

## Pantheon Report

Generated at 2017-11-30 06:55:36 (UTC).

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

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).

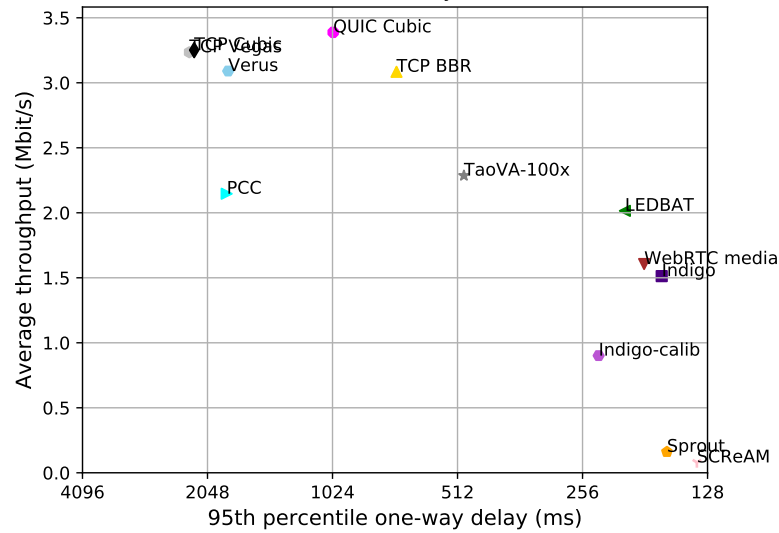
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo\_fast**).

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

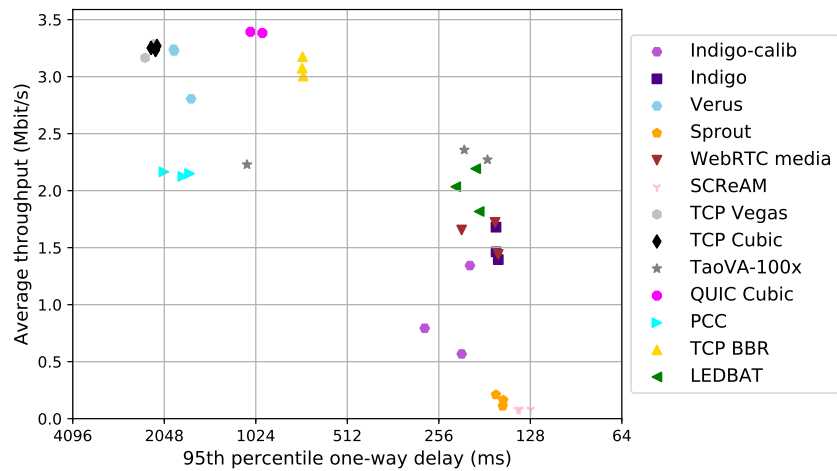
Git summary:

```
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 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	3.08	718.13	1.42
TCP Cubic	3	3.25	2205.06	9.48
LEDBAT	3	2.01	202.44	0.09
PCC	3	2.15	1841.21	43.49
QUIC Cubic	2	3.38	1020.20	3.60
SCReAM	3	0.08	135.80	0.13
WebRTC media	3	1.60	181.94	0.33
Sprout	3	0.16	160.34	0.02
TaoVA-100x	3	2.29	494.20	0.80
TCP Vegas	3	3.23	2265.58	11.30
Verus	3	3.09	1826.47	2.37
Copa	0	N/A	N/A	N/A
Indigo	3	1.51	165.04	0.18
Indigo-calib	3	0.90	234.14	0.00

Run 1: Statistics of TCP BBR

Start at: 2017-11-30 06:20:53

End at: 2017-11-30 06:21:23

Local clock offset: 1.712 ms

Remote clock offset: -0.734 ms

# Below is generated by plot.py at 2017-11-30 06:55:06

# Datalink statistics

-- Total of 1 flow:

Average throughput: 3.01 Mbit/s

95th percentile per-packet one-way delay: 715.118 ms

Loss rate: 1.46%

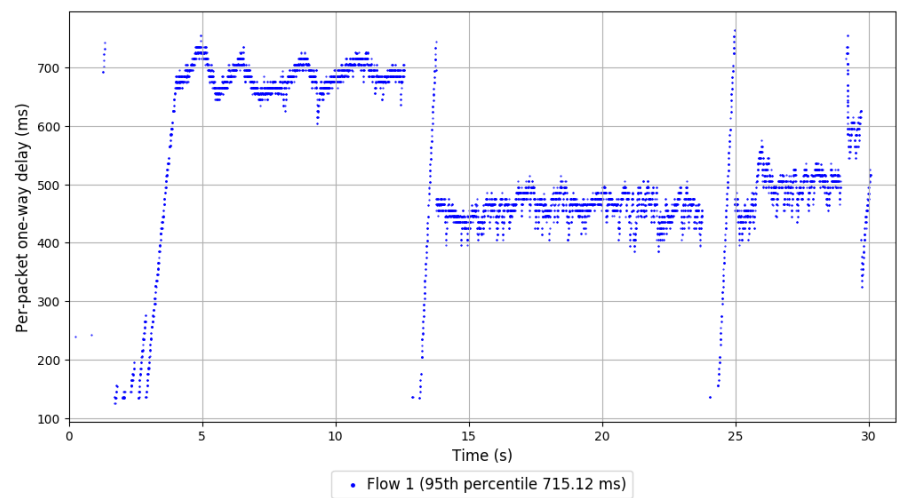
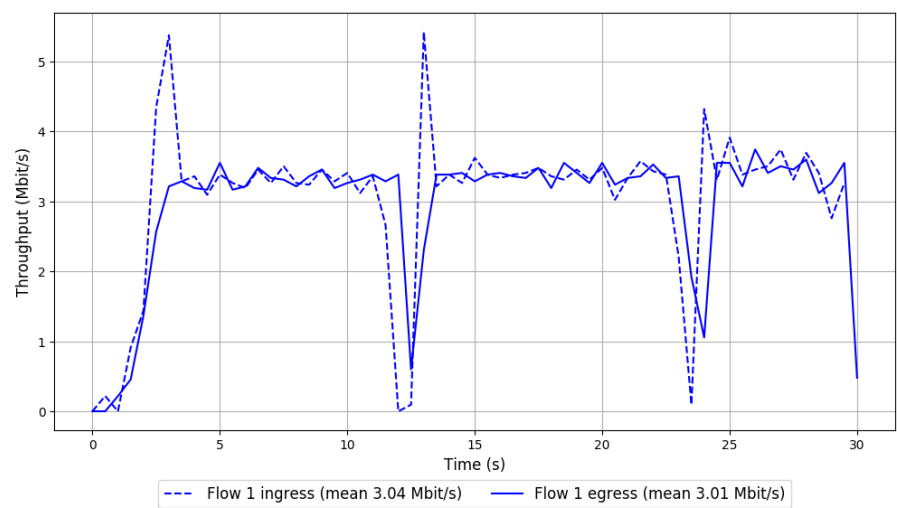
-- Flow 1:

Average throughput: 3.01 Mbit/s

95th percentile per-packet one-way delay: 715.118 ms

Loss rate: 1.46%

Run 1: Report of TCP BBR — Data Link

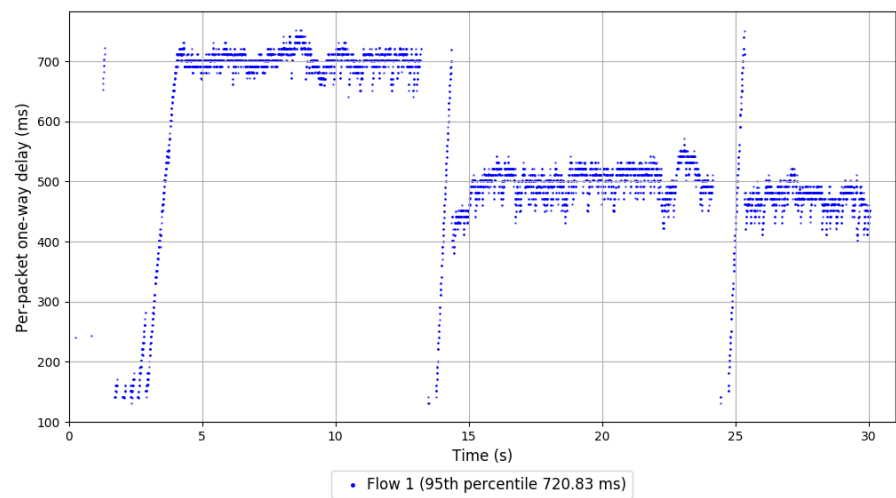
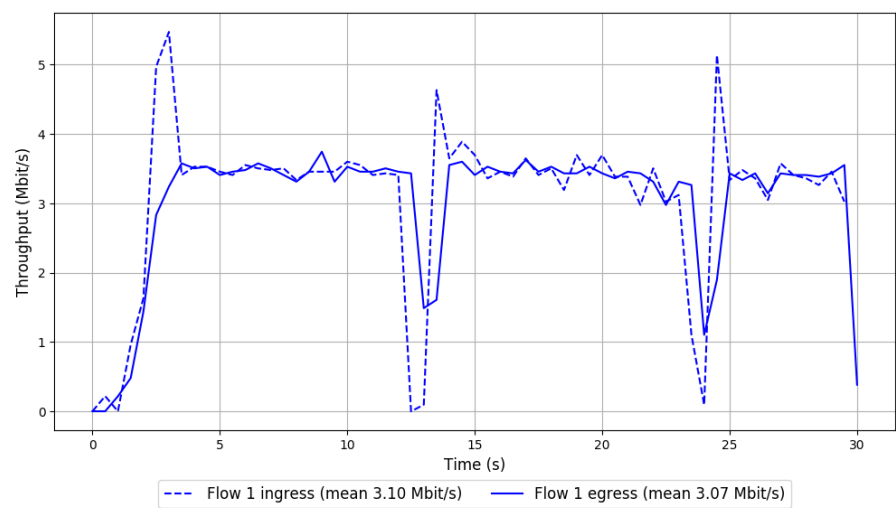


Run 2: Statistics of TCP BBR

Start at: 2017-11-30 06:37:19  
End at: 2017-11-30 06:37:49  
Local clock offset: 0.965 ms  
Remote clock offset: -1.029 ms

# Below is generated by plot.py at 2017-11-30 06:55:07  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.07 Mbit/s  
95th percentile per-packet one-way delay: 720.833 ms  
Loss rate: 1.19%  
-- Flow 1:  
Average throughput: 3.07 Mbit/s  
95th percentile per-packet one-way delay: 720.833 ms  
Loss rate: 1.19%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2017-11-30 06:53:45

End at: 2017-11-30 06:54:15

Local clock offset: 1.161 ms

Remote clock offset: -1.53 ms

# Below is generated by plot.py at 2017-11-30 06:55:07

# Datalink statistics

-- Total of 1 flow:

Average throughput: 3.17 Mbit/s

95th percentile per-packet one-way delay: 718.441 ms

Loss rate: 1.60%

-- Flow 1:

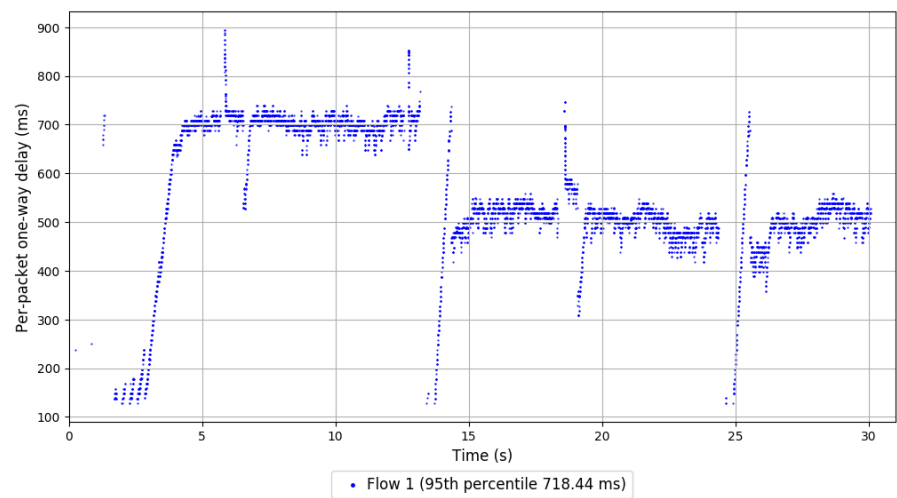
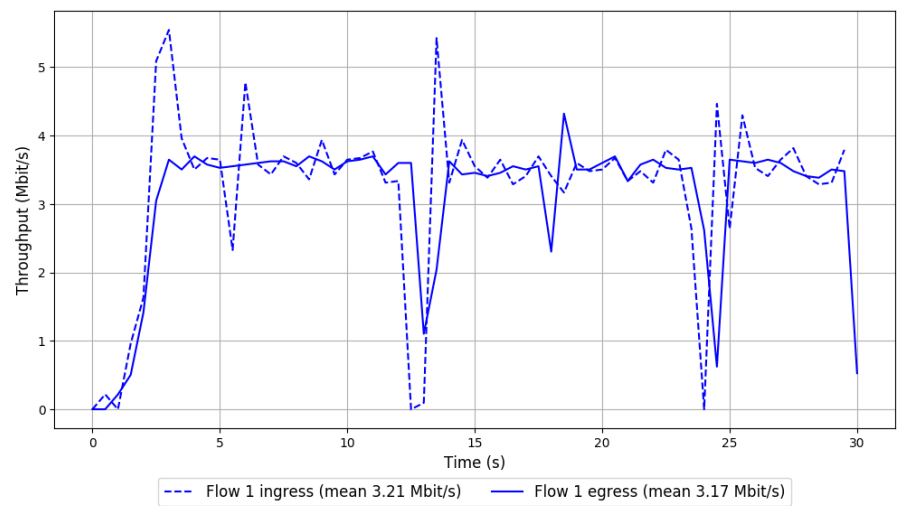
Average throughput: 3.17 Mbit/s

95th percentile per-packet one-way delay: 718.441 ms

Loss rate: 1.60%



Run 3: Report of TCP BBR — Data Link

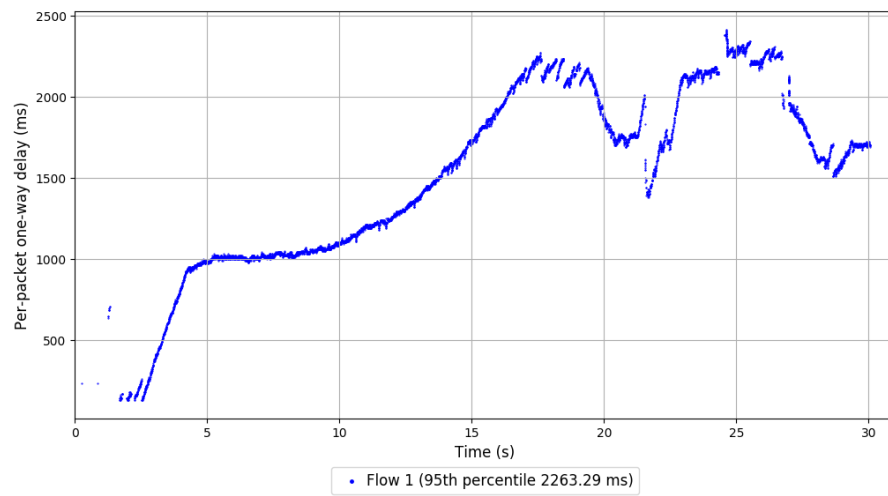
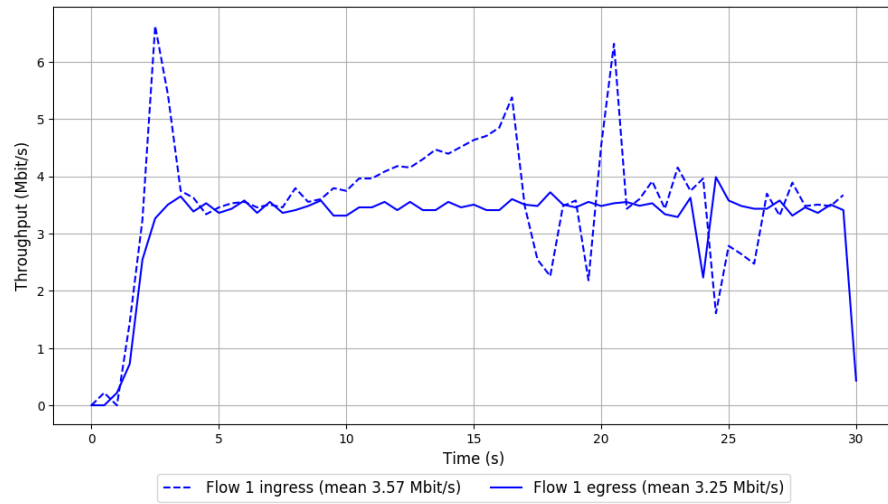


Run 1: Statistics of TCP Cubic

Start at: 2017-11-30 06:10:19  
End at: 2017-11-30 06:10:49  
Local clock offset: 1.488 ms  
Remote clock offset: -0.149 ms

# Below is generated by plot.py at 2017-11-30 06:55:08  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.25 Mbit/s  
95th percentile per-packet one-way delay: 2263.287 ms  
Loss rate: 9.28%  
-- Flow 1:  
Average throughput: 3.25 Mbit/s  
95th percentile per-packet one-way delay: 2263.287 ms  
Loss rate: 9.28%

### Run 1: Report of TCP Cubic — Data Link

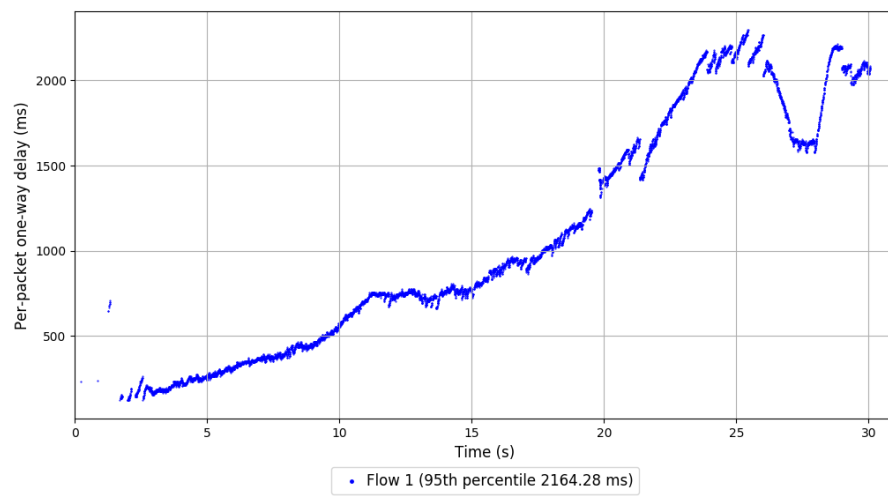
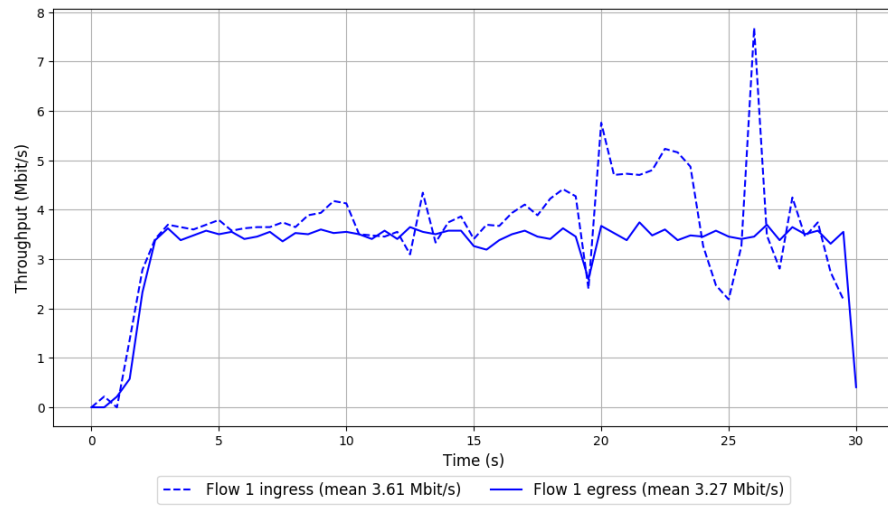


Run 2: Statistics of TCP Cubic

Start at: 2017-11-30 06:26:45  
End at: 2017-11-30 06:27:15  
Local clock offset: 1.22 ms  
Remote clock offset: -6.117 ms

# Below is generated by plot.py at 2017-11-30 06:55:08  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.27 Mbit/s  
95th percentile per-packet one-way delay: 2164.285 ms  
Loss rate: 9.75%  
-- Flow 1:  
Average throughput: 3.27 Mbit/s  
95th percentile per-packet one-way delay: 2164.285 ms  
Loss rate: 9.75%

## Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2017-11-30 06:43:11

End at: 2017-11-30 06:43:41

Local clock offset: 1.043 ms

Remote clock offset: -6.17 ms

# Below is generated by plot.py at 2017-11-30 06:55:09

# Datalink statistics

-- Total of 1 flow:

Average throughput: 3.23 Mbit/s

95th percentile per-packet one-way delay: 2187.600 ms

Loss rate: 9.41%

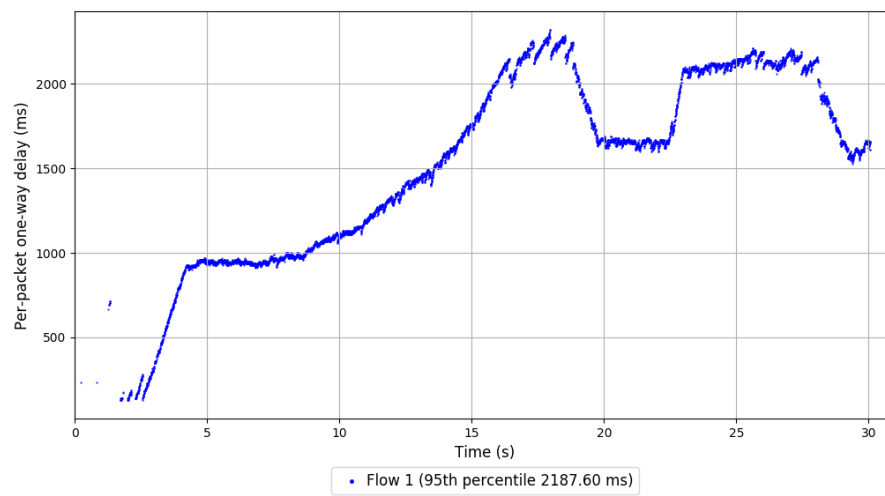
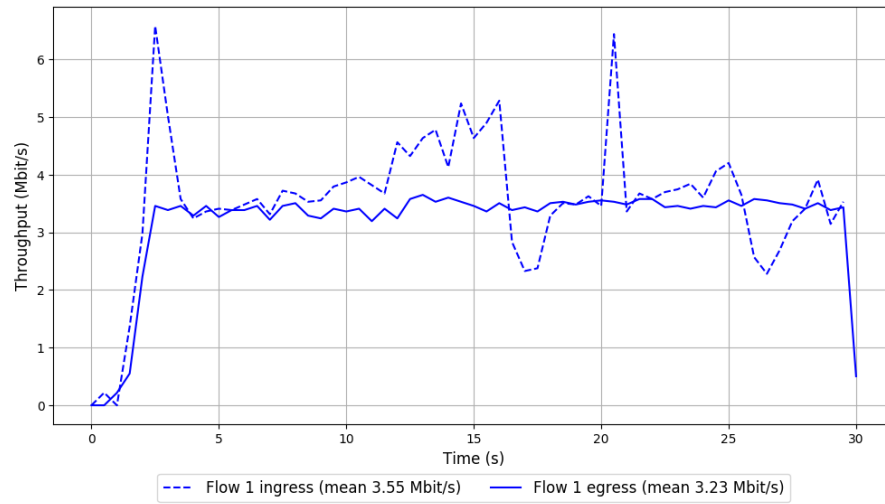
-- Flow 1:

Average throughput: 3.23 Mbit/s

95th percentile per-packet one-way delay: 2187.600 ms

Loss rate: 9.41%

### Run 3: Report of TCP Cubic — Data Link



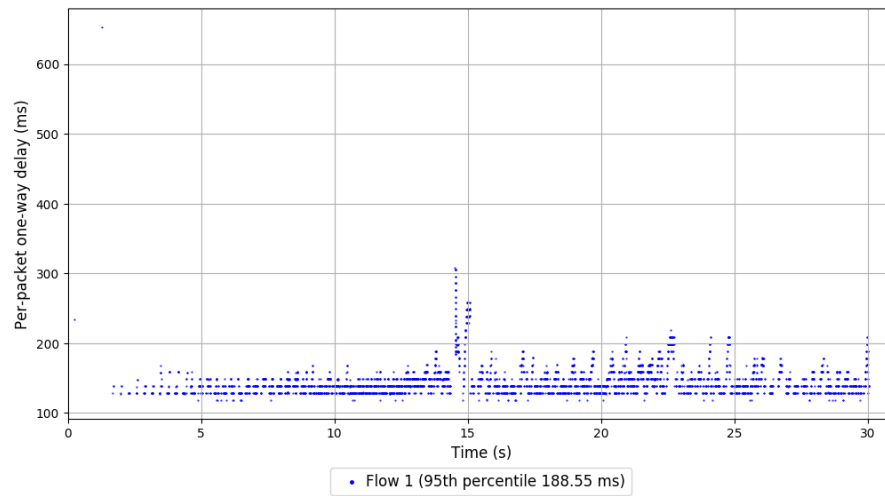
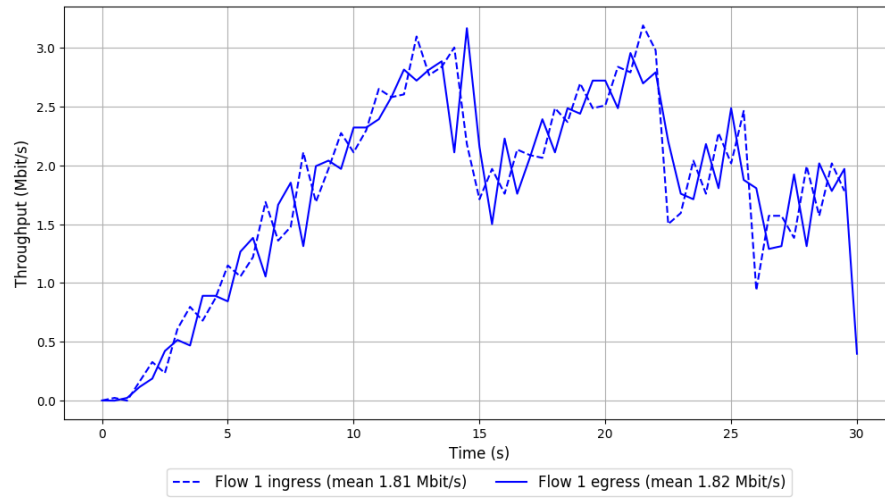
```
Run 1: Statistics of LEDBAT

Start at: 2017-11-30 06:13:50
End at: 2017-11-30 06:14:20
Local clock offset: 1.724 ms
Remote clock offset: -6.315 ms

# Below is generated by plot.py at 2017-11-30 06:55:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 188.546 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 188.546 ms
Loss rate: 0.00%
```



# Run 1: Report of LEDBAT — Data Link

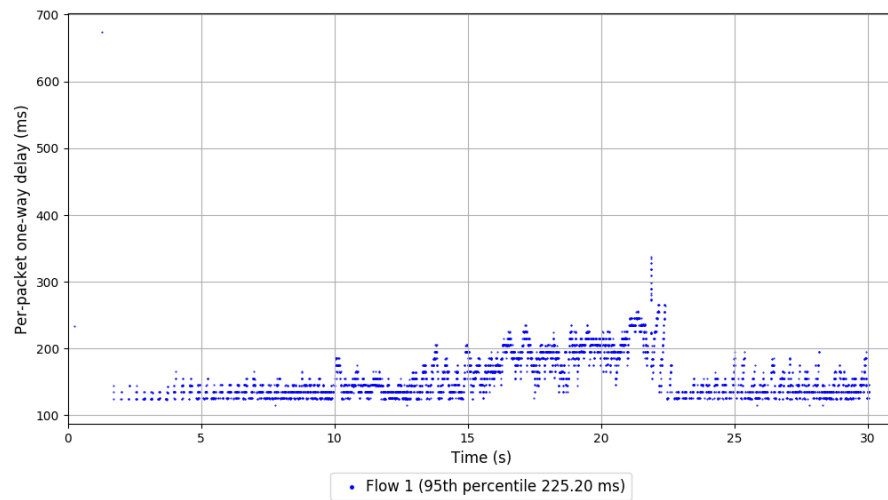
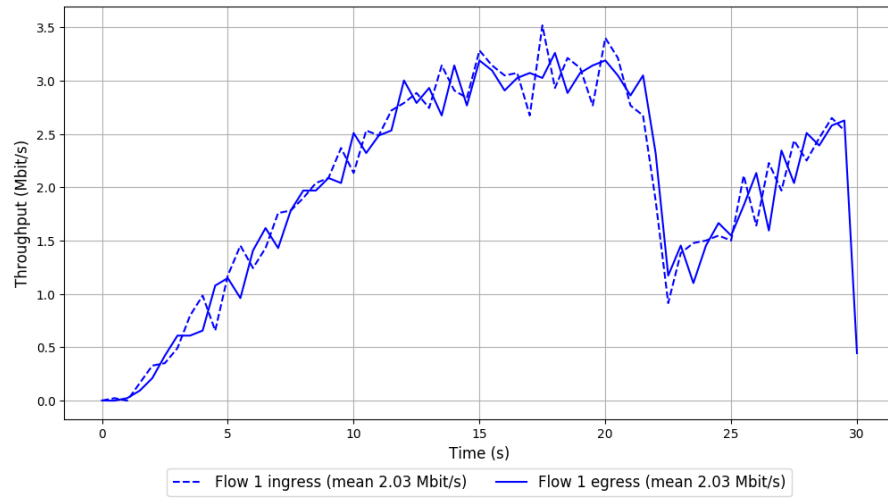


Run 2: Statistics of LEDBAT

Start at: 2017-11-30 06:30:16  
End at: 2017-11-30 06:30:46  
Local clock offset: 1.005 ms  
Remote clock offset: -7.415 ms

# Below is generated by plot.py at 2017-11-30 06:55:09  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.03 Mbit/s  
95th percentile per-packet one-way delay: 225.200 ms  
Loss rate: 0.17%  
-- Flow 1:  
Average throughput: 2.03 Mbit/s  
95th percentile per-packet one-way delay: 225.200 ms  
Loss rate: 0.17%

## Run 2: Report of LEDBAT — Data Link

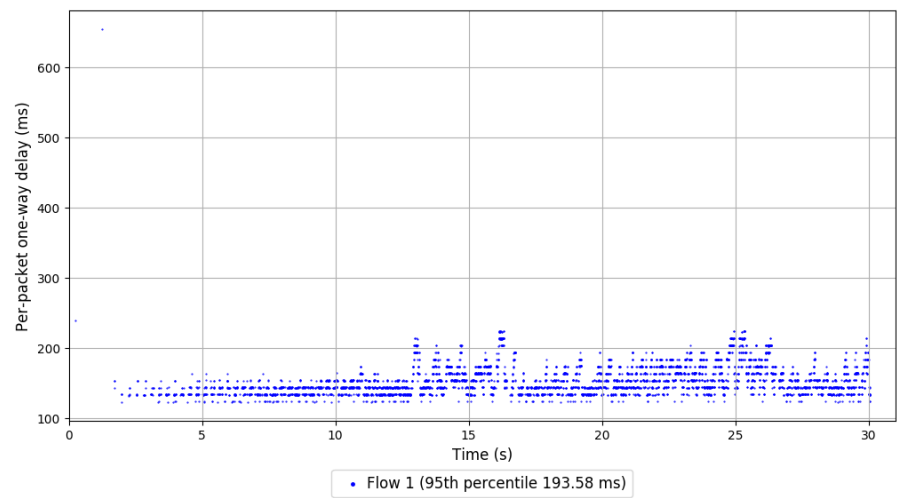
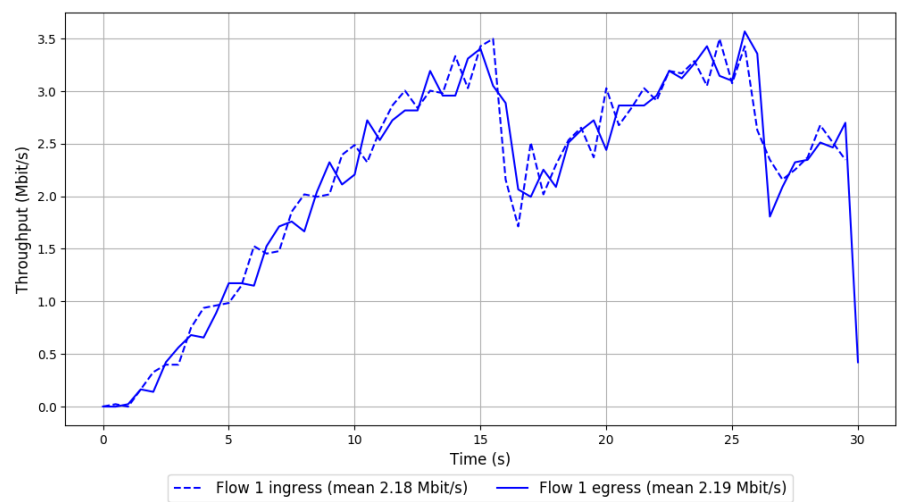


Run 3: Statistics of LEDBAT

Start at: 2017-11-30 06:46:42  
End at: 2017-11-30 06:47:12  
Local clock offset: 1.066 ms  
Remote clock offset: -2.272 ms

# Below is generated by plot.py at 2017-11-30 06:55:10  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.19 Mbit/s  
95th percentile per-packet one-way delay: 193.584 ms  
Loss rate: 0.11%  
-- Flow 1:  
Average throughput: 2.19 Mbit/s  
95th percentile per-packet one-way delay: 193.584 ms  
Loss rate: 0.11%

Run 3: Report of LEDBAT — Data Link

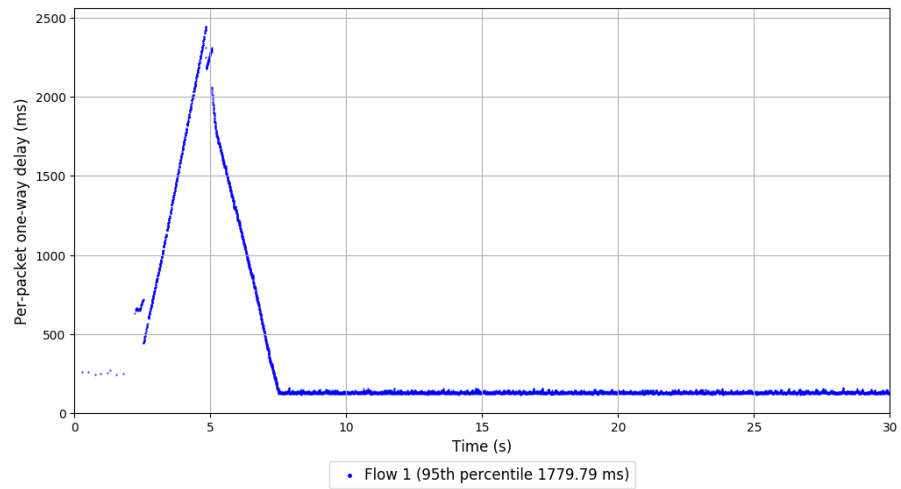
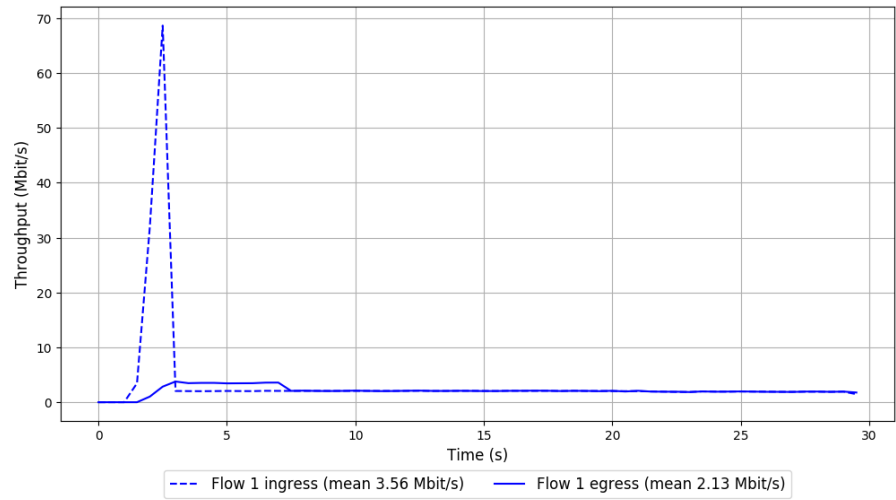


Run 1: Statistics of PCC

Start at: 2017-11-30 06:18:31  
End at: 2017-11-30 06:19:02  
Local clock offset: 2.073 ms  
Remote clock offset: -1.165 ms

# Below is generated by plot.py at 2017-11-30 06:55:14  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.13 Mbit/s  
95th percentile per-packet one-way delay: 1779.793 ms  
Loss rate: 40.65%  
-- Flow 1:  
Average throughput: 2.13 Mbit/s  
95th percentile per-packet one-way delay: 1779.793 ms  
Loss rate: 40.65%

### Run 1: Report of PCC — Data Link



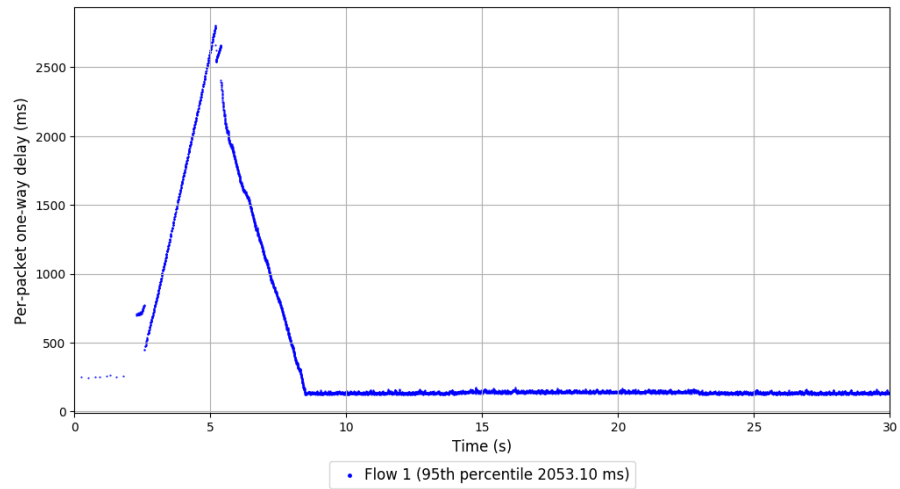
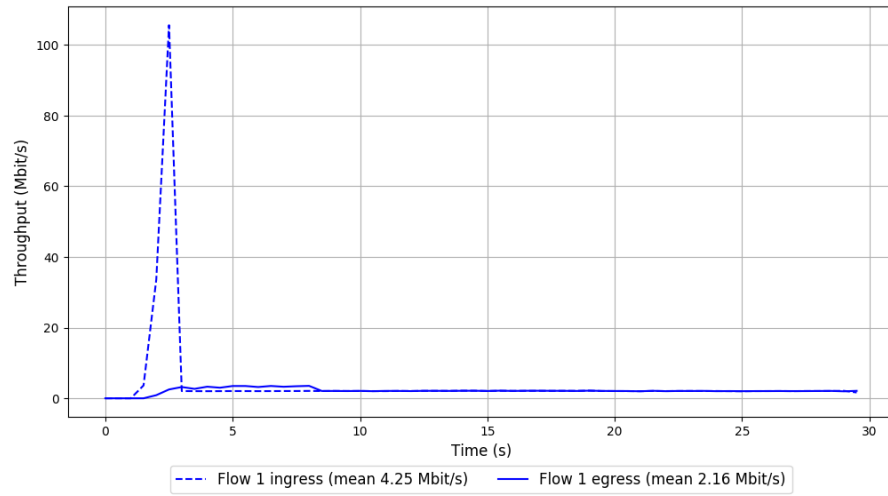
Run 2: Statistics of PCC

Start at: 2017-11-30 06:34:58  
End at: 2017-11-30 06:35:28  
Local clock offset: 0.95 ms  
Remote clock offset: -1.022 ms

# Below is generated by plot.py at 2017-11-30 06:55:15  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.16 Mbit/s  
95th percentile per-packet one-way delay: 2053.103 ms  
Loss rate: 49.39%  
-- Flow 1:  
Average throughput: 2.16 Mbit/s  
95th percentile per-packet one-way delay: 2053.103 ms  
Loss rate: 49.39%



## Run 2: Report of PCC — Data Link

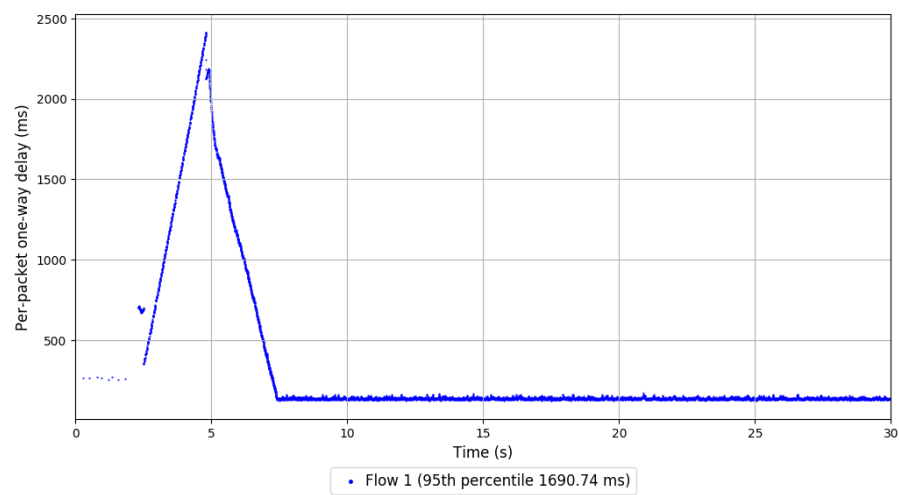
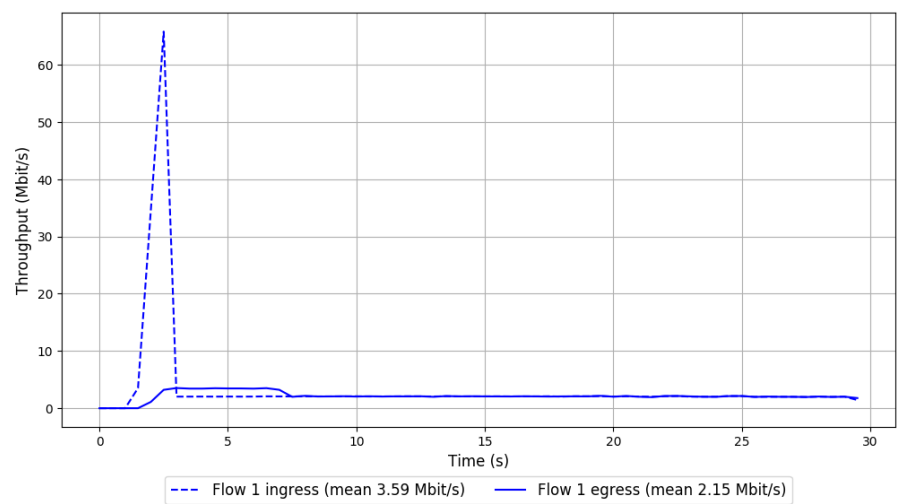


Run 3: Statistics of PCC

Start at: 2017-11-30 06:51:24  
End at: 2017-11-30 06:51:54  
Local clock offset: 1.081 ms  
Remote clock offset: -1.839 ms

# Below is generated by plot.py at 2017-11-30 06:55:16  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.15 Mbit/s  
95th percentile per-packet one-way delay: 1690.741 ms  
Loss rate: 40.44%  
-- Flow 1:  
Average throughput: 2.15 Mbit/s  
95th percentile per-packet one-way delay: 1690.741 ms  
Loss rate: 40.44%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

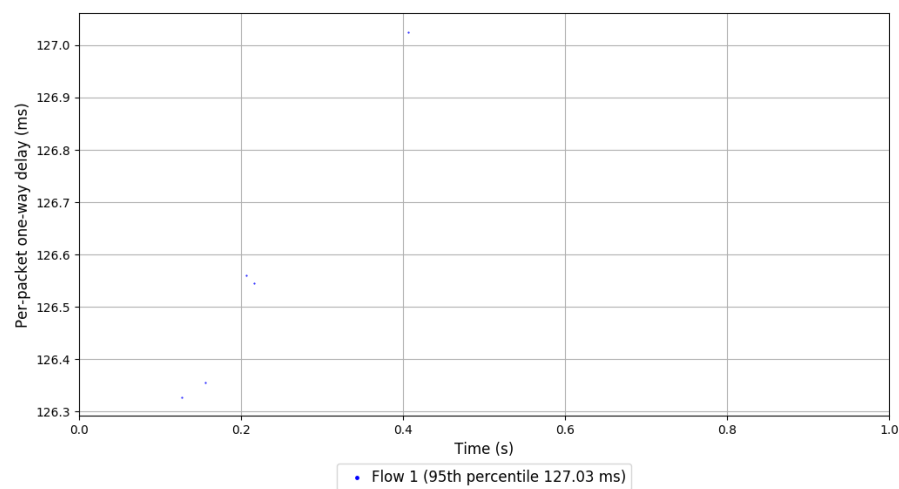
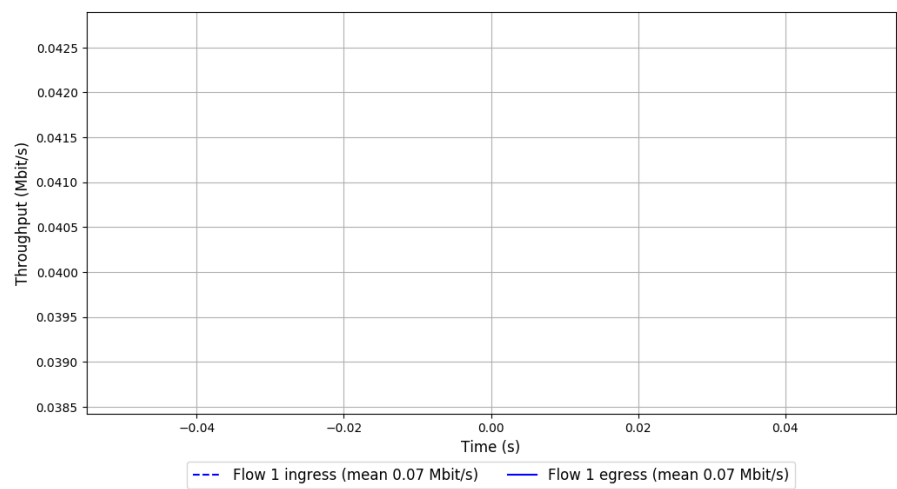
Start at: 2017-11-30 06:17:22

End at: 2017-11-30 06:17:52

Local clock offset: 1.966 ms

Remote clock offset: -1.959 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2017-11-30 06:33:47

End at: 2017-11-30 06:34:17

Local clock offset: 1.02 ms

Remote clock offset: -2.67 ms

# Below is generated by plot.py at 2017-11-30 06:55:19

# Datalink statistics

-- Total of 1 flow:

Average throughput: 3.38 Mbit/s

95th percentile per-packet one-way delay: 974.114 ms

Loss rate: 3.54%

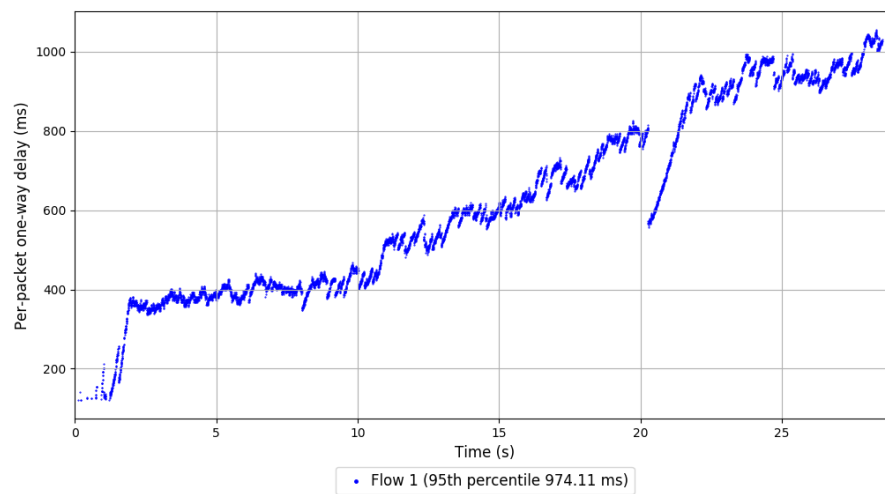
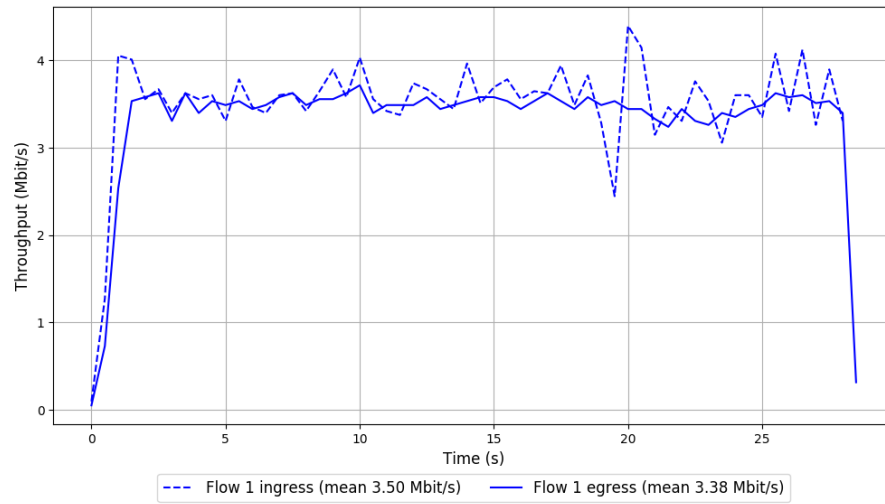
-- Flow 1:

Average throughput: 3.38 Mbit/s

95th percentile per-packet one-way delay: 974.114 ms

Loss rate: 3.54%

## Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-11-30 06:50:14

End at: 2017-11-30 06:50:44

Local clock offset: 1.092 ms

Remote clock offset: -2.124 ms

# Below is generated by plot.py at 2017-11-30 06:55:20

# Datalink statistics

-- Total of 1 flow:

Average throughput: 3.39 Mbit/s

95th percentile per-packet one-way delay: 1066.287 ms

Loss rate: 3.66%

-- Flow 1:

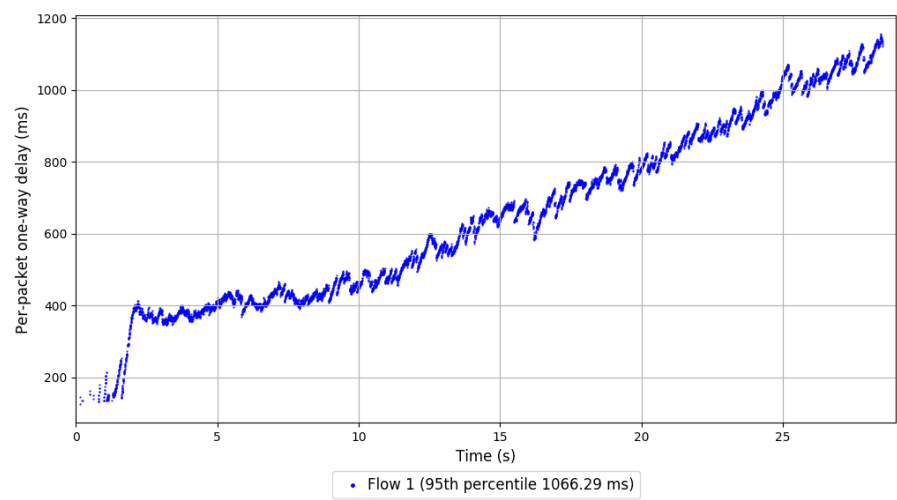
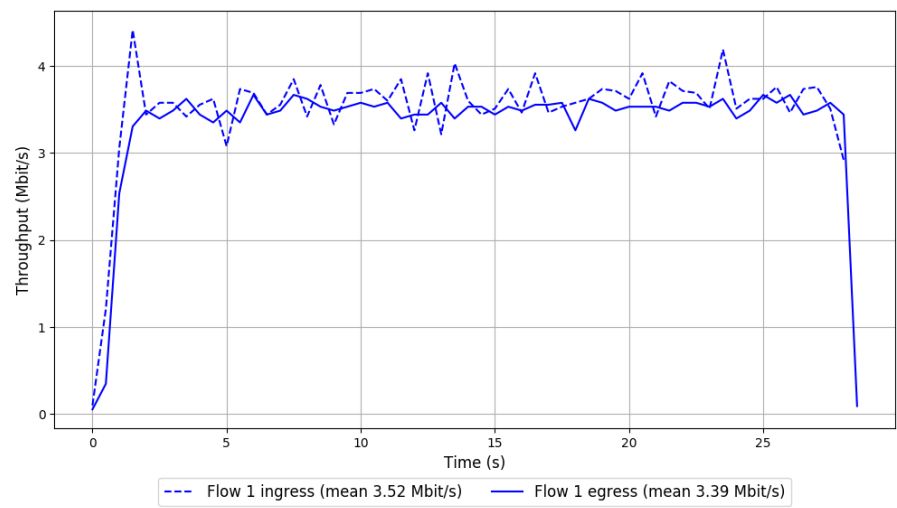
Average throughput: 3.39 Mbit/s

95th percentile per-packet one-way delay: 1066.287 ms

Loss rate: 3.66%



Run 3: Report of QUIC Cubic — Data Link



Run 1: Statistics of SCReAM

Start at: 2017-11-30 06:05:38

End at: 2017-11-30 06:06:08

Local clock offset: 1.313 ms

Remote clock offset: -6.253 ms

# Below is generated by plot.py at 2017-11-30 06:55:20

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 140.999 ms

Loss rate: 0.13%

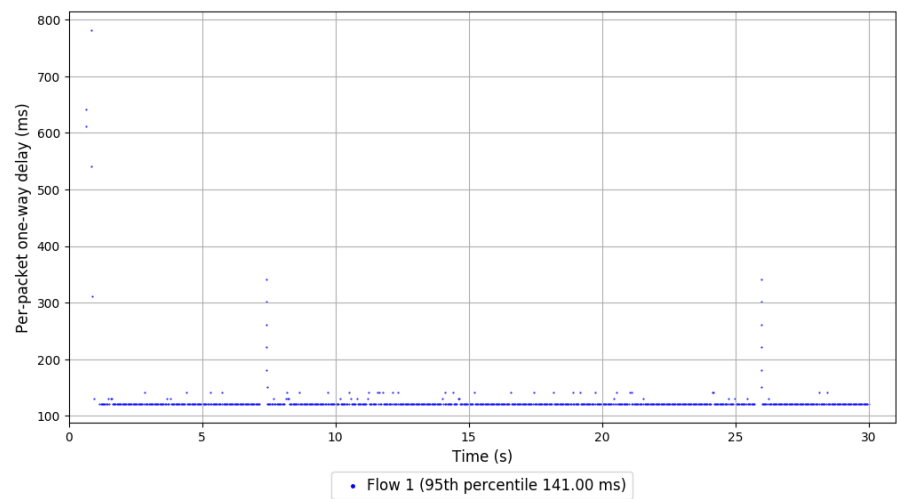
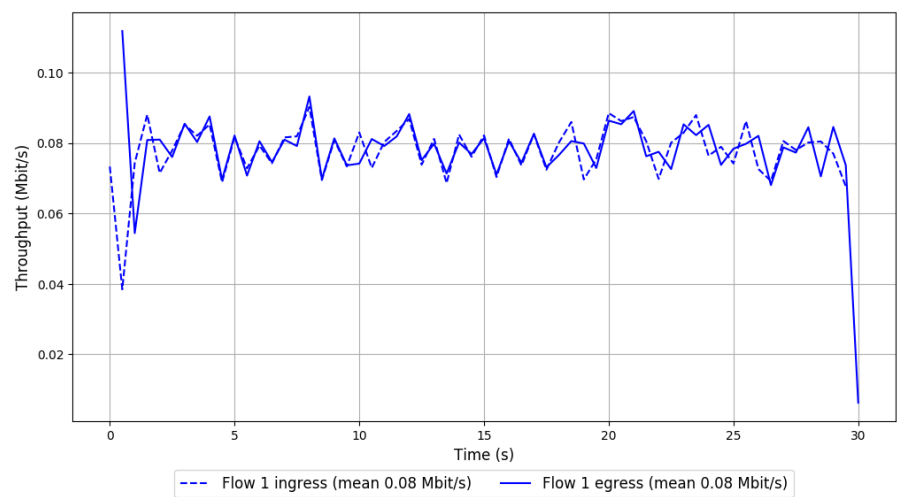
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 140.999 ms

Loss rate: 0.13%

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2017-11-30 06:22:04

End at: 2017-11-30 06:22:34

Local clock offset: 1.583 ms

Remote clock offset: -1.28 ms

# Below is generated by plot.py at 2017-11-30 06:55:20

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 138.755 ms

Loss rate: 0.13%

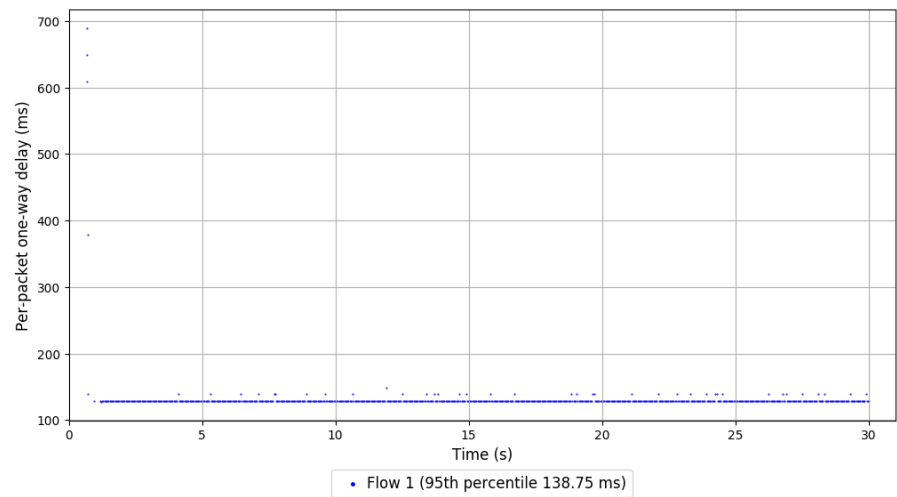
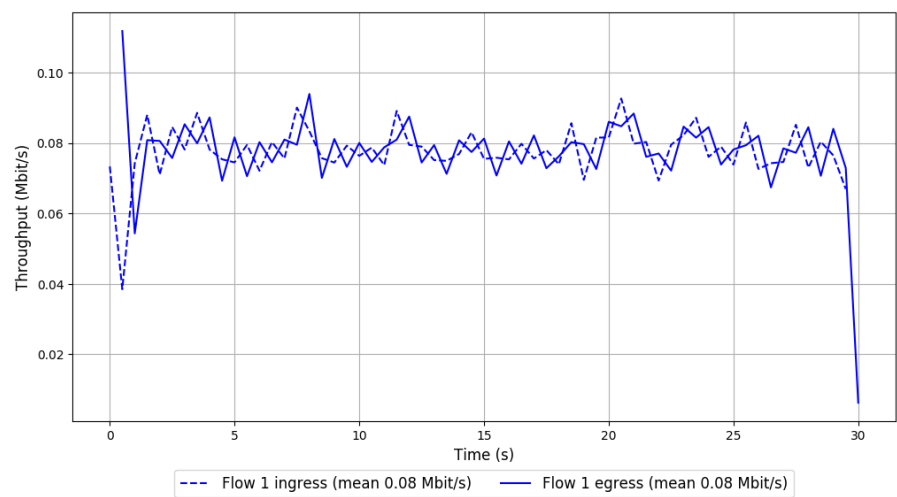
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 138.755 ms

Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

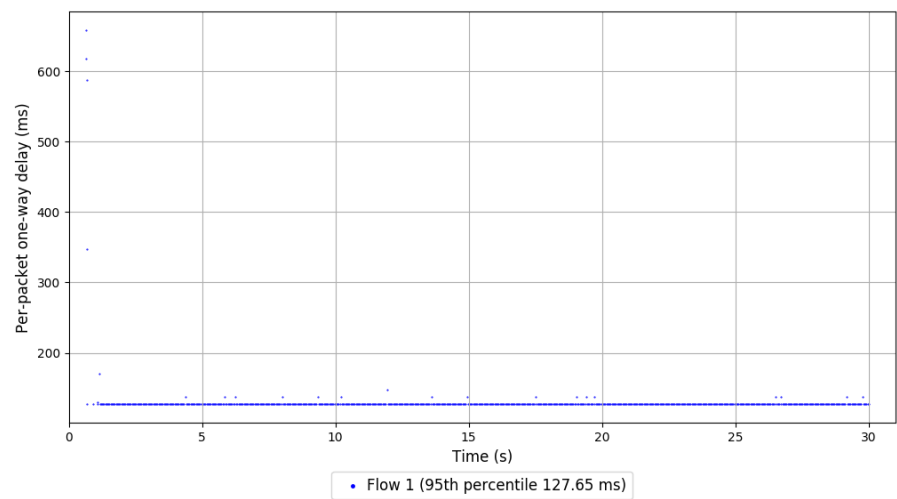
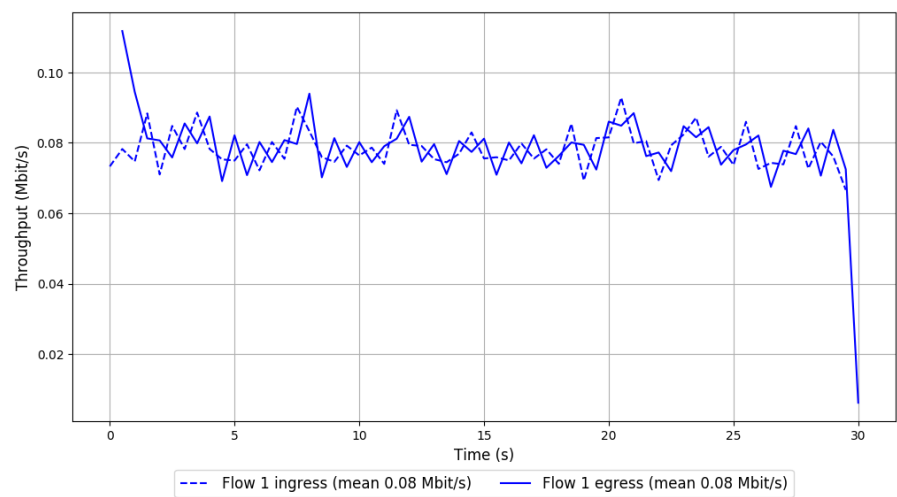


Run 3: Statistics of SCReAM

Start at: 2017-11-30 06:38:30  
End at: 2017-11-30 06:39:00  
Local clock offset: 1.017 ms  
Remote clock offset: -2.448 ms

# Below is generated by plot.py at 2017-11-30 06:55:20  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 127.653 ms  
Loss rate: 0.13%  
-- Flow 1:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 127.653 ms  
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

Start at: 2017-11-30 06:19:42

End at: 2017-11-30 06:20:12

Local clock offset: 1.942 ms

Remote clock offset: -1.262 ms

# Below is generated by plot.py at 2017-11-30 06:55:20

# Datalink statistics

-- Total of 1 flow:

Average throughput: 1.65 Mbit/s

95th percentile per-packet one-way delay: 215.386 ms

Loss rate: 0.36%

-- Flow 1:

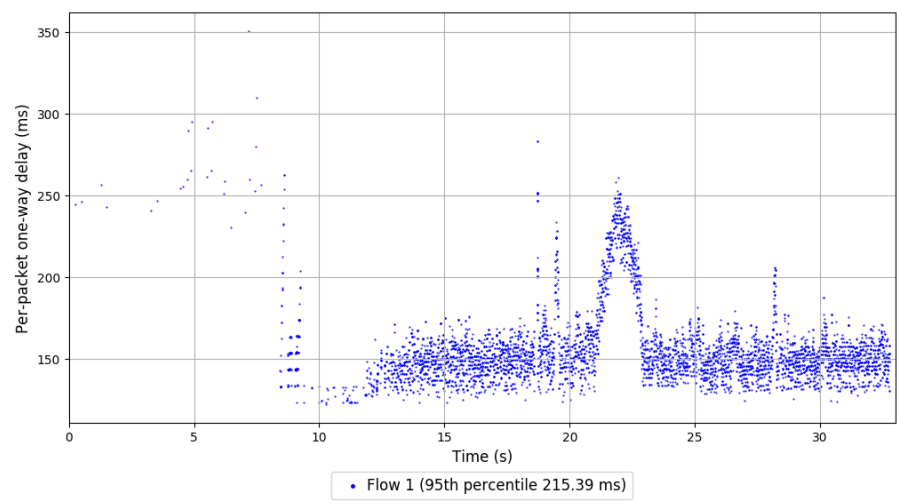
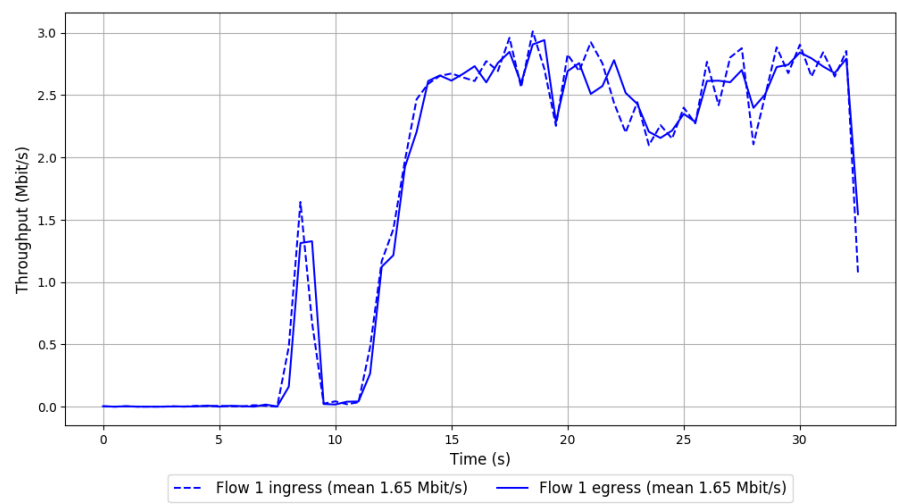
Average throughput: 1.65 Mbit/s

95th percentile per-packet one-way delay: 215.386 ms

Loss rate: 0.36%



Run 1: Report of WebRTC media — Data Link

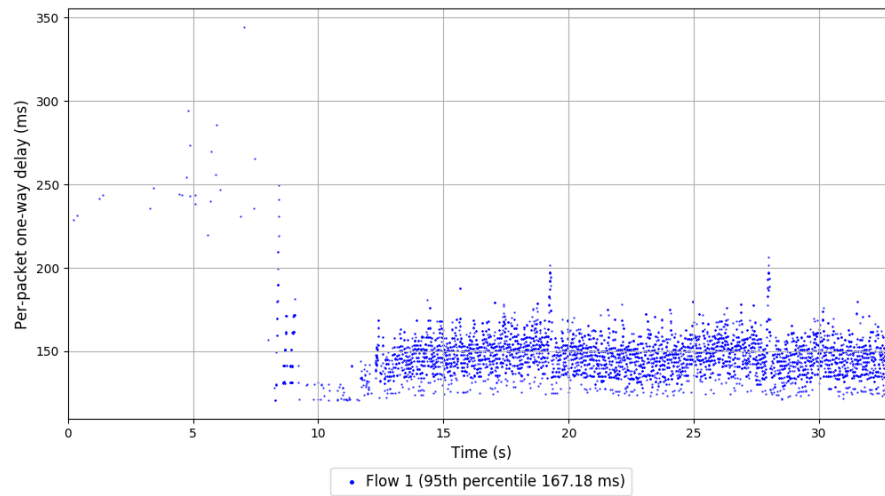
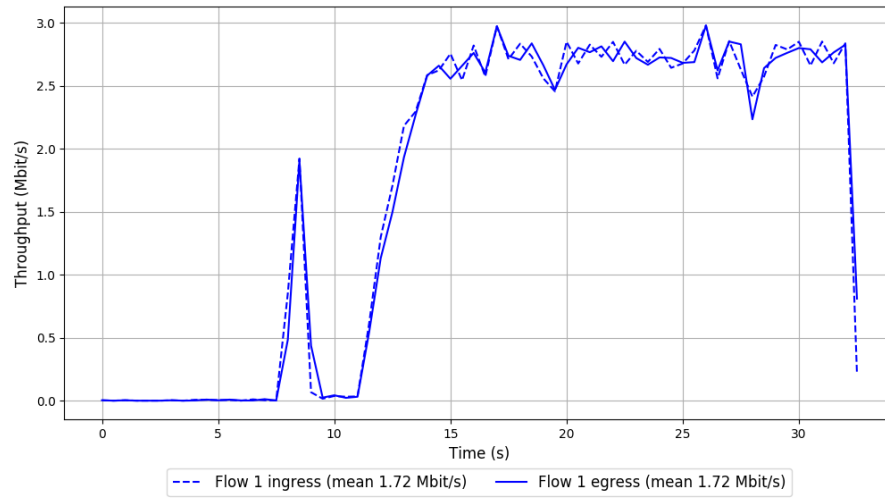


Run 2: Statistics of WebRTC media

Start at: 2017-11-30 06:36:09  
End at: 2017-11-30 06:36:39  
Local clock offset: 0.963 ms  
Remote clock offset: -0.996 ms

# Below is generated by plot.py at 2017-11-30 06:55:20  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.72 Mbit/s  
95th percentile per-packet one-way delay: 167.180 ms  
Loss rate: 0.23%  
-- Flow 1:  
Average throughput: 1.72 Mbit/s  
95th percentile per-packet one-way delay: 167.180 ms  
Loss rate: 0.23%

## Run 2: Report of WebRTC media — Data Link

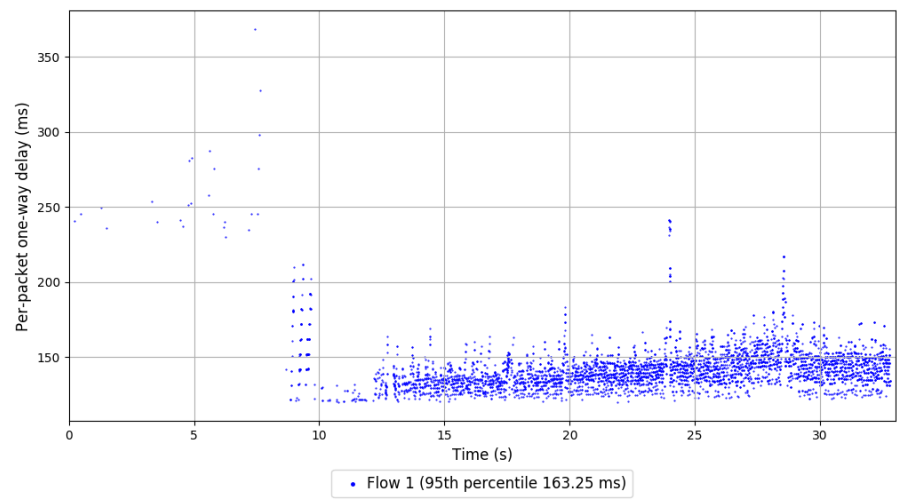
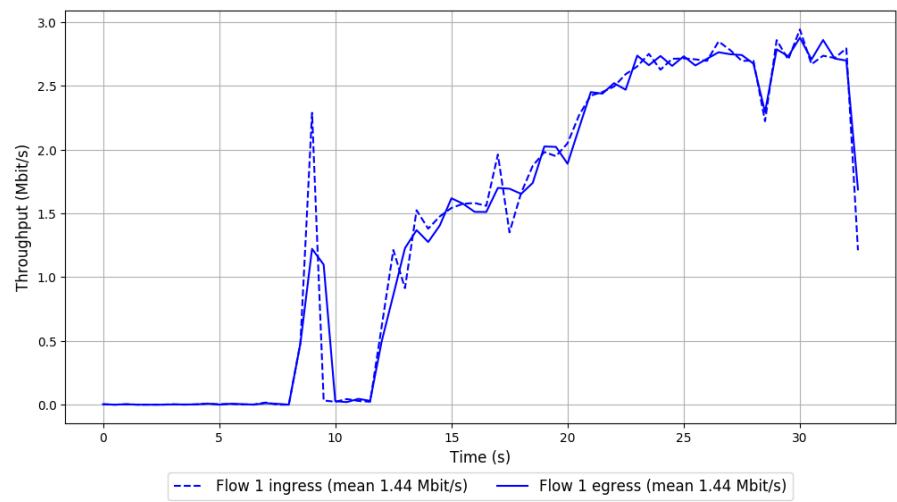


Run 3: Statistics of WebRTC media

Start at: 2017-11-30 06:52:35  
End at: 2017-11-30 06:53:05  
Local clock offset: 1.049 ms  
Remote clock offset: -2.373 ms

# Below is generated by plot.py at 2017-11-30 06:55:20  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.44 Mbit/s  
95th percentile per-packet one-way delay: 163.253 ms  
Loss rate: 0.40%  
-- Flow 1:  
Average throughput: 1.44 Mbit/s  
95th percentile per-packet one-way delay: 163.253 ms  
Loss rate: 0.40%

Run 3: Report of WebRTC media — Data Link

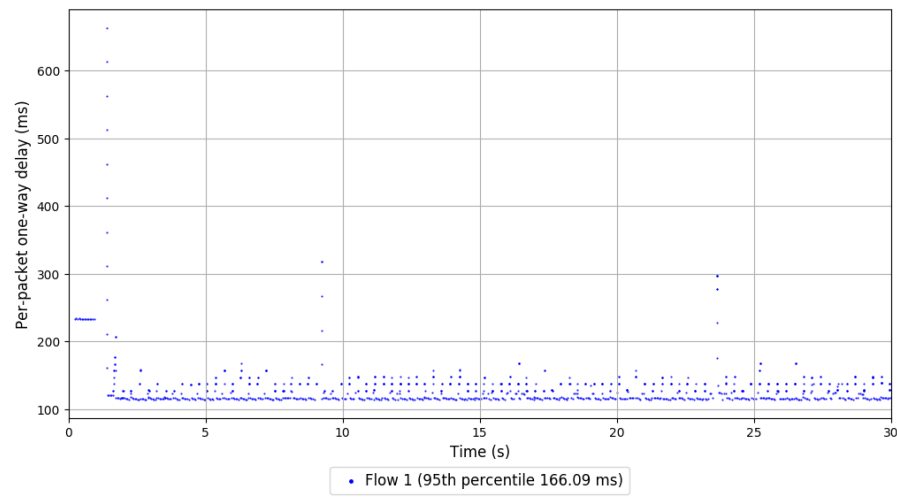
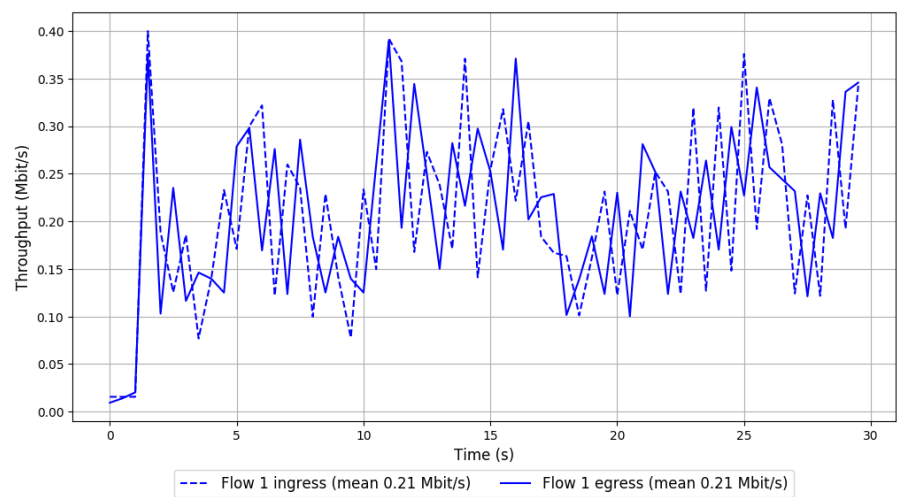


Run 1: Statistics of Sprout

Start at: 2017-11-30 06:16:11  
End at: 2017-11-30 06:16:41  
Local clock offset: 1.864 ms  
Remote clock offset: -6.824 ms

# Below is generated by plot.py at 2017-11-30 06:55:20  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 166.091 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 166.091 ms  
Loss rate: 0.01%

Run 1: Report of Sprout — Data Link



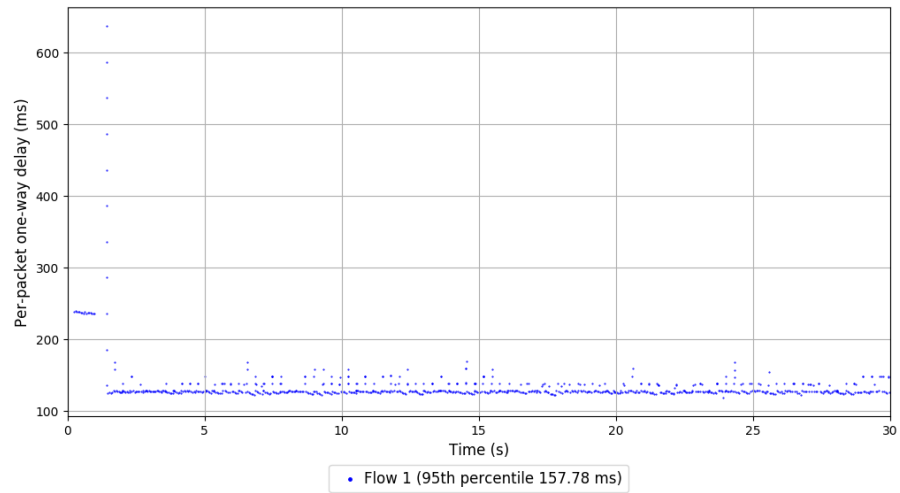
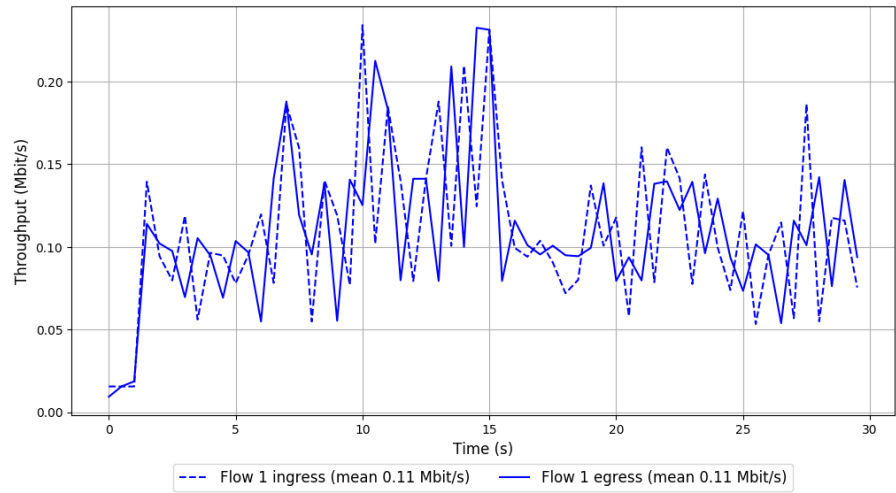
Run 2: Statistics of Sprout

Start at: 2017-11-30 06:32:37  
End at: 2017-11-30 06:33:07  
Local clock offset: 0.957 ms  
Remote clock offset: -1.456 ms

# Below is generated by plot.py at 2017-11-30 06:55:20  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.11 Mbit/s  
95th percentile per-packet one-way delay: 157.776 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 0.11 Mbit/s  
95th percentile per-packet one-way delay: 157.776 ms  
Loss rate: 0.02%



## Run 2: Report of Sprout — Data Link

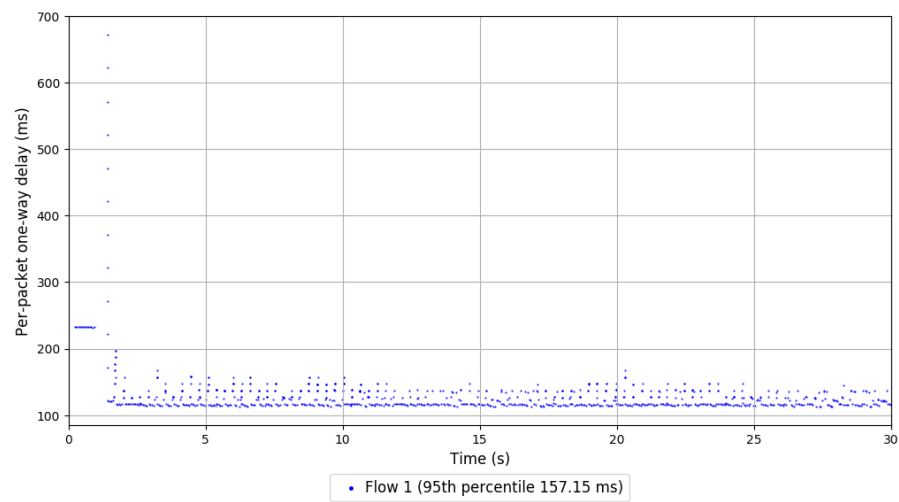
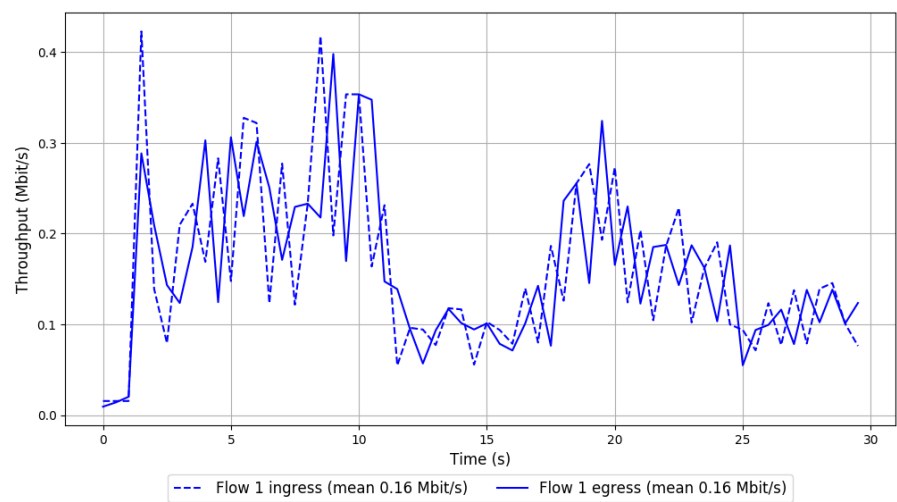


Run 3: Statistics of Sprout

Start at: 2017-11-30 06:49:03  
End at: 2017-11-30 06:49:33  
Local clock offset: 1.011 ms  
Remote clock offset: -6.925 ms

# Below is generated by plot.py at 2017-11-30 06:55:20  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.16 Mbit/s  
95th percentile per-packet one-way delay: 157.153 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 0.16 Mbit/s  
95th percentile per-packet one-way delay: 157.153 ms  
Loss rate: 0.02%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2017-11-30 06:15:01

End at: 2017-11-30 06:15:31

Local clock offset: 1.81 ms

Remote clock offset: -6.73 ms

# Below is generated by plot.py at 2017-11-30 06:55:25

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.23 Mbit/s

95th percentile per-packet one-way delay: 1094.465 ms

Loss rate: 1.93%

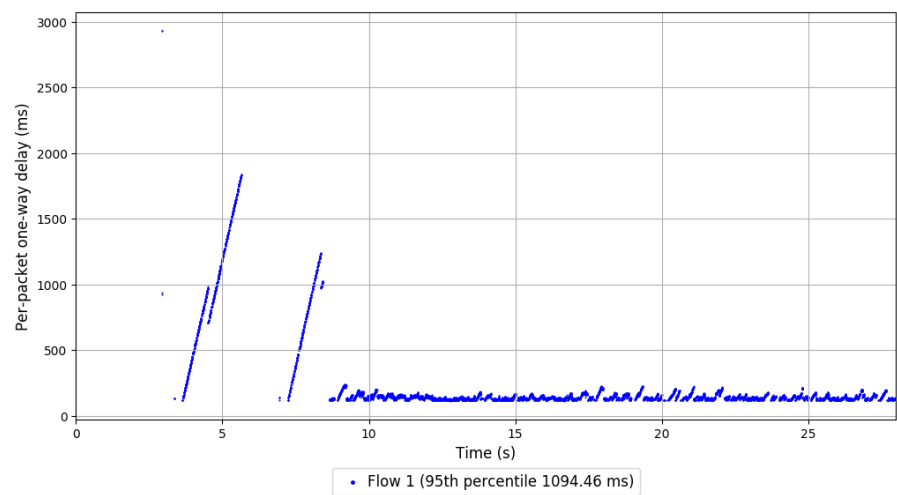
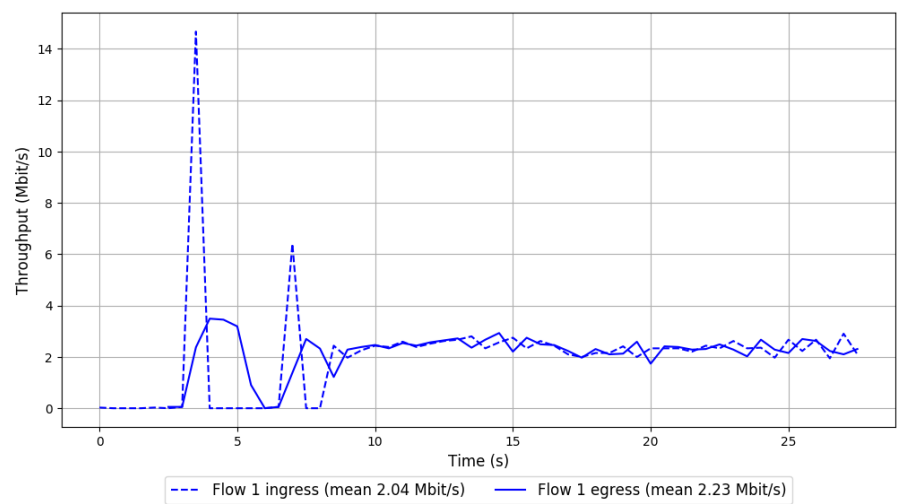
-- Flow 1:

Average throughput: 2.23 Mbit/s

95th percentile per-packet one-way delay: 1094.465 ms

Loss rate: 1.93%

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

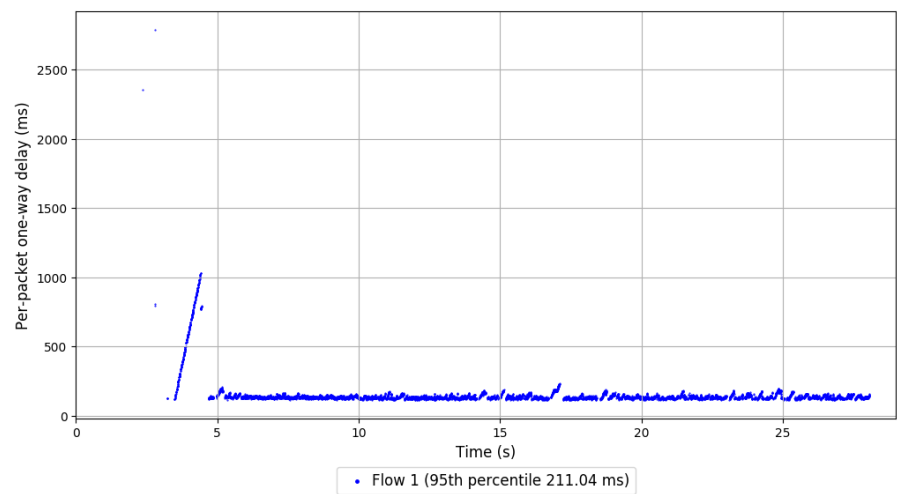
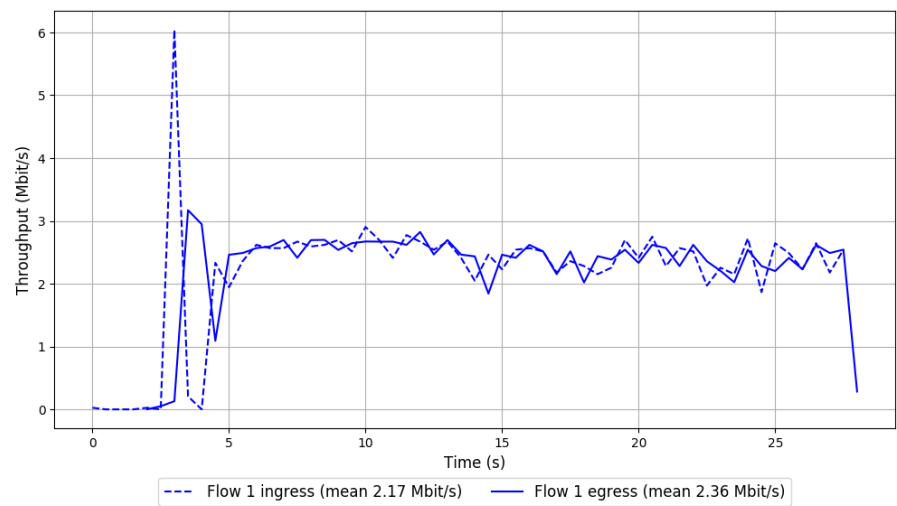


Run 2: Statistics of TaoVA-100x

Start at: 2017-11-30 06:31:27  
End at: 2017-11-30 06:31:57  
Local clock offset: 1.038 ms  
Remote clock offset: -7.167 ms

# Below is generated by plot.py at 2017-11-30 06:55:26  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.36 Mbit/s  
95th percentile per-packet one-way delay: 211.038 ms  
Loss rate: 0.13%  
-- Flow 1:  
Average throughput: 2.36 Mbit/s  
95th percentile per-packet one-way delay: 211.038 ms  
Loss rate: 0.13%

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



Run 3: Statistics of TaoVA-100x

Start at: 2017-11-30 06:47:53

End at: 2017-11-30 06:48:23

Local clock offset: 1.075 ms

Remote clock offset: -1.8 ms

# Below is generated by plot.py at 2017-11-30 06:55:27

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.27 Mbit/s

95th percentile per-packet one-way delay: 177.094 ms

Loss rate: 0.35%

-- Flow 1:

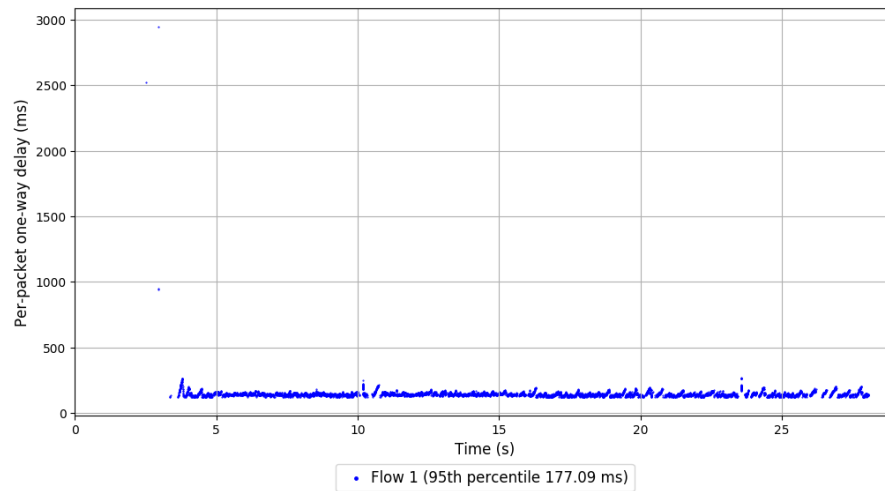
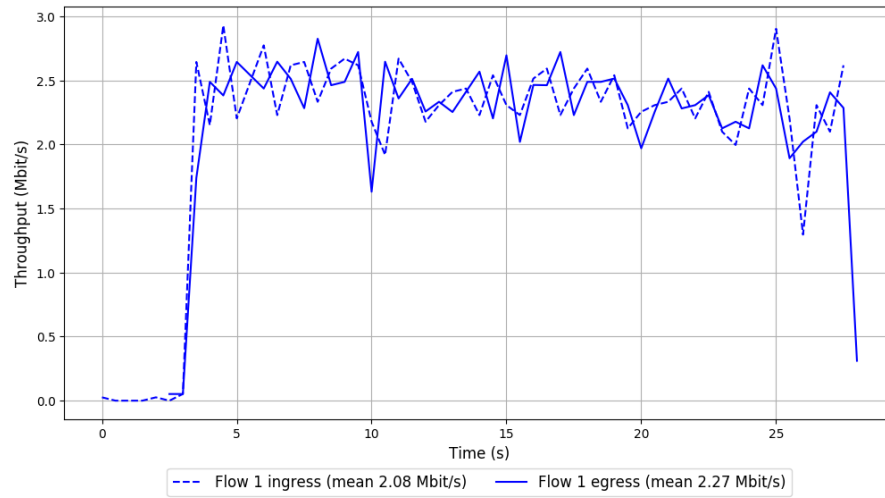
Average throughput: 2.27 Mbit/s

95th percentile per-packet one-way delay: 177.094 ms

Loss rate: 0.35%



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

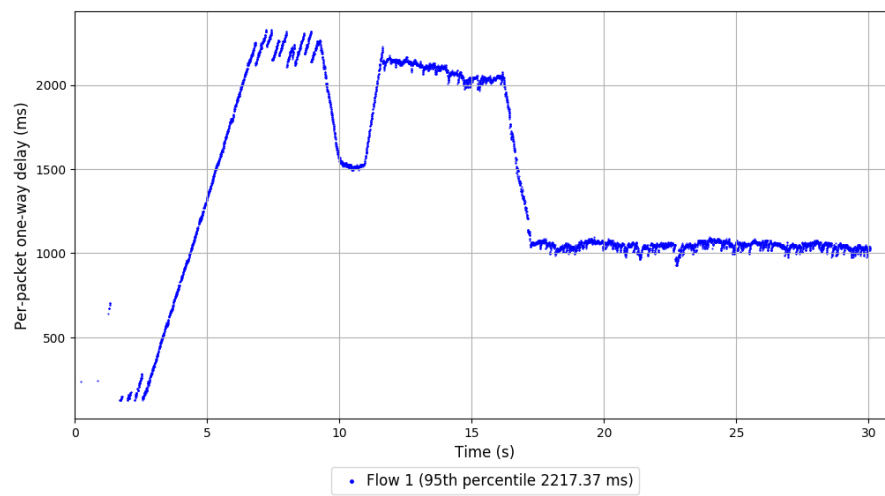
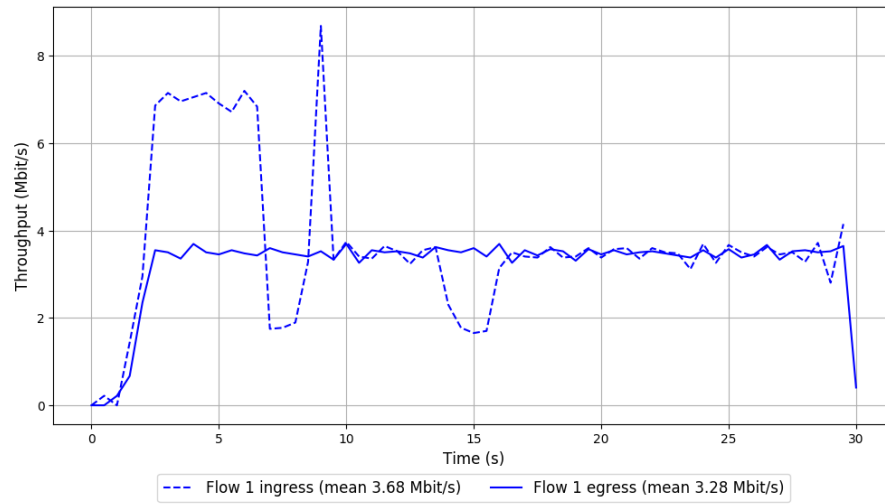


Run 1: Statistics of TCP Vegas

Start at: 2017-11-30 06:12:40  
End at: 2017-11-30 06:13:10  
Local clock offset: 1.664 ms  
Remote clock offset: -6.383 ms

# Below is generated by plot.py at 2017-11-30 06:55:27  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.28 Mbit/s  
95th percentile per-packet one-way delay: 2217.369 ms  
Loss rate: 11.30%  
-- Flow 1:  
Average throughput: 3.28 Mbit/s  
95th percentile per-packet one-way delay: 2217.369 ms  
Loss rate: 11.30%

# Run 1: Report of TCP Vegas — Data Link

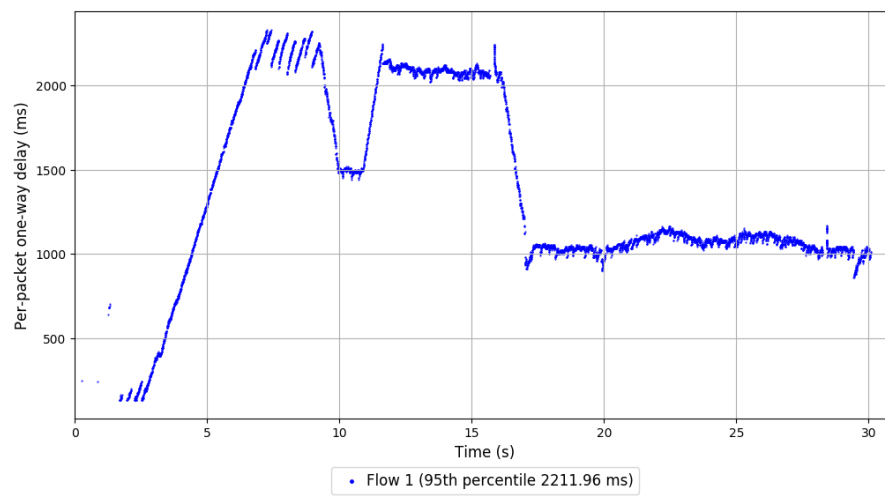
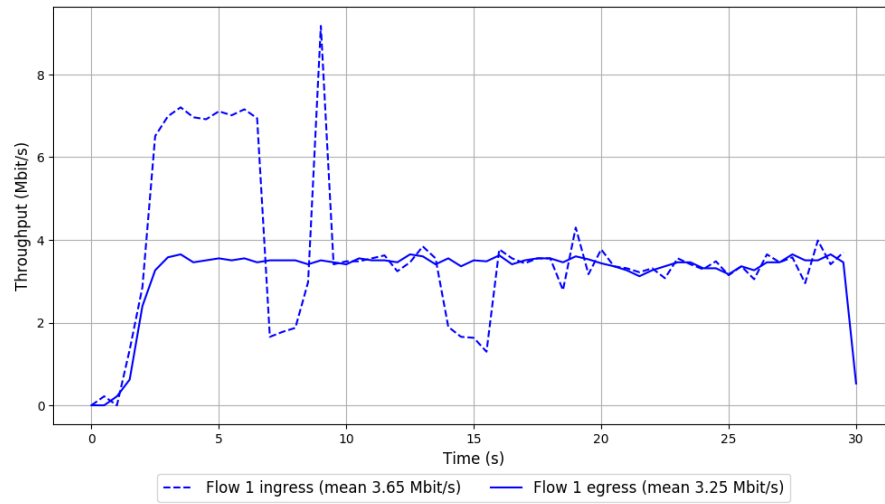


Run 2: Statistics of TCP Vegas

Start at: 2017-11-30 06:29:05  
End at: 2017-11-30 06:29:36  
Local clock offset: 1.127 ms  
Remote clock offset: -0.894 ms

# Below is generated by plot.py at 2017-11-30 06:55:29  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.25 Mbit/s  
95th percentile per-packet one-way delay: 2211.964 ms  
Loss rate: 11.29%  
-- Flow 1:  
Average throughput: 3.25 Mbit/s  
95th percentile per-packet one-way delay: 2211.964 ms  
Loss rate: 11.29%

## Run 2: Report of TCP Vegas — Data Link

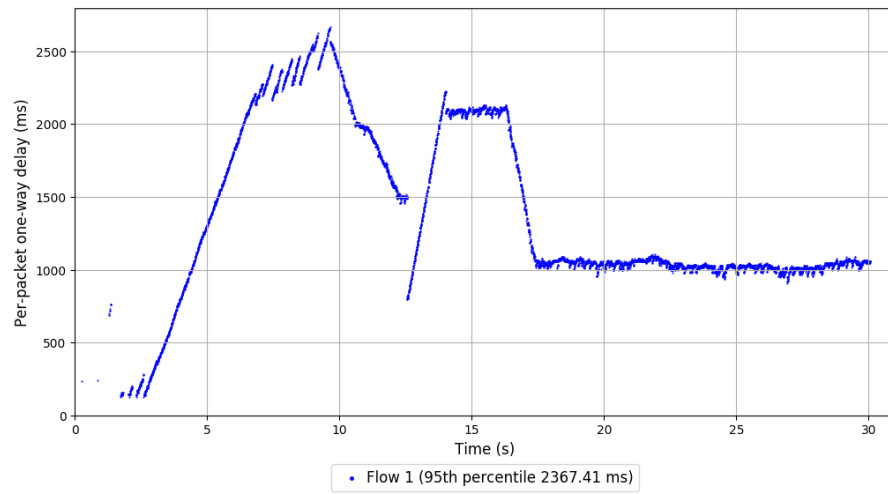
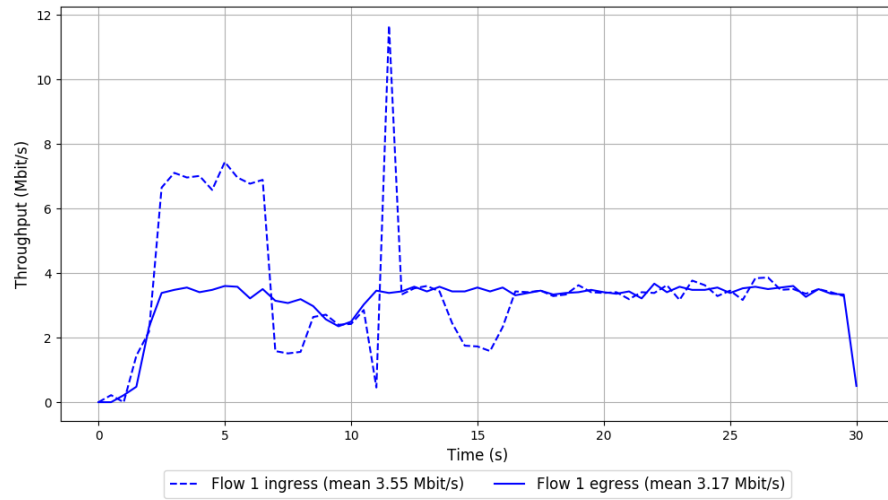


Run 3: Statistics of TCP Vegas

Start at: 2017-11-30 06:45:32  
End at: 2017-11-30 06:46:02  
Local clock offset: 1.032 ms  
Remote clock offset: -1.789 ms

# Below is generated by plot.py at 2017-11-30 06:55:29  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.17 Mbit/s  
95th percentile per-packet one-way delay: 2367.411 ms  
Loss rate: 11.30%  
-- Flow 1:  
Average throughput: 3.17 Mbit/s  
95th percentile per-packet one-way delay: 2367.411 ms  
Loss rate: 11.30%

### Run 3: Report of TCP Vegas — Data Link



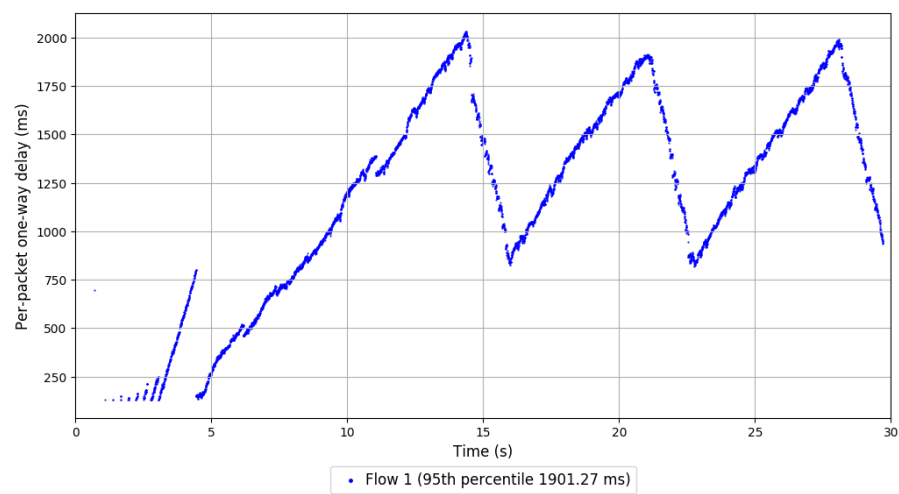
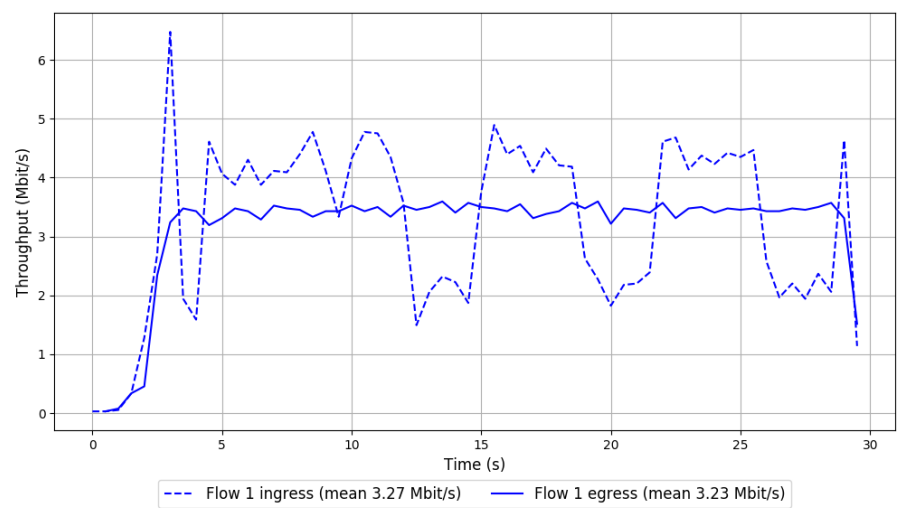
Run 1: Statistics of Verus

Start at: 2017-11-30 06:07:58  
End at: 2017-11-30 06:08:28  
Local clock offset: 1.319 ms  
Remote clock offset: -0.606 ms

# Below is generated by plot.py at 2017-11-30 06:55:29  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.23 Mbit/s  
95th percentile per-packet one-way delay: 1901.267 ms  
Loss rate: 3.49%  
-- Flow 1:  
Average throughput: 3.23 Mbit/s  
95th percentile per-packet one-way delay: 1901.267 ms  
Loss rate: 3.49%



Run 1: Report of Verus — Data Link

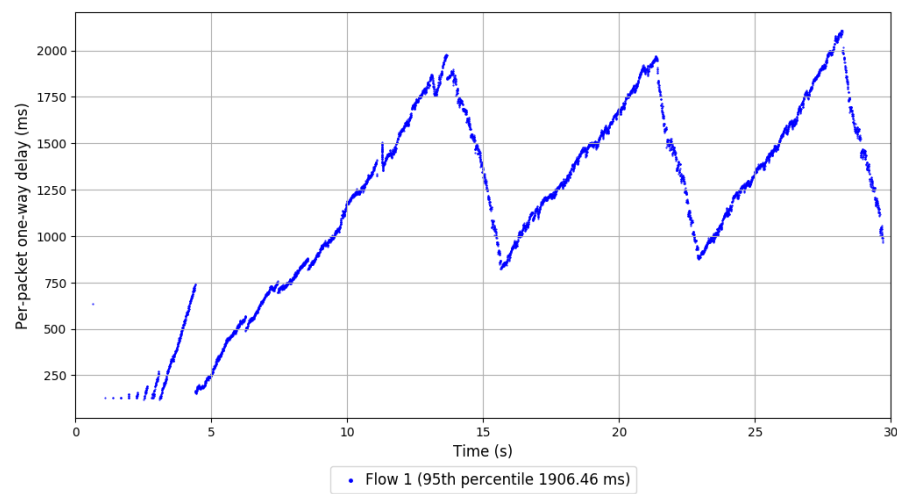
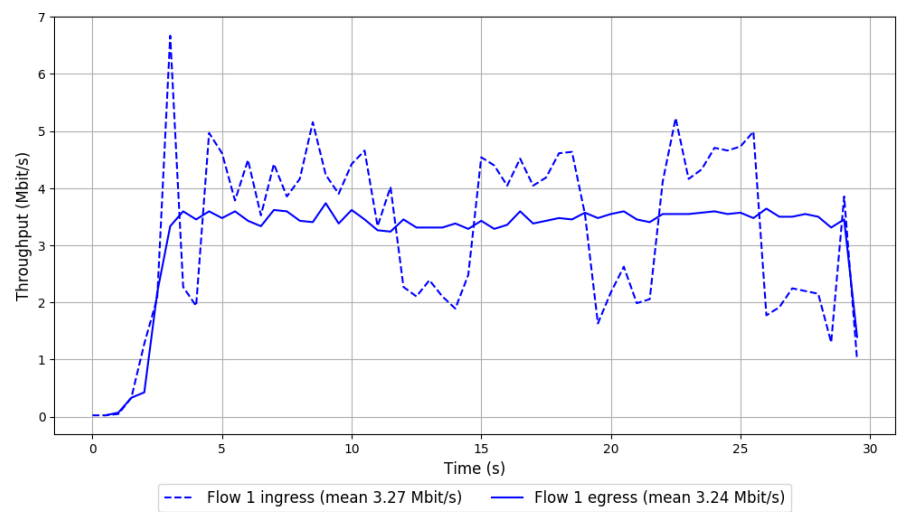


Run 2: Statistics of Verus

Start at: 2017-11-30 06:24:24  
End at: 2017-11-30 06:24:54  
Local clock offset: 1.386 ms  
Remote clock offset: -7.315 ms

# Below is generated by plot.py at 2017-11-30 06:55:29  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.24 Mbit/s  
95th percentile per-packet one-way delay: 1906.458 ms  
Loss rate: 2.82%  
-- Flow 1:  
Average throughput: 3.24 Mbit/s  
95th percentile per-packet one-way delay: 1906.458 ms  
Loss rate: 2.82%

Run 2: Report of Verus — Data Link

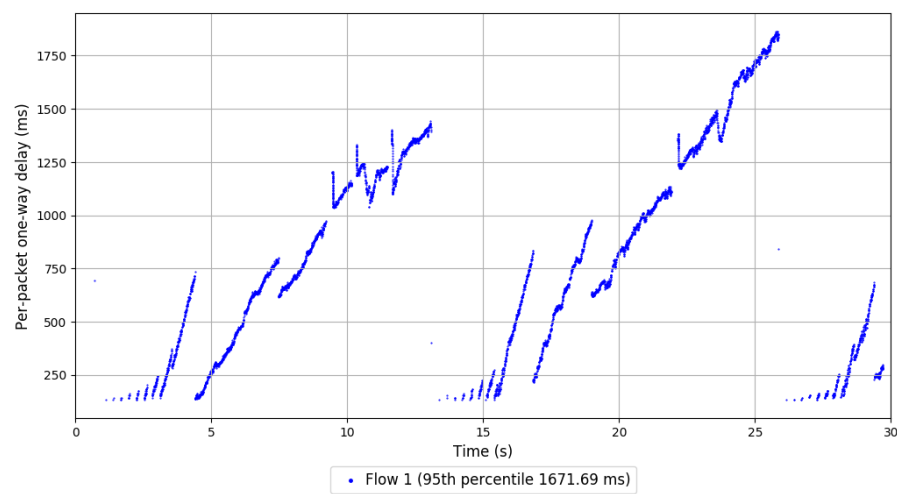
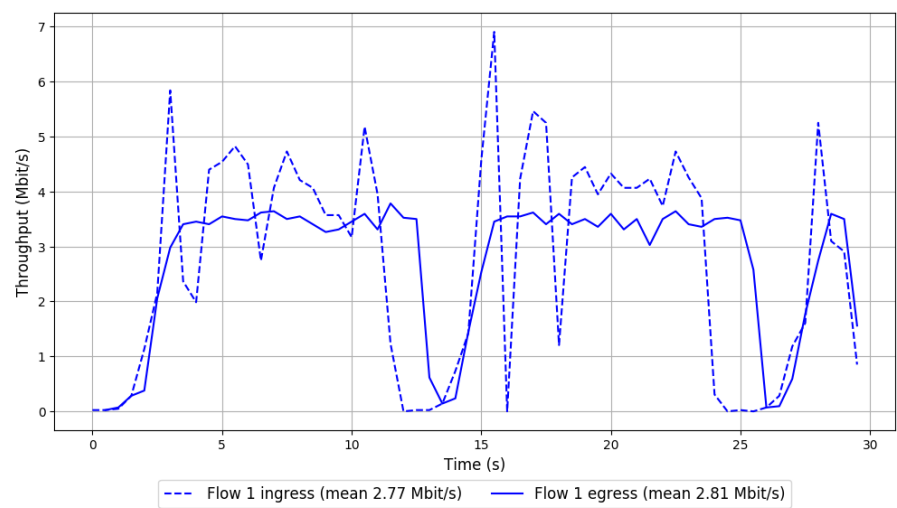


Run 3: Statistics of Verus

Start at: 2017-11-30 06:40:51  
End at: 2017-11-30 06:41:21  
Local clock offset: 1.019 ms  
Remote clock offset: -1.647 ms

# Below is generated by plot.py at 2017-11-30 06:55:33  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.81 Mbit/s  
95th percentile per-packet one-way delay: 1671.693 ms  
Loss rate: 0.81%  
-- Flow 1:  
Average throughput: 2.81 Mbit/s  
95th percentile per-packet one-way delay: 1671.693 ms  
Loss rate: 0.81%

Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

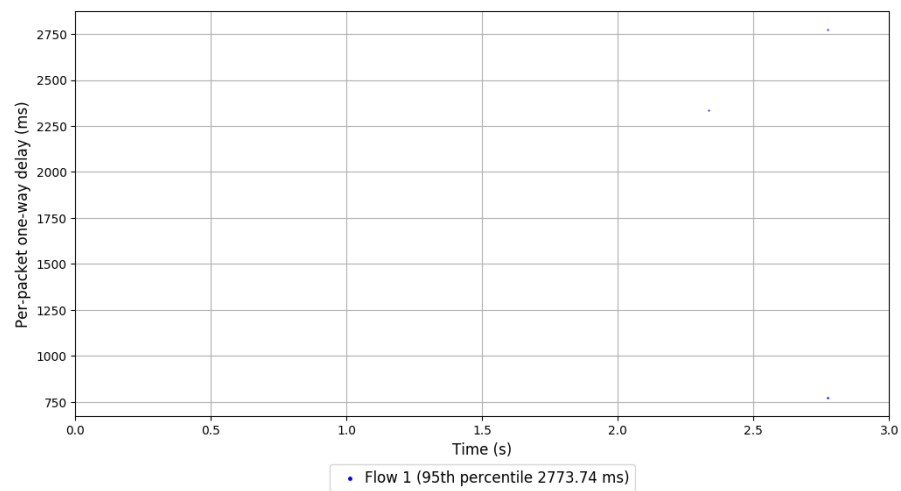
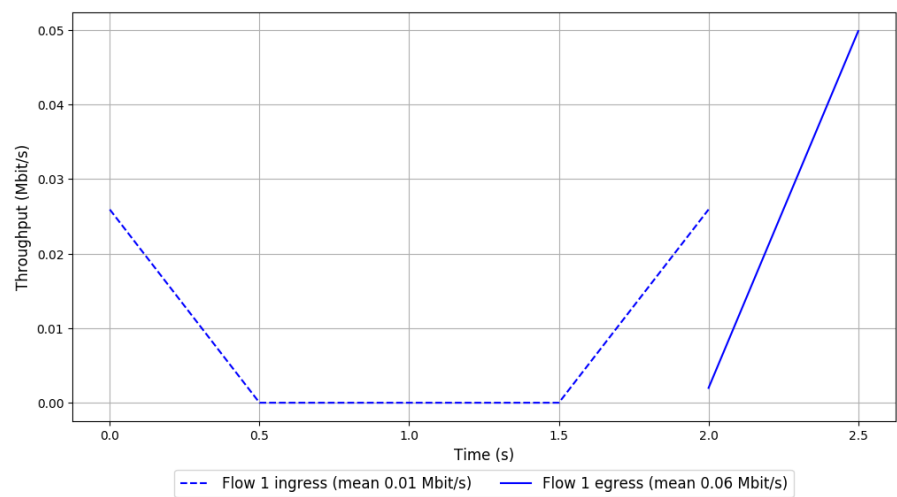
Start at: 2017-11-30 06:09:09

End at: 2017-11-30 06:09:39

Local clock offset: 1.439 ms

Remote clock offset: -0.957 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2017-11-30 06:25:35

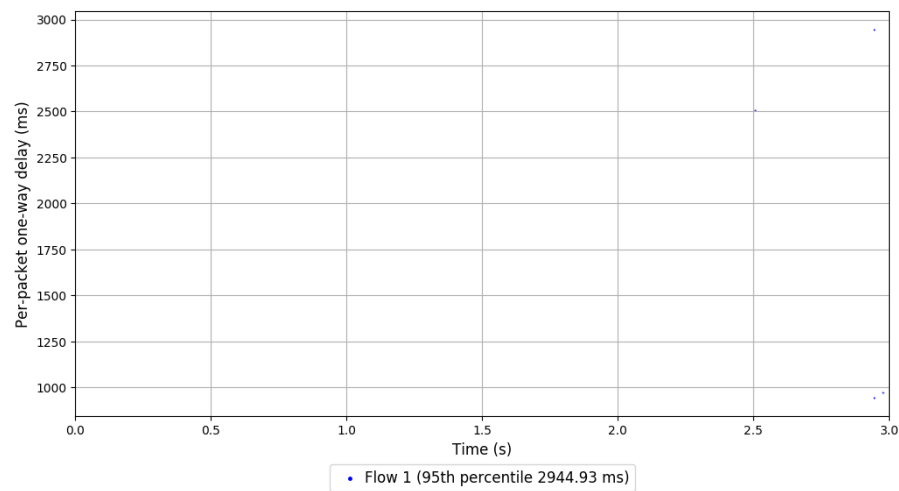
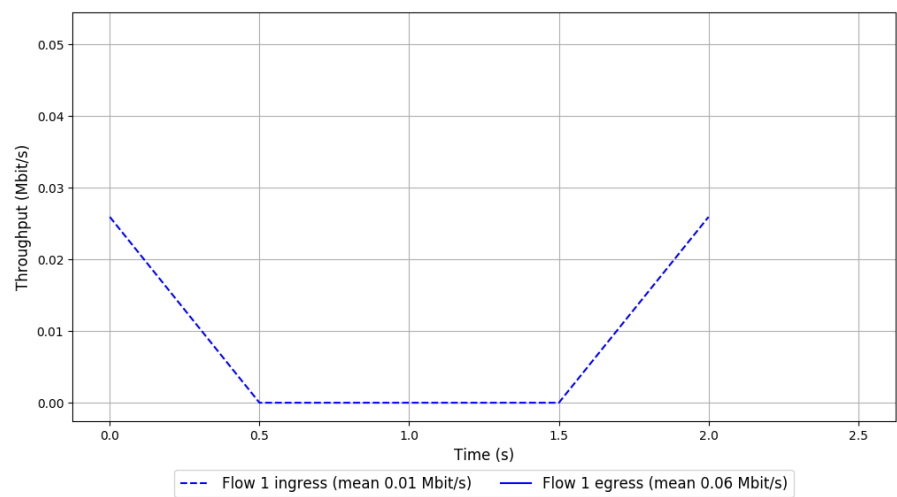
End at: 2017-11-30 06:26:05

Local clock offset: 1.396 ms

Remote clock offset: -1.374 ms



Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

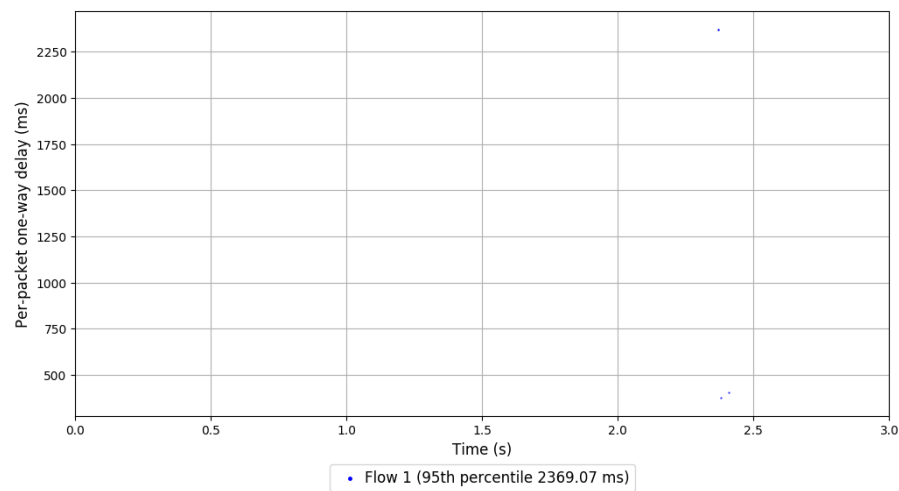
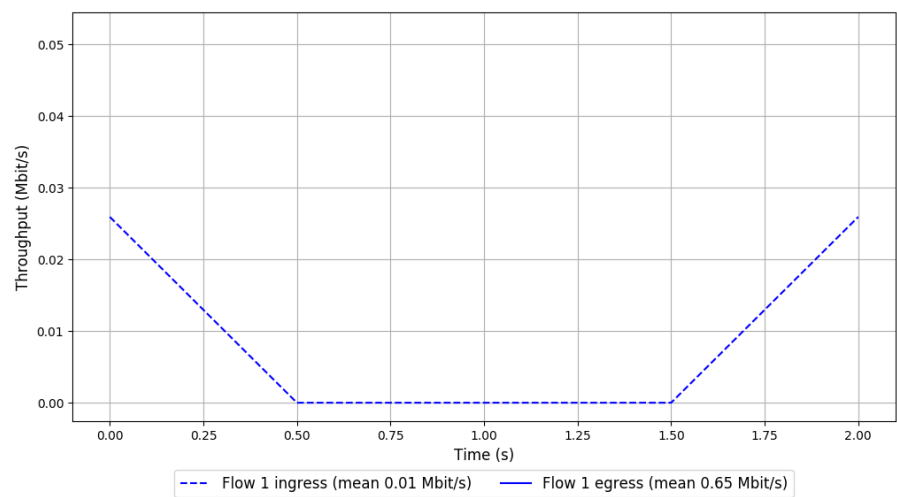
Start at: 2017-11-30 06:42:01

End at: 2017-11-30 06:42:31

Local clock offset: 1.024 ms

Remote clock offset: -6.955 ms

Run 3: Report of Copa — Data Link

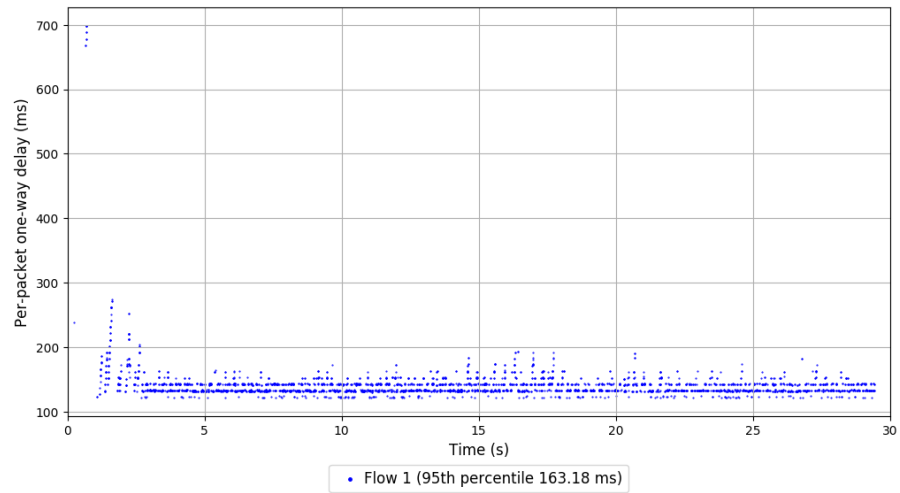
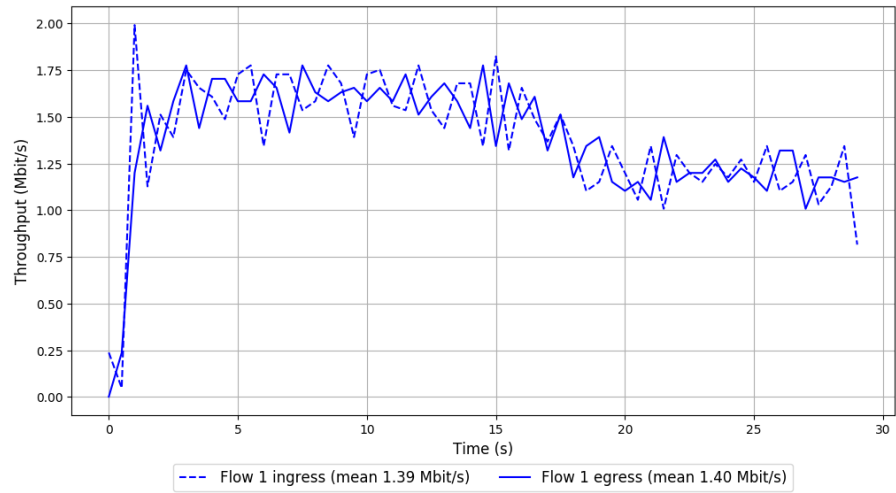


```
Run 1: Statistics of Indigo

Start at: 2017-11-30 06:06:48
End at: 2017-11-30 06:07:18
Local clock offset: 1.337 ms
Remote clock offset: -1.07 ms

# Below is generated by plot.py at 2017-11-30 06:55:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 163.175 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 163.175 ms
Loss rate: 0.12%
```

## Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2017-11-30 06:23:14

End at: 2017-11-30 06:23:44

Local clock offset: 1.571 ms

Remote clock offset: -1.652 ms

# Below is generated by plot.py at 2017-11-30 06:55:34

# Datalink statistics

-- Total of 1 flow:

Average throughput: 1.46 Mbit/s

95th percentile per-packet one-way delay: 165.926 ms

Loss rate: 0.25%

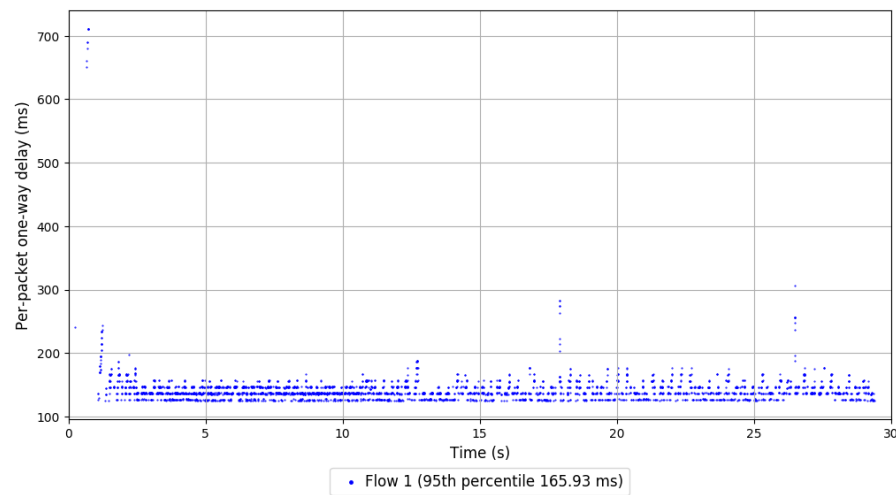
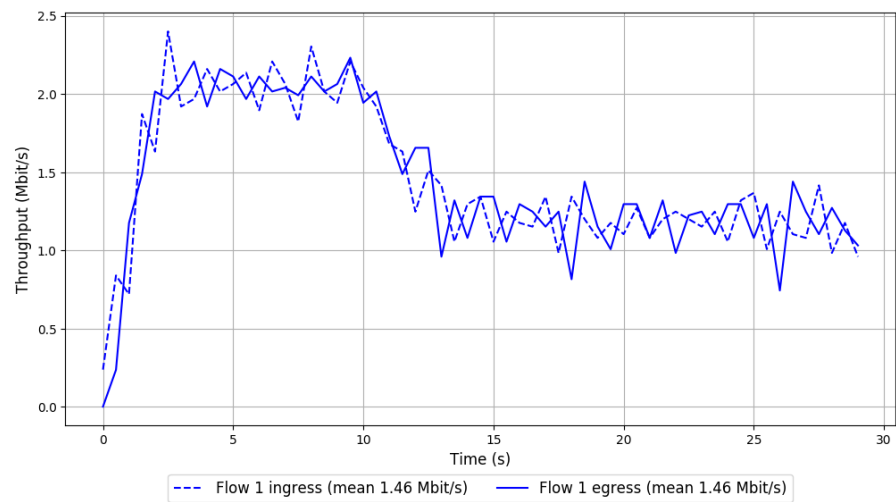
-- Flow 1:

Average throughput: 1.46 Mbit/s

95th percentile per-packet one-way delay: 165.926 ms

Loss rate: 0.25%

Run 2: Report of Indigo — Data Link



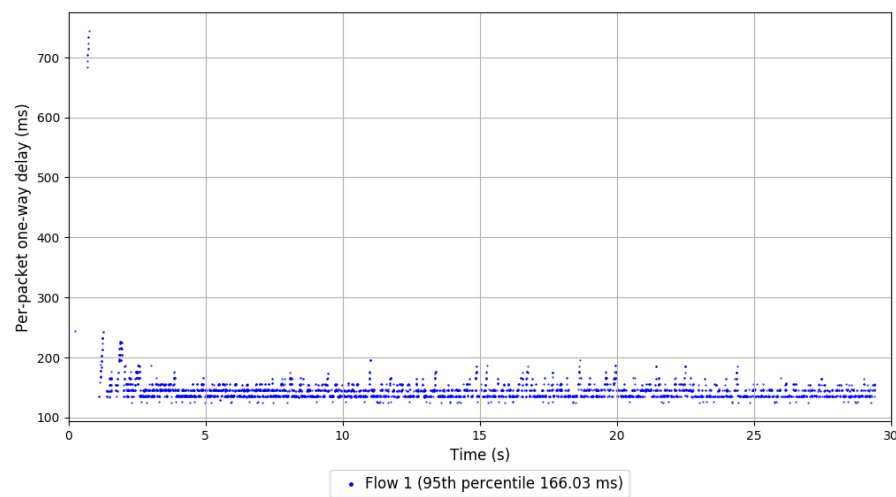
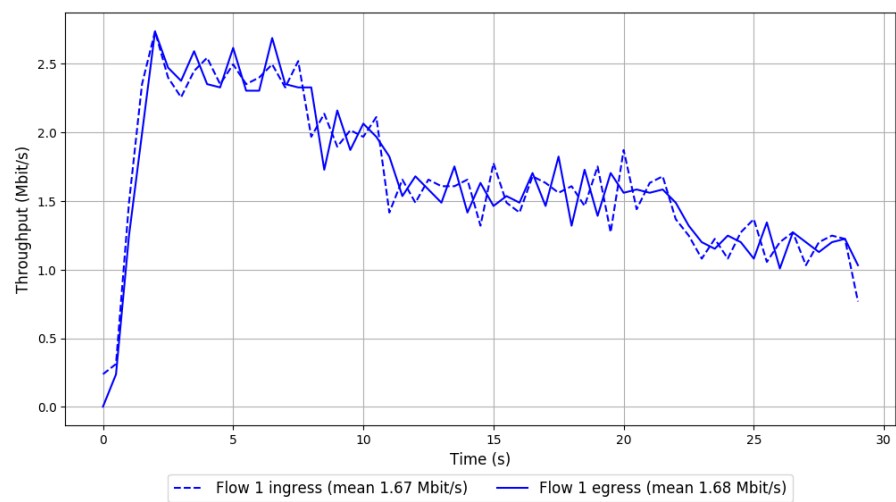
Run 3: Statistics of Indigo

Start at: 2017-11-30 06:39:40  
End at: 2017-11-30 06:40:10  
Local clock offset: 1.008 ms  
Remote clock offset: -0.794 ms

# Below is generated by plot.py at 2017-11-30 06:55:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.68 Mbit/s  
95th percentile per-packet one-way delay: 166.029 ms  
Loss rate: 0.17%  
-- Flow 1:  
Average throughput: 1.68 Mbit/s  
95th percentile per-packet one-way delay: 166.029 ms  
Loss rate: 0.17%



Run 3: Report of Indigo — Data Link

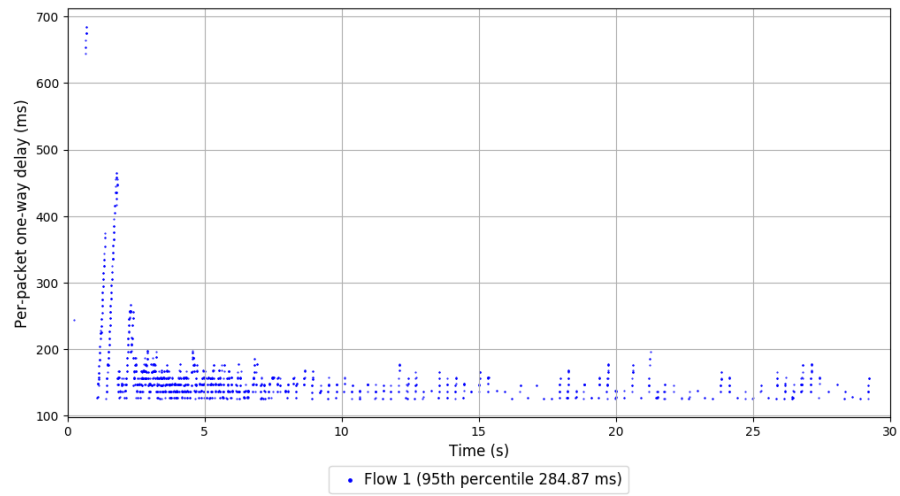
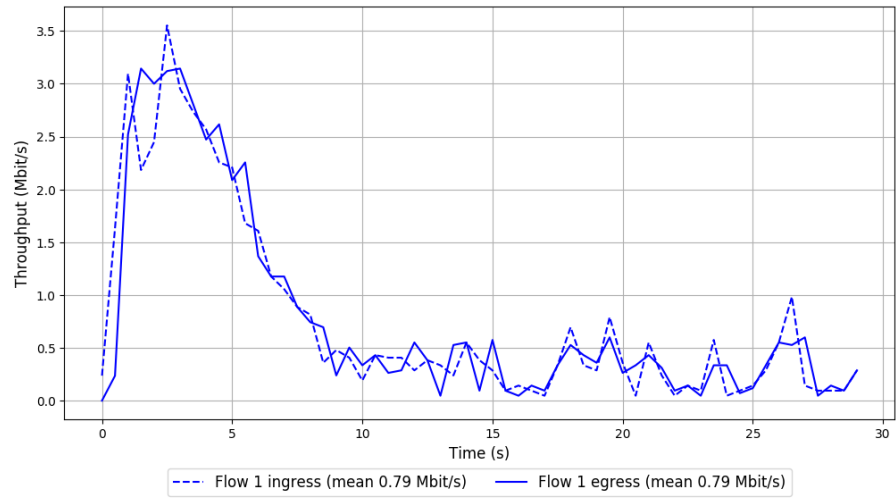


```
Run 1: Statistics of Indigo-calib

Start at: 2017-11-30 06:11:29
End at: 2017-11-30 06:11:59
Local clock offset: 1.575 ms
Remote clock offset: -5.802 ms

# Below is generated by plot.py at 2017-11-30 06:55:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 284.867 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 284.867 ms
Loss rate: 0.00%
```

# Run 1: Report of Indigo-calib — Data Link



Run 2: Statistics of Indigo-calib

Start at: 2017-11-30 06:27:55

End at: 2017-11-30 06:28:25

Local clock offset: 1.184 ms

Remote clock offset: -7.424 ms

# Below is generated by plot.py at 2017-11-30 06:55:34

# Datalink statistics

-- Total of 1 flow:

Average throughput: 1.34 Mbit/s

95th percentile per-packet one-way delay: 202.275 ms

Loss rate: 0.00%

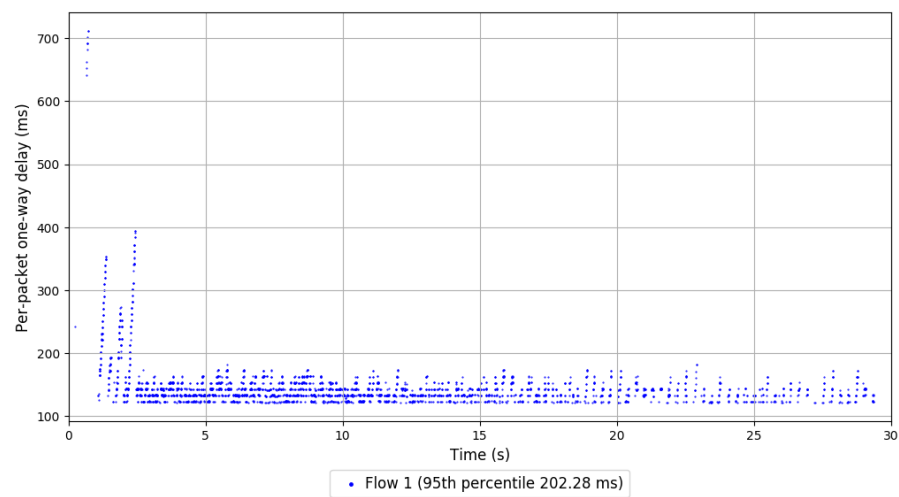
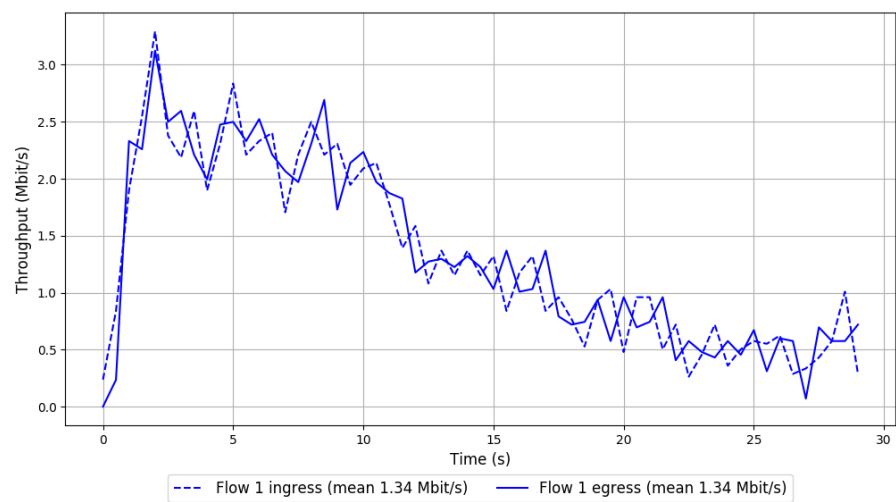
-- Flow 1:

Average throughput: 1.34 Mbit/s

95th percentile per-packet one-way delay: 202.275 ms

Loss rate: 0.00%

Run 2: Report of Indigo-calib — Data Link



Run 3: Statistics of Indigo-calib

Start at: 2017-11-30 06:44:22

End at: 2017-11-30 06:44:52

Local clock offset: 1.052 ms

Remote clock offset: -6.47 ms

# Below is generated by plot.py at 2017-11-30 06:55:34

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 215.285 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 215.285 ms

Loss rate: 0.00%

Run 3: Report of Indigo-calib — Data Link

