

Pantheon Report

Generated at 2018-02-03 15:07:58 (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).

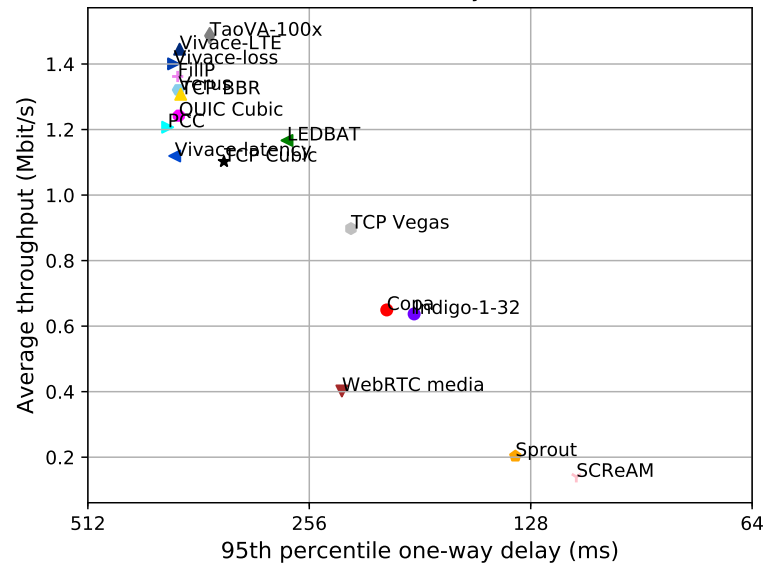
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

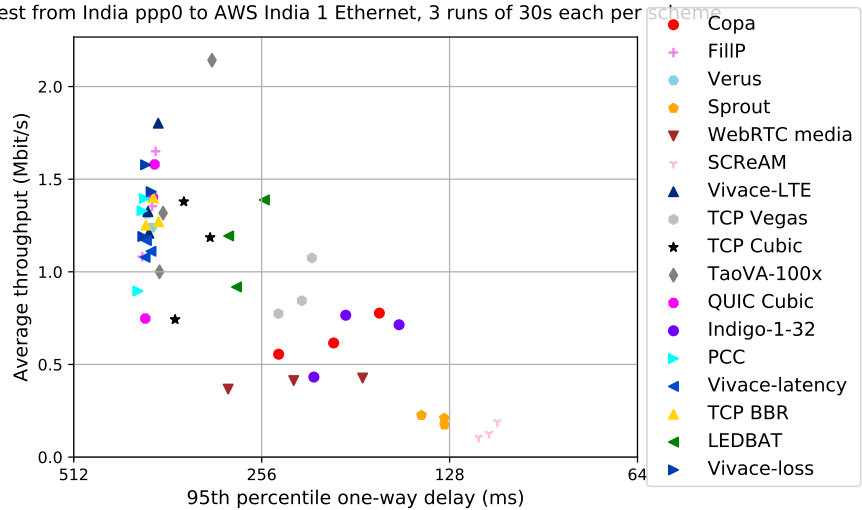
Git summary:

```
branch: master @ 70217998b3c9a7166a95460a70c0854d1326e100
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ fb9c9ab842e5614ad52911a76fb9bd1c1b0dca86
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
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



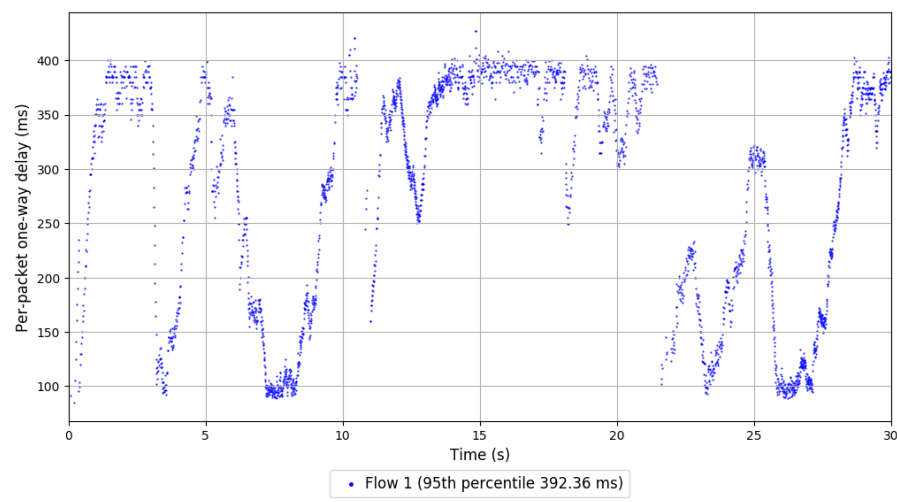
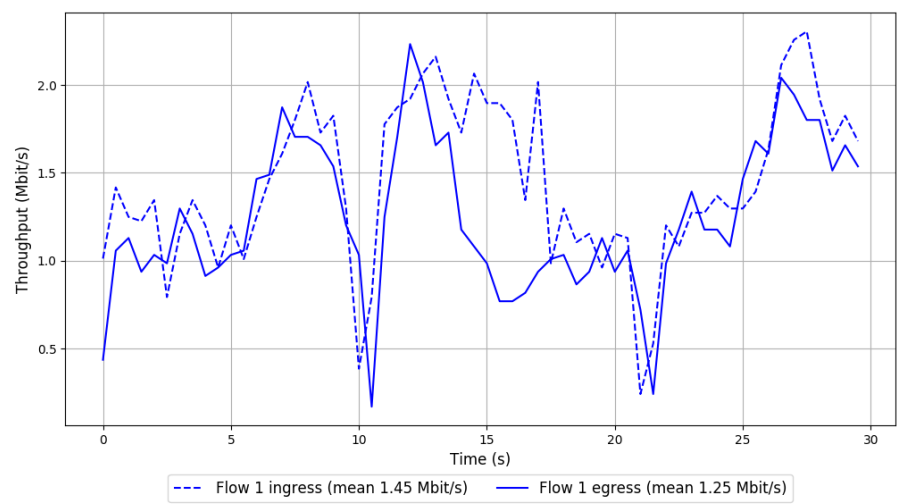
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	1.31	382.87	7.49
TCP Cubic	3	1.10	334.36	1.78
LEDBAT	3	1.17	274.52	0.94
PCC	3	1.21	398.80	58.74
QUIC Cubic	3	1.24	385.13	7.20
SCReAM	3	0.14	110.98	1.00
WebRTC media	3	0.40	231.18	2.11
Sprout	3	0.20	134.30	0.59
TaoVA-100x	3	1.49	349.62	9.31
TCP Vegas	3	0.89	224.68	0.70
Verus	3	1.32	385.79	22.30
Copa	3	0.65	200.87	0.61
FillP	3	1.36	386.51	22.61
Indigo-1-32	3	0.64	184.38	2.27
Vivace-latency	3	1.12	390.13	14.59
Vivace-loss	3	1.40	391.47	22.68
Vivace-LTE	3	1.44	384.14	10.59

Run 1: Statistics of TCP BBR

Start at: 2018-02-03 13:21:25
End at: 2018-02-03 13:21:55
Local clock offset: -0.989 ms
Remote clock offset: -23.292 ms

Below is generated by plot.py at 2018-02-03 15:07:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 392.364 ms
Loss rate: 13.60%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 392.364 ms
Loss rate: 13.60%

Run 1: Report of TCP BBR — Data Link

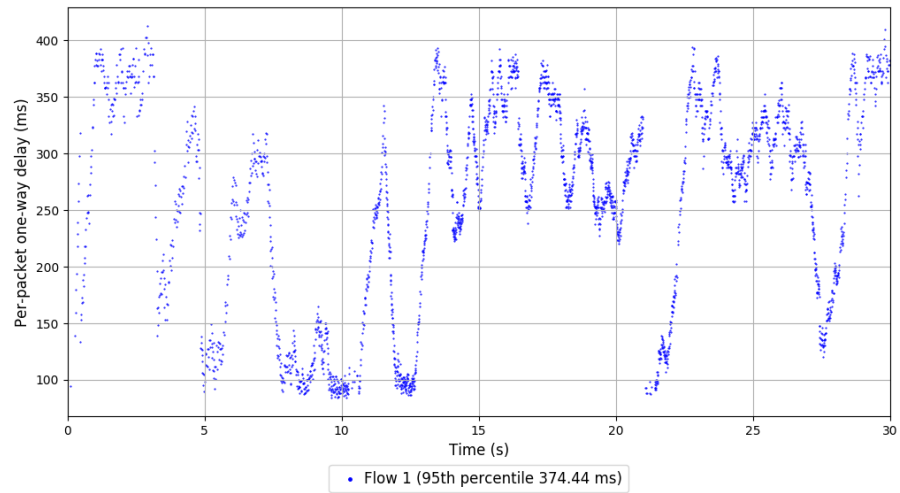
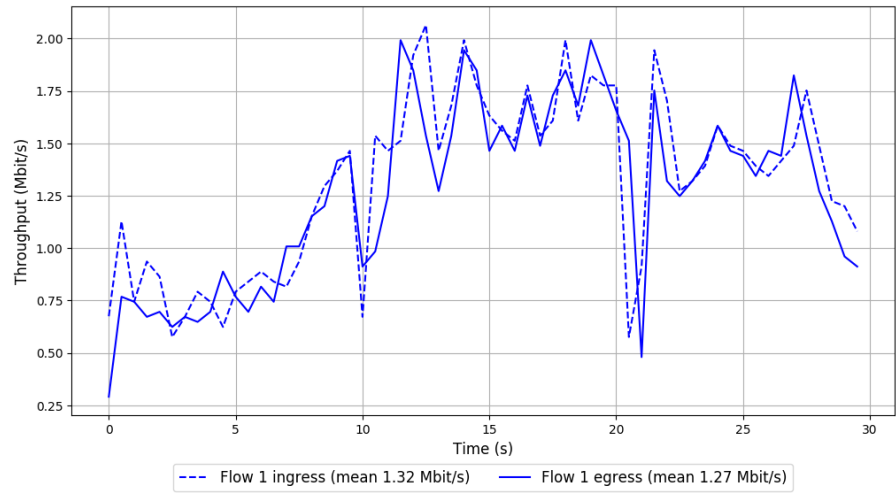


Run 2: Statistics of TCP BBR

Start at: 2018-02-03 13:41:03
End at: 2018-02-03 13:41:33
Local clock offset: 4.933 ms
Remote clock offset: -23.598 ms

Below is generated by plot.py at 2018-02-03 15:07:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 374.435 ms
Loss rate: 3.71%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 374.435 ms
Loss rate: 3.71%

Run 2: Report of TCP BBR — Data Link

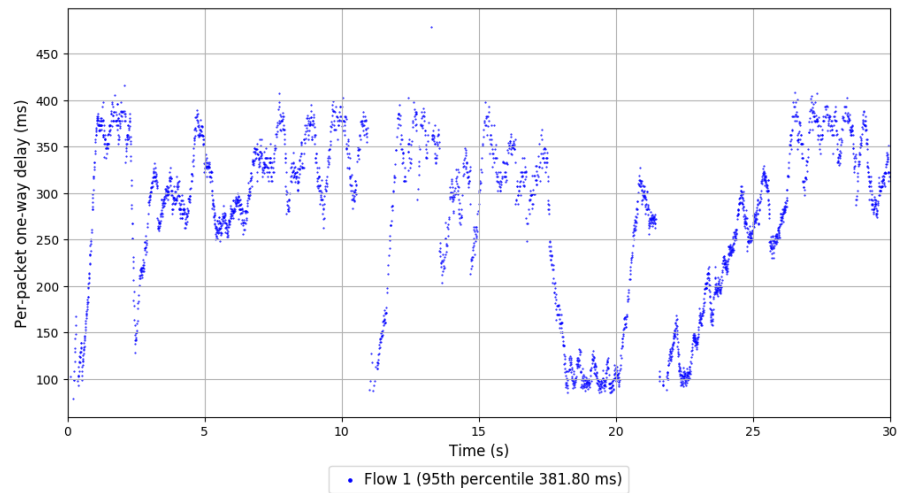
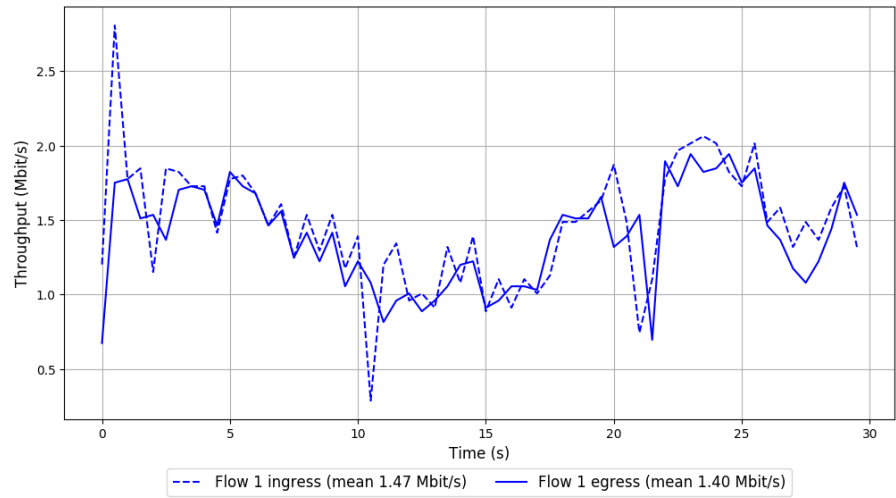


Run 3: Statistics of TCP BBR

Start at: 2018-02-03 14:00:57
End at: 2018-02-03 14:01:27
Local clock offset: 3.703 ms
Remote clock offset: -27.676 ms

Below is generated by plot.py at 2018-02-03 15:07:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 381.803 ms
Loss rate: 5.15%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 381.803 ms
Loss rate: 5.15%

Run 3: Report of TCP BBR — Data Link

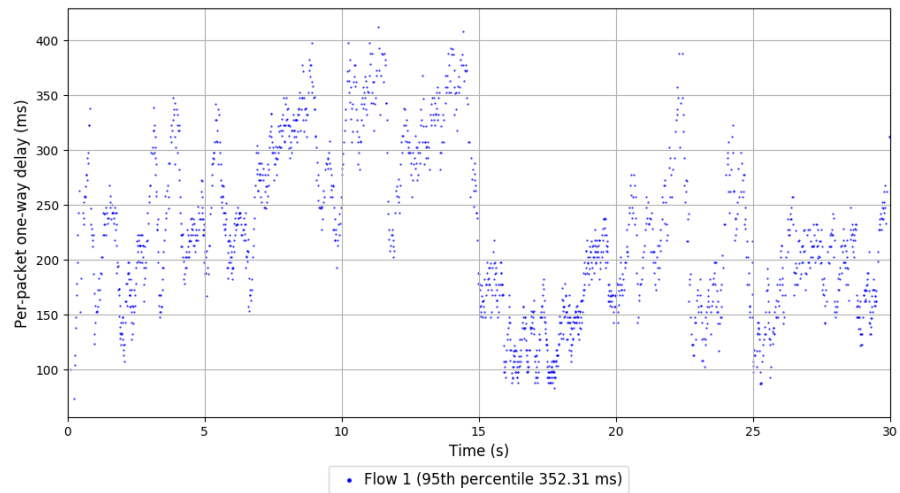
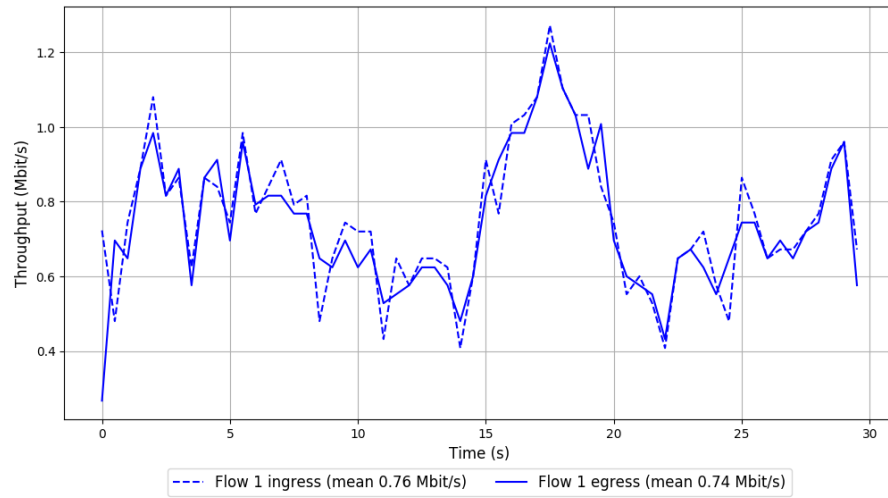


Run 1: Statistics of TCP Cubic

Start at: 2018-02-03 13:09:28
End at: 2018-02-03 13:09:58
Local clock offset: -0.498 ms
Remote clock offset: -20.594 ms

Below is generated by plot.py at 2018-02-03 15:07:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 352.306 ms
Loss rate: 2.12%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 352.306 ms
Loss rate: 2.12%

Run 1: Report of TCP Cubic — Data Link

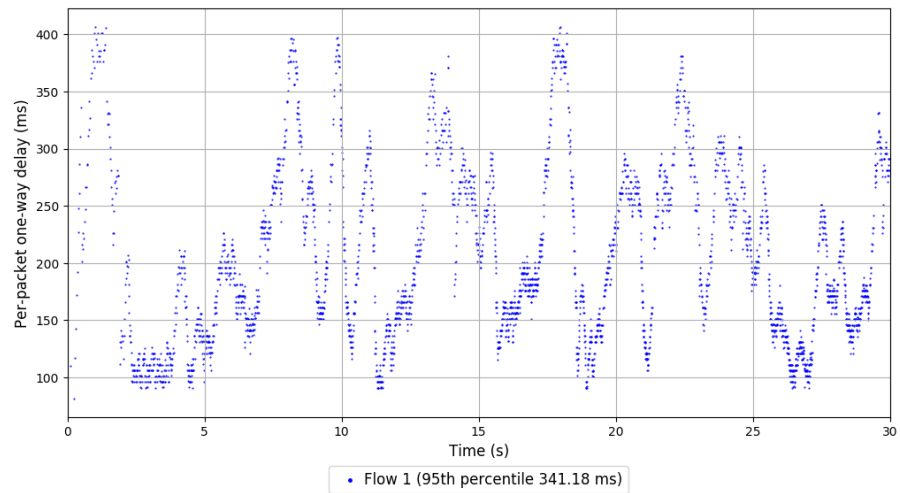
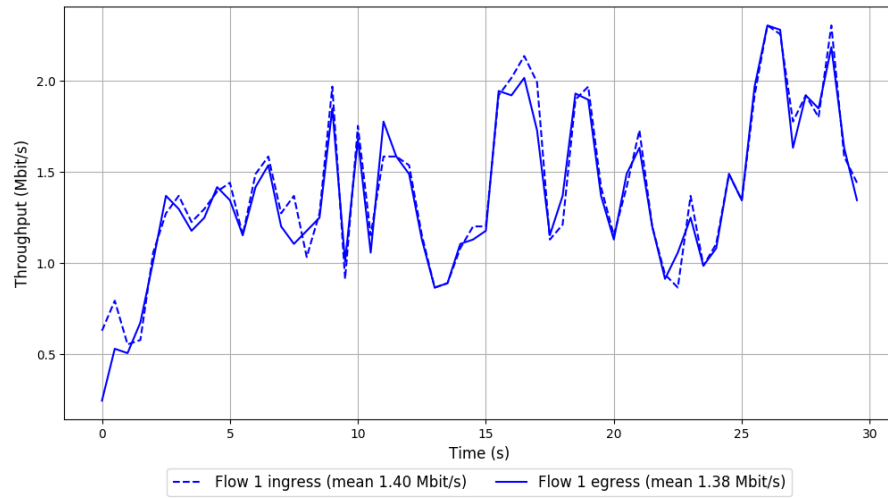


Run 2: Statistics of TCP Cubic

Start at: 2018-02-03 13:29:03
End at: 2018-02-03 13:29:33
Local clock offset: -0.183 ms
Remote clock offset: -22.066 ms

Below is generated by plot.py at 2018-02-03 15:07:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 341.179 ms
Loss rate: 2.19%
-- Flow 1:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 341.179 ms
Loss rate: 2.19%

Run 2: Report of TCP Cubic — Data Link

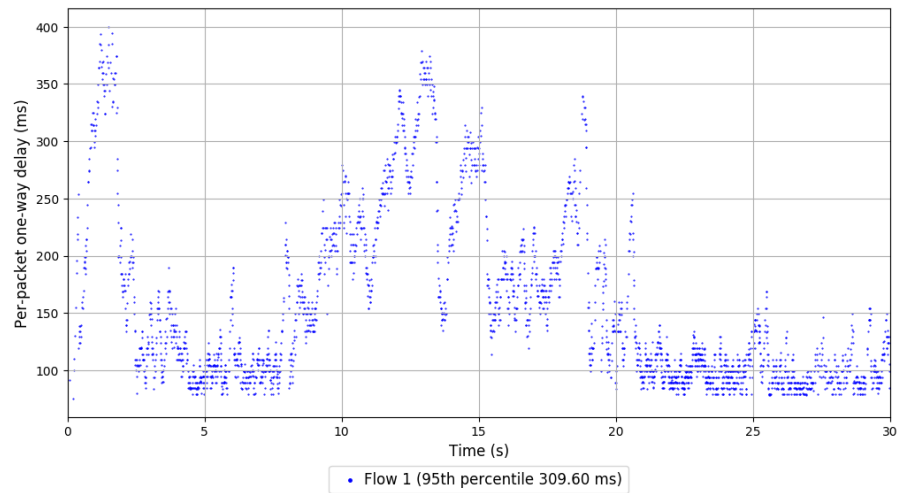
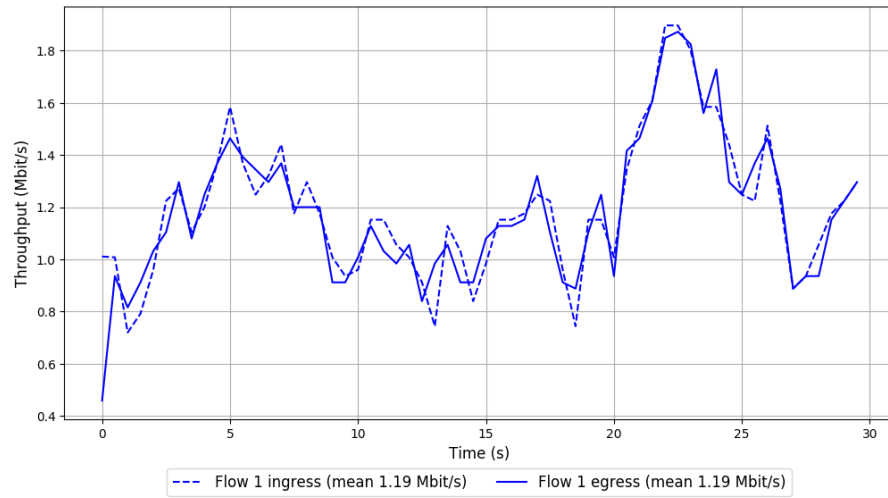


Run 3: Statistics of TCP Cubic

Start at: 2018-02-03 13:48:47
End at: 2018-02-03 13:49:17
Local clock offset: -2.456 ms
Remote clock offset: -25.059 ms

Below is generated by plot.py at 2018-02-03 15:07:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 309.595 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 309.595 ms
Loss rate: 1.04%

Run 3: Report of TCP Cubic — Data Link

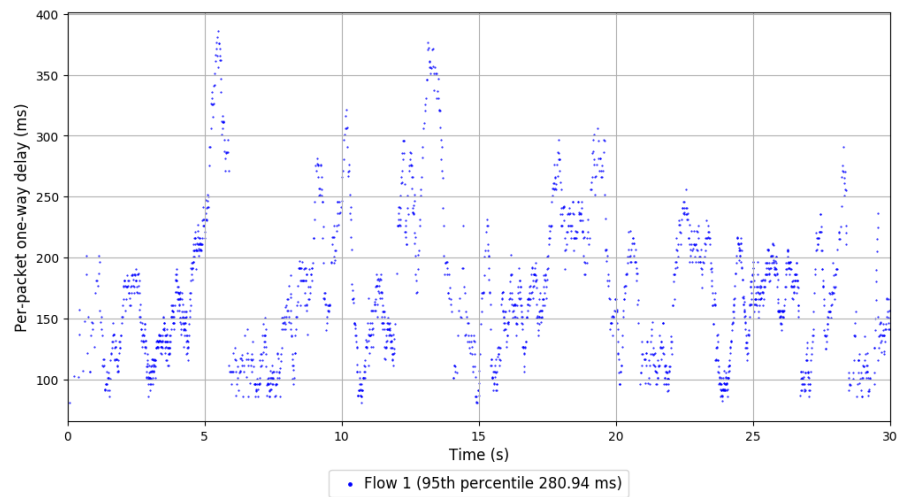
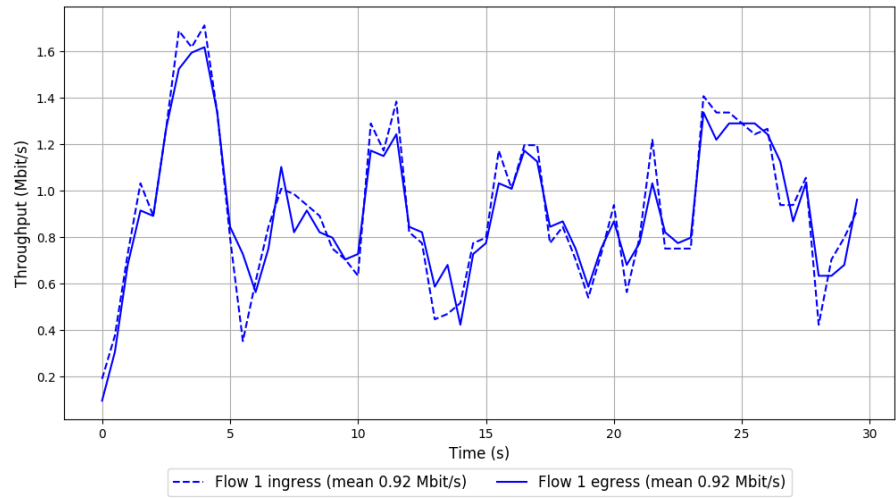


```
Run 1: Statistics of LEDBAT

Start at: 2018-02-03 13:14:55
End at: 2018-02-03 13:15:25
Local clock offset: -1.123 ms
Remote clock offset: -21.615 ms

# Below is generated by plot.py at 2018-02-03 15:07:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 280.944 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 280.944 ms
Loss rate: 0.85%
```

Run 1: Report of LEDBAT — Data Link

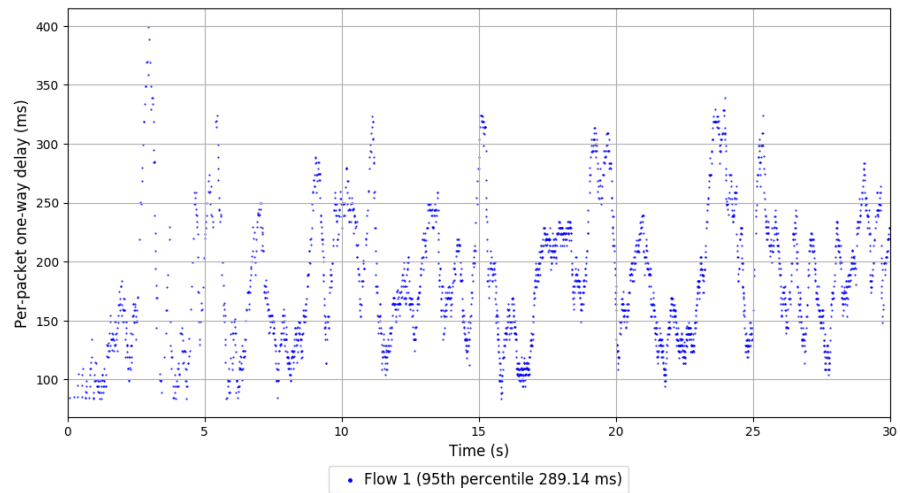
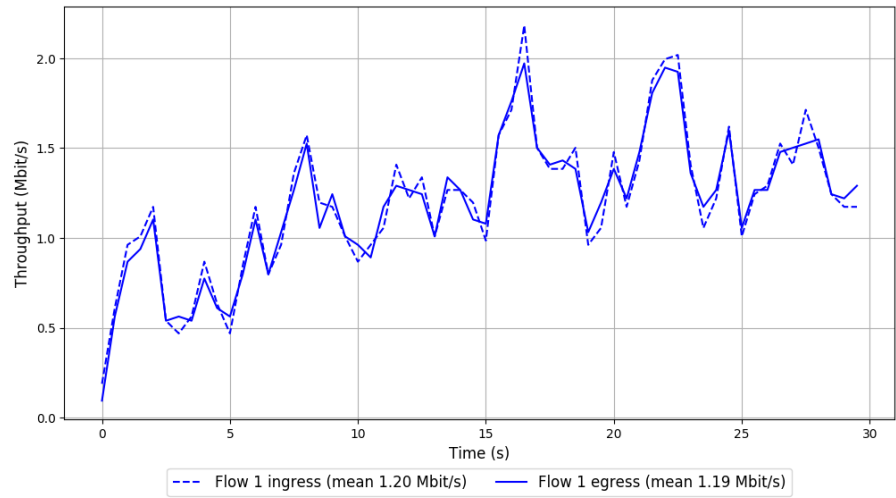


Run 2: Statistics of LEDBAT

Start at: 2018-02-03 13:34:29
End at: 2018-02-03 13:35:00
Local clock offset: -1.757 ms
Remote clock offset: -23.468 ms

Below is generated by plot.py at 2018-02-03 15:07:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 289.143 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 289.143 ms
Loss rate: 0.75%

Run 2: Report of LEDBAT — Data Link

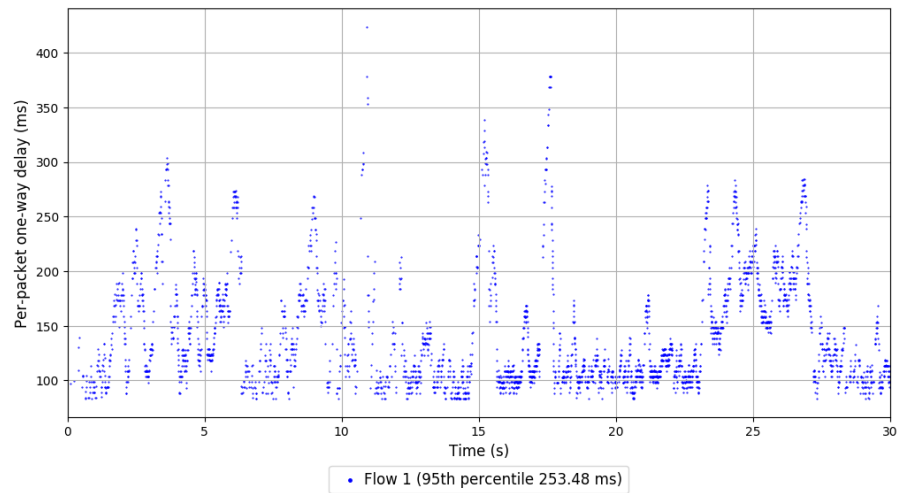
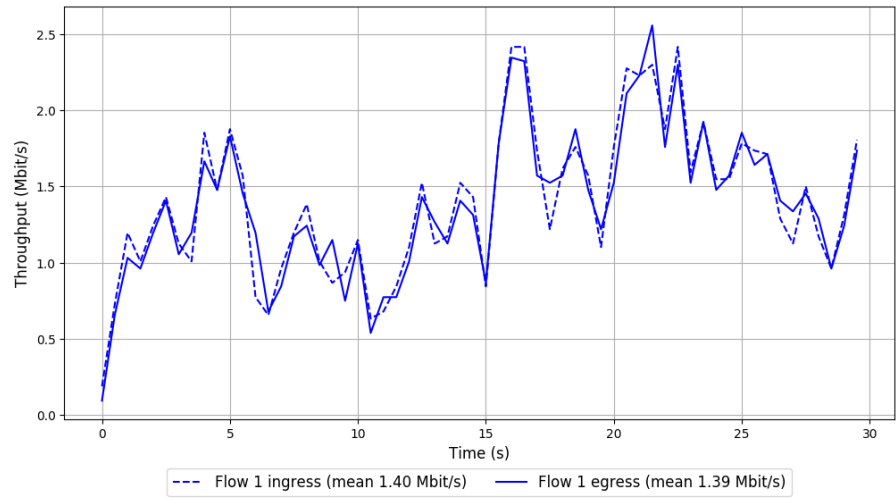


Run 3: Statistics of LEDBAT

Start at: 2018-02-03 13:54:23
End at: 2018-02-03 13:54:53
Local clock offset: 1.402 ms
Remote clock offset: -27.791 ms

Below is generated by plot.py at 2018-02-03 15:07:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 253.477 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 253.477 ms
Loss rate: 1.23%

Run 3: Report of LEDBAT — Data Link

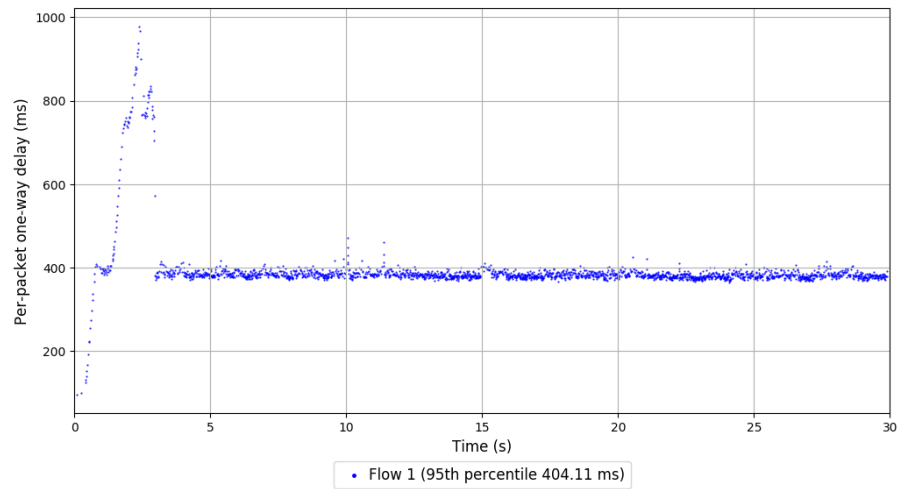
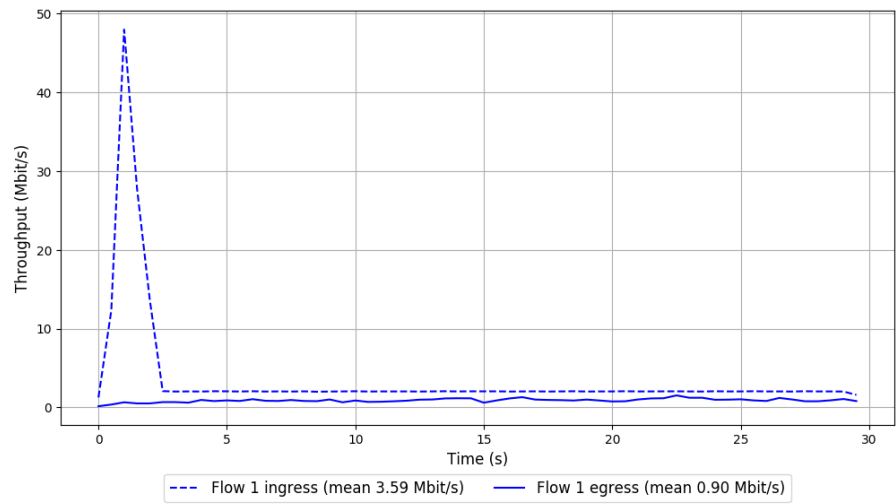


Run 1: Statistics of PCC

Start at: 2018-02-03 13:10:33
End at: 2018-02-03 13:11:03
Local clock offset: 1.012 ms
Remote clock offset: -20.393 ms

Below is generated by plot.py at 2018-02-03 15:07:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 404.112 ms
Loss rate: 75.08%
-- Flow 1:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 404.112 ms
Loss rate: 75.08%

Run 1: Report of PCC — Data Link

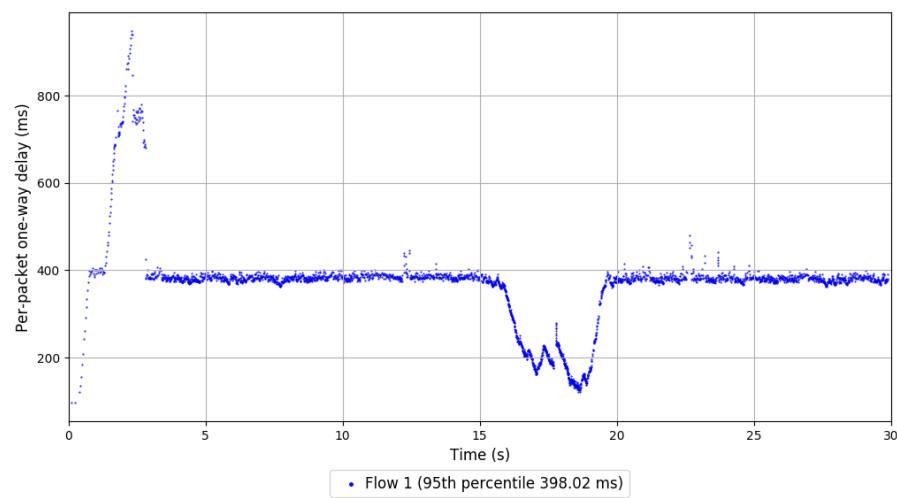
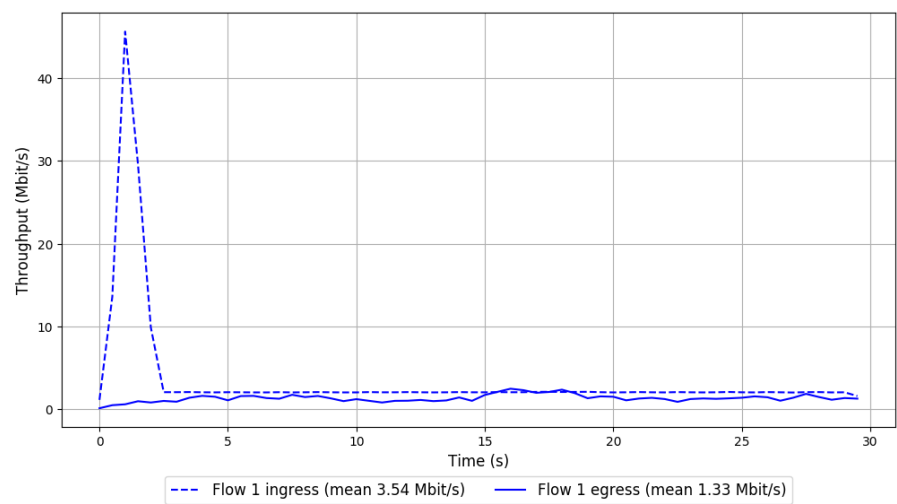


Run 2: Statistics of PCC

Start at: 2018-02-03 13:30:08
End at: 2018-02-03 13:30:38
Local clock offset: 3.205 ms
Remote clock offset: -23.493 ms

Below is generated by plot.py at 2018-02-03 15:07:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 398.020 ms
Loss rate: 62.52%
-- Flow 1:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 398.020 ms
Loss rate: 62.52%

Run 2: Report of PCC — Data Link

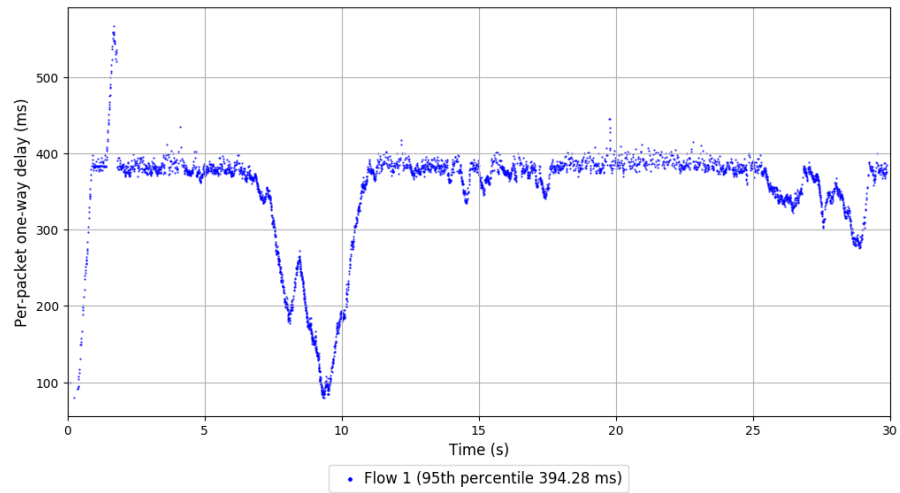
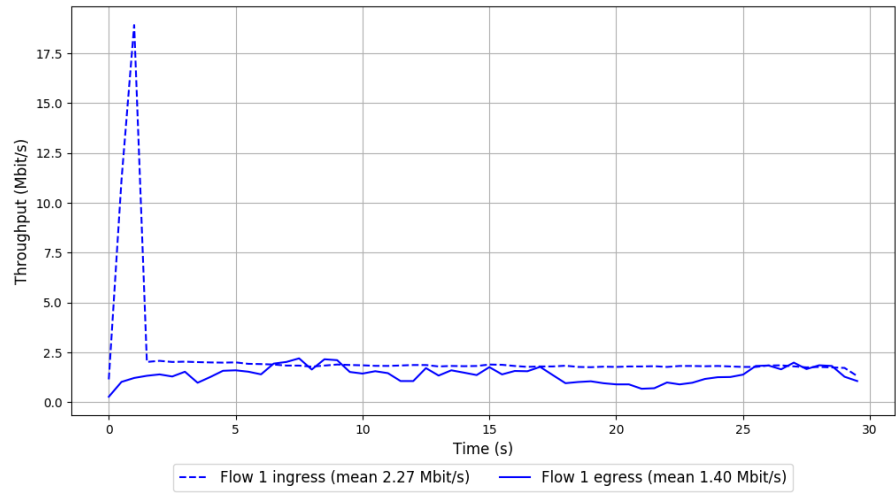


Run 3: Statistics of PCC

Start at: 2018-02-03 13:49:58
End at: 2018-02-03 13:50:28
Local clock offset: 1.964 ms
Remote clock offset: -26.353 ms

Below is generated by plot.py at 2018-02-03 15:07:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 394.278 ms
Loss rate: 38.63%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 394.278 ms
Loss rate: 38.63%

Run 3: Report of PCC — Data Link

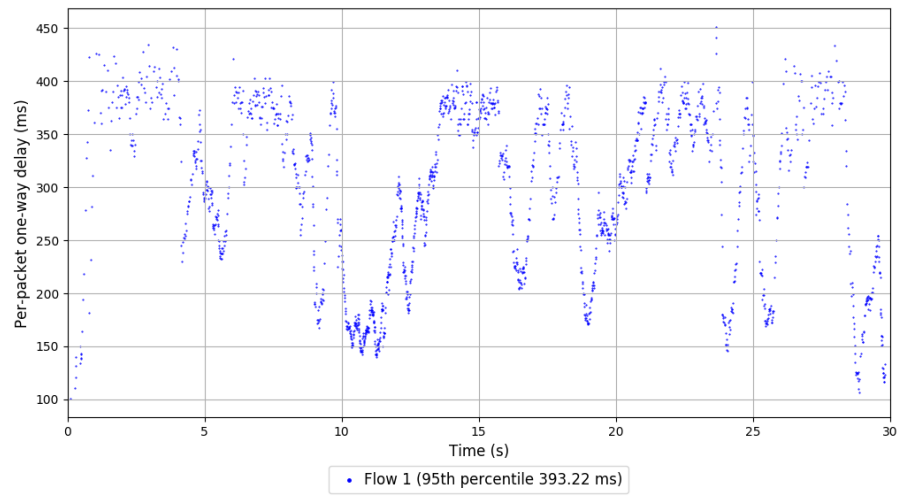
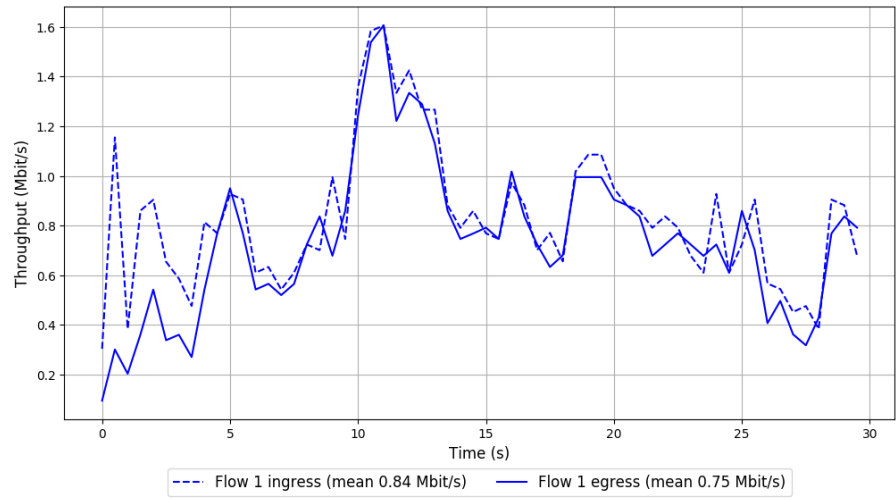


Run 1: Statistics of QUIC Cubic

Start at: 2018-02-03 13:11:39
End at: 2018-02-03 13:12:09
Local clock offset: 2.503 ms
Remote clock offset: -20.954 ms

Below is generated by plot.py at 2018-02-03 15:07:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 393.224 ms
Loss rate: 10.77%
-- Flow 1:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 393.224 ms
Loss rate: 10.77%

Run 1: Report of QUIC Cubic — Data Link

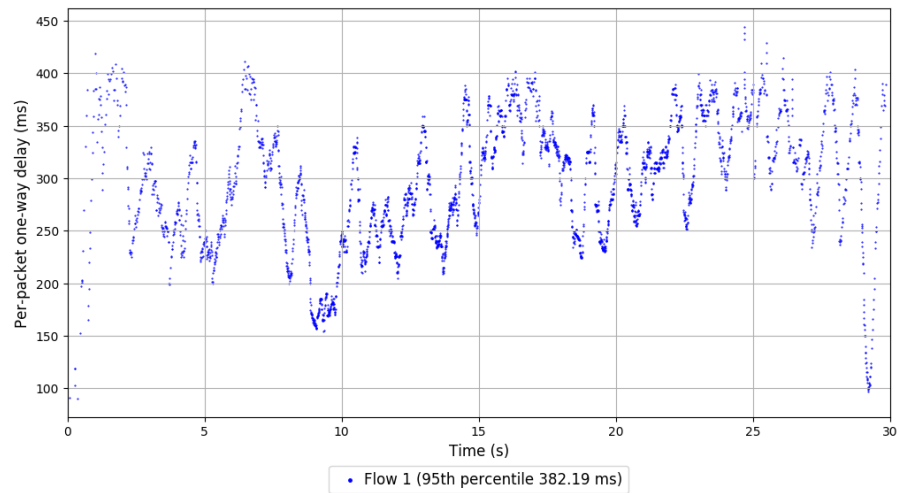
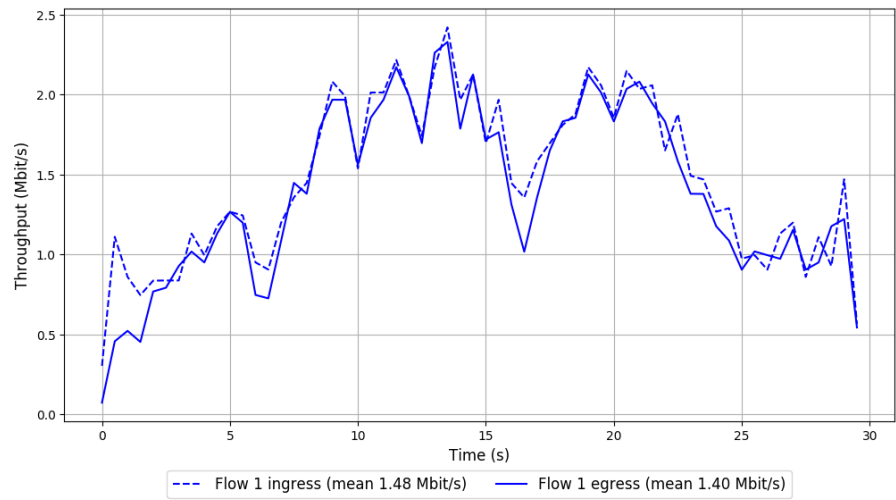


Run 2: Statistics of QUIC Cubic

Start at: 2018-02-03 13:31:13
End at: 2018-02-03 13:31:43
Local clock offset: 2.6 ms
Remote clock offset: -24.287 ms

Below is generated by plot.py at 2018-02-03 15:07:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 382.189 ms
Loss rate: 5.59%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 382.189 ms
Loss rate: 5.59%

Run 2: Report of QUIC Cubic — Data Link

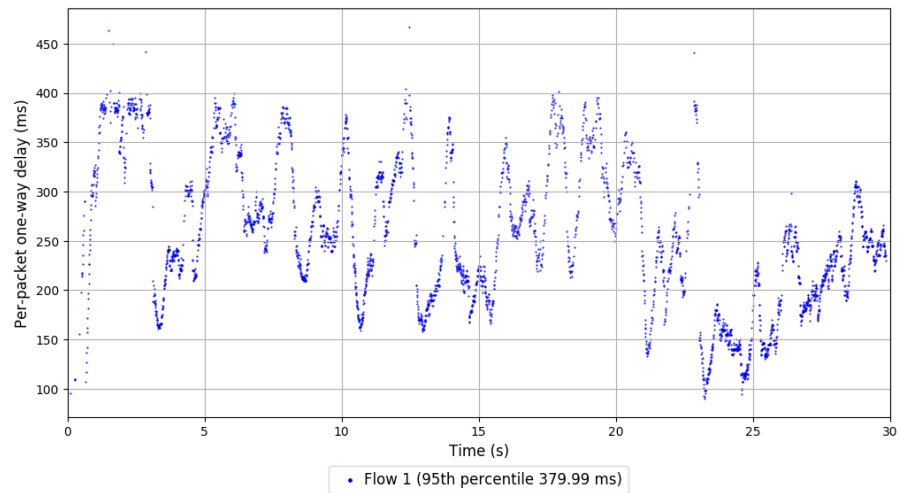
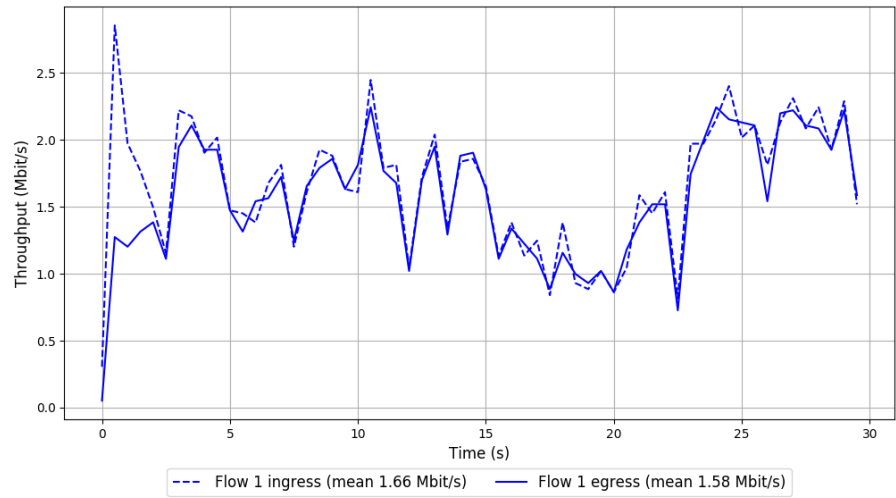


Run 3: Statistics of QUIC Cubic

Start at: 2018-02-03 13:51:04
End at: 2018-02-03 13:51:34
Local clock offset: 1.358 ms
Remote clock offset: -24.621 ms

Below is generated by plot.py at 2018-02-03 15:07:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 379.987 ms
Loss rate: 5.23%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 379.987 ms
Loss rate: 5.23%

Run 3: Report of QUIC Cubic — Data Link

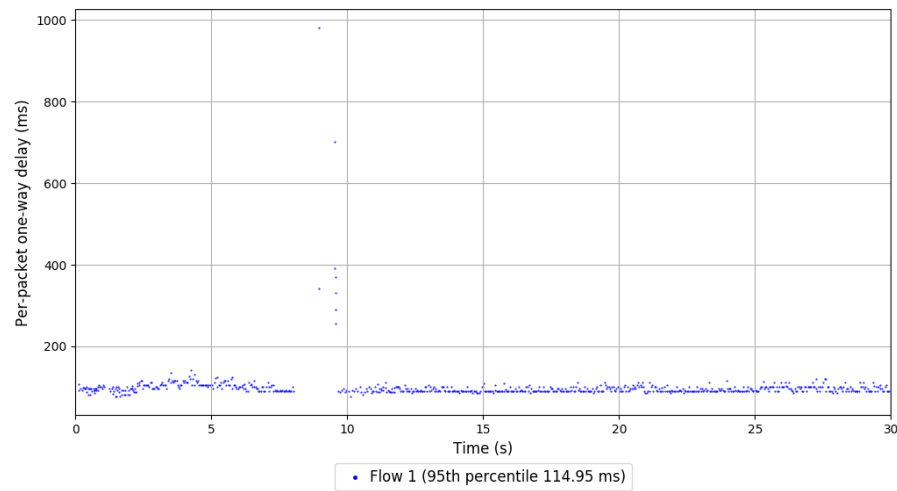
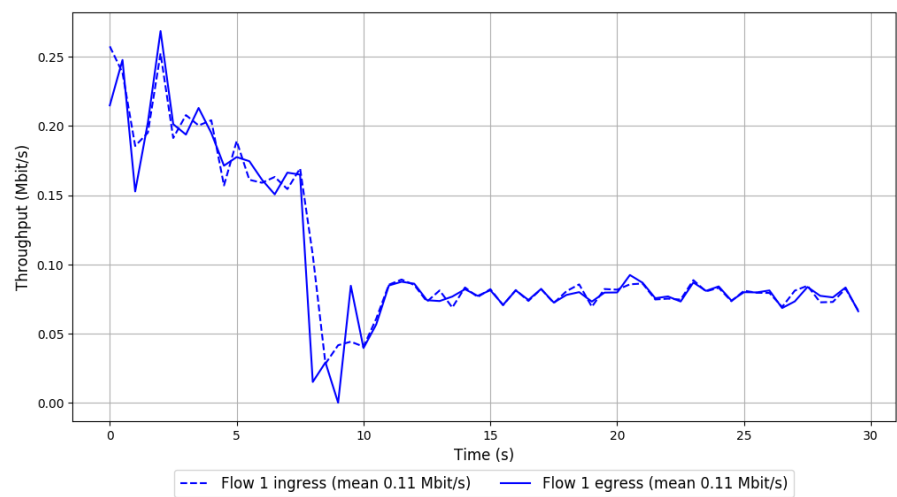


Run 1: Statistics of SCReAM

Start at: 2018-02-03 13:19:15
End at: 2018-02-03 13:19:45
Local clock offset: -0.288 ms
Remote clock offset: -28.182 ms

Below is generated by plot.py at 2018-02-03 15:07:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 114.955 ms
Loss rate: 2.00%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 114.955 ms
Loss rate: 2.00%

Run 1: Report of SReAM — Data Link

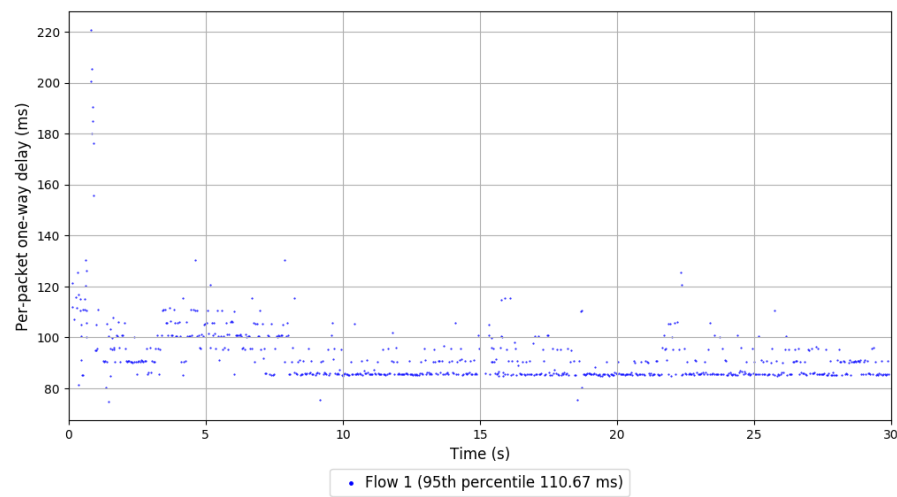
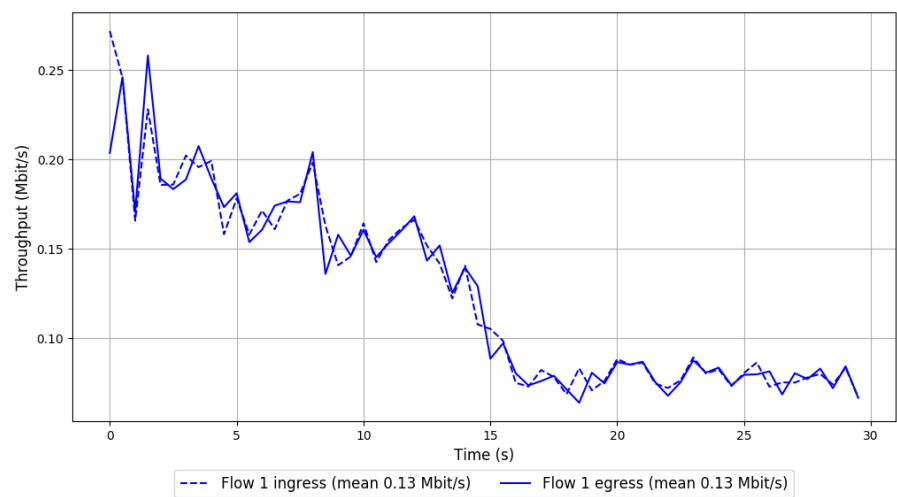


Run 2: Statistics of SCReAM

Start at: 2018-02-03 13:38:53
End at: 2018-02-03 13:39:23
Local clock offset: 4.254 ms
Remote clock offset: -25.799 ms

Below is generated by plot.py at 2018-02-03 15:07:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 110.669 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 110.669 ms
Loss rate: 0.58%

Run 2: Report of SReAM — Data Link

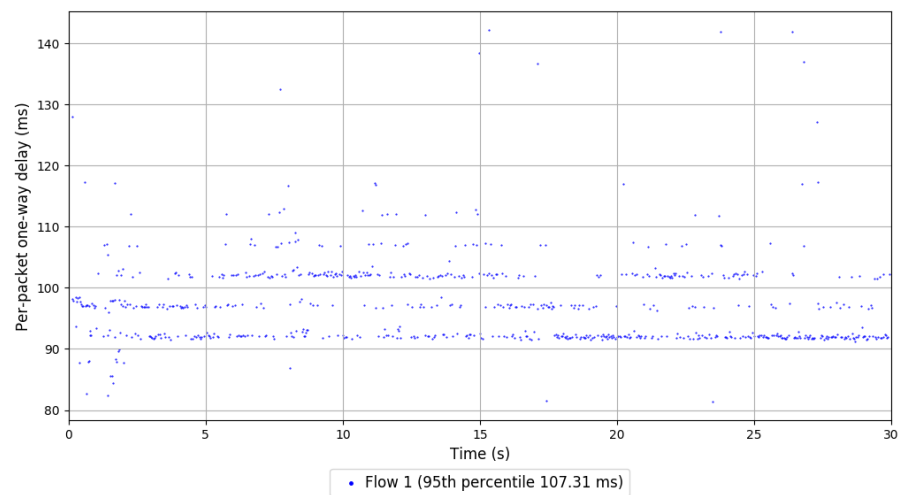
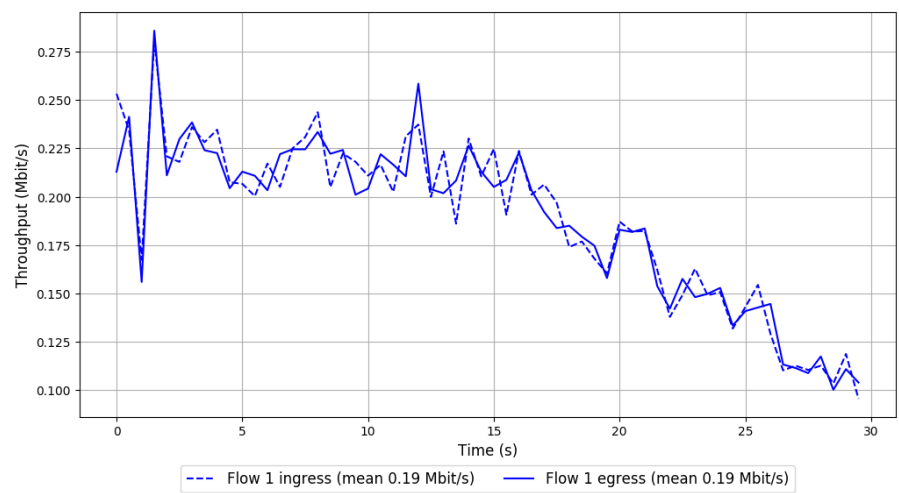


Run 3: Statistics of SCReAM

Start at: 2018-02-03 13:58:47
End at: 2018-02-03 13:59:17
Local clock offset: -0.73 ms
Remote clock offset: -27.499 ms

Below is generated by plot.py at 2018-02-03 15:07:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 107.313 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 107.313 ms
Loss rate: 0.42%

Run 3: Report of SReAM — Data Link

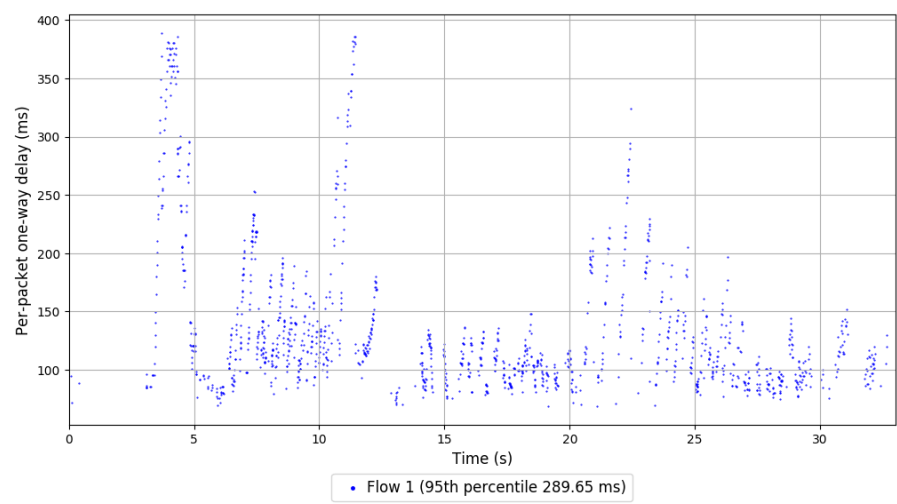
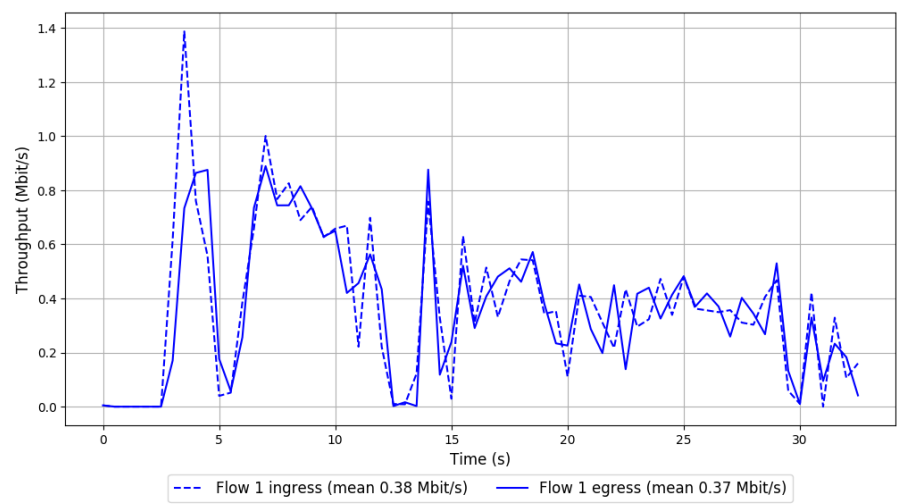


```
Run 1: Statistics of WebRTC media

Start at: 2018-02-03 13:16:00
End at: 2018-02-03 13:16:30
Local clock offset: -1.182 ms
Remote clock offset: -21.508 ms

# Below is generated by plot.py at 2018-02-03 15:07:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 289.655 ms
Loss rate: 3.18%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 289.655 ms
Loss rate: 3.18%
```

Run 1: Report of WebRTC media — Data Link

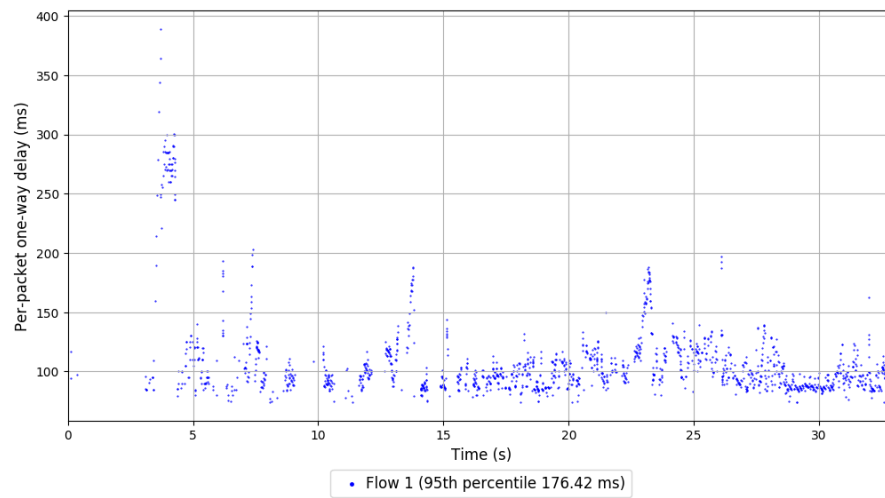
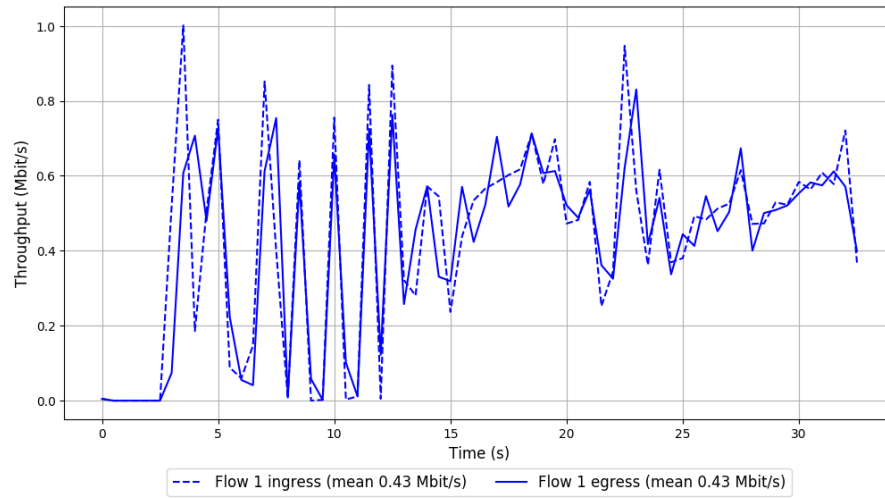


Run 2: Statistics of WebRTC media

Start at: 2018-02-03 13:35:35
End at: 2018-02-03 13:36:05
Local clock offset: 3.213 ms
Remote clock offset: -25.12 ms

Below is generated by plot.py at 2018-02-03 15:07:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 176.417 ms
Loss rate: 2.17%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 176.417 ms
Loss rate: 2.17%

Run 2: Report of WebRTC media — Data Link

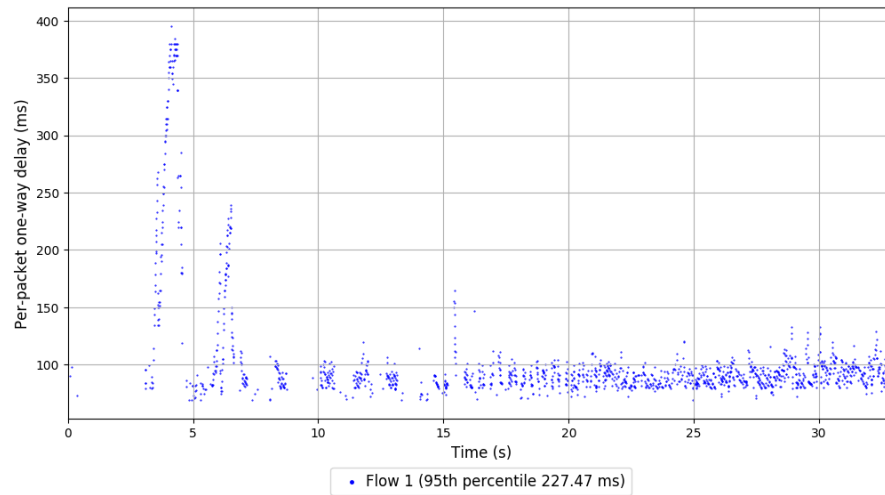
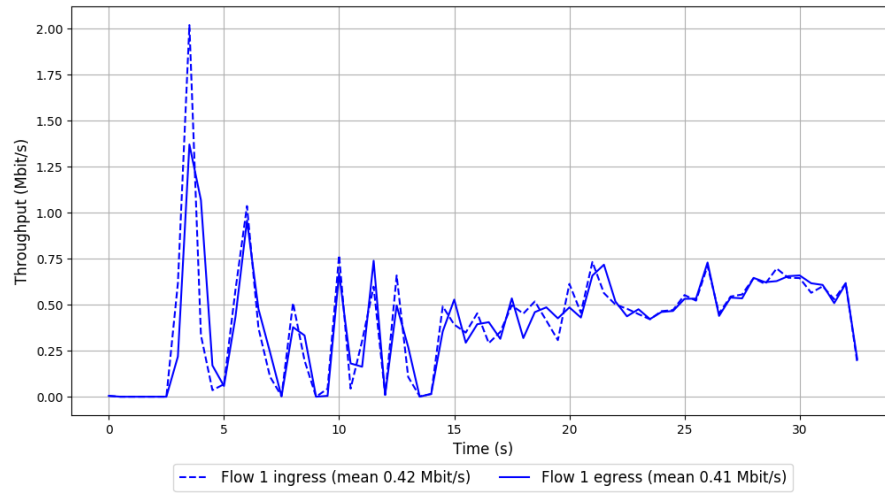


Run 3: Statistics of WebRTC media

Start at: 2018-02-03 13:55:28
End at: 2018-02-03 13:55:58
Local clock offset: -1.556 ms
Remote clock offset: -27.115 ms

Below is generated by plot.py at 2018-02-03 15:07:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 227.468 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 227.468 ms
Loss rate: 0.99%

Run 3: Report of WebRTC media — Data Link

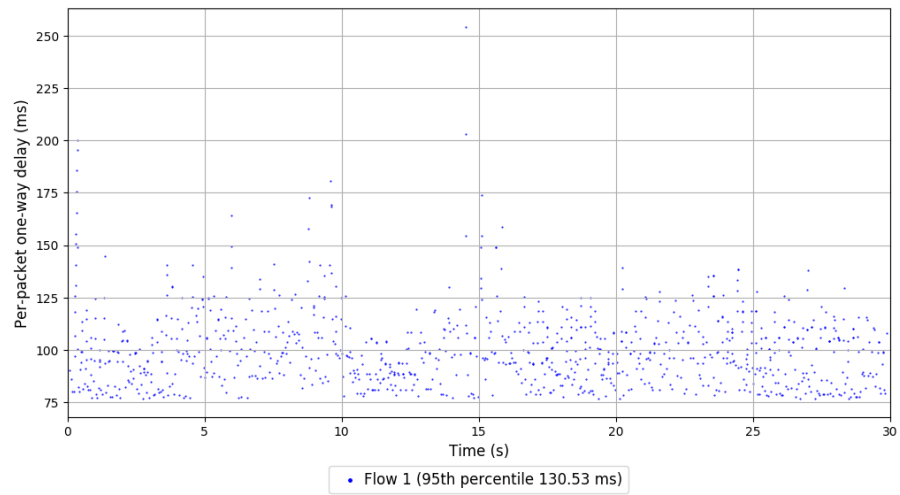
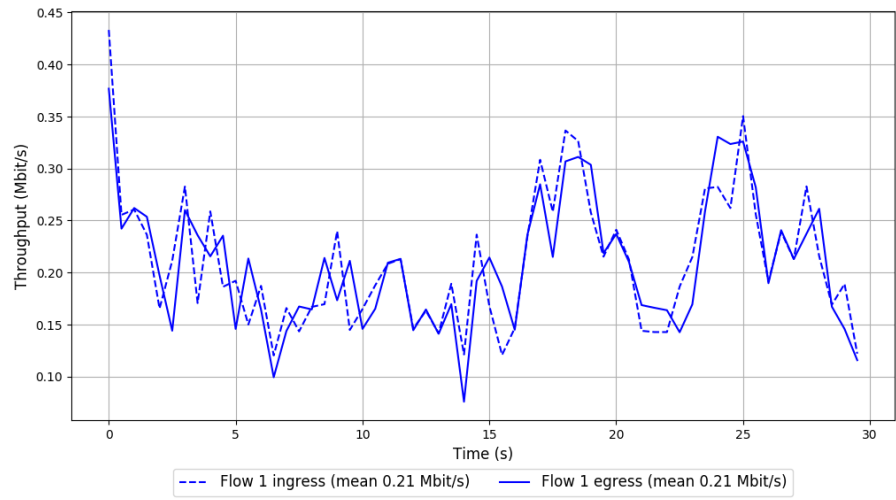


Run 1: Statistics of Sprout

Start at: 2018-02-03 13:27:57
End at: 2018-02-03 13:28:27
Local clock offset: -2.191 ms
Remote clock offset: -23.476 ms

Below is generated by plot.py at 2018-02-03 15:07:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 130.530 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 130.530 ms
Loss rate: 0.88%

Run 1: Report of Sprout — Data Link

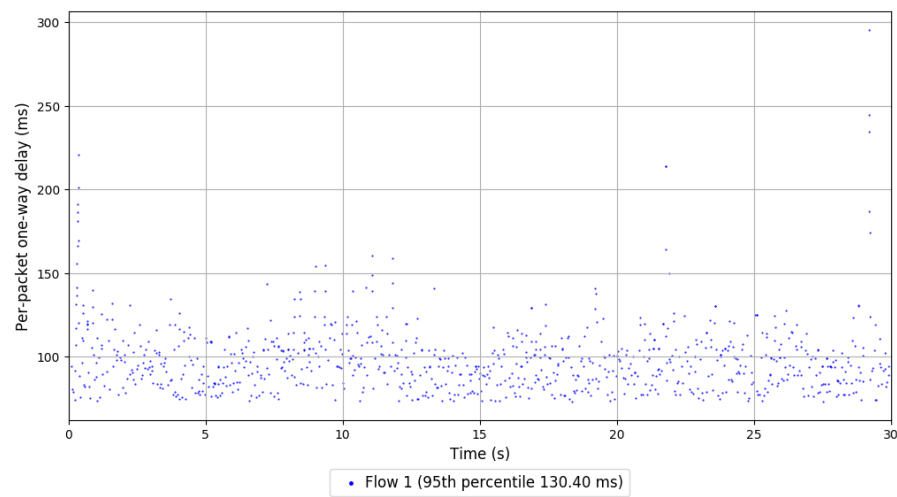
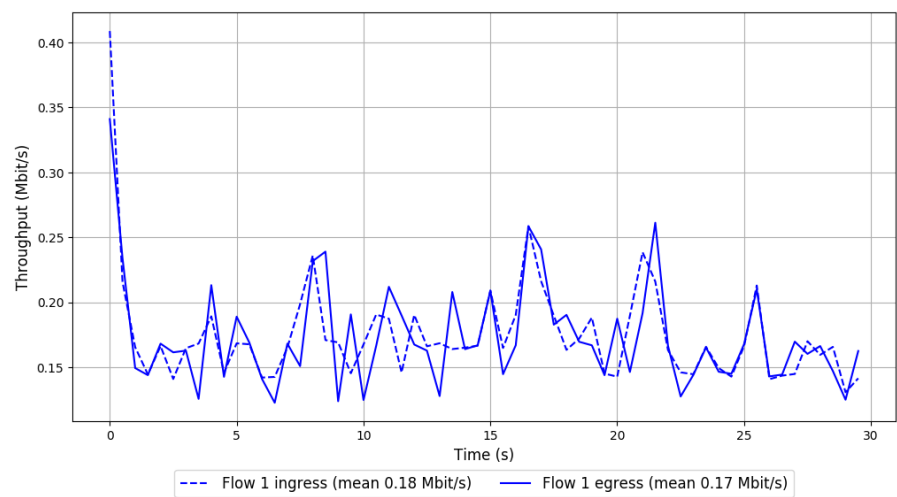


Run 2: Statistics of Sprout

Start at: 2018-02-03 13:47:40
End at: 2018-02-03 13:48:10
Local clock offset: 3.495 ms
Remote clock offset: -25.949 ms

Below is generated by plot.py at 2018-02-03 15:07:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 130.401 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 130.401 ms
Loss rate: 0.86%

Run 2: Report of Sprout — Data Link

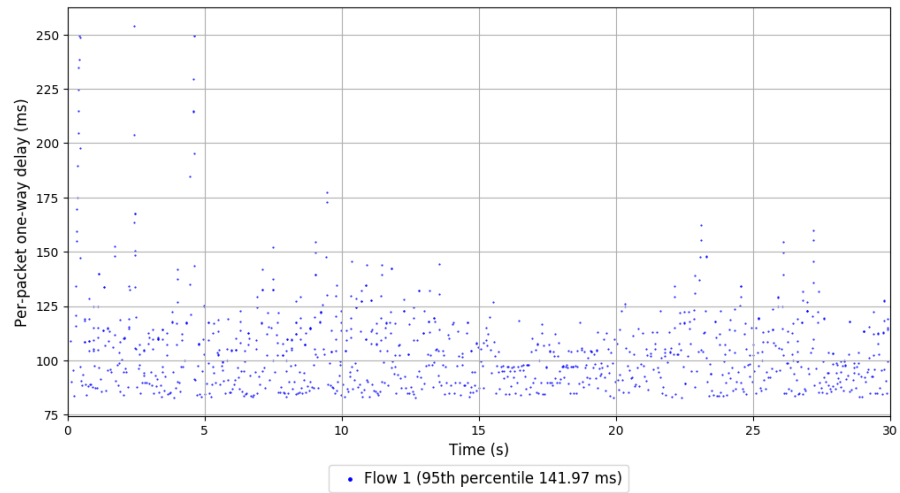
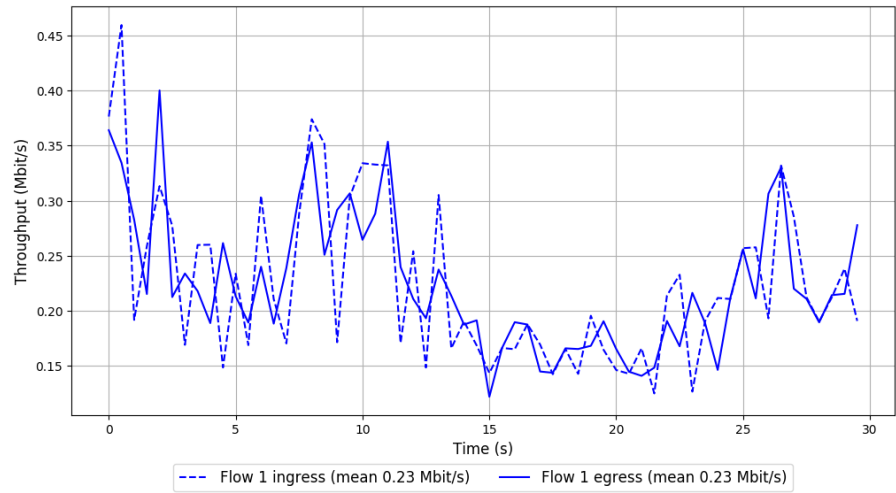


Run 3: Statistics of Sprout

Start at: 2018-02-03 14:07:28
End at: 2018-02-03 14:07:58
Local clock offset: 3.828 ms
Remote clock offset: -28.364 ms

Below is generated by plot.py at 2018-02-03 15:07:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 141.968 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 141.968 ms
Loss rate: 0.04%

Run 3: Report of Sprout — Data Link

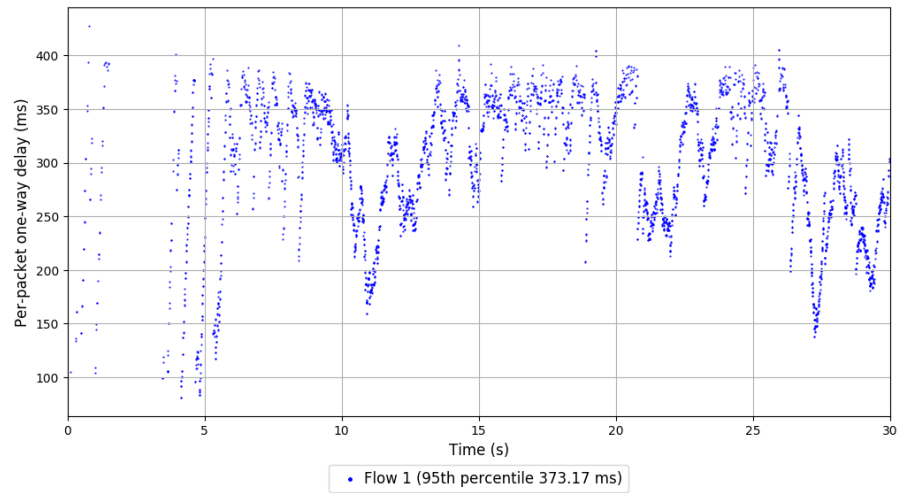
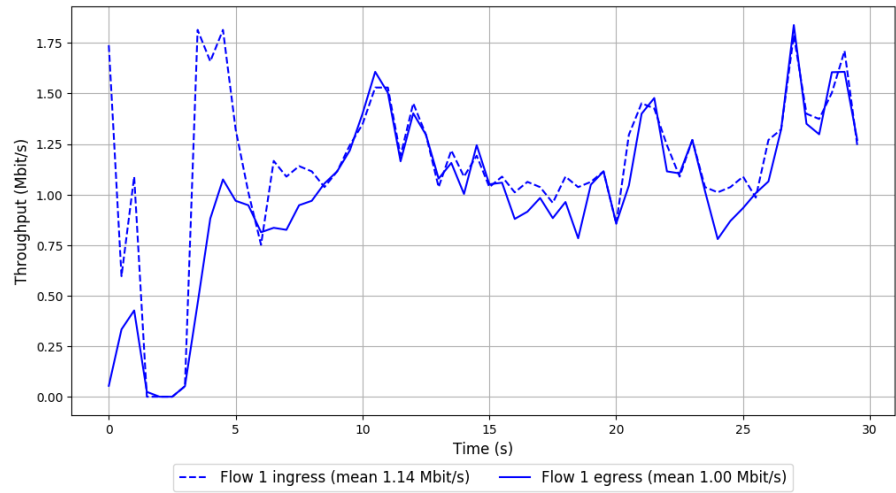


Run 1: Statistics of TaoVA-100x

Start at: 2018-02-03 13:24:41
End at: 2018-02-03 13:25:12
Local clock offset: -1.744 ms
Remote clock offset: -20.289 ms

Below is generated by plot.py at 2018-02-03 15:07:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 373.169 ms
Loss rate: 12.79%
-- Flow 1:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 373.169 ms
Loss rate: 12.79%

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

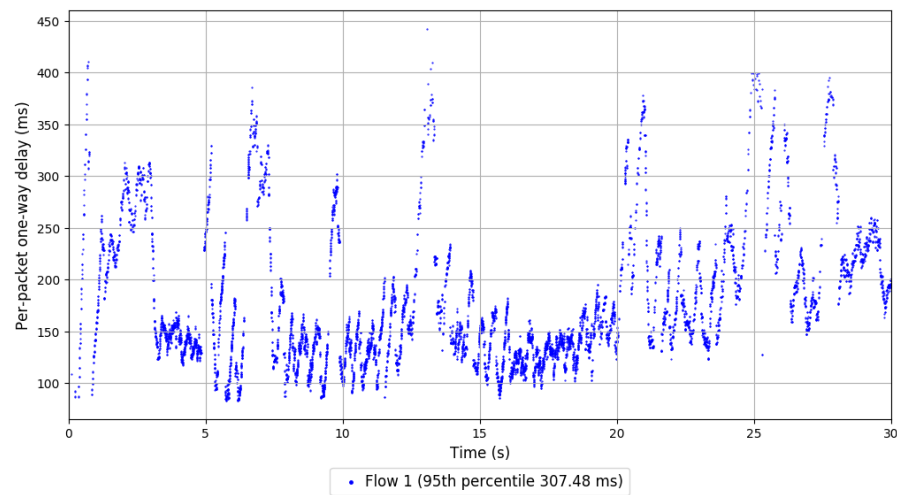
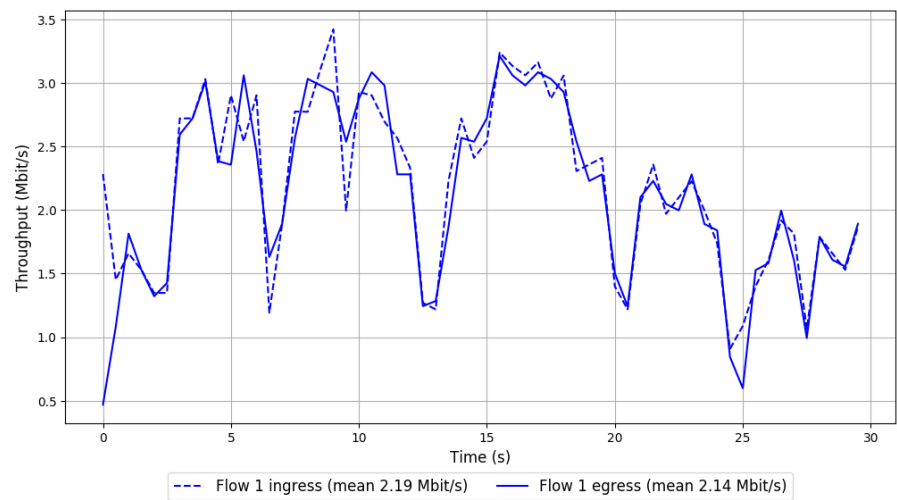


Run 2: Statistics of TaoVA-100x

Start at: 2018-02-03 13:44:19
End at: 2018-02-03 13:44:49
Local clock offset: 2.627 ms
Remote clock offset: -25.439 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 307.475 ms
Loss rate: 2.35%
-- Flow 1:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 307.475 ms
Loss rate: 2.35%

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

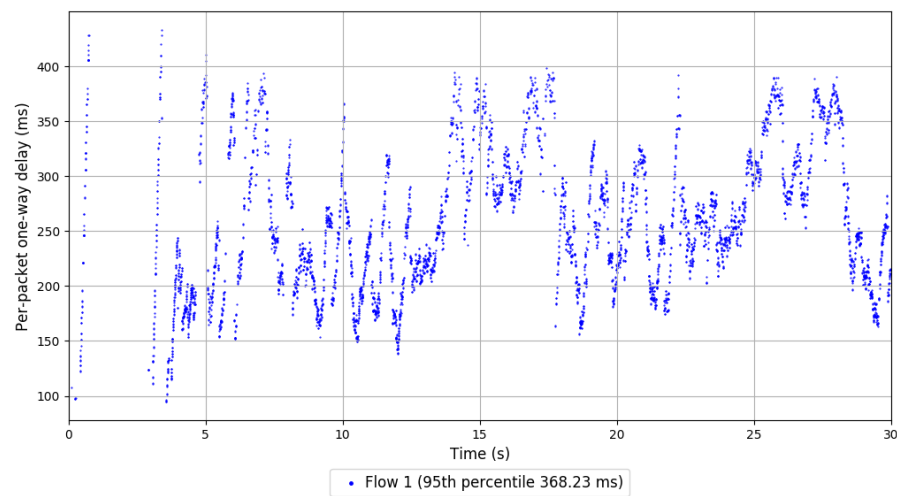
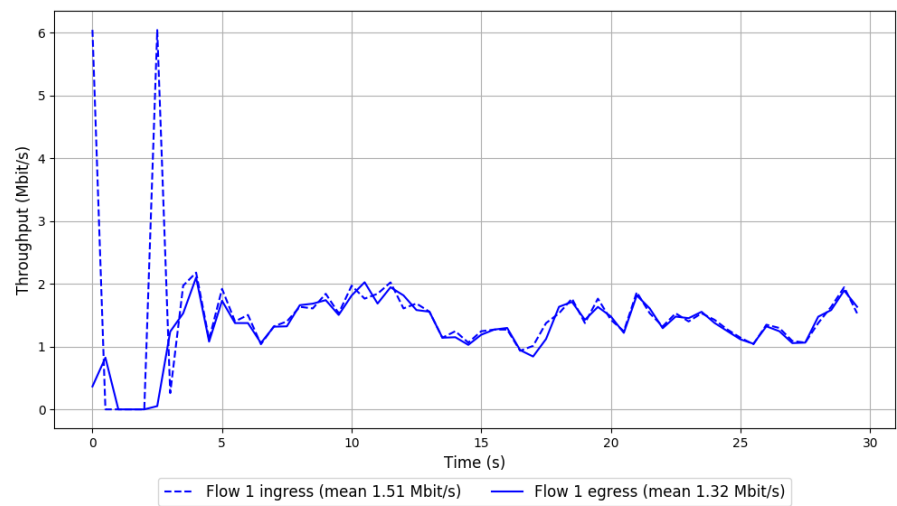


Run 3: Statistics of TaoVA-100x

Start at: 2018-02-03 14:04:13
End at: 2018-02-03 14:04:43
Local clock offset: 1.937 ms
Remote clock offset: -29.338 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 368.227 ms
Loss rate: 12.79%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 368.227 ms
Loss rate: 12.79%

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

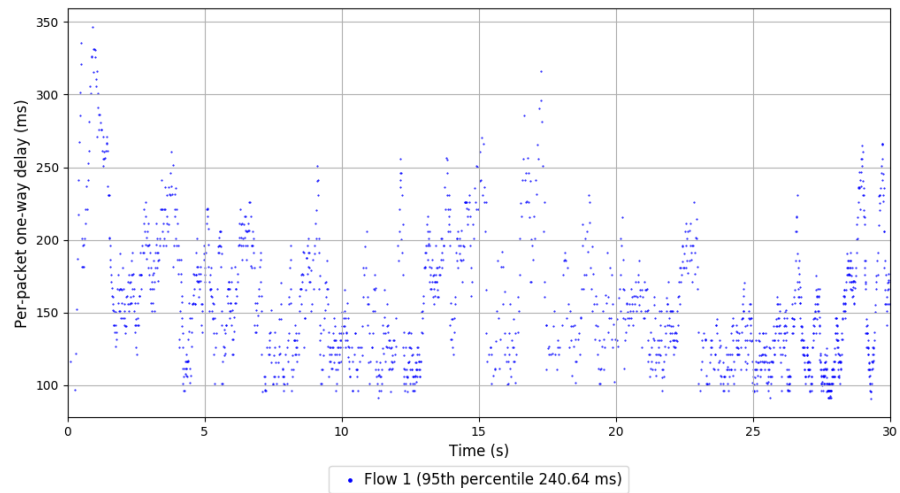
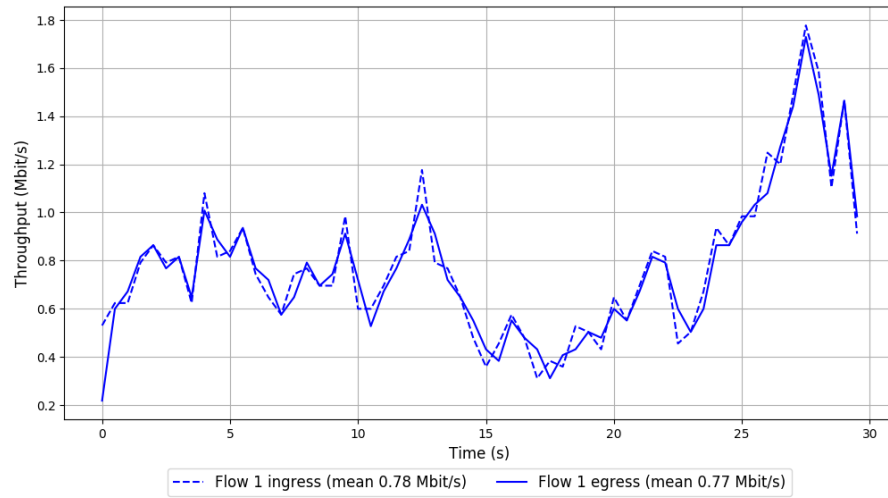


Run 1: Statistics of TCP Vegas

Start at: 2018-02-03 13:12:44
End at: 2018-02-03 13:13:14
Local clock offset: -0.308 ms
Remote clock offset: -20.601 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 240.643 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 240.643 ms
Loss rate: 1.08%

Run 1: Report of TCP Vegas — Data Link

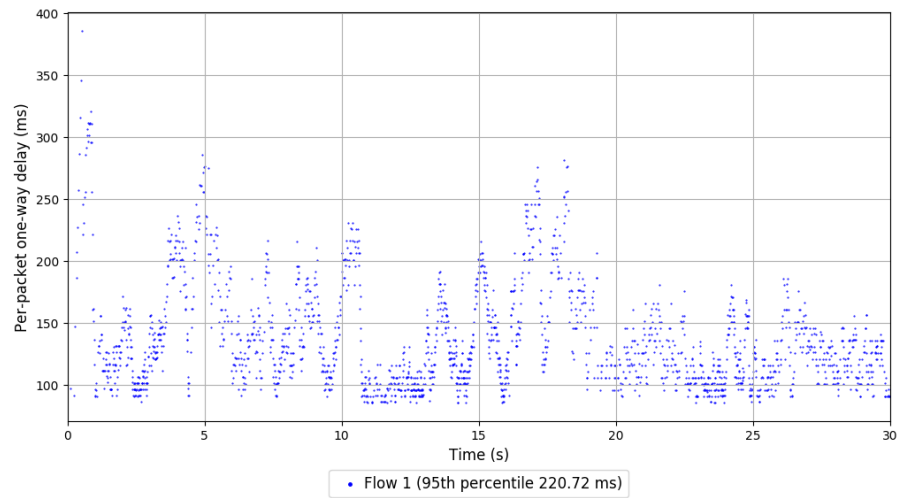
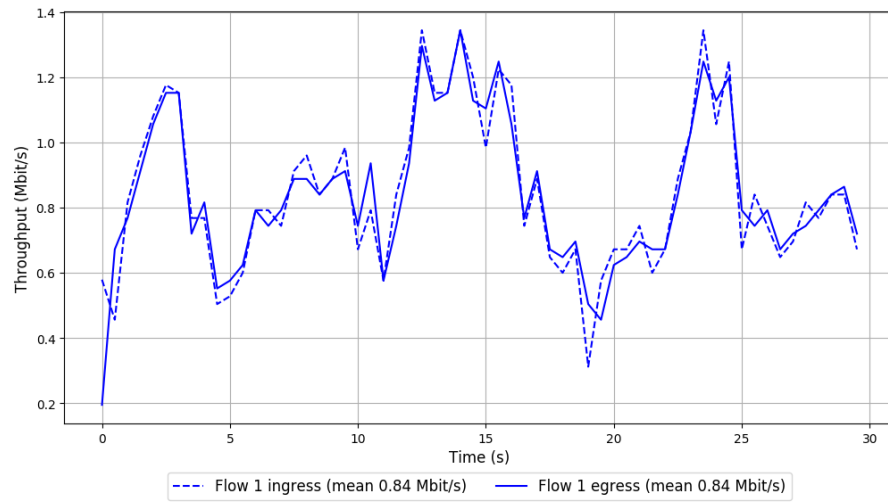


Run 2: Statistics of TCP Vegas

Start at: 2018-02-03 13:32:19
End at: 2018-02-03 13:32:49
Local clock offset: 2.989 ms
Remote clock offset: -24.559 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 220.715 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 220.715 ms
Loss rate: 0.43%

Run 2: Report of TCP Vegas — Data Link

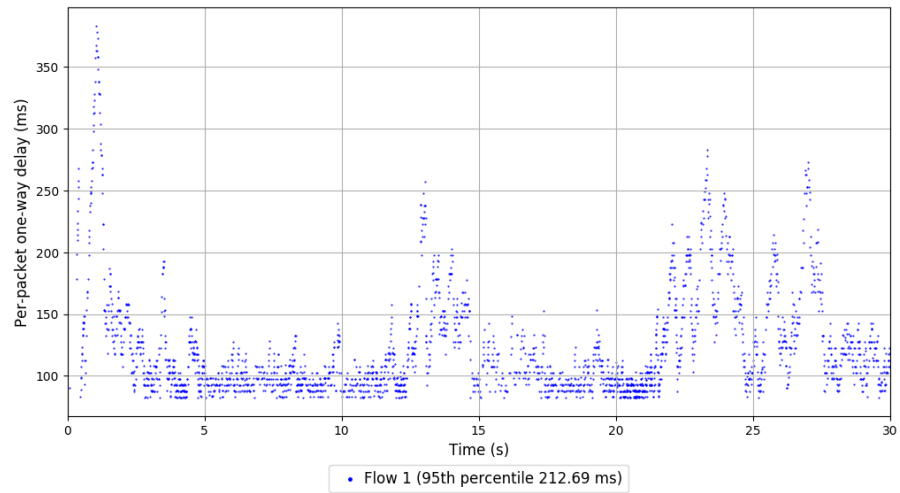
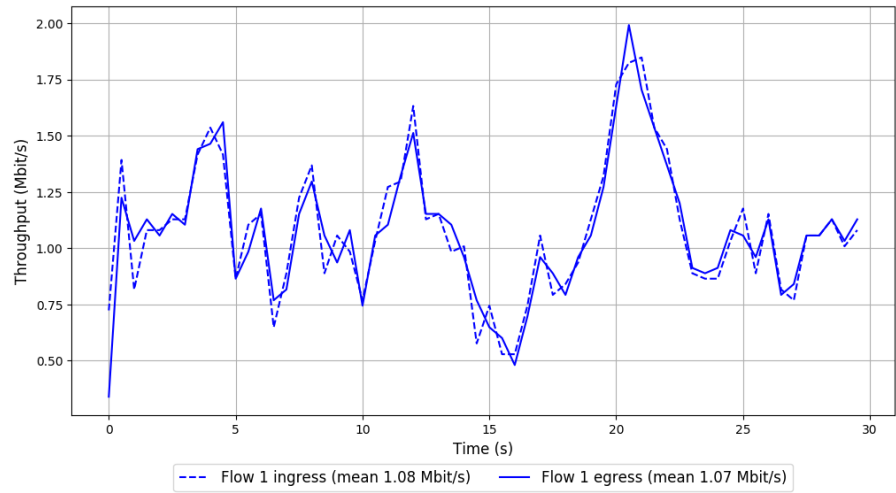


Run 3: Statistics of TCP Vegas

Start at: 2018-02-03 13:52:10
End at: 2018-02-03 13:52:40
Local clock offset: 1.967 ms
Remote clock offset: -25.531 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 212.687 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 212.687 ms
Loss rate: 0.59%

Run 3: Report of TCP Vegas — Data Link

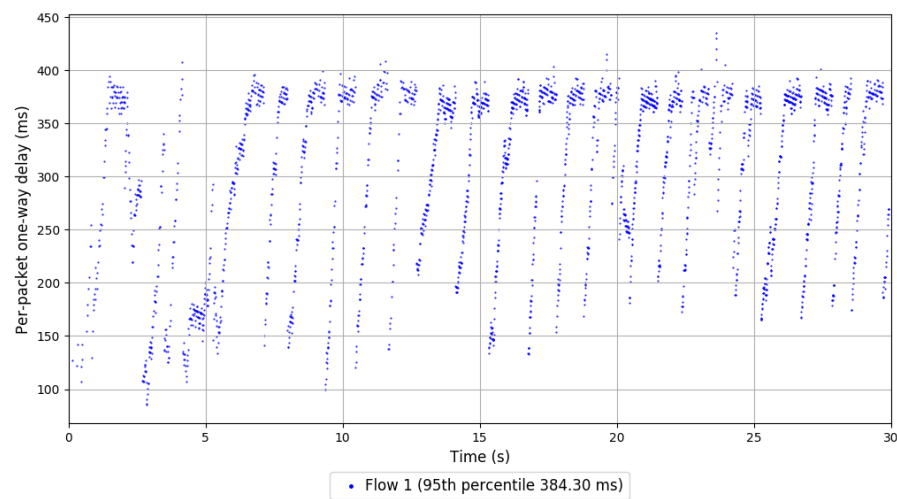
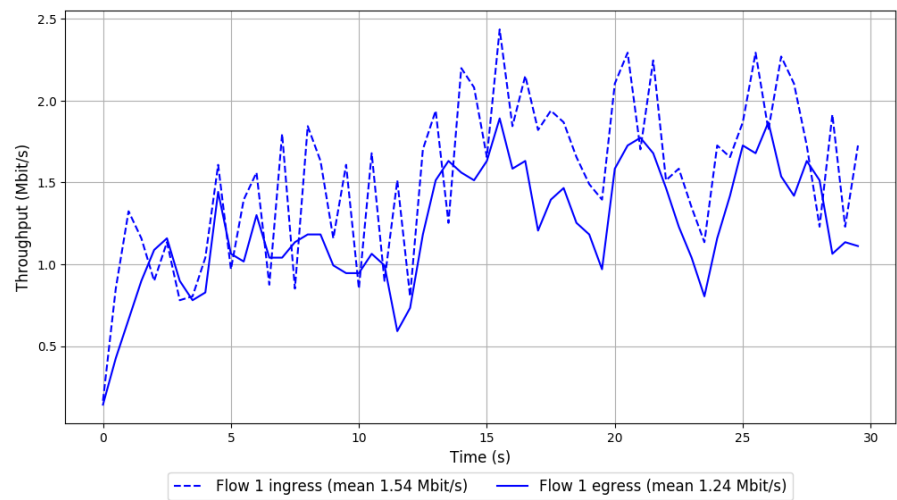


Run 1: Statistics of Verus

Start at: 2018-02-03 13:20:20
End at: 2018-02-03 13:20:50
Local clock offset: -1.216 ms
Remote clock offset: -21.741 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 384.296 ms
Loss rate: 19.97%
-- Flow 1:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 384.296 ms
Loss rate: 19.97%

Run 1: Report of Verus — Data Link

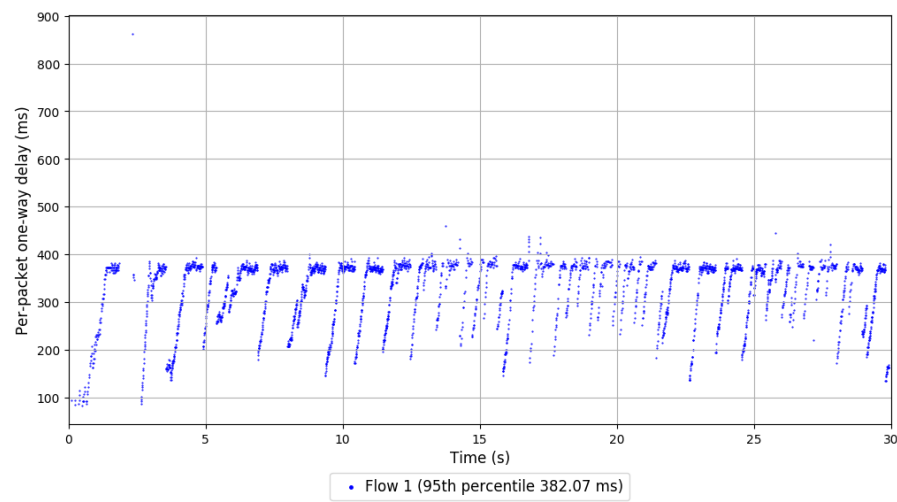
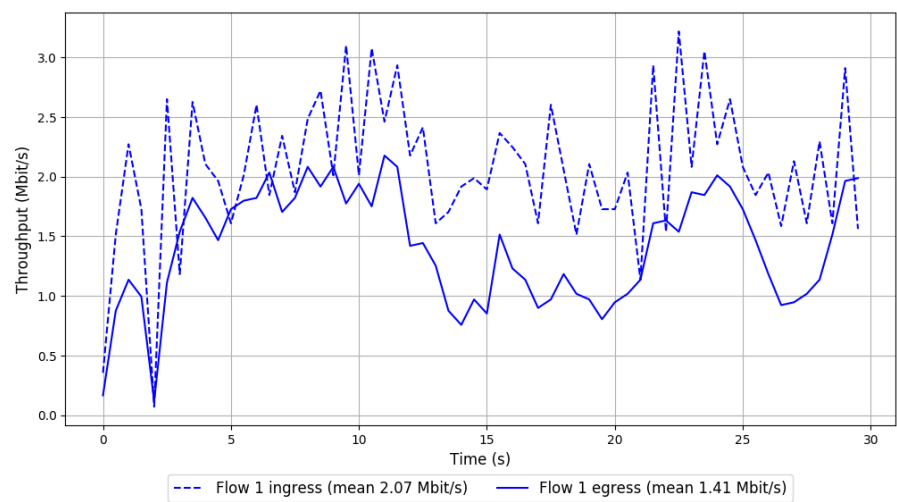


Run 2: Statistics of Verus

Start at: 2018-02-03 13:39:58
End at: 2018-02-03 13:40:28
Local clock offset: -1.834 ms
Remote clock offset: -23.611 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 382.073 ms
Loss rate: 31.97%
-- Flow 1:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 382.073 ms
Loss rate: 31.97%

Run 2: Report of Verus — Data Link

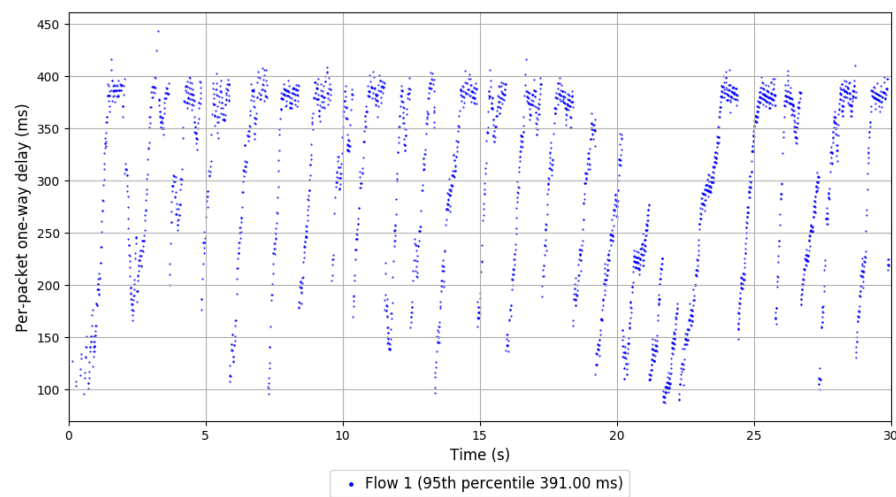
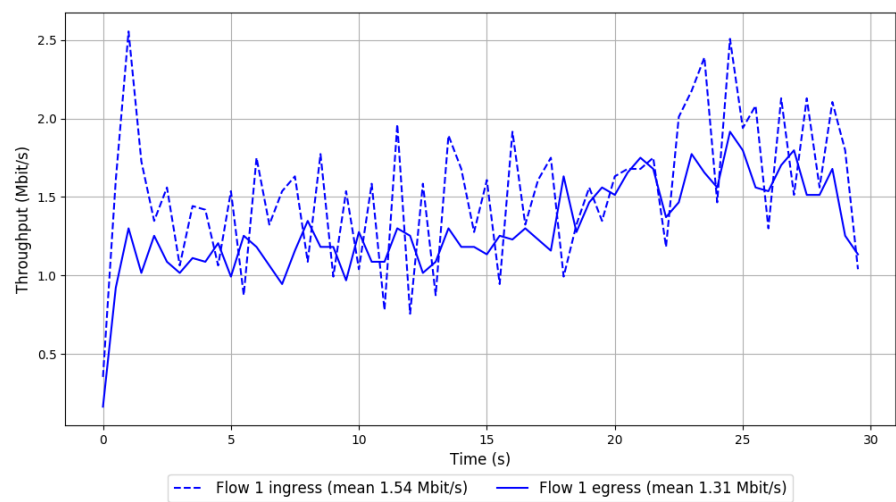


Run 3: Statistics of Verus

Start at: 2018-02-03 13:59:52
End at: 2018-02-03 14:00:22
Local clock offset: -1.534 ms
Remote clock offset: -26.432 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 390.996 ms
Loss rate: 14.95%
-- Flow 1:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 390.996 ms
Loss rate: 14.95%

Run 3: Report of Verus — Data Link

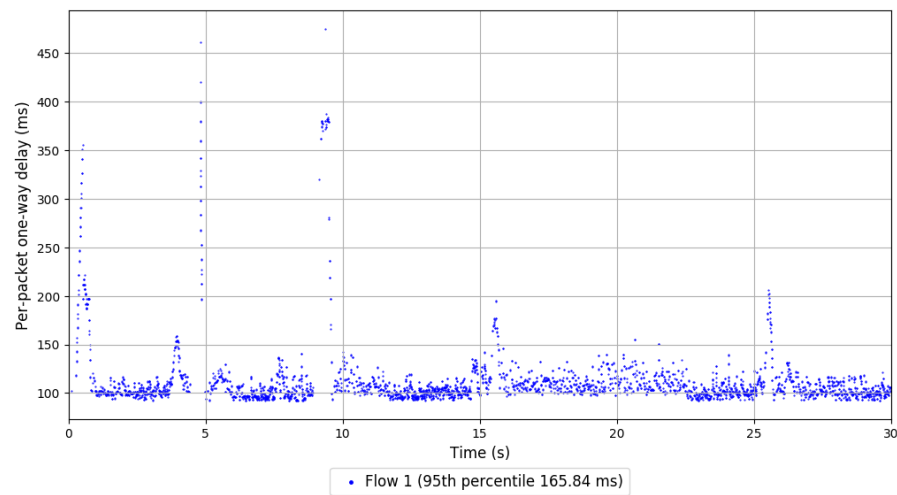
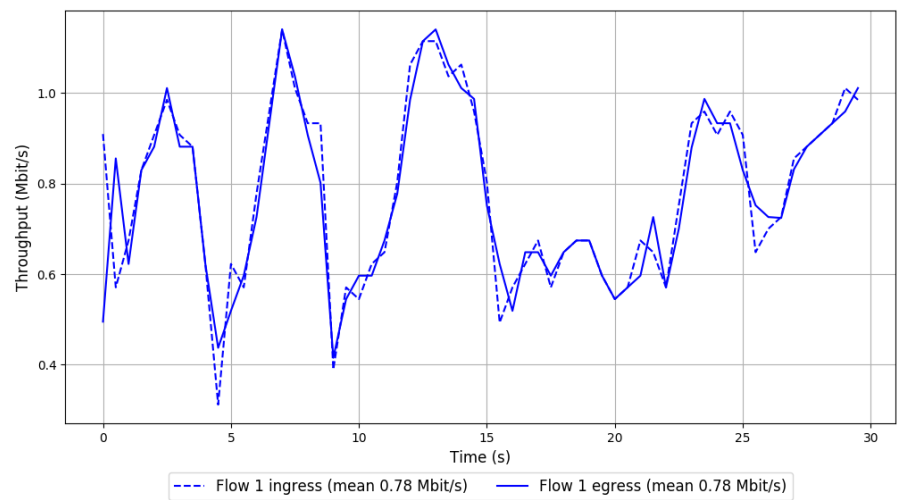


Run 1: Statistics of Copa

Start at: 2018-02-03 13:25:47
End at: 2018-02-03 13:26:17
Local clock offset: 4.249 ms
Remote clock offset: -21.678 ms

Below is generated by plot.py at 2018-02-03 15:07:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 165.840 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 165.840 ms
Loss rate: 0.89%

Run 1: Report of Copa — Data Link

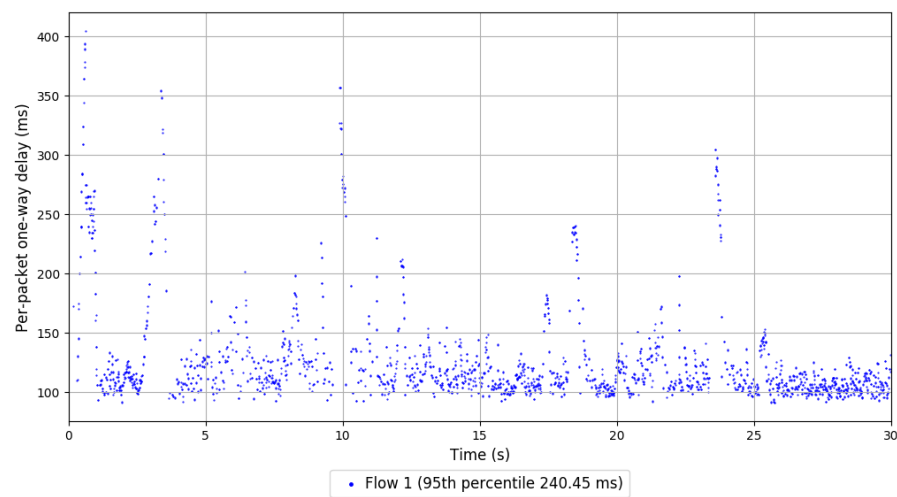
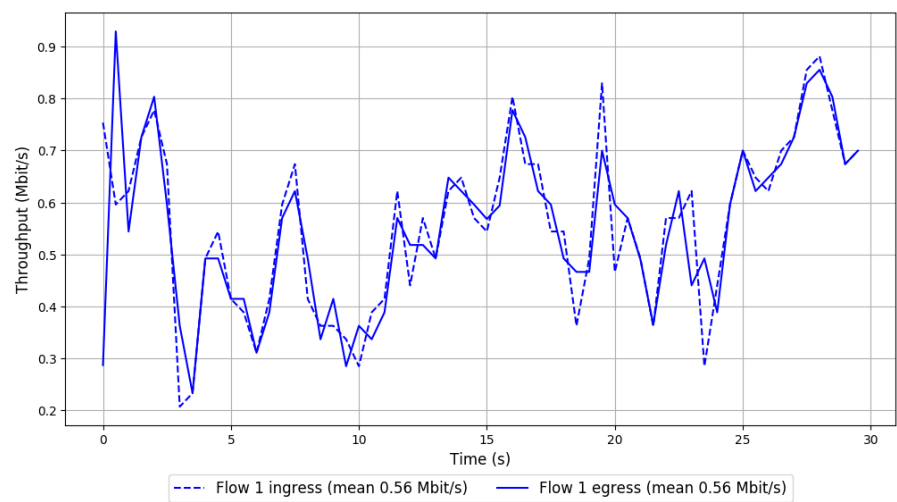


Run 2: Statistics of Copa

Start at: 2018-02-03 13:45:25
End at: 2018-02-03 13:45:55
Local clock offset: 2.996 ms
Remote clock offset: -24.832 ms

Below is generated by plot.py at 2018-02-03 15:07:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 240.450 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 240.450 ms
Loss rate: 0.72%

Run 2: Report of Copa — Data Link

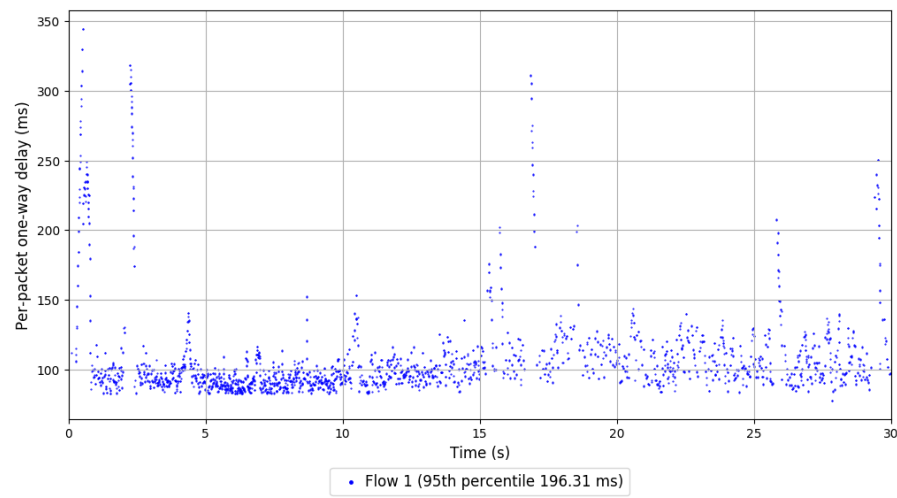
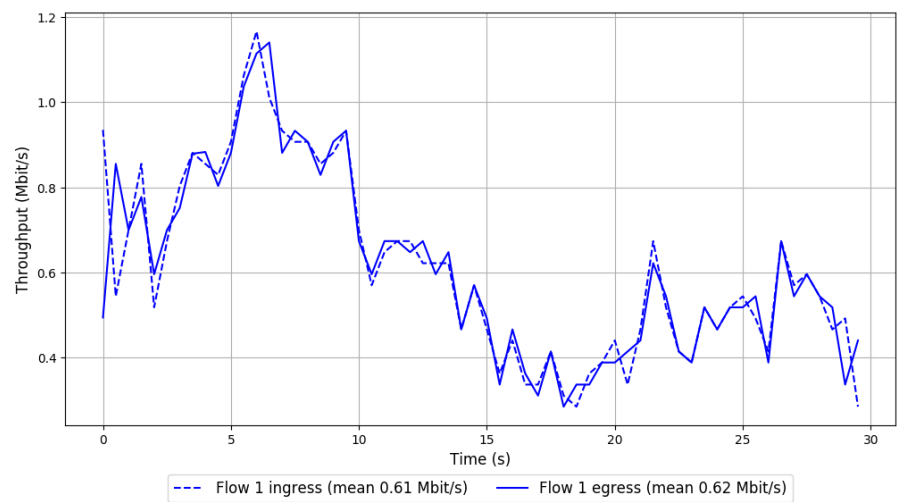


Run 3: Statistics of Copa

Start at: 2018-02-03 14:05:18
End at: 2018-02-03 14:05:48
Local clock offset: 2.553 ms
Remote clock offset: -27.489 ms

Below is generated by plot.py at 2018-02-03 15:07:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 196.308 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 196.308 ms
Loss rate: 0.21%

Run 3: Report of Copa — Data Link

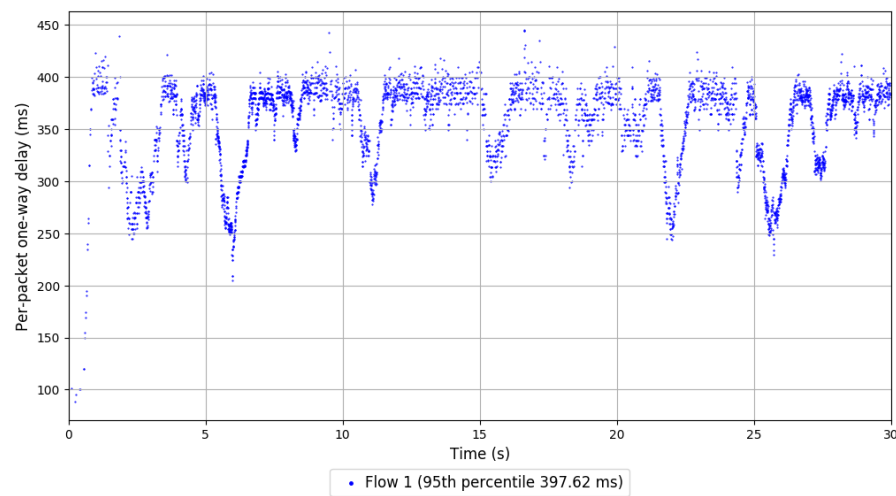
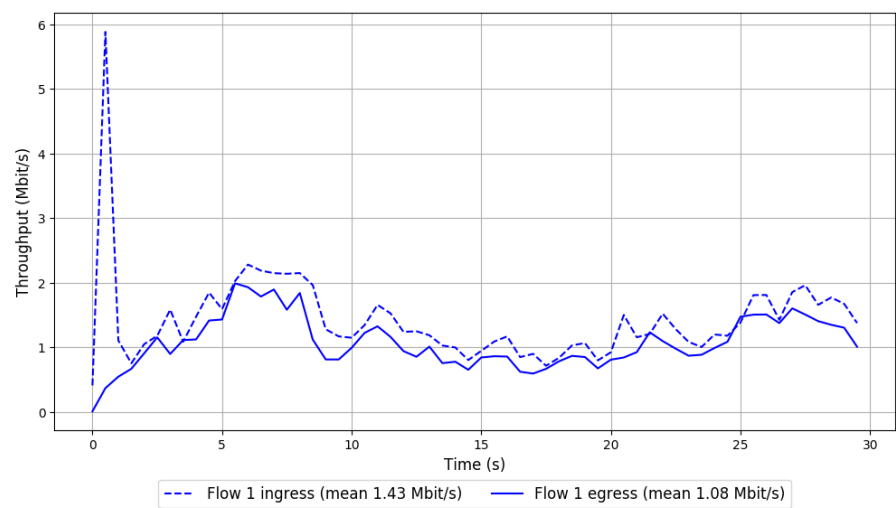


Run 1: Statistics of FillP

Start at: 2018-02-03 13:13:49
End at: 2018-02-03 13:14:19
Local clock offset: 3.09 ms
Remote clock offset: -21.54 ms

Below is generated by plot.py at 2018-02-03 15:07:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 397.625 ms
Loss rate: 24.70%
-- Flow 1:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 397.625 ms
Loss rate: 24.70%

Run 1: Report of FillP — Data Link

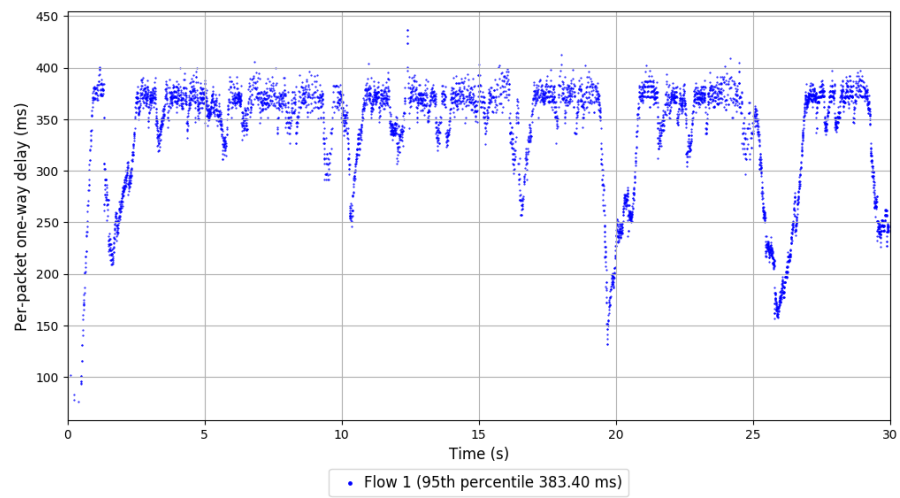
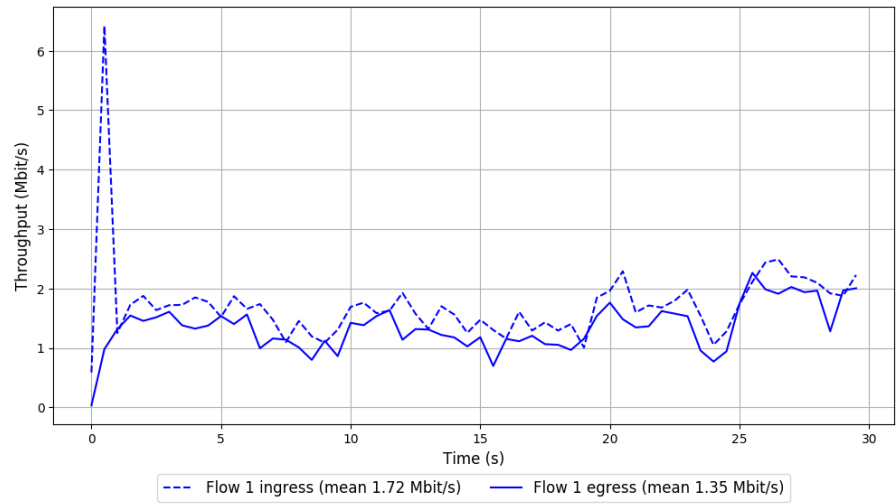


Run 2: Statistics of FillP

Start at: 2018-02-03 13:33:24
End at: 2018-02-03 13:33:54
Local clock offset: 2.378 ms
Remote clock offset: -22.051 ms

Below is generated by plot.py at 2018-02-03 15:07:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 383.399 ms
Loss rate: 21.50%
-- Flow 1:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 383.399 ms
Loss rate: 21.50%

Run 2: Report of FillP — Data Link

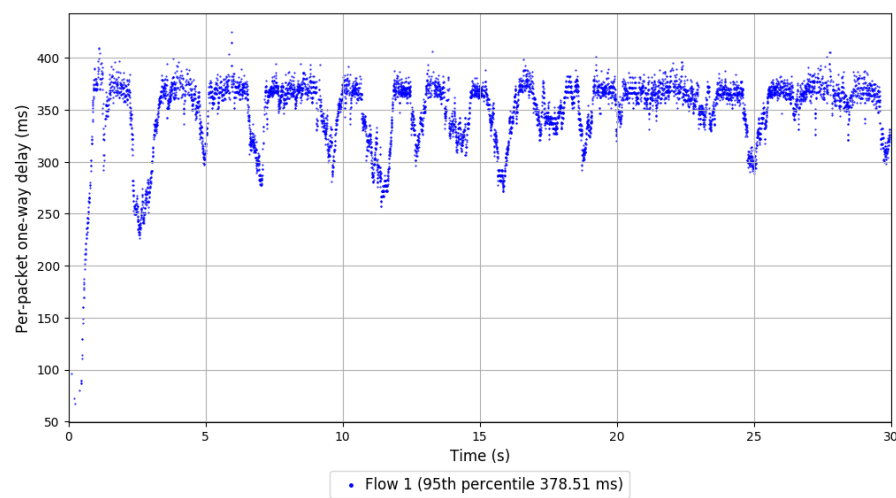
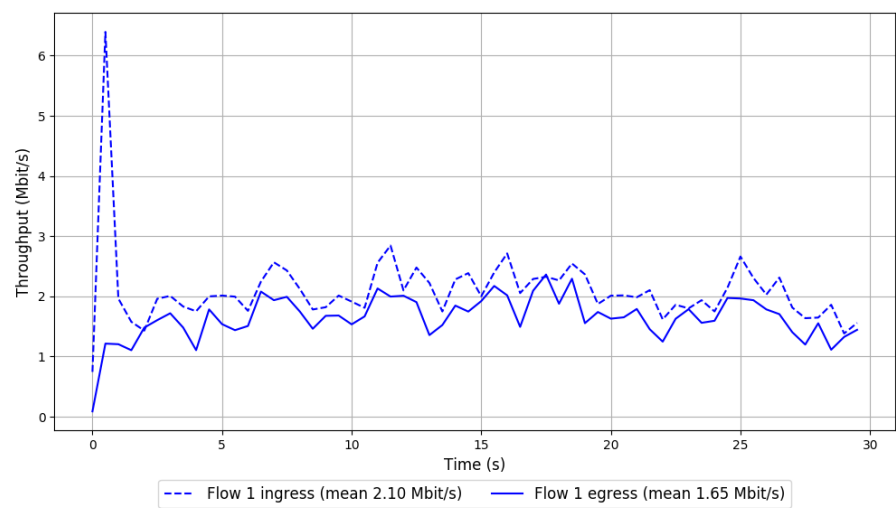


Run 3: Statistics of FillP

Start at: 2018-02-03 13:53:16
End at: 2018-02-03 13:53:47
Local clock offset: -2.391 ms
Remote clock offset: -24.871 ms

Below is generated by plot.py at 2018-02-03 15:07:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 378.511 ms
Loss rate: 21.63%
-- Flow 1:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 378.511 ms
Loss rate: 21.63%

Run 3: Report of FillP — Data Link

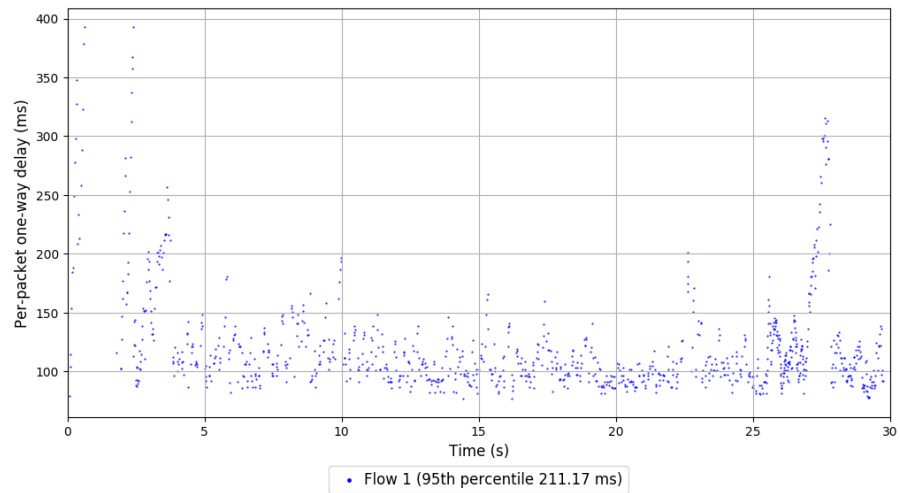
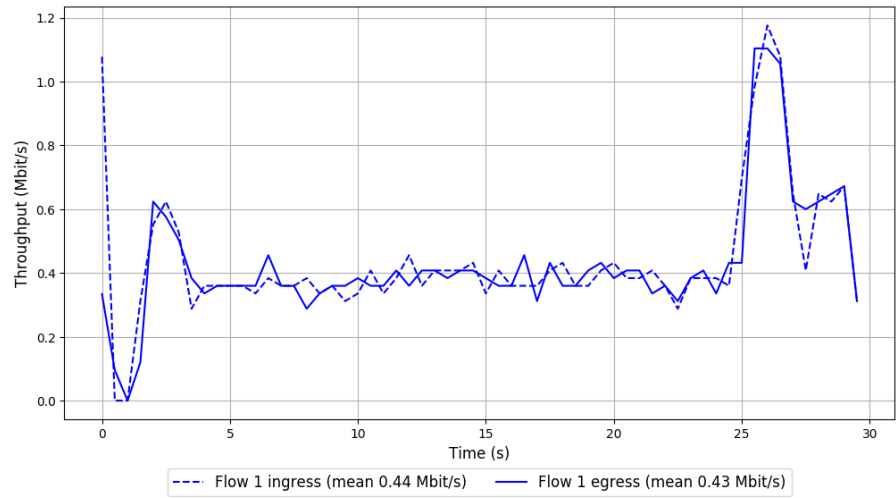


Run 1: Statistics of Indigo-1-32

Start at: 2018-02-03 13:17:05
End at: 2018-02-03 13:17:35
Local clock offset: -0.786 ms
Remote clock offset: -19.319 ms

Below is generated by plot.py at 2018-02-03 15:07:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 211.168 ms
Loss rate: 2.91%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 211.168 ms
Loss rate: 2.91%

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

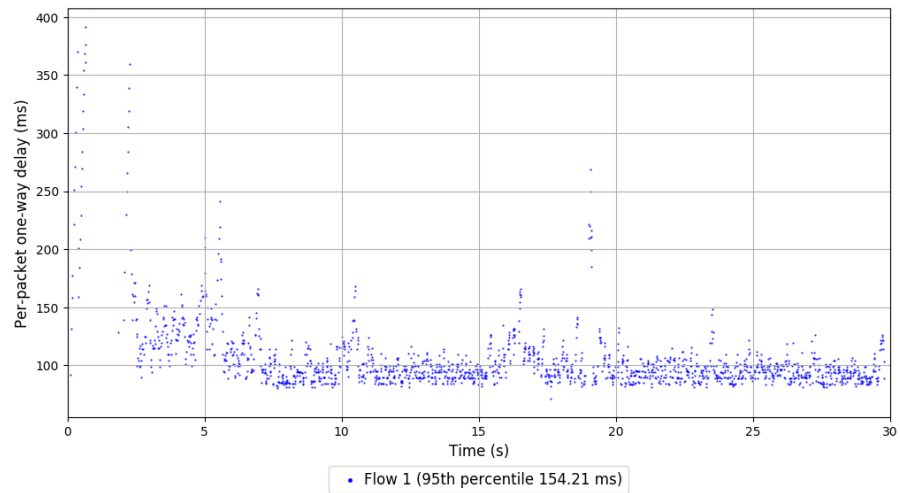
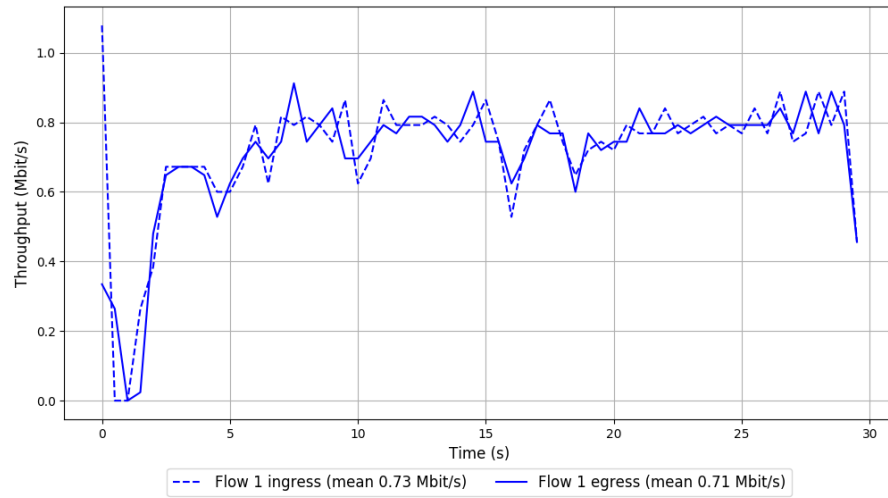


Run 2: Statistics of Indigo-1-32

Start at: 2018-02-03 13:36:40
End at: 2018-02-03 13:37:10
Local clock offset: 2.201 ms
Remote clock offset: -23.088 ms

Below is generated by plot.py at 2018-02-03 15:07:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 154.209 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 154.209 ms
Loss rate: 1.83%

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

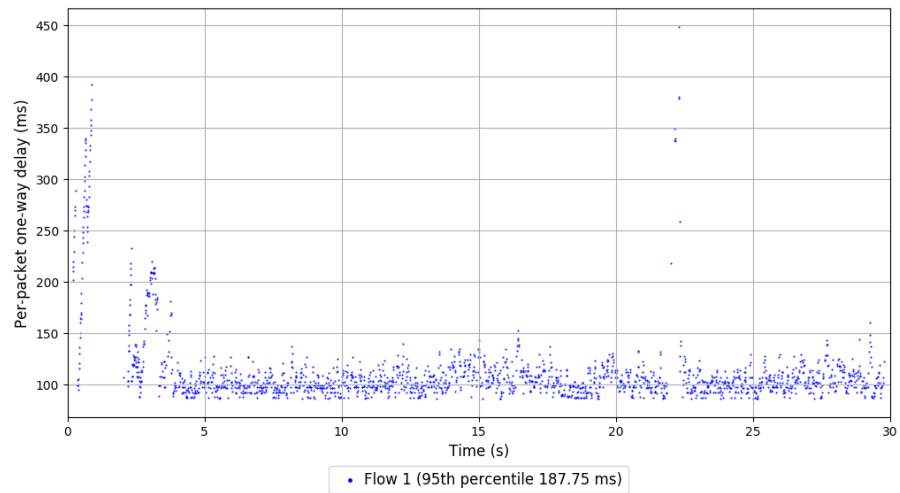
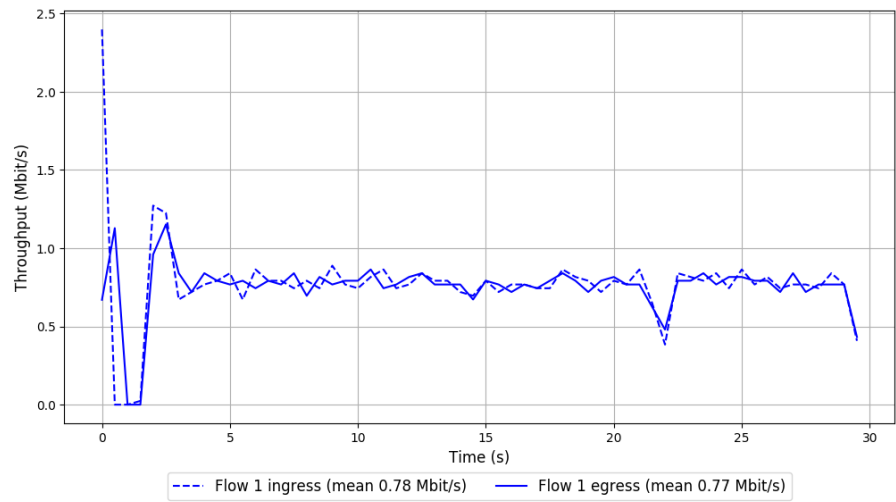


Run 3: Statistics of Indigo-1-32

Start at: 2018-02-03 13:56:34
End at: 2018-02-03 13:57:04
Local clock offset: 2.991 ms
Remote clock offset: -27.981 ms

Below is generated by plot.py at 2018-02-03 15:07:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 187.751 ms
Loss rate: 2.08%
-- Flow 1:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 187.751 ms
Loss rate: 2.08%

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

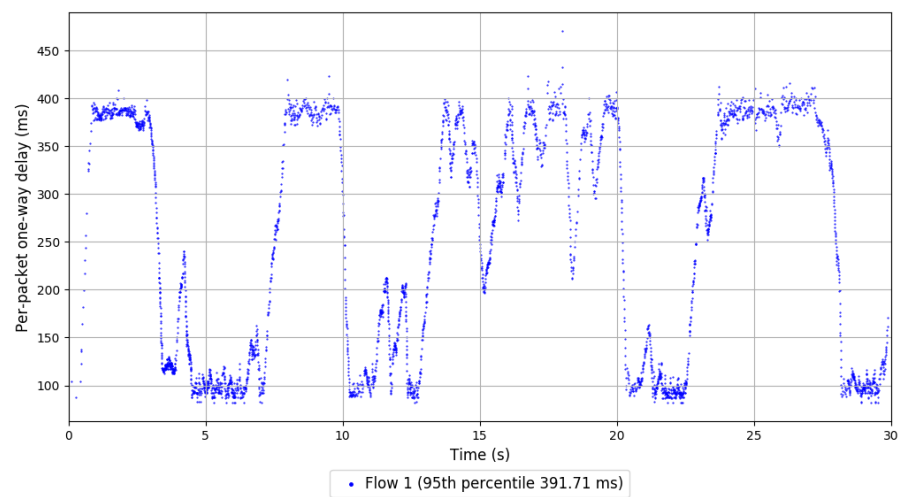
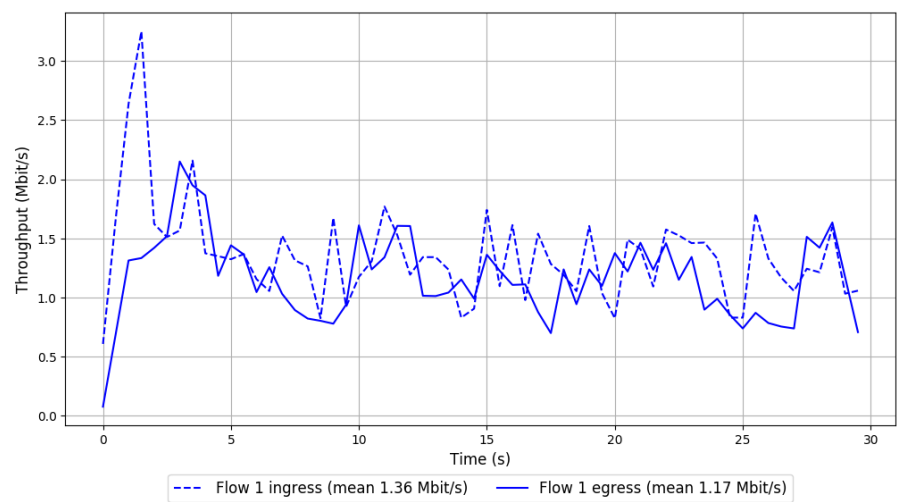


Run 1: Statistics of Vivace-latency

Start at: 2018-02-03 13:26:52
End at: 2018-02-03 13:27:22
Local clock offset: -1.167 ms
Remote clock offset: -23.039 ms

Below is generated by plot.py at 2018-02-03 15:07:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 391.715 ms
Loss rate: 14.15%
-- Flow 1:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 391.715 ms
Loss rate: 14.15%

Run 1: Report of Vivace-latency — Data Link

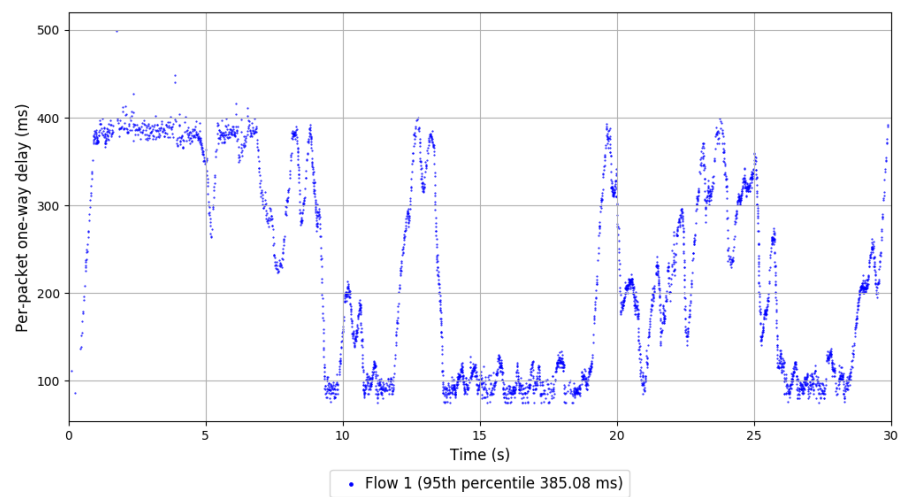
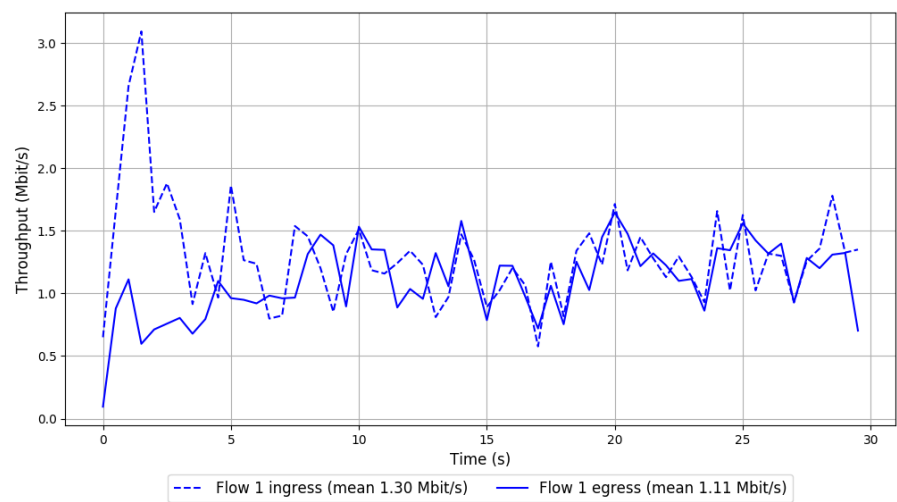


Run 2: Statistics of Vivace-latency

Start at: 2018-02-03 13:46:31
End at: 2018-02-03 13:47:01
Local clock offset: 2.14 ms
Remote clock offset: -25.897 ms

Below is generated by plot.py at 2018-02-03 15:07:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 385.081 ms
Loss rate: 15.03%
-- Flow 1:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 385.081 ms
Loss rate: 15.03%

Run 2: Report of Vivace-latency — Data Link

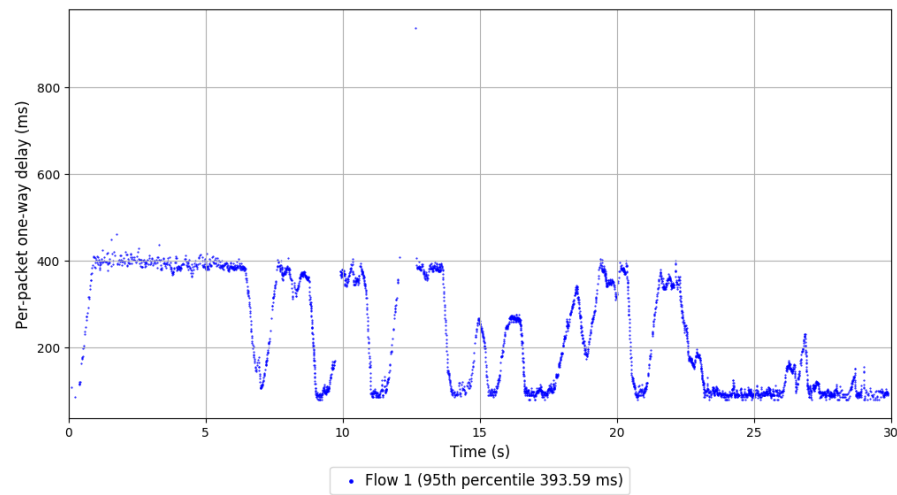
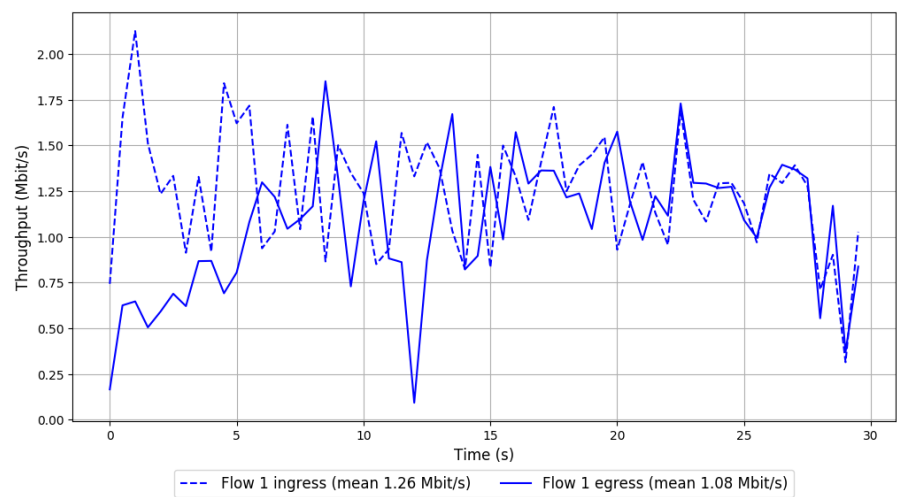


Run 3: Statistics of Vivace-latency

Start at: 2018-02-03 14:06:23
End at: 2018-02-03 14:06:53
Local clock offset: -2.469 ms
Remote clock offset: -28.462 ms

Below is generated by plot.py at 2018-02-03 15:07:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 393.593 ms
Loss rate: 14.59%
-- Flow 1:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 393.593 ms
Loss rate: 14.59%

Run 3: Report of Vivace-latency — Data Link

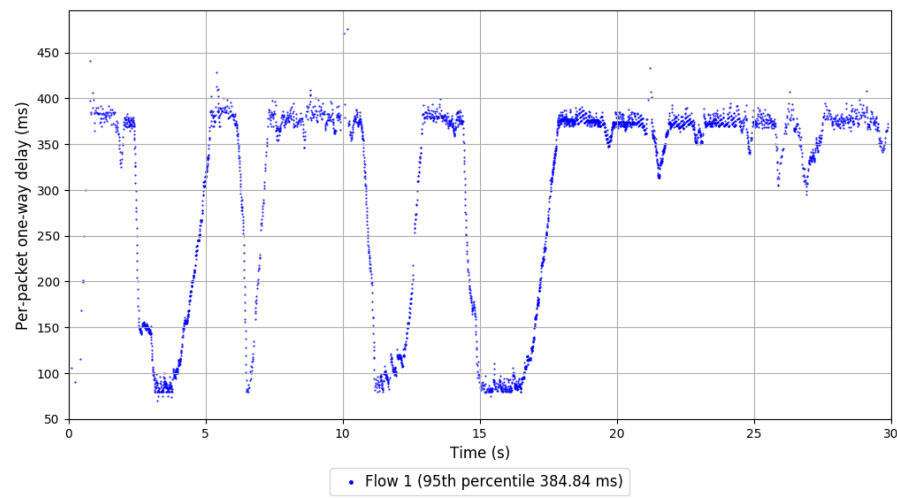
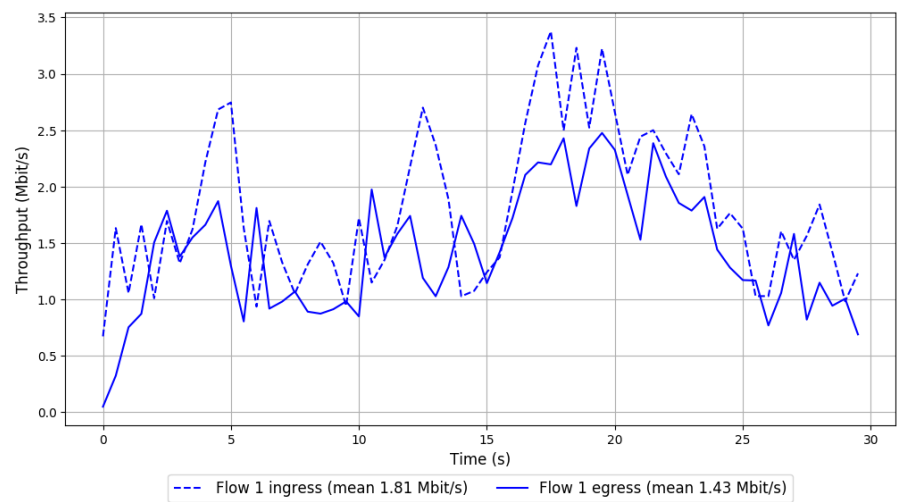


```
Run 1: Statistics of Vivace-loss

Start at: 2018-02-03 13:22:31
End at: 2018-02-03 13:23:01
Local clock offset: -1.664 ms
Remote clock offset: -23.005 ms

# Below is generated by plot.py at 2018-02-03 15:07:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 384.837 ms
Loss rate: 21.30%
-- Flow 1:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 384.837 ms
Loss rate: 21.30%
```

Run 1: Report of Vivace-loss — Data Link

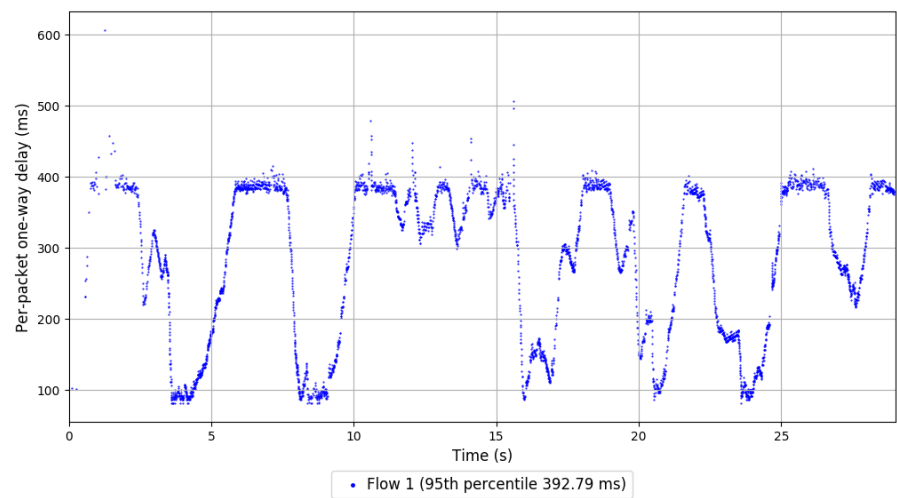
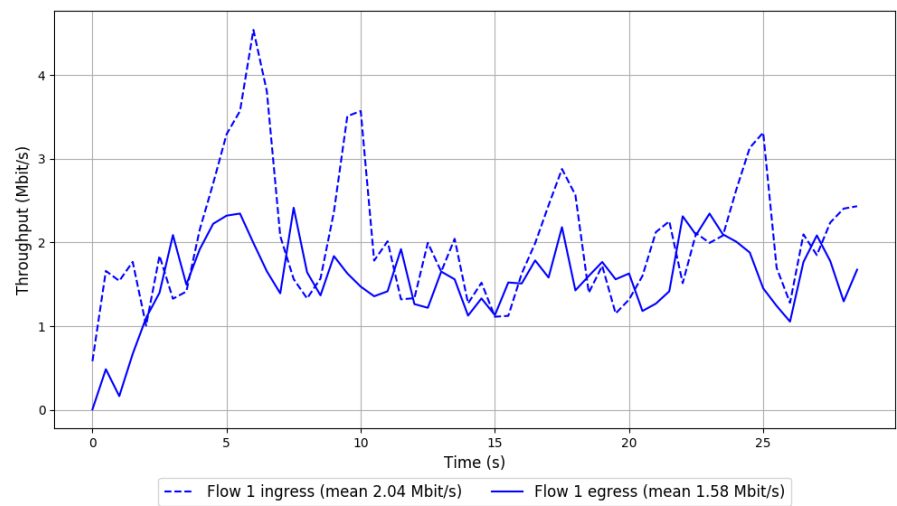


Run 2: Statistics of Vivace-loss

Start at: 2018-02-03 13:42:08
End at: 2018-02-03 13:42:38
Local clock offset: -1.072 ms
Remote clock offset: -24.744 ms

Below is generated by plot.py at 2018-02-03 15:07:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 392.786 ms
Loss rate: 22.95%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 392.786 ms
Loss rate: 22.95%

Run 2: Report of Vivace-loss — Data Link

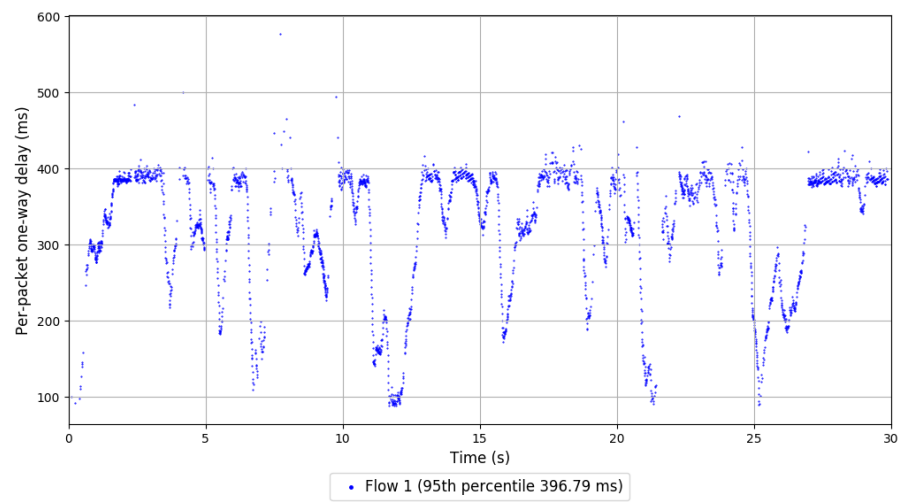
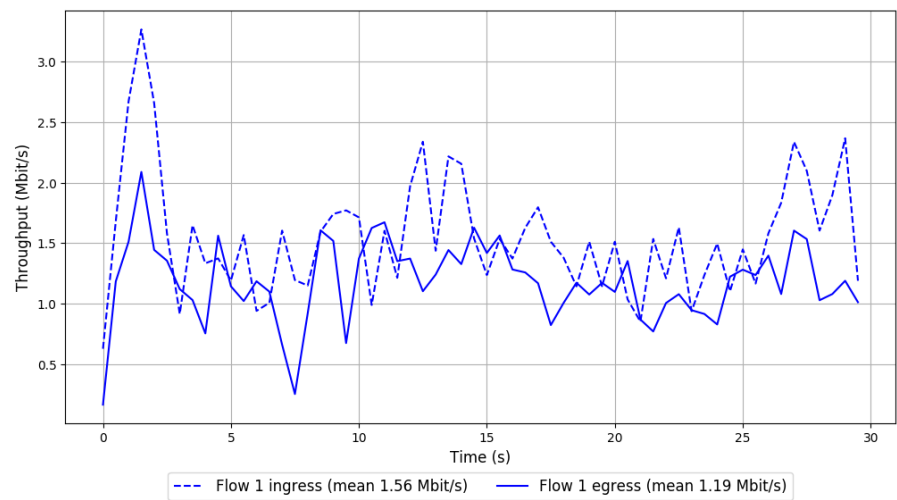


Run 3: Statistics of Vivace-loss

Start at: 2018-02-03 14:02:02
End at: 2018-02-03 14:02:32
Local clock offset: -1.417 ms
Remote clock offset: -28.192 ms

Below is generated by plot.py at 2018-02-03 15:07:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 396.791 ms
Loss rate: 23.78%
-- Flow 1:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 396.791 ms
Loss rate: 23.78%

Run 3: Report of Vivace-loss — Data Link

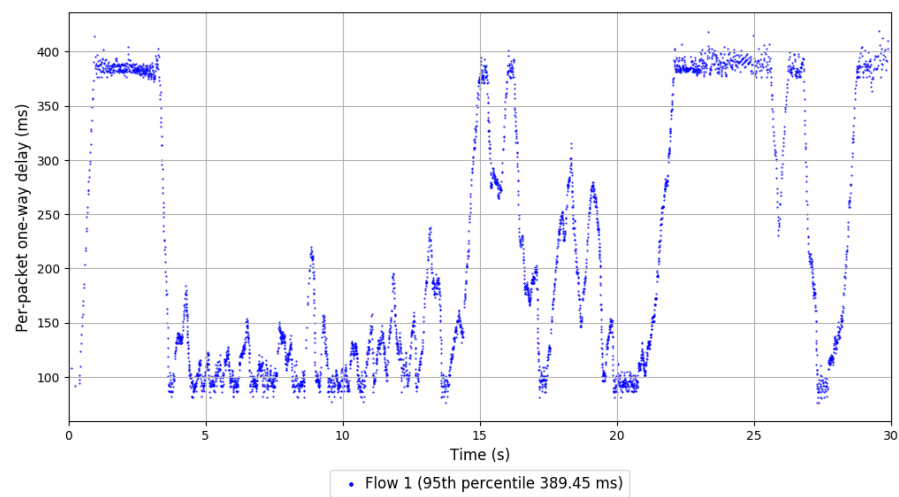
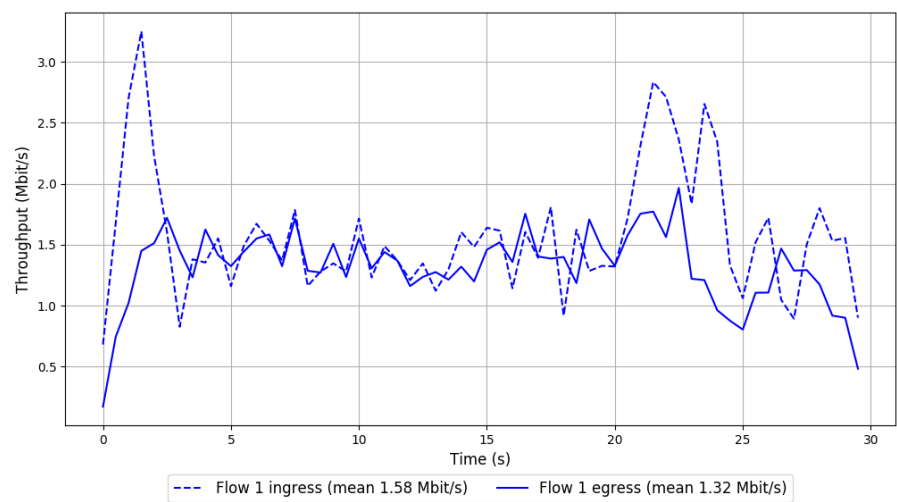


Run 1: Statistics of Vivace-LTE

Start at: 2018-02-03 13:23:36
End at: 2018-02-03 13:24:06
Local clock offset: 4.667 ms
Remote clock offset: -24.122 ms

Below is generated by plot.py at 2018-02-03 15:07:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 389.453 ms
Loss rate: 16.41%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 389.453 ms
Loss rate: 16.41%

Run 1: Report of Vivace-LTE — Data Link

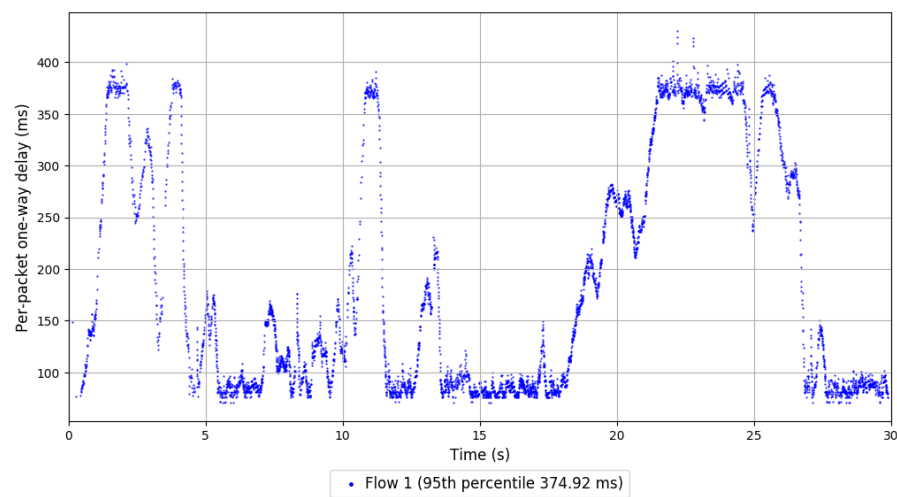
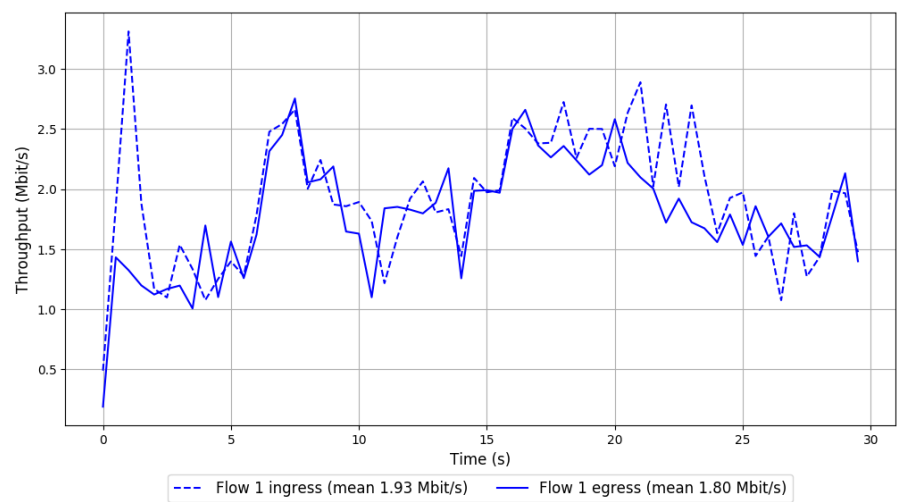


Run 2: Statistics of Vivace-LTE

Start at: 2018-02-03 13:43:14
End at: 2018-02-03 13:43:44
Local clock offset: -2.042 ms
Remote clock offset: -24.708 ms

Below is generated by plot.py at 2018-02-03 15:07:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 374.921 ms
Loss rate: 7.11%
-- Flow 1:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 374.921 ms
Loss rate: 7.11%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-02-03 14:03:07
End at: 2018-02-03 14:03:37
Local clock offset: -0.534 ms
Remote clock offset: -27.412 ms

Below is generated by plot.py at 2018-02-03 15:07:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 388.040 ms
Loss rate: 8.25%
-- Flow 1:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 388.040 ms
Loss rate: 8.25%

Run 3: Report of Vivace-LTE — Data Link

