

Pantheon Report

Generated at 2017-09-18 22:23:19 (UTC).

Data path: GCE London Ethernet (*local*) → GCE Tokyo Ethernet (*remote*).

Repeated the test of 10 congestion control schemes 10 times.

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

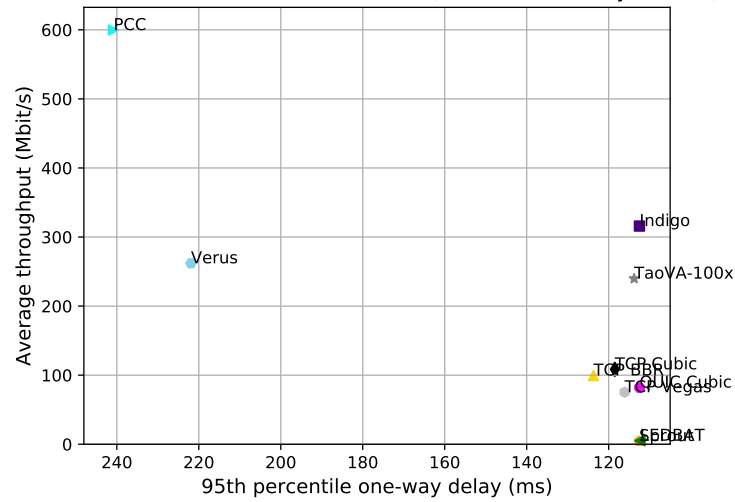
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

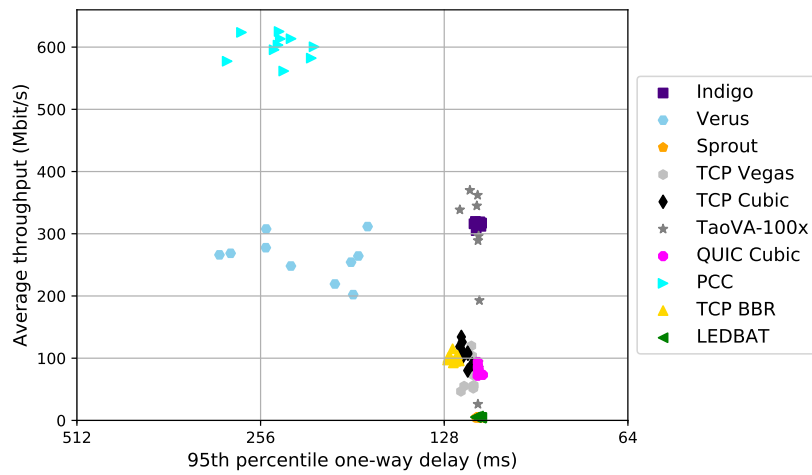
Git summary:

```
branch: master @ 57453dc11f8da93a2e03eea75289fea01b816298
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaaeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from GCE London Ethernet to GCE Tokyo Ethernet, 10 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)



test from GCE London Ethernet to GCE Tokyo Ethernet, 10 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	10	50.53	50.12	47.95	123.31	123.28	124.40	0.03	0.01	0.22
TCP Cubic	10	50.95	62.01	49.19	116.96	118.67	120.28	0.01	0.00	0.03
Indigo	10	168.07	158.24	134.58	112.05	113.00	113.85	0.00	0.01	0.01
LEDBAT	10	2.68	2.79	1.57	112.30	112.21	112.07	0.45	0.07	0.03
PCC	10	497.49	140.73	30.72	247.82	205.60	202.99	3.32	2.09	1.75
QUIC Cubic	10	47.35	41.40	22.48	111.62	111.59	111.55	0.00	0.00	0.00
Sprout	10	2.36	2.37	1.60	112.52	112.58	112.59	0.38	0.24	0.41
TaoVA-100x	10	132.77	124.27	96.11	113.60	113.94	113.92	0.01	0.01	0.02
TCP Vegas	10	36.75	42.34	31.26	114.26	116.17	116.51	0.03	0.01	0.07
Verus	10	159.14	128.42	55.35	206.59	227.32	183.24	2.02	2.79	1.10

Run 1: Statistics of TCP BBR

Start at: 2017-09-18 19:03:36

End at: 2017-09-18 19:04:06

Below is generated by plot.py at 2017-09-18 21:43:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 100.94 Mbit/s

95th percentile per-packet one-way delay: 124.992 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.83 Mbit/s

95th percentile per-packet one-way delay: 125.659 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 55.99 Mbit/s

95th percentile per-packet one-way delay: 124.499 ms

Loss rate: 0.00%

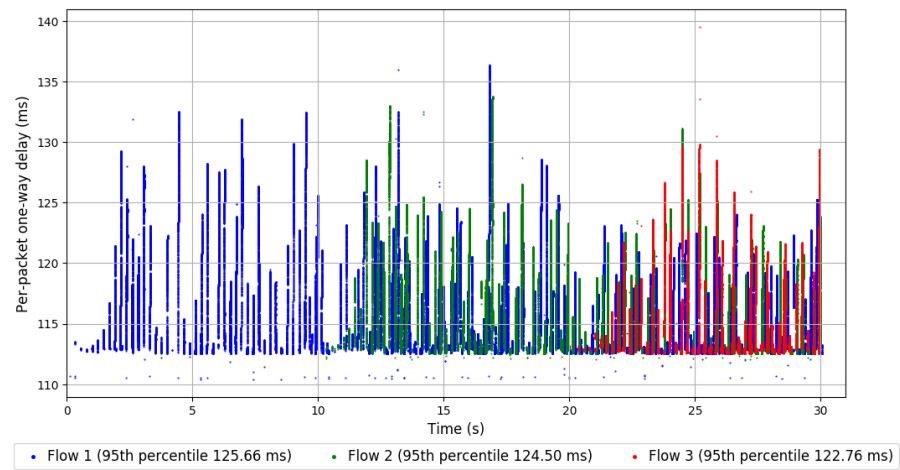
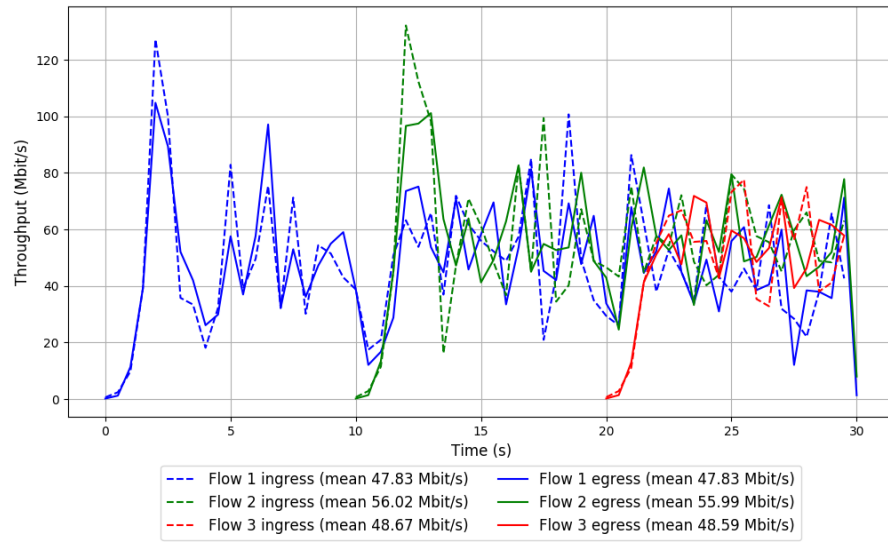
-- Flow 3:

Average throughput: 48.59 Mbit/s

95th percentile per-packet one-way delay: 122.764 ms

Loss rate: 0.00%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2017-09-18 19:13:38

End at: 2017-09-18 19:14:08

Below is generated by plot.py at 2017-09-18 21:43:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.13 Mbit/s

95th percentile per-packet one-way delay: 126.389 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 49.72 Mbit/s

95th percentile per-packet one-way delay: 124.248 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 46.71 Mbit/s

95th percentile per-packet one-way delay: 123.447 ms

Loss rate: 0.00%

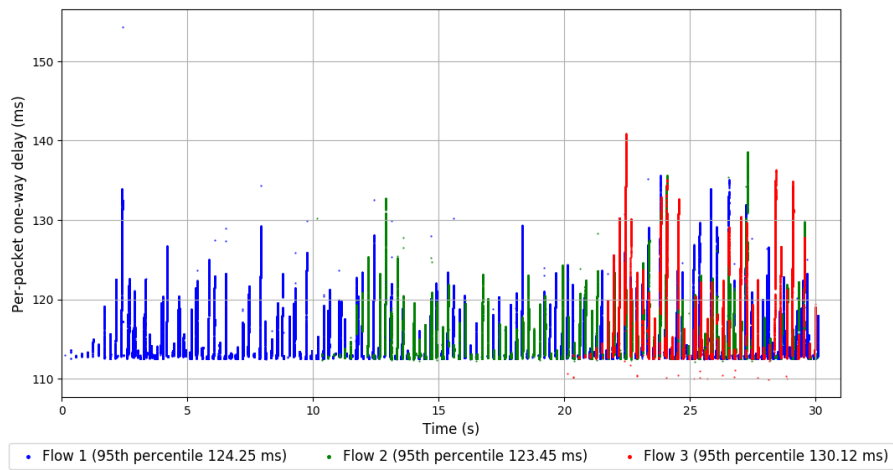
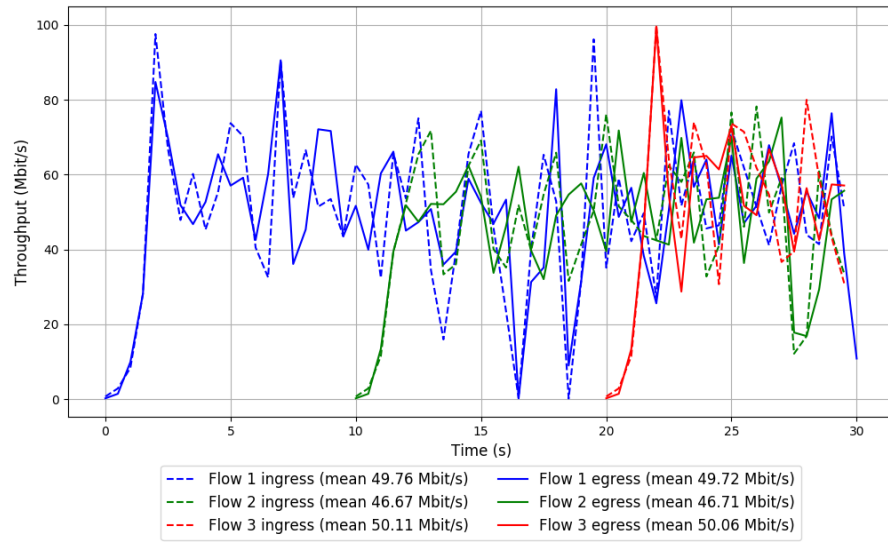
-- Flow 3:

Average throughput: 50.06 Mbit/s

95th percentile per-packet one-way delay: 130.117 ms

Loss rate: 0.03%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2017-09-18 19:23:31

End at: 2017-09-18 19:24:01

Below is generated by plot.py at 2017-09-18 21:43:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 115.22 Mbit/s

95th percentile per-packet one-way delay: 124.026 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 58.90 Mbit/s

95th percentile per-packet one-way delay: 123.771 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 60.64 Mbit/s

95th percentile per-packet one-way delay: 123.902 ms

Loss rate: 0.01%

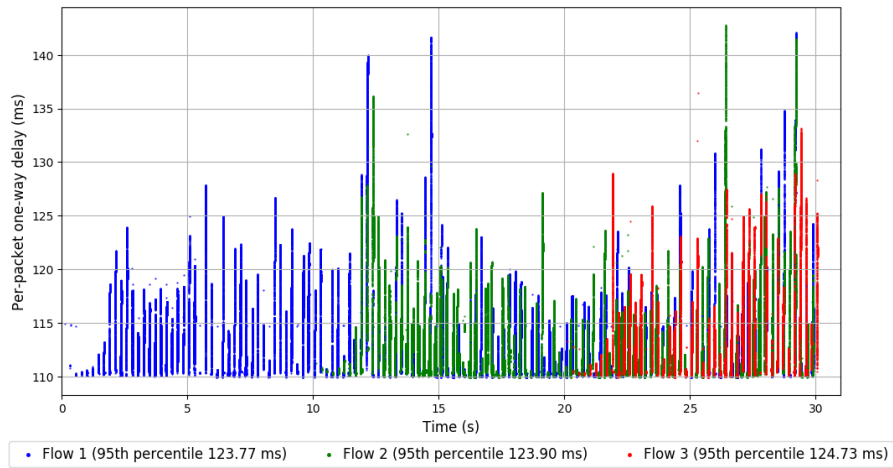
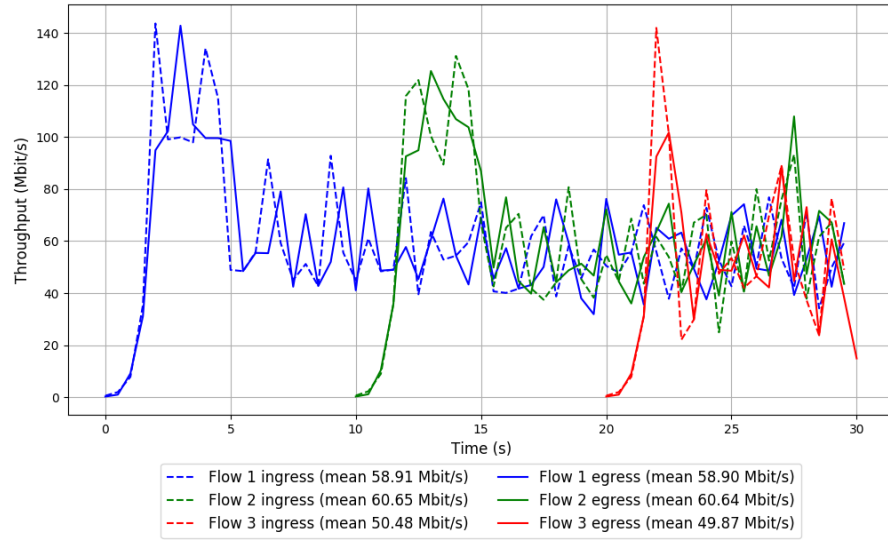
-- Flow 3:

Average throughput: 49.87 Mbit/s

95th percentile per-packet one-way delay: 124.732 ms

Loss rate: 1.16%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2017-09-18 19:33:03

End at: 2017-09-18 19:33:33

Below is generated by plot.py at 2017-09-18 21:43:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 105.11 Mbit/s

95th percentile per-packet one-way delay: 121.814 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 56.42 Mbit/s

95th percentile per-packet one-way delay: 120.931 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 49.44 Mbit/s

95th percentile per-packet one-way delay: 121.361 ms

Loss rate: 0.01%

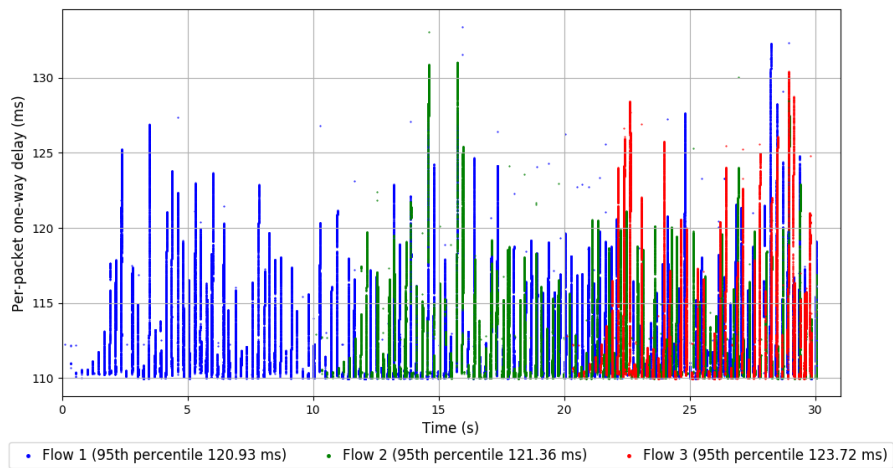
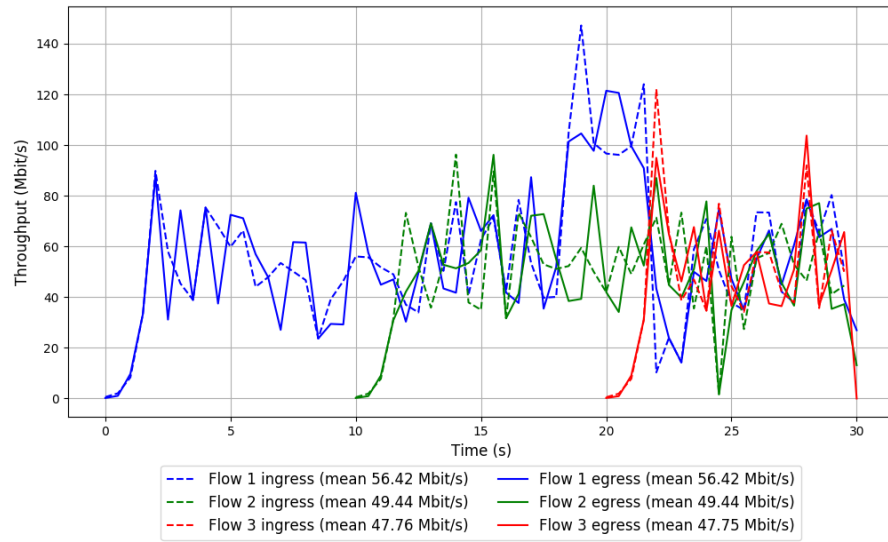
-- Flow 3:

Average throughput: 47.75 Mbit/s

95th percentile per-packet one-way delay: 123.721 ms

Loss rate: 0.00%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2017-09-18 19:42:34

End at: 2017-09-18 19:43:04

Below is generated by plot.py at 2017-09-18 21:43:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.36 Mbit/s

95th percentile per-packet one-way delay: 123.215 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 48.43 Mbit/s

95th percentile per-packet one-way delay: 122.889 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 49.03 Mbit/s

95th percentile per-packet one-way delay: 123.376 ms

Loss rate: 0.00%

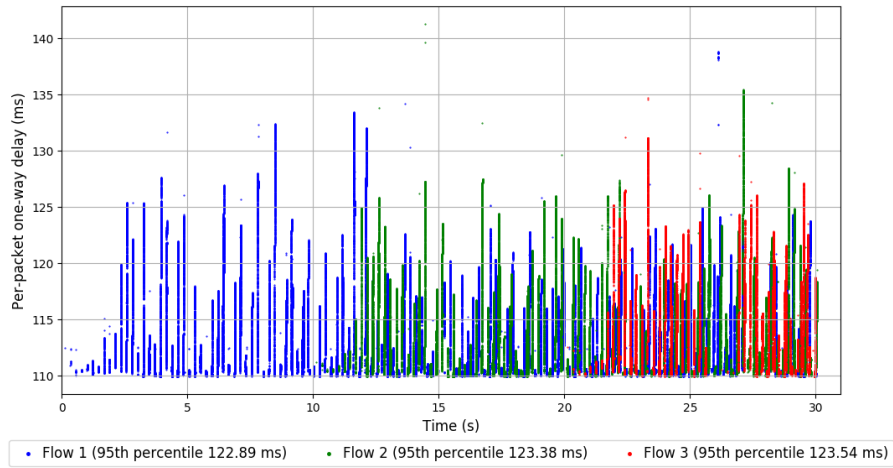
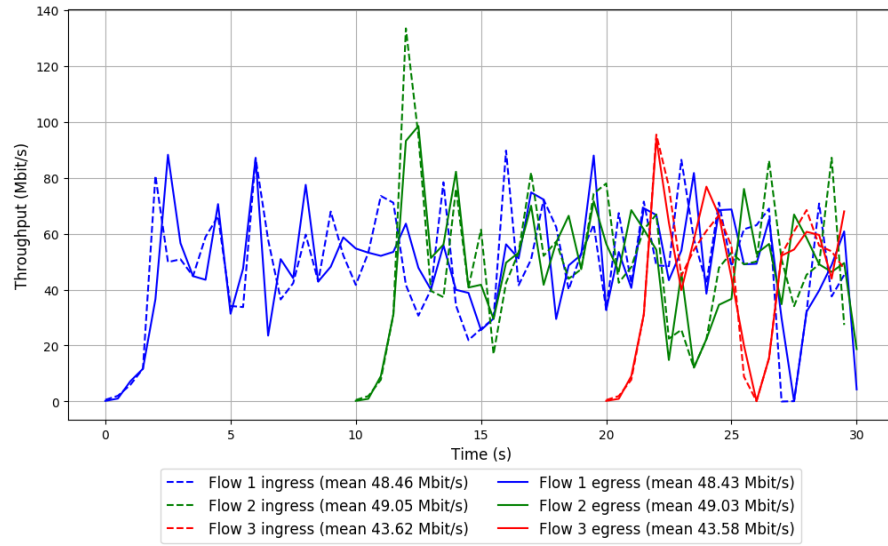
-- Flow 3:

Average throughput: 43.58 Mbit/s

95th percentile per-packet one-way delay: 123.540 ms

Loss rate: 0.02%

Run 5: Report of TCP BBR — Data Link



Run 6: Statistics of TCP BBR

Start at: 2017-09-18 19:52:33

End at: 2017-09-18 19:53:03

Below is generated by plot.py at 2017-09-18 21:43:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.36 Mbit/s

95th percentile per-packet one-way delay: 123.061 ms

Loss rate: 0.17%

-- Flow 1:

Average throughput: 49.36 Mbit/s

95th percentile per-packet one-way delay: 122.415 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 49.28 Mbit/s

95th percentile per-packet one-way delay: 124.214 ms

Loss rate: 0.02%

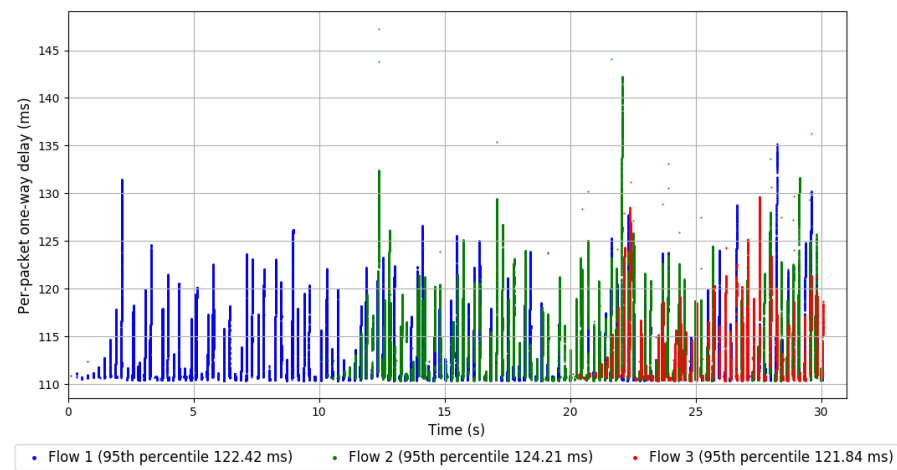
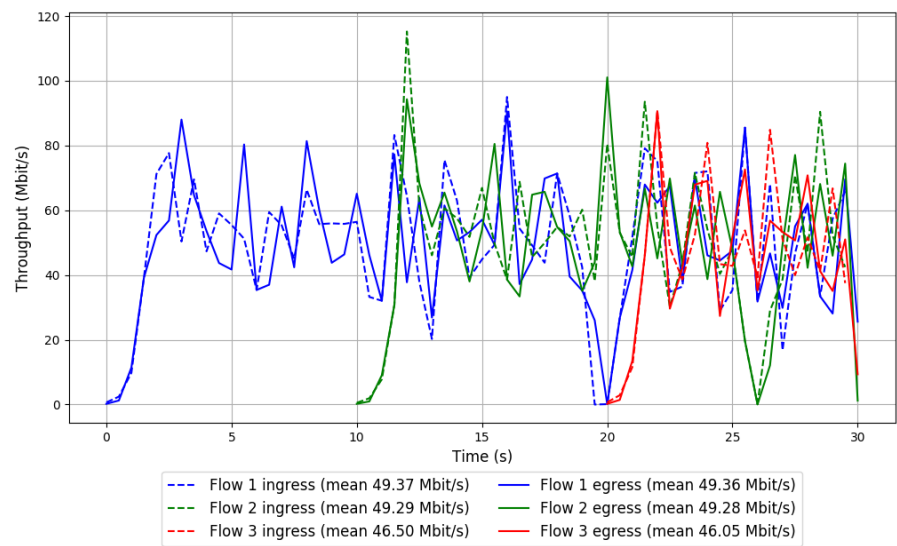
-- Flow 3:

Average throughput: 46.05 Mbit/s

95th percentile per-packet one-way delay: 121.836 ms

Loss rate: 0.96%

Run 6: Report of TCP BBR — Data Link



Run 7: Statistics of TCP BBR

Start at: 2017-09-18 20:02:28

End at: 2017-09-18 20:02:58

Below is generated by plot.py at 2017-09-18 21:43:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.63 Mbit/s

95th percentile per-packet one-way delay: 120.952 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 50.92 Mbit/s

95th percentile per-packet one-way delay: 121.089 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 45.05 Mbit/s

95th percentile per-packet one-way delay: 119.121 ms

Loss rate: 0.07%

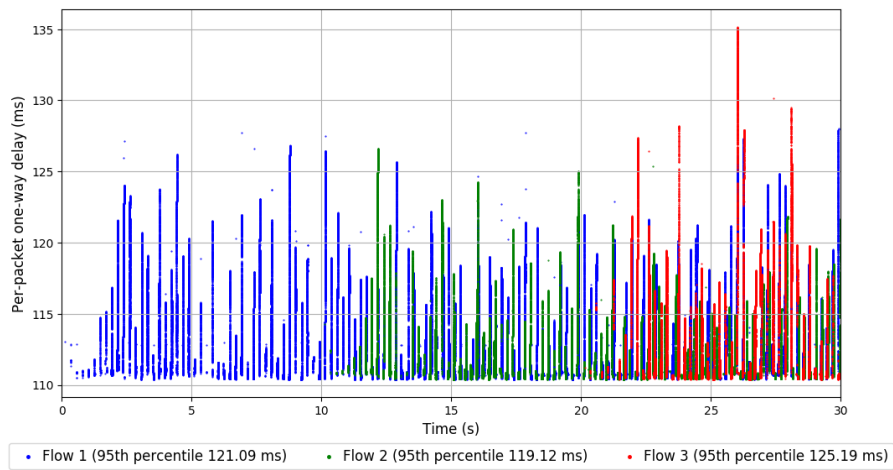
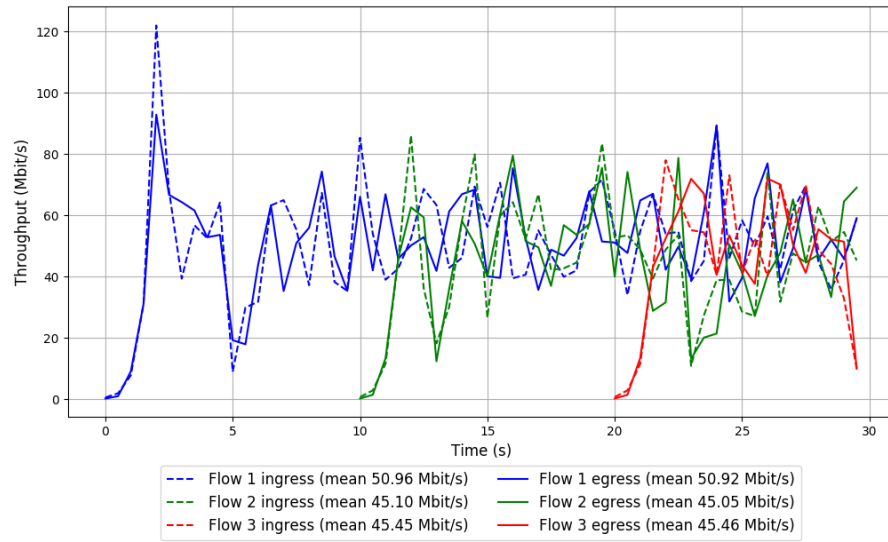
-- Flow 3:

Average throughput: 45.46 Mbit/s

95th percentile per-packet one-way delay: 125.192 ms

Loss rate: 0.00%

Run 7: Report of TCP BBR — Data Link



Run 8: Statistics of TCP BBR

Start at: 2017-09-18 20:12:10

End at: 2017-09-18 20:12:40

Below is generated by plot.py at 2017-09-18 21:43:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.16 Mbit/s

95th percentile per-packet one-way delay: 122.660 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 50.09 Mbit/s

95th percentile per-packet one-way delay: 121.853 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 46.98 Mbit/s

95th percentile per-packet one-way delay: 122.664 ms

Loss rate: 0.00%

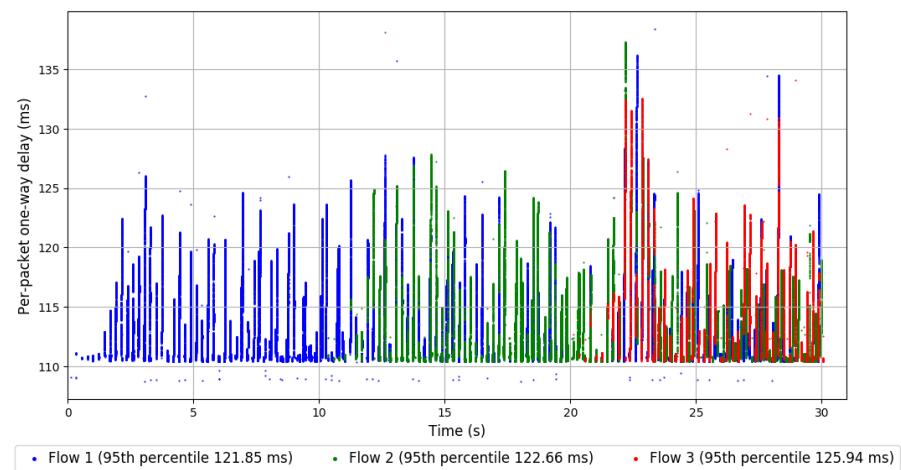
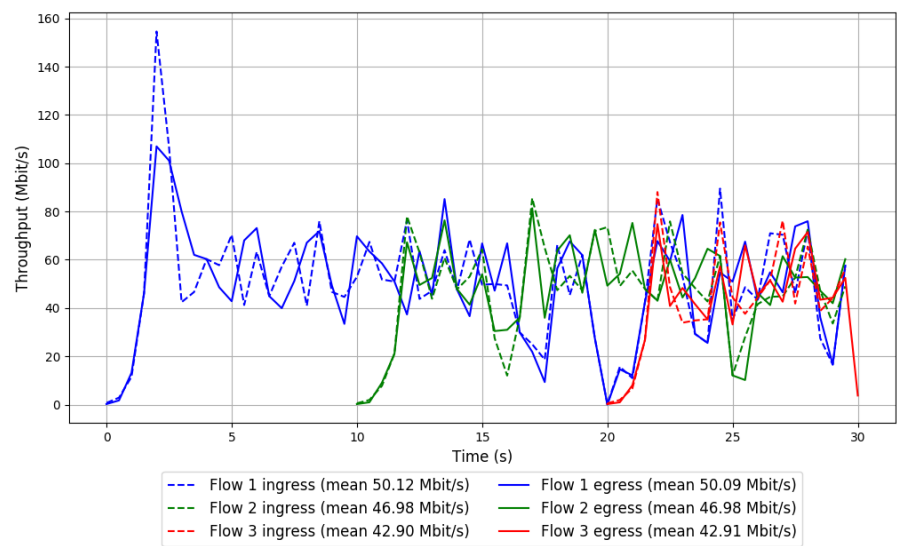
-- Flow 3:

Average throughput: 42.91 Mbit/s

95th percentile per-packet one-way delay: 125.938 ms

Loss rate: 0.00%

Run 8: Report of TCP BBR — Data Link



Run 9: Statistics of TCP BBR

Start at: 2017-09-18 20:22:06

End at: 2017-09-18 20:22:36

Below is generated by plot.py at 2017-09-18 21:45:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 100.73 Mbit/s

95th percentile per-packet one-way delay: 126.206 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 47.97 Mbit/s

95th percentile per-packet one-way delay: 126.018 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 50.95 Mbit/s

95th percentile per-packet one-way delay: 127.843 ms

Loss rate: 0.02%

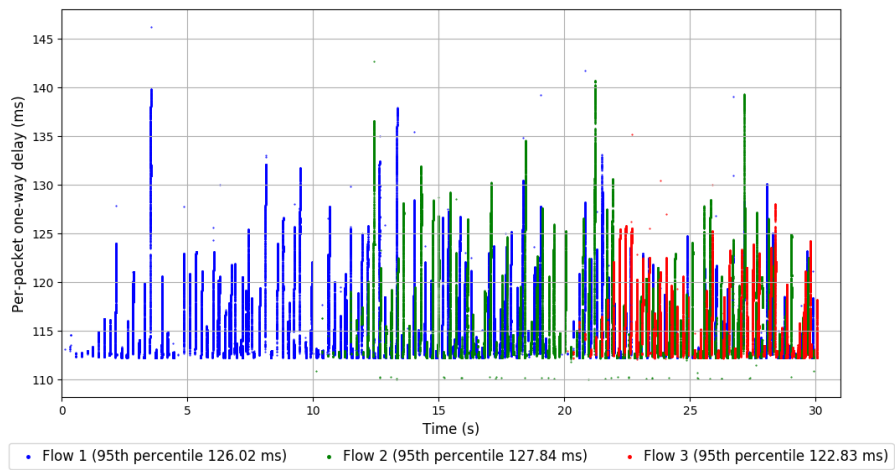
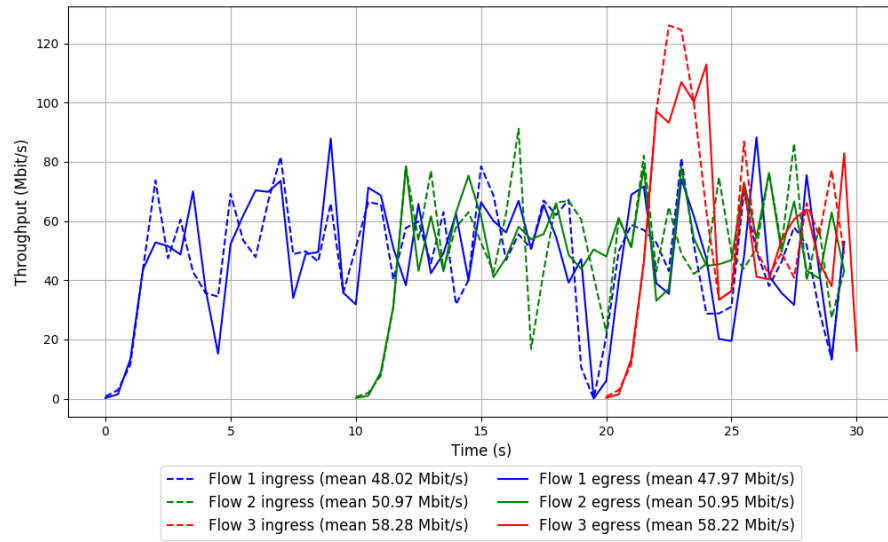
-- Flow 3:

Average throughput: 58.22 Mbit/s

95th percentile per-packet one-way delay: 122.825 ms

Loss rate: 0.05%

Run 9: Report of TCP BBR — Data Link



Run 10: Statistics of TCP BBR

Start at: 2017-09-18 20:32:07

End at: 2017-09-18 20:32:37

Below is generated by plot.py at 2017-09-18 21:45:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.44 Mbit/s

95th percentile per-packet one-way delay: 123.686 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 45.71 Mbit/s

95th percentile per-packet one-way delay: 124.234 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 47.15 Mbit/s

95th percentile per-packet one-way delay: 122.374 ms

Loss rate: 0.01%

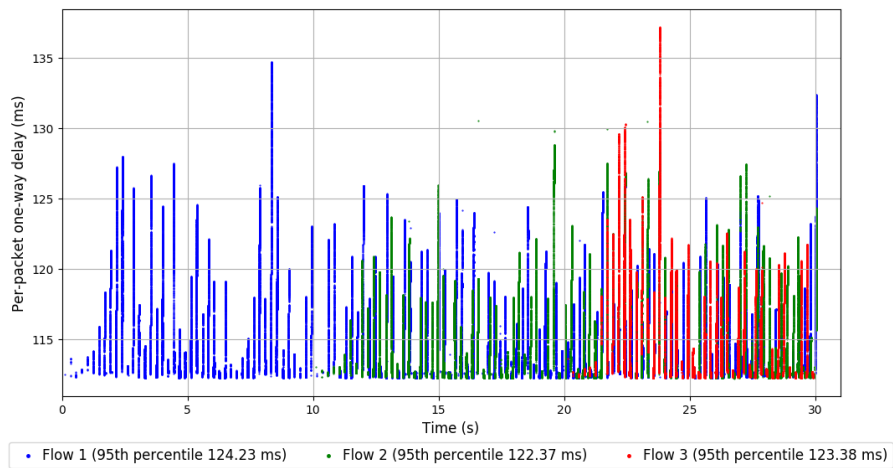
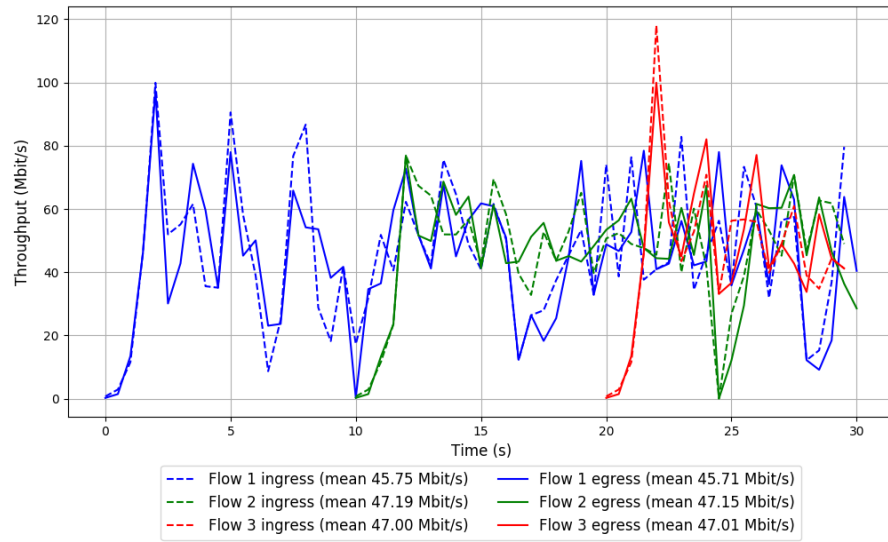
-- Flow 3:

Average throughput: 47.01 Mbit/s

95th percentile per-packet one-way delay: 123.379 ms

Loss rate: 0.00%

Run 10: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2017-09-18 19:04:30

End at: 2017-09-18 19:05:00

Below is generated by plot.py at 2017-09-18 21:45:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 107.58 Mbit/s

95th percentile per-packet one-way delay: 118.970 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 57.26 Mbit/s

95th percentile per-packet one-way delay: 116.072 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 52.96 Mbit/s

95th percentile per-packet one-way delay: 120.198 ms

Loss rate: 0.00%

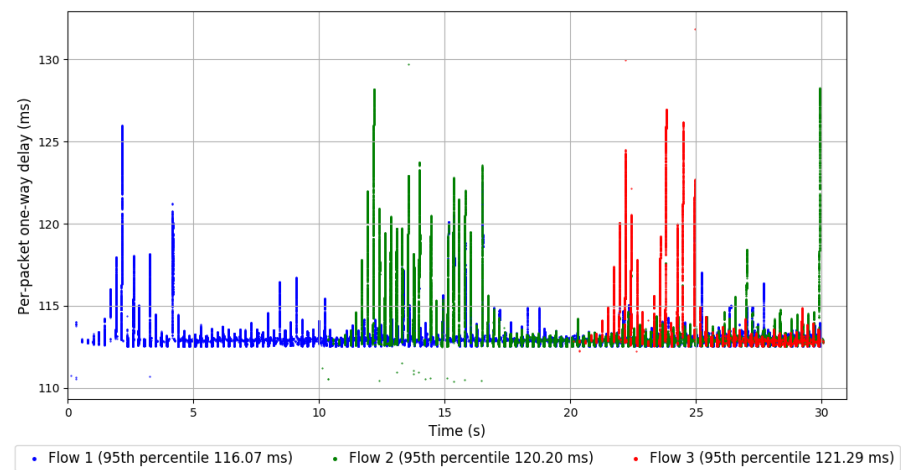
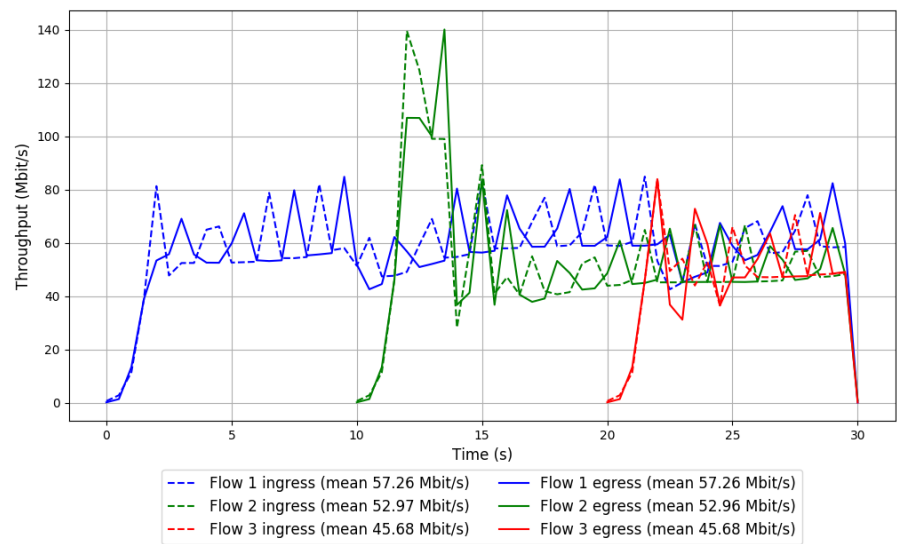
-- Flow 3:

Average throughput: 45.68 Mbit/s

95th percentile per-packet one-way delay: 121.291 ms

Loss rate: 0.00%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2017-09-18 19:14:32

End at: 2017-09-18 19:15:02

Below is generated by plot.py at 2017-09-18 21:45:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 109.93 Mbit/s

95th percentile per-packet one-way delay: 119.765 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 60.25 Mbit/s

95th percentile per-packet one-way delay: 116.340 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 48.76 Mbit/s

95th percentile per-packet one-way delay: 122.320 ms

Loss rate: 0.00%

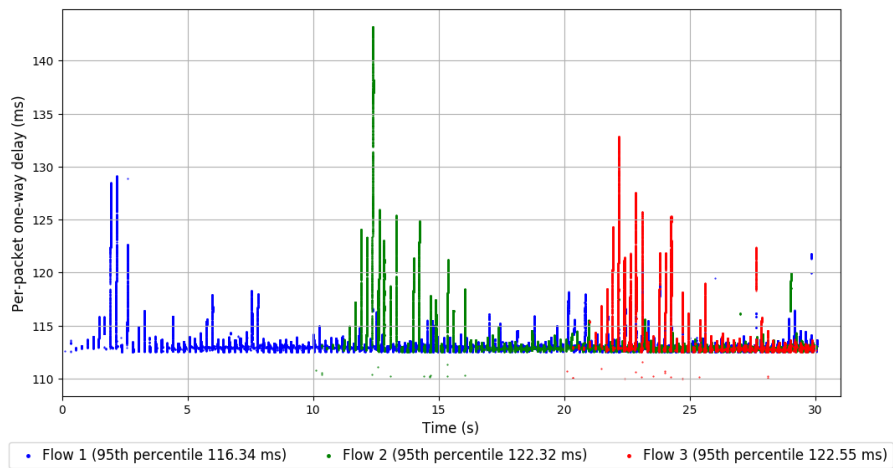
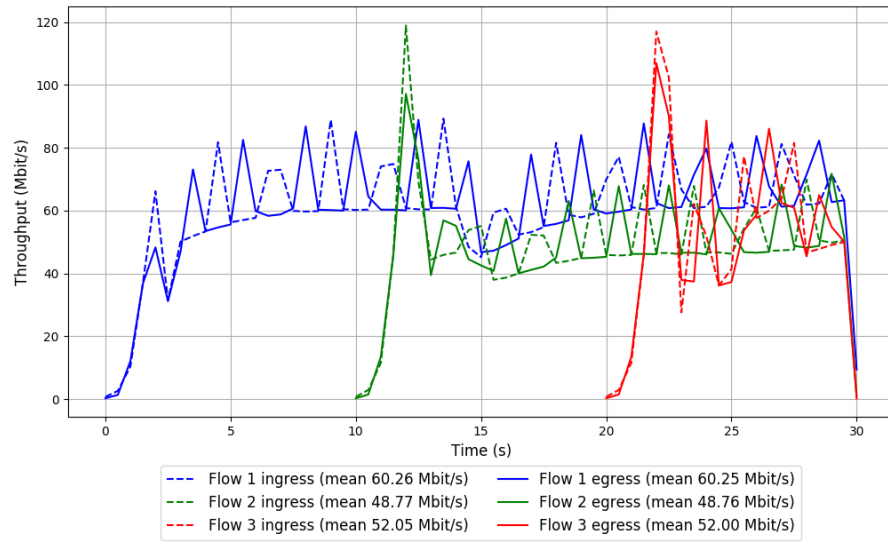
-- Flow 3:

Average throughput: 52.00 Mbit/s

95th percentile per-packet one-way delay: 122.546 ms

Loss rate: 0.07%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2017-09-18 19:24:26

End at: 2017-09-18 19:24:56

Below is generated by plot.py at 2017-09-18 21:45:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 108.90 Mbit/s

95th percentile per-packet one-way delay: 117.184 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 58.16 Mbit/s

95th percentile per-packet one-way delay: 115.994 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 51.31 Mbit/s

95th percentile per-packet one-way delay: 117.029 ms

Loss rate: 0.01%

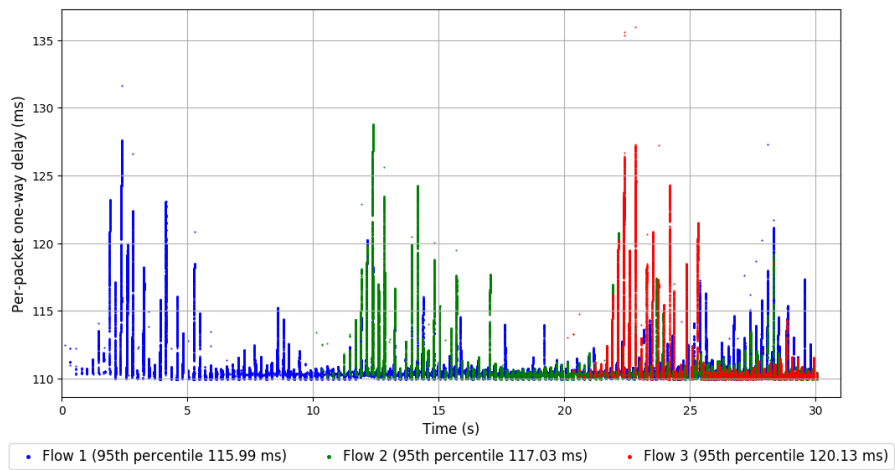
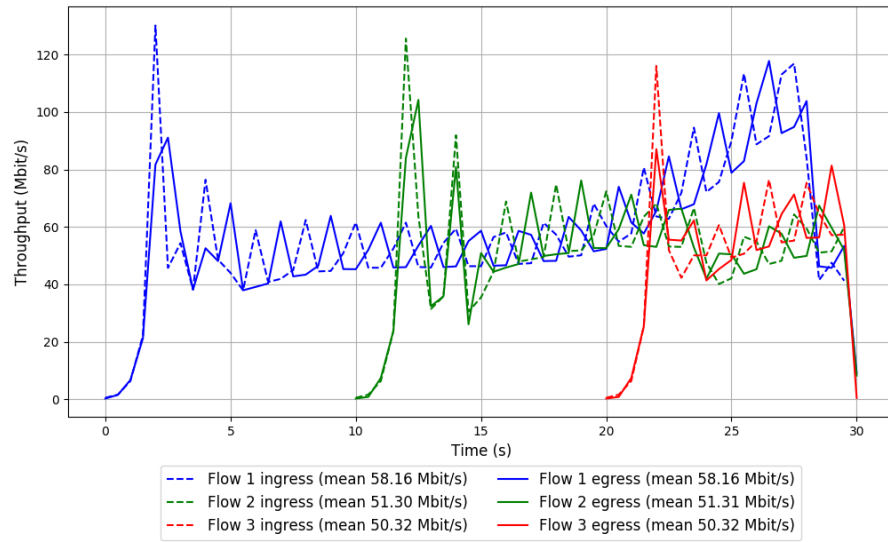
-- Flow 3:

Average throughput: 50.32 Mbit/s

95th percentile per-packet one-way delay: 120.131 ms

Loss rate: 0.02%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2017-09-18 19:33:57

End at: 2017-09-18 19:34:27

Below is generated by plot.py at 2017-09-18 21:45:29

Datalink statistics

-- Total of 3 flows:

Average throughput: 107.08 Mbit/s

95th percentile per-packet one-way delay: 117.064 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 56.74 Mbit/s

95th percentile per-packet one-way delay: 117.108 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.45 Mbit/s

95th percentile per-packet one-way delay: 118.196 ms

Loss rate: 0.00%

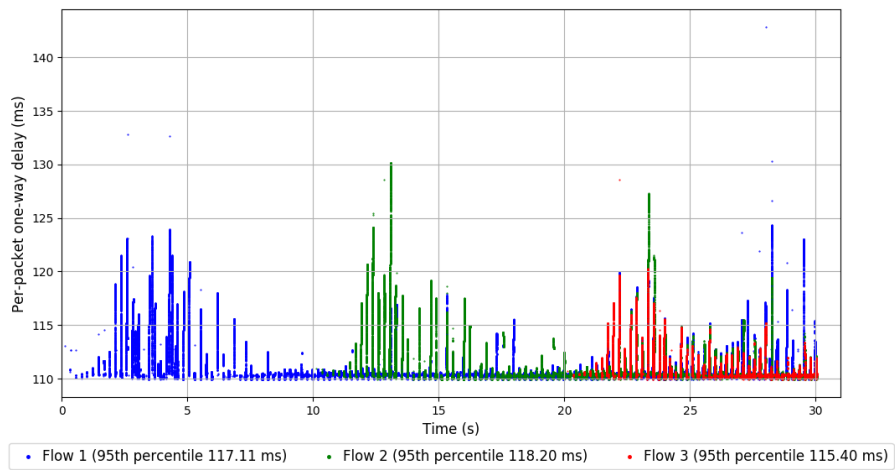
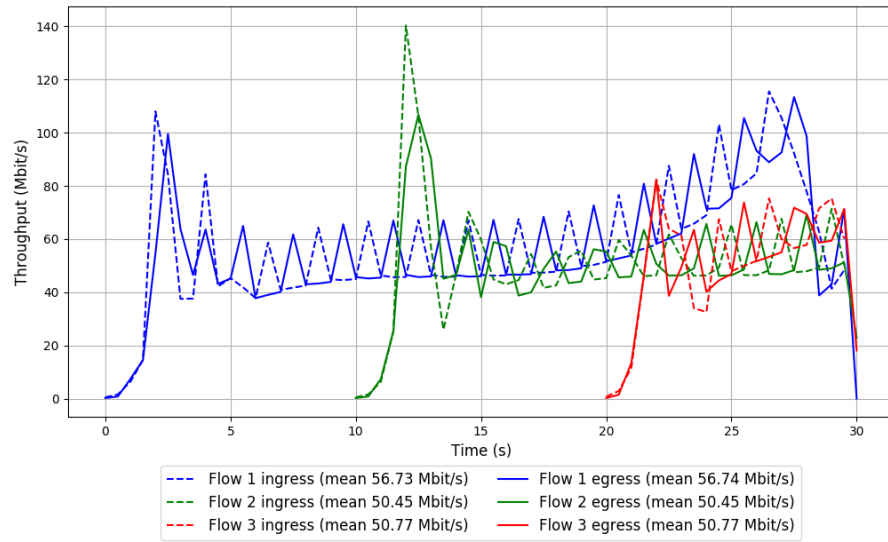
-- Flow 3:

Average throughput: 50.77 Mbit/s

95th percentile per-packet one-way delay: 115.397 ms

Loss rate: 0.00%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2017-09-18 19:43:27

End at: 2017-09-18 19:43:57

Below is generated by plot.py at 2017-09-18 21:45:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 118.54 Mbit/s

95th percentile per-packet one-way delay: 120.706 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 36.91 Mbit/s

95th percentile per-packet one-way delay: 115.998 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 98.55 Mbit/s

95th percentile per-packet one-way delay: 122.004 ms

Loss rate: 0.00%

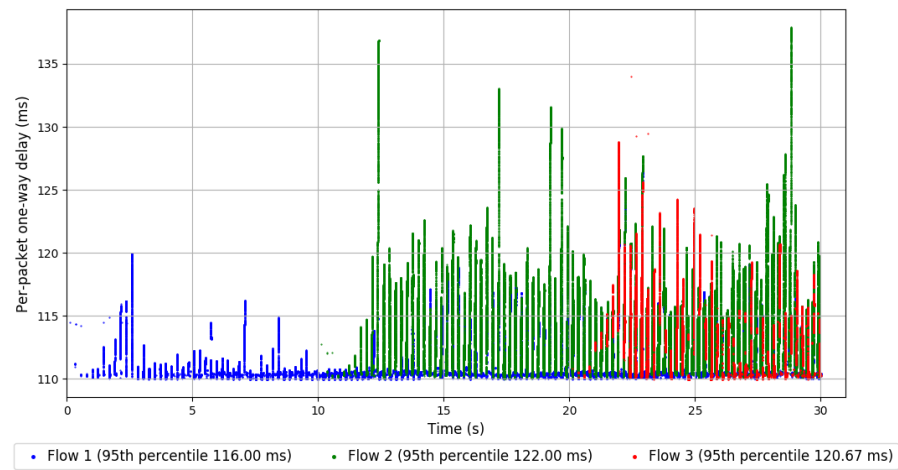
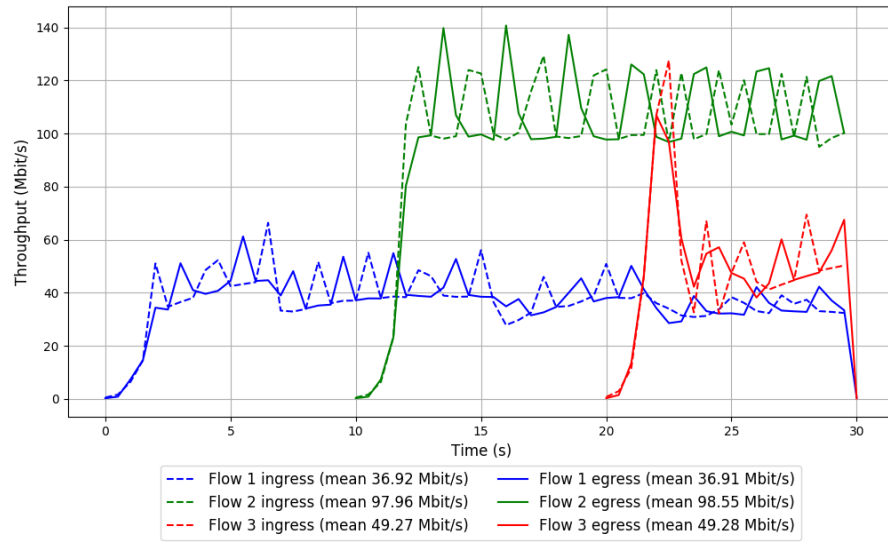
-- Flow 3:

Average throughput: 49.28 Mbit/s

95th percentile per-packet one-way delay: 120.666 ms

Loss rate: 0.00%

Run 5: Report of TCP Cubic — Data Link



Run 6: Statistics of TCP Cubic

Start at: 2017-09-18 19:53:27

End at: 2017-09-18 19:53:57

Below is generated by plot.py at 2017-09-18 21:45:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 101.64 Mbit/s

95th percentile per-packet one-way delay: 119.458 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 55.74 Mbit/s

95th percentile per-packet one-way delay: 119.522 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 46.86 Mbit/s

95th percentile per-packet one-way delay: 114.079 ms

Loss rate: 0.00%

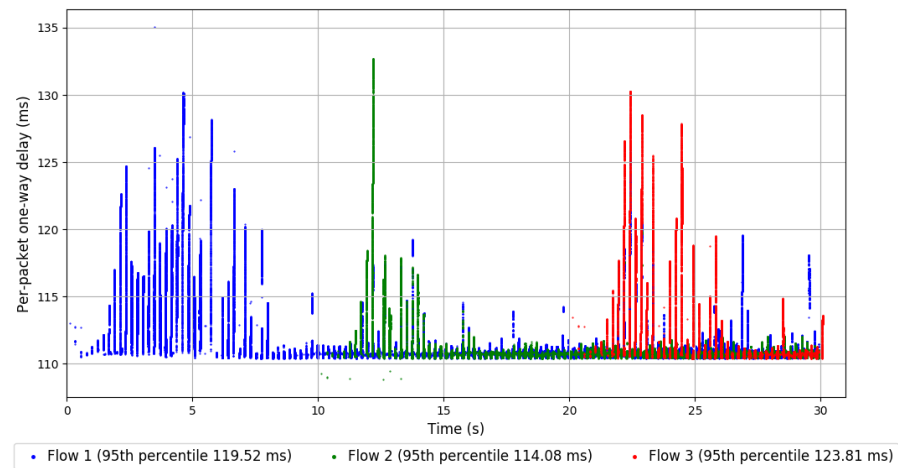
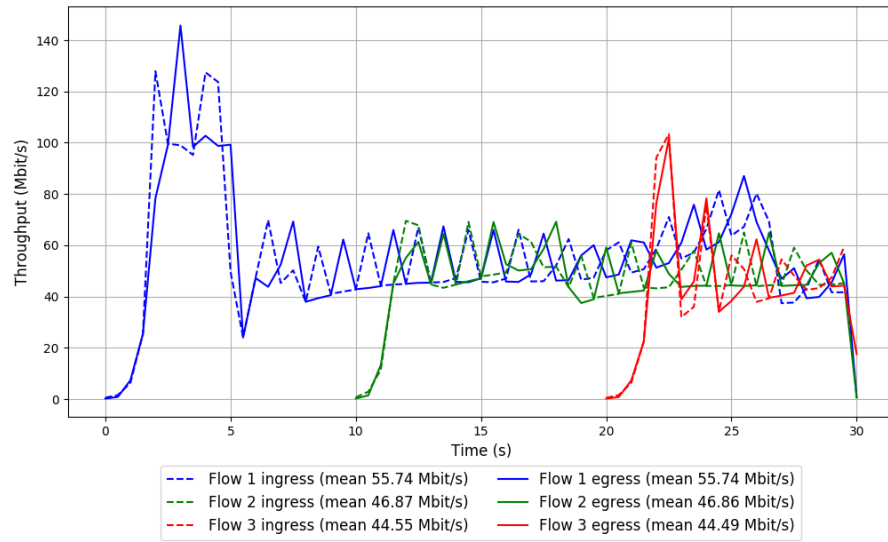
-- Flow 3:

Average throughput: 44.49 Mbit/s

95th percentile per-packet one-way delay: 123.815 ms

Loss rate: 0.15%

Run 6: Report of TCP Cubic — Data Link



Run 7: Statistics of TCP Cubic

Start at: 2017-09-18 20:03:22

End at: 2017-09-18 20:03:52

Below is generated by plot.py at 2017-09-18 21:46:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.43 Mbit/s

95th percentile per-packet one-way delay: 115.173 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 36.45 Mbit/s

95th percentile per-packet one-way delay: 114.764 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 58.61 Mbit/s

95th percentile per-packet one-way delay: 116.701 ms

Loss rate: 0.00%

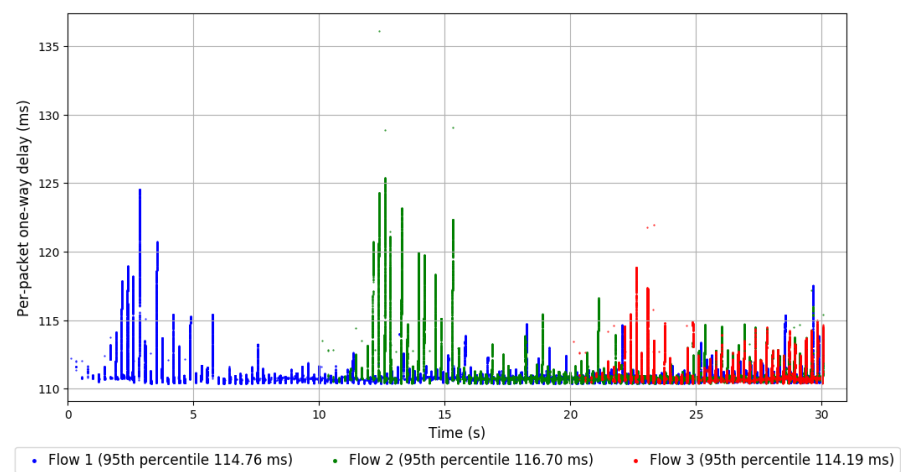
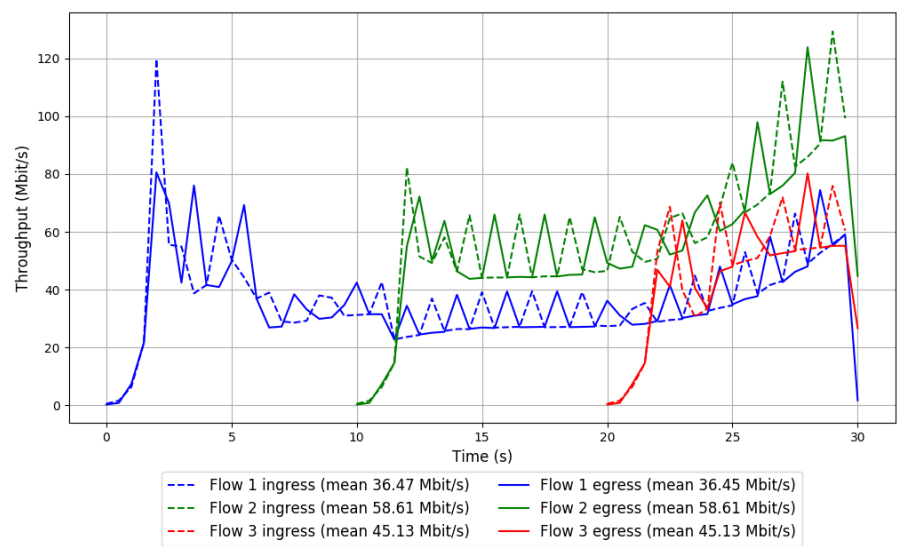
-- Flow 3:

Average throughput: 45.13 Mbit/s

95th percentile per-packet one-way delay: 114.192 ms

Loss rate: 0.00%

Run 7: Report of TCP Cubic — Data Link



Run 8: Statistics of TCP Cubic

Start at: 2017-09-18 20:13:03

End at: 2017-09-18 20:13:33

Below is generated by plot.py at 2017-09-18 21:46:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.19 Mbit/s

95th percentile per-packet one-way delay: 117.149 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 22.69 Mbit/s

95th percentile per-packet one-way delay: 116.399 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 60.44 Mbit/s

95th percentile per-packet one-way delay: 115.753 ms

Loss rate: 0.00%

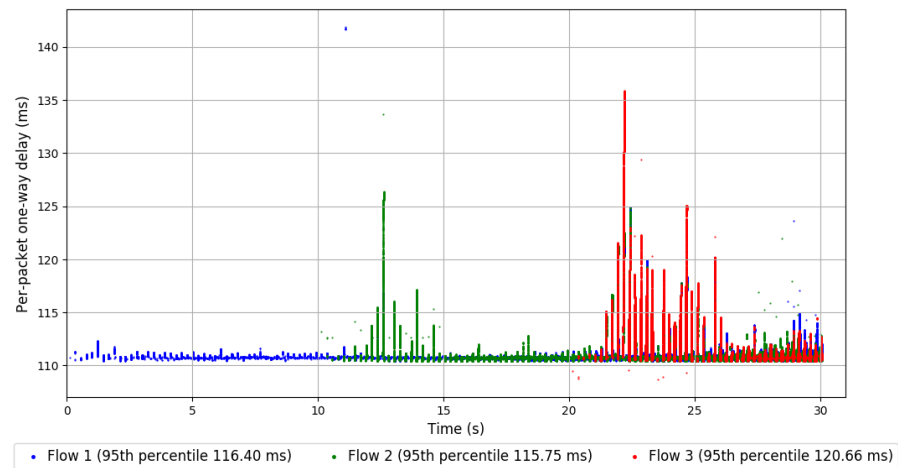
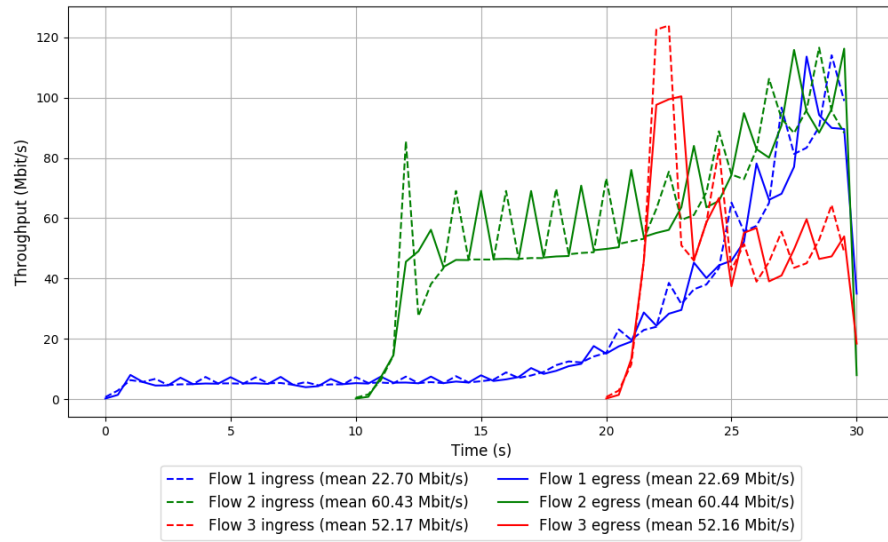
-- Flow 3:

Average throughput: 52.16 Mbit/s

95th percentile per-packet one-way delay: 120.664 ms

Loss rate: 0.00%

Run 8: Report of TCP Cubic — Data Link



Run 9: Statistics of TCP Cubic

Start at: 2017-09-18 20:23:00

End at: 2017-09-18 20:23:30

Below is generated by plot.py at 2017-09-18 21:47:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 125.93 Mbit/s

95th percentile per-packet one-way delay: 119.605 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 62.76 Mbit/s

95th percentile per-packet one-way delay: 117.818 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 71.29 Mbit/s

95th percentile per-packet one-way delay: 121.487 ms

Loss rate: 0.00%

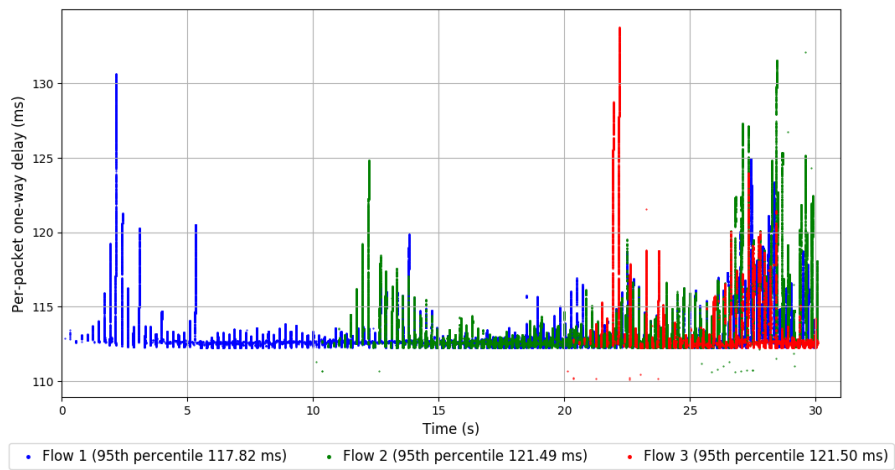
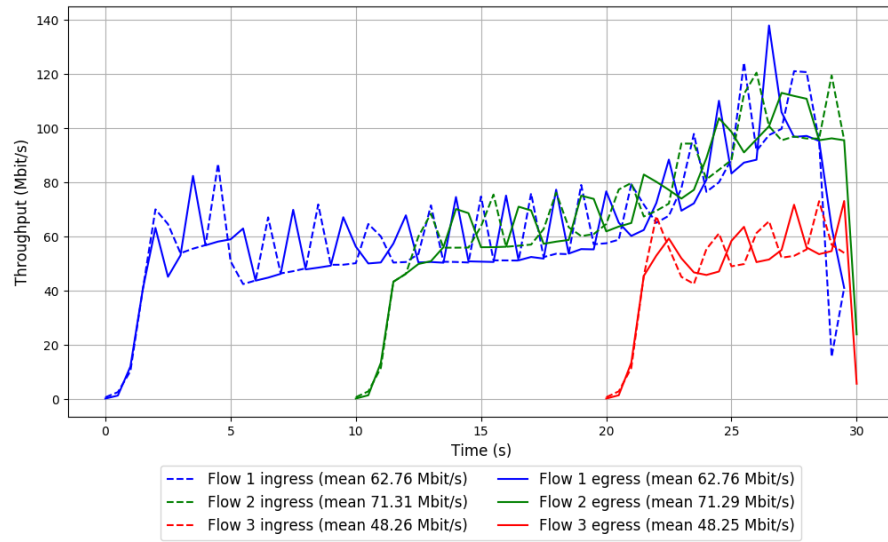
-- Flow 3:

Average throughput: 48.25 Mbit/s

95th percentile per-packet one-way delay: 121.502 ms

Loss rate: 0.00%

Run 9: Report of TCP Cubic — Data Link



Run 10: Statistics of TCP Cubic

Start at: 2017-09-18 20:33:01

End at: 2017-09-18 20:33:31

Below is generated by plot.py at 2017-09-18 21:47:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 134.20 Mbit/s

95th percentile per-packet one-way delay: 119.993 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 62.52 Mbit/s

95th percentile per-packet one-way delay: 119.546 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 80.86 Mbit/s

95th percentile per-packet one-way delay: 118.934 ms

Loss rate: 0.00%

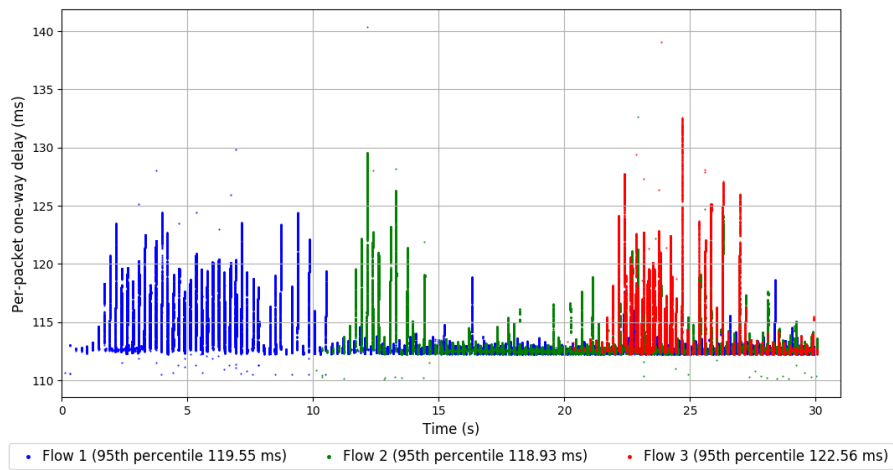
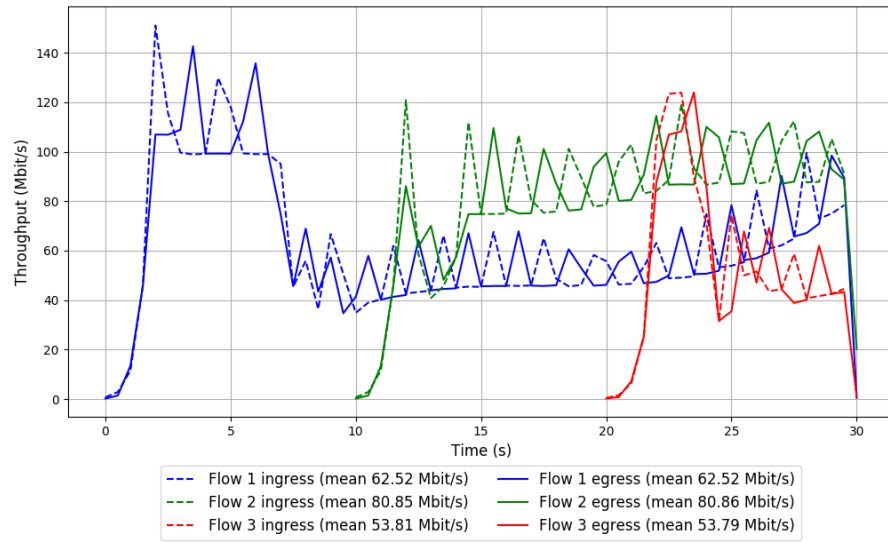
-- Flow 3:

Average throughput: 53.79 Mbit/s

95th percentile per-packet one-way delay: 122.555 ms

Loss rate: 0.05%

Run 10: Report of TCP Cubic — Data Link

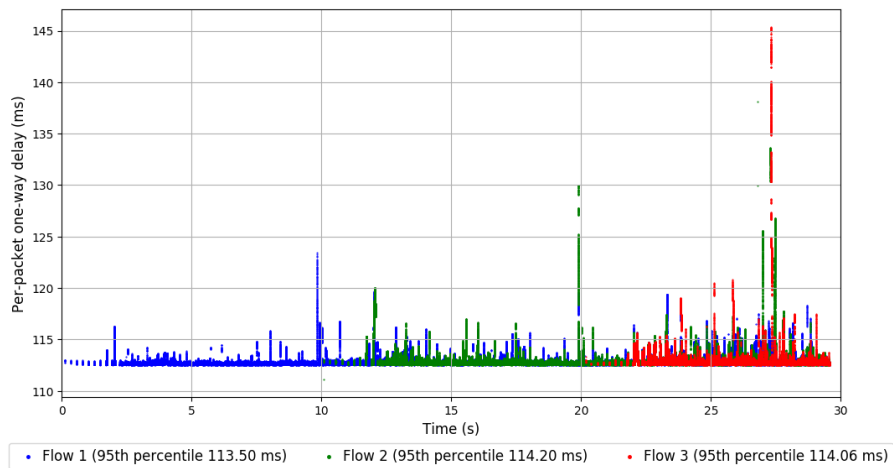
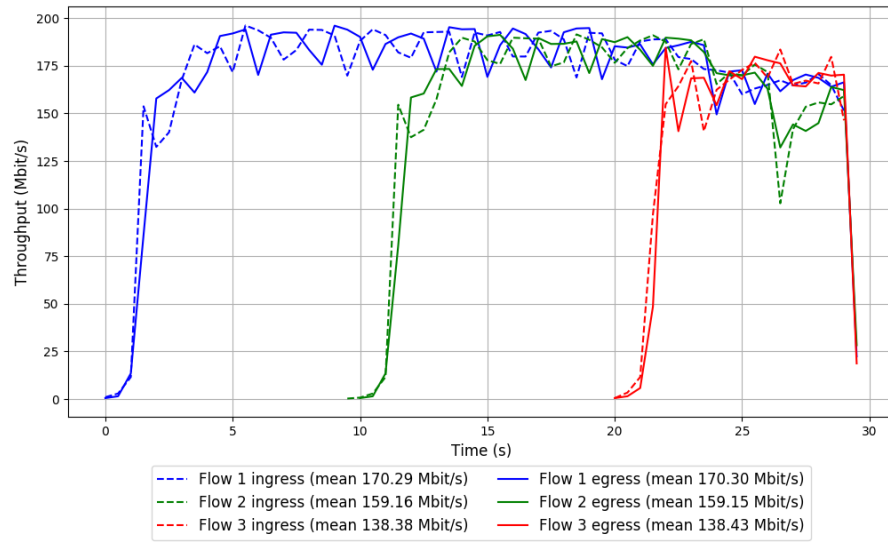


```
Run 1: Statistics of Indigo

Start at: 2017-09-18 19:08:14
End at: 2017-09-18 19:08:44

# Below is generated by plot.py at 2017-09-18 21:50:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 319.75 Mbit/s
95th percentile per-packet one-way delay: 113.793 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 170.30 Mbit/s
95th percentile per-packet one-way delay: 113.503 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 159.15 Mbit/s
95th percentile per-packet one-way delay: 114.201 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 138.43 Mbit/s
95th percentile per-packet one-way delay: 114.063 ms
Loss rate: 0.00%
```


Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2017-09-18 19:18:13

End at: 2017-09-18 19:18:43

Below is generated by plot.py at 2017-09-18 21:50:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 311.98 Mbit/s

95th percentile per-packet one-way delay: 111.464 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 166.44 Mbit/s

95th percentile per-packet one-way delay: 110.741 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 157.27 Mbit/s

95th percentile per-packet one-way delay: 112.200 ms

Loss rate: 0.00%

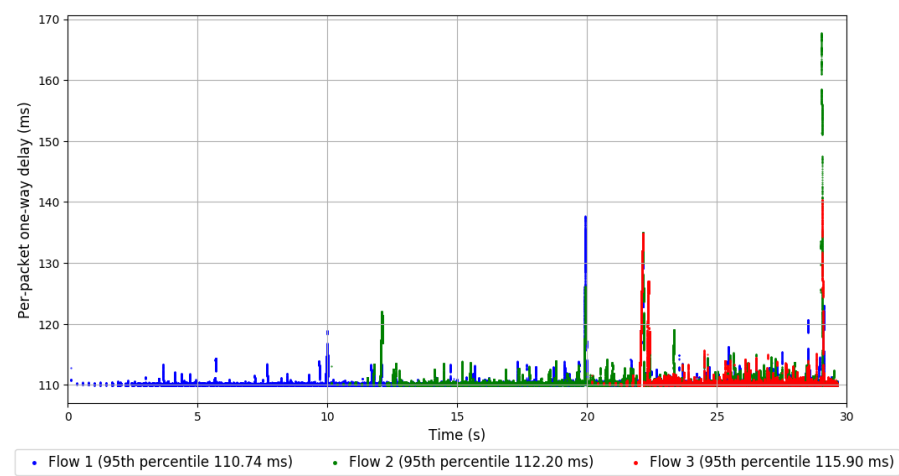
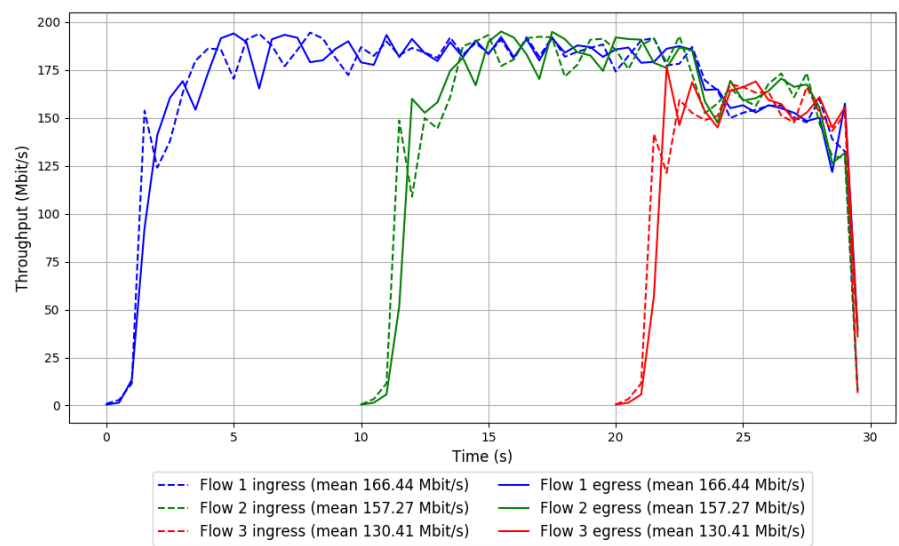
-- Flow 3:

Average throughput: 130.41 Mbit/s

95th percentile per-packet one-way delay: 115.901 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2017-09-18 19:28:10

End at: 2017-09-18 19:28:40

Below is generated by plot.py at 2017-09-18 21:50:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 317.08 Mbit/s

95th percentile per-packet one-way delay: 111.165 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 167.53 Mbit/s

95th percentile per-packet one-way delay: 110.832 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 158.59 Mbit/s

95th percentile per-packet one-way delay: 111.651 ms

Loss rate: 0.00%

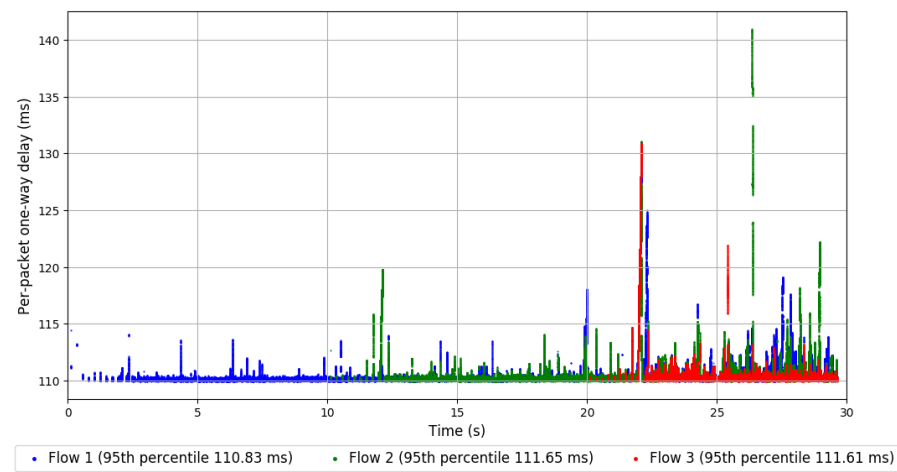
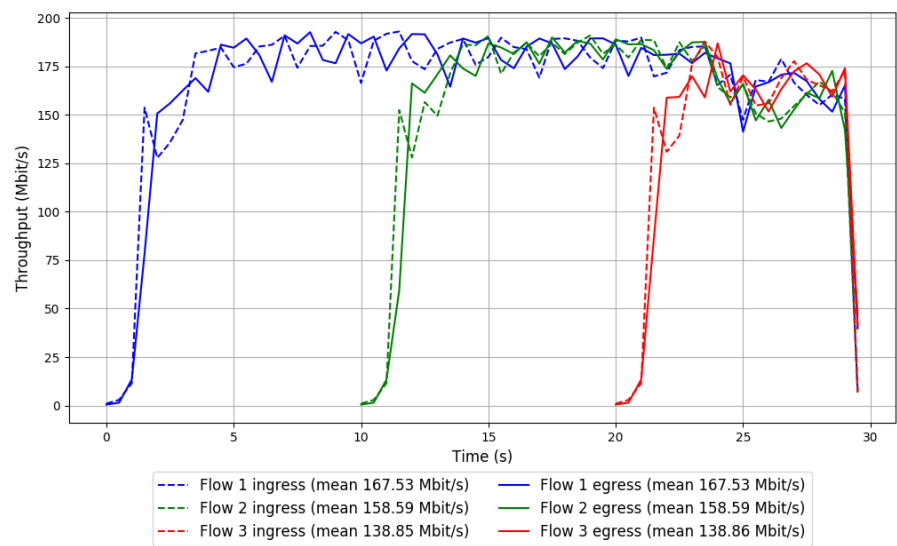
-- Flow 3:

Average throughput: 138.86 Mbit/s

95th percentile per-packet one-way delay: 111.613 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2017-09-18 19:37:44

End at: 2017-09-18 19:38:14

Below is generated by plot.py at 2017-09-18 21:50:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 317.43 Mbit/s

95th percentile per-packet one-way delay: 112.082 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 168.98 Mbit/s

95th percentile per-packet one-way delay: 111.872 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 158.43 Mbit/s

95th percentile per-packet one-way delay: 111.965 ms

Loss rate: 0.01%

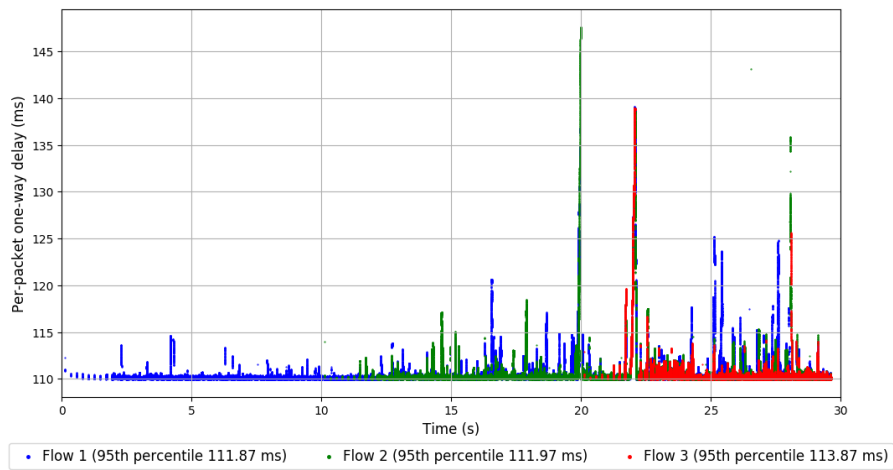
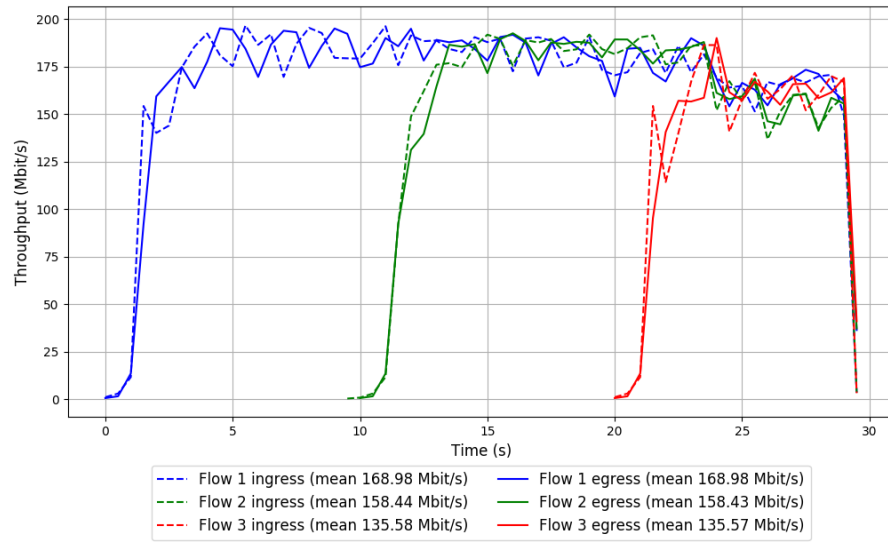
-- Flow 3:

Average throughput: 135.57 Mbit/s

95th percentile per-packet one-way delay: 113.873 ms

Loss rate: 0.01%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2017-09-18 19:47:14

End at: 2017-09-18 19:47:44

Below is generated by plot.py at 2017-09-18 21:51:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 316.21 Mbit/s

95th percentile per-packet one-way delay: 111.533 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 166.60 Mbit/s

95th percentile per-packet one-way delay: 111.180 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 161.12 Mbit/s

95th percentile per-packet one-way delay: 112.228 ms

Loss rate: 0.00%

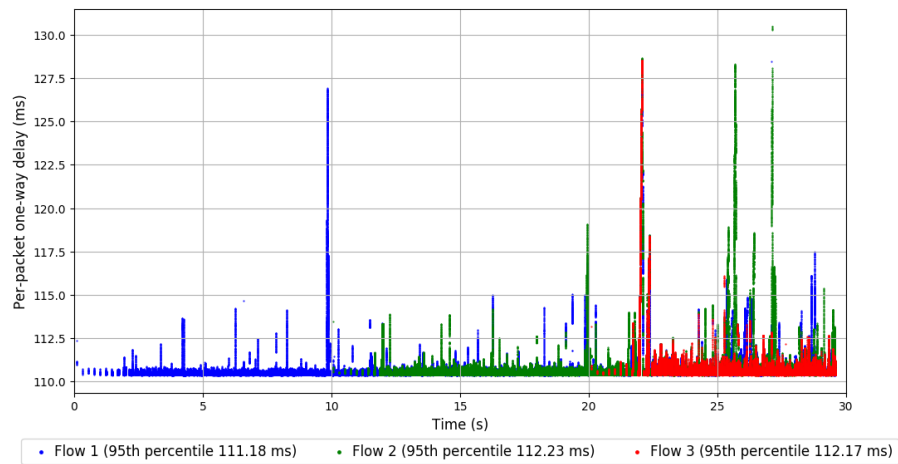
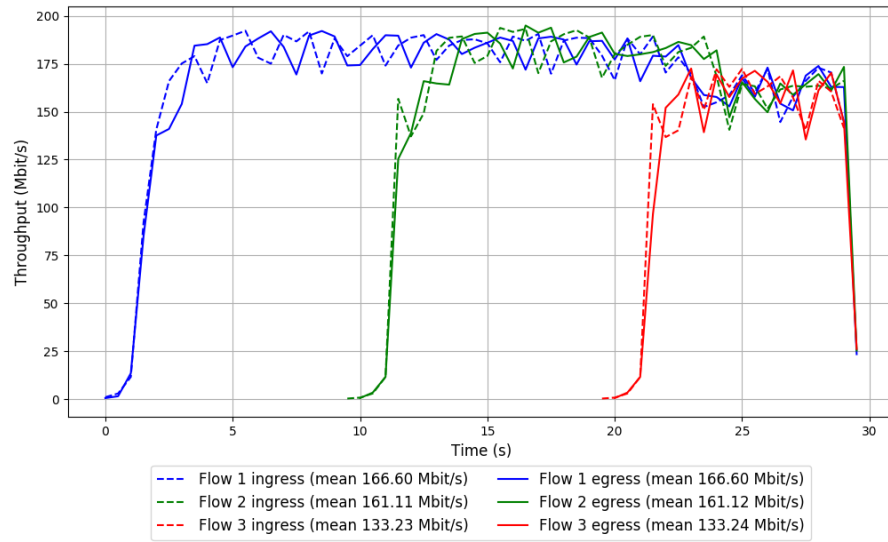
-- Flow 3:

Average throughput: 133.24 Mbit/s

95th percentile per-packet one-way delay: 112.168 ms

Loss rate: 0.00%

Run 5: Report of Indigo — Data Link



Run 6: Statistics of Indigo

Start at: 2017-09-18 19:57:13

End at: 2017-09-18 19:57:43

Below is generated by plot.py at 2017-09-18 21:51:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 317.66 Mbit/s

95th percentile per-packet one-way delay: 111.715 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 168.55 Mbit/s

95th percentile per-packet one-way delay: 111.341 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 159.26 Mbit/s

95th percentile per-packet one-way delay: 112.199 ms

Loss rate: 0.03%

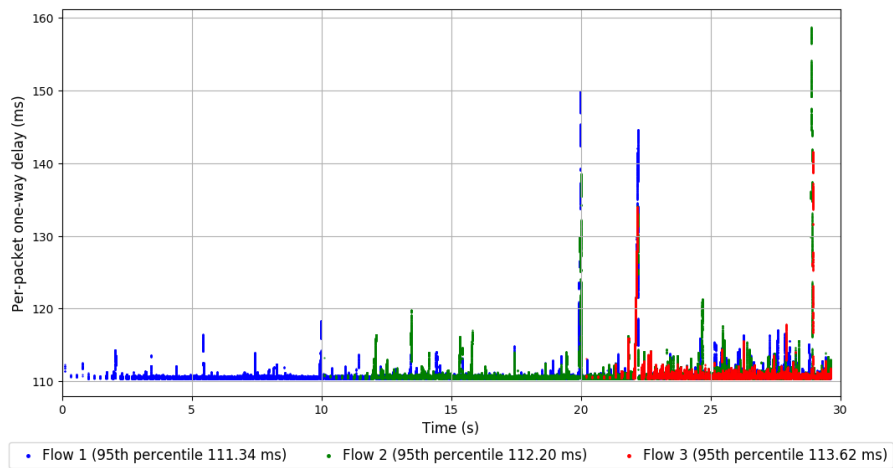
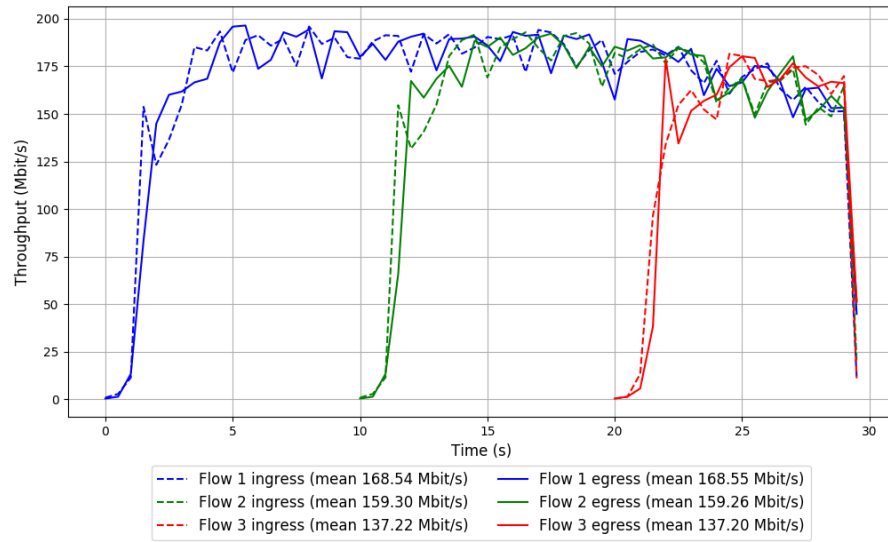
-- Flow 3:

Average throughput: 137.20 Mbit/s

95th percentile per-packet one-way delay: 113.621 ms

Loss rate: 0.02%

Run 6: Report of Indigo — Data Link



Run 7: Statistics of Indigo

Start at: 2017-09-18 20:07:03

End at: 2017-09-18 20:07:33

Below is generated by plot.py at 2017-09-18 21:52:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 319.11 Mbit/s

95th percentile per-packet one-way delay: 111.929 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 170.13 Mbit/s

95th percentile per-packet one-way delay: 111.407 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 161.66 Mbit/s

95th percentile per-packet one-way delay: 112.323 ms

Loss rate: 0.00%

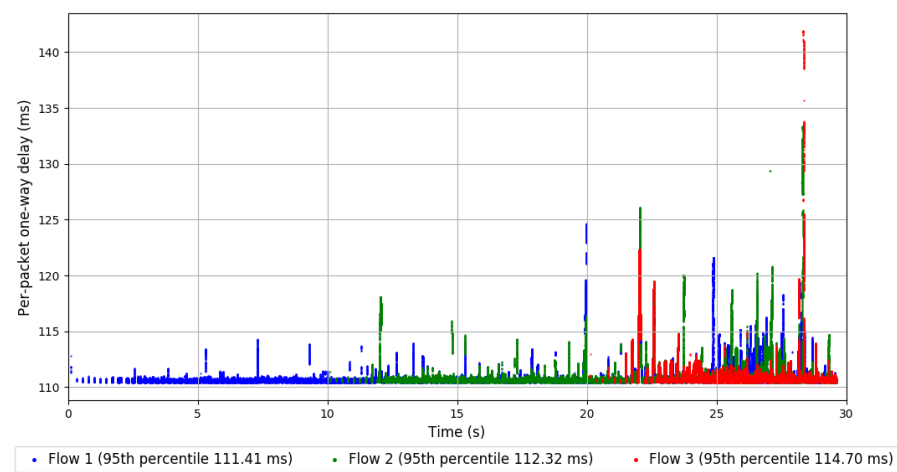
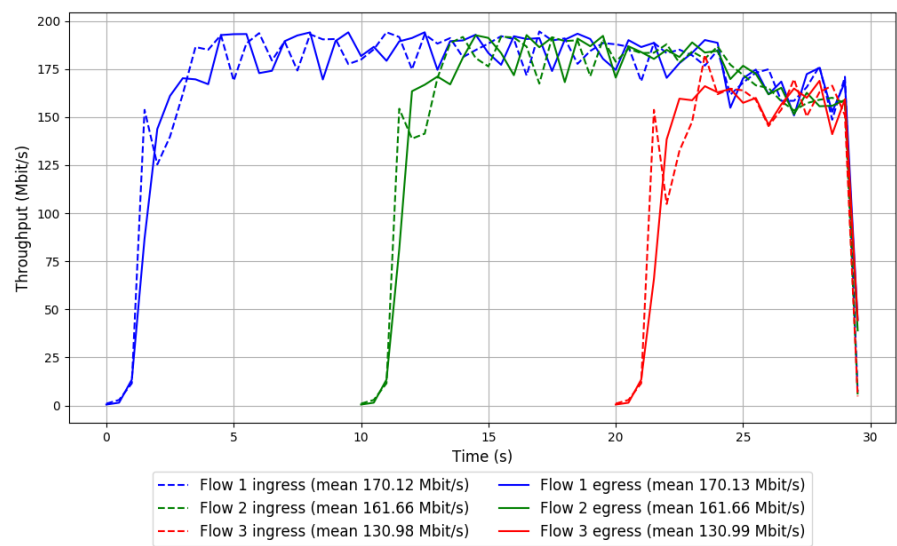
-- Flow 3:

Average throughput: 130.99 Mbit/s

95th percentile per-packet one-way delay: 114.699 ms

Loss rate: 0.00%

Run 7: Report of Indigo — Data Link



Run 8: Statistics of Indigo

Start at: 2017-09-18 20:16:46

End at: 2017-09-18 20:17:16

Below is generated by plot.py at 2017-09-18 21:52:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 318.38 Mbit/s

95th percentile per-packet one-way delay: 113.301 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 168.77 Mbit/s

95th percentile per-packet one-way delay: 113.029 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 161.02 Mbit/s

95th percentile per-packet one-way delay: 113.512 ms

Loss rate: 0.01%

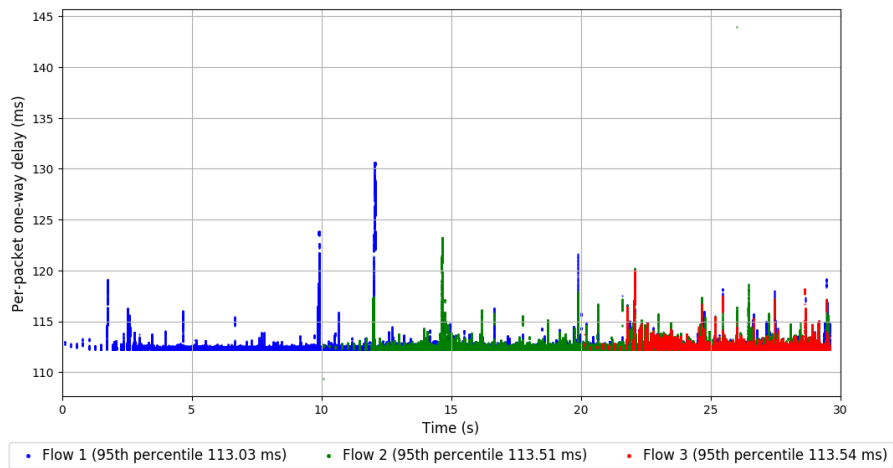
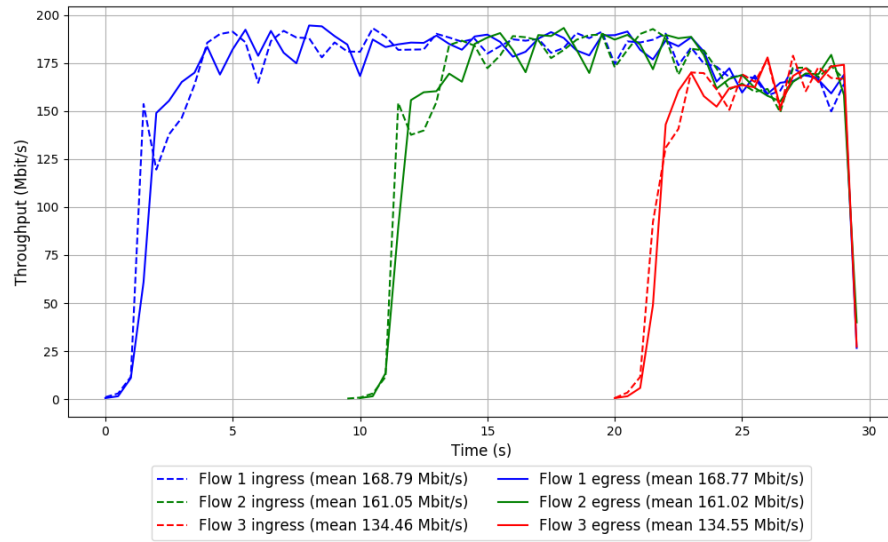
-- Flow 3:

Average throughput: 134.55 Mbit/s

95th percentile per-packet one-way delay: 113.539 ms

Loss rate: 0.02%

Run 8: Report of Indigo — Data Link



Run 9: Statistics of Indigo

Start at: 2017-09-18 20:26:44

End at: 2017-09-18 20:27:14

Below is generated by plot.py at 2017-09-18 21:55:11

Datalink statistics

-- Total of 3 flows:

Average throughput: 305.17 Mbit/s

95th percentile per-packet one-way delay: 113.479 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 166.26 Mbit/s

95th percentile per-packet one-way delay: 113.021 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 146.51 Mbit/s

95th percentile per-packet one-way delay: 113.737 ms

Loss rate: 0.01%

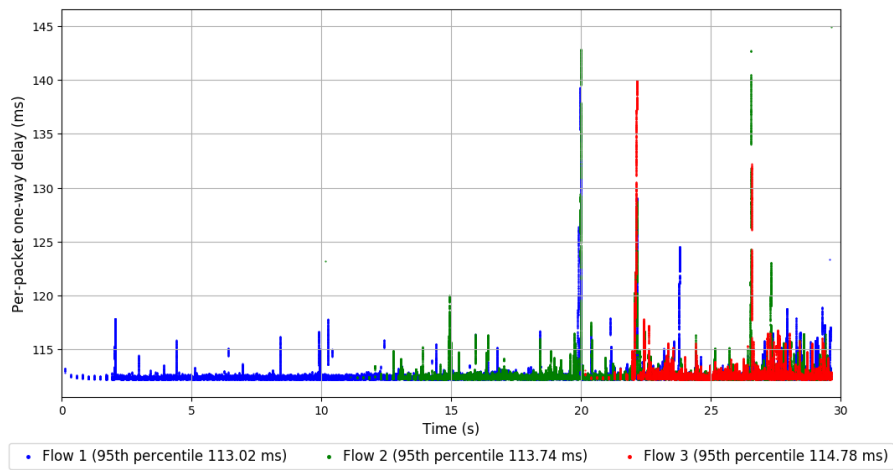
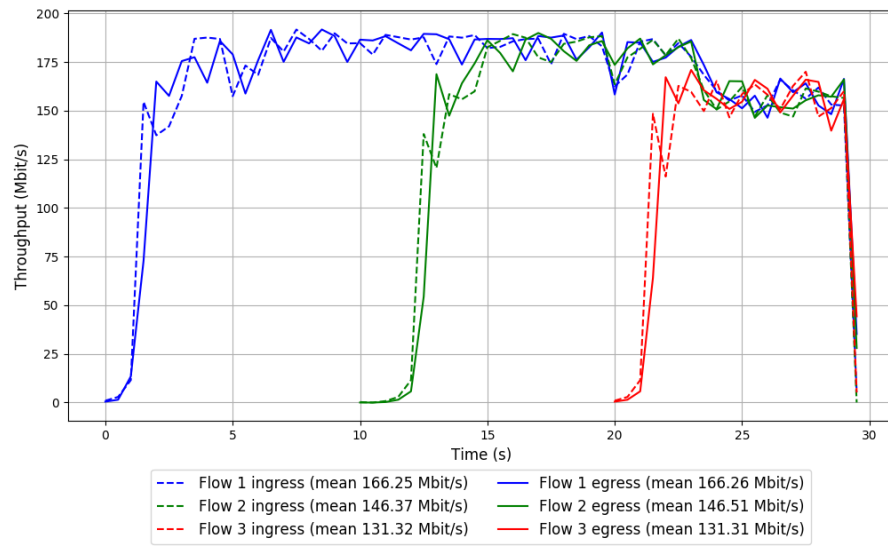
-- Flow 3:

Average throughput: 131.31 Mbit/s

95th percentile per-packet one-way delay: 114.779 ms

Loss rate: 0.04%

Run 9: Report of Indigo — Data Link



Run 10: Statistics of Indigo

Start at: 2017-09-18 20:36:46

End at: 2017-09-18 20:37:16

Below is generated by plot.py at 2017-09-18 21:55:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 316.04 Mbit/s

95th percentile per-packet one-way delay: 114.387 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 167.11 Mbit/s

95th percentile per-packet one-way delay: 113.595 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 159.41 Mbit/s

95th percentile per-packet one-way delay: 116.005 ms

Loss rate: 0.01%

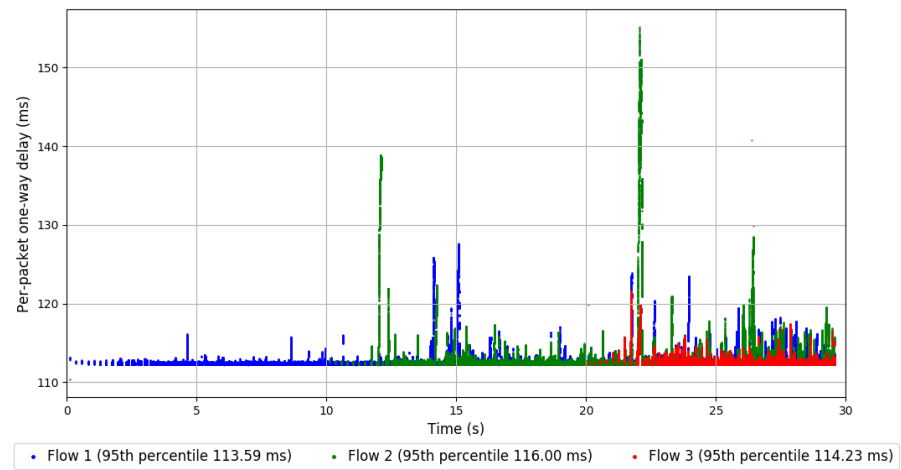
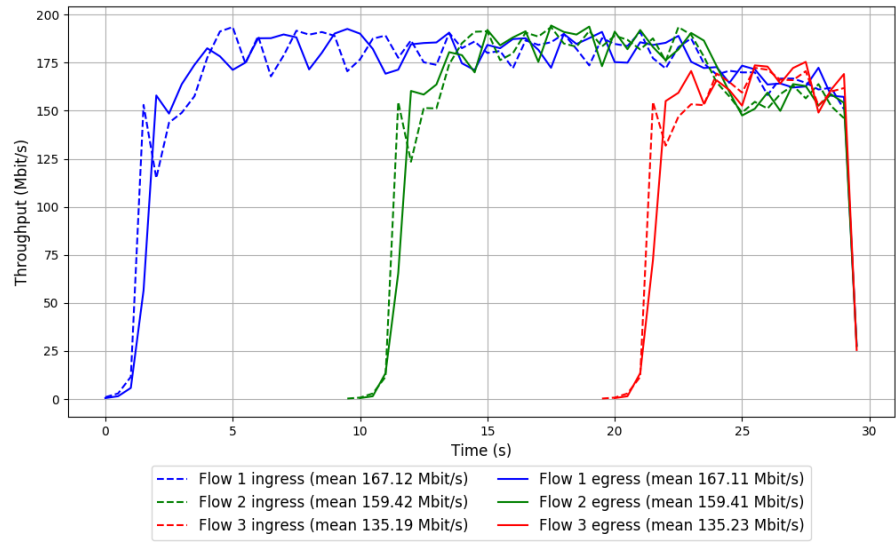
-- Flow 3:

Average throughput: 135.23 Mbit/s

95th percentile per-packet one-way delay: 114.227 ms

Loss rate: 0.03%

Run 10: Report of Indigo — Data Link

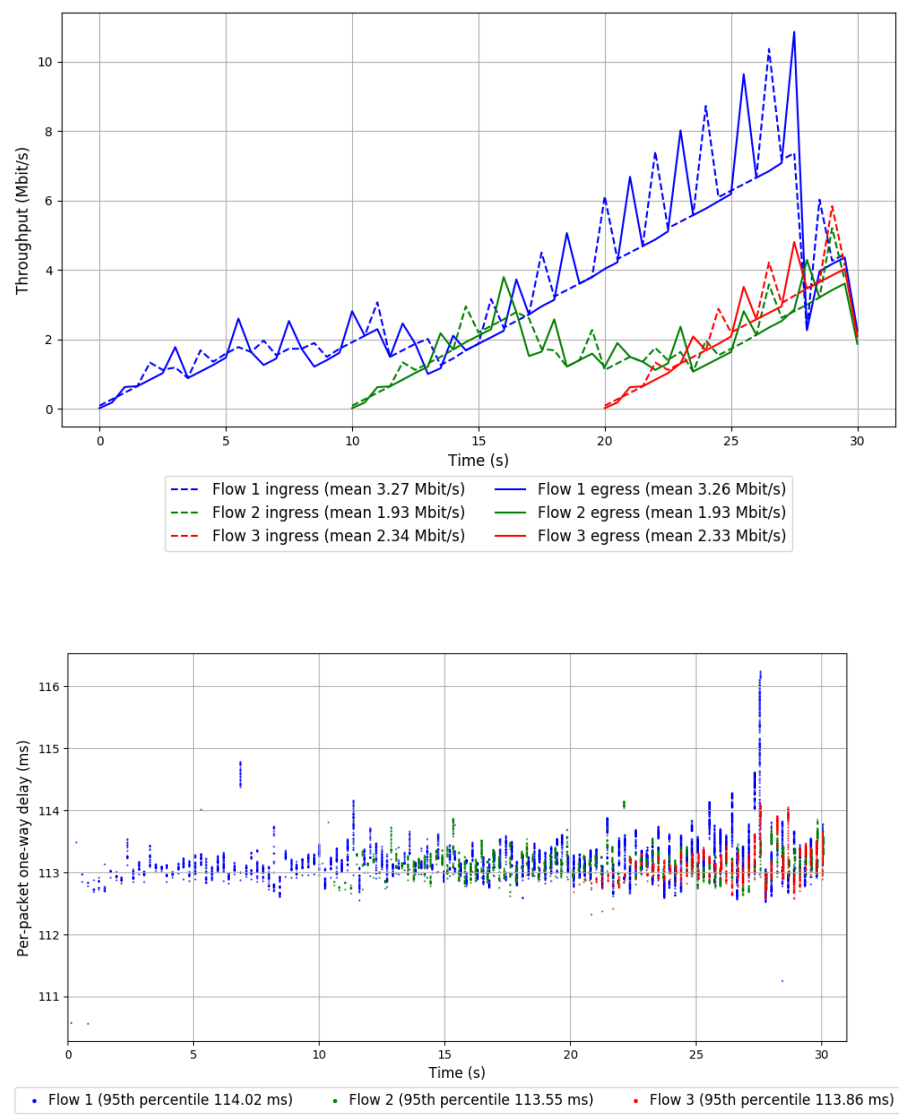


```
Run 1: Statistics of LEDBAT

Start at: 2017-09-18 19:02:49
End at: 2017-09-18 19:03:19

# Below is generated by plot.py at 2017-09-18 21:55:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.31 Mbit/s
95th percentile per-packet one-way delay: 113.825 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 114.016 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 113.553 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 2.33 Mbit/s
95th percentile per-packet one-way delay: 113.857 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

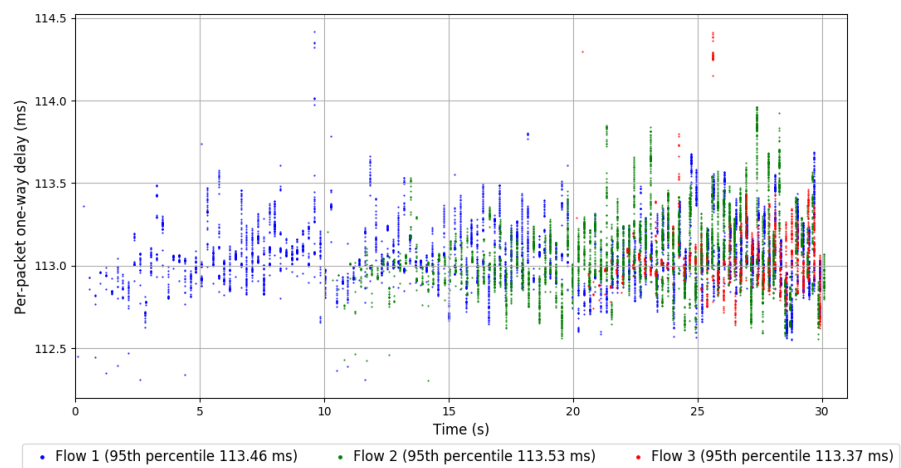
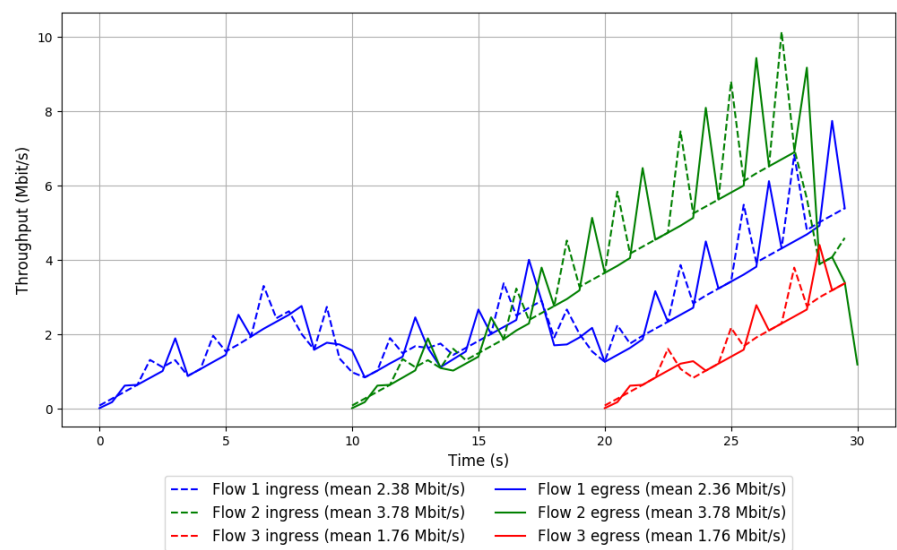


```
Run 2: Statistics of LEDBAT

Start at: 2017-09-18 19:12:51
End at: 2017-09-18 19:13:21

# Below is generated by plot.py at 2017-09-18 21:55:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.44 Mbit/s
95th percentile per-packet one-way delay: 113.482 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 113.456 ms
Loss rate: 0.84%
-- Flow 2:
Average throughput: 3.78 Mbit/s
95th percentile per-packet one-way delay: 113.535 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 113.373 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2017-09-18 19:22:43

End at: 2017-09-18 19:23:13

Below is generated by plot.py at 2017-09-18 21:55:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.97 Mbit/s

95th percentile per-packet one-way delay: 111.416 ms

Loss rate: 0.35%

-- Flow 1:

Average throughput: 1.71 Mbit/s

95th percentile per-packet one-way delay: 111.056 ms

Loss rate: 1.00%

-- Flow 2:

Average throughput: 4.45 Mbit/s

95th percentile per-packet one-way delay: 111.698 ms

Loss rate: 0.00%

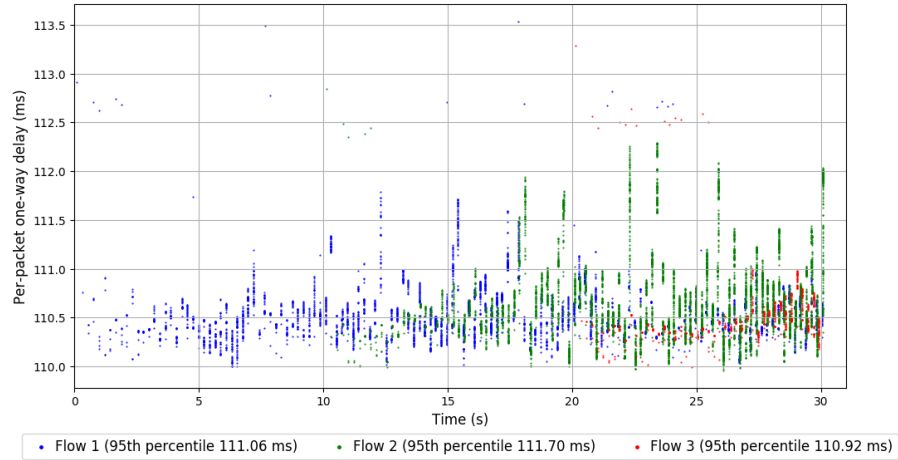
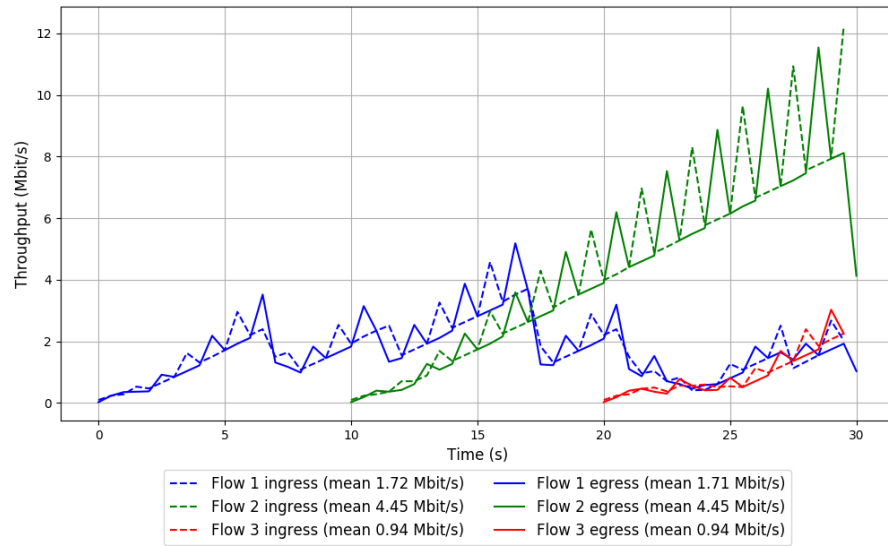
-- Flow 3:

Average throughput: 0.94 Mbit/s

95th percentile per-packet one-way delay: 110.921 ms

Loss rate: 0.00%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2017-09-18 19:32:16

End at: 2017-09-18 19:32:46

Below is generated by plot.py at 2017-09-18 21:55:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.60 Mbit/s

95th percentile per-packet one-way delay: 111.069 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.83 Mbit/s

95th percentile per-packet one-way delay: 110.854 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 3.76 Mbit/s

95th percentile per-packet one-way delay: 111.135 ms

Loss rate: 0.00%

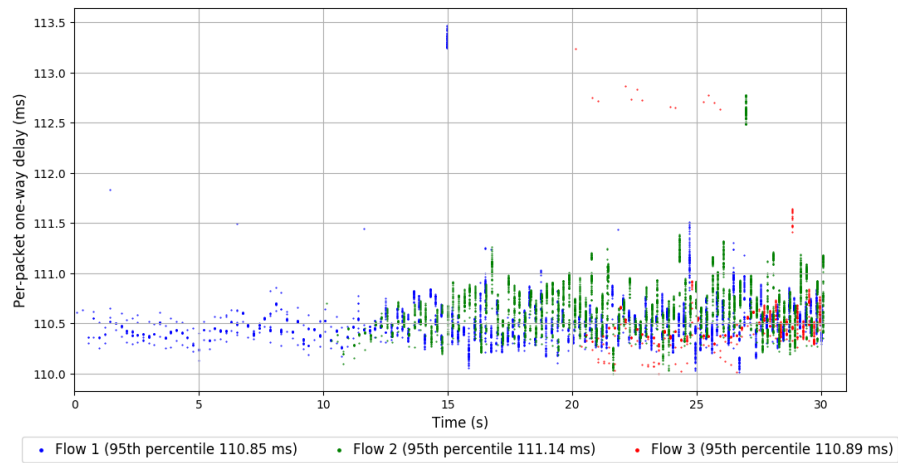
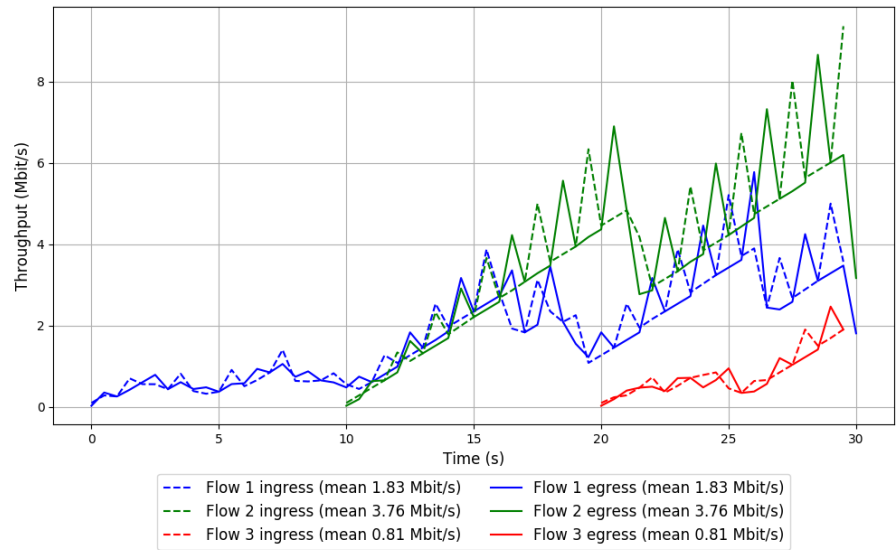
-- Flow 3:

Average throughput: 0.81 Mbit/s

95th percentile per-packet one-way delay: 110.892 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2017-09-18 19:41:46

End at: 2017-09-18 19:42:16

Below is generated by plot.py at 2017-09-18 21:55:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.07 Mbit/s

95th percentile per-packet one-way delay: 112.472 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 6.01 Mbit/s

95th percentile per-packet one-way delay: 112.576 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.62 Mbit/s

95th percentile per-packet one-way delay: 110.745 ms

Loss rate: 0.00%

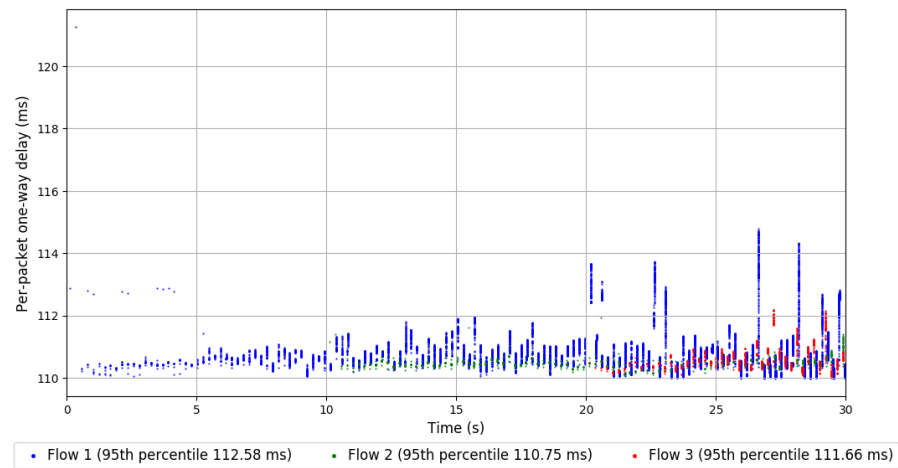
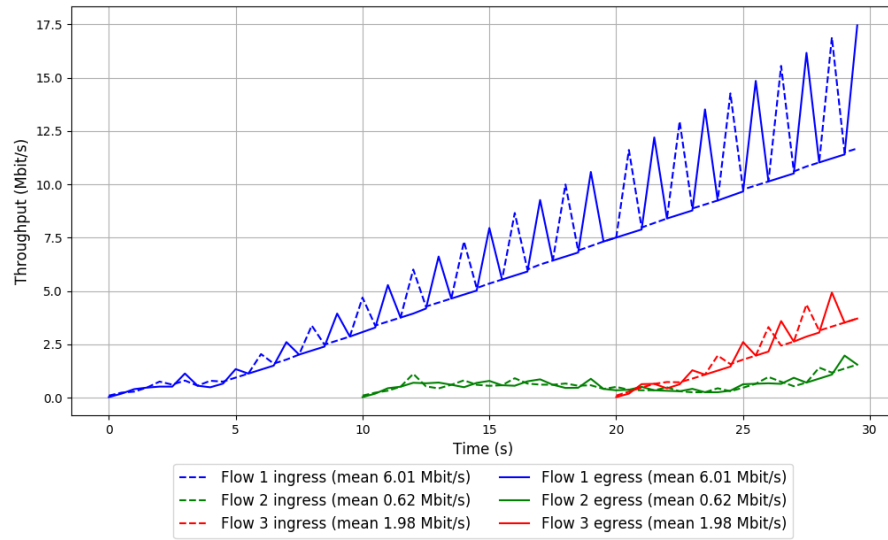
-- Flow 3:

Average throughput: 1.98 Mbit/s

95th percentile per-packet one-way delay: 111.656 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link



Run 6: Statistics of LEDBAT

Start at: 2017-09-18 19:51:46

End at: 2017-09-18 19:52:16

Below is generated by plot.py at 2017-09-18 21:55:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 5.11 Mbit/s

95th percentile per-packet one-way delay: 111.658 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 111.337 ms

Loss rate: 0.48%

-- Flow 2:

Average throughput: 4.63 Mbit/s

95th percentile per-packet one-way delay: 111.742 ms

Loss rate: 0.00%

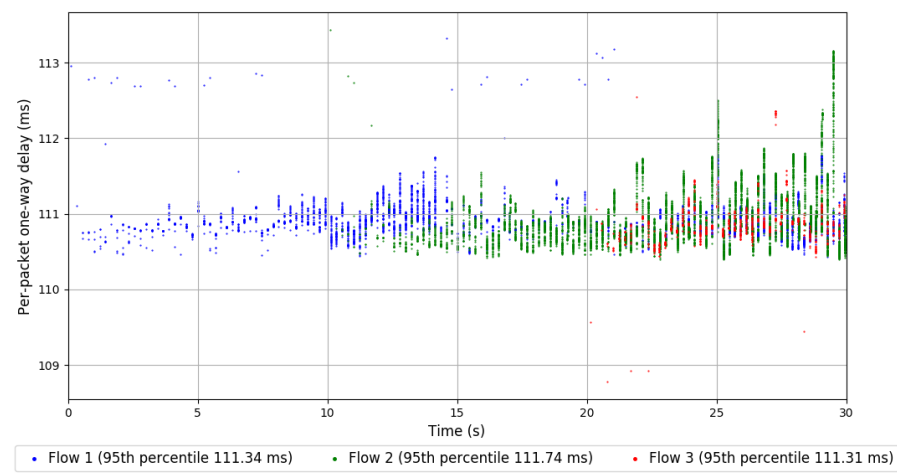
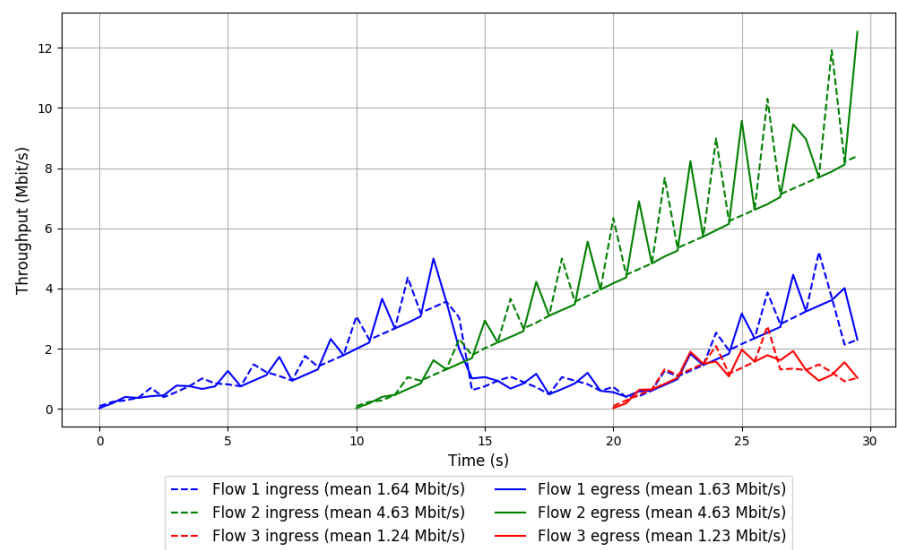
-- Flow 3:

Average throughput: 1.23 Mbit/s

95th percentile per-packet one-way delay: 111.307 ms

Loss rate: 0.29%

Run 6: Report of LEDBAT — Data Link



Run 7: Statistics of LEDBAT

Start at: 2017-09-18 20:01:41

End at: 2017-09-18 20:02:11

Below is generated by plot.py at 2017-09-18 21:55:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.23 Mbit/s

95th percentile per-packet one-way delay: 111.634 ms

Loss rate: 0.19%

-- Flow 1:

Average throughput: 2.66 Mbit/s

95th percentile per-packet one-way delay: 111.692 ms

Loss rate: 0.30%

-- Flow 2:

Average throughput: 1.59 Mbit/s

95th percentile per-packet one-way delay: 111.583 ms

Loss rate: 0.00%

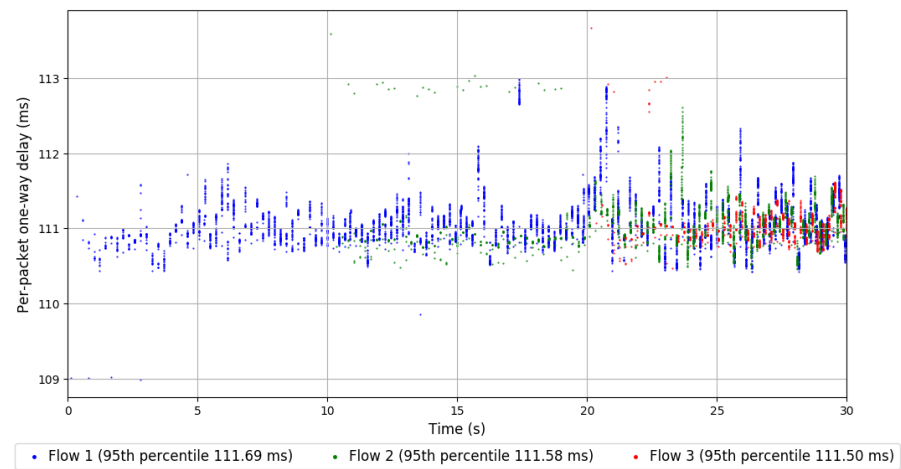
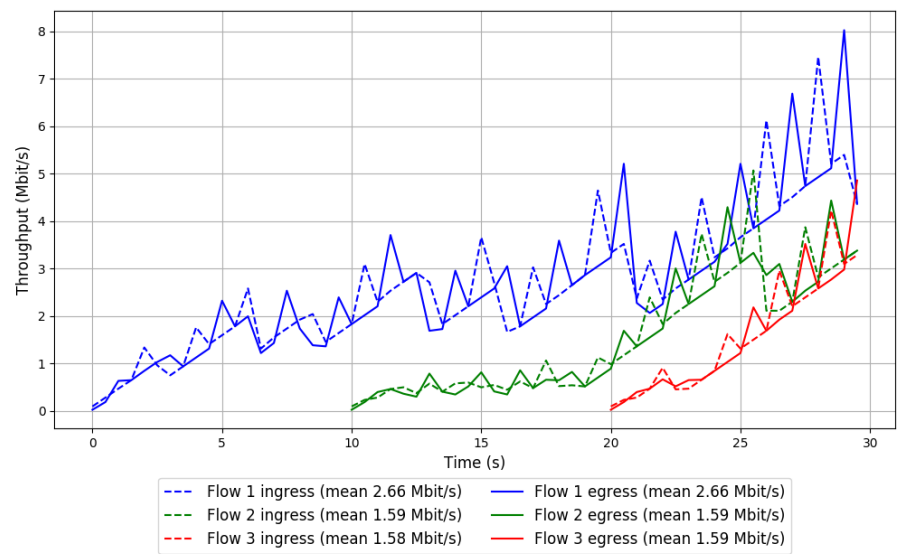
-- Flow 3:

Average throughput: 1.59 Mbit/s

95th percentile per-packet one-way delay: 111.504 ms

Loss rate: 0.00%

Run 7: Report of LEDBAT — Data Link



Run 8: Statistics of LEDBAT

Start at: 2017-09-18 20:11:23

End at: 2017-09-18 20:11:53

Below is generated by plot.py at 2017-09-18 21:55:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.67 Mbit/s

95th percentile per-packet one-way delay: 111.328 ms

Loss rate: 0.38%

-- Flow 1:

Average throughput: 1.38 Mbit/s

95th percentile per-packet one-way delay: 111.299 ms

Loss rate: 0.99%

-- Flow 2:

Average throughput: 2.64 Mbit/s

95th percentile per-packet one-way delay: 111.392 ms

Loss rate: 0.02%

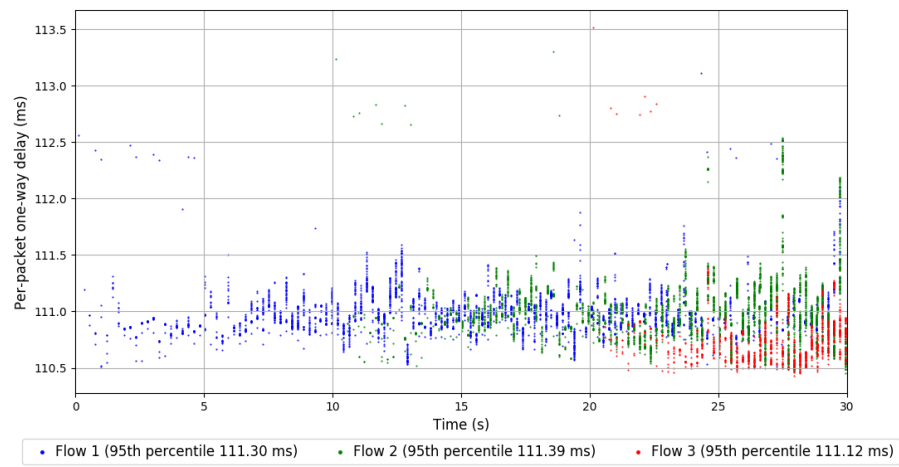
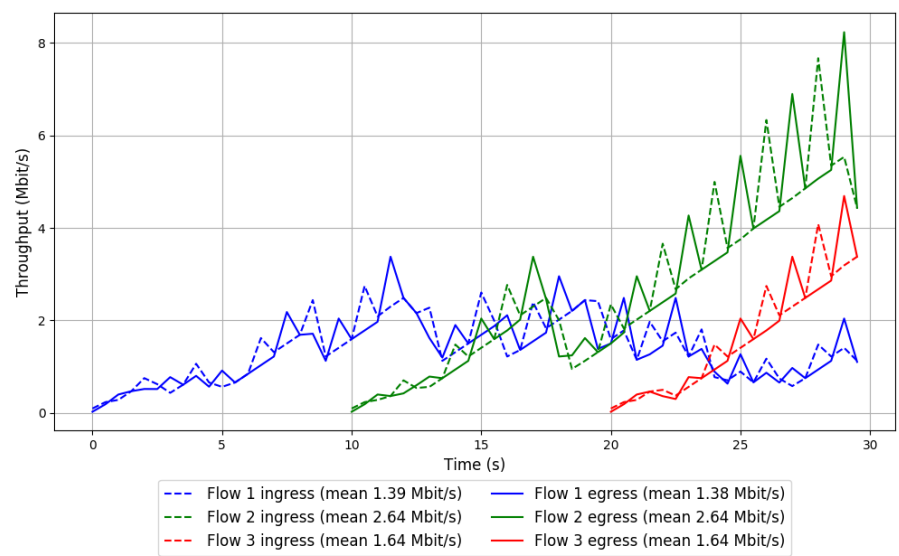
-- Flow 3:

Average throughput: 1.64 Mbit/s

95th percentile per-packet one-way delay: 111.125 ms

Loss rate: 0.00%

Run 8: Report of LEDBAT — Data Link



Run 9: Statistics of LEDBAT

Start at: 2017-09-18 20:21:19

End at: 2017-09-18 20:21:49

Below is generated by plot.py at 2017-09-18 21:55:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.83 Mbit/s

95th percentile per-packet one-way delay: 113.334 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 2.30 Mbit/s

95th percentile per-packet one-way delay: 113.289 ms

Loss rate: 0.43%

-- Flow 2:

Average throughput: 3.02 Mbit/s

95th percentile per-packet one-way delay: 113.477 ms

Loss rate: 0.02%

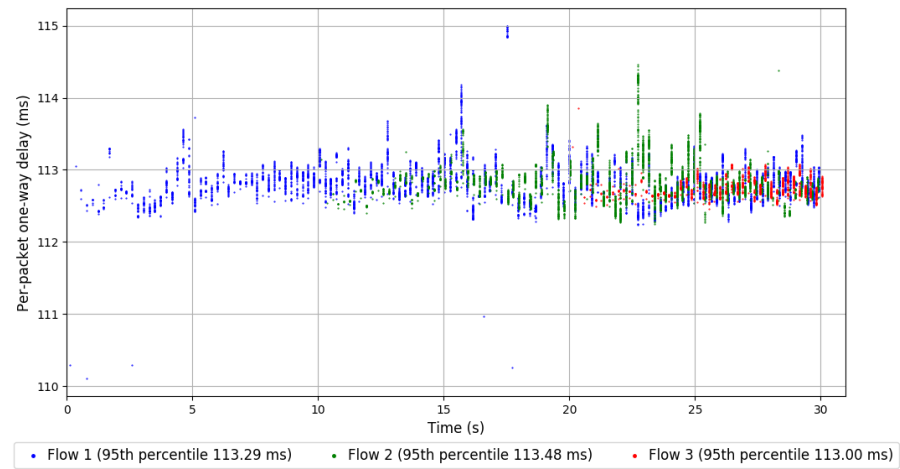
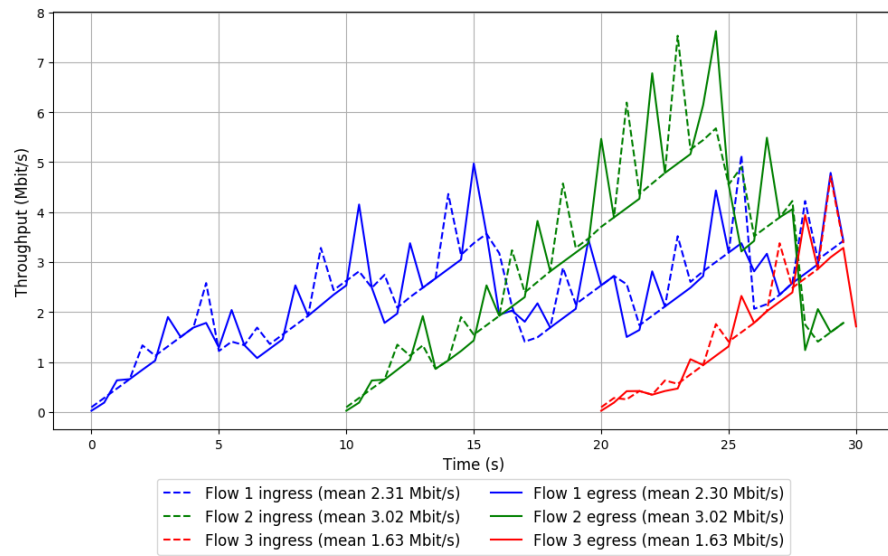
-- Flow 3:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 113.003 ms

Loss rate: 0.00%

Run 9: Report of LEDBAT — Data Link

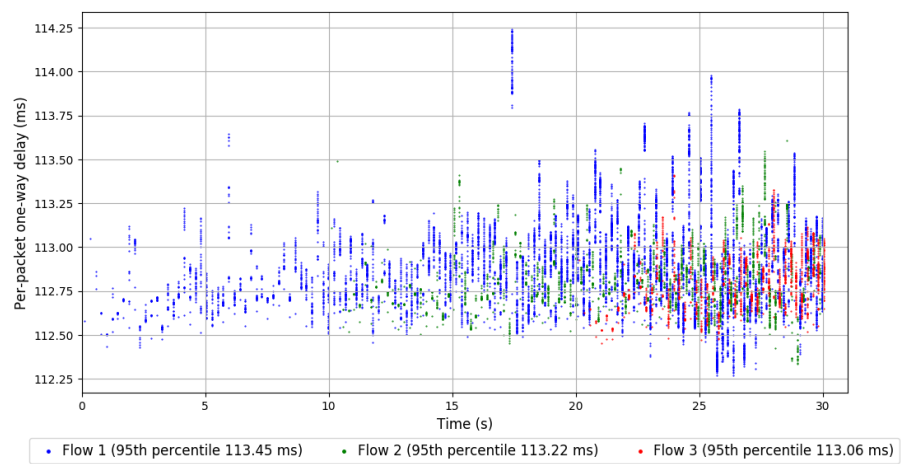
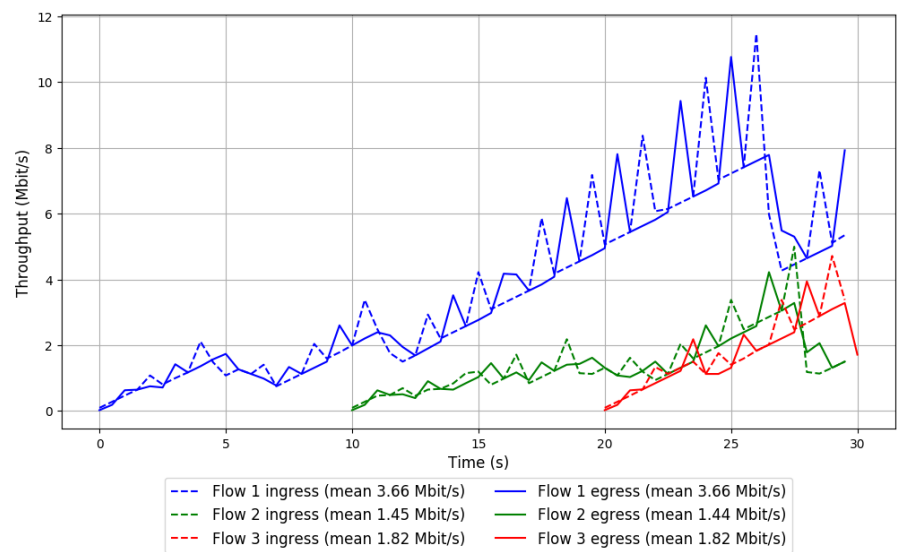


```
Run 10: Statistics of LEDBAT

Start at: 2017-09-18 20:31:20
End at: 2017-09-18 20:31:50

# Below is generated by plot.py at 2017-09-18 21:55:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.20 Mbit/s
95th percentile per-packet one-way delay: 113.377 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 113.450 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 113.219 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 113.060 ms
Loss rate: 0.00%
```

Run 10: Report of LEDBAT — Data Link

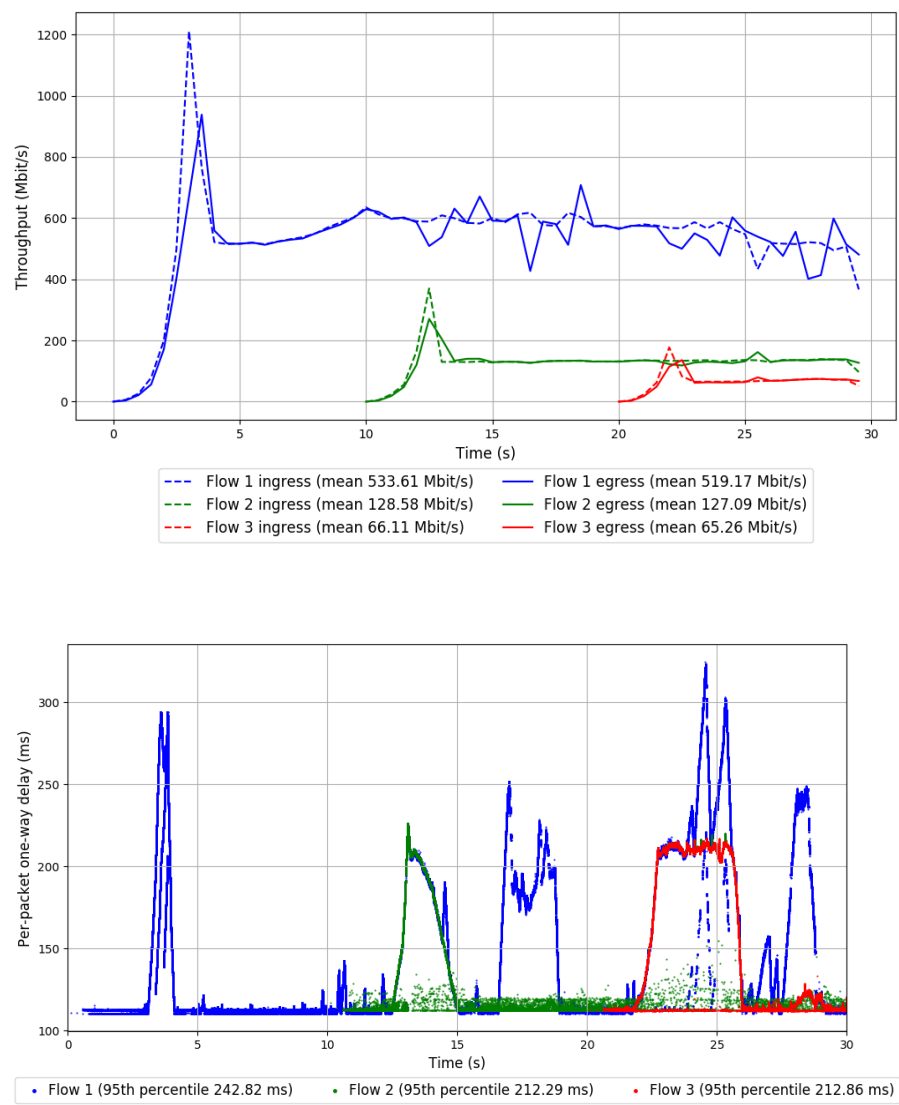


```
Run 1: Statistics of PCC

Start at: 2017-09-18 19:06:14
End at: 2017-09-18 19:06:44

# Below is generated by plot.py at 2017-09-18 22:01:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 625.09 Mbit/s
95th percentile per-packet one-way delay: 238.704 ms
Loss rate: 2.45%
-- Flow 1:
Average throughput: 519.17 Mbit/s
95th percentile per-packet one-way delay: 242.822 ms
Loss rate: 2.70%
-- Flow 2:
Average throughput: 127.09 Mbit/s
95th percentile per-packet one-way delay: 212.292 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 65.26 Mbit/s
95th percentile per-packet one-way delay: 212.856 ms
Loss rate: 1.29%
```


Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

Start at: 2017-09-18 19:16:14

End at: 2017-09-18 19:16:44

Below is generated by plot.py at 2017-09-18 22:01:24

Datalink statistics

-- Total of 3 flows:

Average throughput: 561.54 Mbit/s

95th percentile per-packet one-way delay: 234.568 ms

Loss rate: 3.40%

-- Flow 1:

Average throughput: 396.03 Mbit/s

95th percentile per-packet one-way delay: 242.351 ms

Loss rate: 3.24%

-- Flow 2:

Average throughput: 247.81 Mbit/s

95th percentile per-packet one-way delay: 210.651 ms

Loss rate: 3.79%

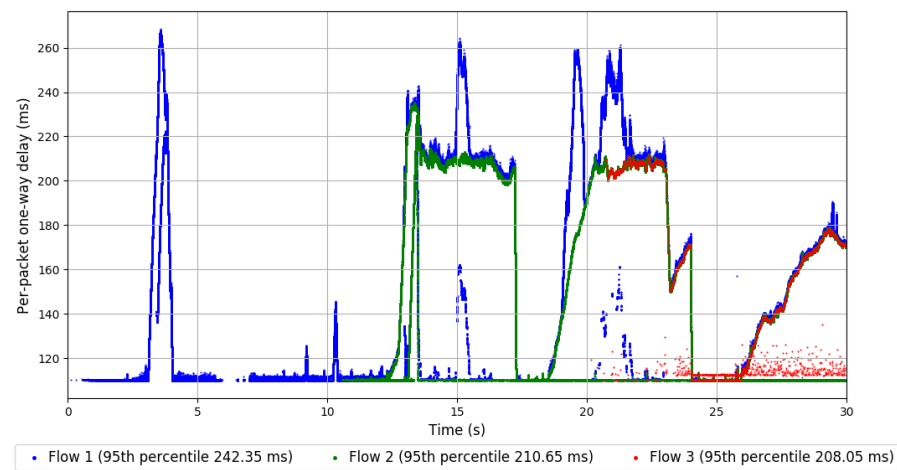
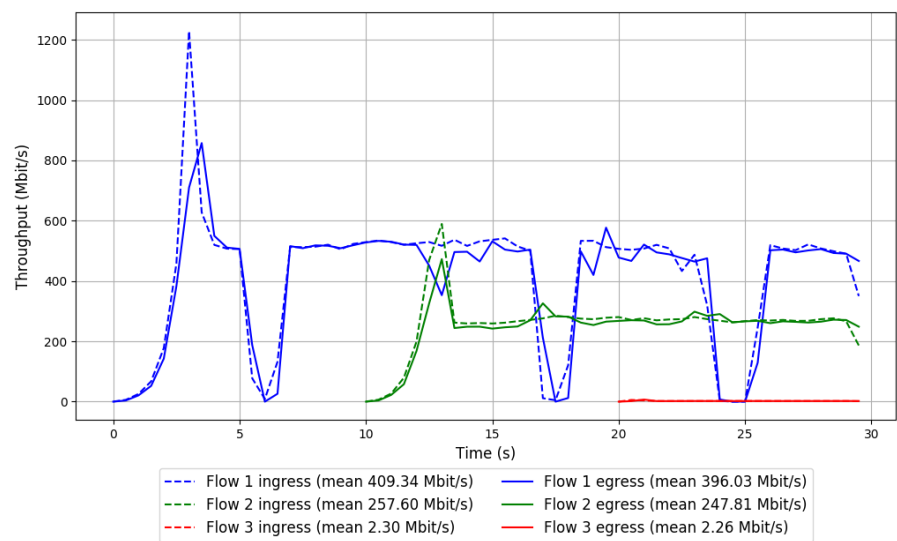
-- Flow 3:

Average throughput: 2.26 Mbit/s

95th percentile per-packet one-way delay: 208.049 ms

Loss rate: 1.54%

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2017-09-18 19:26:11

End at: 2017-09-18 19:26:41

Below is generated by plot.py at 2017-09-18 22:01:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 603.23 Mbit/s

95th percentile per-packet one-way delay: 239.658 ms

Loss rate: 2.15%

-- Flow 1:

Average throughput: 576.54 Mbit/s

95th percentile per-packet one-way delay: 241.229 ms

Loss rate: 2.14%

-- Flow 2:

Average throughput: 32.64 Mbit/s

95th percentile per-packet one-way delay: 208.438 ms

Loss rate: 1.05%

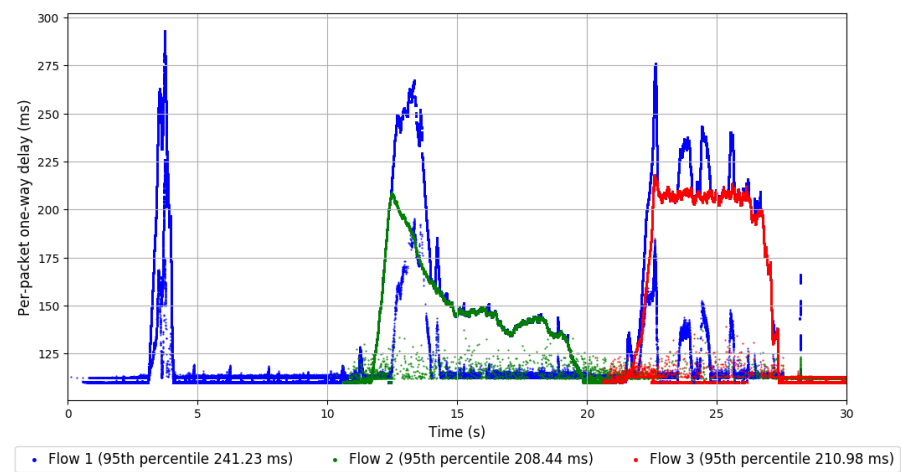
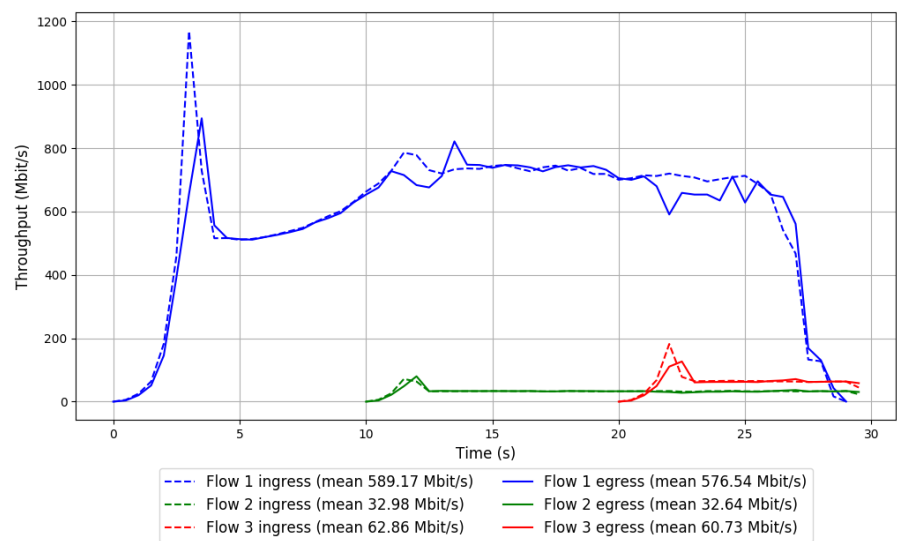
-- Flow 3:

Average throughput: 60.73 Mbit/s

95th percentile per-packet one-way delay: 210.982 ms

Loss rate: 3.40%

Run 3: Report of PCC — Data Link



Run 4: Statistics of PCC

Start at: 2017-09-18 19:35:44

End at: 2017-09-18 19:36:14

Below is generated by plot.py at 2017-09-18 22:01:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 613.51 Mbit/s

95th percentile per-packet one-way delay: 228.169 ms

Loss rate: 3.80%

-- Flow 1:

Average throughput: 462.05 Mbit/s

95th percentile per-packet one-way delay: 236.897 ms

Loss rate: 3.65%

-- Flow 2:

Average throughput: 225.90 Mbit/s

95th percentile per-packet one-way delay: 210.469 ms

Loss rate: 4.28%

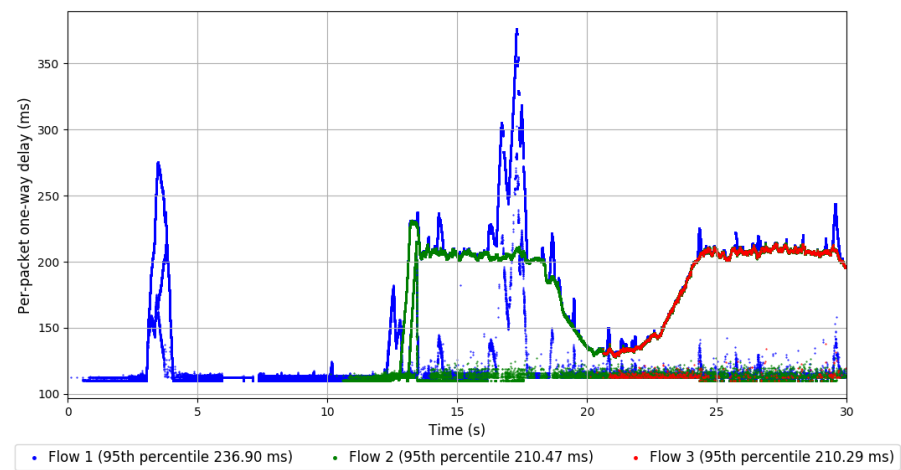
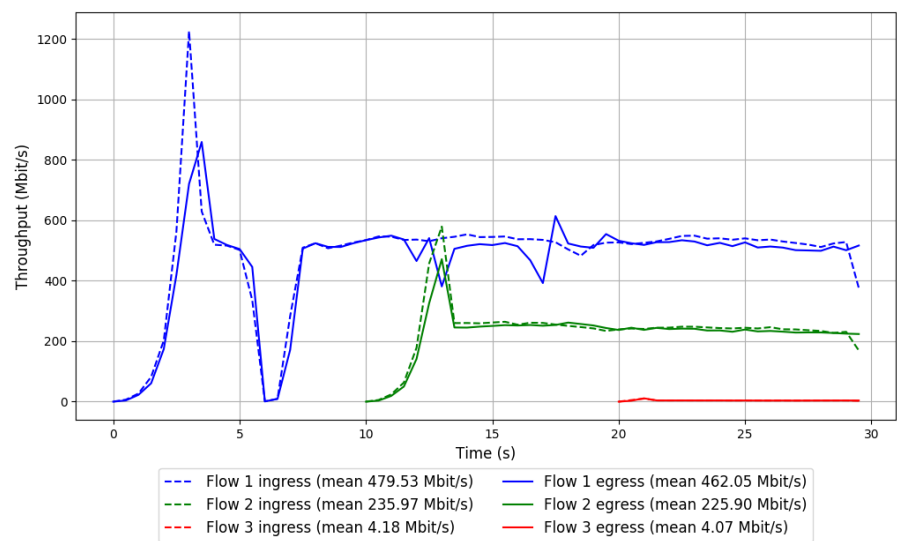
-- Flow 3:

Average throughput: 4.07 Mbit/s

95th percentile per-packet one-way delay: 210.293 ms

Loss rate: 2.66%

Run 4: Report of PCC — Data Link



Run 5: Statistics of PCC

Start at: 2017-09-18 19:45:14

End at: 2017-09-18 19:45:44

Below is generated by plot.py at 2017-09-18 22:02:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 577.28 Mbit/s

95th percentile per-packet one-way delay: 290.394 ms

Loss rate: 4.20%

-- Flow 1:

Average throughput: 467.83 Mbit/s

95th percentile per-packet one-way delay: 298.944 ms

Loss rate: 4.71%

-- Flow 2:

Average throughput: 135.35 Mbit/s

95th percentile per-packet one-way delay: 206.666 ms

Loss rate: 1.62%

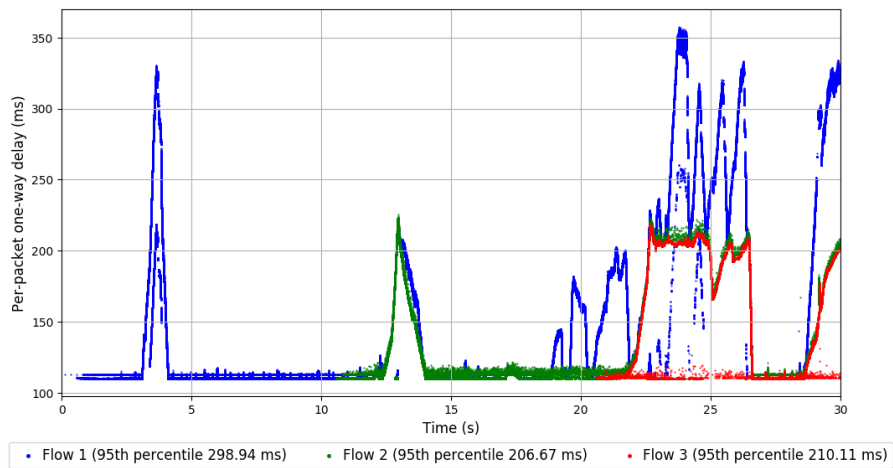
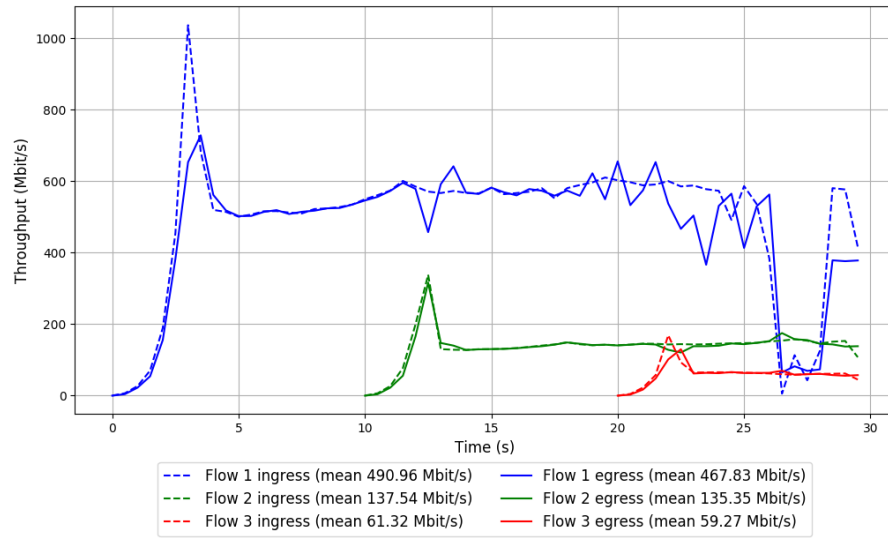
-- Flow 3:

Average throughput: 59.27 Mbit/s

95th percentile per-packet one-way delay: 210.114 ms

Loss rate: 3.34%

Run 5: Report of PCC — Data Link



Run 6: Statistics of PCC

Start at: 2017-09-18 19:55:14

End at: 2017-09-18 19:55:44

Below is generated by plot.py at 2017-09-18 22:03:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 582.27 Mbit/s

95th percentile per-packet one-way delay: 211.418 ms

Loss rate: 2.00%

-- Flow 1:

Average throughput: 494.75 Mbit/s

95th percentile per-packet one-way delay: 212.853 ms

Loss rate: 2.10%

-- Flow 2:

Average throughput: 129.35 Mbit/s

95th percentile per-packet one-way delay: 206.449 ms

Loss rate: 1.48%

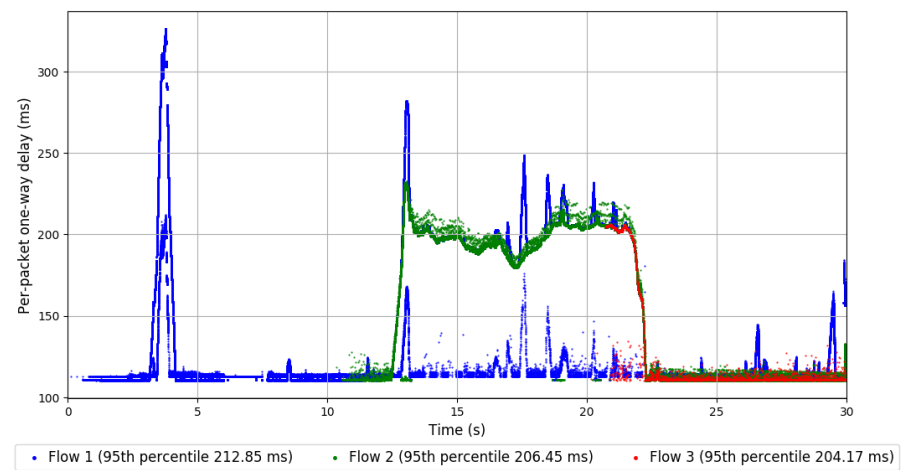
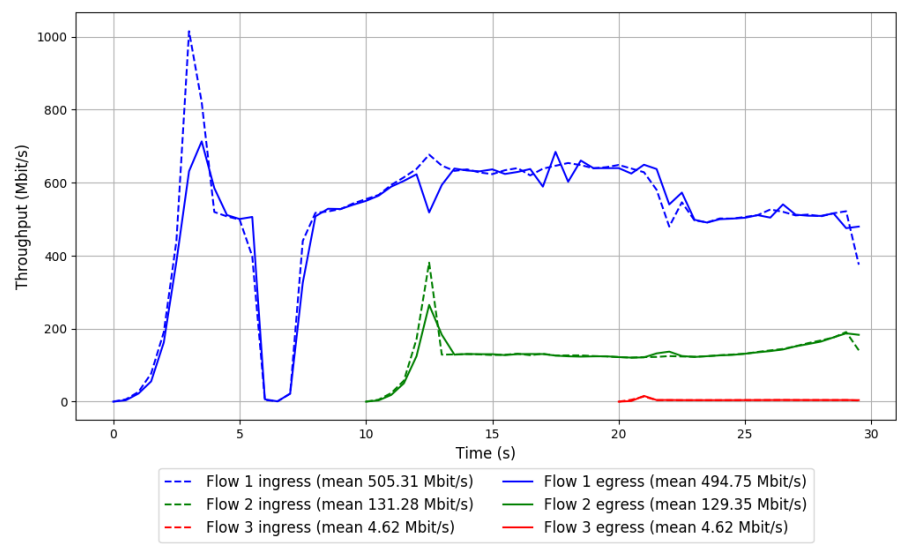
-- Flow 3:

Average throughput: 4.62 Mbit/s

95th percentile per-packet one-way delay: 204.167 ms

Loss rate: 0.00%

Run 6: Report of PCC — Data Link



Run 7: Statistics of PCC

Start at: 2017-09-18 20:05:03

End at: 2017-09-18 20:05:33

Below is generated by plot.py at 2017-09-18 22:06:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 595.72 Mbit/s

95th percentile per-packet one-way delay: 243.252 ms

Loss rate: 3.43%

-- Flow 1:

Average throughput: 509.45 Mbit/s

95th percentile per-packet one-way delay: 257.101 ms

Loss rate: 3.73%

-- Flow 2:

Average throughput: 125.66 Mbit/s

95th percentile per-packet one-way delay: 208.871 ms

Loss rate: 1.64%

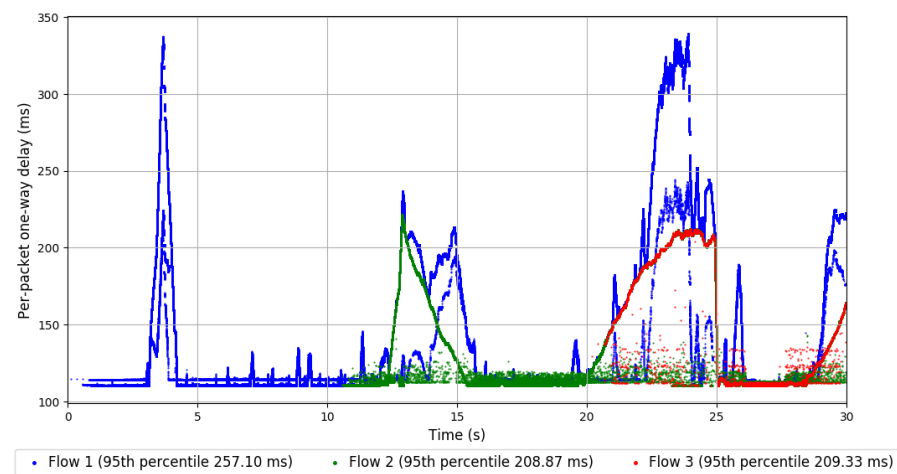
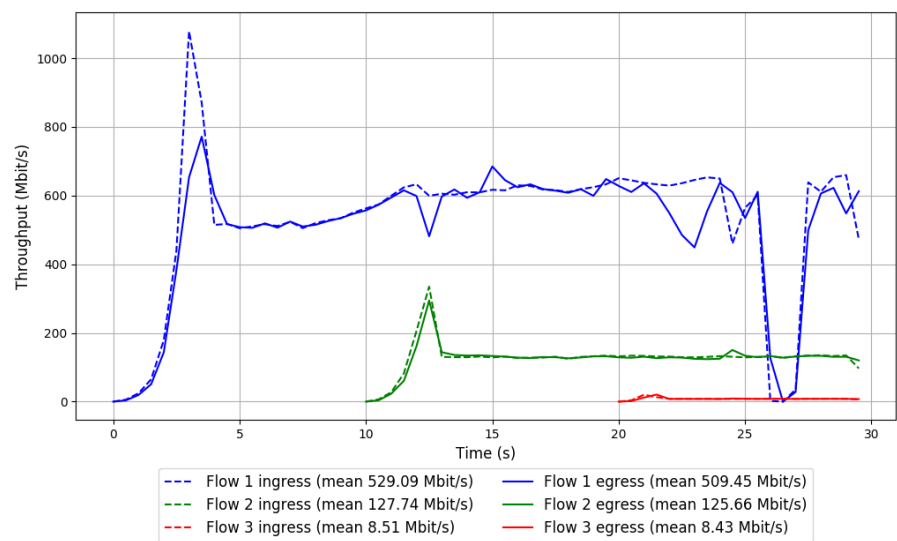
-- Flow 3:

Average throughput: 8.43 Mbit/s

95th percentile per-packet one-way delay: 209.327 ms

Loss rate: 1.09%

Run 7: Report of PCC — Data Link



Run 8: Statistics of PCC

Start at: 2017-09-18 20:14:45

End at: 2017-09-18 20:15:15

Below is generated by plot.py at 2017-09-18 22:06:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 613.34 Mbit/s

95th percentile per-packet one-way delay: 237.642 ms

Loss rate: 3.84%

-- Flow 1:

Average throughput: 511.06 Mbit/s

95th percentile per-packet one-way delay: 245.064 ms

Loss rate: 4.01%

-- Flow 2:

Average throughput: 123.92 Mbit/s

95th percentile per-packet one-way delay: 212.285 ms

Loss rate: 2.98%

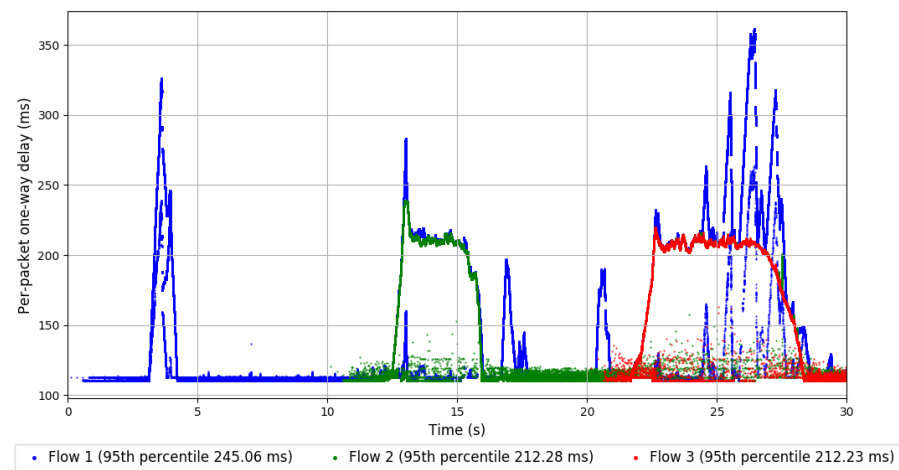
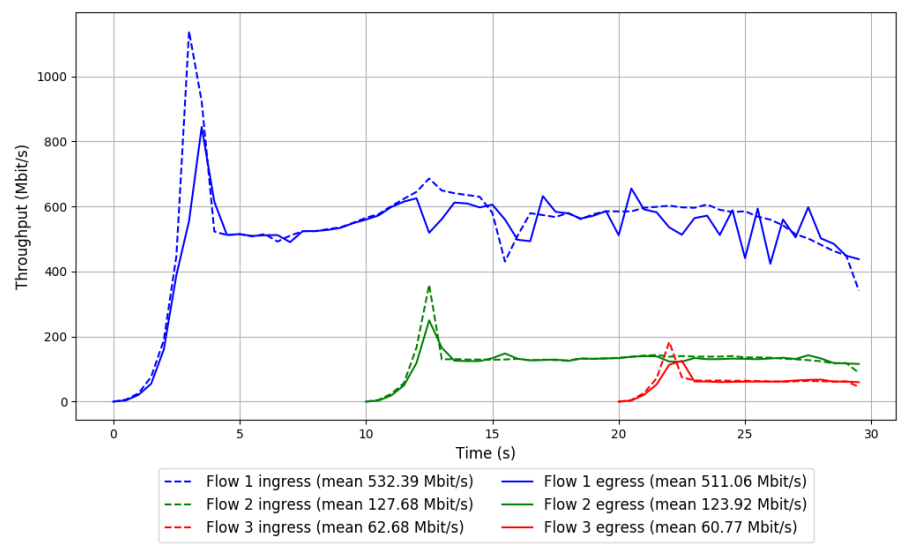
-- Flow 3:

Average throughput: 60.77 Mbit/s

95th percentile per-packet one-way delay: 212.231 ms

Loss rate: 3.14%

Run 8: Report of PCC — Data Link



Run 9: Statistics of PCC

Start at: 2017-09-18 20:24:44

End at: 2017-09-18 20:25:14

Below is generated by plot.py at 2017-09-18 22:11:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 600.55 Mbit/s

95th percentile per-packet one-way delay: 209.200 ms

Loss rate: 2.36%

-- Flow 1:

Average throughput: 506.57 Mbit/s

95th percentile per-packet one-way delay: 215.636 ms

Loss rate: 2.68%

-- Flow 2:

Average throughput: 137.22 Mbit/s

95th percentile per-packet one-way delay: 165.670 ms

Loss rate: 0.64%

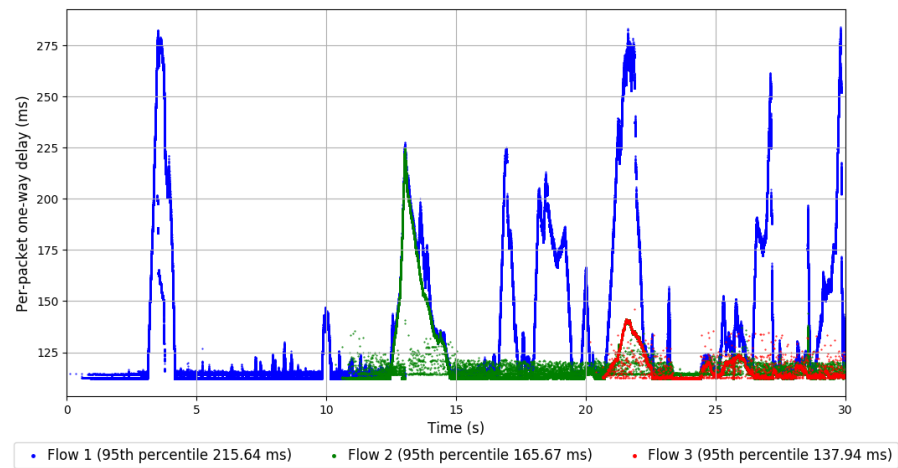
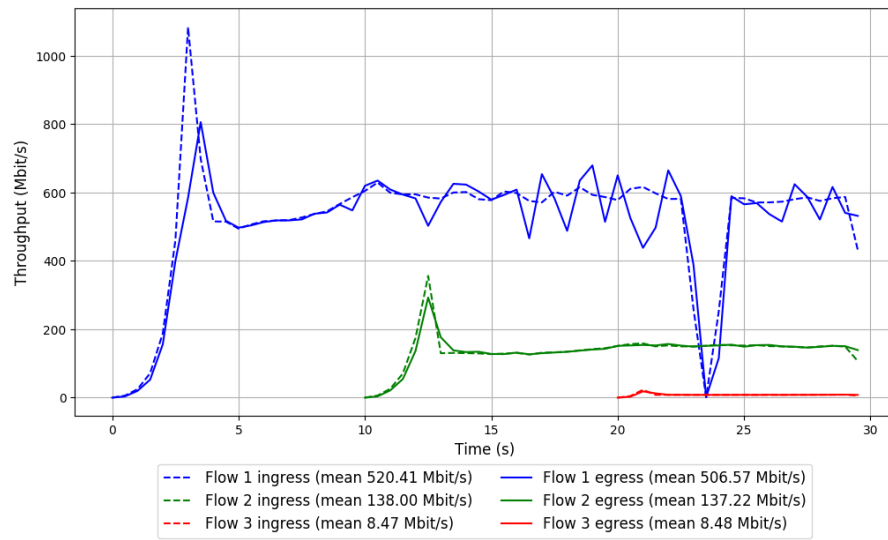
-- Flow 3:

Average throughput: 8.48 Mbit/s

95th percentile per-packet one-way delay: 137.937 ms

Loss rate: 0.06%

Run 9: Report of PCC — Data Link



Run 10: Statistics of PCC

Start at: 2017-09-18 20:34:45

End at: 2017-09-18 20:35:15

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 623.63 Mbit/s

95th percentile per-packet one-way delay: 275.132 ms

Loss rate: 3.90%

-- Flow 1:

Average throughput: 531.41 Mbit/s

95th percentile per-packet one-way delay: 285.283 ms

Loss rate: 4.20%

-- Flow 2:

Average throughput: 122.37 Mbit/s

95th percentile per-packet one-way delay: 214.211 ms

Loss rate: 2.26%

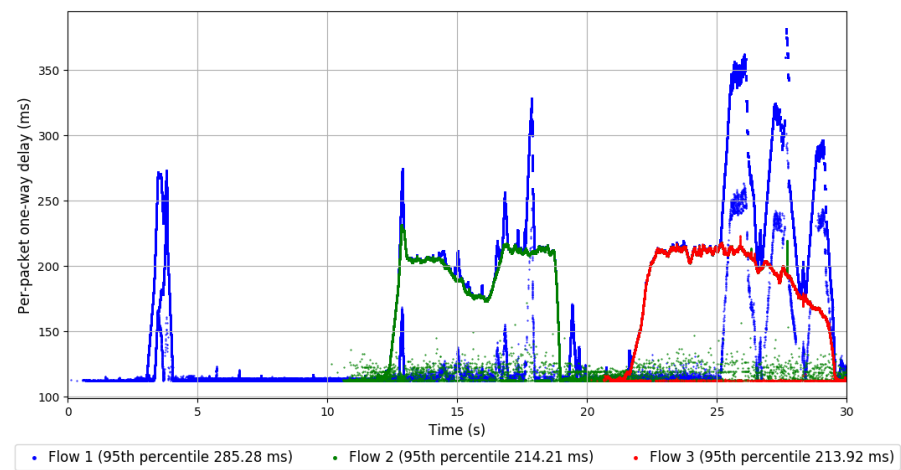
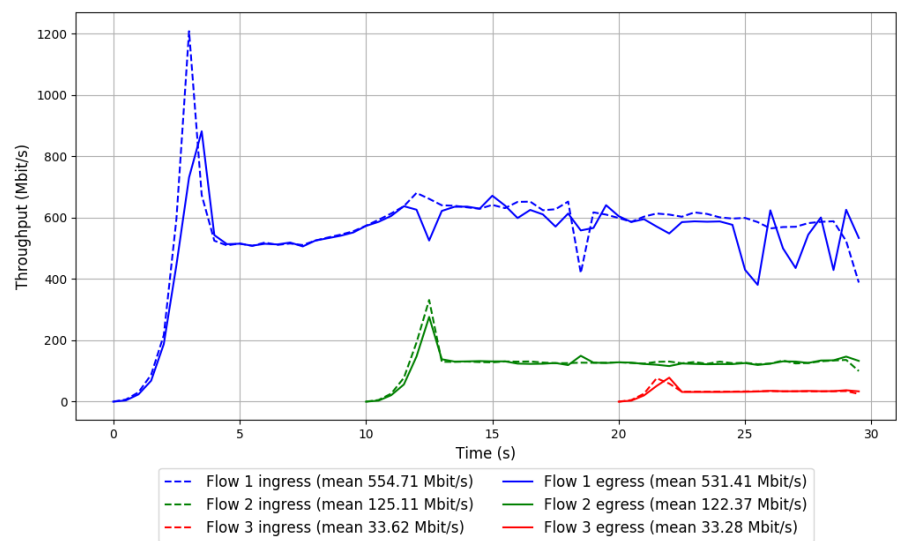
-- Flow 3:

Average throughput: 33.28 Mbit/s

95th percentile per-packet one-way delay: 213.924 ms

Loss rate: 1.00%

Run 10: Report of PCC — Data Link

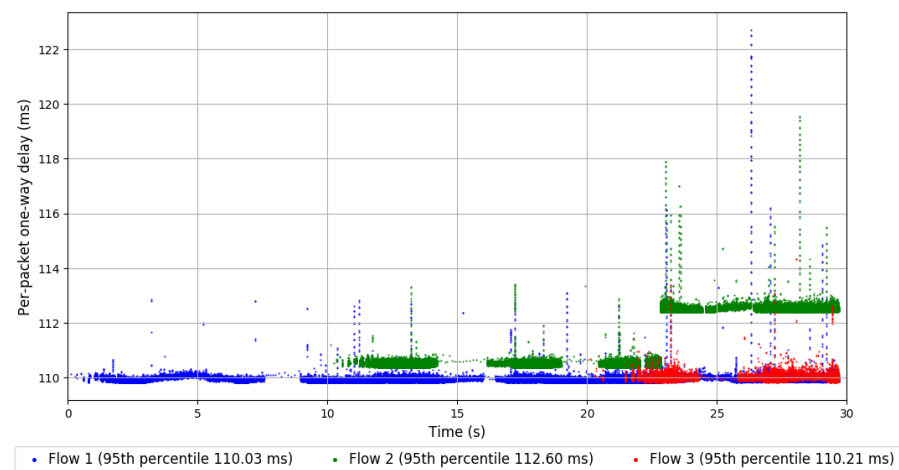
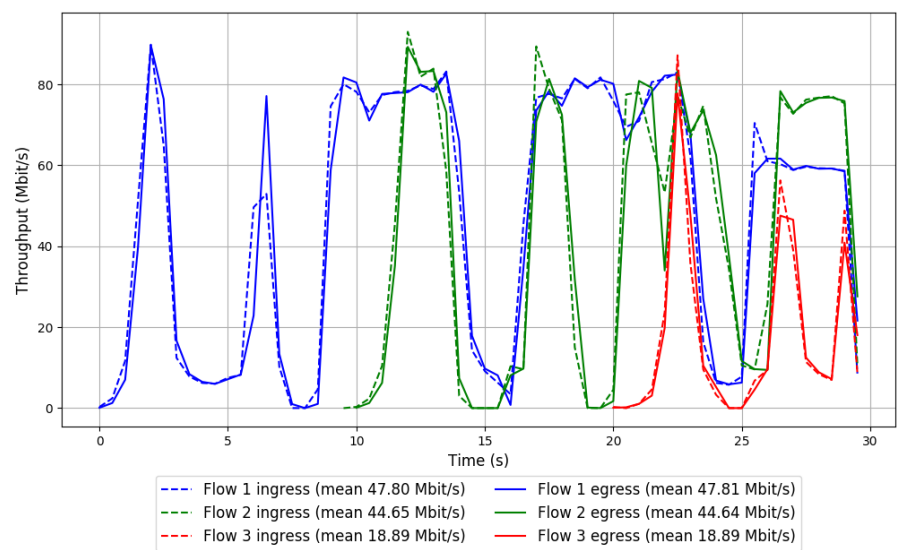


```
Run 1: Statistics of QUIC Cubic

Start at: 2017-09-18 19:09:27
End at: 2017-09-18 19:09:57

# Below is generated by plot.py at 2017-09-18 22:12:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.48 Mbit/s
95th percentile per-packet one-way delay: 112.512 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 47.81 Mbit/s
95th percentile per-packet one-way delay: 110.031 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 44.64 Mbit/s
95th percentile per-packet one-way delay: 112.603 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.89 Mbit/s
95th percentile per-packet one-way delay: 110.207 ms
Loss rate: 0.00%
```

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2017-09-18 19:19:26

End at: 2017-09-18 19:19:56

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 83.81 Mbit/s

95th percentile per-packet one-way delay: 112.676 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 52.96 Mbit/s

95th percentile per-packet one-way delay: 112.710 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 36.84 Mbit/s

95th percentile per-packet one-way delay: 110.152 ms

Loss rate: 0.00%

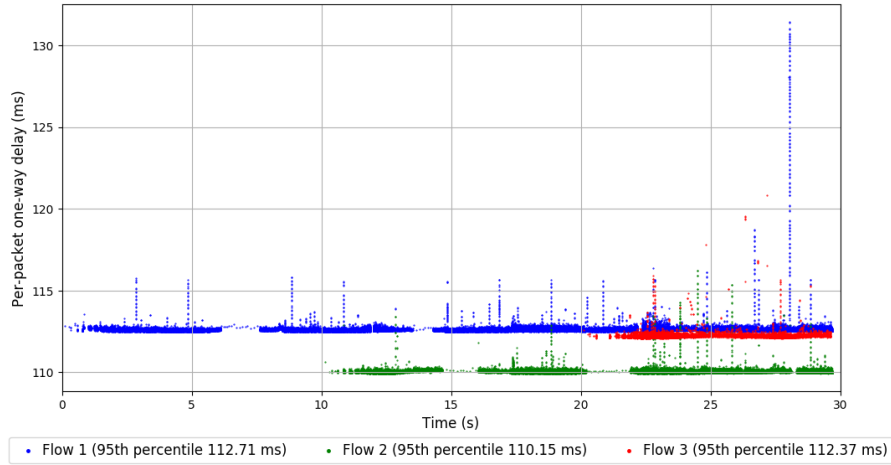
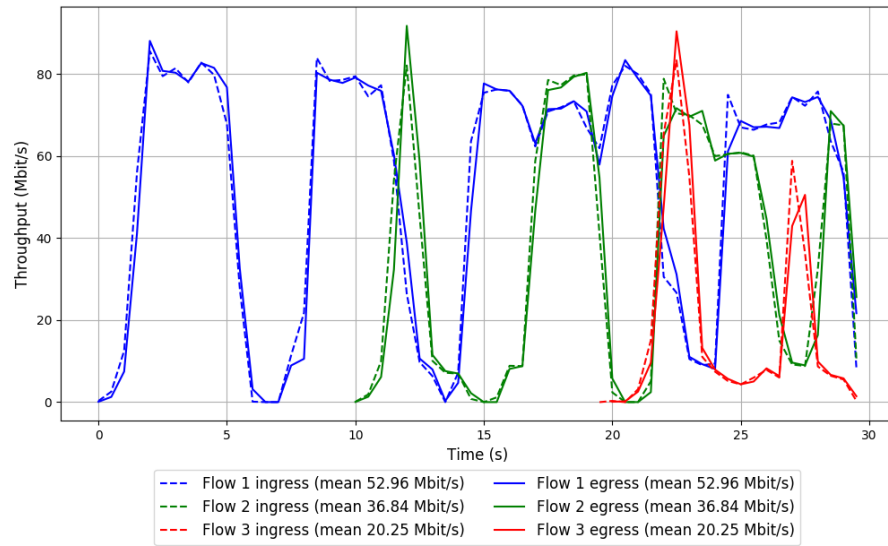
-- Flow 3:

Average throughput: 20.25 Mbit/s

95th percentile per-packet one-way delay: 112.372 ms

Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-09-18 19:29:22

End at: 2017-09-18 19:29:52

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.79 Mbit/s

95th percentile per-packet one-way delay: 112.700 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 49.02 Mbit/s

95th percentile per-packet one-way delay: 112.724 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 48.76 Mbit/s

95th percentile per-packet one-way delay: 112.674 ms

Loss rate: 0.00%

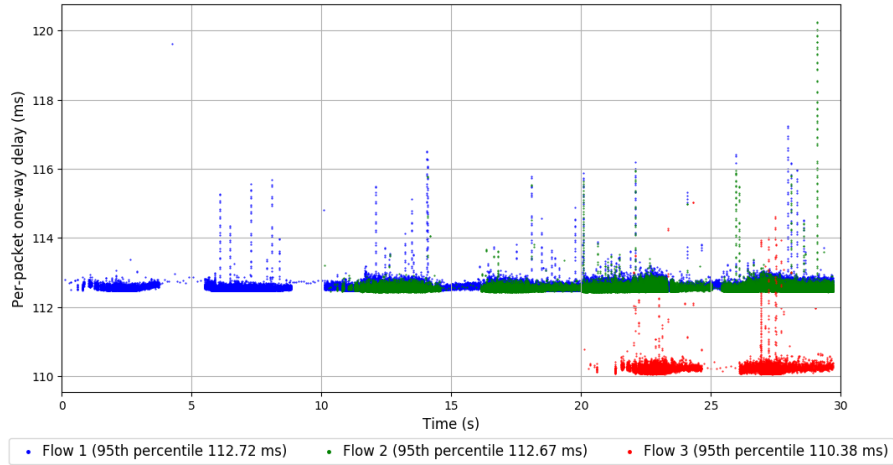
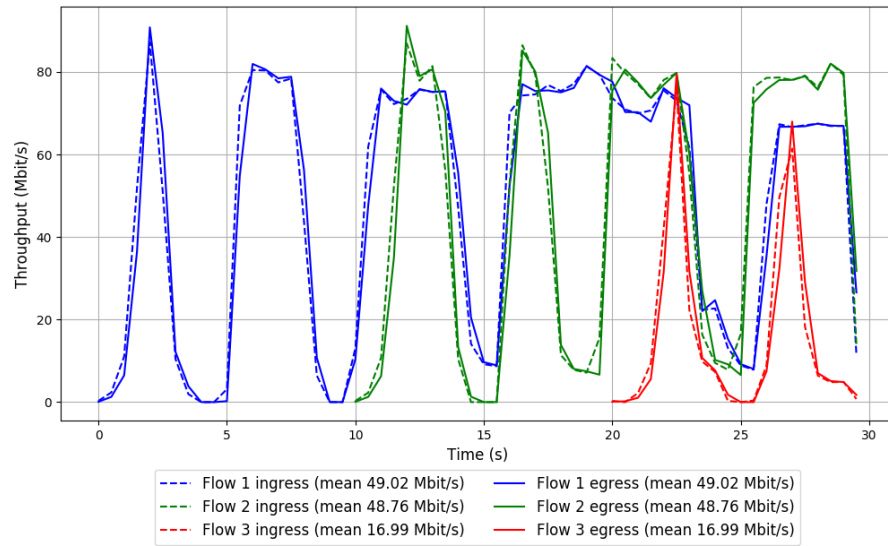
-- Flow 3:

Average throughput: 16.99 Mbit/s

95th percentile per-packet one-way delay: 110.376 ms

Loss rate: 0.00%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2017-09-18 19:38:57

End at: 2017-09-18 19:39:27

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.53 Mbit/s

95th percentile per-packet one-way delay: 112.682 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 53.29 Mbit/s

95th percentile per-packet one-way delay: 110.139 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 26.92 Mbit/s

95th percentile per-packet one-way delay: 112.751 ms

Loss rate: 0.00%

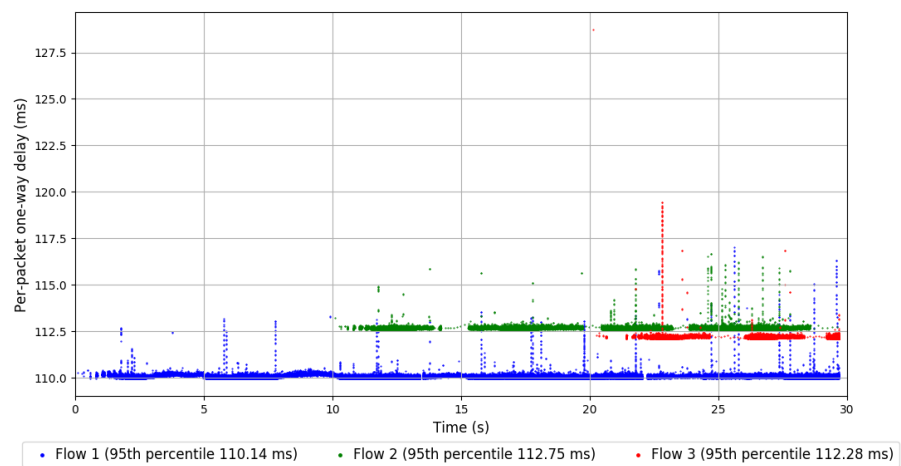
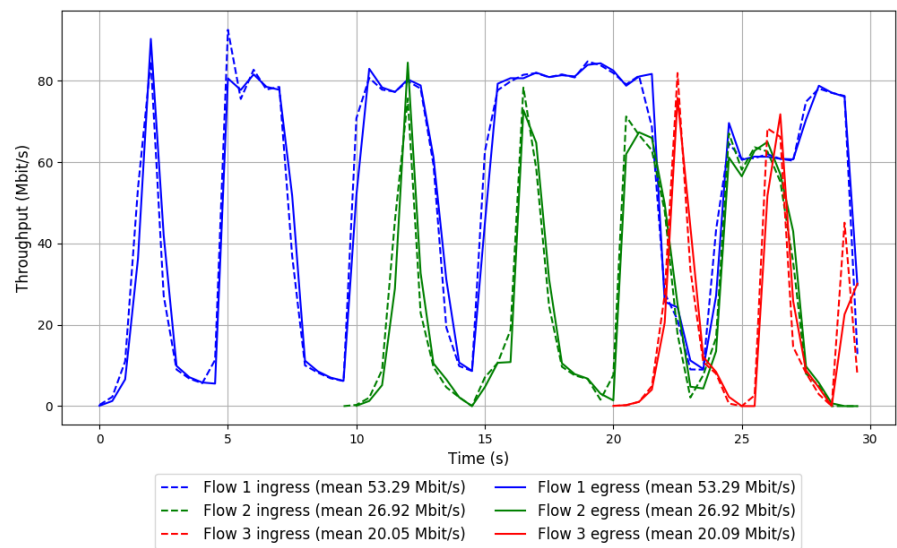
-- Flow 3:

Average throughput: 20.09 Mbit/s

95th percentile per-packet one-way delay: 112.280 ms

Loss rate: 0.00%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2017-09-18 19:48:26

End at: 2017-09-18 19:48:56

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 83.93 Mbit/s

95th percentile per-packet one-way delay: 112.685 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.85 Mbit/s

95th percentile per-packet one-way delay: 110.430 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 44.87 Mbit/s

95th percentile per-packet one-way delay: 110.678 ms

Loss rate: 0.00%

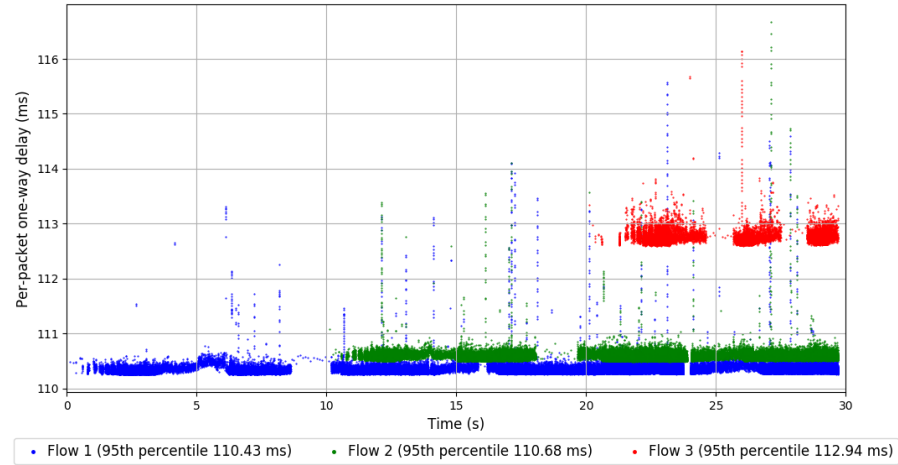
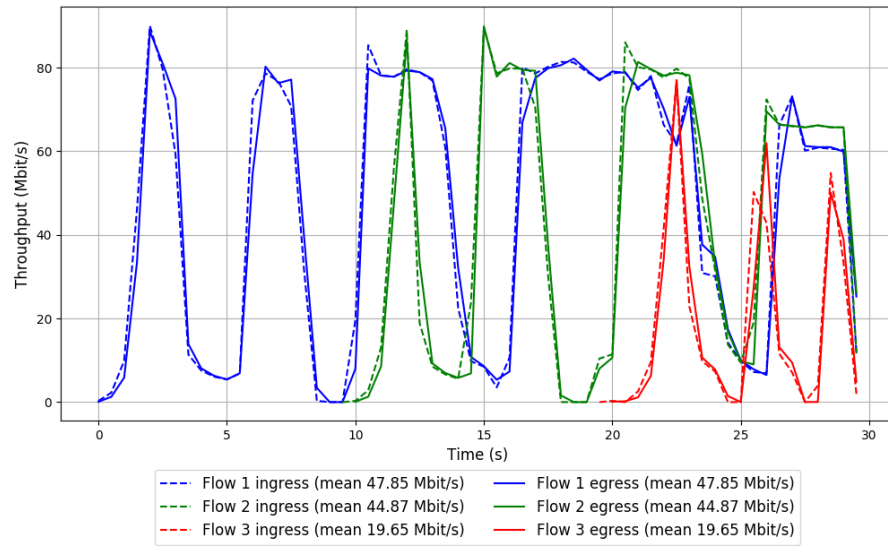
-- Flow 3:

Average throughput: 19.65 Mbit/s

95th percentile per-packet one-way delay: 112.944 ms

Loss rate: 0.01%

Run 5: Report of QUIC Cubic — Data Link



Run 6: Statistics of QUIC Cubic

Start at: 2017-09-18 19:58:25

End at: 2017-09-18 19:58:55

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.06 Mbit/s

95th percentile per-packet one-way delay: 112.414 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 44.69 Mbit/s

95th percentile per-packet one-way delay: 112.473 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 47.16 Mbit/s

95th percentile per-packet one-way delay: 110.498 ms

Loss rate: 0.00%

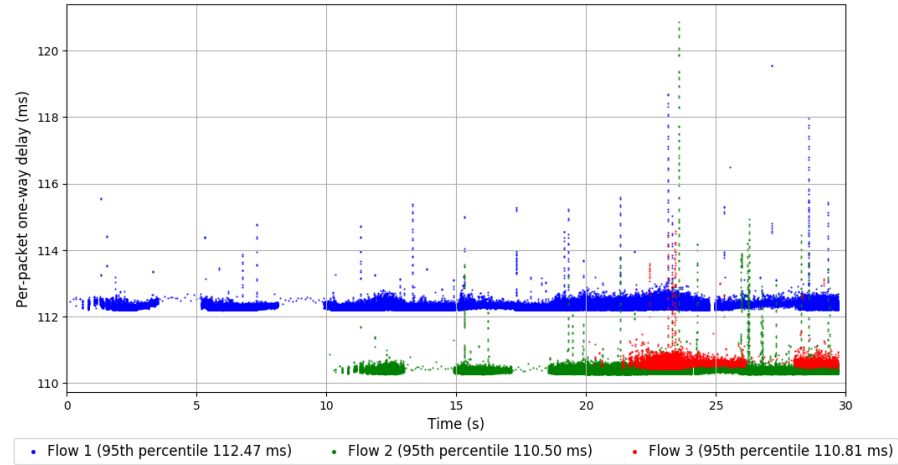
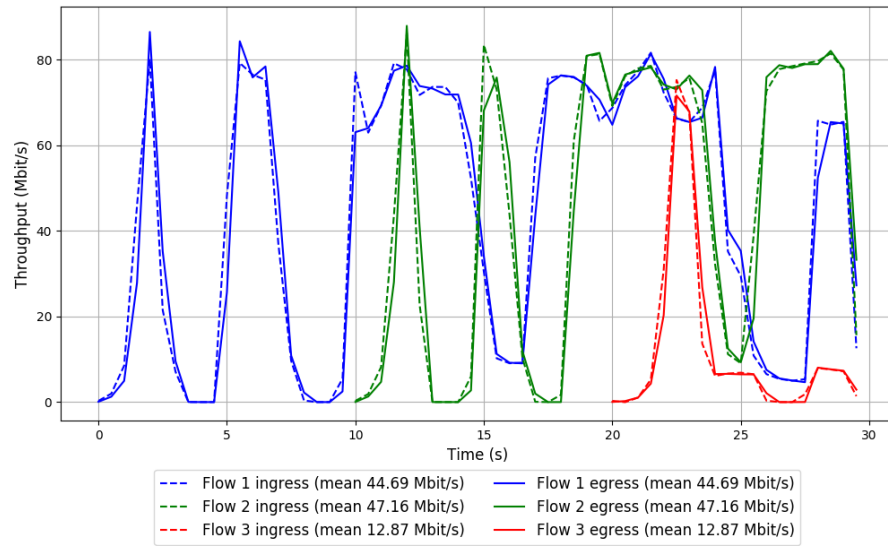
-- Flow 3:

Average throughput: 12.87 Mbit/s

95th percentile per-packet one-way delay: 110.808 ms

Loss rate: 0.00%

Run 6: Report of QUIC Cubic — Data Link



Run 7: Statistics of QUIC Cubic

Start at: 2017-09-18 20:08:15

End at: 2017-09-18 20:08:45

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.96 Mbit/s

95th percentile per-packet one-way delay: 112.767 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 40.94 Mbit/s

95th percentile per-packet one-way delay: 112.833 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 53.20 Mbit/s

95th percentile per-packet one-way delay: 112.411 ms

Loss rate: 0.00%

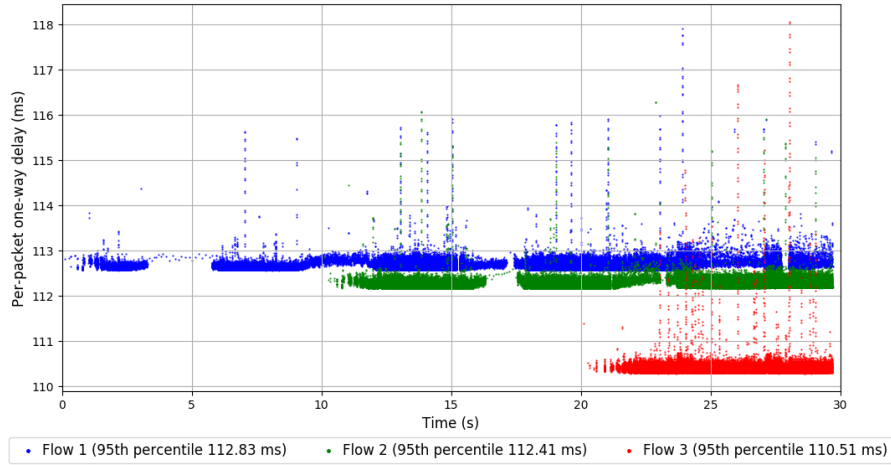
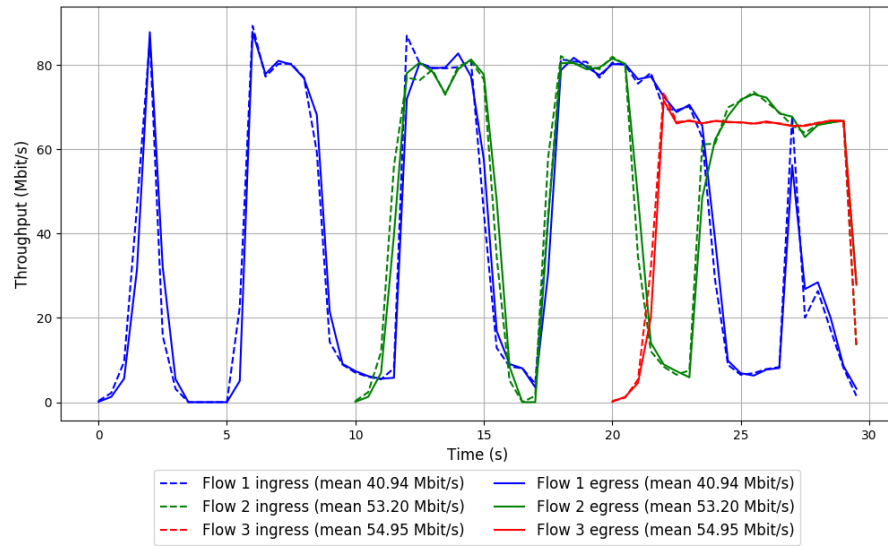
-- Flow 3:

Average throughput: 54.95 Mbit/s

95th percentile per-packet one-way delay: 110.514 ms

Loss rate: 0.00%

Run 7: Report of QUIC Cubic — Data Link



Run 8: Statistics of QUIC Cubic

Start at: 2017-09-18 20:17:58

End at: 2017-09-18 20:18:28

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 71.74 Mbit/s

95th percentile per-packet one-way delay: 112.848 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 45.21 Mbit/s

95th percentile per-packet one-way delay: 112.368 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 31.71 Mbit/s

95th percentile per-packet one-way delay: 112.927 ms

Loss rate: 0.00%

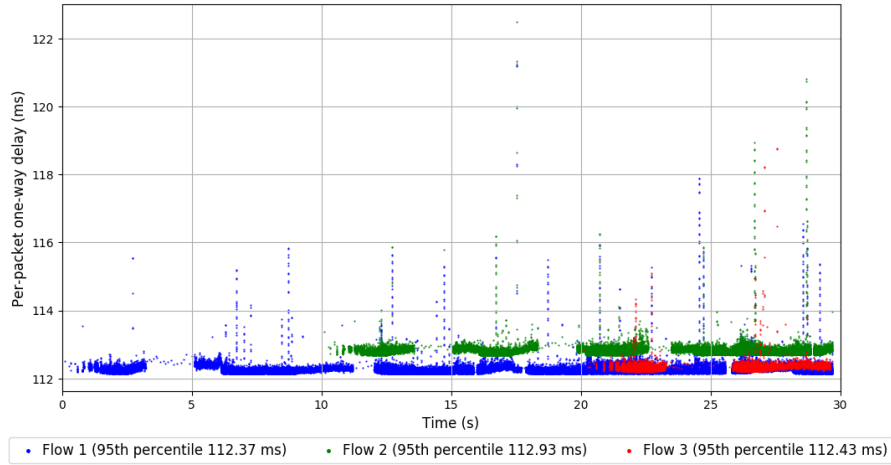
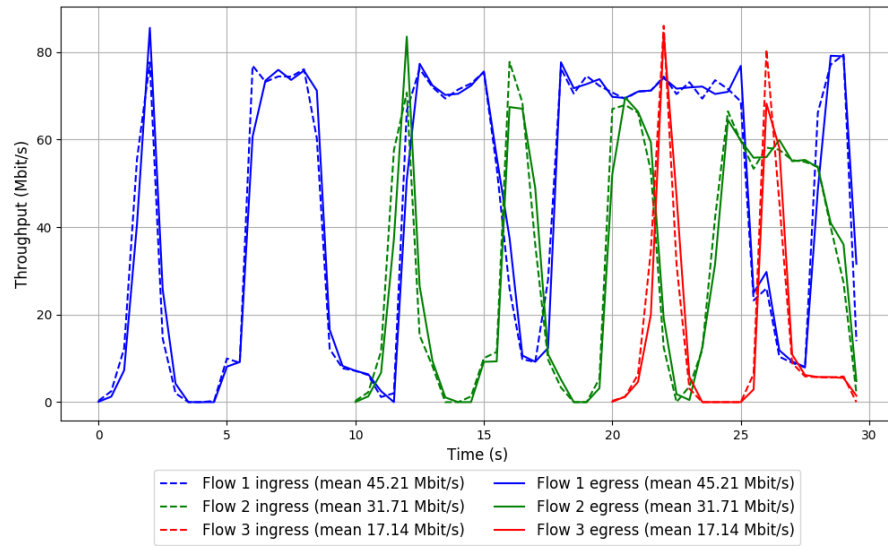
-- Flow 3:

Average throughput: 17.14 Mbit/s

95th percentile per-packet one-way delay: 112.432 ms

Loss rate: 0.00%

Run 8: Report of QUIC Cubic — Data Link



Run 9: Statistics of QUIC Cubic

Start at: 2017-09-18 20:27:55

End at: 2017-09-18 20:28:25

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.65 Mbit/s

95th percentile per-packet one-way delay: 112.721 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 49.95 Mbit/s

95th percentile per-packet one-way delay: 112.313 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 42.68 Mbit/s

95th percentile per-packet one-way delay: 110.515 ms

Loss rate: 0.00%

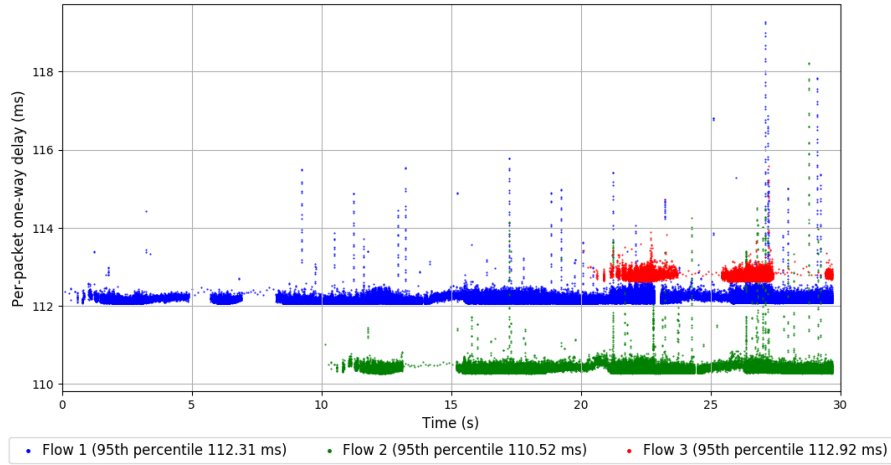
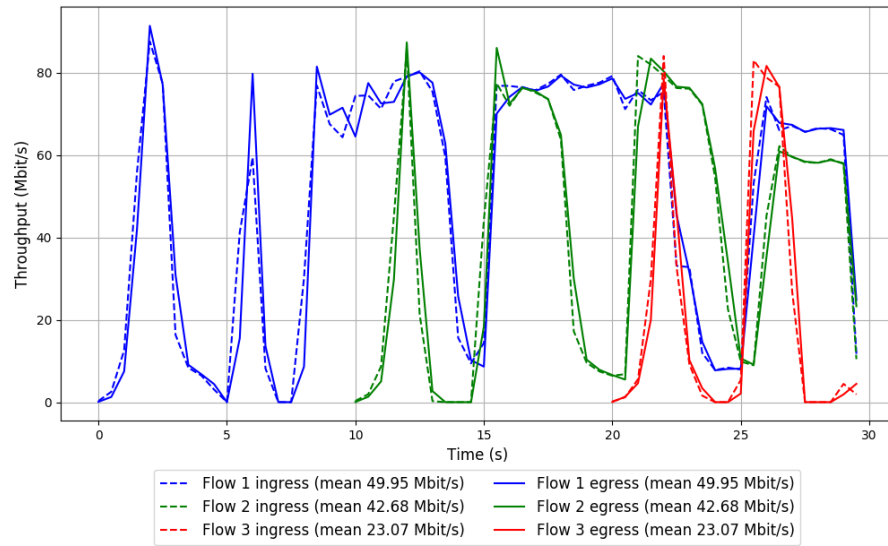
-- Flow 3:

Average throughput: 23.07 Mbit/s

95th percentile per-packet one-way delay: 112.925 ms

Loss rate: 0.00%

Run 9: Report of QUIC Cubic — Data Link



Run 10: Statistics of QUIC Cubic

Start at: 2017-09-18 20:37:58

End at: 2017-09-18 20:38:28

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 73.15 Mbit/s

95th percentile per-packet one-way delay: 110.619 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 41.78 Mbit/s

95th percentile per-packet one-way delay: 110.199 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 37.17 Mbit/s

95th percentile per-packet one-way delay: 110.674 ms

Loss rate: 0.00%

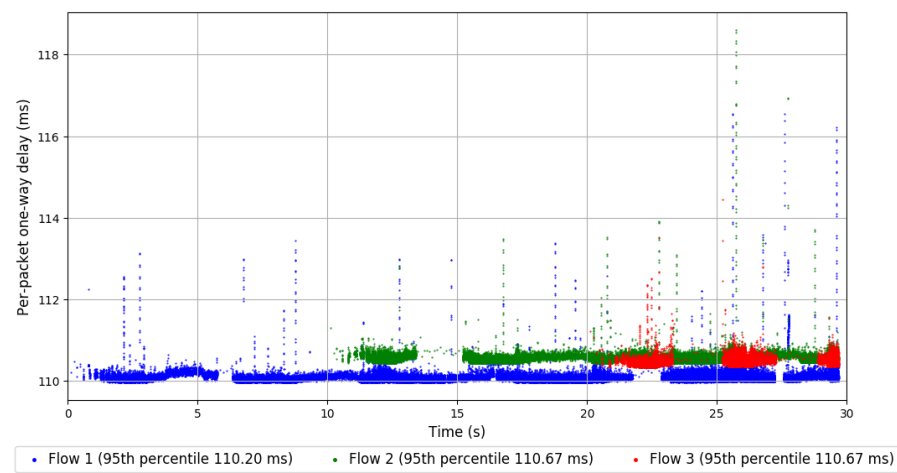
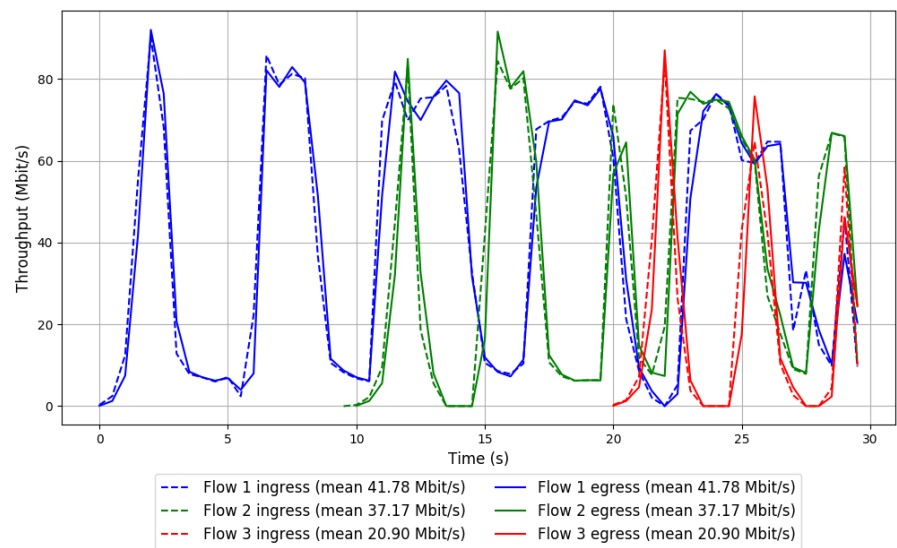
-- Flow 3:

Average throughput: 20.90 Mbit/s

95th percentile per-packet one-way delay: 110.669 ms

Loss rate: 0.00%

Run 10: Report of QUIC Cubic — Data Link



Run 1: Statistics of Sprout

Start at: 2017-09-18 19:07:28

End at: 2017-09-18 19:07:58

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.53 Mbit/s

95th percentile per-packet one-way delay: 113.560 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 2.53 Mbit/s

95th percentile per-packet one-way delay: 113.646 ms

Loss rate: 0.56%

-- Flow 2:

Average throughput: 2.20 Mbit/s

95th percentile per-packet one-way delay: 113.312 ms

Loss rate: 0.43%

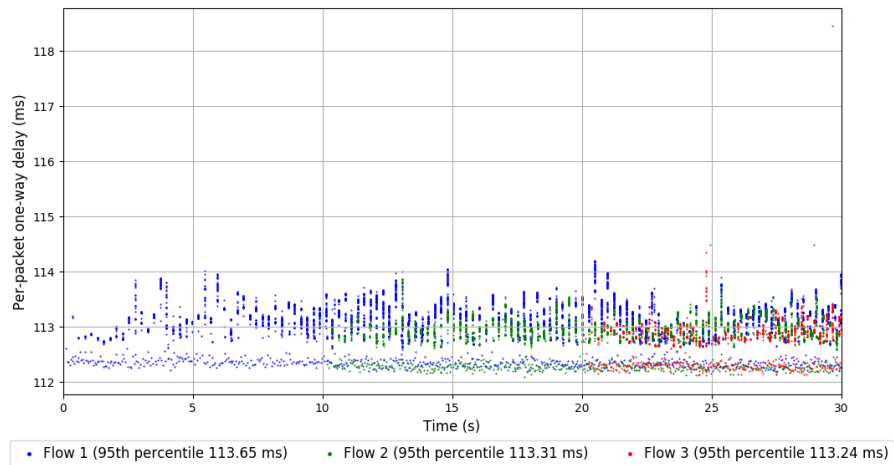
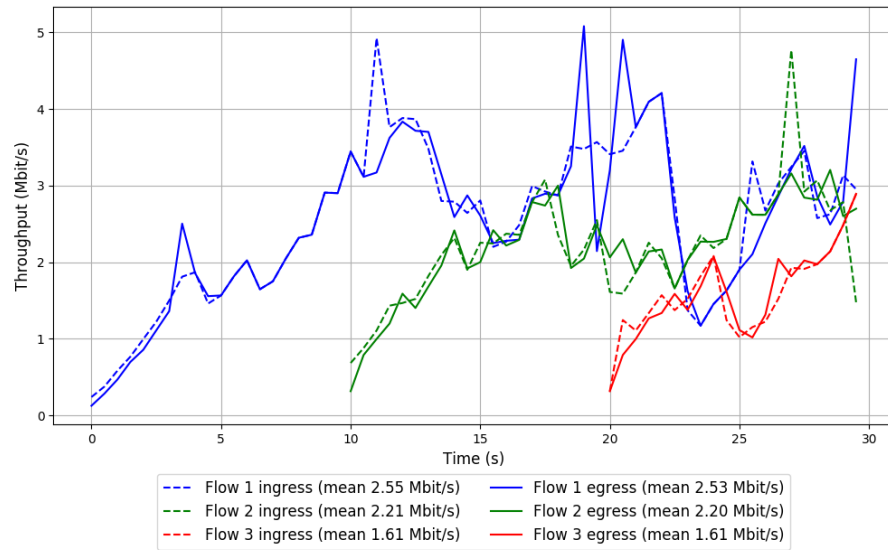
-- Flow 3:

Average throughput: 1.61 Mbit/s

95th percentile per-packet one-way delay: 113.242 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2017-09-18 19:17:26

End at: 2017-09-18 19:17:56

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 5.20 Mbit/s

95th percentile per-packet one-way delay: 112.361 ms

Loss rate: 0.43%

-- Flow 1:

Average throughput: 3.03 Mbit/s

95th percentile per-packet one-way delay: 112.321 ms

Loss rate: 0.37%

-- Flow 2:

Average throughput: 2.31 Mbit/s

95th percentile per-packet one-way delay: 112.754 ms

Loss rate: 0.51%

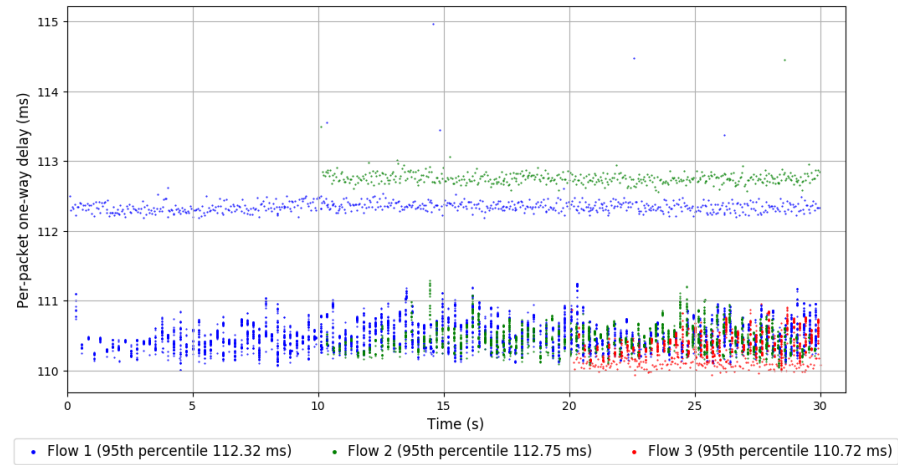
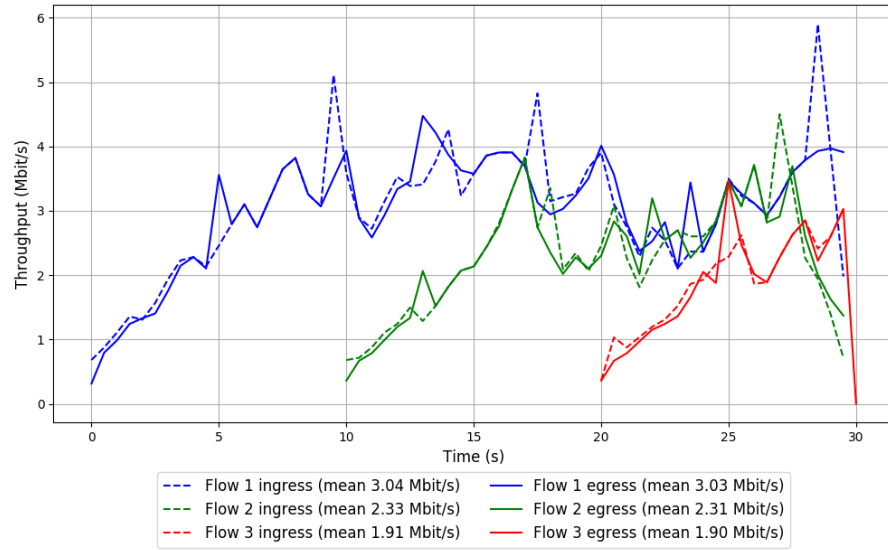
-- Flow 3:

Average throughput: 1.90 Mbit/s

95th percentile per-packet one-way delay: 110.718 ms

Loss rate: 0.50%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2017-09-18 19:27:23

End at: 2017-09-18 19:27:53

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.83 Mbit/s

95th percentile per-packet one-way delay: 112.510 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 2.24 Mbit/s

95th percentile per-packet one-way delay: 112.339 ms

Loss rate: 0.11%

-- Flow 2:

Average throughput: 2.84 Mbit/s

95th percentile per-packet one-way delay: 112.689 ms

Loss rate: 0.25%

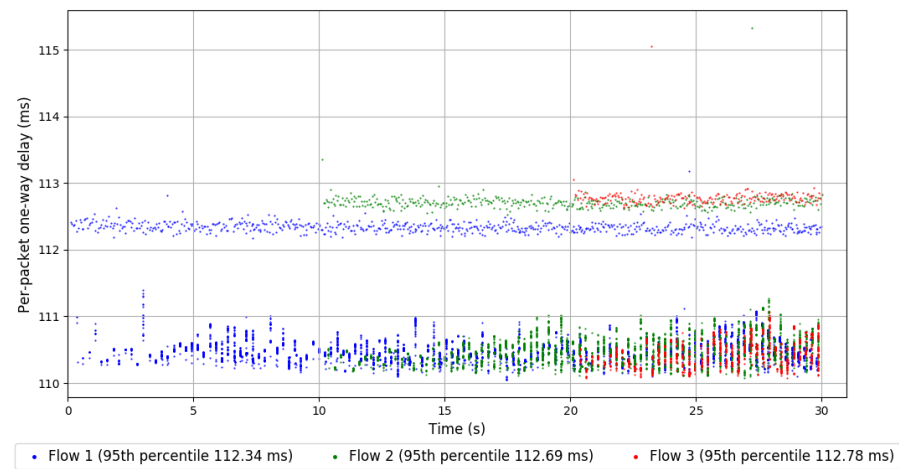
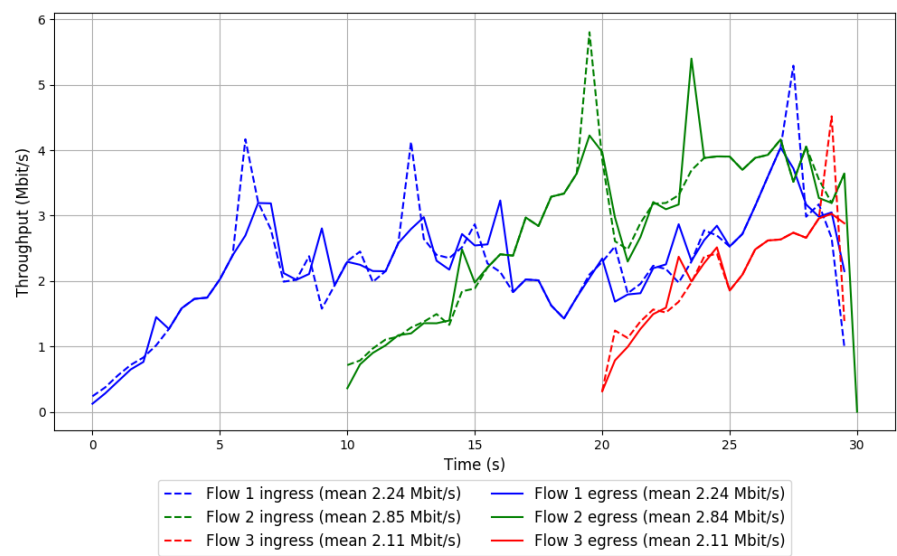
-- Flow 3:

Average throughput: 2.11 Mbit/s

95th percentile per-packet one-way delay: 112.779 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2017-09-18 19:36:57

End at: 2017-09-18 19:37:27

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.51 Mbit/s

95th percentile per-packet one-way delay: 112.498 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 2.45 Mbit/s

95th percentile per-packet one-way delay: 112.236 ms

Loss rate: 0.32%

-- Flow 2:

Average throughput: 2.48 Mbit/s

95th percentile per-packet one-way delay: 112.710 ms

Loss rate: 0.24%

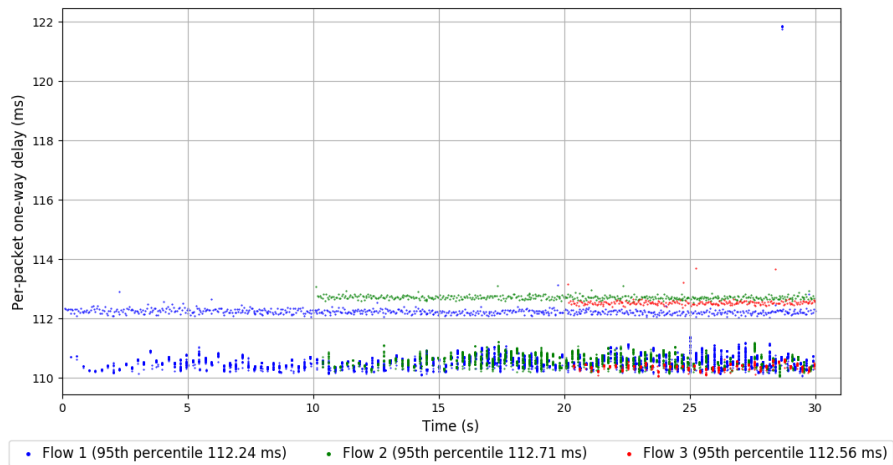
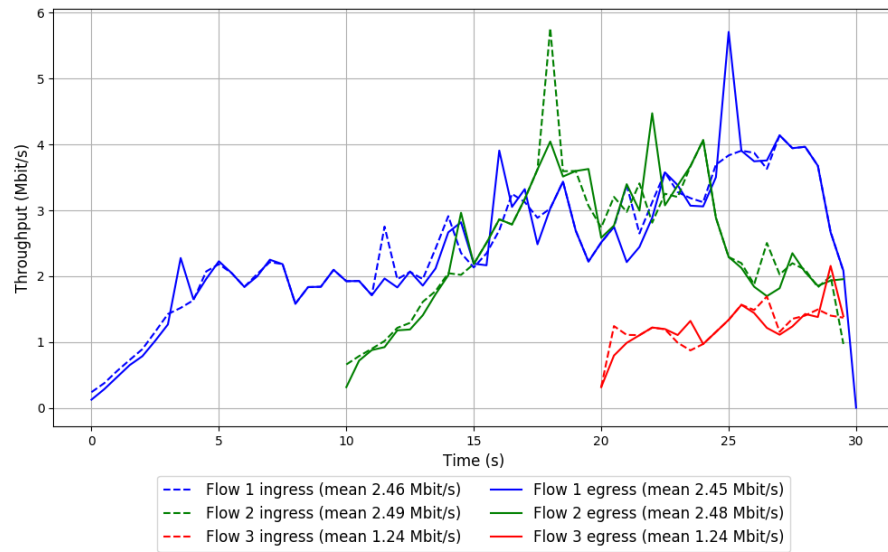
-- Flow 3:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 112.564 ms

Loss rate: 0.00%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2017-09-18 19:46:28

End at: 2017-09-18 19:46:58

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.33 Mbit/s

95th percentile per-packet one-way delay: 111.199 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 2.20 Mbit/s

95th percentile per-packet one-way delay: 111.103 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 2.71 Mbit/s

95th percentile per-packet one-way delay: 111.179 ms

Loss rate: 0.35%

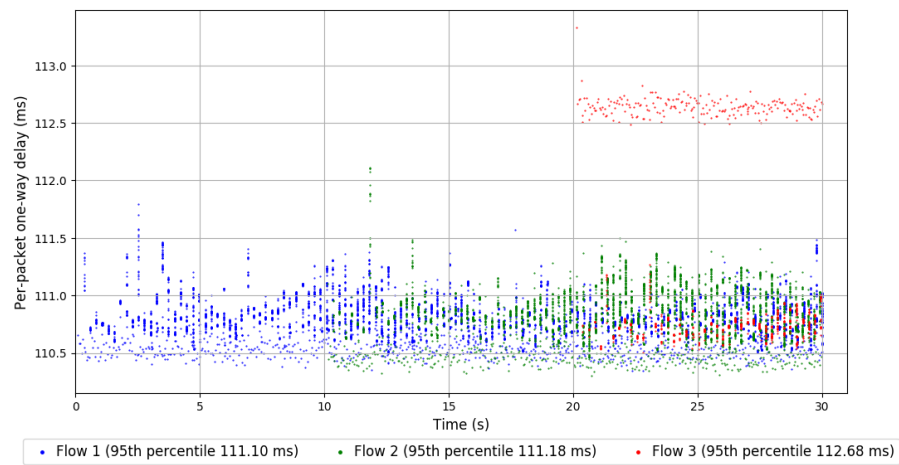
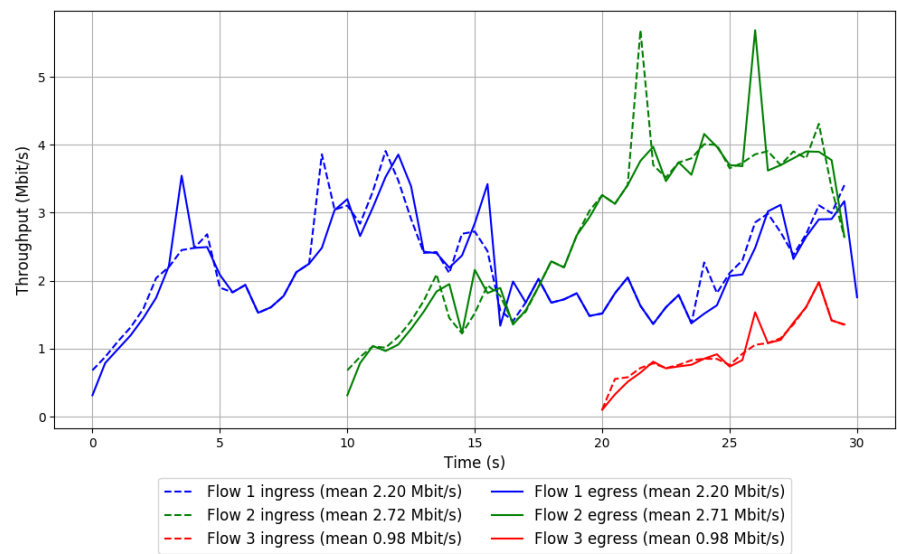
-- Flow 3:

Average throughput: 0.98 Mbit/s

95th percentile per-packet one-way delay: 112.684 ms

Loss rate: 0.00%

Run 5: Report of Sprout — Data Link



Run 6: Statistics of Sprout

Start at: 2017-09-18 19:56:26

End at: 2017-09-18 19:56:56

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.93 Mbit/s

95th percentile per-packet one-way delay: 111.340 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 2.17 Mbit/s

95th percentile per-packet one-way delay: 111.309 ms

Loss rate: 0.71%

-- Flow 2:

Average throughput: 1.57 Mbit/s

95th percentile per-packet one-way delay: 111.093 ms

Loss rate: 0.00%

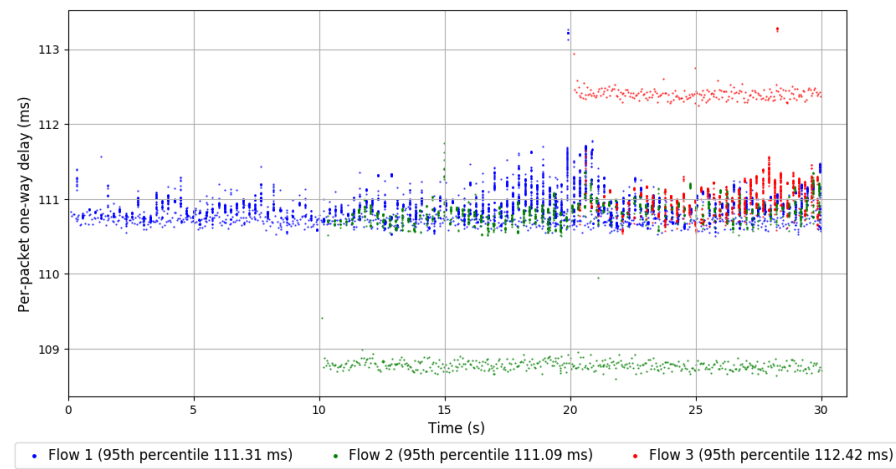
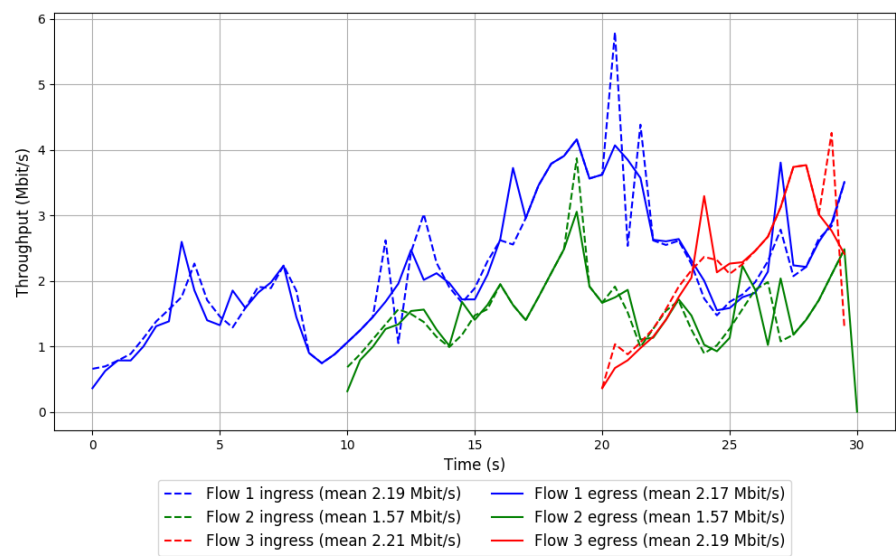
-- Flow 3:

Average throughput: 2.19 Mbit/s

95th percentile per-packet one-way delay: 112.415 ms

Loss rate: 1.25%

Run 6: Report of Sprout — Data Link



Run 7: Statistics of Sprout

Start at: 2017-09-18 20:06:17

End at: 2017-09-18 20:06:47

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.99 Mbit/s

95th percentile per-packet one-way delay: 112.708 ms

Loss rate: 0.53%

-- Flow 1:

Average throughput: 1.79 Mbit/s

95th percentile per-packet one-way delay: 112.764 ms

Loss rate: 1.07%

-- Flow 2:

Average throughput: 2.48 Mbit/s

95th percentile per-packet one-way delay: 112.503 ms

Loss rate: 0.00%

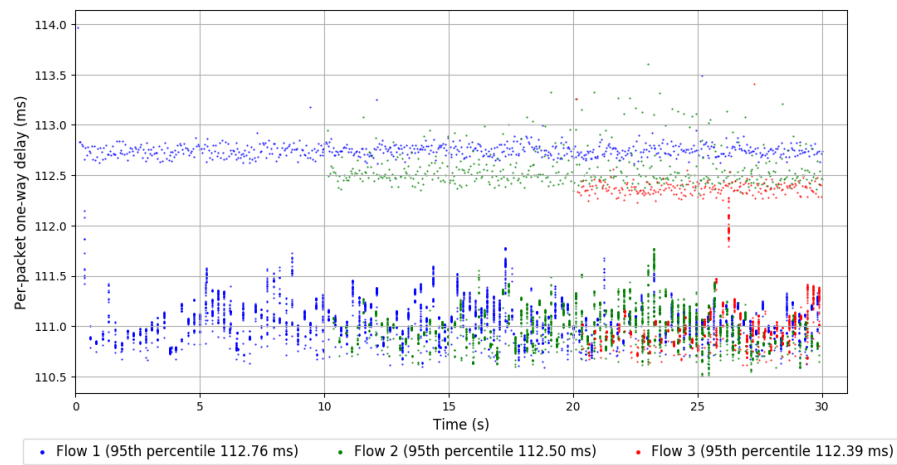
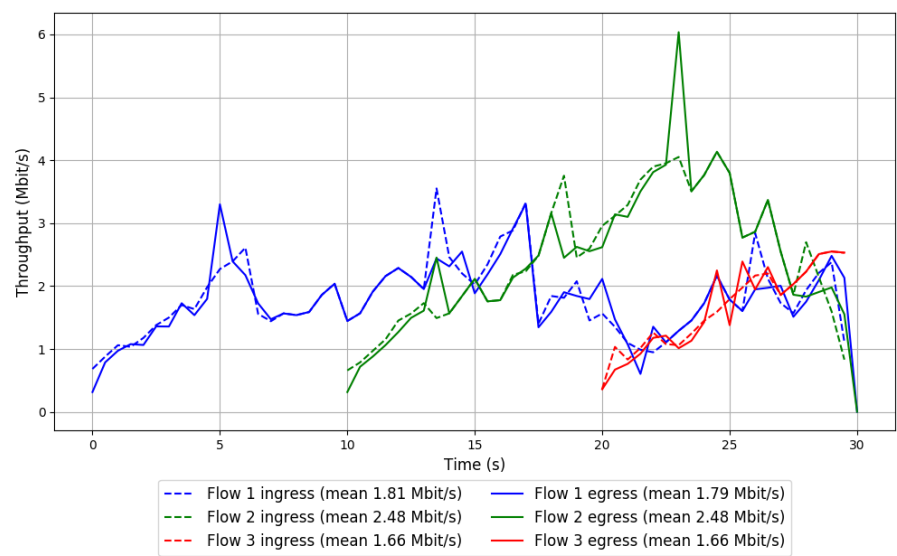
-- Flow 3:

Average throughput: 1.66 Mbit/s

95th percentile per-packet one-way delay: 112.391 ms

Loss rate: 0.36%

Run 7: Report of Sprout — Data Link



Run 8: Statistics of Sprout

Start at: 2017-09-18 20:15:59

End at: 2017-09-18 20:16:29

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.55 Mbit/s

95th percentile per-packet one-way delay: 113.172 ms

Loss rate: 0.23%

-- Flow 1:

Average throughput: 2.49 Mbit/s

95th percentile per-packet one-way delay: 113.179 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 2.46 Mbit/s

95th percentile per-packet one-way delay: 113.175 ms

Loss rate: 0.34%

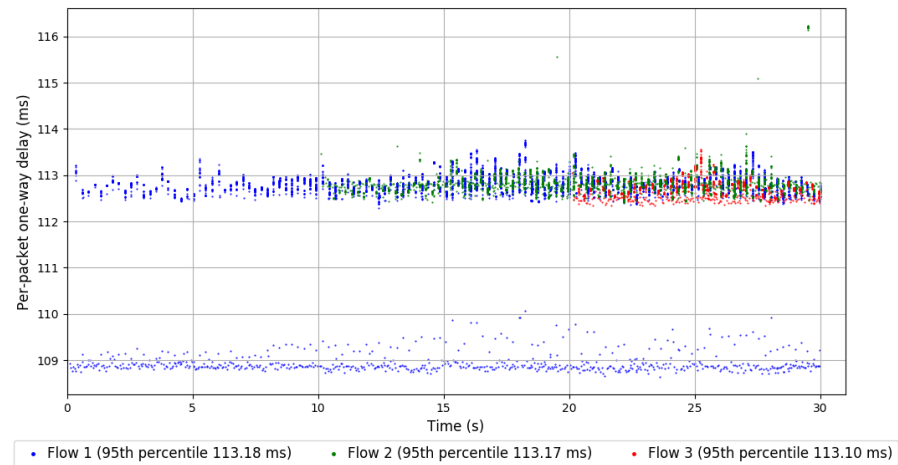
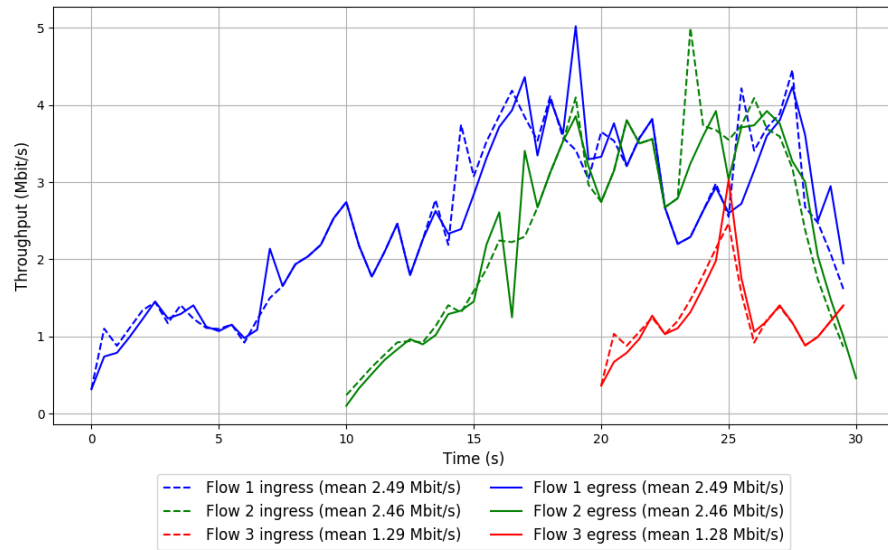
-- Flow 3:

Average throughput: 1.28 Mbit/s

95th percentile per-packet one-way delay: 113.104 ms

Loss rate: 0.75%

Run 8: Report of Sprout — Data Link



Run 9: Statistics of Sprout

Start at: 2017-09-18 20:25:57

End at: 2017-09-18 20:26:27

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.86 Mbit/s

95th percentile per-packet one-way delay: 113.168 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 113.116 ms

Loss rate: 0.43%

-- Flow 2:

Average throughput: 2.27 Mbit/s

95th percentile per-packet one-way delay: 113.238 ms

Loss rate: 0.00%

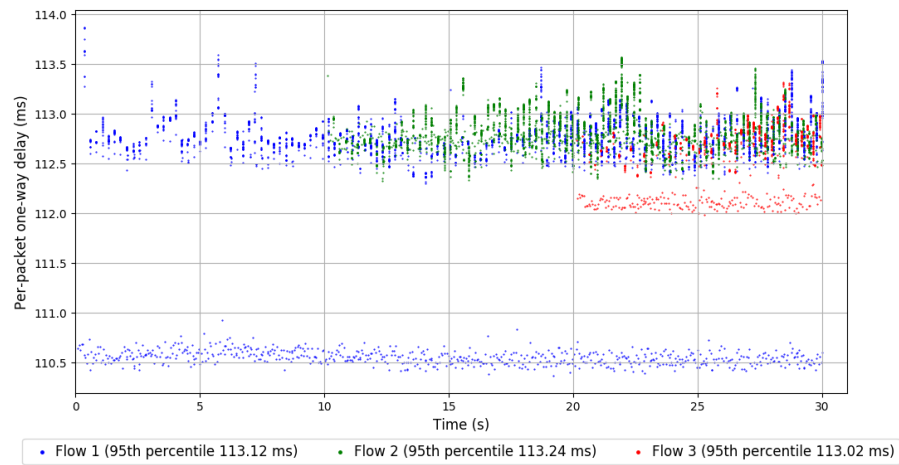
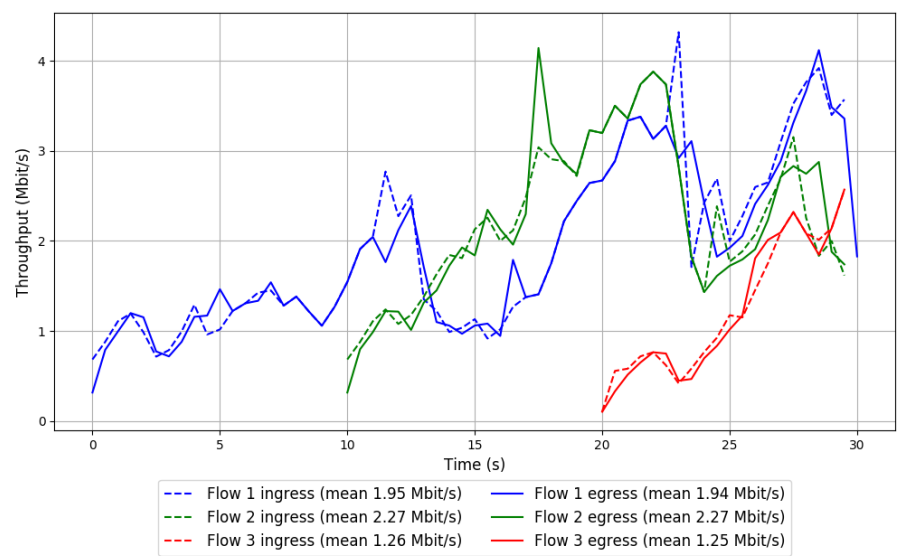
-- Flow 3:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 113.020 ms

Loss rate: 0.67%

Run 9: Report of Sprout — Data Link



Run 10: Statistics of Sprout

Start at: 2017-09-18 20:35:59

End at: 2017-09-18 20:36:29

Below is generated by plot.py at 2017-09-18 22:12:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.97 Mbit/s

95th percentile per-packet one-way delay: 113.163 ms

Loss rate: 0.25%

-- Flow 1:

Average throughput: 2.77 Mbit/s

95th percentile per-packet one-way delay: 113.196 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 2.42 Mbit/s

95th percentile per-packet one-way delay: 113.153 ms

Loss rate: 0.32%

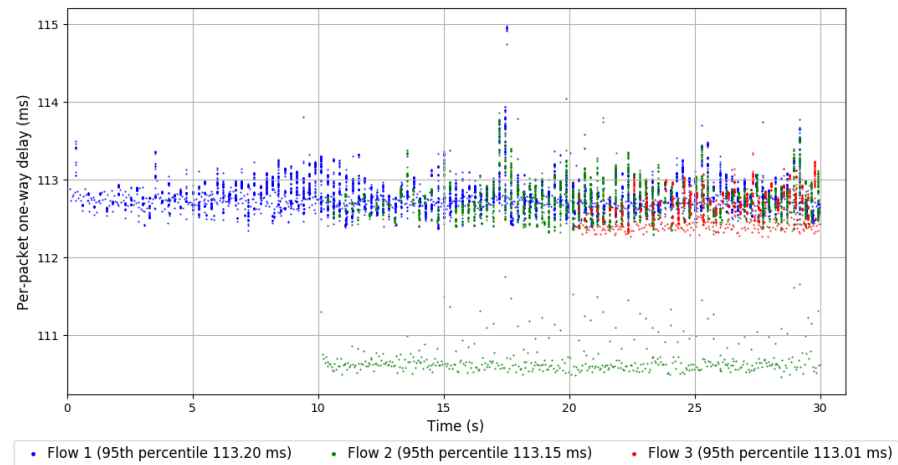
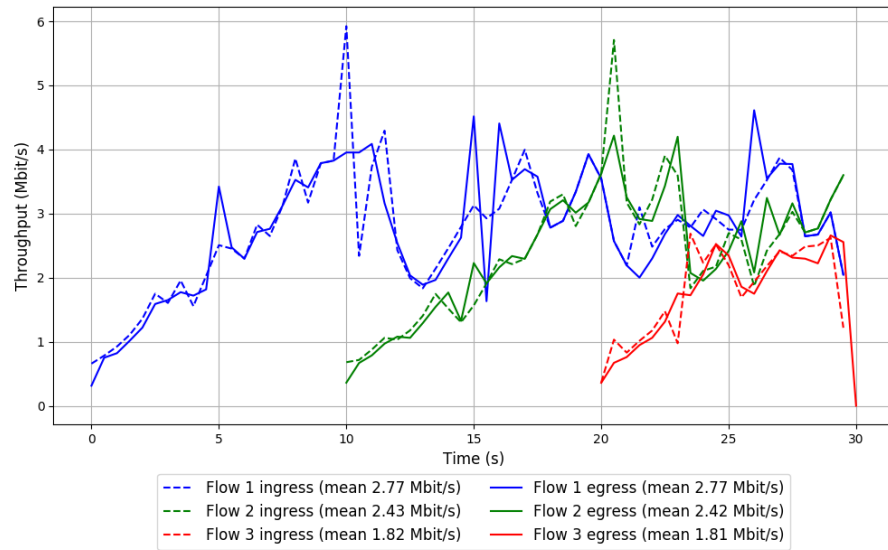
-- Flow 3:

Average throughput: 1.81 Mbit/s

95th percentile per-packet one-way delay: 113.011 ms

Loss rate: 0.53%

Run 10: Report of Sprout — Data Link

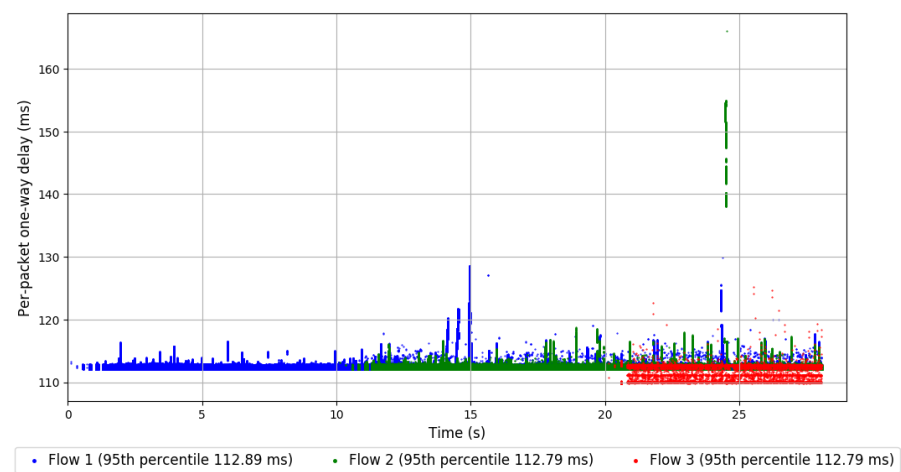
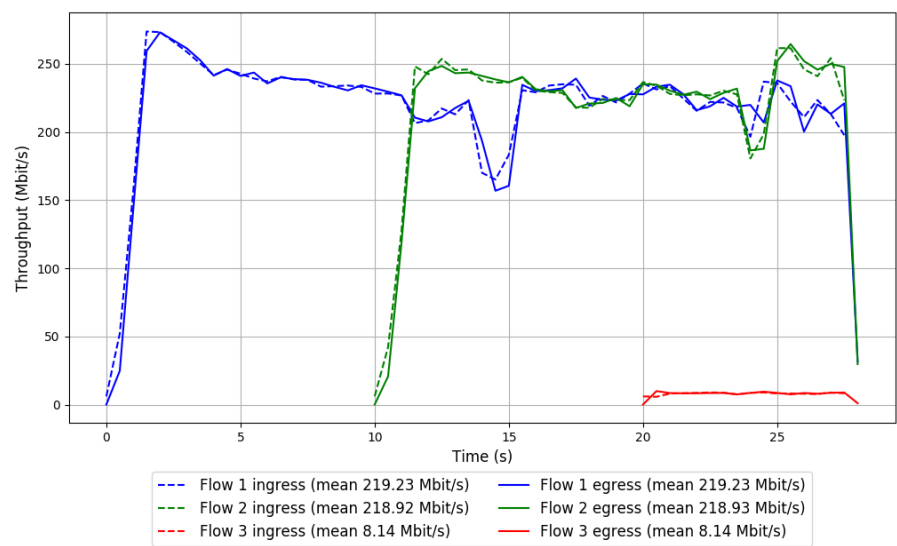


```
Run 1: Statistics of TaoVA-100x

Start at: 2017-09-18 19:10:19
End at: 2017-09-18 19:10:49

# Below is generated by plot.py at 2017-09-18 22:16:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 362.08 Mbit/s
95th percentile per-packet one-way delay: 112.845 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 219.23 Mbit/s
95th percentile per-packet one-way delay: 112.891 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 218.93 Mbit/s
95th percentile per-packet one-way delay: 112.793 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.14 Mbit/s
95th percentile per-packet one-way delay: 112.791 ms
Loss rate: 0.00%
```

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

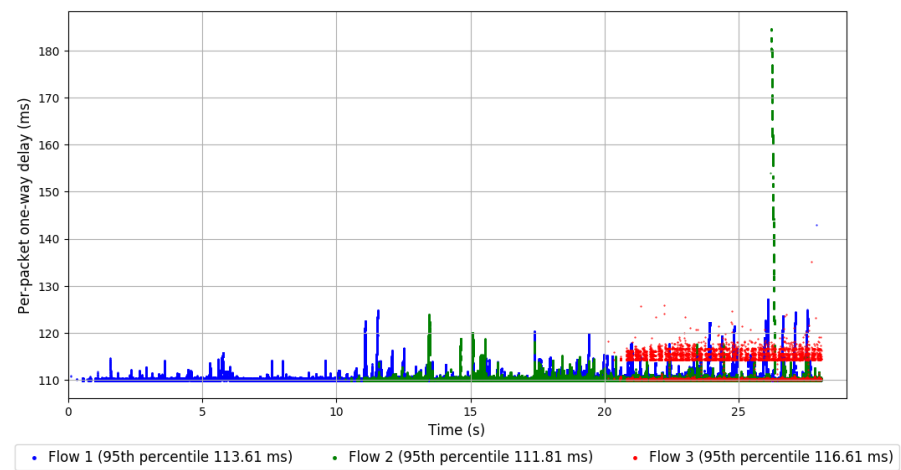
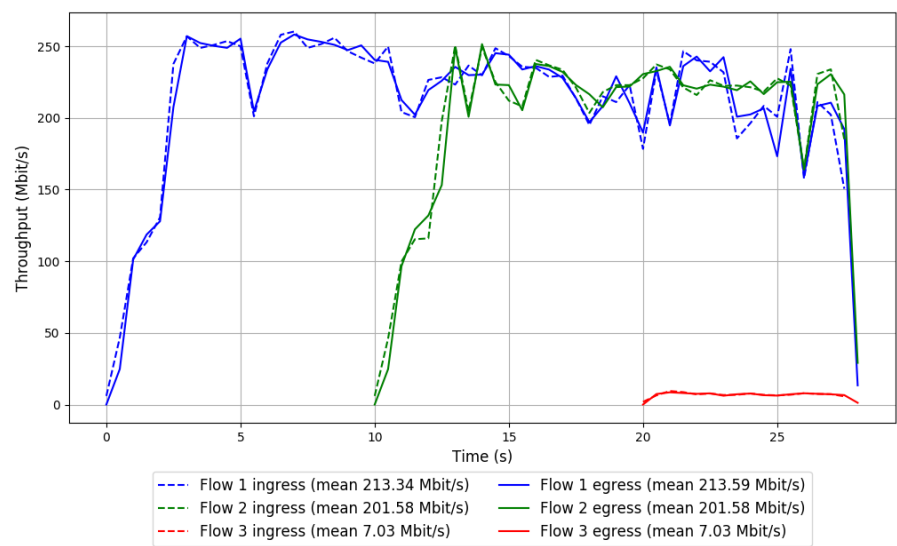


```
Run 2: Statistics of TaoVA-100x

Start at: 2017-09-18 19:20:17
End at: 2017-09-18 19:20:47

# Below is generated by plot.py at 2017-09-18 22:16:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 344.94 Mbit/s
95th percentile per-packet one-way delay: 113.190 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 213.59 Mbit/s
95th percentile per-packet one-way delay: 113.608 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 201.58 Mbit/s
95th percentile per-packet one-way delay: 111.810 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.03 Mbit/s
95th percentile per-packet one-way delay: 116.614 ms
Loss rate: 0.00%
```

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



Run 3: Statistics of TaoVA-100x

Start at: 2017-09-18 19:30:14

End at: 2017-09-18 19:30:44

Below is generated by plot.py at 2017-09-18 22:16:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.27 Mbit/s

95th percentile per-packet one-way delay: 112.551 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 15.76 Mbit/s

95th percentile per-packet one-way delay: 112.696 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 28.05 Mbit/s

95th percentile per-packet one-way delay: 112.569 ms

Loss rate: 0.00%

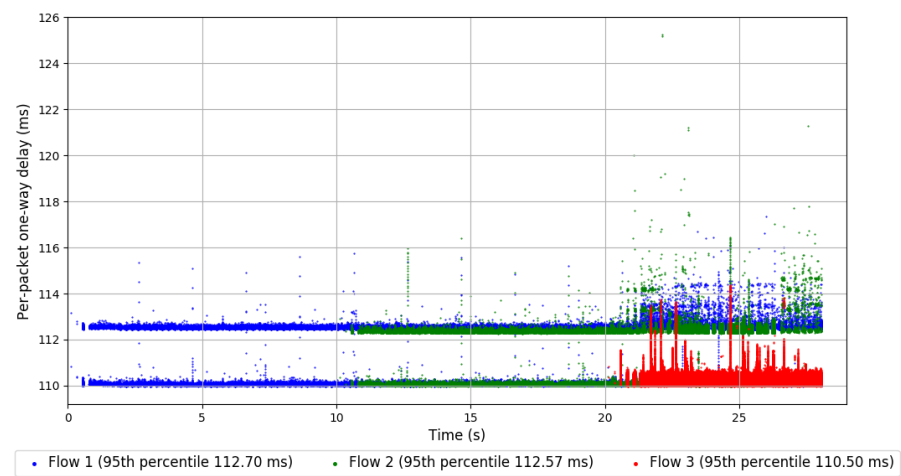
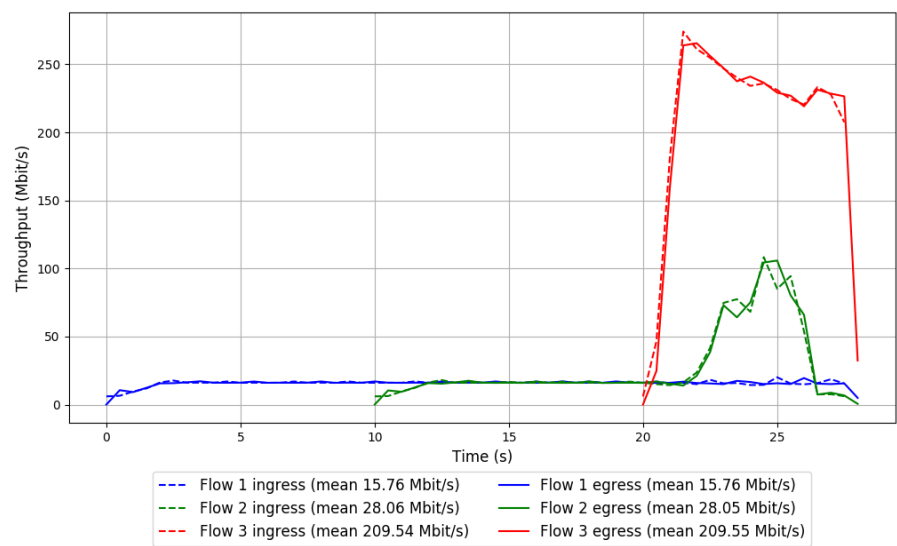
-- Flow 3:

Average throughput: 209.55 Mbit/s

95th percentile per-packet one-way delay: 110.499 ms

Loss rate: 0.00%

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



Run 4: Statistics of TaoVA-100x

Start at: 2017-09-18 19:39:48

End at: 2017-09-18 19:40:18

Below is generated by plot.py at 2017-09-18 22:16:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 26.13 Mbit/s

95th percentile per-packet one-way delay: 112.718 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 13.76 Mbit/s

95th percentile per-packet one-way delay: 112.642 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 13.50 Mbit/s

95th percentile per-packet one-way delay: 112.787 ms

Loss rate: 0.00%

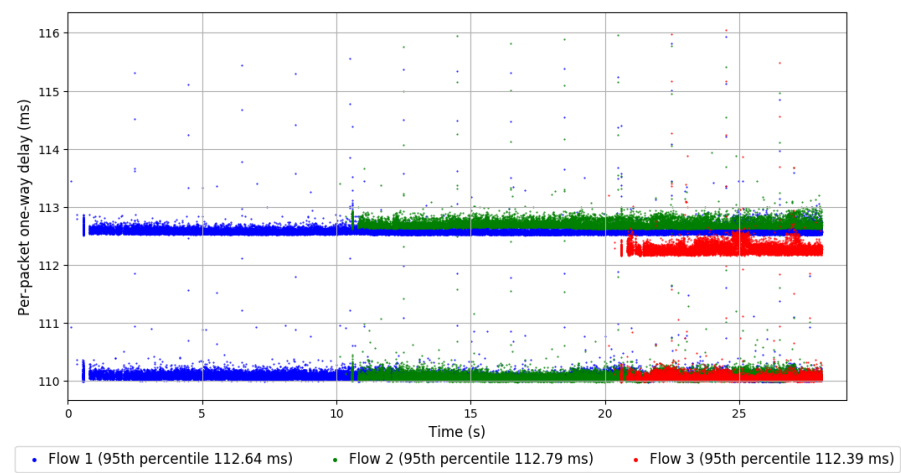
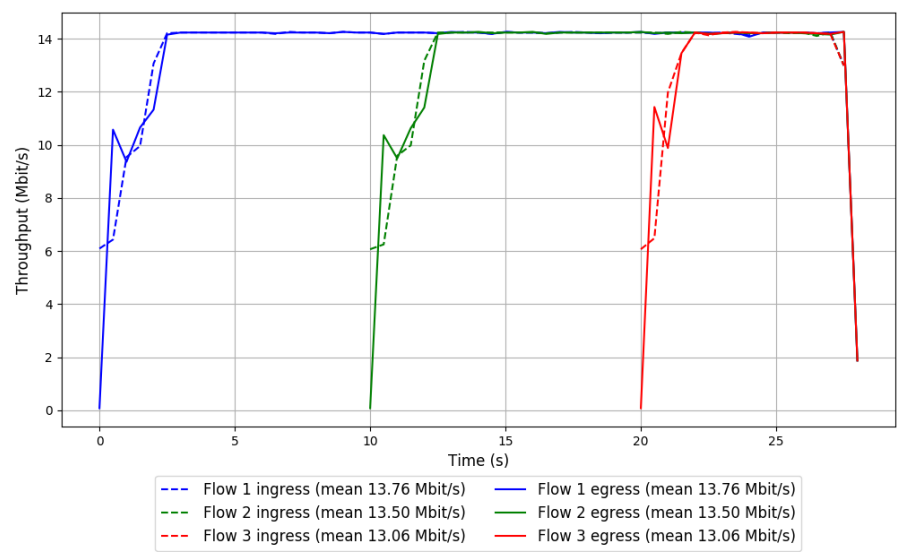
-- Flow 3:

Average throughput: 13.06 Mbit/s

95th percentile per-packet one-way delay: 112.393 ms

Loss rate: 0.00%

Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2017-09-18 19:49:18

End at: 2017-09-18 19:49:48

Below is generated by plot.py at 2017-09-18 22:16:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 296.38 Mbit/s

95th percentile per-packet one-way delay: 112.438 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 131.06 Mbit/s

95th percentile per-packet one-way delay: 112.133 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 211.49 Mbit/s

95th percentile per-packet one-way delay: 115.060 ms

Loss rate: 0.00%

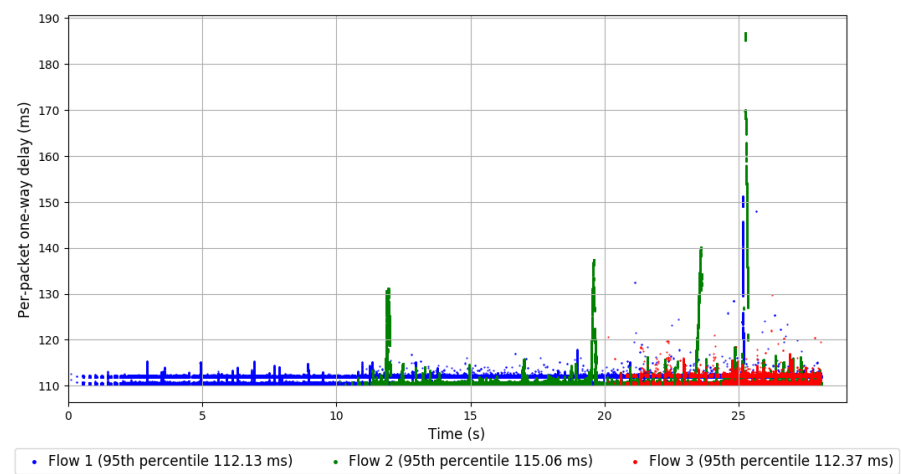
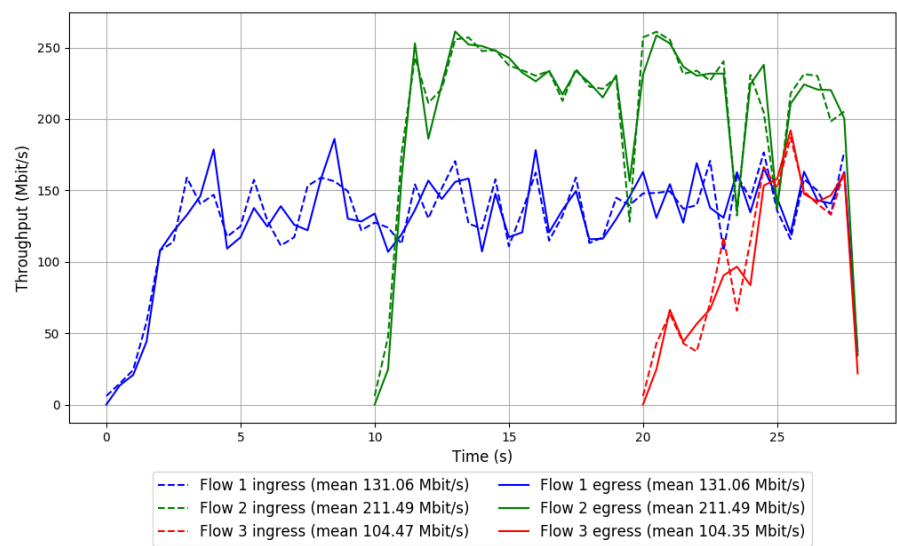
-- Flow 3:

Average throughput: 104.35 Mbit/s

95th percentile per-packet one-way delay: 112.369 ms

Loss rate: 0.00%

Run 5: Report of TaoVA-100x — Data Link



Run 6: Statistics of TaoVA-100x

Start at: 2017-09-18 19:59:17

End at: 2017-09-18 19:59:47

Below is generated by plot.py at 2017-09-18 22:16:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 289.12 Mbit/s

95th percentile per-packet one-way delay: 112.689 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 209.89 Mbit/s

95th percentile per-packet one-way delay: 112.058 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 105.60 Mbit/s

95th percentile per-packet one-way delay: 112.541 ms

Loss rate: 0.00%

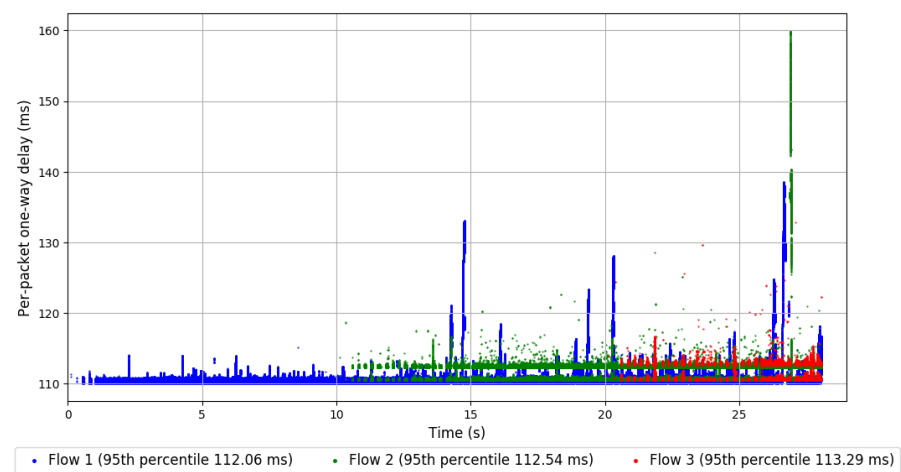
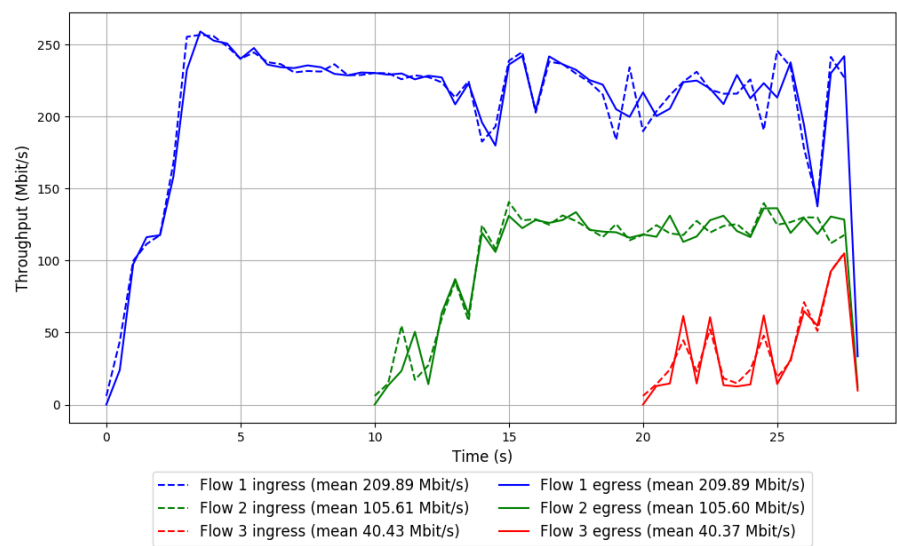
-- Flow 3:

Average throughput: 40.37 Mbit/s

95th percentile per-packet one-way delay: 113.290 ms

Loss rate: 0.00%

Run 6: Report of TaoVA-100x — Data Link



Run 7: Statistics of TaoVA-100x

Start at: 2017-09-18 20:09:08

End at: 2017-09-18 20:09:38

Below is generated by plot.py at 2017-09-18 22:16:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 192.84 Mbit/s

95th percentile per-packet one-way delay: 112.093 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 127.63 Mbit/s

95th percentile per-packet one-way delay: 110.630 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 91.34 Mbit/s

95th percentile per-packet one-way delay: 112.186 ms

Loss rate: 0.00%

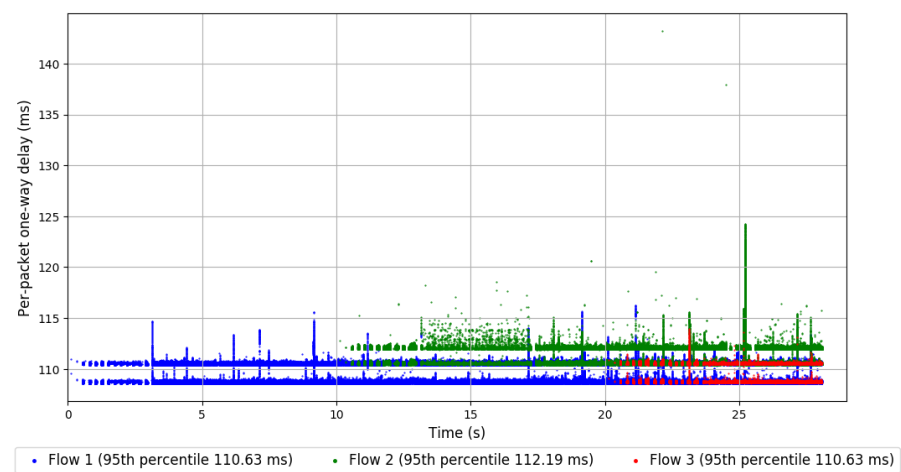
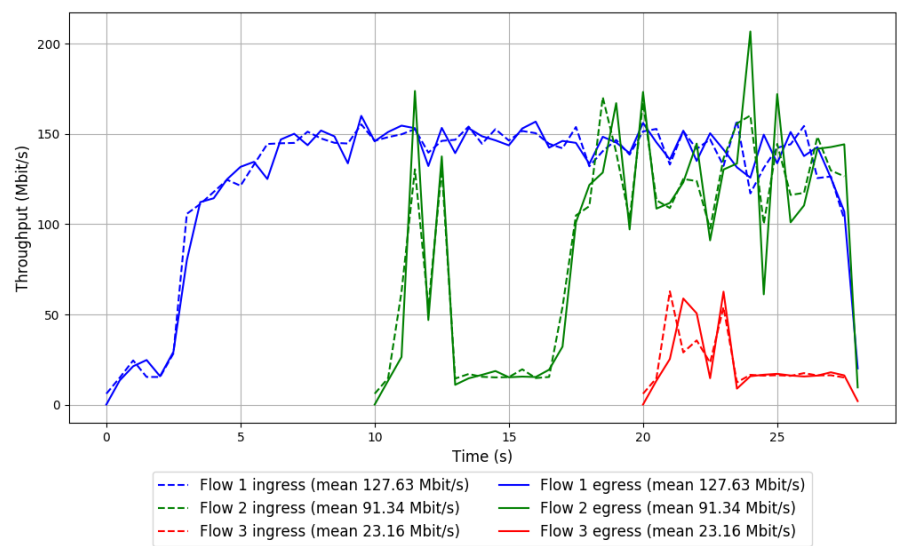
-- Flow 3:

Average throughput: 23.16 Mbit/s

95th percentile per-packet one-way delay: 110.633 ms

Loss rate: 0.00%

Run 7: Report of TaoVA-100x — Data Link



Run 8: Statistics of TaoVA-100x

Start at: 2017-09-18 20:18:49

End at: 2017-09-18 20:19:19

Below is generated by plot.py at 2017-09-18 22:18:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 338.58 Mbit/s

95th percentile per-packet one-way delay: 120.678 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 184.80 Mbit/s

95th percentile per-packet one-way delay: 118.969 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 167.88 Mbit/s

95th percentile per-packet one-way delay: 123.350 ms

Loss rate: 0.08%

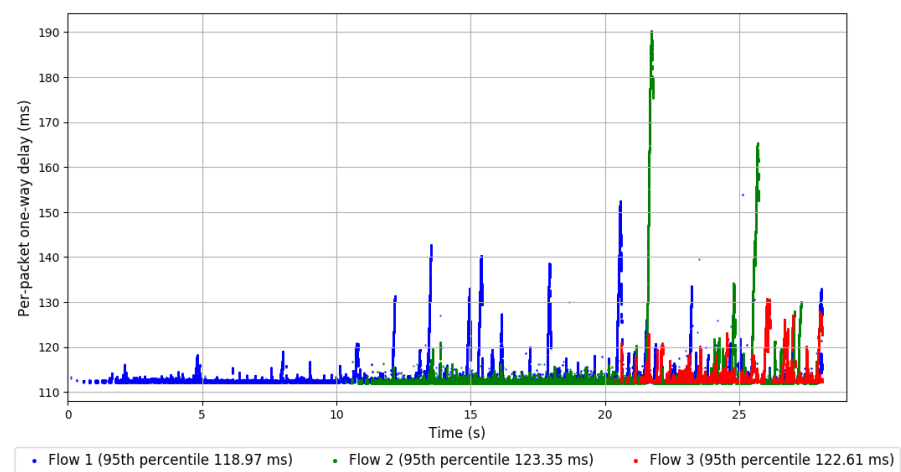
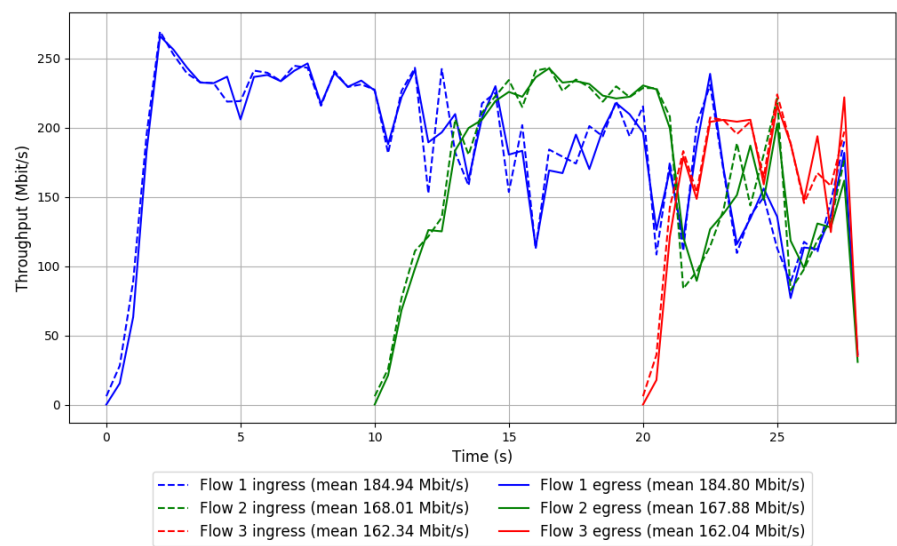
-- Flow 3:

Average throughput: 162.04 Mbit/s

95th percentile per-packet one-way delay: 122.611 ms

Loss rate: 0.19%

Run 8: Report of TaoVA-100x — Data Link

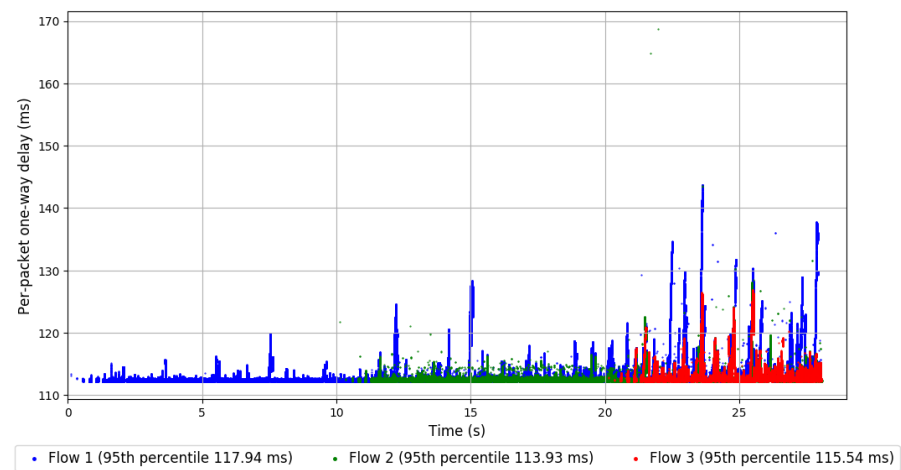
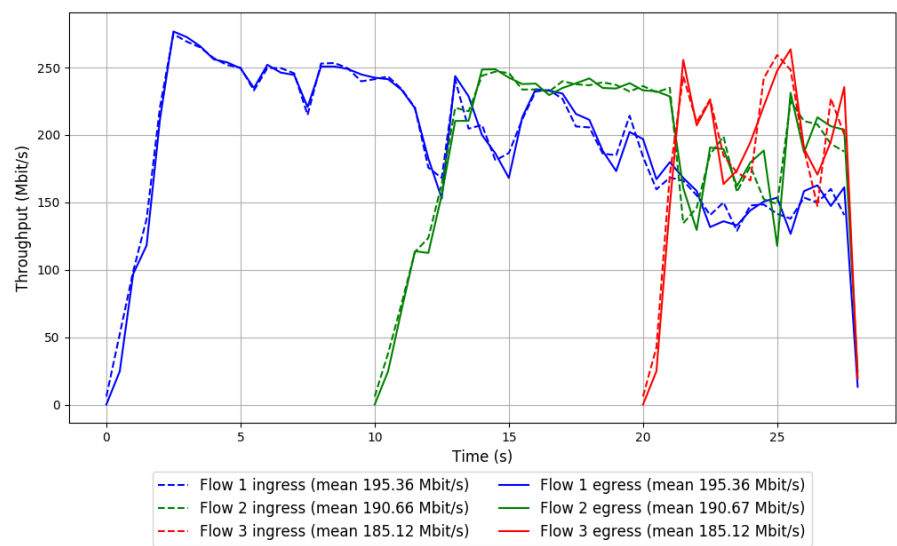


```
Run 9: Statistics of TaoVA-100x

Start at: 2017-09-18 20:28:47
End at: 2017-09-18 20:29:17

# Below is generated by plot.py at 2017-09-18 22:22:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 369.99 Mbit/s
95th percentile per-packet one-way delay: 116.181 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 195.36 Mbit/s
95th percentile per-packet one-way delay: 117.945 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 190.67 Mbit/s
95th percentile per-packet one-way delay: 113.931 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 185.12 Mbit/s
95th percentile per-packet one-way delay: 115.542 ms
Loss rate: 0.00%
```

Run 9: Report of TaoVA-100x — Data Link

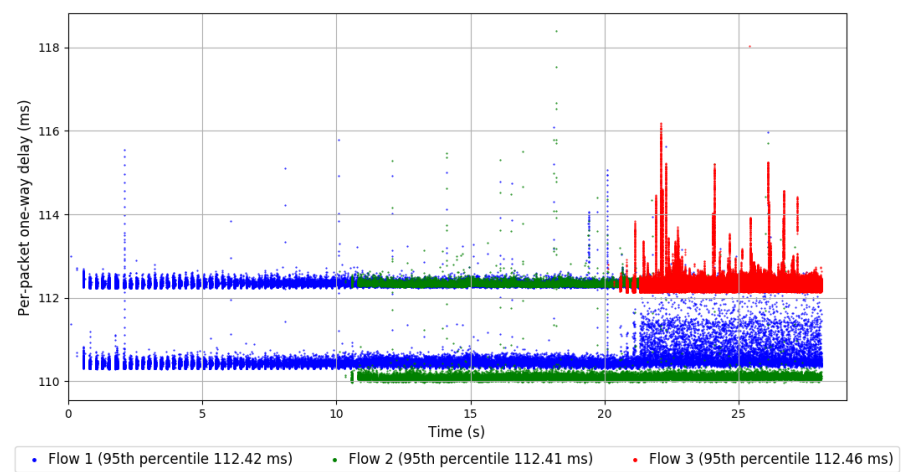
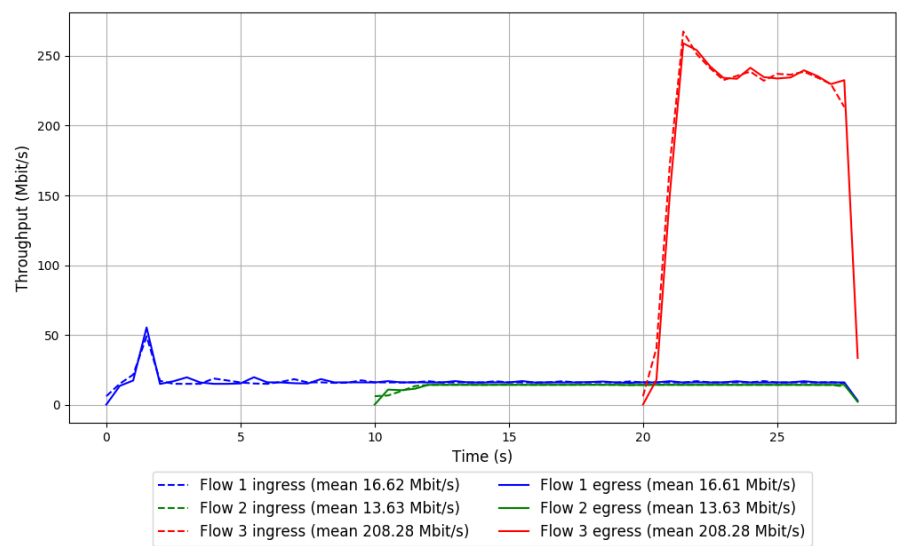


```
Run 10: Statistics of TaoVA-100x

Start at: 2017-09-18 20:38:49
End at: 2017-09-18 20:39:19

# Below is generated by plot.py at 2017-09-18 22:22:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.52 Mbit/s
95th percentile per-packet one-way delay: 112.443 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 16.61 Mbit/s
95th percentile per-packet one-way delay: 112.415 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 13.63 Mbit/s
95th percentile per-packet one-way delay: 112.408 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 208.28 Mbit/s
95th percentile per-packet one-way delay: 112.460 ms
Loss rate: 0.00%
```

Run 10: Report of TaoVA-100x — Data Link



Run 1: Statistics of TCP Vegas

Start at: 2017-09-18 19:05:24

End at: 2017-09-18 19:05:54

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 55.10 Mbit/s

95th percentile per-packet one-way delay: 118.746 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 25.05 Mbit/s

95th percentile per-packet one-way delay: 115.621 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 28.47 Mbit/s

95th percentile per-packet one-way delay: 122.066 ms

Loss rate: 0.02%

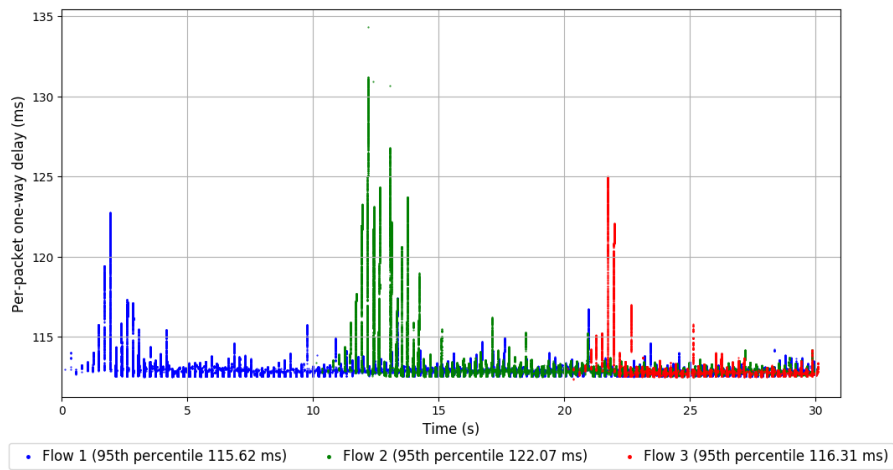
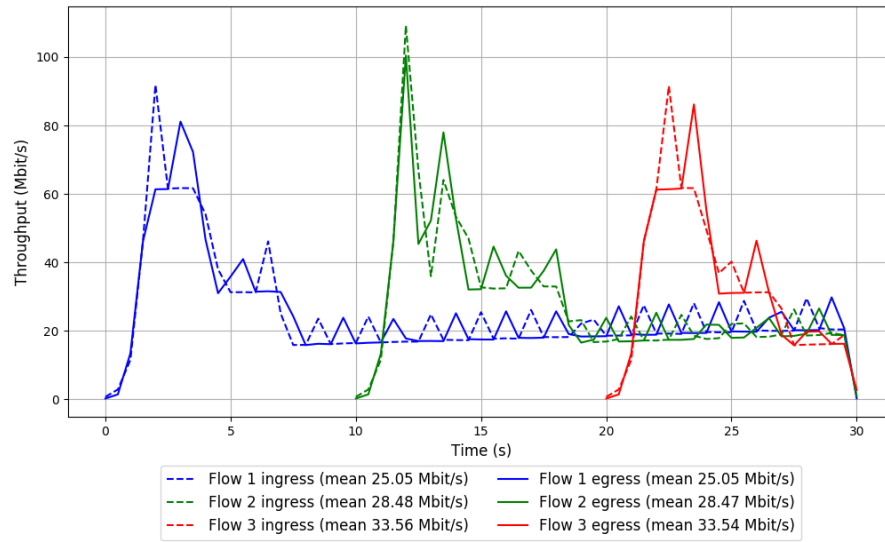
-- Flow 3:

Average throughput: 33.54 Mbit/s

95th percentile per-packet one-way delay: 116.309 ms

Loss rate: 0.04%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2017-09-18 19:15:25

End at: 2017-09-18 19:15:55

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 51.64 Mbit/s

95th percentile per-packet one-way delay: 114.716 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 19.04 Mbit/s

95th percentile per-packet one-way delay: 114.238 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 30.29 Mbit/s

95th percentile per-packet one-way delay: 114.704 ms

Loss rate: 0.00%

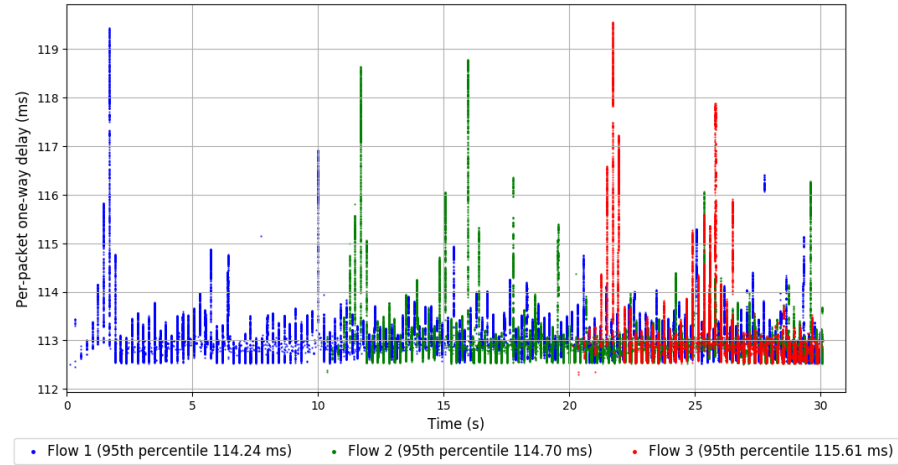
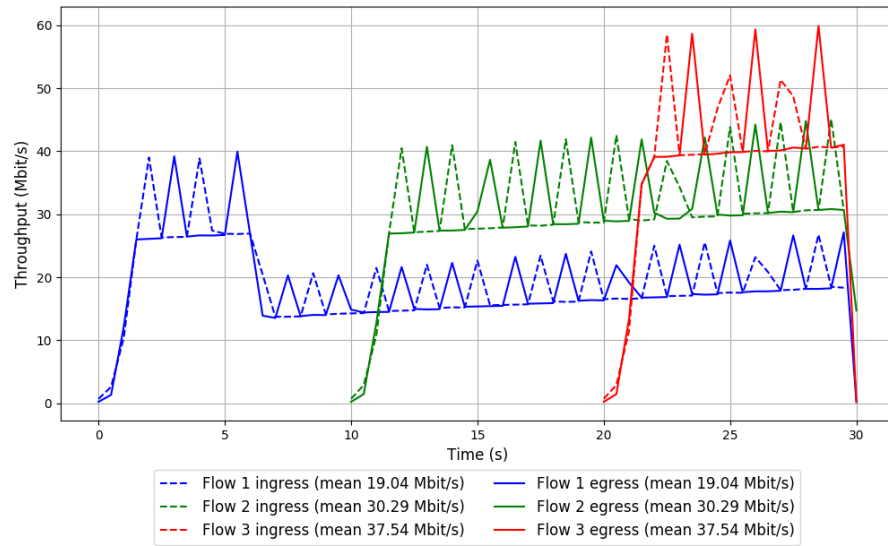
-- Flow 3:

Average throughput: 37.54 Mbit/s

95th percentile per-packet one-way delay: 115.615 ms

Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2017-09-18 19:25:19

End at: 2017-09-18 19:25:49

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 84.57 Mbit/s

95th percentile per-packet one-way delay: 112.527 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 37.17 Mbit/s

95th percentile per-packet one-way delay: 112.478 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 65.09 Mbit/s

95th percentile per-packet one-way delay: 112.728 ms

Loss rate: 0.00%

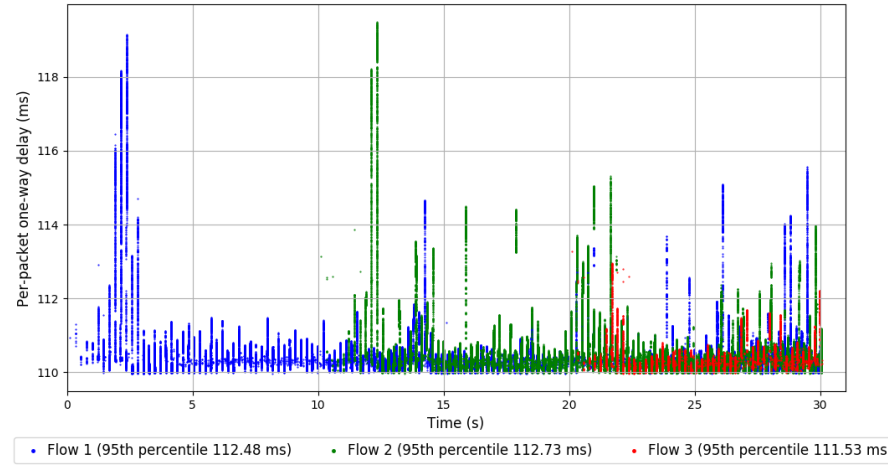
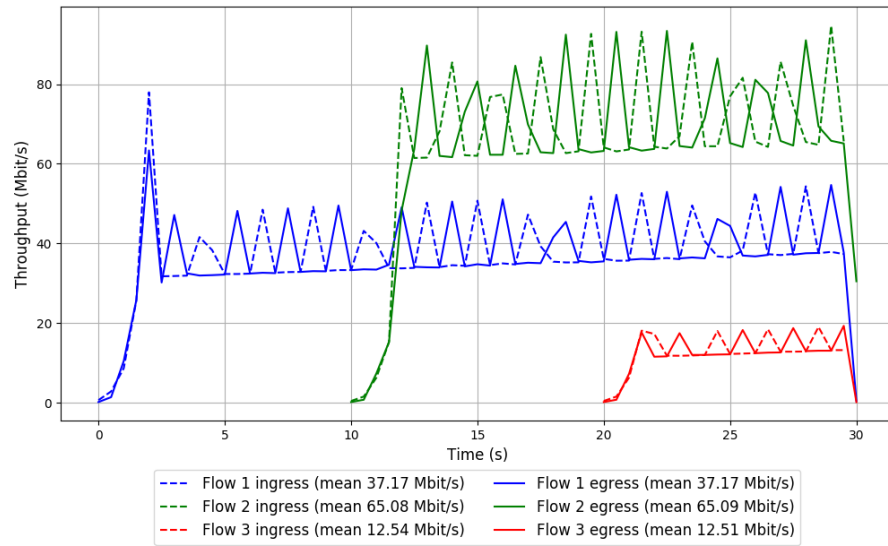
-- Flow 3:

Average throughput: 12.51 Mbit/s

95th percentile per-packet one-way delay: 111.530 ms

Loss rate: 0.22%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2017-09-18 19:34:50

End at: 2017-09-18 19:35:20

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 103.53 Mbit/s

95th percentile per-packet one-way delay: 115.167 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 69.12 Mbit/s

95th percentile per-packet one-way delay: 114.559 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 28.02 Mbit/s

95th percentile per-packet one-way delay: 114.734 ms

Loss rate: 0.00%

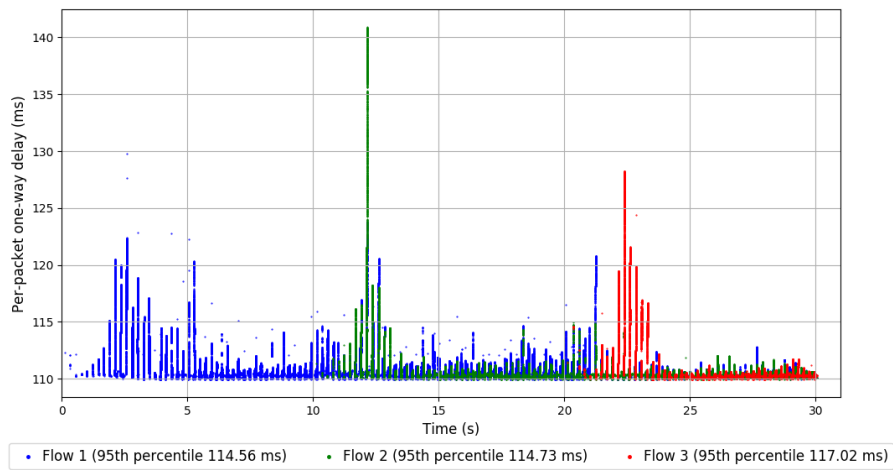
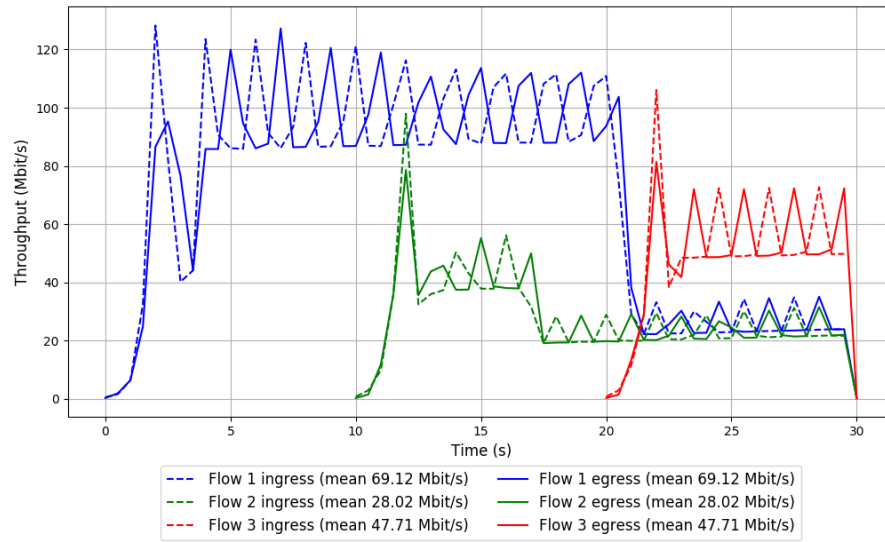
-- Flow 3:

Average throughput: 47.71 Mbit/s

95th percentile per-packet one-way delay: 117.019 ms

Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2017-09-18 19:44:21

End at: 2017-09-18 19:44:51

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 108.49 Mbit/s

95th percentile per-packet one-way delay: 120.130 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 33.47 Mbit/s

95th percentile per-packet one-way delay: 115.496 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 99.04 Mbit/s

95th percentile per-packet one-way delay: 120.779 ms

Loss rate: 0.00%

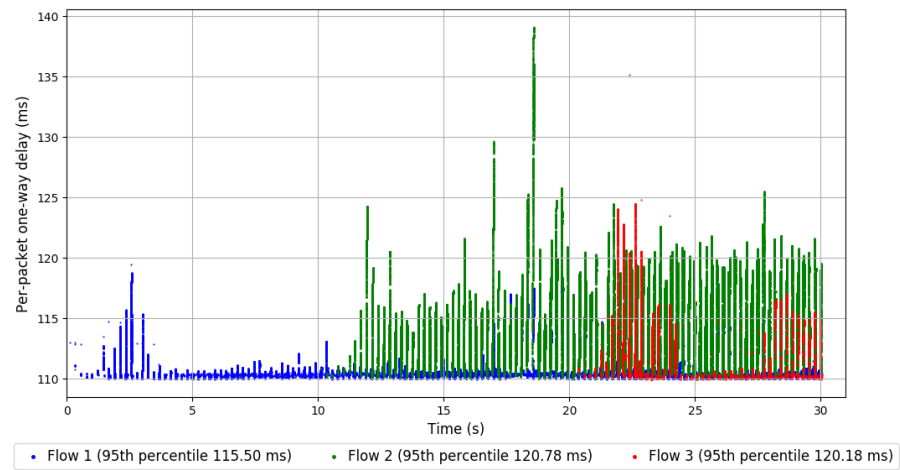
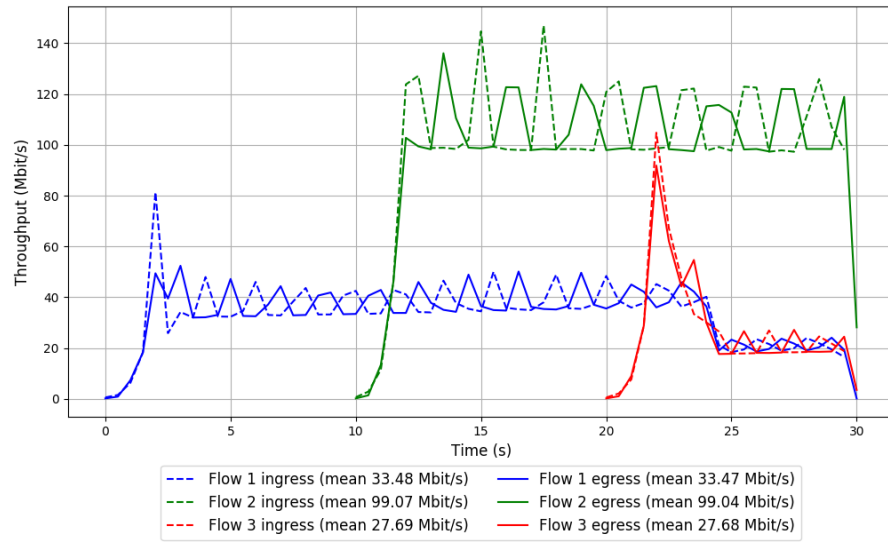
-- Flow 3:

Average throughput: 27.68 Mbit/s

95th percentile per-packet one-way delay: 120.178 ms

Loss rate: 0.03%

Run 5: Report of TCP Vegas — Data Link



Run 6: Statistics of TCP Vegas

Start at: 2017-09-18 19:54:20

End at: 2017-09-18 19:54:50

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 119.75 Mbit/s

95th percentile per-packet one-way delay: 115.541 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 97.78 Mbit/s

95th percentile per-packet one-way delay: 115.188 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 32.33 Mbit/s

95th percentile per-packet one-way delay: 117.000 ms

Loss rate: 0.00%

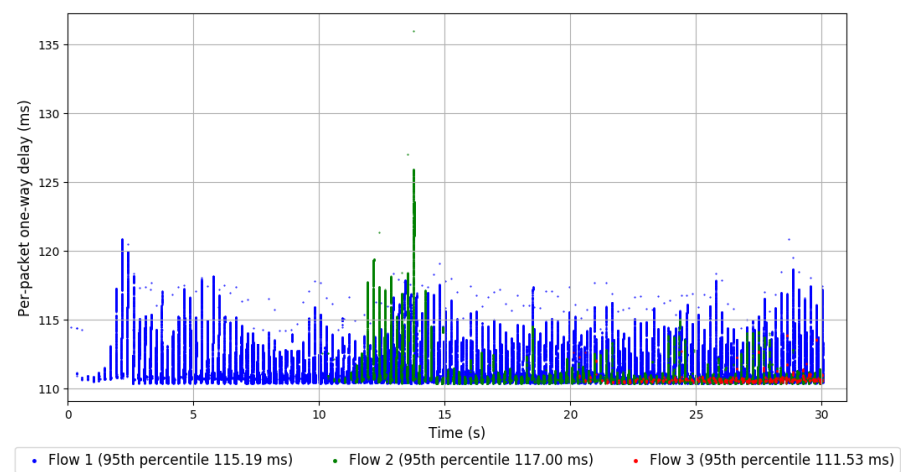
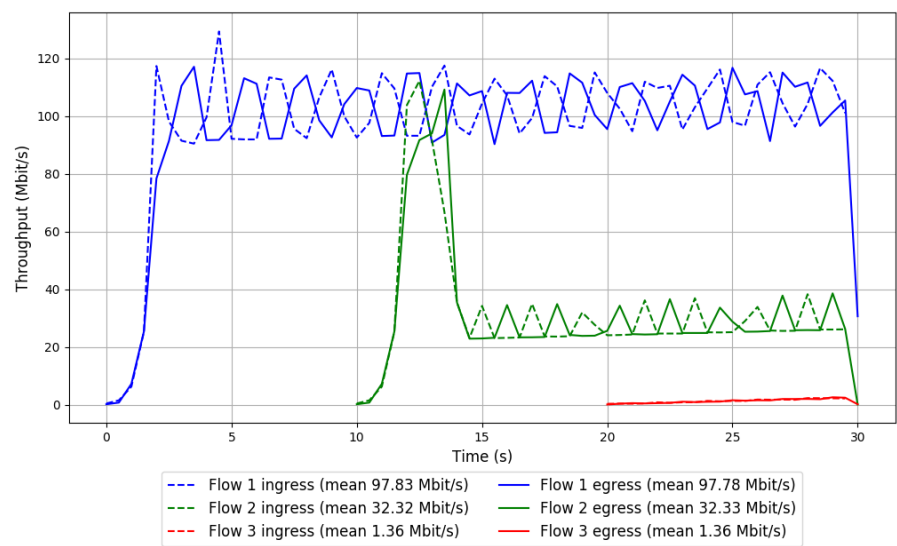
-- Flow 3:

Average throughput: 1.36 Mbit/s

95th percentile per-packet one-way delay: 111.525 ms

Loss rate: 0.36%

Run 6: Report of TCP Vegas — Data Link



Run 7: Statistics of TCP Vegas

Start at: 2017-09-18 20:04:13

End at: 2017-09-18 20:04:43

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 46.70 Mbit/s

95th percentile per-packet one-way delay: 120.185 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 15.54 Mbit/s

95th percentile per-packet one-way delay: 113.244 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 26.07 Mbit/s

95th percentile per-packet one-way delay: 118.198 ms

Loss rate: 0.00%

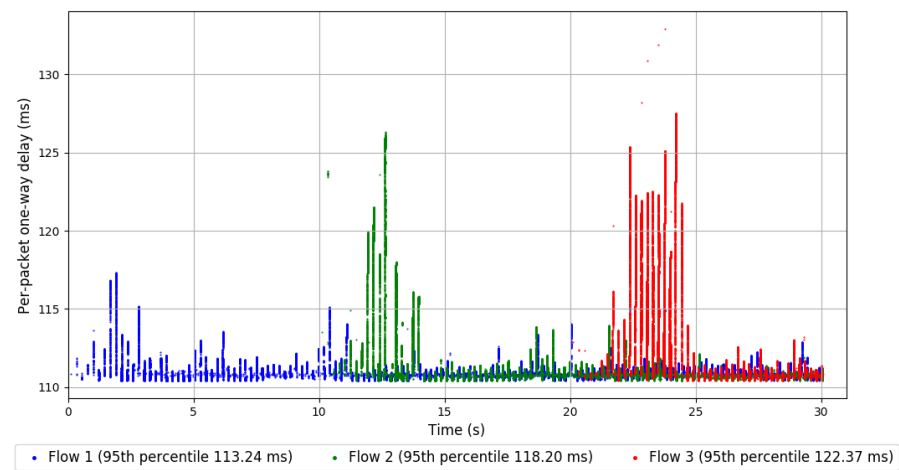
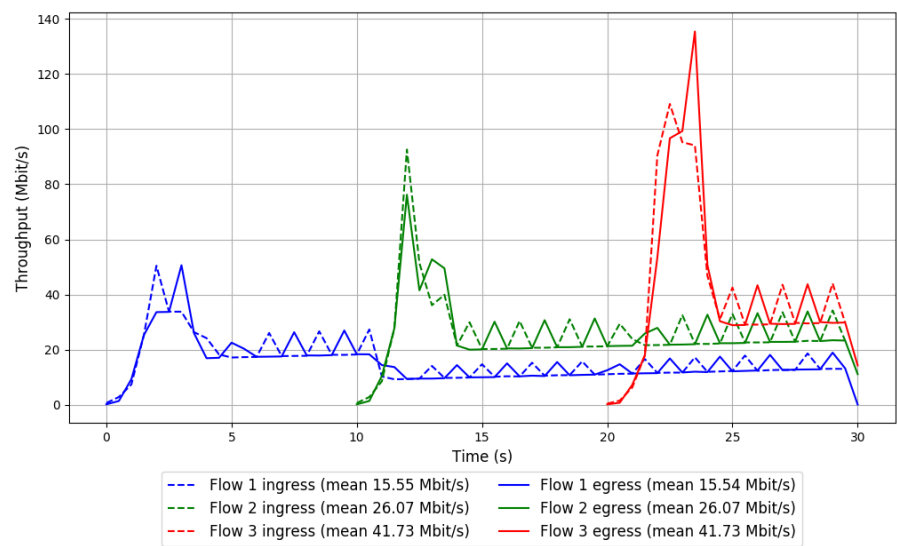
-- Flow 3:

Average throughput: 41.73 Mbit/s

95th percentile per-packet one-way delay: 122.374 ms

Loss rate: 0.03%

Run 7: Report of TCP Vegas — Data Link



Run 8: Statistics of TCP Vegas

Start at: 2017-09-18 20:13:55

End at: 2017-09-18 20:14:25

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 73.23 Mbit/s

95th percentile per-packet one-way delay: 114.905 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 35.44 Mbit/s

95th percentile per-packet one-way delay: 113.690 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 37.24 Mbit/s

95th percentile per-packet one-way delay: 112.736 ms

Loss rate: 0.00%

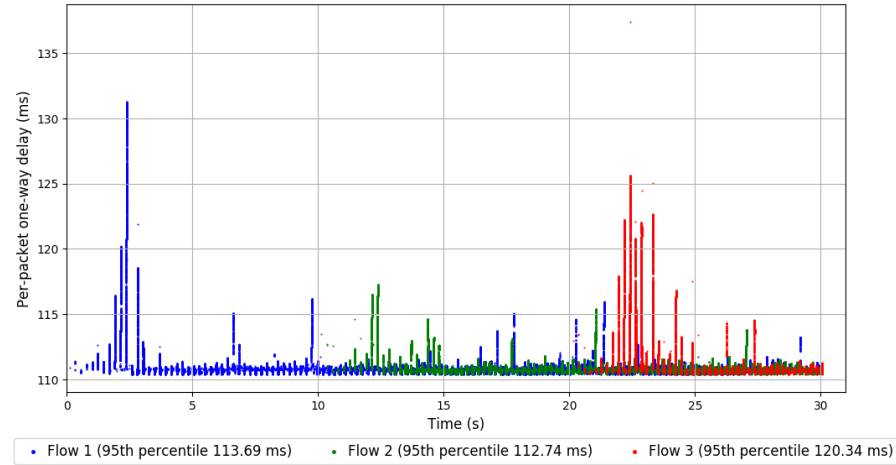
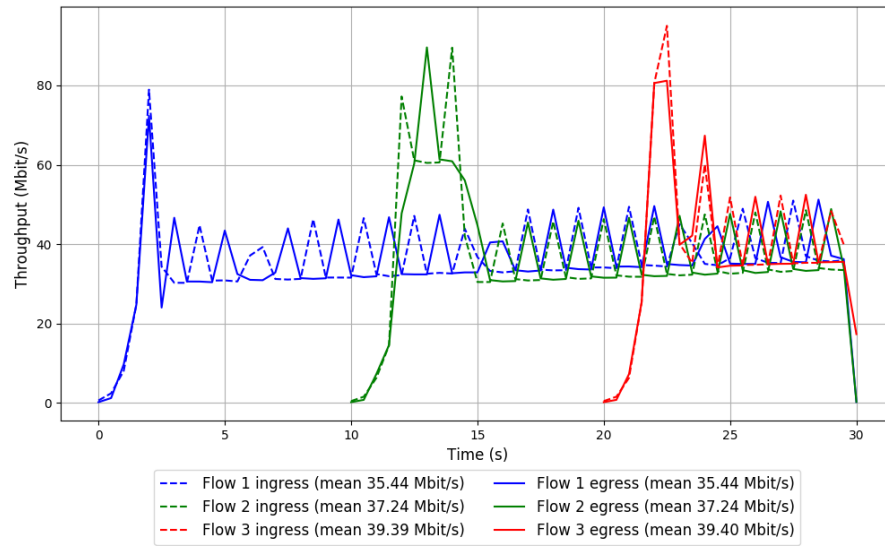
-- Flow 3:

Average throughput: 39.40 Mbit/s

95th percentile per-packet one-way delay: 120.340 ms

Loss rate: 0.00%

Run 8: Report of TCP Vegas — Data Link



Run 9: Statistics of TCP Vegas

Start at: 2017-09-18 20:23:55

End at: 2017-09-18 20:24:25

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 56.39 Mbit/s

95th percentile per-packet one-way delay: 114.504 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 11.55 Mbit/s

95th percentile per-packet one-way delay: 113.923 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 59.64 Mbit/s

95th percentile per-packet one-way delay: 114.763 ms

Loss rate: 0.01%

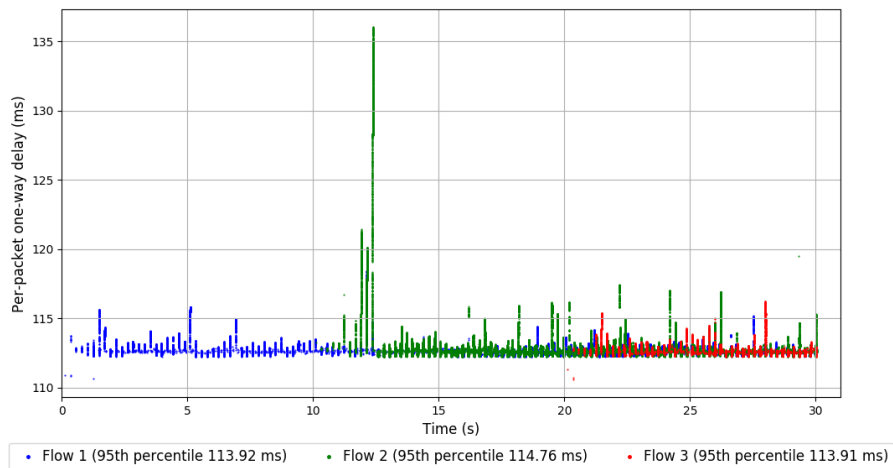
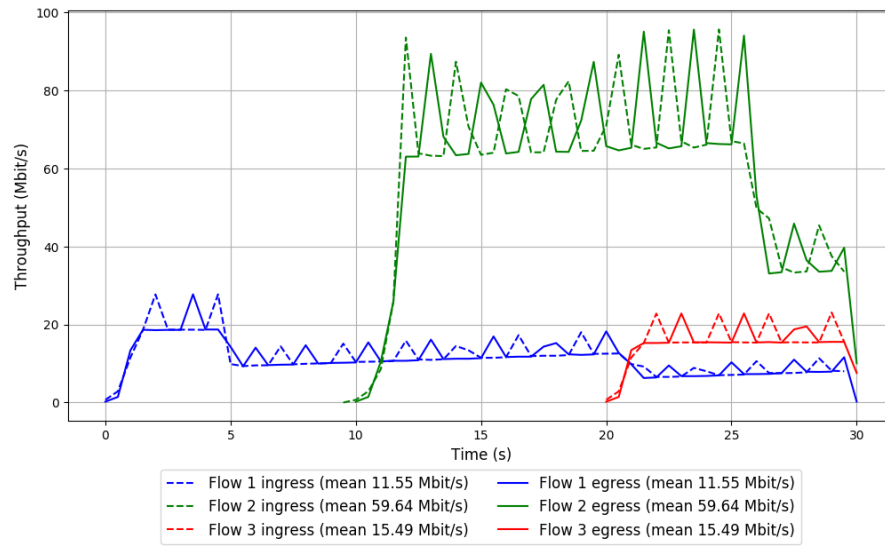
-- Flow 3:

Average throughput: 15.49 Mbit/s

95th percentile per-packet one-way delay: 113.908 ms

Loss rate: 0.00%

Run 9: Report of TCP Vegas — Data Link



Run 10: Statistics of TCP Vegas

Start at: 2017-09-18 20:33:55

End at: 2017-09-18 20:34:25

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 53.22 Mbit/s

95th percentile per-packet one-way delay: 114.646 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 23.34 Mbit/s

95th percentile per-packet one-way delay: 114.172 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 17.18 Mbit/s

95th percentile per-packet one-way delay: 114.001 ms

Loss rate: 0.06%

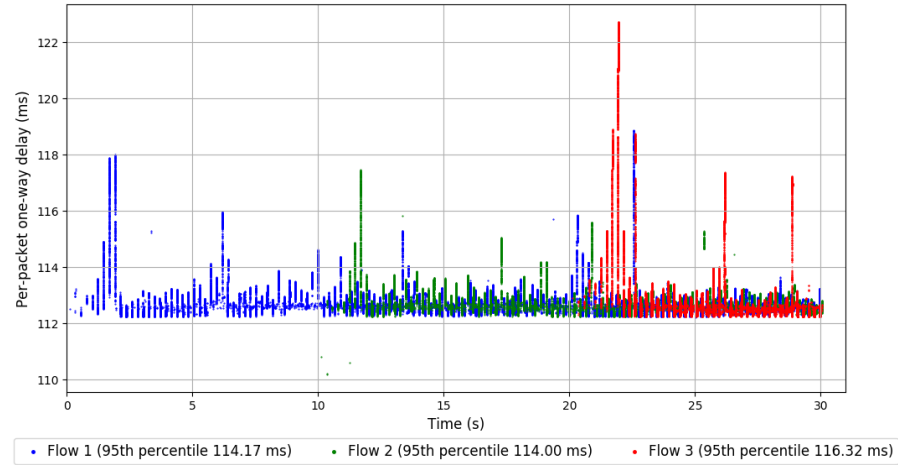
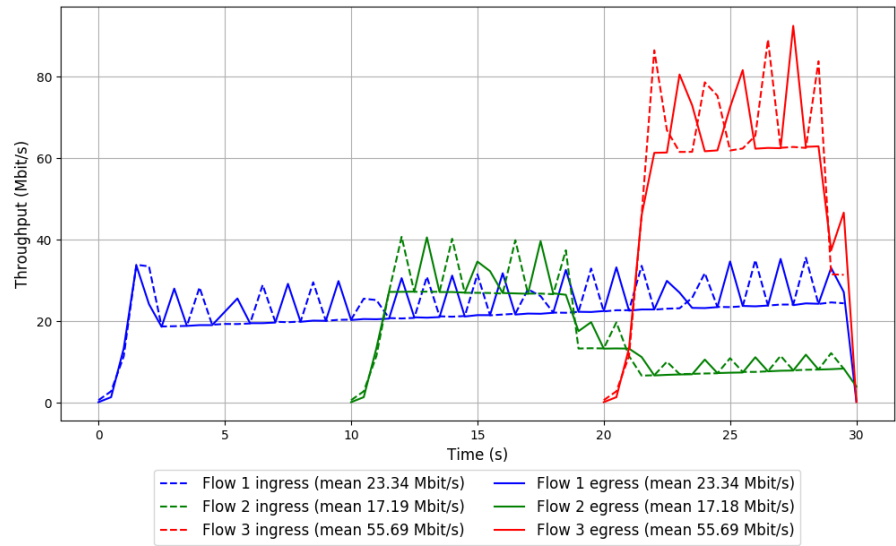
-- Flow 3:

Average throughput: 55.69 Mbit/s

95th percentile per-packet one-way delay: 116.318 ms

Loss rate: 0.00%

Run 10: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2017-09-18 19:01:37

End at: 2017-09-18 19:02:07

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 311.55 Mbit/s

95th percentile per-packet one-way delay: 170.925 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 192.32 Mbit/s

95th percentile per-packet one-way delay: 170.700 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 163.44 Mbit/s

95th percentile per-packet one-way delay: 170.907 ms

Loss rate: 0.01%

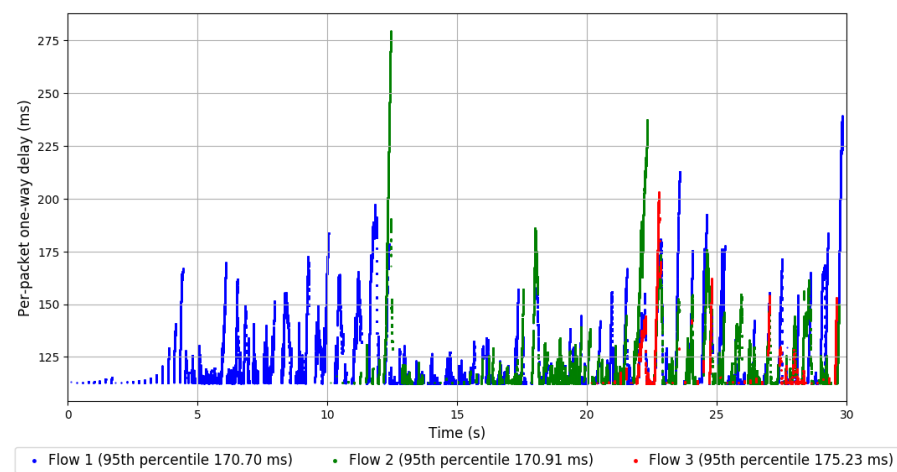
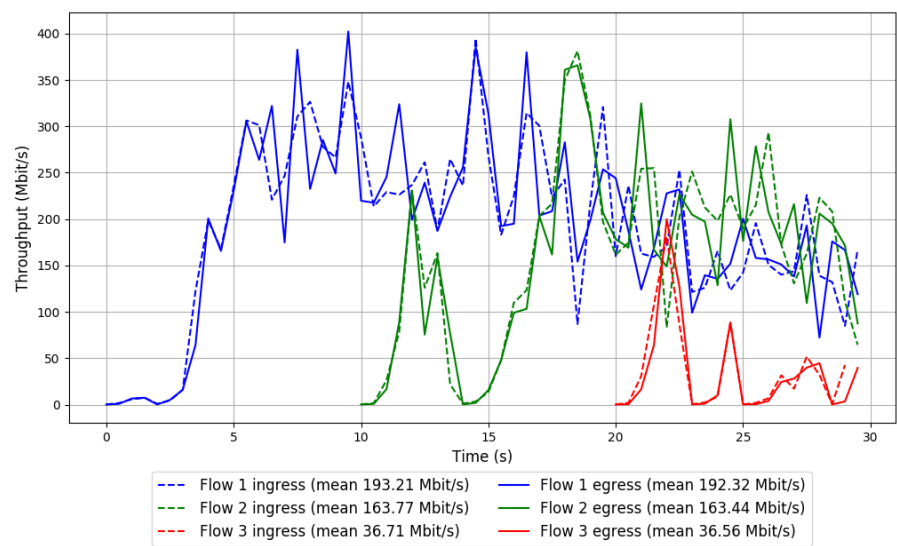
-- Flow 3:

Average throughput: 36.56 Mbit/s

95th percentile per-packet one-way delay: 175.228 ms

Loss rate: 0.00%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2017-09-18 19:11:43

End at: 2017-09-18 19:12:13

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 254.33 Mbit/s

95th percentile per-packet one-way delay: 181.951 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 130.55 Mbit/s

95th percentile per-packet one-way delay: 192.563 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 163.74 Mbit/s

95th percentile per-packet one-way delay: 160.446 ms

Loss rate: 0.32%

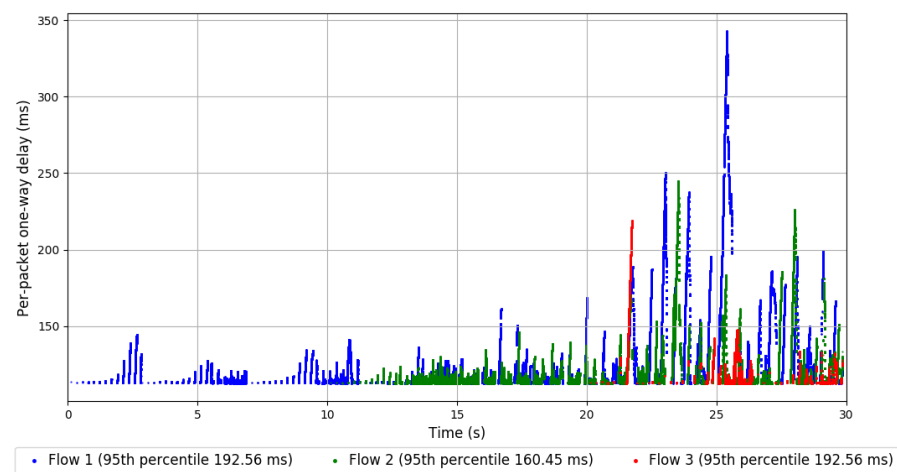
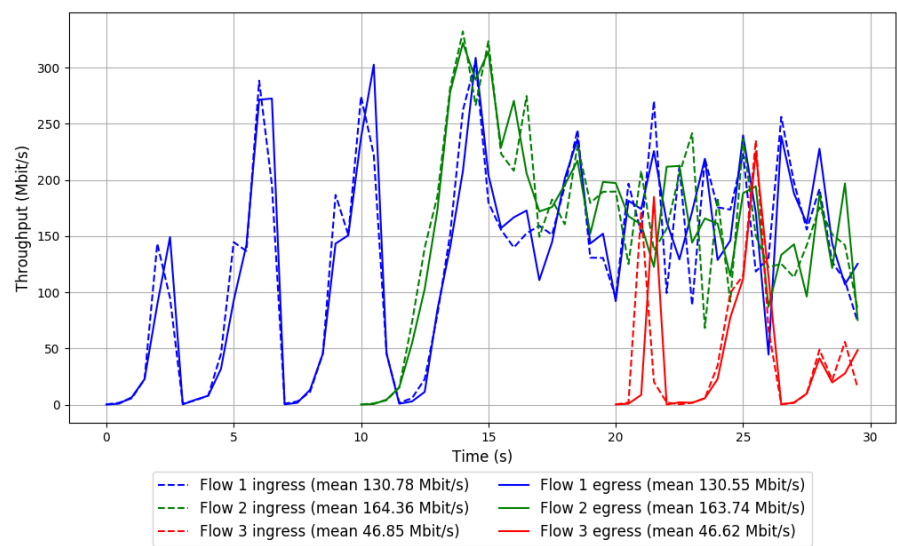
-- Flow 3:

Average throughput: 46.62 Mbit/s

95th percentile per-packet one-way delay: 192.559 ms

Loss rate: 0.46%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2017-09-18 19:21:40

End at: 2017-09-18 19:22:10

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 202.16 Mbit/s

95th percentile per-packet one-way delay: 180.494 ms

Loss rate: 0.93%

-- Flow 1:

Average throughput: 124.60 Mbit/s

95th percentile per-packet one-way delay: 162.060 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 95.10 Mbit/s

95th percentile per-packet one-way delay: 231.865 ms

Loss rate: 2.68%

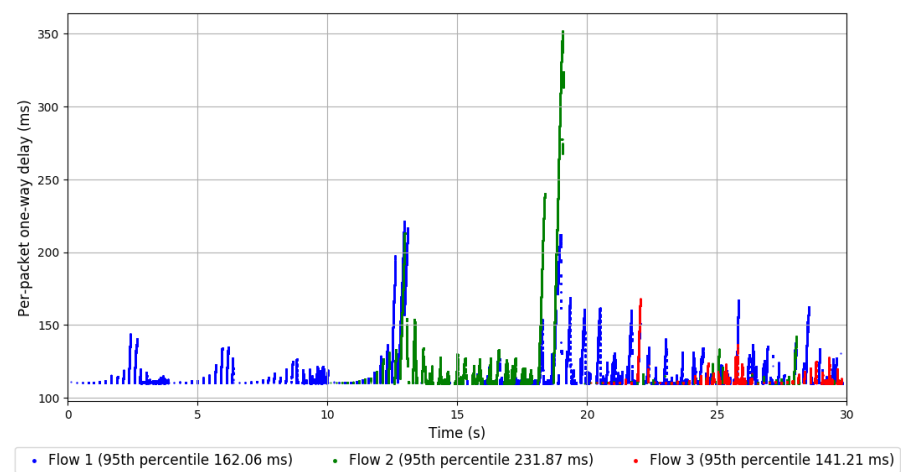
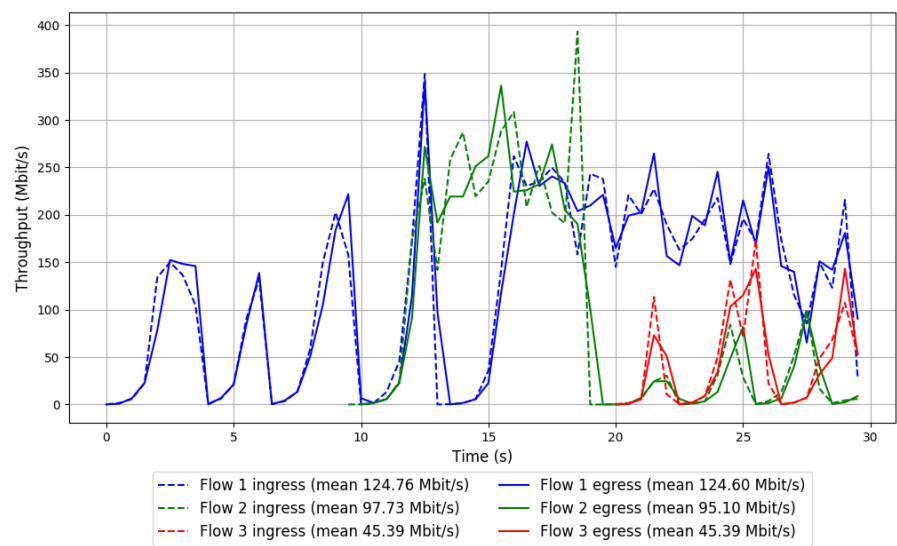
-- Flow 3:

Average throughput: 45.39 Mbit/s

95th percentile per-packet one-way delay: 141.213 ms

Loss rate: 0.01%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2017-09-18 19:31:11

End at: 2017-09-18 19:31:41

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 219.26 Mbit/s

95th percentile per-packet one-way delay: 193.362 ms

Loss rate: 0.12%

-- Flow 1:

Average throughput: 88.08 Mbit/s

95th percentile per-packet one-way delay: 145.572 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 187.10 Mbit/s

95th percentile per-packet one-way delay: 212.381 ms

Loss rate: 0.20%

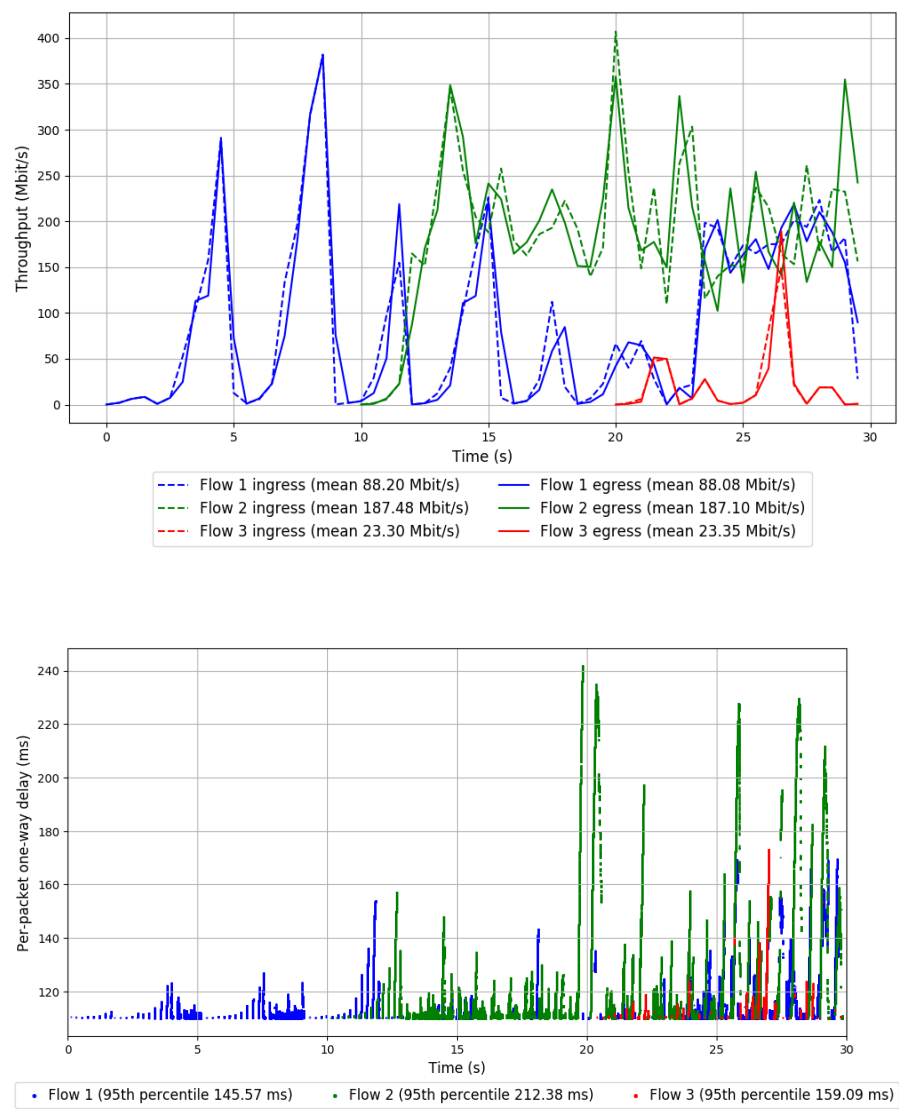
-- Flow 3:

Average throughput: 23.35 Mbit/s

95th percentile per-packet one-way delay: 159.093 ms

Loss rate: 0.00%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2017-09-18 19:40:38

End at: 2017-09-18 19:41:08

Below is generated by plot.py at 2017-09-18 22:22:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 264.26 Mbit/s

95th percentile per-packet one-way delay: 176.996 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 205.36 Mbit/s

95th percentile per-packet one-way delay: 189.572 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 66.94 Mbit/s

95th percentile per-packet one-way delay: 123.911 ms

Loss rate: 0.00%

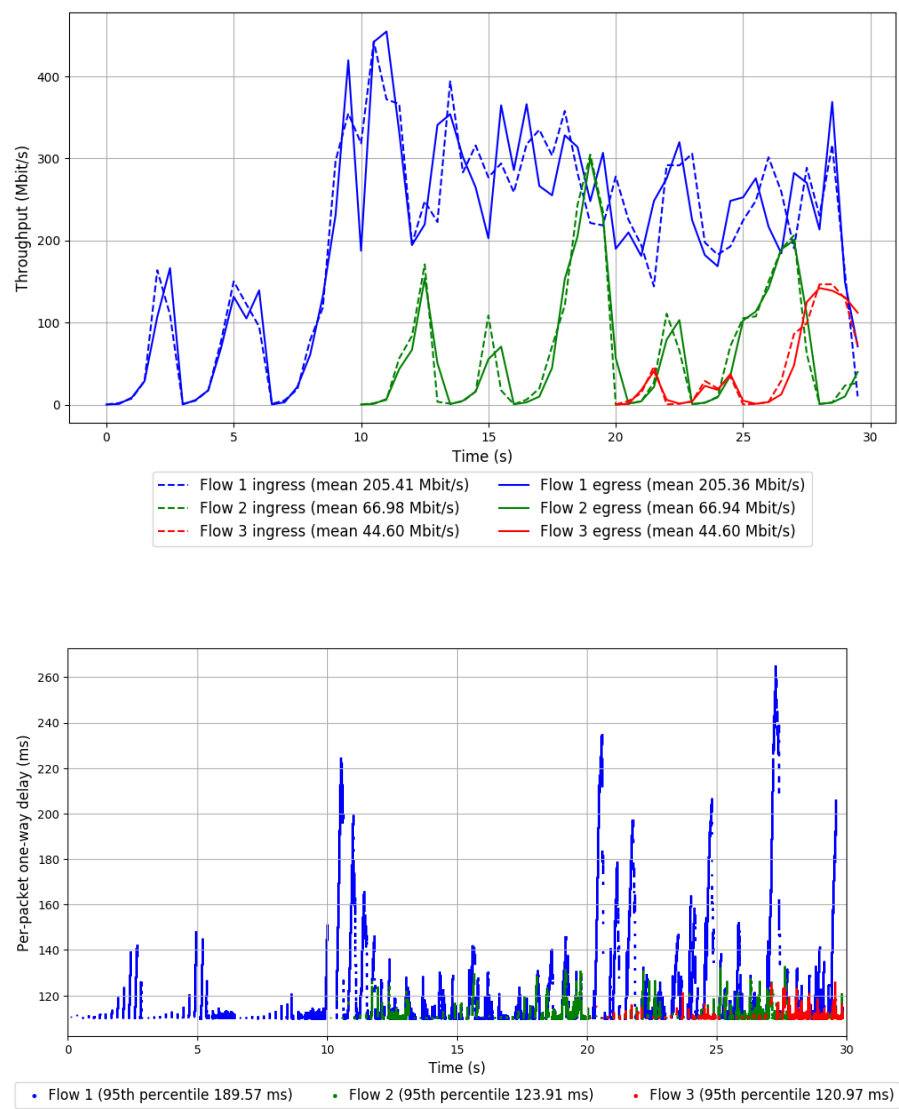
-- Flow 3:

Average throughput: 44.60 Mbit/s

95th percentile per-packet one-way delay: 120.968 ms

Loss rate: 0.00%

Run 5: Report of Verus — Data Link



Run 6: Statistics of Verus

Start at: 2017-09-18 19:50:35

End at: 2017-09-18 19:51:05

Below is generated by plot.py at 2017-09-18 22:22:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 307.66 Mbit/s

95th percentile per-packet one-way delay: 250.659 ms

Loss rate: 3.66%

-- Flow 1:

Average throughput: 259.21 Mbit/s

95th percentile per-packet one-way delay: 257.829 ms

Loss rate: 4.32%

-- Flow 2:

Average throughput: 64.33 Mbit/s

95th percentile per-packet one-way delay: 185.537 ms

Loss rate: 0.00%

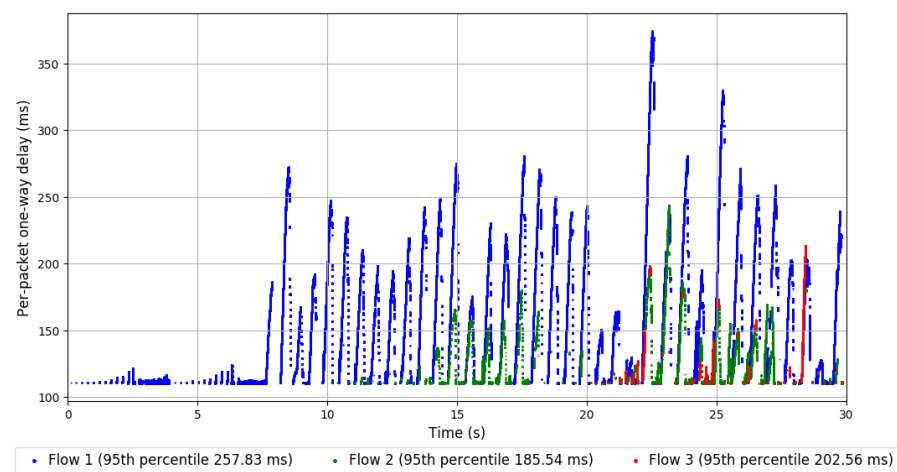
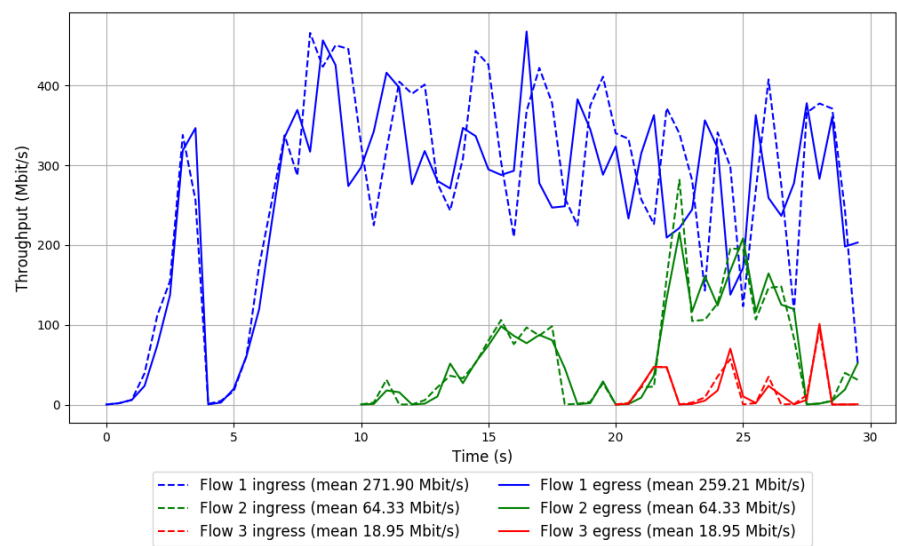
-- Flow 3:

Average throughput: 18.95 Mbit/s

95th percentile per-packet one-way delay: 202.564 ms

Loss rate: 0.00%

Run 6: Report of Verus — Data Link



Run 7: Statistics of Verus

Start at: 2017-09-18 20:00:34

End at: 2017-09-18 20:01:04

Below is generated by plot.py at 2017-09-18 22:22:36

Datalink statistics

-- Total of 3 flows:

Average throughput: 248.15 Mbit/s

95th percentile per-packet one-way delay: 228.302 ms

Loss rate: 4.12%

-- Flow 1:

Average throughput: 165.23 Mbit/s

95th percentile per-packet one-way delay: 226.610 ms

Loss rate: 3.14%

-- Flow 2:

Average throughput: 117.16 Mbit/s

95th percentile per-packet one-way delay: 248.656 ms

Loss rate: 6.38%

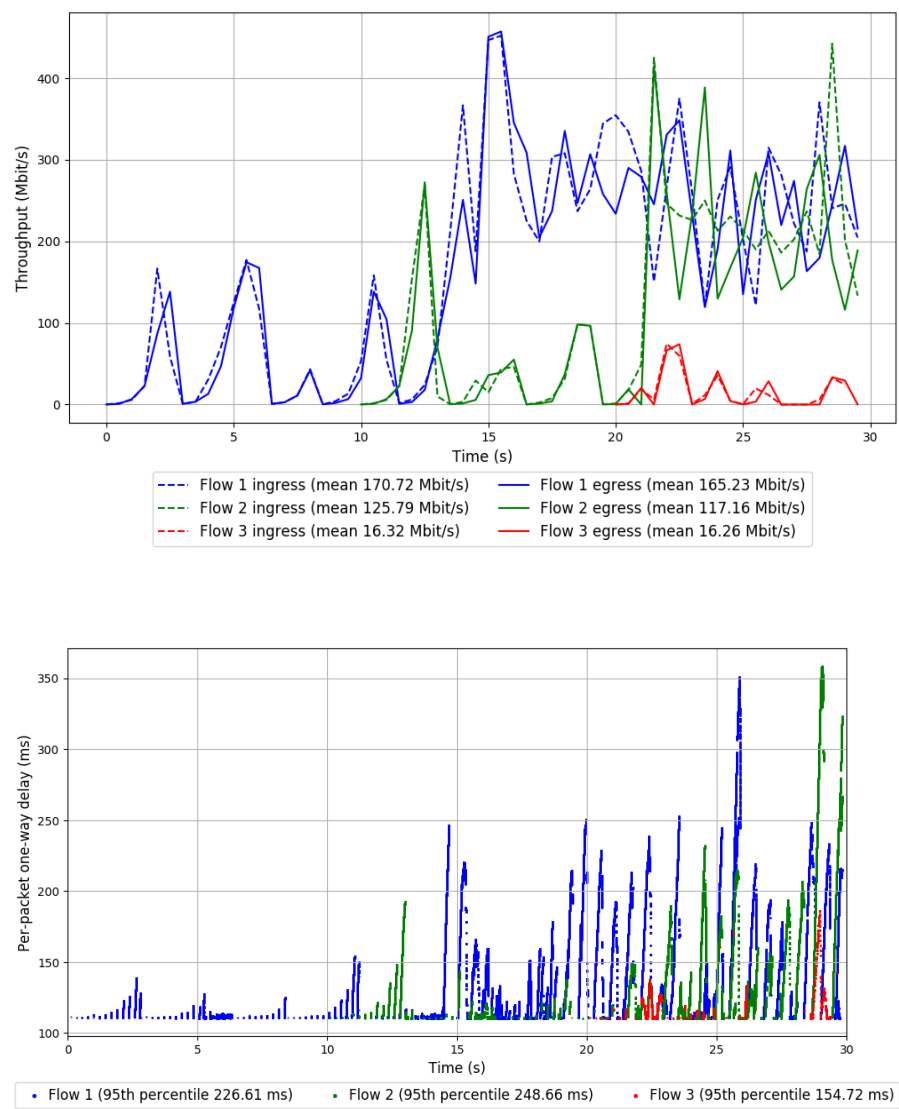
-- Flow 3:

Average throughput: 16.26 Mbit/s

95th percentile per-packet one-way delay: 154.719 ms

Loss rate: 0.00%

Run 7: Report of Verus — Data Link



Run 8: Statistics of Verus

Start at: 2017-09-18 20:10:14

End at: 2017-09-18 20:10:44

Below is generated by plot.py at 2017-09-18 22:23:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 266.09 Mbit/s

95th percentile per-packet one-way delay: 298.966 ms

Loss rate: 5.34%

-- Flow 1:

Average throughput: 59.61 Mbit/s

95th percentile per-packet one-way delay: 338.619 ms

Loss rate: 10.57%

-- Flow 2:

Average throughput: 228.58 Mbit/s

95th percentile per-packet one-way delay: 268.701 ms

Loss rate: 4.42%

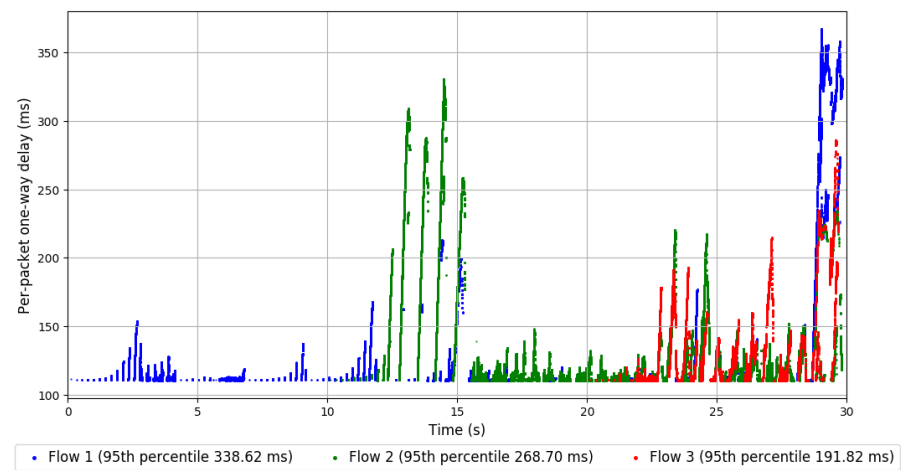
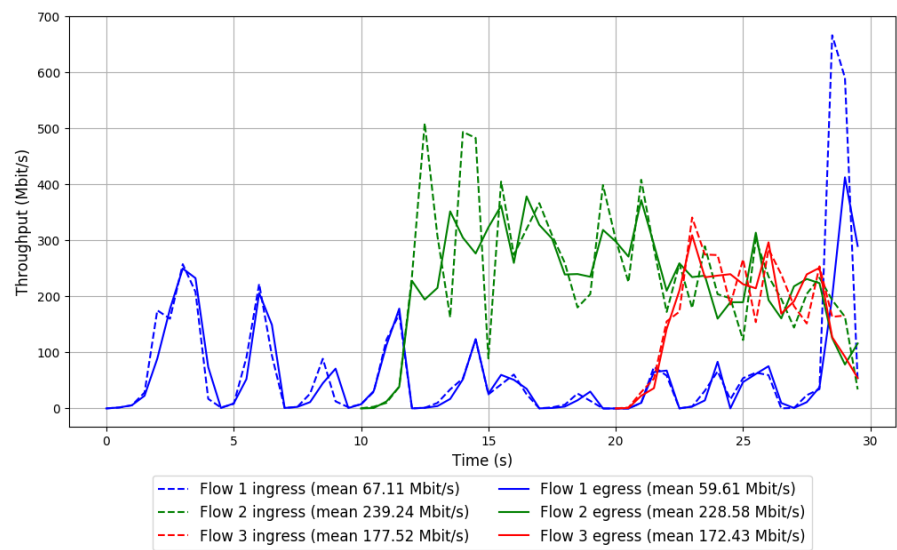
-- Flow 3:

Average throughput: 172.43 Mbit/s

95th percentile per-packet one-way delay: 191.820 ms

Loss rate: 1.75%

Run 8: Report of Verus — Data Link



Run 9: Statistics of Verus

Start at: 2017-09-18 20:20:10

End at: 2017-09-18 20:20:40

Below is generated by plot.py at 2017-09-18 22:23:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 268.61 Mbit/s

95th percentile per-packet one-way delay: 286.637 ms

Loss rate: 3.13%

-- Flow 1:

Average throughput: 169.95 Mbit/s

95th percentile per-packet one-way delay: 195.917 ms

Loss rate: 0.82%

-- Flow 2:

Average throughput: 122.90 Mbit/s

95th percentile per-packet one-way delay: 333.591 ms

Loss rate: 7.94%

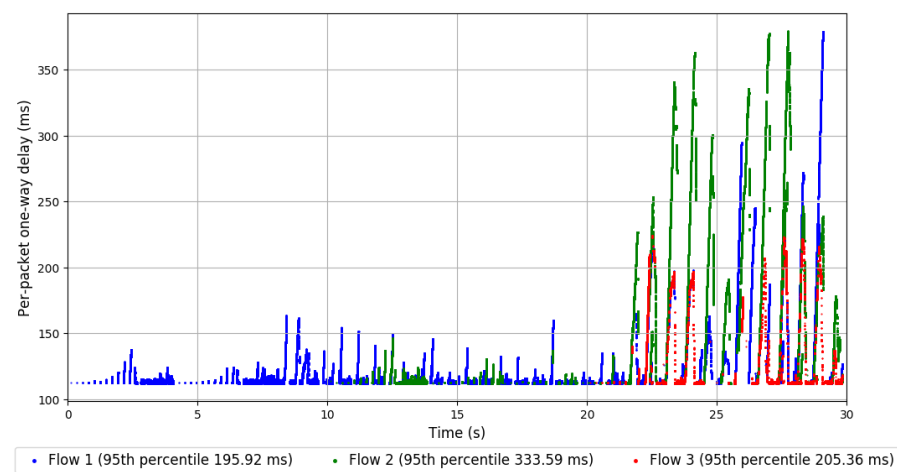
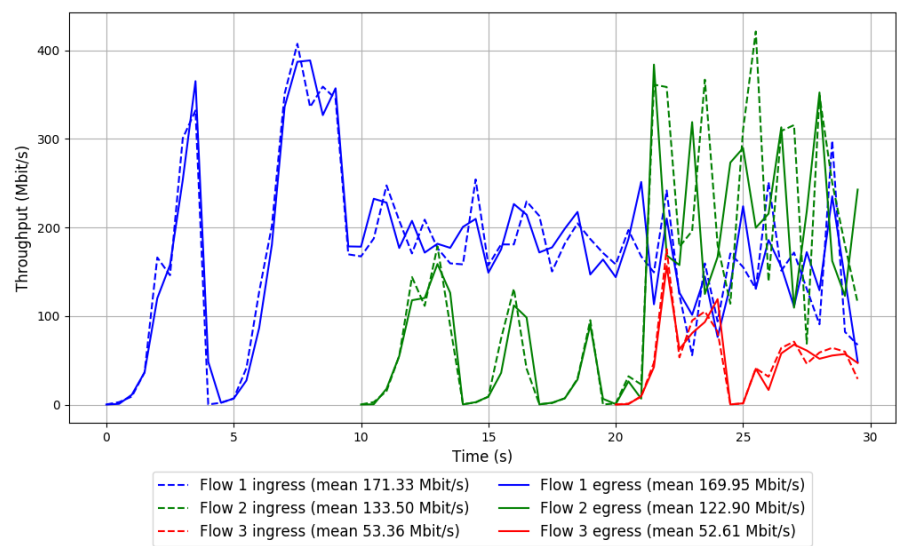
-- Flow 3:

Average throughput: 52.61 Mbit/s

95th percentile per-packet one-way delay: 205.362 ms

Loss rate: 1.42%

Run 9: Report of Verus — Data Link



Run 10: Statistics of Verus

Start at: 2017-09-18 20:30:11

End at: 2017-09-18 20:30:41

Below is generated by plot.py at 2017-09-18 22:23:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 277.61 Mbit/s

95th percentile per-packet one-way delay: 250.989 ms

Loss rate: 2.37%

-- Flow 1:

Average throughput: 196.48 Mbit/s

95th percentile per-packet one-way delay: 186.506 ms

Loss rate: 0.55%

-- Flow 2:

Average throughput: 74.94 Mbit/s

95th percentile per-packet one-way delay: 337.210 ms

Loss rate: 5.99%

-- Flow 3:

Average throughput: 96.74 Mbit/s

95th percentile per-packet one-way delay: 288.909 ms

Loss rate: 7.36%

Run 10: Report of Verus — Data Link

