

Pantheon Report

Generated at 2018-01-18 10:48:24 (UTC).

Data path: AWS Brazil 2 Ethernet (*local*) → Colombia ppp0 (*remote*).

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).

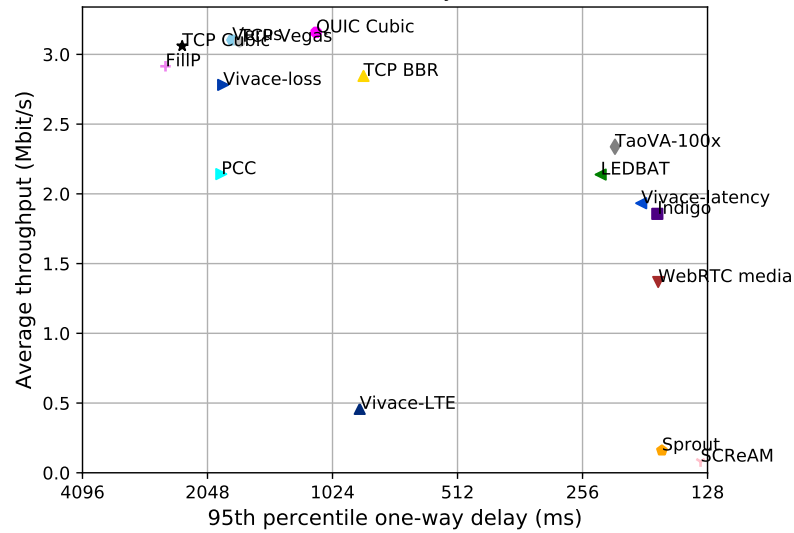
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

NTP offsets were measured against **gps.ntp.br** and have been applied to correct the timestamps in logs.

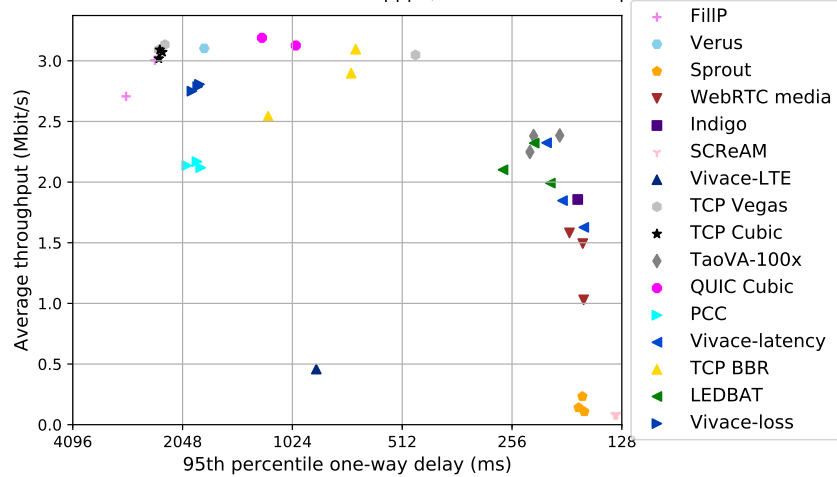
Git summary:

```
branch: master @ 54510ce29f849c716ac5c8199ca1604b6abdfbc3
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ ec9585325218d5048c4d4152fa42240af54c6e67
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
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 @ 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/vivace @ 423cbca3e8ea1d599e7b5cf725835e8a2b6bfac6
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from AWS Brazil 2 Ethernet to Colombia ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS Brazil 2 Ethernet to Colombia ppp0, 3 runs of 30s each per scheme



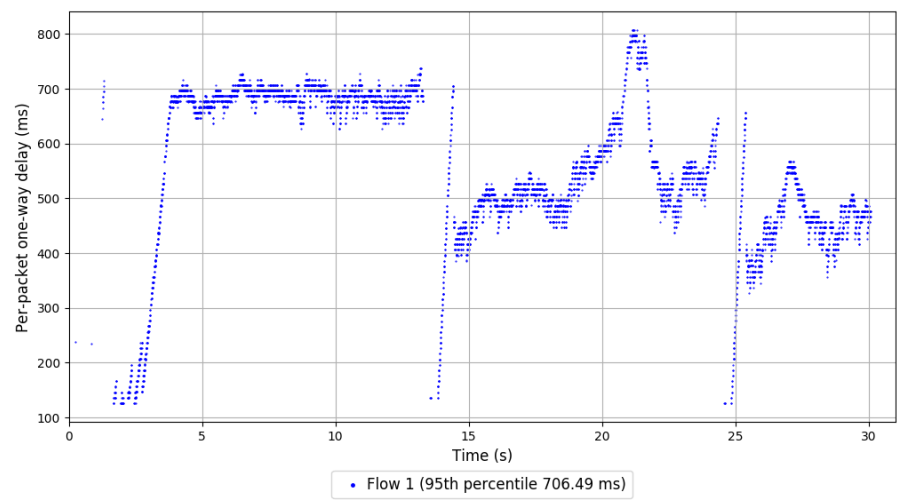
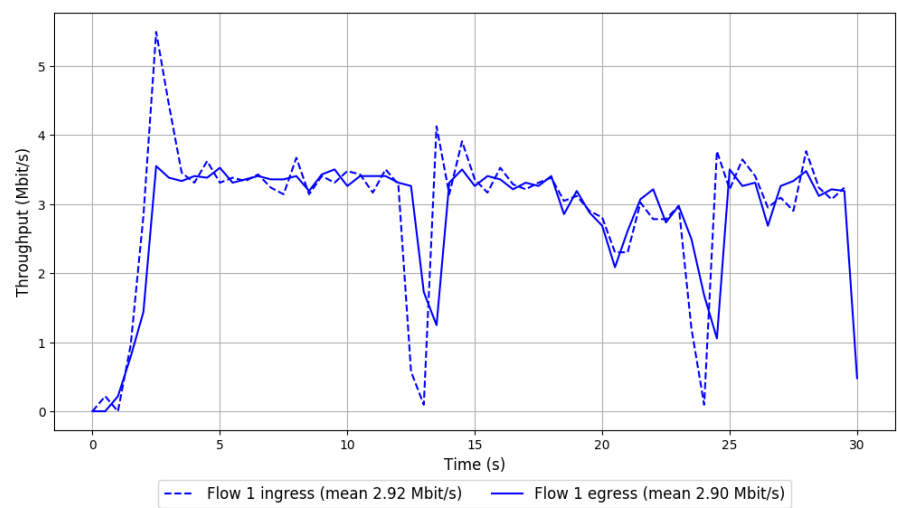
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	2.85	862.23	1.44
TCP Cubic	3	3.06	2356.56	10.83
LEDBAT	3	2.14	231.56	0.35
PCC	3	2.14	1896.85	42.32
QUIC Cubic	2	3.16	1121.56	3.95
SCReAM	3	0.08	133.06	0.13
WebRTC media	3	1.37	168.29	0.42
Sprout	3	0.16	164.86	0.01
TaoVA-100x	3	2.34	213.84	0.40
TCP Vegas	3	3.09	1714.18	7.82
Verus	1	3.10	1786.40	6.61
Copa	0	N/A	N/A	N/A
FillP	3	2.91	2584.97	95.48
Indigo	1	1.86	169.11	0.13
Vivace-latency	3	1.93	184.95	0.88
Vivace-loss	3	2.78	1877.53	34.51
Vivace-LTE	1	0.46	880.55	2.51

Run 1: Statistics of TCP BBR

Start at: 2018-01-18 09:49:41
End at: 2018-01-18 09:50:11
Local clock offset: -3.87 ms
Remote clock offset: -3.712 ms

Below is generated by plot.py at 2018-01-18 10:47:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.90 Mbit/s
95th percentile per-packet one-way delay: 706.491 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 2.90 Mbit/s
95th percentile per-packet one-way delay: 706.491 ms
Loss rate: 1.42%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-01-18 10:10:50

End at: 2018-01-18 10:11:20

Local clock offset: -4.659 ms

Remote clock offset: -4.33 ms

Below is generated by plot.py at 2018-01-18 10:47:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.54 Mbit/s

95th percentile per-packet one-way delay: 1193.394 ms

Loss rate: 1.48%

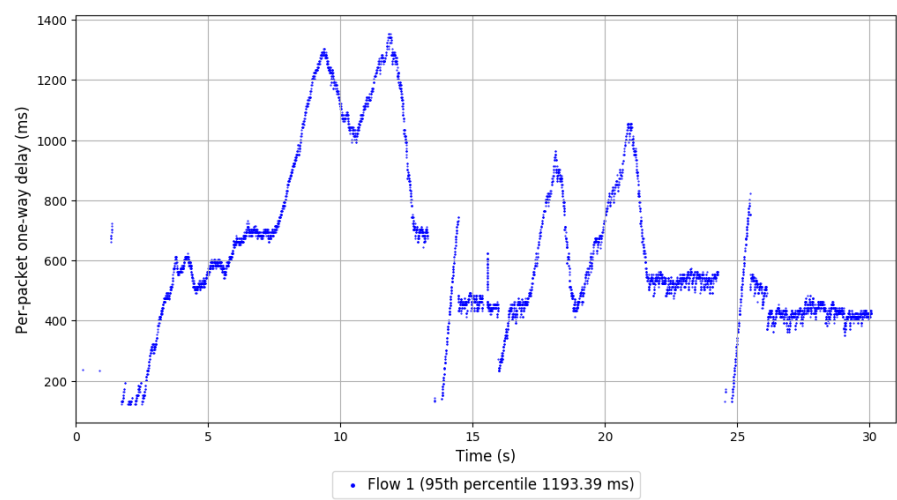
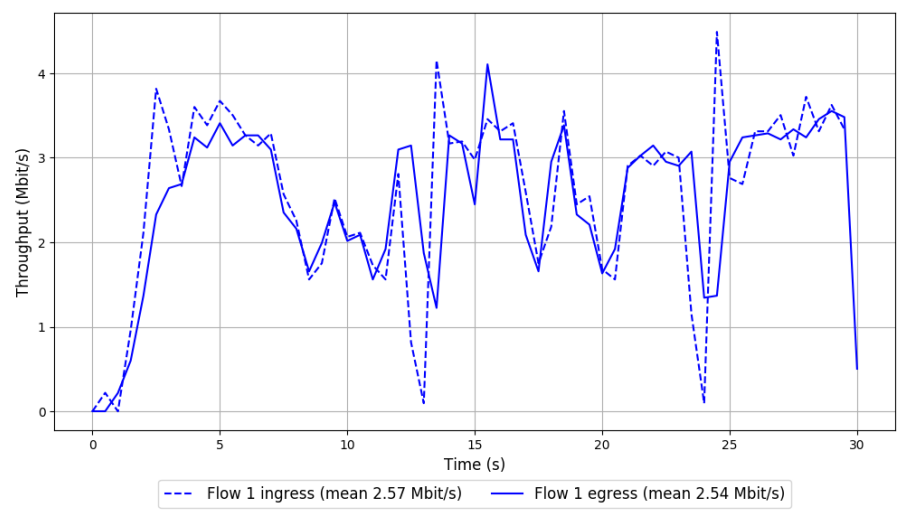
-- Flow 1:

Average throughput: 2.54 Mbit/s

95th percentile per-packet one-way delay: 1193.394 ms

Loss rate: 1.48%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-01-18 10:32:00

End at: 2018-01-18 10:32:30

Local clock offset: -3.499 ms

Remote clock offset: 0.672 ms

Below is generated by plot.py at 2018-01-18 10:47:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.10 Mbit/s

95th percentile per-packet one-way delay: 686.792 ms

Loss rate: 1.41%

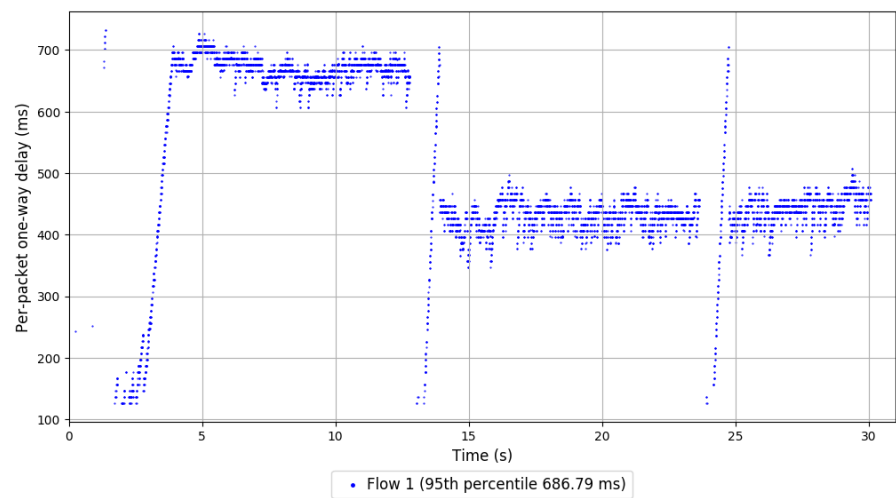
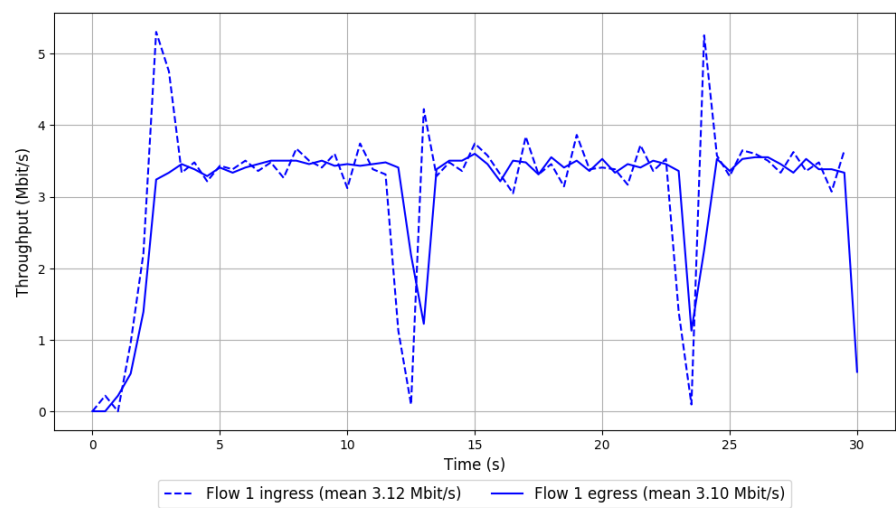
-- Flow 1:

Average throughput: 3.10 Mbit/s

95th percentile per-packet one-way delay: 686.792 ms

Loss rate: 1.41%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-01-18 09:43:48

End at: 2018-01-18 09:44:18

Local clock offset: -3.519 ms

Remote clock offset: 1.717 ms

Below is generated by plot.py at 2018-01-18 10:47:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.07 Mbit/s

95th percentile per-packet one-way delay: 2326.206 ms

Loss rate: 10.99%

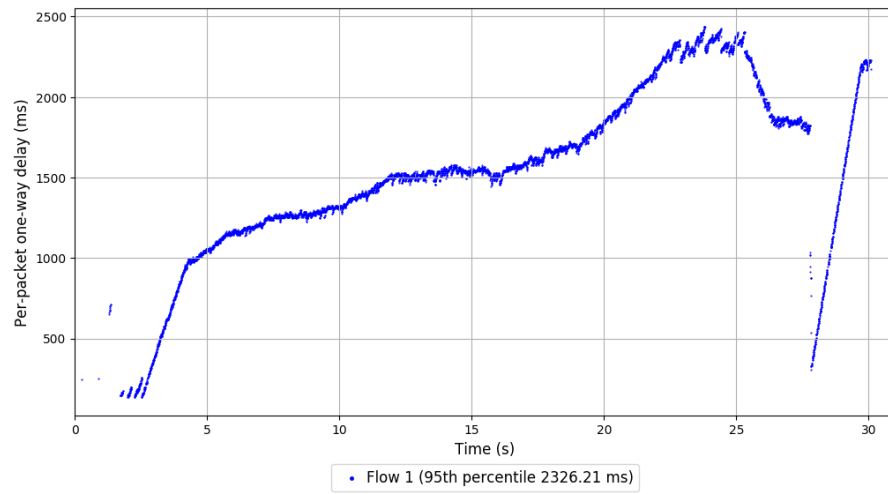
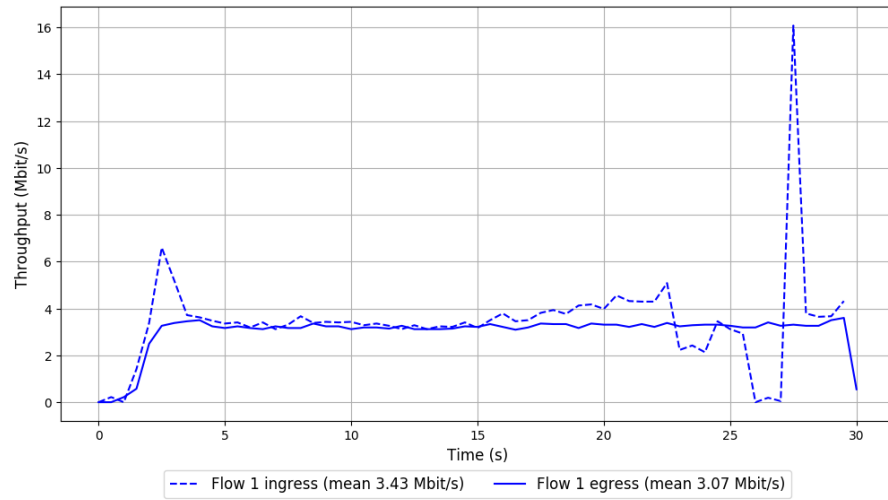
-- Flow 1:

Average throughput: 3.07 Mbit/s

95th percentile per-packet one-way delay: 2326.206 ms

Loss rate: 10.99%

Run 1: Report of TCP Cubic — Data Link

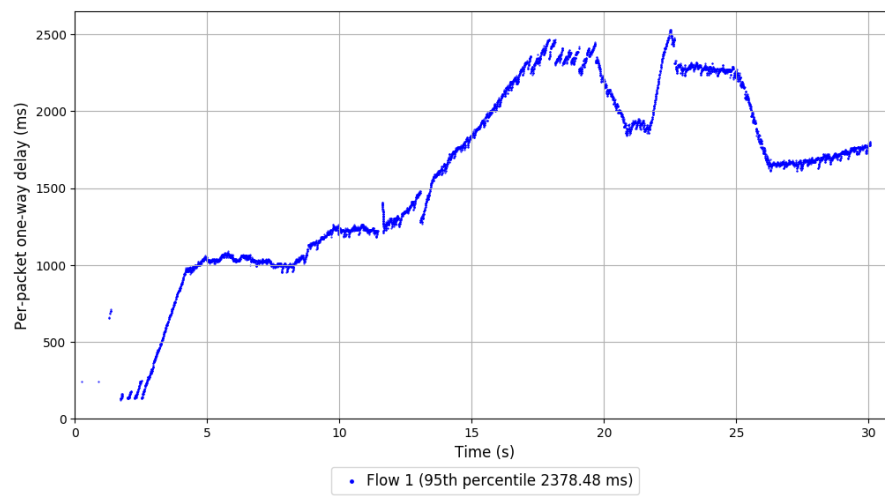
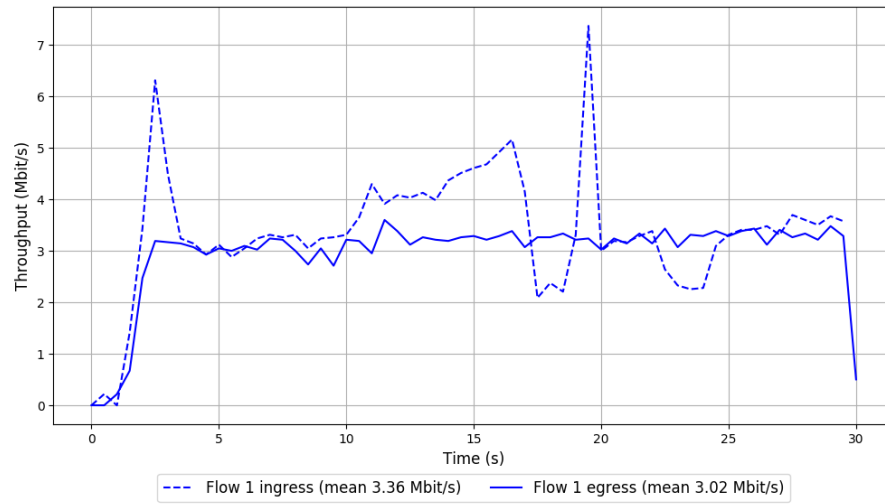


Run 2: Statistics of TCP Cubic

Start at: 2018-01-18 10:04:56
End at: 2018-01-18 10:05:26
Local clock offset: -4.492 ms
Remote clock offset: -3.936 ms

Below is generated by plot.py at 2018-01-18 10:47:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.02 Mbit/s
95th percentile per-packet one-way delay: 2378.479 ms
Loss rate: 10.71%
-- Flow 1:
Average throughput: 3.02 Mbit/s
95th percentile per-packet one-way delay: 2378.479 ms
Loss rate: 10.71%

Run 2: Report of TCP Cubic — Data Link

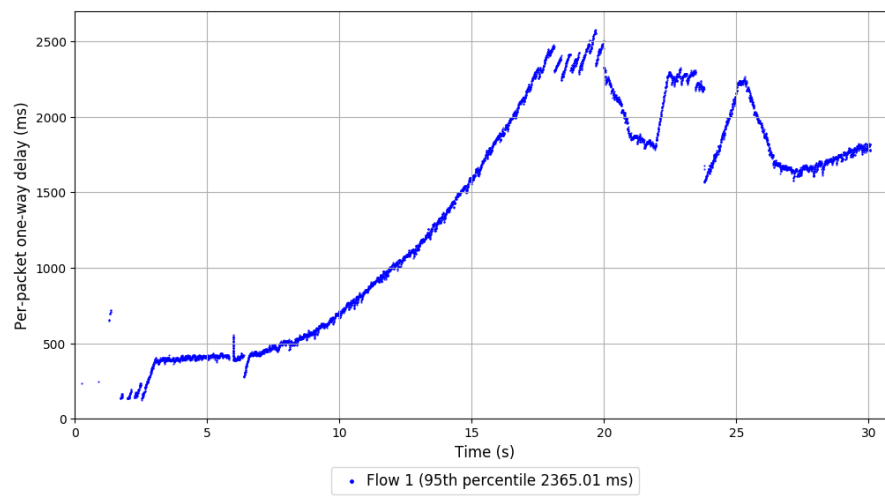
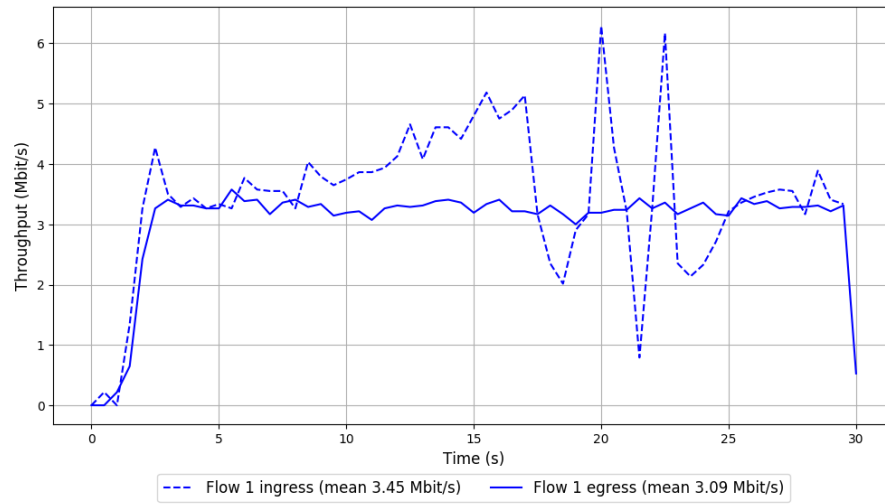


Run 3: Statistics of TCP Cubic

Start at: 2018-01-18 10:26:06
End at: 2018-01-18 10:26:36
Local clock offset: -4.065 ms
Remote clock offset: -3.606 ms

Below is generated by plot.py at 2018-01-18 10:47:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.09 Mbit/s
95th percentile per-packet one-way delay: 2365.007 ms
Loss rate: 10.78%
-- Flow 1:
Average throughput: 3.09 Mbit/s
95th percentile per-packet one-way delay: 2365.007 ms
Loss rate: 10.78%

Run 3: Report of TCP Cubic — Data Link

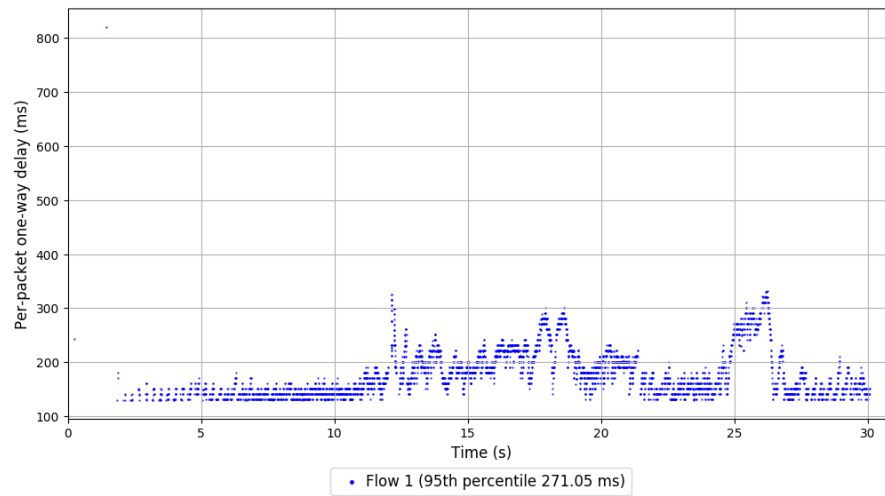
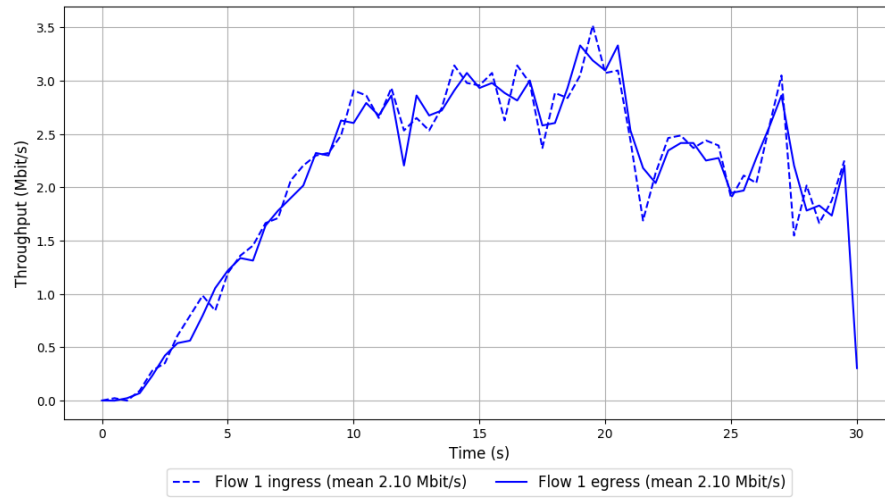


```
Run 1: Statistics of LEDBAT

Start at: 2018-01-18 10:00:14
End at: 2018-01-18 10:00:44
Local clock offset: -4.672 ms
Remote clock offset: 1.472 ms

# Below is generated by plot.py at 2018-01-18 10:47:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 271.054 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 271.054 ms
Loss rate: 0.30%
```

Run 1: Report of LEDBAT — Data Link

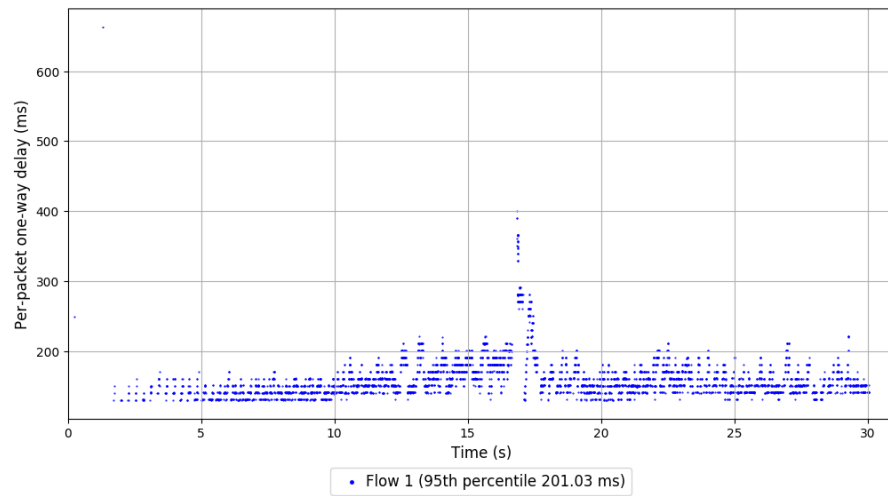
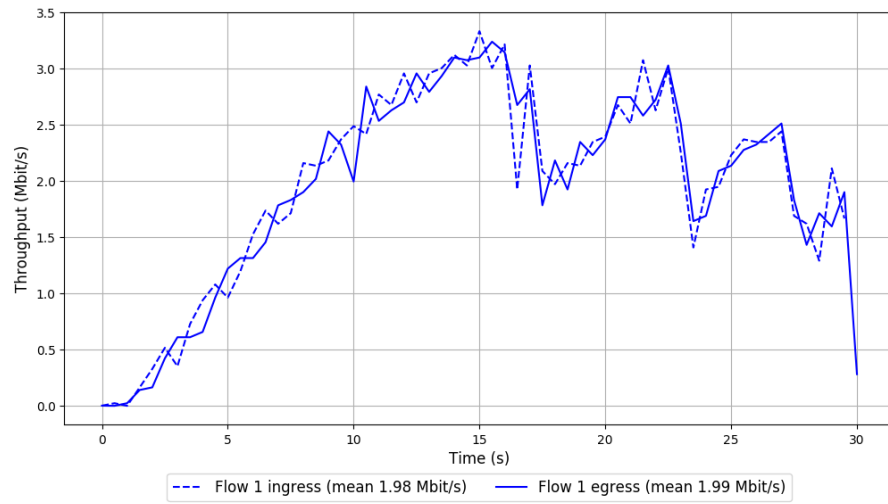


Run 2: Statistics of LEDBAT

Start at: 2018-01-18 10:21:23
End at: 2018-01-18 10:21:53
Local clock offset: -4.341 ms
Remote clock offset: -4.504 ms

Below is generated by plot.py at 2018-01-18 10:47:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 201.030 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 201.030 ms
Loss rate: 0.22%

Run 2: Report of LEDBAT — Data Link

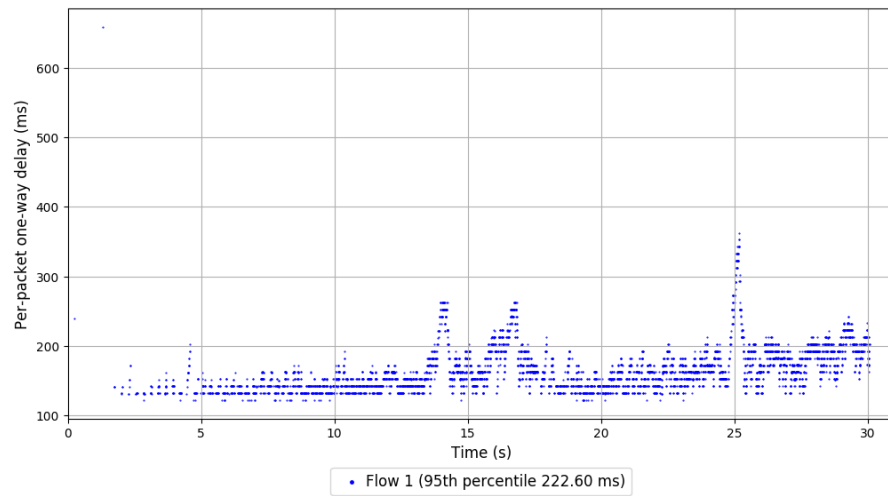
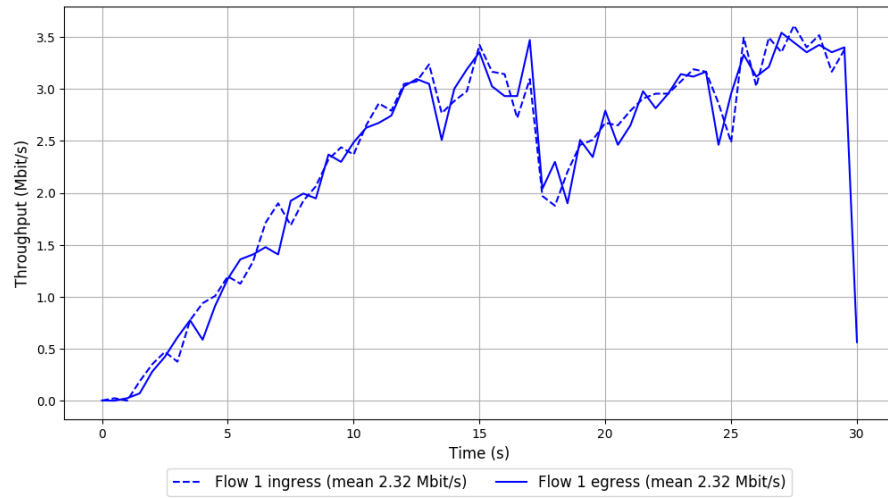


Run 3: Statistics of LEDBAT

Start at: 2018-01-18 10:42:33
End at: 2018-01-18 10:43:03
Local clock offset: -2.889 ms
Remote clock offset: -3.716 ms

Below is generated by plot.py at 2018-01-18 10:47:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 222.598 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 222.598 ms
Loss rate: 0.52%

Run 3: Report of LEDBAT — Data Link

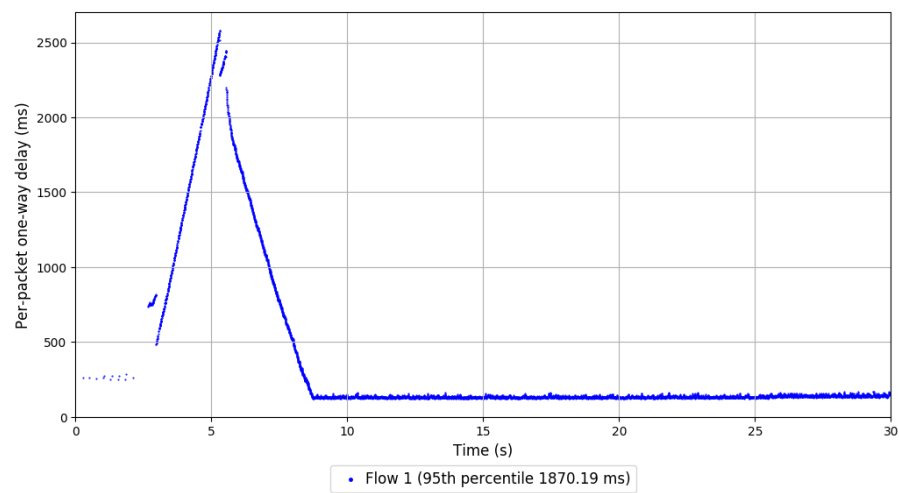
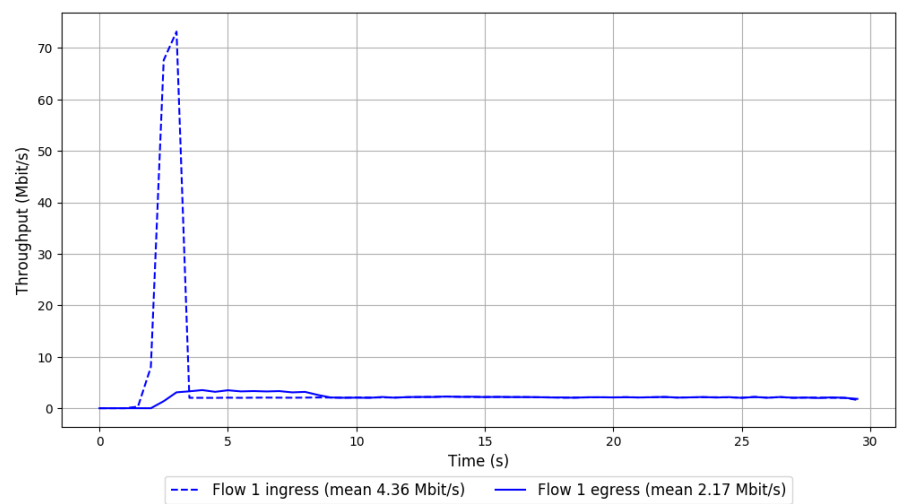


Run 1: Statistics of PCC

Start at: 2018-01-18 09:54:22
End at: 2018-01-18 09:54:52
Local clock offset: -4.307 ms
Remote clock offset: -3.622 ms

Below is generated by plot.py at 2018-01-18 10:47:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 1870.186 ms
Loss rate: 50.50%
-- Flow 1:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 1870.186 ms
Loss rate: 50.50%

Run 1: Report of PCC — Data Link

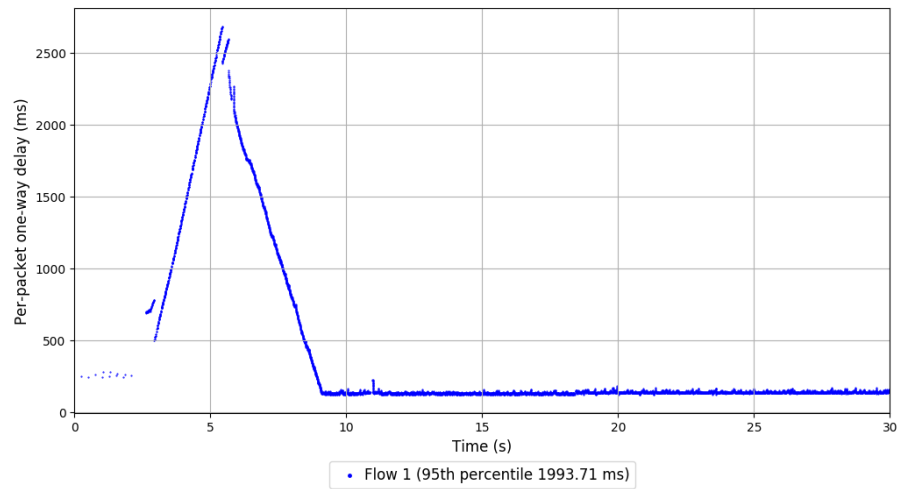
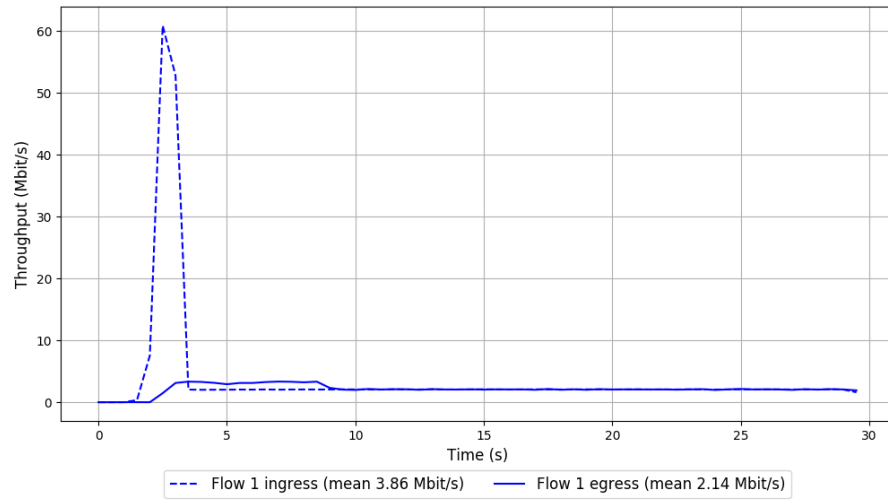


Run 2: Statistics of PCC

Start at: 2018-01-18 10:15:31
End at: 2018-01-18 10:16:01
Local clock offset: -4.895 ms
Remote clock offset: -4.392 ms

Below is generated by plot.py at 2018-01-18 10:47:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 1993.707 ms
Loss rate: 44.95%
-- Flow 1:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 1993.707 ms
Loss rate: 44.95%

Run 2: Report of PCC — Data Link

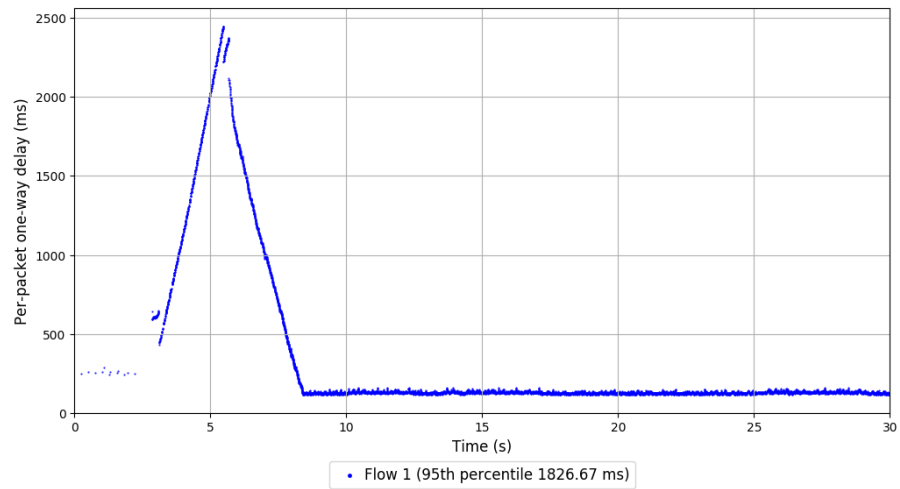
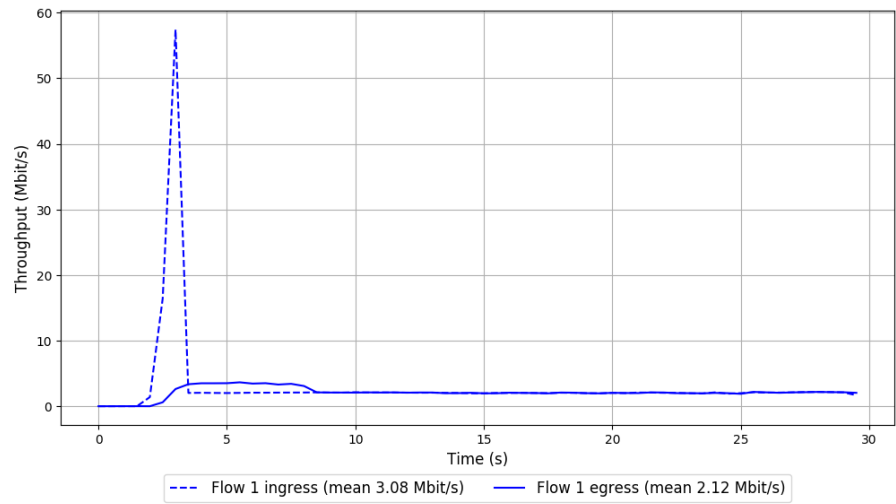


Run 3: Statistics of PCC

Start at: 2018-01-18 10:36:41
End at: 2018-01-18 10:37:11
Local clock offset: -3.343 ms
Remote clock offset: -3.275 ms

Below is generated by plot.py at 2018-01-18 10:47:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 1826.670 ms
Loss rate: 31.50%
-- Flow 1:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 1826.670 ms
Loss rate: 31.50%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

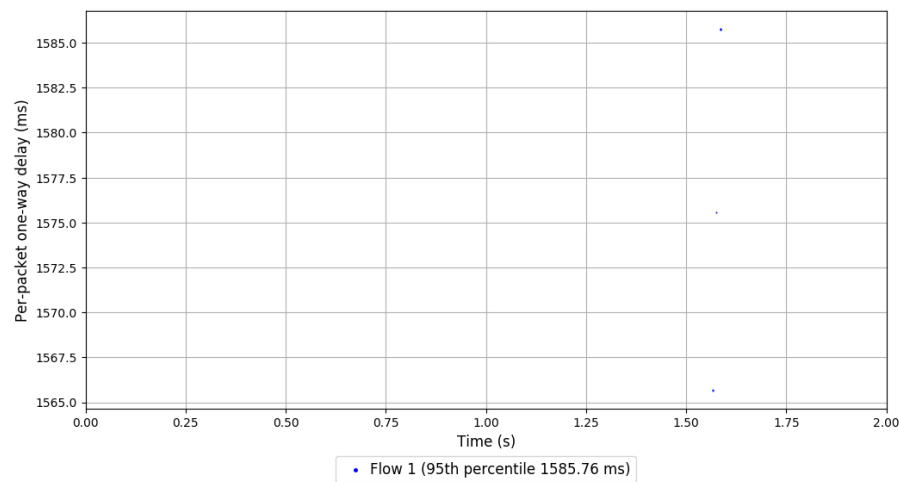
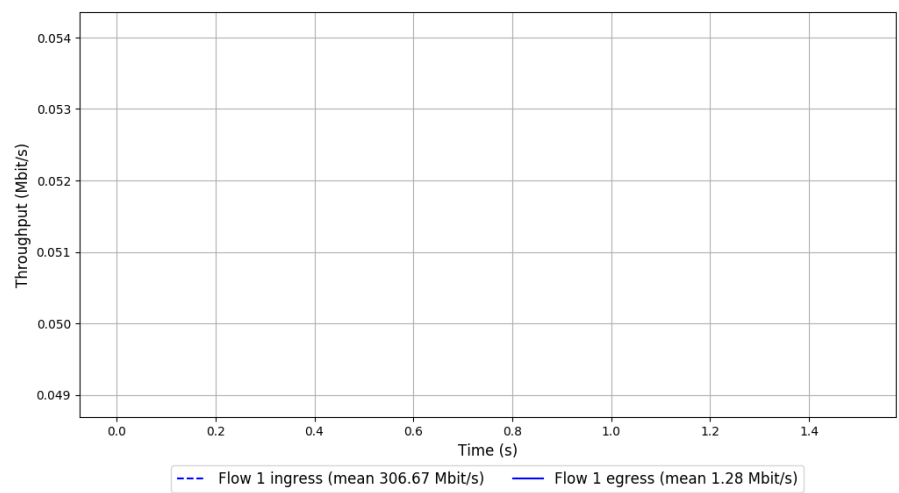
Start at: 2018-01-18 09:46:10

End at: 2018-01-18 09:46:40

Local clock offset: -3.653 ms

Remote clock offset: -4.385 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-01-18 10:07:18

End at: 2018-01-18 10:07:48

Local clock offset: -4.548 ms

Remote clock offset: 1.433 ms

Below is generated by plot.py at 2018-01-18 10:47:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.19 Mbit/s

95th percentile per-packet one-way delay: 1240.911 ms

Loss rate: 4.23%

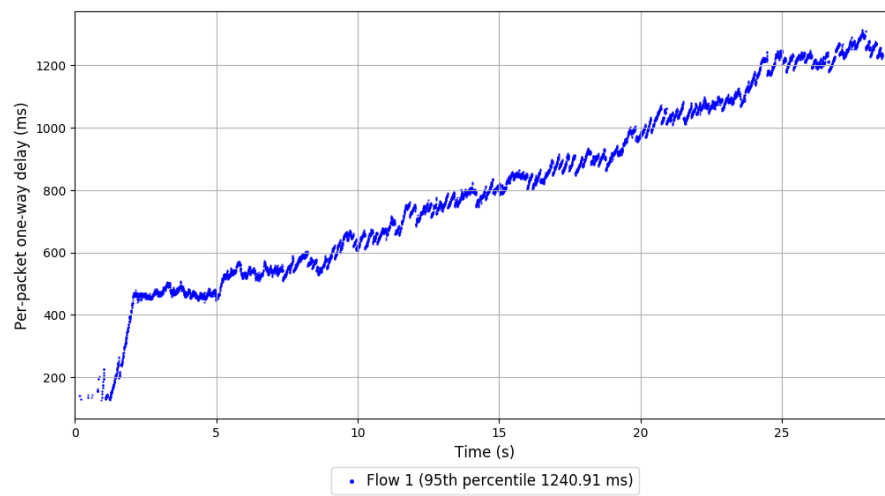
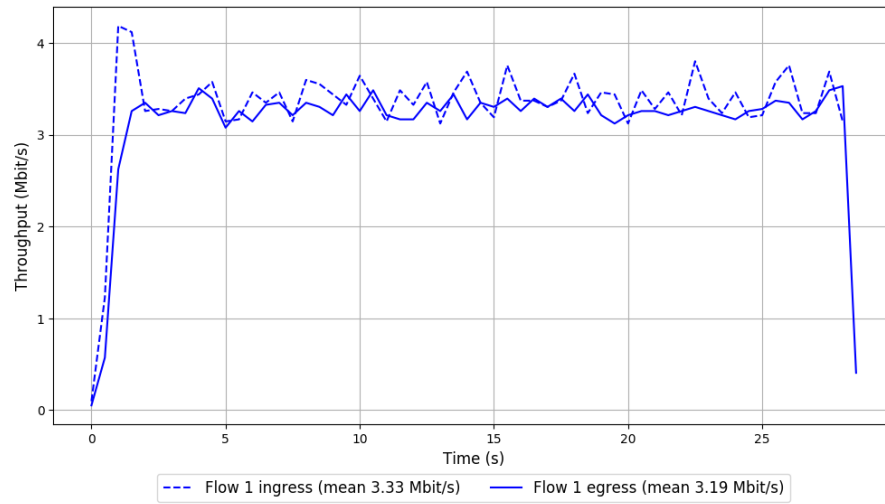
-- Flow 1:

Average throughput: 3.19 Mbit/s

95th percentile per-packet one-way delay: 1240.911 ms

Loss rate: 4.23%

Run 2: Report of QUIC Cubic — Data Link

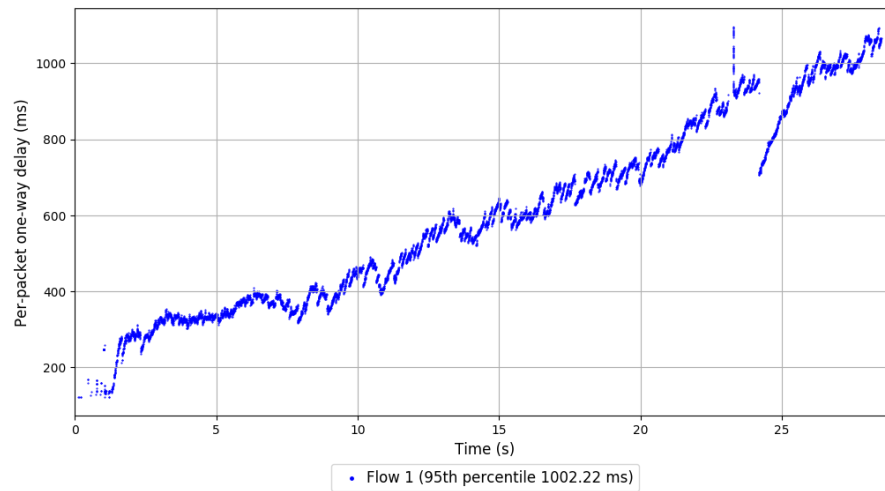
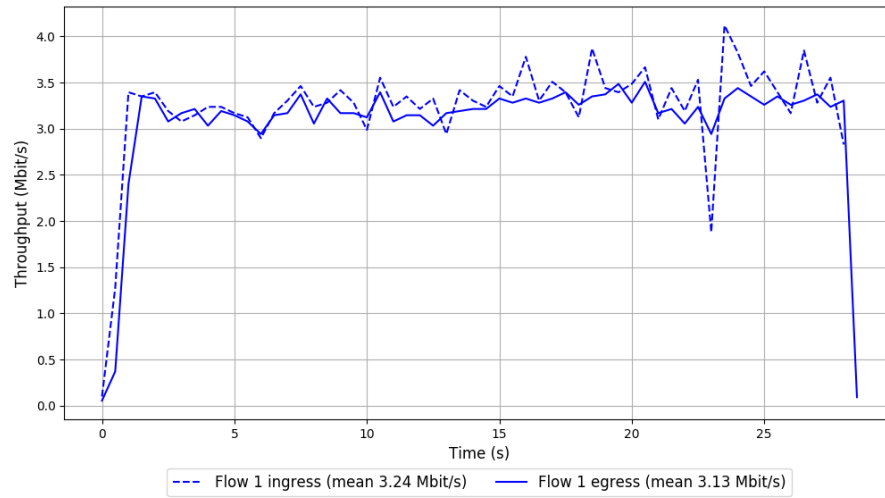


Run 3: Statistics of QUIC Cubic

Start at: 2018-01-18 10:28:28
End at: 2018-01-18 10:28:58
Local clock offset: -3.794 ms
Remote clock offset: -3.257 ms

Below is generated by plot.py at 2018-01-18 10:47:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.13 Mbit/s
95th percentile per-packet one-way delay: 1002.217 ms
Loss rate: 3.67%
-- Flow 1:
Average throughput: 3.13 Mbit/s
95th percentile per-packet one-way delay: 1002.217 ms
Loss rate: 3.67%

Run 3: Report of QUIC Cubic — Data Link

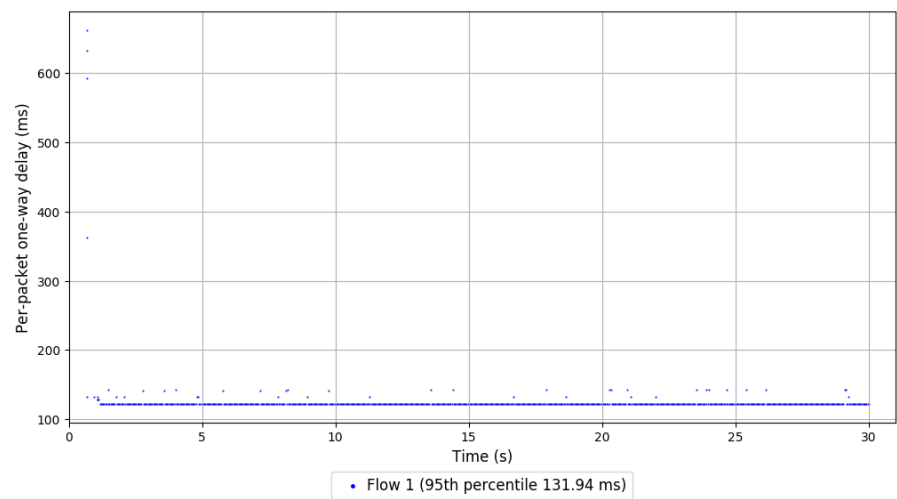
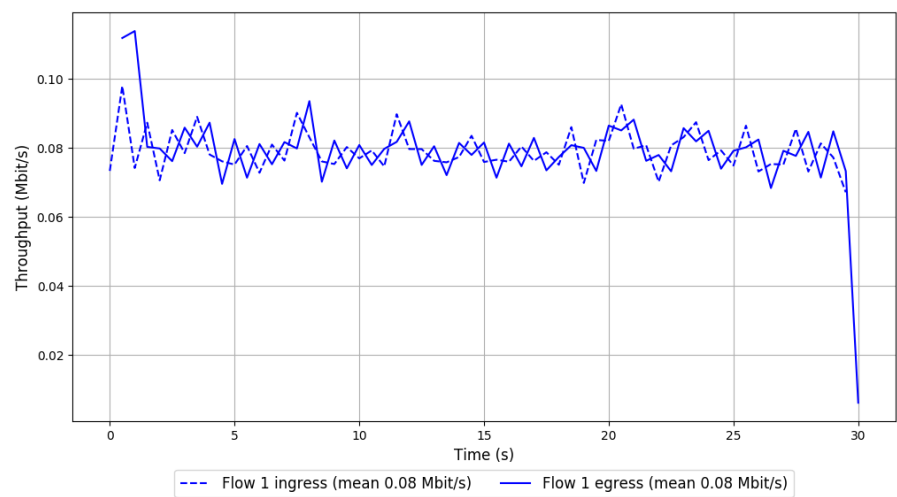


```
Run 1: Statistics of SCReAM

Start at: 2018-01-18 09:59:04
End at: 2018-01-18 09:59:34
Local clock offset: -4.781 ms
Remote clock offset: 1.789 ms

# Below is generated by plot.py at 2018-01-18 10:47:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 131.935 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 131.935 ms
Loss rate: 0.13%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-01-18 10:20:13

End at: 2018-01-18 10:20:43

Local clock offset: -4.441 ms

Remote clock offset: 0.729 ms

Below is generated by plot.py at 2018-01-18 10:47:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 133.092 ms

Loss rate: 0.13%

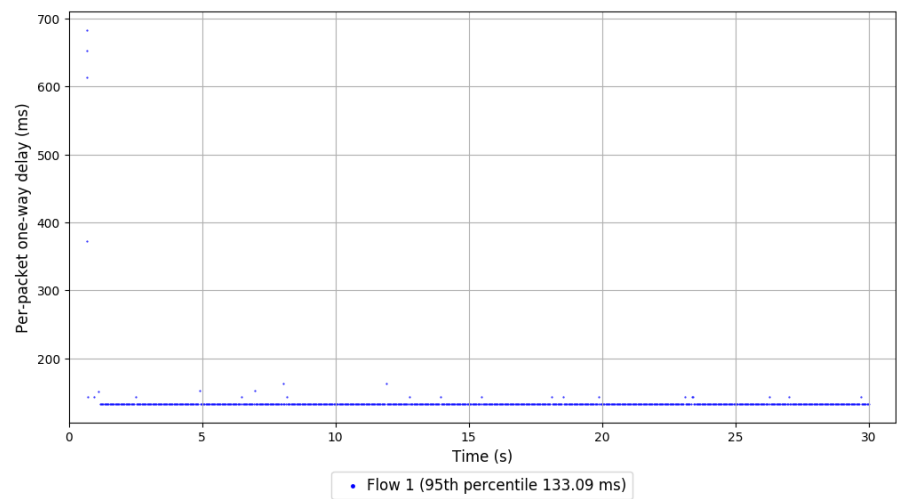
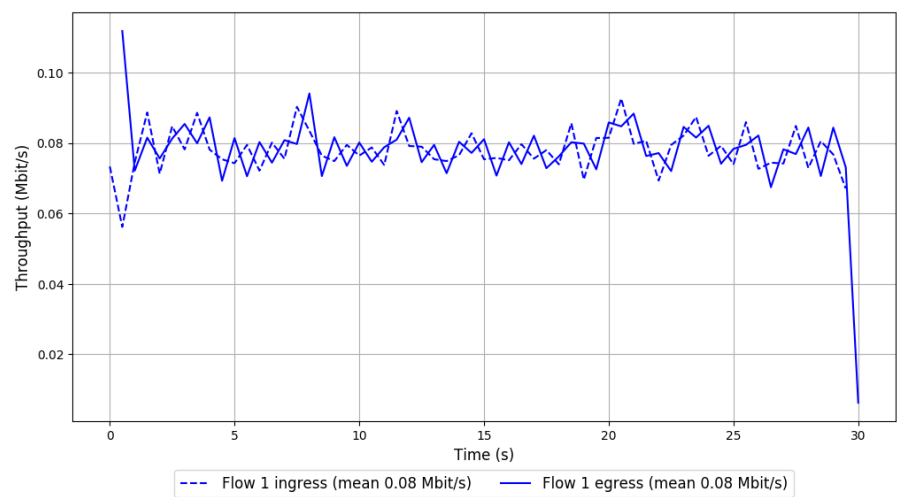
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 133.092 ms

Loss rate: 0.13%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-01-18 10:41:23

End at: 2018-01-18 10:41:53

Local clock offset: -3.195 ms

Remote clock offset: 1.098 ms

Below is generated by plot.py at 2018-01-18 10:47:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 134.167 ms

Loss rate: 0.13%

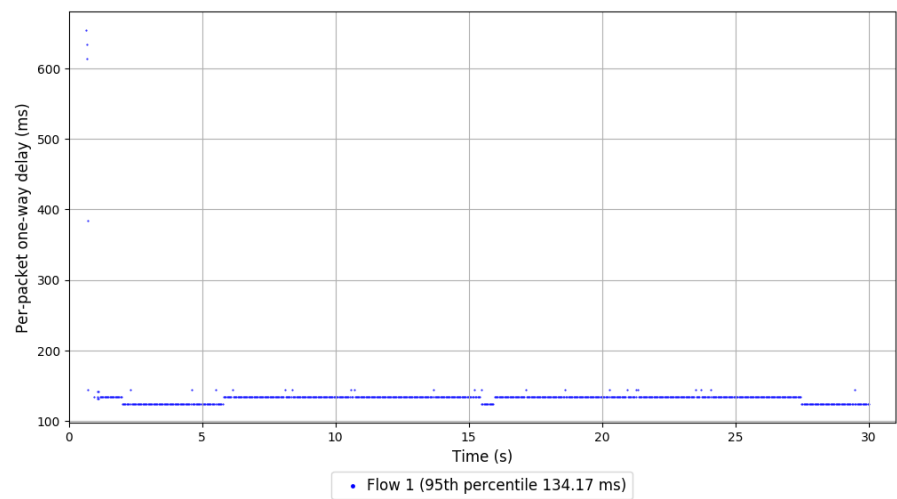
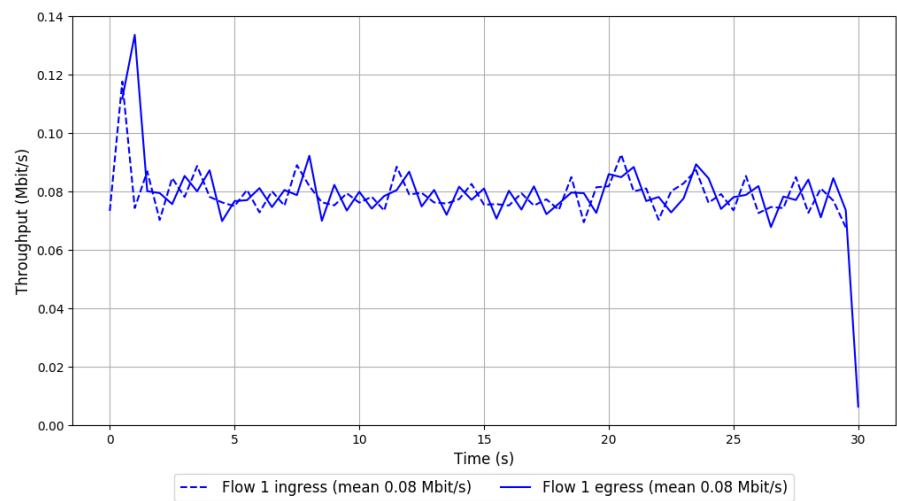
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 134.167 ms

Loss rate: 0.13%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-01-18 09:55:32

End at: 2018-01-18 09:56:02

Local clock offset: -4.479 ms

Remote clock offset: 1.459 ms

Below is generated by plot.py at 2018-01-18 10:47:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 162.908 ms

Loss rate: 0.48%

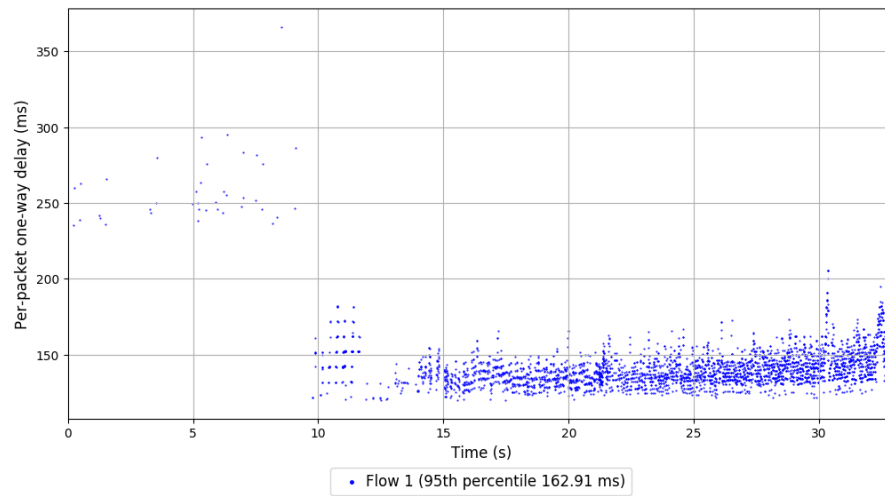
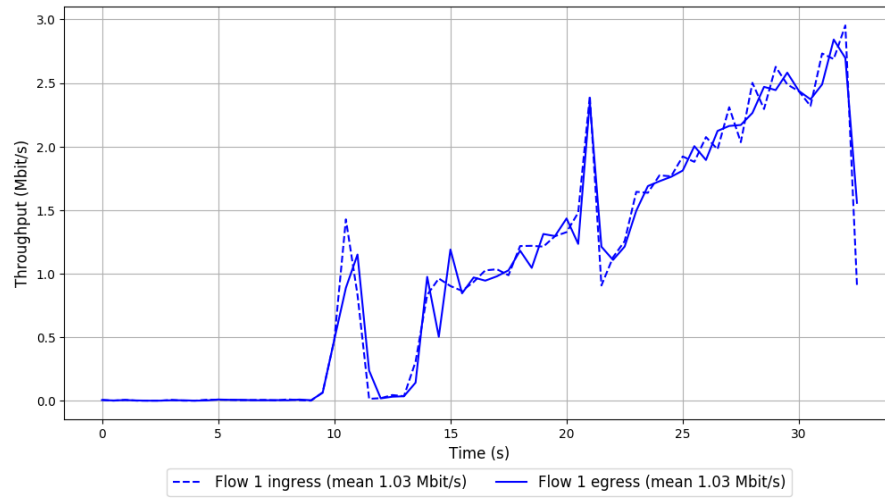
-- Flow 1:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 162.908 ms

Loss rate: 0.48%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-01-18 10:16:41

End at: 2018-01-18 10:17:11

Local clock offset: -4.874 ms

Remote clock offset: 2.256 ms

Below is generated by plot.py at 2018-01-18 10:47:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 178.137 ms

Loss rate: 0.39%

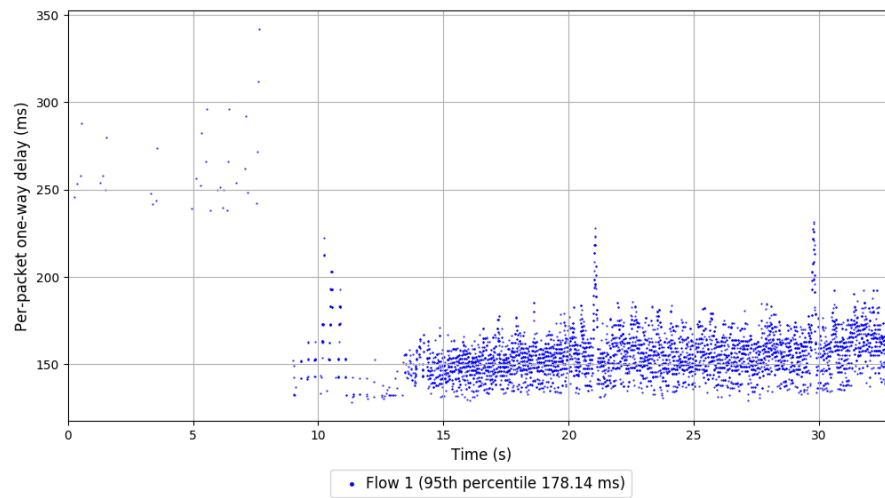
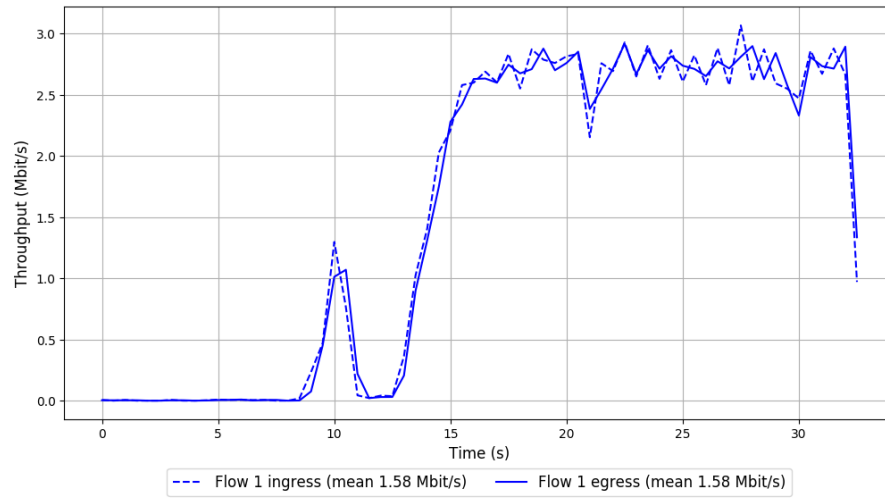
-- Flow 1:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 178.137 ms

Loss rate: 0.39%

Run 2: Report of WebRTC media — Data Link

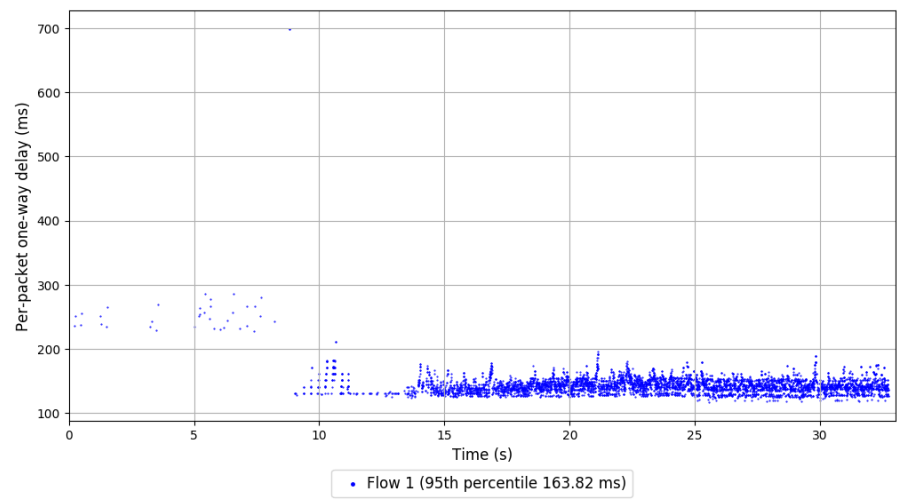
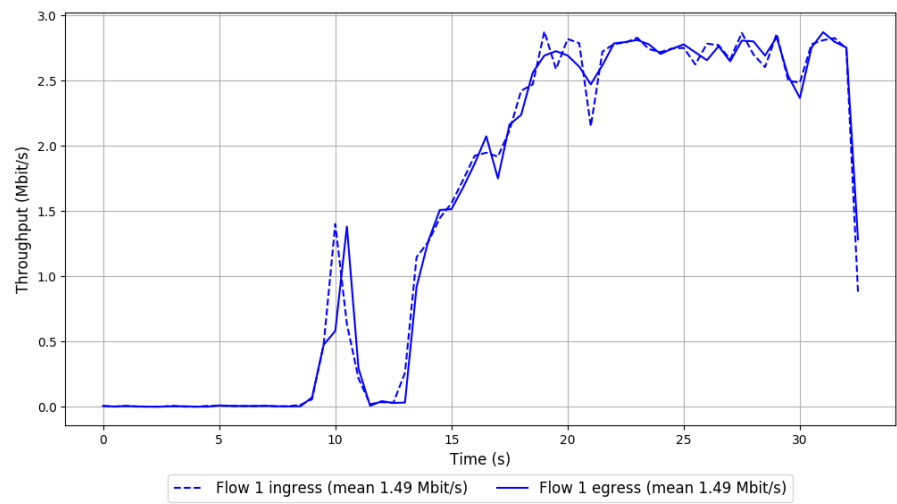


Run 3: Statistics of WebRTC media

Start at: 2018-01-18 10:37:51
End at: 2018-01-18 10:38:21
Local clock offset: -3.305 ms
Remote clock offset: -3.727 ms

Below is generated by plot.py at 2018-01-18 10:47:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 163.817 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 163.817 ms
Loss rate: 0.38%

Run 3: Report of WebRTC media — Data Link

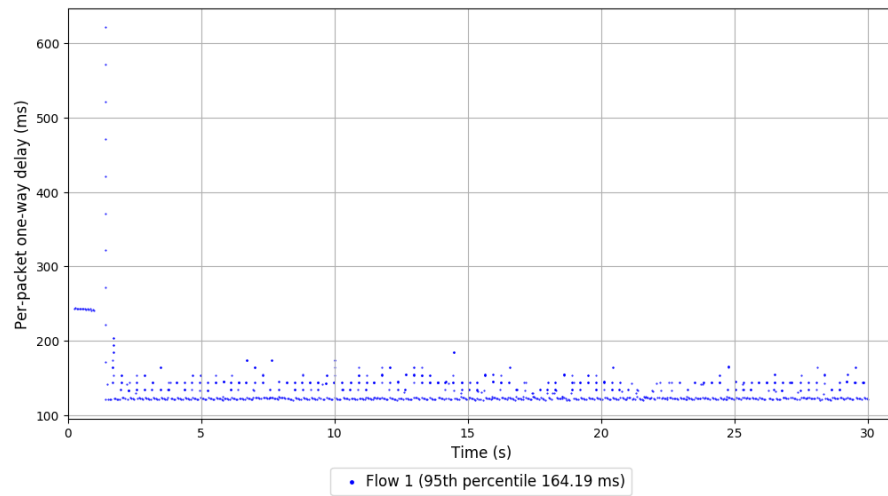
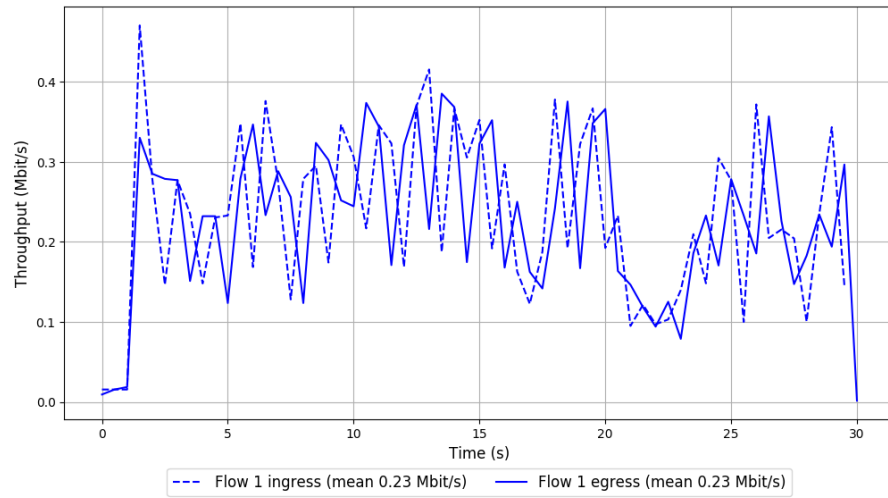


```
Run 1: Statistics of Sprout

Start at: 2018-01-18 09:50:51
End at: 2018-01-18 09:51:21
Local clock offset: -3.975 ms
Remote clock offset: 1.585 ms

# Below is generated by plot.py at 2018-01-18 10:47:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 164.187 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 164.187 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link

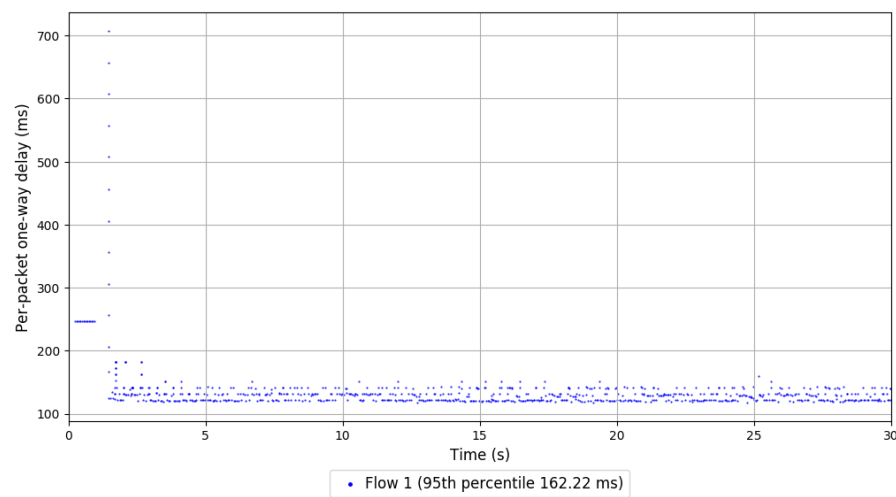
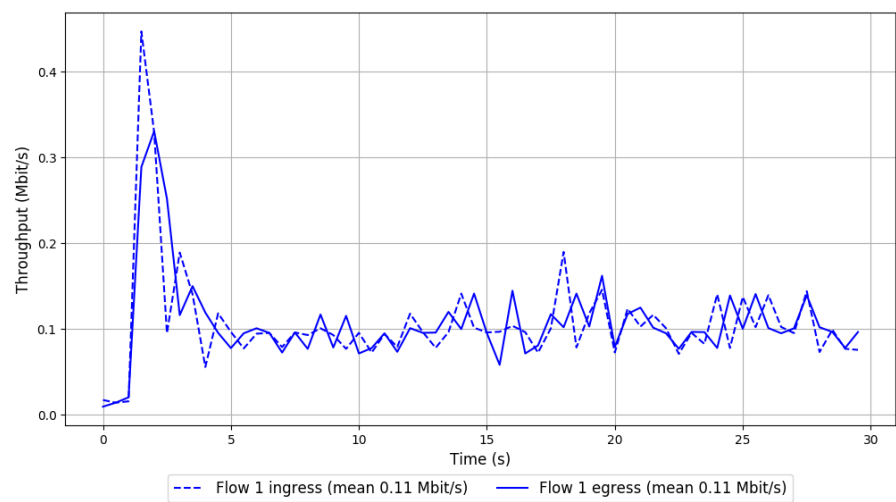


Run 2: Statistics of Sprout

Start at: 2018-01-18 10:12:01
End at: 2018-01-18 10:12:31
Local clock offset: -4.697 ms
Remote clock offset: 0.477 ms

Below is generated by plot.py at 2018-01-18 10:47:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 162.223 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 162.223 ms
Loss rate: 0.02%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-01-18 10:33:10

End at: 2018-01-18 10:33:40

Local clock offset: -3.465 ms

Remote clock offset: 1.5 ms

Below is generated by plot.py at 2018-01-18 10:47:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 168.162 ms

Loss rate: 0.02%

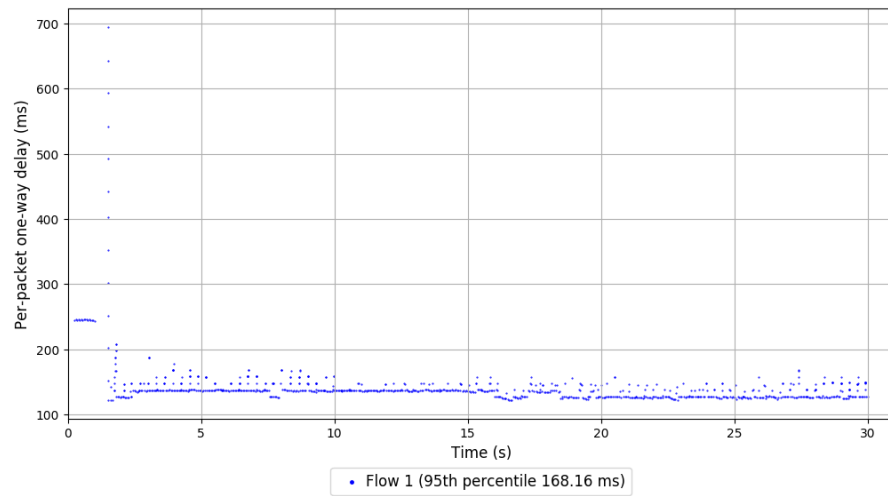
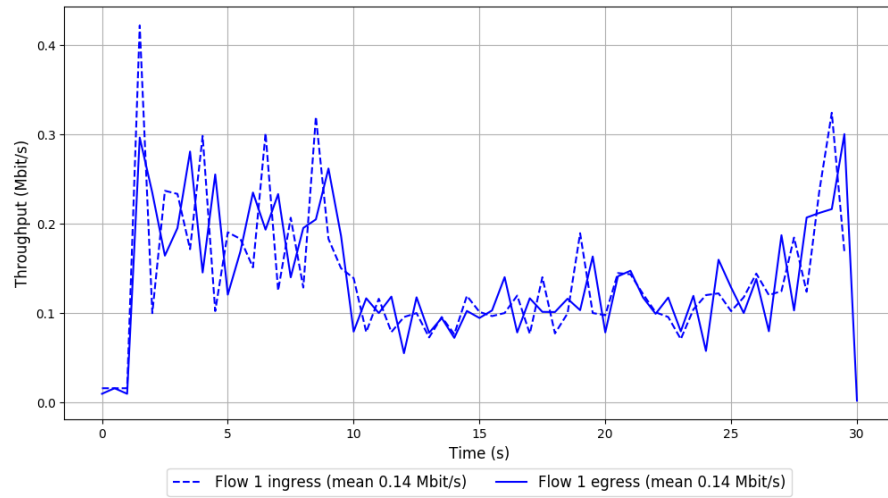
-- Flow 1:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 168.162 ms

Loss rate: 0.02%

Run 3: Report of Sprout — Data Link

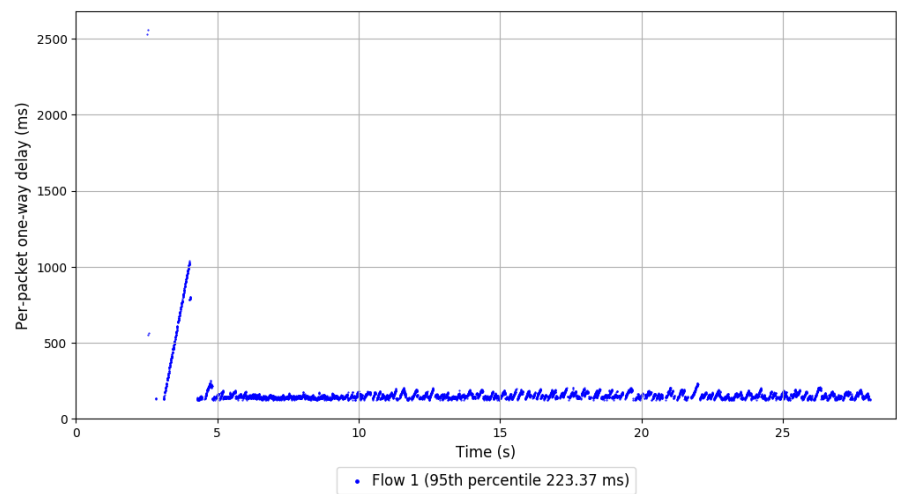
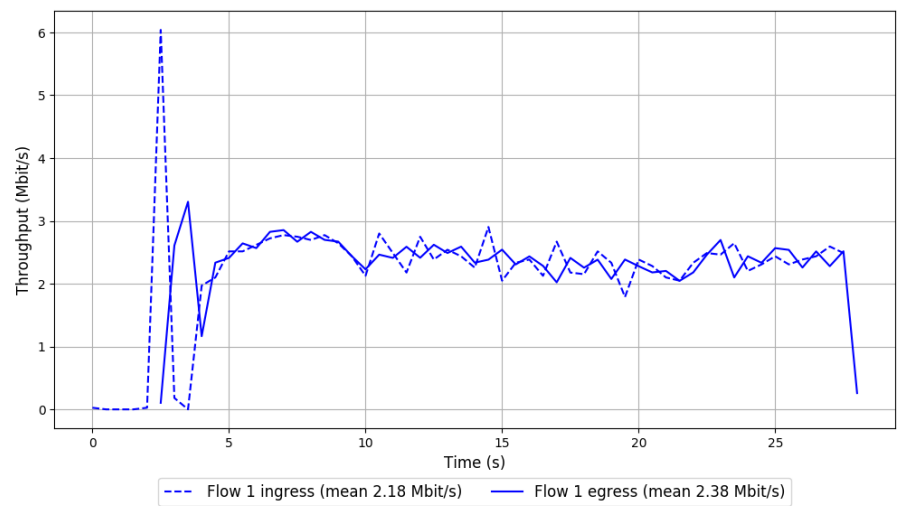


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-01-18 09:56:42
End at: 2018-01-18 09:57:12
Local clock offset: -4.693 ms
Remote clock offset: 1.161 ms

# Below is generated by plot.py at 2018-01-18 10:48:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 223.367 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 223.367 ms
Loss rate: 0.40%
```

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

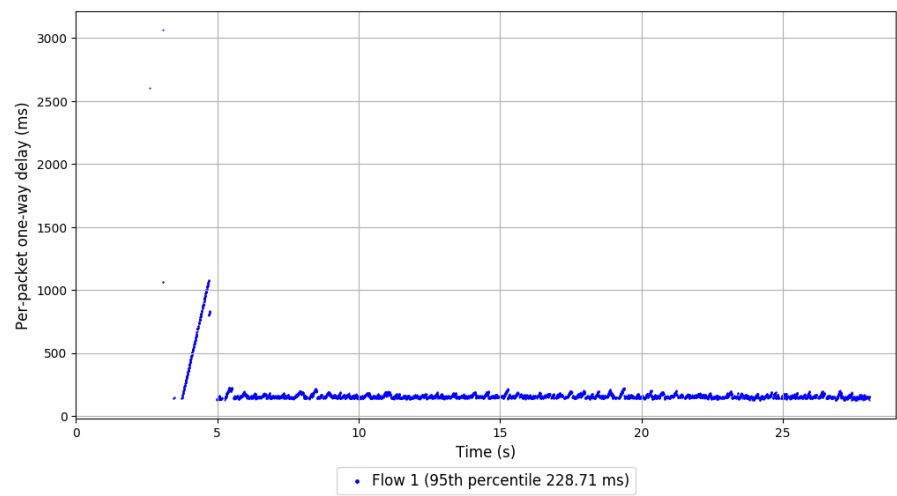
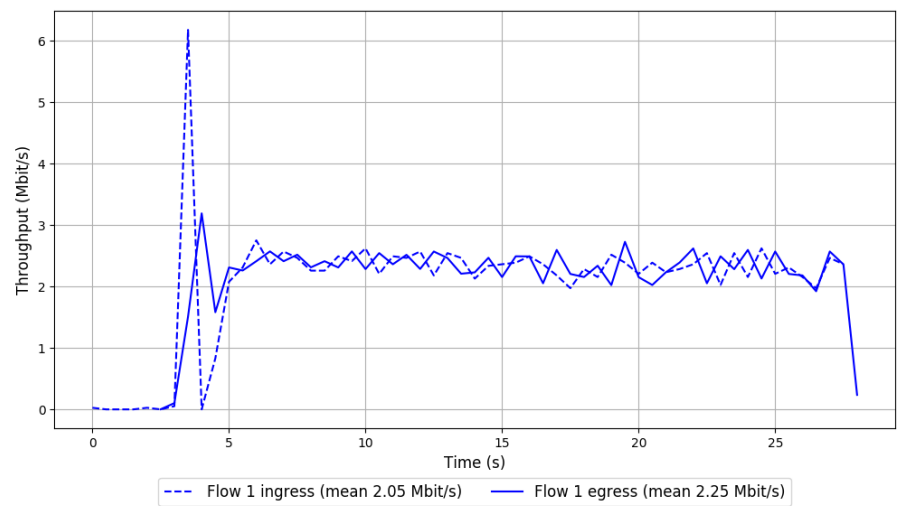


Run 2: Statistics of TaoVA-100x

Start at: 2018-01-18 10:17:52
End at: 2018-01-18 10:18:22
Local clock offset: -4.687 ms
Remote clock offset: -3.163 ms

Below is generated by plot.py at 2018-01-18 10:48:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 228.710 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 228.710 ms
Loss rate: 0.31%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-01-18 10:39:01

End at: 2018-01-18 10:39:32

Local clock offset: -3.347 ms

Remote clock offset: 0.603 ms

Below is generated by plot.py at 2018-01-18 10:48:04

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.38 Mbit/s

95th percentile per-packet one-way delay: 189.456 ms

Loss rate: 0.48%

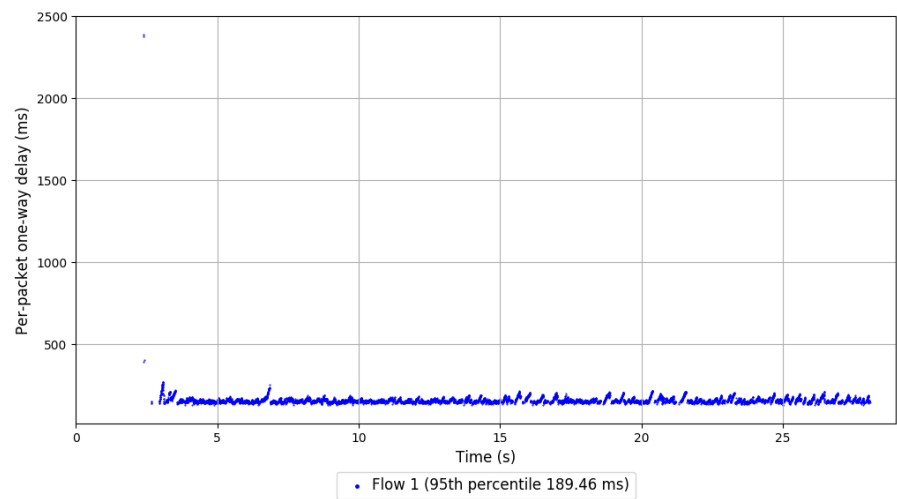
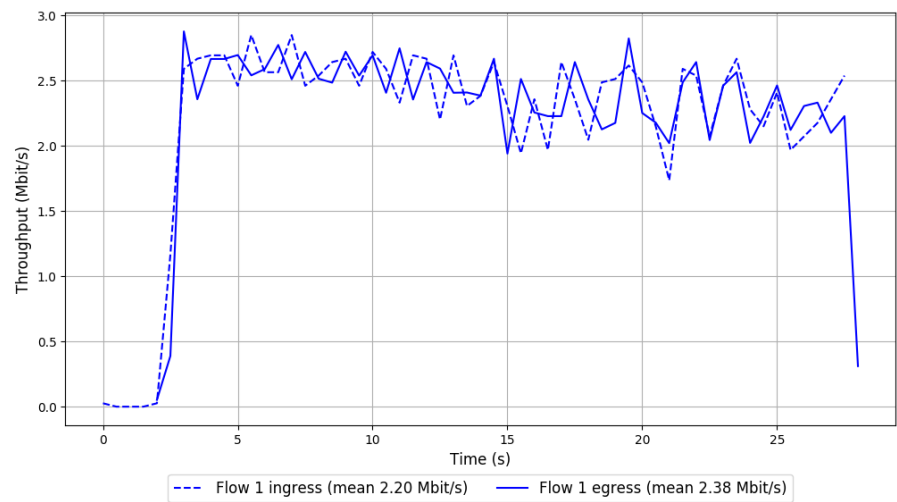
-- Flow 1:

Average throughput: 2.38 Mbit/s

95th percentile per-packet one-way delay: 189.456 ms

Loss rate: 0.48%

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

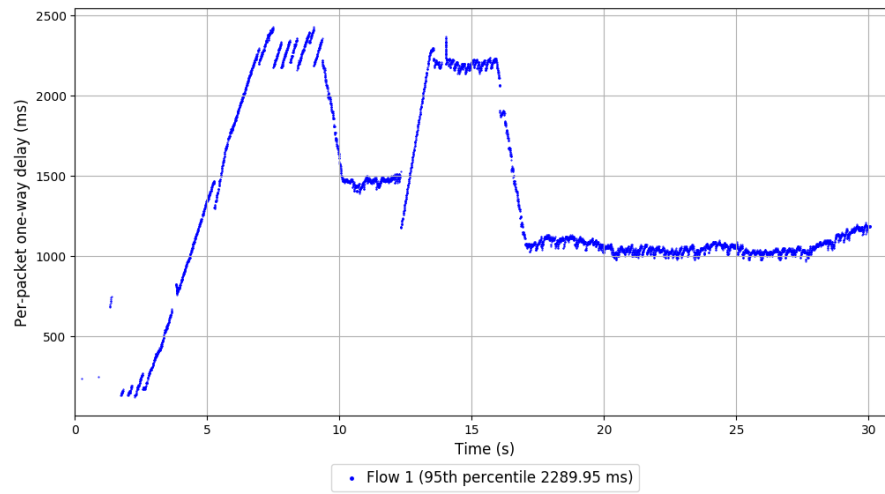
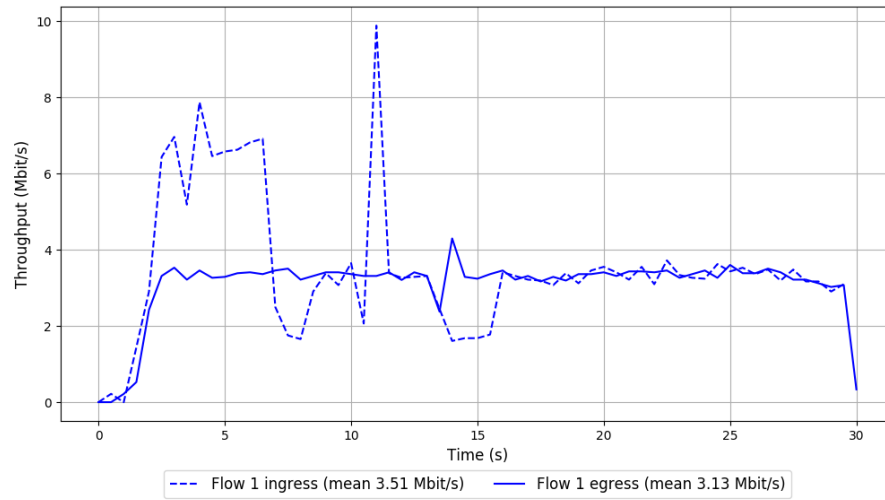


Run 1: Statistics of TCP Vegas

Start at: 2018-01-18 10:01:24
End at: 2018-01-18 10:01:54
Local clock offset: -4.632 ms
Remote clock offset: -3.891 ms

Below is generated by plot.py at 2018-01-18 10:48:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.13 Mbit/s
95th percentile per-packet one-way delay: 2289.955 ms
Loss rate: 11.24%
-- Flow 1:
Average throughput: 3.13 Mbit/s
95th percentile per-packet one-way delay: 2289.955 ms
Loss rate: 11.24%

Run 1: Report of TCP Vegas — Data Link

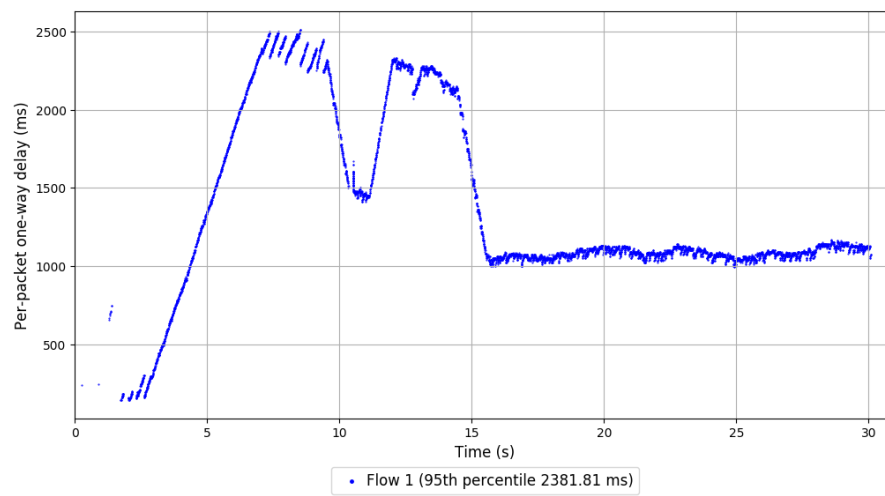
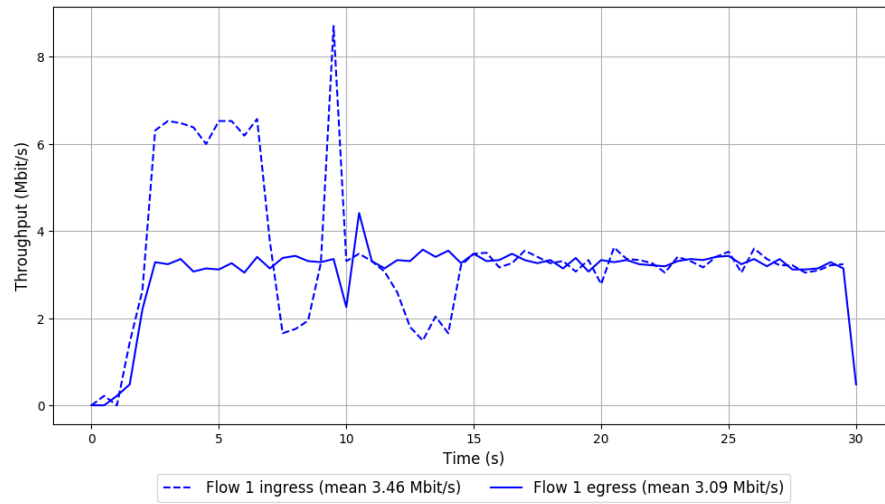


Run 2: Statistics of TCP Vegas

Start at: 2018-01-18 10:22:34
End at: 2018-01-18 10:23:04
Local clock offset: -4.309 ms
Remote clock offset: -3.229 ms

Below is generated by plot.py at 2018-01-18 10:48:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.09 Mbit/s
95th percentile per-packet one-way delay: 2381.808 ms
Loss rate: 11.15%
-- Flow 1:
Average throughput: 3.09 Mbit/s
95th percentile per-packet one-way delay: 2381.808 ms
Loss rate: 11.15%

Run 2: Report of TCP Vegas — Data Link

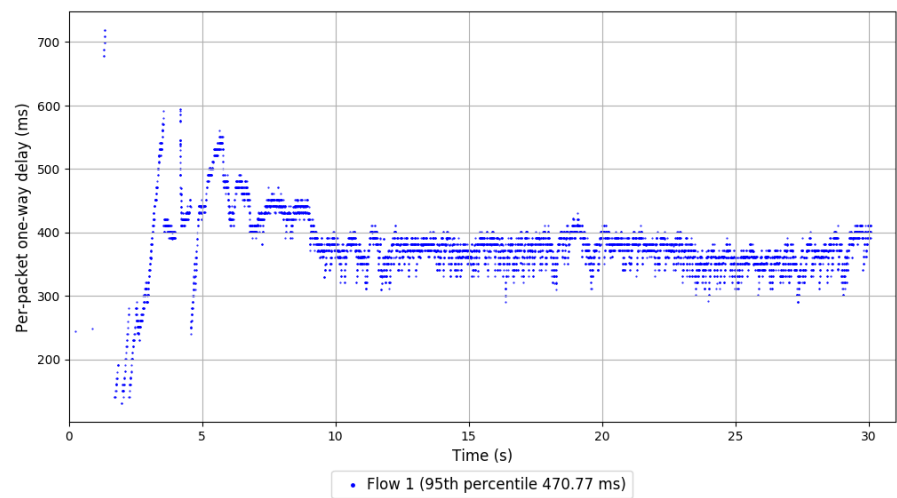
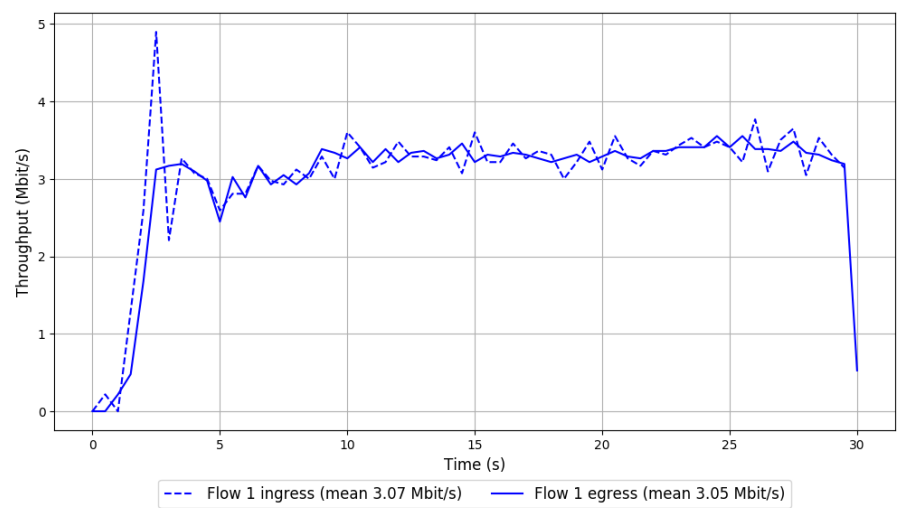


Run 3: Statistics of TCP Vegas

Start at: 2018-01-18 10:43:44
End at: 2018-01-18 10:44:14
Local clock offset: -2.606 ms
Remote clock offset: 1.451 ms

Below is generated by plot.py at 2018-01-18 10:48:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 470.775 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 470.775 ms
Loss rate: 1.06%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-01-18 09:48:30

End at: 2018-01-18 09:49:00

Local clock offset: -3.756 ms

Remote clock offset: 2.93 ms

Below is generated by plot.py at 2018-01-18 10:48:04

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.10 Mbit/s

95th percentile per-packet one-way delay: 1786.401 ms

Loss rate: 6.61%

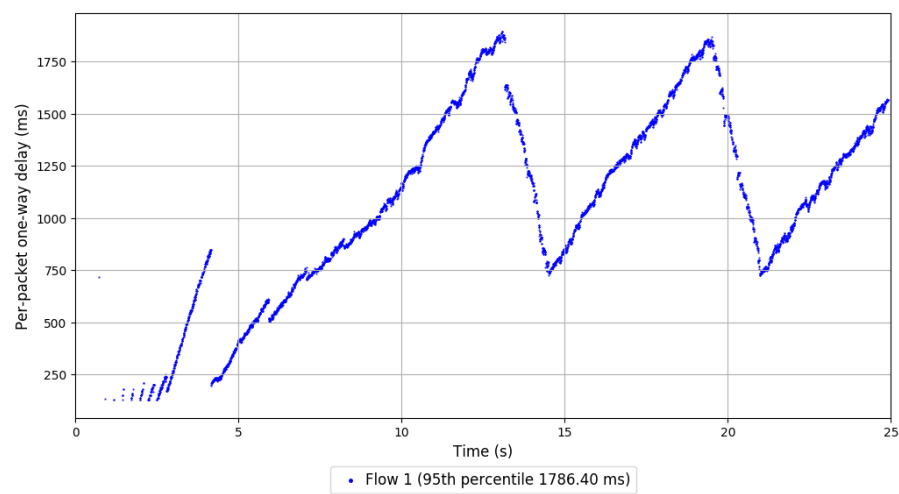
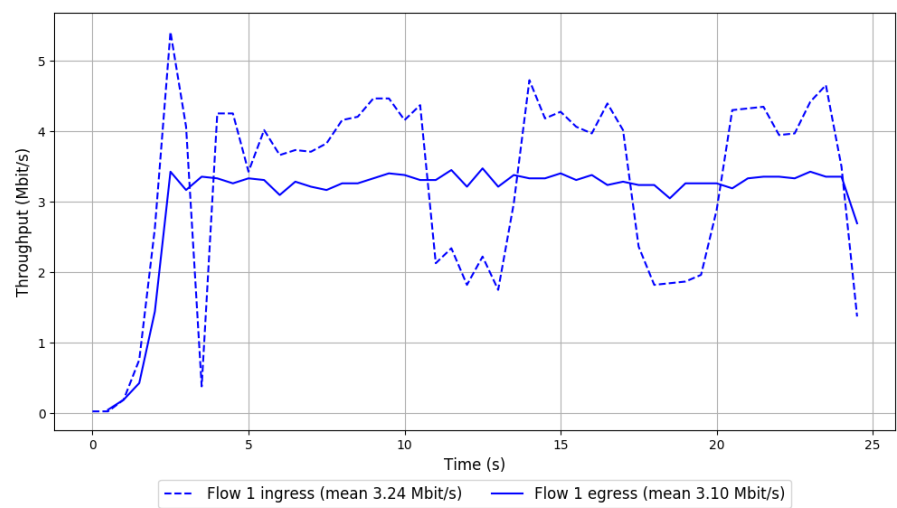
-- Flow 1:

Average throughput: 3.10 Mbit/s

95th percentile per-packet one-way delay: 1786.401 ms

Loss rate: 6.61%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

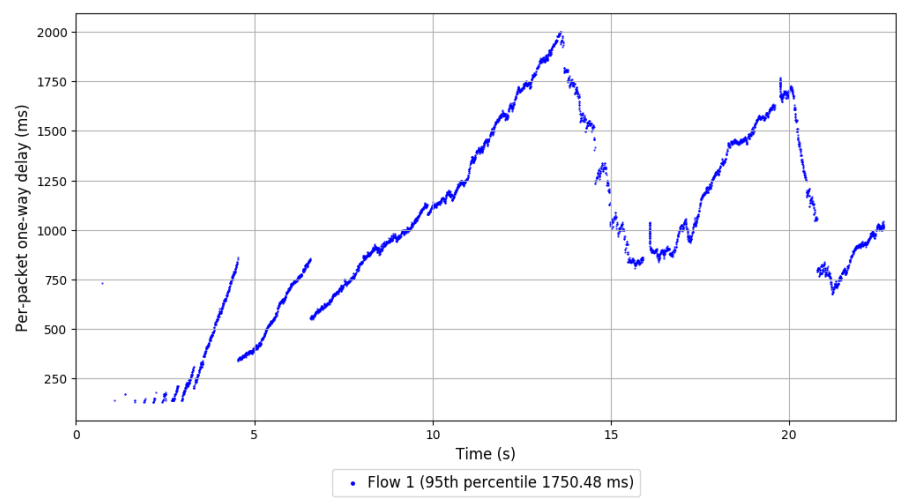
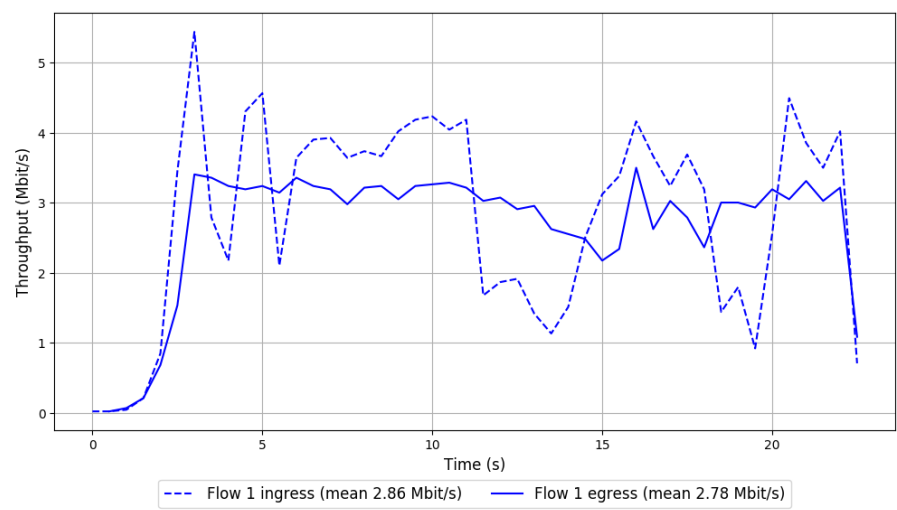
Start at: 2018-01-18 10:09:39

End at: 2018-01-18 10:10:09

Local clock offset: -4.551 ms

Remote clock offset: 1.449 ms

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

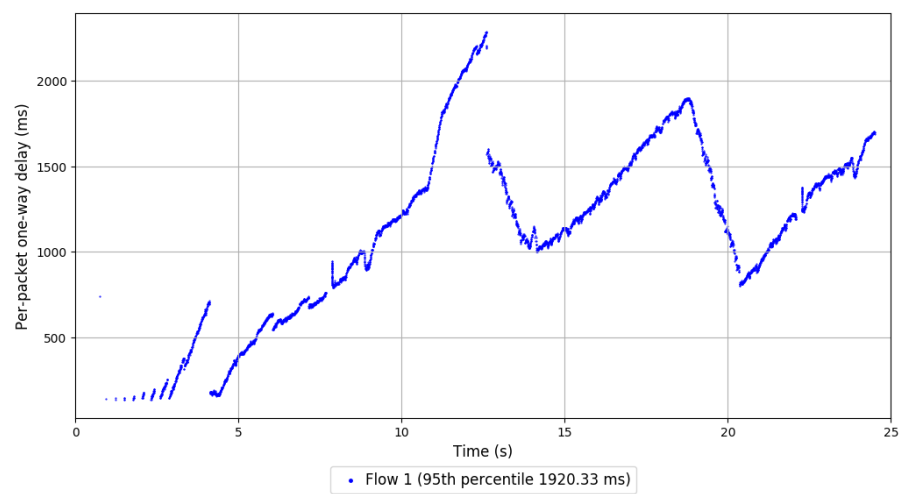
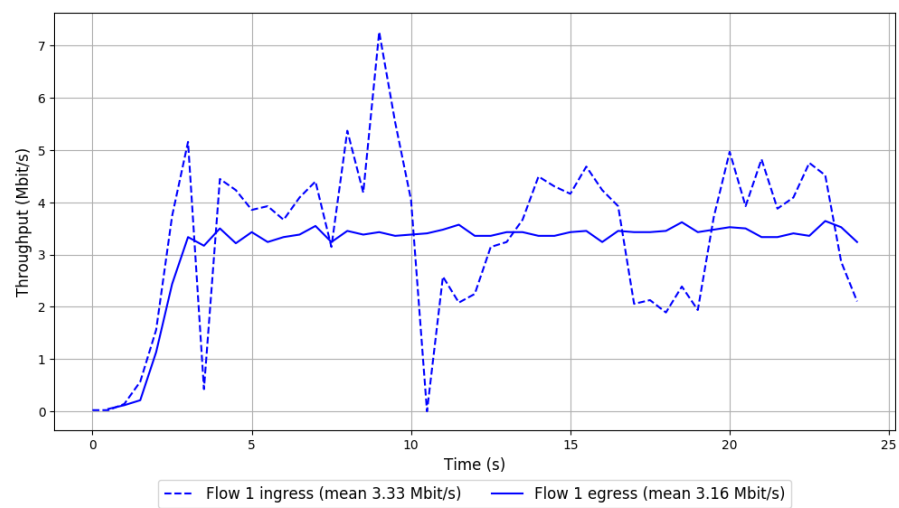
Start at: 2018-01-18 10:30:49

End at: 2018-01-18 10:31:19

Local clock offset: -3.583 ms

Remote clock offset: 0.262 ms

Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

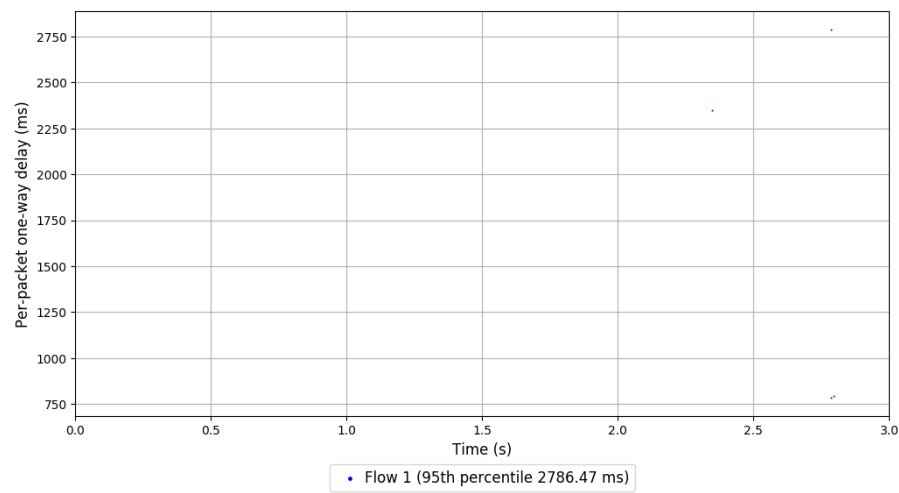
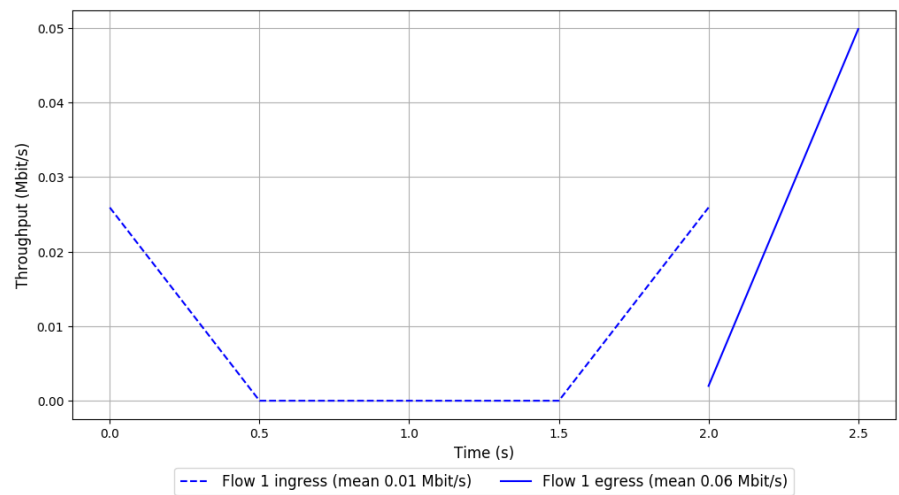
Start at: 2018-01-18 09:53:12

End at: 2018-01-18 09:53:42

Local clock offset: -4.18 ms

Remote clock offset: 2.507 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

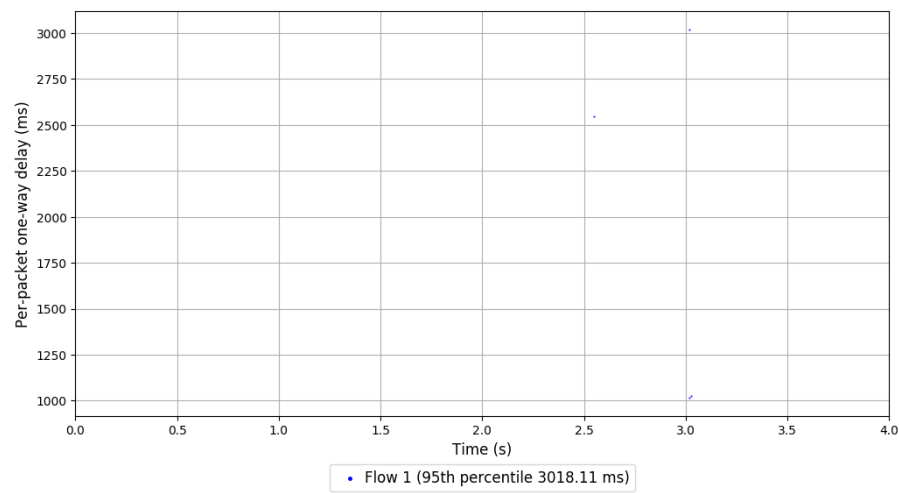
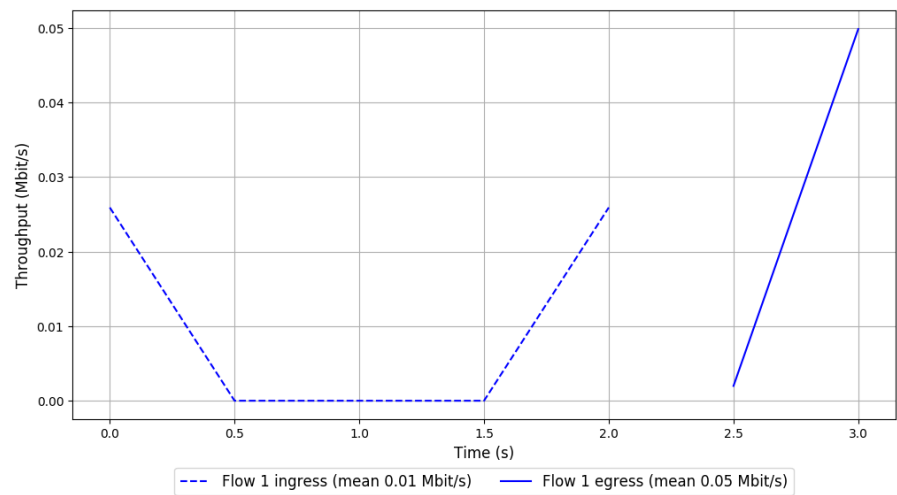
Start at: 2018-01-18 10:14:21

End at: 2018-01-18 10:14:51

Local clock offset: -4.807 ms

Remote clock offset: 0.406 ms

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

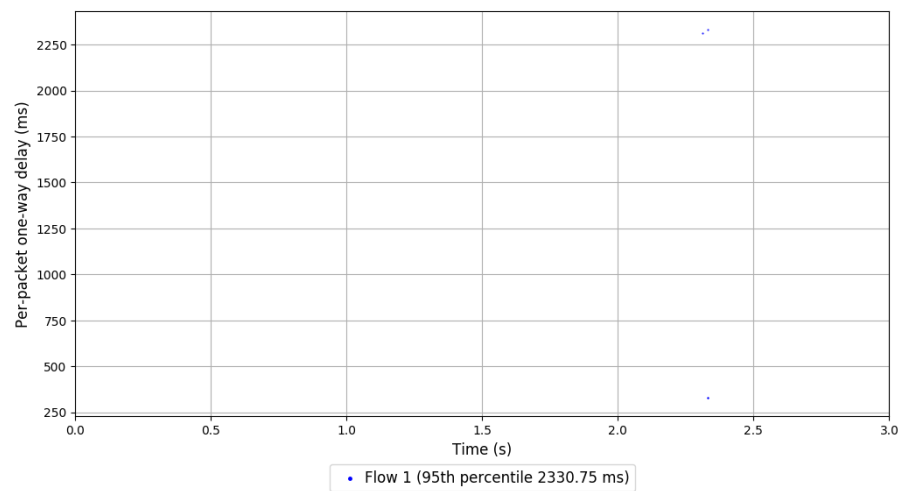
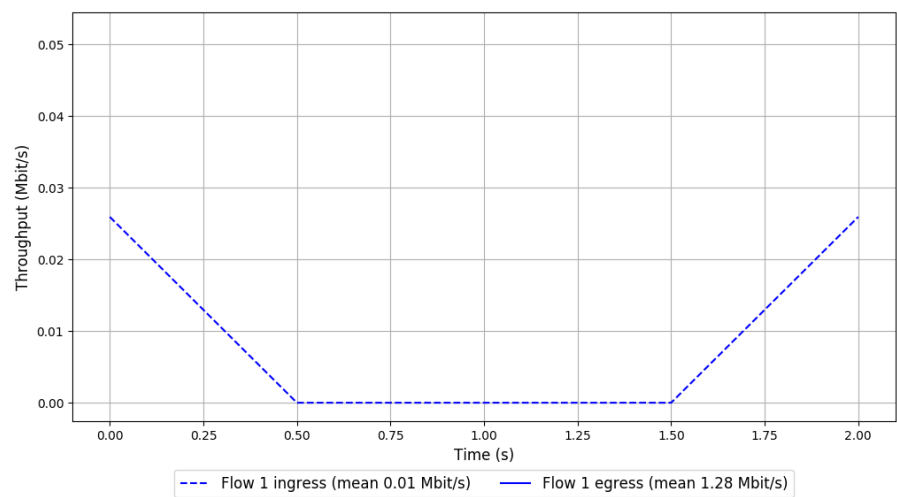
Start at: 2018-01-18 10:35:31

End at: 2018-01-18 10:36:01

Local clock offset: -3.351 ms

Remote clock offset: 2.401 ms

Run 3: Report of Copa — Data Link

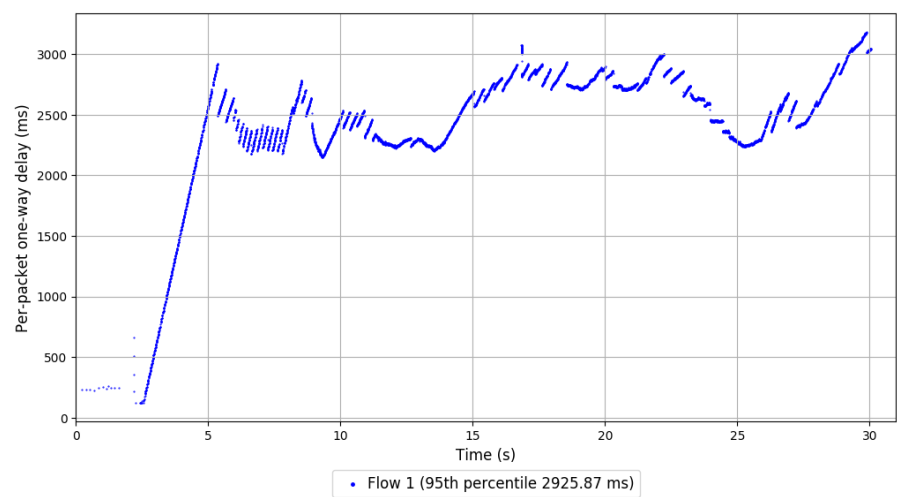
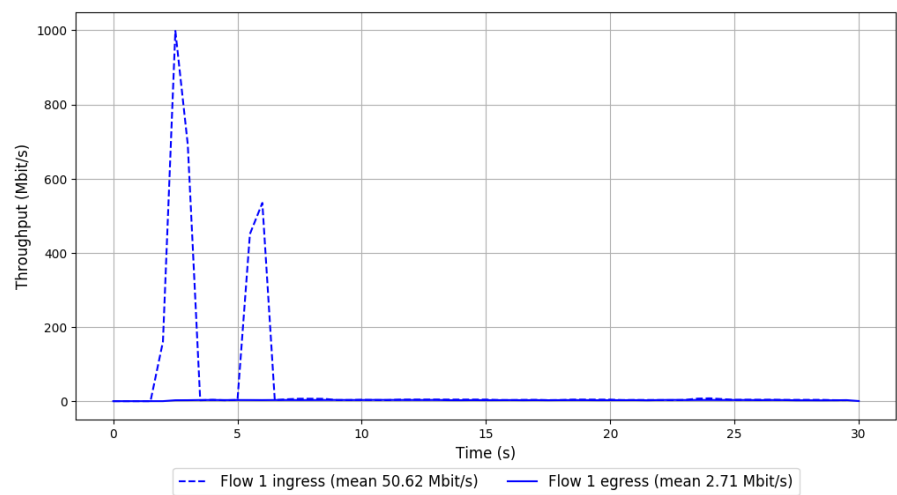


Run 1: Statistics of FillP

Start at: 2018-01-18 09:44:59
End at: 2018-01-18 09:45:29
Local clock offset: -3.549 ms
Remote clock offset: -4.014 ms

Below is generated by plot.py at 2018-01-18 10:48:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.71 Mbit/s
95th percentile per-packet one-way delay: 2925.868 ms
Loss rate: 94.68%
-- Flow 1:
Average throughput: 2.71 Mbit/s
95th percentile per-packet one-way delay: 2925.868 ms
Loss rate: 94.68%

Run 1: Report of FillP — Data Link

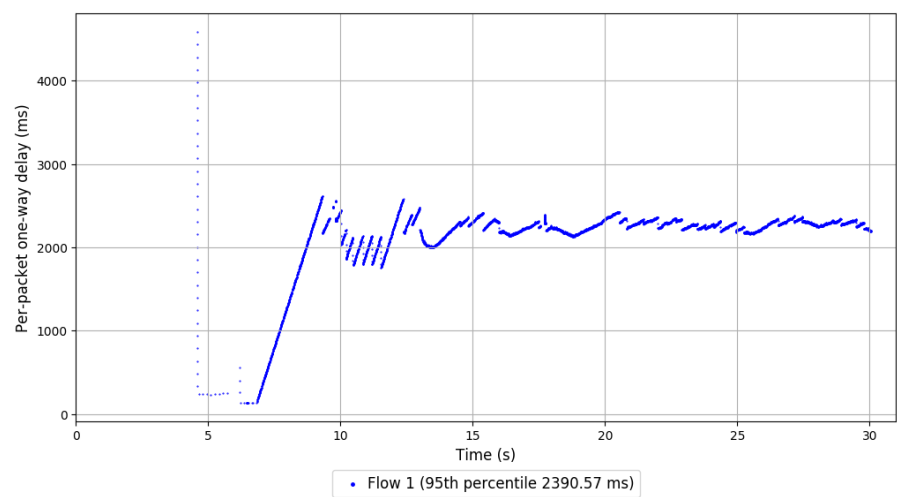
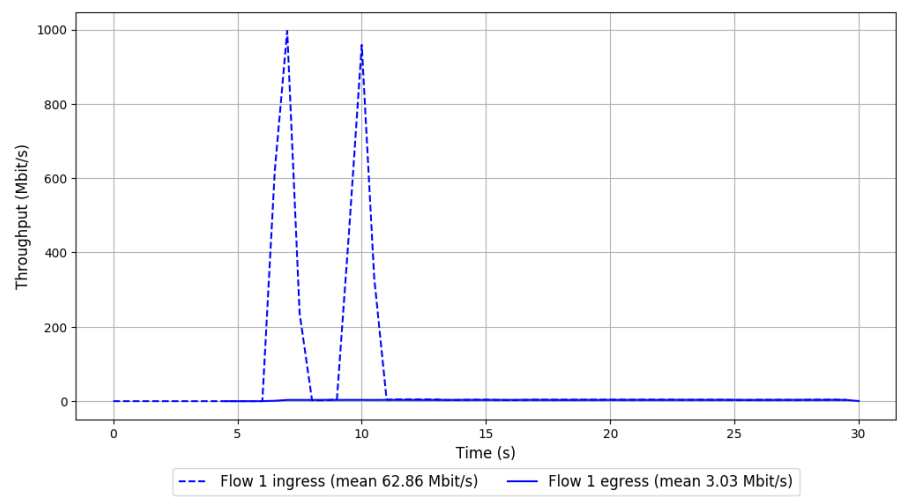


Run 2: Statistics of FillP

Start at: 2018-01-18 10:06:07
End at: 2018-01-18 10:06:37
Local clock offset: -4.497 ms
Remote clock offset: -3.939 ms

Below is generated by plot.py at 2018-01-18 10:48:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 2390.568 ms
Loss rate: 95.90%
-- Flow 1:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 2390.568 ms
Loss rate: 95.90%

Run 2: Report of FillP — Data Link

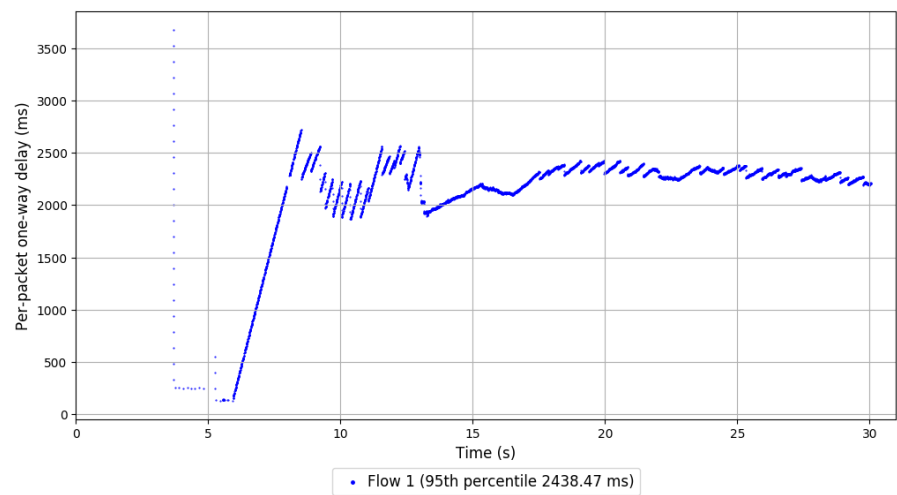
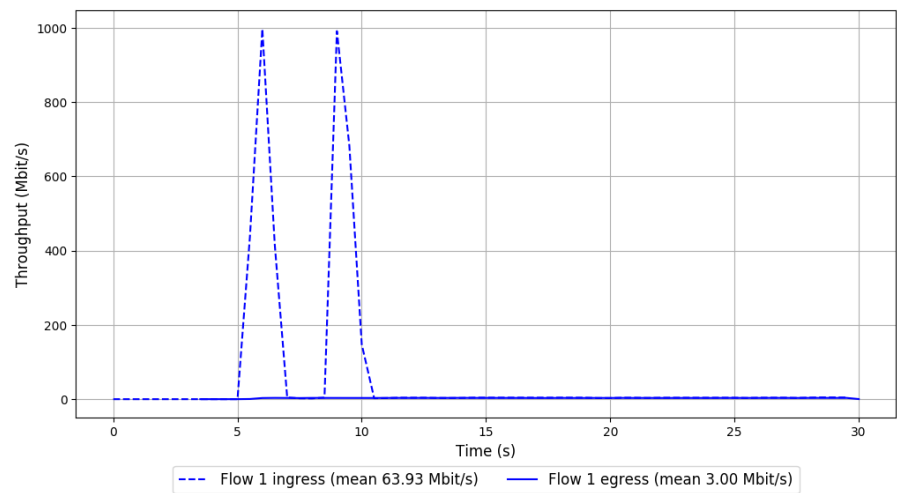


Run 3: Statistics of FillP

Start at: 2018-01-18 10:27:17
End at: 2018-01-18 10:27:47
Local clock offset: -3.933 ms
Remote clock offset: -3.273 ms

Below is generated by plot.py at 2018-01-18 10:48:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.00 Mbit/s
95th percentile per-packet one-way delay: 2438.468 ms
Loss rate: 95.86%
-- Flow 1:
Average throughput: 3.00 Mbit/s
95th percentile per-packet one-way delay: 2438.468 ms
Loss rate: 95.86%

Run 3: Report of FillP — Data Link

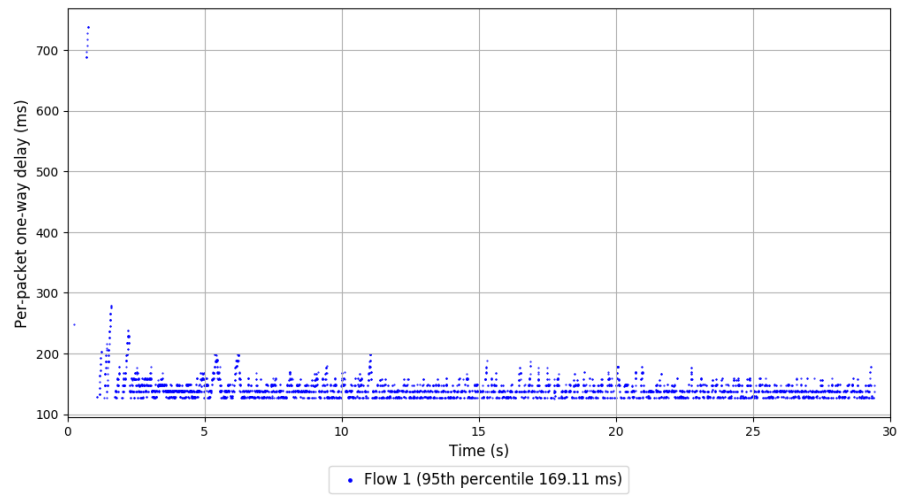
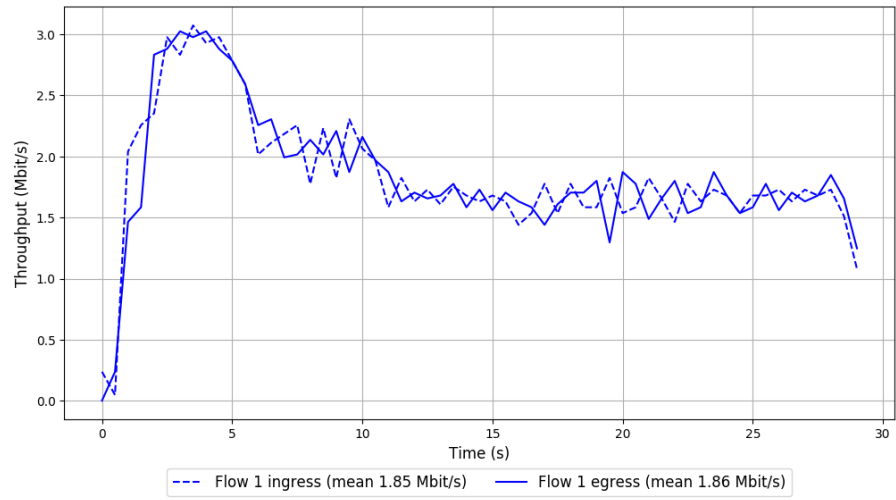


```
Run 1: Statistics of Indigo

Start at: 2018-01-18 09:52:01
End at: 2018-01-18 09:52:31
Local clock offset: -4.143 ms
Remote clock offset: -4.43 ms

# Below is generated by plot.py at 2018-01-18 10:48:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 169.108 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 169.108 ms
Loss rate: 0.13%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

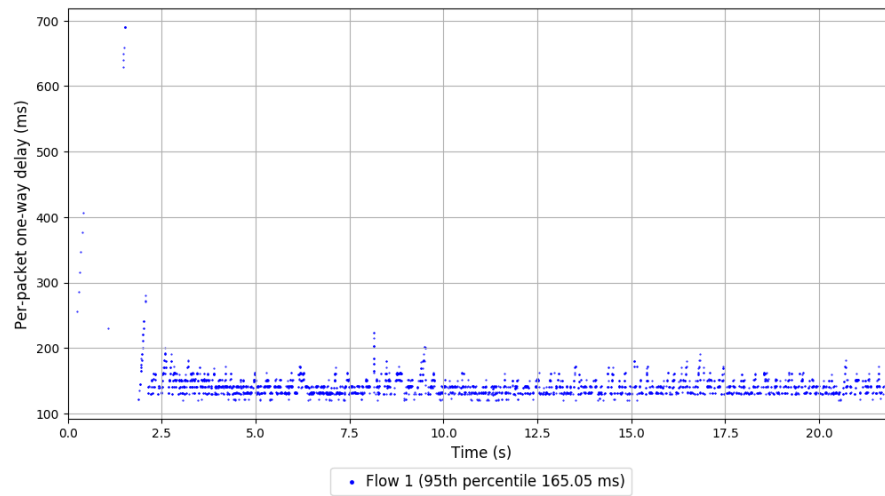
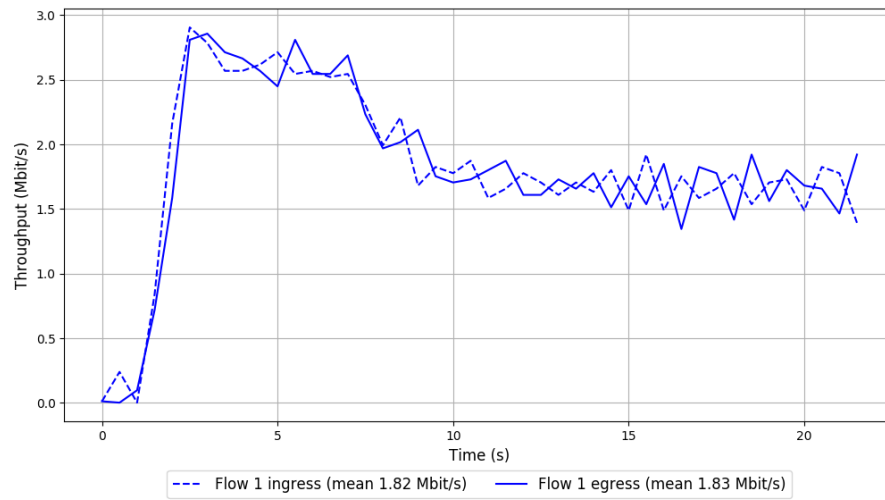
Start at: 2018-01-18 10:13:11

End at: 2018-01-18 10:13:41

Local clock offset: -4.805 ms

Remote clock offset: -3.469 ms

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

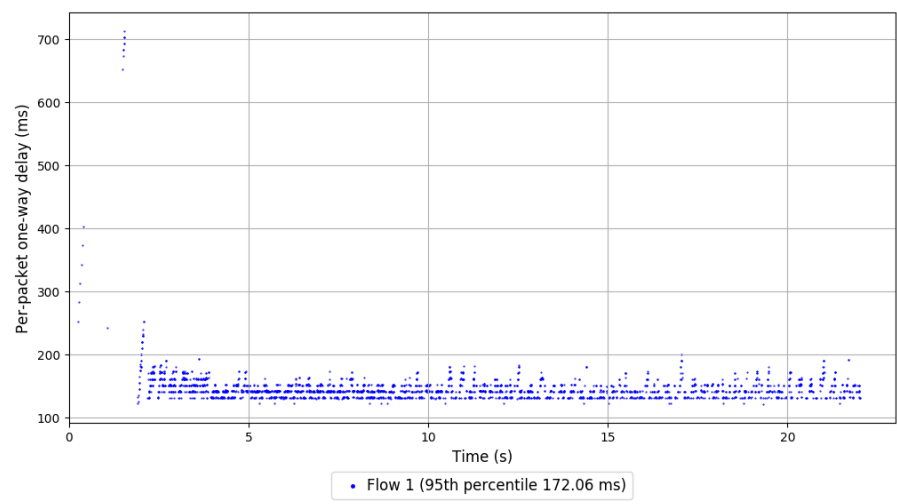
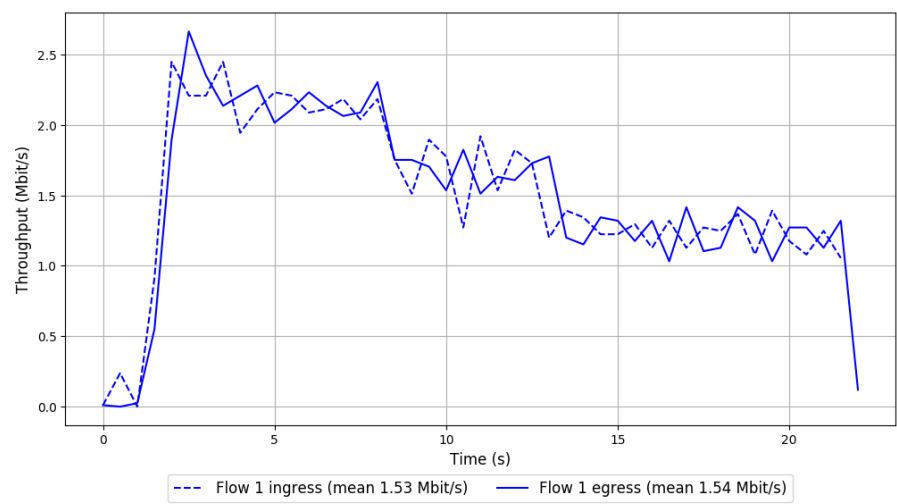
Start at: 2018-01-18 10:34:20

End at: 2018-01-18 10:34:50

Local clock offset: -3.388 ms

Remote clock offset: -4.587 ms

Run 3: Report of Indigo — Data Link



Run 1: Statistics of Vivace-latency

Start at: 2018-01-18 10:03:45

End at: 2018-01-18 10:04:15

Local clock offset: -4.506 ms

Remote clock offset: 2.04 ms

Below is generated by plot.py at 2018-01-18 10:48:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 186.190 ms

Loss rate: 0.81%

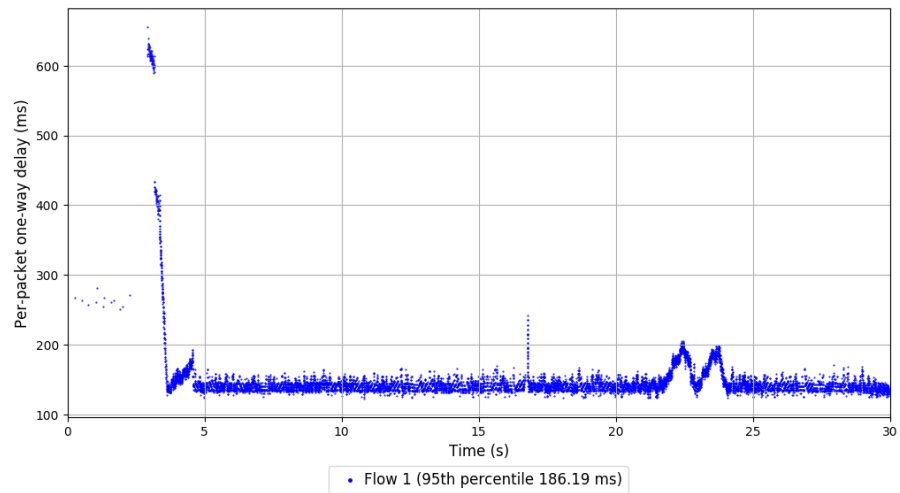
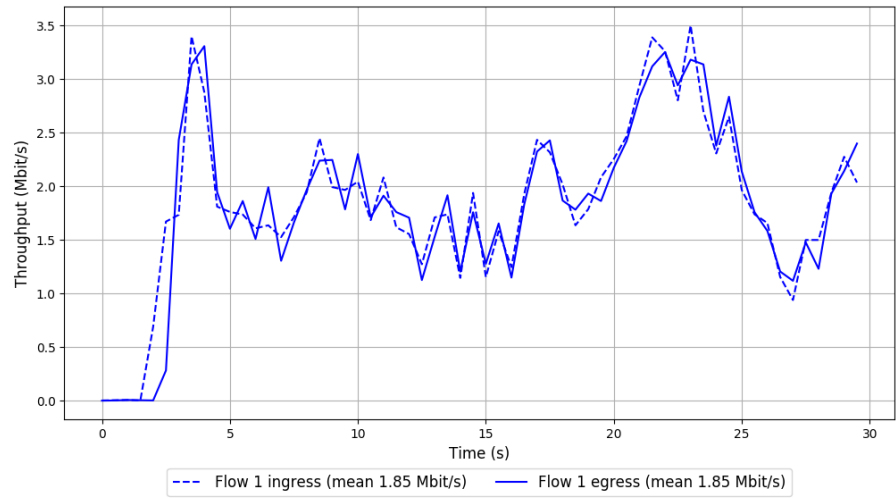
-- Flow 1:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 186.190 ms

Loss rate: 0.81%

Run 1: Report of Vivace-latency — Data Link



Run 2: Statistics of Vivace-latency

Start at: 2018-01-18 10:24:55

End at: 2018-01-18 10:25:25

Local clock offset: -4.234 ms

Remote clock offset: 1.232 ms

Below is generated by plot.py at 2018-01-18 10:48:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 162.762 ms

Loss rate: 1.19%

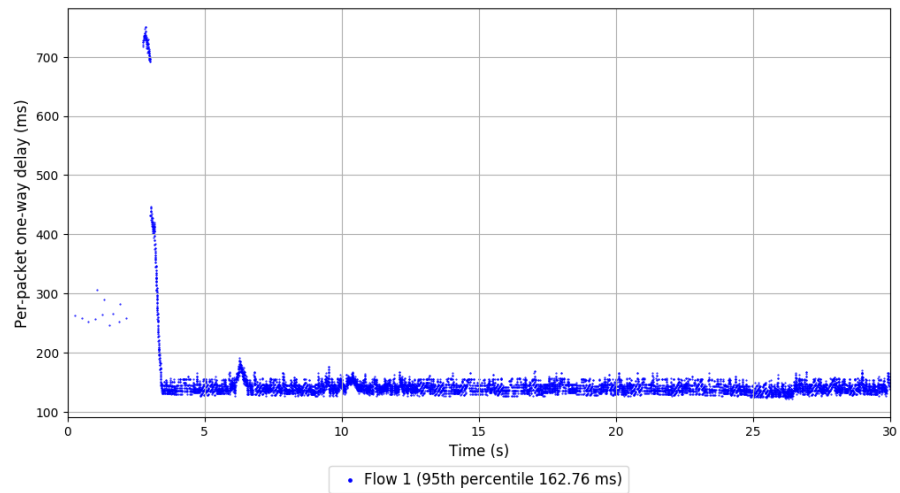
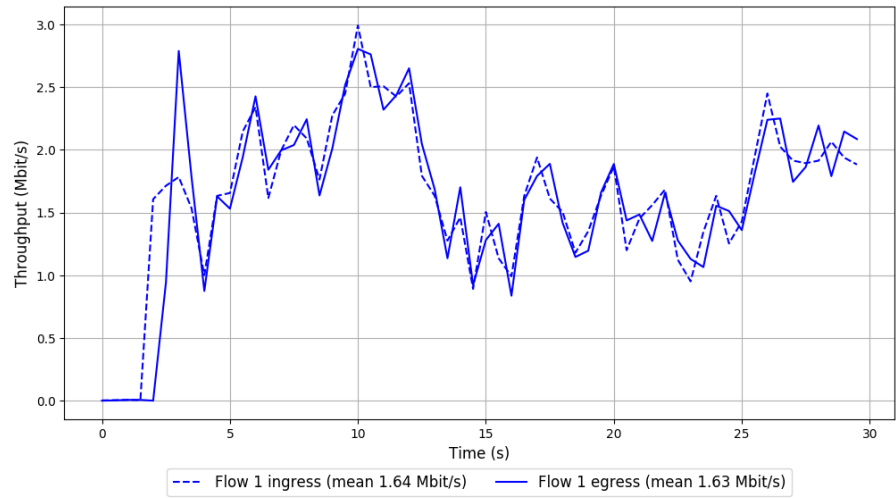
-- Flow 1:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 162.762 ms

Loss rate: 1.19%

Run 2: Report of Vivace-latency — Data Link



Run 3: Statistics of Vivace-latency

Start at: 2018-01-18 10:46:04

End at: 2018-01-18 10:46:34

Local clock offset: -2.049 ms

Remote clock offset: 1.444 ms

Below is generated by plot.py at 2018-01-18 10:48:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.32 Mbit/s

95th percentile per-packet one-way delay: 205.900 ms

Loss rate: 0.64%

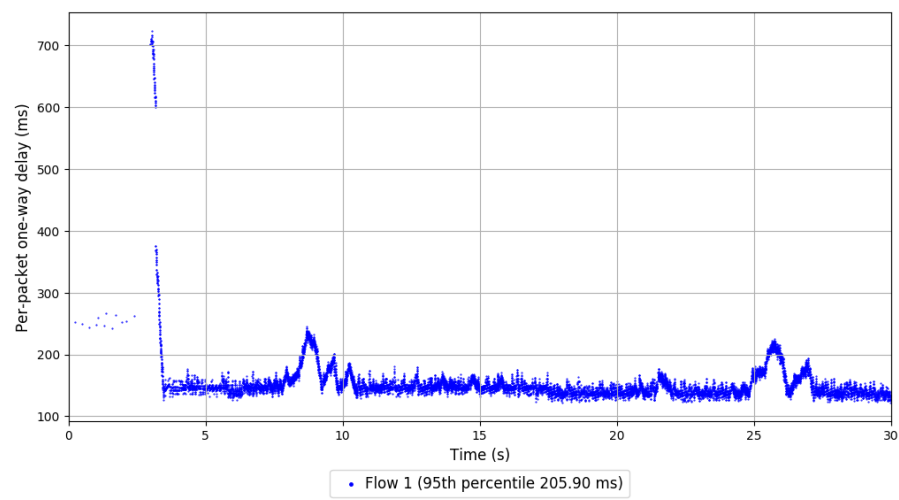
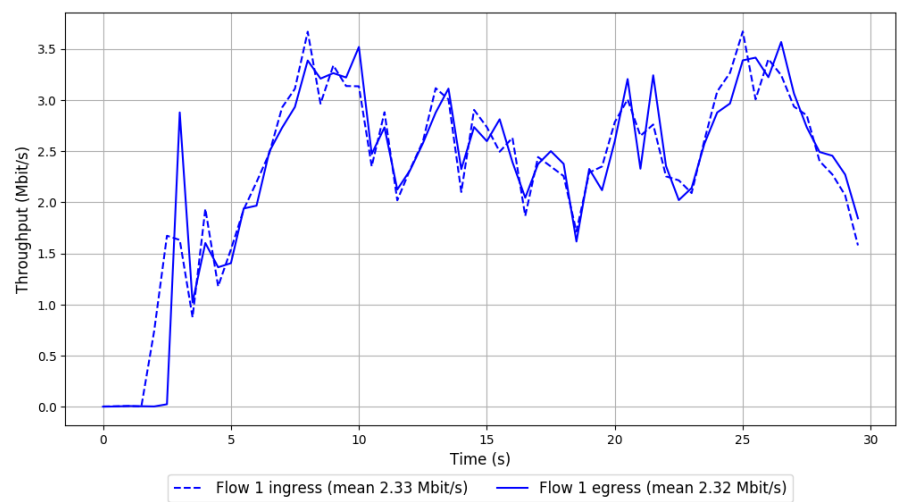
-- Flow 1:

Average throughput: 2.32 Mbit/s

95th percentile per-packet one-way delay: 205.900 ms

Loss rate: 0.64%

Run 3: Report of Vivace-latency — Data Link

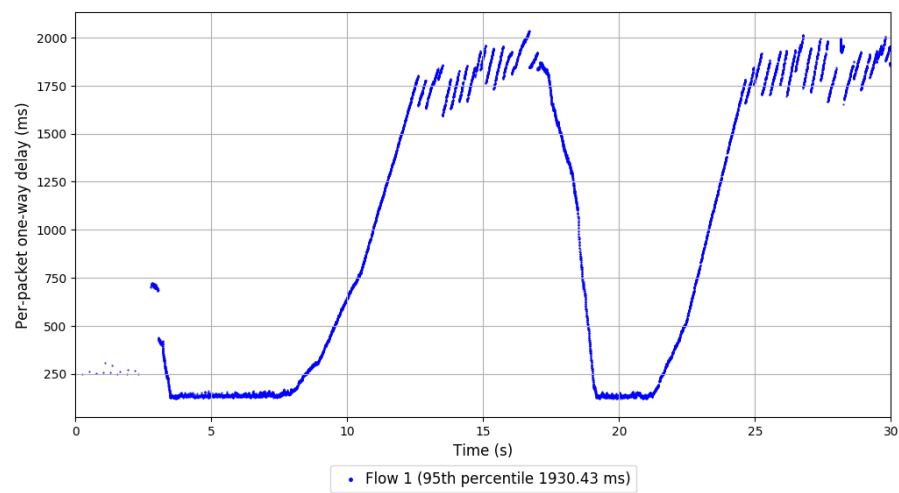
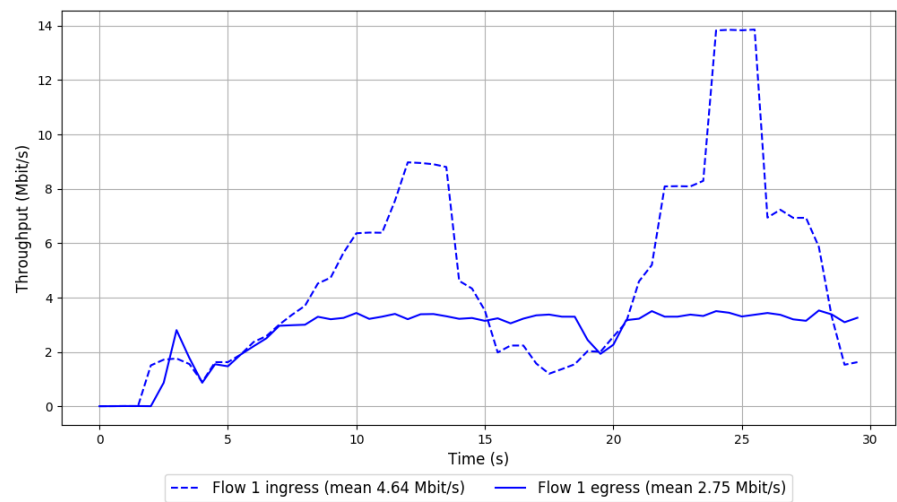


```
Run 1: Statistics of Vivace-loss

Start at: 2018-01-18 09:57:53
End at: 2018-01-18 09:58:23
Local clock offset: -4.801 ms
Remote clock offset: 1.487 ms

# Below is generated by plot.py at 2018-01-18 10:48:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 1930.433 ms
Loss rate: 41.00%
-- Flow 1:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 1930.433 ms
Loss rate: 41.00%
```

Run 1: Report of Vivace-loss — Data Link

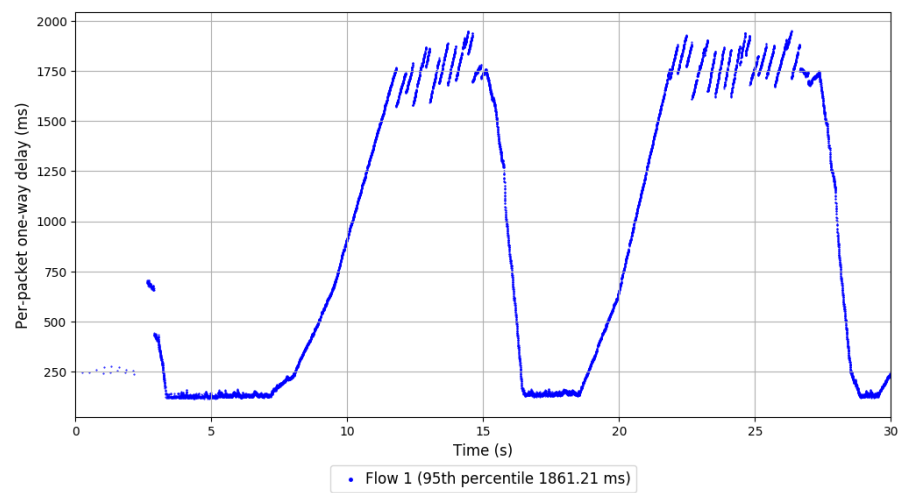
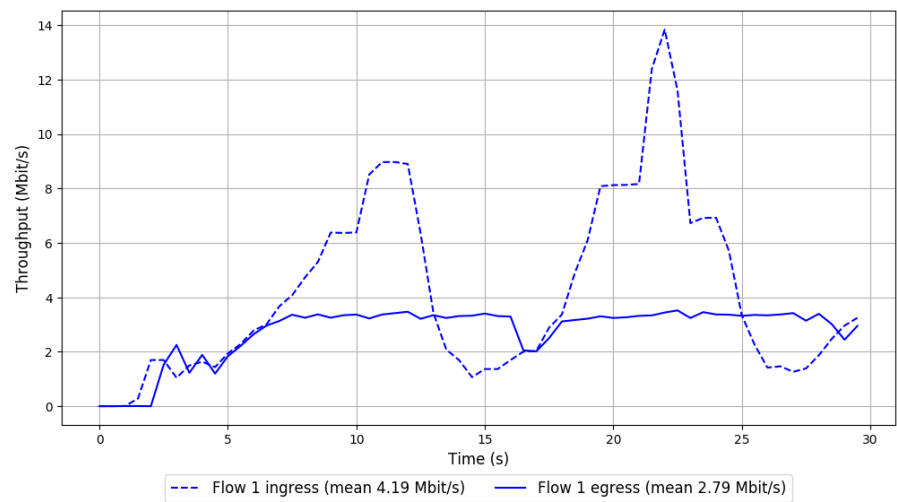


Run 2: Statistics of Vivace-loss

Start at: 2018-01-18 10:19:02
End at: 2018-01-18 10:19:32
Local clock offset: -4.591 ms
Remote clock offset: -3.411 ms

Below is generated by plot.py at 2018-01-18 10:48:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.79 Mbit/s
95th percentile per-packet one-way delay: 1861.214 ms
Loss rate: 33.84%
-- Flow 1:
Average throughput: 2.79 Mbit/s
95th percentile per-packet one-way delay: 1861.214 ms
Loss rate: 33.84%

Run 2: Report of Vivace-loss — Data Link

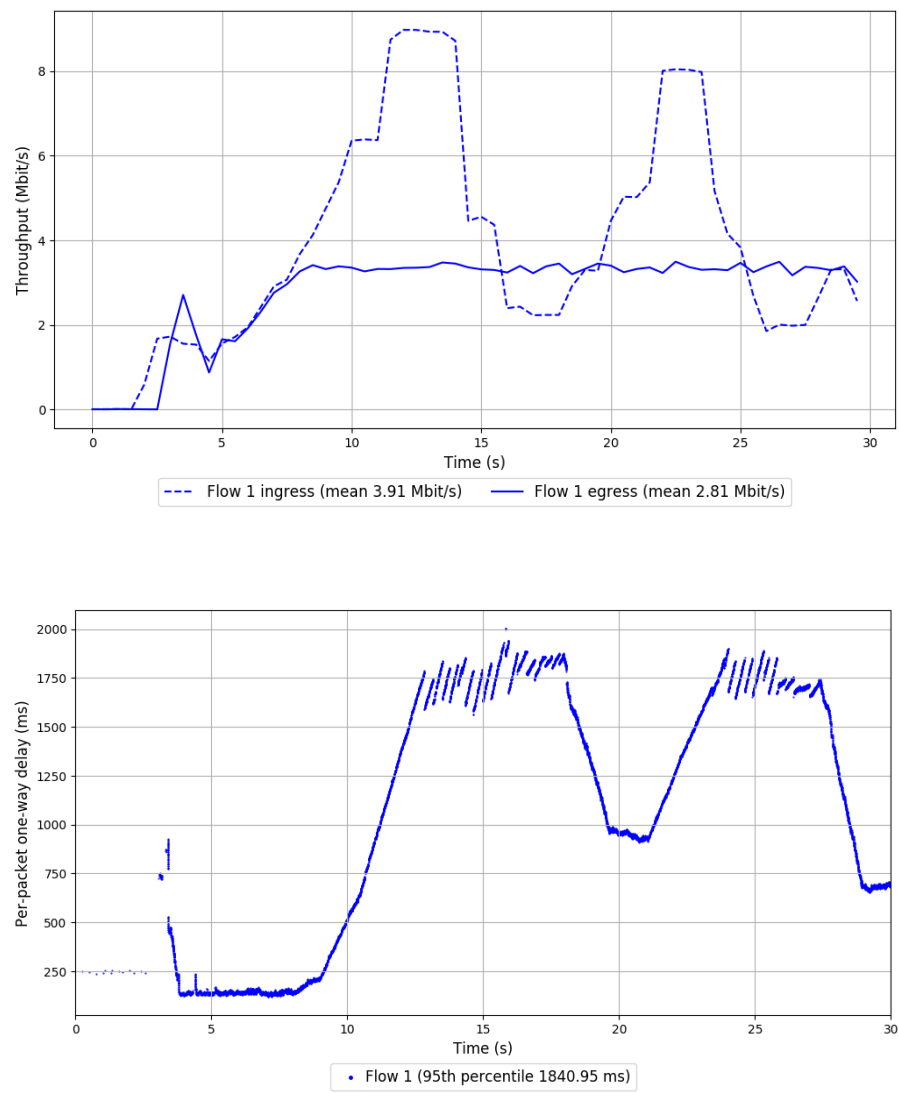


Run 3: Statistics of Vivace-loss

Start at: 2018-01-18 10:40:12
End at: 2018-01-18 10:40:42
Local clock offset: -3.324 ms
Remote clock offset: -4.627 ms

Below is generated by plot.py at 2018-01-18 10:48:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.81 Mbit/s
95th percentile per-packet one-way delay: 1840.951 ms
Loss rate: 28.68%
-- Flow 1:
Average throughput: 2.81 Mbit/s
95th percentile per-packet one-way delay: 1840.951 ms
Loss rate: 28.68%

Run 3: Report of Vivace-loss — Data Link



Run 1: Statistics of Vivace-LTE

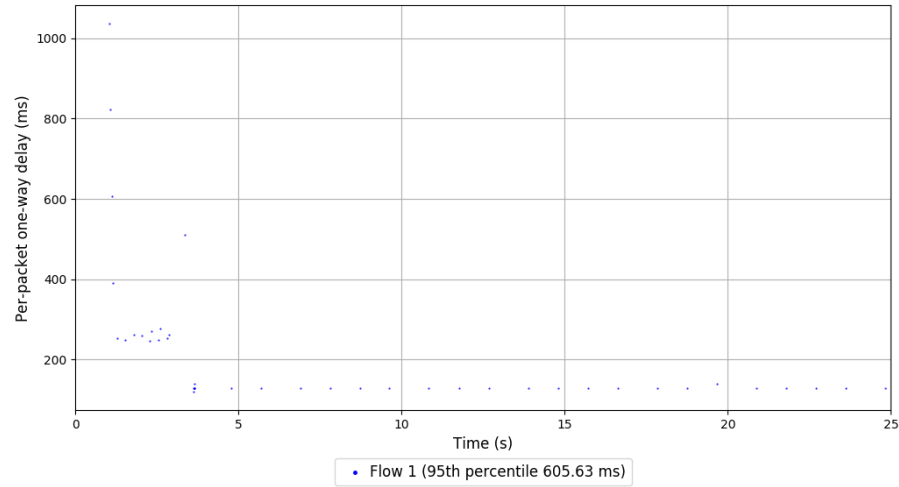
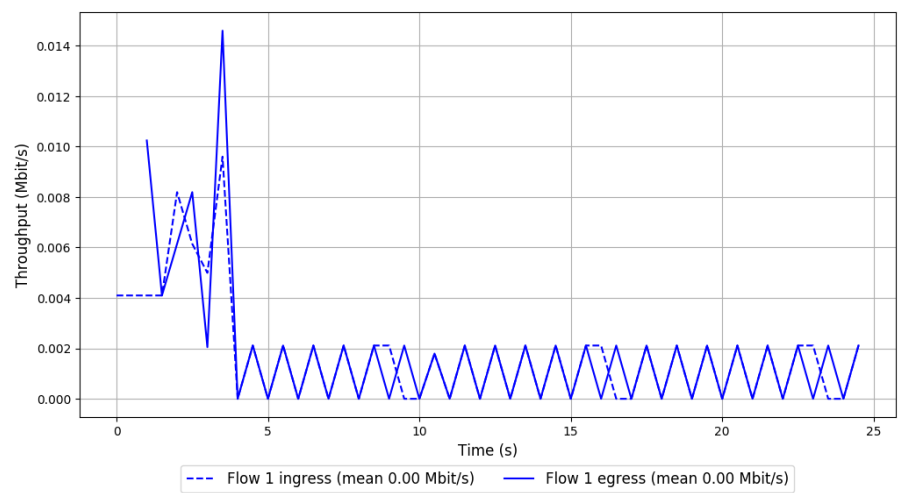
Start at: 2018-01-18 09:47:20

End at: 2018-01-18 09:47:50

Local clock offset: -3.674 ms

Remote clock offset: 0.712 ms

Run 1: Report of Vivace-LTE — Data Link



Run 2: Statistics of Vivace-LTE

Start at: 2018-01-18 10:08:29

End at: 2018-01-18 10:08:59

Local clock offset: -4.526 ms

Remote clock offset: 0.551 ms

Below is generated by plot.py at 2018-01-18 10:48:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 880.552 ms

Loss rate: 2.51%

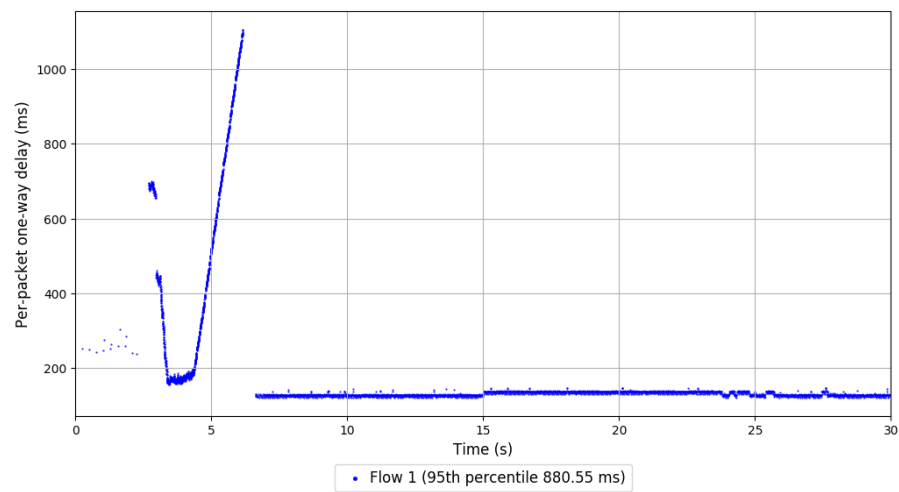
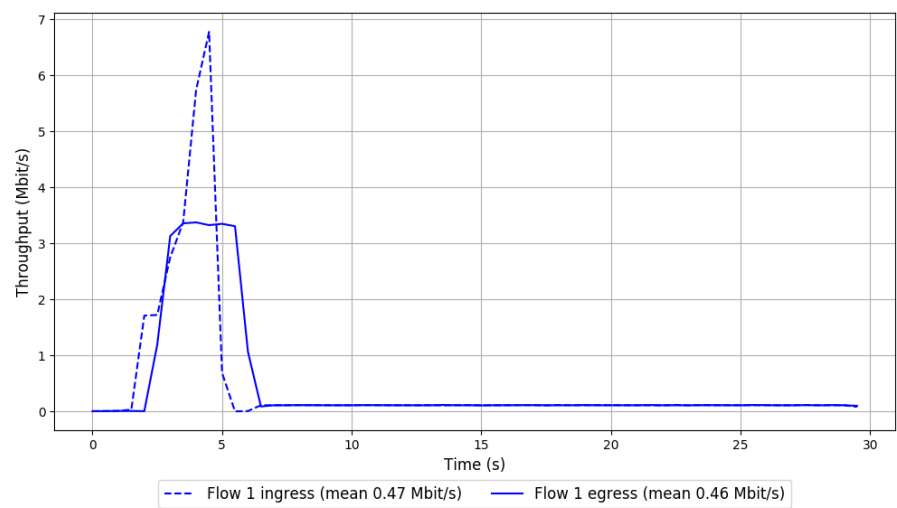
-- Flow 1:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 880.552 ms

Loss rate: 2.51%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-01-18 10:29:39

End at: 2018-01-18 10:30:09

Local clock offset: -3.67 ms

Remote clock offset: -4.599 ms

Run 3: Report of Vivace-LTE — Data Link

