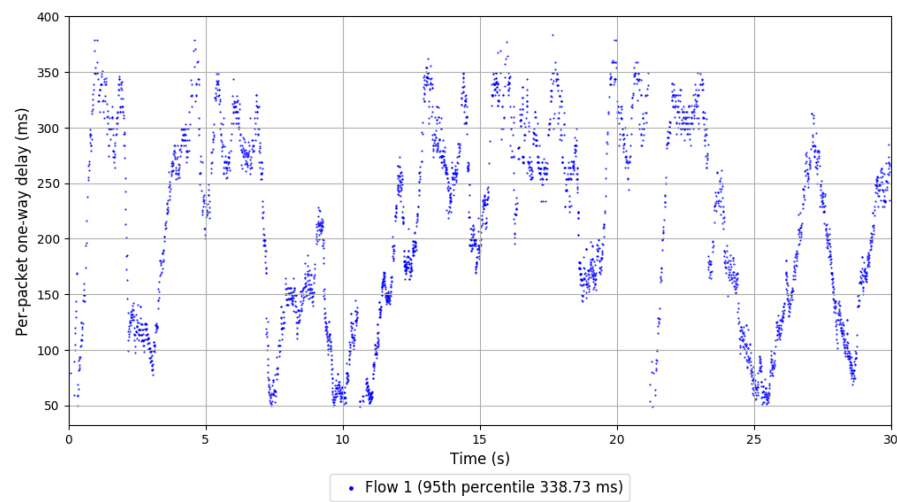
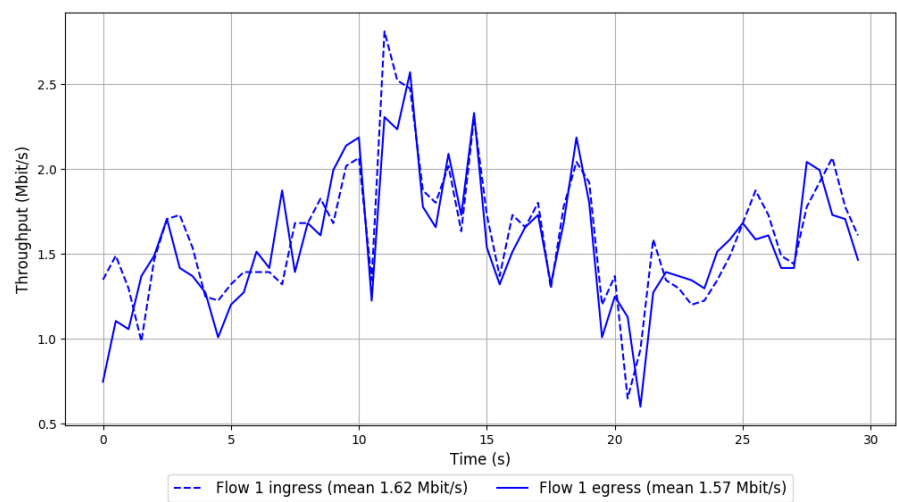
-- Flow 1:

Average throughput: 1.57 Mbit/s

95th percentile per-packet one-way delay: 338.730 ms

Loss rate: 3.12%

Run 2: Report of TCP BBR — Data Link

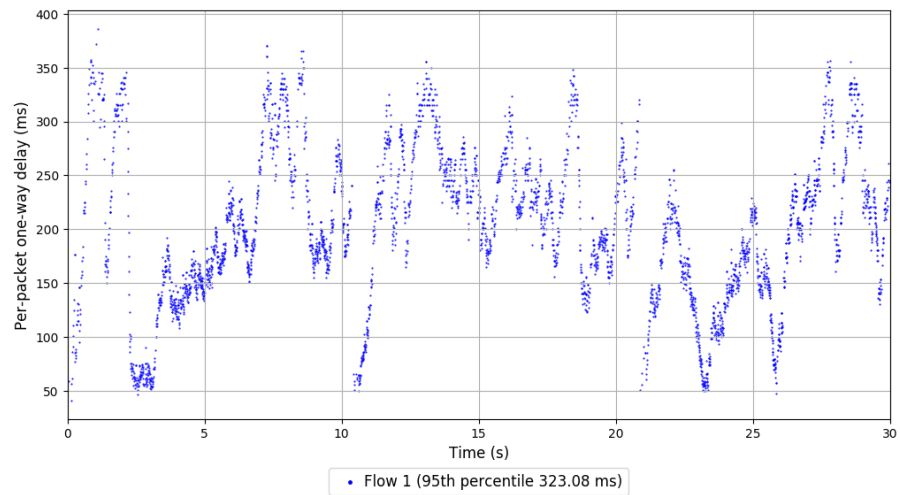
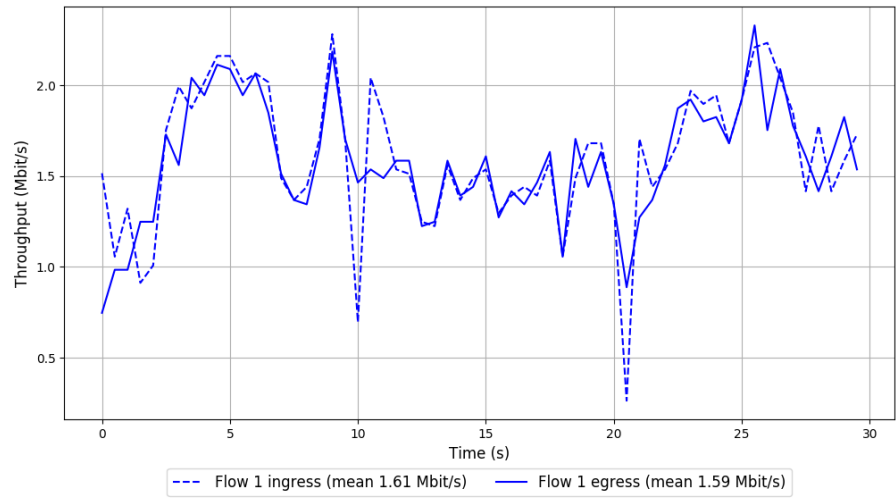


Run 3: Statistics of TCP BBR

Start at: 2018-03-20 06:29:01
End at: 2018-03-20 06:29:31
Local clock offset: -15.603 ms
Remote clock offset: 0.773 ms

Below is generated by plot.py at 2018-03-20 07:44:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 323.077 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 323.077 ms
Loss rate: 1.77%

Run 3: Report of TCP BBR — Data Link

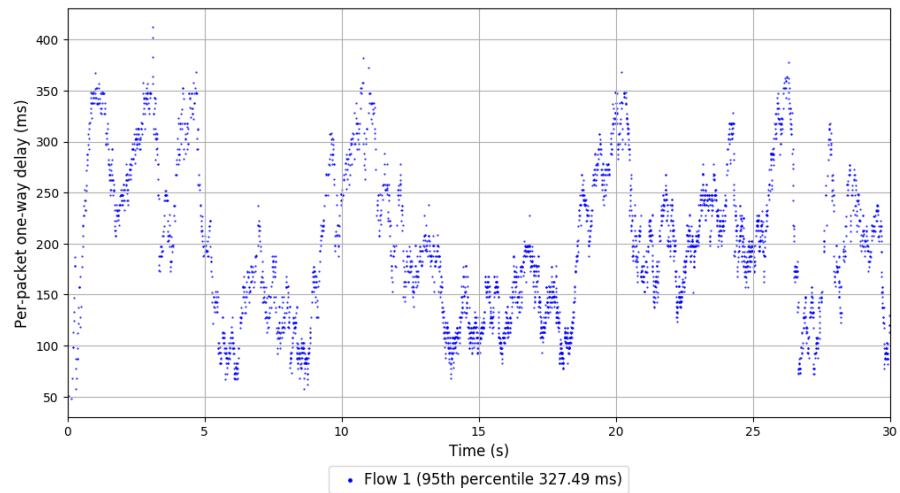
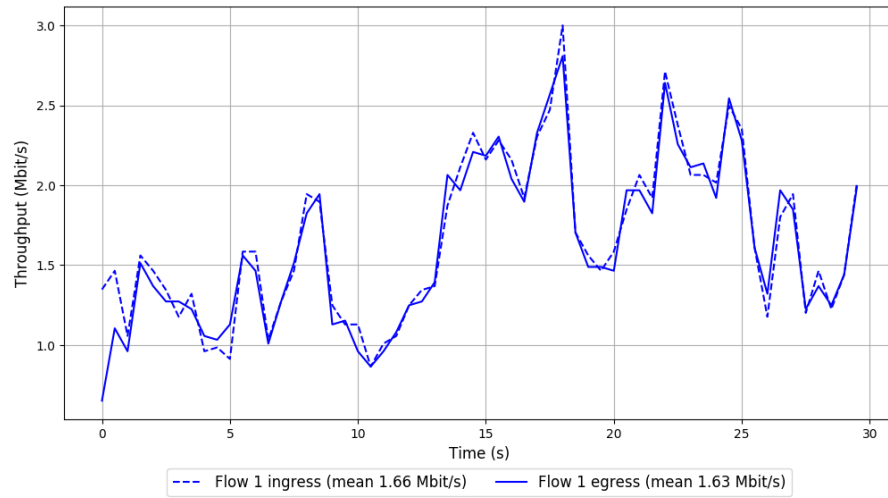


Run 1: Statistics of TCP Cubic

Start at: 2018-03-20 05:59:41
End at: 2018-03-20 06:00:11
Local clock offset: -16.783 ms
Remote clock offset: -0.288 ms

Below is generated by plot.py at 2018-03-20 07:44:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 327.486 ms
Loss rate: 2.08%
-- Flow 1:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 327.486 ms
Loss rate: 2.08%

Run 1: Report of TCP Cubic — Data Link

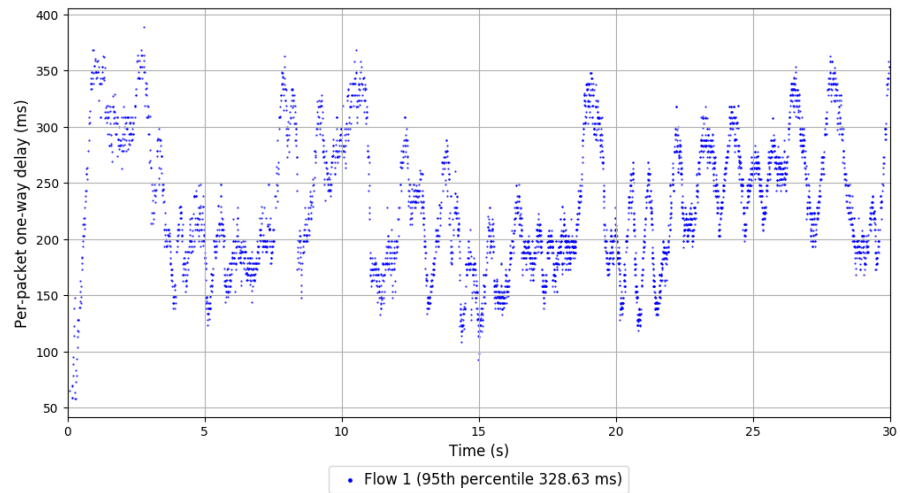
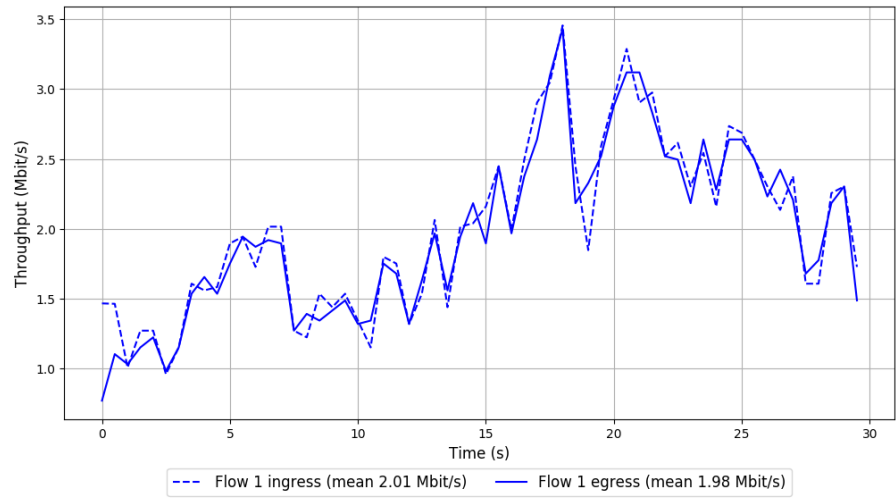


Run 2: Statistics of TCP Cubic

Start at: 2018-03-20 06:19:13
End at: 2018-03-20 06:19:43
Local clock offset: -13.948 ms
Remote clock offset: -1.036 ms

Below is generated by plot.py at 2018-03-20 07:44:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 328.633 ms
Loss rate: 1.76%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 328.633 ms
Loss rate: 1.76%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-03-20 06:38:46

End at: 2018-03-20 06:39:16

Local clock offset: -18.4 ms

Remote clock offset: 3.076 ms

Below is generated by plot.py at 2018-03-20 07:44:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.69 Mbit/s

95th percentile per-packet one-way delay: 329.632 ms

Loss rate: 1.98%

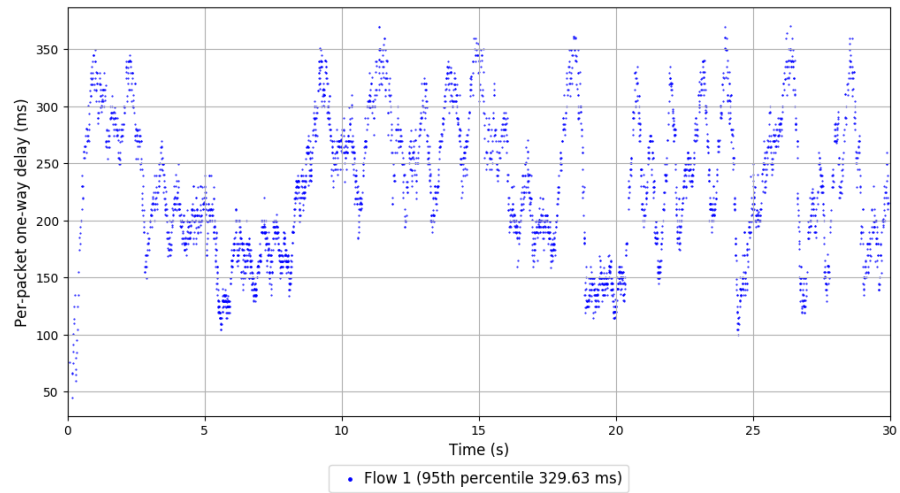
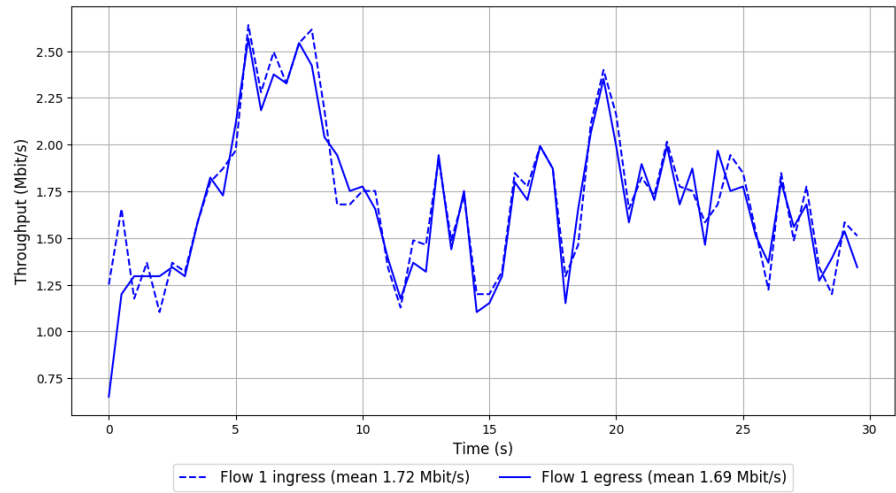
-- Flow 1:

Average throughput: 1.69 Mbit/s

95th percentile per-packet one-way delay: 329.632 ms

Loss rate: 1.98%

Run 3: Report of TCP Cubic — Data Link

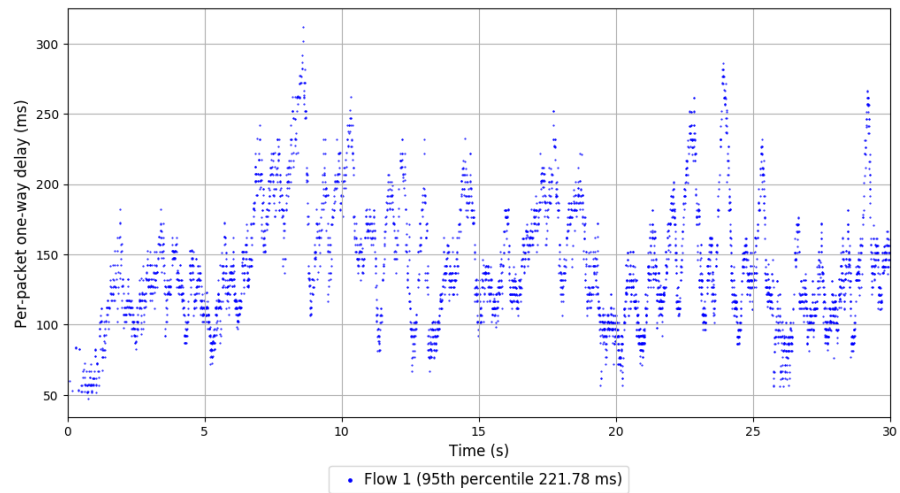
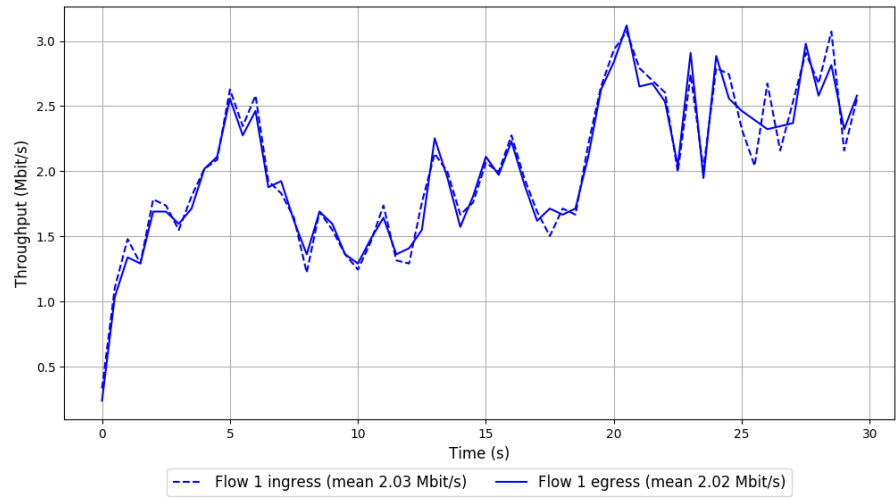


```
Run 1: Statistics of LEDBAT

Start at: 2018-03-20 05:52:05
End at: 2018-03-20 05:52:35
Local clock offset: -14.266 ms
Remote clock offset: 0.678 ms

# Below is generated by plot.py at 2018-03-20 07:44:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 221.783 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 221.783 ms
Loss rate: 0.64%
```

Run 1: Report of LEDBAT — Data Link

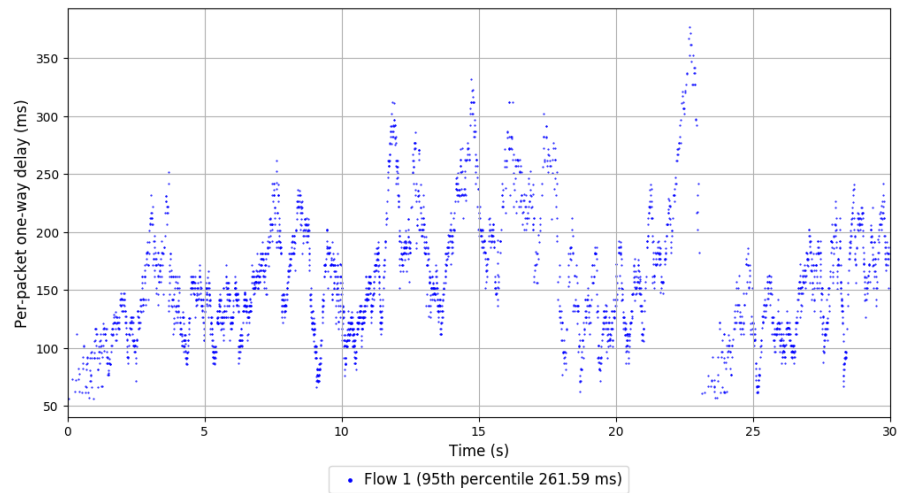
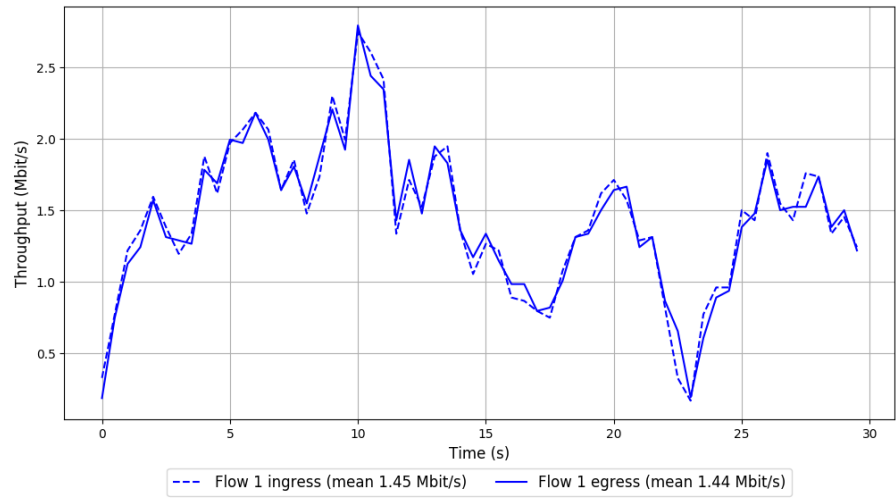


Run 2: Statistics of LEDBAT

Start at: 2018-03-20 06:11:38
End at: 2018-03-20 06:12:08
Local clock offset: -9.508 ms
Remote clock offset: -0.211 ms

Below is generated by plot.py at 2018-03-20 07:44:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 261.589 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 261.589 ms
Loss rate: 0.67%

Run 2: Report of LEDBAT — Data Link

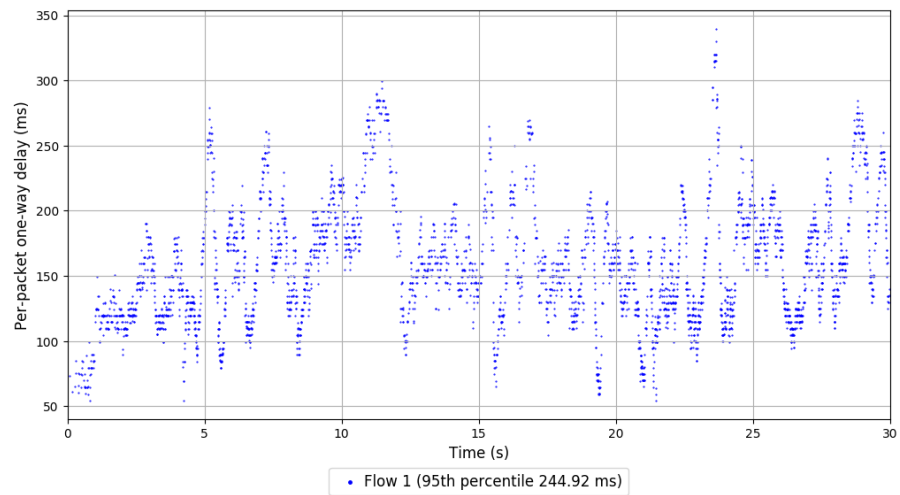
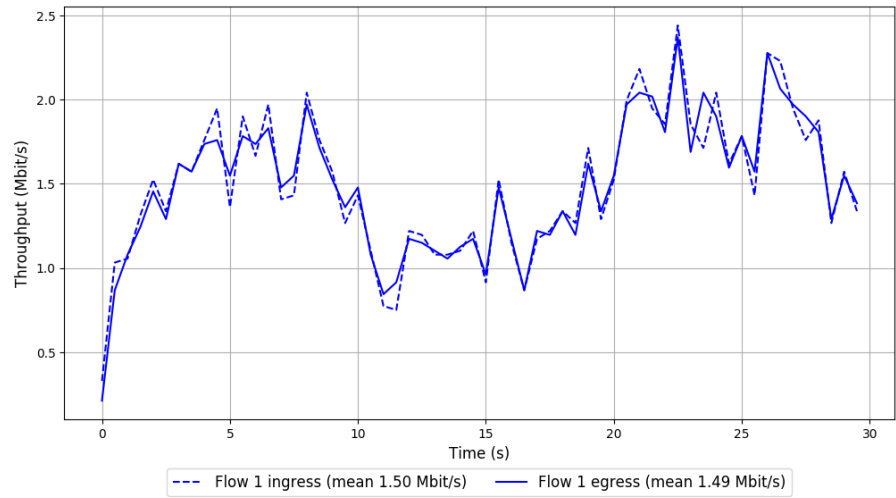


Run 3: Statistics of LEDBAT

Start at: 2018-03-20 06:31:11
End at: 2018-03-20 06:31:41
Local clock offset: -15.788 ms
Remote clock offset: 1.8 ms

Below is generated by plot.py at 2018-03-20 07:44:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 244.918 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 244.918 ms
Loss rate: 0.60%

Run 3: Report of LEDBAT — Data Link

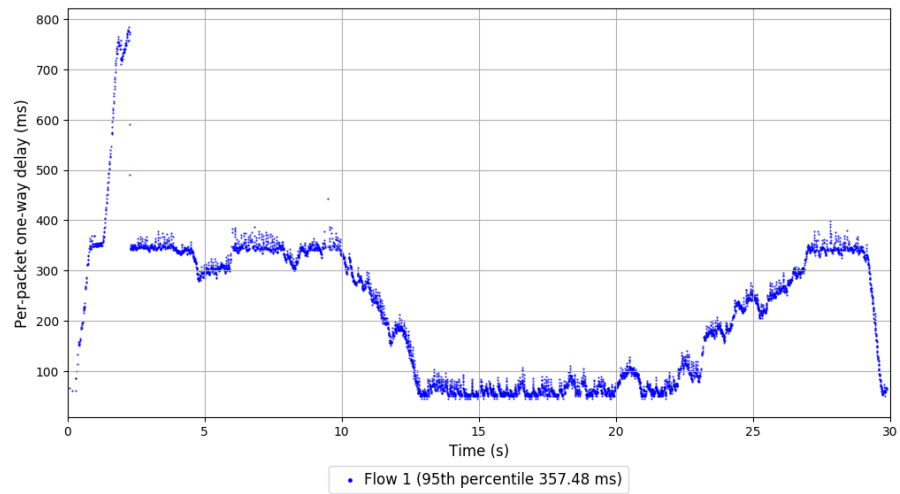
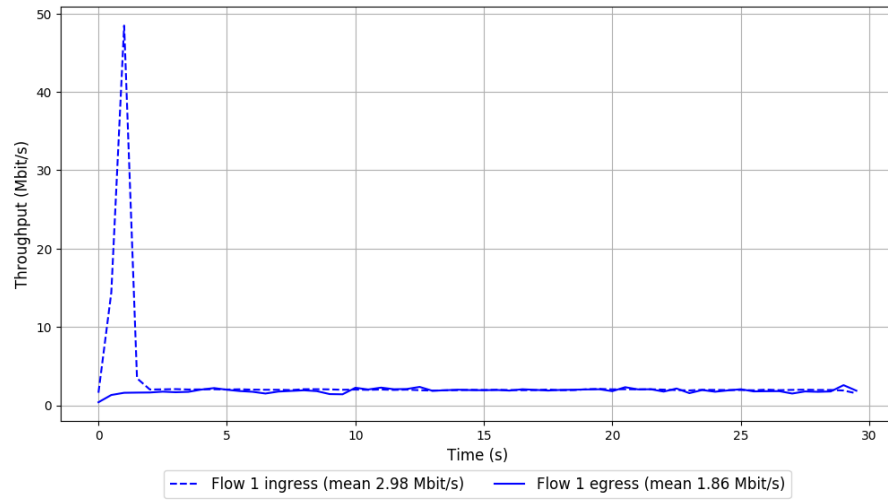


Run 1: Statistics of PCC

Start at: 2018-03-20 05:53:10
End at: 2018-03-20 05:53:40
Local clock offset: -10.233 ms
Remote clock offset: 0.174 ms

Below is generated by plot.py at 2018-03-20 07:44:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 357.482 ms
Loss rate: 37.69%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 357.482 ms
Loss rate: 37.69%

Run 1: Report of PCC — Data Link

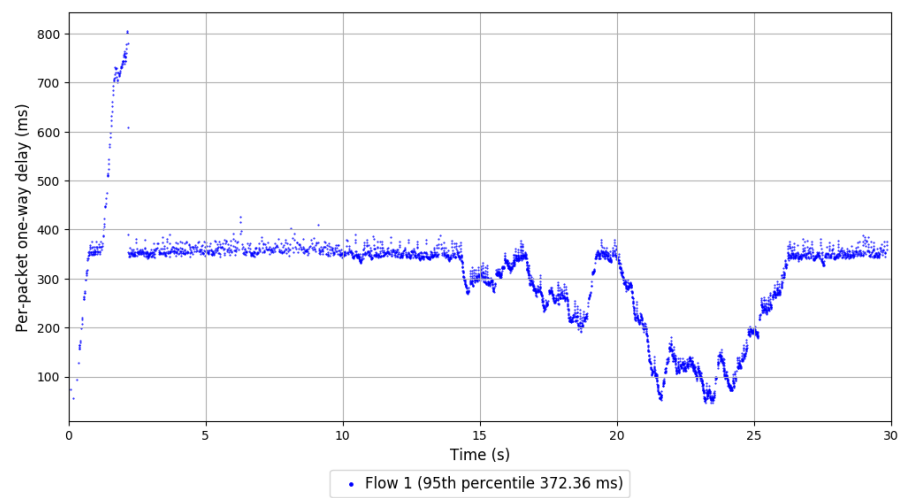
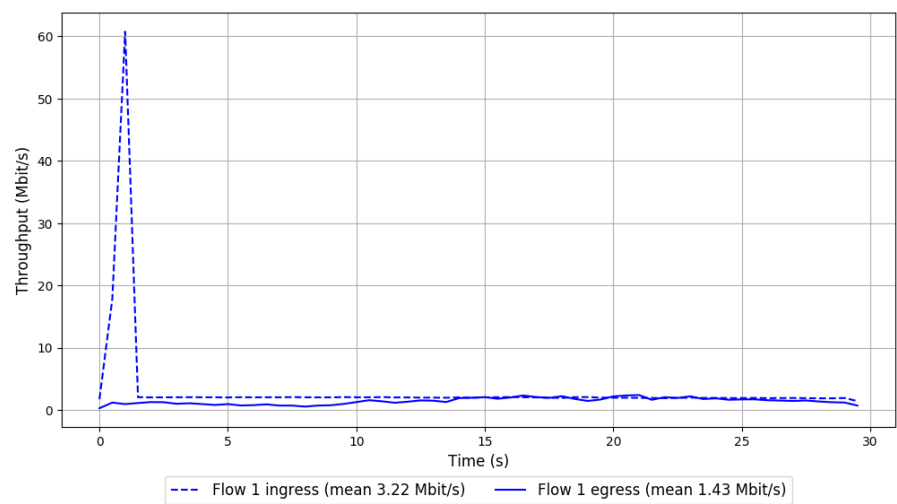


Run 2: Statistics of PCC

Start at: 2018-03-20 06:12:43
End at: 2018-03-20 06:13:13
Local clock offset: -10.18 ms
Remote clock offset: -0.306 ms

Below is generated by plot.py at 2018-03-20 07:44:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 372.362 ms
Loss rate: 55.79%
-- Flow 1:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 372.362 ms
Loss rate: 55.79%

Run 2: Report of PCC — Data Link

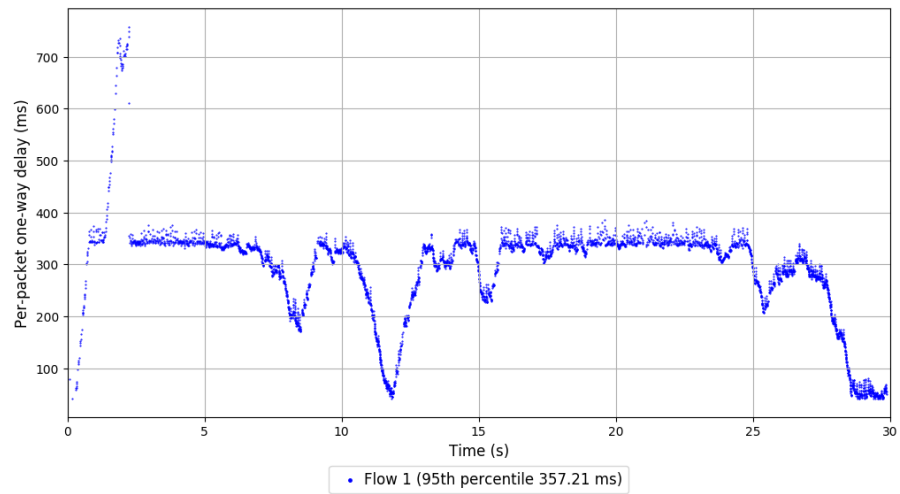
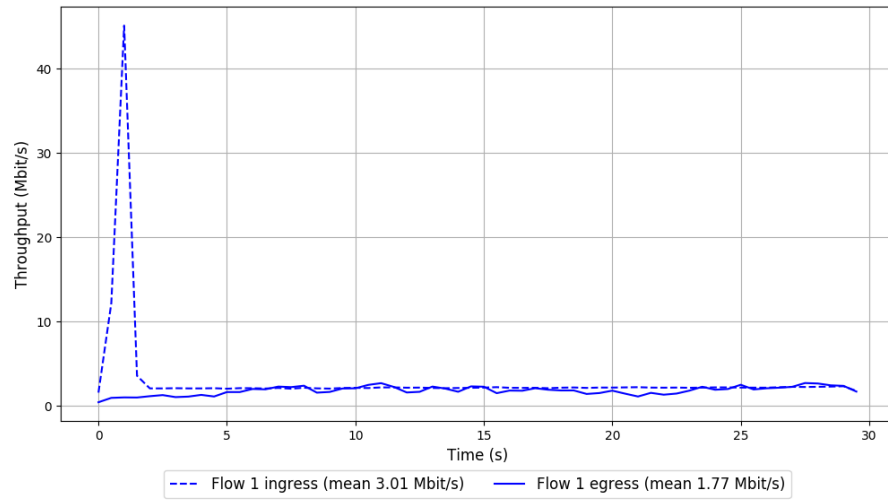


Run 3: Statistics of PCC

Start at: 2018-03-20 06:32:16
End at: 2018-03-20 06:32:46
Local clock offset: -19.119 ms
Remote clock offset: 1.521 ms

Below is generated by plot.py at 2018-03-20 07:44:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 357.214 ms
Loss rate: 41.16%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 357.214 ms
Loss rate: 41.16%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-03-20 05:48:48

End at: 2018-03-20 05:49:18

Local clock offset: -9.089 ms

Remote clock offset: 0.213 ms

Below is generated by plot.py at 2018-03-20 07:44:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.30 Mbit/s

95th percentile per-packet one-way delay: 348.935 ms

Loss rate: 5.11%

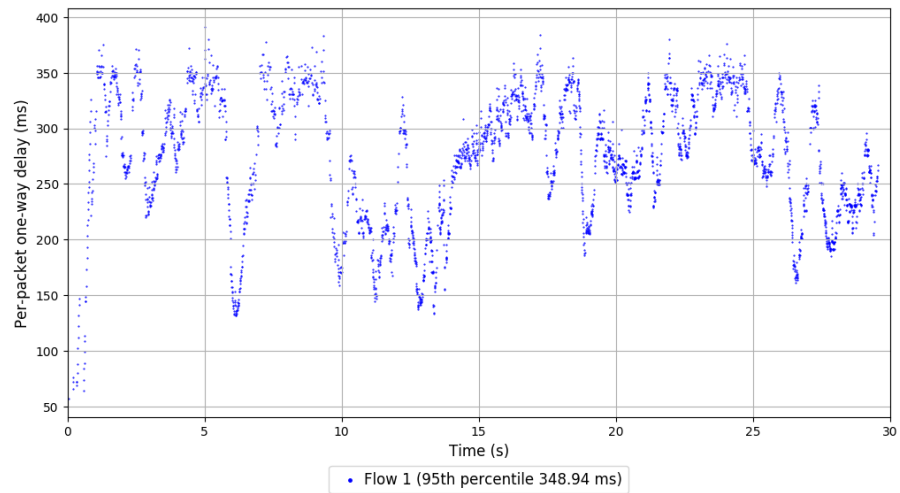
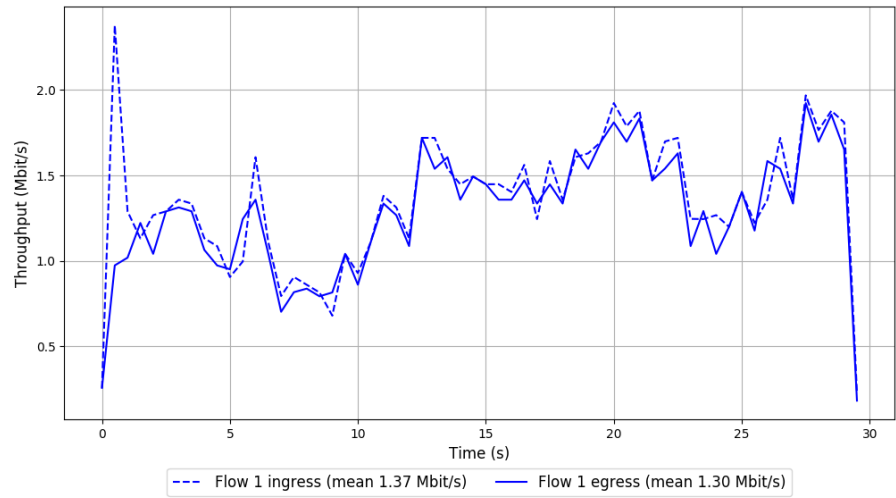
-- Flow 1:

Average throughput: 1.30 Mbit/s

95th percentile per-packet one-way delay: 348.935 ms

Loss rate: 5.11%

Run 1: Report of QUIC Cubic — Data Link

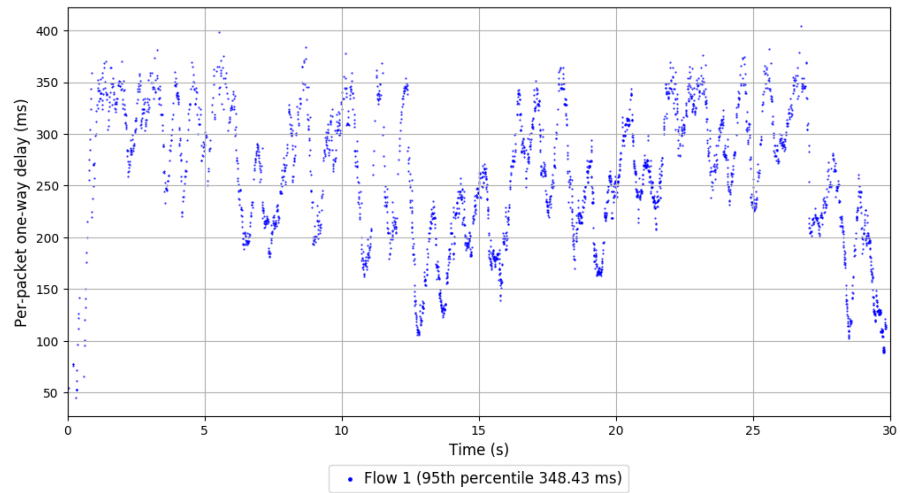
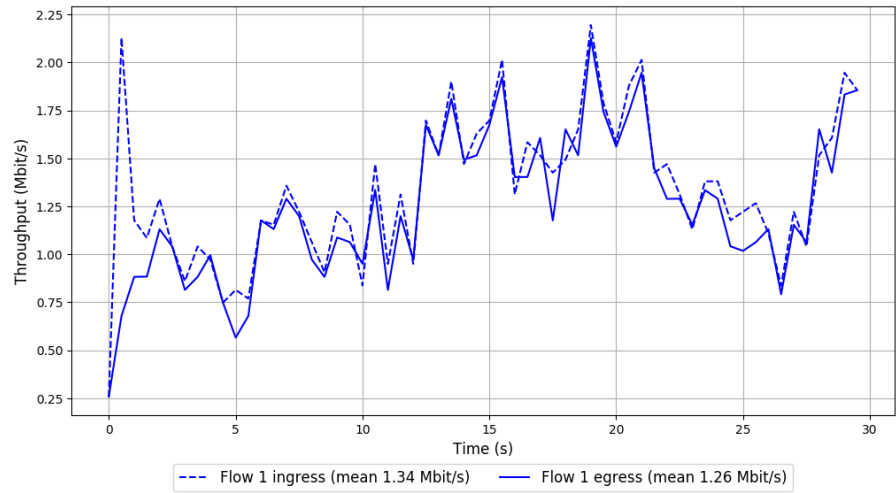


Run 2: Statistics of QUIC Cubic

Start at: 2018-03-20 06:08:23
End at: 2018-03-20 06:08:53
Local clock offset: -10.122 ms
Remote clock offset: 0.154 ms

Below is generated by plot.py at 2018-03-20 07:44:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 348.430 ms
Loss rate: 6.57%
-- Flow 1:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 348.430 ms
Loss rate: 6.57%

Run 2: Report of QUIC Cubic — Data Link

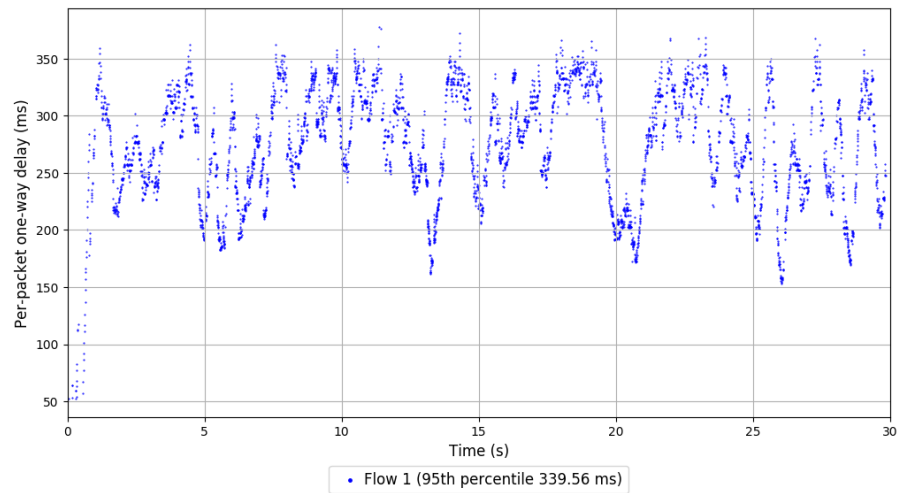
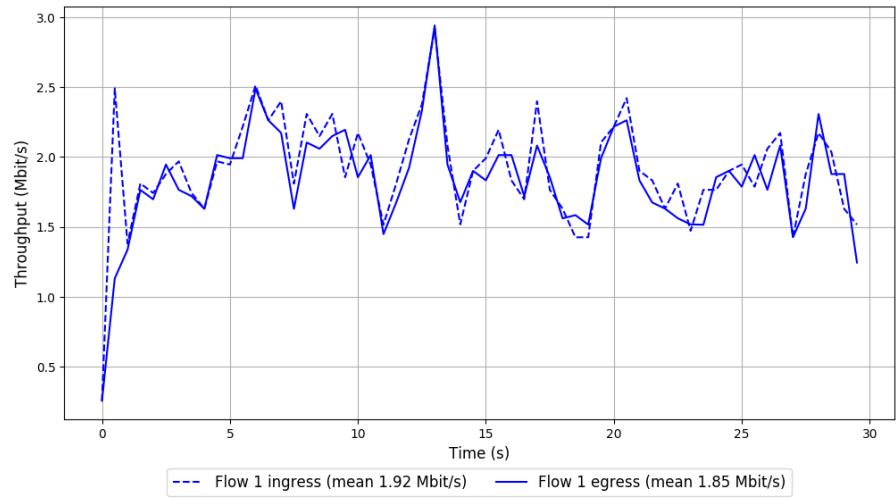


Run 3: Statistics of QUIC Cubic

Start at: 2018-03-20 06:27:56
End at: 2018-03-20 06:28:26
Local clock offset: -17.166 ms
Remote clock offset: 1.234 ms

Below is generated by plot.py at 2018-03-20 07:44:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 339.560 ms
Loss rate: 4.04%
-- Flow 1:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 339.560 ms
Loss rate: 4.04%

Run 3: Report of QUIC Cubic — Data Link

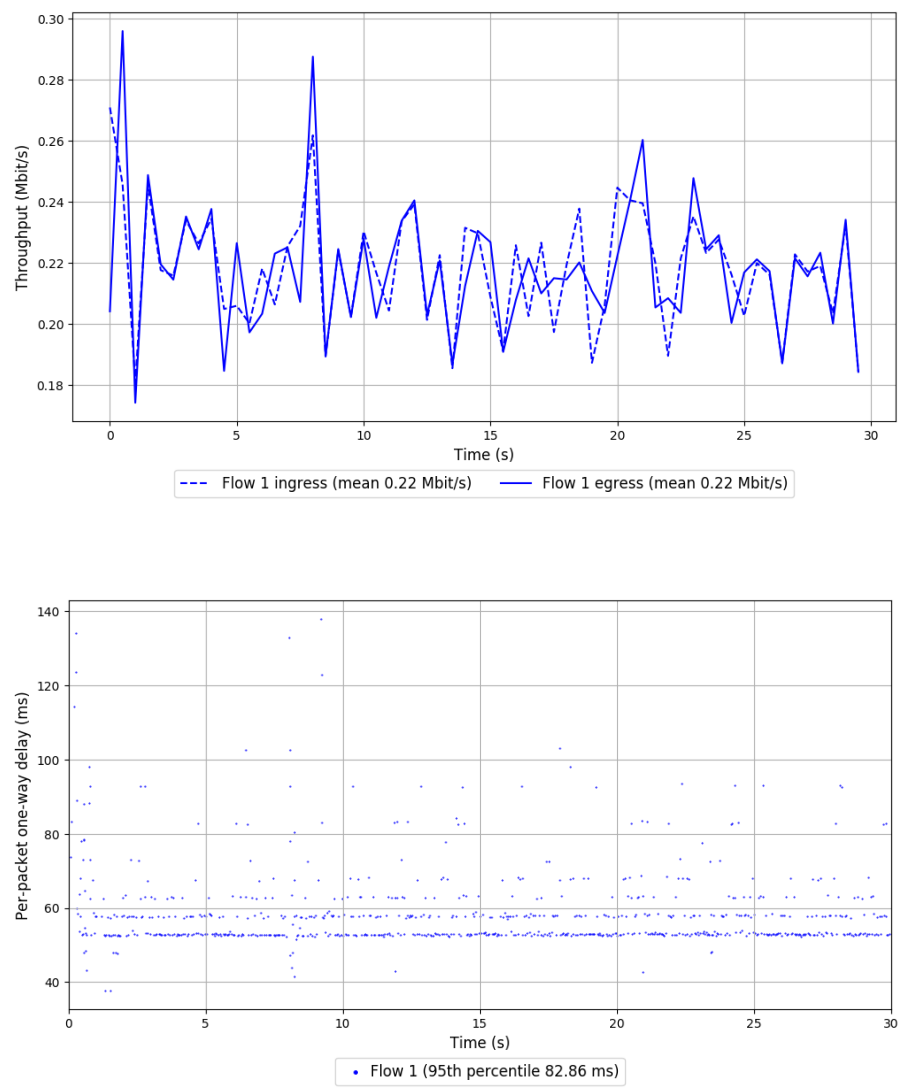


```
Run 1: Statistics of SCReAM

Start at: 2018-03-20 05:54:15
End at: 2018-03-20 05:54:45
Local clock offset: -12.004 ms
Remote clock offset: 0.403 ms

# Below is generated by plot.py at 2018-03-20 07:44:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.863 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.863 ms
Loss rate: 0.13%
```

Run 1: Report of SReAM — Data Link

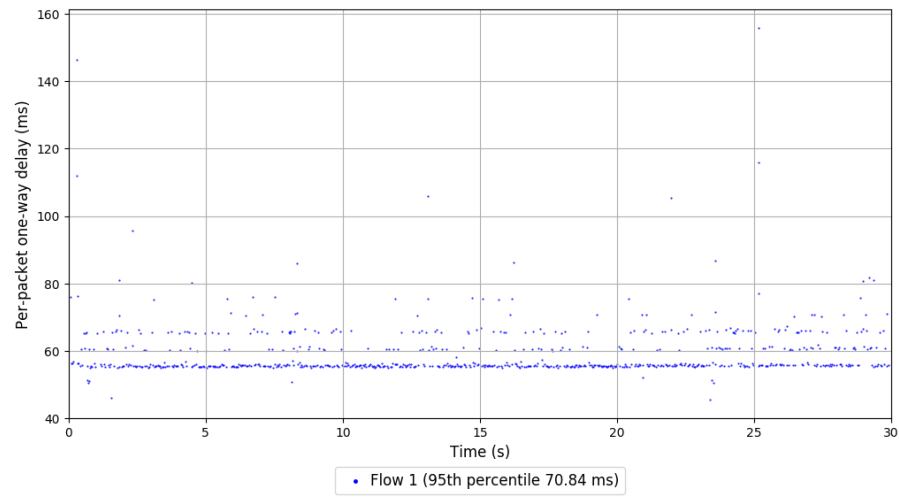
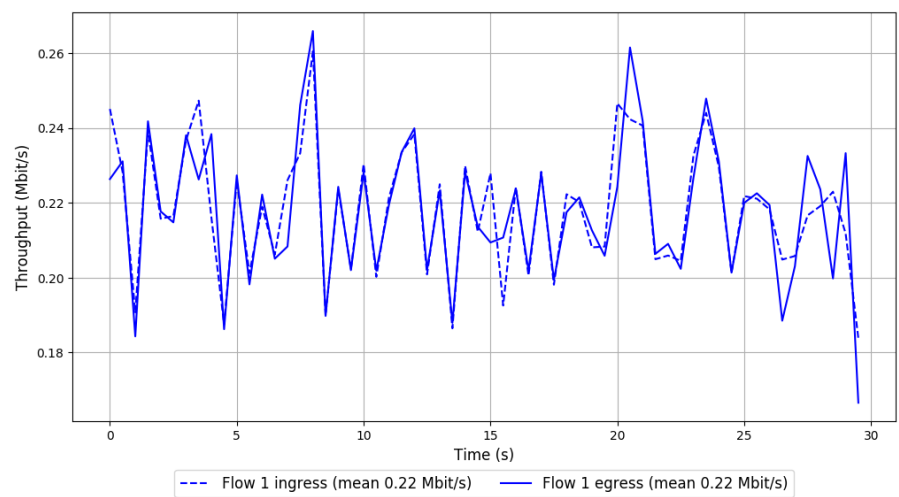


Run 2: Statistics of SCReAM

Start at: 2018-03-20 06:13:48
End at: 2018-03-20 06:14:18
Local clock offset: -10.017 ms
Remote clock offset: 0.058 ms

Below is generated by plot.py at 2018-03-20 07:44:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 70.842 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 70.842 ms
Loss rate: 0.26%

Run 2: Report of SReAM — Data Link

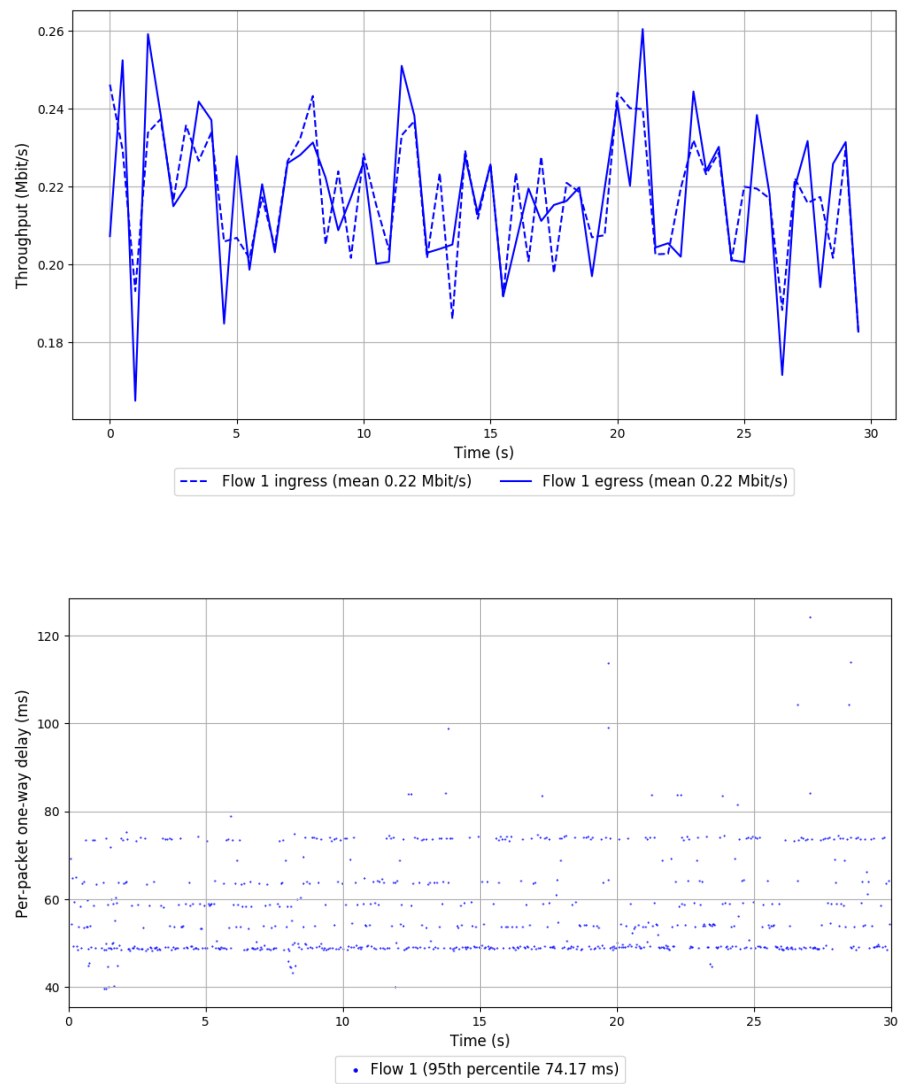


Run 3: Statistics of SCReAM

Start at: 2018-03-20 06:33:21
End at: 2018-03-20 06:33:51
Local clock offset: -15.858 ms
Remote clock offset: 1.638 ms

Below is generated by plot.py at 2018-03-20 07:44:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 74.172 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 74.172 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

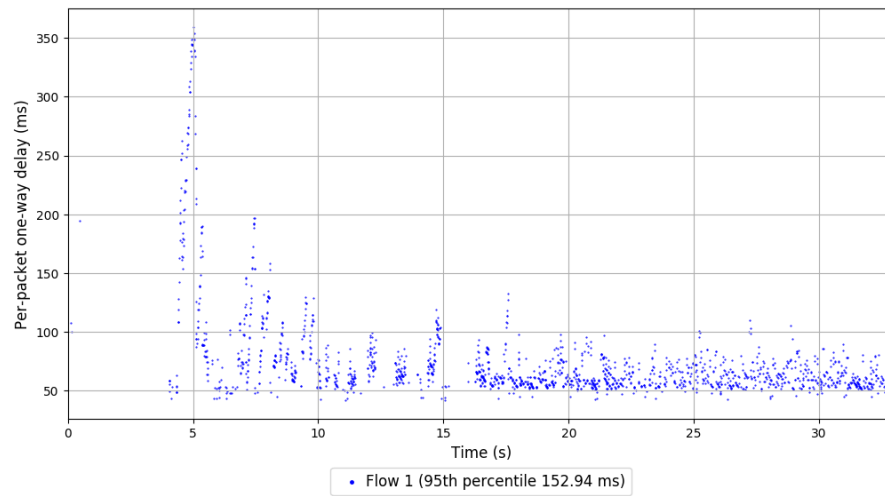
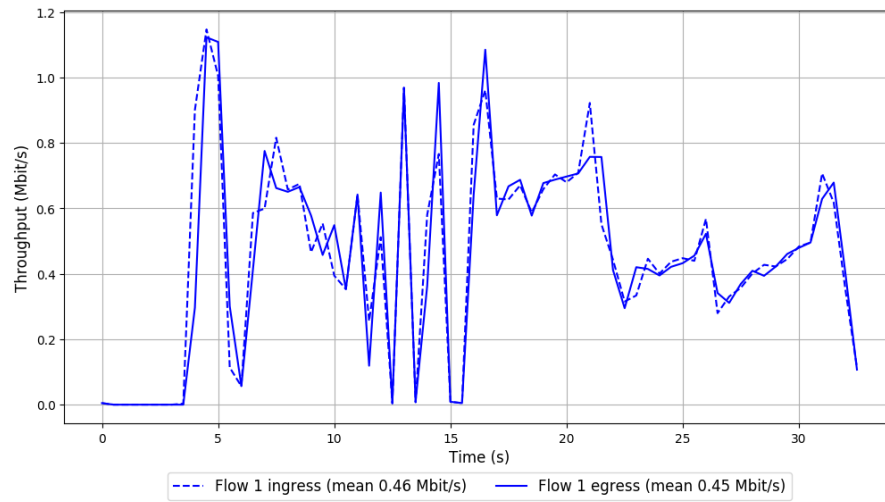


Run 1: Statistics of WebRTC media

Start at: 2018-03-20 06:04:03
End at: 2018-03-20 06:04:33
Local clock offset: -8.226 ms
Remote clock offset: -0.116 ms

Below is generated by plot.py at 2018-03-20 07:44:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 152.942 ms
Loss rate: 1.22%
-- Flow 1:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 152.942 ms
Loss rate: 1.22%

Run 1: Report of WebRTC media — Data Link

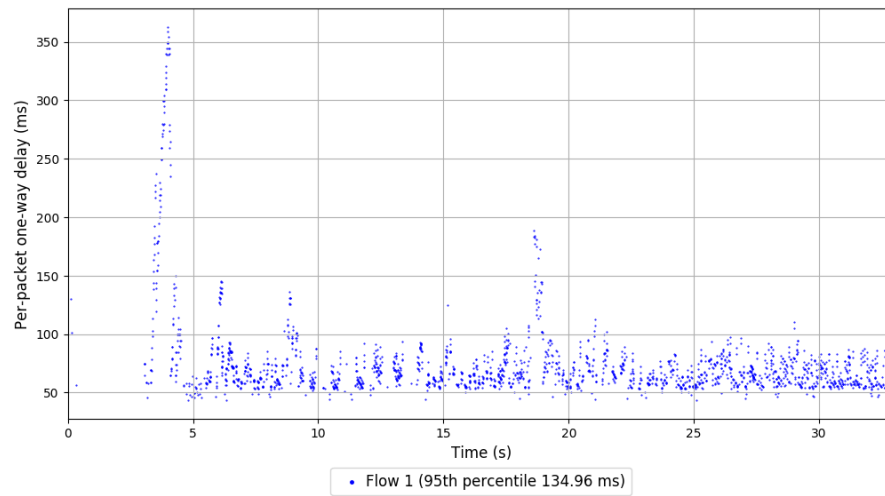
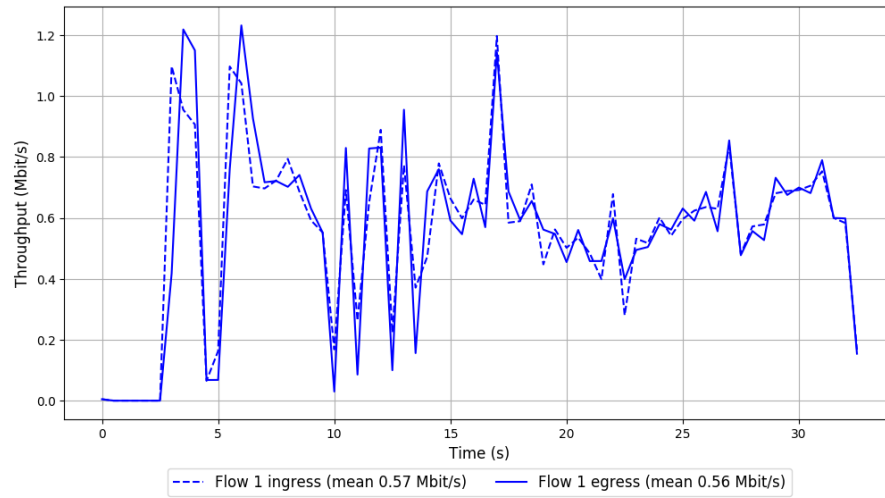


Run 2: Statistics of WebRTC media

Start at: 2018-03-20 06:23:36
End at: 2018-03-20 06:24:06
Local clock offset: -12.464 ms
Remote clock offset: 0.017 ms

Below is generated by plot.py at 2018-03-20 07:44:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 134.958 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 134.958 ms
Loss rate: 0.64%

Run 2: Report of WebRTC media — Data Link

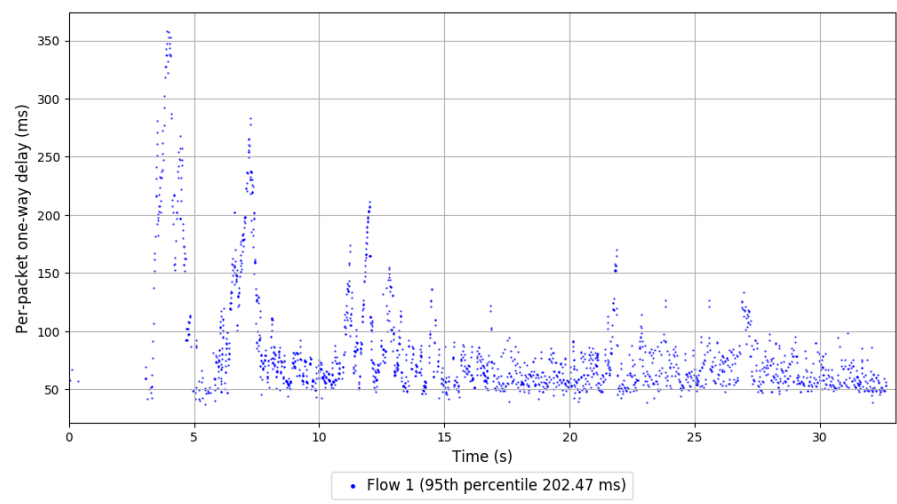
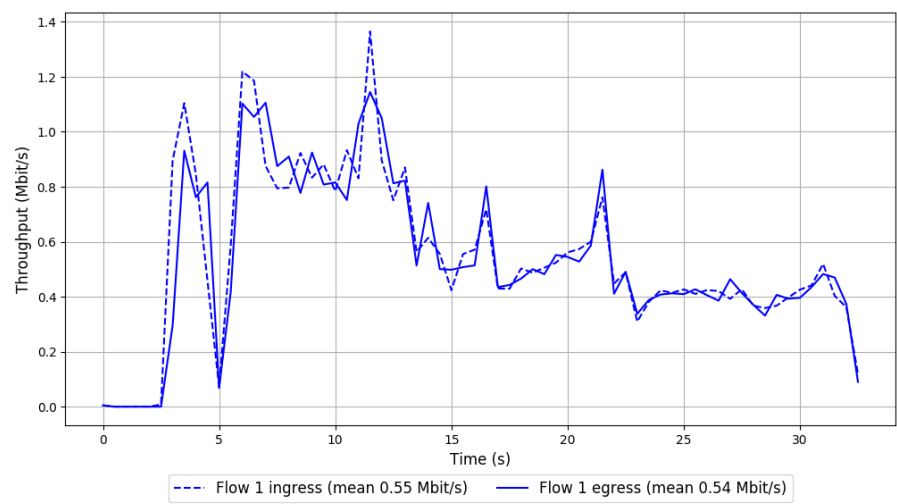


Run 3: Statistics of WebRTC media

Start at: 2018-03-20 06:43:09
End at: 2018-03-20 06:43:39
Local clock offset: -23.202 ms
Remote clock offset: 1.968 ms

Below is generated by plot.py at 2018-03-20 07:44:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 202.471 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 202.471 ms
Loss rate: 1.56%

Run 3: Report of WebRTC media — Data Link



Run 1: Statistics of Sprout

Start at: 2018-03-20 05:46:36

End at: 2018-03-20 05:47:06

Local clock offset: -7.048 ms

Remote clock offset: 0.512 ms

Below is generated by plot.py at 2018-03-20 07:44:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.36 Mbit/s

95th percentile per-packet one-way delay: 97.247 ms

Loss rate: 0.40%

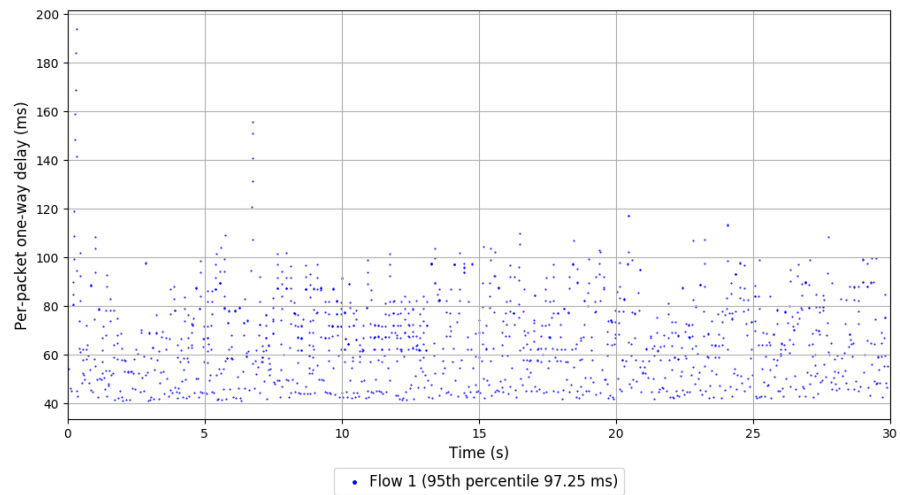
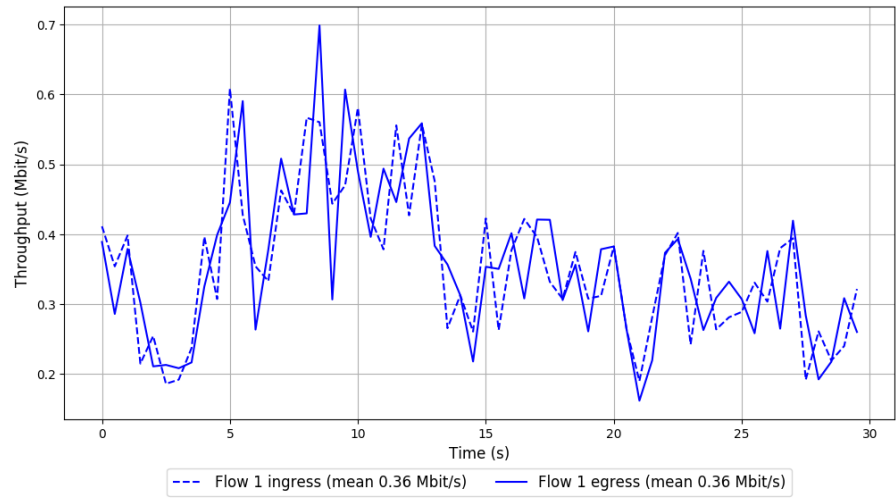
-- Flow 1:

Average throughput: 0.36 Mbit/s

95th percentile per-packet one-way delay: 97.247 ms

Loss rate: 0.40%

Run 1: Report of Sprout — Data Link

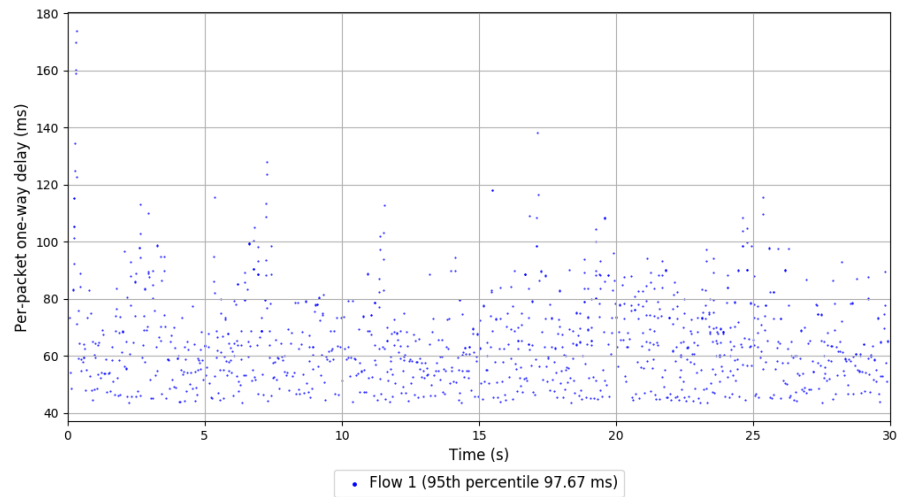
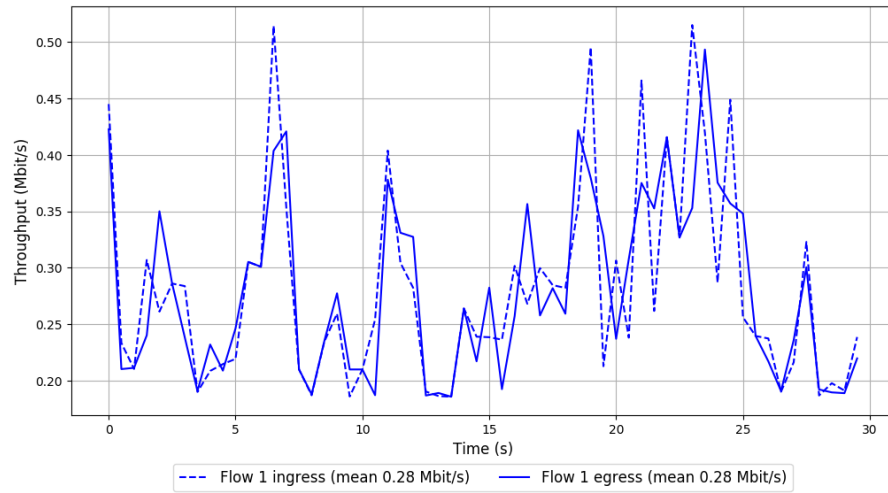


Run 2: Statistics of Sprout

Start at: 2018-03-20 06:06:13
End at: 2018-03-20 06:06:43
Local clock offset: -8.872 ms
Remote clock offset: -3.671 ms

Below is generated by plot.py at 2018-03-20 07:44:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 97.672 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 97.672 ms
Loss rate: 0.41%

Run 2: Report of Sprout — Data Link

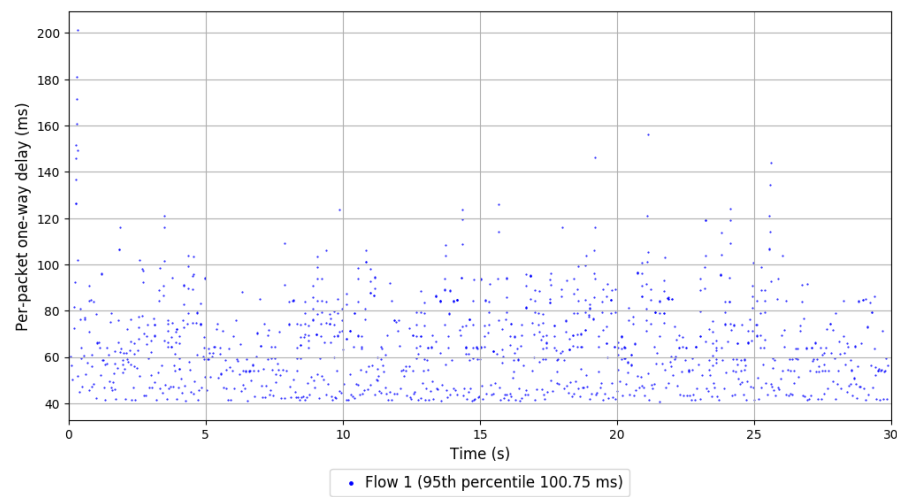
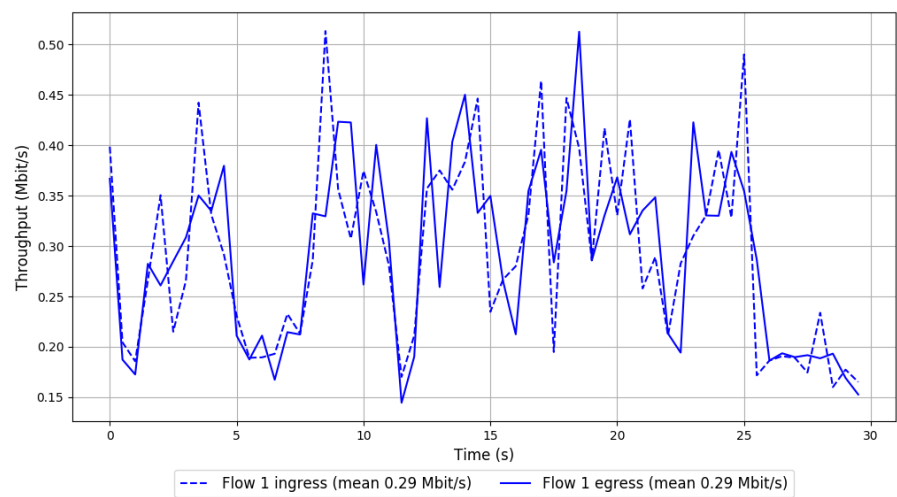


Run 3: Statistics of Sprout

Start at: 2018-03-20 06:25:46
End at: 2018-03-20 06:26:16
Local clock offset: -15.113 ms
Remote clock offset: 0.41 ms

Below is generated by plot.py at 2018-03-20 07:44:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 100.746 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 100.746 ms
Loss rate: 0.31%

Run 3: Report of Sprout — Data Link

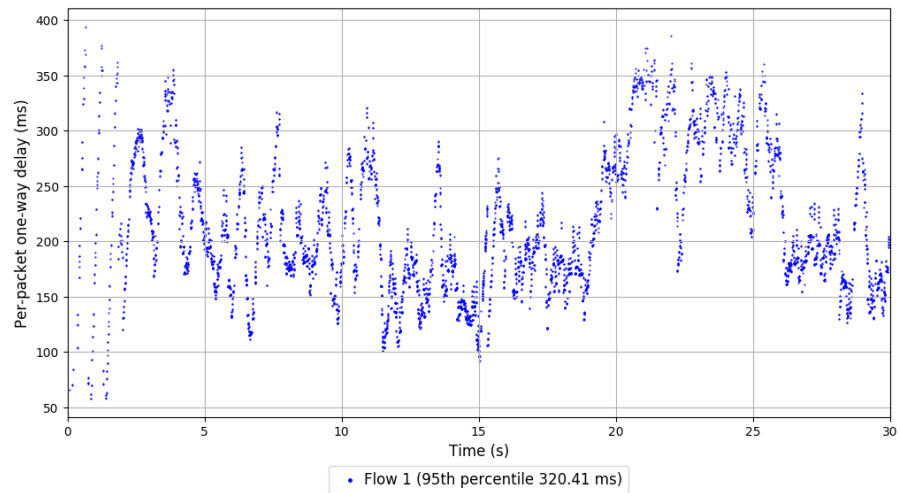
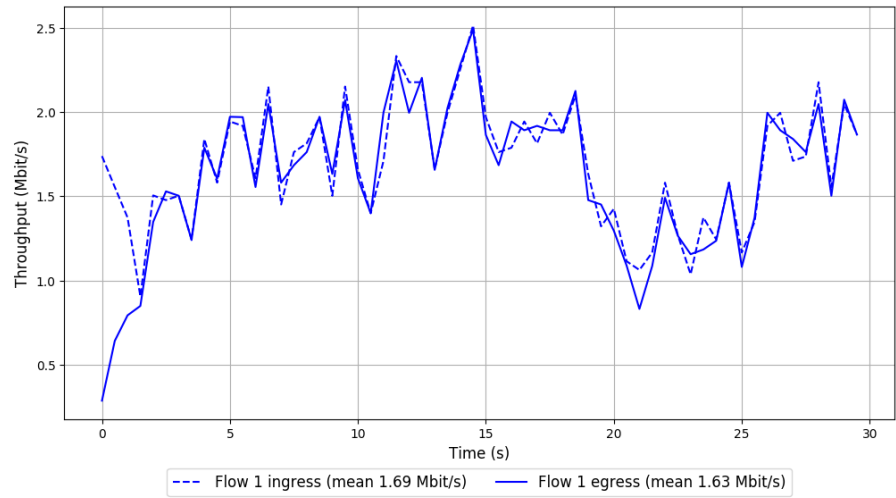


Run 1: Statistics of TaoVA-100x

Start at: 2018-03-20 06:01:51
End at: 2018-03-20 06:02:21
Local clock offset: -11.493 ms
Remote clock offset: -0.031 ms

Below is generated by plot.py at 2018-03-20 07:44:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 320.412 ms
Loss rate: 3.80%
-- Flow 1:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 320.412 ms
Loss rate: 3.80%

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

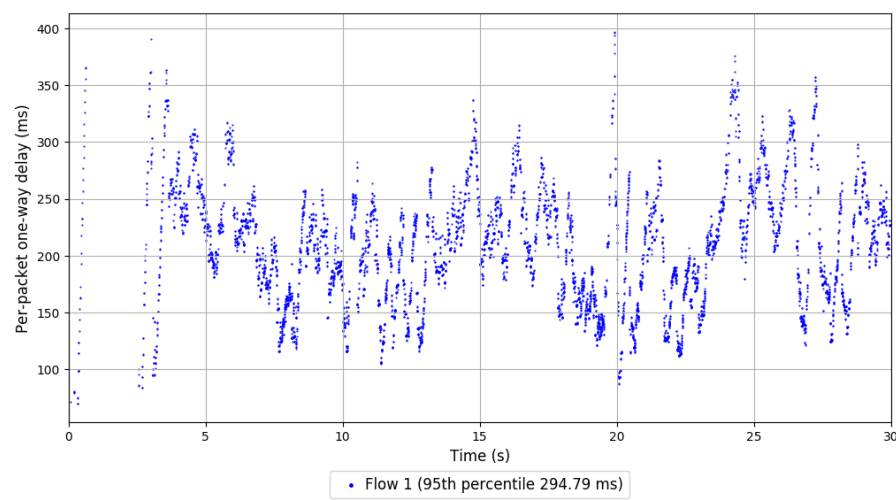
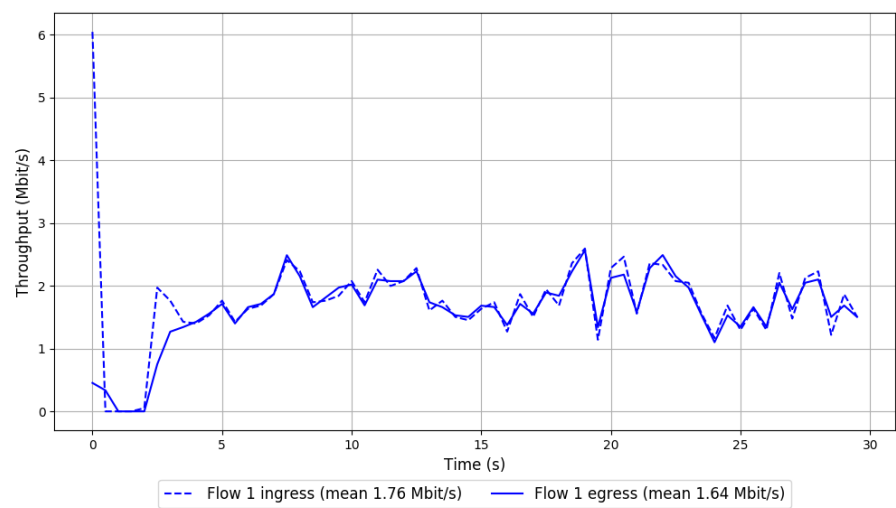


Run 2: Statistics of TaoVA-100x

Start at: 2018-03-20 06:21:24
End at: 2018-03-20 06:21:54
Local clock offset: -13.105 ms
Remote clock offset: -1.498 ms

Below is generated by plot.py at 2018-03-20 07:44:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 294.791 ms
Loss rate: 7.16%
-- Flow 1:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 294.791 ms
Loss rate: 7.16%

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

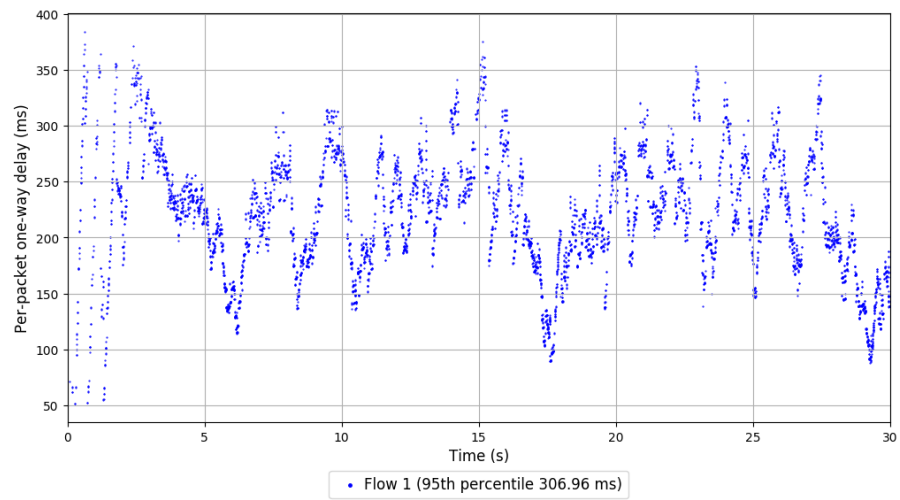
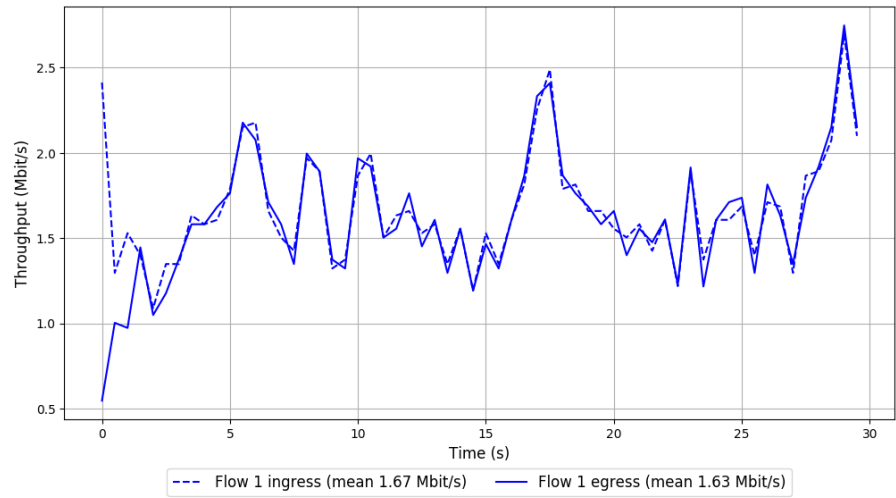


Run 3: Statistics of TaoVA-100x

Start at: 2018-03-20 06:40:57
End at: 2018-03-20 06:41:27
Local clock offset: -23.474 ms
Remote clock offset: 2.389 ms

Below is generated by plot.py at 2018-03-20 07:44:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 306.957 ms
Loss rate: 2.83%
-- Flow 1:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 306.957 ms
Loss rate: 2.83%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-03-20 05:47:42

End at: 2018-03-20 05:48:12

Local clock offset: -8.985 ms

Remote clock offset: 0.42 ms

Below is generated by plot.py at 2018-03-20 07:44:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 171.972 ms

Loss rate: 0.39%

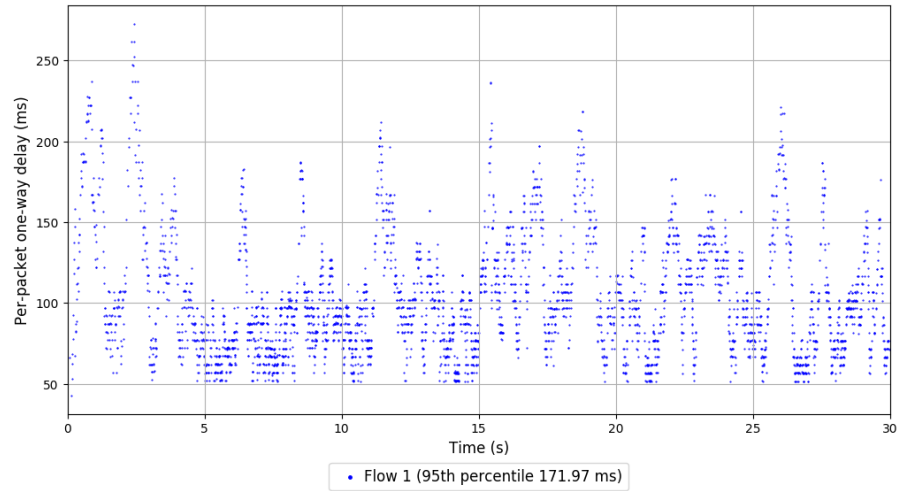
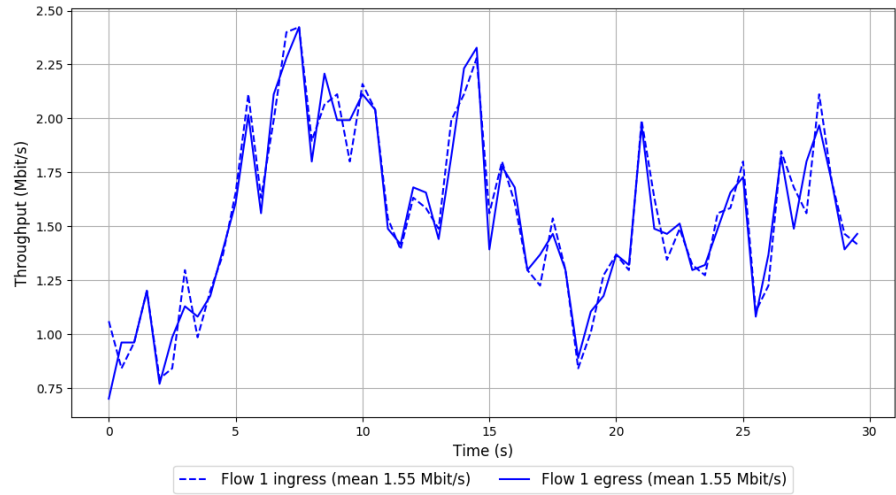
-- Flow 1:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 171.972 ms

Loss rate: 0.39%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-03-20 06:07:18

End at: 2018-03-20 06:07:48

Local clock offset: -9.247 ms

Remote clock offset: 0.07 ms

Below is generated by plot.py at 2018-03-20 07:44:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.36 Mbit/s

95th percentile per-packet one-way delay: 236.039 ms

Loss rate: 1.28%

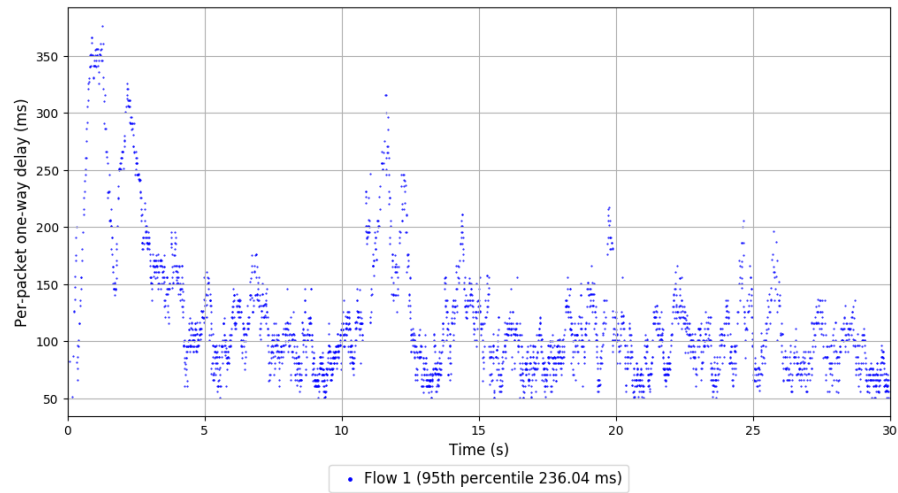
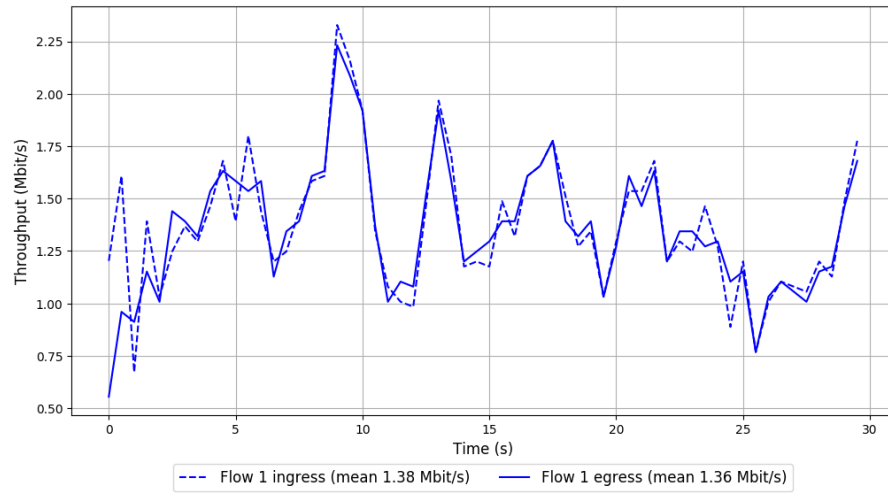
-- Flow 1:

Average throughput: 1.36 Mbit/s

95th percentile per-packet one-way delay: 236.039 ms

Loss rate: 1.28%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-03-20 06:26:51

End at: 2018-03-20 06:27:21

Local clock offset: -13.86 ms

Remote clock offset: 0.473 ms

Below is generated by plot.py at 2018-03-20 07:44:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.27 Mbit/s

95th percentile per-packet one-way delay: 172.092 ms

Loss rate: 0.50%

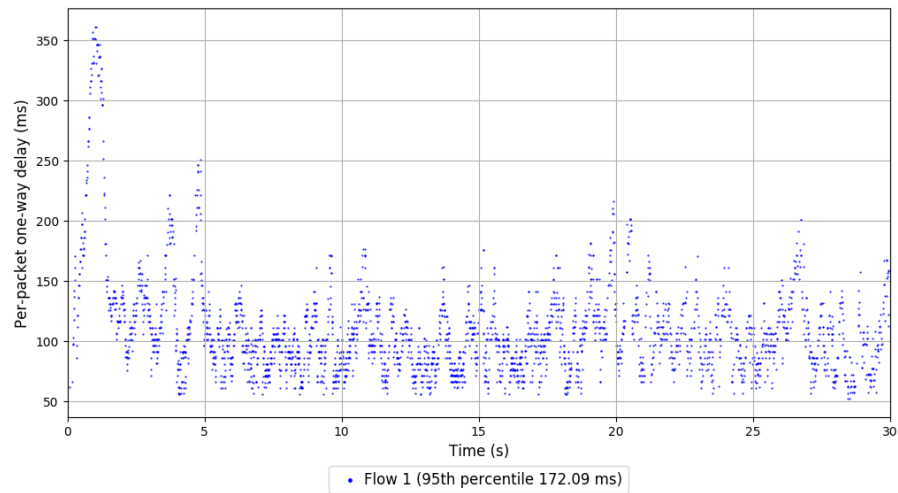
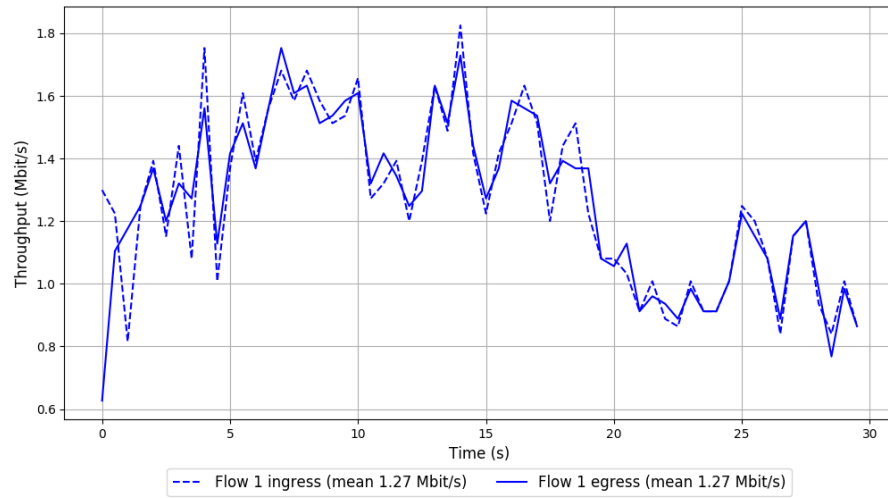
-- Flow 1:

Average throughput: 1.27 Mbit/s

95th percentile per-packet one-way delay: 172.092 ms

Loss rate: 0.50%

Run 3: Report of TCP Vegas — Data Link

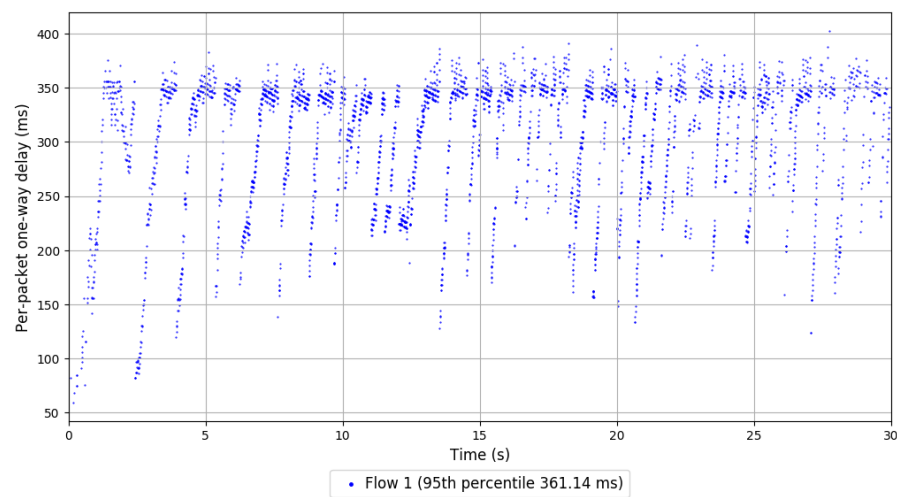
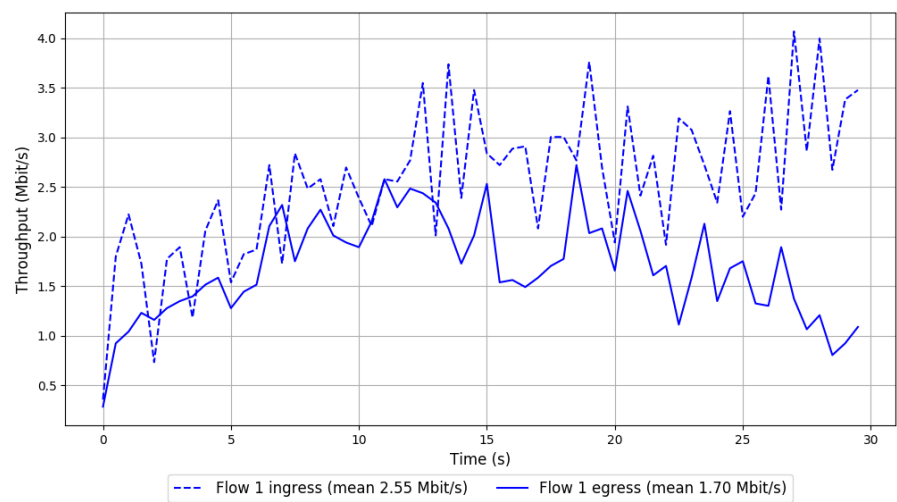


Run 1: Statistics of Verus

Start at: 2018-03-20 05:55:20
End at: 2018-03-20 05:55:50
Local clock offset: -11.2 ms
Remote clock offset: -0.758 ms

Below is generated by plot.py at 2018-03-20 07:44:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 361.140 ms
Loss rate: 33.49%
-- Flow 1:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 361.140 ms
Loss rate: 33.49%

Run 1: Report of Verus — Data Link

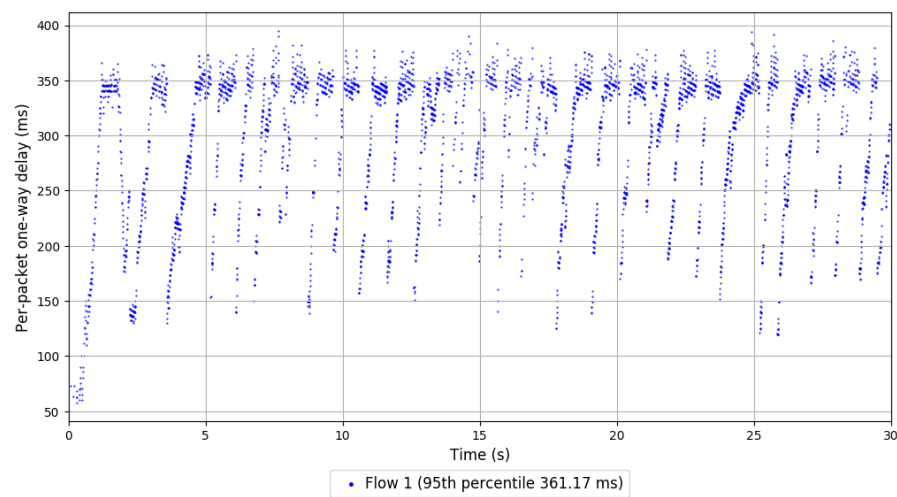
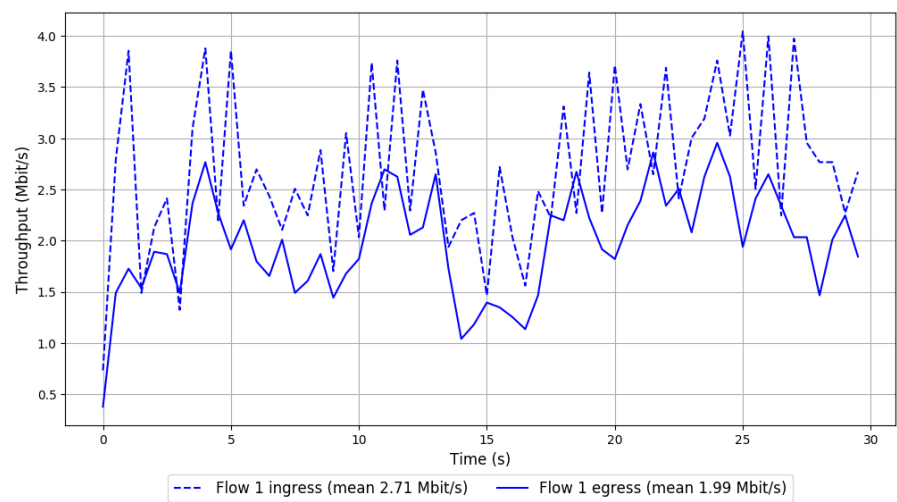


Run 2: Statistics of Verus

Start at: 2018-03-20 06:14:53
End at: 2018-03-20 06:15:23
Local clock offset: -12.011 ms
Remote clock offset: 0.001 ms

Below is generated by plot.py at 2018-03-20 07:44:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 361.173 ms
Loss rate: 26.70%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 361.173 ms
Loss rate: 26.70%

Run 2: Report of Verus — Data Link

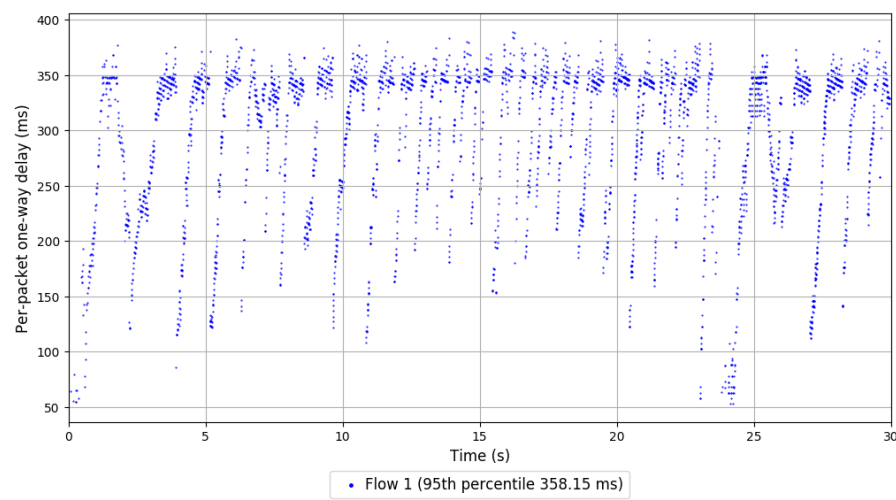
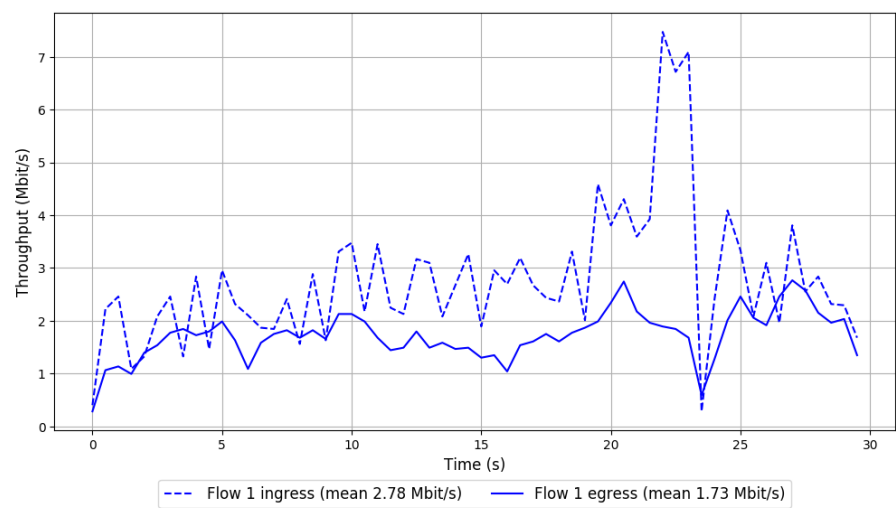


Run 3: Statistics of Verus

Start at: 2018-03-20 06:34:26
End at: 2018-03-20 06:34:56
Local clock offset: -15.954 ms
Remote clock offset: 1.224 ms

Below is generated by plot.py at 2018-03-20 07:44:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 358.150 ms
Loss rate: 37.80%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 358.150 ms
Loss rate: 37.80%

Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

Start at: 2018-03-20 05:50:59

End at: 2018-03-20 05:51:29

Local clock offset: -12.43 ms

Remote clock offset: 0.875 ms

Below is generated by plot.py at 2018-03-20 07:44:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.39 Mbit/s

95th percentile per-packet one-way delay: 205.591 ms

Loss rate: 1.27%

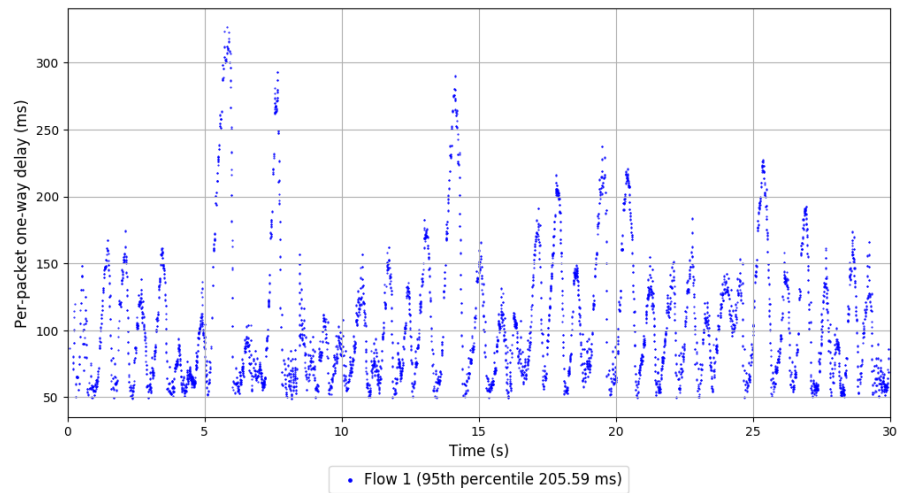
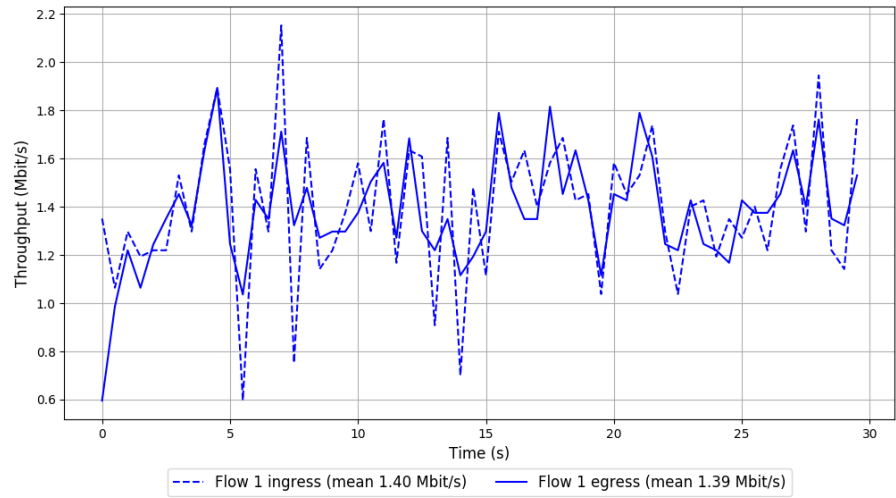
-- Flow 1:

Average throughput: 1.39 Mbit/s

95th percentile per-packet one-way delay: 205.591 ms

Loss rate: 1.27%

Run 1: Report of Copa — Data Link

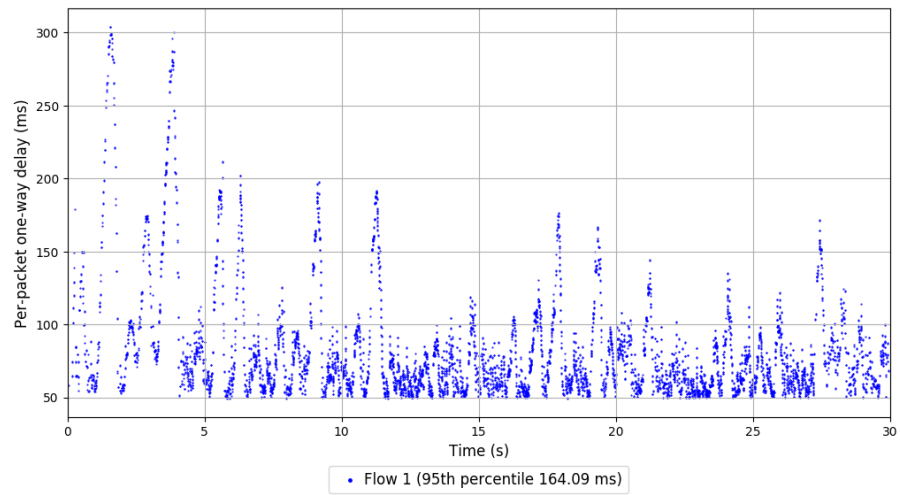
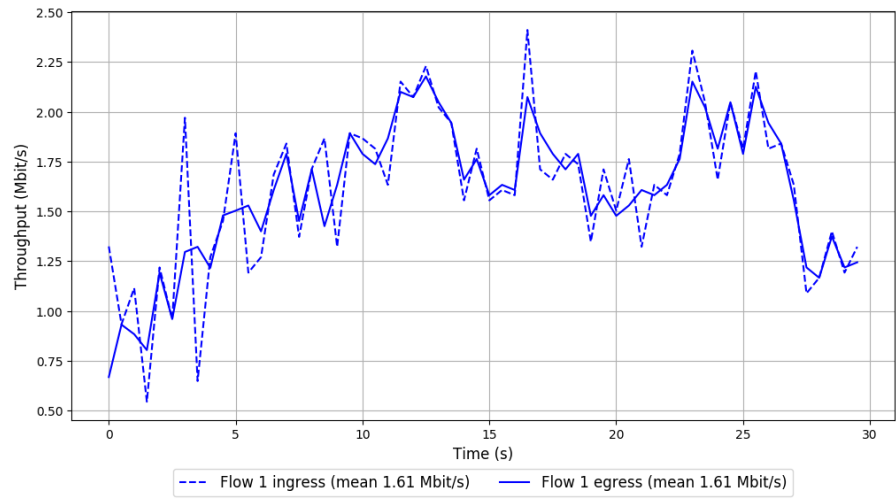


Run 2: Statistics of Copa

Start at: 2018-03-20 06:10:33
End at: 2018-03-20 06:11:03
Local clock offset: -11.529 ms
Remote clock offset: 0.038 ms

Below is generated by plot.py at 2018-03-20 07:44:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 164.086 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 164.086 ms
Loss rate: 0.76%

Run 2: Report of Copa — Data Link

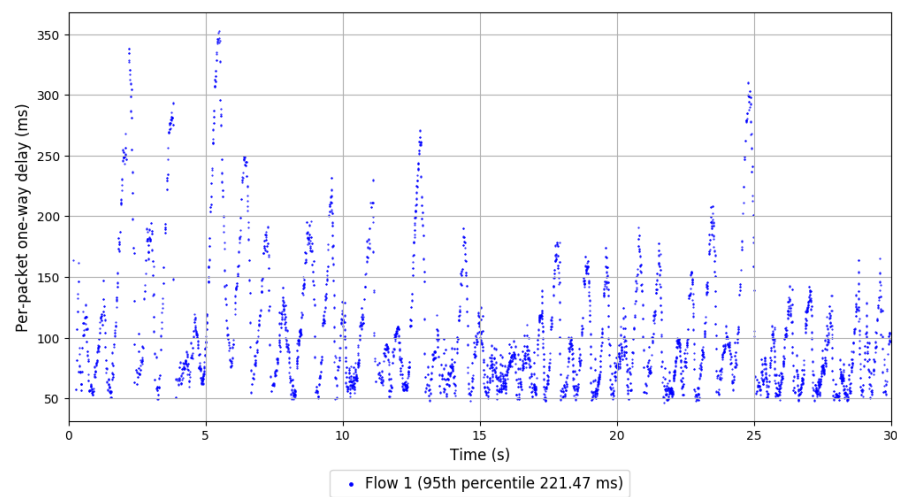
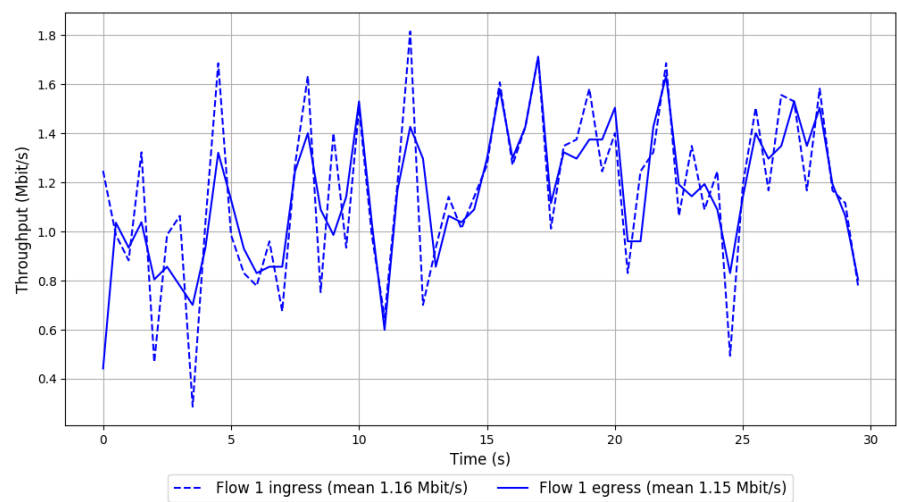


Run 3: Statistics of Copa

Start at: 2018-03-20 06:30:06
End at: 2018-03-20 06:30:36
Local clock offset: -15.292 ms
Remote clock offset: 1.671 ms

Below is generated by plot.py at 2018-03-20 07:44:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 221.473 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 221.473 ms
Loss rate: 1.19%

Run 3: Report of Copa — Data Link

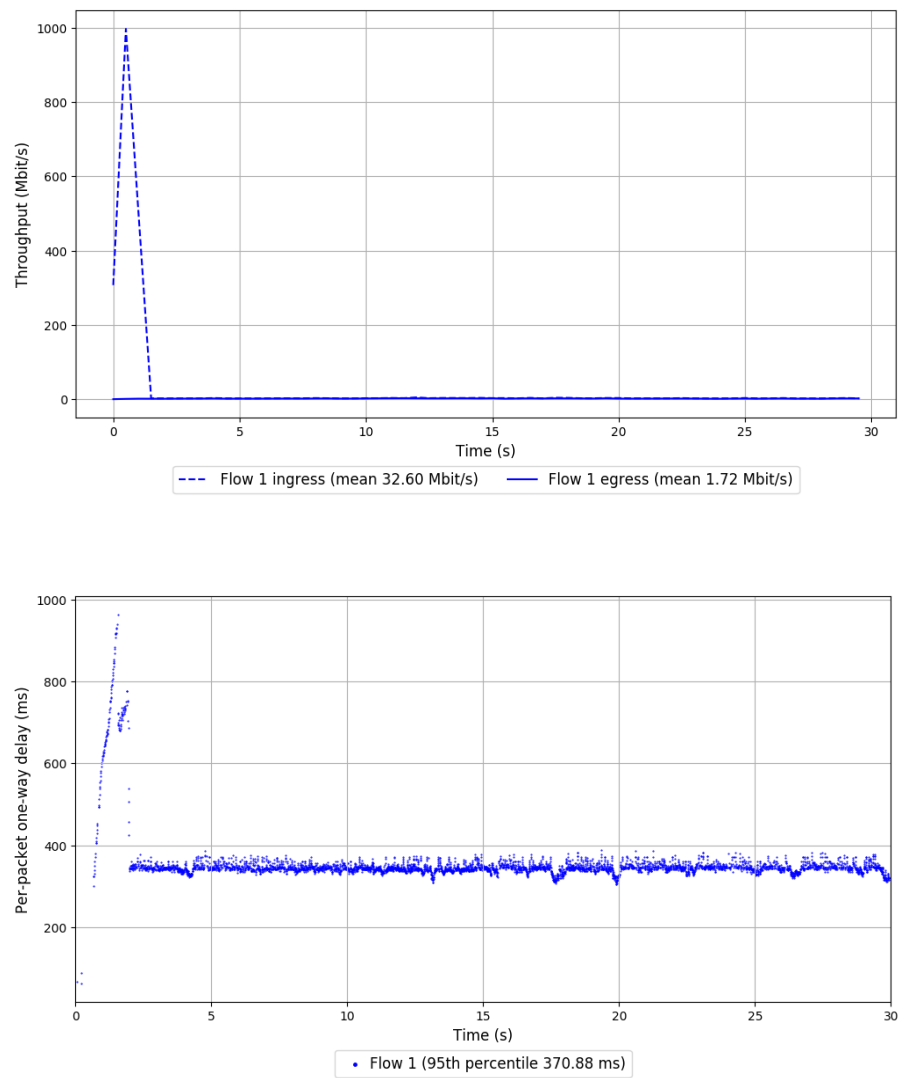


Run 1: Statistics of FillP

Start at: 2018-03-20 06:02:57
End at: 2018-03-20 06:03:27
Local clock offset: -11.476 ms
Remote clock offset: -0.101 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 370.883 ms
Loss rate: 94.74%
-- Flow 1:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 370.883 ms
Loss rate: 94.74%

Run 1: Report of FillP — Data Link

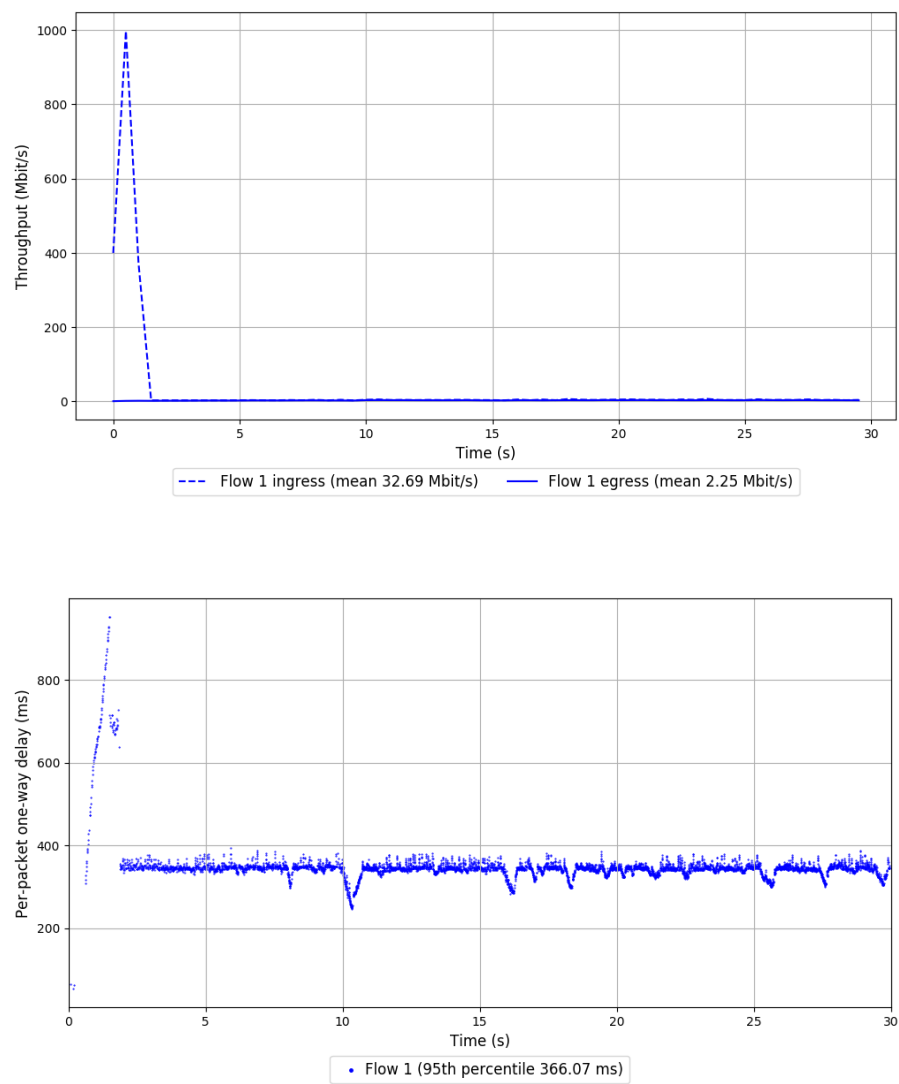


Run 2: Statistics of FillP

Start at: 2018-03-20 06:22:29
End at: 2018-03-20 06:22:59
Local clock offset: -13.562 ms
Remote clock offset: 0.23 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 366.072 ms
Loss rate: 93.13%
-- Flow 1:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 366.072 ms
Loss rate: 93.13%

Run 2: Report of FillP — Data Link

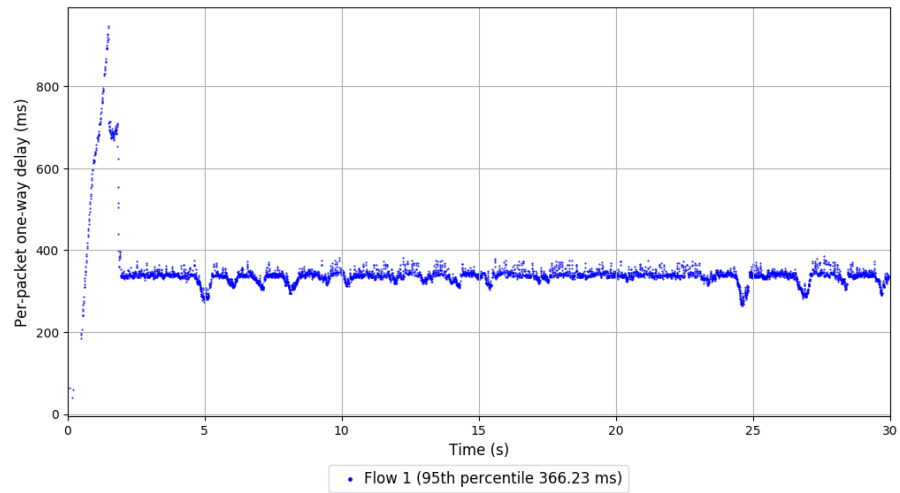
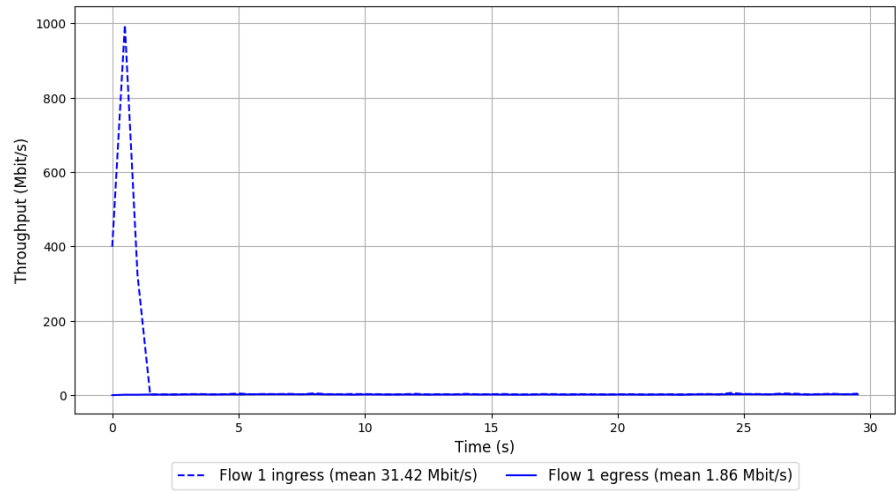


Run 3: Statistics of FillP

Start at: 2018-03-20 06:42:02
End at: 2018-03-20 06:42:32
Local clock offset: -23.116 ms
Remote clock offset: 2.66 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 366.229 ms
Loss rate: 94.10%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 366.229 ms
Loss rate: 94.10%

Run 3: Report of FillP — Data Link

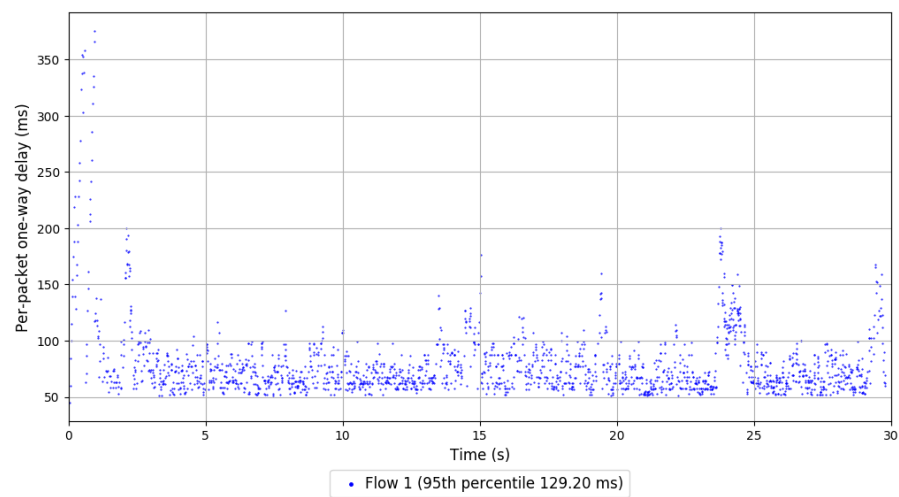
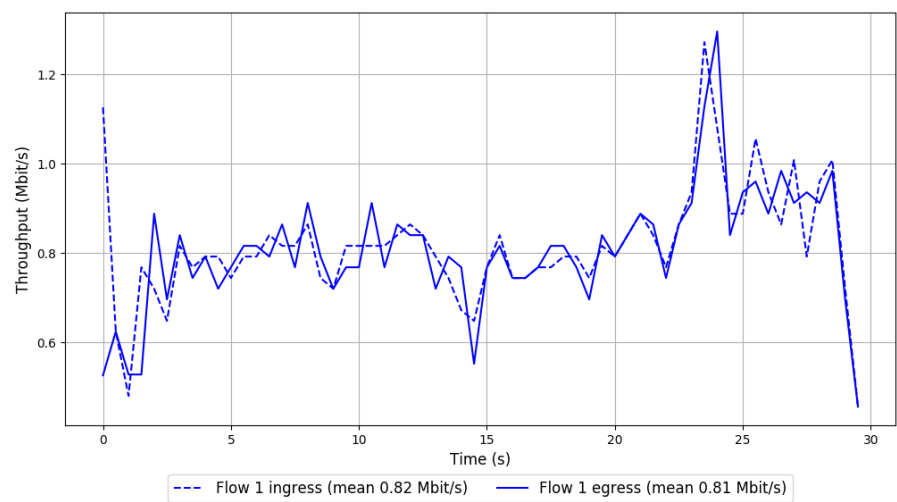


Run 1: Statistics of Indigo-1-32

Start at: 2018-03-20 05:57:31
End at: 2018-03-20 05:58:01
Local clock offset: -13.181 ms
Remote clock offset: -0.521 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 129.201 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 129.201 ms
Loss rate: 1.27%

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

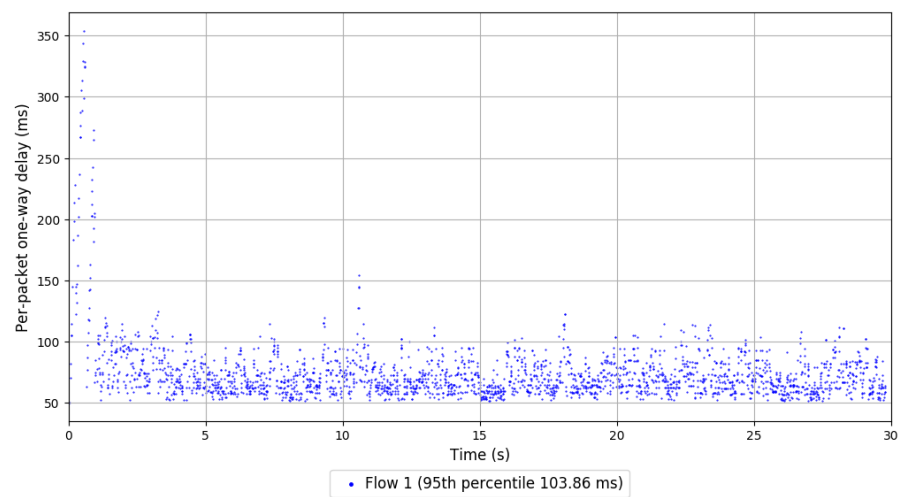
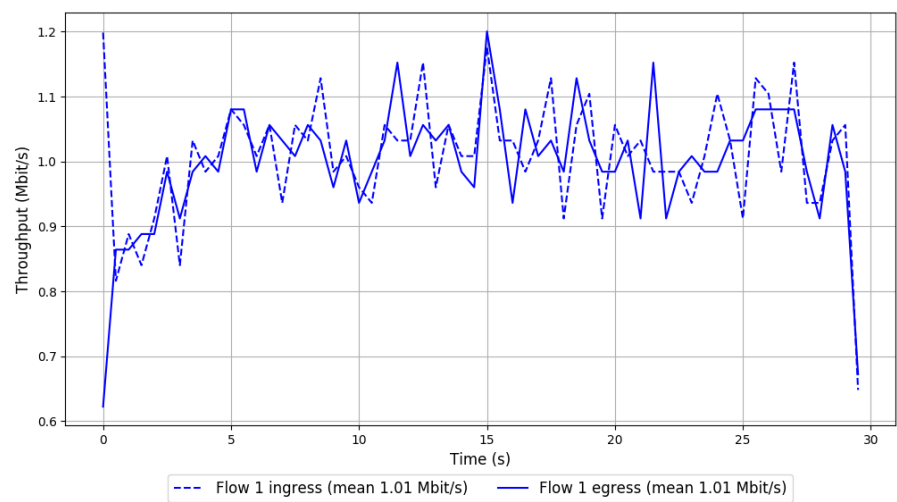


Run 2: Statistics of Indigo-1-32

Start at: 2018-03-20 06:17:03
End at: 2018-03-20 06:17:33
Local clock offset: -13.673 ms
Remote clock offset: -1.041 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 103.859 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 103.859 ms
Loss rate: 0.87%

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

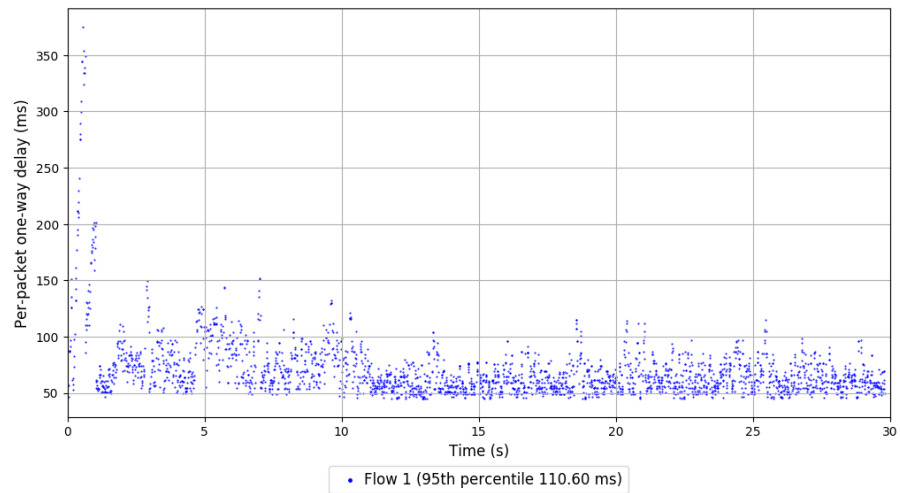
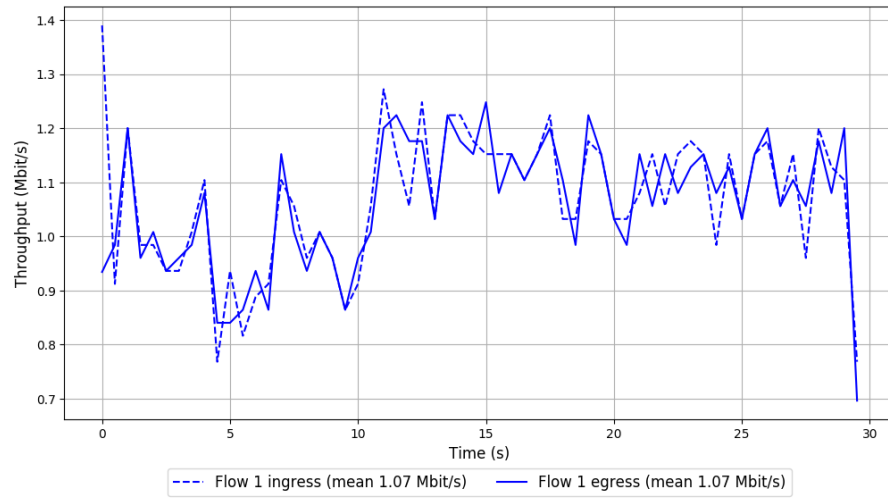


Run 3: Statistics of Indigo-1-32

Start at: 2018-03-20 06:36:36
End at: 2018-03-20 06:37:06
Local clock offset: -19.906 ms
Remote clock offset: 2.426 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 110.596 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 110.596 ms
Loss rate: 0.56%

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

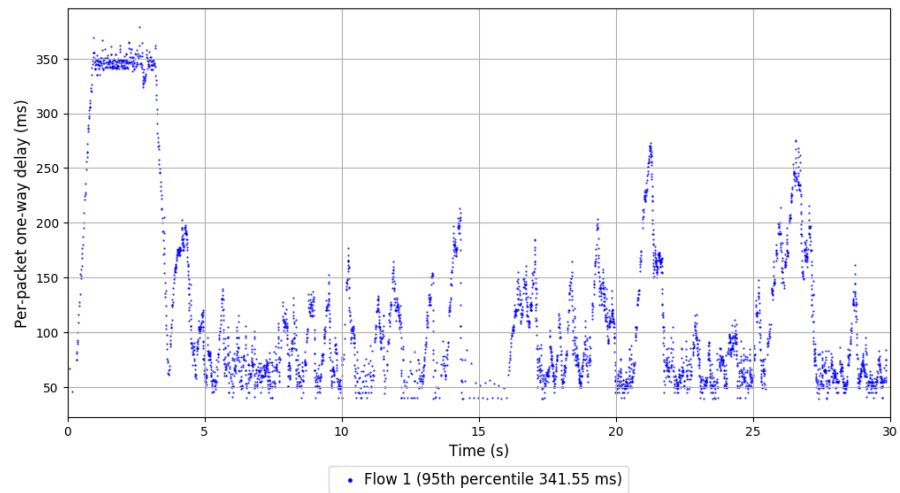
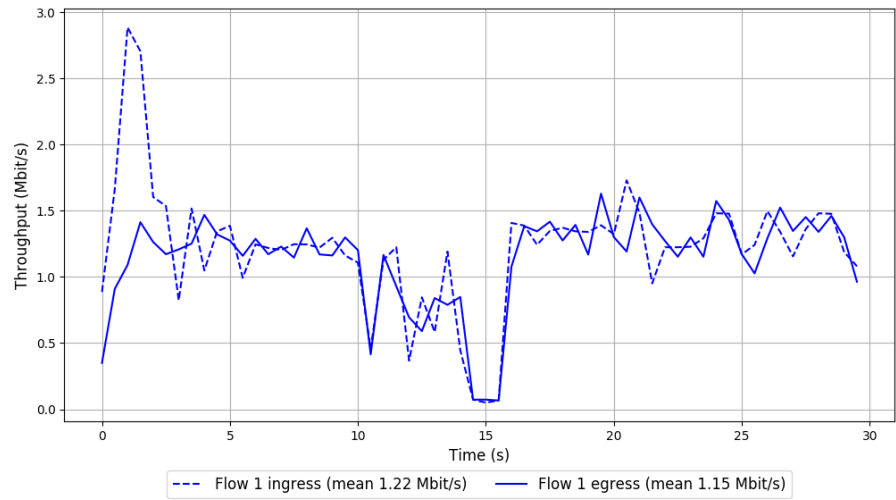


Run 1: Statistics of Vivace-latency

Start at: 2018-03-20 06:05:08
End at: 2018-03-20 06:05:38
Local clock offset: -11.626 ms
Remote clock offset: -0.681 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 341.549 ms
Loss rate: 6.41%
-- Flow 1:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 341.549 ms
Loss rate: 6.41%

Run 1: Report of Vivace-latency — Data Link

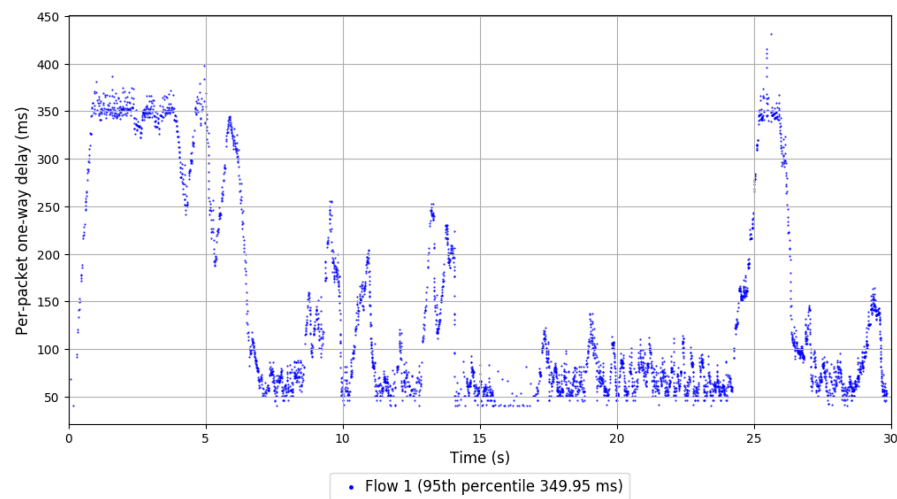
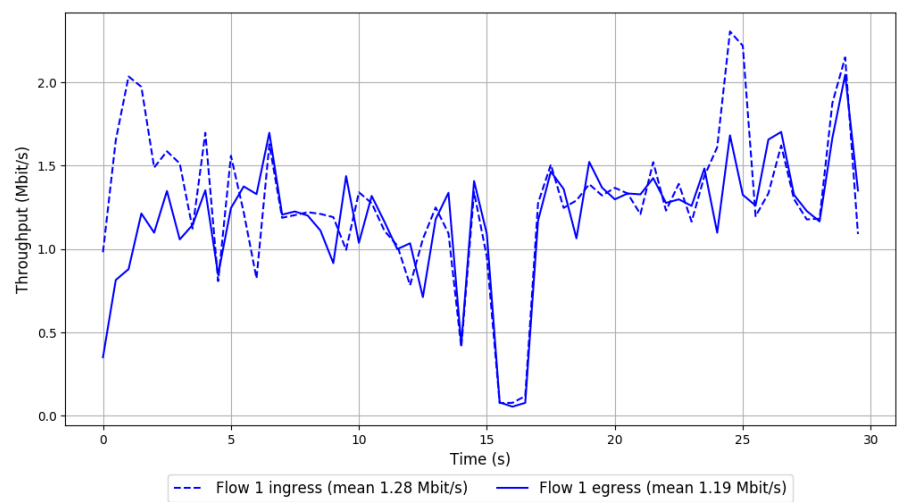


Run 2: Statistics of Vivace-latency

Start at: 2018-03-20 06:24:41
End at: 2018-03-20 06:25:11
Local clock offset: -15.172 ms
Remote clock offset: 0.839 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 349.952 ms
Loss rate: 7.59%
-- Flow 1:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 349.952 ms
Loss rate: 7.59%

Run 2: Report of Vivace-latency — Data Link

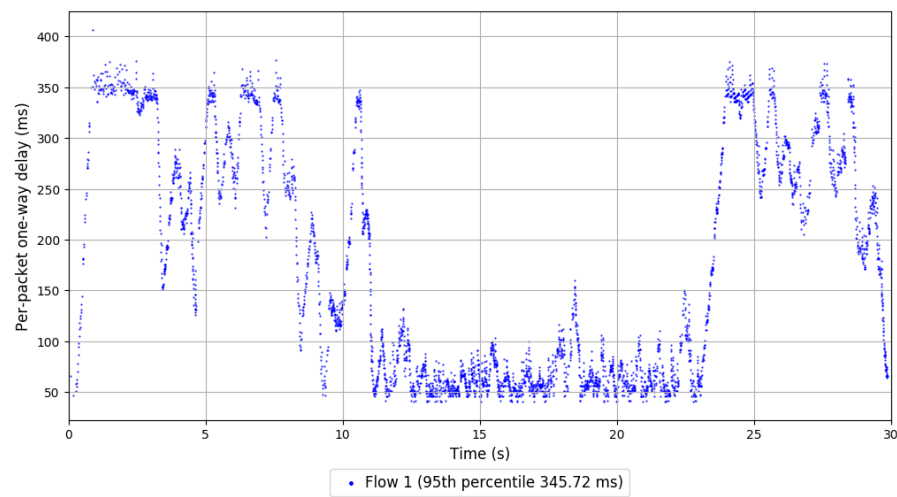
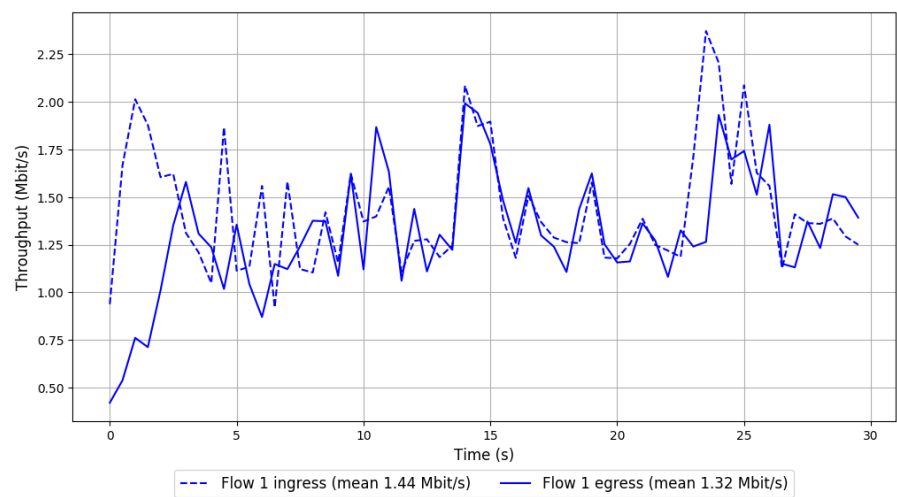


Run 3: Statistics of Vivace-latency

Start at: 2018-03-20 06:44:14
End at: 2018-03-20 06:44:44
Local clock offset: -25.199 ms
Remote clock offset: 1.879 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 345.716 ms
Loss rate: 8.32%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 345.716 ms
Loss rate: 8.32%

Run 3: Report of Vivace-latency — Data Link

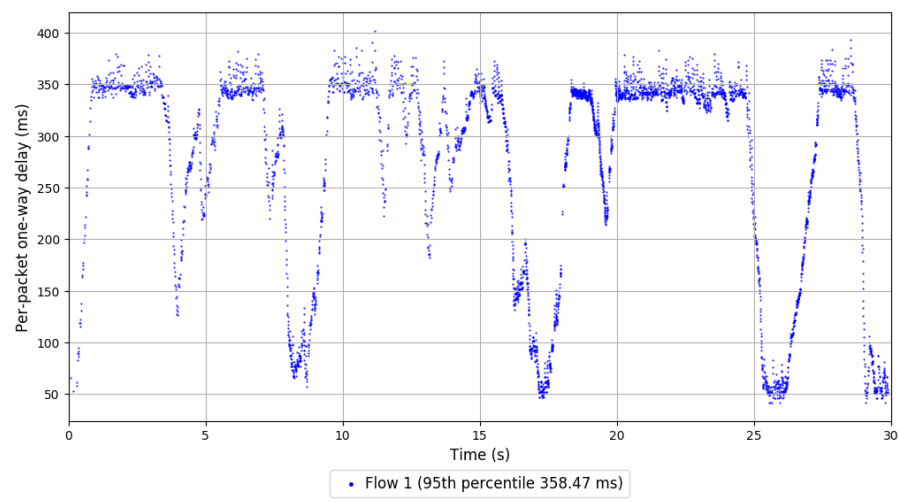
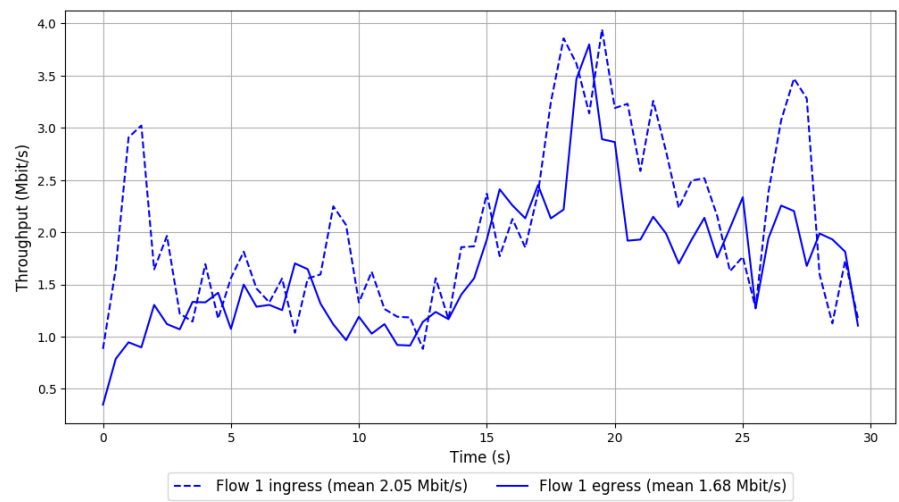


Run 1: Statistics of Vivace-loss

Start at: 2018-03-20 06:00:46
End at: 2018-03-20 06:01:16
Local clock offset: -14.099 ms
Remote clock offset: 0.405 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 358.469 ms
Loss rate: 18.47%
-- Flow 1:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 358.469 ms
Loss rate: 18.47%

Run 1: Report of Vivace-loss — Data Link

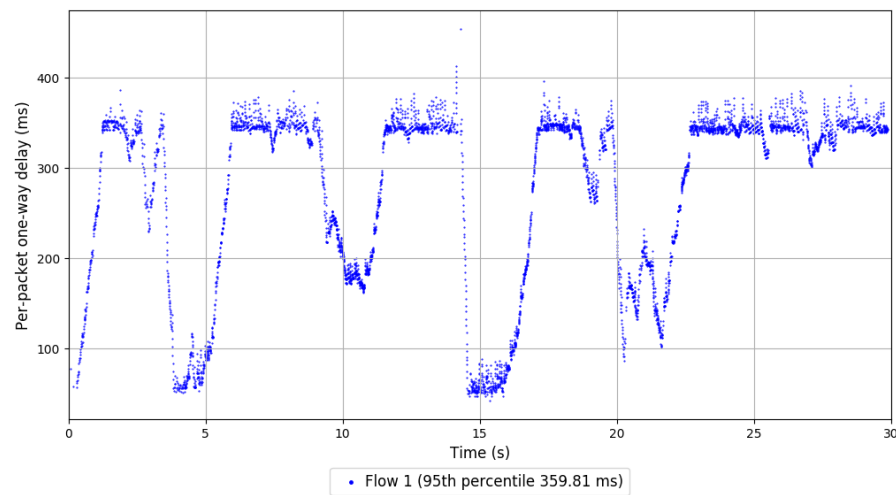
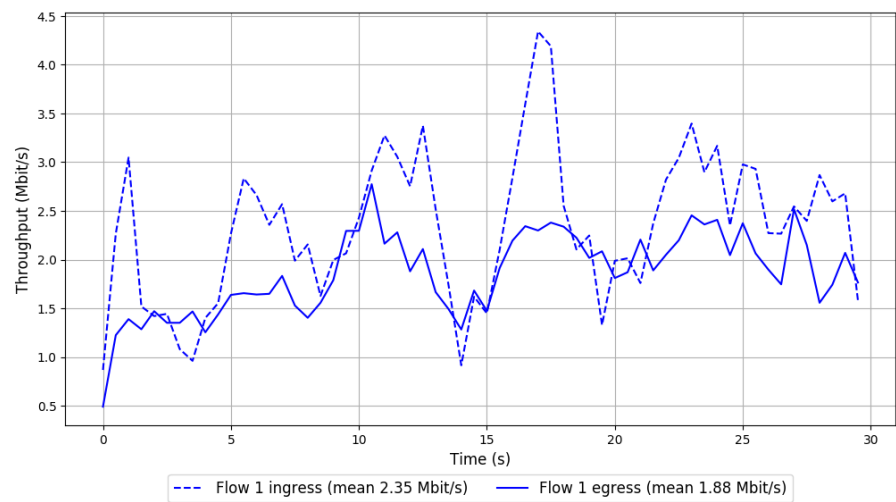


Run 2: Statistics of Vivace-loss

Start at: 2018-03-20 06:20:19
End at: 2018-03-20 06:20:49
Local clock offset: -13.724 ms
Remote clock offset: 0.406 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 359.809 ms
Loss rate: 20.36%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 359.809 ms
Loss rate: 20.36%

Run 2: Report of Vivace-loss — Data Link



Run 3: Statistics of Vivace-loss

Start at: 2018-03-20 06:39:52

End at: 2018-03-20 06:40:22

Local clock offset: -19.65 ms

Remote clock offset: 2.151 ms

Below is generated by plot.py at 2018-03-20 07:44:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 356.600 ms

Loss rate: 19.46%

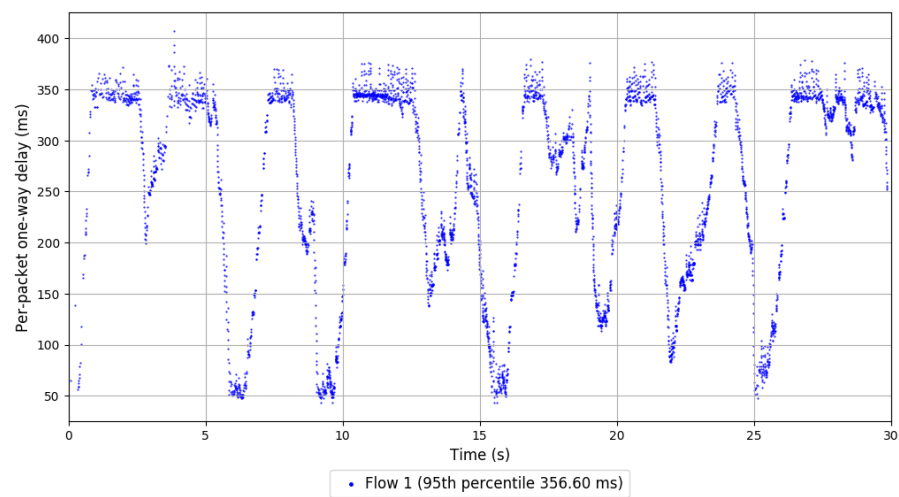
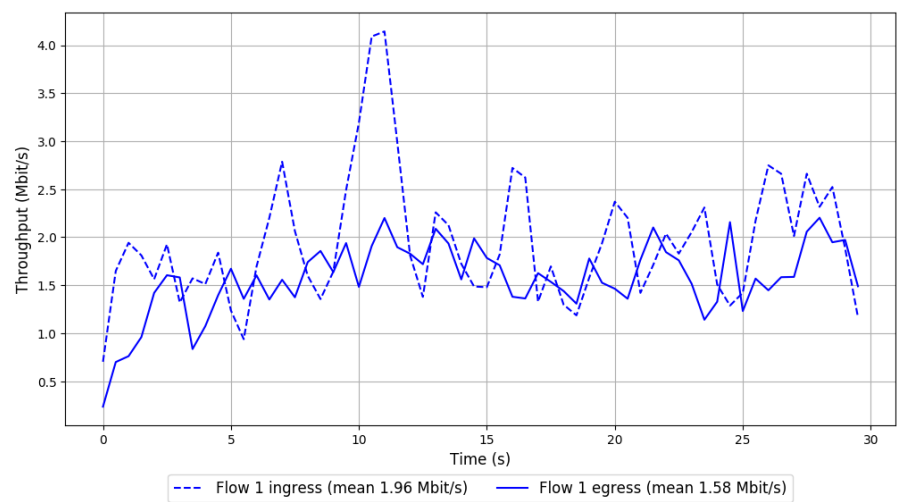
-- Flow 1:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 356.600 ms

Loss rate: 19.46%

Run 3: Report of Vivace-loss — Data Link

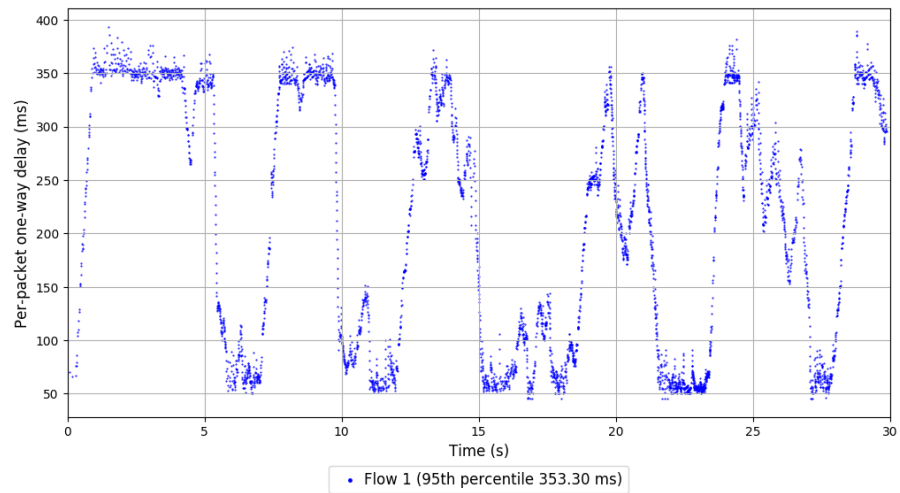
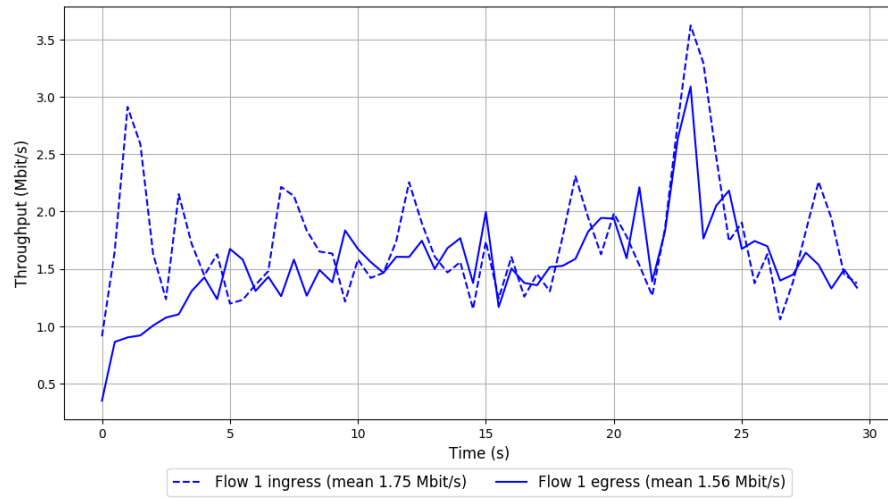


Run 1: Statistics of Vivace-LTE

Start at: 2018-03-20 05:58:36
End at: 2018-03-20 05:59:06
Local clock offset: -13.335 ms
Remote clock offset: -0.443 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 353.295 ms
Loss rate: 11.48%
-- Flow 1:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 353.295 ms
Loss rate: 11.48%

Run 1: Report of Vivace-LTE — Data Link

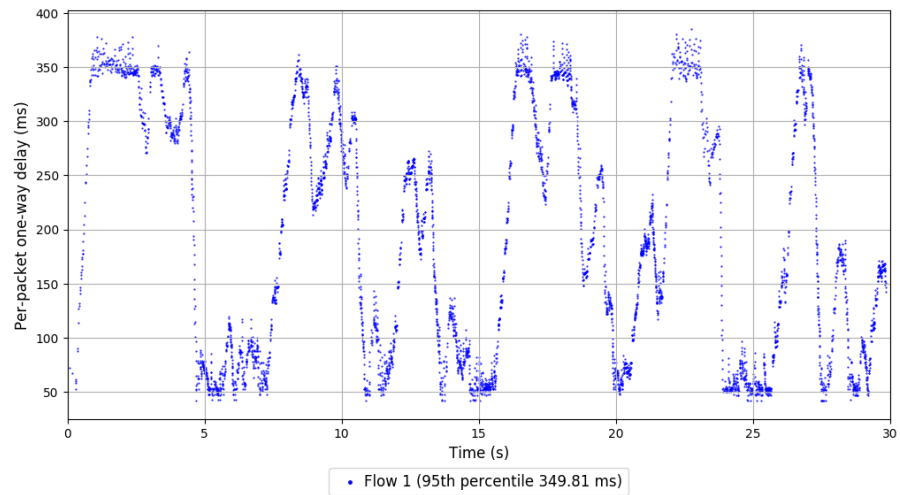
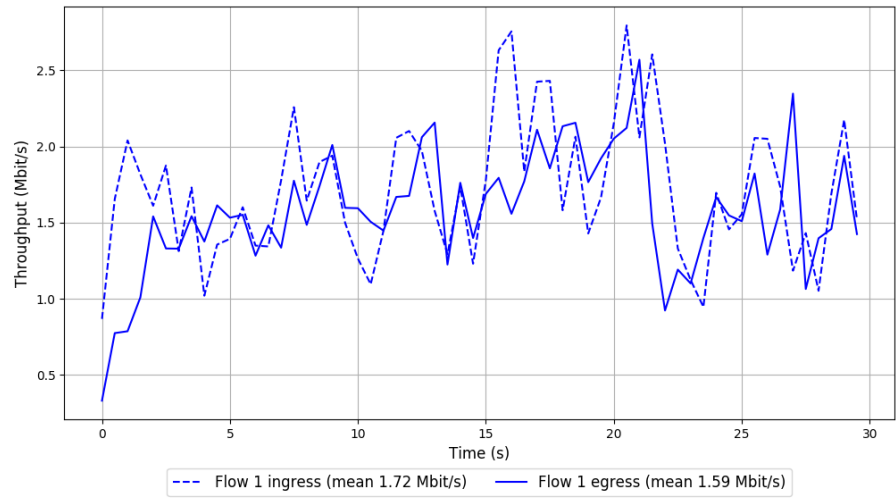


Run 2: Statistics of Vivace-LTE

Start at: 2018-03-20 06:18:08
End at: 2018-03-20 06:18:38
Local clock offset: -15.58 ms
Remote clock offset: -0.518 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 349.809 ms
Loss rate: 8.19%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 349.809 ms
Loss rate: 8.19%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-03-20 06:37:41
End at: 2018-03-20 06:38:11
Local clock offset: -18.763 ms
Remote clock offset: 2.631 ms

Below is generated by plot.py at 2018-03-20 07:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 345.139 ms
Loss rate: 7.23%
-- Flow 1:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 345.139 ms
Loss rate: 7.23%

Run 3: Report of Vivace-LTE — Data Link

