

Pantheon Report

Generated at 2018-02-02 20:36:42 (UTC).

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

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

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

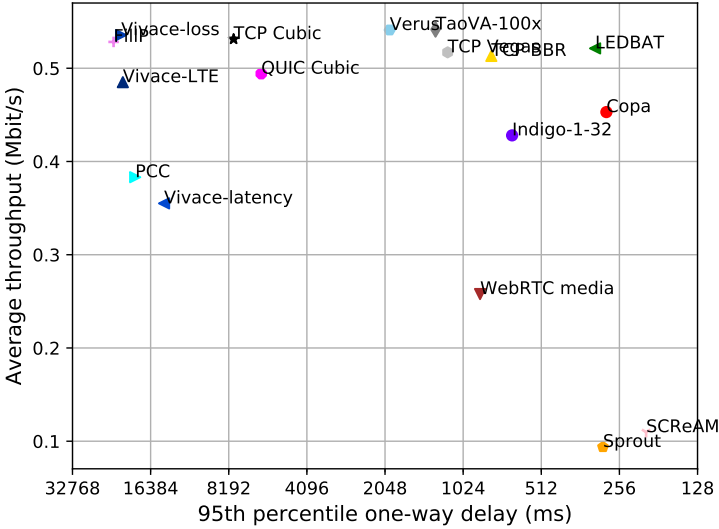
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

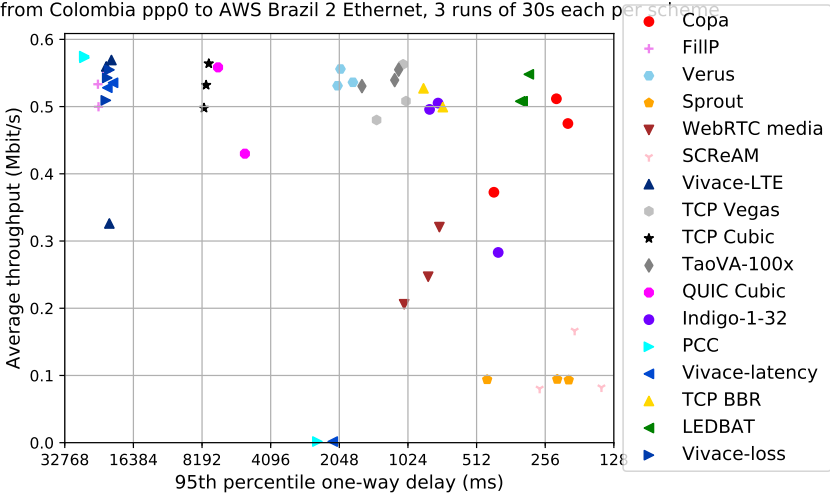
Git summary:

```
branch: master @ 70217998b3c9a7166a95460a70c0854d1326e100
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ fb9c9ab842e5614ad52911a76fb9bd1c1b0dca86
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ a9b2060d39e4da2e8987e893e3eca2a6c7cd0ab9
third_party/indigo-1-layer-128-unit @ 3ae9e4ef4230db7484501f82ce8b377695f2f66d
third_party/indigo-1-layer-32-unit @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-1-layer-32-unit-no-calib @ 1f3a7f75b41135ed5b540c0fd3505939528e2a5f
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eae30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/vivace @ 7a4ba531e75b4a6f66f5c4580192120401784ce3
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	0.52	797.55	2.34
TCP Cubic	3	0.53	7848.69	31.40
LEDBAT	3	0.52	317.71	1.36
PCC	3	0.38	18779.63	65.80
QUIC Cubic	2	0.49	6141.38	24.81
SCReAM	3	0.11	202.01	0.79
WebRTC media	3	0.26	881.32	0.95
Sprout	3	0.09	296.24	1.28
TaoVA-100x	3	0.54	1308.54	2.77
TCP Vegas	3	0.52	1175.01	1.65
Verus	3	0.54	1964.68	7.20
Copa	3	0.45	287.36	3.47
FillP	3	0.53	22755.76	54.00
Indigo-1-32	3	0.43	663.33	2.17
Vivace-latency	3	0.36	14545.38	48.82
Vivace-loss	3	0.53	21282.59	89.84
Vivace-LTE	3	0.49	20962.01	75.39

Run 1: Statistics of TCP BBR

Start at: 2018-02-02 18:49:16

End at: 2018-02-02 18:49:46

Local clock offset: 0.341 ms

Remote clock offset: 2.776 ms

Below is generated by plot.py at 2018-02-02 20:36:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 875.060 ms

Loss rate: 2.17%

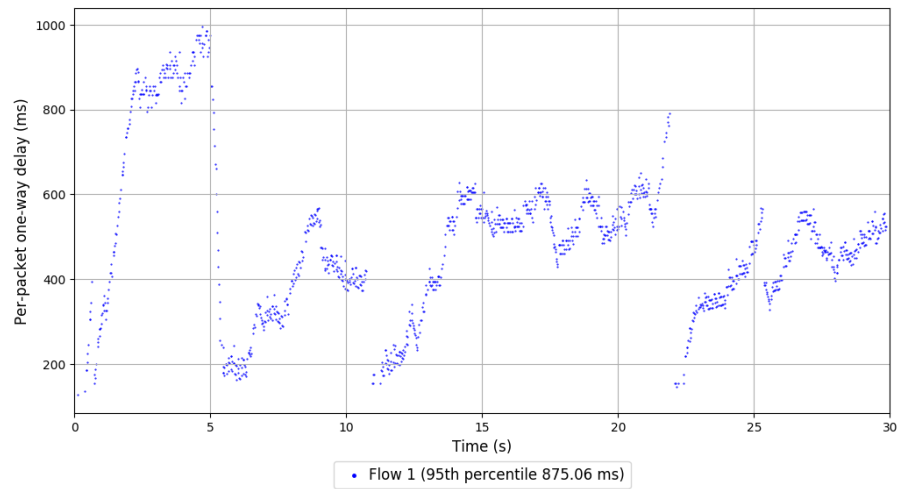
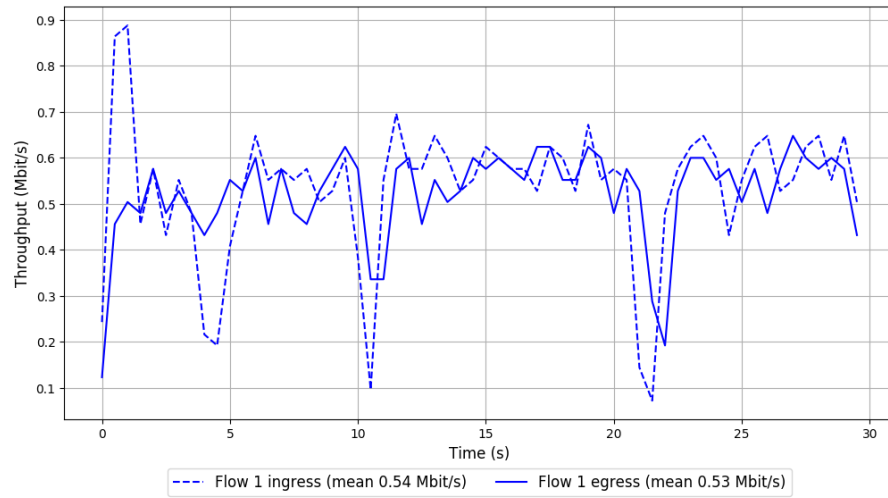
-- Flow 1:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 875.060 ms

Loss rate: 2.17%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-02-02 19:09:25

End at: 2018-02-02 19:09:55

Local clock offset: 0.412 ms

Remote clock offset: 2.379 ms

Below is generated by plot.py at 2018-02-02 20:36:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 720.046 ms

Loss rate: 2.52%

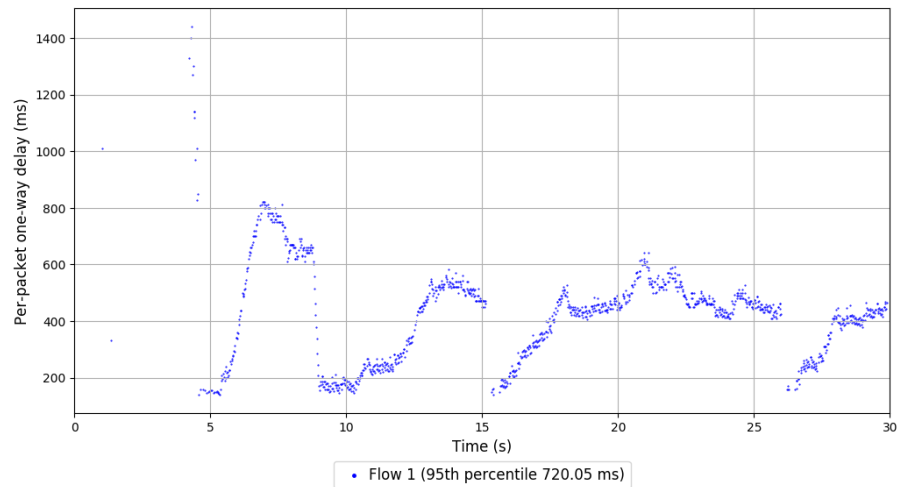
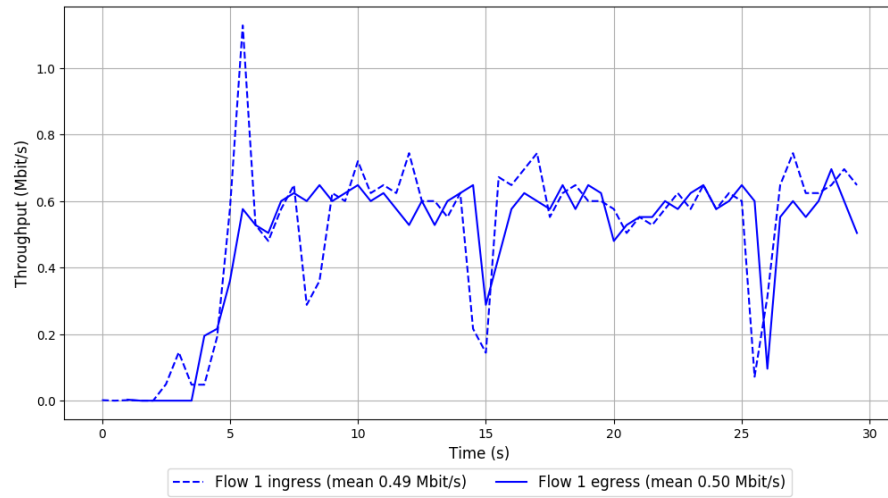
-- Flow 1:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 720.046 ms

Loss rate: 2.52%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

/home/ubuntu/pantheon_data/2018-02-02T18-34-Colombia-ppp0-to-AWS-Brazil-2-3-runs/bbr_stats_1

Run 3: Report of TCP BBR — Data Link

Figure is missing

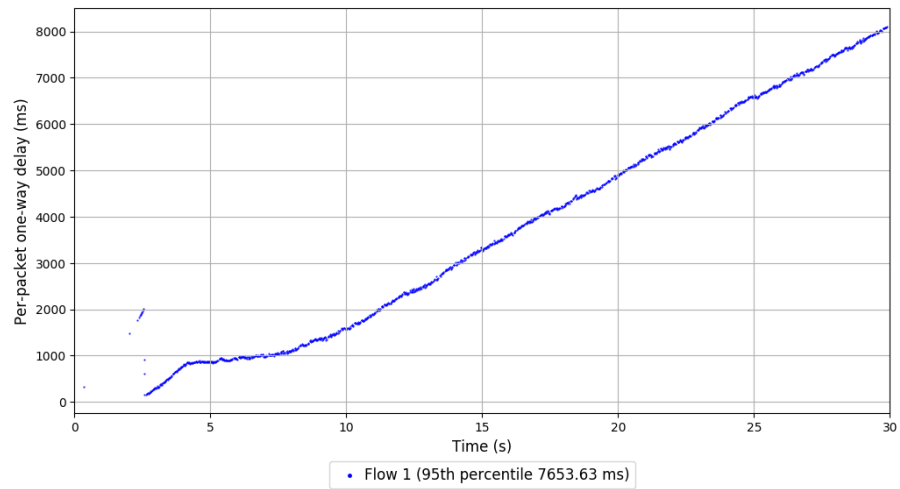
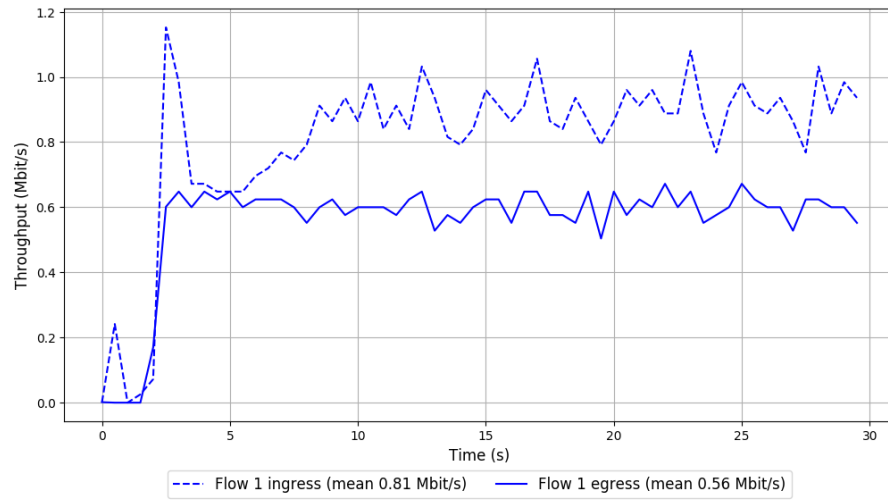
Figure is missing

Run 1: Statistics of TCP Cubic

Start at: 2018-02-02 18:36:17
End at: 2018-02-02 18:36:47
Local clock offset: 0.381 ms
Remote clock offset: -4.241 ms

Below is generated by plot.py at 2018-02-02 20:36:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 7653.630 ms
Loss rate: 31.06%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 7653.630 ms
Loss rate: 31.06%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-02-02 18:56:27

End at: 2018-02-02 18:56:57

Local clock offset: 0.239 ms

Remote clock offset: 1.562 ms

Below is generated by plot.py at 2018-02-02 20:36:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 7862.500 ms

Loss rate: 31.57%

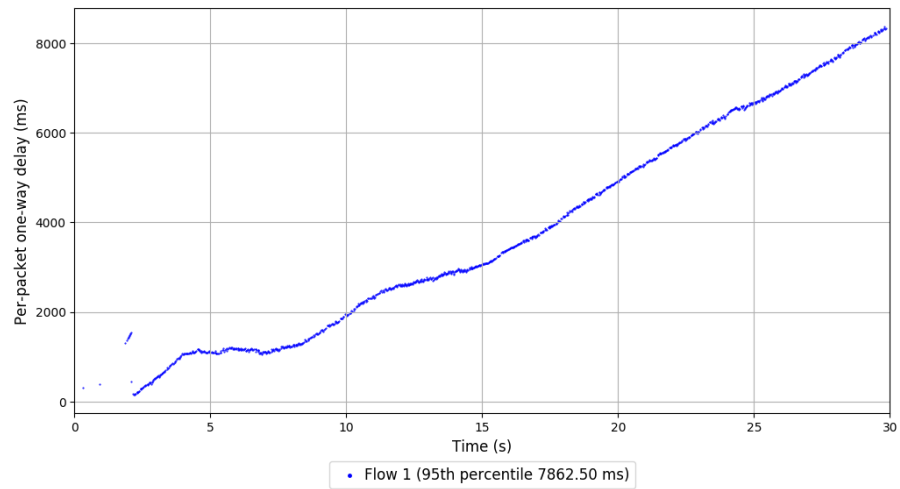
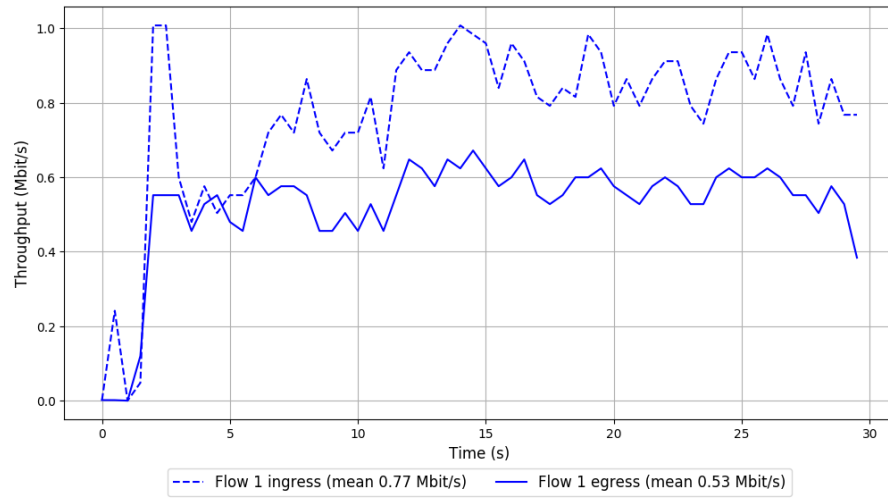
-- Flow 1:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 7862.500 ms

Loss rate: 31.57%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-02-02 19:16:28

End at: 2018-02-02 19:16:58

Local clock offset: 0.48 ms

Remote clock offset: 3.671 ms

Below is generated by plot.py at 2018-02-02 20:36:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 8029.949 ms

Loss rate: 31.56%

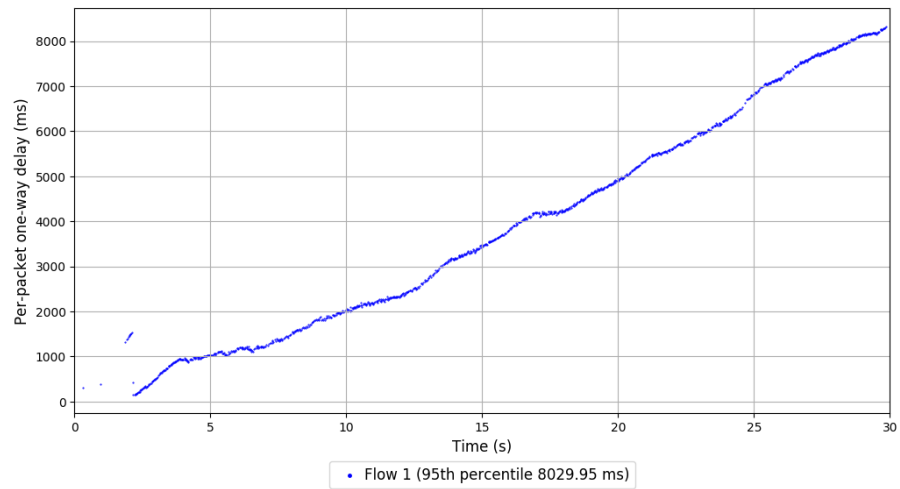
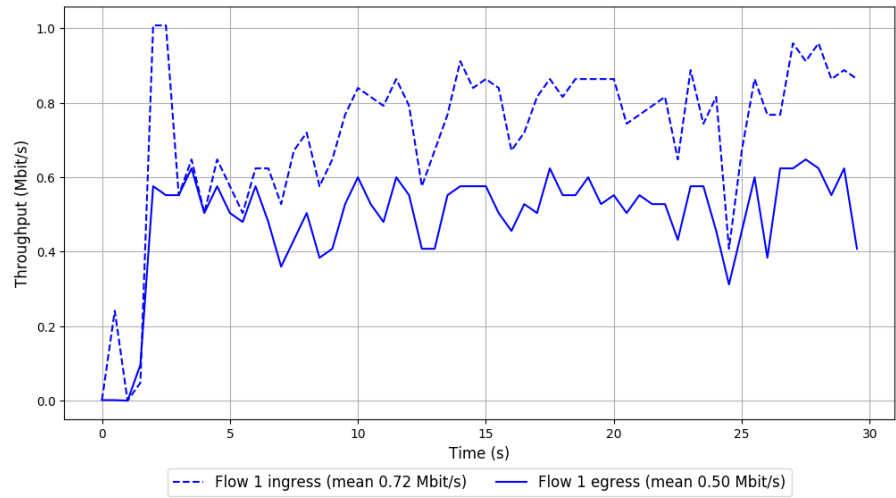
-- Flow 1:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 8029.949 ms

Loss rate: 31.56%

Run 3: Report of TCP Cubic — Data Link

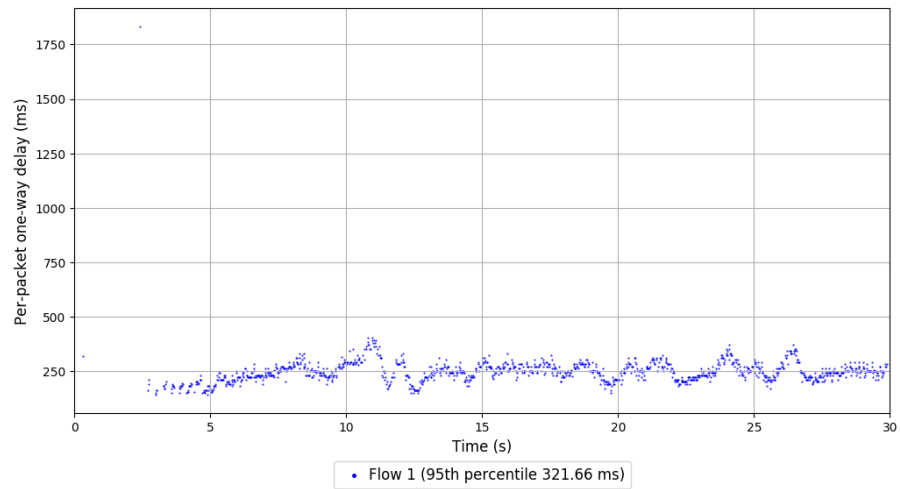
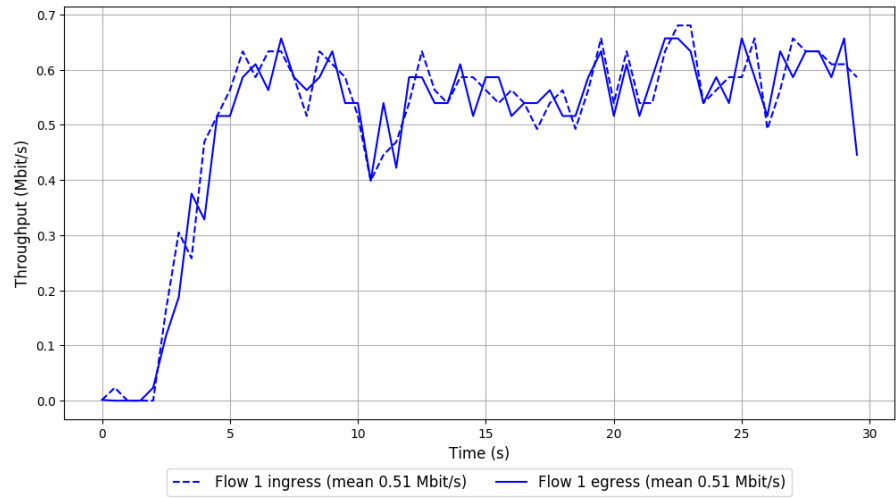


```
Run 1: Statistics of LEDBAT

Start at: 2018-02-02 18:35:07
End at: 2018-02-02 18:35:37
Local clock offset: 0.382 ms
Remote clock offset: 2.075 ms

# Below is generated by plot.py at 2018-02-02 20:36:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 321.661 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 321.661 ms
Loss rate: 1.46%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-02-02 18:55:16

End at: 2018-02-02 18:55:46

Local clock offset: 0.33 ms

Remote clock offset: 2.382 ms

Below is generated by plot.py at 2018-02-02 20:36:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 302.101 ms

Loss rate: 1.22%

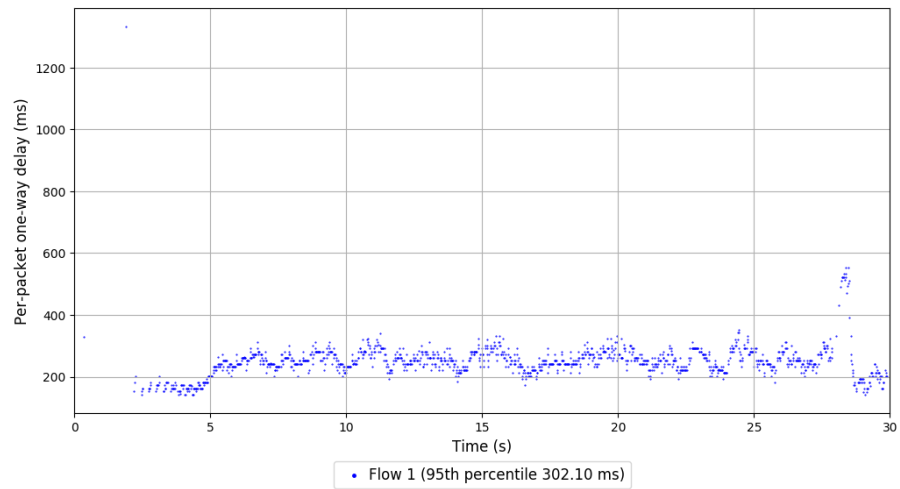
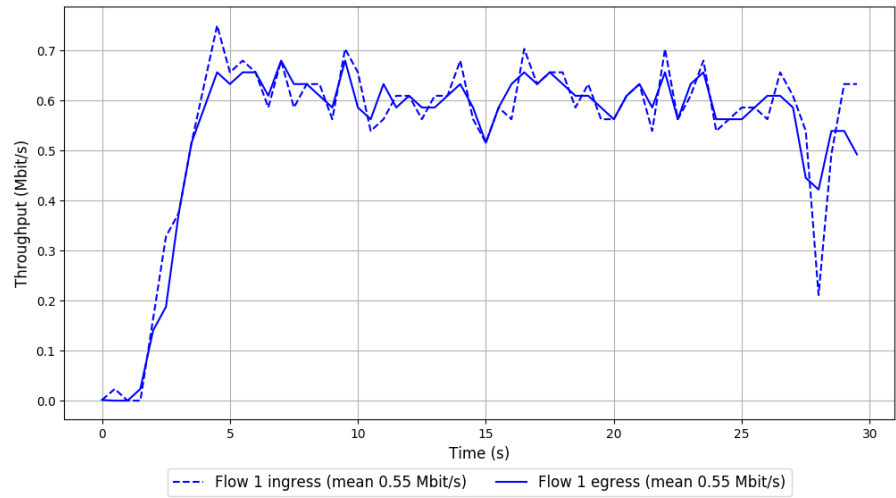
-- Flow 1:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 302.101 ms

Loss rate: 1.22%

Run 2: Report of LEDBAT — Data Link

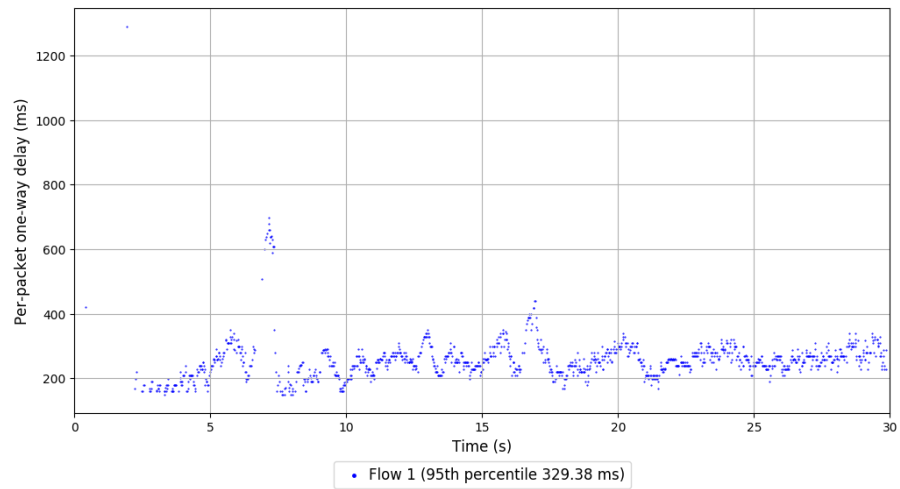
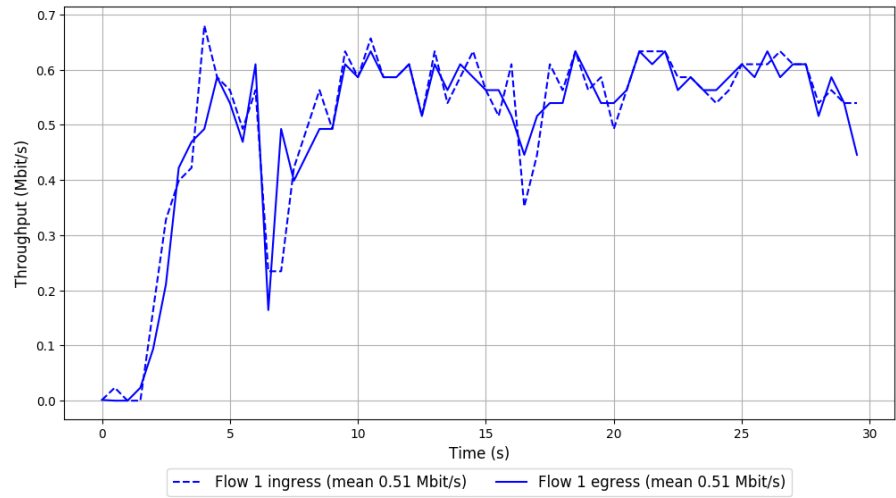


Run 3: Statistics of LEDBAT

Start at: 2018-02-02 19:15:17
End at: 2018-02-02 19:15:47
Local clock offset: 0.462 ms
Remote clock offset: -2.179 ms

Below is generated by plot.py at 2018-02-02 20:36:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 329.380 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 329.380 ms
Loss rate: 1.39%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC

Start at: 2018-02-02 18:38:38

End at: 2018-02-02 18:39:08

Local clock offset: 0.368 ms

Remote clock offset: 1.456 ms

Below is generated by plot.py at 2018-02-02 20:36:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2555.640 ms

Loss rate: 2.12%

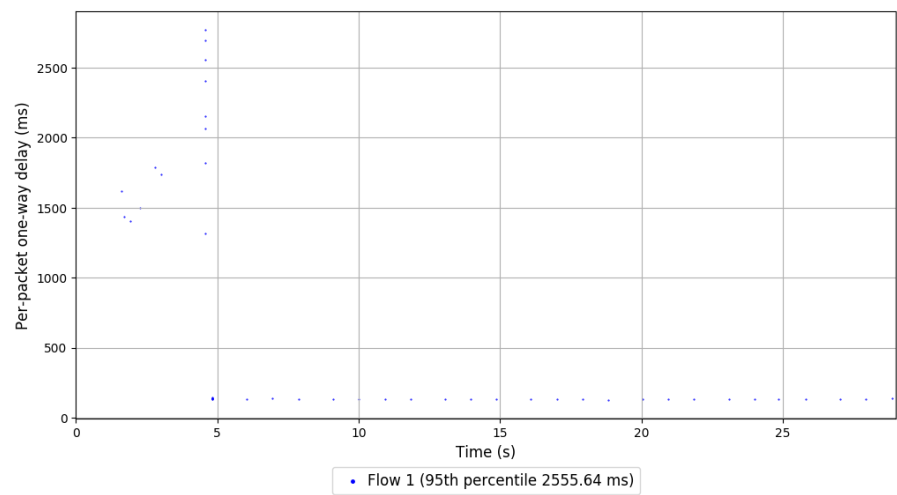
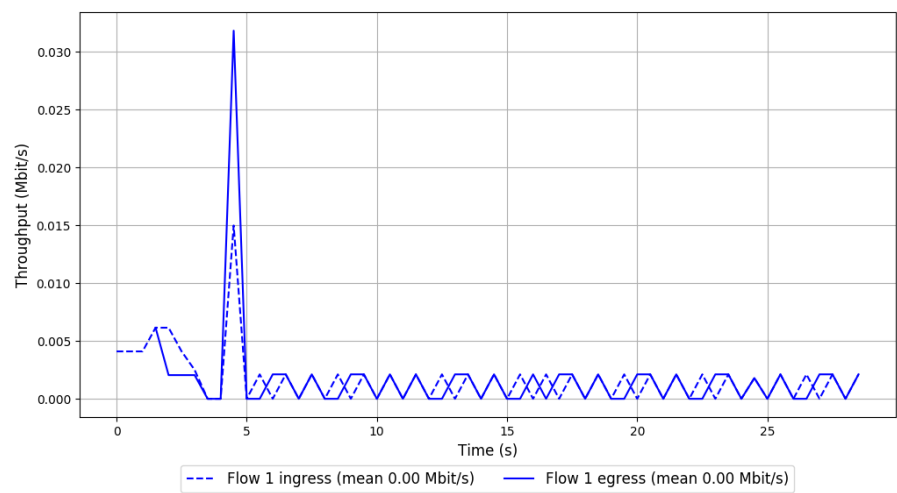
-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2555.640 ms

Loss rate: 2.12%

Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

Start at: 2018-02-02 18:58:48

End at: 2018-02-02 18:59:18

Local clock offset: 0.341 ms

Remote clock offset: 1.721 ms

Below is generated by plot.py at 2018-02-02 20:36:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 26915.187 ms

Loss rate: 96.87%

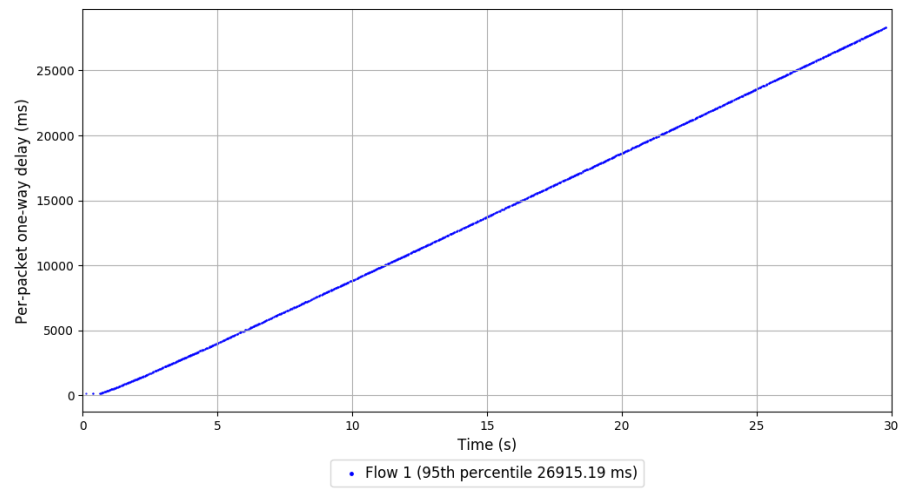
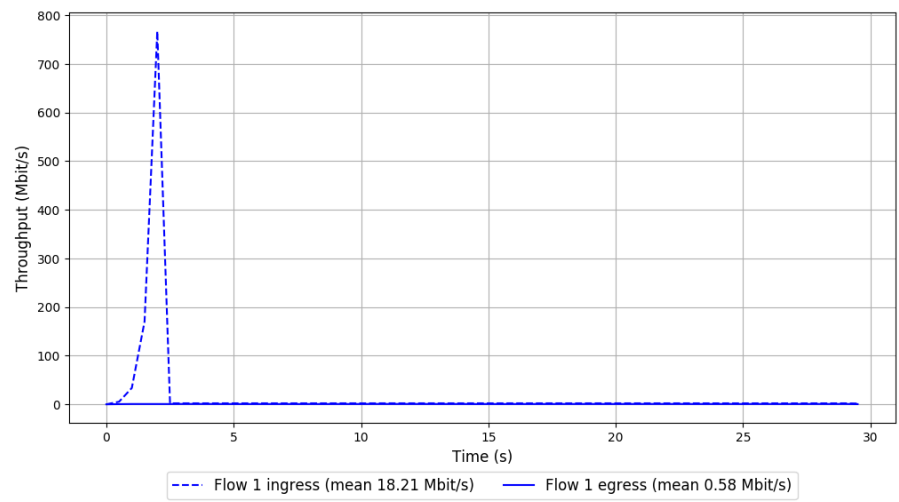
-- Flow 1:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 26915.187 ms

Loss rate: 96.87%

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2018-02-02 19:18:58

End at: 2018-02-02 19:19:28

Local clock offset: 0.47 ms

Remote clock offset: -1.1 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 26868.051 ms

Loss rate: 98.41%

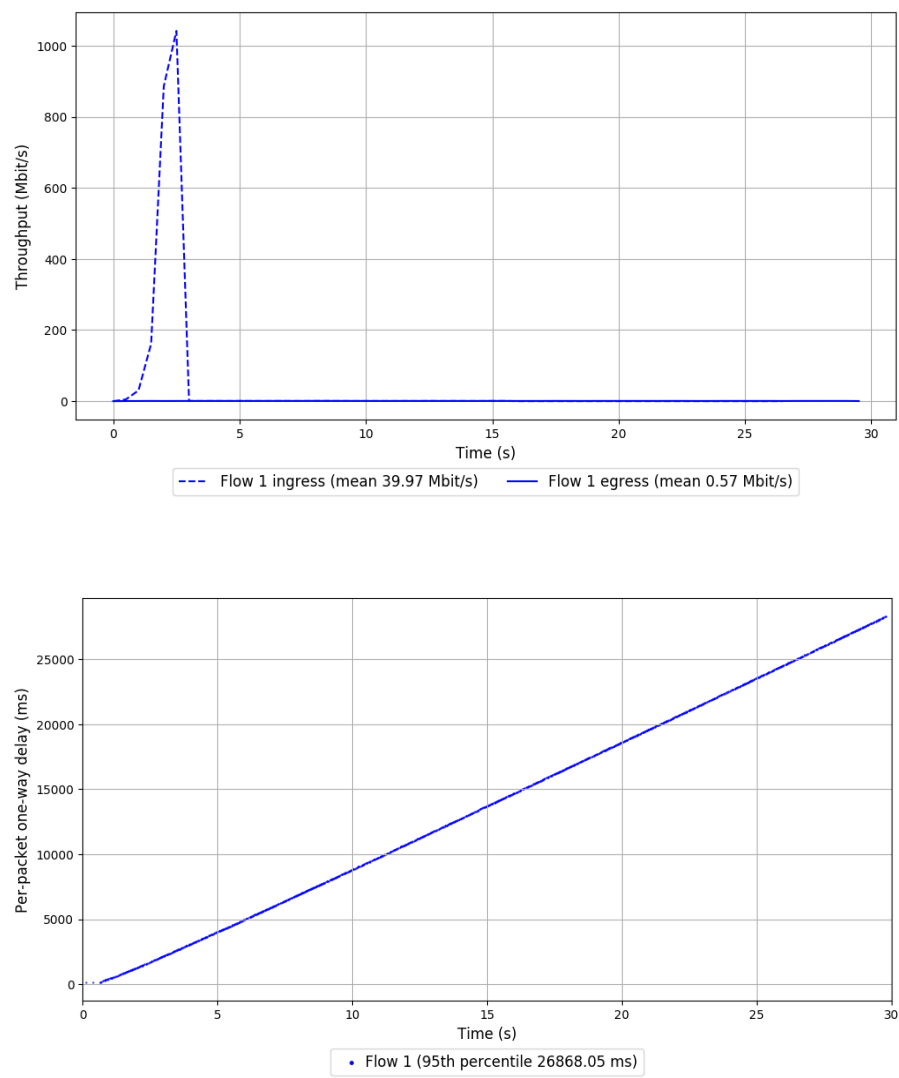
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 26868.051 ms

Loss rate: 98.41%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-02-02 18:54:05

End at: 2018-02-02 18:54:35

Local clock offset: 0.265 ms

Remote clock offset: 3.158 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 6968.694 ms

Loss rate: 26.96%

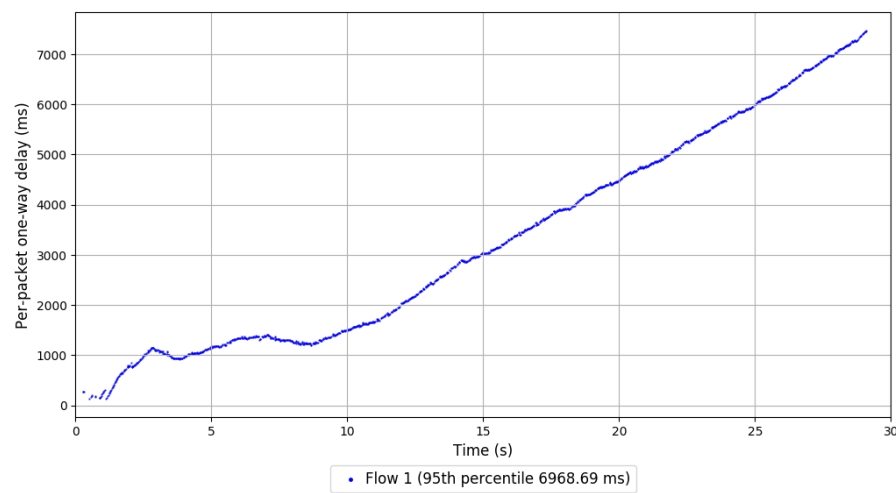
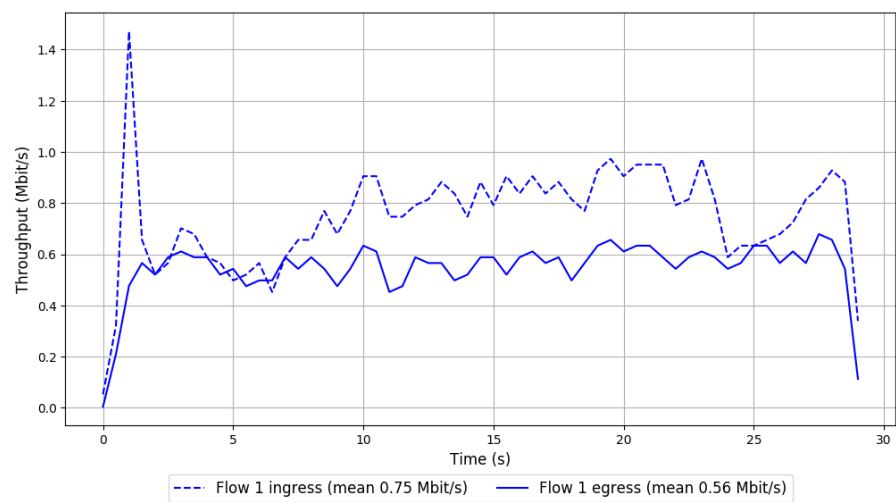
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 6968.694 ms

Loss rate: 26.96%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

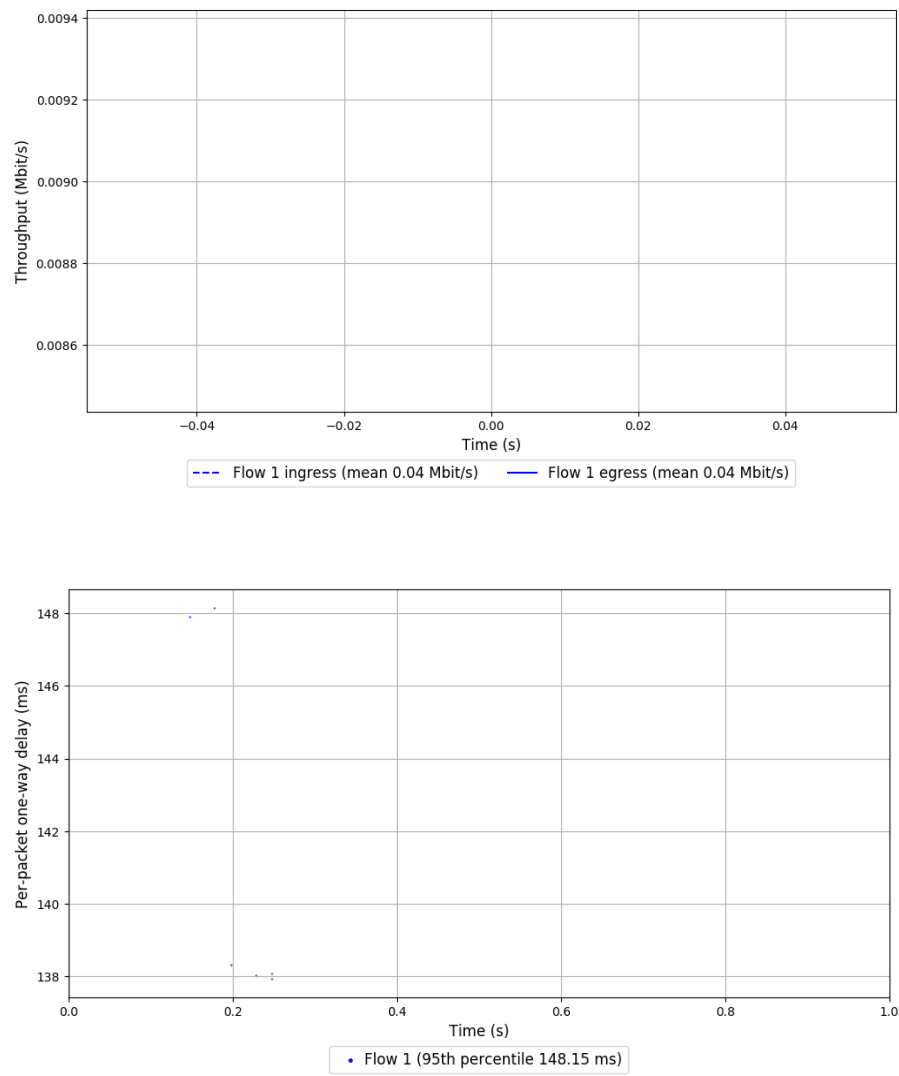
Start at: 2018-02-02 19:14:06

End at: 2018-02-02 19:14:36

Local clock offset: 0.434 ms

Remote clock offset: -1.29 ms

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-02-02 19:34:54

End at: 2018-02-02 19:35:24

Local clock offset: 0.376 ms

Remote clock offset: -0.627 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 5314.070 ms

Loss rate: 22.66%

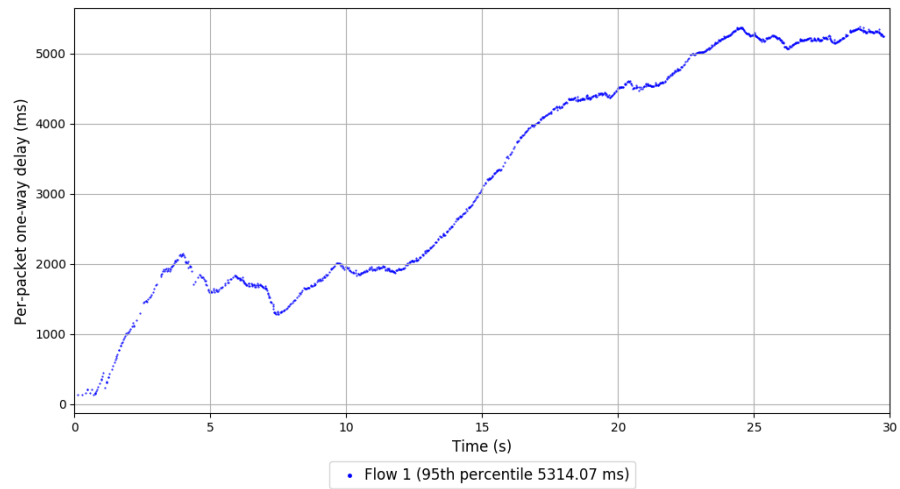
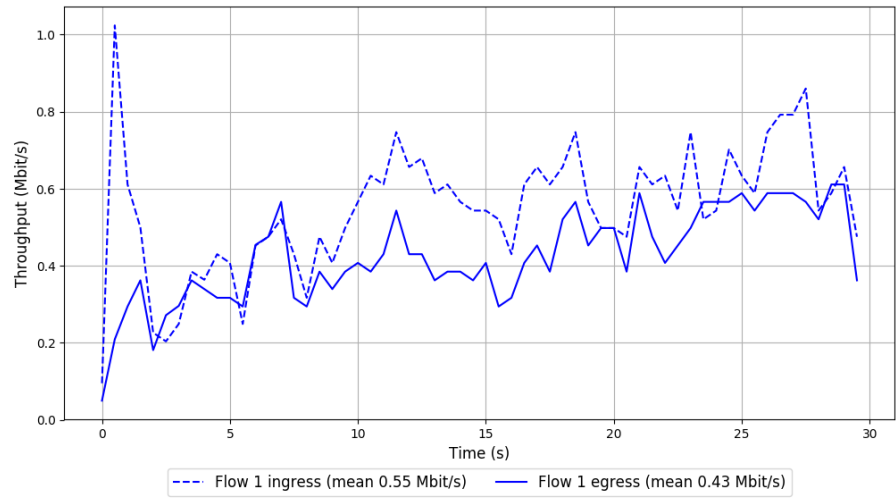
-- Flow 1:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 5314.070 ms

Loss rate: 22.66%

Run 3: Report of QUIC Cubic — Data Link

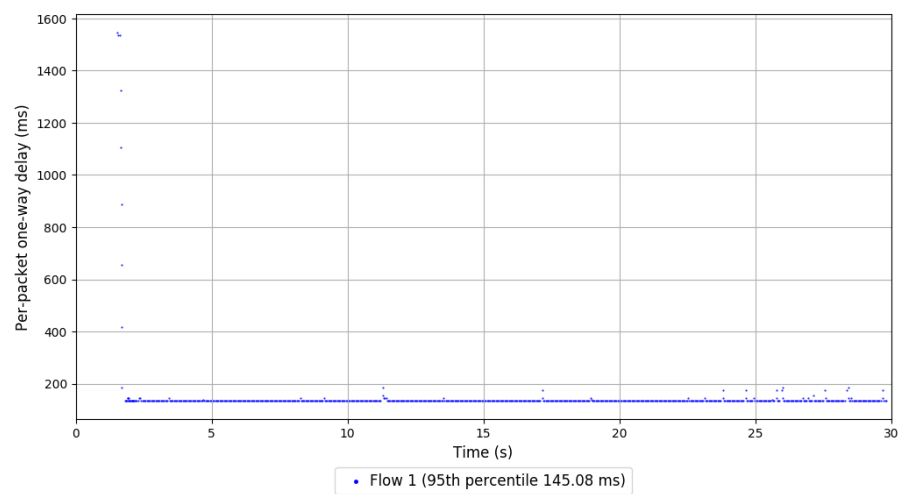
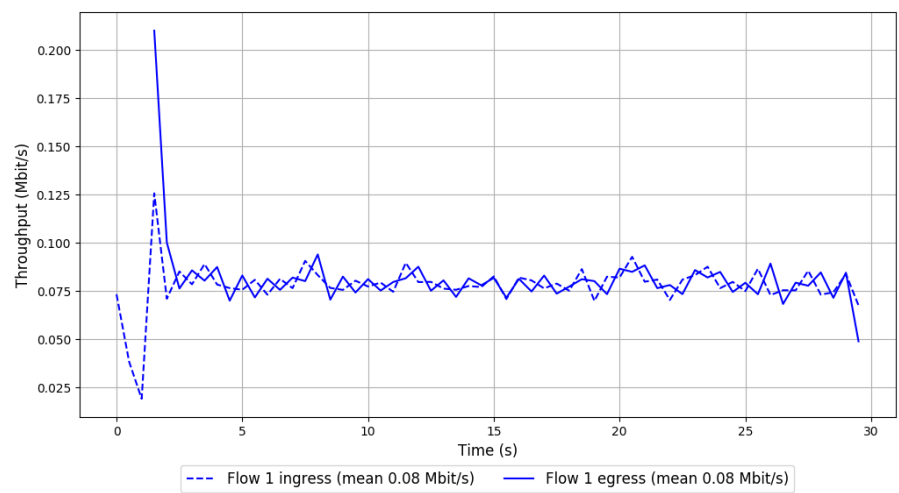


Run 1: Statistics of SCReAM

Start at: 2018-02-02 18:51:44
End at: 2018-02-02 18:52:14
Local clock offset: 0.307 ms
Remote clock offset: -3.533 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 145.082 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 145.082 ms
Loss rate: 0.79%

Run 1: Report of SReAM — Data Link

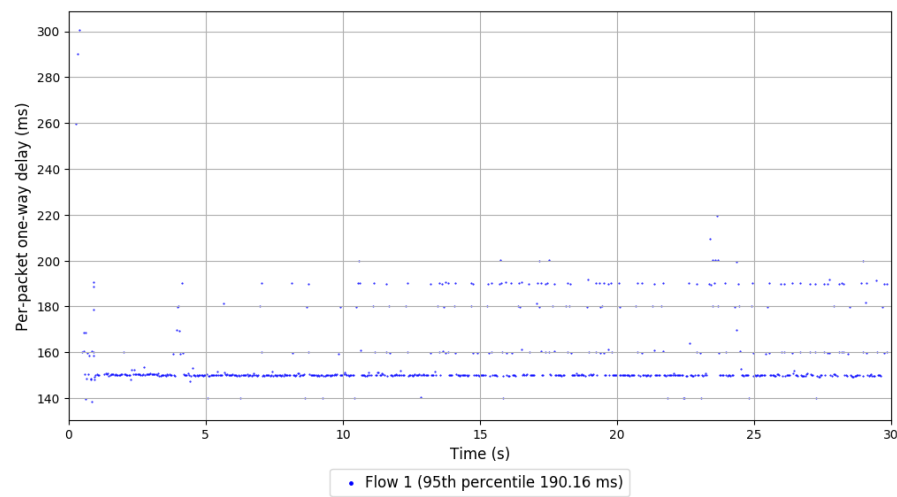
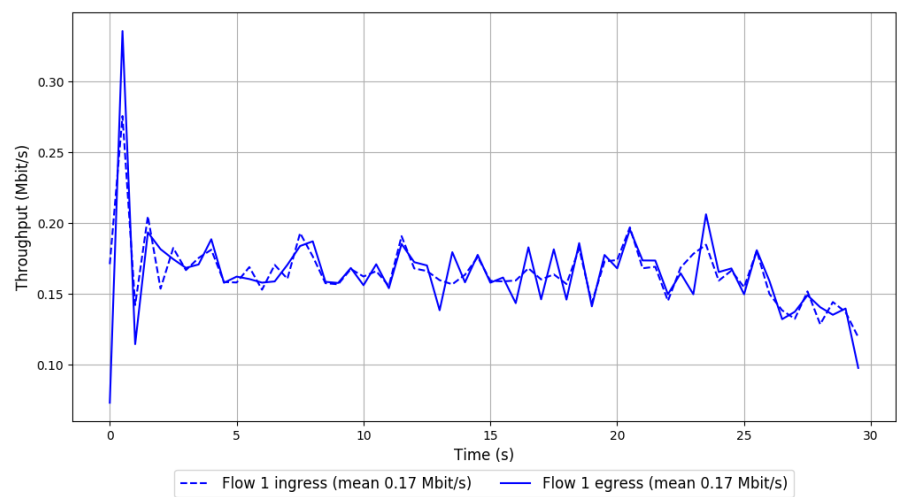


Run 2: Statistics of SCReAM

Start at: 2018-02-02 19:11:46
End at: 2018-02-02 19:12:16
Local clock offset: 0.354 ms
Remote clock offset: -2.244 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 190.158 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 190.158 ms
Loss rate: 0.66%

Run 2: Report of SReAM — Data Link

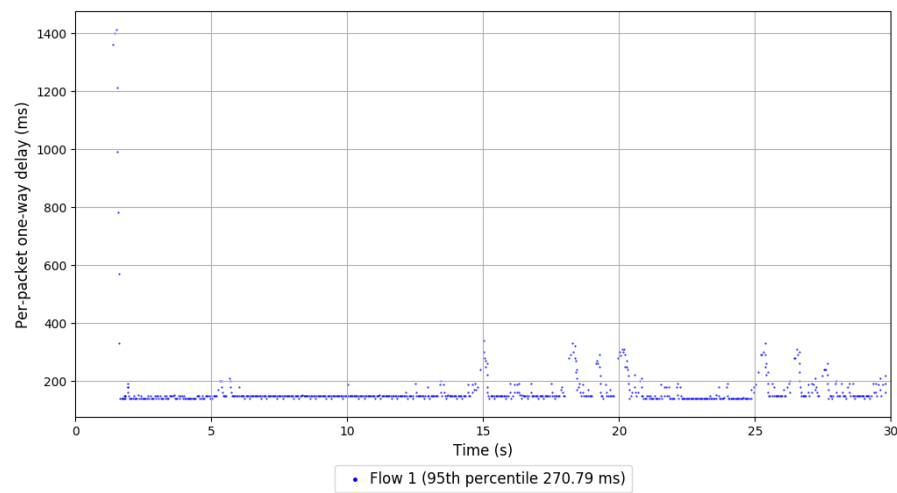
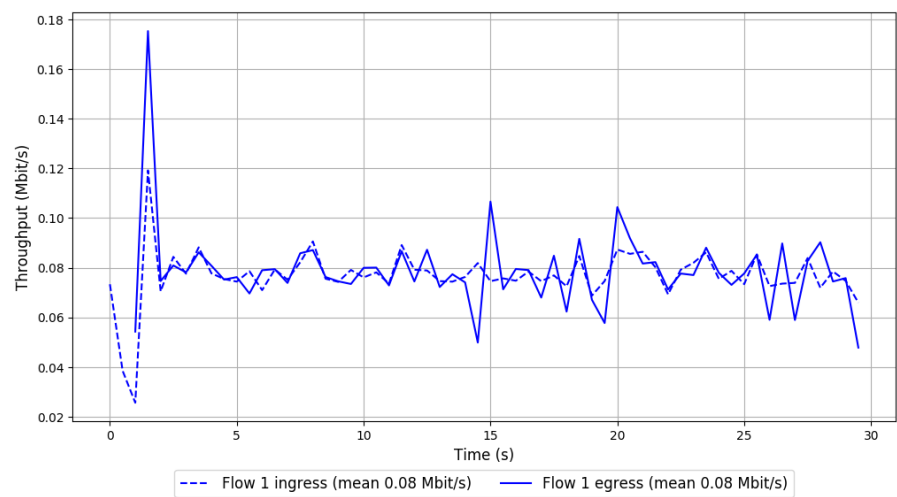


Run 3: Statistics of SCReAM

Start at: 2018-02-02 19:32:24
End at: 2018-02-02 19:32:54
Local clock offset: 0.456 ms
Remote clock offset: -1.592 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 270.785 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 270.785 ms
Loss rate: 0.91%

Run 3: Report of SReAM — Data Link

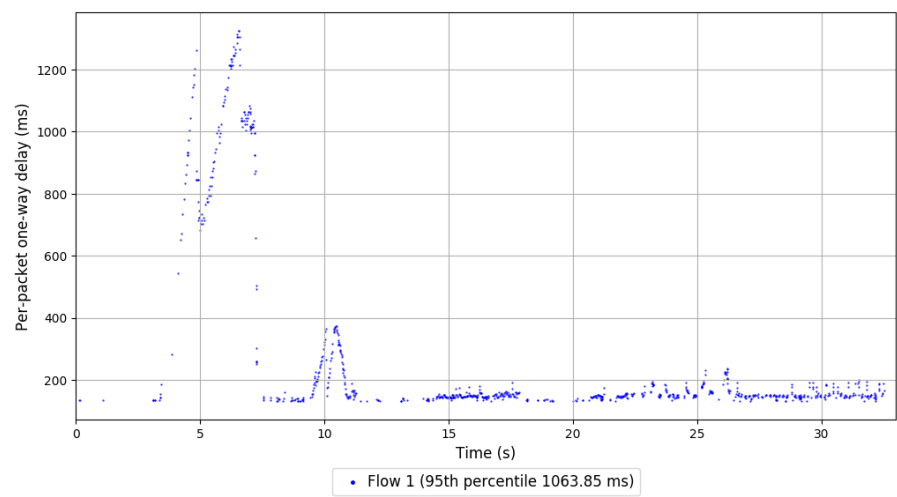
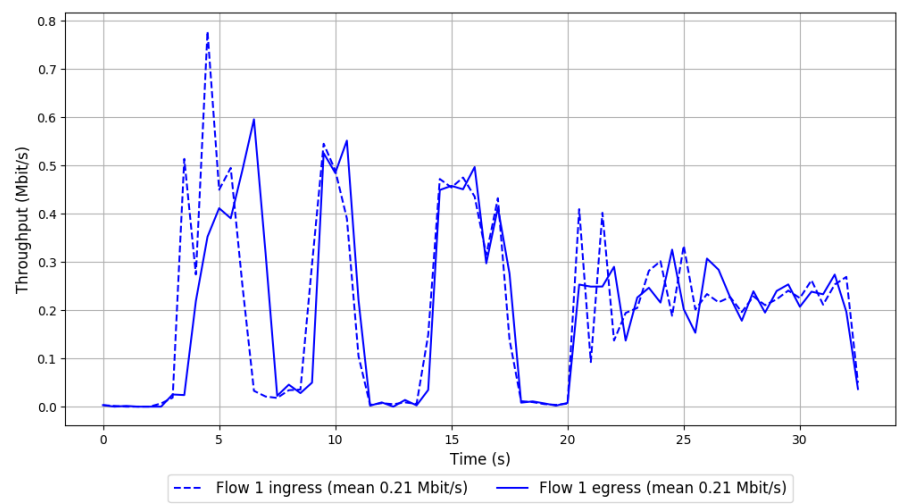


```
Run 1: Statistics of WebRTC media

Start at: 2018-02-02 18:43:21
End at: 2018-02-02 18:43:51
Local clock offset: 0.354 ms
Remote clock offset: -3.967 ms

# Below is generated by plot.py at 2018-02-02 20:36:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 1063.854 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 1063.854 ms
Loss rate: 1.01%
```

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-02-02 19:03:31

End at: 2018-02-02 19:04:01

Local clock offset: 0.357 ms

Remote clock offset: -2.8 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.32 Mbit/s

95th percentile per-packet one-way delay: 745.387 ms

Loss rate: 0.73%

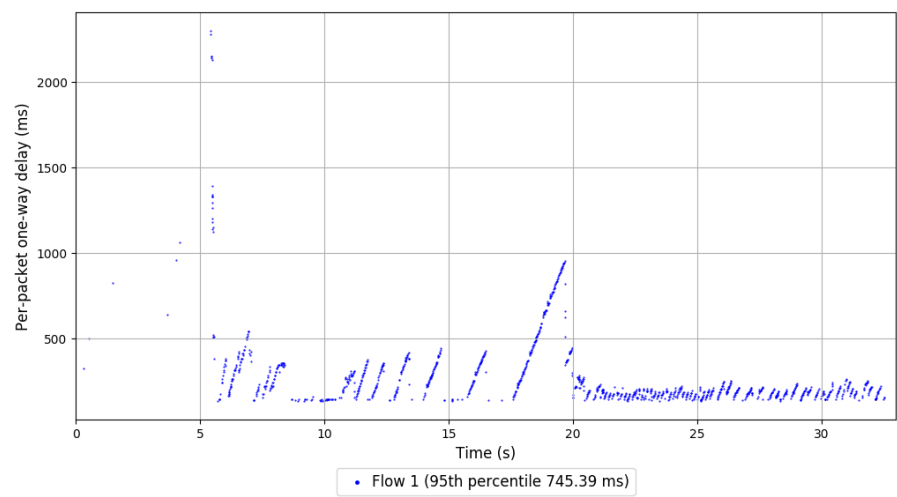
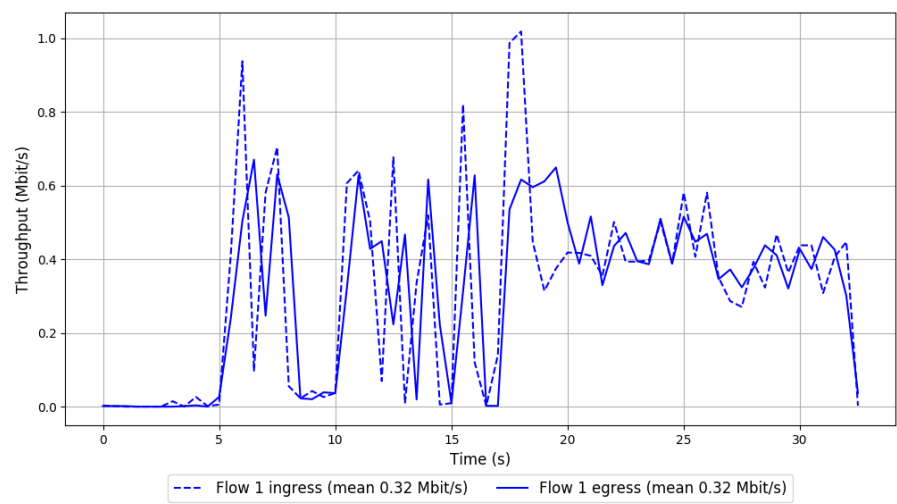
-- Flow 1:

Average throughput: 0.32 Mbit/s

95th percentile per-packet one-way delay: 745.387 ms

Loss rate: 0.73%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-02-02 19:23:42

End at: 2018-02-02 19:24:12

Local clock offset: 0.446 ms

Remote clock offset: 3.892 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 834.722 ms

Loss rate: 1.12%

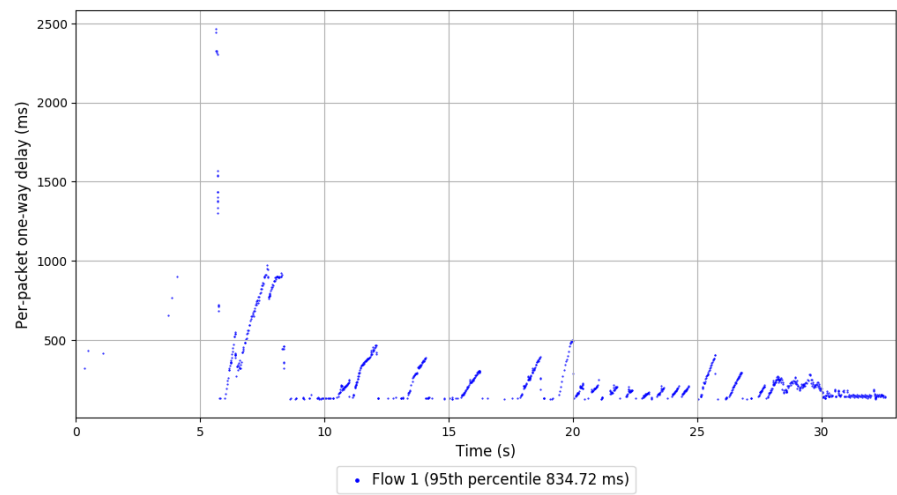
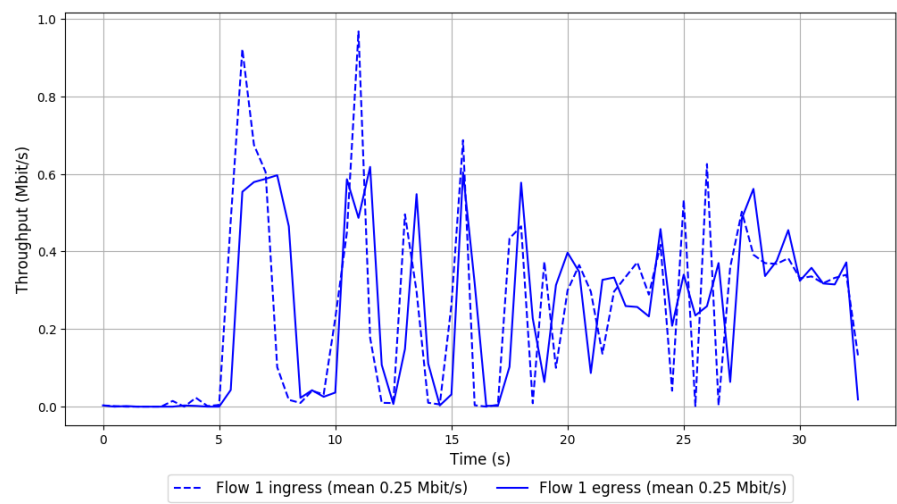
-- Flow 1:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 834.722 ms

Loss rate: 1.12%

Run 3: Report of WebRTC media — Data Link

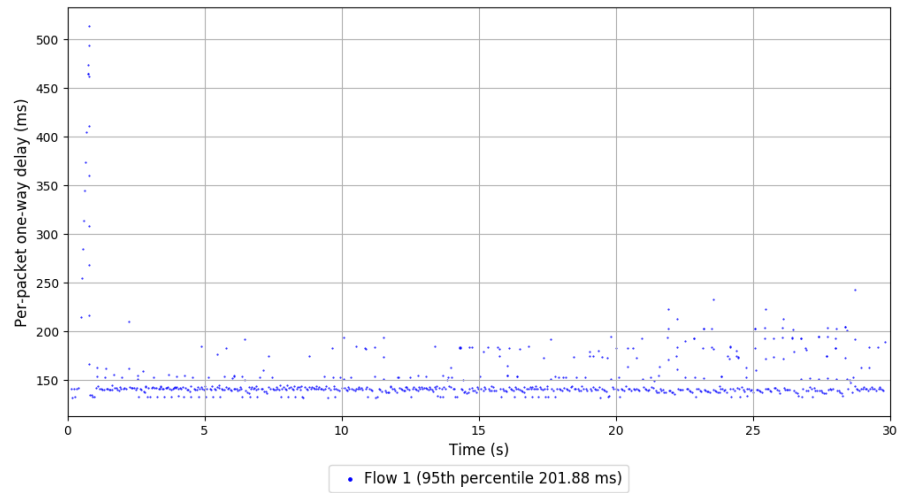
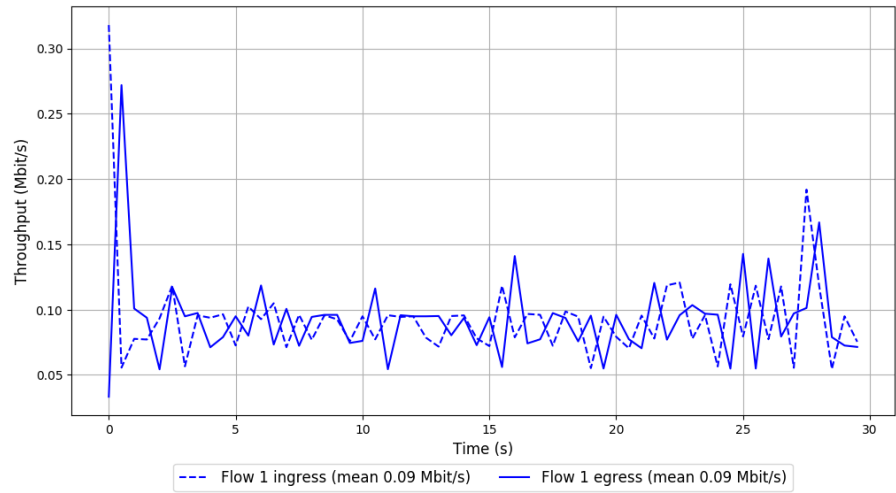


Run 1: Statistics of Sprout

Start at: 2018-02-02 18:50:33
End at: 2018-02-02 18:51:03
Local clock offset: 0.318 ms
Remote clock offset: -2.807 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 201.875 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 201.875 ms
Loss rate: 1.26%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-02-02 19:10:35

End at: 2018-02-02 19:11:05

Local clock offset: 0.427 ms

Remote clock offset: 3.326 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.09 Mbit/s

95th percentile per-packet one-way delay: 226.736 ms

Loss rate: 1.68%

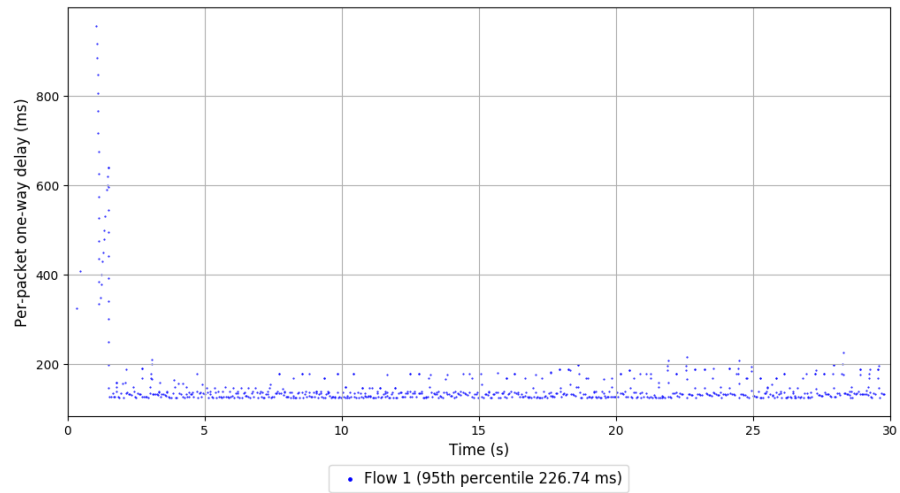
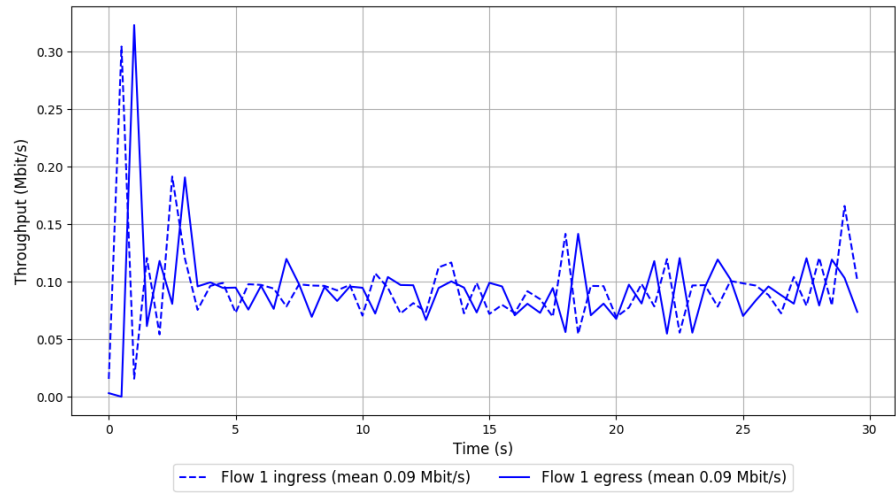
-- Flow 1:

Average throughput: 0.09 Mbit/s

95th percentile per-packet one-way delay: 226.736 ms

Loss rate: 1.68%

Run 2: Report of Sprout — Data Link

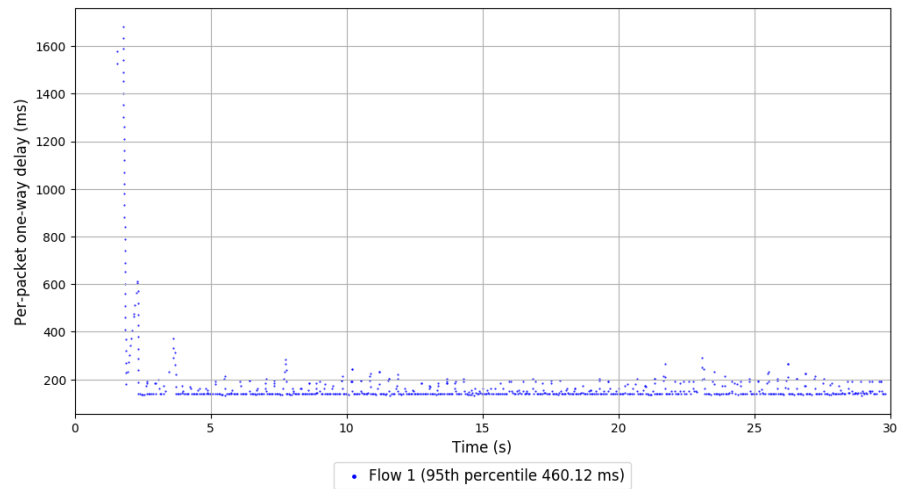
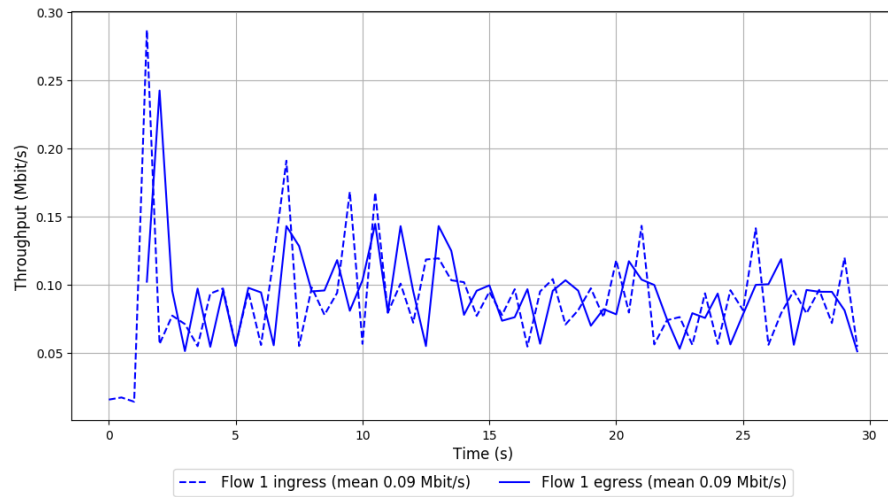


Run 3: Statistics of Sprout

Start at: 2018-02-02 19:31:13
End at: 2018-02-02 19:31:43
Local clock offset: 0.396 ms
Remote clock offset: -1.567 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 460.115 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 460.115 ms
Loss rate: 0.90%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-02-02 18:40:59

End at: 2018-02-02 18:41:30

Local clock offset: 0.382 ms

Remote clock offset: 2.478 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 1170.874 ms

Loss rate: 2.78%

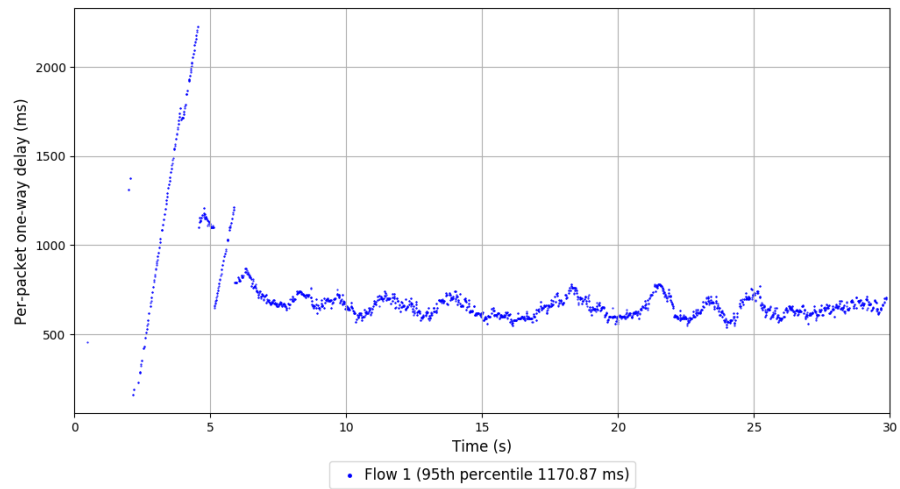
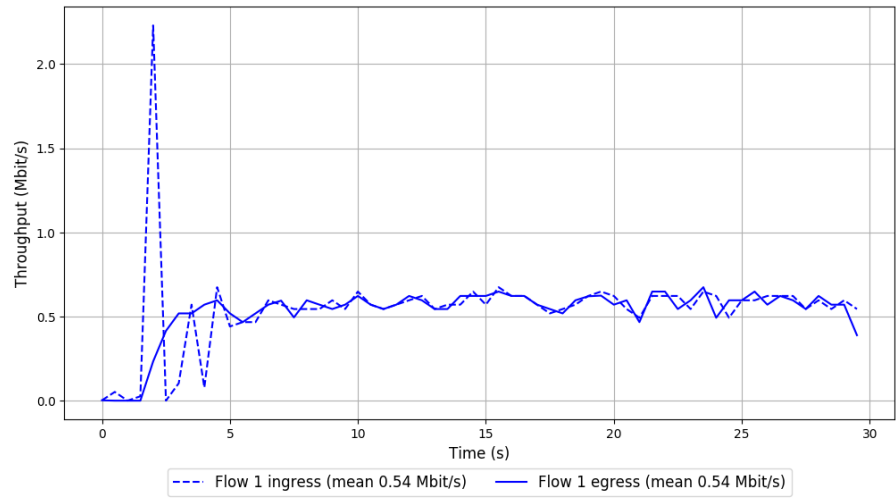
-- Flow 1:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 1170.874 ms

Loss rate: 2.78%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-02-02 19:01:10

End at: 2018-02-02 19:01:40

Local clock offset: 0.275 ms

Remote clock offset: -2.1 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 1629.585 ms

Loss rate: 2.82%

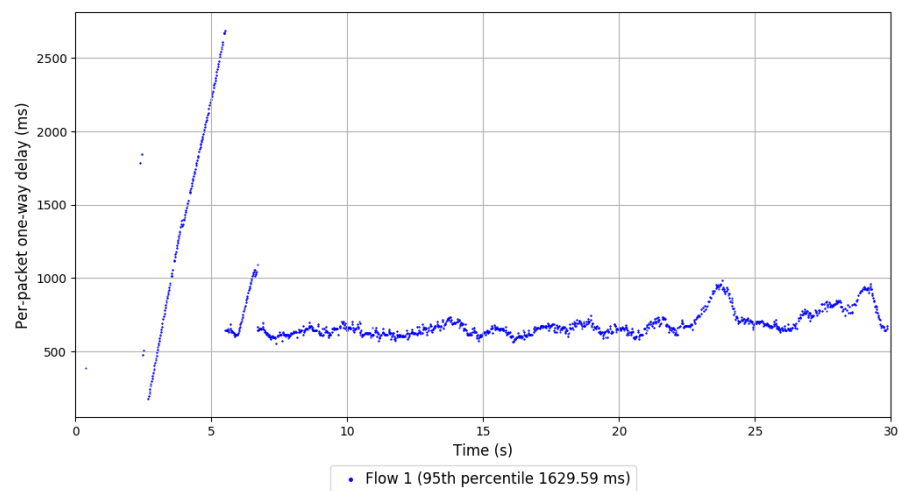
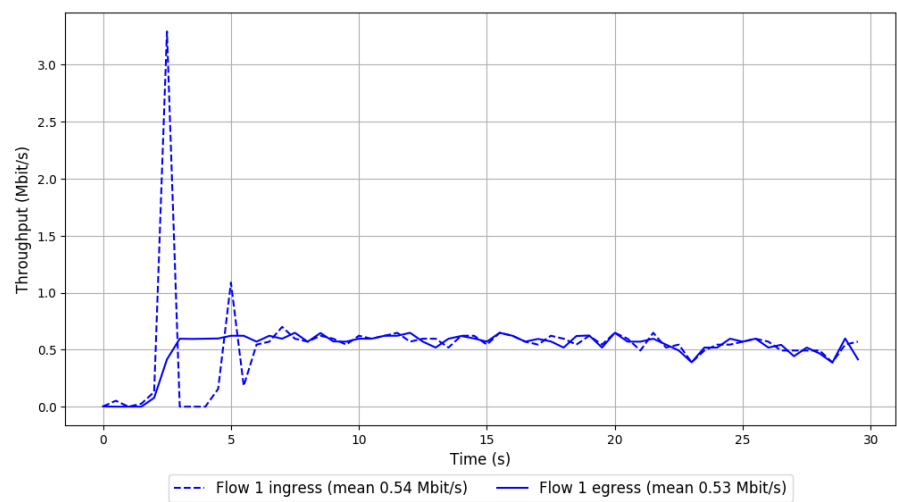
-- Flow 1:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 1629.585 ms

Loss rate: 2.82%

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

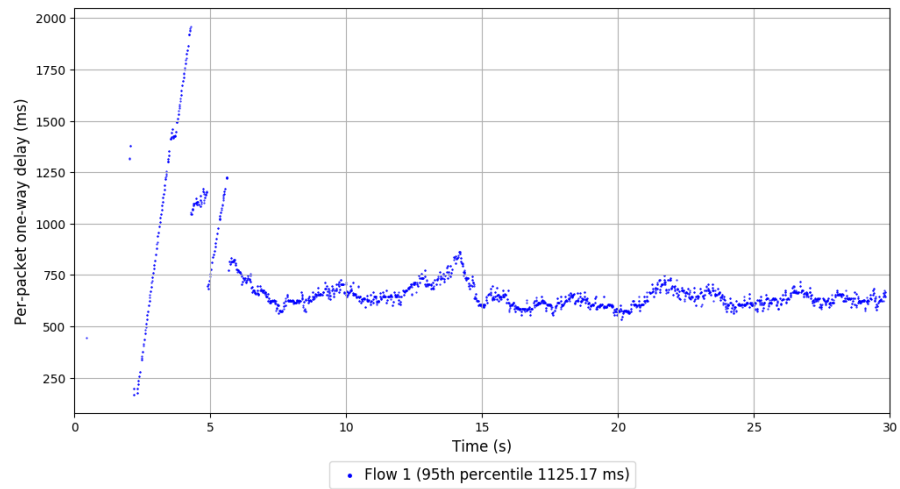
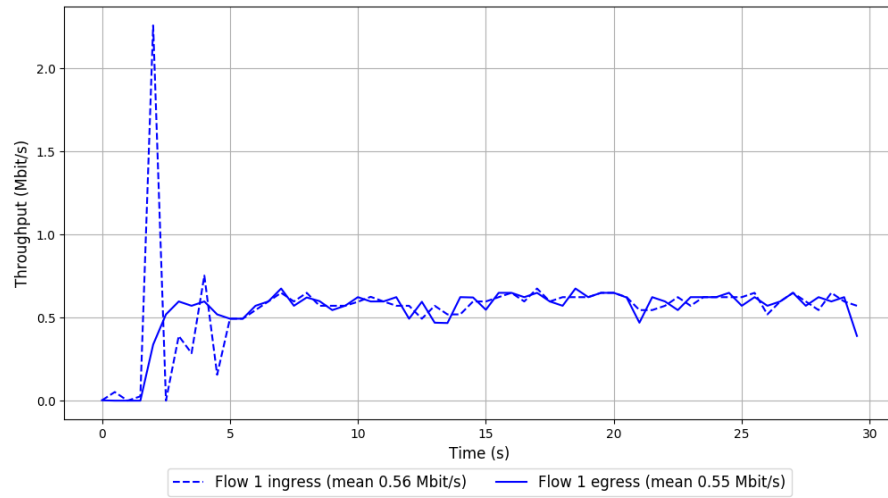


Run 3: Statistics of TaoVA-100x

Start at: 2018-02-02 19:21:21
End at: 2018-02-02 19:21:51
Local clock offset: 0.502 ms
Remote clock offset: -1.955 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 1125.171 ms
Loss rate: 2.71%
-- Flow 1:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 1125.171 ms
Loss rate: 2.71%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-02-02 18:45:42

End at: 2018-02-02 18:46:12

Local clock offset: 0.351 ms

Remote clock offset: 1.79 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 1075.178 ms

Loss rate: 1.28%

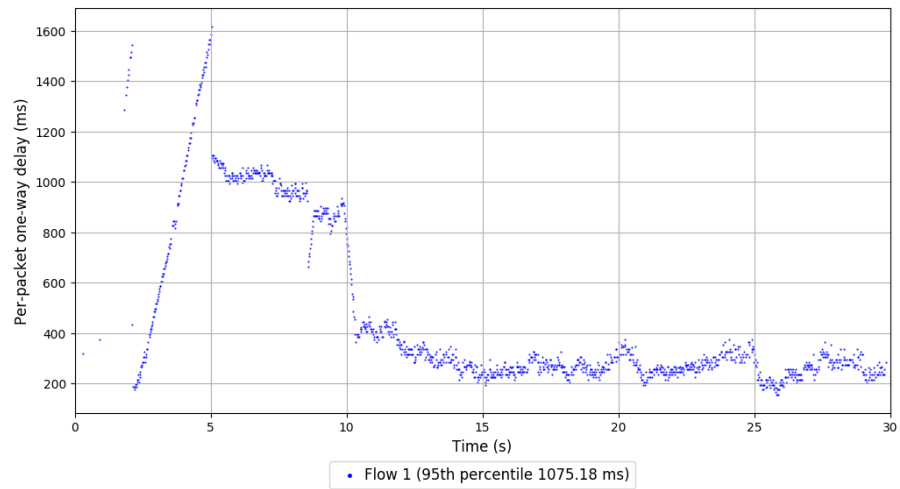
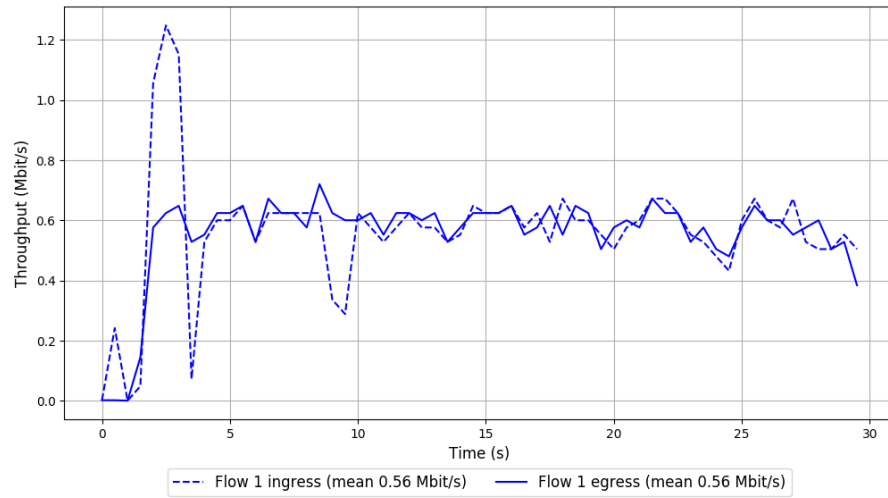
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 1075.178 ms

Loss rate: 1.28%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-02-02 19:05:52

End at: 2018-02-02 19:06:22

Local clock offset: 0.4 ms

Remote clock offset: -2.619 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 1044.526 ms

Loss rate: 1.26%

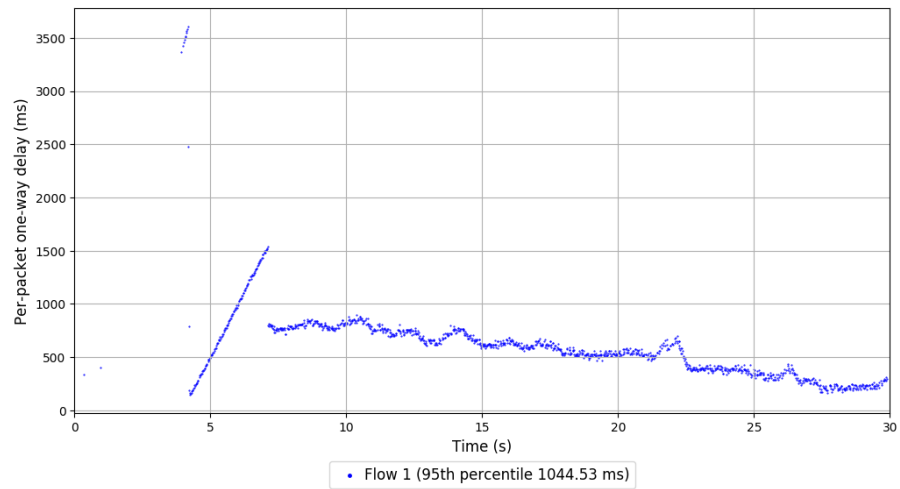
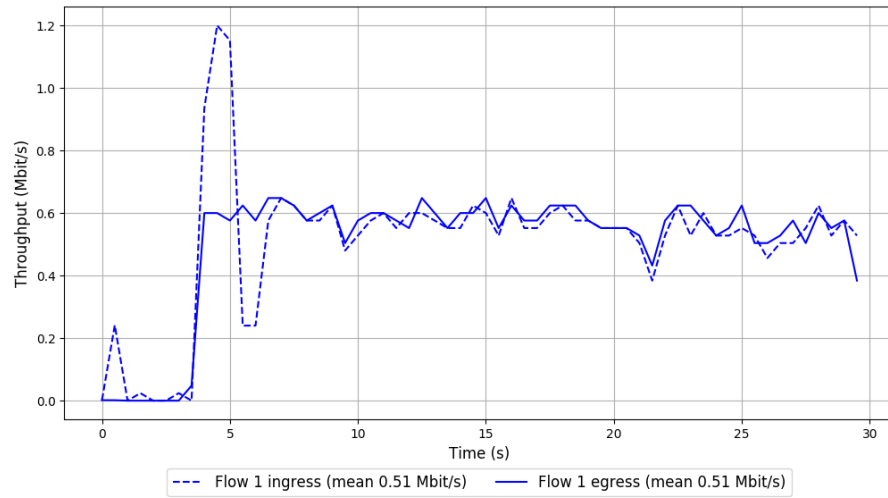
-- Flow 1:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 1044.526 ms

Loss rate: 1.26%

Run 2: Report of TCP Vegas — Data Link

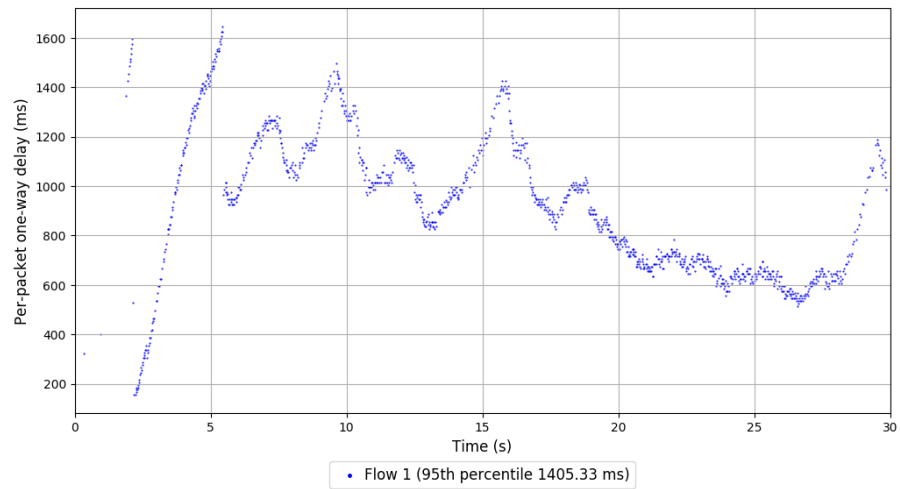
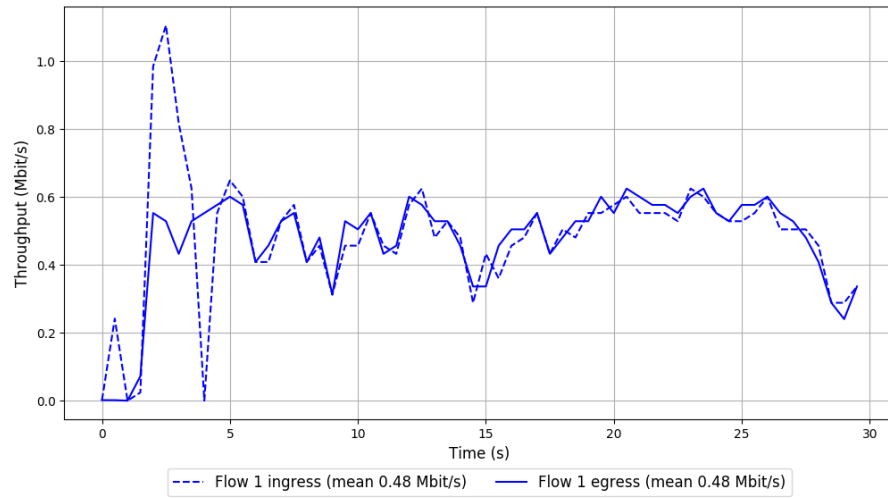


Run 3: Statistics of TCP Vegas

Start at: 2018-02-02 19:26:06
End at: 2018-02-02 19:26:36
Local clock offset: 0.431 ms
Remote clock offset: -0.892 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 1405.333 ms
Loss rate: 2.40%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 1405.333 ms
Loss rate: 2.40%

Run 3: Report of TCP Vegas — Data Link

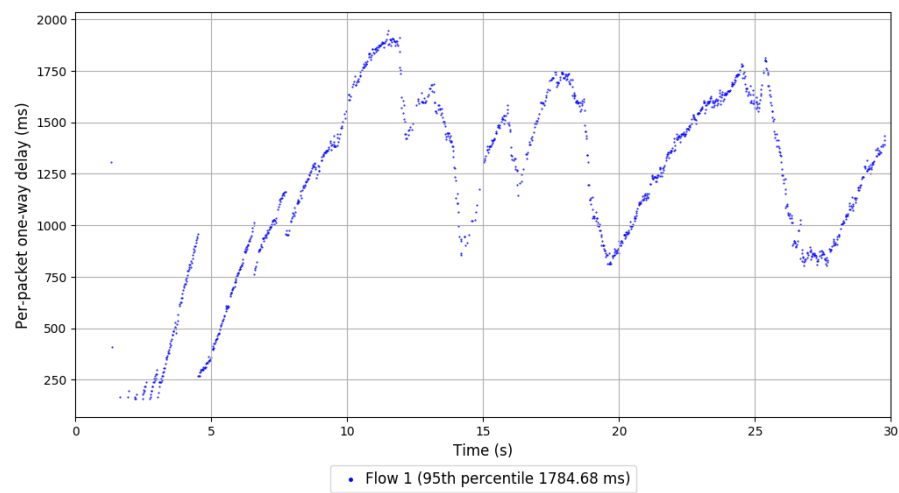
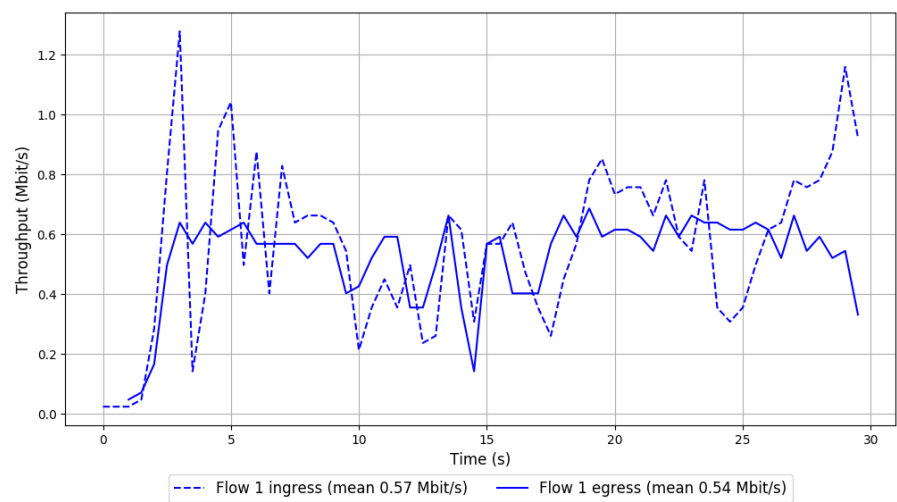


Run 1: Statistics of Verus

Start at: 2018-02-02 18:44:31
End at: 2018-02-02 18:45:01
Local clock offset: 0.274 ms
Remote clock offset: -3.897 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 1784.682 ms
Loss rate: 9.92%
-- Flow 1:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 1784.682 ms
Loss rate: 9.92%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-02-02 19:04:42

End at: 2018-02-02 19:05:12

Local clock offset: 0.375 ms

Remote clock offset: 2.922 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 2084.681 ms

Loss rate: 6.32%

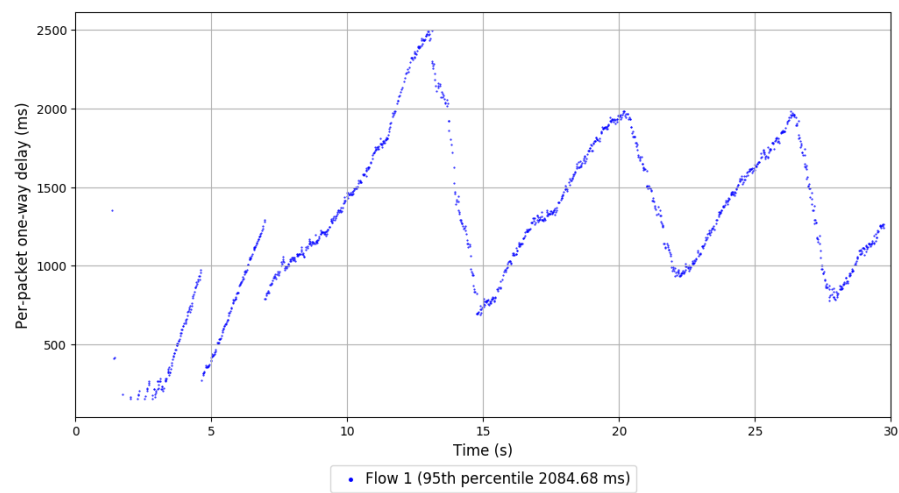
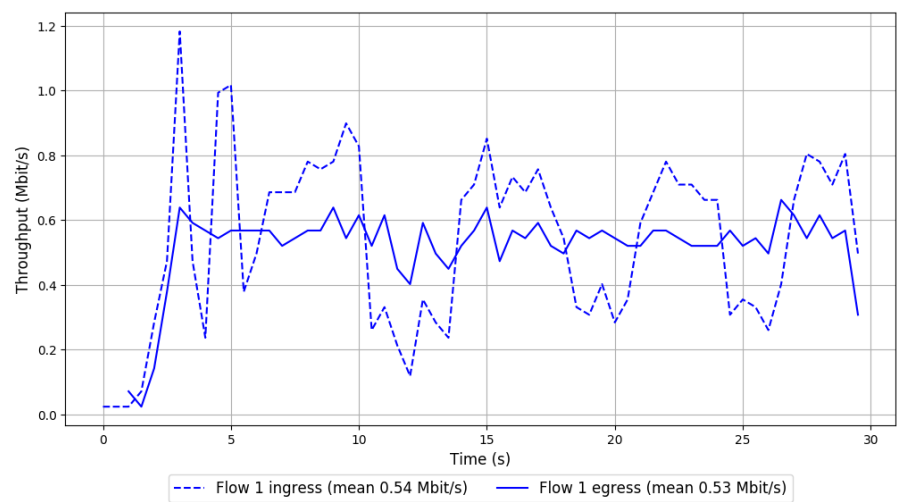
-- Flow 1:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 2084.681 ms

Loss rate: 6.32%

Run 2: Report of Verus — Data Link

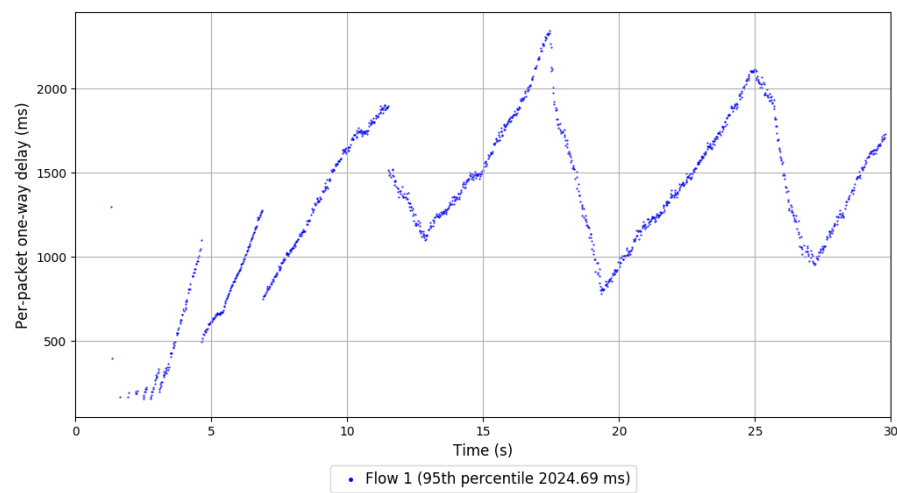
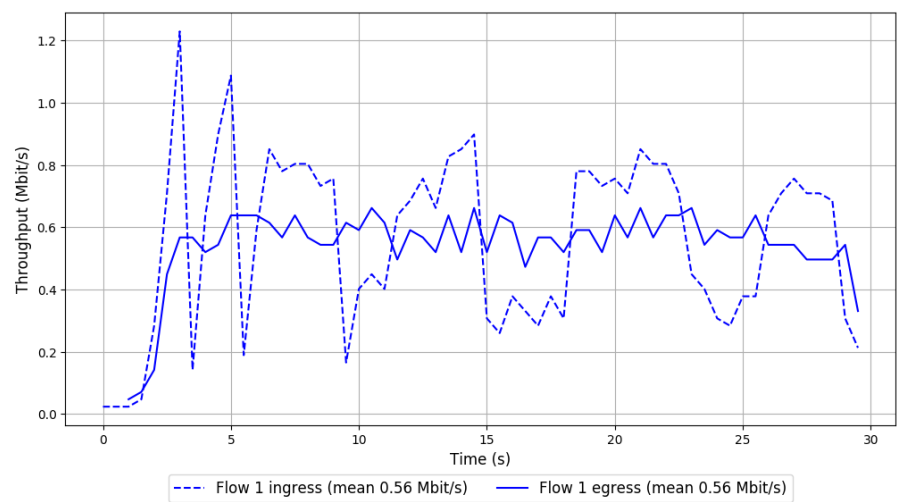


Run 3: Statistics of Verus

Start at: 2018-02-02 19:24:53
End at: 2018-02-02 19:25:23
Local clock offset: 0.476 ms
Remote clock offset: -0.909 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 2024.687 ms
Loss rate: 5.37%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 2024.687 ms
Loss rate: 5.37%

Run 3: Report of Verus — Data Link

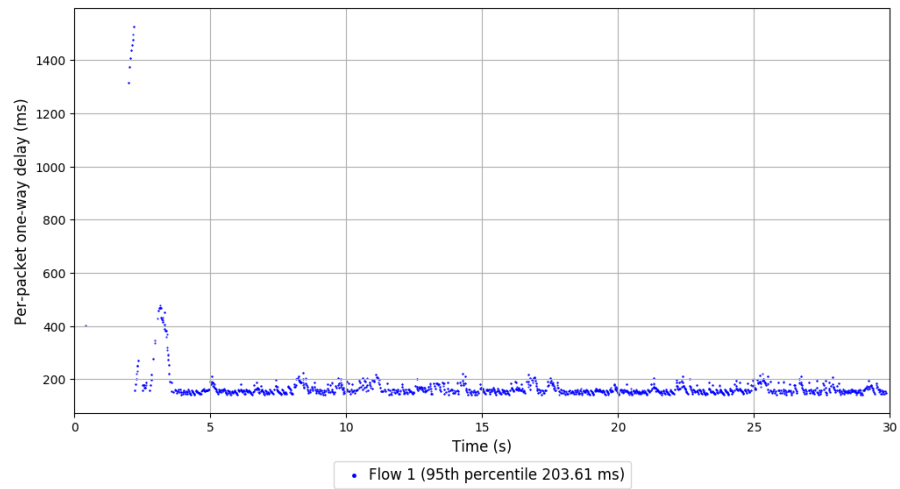
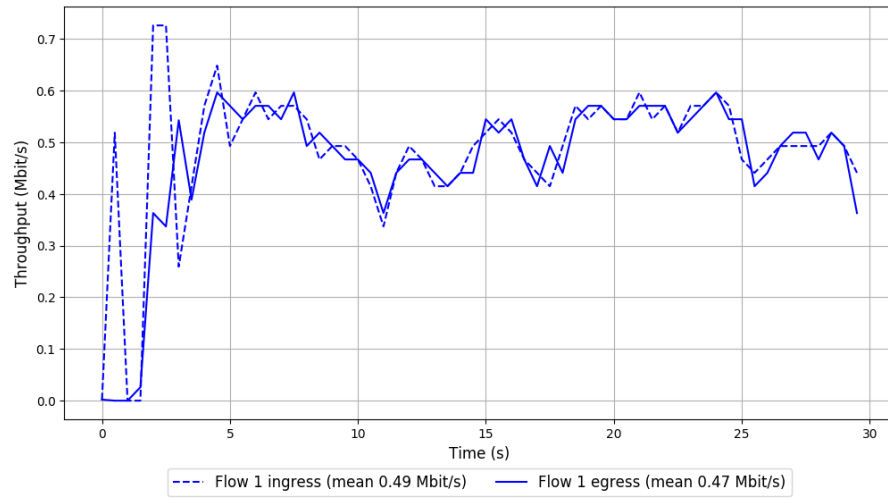


Run 1: Statistics of Copa

Start at: 2018-02-02 18:39:49
End at: 2018-02-02 18:40:19
Local clock offset: 0.307 ms
Remote clock offset: -4.143 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 203.606 ms
Loss rate: 3.75%
-- Flow 1:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 203.606 ms
Loss rate: 3.75%

Run 1: Report of Copa — Data Link

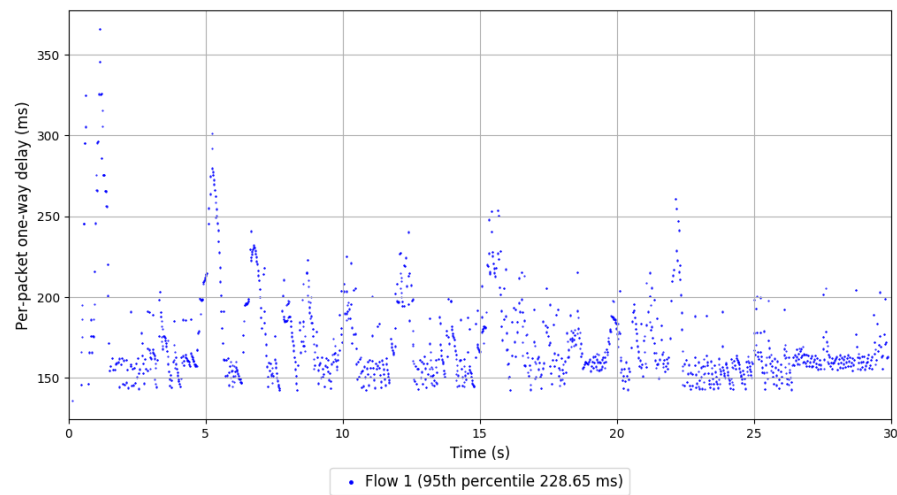
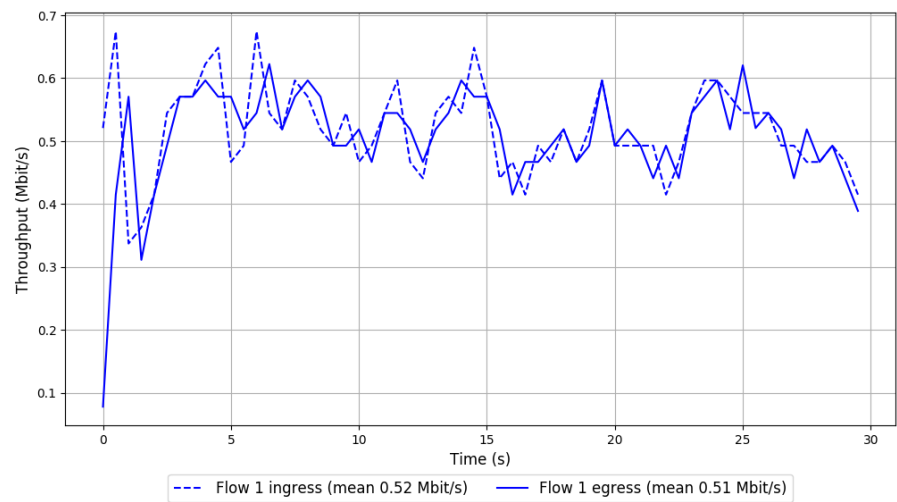


Run 2: Statistics of Copa

Start at: 2018-02-02 18:59:59
End at: 2018-02-02 19:00:29
Local clock offset: 0.325 ms
Remote clock offset: -2.178 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 228.654 ms
Loss rate: 1.93%
-- Flow 1:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 228.654 ms
Loss rate: 1.93%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-02-02 19:20:10

End at: 2018-02-02 19:20:40

Local clock offset: 0.461 ms

Remote clock offset: 3.719 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 429.819 ms

Loss rate: 4.72%

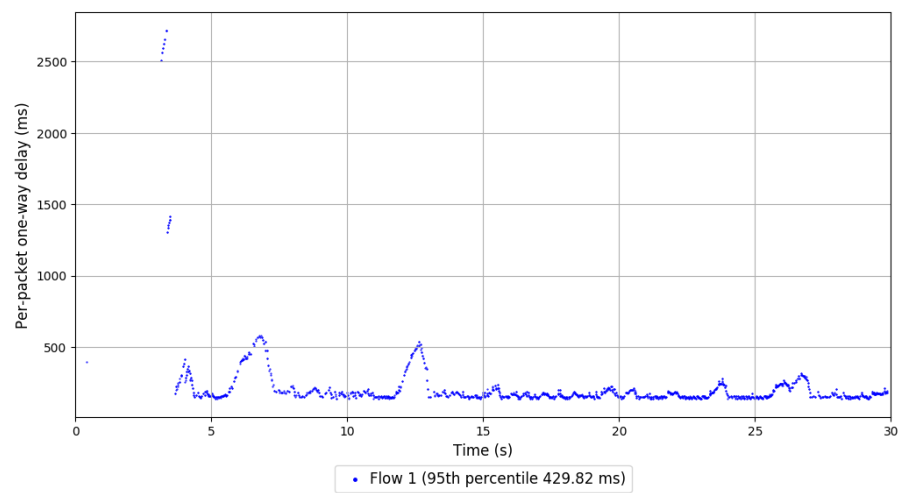
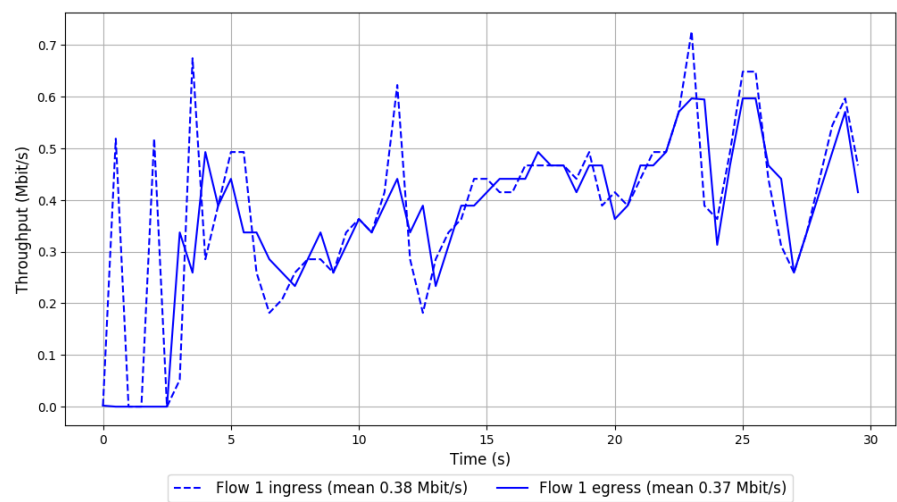
-- Flow 1:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 429.819 ms

Loss rate: 4.72%

Run 3: Report of Copa — Data Link

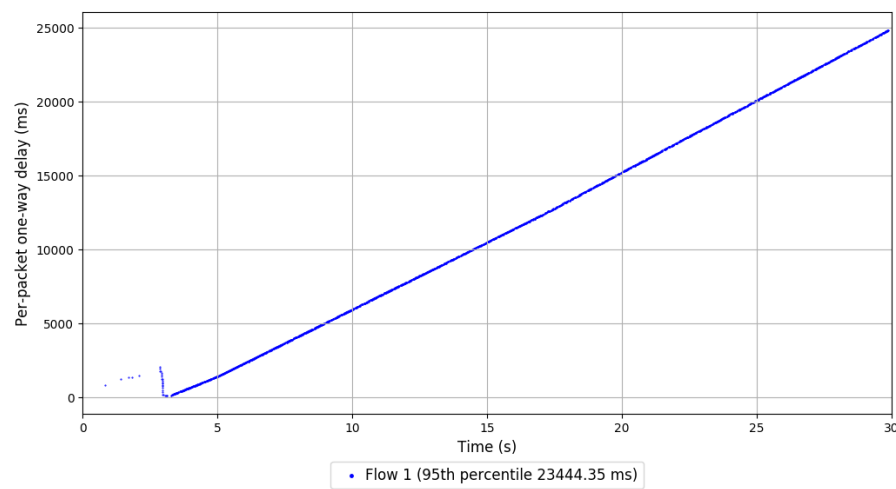
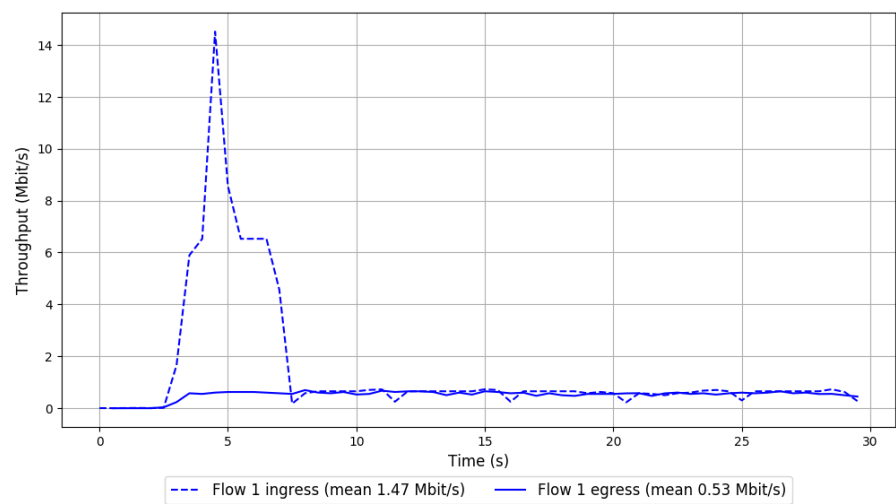


Run 1: Statistics of FillP

Start at: 2018-02-02 18:42:10
End at: 2018-02-02 18:42:40
Local clock offset: 0.352 ms
Remote clock offset: -4.103 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 23444.352 ms
Loss rate: 64.84%
-- Flow 1:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 23444.352 ms
Loss rate: 64.84%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-02-02 19:02:20

End at: 2018-02-02 19:02:50

Local clock offset: 0.287 ms

Remote clock offset: 1.982 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 21517.451 ms

Loss rate: 47.97%

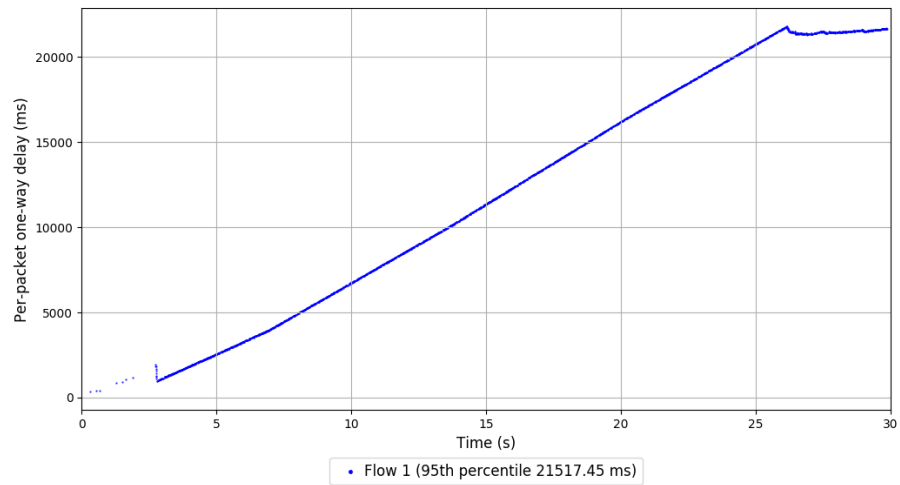
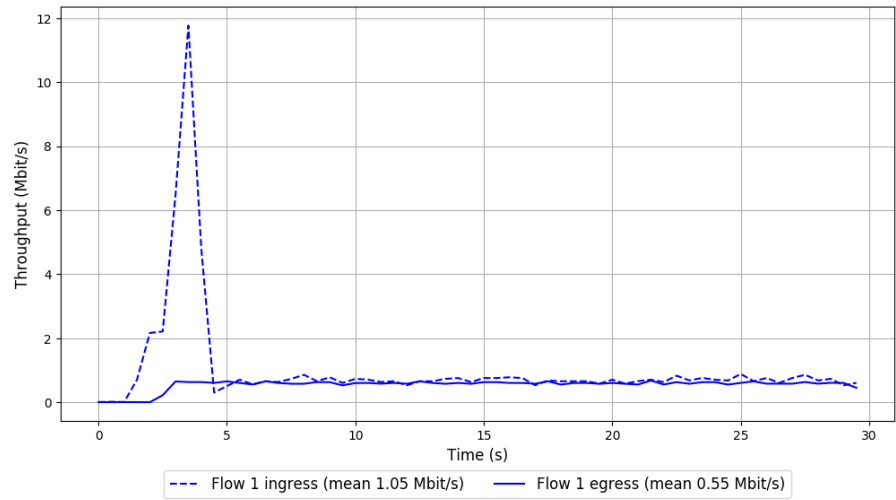
-- Flow 1:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 21517.451 ms

Loss rate: 47.97%

Run 2: Report of FillP — Data Link

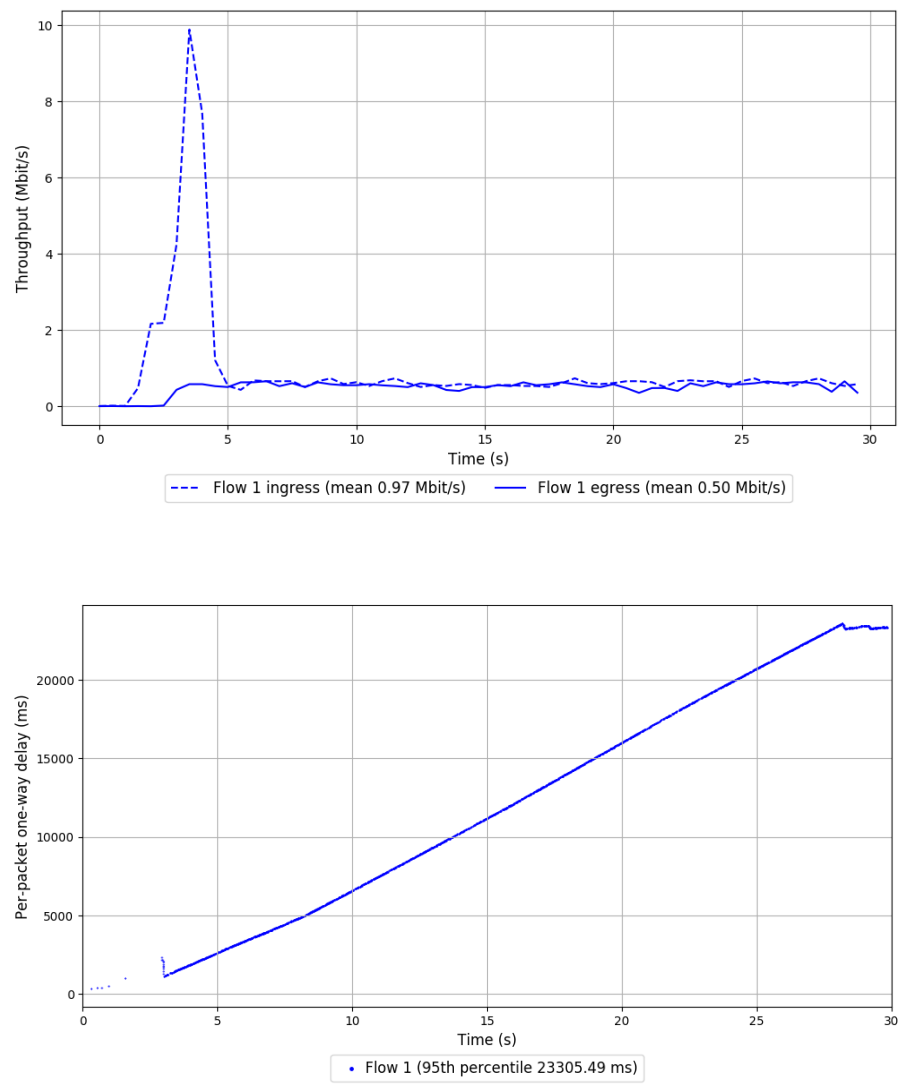


Run 3: Statistics of FillP

Start at: 2018-02-02 19:22:32
End at: 2018-02-02 19:23:02
Local clock offset: 0.489 ms
Remote clock offset: -0.986 ms

Below is generated by plot.py at 2018-02-02 20:36:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 23305.485 ms
Loss rate: 49.20%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 23305.485 ms
Loss rate: 49.20%

Run 3: Report of FillP — Data Link



Run 1: Statistics of Indigo-1-32

Start at: 2018-02-02 18:46:53

End at: 2018-02-02 18:47:23

Local clock offset: 0.332 ms

Remote clock offset: -2.959 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 755.397 ms

Loss rate: 1.17%

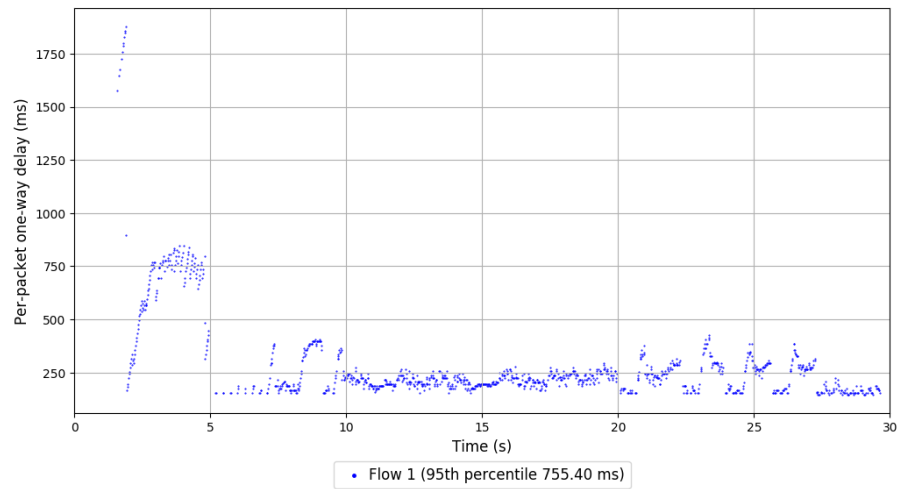
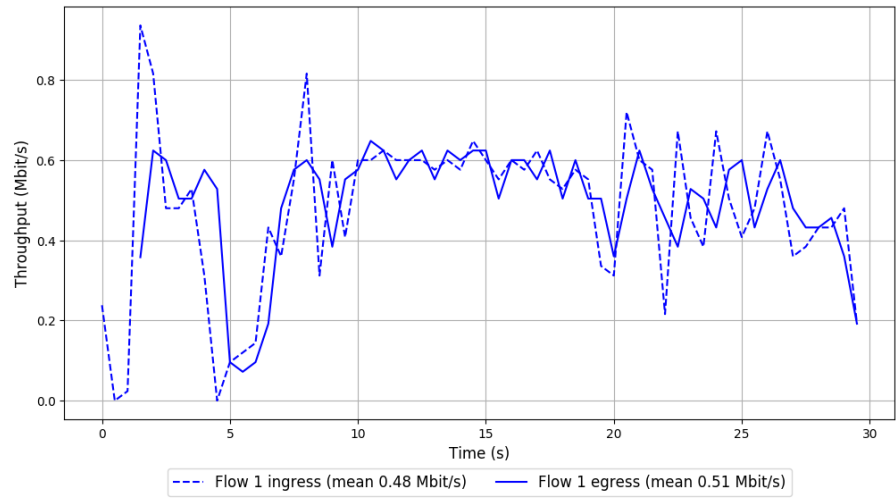
-- Flow 1:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 755.397 ms

Loss rate: 1.17%

Run 1: Report of Indigo-1-32 — Data Link



Run 2: Statistics of Indigo-1-32

Start at: 2018-02-02 19:07:04

End at: 2018-02-02 19:07:34

Local clock offset: 0.371 ms

Remote clock offset: -1.75 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 823.001 ms

Loss rate: 4.04%

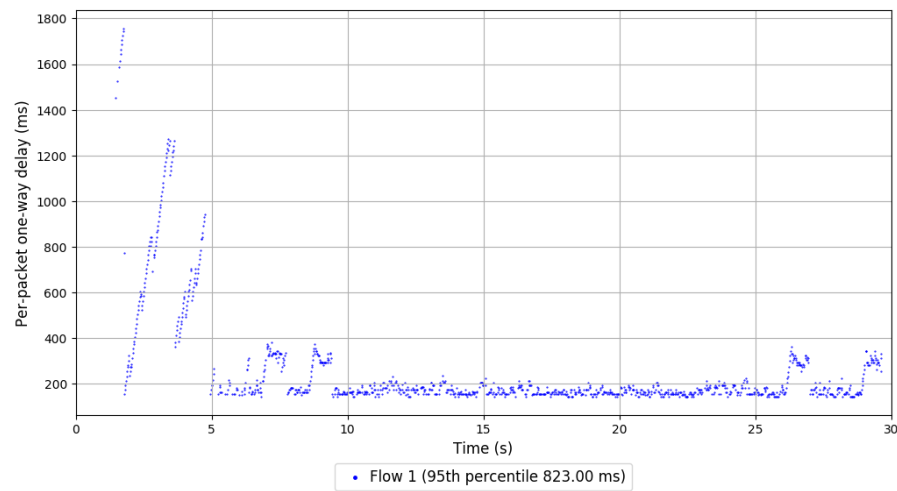
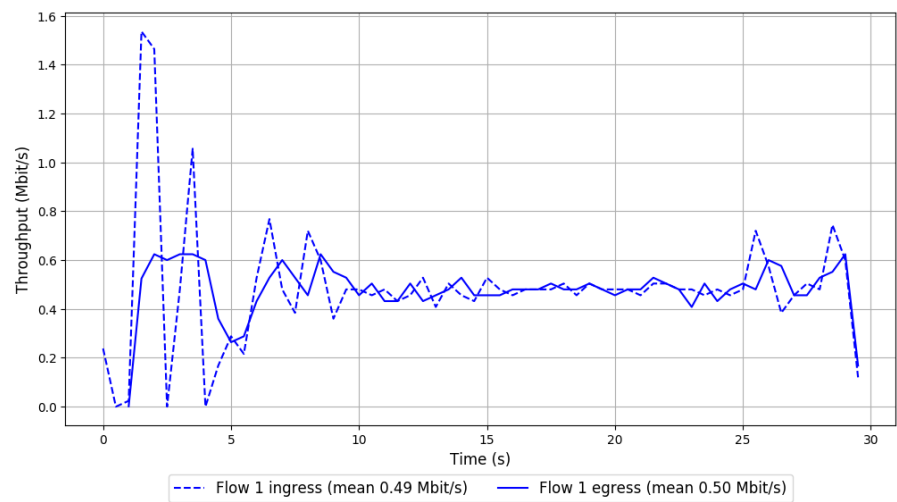
-- Flow 1:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 823.001 ms

Loss rate: 4.04%

Run 2: Report of Indigo-1-32 — Data Link



Run 3: Statistics of Indigo-1-32

Start at: 2018-02-02 19:27:17

End at: 2018-02-02 19:27:47

Local clock offset: 0.415 ms

Remote clock offset: 3.993 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.28 Mbit/s

95th percentile per-packet one-way delay: 411.602 ms

Loss rate: 1.29%

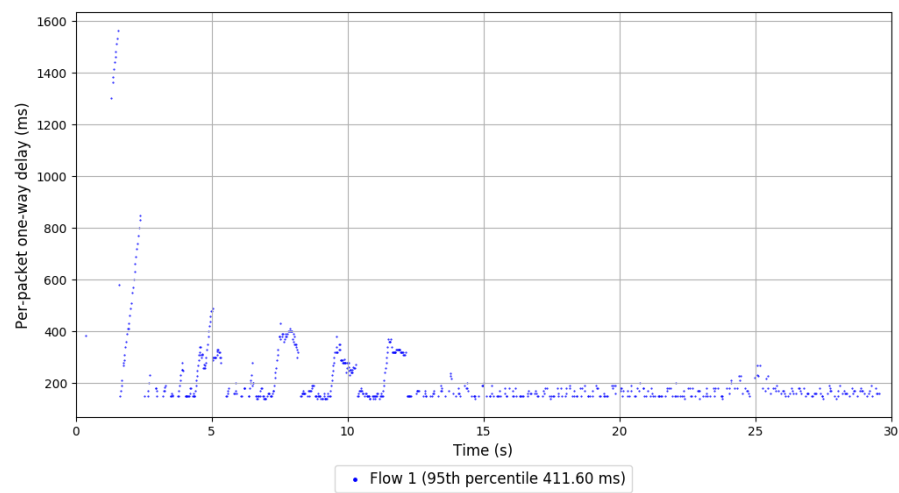
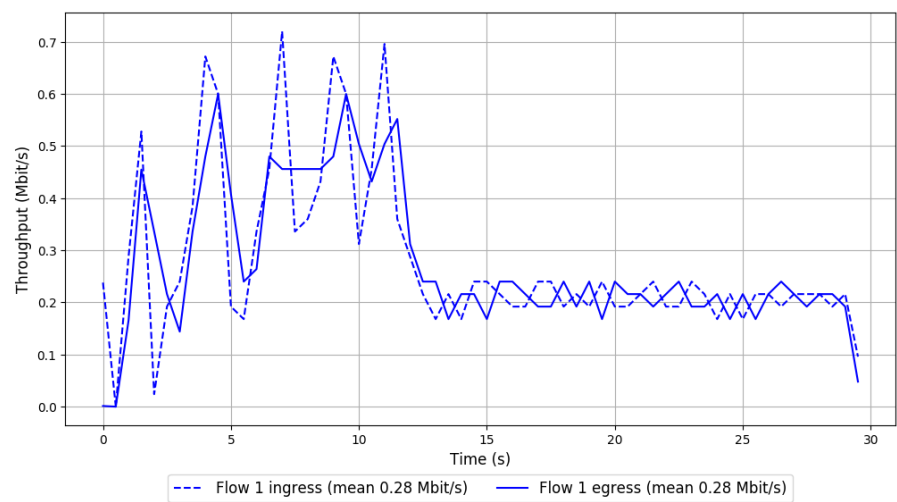
-- Flow 1:

Average throughput: 0.28 Mbit/s

95th percentile per-packet one-way delay: 411.602 ms

Loss rate: 1.29%

Run 3: Report of Indigo-1-32 — Data Link



Run 1: Statistics of Vivace-latency

Start at: 2018-02-02 18:52:54

End at: 2018-02-02 18:53:24

Local clock offset: 0.332 ms

Remote clock offset: 3.09 ms

Below is generated by plot.py at 2018-02-02 20:36:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2188.750 ms

Loss rate: 2.13%

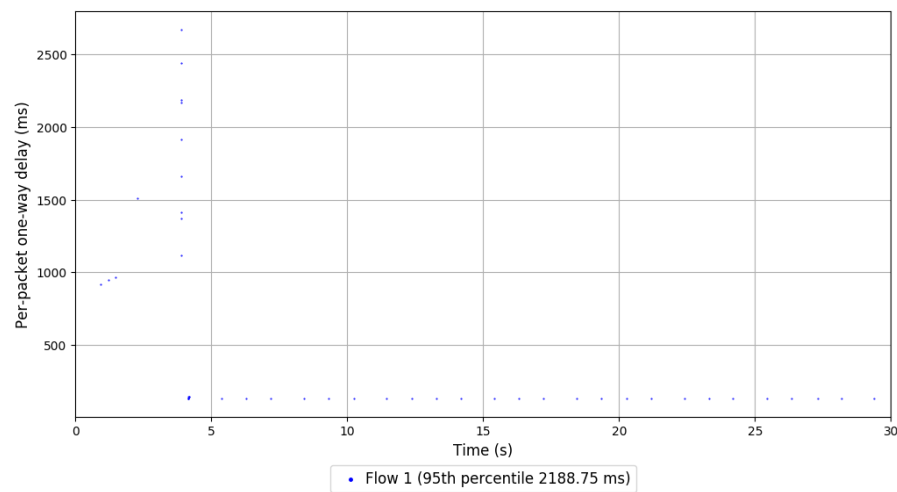
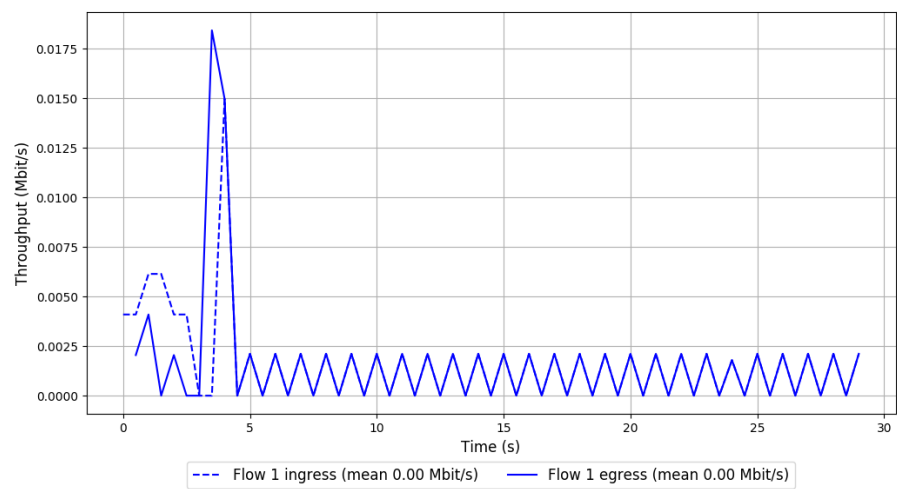
-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2188.750 ms

Loss rate: 2.13%

Run 1: Report of Vivace-latency — Data Link



Run 2: Statistics of Vivace-latency

Start at: 2018-02-02 19:12:56

End at: 2018-02-02 19:13:26

Local clock offset: 0.368 ms

Remote clock offset: 3.414 ms

Below is generated by plot.py at 2018-02-02 20:36:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 21323.992 ms

Loss rate: 73.75%

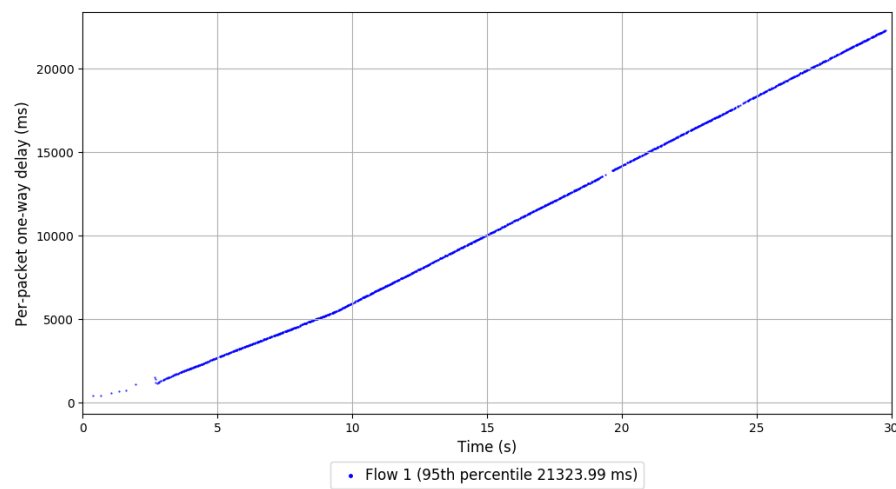
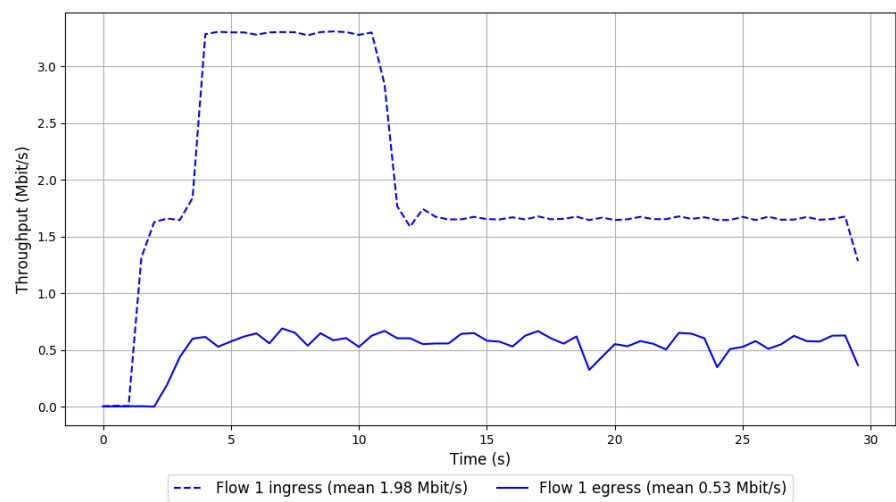
-- Flow 1:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 21323.992 ms

Loss rate: 73.75%

Run 2: Report of Vivace-latency — Data Link

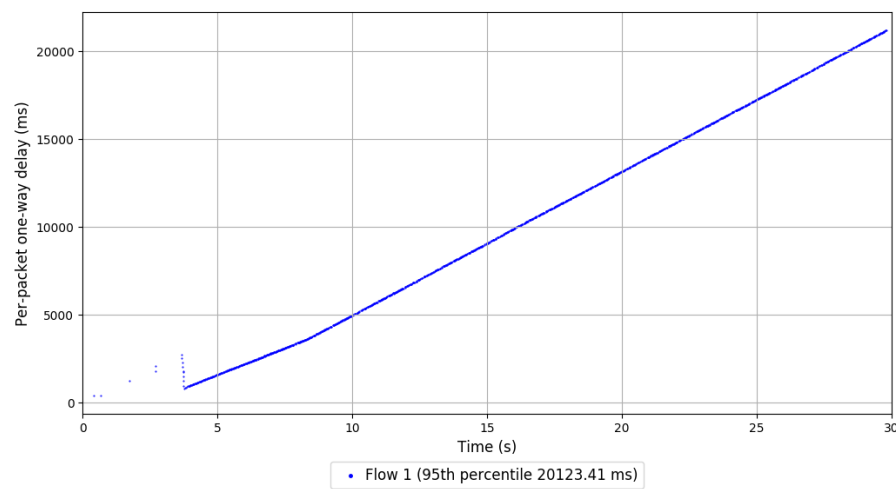
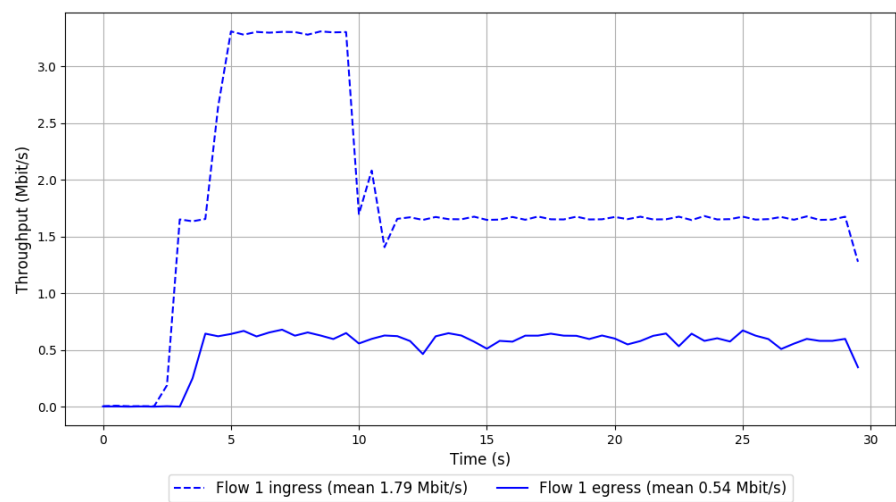


Run 3: Statistics of Vivace-latency

Start at: 2018-02-02 19:33:34
End at: 2018-02-02 19:34:04
Local clock offset: 0.395 ms
Remote clock offset: -1.496 ms

Below is generated by plot.py at 2018-02-02 20:36:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 20123.407 ms
Loss rate: 70.58%
-- Flow 1:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 20123.407 ms
Loss rate: 70.58%

Run 3: Report of Vivace-latency — Data Link



Run 1: Statistics of Vivace-loss

Start at: 2018-02-02 18:37:28

End at: 2018-02-02 18:37:58

Local clock offset: 0.379 ms

Remote clock offset: 2.218 ms

Below is generated by plot.py at 2018-02-02 20:36:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 20868.022 ms

Loss rate: 89.20%

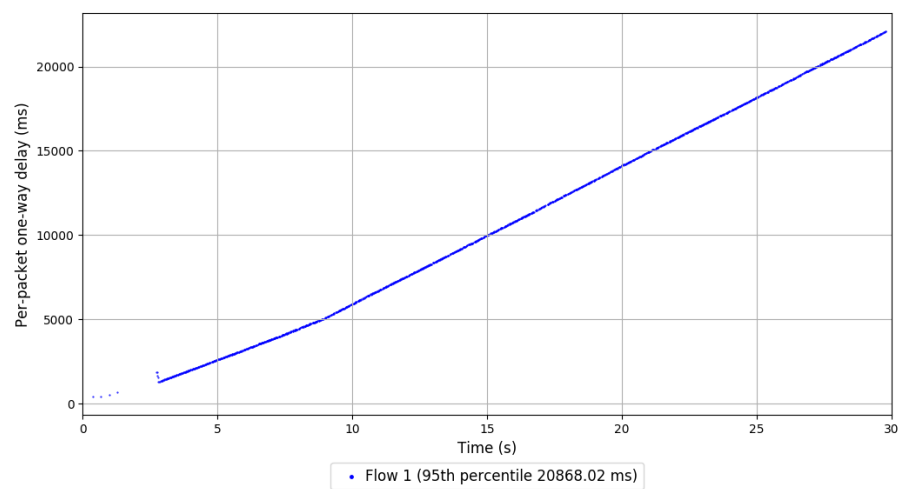
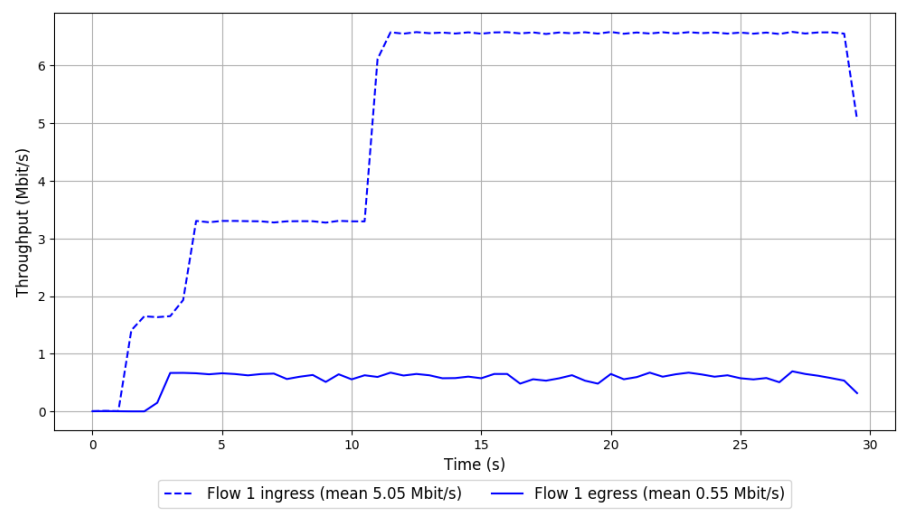
-- Flow 1:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 20868.022 ms

Loss rate: 89.20%

Run 1: Report of Vivace-loss — Data Link



Run 2: Statistics of Vivace-loss

Start at: 2018-02-02 18:57:37

End at: 2018-02-02 18:58:07

Local clock offset: 0.267 ms

Remote clock offset: 1.769 ms

Below is generated by plot.py at 2018-02-02 20:36:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 21332.872 ms

Loss rate: 90.27%

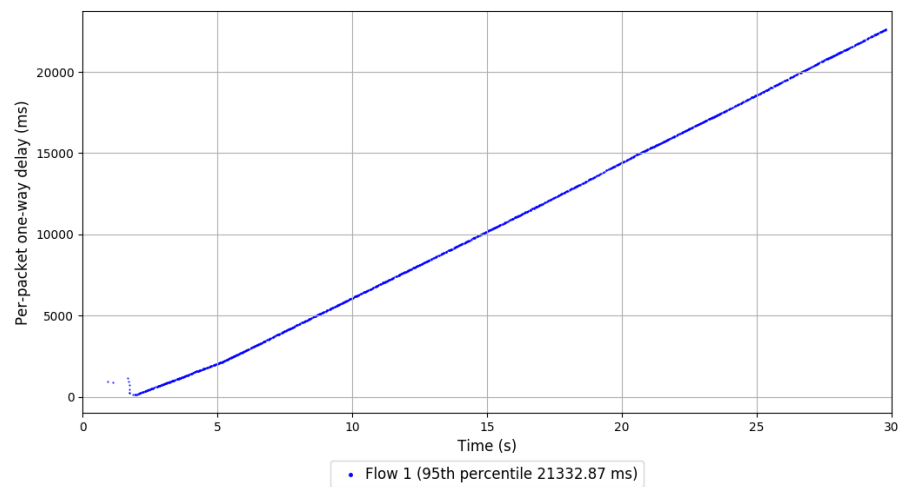
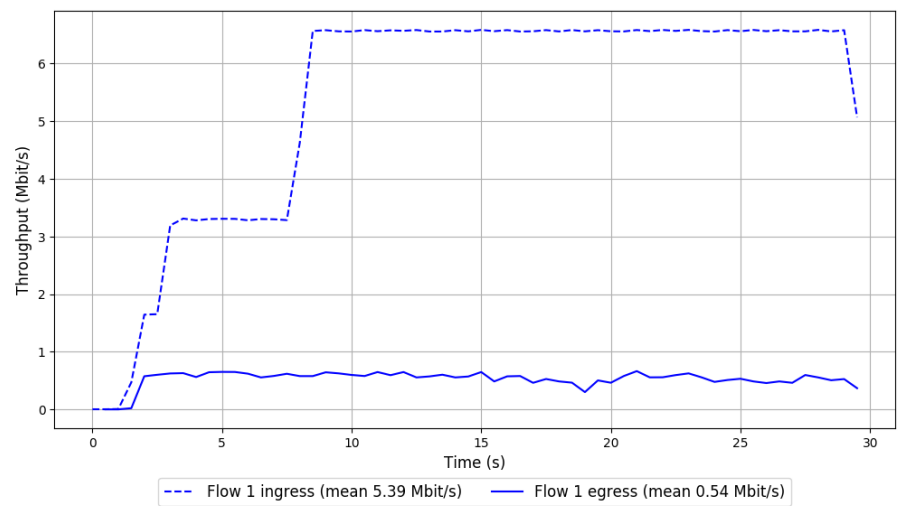
-- Flow 1:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 21332.872 ms

Loss rate: 90.27%

Run 2: Report of Vivace-loss — Data Link



Run 3: Statistics of Vivace-loss

Start at: 2018-02-02 19:17:46

End at: 2018-02-02 19:18:16

Local clock offset: 0.467 ms

Remote clock offset: -2.055 ms

Below is generated by plot.py at 2018-02-02 20:36:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 21646.879 ms

Loss rate: 90.06%

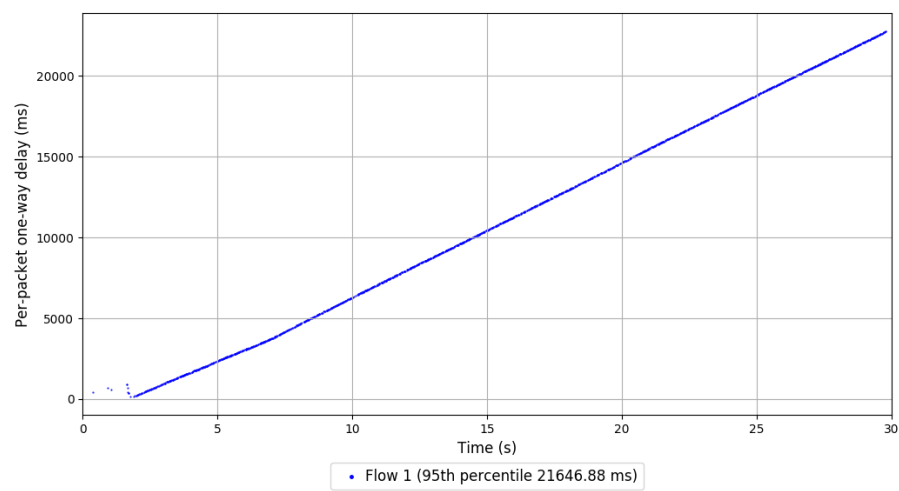
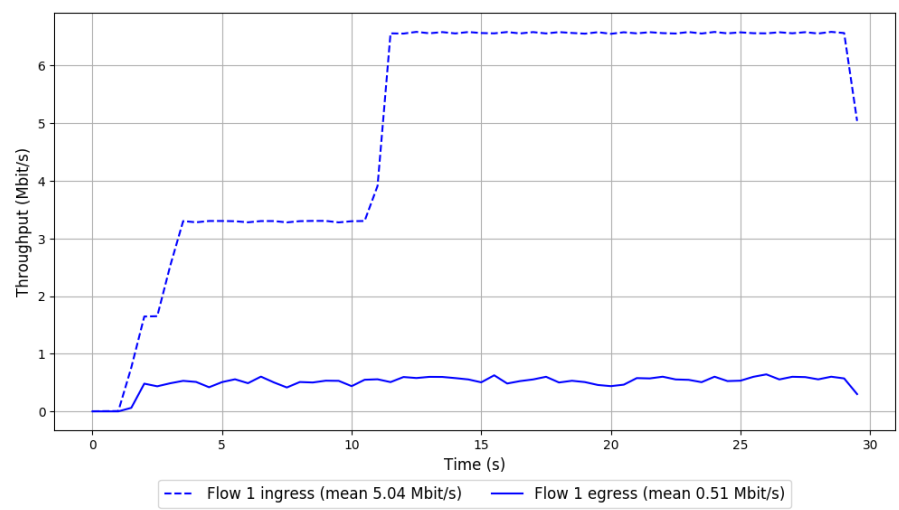
-- Flow 1:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 21646.879 ms

Loss rate: 90.06%

Run 3: Report of Vivace-loss — Data Link



Run 1: Statistics of Vivace-LTE

Start at: 2018-02-02 18:48:04

End at: 2018-02-02 18:48:34

Local clock offset: 0.33 ms

Remote clock offset: -2.933 ms

Below is generated by plot.py at 2018-02-02 20:36:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 21546.178 ms

Loss rate: 71.32%

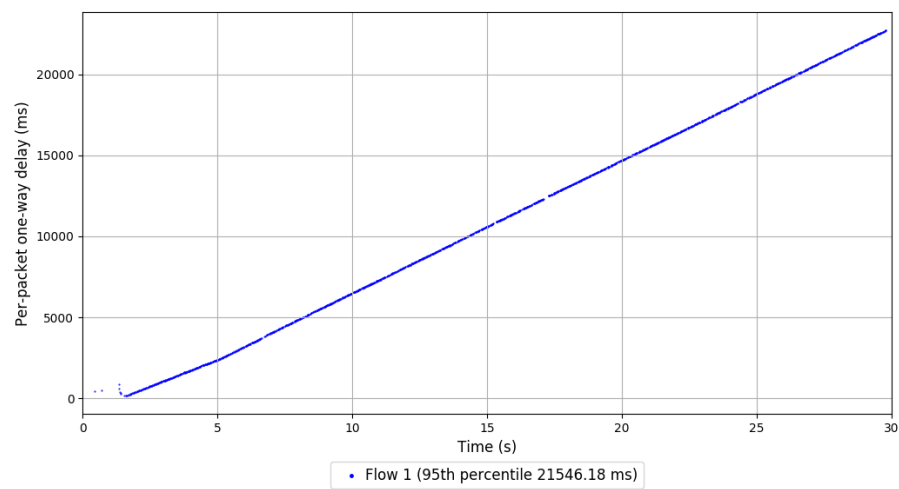
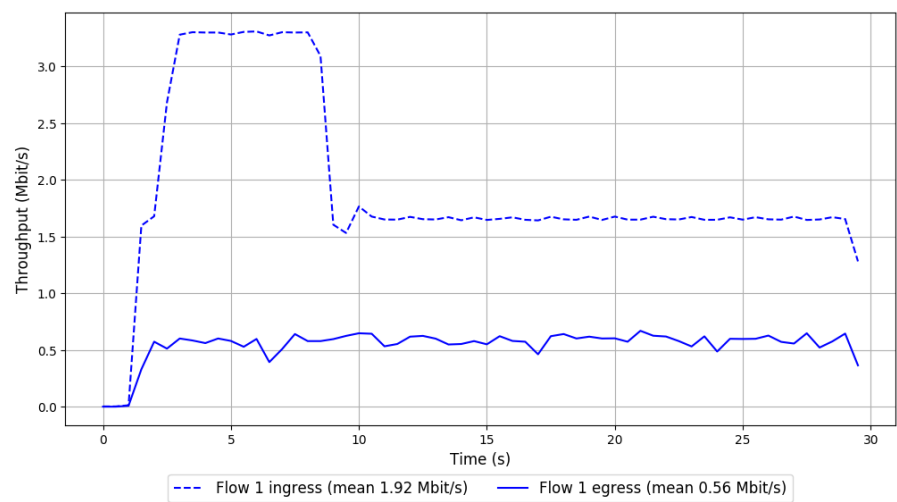
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 21546.178 ms

Loss rate: 71.32%

Run 1: Report of Vivace-LTE — Data Link



Run 2: Statistics of Vivace-LTE

Start at: 2018-02-02 19:08:14

End at: 2018-02-02 19:08:44

Local clock offset: 0.388 ms

Remote clock offset: -1.571 ms

Below is generated by plot.py at 2018-02-02 20:36:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 20454.768 ms

Loss rate: 69.13%

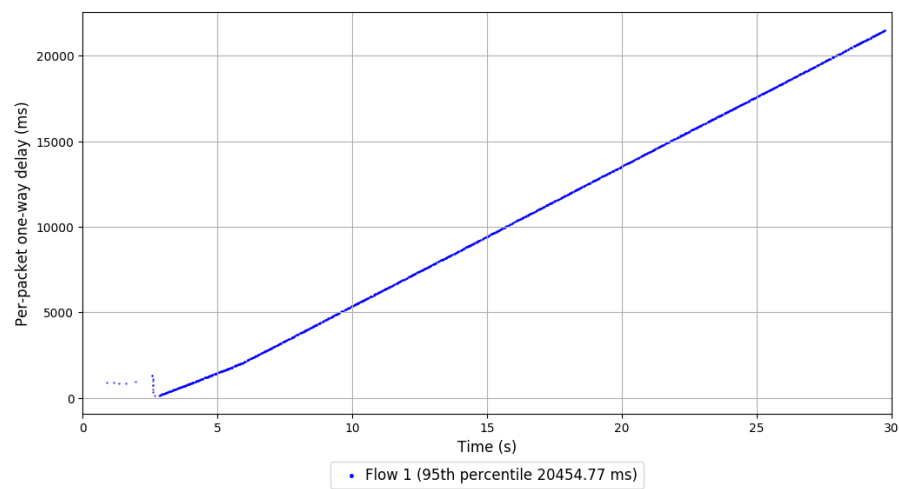
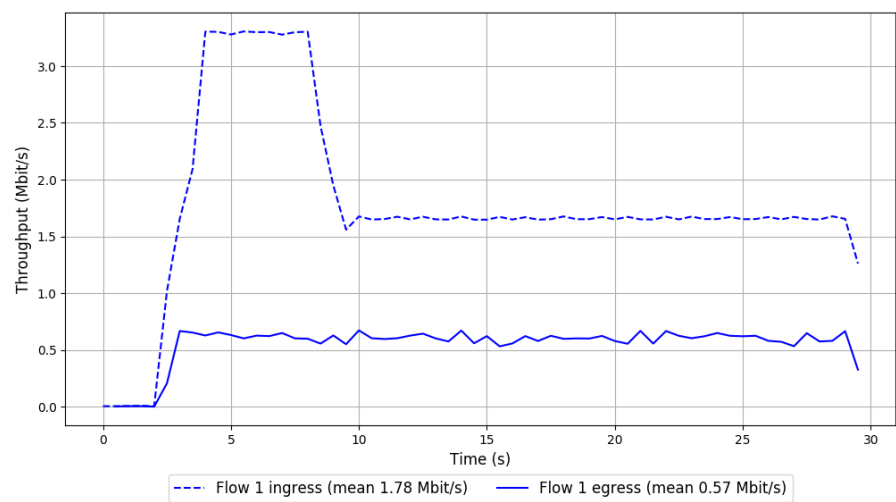
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 20454.768 ms

Loss rate: 69.13%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-02-02 19:28:27
End at: 2018-02-02 19:28:57
Local clock offset: 0.394 ms
Remote clock offset: -1.637 ms

Below is generated by plot.py at 2018-02-02 20:36:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 20885.088 ms
Loss rate: 85.71%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 20885.088 ms
Loss rate: 85.71%

Run 3: Report of Vivace-LTE — Data Link

