

## Pantheon Report

Generated at 2017-09-22 11:23:56 (UTC).

Data path: AWS California 1 Ethernet (*local*) →Stanford 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).

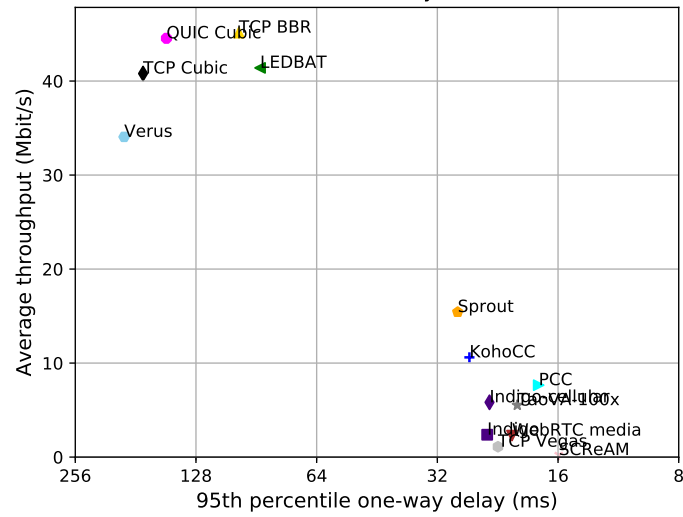
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo\_fast**).

NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

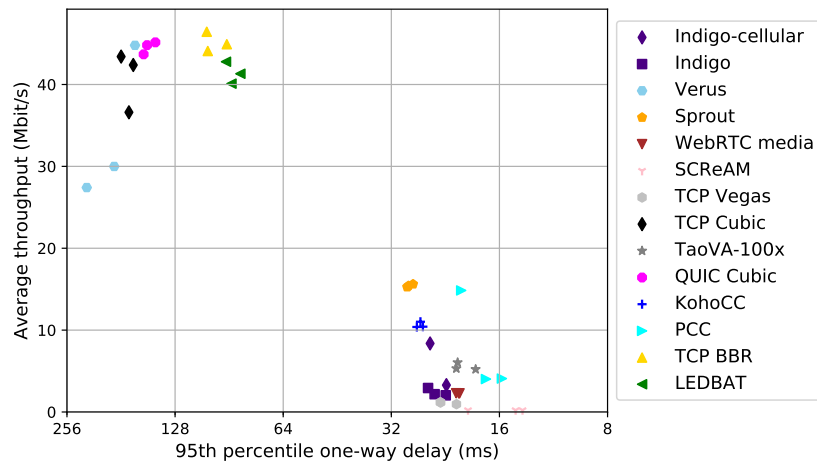
Git summary:

```
branch: indigos @ 46c7c812d4acb71eea4f5fb0b03b3657cea3062f
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366
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 California 1 Ethernet to Stanford ppp0, 3 runs of 30s each per scheme  
(mean of all runs by scheme)



test from AWS California 1 Ethernet to Stanford 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	45.15	100.06	0.06
TCP Cubic	3	40.80	173.44	0.36
LEDBAT	3	41.40	88.59	0.17
PCC	3	7.65	17.88	0.00
QUIC Cubic	3	44.55	151.67	0.43
SCReAM	3	0.22	15.93	0.00
WebRTC media	3	2.28	20.85	0.00
Sprout	3	15.43	28.47	0.00
TaoVA-100x	3	5.52	20.22	0.00
TCP Vegas	3	1.10	22.59	0.00
Verus	3	34.06	193.37	9.70
Indigo	3	2.38	24.04	0.00
Indigo-cellular	2	5.82	23.72	0.00
KohoCC	3	10.61	26.62	0.00

Run 1: Statistics of TCP BBR

Start at: 2017-09-22 10:47:04

End at: 2017-09-22 10:47:34

Local clock offset: -0.23 ms

Remote clock offset: -2.086 ms

# Below is generated by plot.py at 2017-09-22 11:22:46

# Datalink statistics

-- Total of 1 flow:

Average throughput: 44.09 Mbit/s

95th percentile per-packet one-way delay: 103.802 ms

Loss rate: 0.04%

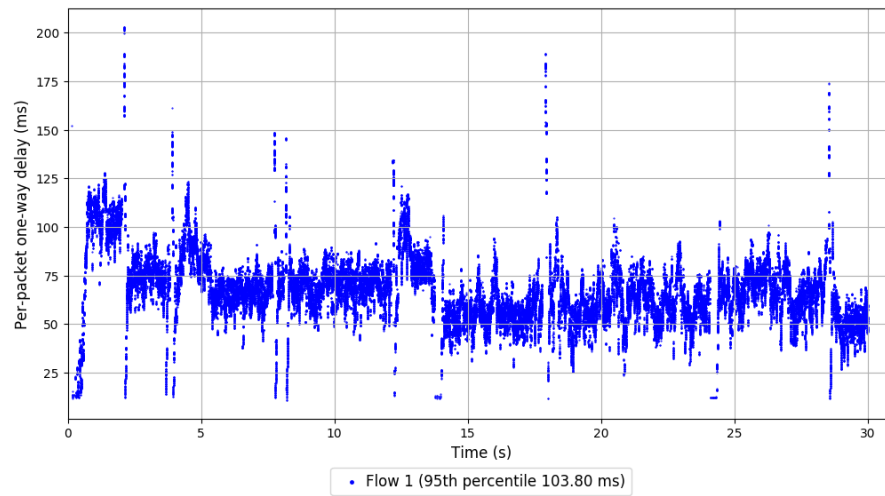
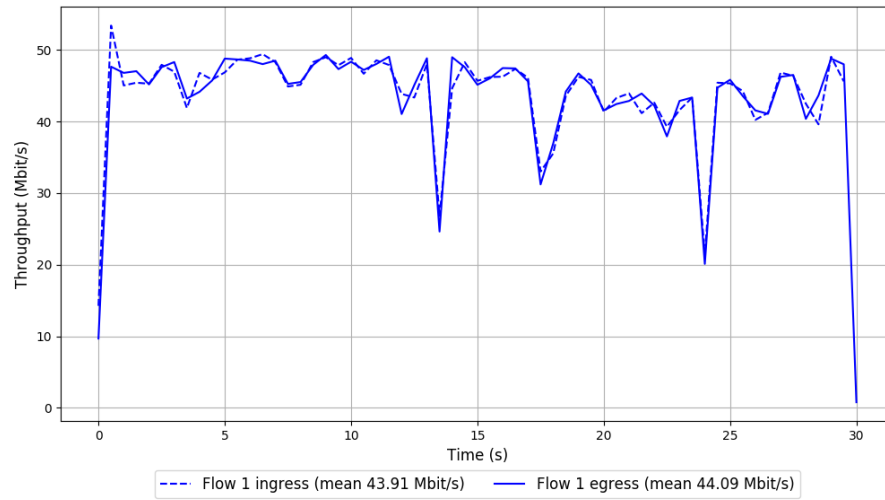
-- Flow 1:

Average throughput: 44.09 Mbit/s

95th percentile per-packet one-way delay: 103.802 ms

Loss rate: 0.04%

# Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2017-09-22 11:03:38

End at: 2017-09-22 11:04:08

Local clock offset: 0.042 ms

Remote clock offset: -1.989 ms

# Below is generated by plot.py at 2017-09-22 11:22:47

# Datalink statistics

-- Total of 1 flow:

Average throughput: 44.92 Mbit/s

95th percentile per-packet one-way delay: 91.874 ms

Loss rate: 0.01%

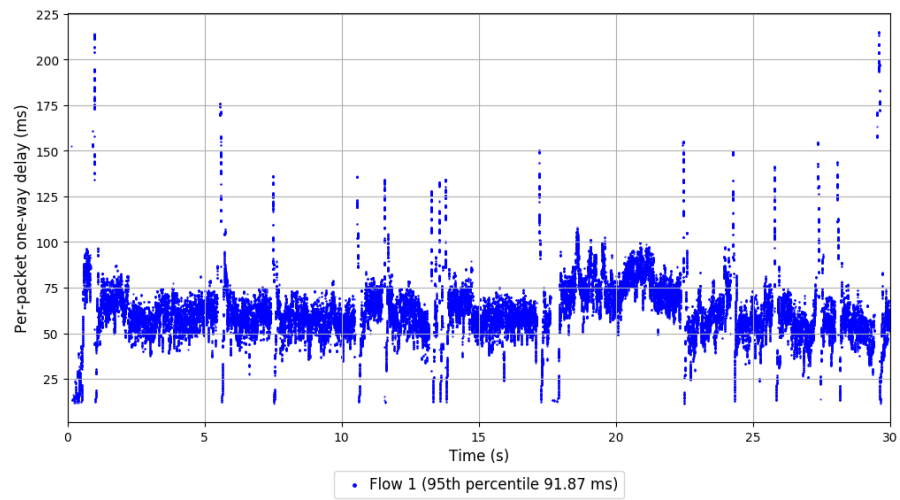
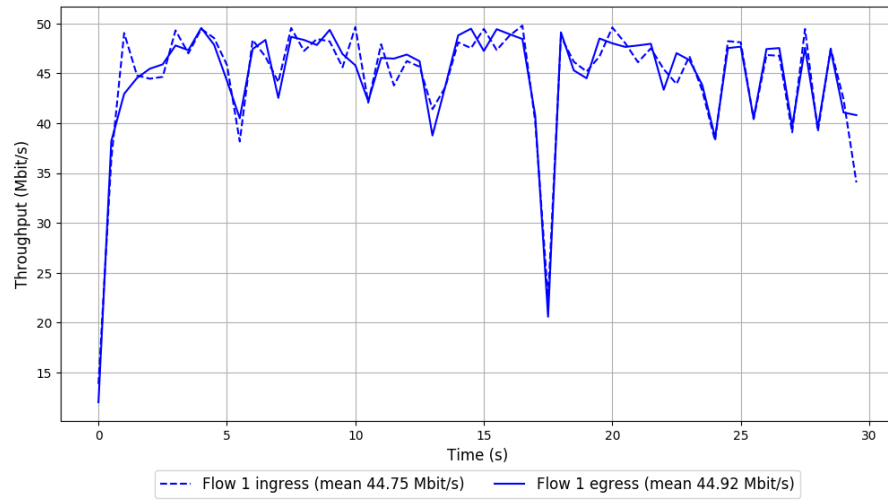
-- Flow 1:

Average throughput: 44.92 Mbit/s

95th percentile per-packet one-way delay: 91.874 ms

Loss rate: 0.01%

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



Run 3: Statistics of TCP BBR

Start at: 2017-09-22 11:20:15

End at: 2017-09-22 11:20:45

Local clock offset: 0.15 ms

Remote clock offset: -1.968 ms

# Below is generated by plot.py at 2017-09-22 11:22:49

# Datalink statistics

-- Total of 1 flow:

Average throughput: 46.44 Mbit/s

95th percentile per-packet one-way delay: 104.491 ms

Loss rate: 0.14%

-- Flow 1:

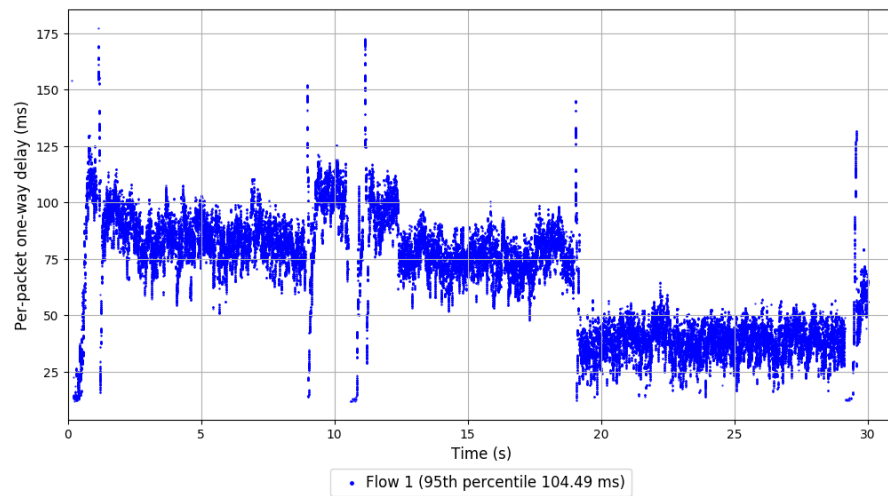
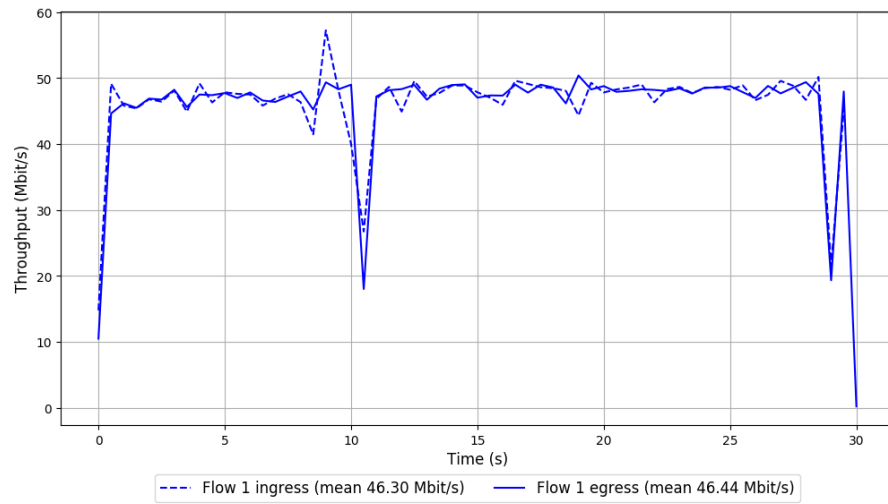
Average throughput: 46.44 Mbit/s

95th percentile per-packet one-way delay: 104.491 ms

Loss rate: 0.14%



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

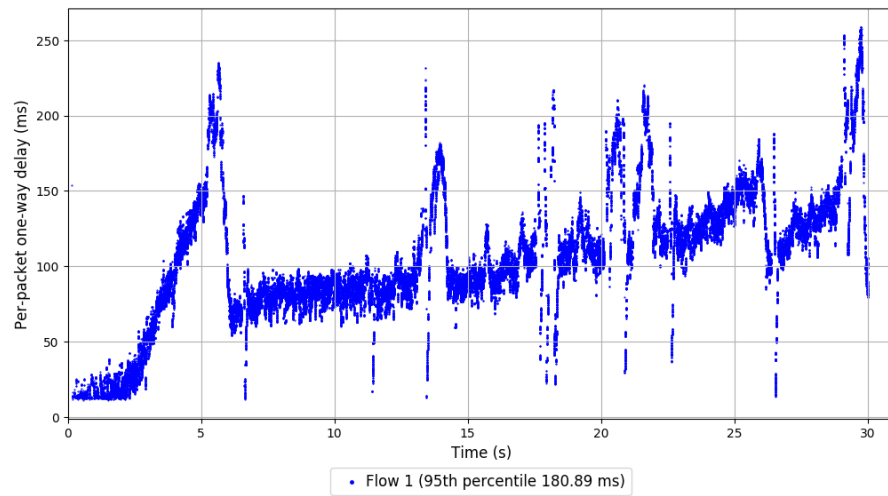
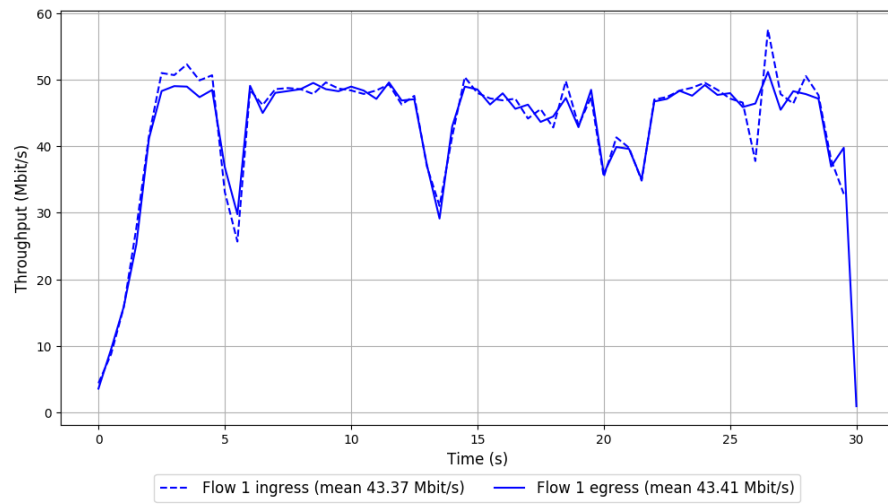


Run 1: Statistics of TCP Cubic

Start at: 2017-09-22 10:42:21  
End at: 2017-09-22 10:42:51  
Local clock offset: -0.183 ms  
Remote clock offset: -2.135 ms

# Below is generated by plot.py at 2017-09-22 11:22:49  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 43.41 Mbit/s  
95th percentile per-packet one-way delay: 180.888 ms  
Loss rate: 0.35%  
-- Flow 1:  
Average throughput: 43.41 Mbit/s  
95th percentile per-packet one-way delay: 180.888 ms  
Loss rate: 0.35%

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

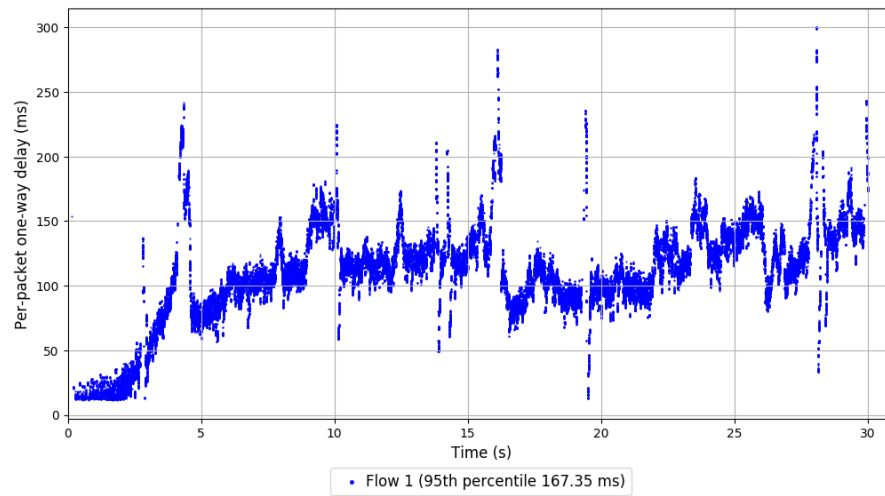
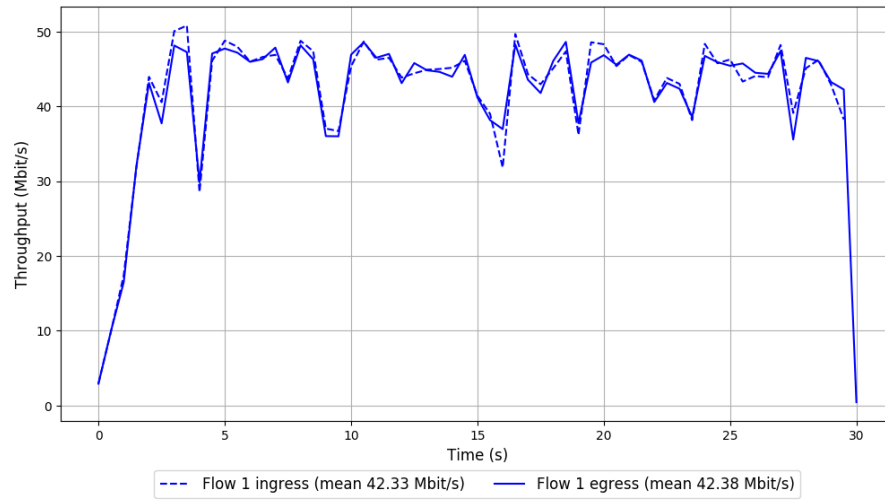


Run 2: Statistics of TCP Cubic

Start at: 2017-09-22 10:58:55  
End at: 2017-09-22 10:59:25  
Local clock offset: -0.004 ms  
Remote clock offset: -1.929 ms

# Below is generated by plot.py at 2017-09-22 11:22:49  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 42.38 Mbit/s  
95th percentile per-packet one-way delay: 167.348 ms  
Loss rate: 0.33%  
-- Flow 1:  
Average throughput: 42.38 Mbit/s  
95th percentile per-packet one-way delay: 167.348 ms  
Loss rate: 0.33%

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

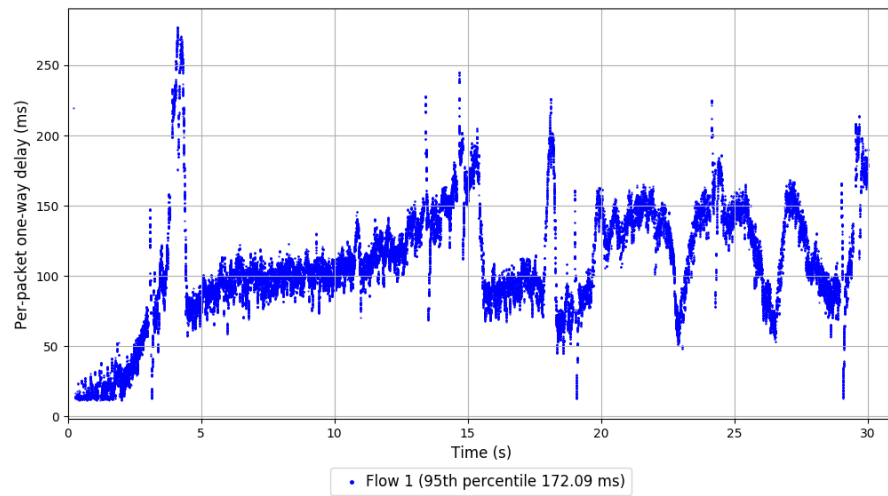
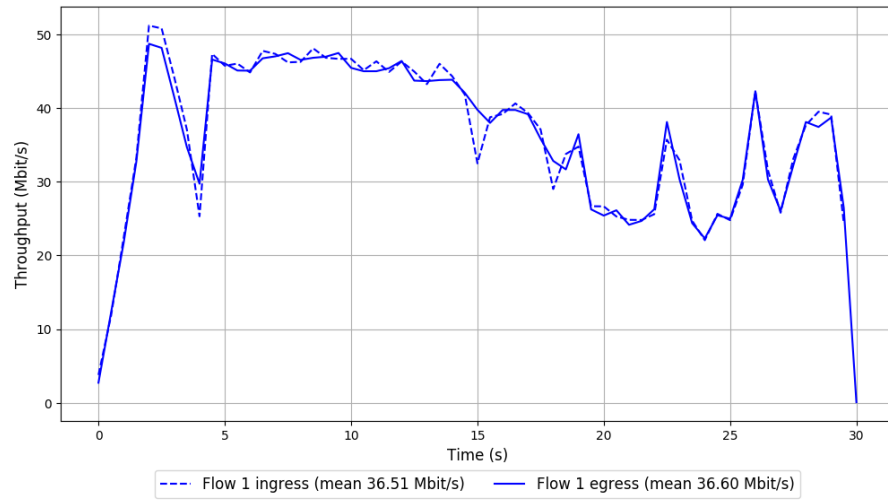


Run 3: Statistics of TCP Cubic

Start at: 2017-09-22 11:15:31  
End at: 2017-09-22 11:16:01  
Local clock offset: 0.119 ms  
Remote clock offset: -1.939 ms

# Below is generated by plot.py at 2017-09-22 11:22:49  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 36.60 Mbit/s  
95th percentile per-packet one-way delay: 172.087 ms  
Loss rate: 0.39%  
-- Flow 1:  
Average throughput: 36.60 Mbit/s  
95th percentile per-packet one-way delay: 172.087 ms  
Loss rate: 0.39%

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



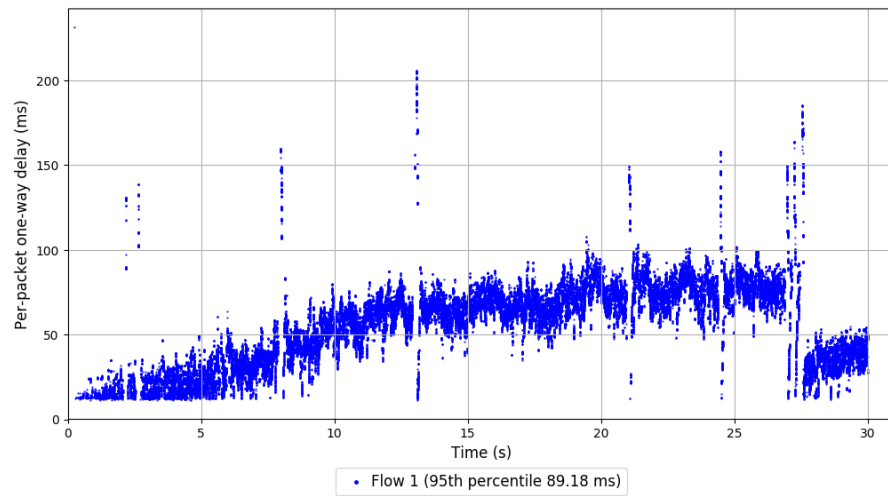
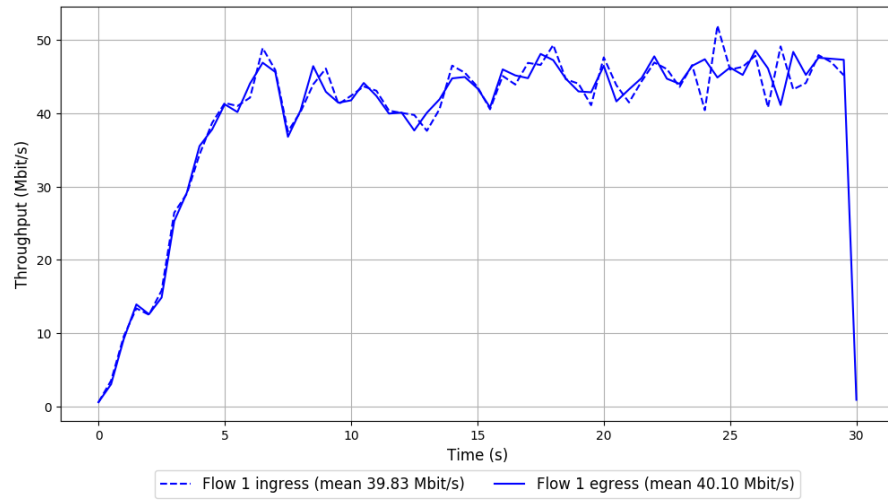
Run 1: Statistics of LEDBAT

Start at: 2017-09-22 10:37:35  
End at: 2017-09-22 10:38:05  
Local clock offset: -0.259 ms  
Remote clock offset: -2.137 ms

# Below is generated by plot.py at 2017-09-22 11:22:49  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 40.10 Mbit/s  
95th percentile per-packet one-way delay: 89.177 ms  
Loss rate: 0.03%  
-- Flow 1:  
Average throughput: 40.10 Mbit/s  
95th percentile per-packet one-way delay: 89.177 ms  
Loss rate: 0.03%



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

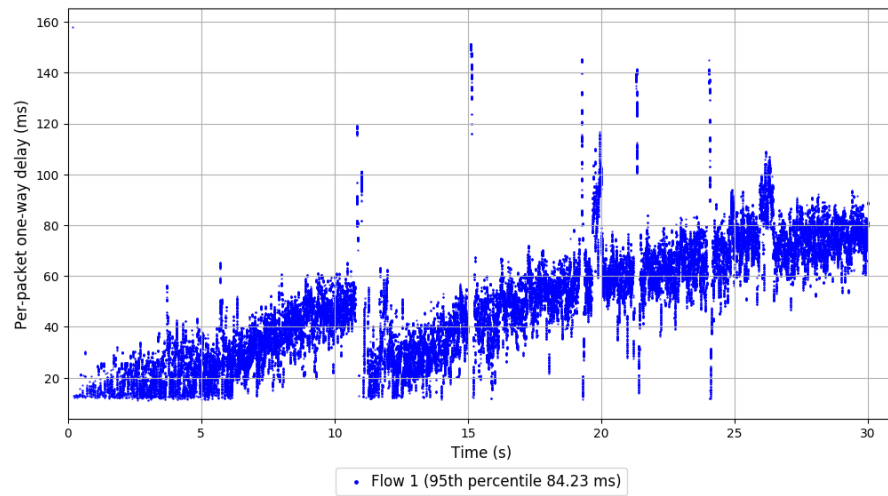
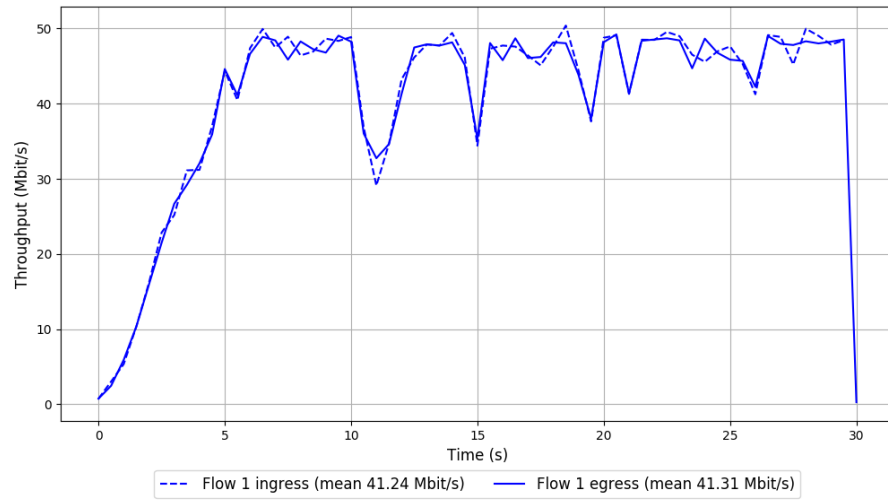


Run 2: Statistics of LEDBAT

Start at: 2017-09-22 10:54:10  
End at: 2017-09-22 10:54:40  
Local clock offset: -0.051 ms  
Remote clock offset: -1.947 ms

# Below is generated by plot.py at 2017-09-22 11:22:49  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 41.31 Mbit/s  
95th percentile per-packet one-way delay: 84.227 ms  
Loss rate: 0.28%  
-- Flow 1:  
Average throughput: 41.31 Mbit/s  
95th percentile per-packet one-way delay: 84.227 ms  
Loss rate: 0.28%

## Run 2: Report of LEDBAT — Data Link

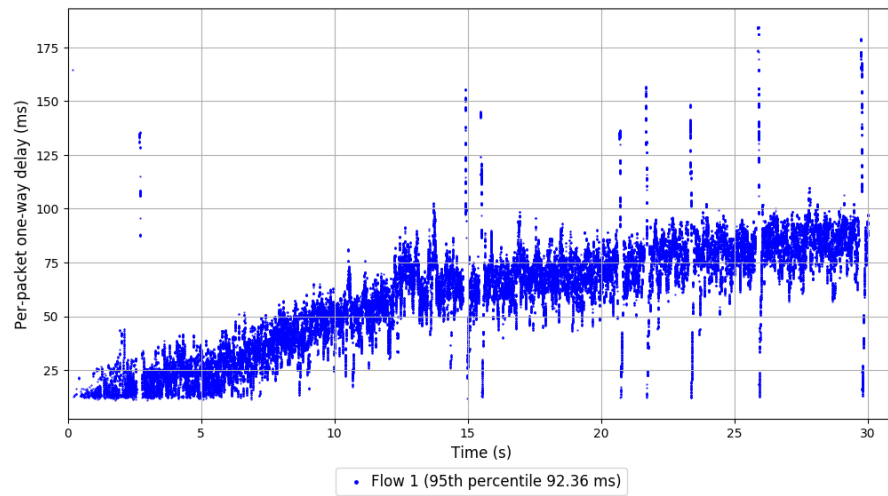
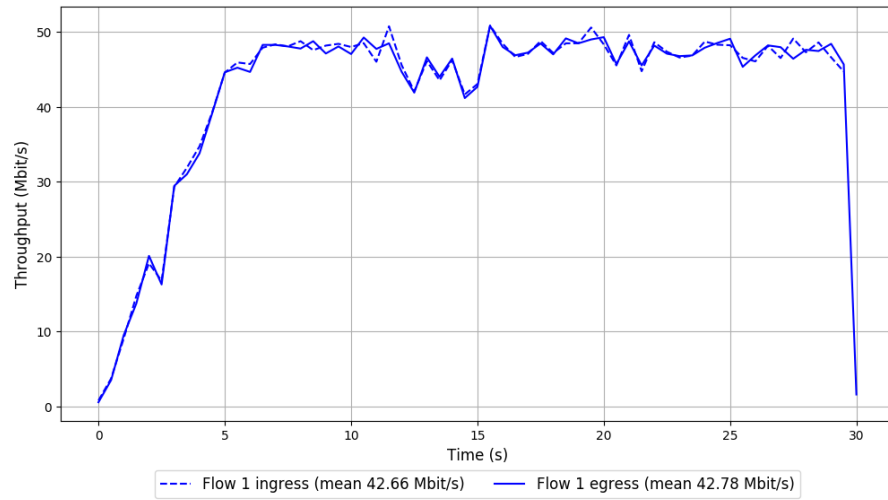


Run 3: Statistics of LEDBAT

Start at: 2017-09-22 11:10:45  
End at: 2017-09-22 11:11:15  
Local clock offset: 0.068 ms  
Remote clock offset: -1.859 ms

# Below is generated by plot.py at 2017-09-22 11:23:29  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 42.78 Mbit/s  
95th percentile per-packet one-way delay: 92.357 ms  
Loss rate: 0.20%  
-- Flow 1:  
Average throughput: 42.78 Mbit/s  
95th percentile per-packet one-way delay: 92.357 ms  
Loss rate: 0.20%

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

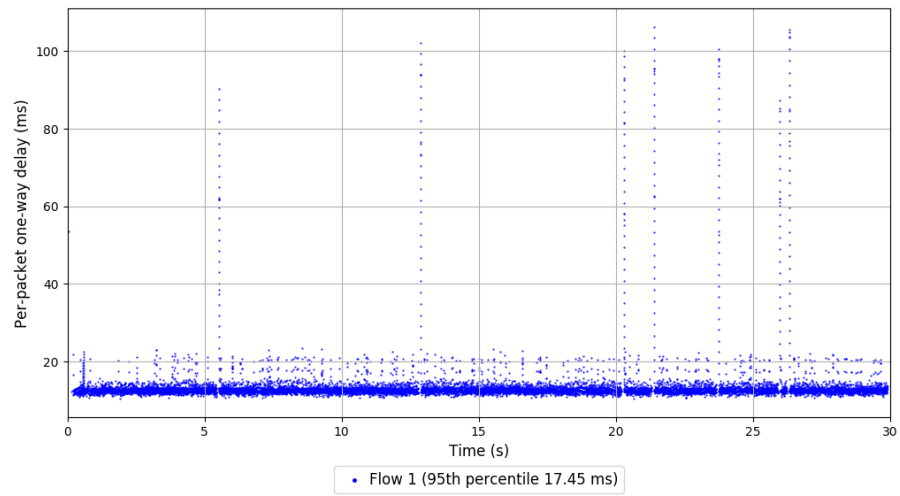
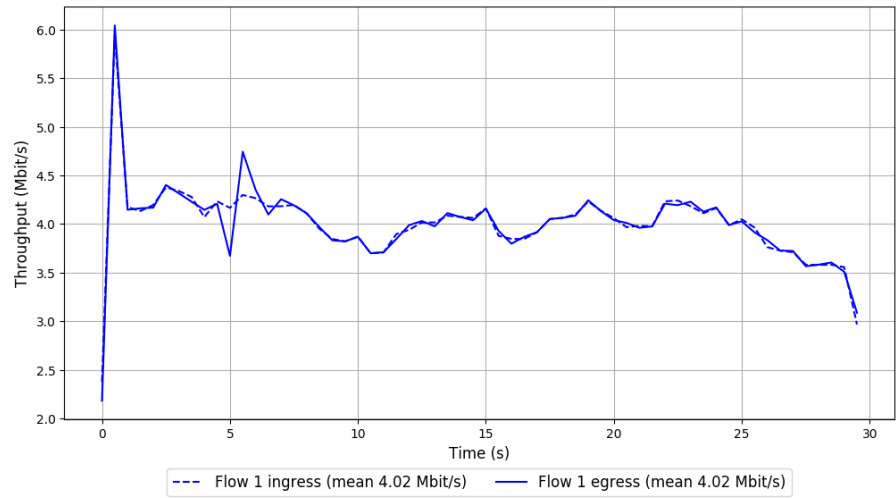


Run 1: Statistics of PCC

Start at: 2017-09-22 10:39:58  
End at: 2017-09-22 10:40:28  
Local clock offset: -0.301 ms  
Remote clock offset: -2.117 ms

# Below is generated by plot.py at 2017-09-22 11:23:29  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.02 Mbit/s  
95th percentile per-packet one-way delay: 17.446 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 4.02 Mbit/s  
95th percentile per-packet one-way delay: 17.446 ms  
Loss rate: 0.00%

### Run 1: Report of PCC — Data Link



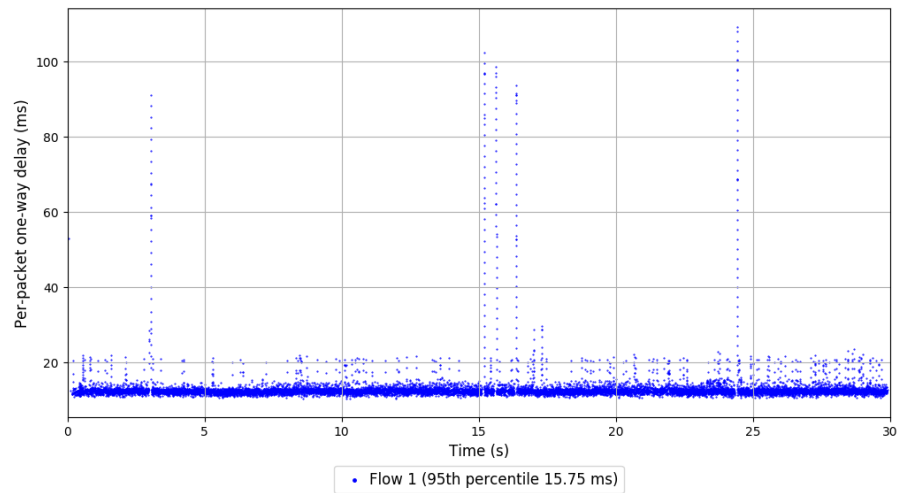
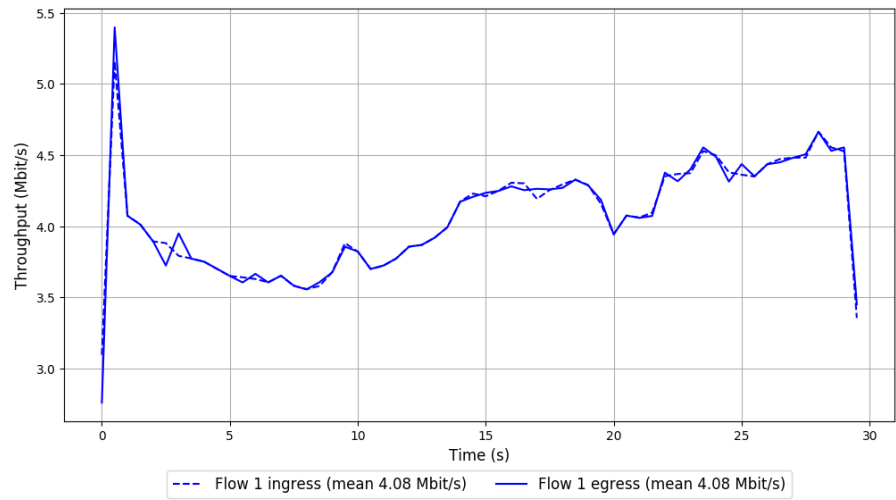
Run 2: Statistics of PCC

Start at: 2017-09-22 10:56:33  
End at: 2017-09-22 10:57:03  
Local clock offset: -0.029 ms  
Remote clock offset: -1.996 ms

# Below is generated by plot.py at 2017-09-22 11:23:29  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.08 Mbit/s  
95th percentile per-packet one-way delay: 15.751 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 4.08 Mbit/s  
95th percentile per-packet one-way delay: 15.751 ms  
Loss rate: 0.00%



## Run 2: Report of PCC — Data Link

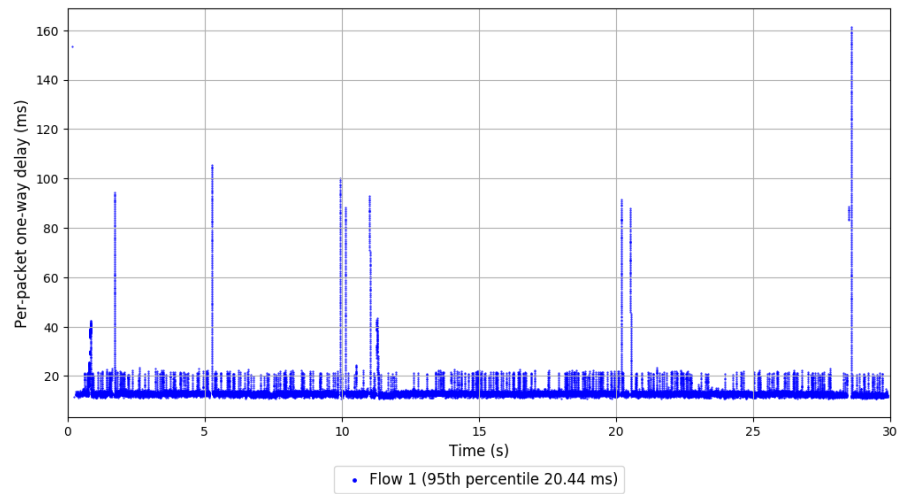
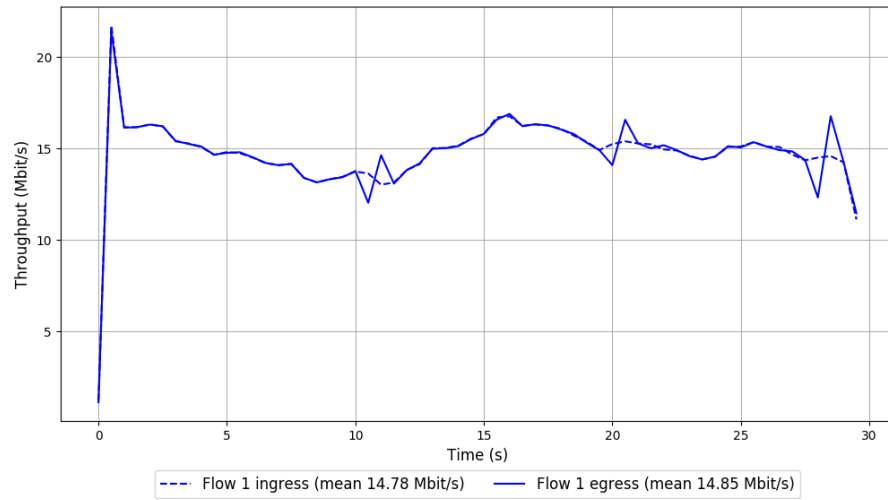


Run 3: Statistics of PCC

Start at: 2017-09-22 11:13:08  
End at: 2017-09-22 11:13:38  
Local clock offset: 0.031 ms  
Remote clock offset: -1.956 ms

# Below is generated by plot.py at 2017-09-22 11:23:29  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 14.85 Mbit/s  
95th percentile per-packet one-way delay: 20.444 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 14.85 Mbit/s  
95th percentile per-packet one-way delay: 20.444 ms  
Loss rate: 0.00%

### Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2017-09-22 10:41:08

End at: 2017-09-22 10:41:38

Local clock offset: -0.285 ms

Remote clock offset: -2.146 ms

# Below is generated by plot.py at 2017-09-22 11:23:41

# Datalink statistics

-- Total of 1 flow:

Average throughput: 45.15 Mbit/s

95th percentile per-packet one-way delay: 145.251 ms

Loss rate: 0.41%

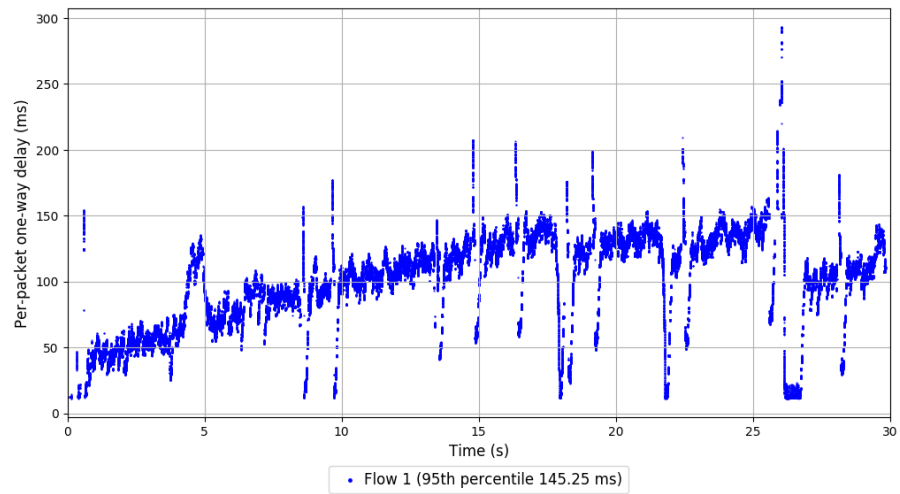
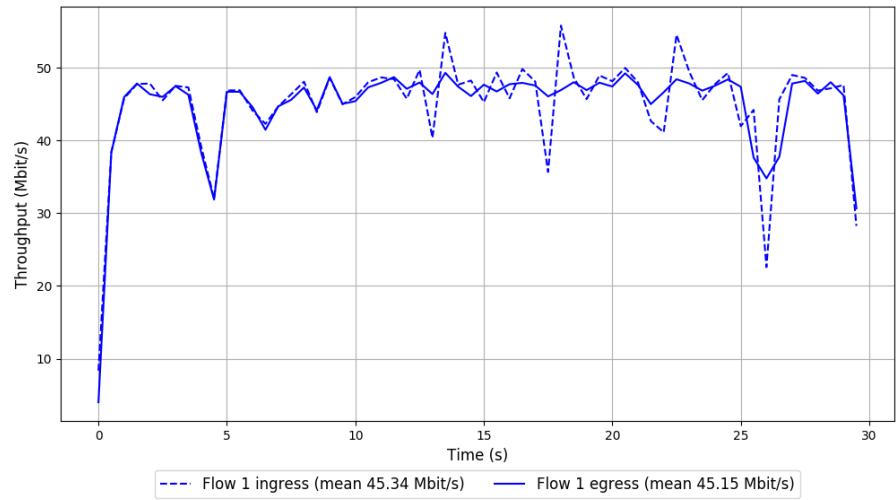
-- Flow 1:

Average throughput: 45.15 Mbit/s

95th percentile per-packet one-way delay: 145.251 ms

Loss rate: 0.41%

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



Run 2: Statistics of QUIC Cubic

Start at: 2017-09-22 10:57:43

End at: 2017-09-22 10:58:13

Local clock offset: -0.102 ms

Remote clock offset: -1.943 ms

# Below is generated by plot.py at 2017-09-22 11:23:41

# Datalink statistics

-- Total of 1 flow:

Average throughput: 43.69 Mbit/s

95th percentile per-packet one-way delay: 156.596 ms

Loss rate: 0.46%

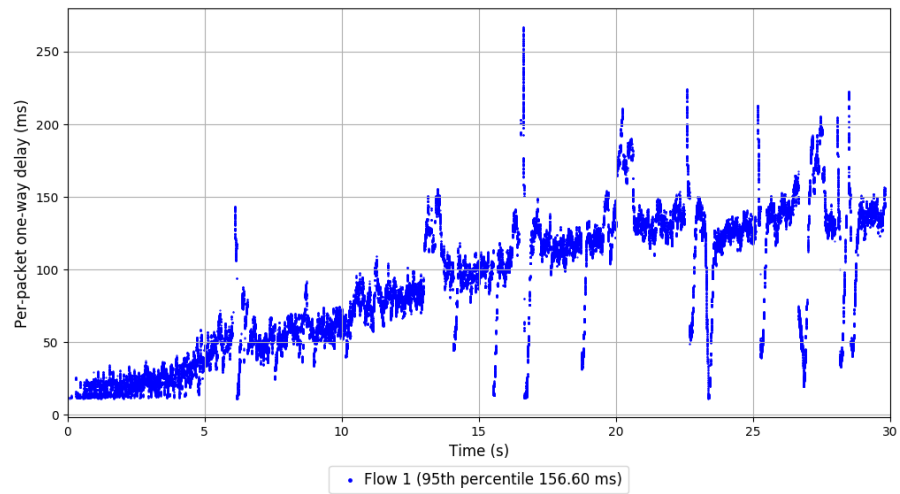
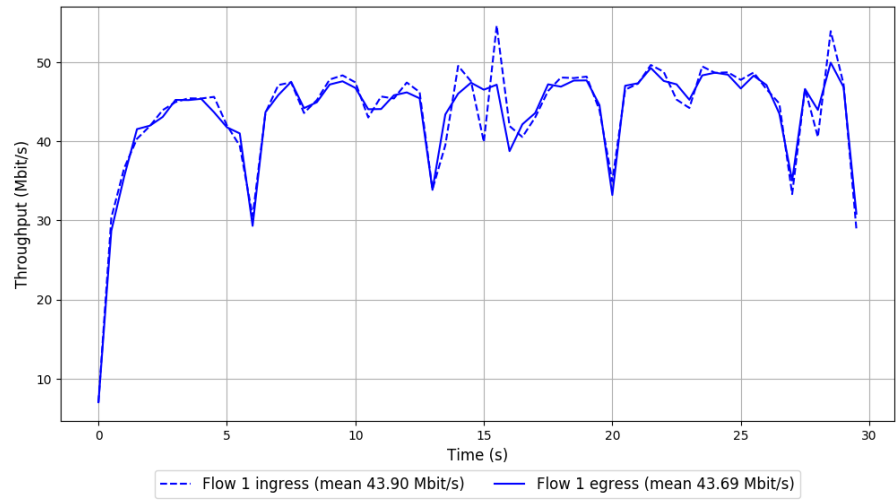
-- Flow 1:

Average throughput: 43.69 Mbit/s

95th percentile per-packet one-way delay: 156.596 ms

Loss rate: 0.46%

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



Run 3: Statistics of QUIC Cubic

Start at: 2017-09-22 11:14:19

End at: 2017-09-22 11:14:49

Local clock offset: 0.019 ms

Remote clock offset: -1.882 ms

# Below is generated by plot.py at 2017-09-22 11:23:42

# Datalink statistics

-- Total of 1 flow:

Average throughput: 44.81 Mbit/s

95th percentile per-packet one-way delay: 153.173 ms

Loss rate: 0.41%

-- Flow 1:

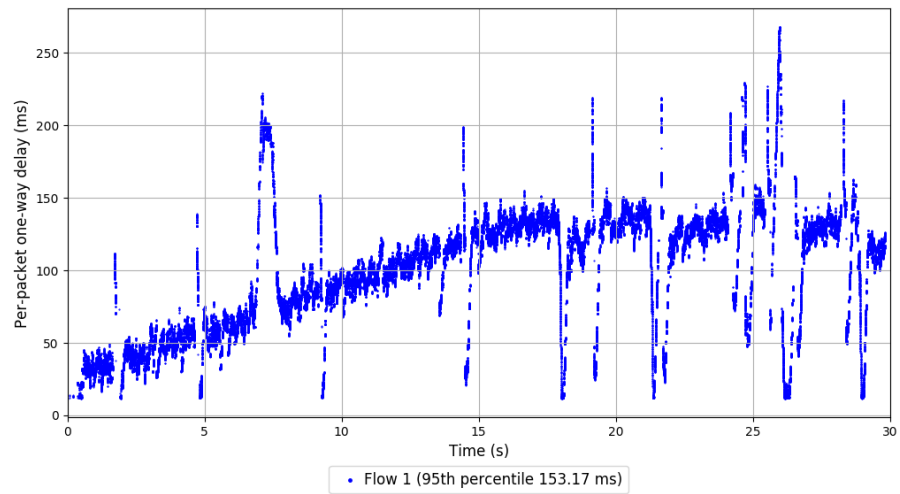
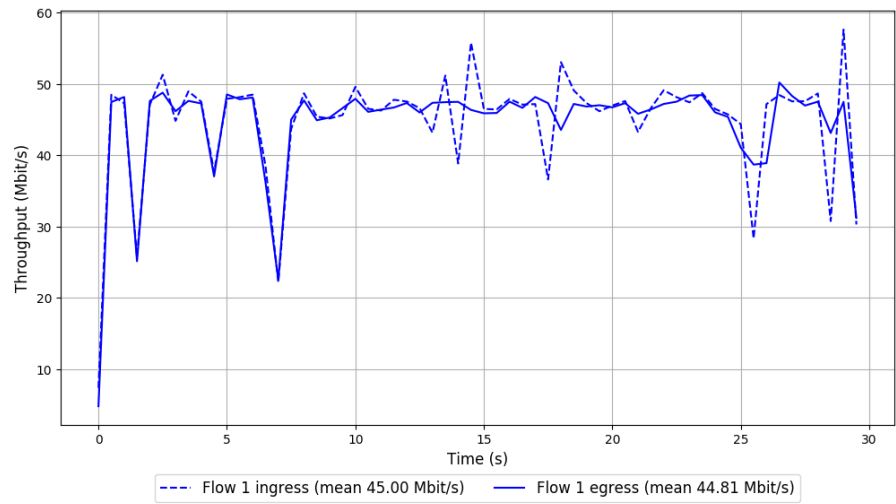
Average throughput: 44.81 Mbit/s

95th percentile per-packet one-way delay: 153.173 ms

Loss rate: 0.41%



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

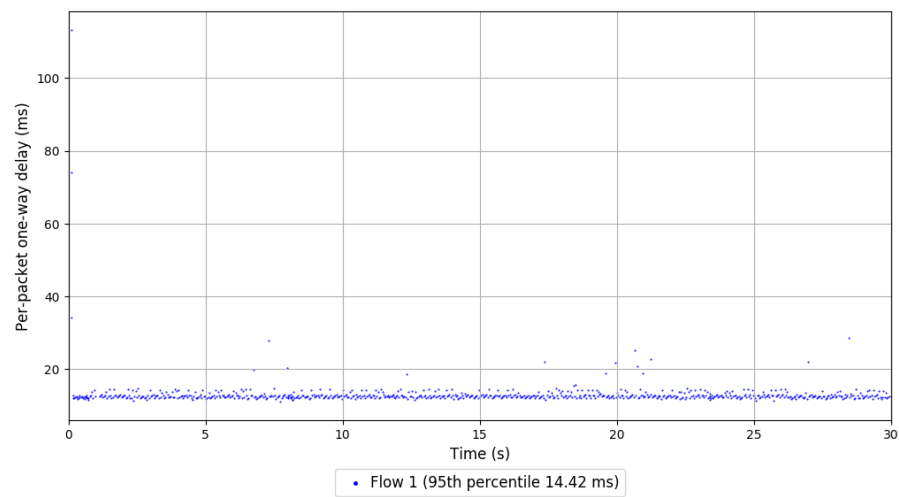
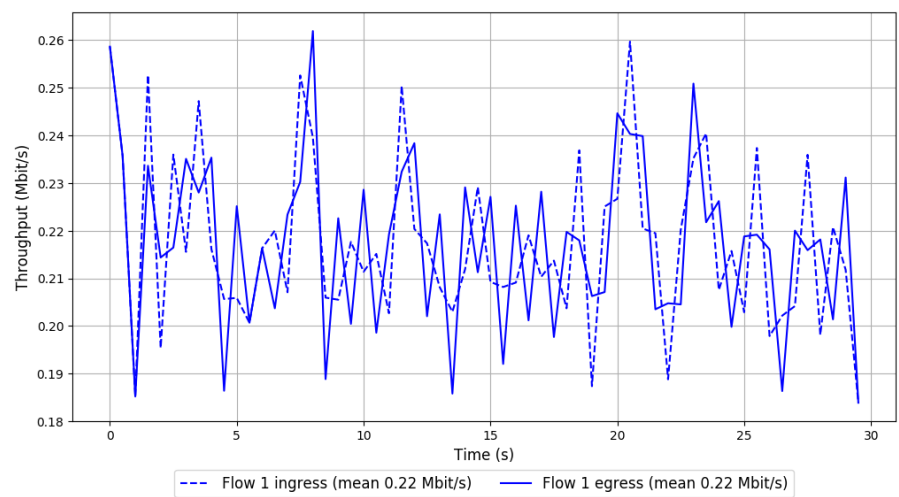


```
Run 1: Statistics of SCReAM

Start at: 2017-09-22 10:44:43
End at: 2017-09-22 10:45:13
Local clock offset: -0.244 ms
Remote clock offset: -2.1 ms

# Below is generated by plot.py at 2017-09-22 11:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 14.424 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 14.424 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

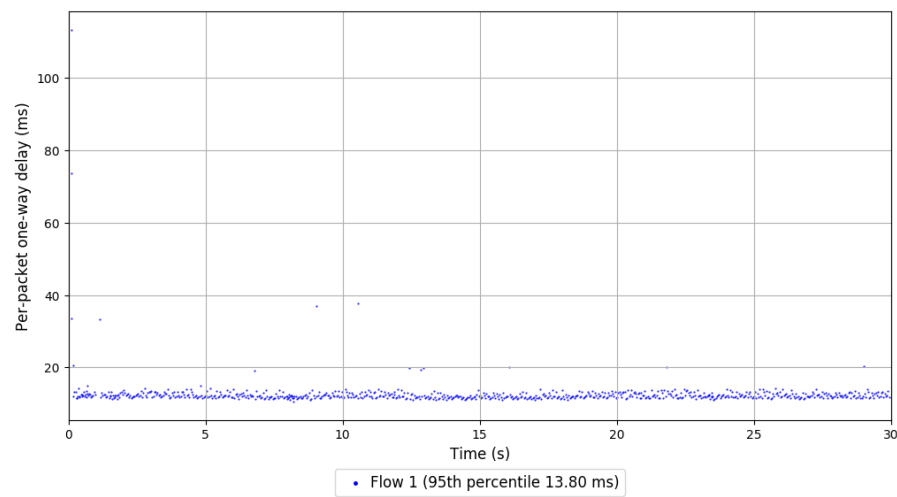
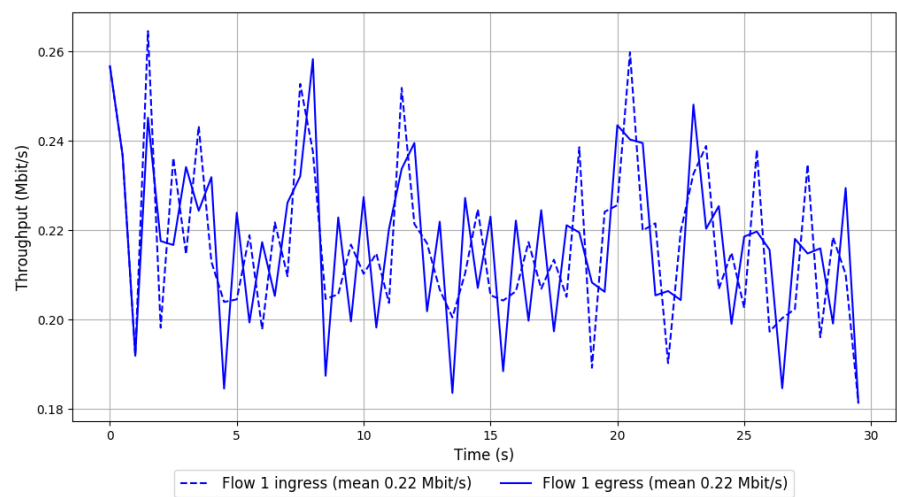


Run 2: Statistics of SCReAM

Start at: 2017-09-22 11:01:18  
End at: 2017-09-22 11:01:48  
Local clock offset: 0.001 ms  
Remote clock offset: -1.989 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 13.799 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 13.799 ms  
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

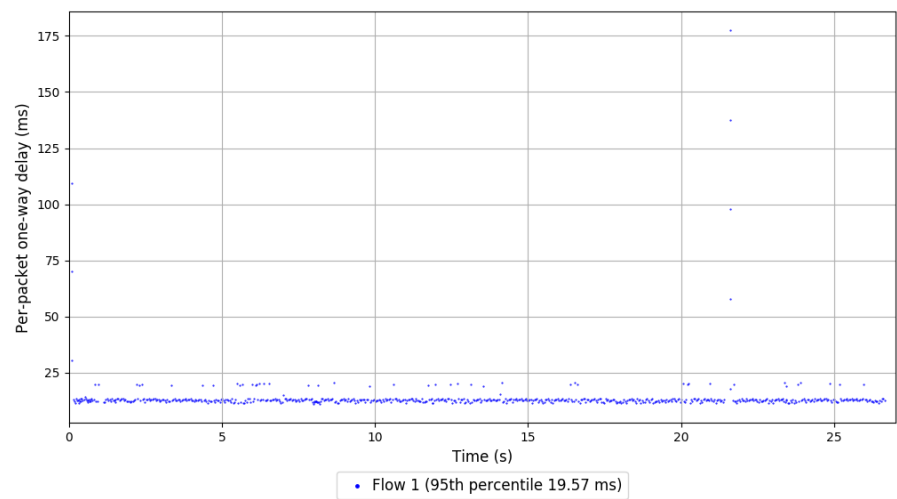
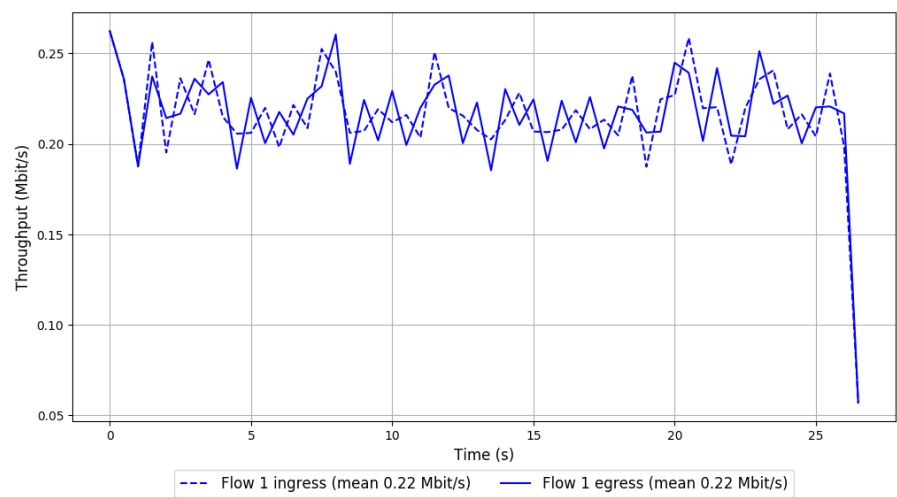


Run 3: Statistics of SCReAM

Start at: 2017-09-22 11:17:54  
End at: 2017-09-22 11:18:24  
Local clock offset: 0.143 ms  
Remote clock offset: -1.871 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 19.571 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 19.571 ms  
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



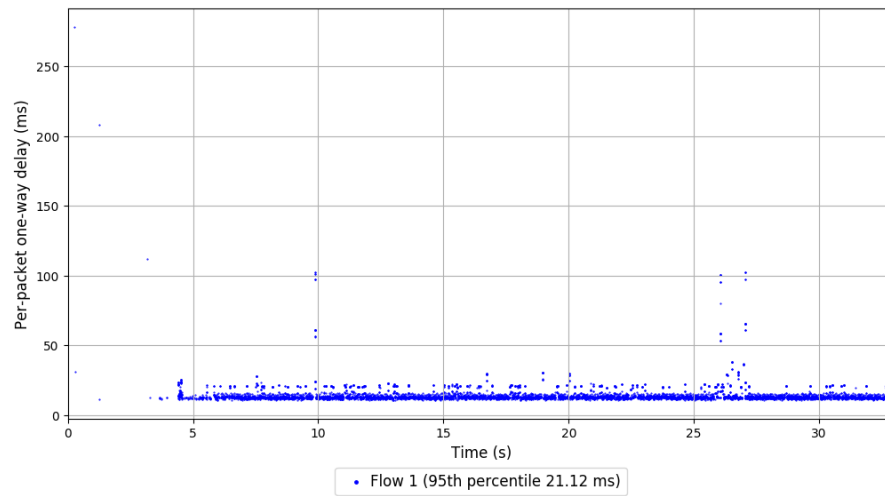
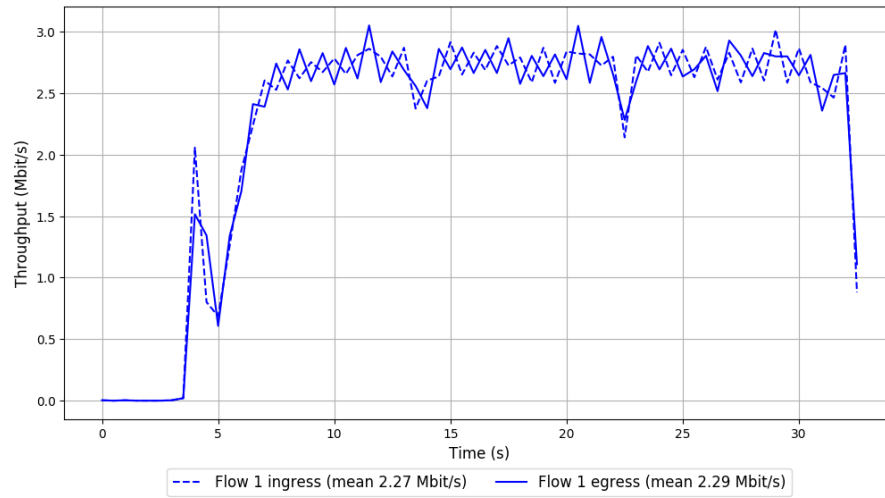
Run 1: Statistics of WebRTC media

Start at: 2017-09-22 10:45:54  
End at: 2017-09-22 10:46:24  
Local clock offset: -0.138 ms  
Remote clock offset: -2.018 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.29 Mbit/s  
95th percentile per-packet one-way delay: 21.116 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 2.29 Mbit/s  
95th percentile per-packet one-way delay: 21.116 ms  
Loss rate: 0.00%



### Run 1: Report of WebRTC media — Data Link

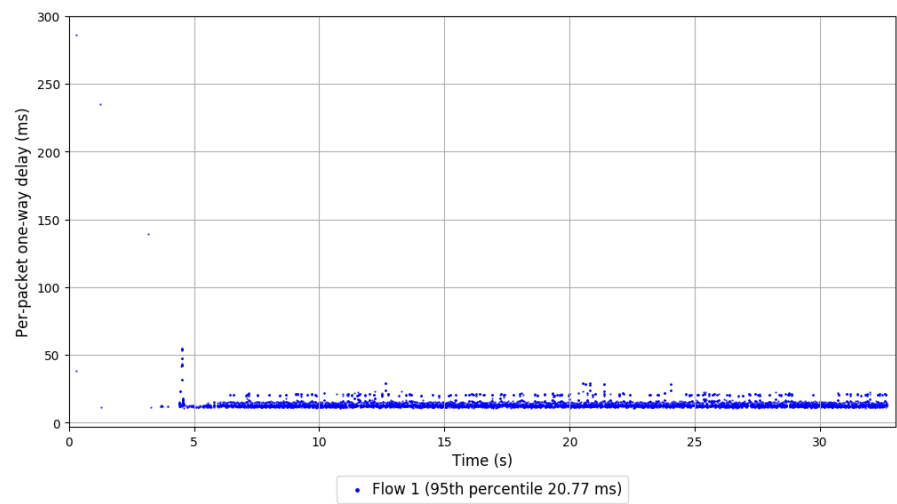
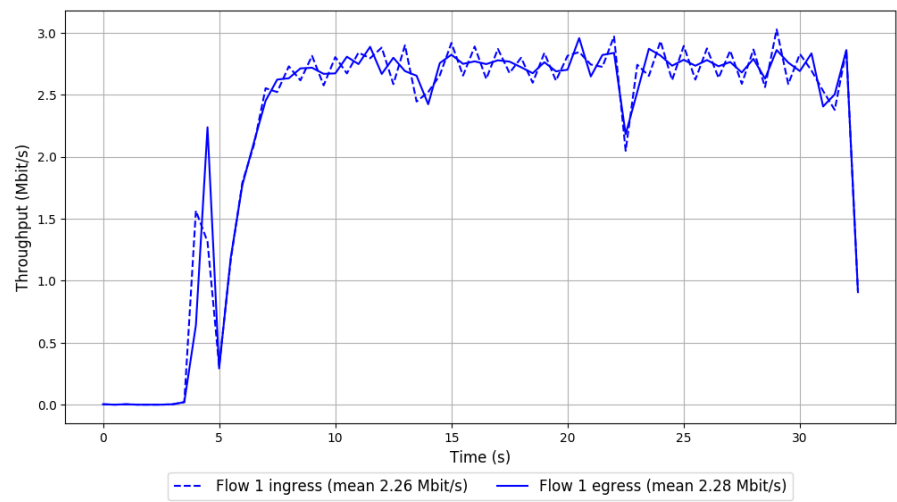


Run 2: Statistics of WebRTC media

Start at: 2017-09-22 11:02:28  
End at: 2017-09-22 11:02:58  
Local clock offset: -0.077 ms  
Remote clock offset: -1.923 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.28 Mbit/s  
95th percentile per-packet one-way delay: 20.770 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 2.28 Mbit/s  
95th percentile per-packet one-way delay: 20.770 ms  
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

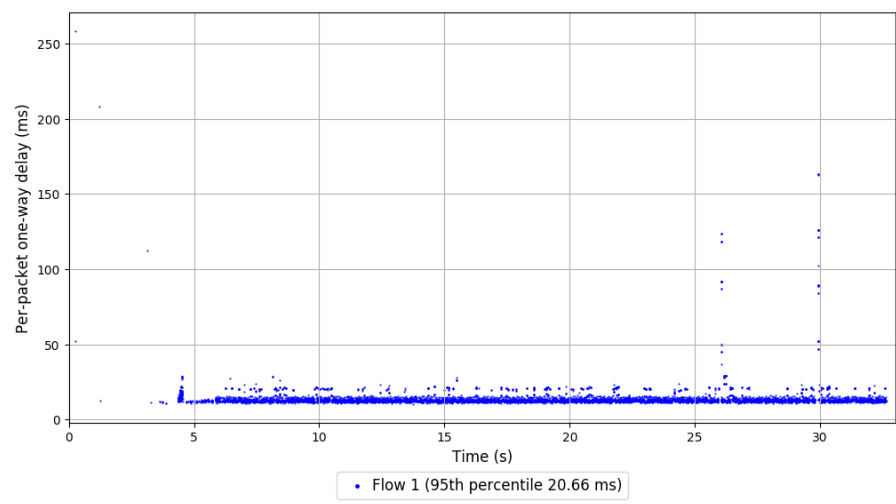
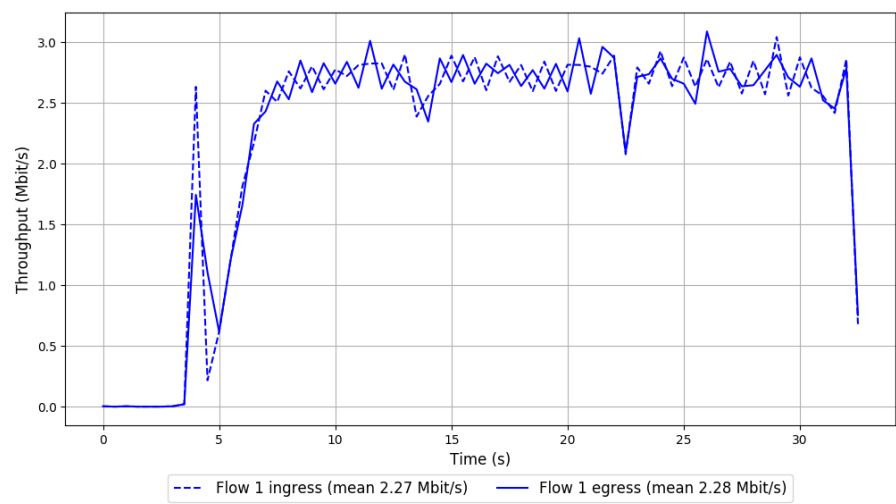


Run 3: Statistics of WebRTC media

Start at: 2017-09-22 11:19:04  
End at: 2017-09-22 11:19:35  
Local clock offset: 0.154 ms  
Remote clock offset: -1.838 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.28 Mbit/s  
95th percentile per-packet one-way delay: 20.664 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 2.28 Mbit/s  
95th percentile per-packet one-way delay: 20.664 ms  
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

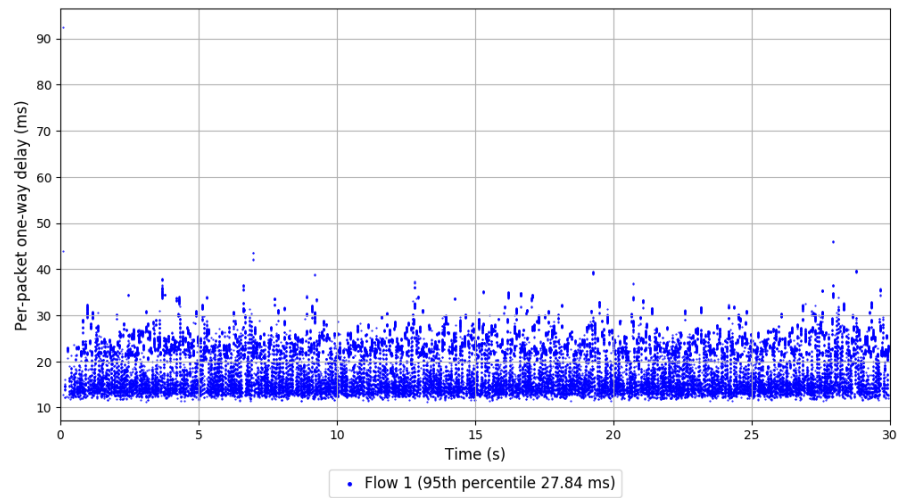
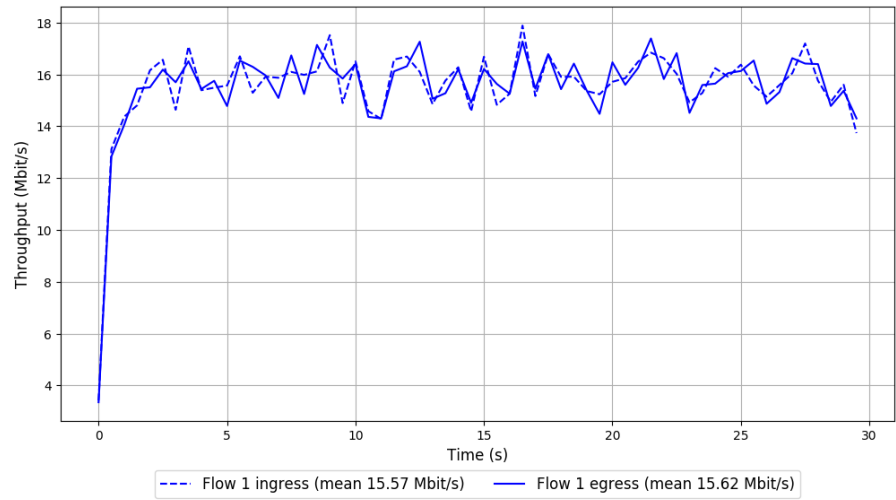


Run 1: Statistics of Sprout

Start at: 2017-09-22 10:32:51  
End at: 2017-09-22 10:33:21  
Local clock offset: -0.394 ms  
Remote clock offset: -2.075 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 15.62 Mbit/s  
95th percentile per-packet one-way delay: 27.838 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 15.62 Mbit/s  
95th percentile per-packet one-way delay: 27.838 ms  
Loss rate: 0.00%

# Run 1: Report of Sprout — Data Link



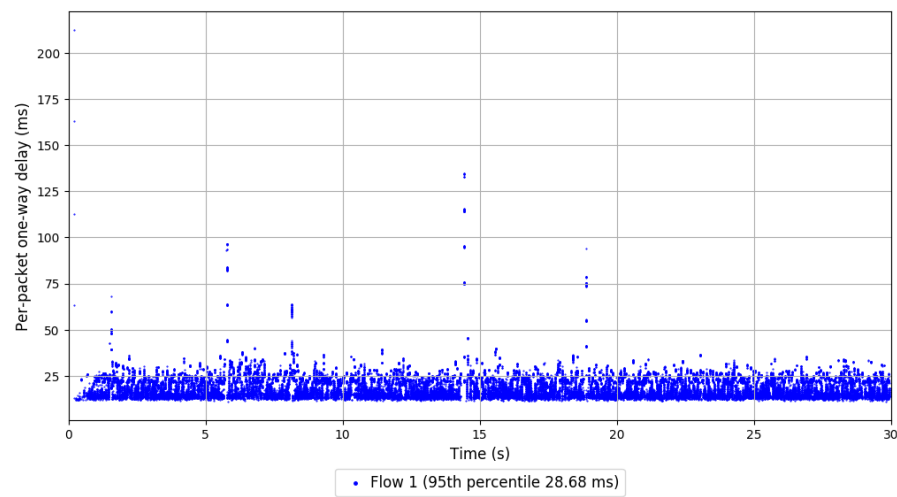
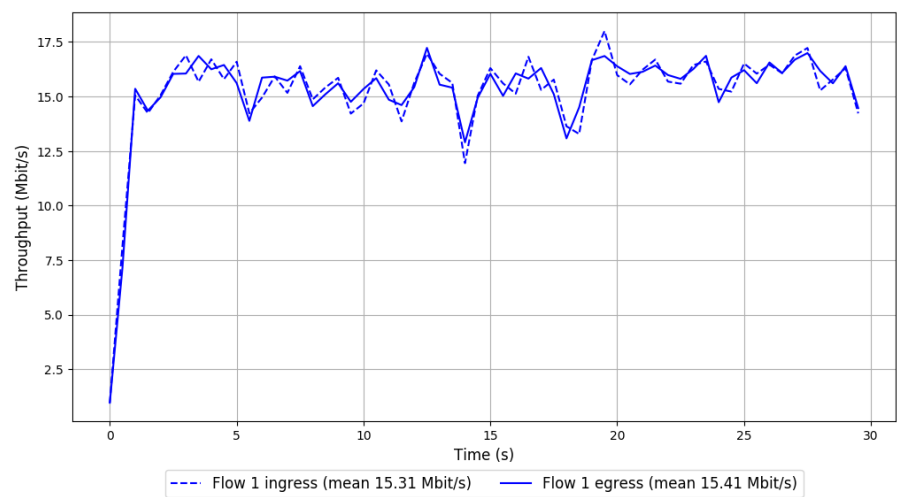
Run 2: Statistics of Sprout

Start at: 2017-09-22 10:49:26  
End at: 2017-09-22 10:49:56  
Local clock offset: -0.186 ms  
Remote clock offset: -2.008 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 15.41 Mbit/s  
95th percentile per-packet one-way delay: 28.675 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 15.41 Mbit/s  
95th percentile per-packet one-way delay: 28.675 ms  
Loss rate: 0.00%



Run 2: Report of Sprout — Data Link

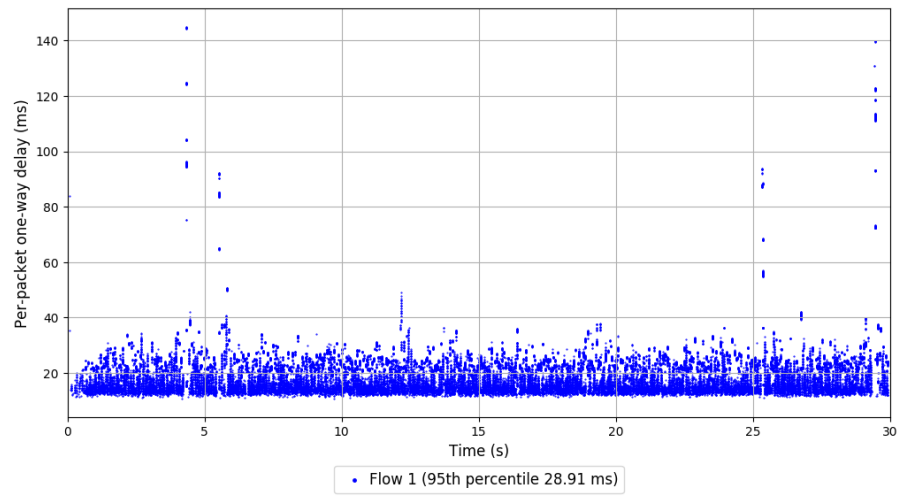
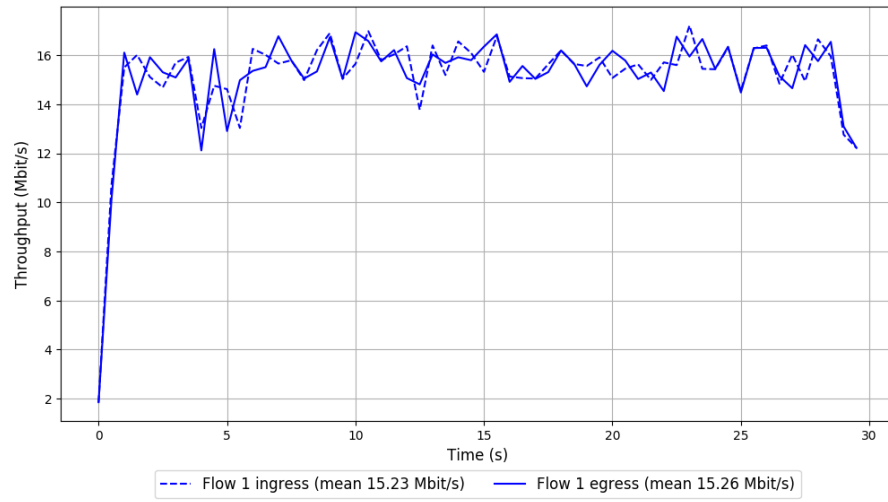


Run 3: Statistics of Sprout

Start at: 2017-09-22 11:06:01  
End at: 2017-09-22 11:06:31  
Local clock offset: 0.058 ms  
Remote clock offset: -1.913 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 15.26 Mbit/s  
95th percentile per-packet one-way delay: 28.907 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 15.26 Mbit/s  
95th percentile per-packet one-way delay: 28.907 ms  
Loss rate: 0.00%

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



Run 1: Statistics of TaoVA-100x

Start at: 2017-09-22 10:35:14

End at: 2017-09-22 10:35:44

Local clock offset: -0.371 ms

Remote clock offset: -2.175 ms

# Below is generated by plot.py at 2017-09-22 11:23:42

# Datalink statistics

-- Total of 1 flow:

Average throughput: 6.04 Mbit/s

95th percentile per-packet one-way delay: 20.921 ms

Loss rate: 0.01%

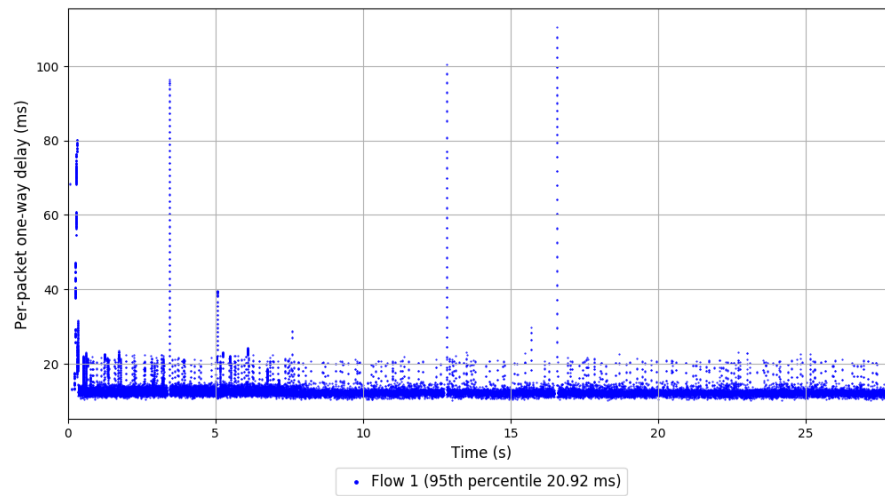
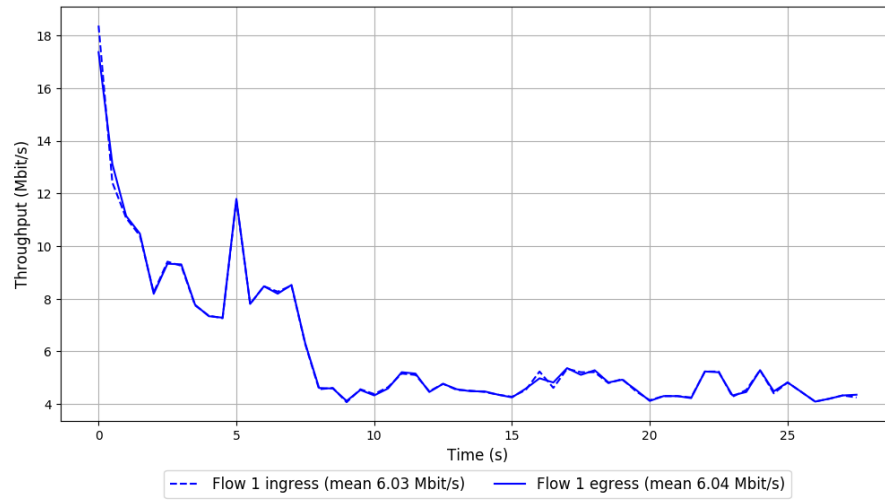
-- Flow 1:

Average throughput: 6.04 Mbit/s

95th percentile per-packet one-way delay: 20.921 ms

Loss rate: 0.01%

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

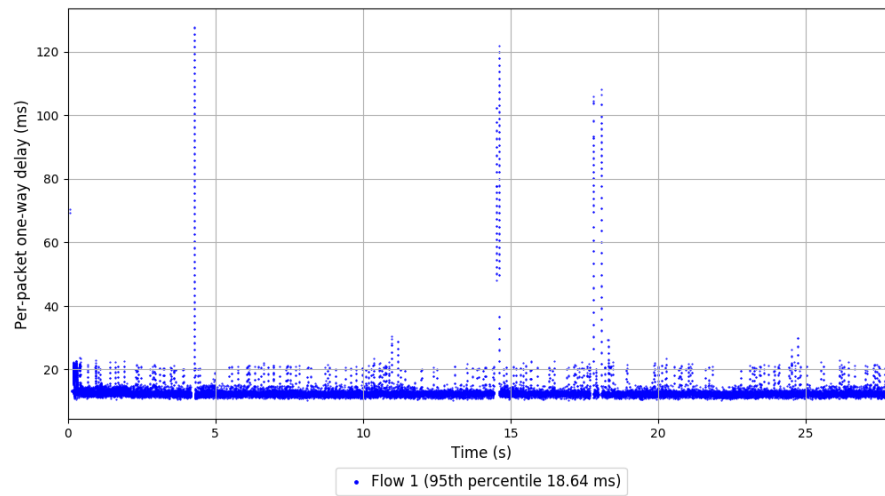
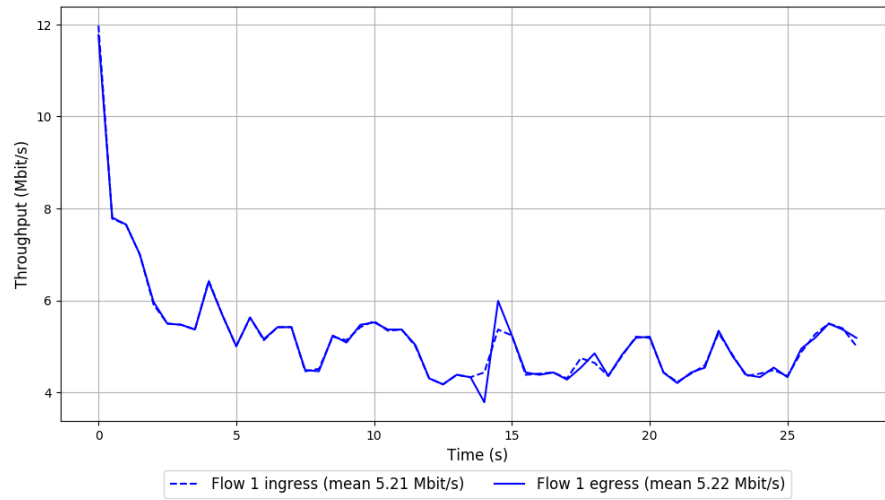


Run 2: Statistics of TaoVA-100x

Start at: 2017-09-22 10:51:49  
End at: 2017-09-22 10:52:19  
Local clock offset: -0.163 ms  
Remote clock offset: -1.986 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 5.22 Mbit/s  
95th percentile per-packet one-way delay: 18.639 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 5.22 Mbit/s  
95th percentile per-packet one-way delay: 18.639 ms  
Loss rate: 0.00%

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



Run 3: Statistics of TaoVA-100x

Start at: 2017-09-22 11:08:23

End at: 2017-09-22 11:08:53

Local clock offset: 0.069 ms

Remote clock offset: -1.895 ms

# Below is generated by plot.py at 2017-09-22 11:23:42

# Datalink statistics

-- Total of 1 flow:

Average throughput: 5.31 Mbit/s

95th percentile per-packet one-way delay: 21.094 ms

Loss rate: 0.00%

-- Flow 1:

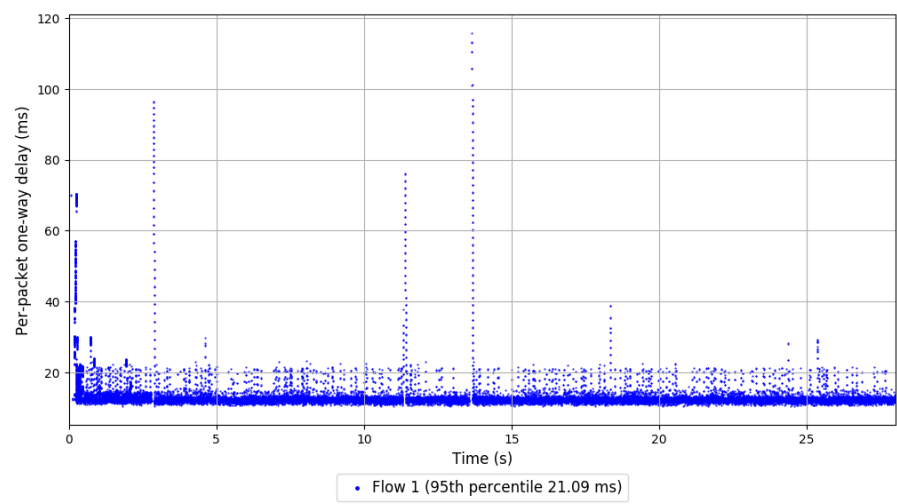
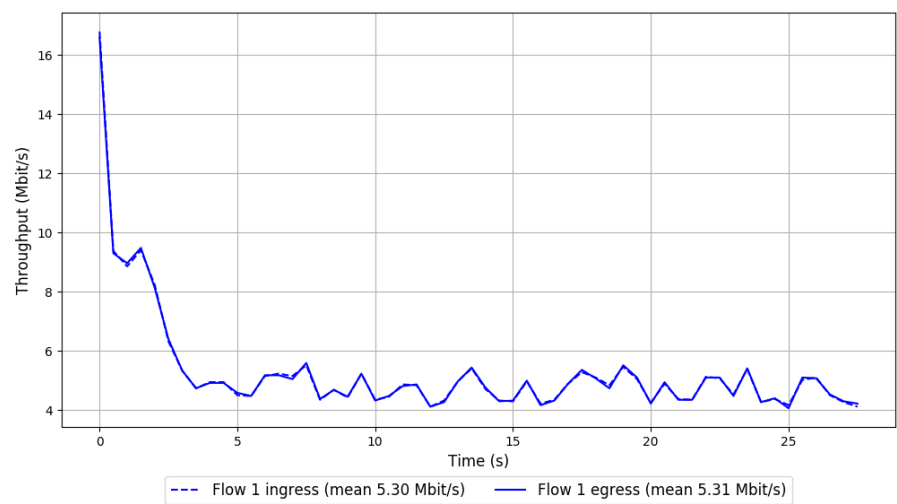
Average throughput: 5.31 Mbit/s

95th percentile per-packet one-way delay: 21.094 ms

Loss rate: 0.00%



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

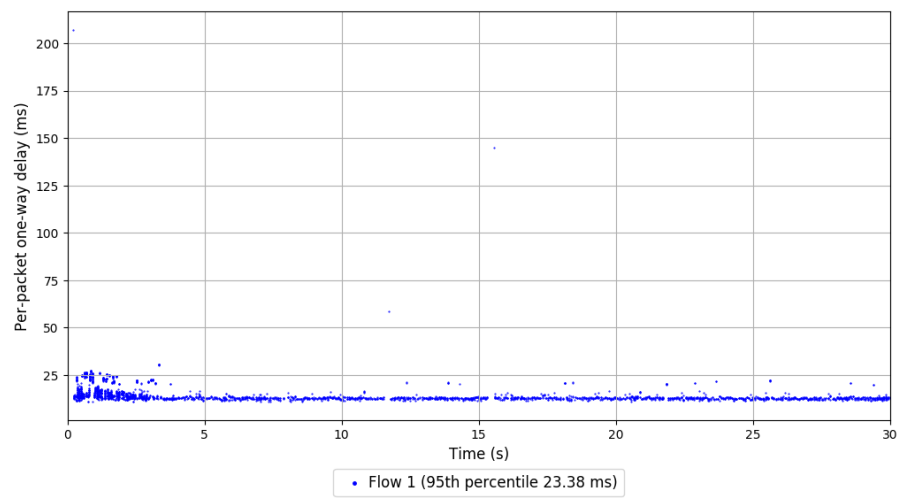
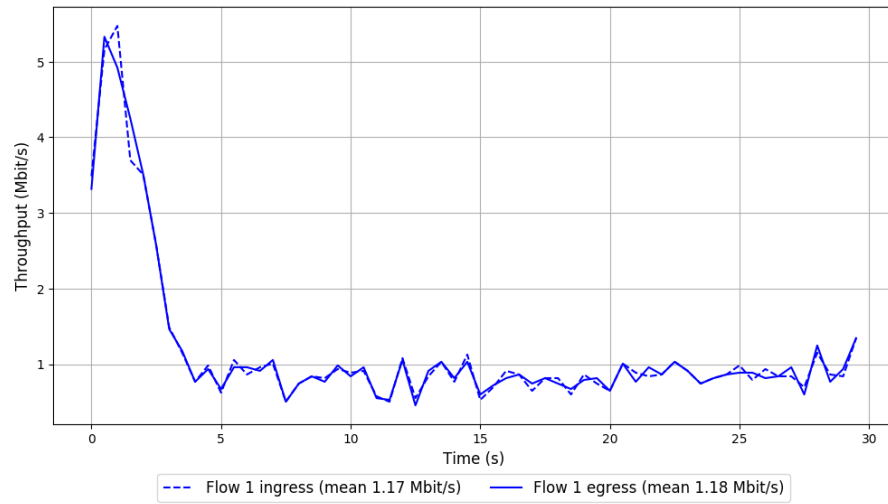


Run 1: Statistics of TCP Vegas

Start at: 2017-09-22 10:31:41  
End at: 2017-09-22 10:32:11  
Local clock offset: -0.419 ms  
Remote clock offset: -2.071 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.18 Mbit/s  
95th percentile per-packet one-way delay: 23.382 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.18 Mbit/s  
95th percentile per-packet one-way delay: 23.382 ms  
Loss rate: 0.00%

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

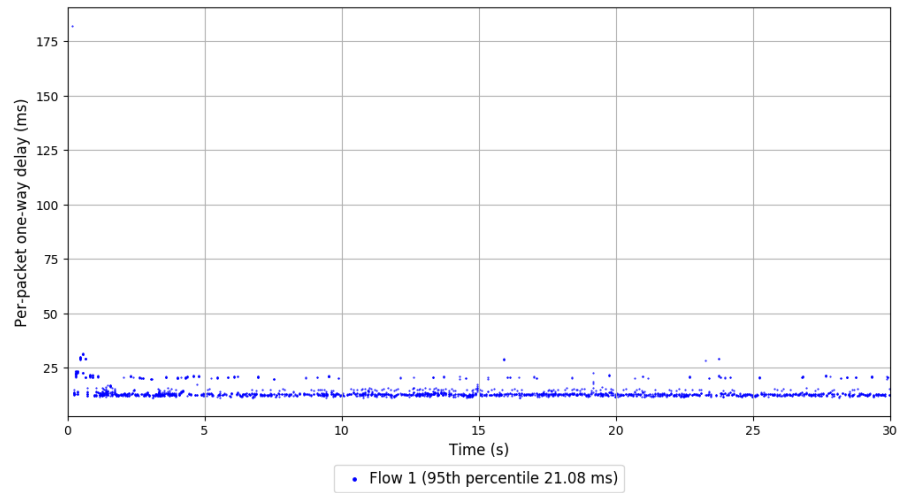
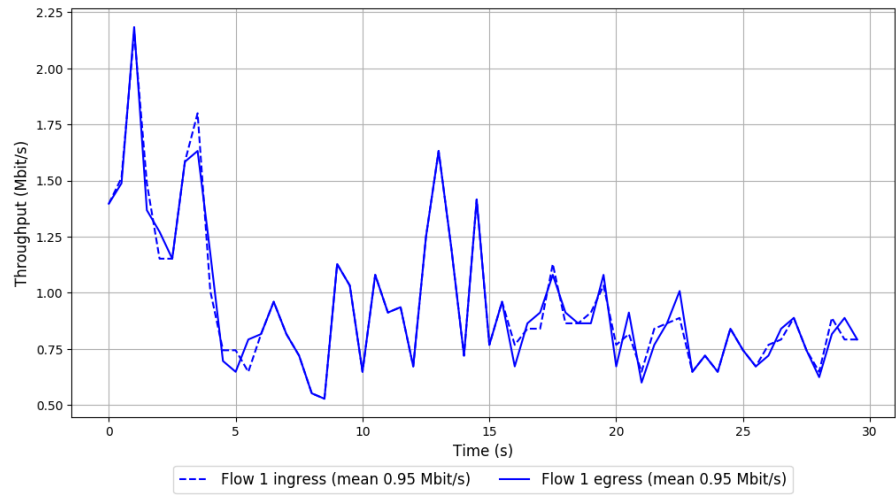


Run 2: Statistics of TCP Vegas

Start at: 2017-09-22 10:48:16  
End at: 2017-09-22 10:48:46  
Local clock offset: -0.119 ms  
Remote clock offset: -2.074 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.95 Mbit/s  
95th percentile per-packet one-way delay: 21.077 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.95 Mbit/s  
95th percentile per-packet one-way delay: 21.077 ms  
Loss rate: 0.00%

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

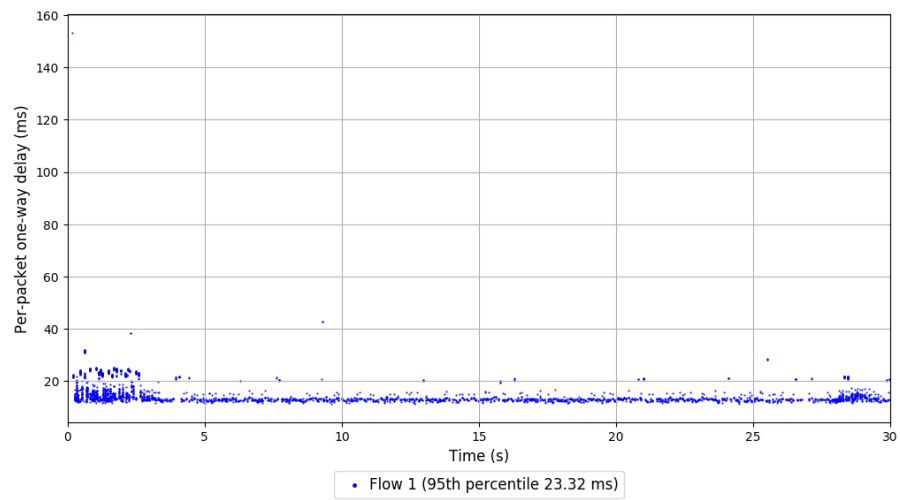
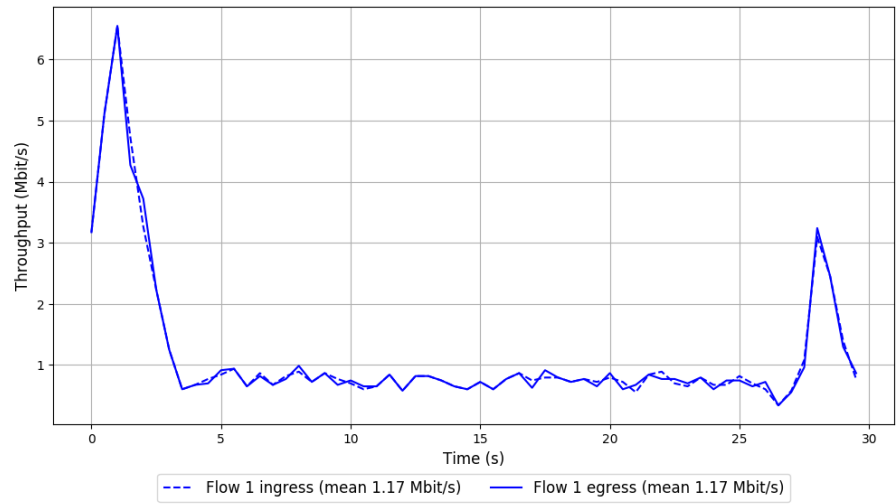


Run 3: Statistics of TCP Vegas

Start at: 2017-09-22 11:04:51  
End at: 2017-09-22 11:05:21  
Local clock offset: -0.054 ms  
Remote clock offset: -1.921 ms

# Below is generated by plot.py at 2017-09-22 11:23:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.17 Mbit/s  
95th percentile per-packet one-way delay: 23.318 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.17 Mbit/s  
95th percentile per-packet one-way delay: 23.318 ms  
Loss rate: 0.00%

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



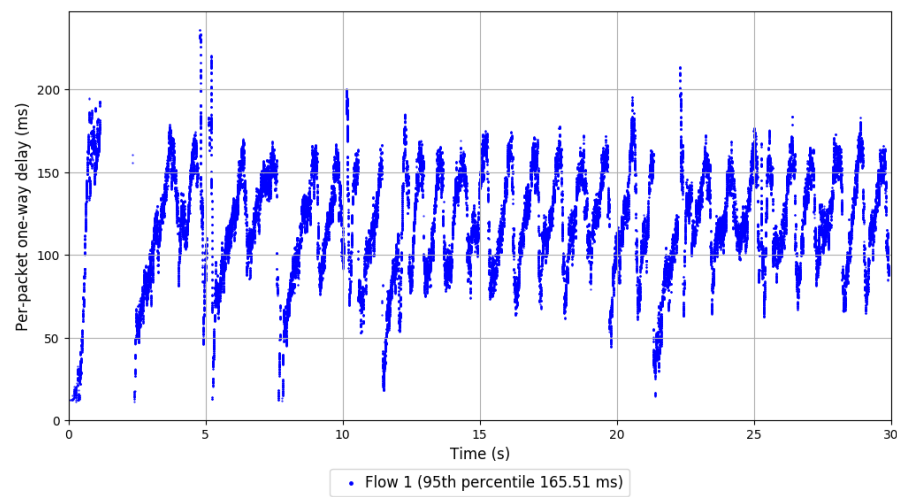
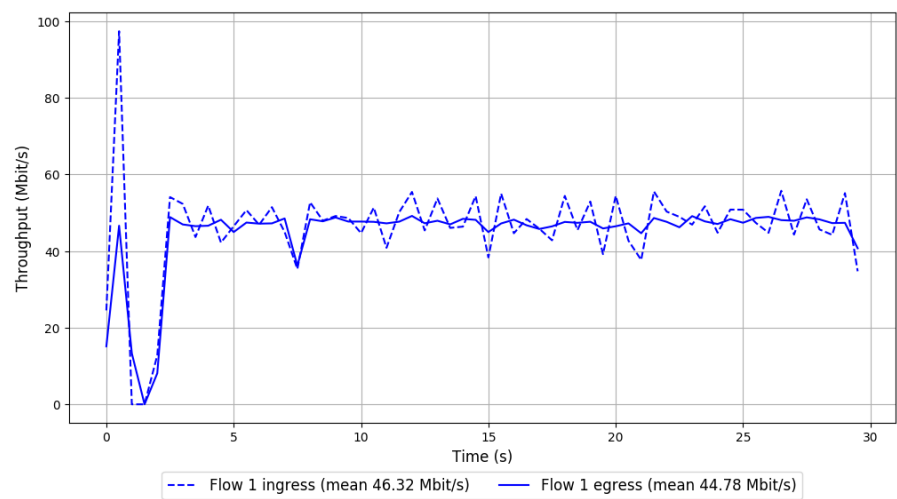
Run 1: Statistics of Verus

Start at: 2017-09-22 10:34:02  
End at: 2017-09-22 10:34:32  
Local clock offset: -0.291 ms  
Remote clock offset: -2.044 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 44.78 Mbit/s  
95th percentile per-packet one-way delay: 165.510 ms  
Loss rate: 3.31%  
-- Flow 1:  
Average throughput: 44.78 Mbit/s  
95th percentile per-packet one-way delay: 165.510 ms  
Loss rate: 3.31%



Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2017-09-22 10:50:37

End at: 2017-09-22 10:51:07

Local clock offset: -0.181 ms

Remote clock offset: -2.04 ms

# Below is generated by plot.py at 2017-09-22 11:23:54

# Datalink statistics

-- Total of 1 flow:

Average throughput: 29.99 Mbit/s

95th percentile per-packet one-way delay: 189.103 ms

Loss rate: 17.19%

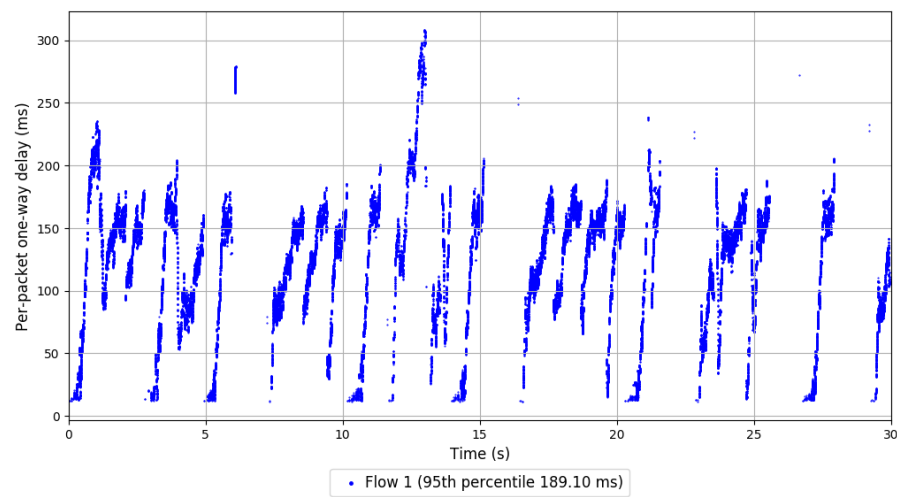
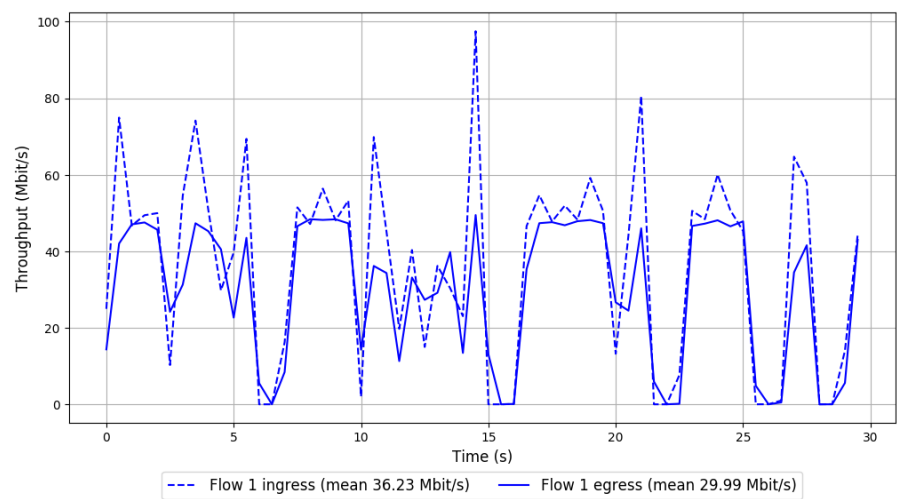
-- Flow 1:

Average throughput: 29.99 Mbit/s

95th percentile per-packet one-way delay: 189.103 ms

Loss rate: 17.19%

Run 2: Report of Verus — Data Link

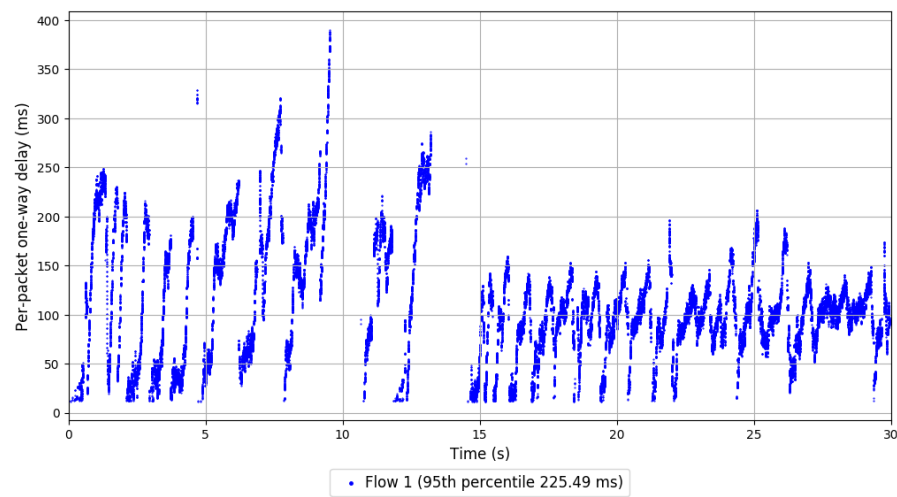
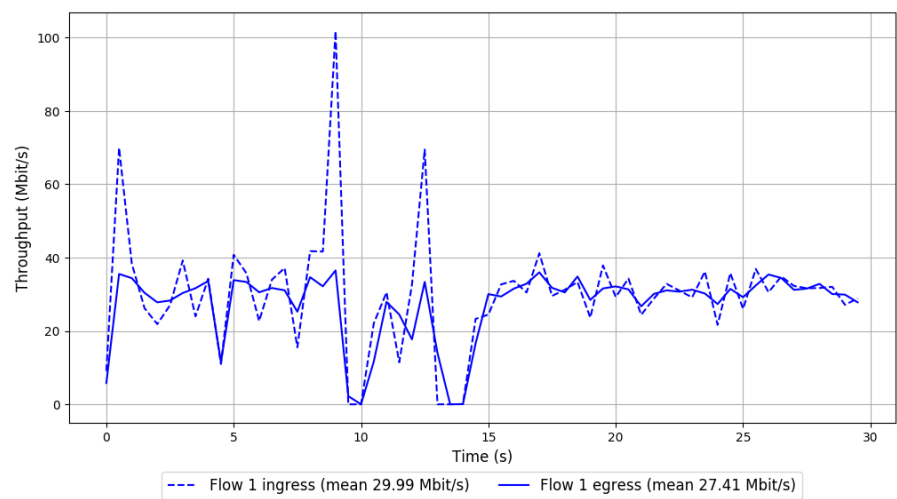


Run 3: Statistics of Verus

Start at: 2017-09-22 11:07:11  
End at: 2017-09-22 11:07:41  
Local clock offset: 0.058 ms  
Remote clock offset: -1.966 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 27.41 Mbit/s  
95th percentile per-packet one-way delay: 225.489 ms  
Loss rate: 8.60%  
-- Flow 1:  
Average throughput: 27.41 Mbit/s  
95th percentile per-packet one-way delay: 225.489 ms  
Loss rate: 8.60%

Run 3: Report of Verus — Data Link

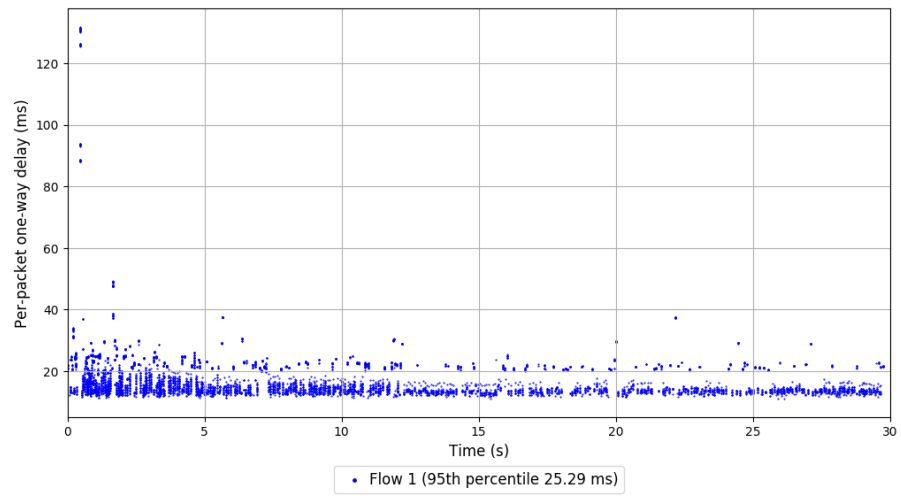
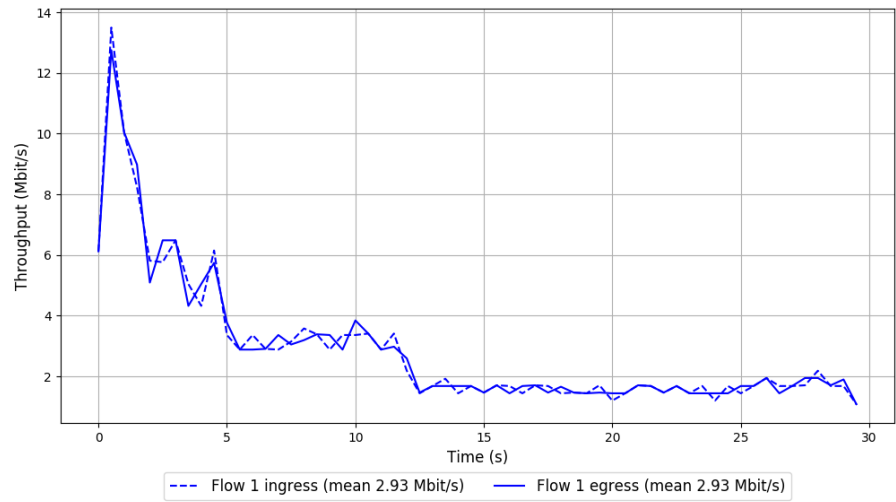


Run 1: Statistics of Indigo

Start at: 2017-09-22 10:38:47  
End at: 2017-09-22 10:39:17  
Local clock offset: -0.313 ms  
Remote clock offset: -2.179 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.93 Mbit/s  
95th percentile per-packet one-way delay: 25.285 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 2.93 Mbit/s  
95th percentile per-packet one-way delay: 25.285 ms  
Loss rate: 0.00%

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



Run 2: Statistics of Indigo

Start at: 2017-09-22 10:55:23

End at: 2017-09-22 10:55:53

Local clock offset: -0.05 ms

Remote clock offset: -2.0 ms

# Below is generated by plot.py at 2017-09-22 11:23:54

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 22.577 ms

Loss rate: 0.00%

-- Flow 1:

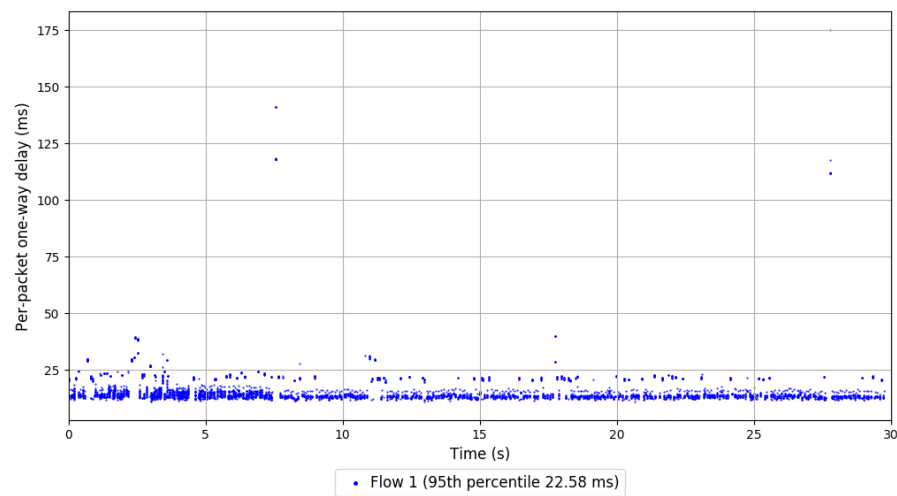
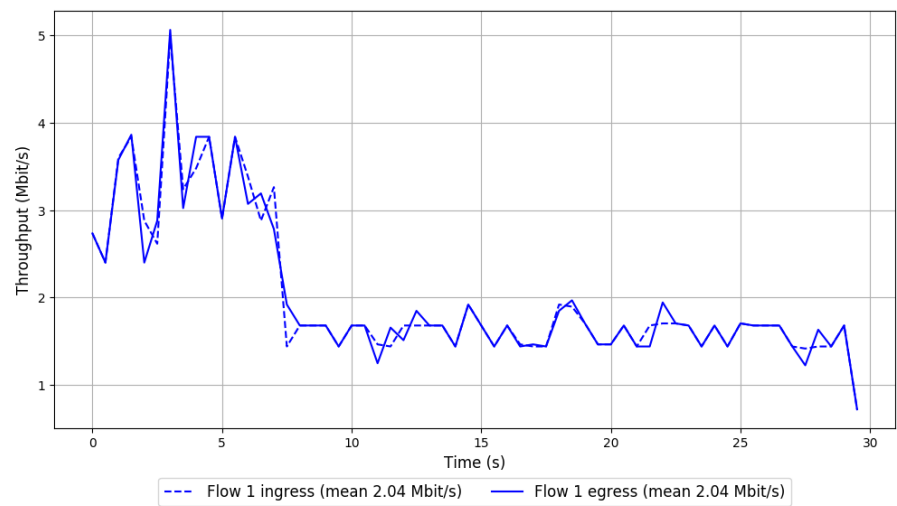
Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 22.577 ms

Loss rate: 0.00%



Run 2: Report of Indigo — Data Link

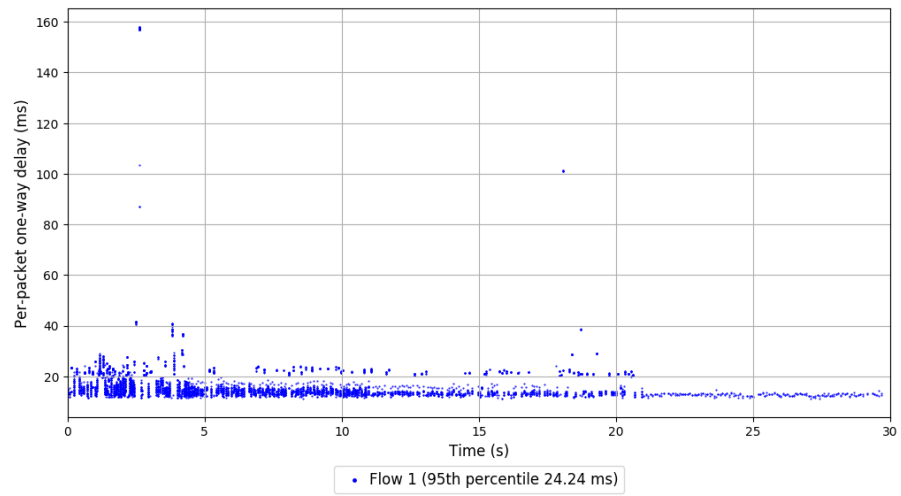
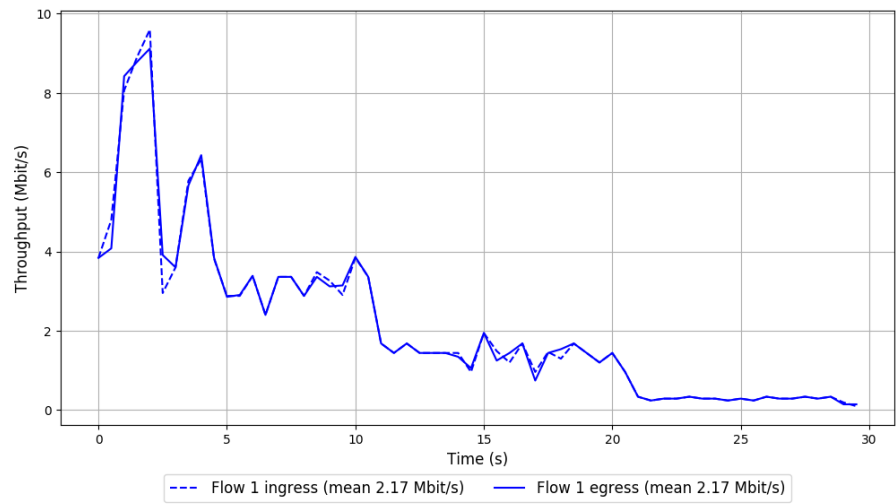


Run 3: Statistics of Indigo

Start at: 2017-09-22 11:11:58  
End at: 2017-09-22 11:12:28  
Local clock offset: 0.085 ms  
Remote clock offset: -1.922 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.17 Mbit/s  
95th percentile per-packet one-way delay: 24.243 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 2.17 Mbit/s  
95th percentile per-packet one-way delay: 24.243 ms  
Loss rate: 0.00%

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



Run 1: Statistics of Indigo-cellular

Start at: 2017-09-22 10:36:25

End at: 2017-09-22 10:36:55

Local clock offset: -0.344 ms

Remote clock offset: -2.189 ms

Run 1: Report of Indigo-cellular — Data Link

Figure is missing

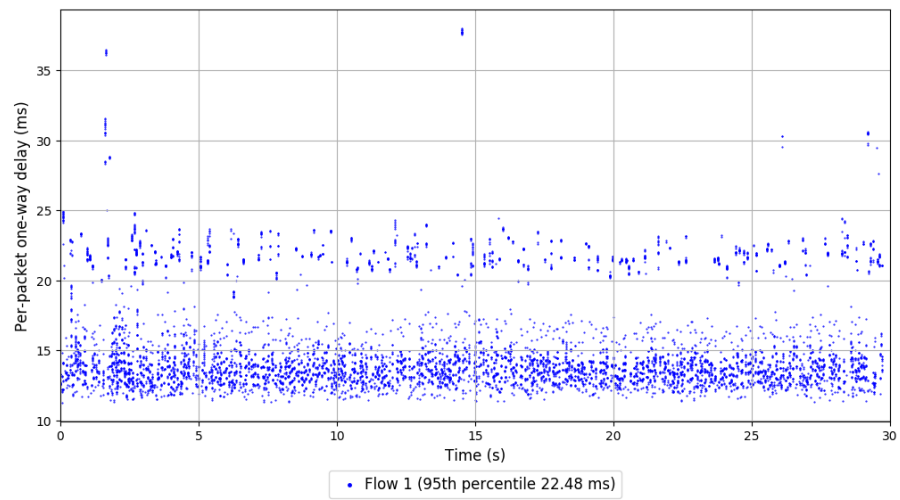
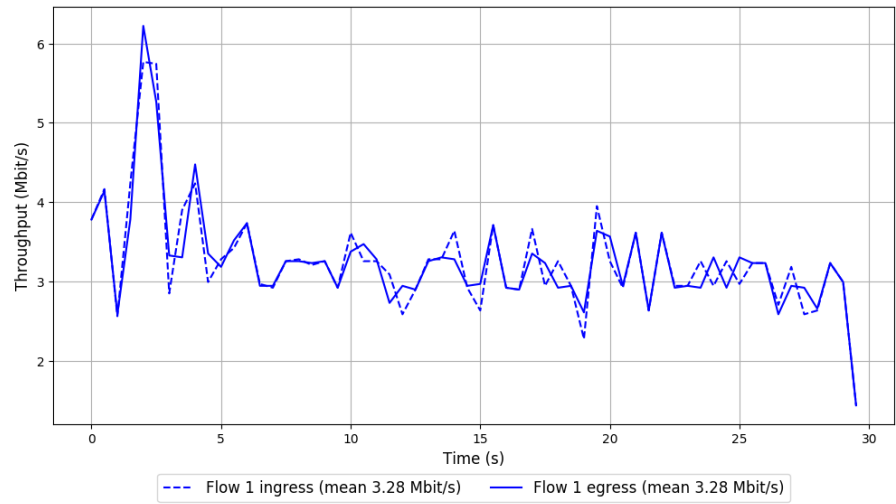
Figure is missing

Run 2: Statistics of Indigo-cellular

Start at: 2017-09-22 10:53:00  
End at: 2017-09-22 10:53:30  
Local clock offset: -0.042 ms  
Remote clock offset: -2.027 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.28 Mbit/s  
95th percentile per-packet one-way delay: 22.480 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 3.28 Mbit/s  
95th percentile per-packet one-way delay: 22.480 ms  
Loss rate: 0.00%

Run 2: Report of Indigo-cellular — Data Link



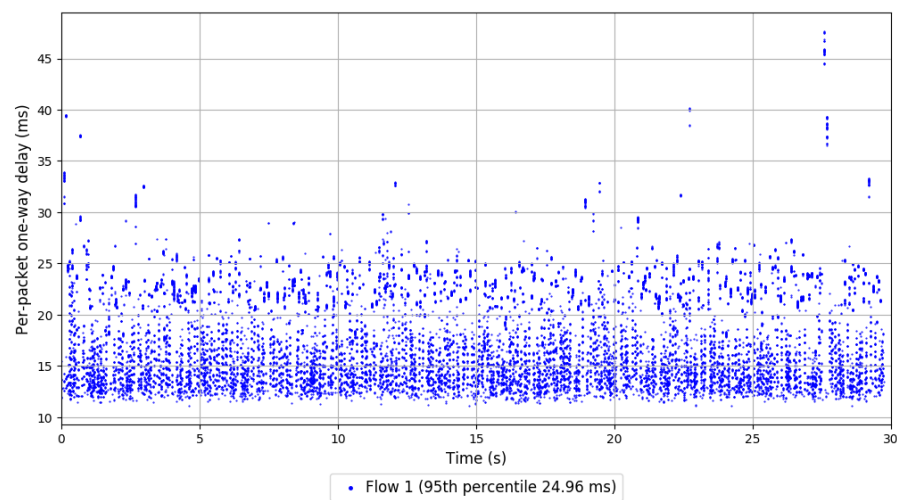
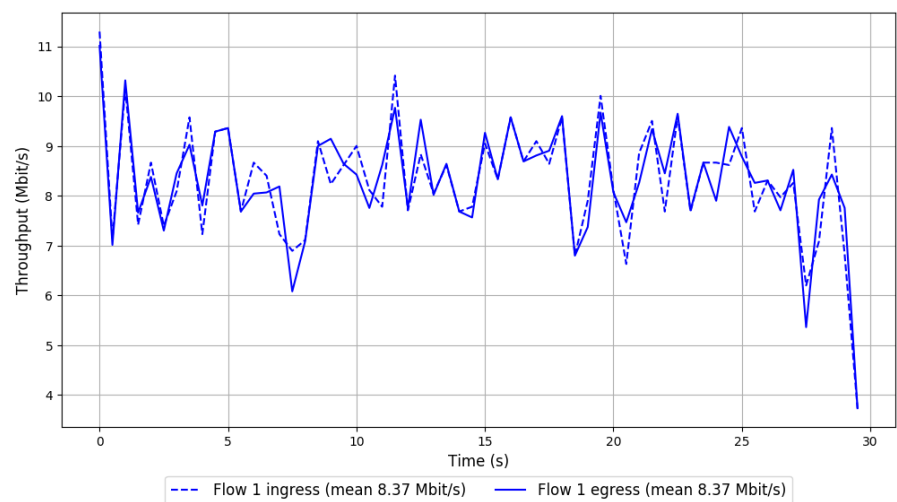
Run 3: Statistics of Indigo-cellular

Start at: 2017-09-22 11:09:34  
End at: 2017-09-22 11:10:04  
Local clock offset: -0.002 ms  
Remote clock offset: -1.977 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 8.37 Mbit/s  
95th percentile per-packet one-way delay: 24.956 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 8.37 Mbit/s  
95th percentile per-packet one-way delay: 24.956 ms  
Loss rate: 0.00%



Run 3: Report of Indigo-cellular — Data Link

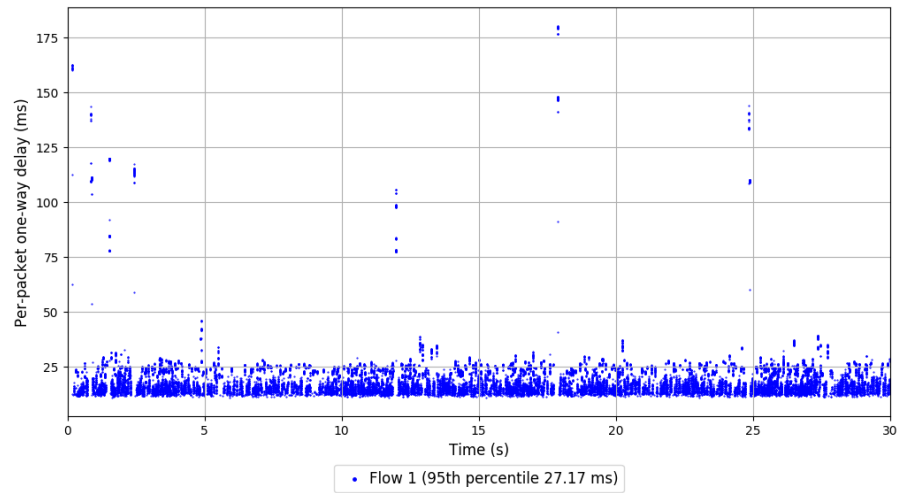
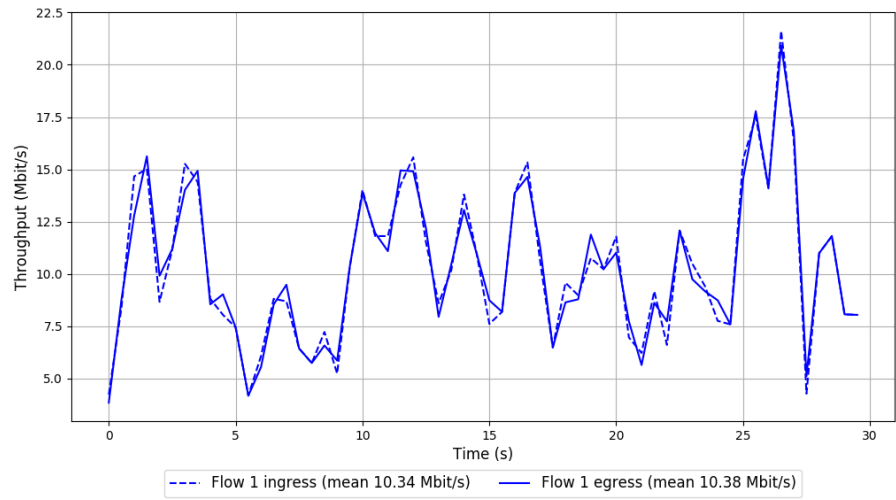


Run 1: Statistics of KohoCC

Start at: 2017-09-22 10:43:33  
End at: 2017-09-22 10:44:03  
Local clock offset: -0.179 ms  
Remote clock offset: -2.127 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 10.38 Mbit/s  
95th percentile per-packet one-way delay: 27.168 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 10.38 Mbit/s  
95th percentile per-packet one-way delay: 27.168 ms  
Loss rate: 0.00%

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

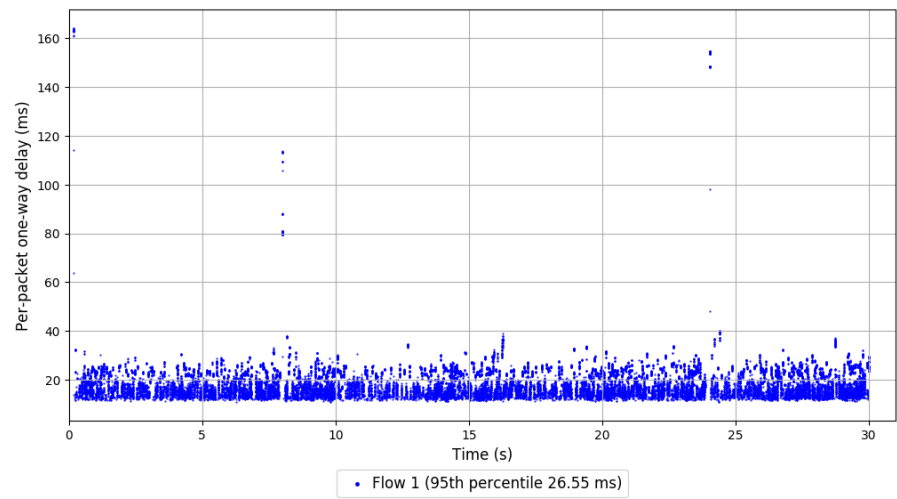
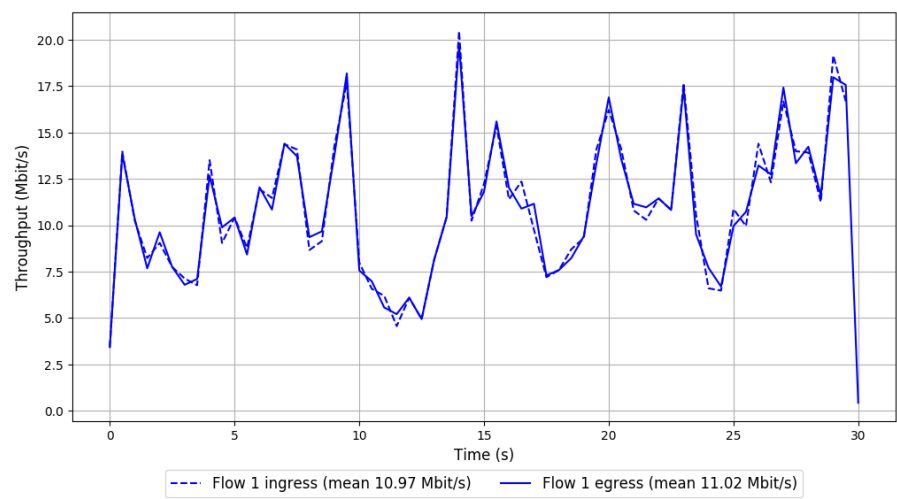


Run 2: Statistics of KohoCC

Start at: 2017-09-22 11:00:07  
End at: 2017-09-22 11:00:37  
Local clock offset: -0.082 ms  
Remote clock offset: -1.984 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 11.02 Mbit/s  
95th percentile per-packet one-way delay: 26.551 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 11.02 Mbit/s  
95th percentile per-packet one-way delay: 26.551 ms  
Loss rate: 0.00%

Run 2: Report of KohoCC — Data Link



Run 3: Statistics of KohoCC

Start at: 2017-09-22 11:16:43  
End at: 2017-09-22 11:17:13  
Local clock offset: 0.037 ms  
Remote clock offset: -1.918 ms

# Below is generated by plot.py at 2017-09-22 11:23:54  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 10.42 Mbit/s  
95th percentile per-packet one-way delay: 26.136 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 10.42 Mbit/s  
95th percentile per-packet one-way delay: 26.136 ms  
Loss rate: 0.00%

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

