

Pantheon Report

Generated at 2018-03-05 19:39:59 (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).

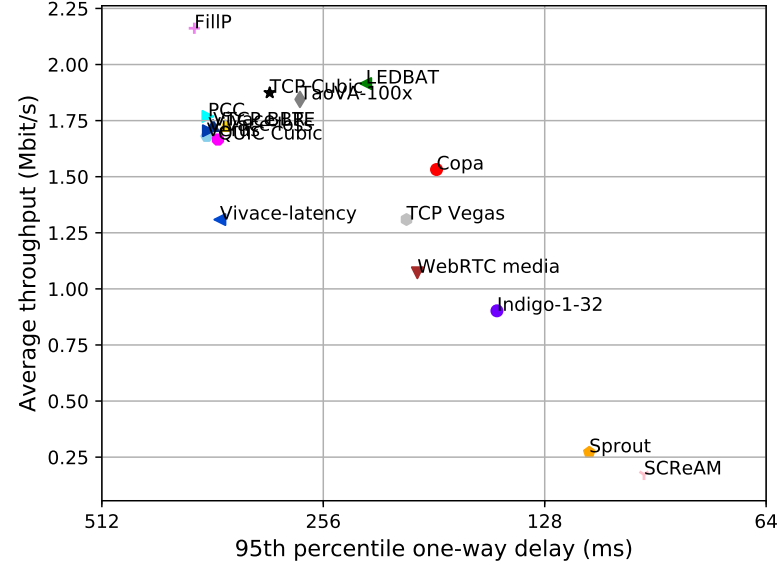
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

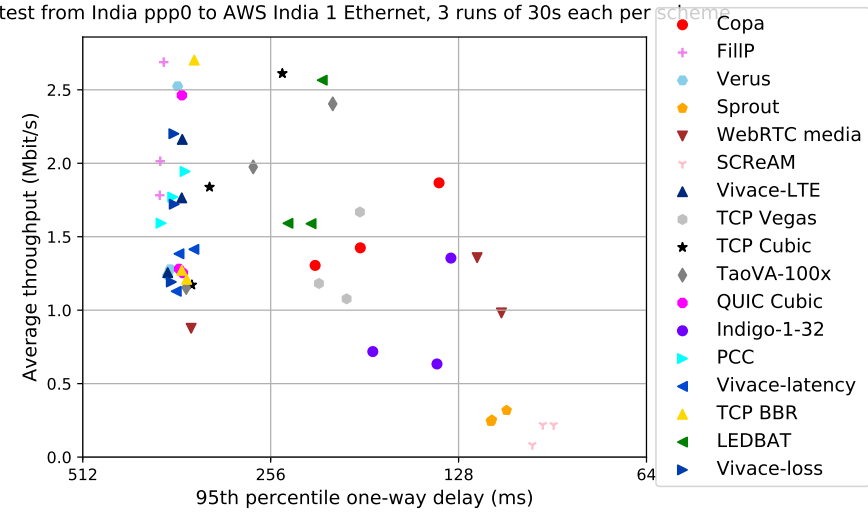
Git summary:

```
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 @ f1a14bffe749737437f61b1eaeab30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/vivace @ 7a4ba531e75b4a6f66f5c4580192120401784ce3
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from 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	1.73	347.89	4.82
TCP Cubic	3	1.87	302.78	1.87
LEDBAT	3	1.92	224.15	1.04
PCC	3	1.77	367.34	30.71
QUIC Cubic	3	1.66	356.00	5.13
SCReAM	3	0.17	93.81	0.26
WebRTC media	3	1.07	190.70	1.23
Sprout	3	0.27	111.35	0.53
TaoVA-100x	3	1.84	275.40	6.86
TCP Vegas	3	1.31	197.29	0.86
Verus	3	1.68	368.66	23.29
Copa	3	1.53	179.59	1.58
FillP	3	2.16	383.31	93.44
Indigo-1-32	3	0.90	148.65	1.07
Vivace-latency	3	1.31	353.85	8.25
Vivace-loss	3	1.70	366.82	19.22
Vivace-LTE	3	1.73	361.46	10.53

Run 1: Statistics of TCP BBR

Start at: 2018-03-05 17:52:50

End at: 2018-03-05 17:53:20

Local clock offset: -5.667 ms

Remote clock offset: 8.979 ms

Below is generated by plot.py at 2018-03-05 19:39:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.21 Mbit/s

95th percentile per-packet one-way delay: 348.964 ms

Loss rate: 5.96%

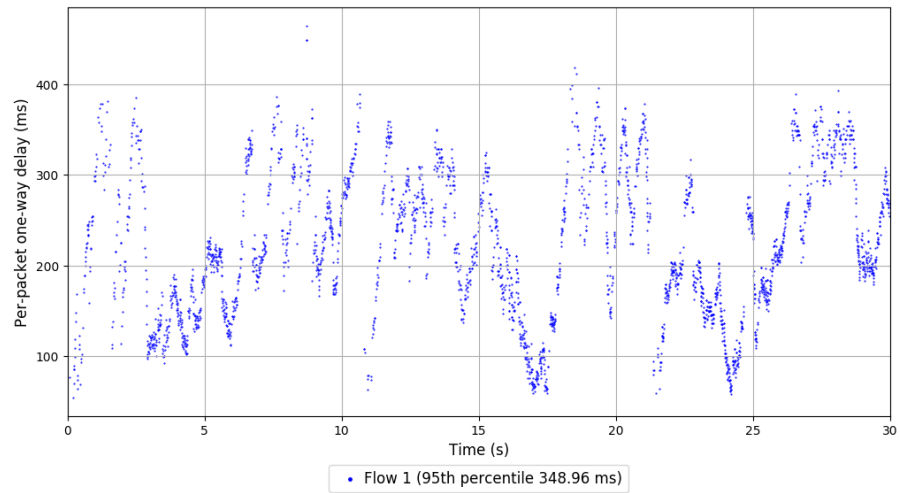
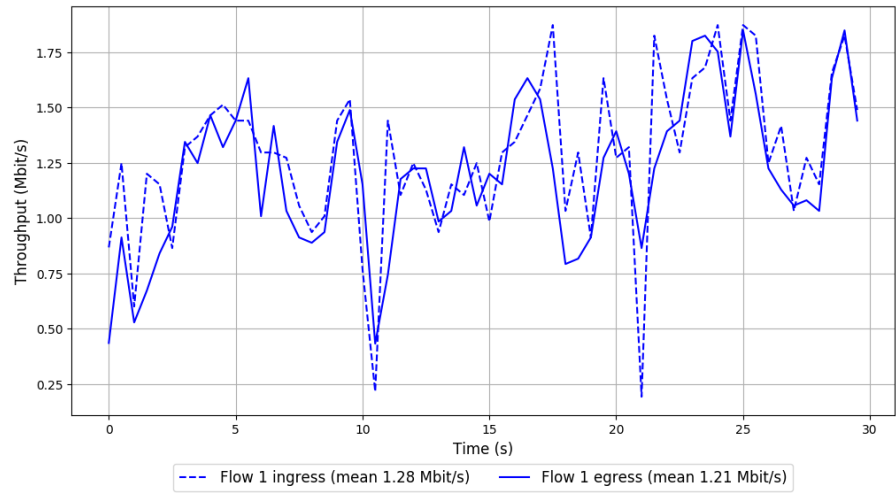
-- Flow 1:

Average throughput: 1.21 Mbit/s

95th percentile per-packet one-way delay: 348.964 ms

Loss rate: 5.96%

Run 1: Report of TCP BBR — Data Link

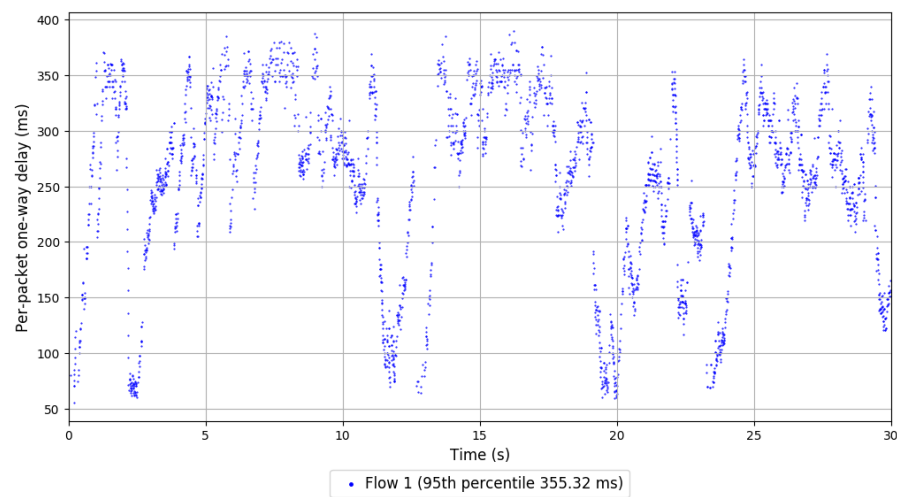
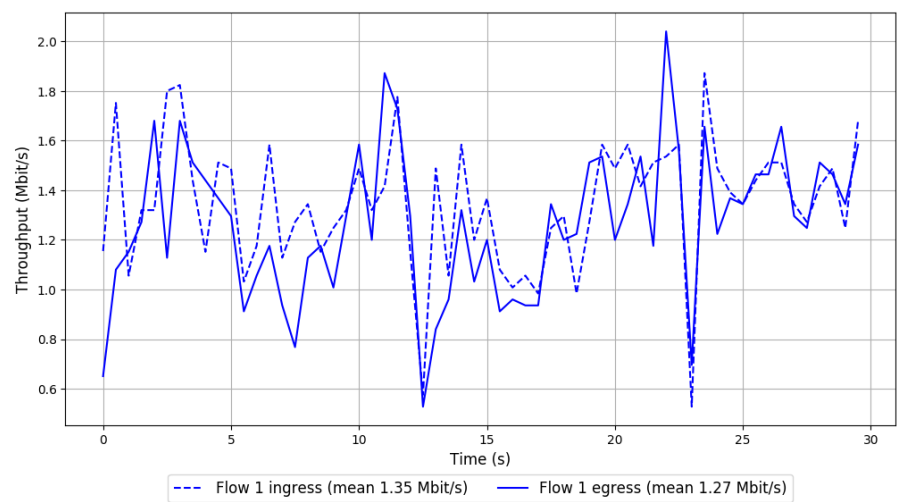


Run 2: Statistics of TCP BBR

Start at: 2018-03-05 18:12:29
End at: 2018-03-05 18:12:59
Local clock offset: -14.144 ms
Remote clock offset: 1.961 ms

Below is generated by plot.py at 2018-03-05 19:39:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 355.318 ms
Loss rate: 5.77%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 355.318 ms
Loss rate: 5.77%

Run 2: Report of TCP BBR — Data Link

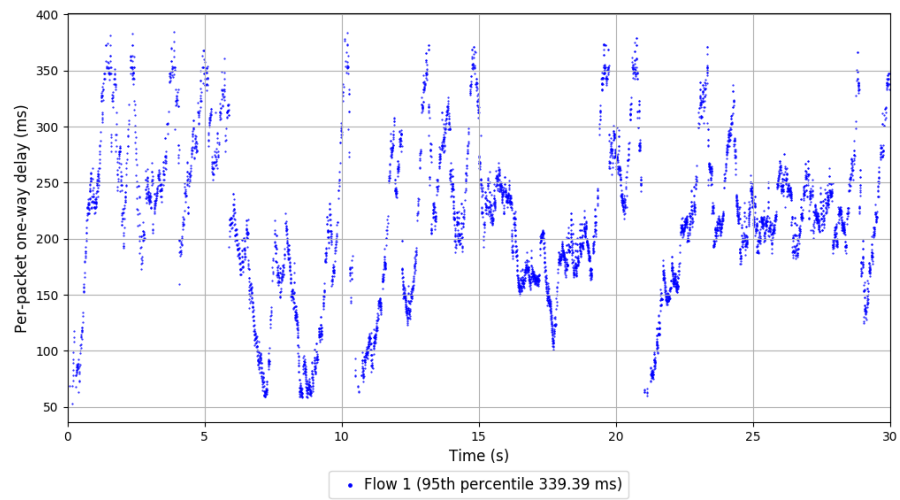
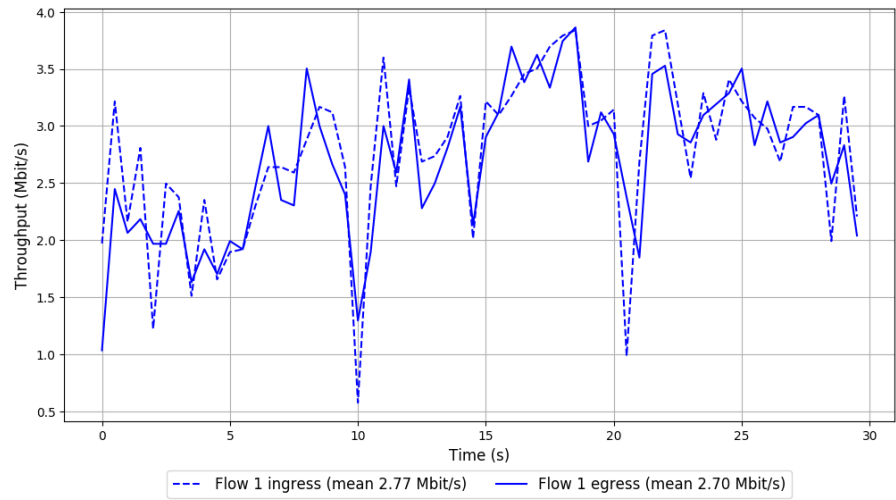


Run 3: Statistics of TCP BBR

Start at: 2018-03-05 18:32:06
End at: 2018-03-05 18:32:36
Local clock offset: -15.333 ms
Remote clock offset: -8.491 ms

Below is generated by plot.py at 2018-03-05 19:39:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.70 Mbit/s
95th percentile per-packet one-way delay: 339.386 ms
Loss rate: 2.72%
-- Flow 1:
Average throughput: 2.70 Mbit/s
95th percentile per-packet one-way delay: 339.386 ms
Loss rate: 2.72%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-03-05 17:47:22

End at: 2018-03-05 17:47:52

Local clock offset: -4.276 ms

Remote clock offset: 8.026 ms

Below is generated by plot.py at 2018-03-05 19:39:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.84 Mbit/s

95th percentile per-packet one-way delay: 320.747 ms

Loss rate: 1.68%

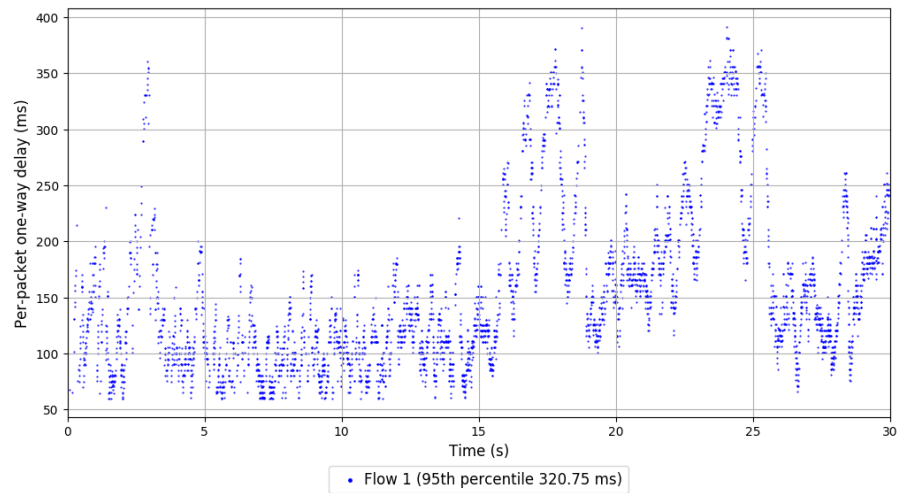
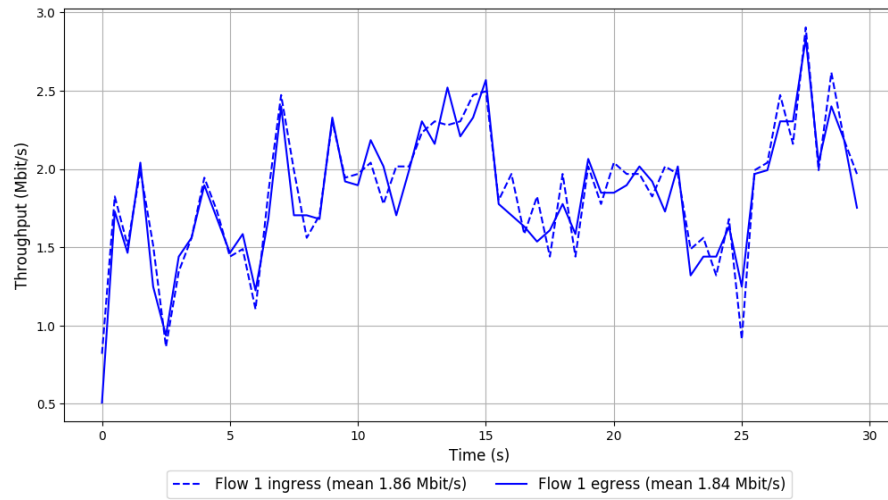
-- Flow 1:

Average throughput: 1.84 Mbit/s

95th percentile per-packet one-way delay: 320.747 ms

Loss rate: 1.68%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-03-05 18:07:02

End at: 2018-03-05 18:07:32

Local clock offset: -7.023 ms

Remote clock offset: 7.77 ms

Below is generated by plot.py at 2018-03-05 19:39:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.17 Mbit/s

95th percentile per-packet one-way delay: 342.378 ms

Loss rate: 2.93%

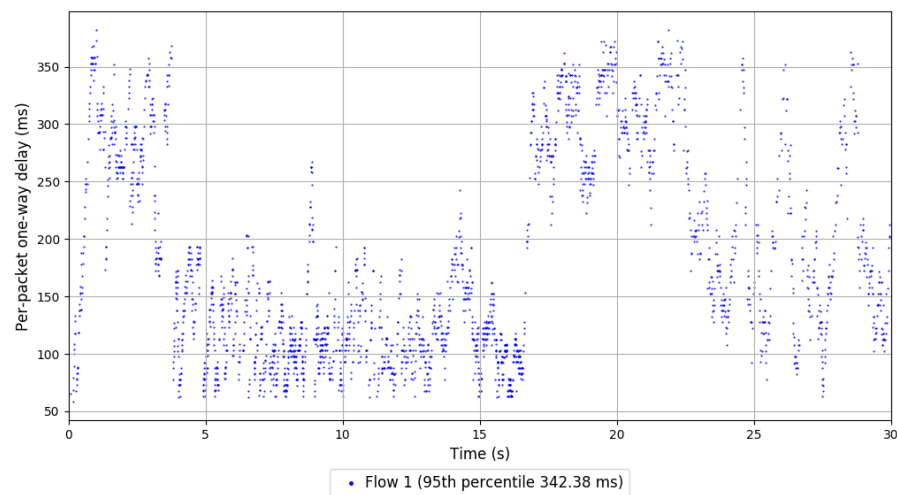
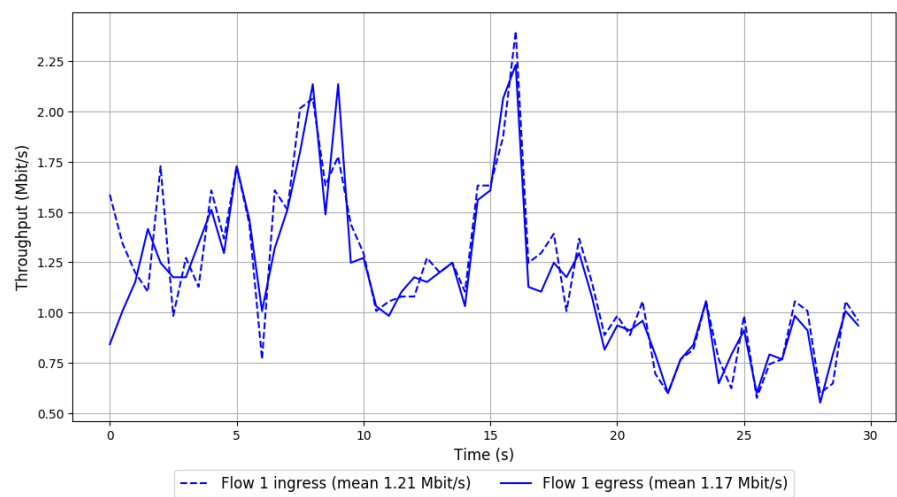
-- Flow 1:

Average throughput: 1.17 Mbit/s

95th percentile per-packet one-way delay: 342.378 ms

Loss rate: 2.93%

Run 2: Report of TCP Cubic — Data Link

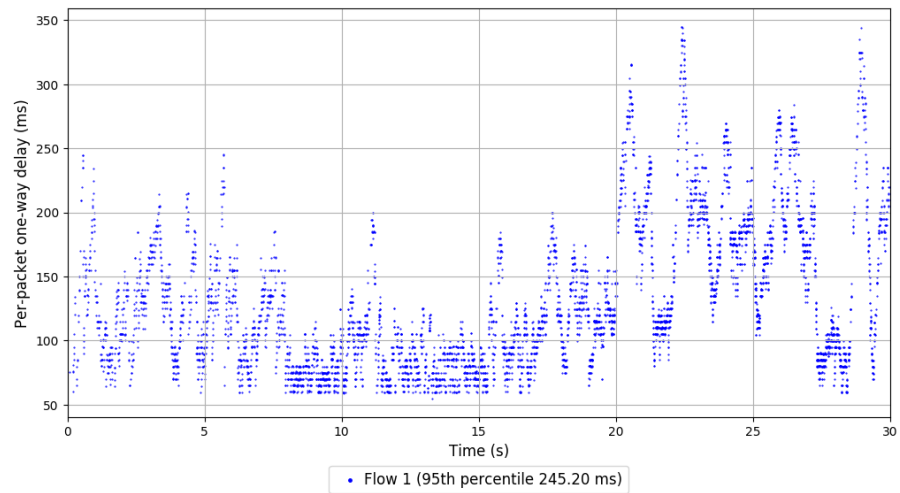
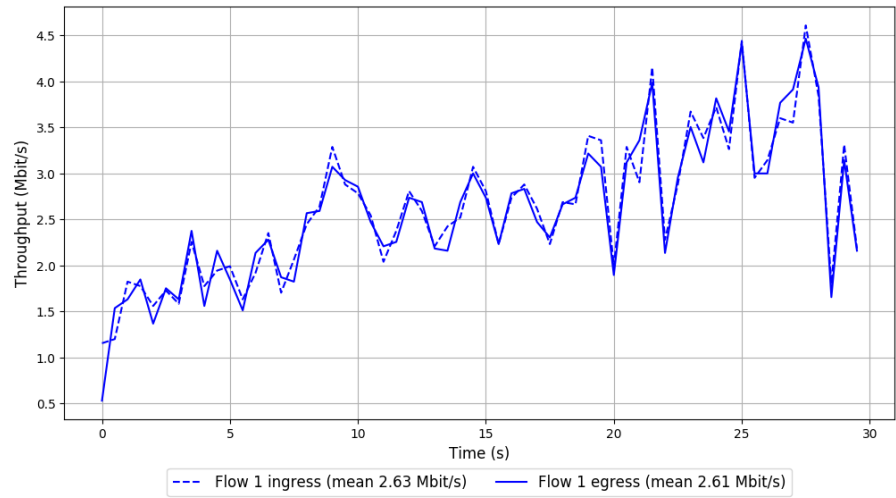


Run 3: Statistics of TCP Cubic

Start at: 2018-03-05 18:26:39
End at: 2018-03-05 18:27:09
Local clock offset: -11.614 ms
Remote clock offset: -6.364 ms

Below is generated by plot.py at 2018-03-05 19:39:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.61 Mbit/s
95th percentile per-packet one-way delay: 245.200 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 2.61 Mbit/s
95th percentile per-packet one-way delay: 245.200 ms
Loss rate: 0.99%

Run 3: Report of TCP Cubic — Data Link

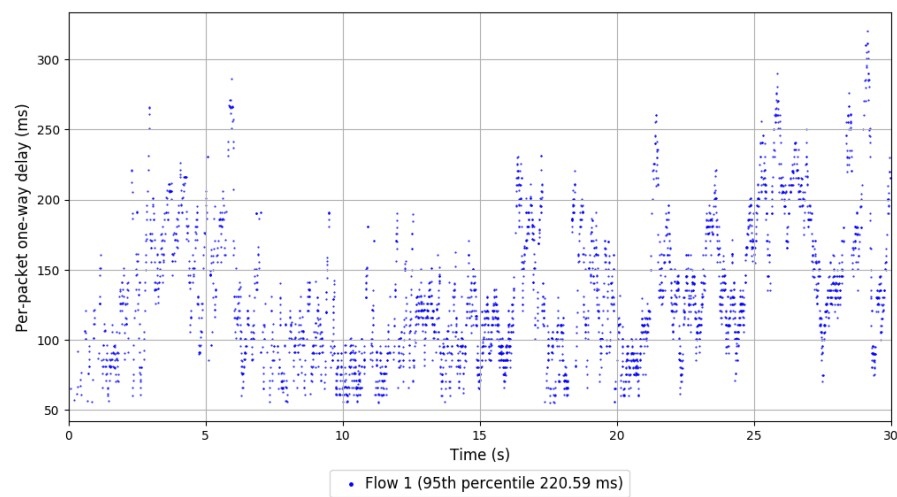
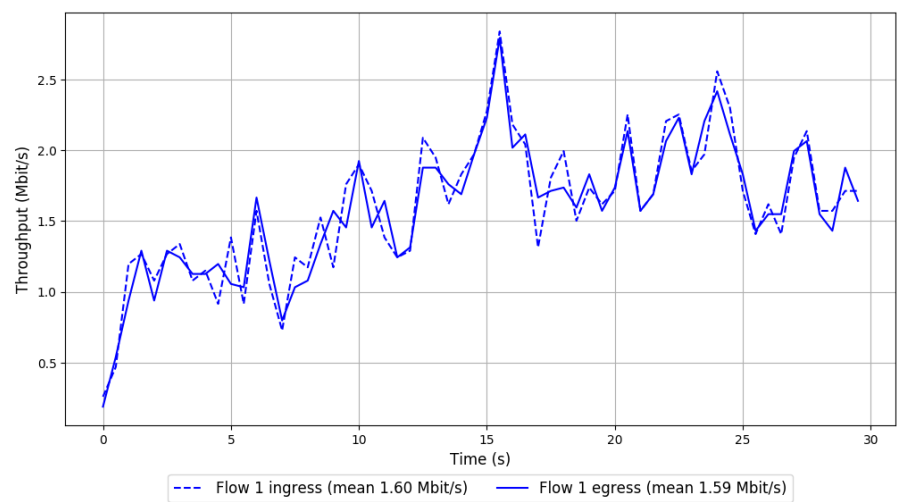


```
Run 1: Statistics of LEDBAT

Start at: 2018-03-05 17:58:16
End at: 2018-03-05 17:58:46
Local clock offset: -10.345 ms
Remote clock offset: 9.741 ms

# Below is generated by plot.py at 2018-03-05 19:39:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 220.595 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 220.595 ms
Loss rate: 1.00%
```

Run 1: Report of LEDBAT — Data Link

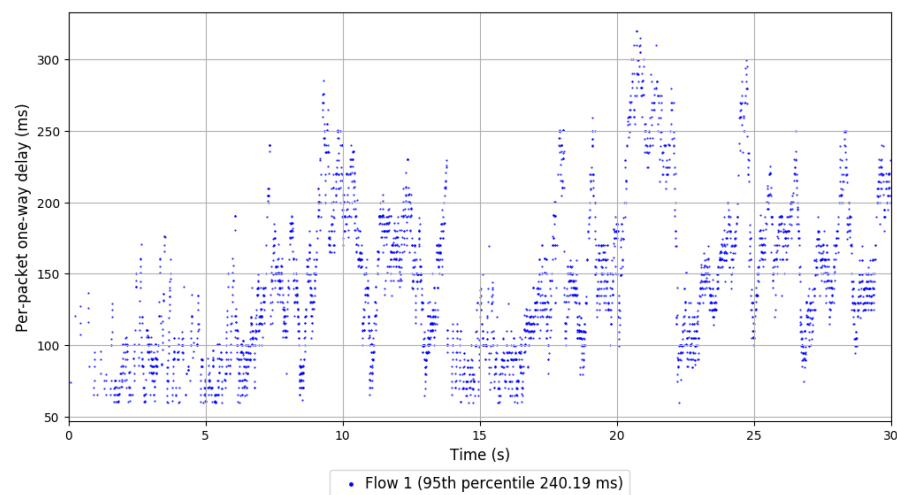
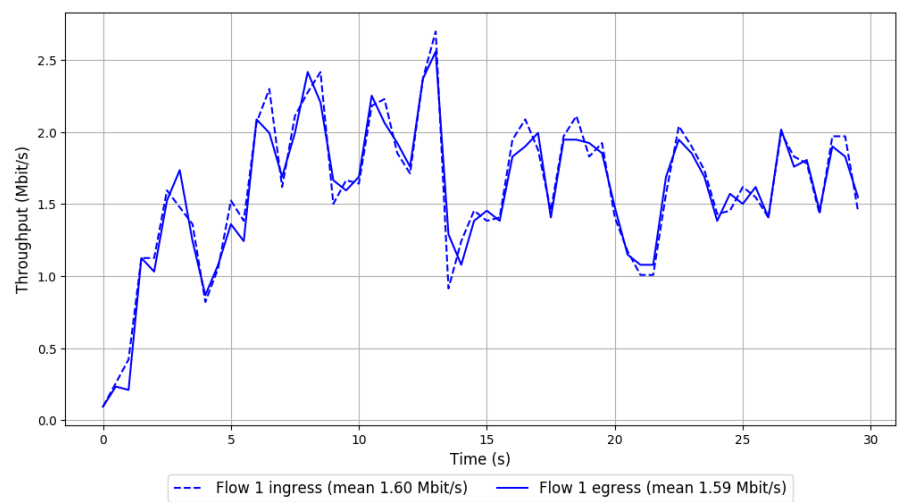


Run 2: Statistics of LEDBAT

Start at: 2018-03-05 18:17:54
End at: 2018-03-05 18:18:24
Local clock offset: -13.272 ms
Remote clock offset: -1.624 ms

Below is generated by plot.py at 2018-03-05 19:39:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 240.187 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 240.187 ms
Loss rate: 1.10%

Run 2: Report of LEDBAT — Data Link

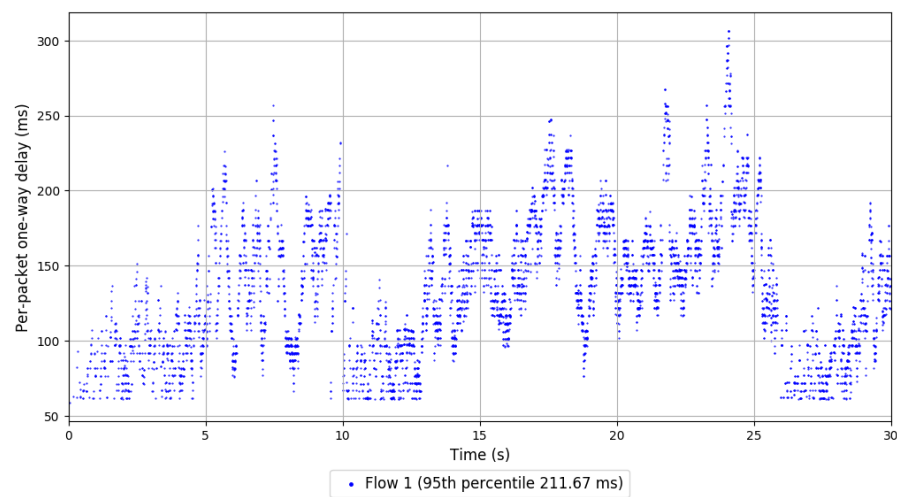
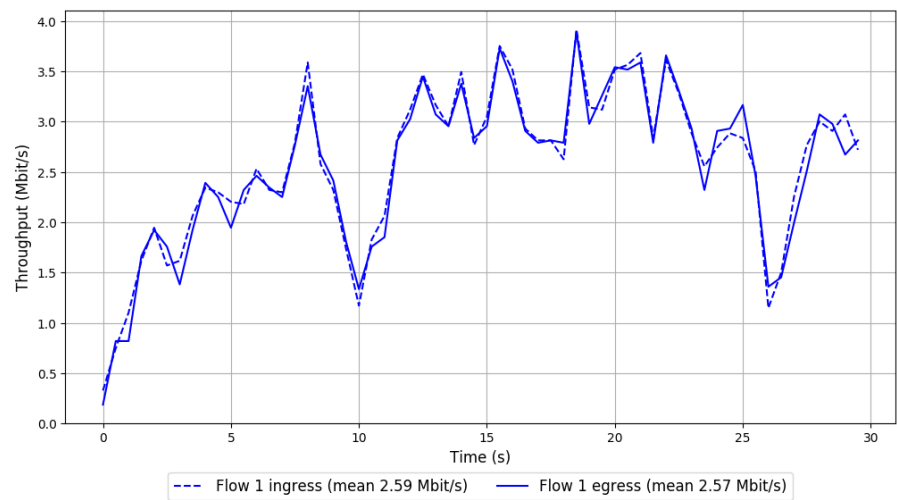


Run 3: Statistics of LEDBAT

Start at: 2018-03-05 18:37:32
End at: 2018-03-05 18:38:02
Local clock offset: -17.995 ms
Remote clock offset: -9.305 ms

Below is generated by plot.py at 2018-03-05 19:39:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 211.674 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 211.674 ms
Loss rate: 1.03%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC

Start at: 2018-03-05 17:42:56

End at: 2018-03-05 17:43:26

Local clock offset: 0.808 ms

Remote clock offset: 5.454 ms

Below is generated by plot.py at 2018-03-05 19:39:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.59 Mbit/s

95th percentile per-packet one-way delay: 383.584 ms

Loss rate: 45.00%

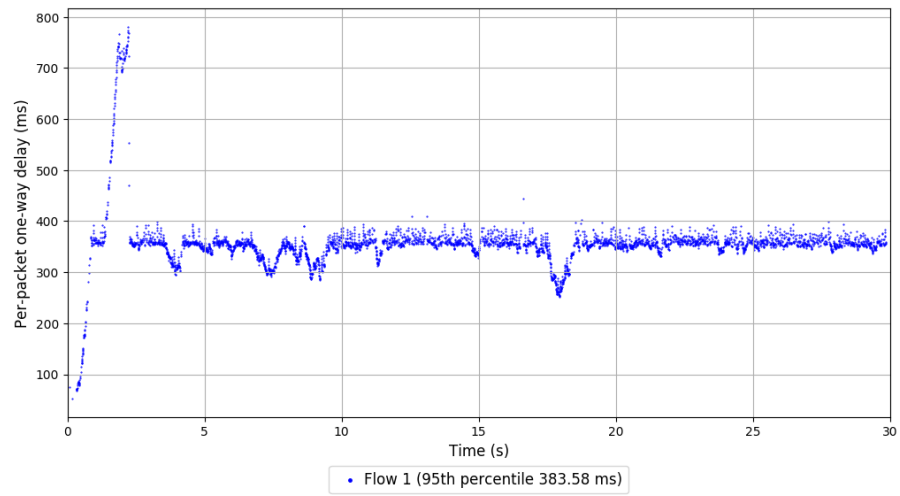
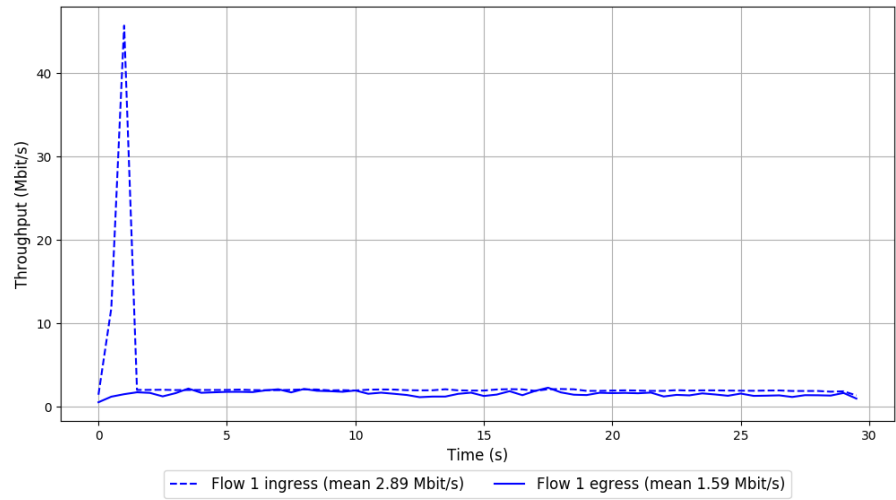
-- Flow 1:

Average throughput: 1.59 Mbit/s

95th percentile per-packet one-way delay: 383.584 ms

Loss rate: 45.00%

Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

Start at: 2018-03-05 18:02:40

End at: 2018-03-05 18:03:10

Local clock offset: -5.764 ms

Remote clock offset: 10.25 ms

Below is generated by plot.py at 2018-03-05 19:39:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.77 Mbit/s

95th percentile per-packet one-way delay: 367.410 ms

Loss rate: 37.26%

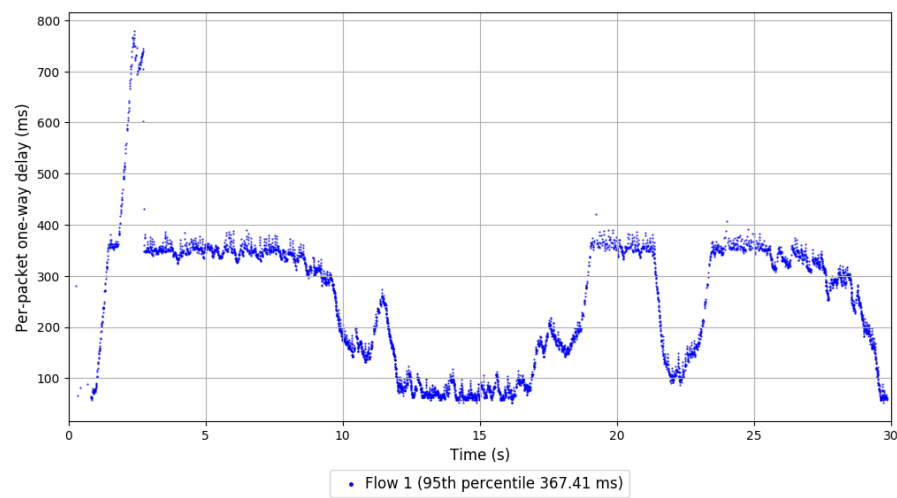
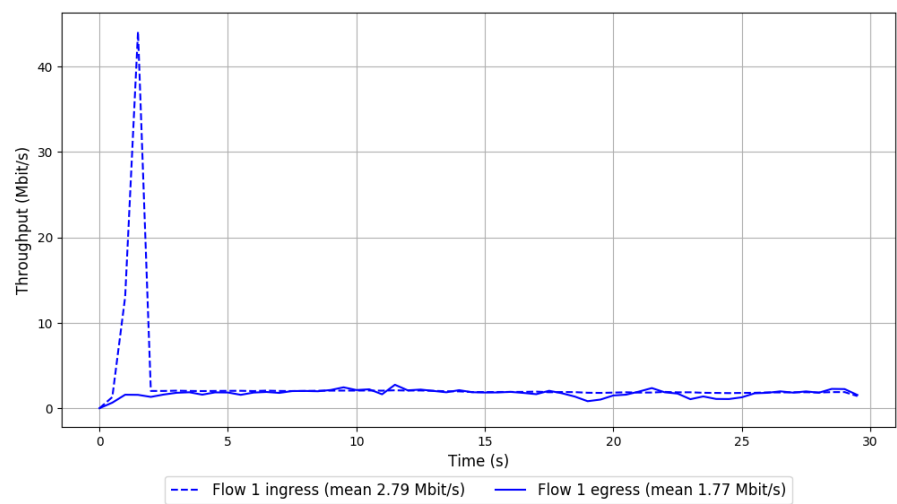
-- Flow 1:

Average throughput: 1.77 Mbit/s

95th percentile per-packet one-way delay: 367.410 ms

Loss rate: 37.26%

Run 2: Report of PCC — Data Link

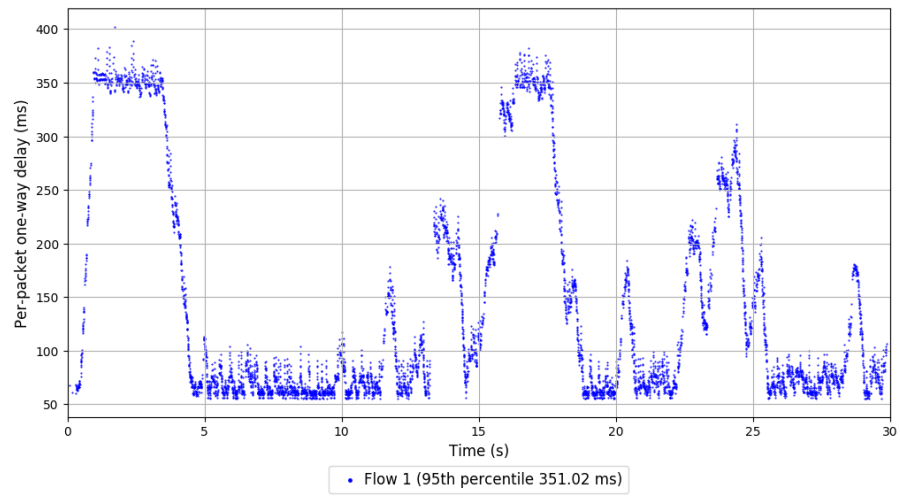
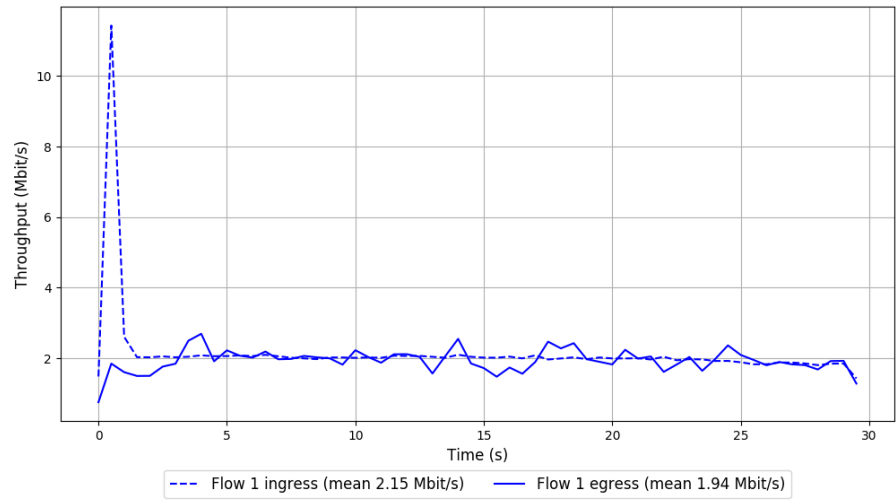


Run 3: Statistics of PCC

Start at: 2018-03-05 18:22:16
End at: 2018-03-05 18:22:46
Local clock offset: -10.099 ms
Remote clock offset: -3.719 ms

Below is generated by plot.py at 2018-03-05 19:39:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 351.016 ms
Loss rate: 9.88%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 351.016 ms
Loss rate: 9.88%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-03-05 17:51:44

End at: 2018-03-05 17:52:14

Local clock offset: -4.856 ms

Remote clock offset: 7.827 ms

Below is generated by plot.py at 2018-03-05 19:39:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.28 Mbit/s

95th percentile per-packet one-way delay: 358.927 ms

Loss rate: 5.81%

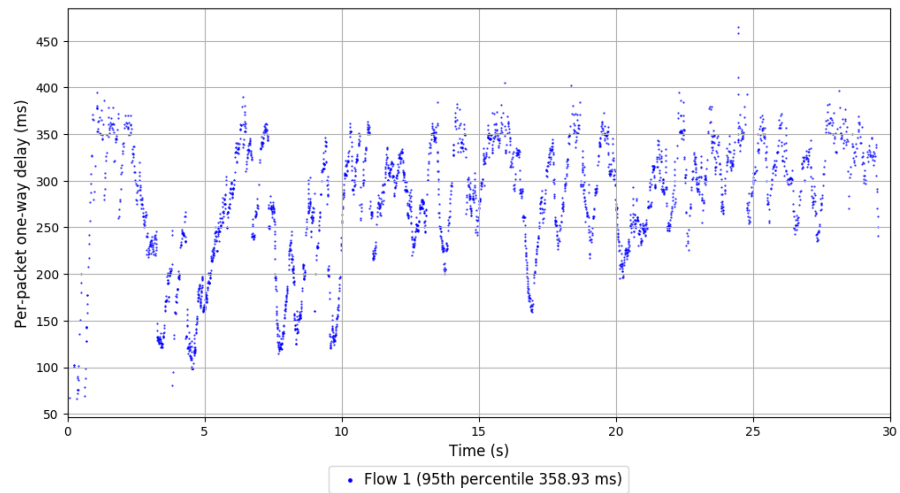
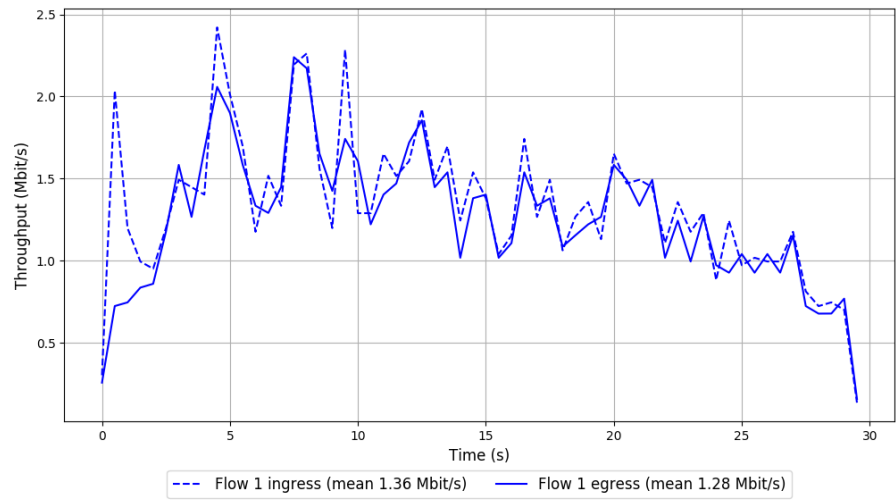
-- Flow 1:

Average throughput: 1.28 Mbit/s

95th percentile per-packet one-way delay: 358.927 ms

Loss rate: 5.81%

Run 1: Report of QUIC Cubic — Data Link

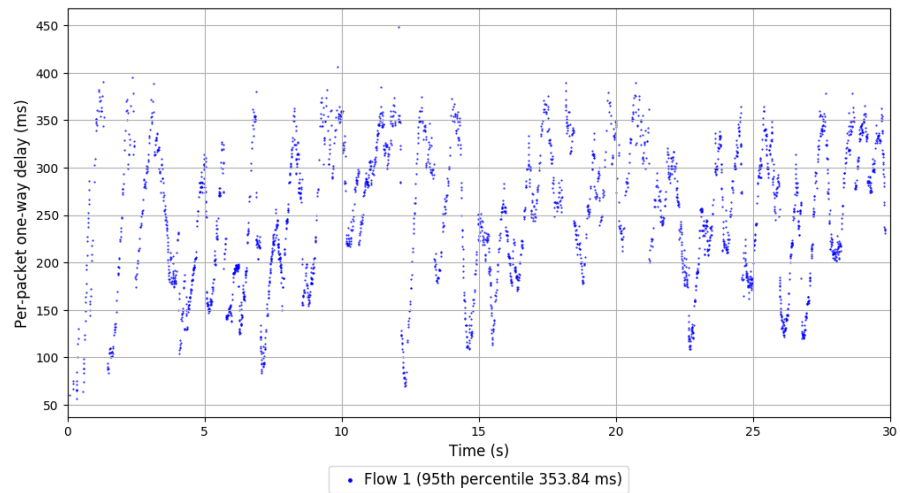
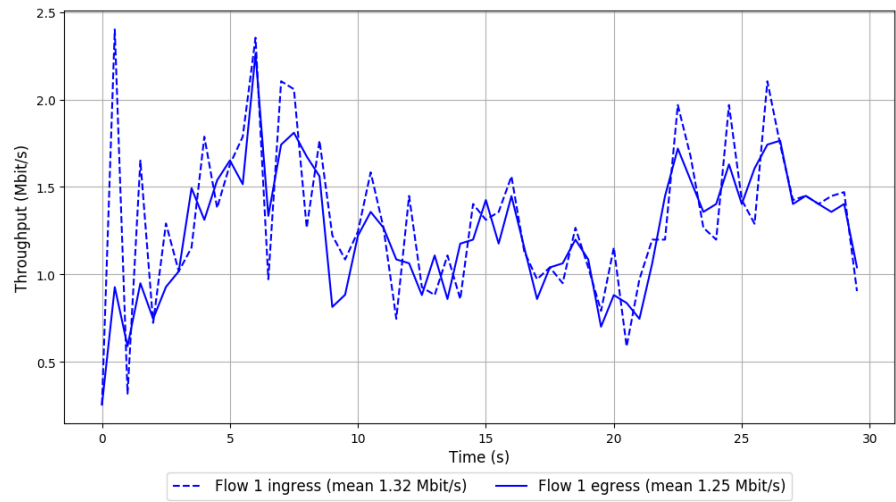


Run 2: Statistics of QUIC Cubic

Start at: 2018-03-05 18:11:23
End at: 2018-03-05 18:11:53
Local clock offset: -10.638 ms
Remote clock offset: 3.862 ms

Below is generated by plot.py at 2018-03-05 19:39:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 353.841 ms
Loss rate: 5.56%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 353.841 ms
Loss rate: 5.56%

Run 2: Report of QUIC Cubic — Data Link

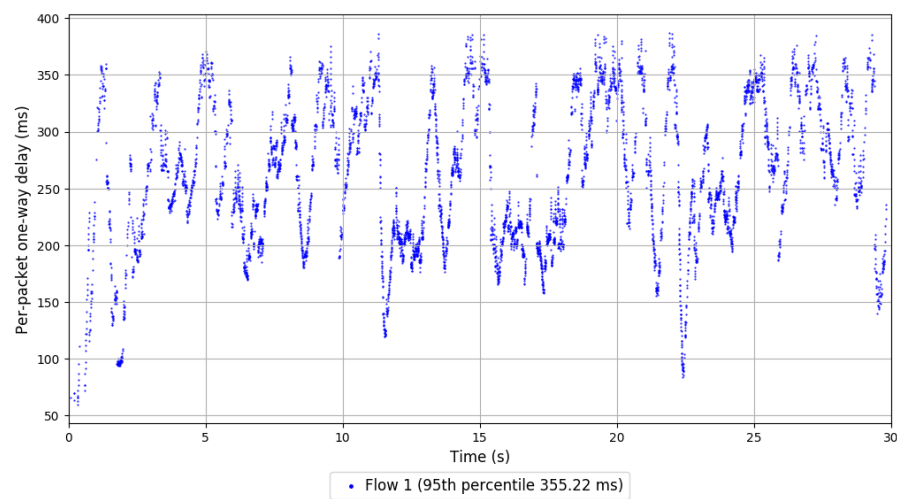
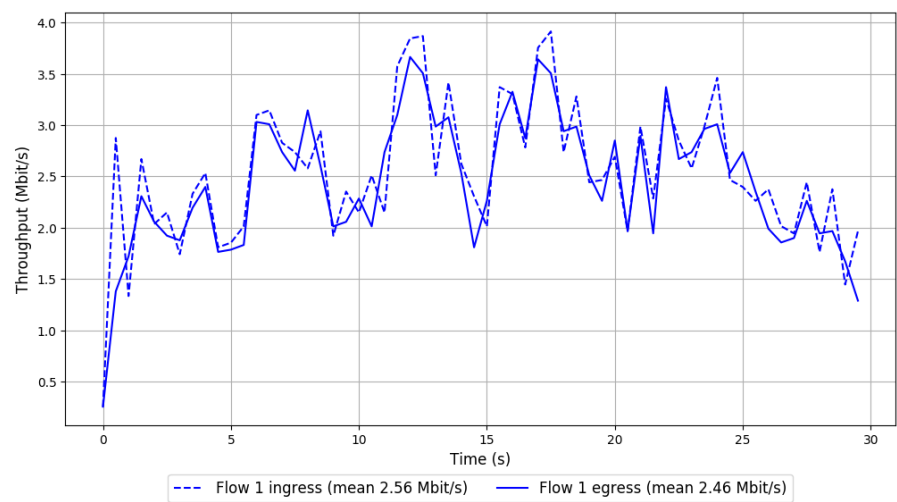


Run 3: Statistics of QUIC Cubic

Start at: 2018-03-05 18:31:01
End at: 2018-03-05 18:31:31
Local clock offset: -12.834 ms
Remote clock offset: -7.869 ms

Below is generated by plot.py at 2018-03-05 19:39:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 355.222 ms
Loss rate: 4.03%
-- Flow 1:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 355.222 ms
Loss rate: 4.03%

Run 3: Report of QUIC Cubic — Data Link

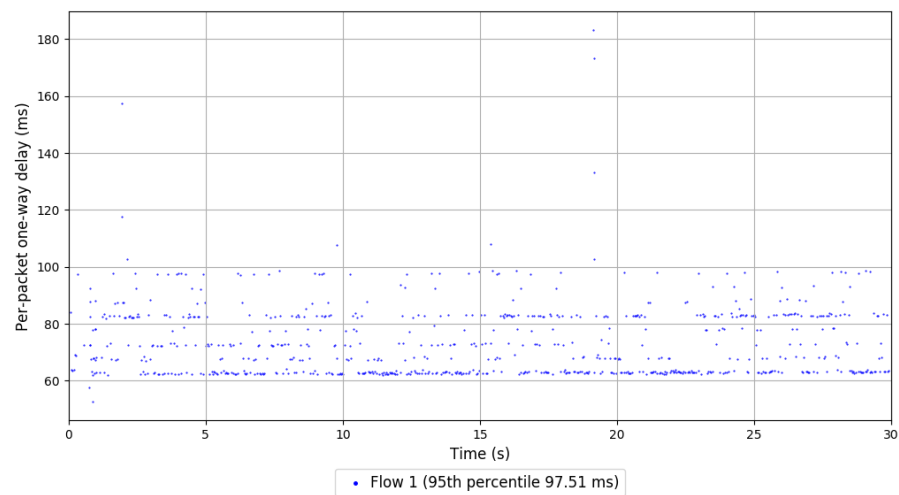
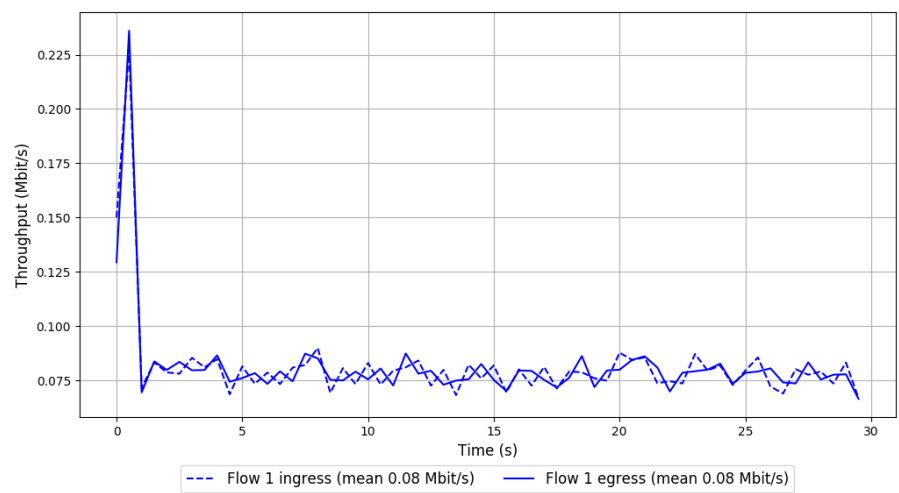


```
Run 1: Statistics of SCReAM

Start at: 2018-03-05 17:56:06
End at: 2018-03-05 17:56:36
Local clock offset: -6.018 ms
Remote clock offset: 9.071 ms

# Below is generated by plot.py at 2018-03-05 19:39:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 97.509 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 97.509 ms
Loss rate: 0.25%
```

Run 1: Report of SReAM — Data Link

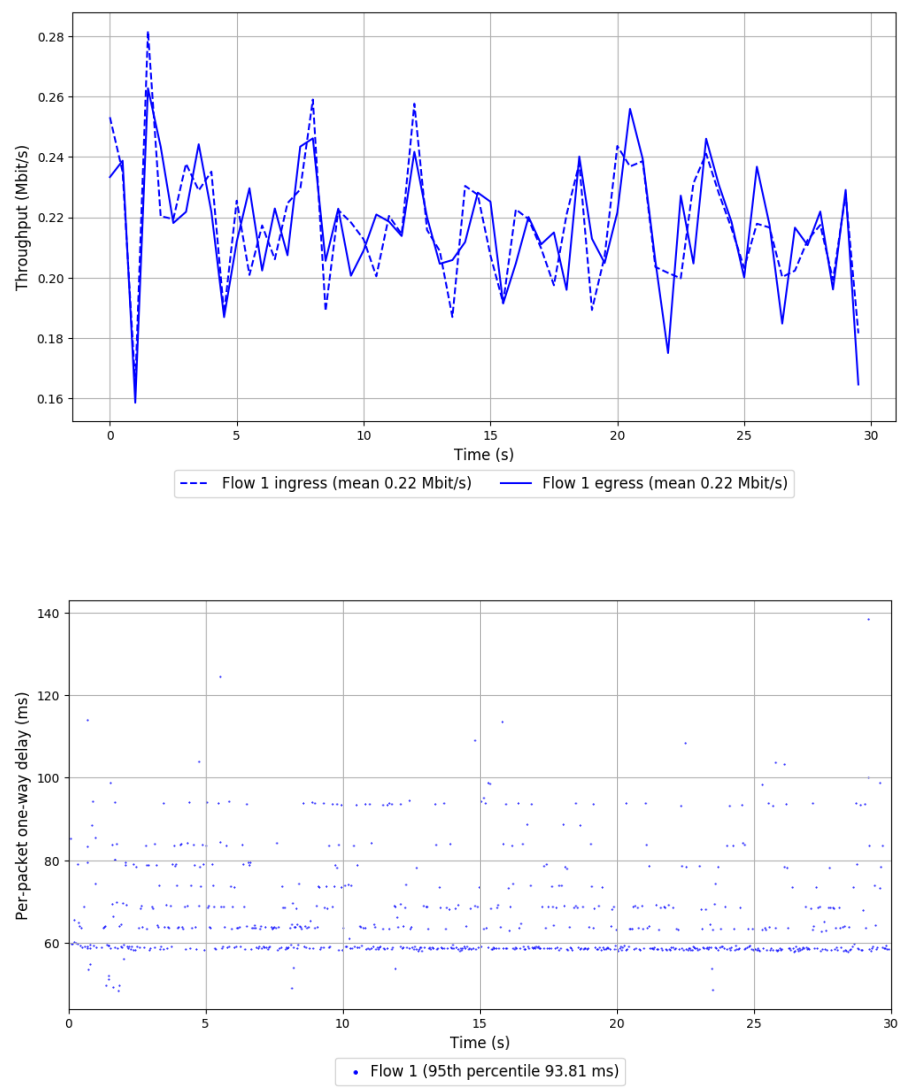


Run 2: Statistics of SCReAM

Start at: 2018-03-05 18:15:44
End at: 2018-03-05 18:16:14
Local clock offset: -16.982 ms
Remote clock offset: -1.229 ms

Below is generated by plot.py at 2018-03-05 19:39:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 93.807 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 93.807 ms
Loss rate: 0.26%

Run 2: Report of SReAM — Data Link

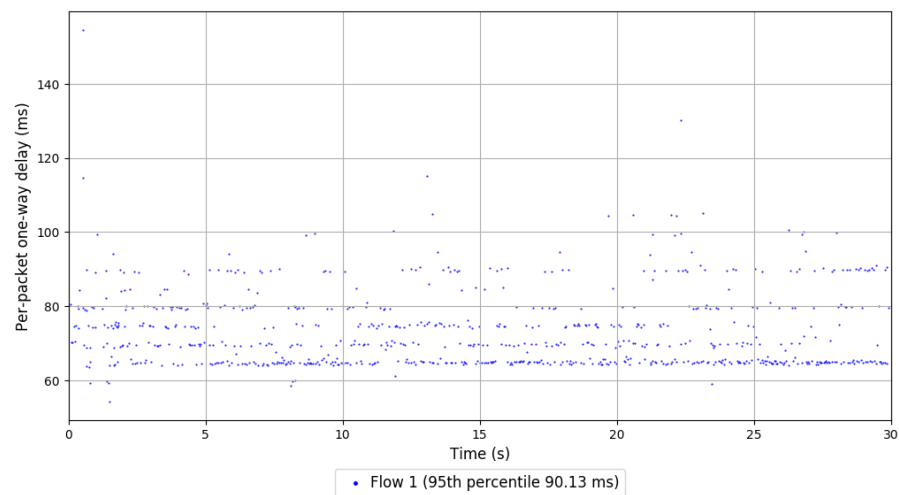
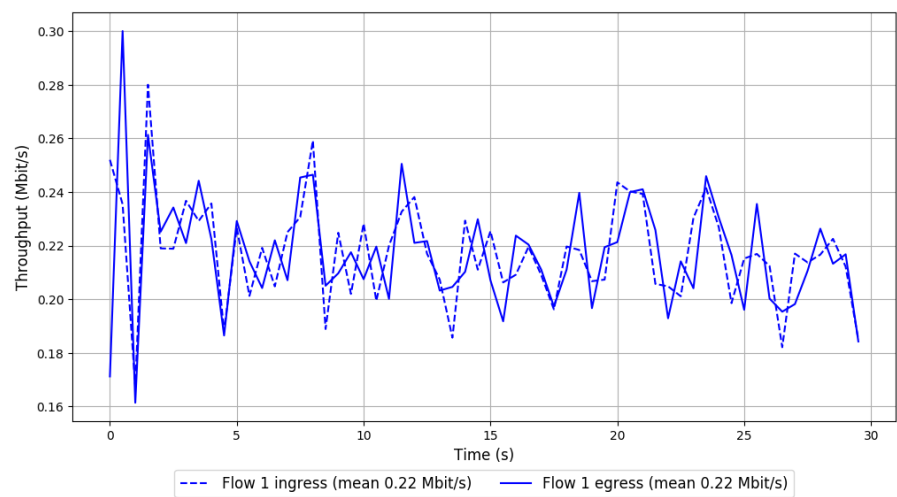


Run 3: Statistics of SCReAM

Start at: 2018-03-05 18:35:22
End at: 2018-03-05 18:35:52
Local clock offset: -15.806 ms
Remote clock offset: -9.055 ms

Below is generated by plot.py at 2018-03-05 19:39:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 90.129 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 90.129 ms
Loss rate: 0.26%

Run 3: Report of SReAM — Data Link

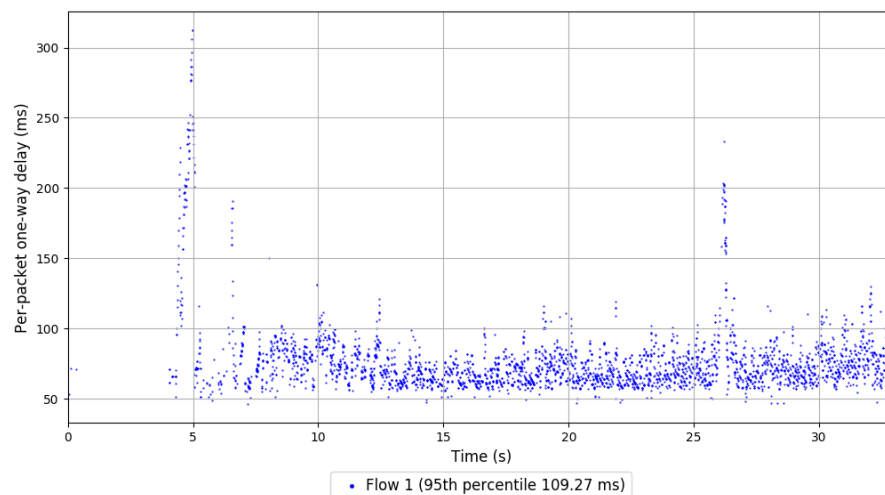
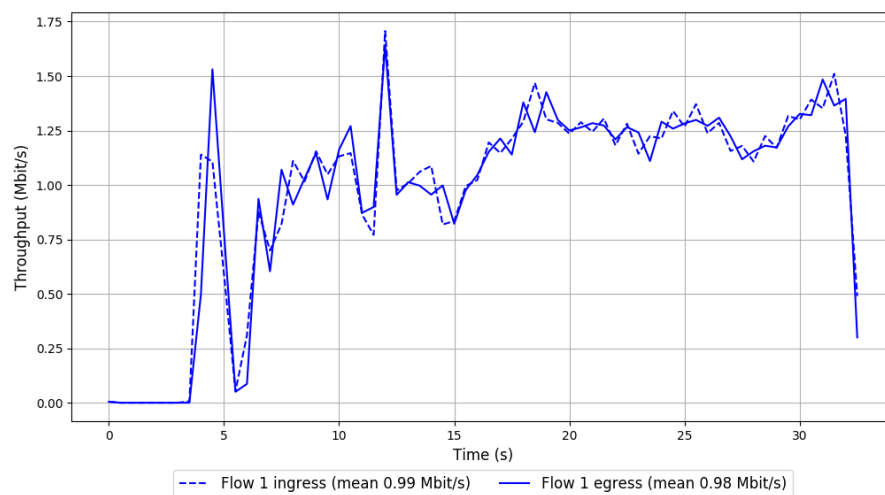


```
Run 1: Statistics of WebRTC media

Start at: 2018-03-05 18:00:29
End at: 2018-03-05 18:00:59
Local clock offset: -8.773 ms
Remote clock offset: 10.032 ms

# Below is generated by plot.py at 2018-03-05 19:39:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 109.273 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 109.273 ms
Loss rate: 0.54%
```

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-03-05 18:20:05

End at: 2018-03-05 18:20:35

Local clock offset: -10.55 ms

Remote clock offset: -2.91 ms

Below is generated by plot.py at 2018-03-05 19:39:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.88 Mbit/s

95th percentile per-packet one-way delay: 343.298 ms

Loss rate: 2.74%

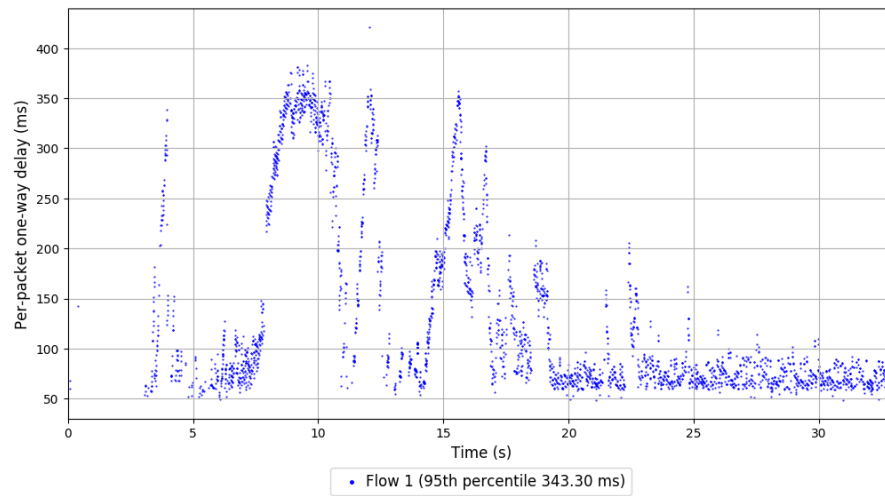
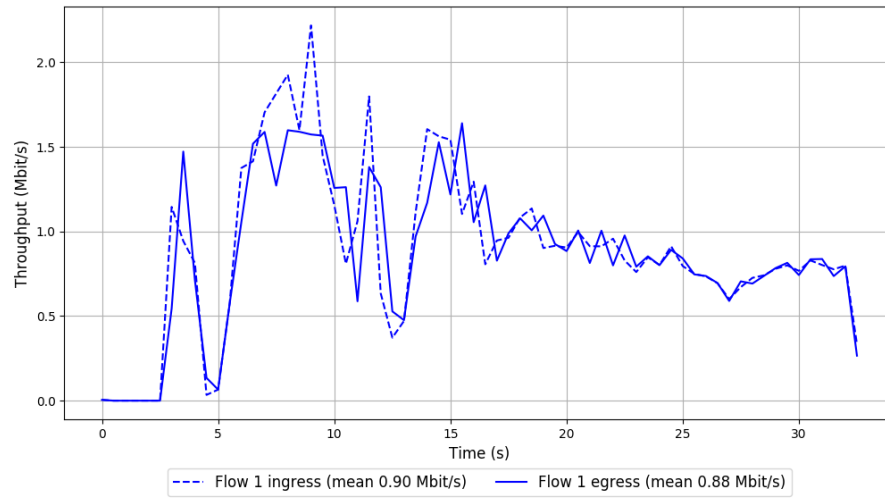
-- Flow 1:

Average throughput: 0.88 Mbit/s

95th percentile per-packet one-way delay: 343.298 ms

Loss rate: 2.74%

Run 2: Report of WebRTC media — Data Link

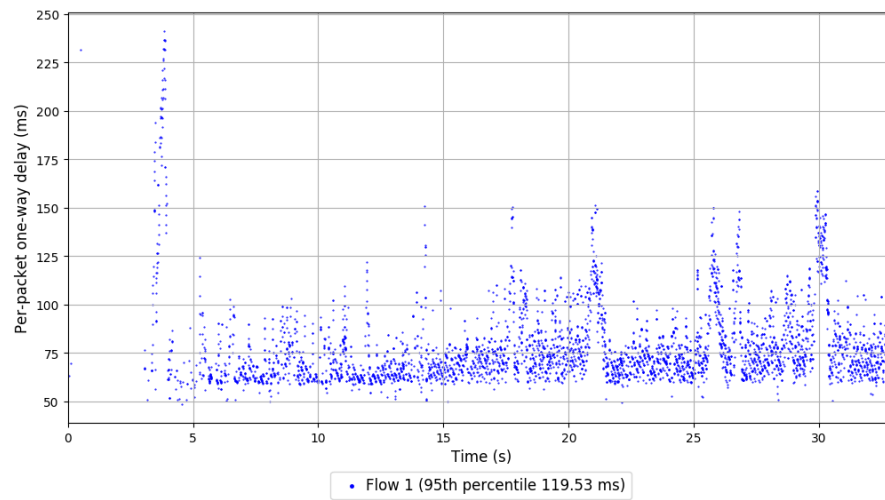
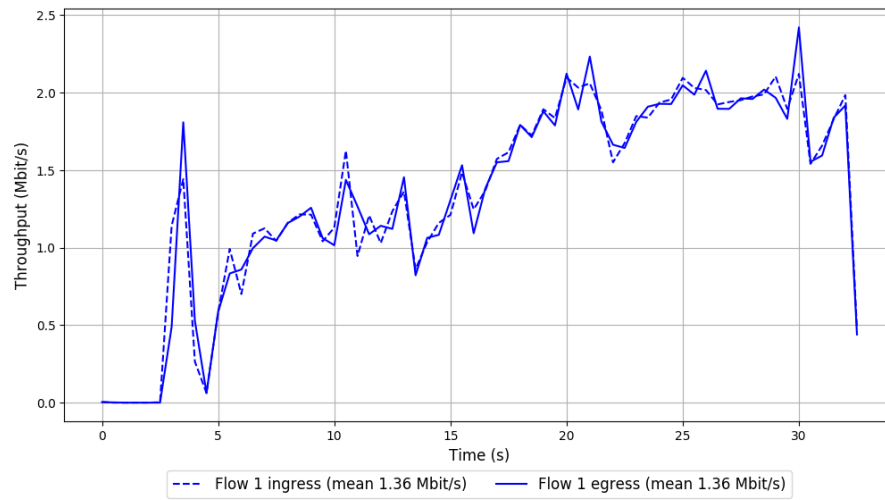


Run 3: Statistics of WebRTC media

Start at: 2018-03-05 18:39:42
End at: 2018-03-05 18:40:12
Local clock offset: -19.226 ms
Remote clock offset: -9.911 ms

Below is generated by plot.py at 2018-03-05 19:39:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 119.534 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 119.534 ms
Loss rate: 0.41%

Run 3: Report of WebRTC media — Data Link



Run 1: Statistics of Sprout

Start at: 2018-03-05 17:49:33

End at: 2018-03-05 17:50:03

Local clock offset: -4.629 ms

Remote clock offset: 8.012 ms

Below is generated by plot.py at 2018-03-05 19:39:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 113.202 ms

Loss rate: 0.28%

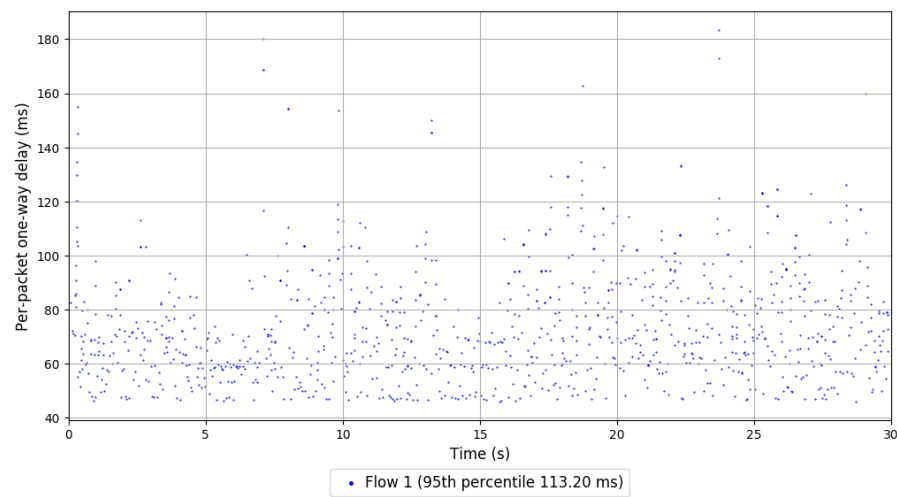
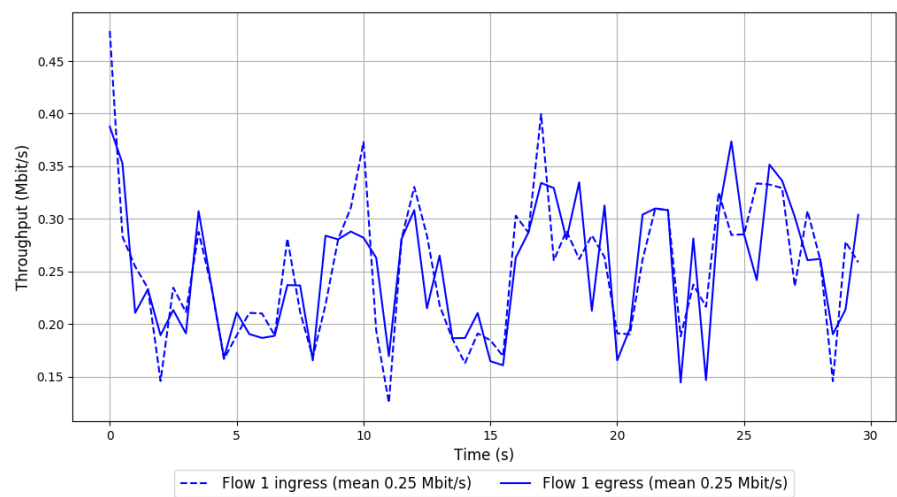
-- Flow 1:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 113.202 ms

Loss rate: 0.28%

Run 1: Report of Sprout — Data Link

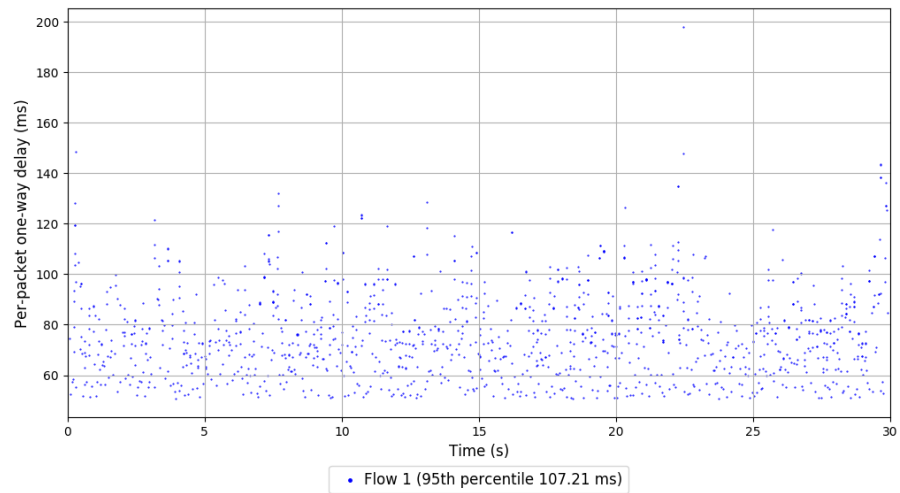
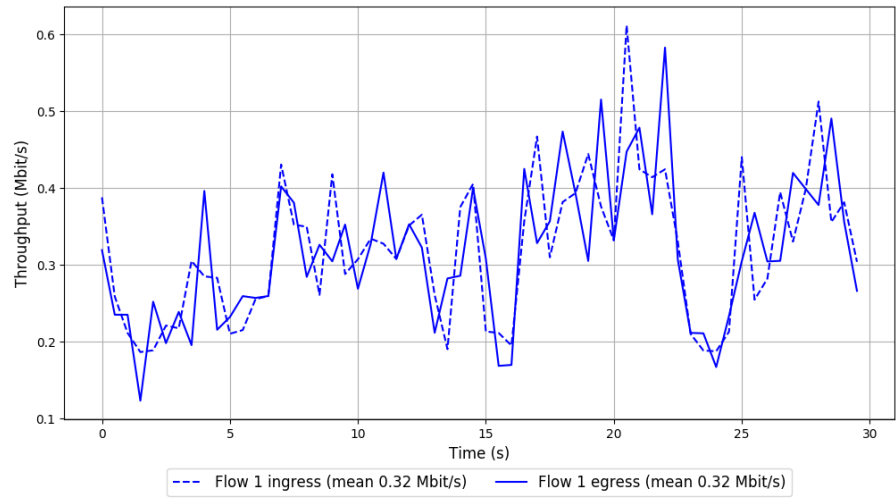


Run 2: Statistics of Sprout

Start at: 2018-03-05 18:09:13
End at: 2018-03-05 18:09:43
Local clock offset: -7.786 ms
Remote clock offset: 5.421 ms

Below is generated by plot.py at 2018-03-05 19:39:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 107.213 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 107.213 ms
Loss rate: 0.69%

Run 2: Report of Sprout — Data Link

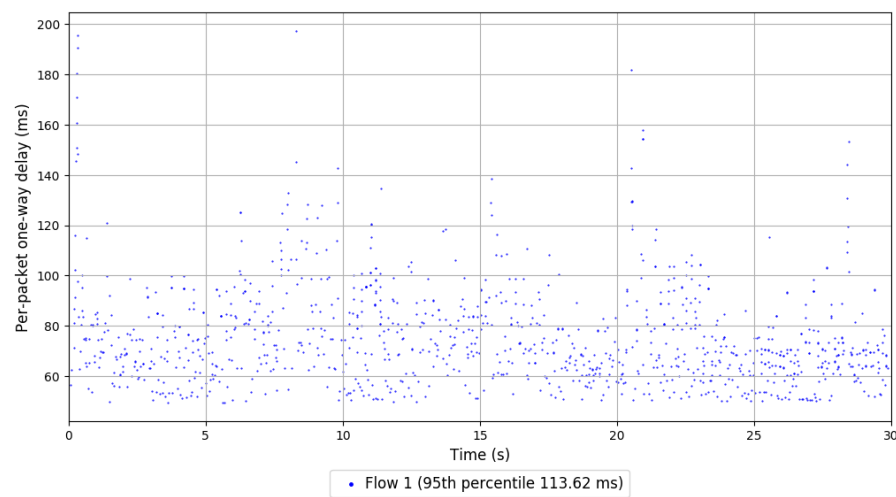
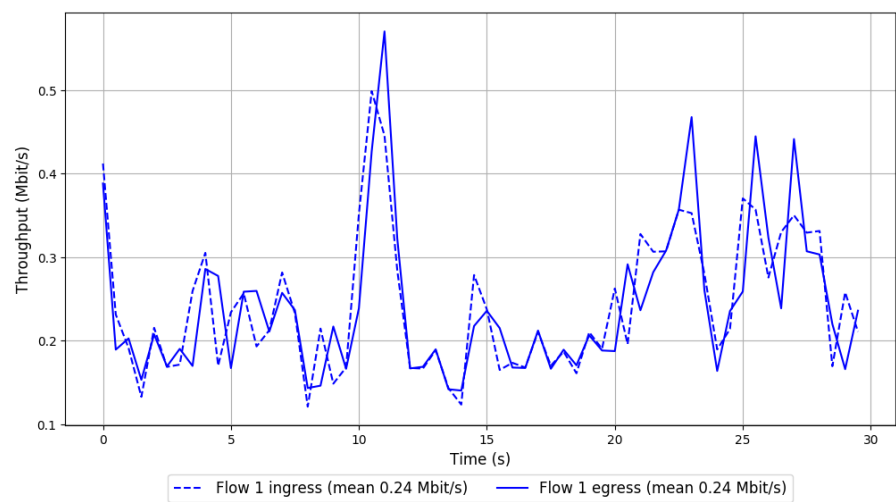


Run 3: Statistics of Sprout

Start at: 2018-03-05 18:28:51
End at: 2018-03-05 18:29:21
Local clock offset: -12.199 ms
Remote clock offset: -7.082 ms

Below is generated by plot.py at 2018-03-05 19:39:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 113.624 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 113.624 ms
Loss rate: 0.61%

Run 3: Report of Sprout — Data Link

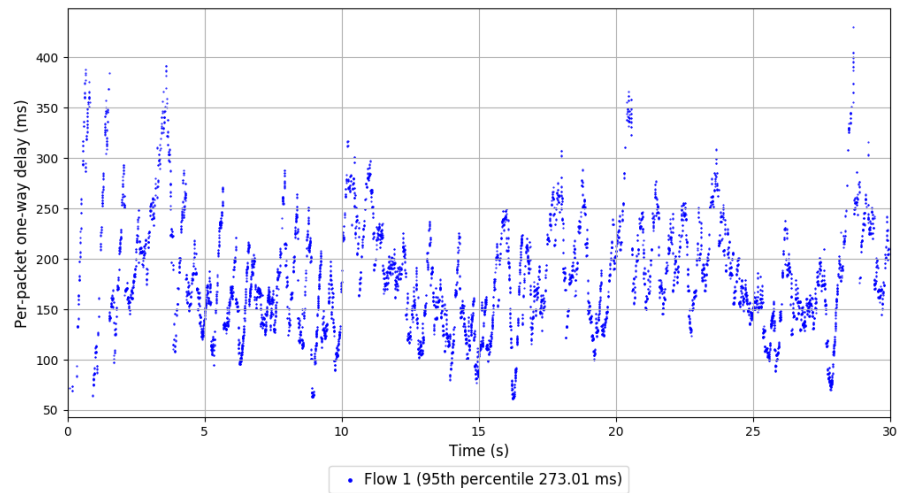
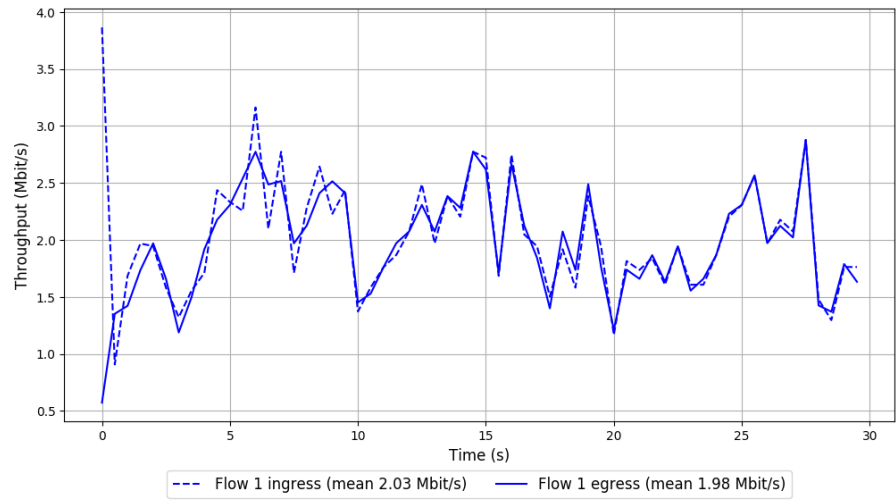


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-03-05 17:48:27
End at: 2018-03-05 17:48:57
Local clock offset: -3.921 ms
Remote clock offset: 7.771 ms

# Below is generated by plot.py at 2018-03-05 19:39:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 273.015 ms
Loss rate: 2.88%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 273.015 ms
Loss rate: 2.88%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-03-05 18:08:08

End at: 2018-03-05 18:08:38

Local clock offset: -8.389 ms

Remote clock offset: 7.541 ms

Below is generated by plot.py at 2018-03-05 19:39:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.15 Mbit/s

95th percentile per-packet one-way delay: 349.573 ms

Loss rate: 11.08%

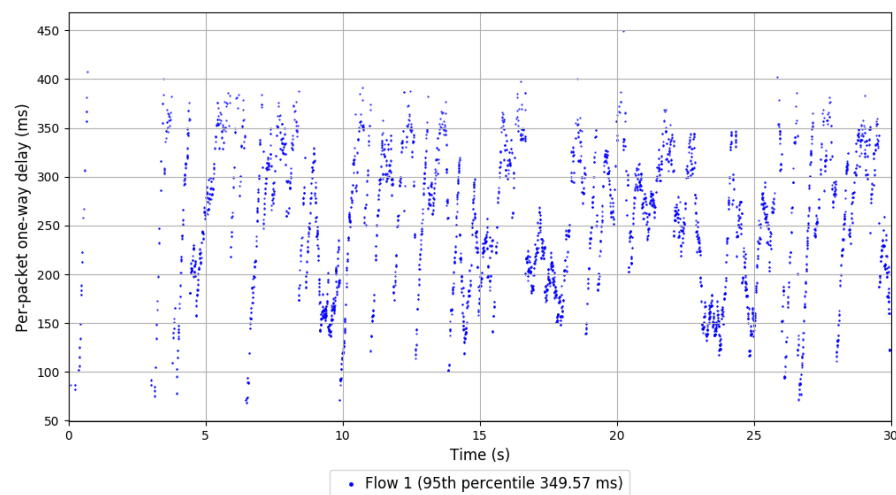
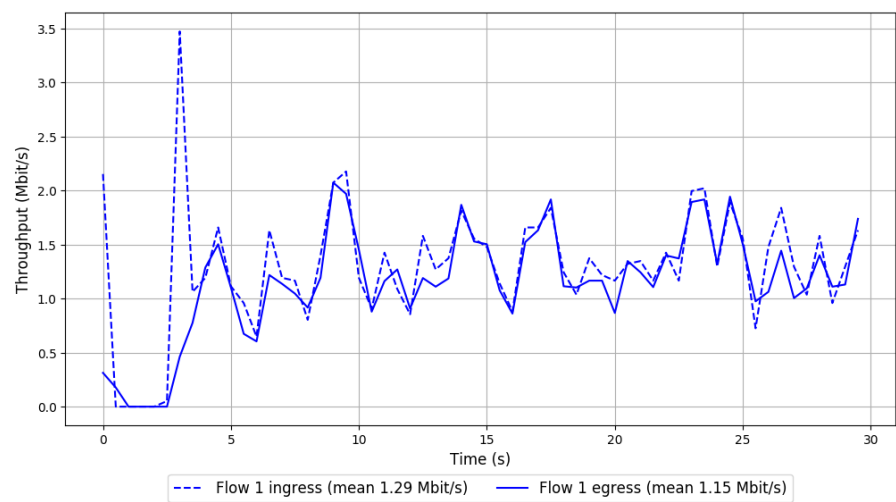
-- Flow 1:

Average throughput: 1.15 Mbit/s

95th percentile per-packet one-way delay: 349.573 ms

Loss rate: 11.08%

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

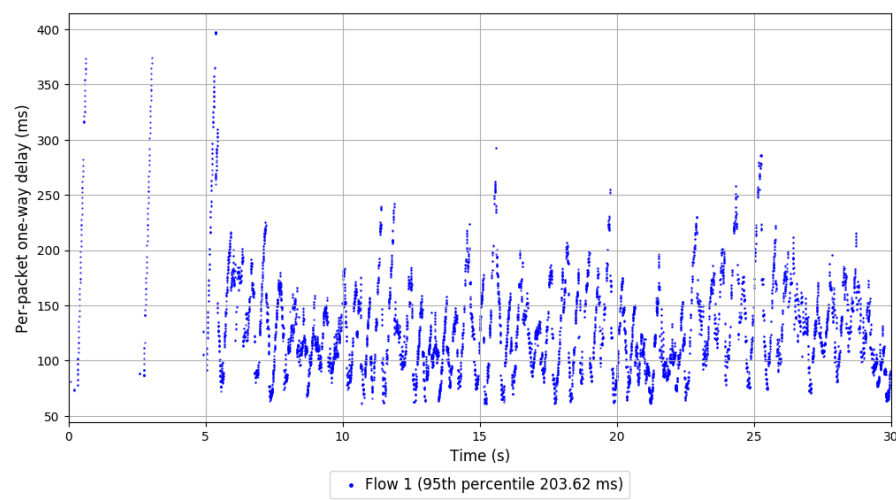
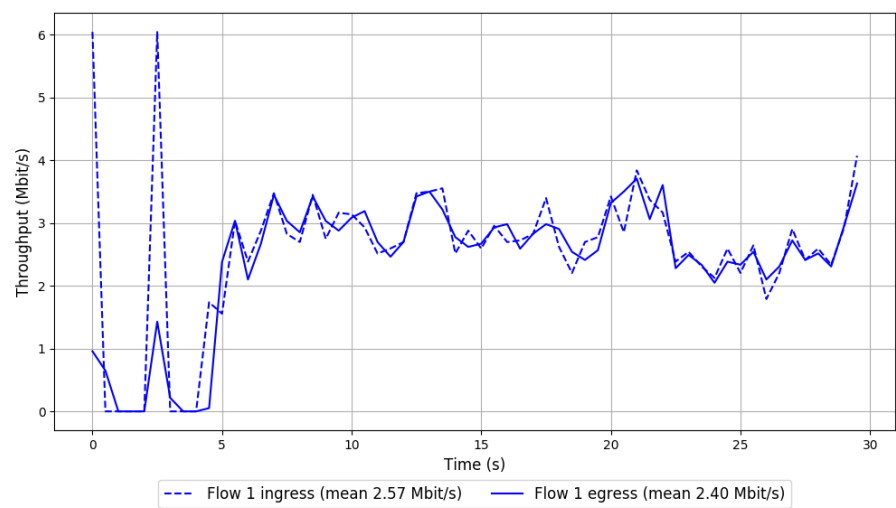


Run 3: Statistics of TaoVA-100x

Start at: 2018-03-05 18:27:45
End at: 2018-03-05 18:28:15
Local clock offset: -10.679 ms
Remote clock offset: -7.715 ms

Below is generated by plot.py at 2018-03-05 19:39:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 203.623 ms
Loss rate: 6.63%
-- Flow 1:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 203.623 ms
Loss rate: 6.63%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-03-05 17:55:01

End at: 2018-03-05 17:55:31

Local clock offset: -8.031 ms

Remote clock offset: 8.98 ms

Below is generated by plot.py at 2018-03-05 19:39:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 193.450 ms

Loss rate: 0.71%

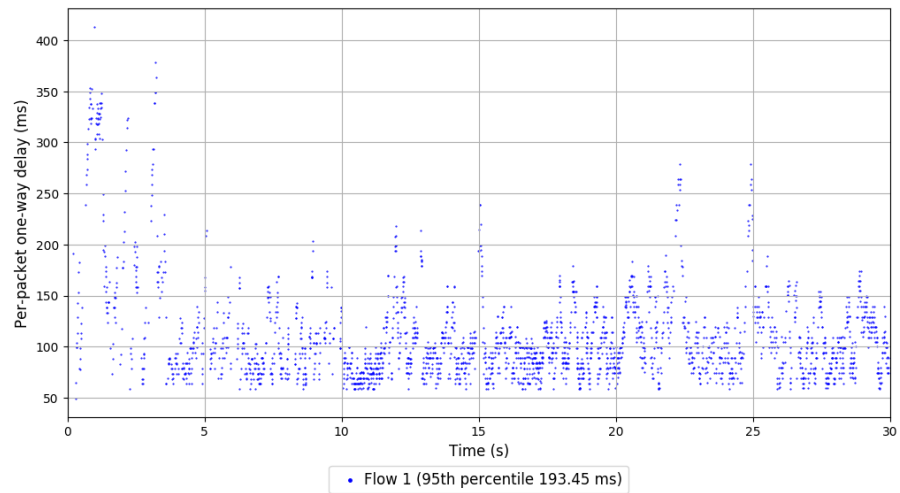
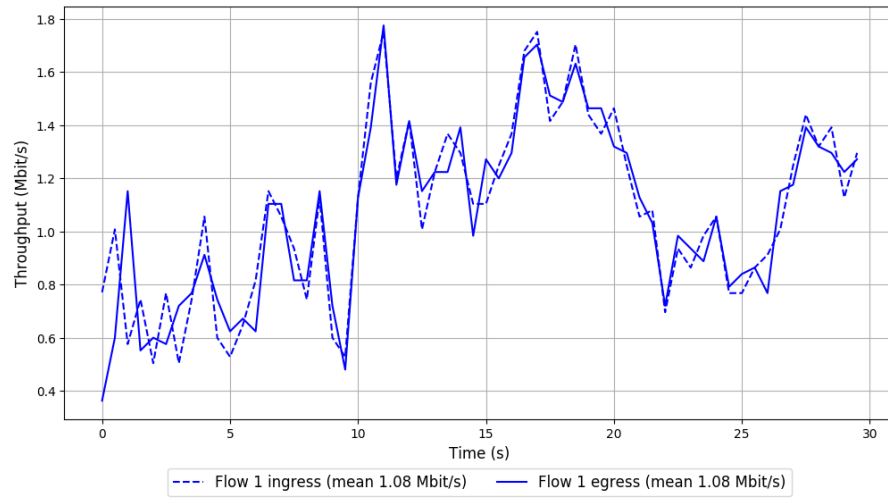
-- Flow 1:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 193.450 ms

Loss rate: 0.71%

Run 1: Report of TCP Vegas — Data Link

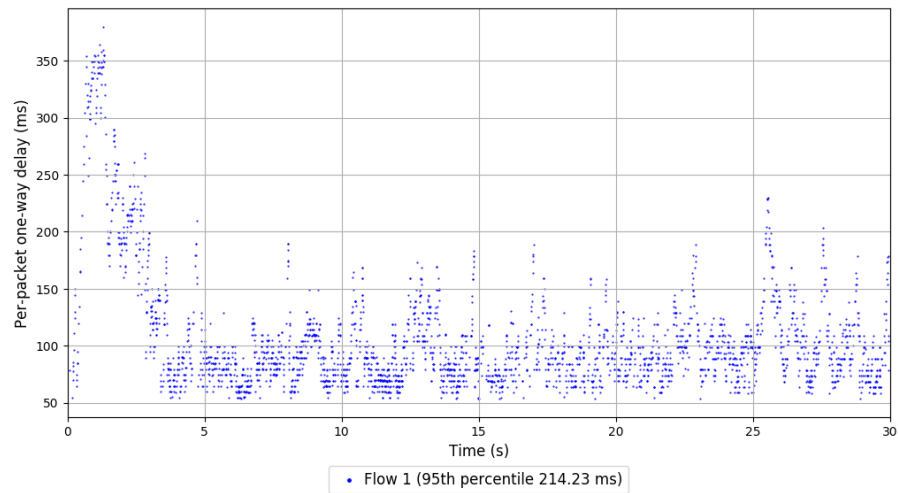
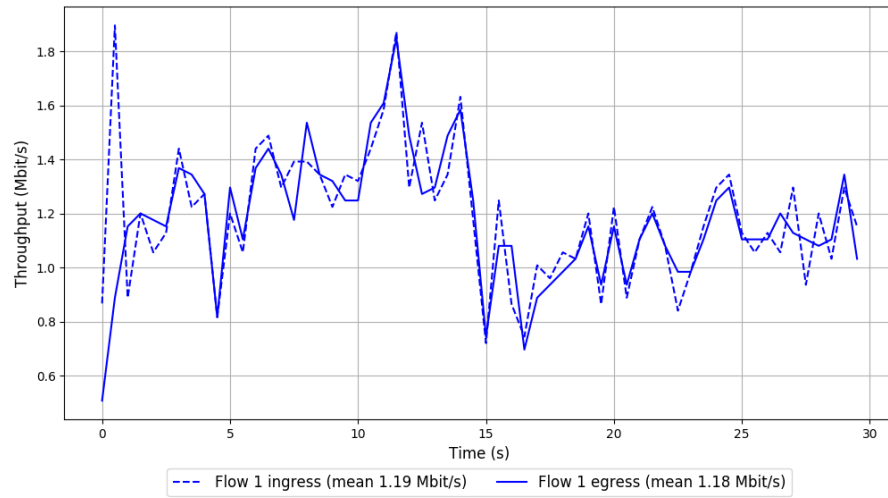


Run 2: Statistics of TCP Vegas

Start at: 2018-03-05 18:14:39
End at: 2018-03-05 18:15:09
Local clock offset: -17.952 ms
Remote clock offset: 0.556 ms

Below is generated by plot.py at 2018-03-05 19:39:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 214.227 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 214.227 ms
Loss rate: 1.31%

Run 2: Report of TCP Vegas — Data Link

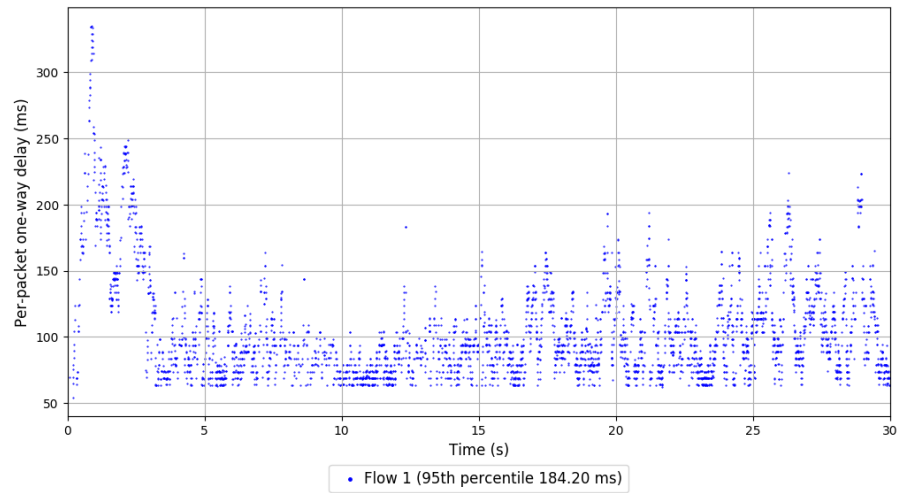
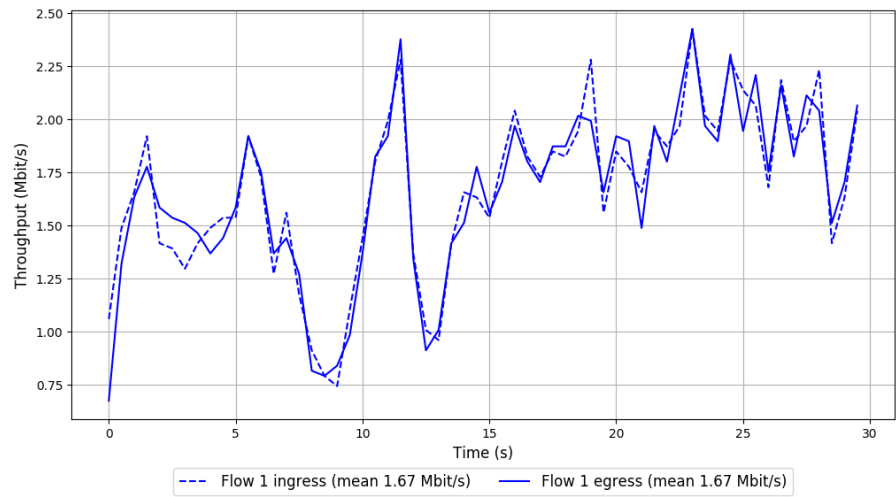


Run 3: Statistics of TCP Vegas

Start at: 2018-03-05 18:34:17
End at: 2018-03-05 18:34:47
Local clock offset: -15.036 ms
Remote clock offset: -7.453 ms

Below is generated by plot.py at 2018-03-05 19:39:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 184.199 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 184.199 ms
Loss rate: 0.55%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-03-05 17:53:55

End at: 2018-03-05 17:54:26

Local clock offset: -6.241 ms

Remote clock offset: 9.113 ms

Below is generated by plot.py at 2018-03-05 19:39:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 374.147 ms

Loss rate: 32.06%

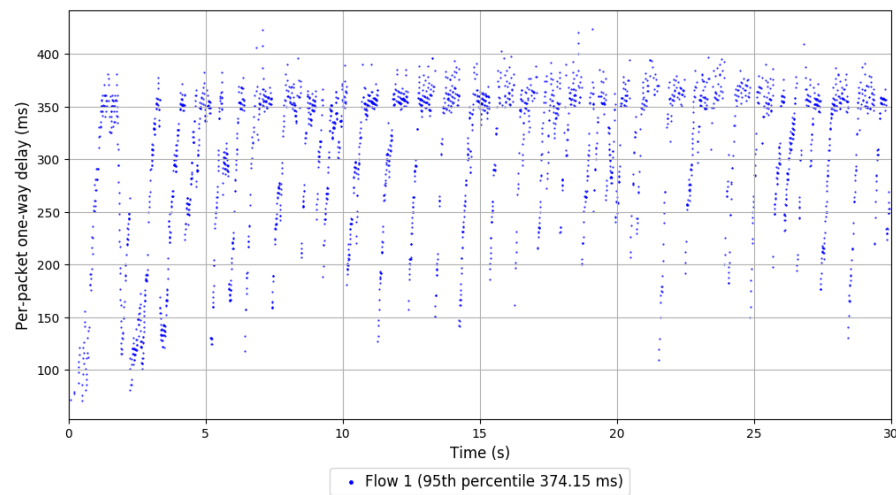
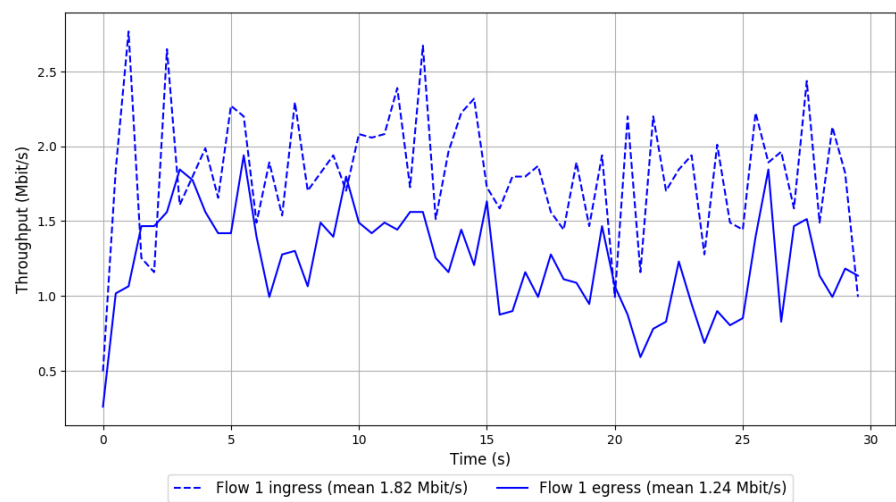
-- Flow 1:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 374.147 ms

Loss rate: 32.06%

Run 1: Report of Verus — Data Link

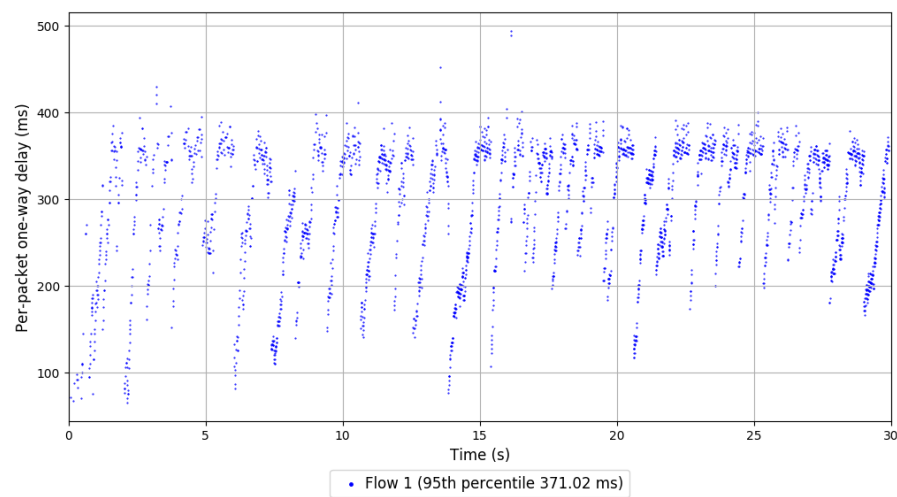
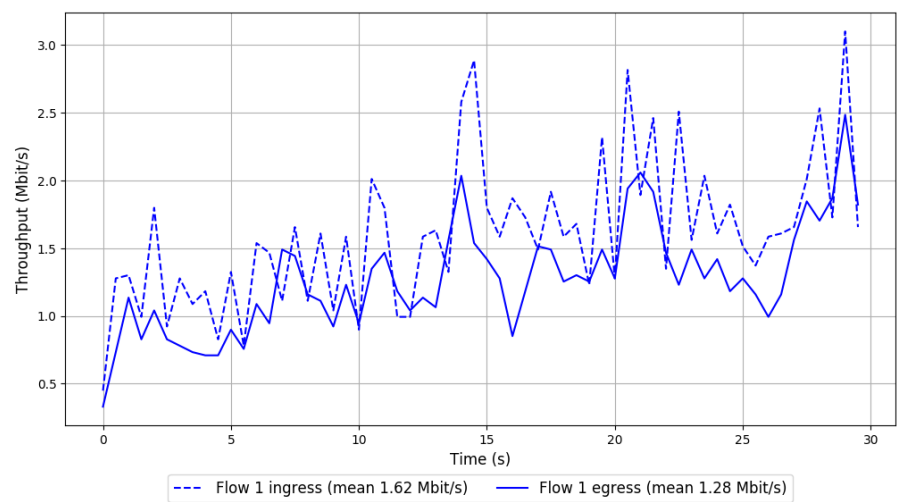


Run 2: Statistics of Verus

Start at: 2018-03-05 18:13:34
End at: 2018-03-05 18:14:04
Local clock offset: -12.902 ms
Remote clock offset: 1.045 ms

Below is generated by plot.py at 2018-03-05 19:39:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 371.018 ms
Loss rate: 20.73%
-- Flow 1:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 371.018 ms
Loss rate: 20.73%

Run 2: Report of Verus — Data Link

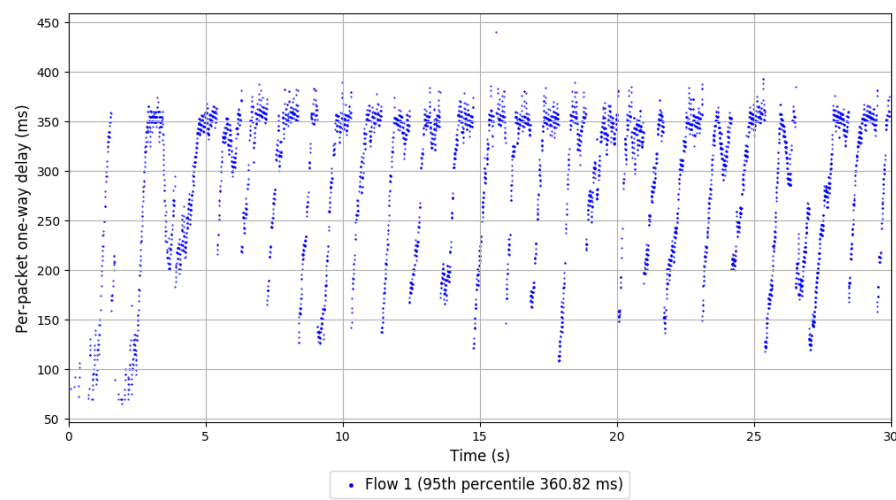
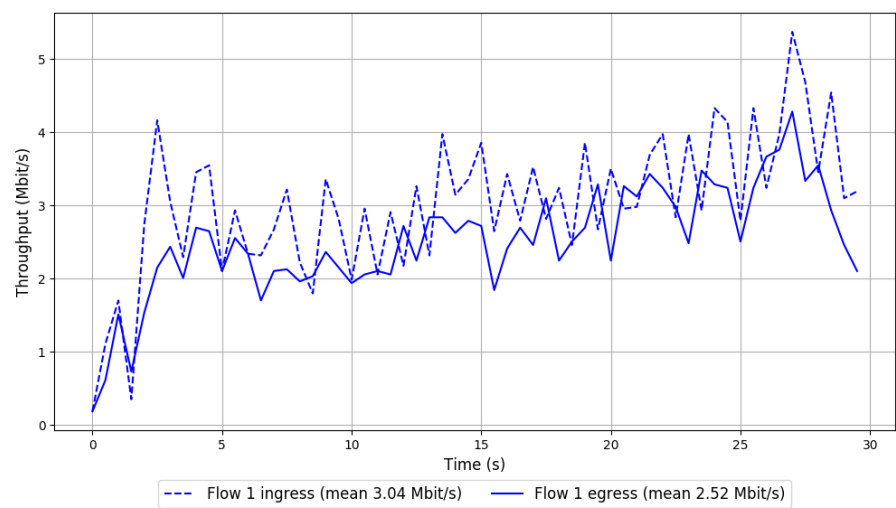


Run 3: Statistics of Verus

Start at: 2018-03-05 18:33:11
End at: 2018-03-05 18:33:41
Local clock offset: -13.323 ms
Remote clock offset: -7.995 ms

Below is generated by plot.py at 2018-03-05 19:39:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 360.822 ms
Loss rate: 17.07%
-- Flow 1:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 360.822 ms
Loss rate: 17.07%

Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

Start at: 2018-03-05 17:59:22

End at: 2018-03-05 17:59:52

Local clock offset: -5.567 ms

Remote clock offset: 9.858 ms

Below is generated by plot.py at 2018-03-05 19:39:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.30 Mbit/s

95th percentile per-packet one-way delay: 217.279 ms

Loss rate: 2.99%

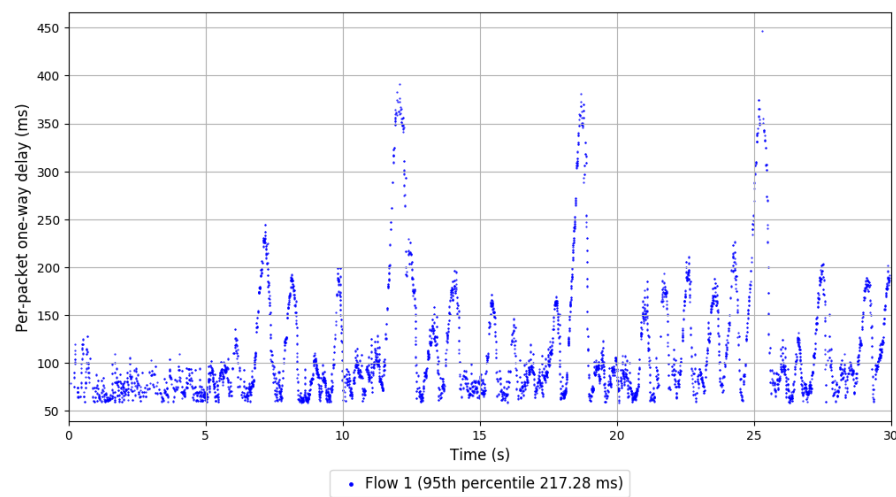
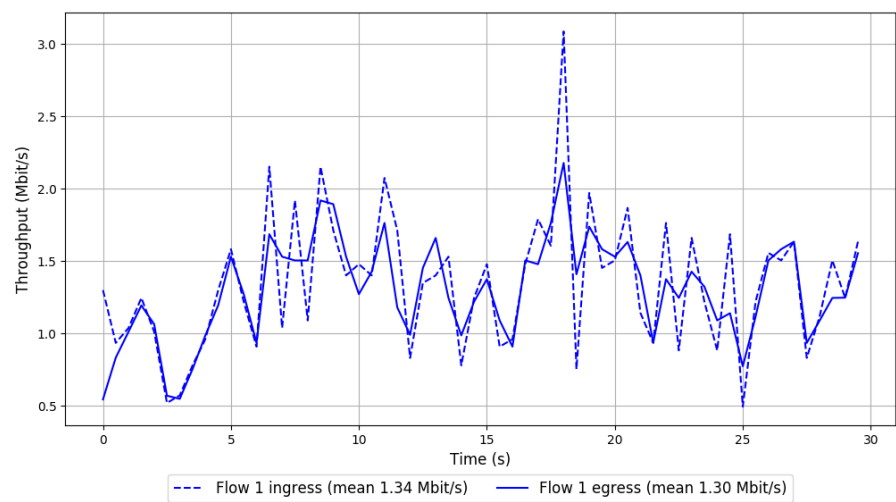
-- Flow 1:

Average throughput: 1.30 Mbit/s

95th percentile per-packet one-way delay: 217.279 ms

Loss rate: 2.99%

Run 1: Report of Copa — Data Link

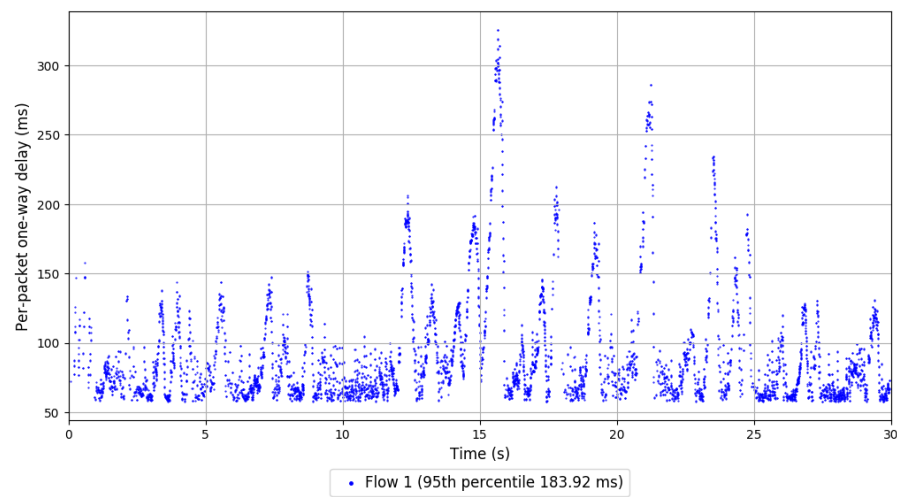
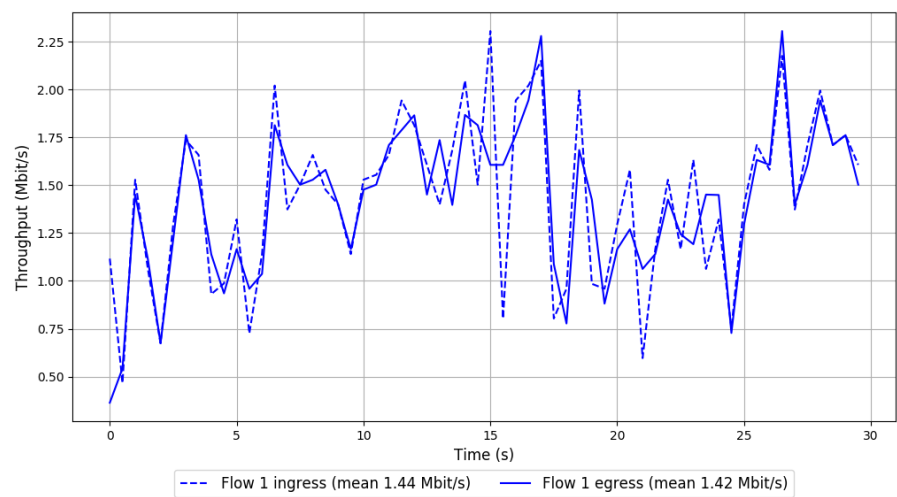


Run 2: Statistics of Copa

Start at: 2018-03-05 18:18:59
End at: 2018-03-05 18:19:29
Local clock offset: -11.515 ms
Remote clock offset: -2.851 ms

Below is generated by plot.py at 2018-03-05 19:39:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 183.919 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 183.919 ms
Loss rate: 1.12%

Run 2: Report of Copa — Data Link

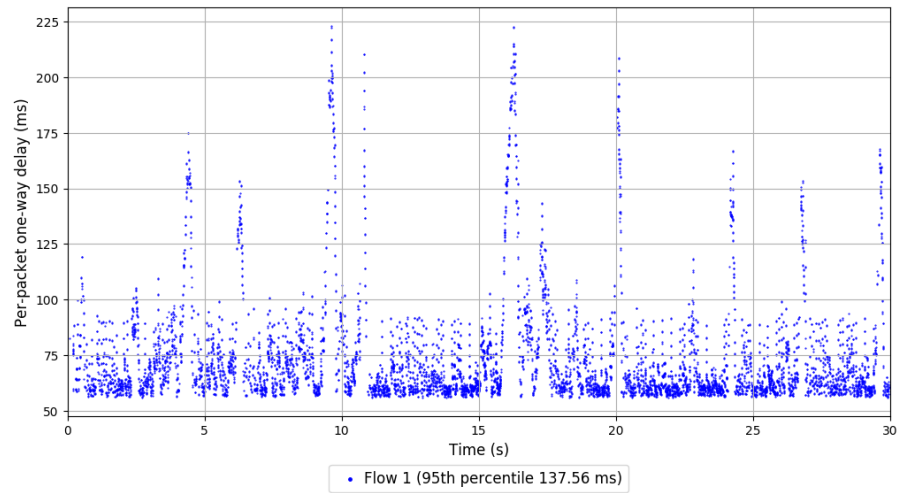
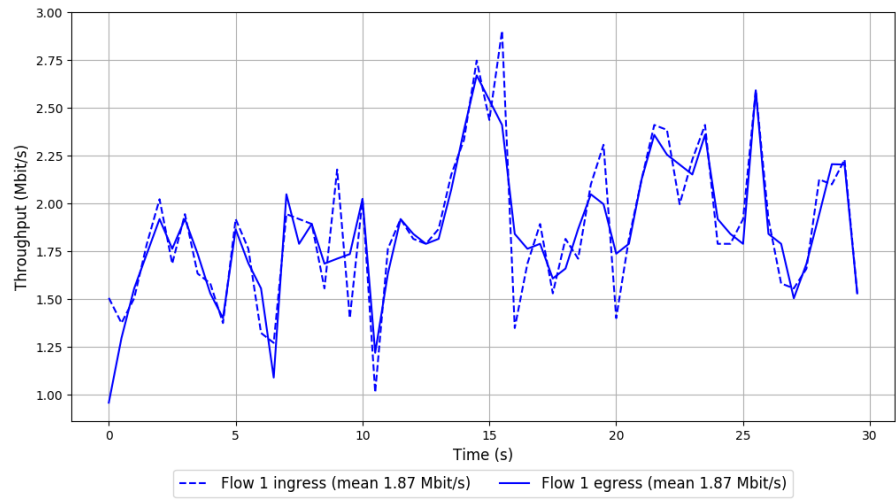


Run 3: Statistics of Copa

Start at: 2018-03-05 18:38:37
End at: 2018-03-05 18:39:07
Local clock offset: -21.184 ms
Remote clock offset: -9.609 ms

Below is generated by plot.py at 2018-03-05 19:39:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 137.562 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 137.562 ms
Loss rate: 0.63%

Run 3: Report of Copa — Data Link



Run 1: Statistics of FillP

Start at: 2018-03-05 17:44:04

End at: 2018-03-05 17:44:34

Local clock offset: -1.792 ms

Remote clock offset: 6.845 ms

Below is generated by plot.py at 2018-03-05 19:39:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.78 Mbit/s

95th percentile per-packet one-way delay: 385.403 ms

Loss rate: 94.47%

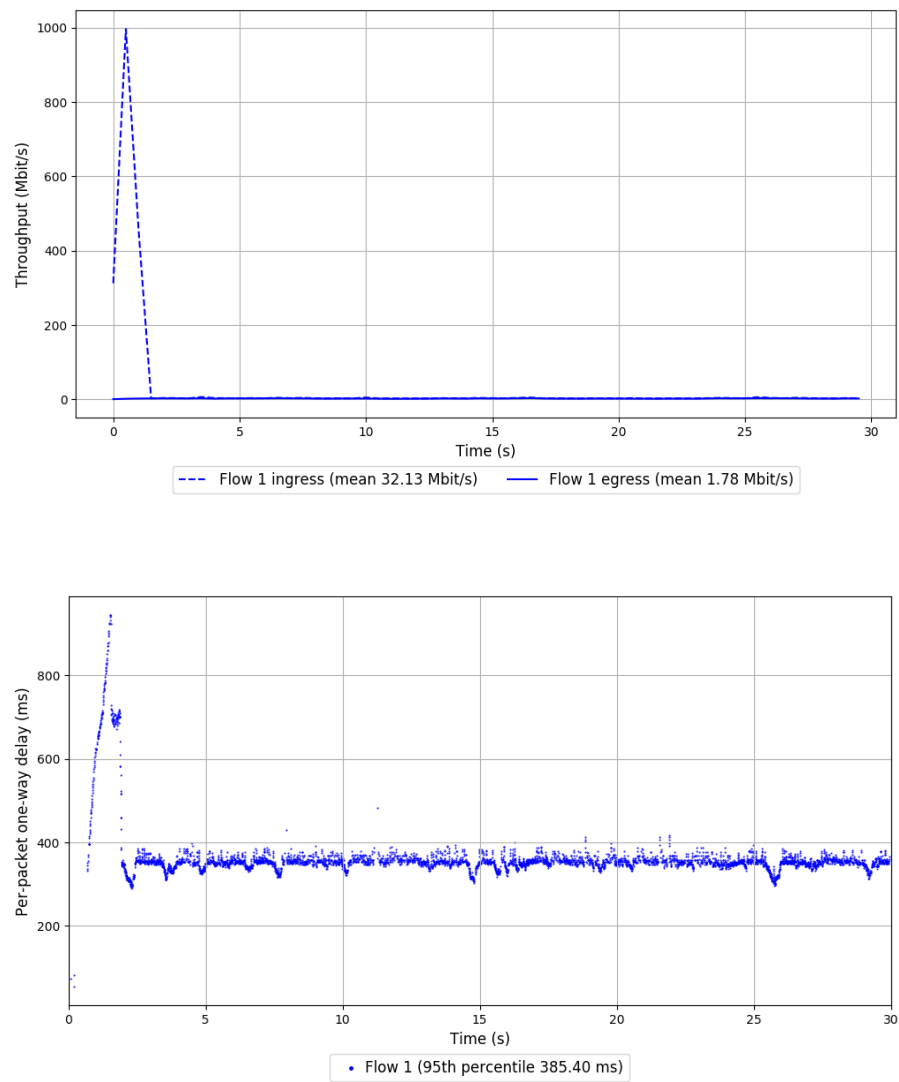
-- Flow 1:

Average throughput: 1.78 Mbit/s

95th percentile per-packet one-way delay: 385.403 ms

Loss rate: 94.47%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-03-05 18:03:46

End at: 2018-03-05 18:04:16

Local clock offset: -5.479 ms

Remote clock offset: 9.79 ms

Below is generated by plot.py at 2018-03-05 19:39:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.69 Mbit/s

95th percentile per-packet one-way delay: 379.812 ms

Loss rate: 91.82%

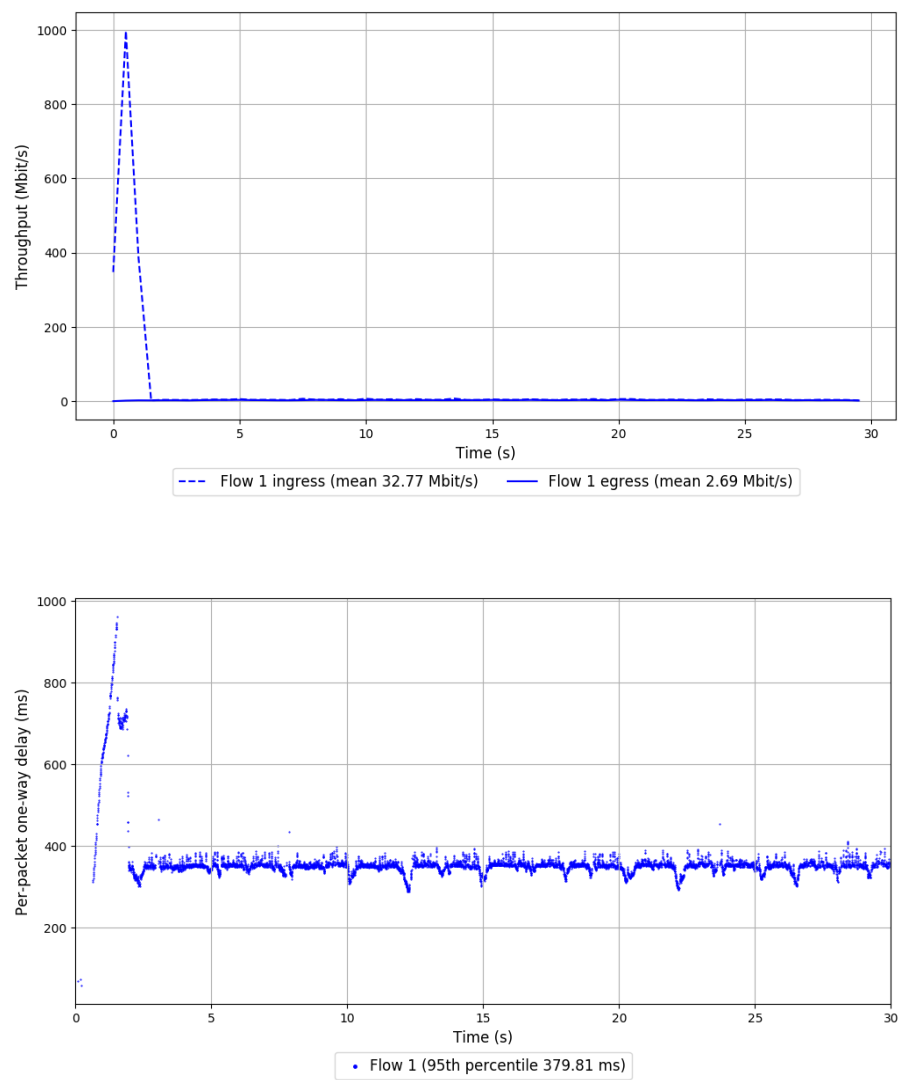
-- Flow 1:

Average throughput: 2.69 Mbit/s

95th percentile per-packet one-way delay: 379.812 ms

Loss rate: 91.82%

Run 2: Report of FillP — Data Link

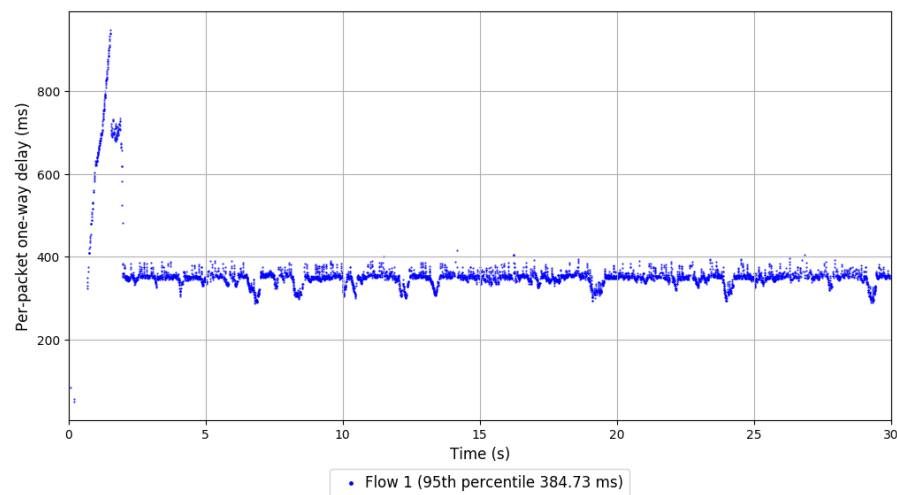
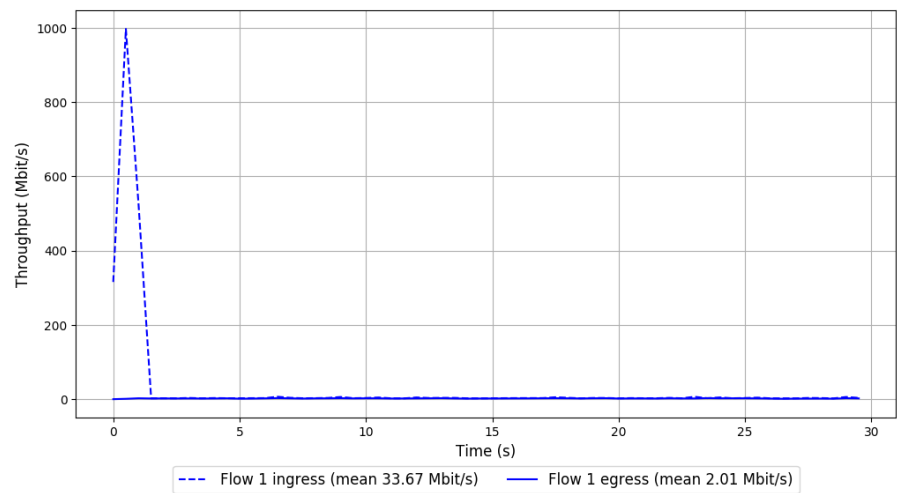


Run 3: Statistics of FillP

Start at: 2018-03-05 18:23:21
End at: 2018-03-05 18:23:51
Local clock offset: -12.054 ms
Remote clock offset: -5.891 ms

Below is generated by plot.py at 2018-03-05 19:39:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.01 Mbit/s
95th percentile per-packet one-way delay: 384.726 ms
Loss rate: 94.04%
-- Flow 1:
Average throughput: 2.01 Mbit/s
95th percentile per-packet one-way delay: 384.726 ms
Loss rate: 94.04%

Run 3: Report of FillP — Data Link



Run 1: Statistics of Indigo-1-32

Start at: 2018-03-05 17:50:38

End at: 2018-03-05 17:51:08

Local clock offset: -3.648 ms

Remote clock offset: 8.471 ms

Below is generated by plot.py at 2018-03-05 19:39:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.63 Mbit/s

95th percentile per-packet one-way delay: 138.625 ms

Loss rate: 1.71%

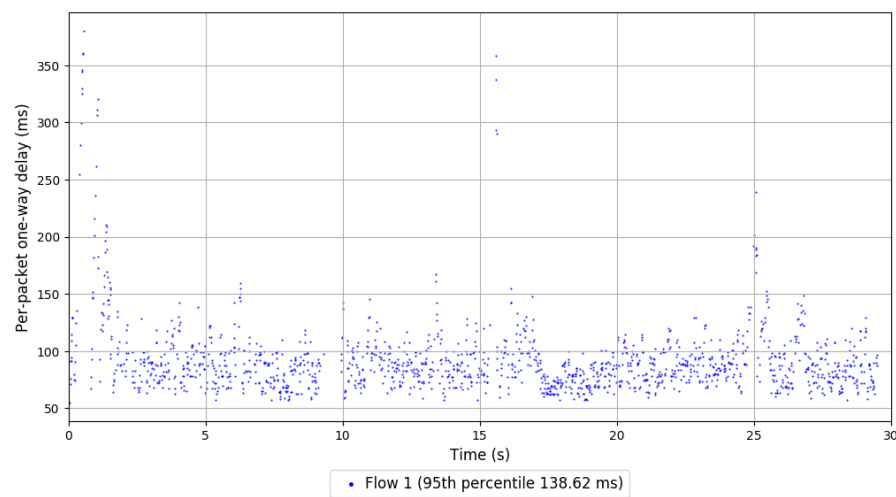
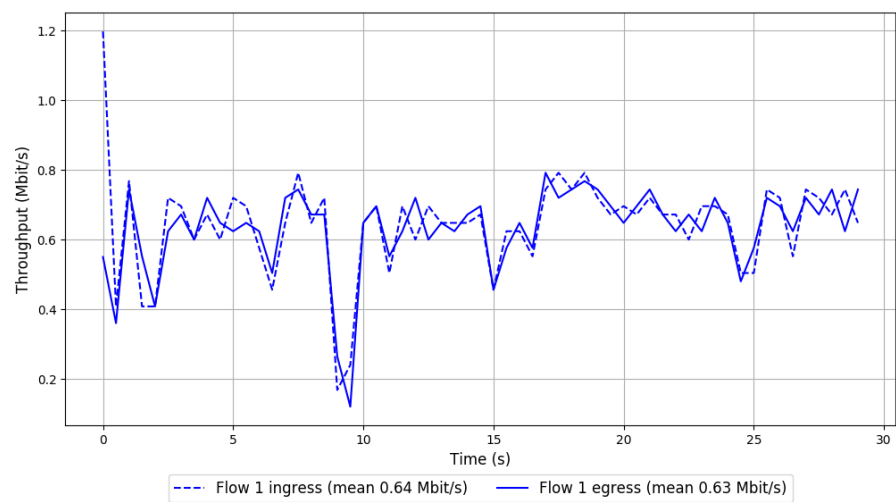
-- Flow 1:

Average throughput: 0.63 Mbit/s

95th percentile per-packet one-way delay: 138.625 ms

Loss rate: 1.71%

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

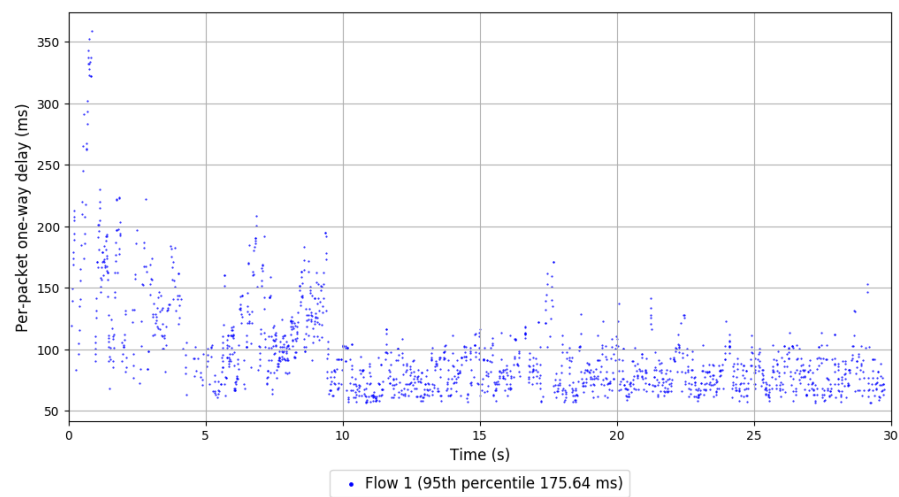
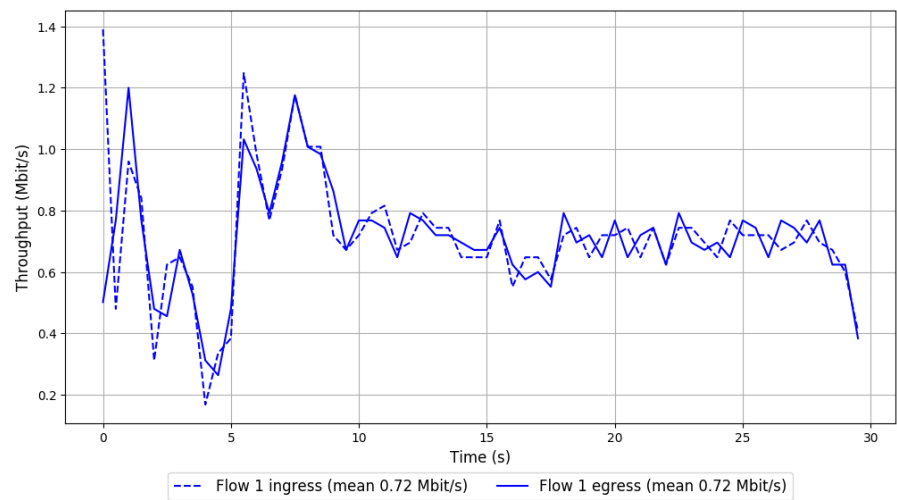


Run 2: Statistics of Indigo-1-32

Start at: 2018-03-05 18:10:18
End at: 2018-03-05 18:10:48
Local clock offset: -12.673 ms
Remote clock offset: 4.986 ms

Below is generated by plot.py at 2018-03-05 19:39:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 175.644 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 175.644 ms
Loss rate: 0.84%

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

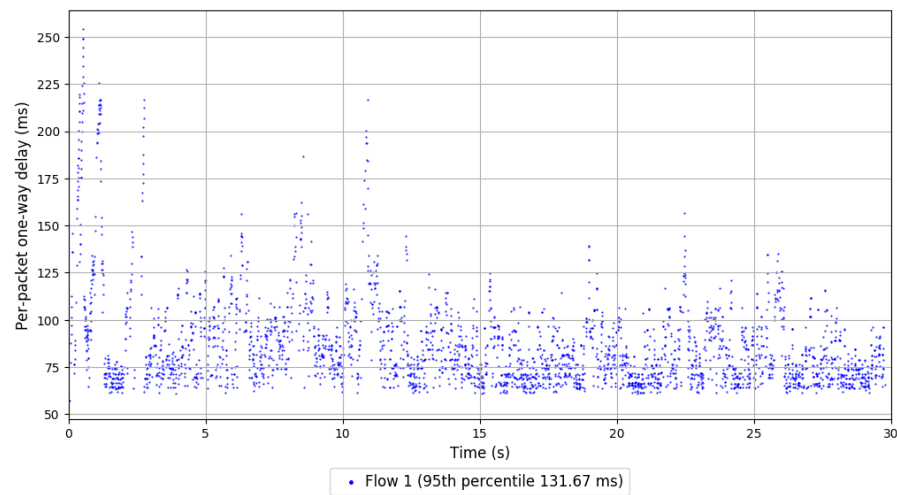
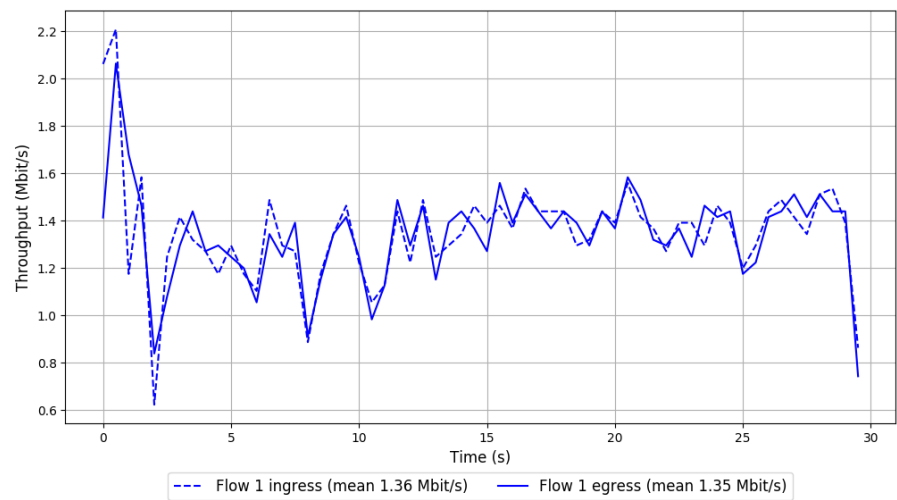


Run 3: Statistics of Indigo-1-32

Start at: 2018-03-05 18:29:56
End at: 2018-03-05 18:30:26
Local clock offset: -11.877 ms
Remote clock offset: -7.597 ms

Below is generated by plot.py at 2018-03-05 19:39:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 131.671 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 131.671 ms
Loss rate: 0.65%

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



Run 1: Statistics of Vivace-latency

Start at: 2018-03-05 17:46:16

End at: 2018-03-05 17:46:46

Local clock offset: -3.02 ms

Remote clock offset: 7.115 ms

Below is generated by plot.py at 2018-03-05 19:39:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 339.847 ms

Loss rate: 5.15%

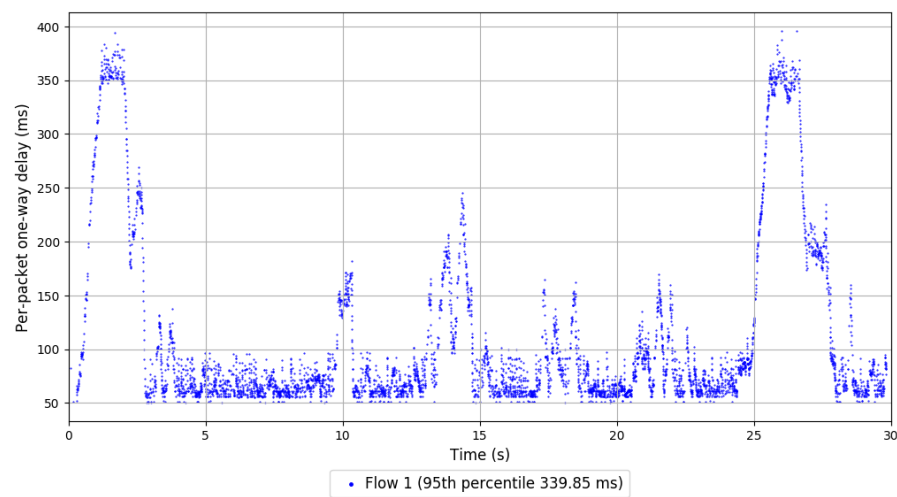
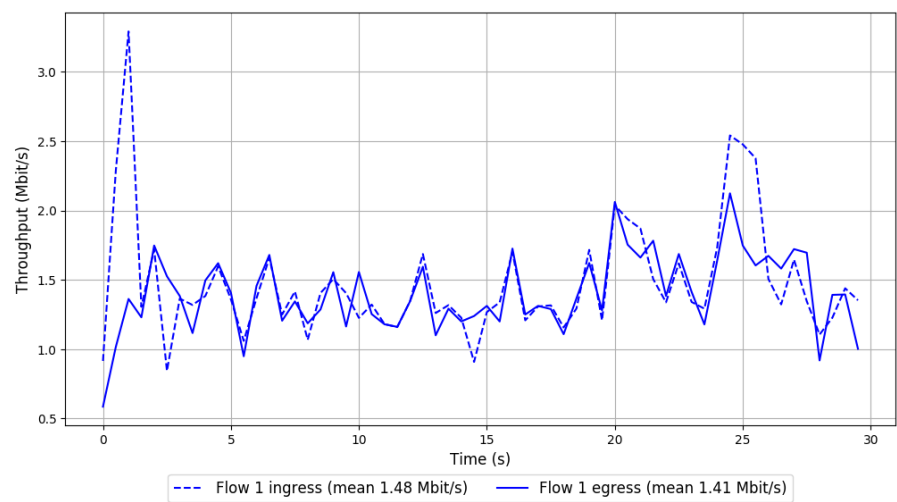
-- Flow 1:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 339.847 ms

Loss rate: 5.15%

Run 1: Report of Vivace-latency — Data Link

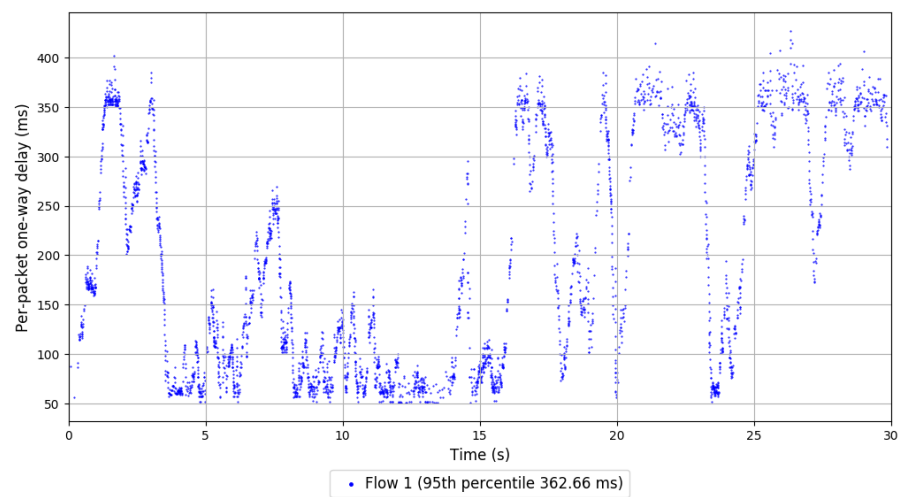
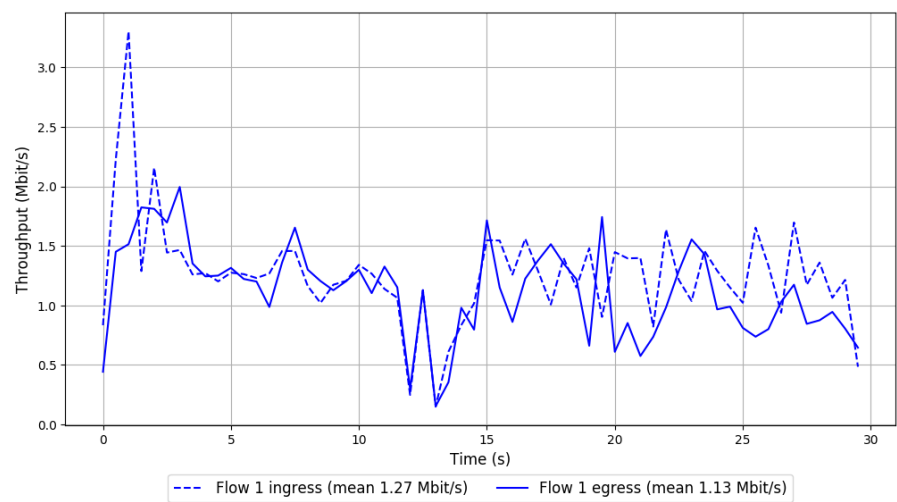


Run 2: Statistics of Vivace-latency

Start at: 2018-03-05 18:05:57
End at: 2018-03-05 18:06:27
Local clock offset: -6.976 ms
Remote clock offset: 11.436 ms

Below is generated by plot.py at 2018-03-05 19:39:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 362.663 ms
Loss rate: 11.20%
-- Flow 1:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 362.663 ms
Loss rate: 11.20%

Run 2: Report of Vivace-latency — Data Link

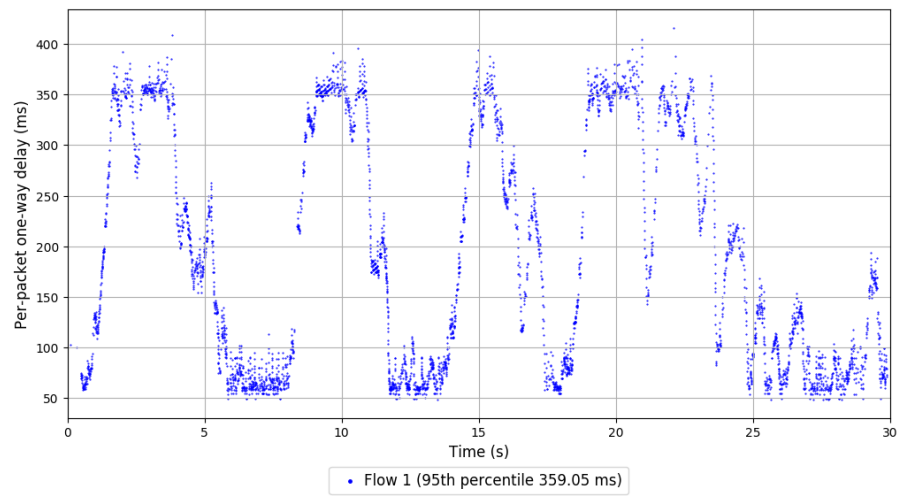
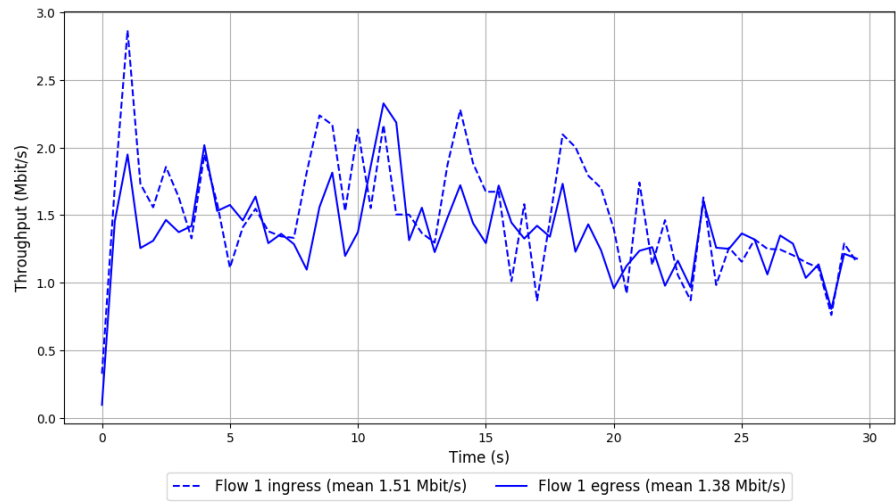


Run 3: Statistics of Vivace-latency

Start at: 2018-03-05 18:25:33
End at: 2018-03-05 18:26:03
Local clock offset: -11.911 ms
Remote clock offset: -5.765 ms

Below is generated by plot.py at 2018-03-05 19:39:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 359.049 ms
Loss rate: 8.40%
-- Flow 1:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 359.049 ms
Loss rate: 8.40%

Run 3: Report of Vivace-latency — Data Link



Run 1: Statistics of Vivace-loss

Start at: 2018-03-05 17:45:10

End at: 2018-03-05 17:45:40

Local clock offset: -2.134 ms

Remote clock offset: 6.225 ms

Below is generated by plot.py at 2018-03-05 19:39:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.19 Mbit/s

95th percentile per-packet one-way delay: 369.298 ms

Loss rate: 23.39%

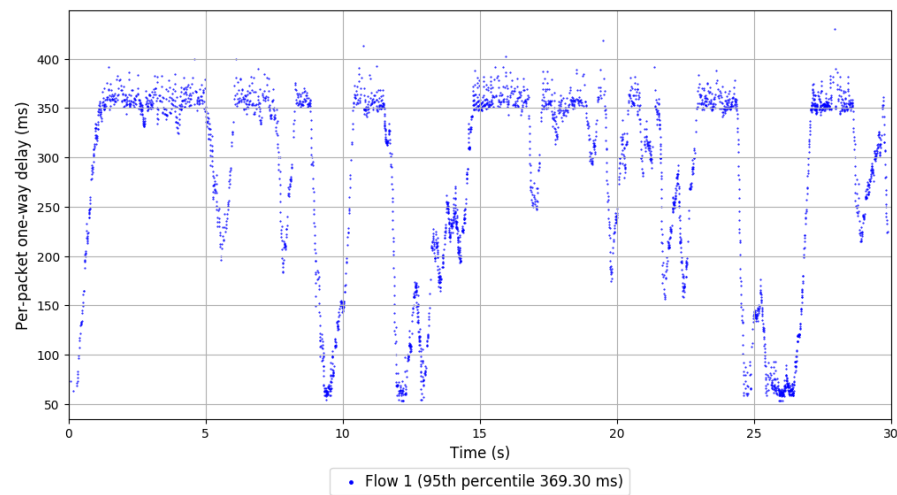
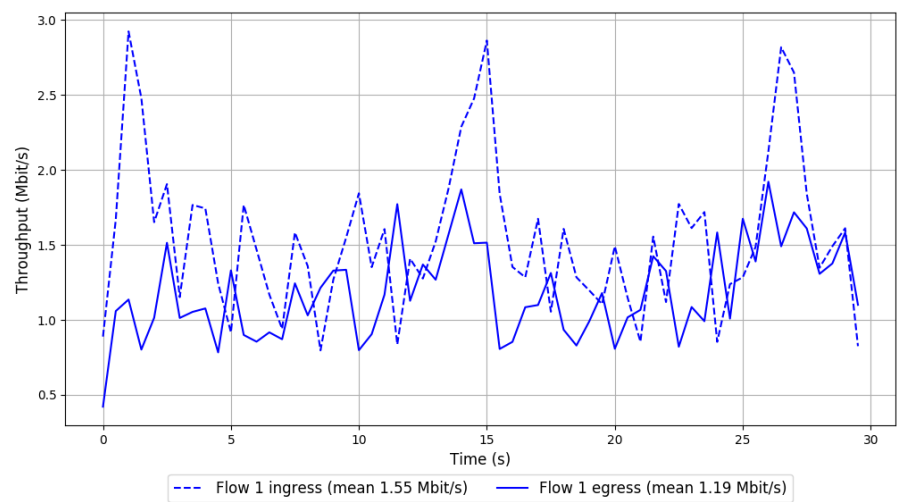
-- Flow 1:

Average throughput: 1.19 Mbit/s

95th percentile per-packet one-way delay: 369.298 ms

Loss rate: 23.39%

Run 1: Report of Vivace-loss — Data Link

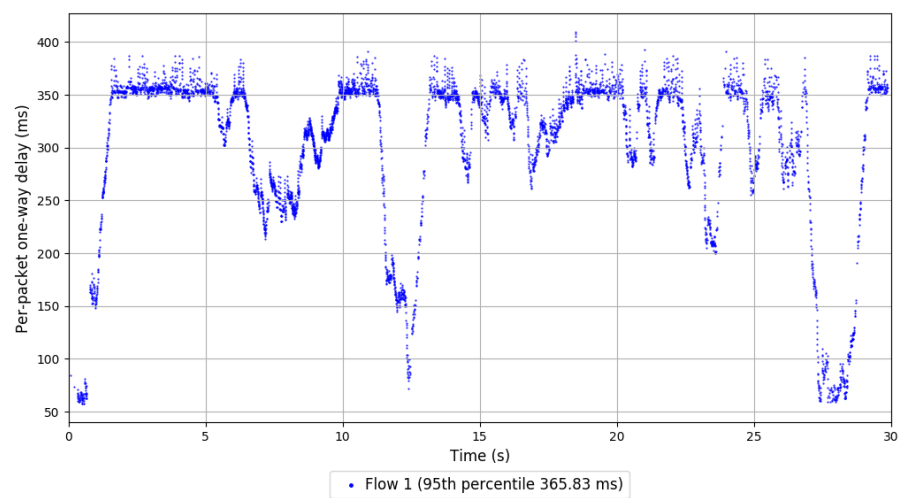
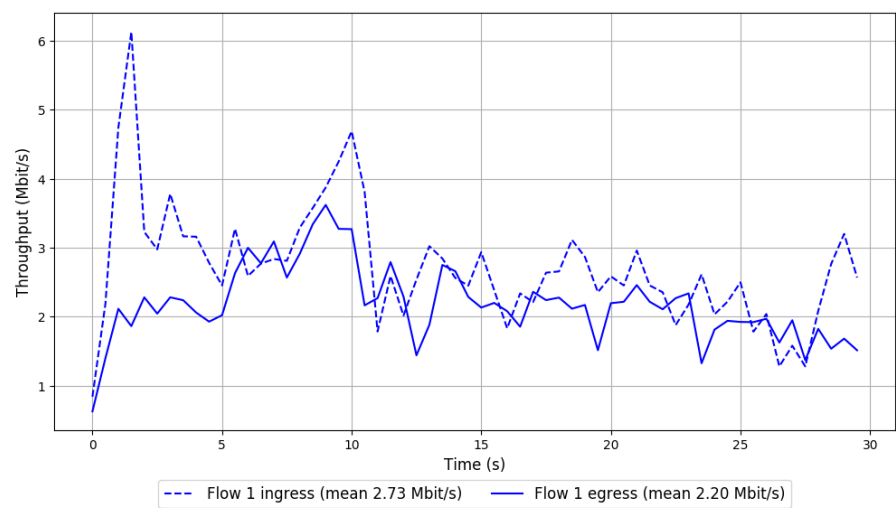


Run 2: Statistics of Vivace-loss

Start at: 2018-03-05 18:04:51
End at: 2018-03-05 18:05:21
Local clock offset: -6.159 ms
Remote clock offset: 10.381 ms

Below is generated by plot.py at 2018-03-05 19:39:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.20 Mbit/s
95th percentile per-packet one-way delay: 365.833 ms
Loss rate: 19.68%
-- Flow 1:
Average throughput: 2.20 Mbit/s
95th percentile per-packet one-way delay: 365.833 ms
Loss rate: 19.68%

Run 2: Report of Vivace-loss — Data Link

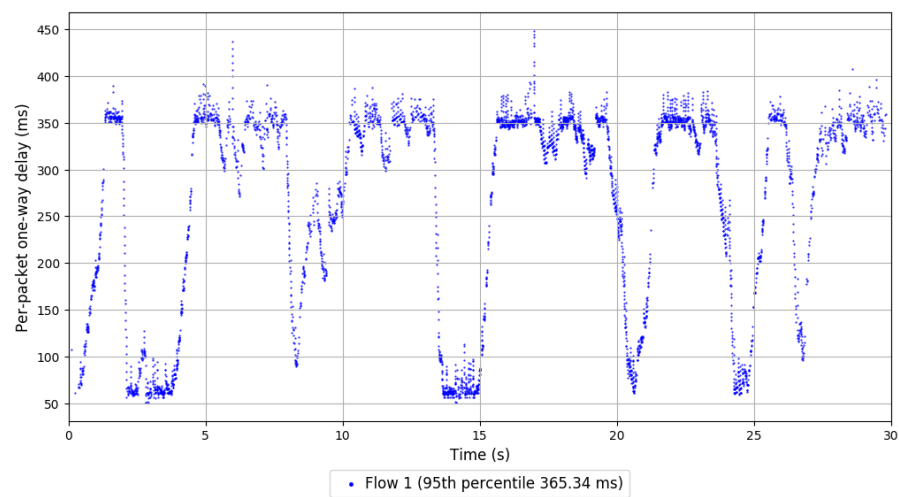
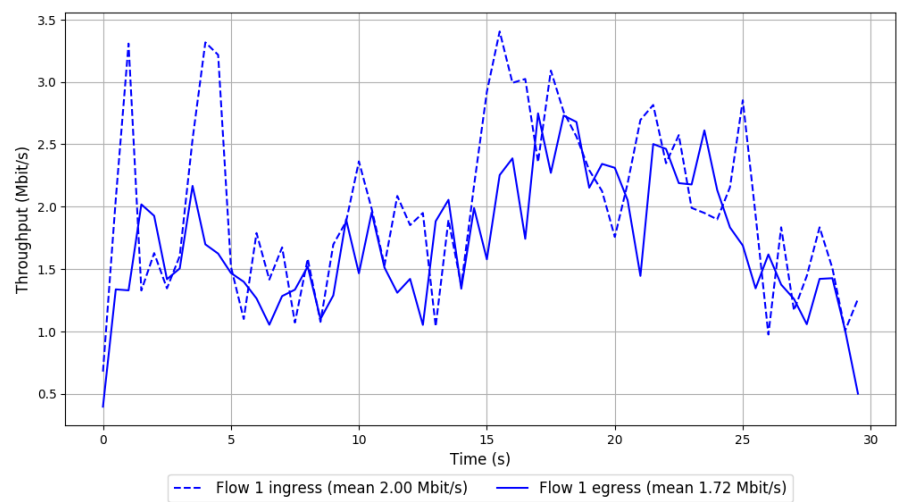


Run 3: Statistics of Vivace-loss

Start at: 2018-03-05 18:24:28
End at: 2018-03-05 18:24:58
Local clock offset: -16.451 ms
Remote clock offset: -11.327 ms

Below is generated by plot.py at 2018-03-05 19:39:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 365.340 ms
Loss rate: 14.59%
-- Flow 1:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 365.340 ms
Loss rate: 14.59%

Run 3: Report of Vivace-loss — Data Link



Run 1: Statistics of Vivace-LTE

Start at: 2018-03-05 17:41:51

End at: 2018-03-05 17:42:21

Local clock offset: 3.727 ms

Remote clock offset: 6.203 ms

Below is generated by plot.py at 2018-03-05 19:39:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 374.260 ms

Loss rate: 19.27%

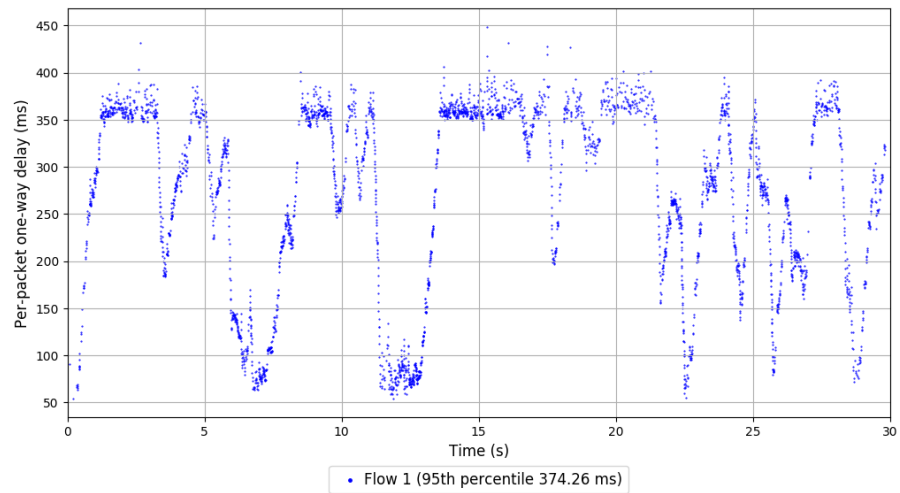
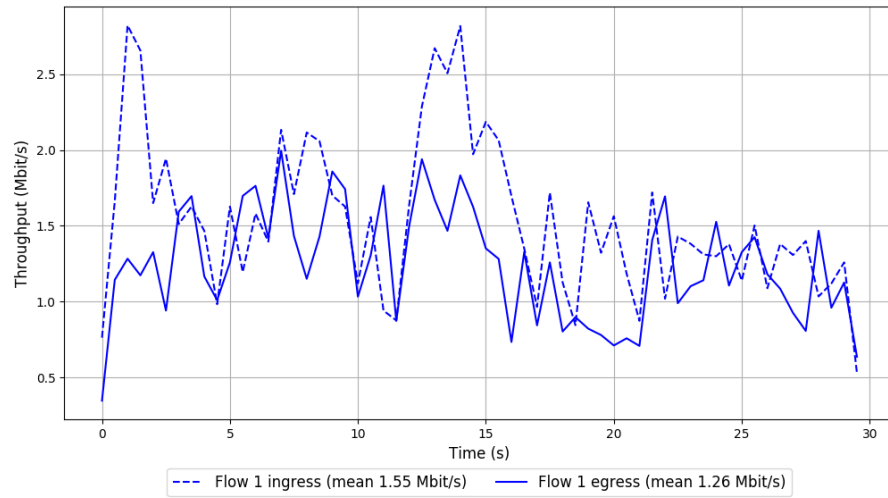
-- Flow 1:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 374.260 ms

Loss rate: 19.27%

Run 1: Report of Vivace-LTE — Data Link



Run 2: Statistics of Vivace-LTE

Start at: 2018-03-05 18:01:34

End at: 2018-03-05 18:02:04

Local clock offset: -5.348 ms

Remote clock offset: 9.936 ms

Below is generated by plot.py at 2018-03-05 19:39:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.76 Mbit/s

95th percentile per-packet one-way delay: 355.408 ms

Loss rate: 6.69%

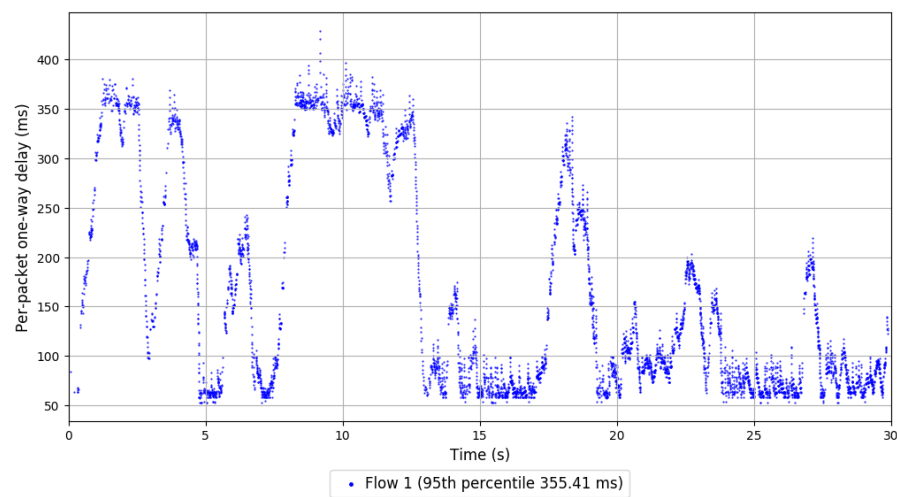
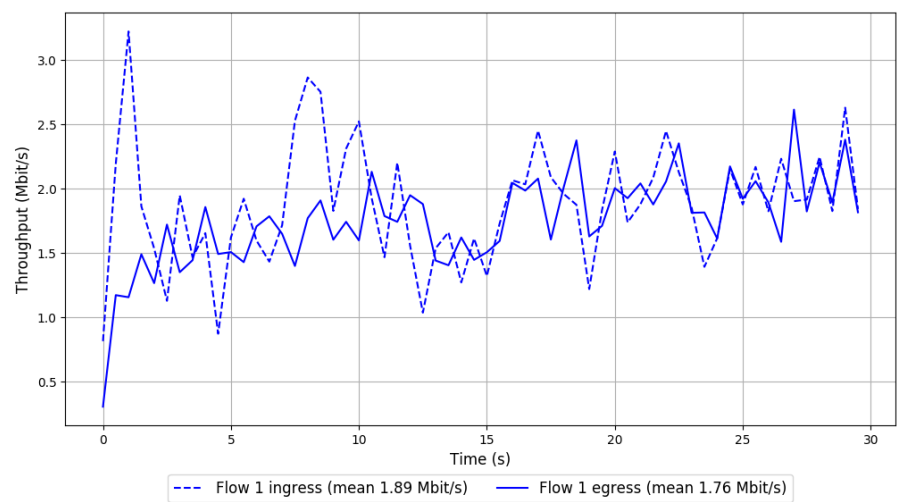
-- Flow 1:

Average throughput: 1.76 Mbit/s

95th percentile per-packet one-way delay: 355.408 ms

Loss rate: 6.69%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-03-05 18:21:10
End at: 2018-03-05 18:21:40
Local clock offset: -10.746 ms
Remote clock offset: -4.45 ms

Below is generated by plot.py at 2018-03-05 19:39:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 354.713 ms
Loss rate: 5.63%
-- Flow 1:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 354.713 ms
Loss rate: 5.63%

Run 3: Report of Vivace-LTE — Data Link

