

## Pantheon Report

Generated at 2018-03-05 22:07:51 (UTC).

Data path: AWS India 1 Ethernet (*local*) → India ppp0 (*remote*).

Repeated the test of 17 congestion control schemes 3 times.

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

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

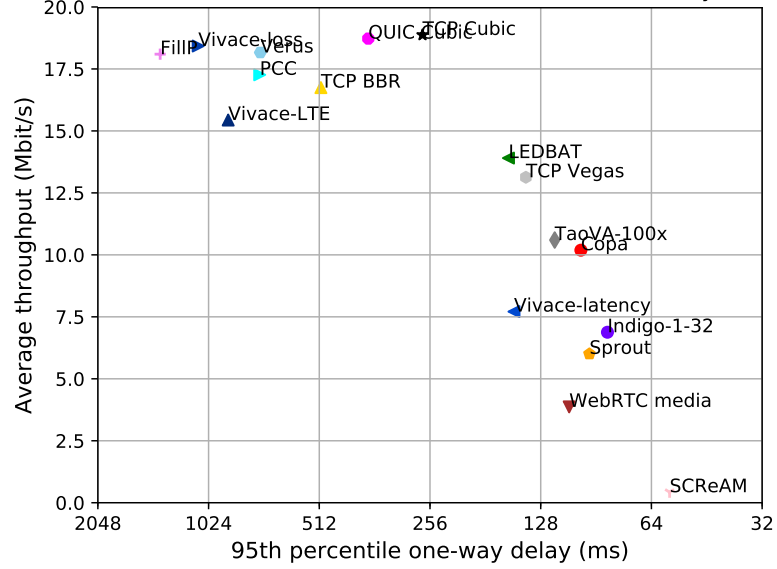
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo\_fast**).

NTP offsets were measured against **nets.org.sg** and have been applied to correct the timestamps in logs.

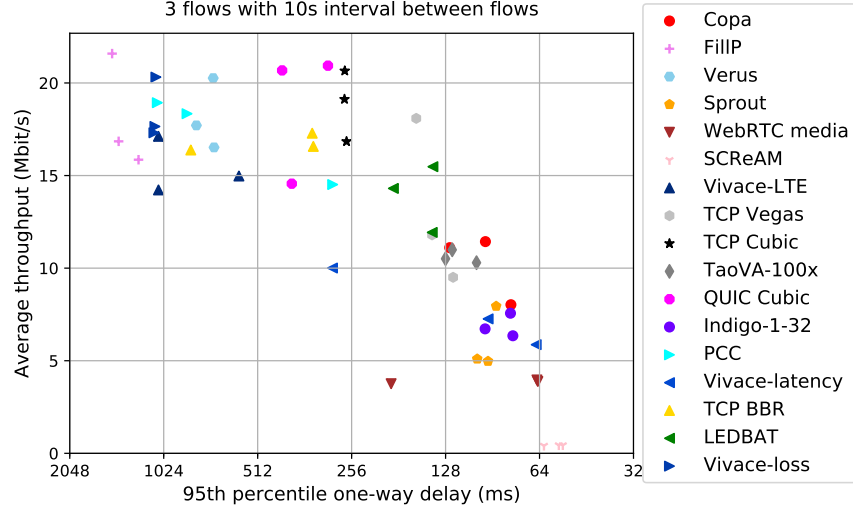
Git summary:

```
branch: master @ f12c42a2c63fdd9a862eefa0468859bf379b6623
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
M datagrump/sender.cc
third_party/fillp @ 828bbf95fd4941149b5cec90f281d1c69ae1a5c6
third_party/genericCC @ 9249eea3238475c4d8cca1443d28df70bff6c4a2
third_party/indigo @ a9b2060d39e4da2e8987e893e3eca2a6c7cd0ab9
third_party/indigo-1-layer-128-unit @ 3ae9e4ef4230db7484501f82ce8b377695f2f66d
third_party/indigo-1-layer-32-unit @ 2601c92e4aa9d58d38dc4dfe0ecd9c077e64d
third_party/indigo-1-layer-32-unit-no-calib @ 1f3a7f75b41135ed5b540c0fd3505939528e2a5f
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eae30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 7a4ba531e75b4a6f66f5c4580192120401784ce3
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from AWS India 1 Ethernet to India ppp0, 3 runs of 30s each per scheme  
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from AWS India 1 Ethernet to India ppp0, 3 runs of 30s each per scheme  
 3 flows with 10s interval between flows



scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	12.23	4.97	3.99	441.33	534.86	592.88	0.80	1.92	4.55
TCP Cubic	3	12.76	7.30	3.91	258.11	293.43	426.26	0.57	1.13	3.20
LEDBAT	3	9.07	5.98	2.60	146.90	170.67	180.11	0.35	0.91	1.51
PCC	3	12.68	4.48	5.07	736.01	709.84	825.13	4.47	6.27	17.60
QUIC Cubic	3	13.77	6.23	2.66	356.87	421.31	405.78	0.62	1.63	3.77
SCReAM	3	0.21	0.22	0.22	57.12	57.13	53.66	0.17	0.27	0.46
WebRTC media	3	2.05	1.34	0.49	76.91	101.27	132.30	0.05	0.15	0.66
Sprout	3	3.03	3.17	2.65	96.98	88.67	99.76	0.03	0.43	1.04
TaoVA-100x	3	5.00	5.54	5.81	109.38	105.46	142.21	0.29	0.90	0.55
TCP Vegas	3	6.09	7.30	6.62	141.74	176.24	94.88	0.17	0.23	0.45
Verus	3	13.21	4.58	5.96	701.96	731.11	832.28	2.24	4.24	5.59
Copa	3	6.95	3.25	3.27	102.22	95.48	92.89	0.44	0.62	0.40
FillP	3	11.97	6.73	6.38	1459.71	1250.94	1205.75	77.04	91.72	96.04
Indigo-1-32	3	2.65	3.81	5.20	82.49	81.10	107.50	0.21	0.33	0.36
Vivace-latency	3	4.38	3.33	3.42	118.87	212.40	172.15	0.18	0.29	0.41
Vivace-loss	3	12.50	8.05	1.79	1093.58	1091.22	1080.77	40.13	34.14	40.18
Vivace-LTE	3	9.97	5.73	5.08	811.09	908.98	918.30	3.98	8.33	14.60

Run 1: Statistics of TCP BBR

Start at: 2018-03-05 21:12:18

End at: 2018-03-05 21:12:48

Local clock offset: 1.58 ms

Remote clock offset: 1.809 ms

# Below is generated by plot.py at 2018-03-05 22:06:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 17.29 Mbit/s

95th percentile per-packet one-way delay: 342.336 ms

Loss rate: 0.78%

-- Flow 1:

Average throughput: 12.25 Mbit/s

95th percentile per-packet one-way delay: 329.424 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 5.33 Mbit/s

95th percentile per-packet one-way delay: 327.394 ms

Loss rate: 1.04%

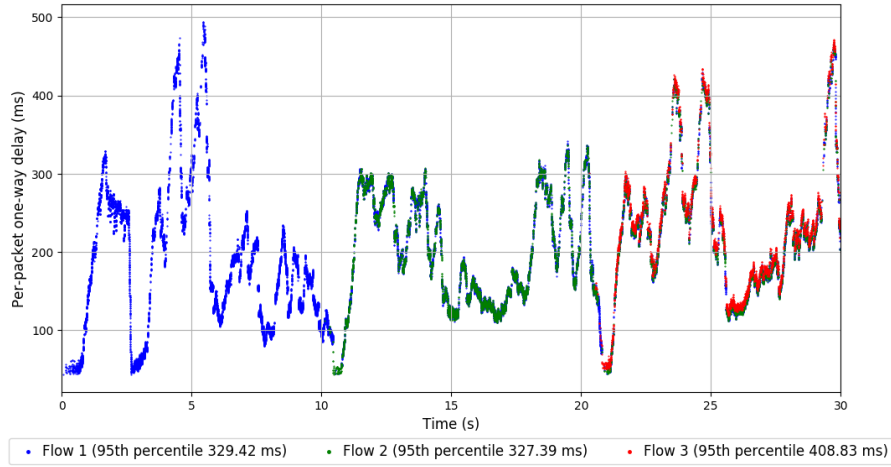
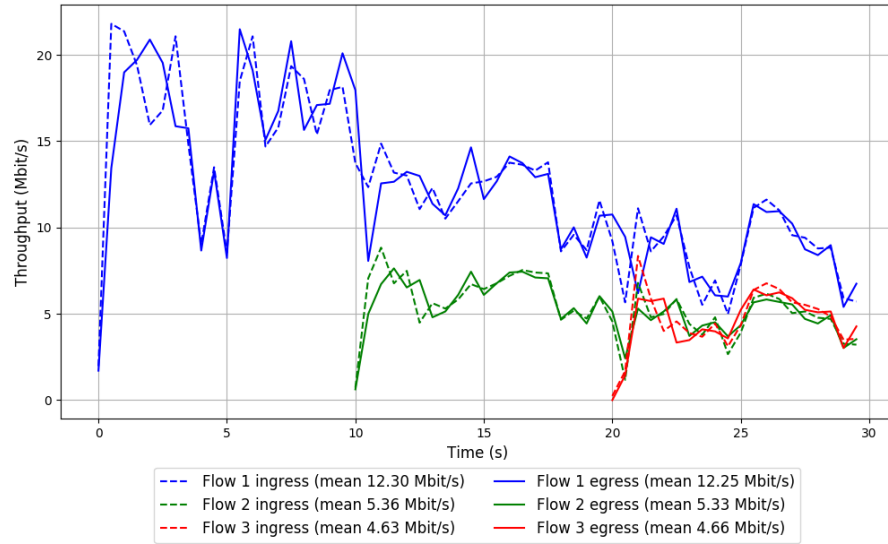
-- Flow 3:

Average throughput: 4.66 Mbit/s

95th percentile per-packet one-way delay: 408.829 ms

Loss rate: 2.29%

# Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-03-05 21:32:28

End at: 2018-03-05 21:32:58

Local clock offset: 4.724 ms

Remote clock offset: 4.996 ms

# Below is generated by plot.py at 2018-03-05 22:06:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 16.38 Mbit/s

95th percentile per-packet one-way delay: 838.533 ms

Loss rate: 2.41%

-- Flow 1:

Average throughput: 11.17 Mbit/s

95th percentile per-packet one-way delay: 654.233 ms

Loss rate: 1.40%

-- Flow 2:

Average throughput: 6.86 Mbit/s

95th percentile per-packet one-way delay: 926.059 ms

Loss rate: 3.60%

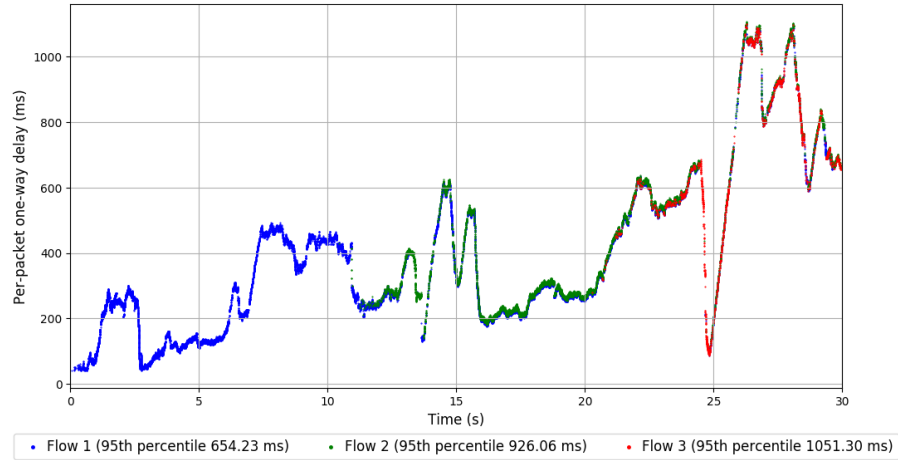
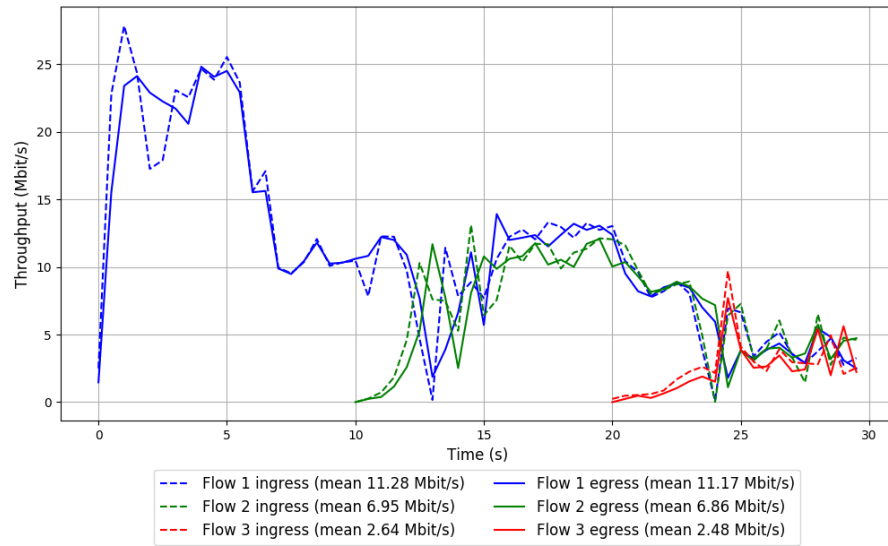
-- Flow 3:

Average throughput: 2.48 Mbit/s

95th percentile per-packet one-way delay: 1051.301 ms

Loss rate: 9.12%

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



Run 3: Statistics of TCP BBR

Start at: 2018-03-05 21:52:34

End at: 2018-03-05 21:53:04

Local clock offset: 3.13 ms

Remote clock offset: 0.976 ms

# Below is generated by plot.py at 2018-03-05 22:06:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 16.57 Mbit/s

95th percentile per-packet one-way delay: 339.582 ms

Loss rate: 0.72%

-- Flow 1:

Average throughput: 13.27 Mbit/s

95th percentile per-packet one-way delay: 340.325 ms

Loss rate: 0.48%

-- Flow 2:

Average throughput: 2.73 Mbit/s

95th percentile per-packet one-way delay: 351.119 ms

Loss rate: 1.13%

-- Flow 3:

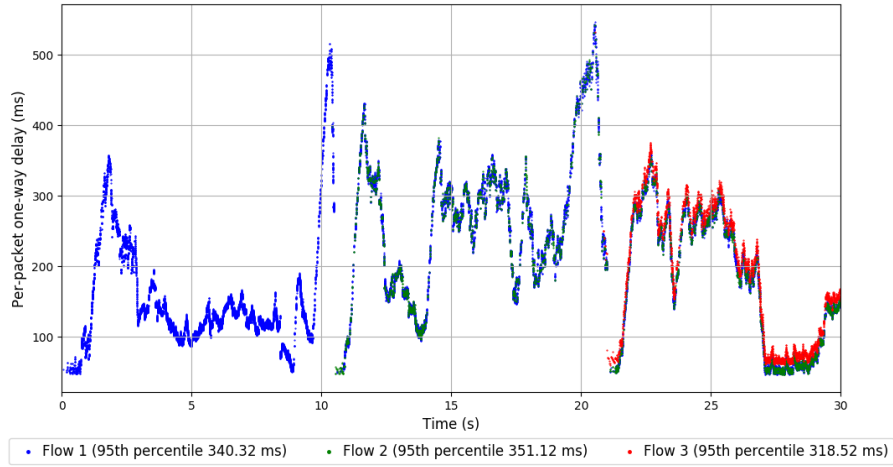
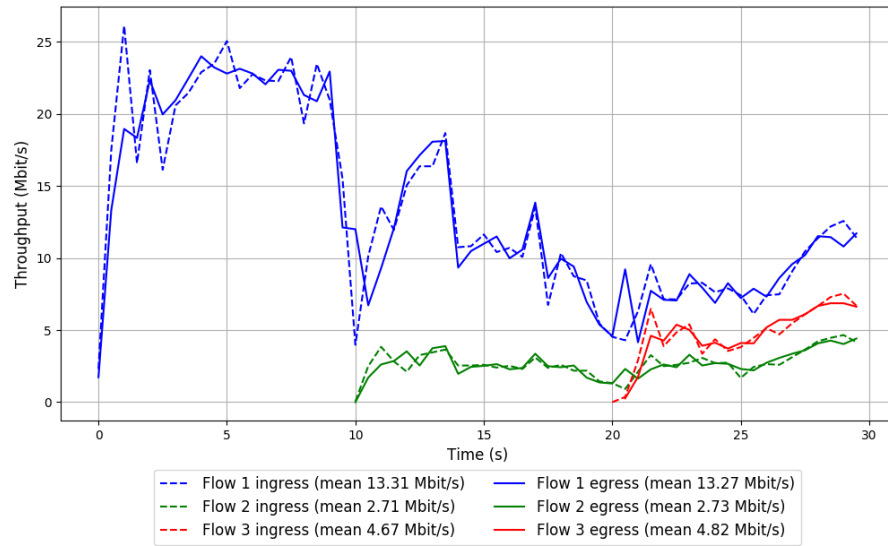
Average throughput: 4.82 Mbit/s

95th percentile per-packet one-way delay: 318.517 ms

Loss rate: 2.24%



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



Run 1: Statistics of TCP Cubic

Start at: 2018-03-05 21:20:06

End at: 2018-03-05 21:20:36

Local clock offset: 2.97 ms

Remote clock offset: 3.45 ms

# Below is generated by plot.py at 2018-03-05 22:06:05

# Datalink statistics

-- Total of 3 flows:

Average throughput: 20.66 Mbit/s

95th percentile per-packet one-way delay: 269.296 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 14.22 Mbit/s

95th percentile per-packet one-way delay: 259.401 ms

Loss rate: 0.28%

-- Flow 2:

Average throughput: 8.07 Mbit/s

95th percentile per-packet one-way delay: 327.047 ms

Loss rate: 1.01%

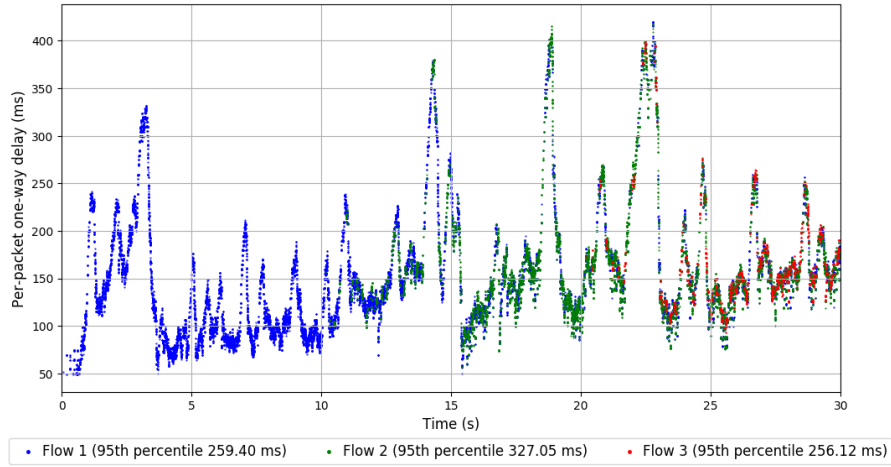
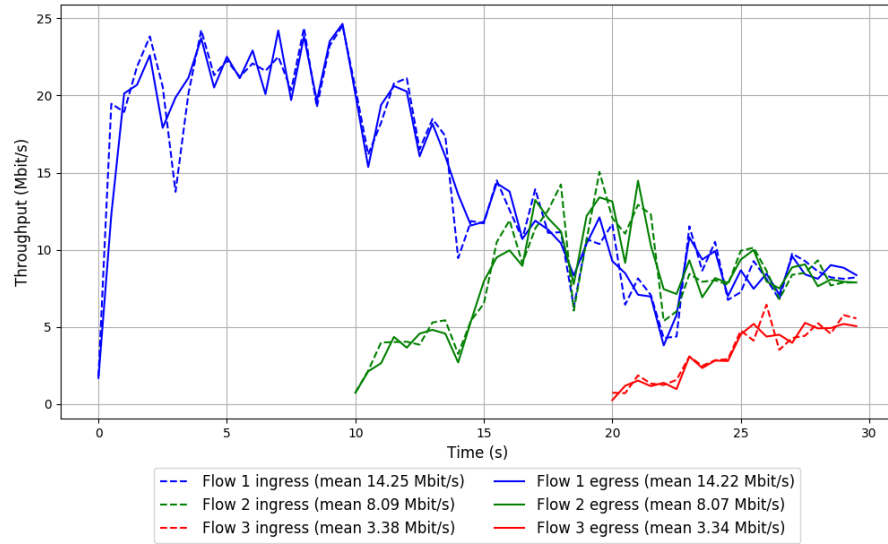
-- Flow 3:

Average throughput: 3.34 Mbit/s

95th percentile per-packet one-way delay: 256.119 ms

Loss rate: 3.00%

# Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-03-05 21:40:15

End at: 2018-03-05 21:40:45

Local clock offset: 0.994 ms

Remote clock offset: 2.804 ms

# Below is generated by plot.py at 2018-03-05 22:06:05

# Datalink statistics

-- Total of 3 flows:

Average throughput: 19.12 Mbit/s

95th percentile per-packet one-way delay: 269.823 ms

Loss rate: 1.04%

-- Flow 1:

Average throughput: 14.66 Mbit/s

95th percentile per-packet one-way delay: 263.759 ms

Loss rate: 0.81%

-- Flow 2:

Average throughput: 4.82 Mbit/s

95th percentile per-packet one-way delay: 276.722 ms

Loss rate: 1.38%

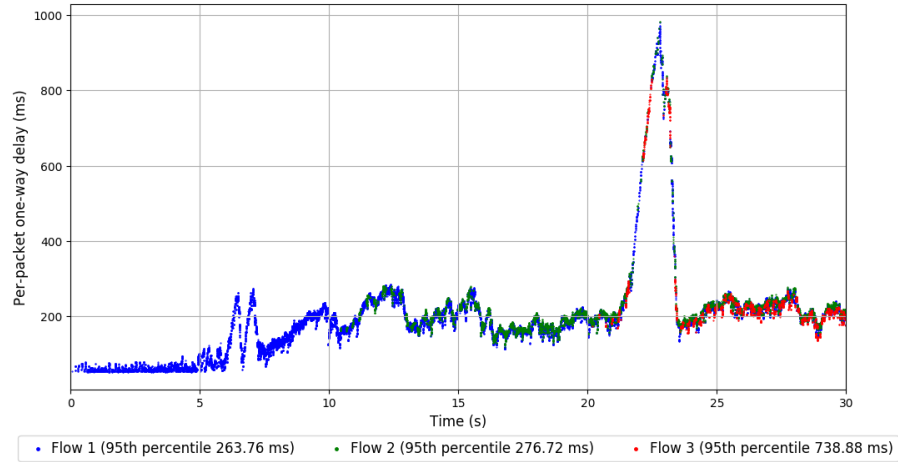
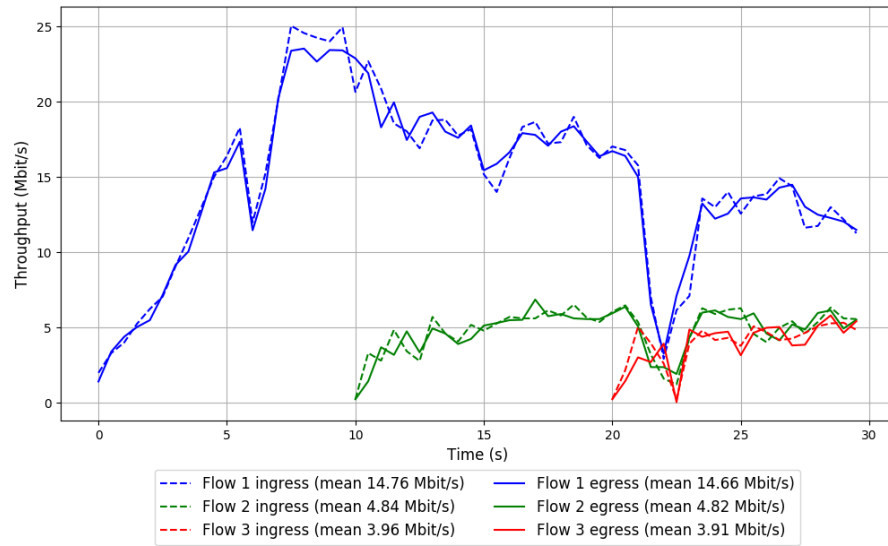
-- Flow 3:

Average throughput: 3.91 Mbit/s

95th percentile per-packet one-way delay: 738.885 ms

Loss rate: 2.71%

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



Run 3: Statistics of TCP Cubic

Start at: 2018-03-05 22:00:20

End at: 2018-03-05 22:00:50

Local clock offset: 6.248 ms

Remote clock offset: 1.304 ms

# Below is generated by plot.py at 2018-03-05 22:06:05

# Datalink statistics

-- Total of 3 flows:

Average throughput: 16.84 Mbit/s

95th percentile per-packet one-way delay: 265.798 ms

Loss rate: 1.04%

-- Flow 1:

Average throughput: 9.39 Mbit/s

95th percentile per-packet one-way delay: 251.164 ms

Loss rate: 0.61%

-- Flow 2:

Average throughput: 9.02 Mbit/s

95th percentile per-packet one-way delay: 276.526 ms

Loss rate: 0.99%

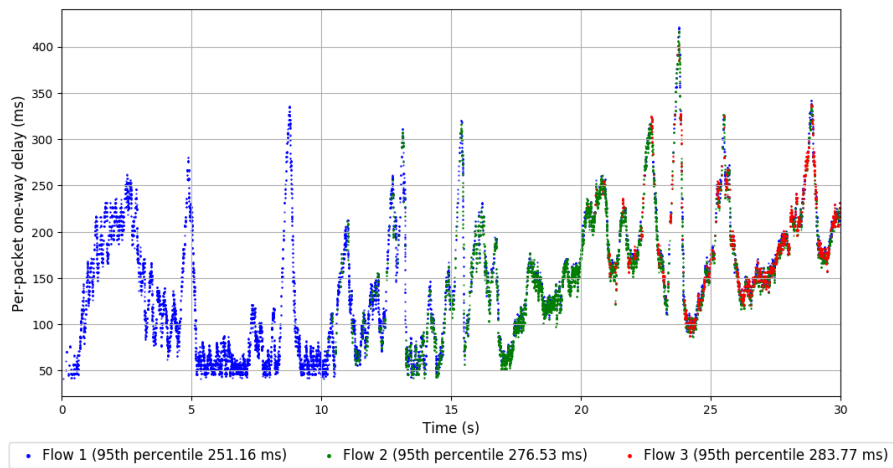
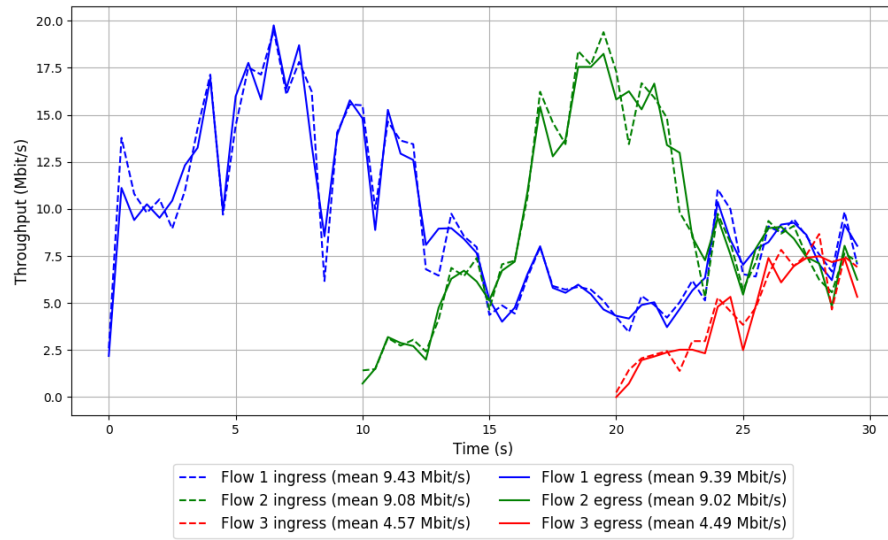
-- Flow 3:

Average throughput: 4.49 Mbit/s

95th percentile per-packet one-way delay: 283.772 ms

Loss rate: 3.89%

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



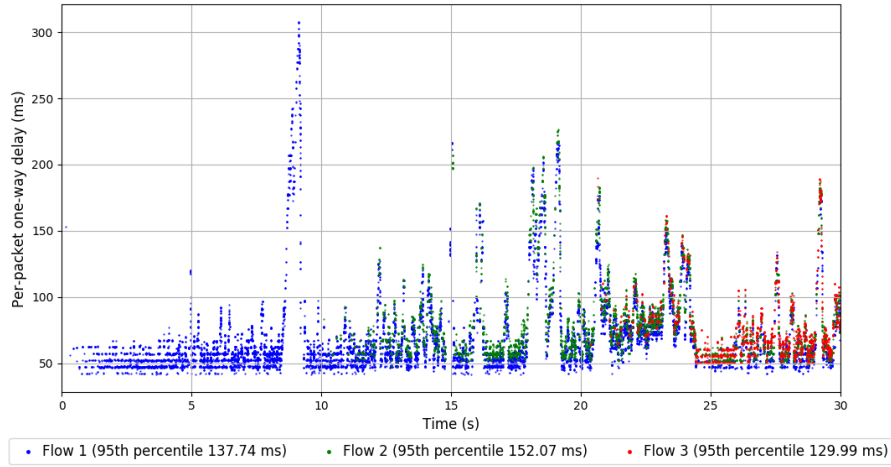
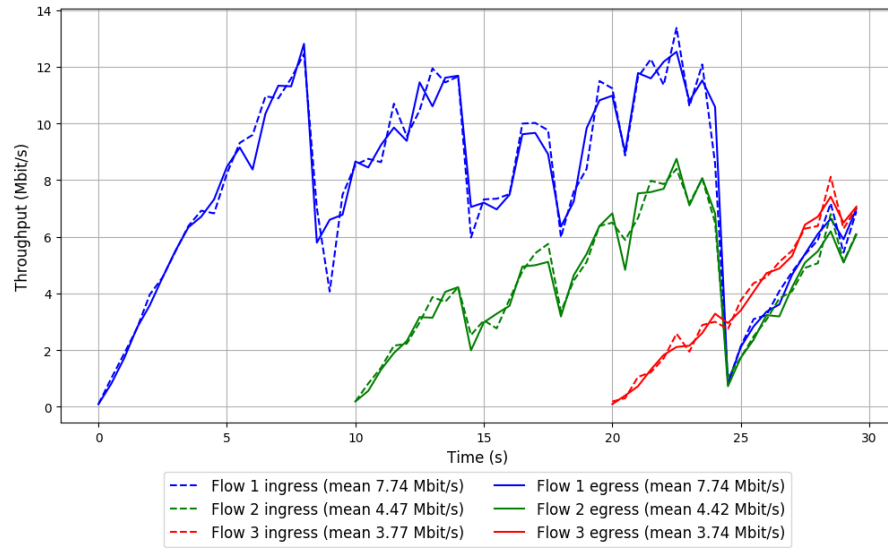
```
Run 1: Statistics of LEDBAT

Start at: 2018-03-05 21:10:04
End at: 2018-03-05 21:10:34
Local clock offset: 3.094 ms
Remote clock offset: 1.303 ms

# Below is generated by plot.py at 2018-03-05 22:06:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.93 Mbit/s
95th percentile per-packet one-way delay: 141.260 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 7.74 Mbit/s
95th percentile per-packet one-way delay: 137.740 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 4.42 Mbit/s
95th percentile per-packet one-way delay: 152.067 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 3.74 Mbit/s
95th percentile per-packet one-way delay: 129.989 ms
Loss rate: 1.44%
```



# Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-03-05 21:30:11

End at: 2018-03-05 21:30:41

Local clock offset: 3.47 ms

Remote clock offset: 6.536 ms

# Below is generated by plot.py at 2018-03-05 22:06:05

# Datalink statistics

-- Total of 3 flows:

Average throughput: 15.48 Mbit/s

95th percentile per-packet one-way delay: 140.561 ms

Loss rate: 0.50%

-- Flow 1:

Average throughput: 10.73 Mbit/s

95th percentile per-packet one-way delay: 131.757 ms

Loss rate: 0.28%

-- Flow 2:

Average throughput: 5.88 Mbit/s

95th percentile per-packet one-way delay: 151.233 ms

Loss rate: 0.84%

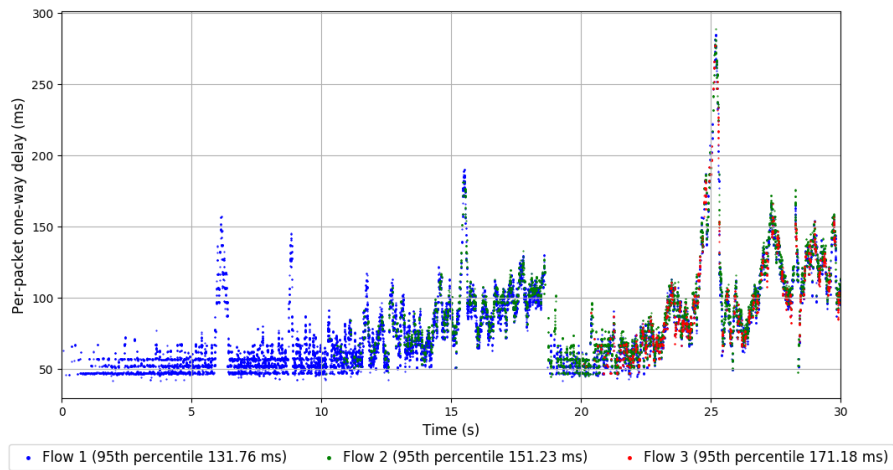
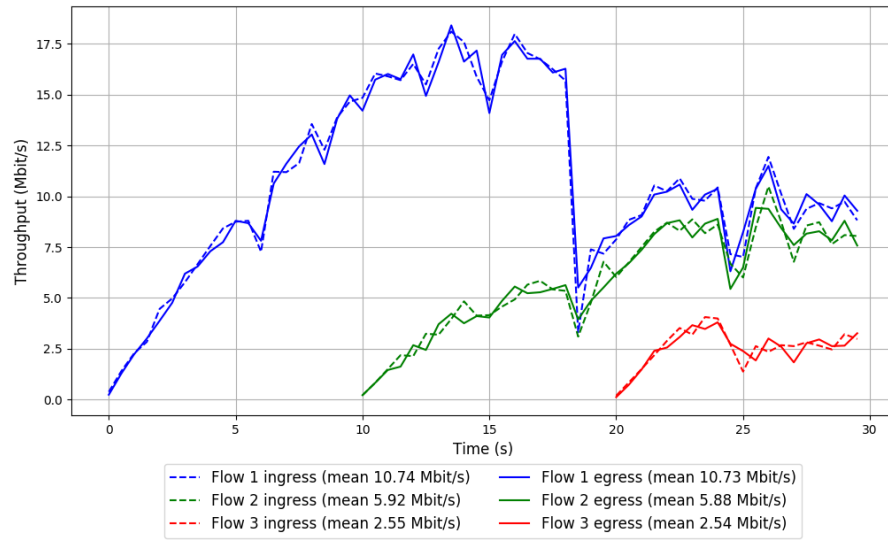
-- Flow 3:

Average throughput: 2.54 Mbit/s

95th percentile per-packet one-way delay: 171.184 ms

Loss rate: 1.57%

## Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-03-05 21:50:21

End at: 2018-03-05 21:50:51

Local clock offset: 5.407 ms

Remote clock offset: 1.711 ms

# Below is generated by plot.py at 2018-03-05 22:06:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 14.31 Mbit/s

95th percentile per-packet one-way delay: 188.169 ms

Loss rate: 0.53%

-- Flow 1:

Average throughput: 8.75 Mbit/s

95th percentile per-packet one-way delay: 171.204 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 7.63 Mbit/s

95th percentile per-packet one-way delay: 208.699 ms

Loss rate: 0.63%

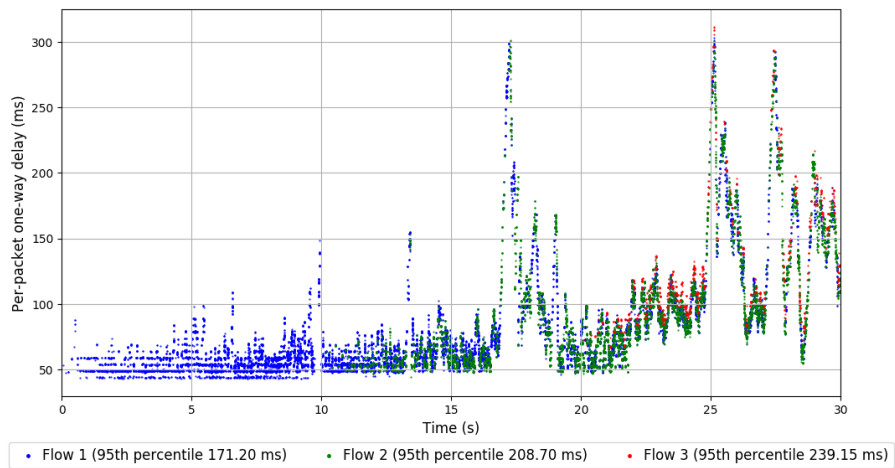
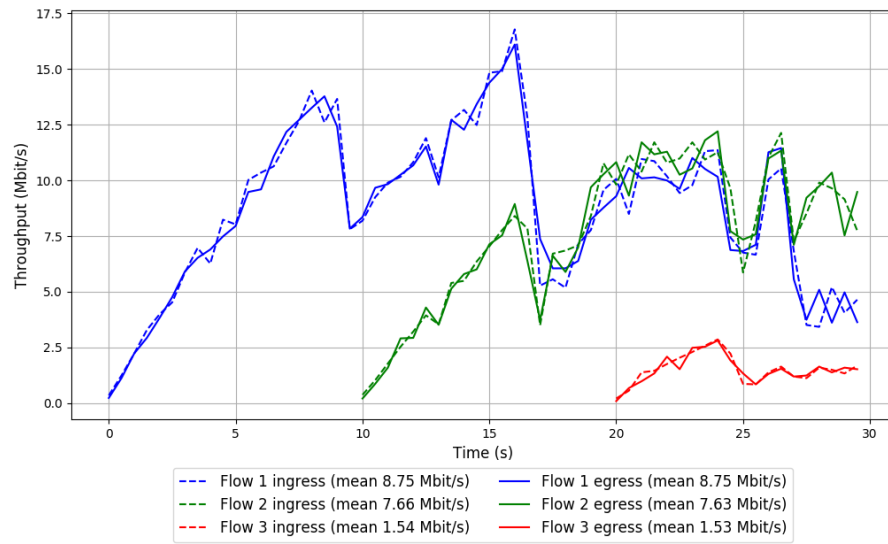
-- Flow 3:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 239.149 ms

Loss rate: 1.53%

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



Run 1: Statistics of PCC

Start at: 2018-03-05 21:07:50

End at: 2018-03-05 21:08:20

Local clock offset: 0.764 ms

Remote clock offset: 0.228 ms

# Below is generated by plot.py at 2018-03-05 22:06:28

# Datalink statistics

-- Total of 3 flows:

Average throughput: 18.93 Mbit/s

95th percentile per-packet one-way delay: 1073.523 ms

Loss rate: 17.57%

-- Flow 1:

Average throughput: 14.64 Mbit/s

95th percentile per-packet one-way delay: 1067.816 ms

Loss rate: 10.98%

-- Flow 2:

Average throughput: 3.53 Mbit/s

95th percentile per-packet one-way delay: 1077.785 ms

Loss rate: 16.12%

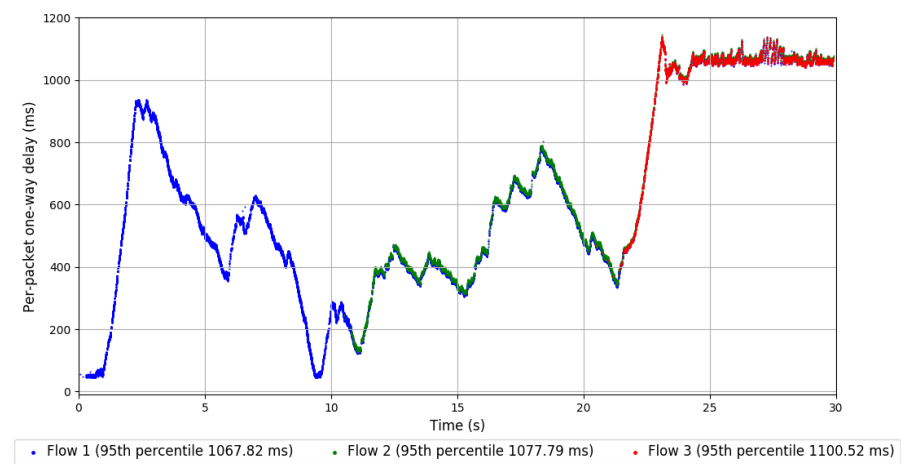
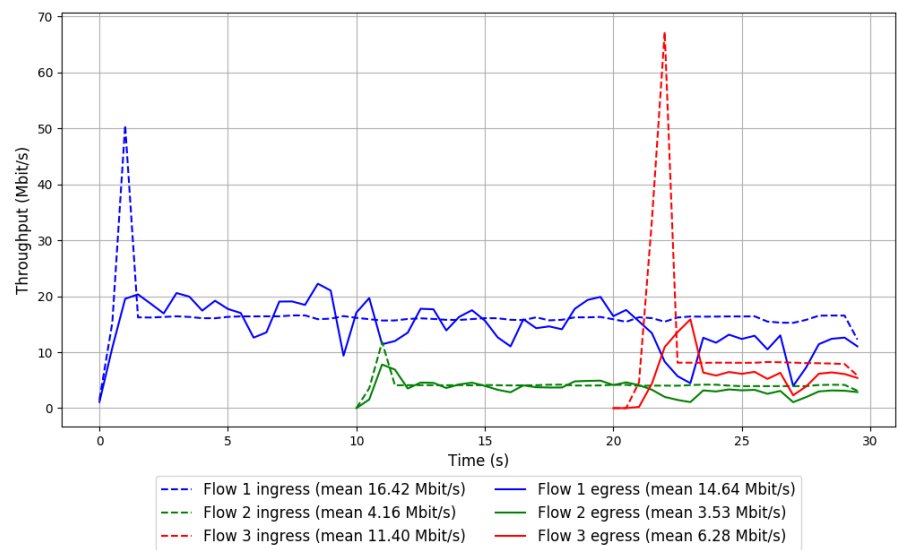
-- Flow 3:

Average throughput: 6.28 Mbit/s

95th percentile per-packet one-way delay: 1100.522 ms

Loss rate: 47.45%

Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

Start at: 2018-03-05 21:27:56

End at: 2018-03-05 21:28:26

Local clock offset: 2.191 ms

Remote clock offset: 5.59 ms

# Below is generated by plot.py at 2018-03-05 22:06:28

# Datalink statistics

-- Total of 3 flows:

Average throughput: 14.51 Mbit/s

95th percentile per-packet one-way delay: 294.358 ms

Loss rate: 2.25%

-- Flow 1:

Average throughput: 8.00 Mbit/s

95th percentile per-packet one-way delay: 266.778 ms

Loss rate: 1.68%

-- Flow 2:

Average throughput: 7.76 Mbit/s

95th percentile per-packet one-way delay: 300.324 ms

Loss rate: 2.40%

-- Flow 3:

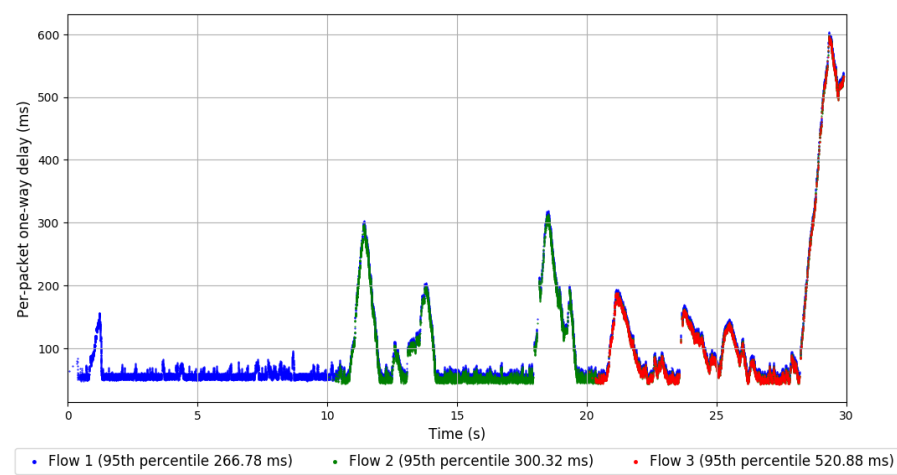
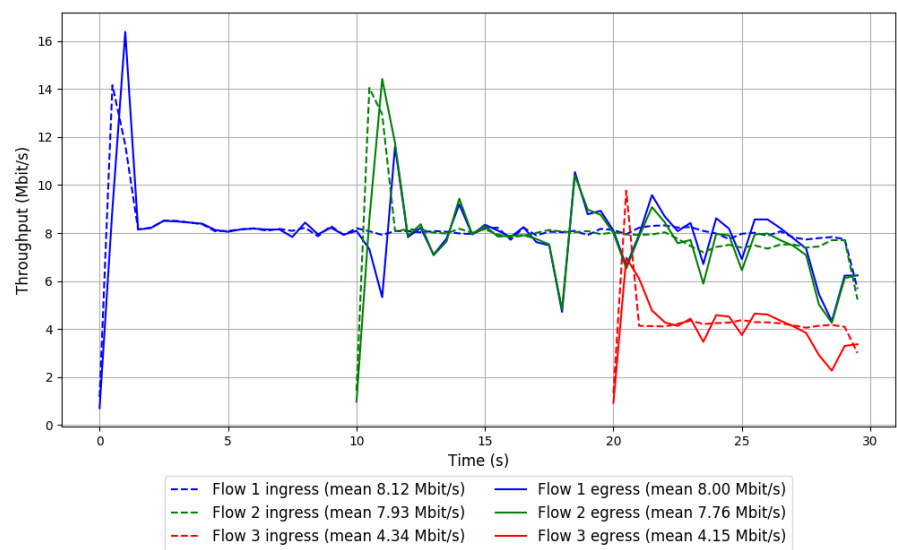
Average throughput: 4.15 Mbit/s

95th percentile per-packet one-way delay: 520.885 ms

Loss rate: 4.92%



Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2018-03-05 21:48:06

End at: 2018-03-05 21:48:36

Local clock offset: 1.771 ms

Remote clock offset: 1.633 ms

# Below is generated by plot.py at 2018-03-05 22:06:28

# Datalink statistics

-- Total of 3 flows:

Average throughput: 18.34 Mbit/s

95th percentile per-packet one-way delay: 862.058 ms

Loss rate: 0.68%

-- Flow 1:

Average throughput: 15.39 Mbit/s

95th percentile per-packet one-way delay: 873.438 ms

Loss rate: 0.74%

-- Flow 2:

Average throughput: 2.14 Mbit/s

95th percentile per-packet one-way delay: 751.417 ms

Loss rate: 0.29%

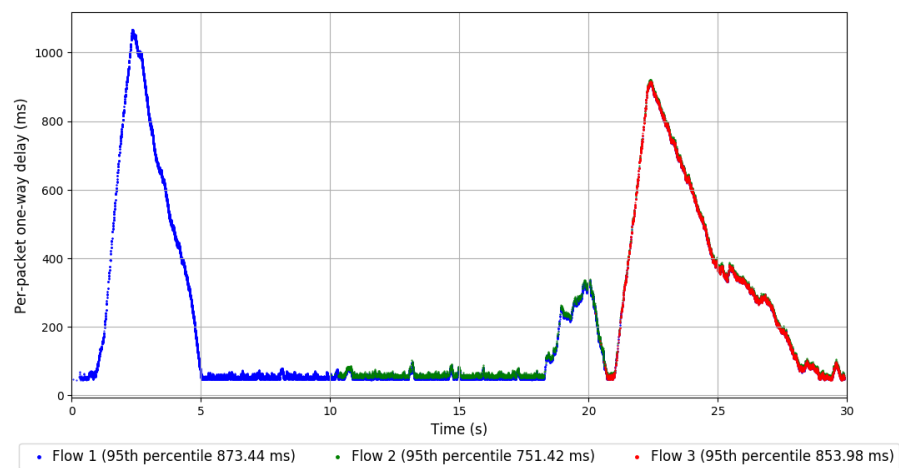
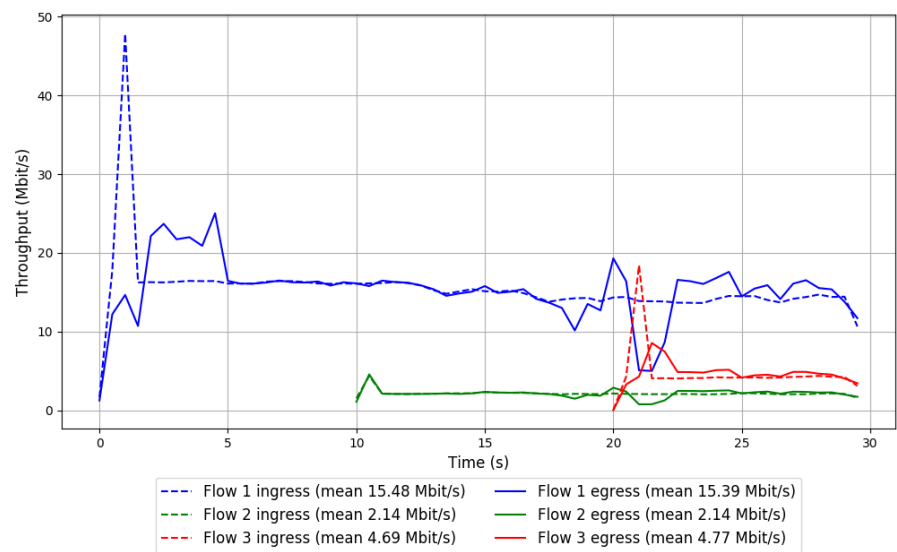
-- Flow 3:

Average throughput: 4.77 Mbit/s

95th percentile per-packet one-way delay: 853.975 ms

Loss rate: 0.43%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-03-05 21:11:11

End at: 2018-03-05 21:11:41

Local clock offset: 4.401 ms

Remote clock offset: 1.293 ms

# Below is generated by plot.py at 2018-03-05 22:06:28

# Datalink statistics

-- Total of 3 flows:

Average throughput: 14.56 Mbit/s

95th percentile per-packet one-way delay: 398.048 ms

Loss rate: 1.10%

-- Flow 1:

Average throughput: 9.38 Mbit/s

95th percentile per-packet one-way delay: 381.456 ms

Loss rate: 0.73%

-- Flow 2:

Average throughput: 6.34 Mbit/s

95th percentile per-packet one-way delay: 453.042 ms

Loss rate: 1.19%

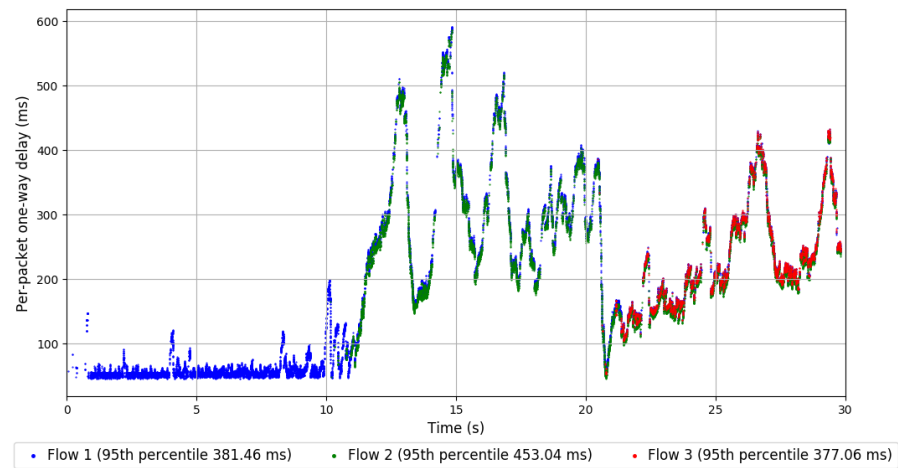
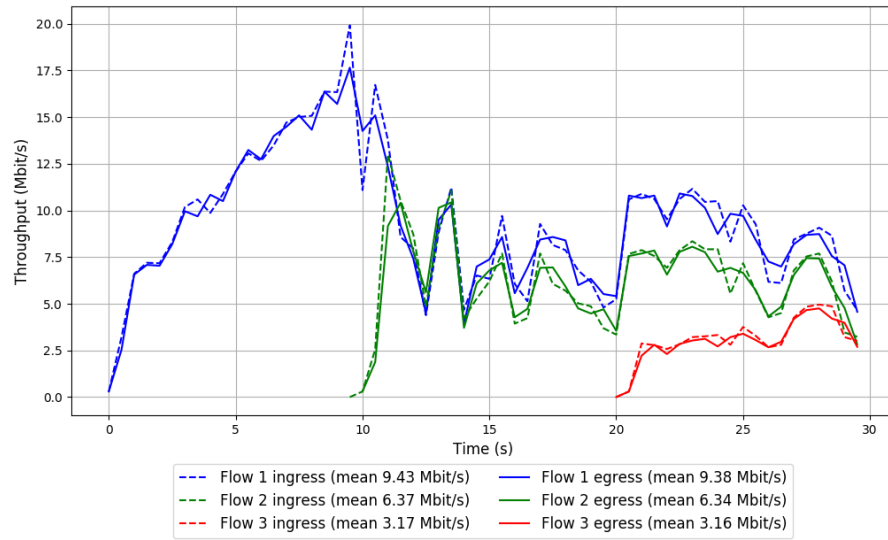
-- Flow 3:

Average throughput: 3.16 Mbit/s

95th percentile per-packet one-way delay: 377.057 ms

Loss rate: 4.04%

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



Run 2: Statistics of QUIC Cubic

Start at: 2018-03-05 21:31:19

End at: 2018-03-05 21:31:49

Local clock offset: 0.8 ms

Remote clock offset: 5.678 ms

# Below is generated by plot.py at 2018-03-05 22:06:31

# Datalink statistics

-- Total of 3 flows:

Average throughput: 20.93 Mbit/s

95th percentile per-packet one-way delay: 304.846 ms

Loss rate: 0.91%

-- Flow 1:

Average throughput: 16.49 Mbit/s

95th percentile per-packet one-way delay: 291.876 ms

Loss rate: 0.58%

-- Flow 2:

Average throughput: 5.38 Mbit/s

95th percentile per-packet one-way delay: 323.881 ms

Loss rate: 1.76%

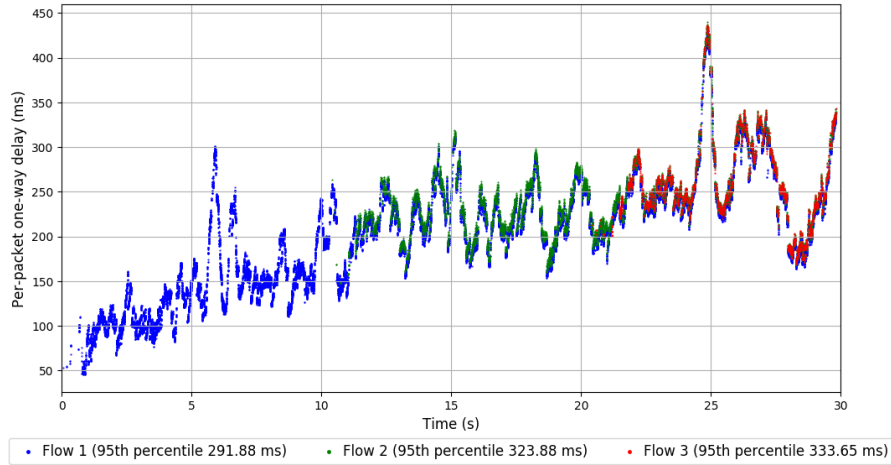
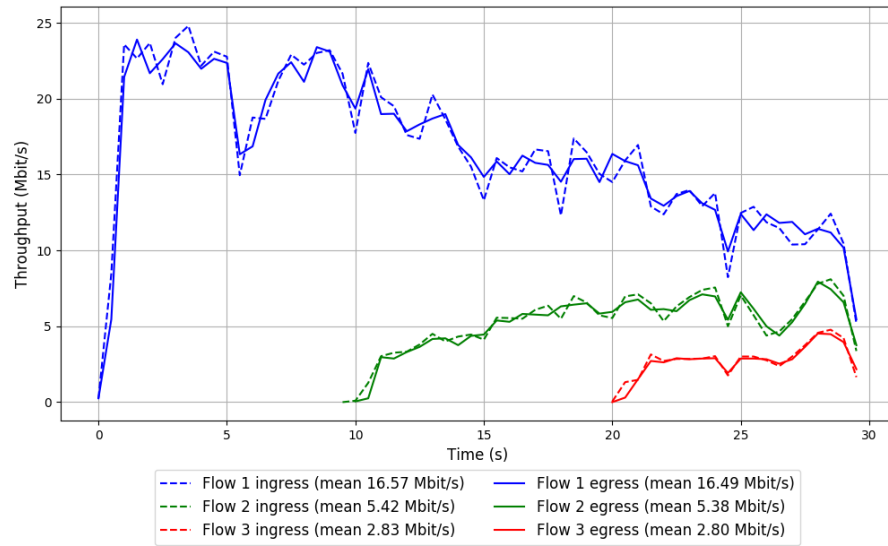
-- Flow 3:

Average throughput: 2.80 Mbit/s

95th percentile per-packet one-way delay: 333.655 ms

Loss rate: 3.48%

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



Run 3: Statistics of QUIC Cubic

Start at: 2018-03-05 21:51:27

End at: 2018-03-05 21:51:57

Local clock offset: 6.699 ms

Remote clock offset: 1.137 ms

# Below is generated by plot.py at 2018-03-05 22:06:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 20.68 Mbit/s

95th percentile per-packet one-way delay: 427.451 ms

Loss rate: 0.98%

-- Flow 1:

Average throughput: 15.44 Mbit/s

95th percentile per-packet one-way delay: 397.278 ms

Loss rate: 0.56%

-- Flow 2:

Average throughput: 6.96 Mbit/s

95th percentile per-packet one-way delay: 487.001 ms

Loss rate: 1.95%

-- Flow 3:

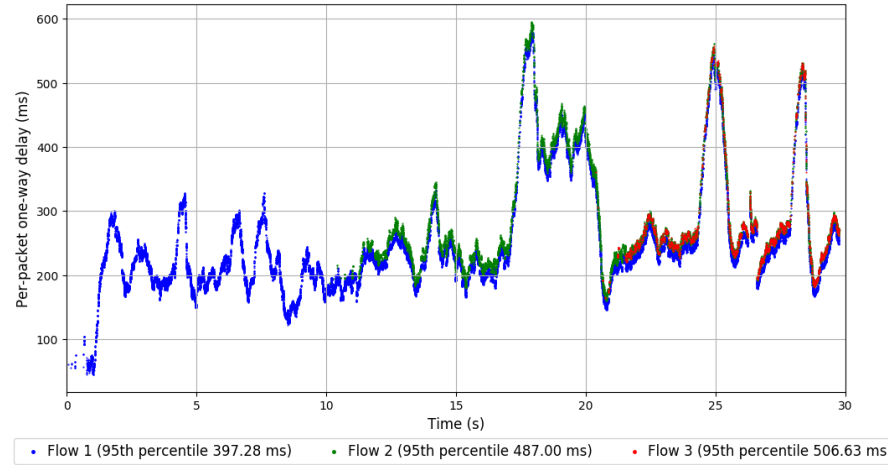
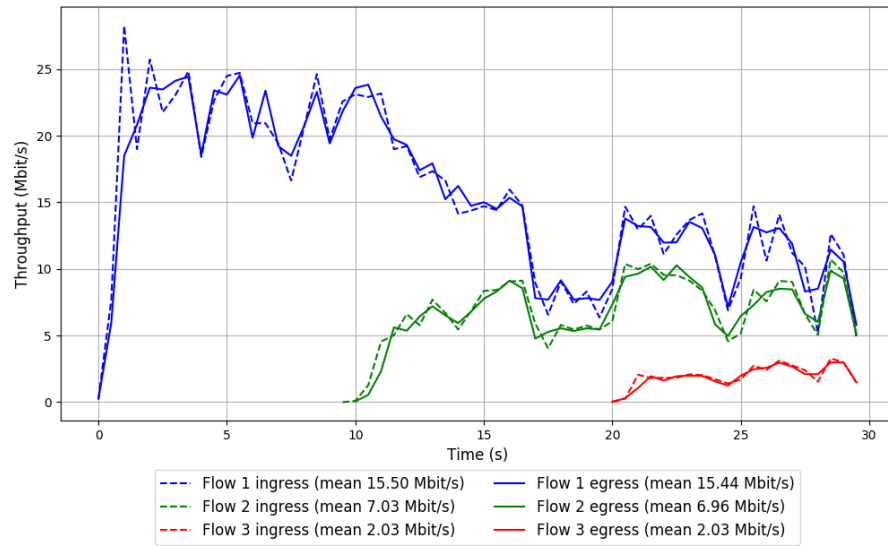
Average throughput: 2.03 Mbit/s

95th percentile per-packet one-way delay: 506.629 ms

Loss rate: 3.78%



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

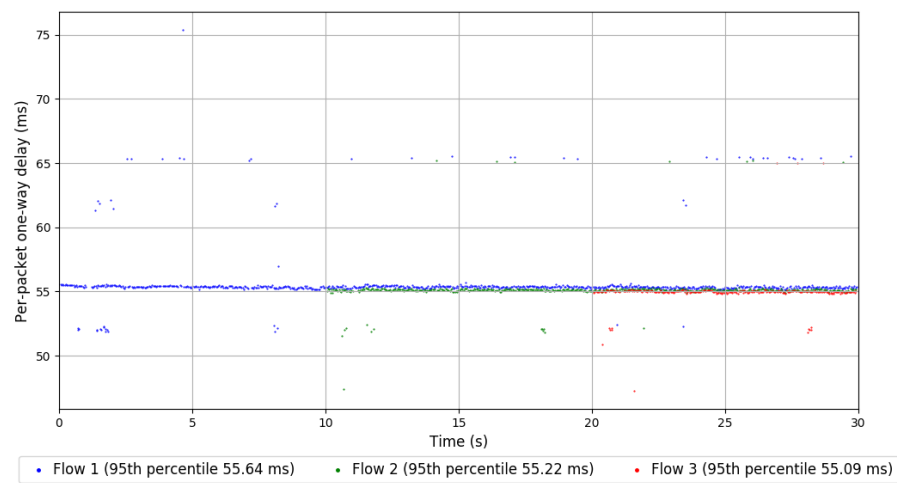
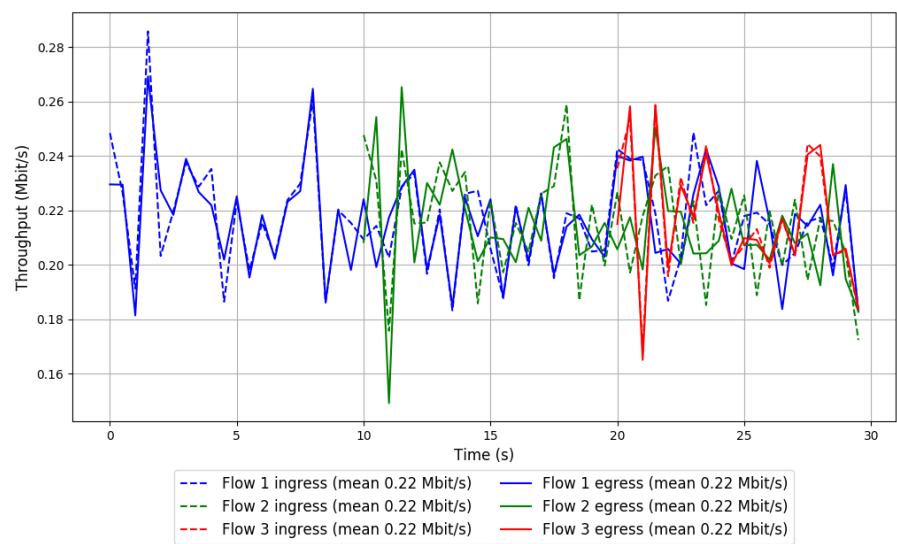


```
Run 1: Statistics of SReAM

Start at: 2018-03-05 21:04:28
End at: 2018-03-05 21:04:58
Local clock offset: 0.645 ms
Remote clock offset: -0.21 ms

# Below is generated by plot.py at 2018-03-05 22:06:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 55.503 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 55.644 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 55.218 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 55.087 ms
Loss rate: 0.35%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SReAM

Start at: 2018-03-05 21:24:33

End at: 2018-03-05 21:25:03

Local clock offset: 1.393 ms

Remote clock offset: 5.155 ms

# Below is generated by plot.py at 2018-03-05 22:06:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 53.894 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 53.857 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 53.993 ms

Loss rate: 0.19%

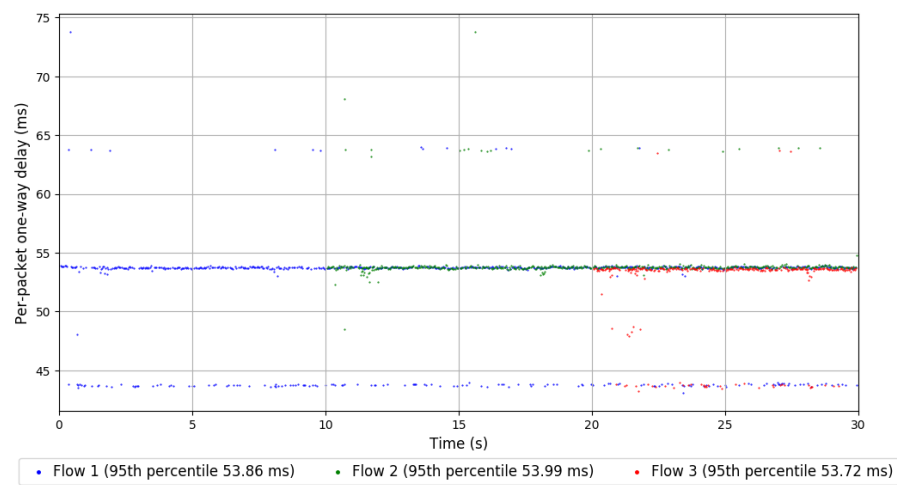
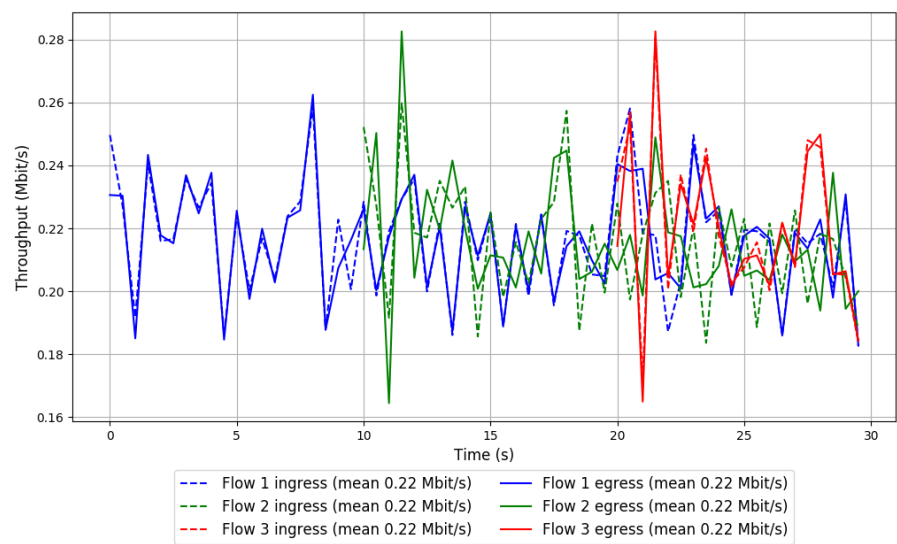
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 53.722 ms

Loss rate: 0.35%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SReAM

Start at: 2018-03-05 21:44:43

End at: 2018-03-05 21:45:13

Local clock offset: 3.031 ms

Remote clock offset: 1.107 ms

# Below is generated by plot.py at 2018-03-05 22:06:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 61.942 ms

Loss rate: 0.37%

-- Flow 1:

Average throughput: 0.19 Mbit/s

95th percentile per-packet one-way delay: 61.856 ms

Loss rate: 0.24%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 62.187 ms

Loss rate: 0.40%

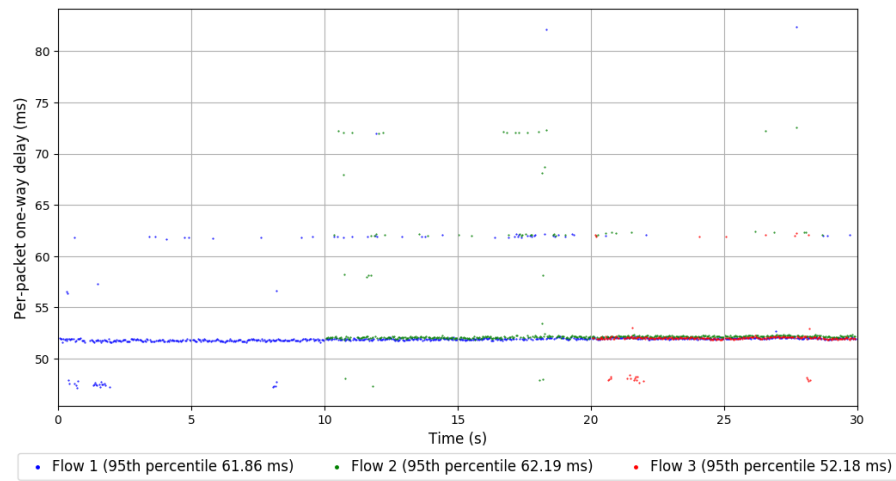
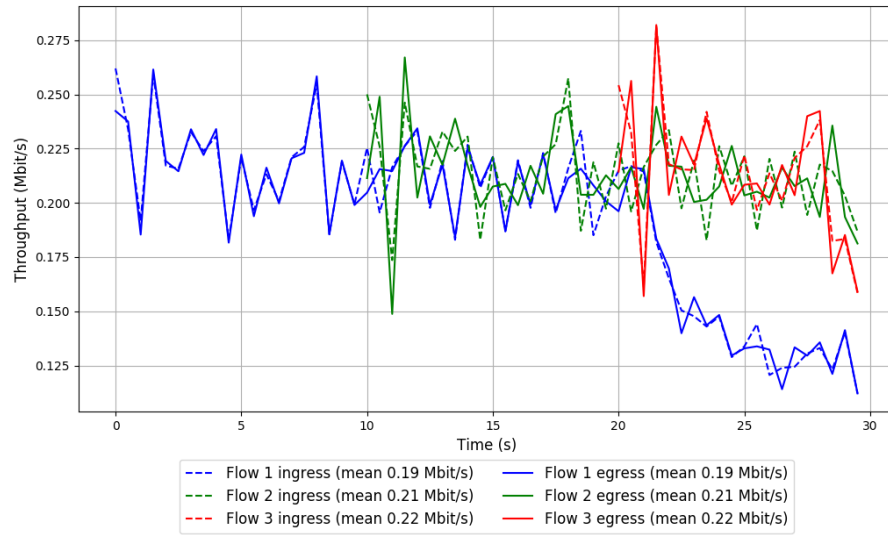
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 52.177 ms

Loss rate: 0.67%

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



Run 1: Statistics of WebRTC media

Start at: 2018-03-05 21:13:25

End at: 2018-03-05 21:13:55

Local clock offset: 3.818 ms

Remote clock offset: 2.393 ms

# Below is generated by plot.py at 2018-03-05 22:06:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.76 Mbit/s

95th percentile per-packet one-way delay: 191.281 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 2.15 Mbit/s

95th percentile per-packet one-way delay: 101.882 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.22 Mbit/s

95th percentile per-packet one-way delay: 172.054 ms

Loss rate: 0.00%

-- Flow 3:

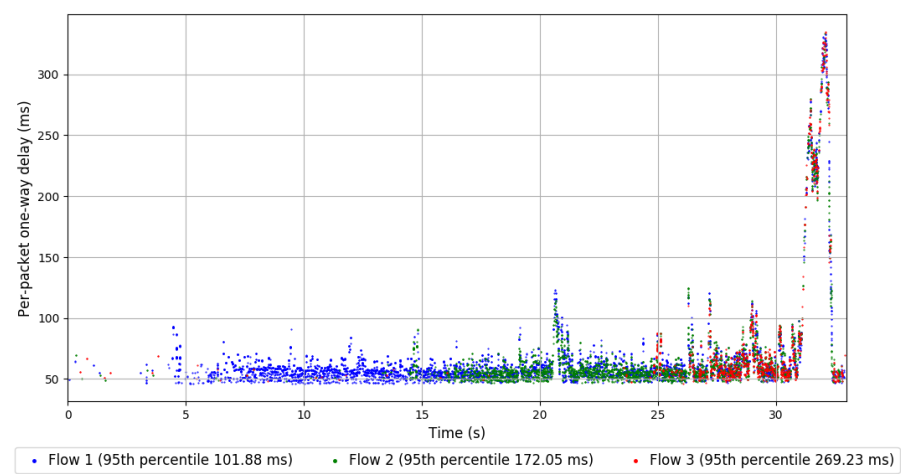
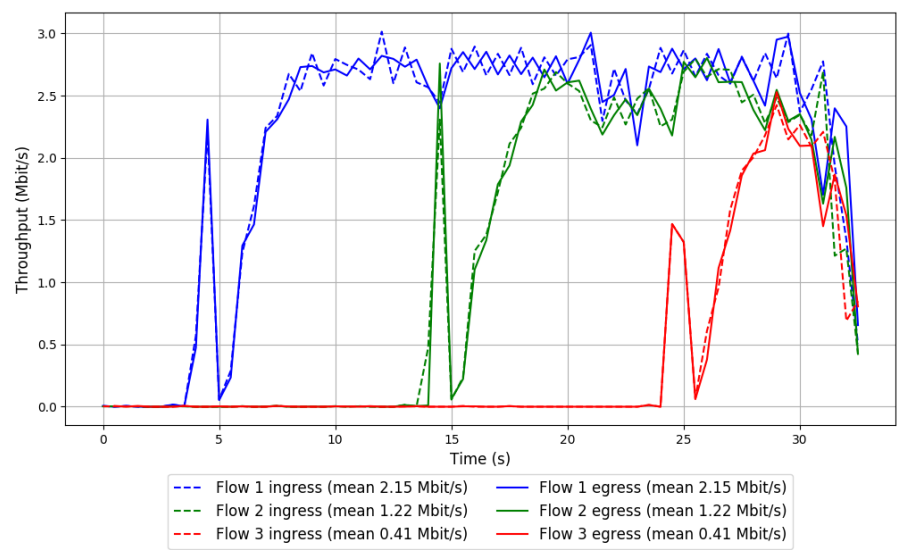
Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 269.234 ms

Loss rate: 0.92%



Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-03-05 21:33:36

End at: 2018-03-05 21:34:06

Local clock offset: 1.746 ms

Remote clock offset: 4.559 ms

# Below is generated by plot.py at 2018-03-05 22:06:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.96 Mbit/s

95th percentile per-packet one-way delay: 65.239 ms

Loss rate: 0.19%

-- Flow 1:

Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 63.981 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 68.220 ms

Loss rate: 0.28%

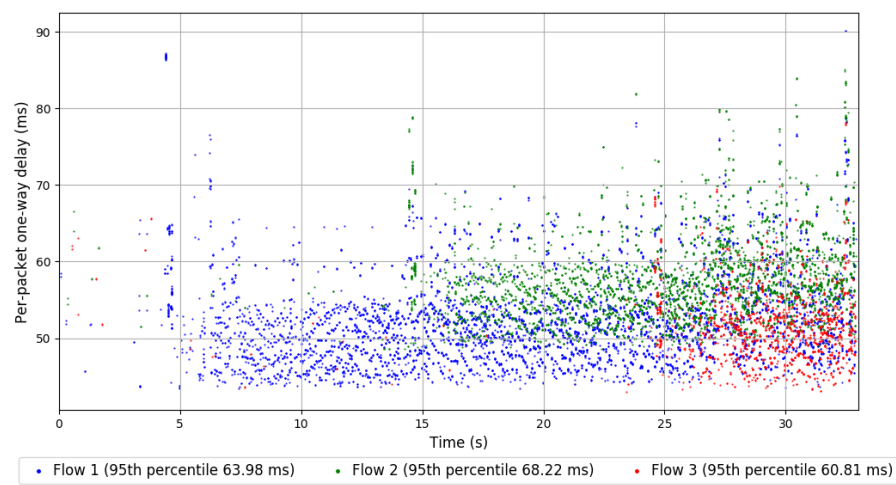
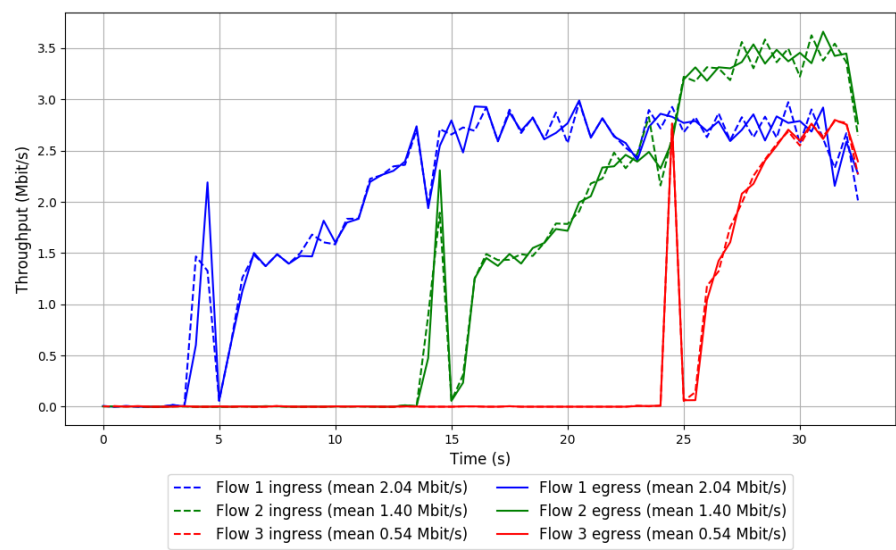
-- Flow 3:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 60.809 ms

Loss rate: 0.33%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-03-05 21:53:41

End at: 2018-03-05 21:54:11

Local clock offset: 5.123 ms

Remote clock offset: 1.494 ms

# Below is generated by plot.py at 2018-03-05 22:06:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.88 Mbit/s

95th percentile per-packet one-way delay: 64.800 ms

Loss rate: 0.19%

-- Flow 1:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 64.866 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 63.530 ms

Loss rate: 0.16%

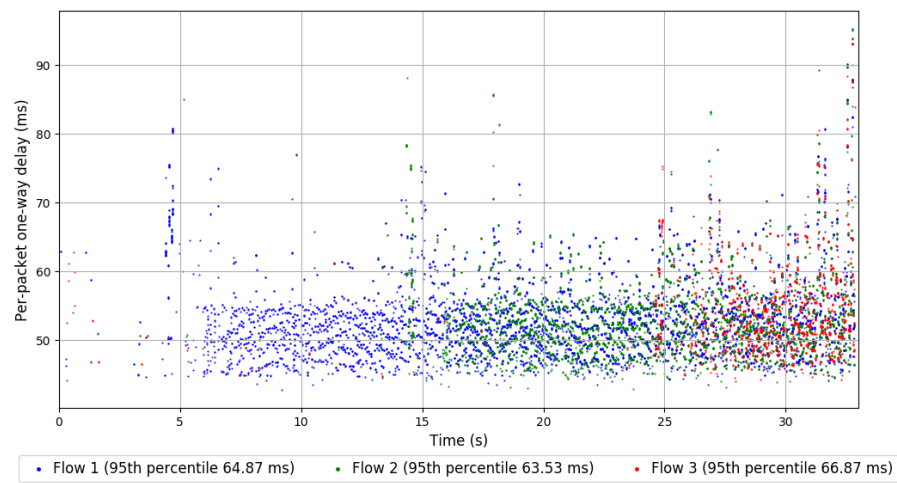
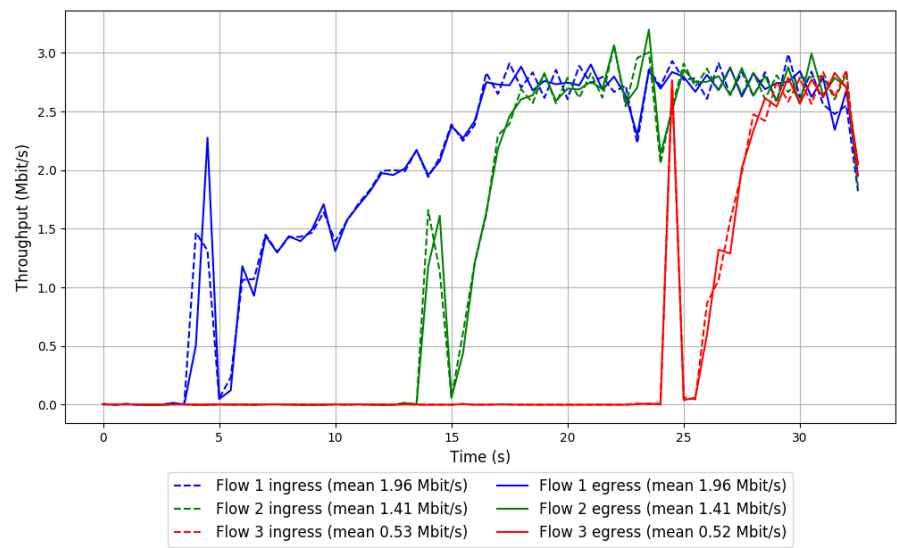
-- Flow 3:

Average throughput: 0.52 Mbit/s

95th percentile per-packet one-way delay: 66.869 ms

Loss rate: 0.74%

Run 3: Report of WebRTC media — Data Link



Run 1: Statistics of Sprout

Start at: 2018-03-05 21:17:51

End at: 2018-03-05 21:18:21

Local clock offset: 0.095 ms

Remote clock offset: 3.362 ms

# Below is generated by plot.py at 2018-03-05 22:06:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 5.10 Mbit/s

95th percentile per-packet one-way delay: 101.353 ms

Loss rate: 0.40%

-- Flow 1:

Average throughput: 2.65 Mbit/s

95th percentile per-packet one-way delay: 101.304 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 2.84 Mbit/s

95th percentile per-packet one-way delay: 93.883 ms

Loss rate: 1.04%

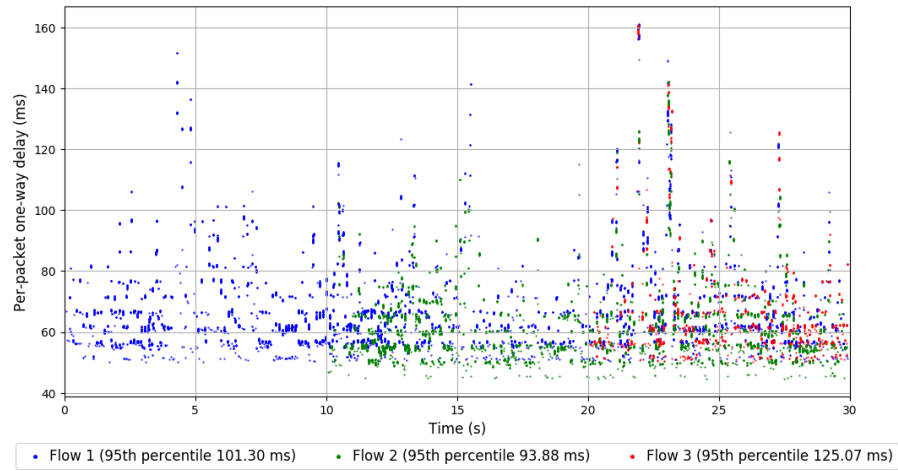
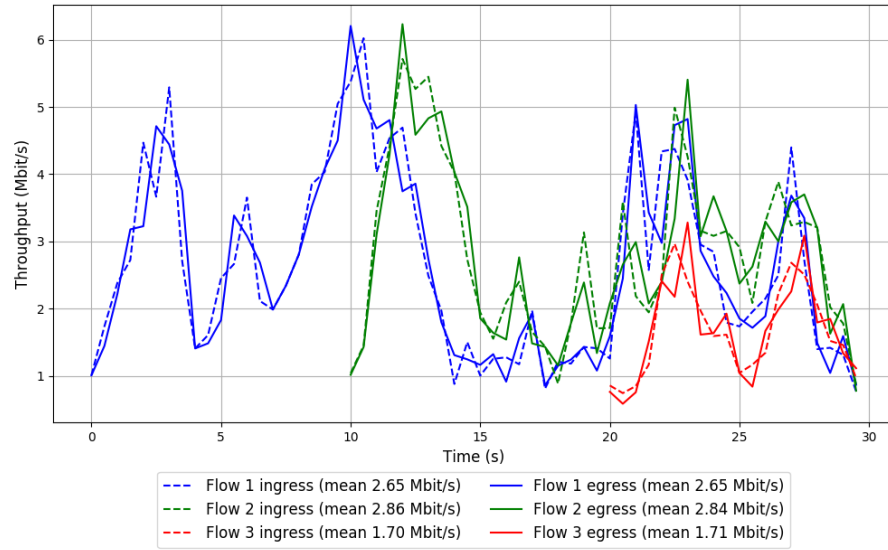
-- Flow 3:

Average throughput: 1.71 Mbit/s

95th percentile per-packet one-way delay: 125.072 ms

Loss rate: 0.00%

## Run 1: Report of Sprout — Data Link



## Run 2: Statistics of Sprout

Start at: 2018-03-05 21:38:02

End at: 2018-03-05 21:38:32

Local clock offset: 1.906 ms

Remote clock offset: 2.981 ms

# Below is generated by plot.py at 2018-03-05 22:06:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 4.97 Mbit/s

95th percentile per-packet one-way delay: 93.600 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 2.56 Mbit/s

95th percentile per-packet one-way delay: 95.975 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.74 Mbit/s

95th percentile per-packet one-way delay: 91.814 ms

Loss rate: 0.00%

-- Flow 3:

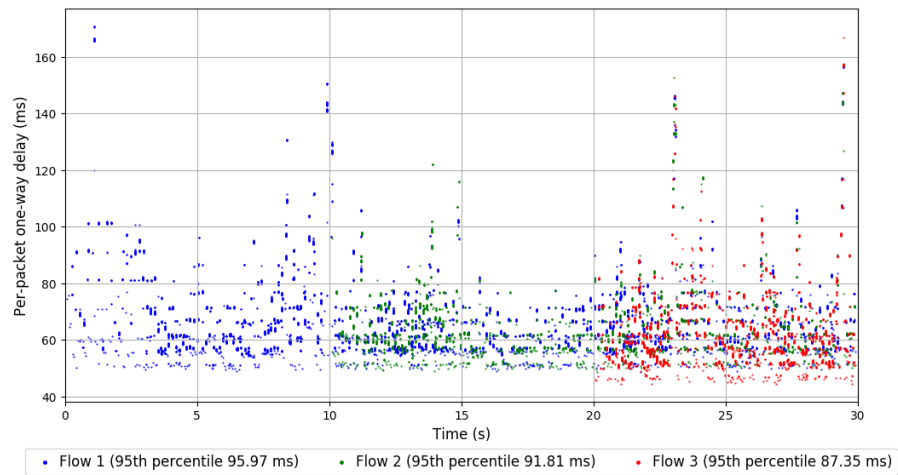
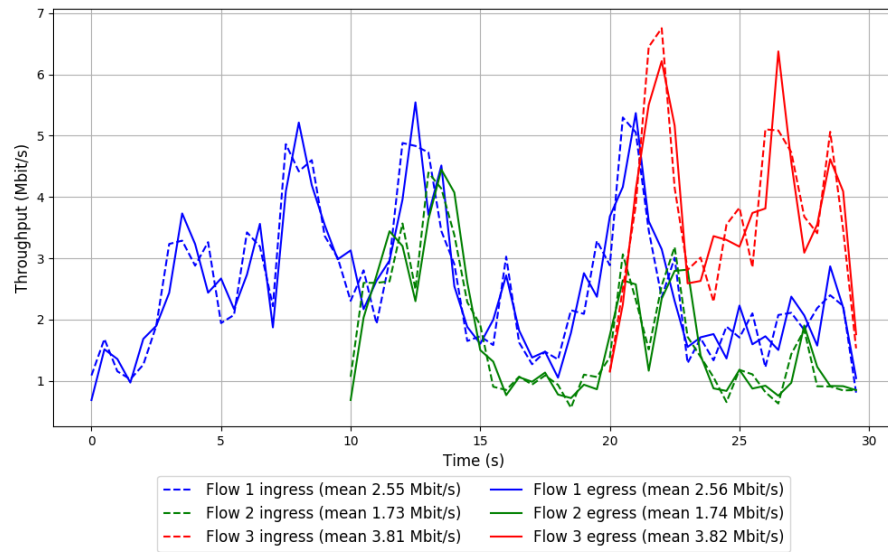
Average throughput: 3.82 Mbit/s

95th percentile per-packet one-way delay: 87.353 ms

Loss rate: 0.27%



## Run 2: Report of Sprout — Data Link



### Run 3: Statistics of Sprout

Start at: 2018-03-05 21:58:06

End at: 2018-03-05 21:58:36

Local clock offset: 3.313 ms

Remote clock offset: 1.453 ms

# Below is generated by plot.py at 2018-03-05 22:06:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 7.95 Mbit/s

95th percentile per-packet one-way delay: 88.127 ms

Loss rate: 0.43%

-- Flow 1:

Average throughput: 3.88 Mbit/s

95th percentile per-packet one-way delay: 93.657 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 4.92 Mbit/s

95th percentile per-packet one-way delay: 80.299 ms

Loss rate: 0.24%

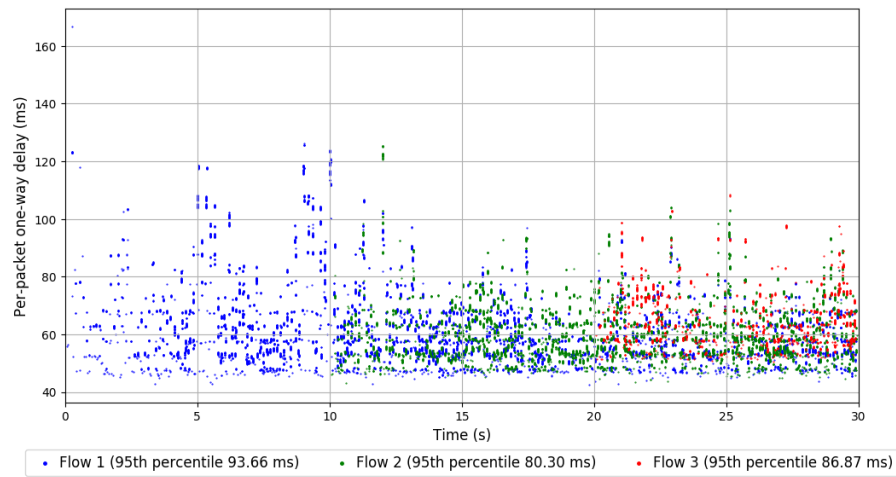
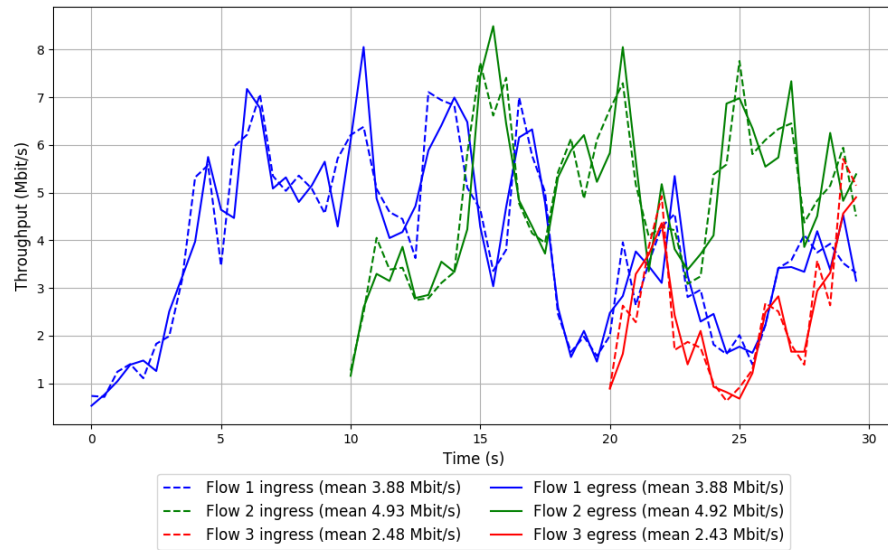
-- Flow 3:

Average throughput: 2.43 Mbit/s

95th percentile per-packet one-way delay: 86.867 ms

Loss rate: 2.84%

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

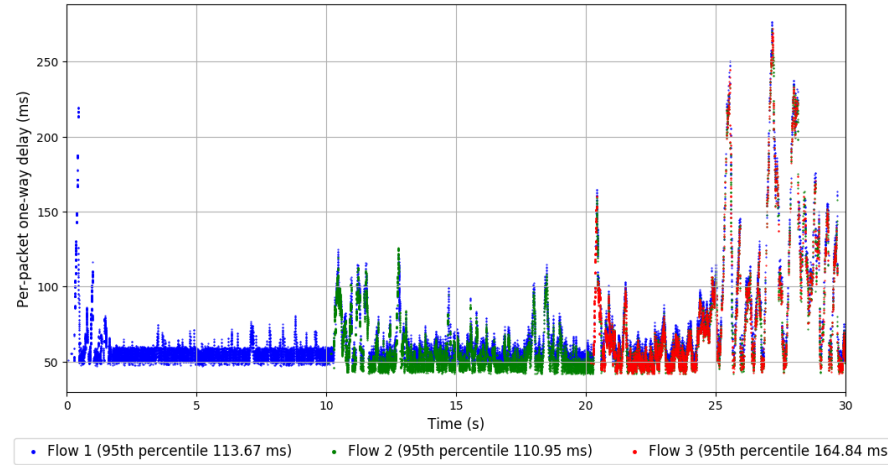
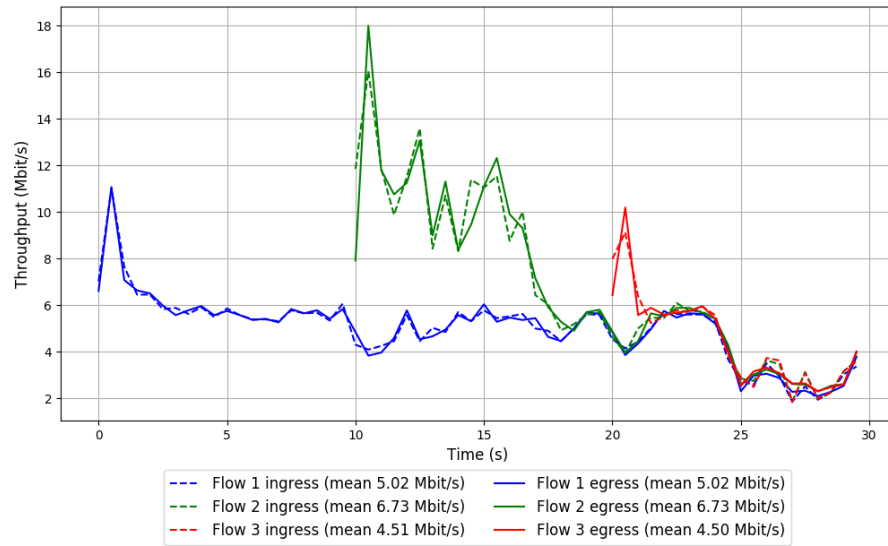


Run 1: Statistics of TaoVA-100x

Start at: 2018-03-05 21:05:34  
End at: 2018-03-05 21:06:04  
Local clock offset: 1.877 ms  
Remote clock offset: -1.099 ms

# Below is generated by plot.py at 2018-03-05 22:06:52  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.99 Mbit/s  
95th percentile per-packet one-way delay: 121.868 ms  
Loss rate: 0.22%  
-- Flow 1:  
Average throughput: 5.02 Mbit/s  
95th percentile per-packet one-way delay: 113.666 ms  
Loss rate: 0.16%  
-- Flow 2:  
Average throughput: 6.73 Mbit/s  
95th percentile per-packet one-way delay: 110.954 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 4.50 Mbit/s  
95th percentile per-packet one-way delay: 164.845 ms  
Loss rate: 0.52%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-03-05 21:25:39

End at: 2018-03-05 21:26:09

Local clock offset: 3.815 ms

Remote clock offset: 5.662 ms

# Below is generated by plot.py at 2018-03-05 22:06:52

# Datalink statistics

-- Total of 3 flows:

Average throughput: 10.29 Mbit/s

95th percentile per-packet one-way delay: 101.878 ms

Loss rate: 0.88%

-- Flow 1:

Average throughput: 4.78 Mbit/s

95th percentile per-packet one-way delay: 87.685 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 4.99 Mbit/s

95th percentile per-packet one-way delay: 94.825 ms

Loss rate: 1.85%

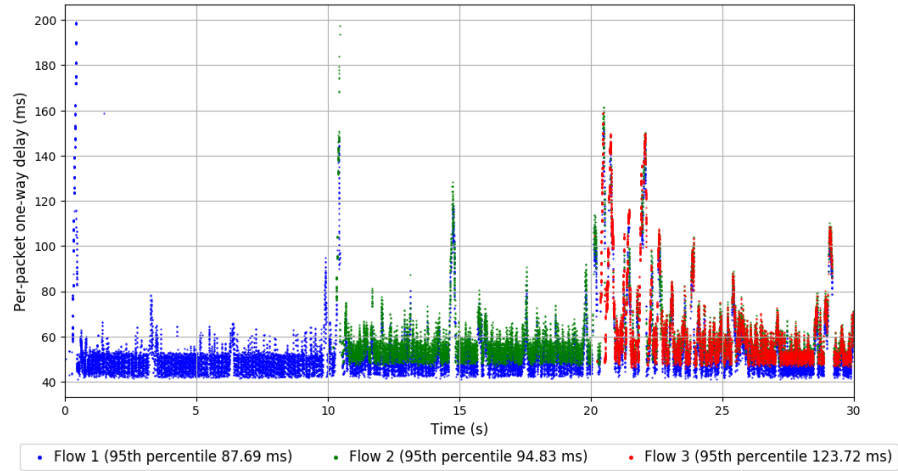
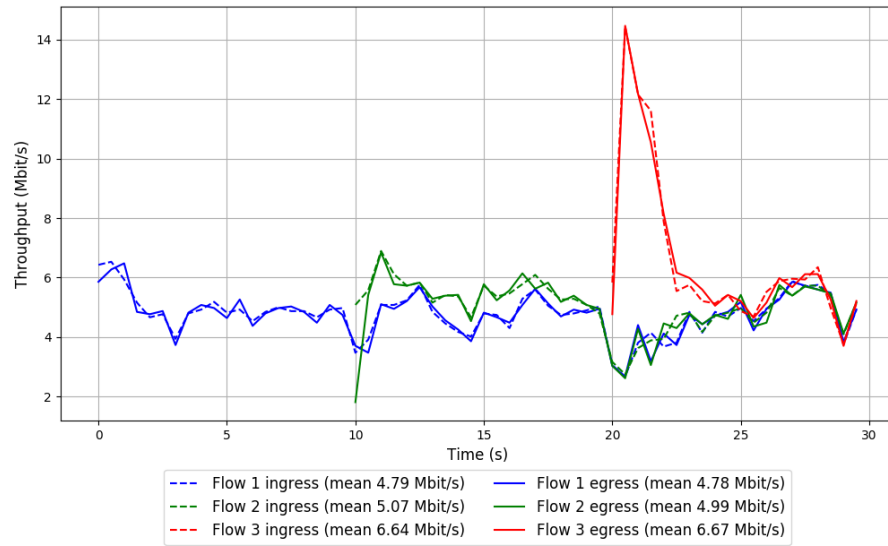
-- Flow 3:

Average throughput: 6.67 Mbit/s

95th percentile per-packet one-way delay: 123.719 ms

Loss rate: 0.49%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-03-05 21:45:49

End at: 2018-03-05 21:46:19

Local clock offset: 3.815 ms

Remote clock offset: 0.334 ms

# Below is generated by plot.py at 2018-03-05 22:06:52

# Datalink statistics

-- Total of 3 flows:

Average throughput: 10.51 Mbit/s

95th percentile per-packet one-way delay: 128.042 ms

Loss rate: 0.49%

-- Flow 1:

Average throughput: 5.19 Mbit/s

95th percentile per-packet one-way delay: 126.789 ms

Loss rate: 0.33%

-- Flow 2:

Average throughput: 4.89 Mbit/s

95th percentile per-packet one-way delay: 110.609 ms

Loss rate: 0.66%

-- Flow 3:

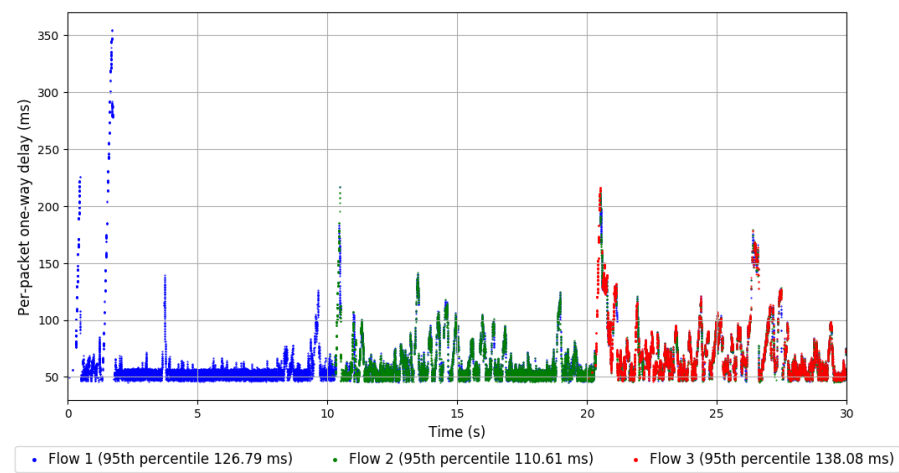
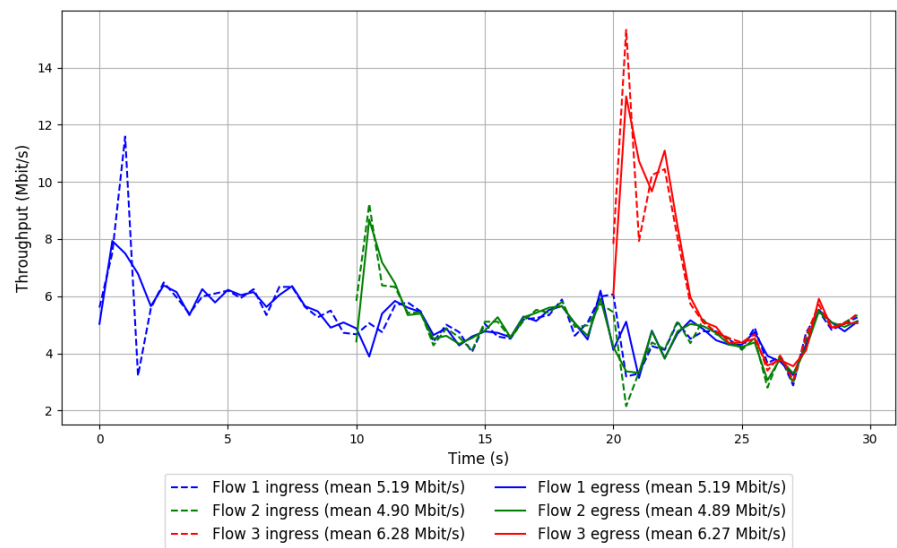
Average throughput: 6.27 Mbit/s

95th percentile per-packet one-way delay: 138.079 ms

Loss rate: 0.64%



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



Run 1: Statistics of TCP Vegas

Start at: 2018-03-05 21:15:38

End at: 2018-03-05 21:16:08

Local clock offset: 3.296 ms

Remote clock offset: 3.081 ms

# Below is generated by plot.py at 2018-03-05 22:06:52

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.80 Mbit/s

95th percentile per-packet one-way delay: 141.401 ms

Loss rate: 0.33%

-- Flow 1:

Average throughput: 6.34 Mbit/s

95th percentile per-packet one-way delay: 158.088 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 3.72 Mbit/s

95th percentile per-packet one-way delay: 167.065 ms

Loss rate: 0.32%

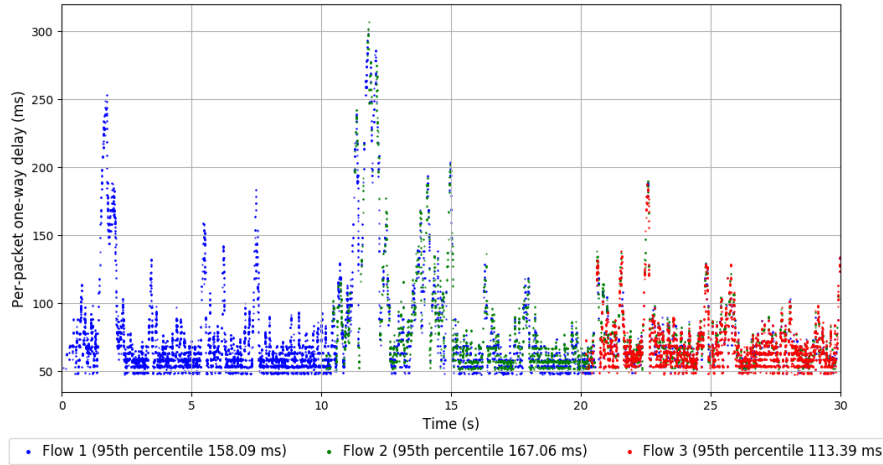
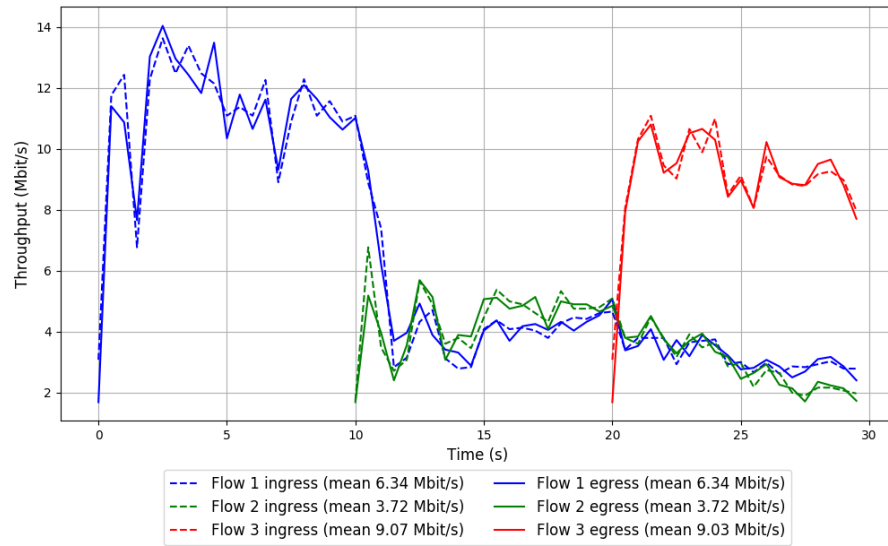
-- Flow 3:

Average throughput: 9.03 Mbit/s

95th percentile per-packet one-way delay: 113.390 ms

Loss rate: 0.64%

# Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-03-05 21:35:48

End at: 2018-03-05 21:36:18

Local clock offset: -0.155 ms

Remote clock offset: 4.191 ms

# Below is generated by plot.py at 2018-03-05 22:06:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 18.09 Mbit/s

95th percentile per-packet one-way delay: 158.917 ms

Loss rate: 0.23%

-- Flow 1:

Average throughput: 8.14 Mbit/s

95th percentile per-packet one-way delay: 150.576 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 12.36 Mbit/s

95th percentile per-packet one-way delay: 224.835 ms

Loss rate: 0.27%

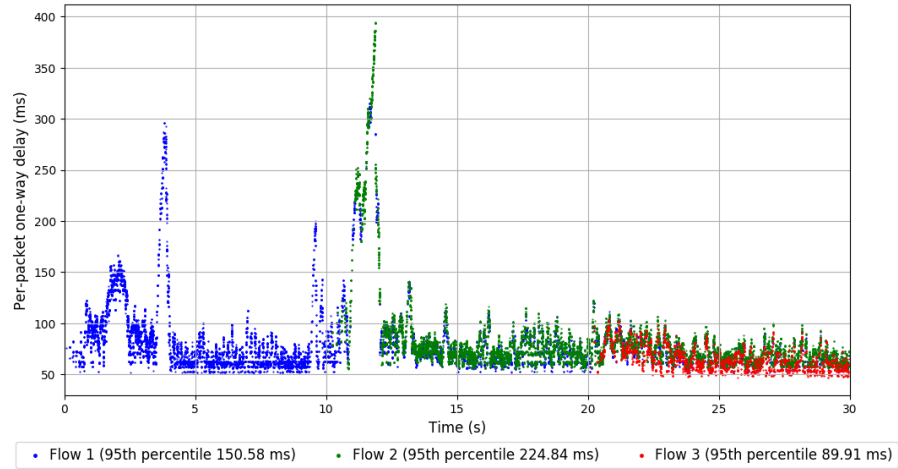
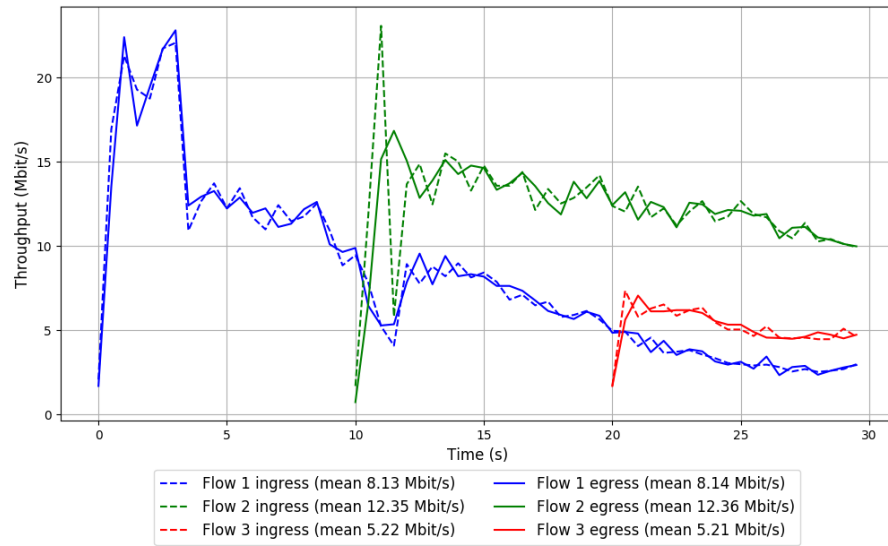
-- Flow 3:

Average throughput: 5.21 Mbit/s

95th percentile per-packet one-way delay: 89.914 ms

Loss rate: 0.58%

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



Run 3: Statistics of TCP Vegas

Start at: 2018-03-05 21:55:53

End at: 2018-03-05 21:56:23

Local clock offset: 3.763 ms

Remote clock offset: 0.662 ms

# Below is generated by plot.py at 2018-03-05 22:06:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 9.50 Mbit/s

95th percentile per-packet one-way delay: 121.083 ms

Loss rate: 0.16%

-- Flow 1:

Average throughput: 3.79 Mbit/s

95th percentile per-packet one-way delay: 116.568 ms

Loss rate: 0.21%

-- Flow 2:

Average throughput: 5.81 Mbit/s

95th percentile per-packet one-way delay: 136.824 ms

Loss rate: 0.11%

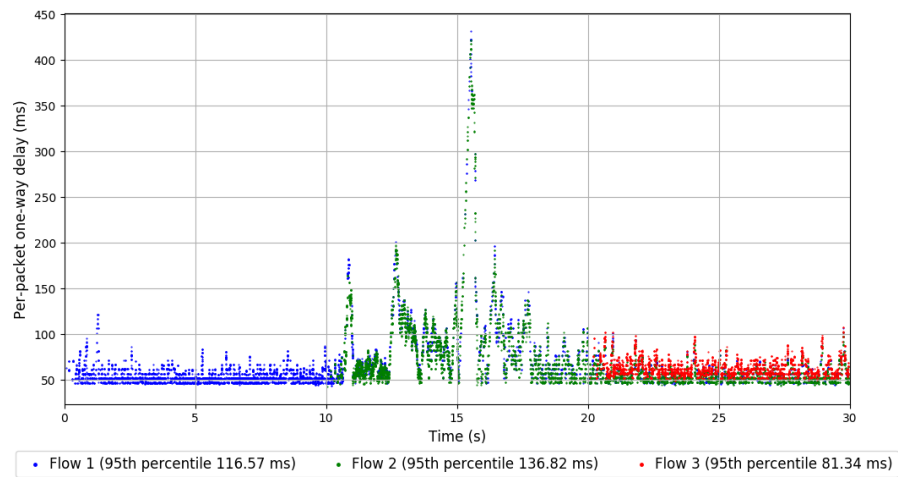
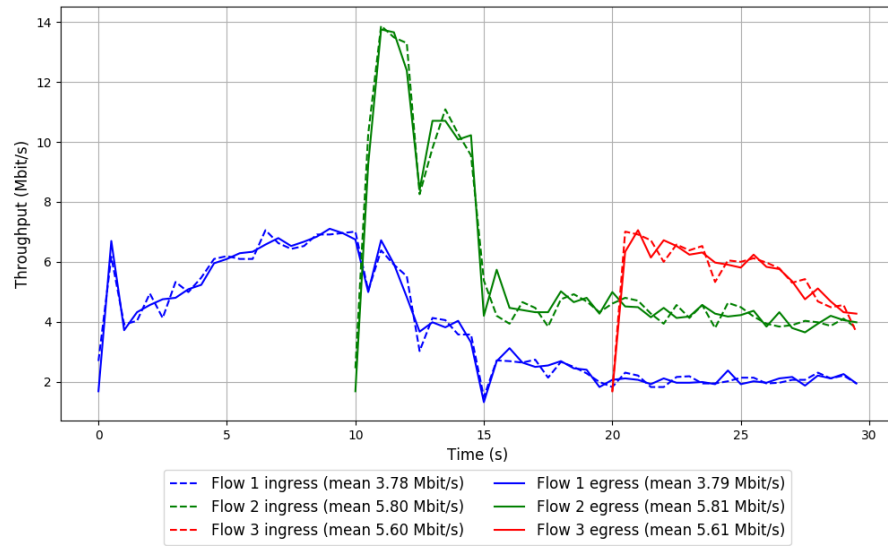
-- Flow 3:

Average throughput: 5.61 Mbit/s

95th percentile per-packet one-way delay: 81.337 ms

Loss rate: 0.13%

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



Run 1: Statistics of Verus

Start at: 2018-03-05 21:23:25

End at: 2018-03-05 21:23:55

Local clock offset: 0.783 ms

Remote clock offset: 4.107 ms

# Below is generated by plot.py at 2018-03-05 22:06:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 17.71 Mbit/s

95th percentile per-packet one-way delay: 804.622 ms

Loss rate: 4.63%

-- Flow 1:

Average throughput: 12.68 Mbit/s

95th percentile per-packet one-way delay: 791.125 ms

Loss rate: 3.25%

-- Flow 2:

Average throughput: 3.98 Mbit/s

95th percentile per-packet one-way delay: 750.401 ms

Loss rate: 9.90%

-- Flow 3:

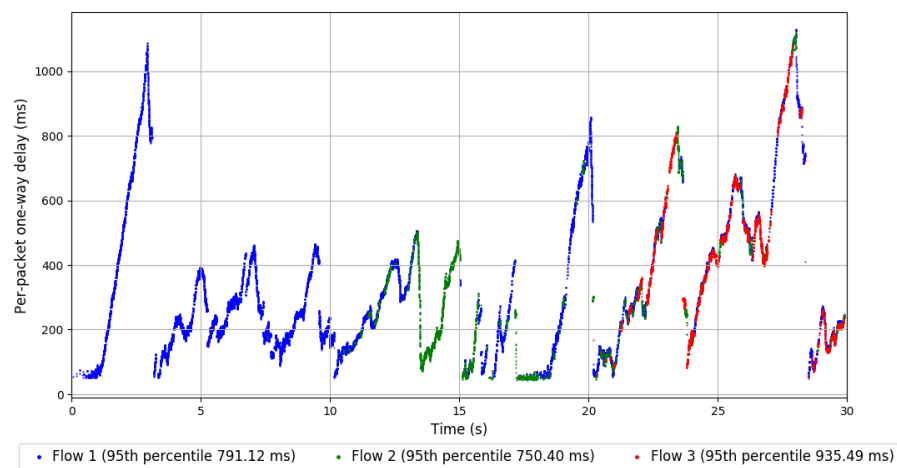
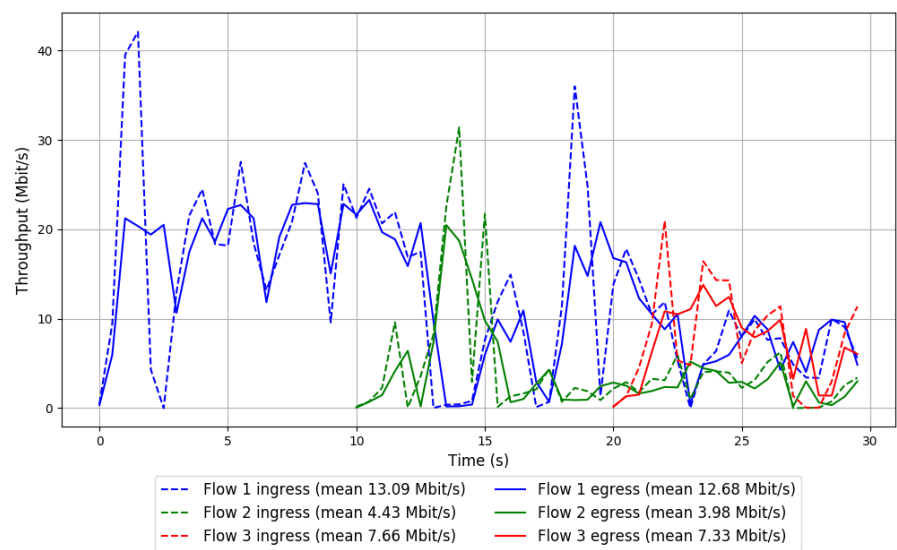
Average throughput: 7.33 Mbit/s

95th percentile per-packet one-way delay: 935.494 ms

Loss rate: 5.74%



Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-03-05 21:43:35

End at: 2018-03-05 21:44:05

Local clock offset: 0.83 ms

Remote clock offset: 1.933 ms

# Below is generated by plot.py at 2018-03-05 22:06:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 16.52 Mbit/s

95th percentile per-packet one-way delay: 706.406 ms

Loss rate: 2.33%

-- Flow 1:

Average throughput: 12.02 Mbit/s

95th percentile per-packet one-way delay: 624.404 ms

Loss rate: 1.85%

-- Flow 2:

Average throughput: 3.64 Mbit/s

95th percentile per-packet one-way delay: 733.549 ms

Loss rate: 2.59%

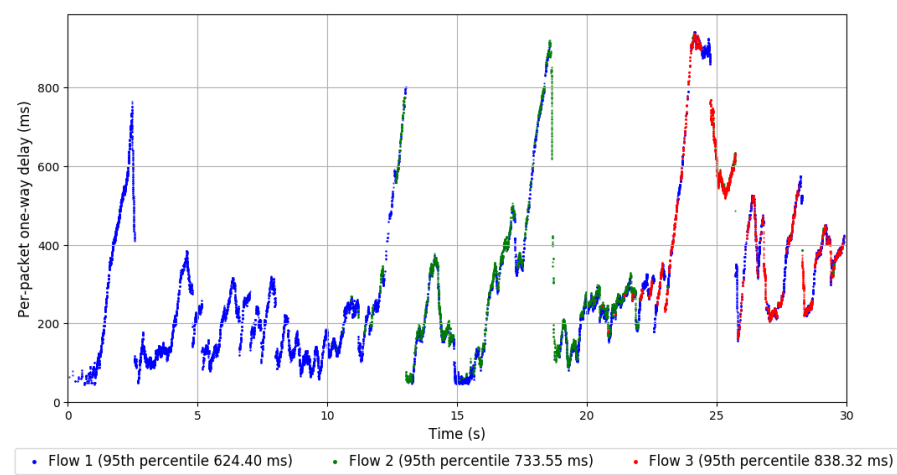
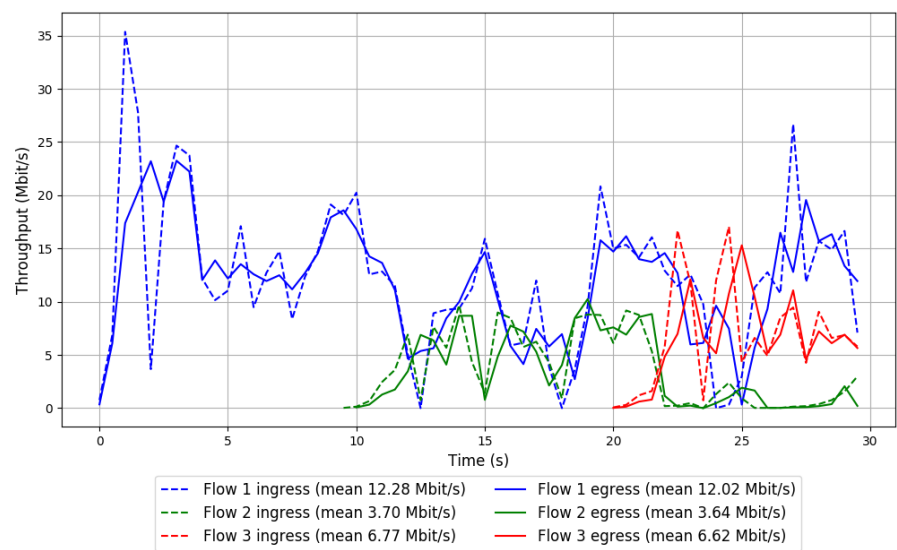
-- Flow 3:

Average throughput: 6.62 Mbit/s

95th percentile per-packet one-way delay: 838.320 ms

Loss rate: 4.66%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-03-05 22:03:40

End at: 2018-03-05 22:04:10

Local clock offset: 5.275 ms

Remote clock offset: 1.665 ms

# Below is generated by plot.py at 2018-03-05 22:07:05

# Datalink statistics

-- Total of 3 flows:

Average throughput: 20.26 Mbit/s

95th percentile per-packet one-way delay: 710.796 ms

Loss rate: 1.65%

-- Flow 1:

Average throughput: 14.94 Mbit/s

95th percentile per-packet one-way delay: 690.341 ms

Loss rate: 1.61%

-- Flow 2:

Average throughput: 6.12 Mbit/s

95th percentile per-packet one-way delay: 709.370 ms

Loss rate: 0.22%

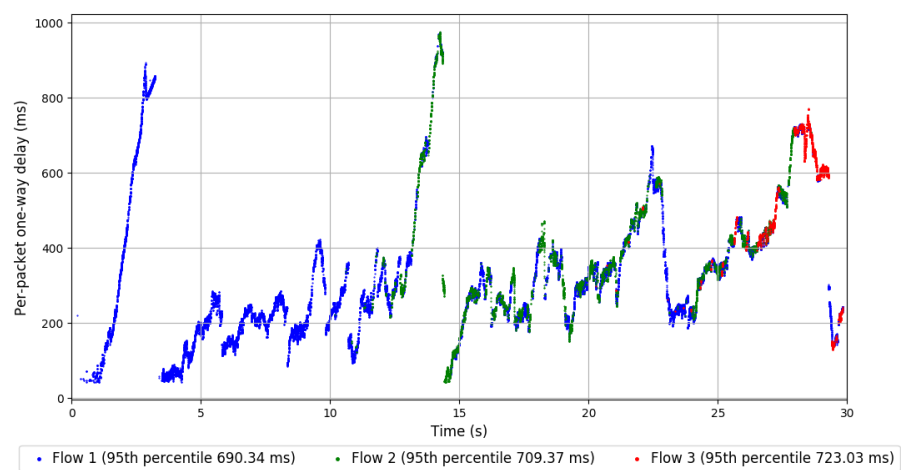
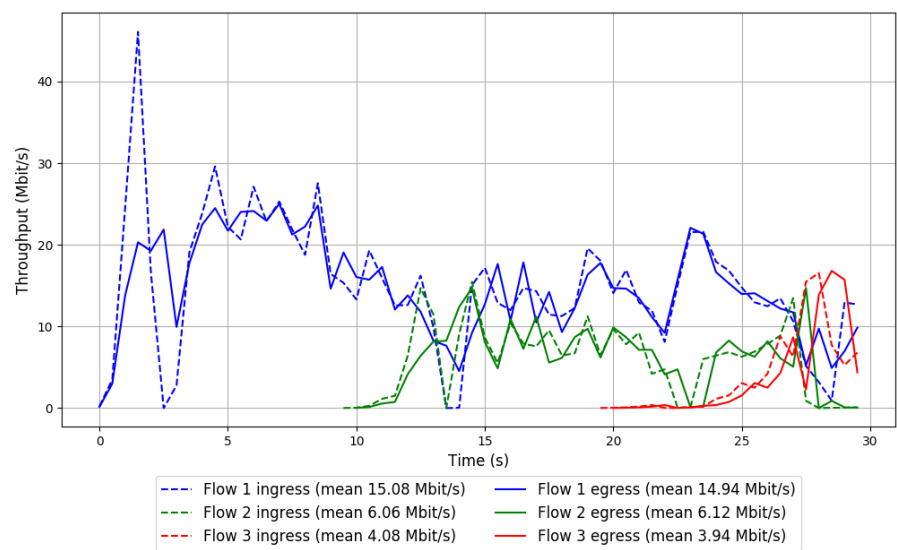
-- Flow 3:

Average throughput: 3.94 Mbit/s

95th percentile per-packet one-way delay: 723.031 ms

Loss rate: 6.37%

Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

Start at: 2018-03-05 21:16:44

End at: 2018-03-05 21:17:14

Local clock offset: 0.635 ms

Remote clock offset: 3.262 ms

# Below is generated by plot.py at 2018-03-05 22:07:05

# Datalink statistics

-- Total of 3 flows:

Average throughput: 8.03 Mbit/s

95th percentile per-packet one-way delay: 79.047 ms

Loss rate: 0.44%

-- Flow 1:

Average throughput: 5.28 Mbit/s

95th percentile per-packet one-way delay: 80.335 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 2.89 Mbit/s

95th percentile per-packet one-way delay: 76.322 ms

Loss rate: 0.58%

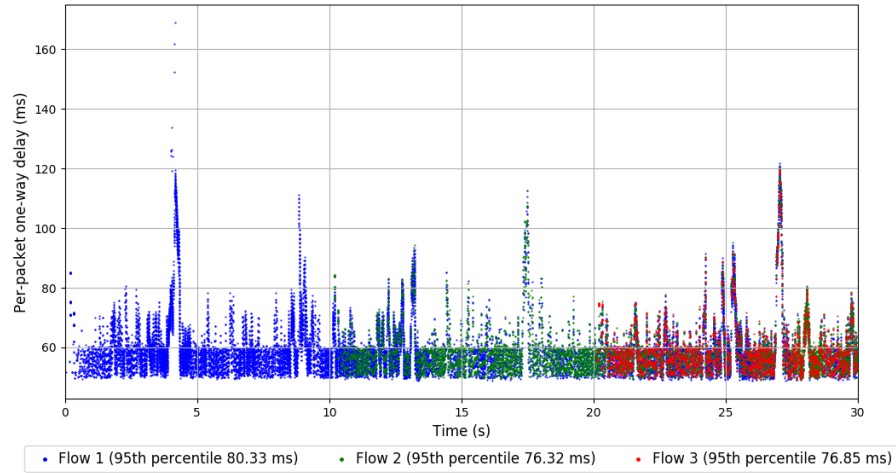
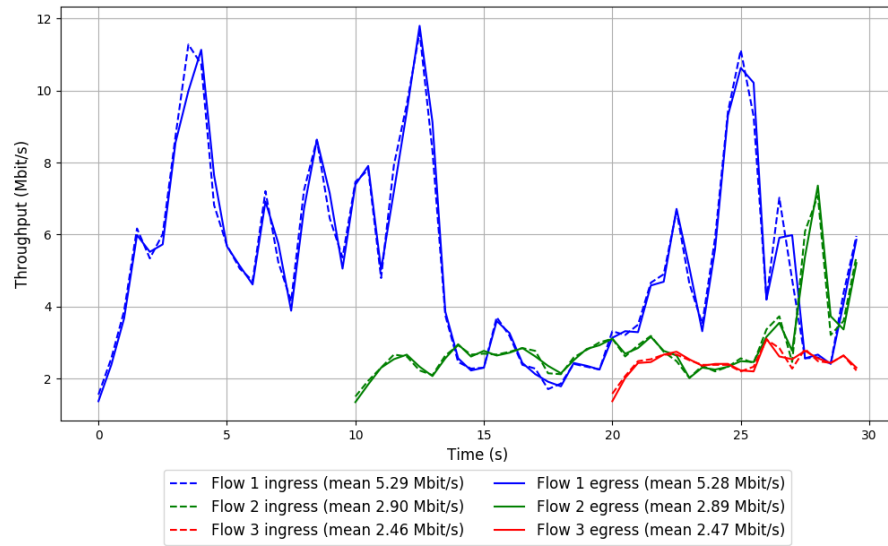
-- Flow 3:

Average throughput: 2.47 Mbit/s

95th percentile per-packet one-way delay: 76.854 ms

Loss rate: 0.42%

## Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-03-05 21:36:55

End at: 2018-03-05 21:37:25

Local clock offset: 0.475 ms

Remote clock offset: 4.483 ms

# Below is generated by plot.py at 2018-03-05 22:07:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.43 Mbit/s

95th percentile per-packet one-way delay: 95.400 ms

Loss rate: 0.14%

-- Flow 1:

Average throughput: 7.87 Mbit/s

95th percentile per-packet one-way delay: 93.816 ms

Loss rate: 0.11%

-- Flow 2:

Average throughput: 3.07 Mbit/s

95th percentile per-packet one-way delay: 88.670 ms

Loss rate: 0.21%

-- Flow 3:

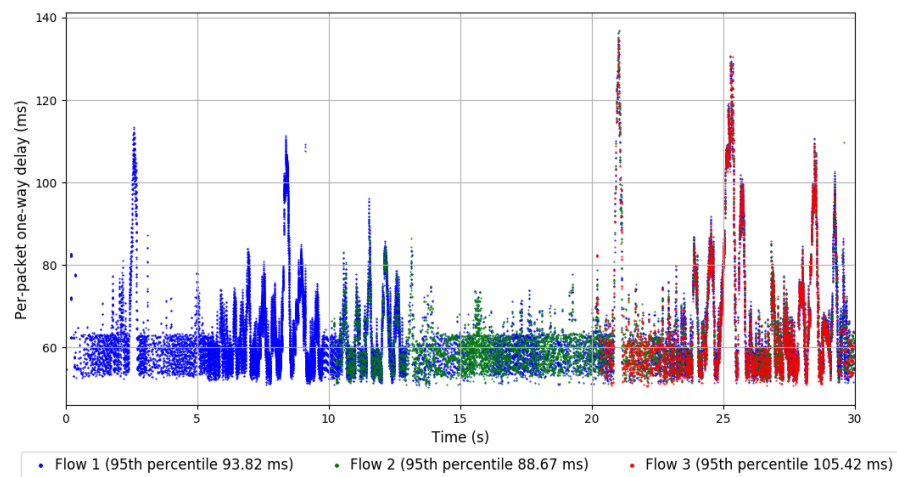
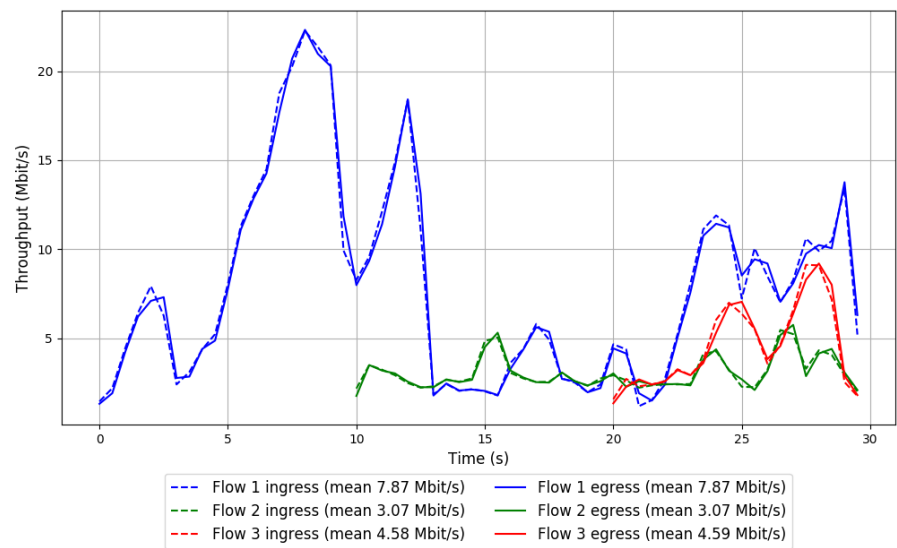
Average throughput: 4.59 Mbit/s

95th percentile per-packet one-way delay: 105.422 ms

Loss rate: 0.20%



Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-03-05 21:56:59

End at: 2018-03-05 21:57:29

Local clock offset: 3.94 ms

Remote clock offset: 1.374 ms

# Below is generated by plot.py at 2018-03-05 22:07:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.11 Mbit/s

95th percentile per-packet one-way delay: 124.180 ms

Loss rate: 0.85%

-- Flow 1:

Average throughput: 7.69 Mbit/s

95th percentile per-packet one-way delay: 132.498 ms

Loss rate: 0.81%

-- Flow 2:

Average throughput: 3.78 Mbit/s

95th percentile per-packet one-way delay: 121.434 ms

Loss rate: 1.07%

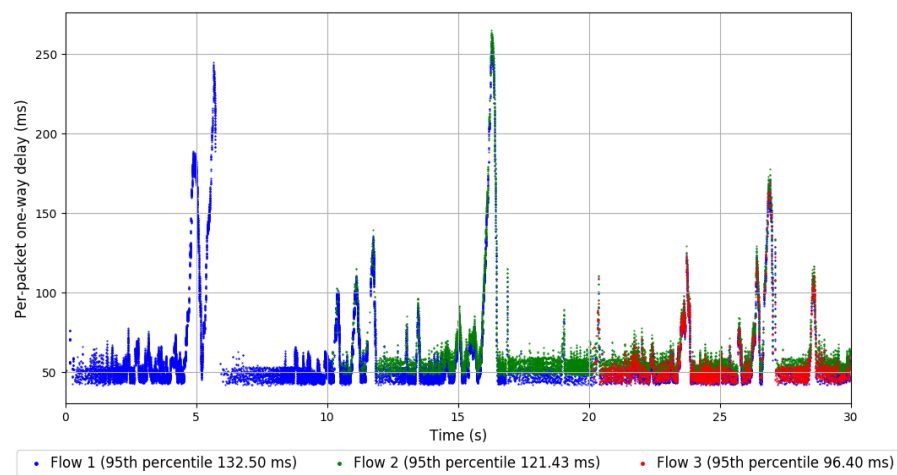
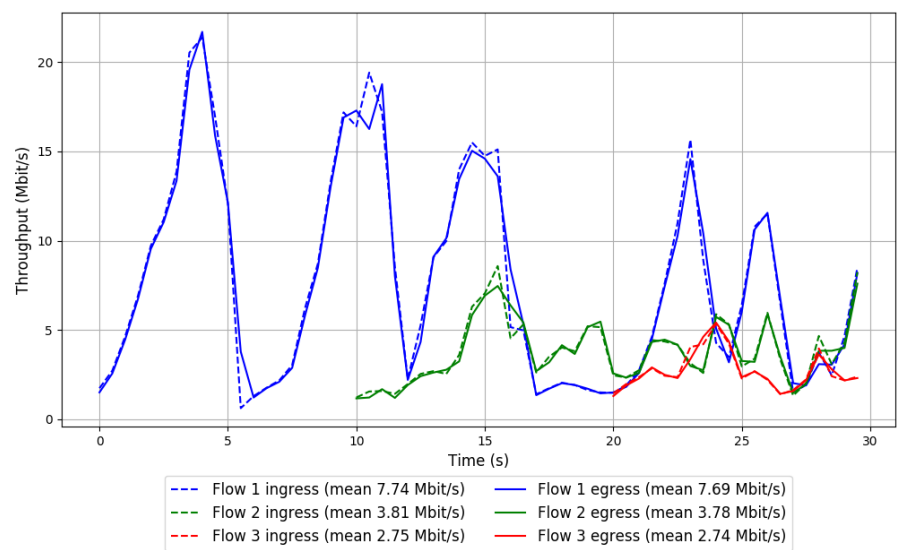
-- Flow 3:

Average throughput: 2.74 Mbit/s

95th percentile per-packet one-way delay: 96.402 ms

Loss rate: 0.57%

Run 3: Report of Copa — Data Link



Run 1: Statistics of FillP

Start at: 2018-03-05 21:06:41

End at: 2018-03-05 21:07:11

Local clock offset: 2.946 ms

Remote clock offset: 0.105 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 16.85 Mbit/s

95th percentile per-packet one-way delay: 1427.897 ms

Loss rate: 89.96%

-- Flow 1:

Average throughput: 12.11 Mbit/s

95th percentile per-packet one-way delay: 1500.092 ms

Loss rate: 77.85%

-- Flow 2:

Average throughput: 5.48 Mbit/s

95th percentile per-packet one-way delay: 1199.396 ms

Loss rate: 94.50%

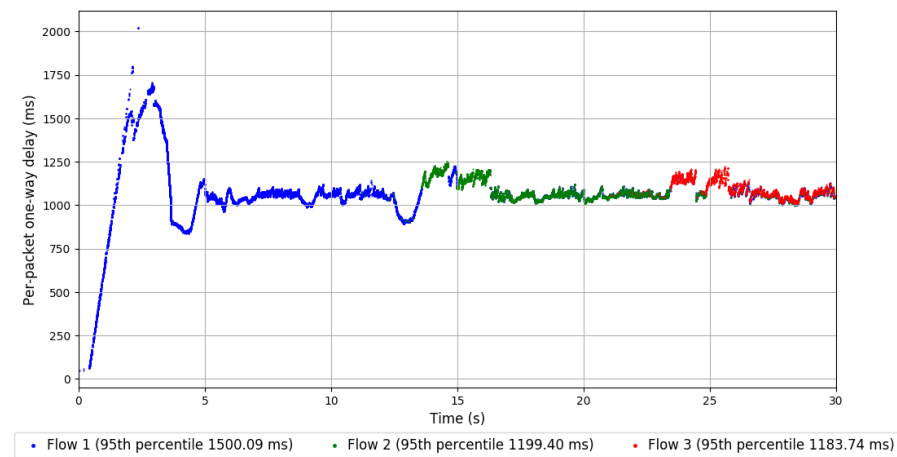
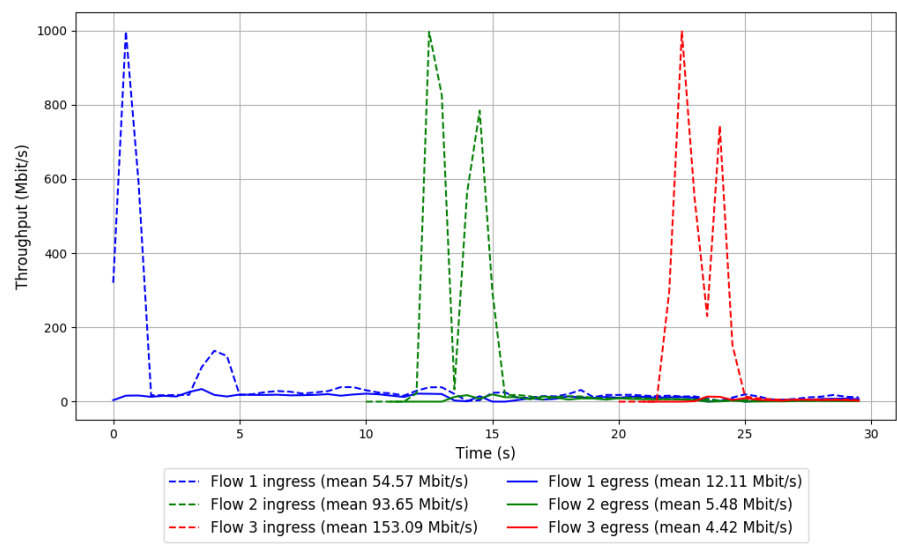
-- Flow 3:

Average throughput: 4.42 Mbit/s

95th percentile per-packet one-way delay: 1183.737 ms

Loss rate: 97.42%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-03-05 21:26:47

End at: 2018-03-05 21:27:17

Local clock offset: 2.904 ms

Remote clock offset: 5.498 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 15.86 Mbit/s

95th percentile per-packet one-way delay: 1233.122 ms

Loss rate: 89.36%

-- Flow 1:

Average throughput: 10.37 Mbit/s

95th percentile per-packet one-way delay: 1224.263 ms

Loss rate: 78.88%

-- Flow 2:

Average throughput: 6.75 Mbit/s

95th percentile per-packet one-way delay: 1250.887 ms

Loss rate: 91.20%

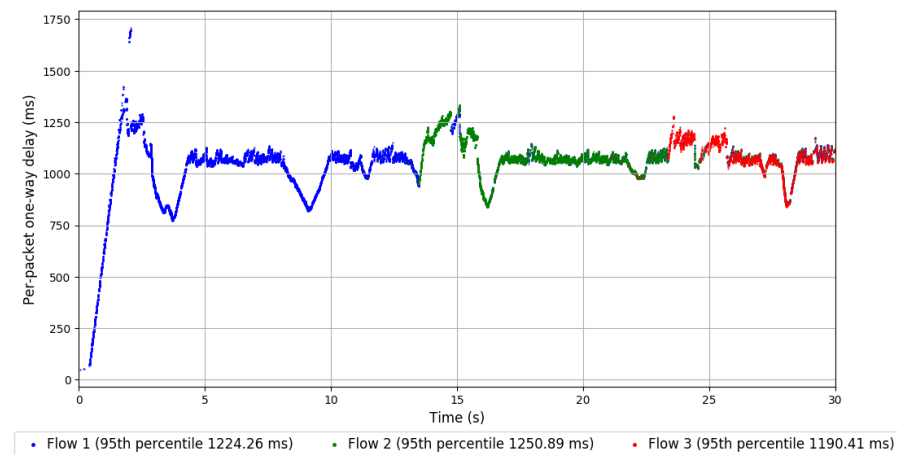
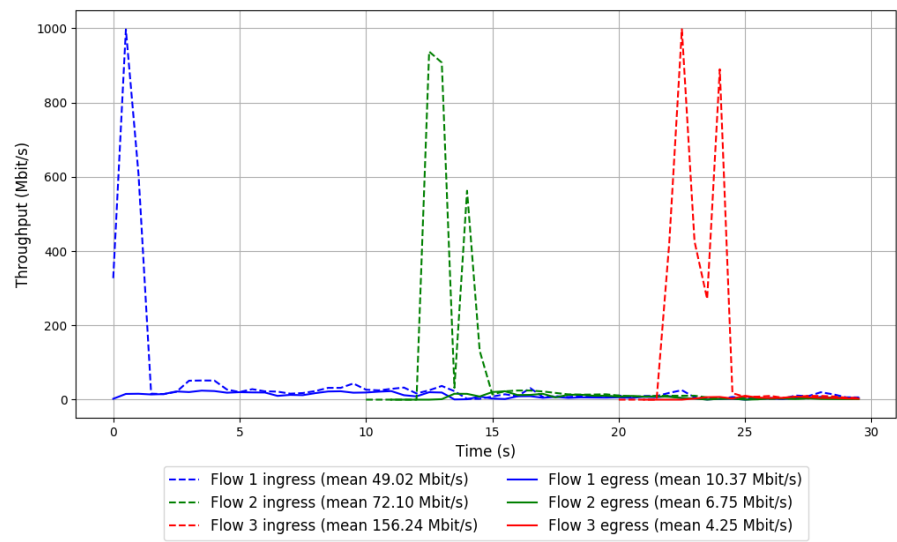
-- Flow 3:

Average throughput: 4.25 Mbit/s

95th percentile per-packet one-way delay: 1190.409 ms

Loss rate: 97.57%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-03-05 21:46:57

End at: 2018-03-05 21:47:27

Local clock offset: 4.87 ms

Remote clock offset: 1.288 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 21.59 Mbit/s

95th percentile per-packet one-way delay: 1498.372 ms

Loss rate: 85.18%

-- Flow 1:

Average throughput: 13.44 Mbit/s

95th percentile per-packet one-way delay: 1654.763 ms

Loss rate: 74.40%

-- Flow 2:

Average throughput: 7.96 Mbit/s

95th percentile per-packet one-way delay: 1302.529 ms

Loss rate: 89.46%

-- Flow 3:

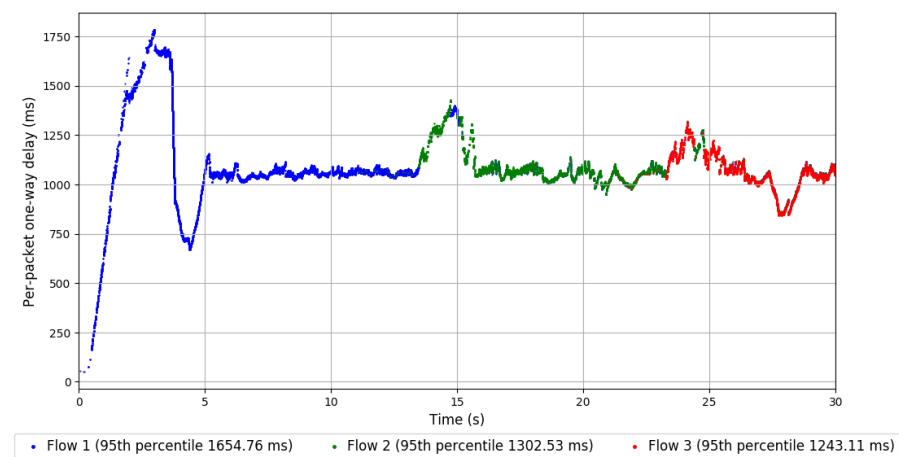
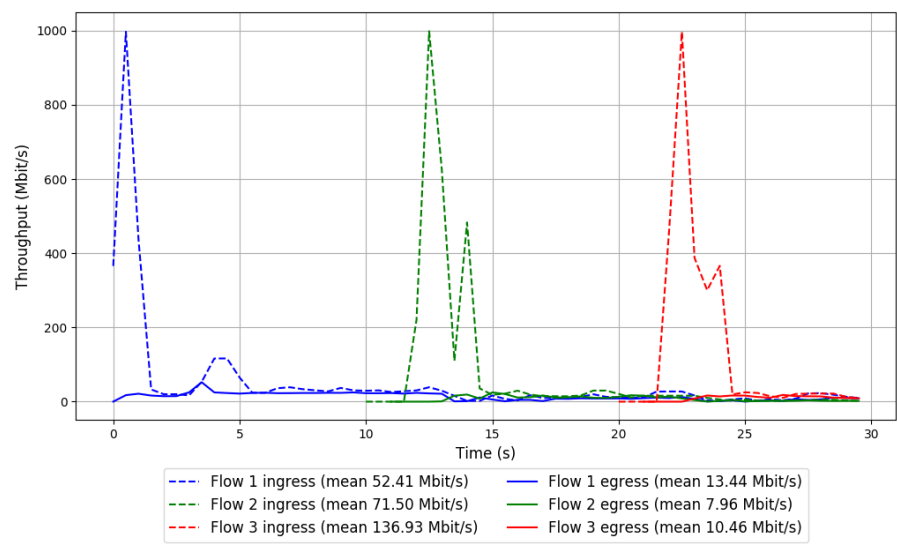
Average throughput: 10.46 Mbit/s

95th percentile per-packet one-way delay: 1243.109 ms

Loss rate: 93.13%



Run 3: Report of FillP — Data Link

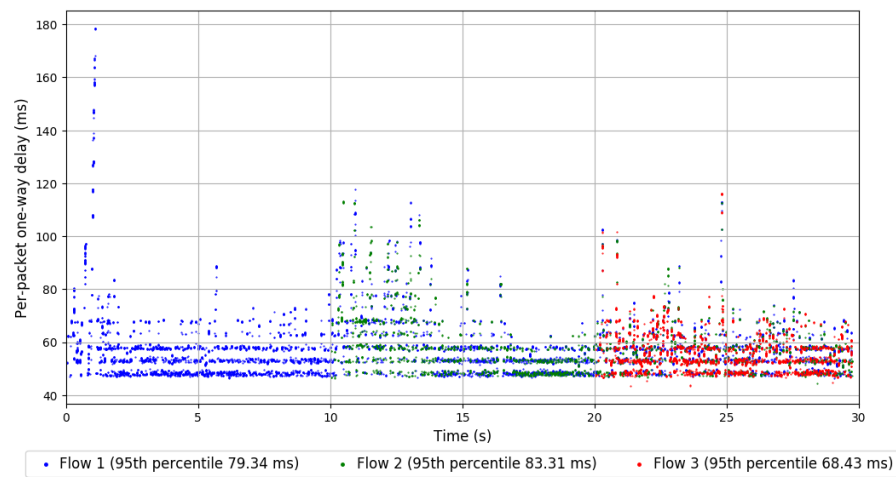
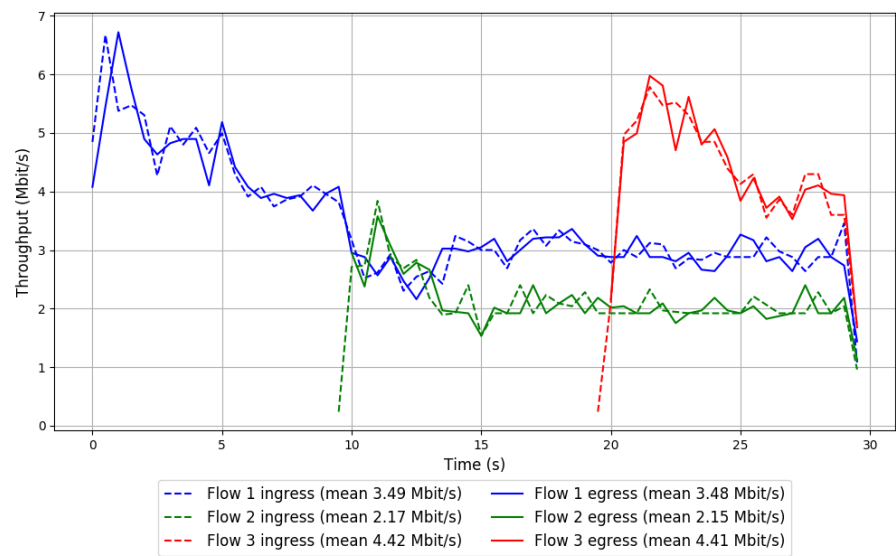


```
Run 1: Statistics of Indigo-1-32

Start at: 2018-03-05 21:14:31
End at: 2018-03-05 21:15:01
Local clock offset: 0.795 ms
Remote clock offset: 2.089 ms

# Below is generated by plot.py at 2018-03-05 22:07:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.35 Mbit/s
95th percentile per-packet one-way delay: 77.921 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 3.48 Mbit/s
95th percentile per-packet one-way delay: 79.336 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 2.15 Mbit/s
95th percentile per-packet one-way delay: 83.314 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 68.427 ms
Loss rate: 0.14%
```

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



Run 2: Statistics of Indigo-1-32

Start at: 2018-03-05 21:34:42

End at: 2018-03-05 21:35:12

Local clock offset: 2.363 ms

Remote clock offset: 4.548 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 7.56 Mbit/s

95th percentile per-packet one-way delay: 79.301 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 2.32 Mbit/s

95th percentile per-packet one-way delay: 78.898 ms

Loss rate: 0.10%

-- Flow 2:

Average throughput: 4.53 Mbit/s

95th percentile per-packet one-way delay: 74.297 ms

Loss rate: 0.05%

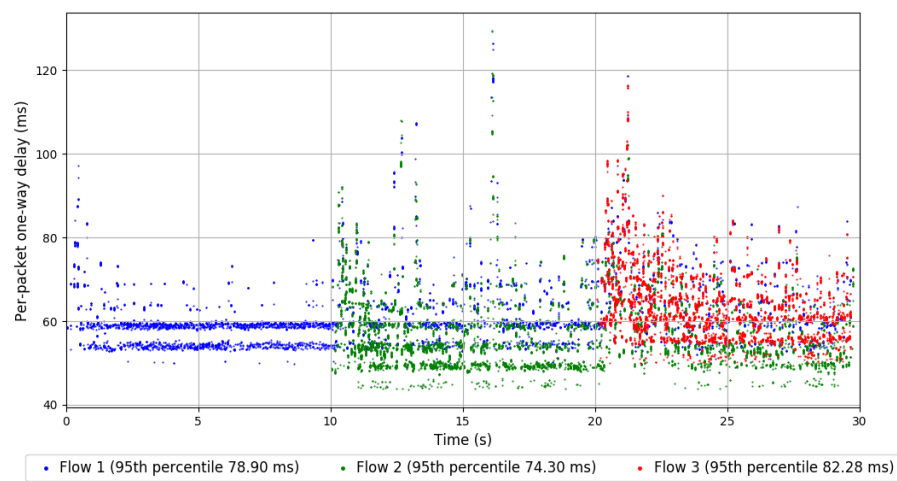
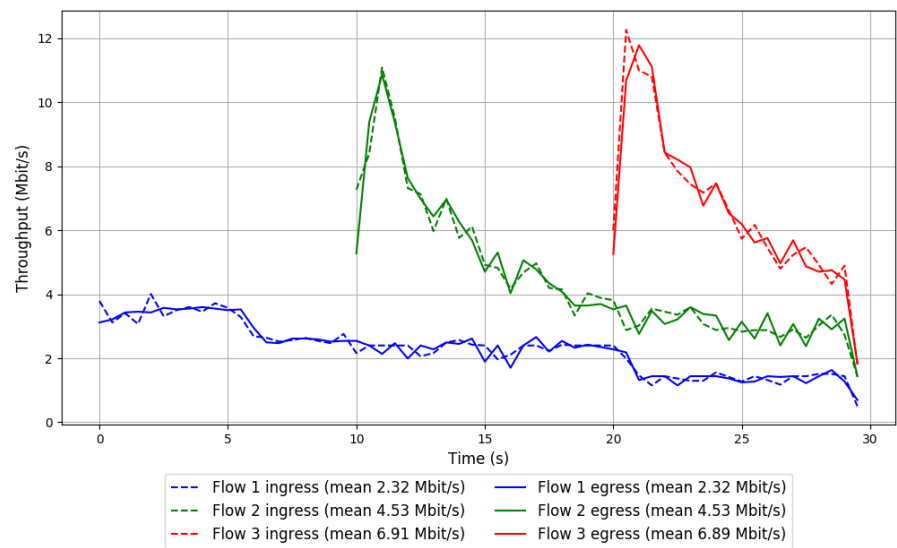
-- Flow 3:

Average throughput: 6.89 Mbit/s

95th percentile per-packet one-way delay: 82.285 ms

Loss rate: 0.57%

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



Run 3: Statistics of Indigo-1-32

Start at: 2018-03-05 21:54:47

End at: 2018-03-05 21:55:17

Local clock offset: 3.852 ms

Remote clock offset: 0.937 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 6.72 Mbit/s

95th percentile per-packet one-way delay: 95.630 ms

Loss rate: 0.25%

-- Flow 1:

Average throughput: 2.16 Mbit/s

95th percentile per-packet one-way delay: 89.231 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 4.76 Mbit/s

95th percentile per-packet one-way delay: 85.690 ms

Loss rate: 0.32%

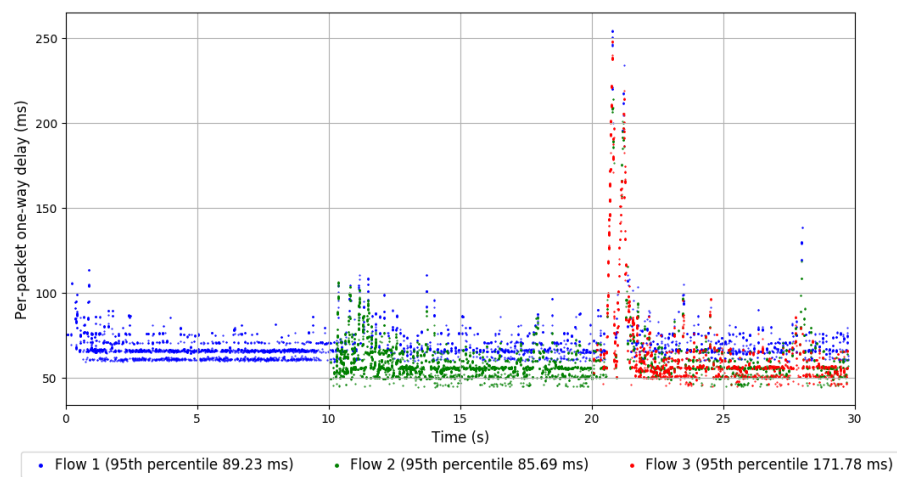
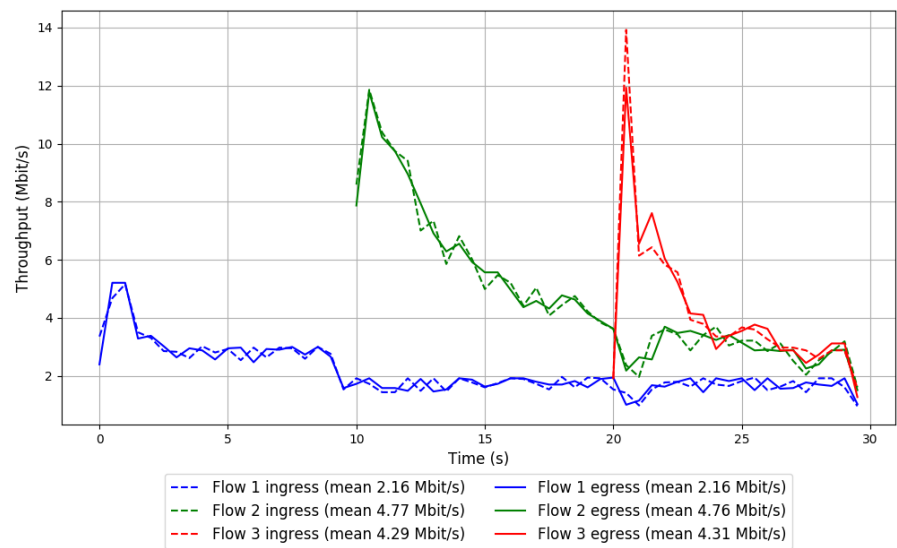
-- Flow 3:

Average throughput: 4.31 Mbit/s

95th percentile per-packet one-way delay: 171.783 ms

Loss rate: 0.37%

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



Run 1: Statistics of Vivace-latency

Start at: 2018-03-05 21:21:13

End at: 2018-03-05 21:21:43

Local clock offset: 1.826 ms

Remote clock offset: 4.507 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 5.87 Mbit/s

95th percentile per-packet one-way delay: 65.612 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 2.34 Mbit/s

95th percentile per-packet one-way delay: 60.827 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 3.10 Mbit/s

95th percentile per-packet one-way delay: 68.490 ms

Loss rate: 0.32%

-- Flow 3:

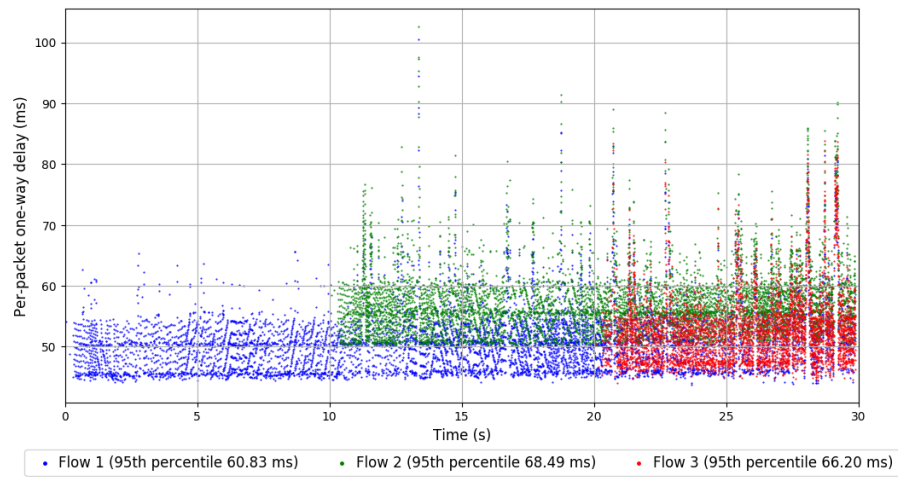
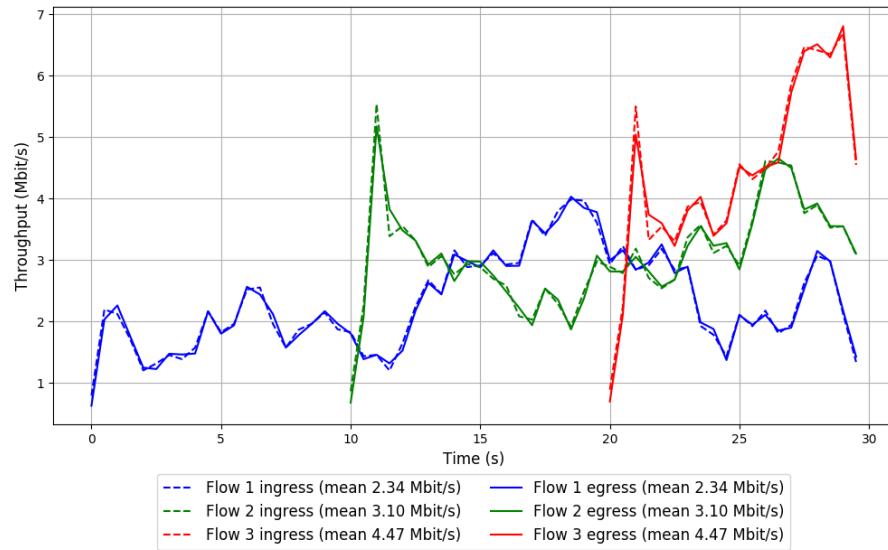
Average throughput: 4.47 Mbit/s

95th percentile per-packet one-way delay: 66.203 ms

Loss rate: 0.60%



# Run 1: Report of Vivace-latency — Data Link



Run 2: Statistics of Vivace-latency

Start at: 2018-03-05 21:41:22

End at: 2018-03-05 21:41:52

Local clock offset: 3.99 ms

Remote clock offset: 2.633 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 10.01 Mbit/s

95th percentile per-packet one-way delay: 294.896 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 7.25 Mbit/s

95th percentile per-packet one-way delay: 228.896 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 2.67 Mbit/s

95th percentile per-packet one-way delay: 356.006 ms

Loss rate: 0.46%

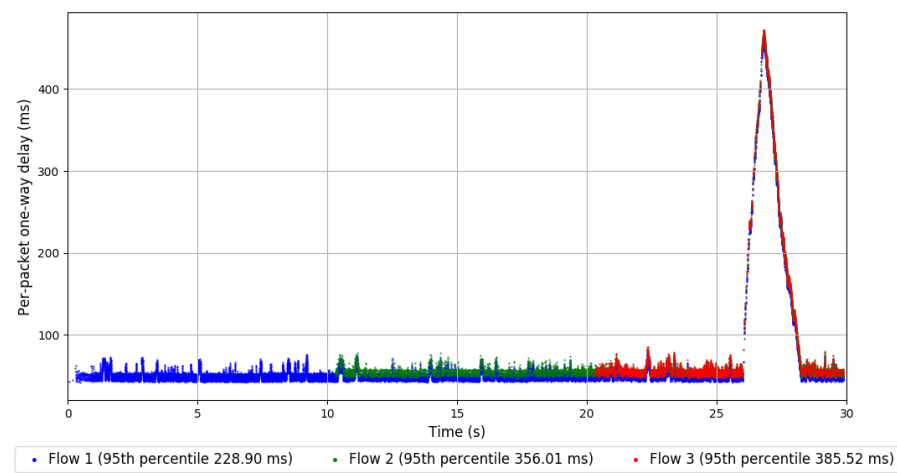
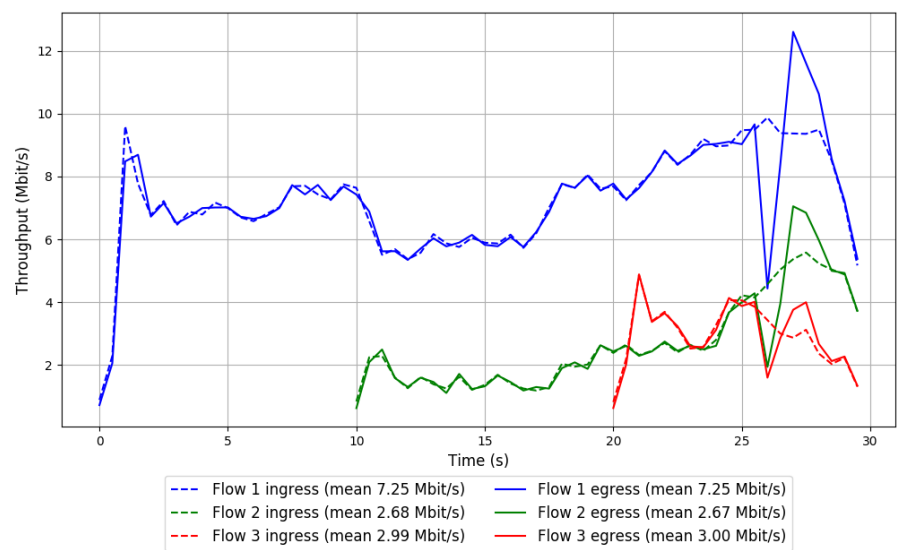
-- Flow 3:

Average throughput: 3.00 Mbit/s

95th percentile per-packet one-way delay: 385.517 ms

Loss rate: 0.28%

Run 2: Report of Vivace-latency — Data Link



Run 3: Statistics of Vivace-latency

Start at: 2018-03-05 22:01:27

End at: 2018-03-05 22:01:57

Local clock offset: 5.619 ms

Remote clock offset: 1.717 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 7.26 Mbit/s

95th percentile per-packet one-way delay: 93.534 ms

Loss rate: 0.24%

-- Flow 1:

Average throughput: 3.54 Mbit/s

95th percentile per-packet one-way delay: 66.880 ms

Loss rate: 0.33%

-- Flow 2:

Average throughput: 4.22 Mbit/s

95th percentile per-packet one-way delay: 212.703 ms

Loss rate: 0.10%

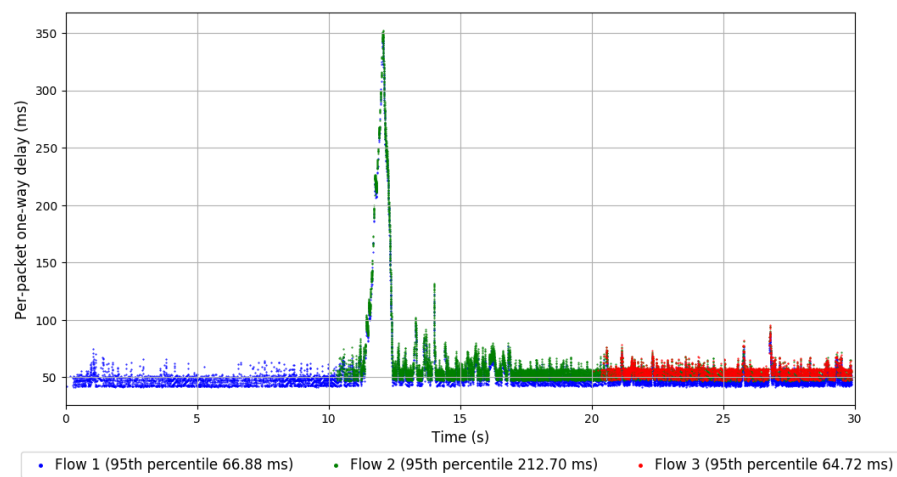
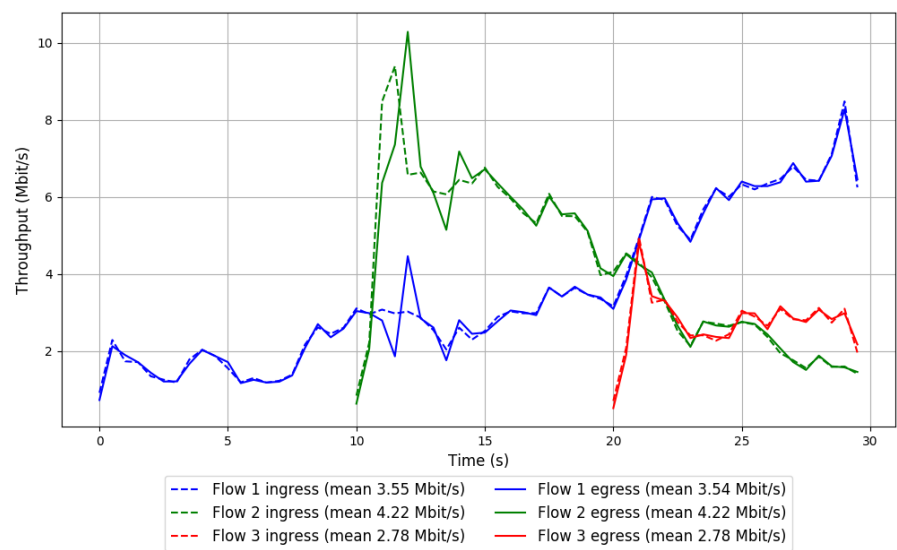
-- Flow 3:

Average throughput: 2.78 Mbit/s

95th percentile per-packet one-way delay: 64.717 ms

Loss rate: 0.34%

Run 3: Report of Vivace-latency — Data Link



Run 1: Statistics of Vivace-loss

Start at: 2018-03-05 21:08:57

End at: 2018-03-05 21:09:27

Local clock offset: 3.126 ms

Remote clock offset: 1.19 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 17.65 Mbit/s

95th percentile per-packet one-way delay: 1092.472 ms

Loss rate: 41.68%

-- Flow 1:

Average throughput: 13.59 Mbit/s

95th percentile per-packet one-way delay: 1092.916 ms

Loss rate: 43.64%

-- Flow 2:

Average throughput: 6.11 Mbit/s

95th percentile per-packet one-way delay: 1090.758 ms

Loss rate: 33.97%

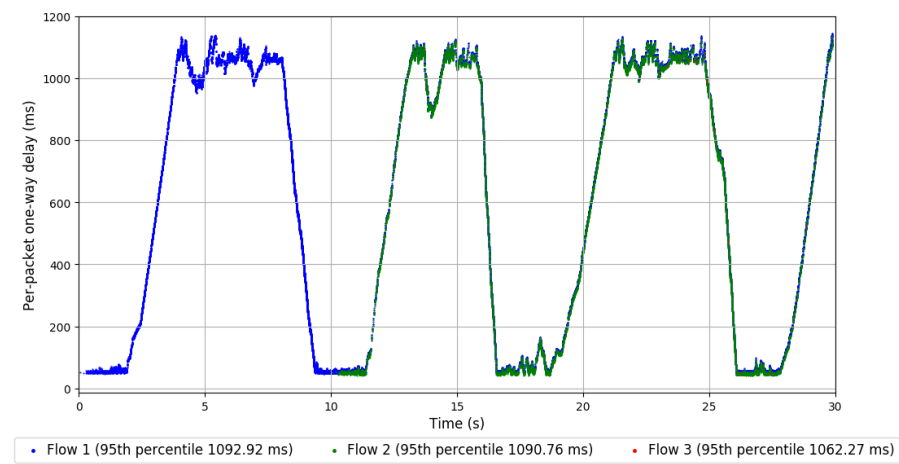
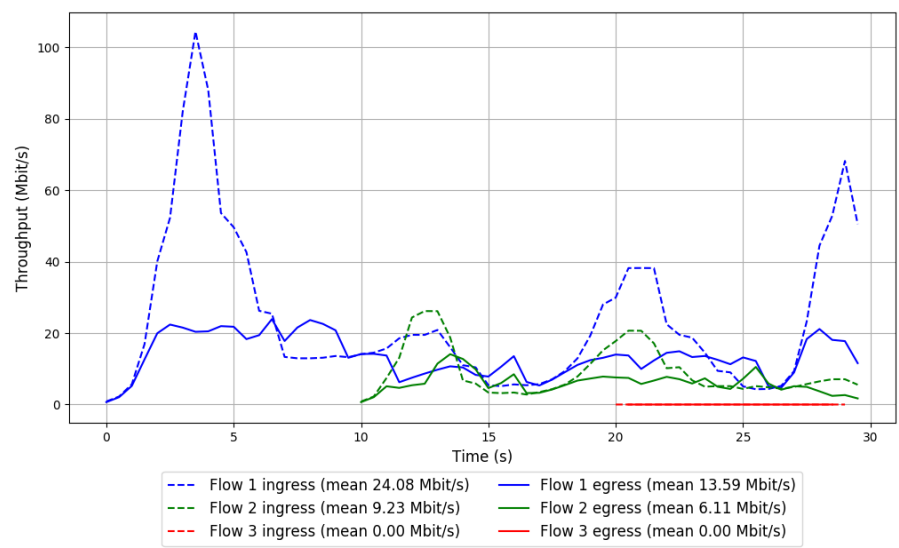
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1062.271 ms

Loss rate: 40.54%

Run 1: Report of Vivace-loss — Data Link



Run 2: Statistics of Vivace-loss

Start at: 2018-03-05 21:29:03

End at: 2018-03-05 21:29:33

Local clock offset: 2.306 ms

Remote clock offset: 6.09 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 17.31 Mbit/s

95th percentile per-packet one-way delay: 1100.570 ms

Loss rate: 39.71%

-- Flow 1:

Average throughput: 11.86 Mbit/s

95th percentile per-packet one-way delay: 1100.110 ms

Loss rate: 38.41%

-- Flow 2:

Average throughput: 6.20 Mbit/s

95th percentile per-packet one-way delay: 1102.698 ms

Loss rate: 39.63%

-- Flow 3:

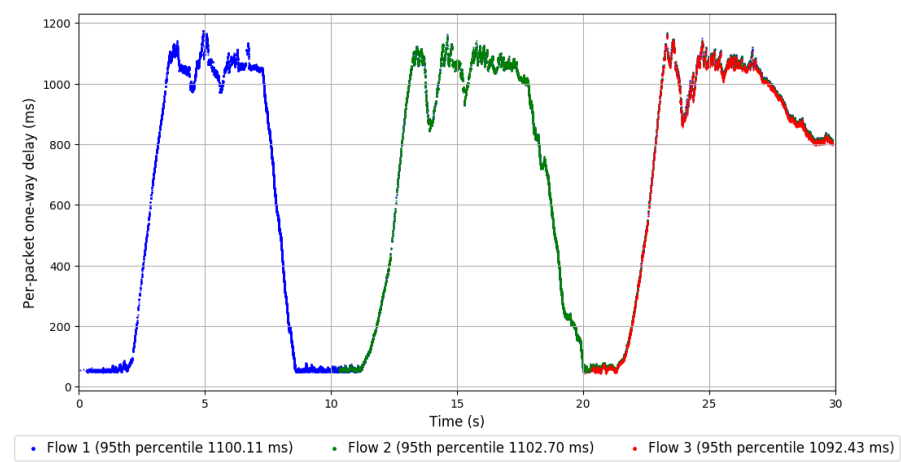
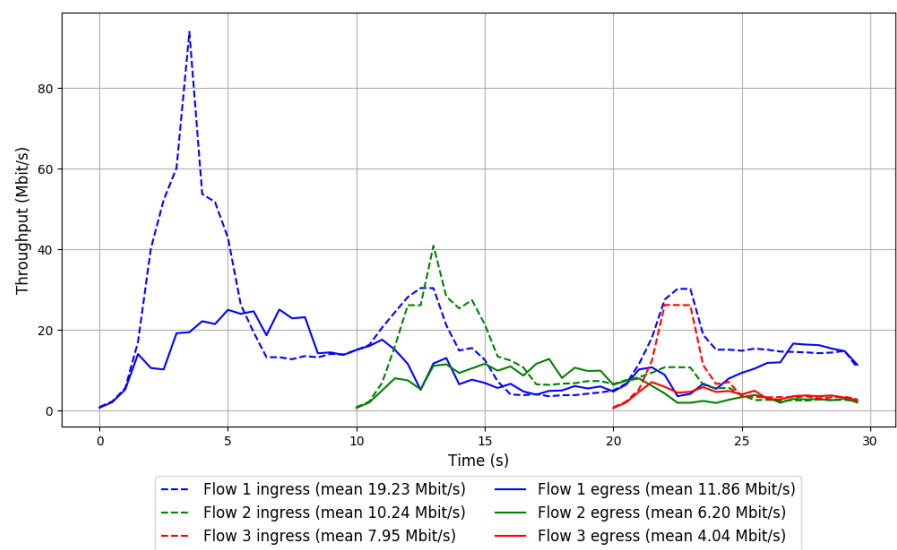
Average throughput: 4.04 Mbit/s

95th percentile per-packet one-way delay: 1092.428 ms

Loss rate: 49.40%



Run 2: Report of Vivace-loss — Data Link



Run 3: Statistics of Vivace-loss

Start at: 2018-03-05 21:49:13

End at: 2018-03-05 21:49:43

Local clock offset: 4.583 ms

Remote clock offset: 1.425 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 20.32 Mbit/s

95th percentile per-packet one-way delay: 1084.624 ms

Loss rate: 34.82%

-- Flow 1:

Average throughput: 12.05 Mbit/s

95th percentile per-packet one-way delay: 1087.724 ms

Loss rate: 38.34%

-- Flow 2:

Average throughput: 11.83 Mbit/s

95th percentile per-packet one-way delay: 1080.193 ms

Loss rate: 28.82%

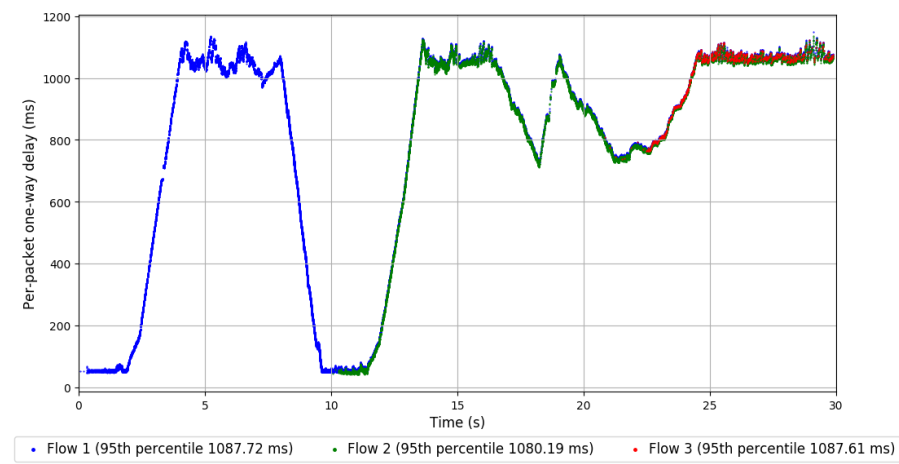
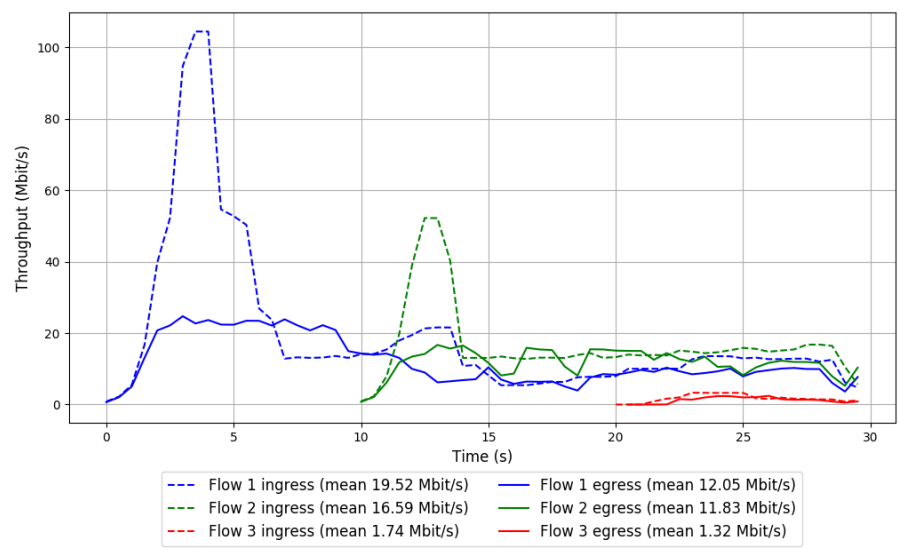
-- Flow 3:

Average throughput: 1.32 Mbit/s

95th percentile per-packet one-way delay: 1087.609 ms

Loss rate: 30.61%

Run 3: Report of Vivace-loss — Data Link



Run 1: Statistics of Vivace-LTE

Start at: 2018-03-05 21:18:58

End at: 2018-03-05 21:19:28

Local clock offset: 1.0 ms

Remote clock offset: 4.144 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 14.22 Mbit/s

95th percentile per-packet one-way delay: 1064.357 ms

Loss rate: 6.42%

-- Flow 1:

Average throughput: 9.80 Mbit/s

95th percentile per-packet one-way delay: 791.355 ms

Loss rate: 3.38%

-- Flow 2:

Average throughput: 3.13 Mbit/s

95th percentile per-packet one-way delay: 1066.618 ms

Loss rate: 8.11%

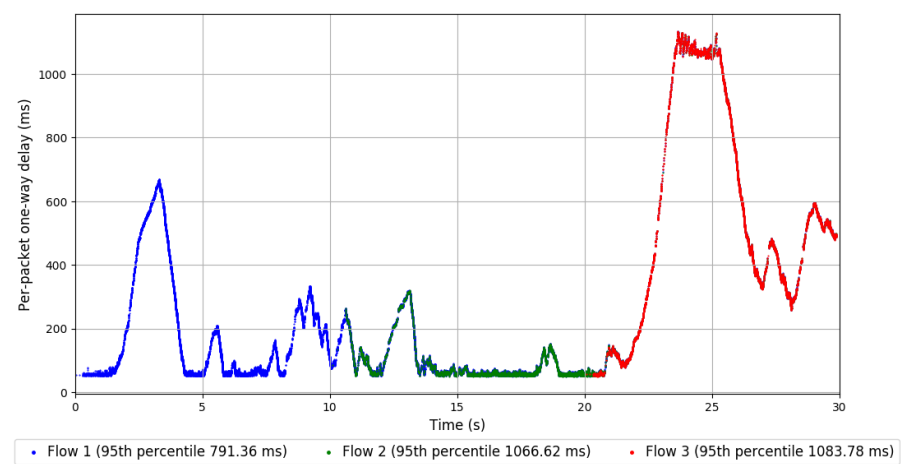
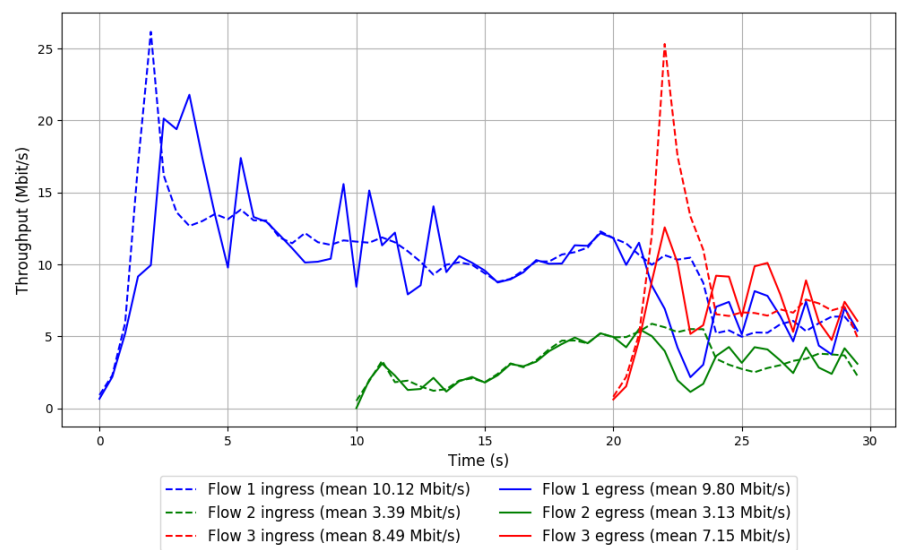
-- Flow 3:

Average throughput: 7.15 Mbit/s

95th percentile per-packet one-way delay: 1083.777 ms

Loss rate: 16.07%

Run 1: Report of Vivace-LTE — Data Link



Run 2: Statistics of Vivace-LTE

Start at: 2018-03-05 21:39:08

End at: 2018-03-05 21:39:38

Local clock offset: 2.045 ms

Remote clock offset: 2.307 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 17.12 Mbit/s

95th percentile per-packet one-way delay: 1064.576 ms

Loss rate: 8.60%

-- Flow 1:

Average throughput: 10.70 Mbit/s

95th percentile per-packet one-way delay: 1058.289 ms

Loss rate: 5.61%

-- Flow 2:

Average throughput: 7.07 Mbit/s

95th percentile per-packet one-way delay: 1069.976 ms

Loss rate: 11.57%

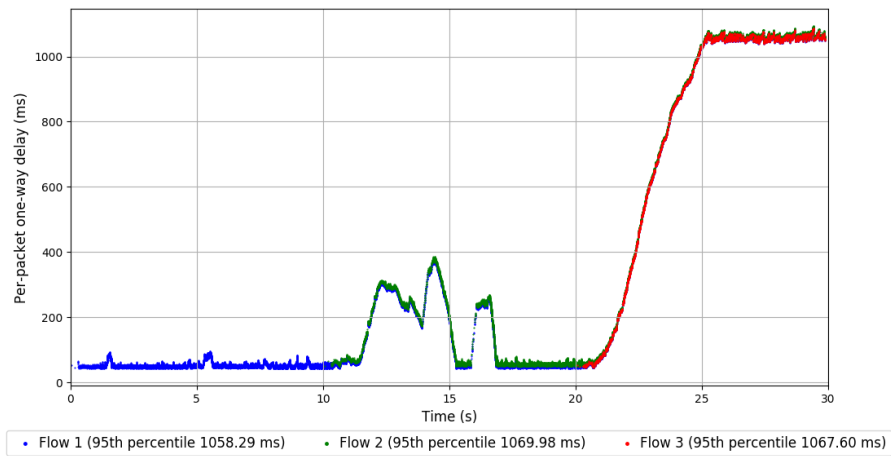
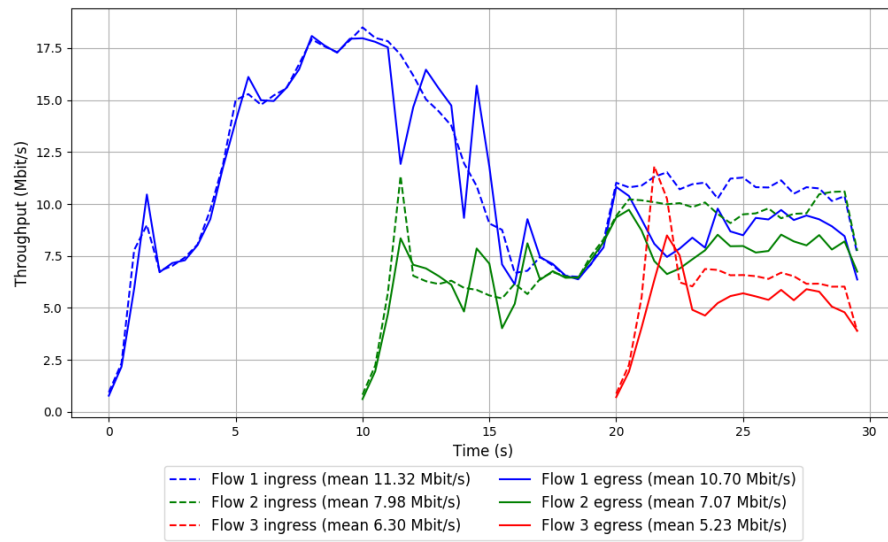
-- Flow 3:

Average throughput: 5.23 Mbit/s

95th percentile per-packet one-way delay: 1067.602 ms

Loss rate: 17.32%

## Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-03-05 21:59:13

End at: 2018-03-05 21:59:43

Local clock offset: 3.868 ms

Remote clock offset: 1.864 ms

# Below is generated by plot.py at 2018-03-05 22:07:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 14.98 Mbit/s

95th percentile per-packet one-way delay: 588.030 ms

Loss rate: 4.20%

-- Flow 1:

Average throughput: 9.40 Mbit/s

95th percentile per-packet one-way delay: 583.617 ms

Loss rate: 2.96%

-- Flow 2:

Average throughput: 6.98 Mbit/s

95th percentile per-packet one-way delay: 590.352 ms

Loss rate: 5.32%

-- Flow 3:

Average throughput: 2.86 Mbit/s

95th percentile per-packet one-way delay: 603.511 ms

Loss rate: 10.40%



### Run 3: Report of Vivace-LTE — Data Link

