

Pantheon Report

Generated at 2018-01-31 12:30:41 (UTC).

Data path: AWS Korea Ethernet (*local*) → China ppp0 (*remote*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

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

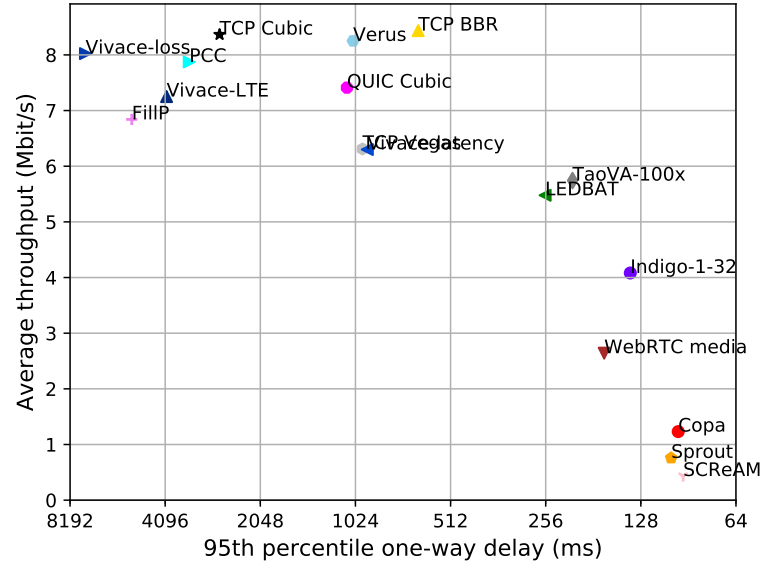
Tested BBR with qdisc of Fair Queuing (*fq*), and other schemes with the default Linux qdisc (*pfifo_fast*).

NTP offsets were measured against `ntp.nict.jp` and have been applied to correct the timestamps in logs.

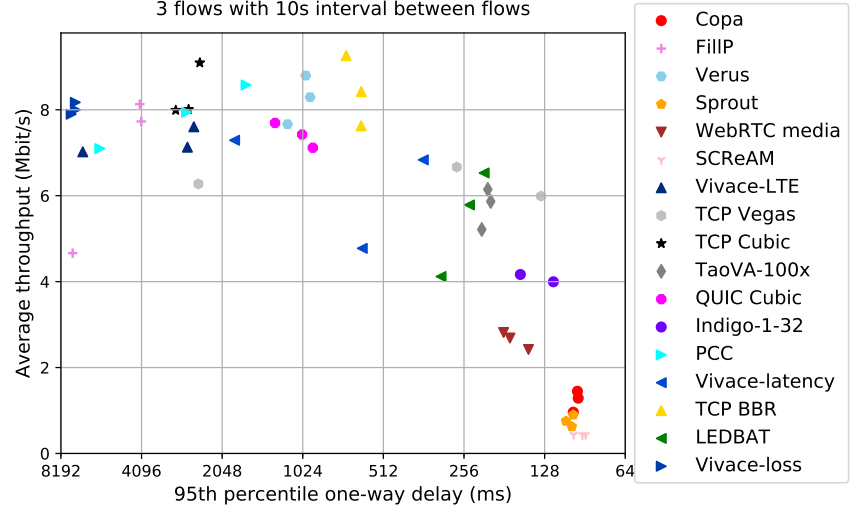
Git summary:

```
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 AWS Korea Ethernet to China ppp0, 3 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from AWS Korea Ethernet to China ppp0, 3 runs of 30s each per scheme
 3 flows with 10s interval between flows



scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	5.63	2.57	3.39	601.49	649.04	678.20	0.46	0.79	2.59
TCP Cubic	3	7.78	0.94	0.09	2740.21	2721.28	2694.80	4.84	29.69	44.77
LEDBAT	3	4.30	1.40	0.75	252.61	265.37	284.19	0.30	0.75	0.63
PCC	3	6.40	0.92	2.76	1767.75	1585.22	3491.30	11.74	15.21	32.95
QUIC Cubic	3	6.36	1.36	0.52	1072.64	1136.48	1290.75	3.05	5.47	15.67
SCReAM	3	0.22	0.22	0.22	88.42	100.67	97.40	0.08	0.06	0.00
WebRTC media	3	1.64	0.88	0.14	157.75	173.55	204.08	0.54	0.98	1.41
Sprout	3	0.35	0.40	0.43	101.62	99.72	104.07	0.08	0.00	0.00
TaoVA-100x	3	3.15	2.69	2.42	193.24	225.15	245.55	0.04	0.08	0.25
TCP Vegas	3	2.28	5.14	1.83	271.39	1001.49	287.71	0.07	0.50	1.08
Verus	3	7.10	1.75	0.02	1025.63	1018.63	950.84	2.25	3.89	7.21
Copa	3	0.62	0.57	0.68	97.10	97.24	96.93	0.08	0.04	0.06
FillP	3	6.24	1.07	0.00	5212.77	5134.61	5021.30	27.12	78.50	94.37
Indigo-1-32	2	2.12	2.13	1.69	133.62	141.05	131.00	0.04	0.03	0.12
Vivace-latency	3	4.07	2.68	1.53	1226.57	940.66	963.03	1.64	2.68	5.85
Vivace-loss	3	8.02	0.00	0.00	7321.06	6968.62	7222.92	79.10	86.15	73.63
Vivace-LTE	3	5.57	2.26	0.60	3899.24	4043.90	4464.04	17.36	23.09	45.02

Run 1: Statistics of TCP BBR

Start at: 2018-01-31 11:19:07

End at: 2018-01-31 11:19:37

Local clock offset: -1.325 ms

Remote clock offset: 4.694 ms

Below is generated by plot.py at 2018-01-31 12:29:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.63 Mbit/s

95th percentile per-packet one-way delay: 619.891 ms

Loss rate: 0.75%

-- Flow 1:

Average throughput: 5.20 Mbit/s

95th percentile per-packet one-way delay: 494.286 ms

Loss rate: 0.41%

-- Flow 2:

Average throughput: 2.16 Mbit/s

95th percentile per-packet one-way delay: 603.579 ms

Loss rate: 0.78%

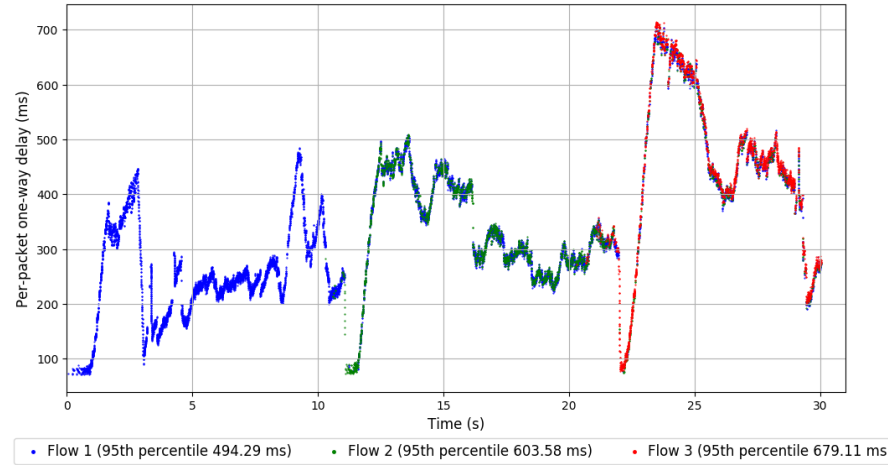
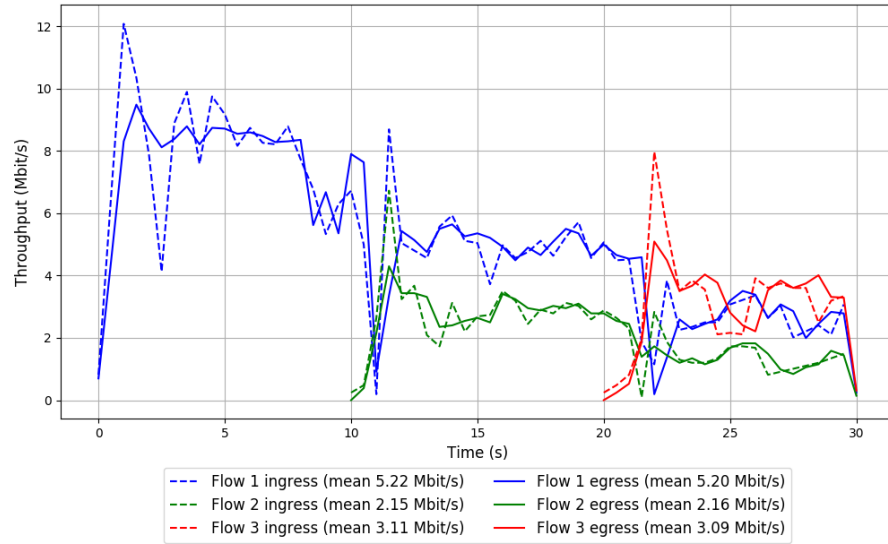
-- Flow 3:

Average throughput: 3.09 Mbit/s

95th percentile per-packet one-way delay: 679.107 ms

Loss rate: 2.37%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-01-31 11:47:21

End at: 2018-01-31 11:47:51

Local clock offset: -0.61 ms

Remote clock offset: 4.159 ms

Below is generated by plot.py at 2018-01-31 12:29:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 9.26 Mbit/s

95th percentile per-packet one-way delay: 705.252 ms

Loss rate: 0.87%

-- Flow 1:

Average throughput: 5.65 Mbit/s

95th percentile per-packet one-way delay: 699.304 ms

Loss rate: 0.52%

-- Flow 2:

Average throughput: 3.57 Mbit/s

95th percentile per-packet one-way delay: 712.289 ms

Loss rate: 0.77%

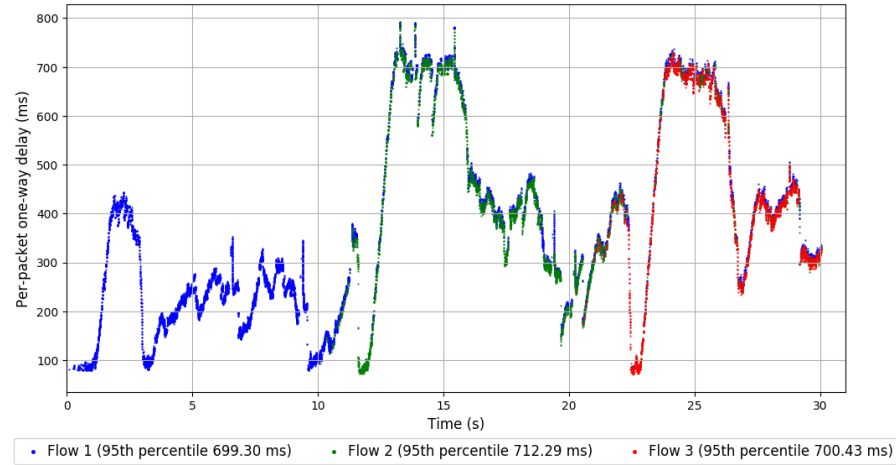
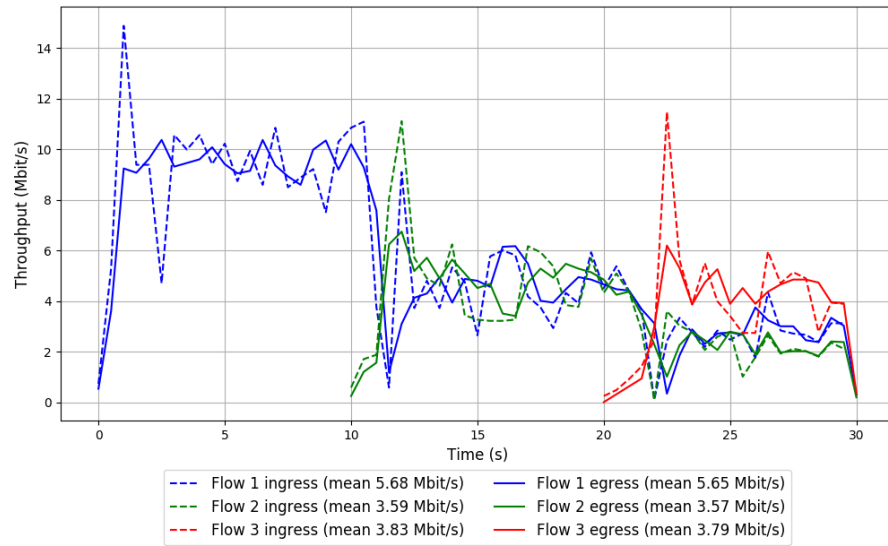
-- Flow 3:

Average throughput: 3.79 Mbit/s

95th percentile per-packet one-way delay: 700.432 ms

Loss rate: 2.58%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-01-31 12:18:10

End at: 2018-01-31 12:18:40

Local clock offset: -0.67 ms

Remote clock offset: 2.672 ms

Below is generated by plot.py at 2018-01-31 12:29:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.42 Mbit/s

95th percentile per-packet one-way delay: 619.387 ms

Loss rate: 0.81%

-- Flow 1:

Average throughput: 6.03 Mbit/s

95th percentile per-packet one-way delay: 610.872 ms

Loss rate: 0.44%

-- Flow 2:

Average throughput: 1.99 Mbit/s

95th percentile per-packet one-way delay: 631.259 ms

Loss rate: 0.81%

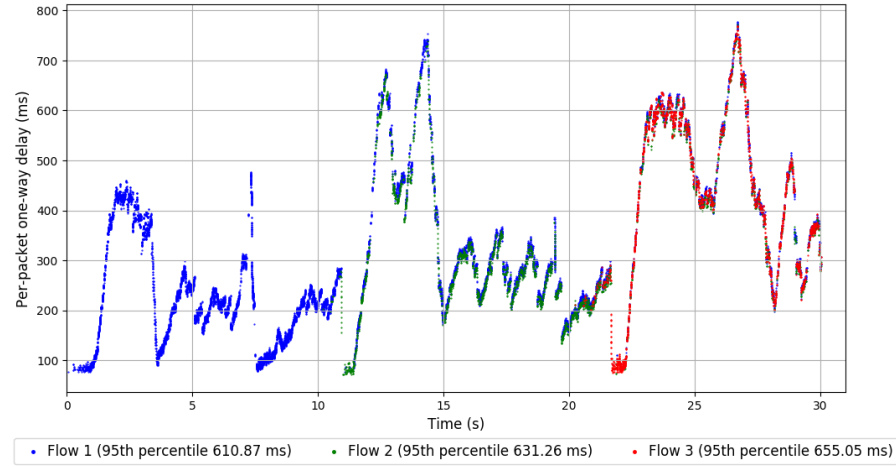
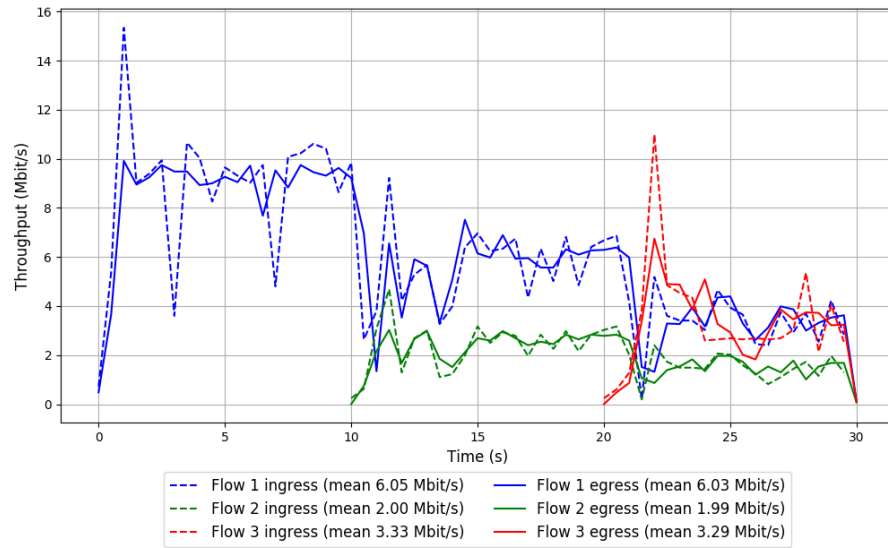
-- Flow 3:

Average throughput: 3.29 Mbit/s

95th percentile per-packet one-way delay: 655.046 ms

Loss rate: 2.82%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-01-31 11:17:34

End at: 2018-01-31 11:18:04

Local clock offset: -1.693 ms

Remote clock offset: 4.6 ms

Below is generated by plot.py at 2018-01-31 12:29:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.01 Mbit/s

95th percentile per-packet one-way delay: 2733.785 ms

Loss rate: 7.53%

-- Flow 1:

Average throughput: 7.35 Mbit/s

95th percentile per-packet one-way delay: 2680.910 ms

Loss rate: 4.82%

-- Flow 2:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 2769.493 ms

Loss rate: 26.76%

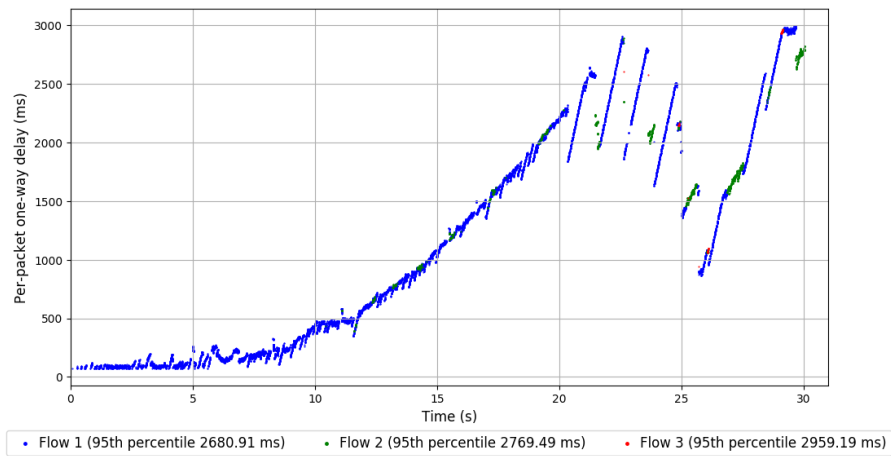
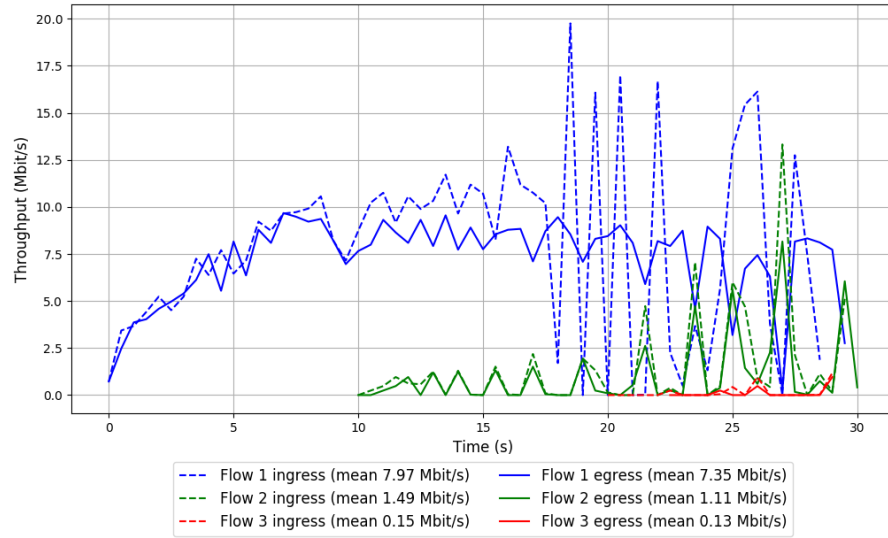
-- Flow 3:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 2959.190 ms

Loss rate: 41.56%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-01-31 11:45:35

End at: 2018-01-31 11:46:05

Local clock offset: -0.697 ms

Remote clock offset: 4.212 ms

Below is generated by plot.py at 2018-01-31 12:29:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 9.10 Mbit/s

95th percentile per-packet one-way delay: 2481.690 ms

Loss rate: 6.72%

-- Flow 1:

Average throughput: 8.39 Mbit/s

95th percentile per-packet one-way delay: 2470.193 ms

Loss rate: 4.01%

-- Flow 2:

Average throughput: 1.06 Mbit/s

95th percentile per-packet one-way delay: 2502.890 ms

Loss rate: 29.86%

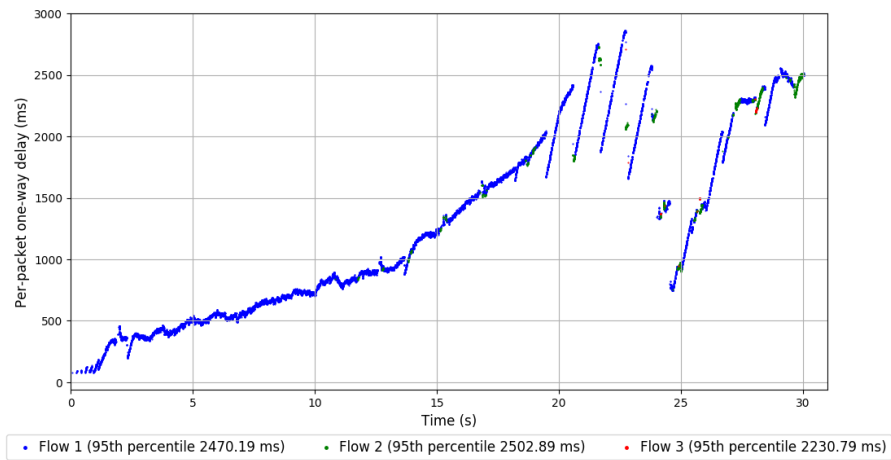
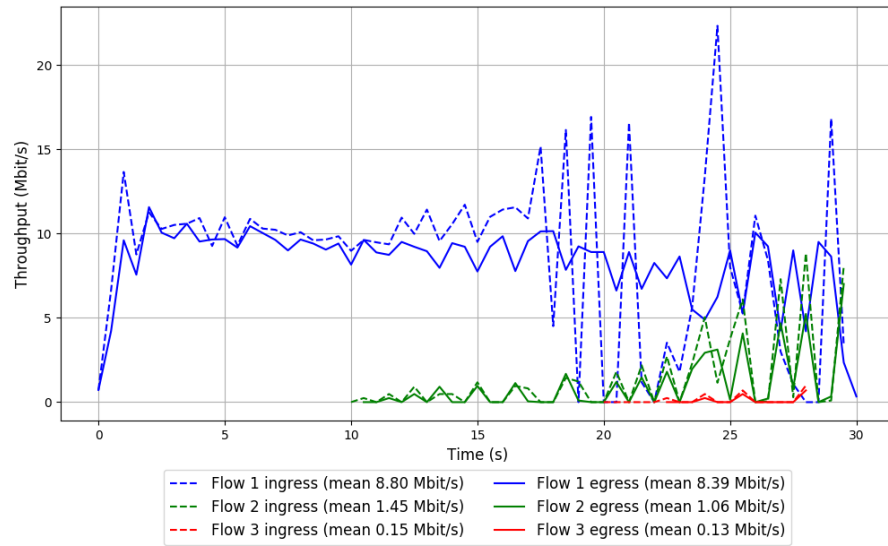
-- Flow 3:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 2230.789 ms

Loss rate: 40.88%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-01-31 12:16:27

End at: 2018-01-31 12:16:57

Local clock offset: -0.439 ms

Remote clock offset: 2.793 ms

Below is generated by plot.py at 2018-01-31 12:29:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.99 Mbit/s

95th percentile per-packet one-way delay: 3052.957 ms

Loss rate: 7.53%

-- Flow 1:

Average throughput: 7.59 Mbit/s

95th percentile per-packet one-way delay: 3069.535 ms

Loss rate: 5.69%

-- Flow 2:

Average throughput: 0.64 Mbit/s

95th percentile per-packet one-way delay: 2891.463 ms

Loss rate: 32.45%

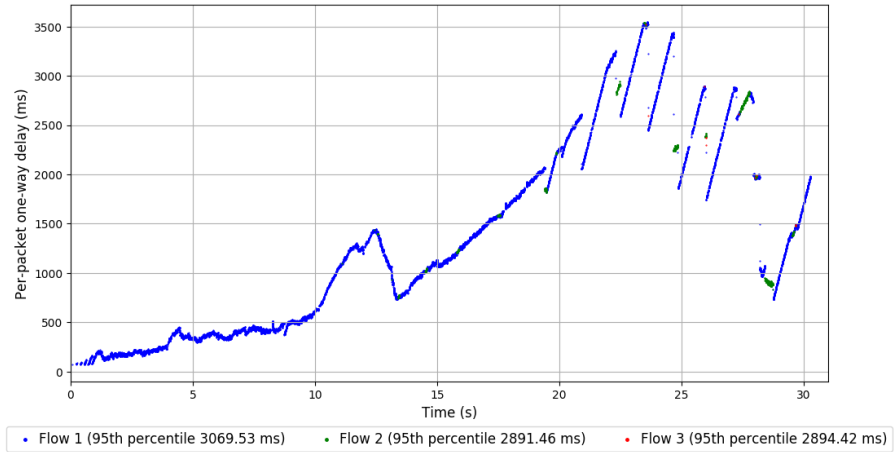
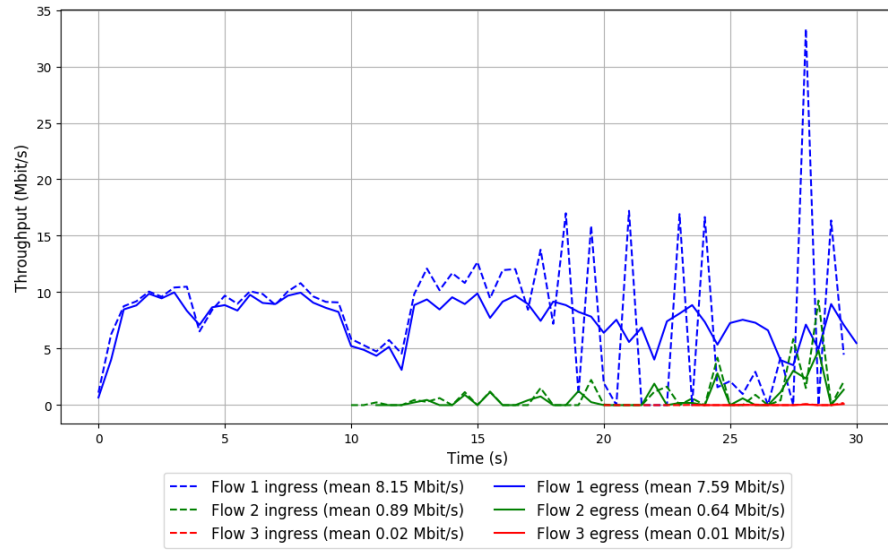
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 2894.422 ms

Loss rate: 51.86%

Run 3: Report of TCP Cubic — Data Link

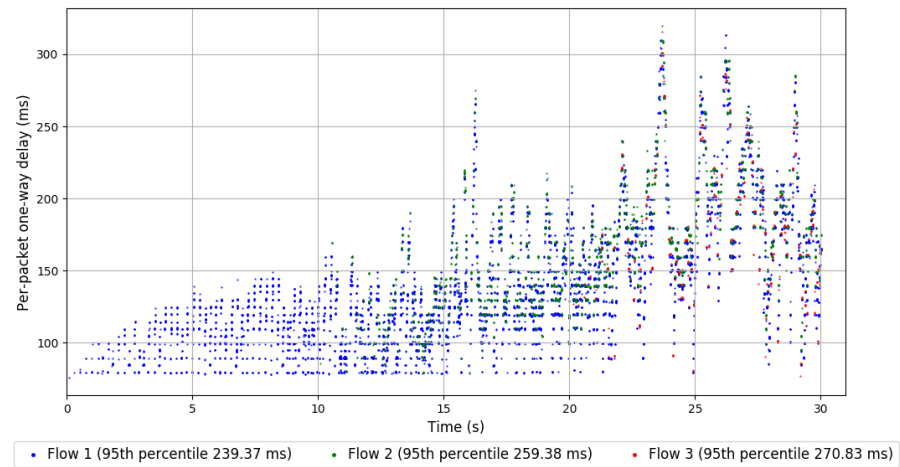
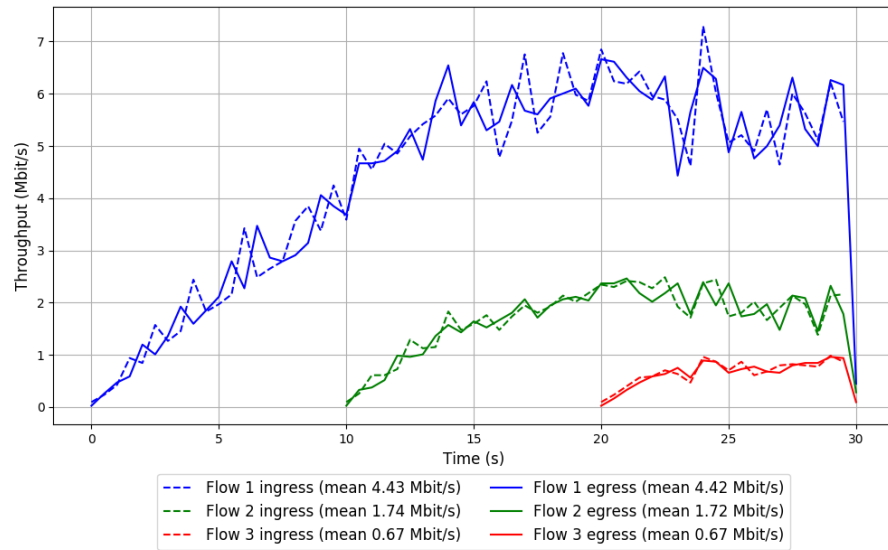


```
Run 1: Statistics of LEDBAT

Start at: 2018-01-31 11:09:51
End at: 2018-01-31 11:10:21
Local clock offset: -1.079 ms
Remote clock offset: 4.607 ms

# Below is generated by plot.py at 2018-01-31 12:29:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.79 Mbit/s
95th percentile per-packet one-way delay: 244.233 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 4.42 Mbit/s
95th percentile per-packet one-way delay: 239.371 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 259.384 ms
Loss rate: 1.02%
-- Flow 3:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 270.827 ms
Loss rate: 1.22%
```


Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-01-31 11:37:31

End at: 2018-01-31 11:38:01

Local clock offset: -0.789 ms

Remote clock offset: 4.411 ms

Below is generated by plot.py at 2018-01-31 12:29:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 6.53 Mbit/s

95th percentile per-packet one-way delay: 215.247 ms

Loss rate: 0.67%

-- Flow 1:

Average throughput: 5.13 Mbit/s

95th percentile per-packet one-way delay: 214.451 ms

Loss rate: 0.55%

-- Flow 2:

Average throughput: 1.67 Mbit/s

95th percentile per-packet one-way delay: 224.544 ms

Loss rate: 1.22%

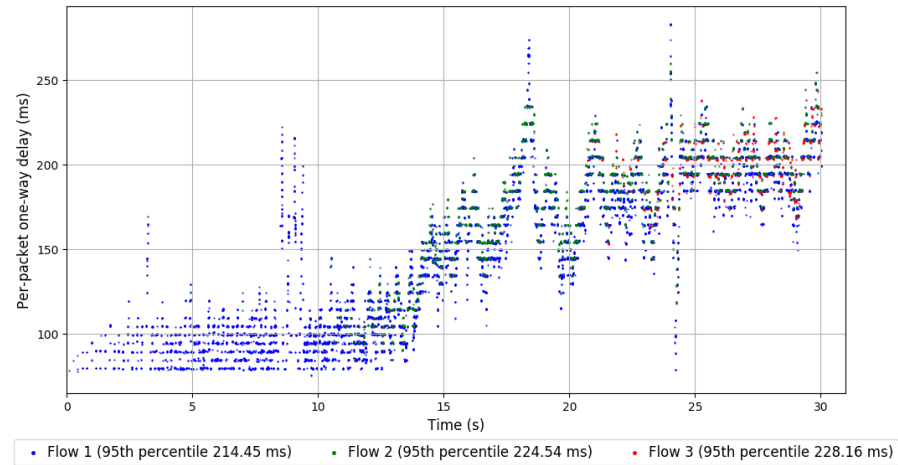
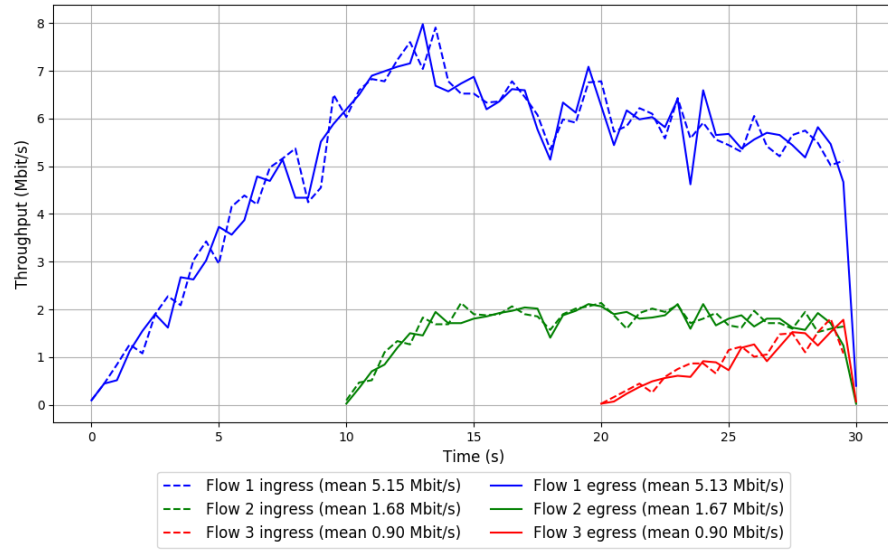
-- Flow 3:

Average throughput: 0.90 Mbit/s

95th percentile per-packet one-way delay: 228.164 ms

Loss rate: 0.66%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-01-31 12:06:12

End at: 2018-01-31 12:06:42

Local clock offset: -0.752 ms

Remote clock offset: 3.389 ms

Below is generated by plot.py at 2018-01-31 12:29:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.12 Mbit/s

95th percentile per-packet one-way delay: 311.969 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 3.36 Mbit/s

95th percentile per-packet one-way delay: 304.018 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.82 Mbit/s

95th percentile per-packet one-way delay: 312.186 ms

Loss rate: 0.00%

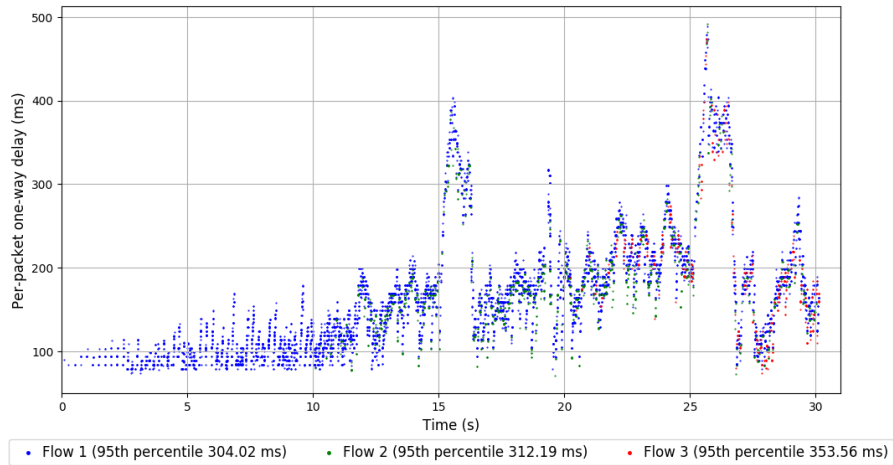
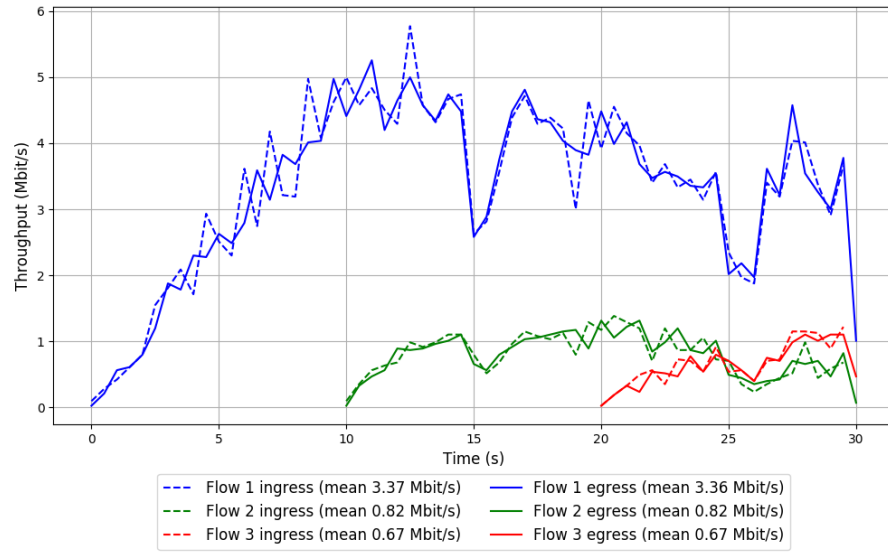
-- Flow 3:

Average throughput: 0.67 Mbit/s

95th percentile per-packet one-way delay: 353.565 ms

Loss rate: 0.00%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC

Start at: 2018-01-31 11:05:19

End at: 2018-01-31 11:05:49

Local clock offset: -0.846 ms

Remote clock offset: 4.597 ms

Below is generated by plot.py at 2018-01-31 12:29:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.94 Mbit/s

95th percentile per-packet one-way delay: 2781.338 ms

Loss rate: 8.65%

-- Flow 1:

Average throughput: 7.94 Mbit/s

95th percentile per-packet one-way delay: 2781.328 ms

Loss rate: 8.65%

-- Flow 2:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2724.740 ms

Loss rate: 8.13%

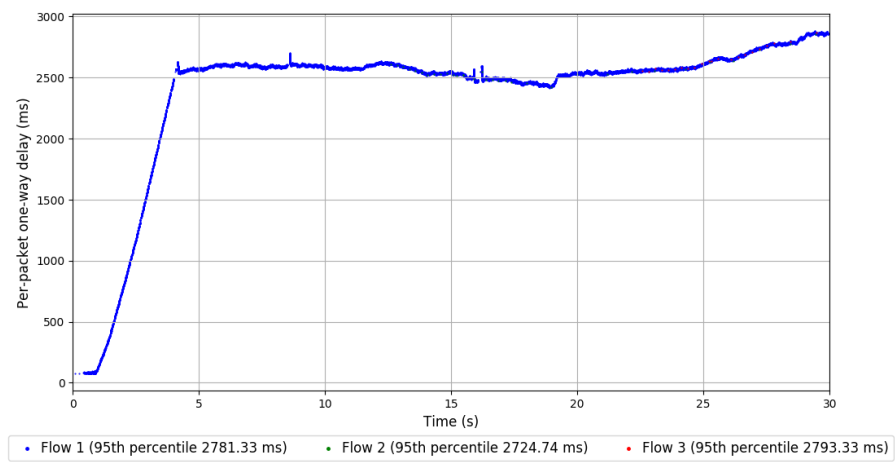
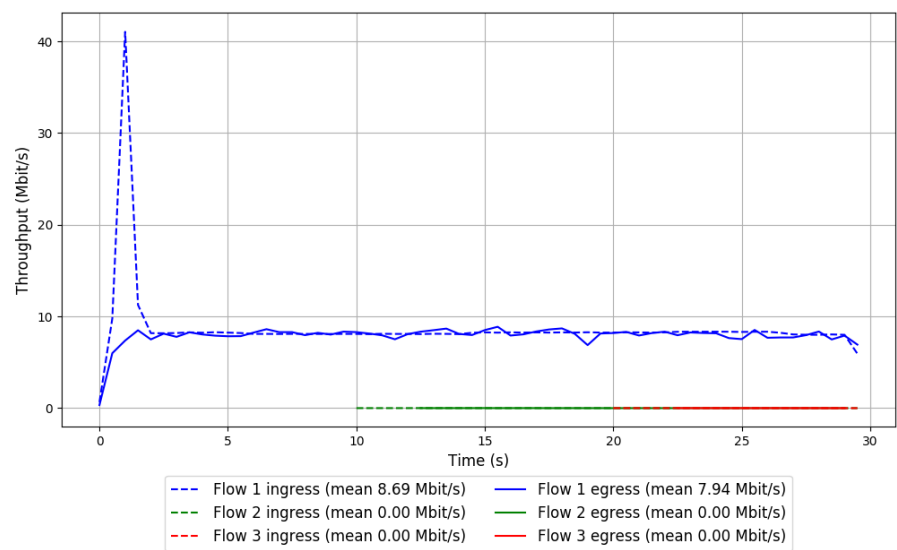
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2793.333 ms

Loss rate: 11.51%

Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

Start at: 2018-01-31 11:32:58

End at: 2018-01-31 11:33:28

Local clock offset: -1.593 ms

Remote clock offset: 4.668 ms

Below is generated by plot.py at 2018-01-31 12:29:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.10 Mbit/s

95th percentile per-packet one-way delay: 5862.891 ms

Loss rate: 55.86%

-- Flow 1:

Average throughput: 3.34 Mbit/s

95th percentile per-packet one-way delay: 847.349 ms

Loss rate: 23.64%

-- Flow 2:

Average throughput: 2.76 Mbit/s

95th percentile per-packet one-way delay: 1049.086 ms

Loss rate: 34.45%

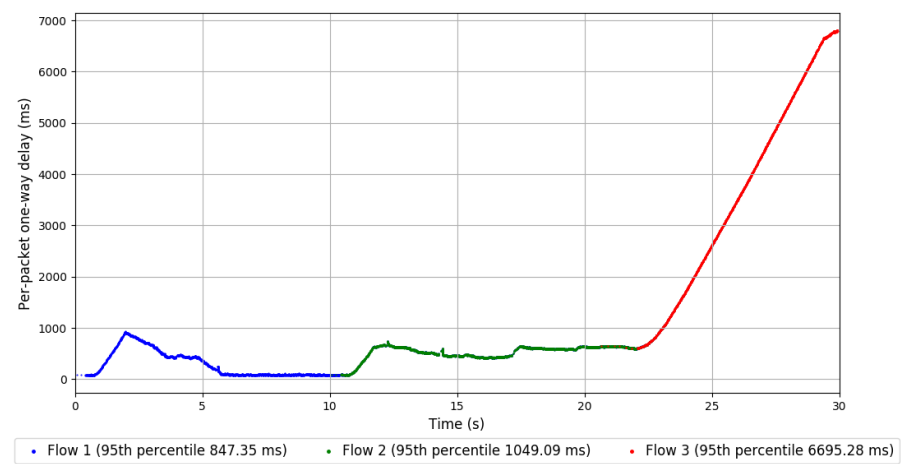
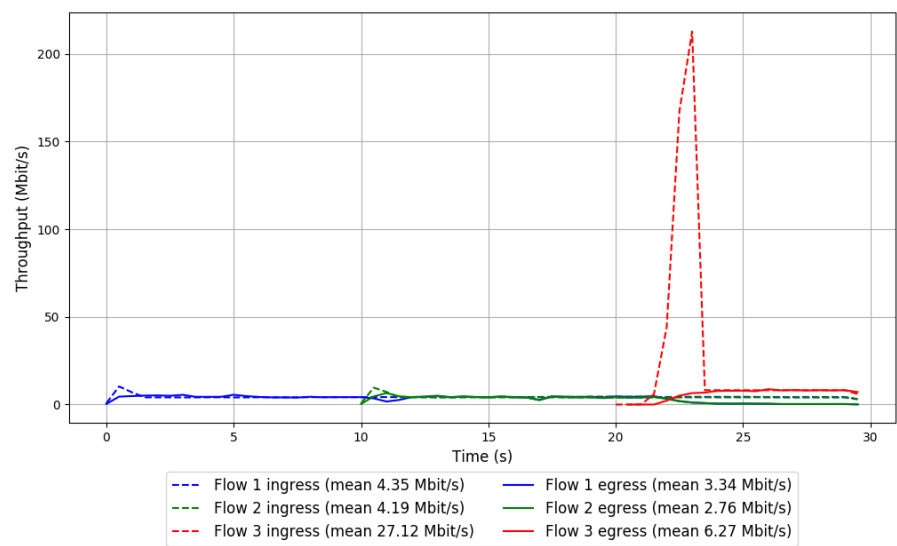
-- Flow 3:

Average throughput: 6.27 Mbit/s

95th percentile per-packet one-way delay: 6695.278 ms

Loss rate: 78.20%

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2018-01-31 12:01:29

End at: 2018-01-31 12:01:59

Local clock offset: -0.892 ms

Remote clock offset: 3.501 ms

Below is generated by plot.py at 2018-01-31 12:29:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.58 Mbit/s

95th percentile per-packet one-way delay: 1666.477 ms

Loss rate: 3.45%

-- Flow 1:

Average throughput: 7.91 Mbit/s

95th percentile per-packet one-way delay: 1674.577 ms

Loss rate: 2.94%

-- Flow 2:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 981.831 ms

Loss rate: 3.04%

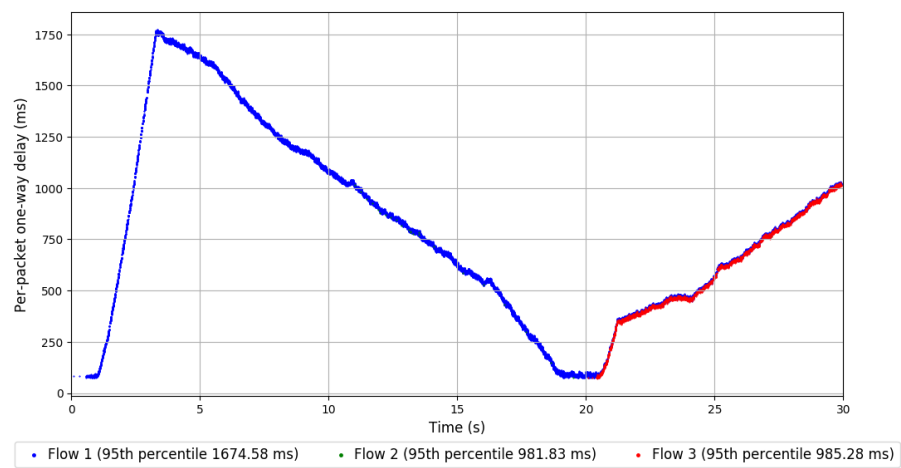
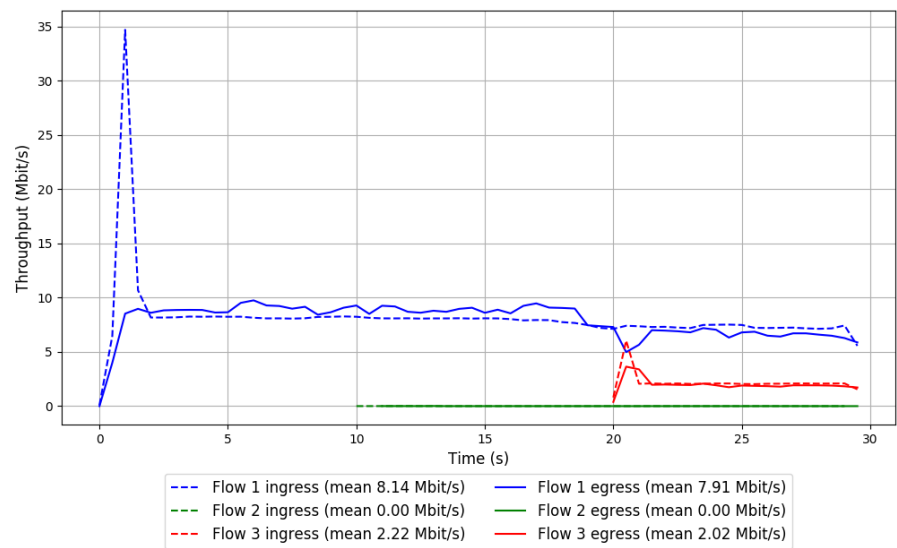
-- Flow 3:

Average throughput: 2.02 Mbit/s

95th percentile per-packet one-way delay: 985.276 ms

Loss rate: 9.14%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-01-31 10:59:11

End at: 2018-01-31 10:59:41

Local clock offset: -0.993 ms

Remote clock offset: 4.462 ms

Below is generated by plot.py at 2018-01-31 12:29:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.42 Mbit/s

95th percentile per-packet one-way delay: 1029.688 ms

Loss rate: 3.49%

-- Flow 1:

Average throughput: 6.32 Mbit/s

95th percentile per-packet one-way delay: 996.664 ms

Loss rate: 2.91%

-- Flow 2:

Average throughput: 1.36 Mbit/s

95th percentile per-packet one-way delay: 1070.825 ms

Loss rate: 4.78%

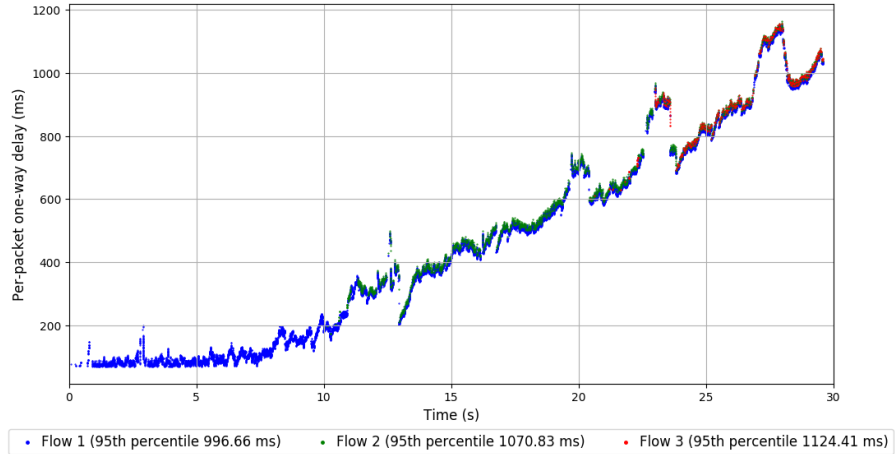
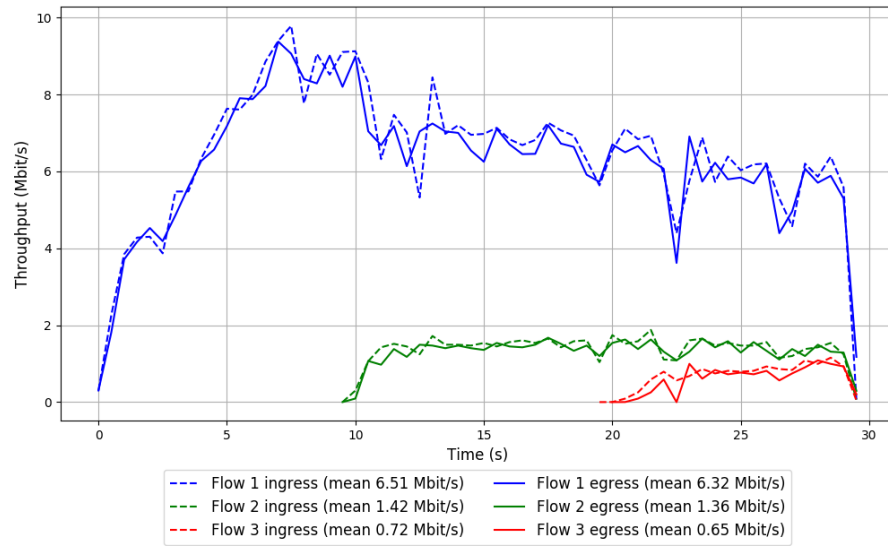
-- Flow 3:

Average throughput: 0.65 Mbit/s

95th percentile per-packet one-way delay: 1124.412 ms

Loss rate: 14.39%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-01-31 11:26:48

End at: 2018-01-31 11:27:18

Local clock offset: -0.798 ms

Remote clock offset: 4.733 ms

Below is generated by plot.py at 2018-01-31 12:29:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.69 Mbit/s

95th percentile per-packet one-way delay: 1299.784 ms

Loss rate: 4.11%

-- Flow 1:

Average throughput: 6.97 Mbit/s

95th percentile per-packet one-way delay: 1291.514 ms

Loss rate: 3.59%

-- Flow 2:

Average throughput: 0.92 Mbit/s

95th percentile per-packet one-way delay: 1334.189 ms

Loss rate: 6.27%

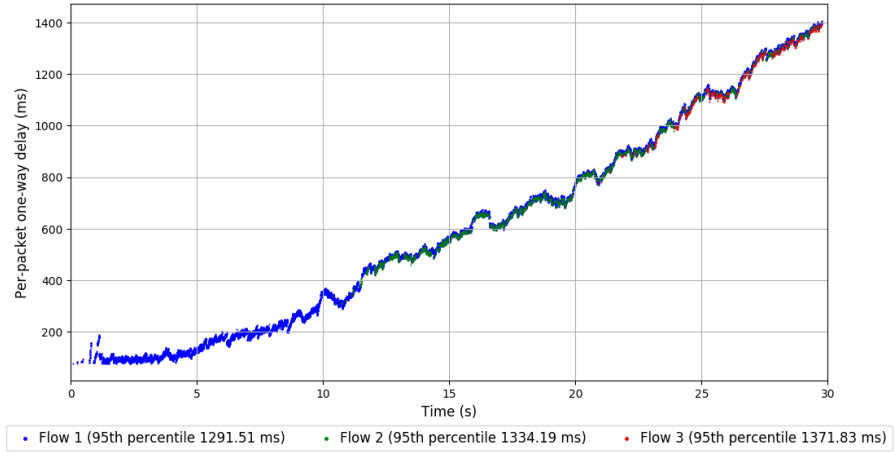
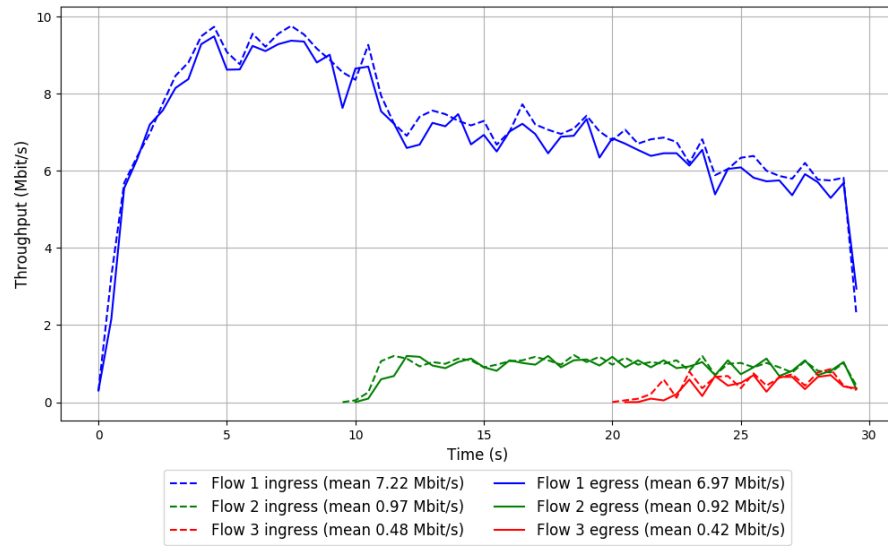
-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 1371.828 ms

Loss rate: 19.33%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-01-31 11:55:22

End at: 2018-01-31 11:55:52

Local clock offset: -1.294 ms

Remote clock offset: 3.673 ms

Below is generated by plot.py at 2018-01-31 12:29:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.12 Mbit/s

95th percentile per-packet one-way delay: 939.329 ms

Loss rate: 3.34%

-- Flow 1:

Average throughput: 5.80 Mbit/s

95th percentile per-packet one-way delay: 929.736 ms

Loss rate: 2.65%

-- Flow 2:

Average throughput: 1.79 Mbit/s

95th percentile per-packet one-way delay: 1004.441 ms

Loss rate: 5.35%

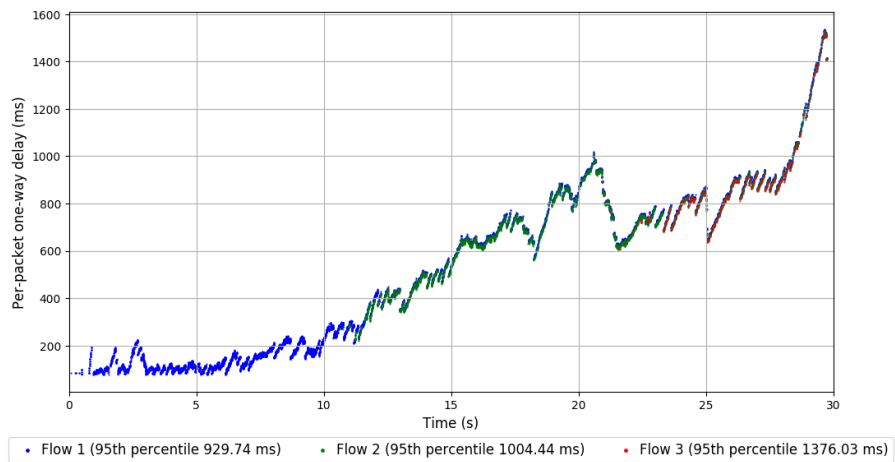
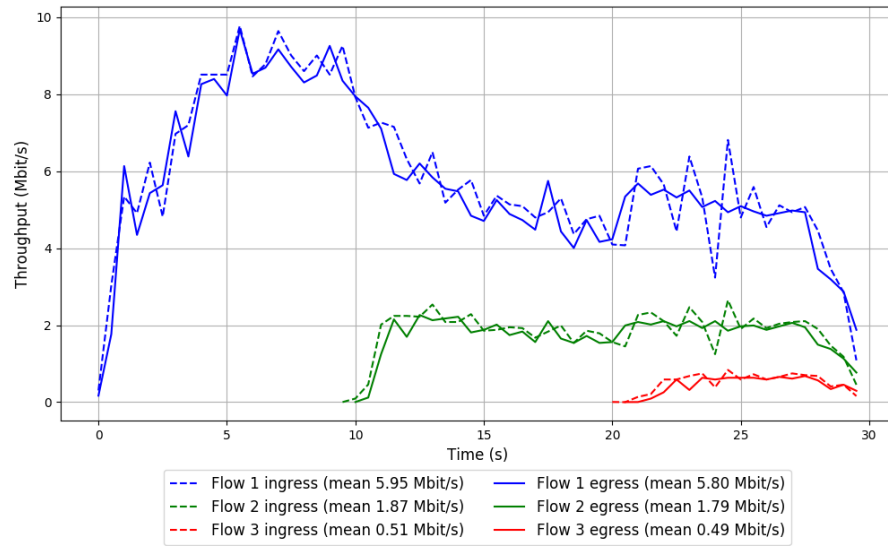
-- Flow 3:

Average throughput: 0.49 Mbit/s

95th percentile per-packet one-way delay: 1376.025 ms

Loss rate: 13.29%

Run 3: Report of QUIC Cubic — Data Link

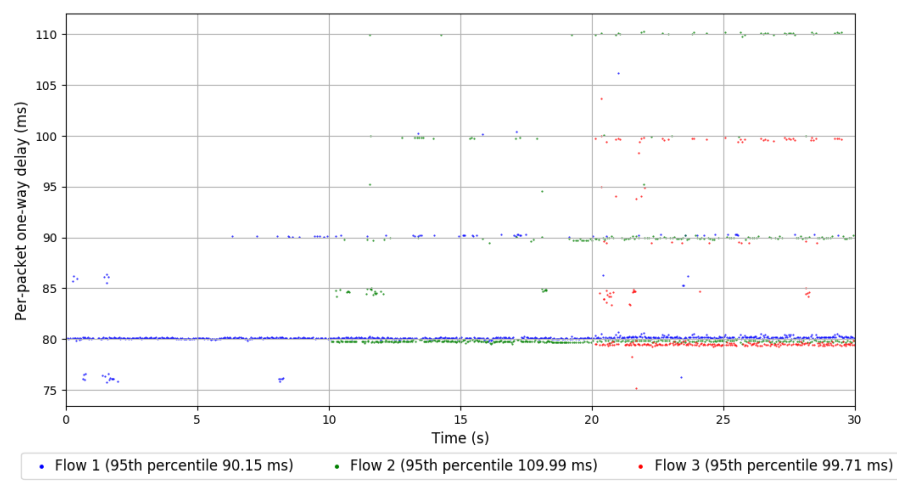
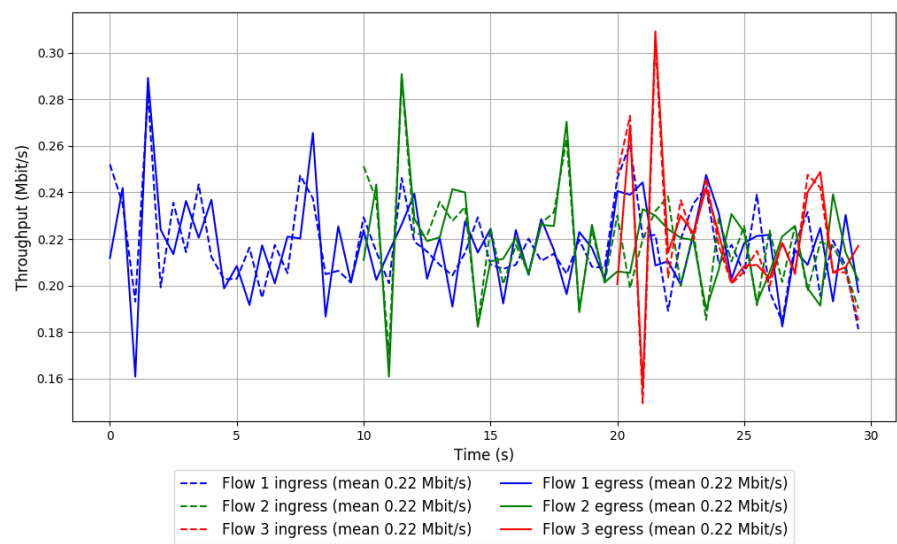


```
Run 1: Statistics of SReAM

Start at: 2018-01-31 11:11:21
End at: 2018-01-31 11:11:51
Local clock offset: -1.172 ms
Remote clock offset: 4.554 ms

# Below is generated by plot.py at 2018-01-31 12:29:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 99.688 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 90.147 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.987 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 99.708 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

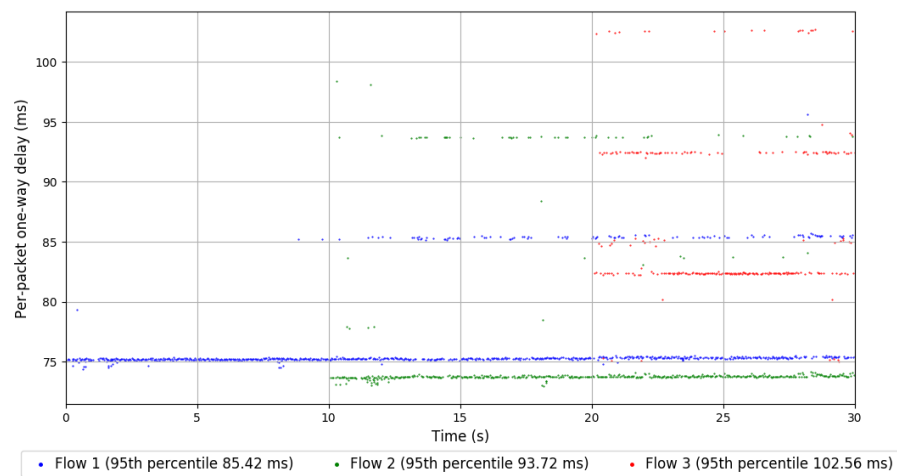
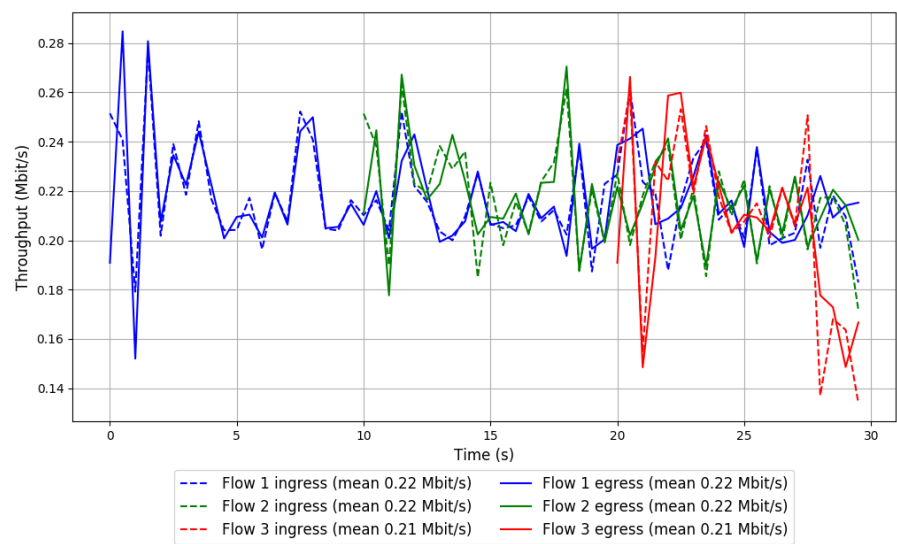


Run 2: Statistics of SReAM

Start at: 2018-01-31 11:39:17
End at: 2018-01-31 11:39:47
Local clock offset: -0.944 ms
Remote clock offset: 4.443 ms

Below is generated by plot.py at 2018-01-31 12:29:56
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 92.501 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.416 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 93.715 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 102.558 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

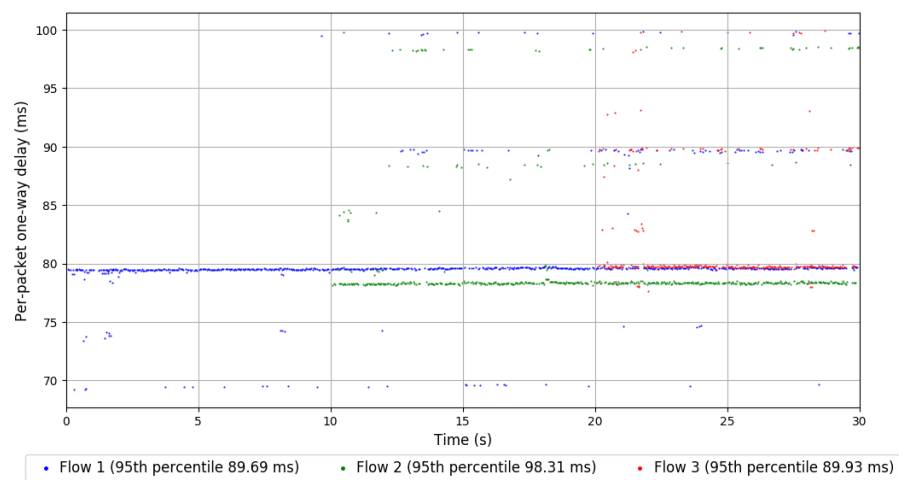
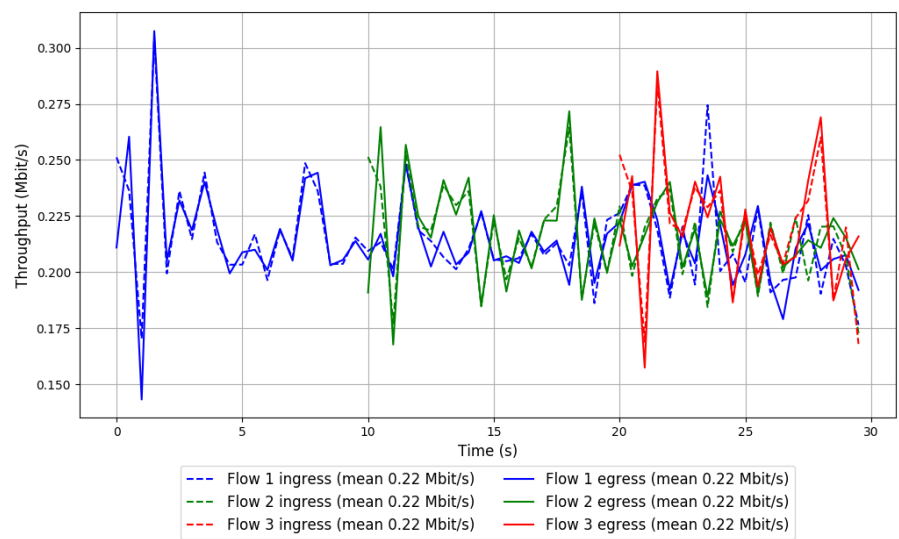


Run 3: Statistics of SReAM

Start at: 2018-01-31 12:08:11
End at: 2018-01-31 12:08:41
Local clock offset: -1.202 ms
Remote clock offset: 3.404 ms

Below is generated by plot.py at 2018-01-31 12:29:56
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 89.879 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 89.694 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 98.313 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 89.929 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-01-31 11:02:11

End at: 2018-01-31 11:02:41

Local clock offset: -0.928 ms

Remote clock offset: 4.53 ms

Below is generated by plot.py at 2018-01-31 12:29:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.69 Mbit/s

95th percentile per-packet one-way delay: 172.437 ms

Loss rate: 0.17%

-- Flow 1:

Average throughput: 2.03 Mbit/s

95th percentile per-packet one-way delay: 163.192 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 184.890 ms

Loss rate: 0.29%

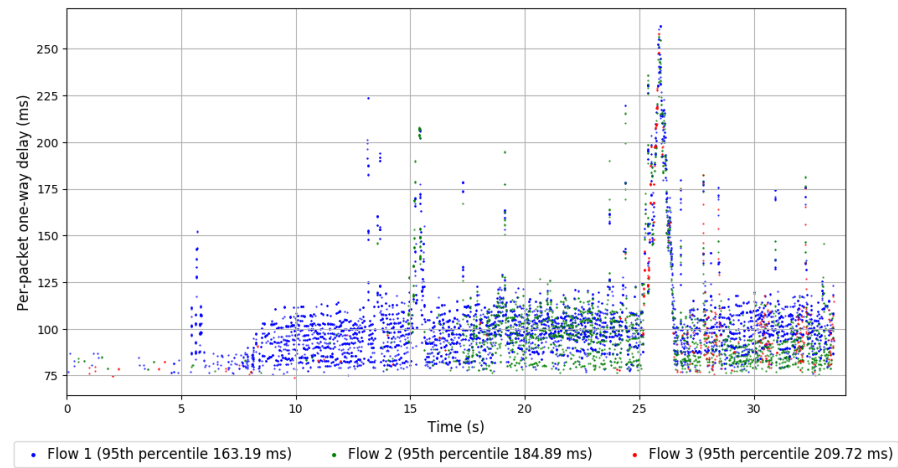
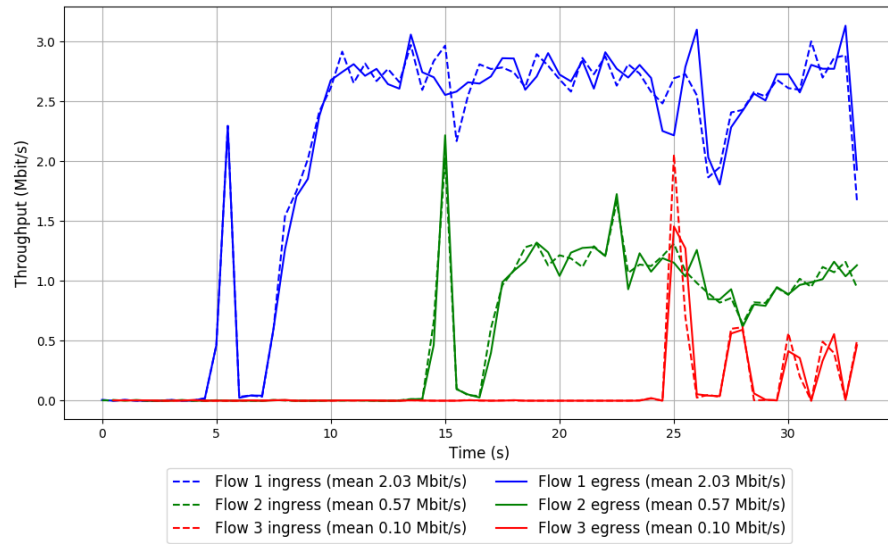
-- Flow 3:

Average throughput: 0.10 Mbit/s

95th percentile per-packet one-way delay: 209.717 ms

Loss rate: 0.61%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-01-31 11:29:48

End at: 2018-01-31 11:30:18

Local clock offset: -0.889 ms

Remote clock offset: 4.764 ms

Below is generated by plot.py at 2018-01-31 12:29:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.42 Mbit/s

95th percentile per-packet one-way delay: 147.031 ms

Loss rate: 0.76%

-- Flow 1:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 145.932 ms

Loss rate: 0.44%

-- Flow 2:

Average throughput: 1.22 Mbit/s

95th percentile per-packet one-way delay: 144.758 ms

Loss rate: 0.90%

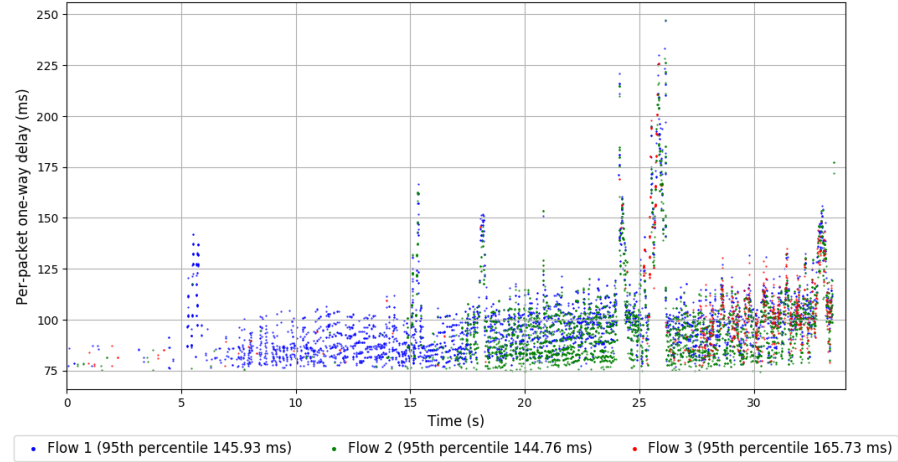
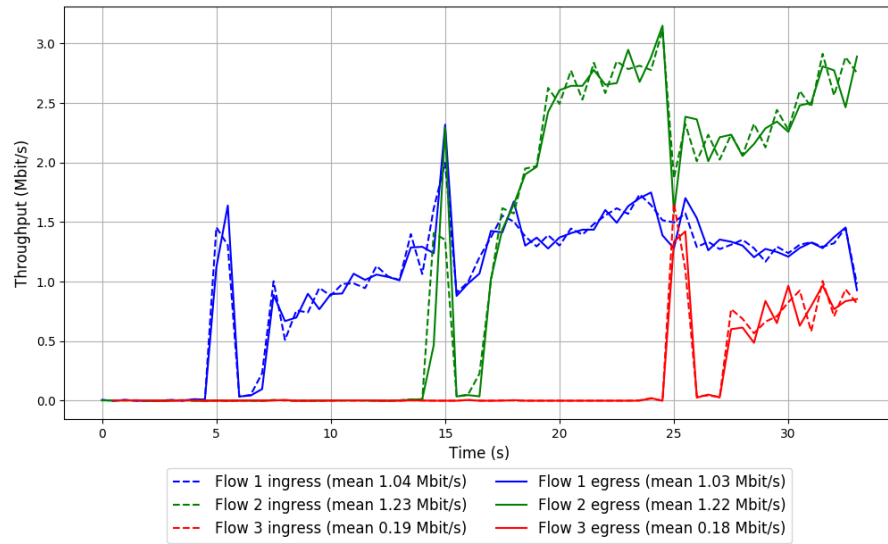
-- Flow 3:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 165.726 ms

Loss rate: 1.65%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-01-31 11:58:23

End at: 2018-01-31 11:58:53

Local clock offset: -0.574 ms

Remote clock offset: 3.48 ms

Below is generated by plot.py at 2018-01-31 12:29:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.82 Mbit/s

95th percentile per-packet one-way delay: 182.127 ms

Loss rate: 1.30%

-- Flow 1:

Average throughput: 1.86 Mbit/s

95th percentile per-packet one-way delay: 164.121 ms

Loss rate: 1.05%

-- Flow 2:

Average throughput: 0.84 Mbit/s

95th percentile per-packet one-way delay: 190.993 ms

Loss rate: 1.75%

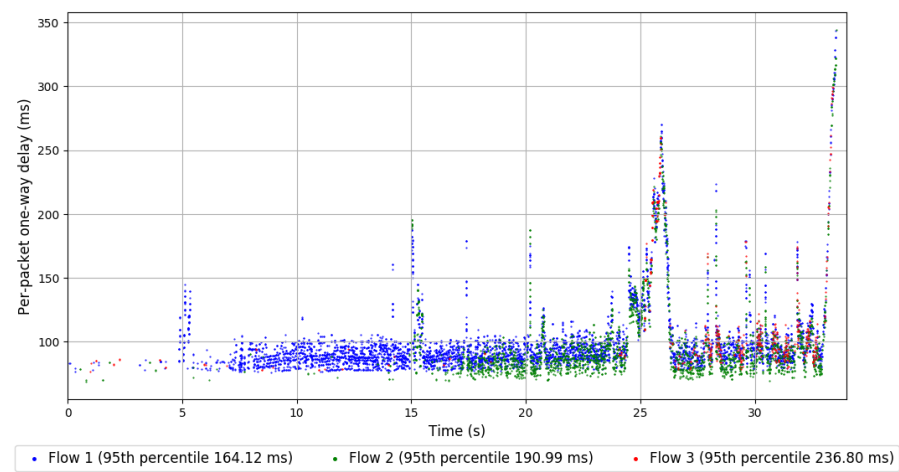
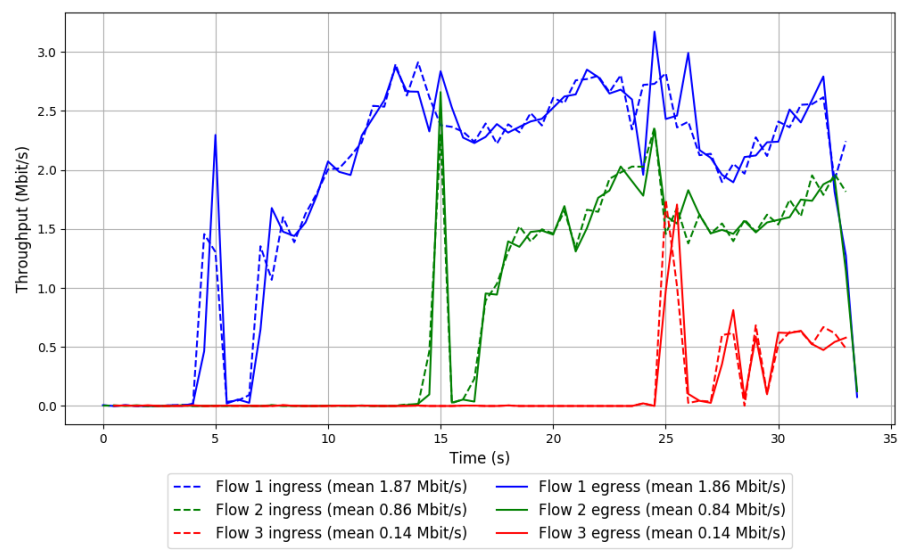
-- Flow 3:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 236.798 ms

Loss rate: 1.97%

Run 3: Report of WebRTC media — Data Link



Run 1: Statistics of Sprout

Start at: 2018-01-31 11:06:52

End at: 2018-01-31 11:07:22

Local clock offset: -1.285 ms

Remote clock offset: 4.582 ms

Below is generated by plot.py at 2018-01-31 12:29:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.90 Mbit/s

95th percentile per-packet one-way delay: 100.090 ms

Loss rate: 0.12%

-- Flow 1:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 97.682 ms

Loss rate: 0.25%

-- Flow 2:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 100.135 ms

Loss rate: 0.00%

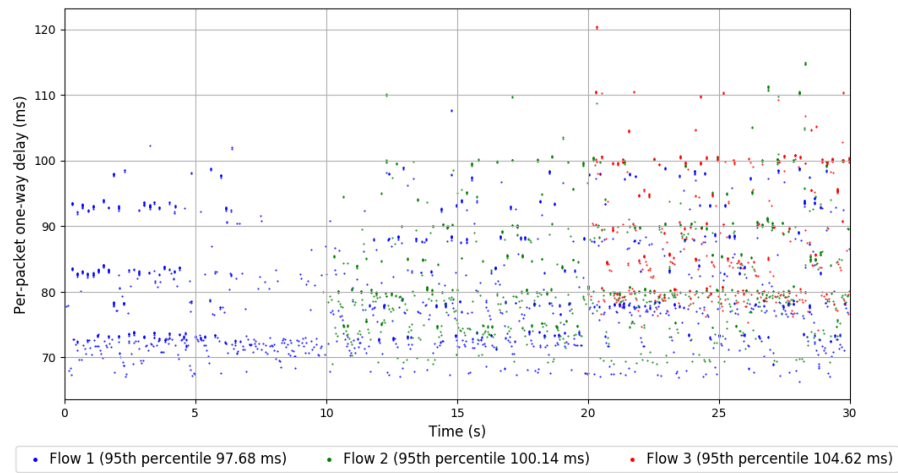
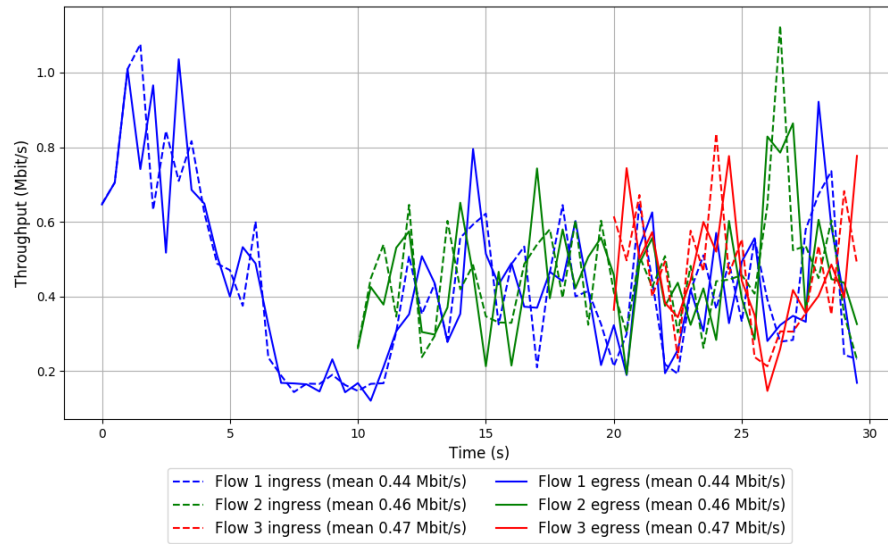
-- Flow 3:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 104.624 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

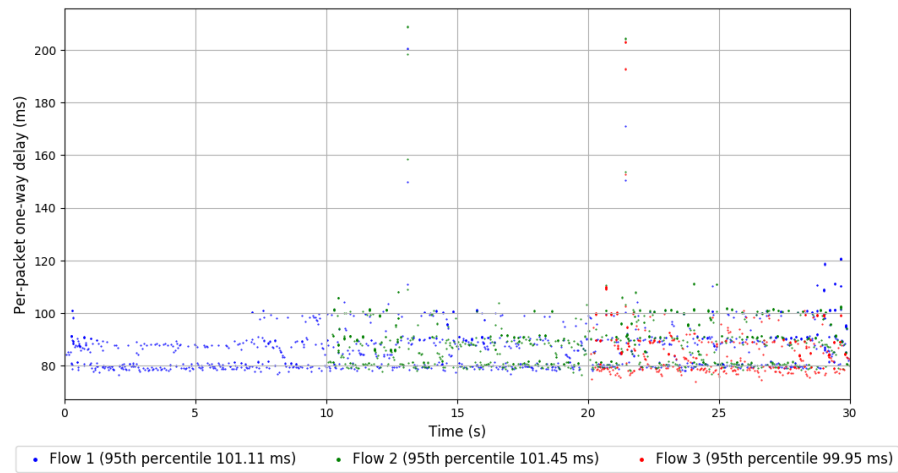
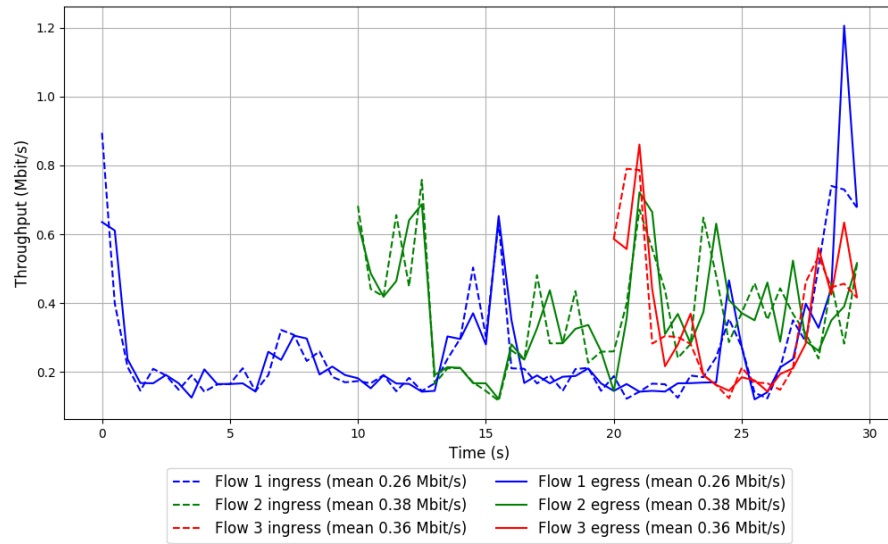


Run 2: Statistics of Sprout

Start at: 2018-01-31 11:34:30
End at: 2018-01-31 11:35:00
Local clock offset: -3.561 ms
Remote clock offset: 4.586 ms

```
# Below is generated by plot.py at 2018-01-31 12:29:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 101.305 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 101.111 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 101.446 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 99.955 ms
Loss rate: 0.00%
```


Run 2: Report of Sprout — Data Link

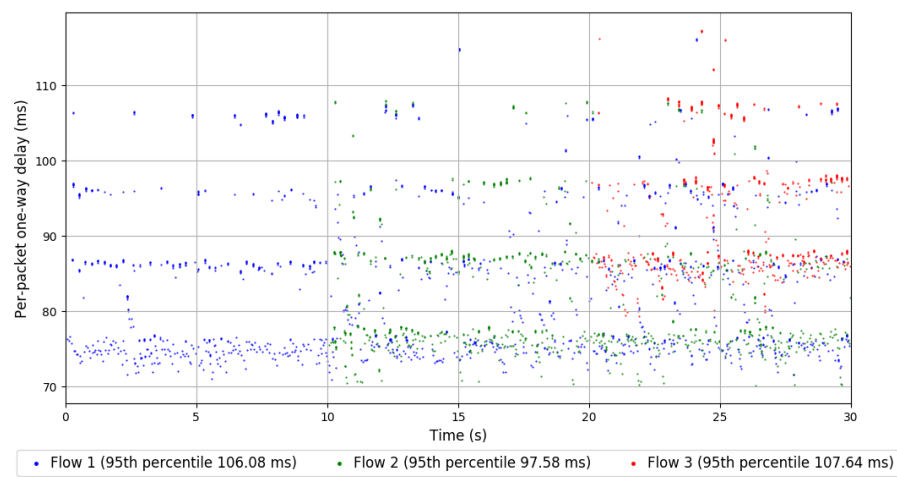
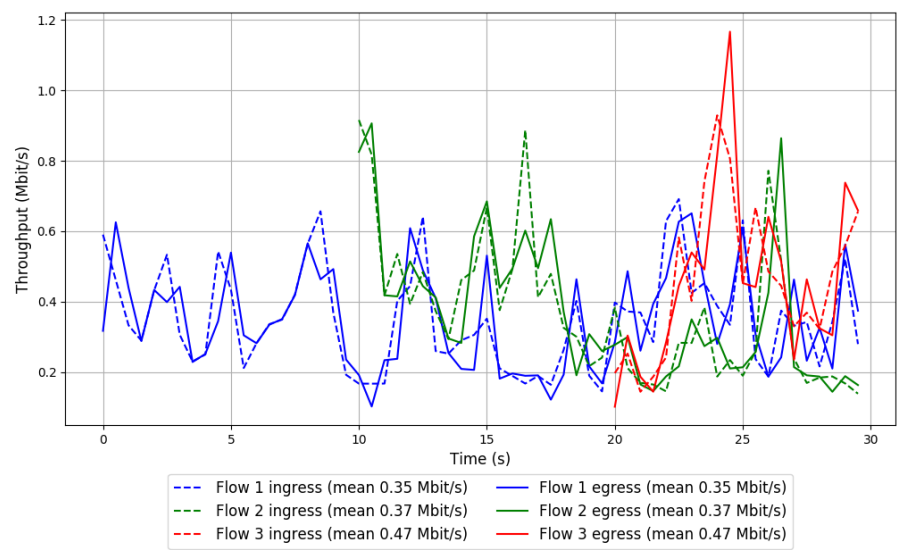


Run 3: Statistics of Sprout

Start at: 2018-01-31 12:03:00
End at: 2018-01-31 12:03:30
Local clock offset: -0.897 ms
Remote clock offset: 3.478 ms

```
# Below is generated by plot.py at 2018-01-31 12:29:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 106.487 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 106.081 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 97.583 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 107.641 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-01-31 11:12:49

End at: 2018-01-31 11:13:19

Local clock offset: -1.138 ms

Remote clock offset: 4.625 ms

Below is generated by plot.py at 2018-01-31 12:30:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 6.15 Mbit/s

95th percentile per-packet one-way delay: 208.612 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 3.43 Mbit/s

95th percentile per-packet one-way delay: 188.768 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 2.79 Mbit/s

95th percentile per-packet one-way delay: 220.803 ms

Loss rate: 0.02%

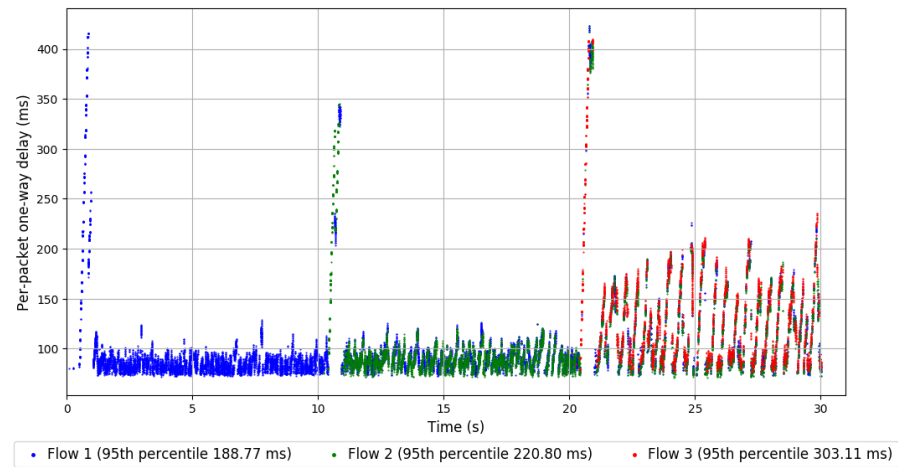
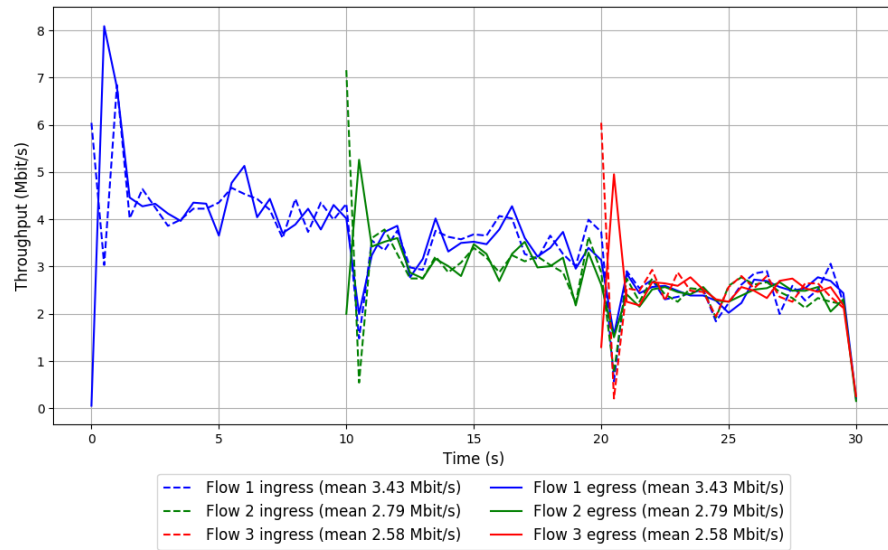
-- Flow 3:

Average throughput: 2.58 Mbit/s

95th percentile per-packet one-way delay: 303.111 ms

Loss rate: 0.15%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-01-31 11:40:45

End at: 2018-01-31 11:41:15

Local clock offset: -0.94 ms

Remote clock offset: 4.512 ms

Below is generated by plot.py at 2018-01-31 12:30:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 5.87 Mbit/s

95th percentile per-packet one-way delay: 203.407 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 3.16 Mbit/s

95th percentile per-packet one-way delay: 192.017 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 2.82 Mbit/s

95th percentile per-packet one-way delay: 214.453 ms

Loss rate: 0.14%

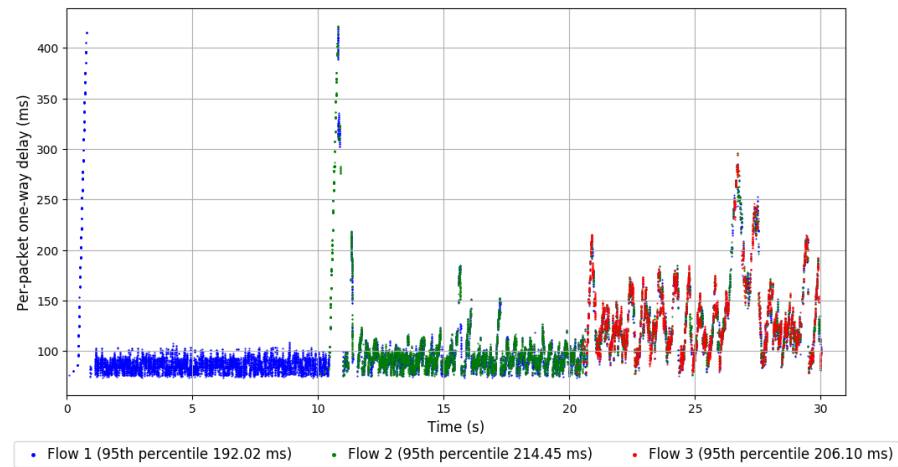
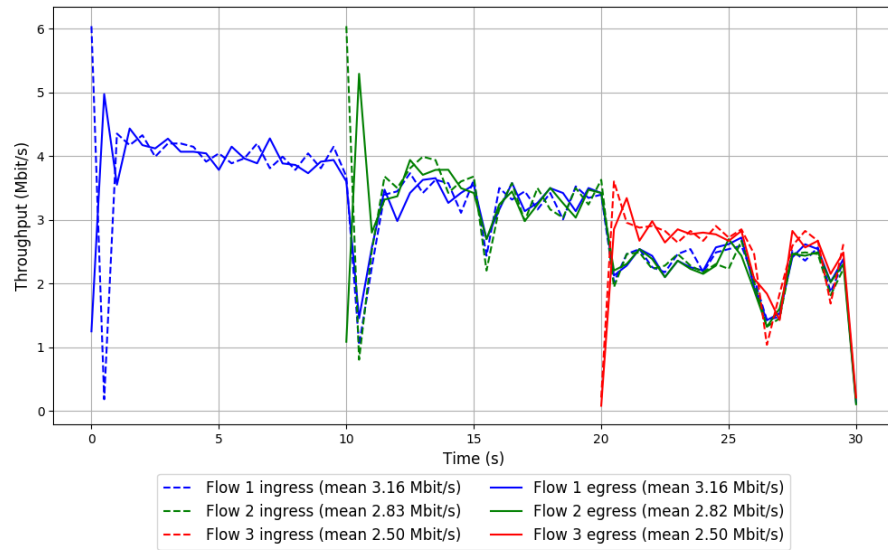
-- Flow 3:

Average throughput: 2.50 Mbit/s

95th percentile per-packet one-way delay: 206.104 ms

Loss rate: 0.41%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-01-31 12:09:47

End at: 2018-01-31 12:10:17

Local clock offset: -1.148 ms

Remote clock offset: 3.367 ms

Below is generated by plot.py at 2018-01-31 12:30:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 5.21 Mbit/s

95th percentile per-packet one-way delay: 219.717 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 2.86 Mbit/s

95th percentile per-packet one-way delay: 198.938 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 2.45 Mbit/s

95th percentile per-packet one-way delay: 240.194 ms

Loss rate: 0.08%

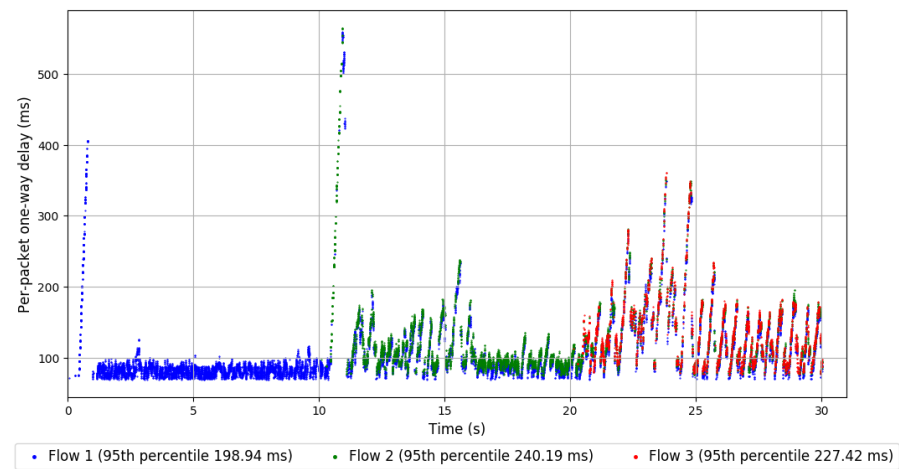
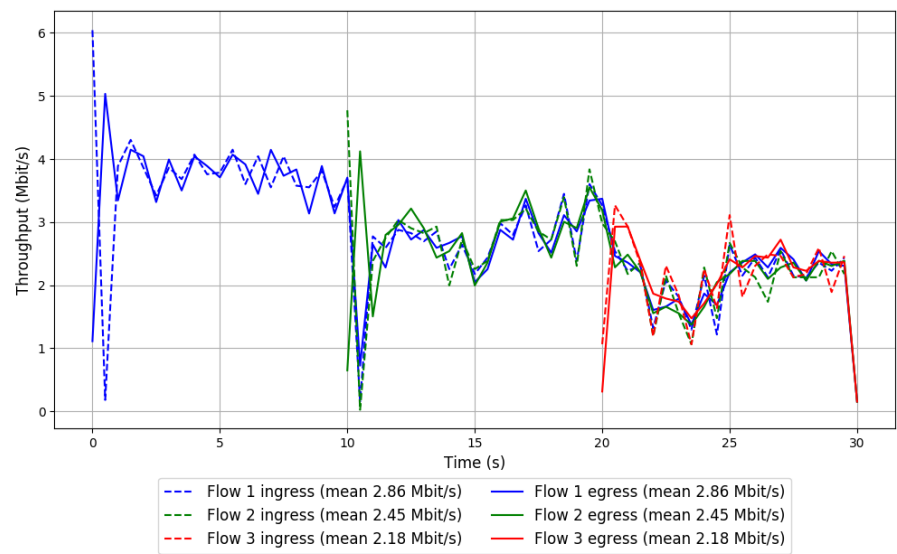
-- Flow 3:

Average throughput: 2.18 Mbit/s

95th percentile per-packet one-way delay: 227.421 ms

Loss rate: 0.18%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-01-31 11:22:12

End at: 2018-01-31 11:22:42

Local clock offset: -1.081 ms

Remote clock offset: 4.683 ms

Below is generated by plot.py at 2018-01-31 12:30:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 6.27 Mbit/s

95th percentile per-packet one-way delay: 2513.103 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 424.946 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 6.84 Mbit/s

95th percentile per-packet one-way delay: 2599.469 ms

Loss rate: 0.28%

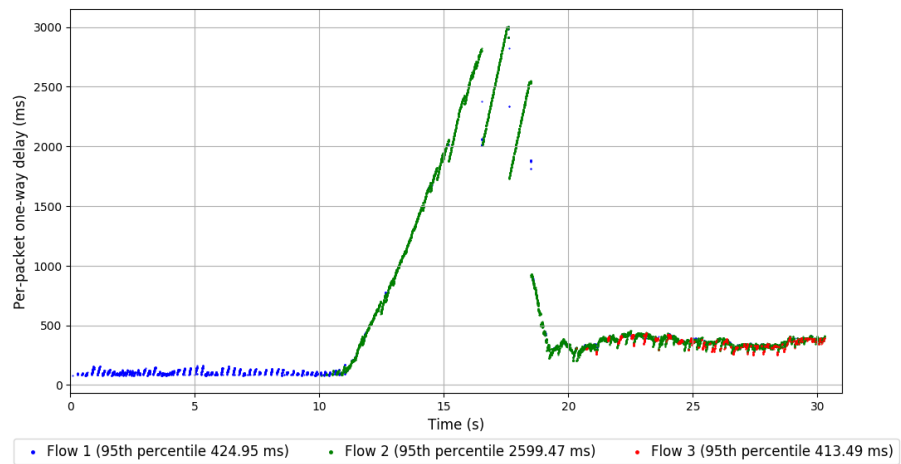
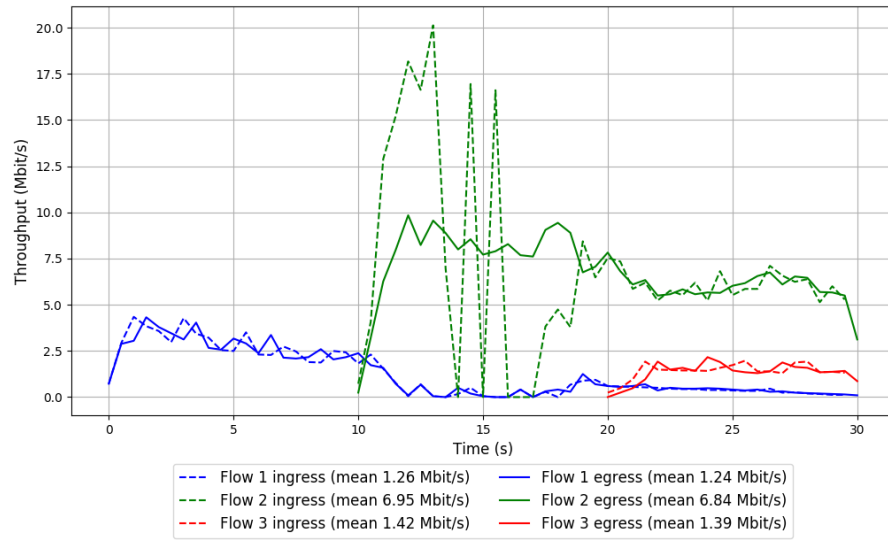
-- Flow 3:

Average throughput: 1.39 Mbit/s

95th percentile per-packet one-way delay: 413.493 ms

Loss rate: 1.20%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-01-31 11:50:40

End at: 2018-01-31 11:51:10

Local clock offset: -3.586 ms

Remote clock offset: 4.099 ms

Below is generated by plot.py at 2018-01-31 12:30:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 5.99 Mbit/s

95th percentile per-packet one-way delay: 131.981 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 3.68 Mbit/s

95th percentile per-packet one-way delay: 121.585 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 2.05 Mbit/s

95th percentile per-packet one-way delay: 131.985 ms

Loss rate: 0.32%

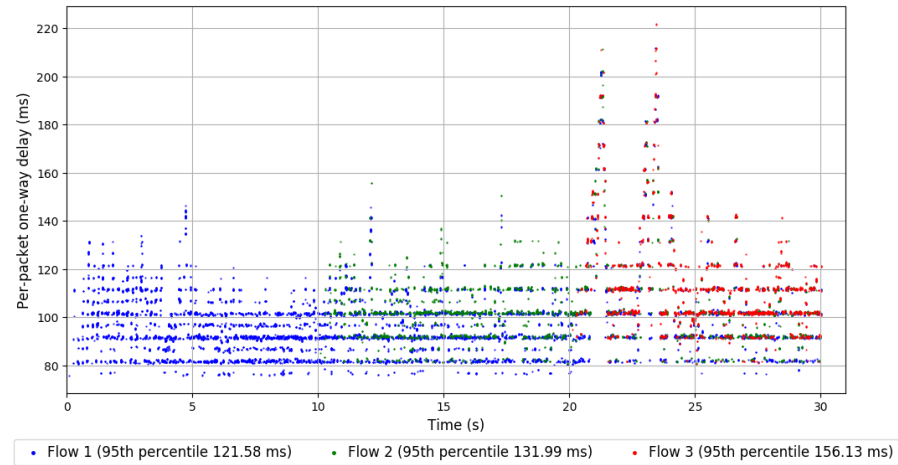
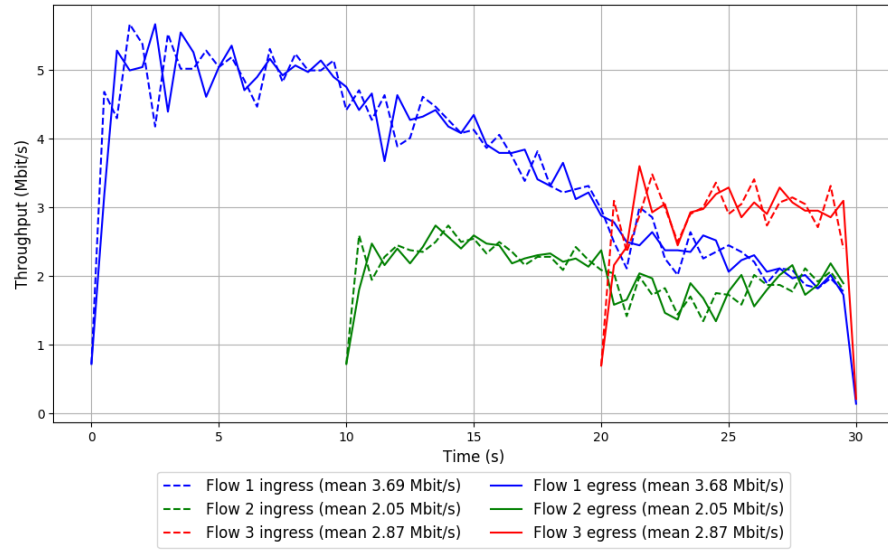
-- Flow 3:

Average throughput: 2.87 Mbit/s

95th percentile per-packet one-way delay: 156.132 ms

Loss rate: 0.17%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-01-31 12:23:02

End at: 2018-01-31 12:23:32

Local clock offset: -0.707 ms

Remote clock offset: 2.173 ms

Below is generated by plot.py at 2018-01-31 12:30:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 6.67 Mbit/s

95th percentile per-packet one-way delay: 272.391 ms

Loss rate: 0.73%

-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 267.648 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 6.52 Mbit/s

95th percentile per-packet one-way delay: 273.001 ms

Loss rate: 0.90%

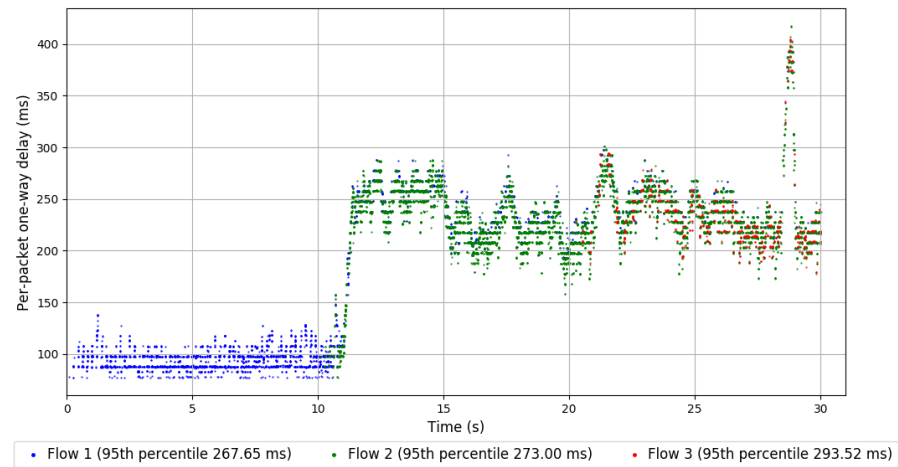
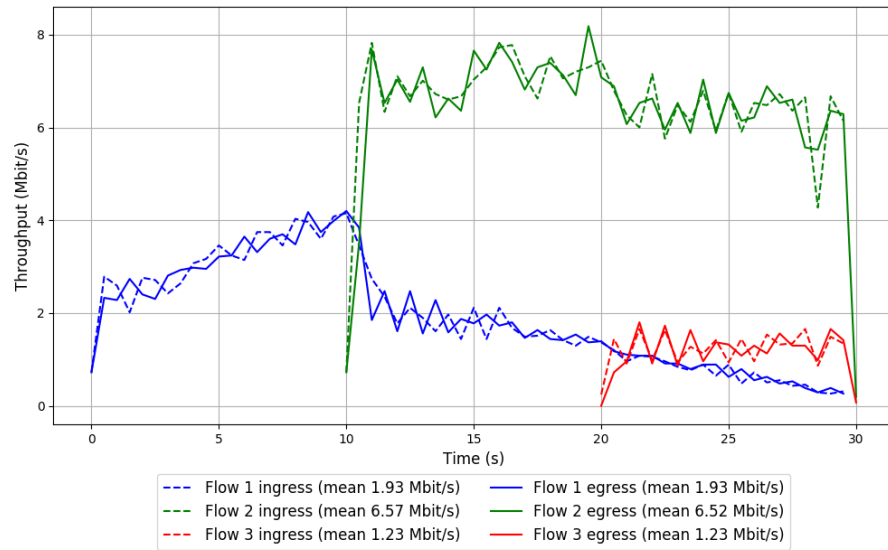
-- Flow 3:

Average throughput: 1.23 Mbit/s

95th percentile per-packet one-way delay: 293.518 ms

Loss rate: 1.87%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-01-31 10:57:33

End at: 2018-01-31 10:58:03

Local clock offset: -1.109 ms

Remote clock offset: 4.443 ms

Below is generated by plot.py at 2018-01-31 12:30:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.29 Mbit/s

95th percentile per-packet one-way delay: 961.464 ms

Loss rate: 2.82%

-- Flow 1:

Average throughput: 8.28 Mbit/s

95th percentile per-packet one-way delay: 961.515 ms

Loss rate: 2.82%

-- Flow 2:

Average throughput: 0.02 Mbit/s

95th percentile per-packet one-way delay: 925.062 ms

Loss rate: 3.70%

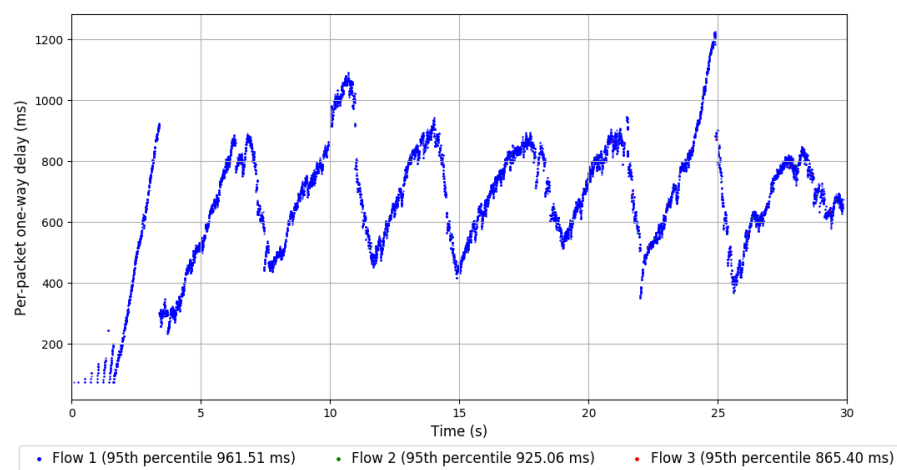
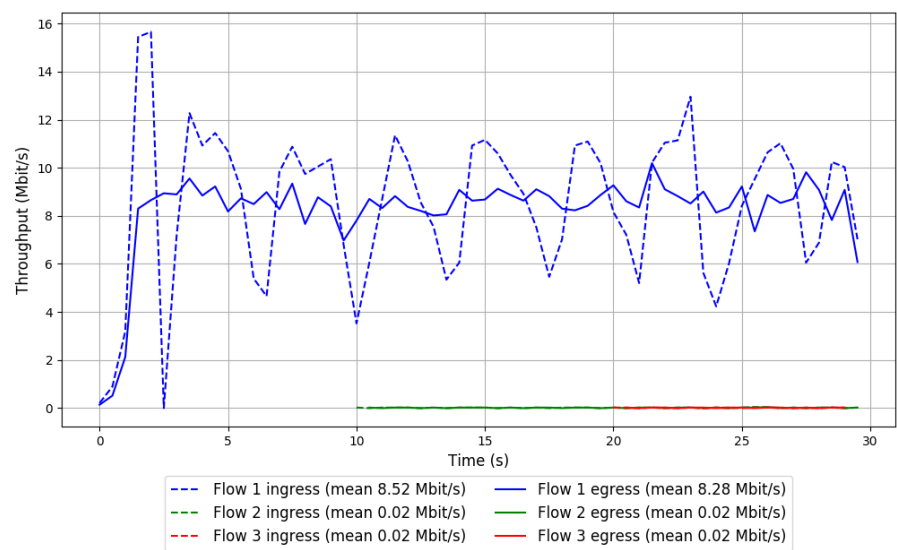
-- Flow 3:

Average throughput: 0.02 Mbit/s

95th percentile per-packet one-way delay: 865.399 ms

Loss rate: 7.69%

Run 1: Report of Verus — Data Link

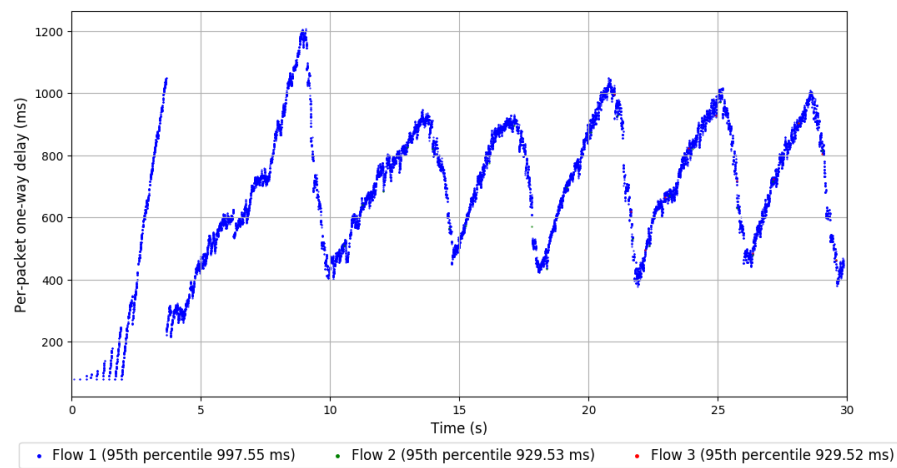
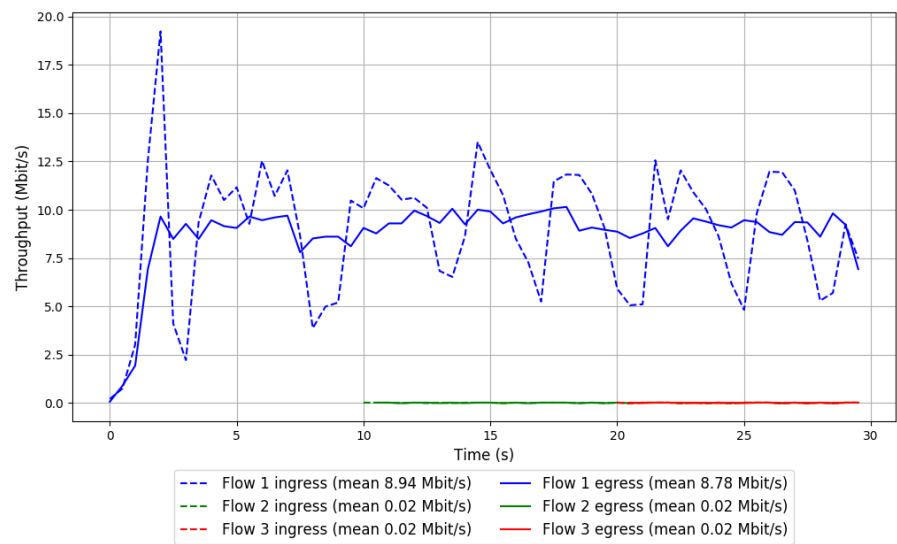


Run 2: Statistics of Verus

Start at: 2018-01-31 11:25:13
End at: 2018-01-31 11:25:43
Local clock offset: -1.043 ms
Remote clock offset: 4.701 ms

Below is generated by plot.py at 2018-01-31 12:30:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 997.551 ms
Loss rate: 1.85%
-- Flow 1:
Average throughput: 8.78 Mbit/s
95th percentile per-packet one-way delay: 997.551 ms
Loss rate: 1.85%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 929.528 ms
Loss rate: 3.85%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 929.524 ms
Loss rate: 7.69%

Run 2: Report of Verus — Data Link

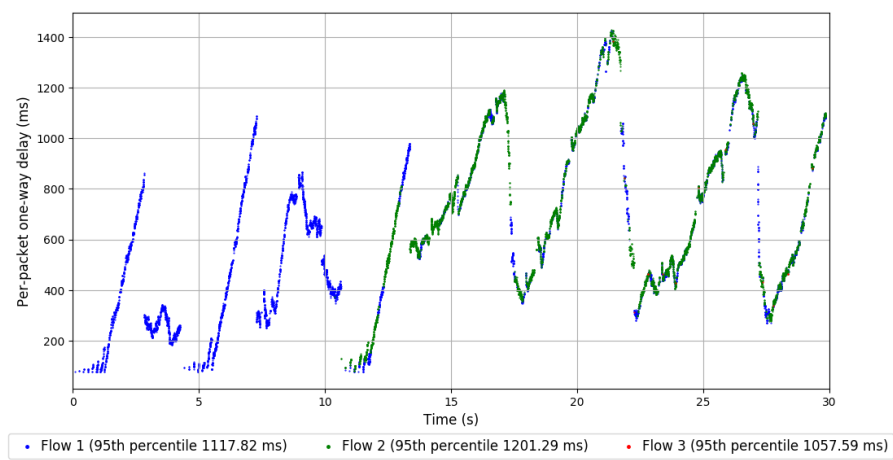
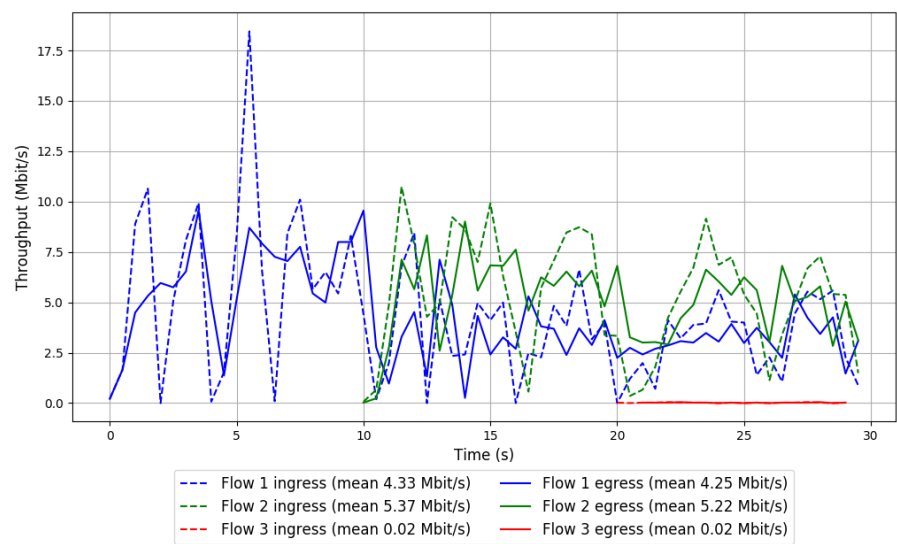


Run 3: Statistics of Verus

Start at: 2018-01-31 11:53:46
End at: 2018-01-31 11:54:16
Local clock offset: -0.409 ms
Remote clock offset: 3.862 ms

Below is generated by plot.py at 2018-01-31 12:30:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.66 Mbit/s
95th percentile per-packet one-way delay: 1167.270 ms
Loss rate: 3.00%
-- Flow 1:
Average throughput: 4.25 Mbit/s
95th percentile per-packet one-way delay: 1117.824 ms
Loss rate: 2.07%
-- Flow 2:
Average throughput: 5.22 Mbit/s
95th percentile per-packet one-way delay: 1201.293 ms
Loss rate: 4.12%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 1057.589 ms
Loss rate: 6.25%

Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

Start at: 2018-01-31 11:16:05

End at: 2018-01-31 11:16:35

Local clock offset: -1.263 ms

Remote clock offset: 4.716 ms

Below is generated by plot.py at 2018-01-31 12:30:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.45 Mbit/s

95th percentile per-packet one-way delay: 96.539 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 0.74 Mbit/s

95th percentile per-packet one-way delay: 96.249 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 0.65 Mbit/s

95th percentile per-packet one-way delay: 97.702 ms

Loss rate: 0.10%

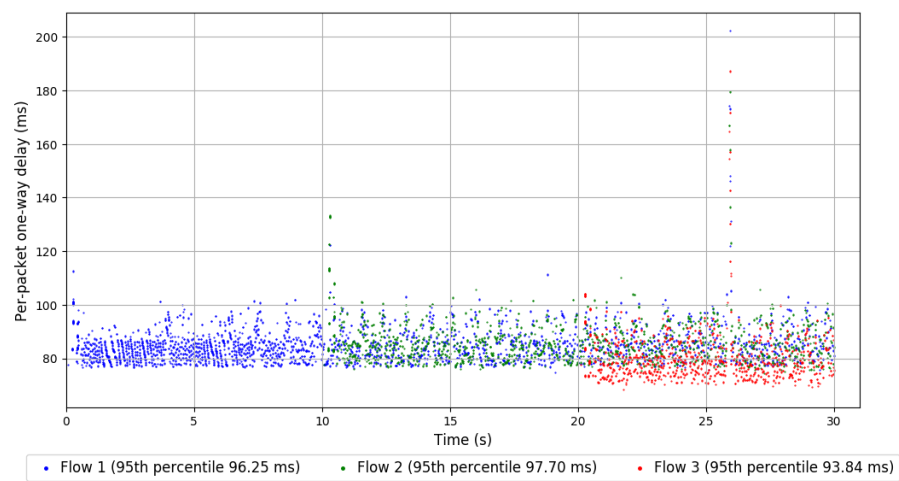
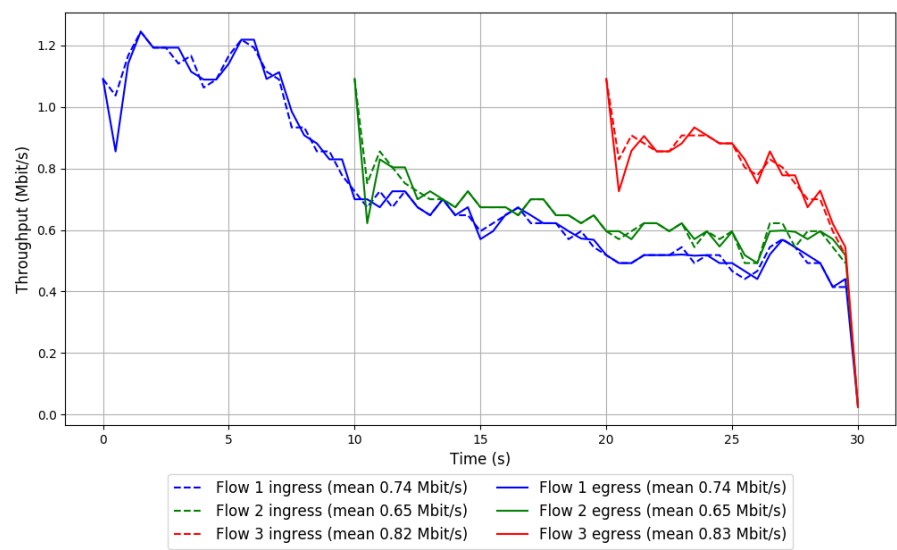
-- Flow 3:

Average throughput: 0.83 Mbit/s

95th percentile per-packet one-way delay: 93.842 ms

Loss rate: 0.16%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-01-31 11:44:05

End at: 2018-01-31 11:44:35

Local clock offset: -0.925 ms

Remote clock offset: 4.257 ms

Below is generated by plot.py at 2018-01-31 12:30:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.96 Mbit/s

95th percentile per-packet one-way delay: 100.036 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 99.820 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 0.49 Mbit/s

95th percentile per-packet one-way delay: 101.927 ms

Loss rate: 0.01%

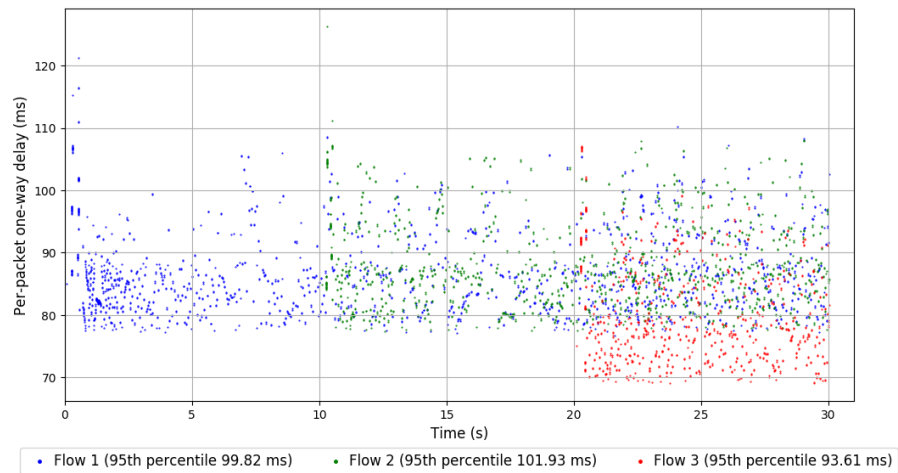
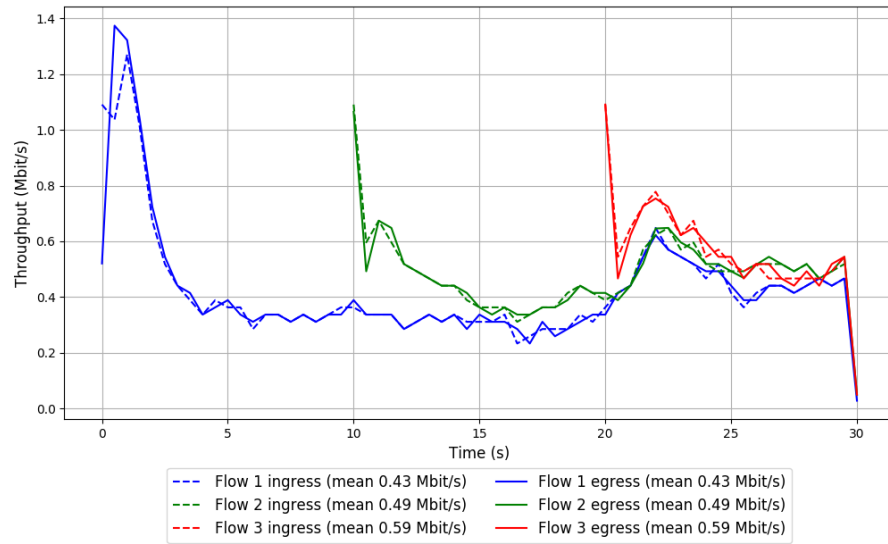
-- Flow 3:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 93.606 ms

Loss rate: 0.02%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-01-31 12:14:21

End at: 2018-01-31 12:14:51

Local clock offset: -0.442 ms

Remote clock offset: 2.946 ms

Below is generated by plot.py at 2018-01-31 12:30:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.29 Mbit/s

95th percentile per-packet one-way delay: 95.865 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.70 Mbit/s

95th percentile per-packet one-way delay: 95.220 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 92.080 ms

Loss rate: 0.00%

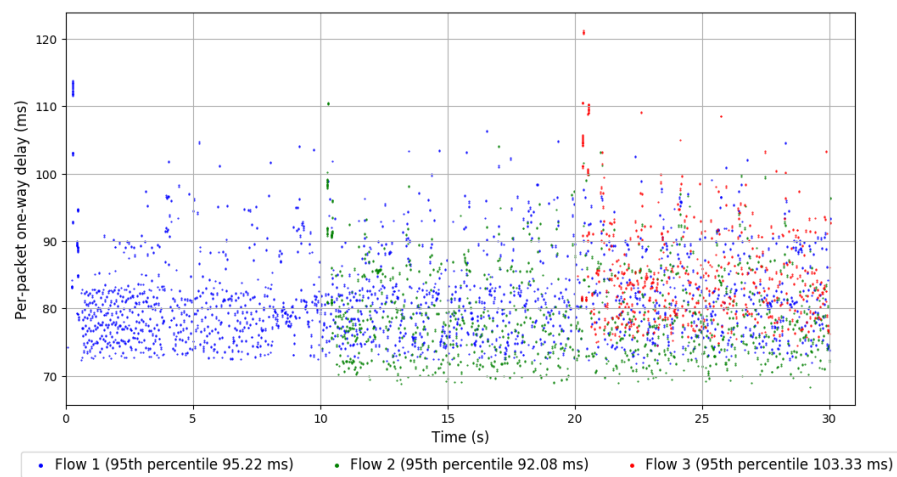
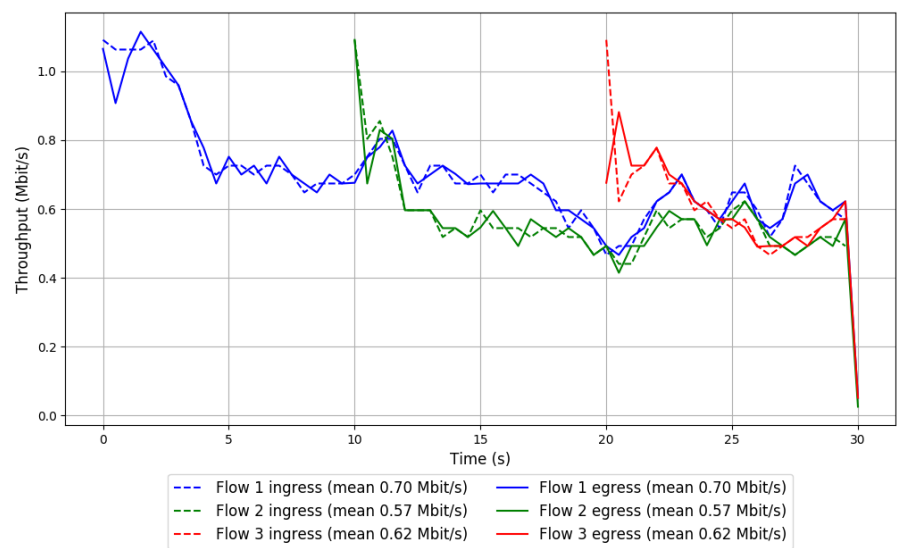
-- Flow 3:

Average throughput: 0.62 Mbit/s

95th percentile per-packet one-way delay: 103.335 ms

Loss rate: 0.00%

Run 3: Report of Copa — Data Link

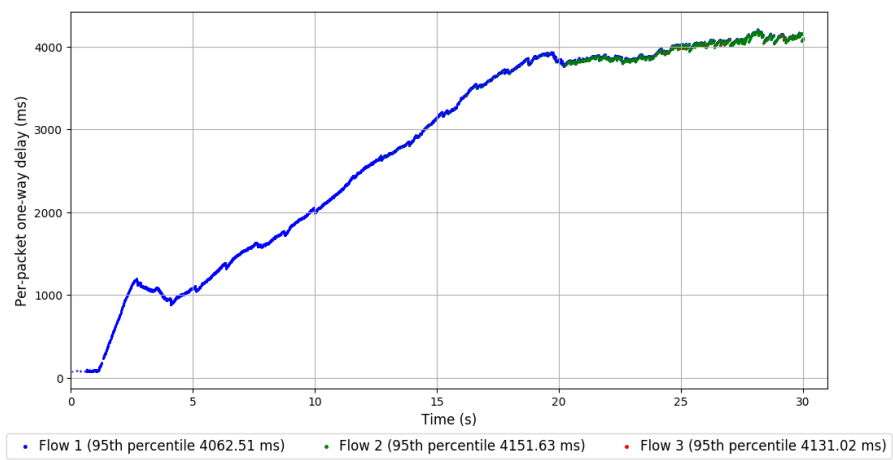
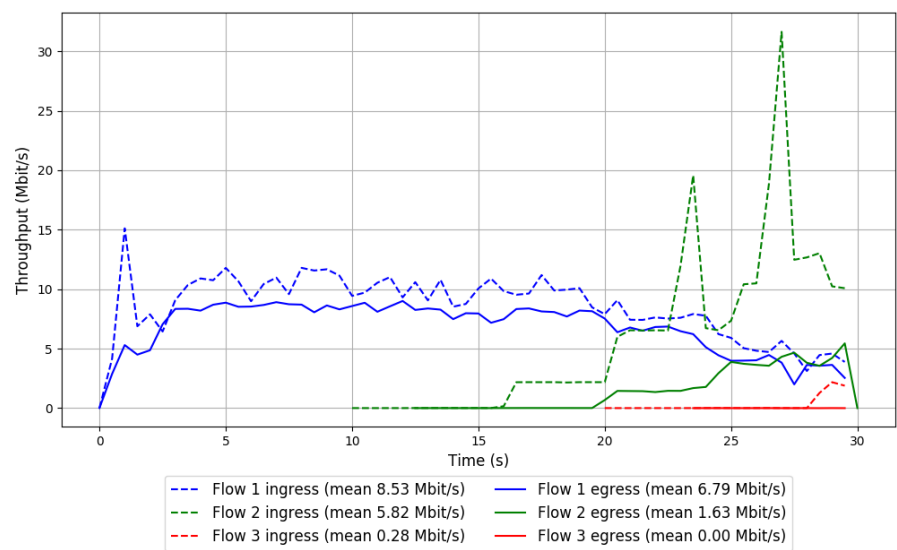


```
Run 1: Statistics of FillP

Start at: 2018-01-31 11:08:20
End at: 2018-01-31 11:08:50
Local clock offset: -1.056 ms
Remote clock offset: 4.578 ms

# Below is generated by plot.py at 2018-01-31 12:30:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 4106.814 ms
Loss rate: 38.16%
-- Flow 1:
Average throughput: 6.79 Mbit/s
95th percentile per-packet one-way delay: 4062.509 ms
Loss rate: 20.51%
-- Flow 2:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 4151.626 ms
Loss rate: 75.59%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 4131.018 ms
Loss rate: 99.43%
```

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-01-31 11:35:58

End at: 2018-01-31 11:36:28

Local clock offset: -0.988 ms

Remote clock offset: 4.522 ms

Below is generated by plot.py at 2018-01-31 12:30:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.13 Mbit/s

95th percentile per-packet one-way delay: 4158.231 ms

Loss rate: 40.46%

-- Flow 1:

Average throughput: 7.45 Mbit/s

95th percentile per-packet one-way delay: 4166.794 ms

Loss rate: 30.54%

-- Flow 2:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 4136.356 ms

Loss rate: 75.83%

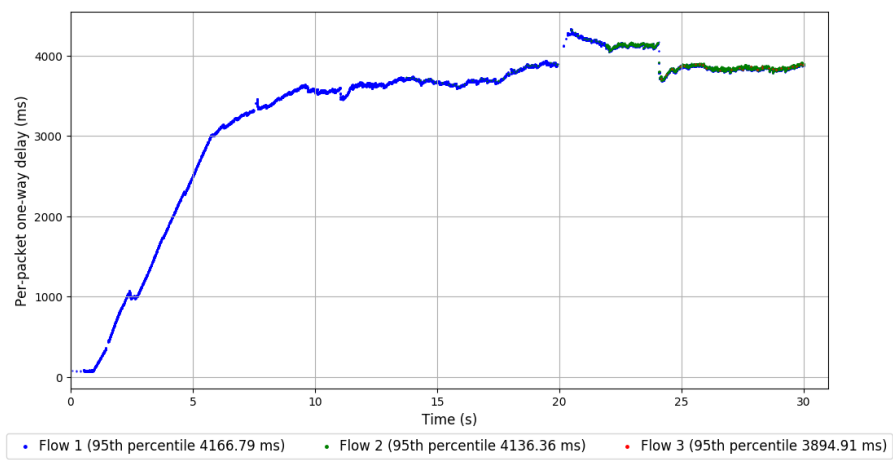
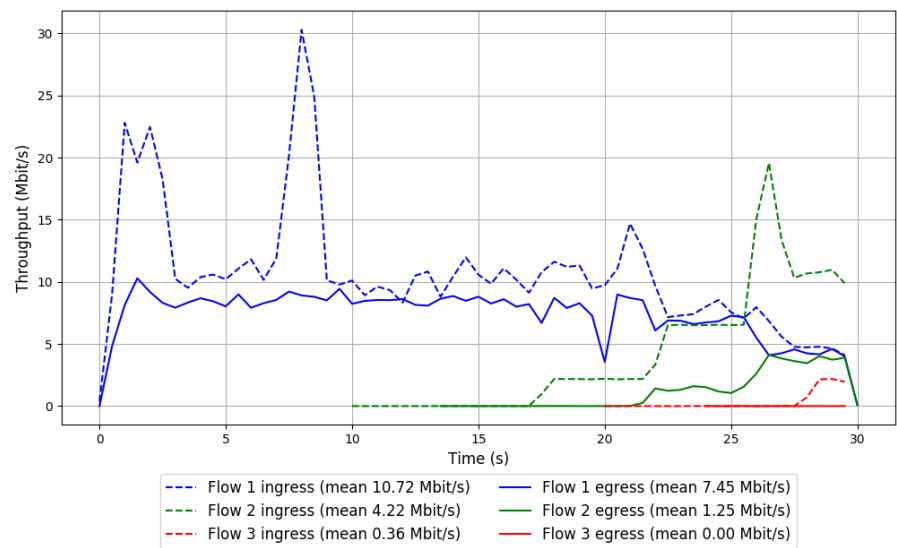
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 3894.909 ms

Loss rate: 99.26%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-01-31 12:04:33

End at: 2018-01-31 12:05:03

Local clock offset: -1.243 ms

Remote clock offset: 3.441 ms

Below is generated by plot.py at 2018-01-31 12:30:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.66 Mbit/s

95th percentile per-packet one-way delay: 7406.629 ms

Loss rate: 38.08%

-- Flow 1:

Average throughput: 4.49 Mbit/s

95th percentile per-packet one-way delay: 7409.002 ms

Loss rate: 30.30%

-- Flow 2:

Average throughput: 0.32 Mbit/s

95th percentile per-packet one-way delay: 7115.842 ms

Loss rate: 84.09%

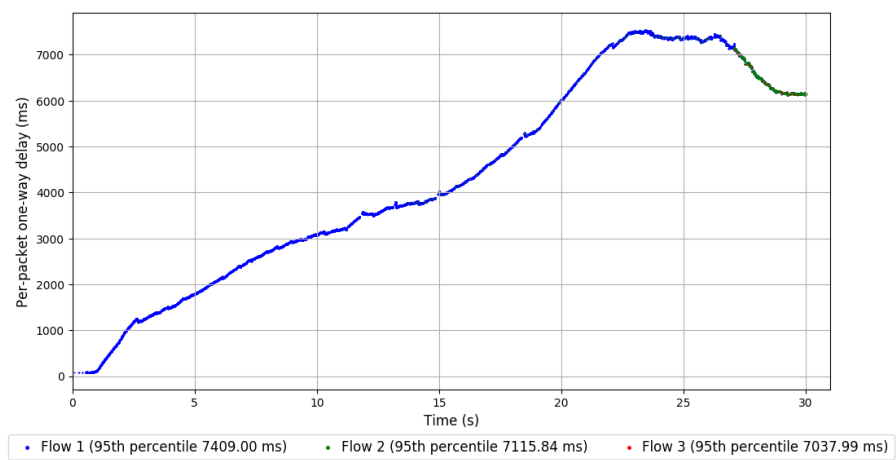
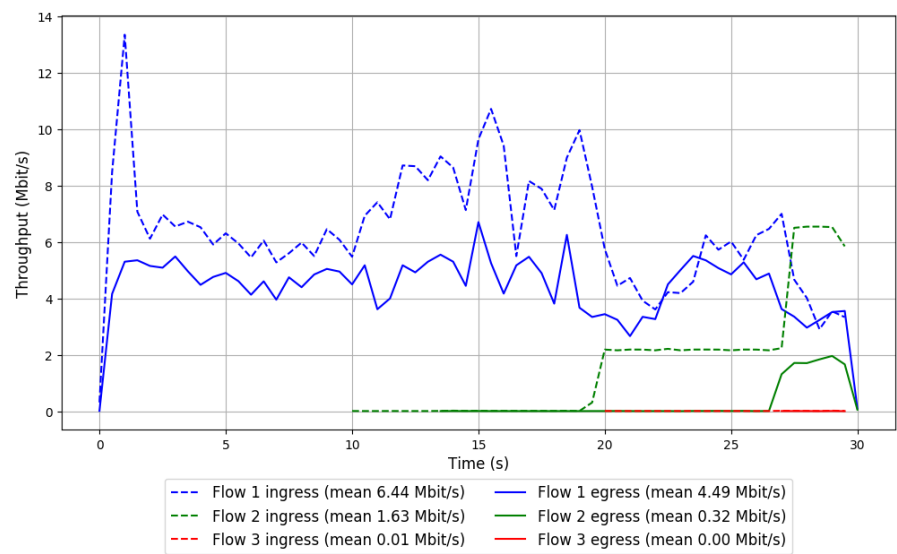
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 7037.986 ms

Loss rate: 84.42%

Run 3: Report of FillP — Data Link



Run 1: Statistics of Indigo-1-32

Start at: 2018-01-31 11:23:43

End at: 2018-01-31 11:24:13

Local clock offset: -0.96 ms

Remote clock offset: 4.709 ms

Below is generated by plot.py at 2018-01-31 12:30:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.00 Mbit/s

95th percentile per-packet one-way delay: 118.684 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 2.30 Mbit/s

95th percentile per-packet one-way delay: 118.767 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 1.75 Mbit/s

95th percentile per-packet one-way delay: 113.322 ms

Loss rate: 0.00%

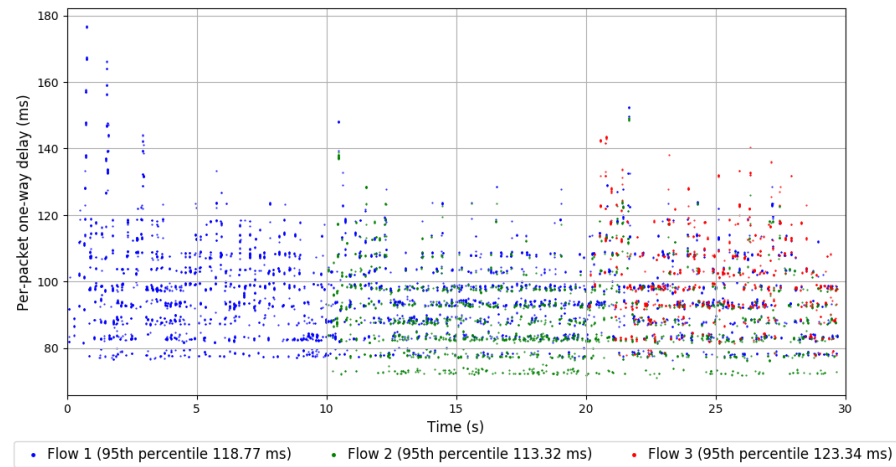
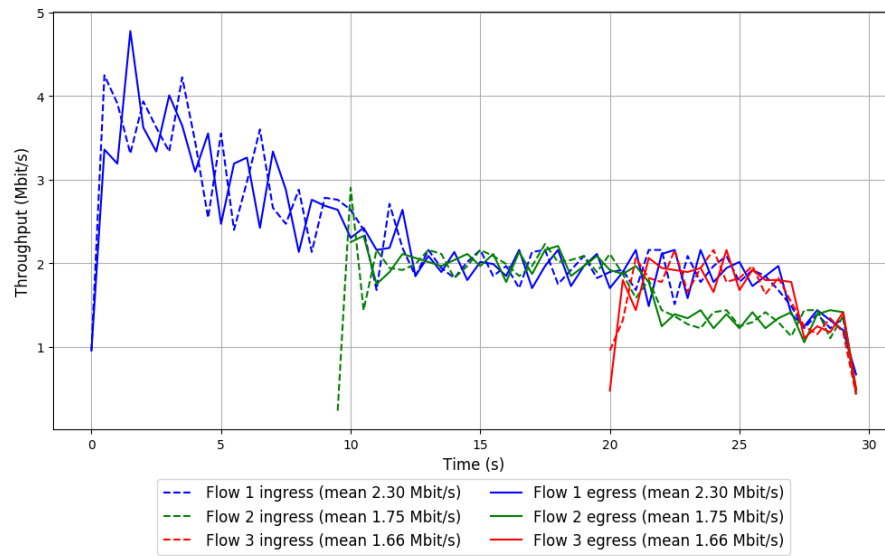
-- Flow 3:

Average throughput: 1.66 Mbit/s

95th percentile per-packet one-way delay: 123.339 ms

Loss rate: 0.23%

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



Run 2: Statistics of Indigo-1-32

Start at: 2018-01-31 11:52:12

End at: 2018-01-31 11:52:42

Local clock offset: -0.795 ms

Remote clock offset: 3.998 ms

Below is generated by plot.py at 2018-01-31 12:30:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.17 Mbit/s

95th percentile per-packet one-way delay: 157.720 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 148.474 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 2.52 Mbit/s

95th percentile per-packet one-way delay: 168.785 ms

Loss rate: 0.05%

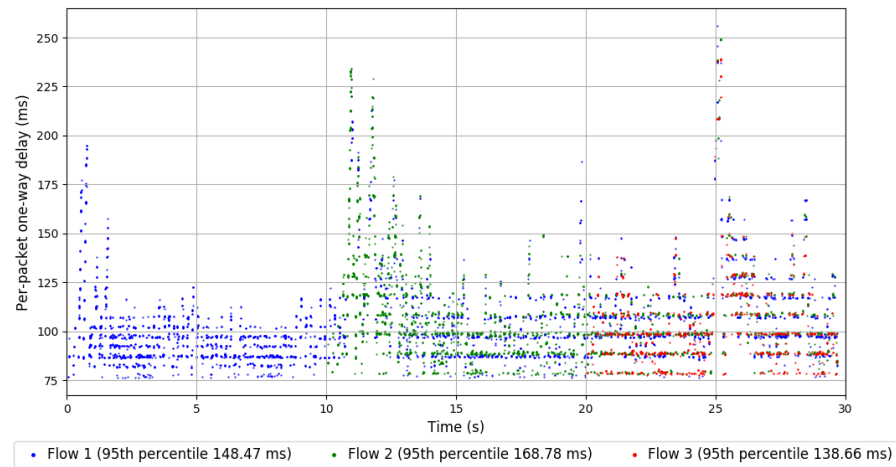
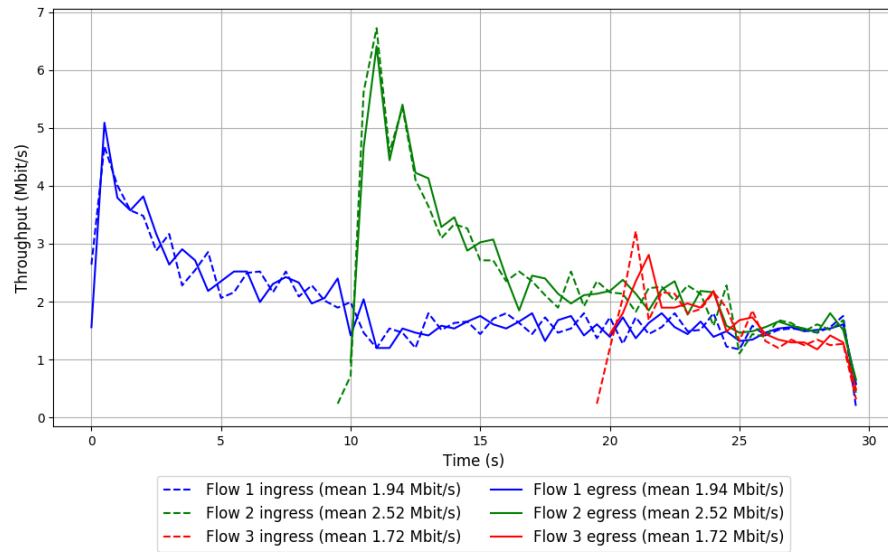
-- Flow 3:

Average throughput: 1.72 Mbit/s

95th percentile per-packet one-way delay: 138.661 ms

Loss rate: 0.00%

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



Run 3: Statistics of Indigo-1-32

/home/ubuntu/pantheon_data/2018-01-31T10-56-AWS-Korea-to-China-ppp0-3-runs-3-flows/indigo_1.

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

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Figure is missing

Run 1: Statistics of Vivace-latency

Start at: 2018-01-31 11:14:26

End at: 2018-01-31 11:14:56

Local clock offset: -1.232 ms

Remote clock offset: 4.646 ms

Below is generated by plot.py at 2018-01-31 12:30:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.29 Mbit/s

95th percentile per-packet one-way delay: 1840.445 ms

Loss rate: 5.69%

-- Flow 1:

Average throughput: 4.35 Mbit/s

95th percentile per-packet one-way delay: 1824.057 ms

Loss rate: 4.07%

-- Flow 2:

Average throughput: 3.63 Mbit/s

95th percentile per-packet one-way delay: 1841.197 ms

Loss rate: 6.69%

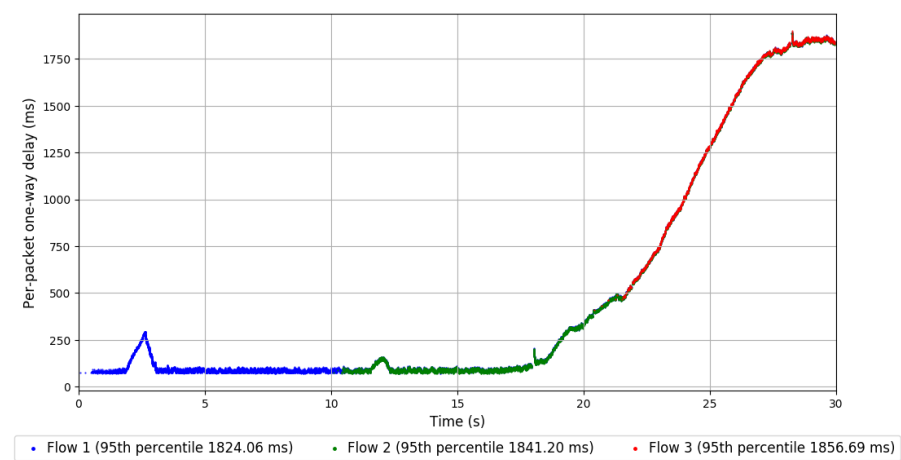
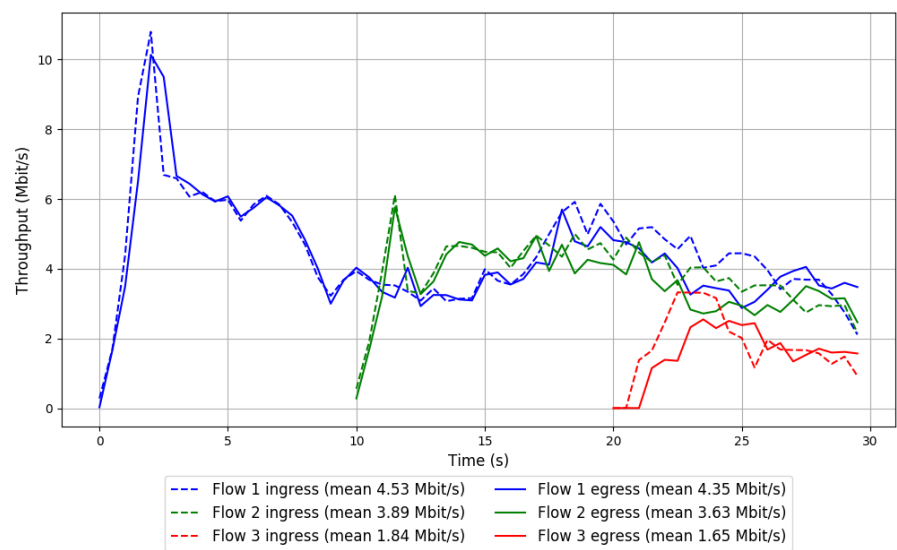
-- Flow 3:

Average throughput: 1.65 Mbit/s

95th percentile per-packet one-way delay: 1856.694 ms

Loss rate: 13.54%

Run 1: Report of Vivace-latency — Data Link



Run 2: Statistics of Vivace-latency

Start at: 2018-01-31 11:42:25

End at: 2018-01-31 11:42:55

Local clock offset: -0.622 ms

Remote clock offset: 4.299 ms

Below is generated by plot.py at 2018-01-31 12:30:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.77 Mbit/s

95th percentile per-packet one-way delay: 614.054 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 2.39 Mbit/s

95th percentile per-packet one-way delay: 1570.115 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 3.05 Mbit/s

95th percentile per-packet one-way delay: 591.163 ms

Loss rate: 0.06%

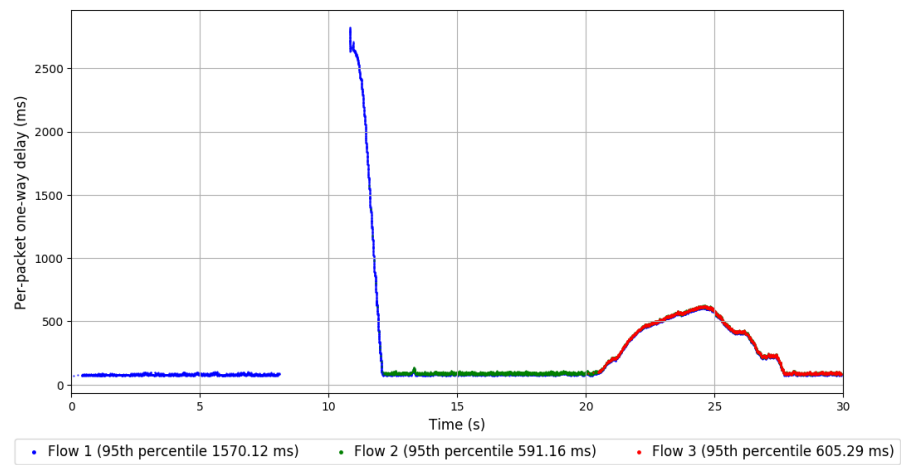
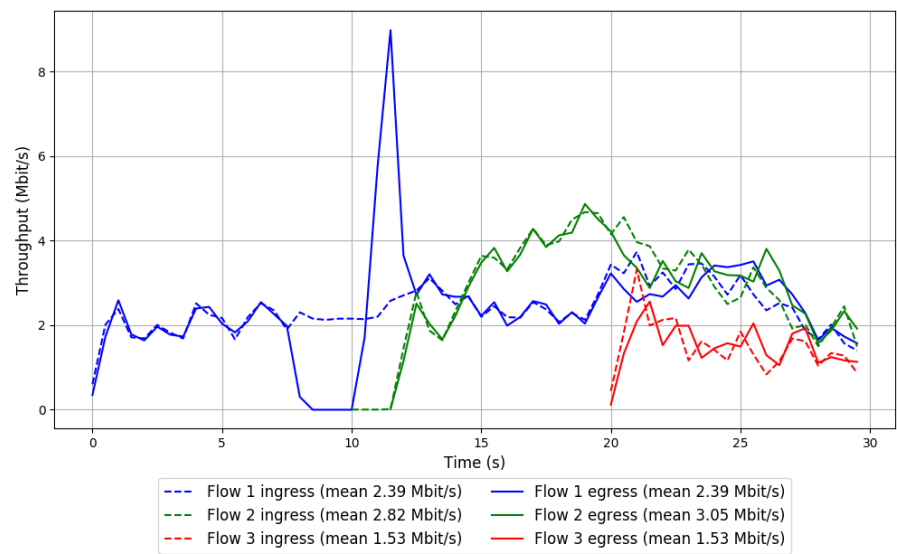
-- Flow 3:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 605.291 ms

Loss rate: 0.31%

Run 2: Report of Vivace-latency — Data Link



Run 3: Statistics of Vivace-latency

Start at: 2018-01-31 12:12:35

End at: 2018-01-31 12:13:05

Local clock offset: -0.469 ms

Remote clock offset: 3.108 ms

Below is generated by plot.py at 2018-01-31 12:30:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 6.83 Mbit/s

95th percentile per-packet one-way delay: 363.265 ms

Loss rate: 1.09%

-- Flow 1:

Average throughput: 5.47 Mbit/s

95th percentile per-packet one-way delay: 285.540 ms

Loss rate: 0.83%

-- Flow 2:

Average throughput: 1.37 Mbit/s

95th percentile per-packet one-way delay: 389.608 ms

Loss rate: 1.30%

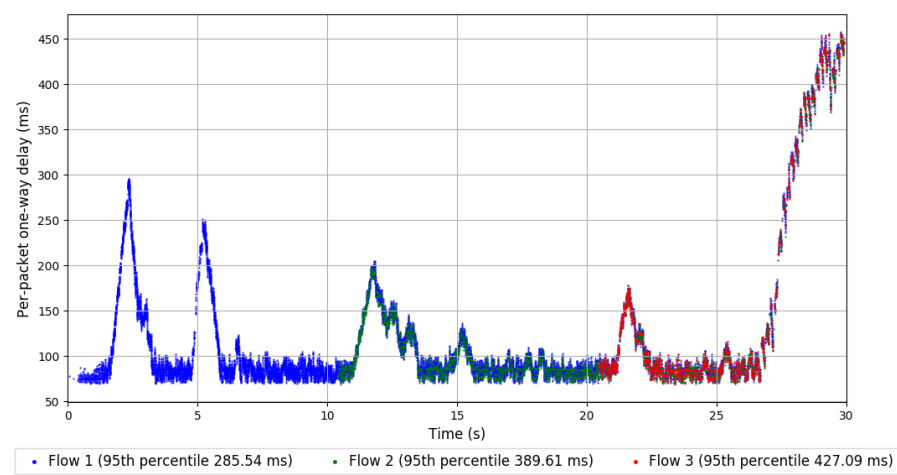
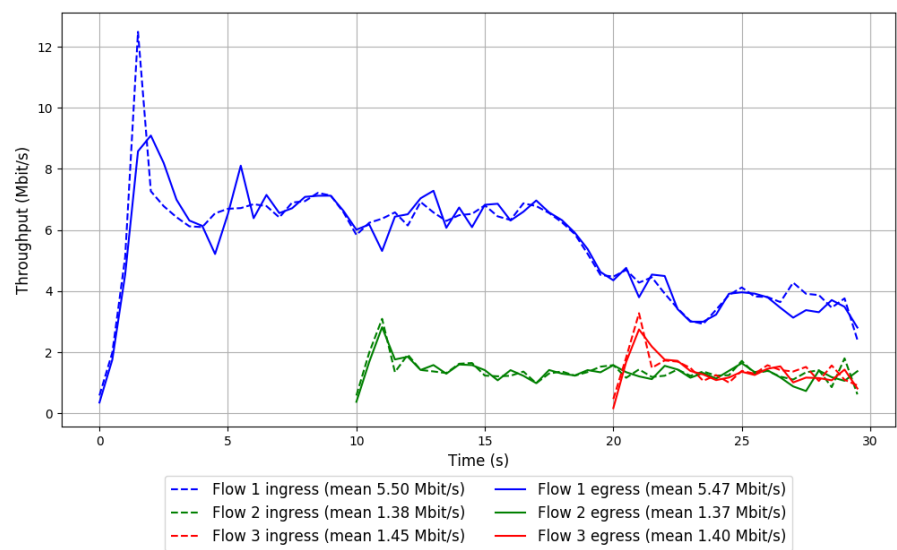
-- Flow 3:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 427.092 ms

Loss rate: 3.70%

Run 3: Report of Vivace-latency — Data Link



Run 1: Statistics of Vivace-loss

Start at: 2018-01-31 11:20:40

End at: 2018-01-31 11:21:10

Local clock offset: -1.107 ms

Remote clock offset: 4.665 ms

Below is generated by plot.py at 2018-01-31 12:30:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.00 Mbit/s

95th percentile per-packet one-way delay: 7227.915 ms

Loss rate: 78.45%

-- Flow 1:

Average throughput: 8.00 Mbit/s

95th percentile per-packet one-way delay: 7227.898 ms

Loss rate: 78.45%

-- Flow 2:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 6659.276 ms

Loss rate: 86.15%

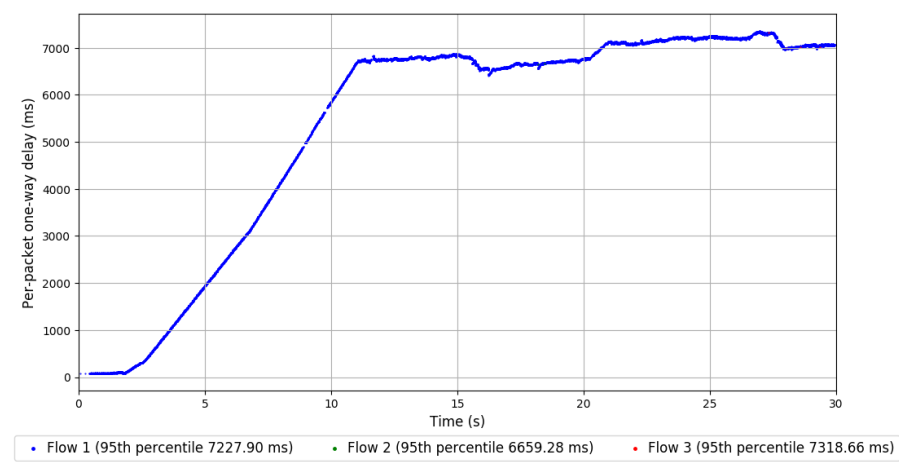
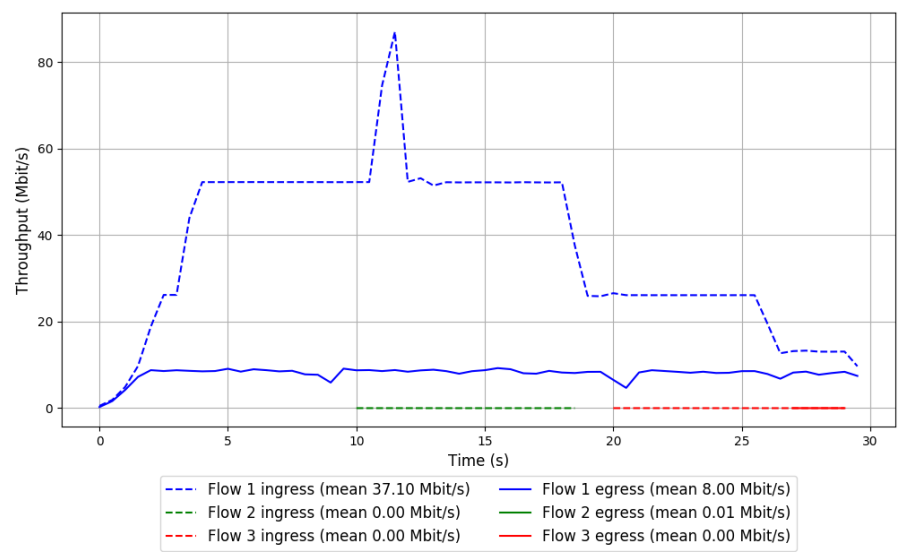
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 7318.662 ms

Loss rate: 76.30%

Run 1: Report of Vivace-loss — Data Link



Run 2: Statistics of Vivace-loss

Start at: 2018-01-31 11:49:00

End at: 2018-01-31 11:49:30

Local clock offset: -3.68 ms

Remote clock offset: 4.075 ms

Below is generated by plot.py at 2018-01-31 12:30:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.17 Mbit/s

95th percentile per-packet one-way delay: 7236.242 ms

Loss rate: 80.32%

-- Flow 1:

Average throughput: 8.17 Mbit/s

95th percentile per-packet one-way delay: 7236.242 ms

Loss rate: 80.32%

-- Flow 2:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 6904.787 ms

Loss rate: 86.15%

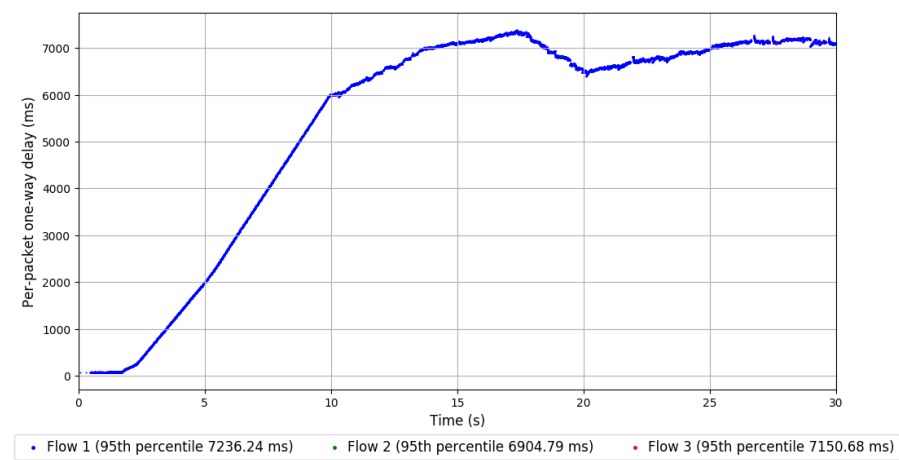
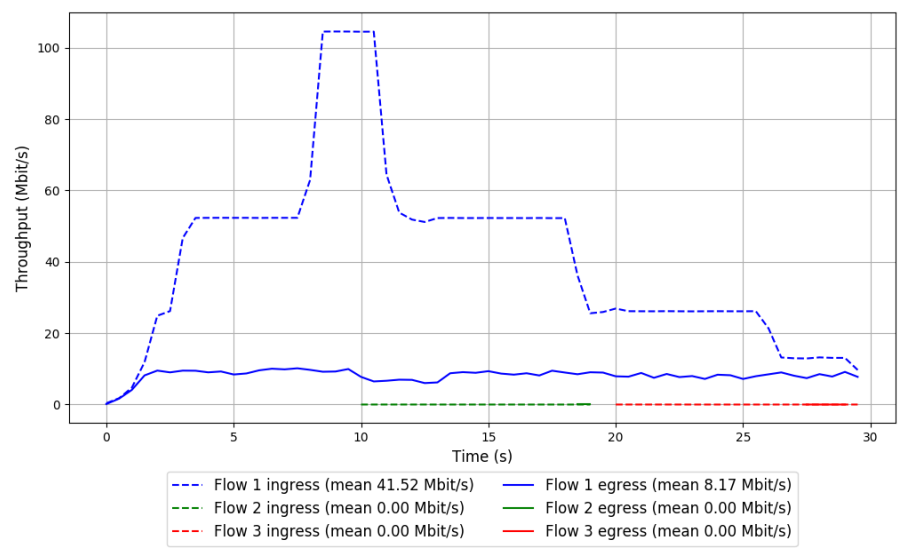
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 7150.679 ms

Loss rate: 80.84%

Run 2: Report of Vivace-loss — Data Link



Run 3: Statistics of Vivace-loss

Start at: 2018-01-31 12:21:15

End at: 2018-01-31 12:21:45

Local clock offset: -0.295 ms

Remote clock offset: 2.452 ms

Below is generated by plot.py at 2018-01-31 12:30:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.90 Mbit/s

95th percentile per-packet one-way delay: 7499.026 ms

Loss rate: 78.54%

-- Flow 1:

Average throughput: 7.90 Mbit/s

95th percentile per-packet one-way delay: 7499.026 ms

Loss rate: 78.54%

-- Flow 2:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 7341.792 ms

Loss rate: 86.15%

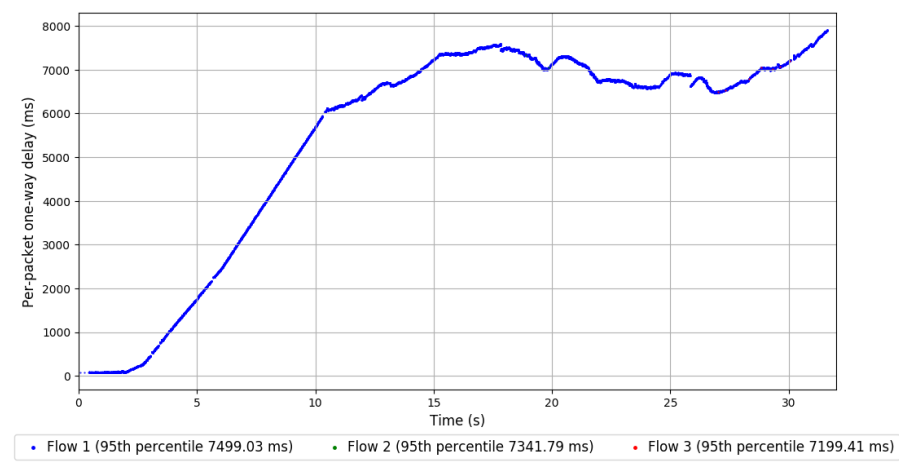
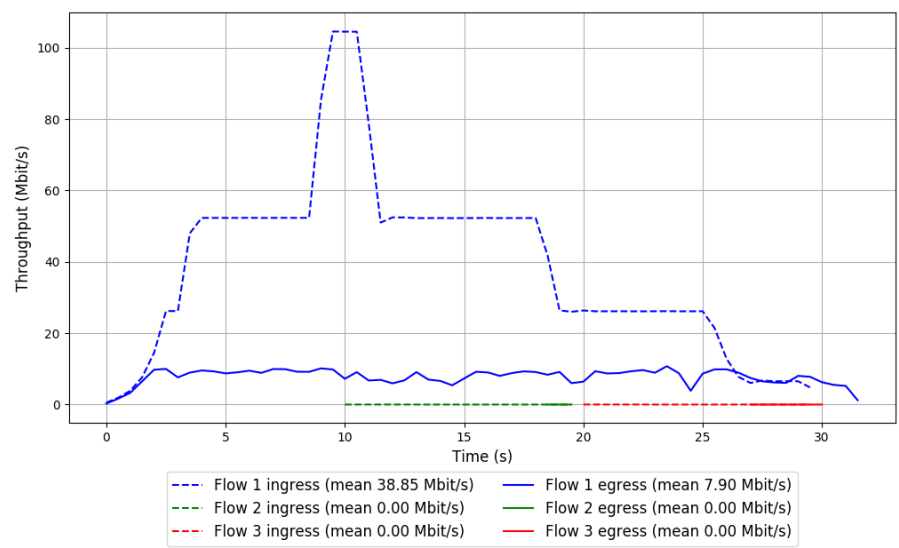
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 7199.410 ms

Loss rate: 63.75%

Run 3: Report of Vivace-loss — Data Link



Run 1: Statistics of Vivace-LTE

Start at: 2018-01-31 11:03:43

End at: 2018-01-31 11:04:13

Local clock offset: -1.104 ms

Remote clock offset: 4.519 ms

Below is generated by plot.py at 2018-01-31 12:30:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.60 Mbit/s

95th percentile per-packet one-way delay: 2612.590 ms

Loss rate: 10.46%

-- Flow 1:

Average throughput: 6.58 Mbit/s

95th percentile per-packet one-way delay: 2602.736 ms

Loss rate: 10.06%

-- Flow 2:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 2638.525 ms

Loss rate: 12.93%

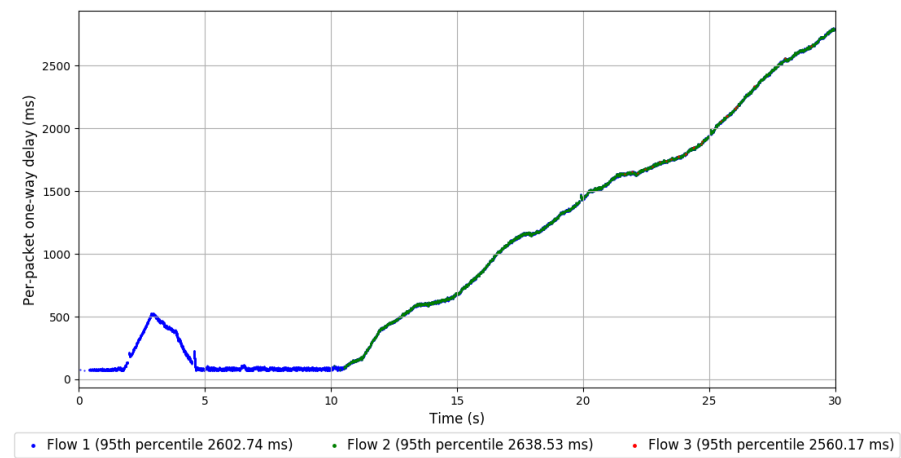
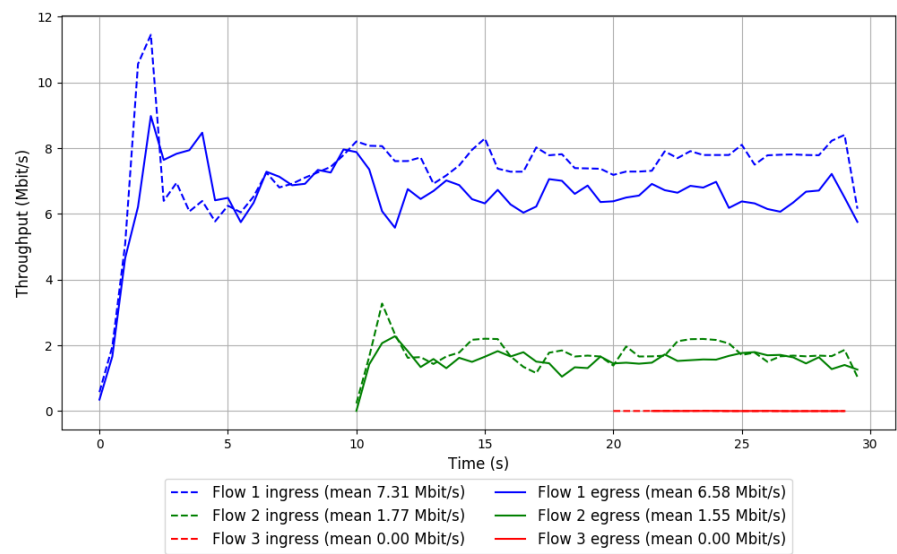
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2560.168 ms

Loss rate: 10.67%

Run 1: Report of Vivace-LTE — Data Link



Run 2: Statistics of Vivace-LTE

Start at: 2018-01-31 11:31:18

End at: 2018-01-31 11:31:48

Local clock offset: -0.684 ms

Remote clock offset: 4.748 ms

Below is generated by plot.py at 2018-01-31 12:30:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.13 Mbit/s

95th percentile per-packet one-way delay: 2760.763 ms

Loss rate: 19.88%

-- Flow 1:

Average throughput: 4.62 Mbit/s

95th percentile per-packet one-way delay: 2313.353 ms

Loss rate: 12.95%

-- Flow 2:

Average throughput: 2.93 Mbit/s

95th percentile per-packet one-way delay: 2670.751 ms

Loss rate: 19.48%

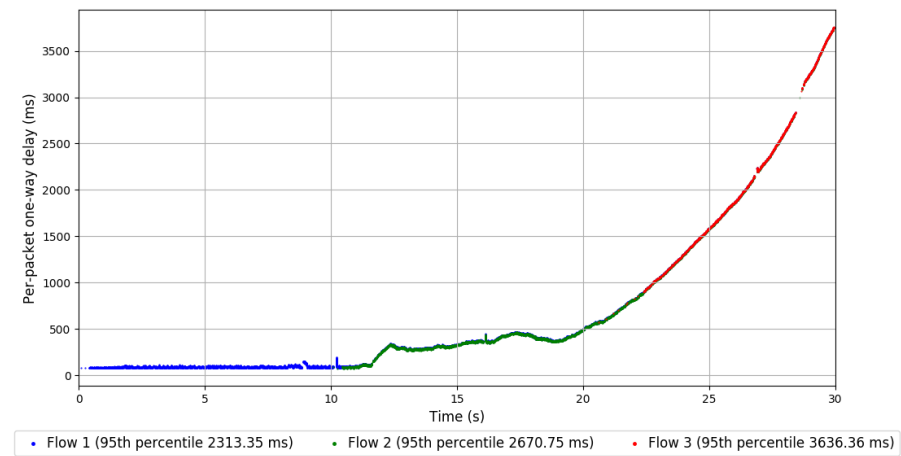
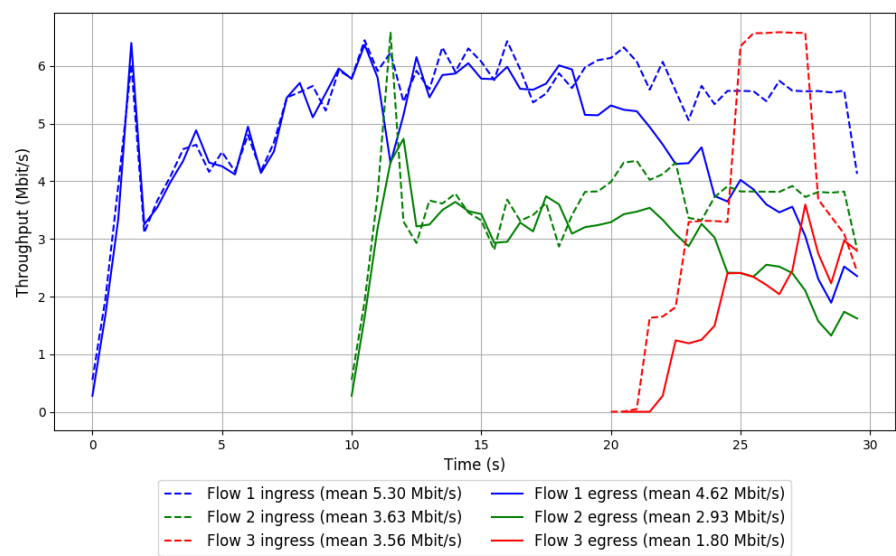
-- Flow 3:

Average throughput: 1.80 Mbit/s

95th percentile per-packet one-way delay: 3636.359 ms

Loss rate: 52.03%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-01-31 11:59:54

End at: 2018-01-31 12:00:24

Local clock offset: -0.947 ms

Remote clock offset: 3.502 ms

Below is generated by plot.py at 2018-01-31 12:30:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.02 Mbit/s

95th percentile per-packet one-way delay: 6790.256 ms

Loss rate: 30.91%

-- Flow 1:

Average throughput: 5.51 Mbit/s

95th percentile per-packet one-way delay: 6781.637 ms

Loss rate: 29.07%

-- Flow 2:

Average throughput: 2.31 Mbit/s

95th percentile per-packet one-way delay: 6822.418 ms

Loss rate: 36.86%

-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 7195.586 ms

Loss rate: 72.37%

Run 3: Report of Vivace-LTE — Data Link

