

Pantheon Report

Generated at 2018-09-11 04:33:23 (UTC).

Data path: AWS Brazil 1 on `ens5` (*local*) → Brazil on `p4p1` (*remote*).

Repeated the test of 18 congestion control schemes 5 times.

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

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

System info:

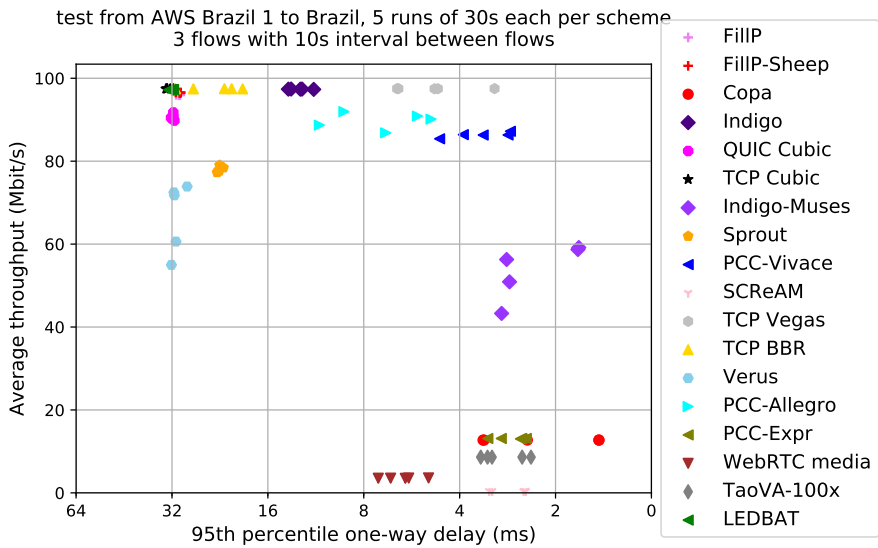
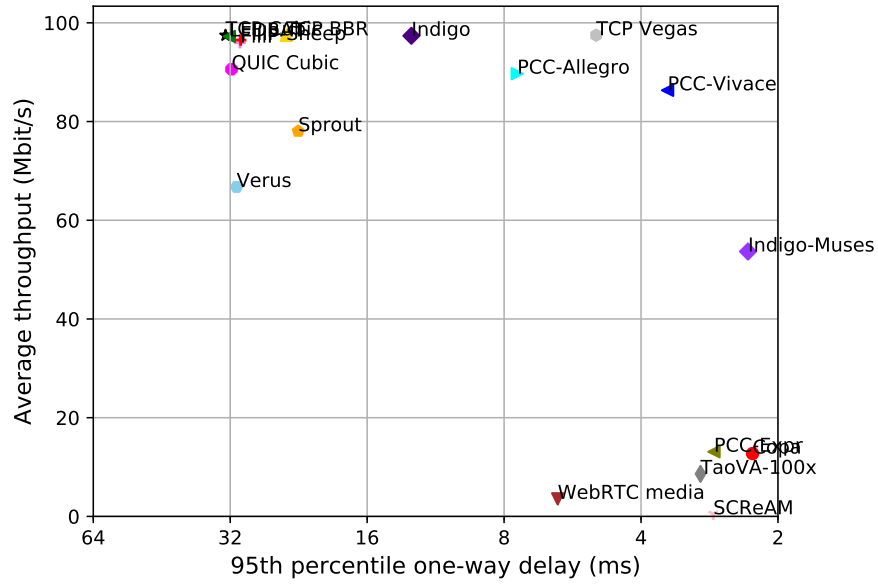
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 184101 245469 368202
```

Git summary:

```
branch: muses @ f30bceca2aec2ef14a3cf71e25642f4a30905a03
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd9c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
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/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
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 @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS Brazil 1 to Brazil, 5 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



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	5	68.71	35.63	15.10	23.92	23.17	26.52	0.06	0.01	0.24
Copa	5	10.61	3.19	1.03	2.00	2.63	2.57	67.32	79.83	84.21
TCP Cubic	5	65.45	34.50	27.27	32.43	32.57	32.65	0.04	0.04	0.06
FillP	5	51.84	47.09	38.71	30.16	29.97	30.29	11.87	22.07	24.91
FillP-Sheep	5	61.64	38.37	28.24	29.04	30.28	29.71	15.49	29.25	32.70
Indigo	5	47.04	37.52	77.98	11.00	12.81	13.35	0.00	0.00	0.01
LEDBAT	5	63.51	37.37	26.68	32.00	31.90	31.66	0.03	0.10	0.20
Indigo-Muses	5	26.49	27.86	26.17	2.04	1.82	2.27	0.00	0.00	0.01
PCC-Allegro	5	72.86	19.52	11.73	6.72	8.87	10.63	0.00	0.00	0.01
PCC-Expr	5	8.91	4.44	3.75	3.17	2.76	2.78	22.93	23.51	27.51
QUIC Cubic	5	57.82	35.68	27.58	31.30	31.81	31.67	0.15	0.20	0.30
SCReAM	5	0.22	0.22	0.22	2.49	1.90	2.20	0.00	0.00	0.00
Sprout	5	43.63	36.34	30.99	20.43	23.26	24.37	0.00	0.00	0.00
TaoVA-100x	5	0.00	8.17	9.98	2.03	2.66	3.03	95.92	84.04	86.69
TCP Vegas	5	45.05	46.04	65.45	5.86	4.41	4.62	0.00	0.00	0.01
Verus	5	38.29	28.92	27.80	28.72	31.61	32.50	7.98	18.97	24.63
PCC-Vivace	5	49.56	41.48	27.84	2.13	3.96	5.04	0.00	0.01	0.01
WebRTC media	5	1.94	1.25	0.37	5.73	6.38	6.05	0.00	0.03	0.06

Run 1: Statistics of TCP BBR

Start at: 2018-09-11 02:56:51

End at: 2018-09-11 02:57:21

Local clock offset: -2.017 ms

Remote clock offset: 0.022 ms

Below is generated by plot.py at 2018-09-11 04:24:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 31.203 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 71.90 Mbit/s

95th percentile per-packet one-way delay: 31.484 ms

Loss rate: 0.27%

-- Flow 2:

Average throughput: 32.92 Mbit/s

95th percentile per-packet one-way delay: 27.795 ms

Loss rate: 0.03%

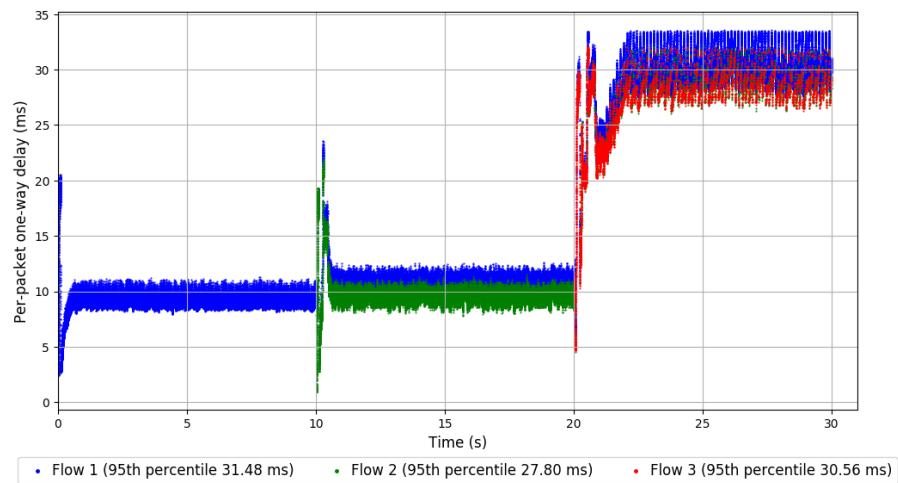
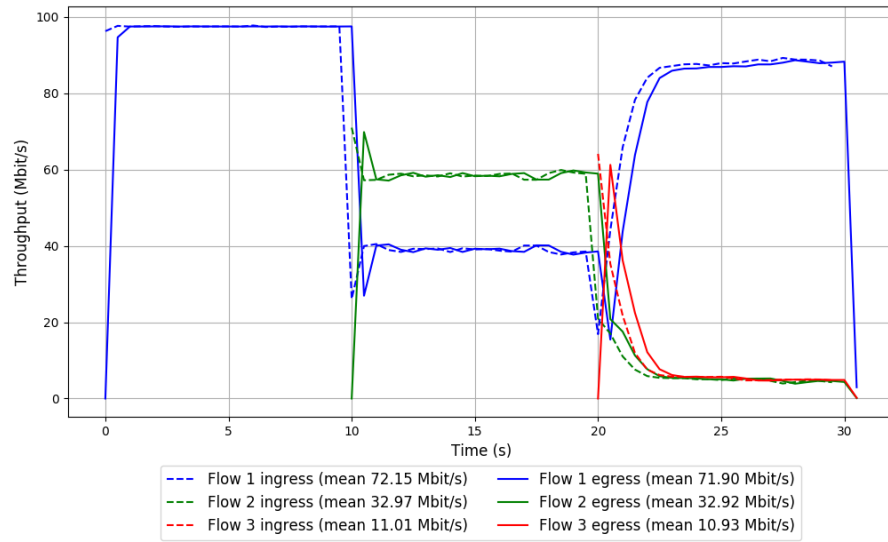
-- Flow 3:

Average throughput: 10.93 Mbit/s

95th percentile per-packet one-way delay: 30.563 ms

Loss rate: 0.54%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-11 03:17:20

End at: 2018-09-11 03:17:50

Local clock offset: 1.516 ms

Remote clock offset: 0.151 ms

Below is generated by plot.py at 2018-09-11 04:24:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 20.789 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 65.74 Mbit/s

95th percentile per-packet one-way delay: 20.732 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 42.10 Mbit/s

95th percentile per-packet one-way delay: 20.913 ms

Loss rate: 0.00%

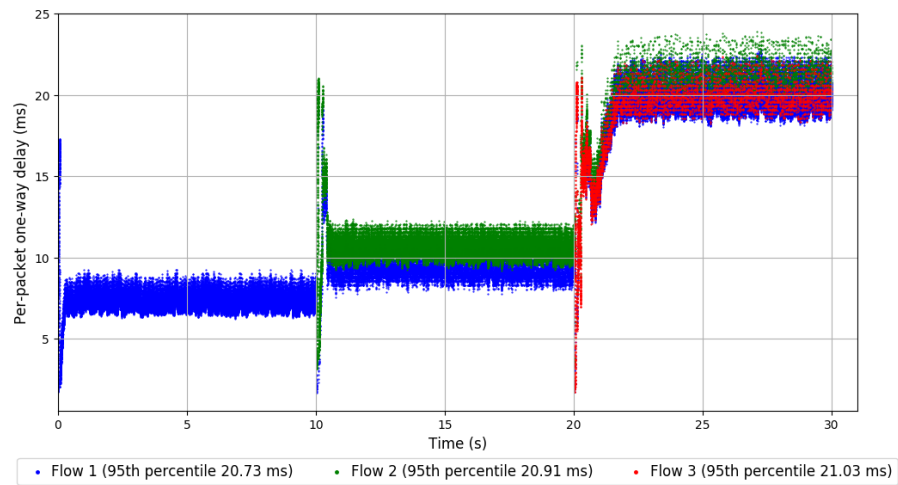
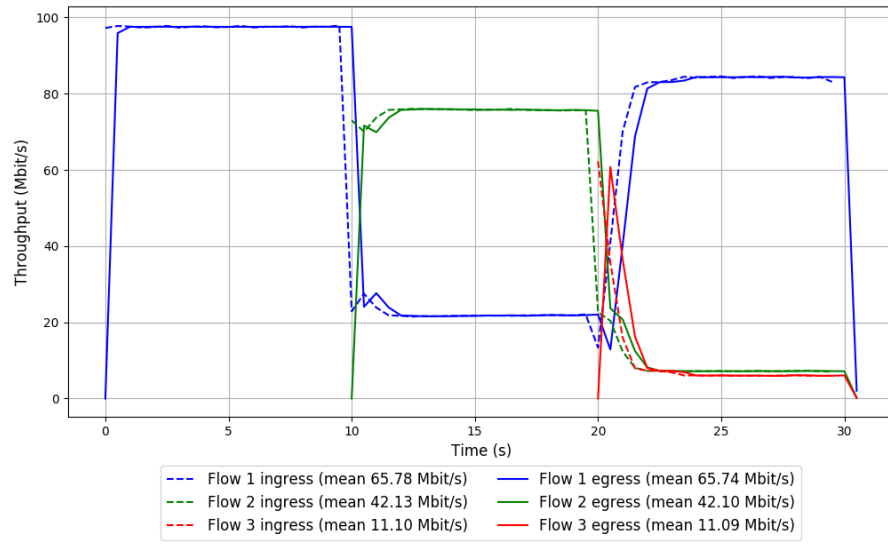
-- Flow 3:

Average throughput: 11.09 Mbit/s

95th percentile per-packet one-way delay: 21.030 ms

Loss rate: 0.00%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-11 03:37:47

End at: 2018-09-11 03:38:17

Local clock offset: 3.548 ms

Remote clock offset: 0.147 ms

Below is generated by plot.py at 2018-09-11 04:24:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.45 Mbit/s

95th percentile per-packet one-way delay: 27.415 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 69.03 Mbit/s

95th percentile per-packet one-way delay: 27.147 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 29.64 Mbit/s

95th percentile per-packet one-way delay: 26.959 ms

Loss rate: 0.04%

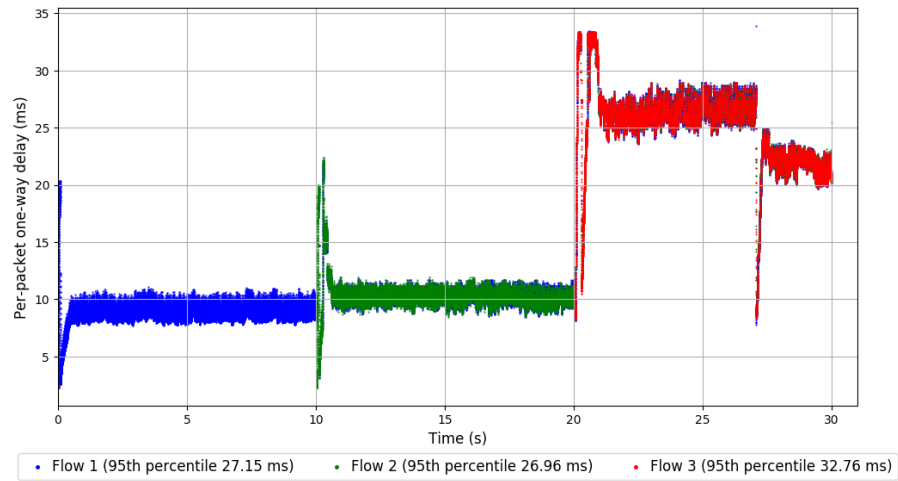
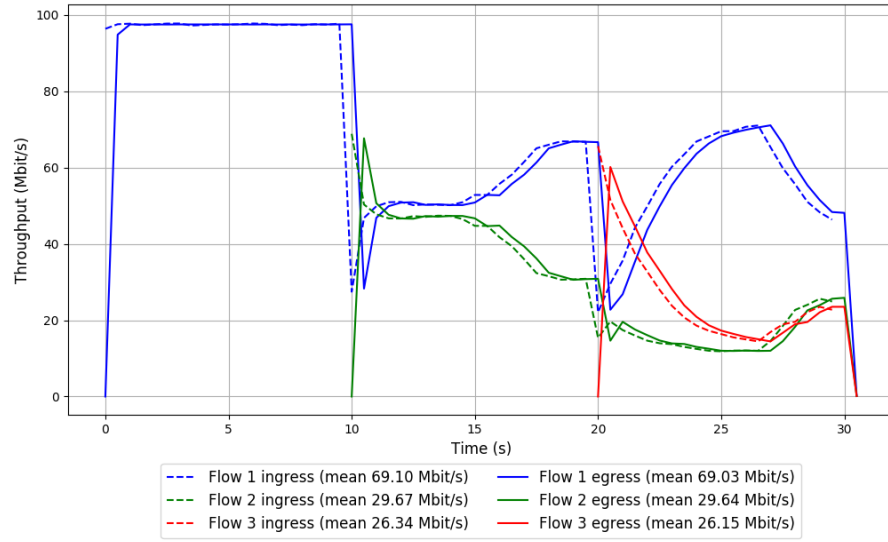
-- Flow 3:

Average throughput: 26.15 Mbit/s

95th percentile per-packet one-way delay: 32.762 ms

Loss rate: 0.64%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-11 03:58:15

End at: 2018-09-11 03:58:45

Local clock offset: 3.937 ms

Remote clock offset: 0.301 ms

Below is generated by plot.py at 2018-09-11 04:24:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.49 Mbit/s

95th percentile per-packet one-way delay: 21.899 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 72.68 Mbit/s

95th percentile per-packet one-way delay: 21.431 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 29.46 Mbit/s

95th percentile per-packet one-way delay: 20.913 ms

Loss rate: 0.00%

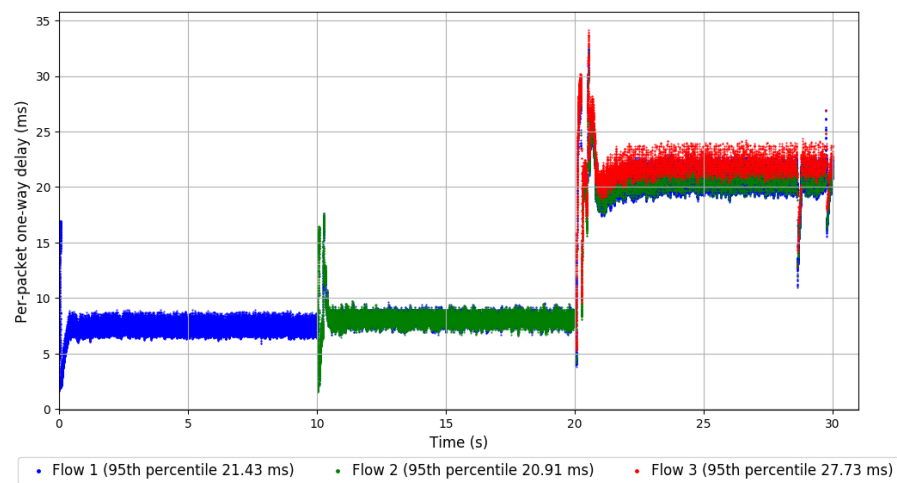
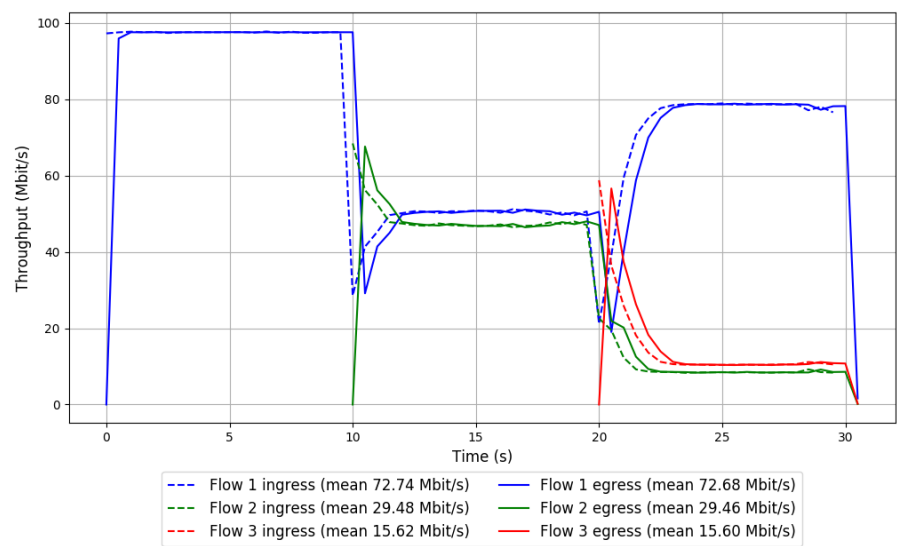
-- Flow 3:

Average throughput: 15.60 Mbit/s

95th percentile per-packet one-way delay: 27.726 ms

Loss rate: 0.00%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-11 04:18:43

End at: 2018-09-11 04:19:13

Local clock offset: 4.243 ms

Remote clock offset: 0.421 ms

Below is generated by plot.py at 2018-09-11 04:24:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.45 Mbit/s

95th percentile per-packet one-way delay: 19.201 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 64.22 Mbit/s

95th percentile per-packet one-way delay: 18.830 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 44.04 Mbit/s

95th percentile per-packet one-way delay: 19.267 ms

Loss rate: 0.00%

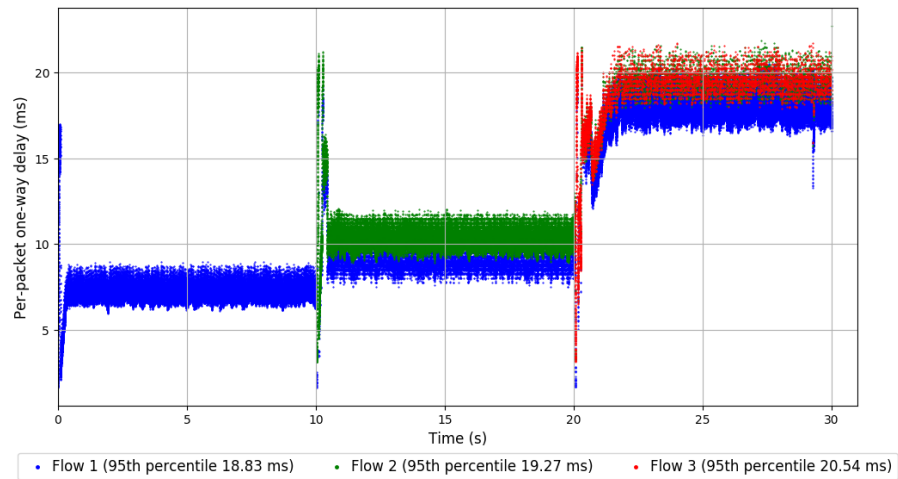
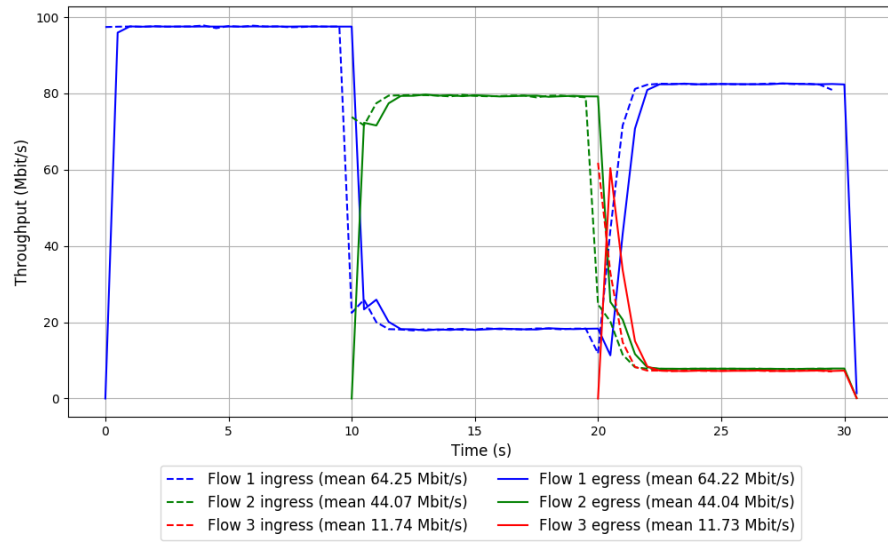
-- Flow 3:

Average throughput: 11.73 Mbit/s

95th percentile per-packet one-way delay: 20.541 ms

Loss rate: 0.00%

Run 5: Report of TCP BBR — Data Link

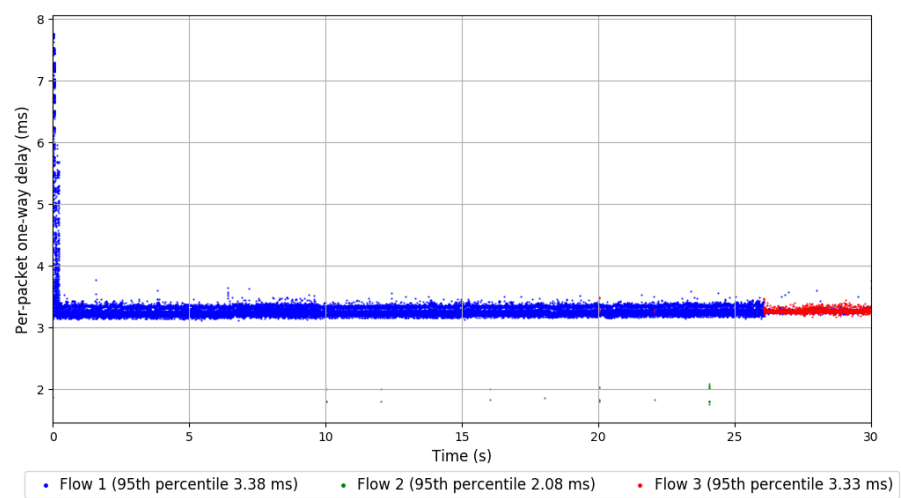
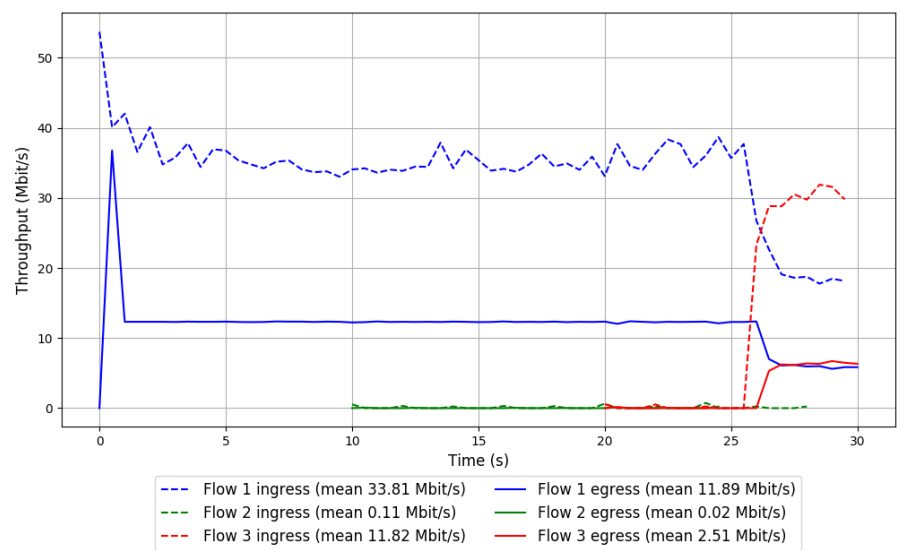


Run 1: Statistics of Copa

Start at: 2018-09-11 02:48:54
End at: 2018-09-11 02:49:24
Local clock offset: -3.222 ms
Remote clock offset: -0.015 ms

Below is generated by plot.py at 2018-09-11 04:24:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 3.377 ms
Loss rate: 66.32%
-- Flow 1:
Average throughput: 11.89 Mbit/s
95th percentile per-packet one-way delay: 3.380 ms
Loss rate: 64.84%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 2.080 ms
Loss rate: 85.49%
-- Flow 3:
Average throughput: 2.51 Mbit/s
95th percentile per-packet one-way delay: 3.331 ms
Loss rate: 78.74%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-11 03:09:22

End at: 2018-09-11 03:09:52

Local clock offset: 1.193 ms

Remote clock offset: 0.006 ms

Below is generated by plot.py at 2018-09-11 04:24:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.73 Mbit/s

95th percentile per-packet one-way delay: 1.096 ms

Loss rate: 67.96%

-- Flow 1:

Average throughput: 12.72 Mbit/s

95th percentile per-packet one-way delay: 1.096 ms

Loss rate: 67.91%

-- Flow 2:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 2.636 ms

Loss rate: 89.87%

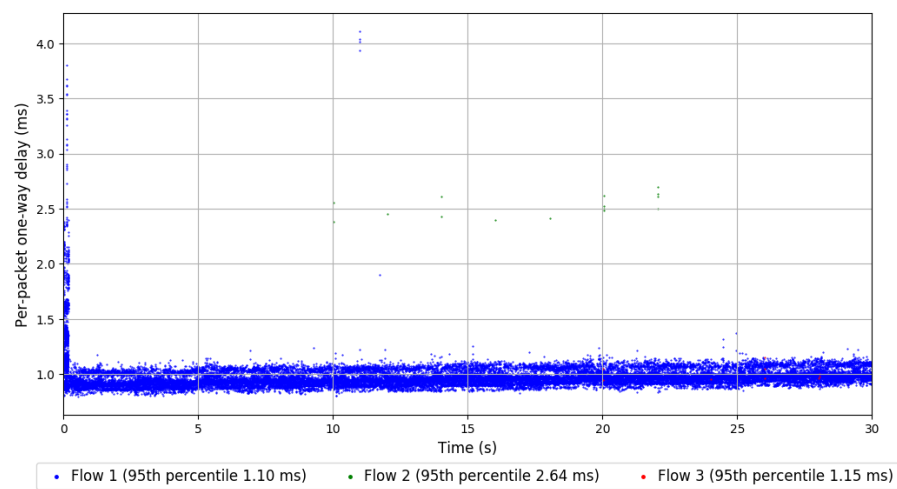
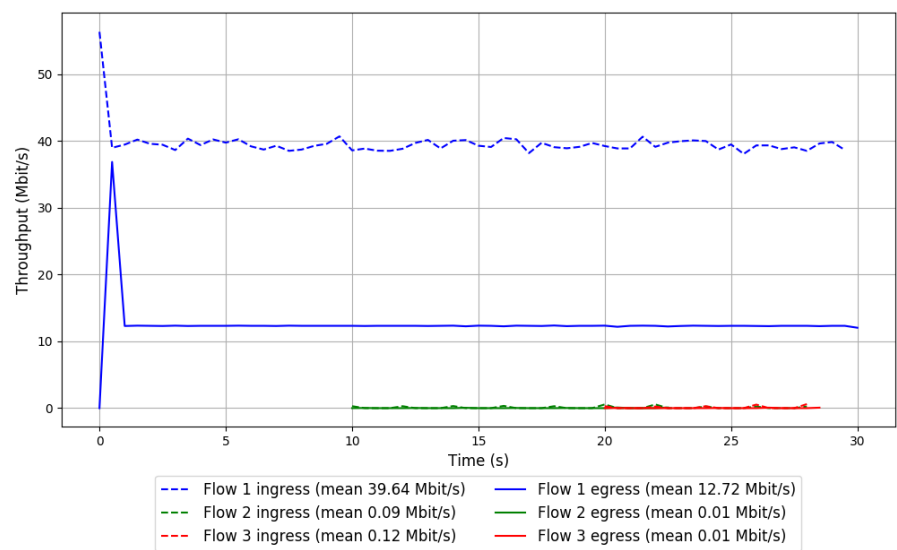
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 1.149 ms

Loss rate: 90.03%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-11 03:29:51

End at: 2018-09-11 03:30:21

Local clock offset: 3.231 ms

Remote clock offset: 0.136 ms

Below is generated by plot.py at 2018-09-11 04:24:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.73 Mbit/s

95th percentile per-packet one-way delay: 1.094 ms

Loss rate: 67.93%

-- Flow 1:

Average throughput: 12.72 Mbit/s

95th percentile per-packet one-way delay: 1.093 ms

Loss rate: 67.89%

-- Flow 2:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 2.635 ms

Loss rate: 88.30%

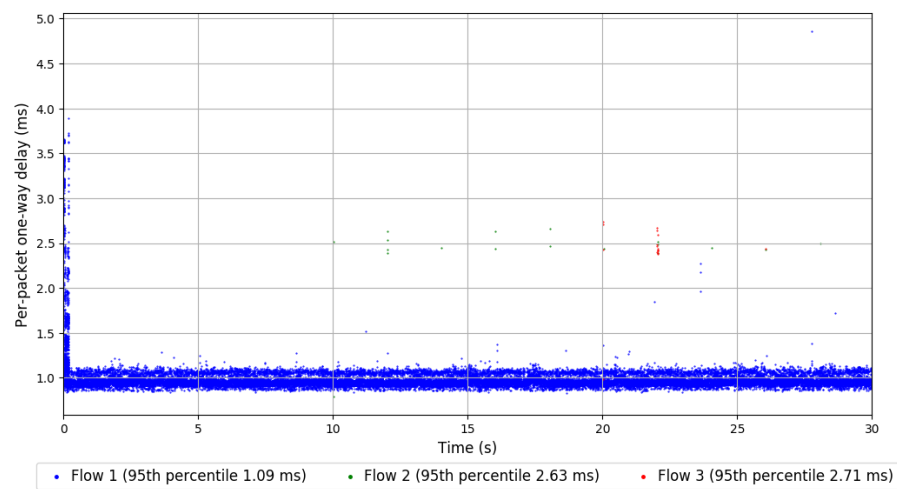
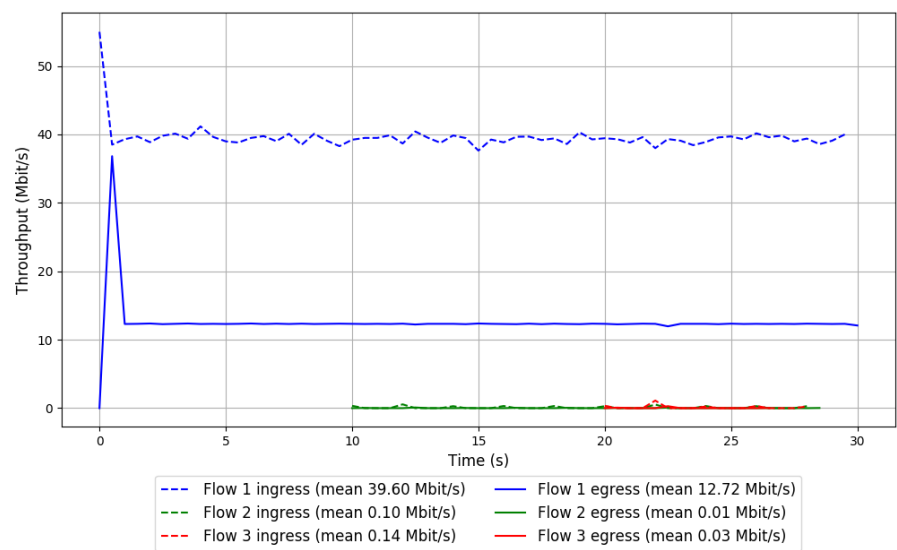
-- Flow 3:

Average throughput: 0.03 Mbit/s

95th percentile per-packet one-way delay: 2.706 ms

Loss rate: 82.72%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-11 03:50:18

End at: 2018-09-11 03:50:48

Local clock offset: 3.449 ms

Remote clock offset: 0.297 ms

Below is generated by plot.py at 2018-09-11 04:24:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.73 Mbit/s

95th percentile per-packet one-way delay: 3.354 ms

Loss rate: 69.99%

-- Flow 1:

Average throughput: 8.62 Mbit/s

95th percentile per-packet one-way delay: 3.391 ms

Loss rate: 68.76%

-- Flow 2:

Average throughput: 6.08 Mbit/s

95th percentile per-packet one-way delay: 3.328 ms

Loss rate: 69.83%

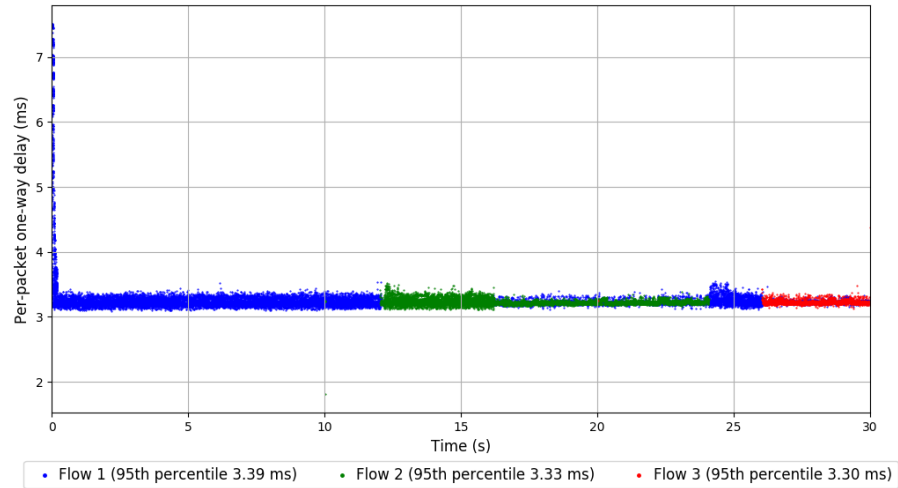
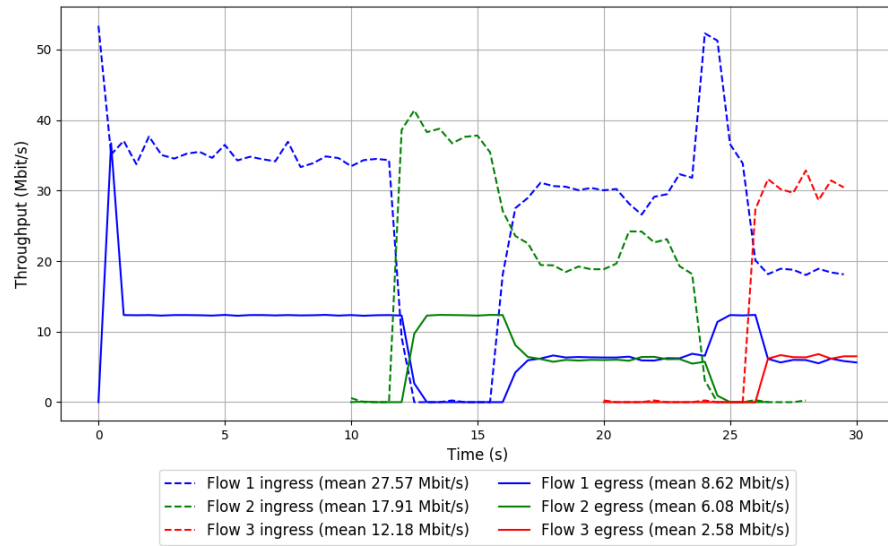
-- Flow 3:

Average throughput: 2.58 Mbit/s

95th percentile per-packet one-way delay: 3.301 ms

Loss rate: 78.79%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-11 04:10:46

End at: 2018-09-11 04:11:16

Local clock offset: 4.736 ms

Remote clock offset: 0.316 ms

Below is generated by plot.py at 2018-09-11 04:24:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.73 Mbit/s

95th percentile per-packet one-way delay: 2.452 ms

Loss rate: 66.45%

-- Flow 1:

Average throughput: 7.11 Mbit/s

95th percentile per-packet one-way delay: 1.053 ms

Loss rate: 67.22%

-- Flow 2:

Average throughput: 9.82 Mbit/s

95th percentile per-packet one-way delay: 2.469 ms

Loss rate: 65.66%

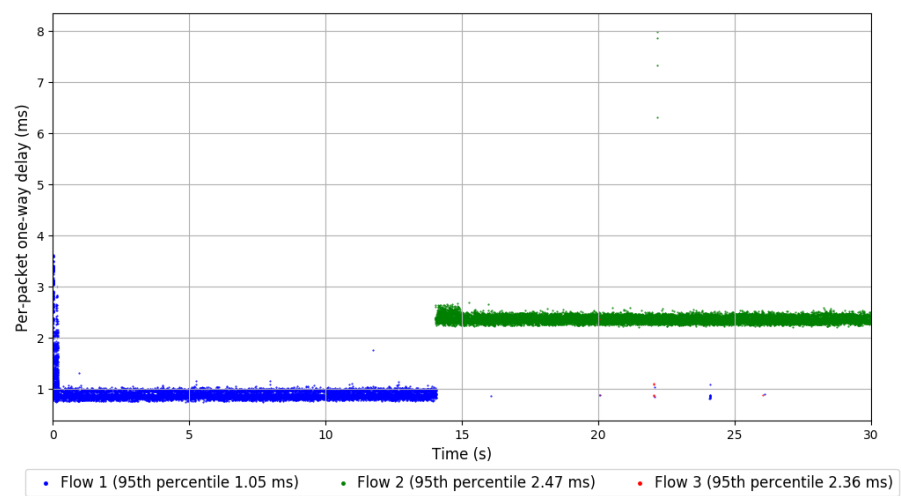
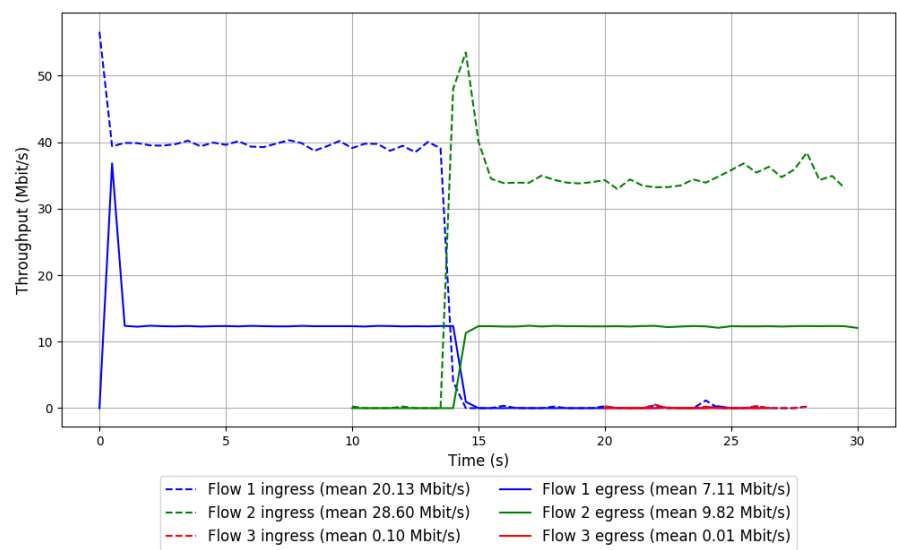
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 2.363 ms

Loss rate: 90.79%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-11 02:59:06

End at: 2018-09-11 02:59:36

Local clock offset: -1.482 ms

Remote clock offset: 0.089 ms

Below is generated by plot.py at 2018-09-11 04:24:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 32.406 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 63.40 Mbit/s

95th percentile per-packet one-way delay: 31.259 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 38.42 Mbit/s

95th percentile per-packet one-way delay: 32.884 ms

Loss rate: 0.03%

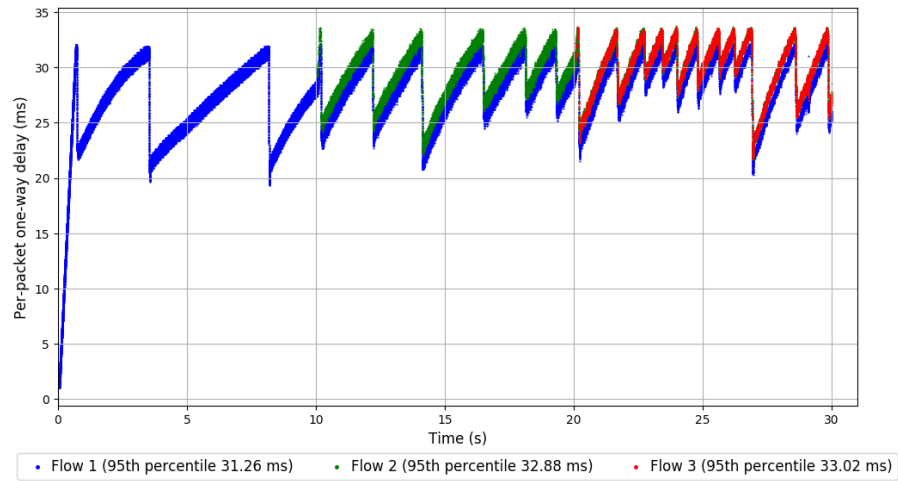
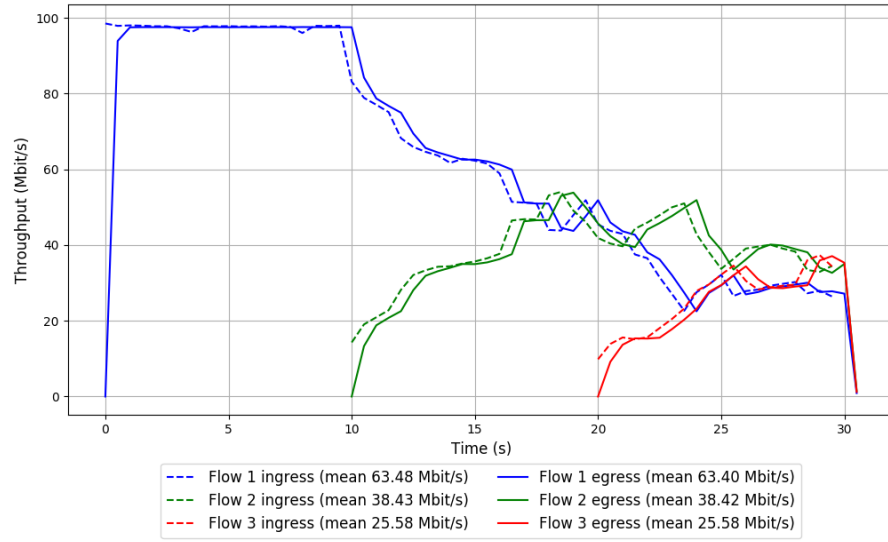
-- Flow 3:

Average throughput: 25.58 Mbit/s

95th percentile per-packet one-way delay: 33.015 ms

Loss rate: 0.04%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-11 03:19:34

End at: 2018-09-11 03:20:04

Local clock offset: 1.73 ms

Remote clock offset: 0.088 ms

Below is generated by plot.py at 2018-09-11 04:24:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 33.241 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 68.01 Mbit/s

95th percentile per-packet one-way delay: 33.274 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 29.35 Mbit/s

95th percentile per-packet one-way delay: 31.995 ms

Loss rate: 0.06%

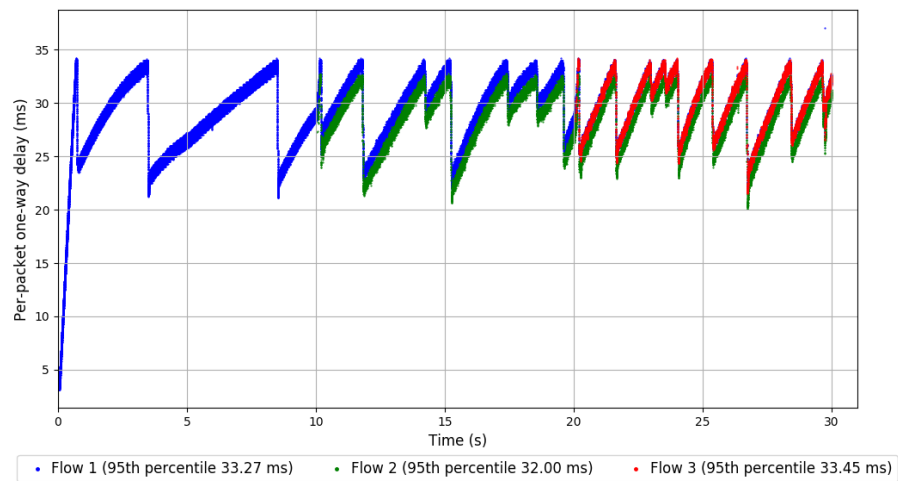
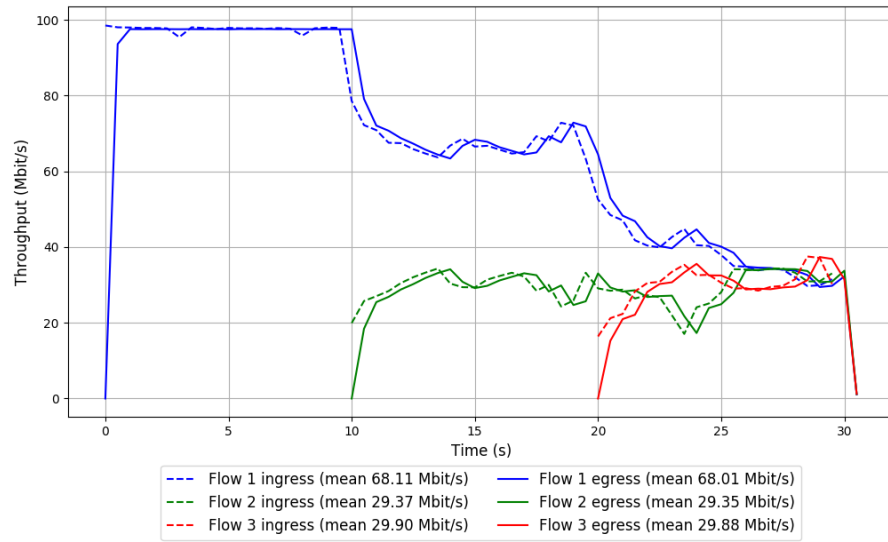
-- Flow 3:

Average throughput: 29.88 Mbit/s

95th percentile per-packet one-way delay: 33.452 ms

Loss rate: 0.04%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-11 03:40:02

End at: 2018-09-11 03:40:32

Local clock offset: 2.888 ms

Remote clock offset: 0.261 ms

Below is generated by plot.py at 2018-09-11 04:24:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.49 Mbit/s

95th percentile per-packet one-way delay: 33.083 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 67.45 Mbit/s

95th percentile per-packet one-way delay: 33.301 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 35.20 Mbit/s

95th percentile per-packet one-way delay: 32.027 ms

Loss rate: 0.02%

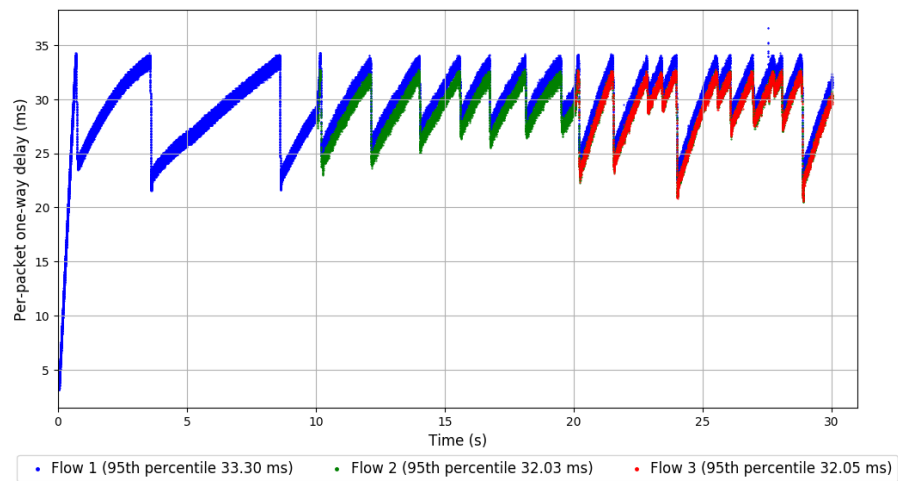
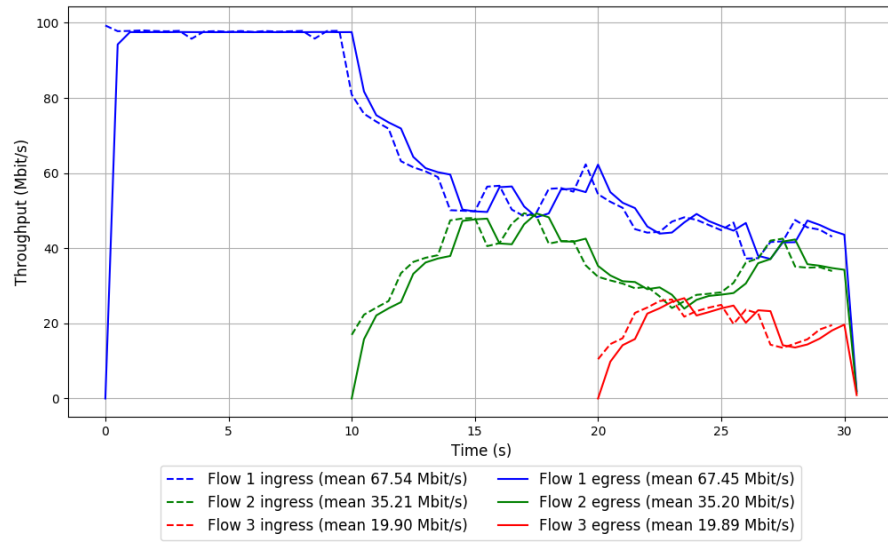
-- Flow 3:

Average throughput: 19.89 Mbit/s

95th percentile per-packet one-way delay: 32.050 ms

Loss rate: 0.07%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-11 04:00:30

End at: 2018-09-11 04:01:00

Local clock offset: 3.867 ms

Remote clock offset: 0.351 ms

Below is generated by plot.py at 2018-09-11 04:25:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.45 Mbit/s

95th percentile per-packet one-way delay: 33.451 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 63.40 Mbit/s

95th percentile per-packet one-way delay: 33.328 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 35.40 Mbit/s

95th percentile per-packet one-way delay: 33.479 ms

Loss rate: 0.05%

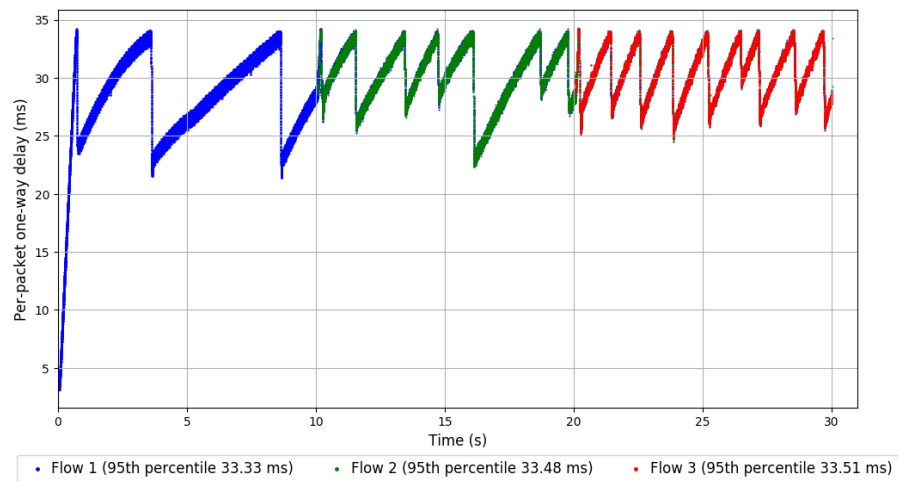
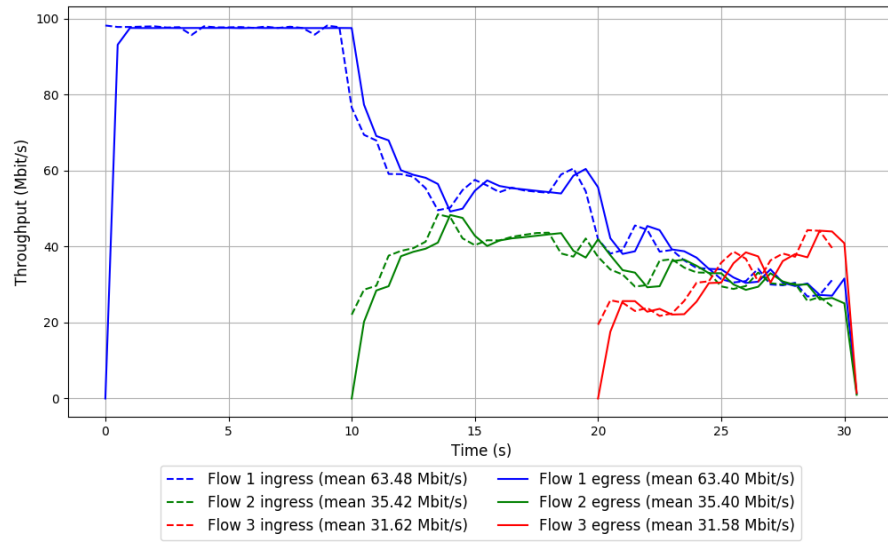
-- Flow 3:

Average throughput: 31.58 Mbit/s

95th percentile per-packet one-way delay: 33.514 ms

Loss rate: 0.09%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-11 04:20:58

End at: 2018-09-11 04:21:28

Local clock offset: 5.11 ms

Remote clock offset: 0.38 ms

Below is generated by plot.py at 2018-09-11 04:25:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 31.663 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 64.99 Mbit/s

95th percentile per-packet one-way delay: 30.965 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 34.11 Mbit/s

95th percentile per-packet one-way delay: 32.478 ms

Loss rate: 0.04%

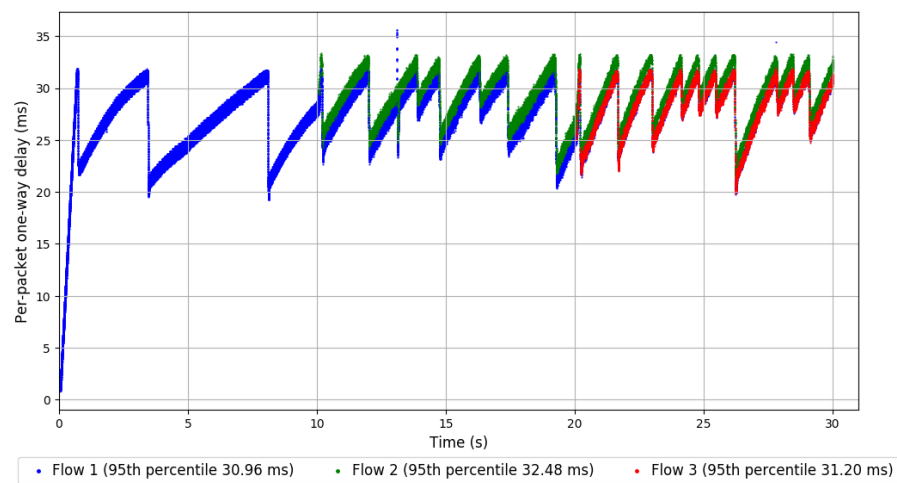
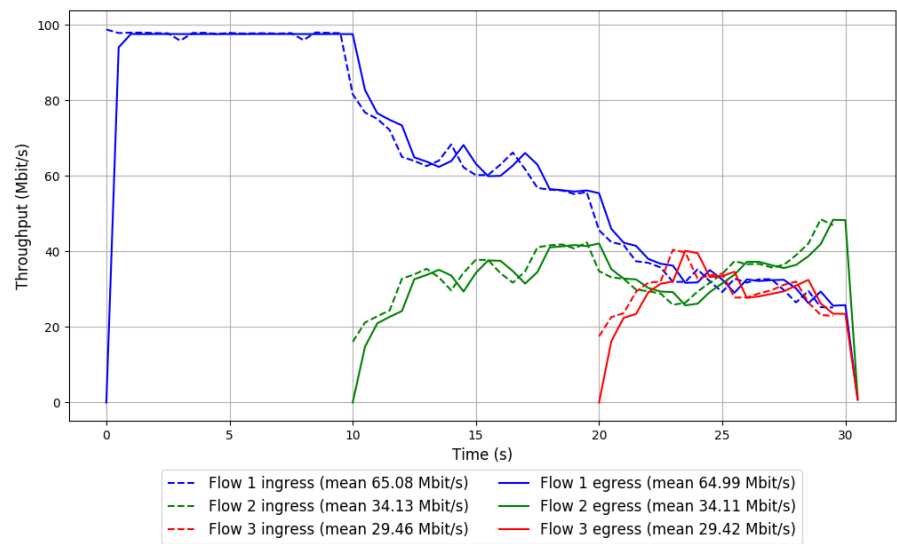
-- Flow 3:

Average throughput: 29.42 Mbit/s

95th percentile per-packet one-way delay: 31.201 ms

Loss rate: 0.06%

Run 5: Report of TCP Cubic — Data Link

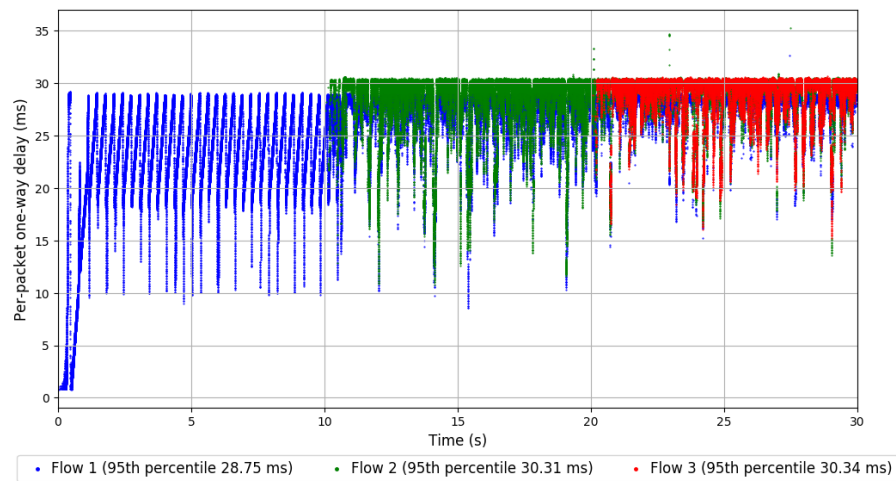
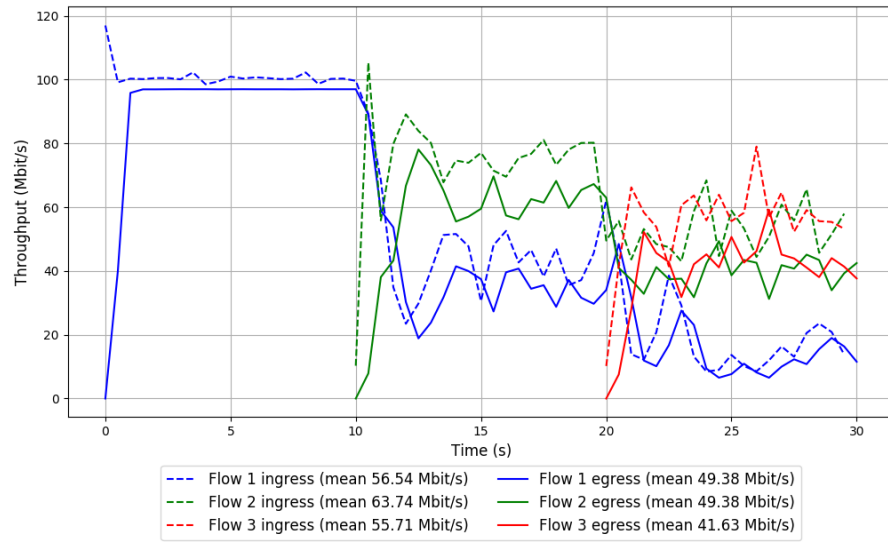


Run 1: Statistics of FillP

Start at: 2018-09-11 02:45:28
End at: 2018-09-11 02:45:58
Local clock offset: -2.646 ms
Remote clock offset: -0.063 ms

Below is generated by plot.py at 2018-09-11 04:25:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 30.230 ms
Loss rate: 18.17%
-- Flow 1:
Average throughput: 49.38 Mbit/s
95th percentile per-packet one-way delay: 28.754 ms
Loss rate: 12.58%
-- Flow 2:
Average throughput: 49.38 Mbit/s
95th percentile per-packet one-way delay: 30.313 ms
Loss rate: 22.53%
-- Flow 3:
Average throughput: 41.63 Mbit/s
95th percentile per-packet one-way delay: 30.341 ms
Loss rate: 25.25%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-11 03:05:56

End at: 2018-09-11 03:06:26

Local clock offset: 0.518 ms

Remote clock offset: 0.056 ms

Below is generated by plot.py at 2018-09-11 04:25:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.97 Mbit/s

95th percentile per-packet one-way delay: 30.217 ms

Loss rate: 16.30%

-- Flow 1:

Average throughput: 50.37 Mbit/s

95th percentile per-packet one-way delay: 30.348 ms

Loss rate: 11.05%

-- Flow 2:

Average throughput: 47.81 Mbit/s

95th percentile per-packet one-way delay: 28.995 ms

Loss rate: 20.17%

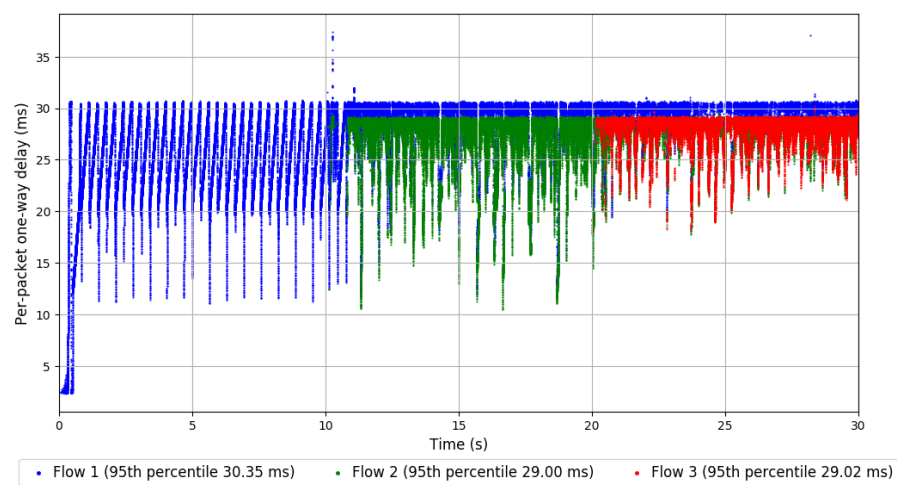
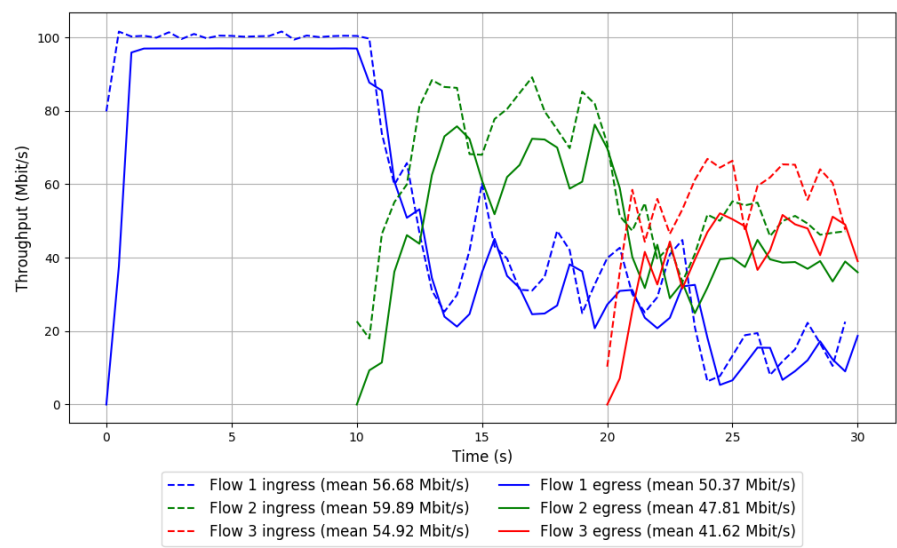
-- Flow 3:

Average throughput: 41.62 Mbit/s

95th percentile per-packet one-way delay: 29.022 ms

Loss rate: 24.15%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-11 03:26:25

End at: 2018-09-11 03:26:55

Local clock offset: 3.06 ms

Remote clock offset: 0.195 ms

Below is generated by plot.py at 2018-09-11 04:25:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.00 Mbit/s

95th percentile per-packet one-way delay: 30.456 ms

Loss rate: 17.18%

-- Flow 1:

Average throughput: 53.23 Mbit/s

95th percentile per-packet one-way delay: 30.389 ms

Loss rate: 11.97%

-- Flow 2:

Average throughput: 46.53 Mbit/s

95th percentile per-packet one-way delay: 30.491 ms

Loss rate: 22.35%

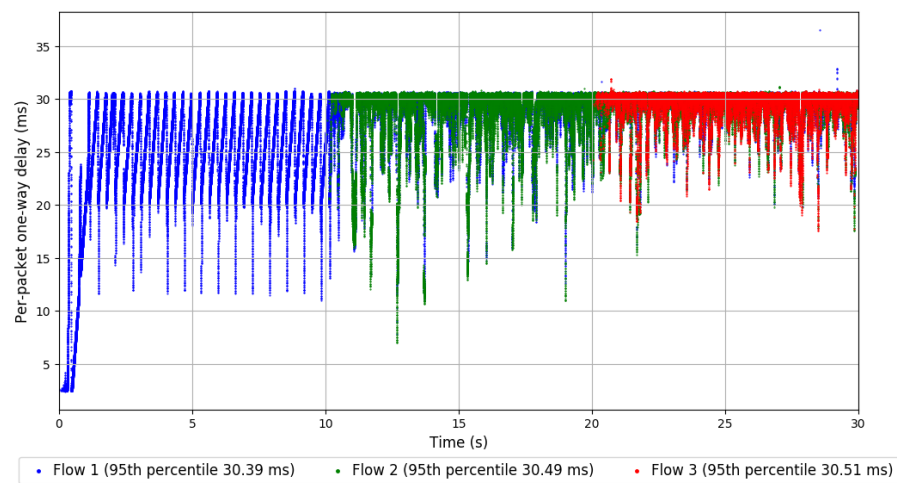
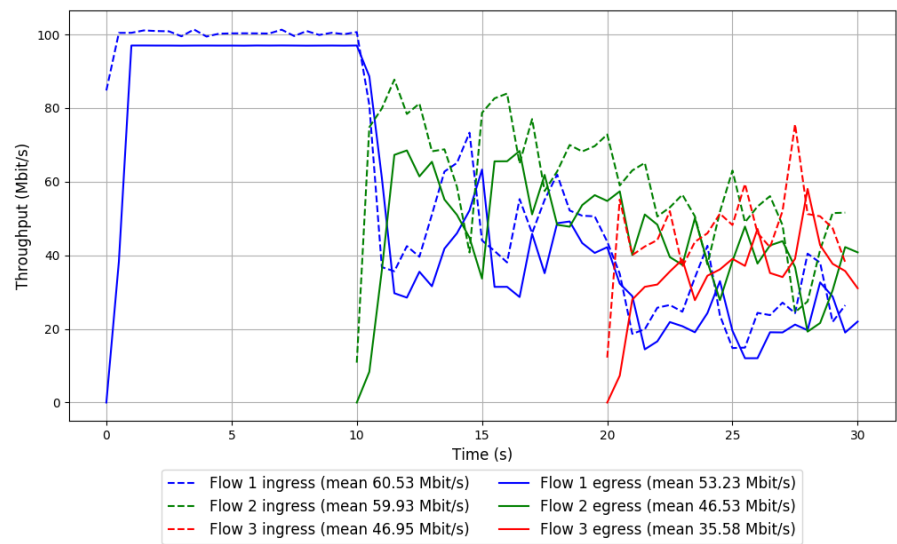
-- Flow 3:

Average throughput: 35.58 Mbit/s

95th percentile per-packet one-way delay: 30.506 ms

Loss rate: 24.18%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-11 03:46:52

End at: 2018-09-11 03:47:22

Local clock offset: 4.007 ms

Remote clock offset: 0.211 ms

Below is generated by plot.py at 2018-09-11 04:26:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.97 Mbit/s

95th percentile per-packet one-way delay: 30.312 ms

Loss rate: 17.98%

-- Flow 1:

Average throughput: 55.02 Mbit/s

95th percentile per-packet one-way delay: 30.242 ms

Loss rate: 12.18%

-- Flow 2:

Average throughput: 43.86 Mbit/s

95th percentile per-packet one-way delay: 30.349 ms

Loss rate: 23.79%

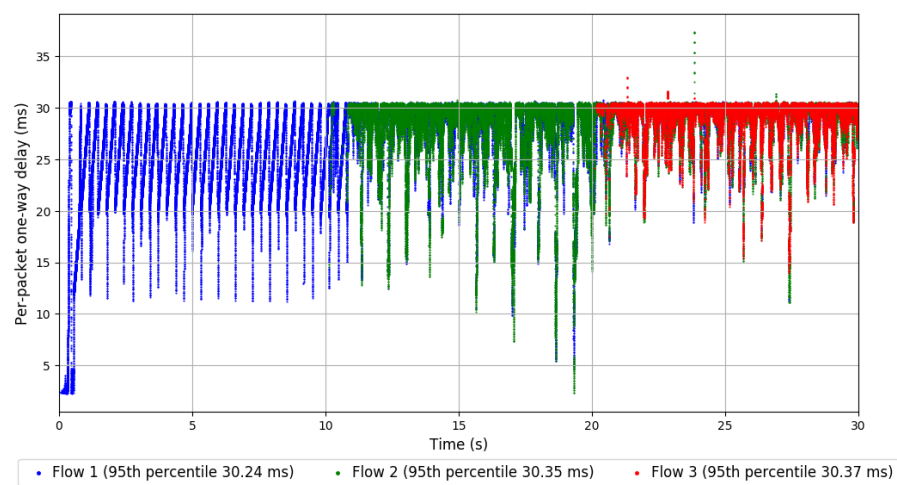
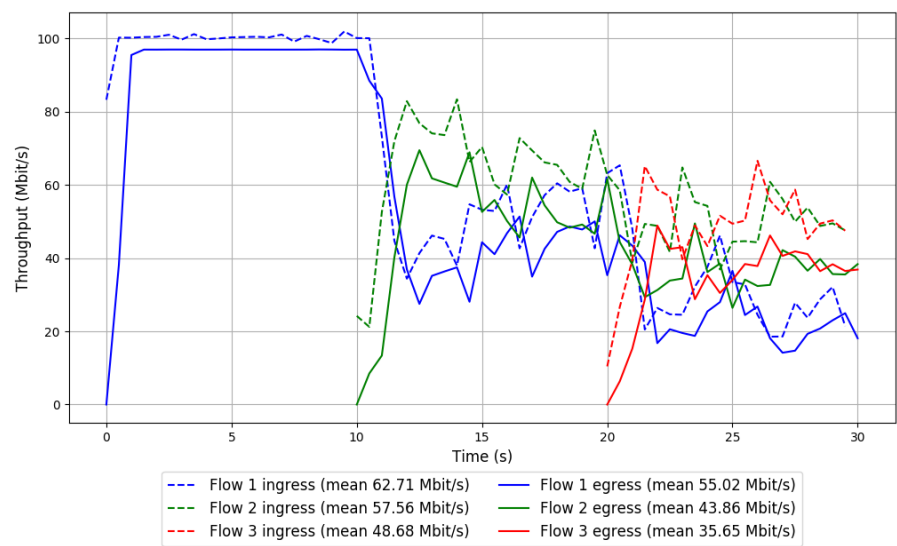
-- Flow 3:

Average throughput: 35.65 Mbit/s

95th percentile per-packet one-way delay: 30.367 ms

Loss rate: 26.76%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-11 04:07:20

End at: 2018-09-11 04:07:50

Local clock offset: 3.822 ms

Remote clock offset: 0.373 ms

Below is generated by plot.py at 2018-09-11 04:26:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.00 Mbit/s

95th percentile per-packet one-way delay: 31.047 ms

Loss rate: 16.92%

-- Flow 1:

Average throughput: 51.21 Mbit/s

95th percentile per-packet one-way delay: 31.069 ms

Loss rate: 11.55%

-- Flow 2:

Average throughput: 47.89 Mbit/s

95th percentile per-packet one-way delay: 29.718 ms

Loss rate: 21.51%

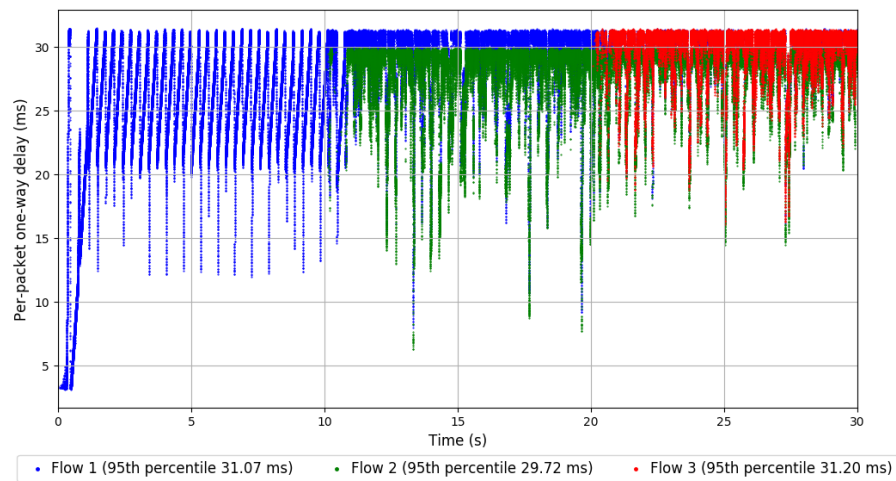
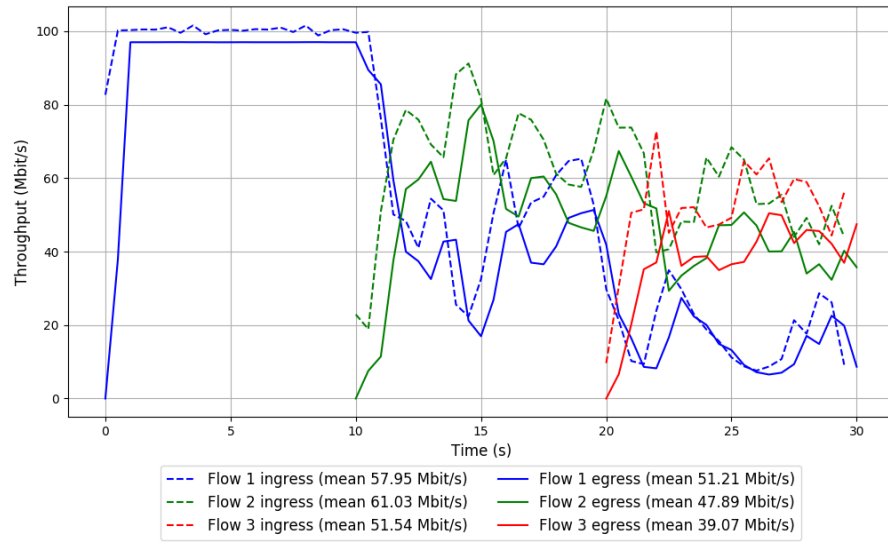
-- Flow 3:

Average throughput: 39.07 Mbit/s

95th percentile per-packet one-way delay: 31.197 ms

Loss rate: 24.20%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-11 02:41:59

End at: 2018-09-11 02:42:29

Local clock offset: -3.853 ms

Remote clock offset: 0.012 ms

Below is generated by plot.py at 2018-09-11 04:26:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.56 Mbit/s

95th percentile per-packet one-way delay: 31.134 ms

Loss rate: 21.07%

-- Flow 1:

Average throughput: 62.60 Mbit/s

95th percentile per-packet one-way delay: 29.728 ms

Loss rate: 15.17%

-- Flow 2:

Average throughput: 40.29 Mbit/s

95th percentile per-packet one-way delay: 31.259 ms

Loss rate: 29.77%

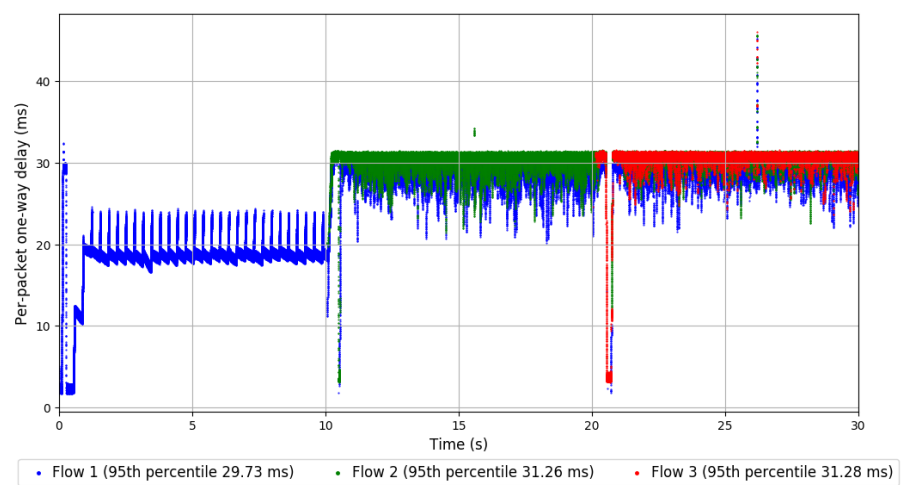
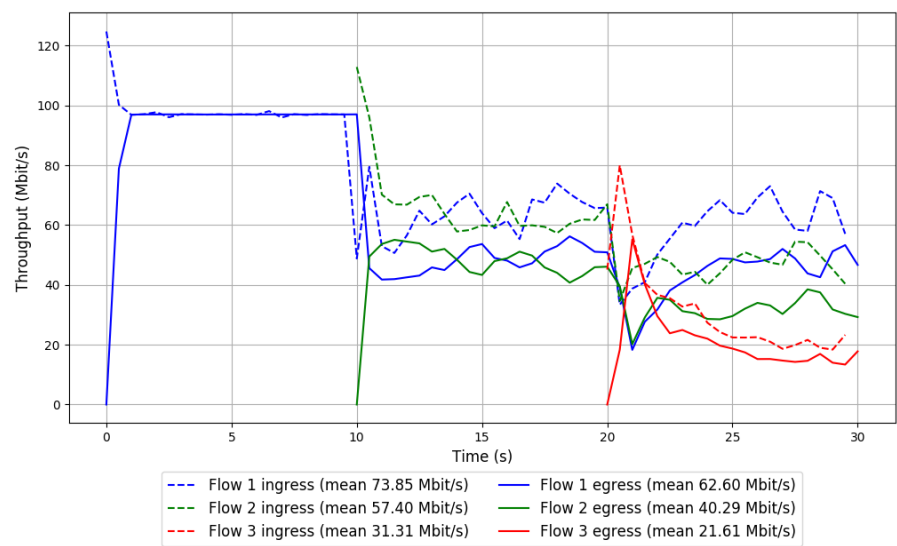
-- Flow 3:

Average throughput: 21.61 Mbit/s

95th percentile per-packet one-way delay: 31.276 ms

Loss rate: 31.01%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-11 03:02:28

End at: 2018-09-11 03:02:58

Local clock offset: -0.391 ms

Remote clock offset: 0.027 ms

Below is generated by plot.py at 2018-09-11 04:26:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.45 Mbit/s

95th percentile per-packet one-way delay: 30.125 ms

Loss rate: 22.10%

-- Flow 1:

Average throughput: 60.07 Mbit/s

95th percentile per-packet one-way delay: 29.015 ms

Loss rate: 16.16%

-- Flow 2:

Average throughput: 40.23 Mbit/s

95th percentile per-packet one-way delay: 29.074 ms

Loss rate: 28.08%

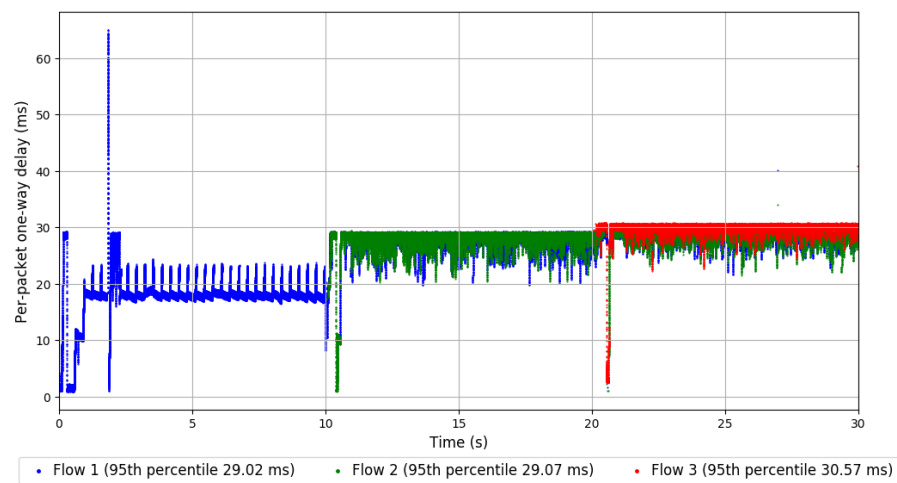
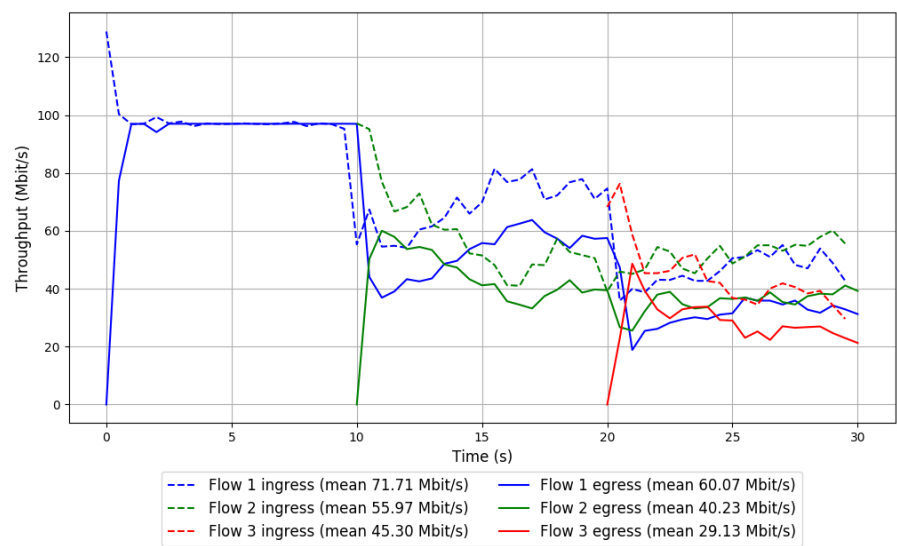
-- Flow 3:

Average throughput: 29.13 Mbit/s

95th percentile per-packet one-way delay: 30.573 ms

Loss rate: 35.61%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-11 03:22:56

End at: 2018-09-11 03:23:26

Local clock offset: 2.812 ms

Remote clock offset: 0.166 ms

Below is generated by plot.py at 2018-09-11 04:26:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.48 Mbit/s

95th percentile per-packet one-way delay: 30.266 ms

Loss rate: 21.95%

-- Flow 1:

Average throughput: 59.90 Mbit/s

95th percentile per-packet one-way delay: 28.902 ms

Loss rate: 15.73%

-- Flow 2:

Average throughput: 40.45 Mbit/s

95th percentile per-packet one-way delay: 30.441 ms

Loss rate: 29.48%

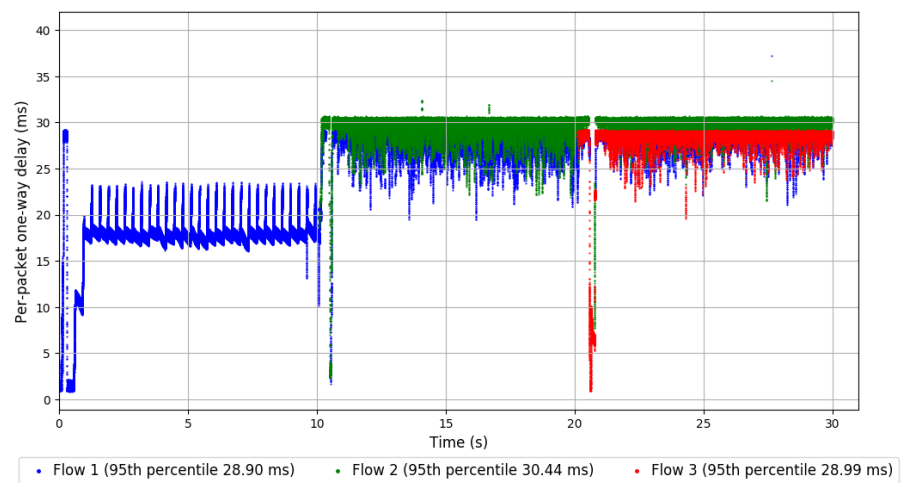
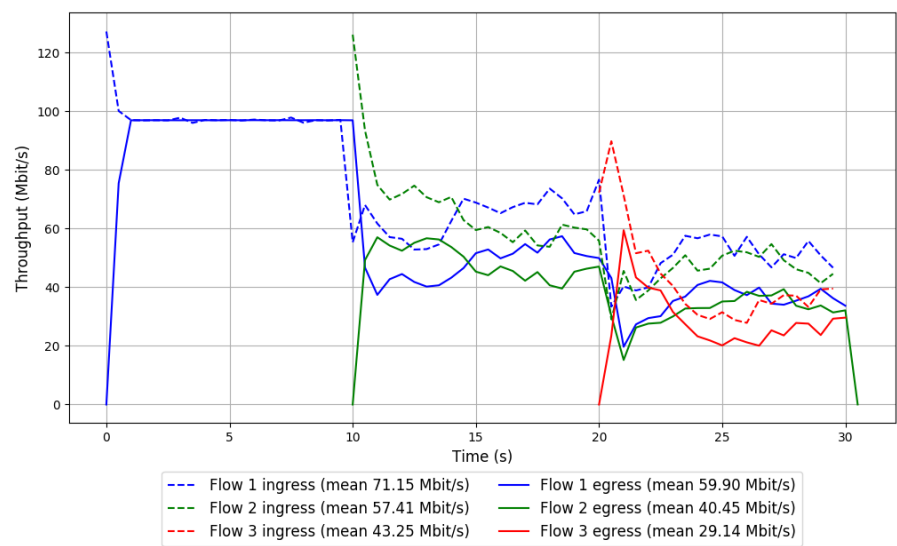
-- Flow 3:

Average throughput: 29.14 Mbit/s

95th percentile per-packet one-way delay: 28.993 ms

Loss rate: 32.64%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-11 03:43:23

End at: 2018-09-11 03:43:53

Local clock offset: 3.82 ms

Remote clock offset: 0.265 ms

Below is generated by plot.py at 2018-09-11 04:27:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.53 Mbit/s

95th percentile per-packet one-way delay: 30.209 ms

Loss rate: 20.70%

-- Flow 1:

Average throughput: 63.22 Mbit/s

95th percentile per-packet one-way delay: 28.863 ms

Loss rate: 15.00%

-- Flow 2:

Average throughput: 35.87 Mbit/s

95th percentile per-packet one-way delay: 30.404 ms

Loss rate: 28.83%

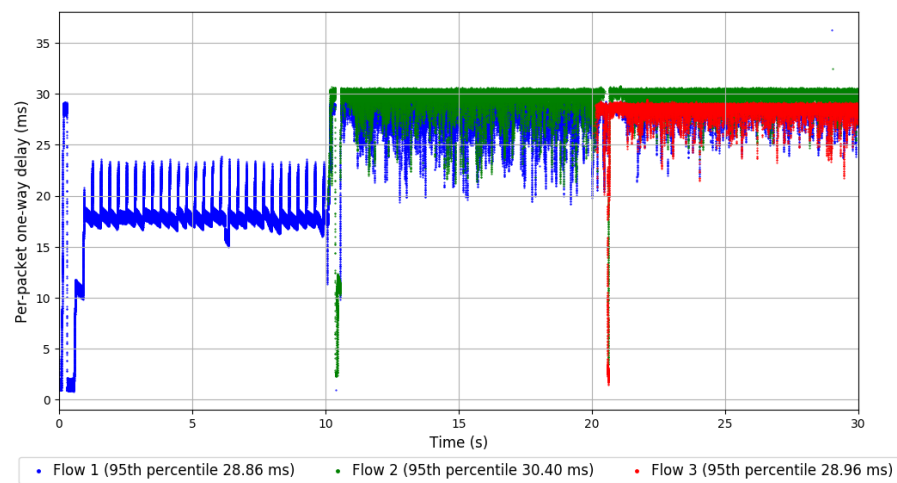
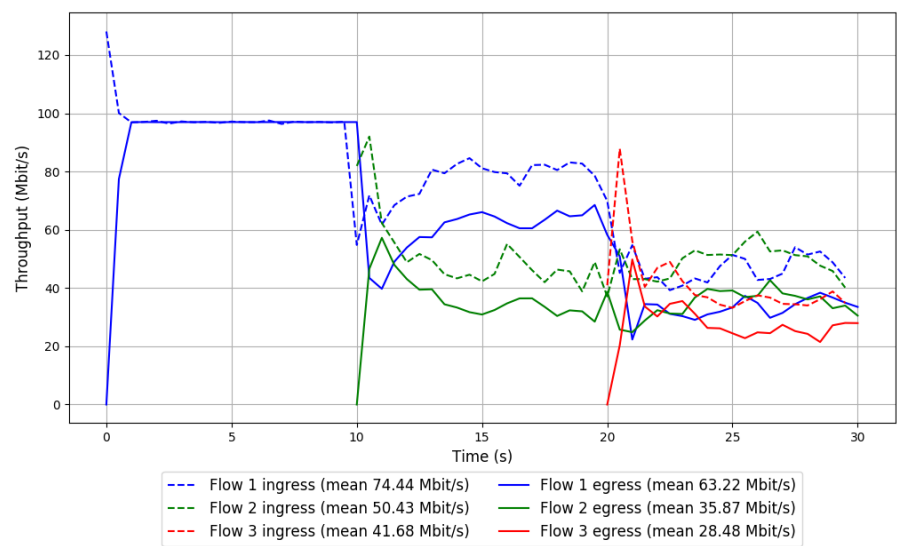
-- Flow 3:

Average throughput: 28.48 Mbit/s

95th percentile per-packet one-way delay: 28.956 ms

Loss rate: 31.67%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-11 04:03:51

End at: 2018-09-11 04:04:21

Local clock offset: 4.614 ms

Remote clock offset: 0.221 ms

Below is generated by plot.py at 2018-09-11 04:27:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.56 Mbit/s

95th percentile per-packet one-way delay: 30.026 ms

Loss rate: 21.62%

-- Flow 1:

Average throughput: 62.39 Mbit/s

95th percentile per-packet one-way delay: 28.681 ms

Loss rate: 15.41%

-- Flow 2:

Average throughput: 35.03 Mbit/s

95th percentile per-packet one-way delay: 30.223 ms

Loss rate: 30.07%

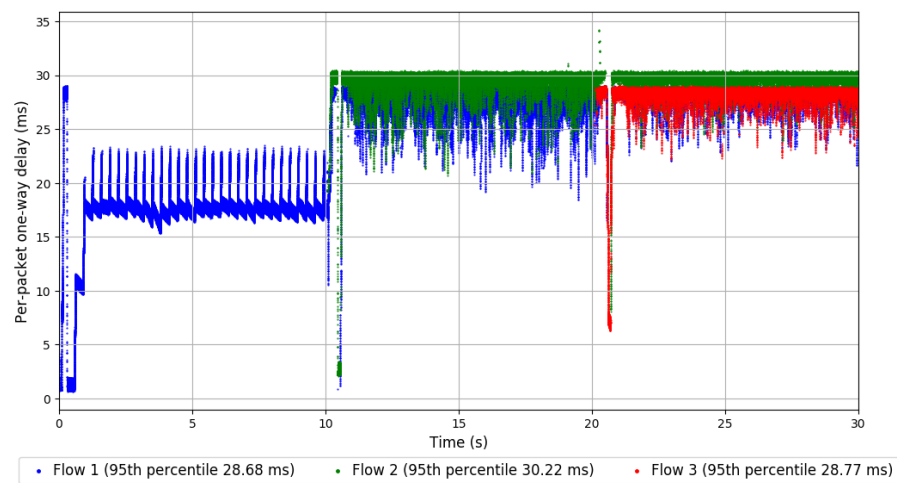
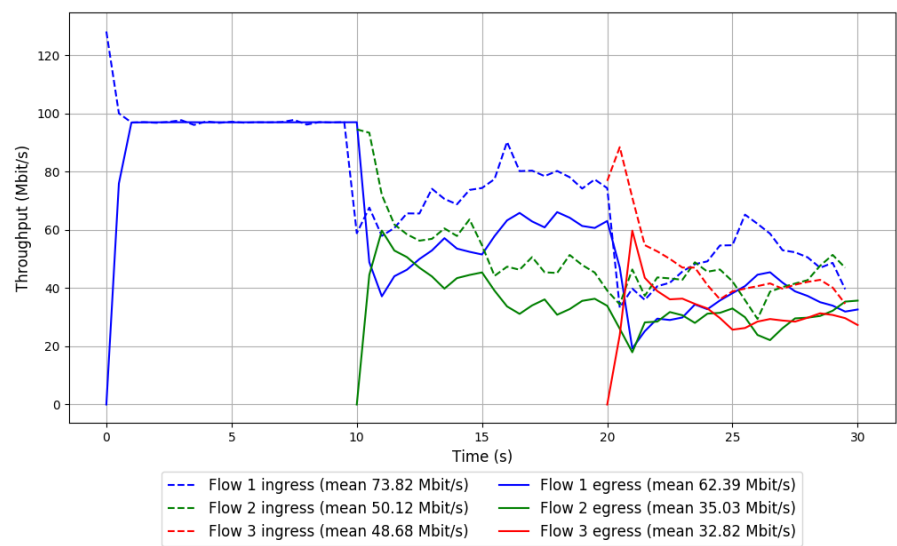
-- Flow 3:

Average throughput: 32.82 Mbit/s

95th percentile per-packet one-way delay: 28.771 ms

Loss rate: 32.55%

Run 5: Report of FillP-Sheep — Data Link

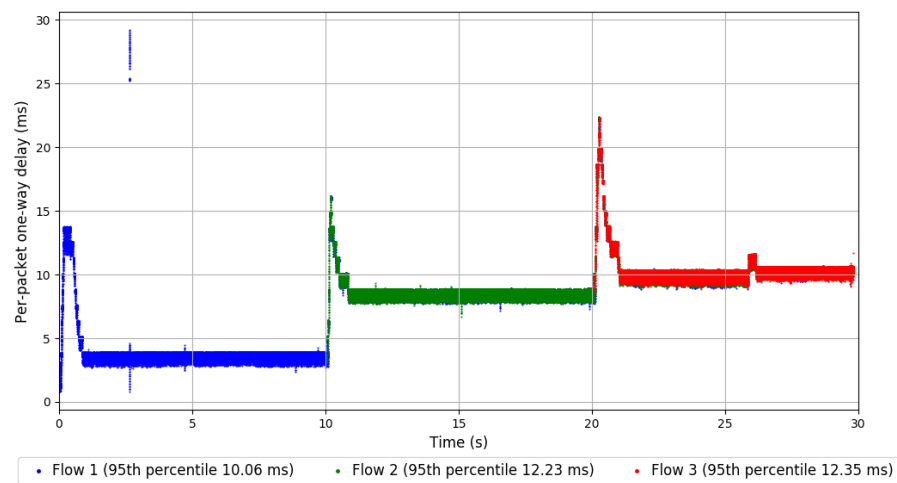
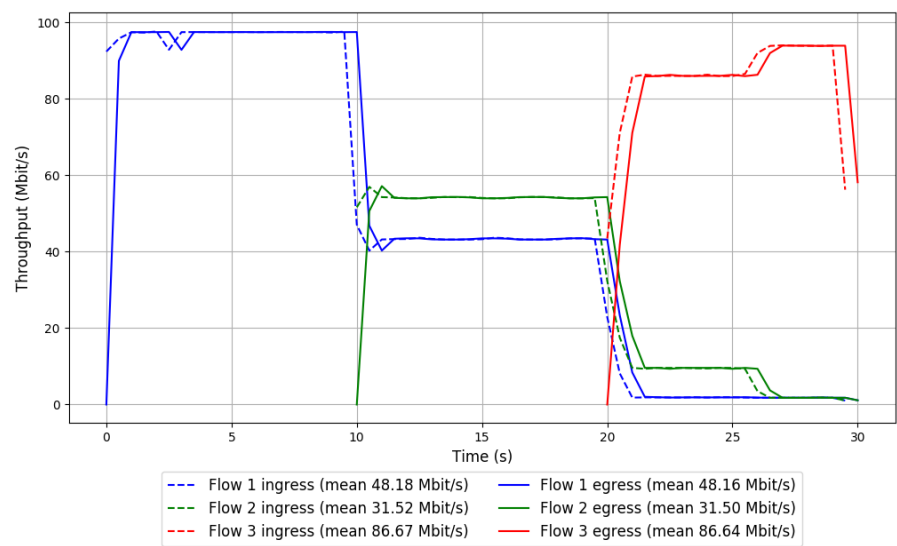


Run 1: Statistics of Indigo

Start at: 2018-09-11 02:51:08
End at: 2018-09-11 02:51:38
Local clock offset: -2.232 ms
Remote clock offset: -0.059 ms

Below is generated by plot.py at 2018-09-11 04:27:20
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.32 Mbit/s
95th percentile per-packet one-way delay: 11.486 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 48.16 Mbit/s
95th percentile per-packet one-way delay: 10.064 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.50 Mbit/s
95th percentile per-packet one-way delay: 12.235 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 86.64 Mbit/s
95th percentile per-packet one-way delay: 12.345 ms
Loss rate: 0.00%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-11 03:11:36

End at: 2018-09-11 03:12:06

Local clock offset: 0.774 ms

Remote clock offset: 0.086 ms

Below is generated by plot.py at 2018-09-11 04:27:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.38 Mbit/s

95th percentile per-packet one-way delay: 13.797 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 46.81 Mbit/s

95th percentile per-packet one-way delay: 11.988 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 41.70 Mbit/s

95th percentile per-packet one-way delay: 14.075 ms

Loss rate: 0.00%

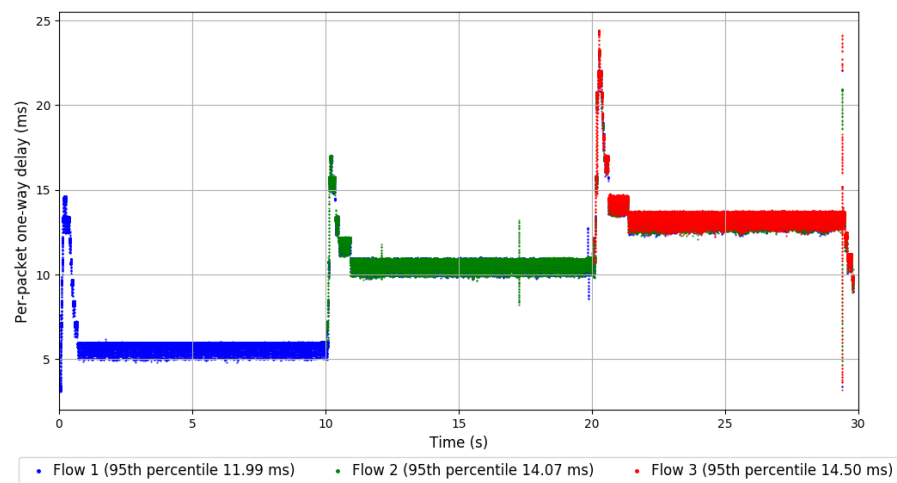
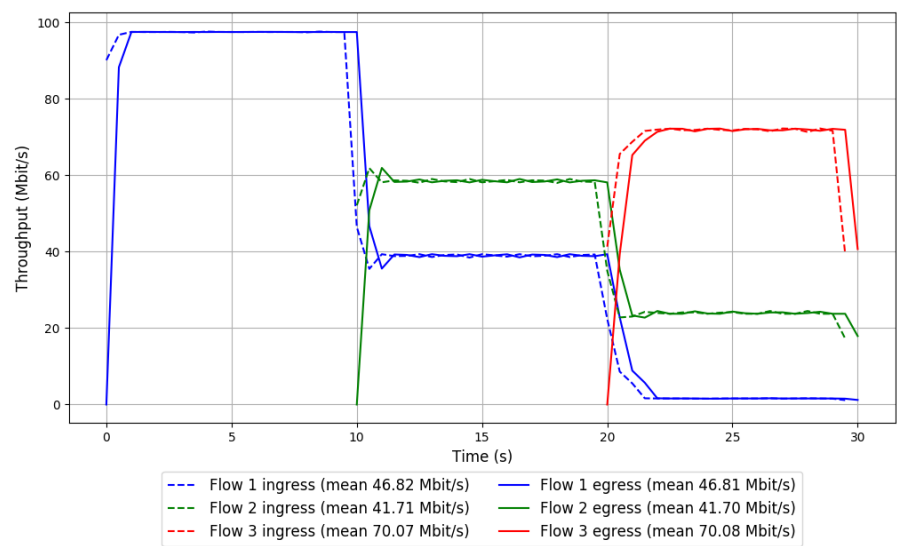
-- Flow 3:

Average throughput: 70.08 Mbit/s

95th percentile per-packet one-way delay: 14.496 ms

Loss rate: 0.02%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-11 03:32:04

End at: 2018-09-11 03:32:34

Local clock offset: 3.344 ms

Remote clock offset: 0.167 ms

Below is generated by plot.py at 2018-09-11 04:27:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.40 Mbit/s

95th percentile per-packet one-way delay: 13.526 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 45.32 Mbit/s

95th percentile per-packet one-way delay: 11.153 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 44.20 Mbit/s

95th percentile per-packet one-way delay: 12.344 ms

Loss rate: 0.00%

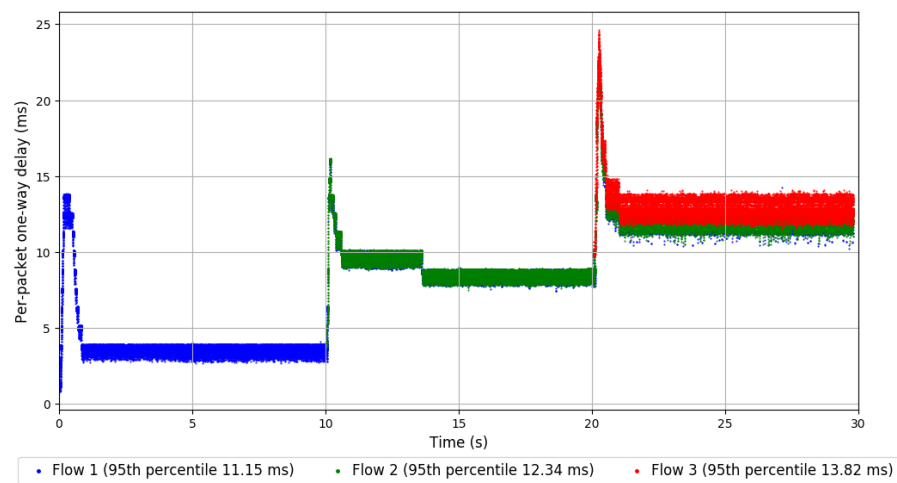
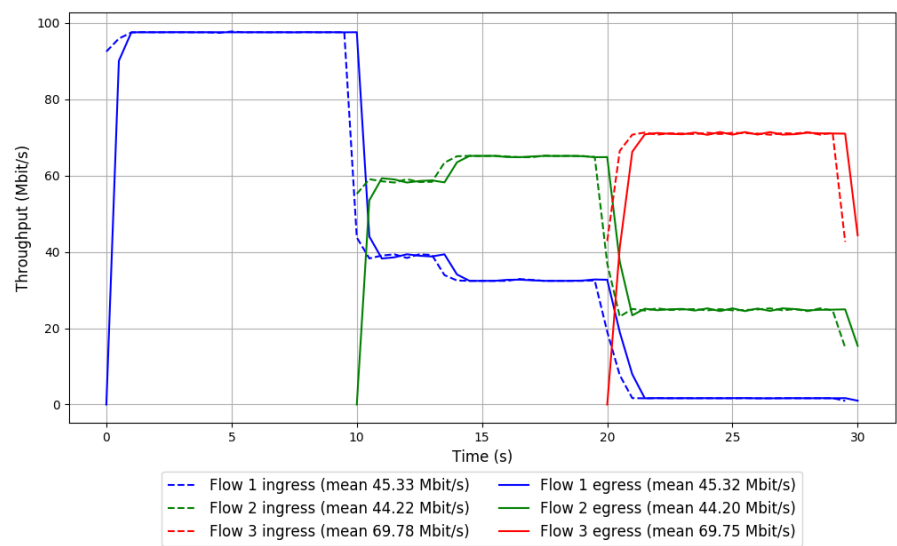
-- Flow 3:

Average throughput: 69.75 Mbit/s

95th percentile per-packet one-way delay: 13.818 ms

Loss rate: 0.02%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-11 03:52:32

End at: 2018-09-11 03:53:02

Local clock offset: 3.577 ms

Remote clock offset: 0.288 ms

Below is generated by plot.py at 2018-09-11 04:27:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.40 Mbit/s

95th percentile per-packet one-way delay: 12.498 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.63 Mbit/s

95th percentile per-packet one-way delay: 10.914 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 33.40 Mbit/s

95th percentile per-packet one-way delay: 13.482 ms

Loss rate: 0.01%

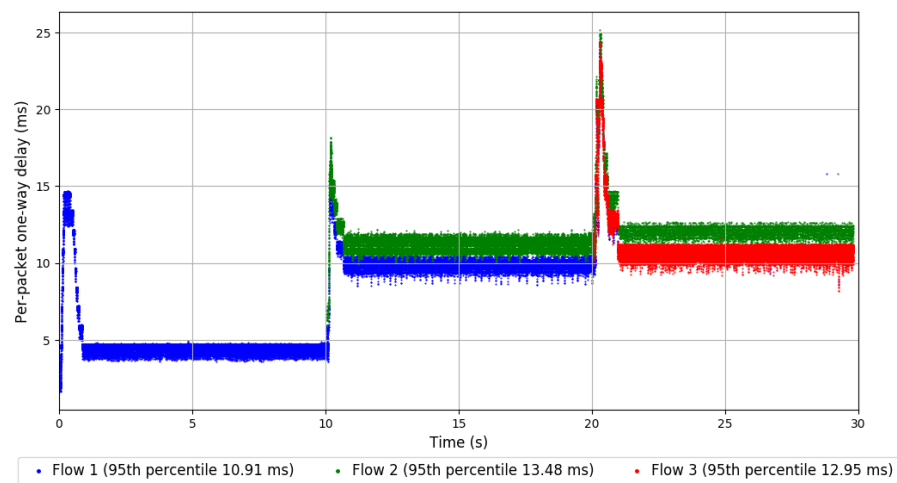
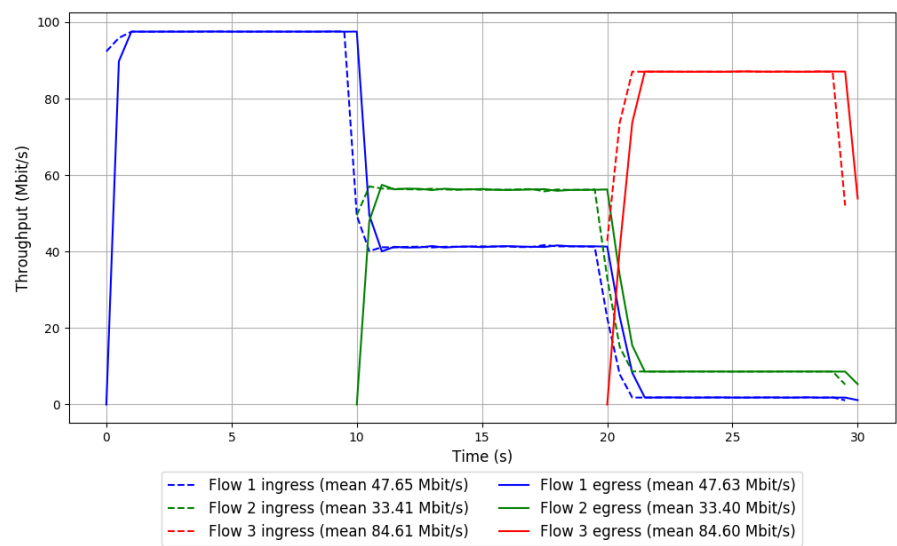
-- Flow 3:

Average throughput: 84.60 Mbit/s

95th percentile per-packet one-way delay: 12.950 ms

Loss rate: 0.00%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-11 04:13:00

End at: 2018-09-11 04:13:30

Local clock offset: 4.732 ms

Remote clock offset: 0.358 ms

Below is generated by plot.py at 2018-09-11 04:28:08

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.37 Mbit/s

95th percentile per-packet one-way delay: 12.652 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.29 Mbit/s

95th percentile per-packet one-way delay: 10.865 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 36.78 Mbit/s

95th percentile per-packet one-way delay: 11.918 ms

Loss rate: 0.00%

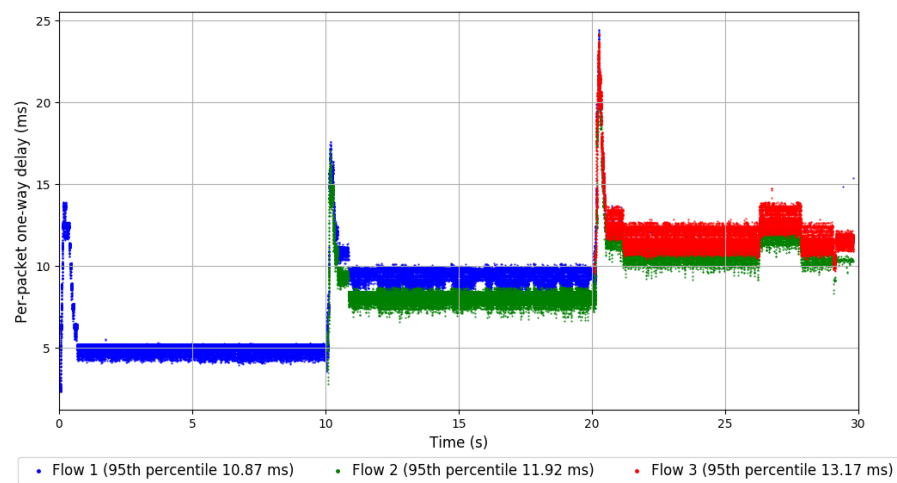
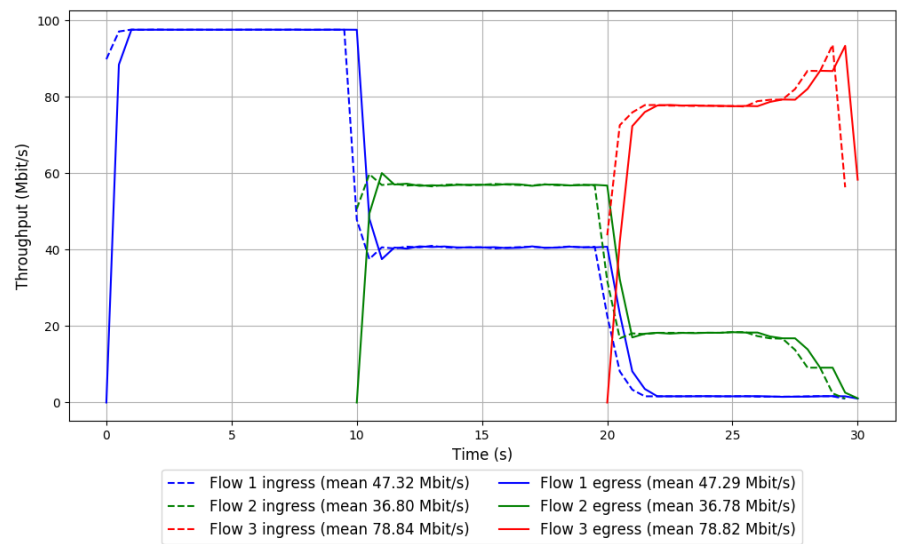
-- Flow 3:

Average throughput: 78.82 Mbit/s

95th percentile per-packet one-way delay: 13.166 ms

Loss rate: 0.01%

Run 5: Report of Indigo — Data Link

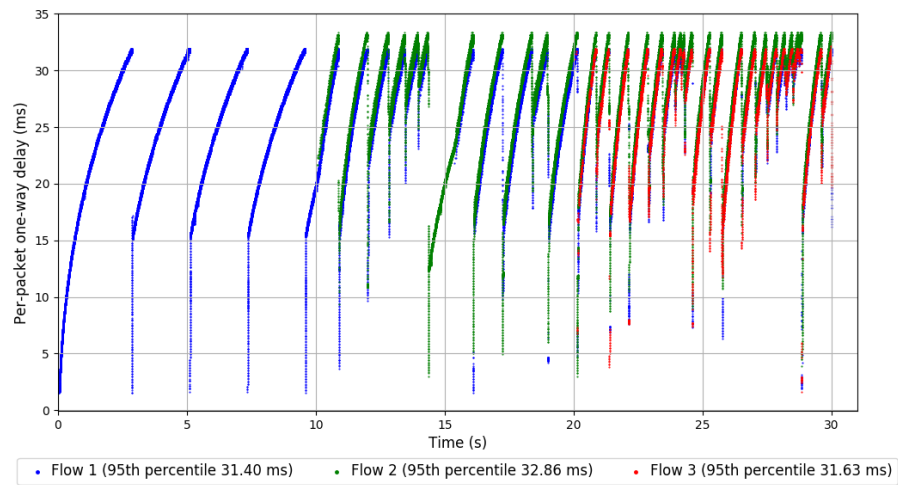
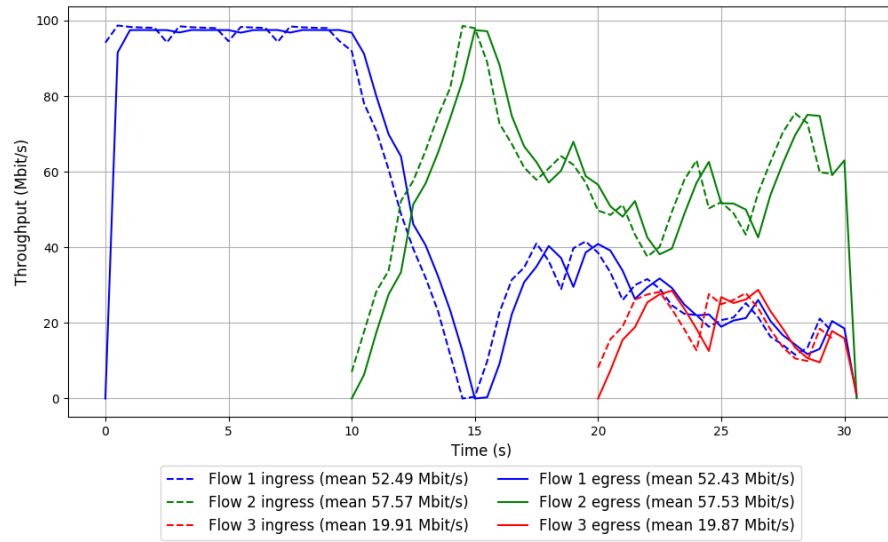


Run 1: Statistics of LEDBAT

Start at: 2018-09-11 02:53:24
End at: 2018-09-11 02:53:54
Local clock offset: -2.866 ms
Remote clock offset: -0.066 ms

Below is generated by plot.py at 2018-09-11 04:28:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 32.159 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 52.43 Mbit/s
95th percentile per-packet one-way delay: 31.400 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 57.53 Mbit/s
95th percentile per-packet one-way delay: 32.858 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 19.87 Mbit/s
95th percentile per-packet one-way delay: 31.633 ms
Loss rate: 0.31%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-11 03:13:52

End at: 2018-09-11 03:14:22

Local clock offset: 1.853 ms

Remote clock offset: 0.144 ms

Below is generated by plot.py at 2018-09-11 04:28:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.19 Mbit/s

95th percentile per-packet one-way delay: 32.034 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 72.25 Mbit/s

95th percentile per-packet one-way delay: 32.197 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 26.48 Mbit/s

95th percentile per-packet one-way delay: 31.027 ms

Loss rate: 0.19%

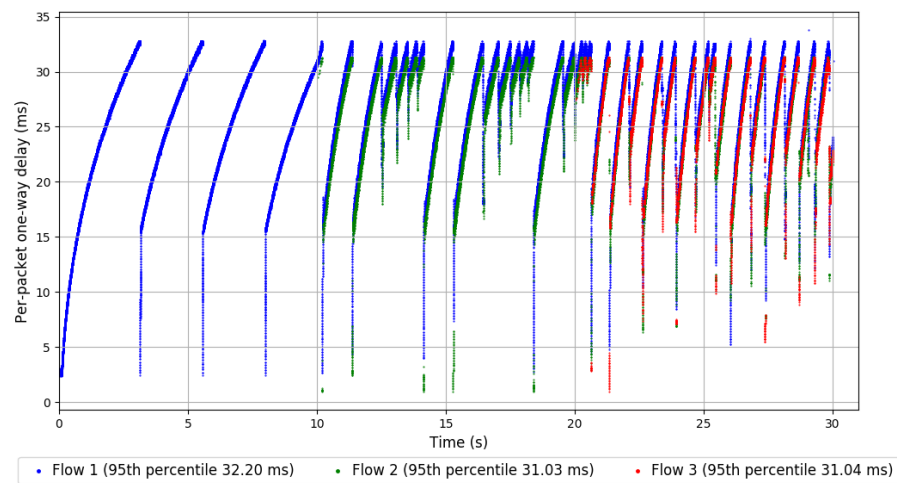
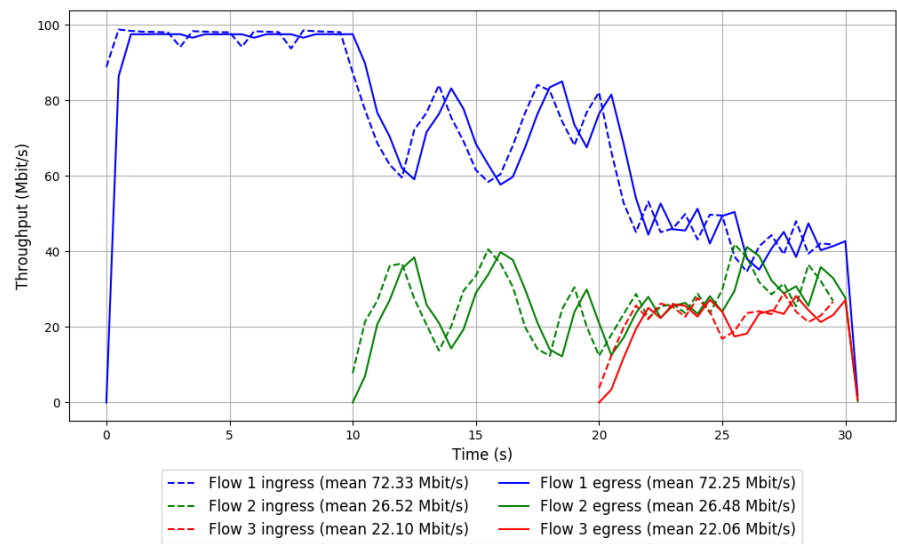
-- Flow 3:

Average throughput: 22.06 Mbit/s

95th percentile per-packet one-way delay: 31.035 ms

Loss rate: 0.20%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-11 03:34:20

End at: 2018-09-11 03:34:50

Local clock offset: 3.431 ms

Remote clock offset: 0.157 ms

Below is generated by plot.py at 2018-09-11 04:28:29

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.18 Mbit/s

95th percentile per-packet one-way delay: 32.123 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 64.12 Mbit/s

95th percentile per-packet one-way delay: 32.129 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 38.74 Mbit/s

95th percentile per-packet one-way delay: 32.157 ms

Loss rate: 0.05%

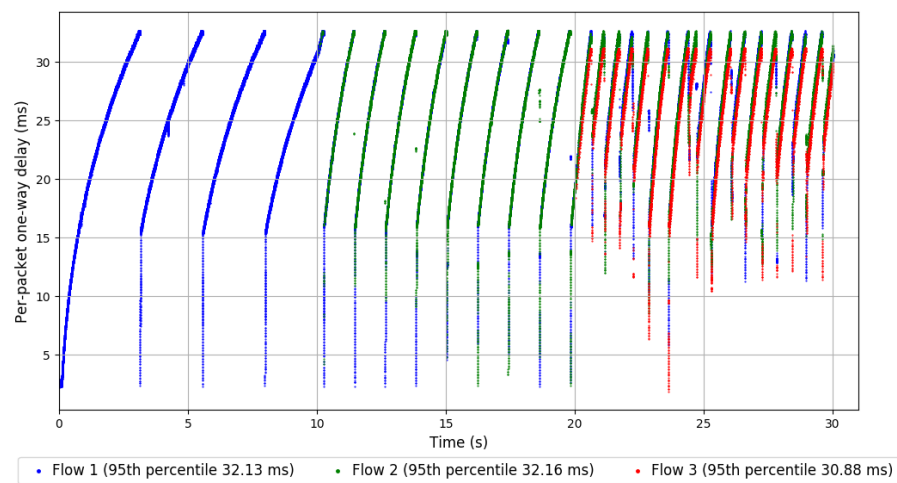
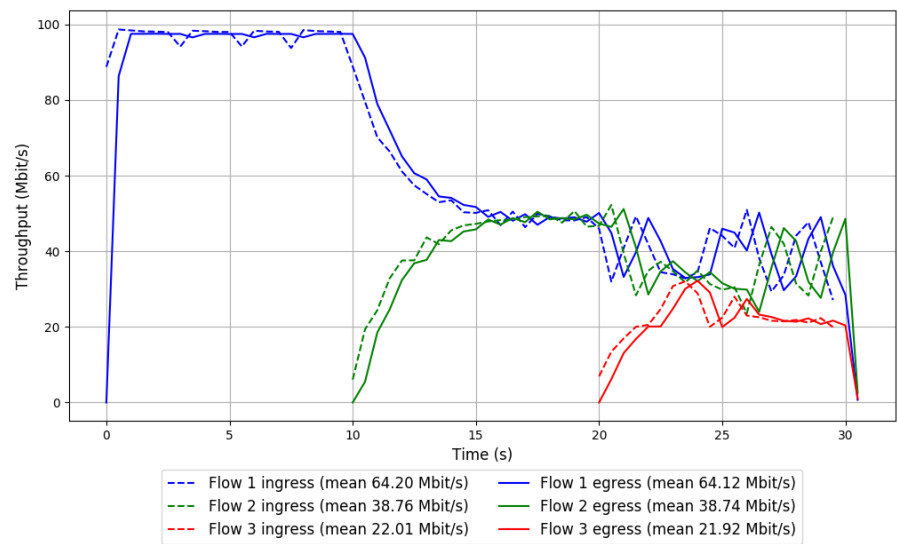
-- Flow 3:

Average throughput: 21.92 Mbit/s

95th percentile per-packet one-way delay: 30.881 ms

Loss rate: 0.33%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-11 03:54:48

End at: 2018-09-11 03:55:18

Local clock offset: 3.711 ms

Remote clock offset: 0.219 ms

Below is generated by plot.py at 2018-09-11 04:28:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.30 Mbit/s

95th percentile per-packet one-way delay: 31.646 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 61.32 Mbit/s

95th percentile per-packet one-way delay: 31.478 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 39.23 Mbit/s

95th percentile per-packet one-way delay: 31.671 ms

Loss rate: 0.06%

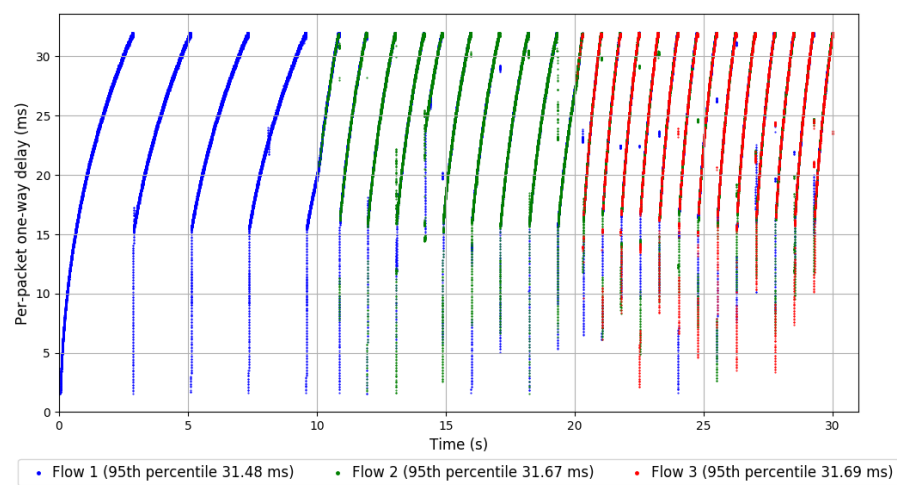
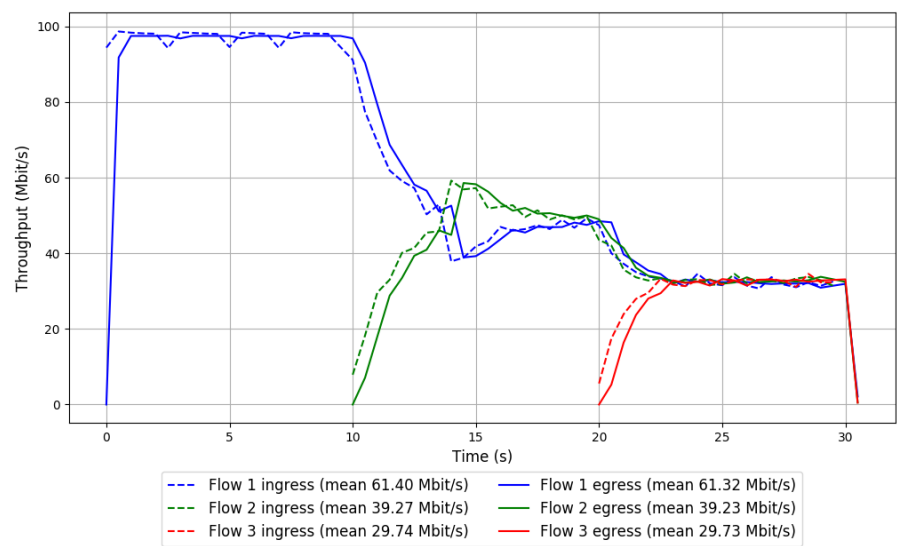
-- Flow 3:

Average throughput: 29.73 Mbit/s

95th percentile per-packet one-way delay: 31.693 ms

Loss rate: 0.08%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-11 04:15:16

End at: 2018-09-11 04:15:46

Local clock offset: 4.034 ms

Remote clock offset: 0.423 ms

Below is generated by plot.py at 2018-09-11 04:28:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.20 Mbit/s

95th percentile per-packet one-way delay: 32.794 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 67.45 Mbit/s

95th percentile per-packet one-way delay: 32.813 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 24.88 Mbit/s

95th percentile per-packet one-way delay: 31.769 ms

Loss rate: 0.20%

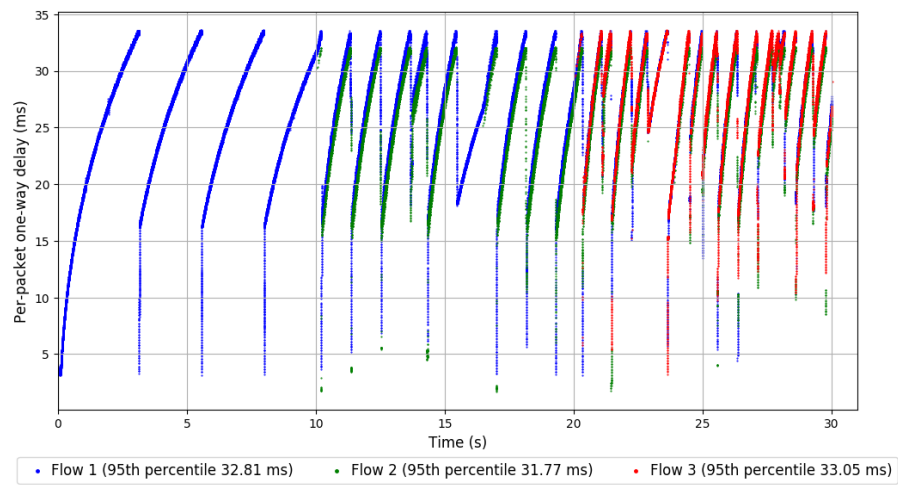
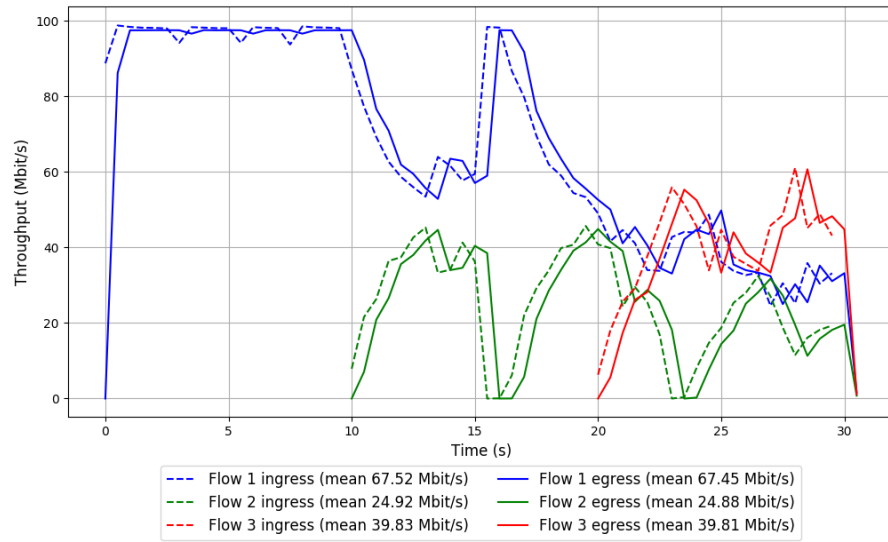
-- Flow 3:

Average throughput: 39.81 Mbit/s

95th percentile per-packet one-way delay: 33.054 ms

Loss rate: 0.06%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-11 02:47:47

End at: 2018-09-11 02:48:17

Local clock offset: -2.476 ms

Remote clock offset: 0.022 ms

Below is generated by plot.py at 2018-09-11 04:28:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 43.28 Mbit/s

95th percentile per-packet one-way delay: 2.953 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 21.62 Mbit/s

95th percentile per-packet one-way delay: 2.919 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 21.68 Mbit/s

95th percentile per-packet one-way delay: 2.965 ms

Loss rate: 0.00%

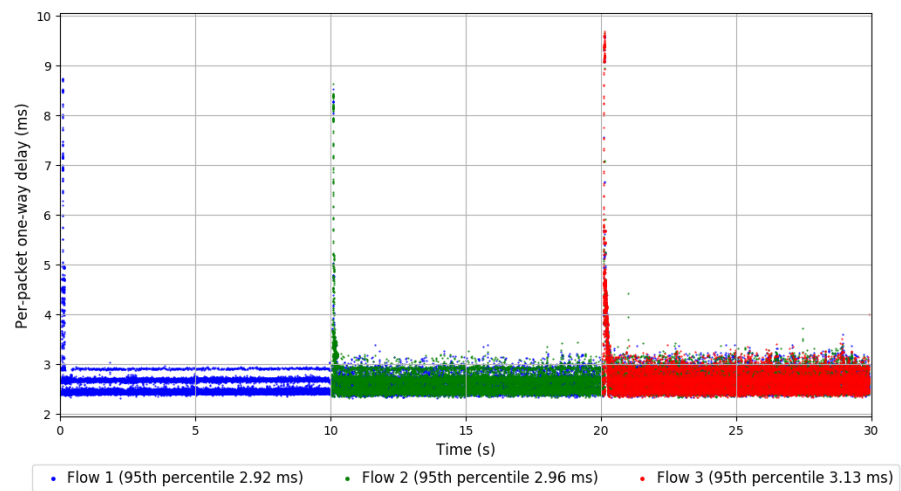
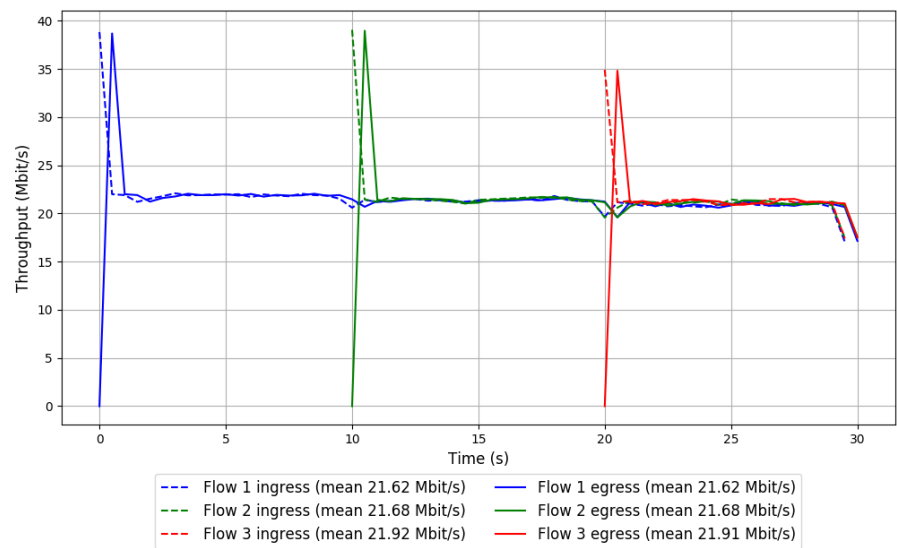
-- Flow 3:

Average throughput: 21.91 Mbit/s

95th percentile per-packet one-way delay: 3.134 ms

Loss rate: 0.01%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-11 03:08:15

End at: 2018-09-11 03:08:45

Local clock offset: 0.936 ms

Remote clock offset: 0.022 ms

Below is generated by plot.py at 2018-09-11 04:28:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 56.29 Mbit/s

95th percentile per-packet one-way delay: 2.848 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 29.64 Mbit/s

95th percentile per-packet one-way delay: 1.559 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 29.37 Mbit/s

95th percentile per-packet one-way delay: 1.631 ms

Loss rate: 0.00%

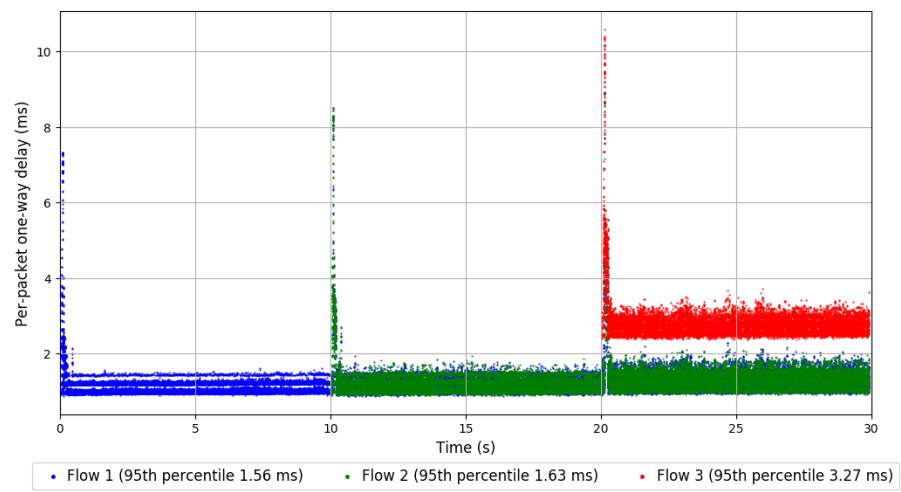
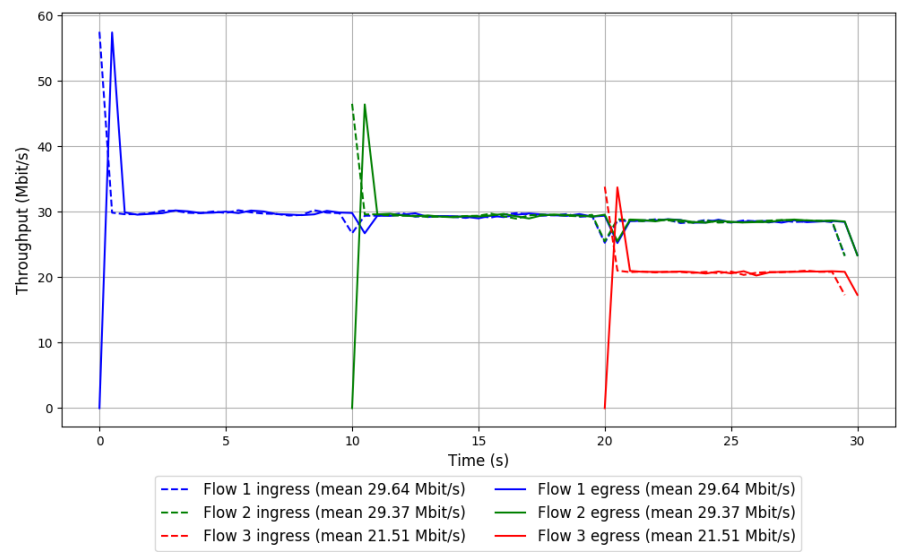
-- Flow 3:

Average throughput: 21.51 Mbit/s

95th percentile per-packet one-way delay: 3.275 ms

Loss rate: 0.02%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-11 03:28:43

End at: 2018-09-11 03:29:13

Local clock offset: 3.286 ms

Remote clock offset: 0.103 ms

Below is generated by plot.py at 2018-09-11 04:28:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 59.17 Mbit/s

95th percentile per-packet one-way delay: 1.515 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 30.01 Mbit/s

95th percentile per-packet one-way delay: 1.421 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 29.42 Mbit/s

95th percentile per-packet one-way delay: 1.516 ms

Loss rate: 0.00%

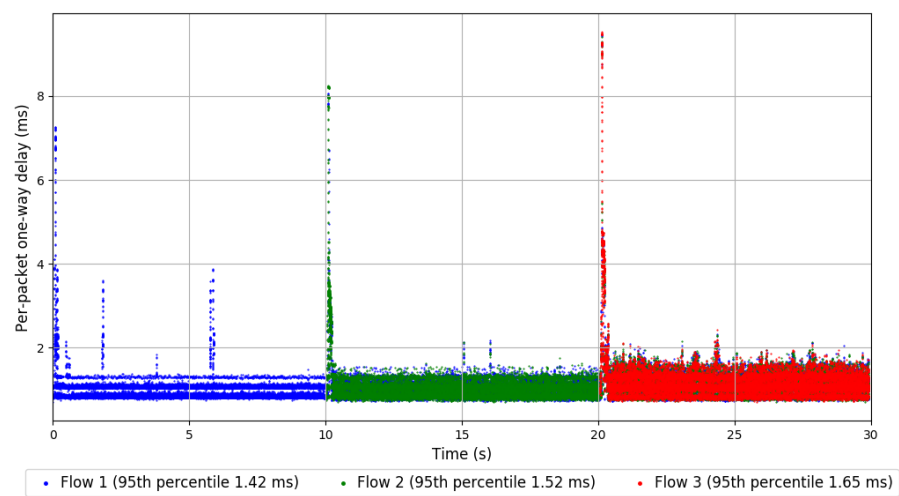
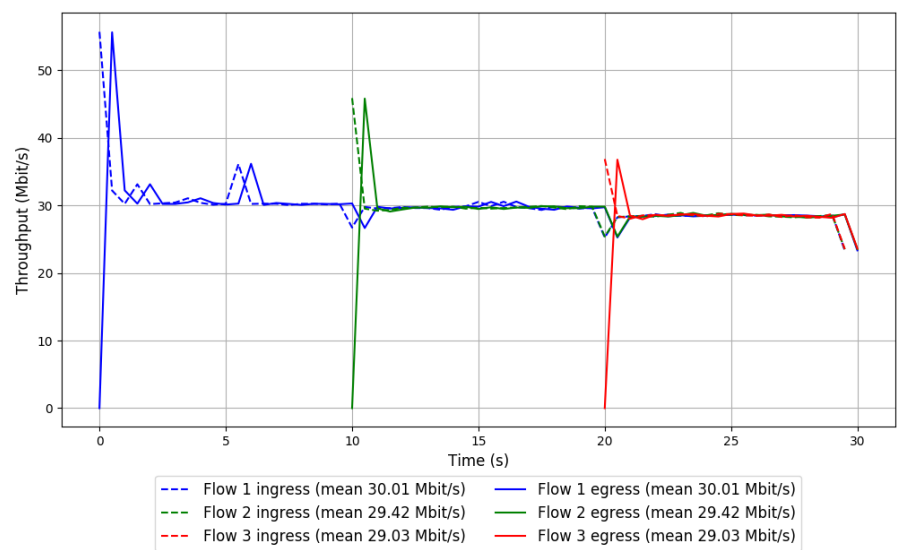
-- Flow 3:

Average throughput: 29.03 Mbit/s

95th percentile per-packet one-way delay: 1.650 ms

Loss rate: 0.00%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-11 03:49:10

End at: 2018-09-11 03:49:40

Local clock offset: 4.161 ms

Remote clock offset: 0.197 ms

Below is generated by plot.py at 2018-09-11 04:28:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 58.70 Mbit/s

95th percentile per-packet one-way delay: 1.533 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 29.58 Mbit/s

95th percentile per-packet one-way delay: 1.444 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 29.40 Mbit/s

95th percentile per-packet one-way delay: 1.535 ms

Loss rate: 0.00%

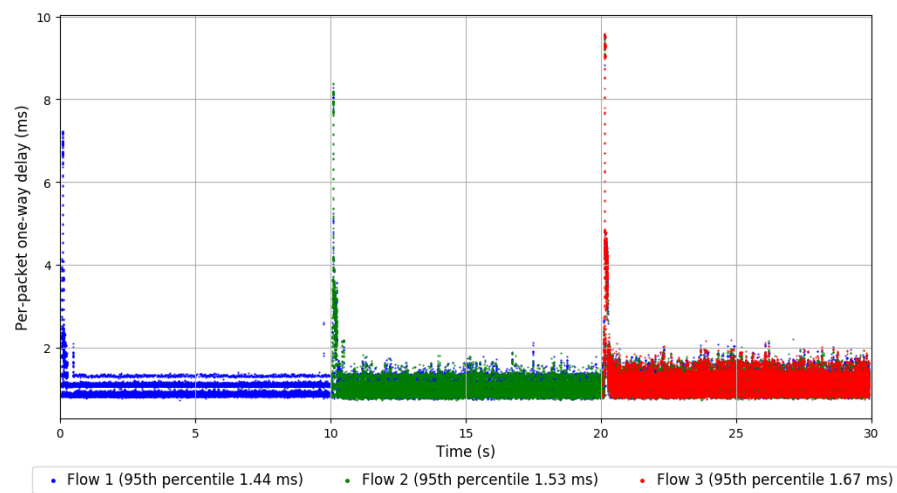
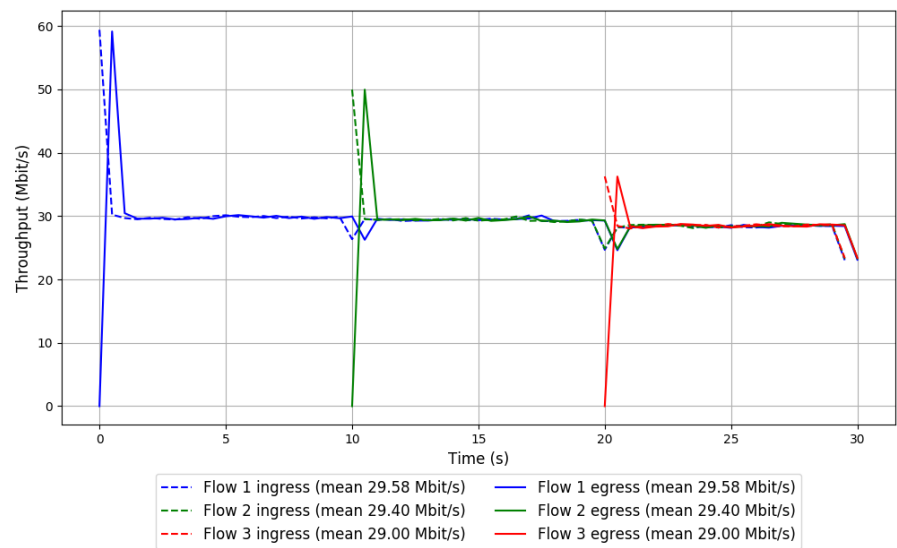
-- Flow 3:

Average throughput: 29.00 Mbit/s

95th percentile per-packet one-way delay: 1.666 ms

Loss rate: 0.00%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-11 04:09:39

End at: 2018-09-11 04:10:09

Local clock offset: 4.706 ms

Remote clock offset: 0.339 ms

Below is generated by plot.py at 2018-09-11 04:28:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 50.90 Mbit/s

95th percentile per-packet one-way delay: 2.789 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 21.61 Mbit/s

95th percentile per-packet one-way delay: 2.856 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 29.43 Mbit/s

95th percentile per-packet one-way delay: 1.470 ms

Loss rate: 0.00%

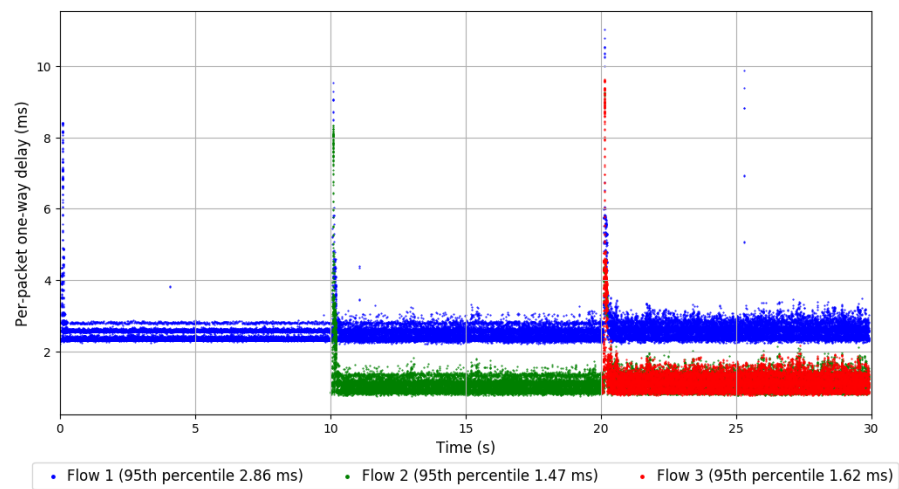
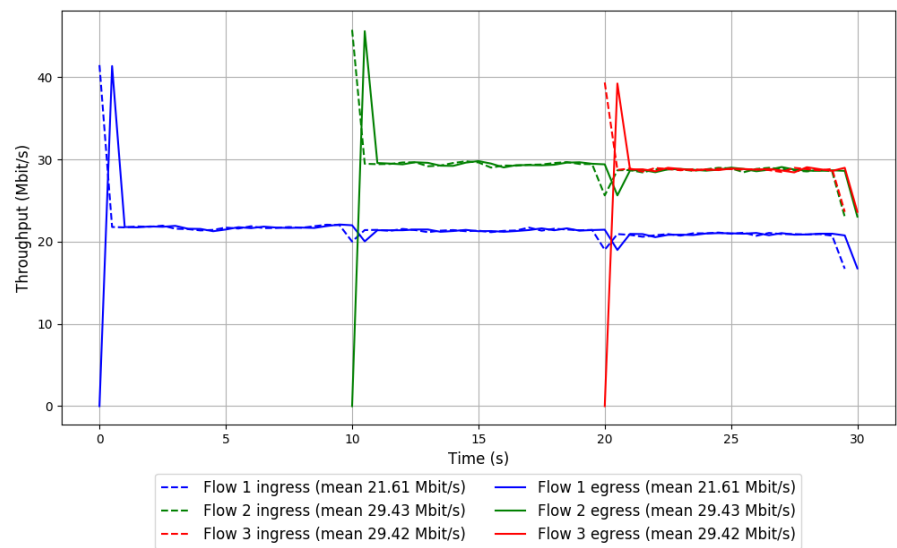
-- Flow 3:

Average throughput: 29.42 Mbit/s

95th percentile per-packet one-way delay: 1.619 ms

Loss rate: 0.00%

Run 5: Report of Indigo-Muses — Data Link

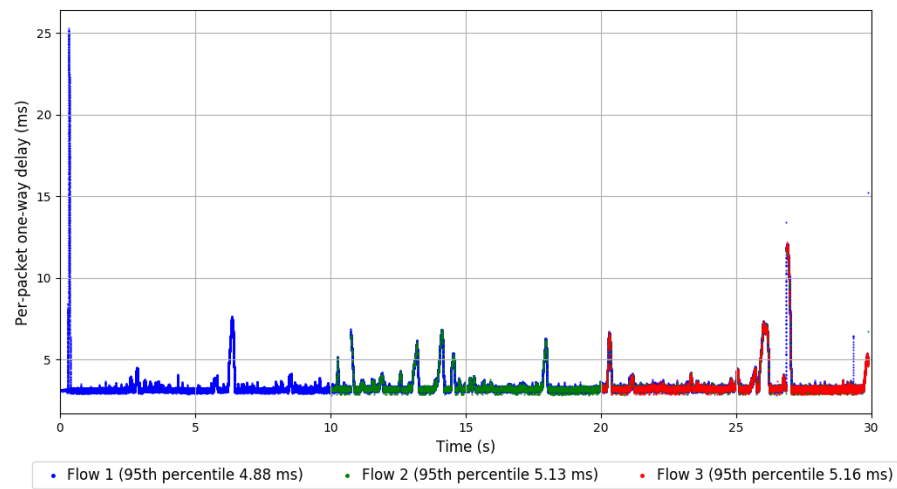
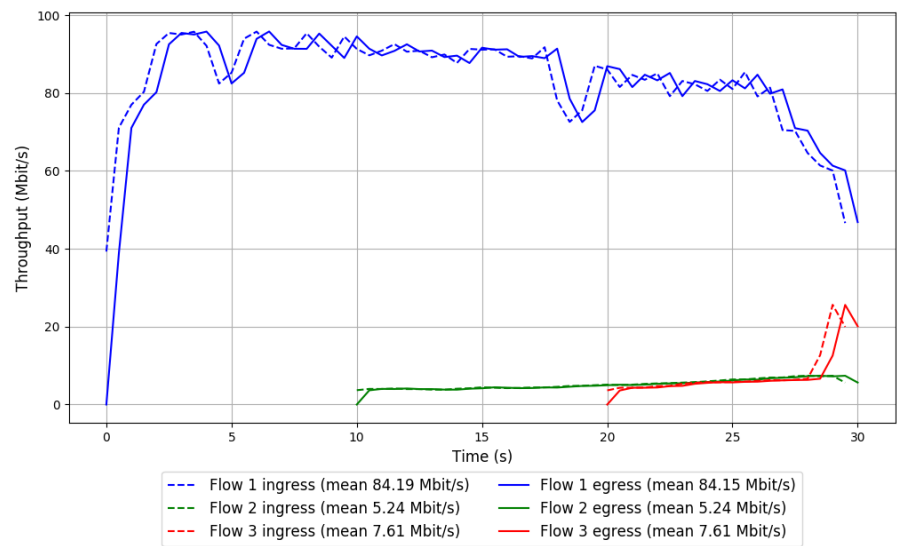



```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-11 02:55:43
End at: 2018-09-11 02:56:13
Local clock offset: -2.74 ms
Remote clock offset: -0.032 ms

# Below is generated by plot.py at 2018-09-11 04:29:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.14 Mbit/s
95th percentile per-packet one-way delay: 4.918 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 84.15 Mbit/s
95th percentile per-packet one-way delay: 4.880 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.24 Mbit/s
95th percentile per-packet one-way delay: 5.135 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 7.61 Mbit/s
95th percentile per-packet one-way delay: 5.164 ms
Loss rate: 0.03%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-11 03:16:12

End at: 2018-09-11 03:16:42

Local clock offset: 1.321 ms

Remote clock offset: 0.1 ms

Below is generated by plot.py at 2018-09-11 04:29:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.87 Mbit/s

95th percentile per-packet one-way delay: 5.425 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 73.99 Mbit/s

95th percentile per-packet one-way delay: 5.459 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 24.13 Mbit/s

95th percentile per-packet one-way delay: 5.305 ms

Loss rate: 0.01%

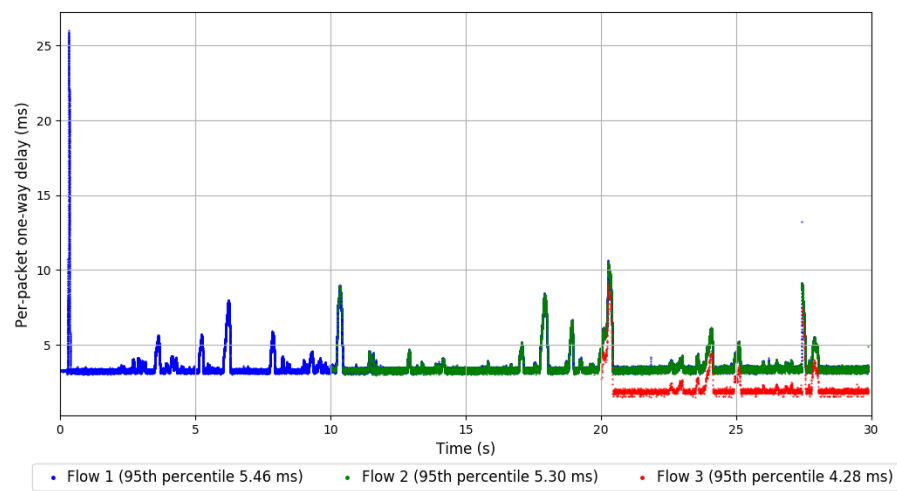
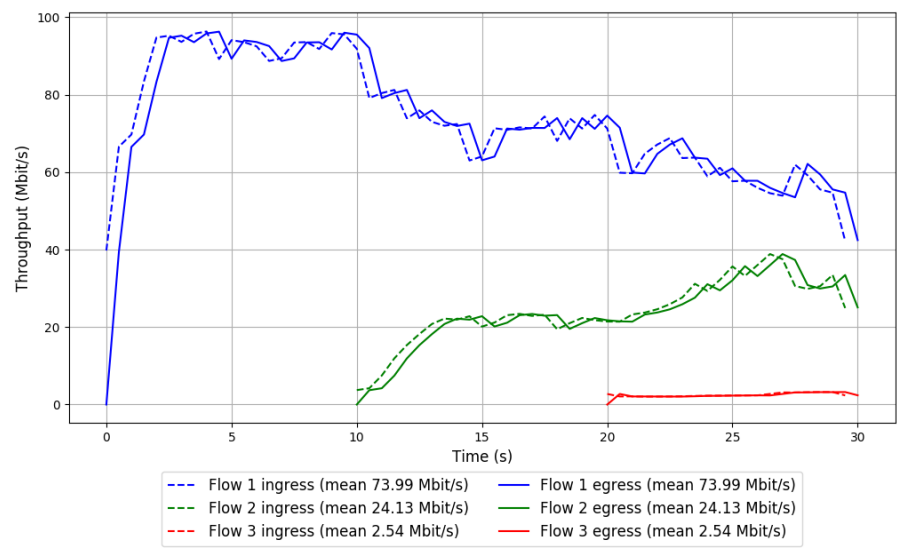
-- Flow 3:

Average throughput: 2.54 Mbit/s

95th percentile per-packet one-way delay: 4.279 ms

Loss rate: 0.00%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-11 03:36:40

End at: 2018-09-11 03:37:10

Local clock offset: 3.514 ms

Remote clock offset: 0.212 ms

Below is generated by plot.py at 2018-09-11 04:29:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.84 Mbit/s

95th percentile per-packet one-way delay: 6.826 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 62.94 Mbit/s

95th percentile per-packet one-way delay: 5.179 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 30.94 Mbit/s

95th percentile per-packet one-way delay: 10.357 ms

Loss rate: 0.00%

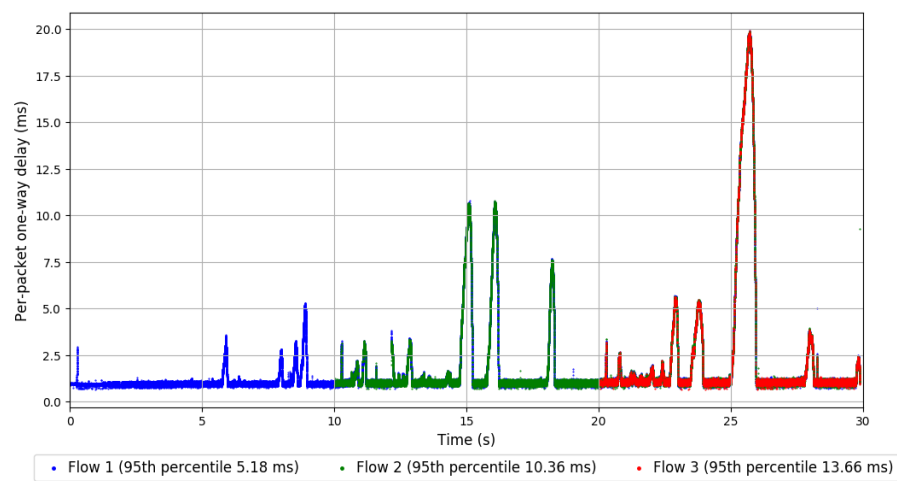
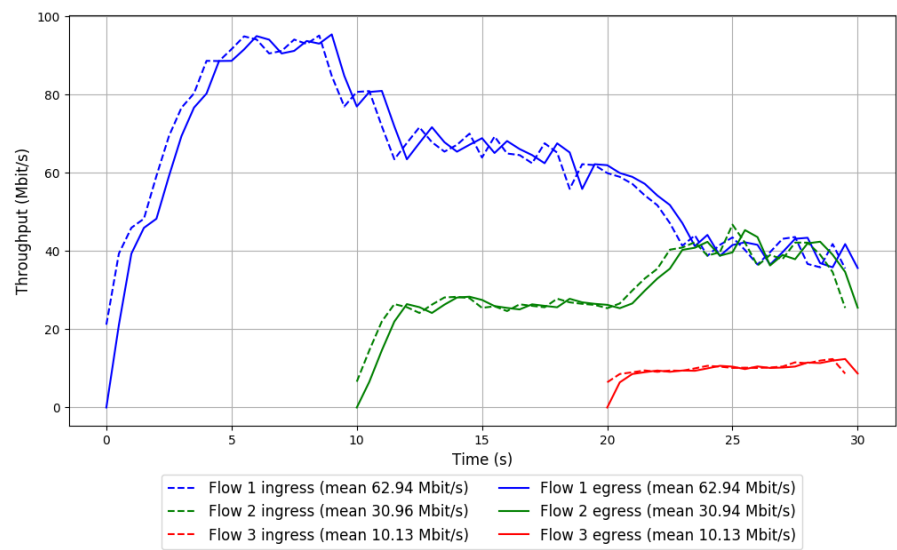
-- Flow 3:

Average throughput: 10.13 Mbit/s

95th percentile per-packet one-way delay: 13.662 ms

Loss rate: 0.00%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-11 03:57:07

End at: 2018-09-11 03:57:37

Local clock offset: 4.632 ms

Remote clock offset: 0.32 ms

Below is generated by plot.py at 2018-09-11 04:29:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.96 Mbit/s

95th percentile per-packet one-way delay: 9.232 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 73.89 Mbit/s

95th percentile per-packet one-way delay: 7.828 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 18.63 Mbit/s

95th percentile per-packet one-way delay: 12.589 ms

Loss rate: 0.00%

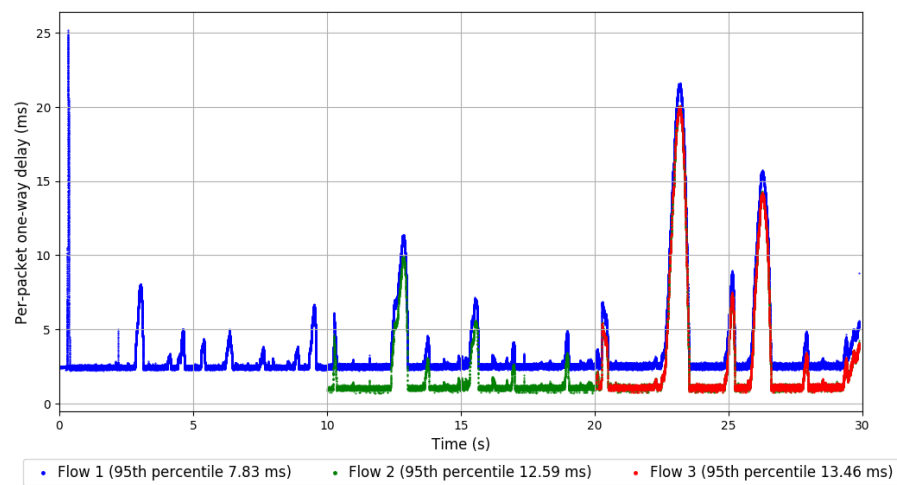
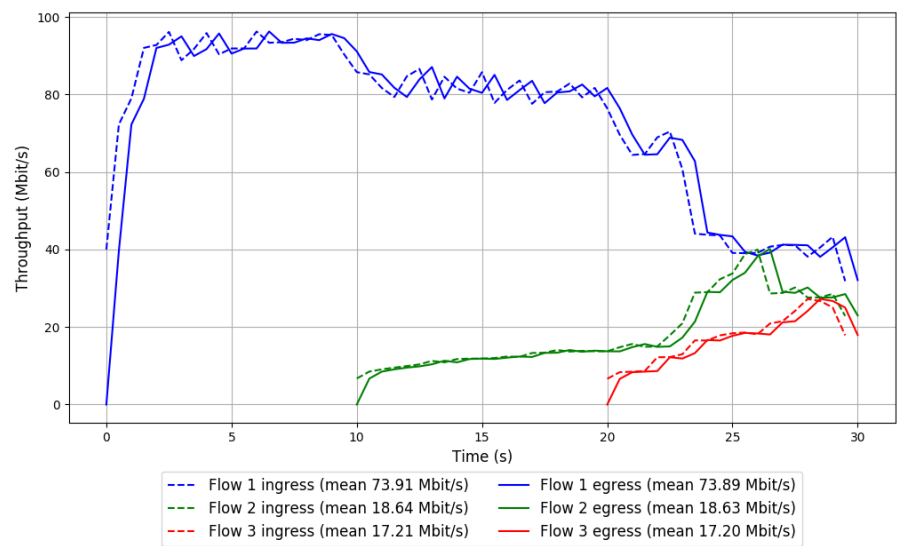
-- Flow 3:

Average throughput: 17.20 Mbit/s

95th percentile per-packet one-way delay: 13.463 ms

Loss rate: 0.00%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-11 04:17:35

End at: 2018-09-11 04:18:05

Local clock offset: 4.214 ms

Remote clock offset: 0.441 ms

Below is generated by plot.py at 2018-09-11 04:29:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 88.70 Mbit/s

95th percentile per-packet one-way delay: 11.028 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 69.31 Mbit/s

95th percentile per-packet one-way delay: 10.250 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 18.66 Mbit/s

95th percentile per-packet one-way delay: 10.984 ms

Loss rate: 0.00%

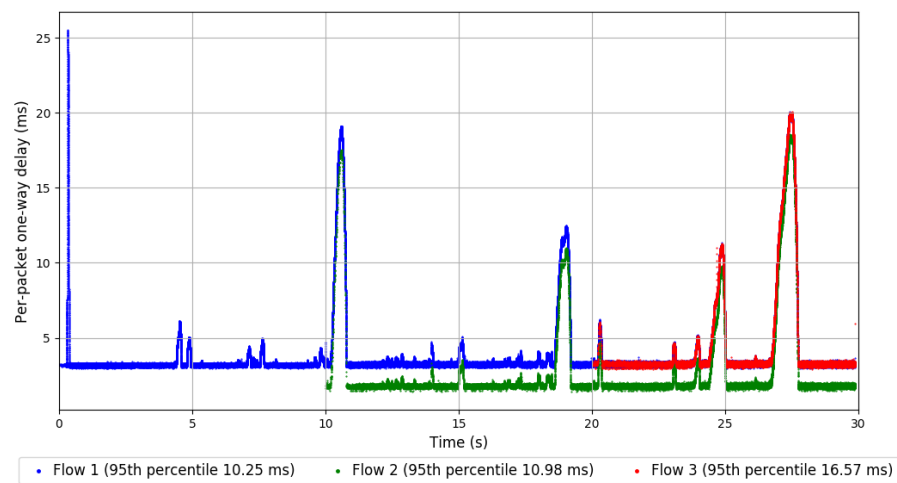
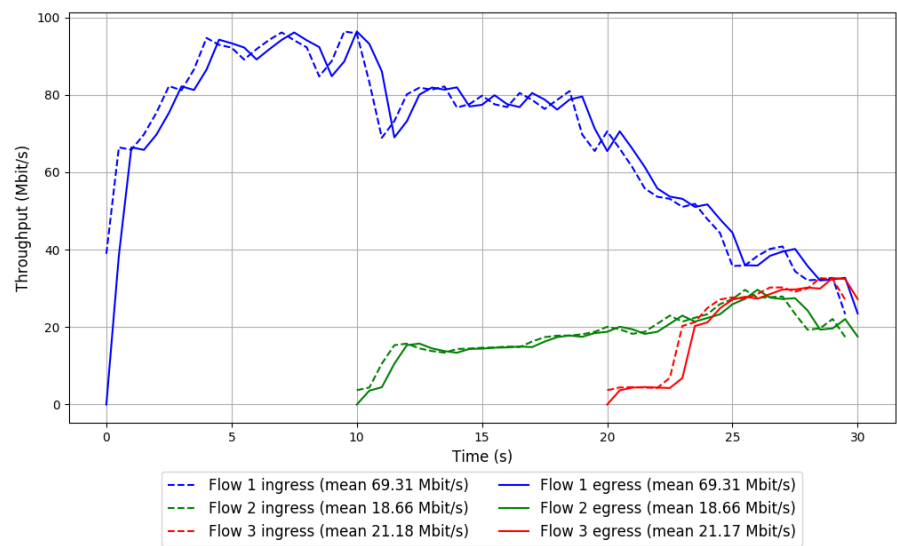
-- Flow 3:

Average throughput: 21.17 Mbit/s

95th percentile per-packet one-way delay: 16.565 ms

Loss rate: 0.02%

Run 5: Report of PCC-Allegro — Data Link

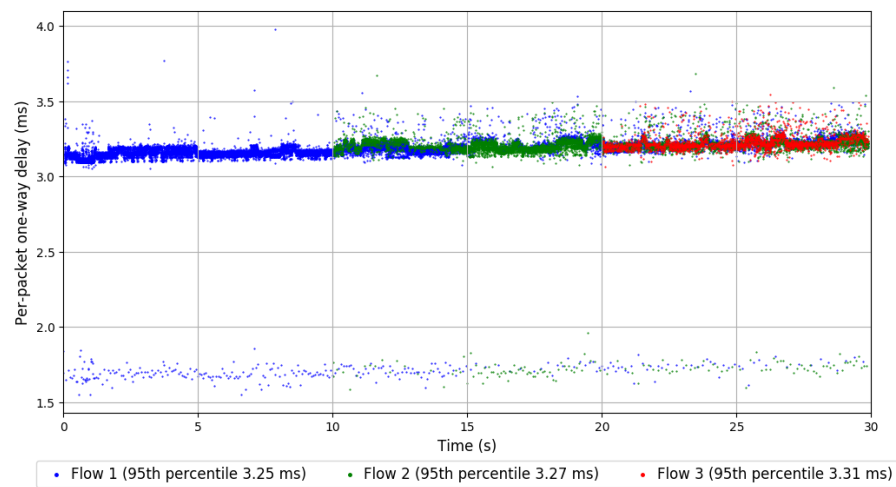
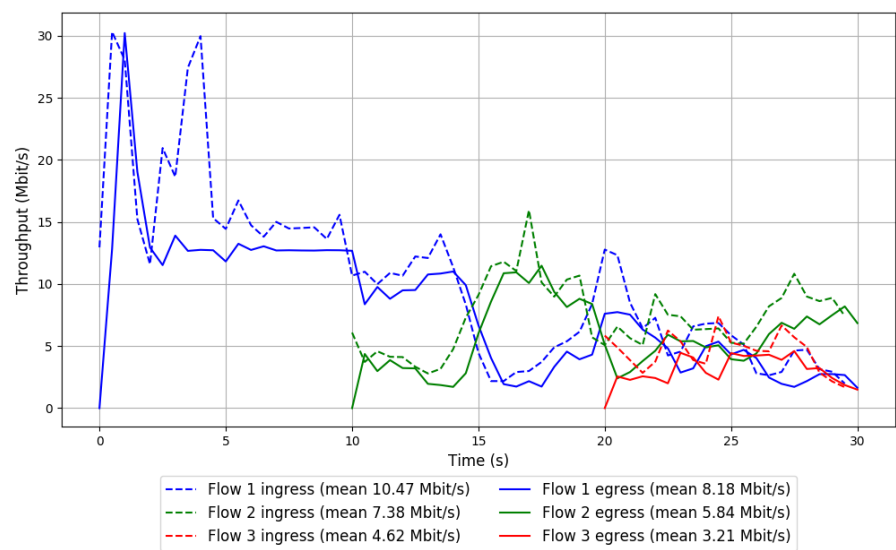


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-11 02:40:53
End at: 2018-09-11 02:41:23
Local clock offset: -4.007 ms
Remote clock offset: -0.113 ms

# Below is generated by plot.py at 2018-09-11 04:29:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.12 Mbit/s
95th percentile per-packet one-way delay: 3.263 ms
Loss rate: 22.39%
-- Flow 1:
Average throughput: 8.18 Mbit/s
95th percentile per-packet one-way delay: 3.249 ms
Loss rate: 21.90%
-- Flow 2:
Average throughput: 5.84 Mbit/s
95th percentile per-packet one-way delay: 3.272 ms
Loss rate: 20.89%
-- Flow 3:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 3.309 ms
Loss rate: 30.56%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-11 03:01:22

End at: 2018-09-11 03:01:52

Local clock offset: -0.797 ms

Remote clock offset: 0.08 ms

Below is generated by plot.py at 2018-09-11 04:29:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.12 Mbit/s

95th percentile per-packet one-way delay: 2.961 ms

Loss rate: 29.58%

-- Flow 1:

Average throughput: 8.99 Mbit/s

95th percentile per-packet one-way delay: 5.031 ms

Loss rate: 30.86%

-- Flow 2:

Average throughput: 4.66 Mbit/s

95th percentile per-packet one-way delay: 2.845 ms

Loss rate: 24.81%

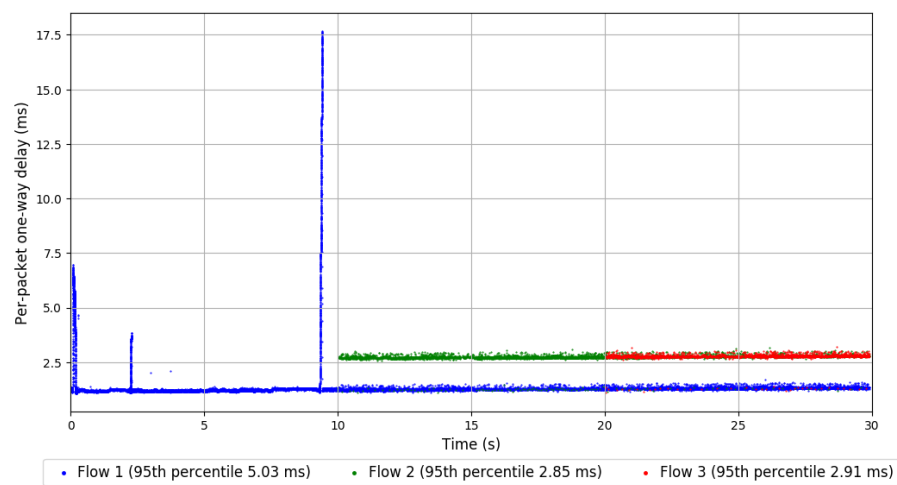
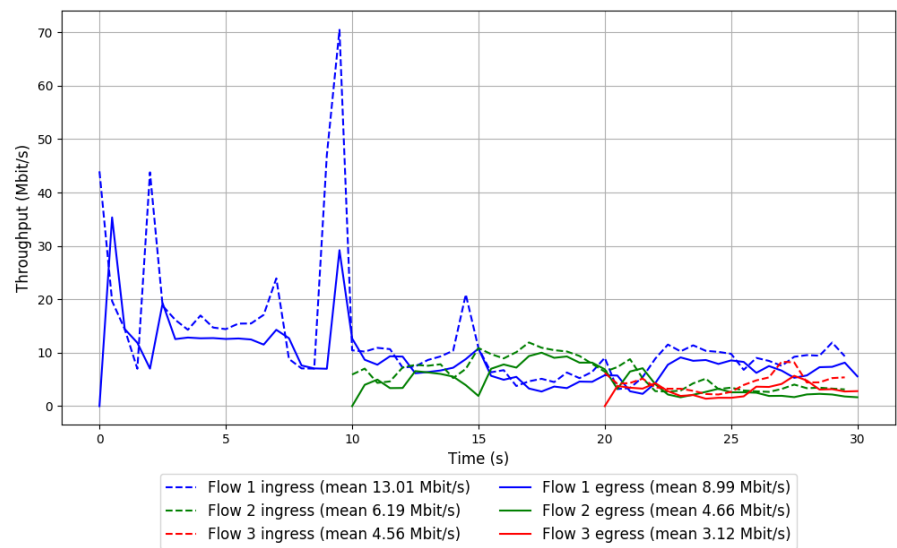
-- Flow 3:

Average throughput: 3.12 Mbit/s

95th percentile per-packet one-way delay: 2.911 ms

Loss rate: 31.57%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-11 03:21:50

End at: 2018-09-11 03:22:20

Local clock offset: 2.726 ms

Remote clock offset: 0.103 ms

Below is generated by plot.py at 2018-09-11 04:29:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.12 Mbit/s

95th percentile per-packet one-way delay: 2.471 ms

Loss rate: 26.32%

-- Flow 1:

Average throughput: 8.77 Mbit/s

95th percentile per-packet one-way delay: 2.459 ms

Loss rate: 27.96%

-- Flow 2:

Average throughput: 3.02 Mbit/s

95th percentile per-packet one-way delay: 2.515 ms

Loss rate: 26.23%

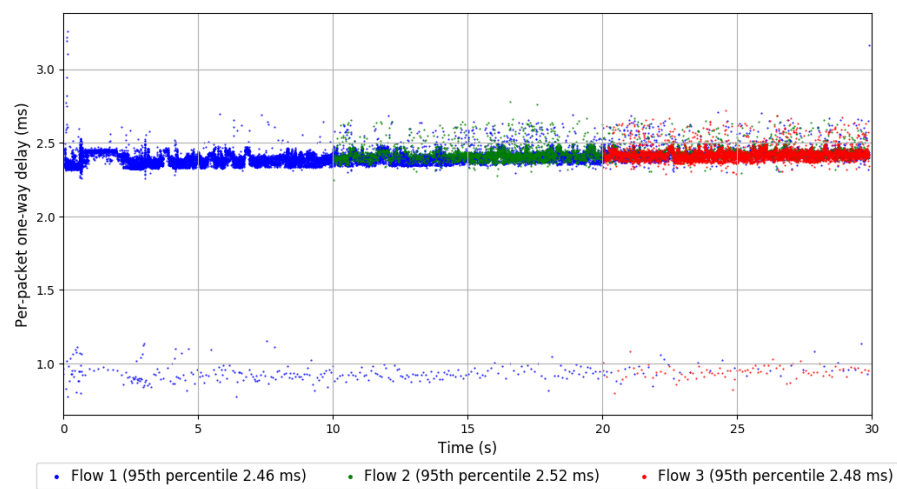
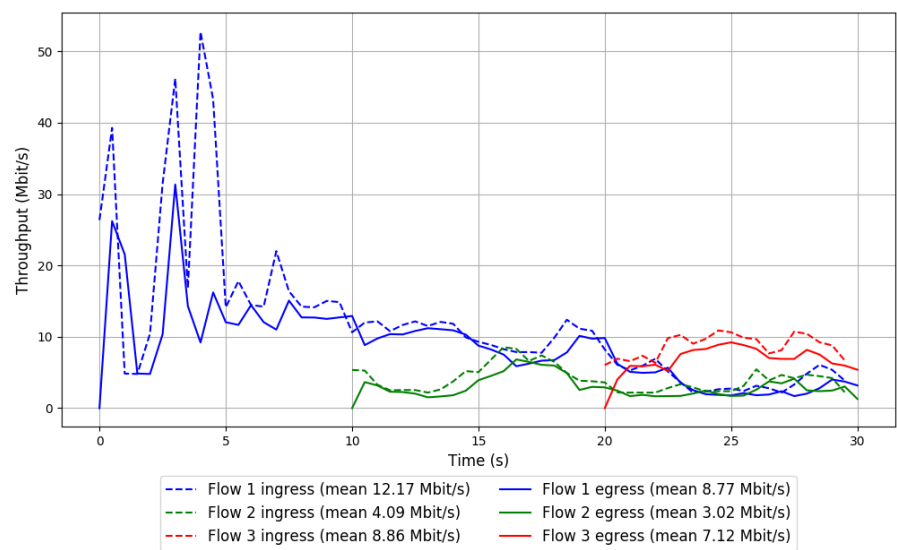
-- Flow 3:

Average throughput: 7.12 Mbit/s

95th percentile per-packet one-way delay: 2.479 ms

Loss rate: 19.60%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-11 03:42:17

End at: 2018-09-11 03:42:47

Local clock offset: 3.701 ms

Remote clock offset: 0.246 ms

Below is generated by plot.py at 2018-09-11 04:29:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.01 Mbit/s

95th percentile per-packet one-way delay: 2.578 ms

Loss rate: 18.22%

-- Flow 1:

Average throughput: 9.57 Mbit/s

95th percentile per-packet one-way delay: 2.574 ms

Loss rate: 16.45%

-- Flow 2:

Average throughput: 3.85 Mbit/s

95th percentile per-packet one-way delay: 2.597 ms

Loss rate: 22.43%

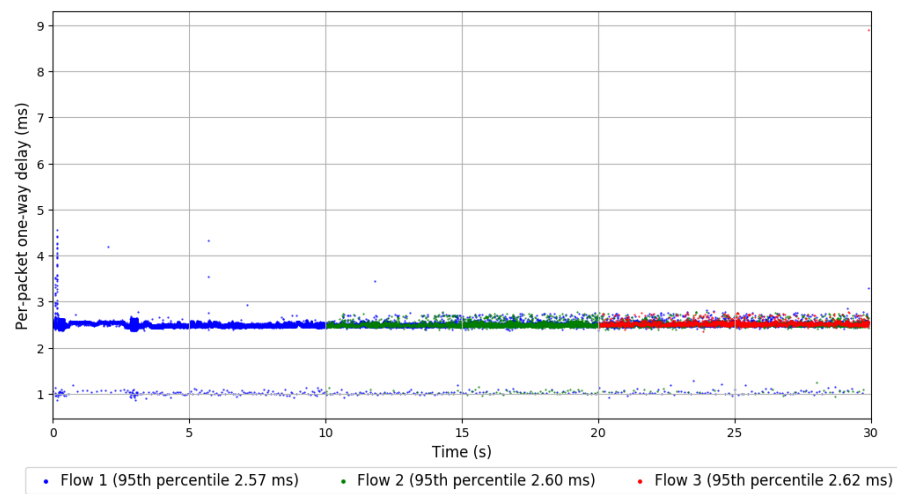
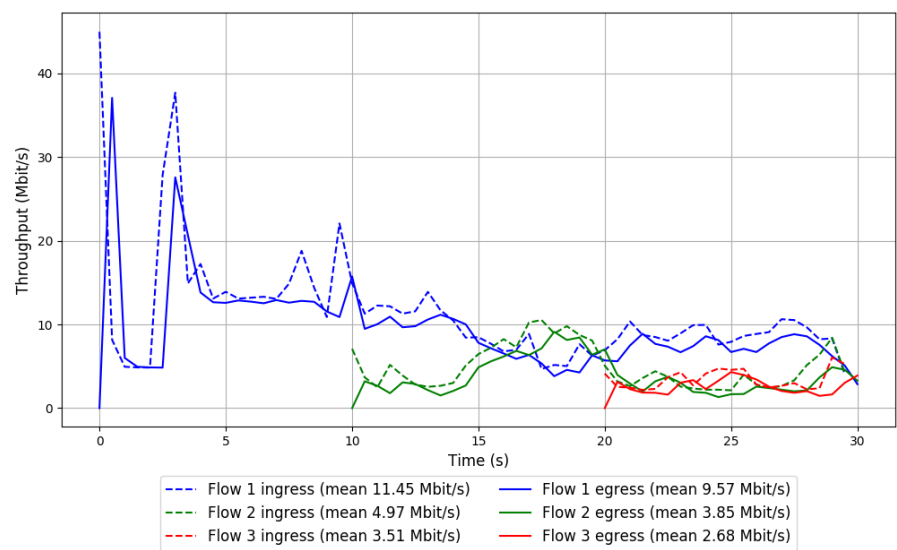
-- Flow 3:

Average throughput: 2.68 Mbit/s

95th percentile per-packet one-way delay: 2.621 ms

Loss rate: 23.74%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-11 04:02:45

End at: 2018-09-11 04:03:15

Local clock offset: 4.549 ms

Remote clock offset: 0.369 ms

Below is generated by plot.py at 2018-09-11 04:29:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.12 Mbit/s

95th percentile per-packet one-way delay: 2.553 ms

Loss rate: 20.06%

-- Flow 1:

Average throughput: 9.04 Mbit/s

95th percentile per-packet one-way delay: 2.548 ms

Loss rate: 17.46%

-- Flow 2:

Average throughput: 4.84 Mbit/s

95th percentile per-packet one-way delay: 2.561 ms

Loss rate: 23.18%

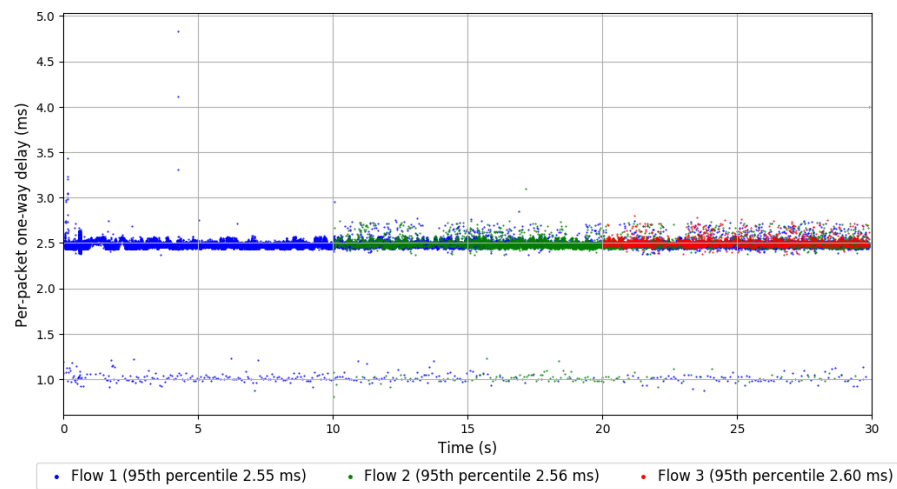
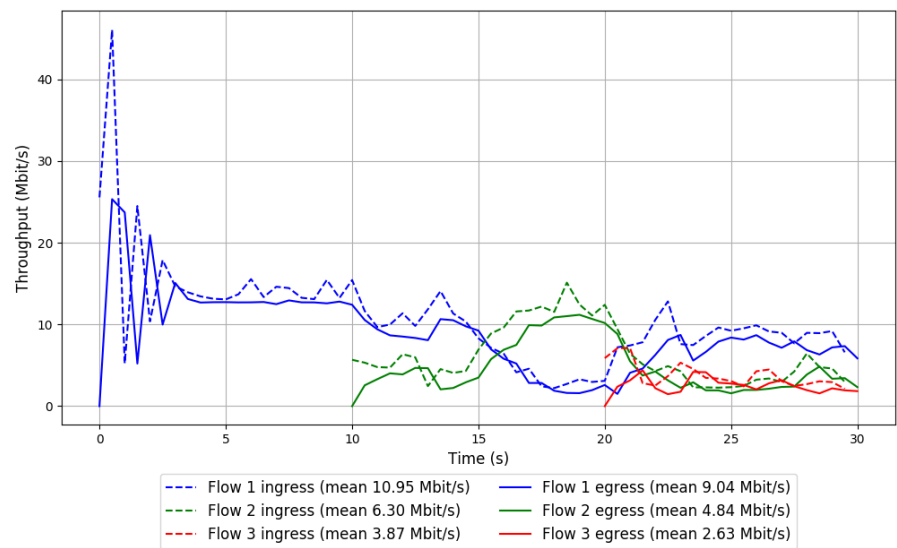
-- Flow 3:

Average throughput: 2.63 Mbit/s

95th percentile per-packet one-way delay: 2.602 ms

Loss rate: 32.09%

Run 5: Report of PCC-Expr — Data Link

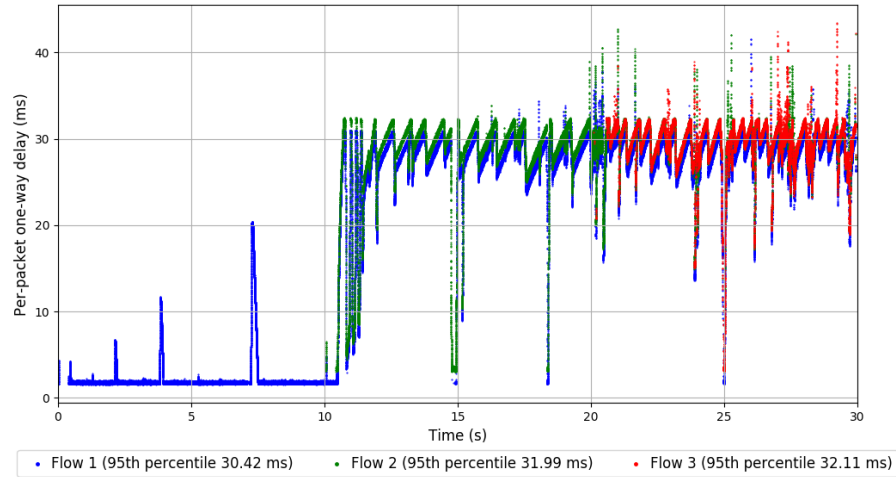
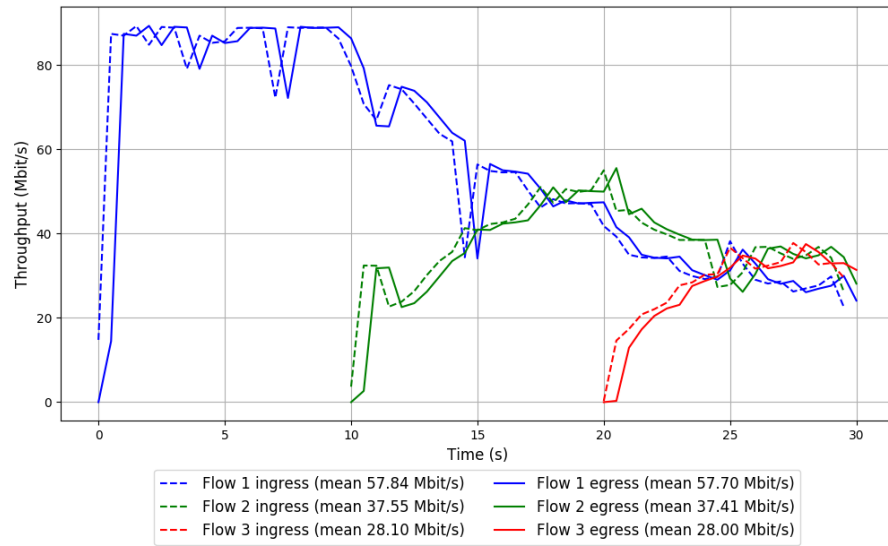


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-11 02:44:19
End at: 2018-09-11 02:44:49
Local clock offset: -3.538 ms
Remote clock offset: -0.085 ms

Below is generated by plot.py at 2018-09-11 04:30:22
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.76 Mbit/s
95th percentile per-packet one-way delay: 31.700 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 57.70 Mbit/s
95th percentile per-packet one-way delay: 30.418 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 37.41 Mbit/s
95th percentile per-packet one-way delay: 31.994 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 28.00 Mbit/s
95th percentile per-packet one-way delay: 32.109 ms
Loss rate: 0.26%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-11 03:04:47

End at: 2018-09-11 03:05:17

Local clock offset: -0.538 ms

Remote clock offset: 0.024 ms

Below is generated by plot.py at 2018-09-11 04:30:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.48 Mbit/s

95th percentile per-packet one-way delay: 32.218 ms

Loss rate: 0.16%

-- Flow 1:

Average throughput: 58.74 Mbit/s

95th percentile per-packet one-way delay: 32.117 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 36.50 Mbit/s

95th percentile per-packet one-way delay: 32.260 ms

Loss rate: 0.16%

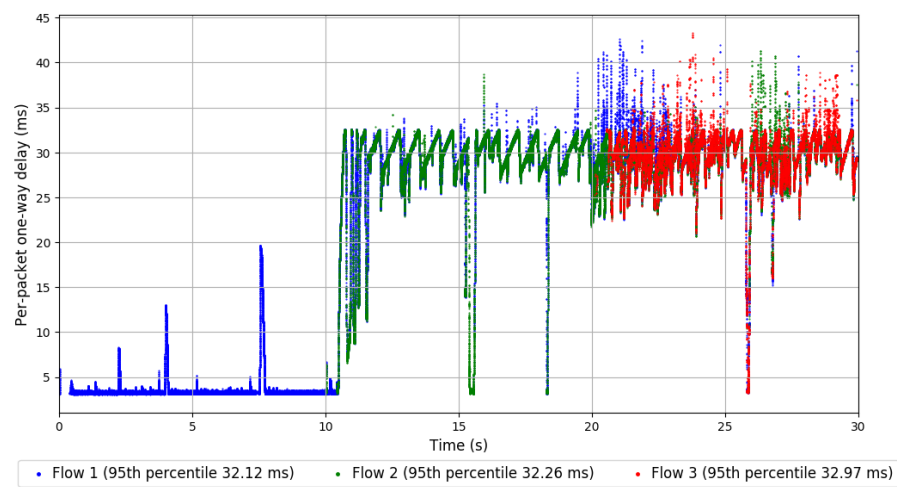
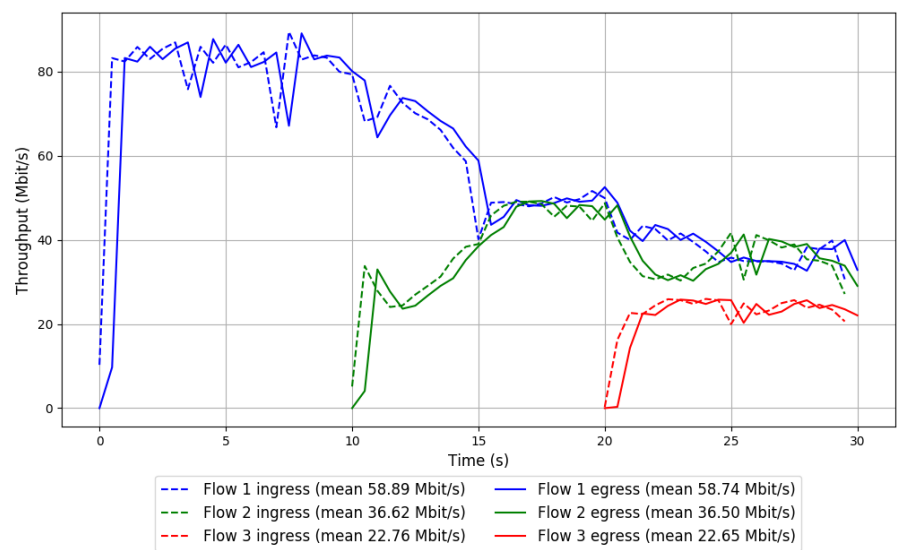
-- Flow 3:

Average throughput: 22.65 Mbit/s

95th percentile per-packet one-way delay: 32.968 ms

Loss rate: 0.38%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-11 03:25:16

End at: 2018-09-11 03:25:46

Local clock offset: 2.266 ms

Remote clock offset: 0.077 ms

Below is generated by plot.py at 2018-09-11 04:30:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.21 Mbit/s

95th percentile per-packet one-way delay: 31.949 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 59.05 Mbit/s

95th percentile per-packet one-way delay: 31.901 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 32.46 Mbit/s

95th percentile per-packet one-way delay: 32.115 ms

Loss rate: 0.29%

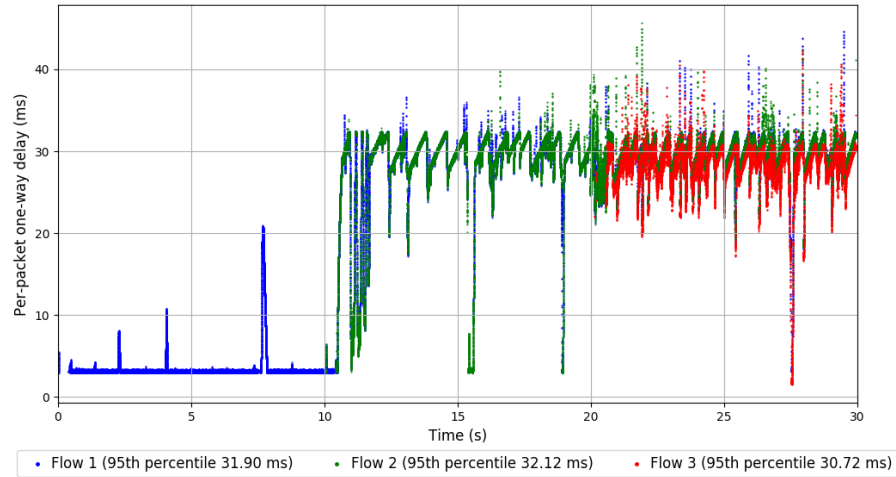
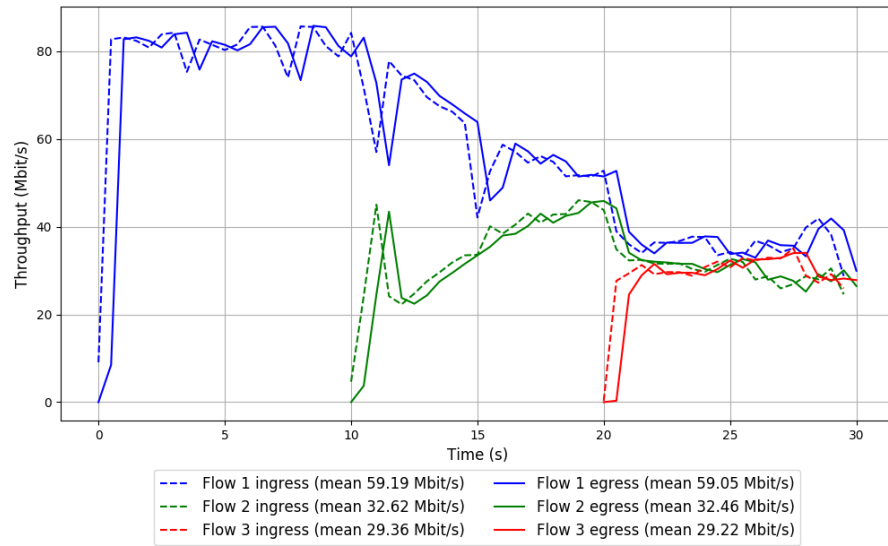
-- Flow 3:

Average throughput: 29.22 Mbit/s

95th percentile per-packet one-way delay: 30.720 ms

Loss rate: 0.42%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-09-11 03:45:43

End at: 2018-09-11 03:46:13

Local clock offset: 3.179 ms

Remote clock offset: 0.197 ms

Below is generated by plot.py at 2018-09-11 04:30:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.79 Mbit/s

95th percentile per-packet one-way delay: 31.449 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 55.96 Mbit/s

95th percentile per-packet one-way delay: 30.334 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 35.75 Mbit/s

95th percentile per-packet one-way delay: 32.024 ms

Loss rate: 0.22%

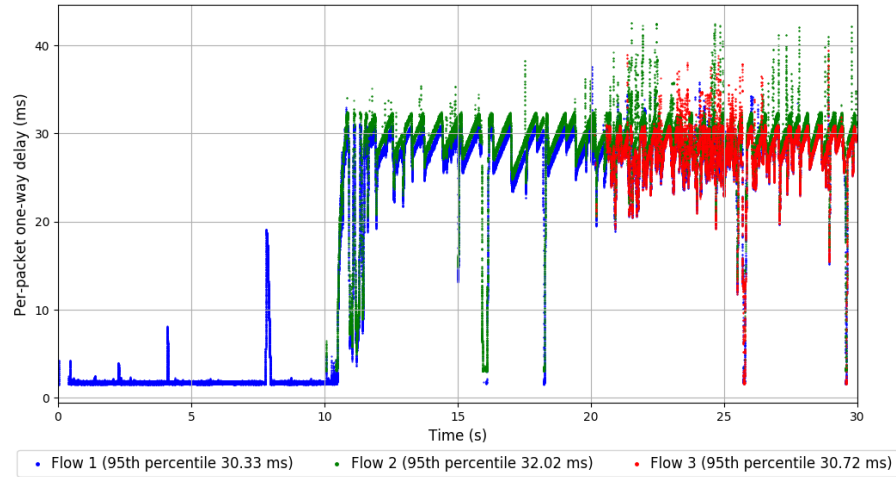
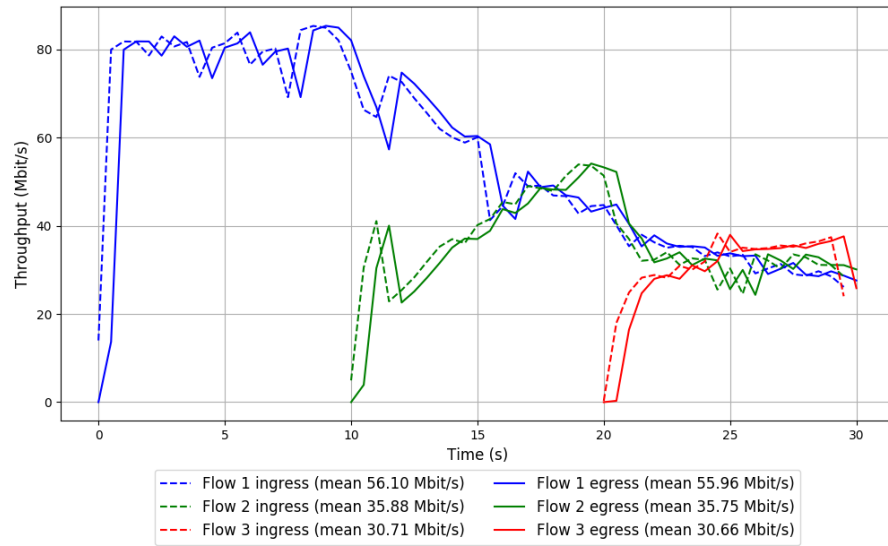
-- Flow 3:

Average throughput: 30.66 Mbit/s

95th percentile per-packet one-way delay: 30.722 ms

Loss rate: 0.18%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-11 04:06:11

End at: 2018-09-11 04:06:41

Local clock offset: 3.855 ms

Remote clock offset: 0.296 ms

Below is generated by plot.py at 2018-09-11 04:30:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.74 Mbit/s

95th percentile per-packet one-way delay: 31.664 ms

Loss rate: 0.17%

-- Flow 1:

Average throughput: 57.63 Mbit/s

95th percentile per-packet one-way delay: 31.719 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 36.27 Mbit/s

95th percentile per-packet one-way delay: 30.637 ms

Loss rate: 0.18%

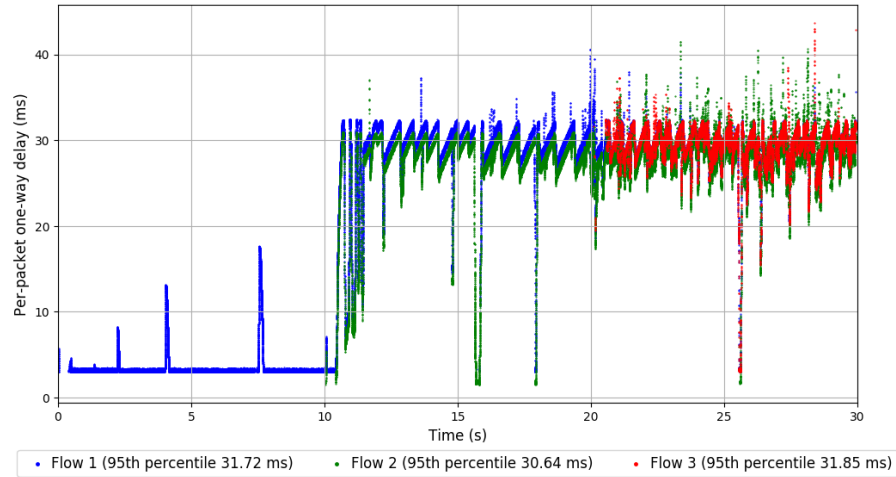
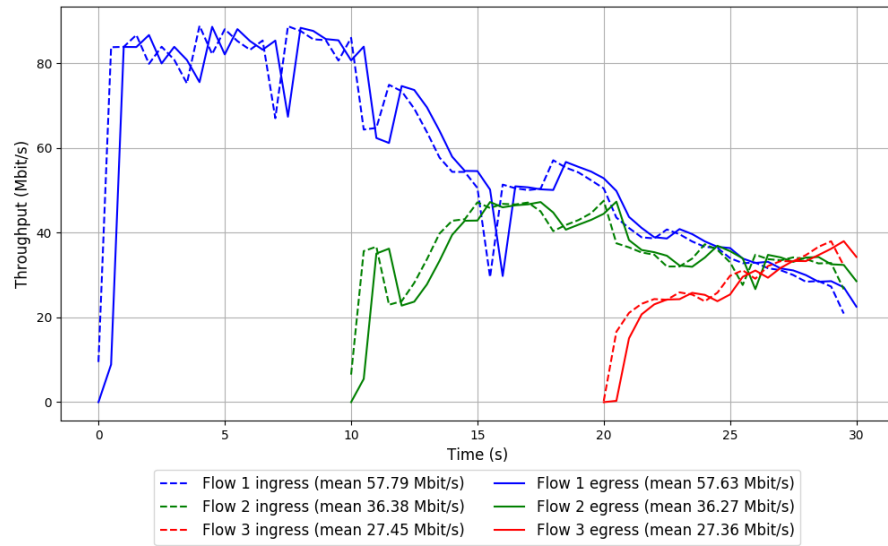
-- Flow 3:

Average throughput: 27.36 Mbit/s

95th percentile per-packet one-way delay: 31.852 ms

Loss rate: 0.24%

Run 5: Report of QUIC Cubic — Data Link

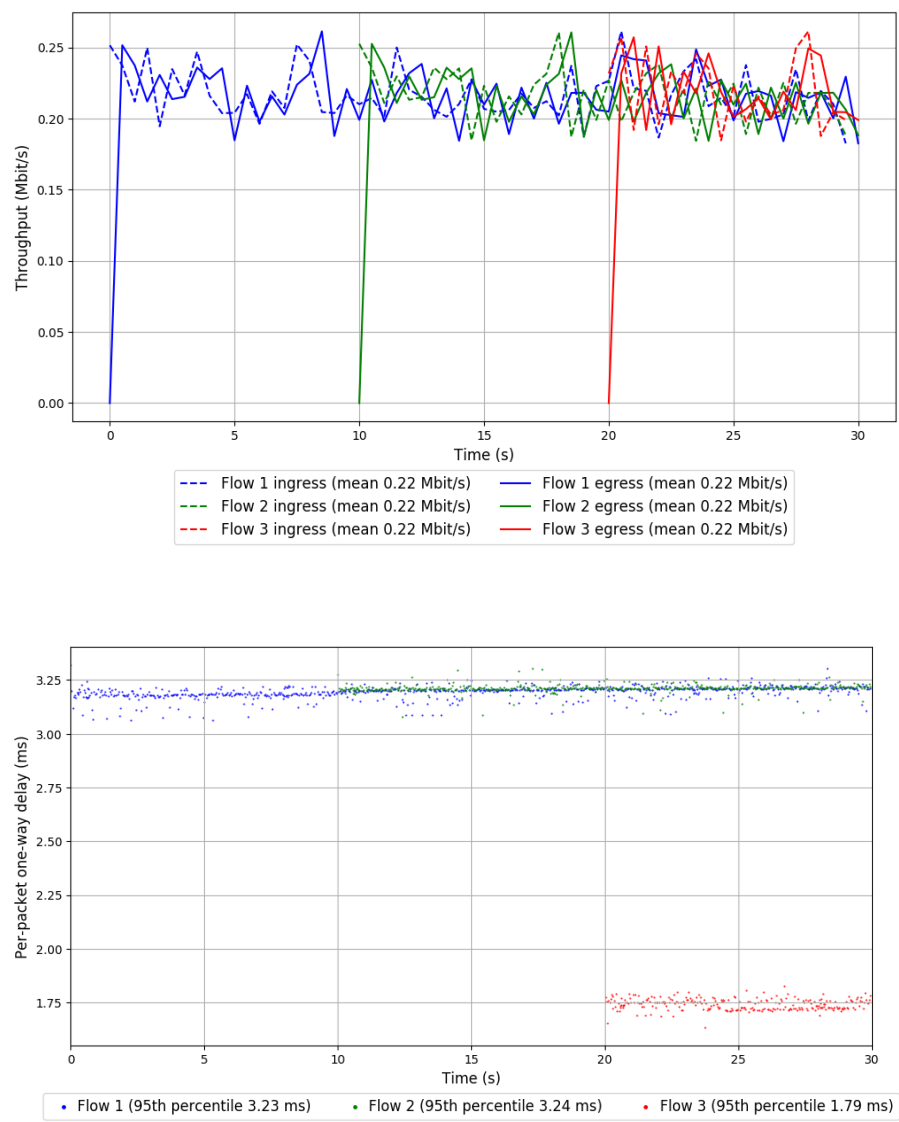


```
Run 1: Statistics of SReAM

Start at: 2018-09-11 02:52:18
End at: 2018-09-11 02:52:48
Local clock offset: -2.925 ms
Remote clock offset: -0.004 ms

# Below is generated by plot.py at 2018-09-11 04:30:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 3.230 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 3.231 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 3.237 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.786 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SReAM

Start at: 2018-09-11 03:12:47

End at: 2018-09-11 03:13:17

Local clock offset: 1.717 ms

Remote clock offset: 0.066 ms

Below is generated by plot.py at 2018-09-11 04:30:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 2.482 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 2.489 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.041 ms

Loss rate: 0.00%

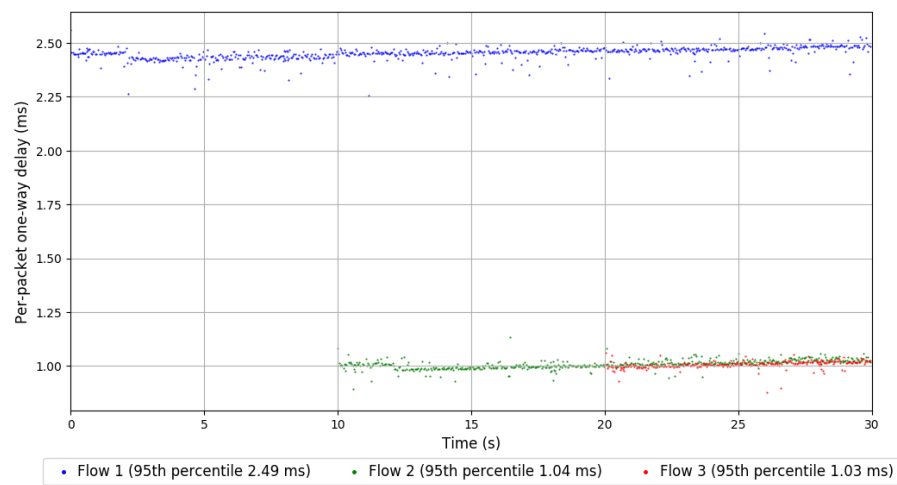
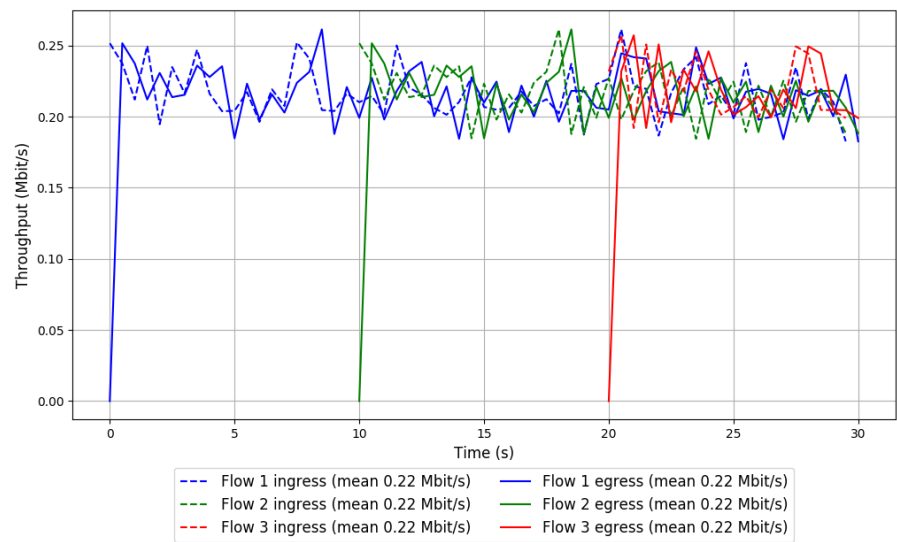
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.029 ms

Loss rate: 0.00%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SReAM

Start at: 2018-09-11 03:33:15

End at: 2018-09-11 03:33:45

Local clock offset: 2.62 ms

Remote clock offset: 0.125 ms

Below is generated by plot.py at 2018-09-11 04:30:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 3.161 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 3.147 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 3.156 ms

Loss rate: 0.00%

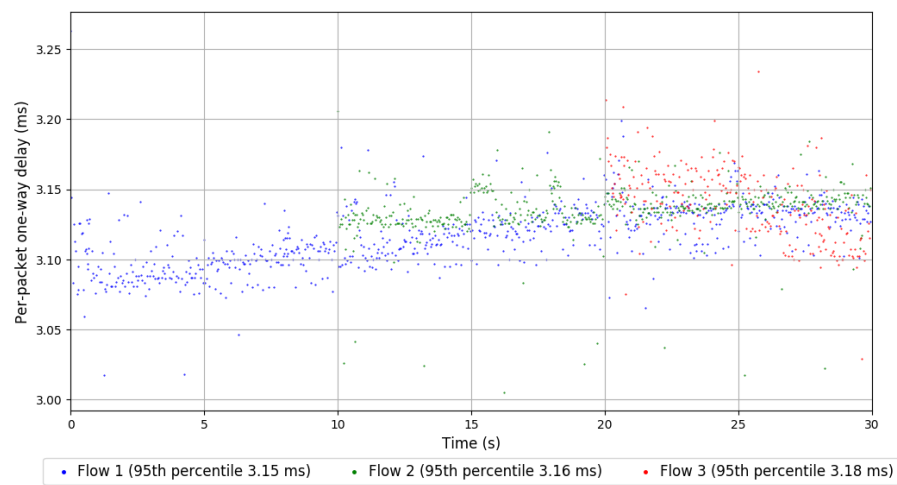
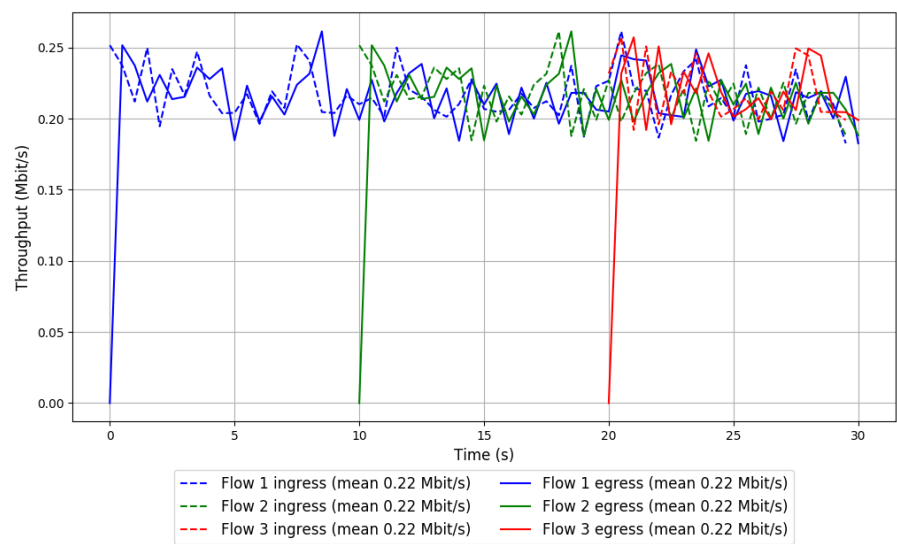
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 3.177 ms

Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-09-11 03:53:42

End at: 2018-09-11 03:54:12

Local clock offset: 4.358 ms

Remote clock offset: 0.267 ms

Below is generated by plot.py at 2018-09-11 04:30:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 2.519 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 2.527 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.061 ms

Loss rate: 0.00%

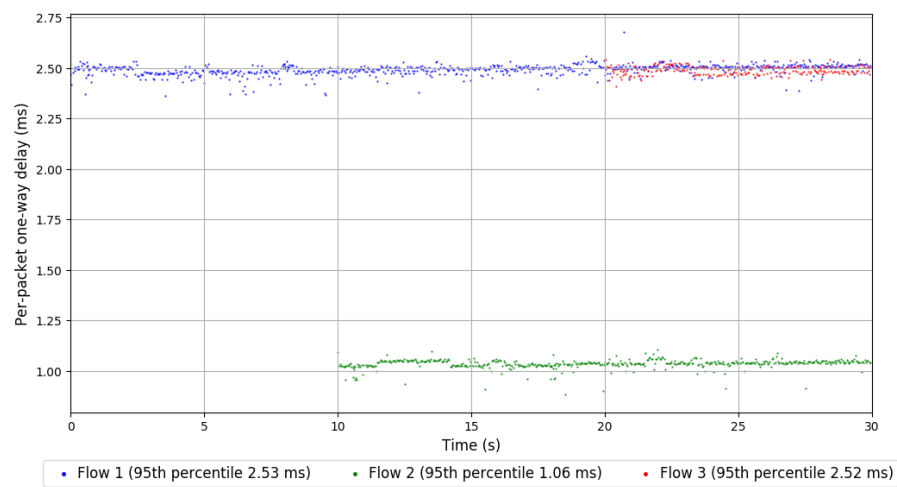
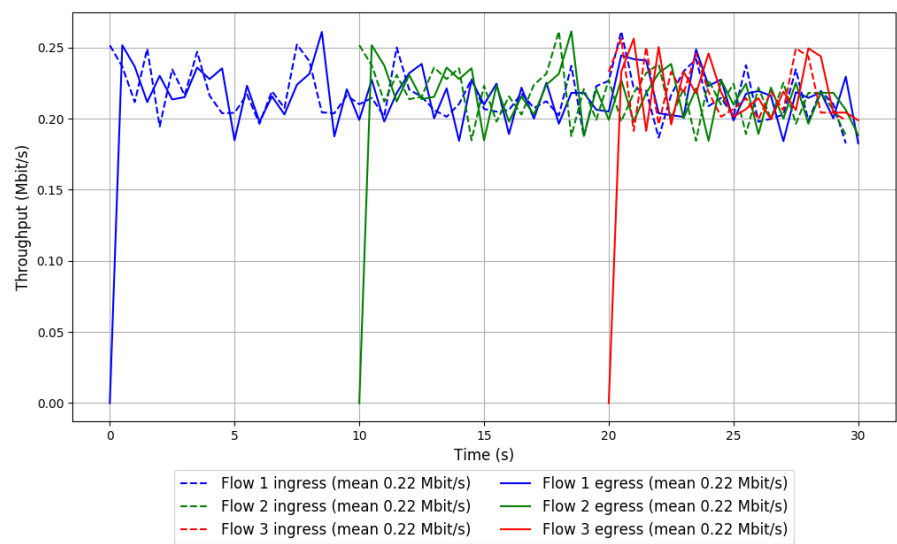
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 2.522 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-09-11 04:14:10

End at: 2018-09-11 04:14:40

Local clock offset: 4.834 ms

Remote clock offset: 0.423 ms

Below is generated by plot.py at 2018-09-11 04:30:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 2.485 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.034 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.023 ms

Loss rate: 0.00%

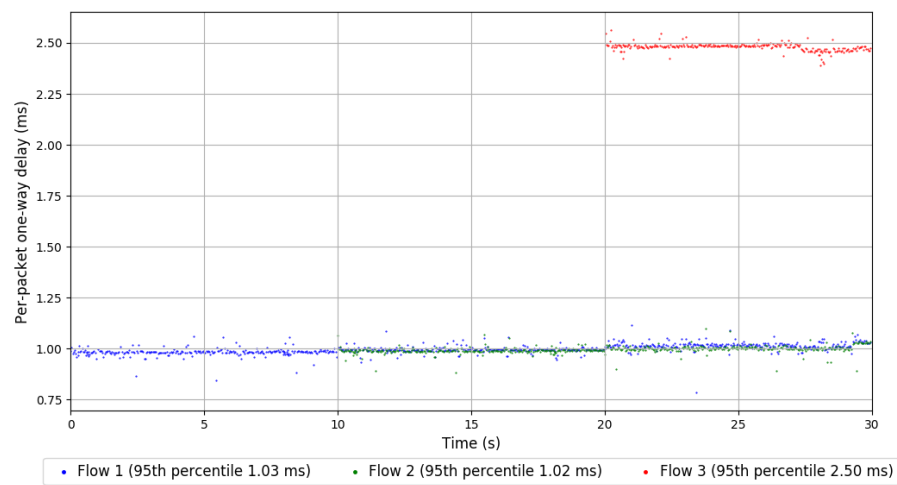
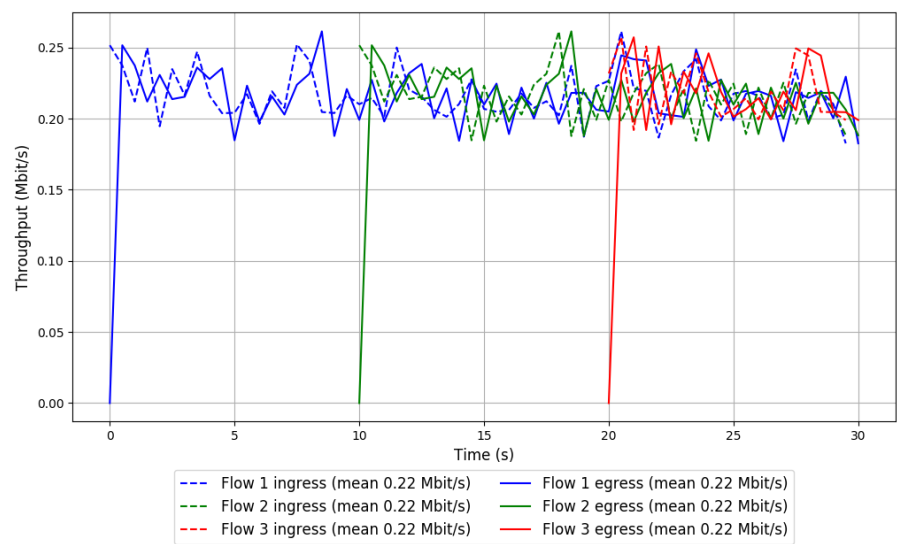
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 2.499 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link

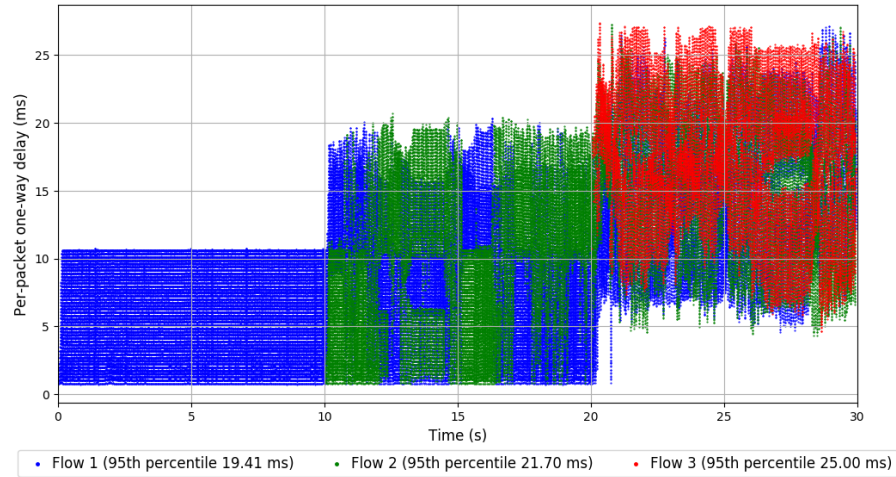
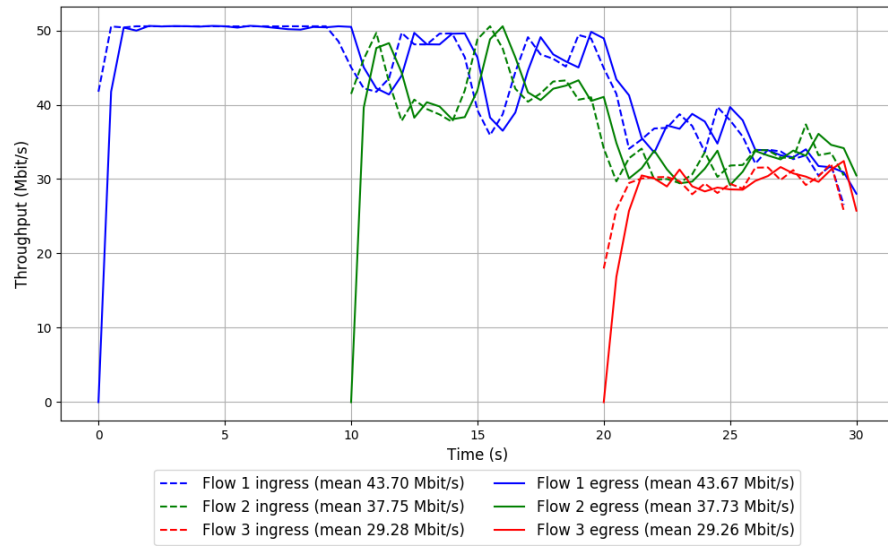


Run 1: Statistics of Sprout

Start at: 2018-09-11 02:50:00
End at: 2018-09-11 02:50:30
Local clock offset: -2.297 ms
Remote clock offset: -0.106 ms

Below is generated by plot.py at 2018-09-11 04:30:50
Datalink statistics
-- Total of 3 flows:
Average throughput: 78.43 Mbit/s
95th percentile per-packet one-way delay: 22.053 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 43.67 Mbit/s
95th percentile per-packet one-way delay: 19.409 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 37.73 Mbit/s
95th percentile per-packet one-way delay: 21.699 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 29.26 Mbit/s
95th percentile per-packet one-way delay: 24.998 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-09-11 03:10:29

End at: 2018-09-11 03:10:59

Local clock offset: 1.305 ms

Remote clock offset: 0.036 ms

Below is generated by plot.py at 2018-09-11 04:30:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 79.04 Mbit/s

95th percentile per-packet one-way delay: 22.684 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 42.17 Mbit/s

95th percentile per-packet one-way delay: 22.463 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 38.57 Mbit/s

95th percentile per-packet one-way delay: 22.317 ms

Loss rate: 0.00%

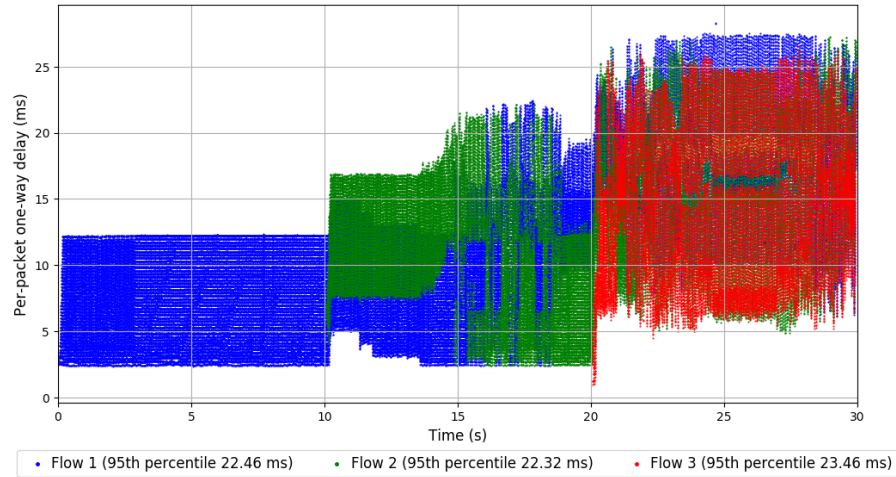
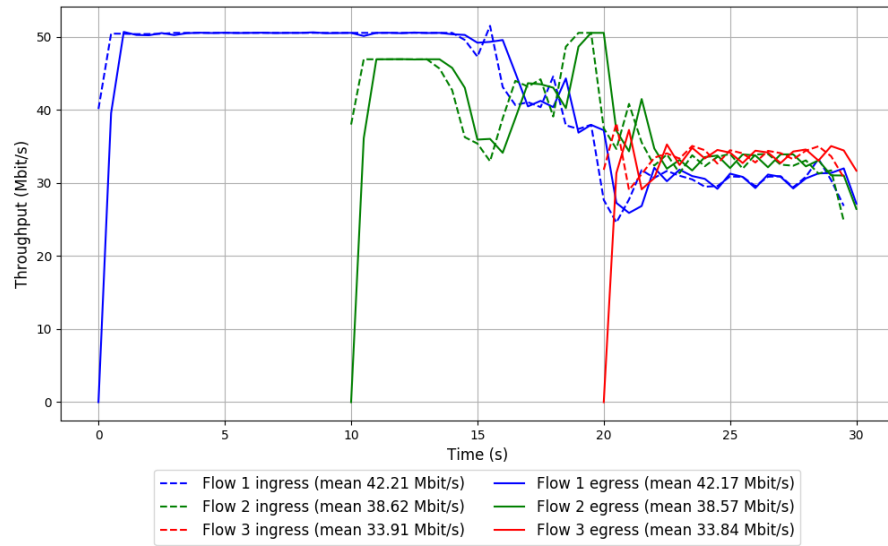
-- Flow 3:

Average throughput: 33.84 Mbit/s

95th percentile per-packet one-way delay: 23.458 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-09-11 03:30:57

End at: 2018-09-11 03:31:27

Local clock offset: 2.561 ms

Remote clock offset: 0.095 ms

Below is generated by plot.py at 2018-09-11 04:30:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.28 Mbit/s

95th percentile per-packet one-way delay: 23.099 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 43.45 Mbit/s

95th percentile per-packet one-way delay: 20.733 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 35.05 Mbit/s

95th percentile per-packet one-way delay: 24.849 ms

Loss rate: 0.00%

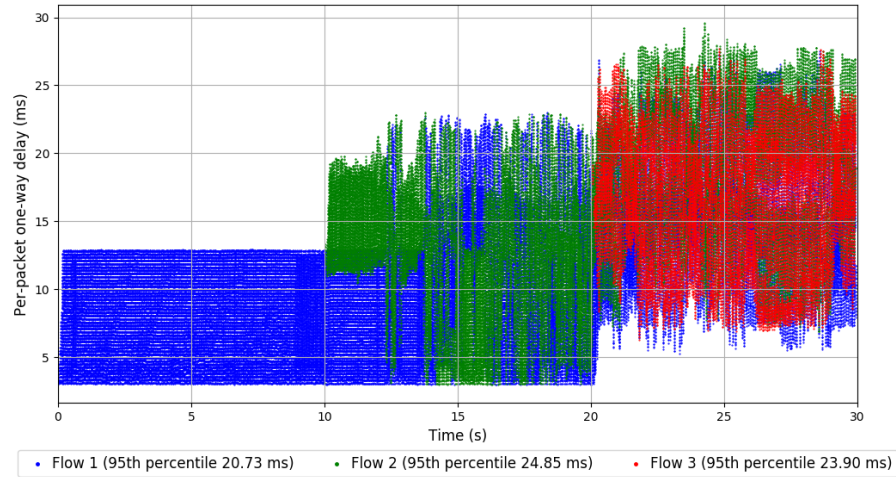
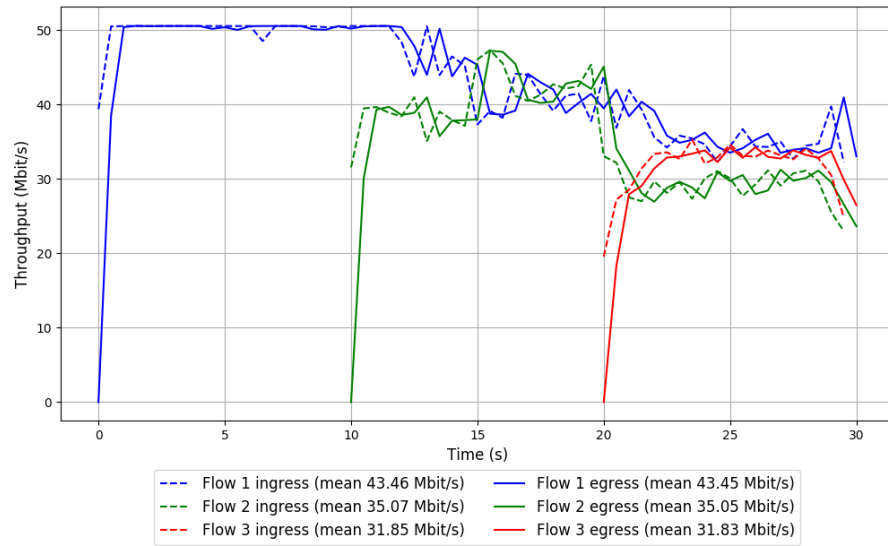
-- Flow 3:

Average throughput: 31.83 Mbit/s

95th percentile per-packet one-way delay: 23.897 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-11 03:51:24

End at: 2018-09-11 03:51:54

Local clock offset: 3.453 ms

Remote clock offset: 0.292 ms

Below is generated by plot.py at 2018-09-11 04:31:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.82 Mbit/s

95th percentile per-packet one-way delay: 22.841 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 44.61 Mbit/s

95th percentile per-packet one-way delay: 19.820 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 34.78 Mbit/s

95th percentile per-packet one-way delay: 24.319 ms

Loss rate: 0.00%

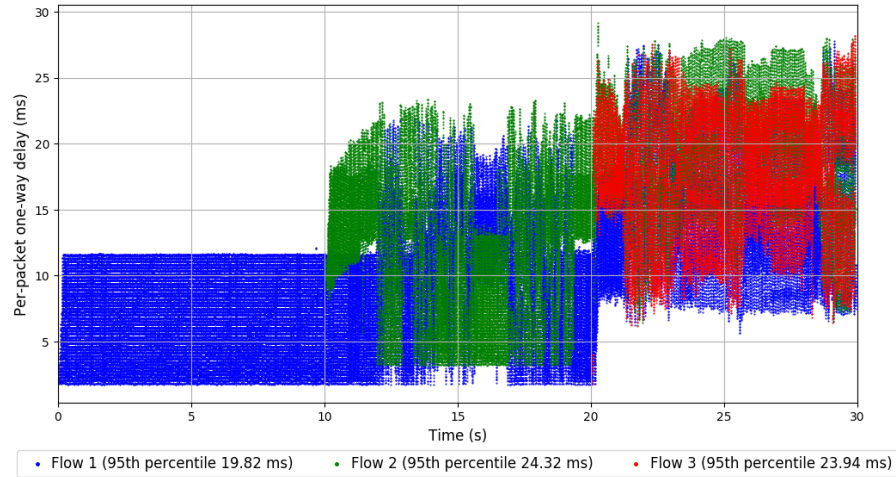
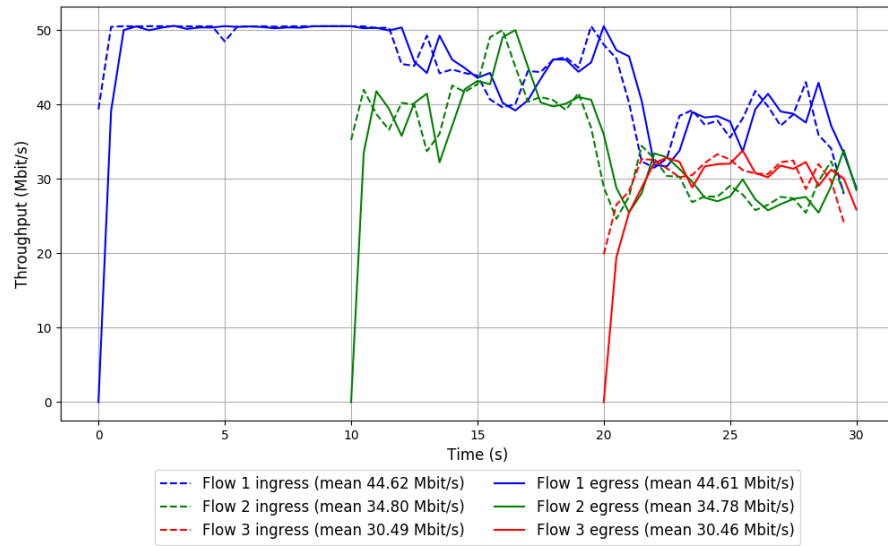
-- Flow 3:

Average throughput: 30.46 Mbit/s

95th percentile per-packet one-way delay: 23.944 ms

Loss rate: 0.00%

Run 4: Report of Sprout — Data Link

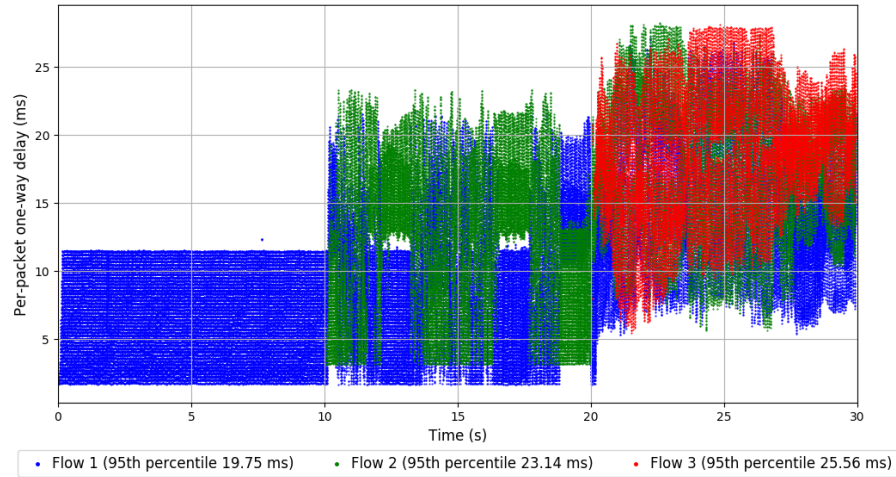
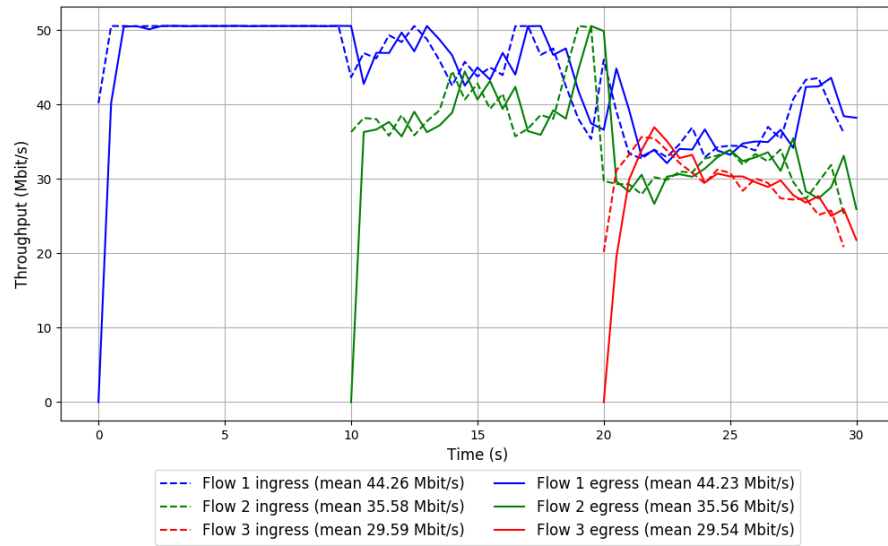


Run 5: Statistics of Sprout

Start at: 2018-09-11 04:11:53
End at: 2018-09-11 04:12:23
Local clock offset: 4.004 ms
Remote clock offset: 0.421 ms

```
# Below is generated by plot.py at 2018-09-11 04:31:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.65 Mbit/s
95th percentile per-packet one-way delay: 22.736 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 44.23 Mbit/s
95th percentile per-packet one-way delay: 19.749 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 35.56 Mbit/s
95th percentile per-packet one-way delay: 23.139 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 29.54 Mbit/s
95th percentile per-packet one-way delay: 25.562 ms
Loss rate: 0.00%
```

Run 5: Report of Sprout — Data Link

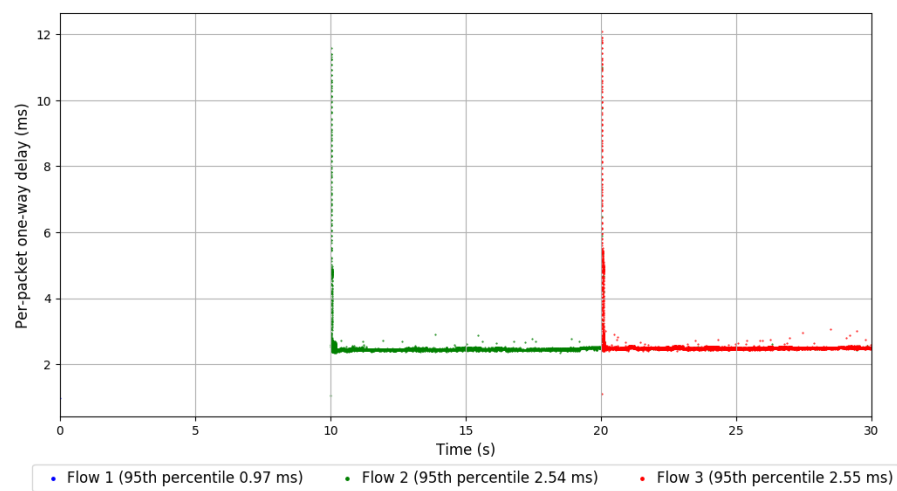
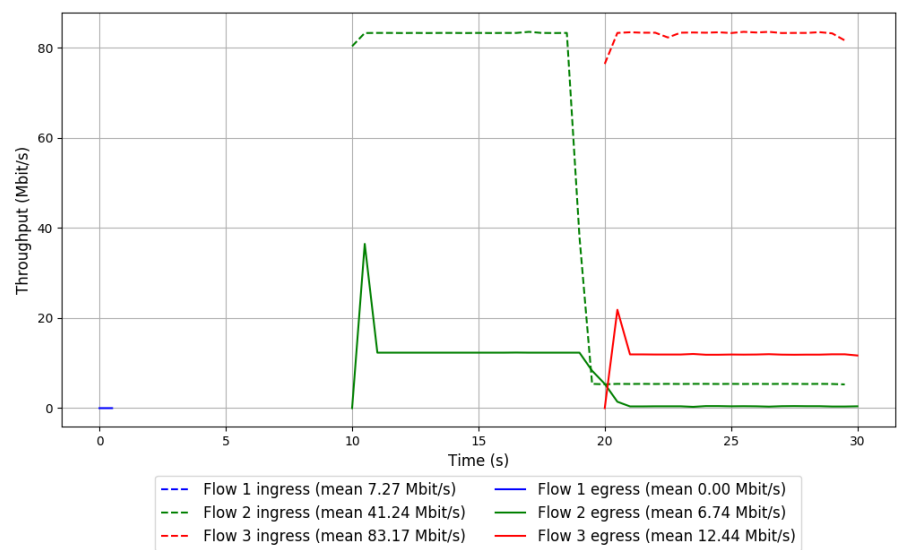


Run 1: Statistics of TaoVA-100x

Start at: 2018-09-11 02:39:47
End at: 2018-09-11 02:40:17
Local clock offset: -3.443 ms
Remote clock offset: -0.106 ms

Below is generated by plot.py at 2018-09-11 04:31:30
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.62 Mbit/s
95th percentile per-packet one-way delay: 2.546 ms
Loss rate: 84.37%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 0.970 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 6.74 Mbit/s
95th percentile per-packet one-way delay: 2.542 ms
Loss rate: 83.69%
-- Flow 3:
Average throughput: 12.44 Mbit/s
95th percentile per-packet one-way delay: 2.547 ms
Loss rate: 85.04%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-11 03:00:15

End at: 2018-09-11 03:00:45

Local clock offset: -1.837 ms

Remote clock offset: -0.01 ms

Below is generated by plot.py at 2018-09-11 04:31:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.62 Mbit/s

95th percentile per-packet one-way delay: 3.434 ms

Loss rate: 84.39%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.892 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 6.74 Mbit/s

95th percentile per-packet one-way delay: 3.385 ms

Loss rate: 83.68%

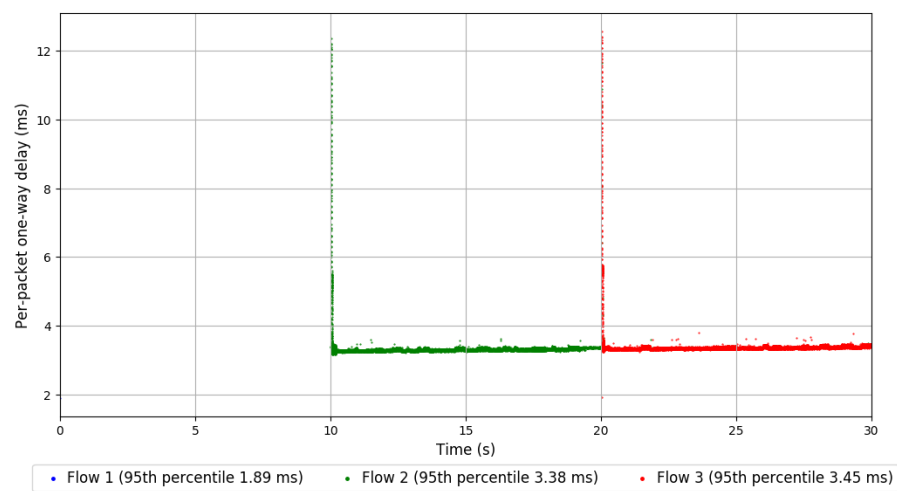
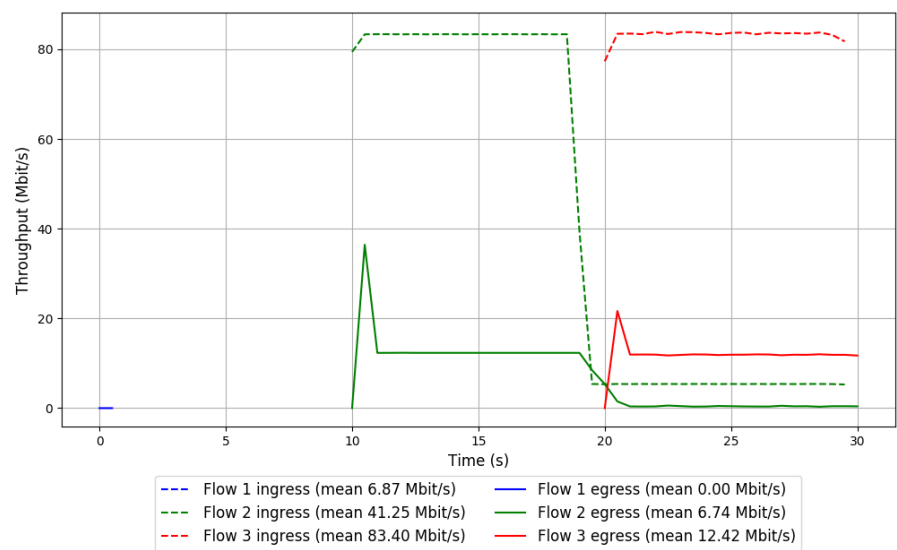
-- Flow 3:

Average throughput: 12.42 Mbit/s

95th percentile per-packet one-way delay: 3.449 ms

Loss rate: 85.10%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-11 03:20:44

End at: 2018-09-11 03:21:14

Local clock offset: 1.826 ms

Remote clock offset: 0.145 ms

Below is generated by plot.py at 2018-09-11 04:31:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.62 Mbit/s

95th percentile per-packet one-way delay: 3.270 ms

Loss rate: 89.05%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.671 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 11.84 Mbit/s

95th percentile per-packet one-way delay: 1.852 ms

Loss rate: 85.77%

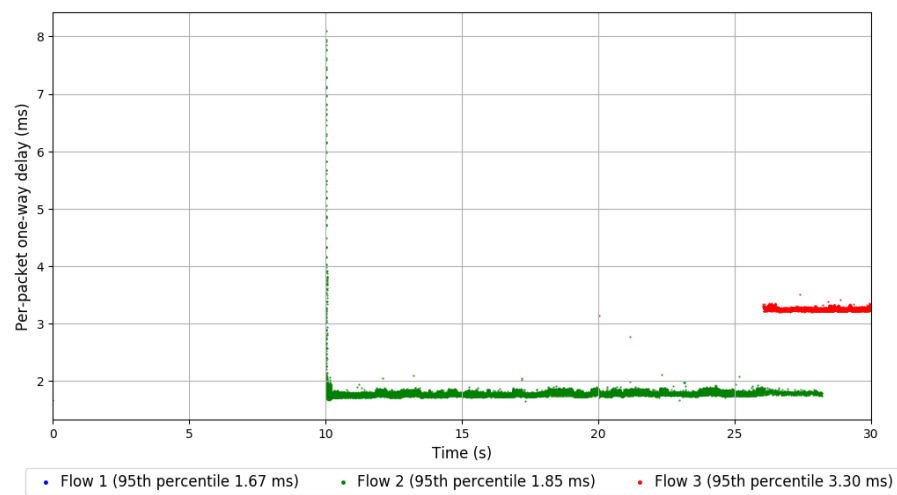
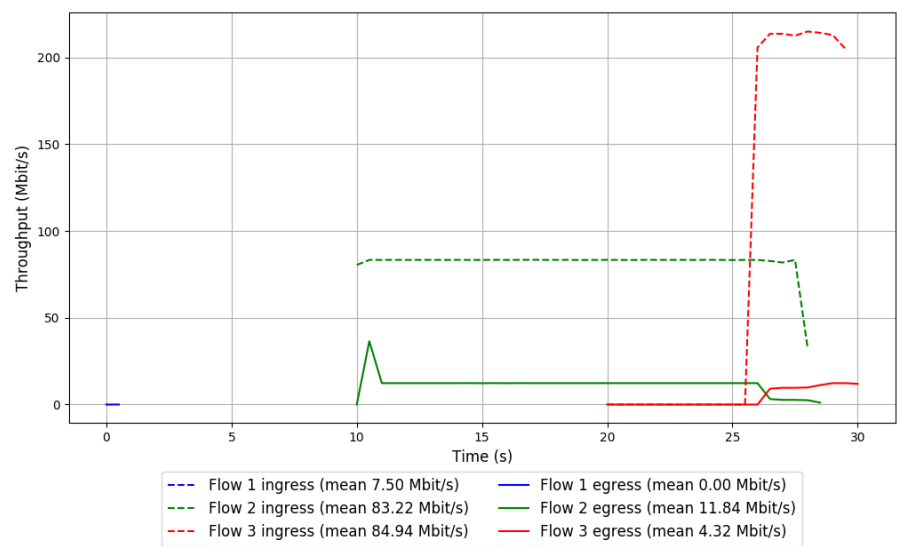
-- Flow 3:

Average throughput: 4.32 Mbit/s

95th percentile per-packet one-way delay: 3.299 ms

Loss rate: 94.92%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-11 03:41:11

End at: 2018-09-11 03:41:41

Local clock offset: 3.716 ms

Remote clock offset: 0.082 ms

Below is generated by plot.py at 2018-09-11 04:31:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.61 Mbit/s

95th percentile per-packet one-way delay: 2.388 ms

Loss rate: 83.38%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2.410 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 8.80 Mbit/s

95th percentile per-packet one-way delay: 2.357 ms

Loss rate: 83.40%

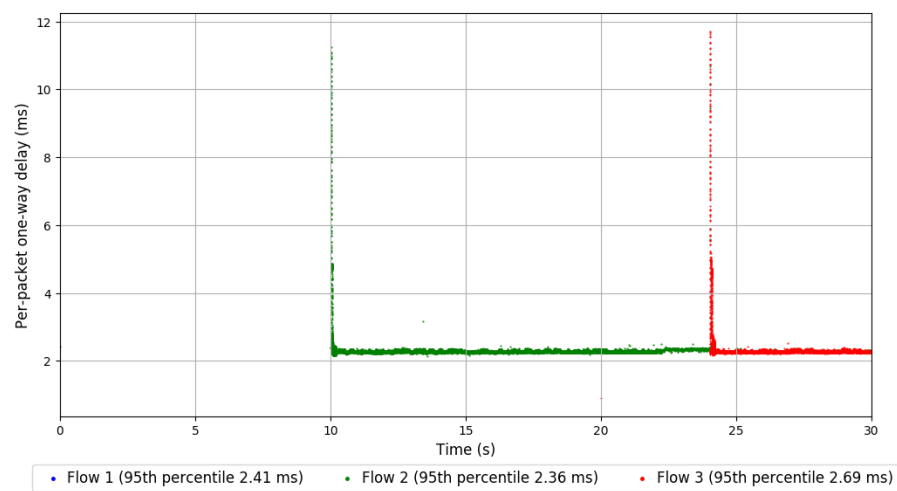
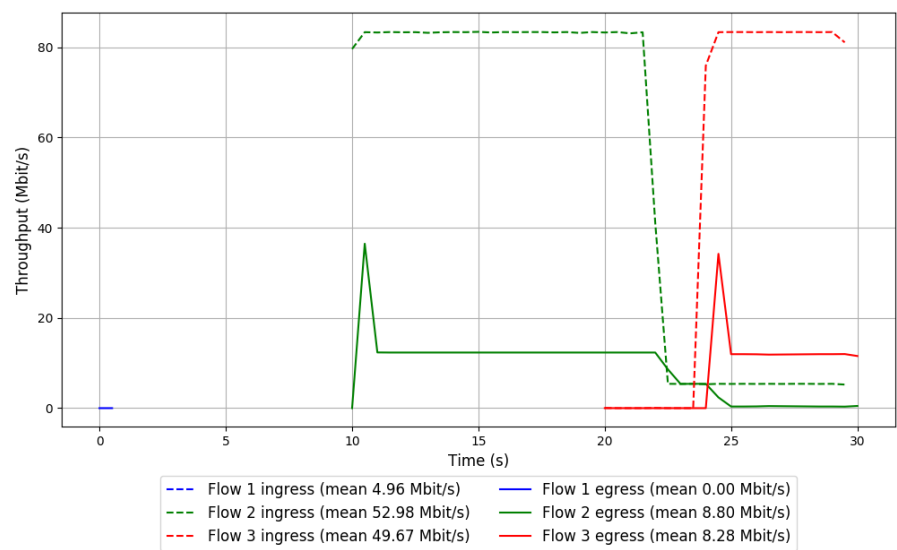
-- Flow 3:

Average throughput: 8.28 Mbit/s

95th percentile per-packet one-way delay: 2.691 ms

Loss rate: 83.33%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-11 04:01:39

End at: 2018-09-11 04:02:09

Local clock offset: 3.869 ms

Remote clock offset: 0.286 ms

Below is generated by plot.py at 2018-09-11 04:31:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.62 Mbit/s

95th percentile per-packet one-way delay: 3.165 ms

Loss rate: 84.37%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 3.191 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 6.75 Mbit/s

95th percentile per-packet one-way delay: 3.174 ms

Loss rate: 83.66%

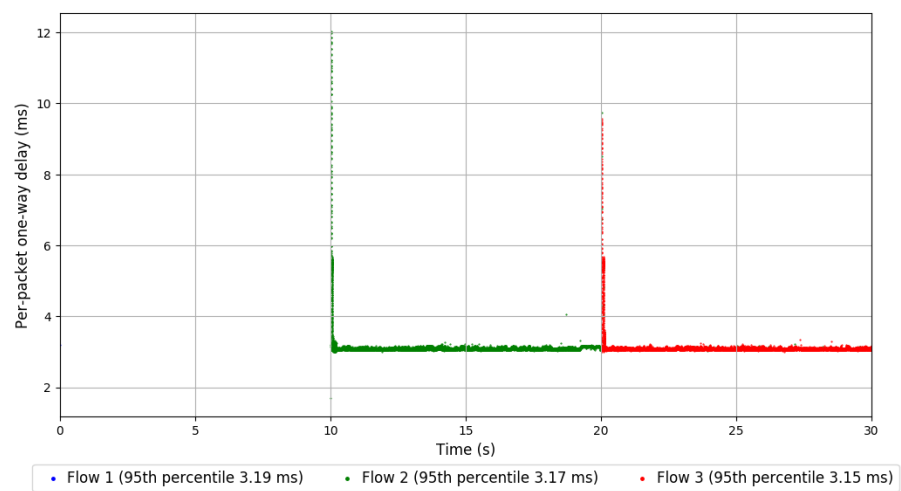
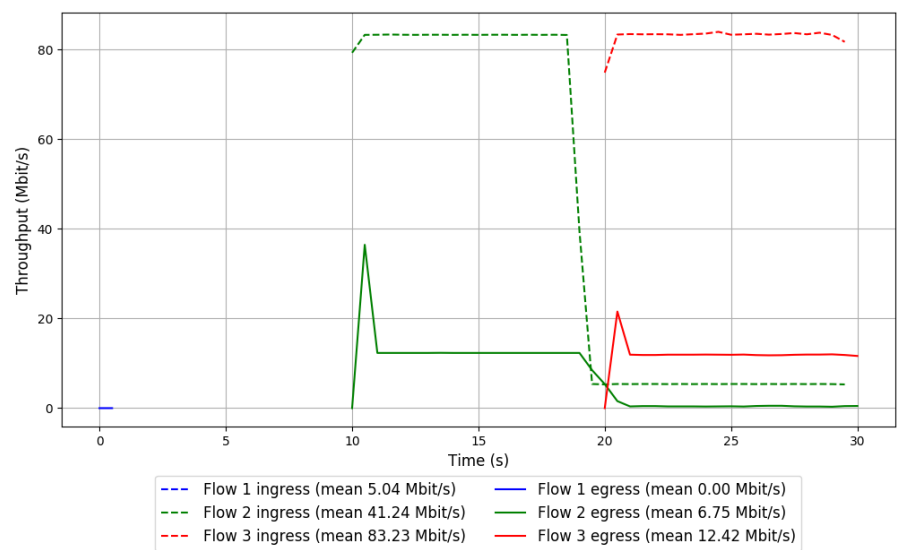
-- Flow 3:

Average throughput: 12.42 Mbit/s

95th percentile per-packet one-way delay: 3.155 ms

Loss rate: 85.08%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-11 02:54:34

End at: 2018-09-11 02:55:04

Local clock offset: -2.116 ms

Remote clock offset: 0.001 ms

Below is generated by plot.py at 2018-09-11 04:32:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 4.794 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.72 Mbit/s

95th percentile per-packet one-way delay: 11.308 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 41.17 Mbit/s

95th percentile per-packet one-way delay: 3.259 ms

Loss rate: 0.00%

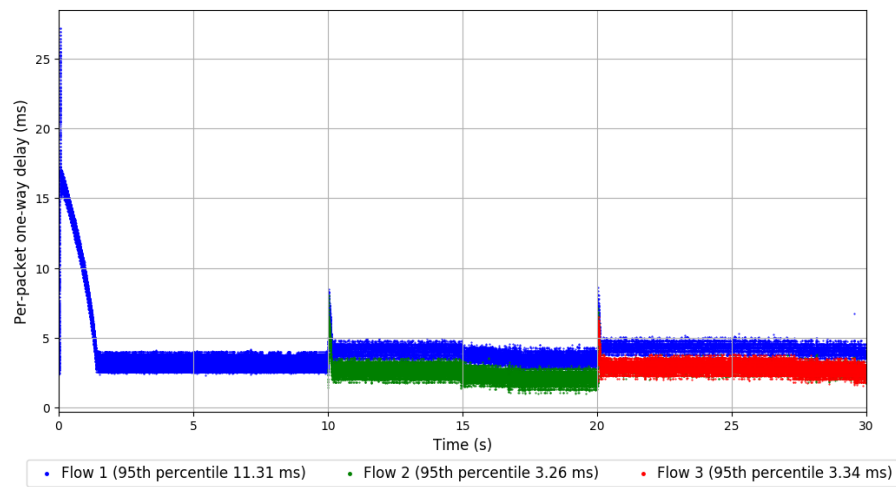
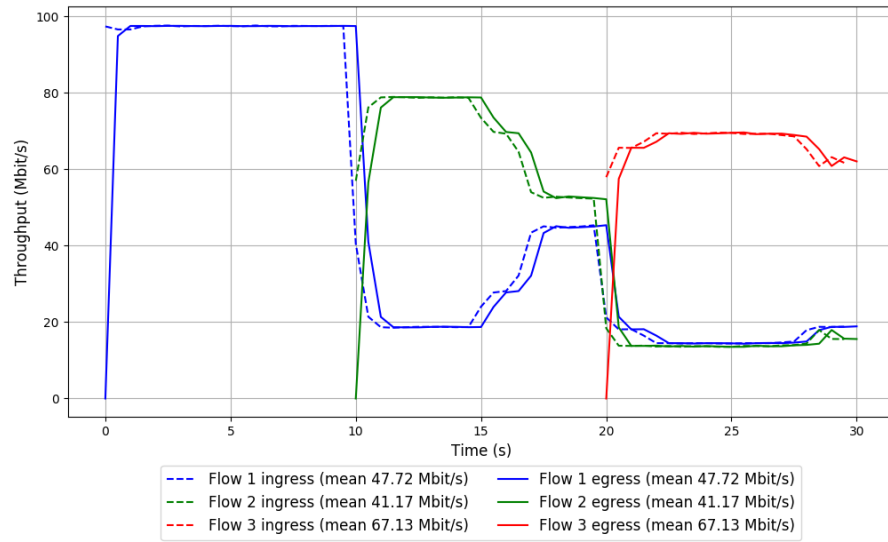
-- Flow 3:

Average throughput: 67.13 Mbit/s

95th percentile per-packet one-way delay: 3.338 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link

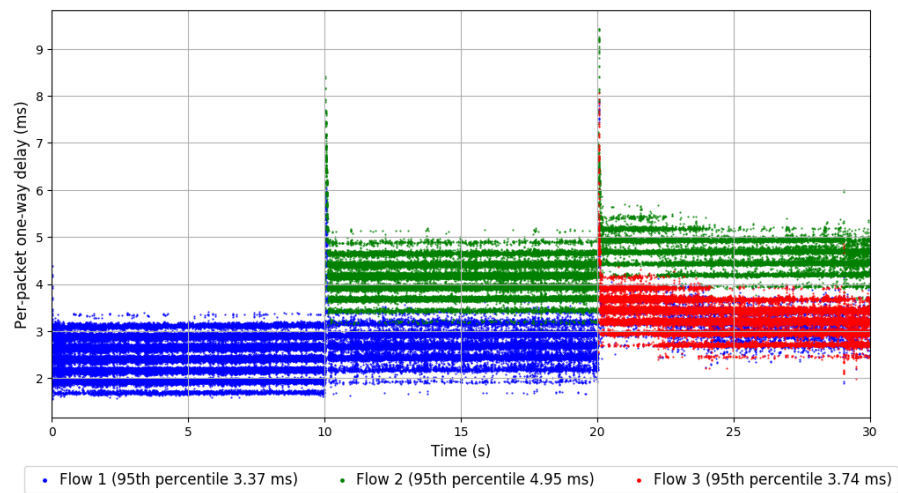
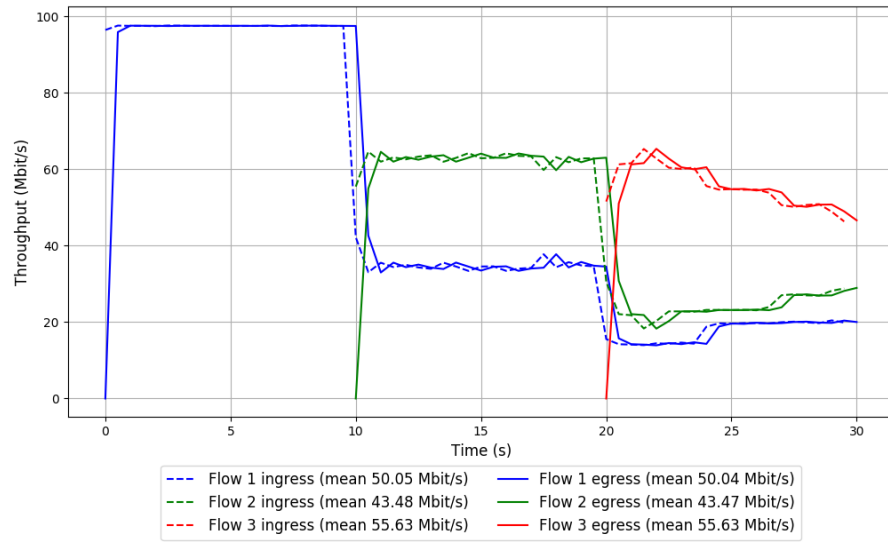


Run 2: Statistics of TCP Vegas

Start at: 2018-09-11 03:15:02
End at: 2018-09-11 03:15:32
Local clock offset: 1.244 ms
Remote clock offset: -0.009 ms

Below is generated by plot.py at 2018-09-11 04:32:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 4.683 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.04 Mbit/s
95th percentile per-packet one-way delay: 3.368 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 43.47 Mbit/s
95th percentile per-packet one-way delay: 4.945 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 55.63 Mbit/s
95th percentile per-packet one-way delay: 3.738 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-09-11 03:35:30

End at: 2018-09-11 03:36:00

Local clock offset: 2.697 ms

Remote clock offset: 0.195 ms

Below is generated by plot.py at 2018-09-11 04:32:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.50 Mbit/s

95th percentile per-packet one-way delay: 6.229 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 40.55 Mbit/s

95th percentile per-packet one-way delay: 5.011 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.99 Mbit/s

95th percentile per-packet one-way delay: 5.983 ms

Loss rate: 0.00%

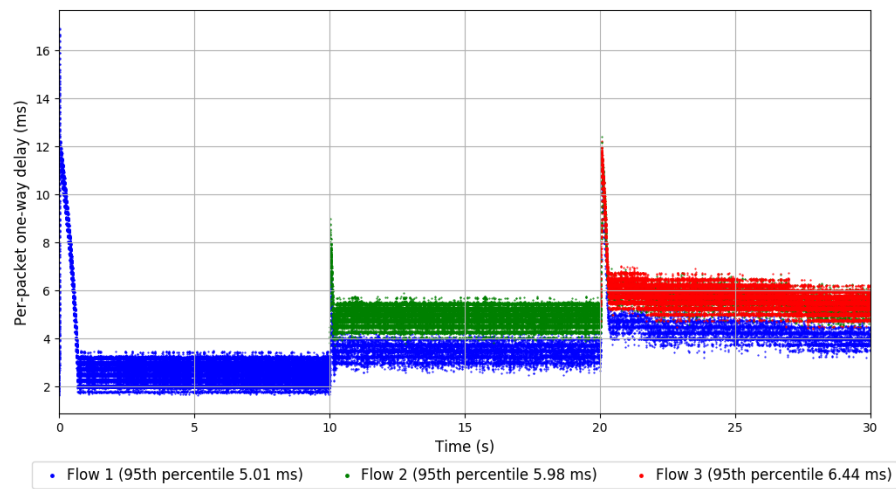
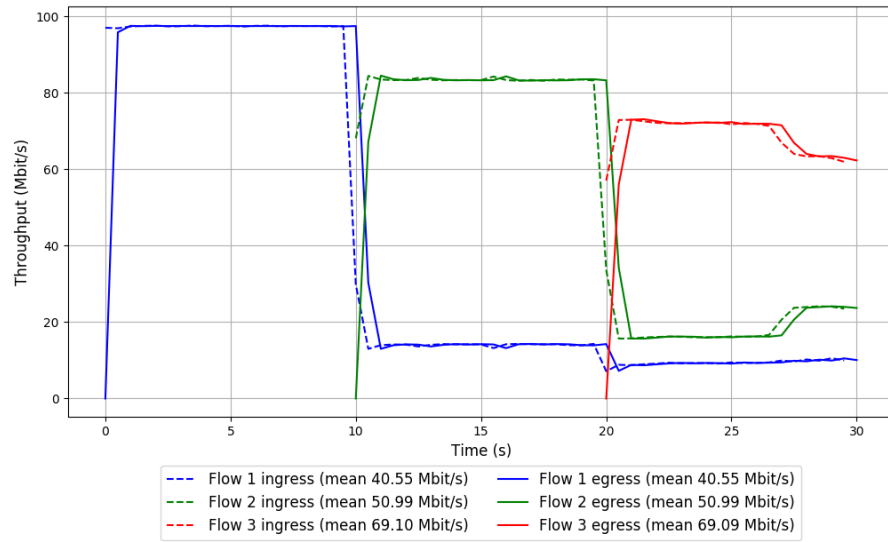
-- Flow 3:

Average throughput: 69.09 Mbit/s

95th percentile per-packet one-way delay: 6.438 ms

Loss rate: 0.02%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-11 03:55:58

End at: 2018-09-11 03:56:28

Local clock offset: 3.798 ms

Remote clock offset: 0.277 ms

Below is generated by plot.py at 2018-09-11 04:32:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.48 Mbit/s

95th percentile per-packet one-way delay: 6.285 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 41.92 Mbit/s

95th percentile per-packet one-way delay: 6.056 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 46.10 Mbit/s

95th percentile per-packet one-way delay: 4.749 ms

Loss rate: 0.00%

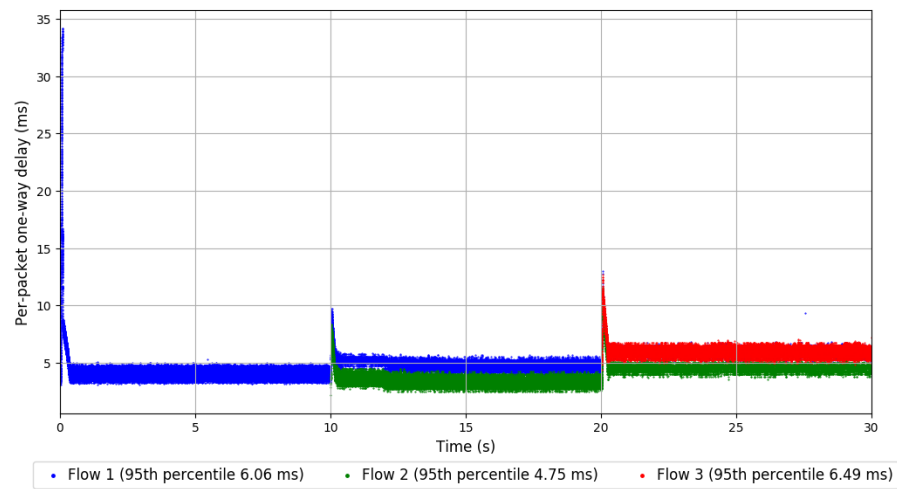
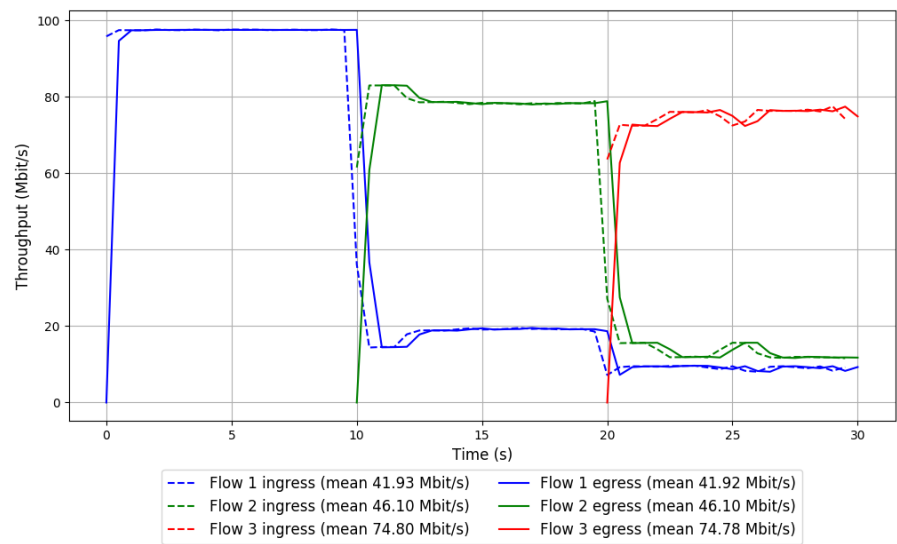
-- Flow 3:

Average throughput: 74.78 Mbit/s

95th percentile per-packet one-way delay: 6.489 ms

Loss rate: 0.02%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-11 04:16:26

End at: 2018-09-11 04:16:56

Local clock offset: 4.861 ms

Remote clock offset: 0.434 ms

Below is generated by plot.py at 2018-09-11 04:32:24

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.51 Mbit/s

95th percentile per-packet one-way delay: 3.107 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 45.04 Mbit/s

95th percentile per-packet one-way delay: 3.542 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 48.49 Mbit/s

95th percentile per-packet one-way delay: 3.118 ms

Loss rate: 0.00%

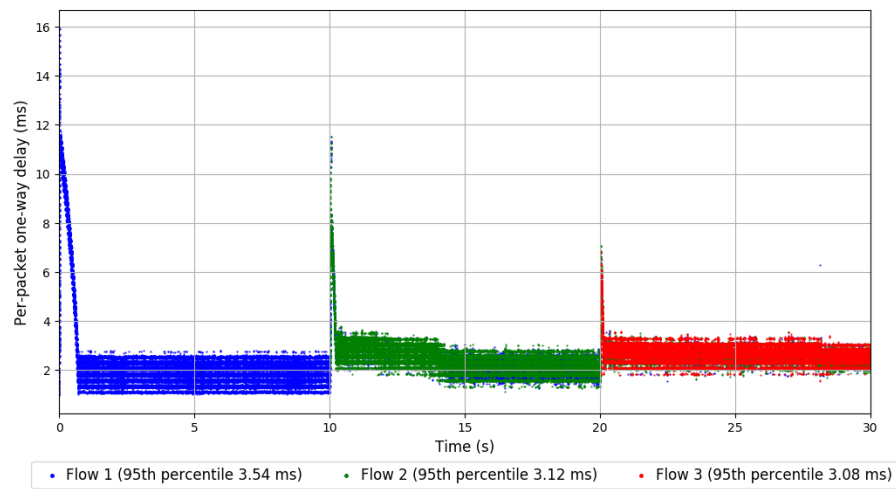
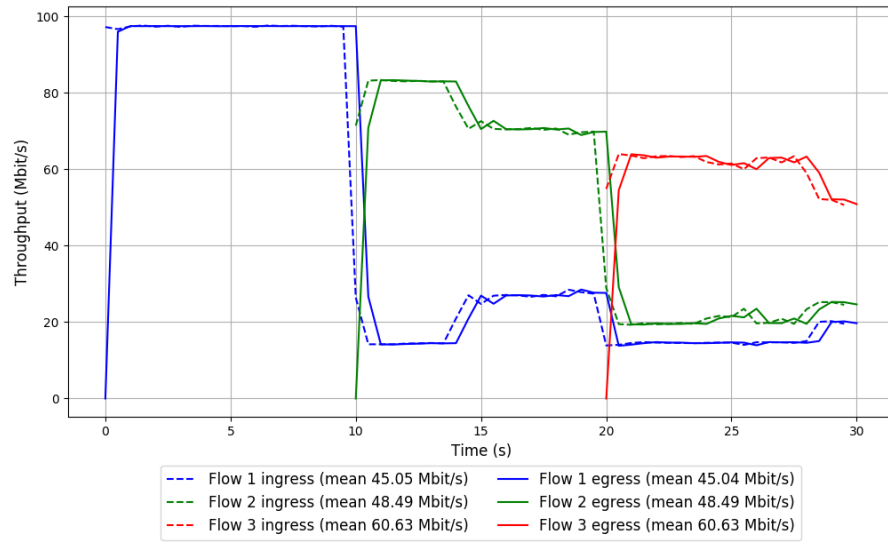
-- Flow 3:

Average throughput: 60.63 Mbit/s

95th percentile per-packet one-way delay: 3.076 ms

Loss rate: 0.00%

Run 5: Report of TCP Vegas — Data Link

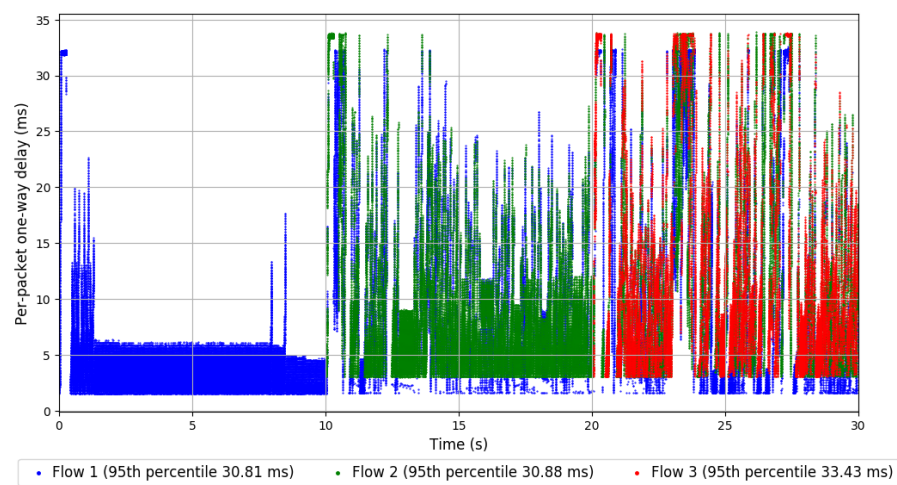
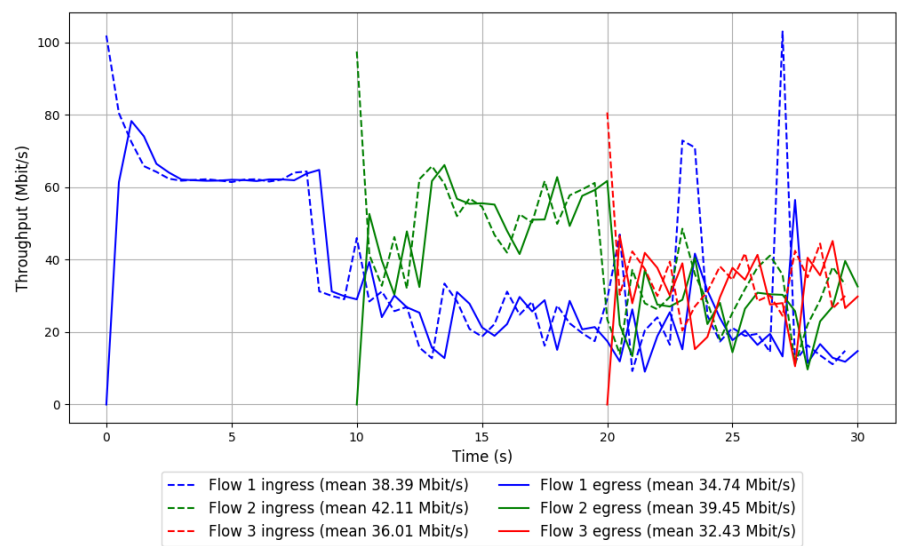


Run 1: Statistics of Verus

Start at: 2018-09-11 02:46:38
End at: 2018-09-11 02:47:08
Local clock offset: -3.33 ms
Remote clock offset: -0.052 ms

Below is generated by plot.py at 2018-09-11 04:32:24
Datalink statistics
-- Total of 3 flows:
Average throughput: 71.76 Mbit/s
95th percentile per-packet one-way delay: 31.459 ms
Loss rate: 8.38%
-- Flow 1:
Average throughput: 34.74 Mbit/s
95th percentile per-packet one-way delay: 30.808 ms
Loss rate: 9.45%
-- Flow 2:
Average throughput: 39.45 Mbit/s
95th percentile per-packet one-way delay: 30.876 ms
Loss rate: 6.27%
-- Flow 3:
Average throughput: 32.43 Mbit/s
95th percentile per-packet one-way delay: 33.434 ms
Loss rate: 9.84%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-09-11 03:07:06

End at: 2018-09-11 03:07:36

Local clock offset: 0.016 ms

Remote clock offset: 0.039 ms

Below is generated by plot.py at 2018-09-11 04:32:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 72.48 Mbit/s

95th percentile per-packet one-way delay: 31.562 ms

Loss rate: 8.71%

-- Flow 1:

Average throughput: 42.66 Mbit/s

95th percentile per-packet one-way delay: 29.108 ms

Loss rate: 7.54%

-- Flow 2:

Average throughput: 29.78 Mbit/s

95th percentile per-packet one-way delay: 32.350 ms

Loss rate: 7.79%

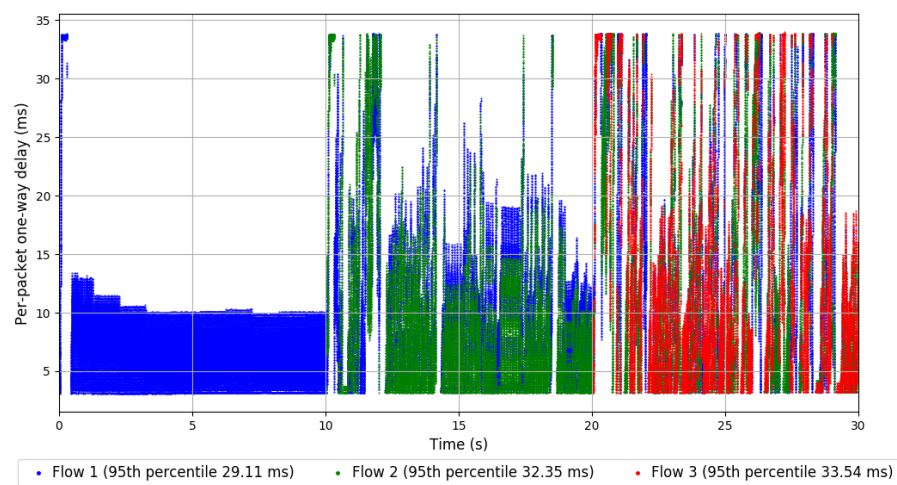
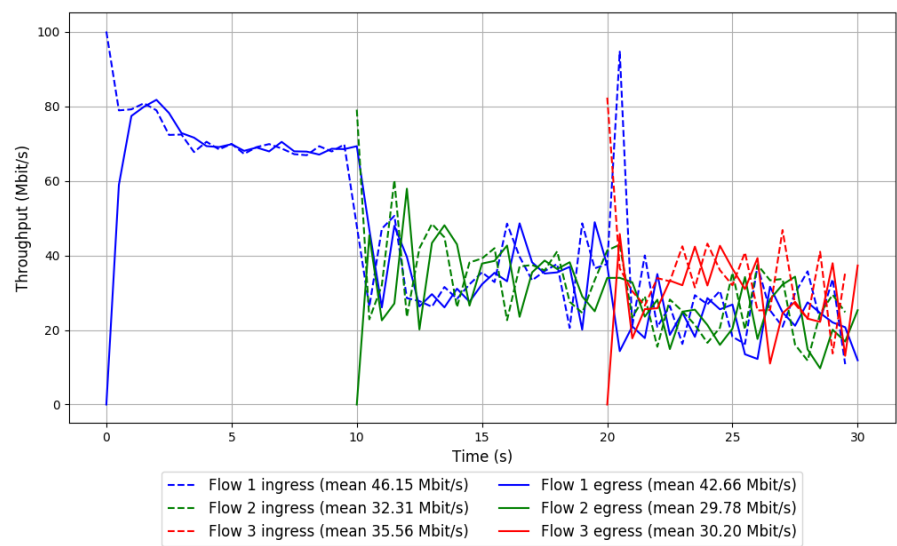
-- Flow 3:

Average throughput: 30.20 Mbit/s

95th percentile per-packet one-way delay: 33.538 ms

Loss rate: 14.98%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-11 03:27:34

End at: 2018-09-11 03:28:04

Local clock offset: 2.448 ms

Remote clock offset: 0.091 ms

Below is generated by plot.py at 2018-09-11 04:32:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 54.98 Mbit/s

95th percentile per-packet one-way delay: 32.129 ms

Loss rate: 30.23%

-- Flow 1:

Average throughput: 28.73 Mbit/s

95th percentile per-packet one-way delay: 32.095 ms

Loss rate: 14.22%

-- Flow 2:

Average throughput: 25.41 Mbit/s

95th percentile per-packet one-way delay: 32.141 ms

Loss rate: 42.41%

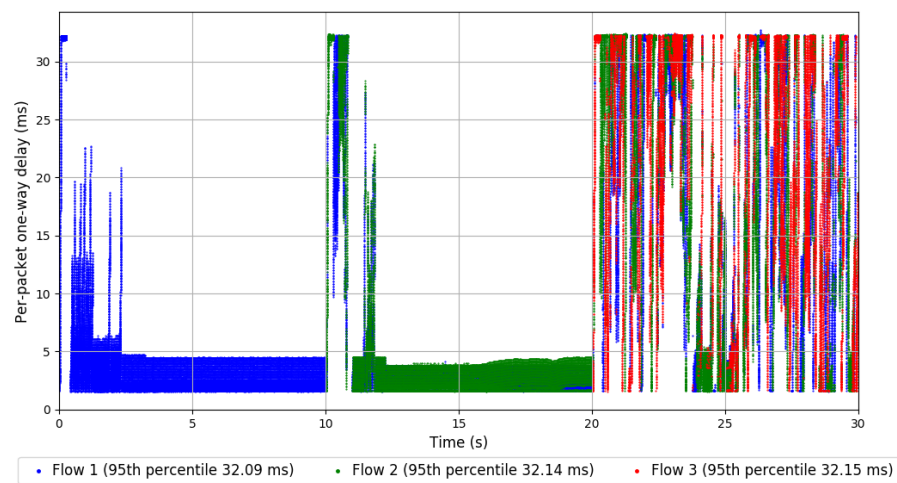
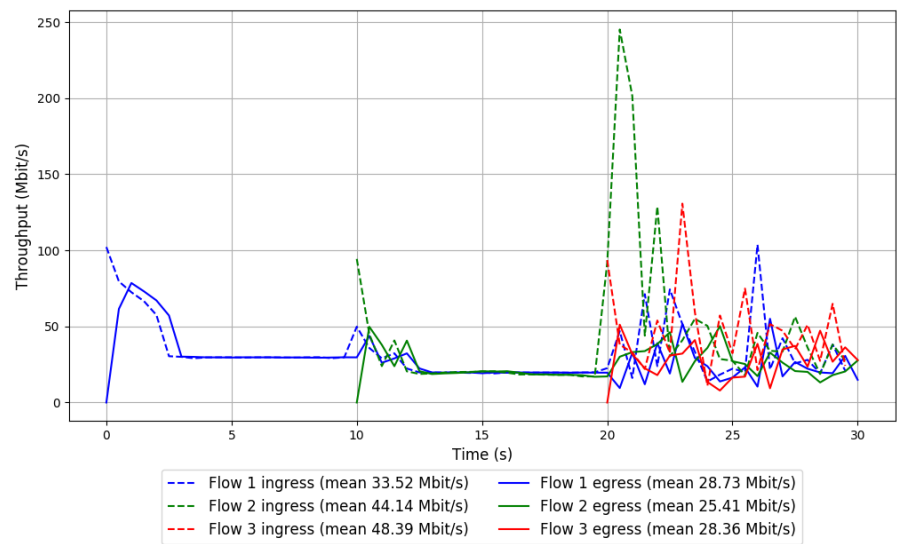
-- Flow 3:

Average throughput: 28.36 Mbit/s

95th percentile per-packet one-way delay: 32.149 ms

Loss rate: 41.29%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-09-11 03:48:02

End at: 2018-09-11 03:48:32

Local clock offset: 3.326 ms

Remote clock offset: 0.138 ms

Below is generated by plot.py at 2018-09-11 04:32:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 60.62 Mbit/s

95th percentile per-packet one-way delay: 31.093 ms

Loss rate: 17.32%

-- Flow 1:

Average throughput: 33.43 Mbit/s

95th percentile per-packet one-way delay: 27.809 ms

Loss rate: 4.26%

-- Flow 2:

Average throughput: 26.72 Mbit/s

95th percentile per-packet one-way delay: 31.864 ms

Loss rate: 25.58%

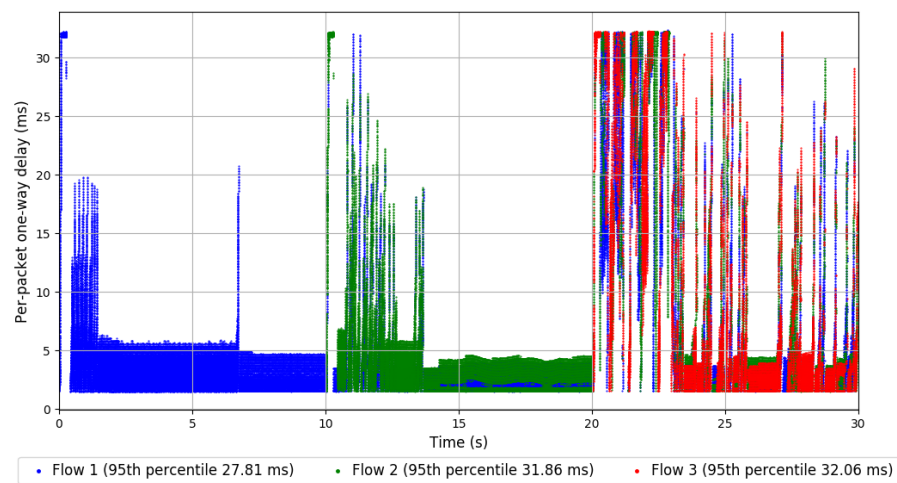
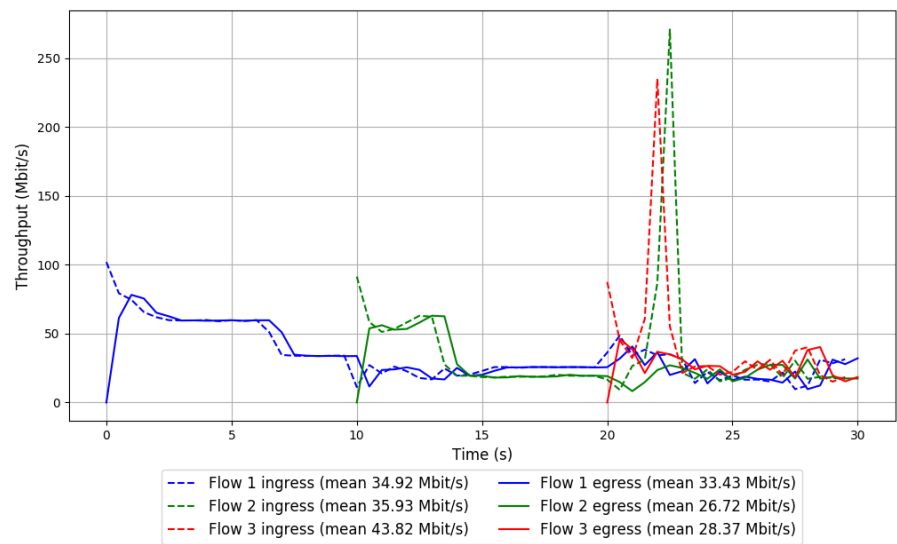
-- Flow 3:

Average throughput: 28.37 Mbit/s

95th percentile per-packet one-way delay: 32.057 ms

Loss rate: 35.15%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-11 04:08:30

End at: 2018-09-11 04:09:00

Local clock offset: 4.665 ms

Remote clock offset: 0.315 ms

Below is generated by plot.py at 2018-09-11 04:33:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 73.89 Mbit/s

95th percentile per-packet one-way delay: 28.681 ms

Loss rate: 8.10%

-- Flow 1:

Average throughput: 51.90 Mbit/s

95th percentile per-packet one-way delay: 23.779 ms

Loss rate: 4.45%

-- Flow 2:

Average throughput: 23.26 Mbit/s

95th percentile per-packet one-way delay: 30.836 ms

Loss rate: 12.78%

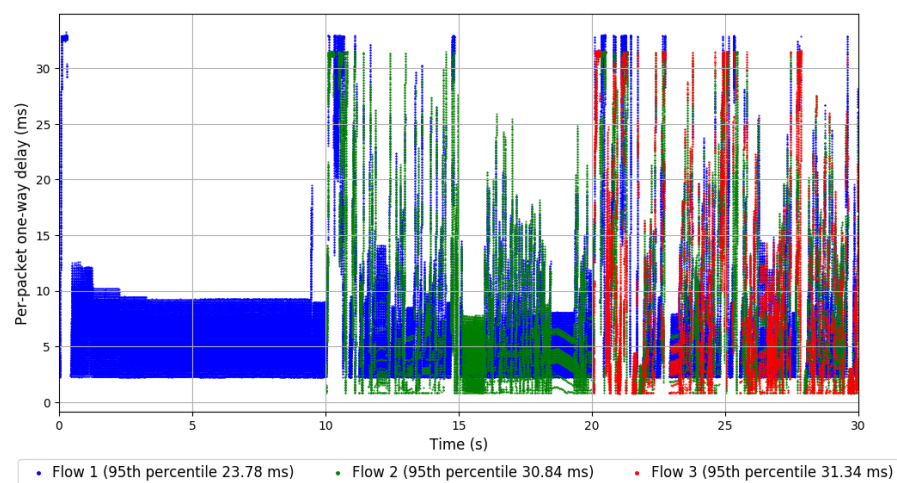
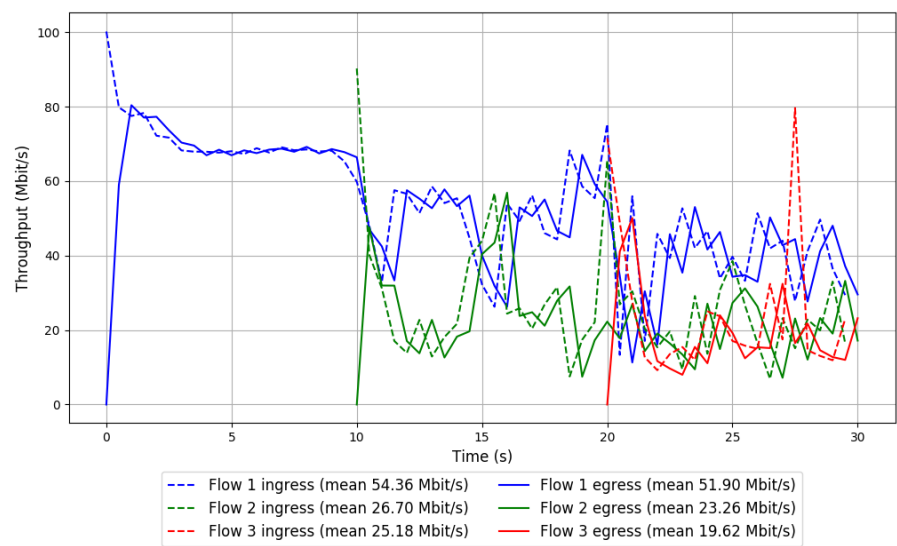
-- Flow 3:

Average throughput: 19.62 Mbit/s

95th percentile per-packet one-way delay: 31.336 ms

Loss rate: 21.91%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-11 02:43:09

End at: 2018-09-11 02:43:39

Local clock offset: -2.924 ms

Remote clock offset: 0.032 ms

Below is generated by plot.py at 2018-09-11 04:33:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.32 Mbit/s

95th percentile per-packet one-way delay: 2.819 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 50.45 Mbit/s

95th percentile per-packet one-way delay: 1.358 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 41.37 Mbit/s

95th percentile per-packet one-way delay: 3.604 ms

Loss rate: 0.01%

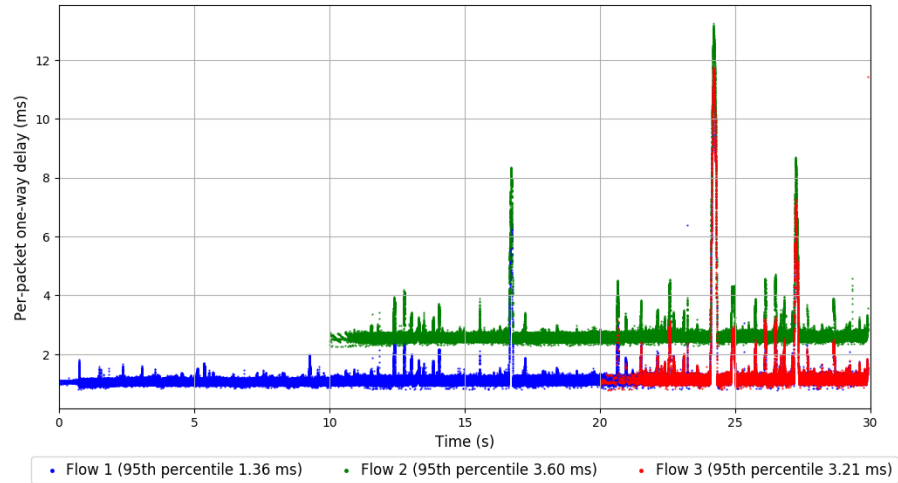
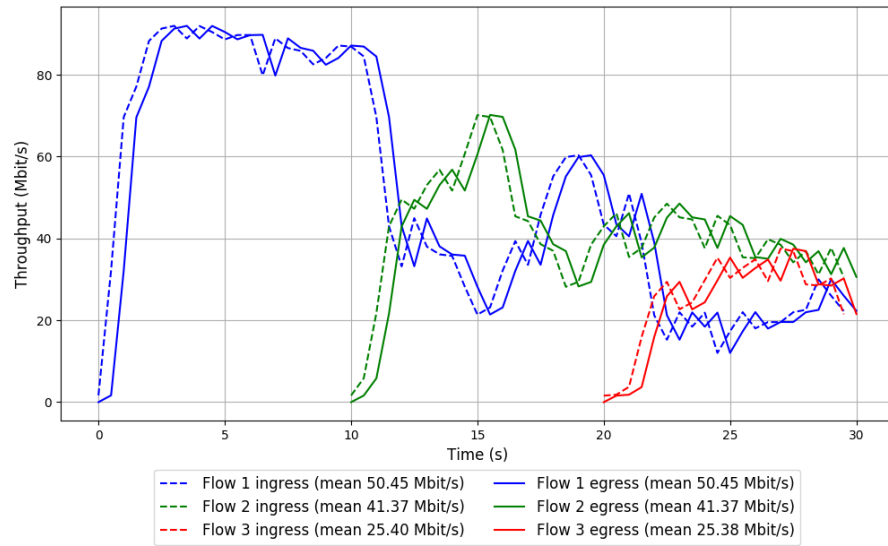
-- Flow 3:

Average throughput: 25.38 Mbit/s

95th percentile per-packet one-way delay: 3.210 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-11 03:03:37

End at: 2018-09-11 03:04:07

Local clock offset: -0.82 ms

Remote clock offset: 0.08 ms

Below is generated by plot.py at 2018-09-11 04:33:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.40 Mbit/s

95th percentile per-packet one-way delay: 4.624 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 49.88 Mbit/s

95th percentile per-packet one-way delay: 2.937 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 41.29 Mbit/s

95th percentile per-packet one-way delay: 5.226 ms

Loss rate: 0.00%

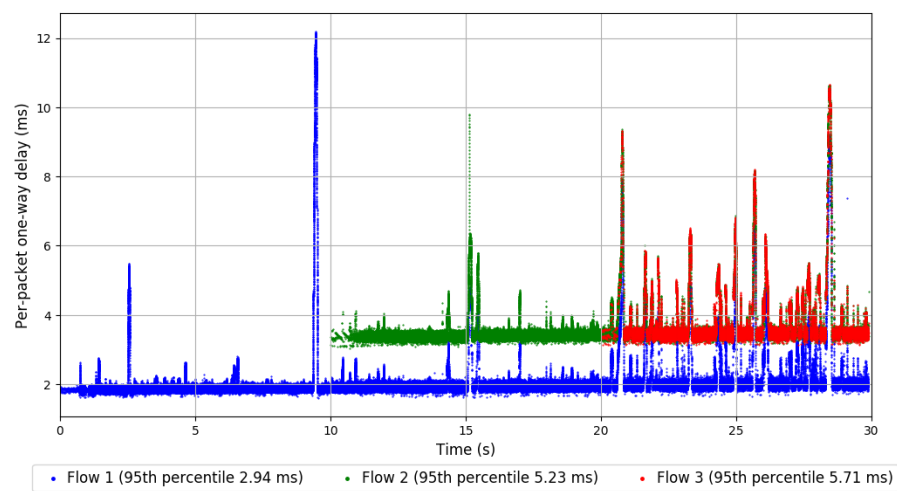
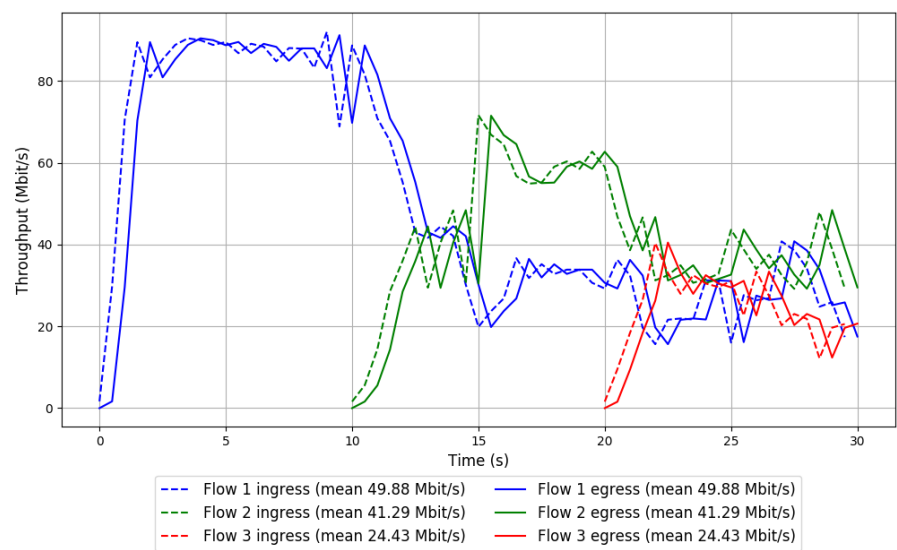
-- Flow 3:

Average throughput: 24.43 Mbit/s

95th percentile per-packet one-way delay: 5.714 ms

Loss rate: 0.01%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-11 03:24:06

End at: 2018-09-11 03:24:36

Local clock offset: 2.945 ms

Remote clock offset: 0.191 ms

Below is generated by plot.py at 2018-09-11 04:33:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 87.21 Mbit/s

95th percentile per-packet one-way delay: 2.772 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.93 Mbit/s

95th percentile per-packet one-way delay: 1.295 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 45.13 Mbit/s

95th percentile per-packet one-way delay: 3.025 ms

Loss rate: 0.01%

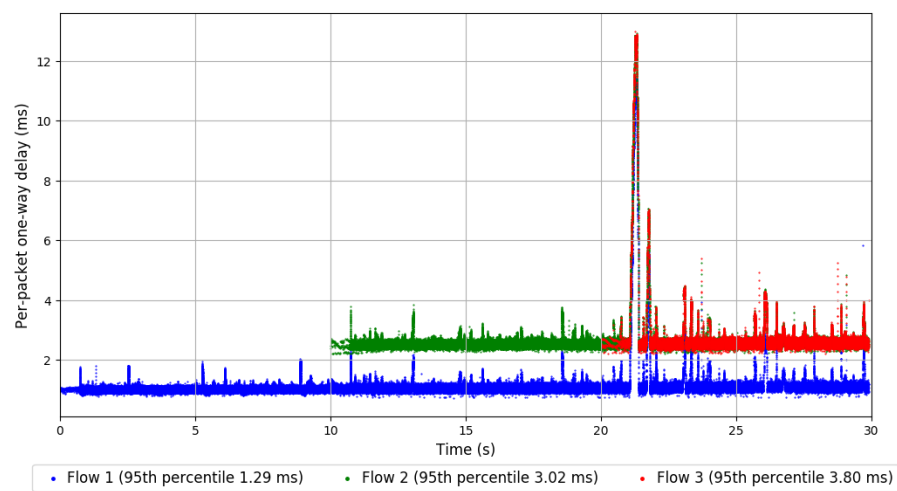
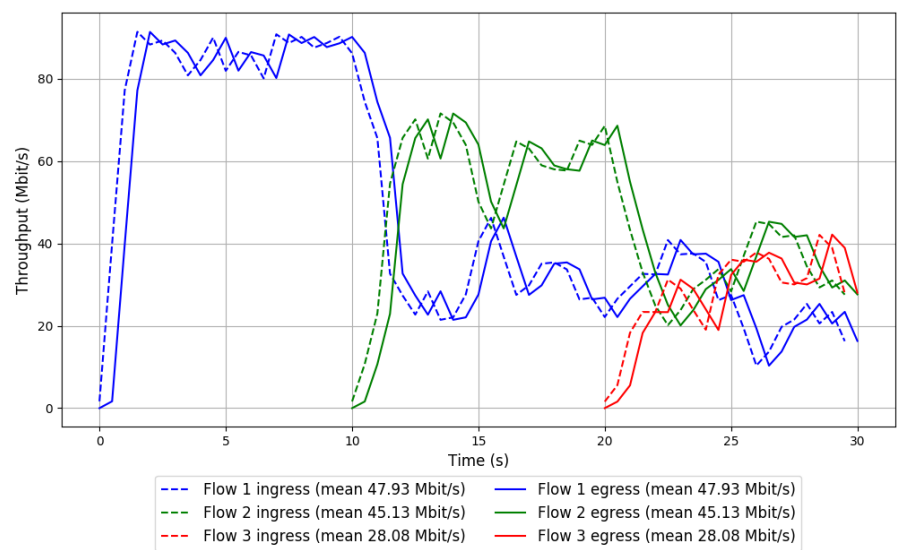
-- Flow 3:

Average throughput: 28.08 Mbit/s

95th percentile per-packet one-way delay: 3.800 ms

Loss rate: 0.01%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-11 03:44:33

End at: 2018-09-11 03:45:03

Local clock offset: 3.115 ms

Remote clock offset: 0.207 ms

Below is generated by plot.py at 2018-09-11 04:33:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.40 Mbit/s

95th percentile per-packet one-way delay: 3.896 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 49.14 Mbit/s

95th percentile per-packet one-way delay: 2.286 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 40.84 Mbit/s

95th percentile per-packet one-way delay: 4.393 ms

Loss rate: 0.01%

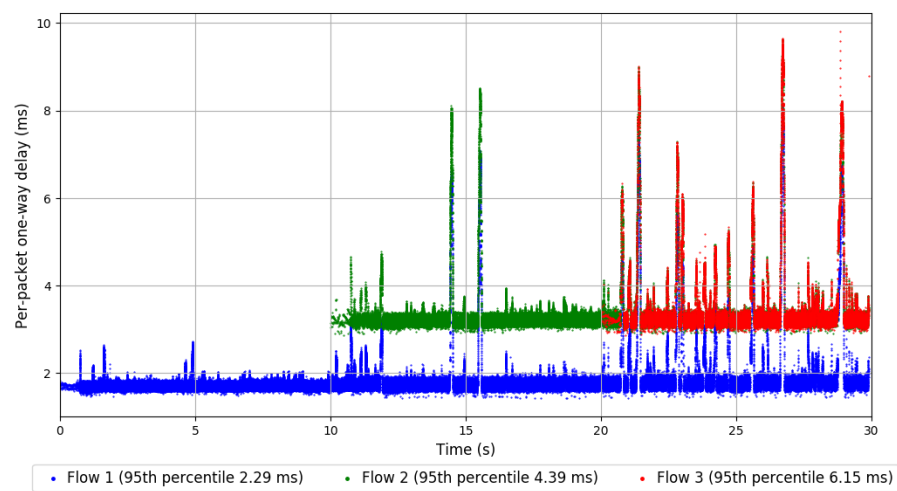
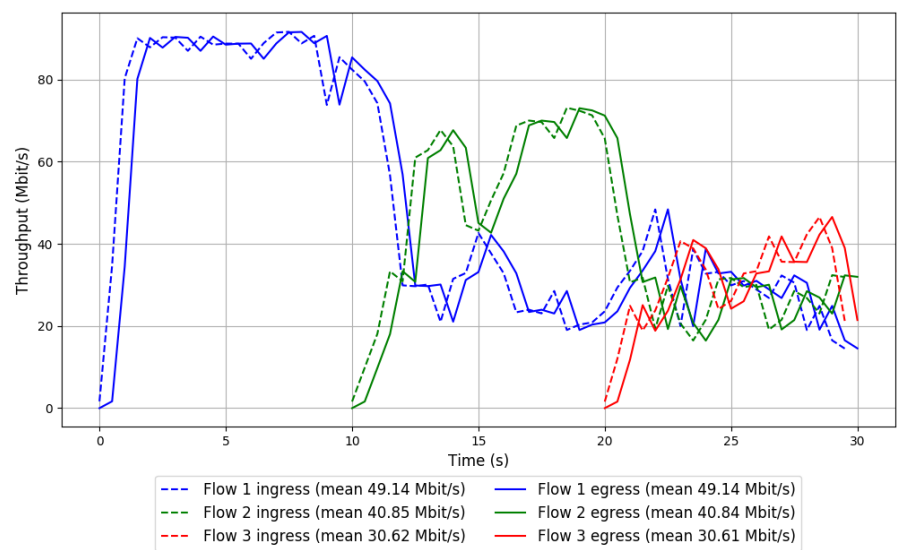
-- Flow 3:

Average throughput: 30.61 Mbit/s

95th percentile per-packet one-way delay: 6.148 ms

Loss rate: 0.01%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-11 04:05:01

End at: 2018-09-11 04:05:31

Local clock offset: 3.831 ms

Remote clock offset: 0.287 ms

Below is generated by plot.py at 2018-09-11 04:33:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.31 Mbit/s

95th percentile per-packet one-way delay: 3.375 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 50.38 Mbit/s

95th percentile per-packet one-way delay: 2.781 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 38.77 Mbit/s

95th percentile per-packet one-way delay: 3.557 ms

Loss rate: 0.00%

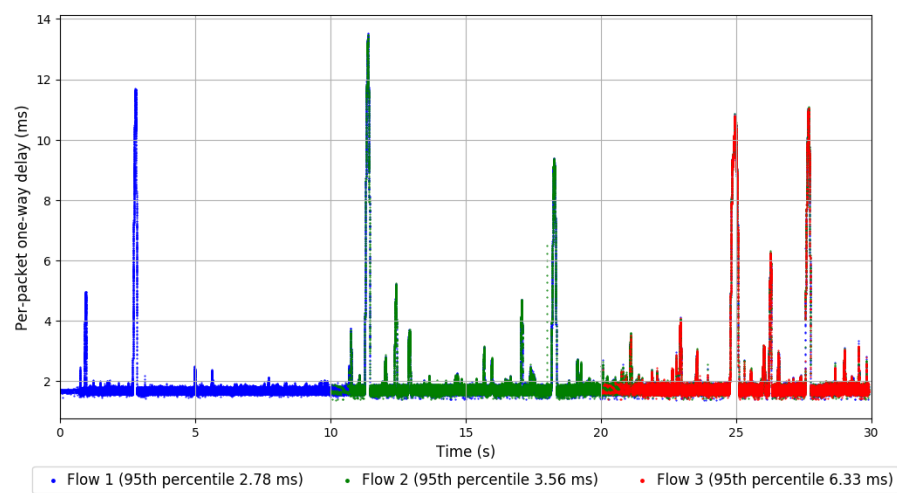
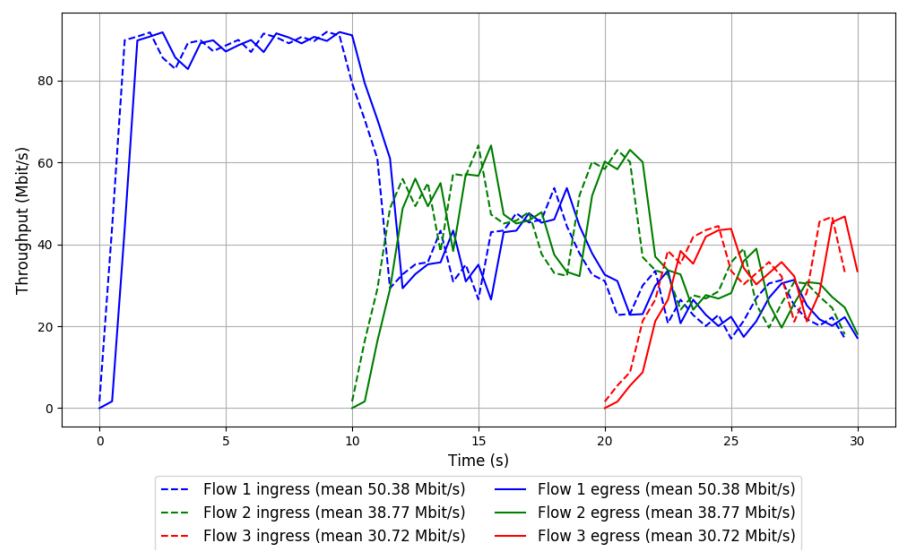
-- Flow 3:

Average throughput: 30.72 Mbit/s

95th percentile per-packet one-way delay: 6.331 ms

Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-09-11 02:58:01

End at: 2018-09-11 02:58:31

Local clock offset: -1.884 ms

Remote clock offset: 0.004 ms

Below is generated by plot.py at 2018-09-11 04:33:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.53 Mbit/s

95th percentile per-packet one-way delay: 7.201 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 7.255 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.23 Mbit/s

95th percentile per-packet one-way delay: 7.612 ms

Loss rate: 0.00%

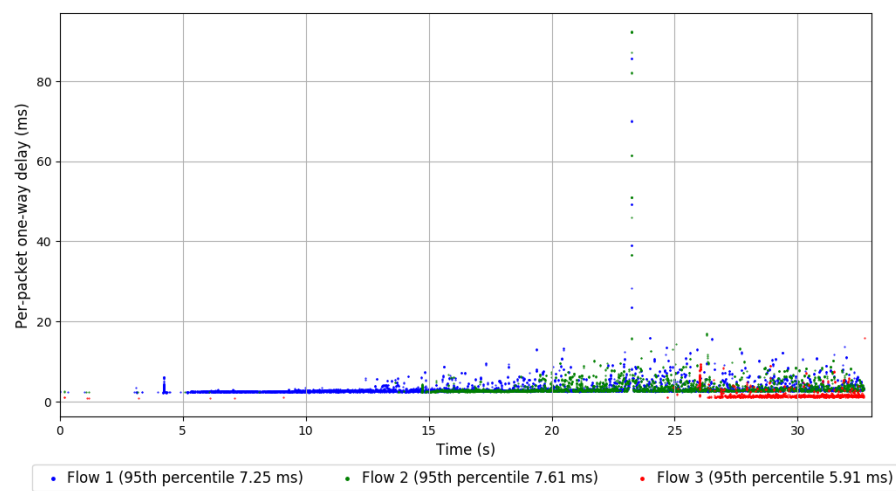
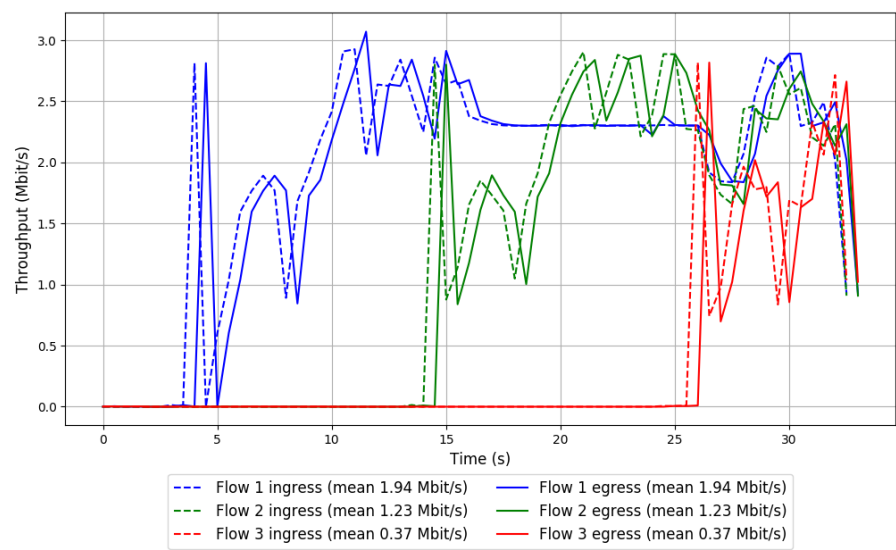
-- Flow 3:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 5.909 ms

Loss rate: 0.28%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-11 03:18:29

End at: 2018-09-11 03:18:59

Local clock offset: 2.394 ms

Remote clock offset: 0.064 ms

Below is generated by plot.py at 2018-09-11 04:33:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.55 Mbit/s

95th percentile per-packet one-way delay: 6.588 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 6.936 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 5.708 ms

Loss rate: 0.00%

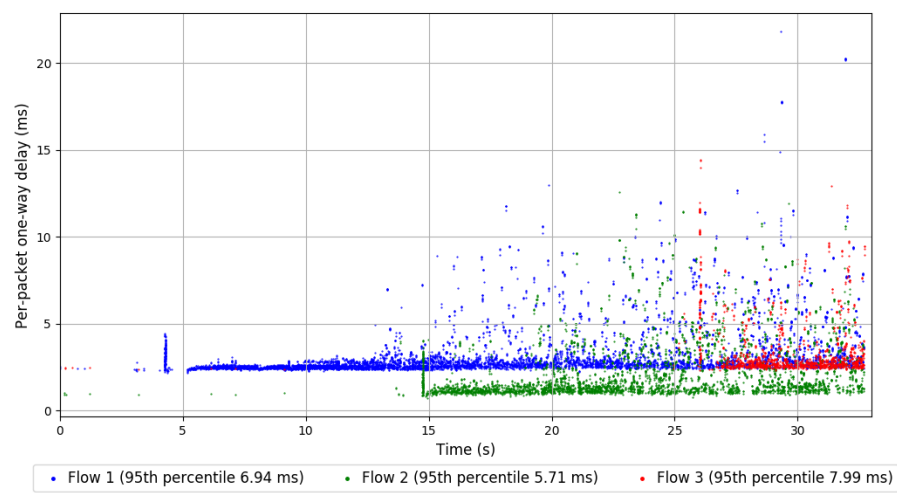
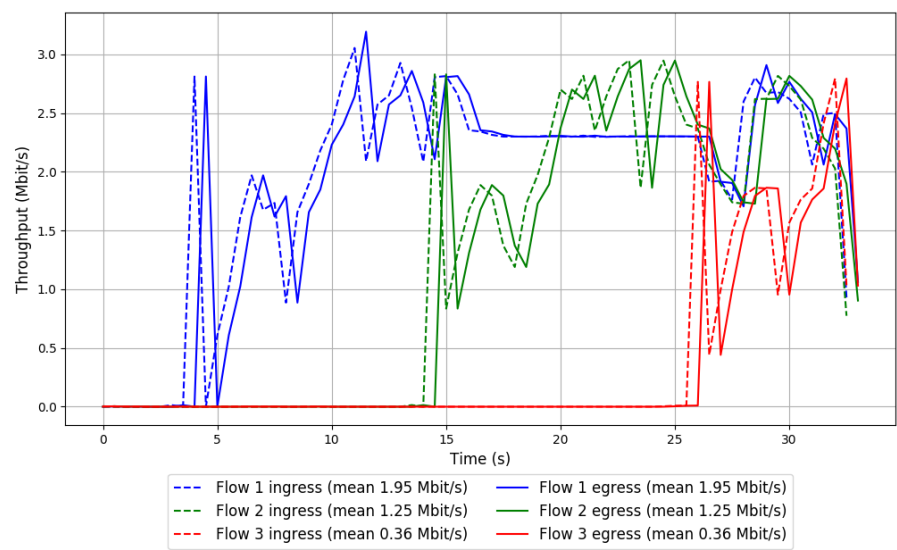
-- Flow 3:

Average throughput: 0.36 Mbit/s

95th percentile per-packet one-way delay: 7.986 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-11 03:38:57

End at: 2018-09-11 03:39:27

Local clock offset: 3.546 ms

Remote clock offset: 0.244 ms

Below is generated by plot.py at 2018-09-11 04:33:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.51 Mbit/s

95th percentile per-packet one-way delay: 5.922 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 4.823 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 6.886 ms

Loss rate: 0.14%

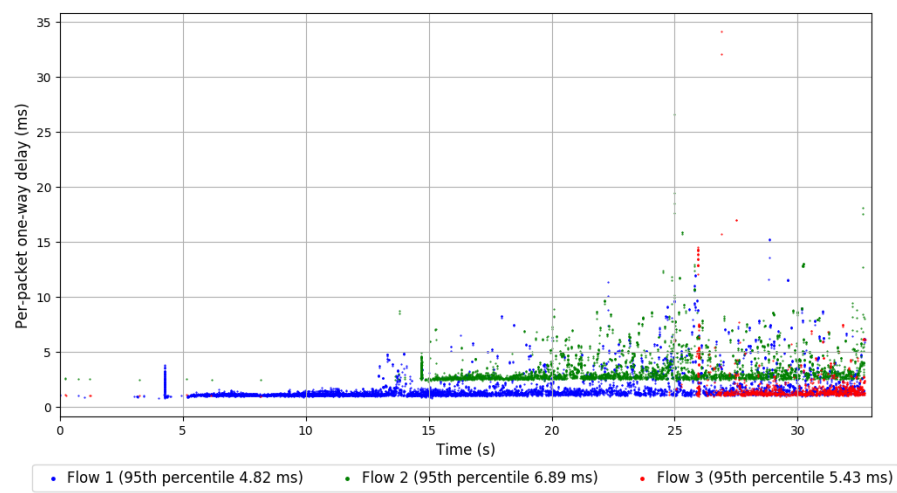
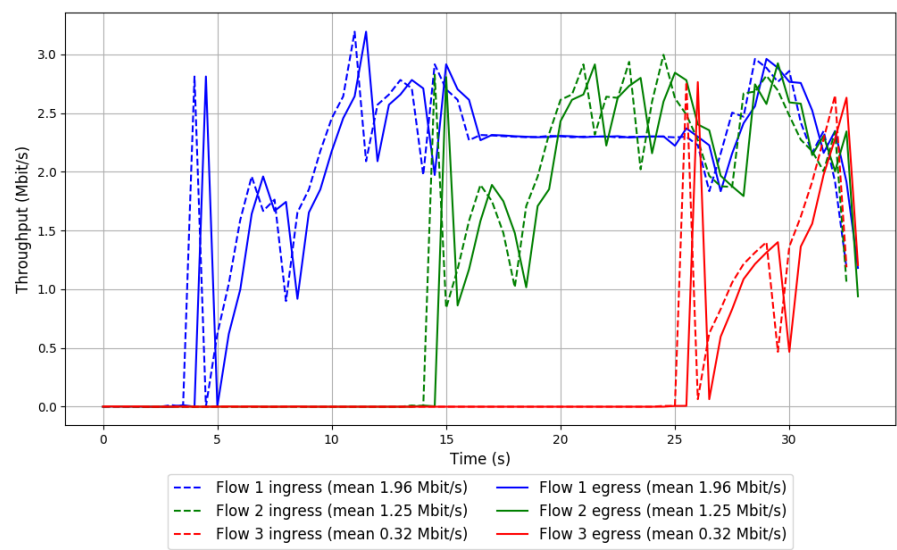
-- Flow 3:

Average throughput: 0.32 Mbit/s

95th percentile per-packet one-way delay: 5.427 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-11 03:59:24

End at: 2018-09-11 03:59:54

Local clock offset: 4.669 ms

Remote clock offset: 0.283 ms

Below is generated by plot.py at 2018-09-11 04:33:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.60 Mbit/s

95th percentile per-packet one-way delay: 5.008 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 4.158 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 5.819 ms

Loss rate: 0.00%

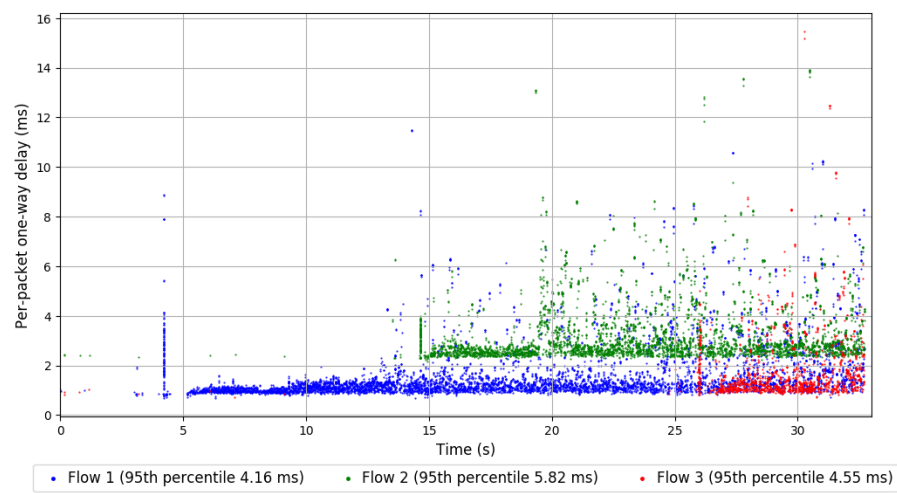
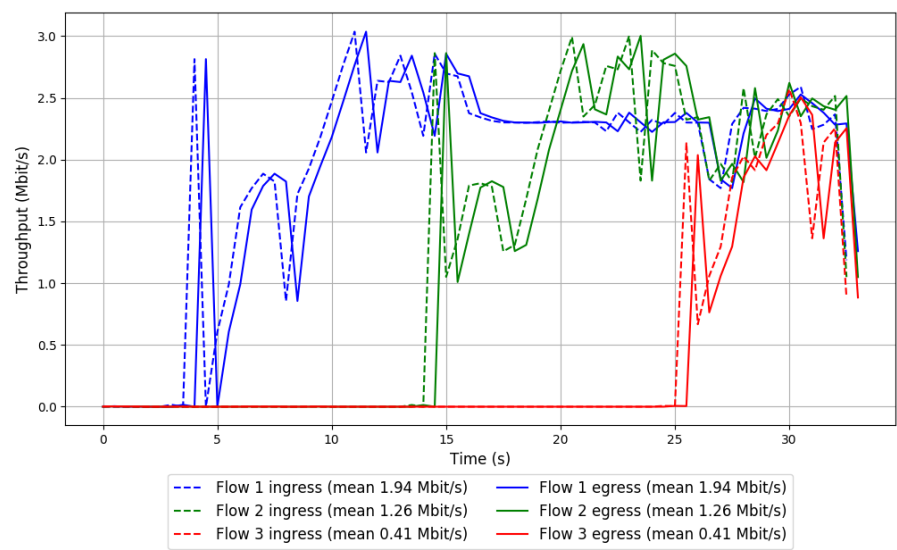
-- Flow 3:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 4.549 ms

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-11 04:19:53

End at: 2018-09-11 04:20:23

Local clock offset: 4.313 ms

Remote clock offset: 0.359 ms

Below is generated by plot.py at 2018-09-11 04:33:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.58 Mbit/s

95th percentile per-packet one-way delay: 5.781 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 5.496 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 5.855 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 6.402 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

