

Pantheon Report

Generated at 2018-09-06 11:01:16 (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.

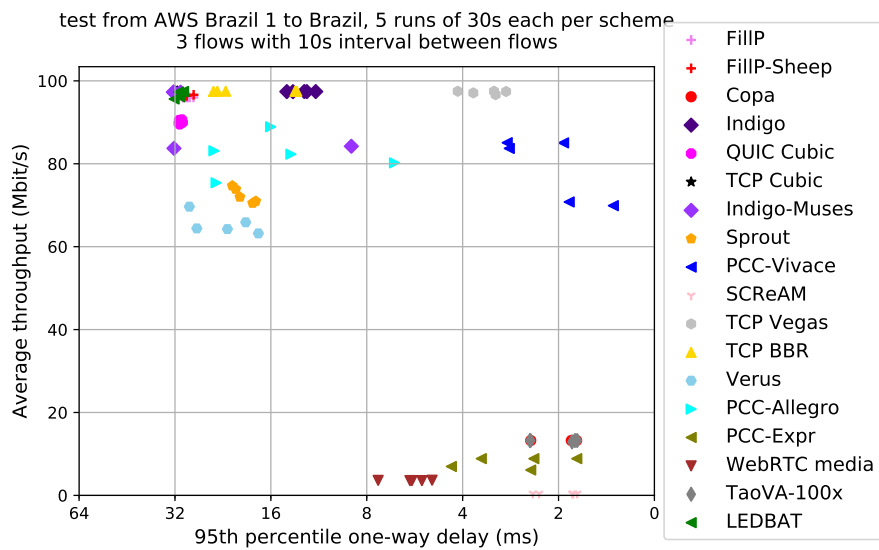
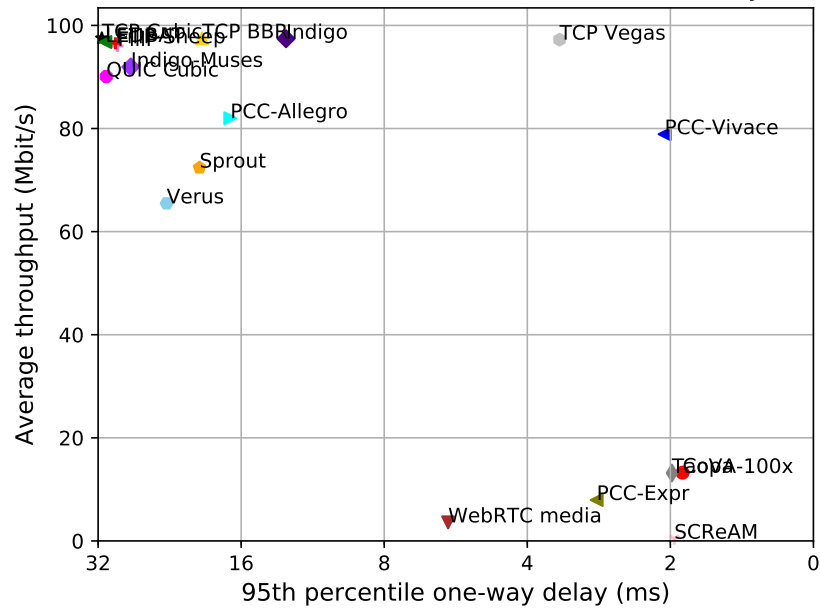
System info:

```
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 = 536870912 536870912 536870912
```

Git summary:

```
branch: muses @ f392ce15d580343f4432c3d7e068b3290f03eb4a
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ a28d20fb82a95a965a3da65fd1eb71b8994e9b84
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
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	68.54	32.18	22.57	19.05	18.80	20.92	0.01	0.01	0.07
Copa	5	12.68	0.61	1.65	1.83	1.46	1.23	68.09	81.48	82.78
TCP Cubic	5	64.36	35.14	29.37	31.12	31.24	31.85	0.04	0.05	0.04
FillP	5	52.22	48.05	35.59	28.51	28.90	29.20	11.31	21.37	25.05
FillP-Sheep	5	61.21	38.56	29.16	28.88	28.95	29.26	15.64	29.58	34.58
Indigo	5	44.60	45.13	70.18	11.09	12.43	12.91	0.00	0.00	0.00
LEDBAT	5	63.55	35.53	29.22	30.85	30.69	30.94	0.03	0.10	0.15
Indigo-Muses	5	45.21	51.72	37.55	19.63	25.68	25.88	4.79	7.10	6.92
PCC-Allegro	5	62.79	23.27	11.36	12.38	21.03	18.57	0.02	0.12	0.07
PCC-Expr	5	0.74	8.23	7.46	1.74	3.69	1.70	85.71	27.32	25.78
QUIC Cubic	5	57.19	35.09	29.08	30.22	30.72	30.43	0.16	0.20	0.23
SCReAM	5	0.22	0.22	0.22	1.08	0.78	1.07	0.00	0.00	0.00
Sprout	5	38.69	34.14	33.32	17.85	19.95	21.80	0.00	0.00	0.00
TaoVA-100x	5	8.06	6.05	7.70	1.98	2.47	2.28	82.72	87.53	79.29
TCP Vegas	5	50.08	43.81	54.04	2.46	2.85	3.49	0.00	0.00	0.00
Verus	5	37.71	30.02	23.49	15.71	25.49	31.30	3.80	6.58	9.51
PCC-Vivace	5	48.04	33.90	25.17	1.79	2.16	2.11	0.00	0.00	0.00
WebRTC media	5	1.94	1.26	0.40	5.73	6.01	5.66	0.00	0.00	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-09-06 09:21:18

End at: 2018-09-06 09:21:48

Local clock offset: -3.378 ms

Remote clock offset: 0.262 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 24.226 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 79.52 Mbit/s

95th percentile per-packet one-way delay: 24.241 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 19.33 Mbit/s

95th percentile per-packet one-way delay: 22.676 ms

Loss rate: 0.01%

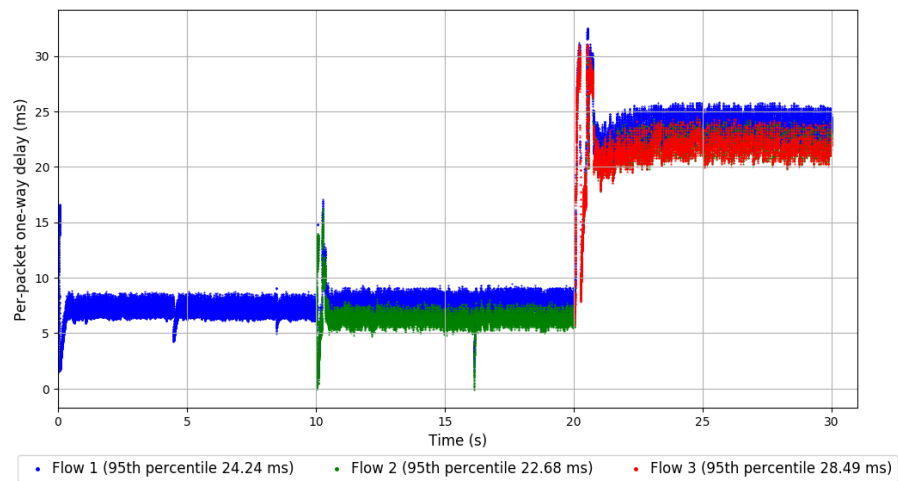
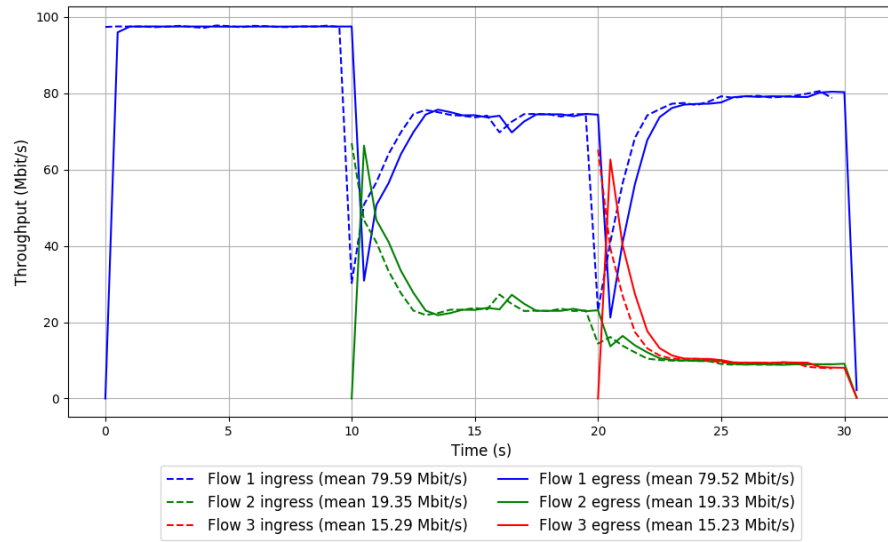
-- Flow 3:

Average throughput: 15.23 Mbit/s

95th percentile per-packet one-way delay: 28.486 ms

Loss rate: 0.20%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-06 09:41:45

End at: 2018-09-06 09:42:15

Local clock offset: -5.186 ms

Remote clock offset: 0.402 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.51 Mbit/s

95th percentile per-packet one-way delay: 22.180 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 75.07 Mbit/s

95th percentile per-packet one-way delay: 22.122 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 28.77 Mbit/s

95th percentile per-packet one-way delay: 21.117 ms

Loss rate: 0.00%

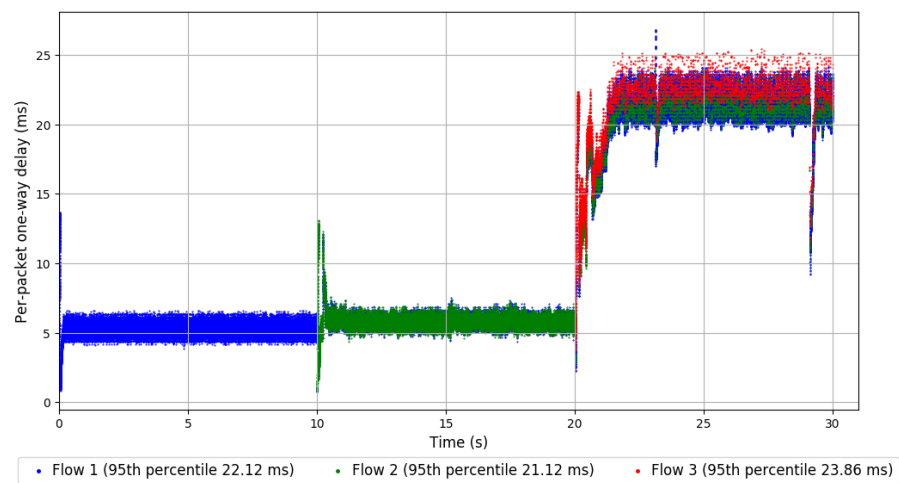
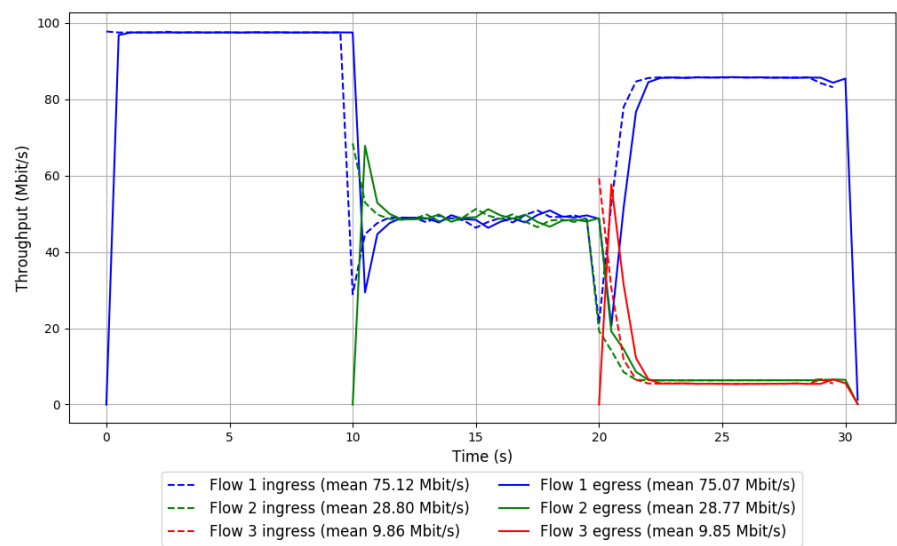
-- Flow 3:

Average throughput: 9.85 Mbit/s

95th percentile per-packet one-way delay: 23.862 ms

Loss rate: 0.00%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-06 10:02:15

End at: 2018-09-06 10:02:45

Local clock offset: -3.847 ms

Remote clock offset: 0.547 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.49 Mbit/s

95th percentile per-packet one-way delay: 13.432 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 61.81 Mbit/s

95th percentile per-packet one-way delay: 13.150 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 47.32 Mbit/s

95th percentile per-packet one-way delay: 14.049 ms

Loss rate: 0.00%

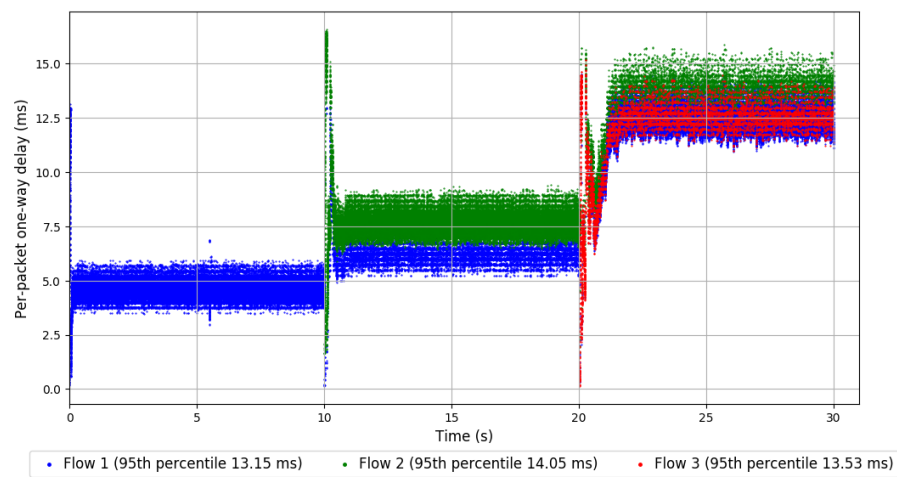
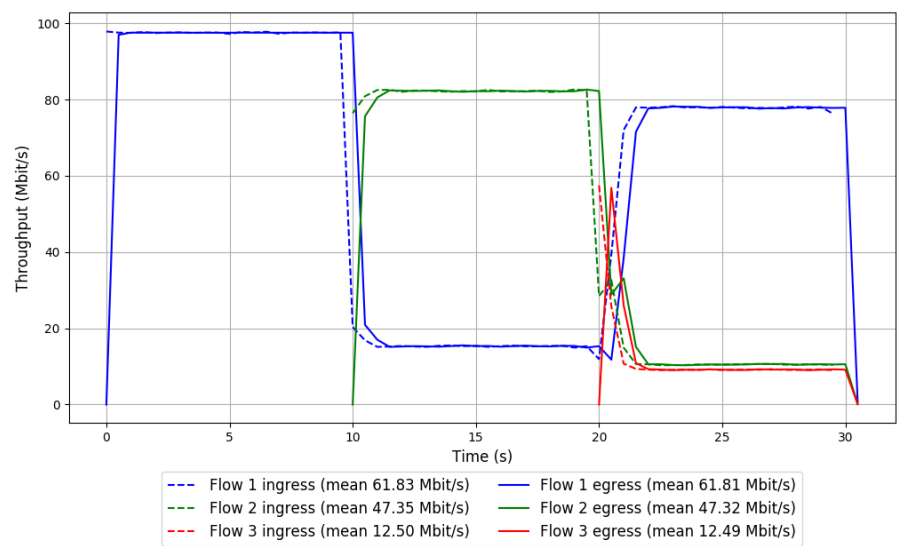
-- Flow 3:

Average throughput: 12.49 Mbit/s

95th percentile per-packet one-way delay: 13.532 ms

Loss rate: 0.00%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-06 10:22:43

End at: 2018-09-06 10:23:13

Local clock offset: -4.873 ms

Remote clock offset: 0.492 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.50 Mbit/s

95th percentile per-packet one-way delay: 13.265 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 62.19 Mbit/s

95th percentile per-packet one-way delay: 12.954 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 47.38 Mbit/s

95th percentile per-packet one-way delay: 13.937 ms

Loss rate: 0.00%

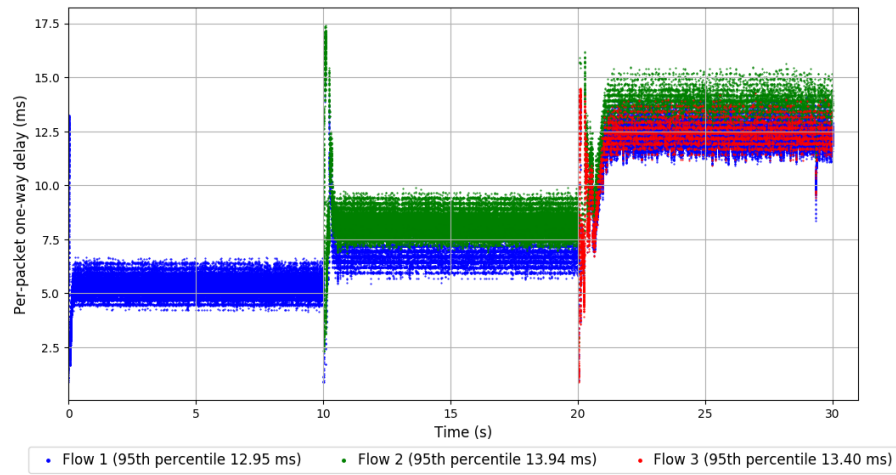
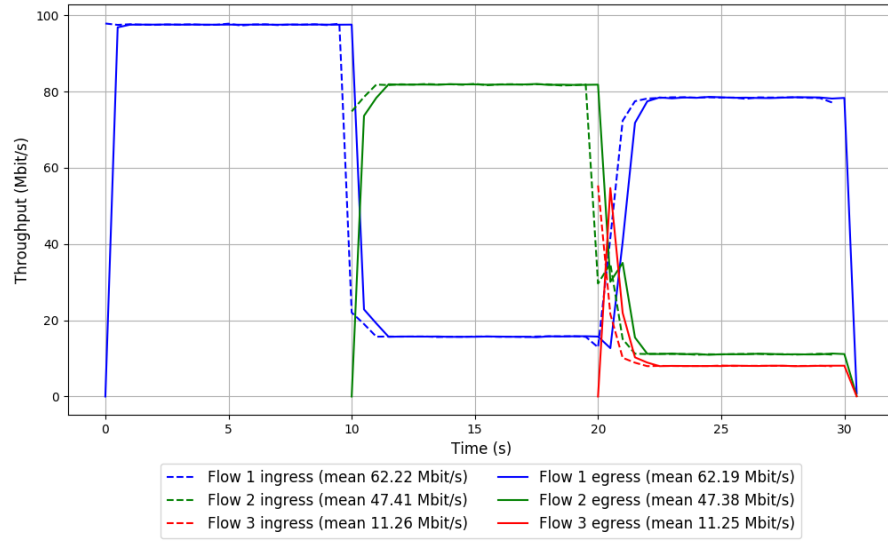
-- Flow 3:

Average throughput: 11.25 Mbit/s

95th percentile per-packet one-way delay: 13.399 ms

Loss rate: 0.00%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-06 10:43:14

End at: 2018-09-06 10:43:44

Local clock offset: -5.211 ms

Remote clock offset: 0.513 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.51 Mbit/s

95th percentile per-packet one-way delay: 23.555 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 64.13 Mbit/s

95th percentile per-packet one-way delay: 22.783 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 18.08 Mbit/s

95th percentile per-packet one-way delay: 22.225 ms

Loss rate: 0.02%

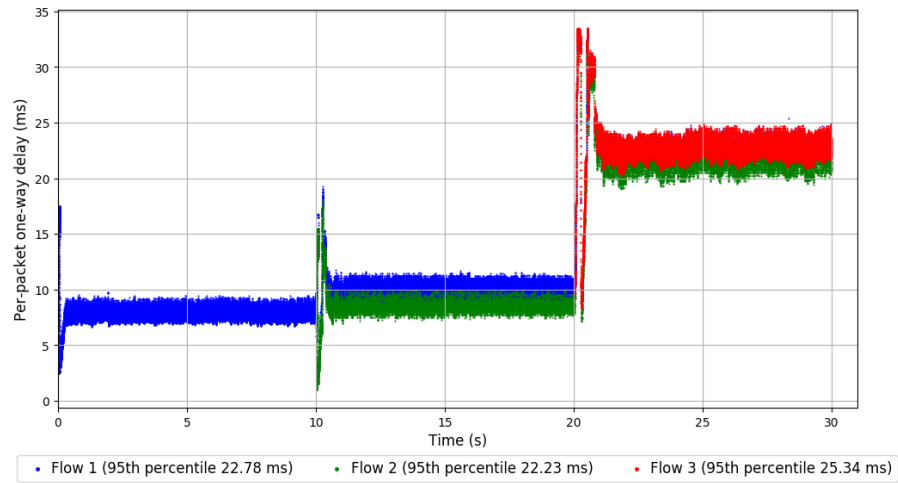
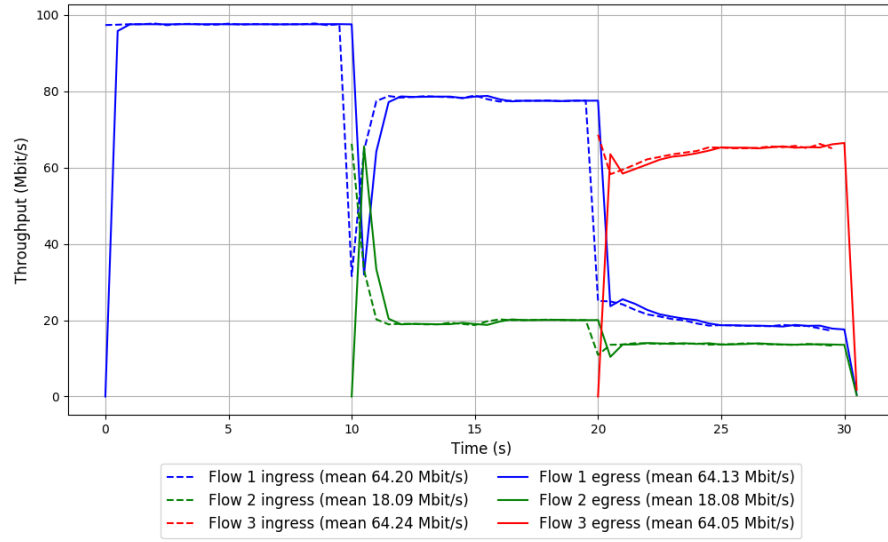
-- Flow 3:

Average throughput: 64.05 Mbit/s

95th percentile per-packet one-way delay: 25.337 ms

Loss rate: 0.16%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-09-06 09:19:02

End at: 2018-09-06 09:19:32

Local clock offset: -3.118 ms

Remote clock offset: 0.19 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.24 Mbit/s

95th percentile per-packet one-way delay: 1.623 ms

Loss rate: 68.56%

-- Flow 1:

Average throughput: 12.21 Mbit/s

95th percentile per-packet one-way delay: 1.623 ms

Loss rate: 68.33%

-- Flow 2:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 1.912 ms

Loss rate: 67.60%

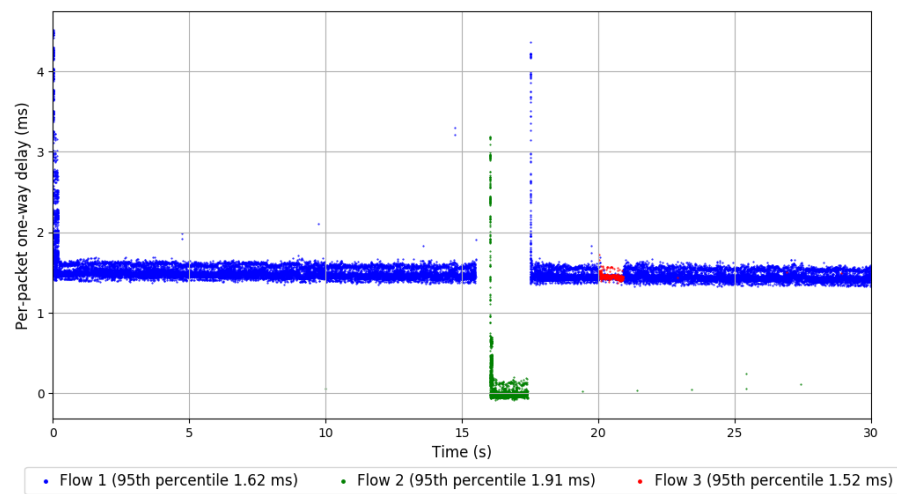
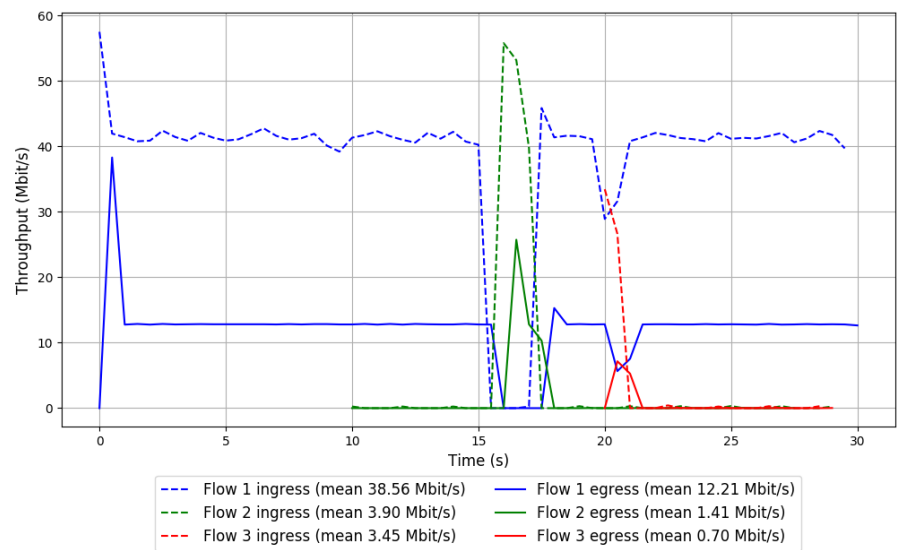
-- Flow 3:

Average throughput: 0.70 Mbit/s

95th percentile per-packet one-way delay: 1.523 ms

Loss rate: 79.60%

Run 1: Report of Copa — Data Link

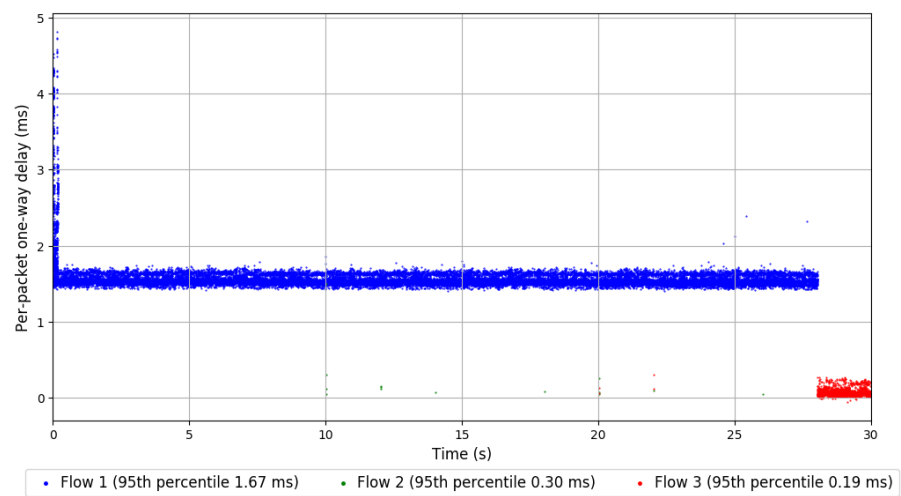
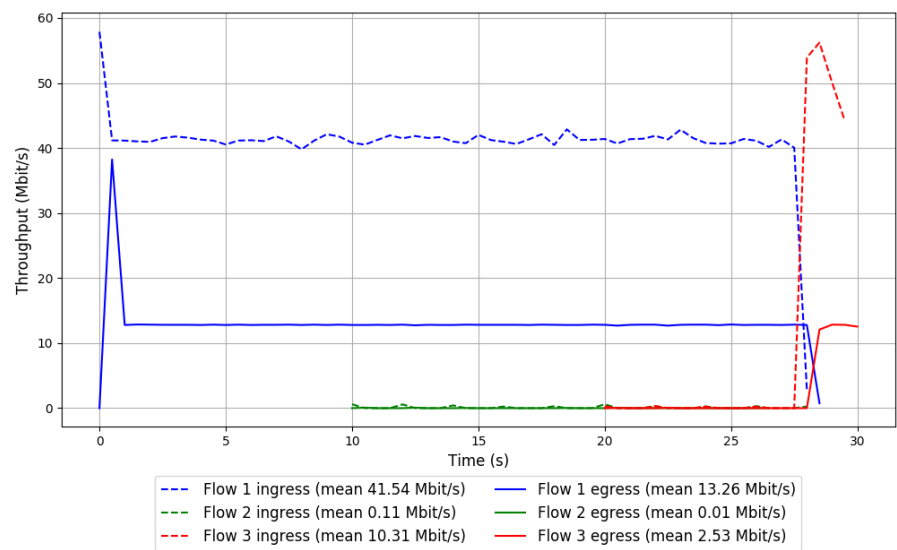


Run 2: Statistics of Copa

Start at: 2018-09-06 09:39:30
End at: 2018-09-06 09:40:00
Local clock offset: -4.386 ms
Remote clock offset: 0.347 ms

Below is generated by plot.py at 2018-09-06 10:52:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 13.24 Mbit/s
95th percentile per-packet one-way delay: 1.669 ms
Loss rate: 68.72%
-- Flow 1:
Average throughput: 13.26 Mbit/s
95th percentile per-packet one-way delay: 1.673 ms
Loss rate: 68.08%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 0.300 ms
Loss rate: 91.51%
-- Flow 3:
Average throughput: 2.53 Mbit/s
95th percentile per-packet one-way delay: 0.186 ms
Loss rate: 75.50%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

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

End at: 2018-09-06 10:00:29

Local clock offset: -3.823 ms

Remote clock offset: 0.531 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.24 Mbit/s

95th percentile per-packet one-way delay: 1.733 ms

Loss rate: 68.54%

-- Flow 1:

Average throughput: 12.22 Mbit/s

95th percentile per-packet one-way delay: 1.738 ms

Loss rate: 68.06%

-- Flow 2:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 1.663 ms

Loss rate: 78.90%

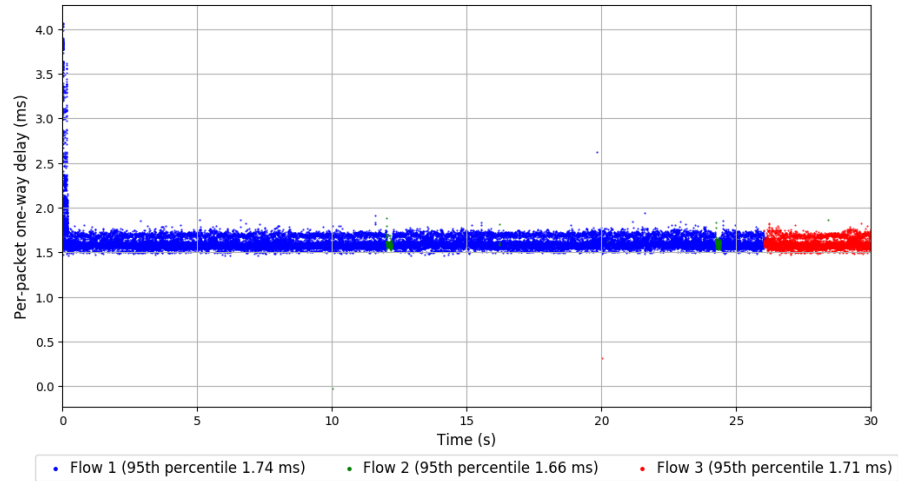
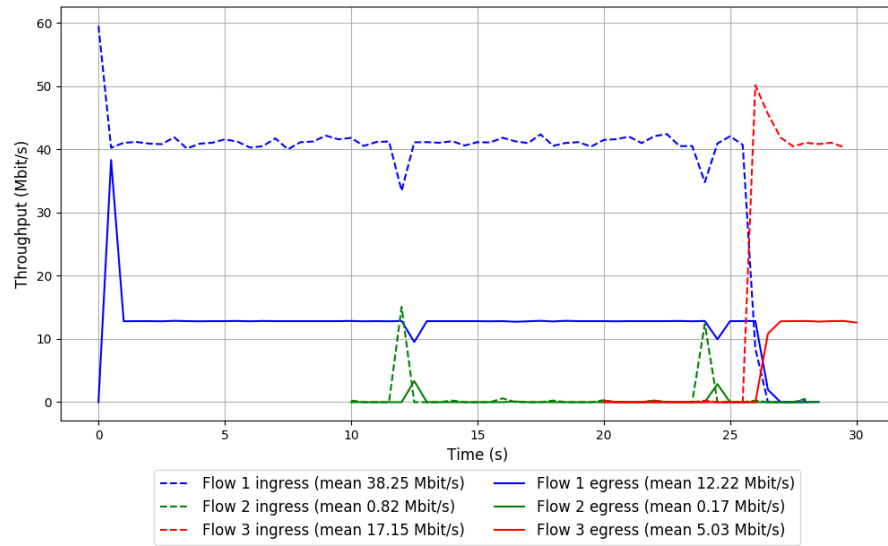
-- Flow 3:

Average throughput: 5.03 Mbit/s

95th percentile per-packet one-way delay: 1.708 ms

Loss rate: 70.68%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-06 10:20:28

End at: 2018-09-06 10:20:58

Local clock offset: -3.981 ms

Remote clock offset: 0.455 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.24 Mbit/s

95th percentile per-packet one-way delay: 1.677 ms

Loss rate: 68.48%

-- Flow 1:

Average throughput: 12.46 Mbit/s

95th percentile per-packet one-way delay: 1.680 ms

Loss rate: 67.71%

-- Flow 2:

Average throughput: 1.44 Mbit/s

95th percentile per-packet one-way delay: 1.104 ms

Loss rate: 77.07%

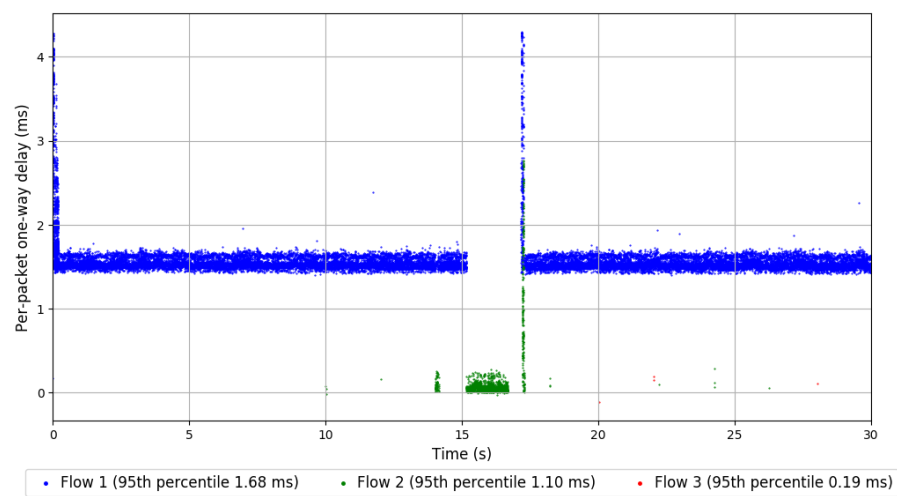
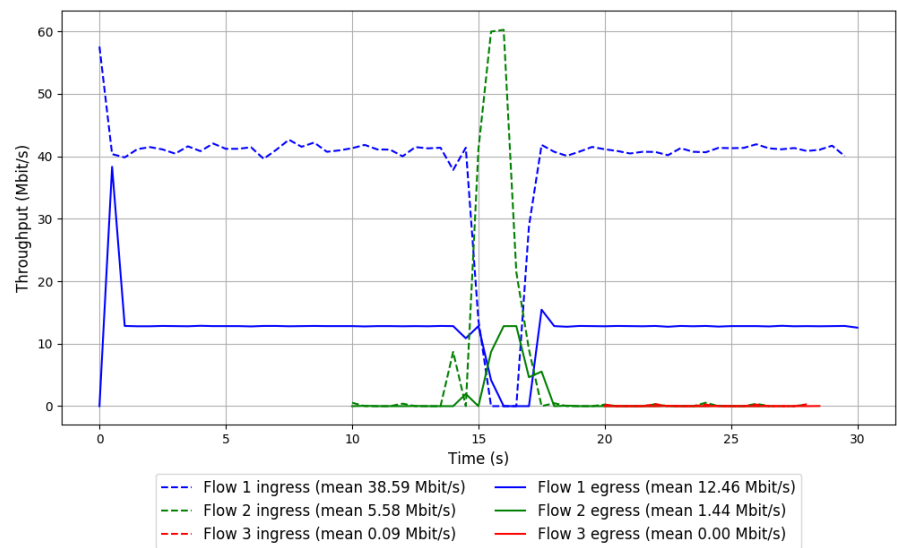
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 0.194 ms

Loss rate: 94.40%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-06 10:40:58

End at: 2018-09-06 10:41:28

Local clock offset: -5.123 ms

Remote clock offset: 0.458 ms

Below is generated by plot.py at 2018-09-06 10:52:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.24 Mbit/s

95th percentile per-packet one-way delay: 2.446 ms

Loss rate: 68.31%

-- Flow 1:

Average throughput: 13.23 Mbit/s

95th percentile per-packet one-way delay: 2.446 ms

Loss rate: 68.26%

-- Flow 2:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 2.324 ms

Loss rate: 92.31%

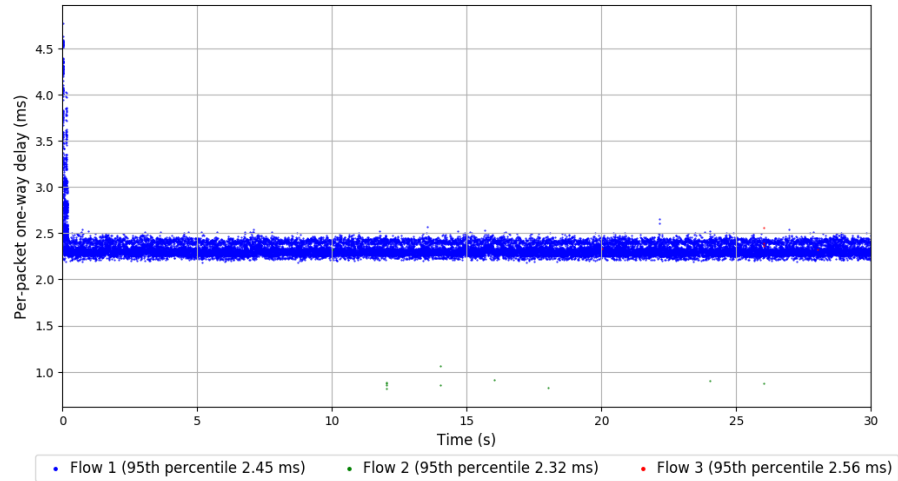
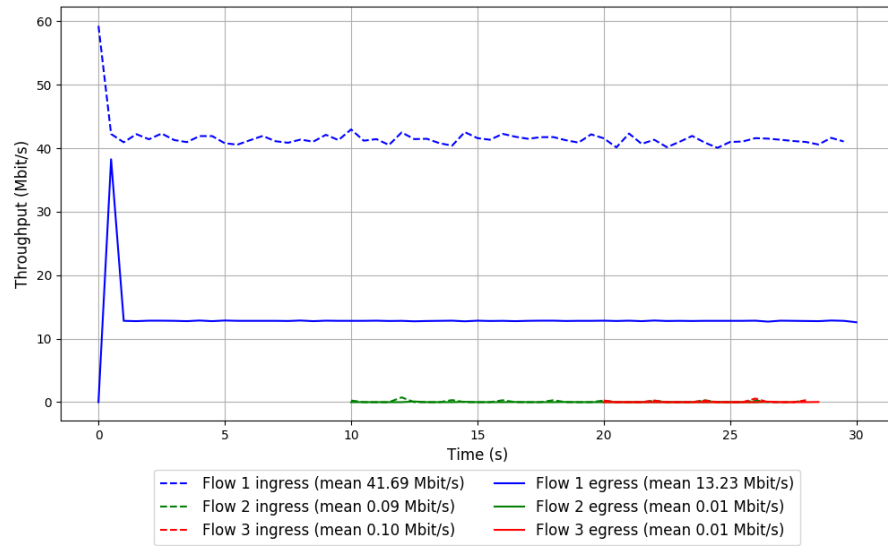
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 2.558 ms

Loss rate: 93.73%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 09:20:08

End at: 2018-09-06 09:20:38

Local clock offset: -3.337 ms

Remote clock offset: 0.241 ms

Below is generated by plot.py at 2018-09-06 10:52:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.46 Mbit/s

95th percentile per-packet one-way delay: 31.848 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 64.78 Mbit/s

95th percentile per-packet one-way delay: 31.706 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 36.92 Mbit/s

95th percentile per-packet one-way delay: 31.871 ms

Loss rate: 0.04%

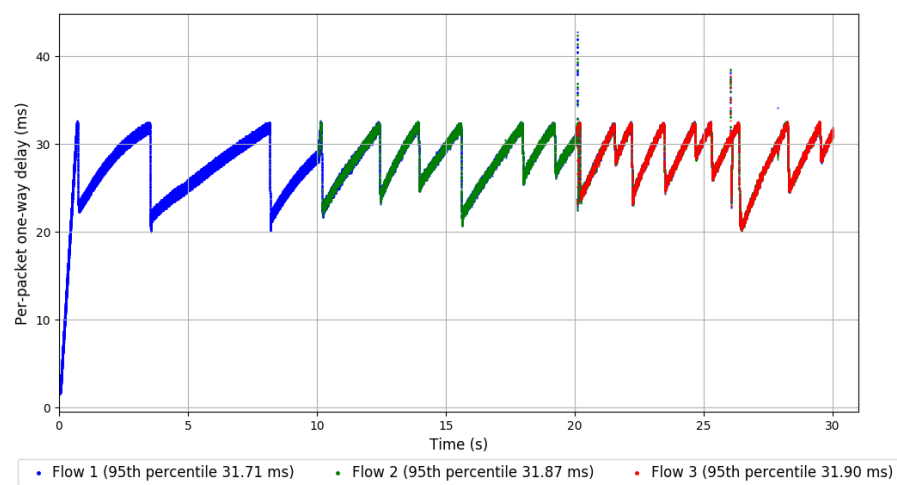
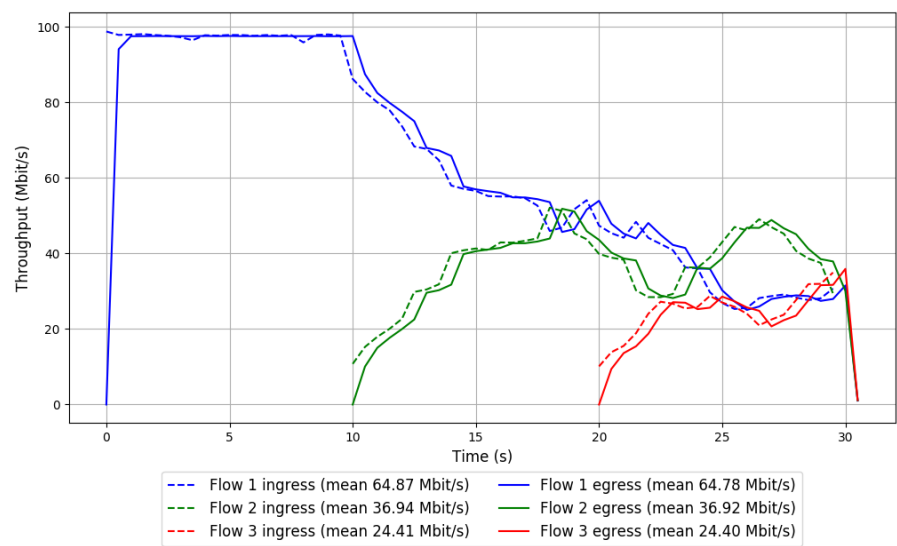
-- Flow 3:

Average throughput: 24.40 Mbit/s

95th percentile per-packet one-way delay: 31.899 ms

Loss rate: 0.04%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 09:40:36

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

Local clock offset: -5.227 ms

Remote clock offset: 0.363 ms

Below is generated by plot.py at 2018-09-06 10:52:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.50 Mbit/s

95th percentile per-packet one-way delay: 31.400 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 64.89 Mbit/s

95th percentile per-packet one-way delay: 31.105 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 30.81 Mbit/s

95th percentile per-packet one-way delay: 31.156 ms

Loss rate: 0.04%

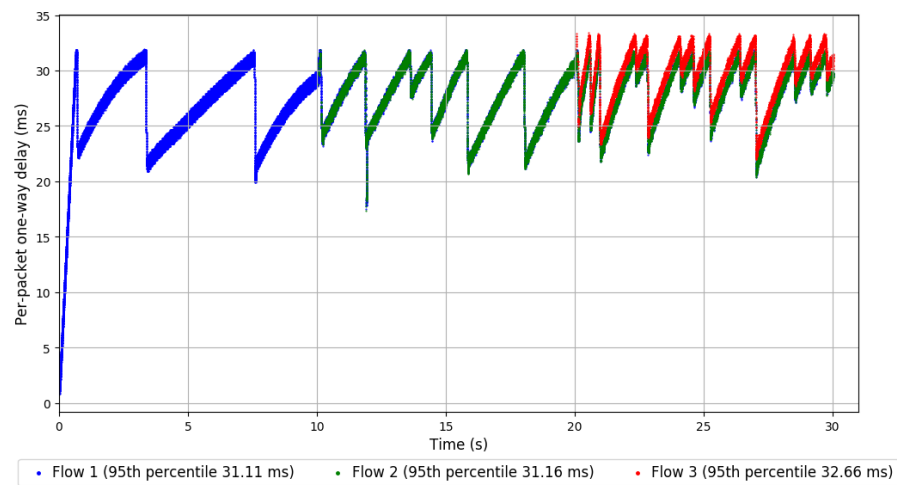
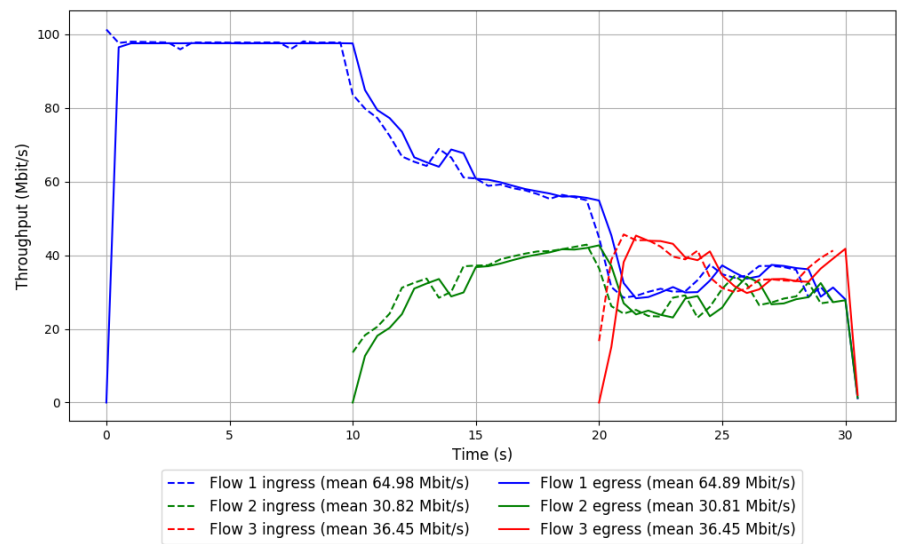
-- Flow 3:

Average throughput: 36.45 Mbit/s

95th percentile per-packet one-way delay: 32.655 ms

Loss rate: 0.03%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 10:01:05

End at: 2018-09-06 10:01:35

Local clock offset: -4.57 ms

Remote clock offset: 0.426 ms

Below is generated by plot.py at 2018-09-06 10:52:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.52 Mbit/s

95th percentile per-packet one-way delay: 31.863 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 66.57 Mbit/s

95th percentile per-packet one-way delay: 30.879 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 32.45 Mbit/s

95th percentile per-packet one-way delay: 32.490 ms

Loss rate: 0.04%

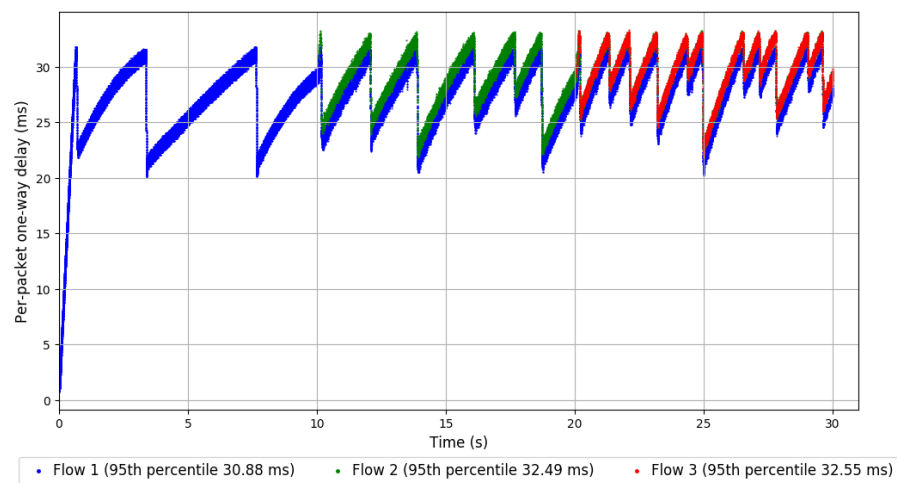
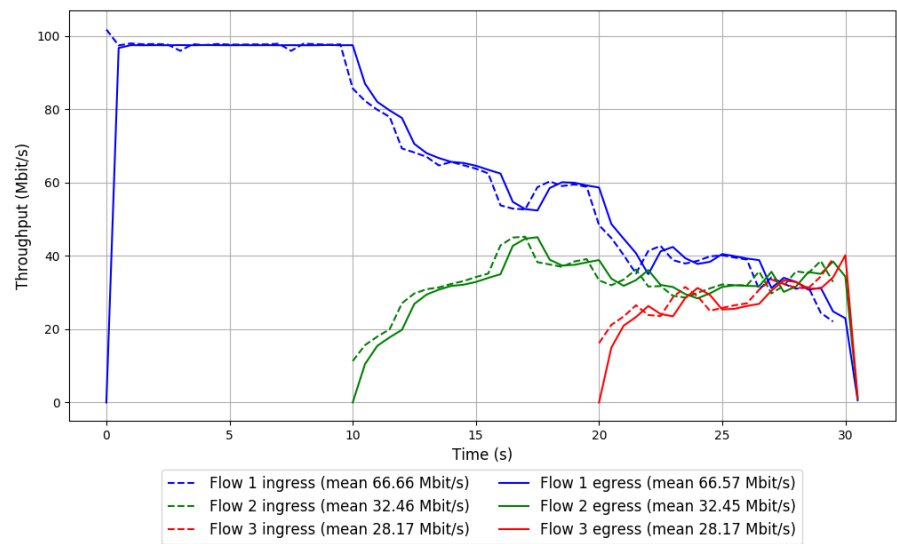
-- Flow 3:

Average throughput: 28.17 Mbit/s

95th percentile per-packet one-way delay: 32.545 ms

Loss rate: 0.03%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-06 10:21:34

End at: 2018-09-06 10:22:04

Local clock offset: -4.013 ms

Remote clock offset: 0.443 ms

Below is generated by plot.py at 2018-09-06 10:53:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.51 Mbit/s

95th percentile per-packet one-way delay: 30.544 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 60.80 Mbit/s

95th percentile per-packet one-way delay: 30.285 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 37.55 Mbit/s

95th percentile per-packet one-way delay: 30.331 ms

Loss rate: 0.09%

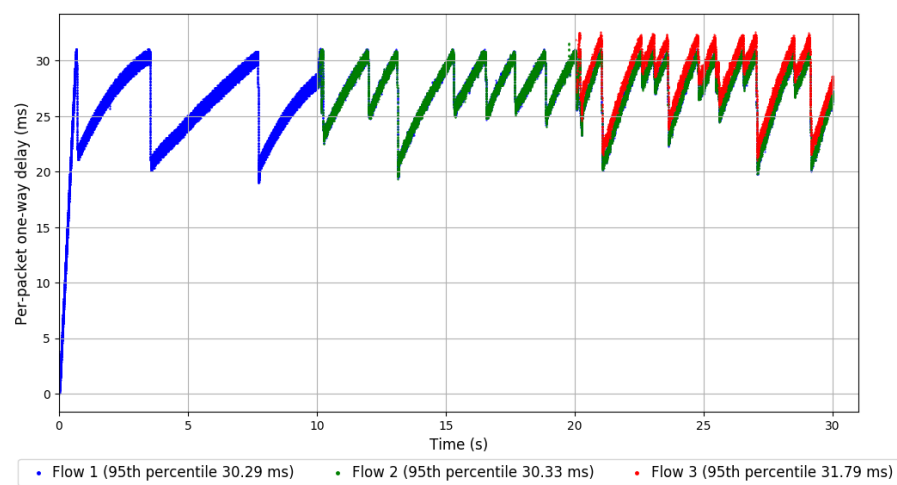
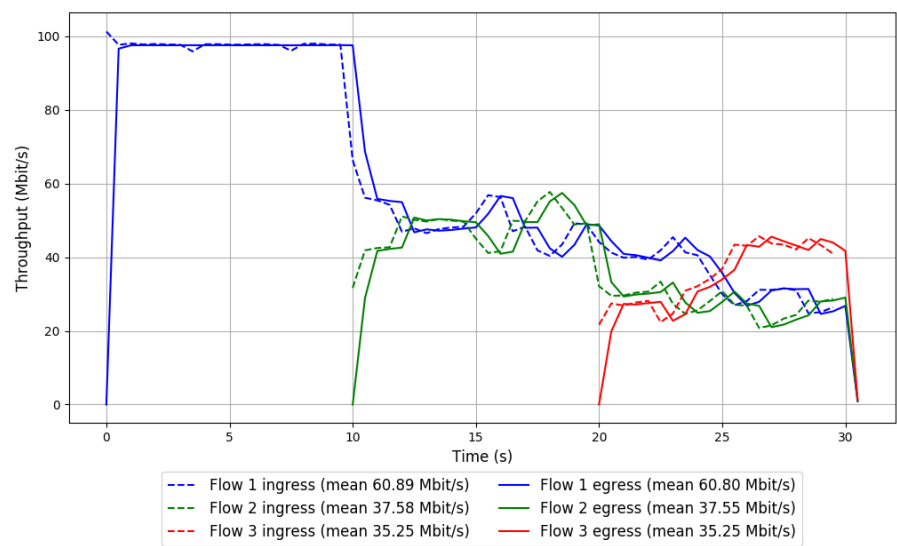
-- Flow 3:

Average throughput: 35.25 Mbit/s

95th percentile per-packet one-way delay: 31.786 ms

Loss rate: 0.04%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-06 10:42:04

End at: 2018-09-06 10:42:34

Local clock offset: -4.382 ms

Remote clock offset: 0.452 ms

Below is generated by plot.py at 2018-09-06 10:53:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.51 Mbit/s

95th percentile per-packet one-way delay: 31.488 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 64.74 Mbit/s

95th percentile per-packet one-way delay: 31.638 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 37.95 Mbit/s

95th percentile per-packet one-way delay: 30.355 ms

Loss rate: 0.03%

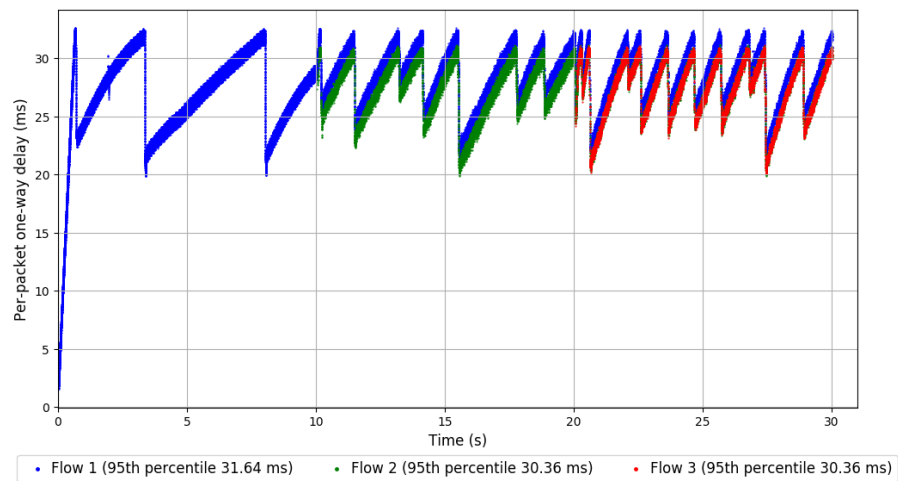
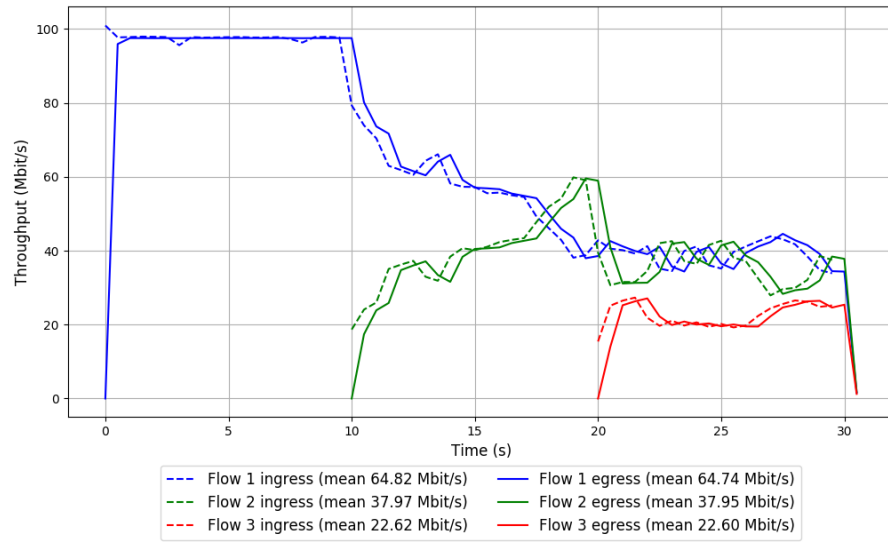
-- Flow 3:

Average throughput: 22.60 Mbit/s

95th percentile per-packet one-way delay: 30.362 ms

Loss rate: 0.05%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-09-06 09:16:47

End at: 2018-09-06 09:17:17

Local clock offset: -2.725 ms

Remote clock offset: 0.182 ms

Below is generated by plot.py at 2018-09-06 10:53:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.02 Mbit/s

95th percentile per-packet one-way delay: 29.240 ms

Loss rate: 17.70%

-- Flow 1:

Average throughput: 50.64 Mbit/s

95th percentile per-packet one-way delay: 27.776 ms

Loss rate: 11.56%

-- Flow 2:

Average throughput: 49.34 Mbit/s

95th percentile per-packet one-way delay: 29.332 ms

Loss rate: 22.48%

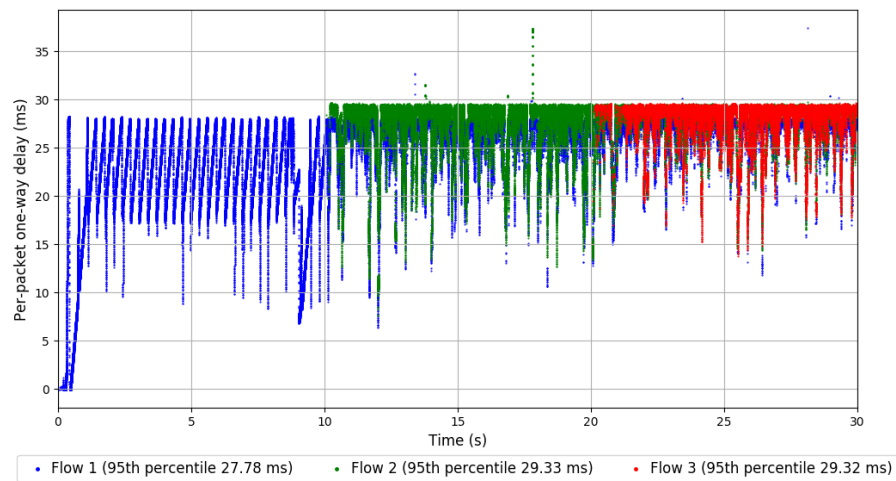
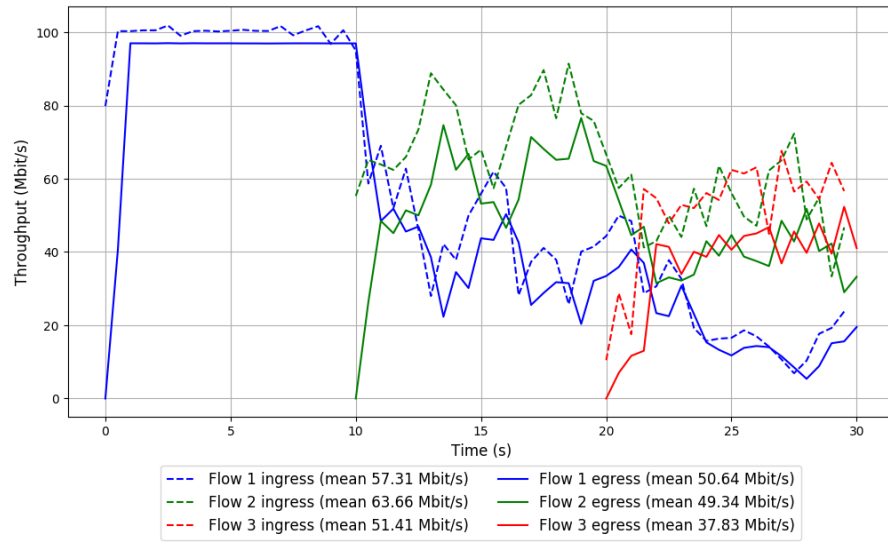
-- Flow 3:

Average throughput: 37.83 Mbit/s

95th percentile per-packet one-way delay: 29.322 ms

Loss rate: 26.40%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-06 09:37:15

End at: 2018-09-06 09:37:45

Local clock offset: -4.31 ms

Remote clock offset: 0.382 ms

Below is generated by plot.py at 2018-09-06 10:53:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.01 Mbit/s

95th percentile per-packet one-way delay: 27.997 ms

Loss rate: 17.23%

-- Flow 1:

Average throughput: 52.44 Mbit/s

95th percentile per-packet one-way delay: 27.935 ms

Loss rate: 11.78%

-- Flow 2:

Average throughput: 47.35 Mbit/s

95th percentile per-packet one-way delay: 28.021 ms

Loss rate: 22.10%

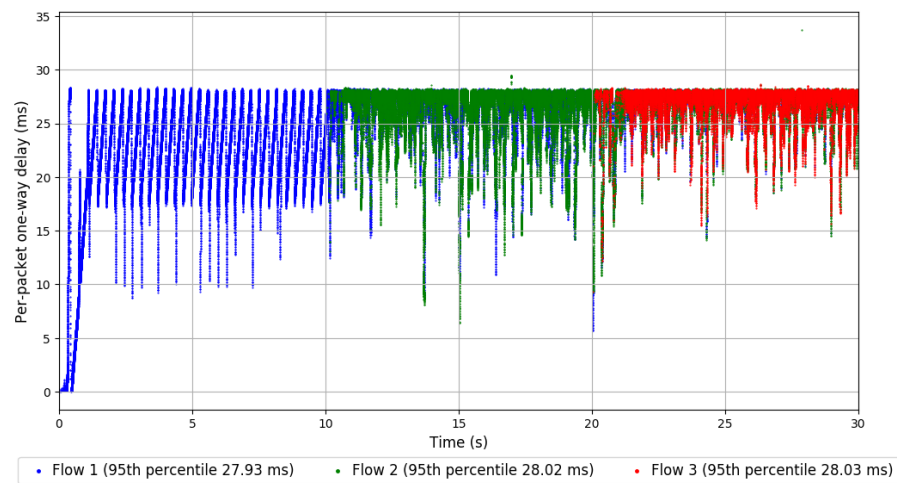
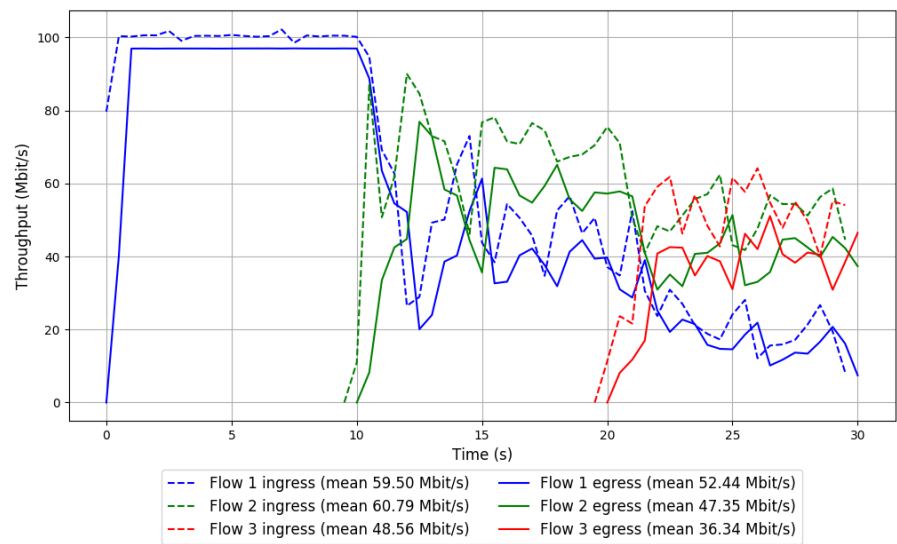
-- Flow 3:

Average throughput: 36.34 Mbit/s

95th percentile per-packet one-way delay: 28.030 ms

Loss rate: 25.13%

Run 2: Report of FillP — Data Link

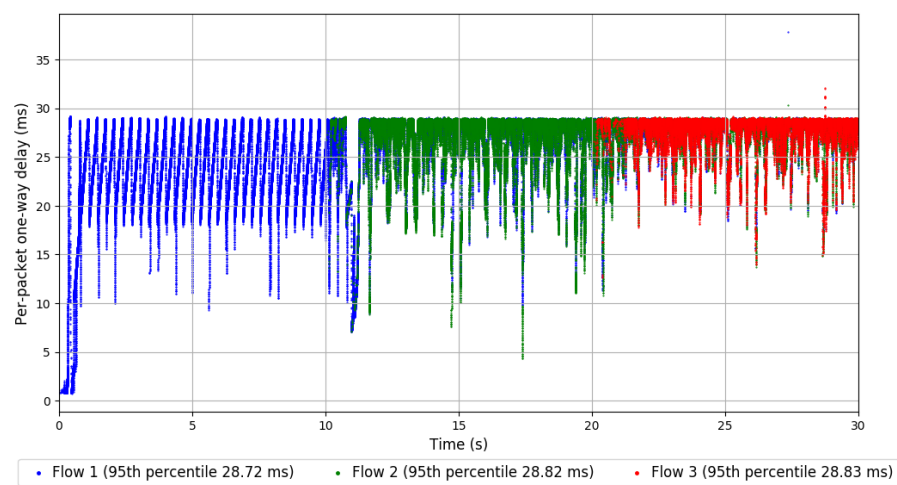
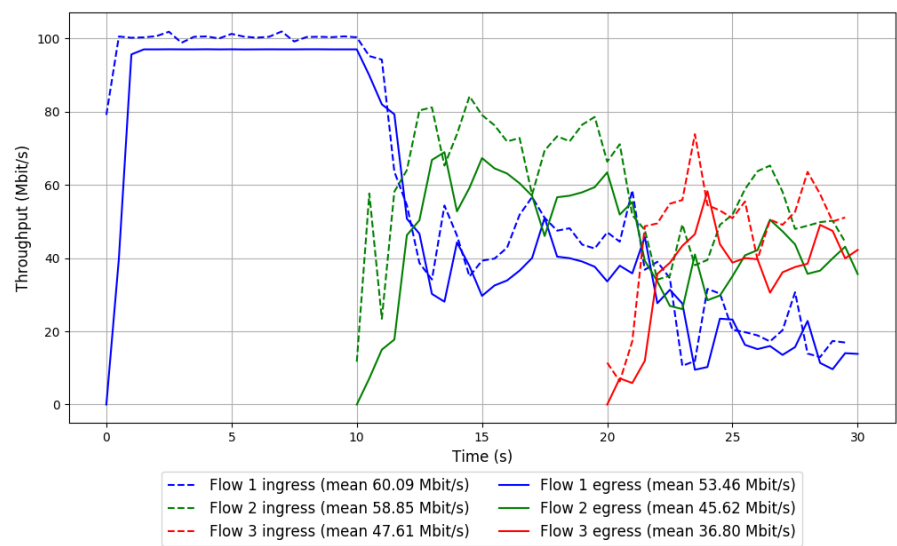


Run 3: Statistics of FillP

Start at: 2018-09-06 09:57:44
End at: 2018-09-06 09:58:14
Local clock offset: -4.625 ms
Remote clock offset: 0.528 ms

Below is generated by plot.py at 2018-09-06 10:53:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.00 Mbit/s
95th percentile per-packet one-way delay: 28.793 ms
Loss rate: 16.49%
-- Flow 1:
Average throughput: 53.46 Mbit/s
95th percentile per-packet one-way delay: 28.723 ms
Loss rate: 10.95%
-- Flow 2:
Average throughput: 45.62 Mbit/s
95th percentile per-packet one-way delay: 28.821 ms
Loss rate: 22.48%
-- Flow 3:
Average throughput: 36.80 Mbit/s
95th percentile per-packet one-way delay: 28.833 ms
Loss rate: 22.69%

Run 3: Report of FillP — Data Link

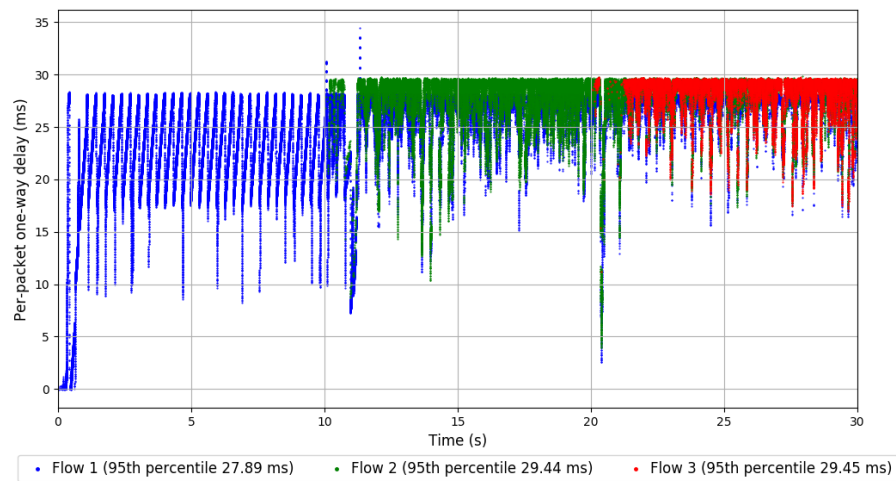
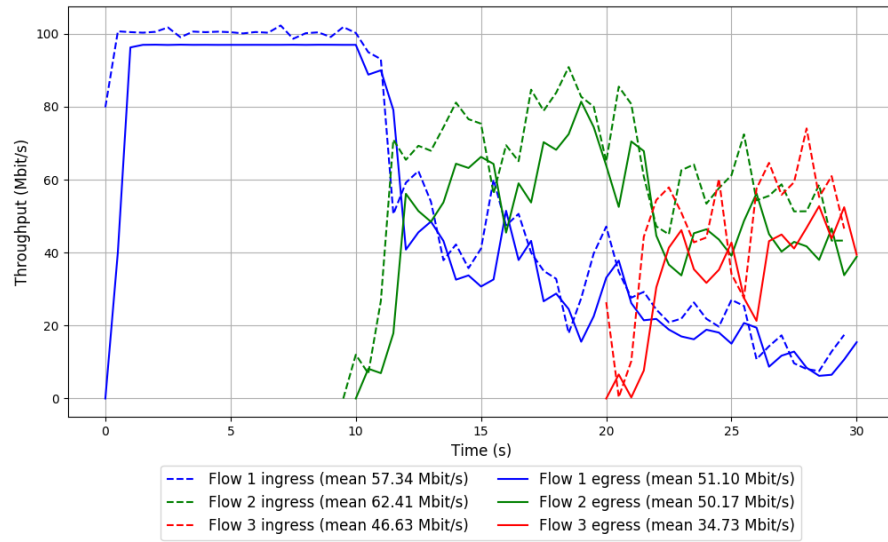


Run 4: Statistics of FillP

Start at: 2018-09-06 10:18:13
End at: 2018-09-06 10:18:43
Local clock offset: -3.869 ms
Remote clock offset: 0.475 ms

Below is generated by plot.py at 2018-09-06 10:53:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.02 Mbit/s
95th percentile per-packet one-way delay: 29.347 ms
Loss rate: 15.99%
-- Flow 1:
Average throughput: 51.10 Mbit/s
95th percentile per-packet one-way delay: 27.892 ms
Loss rate: 10.80%
-- Flow 2:
Average throughput: 50.17 Mbit/s
95th percentile per-packet one-way delay: 29.439 ms
Loss rate: 19.60%
-- Flow 3:
Average throughput: 34.73 Mbit/s
95th percentile per-packet one-way delay: 29.448 ms
Loss rate: 25.50%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-06 10:38:43

End at: 2018-09-06 10:39:13

Local clock offset: -5.108 ms

Remote clock offset: 0.55 ms

Below is generated by plot.py at 2018-09-06 10:54:11

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.95 Mbit/s

95th percentile per-packet one-way delay: 30.210 ms

Loss rate: 16.26%

-- Flow 1:

Average throughput: 53.48 Mbit/s

95th percentile per-packet one-way delay: 30.240 ms

Loss rate: 11.48%

-- Flow 2:

Average throughput: 47.77 Mbit/s

95th percentile per-packet one-way delay: 28.864 ms

Loss rate: 20.17%

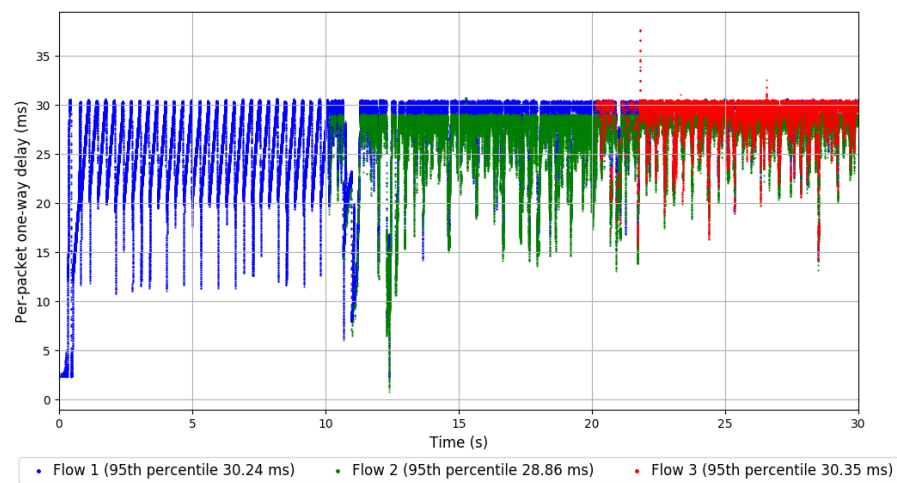
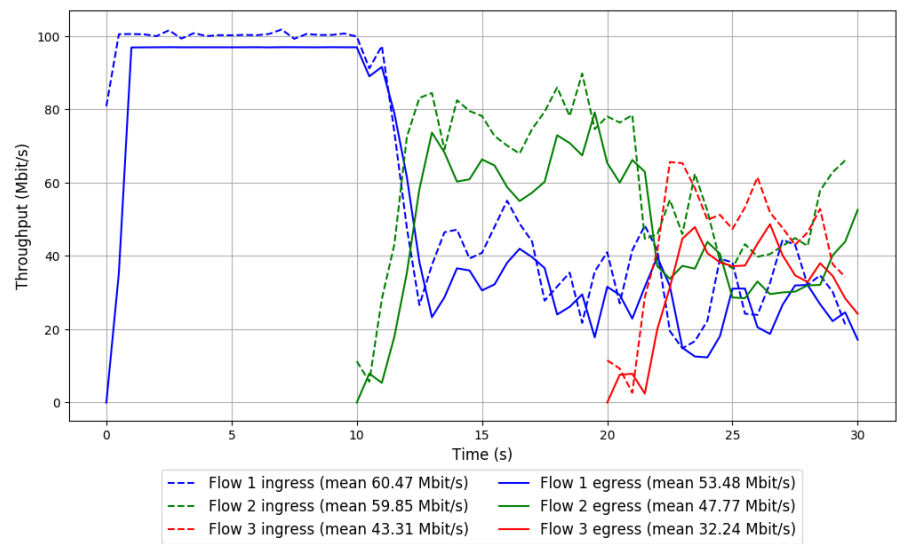
-- Flow 3:

Average throughput: 32.24 Mbit/s

95th percentile per-packet one-way delay: 30.350 ms

Loss rate: 25.53%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 09:22:27

End at: 2018-09-06 09:22:57

Local clock offset: -4.261 ms

Remote clock offset: 0.306 ms

Below is generated by plot.py at 2018-09-06 10:54:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.62 Mbit/s

95th percentile per-packet one-way delay: 30.067 ms

Loss rate: 23.22%

-- Flow 1:

Average throughput: 56.15 Mbit/s

95th percentile per-packet one-way delay: 30.169 ms

Loss rate: 15.36%

-- Flow 2:

Average throughput: 43.26 Mbit/s

95th percentile per-packet one-way delay: 28.788 ms

Loss rate: 29.57%

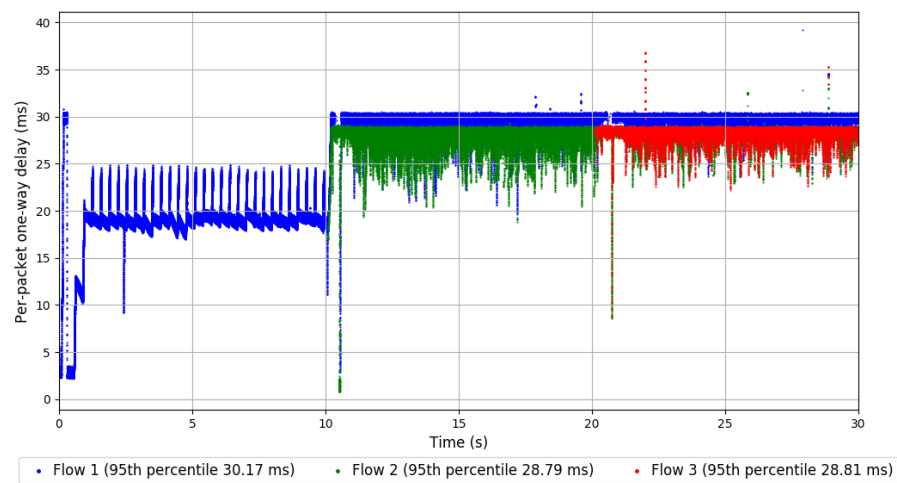
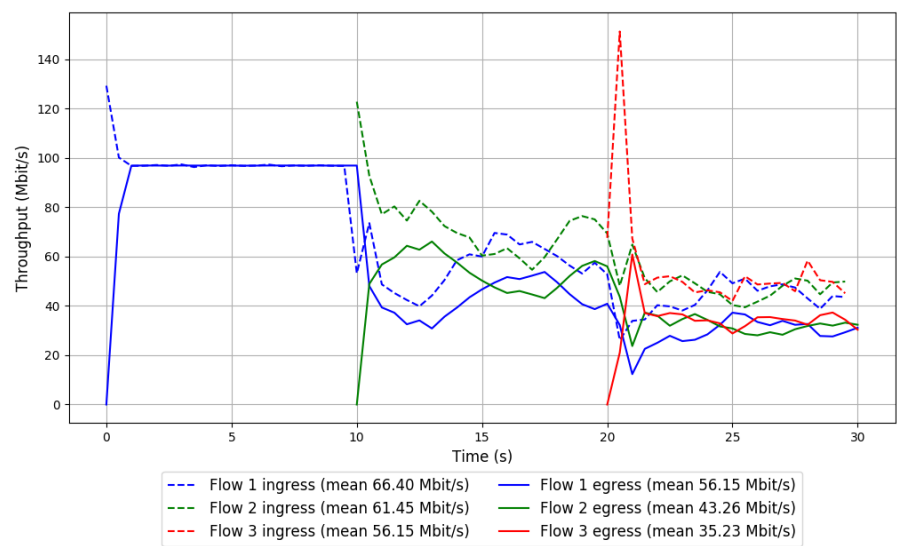
-- Flow 3:

Average throughput: 35.23 Mbit/s

95th percentile per-packet one-way delay: 28.806 ms

Loss rate: 37.26%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 09:42:54

End at: 2018-09-06 09:43:24

Local clock offset: -4.457 ms

Remote clock offset: 0.409 ms

Below is generated by plot.py at 2018-09-06 10:54:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.41 Mbit/s

95th percentile per-packet one-way delay: 29.417 ms

Loss rate: 21.65%

-- Flow 1:

Average throughput: 63.08 Mbit/s

95th percentile per-packet one-way delay: 29.420 ms

Loss rate: 15.75%

-- Flow 2:

Average throughput: 33.55 Mbit/s

95th percentile per-packet one-way delay: 28.044 ms

Loss rate: 29.48%

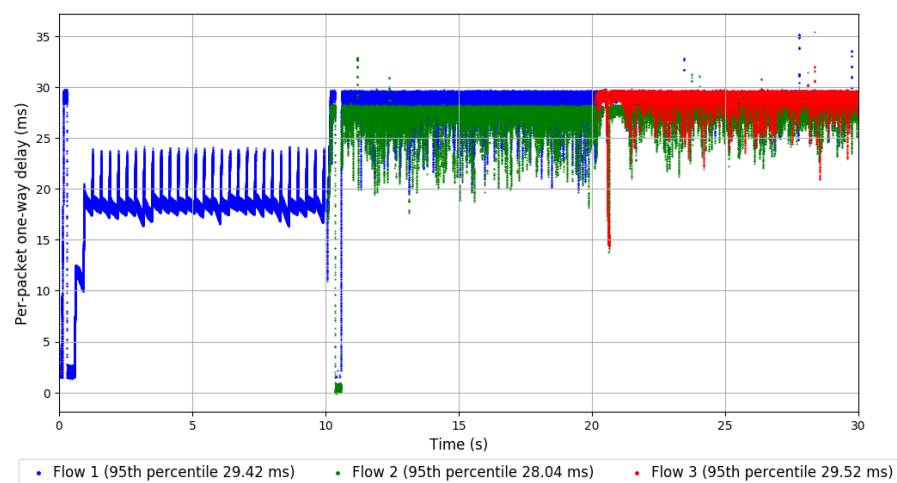
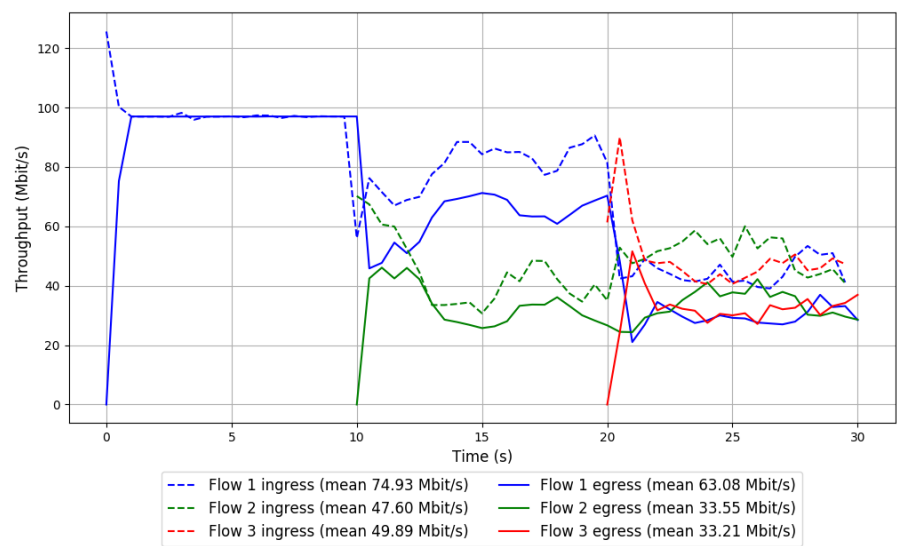
-- Flow 3:

Average throughput: 33.21 Mbit/s

95th percentile per-packet one-way delay: 29.524 ms

Loss rate: 33.42%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 10:03:24

End at: 2018-09-06 10:03:54

Local clock offset: -3.767 ms

Remote clock offset: 0.549 ms

Below is generated by plot.py at 2018-09-06 10:54:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.43 Mbit/s

95th percentile per-packet one-way delay: 29.444 ms

Loss rate: 22.14%

-- Flow 1:

Average throughput: 61.85 Mbit/s

95th percentile per-packet one-way delay: 28.022 ms

Loss rate: 16.16%

-- Flow 2:

Average throughput: 40.10 Mbit/s

95th percentile per-packet one-way delay: 29.558 ms

Loss rate: 30.06%

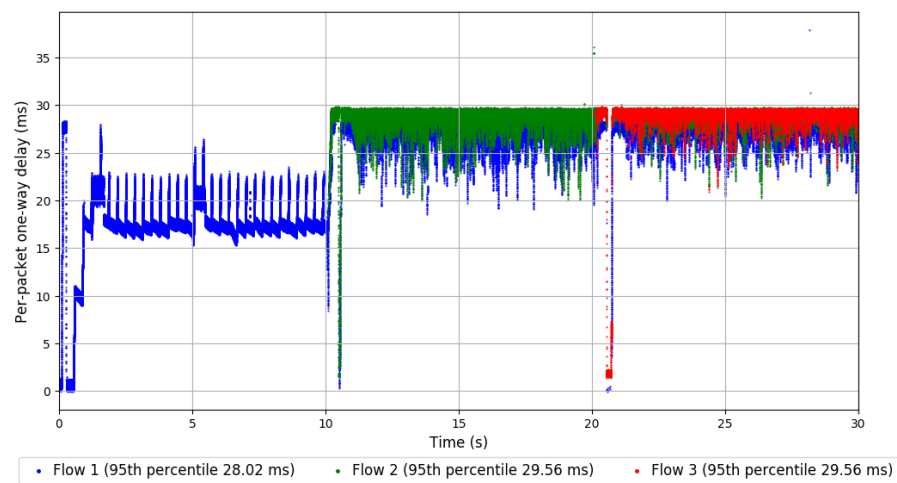
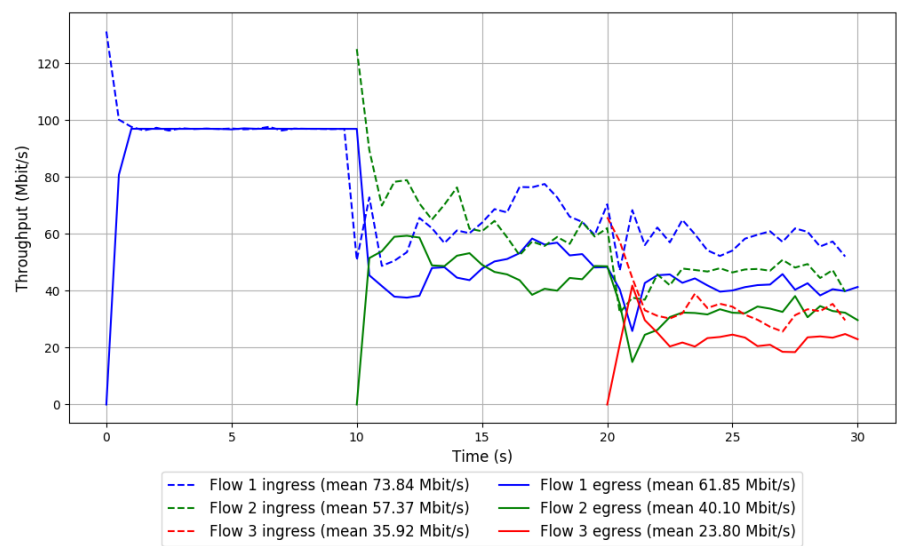
-- Flow 3:

Average throughput: 23.80 Mbit/s

95th percentile per-packet one-way delay: 29.564 ms

Loss rate: 33.75%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-06 10:23:53

End at: 2018-09-06 10:24:23

Local clock offset: -4.086 ms

Remote clock offset: 0.442 ms

Below is generated by plot.py at 2018-09-06 10:55:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.64 Mbit/s

95th percentile per-packet one-way delay: 27.965 ms

Loss rate: 22.02%

-- Flow 1:

Average throughput: 61.25 Mbit/s

95th percentile per-packet one-way delay: 27.932 ms

Loss rate: 15.88%

-- Flow 2:

Average throughput: 41.50 Mbit/s

95th percentile per-packet one-way delay: 27.990 ms

Loss rate: 30.28%

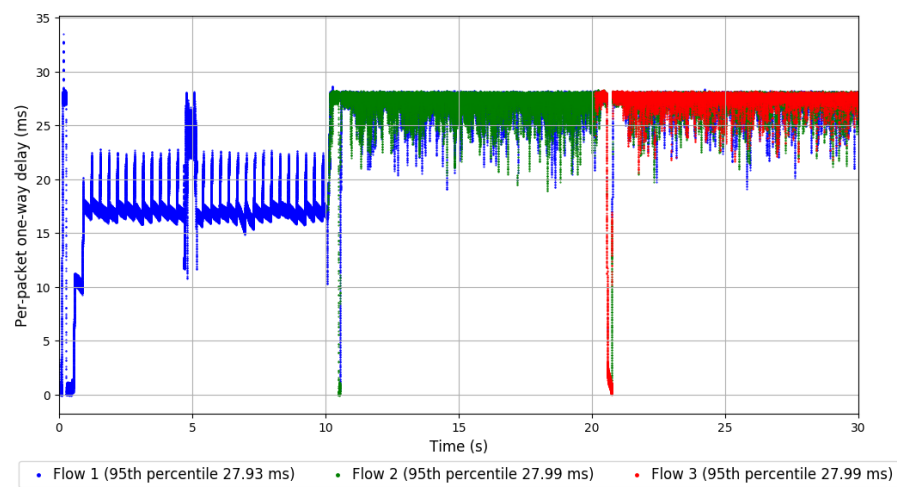
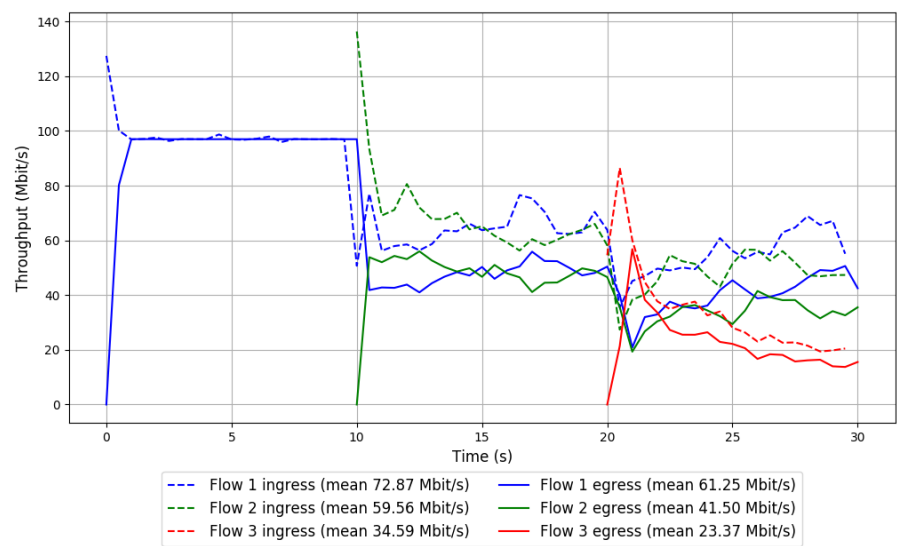
-- Flow 3:

Average throughput: 23.37 Mbit/s

95th percentile per-packet one-way delay: 27.993 ms

Loss rate: 32.43%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-06 10:44:23

End at: 2018-09-06 10:44:53

Local clock offset: -5.224 ms

Remote clock offset: 0.498 ms

Below is generated by plot.py at 2018-09-06 10:55:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.59 Mbit/s

95th percentile per-packet one-way delay: 30.262 ms

Loss rate: 21.24%

-- Flow 1:

Average throughput: 63.70 Mbit/s

95th percentile per-packet one-way delay: 28.852 ms

Loss rate: 15.06%

-- Flow 2:

Average throughput: 34.40 Mbit/s

95th percentile per-packet one-way delay: 30.381 ms

Loss rate: 28.52%

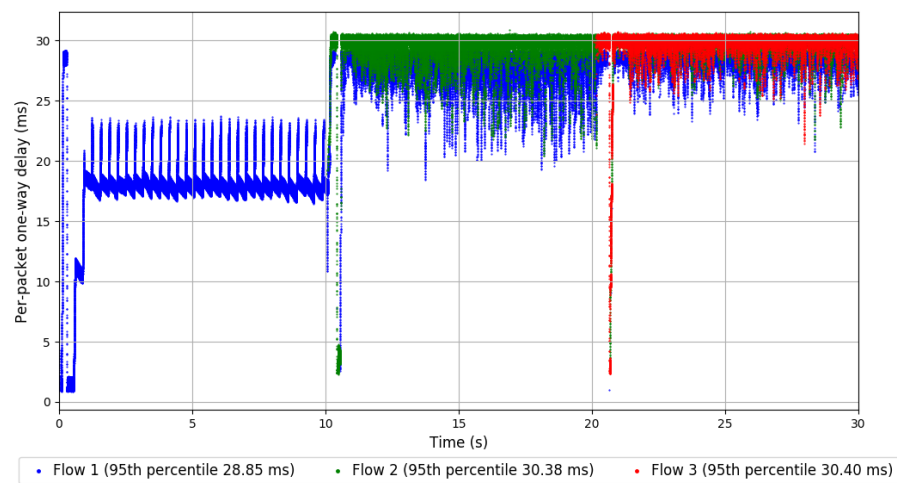
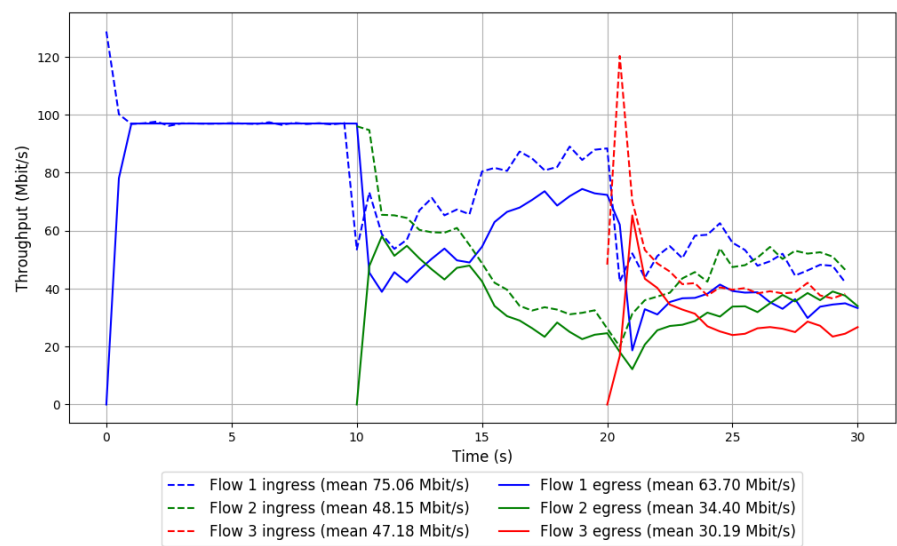
-- Flow 3:

Average throughput: 30.19 Mbit/s

95th percentile per-packet one-way delay: 30.400 ms

Loss rate: 36.02%

Run 5: Report of FillP-Sheep — Data Link

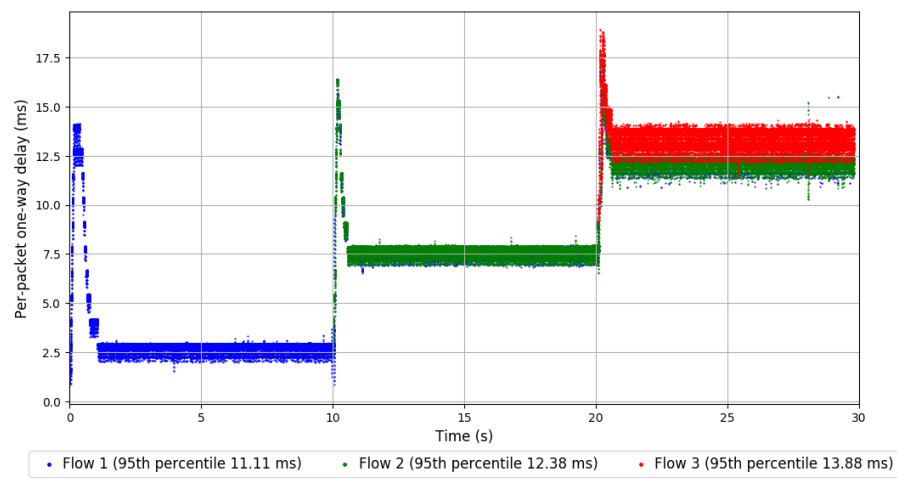
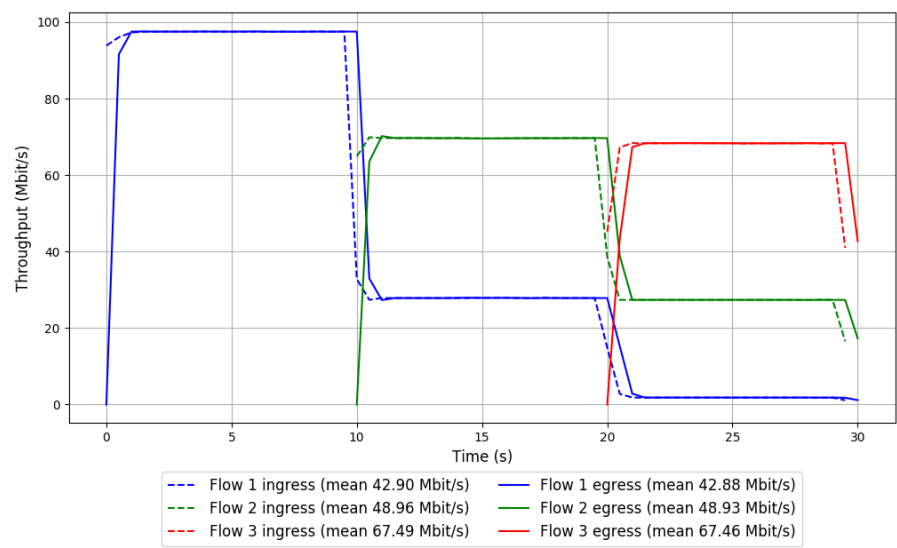


```
Run 1: Statistics of Indigo

Start at: 2018-09-06 09:11:09
End at: 2018-09-06 09:11:39
Local clock offset: -3.348 ms
Remote clock offset: 0.225 ms

# Below is generated by plot.py at 2018-09-06 10:55:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.39 Mbit/s
95th percentile per-packet one-way delay: 13.639 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 42.88 Mbit/s
95th percentile per-packet one-way delay: 11.106 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 48.93 Mbit/s
95th percentile per-packet one-way delay: 12.385 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 67.46 Mbit/s
95th percentile per-packet one-way delay: 13.883 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-06 09:31:37

End at: 2018-09-06 09:32:07

Local clock offset: -4.947 ms

Remote clock offset: 0.322 ms

Below is generated by plot.py at 2018-09-06 10:55:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.42 Mbit/s

95th percentile per-packet one-way delay: 11.570 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.12 Mbit/s

95th percentile per-packet one-way delay: 9.982 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 39.16 Mbit/s

95th percentile per-packet one-way delay: 11.802 ms

Loss rate: 0.00%

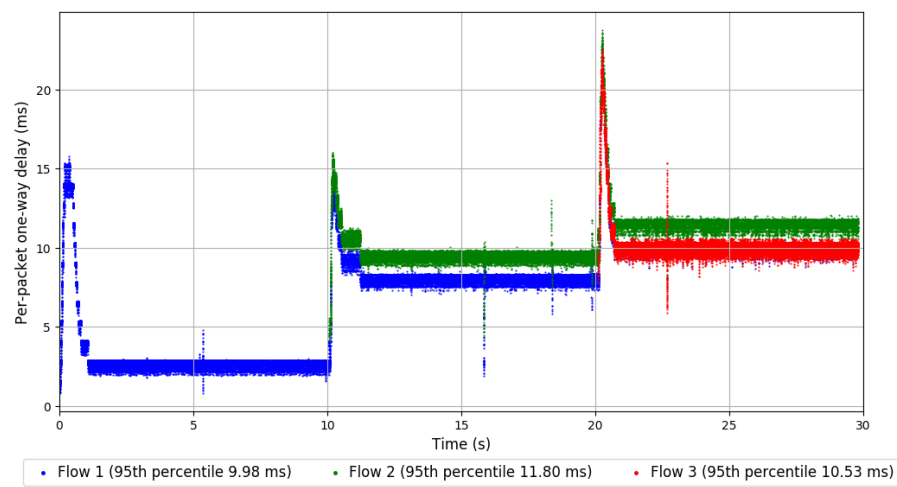
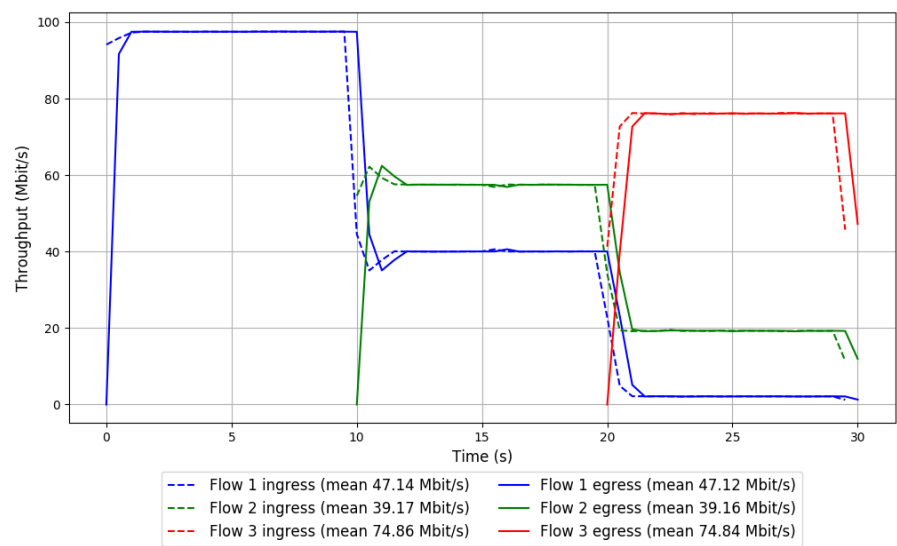
-- Flow 3:

Average throughput: 74.84 Mbit/s

95th percentile per-packet one-way delay: 10.532 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-06 09:52:07

End at: 2018-09-06 09:52:37

Local clock offset: -4.824 ms

Remote clock offset: 0.475 ms

Below is generated by plot.py at 2018-09-06 10:55:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.43 Mbit/s

95th percentile per-packet one-way delay: 12.566 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 42.83 Mbit/s

95th percentile per-packet one-way delay: 10.302 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 53.25 Mbit/s

95th percentile per-packet one-way delay: 12.740 ms

Loss rate: 0.00%

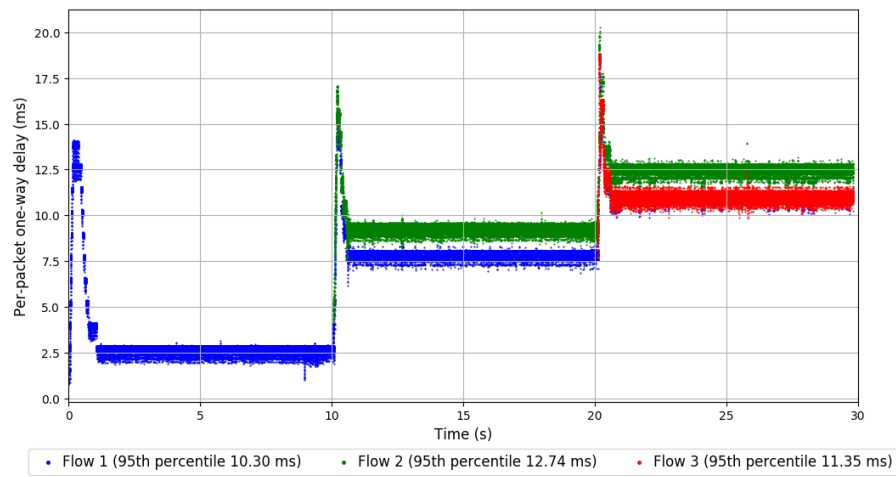
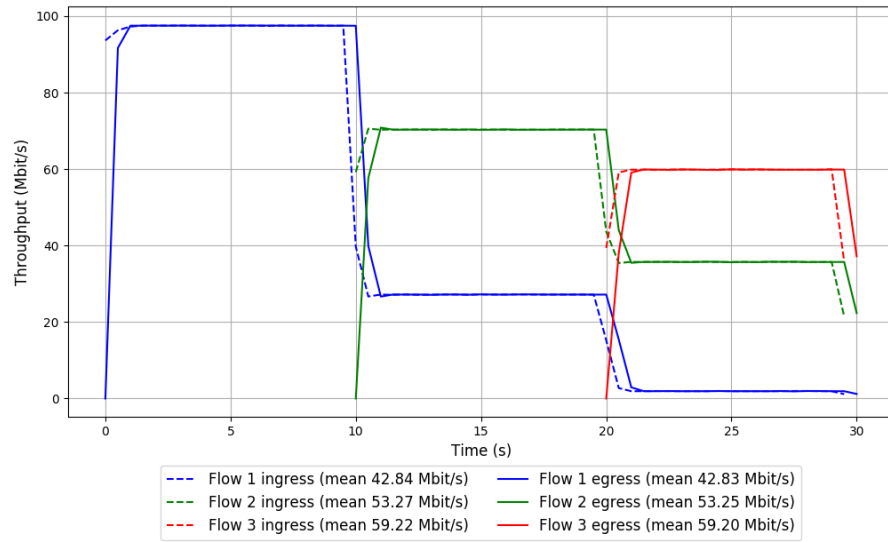
-- Flow 3:

Average throughput: 59.20 Mbit/s

95th percentile per-packet one-way delay: 11.350 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-06 10:12:35

End at: 2018-09-06 10:13:05

Local clock offset: -4.493 ms

Remote clock offset: 0.452 ms

Below is generated by plot.py at 2018-09-06 10:55:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.41 Mbit/s

95th percentile per-packet one-way delay: 12.335 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 44.89 Mbit/s

95th percentile per-packet one-way delay: 11.440 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 36.76 Mbit/s

95th percentile per-packet one-way delay: 10.967 ms

Loss rate: 0.00%

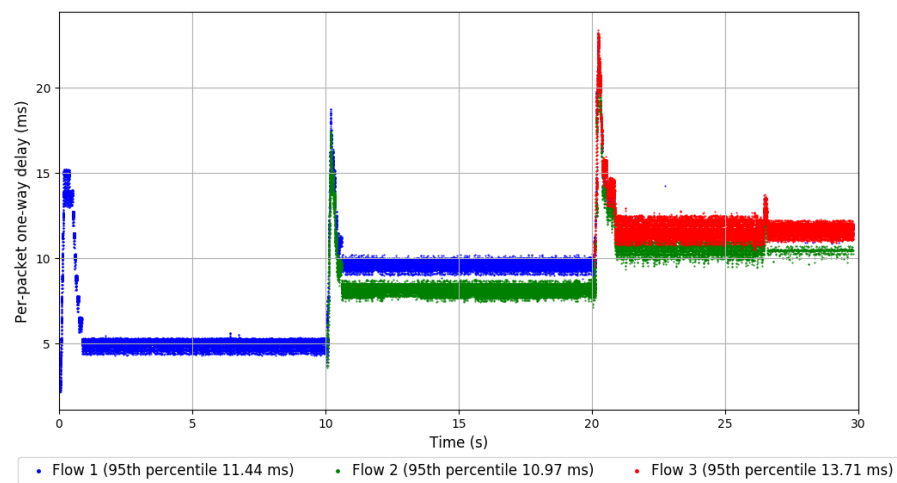
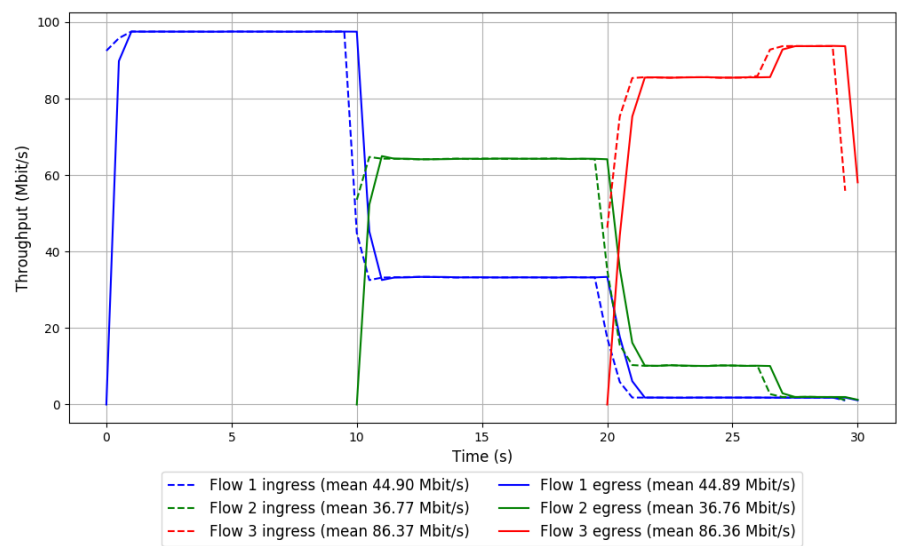
-- Flow 3:

Average throughput: 86.36 Mbit/s

95th percentile per-packet one-way delay: 13.710 ms

Loss rate: 0.00%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-06 10:33:05

End at: 2018-09-06 10:33:35

Local clock offset: -5.027 ms

Remote clock offset: 0.546 ms

Below is generated by plot.py at 2018-09-06 10:55:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.41 Mbit/s

95th percentile per-packet one-way delay: 14.257 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 45.29 Mbit/s

95th percentile per-packet one-way delay: 12.640 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 47.54 Mbit/s

95th percentile per-packet one-way delay: 14.259 ms

Loss rate: 0.00%

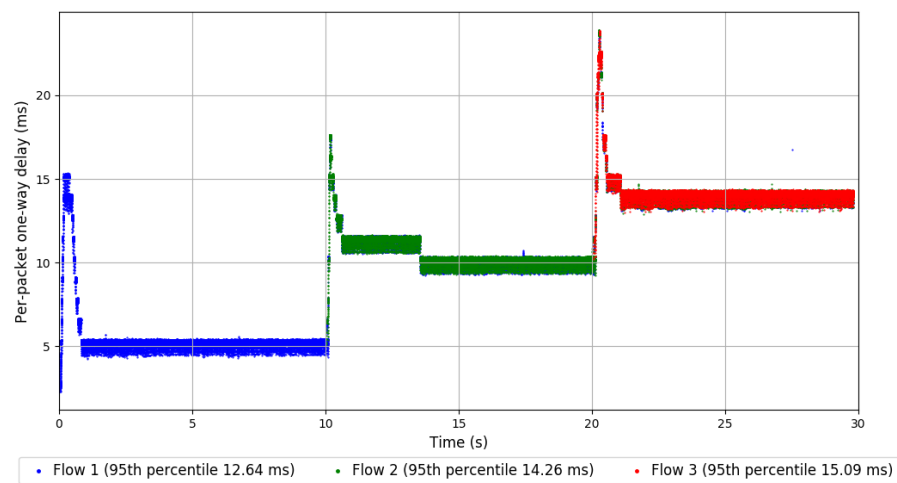
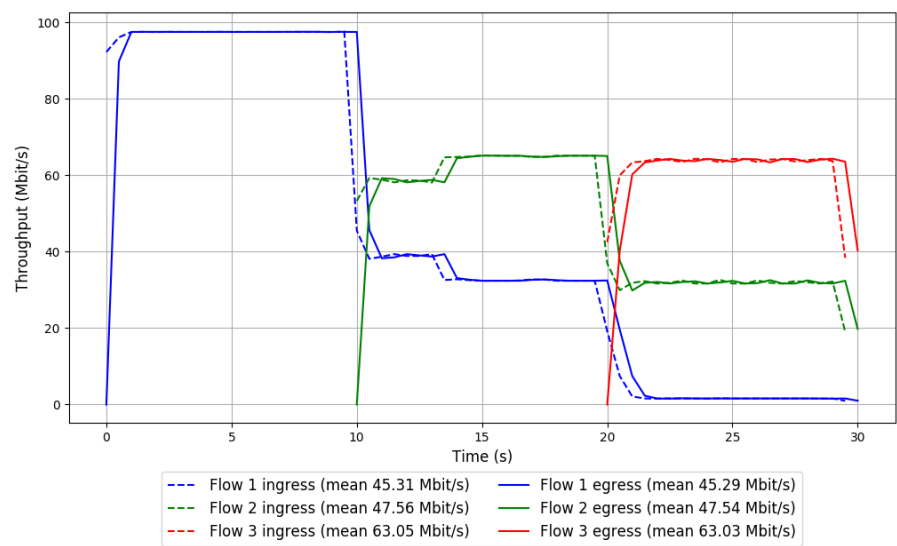
-- Flow 3:

Average throughput: 63.03 Mbit/s

95th percentile per-packet one-way delay: 15.085 ms

Loss rate: 0.00%

Run 5: Report of Indigo — Data Link

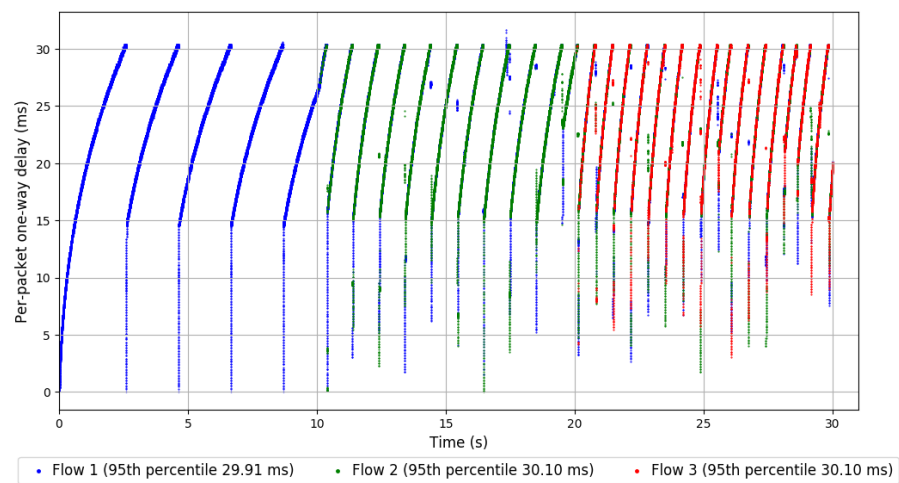
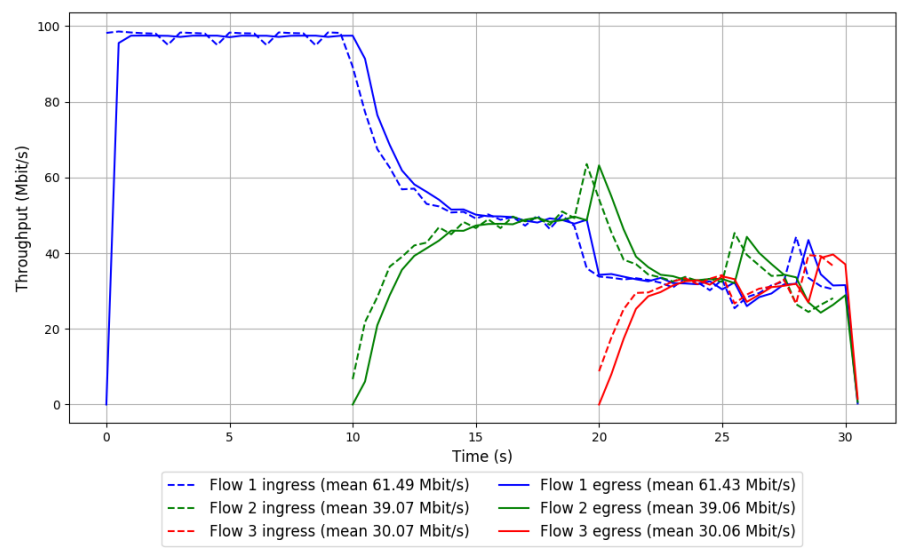


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-06 09:23:36
End at: 2018-09-06 09:24:06
Local clock offset: -3.679 ms
Remote clock offset: 0.267 ms

# Below is generated by plot.py at 2018-09-06 10:56:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.39 Mbit/s
95th percentile per-packet one-way delay: 30.073 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 61.43 Mbit/s
95th percentile per-packet one-way delay: 29.910 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 39.06 Mbit/s
95th percentile per-packet one-way delay: 30.096 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 30.06 Mbit/s
95th percentile per-packet one-way delay: 30.098 ms
Loss rate: 0.10%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-06 09:44:04

End at: 2018-09-06 09:44:34

Local clock offset: -5.296 ms

Remote clock offset: 0.469 ms

Below is generated by plot.py at 2018-09-06 10:56:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.62 Mbit/s

95th percentile per-packet one-way delay: 32.204 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 63.67 Mbit/s

95th percentile per-packet one-way delay: 32.208 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 39.70 Mbit/s

95th percentile per-packet one-way delay: 32.246 ms

Loss rate: 0.05%

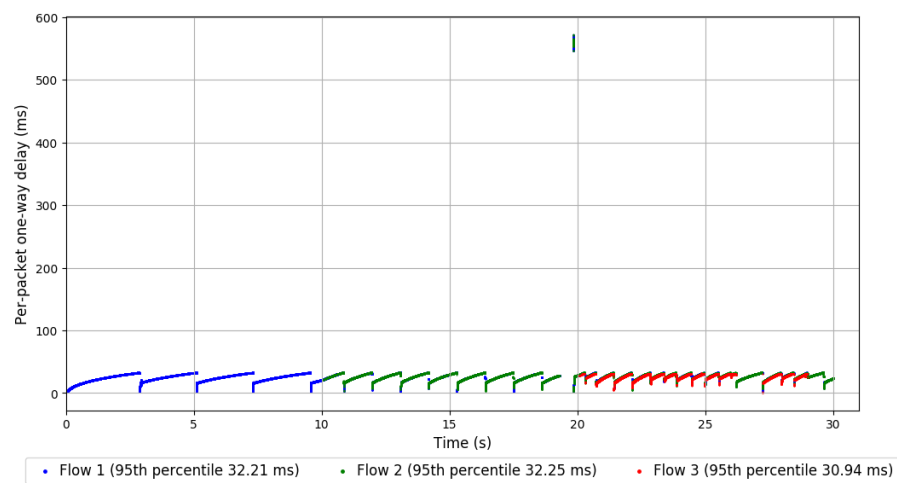
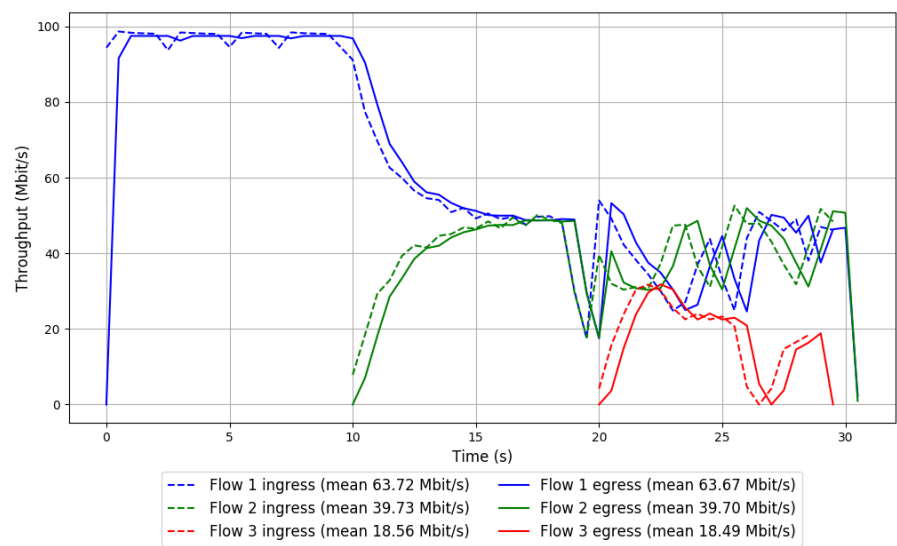
-- Flow 3:

Average throughput: 18.49 Mbit/s

95th percentile per-packet one-way delay: 30.936 ms

Loss rate: 0.42%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-06 10:04:33

End at: 2018-09-06 10:05:03

Local clock offset: -4.53 ms

Remote clock offset: 0.538 ms

Below is generated by plot.py at 2018-09-06 10:56:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.14 Mbit/s

95th percentile per-packet one-way delay: 30.872 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 62.06 Mbit/s

95th percentile per-packet one-way delay: 30.845 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 36.31 Mbit/s

95th percentile per-packet one-way delay: 30.888 ms

Loss rate: 0.07%

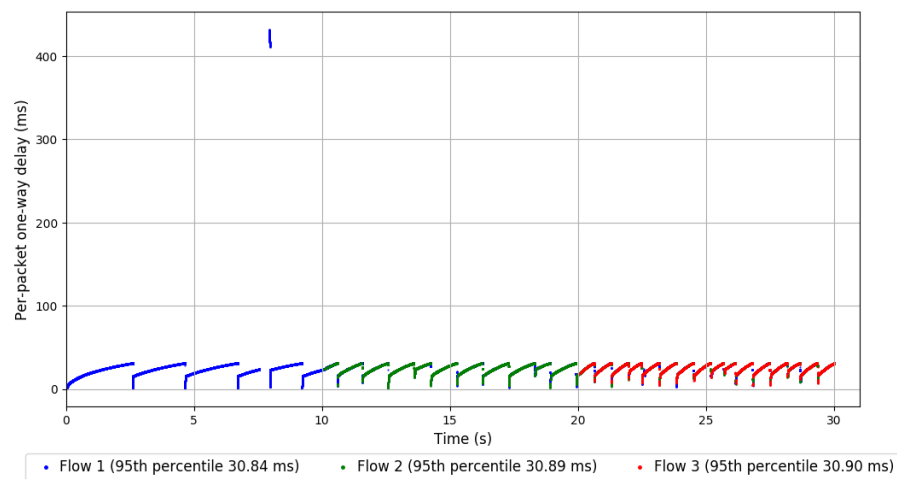
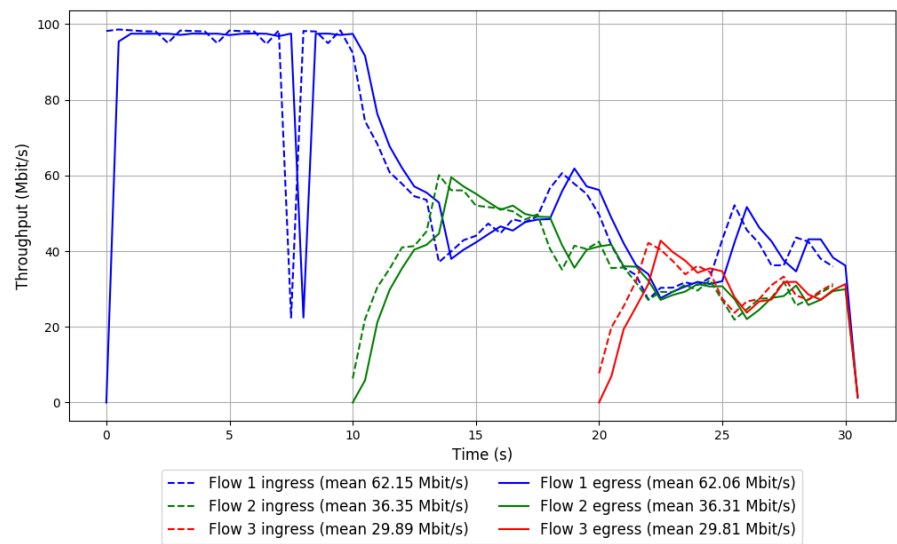
-- Flow 3:

Average throughput: 29.81 Mbit/s

95th percentile per-packet one-way delay: 30.903 ms

Loss rate: 0.11%

Run 3: Report of LEDBAT — Data Link

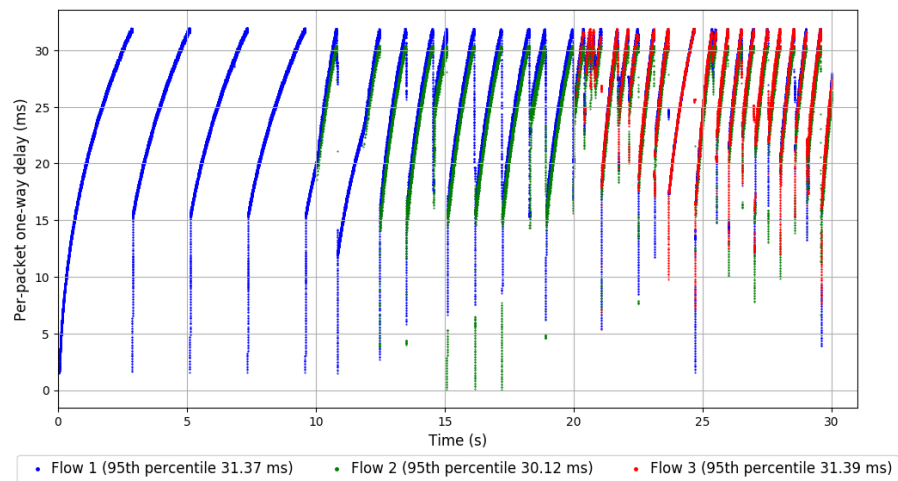
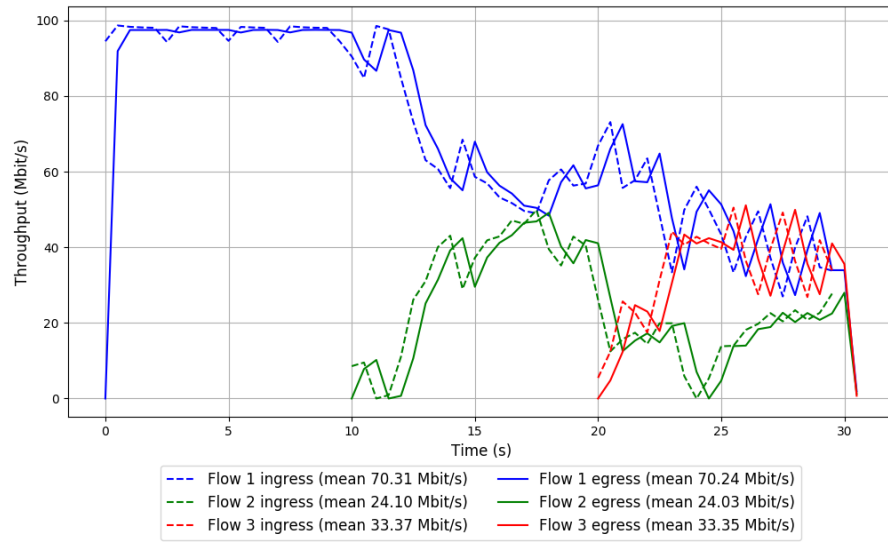


Run 4: Statistics of LEDBAT

Start at: 2018-09-06 10:25:02
End at: 2018-09-06 10:25:32
Local clock offset: -4.109 ms
Remote clock offset: 0.556 ms

Below is generated by plot.py at 2018-09-06 10:56:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.32 Mbit/s
95th percentile per-packet one-way delay: 31.179 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 70.24 Mbit/s
95th percentile per-packet one-way delay: 31.366 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 24.03 Mbit/s
95th percentile per-packet one-way delay: 30.119 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 33.35 Mbit/s
95th percentile per-packet one-way delay: 31.389 ms
Loss rate: 0.06%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-06 10:45:32

End at: 2018-09-06 10:46:02

Local clock offset: -4.475 ms

Remote clock offset: 0.362 ms

Below is generated by plot.py at 2018-09-06 10:56:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.40 Mbit/s

95th percentile per-packet one-way delay: 30.143 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 60.33 Mbit/s

95th percentile per-packet one-way delay: 29.915 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 38.54 Mbit/s

95th percentile per-packet one-way delay: 30.119 ms

Loss rate: 0.07%

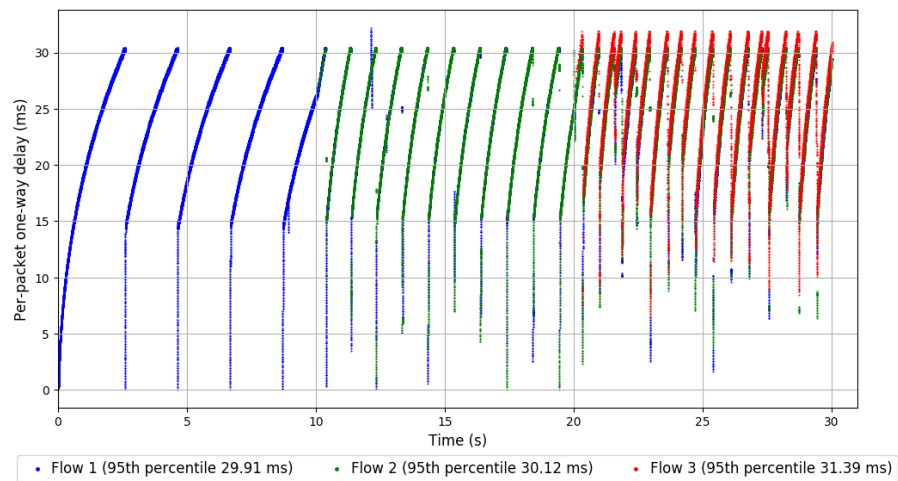
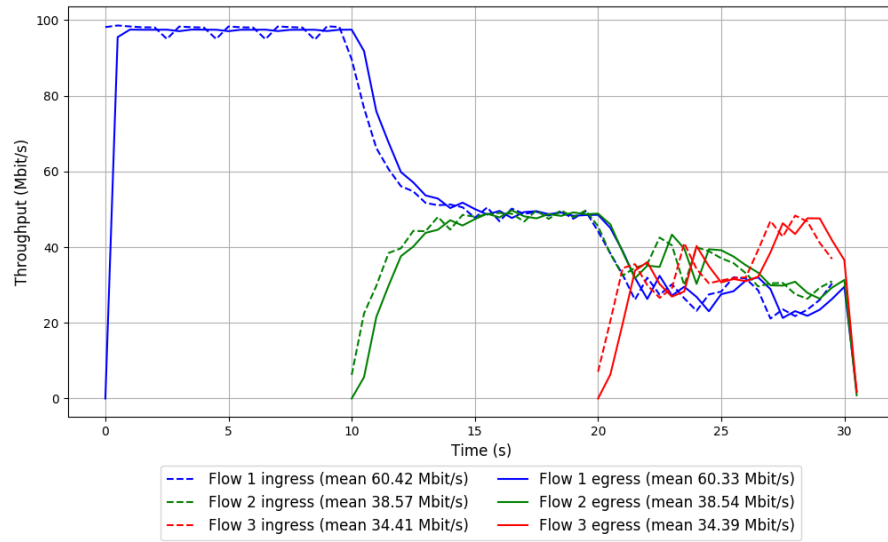
-- Flow 3:

Average throughput: 34.39 Mbit/s

95th percentile per-packet one-way delay: 31.394 ms

Loss rate: 0.04%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 09:08:51

End at: 2018-09-06 09:09:21

Local clock offset: -3.397 ms

Remote clock offset: 0.156 ms

Below is generated by plot.py at 2018-09-06 10:56:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 83.73 Mbit/s

95th percentile per-packet one-way delay: 32.234 ms

Loss rate: 4.85%

-- Flow 1:

Average throughput: 22.56 Mbit/s

95th percentile per-packet one-way delay: 22.650 ms

Loss rate: 0.67%

-- Flow 2:

Average throughput: 79.13 Mbit/s

95th percentile per-packet one-way delay: 32.278 ms

Loss rate: 7.18%

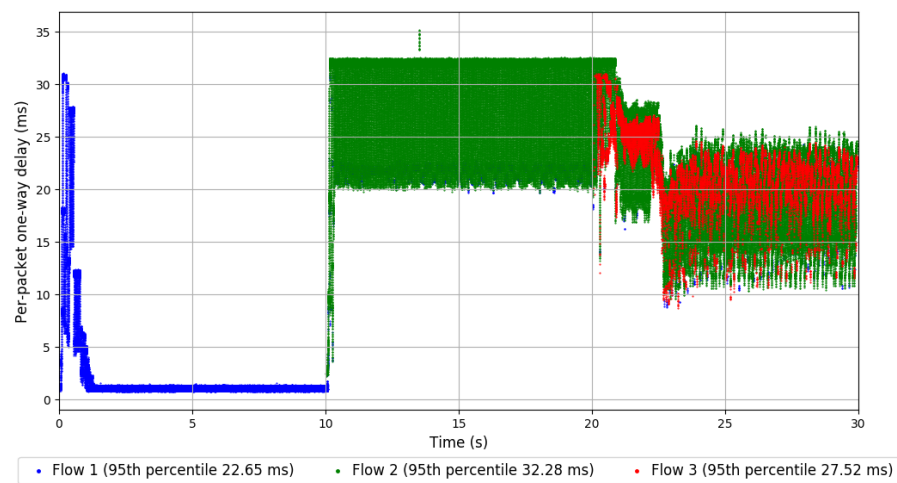
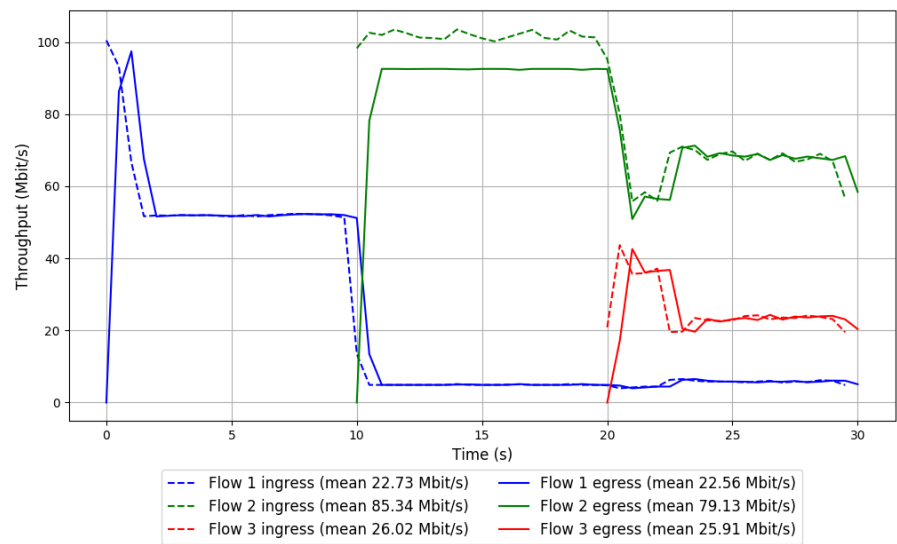
-- Flow 3:

Average throughput: 25.91 Mbit/s

95th percentile per-packet one-way delay: 27.520 ms

Loss rate: 0.50%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 09:29:20

End at: 2018-09-06 09:29:50

Local clock offset: -4.069 ms

Remote clock offset: 0.217 ms

Below is generated by plot.py at 2018-09-06 10:56:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 84.22 Mbit/s

95th percentile per-packet one-way delay: 8.943 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 34.31 Mbit/s

95th percentile per-packet one-way delay: 10.035 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 56.01 Mbit/s

95th percentile per-packet one-way delay: 8.934 ms

Loss rate: 0.07%

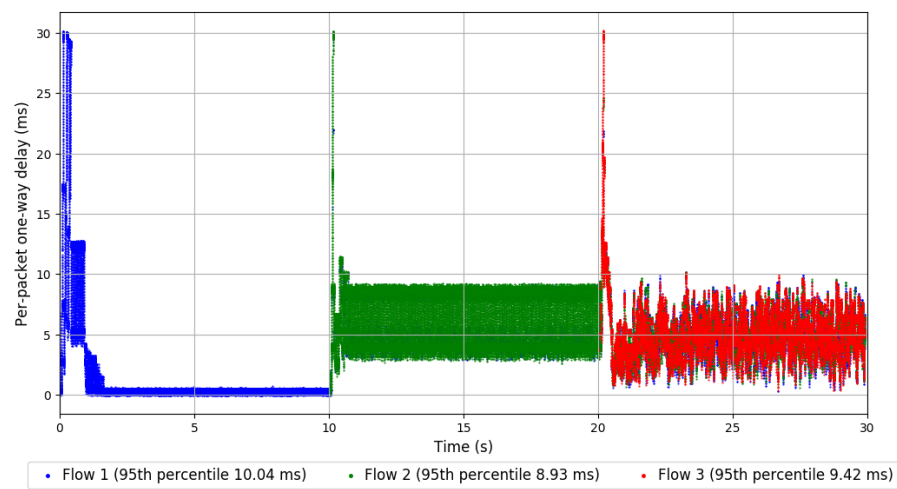
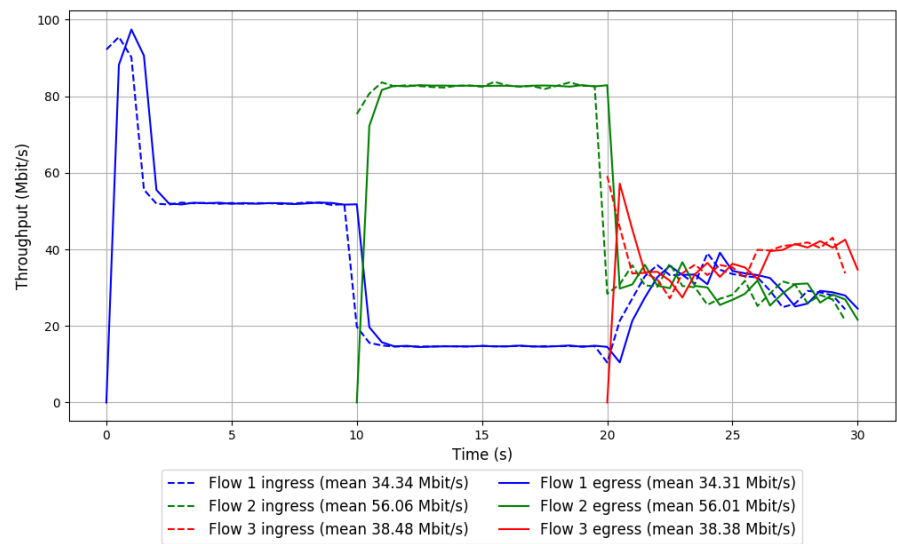
-- Flow 3:

Average throughput: 38.38 Mbit/s

95th percentile per-packet one-way delay: 9.416 ms

Loss rate: 0.24%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 09:49:48

End at: 2018-09-06 09:50:18

Local clock offset: -4.946 ms

Remote clock offset: 0.495 ms

Below is generated by plot.py at 2018-09-06 10:57:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.27 Mbit/s

95th percentile per-packet one-way delay: 32.376 ms

Loss rate: 20.85%

-- Flow 1:

Average throughput: 80.50 Mbit/s

95th percentile per-packet one-way delay: 32.385 ms

Loss rate: 23.08%

-- Flow 2:

Average throughput: 18.12 Mbit/s

95th percentile per-packet one-way delay: 32.332 ms

Loss rate: 7.96%

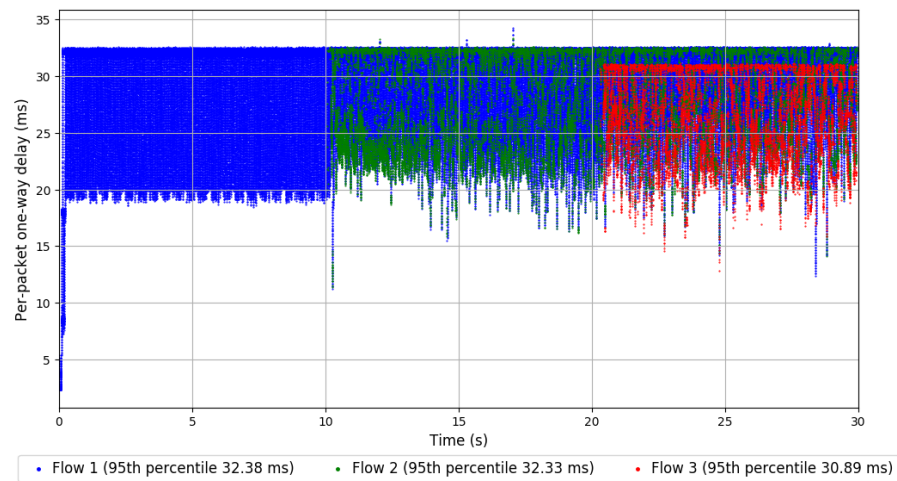
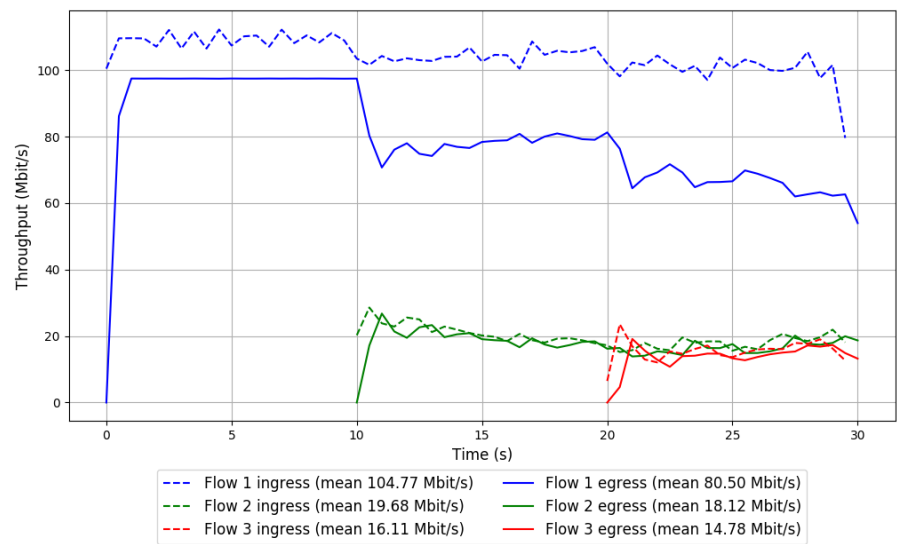
-- Flow 3:

Average throughput: 14.78 Mbit/s

95th percentile per-packet one-way delay: 30.886 ms

Loss rate: 8.22%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-06 10:10:17

End at: 2018-09-06 10:10:47

Local clock offset: -4.504 ms

Remote clock offset: 0.518 ms

Below is generated by plot.py at 2018-09-06 10:57:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.26 Mbit/s

95th percentile per-packet one-way delay: 30.752 ms

Loss rate: 6.76%

-- Flow 1:

Average throughput: 52.70 Mbit/s

95th percentile per-packet one-way delay: 11.057 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 23.71 Mbit/s

95th percentile per-packet one-way delay: 22.533 ms

Loss rate: 0.44%

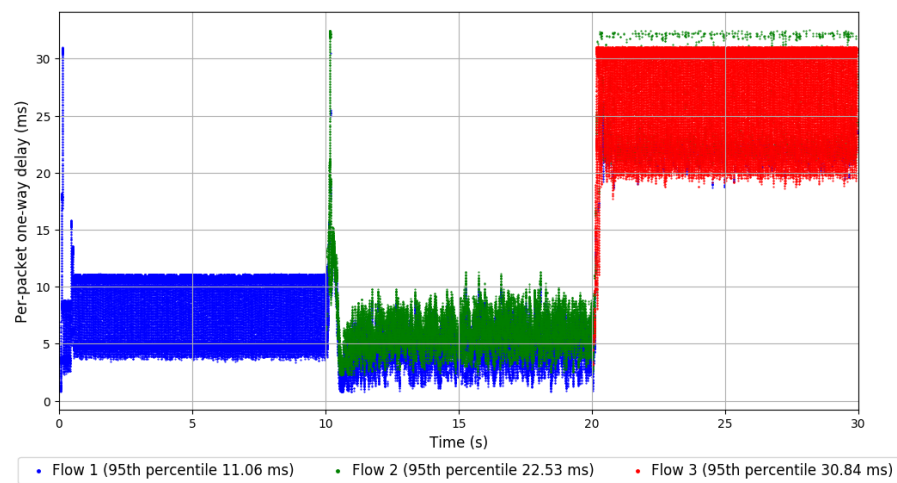
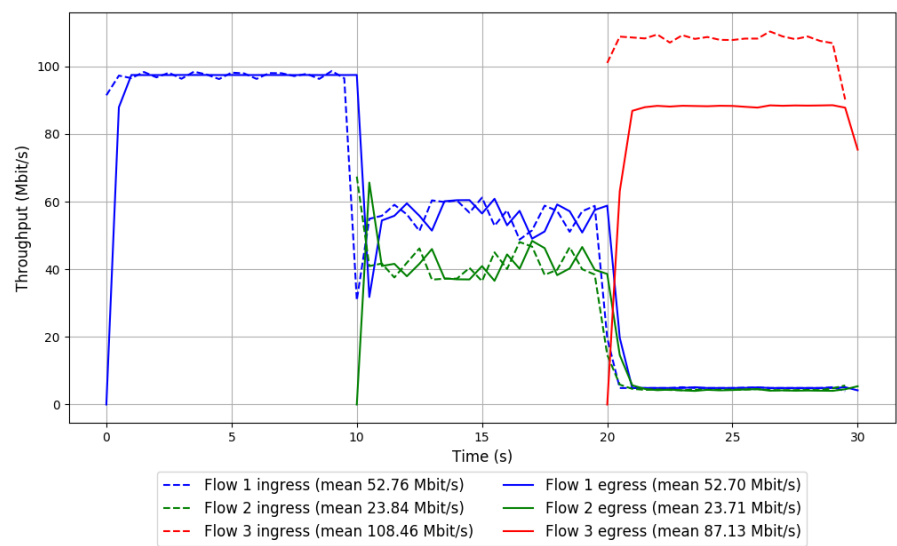
-- Flow 3:

Average throughput: 87.13 Mbit/s

95th percentile per-packet one-way delay: 30.842 ms

Loss rate: 19.44%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-06 10:30:47

End at: 2018-09-06 10:31:17

Local clock offset: -4.997 ms

Remote clock offset: 0.498 ms

Below is generated by plot.py at 2018-09-06 10:57:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.29 Mbit/s

95th percentile per-packet one-way delay: 32.249 ms

Loss rate: 12.51%

-- Flow 1:

Average throughput: 35.98 Mbit/s

95th percentile per-packet one-way delay: 22.010 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 81.65 Mbit/s

95th percentile per-packet one-way delay: 32.300 ms

Loss rate: 19.83%

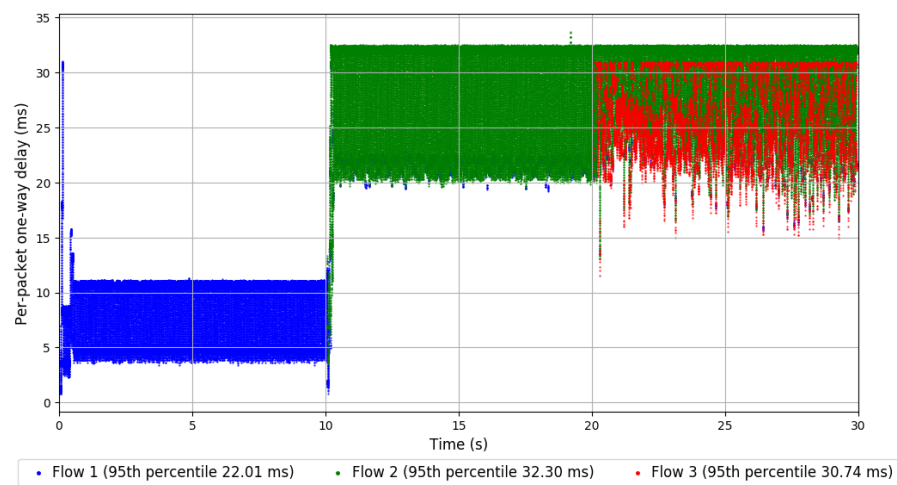
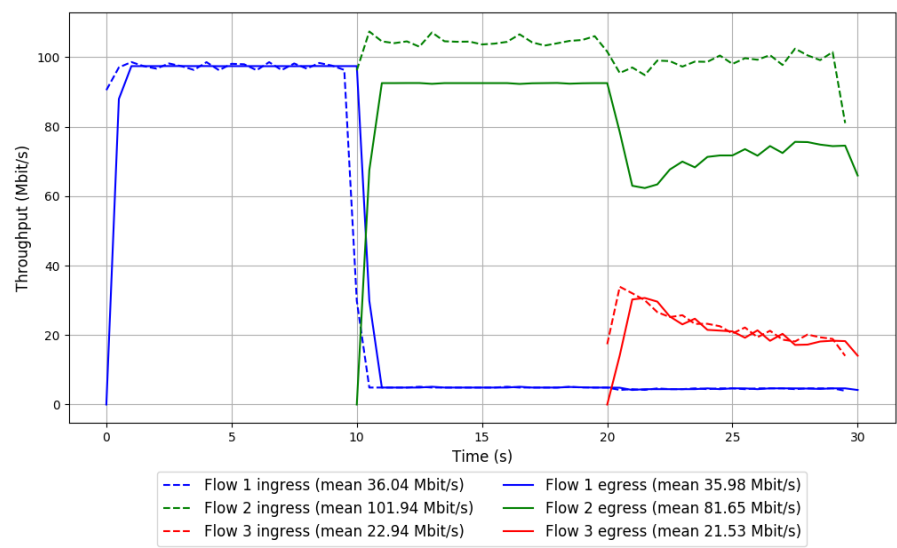
-- Flow 3:

Average throughput: 21.53 Mbit/s

95th percentile per-packet one-way delay: 30.739 ms

Loss rate: 6.21%

Run 5: Report of Indigo-Muses — Data Link

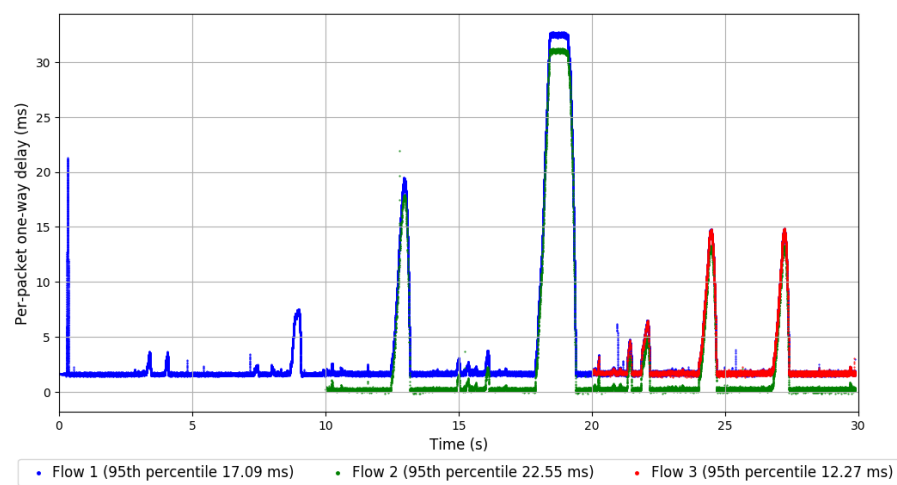
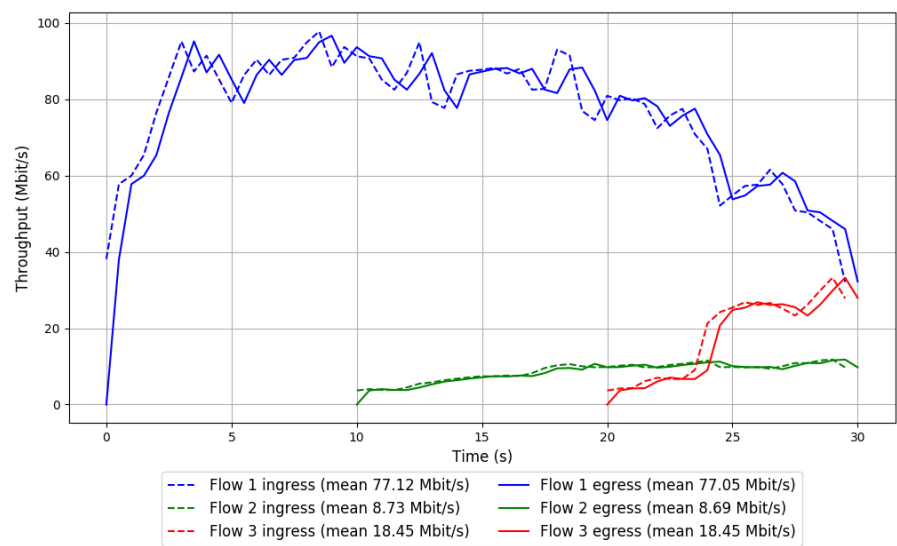


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 09:13:29
End at: 2018-09-06 09:13:59
Local clock offset: -2.602 ms
Remote clock offset: 0.159 ms

# Below is generated by plot.py at 2018-09-06 10:57:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.91 Mbit/s
95th percentile per-packet one-way delay: 16.023 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 77.05 Mbit/s
95th percentile per-packet one-way delay: 17.089 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 8.69 Mbit/s
95th percentile per-packet one-way delay: 22.551 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 18.45 Mbit/s
95th percentile per-packet one-way delay: 12.270 ms
Loss rate: 0.00%
```


Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 09:33:57

End at: 2018-09-06 09:34:27

Local clock offset: -4.213 ms

Remote clock offset: 0.357 ms

Below is generated by plot.py at 2018-09-06 10:57:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 82.31 Mbit/s

95th percentile per-packet one-way delay: 13.842 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 59.10 Mbit/s

95th percentile per-packet one-way delay: 13.127 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 32.77 Mbit/s

95th percentile per-packet one-way delay: 15.230 ms

Loss rate: 0.00%

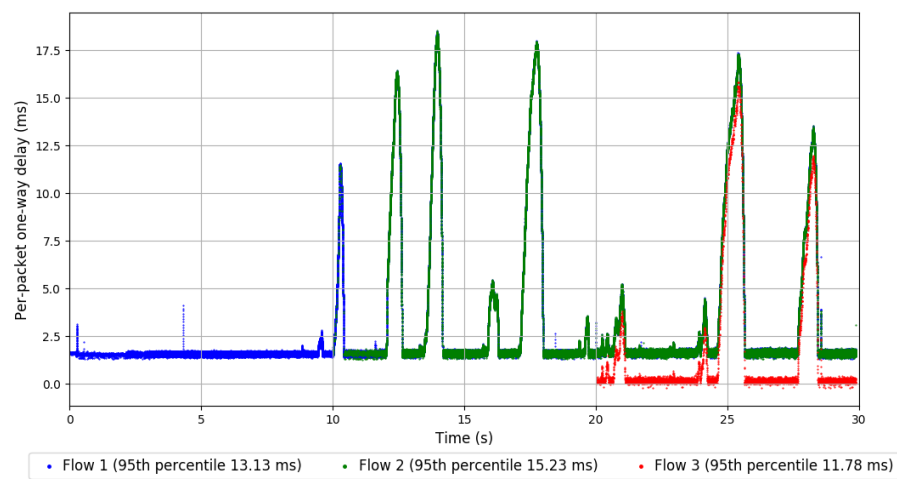
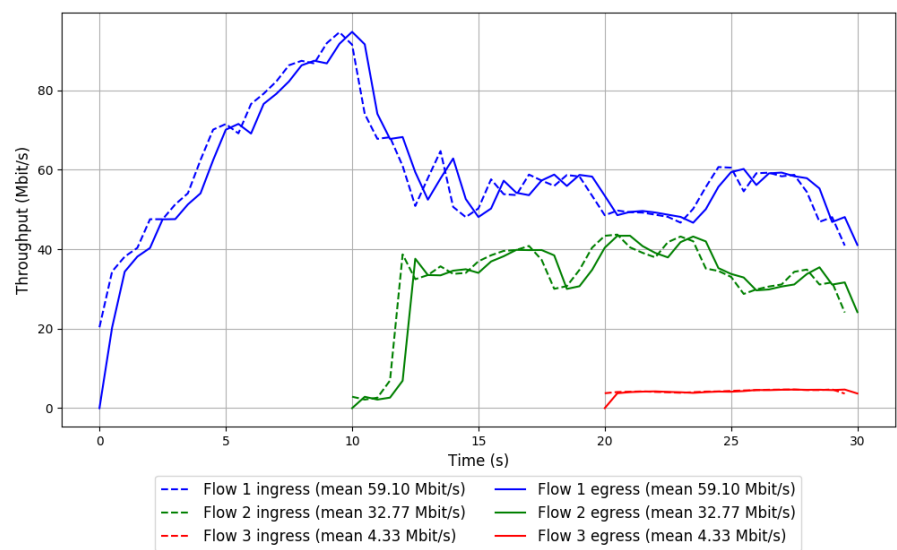
-- Flow 3:

Average throughput: 4.33 Mbit/s

95th percentile per-packet one-way delay: 11.775 ms

Loss rate: 0.00%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 09:54:26

End at: 2018-09-06 09:54:56

Local clock offset: -3.975 ms

Remote clock offset: 0.442 ms

Below is generated by plot.py at 2018-09-06 10:57:36

Datalink statistics

-- Total of 3 flows:

Average throughput: 83.13 Mbit/s

95th percentile per-packet one-way delay: 24.146 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 70.47 Mbit/s

95th percentile per-packet one-way delay: 7.094 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 16.49 Mbit/s

95th percentile per-packet one-way delay: 32.222 ms

Loss rate: 0.13%

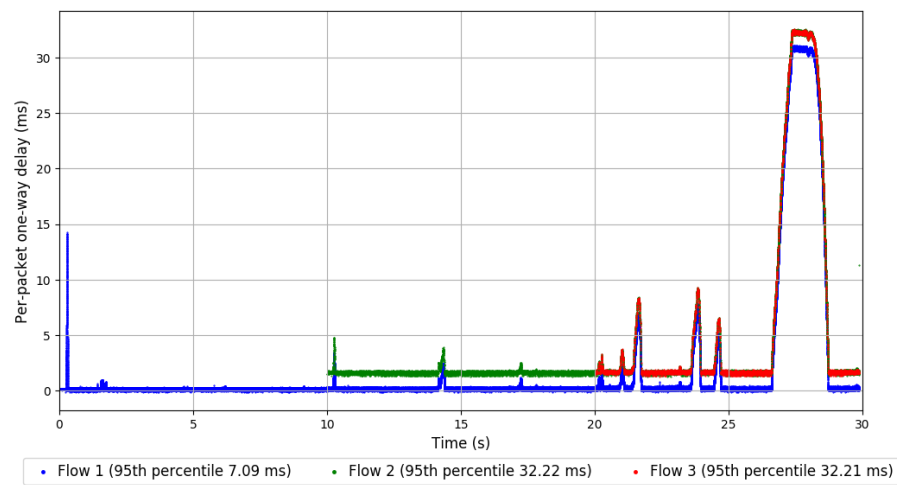
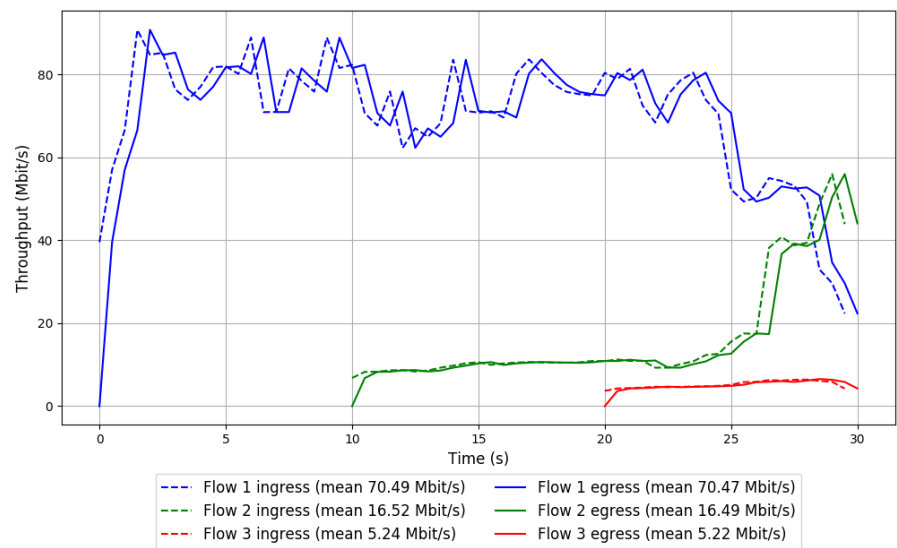
-- Flow 3:

Average throughput: 5.22 Mbit/s

95th percentile per-packet one-way delay: 32.214 ms

Loss rate: 0.35%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-06 10:14:56

End at: 2018-09-06 10:15:26

Local clock offset: -4.489 ms

Remote clock offset: 0.496 ms

Below is generated by plot.py at 2018-09-06 10:57:36

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.41 Mbit/s

95th percentile per-packet one-way delay: 23.770 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 46.66 Mbit/s

95th percentile per-packet one-way delay: 19.086 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 31.09 Mbit/s

95th percentile per-packet one-way delay: 27.137 ms

Loss rate: 0.00%

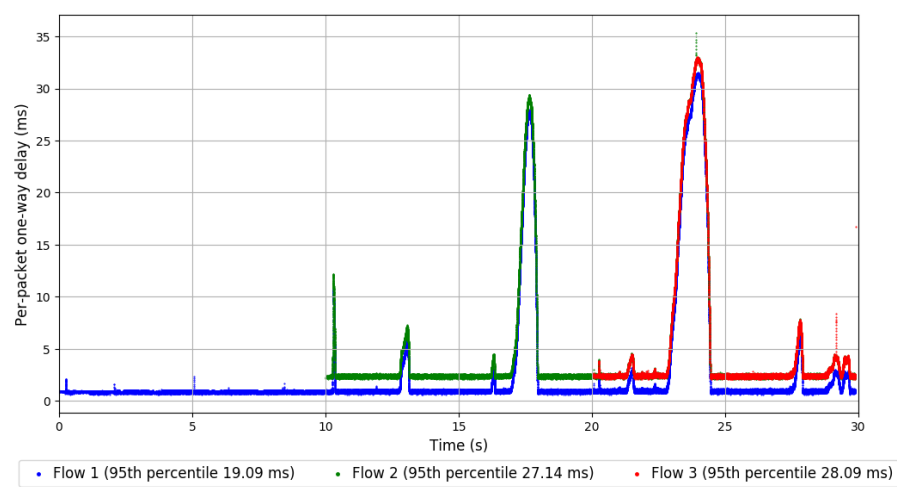
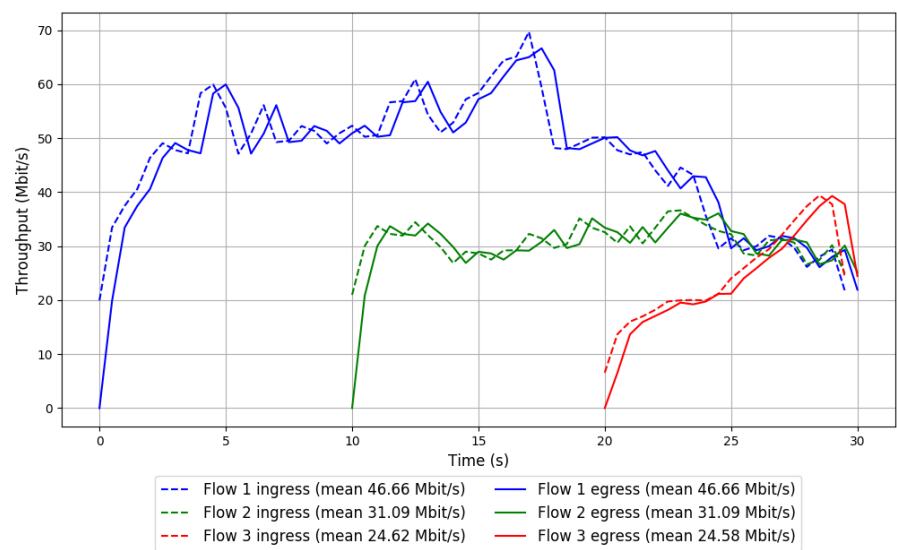
-- Flow 3:

Average throughput: 24.58 Mbit/s

95th percentile per-packet one-way delay: 28.094 ms

Loss rate: 0.00%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-06 10:35:25

End at: 2018-09-06 10:35:55

Local clock offset: -4.297 ms

Remote clock offset: 0.462 ms

Below is generated by plot.py at 2018-09-06 10:57:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.22 Mbit/s

95th percentile per-packet one-way delay: 6.546 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 60.68 Mbit/s

95th percentile per-packet one-way delay: 5.497 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 27.31 Mbit/s

95th percentile per-packet one-way delay: 8.009 ms

Loss rate: 0.00%

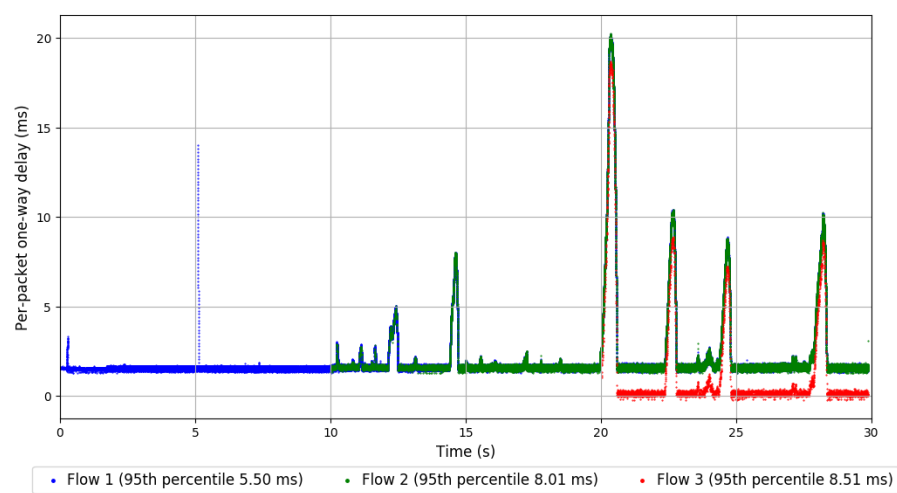
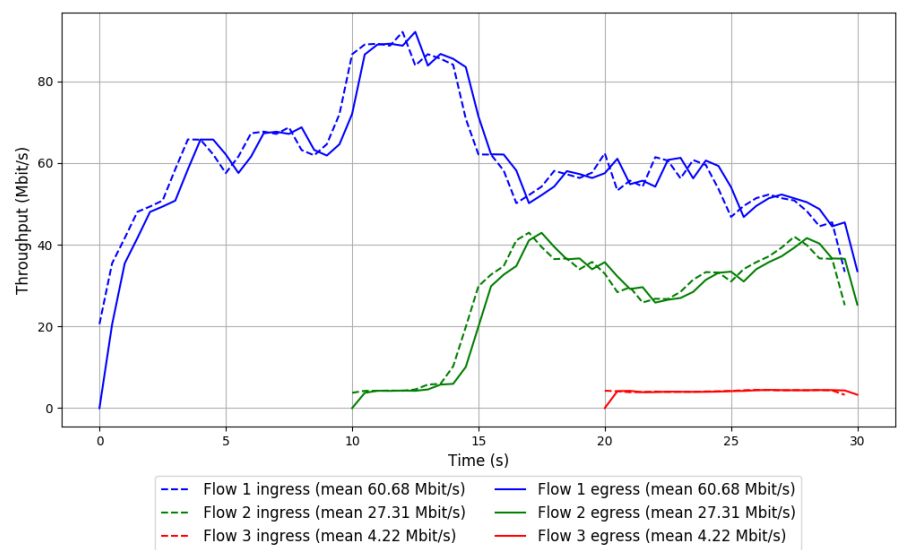
-- Flow 3:

Average throughput: 4.22 Mbit/s

95th percentile per-packet one-way delay: 8.508 ms

Loss rate: 0.00%

Run 5: Report of PCC-Allegro — Data Link

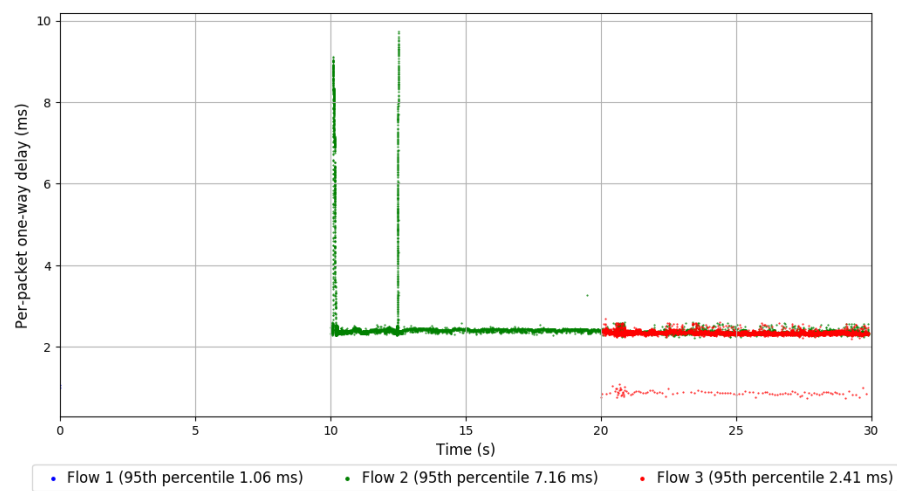
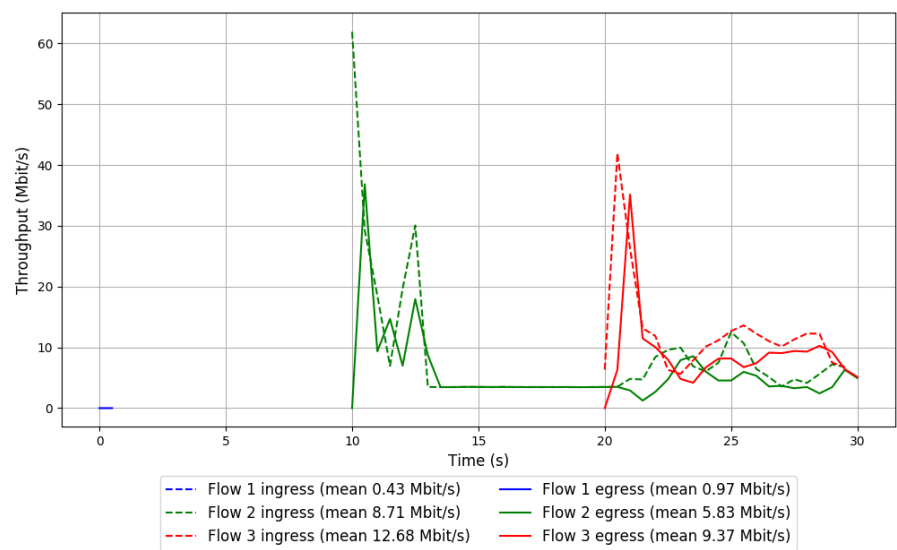


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-06 09:17:57
End at: 2018-09-06 09:18:27
Local clock offset: -3.757 ms
Remote clock offset: 0.296 ms

# Below is generated by plot.py at 2018-09-06 10:57:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.97 Mbit/s
95th percentile per-packet one-way delay: 4.340 ms
Loss rate: 30.14%
-- Flow 1:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 1.062 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 5.83 Mbit/s
95th percentile per-packet one-way delay: 7.157 ms
Loss rate: 33.05%
-- Flow 3:
Average throughput: 9.37 Mbit/s
95th percentile per-packet one-way delay: 2.408 ms
Loss rate: 26.12%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-06 09:38:24

End at: 2018-09-06 09:38:54

Local clock offset: -4.415 ms

Remote clock offset: 0.317 ms

Below is generated by plot.py at 2018-09-06 10:57:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.87 Mbit/s

95th percentile per-packet one-way delay: 1.620 ms

Loss rate: 22.26%

-- Flow 1:

Average throughput: 0.99 Mbit/s

95th percentile per-packet one-way delay: 0.105 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 10.13 Mbit/s

95th percentile per-packet one-way delay: 1.620 ms

Loss rate: 23.28%

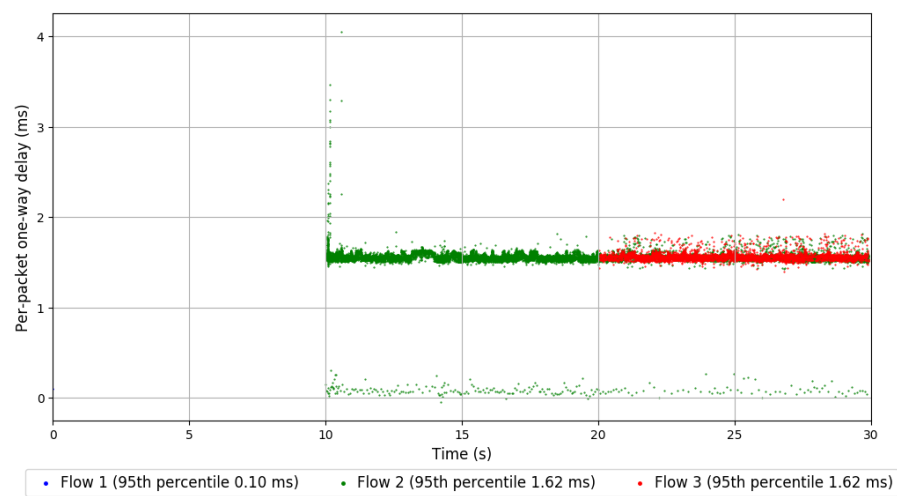
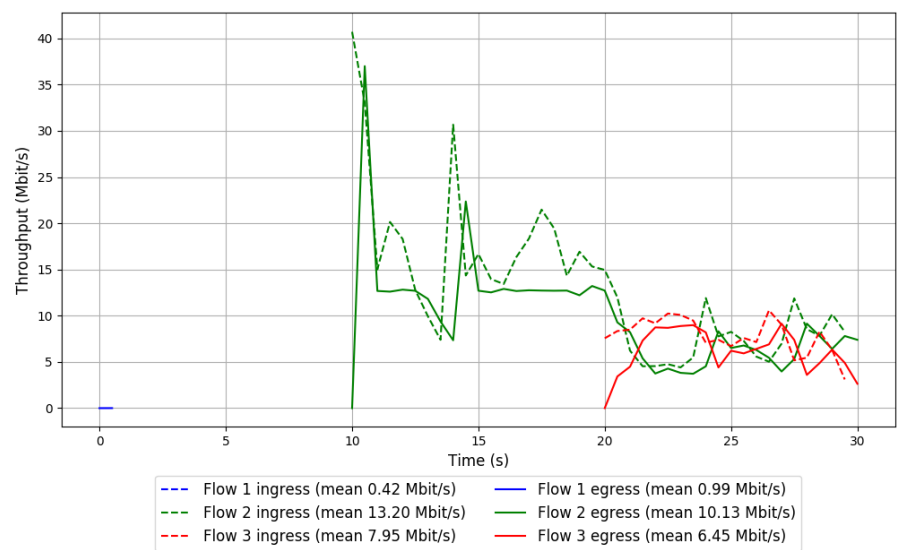
-- Flow 3:

Average throughput: 6.45 Mbit/s

95th percentile per-packet one-way delay: 1.625 ms

Loss rate: 18.81%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-06 09:58:54

End at: 2018-09-06 09:59:24

Local clock offset: -4.606 ms

Remote clock offset: 0.584 ms

Below is generated by plot.py at 2018-09-06 10:57:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.87 Mbit/s

95th percentile per-packet one-way delay: 3.496 ms

Loss rate: 32.31%

-- Flow 1:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 2.547 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 9.92 Mbit/s

95th percentile per-packet one-way delay: 4.774 ms

Loss rate: 30.52%

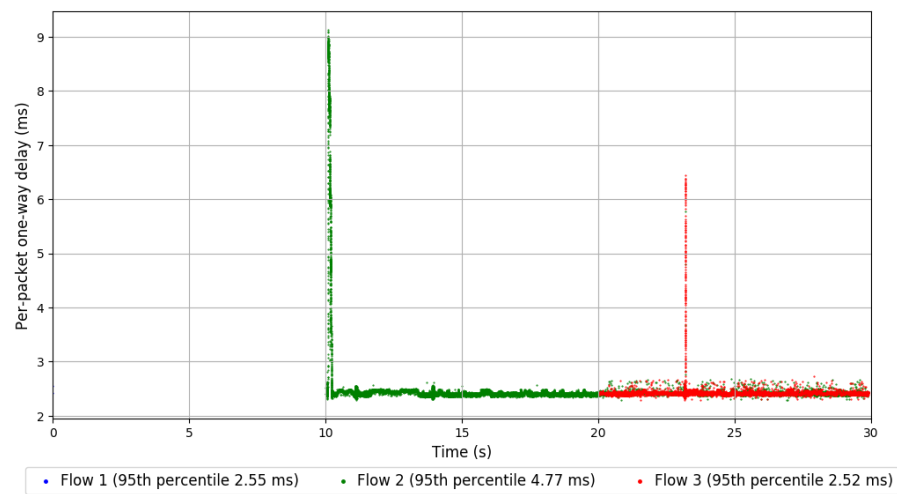
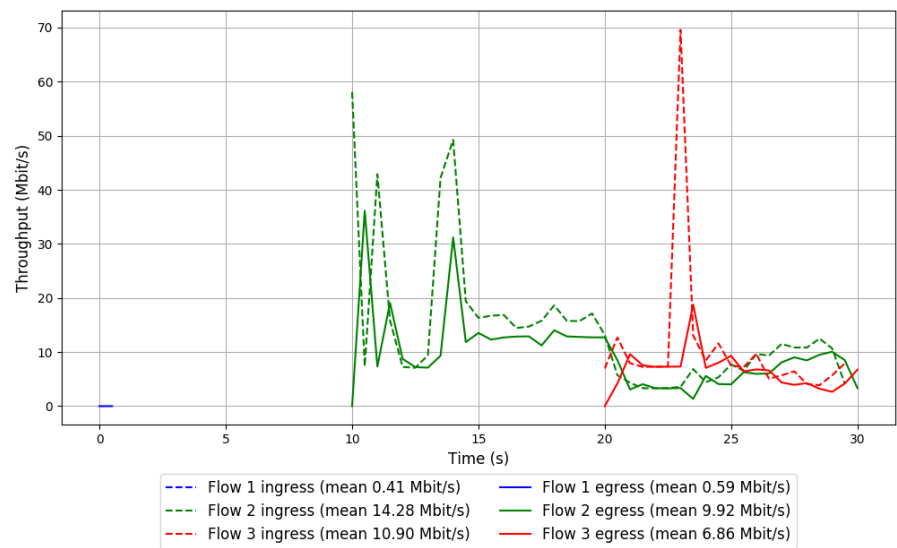
-- Flow 3:

Average throughput: 6.86 Mbit/s

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

Loss rate: 37.03%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-06 10:19:23

End at: 2018-09-06 10:19:53

Local clock offset: -4.683 ms

Remote clock offset: 0.556 ms

Below is generated by plot.py at 2018-09-06 10:57:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 6.12 Mbit/s

95th percentile per-packet one-way delay: 2.446 ms

Loss rate: 19.42%

-- Flow 1:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 2.510 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 4.99 Mbit/s

95th percentile per-packet one-way delay: 2.504 ms

Loss rate: 24.22%

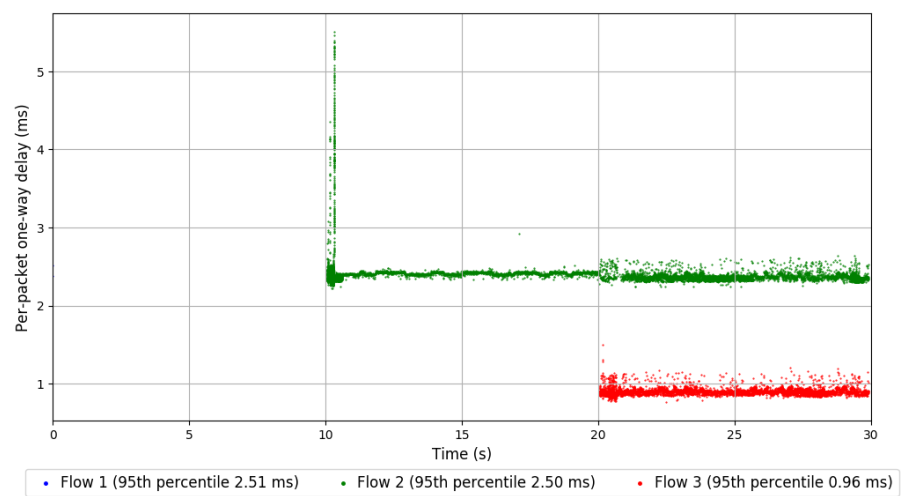
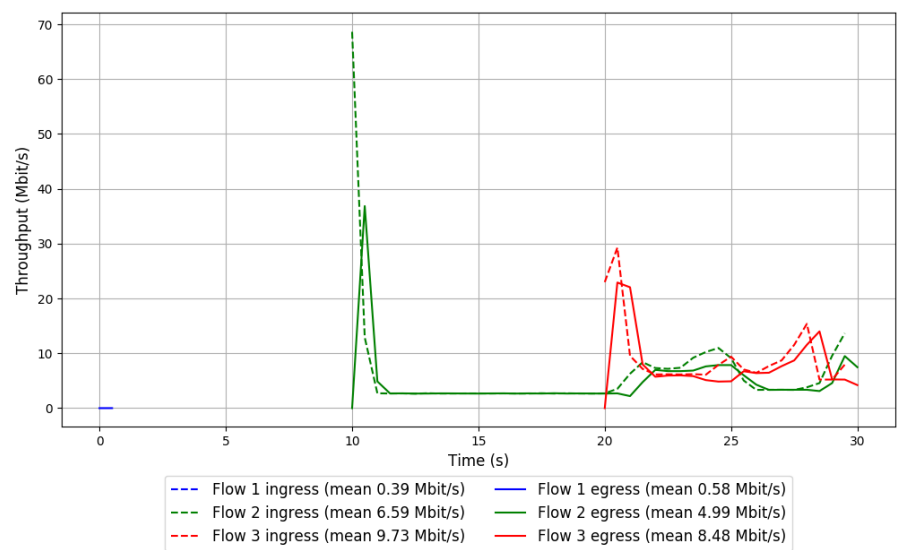
-- Flow 3:

Average throughput: 8.48 Mbit/s

95th percentile per-packet one-way delay: 0.961 ms

Loss rate: 12.87%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-06 10:39:53

End at: 2018-09-06 10:40:23

Local clock offset: -5.111 ms

Remote clock offset: 0.479 ms

Below is generated by plot.py at 2018-09-06 10:57:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.87 Mbit/s

95th percentile per-packet one-way delay: 2.391 ms

Loss rate: 27.68%

-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 2.480 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 10.29 Mbit/s

95th percentile per-packet one-way delay: 2.395 ms

Loss rate: 25.55%

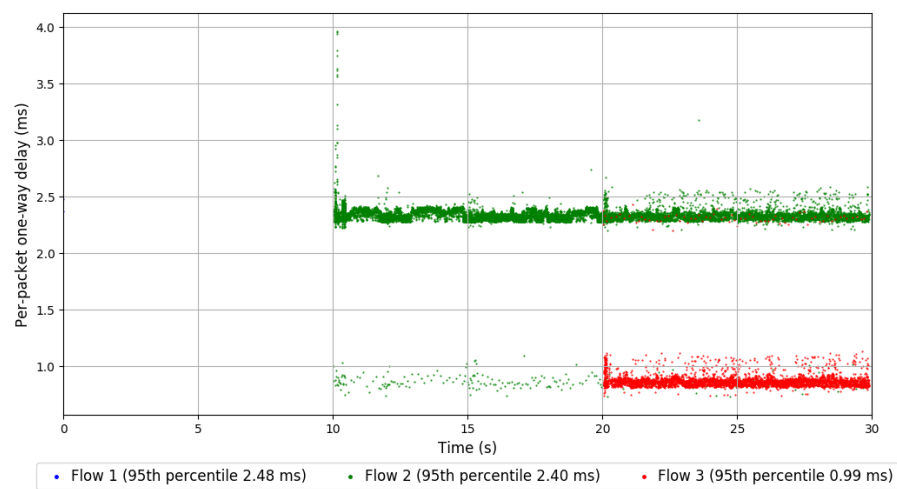
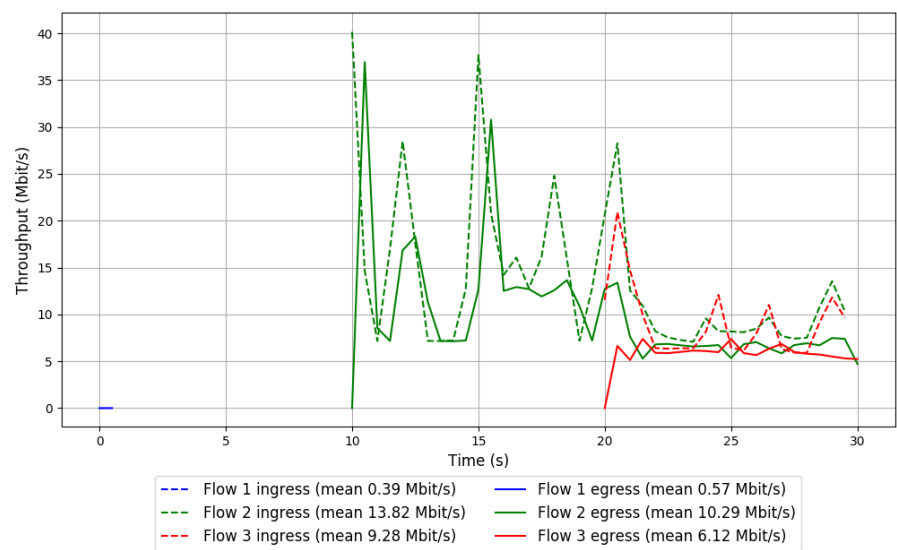
-- Flow 3:

Average throughput: 6.12 Mbit/s

95th percentile per-packet one-way delay: 0.992 ms

Loss rate: 34.06%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-06 09:25:55

End at: 2018-09-06 09:26:25

Local clock offset: -4.567 ms

Remote clock offset: 0.251 ms

Below is generated by plot.py at 2018-09-06 10:58:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.52 Mbit/s

95th percentile per-packet one-way delay: 31.050 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 59.11 Mbit/s

95th percentile per-packet one-way delay: 30.977 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 33.09 Mbit/s

95th percentile per-packet one-way delay: 31.250 ms

Loss rate: 0.20%

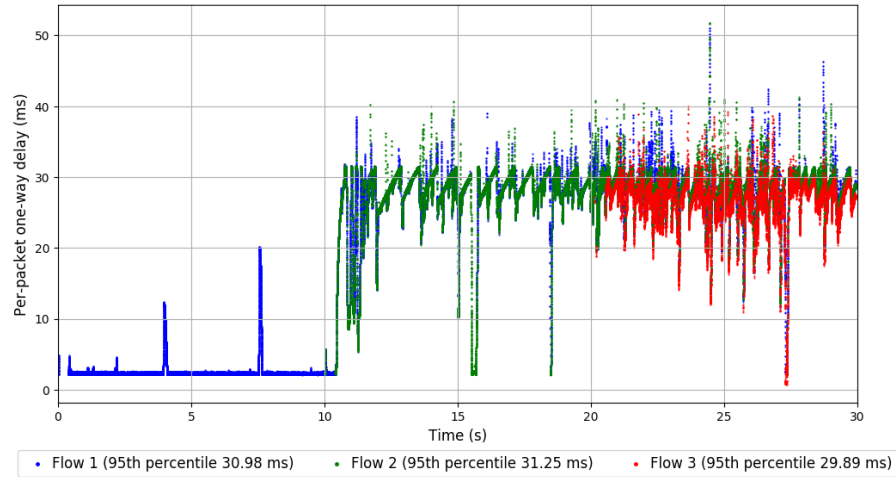
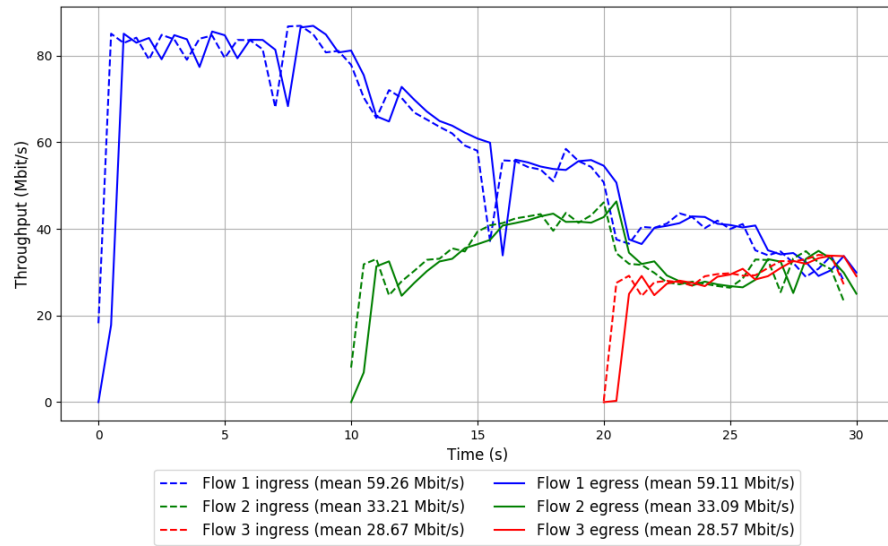
-- Flow 3:

Average throughput: 28.57 Mbit/s

95th percentile per-packet one-way delay: 29.895 ms

Loss rate: 0.34%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 09:46:23

End at: 2018-09-06 09:46:53

Local clock offset: -4.493 ms

Remote clock offset: 0.425 ms

Below is generated by plot.py at 2018-09-06 10:58:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.96 Mbit/s

95th percentile per-packet one-way delay: 30.276 ms

Loss rate: 0.17%

-- Flow 1:

Average throughput: 55.92 Mbit/s

95th percentile per-packet one-way delay: 28.962 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 35.44 Mbit/s

95th percentile per-packet one-way delay: 30.618 ms

Loss rate: 0.18%

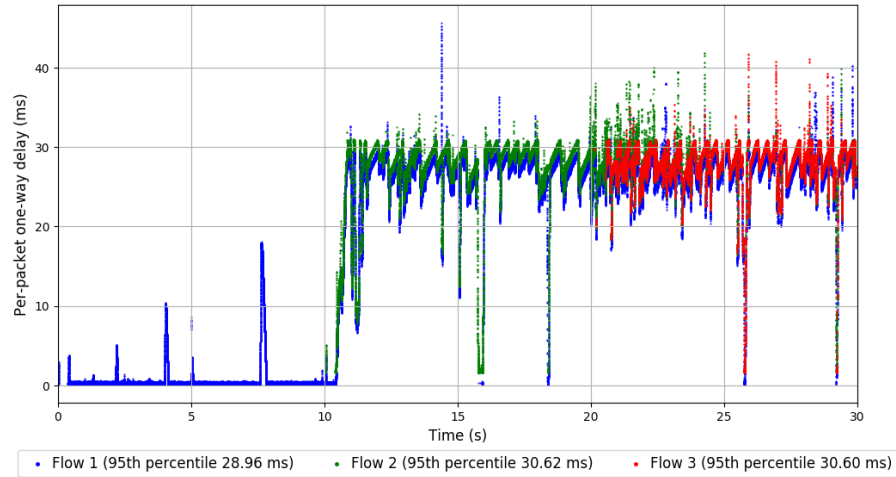
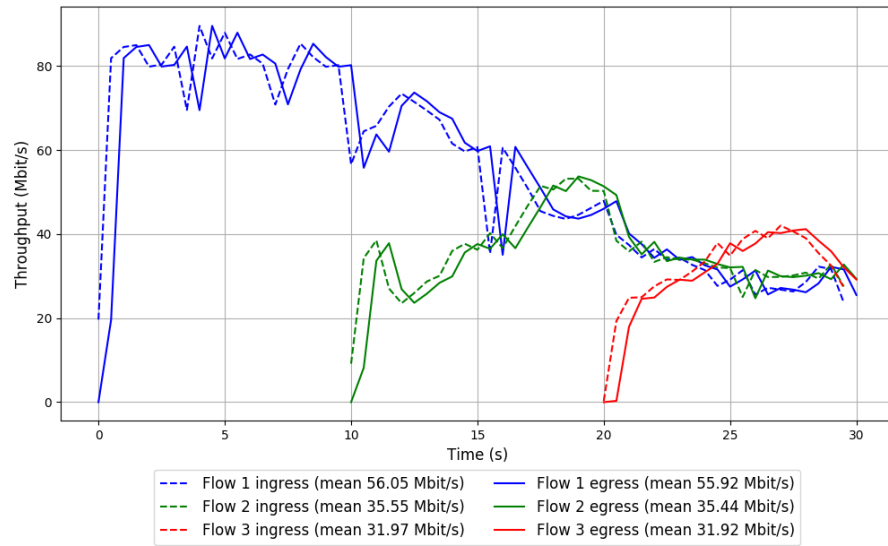
-- Flow 3:

Average throughput: 31.92 Mbit/s

95th percentile per-packet one-way delay: 30.604 ms

Loss rate: 0.17%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 10:06:53

End at: 2018-09-06 10:07:23

Local clock offset: -3.746 ms

Remote clock offset: 0.533 ms

Below is generated by plot.py at 2018-09-06 10:58:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.66 Mbit/s

95th percentile per-packet one-way delay: 30.426 ms

Loss rate: 0.17%

-- Flow 1:

Average throughput: 57.57 Mbit/s

95th percentile per-packet one-way delay: 30.393 ms

Loss rate: 0.17%

-- Flow 2:

Average throughput: 35.52 Mbit/s

95th percentile per-packet one-way delay: 30.558 ms

Loss rate: 0.18%

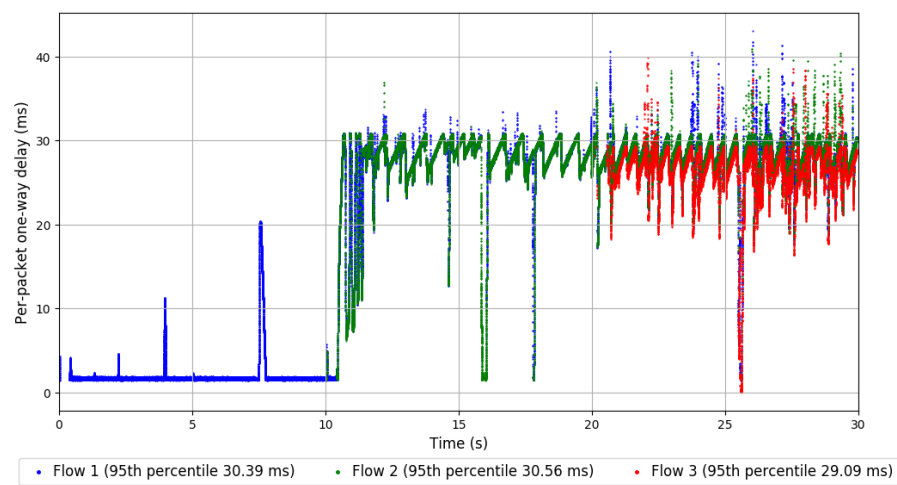
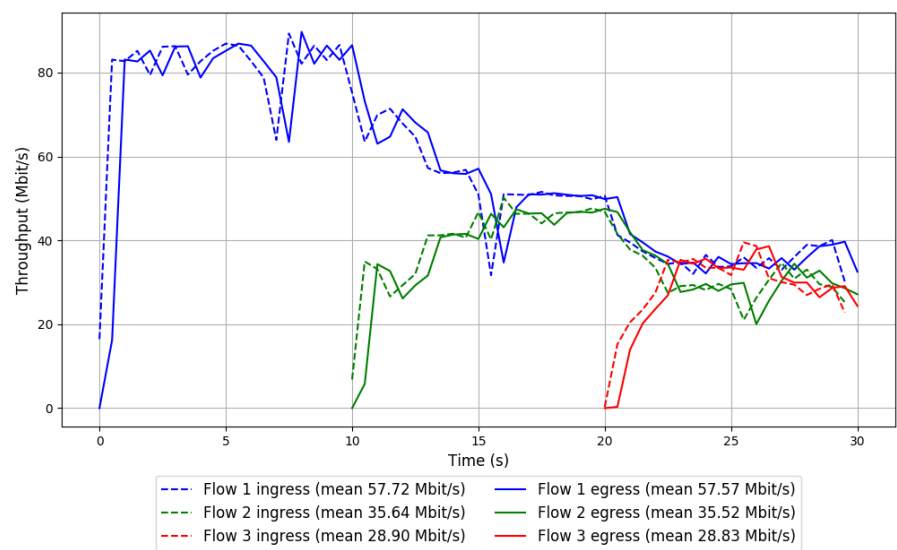
-- Flow 3:

Average throughput: 28.83 Mbit/s

95th percentile per-packet one-way delay: 29.087 ms

Loss rate: 0.21%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-09-06 10:27:21

End at: 2018-09-06 10:27:51

Local clock offset: -4.987 ms

Remote clock offset: 0.469 ms

Below is generated by plot.py at 2018-09-06 10:58:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.52 Mbit/s

95th percentile per-packet one-way delay: 30.932 ms

Loss rate: 0.16%

-- Flow 1:

Average throughput: 56.69 Mbit/s

95th percentile per-packet one-way delay: 29.627 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 36.00 Mbit/s

95th percentile per-packet one-way delay: 31.284 ms

Loss rate: 0.20%

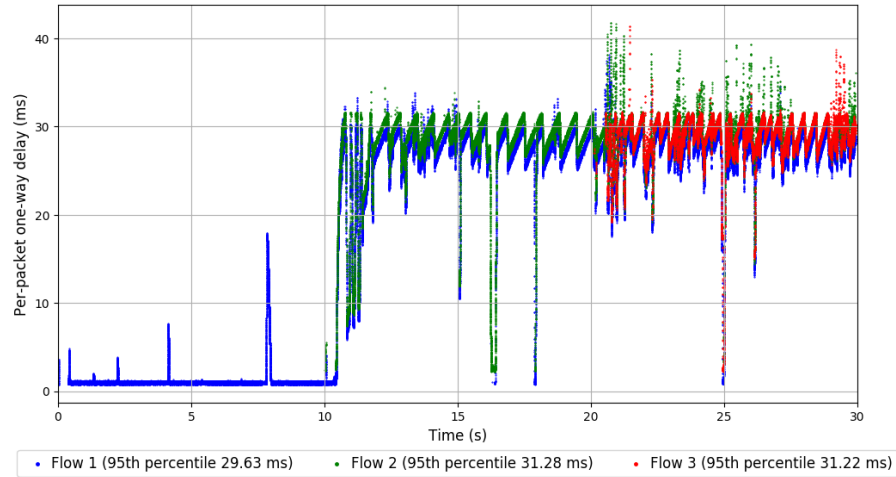
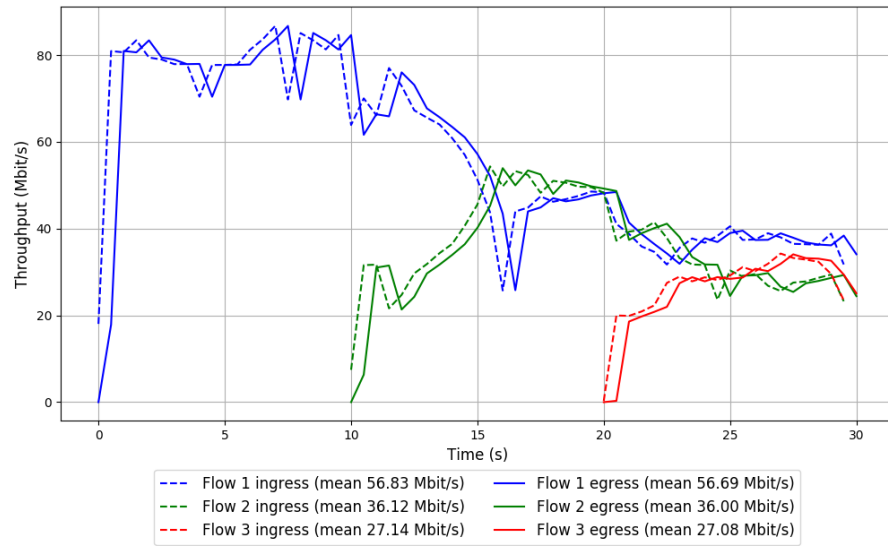
-- Flow 3:

Average throughput: 27.08 Mbit/s

95th percentile per-packet one-way delay: 31.222 ms

Loss rate: 0.20%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-06 10:47:51

End at: 2018-09-06 10:48:21

Local clock offset: -4.947 ms

Remote clock offset: 0.509 ms

Below is generated by plot.py at 2018-09-06 10:58:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.76 Mbit/s

95th percentile per-packet one-way delay: 31.118 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 56.68 Mbit/s

95th percentile per-packet one-way delay: 31.148 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 35.41 Mbit/s

95th percentile per-packet one-way delay: 29.914 ms

Loss rate: 0.22%

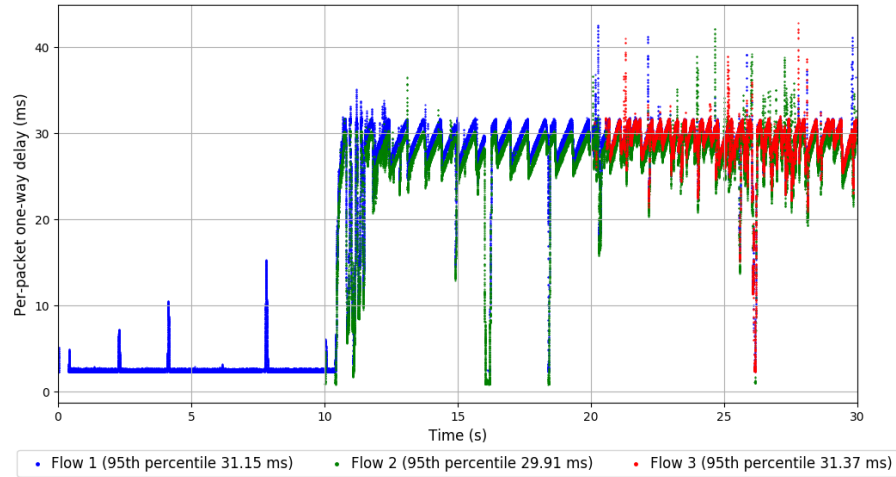
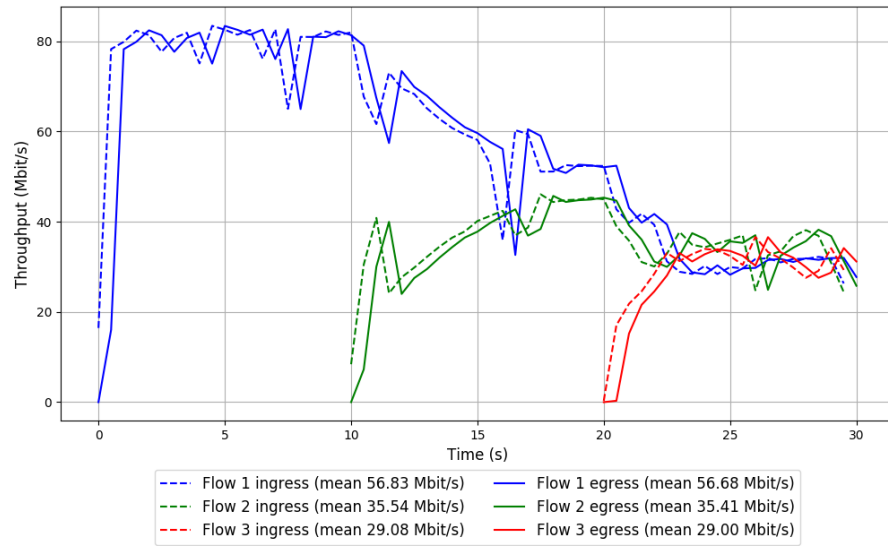
-- Flow 3:

Average throughput: 29.00 Mbit/s

95th percentile per-packet one-way delay: 31.367 ms

Loss rate: 0.23%

Run 5: Report of QUIC Cubic — Data Link

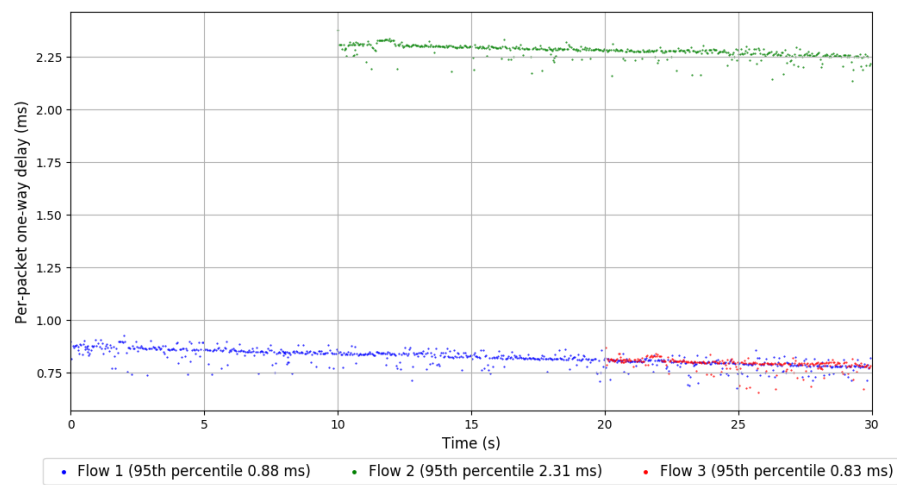
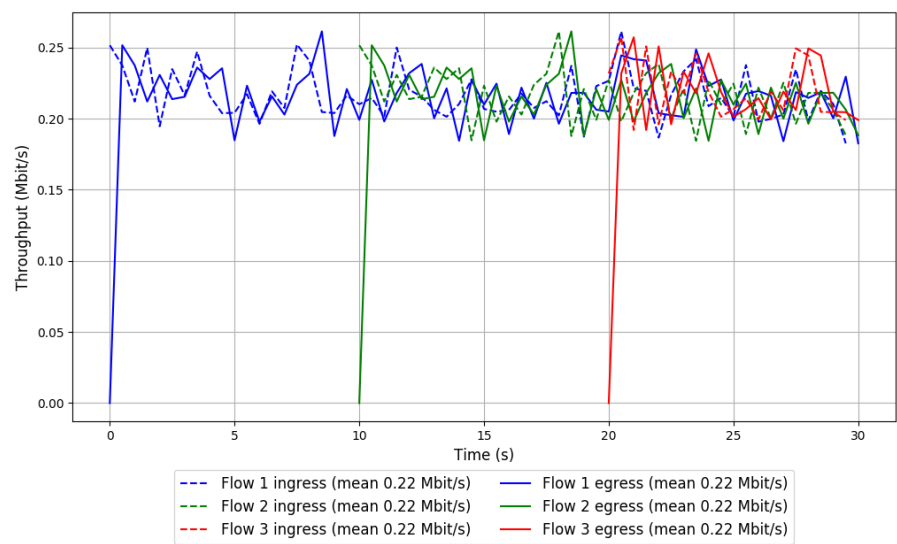


```
Run 1: Statistics of SReAM

Start at: 2018-09-06 09:15:42
End at: 2018-09-06 09:16:12
Local clock offset: -3.365 ms
Remote clock offset: 0.207 ms

# Below is generated by plot.py at 2018-09-06 10:58:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 2.302 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.878 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.315 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.829 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SReAM

Start at: 2018-09-06 09:36:10

End at: 2018-09-06 09:36:40

Local clock offset: -4.357 ms

Remote clock offset: 0.376 ms

Below is generated by plot.py at 2018-09-06 10:58:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 1.694 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.698 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.229 ms

Loss rate: 0.00%

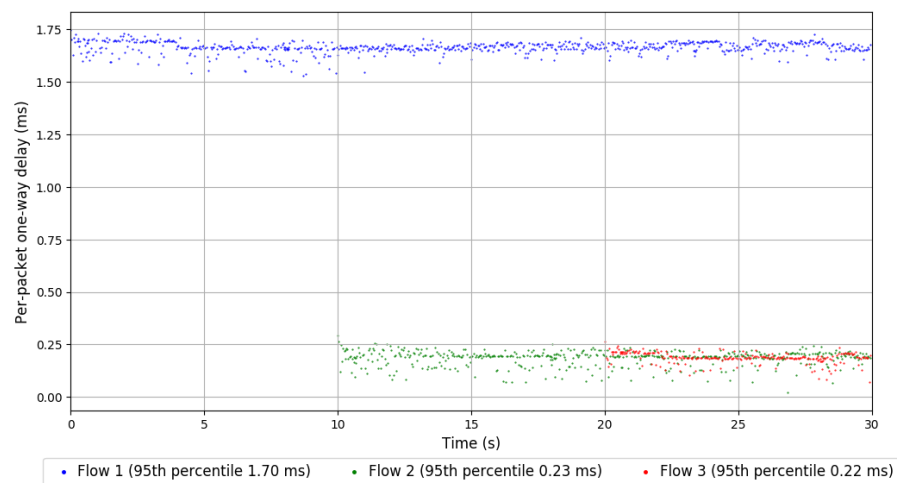
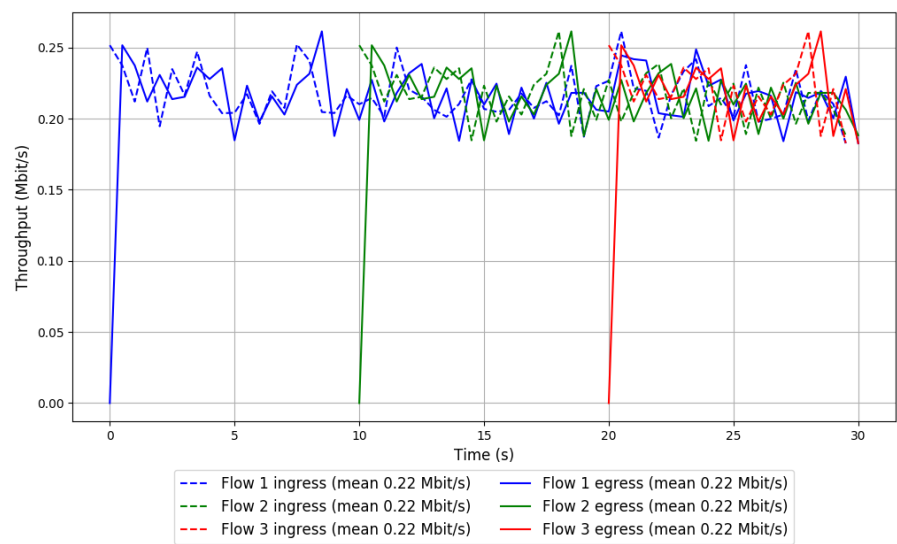
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.221 ms

Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

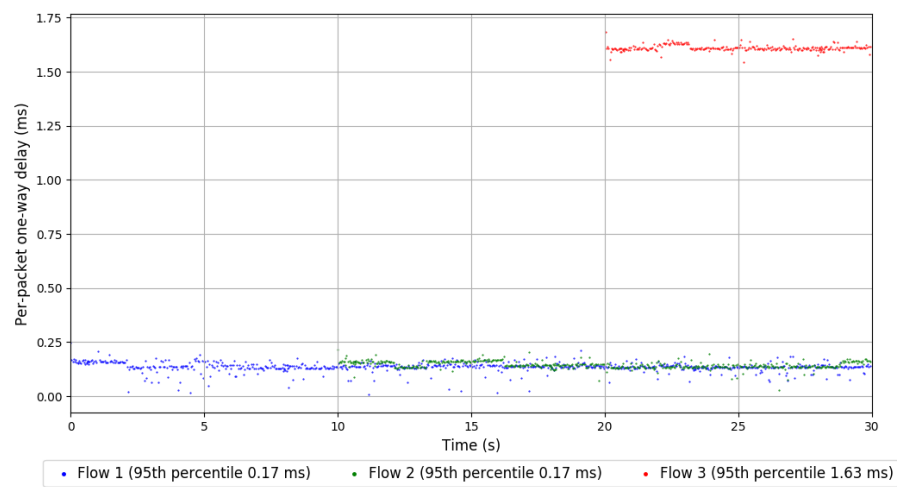
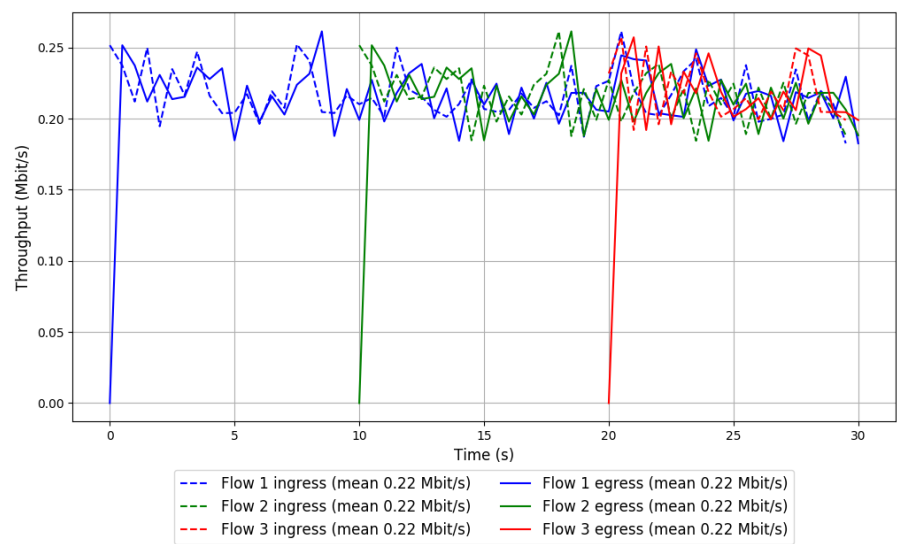


Run 3: Statistics of SReAM

Start at: 2018-09-06 09:56:39
End at: 2018-09-06 09:57:09
Local clock offset: -3.91 ms
Remote clock offset: 0.483 ms

Below is generated by plot.py at 2018-09-06 10:58:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.611 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.166 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.168 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.634 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-09-06 10:17:08

End at: 2018-09-06 10:17:38

Local clock offset: -4.656 ms

Remote clock offset: 0.479 ms

Below is generated by plot.py at 2018-09-06 10:58:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 2.409 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 2.417 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.921 ms

Loss rate: 0.00%

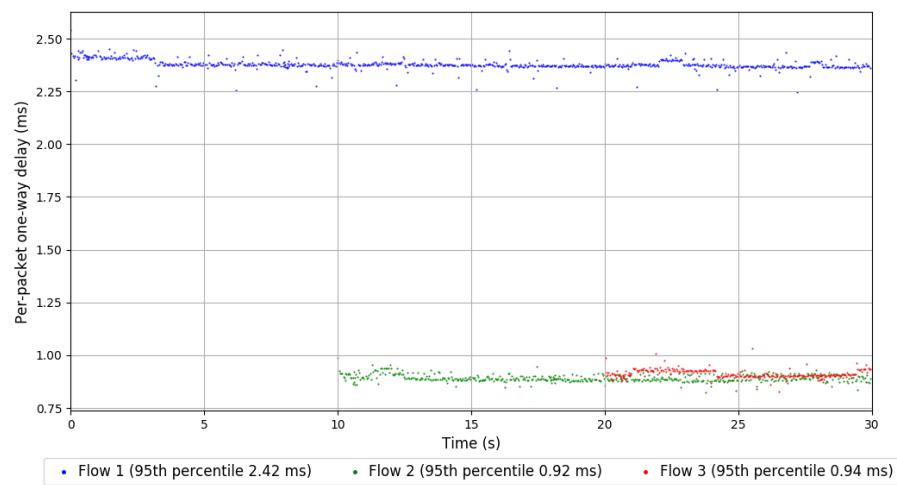
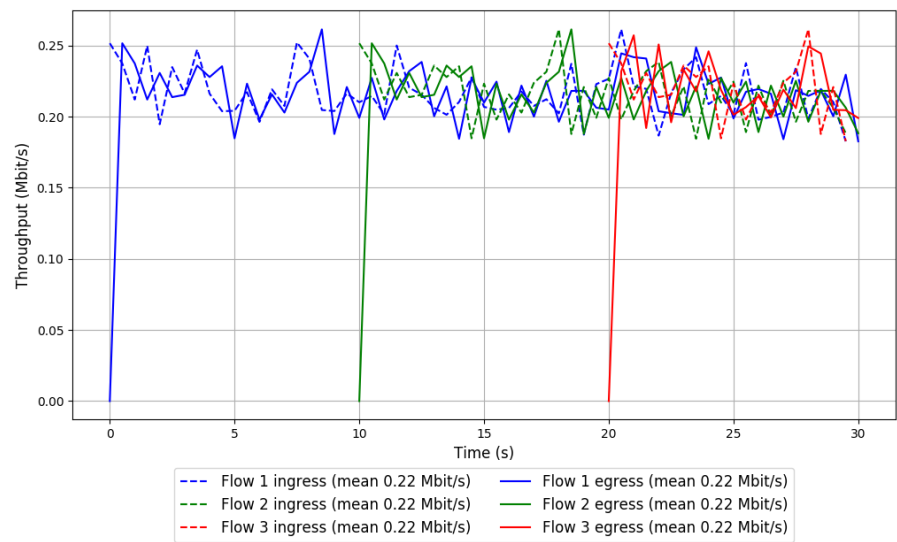
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.939 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-09-06 10:37:38

End at: 2018-09-06 10:38:08

Local clock offset: -4.387 ms

Remote clock offset: 0.538 ms

Below is generated by plot.py at 2018-09-06 10:58:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 1.714 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.264 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.273 ms

Loss rate: 0.00%

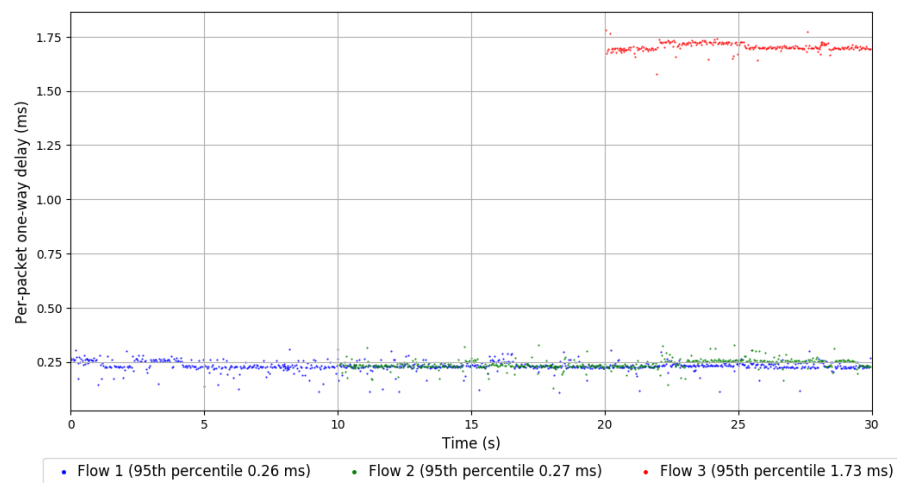
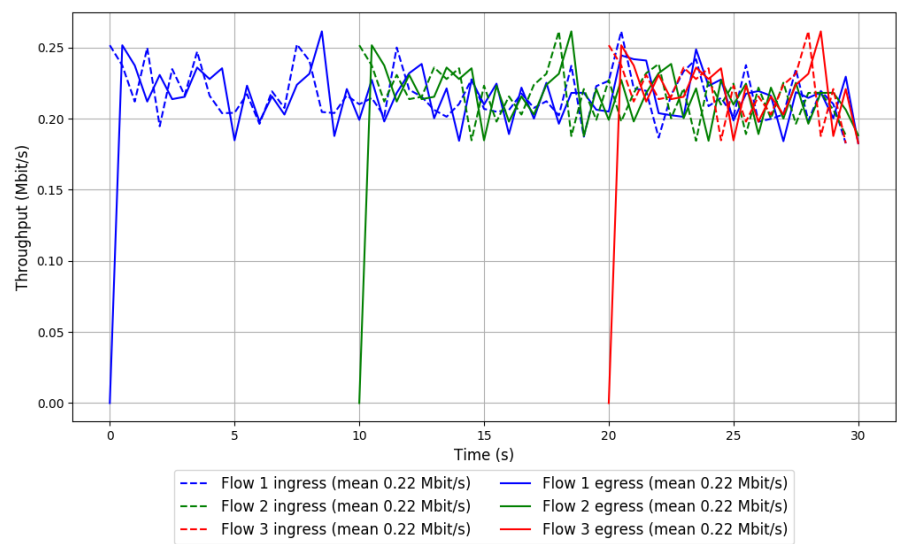
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.727 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link

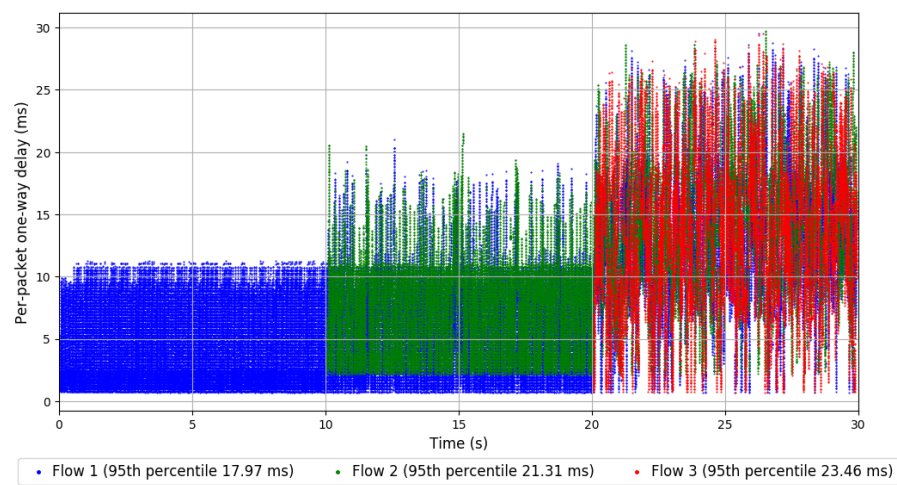
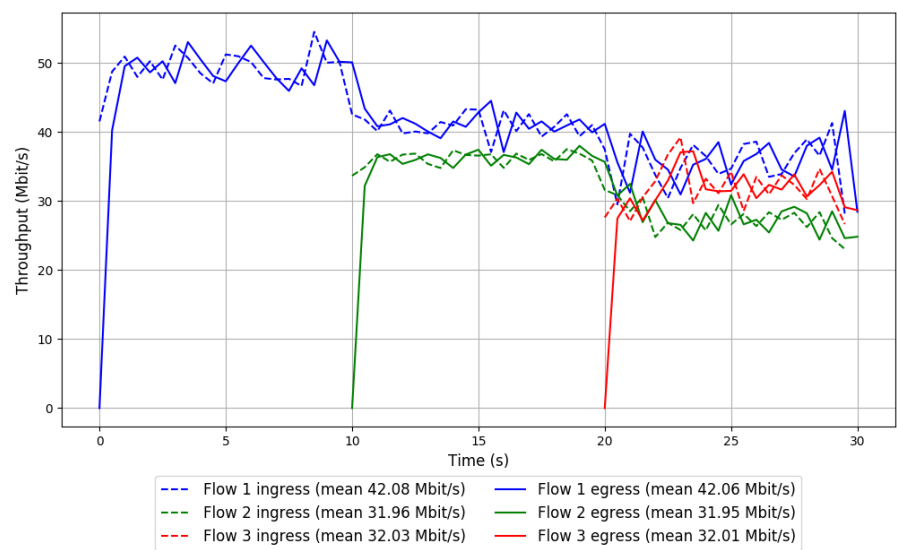


Run 1: Statistics of Sprout

Start at: 2018-09-06 09:24:46
End at: 2018-09-06 09:25:16
Local clock offset: -4.459 ms
Remote clock offset: 0.308 ms

Below is generated by plot.py at 2018-09-06 10:58:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 73.88 Mbit/s
95th percentile per-packet one-way delay: 20.622 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 42.06 Mbit/s
95th percentile per-packet one-way delay: 17.967 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.95 Mbit/s
95th percentile per-packet one-way delay: 21.306 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 32.01 Mbit/s
95th percentile per-packet one-way delay: 23.460 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

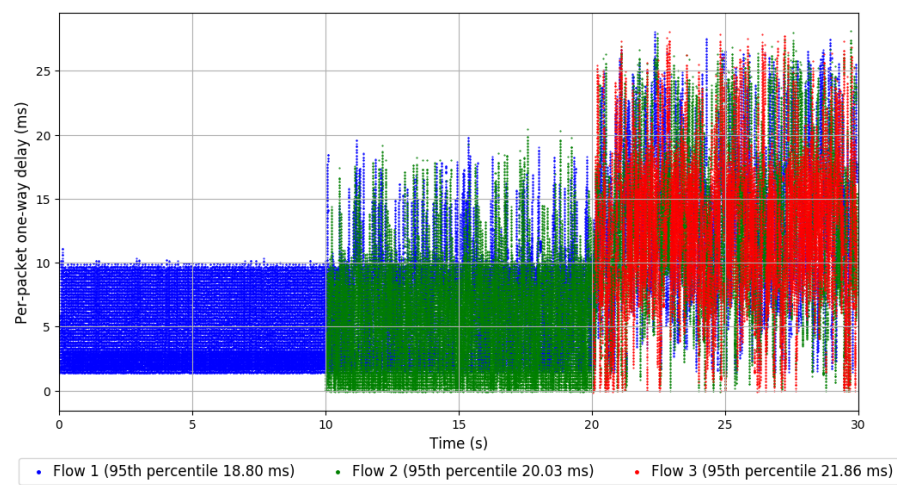
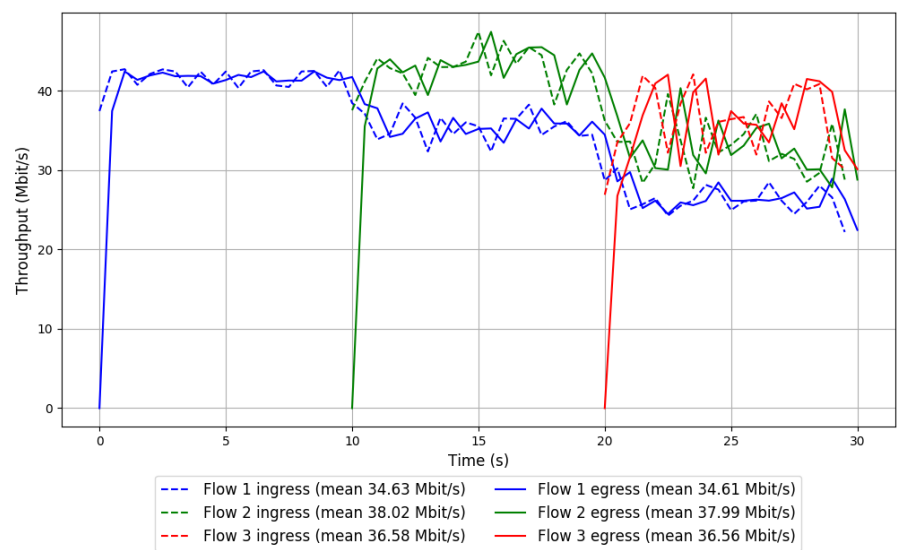


Run 2: Statistics of Sprout

Start at: 2018-09-06 09:45:14
End at: 2018-09-06 09:45:44
Local clock offset: -4.491 ms
Remote clock offset: 0.361 ms

Below is generated by plot.py at 2018-09-06 10:58:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 71.99 Mbit/s
95th percentile per-packet one-way delay: 20.012 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 34.61 Mbit/s
95th percentile per-packet one-way delay: 18.804 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 37.99 Mbit/s
95th percentile per-packet one-way delay: 20.028 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 36.56 Mbit/s
95th percentile per-packet one-way delay: 21.855 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

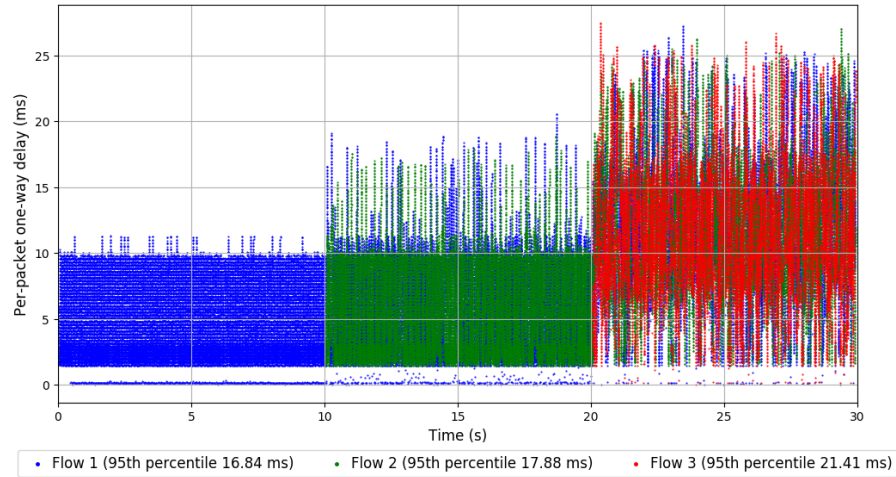
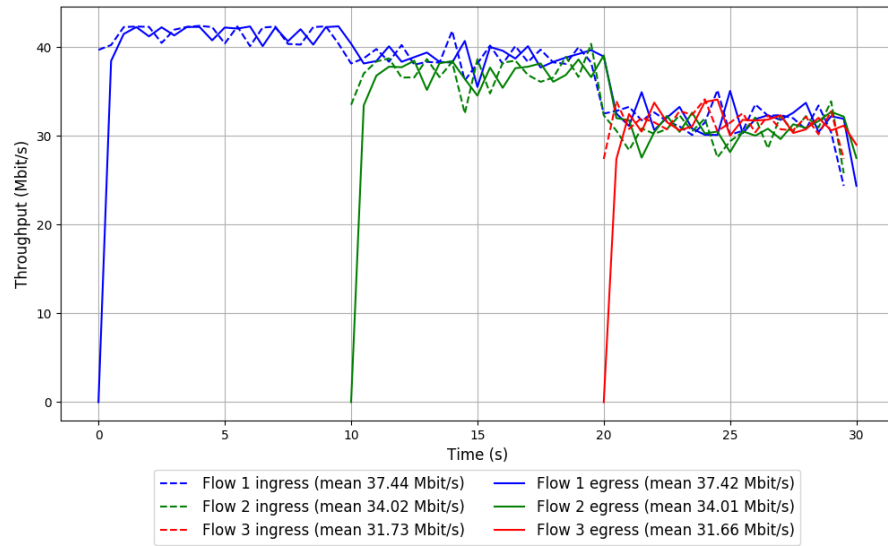


Run 3: Statistics of Sprout

Start at: 2018-09-06 10:05:44
End at: 2018-09-06 10:06:14
Local clock offset: -3.762 ms
Remote clock offset: 0.524 ms

```
# Below is generated by plot.py at 2018-09-06 10:58:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.51 Mbit/s
95th percentile per-packet one-way delay: 18.251 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 37.42 Mbit/s
95th percentile per-packet one-way delay: 16.840 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 34.01 Mbit/s
95th percentile per-packet one-way delay: 17.882 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 31.66 Mbit/s
95th percentile per-packet one-way delay: 21.412 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

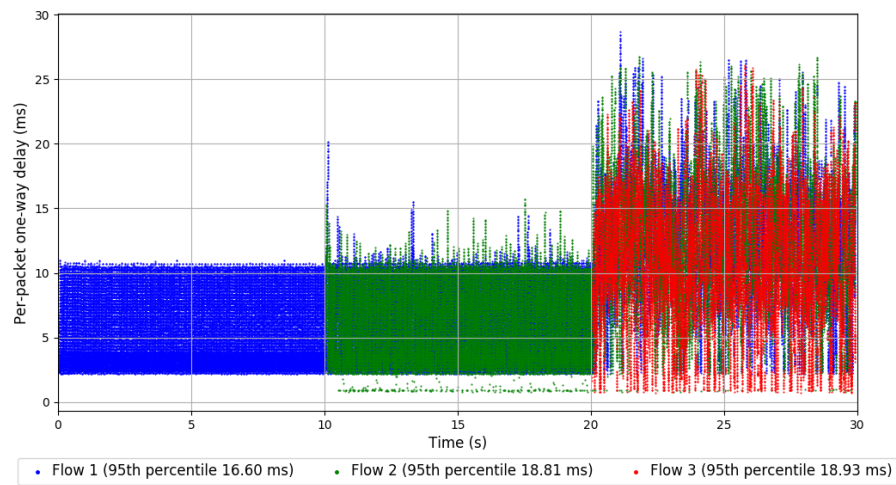
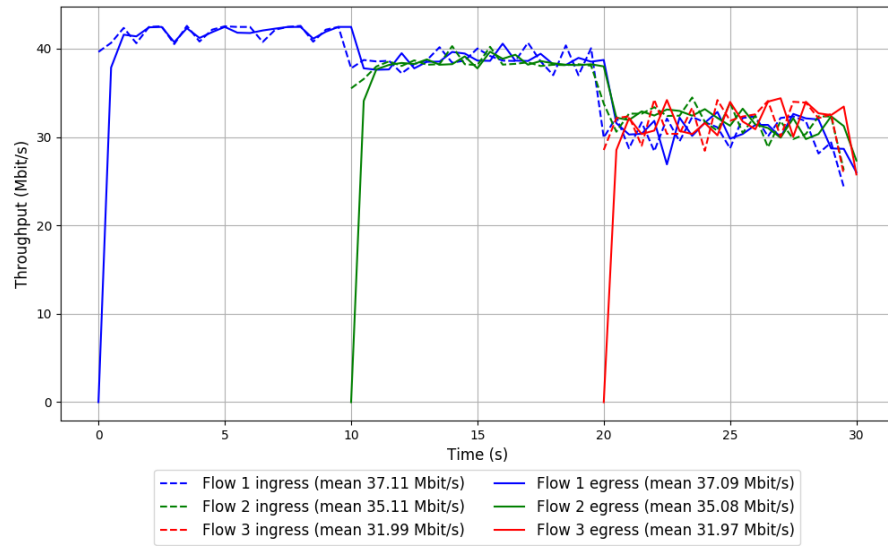


Run 4: Statistics of Sprout

Start at: 2018-09-06 10:26:12
End at: 2018-09-06 10:26:42
Local clock offset: -4.977 ms
Remote clock offset: 0.412 ms

```
# Below is generated by plot.py at 2018-09-06 10:59:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.98 Mbit/s
95th percentile per-packet one-way delay: 17.853 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 37.09 Mbit/s
95th percentile per-packet one-way delay: 16.604 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 35.08 Mbit/s
95th percentile per-packet one-way delay: 18.811 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 31.97 Mbit/s
95th percentile per-packet one-way delay: 18.930 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link

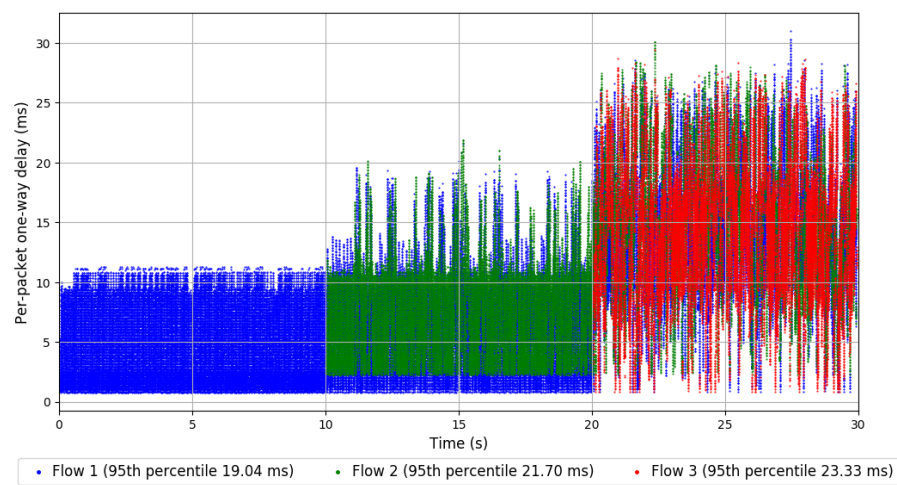
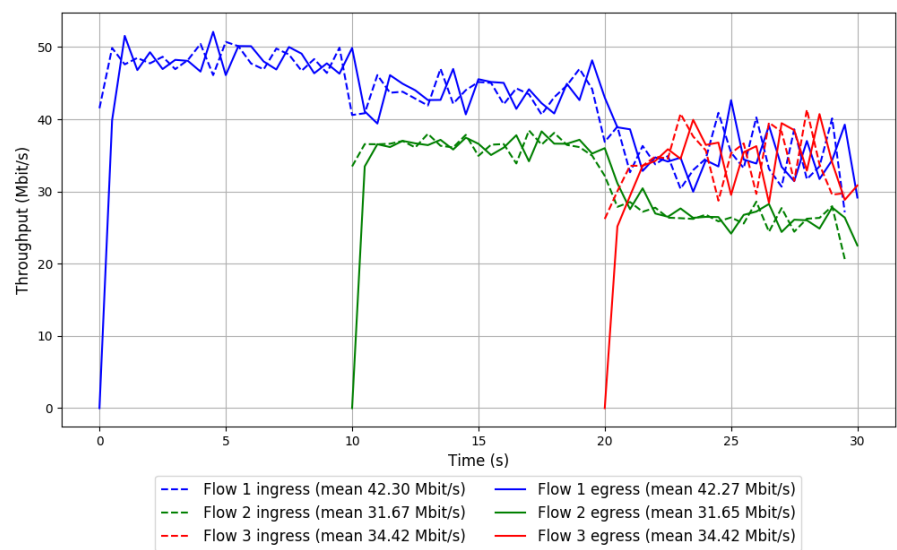


Run 5: Statistics of Sprout

Start at: 2018-09-06 10:46:42
End at: 2018-09-06 10:47:12
Local clock offset: -5.041 ms
Remote clock offset: 0.445 ms

```
# Below is generated by plot.py at 2018-09-06 10:59:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.71 Mbit/s
95th percentile per-packet one-way delay: 21.143 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 42.27 Mbit/s
95th percentile per-packet one-way delay: 19.040 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.65 Mbit/s
95th percentile per-packet one-way delay: 21.702 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 34.42 Mbit/s
95th percentile per-packet one-way delay: 23.328 ms
Loss rate: 0.00%
```


Run 5: Report of Sprout — Data Link

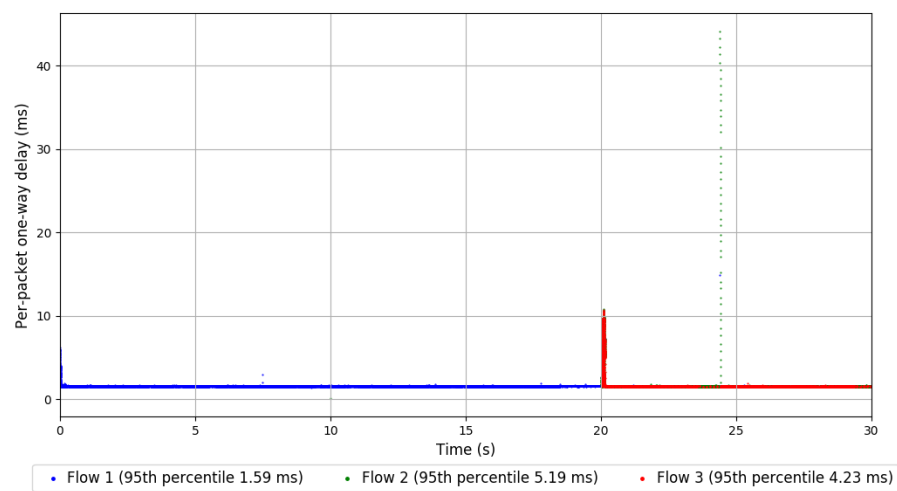
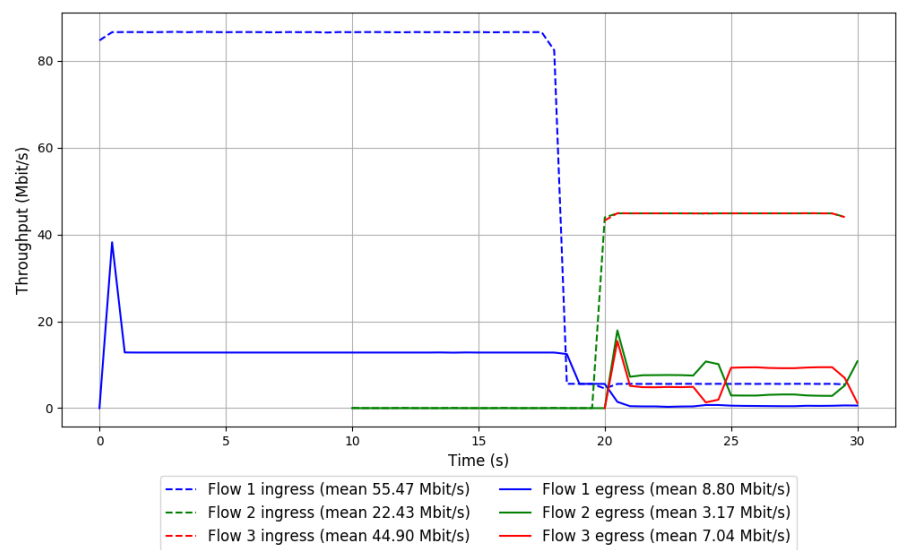


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-09-06 09:27:04
End at: 2018-09-06 09:27:34
Local clock offset: -3.881 ms
Remote clock offset: 0.28 ms

# Below is generated by plot.py at 2018-09-06 10:59:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.24 Mbit/s
95th percentile per-packet one-way delay: 1.611 ms
Loss rate: 84.49%
-- Flow 1:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 1.595 ms
Loss rate: 84.16%
-- Flow 2:
Average throughput: 3.17 Mbit/s
95th percentile per-packet one-way delay: 5.186 ms
Loss rate: 85.86%
-- Flow 3:
Average throughput: 7.04 Mbit/s
95th percentile per-packet one-way delay: 4.233 ms
Loss rate: 84.33%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-06 09:47:32

End at: 2018-09-06 09:48:02

Local clock offset: -4.385 ms

Remote clock offset: 0.364 ms

Below is generated by plot.py at 2018-09-06 10:59:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.24 Mbit/s

95th percentile per-packet one-way delay: 1.657 ms

Loss rate: 88.84%

-- Flow 1:

Average throughput: 12.34 Mbit/s

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

Loss rate: 85.76%

-- Flow 2:

Average throughput: 4.49 Mbit/s

95th percentile per-packet one-way delay: 0.201 ms

Loss rate: 93.91%

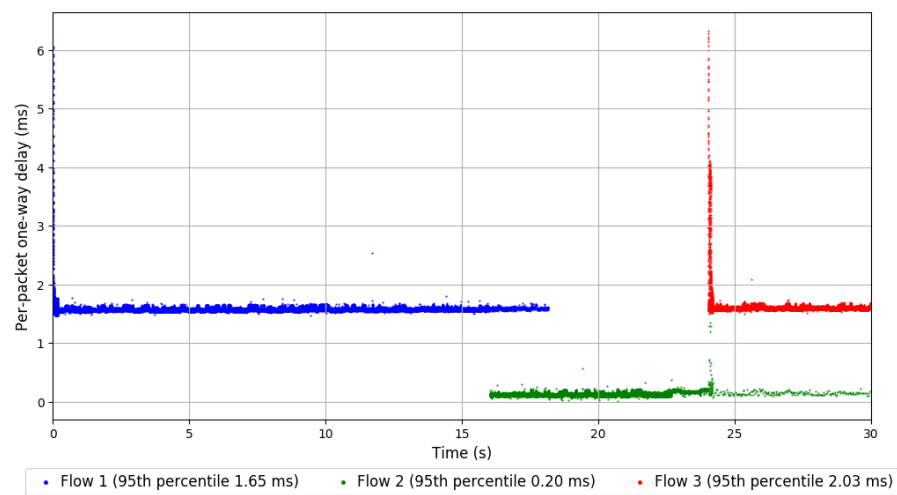
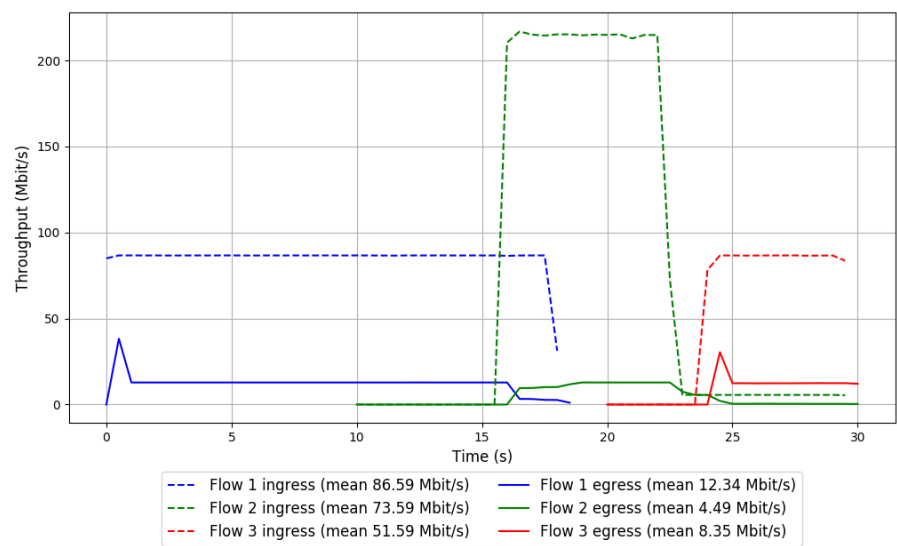
-- Flow 3:

Average throughput: 8.35 Mbit/s

95th percentile per-packet one-way delay: 2.030 ms

Loss rate: 83.82%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-06 10:08:02

End at: 2018-09-06 10:08:32

Local clock offset: -4.506 ms

Remote clock offset: 0.553 ms

Below is generated by plot.py at 2018-09-06 10:59:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.24 Mbit/s

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

Loss rate: 85.13%

-- Flow 1:

Average throughput: 6.48 Mbit/s

95th percentile per-packet one-way delay: 2.460 ms

Loss rate: 80.44%

-- Flow 2:

Average throughput: 4.03 Mbit/s

95th percentile per-packet one-way delay: 2.782 ms

Loss rate: 90.12%

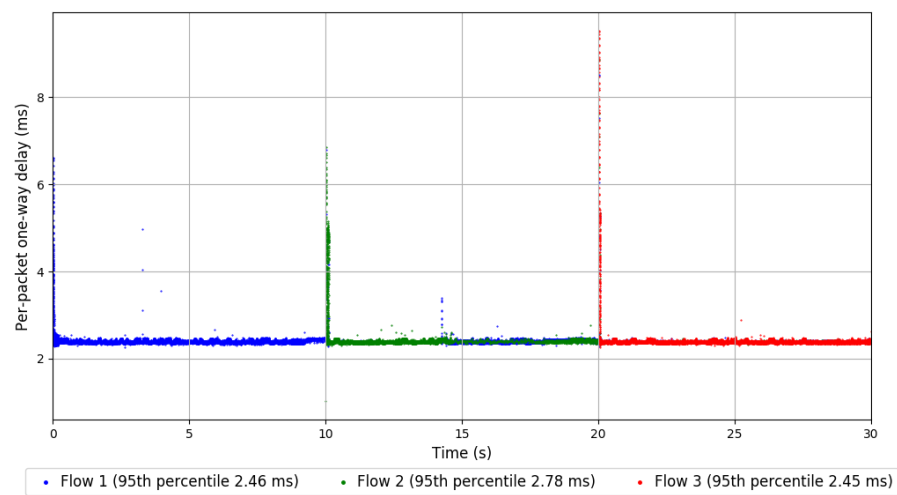
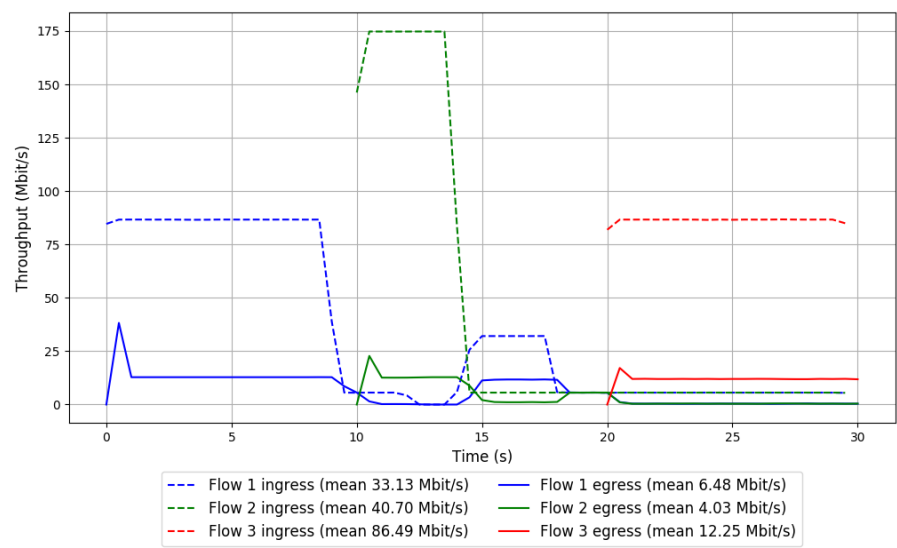
-- Flow 3:

Average throughput: 12.25 Mbit/s

95th percentile per-packet one-way delay: 2.447 ms

Loss rate: 85.83%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-06 10:28:30

End at: 2018-09-06 10:29:00

Local clock offset: -4.261 ms

Remote clock offset: 0.514 ms

Below is generated by plot.py at 2018-09-06 10:59:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.91 Mbit/s

95th percentile per-packet one-way delay: 1.718 ms

Loss rate: 89.85%

-- Flow 1:

Average throughput: 6.39 Mbit/s

95th percentile per-packet one-way delay: 1.735 ms

Loss rate: 83.82%

-- Flow 2:

Average throughput: 9.67 Mbit/s

95th percentile per-packet one-way delay: 1.711 ms

Loss rate: 88.83%

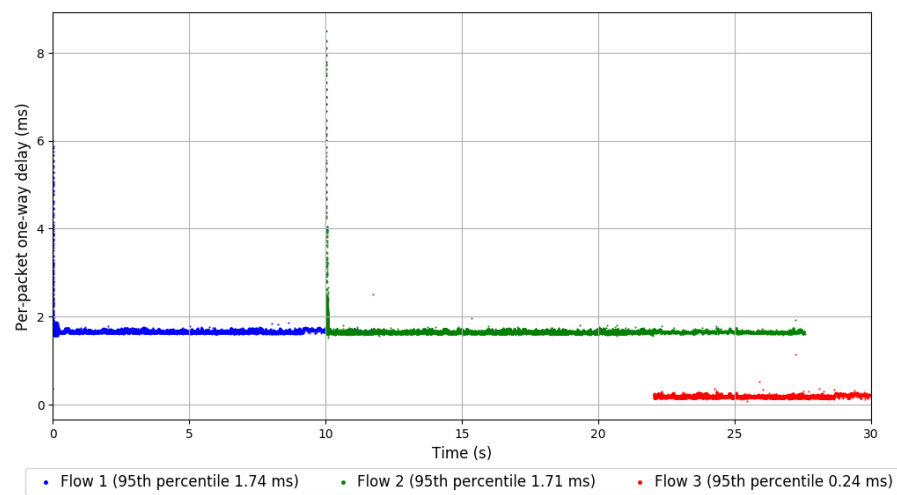
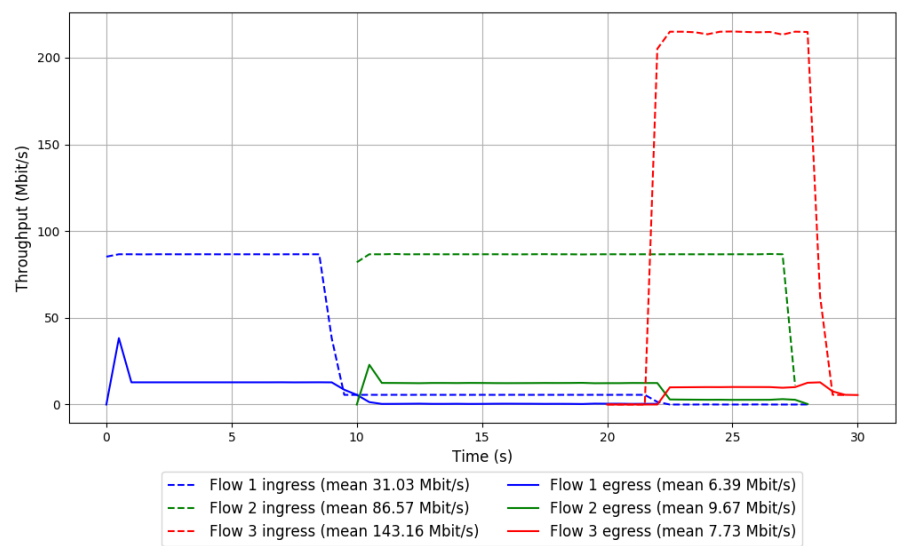
-- Flow 3:

Average throughput: 7.73 Mbit/s

95th percentile per-packet one-way delay: 0.241 ms

Loss rate: 94.60%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-06 10:49:01

End at: 2018-09-06 10:49:31

Local clock offset: -4.855 ms

Remote clock offset: 0.453 ms

Below is generated by plot.py at 2018-09-06 10:59:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.24 Mbit/s

95th percentile per-packet one-way delay: 2.449 ms

Loss rate: 78.15%

-- Flow 1:

Average throughput: 6.27 Mbit/s

95th percentile per-packet one-way delay: 2.448 ms

Loss rate: 79.40%

-- Flow 2:

Average throughput: 8.91 Mbit/s

95th percentile per-packet one-way delay: 2.450 ms

Loss rate: 78.93%

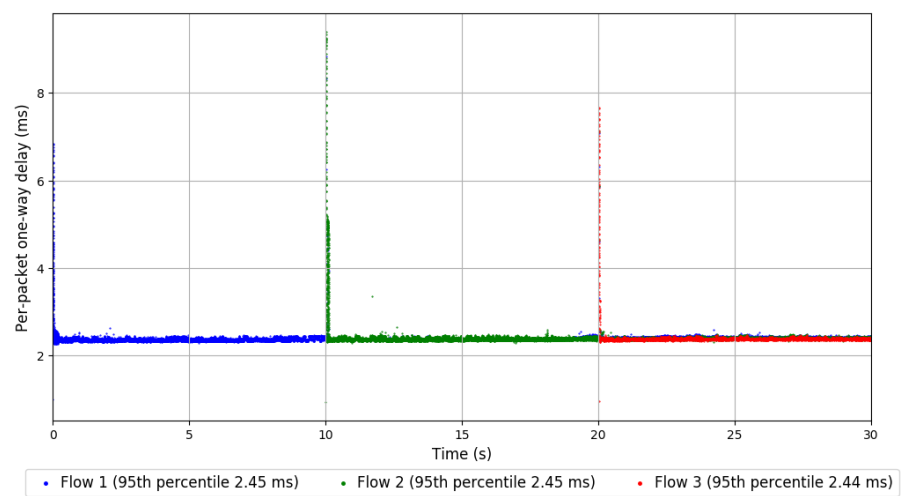
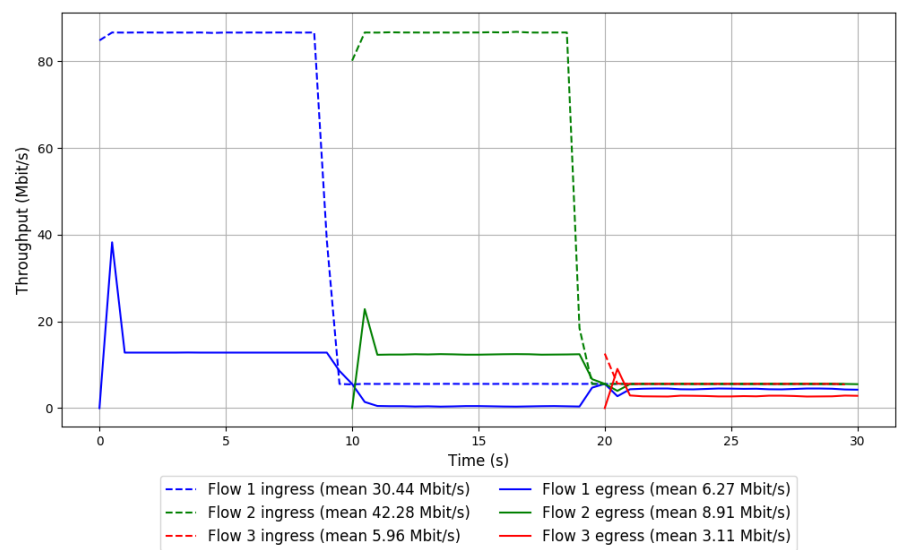
-- Flow 3:

Average throughput: 3.11 Mbit/s

95th percentile per-packet one-way delay: 2.445 ms

Loss rate: 47.86%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 09:07:42

End at: 2018-09-06 09:08:12

Local clock offset: -2.661 ms

Remote clock offset: 0.172 ms

Below is generated by plot.py at 2018-09-06 10:59:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.49 Mbit/s

95th percentile per-packet one-way delay: 4.143 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 44.16 Mbit/s

95th percentile per-packet one-way delay: 3.925 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 46.84 Mbit/s

95th percentile per-packet one-way delay: 3.813 ms

Loss rate: 0.00%

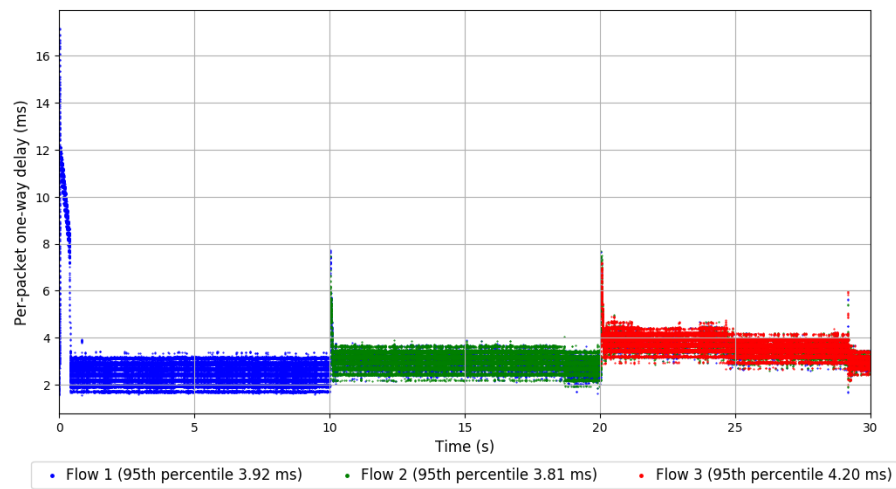
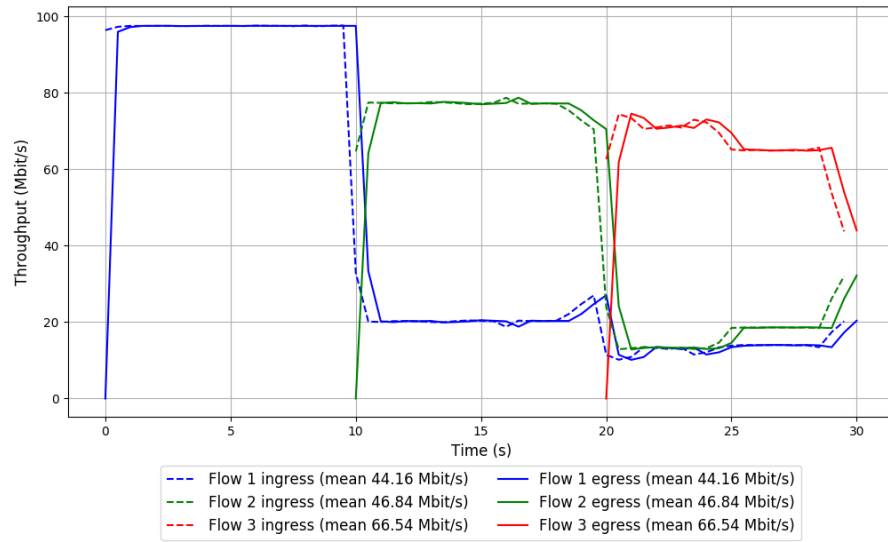
-- Flow 3:

Average throughput: 66.54 Mbit/s

95th percentile per-packet one-way delay: 4.198 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 09:28:11

End at: 2018-09-06 09:28:41

Local clock offset: -4.776 ms

Remote clock offset: 0.364 ms

Below is generated by plot.py at 2018-09-06 11:00:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.10 Mbit/s

95th percentile per-packet one-way delay: 3.703 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 51.15 Mbit/s

95th percentile per-packet one-way delay: 2.238 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 41.61 Mbit/s

95th percentile per-packet one-way delay: 2.334 ms

Loss rate: 0.00%

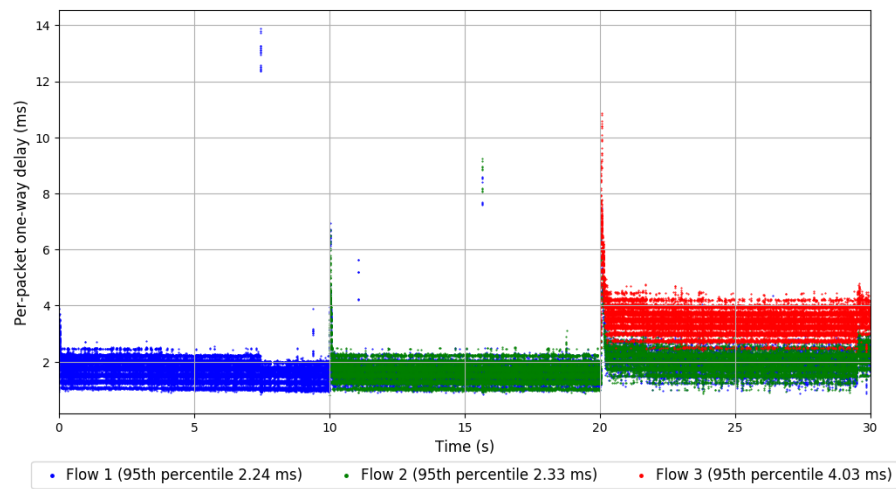
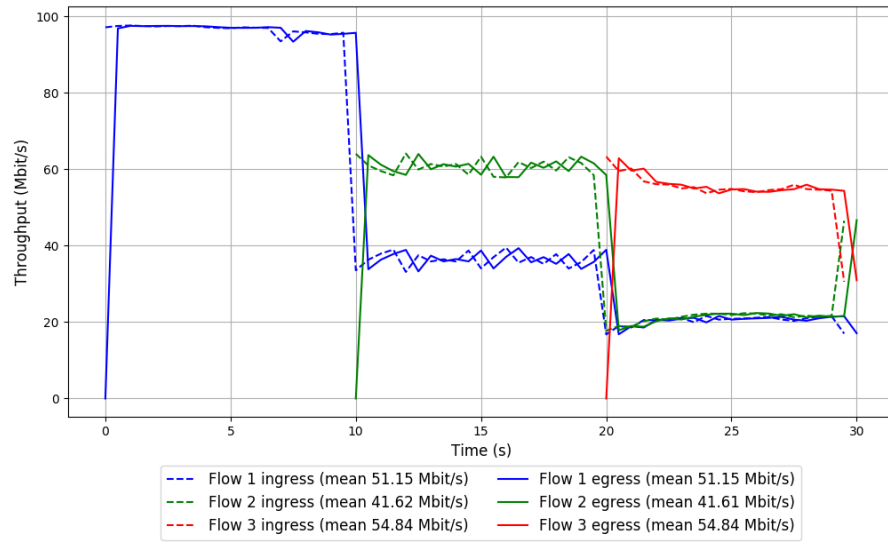
-- Flow 3:

Average throughput: 54.84 Mbit/s

95th percentile per-packet one-way delay: 4.031 ms

Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 09:48:39

End at: 2018-09-06 09:49:09

Local clock offset: -4.261 ms

Remote clock offset: 0.451 ms

Below is generated by plot.py at 2018-09-06 11:00:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.43 Mbit/s

95th percentile per-packet one-way delay: 2.922 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 57.63 Mbit/s

95th percentile per-packet one-way delay: 1.441 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 32.90 Mbit/s

95th percentile per-packet one-way delay: 1.676 ms

Loss rate: 0.00%

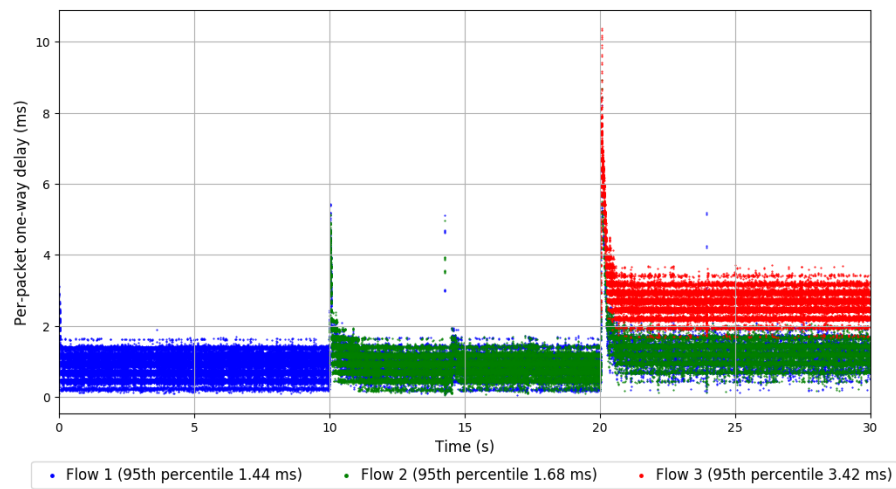
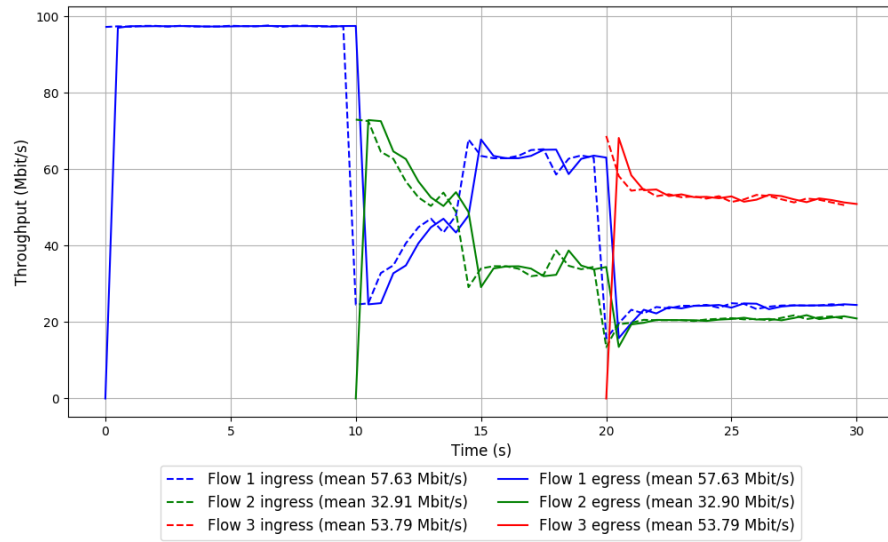
-- Flow 3:

Average throughput: 53.79 Mbit/s

95th percentile per-packet one-way delay: 3.418 ms

Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-06 10:09:08

End at: 2018-09-06 10:09:38

Local clock offset: -3.803 ms

Remote clock offset: 0.505 ms

Below is generated by plot.py at 2018-09-06 11:00:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.66 Mbit/s

95th percentile per-packet one-way delay: 3.151 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 46.00 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.58 Mbit/s

95th percentile per-packet one-way delay: 3.159 ms

Loss rate: 0.00%

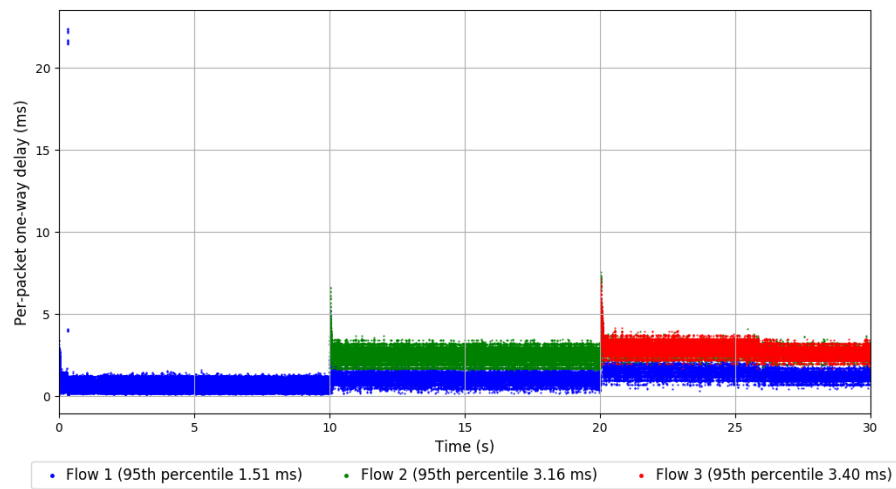
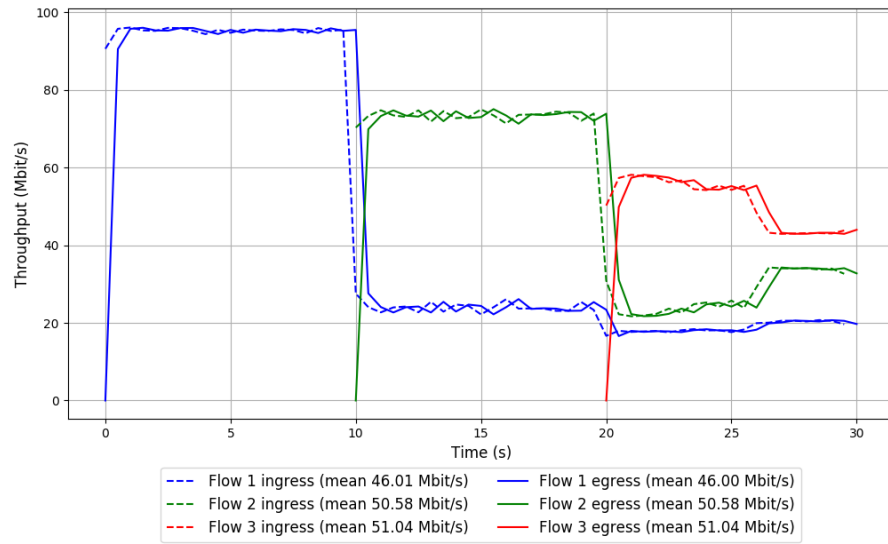
-- Flow 3:

Average throughput: 51.04 Mbit/s

95th percentile per-packet one-way delay: 3.398 ms

Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-06 10:29:38

End at: 2018-09-06 10:30:08

Local clock offset: -4.22 ms

Remote clock offset: 0.549 ms

Below is generated by plot.py at 2018-09-06 11:00:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.49 Mbit/s

95th percentile per-packet one-way delay: 3.188 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 51.48 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 47.11 Mbit/s

95th percentile per-packet one-way delay: 3.244 ms

Loss rate: 0.00%

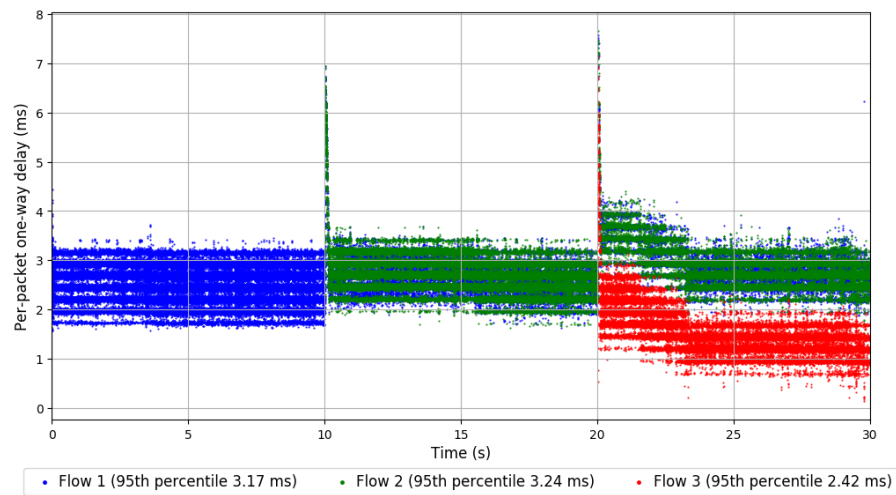
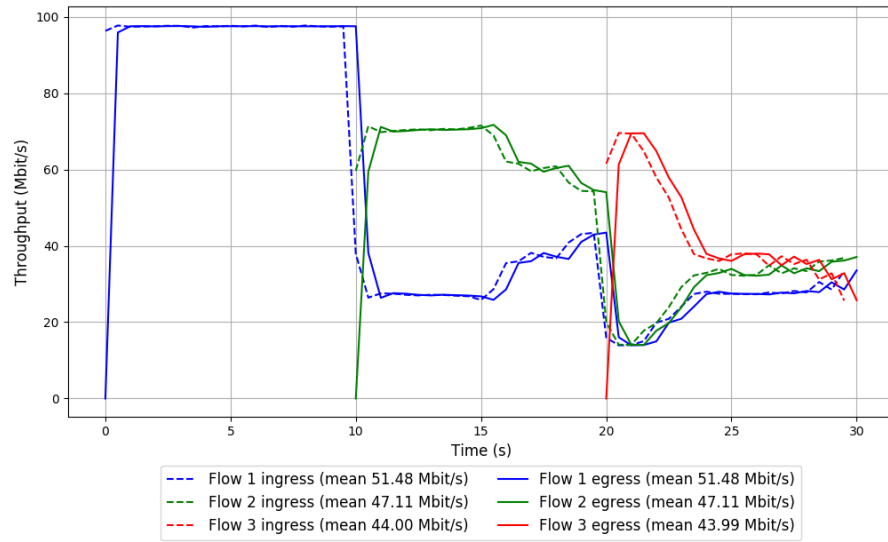
-- Flow 3:

Average throughput: 43.99 Mbit/s

95th percentile per-packet one-way delay: 2.422 ms

Loss rate: 0.00%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-09-06 09:10:00

End at: 2018-09-06 09:10:30

Local clock offset: -2.593 ms

Remote clock offset: 0.165 ms

Below is generated by plot.py at 2018-09-06 11:00:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 65.89 Mbit/s

95th percentile per-packet one-way delay: 19.190 ms

Loss rate: 4.70%

-- Flow 1:

Average throughput: 42.78 Mbit/s

95th percentile per-packet one-way delay: 9.777 ms

Loss rate: 3.09%

-- Flow 2:

Average throughput: 24.07 Mbit/s

95th percentile per-packet one-way delay: 26.227 ms

Loss rate: 5.93%

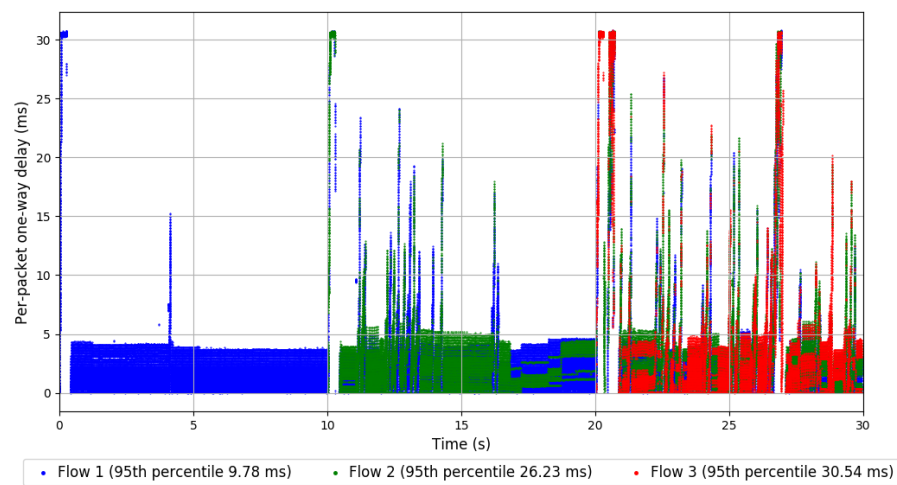
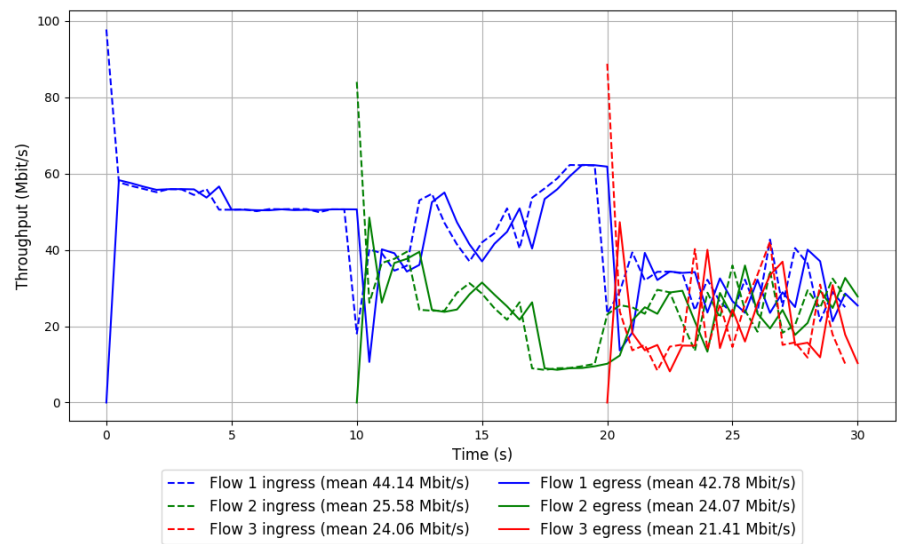
-- Flow 3:

Average throughput: 21.41 Mbit/s

95th percentile per-packet one-way delay: 30.542 ms

Loss rate: 11.02%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-09-06 09:30:29

End at: 2018-09-06 09:30:59

Local clock offset: -4.891 ms

Remote clock offset: 0.372 ms

Below is generated by plot.py at 2018-09-06 11:00:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 64.25 Mbit/s

95th percentile per-packet one-way delay: 21.908 ms

Loss rate: 4.04%

-- Flow 1:

Average throughput: 34.64 Mbit/s

95th percentile per-packet one-way delay: 13.848 ms

Loss rate: 3.10%

-- Flow 2:

Average throughput: 31.16 Mbit/s

95th percentile per-packet one-way delay: 23.629 ms

Loss rate: 3.94%

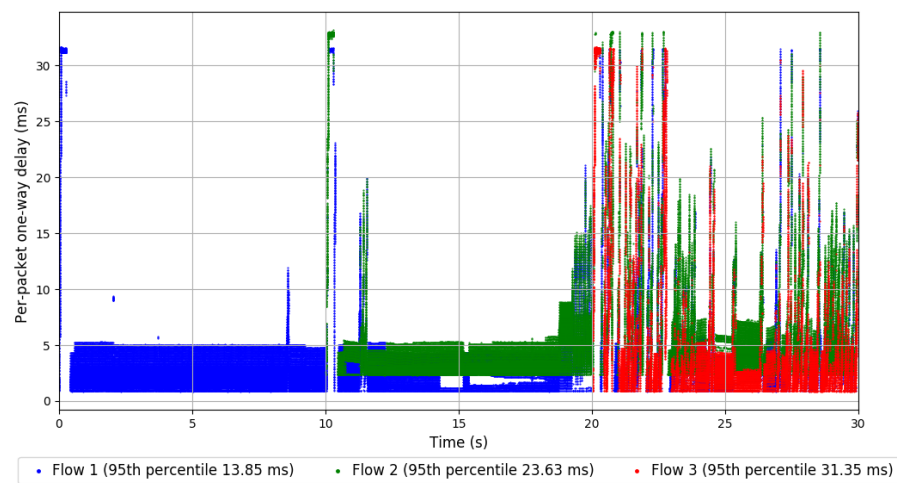
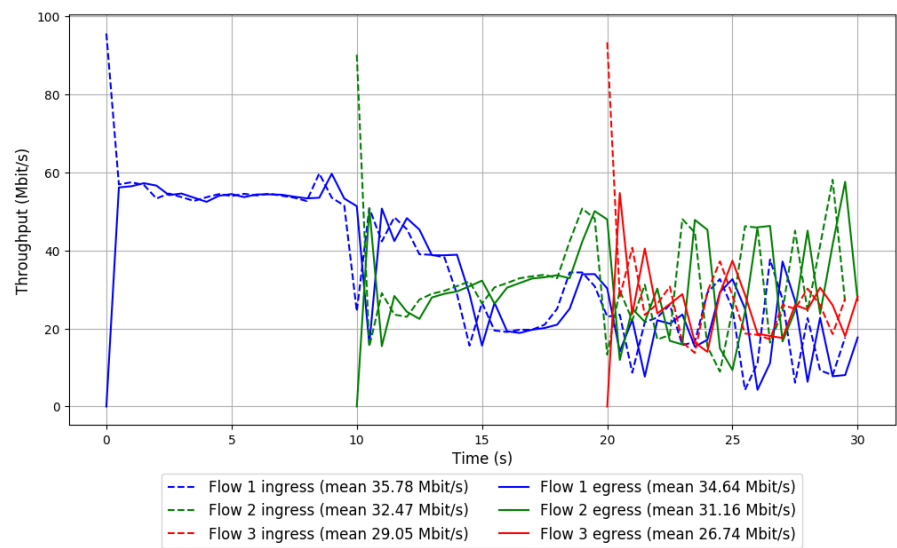
-- Flow 3:

Average throughput: 26.74 Mbit/s

95th percentile per-packet one-way delay: 31.349 ms

Loss rate: 7.74%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-06 09:50:58

End at: 2018-09-06 09:51:28

Local clock offset: -4.934 ms

Remote clock offset: 0.532 ms

Below is generated by plot.py at 2018-09-06 11:00:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 69.65 Mbit/s

95th percentile per-packet one-way delay: 28.841 ms

Loss rate: 5.53%

-- Flow 1:

Average throughput: 39.36 Mbit/s

95th percentile per-packet one-way delay: 24.792 ms

Loss rate: 4.97%

-- Flow 2:

Average throughput: 32.28 Mbit/s

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

Loss rate: 5.16%

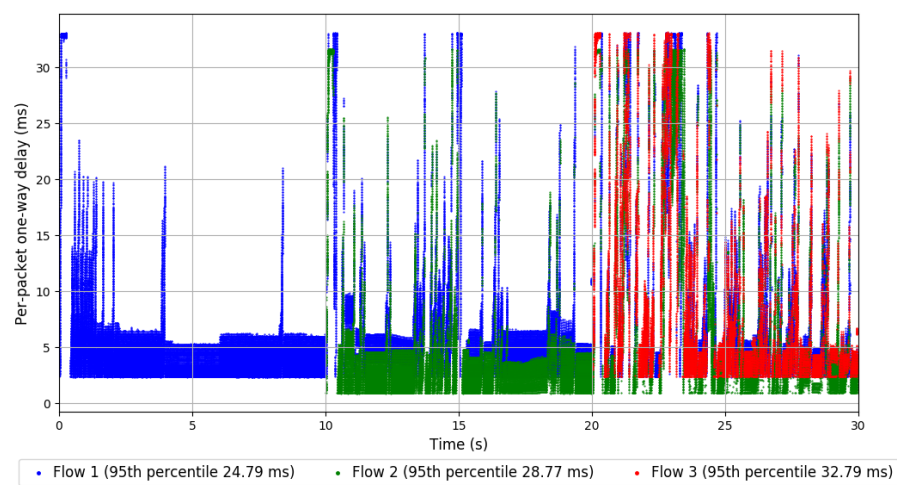
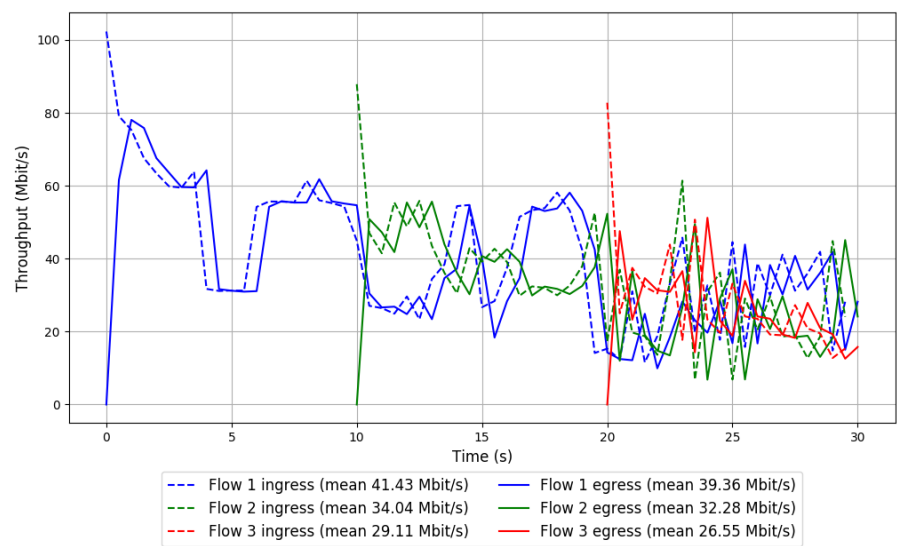
-- Flow 3:

Average throughput: 26.55 Mbit/s

95th percentile per-packet one-way delay: 32.793 ms

Loss rate: 8.78%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-09-06 10:11:27

End at: 2018-09-06 10:11:57

Local clock offset: -3.737 ms

Remote clock offset: 0.428 ms

Below is generated by plot.py at 2018-09-06 11:00:47

Datalink statistics

-- Total of 3 flows:

Average throughput: 63.21 Mbit/s

95th percentile per-packet one-way delay: 17.514 ms

Loss rate: 3.90%

-- Flow 1:

Average throughput: 34.31 Mbit/s

95th percentile per-packet one-way delay: 12.159 ms

Loss rate: 3.02%

-- Flow 2:

Average throughput: 34.56 Mbit/s

95th percentile per-packet one-way delay: 18.182 ms

Loss rate: 3.64%

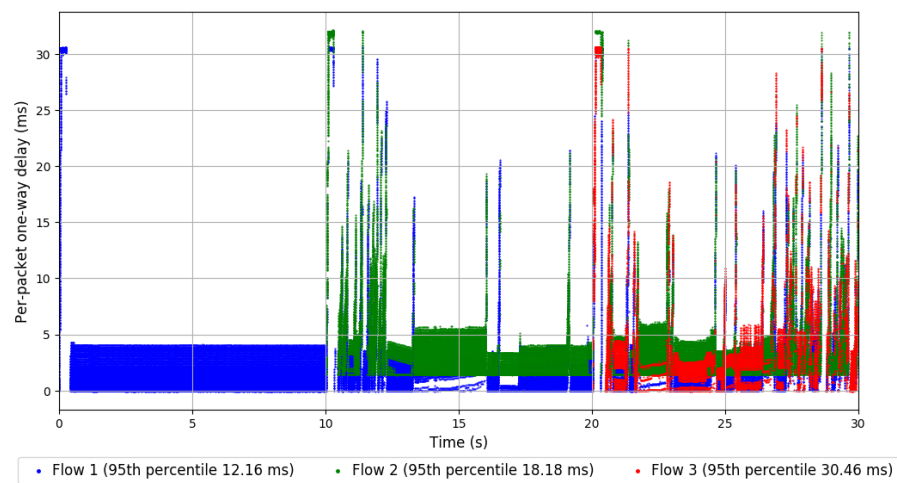
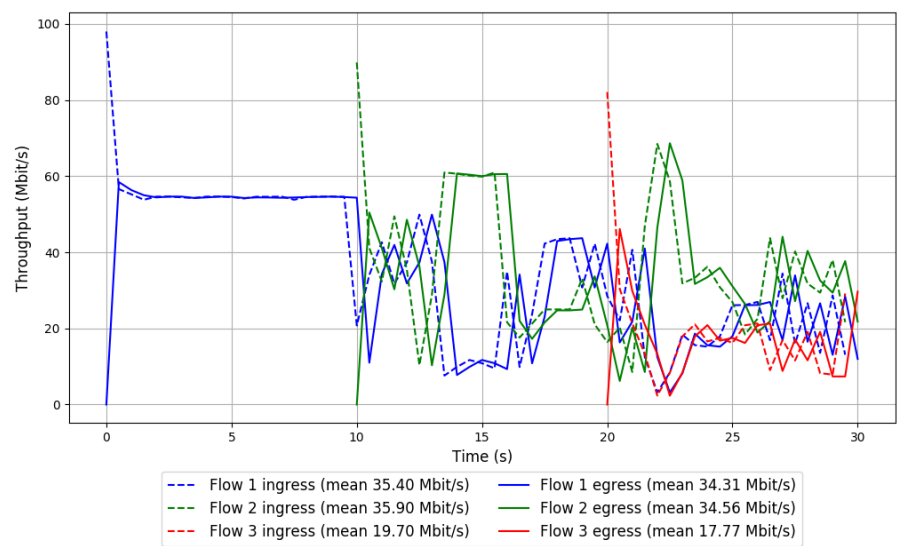
-- Flow 3:

Average throughput: 17.77 Mbit/s

95th percentile per-packet one-way delay: 30.460 ms

Loss rate: 9.65%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-06 10:31:56

End at: 2018-09-06 10:32:26

Local clock offset: -5.01 ms

Remote clock offset: 0.568 ms

Below is generated by plot.py at 2018-09-06 11:00:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 64.41 Mbit/s

95th percentile per-packet one-way delay: 27.326 ms

Loss rate: 8.46%

-- Flow 1:

Average throughput: 37.45 Mbit/s

95th percentile per-packet one-way delay: 17.978 ms

Loss rate: 4.83%

-- Flow 2:

Average throughput: 28.05 Mbit/s

95th percentile per-packet one-way delay: 30.652 ms

Loss rate: 14.24%

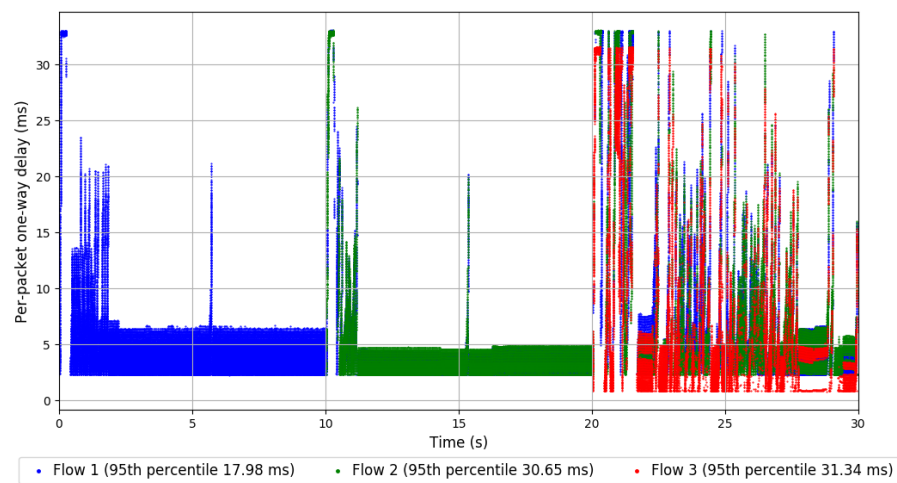
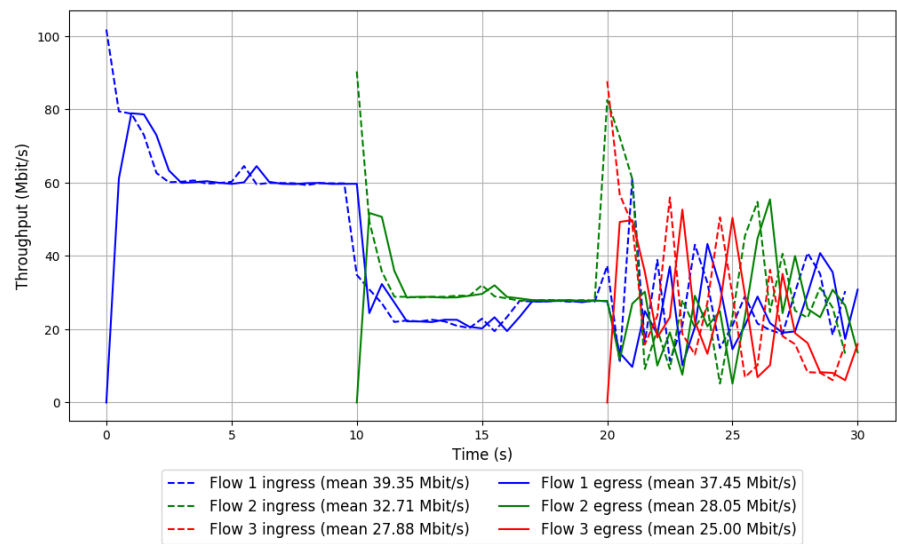
-- Flow 3:

Average throughput: 25.00 Mbit/s

95th percentile per-packet one-way delay: 31.343 ms

Loss rate: 10.35%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-06 09:12:19

End at: 2018-09-06 09:12:49

Local clock offset: -3.329 ms

Remote clock offset: 0.11 ms

Below is generated by plot.py at 2018-09-06 11:01:11

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.08 Mbit/s

95th percentile per-packet one-way delay: 2.899 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 50.99 Mbit/s

95th percentile per-packet one-way delay: 2.657 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 40.00 Mbit/s

95th percentile per-packet one-way delay: 3.477 ms

Loss rate: 0.00%

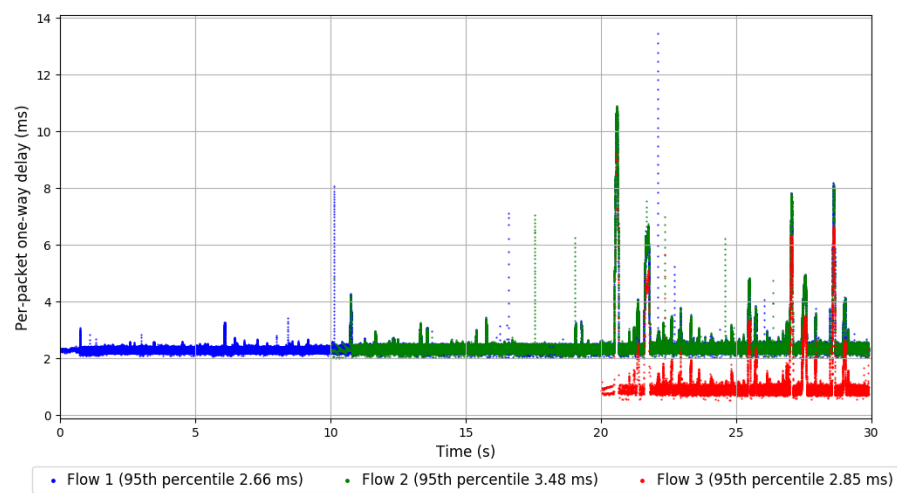
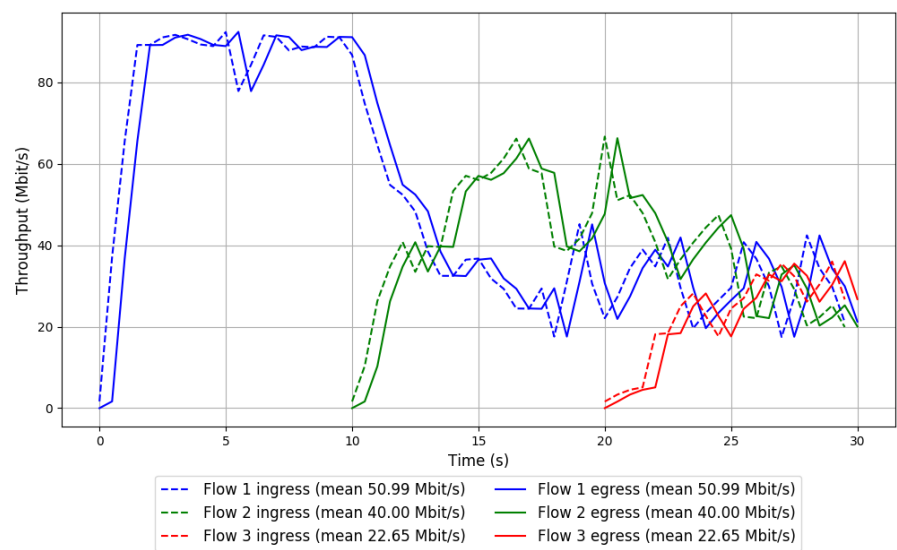
-- Flow 3:

Average throughput: 22.65 Mbit/s

95th percentile per-packet one-way delay: 2.853 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-06 09:32:48

End at: 2018-09-06 09:33:18

Local clock offset: -4.168 ms

Remote clock offset: 0.413 ms

Below is generated by plot.py at 2018-09-06 11:01:11

Datalink statistics

-- Total of 3 flows:

Average throughput: 69.90 Mbit/s

95th percentile per-packet one-way delay: 0.857 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 41.15 Mbit/s

95th percentile per-packet one-way delay: 0.745 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 28.83 Mbit/s

95th percentile per-packet one-way delay: 0.871 ms

Loss rate: 0.00%

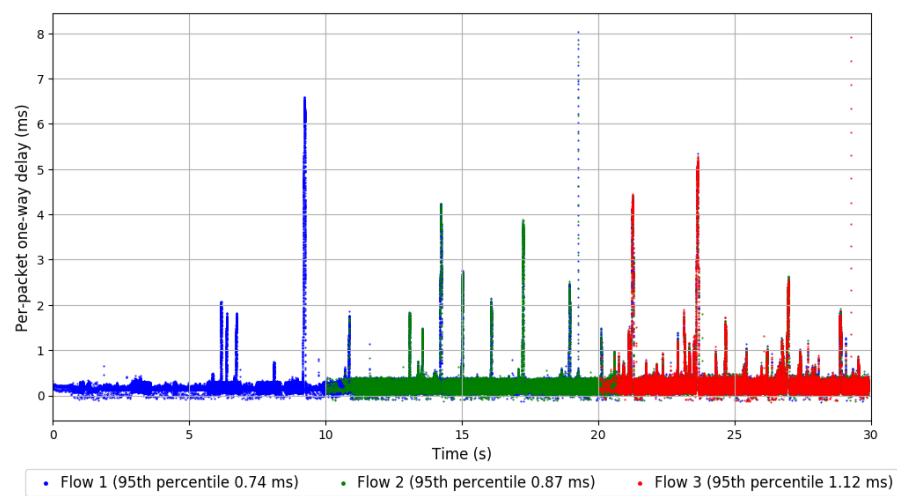
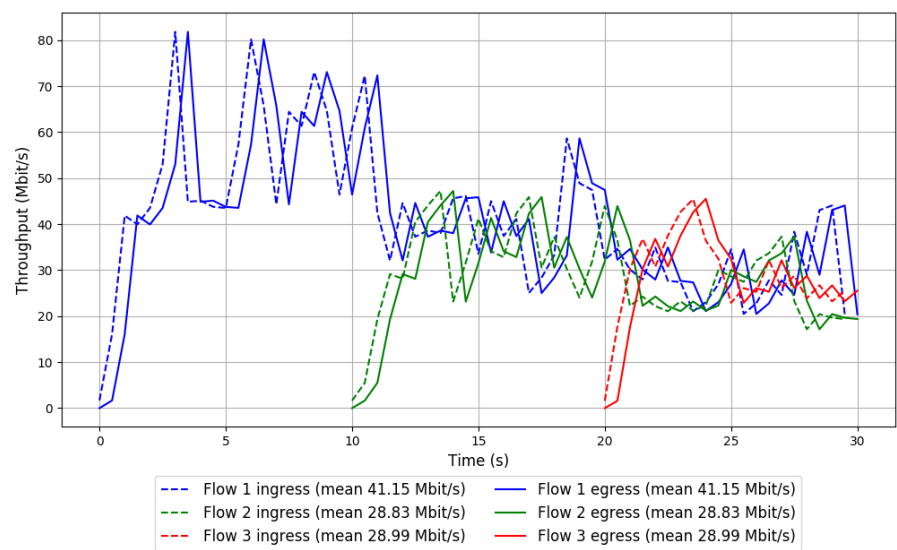
-- Flow 3:

Average throughput: 28.99 Mbit/s

95th percentile per-packet one-way delay: 1.118 ms

Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 09:53:17

End at: 2018-09-06 09:53:47

Local clock offset: -4.014 ms

Remote clock offset: 0.461 ms

Below is generated by plot.py at 2018-09-06 11:01:11

Datalink statistics

-- Total of 3 flows:

Average throughput: 70.79 Mbit/s

95th percentile per-packet one-way delay: 1.778 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 40.18 Mbit/s

95th percentile per-packet one-way delay: 0.936 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 33.64 Mbit/s

95th percentile per-packet one-way delay: 1.313 ms

Loss rate: 0.00%

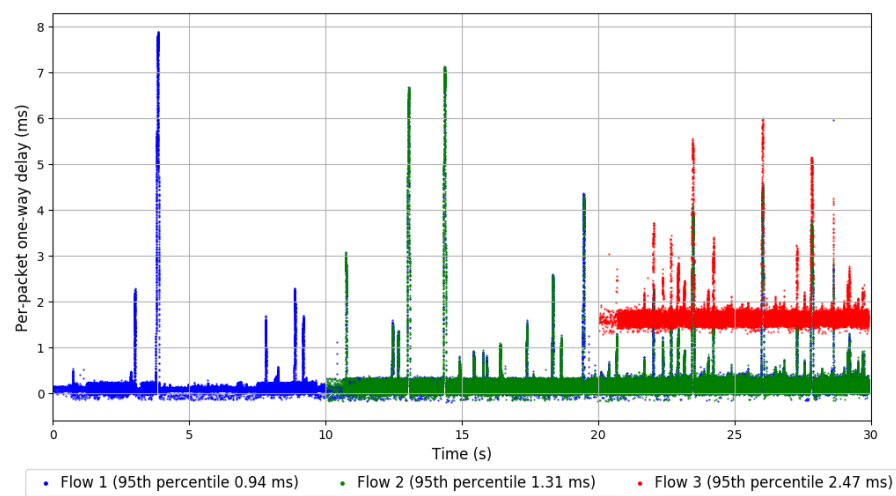
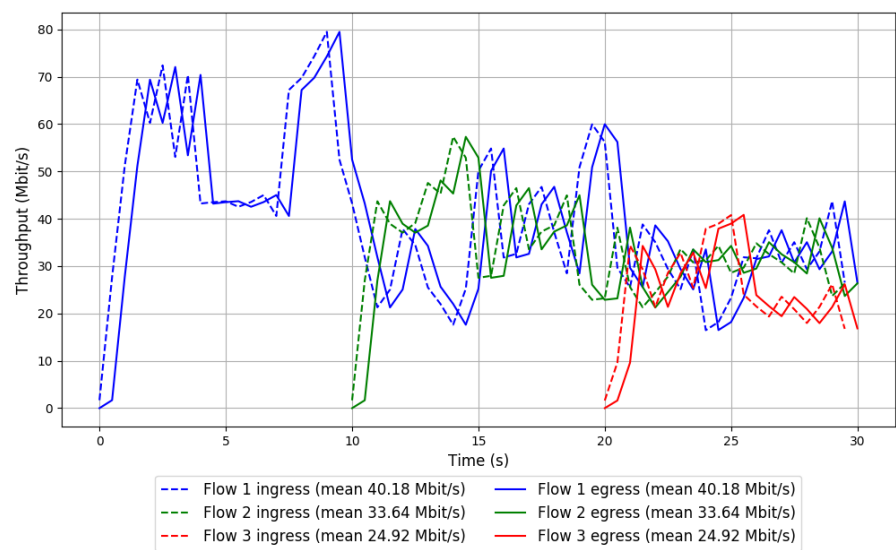
-- Flow 3:

Average throughput: 24.92 Mbit/s

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

Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-06 10:13:45

End at: 2018-09-06 10:14:15

Local clock offset: -4.554 ms

Remote clock offset: 0.471 ms

Below is generated by plot.py at 2018-09-06 11:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 83.70 Mbit/s

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

Loss rate: 0.00%

-- Flow 1:

Average throughput: 54.53 Mbit/s

95th percentile per-packet one-way delay: 2.798 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 31.32 Mbit/s

95th percentile per-packet one-way delay: 3.144 ms

Loss rate: 0.00%

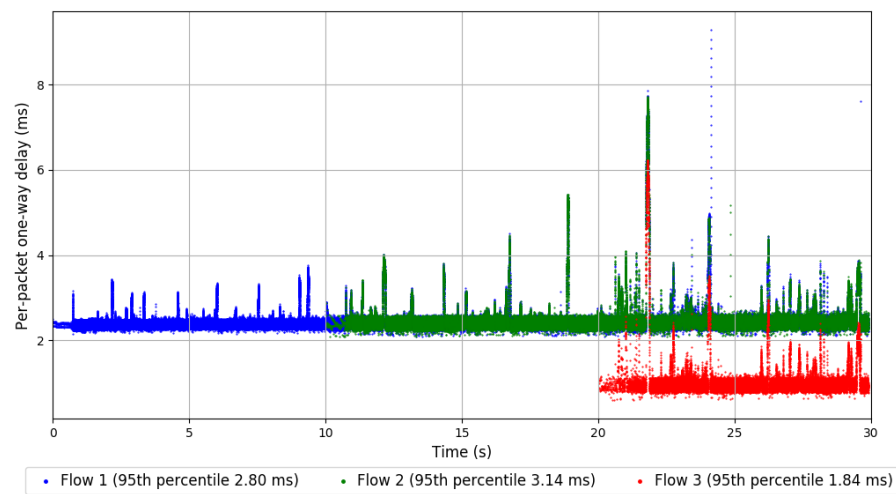
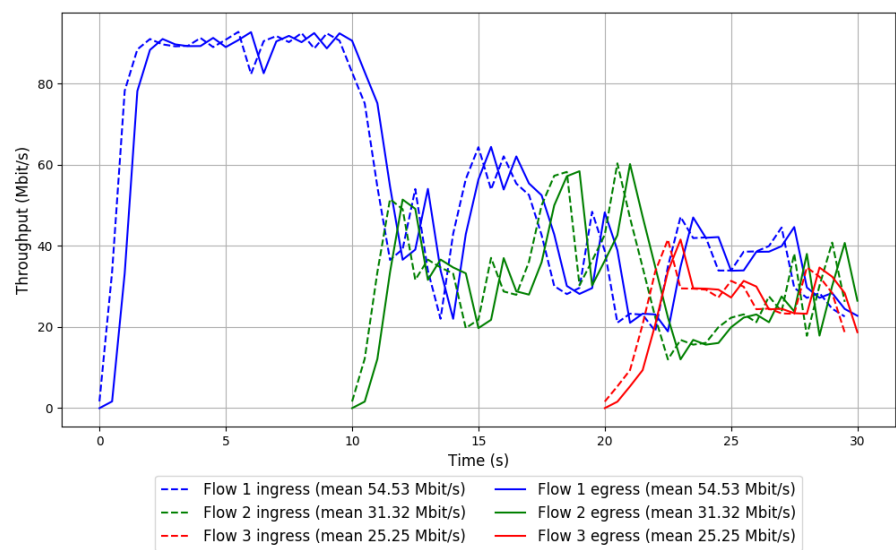
-- Flow 3:

Average throughput: 25.25 Mbit/s

95th percentile per-packet one-way delay: 1.844 ms

Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-06 10:34:15

End at: 2018-09-06 10:34:45

Local clock offset: -4.293 ms

Remote clock offset: 0.485 ms

Below is generated by plot.py at 2018-09-06 11:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.04 Mbit/s

95th percentile per-packet one-way delay: 1.895 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 53.33 Mbit/s

95th percentile per-packet one-way delay: 1.809 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 35.73 Mbit/s

95th percentile per-packet one-way delay: 2.005 ms

Loss rate: 0.00%

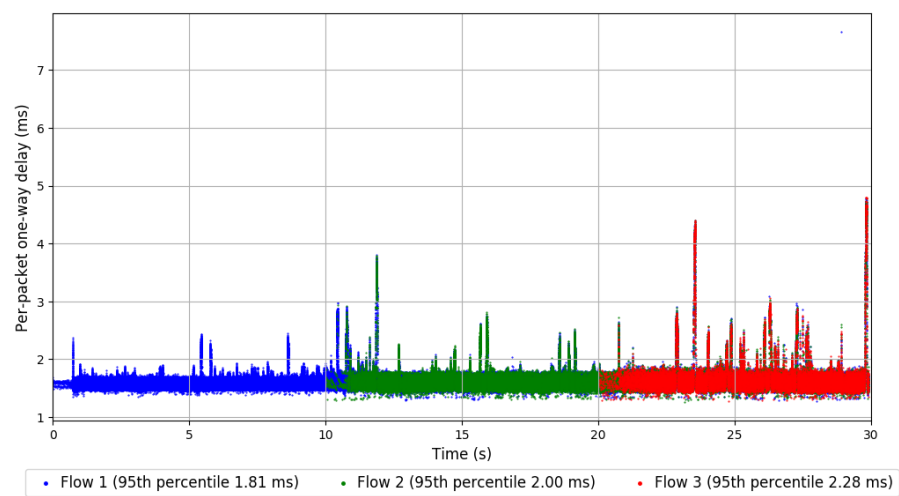
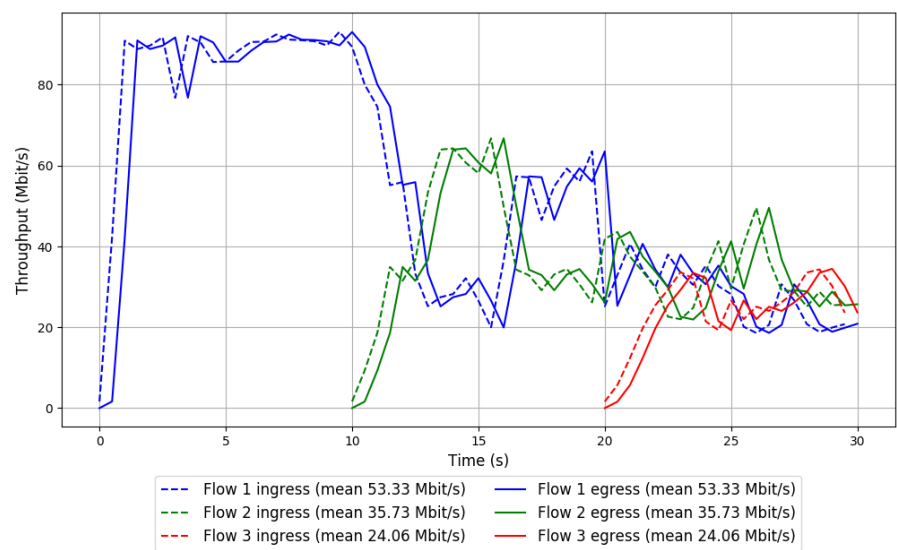
-- Flow 3:

Average throughput: 24.06 Mbit/s

95th percentile per-packet one-way delay: 2.277 ms

Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-09-06 09:14:37

End at: 2018-09-06 09:15:07

Local clock offset: -3.286 ms

Remote clock offset: 0.21 ms

Below is generated by plot.py at 2018-09-06 11:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.62 Mbit/s

95th percentile per-packet one-way delay: 7.367 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 6.964 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 8.416 ms

Loss rate: 0.00%

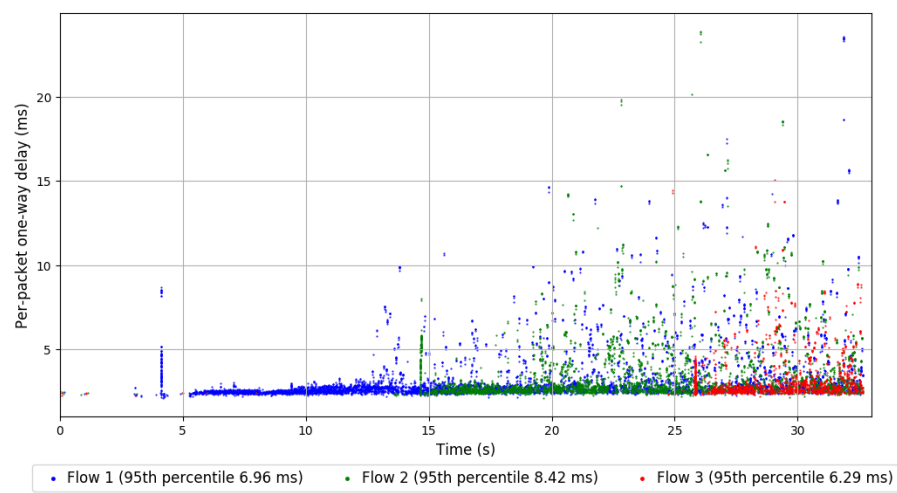
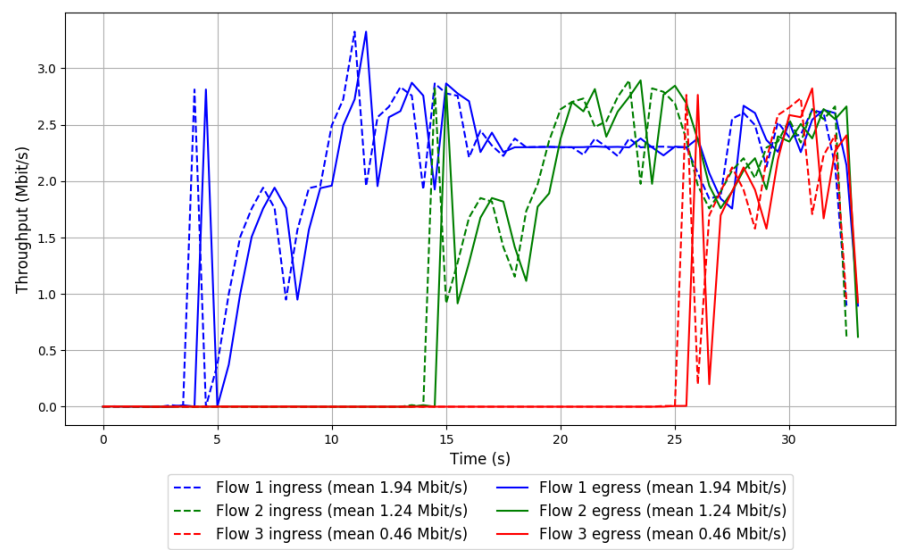
-- Flow 3:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 6.295 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-06 09:35:05

End at: 2018-09-06 09:35:35

Local clock offset: -4.32 ms

Remote clock offset: 0.356 ms

Below is generated by plot.py at 2018-09-06 11:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.57 Mbit/s

95th percentile per-packet one-way delay: 5.771 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 6.102 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 5.771 ms

Loss rate: 0.00%

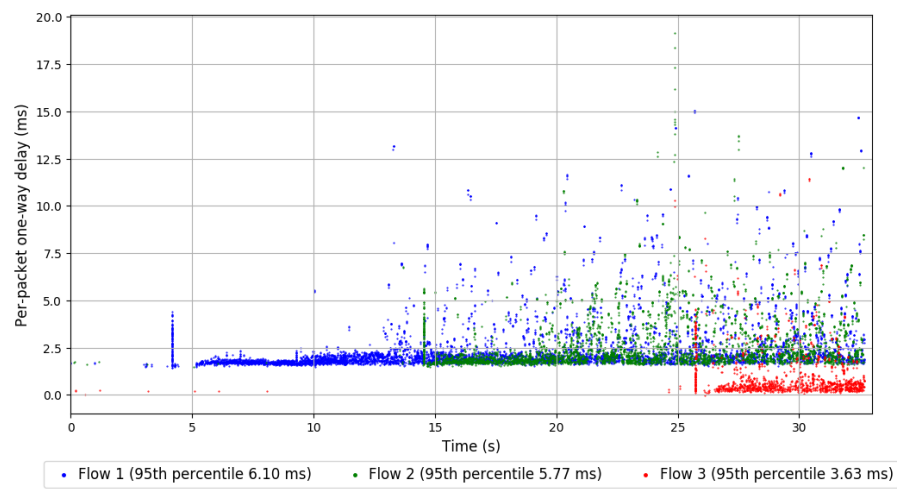
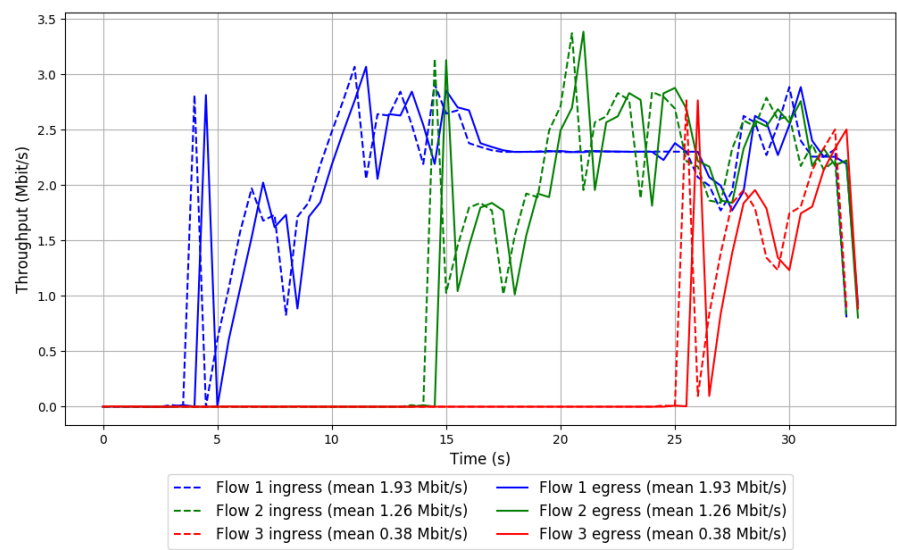
-- Flow 3:

Average throughput: 0.38 Mbit/s

95th percentile per-packet one-way delay: 3.634 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-06 09:55:34

End at: 2018-09-06 09:56:04

Local clock offset: -3.935 ms

Remote clock offset: 0.504 ms

Below is generated by plot.py at 2018-09-06 11:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.57 Mbit/s

95th percentile per-packet one-way delay: 5.854 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 5.849 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 5.935 ms

Loss rate: 0.00%

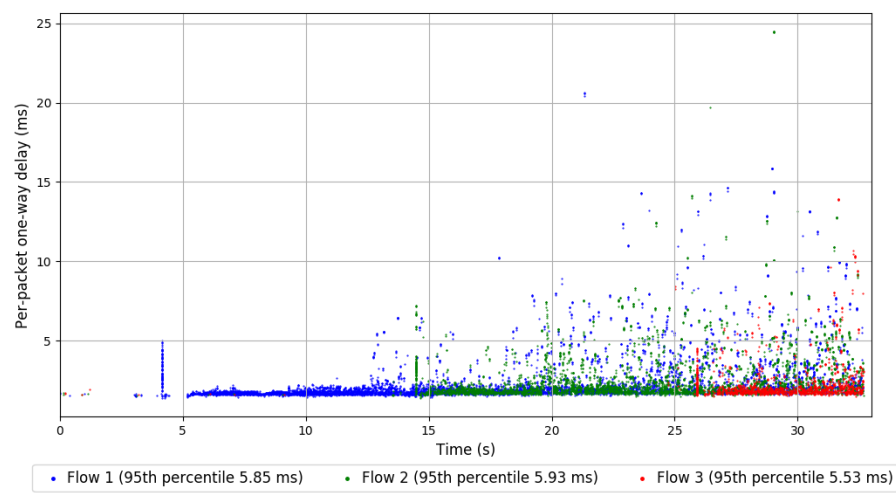
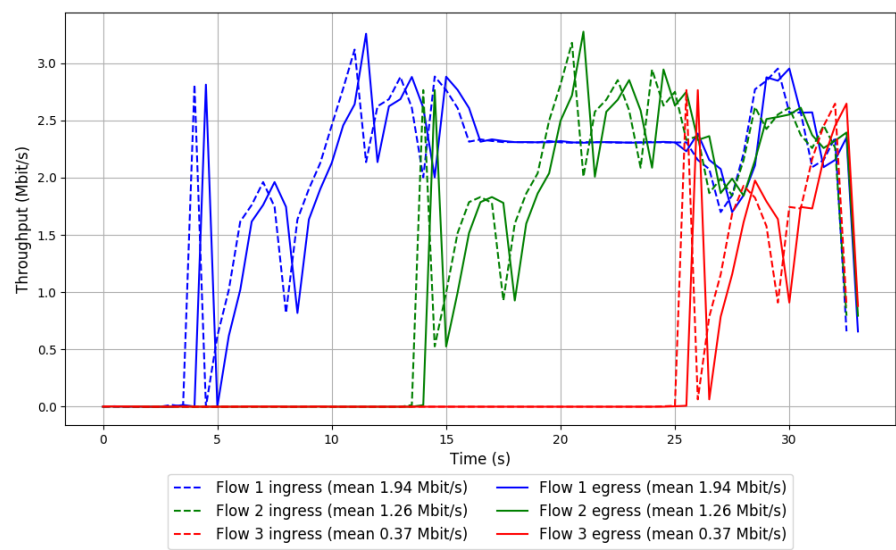
-- Flow 3:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 5.525 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-06 10:16:03

End at: 2018-09-06 10:16:33

Local clock offset: -3.765 ms

Remote clock offset: 0.478 ms

Below is generated by plot.py at 2018-09-06 11:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.66 Mbit/s

95th percentile per-packet one-way delay: 4.989 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 3.963 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.28 Mbit/s

95th percentile per-packet one-way delay: 5.136 ms

Loss rate: 0.02%

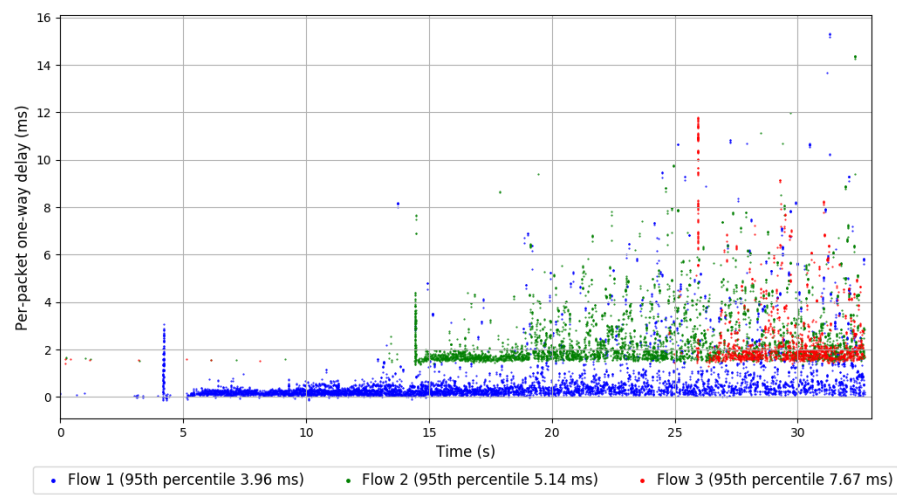
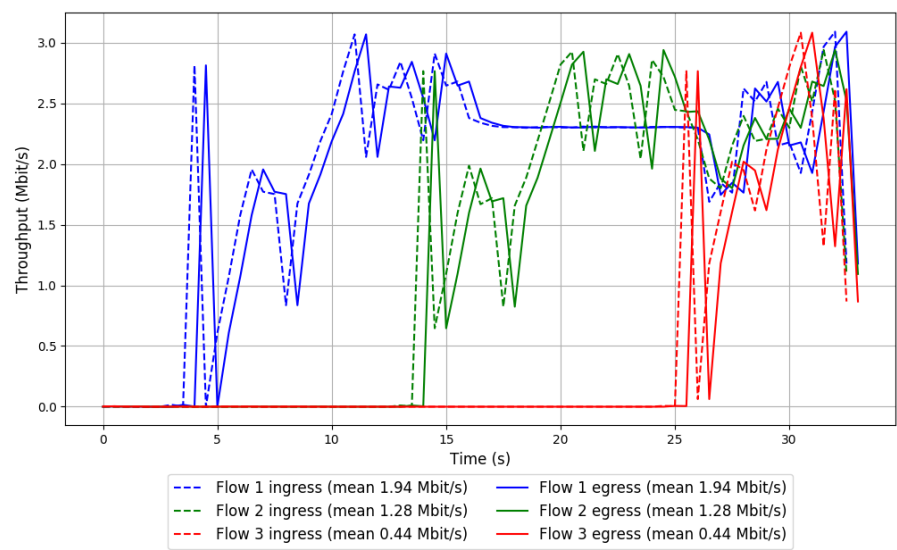
-- Flow 3:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 7.671 ms

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-06 10:36:33

End at: 2018-09-06 10:37:03

Local clock offset: -4.384 ms

Remote clock offset: 0.471 ms

Below is generated by plot.py at 2018-09-06 11:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.57 Mbit/s

95th percentile per-packet one-way delay: 5.370 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 5.772 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.27 Mbit/s

95th percentile per-packet one-way delay: 4.790 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 5.174 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

