

Pantheon Report

Generated at 2018-01-02 20:26:44 (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).

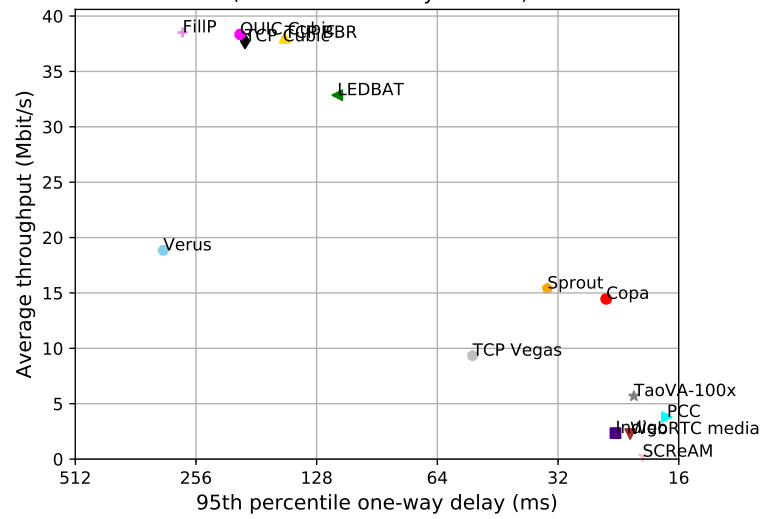
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

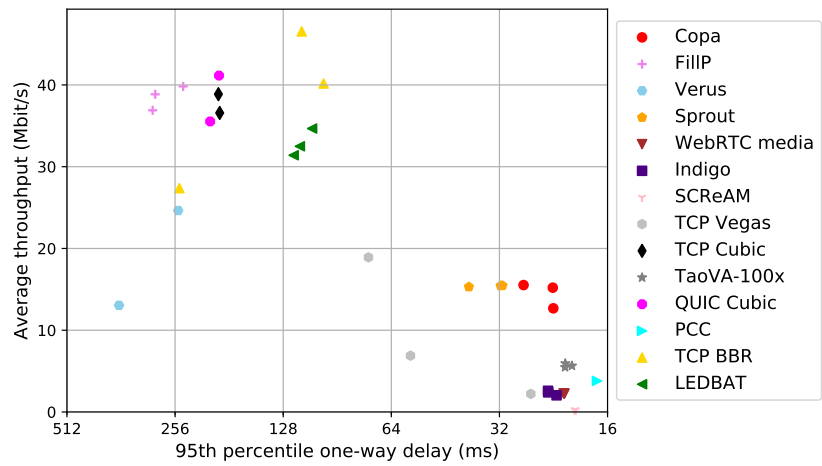
Git summary:

```
branch: master @ 904a5750834816b1e46a2c86405d707788d27c16
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ dcaef6b00654e660f73f7ed679d2eab61ce08639
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeab30b267cde681
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	38.03	153.84	0.16
TCP Cubic	2	37.72	193.12	0.40
LEDBAT	3	32.86	113.70	0.20
PCC	1	3.80	17.12	0.00
QUIC Cubic	2	38.34	198.81	0.25
SCReAM	2	0.22	19.69	0.00
WebRTC media	3	2.26	21.15	0.00
Sprout	3	15.40	34.02	0.03
TaoVA-100x	3	5.69	20.70	0.00
TCP Vegas	3	9.34	52.28	0.00
Verus	2	18.84	308.84	4.27
Copa	3	14.47	24.27	0.00
FillP	3	38.53	276.47	44.24
Indigo	3	2.34	23.01	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-01-02 19:38:12

End at: 2018-01-02 19:38:42

Local clock offset: 0.132 ms

Remote clock offset: -2.945 ms

Below is generated by plot.py at 2018-01-02 20:25:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 46.54 Mbit/s

95th percentile per-packet one-way delay: 113.672 ms

Loss rate: 0.06%

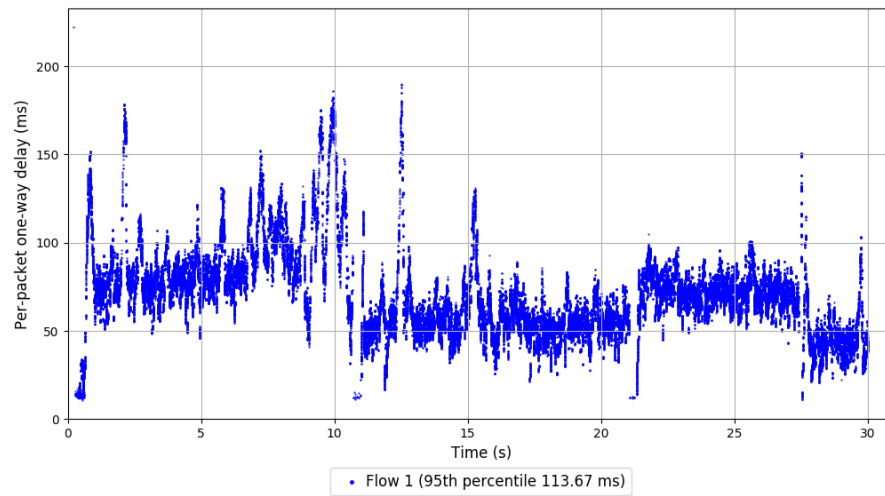
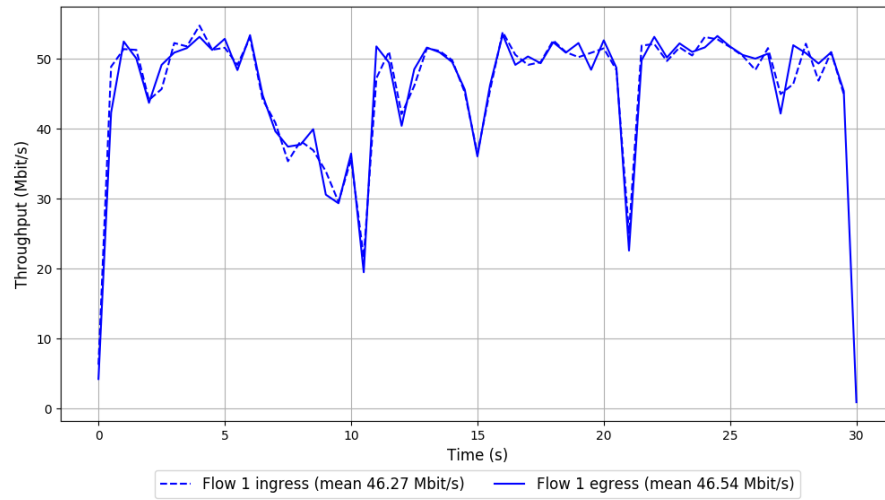
-- Flow 1:

Average throughput: 46.54 Mbit/s

95th percentile per-packet one-way delay: 113.672 ms

Loss rate: 0.06%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-01-02 19:55:56

End at: 2018-01-02 19:56:26

Local clock offset: 0.304 ms

Remote clock offset: -2.79 ms

Below is generated by plot.py at 2018-01-02 20:25:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 40.17 Mbit/s

95th percentile per-packet one-way delay: 98.810 ms

Loss rate: 0.08%

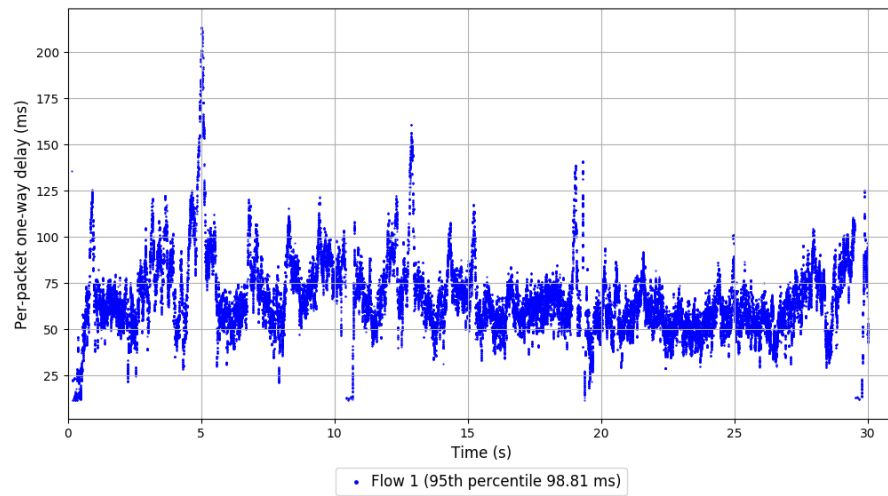
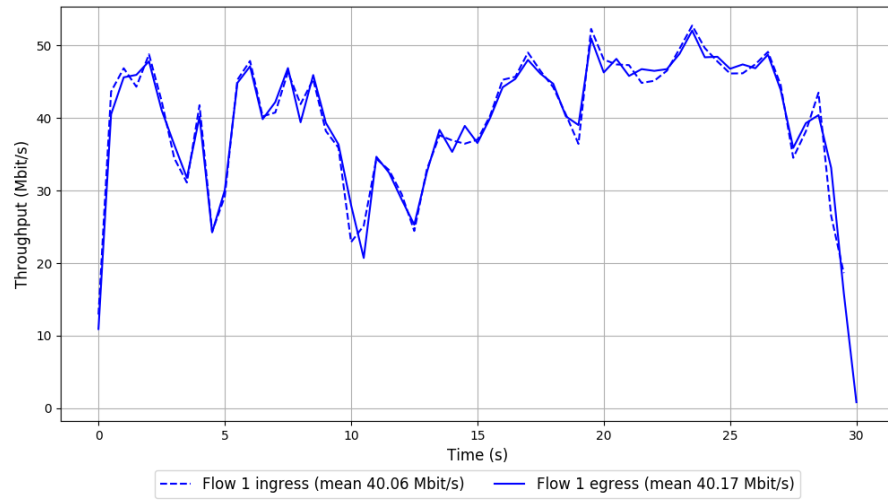
-- Flow 1:

Average throughput: 40.17 Mbit/s

95th percentile per-packet one-way delay: 98.810 ms

Loss rate: 0.08%

Run 2: Report of TCP BBR — Data Link

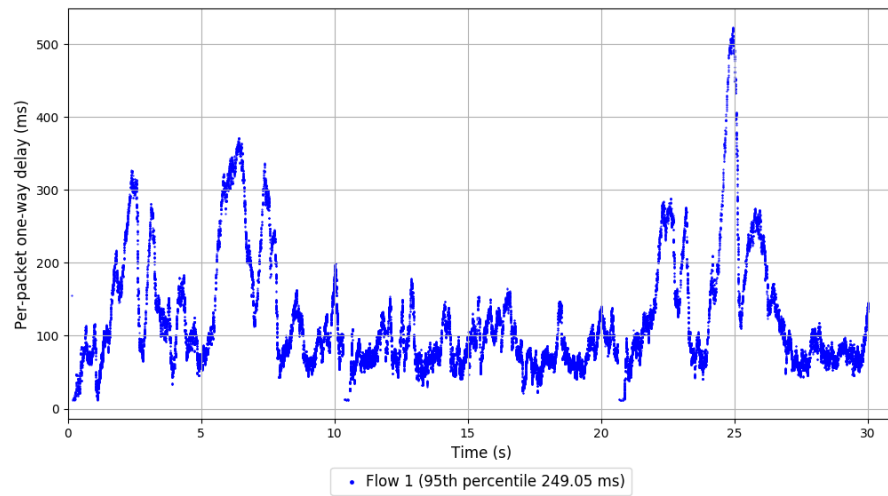
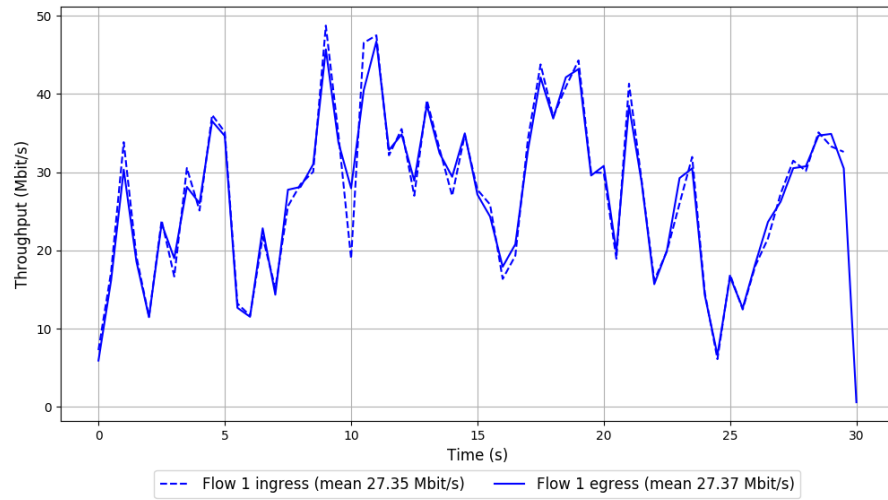


Run 3: Statistics of TCP BBR

Start at: 2018-01-02 20:13:41
End at: 2018-01-02 20:14:11
Local clock offset: 0.258 ms
Remote clock offset: -2.578 ms

Below is generated by plot.py at 2018-01-02 20:25:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 27.37 Mbit/s
95th percentile per-packet one-way delay: 249.052 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 27.37 Mbit/s
95th percentile per-packet one-way delay: 249.052 ms
Loss rate: 0.35%

Run 3: Report of TCP BBR — Data Link

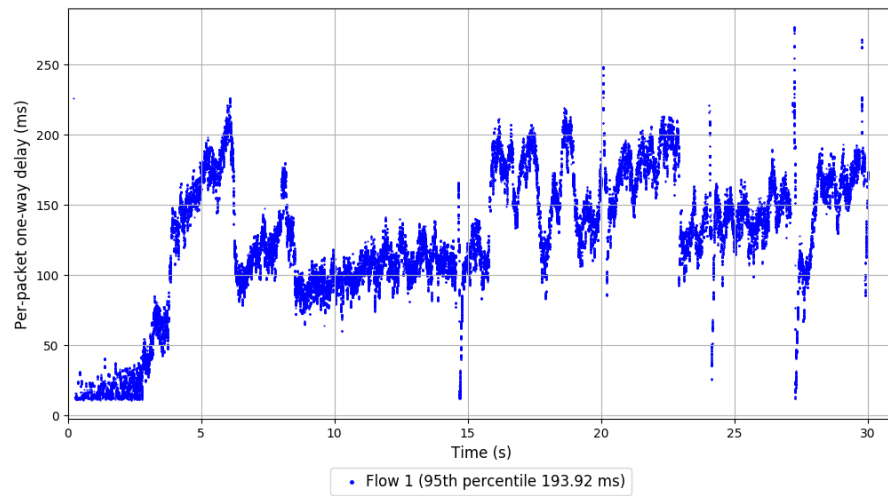
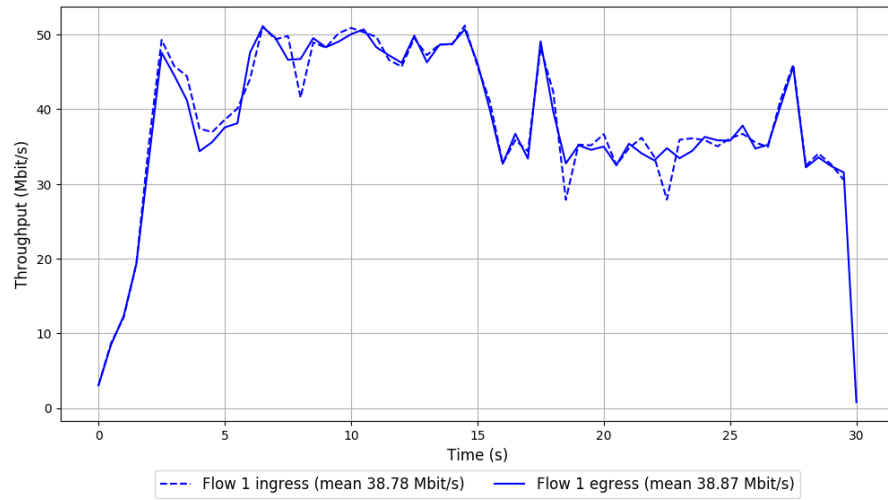


Run 1: Statistics of TCP Cubic

Start at: 2018-01-02 19:42:57
End at: 2018-01-02 19:43:27
Local clock offset: 0.206 ms
Remote clock offset: -2.976 ms

Below is generated by plot.py at 2018-01-02 20:25:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 38.87 Mbit/s
95th percentile per-packet one-way delay: 193.923 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 38.87 Mbit/s
95th percentile per-packet one-way delay: 193.923 ms
Loss rate: 0.46%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

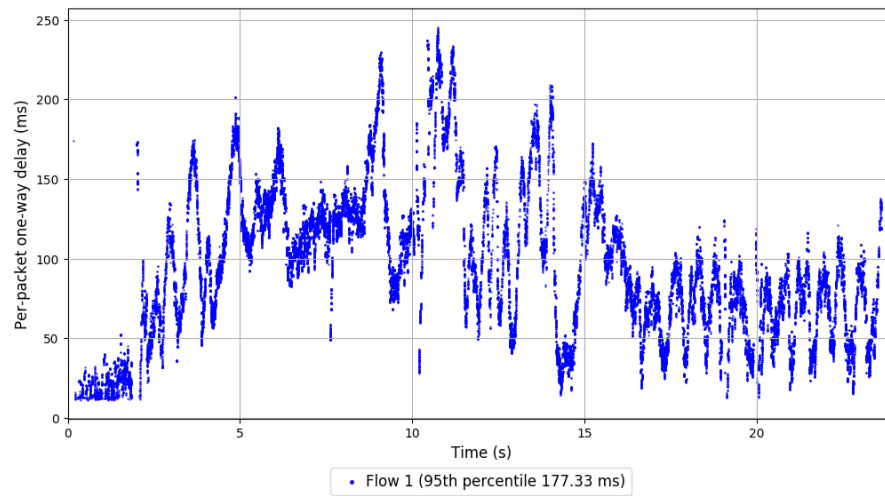
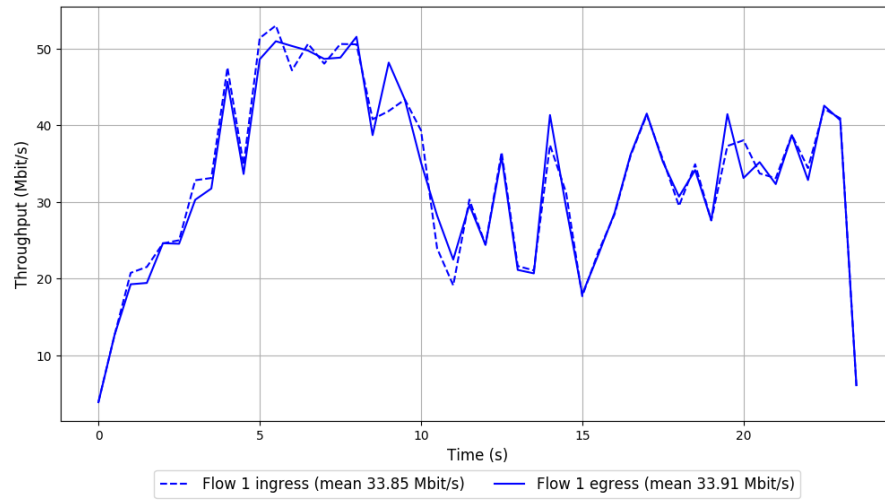
Start at: 2018-01-02 20:00:41

End at: 2018-01-02 20:01:11

Local clock offset: 0.241 ms

Remote clock offset: -2.886 ms

Run 2: Report of TCP Cubic — Data Link

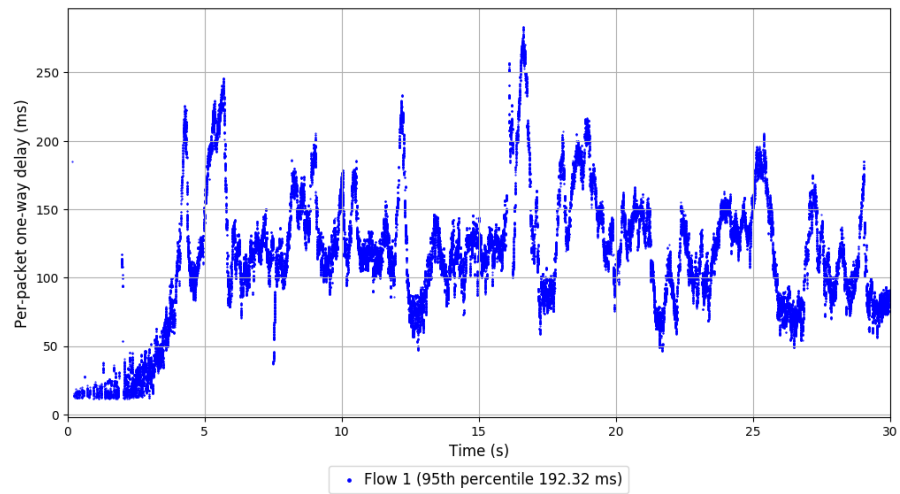
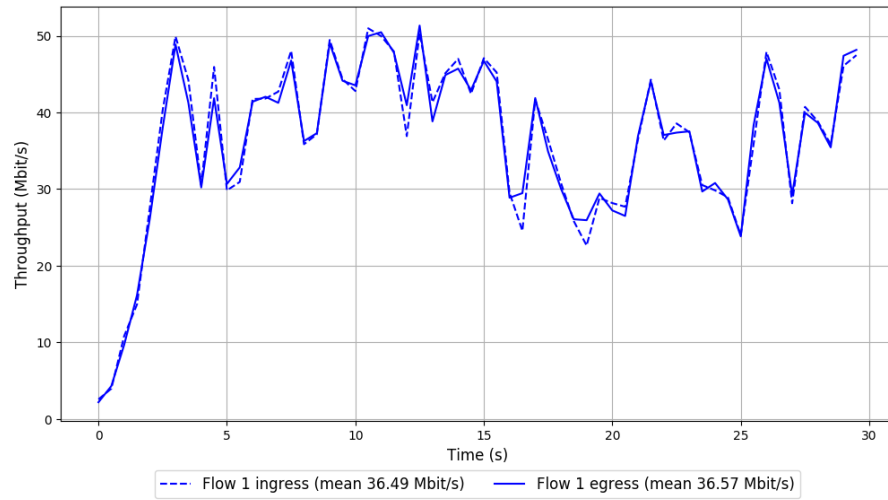


Run 3: Statistics of TCP Cubic

Start at: 2018-01-02 20:18:25
End at: 2018-01-02 20:18:55
Local clock offset: 0.304 ms
Remote clock offset: -2.479 ms

Below is generated by plot.py at 2018-01-02 20:25:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 36.57 Mbit/s
95th percentile per-packet one-way delay: 192.319 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 36.57 Mbit/s
95th percentile per-packet one-way delay: 192.319 ms
Loss rate: 0.33%

Run 3: Report of TCP Cubic — Data Link

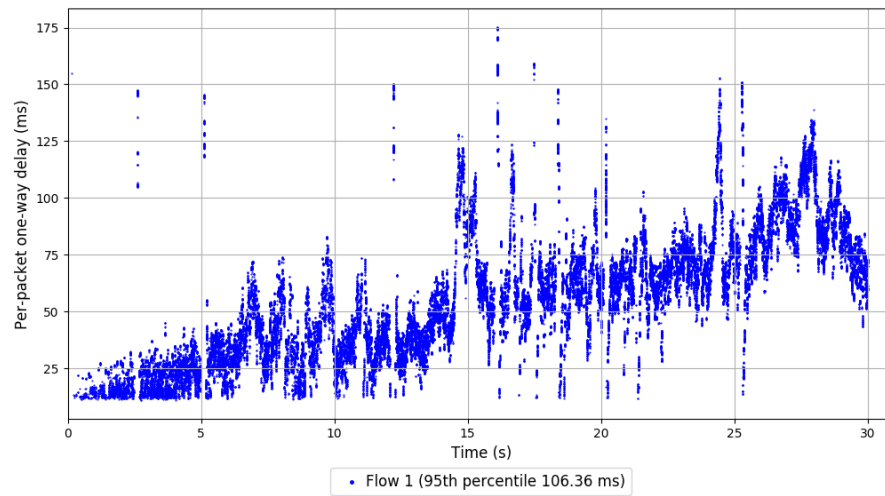
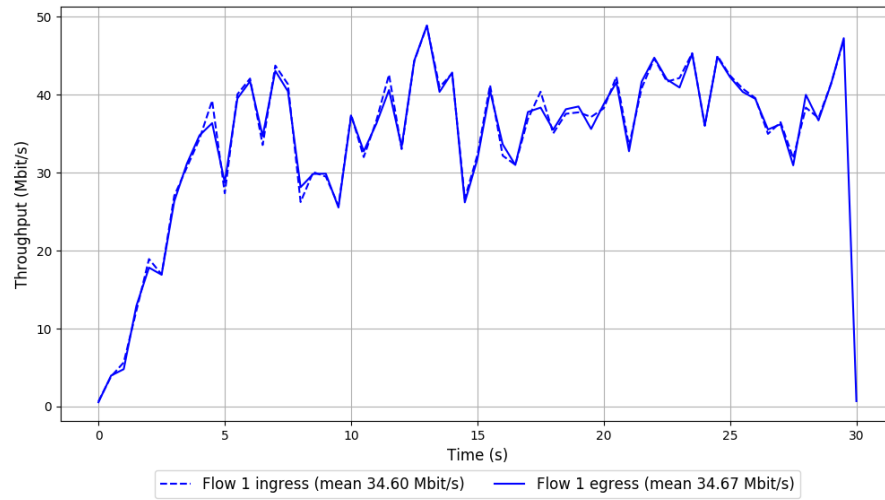


Run 1: Statistics of LEDBAT

Start at: 2018-01-02 19:41:45
End at: 2018-01-02 19:42:15
Local clock offset: 0.169 ms
Remote clock offset: -2.961 ms

Below is generated by plot.py at 2018-01-02 20:25:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 34.67 Mbit/s
95th percentile per-packet one-way delay: 106.360 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 34.67 Mbit/s
95th percentile per-packet one-way delay: 106.360 ms
Loss rate: 0.26%

Run 1: Report of LEDBAT — Data Link

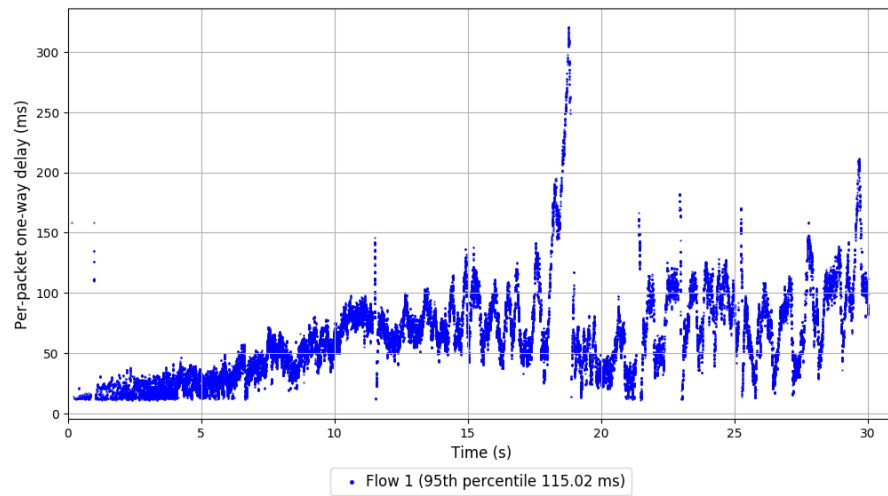
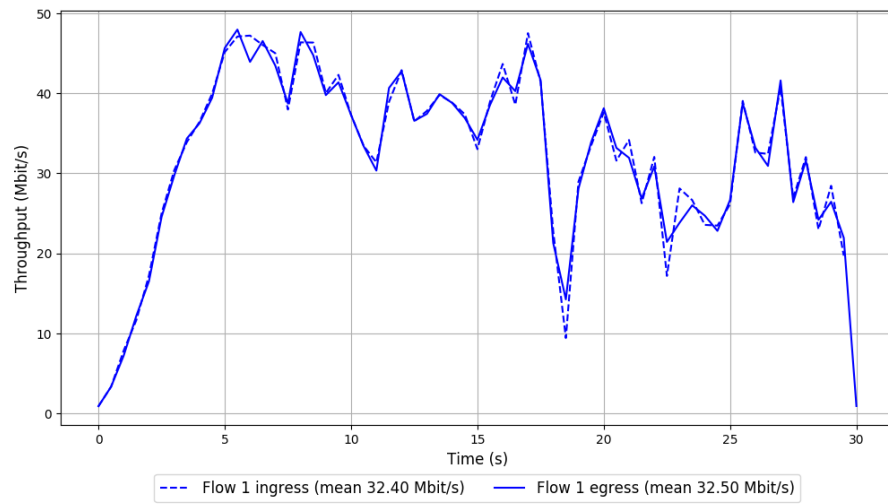


Run 2: Statistics of LEDBAT

Start at: 2018-01-02 19:59:29
End at: 2018-01-02 19:59:59
Local clock offset: 0.311 ms
Remote clock offset: -2.892 ms

Below is generated by plot.py at 2018-01-02 20:25:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 32.50 Mbit/s
95th percentile per-packet one-way delay: 115.024 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 32.50 Mbit/s
95th percentile per-packet one-way delay: 115.024 ms
Loss rate: 0.15%

Run 2: Report of LEDBAT — Data Link

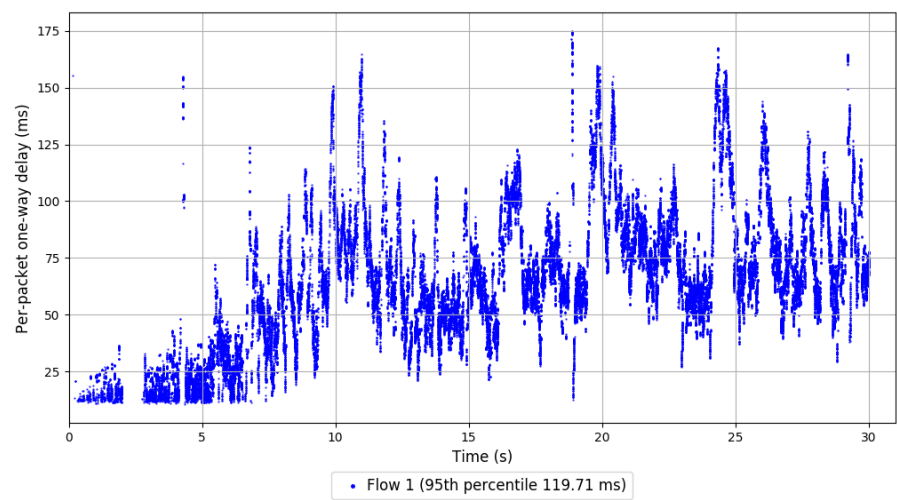
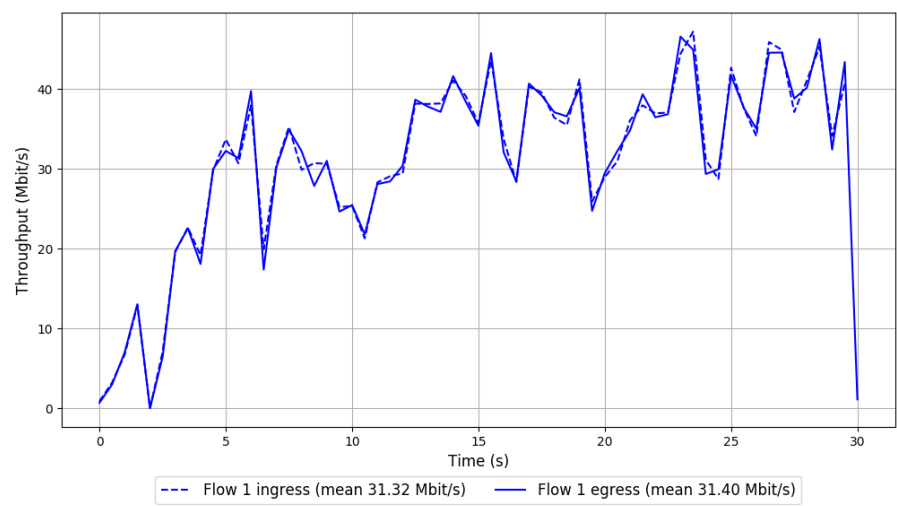


Run 3: Statistics of LEDBAT

Start at: 2018-01-02 20:17:13
End at: 2018-01-02 20:17:43
Local clock offset: 0.355 ms
Remote clock offset: -2.576 ms

Below is generated by plot.py at 2018-01-02 20:26:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 31.40 Mbit/s
95th percentile per-packet one-way delay: 119.712 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 31.40 Mbit/s
95th percentile per-packet one-way delay: 119.712 ms
Loss rate: 0.19%

Run 3: Report of LEDBAT — Data Link

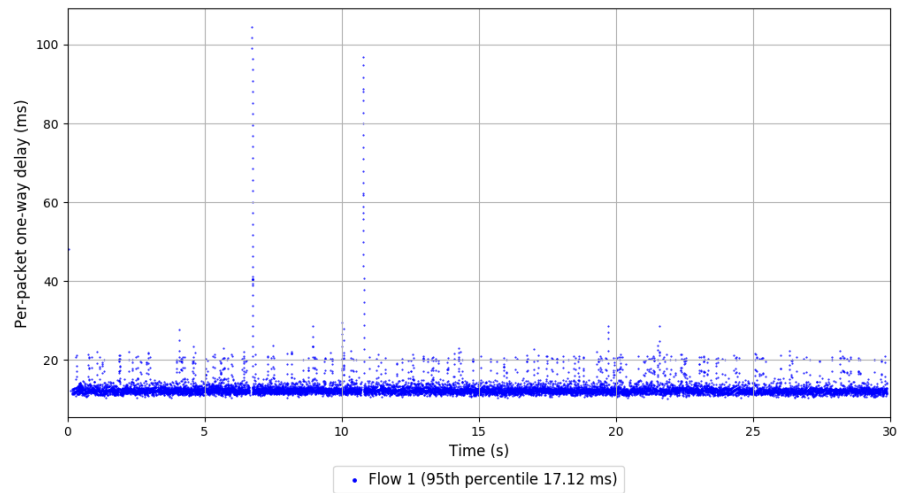
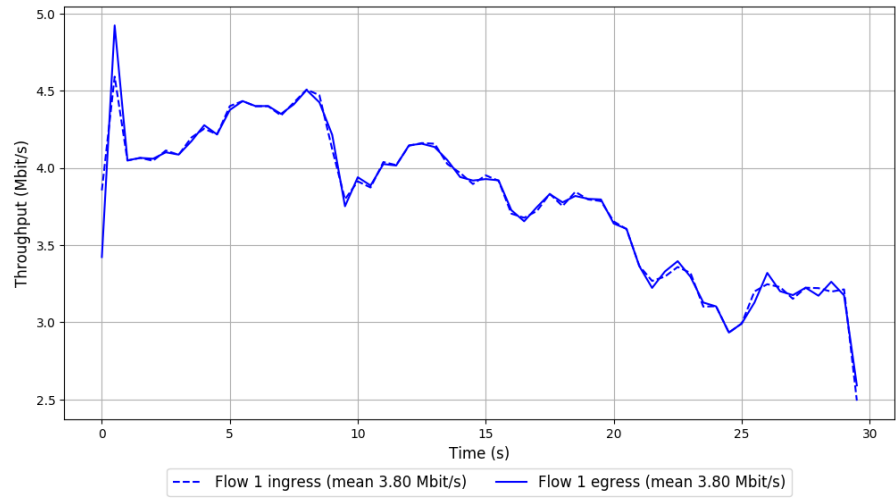


Run 1: Statistics of PCC

Start at: 2018-01-02 19:47:42
End at: 2018-01-02 19:48:12
Local clock offset: 0.246 ms
Remote clock offset: -2.909 ms

Below is generated by plot.py at 2018-01-02 20:26:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.80 Mbit/s
95th percentile per-packet one-way delay: 17.125 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.80 Mbit/s
95th percentile per-packet one-way delay: 17.125 ms
Loss rate: 0.00%

Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

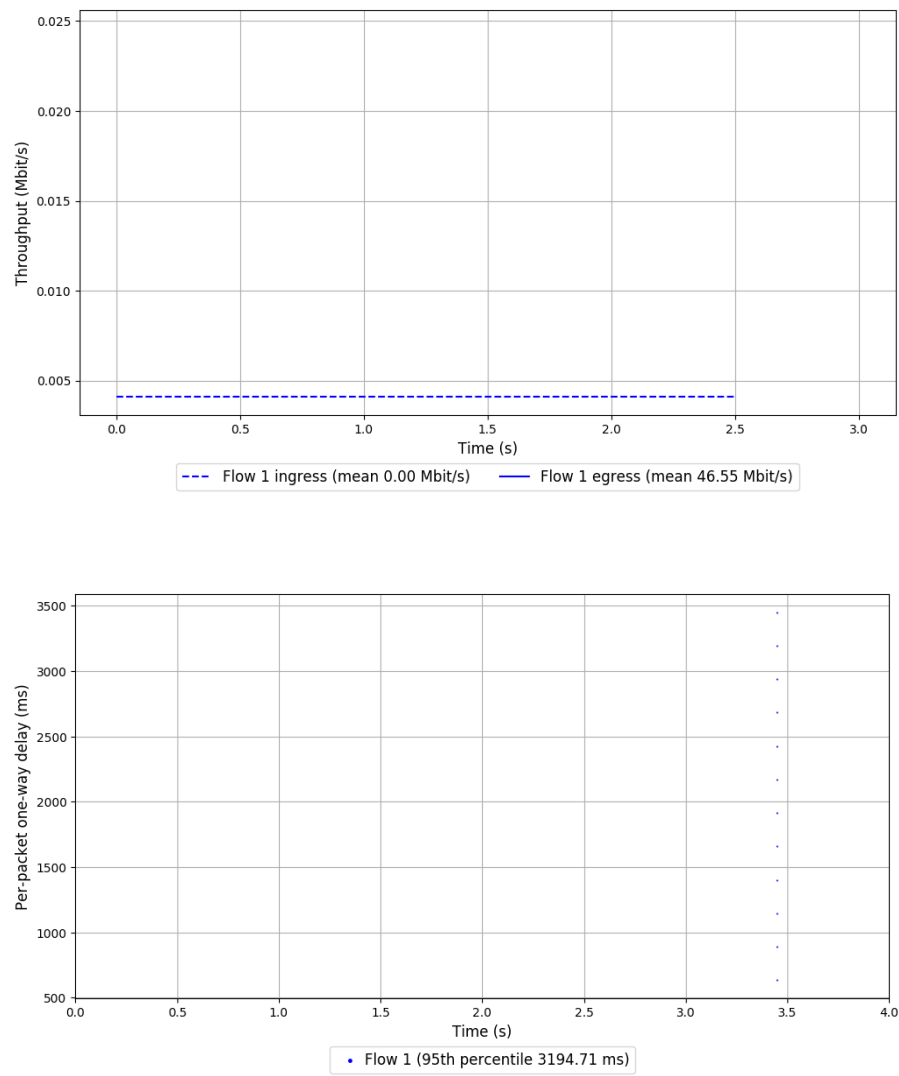
Start at: 2018-01-02 20:05:27

End at: 2018-01-02 20:05:57

Local clock offset: 0.39 ms

Remote clock offset: -2.687 ms

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

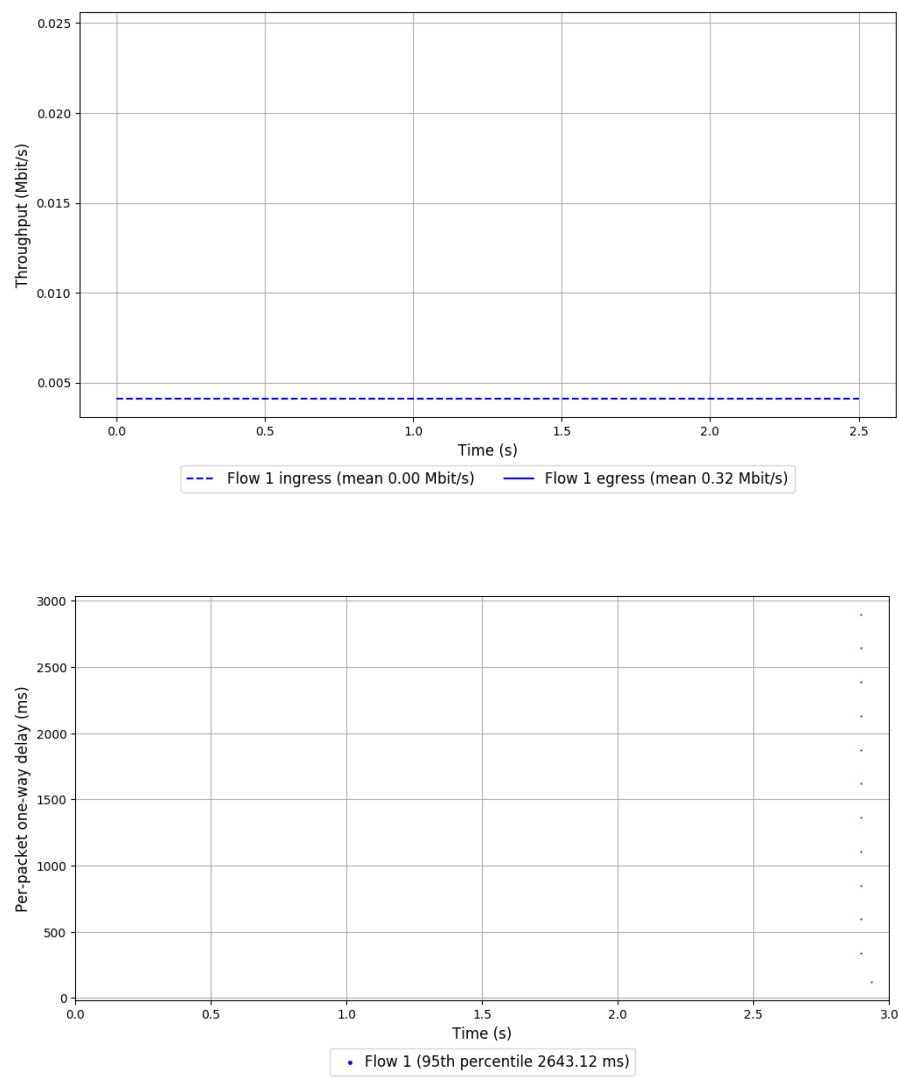
Start at: 2018-01-02 20:23:12

End at: 2018-01-02 20:23:42

Local clock offset: 0.335 ms

Remote clock offset: -2.501 ms

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

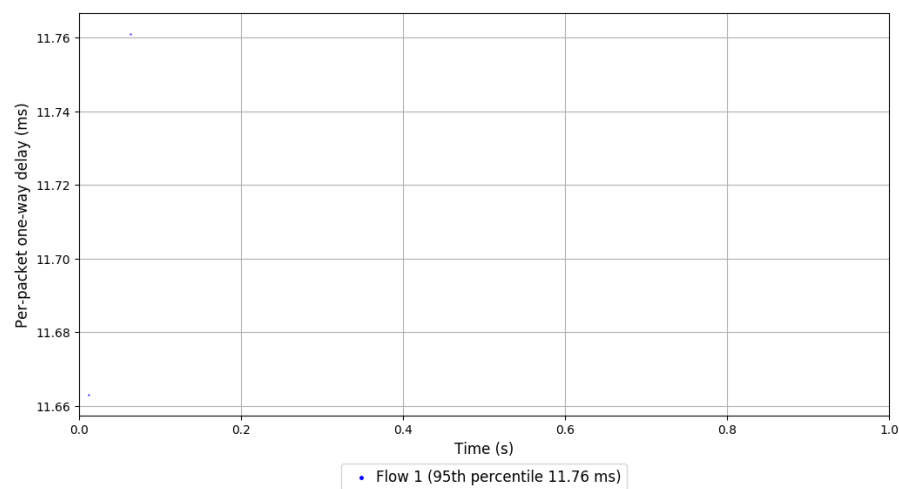
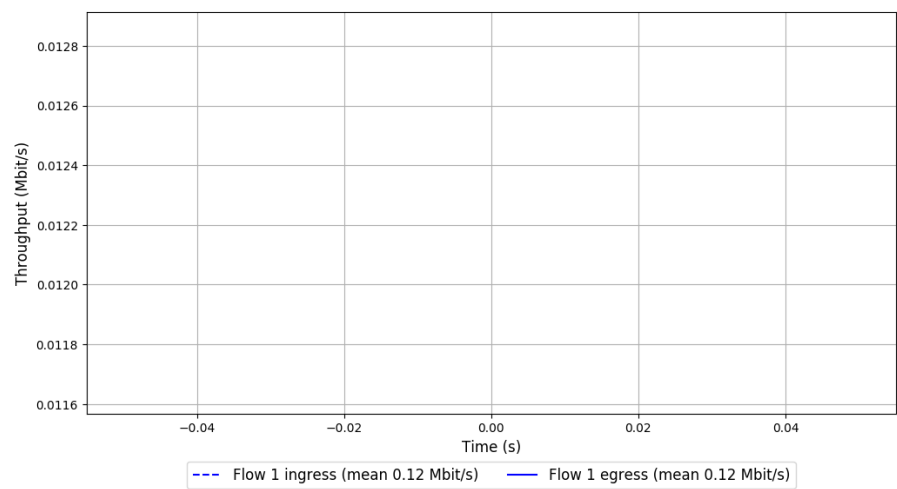
Start at: 2018-01-02 19:45:21

End at: 2018-01-02 19:45:51

Local clock offset: 0.127 ms

Remote clock offset: -2.906 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-01-02 20:03:05

End at: 2018-01-02 20:03:35

Local clock offset: 0.247 ms

Remote clock offset: -2.794 ms

Below is generated by plot.py at 2018-01-02 20:26:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 35.54 Mbit/s

95th percentile per-packet one-way delay: 204.464 ms

Loss rate: 0.31%

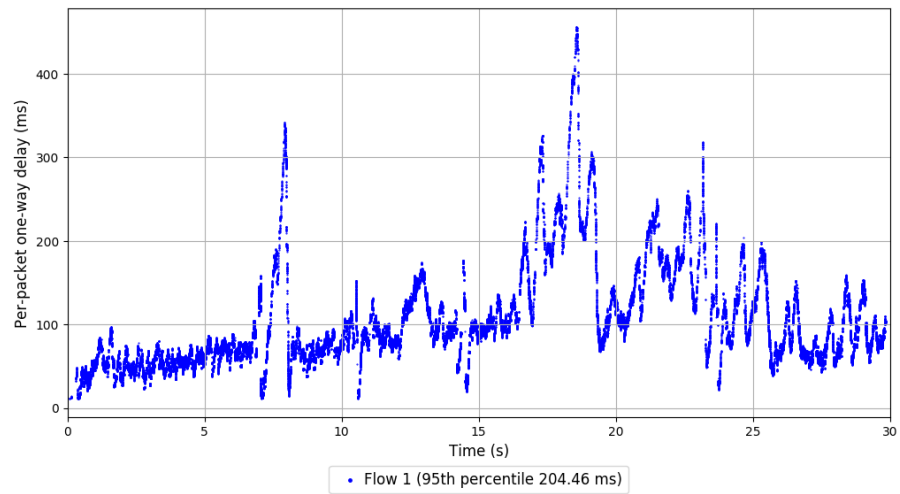
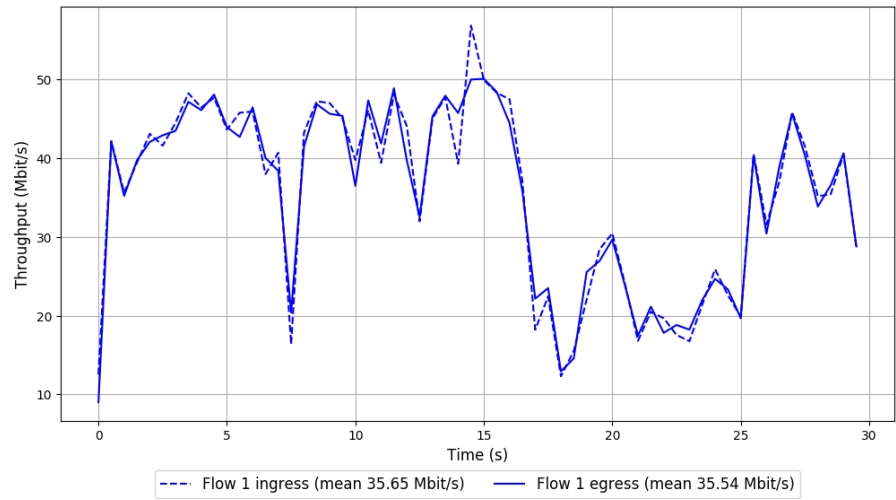
-- Flow 1:

Average throughput: 35.54 Mbit/s

95th percentile per-packet one-way delay: 204.464 ms

Loss rate: 0.31%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-01-02 20:20:50

End at: 2018-01-02 20:21:20

Local clock offset: 0.316 ms

Remote clock offset: -2.409 ms

Below is generated by plot.py at 2018-01-02 20:26:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 41.15 Mbit/s

95th percentile per-packet one-way delay: 193.164 ms

Loss rate: 0.19%

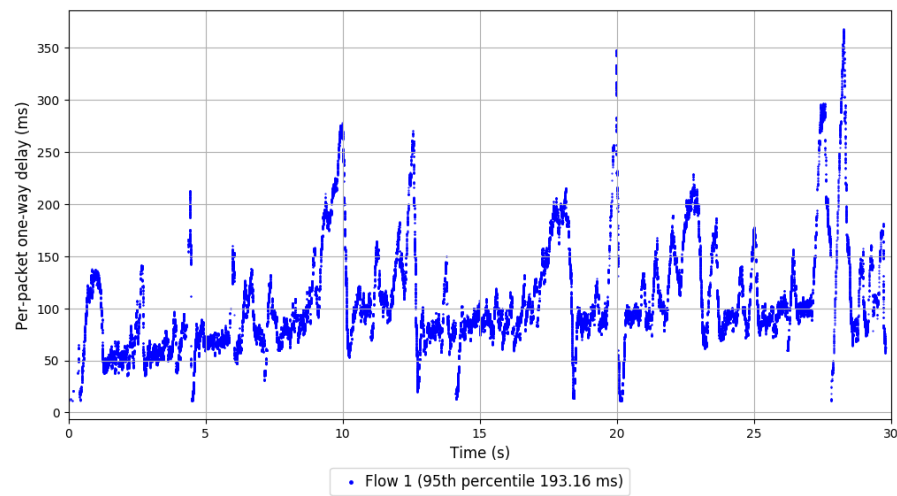
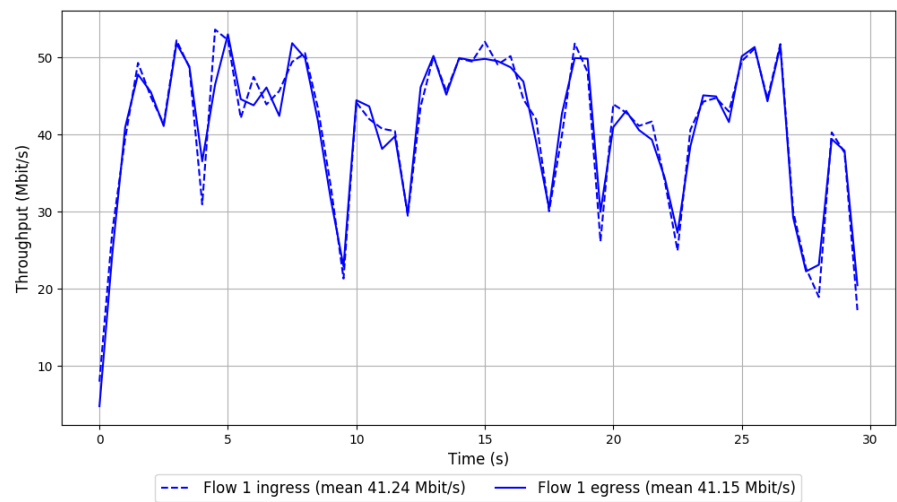
-- Flow 1:

Average throughput: 41.15 Mbit/s

95th percentile per-packet one-way delay: 193.164 ms

Loss rate: 0.19%

Run 3: Report of QUIC Cubic — Data Link



Run 1: Statistics of SCReAM

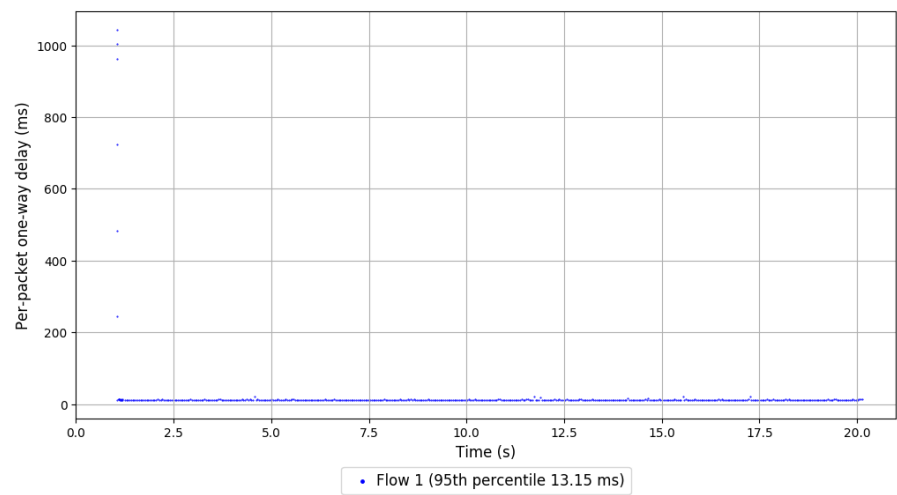
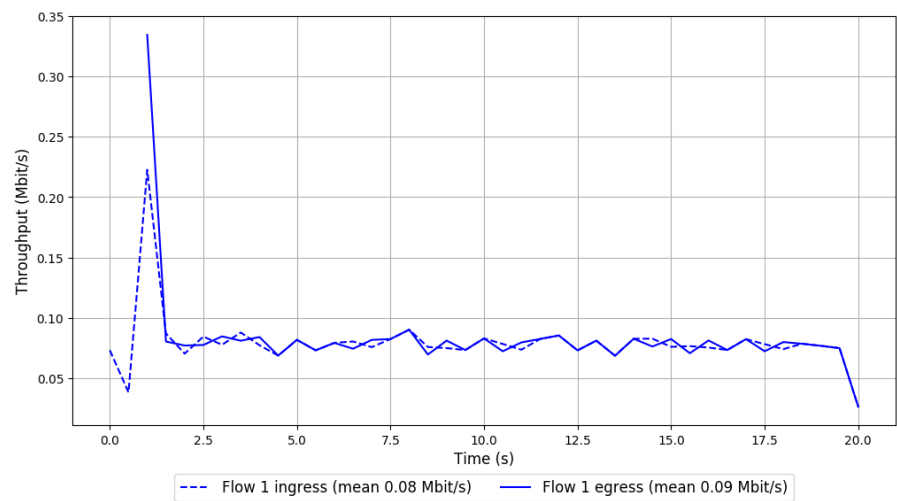
Start at: 2018-01-02 19:33:30

End at: 2018-01-02 19:34:00

Local clock offset: 0.117 ms

Remote clock offset: -2.927 ms

Run 1: Report of SReAM — Data Link

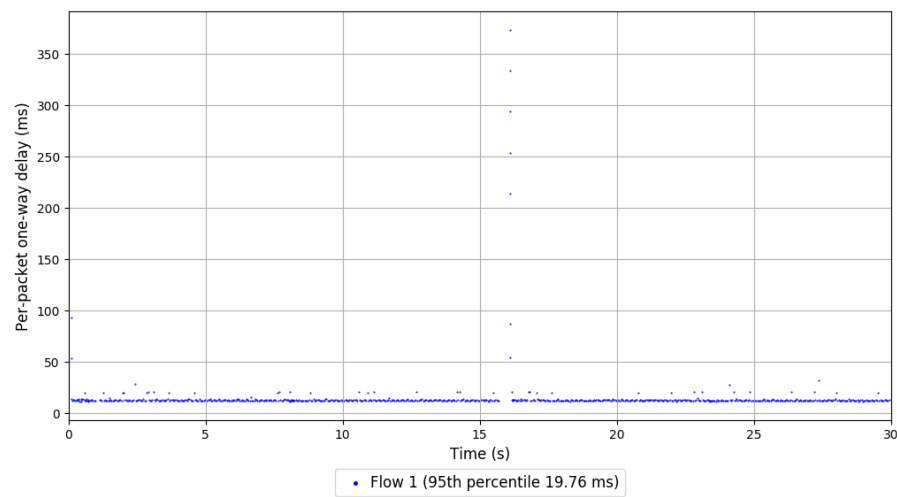
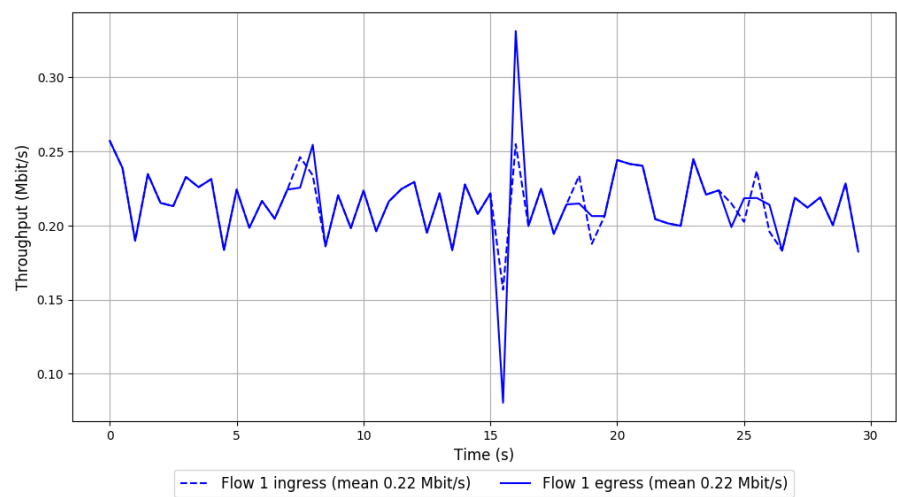


Run 2: Statistics of SCReAM

Start at: 2018-01-02 19:51:14
End at: 2018-01-02 19:51:44
Local clock offset: 0.291 ms
Remote clock offset: -2.905 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.760 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.760 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

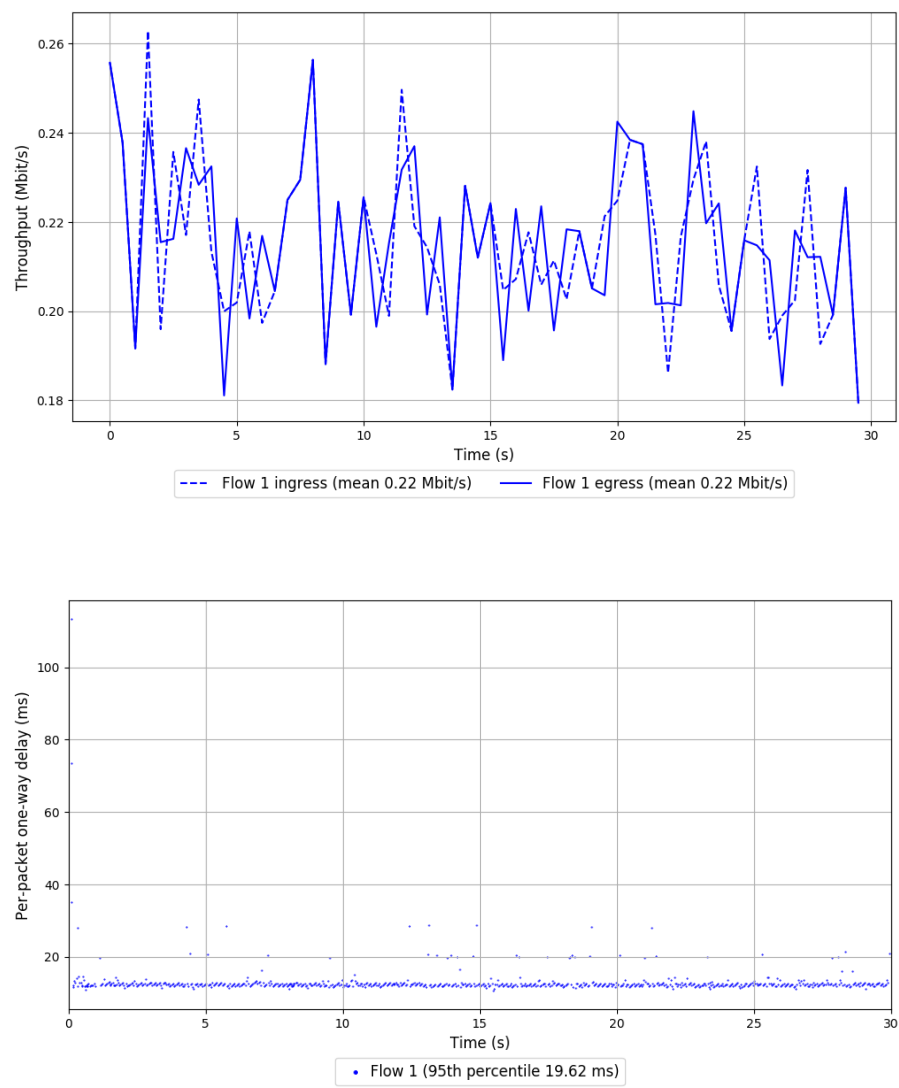


Run 3: Statistics of SCReAM

Start at: 2018-01-02 20:08:59
End at: 2018-01-02 20:09:29
Local clock offset: 0.258 ms
Remote clock offset: -2.719 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.621 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.621 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

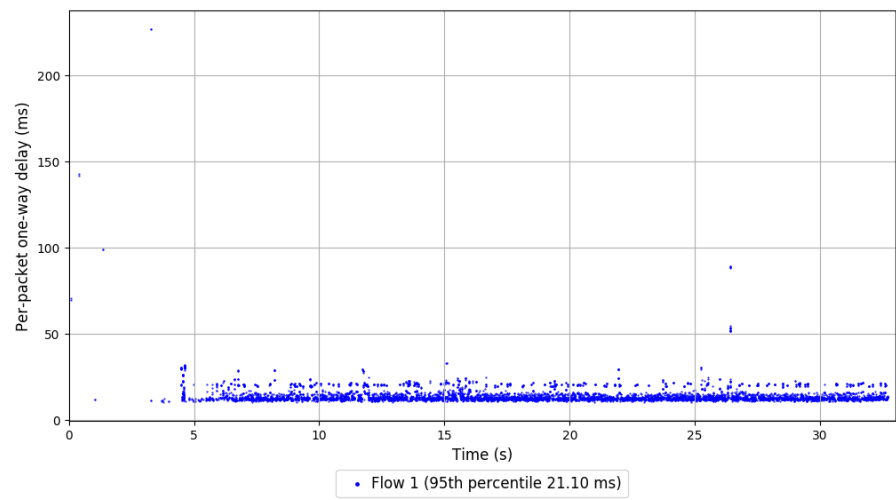
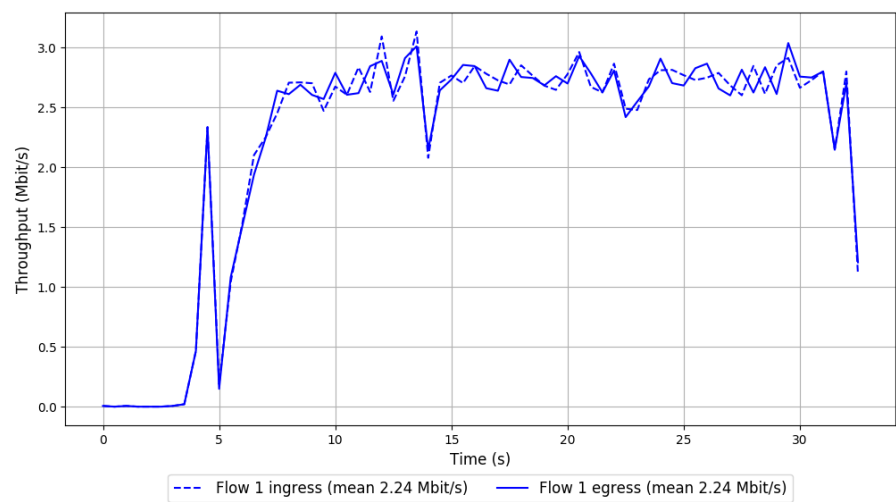


Run 1: Statistics of WebRTC media

Start at: 2018-01-02 19:40:35
End at: 2018-01-02 19:41:05
Local clock offset: 0.152 ms
Remote clock offset: -2.889 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.24 Mbit/s
95th percentile per-packet one-way delay: 21.099 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.24 Mbit/s
95th percentile per-packet one-way delay: 21.099 ms
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link

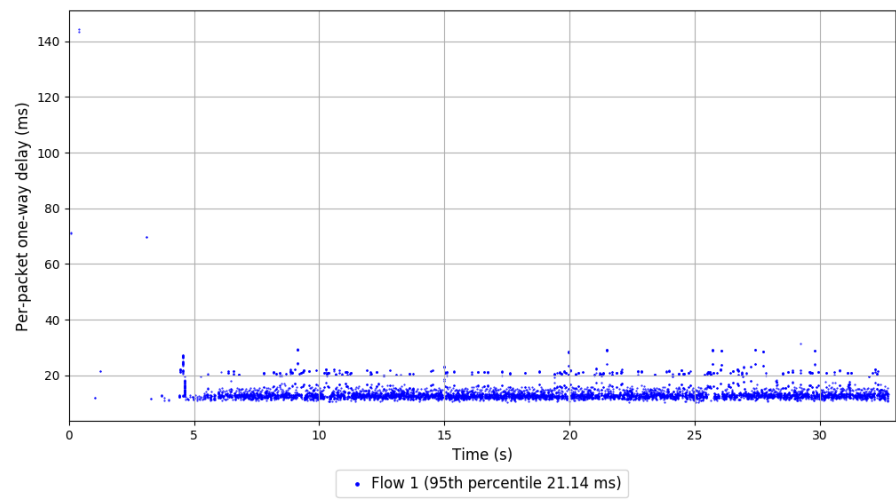
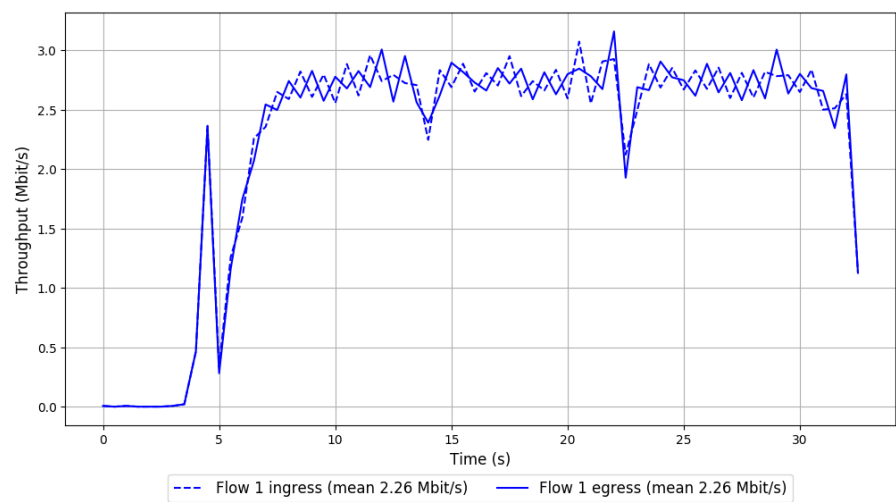


Run 2: Statistics of WebRTC media

Start at: 2018-01-02 19:58:19
End at: 2018-01-02 19:58:49
Local clock offset: 0.232 ms
Remote clock offset: -2.894 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 21.136 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 21.136 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

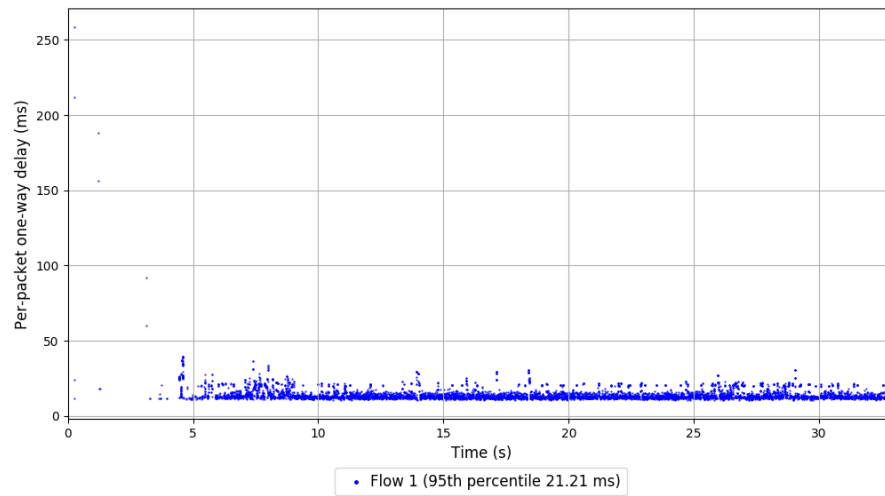
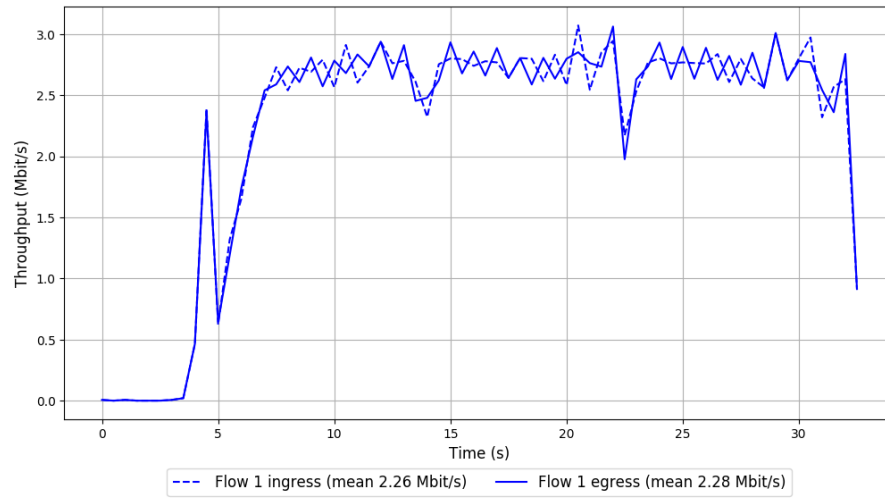


Run 3: Statistics of WebRTC media

Start at: 2018-01-02 20:16:03
End at: 2018-01-02 20:16:33
Local clock offset: 0.367 ms
Remote clock offset: -2.602 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 21.214 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 21.214 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

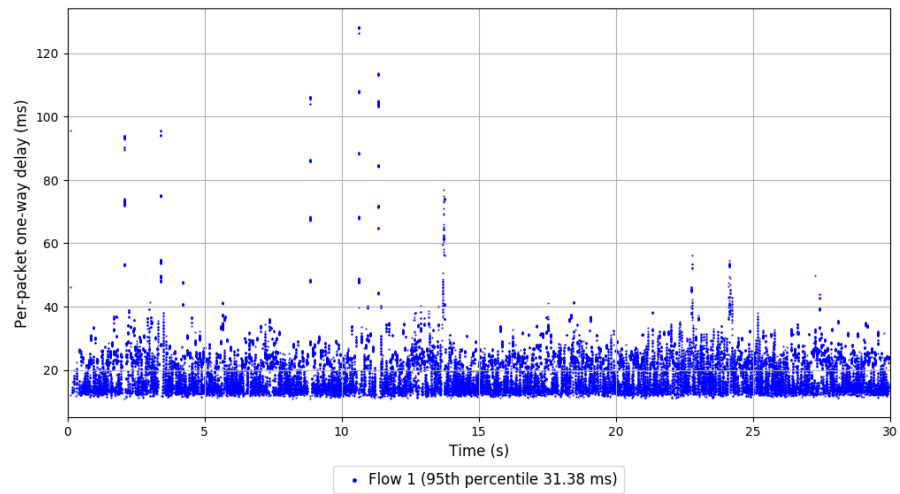
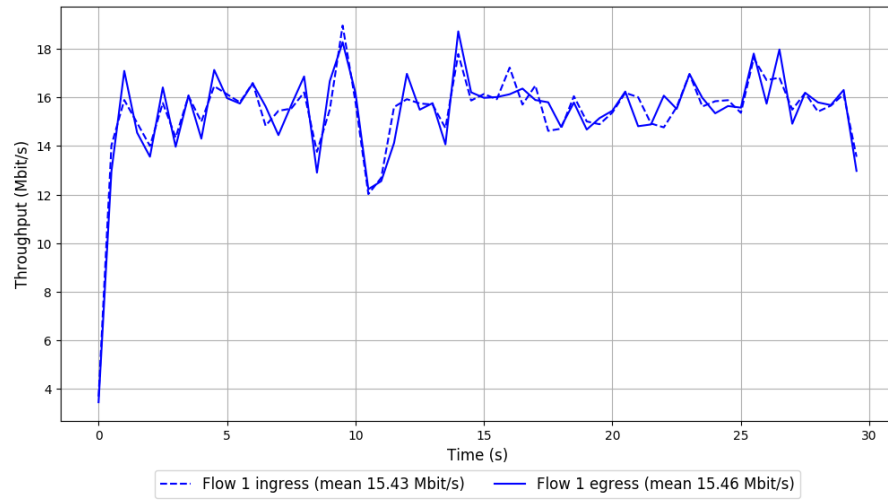


Run 1: Statistics of Sprout

Start at: 2018-01-02 19:32:19
End at: 2018-01-02 19:32:49
Local clock offset: 0.127 ms
Remote clock offset: -2.904 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.46 Mbit/s
95th percentile per-packet one-way delay: 31.384 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 15.46 Mbit/s
95th percentile per-packet one-way delay: 31.384 ms
Loss rate: 0.08%

Run 1: Report of Sprout — Data Link

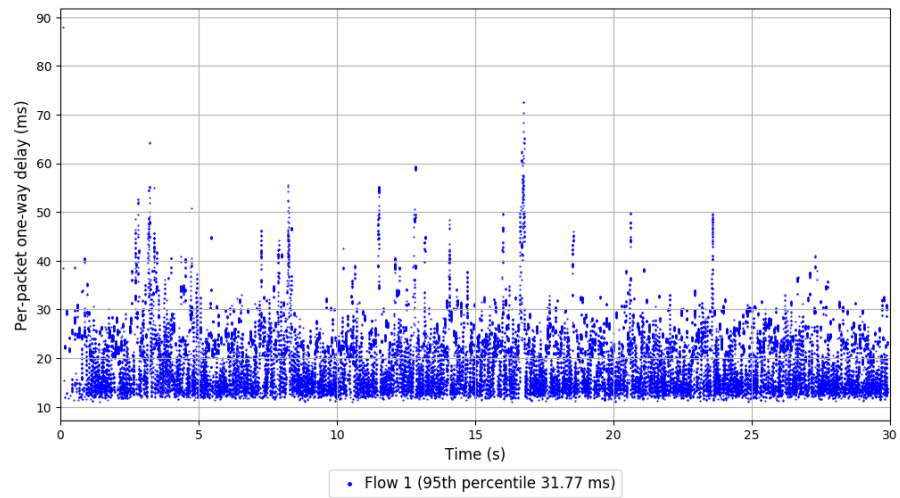
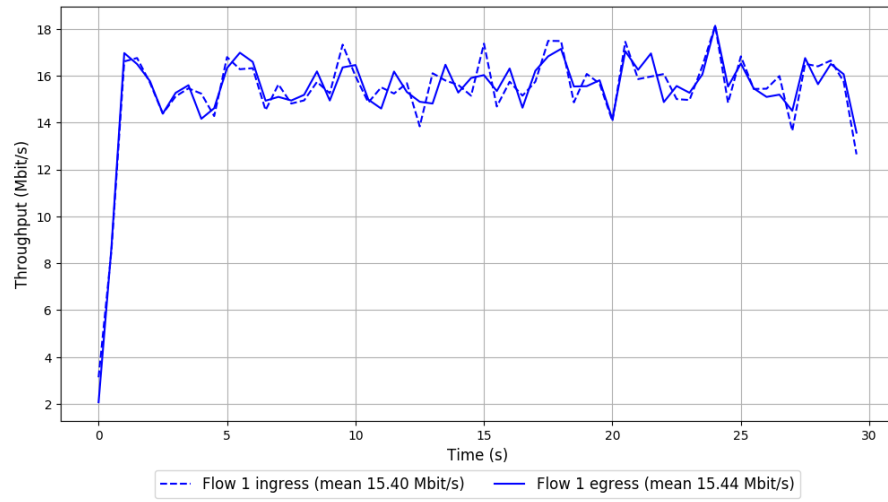


Run 2: Statistics of Sprout

Start at: 2018-01-02 19:50:03
End at: 2018-01-02 19:50:33
Local clock offset: 0.262 ms
Remote clock offset: -2.858 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.44 Mbit/s
95th percentile per-packet one-way delay: 31.767 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.44 Mbit/s
95th percentile per-packet one-way delay: 31.767 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

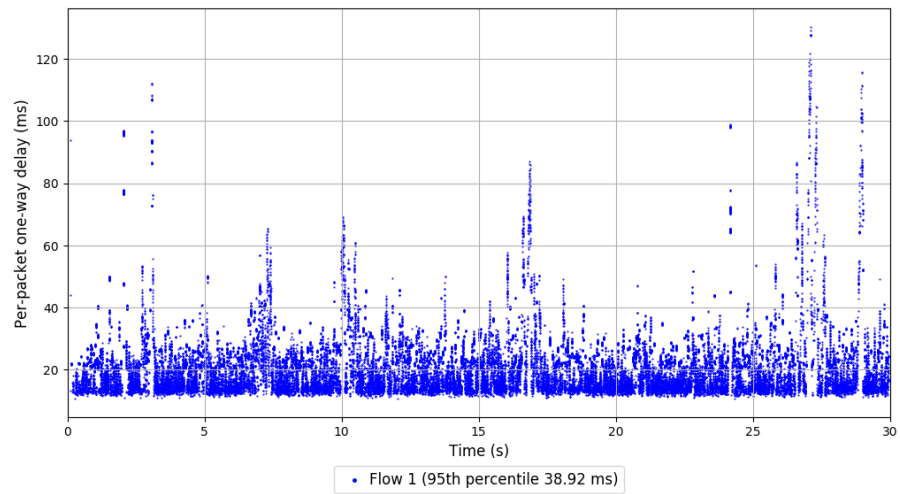
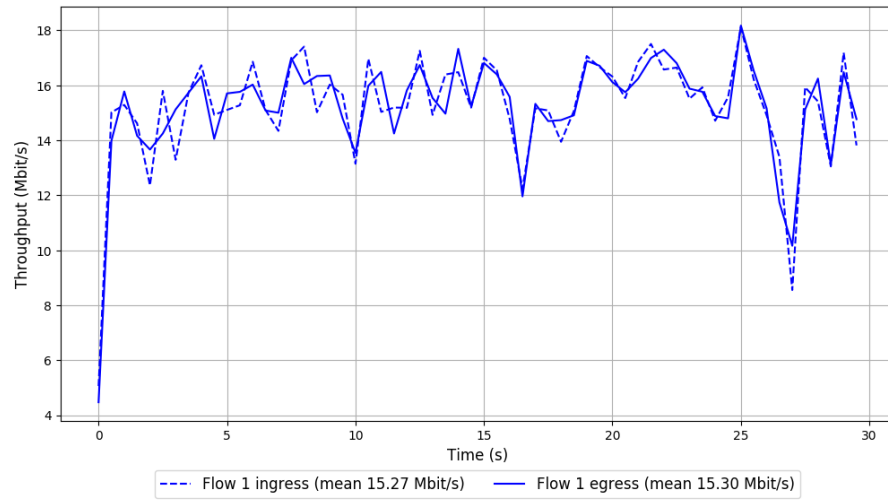


Run 3: Statistics of Sprout

Start at: 2018-01-02 20:07:48
End at: 2018-01-02 20:08:18
Local clock offset: 0.373 ms
Remote clock offset: -2.735 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.30 Mbit/s
95th percentile per-packet one-way delay: 38.924 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.30 Mbit/s
95th percentile per-packet one-way delay: 38.924 ms
Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-01-02 19:31:09

End at: 2018-01-02 19:31:39

Local clock offset: 0.134 ms

Remote clock offset: -2.941 ms

Below is generated by plot.py at 2018-01-02 20:26:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.48 Mbit/s

95th percentile per-packet one-way delay: 21.012 ms

Loss rate: 0.00%

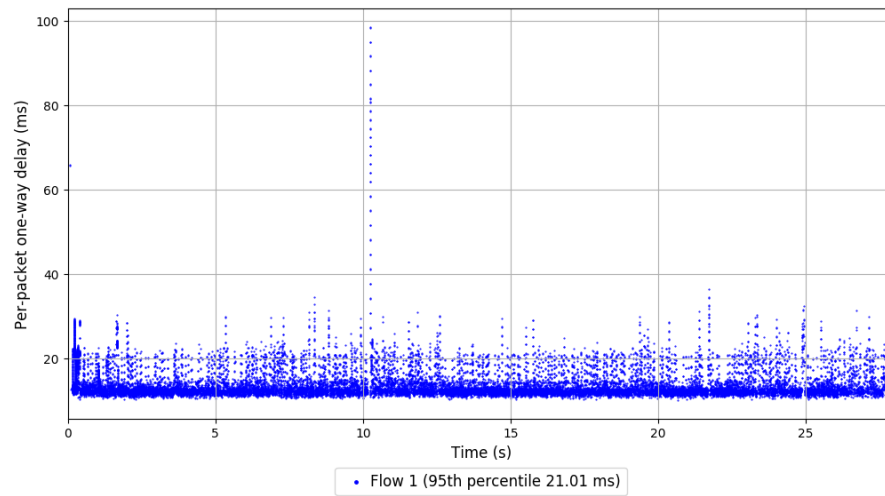
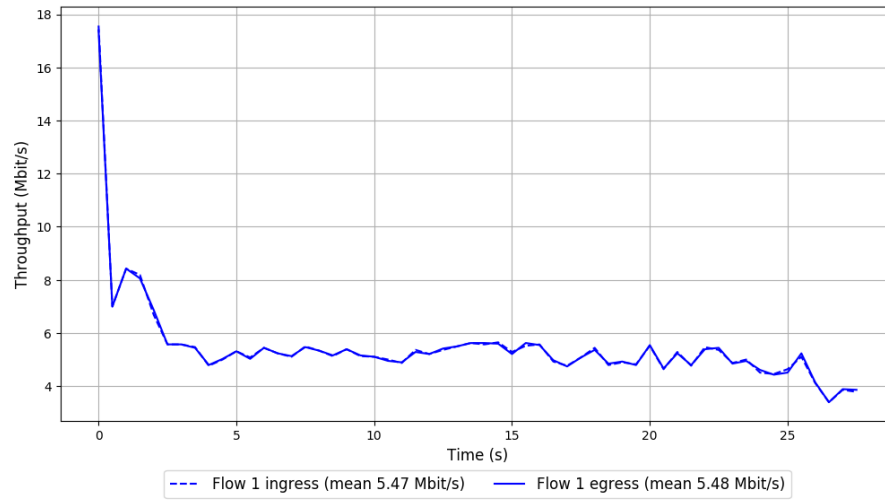
-- Flow 1:

Average throughput: 5.48 Mbit/s

95th percentile per-packet one-way delay: 21.012 ms

Loss rate: 0.00%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-01-02 19:48:53

End at: 2018-01-02 19:49:23

Local clock offset: 0.237 ms

Remote clock offset: -2.912 ms

Below is generated by plot.py at 2018-01-02 20:26:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.93 Mbit/s

95th percentile per-packet one-way delay: 20.973 ms

Loss rate: 0.00%

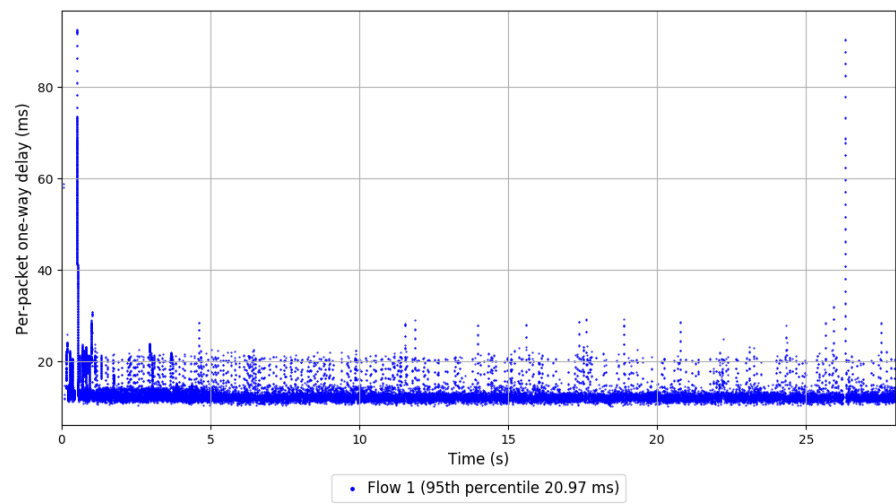
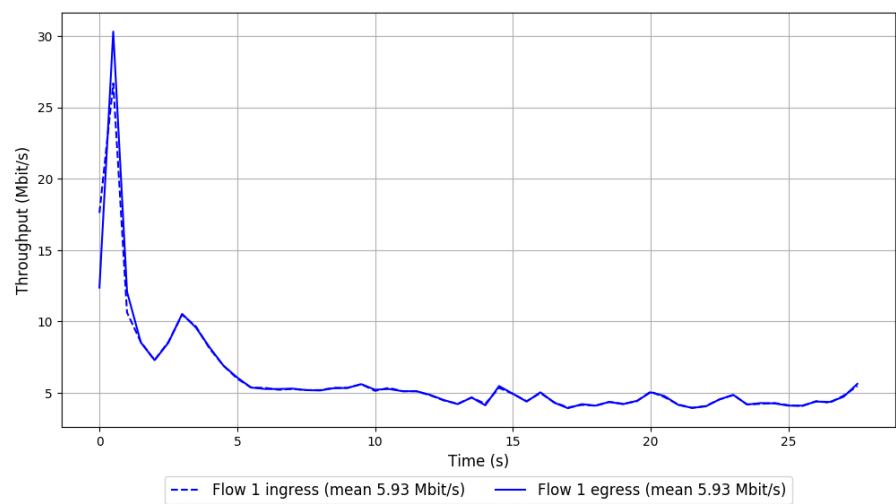
-- Flow 1:

Average throughput: 5.93 Mbit/s

95th percentile per-packet one-way delay: 20.973 ms

Loss rate: 0.00%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-01-02 20:06:37

End at: 2018-01-02 20:07:07

Local clock offset: 0.282 ms

Remote clock offset: -2.698 ms

Below is generated by plot.py at 2018-01-02 20:26:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.65 Mbit/s

95th percentile per-packet one-way delay: 20.105 ms

Loss rate: 0.00%

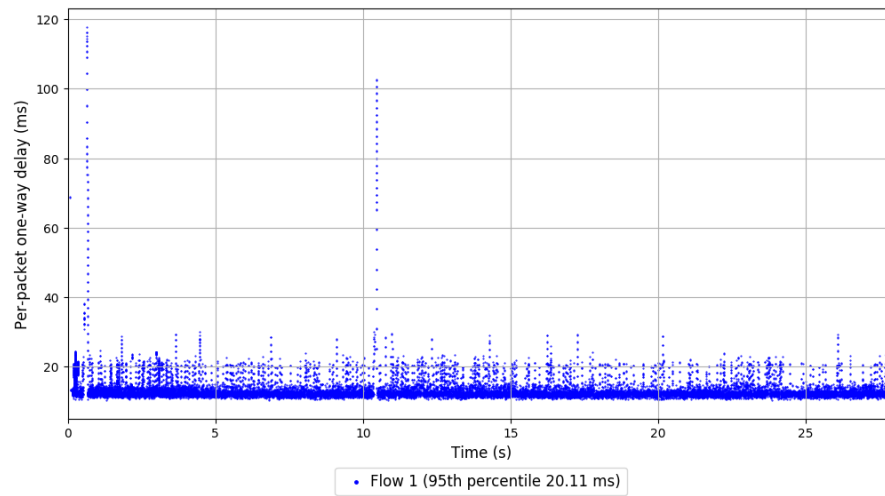
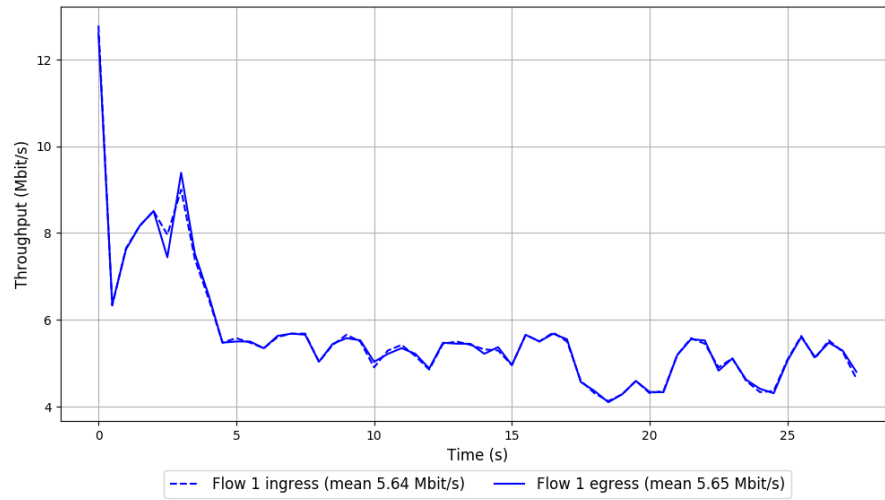
-- Flow 1:

Average throughput: 5.65 Mbit/s

95th percentile per-packet one-way delay: 20.105 ms

Loss rate: 0.00%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-01-02 19:39:24

End at: 2018-01-02 19:39:54

Local clock offset: 0.135 ms

Remote clock offset: -3.006 ms

Below is generated by plot.py at 2018-01-02 20:26:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.21 Mbit/s

95th percentile per-packet one-way delay: 26.167 ms

Loss rate: 0.00%

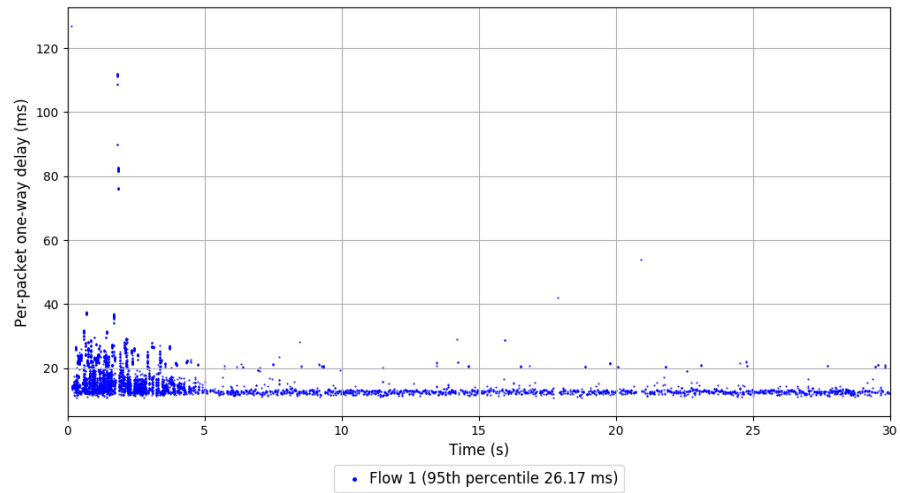
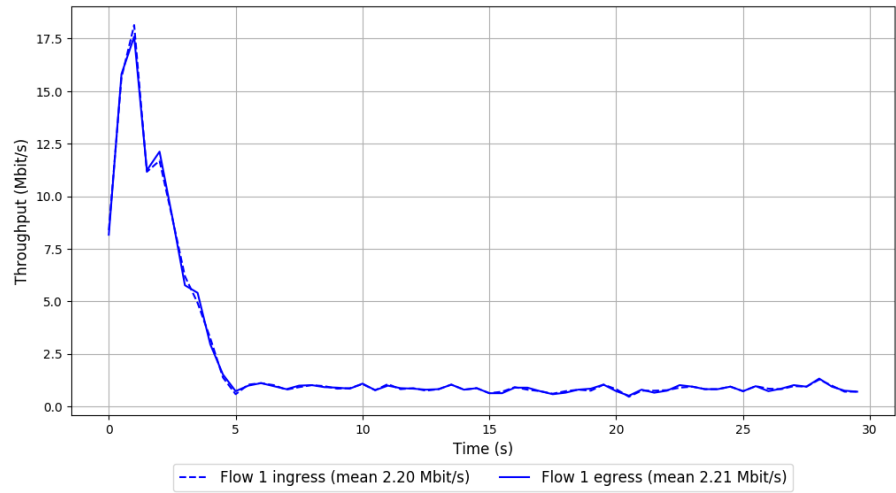
-- Flow 1:

Average throughput: 2.21 Mbit/s

95th percentile per-packet one-way delay: 26.167 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link

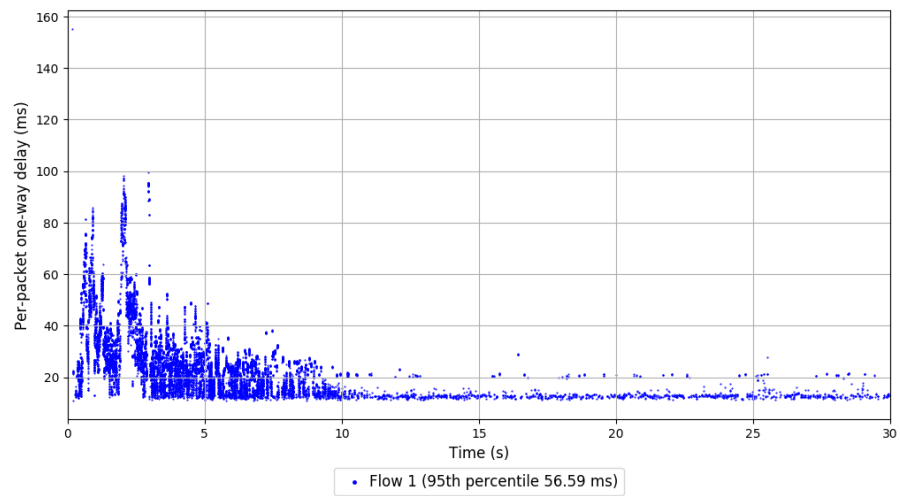
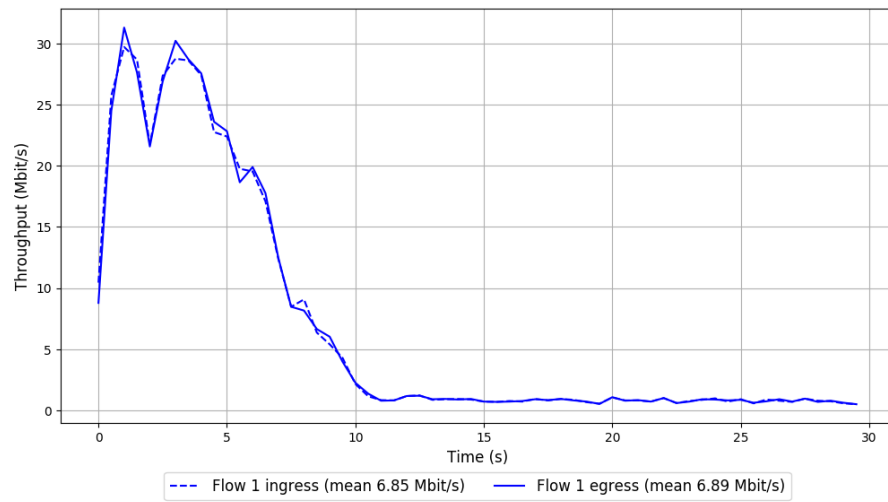


Run 2: Statistics of TCP Vegas

Start at: 2018-01-02 19:57:08
End at: 2018-01-02 19:57:38
Local clock offset: 0.222 ms
Remote clock offset: -2.895 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.89 Mbit/s
95th percentile per-packet one-way delay: 56.589 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.89 Mbit/s
95th percentile per-packet one-way delay: 56.589 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

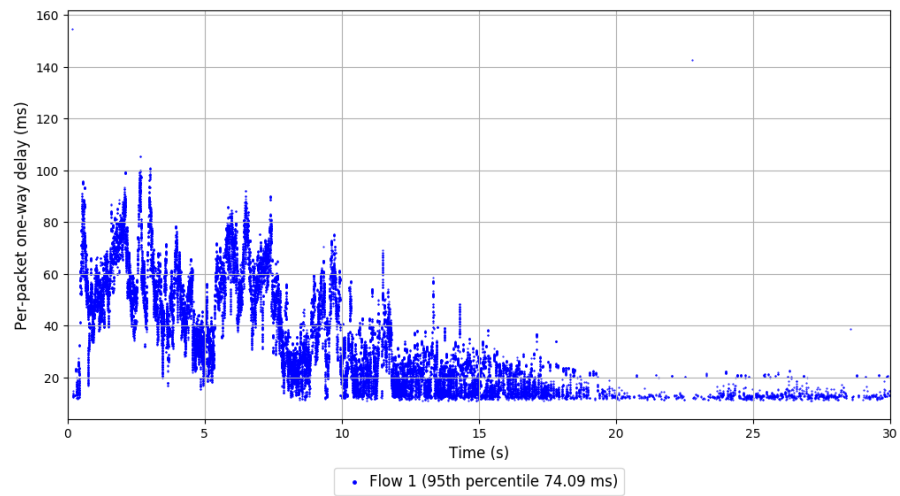
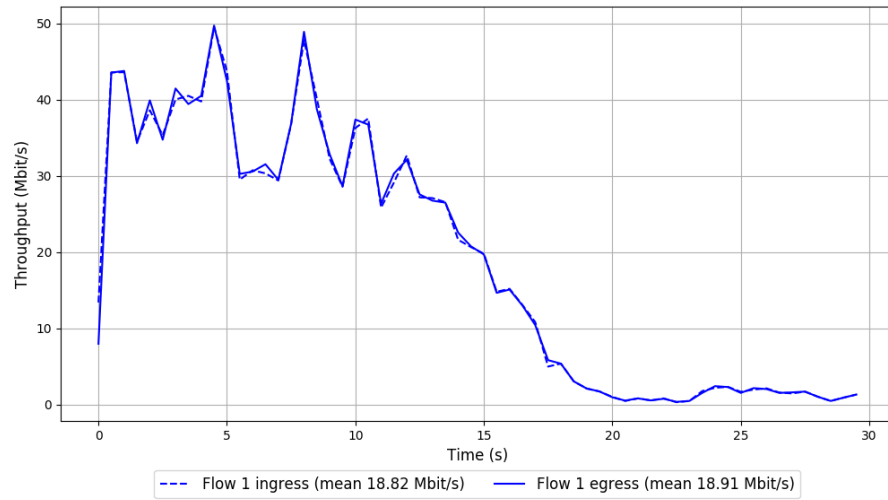


Run 3: Statistics of TCP Vegas

Start at: 2018-01-02 20:14:52
End at: 2018-01-02 20:15:22
Local clock offset: 0.255 ms
Remote clock offset: -2.613 ms

Below is generated by plot.py at 2018-01-02 20:26:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 18.91 Mbit/s
95th percentile per-packet one-way delay: 74.090 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 18.91 Mbit/s
95th percentile per-packet one-way delay: 74.090 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link

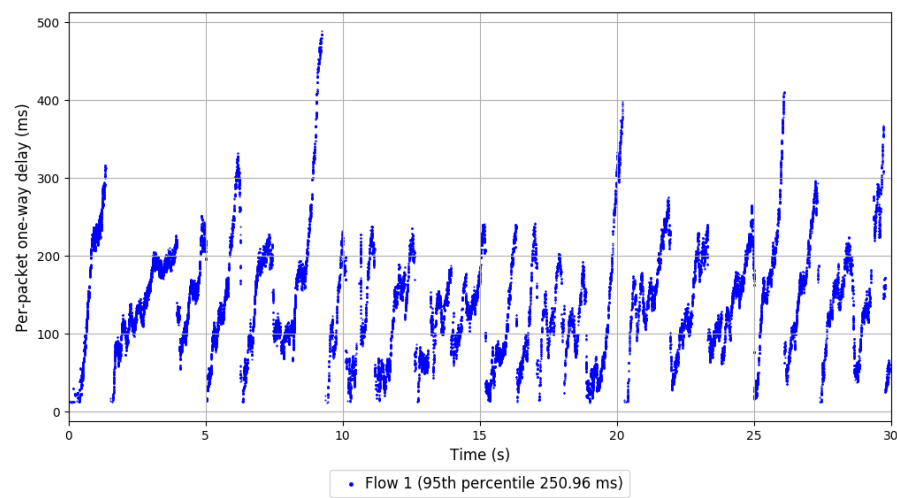
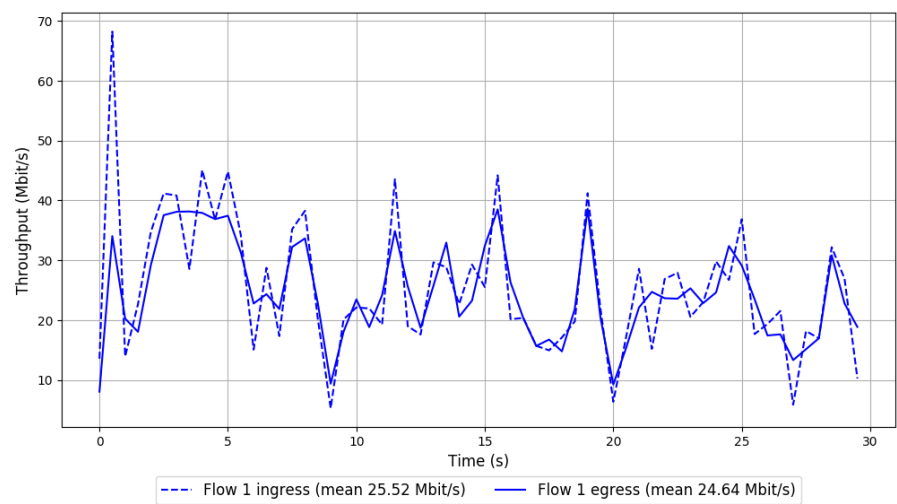


Run 1: Statistics of Verus

Start at: 2018-01-02 19:46:31
End at: 2018-01-02 19:47:01
Local clock offset: 0.127 ms
Remote clock offset: -2.855 ms

Below is generated by plot.py at 2018-01-02 20:26:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 24.64 Mbit/s
95th percentile per-packet one-way delay: 250.958 ms
Loss rate: 3.41%
-- Flow 1:
Average throughput: 24.64 Mbit/s
95th percentile per-packet one-way delay: 250.958 ms
Loss rate: 3.41%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-01-02 20:04:17

End at: 2018-01-02 20:04:47

Local clock offset: 0.266 ms

Remote clock offset: -2.808 ms

Run 2: Report of Verus — Data Link

Figure is missing

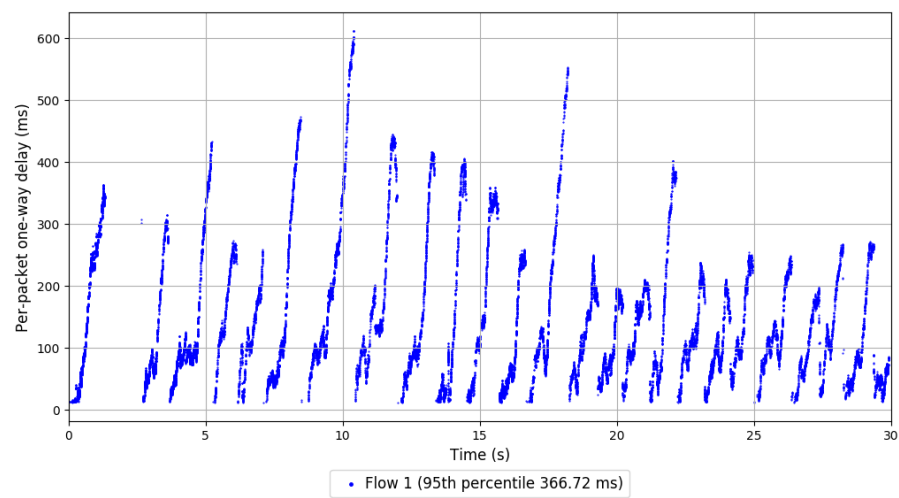
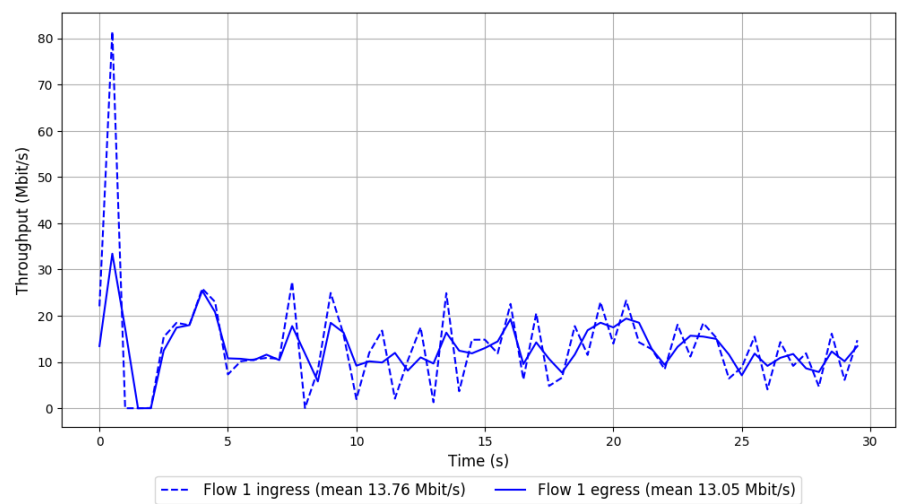
Figure is missing

Run 3: Statistics of Verus

Start at: 2018-01-02 20:22:02
End at: 2018-01-02 20:22:32
Local clock offset: 0.32 ms
Remote clock offset: -2.513 ms

Below is generated by plot.py at 2018-01-02 20:26:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.05 Mbit/s
95th percentile per-packet one-way delay: 366.717 ms
Loss rate: 5.13%
-- Flow 1:
Average throughput: 13.05 Mbit/s
95th percentile per-packet one-way delay: 366.717 ms
Loss rate: 5.13%

Run 3: Report of Verus — Data Link

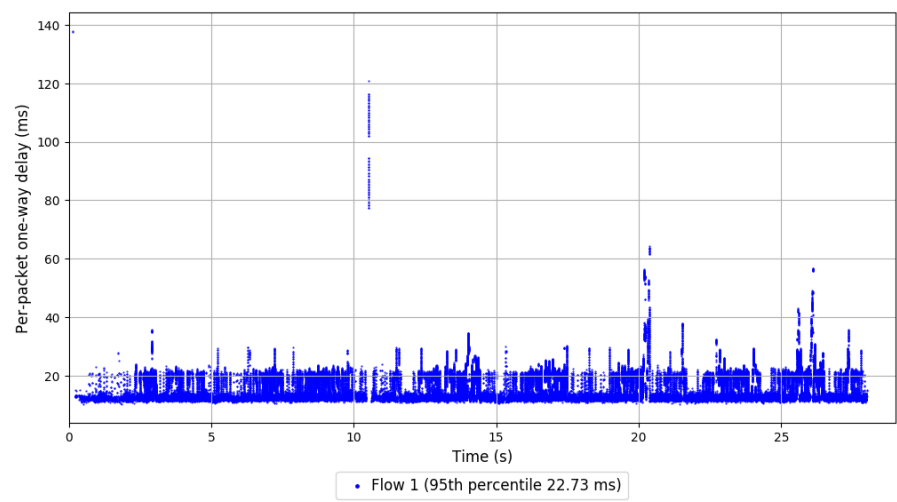
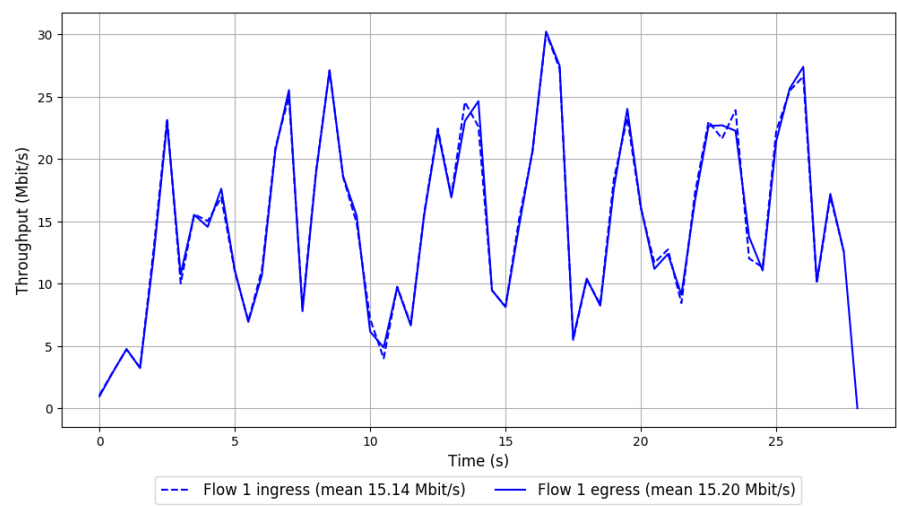


Run 1: Statistics of Copa

Start at: 2018-01-02 19:35:51
End at: 2018-01-02 19:36:21
Local clock offset: 0.028 ms
Remote clock offset: -2.909 ms

Below is generated by plot.py at 2018-01-02 20:26:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.20 Mbit/s
95th percentile per-packet one-way delay: 22.731 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.20 Mbit/s
95th percentile per-packet one-way delay: 22.731 ms
Loss rate: 0.00%

Run 1: Report of Copa — Data Link

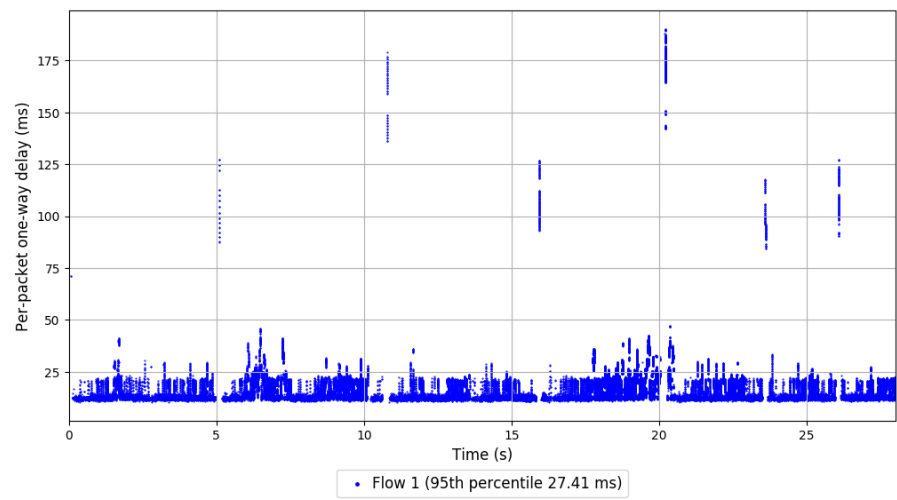
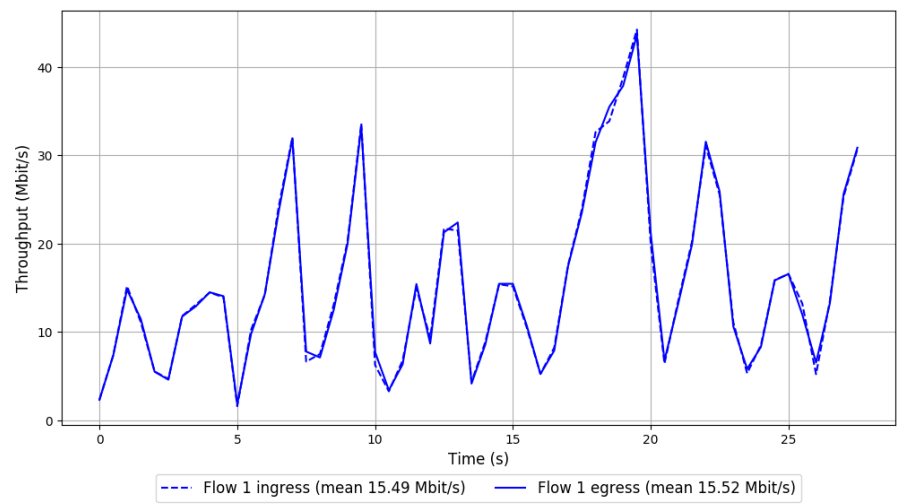


Run 2: Statistics of Copa

Start at: 2018-01-02 19:53:34
End at: 2018-01-02 19:54:04
Local clock offset: 0.203 ms
Remote clock offset: -2.916 ms

Below is generated by plot.py at 2018-01-02 20:26:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.52 Mbit/s
95th percentile per-packet one-way delay: 27.413 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.52 Mbit/s
95th percentile per-packet one-way delay: 27.413 ms
Loss rate: 0.00%

Run 2: Report of Copa — Data Link

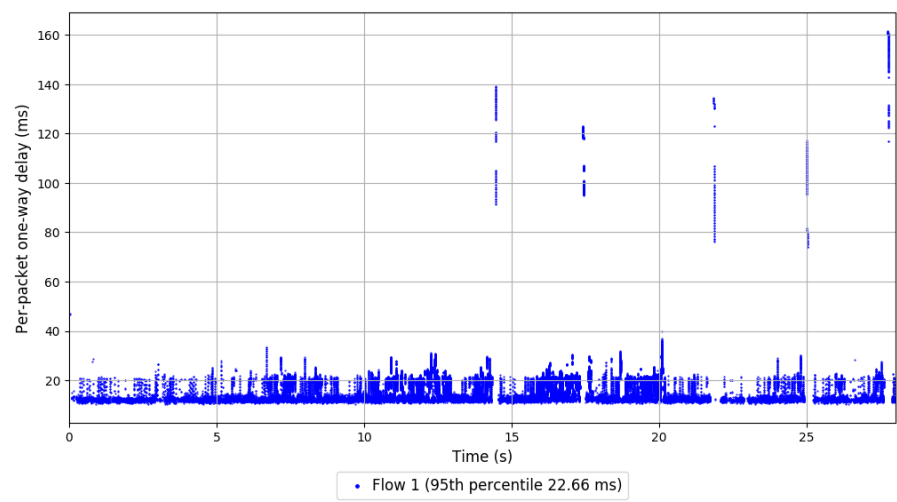
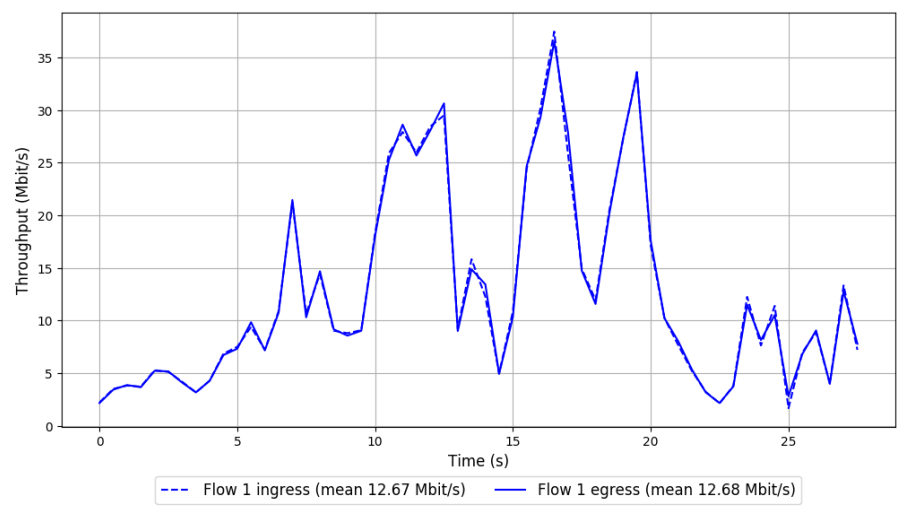


Run 3: Statistics of Copa

Start at: 2018-01-02 20:11:19
End at: 2018-01-02 20:11:49
Local clock offset: 0.341 ms
Remote clock offset: -2.685 ms

Below is generated by plot.py at 2018-01-02 20:26:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.68 Mbit/s
95th percentile per-packet one-way delay: 22.655 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.68 Mbit/s
95th percentile per-packet one-way delay: 22.655 ms
Loss rate: 0.00%

Run 3: Report of Copa — Data Link



Run 1: Statistics of FillP

Start at: 2018-01-02 19:44:09

End at: 2018-01-02 19:44:39

Local clock offset: 0.201 ms

Remote clock offset: -2.93 ms

Below is generated by plot.py at 2018-01-02 20:26:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 39.82 Mbit/s

95th percentile per-packet one-way delay: 243.086 ms

Loss rate: 42.81%

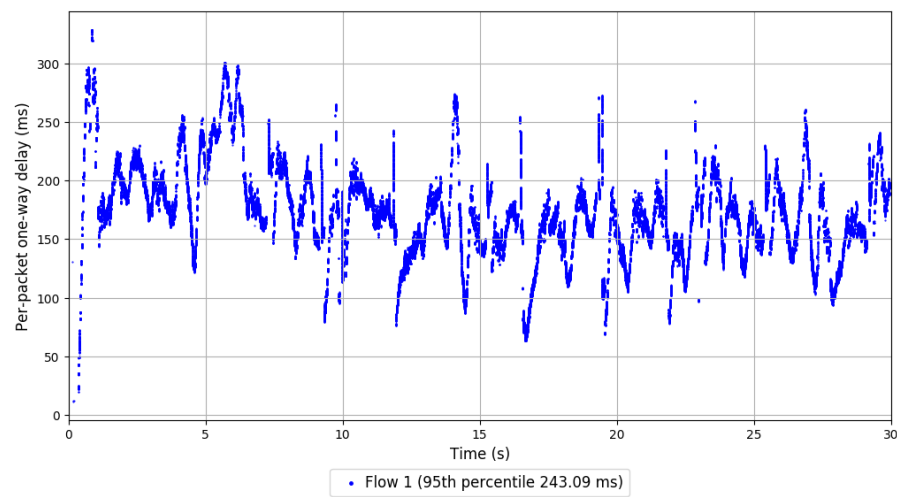
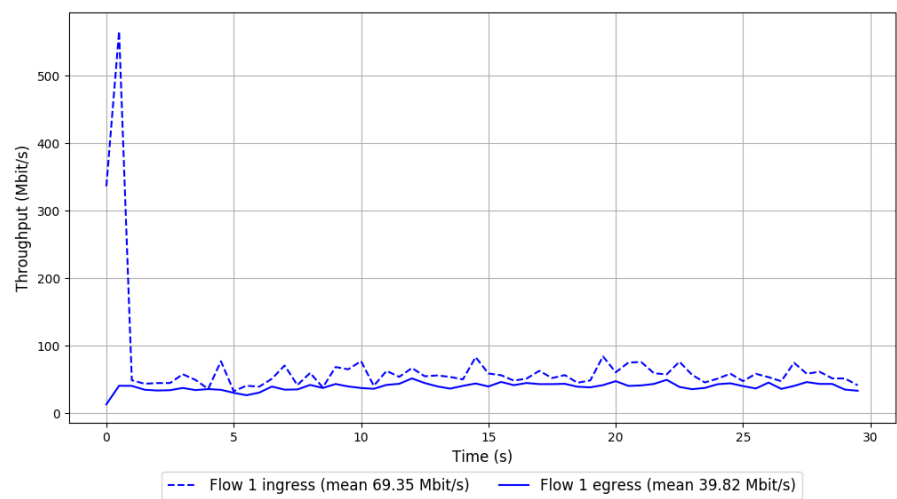
-- Flow 1:

Average throughput: 39.82 Mbit/s

95th percentile per-packet one-way delay: 243.086 ms

Loss rate: 42.81%

Run 1: Report of FillP — Data Link

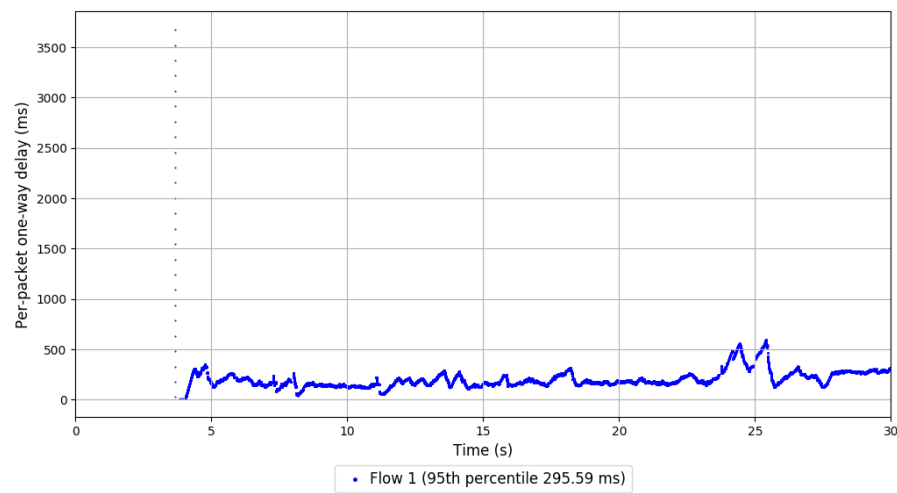
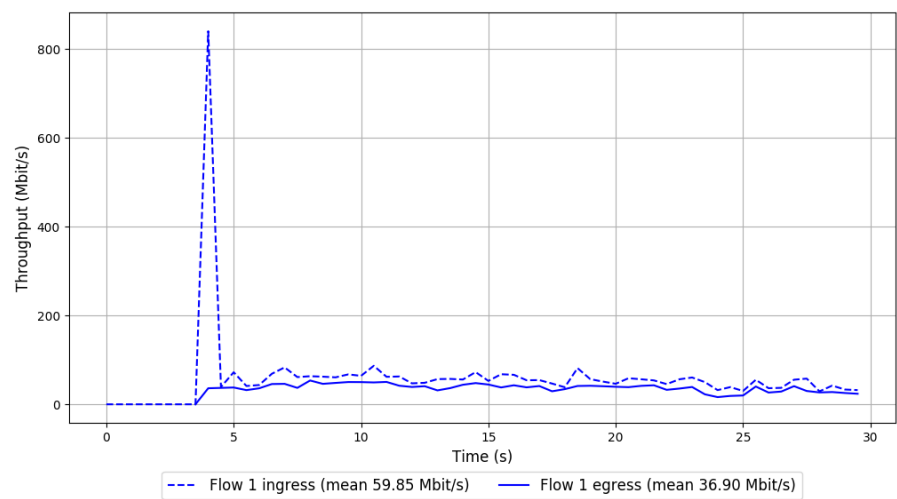


Run 2: Statistics of FillP

Start at: 2018-01-02 20:01:53
End at: 2018-01-02 20:02:23
Local clock offset: 0.273 ms
Remote clock offset: -2.882 ms

Below is generated by plot.py at 2018-01-02 20:26:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 36.90 Mbit/s
95th percentile per-packet one-way delay: 295.587 ms
Loss rate: 45.86%
-- Flow 1:
Average throughput: 36.90 Mbit/s
95th percentile per-packet one-way delay: 295.587 ms
Loss rate: 45.86%

Run 2: Report of FillP — Data Link

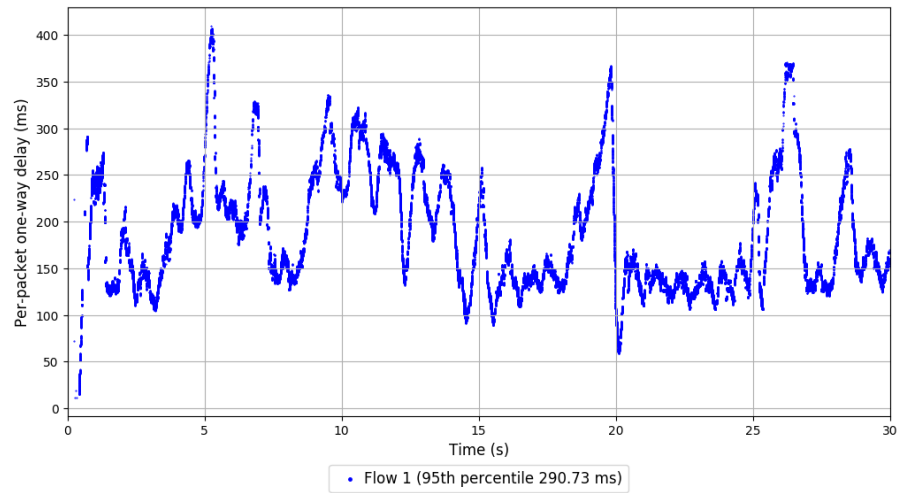
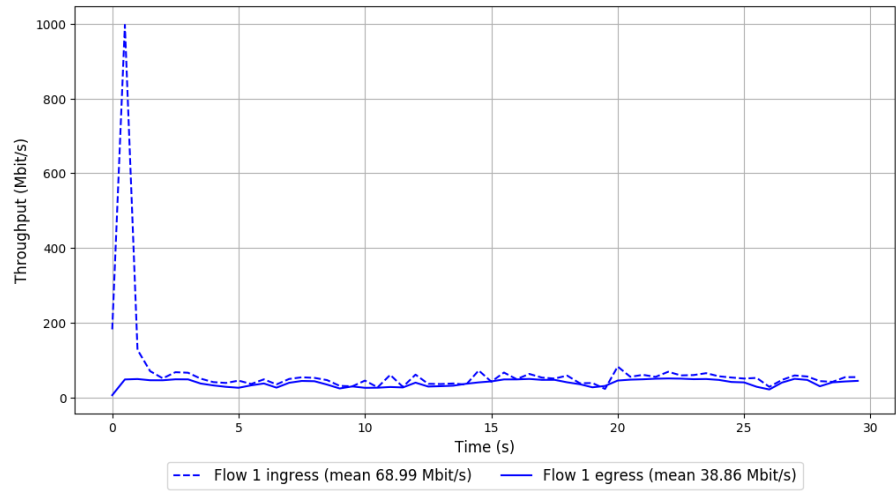


Run 3: Statistics of FillP

Start at: 2018-01-02 20:19:37
End at: 2018-01-02 20:20:07
Local clock offset: 0.414 ms
Remote clock offset: -2.435 ms

Below is generated by plot.py at 2018-01-02 20:26:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 38.86 Mbit/s
95th percentile per-packet one-way delay: 290.734 ms
Loss rate: 44.06%
-- Flow 1:
Average throughput: 38.86 Mbit/s
95th percentile per-packet one-way delay: 290.734 ms
Loss rate: 44.06%

Run 3: Report of FillP — Data Link

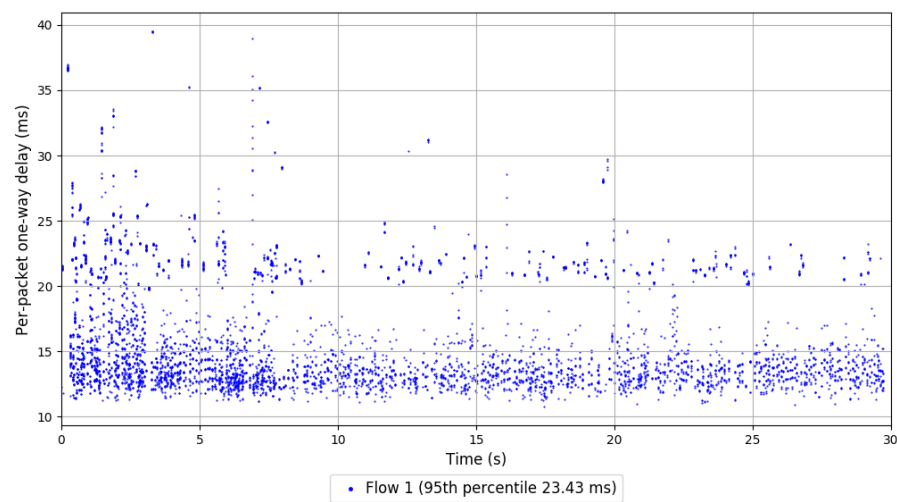
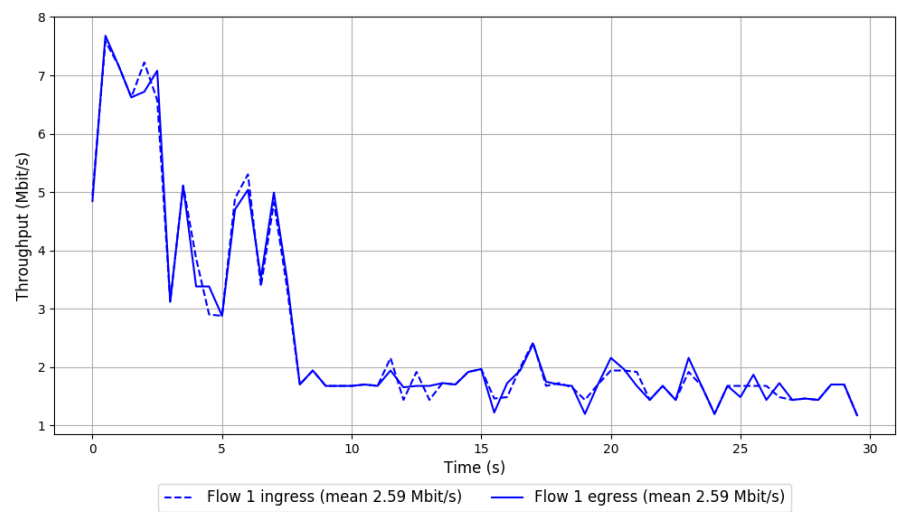


```
Run 1: Statistics of Indigo

Start at: 2018-01-02 19:34:40
End at: 2018-01-02 19:35:10
Local clock offset: 0.11 ms
Remote clock offset: -3.027 ms

# Below is generated by plot.py at 2018-01-02 20:26:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.59 Mbit/s
95th percentile per-packet one-way delay: 23.430 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.59 Mbit/s
95th percentile per-packet one-way delay: 23.430 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-01-02 19:52:24

End at: 2018-01-02 19:52:54

Local clock offset: 0.276 ms

Remote clock offset: -2.781 ms

Below is generated by plot.py at 2018-01-02 20:26:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 22.185 ms

Loss rate: 0.00%

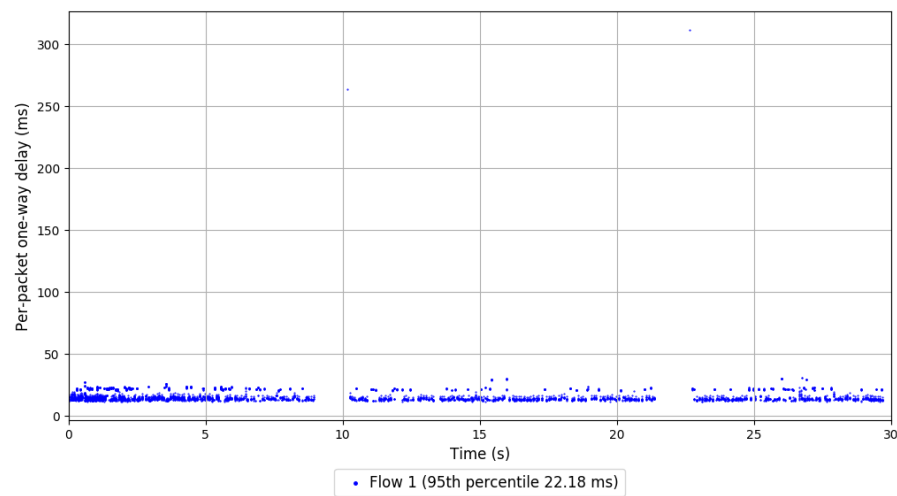
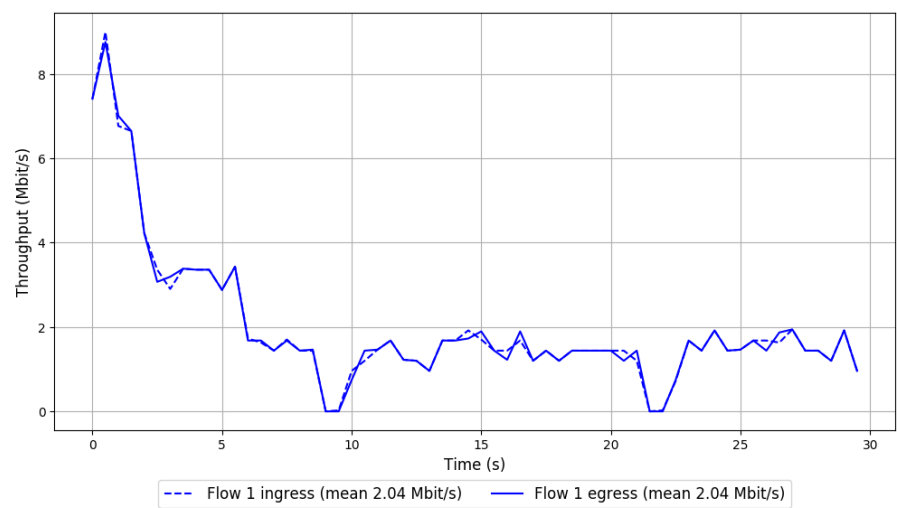
-- Flow 1:

Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 22.185 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-01-02 20:10:09
End at: 2018-01-02 20:10:39
Local clock offset: 0.262 ms
Remote clock offset: -2.619 ms

Below is generated by plot.py at 2018-01-02 20:26:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 23.410 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 23.410 ms
Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

