

## Pantheon Report

Generated at 2017-12-05 07:56:26 (UTC).

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

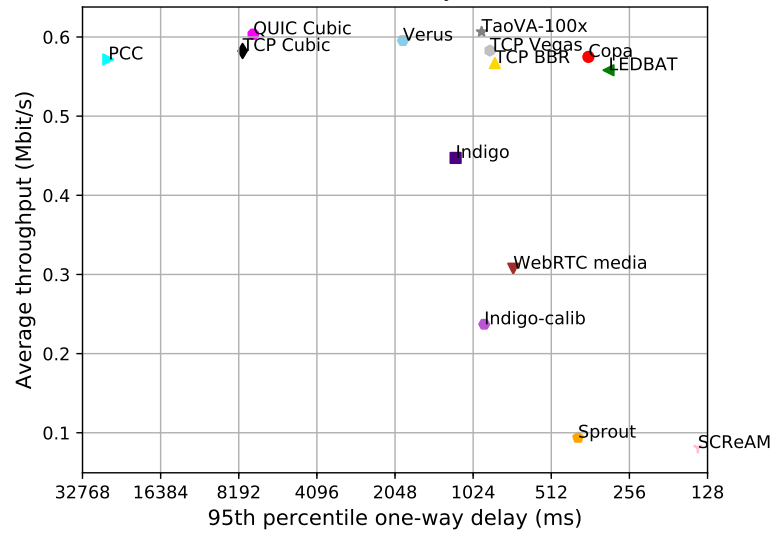
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo\_fast**).

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

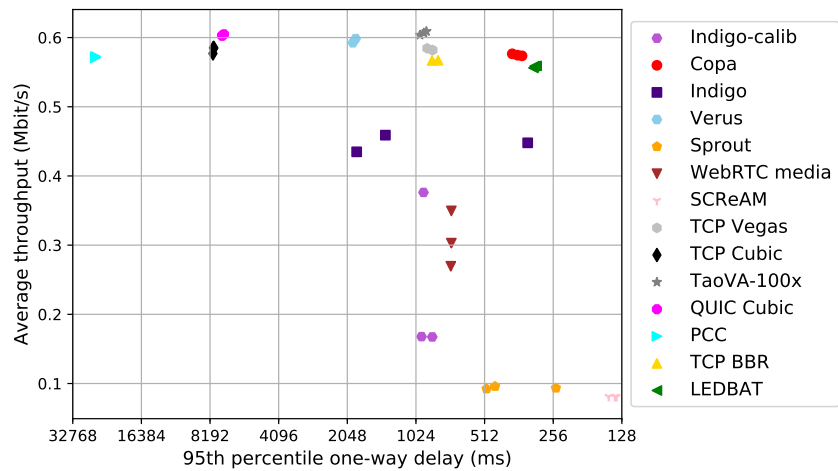
Git summary:

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



test from Colombia ppp0 to AWS Brazil 2 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	2	0.57	844.51	2.30
TCP Cubic	3	0.58	7916.87	30.92
LEDBAT	3	0.56	308.17	1.26
PCC	3	0.57	26056.97	98.58
QUIC Cubic	3	0.60	7204.44	29.13
SCReAM	3	0.08	139.51	0.66
WebRTC media	3	0.31	717.48	0.90
Sprout	3	0.09	403.87	1.54
TaoVA-100x	3	0.61	950.29	2.72
TCP Vegas	3	0.58	882.52	1.12
Verus	2	0.59	1910.07	5.80
Copa	3	0.57	368.28	1.24
Indigo	3	0.45	1196.30	14.69
Indigo-calib	3	0.24	928.32	5.89

Run 1: Statistics of TCP BBR

Start at: 2017-12-05 06:32:10

End at: 2017-12-05 06:32:40

Local clock offset: 1.444 ms

Remote clock offset: -6.926 ms

# Below is generated by plot.py at 2017-12-05 07:55:58

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 869.990 ms

Loss rate: 2.44%

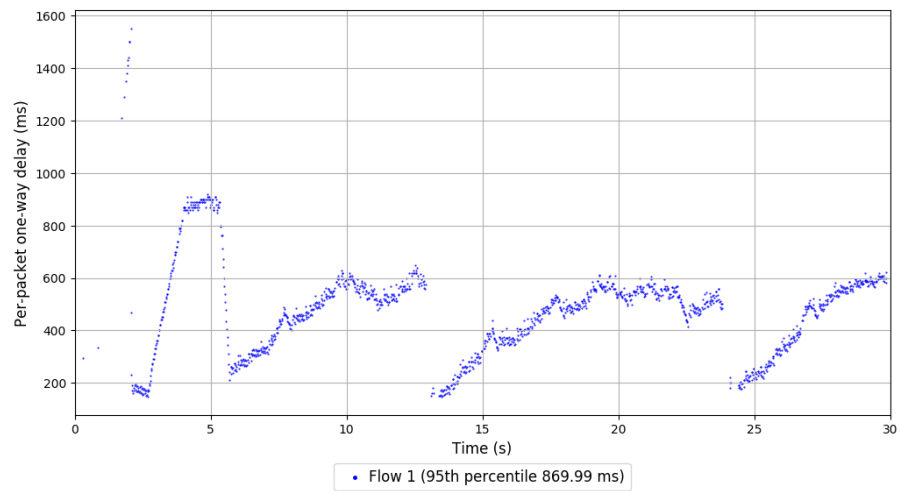
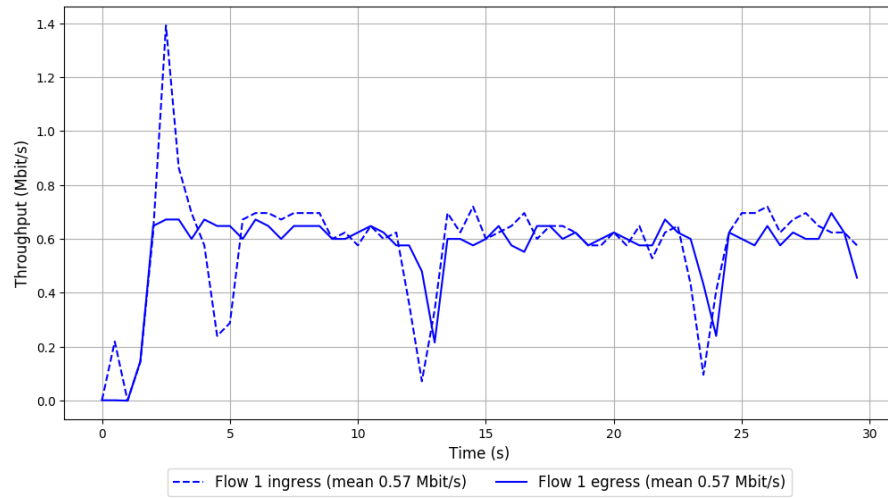
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 869.990 ms

Loss rate: 2.44%

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



Run 2: Statistics of TCP BBR

Start at: 2017-12-05 06:48:32

End at: 2017-12-05 06:49:02

Local clock offset: 1.747 ms

Remote clock offset: -0.813 ms

Run 2: Report of TCP BBR — Data Link

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Run 3: Statistics of TCP BBR

Start at: 2017-12-05 07:04:55

End at: 2017-12-05 07:05:25

Local clock offset: 1.42 ms

Remote clock offset: -5.775 ms

# Below is generated by plot.py at 2017-12-05 07:55:59

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 819.021 ms

Loss rate: 2.17%

-- Flow 1:

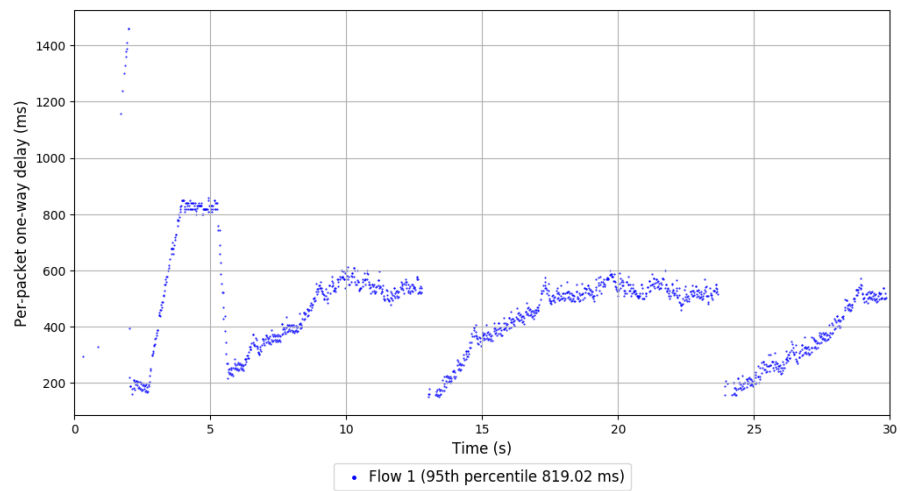
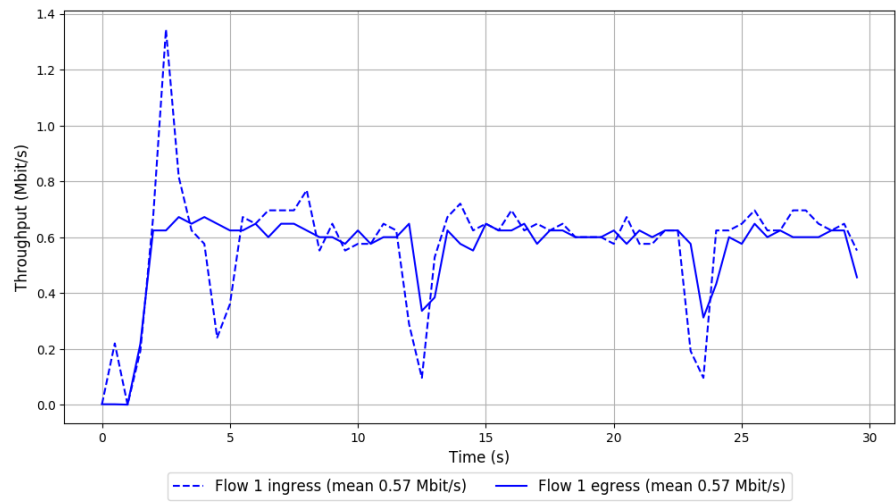
Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 819.021 ms

Loss rate: 2.17%



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



Run 1: Statistics of TCP Cubic

Start at: 2017-12-05 06:18:08

End at: 2017-12-05 06:18:38

Local clock offset: 0.371 ms

Remote clock offset: -2.36 ms

# Below is generated by plot.py at 2017-12-05 07:55:59

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 7953.686 ms

Loss rate: 30.93%

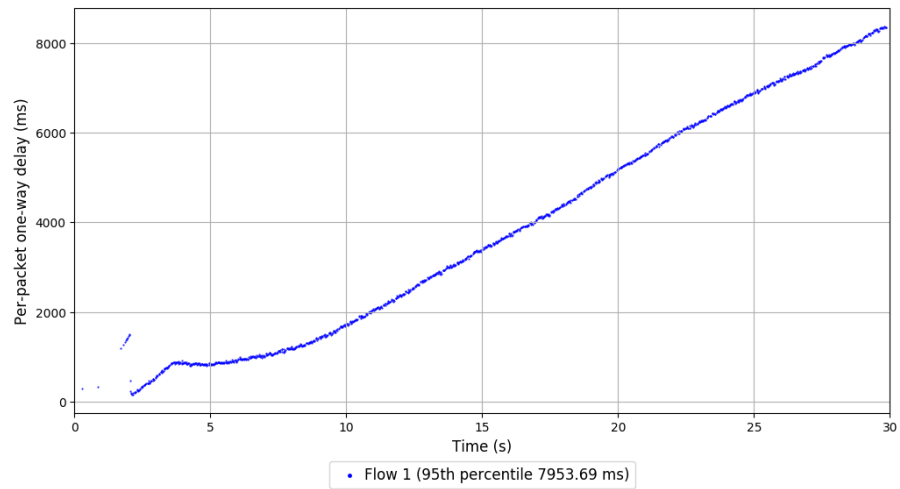
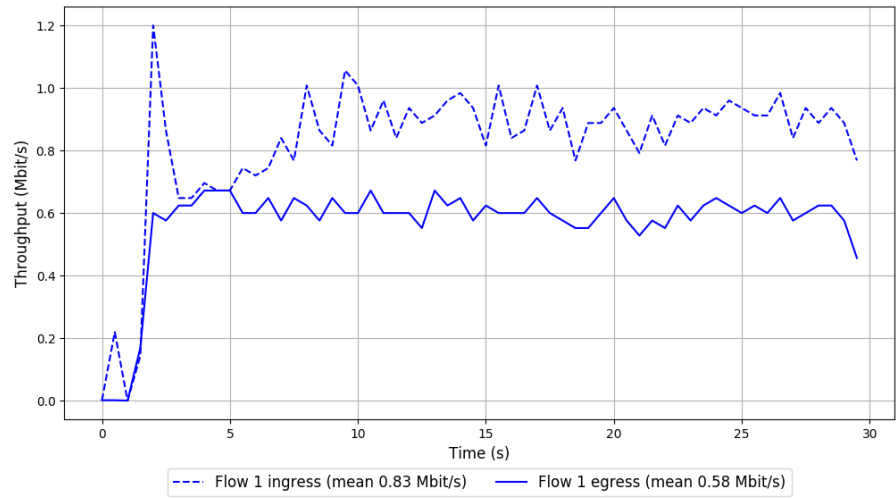
-- Flow 1:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 7953.686 ms

Loss rate: 30.93%

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

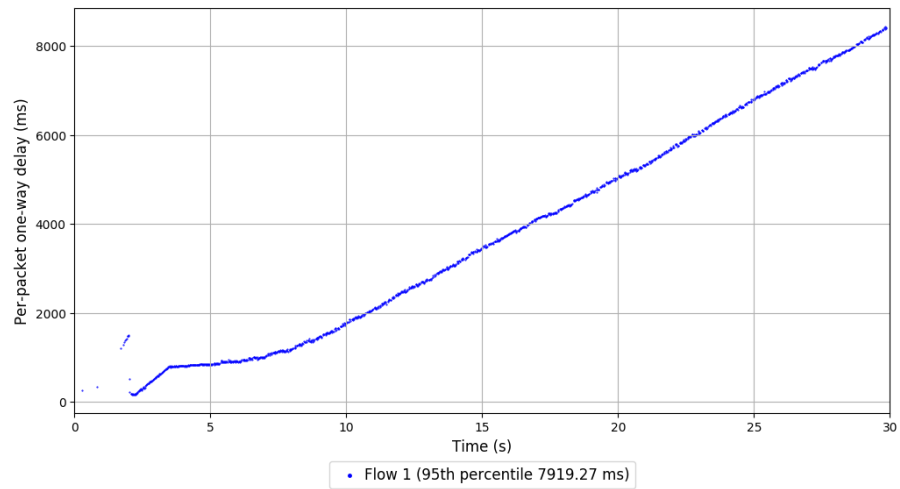
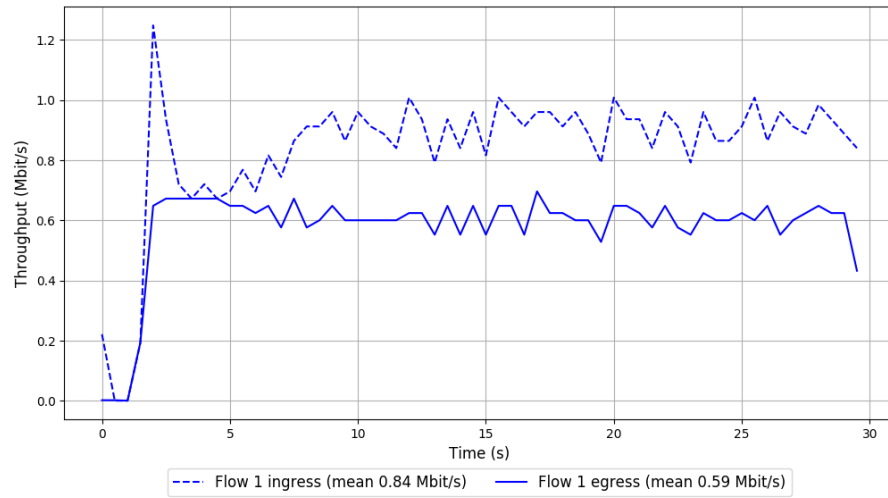


Run 2: Statistics of TCP Cubic

Start at: 2017-12-05 06:34:30  
End at: 2017-12-05 06:35:00  
Local clock offset: 1.539 ms  
Remote clock offset: -6.392 ms

# Below is generated by plot.py at 2017-12-05 07:55:59  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.59 Mbit/s  
95th percentile per-packet one-way delay: 7919.265 ms  
Loss rate: 30.89%  
-- Flow 1:  
Average throughput: 0.59 Mbit/s  
95th percentile per-packet one-way delay: 7919.265 ms  
Loss rate: 30.89%

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

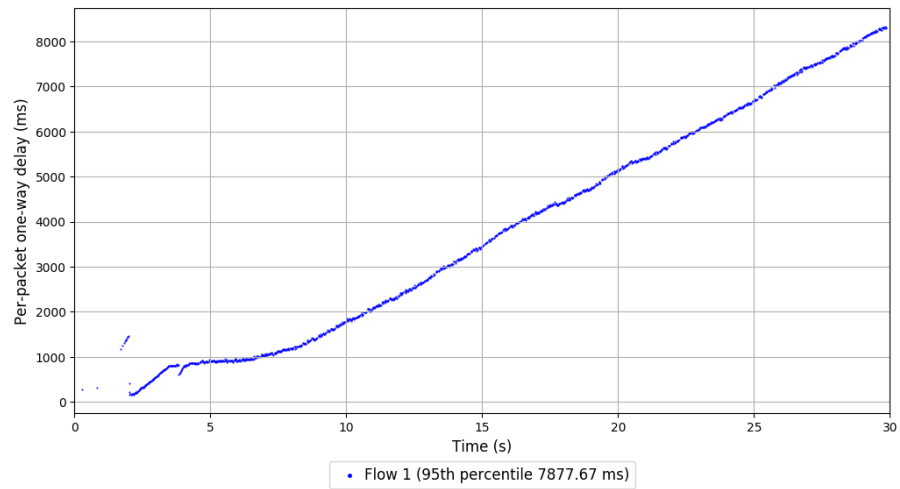
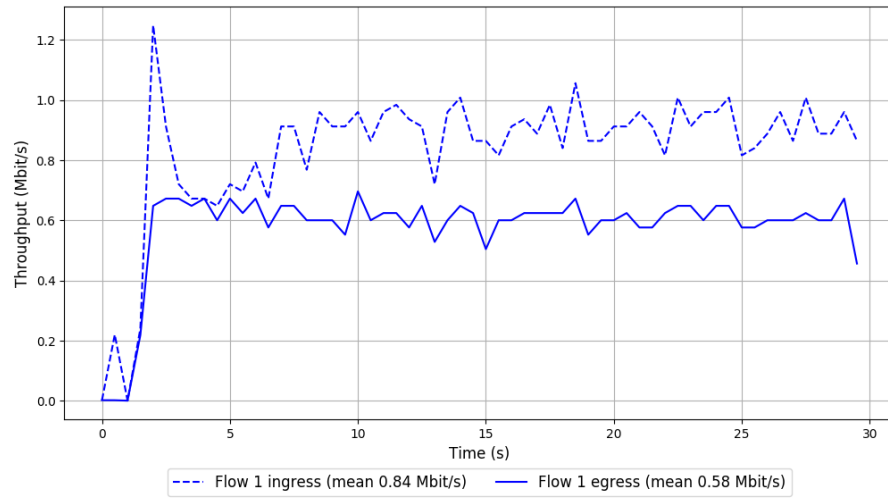


Run 3: Statistics of TCP Cubic

Start at: 2017-12-05 06:50:53  
End at: 2017-12-05 06:51:23  
Local clock offset: 1.807 ms  
Remote clock offset: -0.556 ms

# Below is generated by plot.py at 2017-12-05 07:55:59  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.58 Mbit/s  
95th percentile per-packet one-way delay: 7877.673 ms  
Loss rate: 30.94%  
-- Flow 1:  
Average throughput: 0.58 Mbit/s  
95th percentile per-packet one-way delay: 7877.673 ms  
Loss rate: 30.94%

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



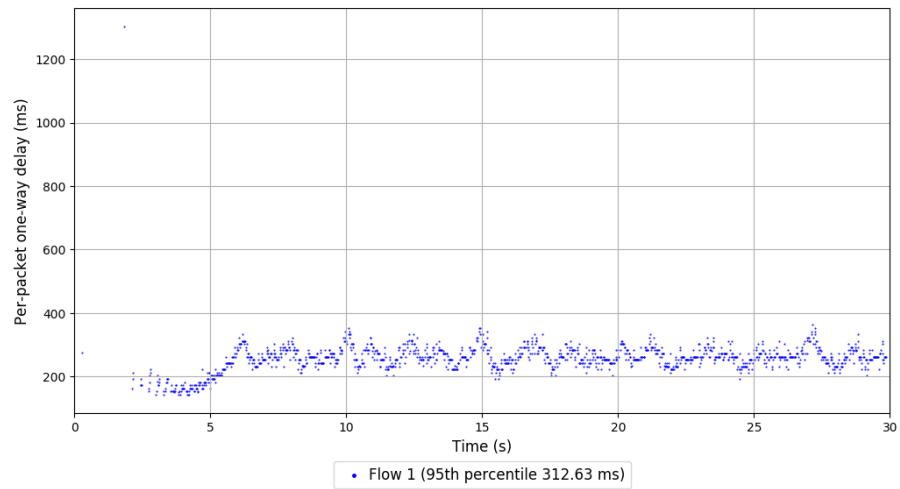
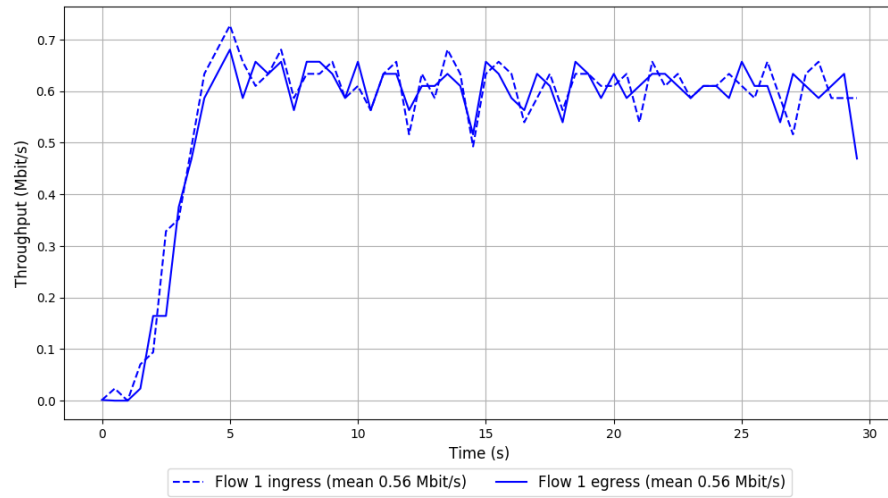
Run 1: Statistics of LEDBAT

Start at: 2017-12-05 06:31:00  
End at: 2017-12-05 06:31:30  
Local clock offset: 1.54 ms  
Remote clock offset: -1.351 ms

# Below is generated by plot.py at 2017-12-05 07:55:59  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.56 Mbit/s  
95th percentile per-packet one-way delay: 312.627 ms  
Loss rate: 1.27%  
-- Flow 1:  
Average throughput: 0.56 Mbit/s  
95th percentile per-packet one-way delay: 312.627 ms  
Loss rate: 1.27%



### Run 1: Report of LEDBAT — Data Link

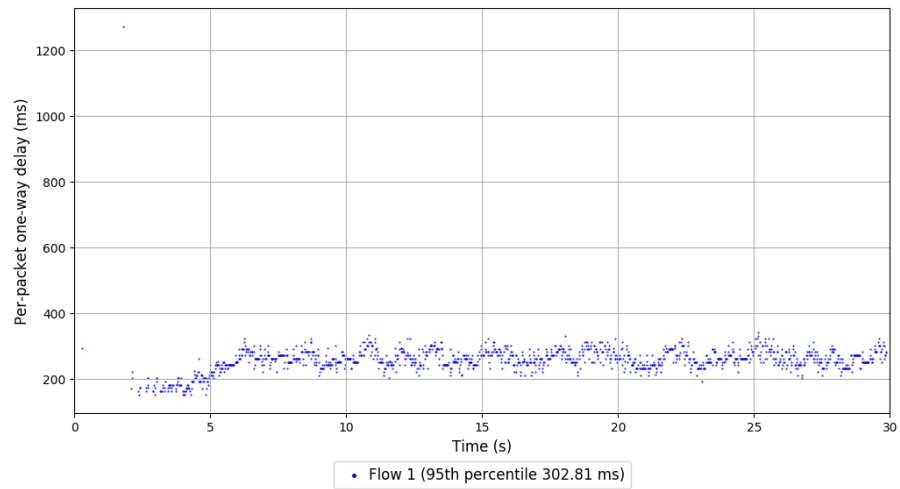
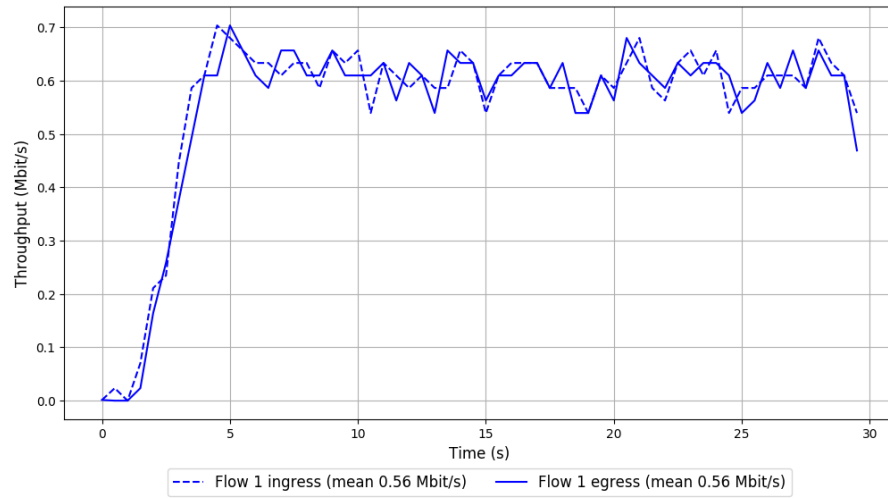


Run 2: Statistics of LEDBAT

Start at: 2017-12-05 06:47:22  
End at: 2017-12-05 06:47:52  
Local clock offset: 1.563 ms  
Remote clock offset: -5.542 ms

# Below is generated by plot.py at 2017-12-05 07:55:59  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.56 Mbit/s  
95th percentile per-packet one-way delay: 302.805 ms  
Loss rate: 1.26%  
-- Flow 1:  
Average throughput: 0.56 Mbit/s  
95th percentile per-packet one-way delay: 302.805 ms  
Loss rate: 1.26%

## Run 2: Report of LEDBAT — Data Link

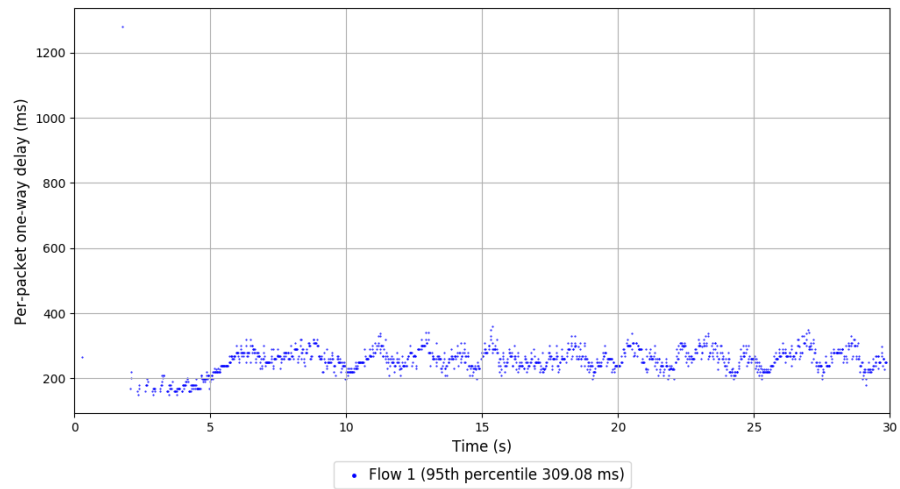
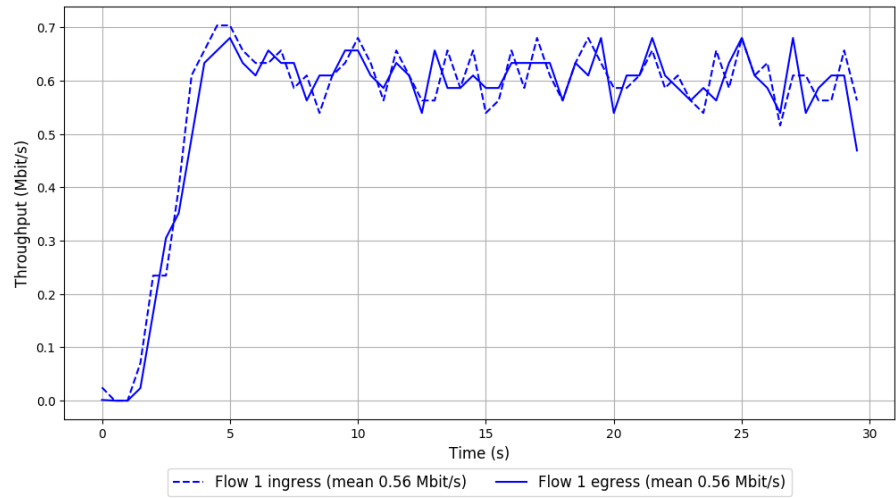


Run 3: Statistics of LEDBAT

Start at: 2017-12-05 07:03:45  
End at: 2017-12-05 07:04:15  
Local clock offset: 1.423 ms  
Remote clock offset: -0.441 ms

# Below is generated by plot.py at 2017-12-05 07:56:00  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.56 Mbit/s  
95th percentile per-packet one-way delay: 309.084 ms  
Loss rate: 1.26%  
-- Flow 1:  
Average throughput: 0.56 Mbit/s  
95th percentile per-packet one-way delay: 309.084 ms  
Loss rate: 1.26%

### Run 3: Report of LEDBAT — Data Link

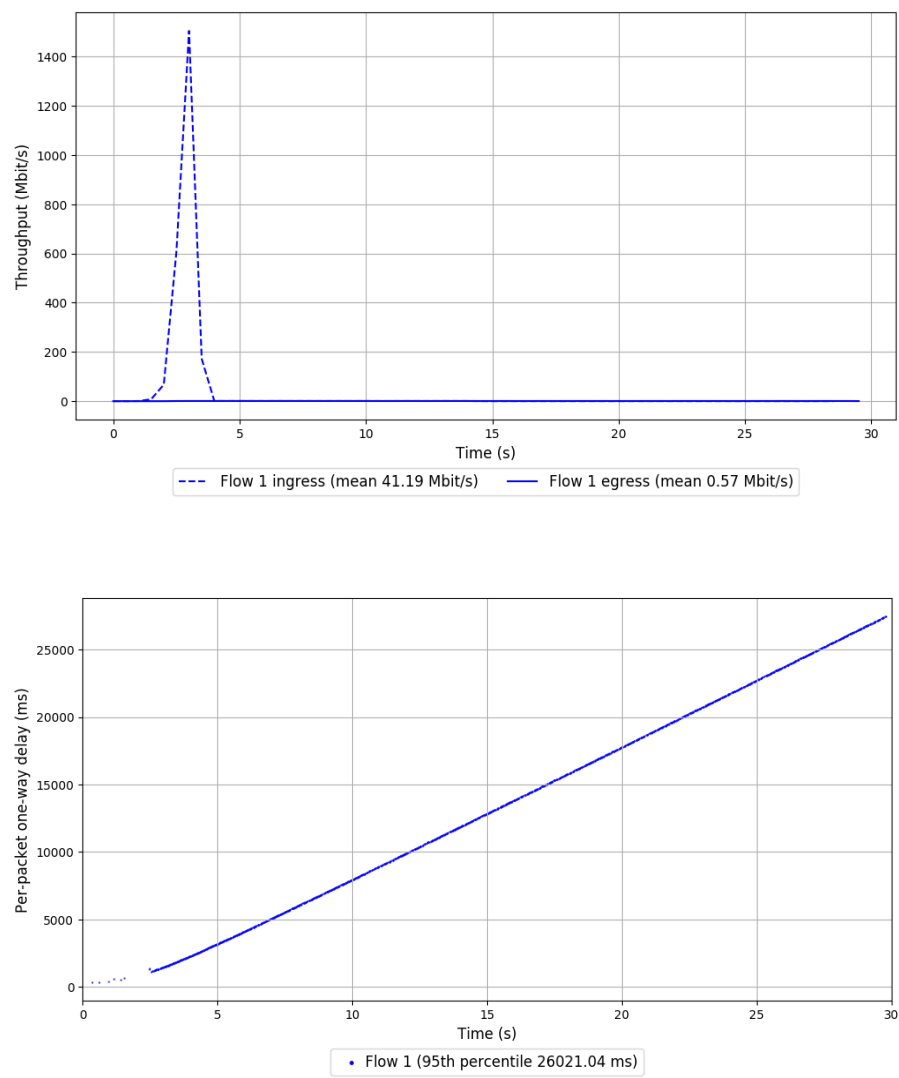


Run 1: Statistics of PCC

Start at: 2017-12-05 06:28:38  
End at: 2017-12-05 06:29:08  
Local clock offset: 1.838 ms  
Remote clock offset: -6.196 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 26021.037 ms  
Loss rate: 98.58%  
-- Flow 1:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 26021.037 ms  
Loss rate: 98.58%

Run 1: Report of PCC — Data Link



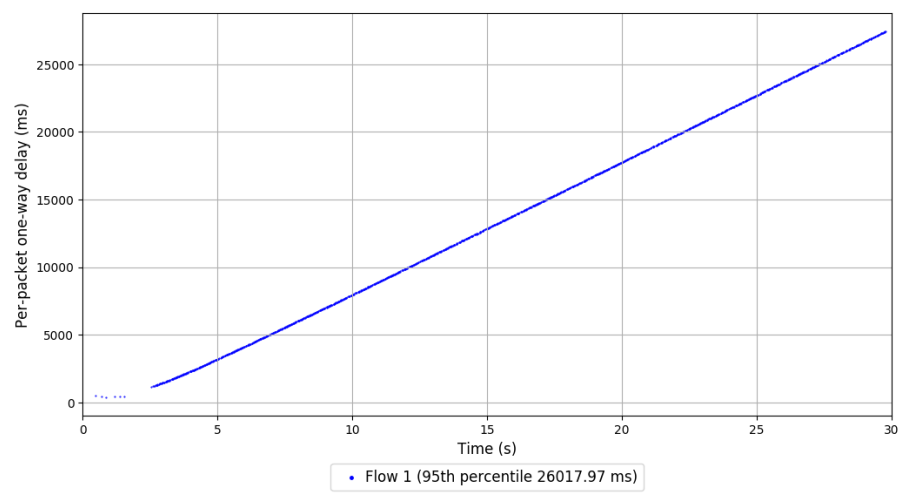
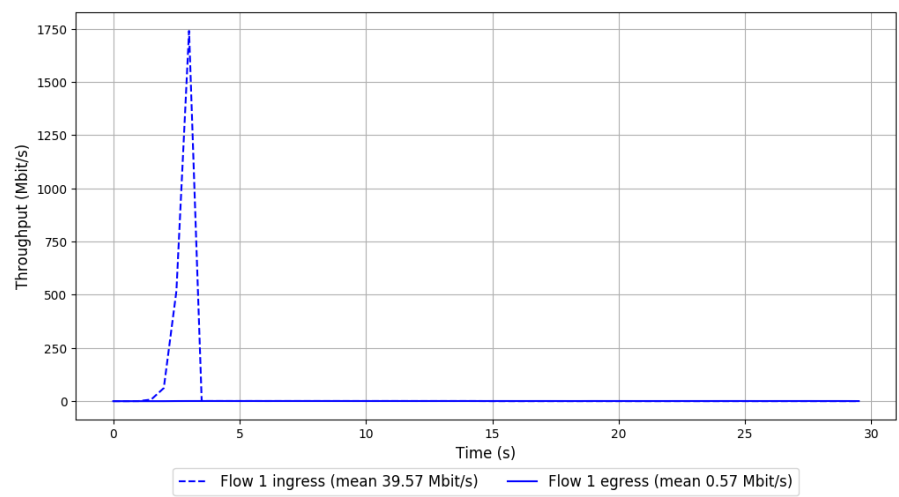
Run 2: Statistics of PCC

Start at: 2017-12-05 06:45:01  
End at: 2017-12-05 06:45:31  
Local clock offset: 1.457 ms  
Remote clock offset: -0.968 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 26017.972 ms  
Loss rate: 98.57%  
-- Flow 1:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 26017.972 ms  
Loss rate: 98.57%



Run 2: Report of PCC — Data Link

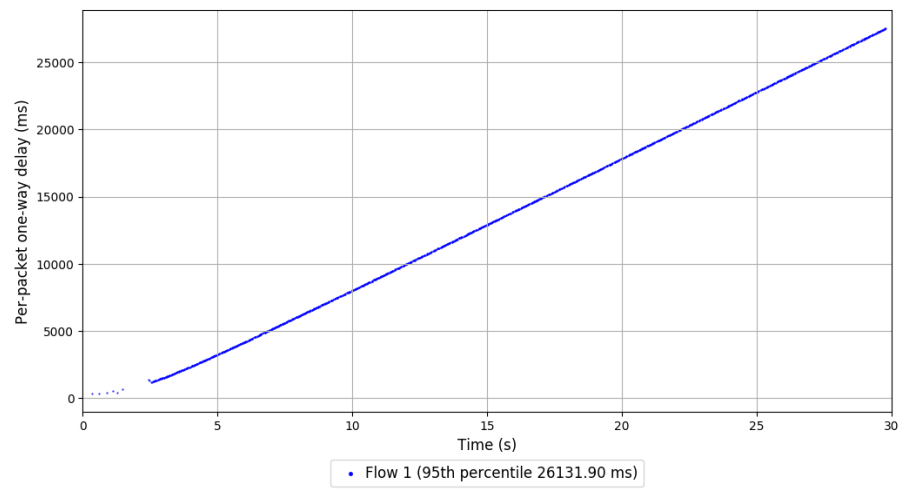
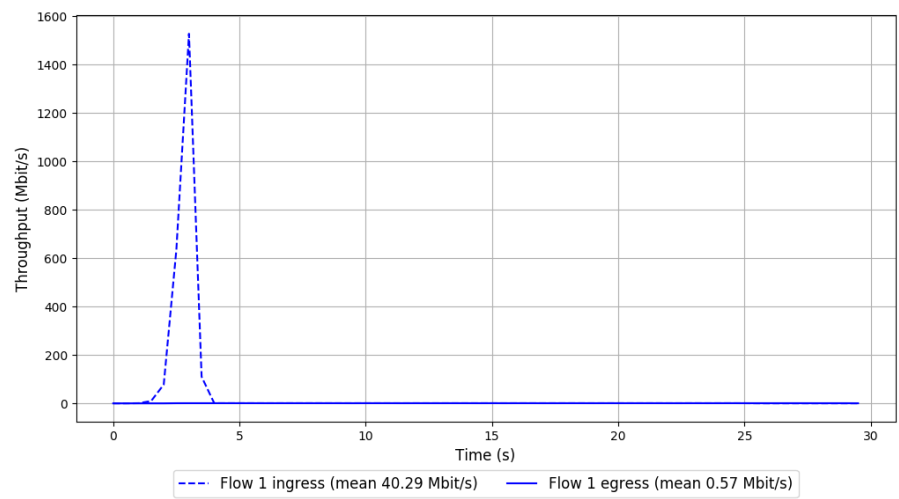


Run 3: Statistics of PCC

Start at: 2017-12-05 07:01:23  
End at: 2017-12-05 07:01:53  
Local clock offset: 1.572 ms  
Remote clock offset: -6.241 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 26131.902 ms  
Loss rate: 98.59%  
-- Flow 1:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 26131.902 ms  
Loss rate: 98.59%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2017-12-05 06:33:20

End at: 2017-12-05 06:33:50

Local clock offset: 1.514 ms

Remote clock offset: -0.756 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7118.402 ms

Loss rate: 29.05%

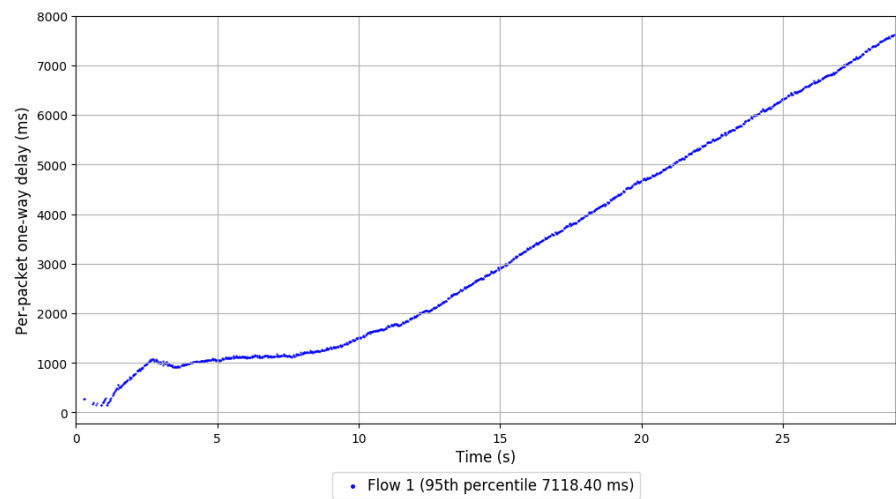
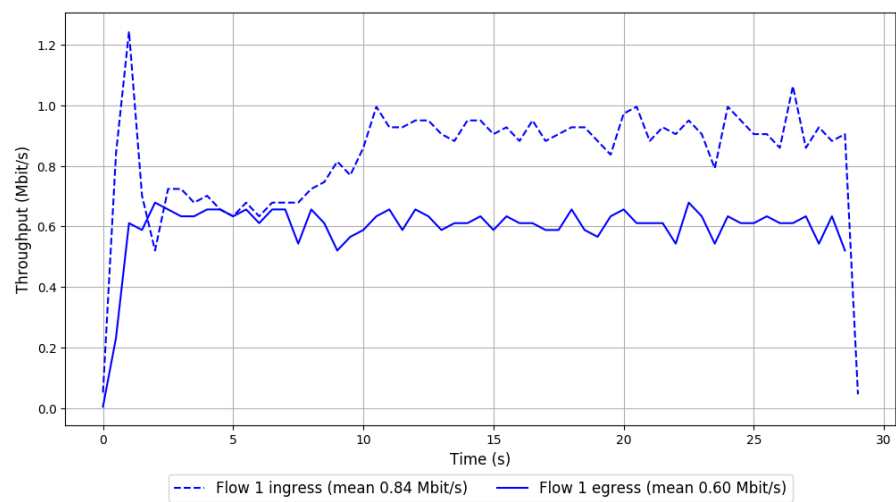
-- Flow 1:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7118.402 ms

Loss rate: 29.05%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2017-12-05 06:49:42

End at: 2017-12-05 06:50:12

Local clock offset: 1.761 ms

Remote clock offset: -1.004 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7232.729 ms

Loss rate: 29.21%

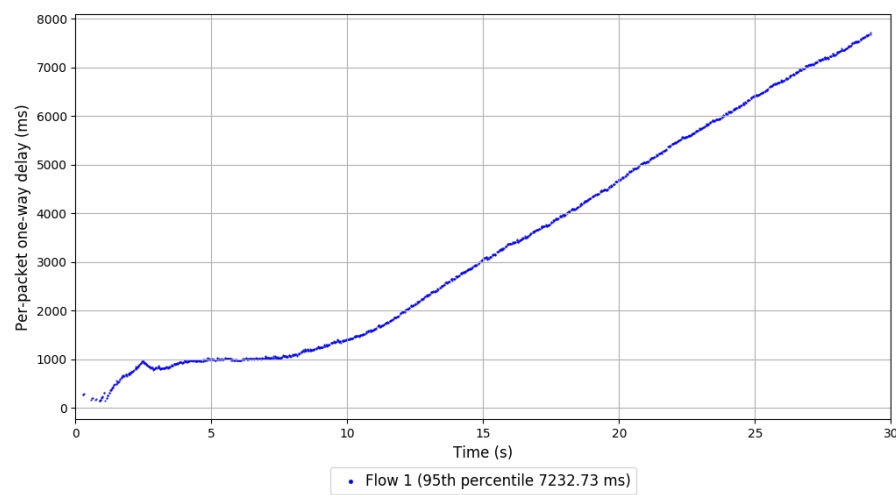
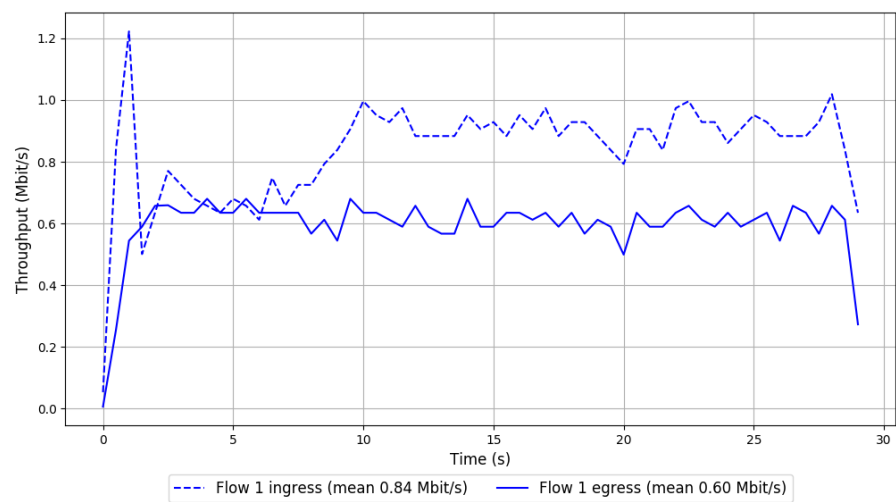
-- Flow 1:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7232.729 ms

Loss rate: 29.21%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-12-05 07:06:05

End at: 2017-12-05 07:06:35

Local clock offset: 1.503 ms

Remote clock offset: -5.626 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7262.202 ms

Loss rate: 29.12%

-- Flow 1:

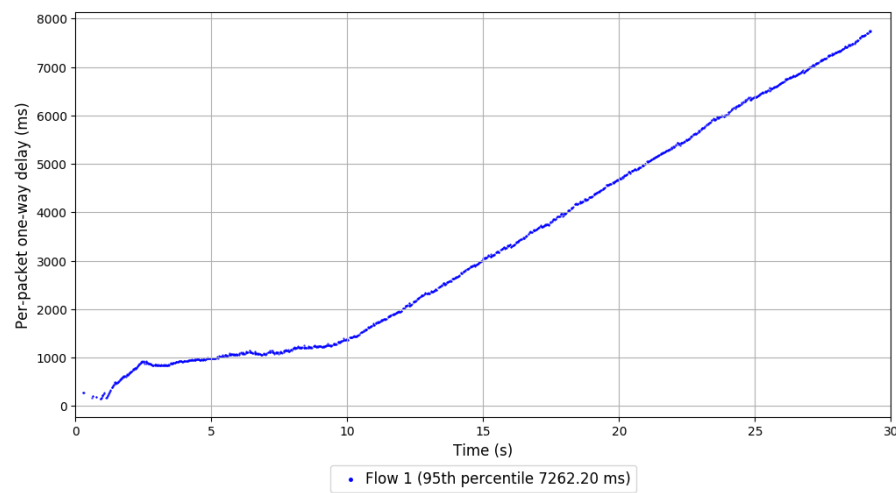
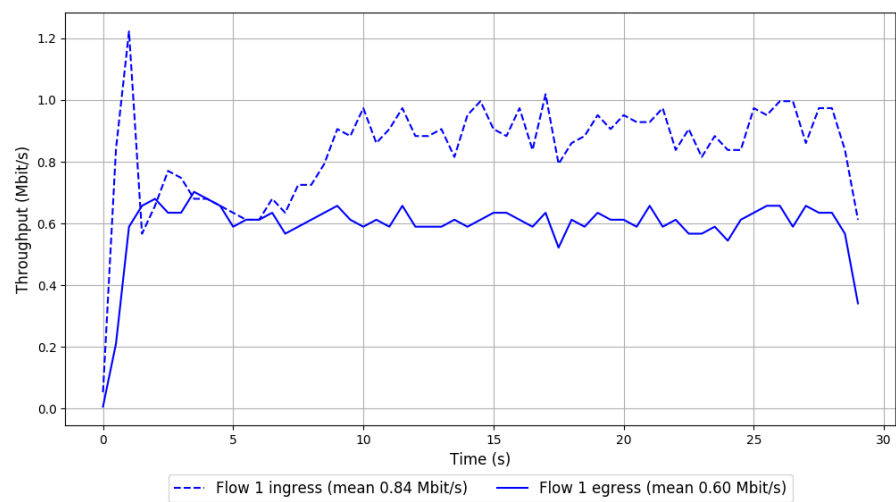
Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7262.202 ms

Loss rate: 29.12%



Run 3: Report of QUIC Cubic — Data Link

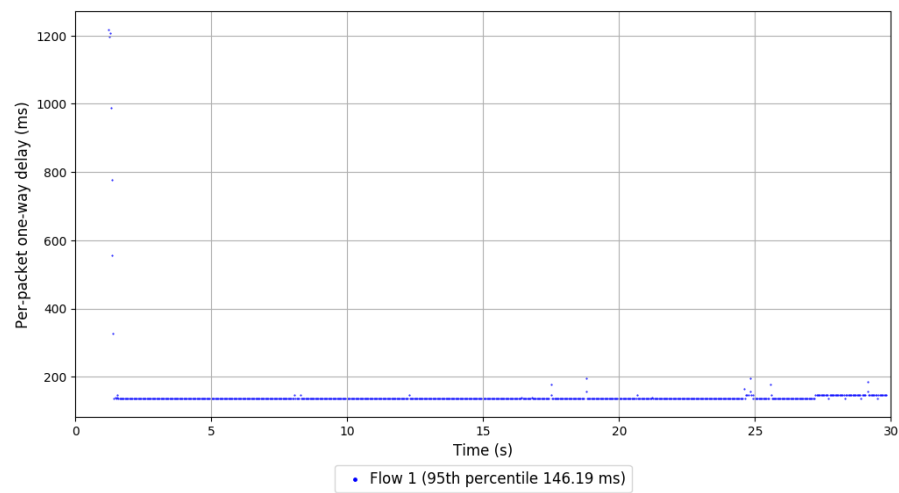
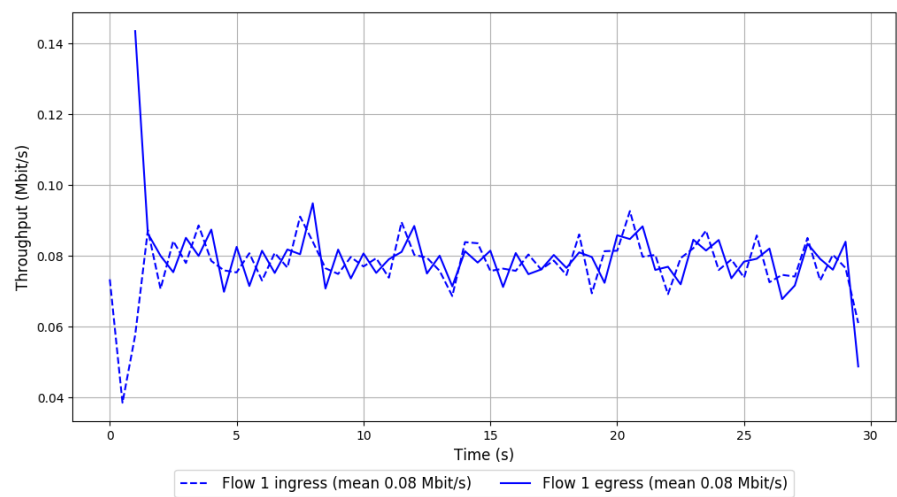


Run 1: Statistics of SCReAM

Start at: 2017-12-05 06:29:50  
End at: 2017-12-05 06:30:20  
Local clock offset: 1.714 ms  
Remote clock offset: -6.974 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 146.186 ms  
Loss rate: 0.66%  
-- Flow 1:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 146.186 ms  
Loss rate: 0.66%

Run 1: Report of SReAM — Data Link

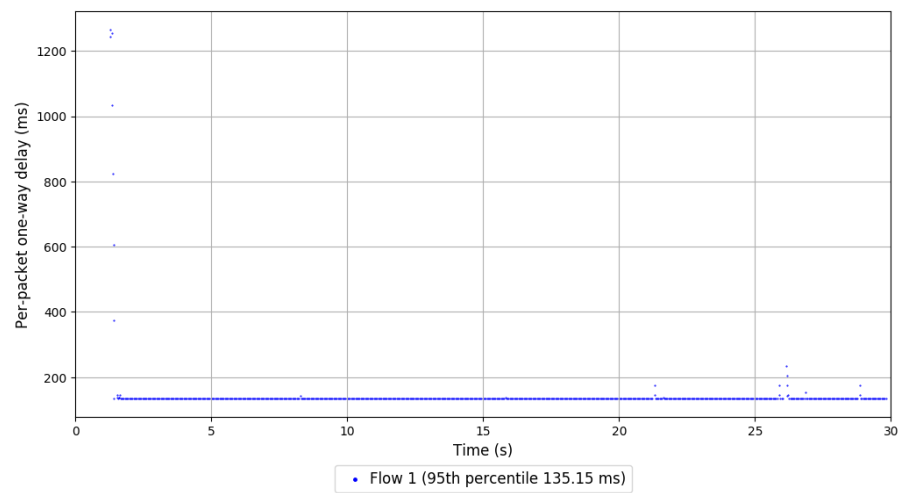
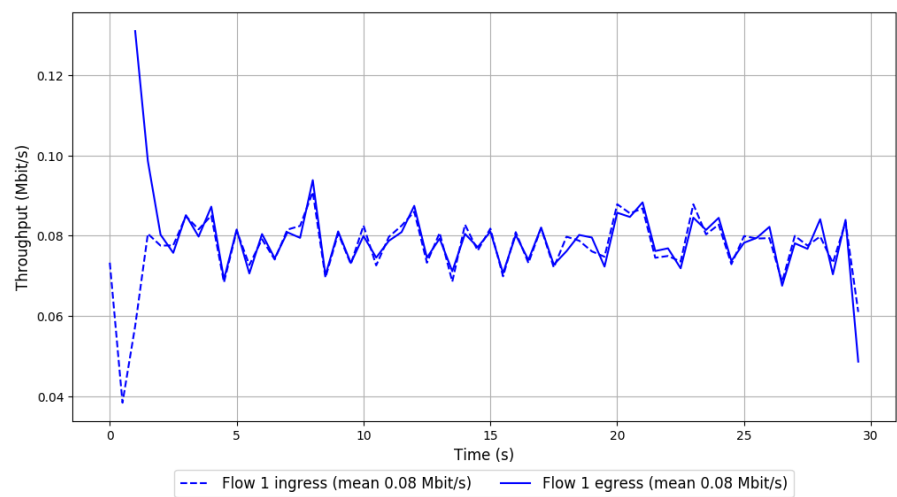


Run 2: Statistics of SCReAM

Start at: 2017-12-05 06:46:12  
End at: 2017-12-05 06:46:42  
Local clock offset: 1.539 ms  
Remote clock offset: -5.648 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 135.145 ms  
Loss rate: 0.66%  
-- Flow 1:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 135.145 ms  
Loss rate: 0.66%

Run 2: Report of SReAM — Data Link

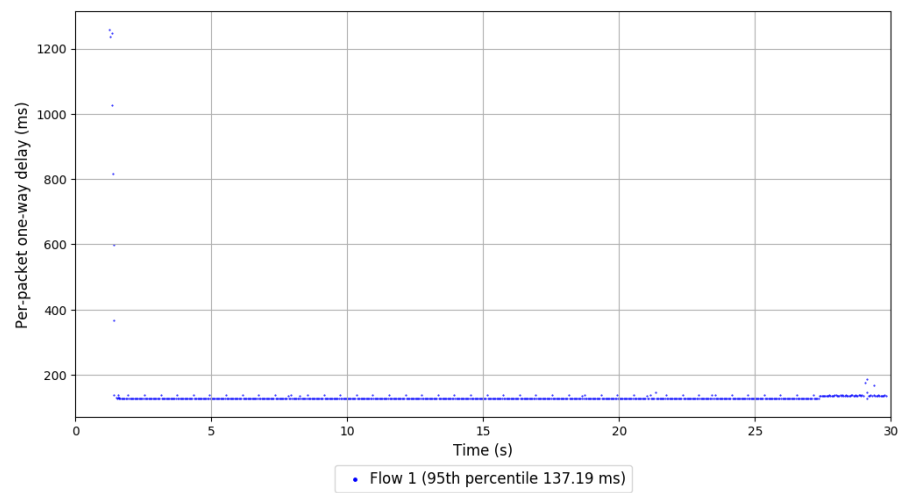
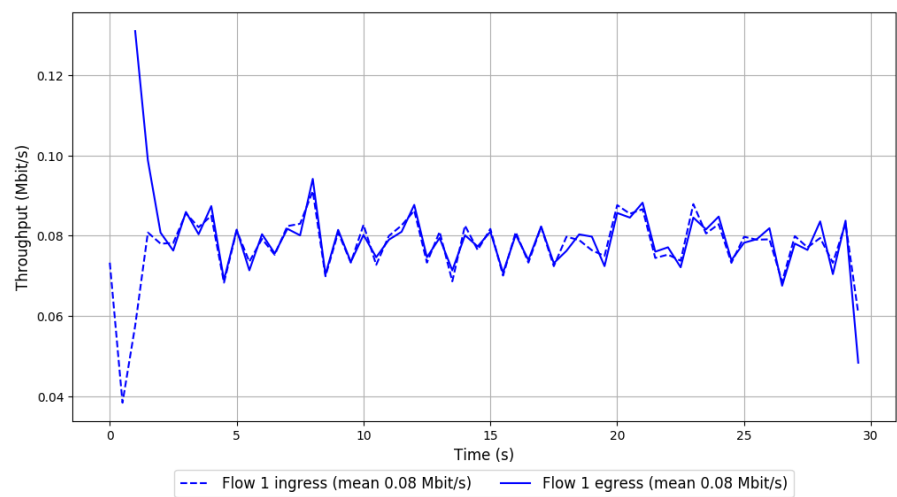


Run 3: Statistics of SCReAM

Start at: 2017-12-05 07:02:35  
End at: 2017-12-05 07:03:05  
Local clock offset: 1.459 ms  
Remote clock offset: -0.523 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 137.185 ms  
Loss rate: 0.65%  
-- Flow 1:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 137.185 ms  
Loss rate: 0.65%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

Start at: 2017-12-05 06:26:18

End at: 2017-12-05 06:26:48

Local clock offset: 1.575 ms

Remote clock offset: -2.634 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.30 Mbit/s

95th percentile per-packet one-way delay: 716.194 ms

Loss rate: 1.01%

-- Flow 1:

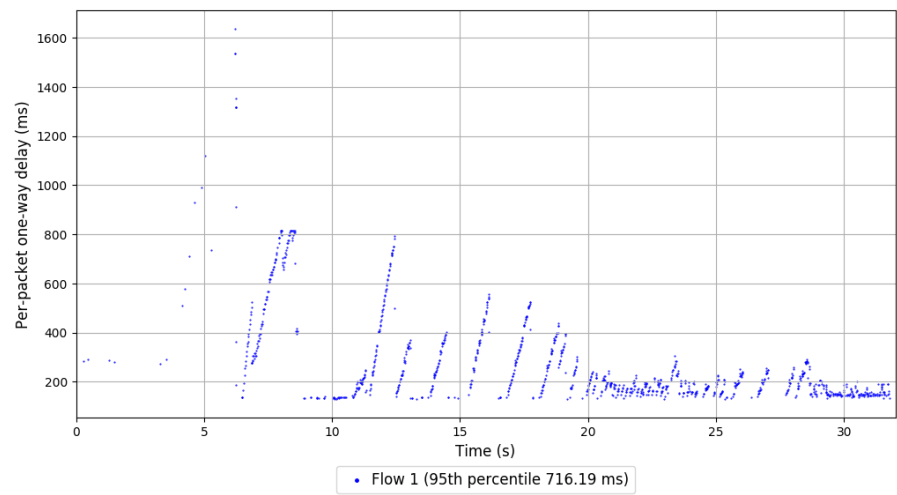
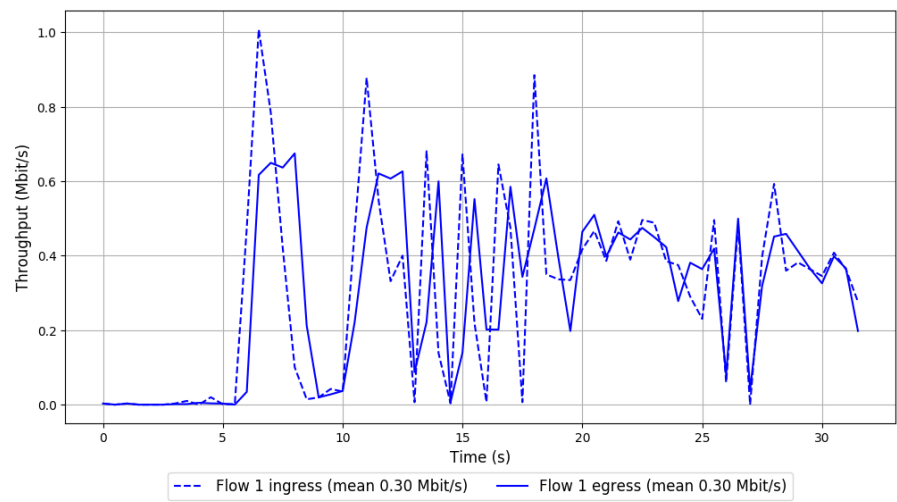
Average throughput: 0.30 Mbit/s

95th percentile per-packet one-way delay: 716.194 ms

Loss rate: 1.01%



Run 1: Report of WebRTC media — Data Link

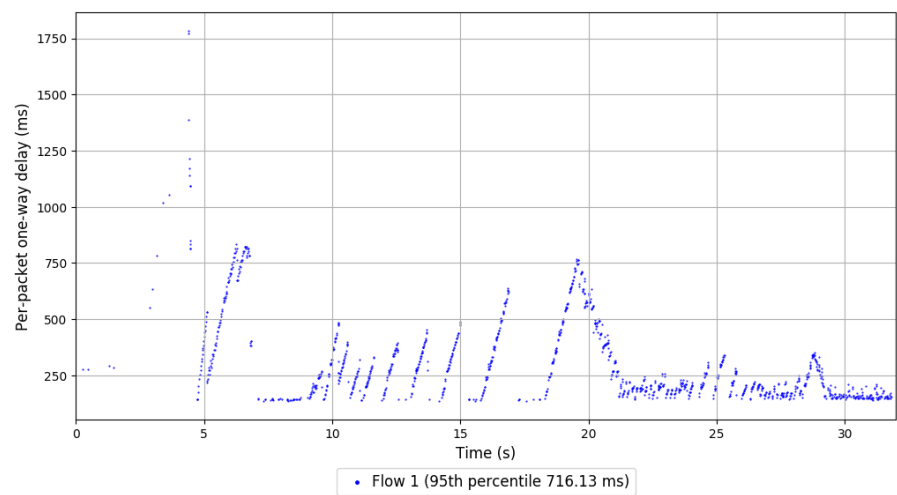
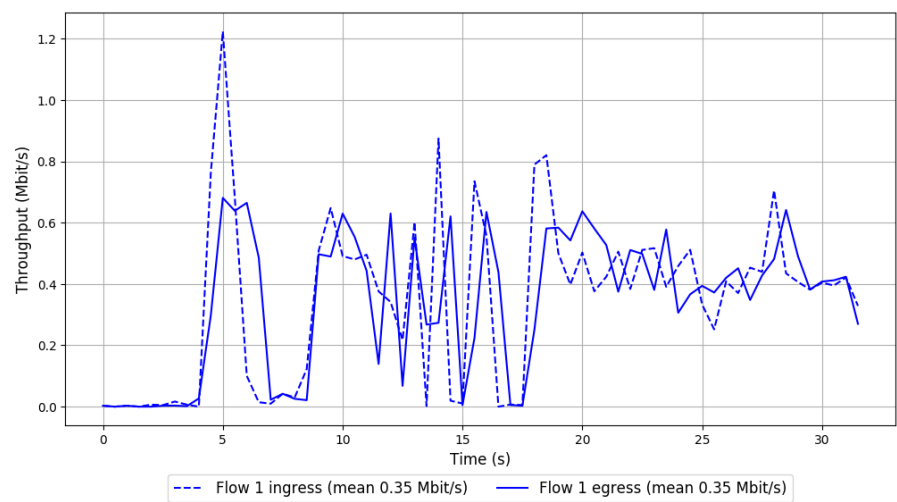


Run 2: Statistics of WebRTC media

Start at: 2017-12-05 06:42:40  
End at: 2017-12-05 06:43:10  
Local clock offset: 1.41 ms  
Remote clock offset: -6.752 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.35 Mbit/s  
95th percentile per-packet one-way delay: 716.126 ms  
Loss rate: 0.84%  
-- Flow 1:  
Average throughput: 0.35 Mbit/s  
95th percentile per-packet one-way delay: 716.126 ms  
Loss rate: 0.84%

Run 2: Report of WebRTC media — Data Link

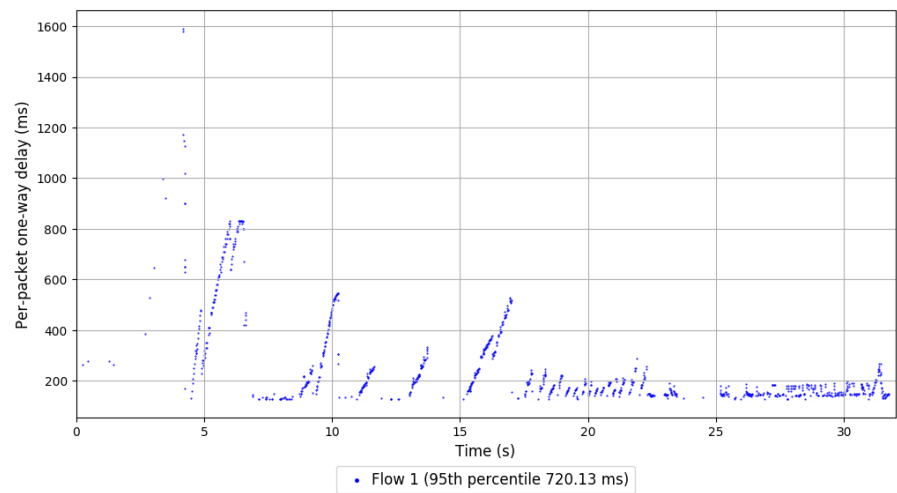
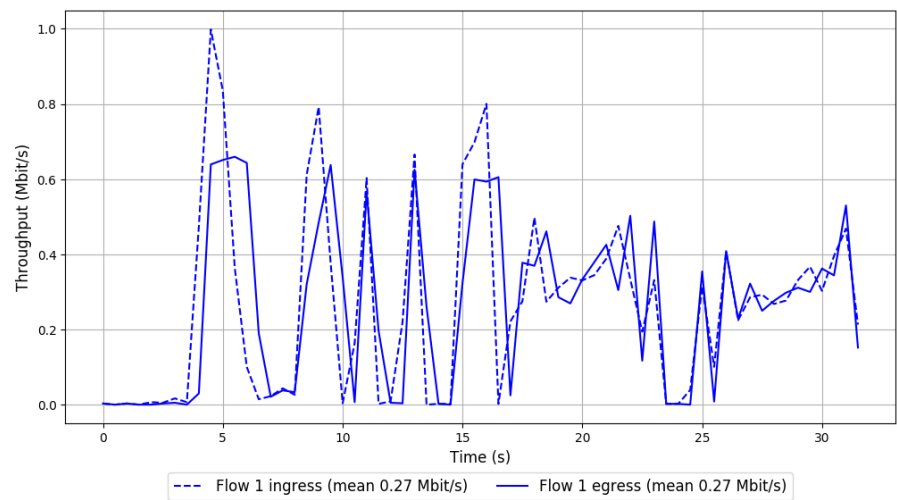


Run 3: Statistics of WebRTC media

Start at: 2017-12-05 06:59:03  
End at: 2017-12-05 06:59:33  
Local clock offset: 1.74 ms  
Remote clock offset: -0.298 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.27 Mbit/s  
95th percentile per-packet one-way delay: 720.128 ms  
Loss rate: 0.84%  
-- Flow 1:  
Average throughput: 0.27 Mbit/s  
95th percentile per-packet one-way delay: 720.128 ms  
Loss rate: 0.84%

Run 3: Report of WebRTC media — Data Link

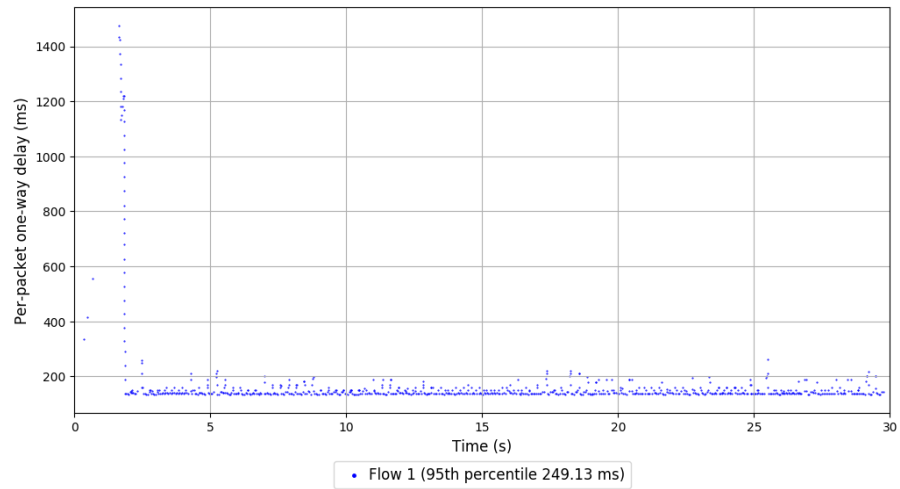
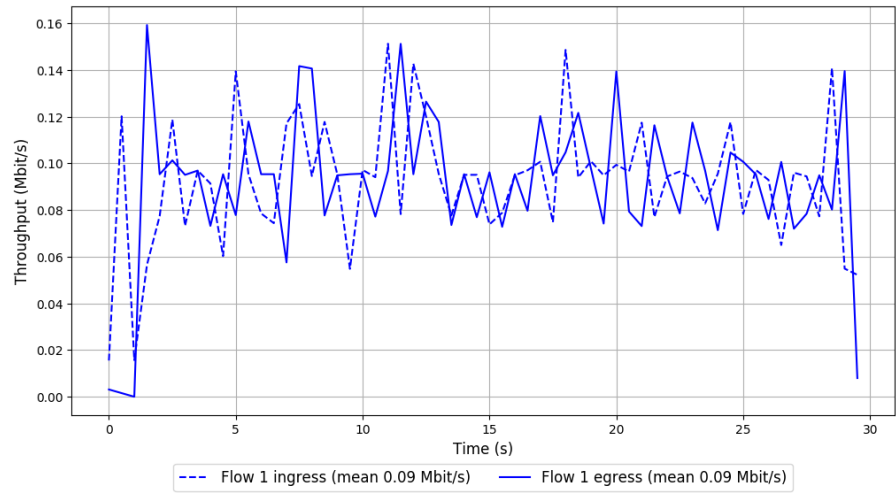


Run 1: Statistics of Sprout

Start at: 2017-12-05 06:23:58  
End at: 2017-12-05 06:24:28  
Local clock offset: 1.424 ms  
Remote clock offset: -6.582 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.09 Mbit/s  
95th percentile per-packet one-way delay: 249.126 ms  
Loss rate: 0.86%  
-- Flow 1:  
Average throughput: 0.09 Mbit/s  
95th percentile per-packet one-way delay: 249.126 ms  
Loss rate: 0.86%

# Run 1: Report of Sprout — Data Link



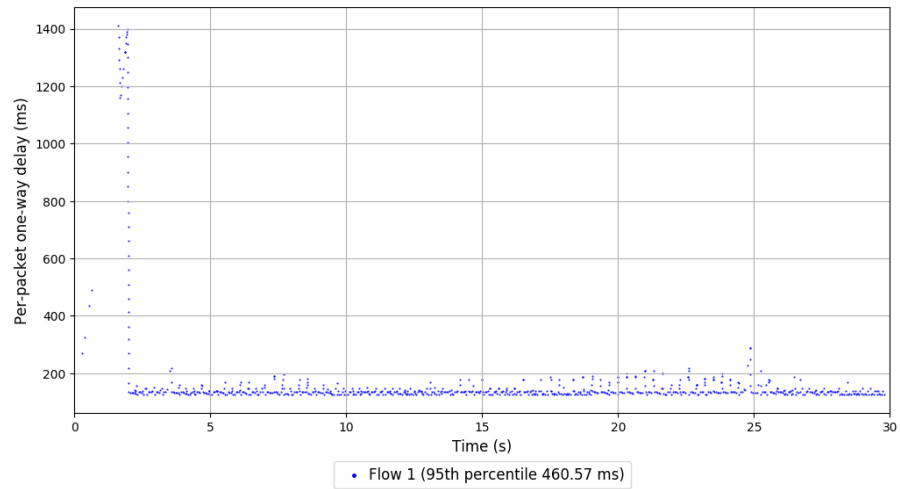
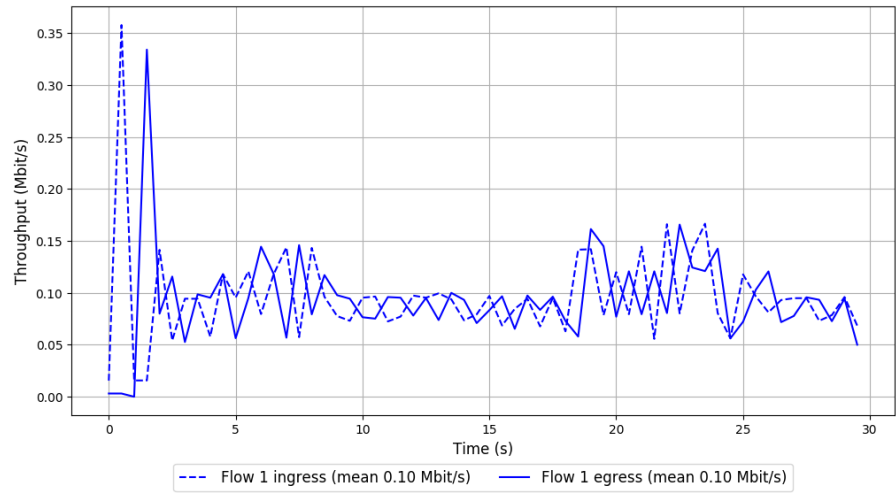
Run 2: Statistics of Sprout

Start at: 2017-12-05 06:40:20  
End at: 2017-12-05 06:40:50  
Local clock offset: 1.491 ms  
Remote clock offset: -0.664 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.10 Mbit/s  
95th percentile per-packet one-way delay: 460.574 ms  
Loss rate: 1.86%  
-- Flow 1:  
Average throughput: 0.10 Mbit/s  
95th percentile per-packet one-way delay: 460.574 ms  
Loss rate: 1.86%



## Run 2: Report of Sprout — Data Link

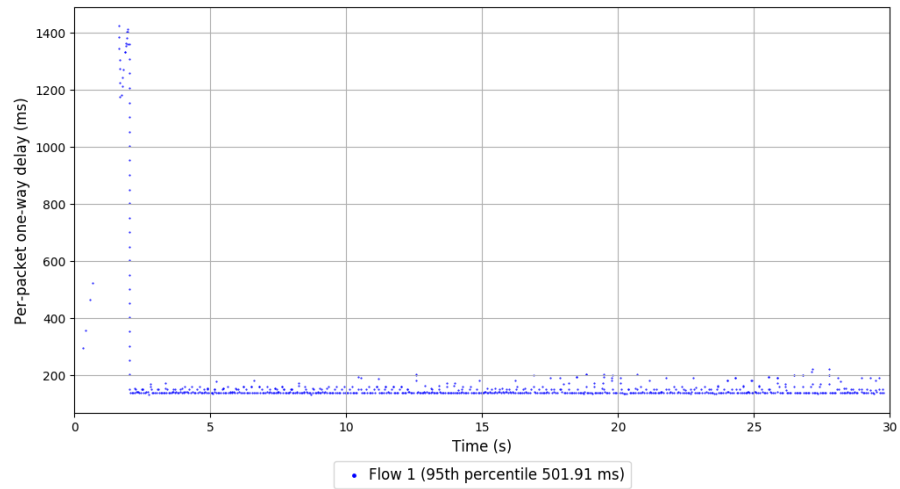
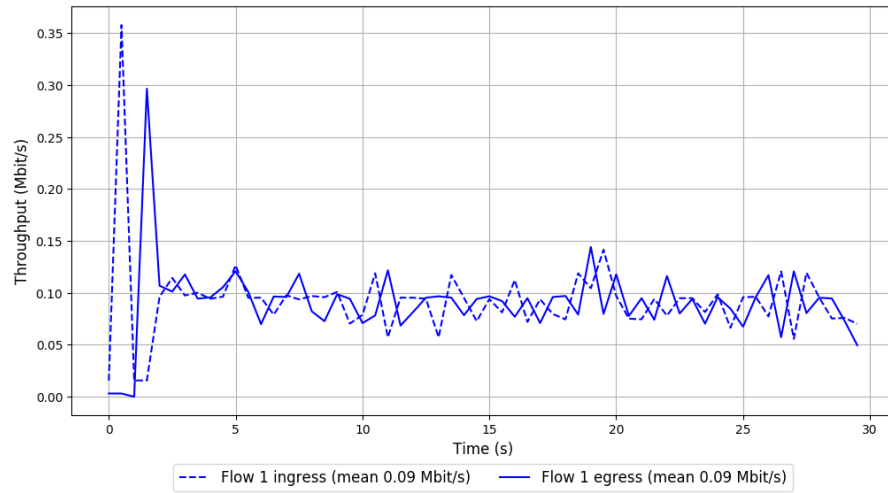


Run 3: Statistics of Sprout

Start at: 2017-12-05 06:56:43  
End at: 2017-12-05 06:57:13  
Local clock offset: 1.686 ms  
Remote clock offset: -6.423 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.09 Mbit/s  
95th percentile per-packet one-way delay: 501.914 ms  
Loss rate: 1.91%  
-- Flow 1:  
Average throughput: 0.09 Mbit/s  
95th percentile per-packet one-way delay: 501.914 ms  
Loss rate: 1.91%

### Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2017-12-05 06:20:28

End at: 2017-12-05 06:20:58

Local clock offset: 0.833 ms

Remote clock offset: -6.301 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 921.436 ms

Loss rate: 2.76%

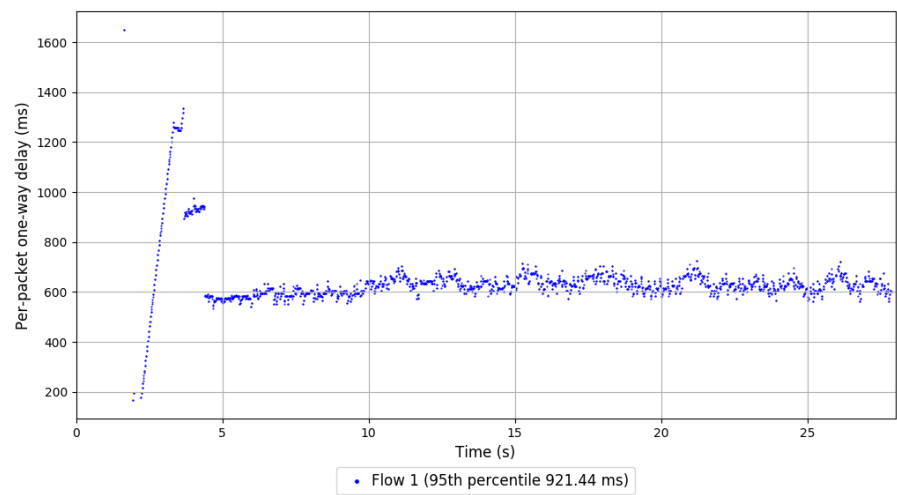
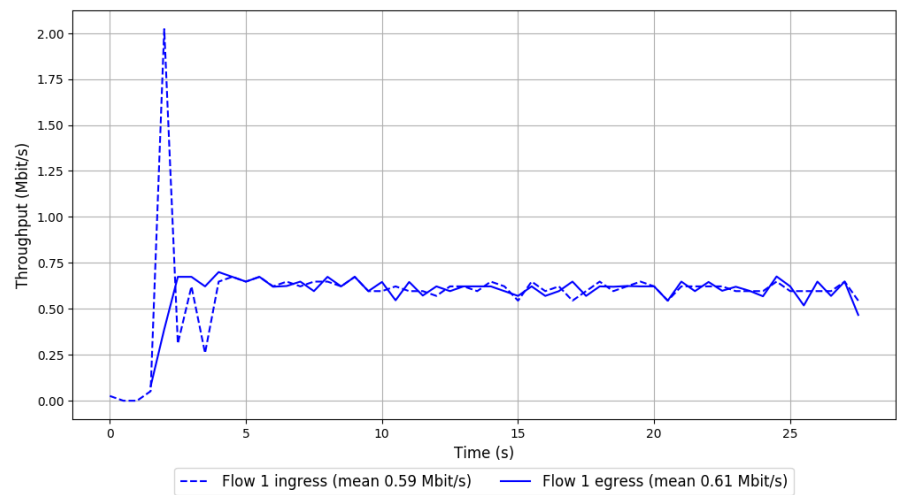
-- Flow 1:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 921.436 ms

Loss rate: 2.76%

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



Run 2: Statistics of TaoVA-100x

Start at: 2017-12-05 06:36:50

End at: 2017-12-05 06:37:20

Local clock offset: 1.73 ms

Remote clock offset: -6.924 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 983.197 ms

Loss rate: 2.71%

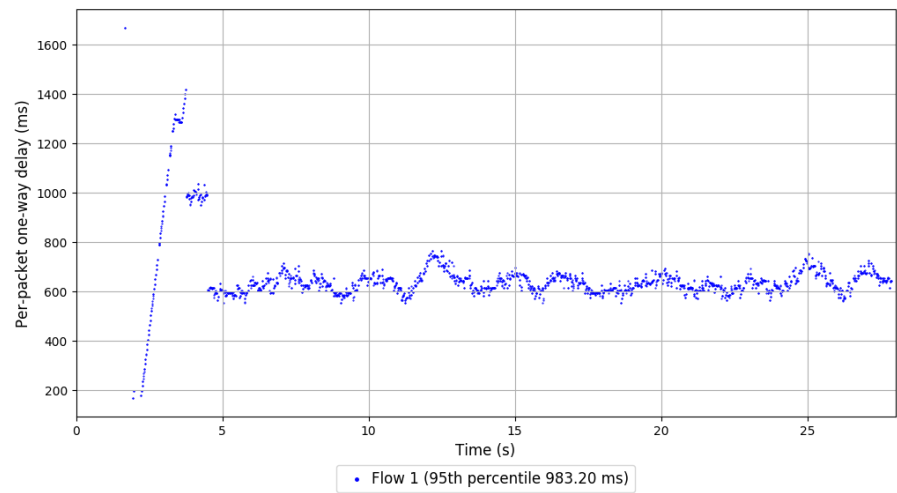
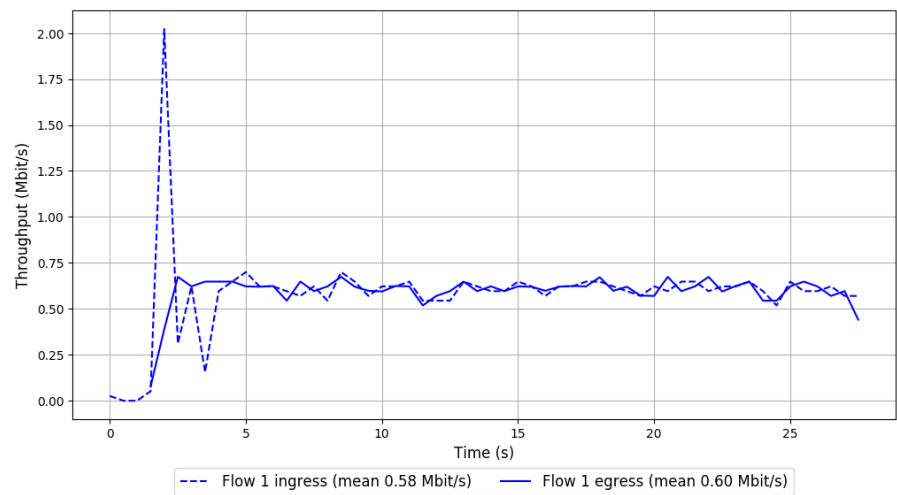
-- Flow 1:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 983.197 ms

Loss rate: 2.71%

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



Run 3: Statistics of TaoVA-100x

Start at: 2017-12-05 06:53:13

End at: 2017-12-05 06:53:43

Local clock offset: 1.7 ms

Remote clock offset: -1.385 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 946.234 ms

Loss rate: 2.69%

-- Flow 1:

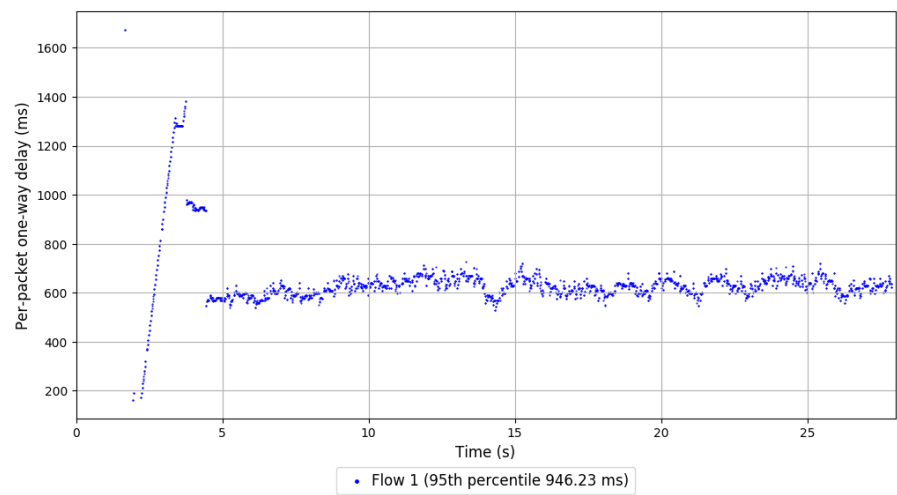
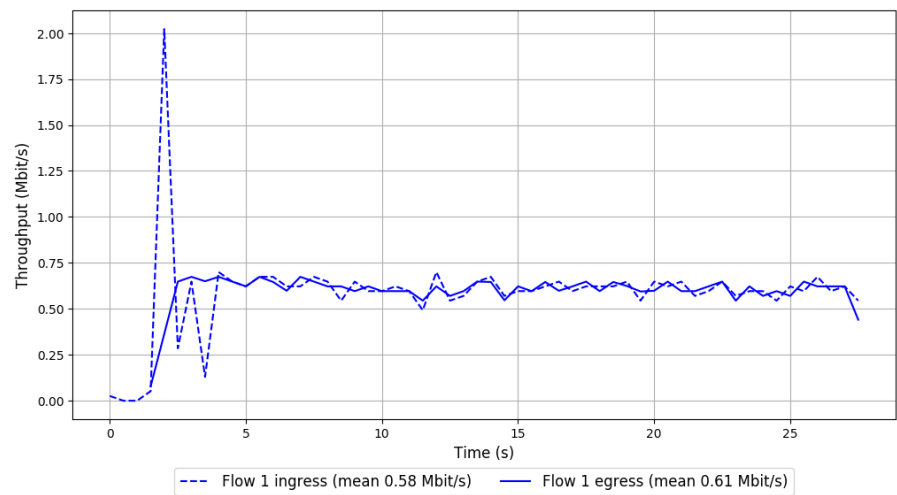
Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 946.234 ms

Loss rate: 2.69%



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

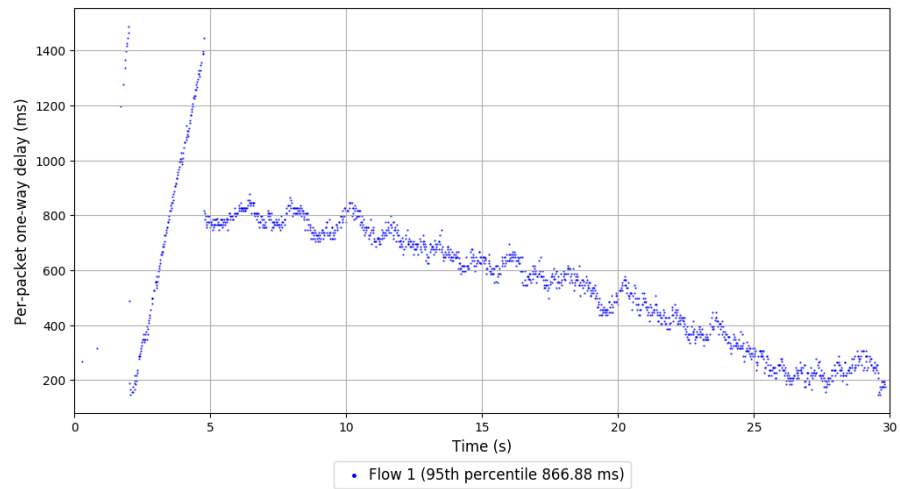
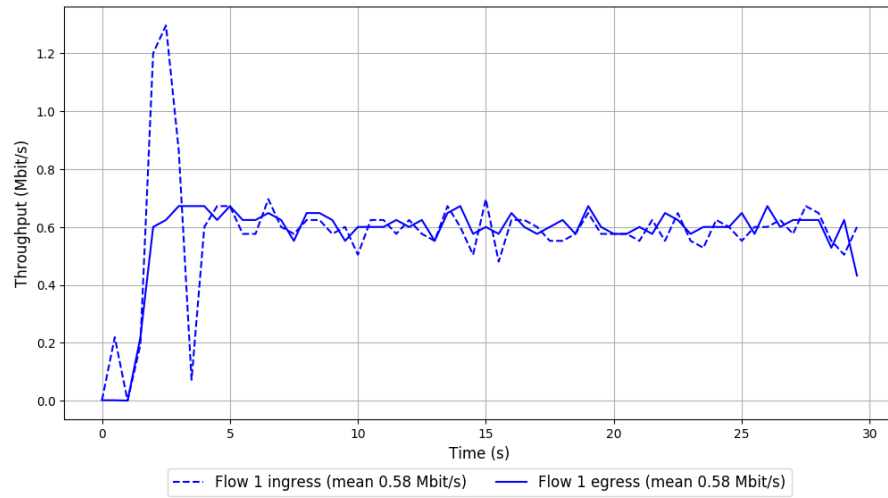


Run 1: Statistics of TCP Vegas

Start at: 2017-12-05 06:21:38  
End at: 2017-12-05 06:22:08  
Local clock offset: 1.219 ms  
Remote clock offset: -2.688 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.58 Mbit/s  
95th percentile per-packet one-way delay: 866.879 ms  
Loss rate: 1.10%  
-- Flow 1:  
Average throughput: 0.58 Mbit/s  
95th percentile per-packet one-way delay: 866.879 ms  
Loss rate: 1.10%

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

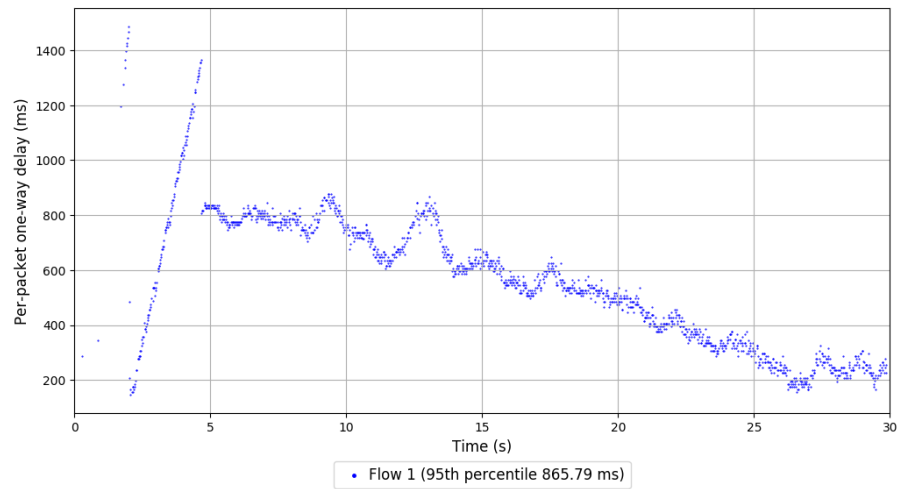
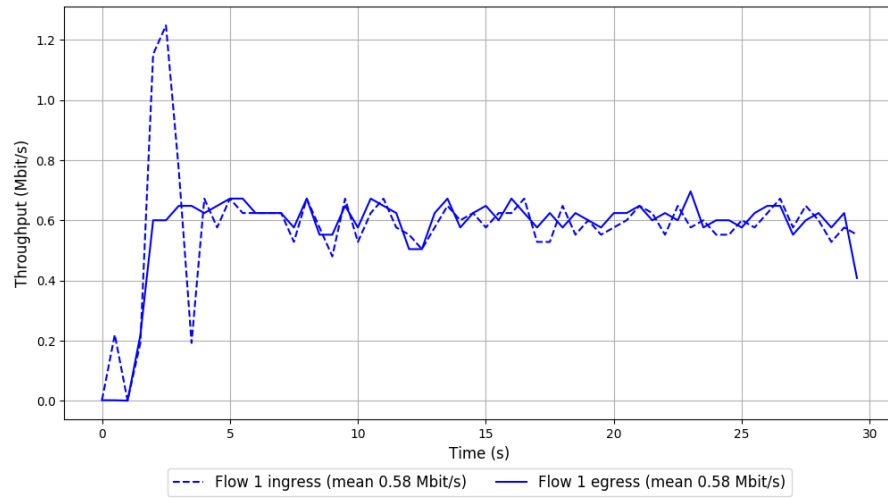


Run 2: Statistics of TCP Vegas

Start at: 2017-12-05 06:38:00  
End at: 2017-12-05 06:38:30  
Local clock offset: 1.805 ms  
Remote clock offset: -1.236 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.58 Mbit/s  
95th percentile per-packet one-way delay: 865.786 ms  
Loss rate: 1.10%  
-- Flow 1:  
Average throughput: 0.58 Mbit/s  
95th percentile per-packet one-way delay: 865.786 ms  
Loss rate: 1.10%

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

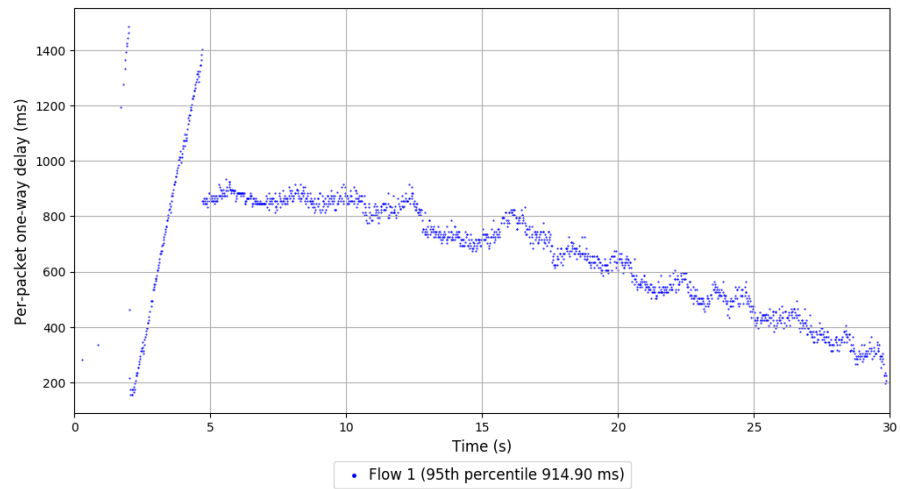
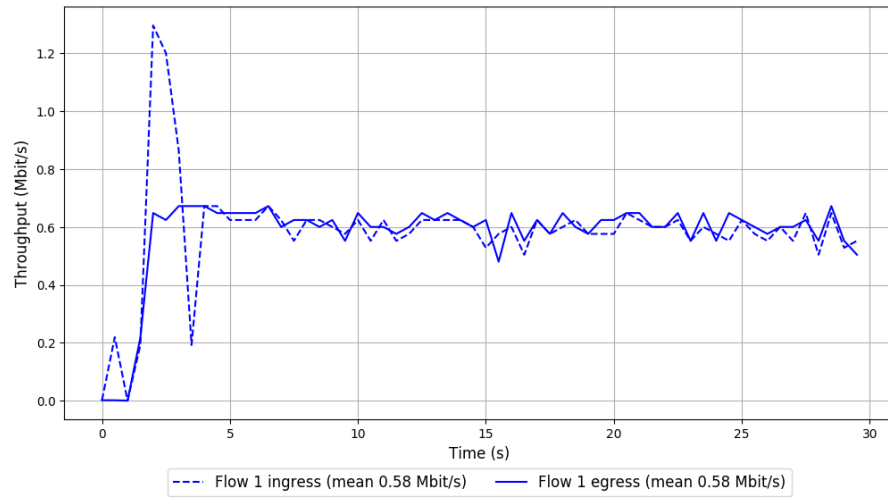


Run 3: Statistics of TCP Vegas

Start at: 2017-12-05 06:54:23  
End at: 2017-12-05 06:54:53  
Local clock offset: 1.661 ms  
Remote clock offset: -6.469 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.58 Mbit/s  
95th percentile per-packet one-way delay: 914.903 ms  
Loss rate: 1.17%  
-- Flow 1:  
Average throughput: 0.58 Mbit/s  
95th percentile per-packet one-way delay: 914.903 ms  
Loss rate: 1.17%

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



Run 1: Statistics of Verus

Start at: 2017-12-05 06:25:08

End at: 2017-12-05 06:25:38

Local clock offset: 1.488 ms

Remote clock offset: -7.51 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 1882.682 ms

Loss rate: 4.81%

-- Flow 1:

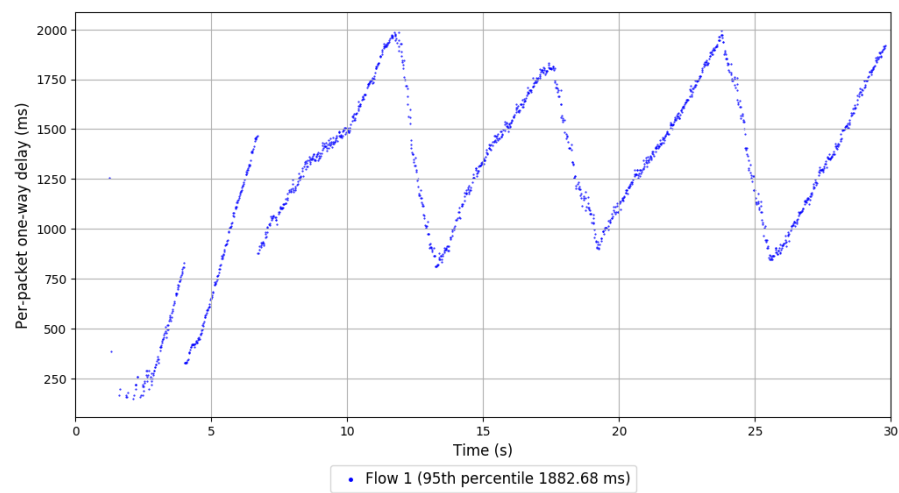
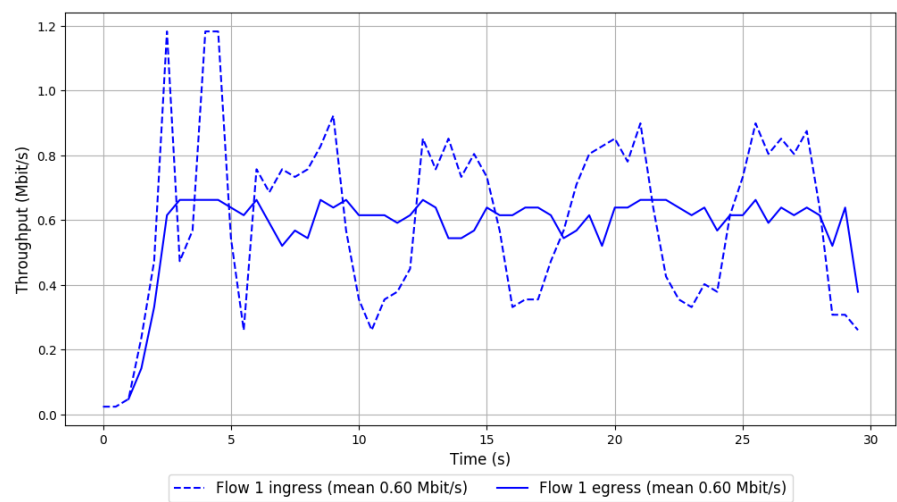
Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 1882.682 ms

Loss rate: 4.81%



Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2017-12-05 06:41:30

End at: 2017-12-05 06:42:00

Local clock offset: 1.401 ms

Remote clock offset: -1.93 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 1937.453 ms

Loss rate: 6.80%

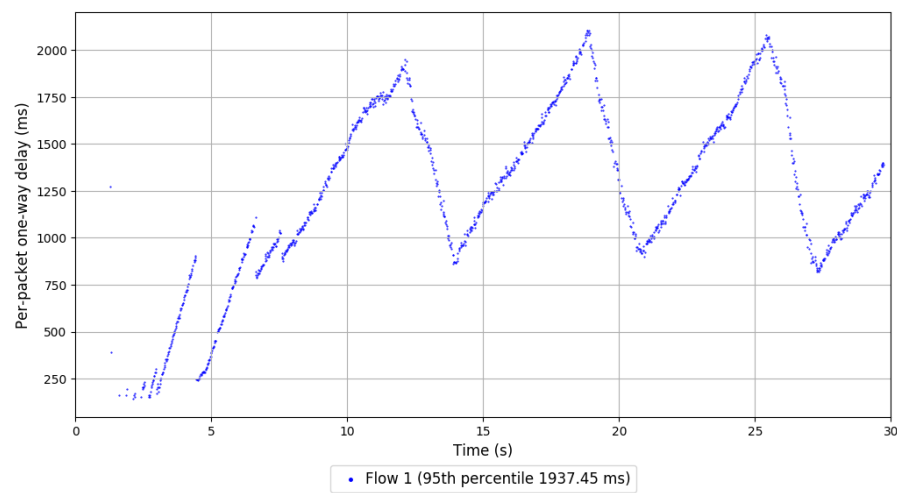
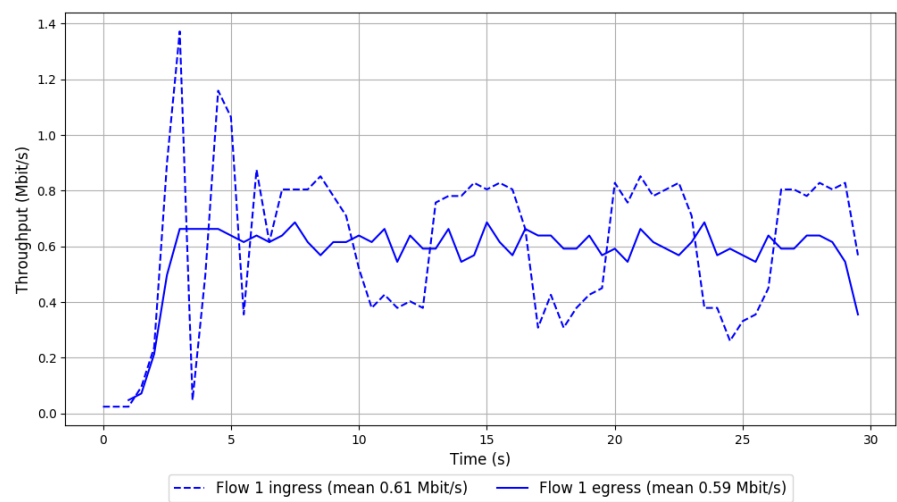
-- Flow 1:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 1937.453 ms

Loss rate: 6.80%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

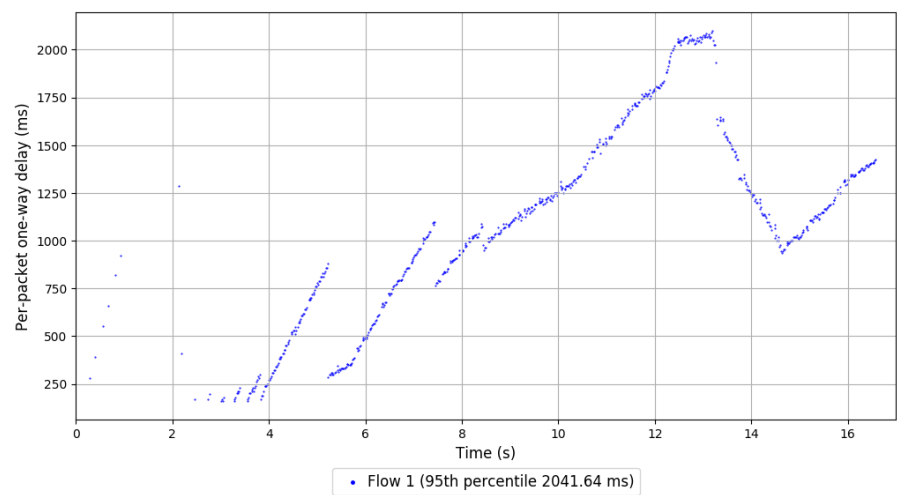
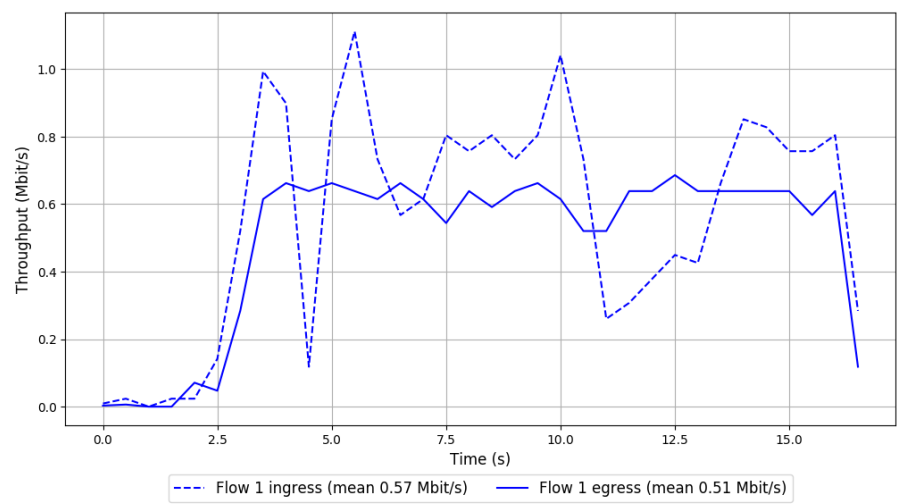
Start at: 2017-12-05 06:57:53

End at: 2017-12-05 06:58:23

Local clock offset: 1.706 ms

Remote clock offset: -5.497 ms

Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

Start at: 2017-12-05 06:27:28

End at: 2017-12-05 06:27:58

Local clock offset: 1.723 ms

Remote clock offset: -1.826 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 387.035 ms

Loss rate: 1.10%

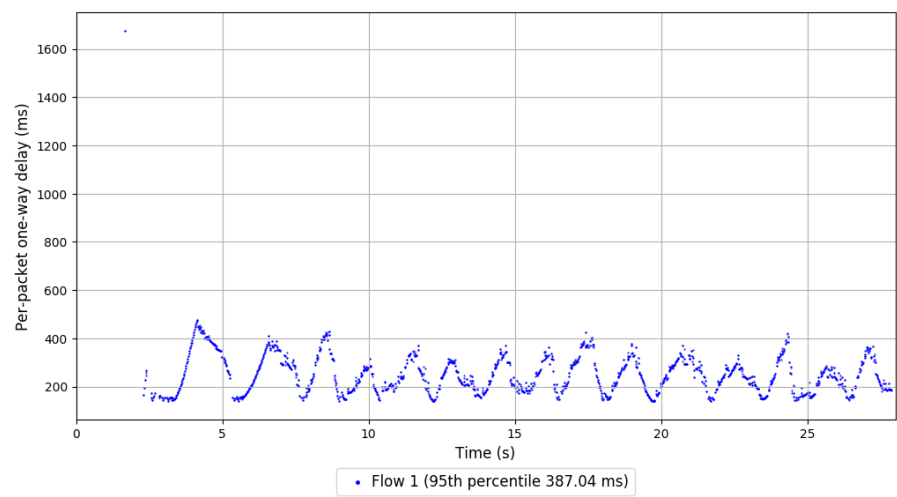
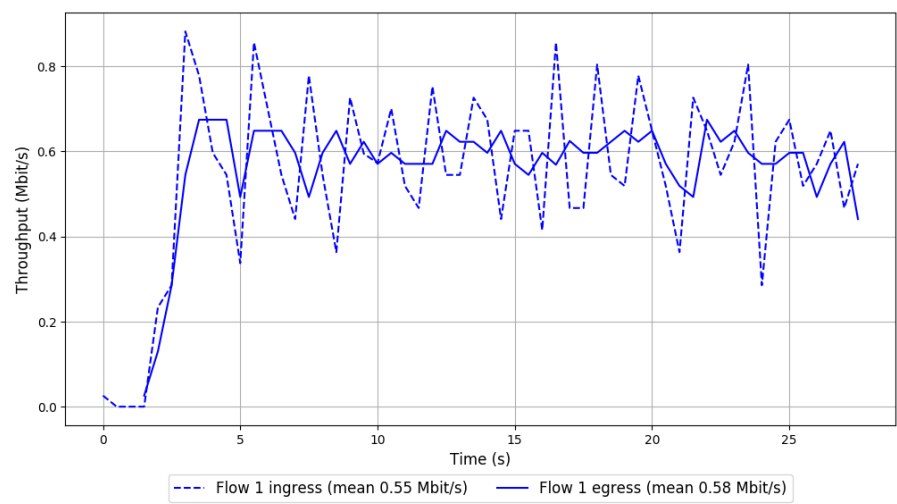
-- Flow 1:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 387.035 ms

Loss rate: 1.10%

Run 1: Report of Copa — Data Link



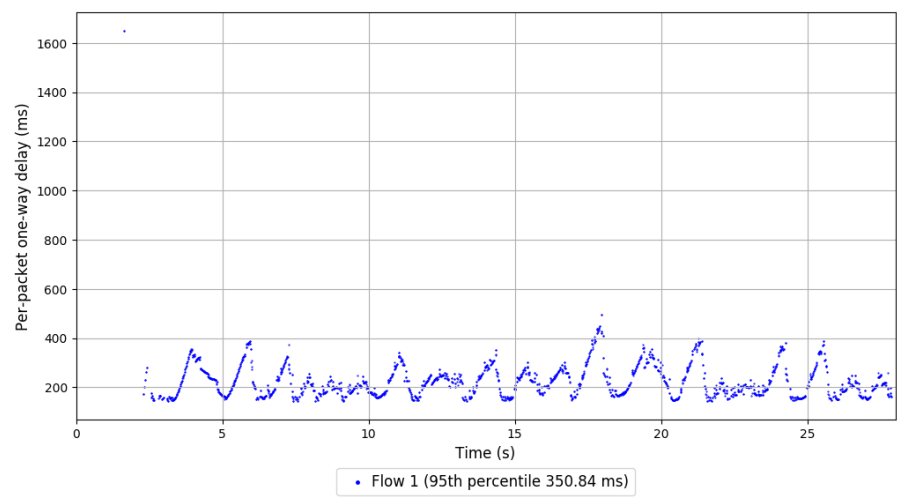
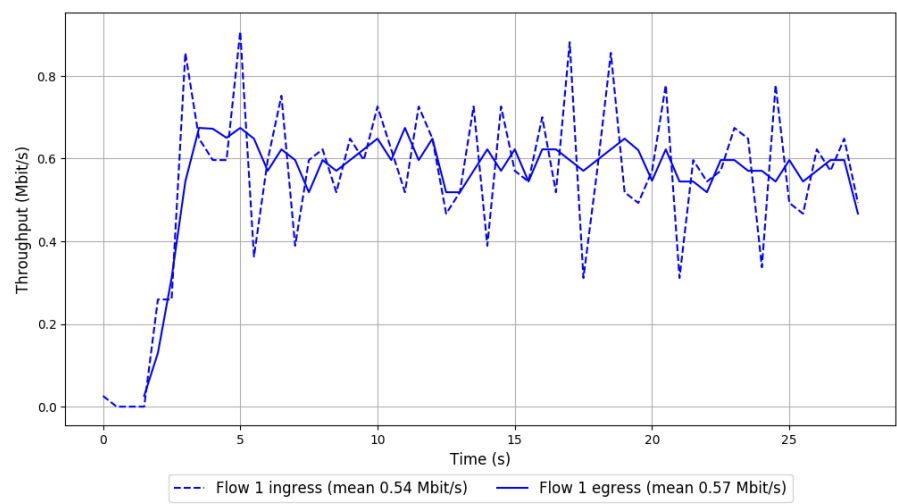
Run 2: Statistics of Copa

Start at: 2017-12-05 06:43:50  
End at: 2017-12-05 06:44:20  
Local clock offset: 1.413 ms  
Remote clock offset: -5.793 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 350.842 ms  
Loss rate: 0.94%  
-- Flow 1:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 350.842 ms  
Loss rate: 0.94%



Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2017-12-05 07:00:13

End at: 2017-12-05 07:00:43

Local clock offset: 1.629 ms

Remote clock offset: 0.51 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 366.968 ms

Loss rate: 1.69%

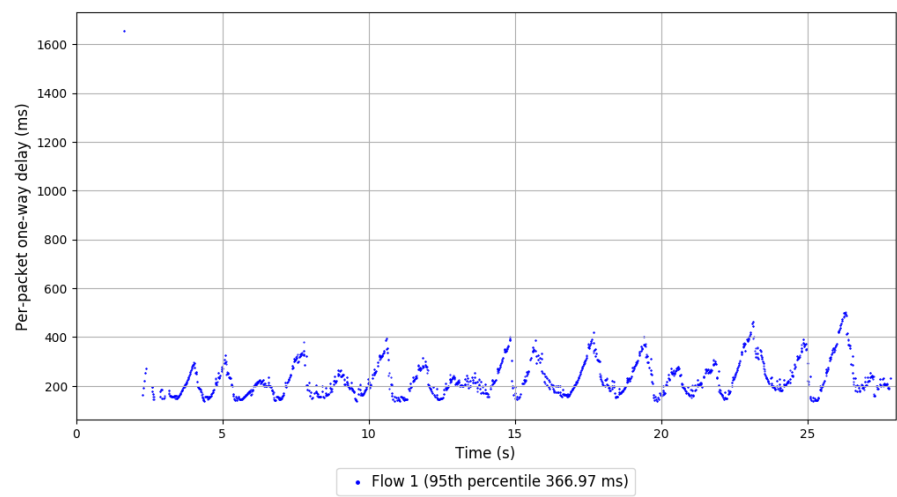
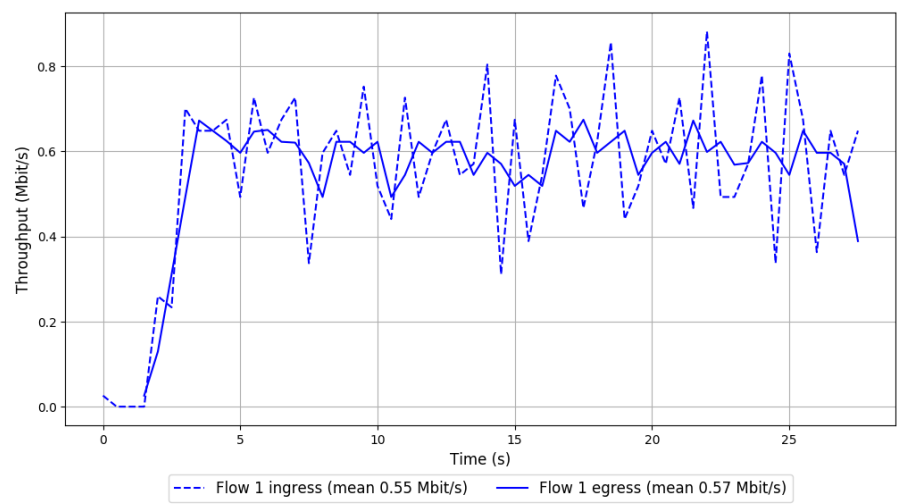
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 366.968 ms

Loss rate: 1.69%

Run 3: Report of Copa — Data Link

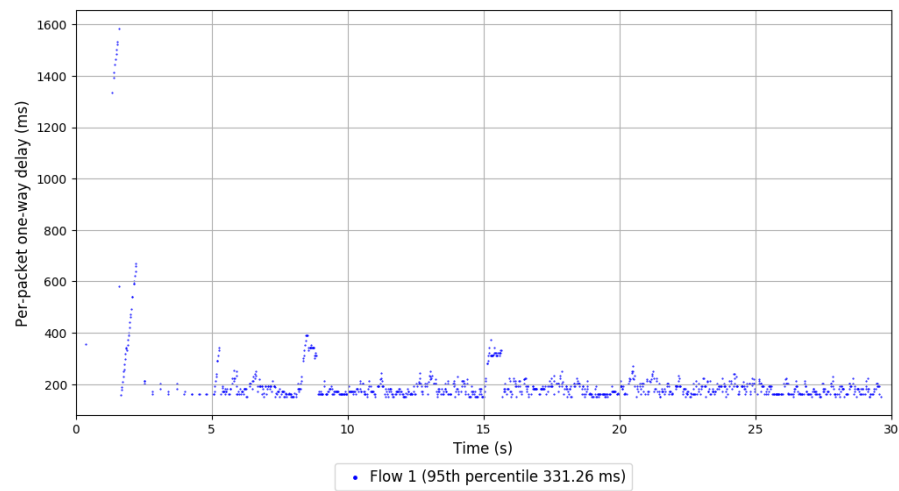
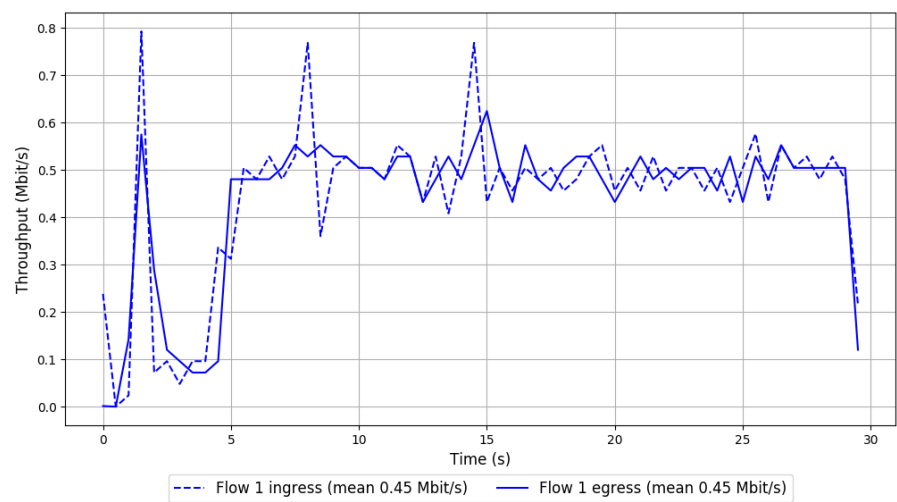


```
Run 1: Statistics of Indigo

Start at: 2017-12-05 06:22:48
End at: 2017-12-05 06:23:18
Local clock offset: 1.395 ms
Remote clock offset: -6.589 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 331.262 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 331.262 ms
Loss rate: 1.18%
```

Run 1: Report of Indigo — Data Link

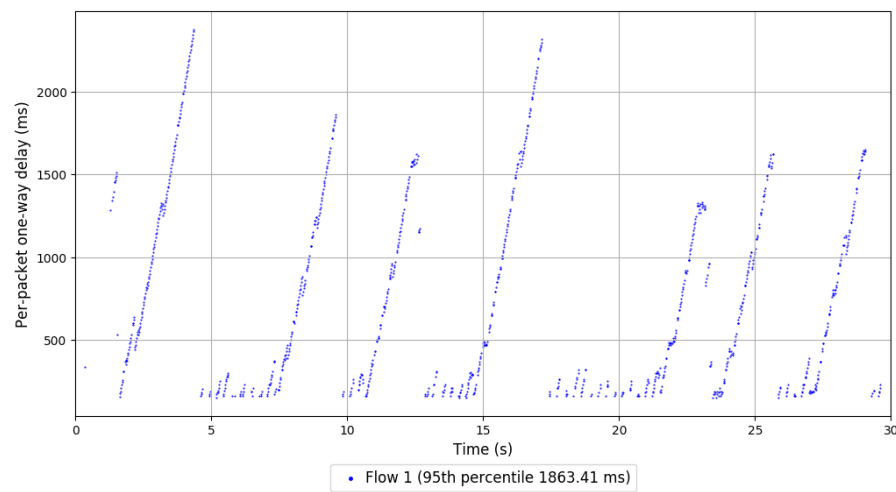
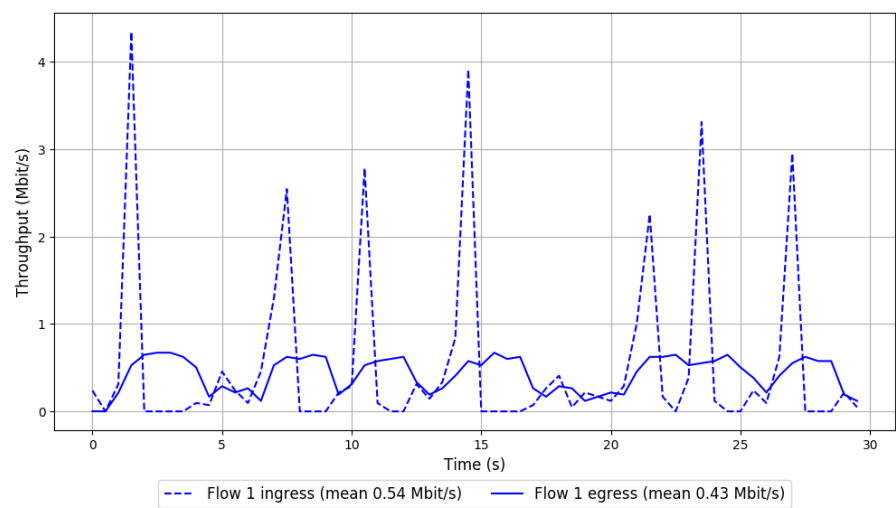


Run 2: Statistics of Indigo

Start at: 2017-12-05 06:39:10  
End at: 2017-12-05 06:39:40  
Local clock offset: 1.601 ms  
Remote clock offset: -7.089 ms

# Below is generated by plot.py at 2017-12-05 07:56:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 1863.413 ms  
Loss rate: 20.64%  
-- Flow 1:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 1863.413 ms  
Loss rate: 20.64%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2017-12-05 06:55:33

End at: 2017-12-05 06:56:03

Local clock offset: 1.674 ms

Remote clock offset: -5.183 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 1394.239 ms

Loss rate: 22.24%

-- Flow 1:

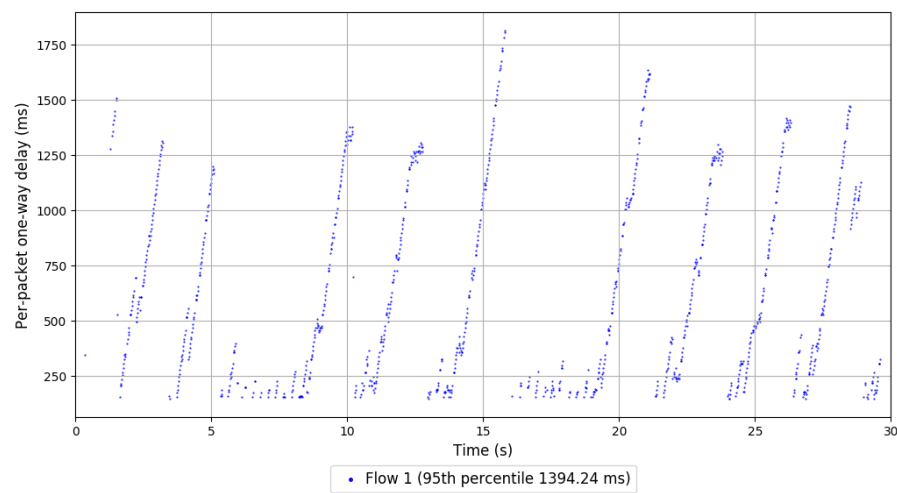
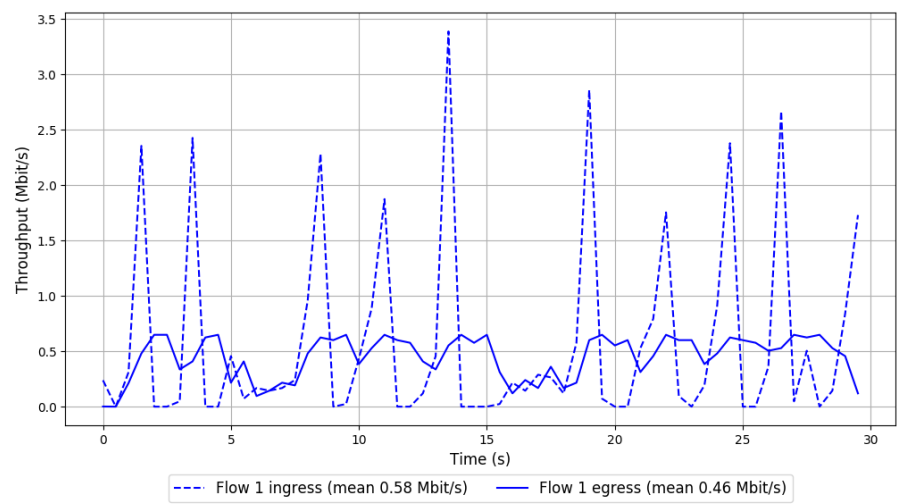
Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 1394.239 ms

Loss rate: 22.24%



Run 3: Report of Indigo — Data Link

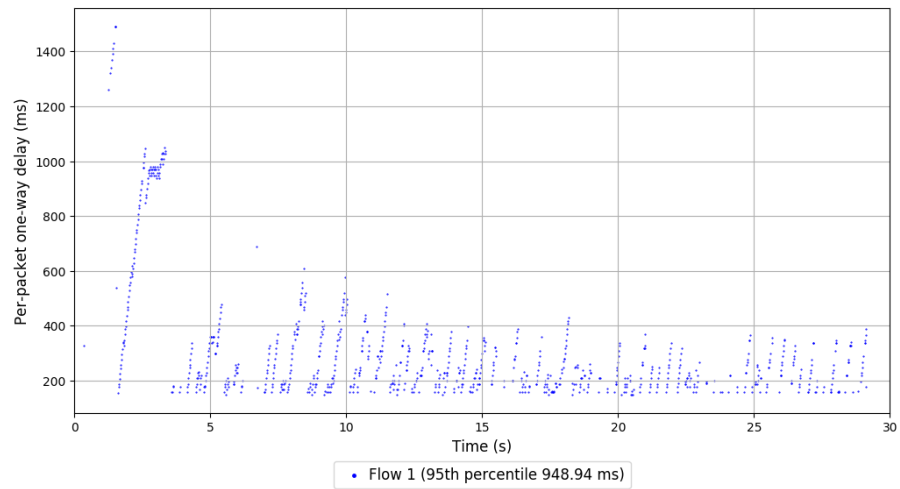
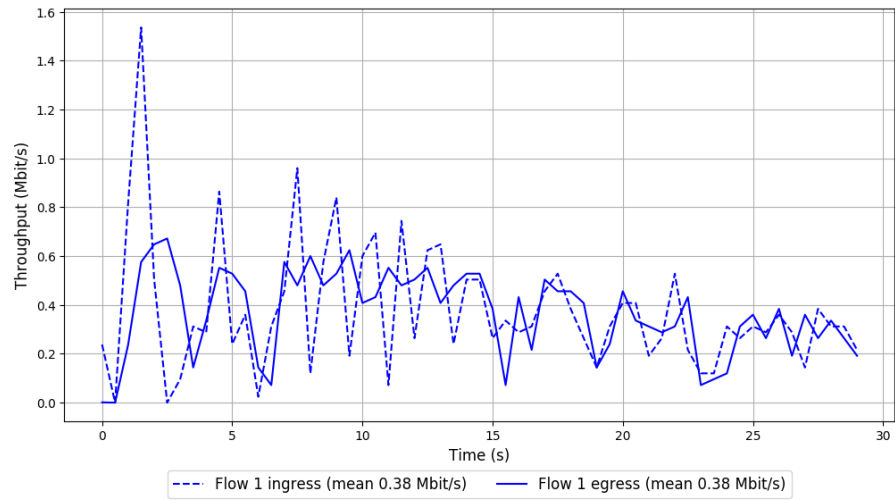


```
Run 1: Statistics of Indigo-calib

Start at: 2017-12-05 06:19:18
End at: 2017-12-05 06:19:48
Local clock offset: 0.587 ms
Remote clock offset: -6.824 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 948.944 ms
Loss rate: 3.11%
-- Flow 1:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 948.944 ms
Loss rate: 3.11%
```

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



Run 2: Statistics of Indigo-calib

Start at: 2017-12-05 06:35:40

End at: 2017-12-05 06:36:10

Local clock offset: 1.688 ms

Remote clock offset: -1.239 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 967.679 ms

Loss rate: 6.45%

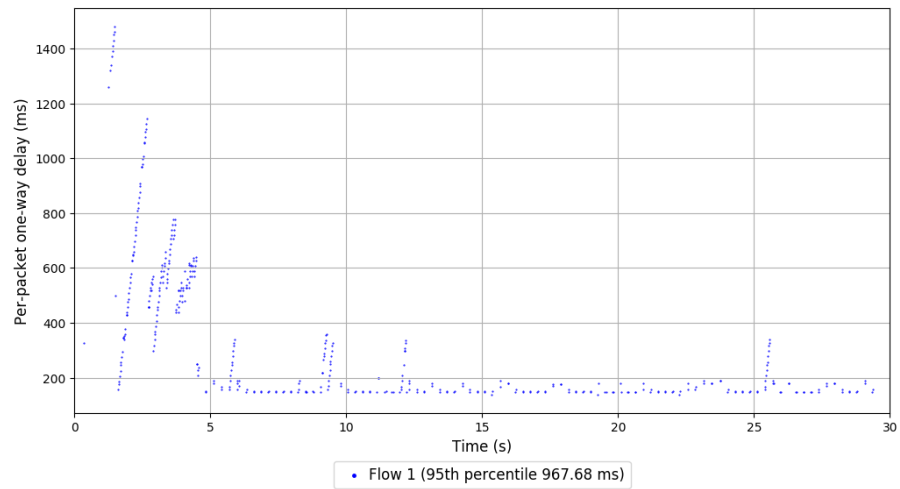
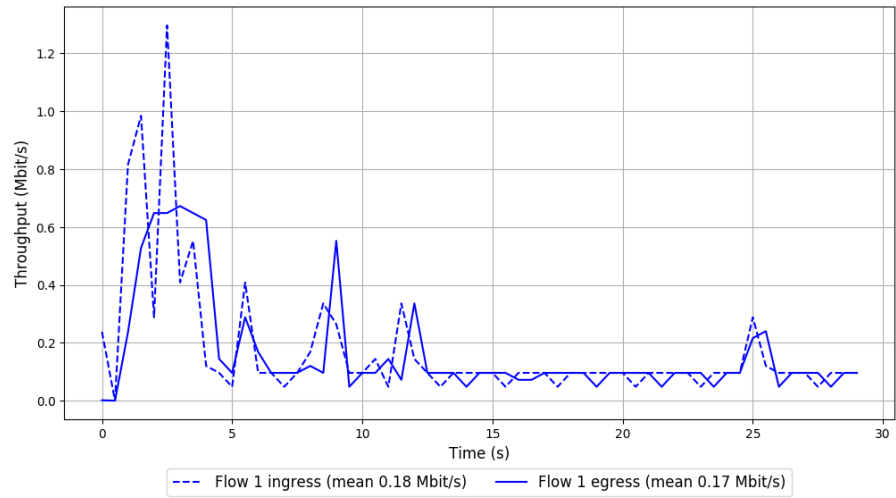
-- Flow 1:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 967.679 ms

Loss rate: 6.45%

## Run 2: Report of Indigo-calib — Data Link



Run 3: Statistics of Indigo-calib

Start at: 2017-12-05 06:52:03

End at: 2017-12-05 06:52:33

Local clock offset: 1.744 ms

Remote clock offset: -6.21 ms

# Below is generated by plot.py at 2017-12-05 07:56:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 868.331 ms

Loss rate: 8.11%

-- Flow 1:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 868.331 ms

Loss rate: 8.11%

Run 3: Report of Indigo-calib — Data Link

