

Pantheon Report

Generated at 2018-04-03 01:35:53 (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).

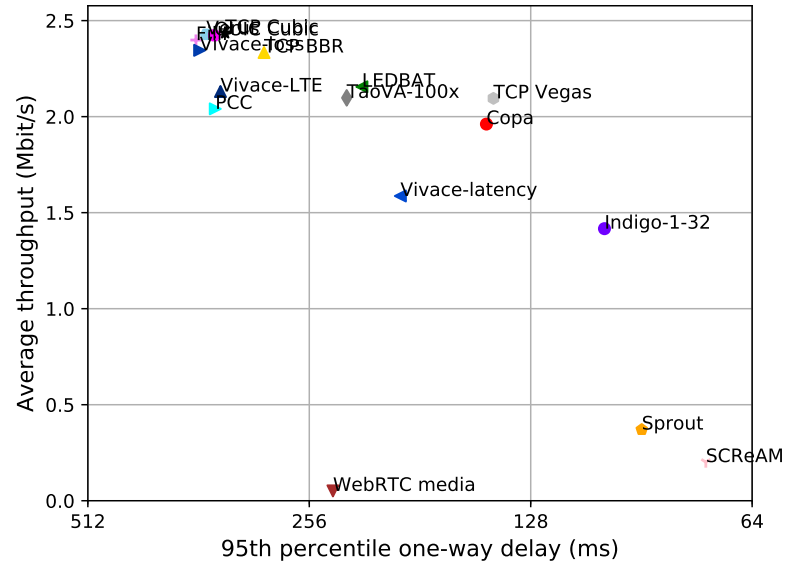
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

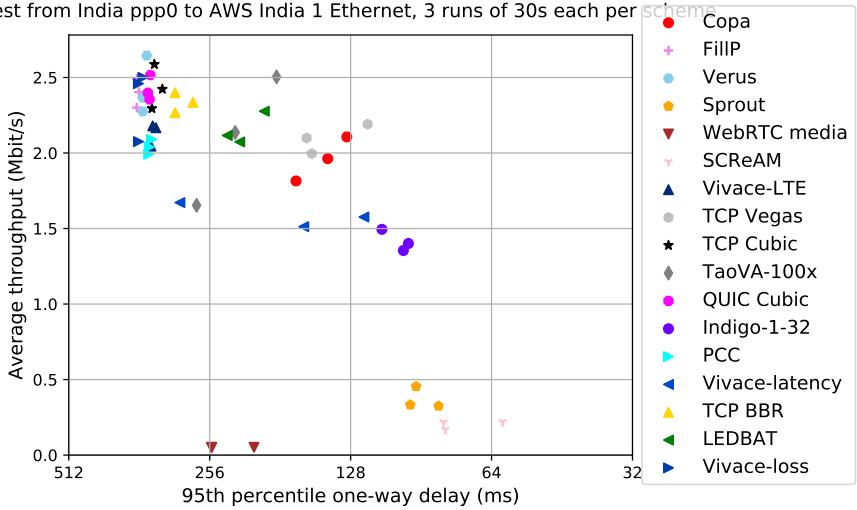
Git summary:

```
branch: master @ eb420b5be9bafccd22cf68b99ff5a2000462fc59
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ 11f8c46a2bf1dc797253db7e8ca04076272b2a44
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 @ f271183af822eee5d0031620f4bebf38aedc5581
```

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



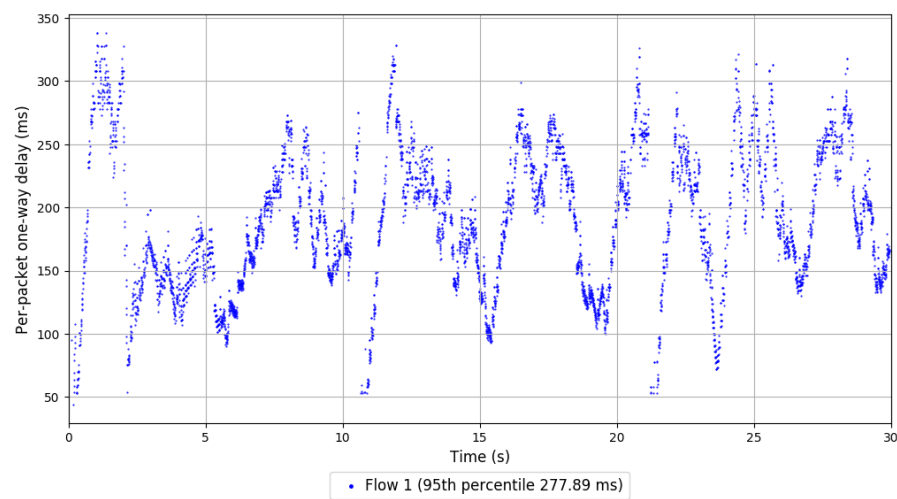
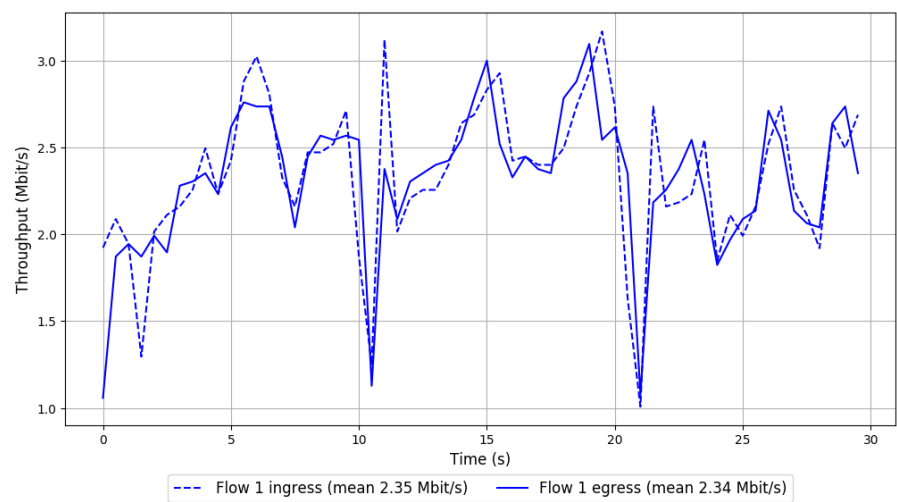
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	2.34	294.95	0.98
TCP Cubic	3	2.43	333.07	1.65
LEDBAT	3	2.16	217.14	0.57
PCC	3	2.04	343.59	10.73
QUIC Cubic	3	2.43	344.64	3.03
SCReAM	3	0.20	73.99	0.20
WebRTC media	3	0.05	237.73	1.46
Sprout	3	0.37	90.42	0.39
TaoVA-100x	3	2.10	227.71	6.03
TCP Vegas	3	2.10	143.85	0.59
Verus	3	2.43	353.48	17.88
Copa	3	1.96	147.03	0.92
FillP	3	2.40	365.01	29.77
Indigo-1-32	3	1.41	101.61	0.50
Vivace-latency	3	1.59	192.50	1.41
Vivace-loss	3	2.35	360.79	18.13
Vivace-LTE	3	2.13	338.05	2.01

Run 1: Statistics of TCP BBR

Start at: 2018-04-02 23:51:03
End at: 2018-04-02 23:51:33
Local clock offset: -4.449 ms
Remote clock offset: -2.204 ms

Below is generated by plot.py at 2018-04-03 01:35:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 277.895 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 277.895 ms
Loss rate: 0.77%

Run 1: Report of TCP BBR — Data Link

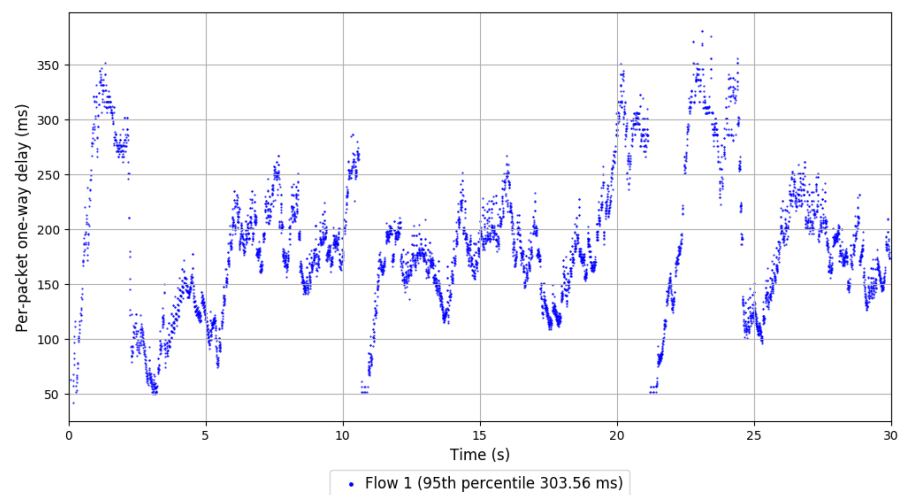
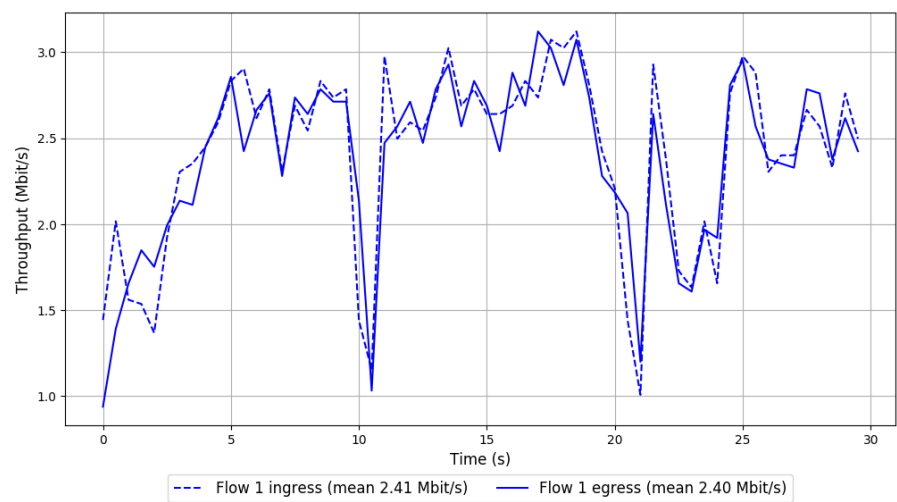


Run 2: Statistics of TCP BBR

Start at: 2018-04-03 00:10:35
End at: 2018-04-03 00:11:05
Local clock offset: -4.901 ms
Remote clock offset: -1.992 ms

Below is generated by plot.py at 2018-04-03 01:35:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 303.558 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 303.558 ms
Loss rate: 0.78%

Run 2: Report of TCP BBR — Data Link

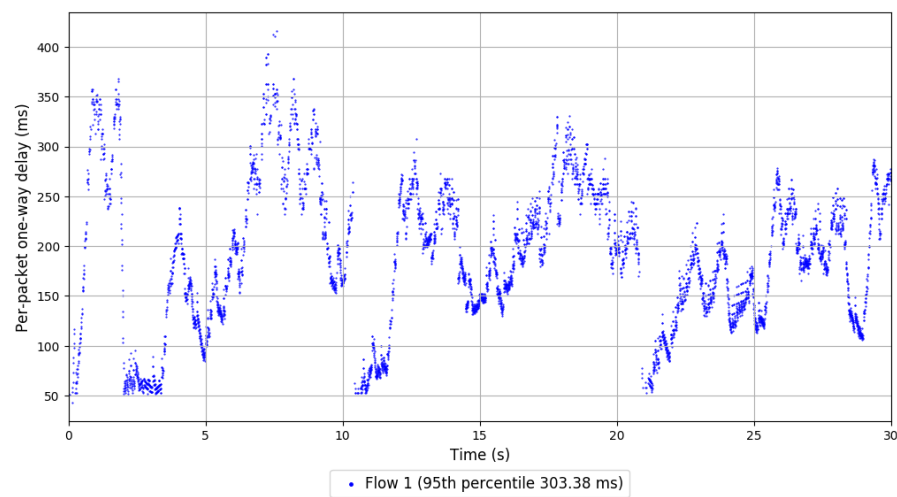
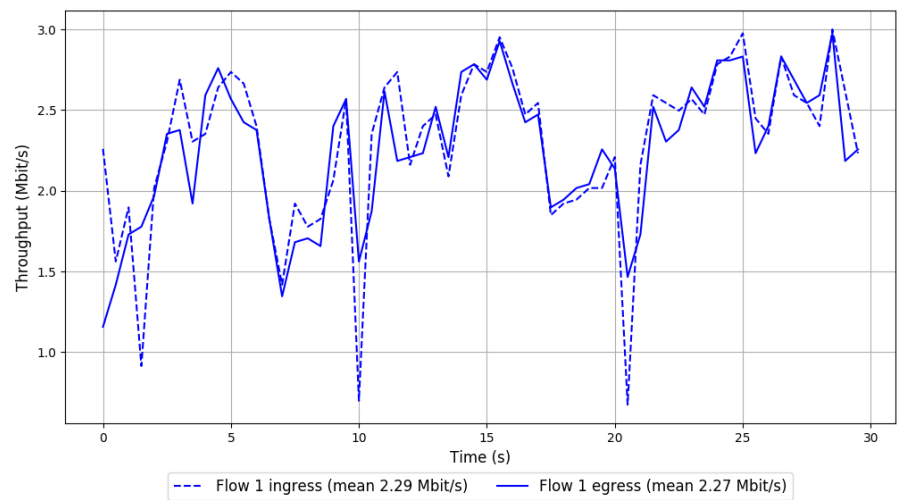


Run 3: Statistics of TCP BBR

Start at: 2018-04-03 00:30:06
End at: 2018-04-03 00:30:36
Local clock offset: -1.015 ms
Remote clock offset: -1.369 ms

Below is generated by plot.py at 2018-04-03 01:35:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 303.385 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 303.385 ms
Loss rate: 1.38%

Run 3: Report of TCP BBR — Data Link

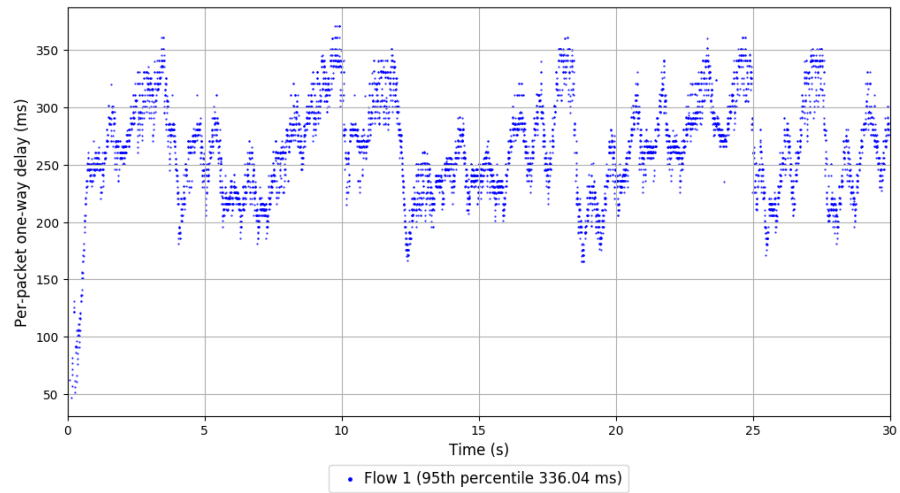
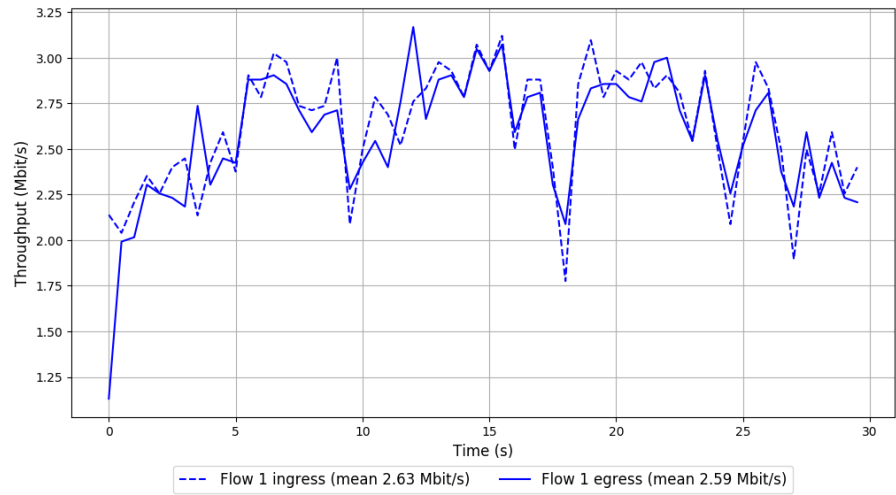


Run 1: Statistics of TCP Cubic

Start at: 2018-04-02 23:43:26
End at: 2018-04-02 23:43:56
Local clock offset: 1.701 ms
Remote clock offset: -0.303 ms

Below is generated by plot.py at 2018-04-03 01:35:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.59 Mbit/s
95th percentile per-packet one-way delay: 336.040 ms
Loss rate: 1.81%
-- Flow 1:
Average throughput: 2.59 Mbit/s
95th percentile per-packet one-way delay: 336.040 ms
Loss rate: 1.81%

Run 1: Report of TCP Cubic — Data Link

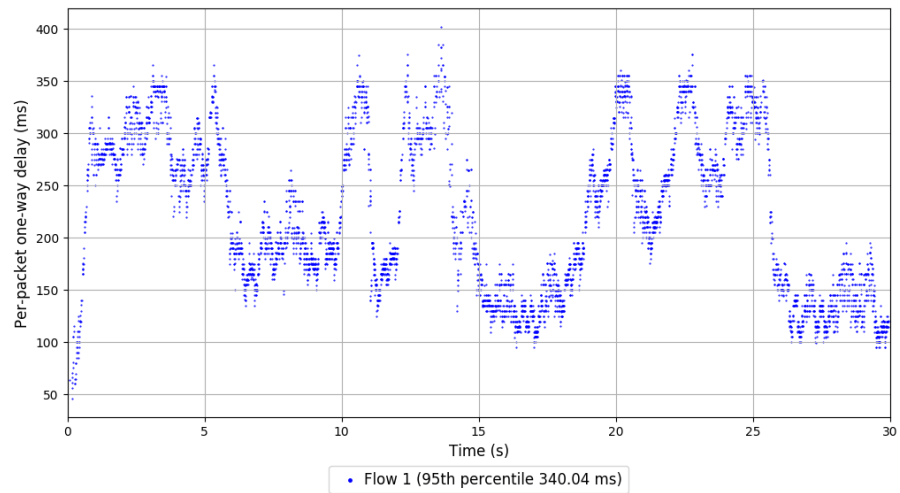
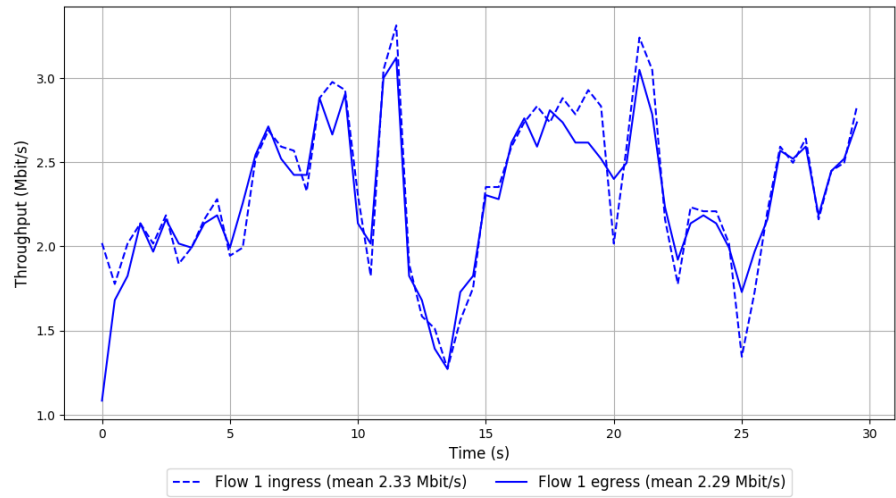


Run 2: Statistics of TCP Cubic

Start at: 2018-04-03 00:02:59
End at: 2018-04-03 00:03:29
Local clock offset: -3.367 ms
Remote clock offset: -2.008 ms

Below is generated by plot.py at 2018-04-03 01:35:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 340.041 ms
Loss rate: 1.67%
-- Flow 1:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 340.041 ms
Loss rate: 1.67%

Run 2: Report of TCP Cubic — Data Link

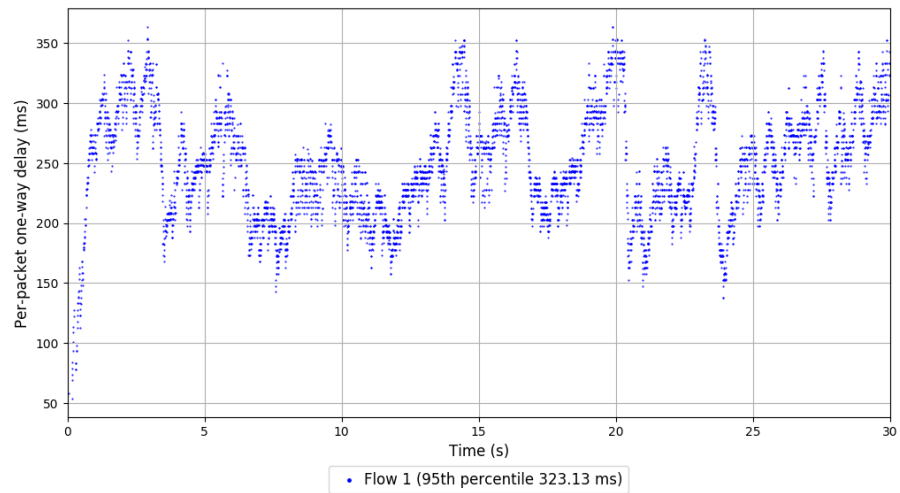
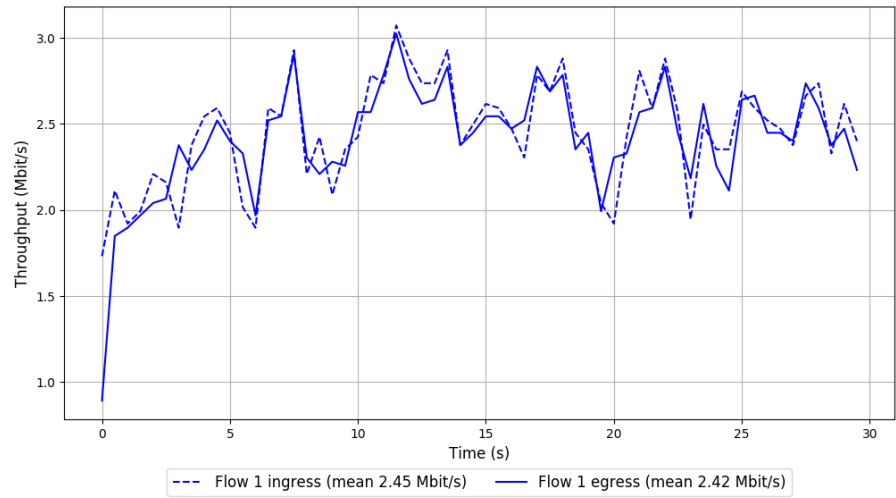


Run 3: Statistics of TCP Cubic

Start at: 2018-04-03 00:22:30
End at: 2018-04-03 00:23:00
Local clock offset: -1.744 ms
Remote clock offset: -1.268 ms

Below is generated by plot.py at 2018-04-03 01:35:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 323.130 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 323.130 ms
Loss rate: 1.47%

Run 3: Report of TCP Cubic — Data Link

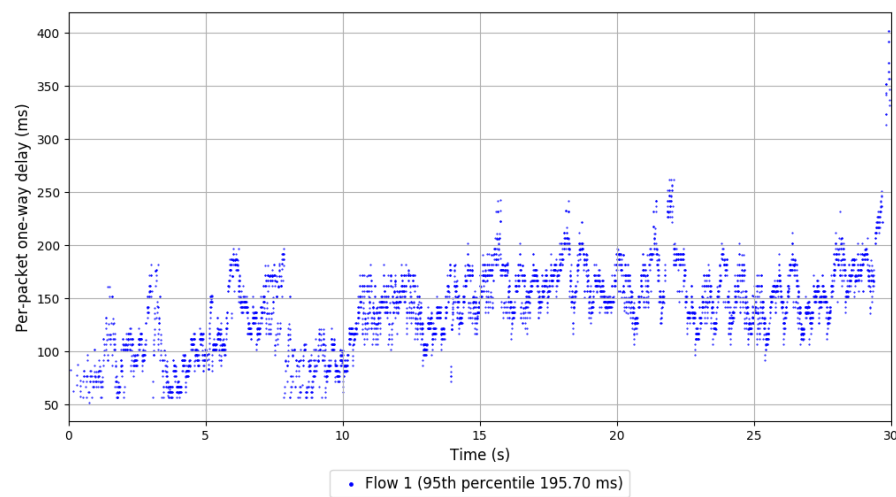
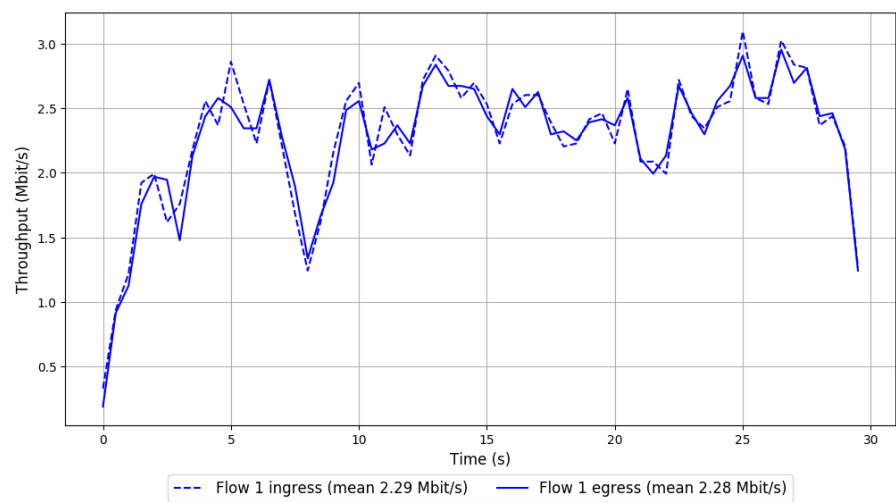


```
Run 1: Statistics of LEDBAT

Start at: 2018-04-02 23:46:42
End at: 2018-04-02 23:47:12
Local clock offset: 0.893 ms
Remote clock offset: -1.185 ms

# Below is generated by plot.py at 2018-04-03 01:35:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 195.700 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 195.700 ms
Loss rate: 0.77%
```


Run 1: Report of LEDBAT — Data Link

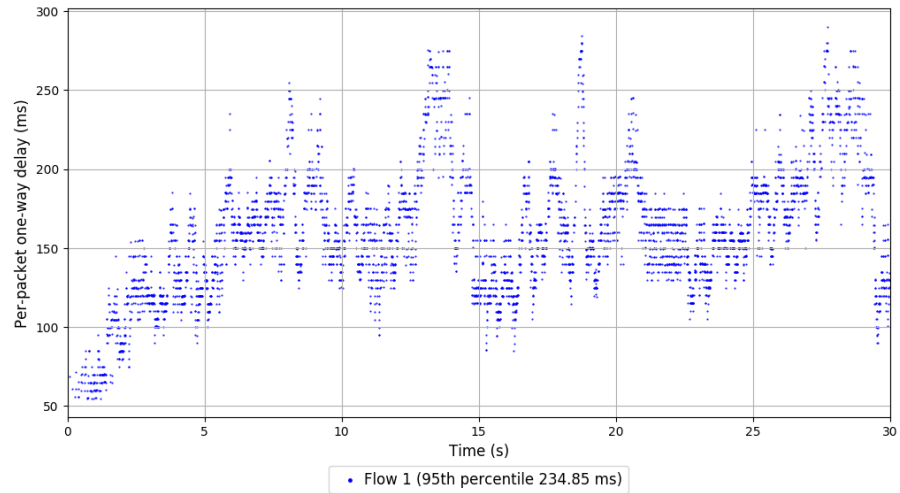
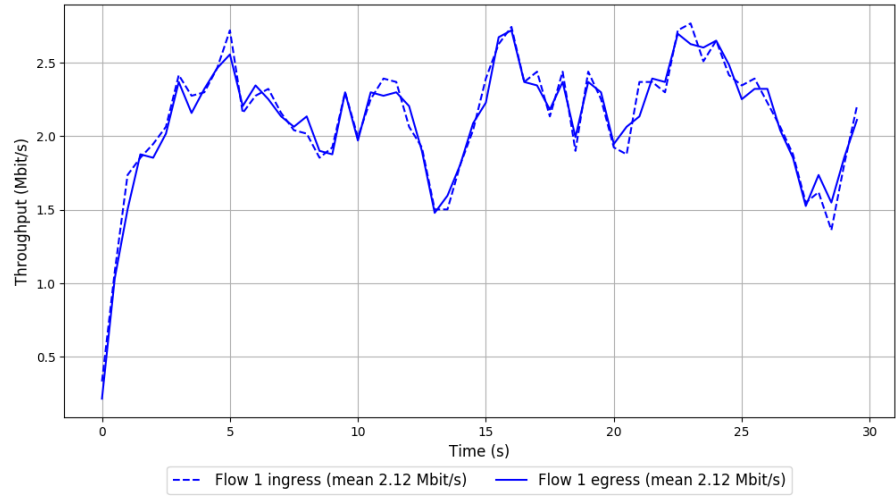


Run 2: Statistics of LEDBAT

Start at: 2018-04-03 00:06:14
End at: 2018-04-03 00:06:44
Local clock offset: -3.003 ms
Remote clock offset: -1.334 ms

Below is generated by plot.py at 2018-04-03 01:35:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 234.850 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 234.850 ms
Loss rate: 0.46%

Run 2: Report of LEDBAT — Data Link

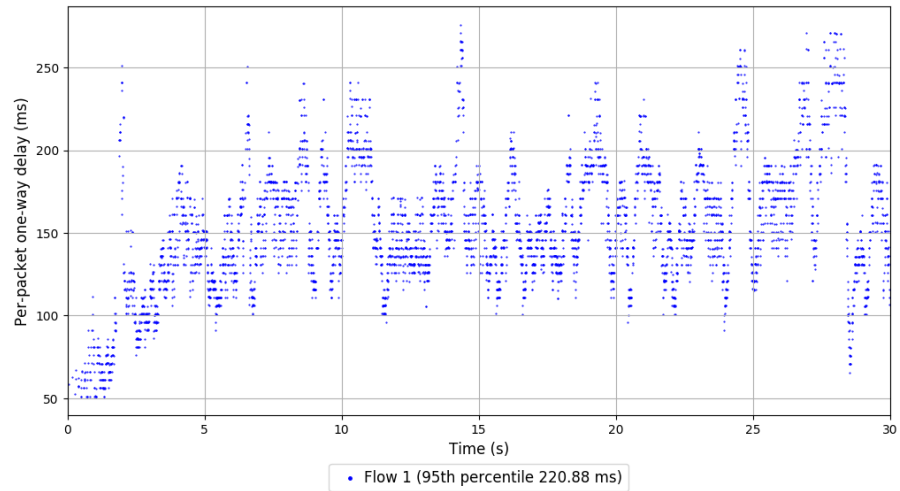
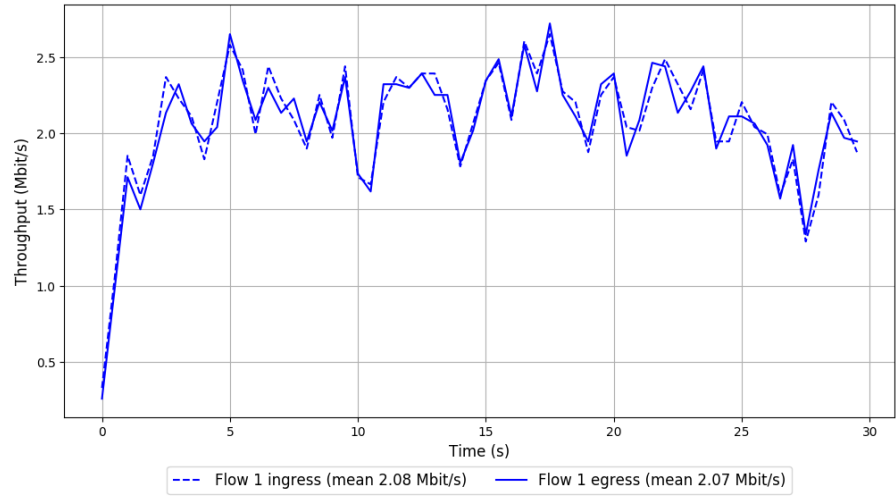


Run 3: Statistics of LEDBAT

Start at: 2018-04-03 00:25:46
End at: 2018-04-03 00:26:16
Local clock offset: -3.474 ms
Remote clock offset: -1.925 ms

Below is generated by plot.py at 2018-04-03 01:35:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 220.879 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 220.879 ms
Loss rate: 0.47%

Run 3: Report of LEDBAT — Data Link

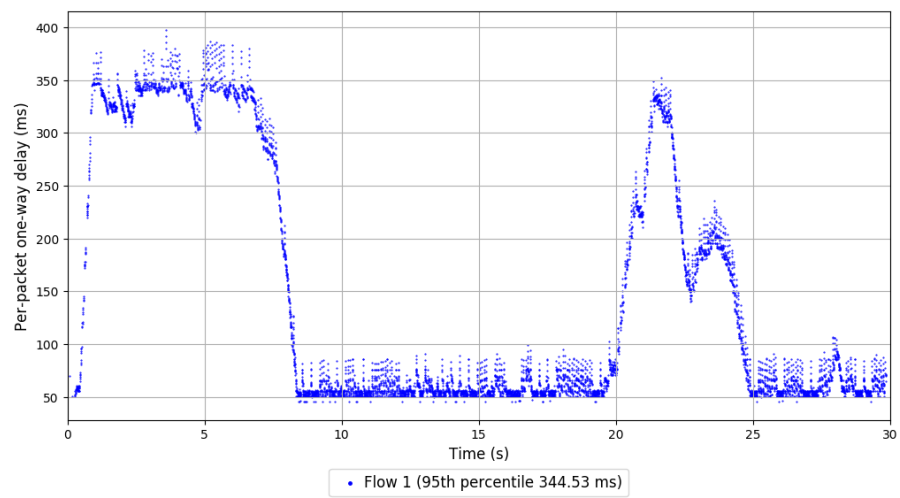
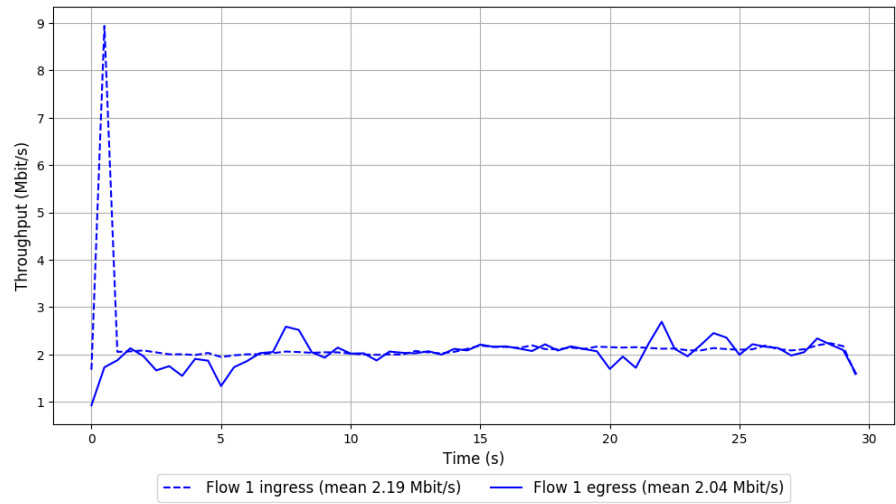


Run 1: Statistics of PCC

Start at: 2018-04-02 23:48:52
End at: 2018-04-02 23:49:22
Local clock offset: -1.128 ms
Remote clock offset: -1.675 ms

Below is generated by plot.py at 2018-04-03 01:35:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 344.526 ms
Loss rate: 7.31%
-- Flow 1:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 344.526 ms
Loss rate: 7.31%

Run 1: Report of PCC — Data Link

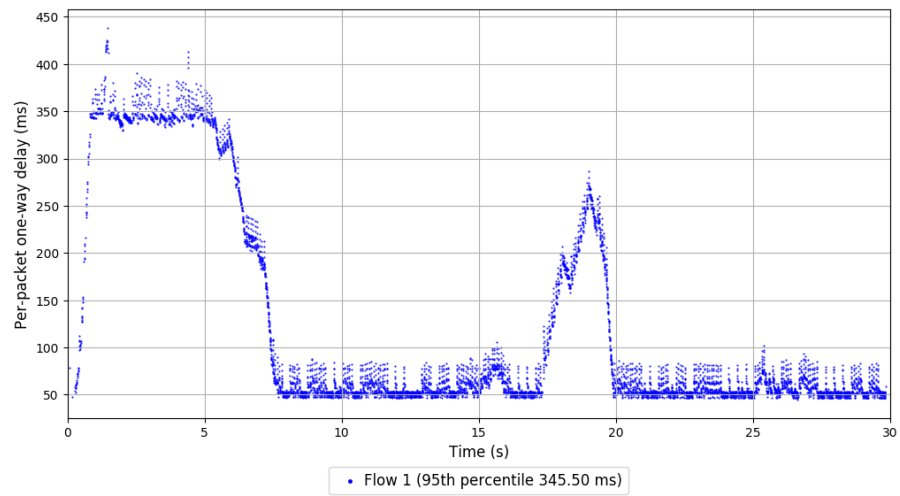
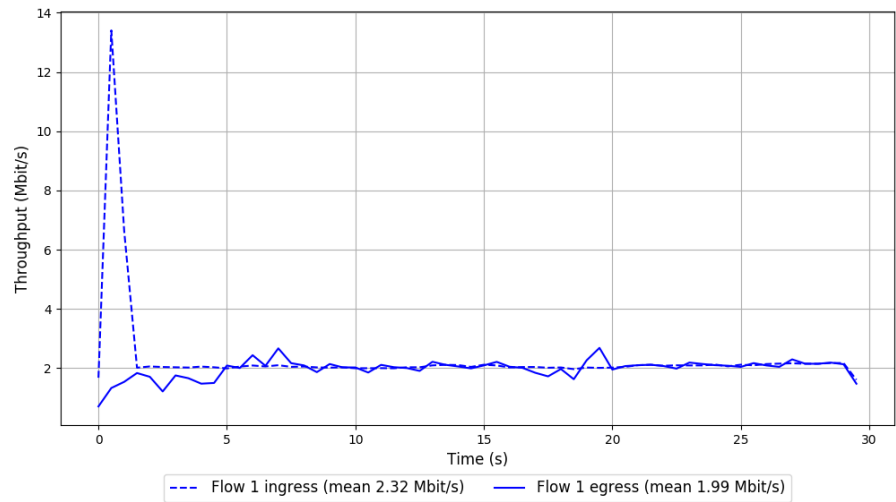


Run 2: Statistics of PCC

Start at: 2018-04-03 00:08:25
End at: 2018-04-03 00:08:55
Local clock offset: -6.909 ms
Remote clock offset: -2.583 ms

Below is generated by plot.py at 2018-04-03 01:35:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 345.504 ms
Loss rate: 14.62%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 345.504 ms
Loss rate: 14.62%

Run 2: Report of PCC — Data Link

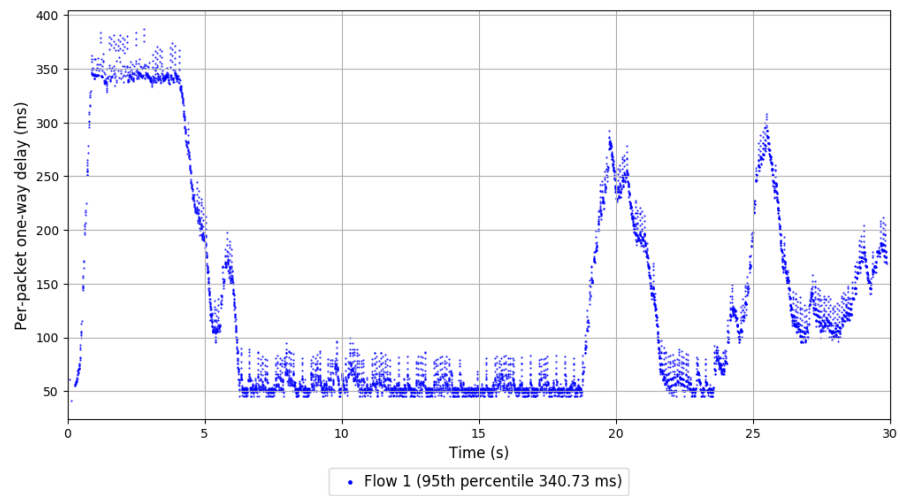
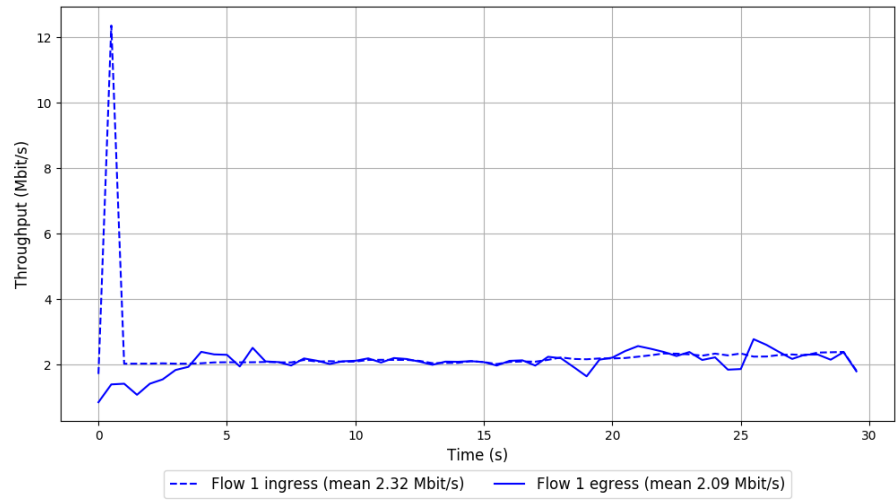


Run 3: Statistics of PCC

Start at: 2018-04-03 00:27:56
End at: 2018-04-03 00:28:26
Local clock offset: -4.057 ms
Remote clock offset: -2.099 ms

Below is generated by plot.py at 2018-04-03 01:35:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.09 Mbit/s
95th percentile per-packet one-way delay: 340.731 ms
Loss rate: 10.27%
-- Flow 1:
Average throughput: 2.09 Mbit/s
95th percentile per-packet one-way delay: 340.731 ms
Loss rate: 10.27%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-04-02 23:53:14

End at: 2018-04-02 23:53:44

Local clock offset: -1.669 ms

Remote clock offset: -2.279 ms

Below is generated by plot.py at 2018-04-03 01:35:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.36 Mbit/s

95th percentile per-packet one-way delay: 344.149 ms

Loss rate: 3.10%

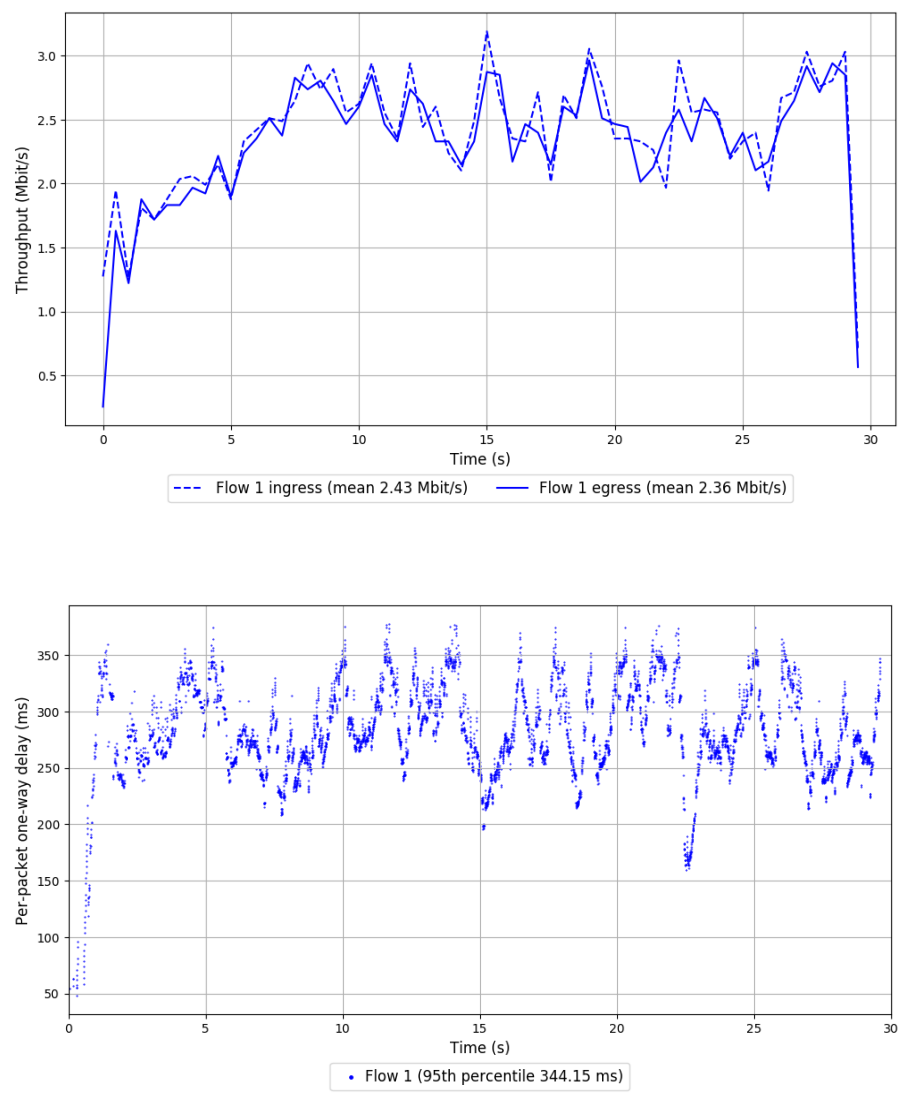
-- Flow 1:

Average throughput: 2.36 Mbit/s

95th percentile per-packet one-way delay: 344.149 ms

Loss rate: 3.10%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-04-03 00:12:45

End at: 2018-04-03 00:13:15

Local clock offset: -1.854 ms

Remote clock offset: -1.025 ms

Below is generated by plot.py at 2018-04-03 01:35:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.52 Mbit/s

95th percentile per-packet one-way delay: 342.800 ms

Loss rate: 3.07%

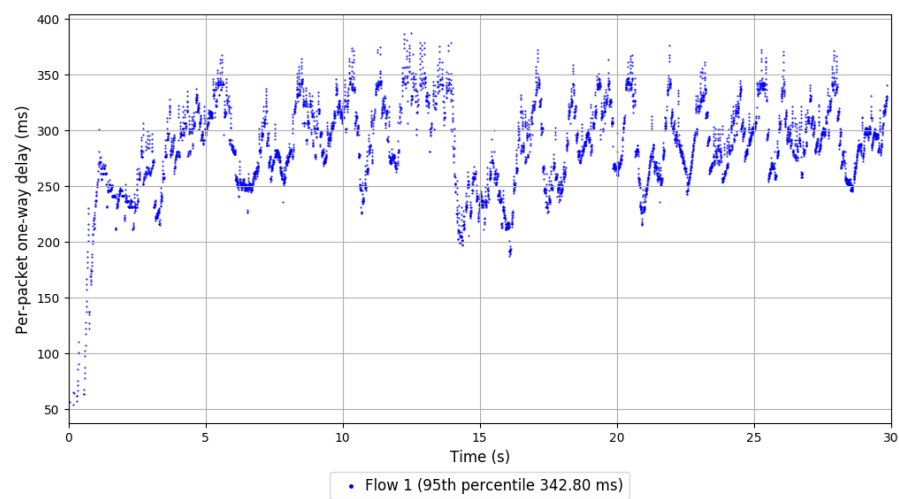
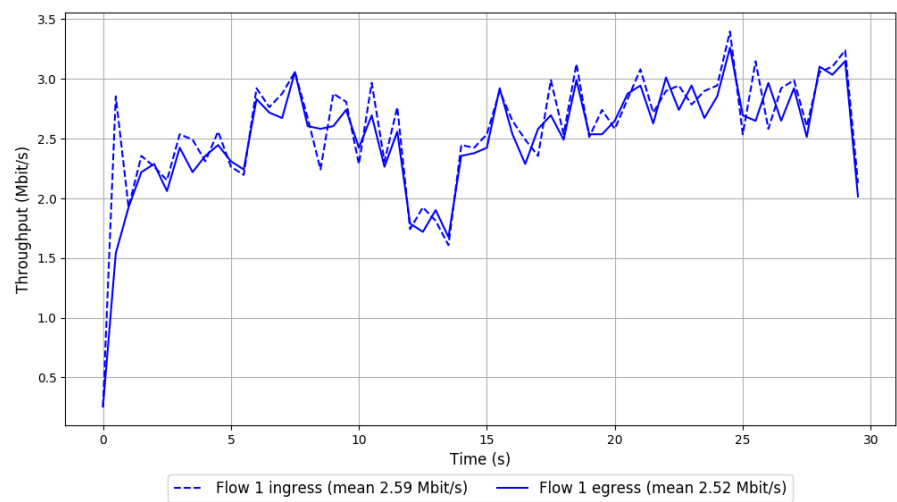
-- Flow 1:

Average throughput: 2.52 Mbit/s

95th percentile per-packet one-way delay: 342.800 ms

Loss rate: 3.07%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-04-03 00:32:16

End at: 2018-04-03 00:32:46

Local clock offset: -1.24 ms

Remote clock offset: -1.738 ms

Below is generated by plot.py at 2018-04-03 01:35:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.40 Mbit/s

95th percentile per-packet one-way delay: 346.975 ms

Loss rate: 2.91%

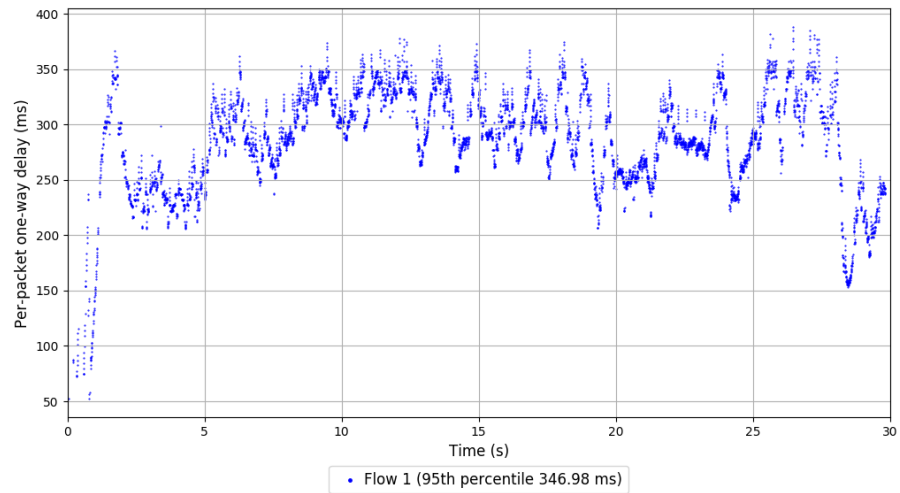
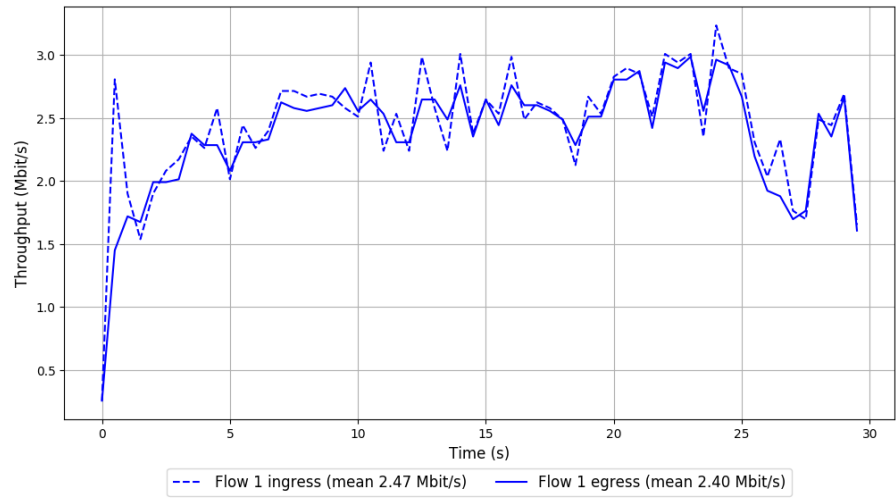
-- Flow 1:

Average throughput: 2.40 Mbit/s

95th percentile per-packet one-way delay: 346.975 ms

Loss rate: 2.91%

Run 3: Report of QUIC Cubic — Data Link

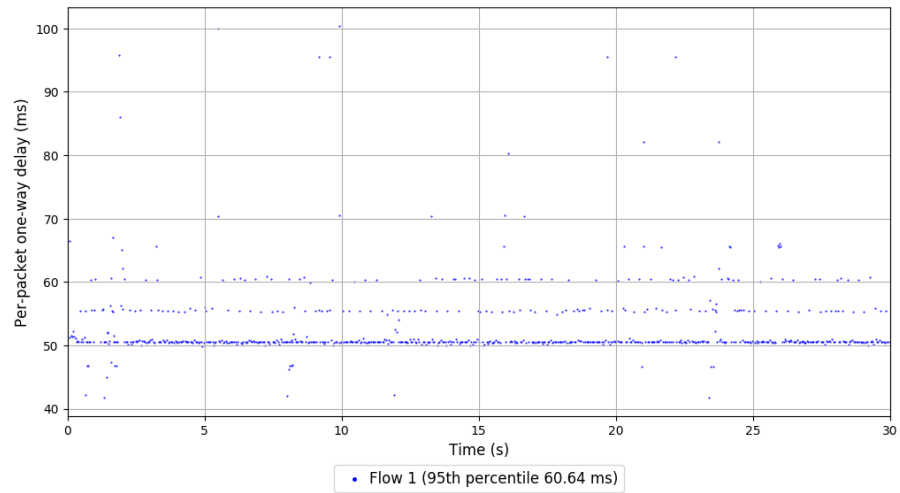
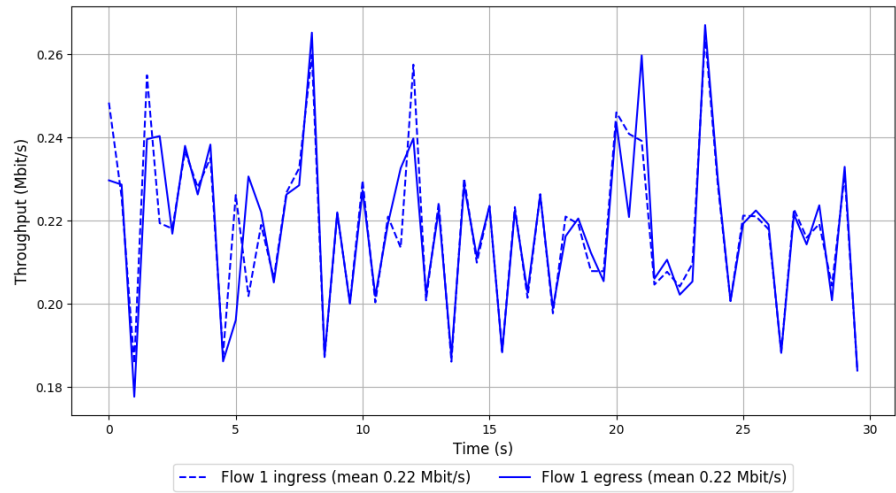


Run 1: Statistics of SCReAM

Start at: 2018-04-02 23:56:29
End at: 2018-04-02 23:56:59
Local clock offset: -2.573 ms
Remote clock offset: -2.581 ms

Below is generated by plot.py at 2018-04-03 01:35:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.636 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.636 ms
Loss rate: 0.13%

Run 1: Report of SReAM — Data Link

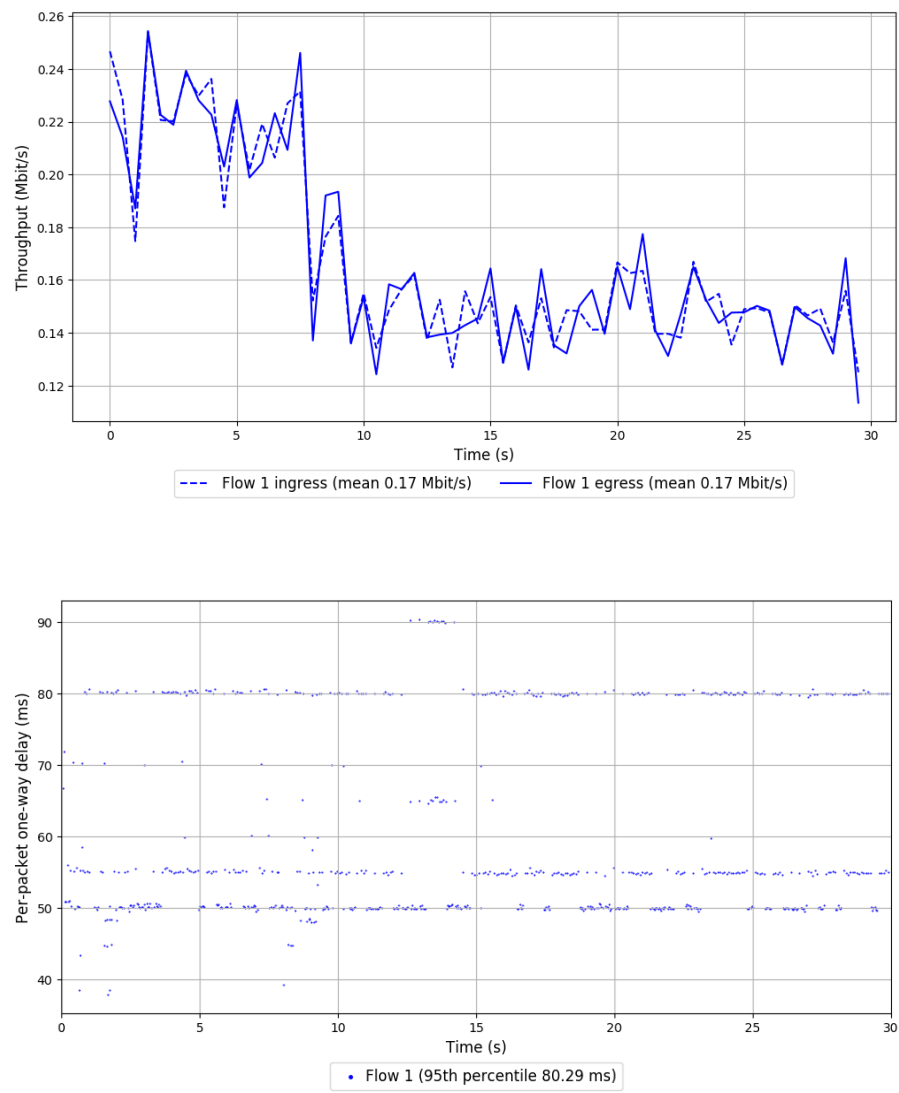


Run 2: Statistics of SCReAM

Start at: 2018-04-03 00:16:00
End at: 2018-04-03 00:16:30
Local clock offset: -4.251 ms
Remote clock offset: -1.903 ms

Below is generated by plot.py at 2018-04-03 01:35:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 80.294 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 80.294 ms
Loss rate: 0.23%

Run 2: Report of SReAM — Data Link

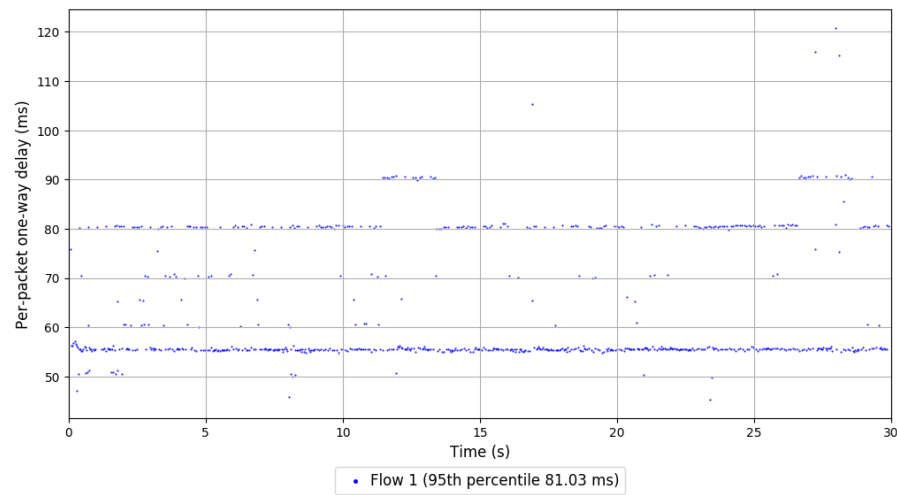
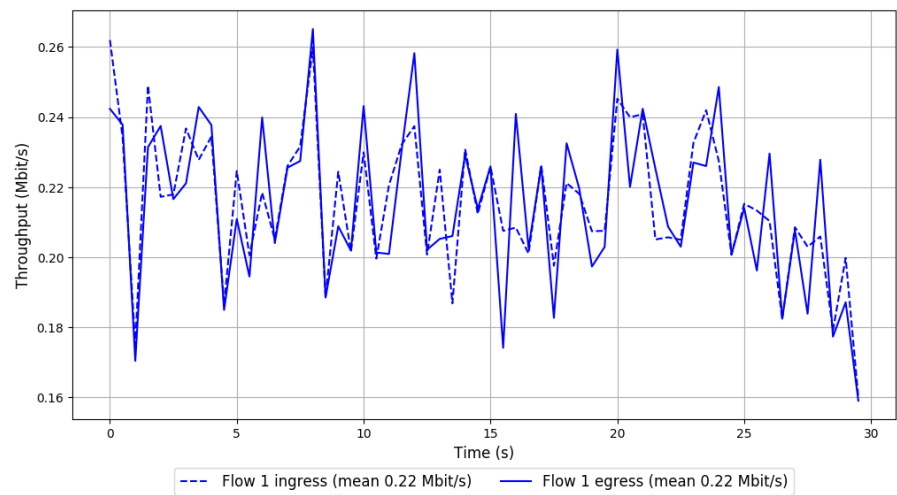


Run 3: Statistics of SCReAM

Start at: 2018-04-03 00:35:31
End at: 2018-04-03 00:36:01
Local clock offset: -2.168 ms
Remote clock offset: -1.671 ms

Below is generated by plot.py at 2018-04-03 01:35:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.032 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.032 ms
Loss rate: 0.23%

Run 3: Report of SReAM — Data Link

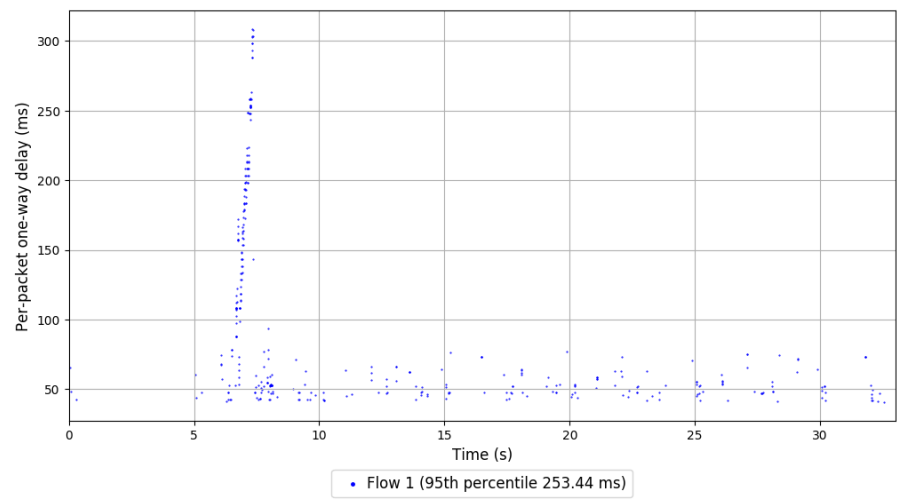
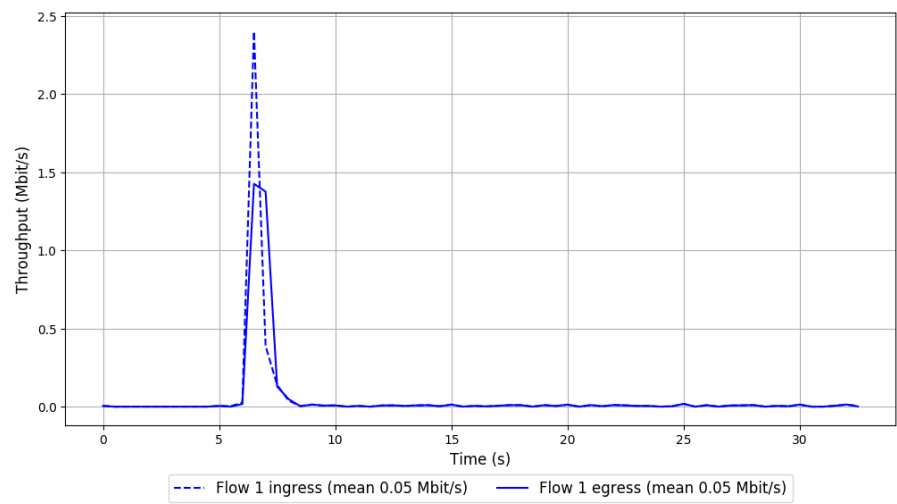


```
Run 1: Statistics of WebRTC media

Start at: 2018-04-02 23:55:24
End at: 2018-04-02 23:55:54
Local clock offset: -1.033 ms
Remote clock offset: -1.565 ms

# Below is generated by plot.py at 2018-04-03 01:35:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 253.439 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 253.439 ms
Loss rate: 0.12%
```


Run 1: Report of WebRTC media — Data Link

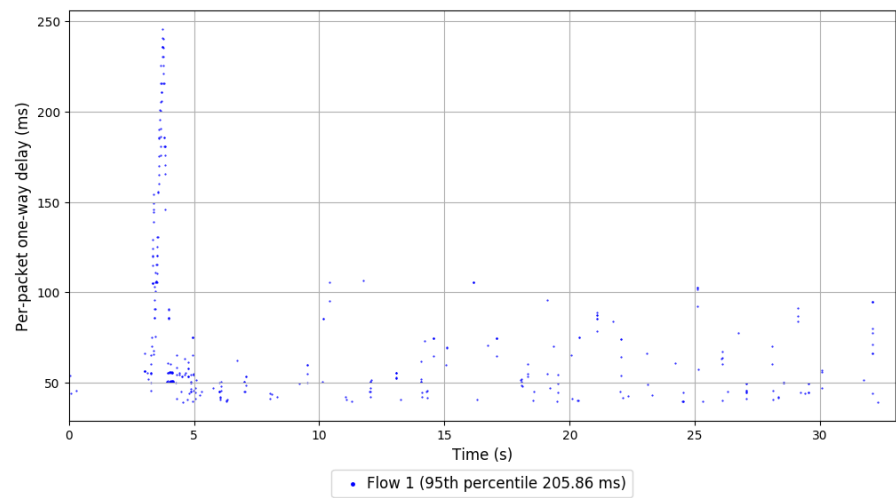
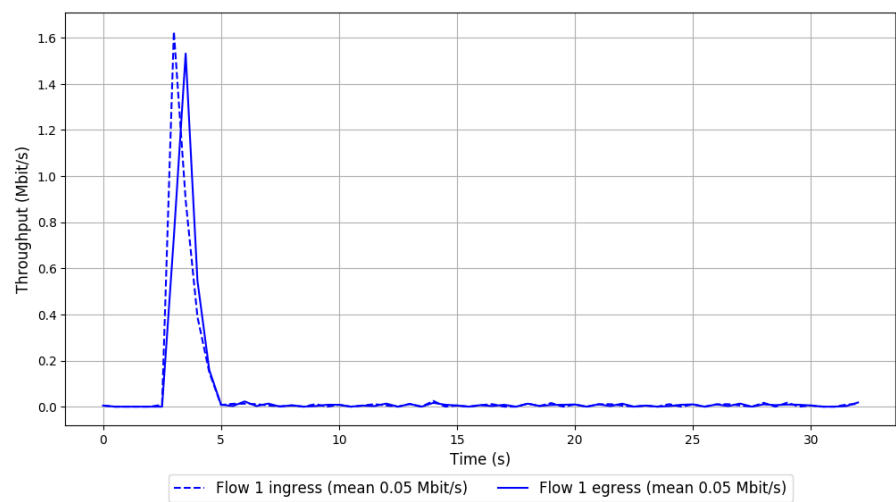


Run 2: Statistics of WebRTC media

Start at: 2018-04-03 00:14:55
End at: 2018-04-03 00:15:25
Local clock offset: -1.689 ms
Remote clock offset: -1.019 ms

Below is generated by plot.py at 2018-04-03 01:35:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 205.856 ms
Loss rate: 2.82%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 205.856 ms
Loss rate: 2.82%

Run 2: Report of WebRTC media — Data Link

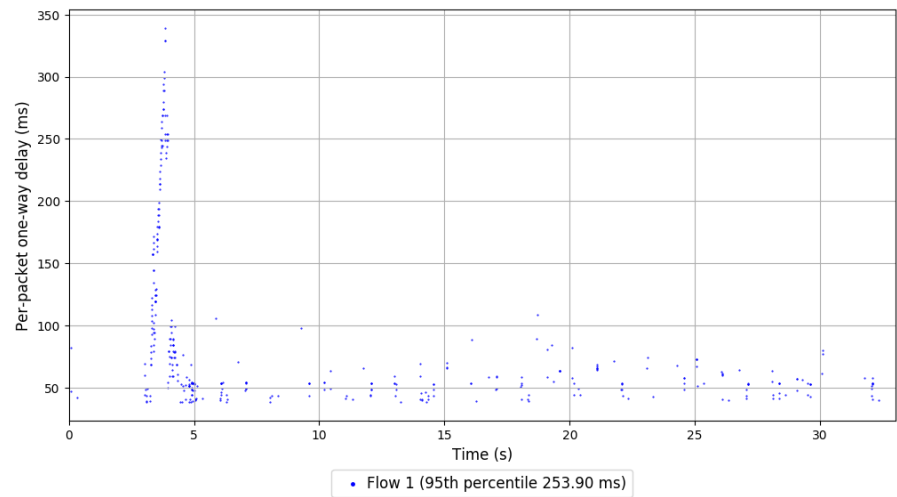
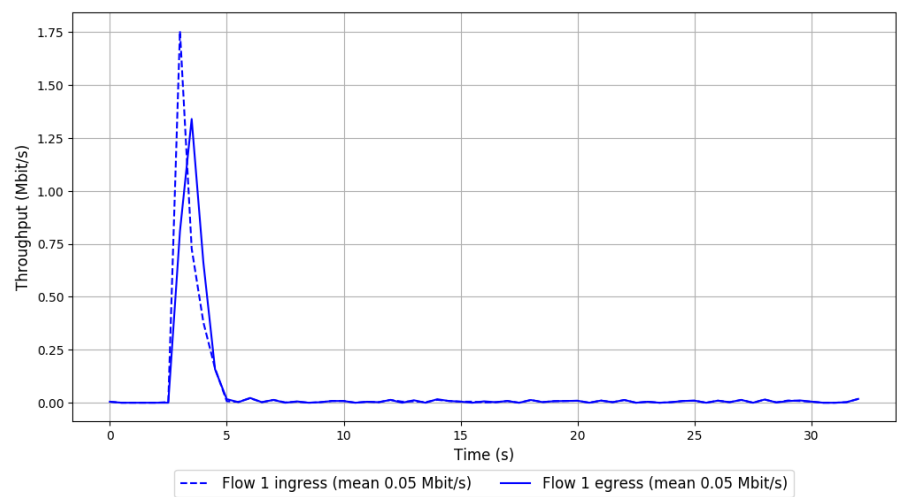


Run 3: Statistics of WebRTC media

Start at: 2018-04-03 00:34:26
End at: 2018-04-03 00:34:56
Local clock offset: -3.386 ms
Remote clock offset: -0.766 ms

Below is generated by plot.py at 2018-04-03 01:35:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 253.898 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 253.898 ms
Loss rate: 1.43%

Run 3: Report of WebRTC media — Data Link

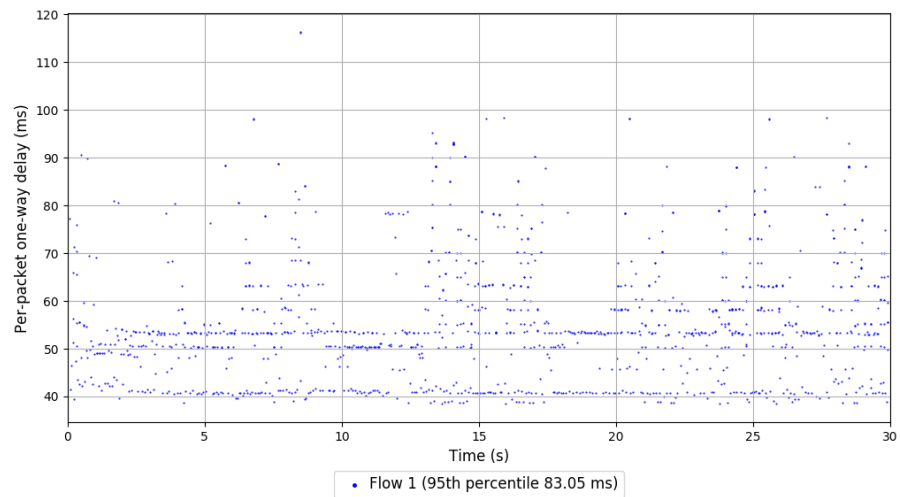
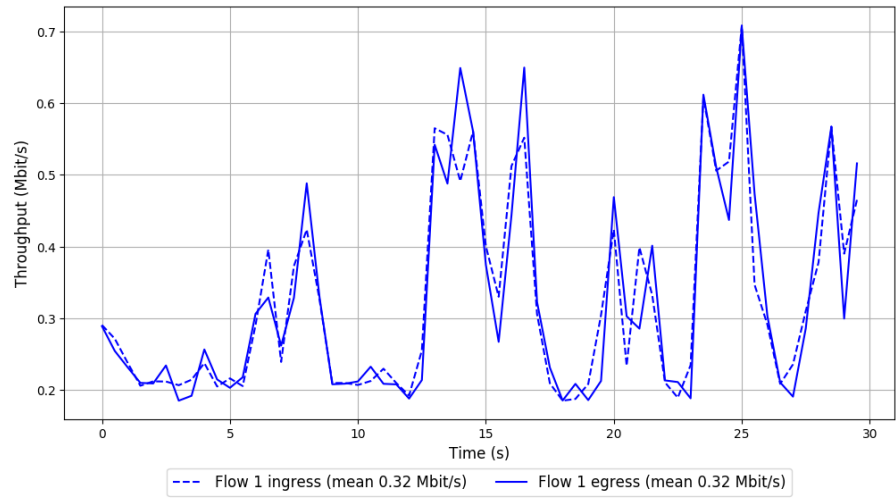


Run 1: Statistics of Sprout

Start at: 2018-04-02 23:41:16
End at: 2018-04-02 23:41:46
Local clock offset: 0.511 ms
Remote clock offset: -1.261 ms

Below is generated by plot.py at 2018-04-03 01:35:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 83.046 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 83.046 ms
Loss rate: 0.21%

Run 1: Report of Sprout — Data Link

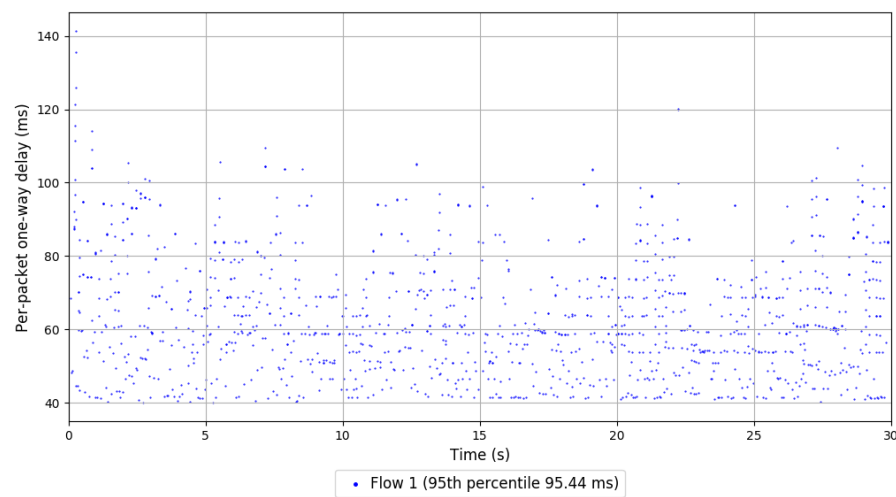
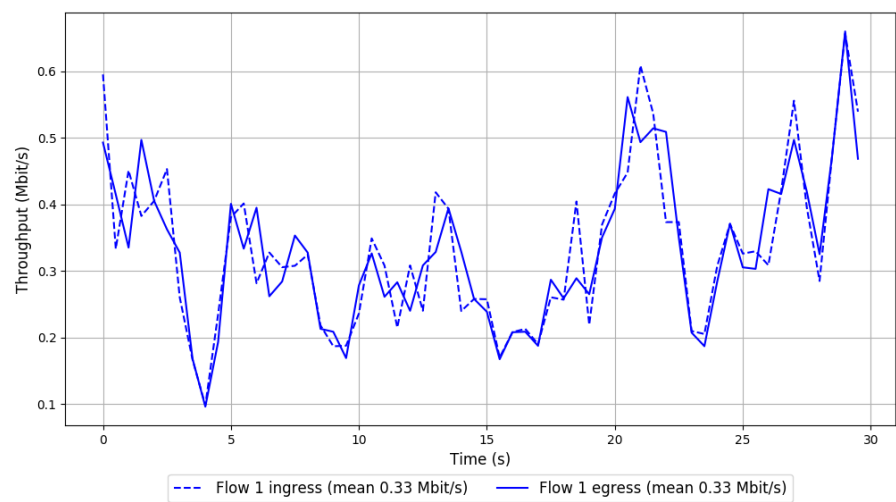


Run 2: Statistics of Sprout

Start at: 2018-04-03 00:00:49
End at: 2018-04-03 00:01:19
Local clock offset: -2.012 ms
Remote clock offset: -1.582 ms

Below is generated by plot.py at 2018-04-03 01:35:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 95.438 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 95.438 ms
Loss rate: 0.46%

Run 2: Report of Sprout — Data Link

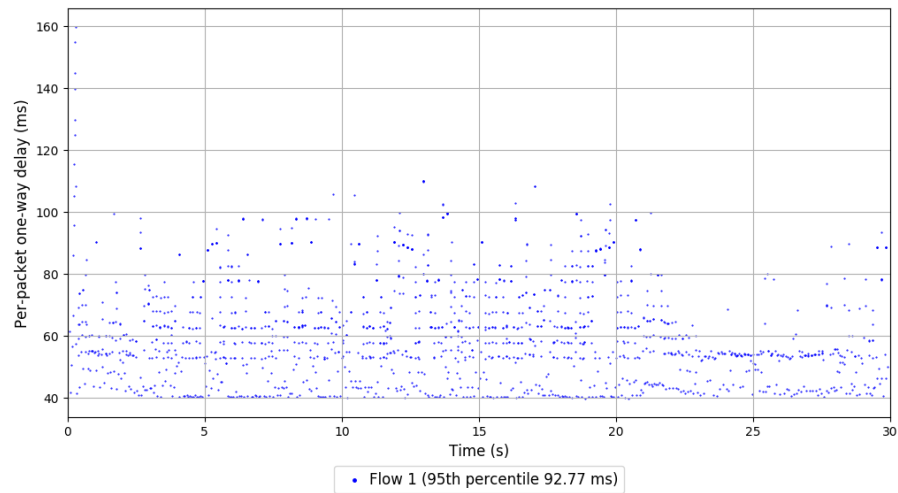
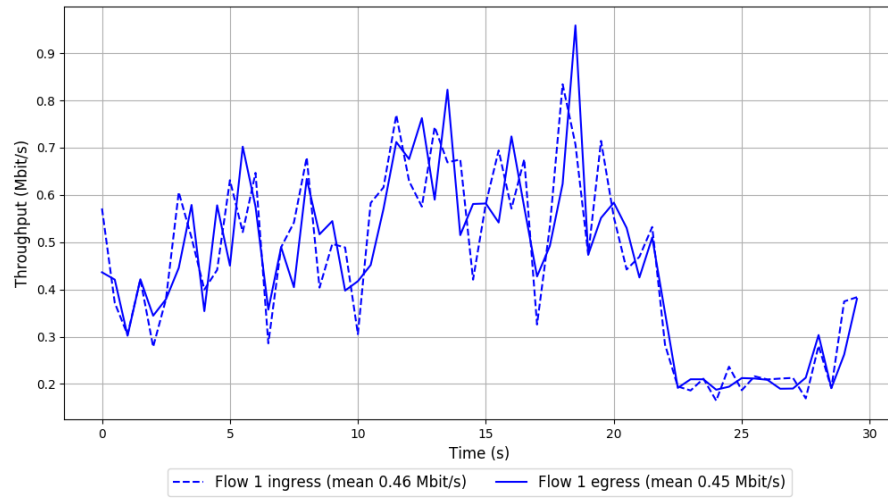


Run 3: Statistics of Sprout

Start at: 2018-04-03 00:20:20
End at: 2018-04-03 00:20:50
Local clock offset: -1.228 ms
Remote clock offset: -2.225 ms

Below is generated by plot.py at 2018-04-03 01:35:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 92.773 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 92.773 ms
Loss rate: 0.51%

Run 3: Report of Sprout — Data Link

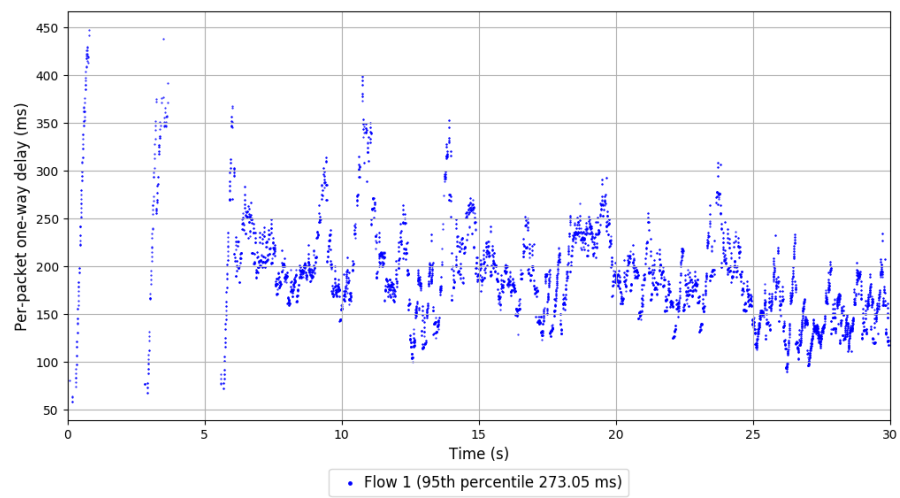
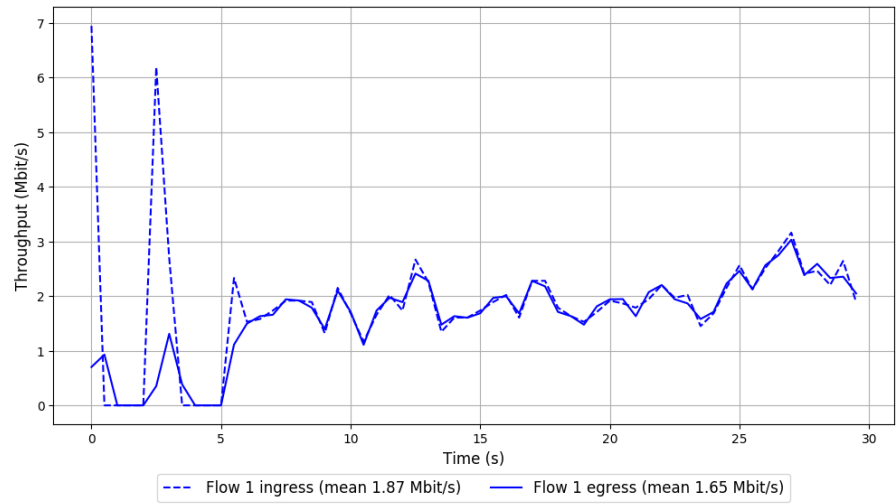


Run 1: Statistics of TaoVA-100x

Start at: 2018-04-02 23:44:31
End at: 2018-04-02 23:45:01
Local clock offset: 1.456 ms
Remote clock offset: -1.913 ms

Below is generated by plot.py at 2018-04-03 01:35:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 273.053 ms
Loss rate: 12.02%
-- Flow 1:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 273.053 ms
Loss rate: 12.02%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-04-03 00:04:04

End at: 2018-04-03 00:04:34

Local clock offset: -2.555 ms

Remote clock offset: -1.343 ms

Below is generated by plot.py at 2018-04-03 01:35:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.14 Mbit/s

95th percentile per-packet one-way delay: 225.814 ms

Loss rate: 5.01%

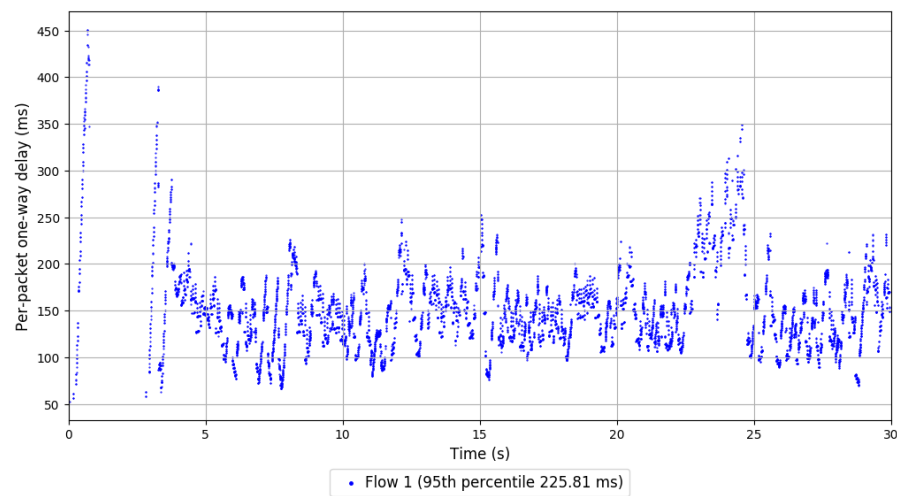
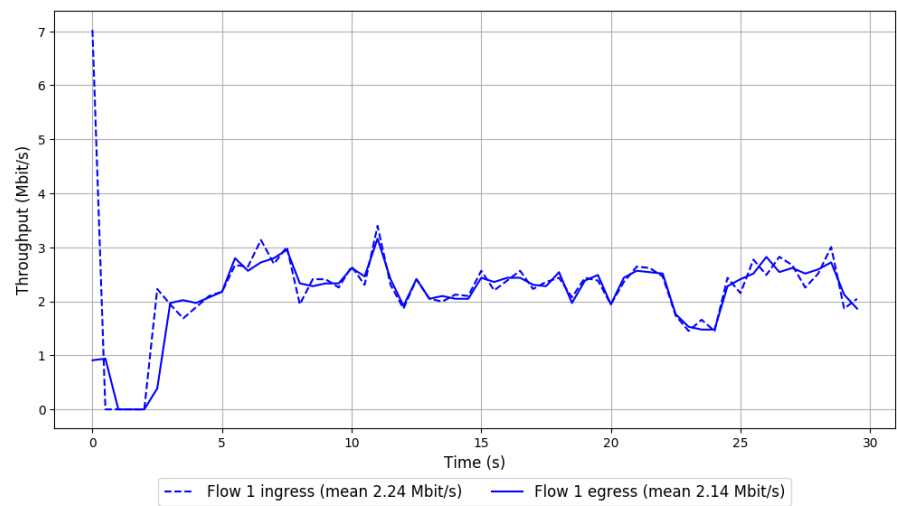
-- Flow 1:

Average throughput: 2.14 Mbit/s

95th percentile per-packet one-way delay: 225.814 ms

Loss rate: 5.01%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-04-03 00:23:35

End at: 2018-04-03 00:24:05

Local clock offset: -2.418 ms

Remote clock offset: -1.95 ms

Below is generated by plot.py at 2018-04-03 01:35:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.50 Mbit/s

95th percentile per-packet one-way delay: 184.264 ms

Loss rate: 1.05%

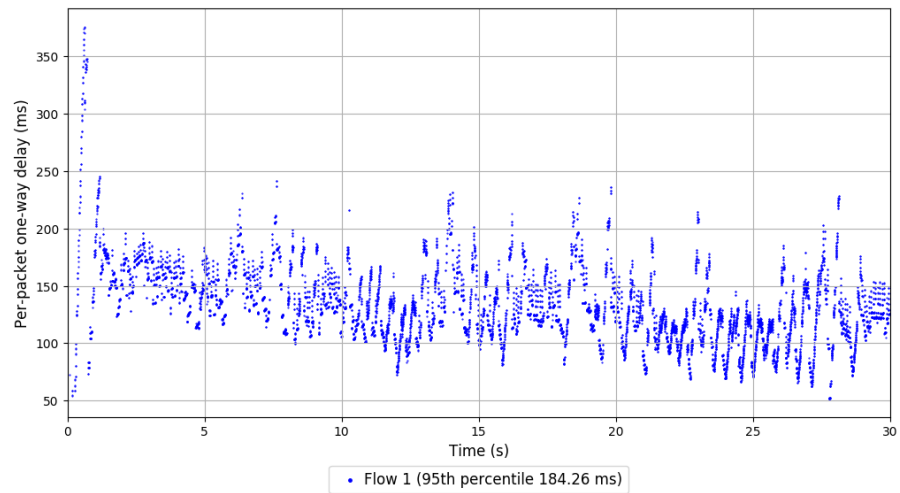
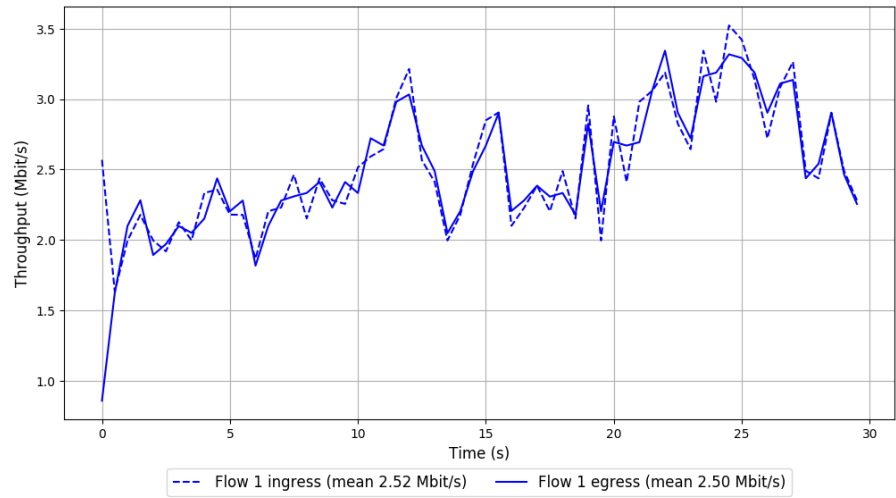
-- Flow 1:

Average throughput: 2.50 Mbit/s

95th percentile per-packet one-way delay: 184.264 ms

Loss rate: 1.05%

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

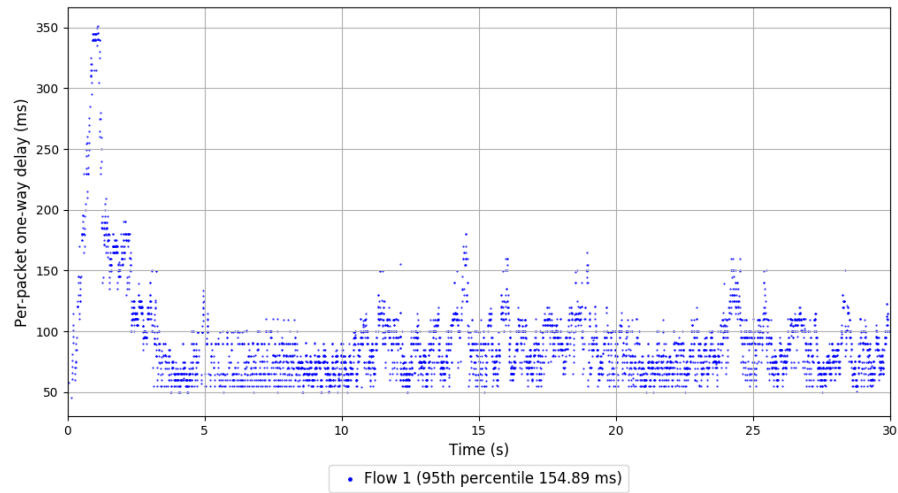
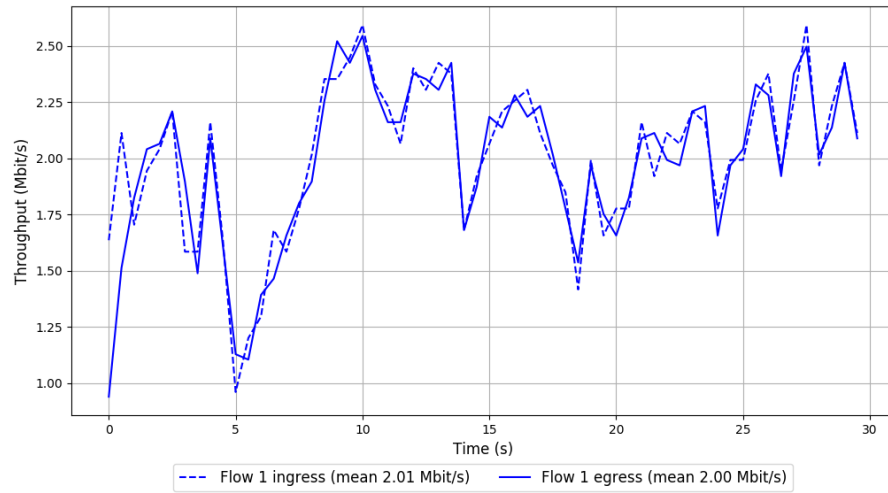


Run 1: Statistics of TCP Vegas

Start at: 2018-04-02 23:45:36
End at: 2018-04-02 23:46:06
Local clock offset: -1.437 ms
Remote clock offset: -1.911 ms

Below is generated by plot.py at 2018-04-03 01:35:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.00 Mbit/s
95th percentile per-packet one-way delay: 154.886 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 2.00 Mbit/s
95th percentile per-packet one-way delay: 154.886 ms
Loss rate: 0.96%

Run 1: Report of TCP Vegas — Data Link

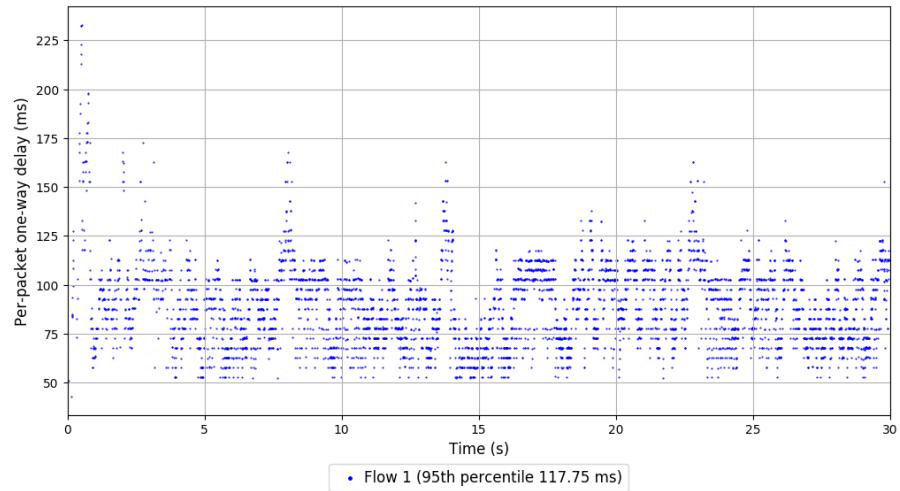
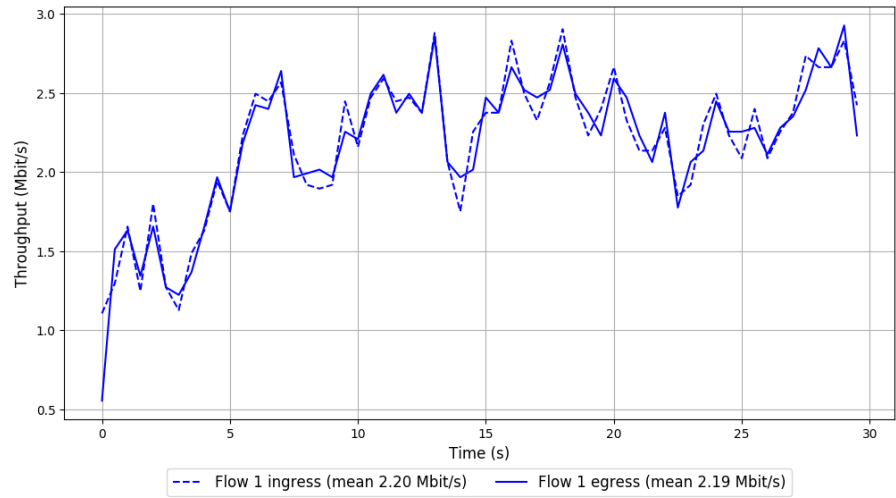


Run 2: Statistics of TCP Vegas

Start at: 2018-04-03 00:05:09
End at: 2018-04-03 00:05:39
Local clock offset: -4.974 ms
Remote clock offset: -1.209 ms

Below is generated by plot.py at 2018-04-03 01:35:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 117.752 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 117.752 ms
Loss rate: 0.51%

Run 2: Report of TCP Vegas — Data Link

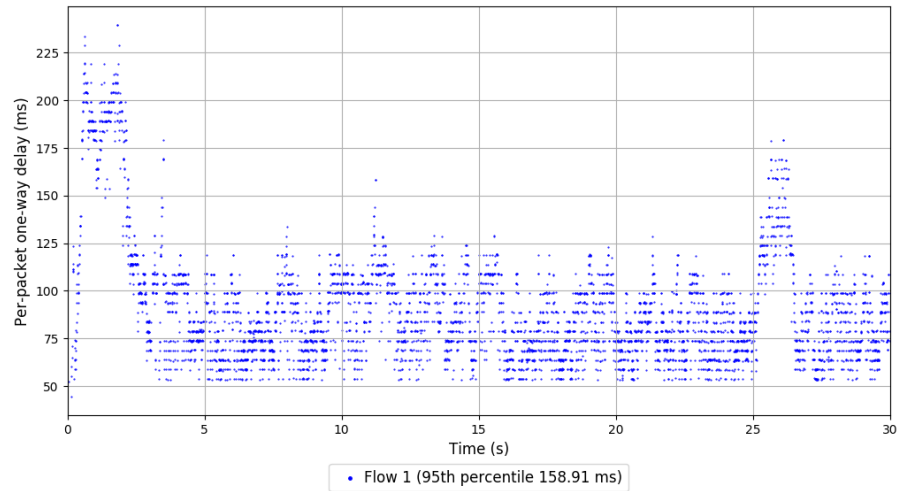
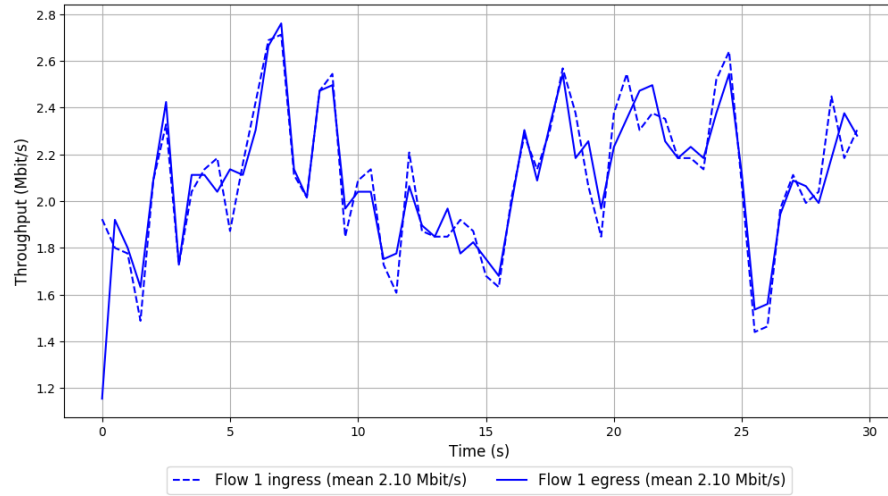


Run 3: Statistics of TCP Vegas

Start at: 2018-04-03 00:24:41
End at: 2018-04-03 00:25:11
Local clock offset: -0.654 ms
Remote clock offset: -1.764 ms

Below is generated by plot.py at 2018-04-03 01:35:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 158.907 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 158.907 ms
Loss rate: 0.30%

Run 3: Report of TCP Vegas — Data Link

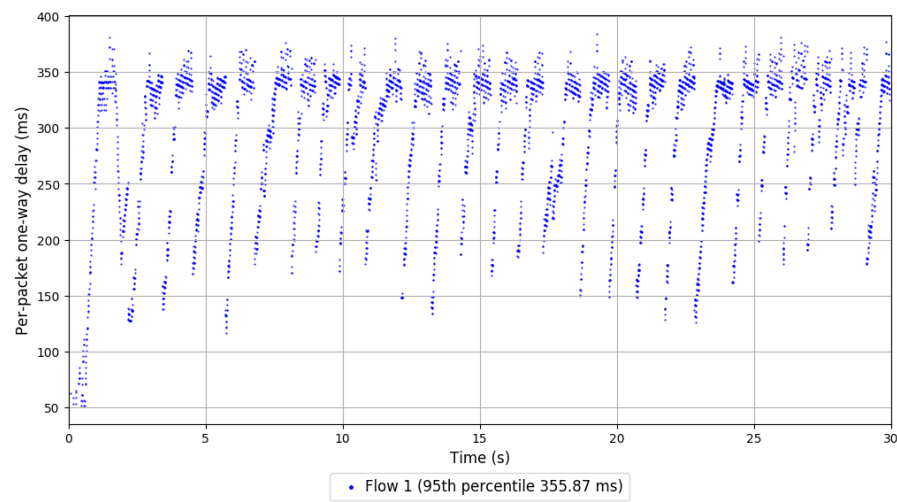
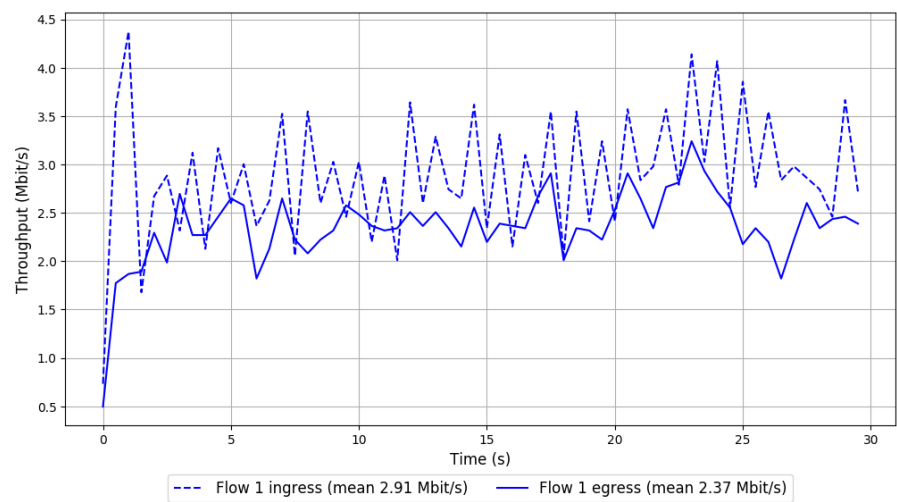


Run 1: Statistics of Verus

Start at: 2018-04-02 23:52:09
End at: 2018-04-02 23:52:39
Local clock offset: -4.736 ms
Remote clock offset: -1.077 ms

Below is generated by plot.py at 2018-04-03 01:35:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 355.872 ms
Loss rate: 18.66%
-- Flow 1:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 355.872 ms
Loss rate: 18.66%

Run 1: Report of Verus — Data Link

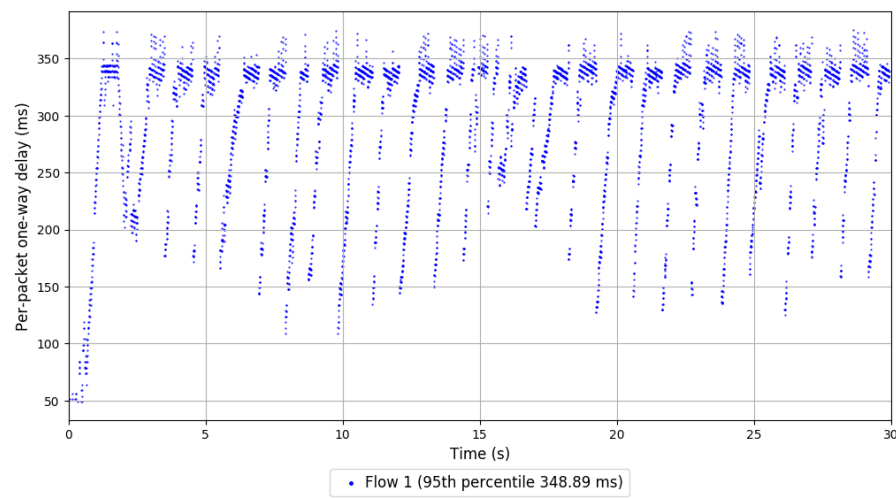
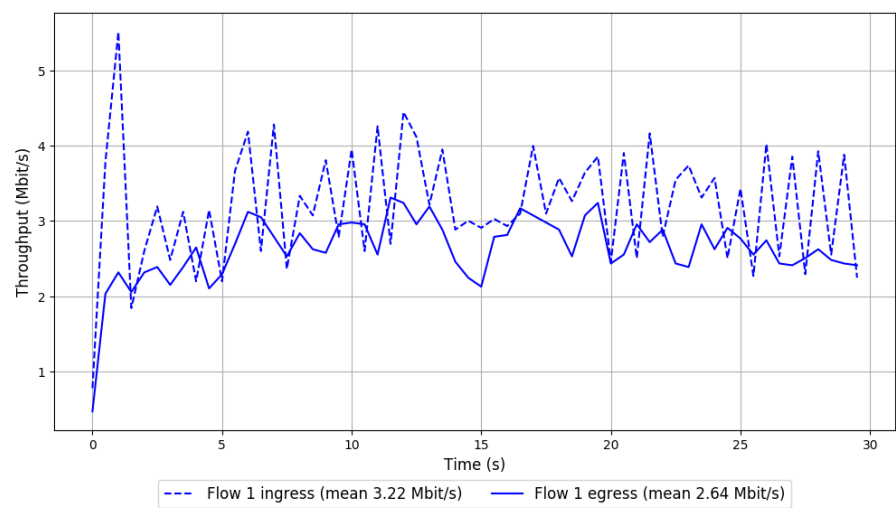


Run 2: Statistics of Verus

Start at: 2018-04-03 00:11:40
End at: 2018-04-03 00:12:10
Local clock offset: -5.568 ms
Remote clock offset: -0.727 ms

Below is generated by plot.py at 2018-04-03 01:35:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.64 Mbit/s
95th percentile per-packet one-way delay: 348.886 ms
Loss rate: 18.09%
-- Flow 1:
Average throughput: 2.64 Mbit/s
95th percentile per-packet one-way delay: 348.886 ms
Loss rate: 18.09%

Run 2: Report of Verus — Data Link

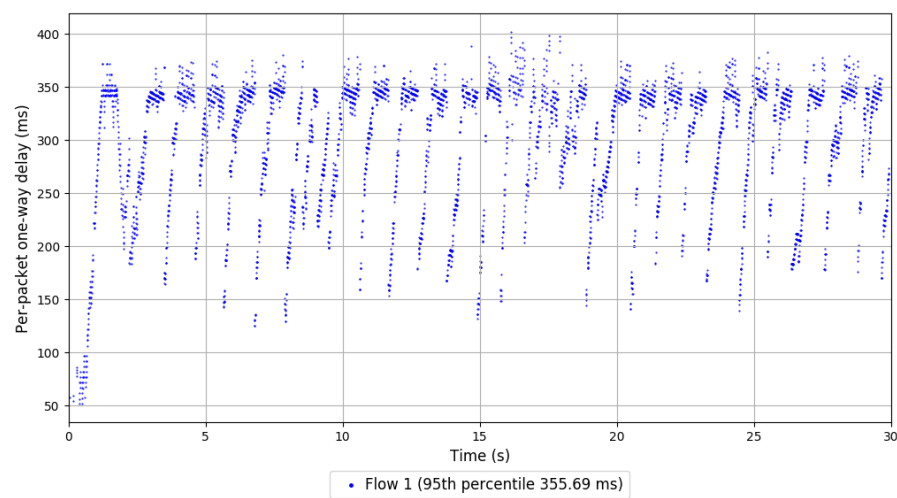
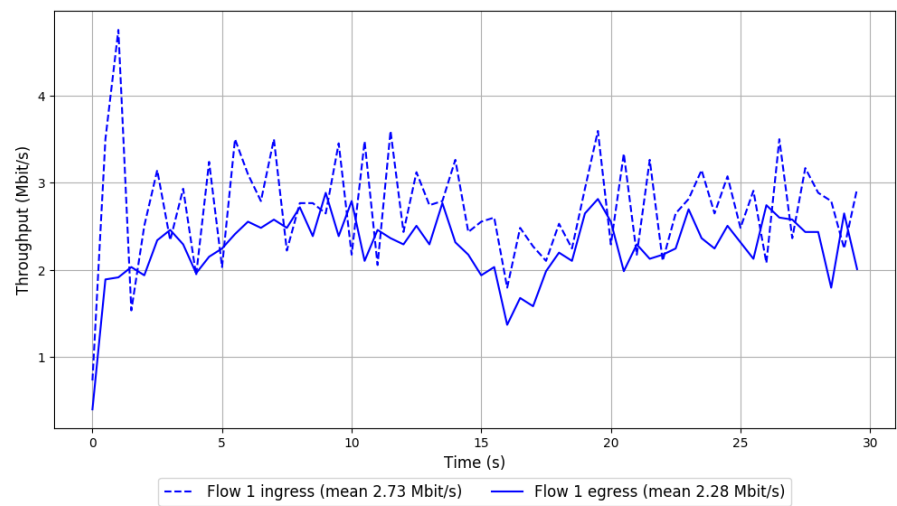


Run 3: Statistics of Verus

Start at: 2018-04-03 00:31:11
End at: 2018-04-03 00:31:41
Local clock offset: -1.155 ms
Remote clock offset: -0.536 ms

Below is generated by plot.py at 2018-04-03 01:35:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 355.689 ms
Loss rate: 16.90%
-- Flow 1:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 355.689 ms
Loss rate: 16.90%

Run 3: Report of Verus — Data Link

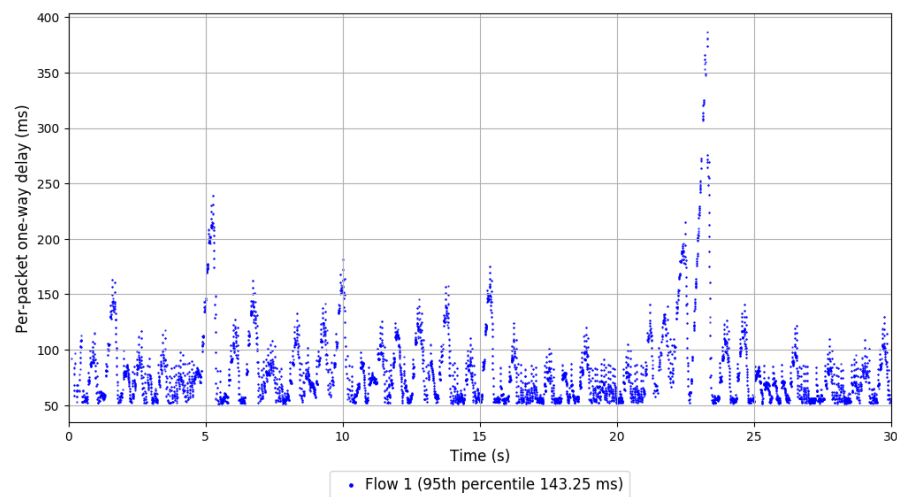
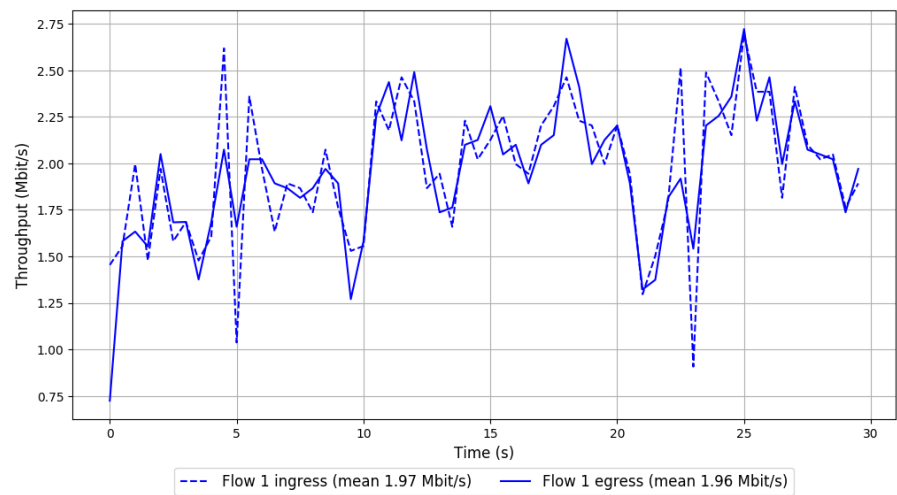


Run 1: Statistics of Copa

Start at: 2018-04-02 23:42:21
End at: 2018-04-02 23:42:51
Local clock offset: 3.155 ms
Remote clock offset: -0.622 ms

Below is generated by plot.py at 2018-04-03 01:35:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 143.245 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 143.245 ms
Loss rate: 0.80%

Run 1: Report of Copa — Data Link

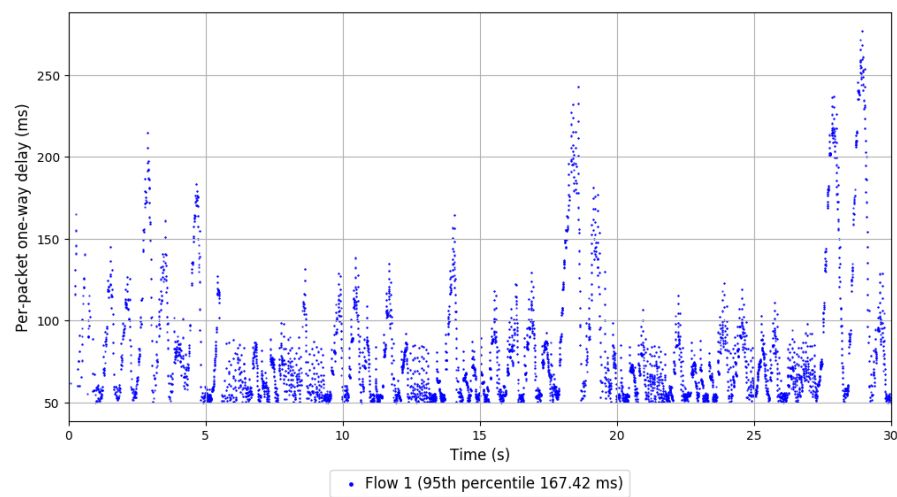
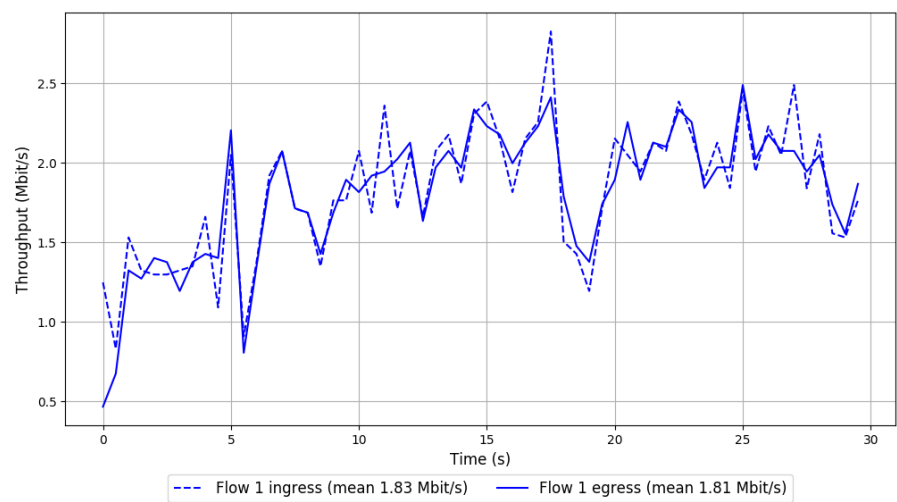


Run 2: Statistics of Copa

Start at: 2018-04-03 00:01:54
End at: 2018-04-03 00:02:24
Local clock offset: -2.761 ms
Remote clock offset: -1.556 ms

Below is generated by plot.py at 2018-04-03 01:35:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 167.421 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 167.421 ms
Loss rate: 1.07%

Run 2: Report of Copa — Data Link

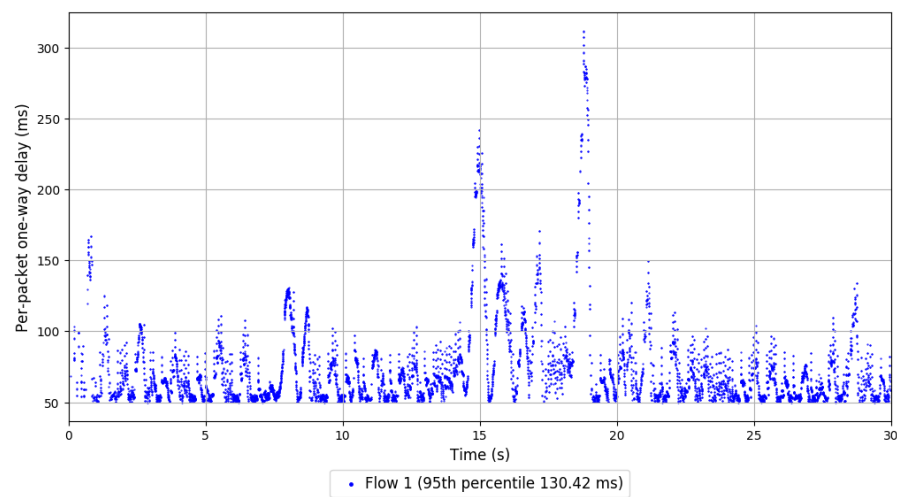
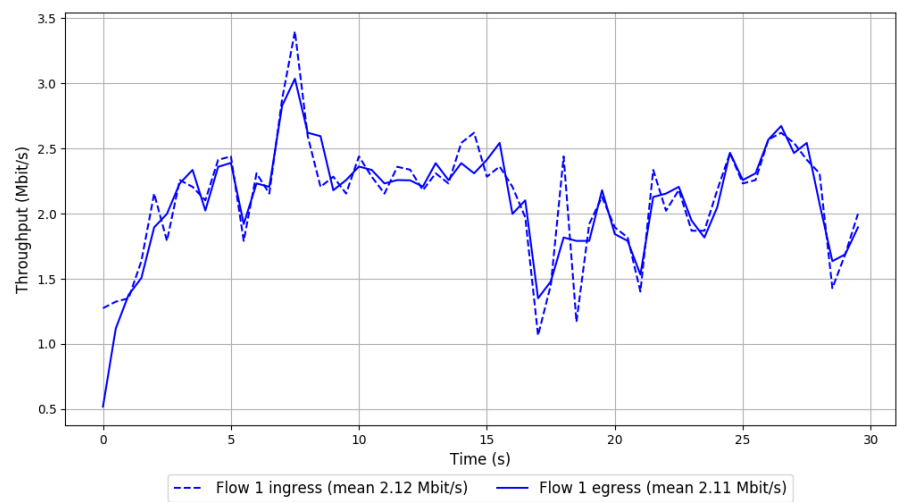


Run 3: Statistics of Copa

Start at: 2018-04-03 00:21:25
End at: 2018-04-03 00:21:55
Local clock offset: -0.612 ms
Remote clock offset: -0.856 ms

Below is generated by plot.py at 2018-04-03 01:35:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 130.420 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 130.420 ms
Loss rate: 0.90%

Run 3: Report of Copa — Data Link

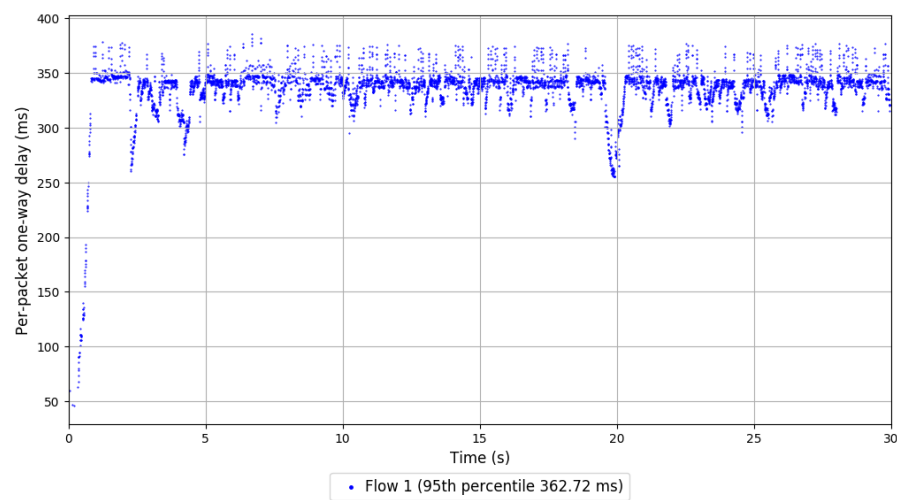
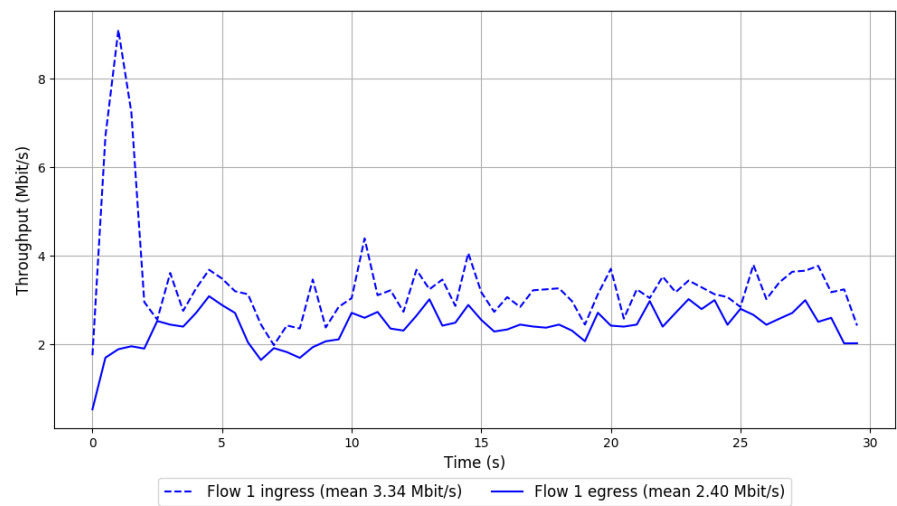


Run 1: Statistics of FillP

Start at: 2018-04-02 23:39:06
End at: 2018-04-02 23:39:36
Local clock offset: 2.079 ms
Remote clock offset: -0.561 ms

Below is generated by plot.py at 2018-04-03 01:35:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 362.720 ms
Loss rate: 28.22%
-- Flow 1:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 362.720 ms
Loss rate: 28.22%

Run 1: Report of FillP — Data Link

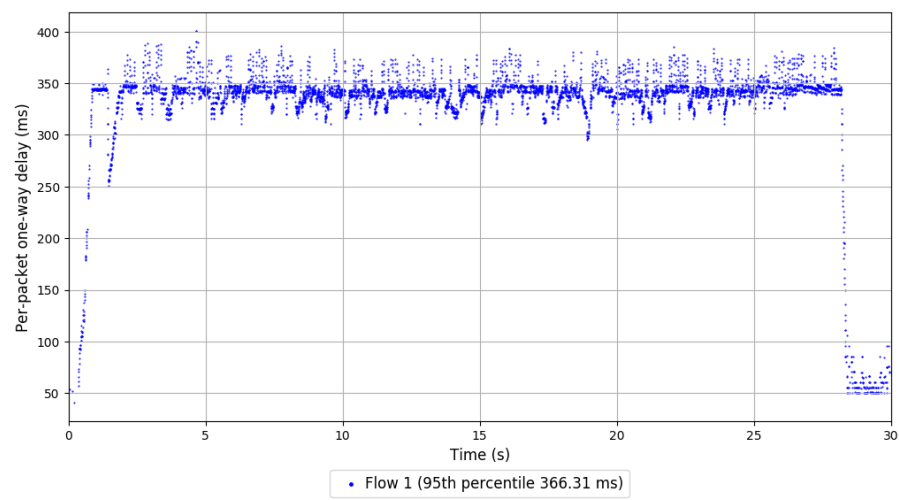
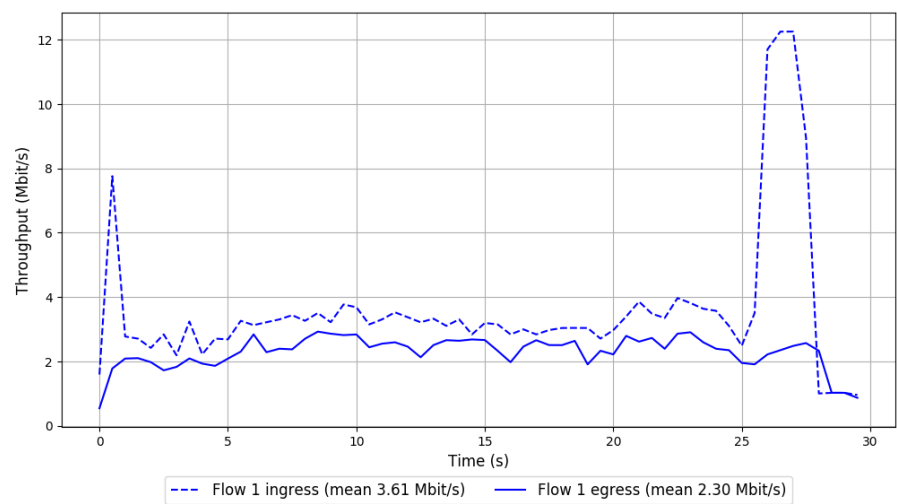


Run 2: Statistics of FillP

Start at: 2018-04-02 23:58:39
End at: 2018-04-02 23:59:09
Local clock offset: -2.185 ms
Remote clock offset: -1.235 ms

Below is generated by plot.py at 2018-04-03 01:35:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 366.308 ms
Loss rate: 36.38%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 366.308 ms
Loss rate: 36.38%

Run 2: Report of FillP — Data Link

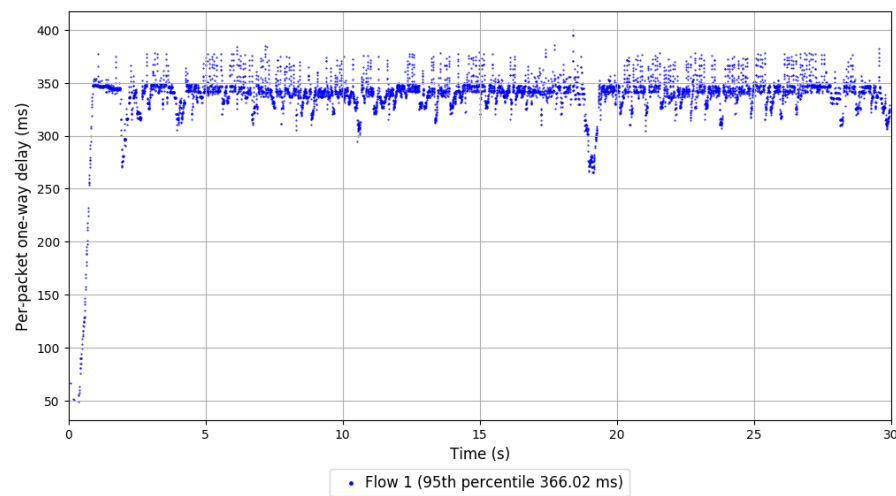
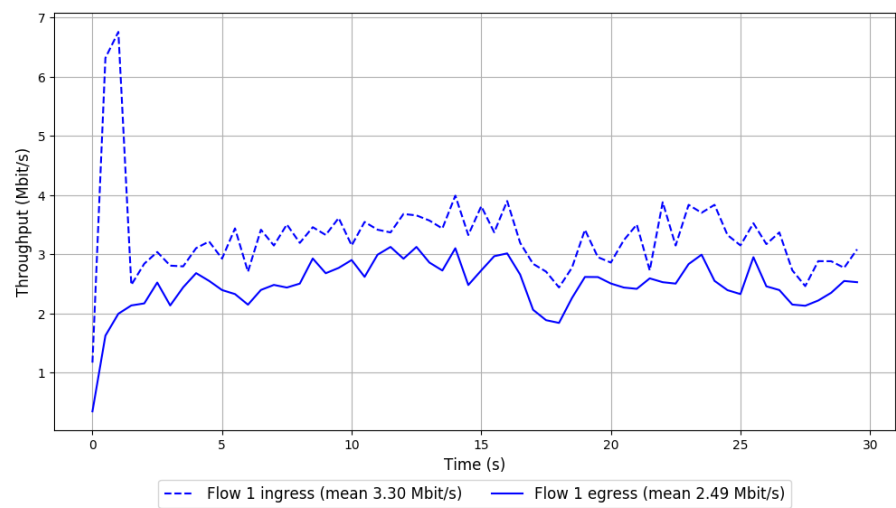


Run 3: Statistics of FillP

Start at: 2018-04-03 00:18:10
End at: 2018-04-03 00:18:40
Local clock offset: -0.419 ms
Remote clock offset: -1.055 ms

Below is generated by plot.py at 2018-04-03 01:35:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 366.016 ms
Loss rate: 24.72%
-- Flow 1:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 366.016 ms
Loss rate: 24.72%

Run 3: Report of FillP — Data Link

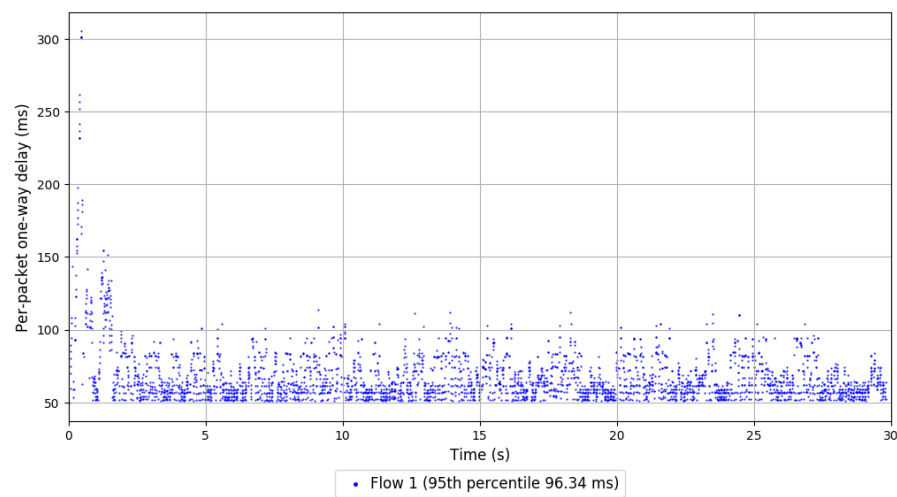
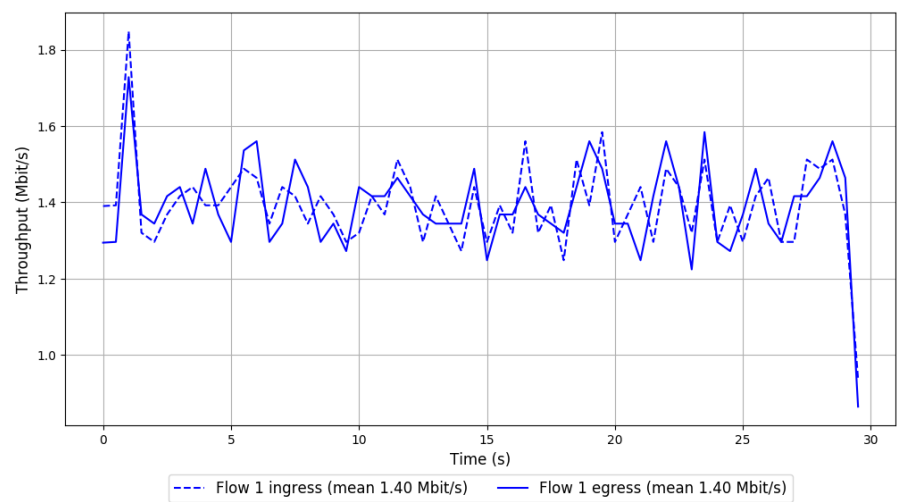


```
Run 1: Statistics of Indigo-1-32

Start at: 2018-04-02 23:47:47
End at: 2018-04-02 23:48:17
Local clock offset: -1.498 ms
Remote clock offset: -1.192 ms

# Below is generated by plot.py at 2018-04-03 01:35:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 96.342 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 96.342 ms
Loss rate: 0.20%
```

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



Run 2: Statistics of Indigo-1-32

Start at: 2018-04-03 00:07:19

End at: 2018-04-03 00:07:49

Local clock offset: -4.047 ms

Remote clock offset: -2.113 ms

Below is generated by plot.py at 2018-04-03 01:35:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.35 Mbit/s

95th percentile per-packet one-way delay: 98.756 ms

Loss rate: 0.83%

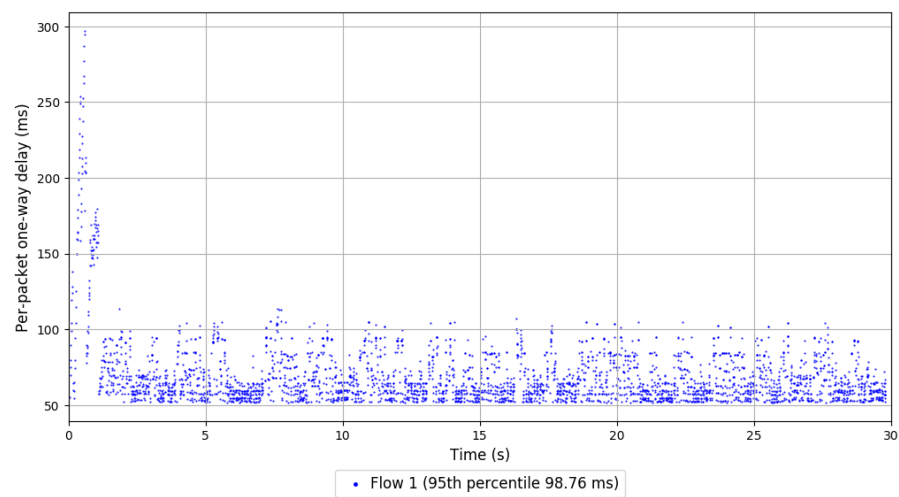
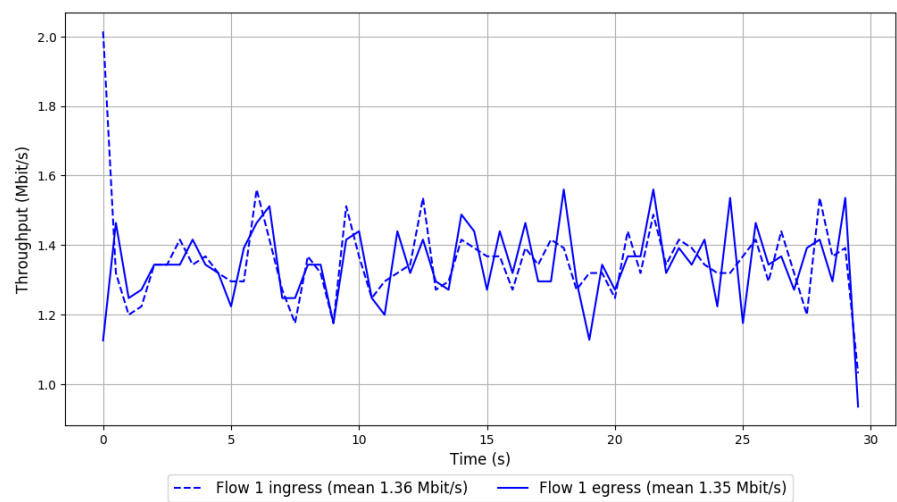
-- Flow 1:

Average throughput: 1.35 Mbit/s

95th percentile per-packet one-way delay: 98.756 ms

Loss rate: 0.83%

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

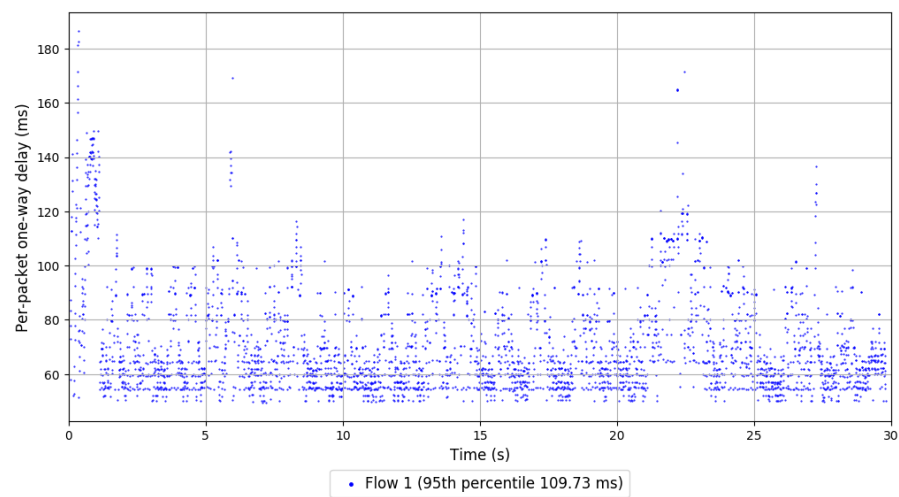
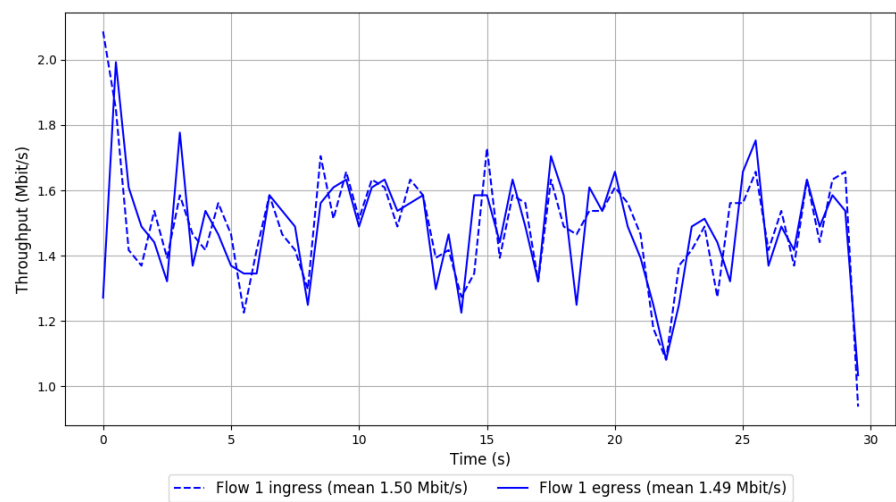


Run 3: Statistics of Indigo-1-32

Start at: 2018-04-03 00:26:51
End at: 2018-04-03 00:27:21
Local clock offset: -2.31 ms
Remote clock offset: -1.988 ms

Below is generated by plot.py at 2018-04-03 01:35:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 109.734 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 109.734 ms
Loss rate: 0.48%

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

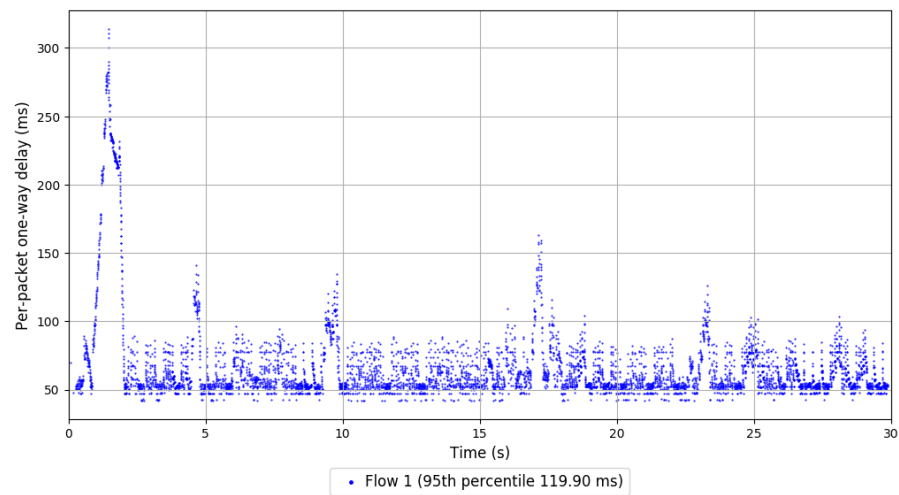
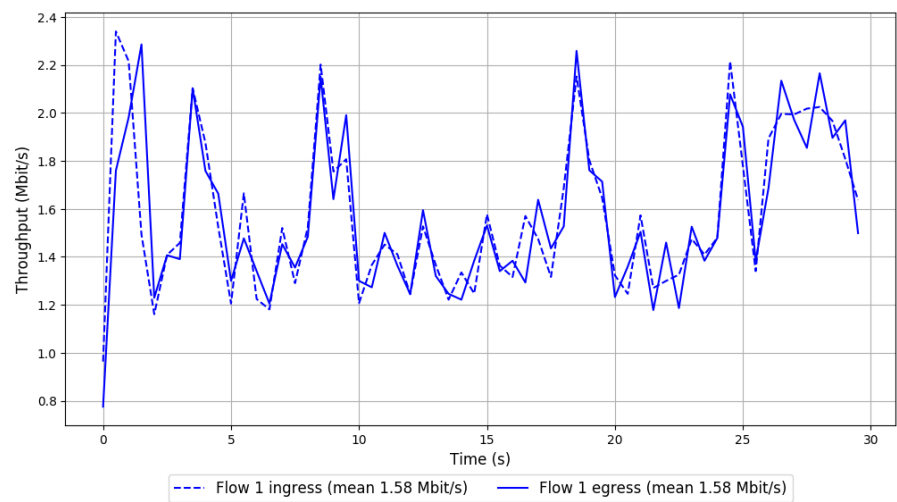


Run 1: Statistics of Vivace-latency

Start at: 2018-04-02 23:40:11
End at: 2018-04-02 23:40:41
Local clock offset: 2.595 ms
Remote clock offset: -0.808 ms

Below is generated by plot.py at 2018-04-03 01:35:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 119.896 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 119.896 ms
Loss rate: 0.32%

Run 1: Report of Vivace-latency — Data Link

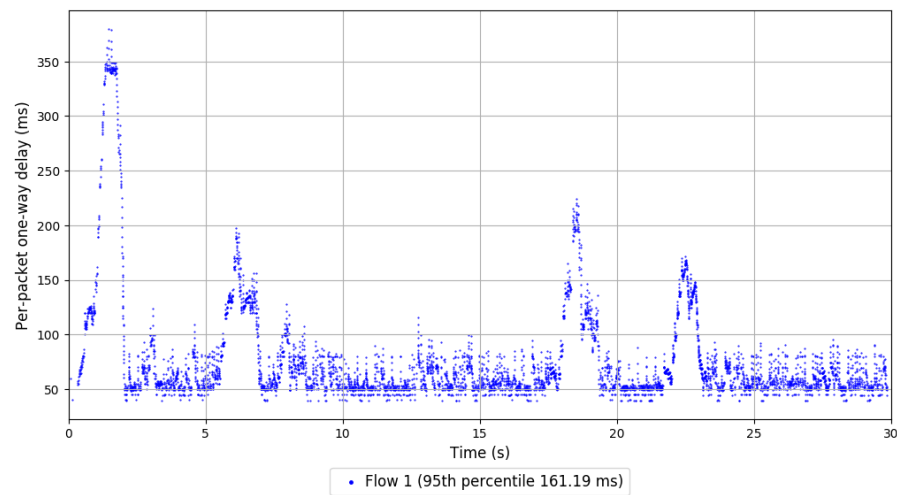
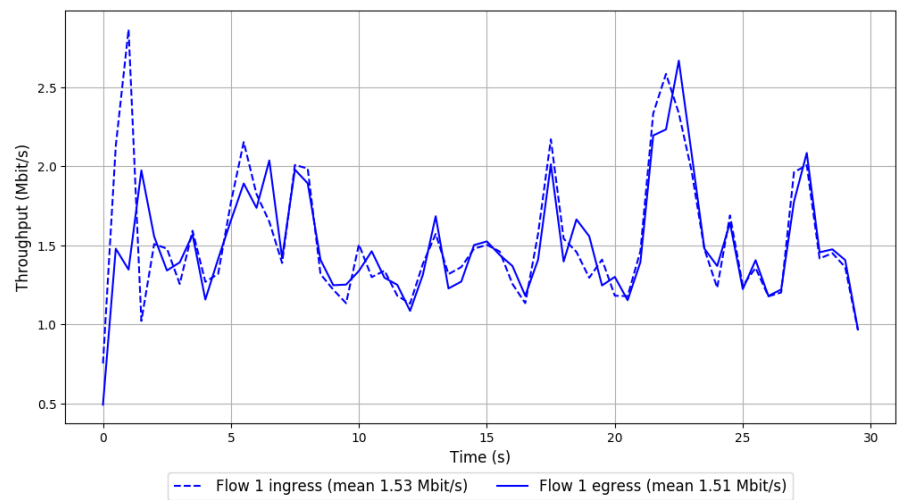


Run 2: Statistics of Vivace-latency

Start at: 2018-04-02 23:59:44
End at: 2018-04-03 00:00:14
Local clock offset: -3.9 ms
Remote clock offset: -1.627 ms

Below is generated by plot.py at 2018-04-03 01:35:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 161.186 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 161.186 ms
Loss rate: 1.56%

Run 2: Report of Vivace-latency — Data Link

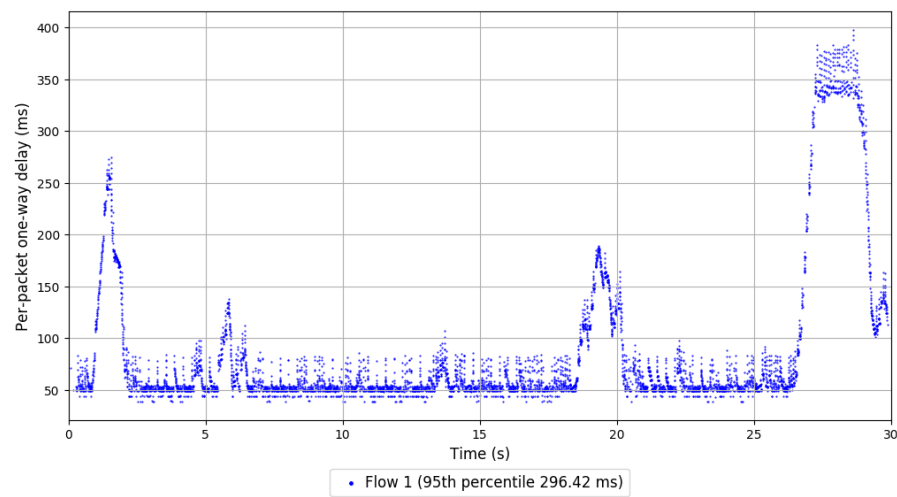
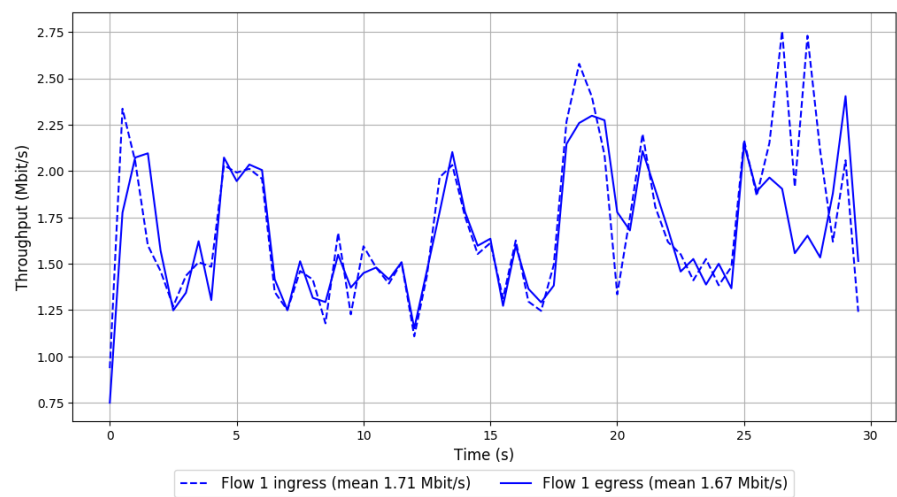


Run 3: Statistics of Vivace-latency

Start at: 2018-04-03 00:19:15
End at: 2018-04-03 00:19:45
Local clock offset: -2.073 ms
Remote clock offset: -0.965 ms

Below is generated by plot.py at 2018-04-03 01:35:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 296.422 ms
Loss rate: 2.35%
-- Flow 1:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 296.422 ms
Loss rate: 2.35%

Run 3: Report of Vivace-latency — Data Link

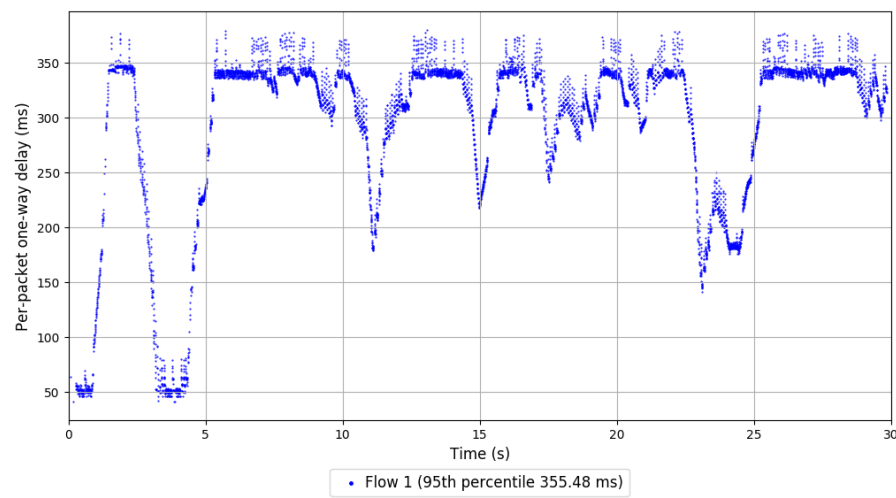
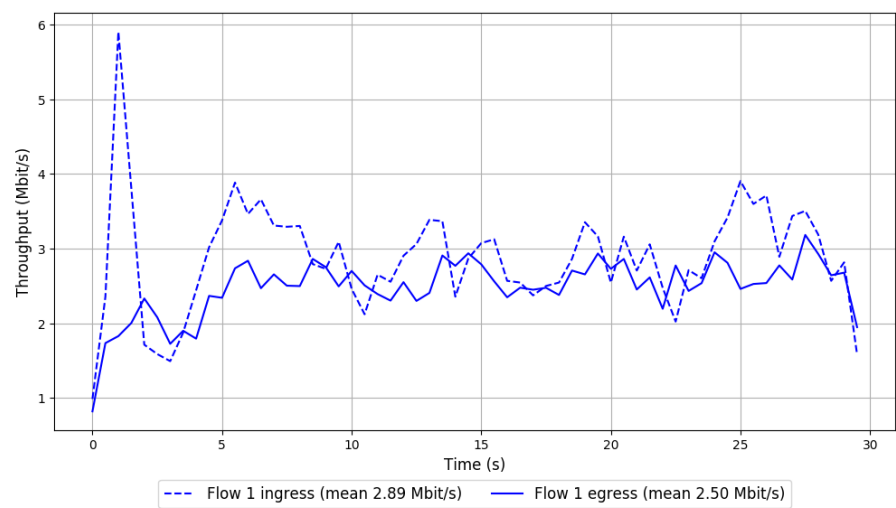


Run 1: Statistics of Vivace-loss

Start at: 2018-04-02 23:54:19
End at: 2018-04-02 23:54:49
Local clock offset: -4.395 ms
Remote clock offset: -1.653 ms

Below is generated by plot.py at 2018-04-03 01:35:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 355.480 ms
Loss rate: 13.88%
-- Flow 1:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 355.480 ms
Loss rate: 13.88%

Run 1: Report of Vivace-loss — Data Link

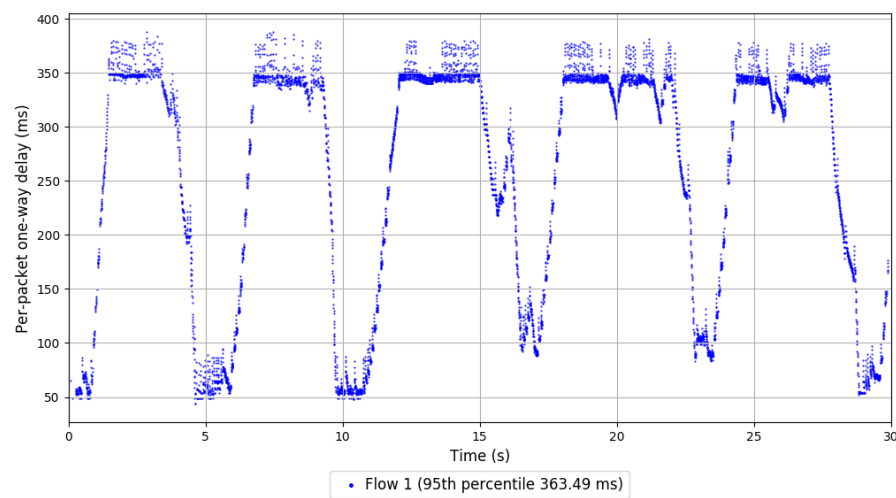
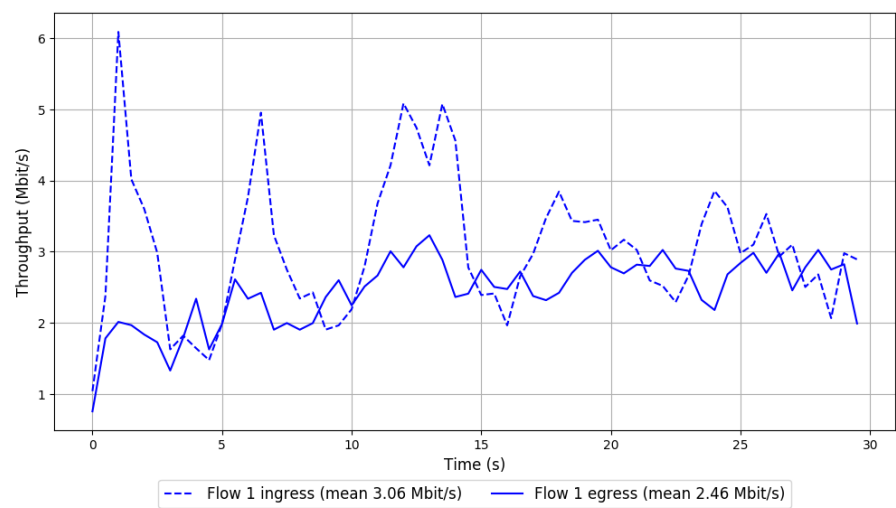


Run 2: Statistics of Vivace-loss

Start at: 2018-04-03 00:13:50
End at: 2018-04-03 00:14:20
Local clock offset: -0.892 ms
Remote clock offset: -2.424 ms

Below is generated by plot.py at 2018-04-03 01:35:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 363.493 ms
Loss rate: 19.89%
-- Flow 1:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 363.493 ms
Loss rate: 19.89%

Run 2: Report of Vivace-loss — Data Link

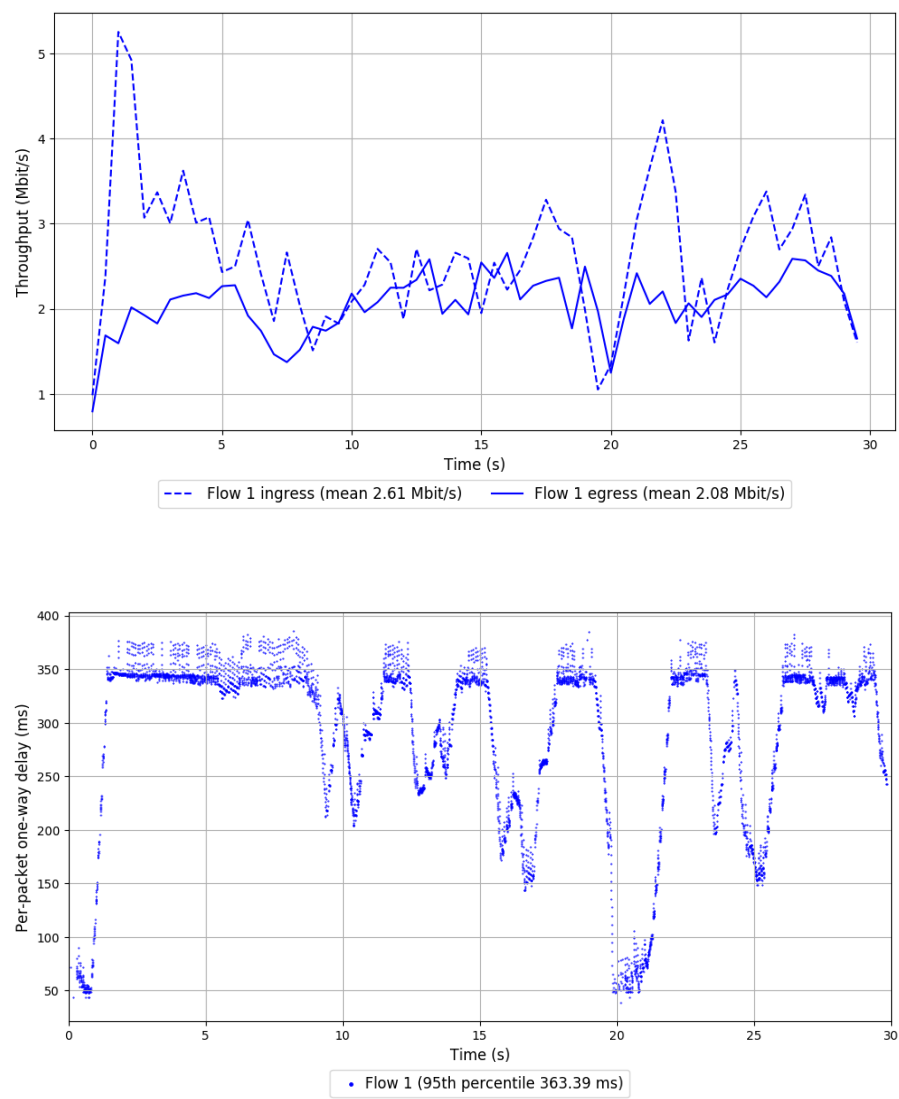


Run 3: Statistics of Vivace-loss

Start at: 2018-04-03 00:33:21
End at: 2018-04-03 00:33:51
Local clock offset: -4.543 ms
Remote clock offset: -1.132 ms

Below is generated by plot.py at 2018-04-03 01:35:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 363.394 ms
Loss rate: 20.62%
-- Flow 1:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 363.394 ms
Loss rate: 20.62%

Run 3: Report of Vivace-loss — Data Link

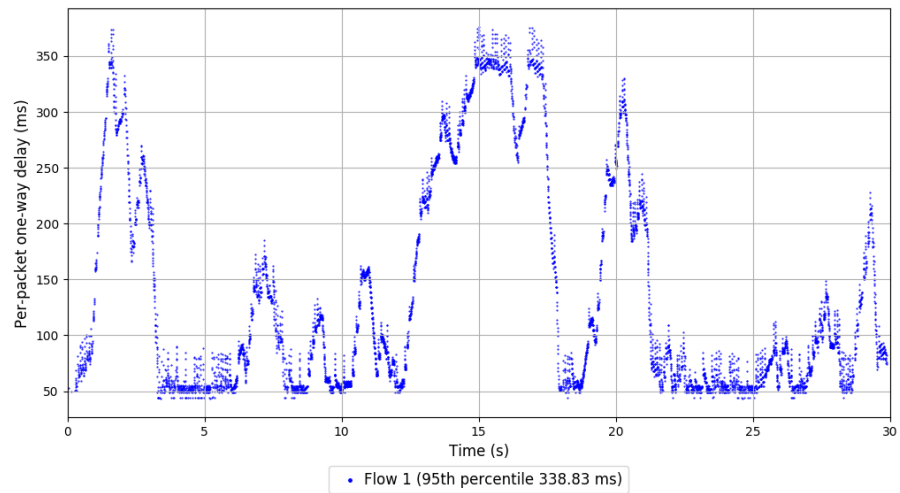
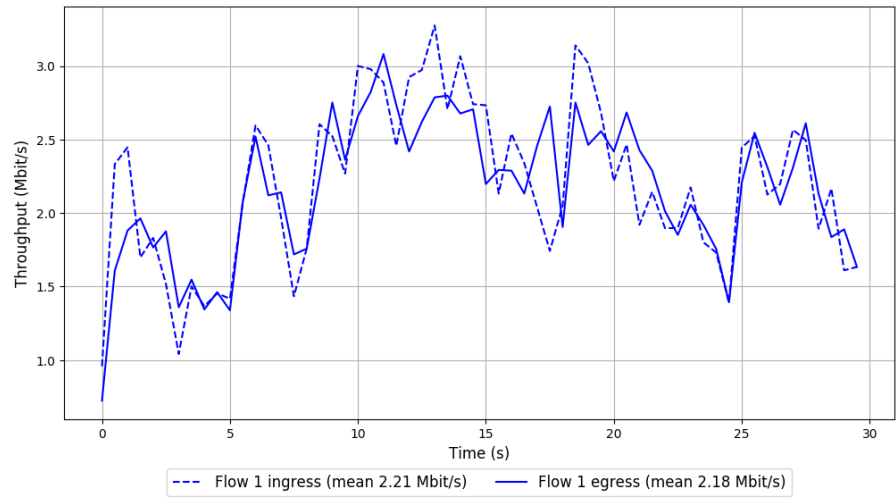


Run 1: Statistics of Vivace-LTE

Start at: 2018-04-02 23:49:58
End at: 2018-04-02 23:50:28
Local clock offset: -3.125 ms
Remote clock offset: -1.799 ms

Below is generated by plot.py at 2018-04-03 01:35:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 338.830 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 338.830 ms
Loss rate: 1.52%

Run 1: Report of Vivace-LTE — Data Link

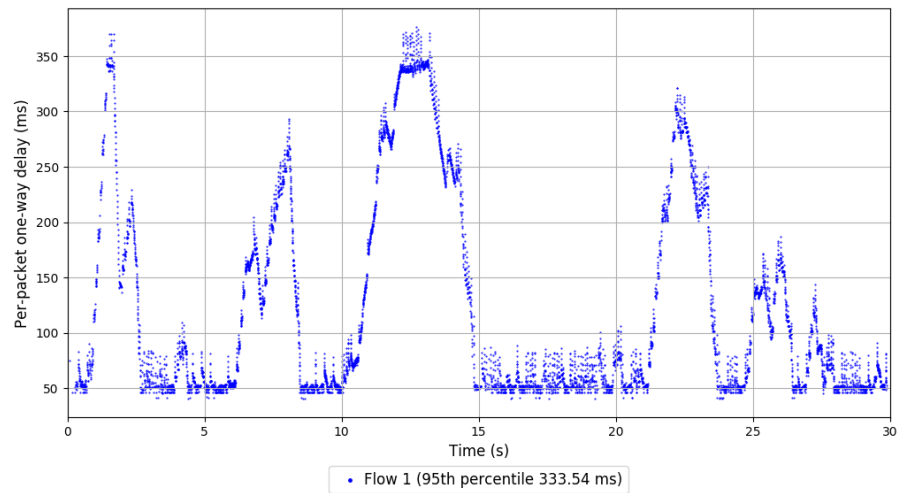
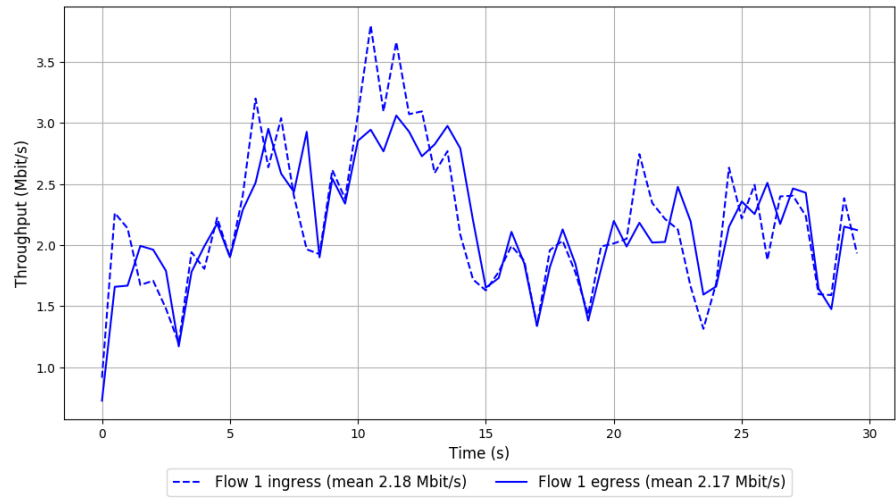


Run 2: Statistics of Vivace-LTE

Start at: 2018-04-03 00:09:30
End at: 2018-04-03 00:10:00
Local clock offset: -5.887 ms
Remote clock offset: -1.498 ms

Below is generated by plot.py at 2018-04-03 01:35:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 333.537 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 333.537 ms
Loss rate: 1.07%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-04-03 00:29:01
End at: 2018-04-03 00:29:31
Local clock offset: -7.7 ms
Remote clock offset: -6.433 ms

Below is generated by plot.py at 2018-04-03 01:35:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 341.796 ms
Loss rate: 3.44%
-- Flow 1:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 341.796 ms
Loss rate: 3.44%

Run 3: Report of Vivace-LTE — Data Link

