

Pantheon Report

Generated at 2017-12-05 07:56:13 (UTC).

Data path: China ppp0 (*remote*) → AWS Korea Ethernet (*local*).

Repeated the test of 14 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

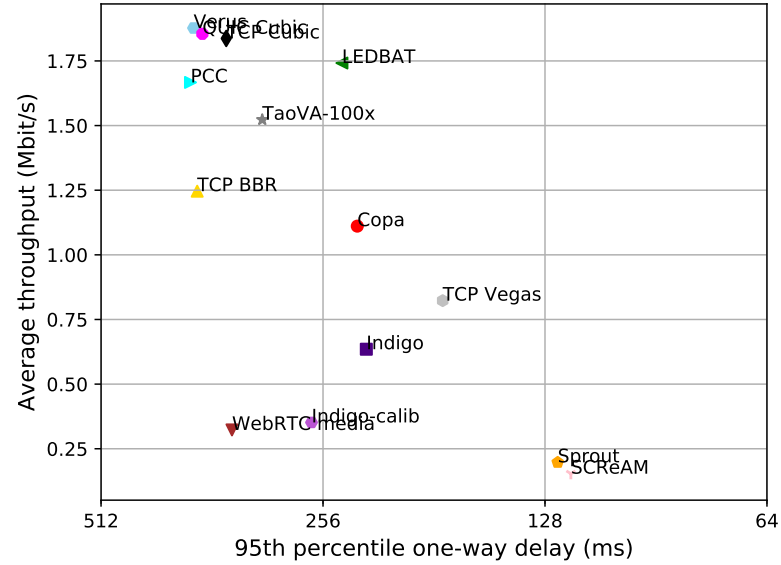
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

NTP offsets were measured against `ntp.nict.jp` and have been applied to correct the timestamps in logs.

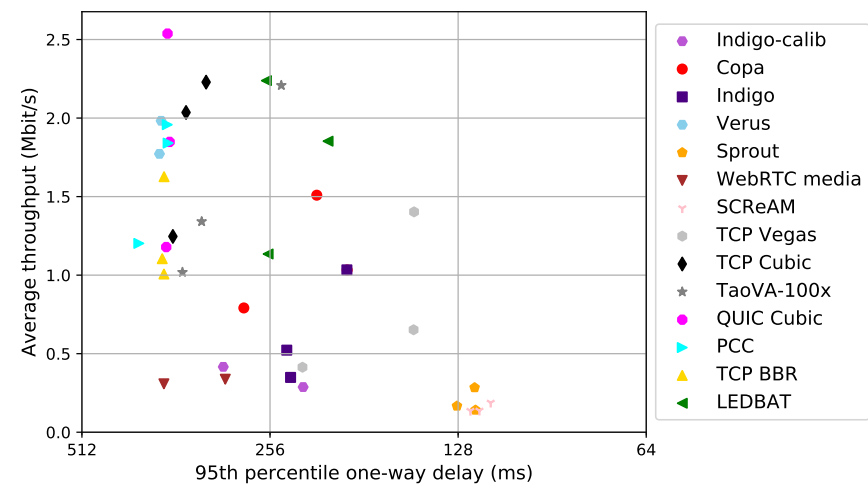
Git summary:

```
branch: indigos @ e3a57ad5ac5cfcaca0e3f983c8dd4cc3509e0262
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/genericCC @ b5b7c38e8391001927dc41c6cfa2627d03dde737
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-cellular @ aee99e8eb842cb053f8c9a80e28cd256a930bbc2
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/indigo-no-cwnd @ 3e58442c04028a11d7b02456e137604633ba2d6c
third_party/indigo-no-delivery-rate @ 57caa40858b964906edff4876d5a7e5bfff666c5
third_party/indigo-no-queuing-delay @ 03455460fd1a8ffbdad86fab936fdca204b80db
third_party/indigo-no-send-rate @ b39dfa6b2c5f19cb7cd89626cb4f5bb81f9fecda
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
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 @ f1a14bffe749737437f61b1eaaeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from China ppp0 to AWS Korea Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from China ppp0 to AWS Korea Ethernet, 3 runs of 30s each per scheme



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	1.25	379.19	10.92
TCP Cubic	3	1.84	346.33	3.69
LEDBAT	3	1.74	241.34	1.24
PCC	3	1.67	387.21	44.74
QUIC Cubic	3	1.86	373.13	6.11
SCReAM	3	0.16	118.07	0.57
WebRTC media	2	0.33	340.20	5.29
Sprout	3	0.20	123.02	1.61
TaoVA-100x	3	1.52	309.47	6.78
TCP Vegas	3	0.82	176.18	1.98
Verus	2	1.88	383.57	44.08
Copa	3	1.11	230.03	1.33
Indigo	3	0.63	223.62	2.09
Indigo-calib	2	0.35	265.35	7.35

Run 1: Statistics of TCP BBR

Start at: 2017-12-05 06:33:24

End at: 2017-12-05 06:33:54

Local clock offset: -9.103 ms

Remote clock offset: -2.476 ms

Below is generated by plot.py at 2017-12-05 07:55:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 378.289 ms

Loss rate: 8.83%

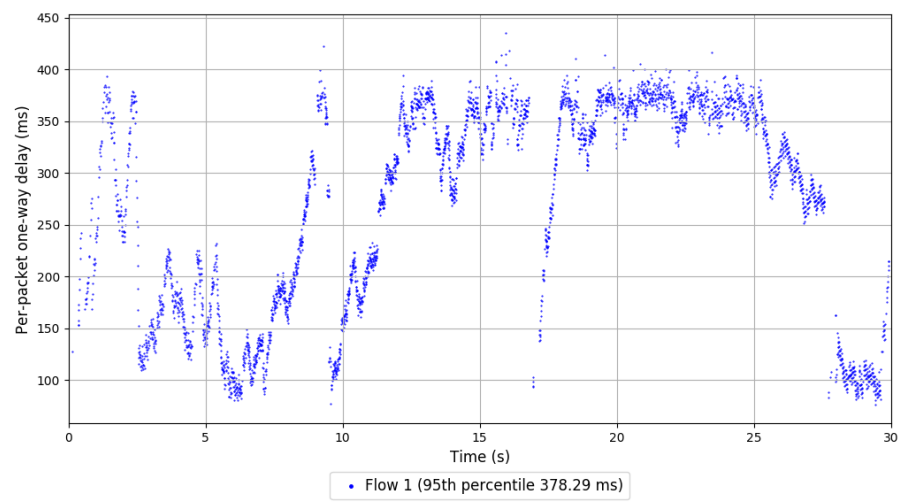
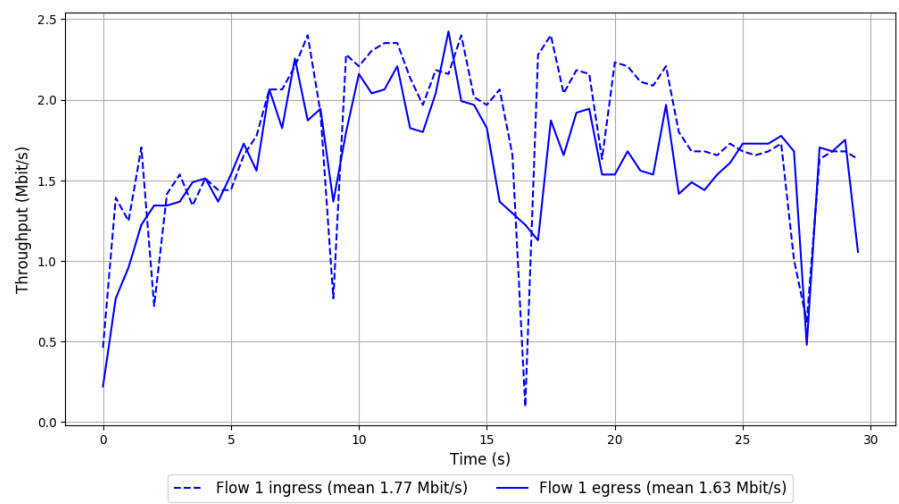
-- Flow 1:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 378.289 ms

Loss rate: 8.83%

Run 1: Report of TCP BBR — Data Link

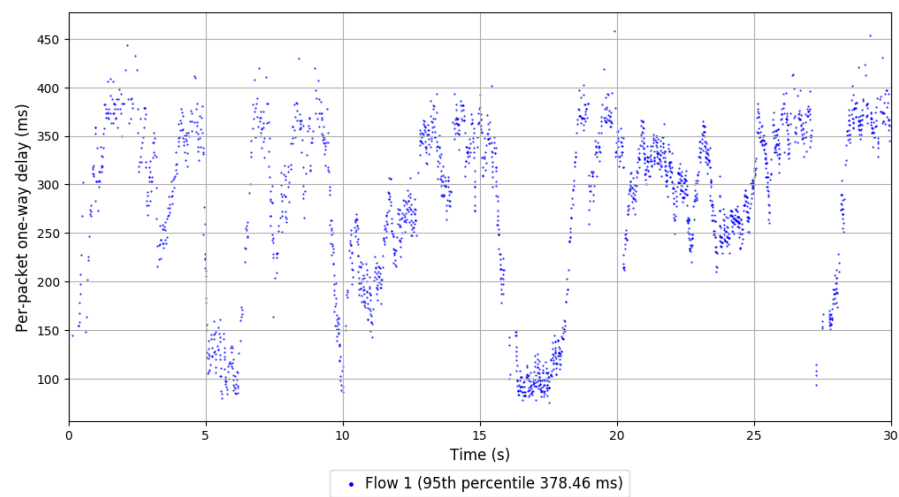
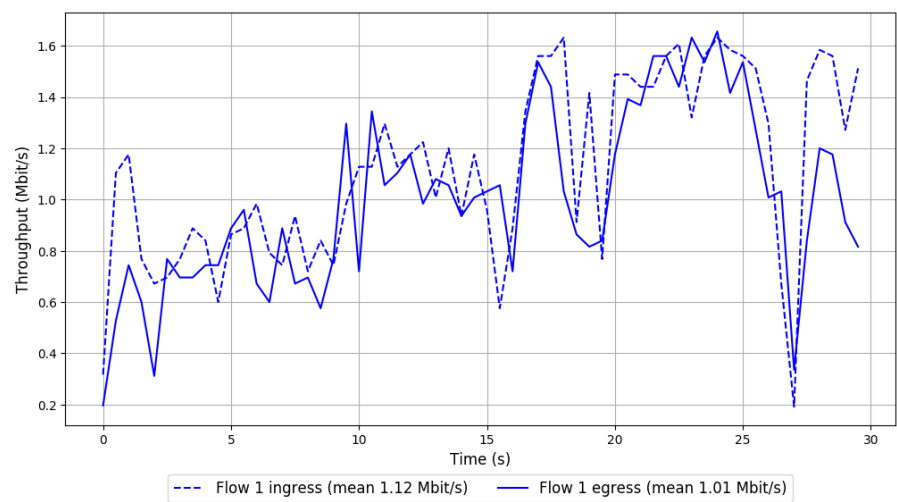


Run 2: Statistics of TCP BBR

Start at: 2017-12-05 06:49:35
End at: 2017-12-05 06:50:05
Local clock offset: -3.663 ms
Remote clock offset: -2.397 ms

Below is generated by plot.py at 2017-12-05 07:55:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 378.463 ms
Loss rate: 10.55%
-- Flow 1:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 378.463 ms
Loss rate: 10.55%

Run 2: Report of TCP BBR — Data Link

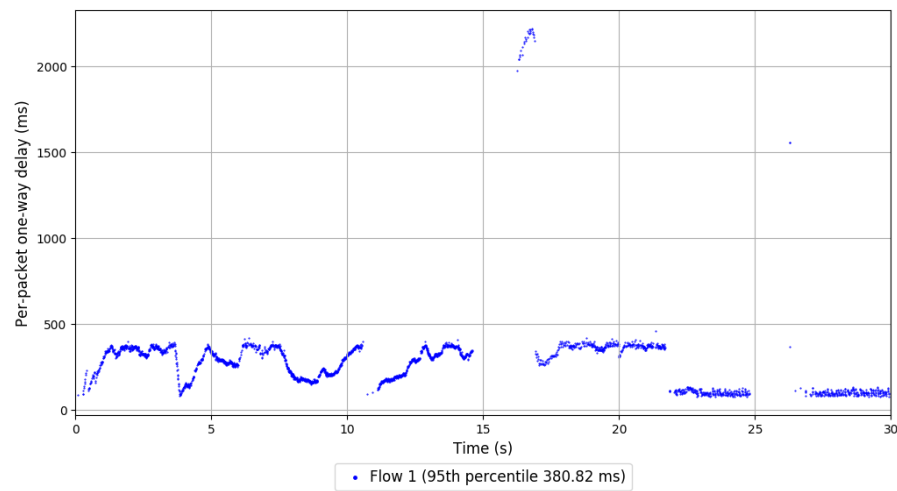
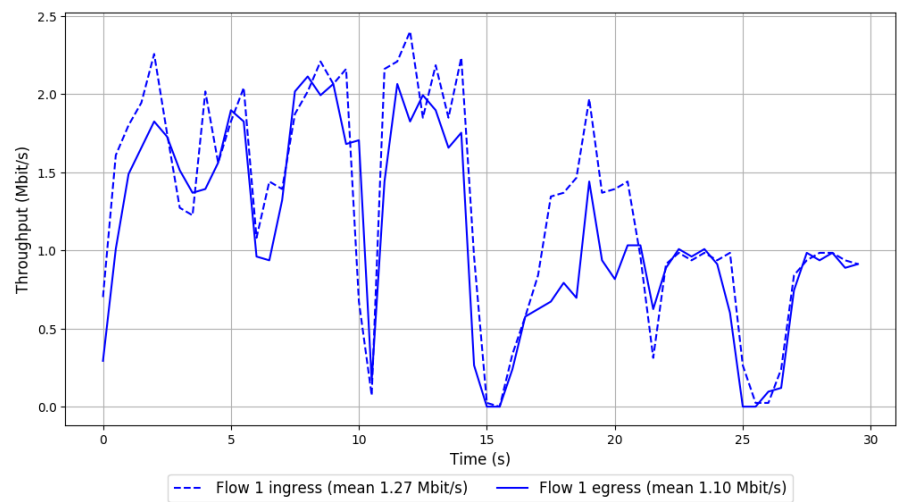


Run 3: Statistics of TCP BBR

Start at: 2017-12-05 07:06:16
End at: 2017-12-05 07:06:46
Local clock offset: -5.955 ms
Remote clock offset: -2.221 ms

Below is generated by plot.py at 2017-12-05 07:55:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.10 Mbit/s
95th percentile per-packet one-way delay: 380.824 ms
Loss rate: 13.37%
-- Flow 1:
Average throughput: 1.10 Mbit/s
95th percentile per-packet one-way delay: 380.824 ms
Loss rate: 13.37%

Run 3: Report of TCP BBR — Data Link

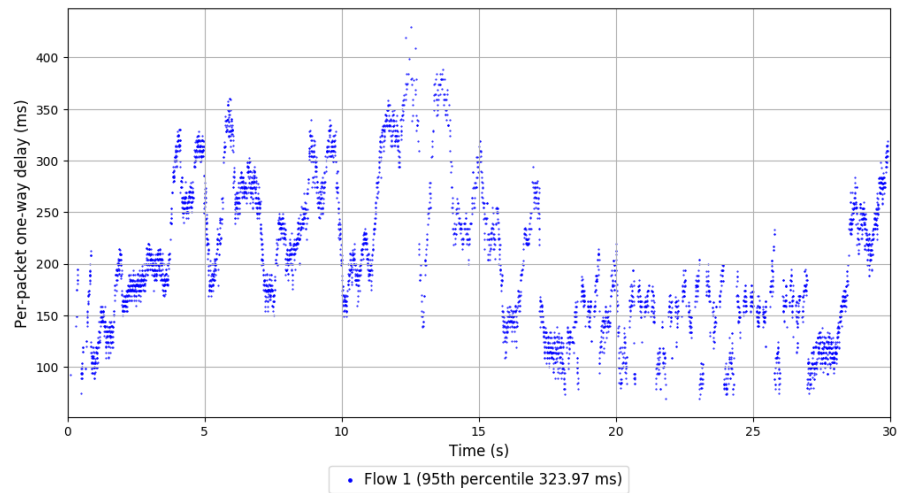
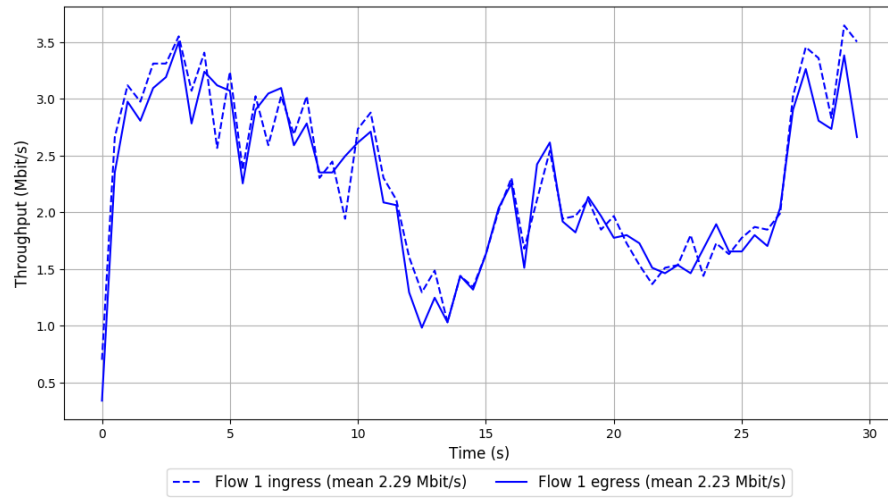


Run 1: Statistics of TCP Cubic

Start at: 2017-12-05 06:28:50
End at: 2017-12-05 06:29:20
Local clock offset: -14.318 ms
Remote clock offset: -2.686 ms

Below is generated by plot.py at 2017-12-05 07:55:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 323.972 ms
Loss rate: 3.16%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 323.972 ms
Loss rate: 3.16%

Run 1: Report of TCP Cubic — Data Link

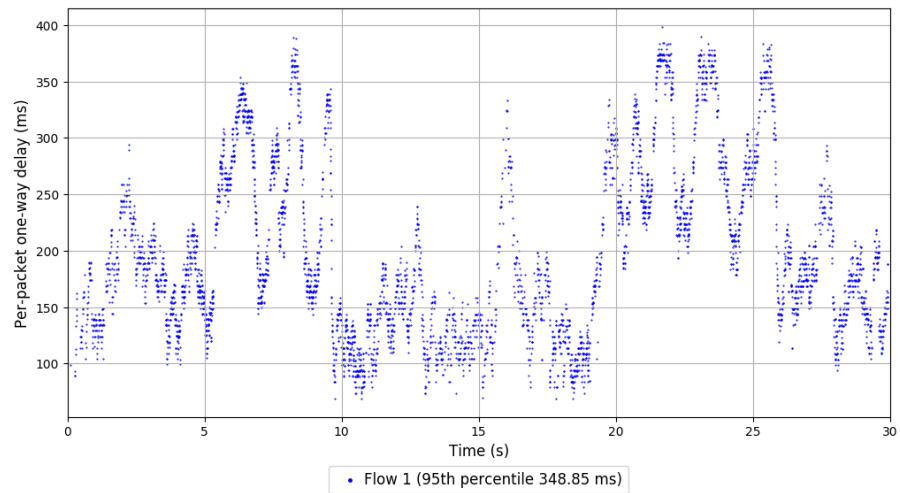
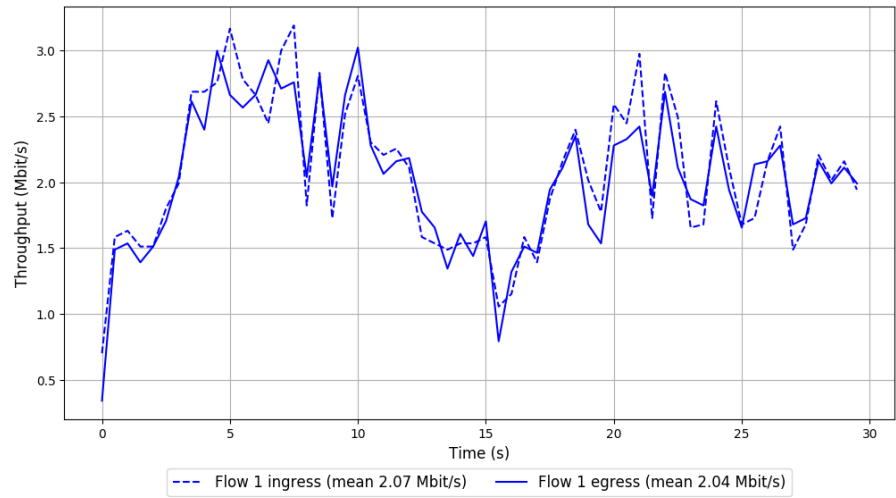


Run 2: Statistics of TCP Cubic

Start at: 2017-12-05 06:45:01
End at: 2017-12-05 06:45:31
Local clock offset: -4.576 ms
Remote clock offset: -2.448 ms

Below is generated by plot.py at 2017-12-05 07:55:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 348.848 ms
Loss rate: 2.07%
-- Flow 1:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 348.848 ms
Loss rate: 2.07%

Run 2: Report of TCP Cubic — Data Link

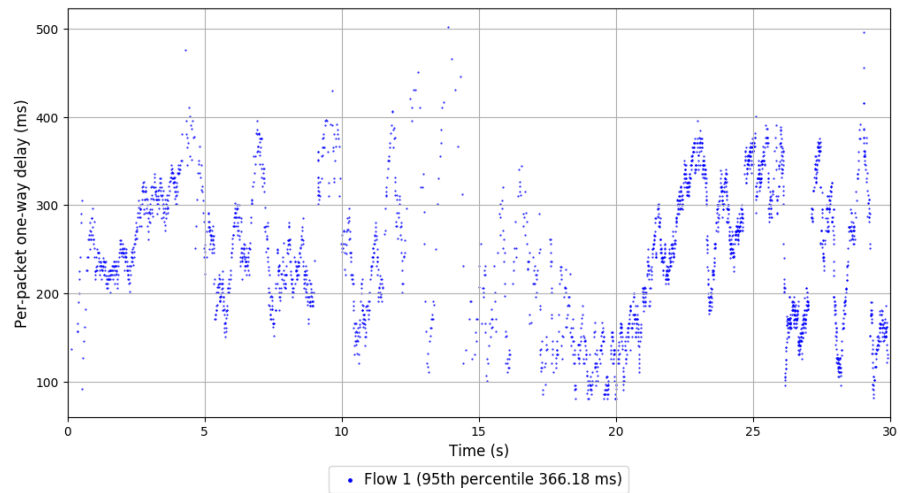
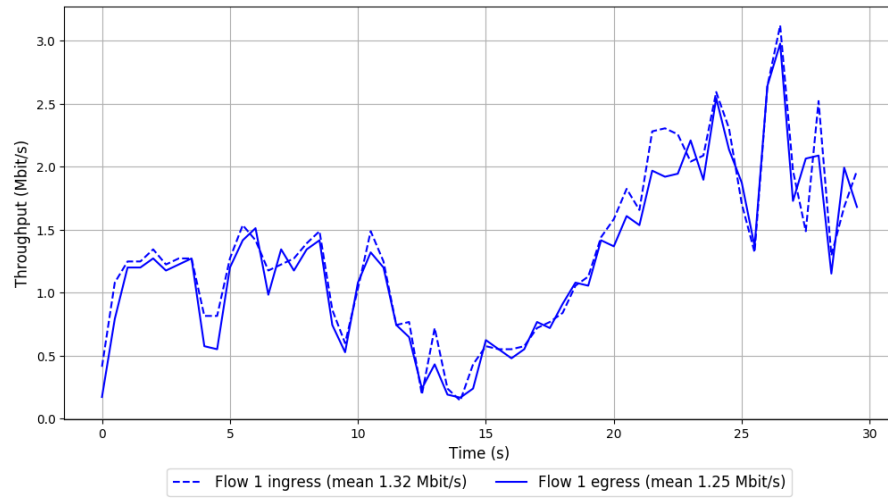


Run 3: Statistics of TCP Cubic

Start at: 2017-12-05 07:00:58
End at: 2017-12-05 07:01:28
Local clock offset: -5.166 ms
Remote clock offset: -2.692 ms

Below is generated by plot.py at 2017-12-05 07:55:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 366.179 ms
Loss rate: 5.85%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 366.179 ms
Loss rate: 5.85%

Run 3: Report of TCP Cubic — Data Link

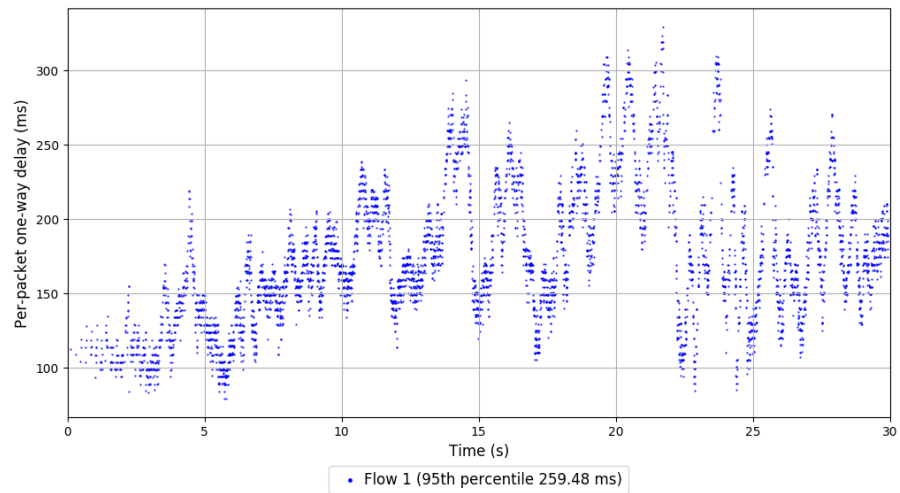
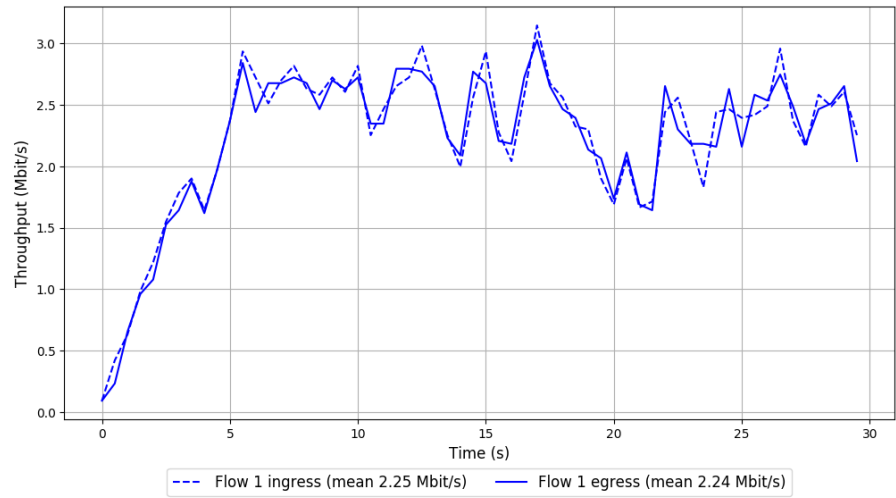


Run 1: Statistics of LEDBAT

Start at: 2017-12-05 06:19:39
End at: 2017-12-05 06:20:09
Local clock offset: -12.512 ms
Remote clock offset: -3.042 ms

Below is generated by plot.py at 2017-12-05 07:55:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.24 Mbit/s
95th percentile per-packet one-way delay: 259.483 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 2.24 Mbit/s
95th percentile per-packet one-way delay: 259.483 ms
Loss rate: 0.82%

Run 1: Report of LEDBAT — Data Link

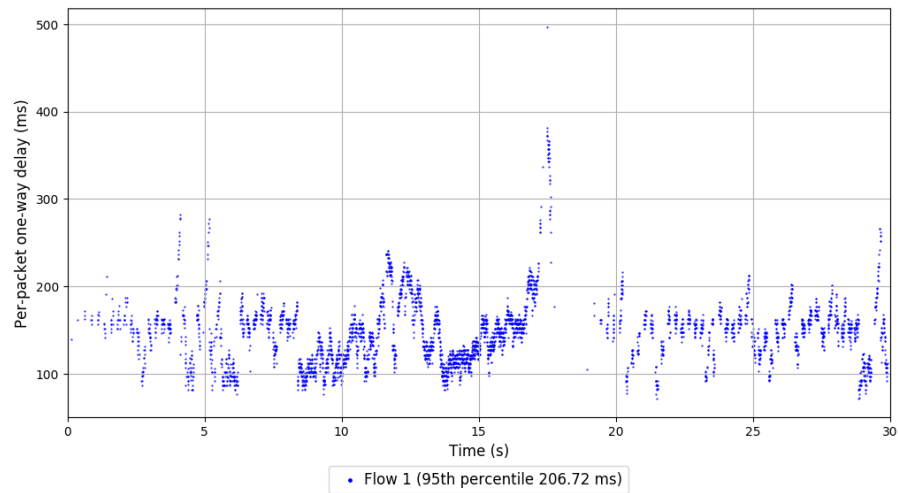
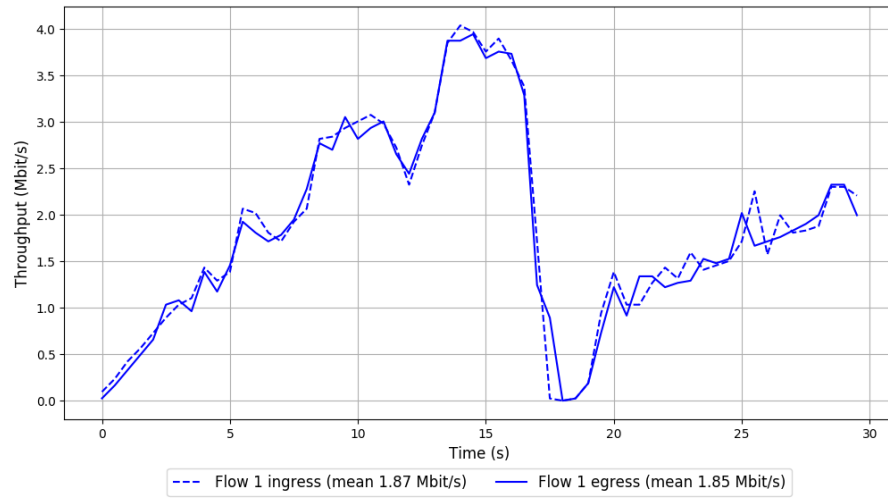


Run 2: Statistics of LEDBAT

Start at: 2017-12-05 06:35:41
End at: 2017-12-05 06:36:11
Local clock offset: -7.07 ms
Remote clock offset: -2.393 ms

Below is generated by plot.py at 2017-12-05 07:55:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 206.722 ms
Loss rate: 1.49%
-- Flow 1:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 206.722 ms
Loss rate: 1.49%

Run 2: Report of LEDBAT — Data Link

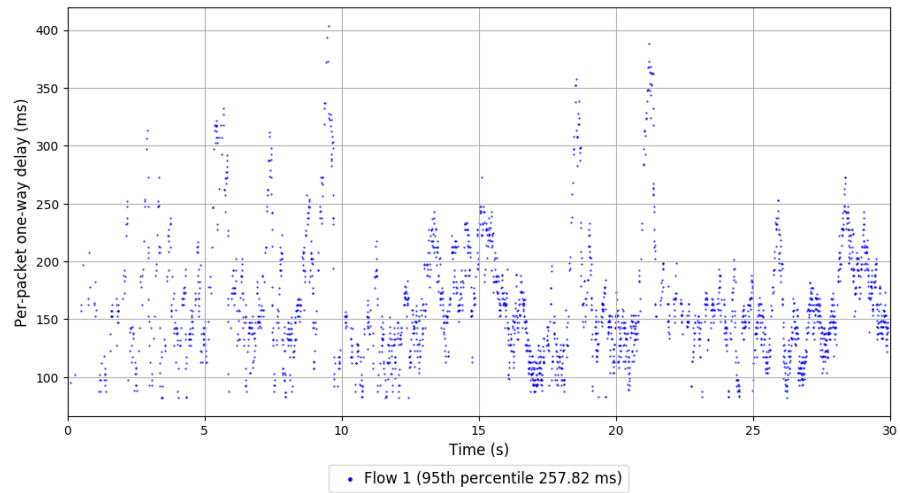
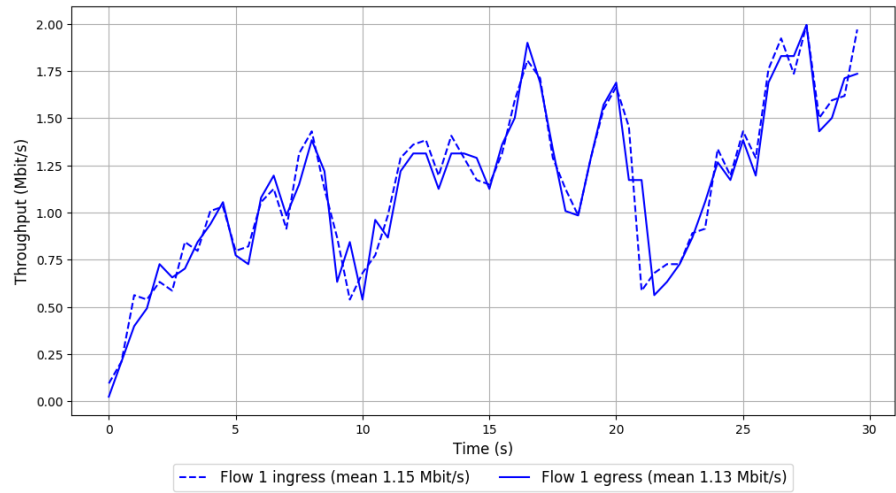


Run 3: Statistics of LEDBAT

Start at: 2017-12-05 06:51:52
End at: 2017-12-05 06:52:22
Local clock offset: -4.34 ms
Remote clock offset: -2.482 ms

Below is generated by plot.py at 2017-12-05 07:55:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 257.819 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 257.819 ms
Loss rate: 1.40%

Run 3: Report of LEDBAT — Data Link

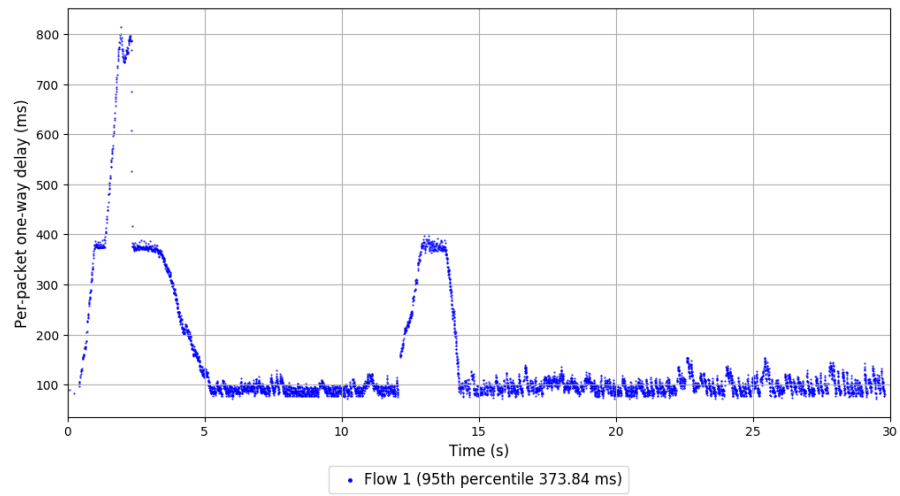
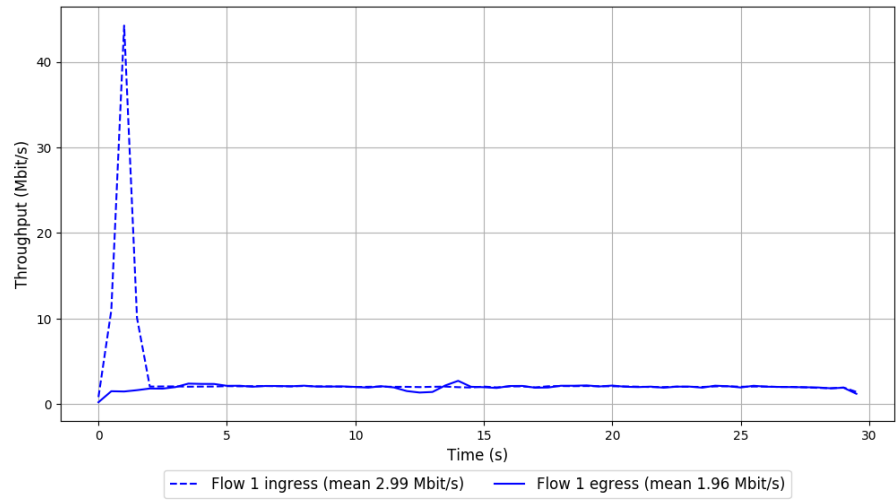


Run 1: Statistics of PCC

Start at: 2017-12-05 06:20:49
End at: 2017-12-05 06:21:19
Local clock offset: -14.142 ms
Remote clock offset: -3.062 ms

Below is generated by plot.py at 2017-12-05 07:55:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 373.841 ms
Loss rate: 34.77%
-- Flow 1:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 373.841 ms
Loss rate: 34.77%

Run 1: Report of PCC — Data Link

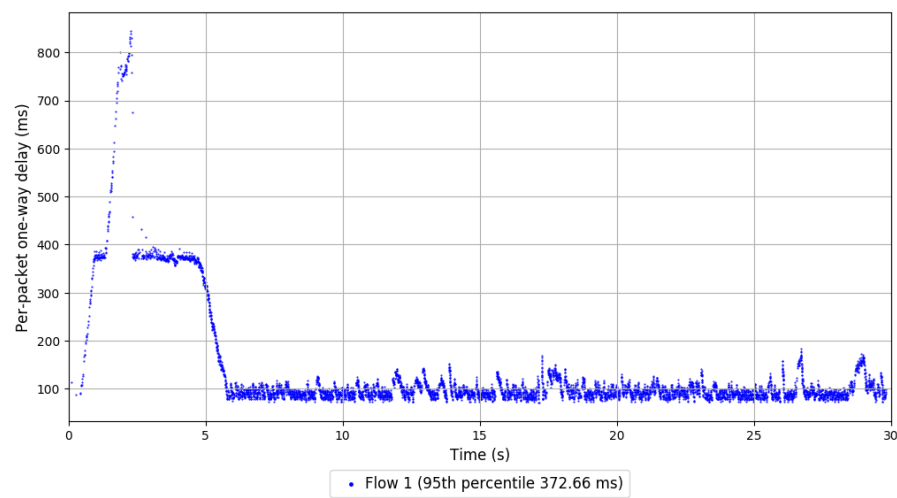
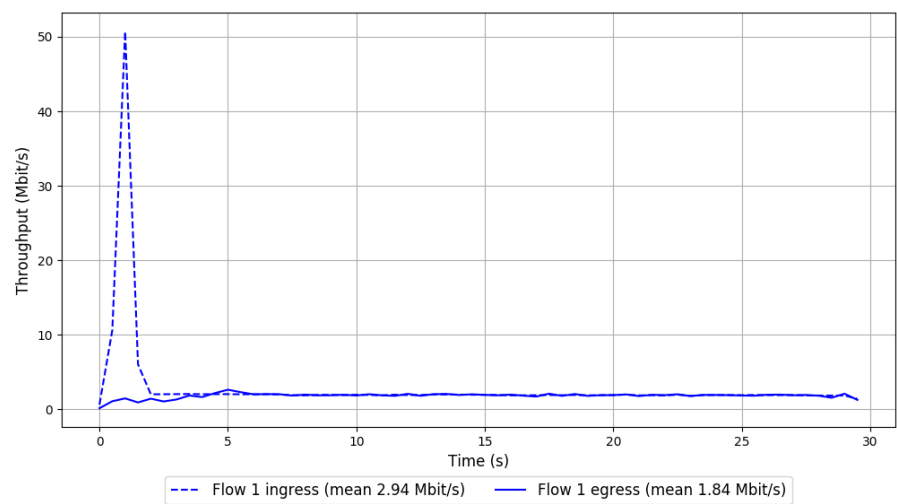


Run 2: Statistics of PCC

Start at: 2017-12-05 06:37:01
End at: 2017-12-05 06:37:31
Local clock offset: -6.766 ms
Remote clock offset: -2.618 ms

Below is generated by plot.py at 2017-12-05 07:55:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 372.659 ms
Loss rate: 37.74%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 372.659 ms
Loss rate: 37.74%

Run 2: Report of PCC — Data Link

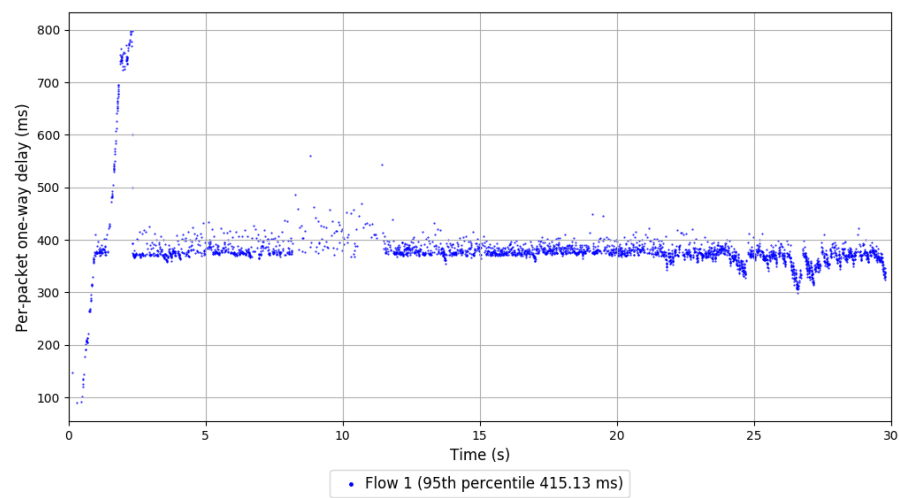
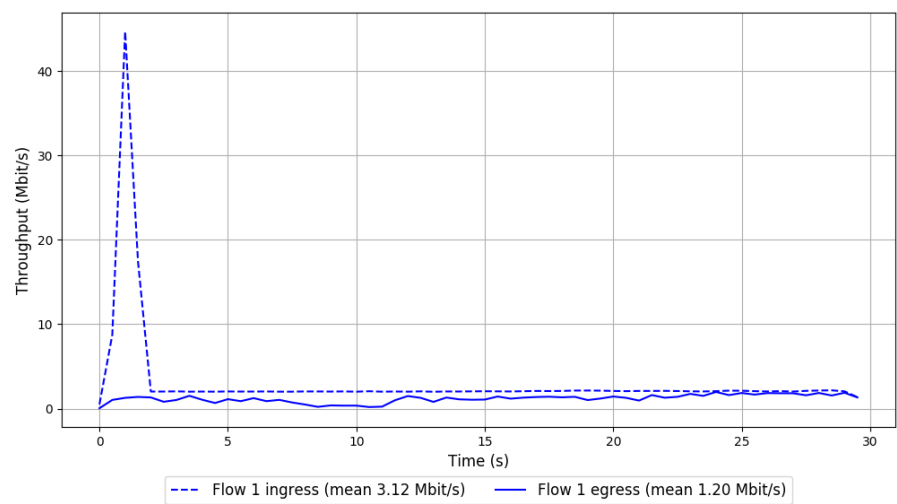


Run 3: Statistics of PCC

Start at: 2017-12-05 06:53:00
End at: 2017-12-05 06:53:30
Local clock offset: -4.942 ms
Remote clock offset: -3.743 ms

Below is generated by plot.py at 2017-12-05 07:55:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 415.128 ms
Loss rate: 61.71%
-- Flow 1:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 415.128 ms
Loss rate: 61.71%

Run 3: Report of PCC — Data Link

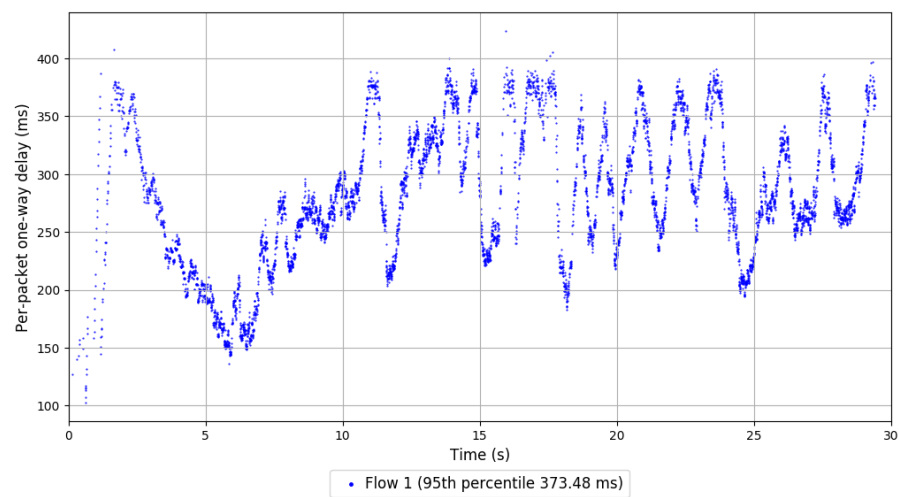
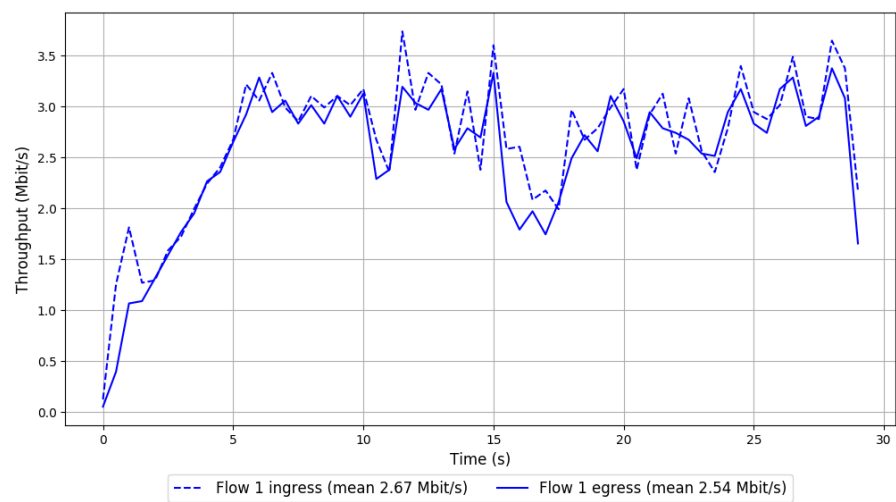


Run 1: Statistics of QUIC Cubic

Start at: 2017-12-05 06:24:15
End at: 2017-12-05 06:24:45
Local clock offset: -15.876 ms
Remote clock offset: -2.858 ms

Below is generated by plot.py at 2017-12-05 07:55:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 373.478 ms
Loss rate: 5.53%
-- Flow 1:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 373.478 ms
Loss rate: 5.53%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2017-12-05 06:40:28

End at: 2017-12-05 06:40:58

Local clock offset: -7.625 ms

Remote clock offset: -3.069 ms

Below is generated by plot.py at 2017-12-05 07:55:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 370.639 ms

Loss rate: 5.27%

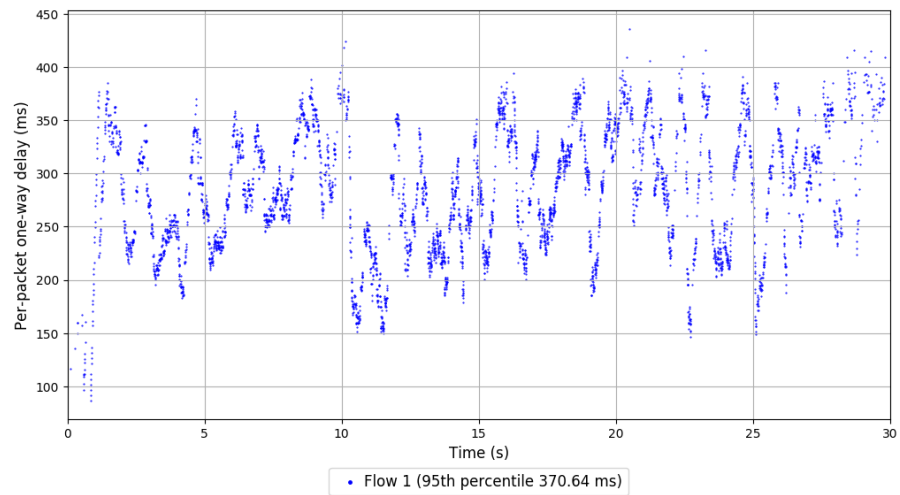
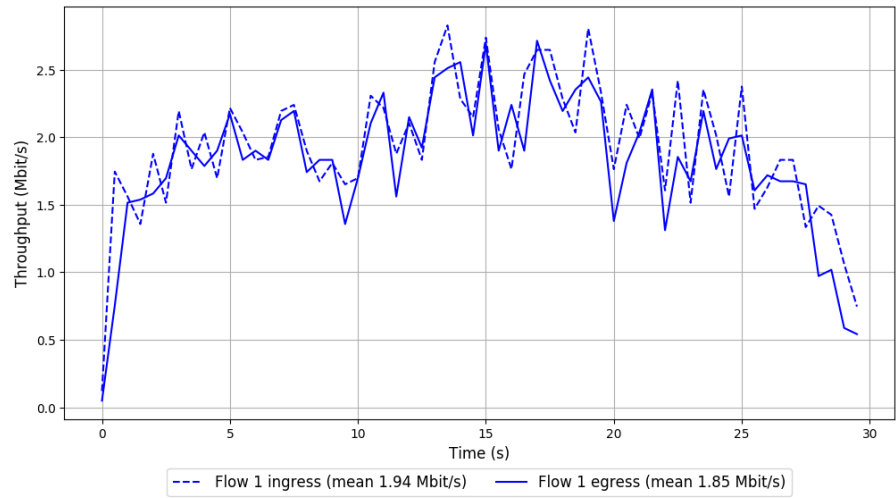
-- Flow 1:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 370.639 ms

Loss rate: 5.27%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-12-05 06:56:25

End at: 2017-12-05 06:56:55

Local clock offset: -4.82 ms

Remote clock offset: -2.542 ms

Below is generated by plot.py at 2017-12-05 07:55:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.18 Mbit/s

95th percentile per-packet one-way delay: 375.276 ms

Loss rate: 7.53%

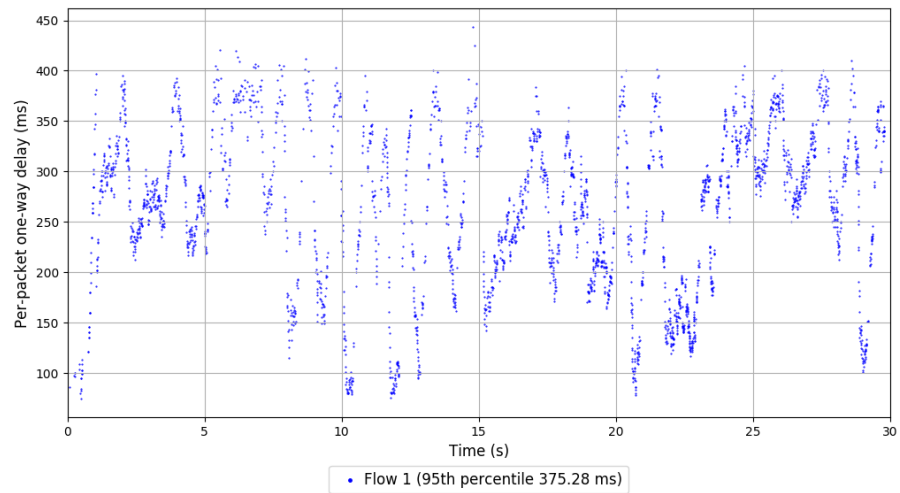
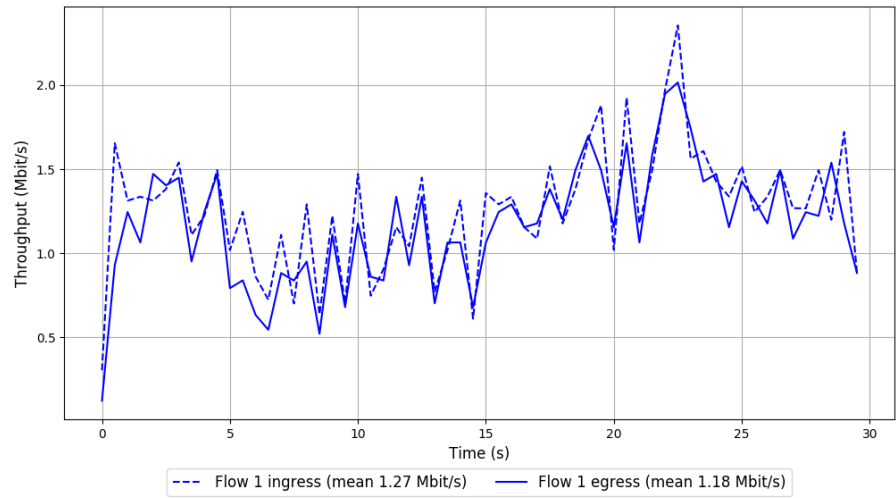
-- Flow 1:

Average throughput: 1.18 Mbit/s

95th percentile per-packet one-way delay: 375.276 ms

Loss rate: 7.53%

Run 3: Report of QUIC Cubic — Data Link

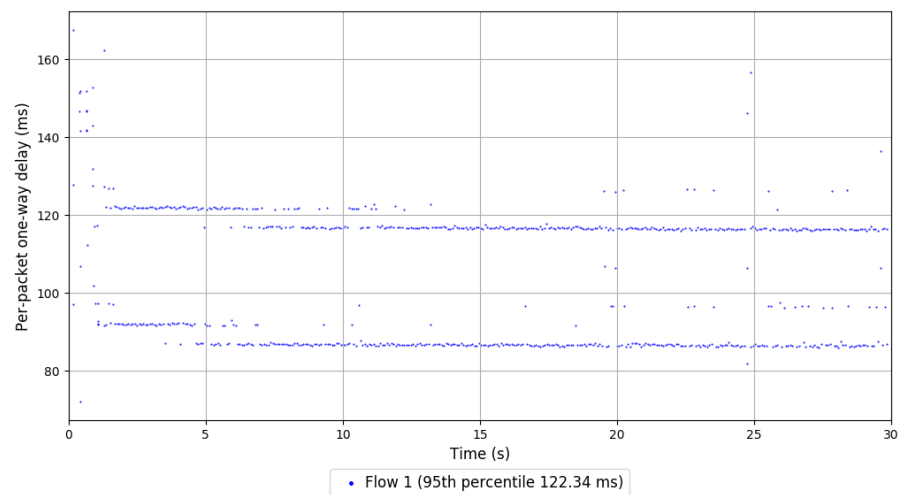
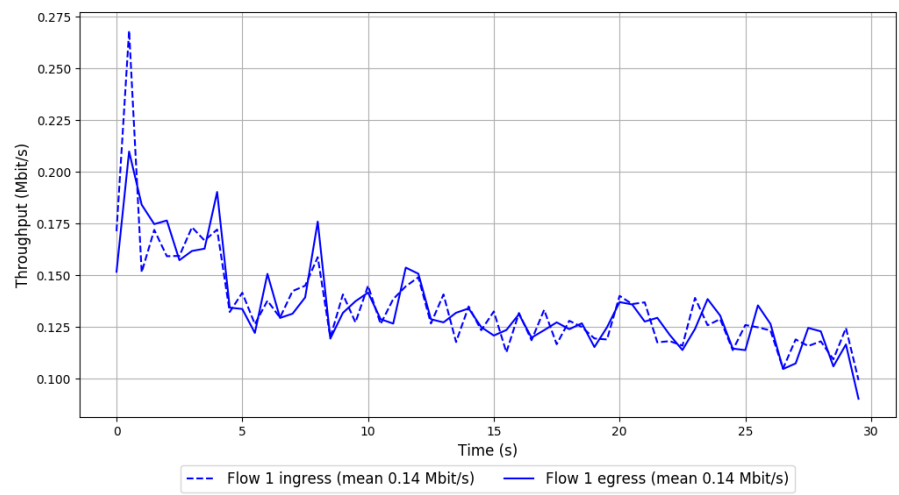


```
Run 1: Statistics of SCReAM

Start at: 2017-12-05 06:26:33
End at: 2017-12-05 06:27:03
Local clock offset: -17.371 ms
Remote clock offset: -2.77 ms

# Below is generated by plot.py at 2017-12-05 07:55:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 122.342 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 122.342 ms
Loss rate: 0.44%
```

Run 1: Report of SReAM — Data Link

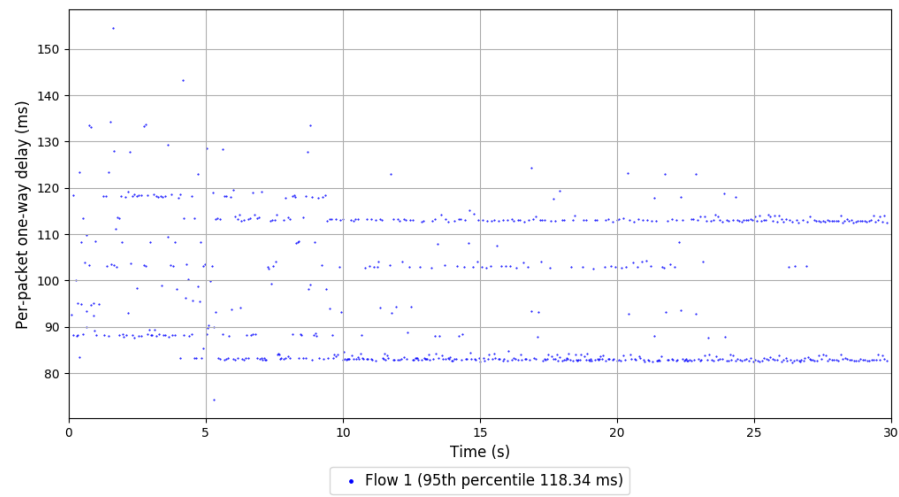
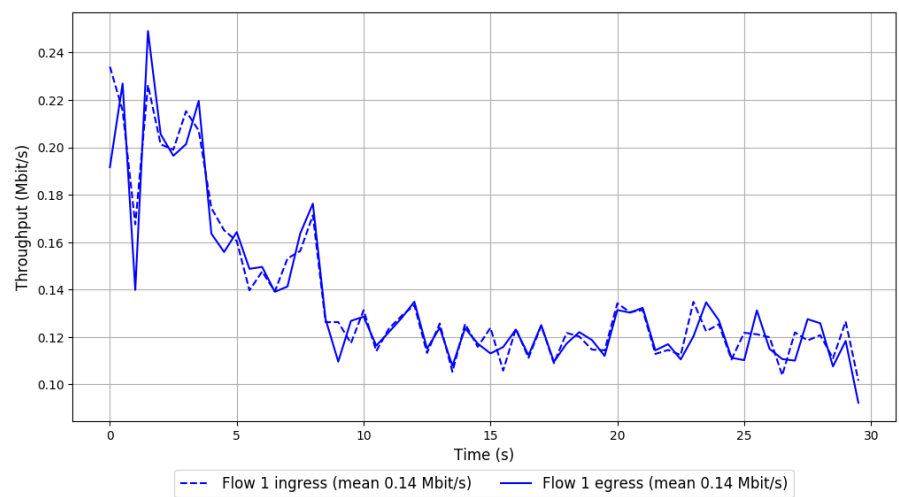


Run 2: Statistics of SCReAM

Start at: 2017-12-05 06:42:45
End at: 2017-12-05 06:43:15
Local clock offset: -6.169 ms
Remote clock offset: -2.695 ms

Below is generated by plot.py at 2017-12-05 07:55:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 118.345 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 118.345 ms
Loss rate: 0.78%

Run 2: Report of SReAM — Data Link

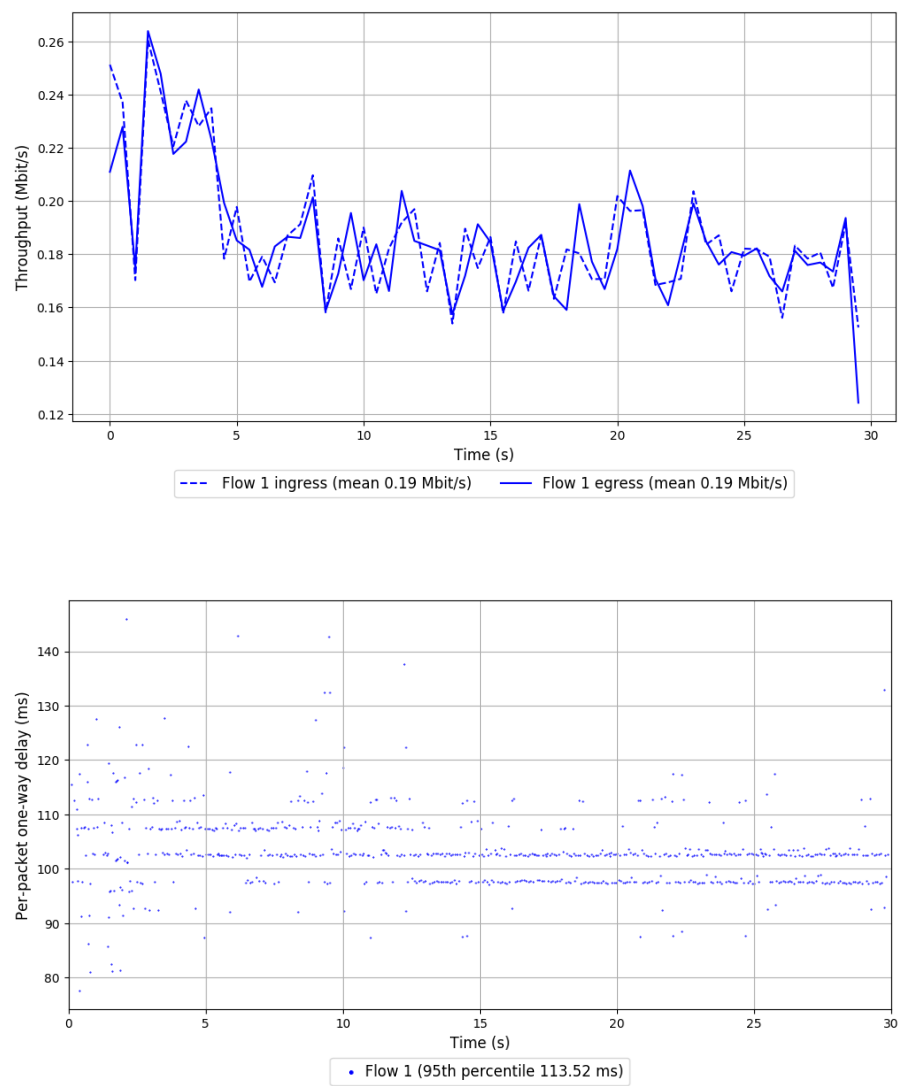


Run 3: Statistics of SCReAM

Start at: 2017-12-05 06:58:42
End at: 2017-12-05 06:59:12
Local clock offset: -5.019 ms
Remote clock offset: -5.038 ms

Below is generated by plot.py at 2017-12-05 07:55:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 113.516 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 113.516 ms
Loss rate: 0.49%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

/home/ubuntu/pantheon_data/2017-12-05T06-17-China-ppp0-to-AWS-Korea-3-runs/webrtc_stats_run1

Run 1: Report of WebRTC media — Data Link

Figure is missing

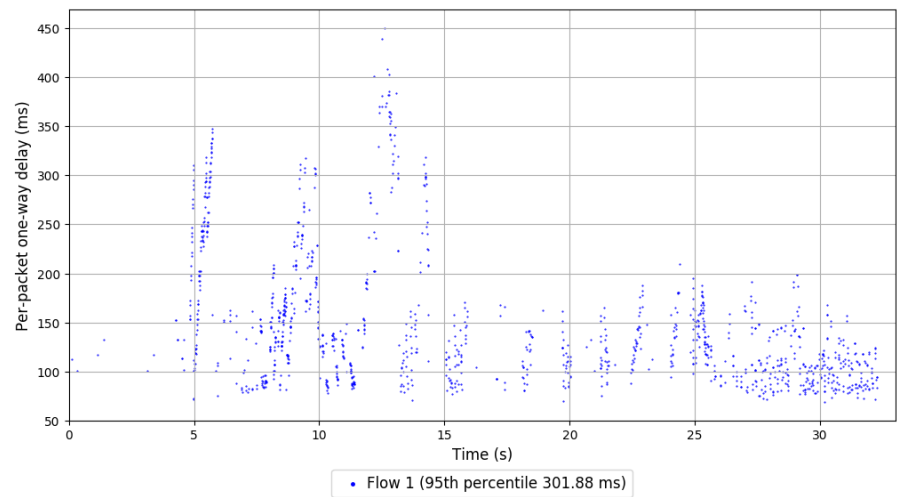
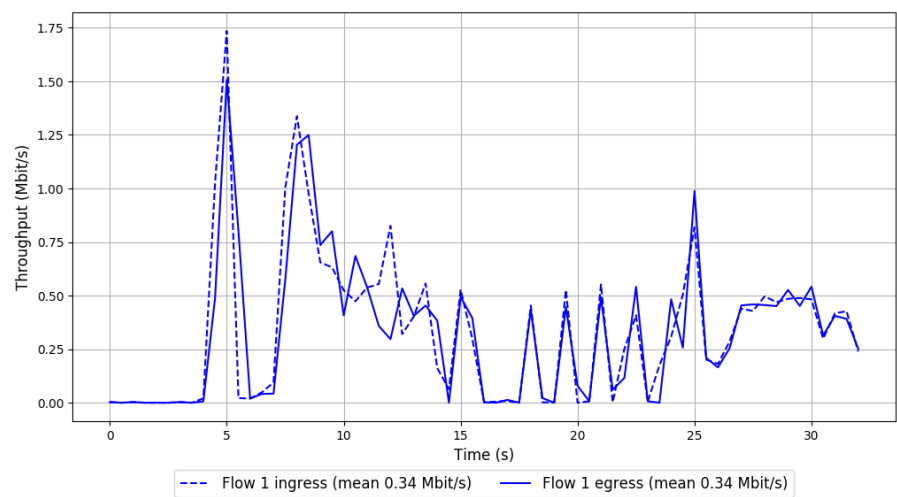
Figure is missing

Run 2: Statistics of WebRTC media

Start at: 2017-12-05 06:34:32
End at: 2017-12-05 06:35:02
Local clock offset: -8.015 ms
Remote clock offset: -2.593 ms

Below is generated by plot.py at 2017-12-05 07:55:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 301.878 ms
Loss rate: 2.17%
-- Flow 1:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 301.878 ms
Loss rate: 2.17%

Run 2: Report of WebRTC media — Data Link

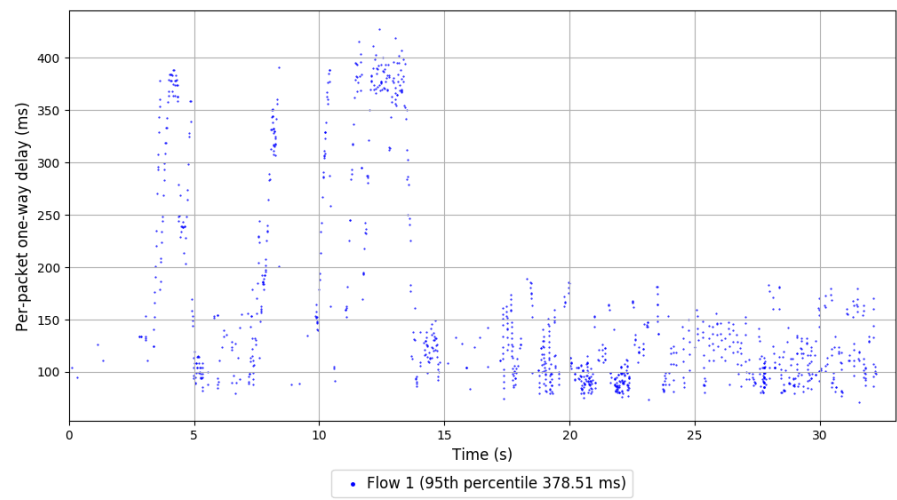
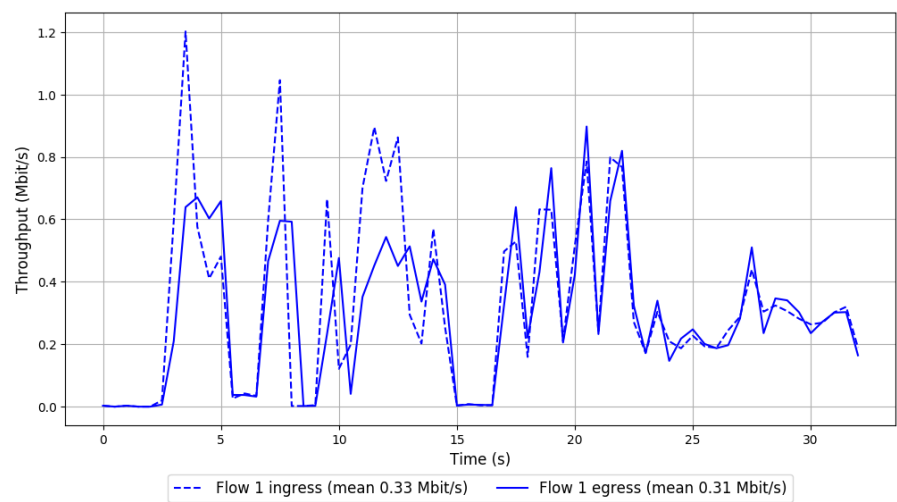


Run 3: Statistics of WebRTC media

Start at: 2017-12-05 06:50:44
End at: 2017-12-05 06:51:14
Local clock offset: -4.16 ms
Remote clock offset: -2.515 ms

Below is generated by plot.py at 2017-12-05 07:55:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 378.515 ms
Loss rate: 8.40%
-- Flow 1:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 378.515 ms
Loss rate: 8.40%

Run 3: Report of WebRTC media — Data Link

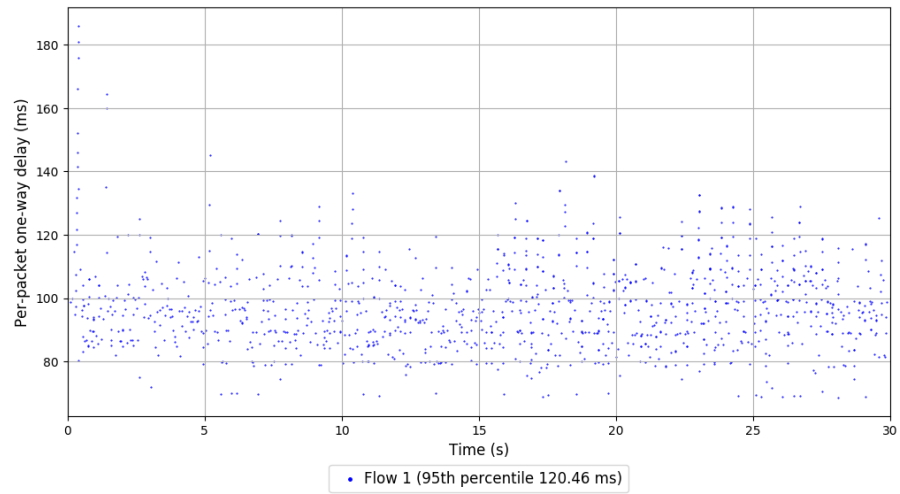
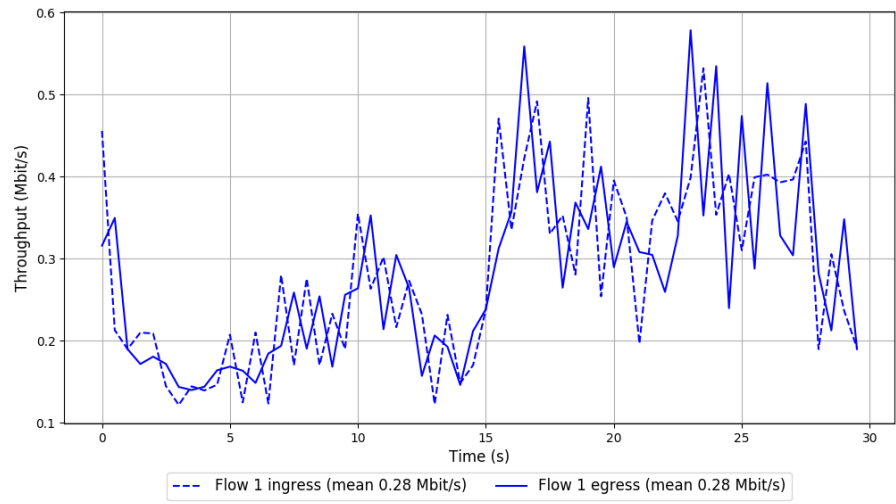


Run 1: Statistics of Sprout

Start at: 2017-12-05 06:29:59
End at: 2017-12-05 06:30:29
Local clock offset: -13.077 ms
Remote clock offset: -2.71 ms

Below is generated by plot.py at 2017-12-05 07:55:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 120.456 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 120.456 ms
Loss rate: 0.02%

Run 1: Report of Sprout — Data Link

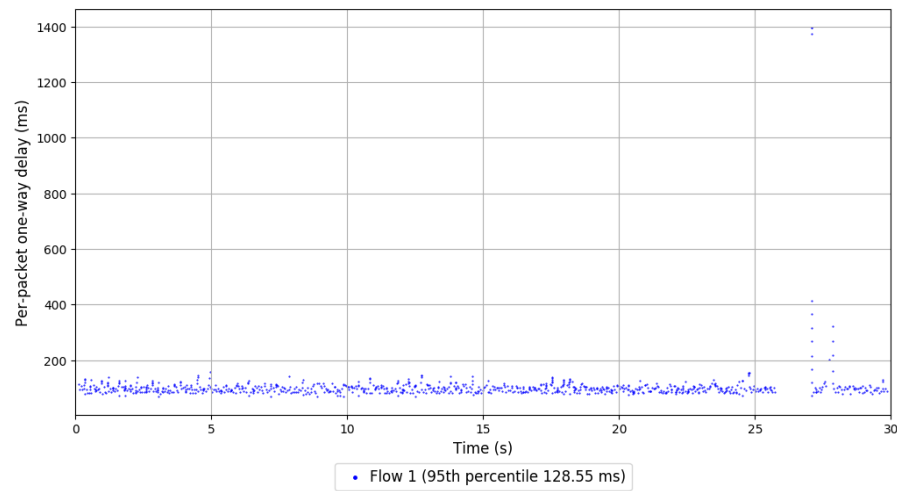
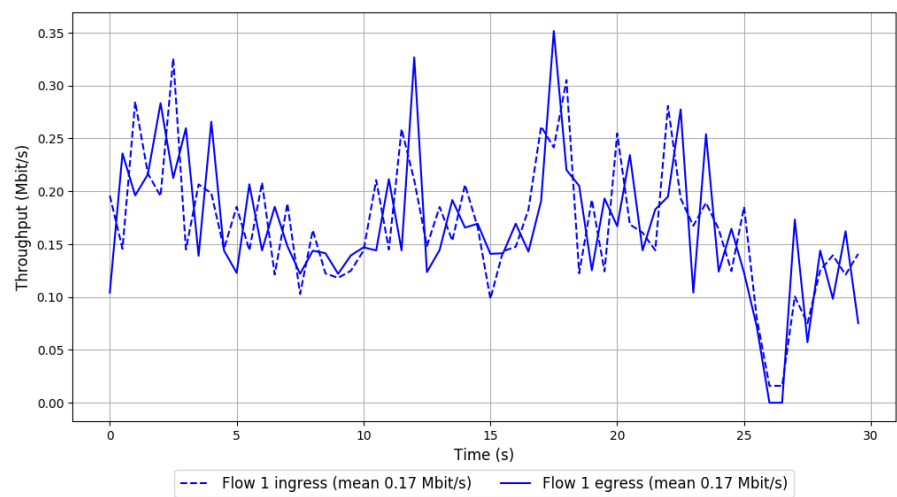


Run 2: Statistics of Sprout

Start at: 2017-12-05 06:46:10
End at: 2017-12-05 06:46:40
Local clock offset: -3.921 ms
Remote clock offset: -3.385 ms

Below is generated by plot.py at 2017-12-05 07:55:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 128.551 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 128.551 ms
Loss rate: 0.97%

Run 2: Report of Sprout — Data Link

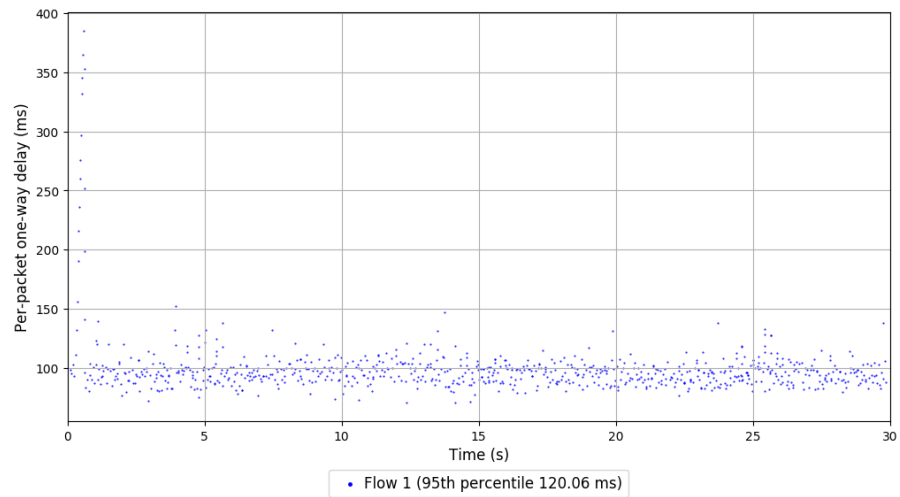
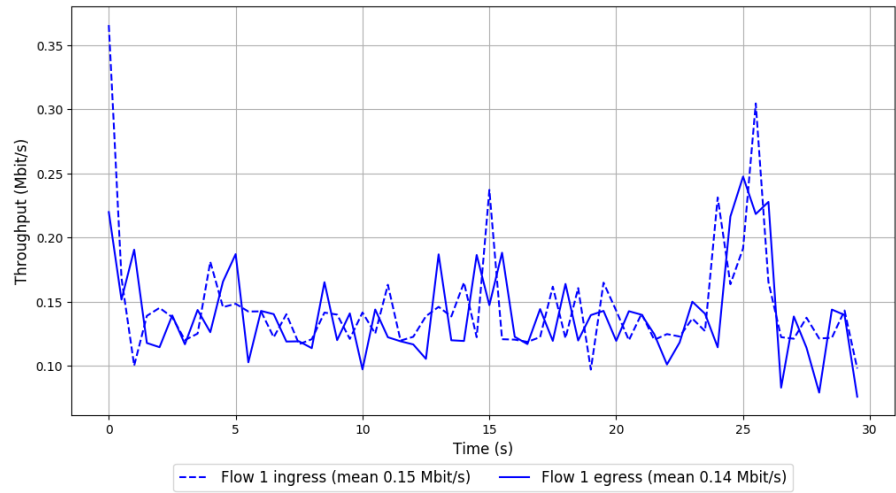


Run 3: Statistics of Sprout

Start at: 2017-12-05 07:02:06
End at: 2017-12-05 07:02:36
Local clock offset: -5.364 ms
Remote clock offset: -2.186 ms

Below is generated by plot.py at 2017-12-05 07:55:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 120.064 ms
Loss rate: 3.83%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 120.064 ms
Loss rate: 3.83%

Run 3: Report of Sprout — Data Link

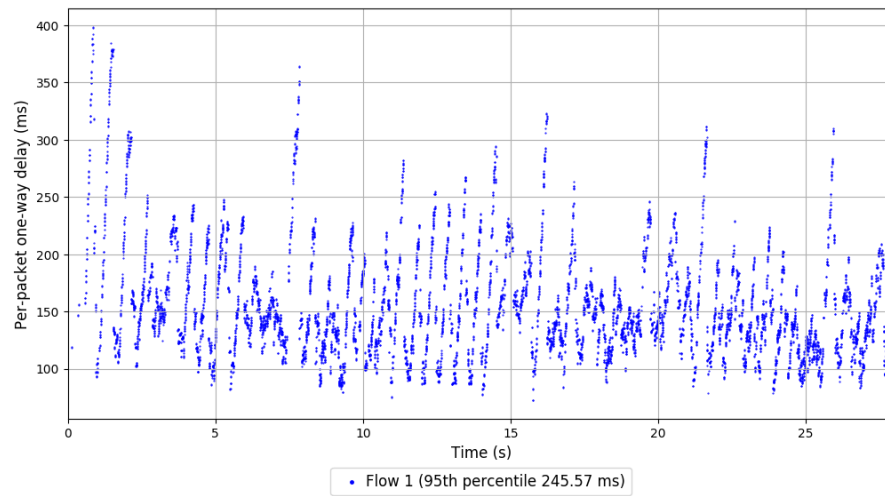
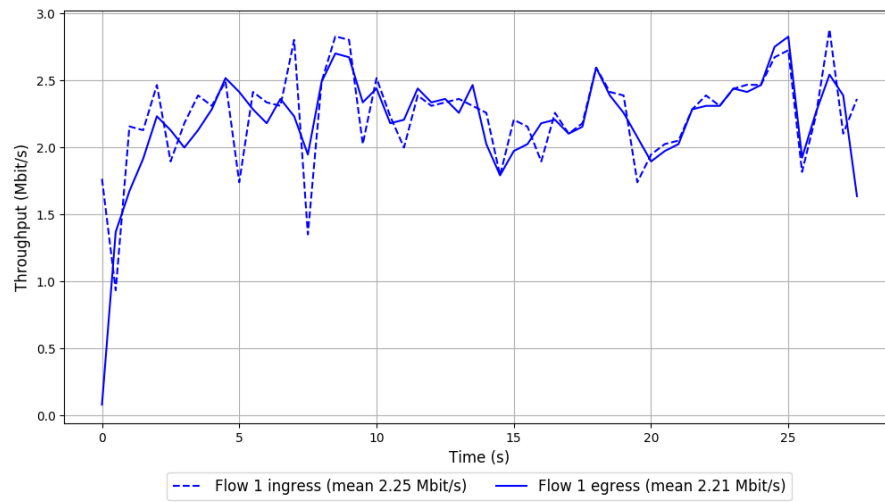


```
Run 1: Statistics of TaoVA-100x

Start at: 2017-12-05 06:31:06
End at: 2017-12-05 06:31:36
Local clock offset: -10.789 ms
Remote clock offset: -2.612 ms

# Below is generated by plot.py at 2017-12-05 07:56:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.21 Mbit/s
95th percentile per-packet one-way delay: 245.569 ms
Loss rate: 2.05%
-- Flow 1:
Average throughput: 2.21 Mbit/s
95th percentile per-packet one-way delay: 245.569 ms
Loss rate: 2.05%
```

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

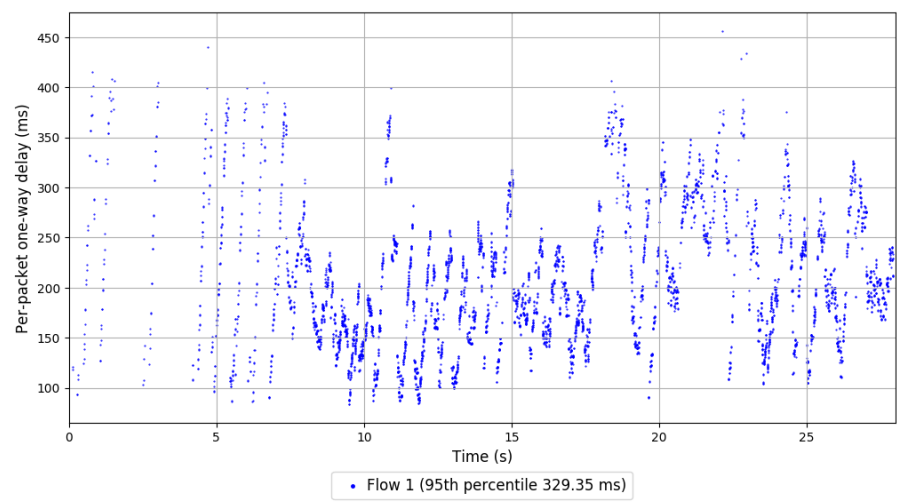
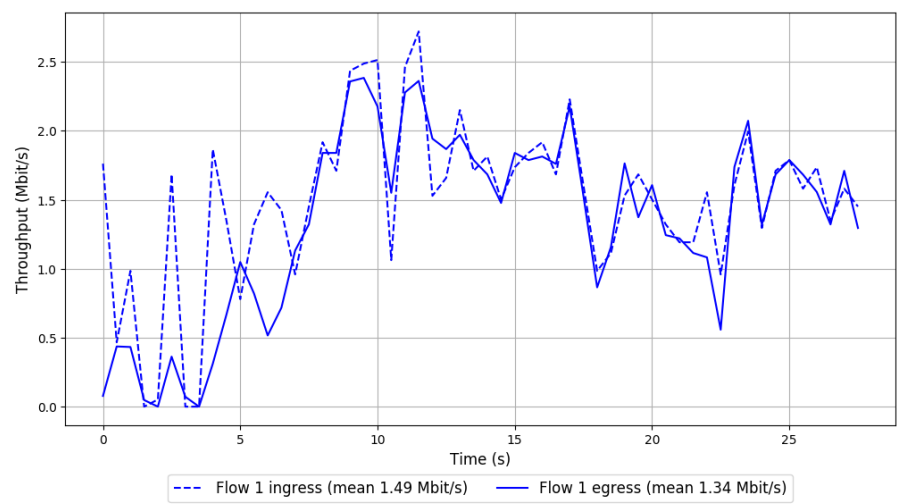


Run 2: Statistics of TaoVA-100x

Start at: 2017-12-05 06:47:18
End at: 2017-12-05 06:47:48
Local clock offset: -3.773 ms
Remote clock offset: -2.422 ms

Below is generated by plot.py at 2017-12-05 07:56:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 329.354 ms
Loss rate: 10.68%
-- Flow 1:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 329.354 ms
Loss rate: 10.68%

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

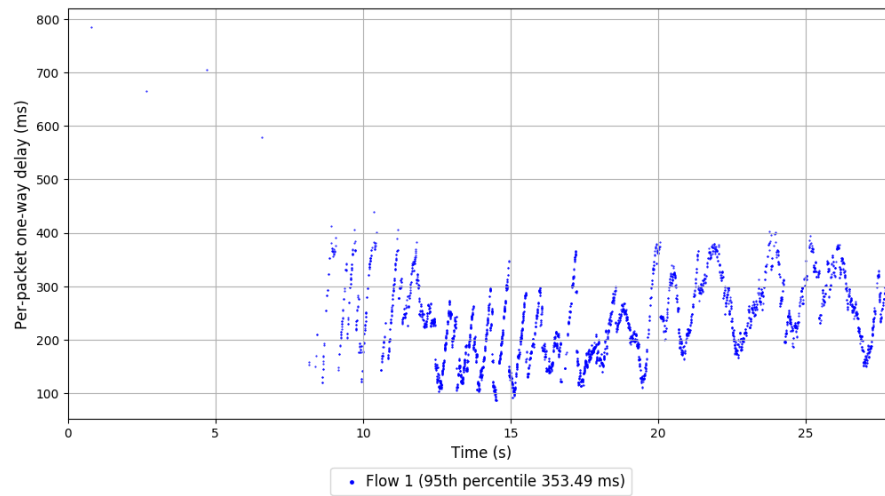
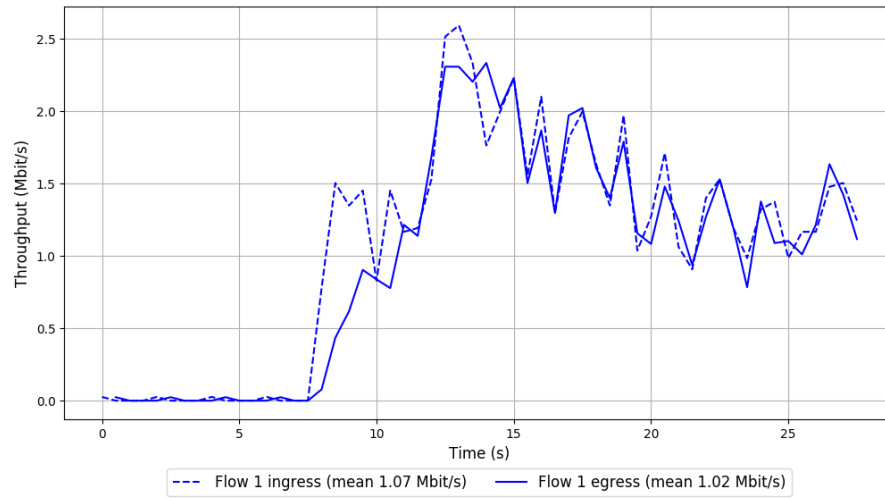


Run 3: Statistics of TaoVA-100x

Start at: 2017-12-05 07:03:15
End at: 2017-12-05 07:03:45
Local clock offset: -5.487 ms
Remote clock offset: -2.933 ms

Below is generated by plot.py at 2017-12-05 07:56:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 353.491 ms
Loss rate: 7.60%
-- Flow 1:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 353.491 ms
Loss rate: 7.60%

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

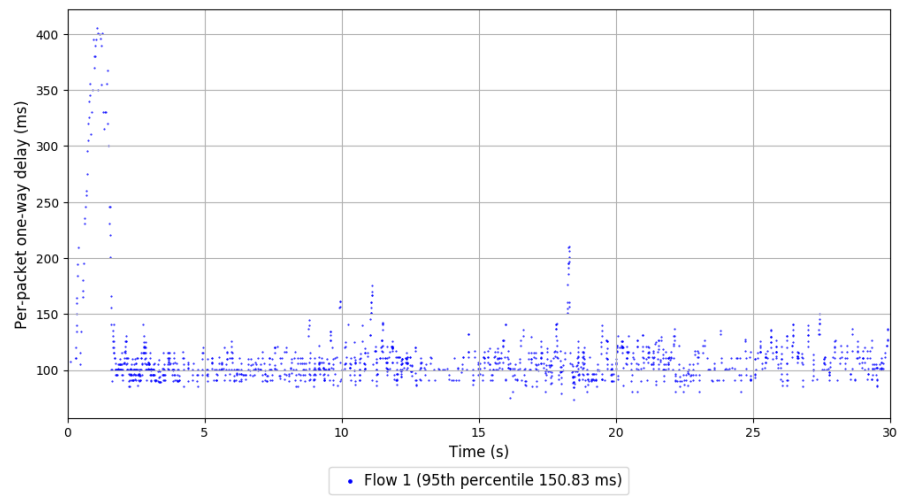
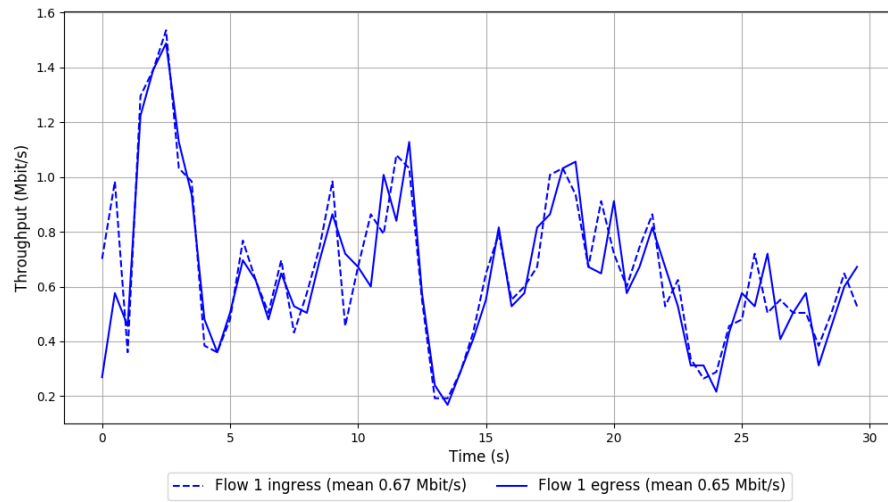


Run 1: Statistics of TCP Vegas

Start at: 2017-12-05 06:21:58
End at: 2017-12-05 06:22:28
Local clock offset: -14.267 ms
Remote clock offset: -3.291 ms

Below is generated by plot.py at 2017-12-05 07:56:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 150.831 ms
Loss rate: 2.76%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 150.831 ms
Loss rate: 2.76%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2017-12-05 06:38:11

End at: 2017-12-05 06:38:41

Local clock offset: -6.754 ms

Remote clock offset: -2.54 ms

Below is generated by plot.py at 2017-12-05 07:56:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 150.564 ms

Loss rate: 0.88%

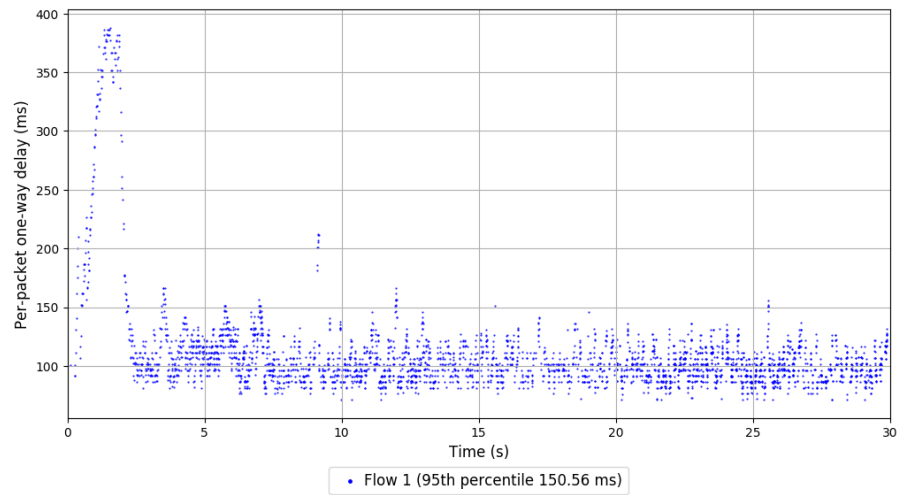
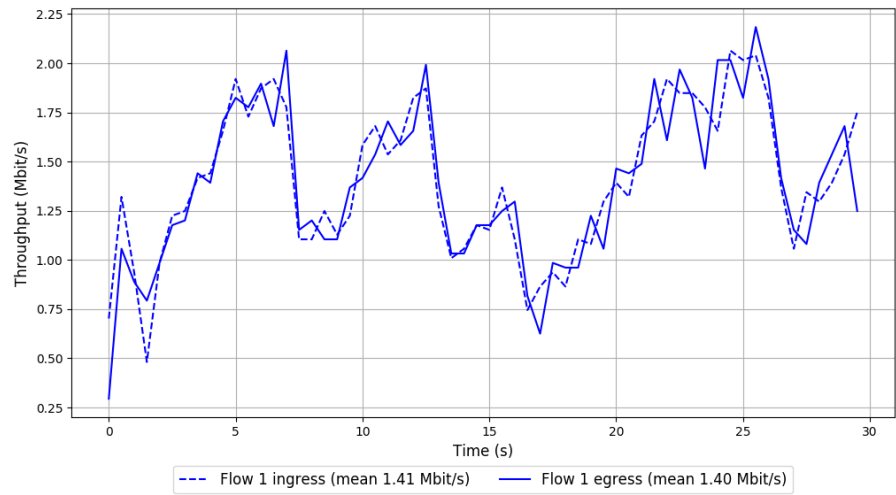
-- Flow 1:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 150.564 ms

Loss rate: 0.88%

Run 2: Report of TCP Vegas — Data Link

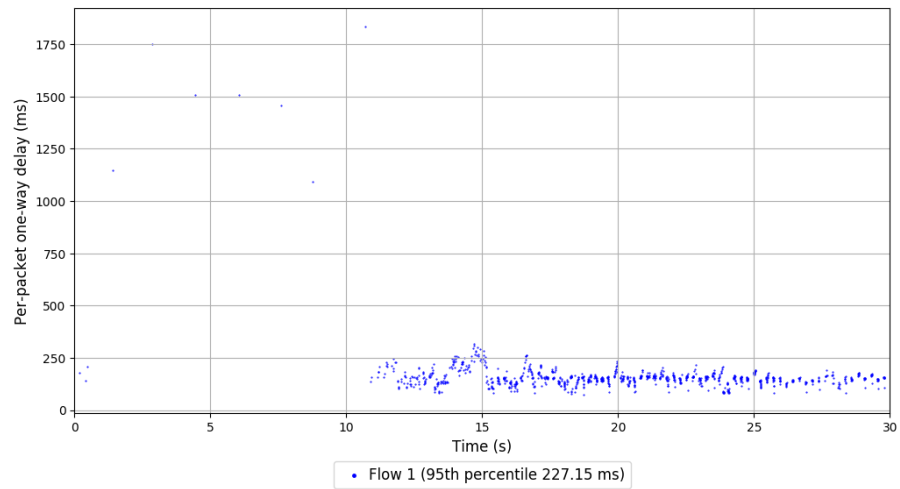
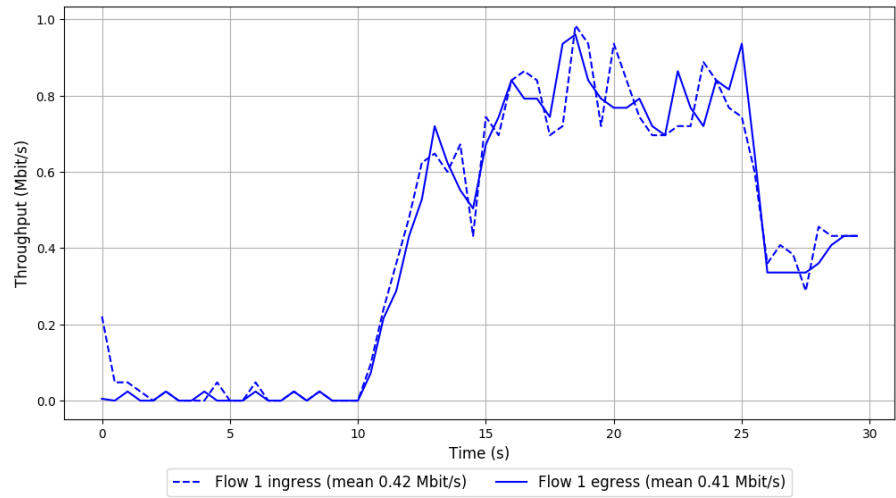


Run 3: Statistics of TCP Vegas

Start at: 2017-12-05 06:54:09
End at: 2017-12-05 06:54:39
Local clock offset: -5.032 ms
Remote clock offset: -2.581 ms

Below is generated by plot.py at 2017-12-05 07:56:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 227.145 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 227.145 ms
Loss rate: 2.30%

Run 3: Report of TCP Vegas — Data Link

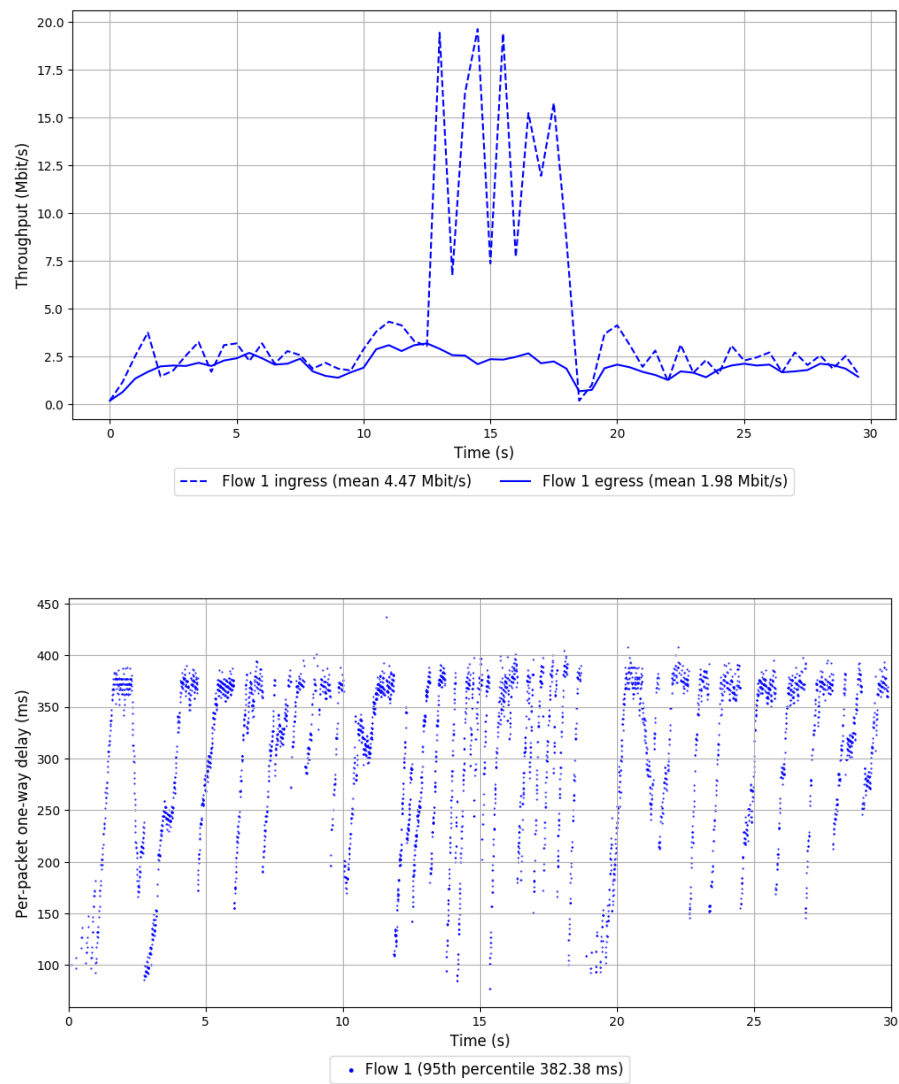


Run 1: Statistics of Verus

Start at: 2017-12-05 06:25:24
End at: 2017-12-05 06:25:54
Local clock offset: -16.904 ms
Remote clock offset: -2.797 ms

Below is generated by plot.py at 2017-12-05 07:56:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 382.385 ms
Loss rate: 55.61%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 382.385 ms
Loss rate: 55.61%

Run 1: Report of Verus — Data Link

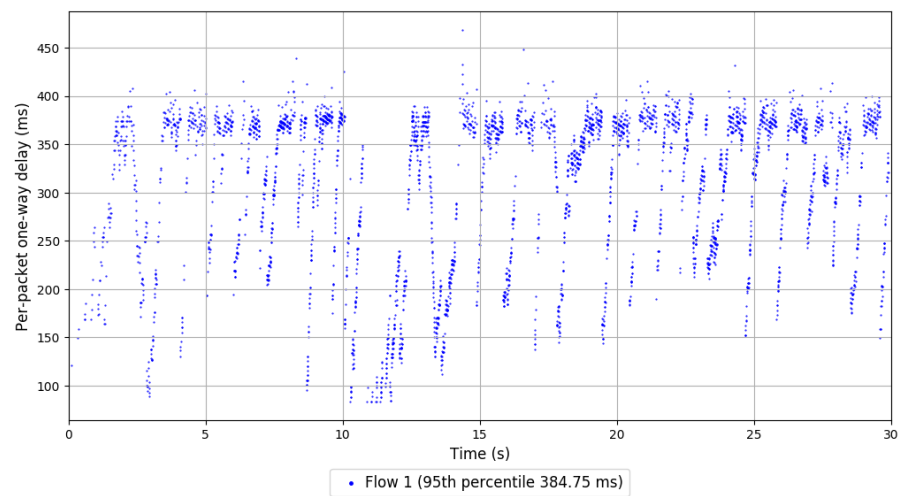
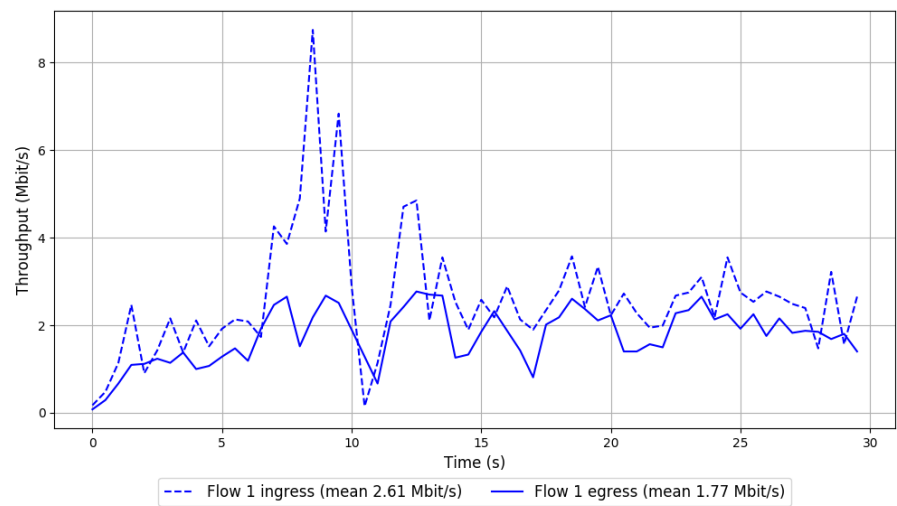


Run 2: Statistics of Verus

Start at: 2017-12-05 06:41:36
End at: 2017-12-05 06:42:07
Local clock offset: -7.444 ms
Remote clock offset: -2.511 ms

Below is generated by plot.py at 2017-12-05 07:56:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 384.754 ms
Loss rate: 32.54%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 384.754 ms
Loss rate: 32.54%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

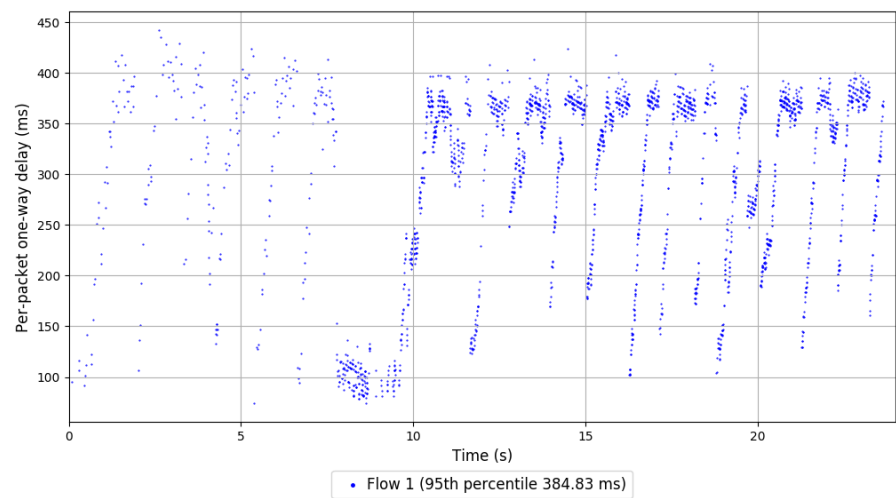
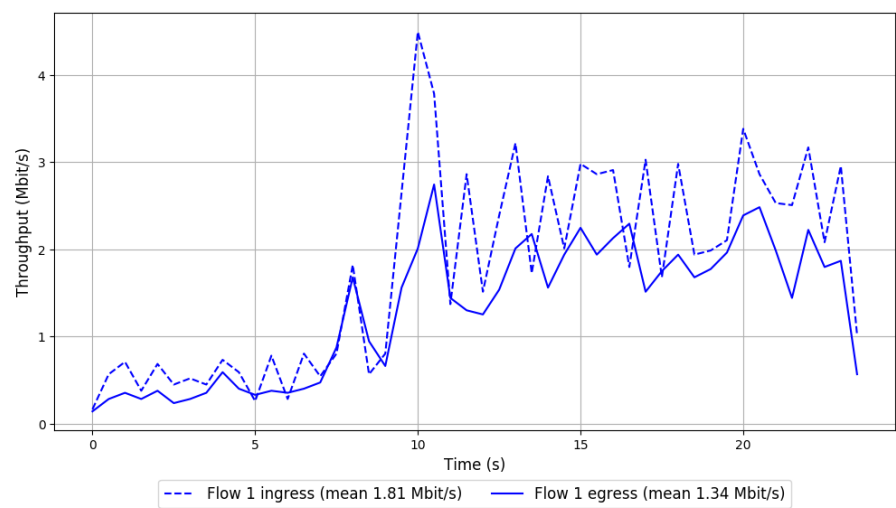
Start at: 2017-12-05 06:57:33

End at: 2017-12-05 06:58:03

Local clock offset: -4.824 ms

Remote clock offset: -2.408 ms

Run 3: Report of Verus — Data Link

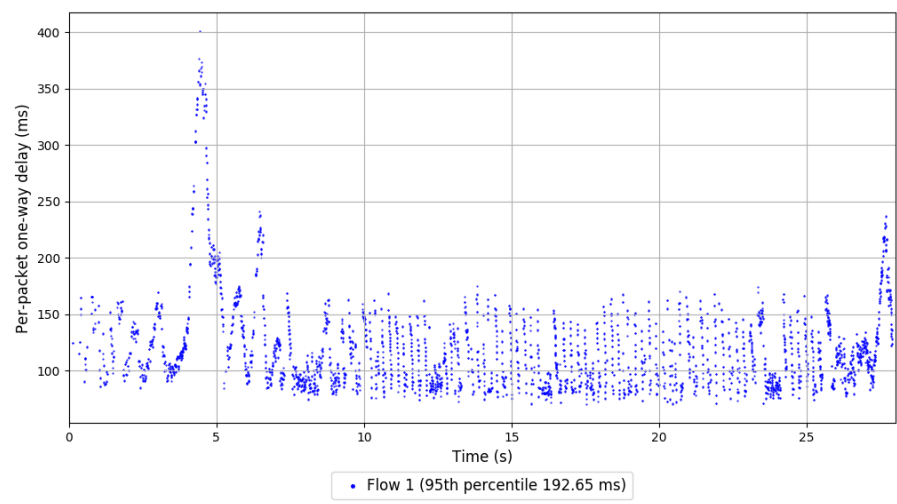
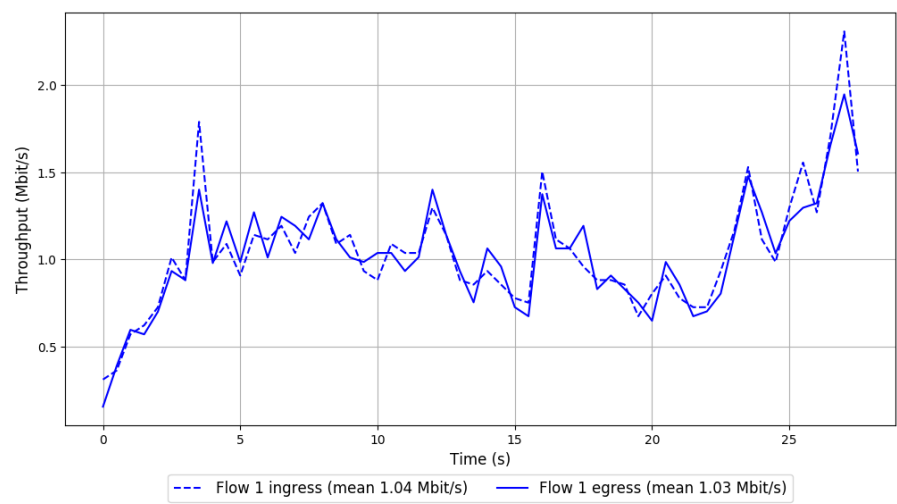


Run 1: Statistics of Copa

Start at: 2017-12-05 06:27:41
End at: 2017-12-05 06:28:11
Local clock offset: -15.65 ms
Remote clock offset: -3.405 ms

Below is generated by plot.py at 2017-12-05 07:56:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 192.652 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 192.652 ms
Loss rate: 1.47%

Run 1: Report of Copa — Data Link

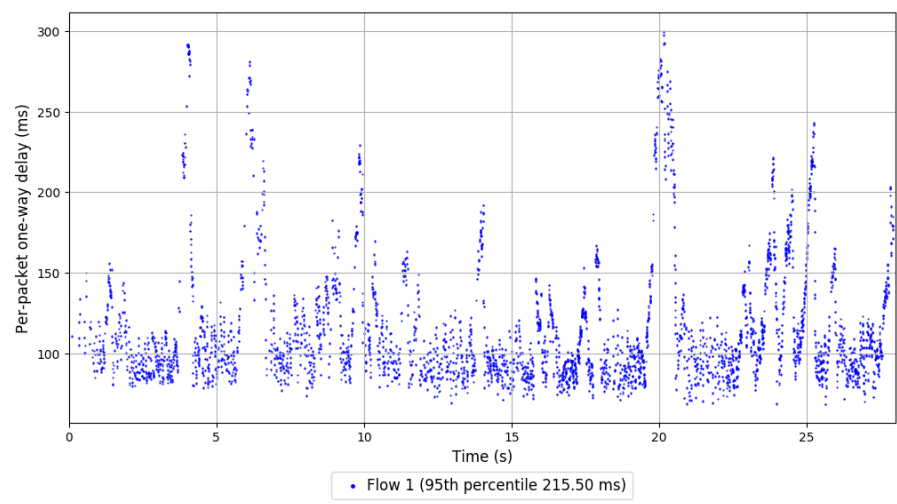
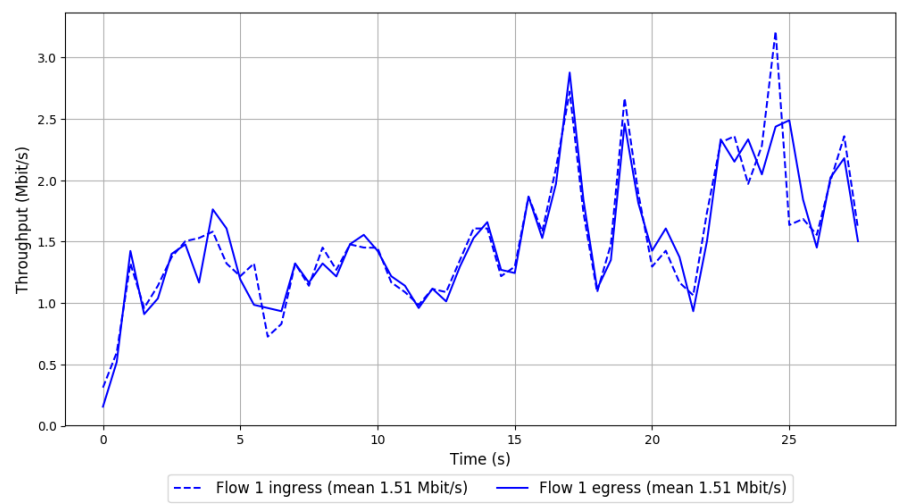


Run 2: Statistics of Copa

Start at: 2017-12-05 06:43:53
End at: 2017-12-05 06:44:23
Local clock offset: -5.637 ms
Remote clock offset: -2.535 ms

Below is generated by plot.py at 2017-12-05 07:56:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 215.496 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 215.496 ms
Loss rate: 0.82%

Run 2: Report of Copa — Data Link

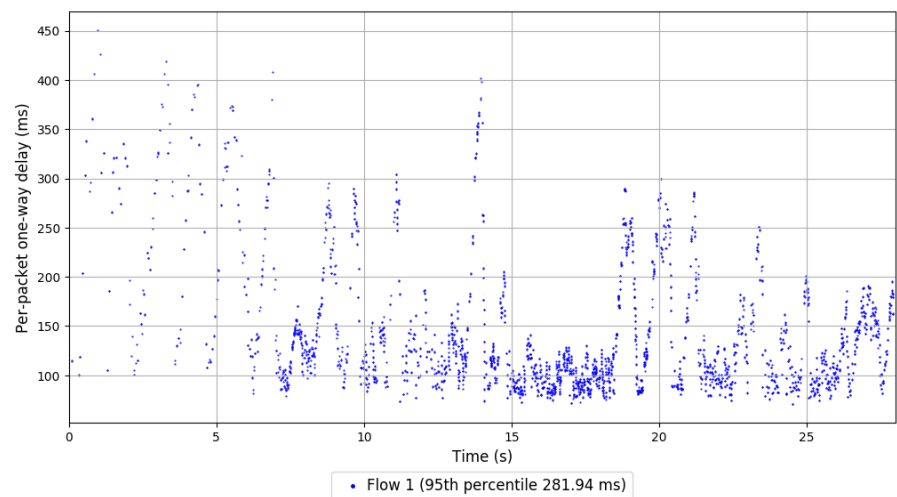
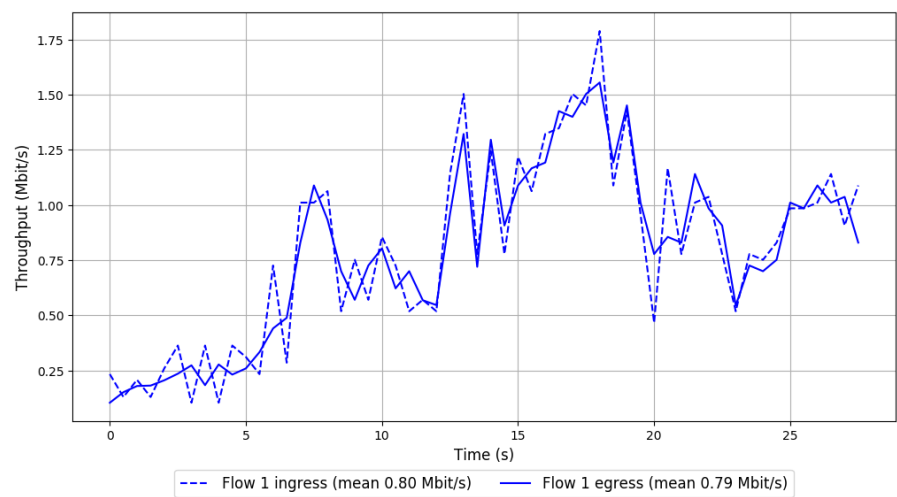


Run 3: Statistics of Copa

Start at: 2017-12-05 06:59:50
End at: 2017-12-05 07:00:20
Local clock offset: -5.195 ms
Remote clock offset: -2.353 ms

Below is generated by plot.py at 2017-12-05 07:56:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 281.936 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 281.936 ms
Loss rate: 1.71%

Run 3: Report of Copa — Data Link

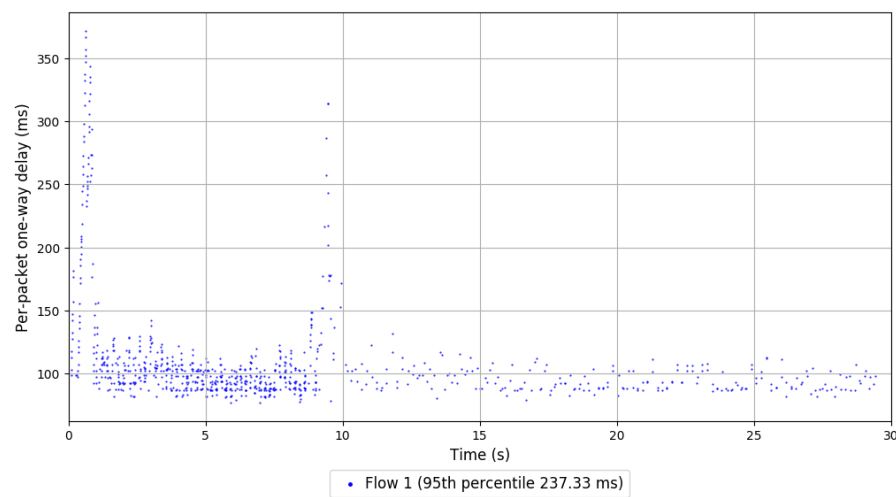
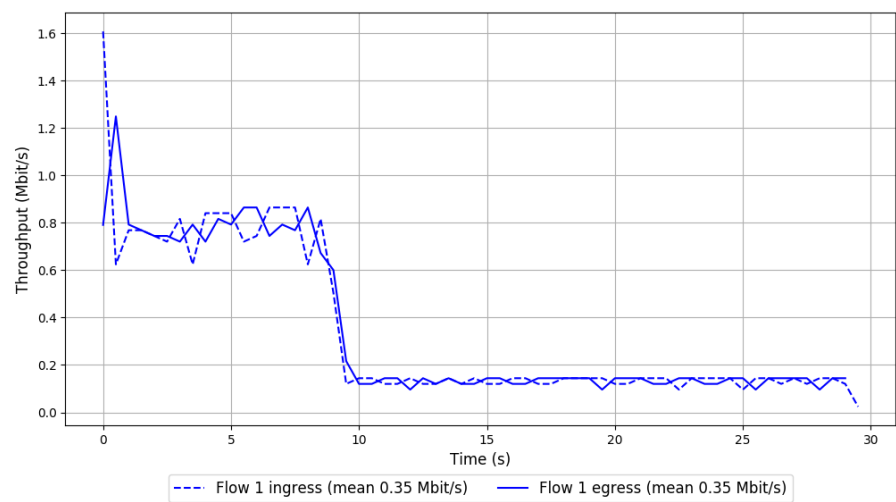


```
Run 1: Statistics of Indigo

Start at: 2017-12-05 06:32:15
End at: 2017-12-05 06:32:45
Local clock offset: -9.614 ms
Remote clock offset: -3.016 ms

# Below is generated by plot.py at 2017-12-05 07:56:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 237.326 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 237.326 ms
Loss rate: 0.23%
```

Run 1: Report of Indigo — Data Link

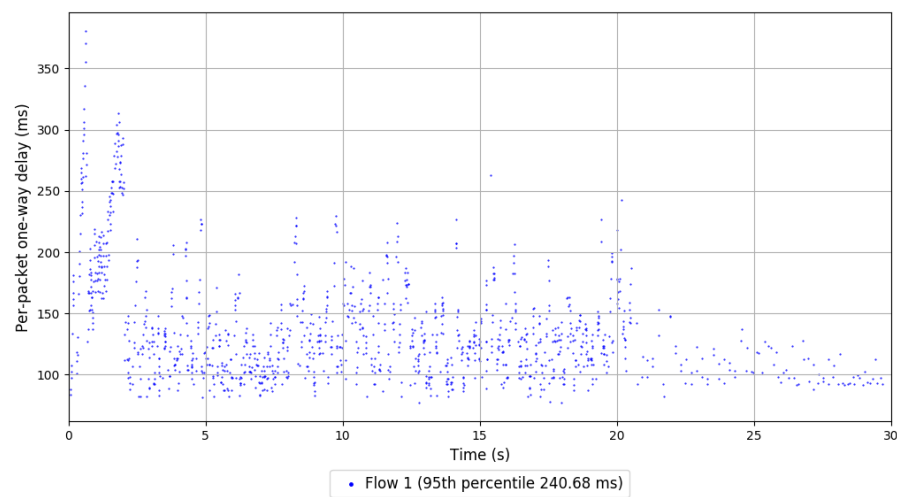
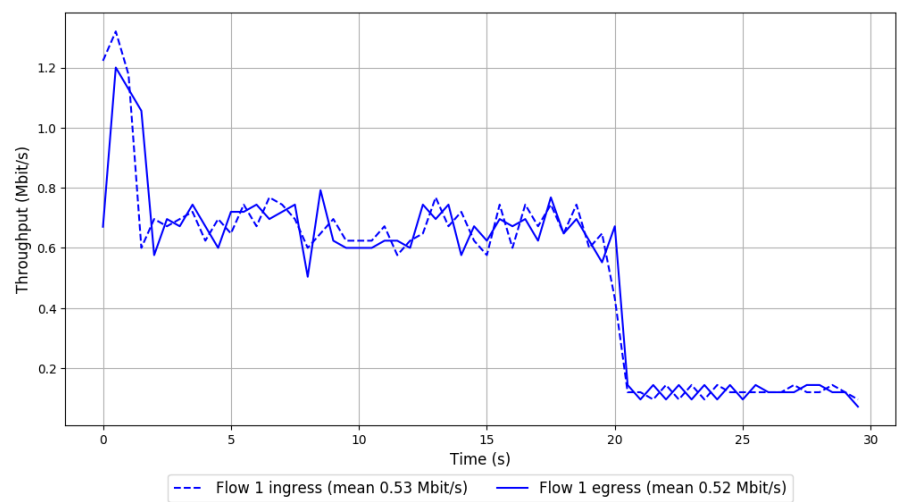


Run 2: Statistics of Indigo

Start at: 2017-12-05 06:48:26
End at: 2017-12-05 06:48:56
Local clock offset: -3.806 ms
Remote clock offset: -2.478 ms

Below is generated by plot.py at 2017-12-05 07:56:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 240.684 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 240.684 ms
Loss rate: 1.07%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2017-12-05 07:04:23

End at: 2017-12-05 07:04:53

Local clock offset: -5.696 ms

Remote clock offset: -2.056 ms

Below is generated by plot.py at 2017-12-05 07:56:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 192.856 ms

Loss rate: 4.96%

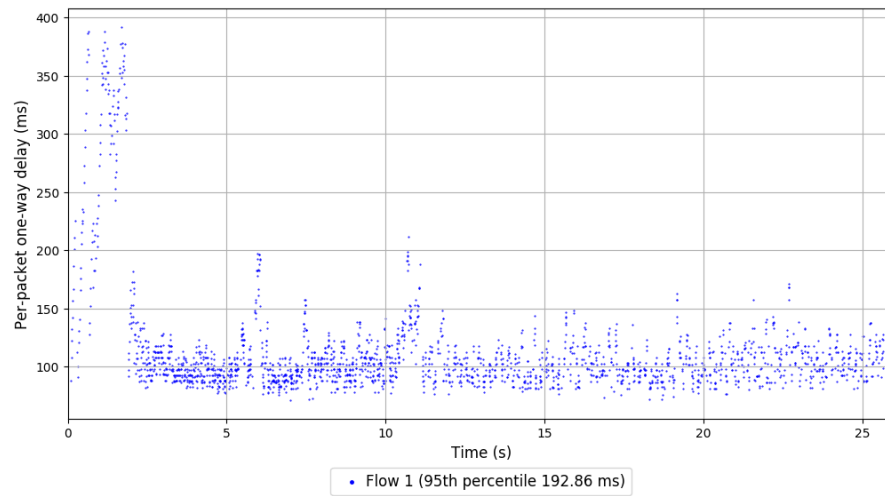
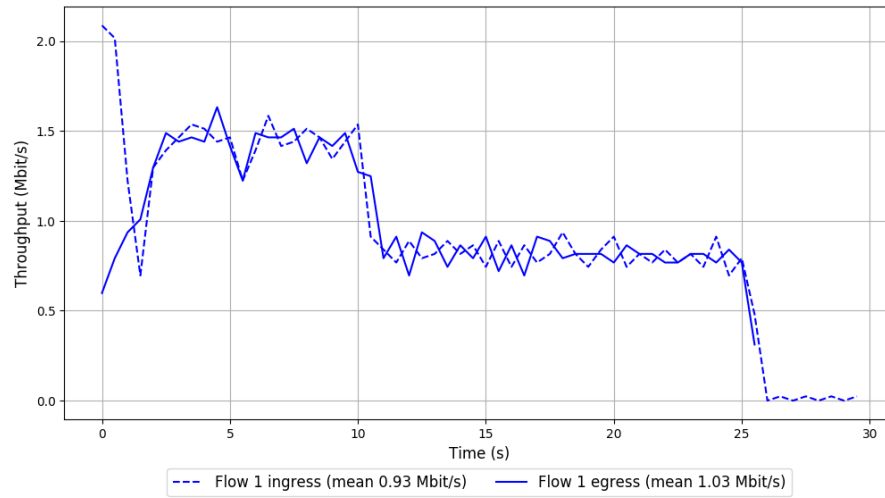
-- Flow 1:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 192.856 ms

Loss rate: 4.96%

Run 3: Report of Indigo — Data Link

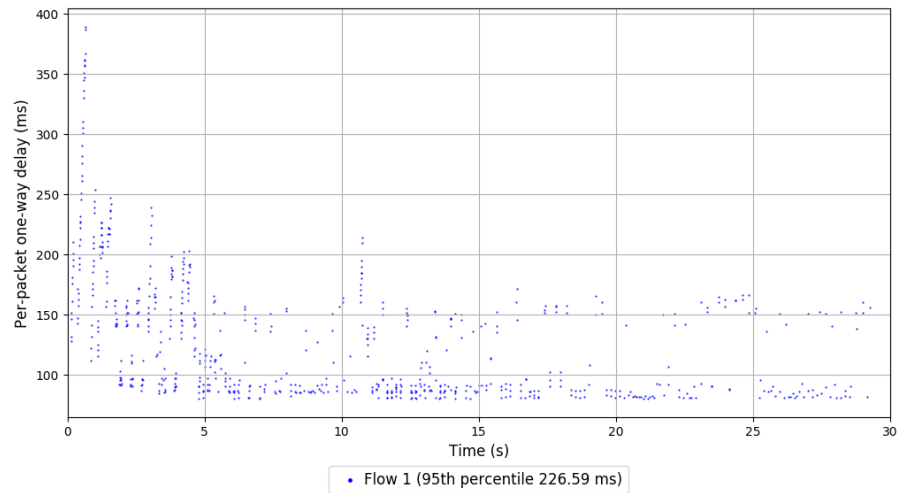
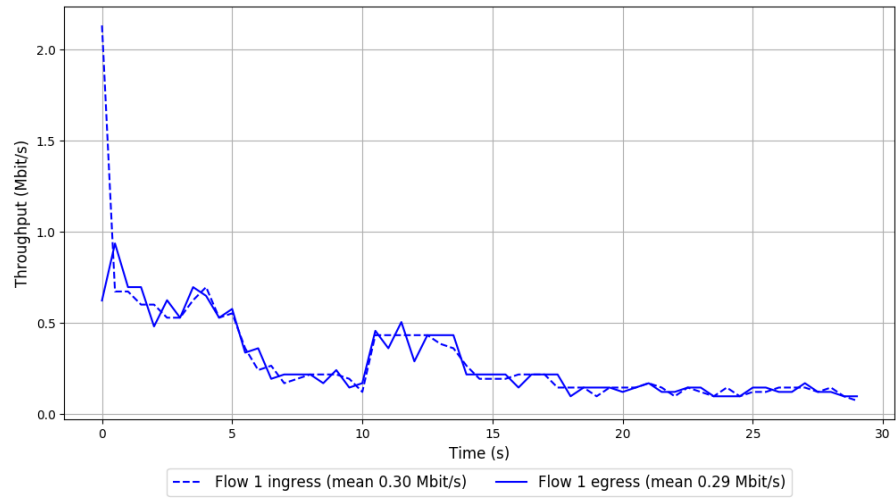


```
Run 1: Statistics of Indigo-calib

Start at: 2017-12-05 06:23:07
End at: 2017-12-05 06:23:37
Local clock offset: -14.92 ms
Remote clock offset: -2.886 ms

# Below is generated by plot.py at 2017-12-05 07:56:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 226.585 ms
Loss rate: 5.80%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 226.585 ms
Loss rate: 5.80%
```

Run 1: Report of Indigo-calib — Data Link

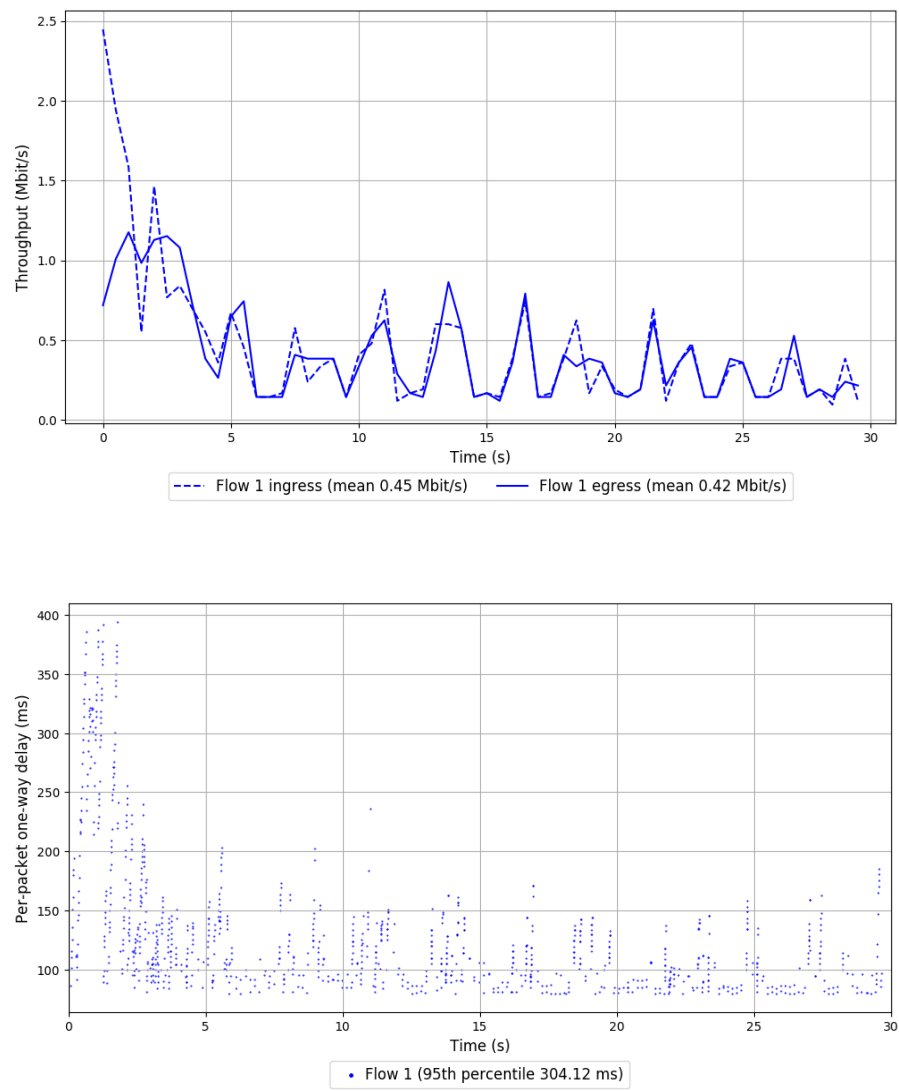


Run 2: Statistics of Indigo-calib

Start at: 2017-12-05 06:39:20
End at: 2017-12-05 06:39:50
Local clock offset: -7.063 ms
Remote clock offset: -2.534 ms

Below is generated by plot.py at 2017-12-05 07:56:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 304.118 ms
Loss rate: 8.89%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 304.118 ms
Loss rate: 8.89%

Run 2: Report of Indigo-calib — Data Link



Run 3: Statistics of Indigo-calib

Start at: 2017-12-05 06:55:17

End at: 2017-12-05 06:55:47

Local clock offset: -4.823 ms

Remote clock offset: -2.389 ms

Run 3: Report of Indigo-calib — Data Link

