

Pantheon Report

Generated at 2018-10-10 06:16:18 (UTC).

Data path: Colombia on **p4p1** (*remote*) → AWS Brazil 2 on **ens5** (*local*).

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:

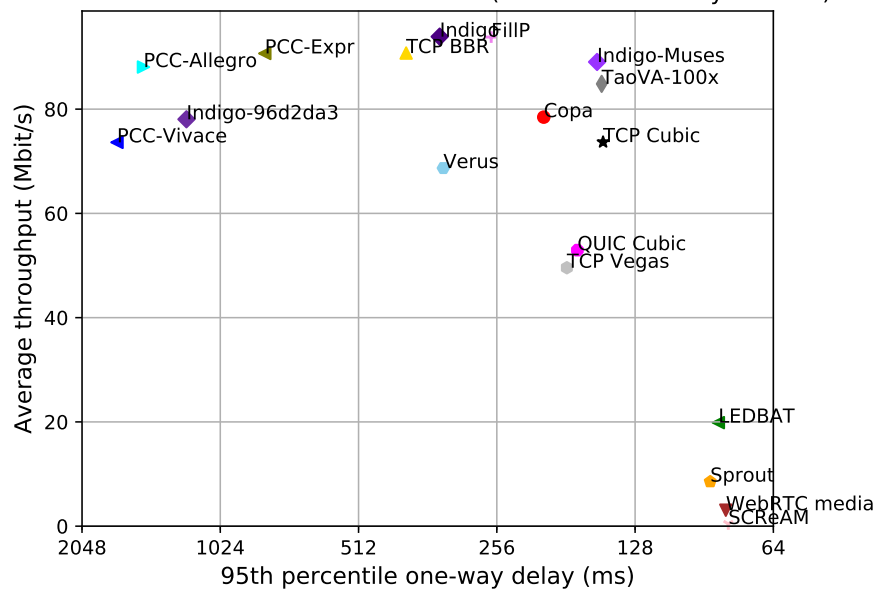
```
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

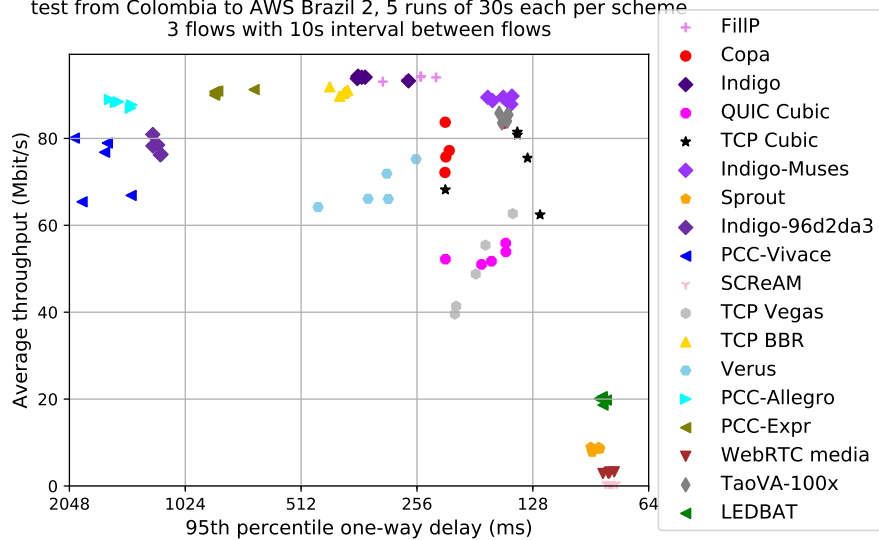
```
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from Colombia to AWS Brazil 2, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)



test from Colombia to AWS Brazil 2, 5 runs of 30s each per scheme
3 flows with 10s interval between flows



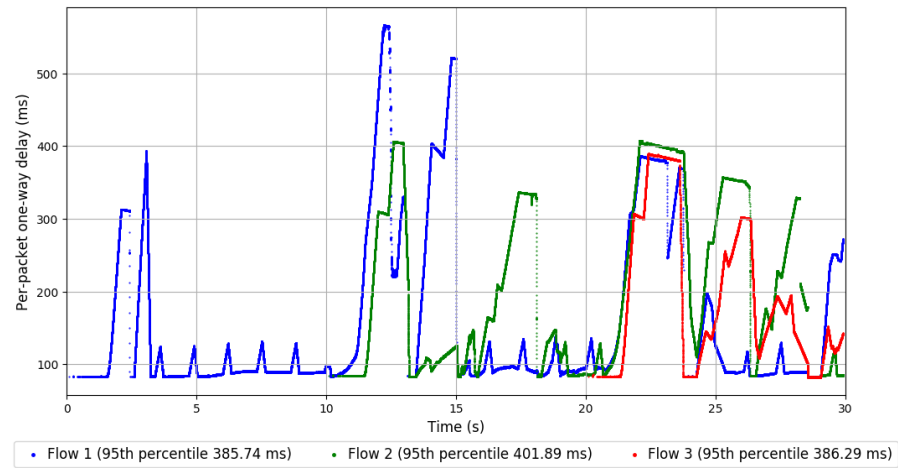
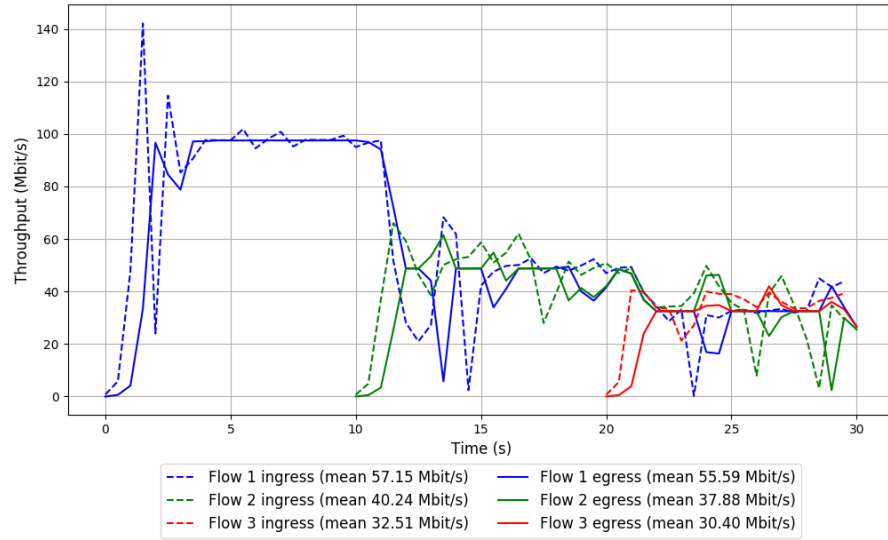
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	55.25	38.42	30.41	378.48	461.70	443.73	2.68	5.51	5.99
Copa	5	47.00	34.26	26.48	203.87	160.53	154.16	0.95	1.31	2.91
TCP Cubic	5	41.16	34.85	28.50	146.31	139.26	139.45	0.62	0.98	2.95
FillP	5	57.95	39.07	30.29	256.72	228.32	397.07	1.33	1.94	3.18
Indigo	5	58.57	38.79	29.57	369.08	133.02	133.85	7.27	1.53	2.94
Indigo-96d2da3	5	46.37	34.89	26.14	1213.09	1212.03	1376.66	25.67	38.91	37.93
LEDBAT	5	12.79	8.59	4.21	84.51	83.69	83.22	1.13	1.67	3.31
Indigo-Muses	5	55.95	37.11	25.89	157.95	143.96	159.24	1.28	1.96	3.60
PCC-Allegro	5	55.68	34.29	29.59	1497.82	1050.34	1512.18	26.72	12.64	20.71
PCC-Expr	5	56.46	38.80	25.94	815.42	817.73	210.89	31.27	9.78	3.38
QUIC Cubic	5	29.78	24.17	21.80	133.06	204.87	244.66	0.72	1.22	2.45
SCReAM	5	0.21	0.21	0.22	79.14	79.15	79.65	0.55	0.87	1.53
Sprout	5	4.41	4.26	4.01	87.68	88.25	87.55	0.71	1.11	2.15
TaoVA-100x	5	50.16	37.48	30.00	146.62	163.63	143.37	0.53	0.86	1.52
TCP Vegas	5	28.11	25.25	14.28	209.82	150.98	120.63	0.54	0.83	2.37
Verus	5	39.61	32.26	23.43	281.54	360.72	444.89	1.08	1.52	3.15
PCC-Vivace	5	46.44	29.94	22.42	1776.71	781.04	322.12	6.56	6.21	2.82
WebRTC media	5	1.79	0.94	0.34	79.57	81.24	81.12	0.49	0.66	1.76

Run 1: Statistics of TCP BBR

Start at: 2018-10-10 04:24:52
End at: 2018-10-10 04:25:22
Local clock offset: -0.701 ms
Remote clock offset: -4.884 ms

Below is generated by plot.py at 2018-10-10 06:06:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 90.74 Mbit/s
95th percentile per-packet one-way delay: 393.713 ms
Loss rate: 4.75%
-- Flow 1:
Average throughput: 55.59 Mbit/s
95th percentile per-packet one-way delay: 385.741 ms
Loss rate: 3.25%
-- Flow 2:
Average throughput: 37.88 Mbit/s
95th percentile per-packet one-way delay: 401.892 ms
Loss rate: 6.63%
-- Flow 3:
Average throughput: 30.40 Mbit/s
95th percentile per-packet one-way delay: 386.288 ms
Loss rate: 8.03%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-10-10 04:48:10

End at: 2018-10-10 04:48:40

Local clock offset: -0.763 ms

Remote clock offset: 4.248 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.35 Mbit/s

95th percentile per-packet one-way delay: 397.336 ms

Loss rate: 3.10%

-- Flow 1:

Average throughput: 54.59 Mbit/s

95th percentile per-packet one-way delay: 381.623 ms

Loss rate: 1.97%

-- Flow 2:

Average throughput: 39.39 Mbit/s

95th percentile per-packet one-way delay: 408.295 ms

Loss rate: 5.44%

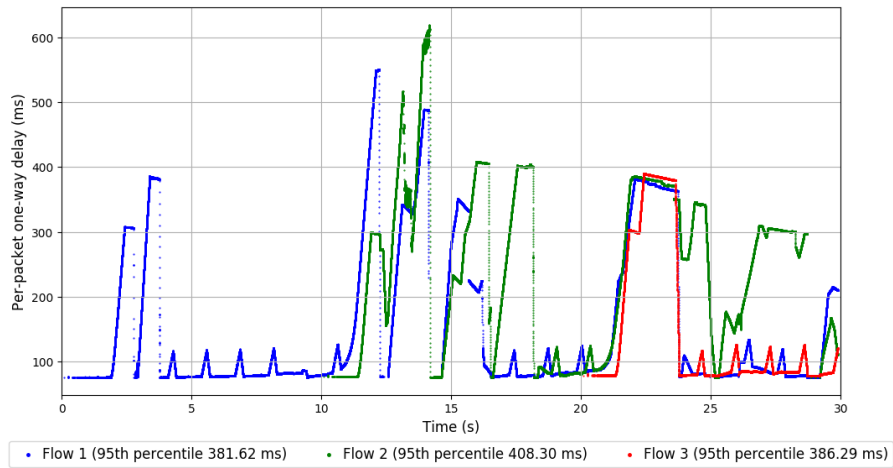
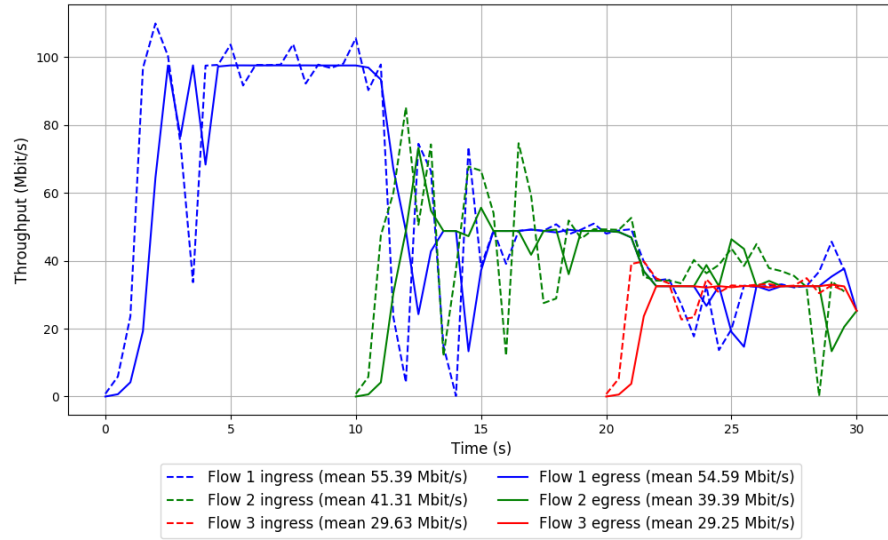
-- Flow 3:

Average throughput: 29.25 Mbit/s

95th percentile per-packet one-way delay: 386.288 ms

Loss rate: 2.90%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-10-10 05:11:21

End at: 2018-10-10 05:11:51

Local clock offset: -1.393 ms

Remote clock offset: 0.044 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.88 Mbit/s

95th percentile per-packet one-way delay: 431.378 ms

Loss rate: 3.06%

-- Flow 1:

Average throughput: 55.40 Mbit/s

95th percentile per-packet one-way delay: 391.859 ms

Loss rate: 1.90%

-- Flow 2:

Average throughput: 39.43 Mbit/s

95th percentile per-packet one-way delay: 535.209 ms

Loss rate: 4.05%

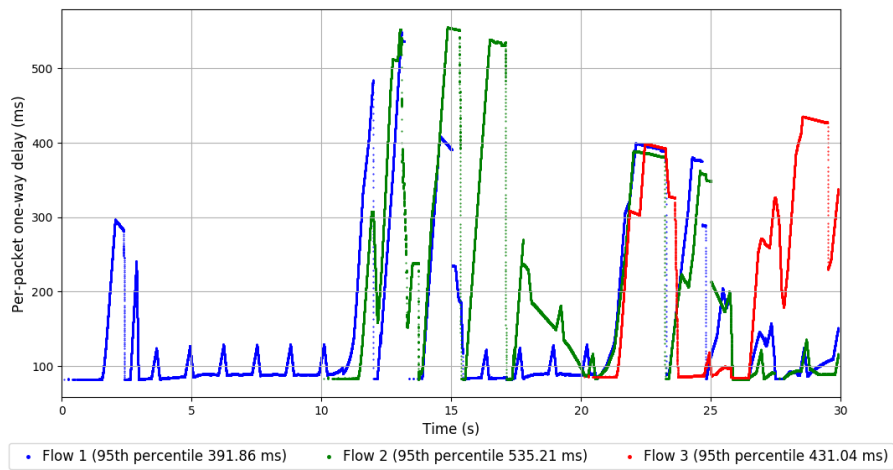
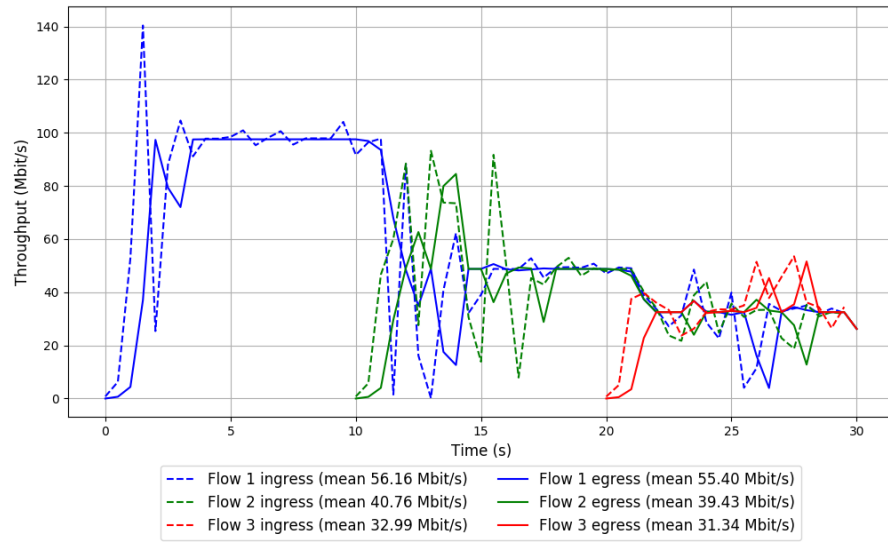
-- Flow 3:

Average throughput: 31.34 Mbit/s

95th percentile per-packet one-way delay: 431.044 ms

Loss rate: 6.54%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-10-10 05:34:54

End at: 2018-10-10 05:35:24

Local clock offset: -1.689 ms

Remote clock offset: 2.769 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.72 Mbit/s

95th percentile per-packet one-way delay: 406.602 ms

Loss rate: 3.96%

-- Flow 1:

Average throughput: 54.92 Mbit/s

95th percentile per-packet one-way delay: 383.828 ms

Loss rate: 3.13%

-- Flow 2:

Average throughput: 37.78 Mbit/s

95th percentile per-packet one-way delay: 463.302 ms

Loss rate: 5.69%

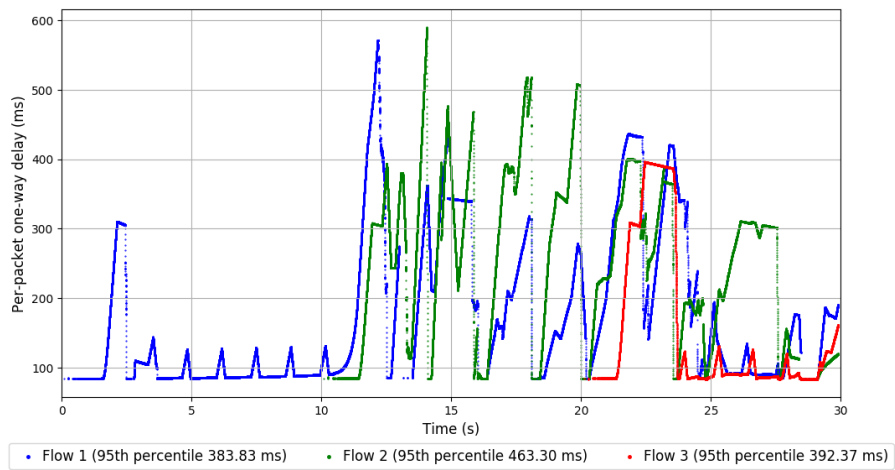
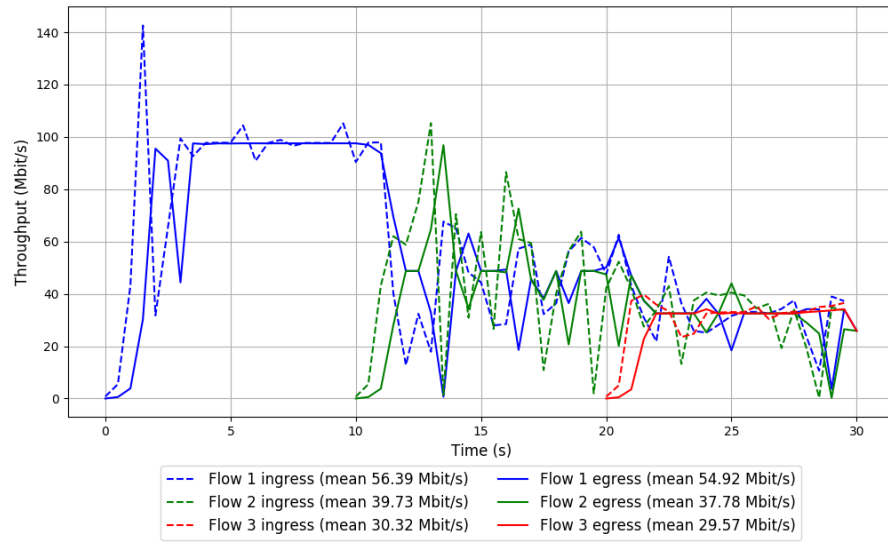
-- Flow 3:

Average throughput: 29.57 Mbit/s

95th percentile per-packet one-way delay: 392.370 ms

Loss rate: 4.11%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-10-10 05:58:00

End at: 2018-10-10 05:58:30

Local clock offset: -1.681 ms

Remote clock offset: 7.756 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.10 Mbit/s

95th percentile per-packet one-way delay: 387.595 ms

Loss rate: 4.51%

-- Flow 1:

Average throughput: 55.75 Mbit/s

95th percentile per-packet one-way delay: 349.342 ms

Loss rate: 3.17%

-- Flow 2:

Average throughput: 37.64 Mbit/s

95th percentile per-packet one-way delay: 499.827 ms

Loss rate: 5.76%

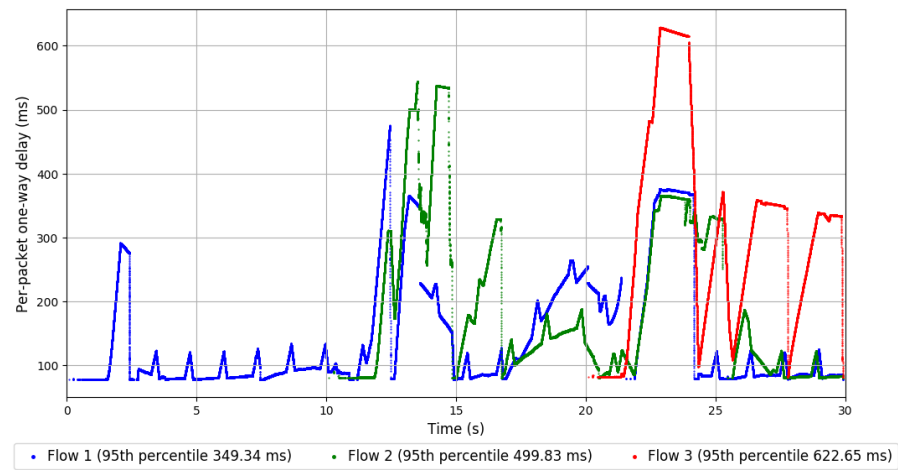
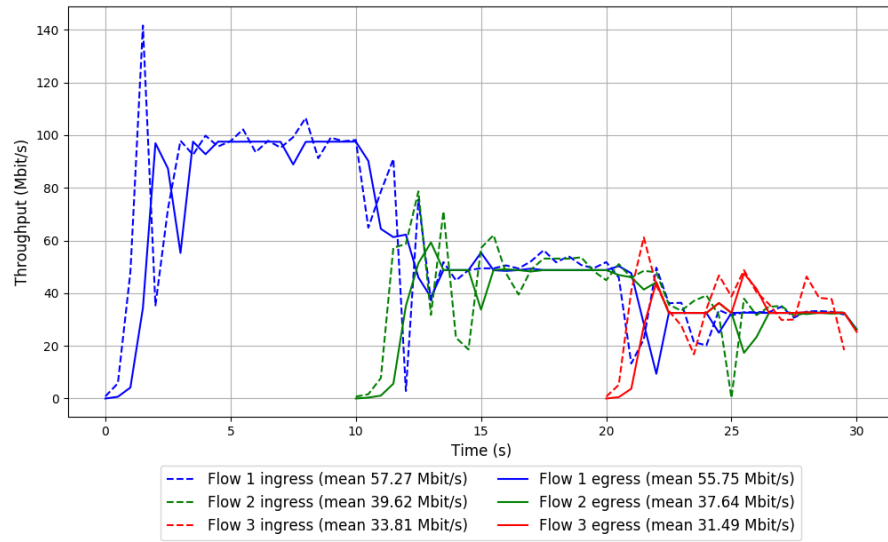
-- Flow 3:

Average throughput: 31.49 Mbit/s

95th percentile per-packet one-way delay: 622.655 ms

Loss rate: 8.38%

Run 5: Report of TCP BBR — Data Link

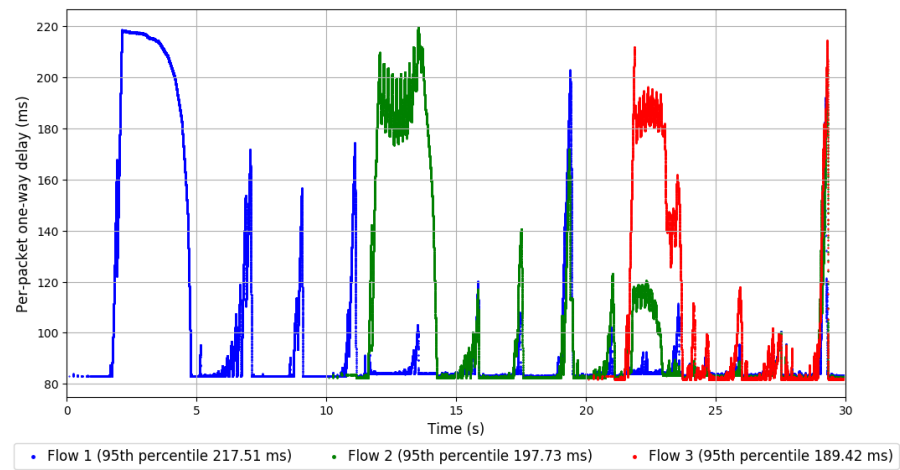
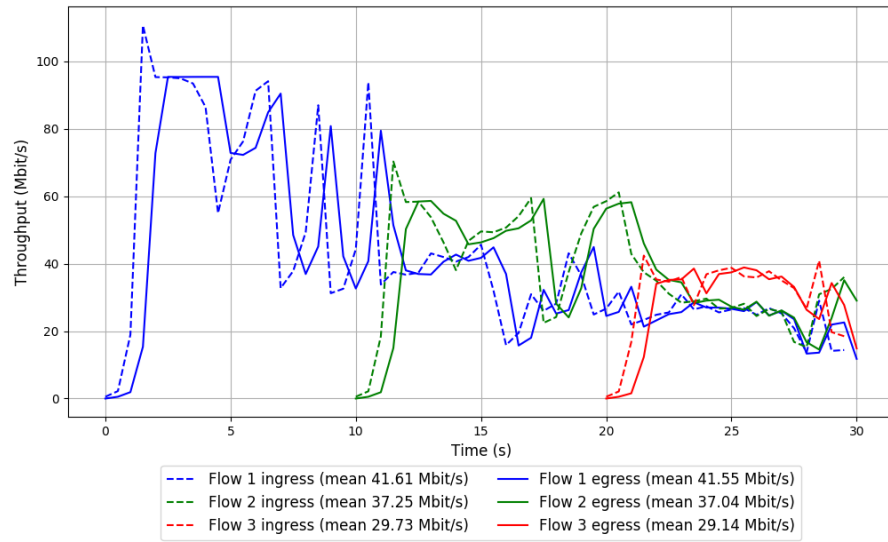


Run 1: Statistics of Copa

Start at: 2018-10-10 04:28:43
End at: 2018-10-10 04:29:13
Local clock offset: -0.923 ms
Remote clock offset: -4.357 ms

Below is generated by plot.py at 2018-10-10 06:07:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 75.74 Mbit/s
95th percentile per-packet one-way delay: 215.351 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 41.55 Mbit/s
95th percentile per-packet one-way delay: 217.511 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 37.04 Mbit/s
95th percentile per-packet one-way delay: 197.729 ms
Loss rate: 1.36%
-- Flow 3:
Average throughput: 29.14 Mbit/s
95th percentile per-packet one-way delay: 189.421 ms
Loss rate: 3.58%

Run 1: Report of Copa — Data Link

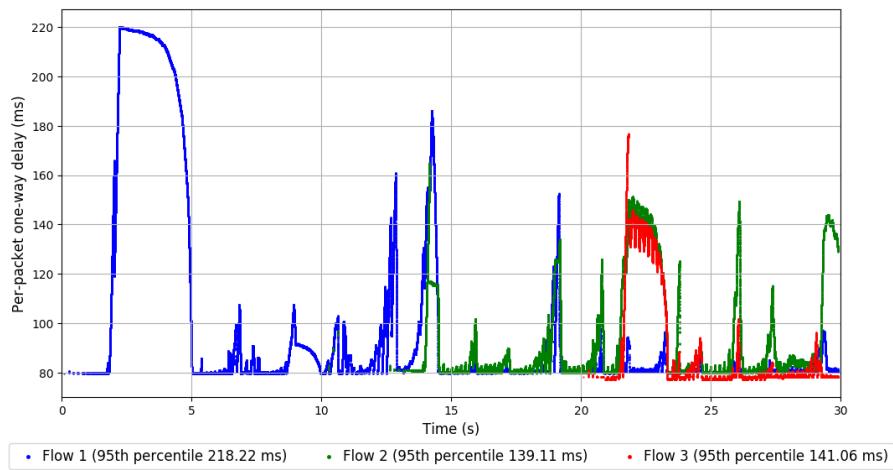
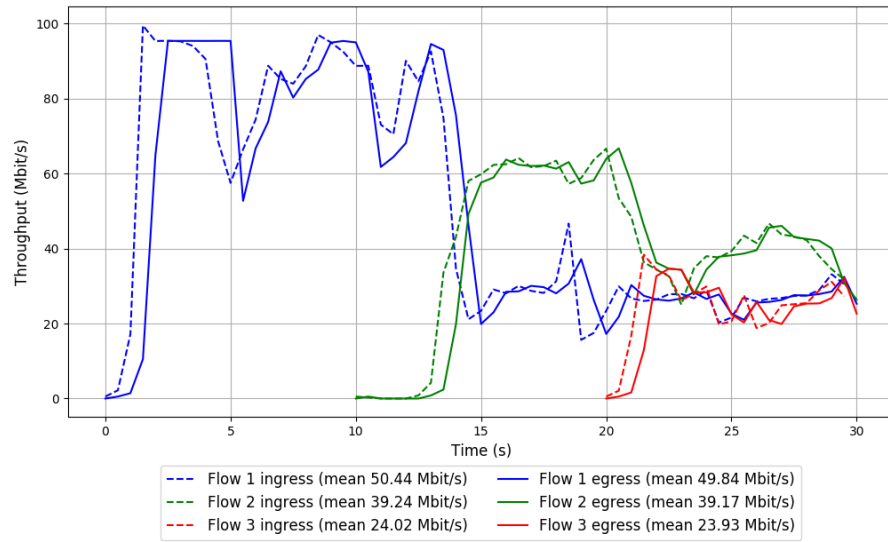


Run 2: Statistics of Copa

Start at: 2018-10-10 04:52:00
End at: 2018-10-10 04:52:30
Local clock offset: -0.734 ms
Remote clock offset: 3.468 ms

Below is generated by plot.py at 2018-10-10 06:07:25
Datalink statistics
-- Total of 3 flows:
Average throughput: 83.73 Mbit/s
95th percentile per-packet one-way delay: 216.177 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 49.84 Mbit/s
95th percentile per-packet one-way delay: 218.222 ms
Loss rate: 1.74%
-- Flow 2:
Average throughput: 39.17 Mbit/s
95th percentile per-packet one-way delay: 139.112 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 23.93 Mbit/s
95th percentile per-packet one-way delay: 141.064 ms
Loss rate: 1.99%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-10-10 05:15:21

End at: 2018-10-10 05:15:51

Local clock offset: -1.394 ms

Remote clock offset: 0.334 ms

Below is generated by plot.py at 2018-10-10 06:07:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 83.47 Mbit/s

95th percentile per-packet one-way delay: 152.479 ms

Loss rate: 0.76%

-- Flow 1:

Average throughput: 53.95 Mbit/s

95th percentile per-packet one-way delay: 152.530 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 28.49 Mbit/s

95th percentile per-packet one-way delay: 96.189 ms

Loss rate: 0.99%

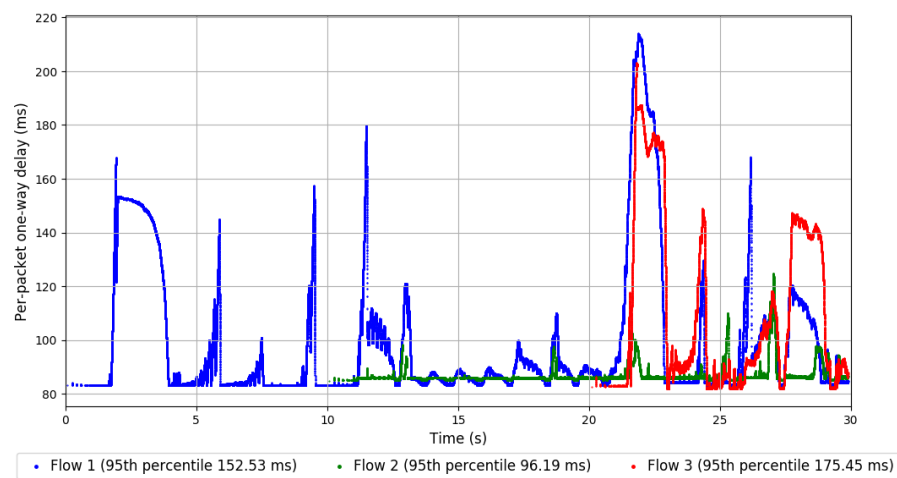
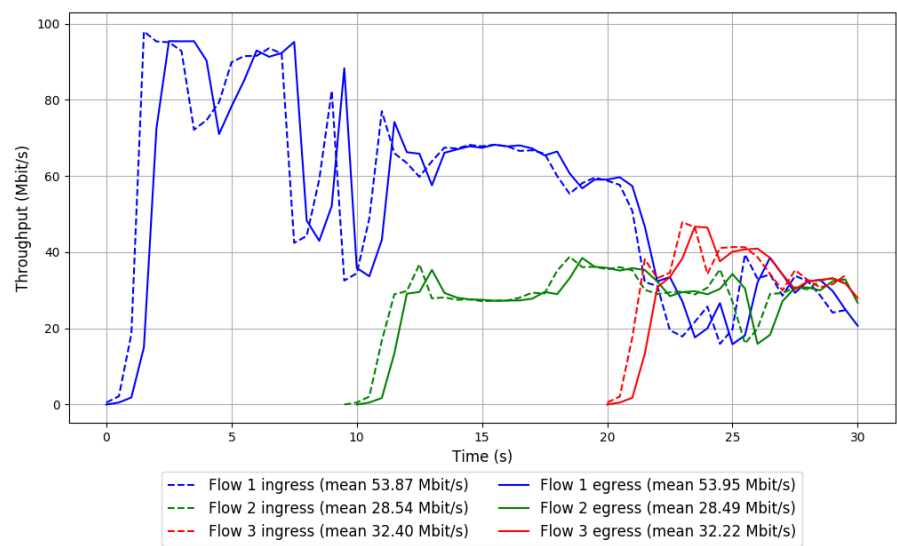
-- Flow 3:

Average throughput: 32.22 Mbit/s

95th percentile per-packet one-way delay: 175.452 ms

Loss rate: 2.17%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-10-10 05:38:45

End at: 2018-10-10 05:39:15

Local clock offset: -1.675 ms

Remote clock offset: 5.555 ms

Below is generated by plot.py at 2018-10-10 06:08:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.21 Mbit/s

95th percentile per-packet one-way delay: 211.090 ms

Loss rate: 1.37%

-- Flow 1:

Average throughput: 45.10 Mbit/s

95th percentile per-packet one-way delay: 213.772 ms

Loss rate: 0.74%

-- Flow 2:

Average throughput: 37.00 Mbit/s

95th percentile per-packet one-way delay: 154.564 ms

Loss rate: 1.52%

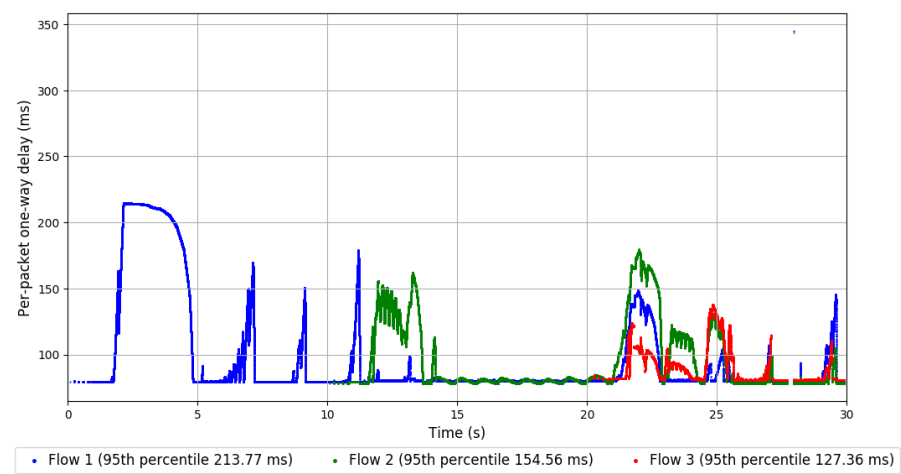
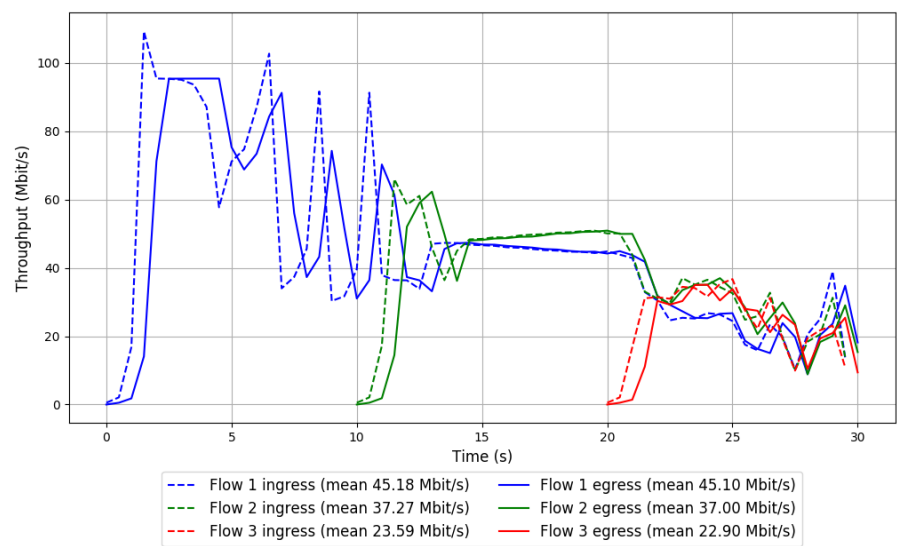
-- Flow 3:

Average throughput: 22.90 Mbit/s

95th percentile per-packet one-way delay: 127.360 ms

Loss rate: 4.55%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-10-10 06:01:53

End at: 2018-10-10 06:02:23

Local clock offset: -1.681 ms

Remote clock offset: 3.924 ms

Below is generated by plot.py at 2018-10-10 06:08:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 72.17 Mbit/s

95th percentile per-packet one-way delay: 216.536 ms

Loss rate: 1.45%

-- Flow 1:

Average throughput: 44.54 Mbit/s

95th percentile per-packet one-way delay: 217.300 ms

Loss rate: 1.19%

-- Flow 2:

Average throughput: 29.60 Mbit/s

95th percentile per-packet one-way delay: 215.033 ms

Loss rate: 1.70%

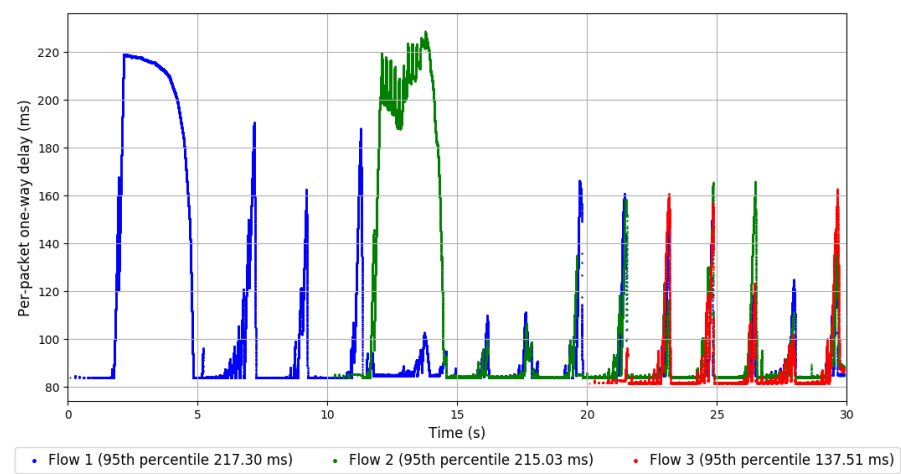
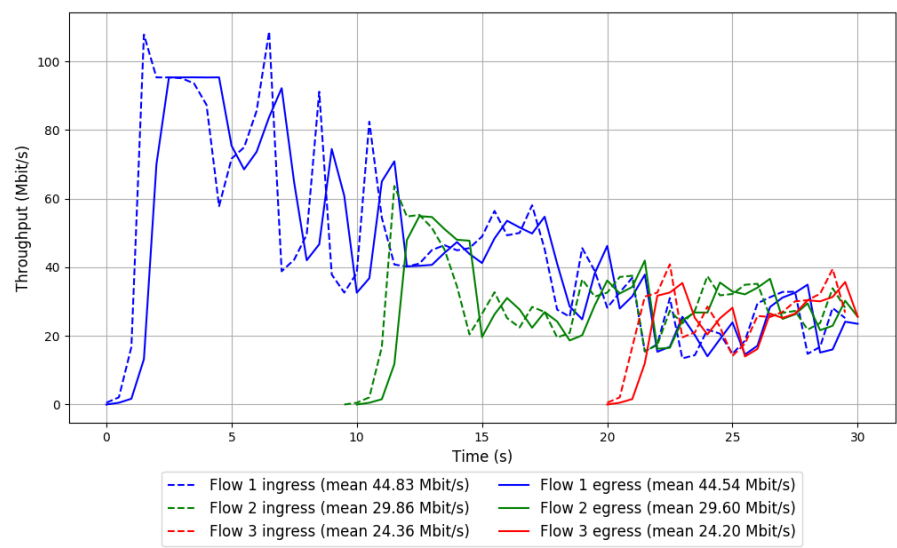
-- Flow 3:

Average throughput: 24.20 Mbit/s

95th percentile per-packet one-way delay: 137.506 ms

Loss rate: 2.25%

Run 5: Report of Copa — Data Link

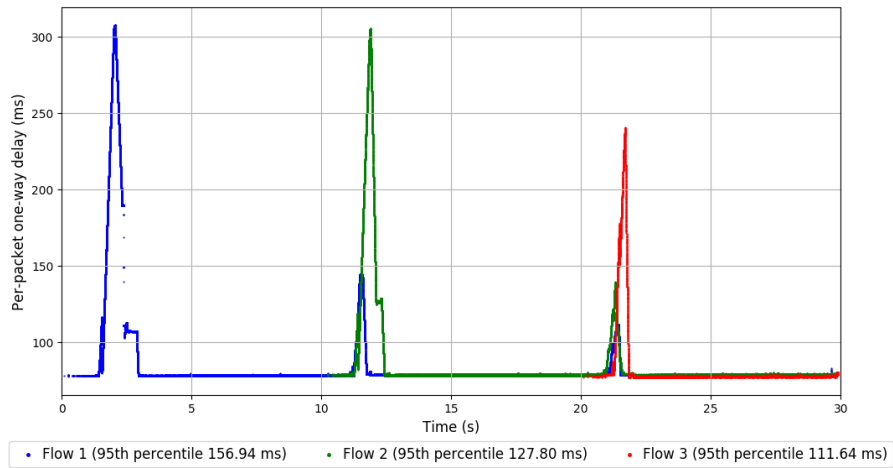
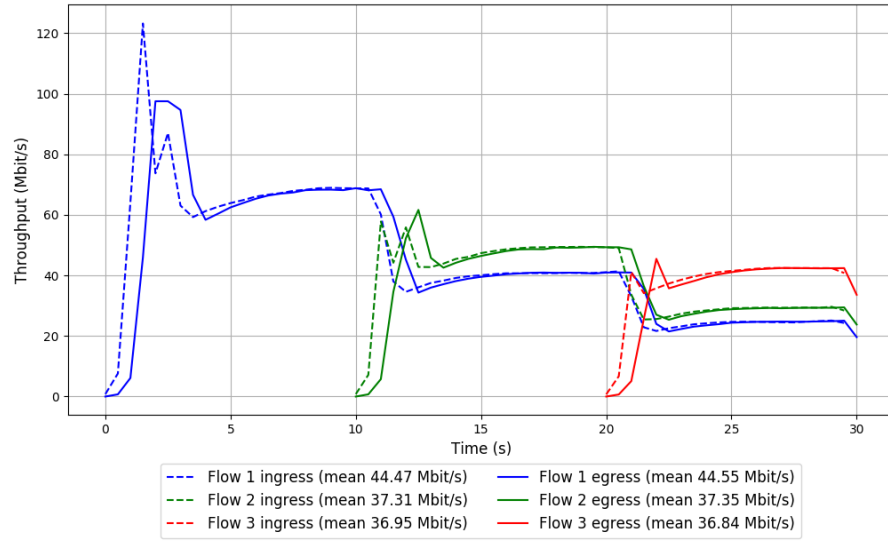


Run 1: Statistics of TCP Cubic

Start at: 2018-10-10 04:14:32
End at: 2018-10-10 04:15:02
Local clock offset: -1.637 ms
Remote clock offset: -0.694 ms

Below is generated by plot.py at 2018-10-10 06:08:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 81.48 Mbit/s
95th percentile per-packet one-way delay: 140.396 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 44.55 Mbit/s
95th percentile per-packet one-way delay: 156.942 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 37.35 Mbit/s
95th percentile per-packet one-way delay: 127.804 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 36.84 Mbit/s
95th percentile per-packet one-way delay: 111.635 ms
Loss rate: 1.91%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-10-10 04:37:57

End at: 2018-10-10 04:38:27

Local clock offset: -0.974 ms

Remote clock offset: 1.953 ms

Below is generated by plot.py at 2018-10-10 06:08:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 68.19 Mbit/s

95th percentile per-packet one-way delay: 215.997 ms

Loss rate: 1.23%

-- Flow 1:

Average throughput: 40.37 Mbit/s

95th percentile per-packet one-way delay: 185.136 ms

Loss rate: 0.99%

-- Flow 2:

Average throughput: 27.29 Mbit/s

95th percentile per-packet one-way delay: 163.208 ms

Loss rate: 1.59%

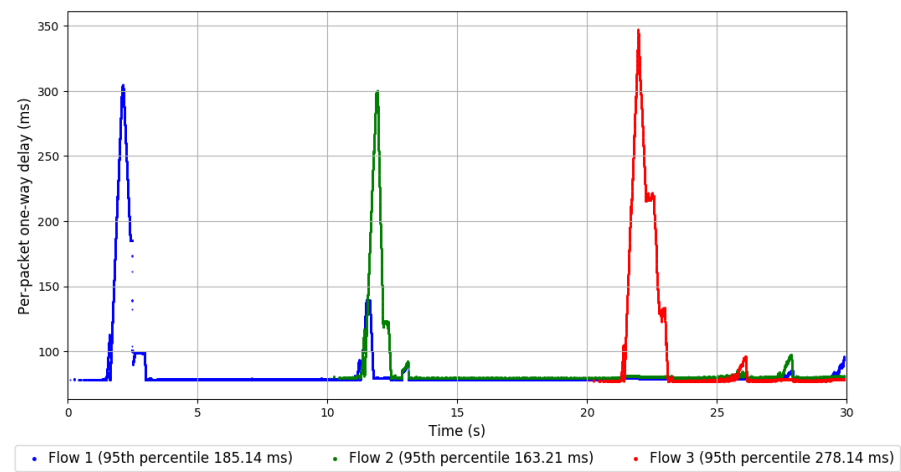
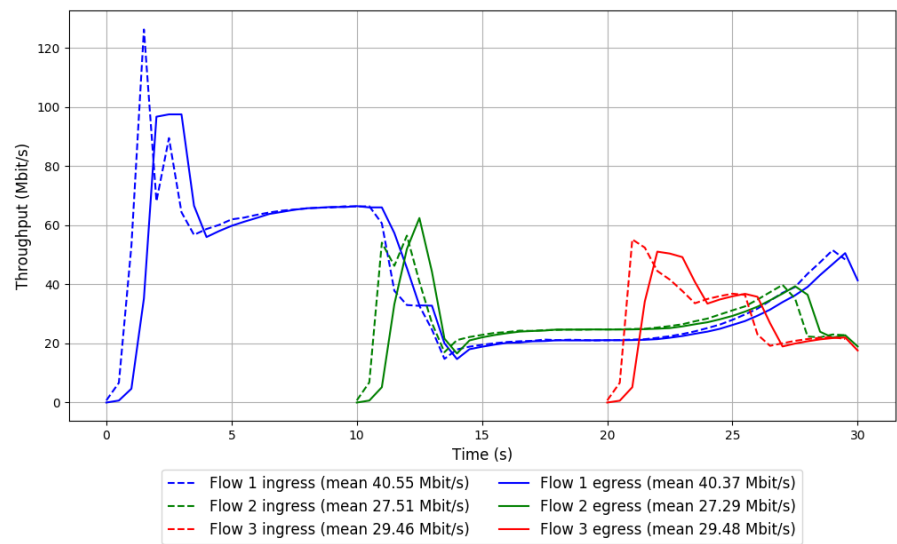
-- Flow 3:

Average throughput: 29.48 Mbit/s

95th percentile per-packet one-way delay: 278.140 ms

Loss rate: 1.56%

Run 2: Report of TCP Cubic — Data Link

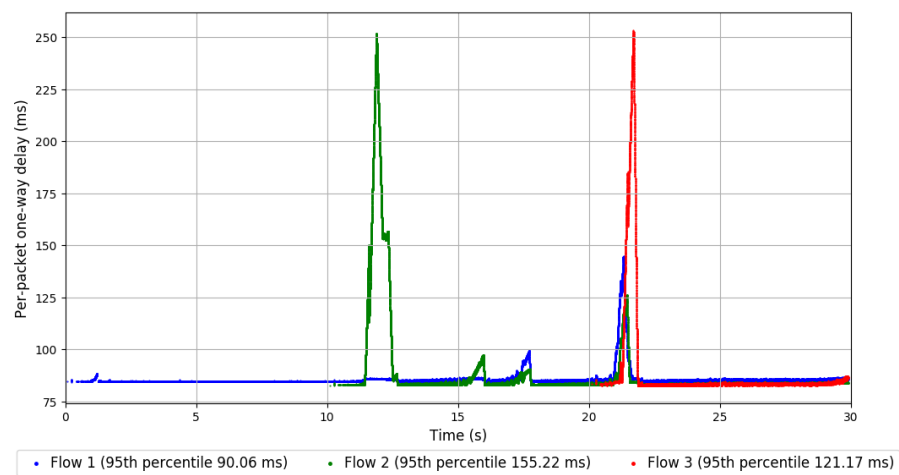
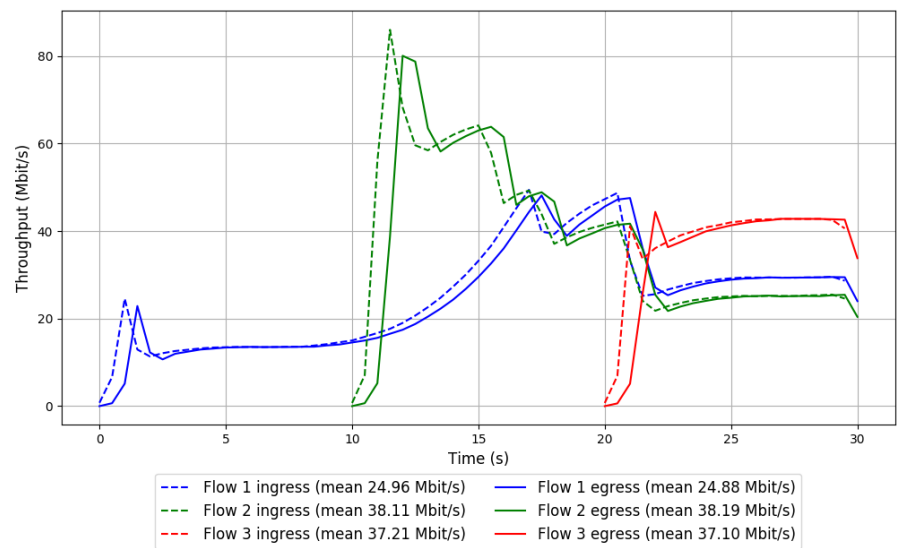


Run 3: Statistics of TCP Cubic

Start at: 2018-10-10 05:01:09
End at: 2018-10-10 05:01:39
Local clock offset: -1.103 ms
Remote clock offset: -0.938 ms

Below is generated by plot.py at 2018-10-10 06:08:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 62.44 Mbit/s
95th percentile per-packet one-way delay: 122.576 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 24.88 Mbit/s
95th percentile per-packet one-way delay: 90.062 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 38.19 Mbit/s
95th percentile per-packet one-way delay: 155.225 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 37.10 Mbit/s
95th percentile per-packet one-way delay: 121.171 ms
Loss rate: 1.91%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-10-10 05:24:33

End at: 2018-10-10 05:25:03

Local clock offset: -1.33 ms

Remote clock offset: 6.25 ms

Below is generated by plot.py at 2018-10-10 06:08:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.81 Mbit/s

95th percentile per-packet one-way delay: 140.382 ms

Loss rate: 0.72%

-- Flow 1:

Average throughput: 44.14 Mbit/s

95th percentile per-packet one-way delay: 160.968 ms

Loss rate: 0.37%

-- Flow 2:

Average throughput: 36.89 Mbit/s

95th percentile per-packet one-way delay: 124.076 ms

Loss rate: 0.72%

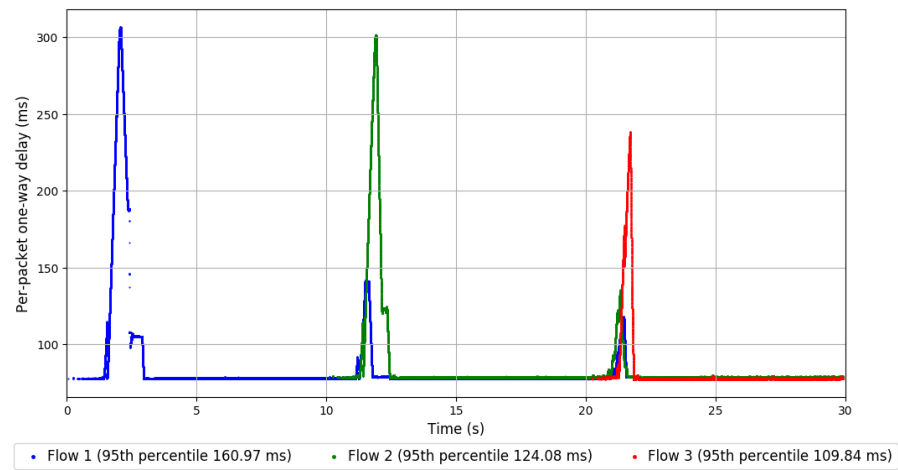
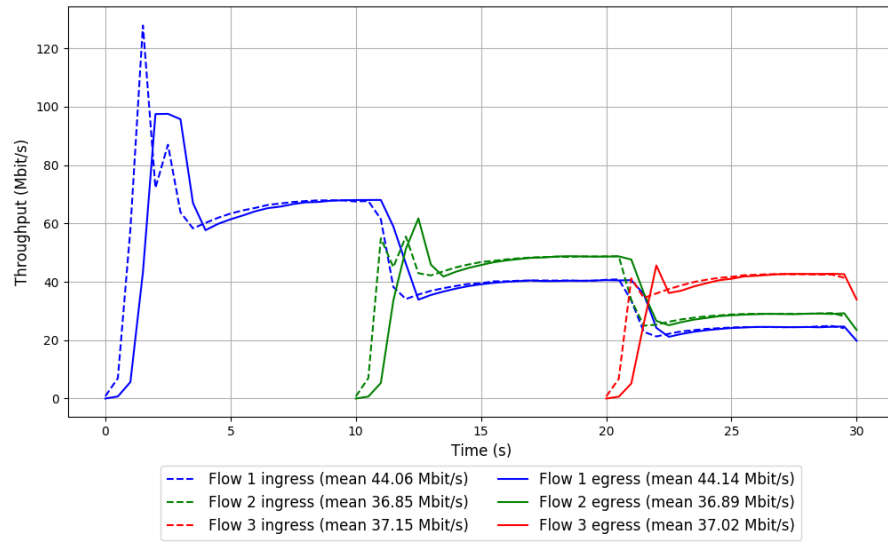
-- Flow 3:

Average throughput: 37.02 Mbit/s

95th percentile per-packet one-way delay: 109.838 ms

Loss rate: 1.95%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-10-10 05:47:50

End at: 2018-10-10 05:48:20

Local clock offset: -1.76 ms

Remote clock offset: 8.785 ms

Below is generated by plot.py at 2018-10-10 06:08:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.48 Mbit/s

95th percentile per-packet one-way delay: 132.100 ms

Loss rate: 0.83%

-- Flow 1:

Average throughput: 51.87 Mbit/s

95th percentile per-packet one-way delay: 138.467 ms

Loss rate: 0.53%

-- Flow 2:

Average throughput: 34.55 Mbit/s

95th percentile per-packet one-way delay: 125.988 ms

Loss rate: 1.28%

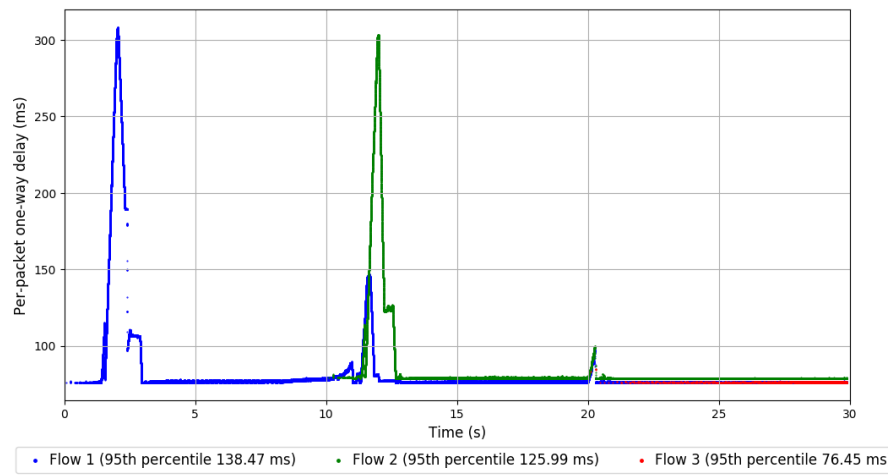
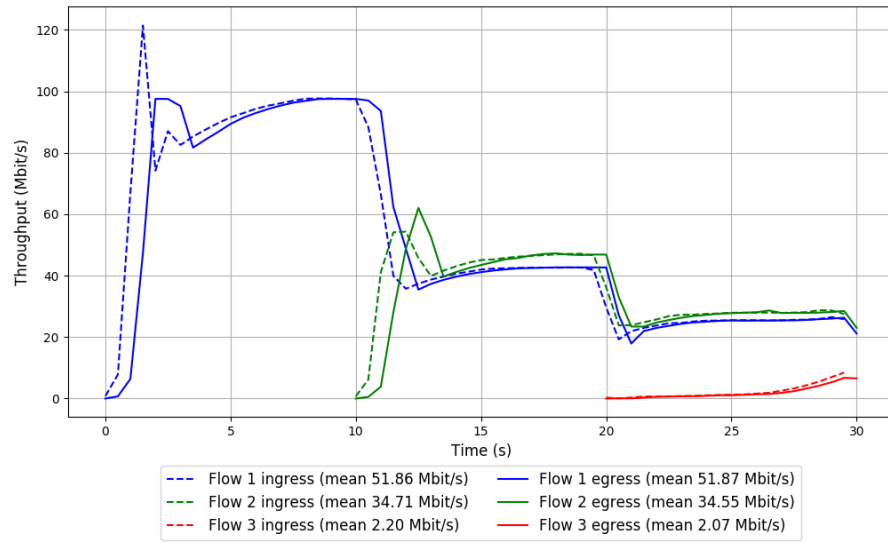
-- Flow 3:

Average throughput: 2.07 Mbit/s

95th percentile per-packet one-way delay: 76.448 ms

Loss rate: 7.40%

Run 5: Report of TCP Cubic — Data Link

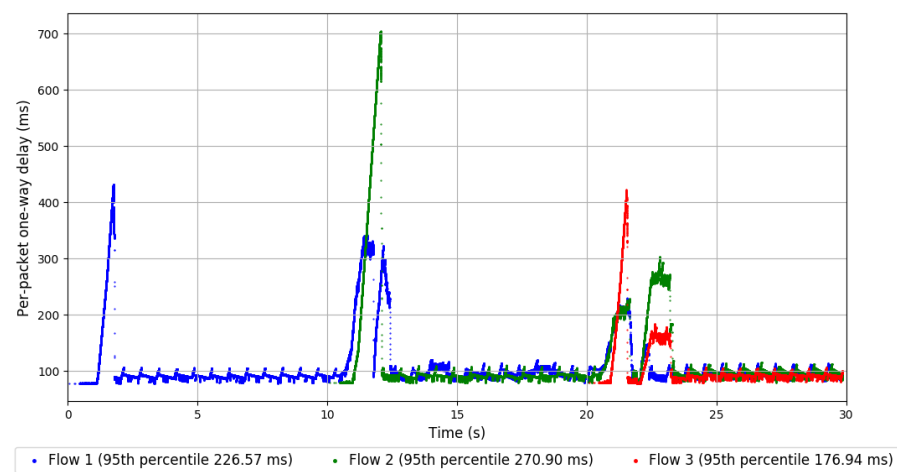
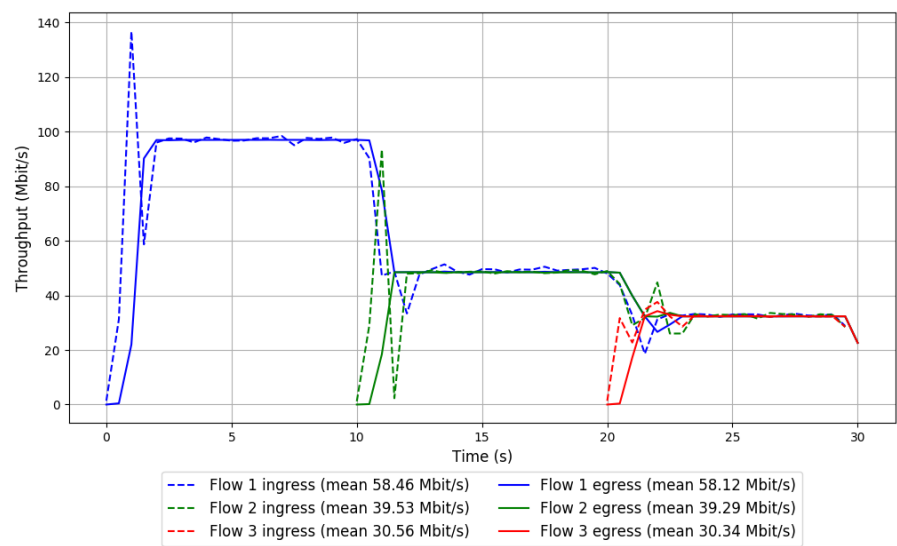


Run 1: Statistics of FillP

Start at: 2018-10-10 04:13:13
End at: 2018-10-10 04:13:43
Local clock offset: -1.823 ms
Remote clock offset: -0.908 ms

Below is generated by plot.py at 2018-10-10 06:08:41
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.13 Mbit/s
95th percentile per-packet one-way delay: 250.515 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 58.12 Mbit/s
95th percentile per-packet one-way delay: 226.566 ms
Loss rate: 1.12%
-- Flow 2:
Average throughput: 39.29 Mbit/s
95th percentile per-packet one-way delay: 270.902 ms
Loss rate: 1.42%
-- Flow 3:
Average throughput: 30.34 Mbit/s
95th percentile per-packet one-way delay: 176.935 ms
Loss rate: 2.36%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-10-10 04:36:39

End at: 2018-10-10 04:37:09

Local clock offset: -0.979 ms

Remote clock offset: 1.801 ms

Below is generated by plot.py at 2018-10-10 06:08:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.05 Mbit/s

95th percentile per-packet one-way delay: 228.371 ms

Loss rate: 1.87%

-- Flow 1:

Average throughput: 58.03 Mbit/s

95th percentile per-packet one-way delay: 222.411 ms

Loss rate: 1.38%

-- Flow 2:

Average throughput: 39.24 Mbit/s

95th percentile per-packet one-way delay: 203.889 ms

Loss rate: 2.39%

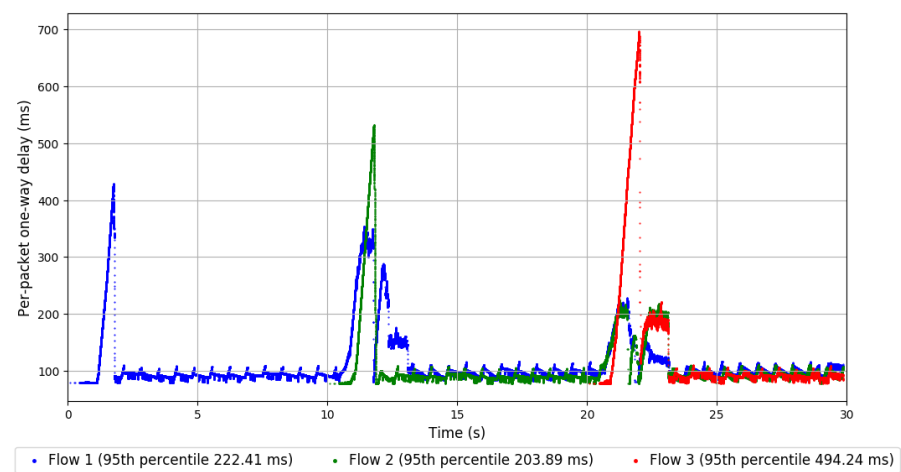
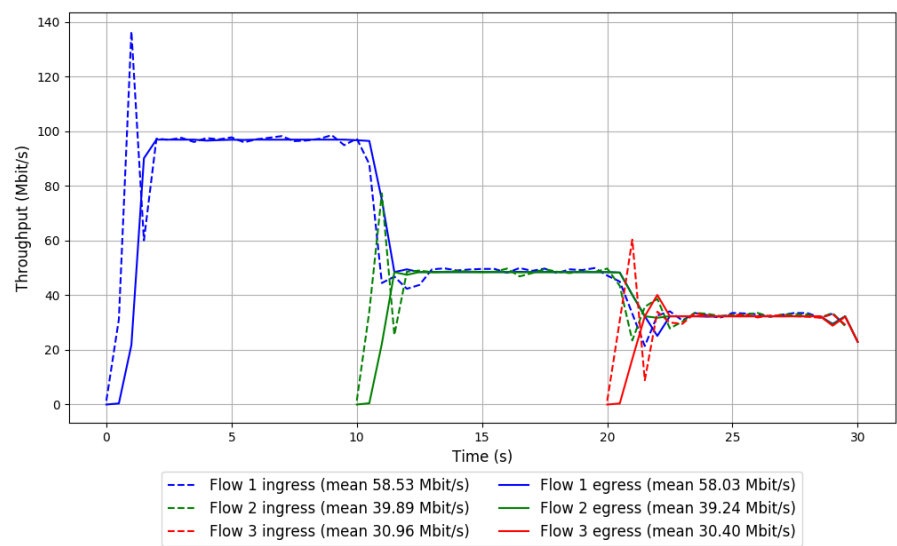
-- Flow 3:

Average throughput: 30.40 Mbit/s

95th percentile per-packet one-way delay: 494.242 ms

Loss rate: 3.32%

Run 2: Report of FillP — Data Link

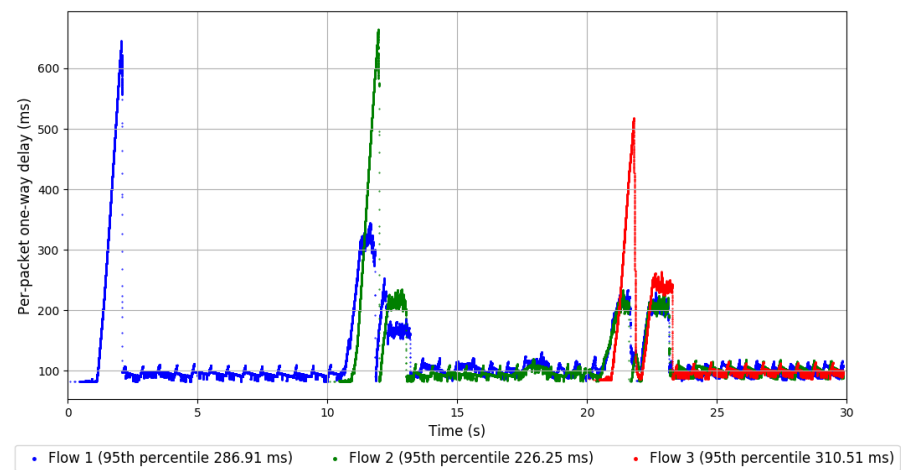
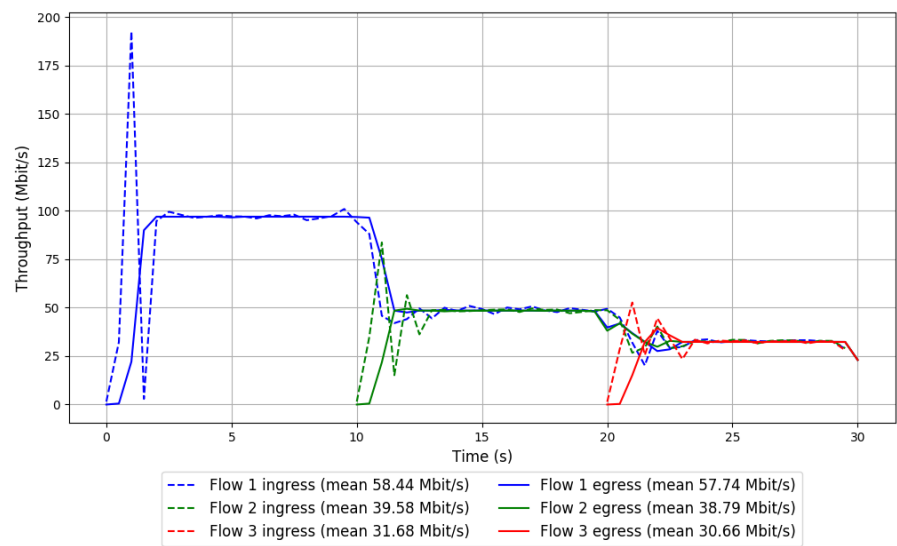


Run 3: Statistics of FillP

Start at: 2018-10-10 04:59:51
End at: 2018-10-10 05:00:21
Local clock offset: -1.034 ms
Remote clock offset: -0.865 ms

Below is generated by plot.py at 2018-10-10 06:08:44
Datalink statistics
-- Total of 3 flows:
Average throughput: 93.54 Mbit/s
95th percentile per-packet one-way delay: 273.704 ms
Loss rate: 2.36%
-- Flow 1:
Average throughput: 57.74 Mbit/s
95th percentile per-packet one-way delay: 286.907 ms
Loss rate: 1.73%
-- Flow 2:
Average throughput: 38.79 Mbit/s
95th percentile per-packet one-way delay: 226.254 ms
Loss rate: 2.80%
-- Flow 3:
Average throughput: 30.66 Mbit/s
95th percentile per-packet one-way delay: 310.514 ms
Loss rate: 4.82%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-10-10 05:23:14

End at: 2018-10-10 05:23:44

Local clock offset: -1.356 ms

Remote clock offset: 1.111 ms

Below is generated by plot.py at 2018-10-10 06:08:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.06 Mbit/s

95th percentile per-packet one-way delay: 314.018 ms

Loss rate: 1.50%

-- Flow 1:

Average throughput: 57.73 Mbit/s

95th percentile per-packet one-way delay: 311.540 ms

Loss rate: 1.30%

-- Flow 2:

Average throughput: 38.67 Mbit/s

95th percentile per-packet one-way delay: 219.218 ms

Loss rate: 1.43%

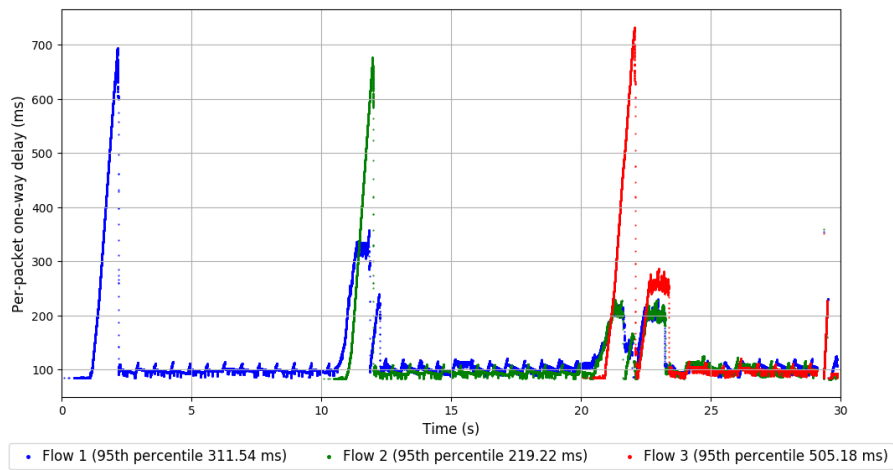
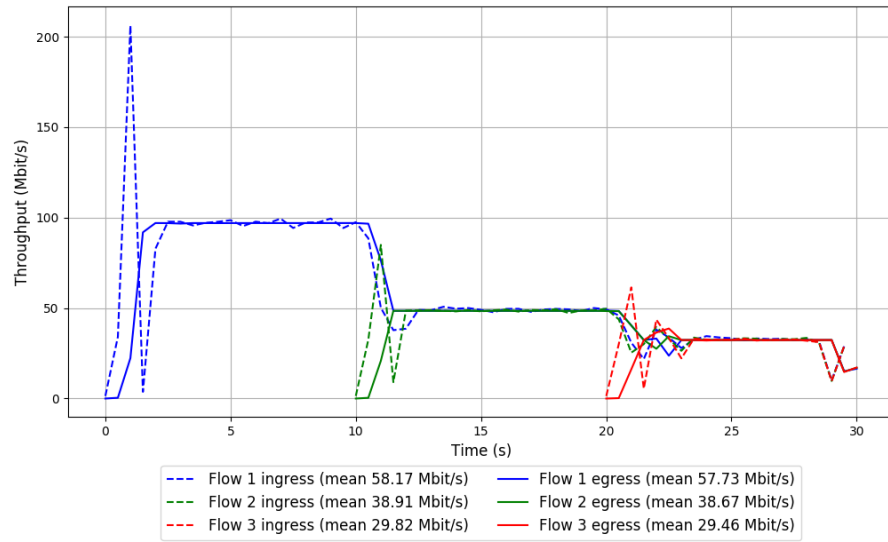
-- Flow 3:

Average throughput: 29.46 Mbit/s

95th percentile per-packet one-way delay: 505.184 ms

Loss rate: 2.84%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-10-10 05:46:33

End at: 2018-10-10 05:47:03

Local clock offset: -1.7 ms

Remote clock offset: 6.453 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.34 Mbit/s

95th percentile per-packet one-way delay: 250.091 ms

Loss rate: 1.41%

-- Flow 1:

Average throughput: 58.15 Mbit/s

95th percentile per-packet one-way delay: 236.164 ms

Loss rate: 1.10%

-- Flow 2:

Average throughput: 39.37 Mbit/s

95th percentile per-packet one-way delay: 221.341 ms

Loss rate: 1.65%

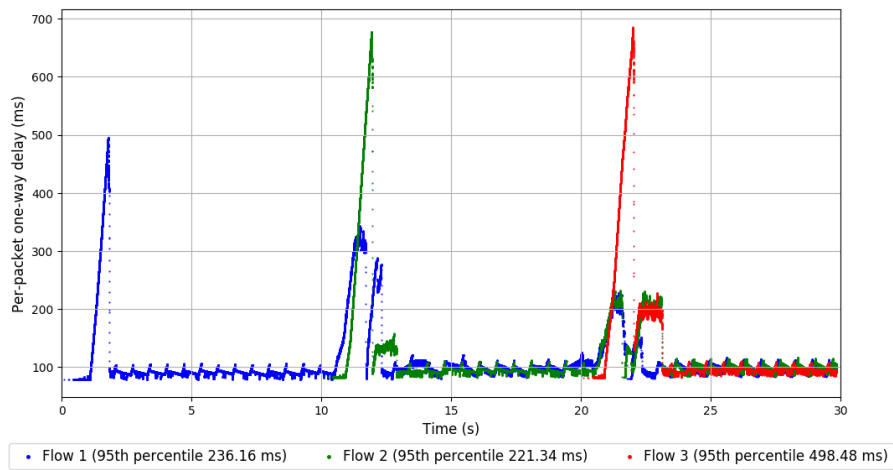
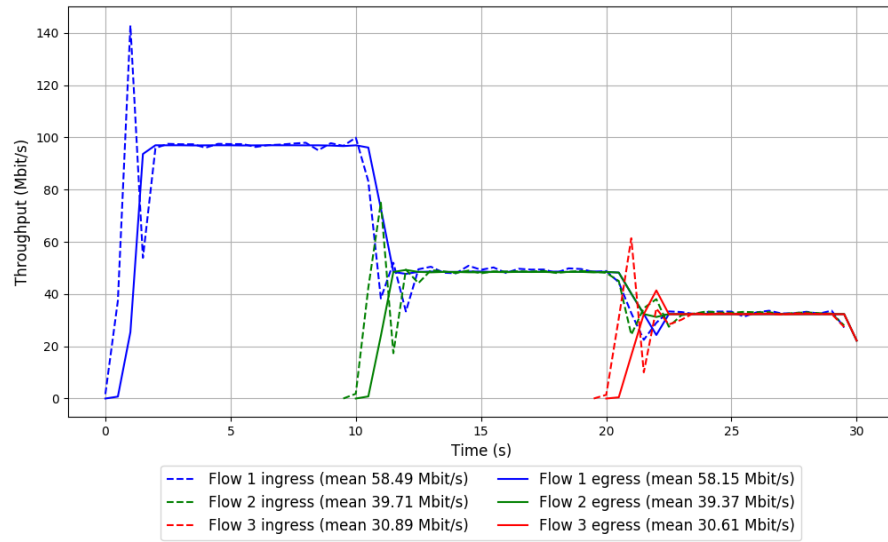
-- Flow 3:

Average throughput: 30.61 Mbit/s

95th percentile per-packet one-way delay: 498.479 ms

Loss rate: 2.55%

Run 5: Report of FillP — Data Link

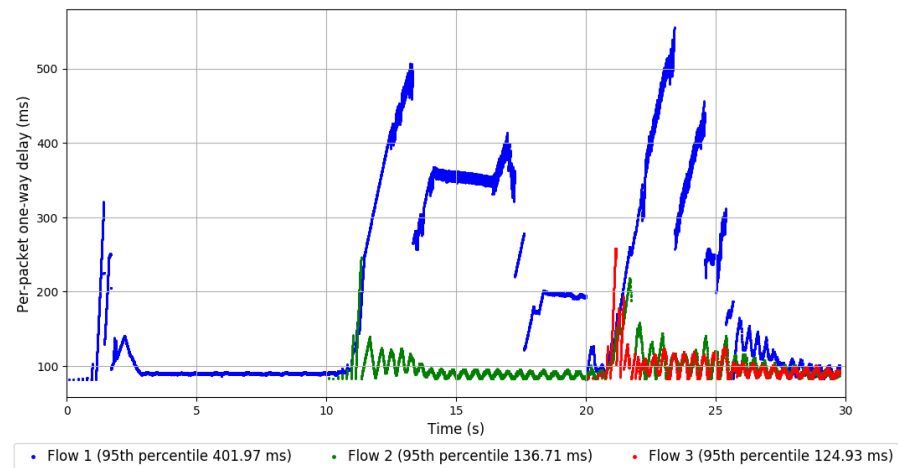
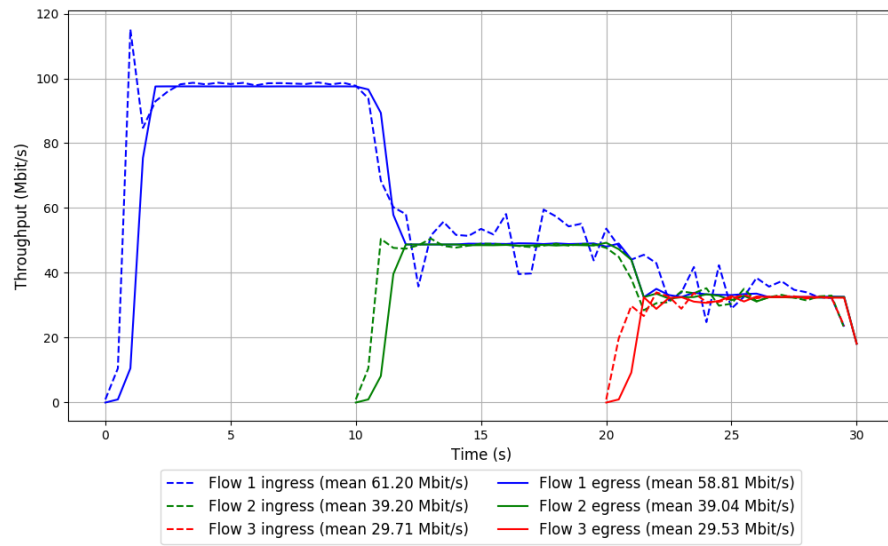


Run 1: Statistics of Indigo

Start at: 2018-10-10 04:27:24
End at: 2018-10-10 04:27:54
Local clock offset: -0.852 ms
Remote clock offset: -4.638 ms

Below is generated by plot.py at 2018-10-10 06:09:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.33 Mbit/s
95th percentile per-packet one-way delay: 364.269 ms
Loss rate: 3.34%
-- Flow 1:
Average throughput: 58.81 Mbit/s
95th percentile per-packet one-way delay: 401.971 ms
Loss rate: 4.42%
-- Flow 2:
Average throughput: 39.04 Mbit/s
95th percentile per-packet one-way delay: 136.714 ms
Loss rate: 1.20%
-- Flow 3:
Average throughput: 29.53 Mbit/s
95th percentile per-packet one-way delay: 124.934 ms
Loss rate: 2.25%

Run 1: Report of Indigo — Data Link

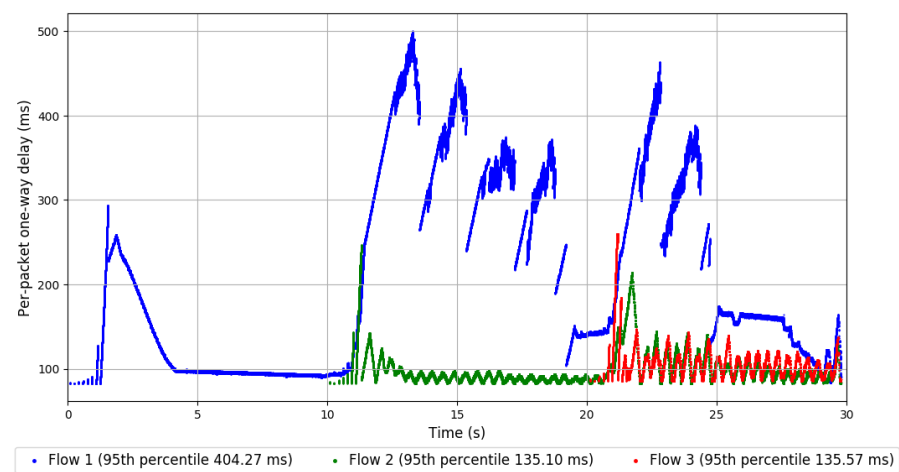
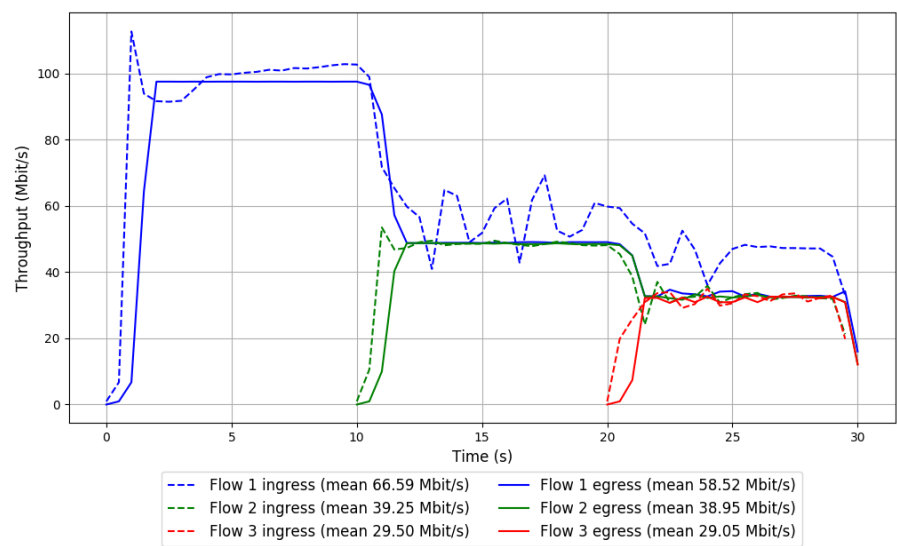


Run 2: Statistics of Indigo

Start at: 2018-10-10 04:50:41
End at: 2018-10-10 04:51:11
Local clock offset: -0.746 ms
Remote clock offset: -1.615 ms

Below is generated by plot.py at 2018-10-10 06:09:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 93.80 Mbit/s
95th percentile per-packet one-way delay: 365.925 ms
Loss rate: 8.90%
-- Flow 1:
Average throughput: 58.52 Mbit/s
95th percentile per-packet one-way delay: 404.270 ms
Loss rate: 12.60%
-- Flow 2:
Average throughput: 38.95 Mbit/s
95th percentile per-packet one-way delay: 135.101 ms
Loss rate: 1.57%
-- Flow 3:
Average throughput: 29.05 Mbit/s
95th percentile per-packet one-way delay: 135.573 ms
Loss rate: 3.17%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-10-10 05:13:53

End at: 2018-10-10 05:14:23

Local clock offset: -1.419 ms

Remote clock offset: 5.118 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.25 Mbit/s

95th percentile per-packet one-way delay: 269.304 ms

Loss rate: 4.10%

-- Flow 1:

Average throughput: 58.41 Mbit/s

95th percentile per-packet one-way delay: 318.488 ms

Loss rate: 5.05%

-- Flow 2:

Average throughput: 38.00 Mbit/s

95th percentile per-packet one-way delay: 130.558 ms

Loss rate: 2.59%

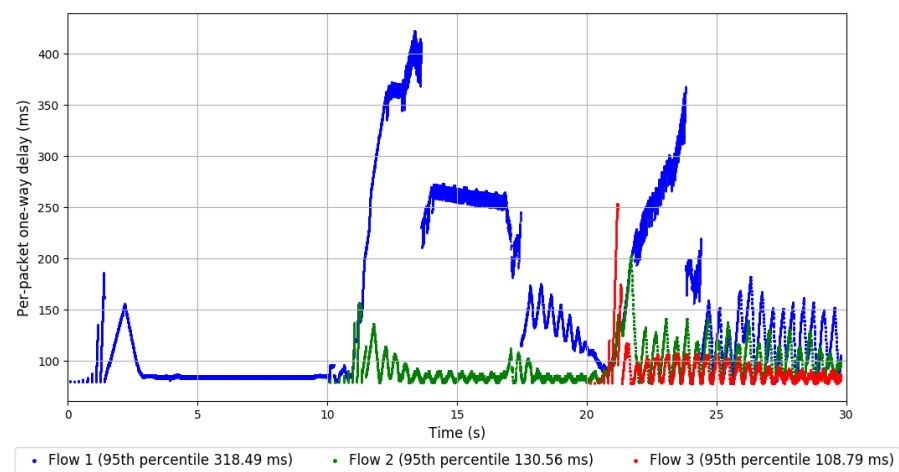
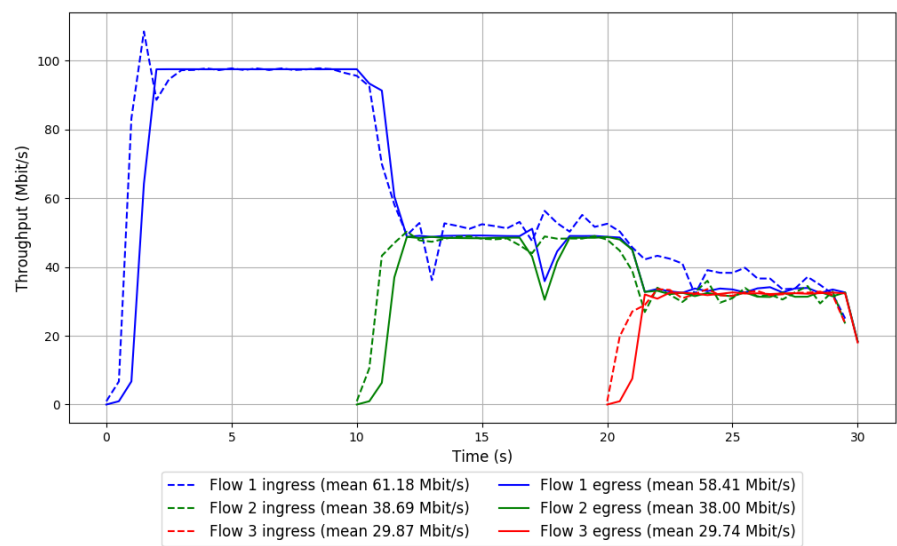
-- Flow 3:

Average throughput: 29.74 Mbit/s

95th percentile per-packet one-way delay: 108.792 ms

Loss rate: 2.10%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-10-10 05:37:26

End at: 2018-10-10 05:37:56

Local clock offset: -1.672 ms

Remote clock offset: 2.889 ms

Below is generated by plot.py at 2018-10-10 06:09:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.08 Mbit/s

95th percentile per-packet one-way delay: 356.172 ms

Loss rate: 5.13%

-- Flow 1:

Average throughput: 58.56 Mbit/s

95th percentile per-packet one-way delay: 364.500 ms

Loss rate: 7.05%

-- Flow 2:

Average throughput: 39.07 Mbit/s

95th percentile per-packet one-way delay: 131.360 ms

Loss rate: 1.16%

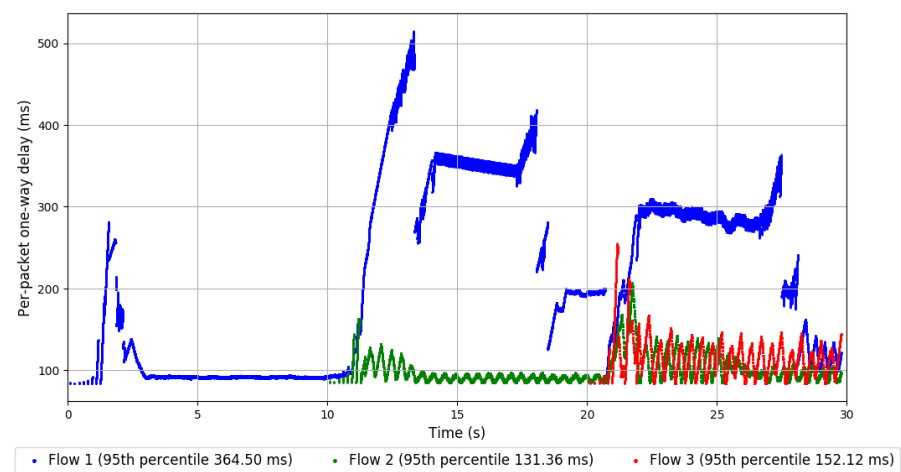
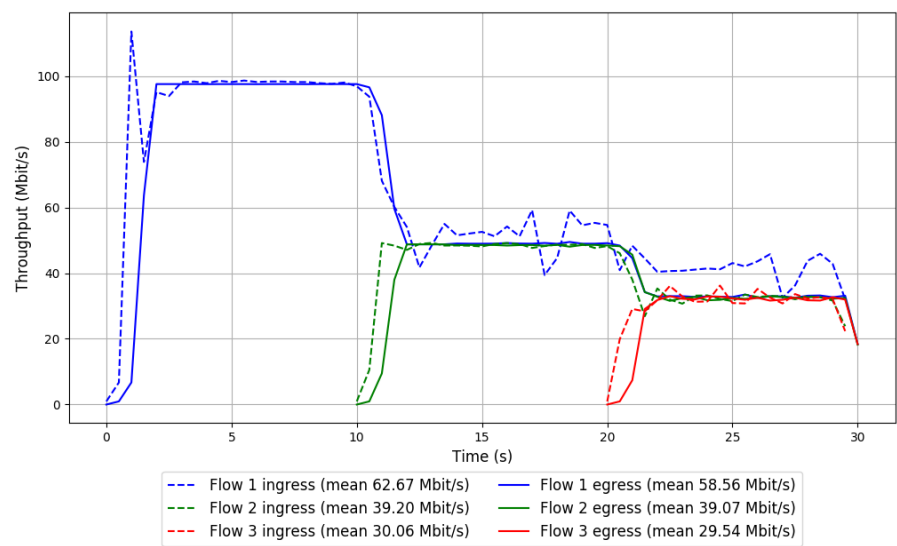
-- Flow 3:

Average throughput: 29.54 Mbit/s

95th percentile per-packet one-way delay: 152.118 ms

Loss rate: 3.37%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-10-10 06:00:33

End at: 2018-10-10 06:01:03

Local clock offset: -1.681 ms

Remote clock offset: 2.74 ms

Below is generated by plot.py at 2018-10-10 06:09:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.09 Mbit/s

95th percentile per-packet one-way delay: 349.002 ms

Loss rate: 5.29%

-- Flow 1:

Average throughput: 58.56 Mbit/s

95th percentile per-packet one-way delay: 356.181 ms

Loss rate: 7.24%

-- Flow 2:

Average throughput: 38.88 Mbit/s

95th percentile per-packet one-way delay: 131.358 ms

Loss rate: 1.12%

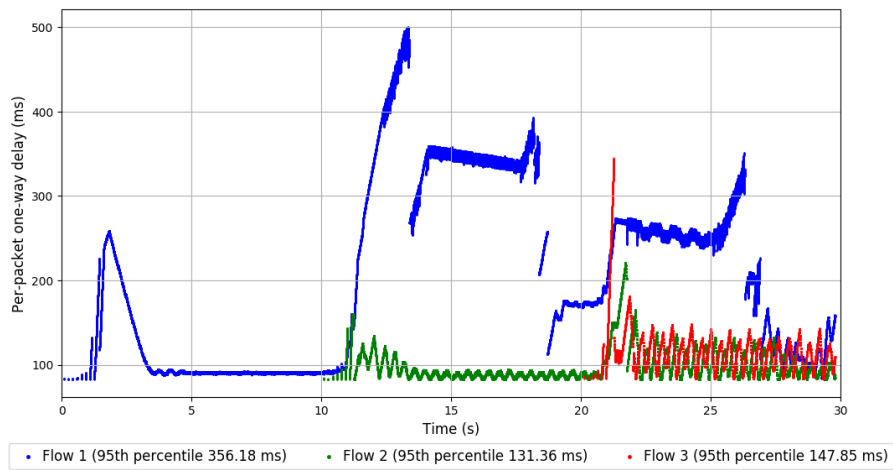
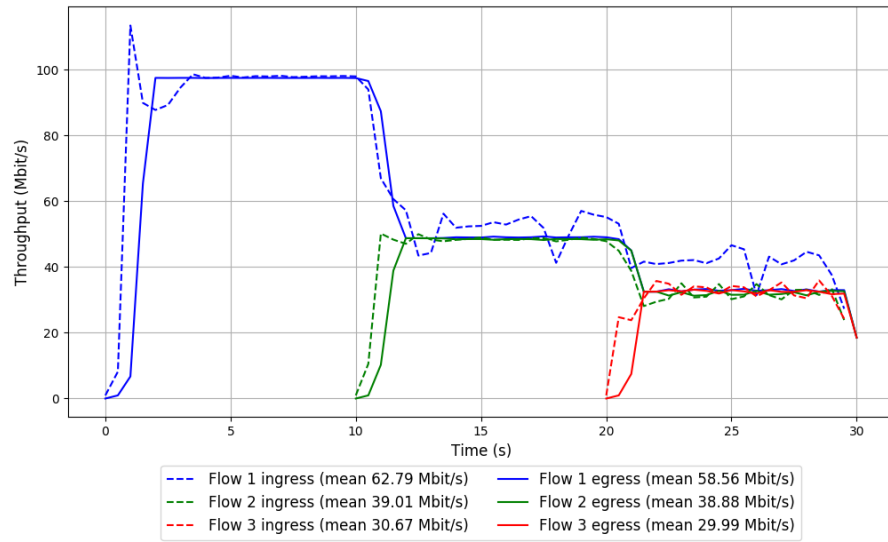
-- Flow 3:

Average throughput: 29.99 Mbit/s

95th percentile per-packet one-way delay: 147.854 ms

Loss rate: 3.82%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-10 04:22:21

End at: 2018-10-10 04:22:51

Local clock offset: -0.976 ms

Remote clock offset: -5.0 ms

Below is generated by plot.py at 2018-10-10 06:09:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.91 Mbit/s

95th percentile per-packet one-way delay: 1243.361 ms

Loss rate: 33.65%

-- Flow 1:

Average throughput: 48.34 Mbit/s

95th percentile per-packet one-way delay: 1210.312 ms

Loss rate: 29.58%

-- Flow 2:

Average throughput: 34.59 Mbit/s

95th percentile per-packet one-way delay: 1255.234 ms

Loss rate: 39.94%

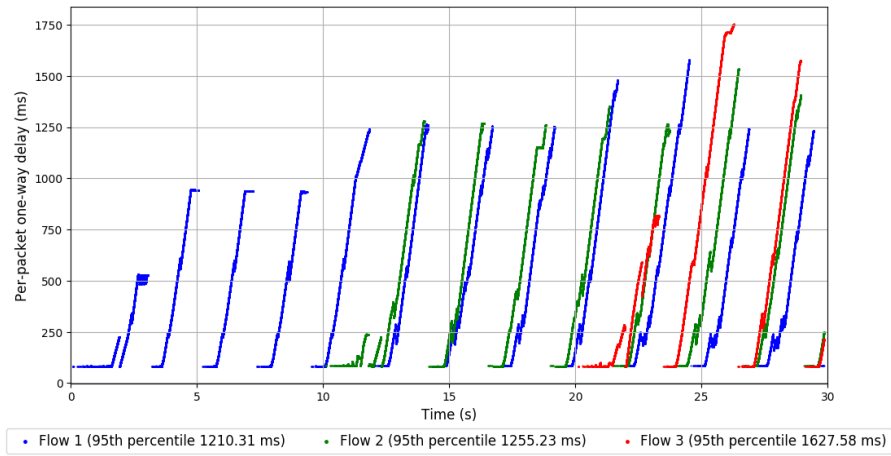
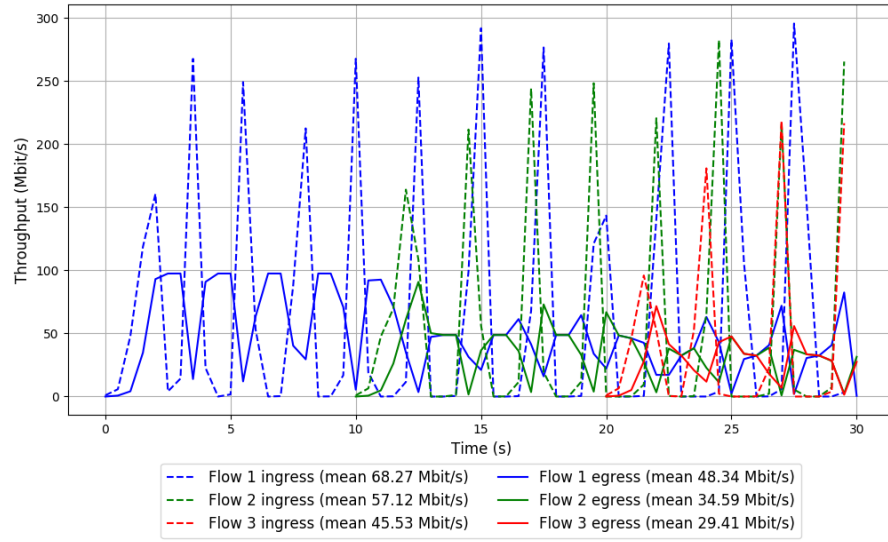
-- Flow 3:

Average throughput: 29.41 Mbit/s

95th percentile per-packet one-way delay: 1627.580 ms

Loss rate: 36.22%

Run 1: Report of Indigo-96d2da3 — Data Link

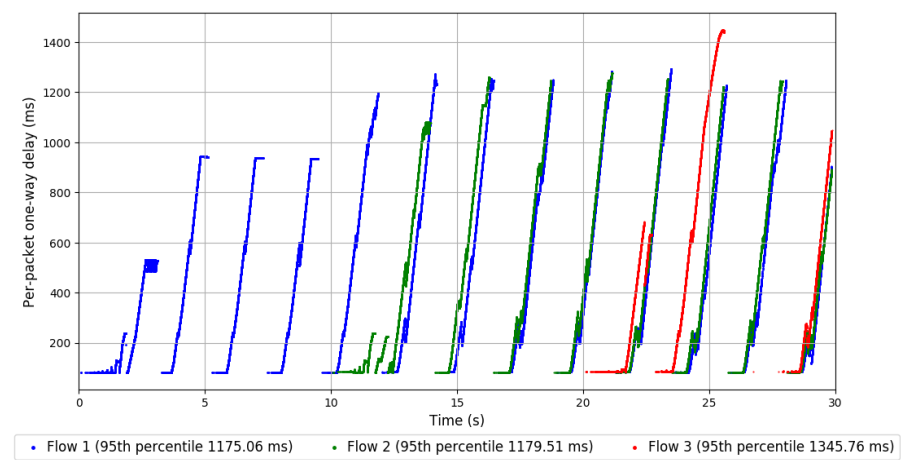
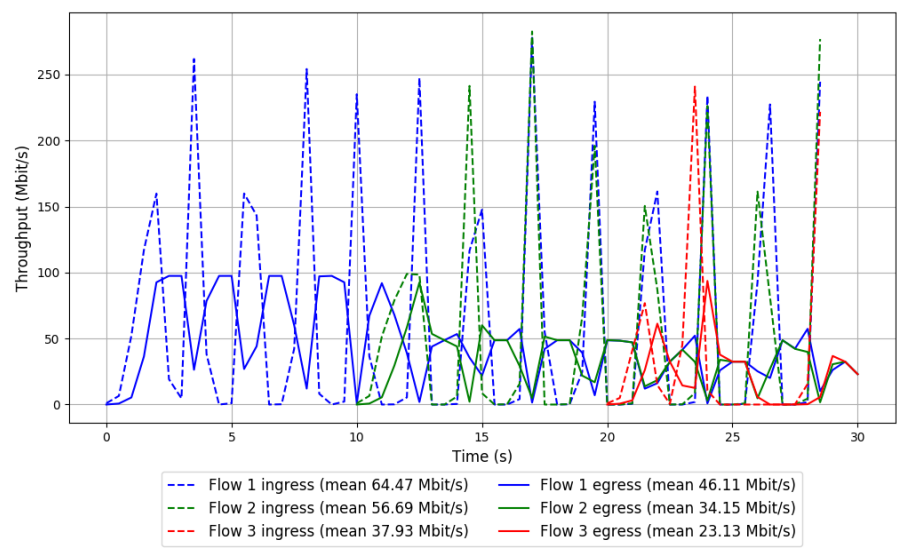


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-10 04:45:40
End at: 2018-10-10 04:46:10
Local clock offset: -0.83 ms
Remote clock offset: -2.074 ms

Below is generated by plot.py at 2018-10-10 06:09:54
Datalink statistics
-- Total of 3 flows:
Average throughput: 76.35 Mbit/s
95th percentile per-packet one-way delay: 1183.707 ms
Loss rate: 30.68%
-- Flow 1:
Average throughput: 46.11 Mbit/s
95th percentile per-packet one-way delay: 1175.062 ms
Loss rate: 26.47%
-- Flow 2:
Average throughput: 34.15 Mbit/s
95th percentile per-packet one-way delay: 1179.509 ms
Loss rate: 37.26%
-- Flow 3:
Average throughput: 23.13 Mbit/s
95th percentile per-packet one-way delay: 1345.755 ms
Loss rate: 33.02%

Run 2: Report of Indigo-96d2da3 — Data Link



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-10 05:08:51

End at: 2018-10-10 05:09:21

Local clock offset: -1.368 ms

Remote clock offset: 3.69 ms

Below is generated by plot.py at 2018-10-10 06:10:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 76.24 Mbit/s

95th percentile per-packet one-way delay: 1188.807 ms

Loss rate: 33.93%

-- Flow 1:

Average throughput: 44.86 Mbit/s

95th percentile per-packet one-way delay: 1164.168 ms

Loss rate: 26.64%

-- Flow 2:

Average throughput: 34.42 Mbit/s

95th percentile per-packet one-way delay: 1186.381 ms

Loss rate: 40.94%

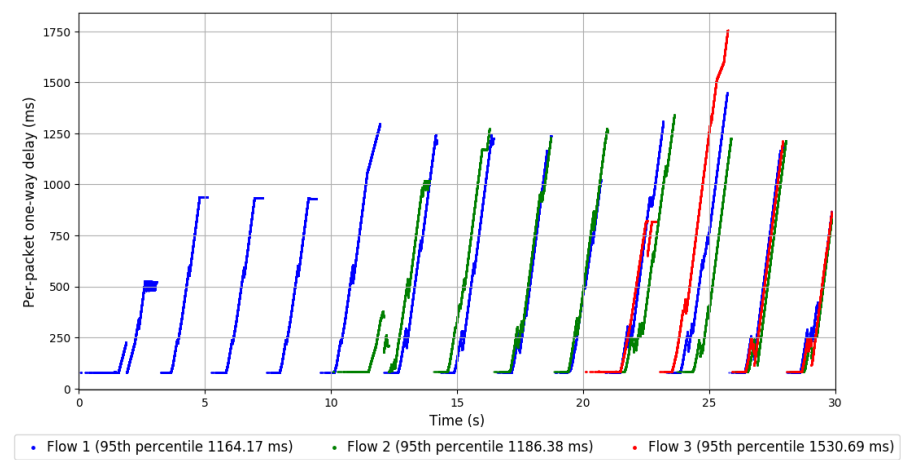
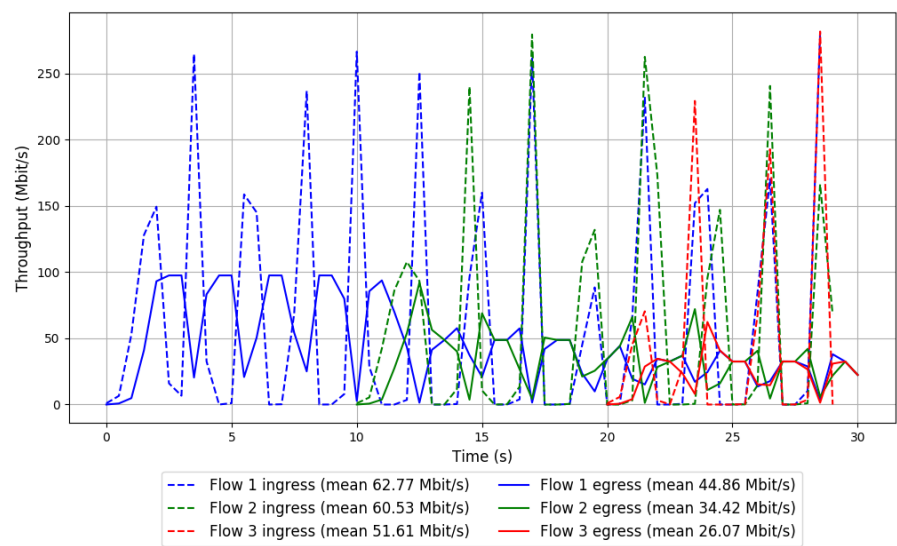
-- Flow 3:

Average throughput: 26.07 Mbit/s

95th percentile per-packet one-way delay: 1530.688 ms

Loss rate: 45.17%

Run 3: Report of Indigo-96d2da3 — Data Link



Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-10 05:32:23

End at: 2018-10-10 05:32:53

Local clock offset: -1.59 ms

Remote clock offset: 7.692 ms

Below is generated by plot.py at 2018-10-10 06:10:24

Datalink statistics

-- Total of 3 flows:

Average throughput: 78.28 Mbit/s

95th percentile per-packet one-way delay: 1242.722 ms

Loss rate: 28.79%

-- Flow 1:

Average throughput: 45.30 Mbit/s

95th percentile per-packet one-way delay: 1312.124 ms

Loss rate: 21.44%

-- Flow 2:

Average throughput: 35.96 Mbit/s

95th percentile per-packet one-way delay: 1223.767 ms

Loss rate: 34.01%

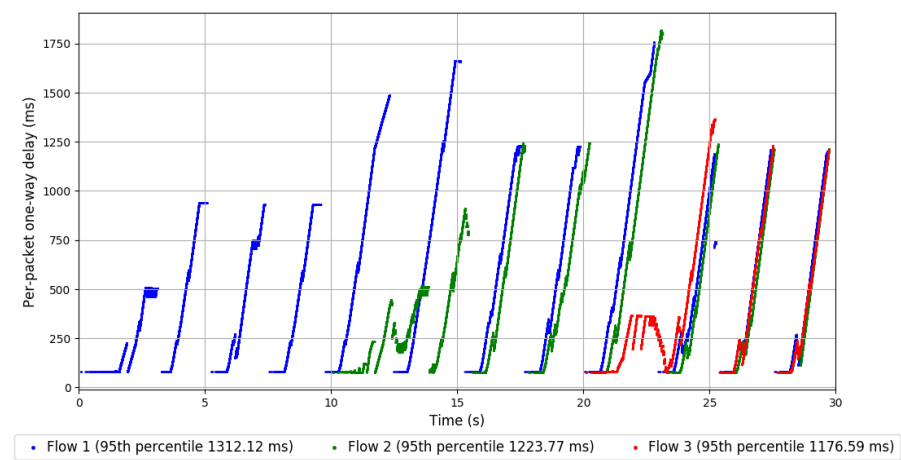
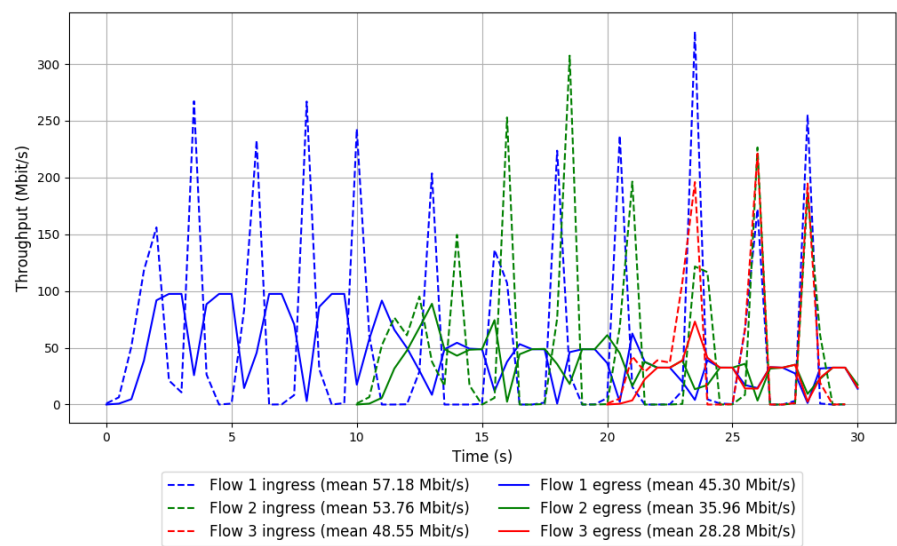
-- Flow 3:

Average throughput: 28.28 Mbit/s

95th percentile per-packet one-way delay: 1176.586 ms

Loss rate: 43.29%

Run 4: Report of Indigo-96d2da3 — Data Link



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-10 05:55:30

End at: 2018-10-10 05:56:00

Local clock offset: -1.67 ms

Remote clock offset: 6.716 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 78.49 Mbit/s

95th percentile per-packet one-way delay: 1208.003 ms

Loss rate: 31.45%

-- Flow 1:

Average throughput: 47.25 Mbit/s

95th percentile per-packet one-way delay: 1203.809 ms

Loss rate: 24.21%

-- Flow 2:

Average throughput: 35.35 Mbit/s

95th percentile per-packet one-way delay: 1215.272 ms

Loss rate: 42.39%

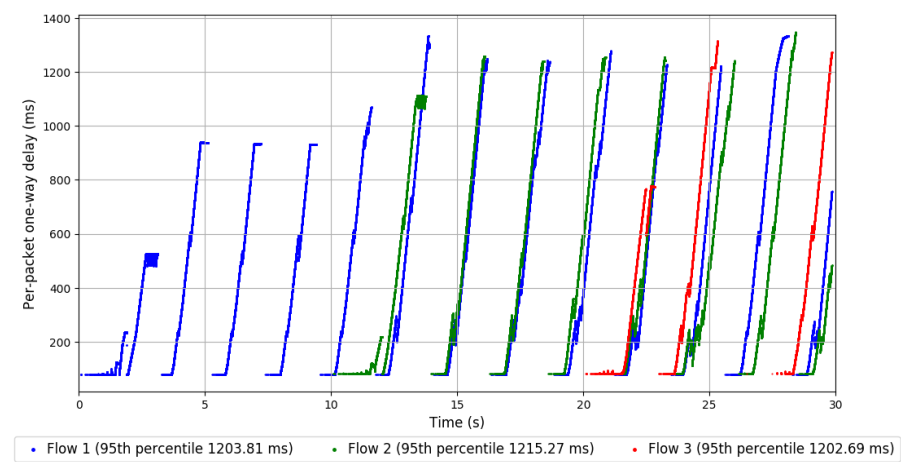
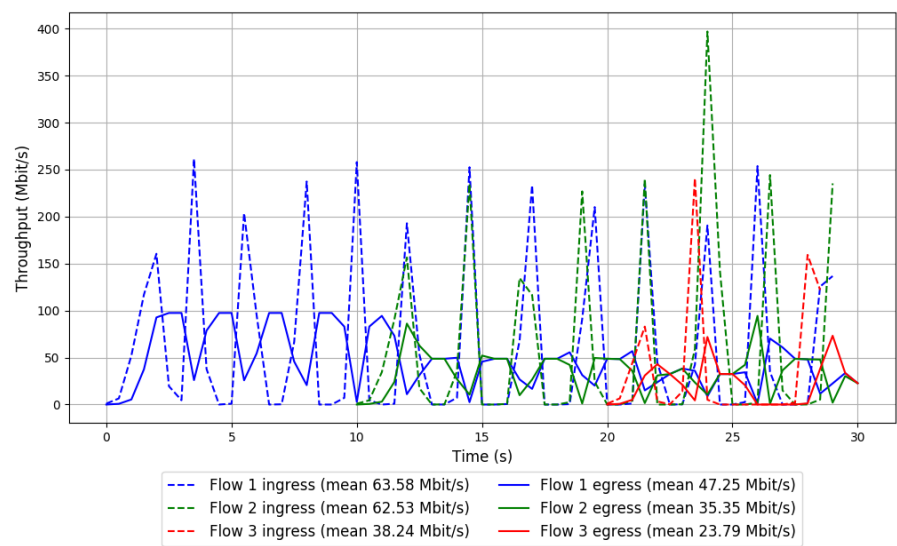
-- Flow 3:

Average throughput: 23.79 Mbit/s

95th percentile per-packet one-way delay: 1202.693 ms

Loss rate: 31.95%

Run 5: Report of Indigo-96d2da3 — Data Link

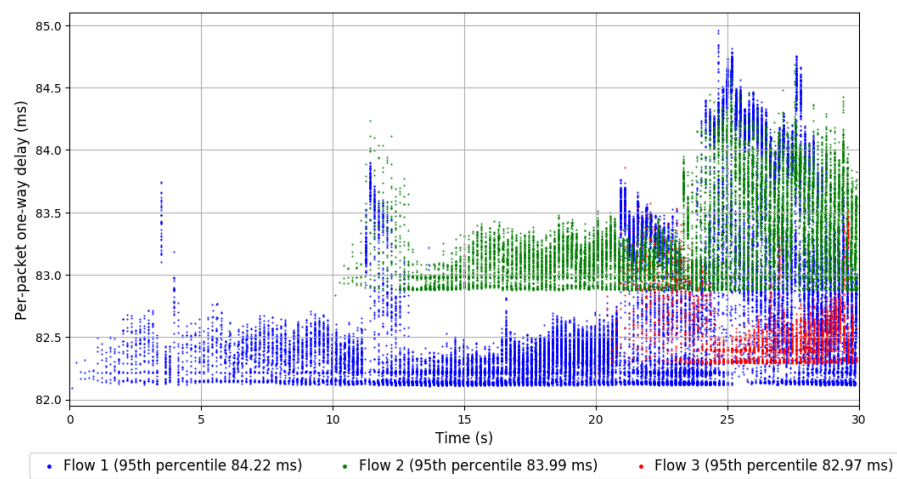
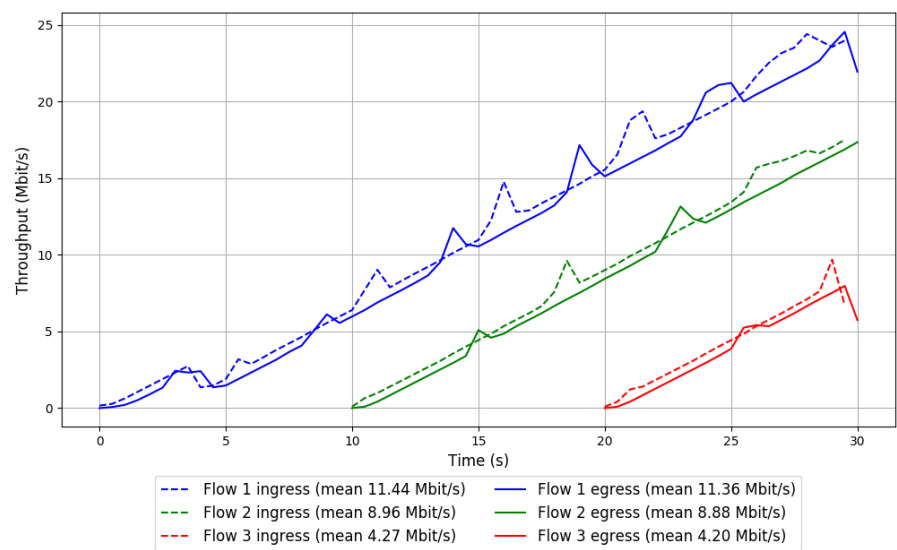


```
Run 1: Statistics of LEDBAT

Start at: 2018-10-10 04:21:07
End at: 2018-10-10 04:21:37
Local clock offset: -1.006 ms
Remote clock offset: -5.24 ms

# Below is generated by plot.py at 2018-10-10 06:10:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.63 Mbit/s
95th percentile per-packet one-way delay: 84.128 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 11.36 Mbit/s
95th percentile per-packet one-way delay: 84.225 ms
Loss rate: 1.22%
-- Flow 2:
Average throughput: 8.88 Mbit/s
95th percentile per-packet one-way delay: 83.990 ms
Loss rate: 1.65%
-- Flow 3:
Average throughput: 4.20 Mbit/s
95th percentile per-packet one-way delay: 82.965 ms
Loss rate: 3.26%
```

Run 1: Report of LEDBAT — Data Link

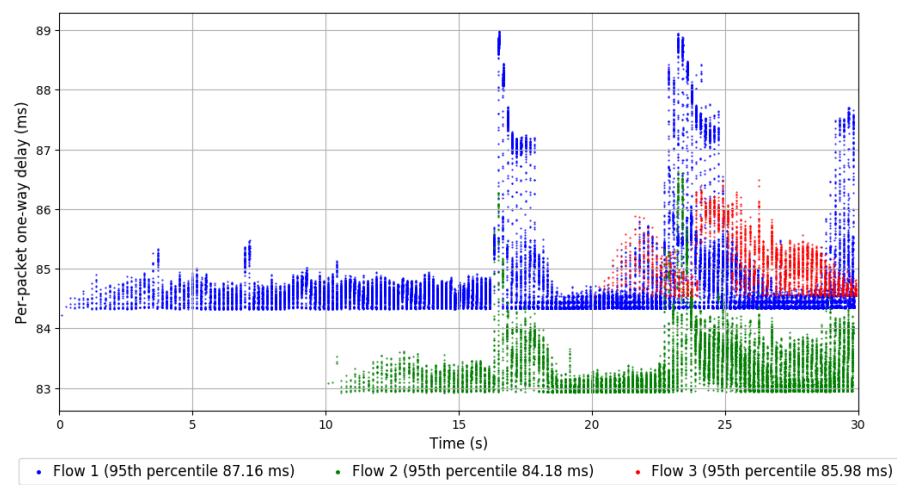
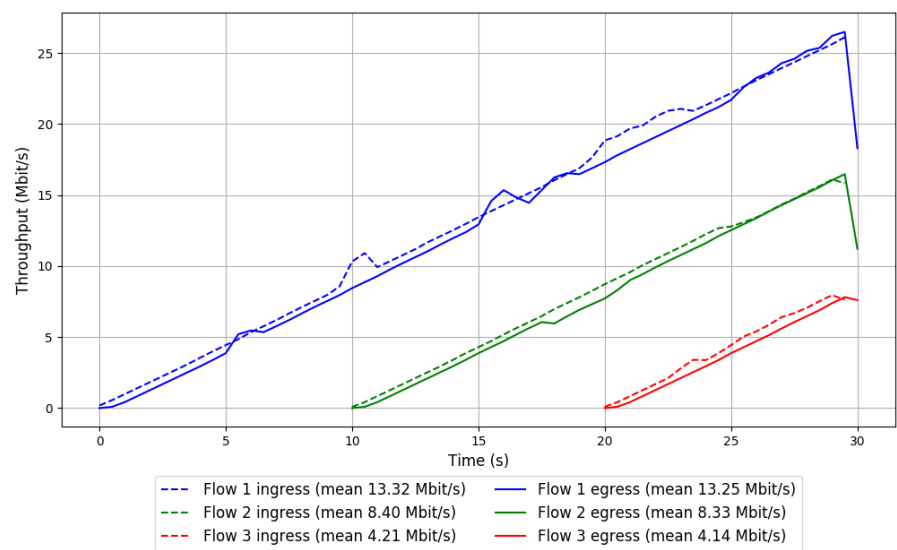


Run 2: Statistics of LEDBAT

Start at: 2018-10-10 04:44:26
End at: 2018-10-10 04:44:56
Local clock offset: -0.925 ms
Remote clock offset: -2.352 ms

Below is generated by plot.py at 2018-10-10 06:10:28
Datalink statistics
-- Total of 3 flows:
Average throughput: 20.08 Mbit/s
95th percentile per-packet one-way delay: 86.050 ms
Loss rate: 1.41%
-- Flow 1:
Average throughput: 13.25 Mbit/s
95th percentile per-packet one-way delay: 87.155 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 8.33 Mbit/s
95th percentile per-packet one-way delay: 84.181 ms
Loss rate: 1.70%
-- Flow 3:
Average throughput: 4.14 Mbit/s
95th percentile per-packet one-way delay: 85.984 ms
Loss rate: 3.24%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-10-10 05:07:37

End at: 2018-10-10 05:08:07

Local clock offset: -1.356 ms

Remote clock offset: 4.638 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.78 Mbit/s

95th percentile per-packet one-way delay: 82.470 ms

Loss rate: 1.44%

-- Flow 1:

Average throughput: 12.99 Mbit/s

95th percentile per-packet one-way delay: 83.359 ms

Loss rate: 1.11%

-- Flow 2:

Average throughput: 8.16 Mbit/s

95th percentile per-packet one-way delay: 81.272 ms

Loss rate: 1.72%

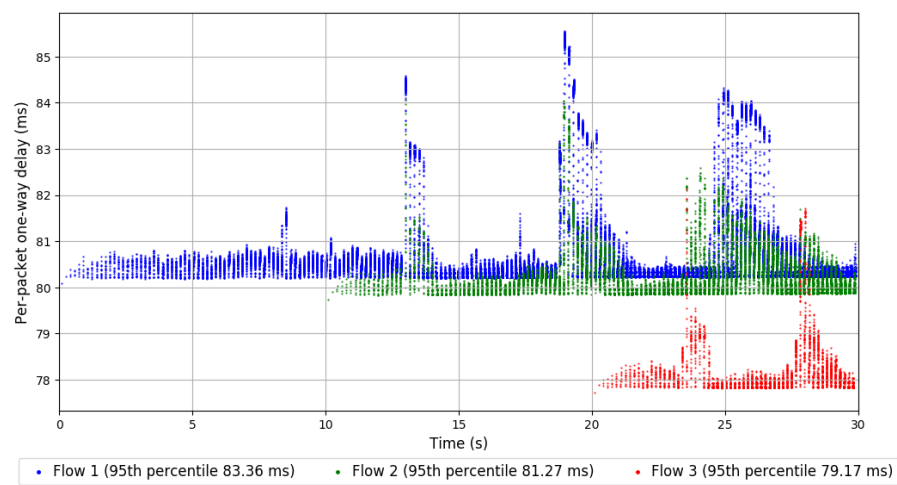
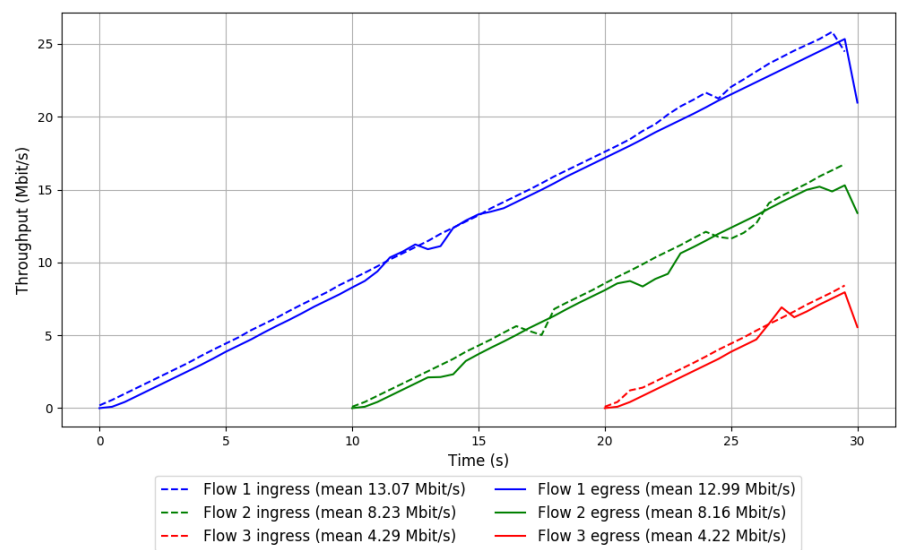
-- Flow 3:

Average throughput: 4.22 Mbit/s

95th percentile per-packet one-way delay: 79.171 ms

Loss rate: 3.38%

Run 3: Report of LEDBAT — Data Link

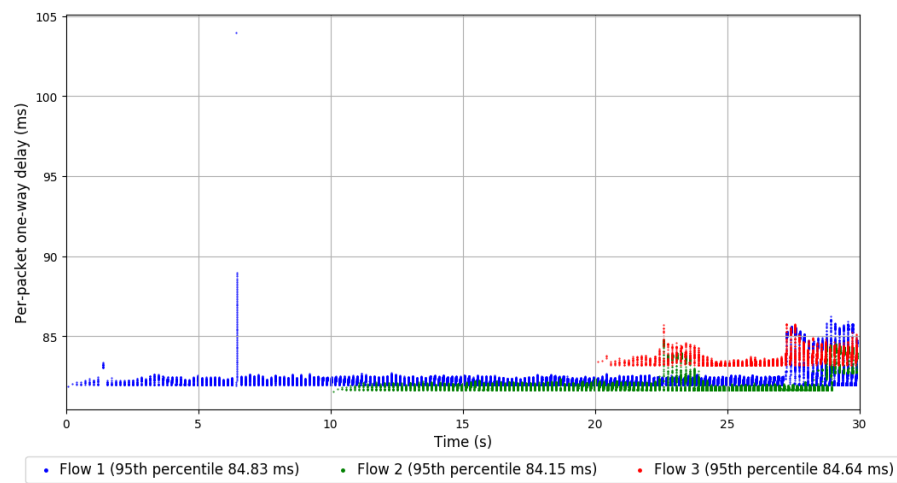
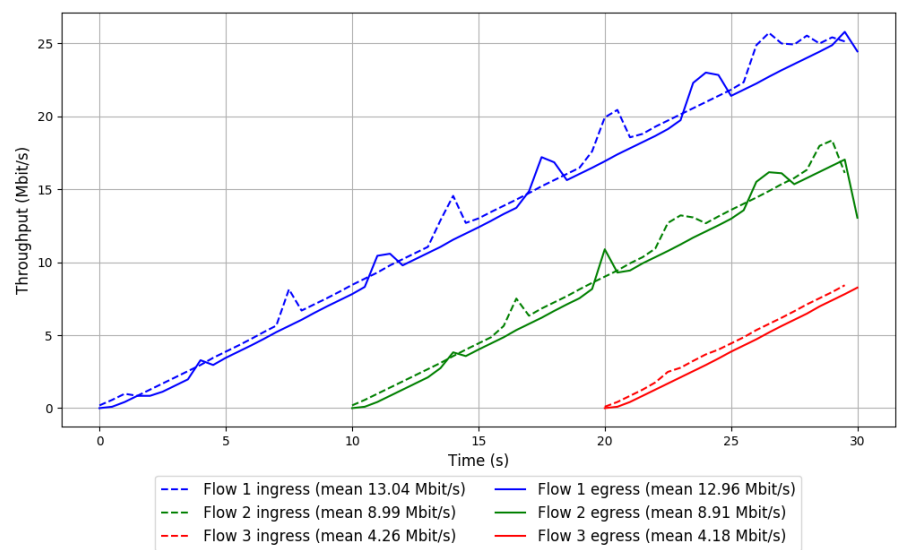


Run 4: Statistics of LEDBAT

Start at: 2018-10-10 05:31:09
End at: 2018-10-10 05:31:39
Local clock offset: -1.636 ms
Remote clock offset: 2.585 ms

Below is generated by plot.py at 2018-10-10 06:10:28
Datalink statistics
-- Total of 3 flows:
Average throughput: 20.25 Mbit/s
95th percentile per-packet one-way delay: 84.459 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 12.96 Mbit/s
95th percentile per-packet one-way delay: 84.835 ms
Loss rate: 1.11%
-- Flow 2:
Average throughput: 8.91 Mbit/s
95th percentile per-packet one-way delay: 84.151 ms
Loss rate: 1.64%
-- Flow 3:
Average throughput: 4.18 Mbit/s
95th percentile per-packet one-way delay: 84.641 ms
Loss rate: 3.37%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-10-10 05:54:16

End at: 2018-10-10 05:54:46

Local clock offset: -1.73 ms

Remote clock offset: 4.062 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 20.56 Mbit/s

95th percentile per-packet one-way delay: 84.563 ms

Loss rate: 1.41%

-- Flow 1:

Average throughput: 13.38 Mbit/s

95th percentile per-packet one-way delay: 82.967 ms

Loss rate: 1.09%

-- Flow 2:

Average throughput: 8.67 Mbit/s

95th percentile per-packet one-way delay: 84.864 ms

Loss rate: 1.66%

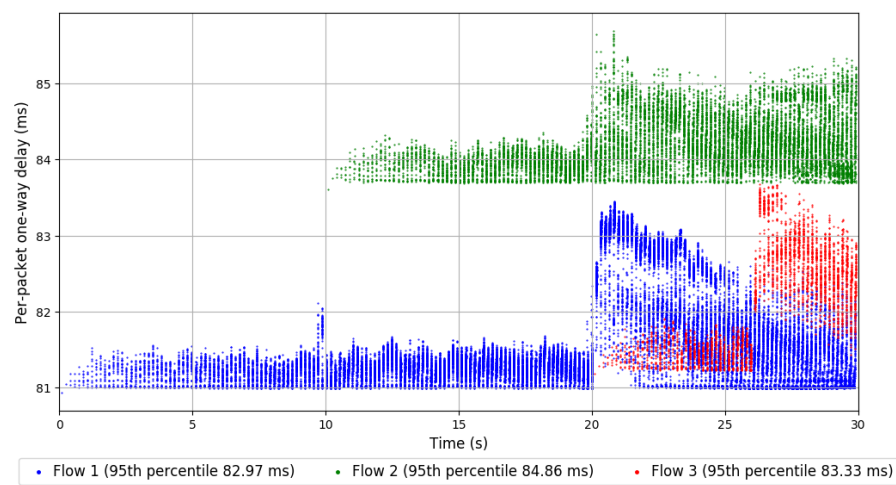
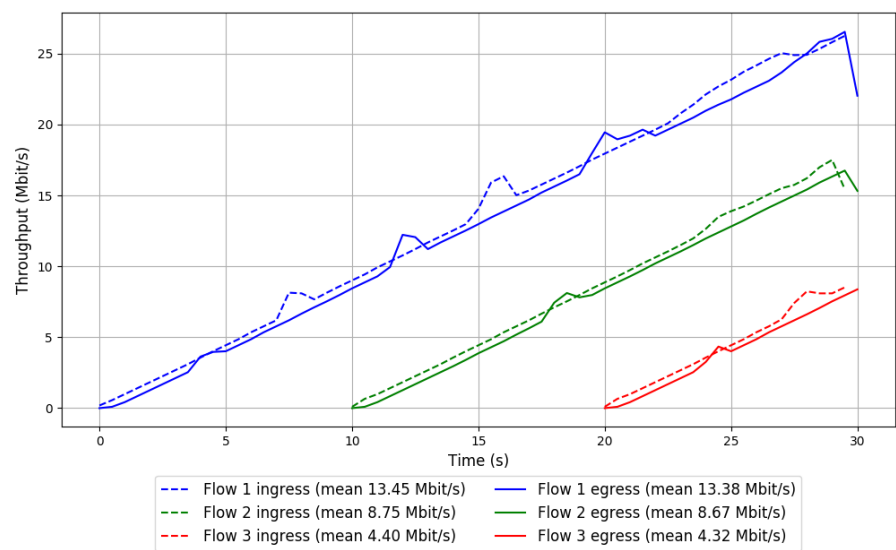
-- Flow 3:

Average throughput: 4.32 Mbit/s

95th percentile per-packet one-way delay: 83.332 ms

Loss rate: 3.29%

Run 5: Report of LEDBAT — Data Link

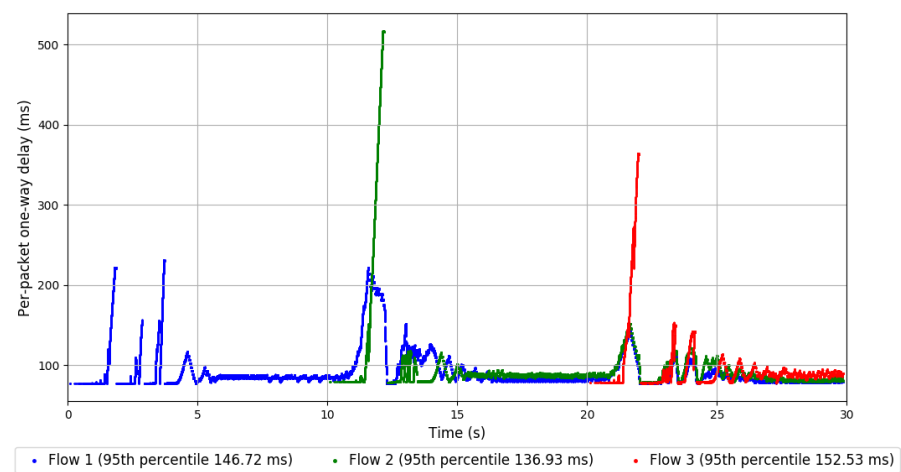
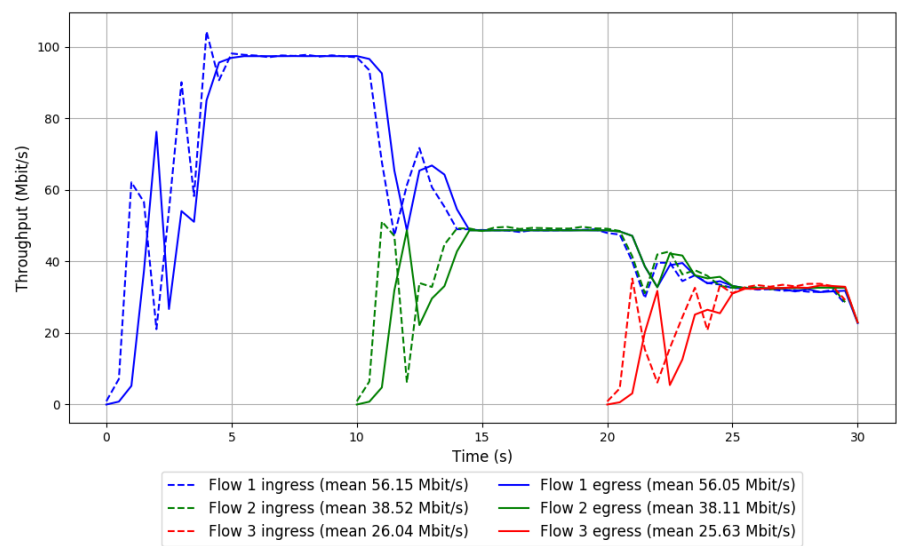


Run 1: Statistics of Indigo-Muses

Start at: 2018-10-10 04:18:22
End at: 2018-10-10 04:18:52
Local clock offset: -1.226 ms
Remote clock offset: -0.503 ms

Below is generated by plot.py at 2018-10-10 06:10:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 89.74 Mbit/s
95th percentile per-packet one-way delay: 144.995 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 56.05 Mbit/s
95th percentile per-packet one-way delay: 146.725 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 38.11 Mbit/s
95th percentile per-packet one-way delay: 136.933 ms
Loss rate: 1.90%
-- Flow 3:
Average throughput: 25.63 Mbit/s
95th percentile per-packet one-way delay: 152.535 ms
Loss rate: 3.18%

Run 1: Report of Indigo-Muses — Data Link

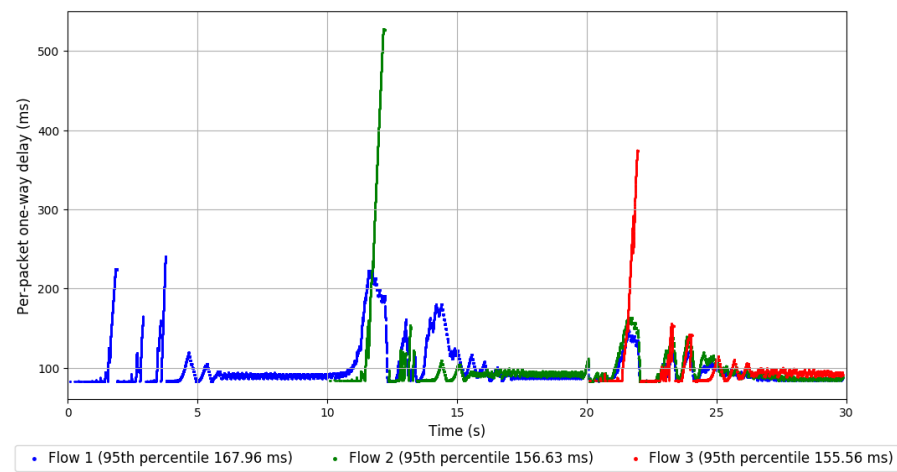
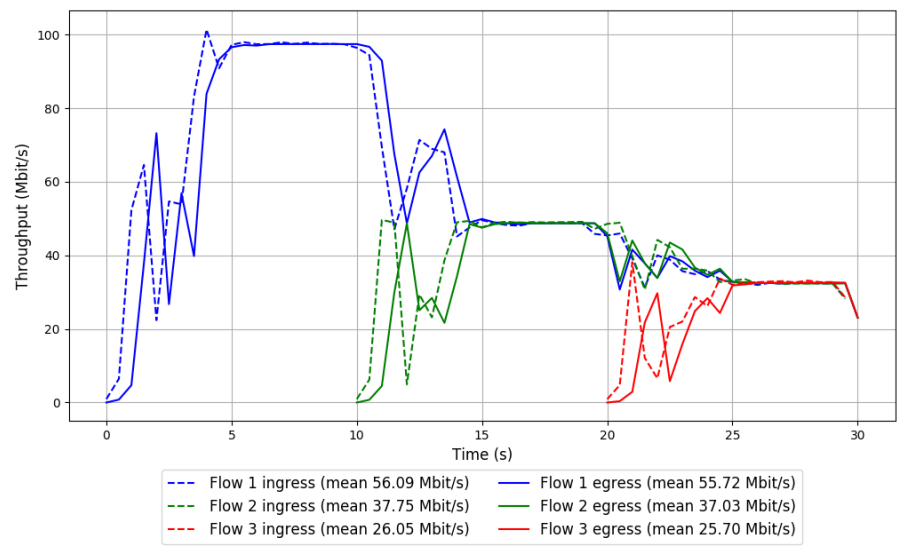


Run 2: Statistics of Indigo-Muses

Start at: 2018-10-10 04:41:51
End at: 2018-10-10 04:42:21
Local clock offset: -0.908 ms
Remote clock offset: -2.433 ms

Below is generated by plot.py at 2018-10-10 06:11:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 88.72 Mbit/s
95th percentile per-packet one-way delay: 163.001 ms
Loss rate: 1.80%
-- Flow 1:
Average throughput: 55.72 Mbit/s
95th percentile per-packet one-way delay: 167.963 ms
Loss rate: 1.21%
-- Flow 2:
Average throughput: 37.03 Mbit/s
95th percentile per-packet one-way delay: 156.630 ms
Loss rate: 2.71%
-- Flow 3:
Average throughput: 25.70 Mbit/s
95th percentile per-packet one-way delay: 155.564 ms
Loss rate: 2.95%

Run 2: Report of Indigo-Muses — Data Link

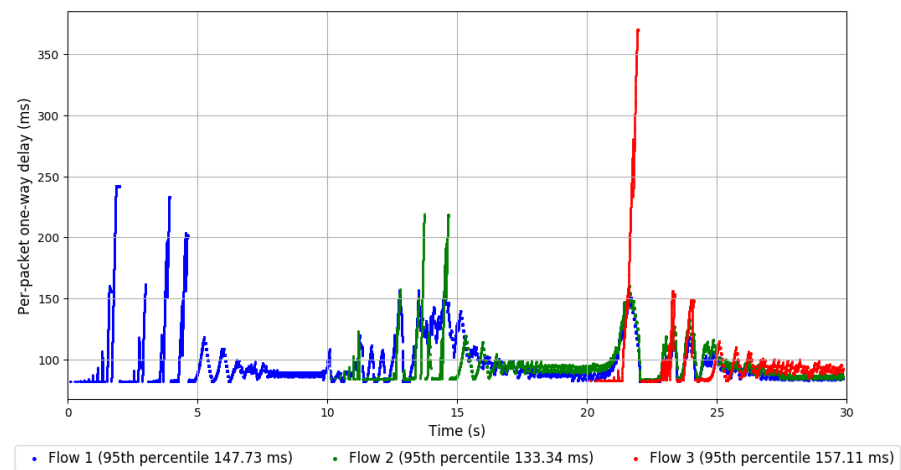
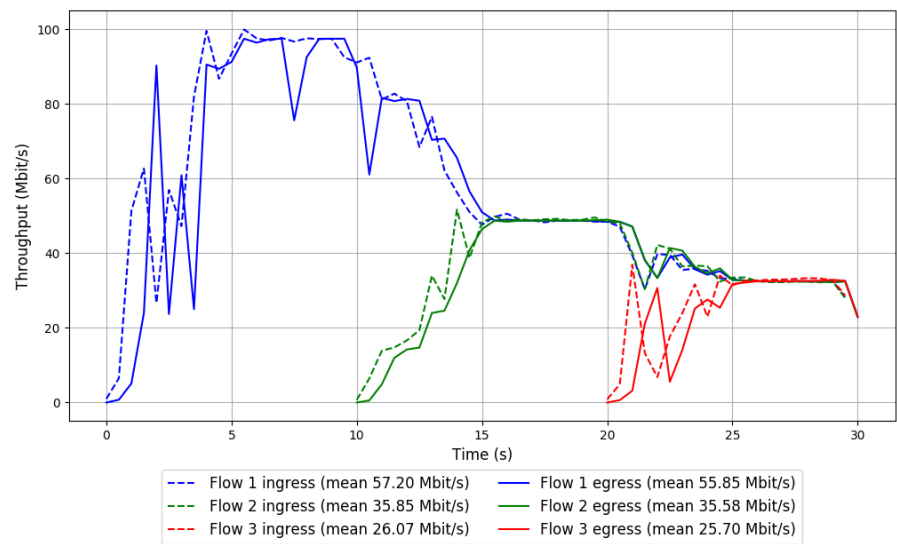


Run 3: Statistics of Indigo-Muses

Start at: 2018-10-10 05:05:00
End at: 2018-10-10 05:05:30
Local clock offset: -1.277 ms
Remote clock offset: -0.443 ms

```
# Below is generated by plot.py at 2018-10-10 06:11:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.86 Mbit/s
95th percentile per-packet one-way delay: 146.074 ms
Loss rate: 2.57%
-- Flow 1:
Average throughput: 55.85 Mbit/s
95th percentile per-packet one-way delay: 147.733 ms
Loss rate: 2.89%
-- Flow 2:
Average throughput: 35.58 Mbit/s
95th percentile per-packet one-way delay: 133.335 ms
Loss rate: 1.60%
-- Flow 3:
Average throughput: 25.70 Mbit/s
95th percentile per-packet one-way delay: 157.112 ms
Loss rate: 3.07%
```

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-10-10 05:28:23

End at: 2018-10-10 05:28:53

Local clock offset: -1.495 ms

Remote clock offset: 1.48 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.47 Mbit/s

95th percentile per-packet one-way delay: 152.724 ms

Loss rate: 1.27%

-- Flow 1:

Average throughput: 55.96 Mbit/s

95th percentile per-packet one-way delay: 153.187 ms

Loss rate: 0.82%

-- Flow 2:

Average throughput: 37.69 Mbit/s

95th percentile per-packet one-way delay: 142.962 ms

Loss rate: 1.56%

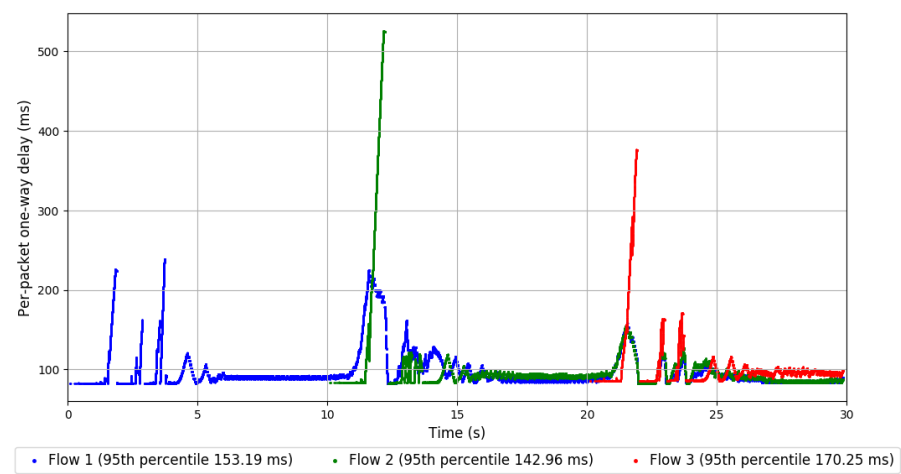
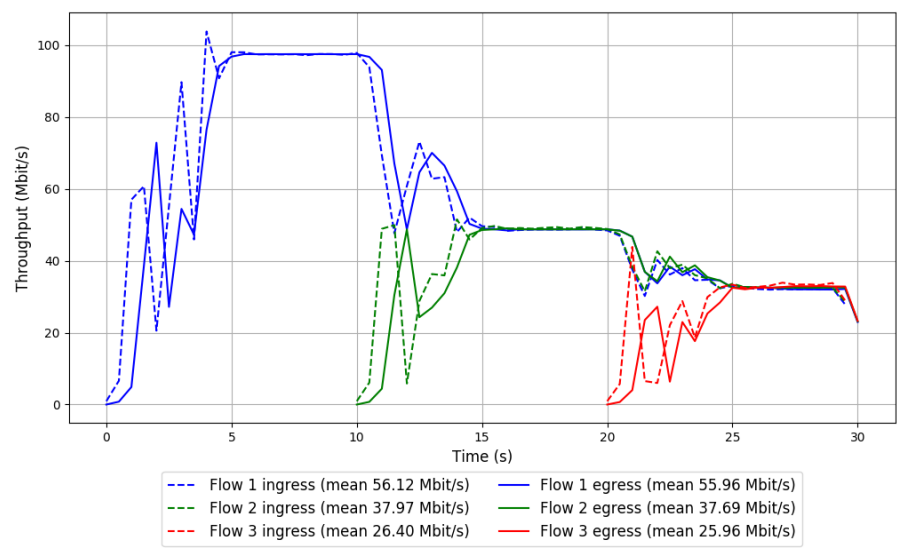
-- Flow 3:

Average throughput: 25.96 Mbit/s

95th percentile per-packet one-way delay: 170.248 ms

Loss rate: 3.29%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-10-10 05:51:39

End at: 2018-10-10 05:52:09

Local clock offset: -1.692 ms

Remote clock offset: 2.885 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.45 Mbit/s

95th percentile per-packet one-way delay: 167.621 ms

Loss rate: 1.61%

-- Flow 1:

Average throughput: 56.16 Mbit/s

95th percentile per-packet one-way delay: 174.139 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 37.12 Mbit/s

95th percentile per-packet one-way delay: 149.932 ms

Loss rate: 2.05%

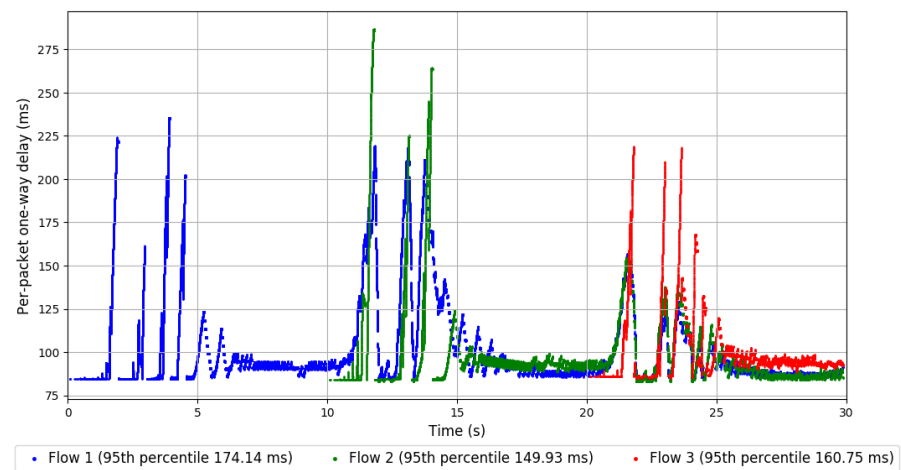
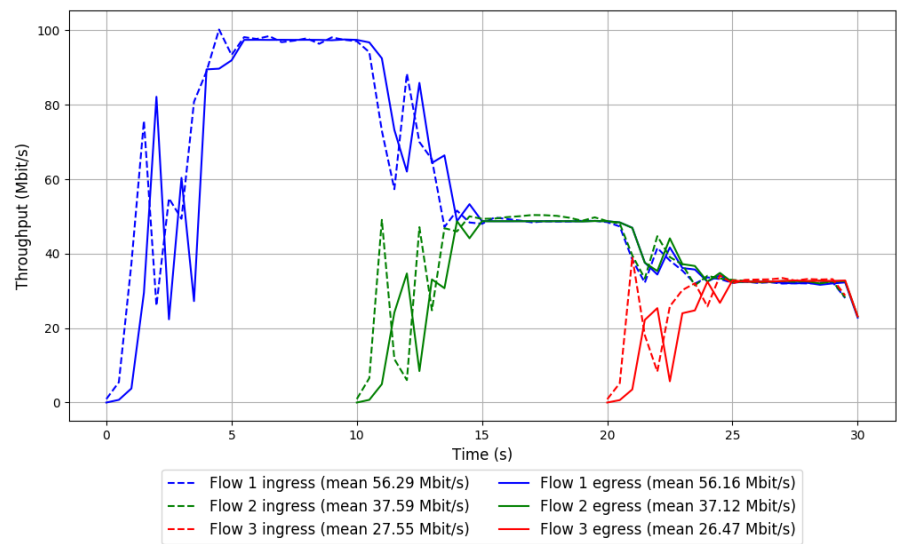
-- Flow 3:

Average throughput: 26.47 Mbit/s

95th percentile per-packet one-way delay: 160.750 ms

Loss rate: 5.51%

Run 5: Report of Indigo-Muses — Data Link

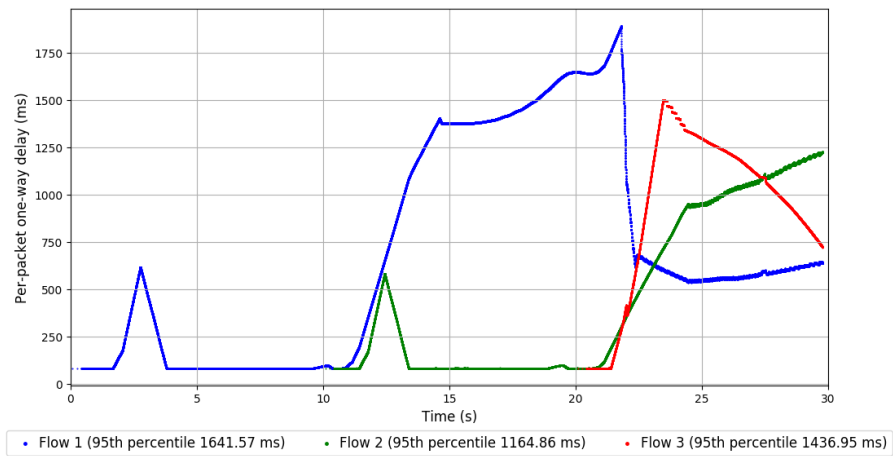
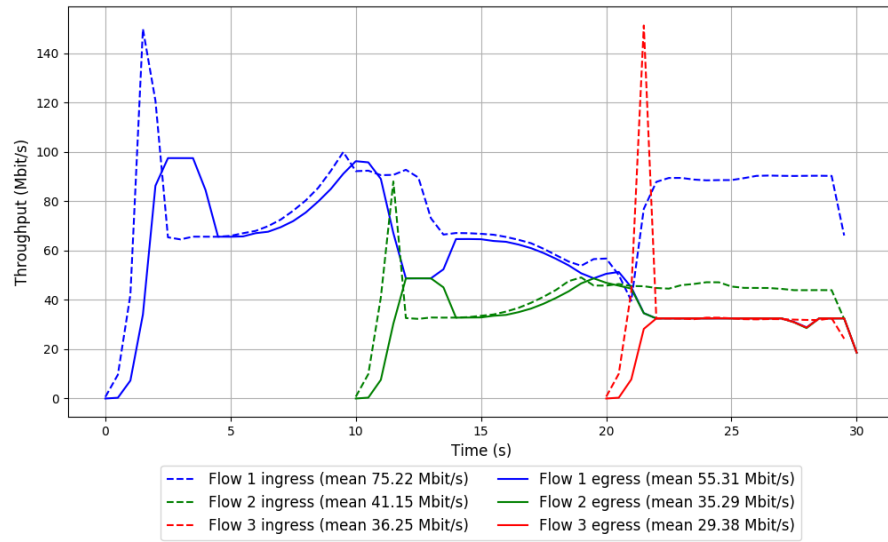



```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-10 04:07:40
End at: 2018-10-10 04:08:10
Local clock offset: -2.719 ms
Remote clock offset: -6.054 ms

# Below is generated by plot.py at 2018-10-10 06:11:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.30 Mbit/s
95th percentile per-packet one-way delay: 1553.887 ms
Loss rate: 23.33%
-- Flow 1:
Average throughput: 55.31 Mbit/s
95th percentile per-packet one-way delay: 1641.569 ms
Loss rate: 26.87%
-- Flow 2:
Average throughput: 35.29 Mbit/s
95th percentile per-packet one-way delay: 1164.860 ms
Loss rate: 14.94%
-- Flow 3:
Average throughput: 29.38 Mbit/s
95th percentile per-packet one-way delay: 1436.948 ms
Loss rate: 20.27%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-10-10 04:31:16

End at: 2018-10-10 04:31:46

Local clock offset: -0.989 ms

Remote clock offset: 0.75 ms

Below is generated by plot.py at 2018-10-10 06:11:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 88.44 Mbit/s

95th percentile per-packet one-way delay: 1528.362 ms

Loss rate: 21.68%

-- Flow 1:

Average throughput: 56.70 Mbit/s

95th percentile per-packet one-way delay: 1369.795 ms

Loss rate: 26.23%

-- Flow 2:

Average throughput: 33.30 Mbit/s

95th percentile per-packet one-way delay: 593.645 ms

Loss rate: 7.13%

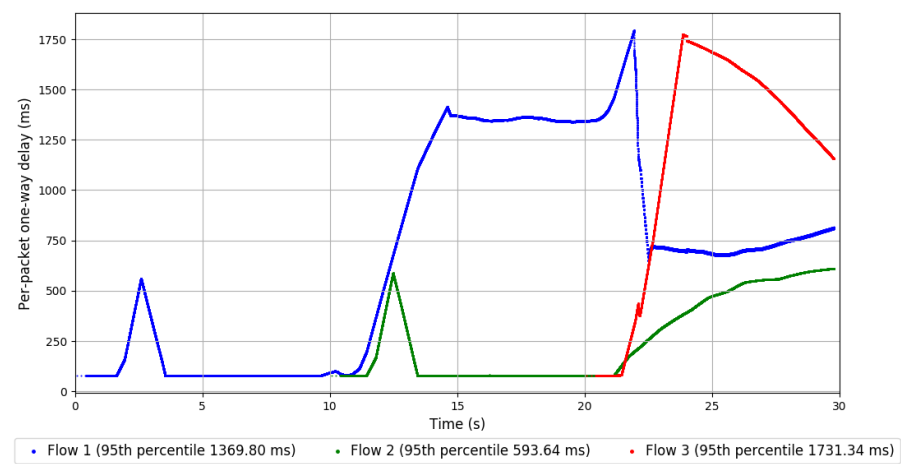
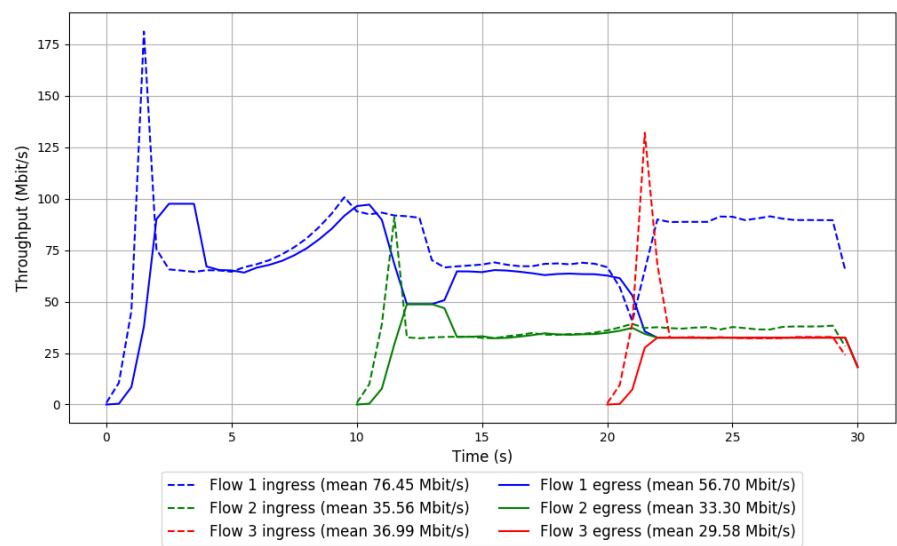
-- Flow 3:

Average throughput: 29.58 Mbit/s

95th percentile per-packet one-way delay: 1731.341 ms

Loss rate: 21.34%

Run 2: Report of PCC-Allegro — Data Link

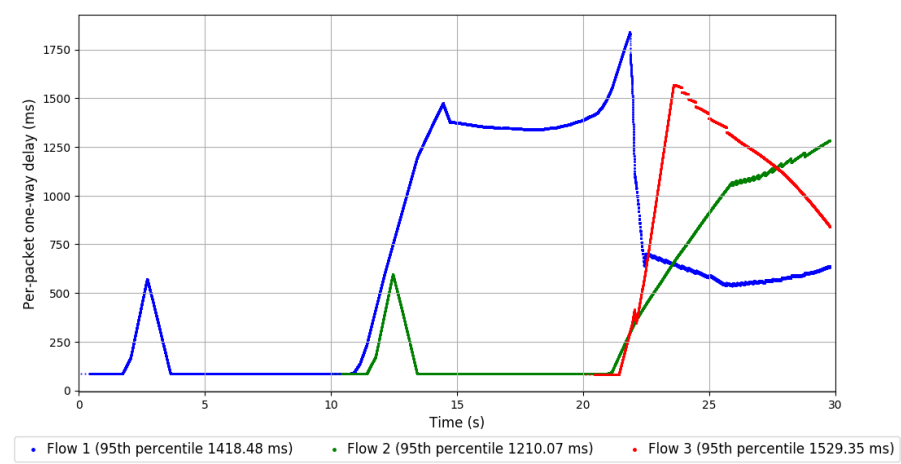
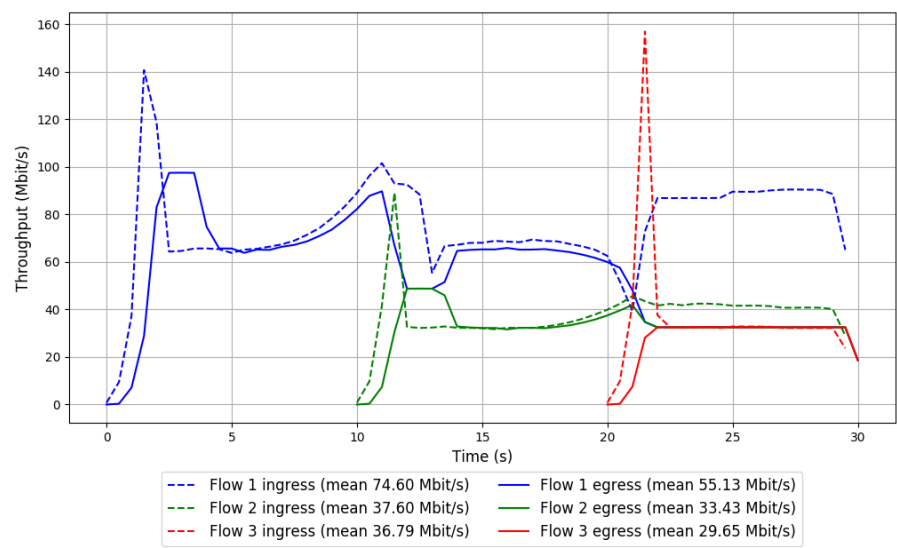


Run 3: Statistics of PCC-Allegro

Start at: 2018-10-10 04:54:34
End at: 2018-10-10 04:55:04
Local clock offset: -0.583 ms
Remote clock offset: -1.347 ms

Below is generated by plot.py at 2018-10-10 06:11:35
Datalink statistics
-- Total of 3 flows:
Average throughput: 86.97 Mbit/s
95th percentile per-packet one-way delay: 1421.294 ms
Loss rate: 22.60%
-- Flow 1:
Average throughput: 55.13 Mbit/s
95th percentile per-packet one-way delay: 1418.480 ms
Loss rate: 26.50%
-- Flow 2:
Average throughput: 33.43 Mbit/s
95th percentile per-packet one-way delay: 1210.066 ms
Loss rate: 11.84%
-- Flow 3:
Average throughput: 29.65 Mbit/s
95th percentile per-packet one-way delay: 1529.352 ms
Loss rate: 20.76%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-10-10 05:17:55

End at: 2018-10-10 05:18:25

Local clock offset: -1.409 ms

Remote clock offset: 6.521 ms

Below is generated by plot.py at 2018-10-10 06:12:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 87.71 Mbit/s

95th percentile per-packet one-way delay: 1410.990 ms

Loss rate: 23.46%

-- Flow 1:

Average throughput: 55.86 Mbit/s

95th percentile per-packet one-way delay: 1417.120 ms

Loss rate: 27.28%

-- Flow 2:

Average throughput: 33.44 Mbit/s

95th percentile per-packet one-way delay: 1177.020 ms

Loss rate: 13.40%

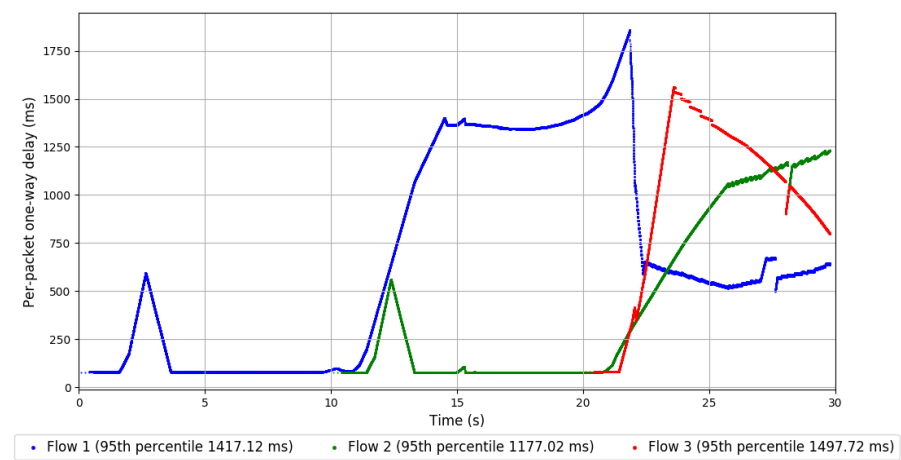
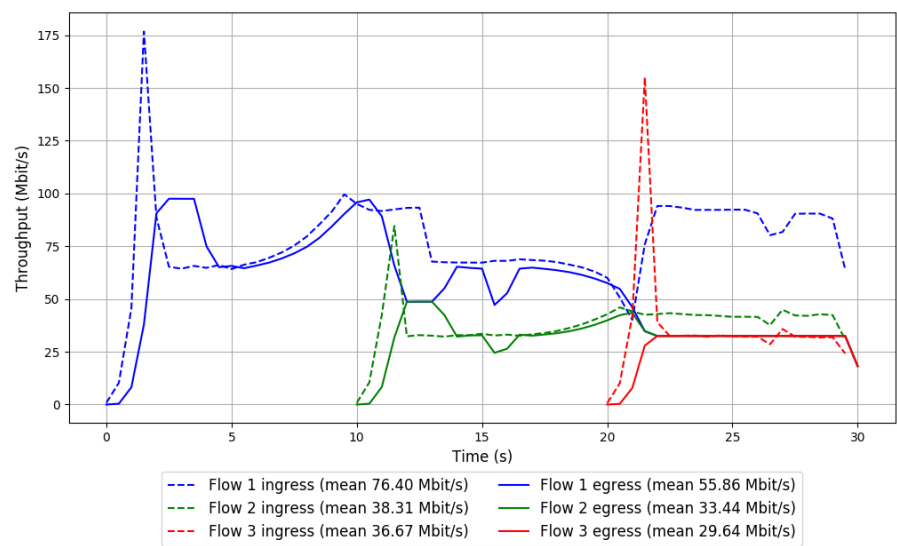
-- Flow 3:

Average throughput: 29.64 Mbit/s

95th percentile per-packet one-way delay: 1497.722 ms

Loss rate: 20.52%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-10-10 05:41:18

End at: 2018-10-10 05:41:48

Local clock offset: -1.683 ms

Remote clock offset: 3.139 ms

Below is generated by plot.py at 2018-10-10 06:12:09

Datalink statistics

-- Total of 3 flows:

Average throughput: 88.94 Mbit/s

95th percentile per-packet one-way delay: 1610.333 ms

Loss rate: 23.43%

-- Flow 1:

Average throughput: 55.38 Mbit/s

95th percentile per-packet one-way delay: 1642.114 ms

Loss rate: 26.70%

-- Flow 2:

Average throughput: 35.97 Mbit/s

95th percentile per-packet one-way delay: 1106.109 ms

Loss rate: 15.90%

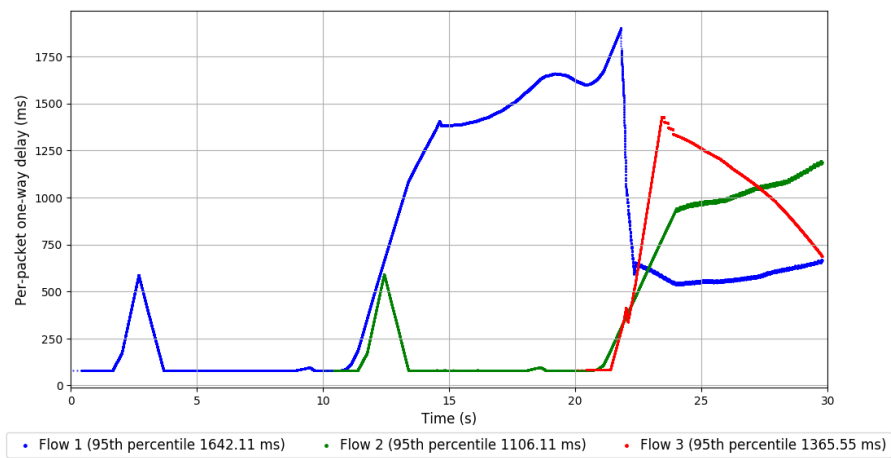
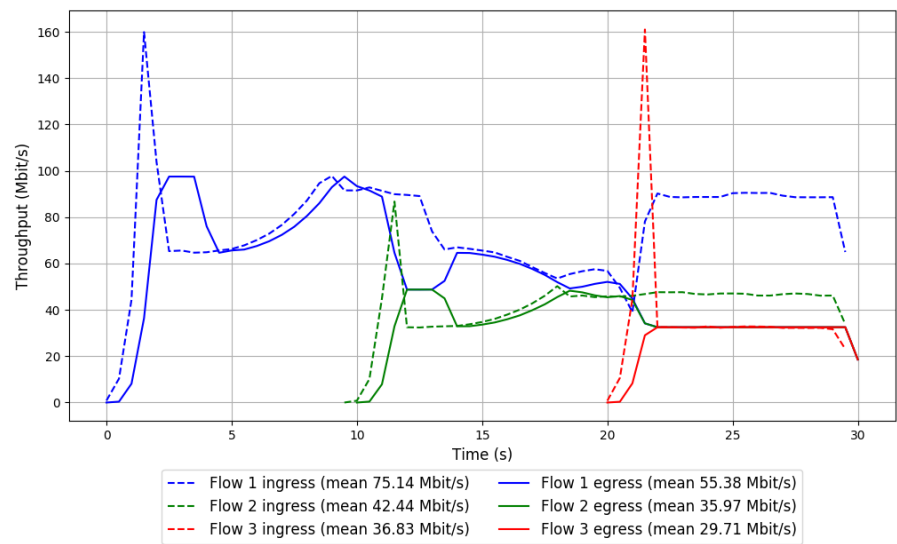
-- Flow 3:

Average throughput: 29.71 Mbit/s

95th percentile per-packet one-way delay: 1365.553 ms

Loss rate: 20.67%

Run 5: Report of PCC-Allegro — Data Link

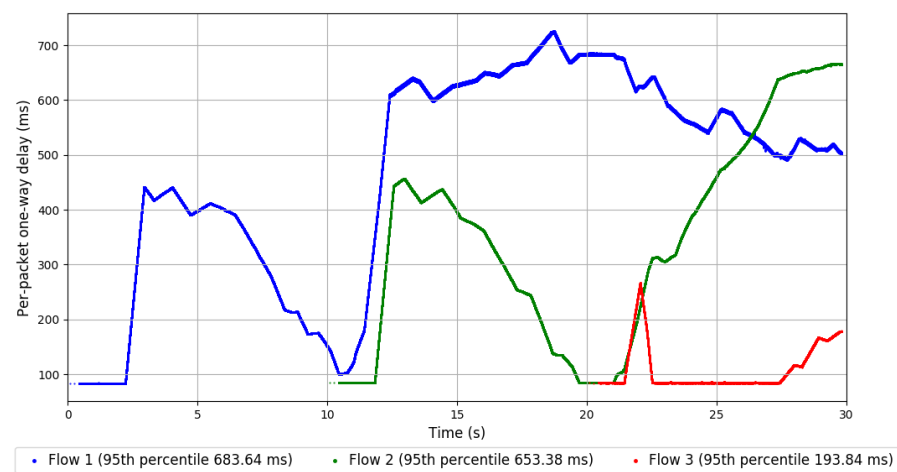
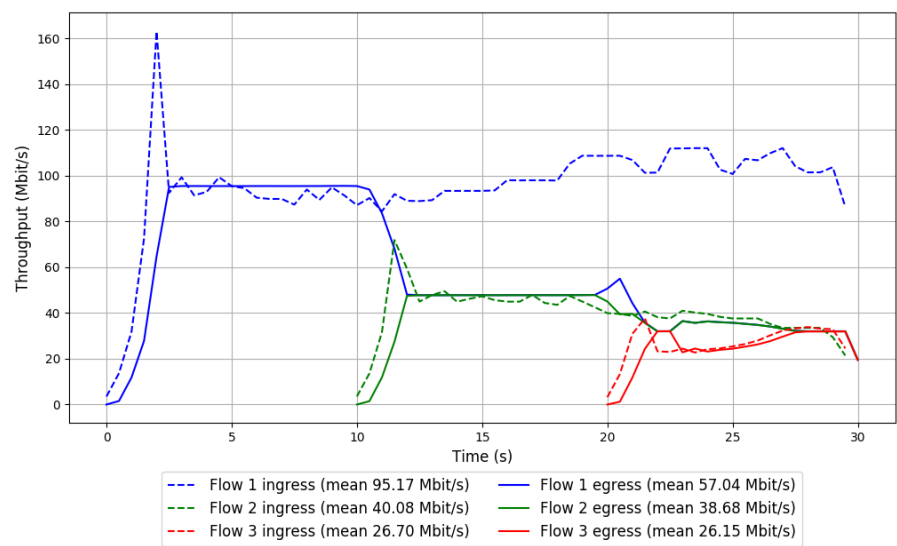


```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-10 04:10:29
End at: 2018-10-10 04:10:59
Local clock offset: -2.205 ms
Remote clock offset: -6.006 ms

# Below is generated by plot.py at 2018-10-10 06:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.24 Mbit/s
95th percentile per-packet one-way delay: 678.457 ms
Loss rate: 30.54%
-- Flow 1:
Average throughput: 57.04 Mbit/s
95th percentile per-packet one-way delay: 683.640 ms
Loss rate: 40.39%
-- Flow 2:
Average throughput: 38.68 Mbit/s
95th percentile per-packet one-way delay: 653.376 ms
Loss rate: 4.29%
-- Flow 3:
Average throughput: 26.15 Mbit/s
95th percentile per-packet one-way delay: 193.845 ms
Loss rate: 3.69%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-10-10 04:33:53

End at: 2018-10-10 04:34:23

Local clock offset: -0.985 ms

Remote clock offset: 0.196 ms

Below is generated by plot.py at 2018-10-10 06:13:24

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.94 Mbit/s

95th percentile per-packet one-way delay: 859.151 ms

Loss rate: 22.15%

-- Flow 1:

Average throughput: 56.04 Mbit/s

95th percentile per-packet one-way delay: 851.878 ms

Loss rate: 28.31%

-- Flow 2:

Average throughput: 38.75 Mbit/s

95th percentile per-packet one-way delay: 870.911 ms

Loss rate: 11.28%

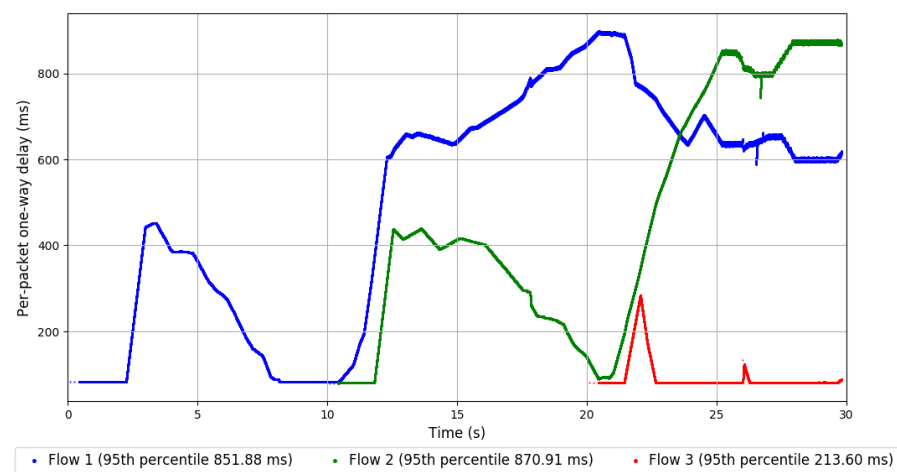
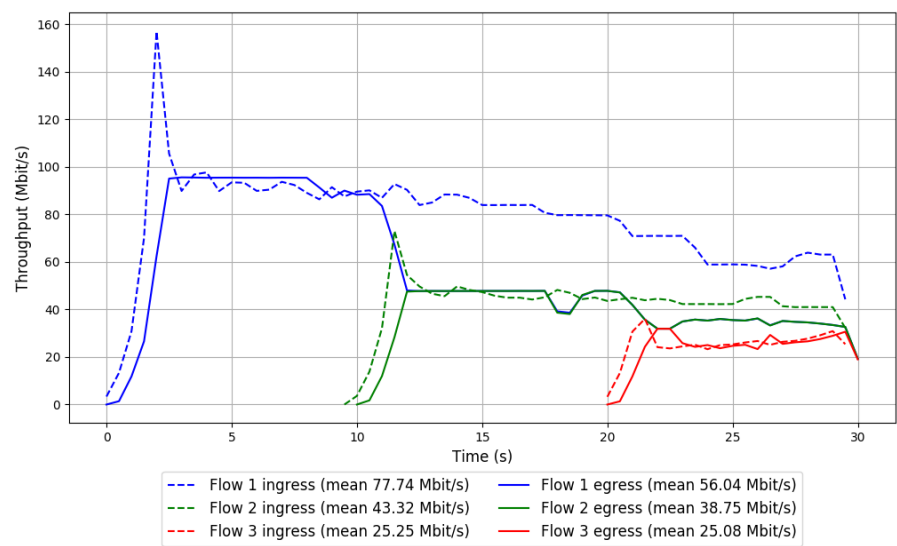
-- Flow 3:

Average throughput: 25.08 Mbit/s

95th percentile per-packet one-way delay: 213.598 ms

Loss rate: 2.31%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-10-10 04:57:12

End at: 2018-10-10 04:57:42

Local clock offset: -0.888 ms

Remote clock offset: 3.583 ms

Below is generated by plot.py at 2018-10-10 06:13:24

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.82 Mbit/s

95th percentile per-packet one-way delay: 857.866 ms

Loss rate: 22.72%

-- Flow 1:

Average throughput: 56.41 Mbit/s

95th percentile per-packet one-way delay: 862.694 ms

Loss rate: 29.25%

-- Flow 2:

Average throughput: 39.01 Mbit/s

95th percentile per-packet one-way delay: 857.493 ms

Loss rate: 10.54%

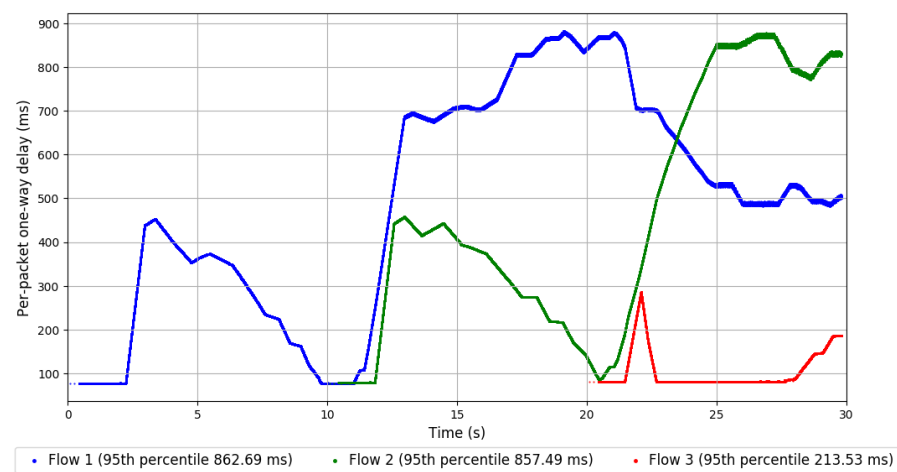
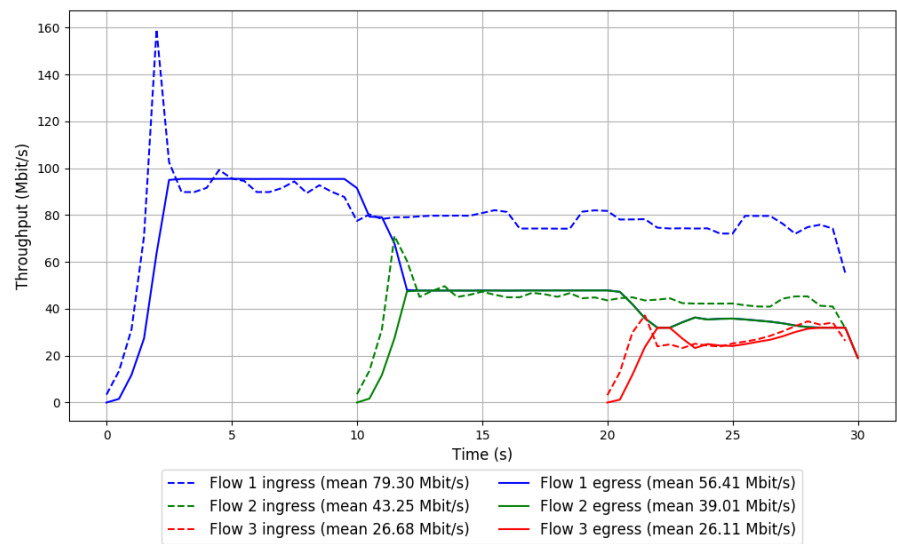
-- Flow 3:

Average throughput: 26.11 Mbit/s

95th percentile per-packet one-way delay: 213.526 ms

Loss rate: 3.77%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-10-10 05:20:33

End at: 2018-10-10 05:21:03

Local clock offset: -1.366 ms

Remote clock offset: 4.678 ms

Below is generated by plot.py at 2018-10-10 06:13:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.90 Mbit/s

95th percentile per-packet one-way delay: 843.229 ms

Loss rate: 22.47%

-- Flow 1:

Average throughput: 56.46 Mbit/s

95th percentile per-packet one-way delay: 814.753 ms

Loss rate: 28.74%

-- Flow 2:

Average throughput: 38.98 Mbit/s

95th percentile per-packet one-way delay: 847.355 ms

Loss rate: 11.26%

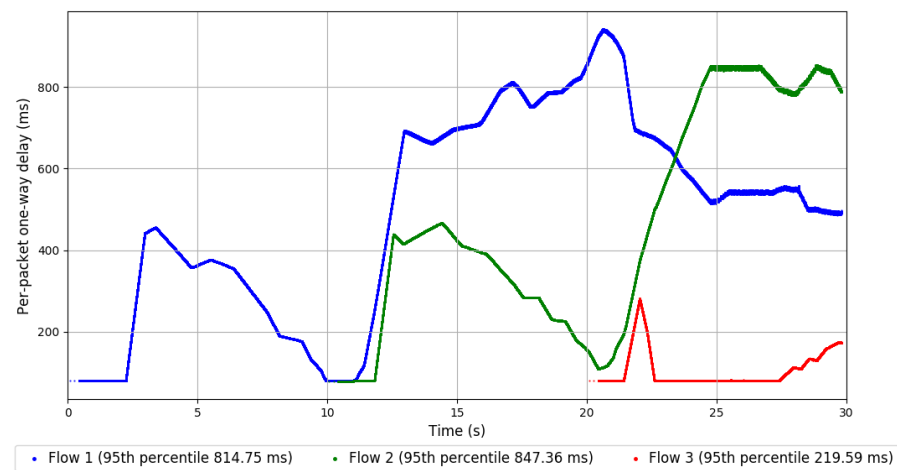
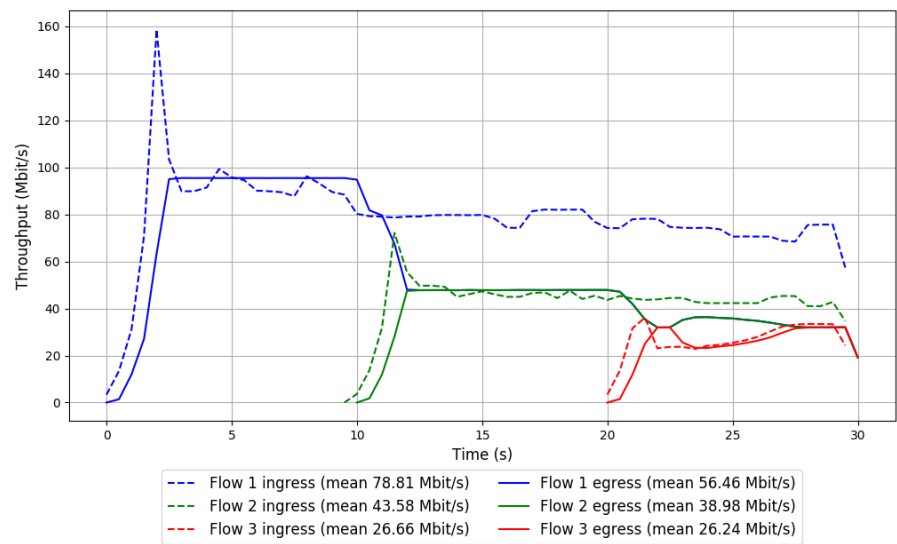
-- Flow 3:

Average throughput: 26.24 Mbit/s

95th percentile per-packet one-way delay: 219.585 ms

Loss rate: 3.19%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-10-10 05:43:56

End at: 2018-10-10 05:44:26

Local clock offset: -1.698 ms

Remote clock offset: 8.349 ms

Below is generated by plot.py at 2018-10-10 06:13:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.51 Mbit/s

95th percentile per-packet one-way delay: 857.752 ms

Loss rate: 23.27%

-- Flow 1:

Average throughput: 56.37 Mbit/s

95th percentile per-packet one-way delay: 864.114 ms

Loss rate: 29.66%

-- Flow 2:

Average throughput: 38.59 Mbit/s

95th percentile per-packet one-way delay: 859.499 ms

Loss rate: 11.52%

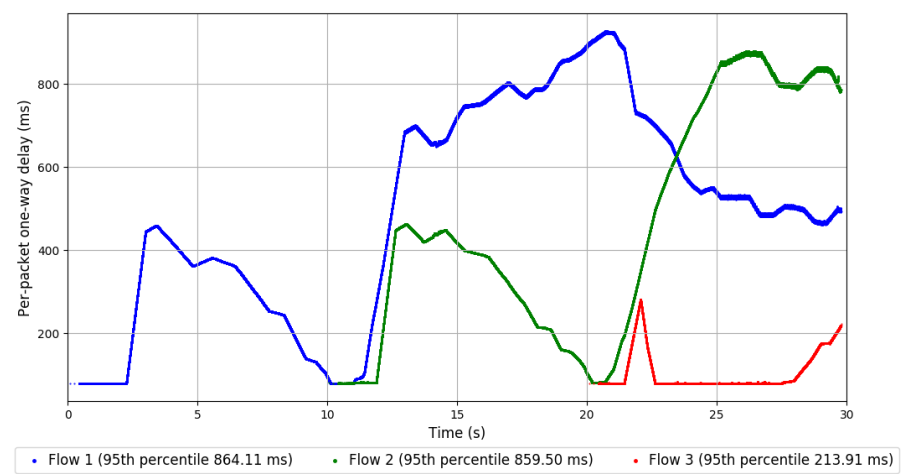
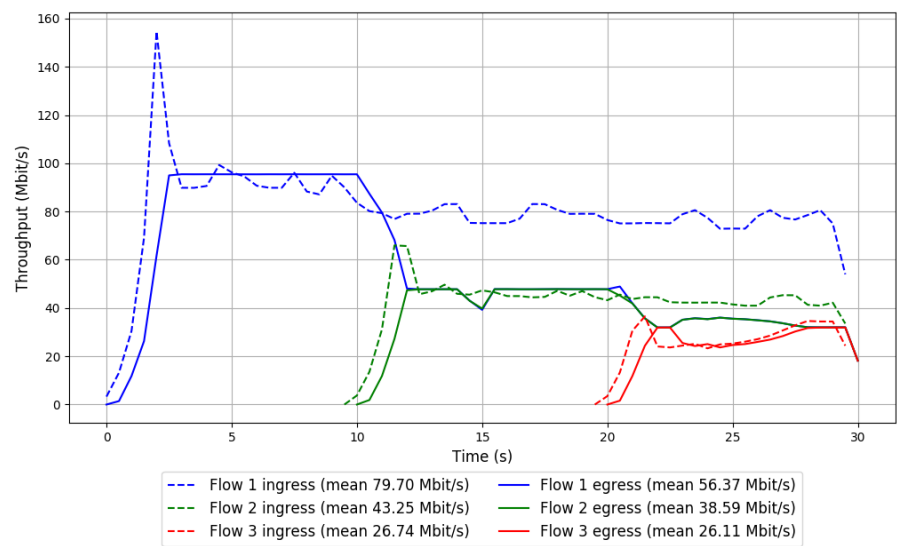
-- Flow 3:

Average throughput: 26.11 Mbit/s

95th percentile per-packet one-way delay: 213.915 ms

Loss rate: 3.94%

Run 5: Report of PCC-Expr — Data Link

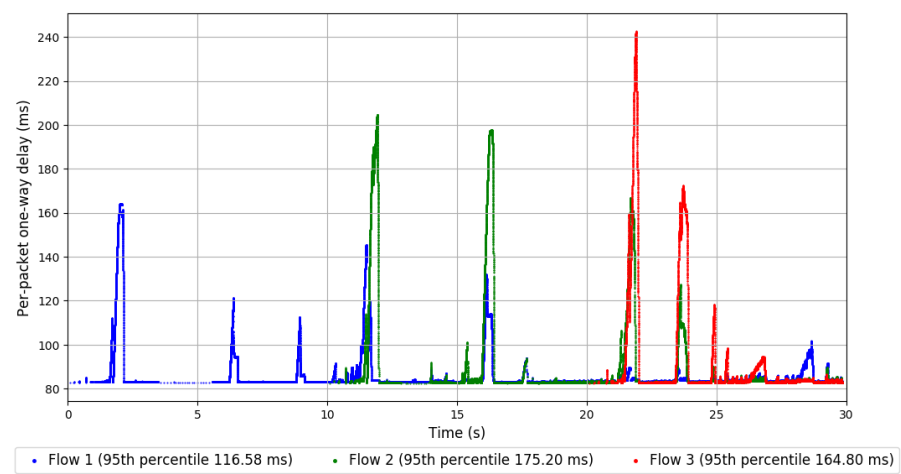
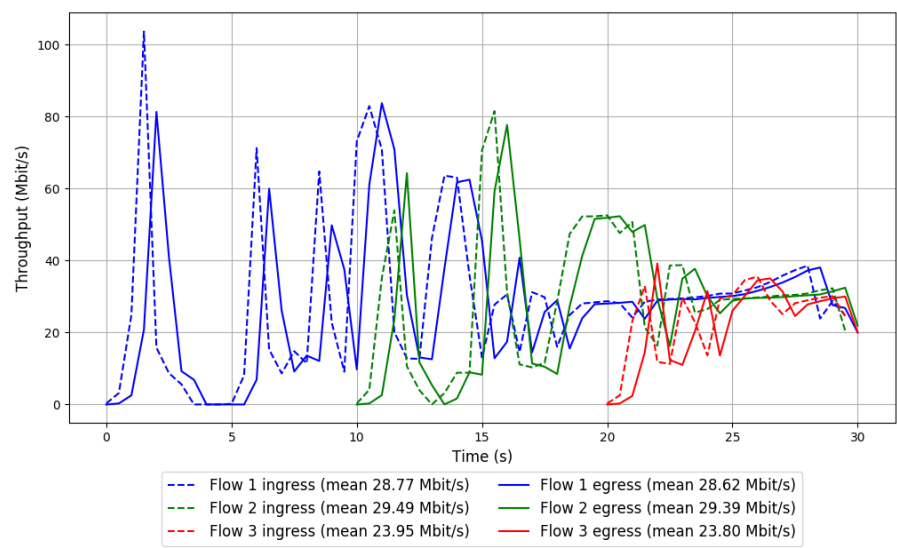


Run 1: Statistics of QUIC Cubic

Start at: 2018-10-10 04:11:53
End at: 2018-10-10 04:12:23
Local clock offset: -2.001 ms
Remote clock offset: -5.922 ms

Below is generated by plot.py at 2018-10-10 06:13:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 55.91 Mbit/s
95th percentile per-packet one-way delay: 150.552 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 28.62 Mbit/s
95th percentile per-packet one-way delay: 116.581 ms
Loss rate: 1.05%
-- Flow 2:
Average throughput: 29.39 Mbit/s
95th percentile per-packet one-way delay: 175.199 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 23.80 Mbit/s
95th percentile per-packet one-way delay: 164.797 ms
Loss rate: 2.24%

Run 1: Report of QUIC Cubic — Data Link

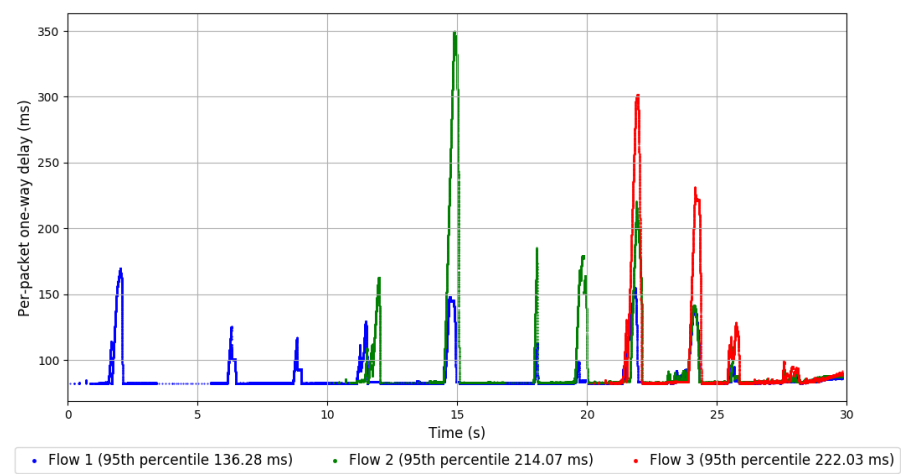
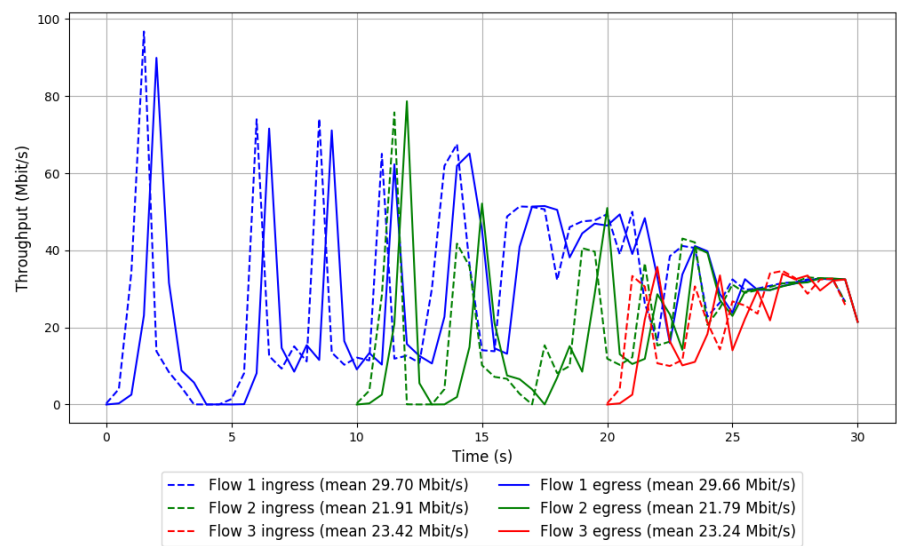


Run 2: Statistics of QUIC Cubic

Start at: 2018-10-10 04:35:15
End at: 2018-10-10 04:35:45
Local clock offset: -0.982 ms
Remote clock offset: -3.498 ms

Below is generated by plot.py at 2018-10-10 06:13:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 51.74 Mbit/s
95th percentile per-packet one-way delay: 163.923 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 29.66 Mbit/s
95th percentile per-packet one-way delay: 136.280 ms
Loss rate: 0.66%
-- Flow 2:
Average throughput: 21.79 Mbit/s
95th percentile per-packet one-way delay: 214.071 ms
Loss rate: 1.35%
-- Flow 3:
Average throughput: 23.24 Mbit/s
95th percentile per-packet one-way delay: 222.025 ms
Loss rate: 2.35%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-10-10 04:58:35

End at: 2018-10-10 04:59:05

Local clock offset: -0.964 ms

Remote clock offset: 0.129 ms

Below is generated by plot.py at 2018-10-10 06:13:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 53.90 Mbit/s

95th percentile per-packet one-way delay: 150.379 ms

Loss rate: 1.01%

-- Flow 1:

Average throughput: 28.88 Mbit/s

95th percentile per-packet one-way delay: 136.748 ms

Loss rate: 0.65%

-- Flow 2:

Average throughput: 24.99 Mbit/s

95th percentile per-packet one-way delay: 160.864 ms

Loss rate: 1.10%

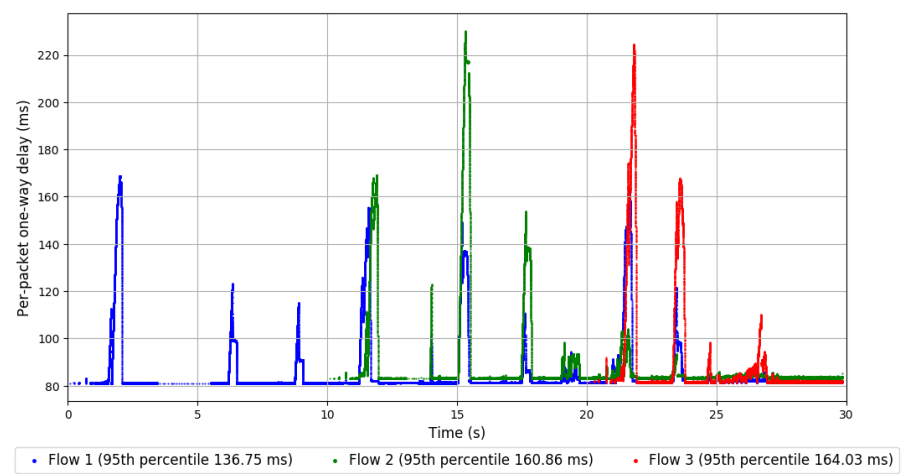
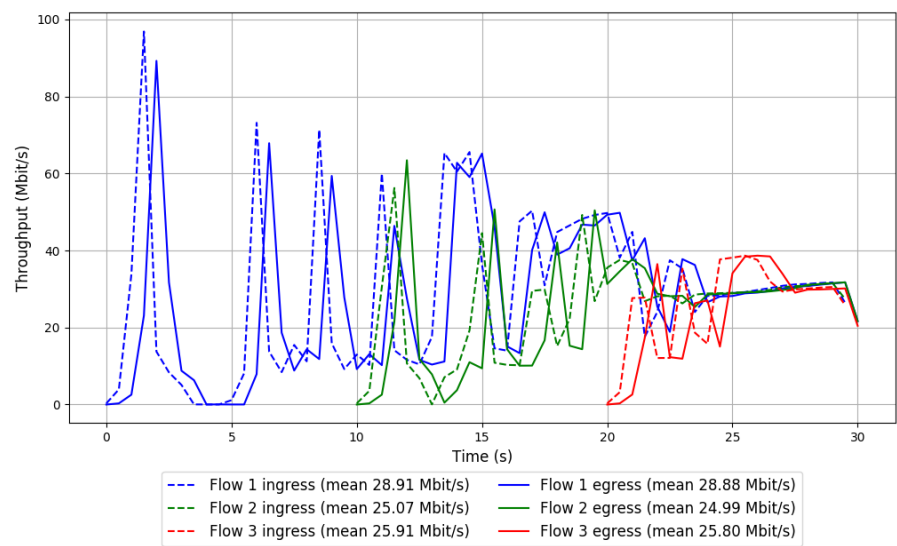
-- Flow 3:

Average throughput: 25.80 Mbit/s

95th percentile per-packet one-way delay: 164.034 ms

Loss rate: 2.06%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-10-10 05:21:57

End at: 2018-10-10 05:22:27

Local clock offset: -1.351 ms

Remote clock offset: 2.163 ms

Below is generated by plot.py at 2018-10-10 06:13:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 52.21 Mbit/s

95th percentile per-packet one-way delay: 215.926 ms

Loss rate: 0.99%

-- Flow 1:

Average throughput: 33.43 Mbit/s

95th percentile per-packet one-way delay: 137.870 ms

Loss rate: 0.55%

-- Flow 2:

Average throughput: 22.17 Mbit/s

95th percentile per-packet one-way delay: 248.609 ms

Loss rate: 1.34%

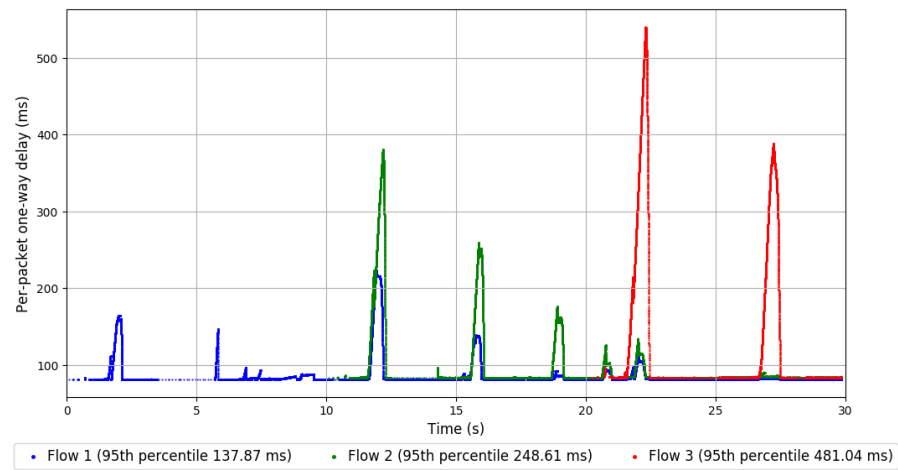
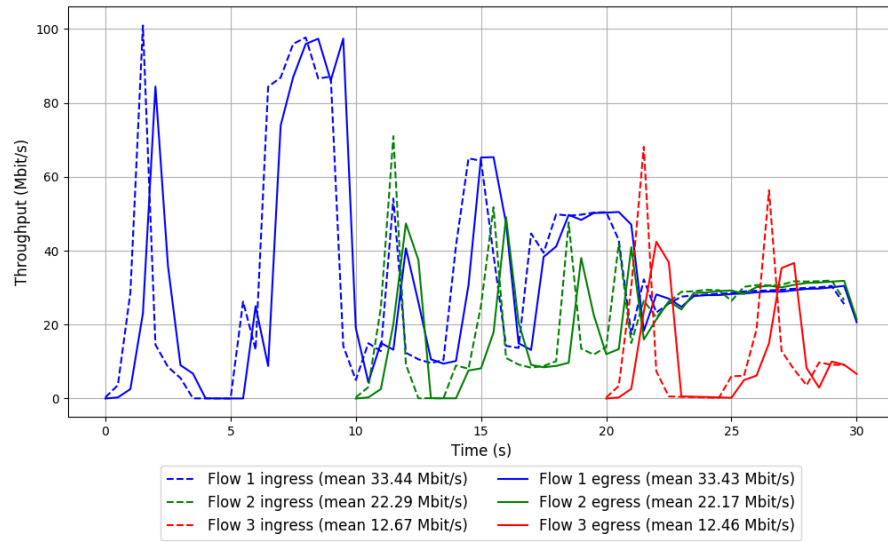
-- Flow 3:

Average throughput: 12.46 Mbit/s

95th percentile per-packet one-way delay: 481.035 ms

Loss rate: 3.20%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-10-10 05:45:18

End at: 2018-10-10 05:45:48

Local clock offset: -1.76 ms

Remote clock offset: 3.522 ms

Below is generated by plot.py at 2018-10-10 06:13:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 51.00 Mbit/s

95th percentile per-packet one-way delay: 173.993 ms

Loss rate: 1.22%

-- Flow 1:

Average throughput: 28.33 Mbit/s

95th percentile per-packet one-way delay: 137.809 ms

Loss rate: 0.67%

-- Flow 2:

Average throughput: 22.49 Mbit/s

95th percentile per-packet one-way delay: 225.629 ms

Loss rate: 1.63%

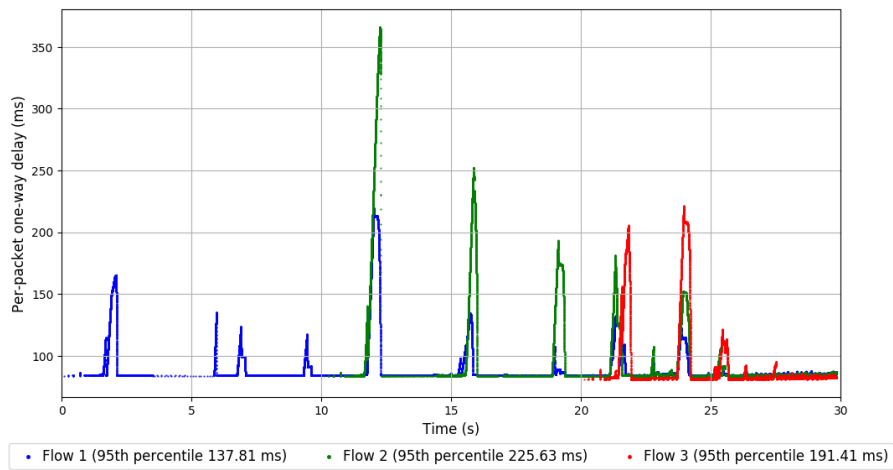
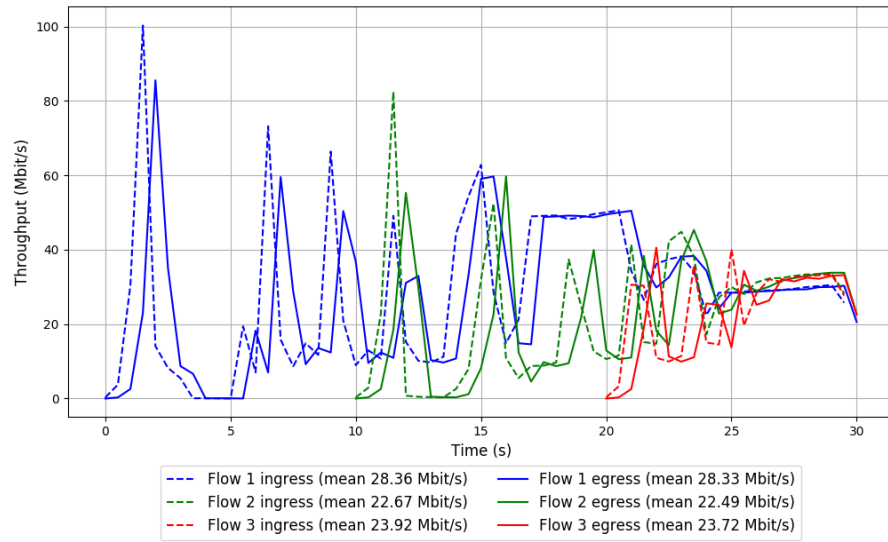
-- Flow 3:

Average throughput: 23.72 Mbit/s

95th percentile per-packet one-way delay: 191.411 ms

Loss rate: 2.41%

Run 5: Report of QUIC Cubic — Data Link

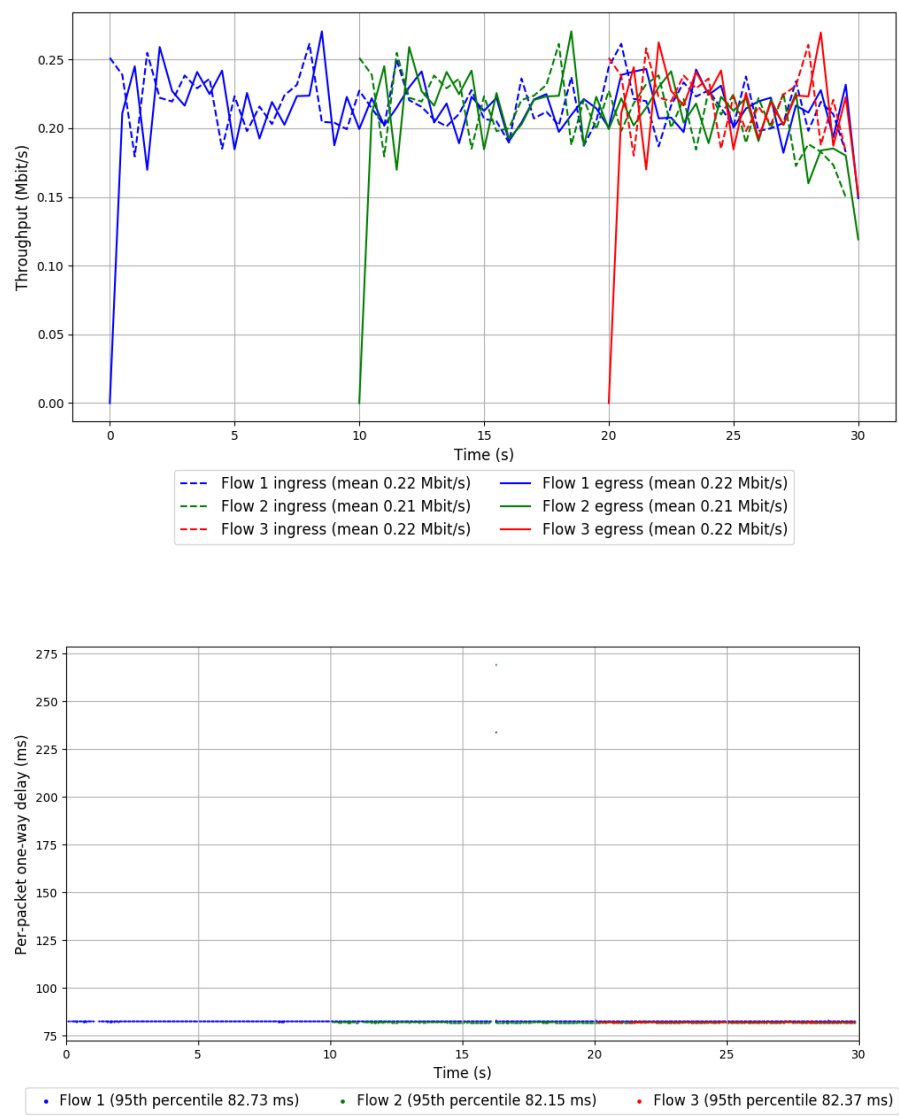


```
Run 1: Statistics of SReAM

Start at: 2018-10-10 04:23:40
End at: 2018-10-10 04:24:10
Local clock offset: -0.8 ms
Remote clock offset: -4.878 ms

# Below is generated by plot.py at 2018-10-10 06:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 82.721 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.730 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 82.148 ms
Loss rate: 0.84%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.368 ms
Loss rate: 1.45%
```

Run 1: Report of SReAM — Data Link

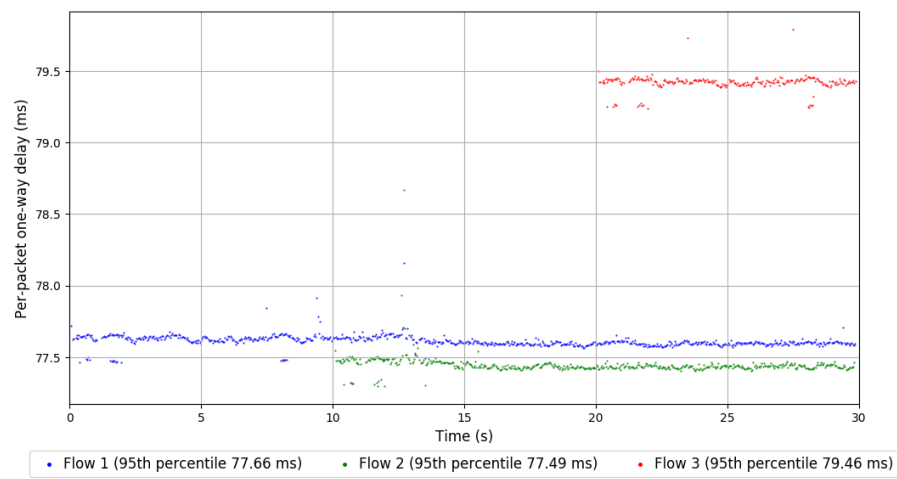
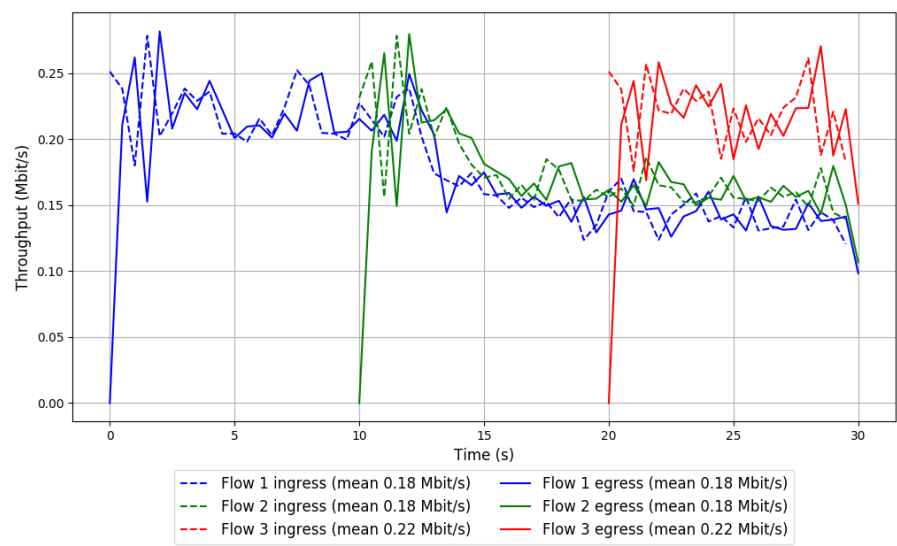


Run 2: Statistics of SReAM

Start at: 2018-10-10 04:46:58
End at: 2018-10-10 04:47:28
Local clock offset: -0.794 ms
Remote clock offset: 2.985 ms

Below is generated by plot.py at 2018-10-10 06:13:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 79.437 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 77.657 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 77.489 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.456 ms
Loss rate: 1.45%

Run 2: Report of SReAM — Data Link

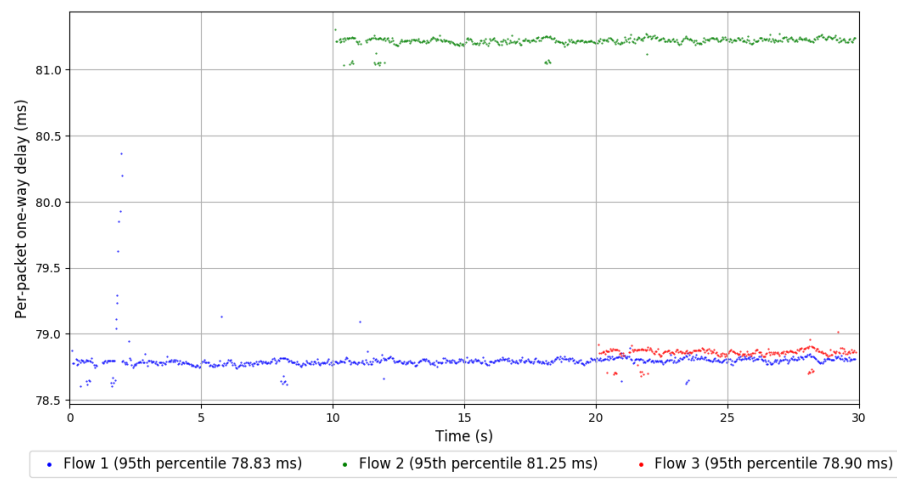
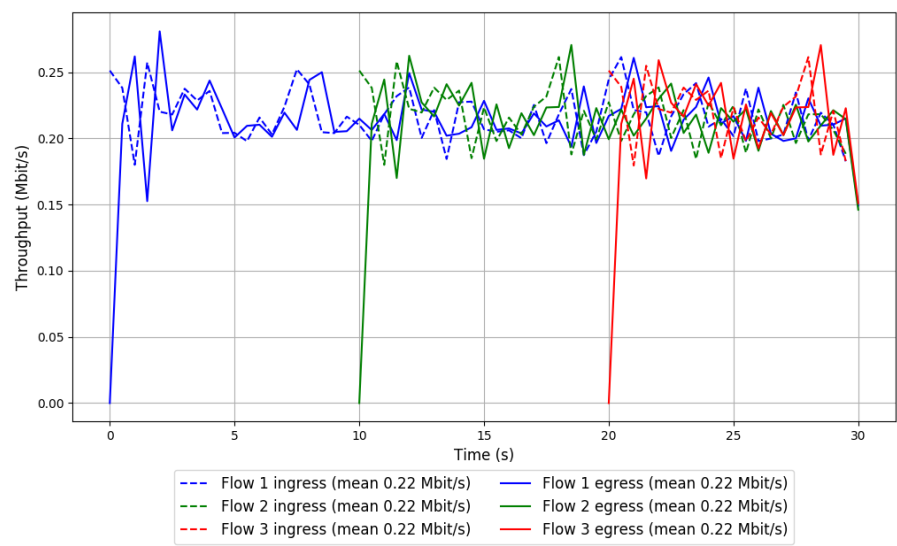


Run 3: Statistics of SReAM

Start at: 2018-10-10 05:10:09
End at: 2018-10-10 05:10:39
Local clock offset: -1.386 ms
Remote clock offset: 3.87 ms

Below is generated by plot.py at 2018-10-10 06:13:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 81.238 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 78.830 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.248 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 78.896 ms
Loss rate: 1.45%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-10-10 05:33:42

End at: 2018-10-10 05:34:12

Local clock offset: -1.63 ms

Remote clock offset: 6.611 ms

Below is generated by plot.py at 2018-10-10 06:13:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 80.121 ms

Loss rate: 0.83%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 79.086 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 77.231 ms

Loss rate: 0.82%

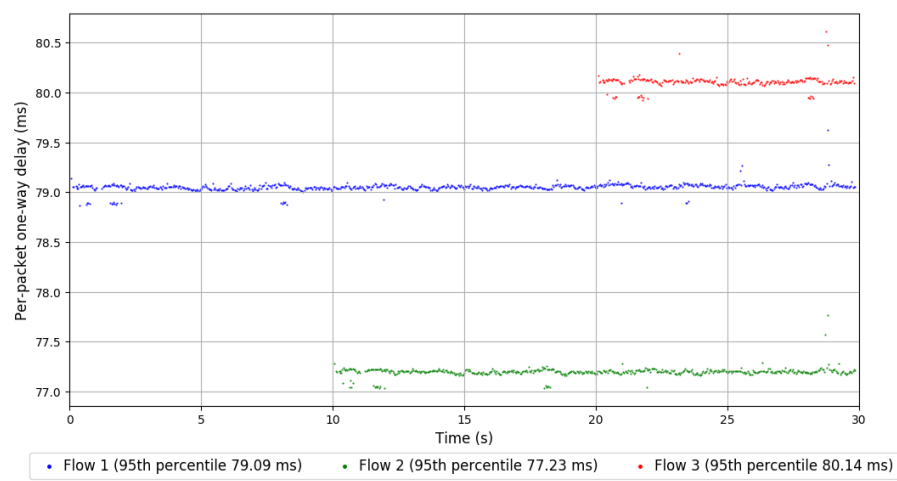
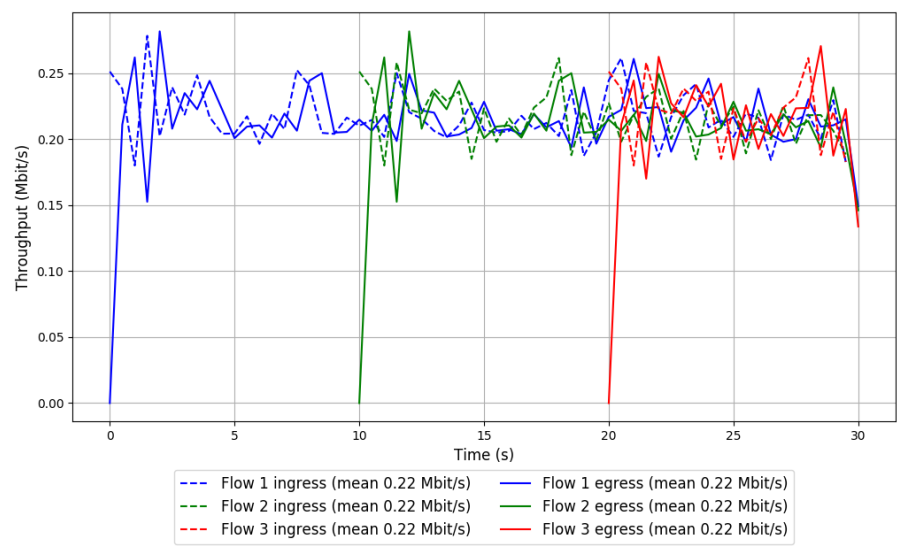
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 80.143 ms

Loss rate: 1.84%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-10-10 05:56:48

End at: 2018-10-10 05:57:18

Local clock offset: -1.682 ms

Remote clock offset: 7.71 ms

Below is generated by plot.py at 2018-10-10 06:13:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 77.605 ms

Loss rate: 0.77%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 77.381 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 77.618 ms

Loss rate: 0.82%

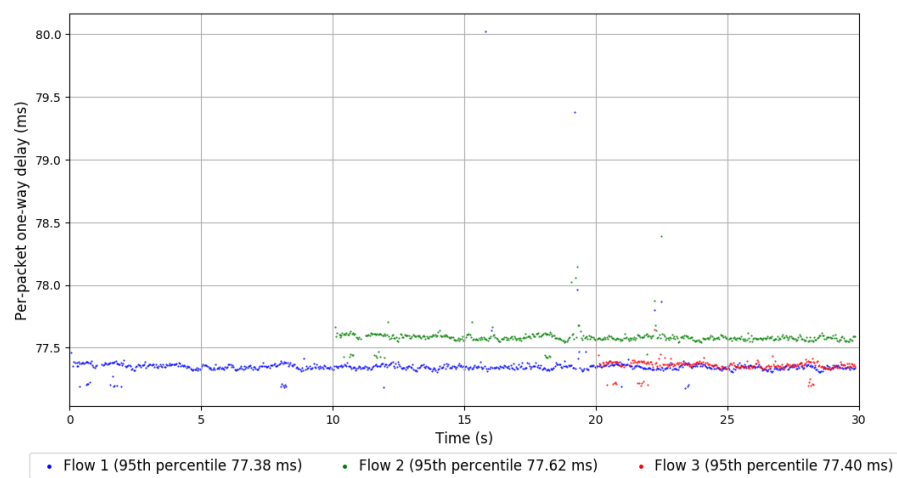
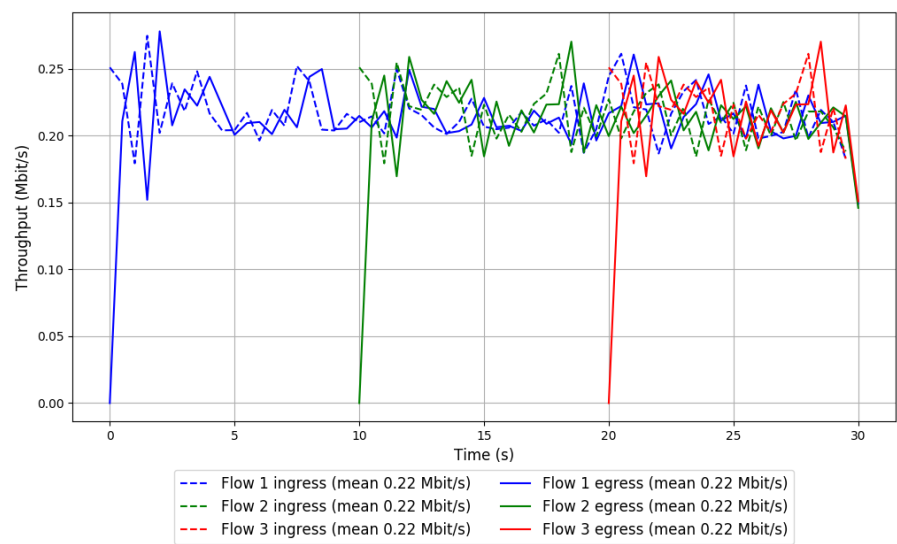
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 77.398 ms

Loss rate: 1.45%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-10-10 04:26:11

End at: 2018-10-10 04:26:41

Local clock offset: -0.866 ms

Remote clock offset: 0.097 ms

Below is generated by plot.py at 2018-10-10 06:13:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.89 Mbit/s

95th percentile per-packet one-way delay: 86.241 ms

Loss rate: 1.11%

-- Flow 1:

Average throughput: 4.70 Mbit/s

95th percentile per-packet one-way delay: 85.987 ms

Loss rate: 0.69%

-- Flow 2:

Average throughput: 4.39 Mbit/s

95th percentile per-packet one-way delay: 87.631 ms

Loss rate: 1.06%

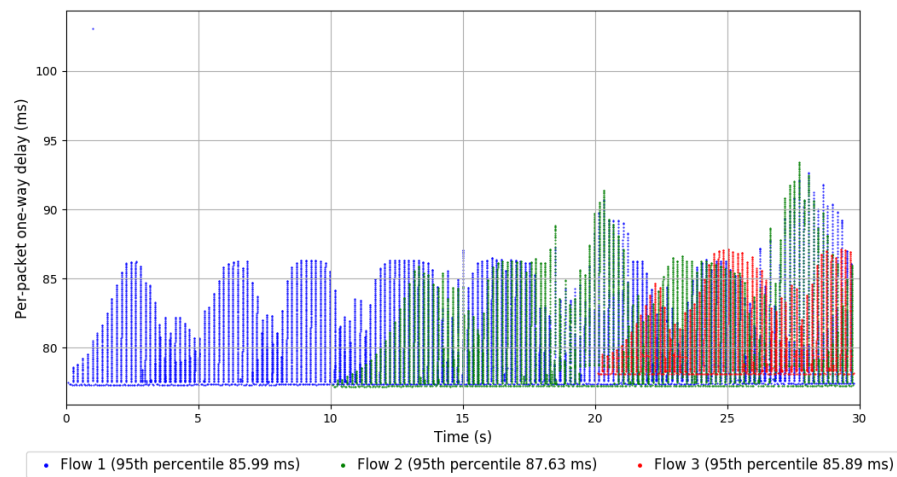
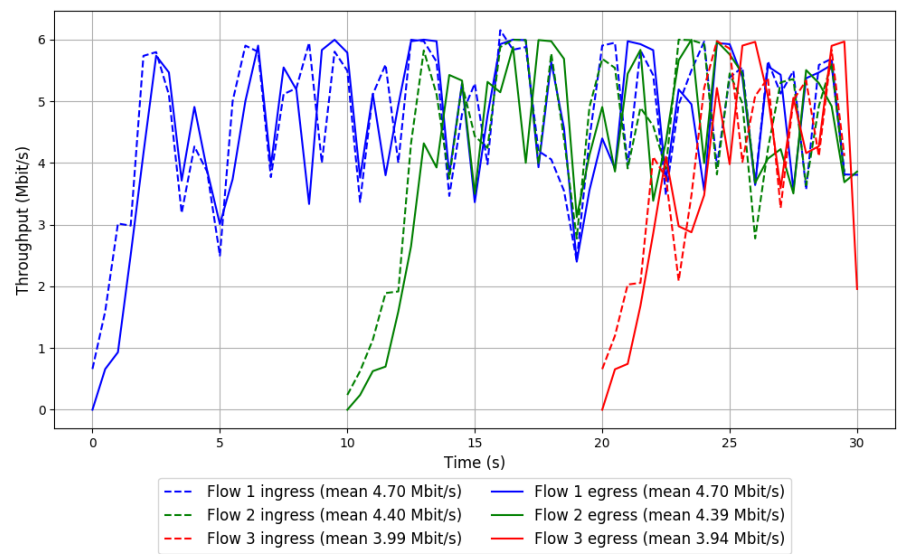
-- Flow 3:

Average throughput: 3.94 Mbit/s

95th percentile per-packet one-way delay: 85.894 ms

Loss rate: 2.75%

Run 1: Report of Sprout — Data Link

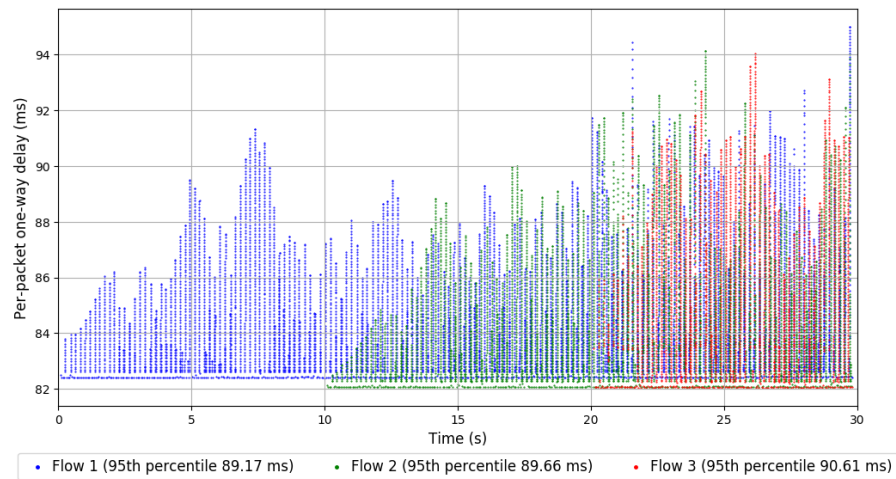
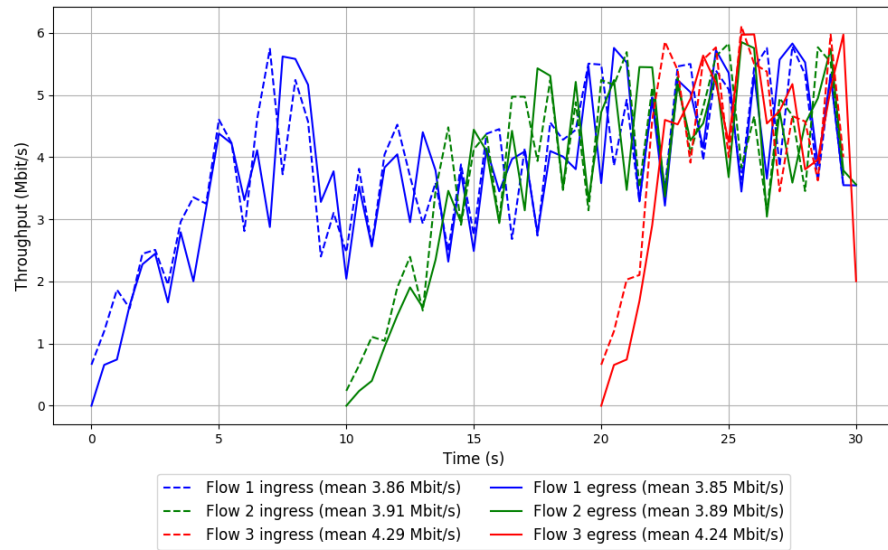


Run 2: Statistics of Sprout

Start at: 2018-10-10 04:49:28
End at: 2018-10-10 04:49:58
Local clock offset: -0.726 ms
Remote clock offset: -1.636 ms

```
# Below is generated by plot.py at 2018-10-10 06:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 89.736 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 3.85 Mbit/s
95th percentile per-packet one-way delay: 89.171 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 3.89 Mbit/s
95th percentile per-packet one-way delay: 89.659 ms
Loss rate: 1.23%
-- Flow 3:
Average throughput: 4.24 Mbit/s
95th percentile per-packet one-way delay: 90.610 ms
Loss rate: 2.37%
```

Run 2: Report of Sprout — Data Link

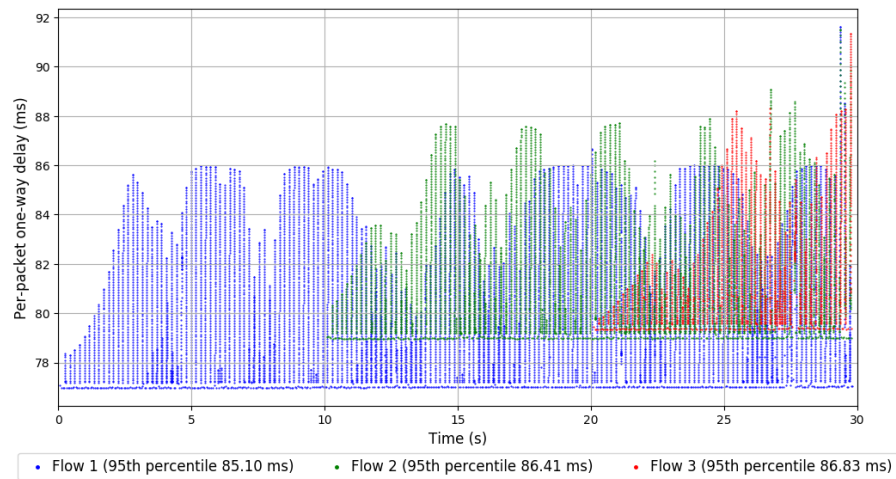
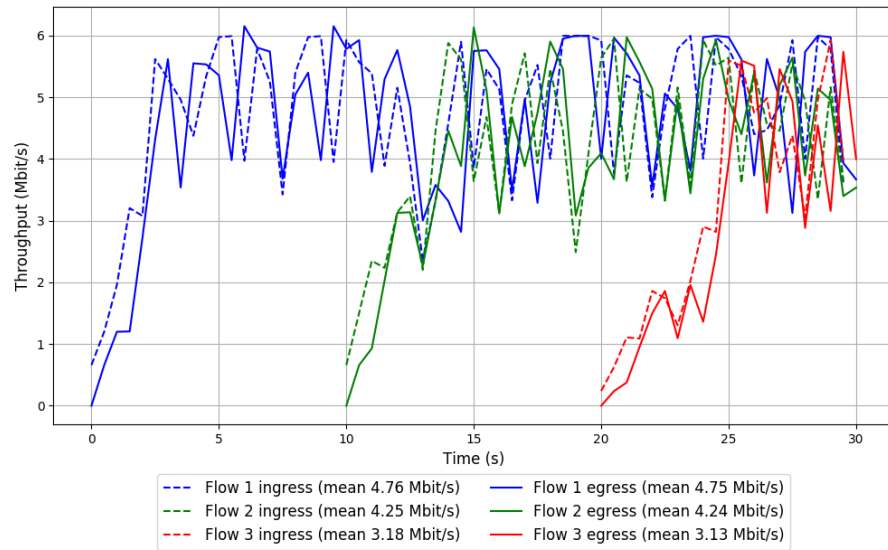


Run 3: Statistics of Sprout

Start at: 2018-10-10 05:12:40
End at: 2018-10-10 05:13:10
Local clock offset: -1.391 ms
Remote clock offset: 5.132 ms

```
# Below is generated by plot.py at 2018-10-10 06:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.58 Mbit/s
95th percentile per-packet one-way delay: 85.689 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 4.75 Mbit/s
95th percentile per-packet one-way delay: 85.102 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 4.24 Mbit/s
95th percentile per-packet one-way delay: 86.412 ms
Loss rate: 1.11%
-- Flow 3:
Average throughput: 3.13 Mbit/s
95th percentile per-packet one-way delay: 86.828 ms
Loss rate: 3.15%
```

Run 3: Report of Sprout — Data Link

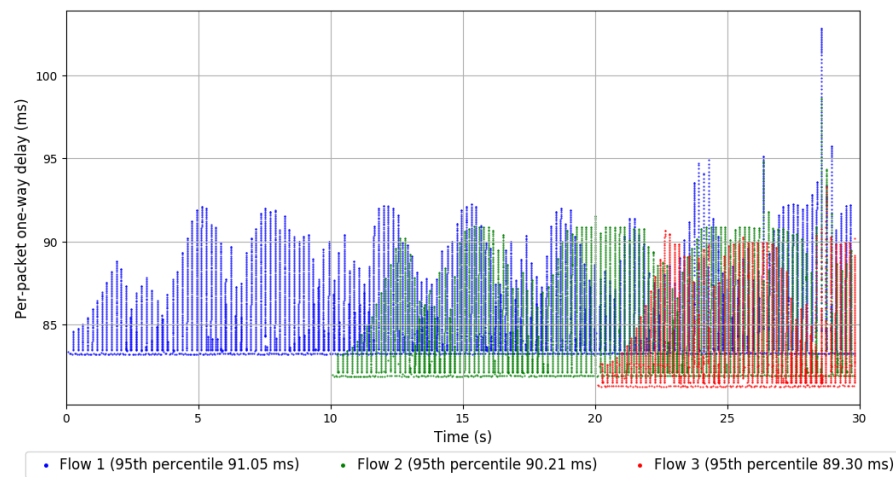
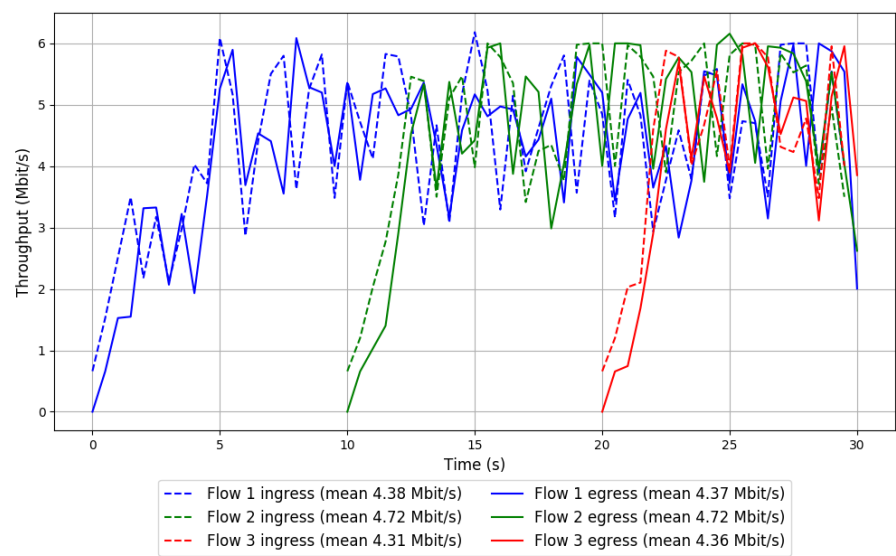


Run 4: Statistics of Sprout

Start at: 2018-10-10 05:36:13
End at: 2018-10-10 05:36:43
Local clock offset: -1.664 ms
Remote clock offset: 2.725 ms

```
# Below is generated by plot.py at 2018-10-10 06:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.92 Mbit/s
95th percentile per-packet one-way delay: 90.483 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 91.050 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 4.72 Mbit/s
95th percentile per-packet one-way delay: 90.212 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 4.36 Mbit/s
95th percentile per-packet one-way delay: 89.298 ms
Loss rate: 0.18%
```

Run 4: Report of Sprout — Data Link

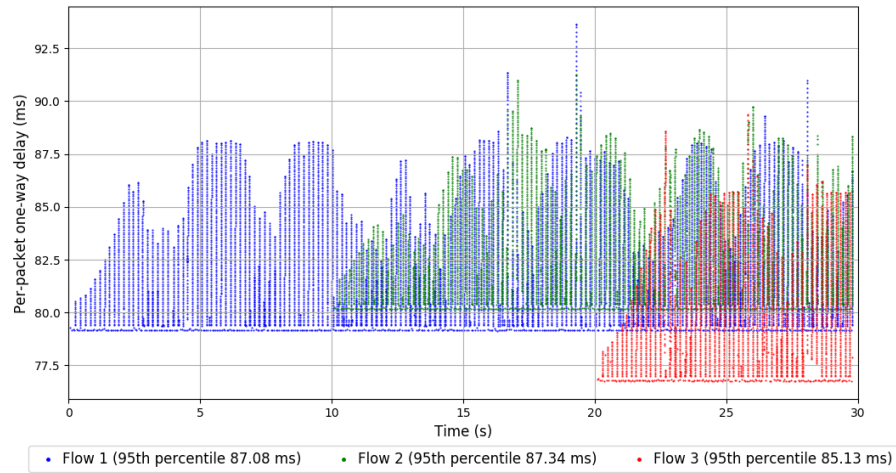
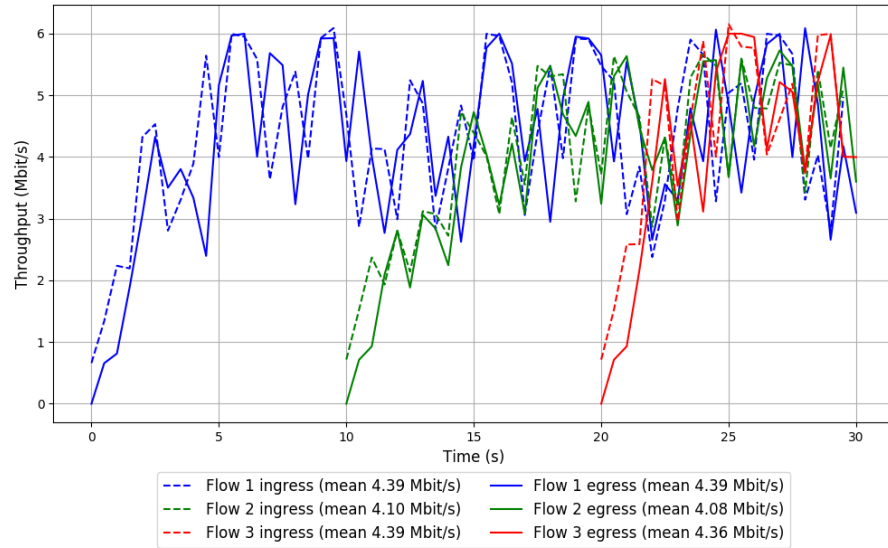


Run 5: Statistics of Sprout

Start at: 2018-10-10 05:59:19
End at: 2018-10-10 05:59:49
Local clock offset: -1.683 ms
Remote clock offset: 7.734 ms

```
# Below is generated by plot.py at 2018-10-10 06:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.52 Mbit/s
95th percentile per-packet one-way delay: 86.991 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 4.39 Mbit/s
95th percentile per-packet one-way delay: 87.078 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 4.08 Mbit/s
95th percentile per-packet one-way delay: 87.336 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 4.36 Mbit/s
95th percentile per-packet one-way delay: 85.130 ms
Loss rate: 2.31%
```

Run 5: Report of Sprout — Data Link

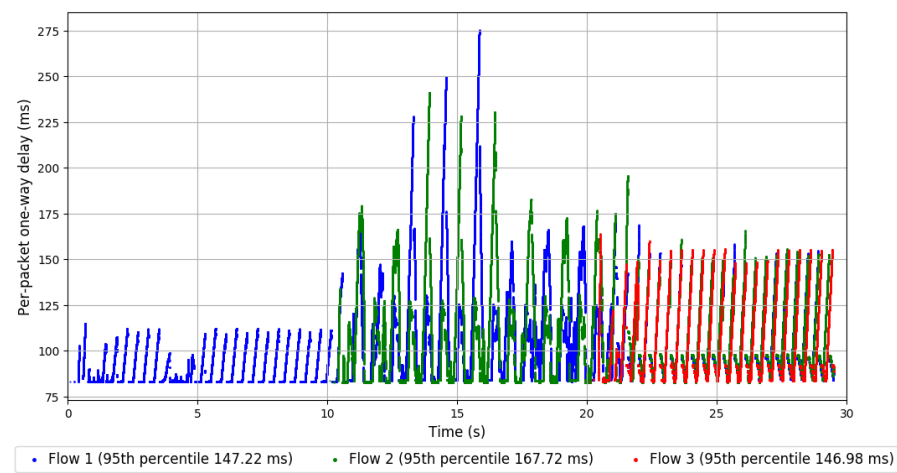
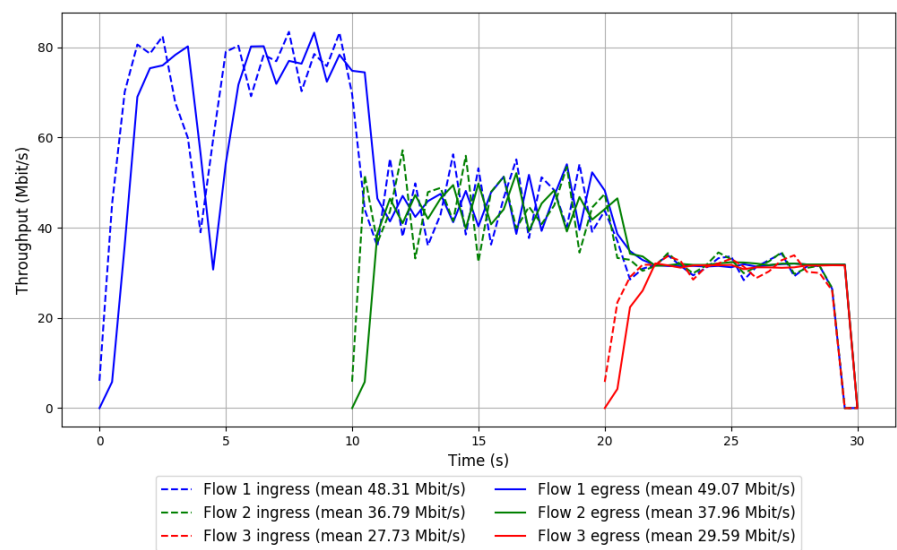


Run 1: Statistics of TaoVA-100x

Start at: 2018-10-10 04:09:07
End at: 2018-10-10 04:09:37
Local clock offset: -2.448 ms
Remote clock offset: -5.969 ms

Below is generated by plot.py at 2018-10-10 06:15:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 83.58 Mbit/s
95th percentile per-packet one-way delay: 154.052 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 49.07 Mbit/s
95th percentile per-packet one-way delay: 147.223 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 37.96 Mbit/s
95th percentile per-packet one-way delay: 167.718 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 29.59 Mbit/s
95th percentile per-packet one-way delay: 146.983 ms
Loss rate: 0.04%

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

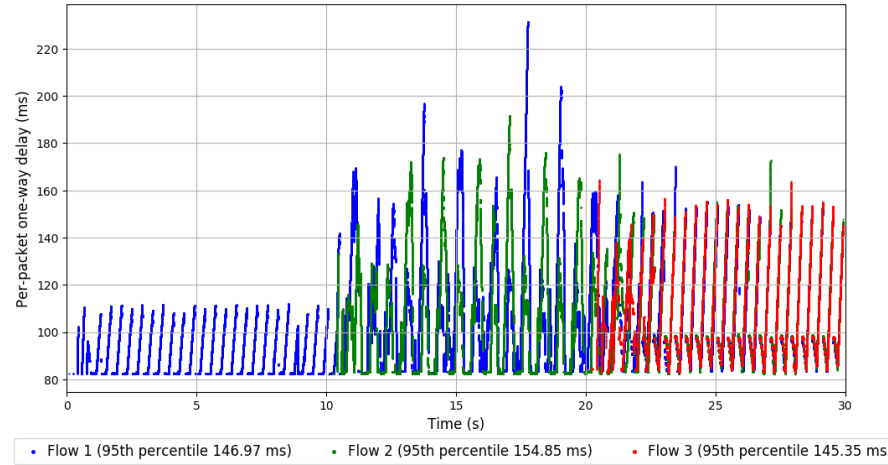
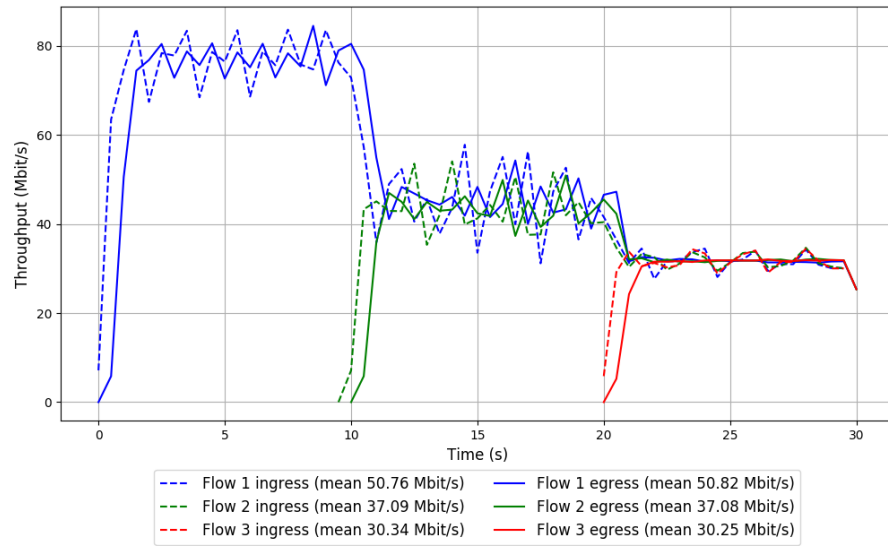


Run 2: Statistics of TaoVA-100x

Start at: 2018-10-10 04:32:32
End at: 2018-10-10 04:33:02
Local clock offset: -0.988 ms
Remote clock offset: -3.872 ms

Below is generated by plot.py at 2018-10-10 06:15:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 85.42 Mbit/s
95th percentile per-packet one-way delay: 149.190 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 50.82 Mbit/s
95th percentile per-packet one-way delay: 146.974 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 37.08 Mbit/s
95th percentile per-packet one-way delay: 154.854 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 30.25 Mbit/s
95th percentile per-packet one-way delay: 145.349 ms
Loss rate: 1.91%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-10-10 04:55:51

End at: 2018-10-10 04:56:21

Local clock offset: -0.759 ms

Remote clock offset: 2.488 ms

Below is generated by plot.py at 2018-10-10 06:15:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 83.96 Mbit/s

95th percentile per-packet one-way delay: 149.121 ms

Loss rate: 1.24%

-- Flow 1:

Average throughput: 49.50 Mbit/s

95th percentile per-packet one-way delay: 144.223 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 36.90 Mbit/s

95th percentile per-packet one-way delay: 160.640 ms

Loss rate: 1.87%

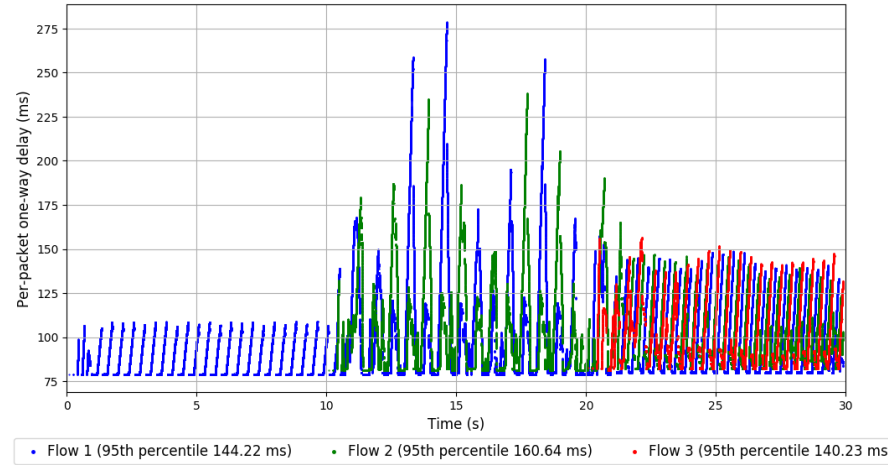
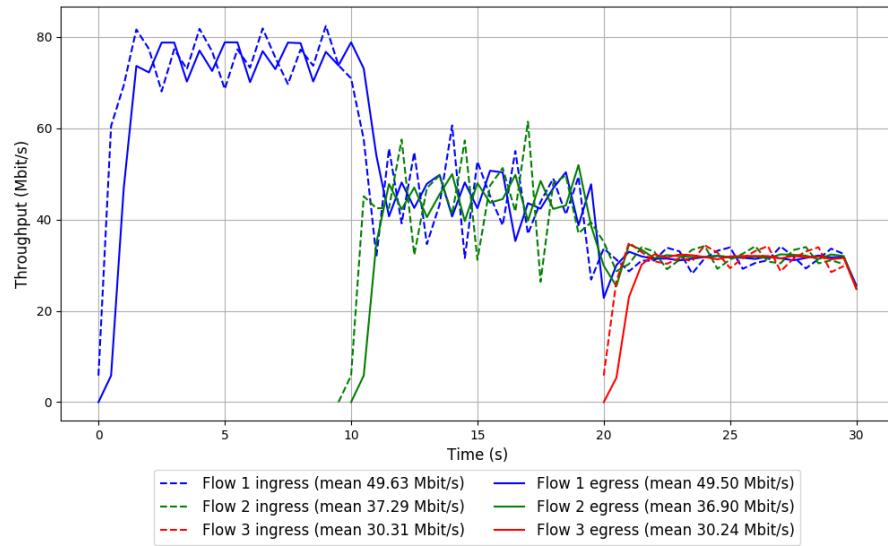
-- Flow 3:

Average throughput: 30.24 Mbit/s

95th percentile per-packet one-way delay: 140.234 ms

Loss rate: 1.89%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-10-10 05:19:12

End at: 2018-10-10 05:19:42

Local clock offset: -1.394 ms

Remote clock offset: 4.56 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.44 Mbit/s

95th percentile per-packet one-way delay: 147.839 ms

Loss rate: 0.70%

-- Flow 1:

Average throughput: 50.60 Mbit/s

95th percentile per-packet one-way delay: 141.221 ms

Loss rate: 0.41%

-- Flow 2:

Average throughput: 37.59 Mbit/s

95th percentile per-packet one-way delay: 163.431 ms

Loss rate: 0.78%

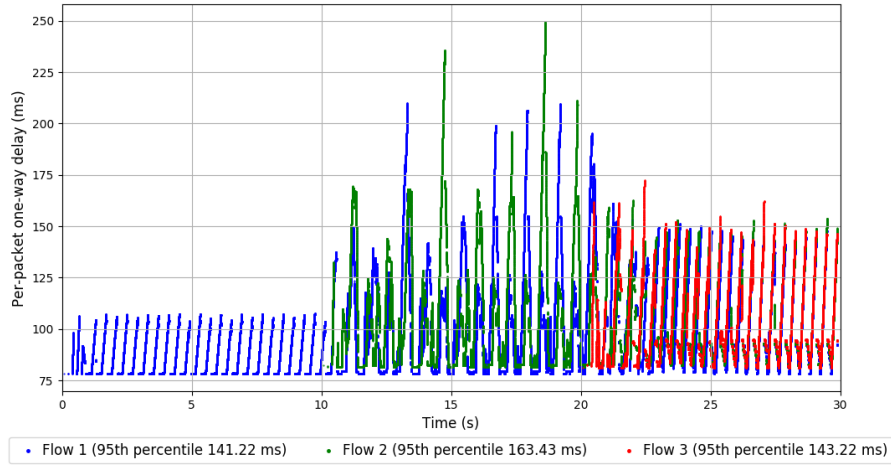
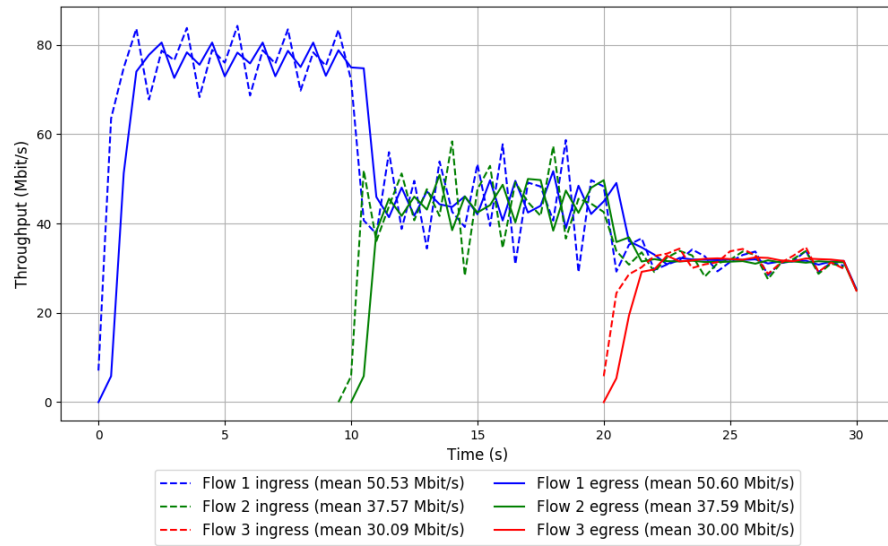
-- Flow 3:

Average throughput: 30.00 Mbit/s

95th percentile per-packet one-way delay: 143.220 ms

Loss rate: 1.93%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-10-10 05:42:35

End at: 2018-10-10 05:43:05

Local clock offset: -1.672 ms

Remote clock offset: 5.939 ms

Below is generated by plot.py at 2018-10-10 06:15:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.81 Mbit/s

95th percentile per-packet one-way delay: 156.583 ms

Loss rate: 0.68%

-- Flow 1:

Average throughput: 50.83 Mbit/s

95th percentile per-packet one-way delay: 153.469 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 37.85 Mbit/s

95th percentile per-packet one-way delay: 171.493 ms

Loss rate: 0.76%

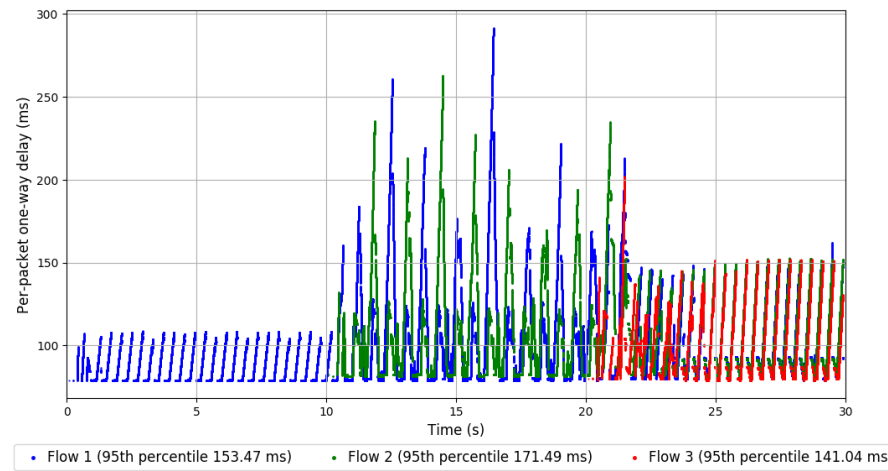
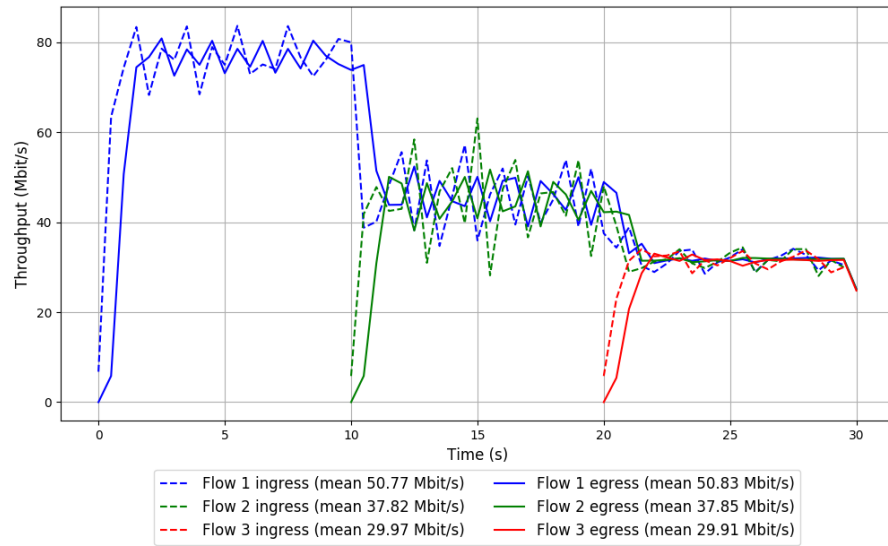
-- Flow 3:

Average throughput: 29.91 Mbit/s

95th percentile per-packet one-way delay: 141.043 ms

Loss rate: 1.85%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-10-10 04:15:50

End at: 2018-10-10 04:16:20

Local clock offset: -1.505 ms

Remote clock offset: -5.5 ms

Below is generated by plot.py at 2018-10-10 06:15:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 41.38 Mbit/s

95th percentile per-packet one-way delay: 202.527 ms

Loss rate: 0.55%

-- Flow 1:

Average throughput: 27.07 Mbit/s

95th percentile per-packet one-way delay: 217.519 ms

Loss rate: 0.38%

-- Flow 2:

Average throughput: 20.10 Mbit/s

95th percentile per-packet one-way delay: 185.921 ms

Loss rate: 0.68%

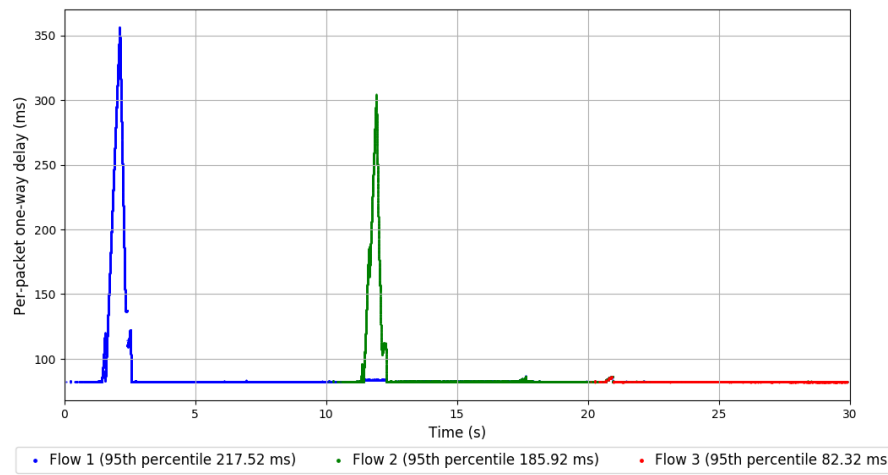
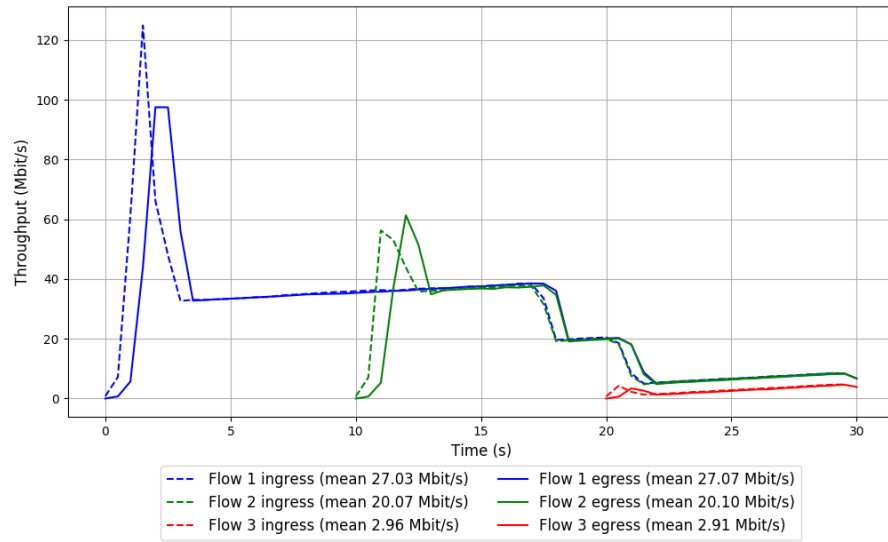
-- Flow 3:

Average throughput: 2.91 Mbit/s

95th percentile per-packet one-way delay: 82.318 ms

Loss rate: 3.38%

Run 1: Report of TCP Vegas — Data Link

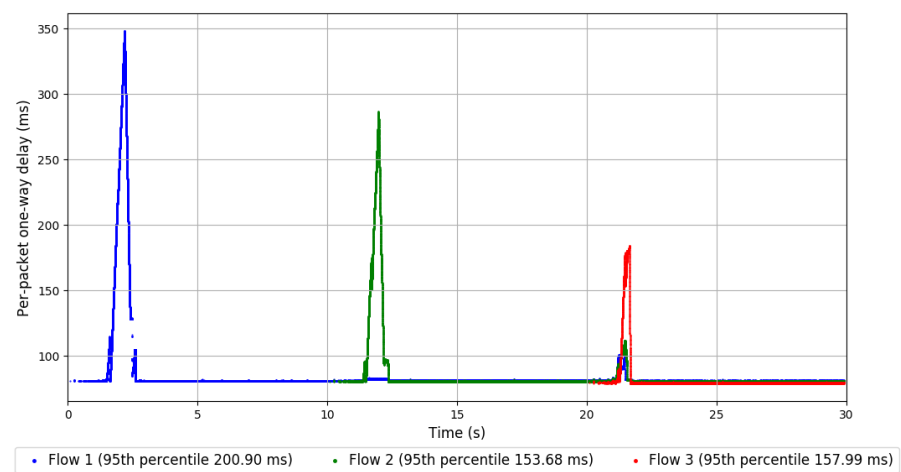
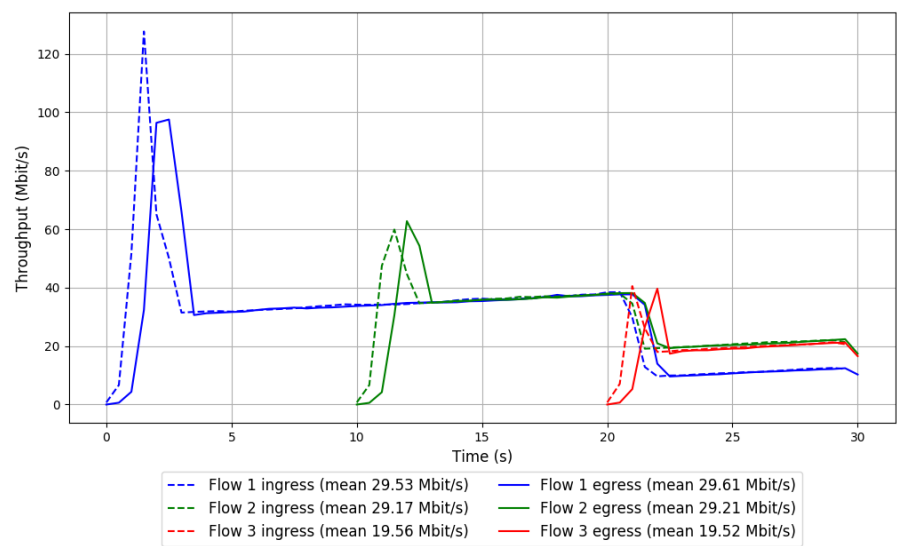


Run 2: Statistics of TCP Vegas

Start at: 2018-10-10 04:39:15
End at: 2018-10-10 04:39:45
Local clock offset: -0.948 ms
Remote clock offset: 0.995 ms

Below is generated by plot.py at 2018-10-10 06:15:18
Datalink statistics
-- Total of 3 flows:
Average throughput: 55.44 Mbit/s
95th percentile per-packet one-way delay: 169.890 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 29.61 Mbit/s
95th percentile per-packet one-way delay: 200.904 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 29.21 Mbit/s
95th percentile per-packet one-way delay: 153.684 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 19.52 Mbit/s
95th percentile per-packet one-way delay: 157.994 ms
Loss rate: 1.83%

Run 2: Report of TCP Vegas — Data Link

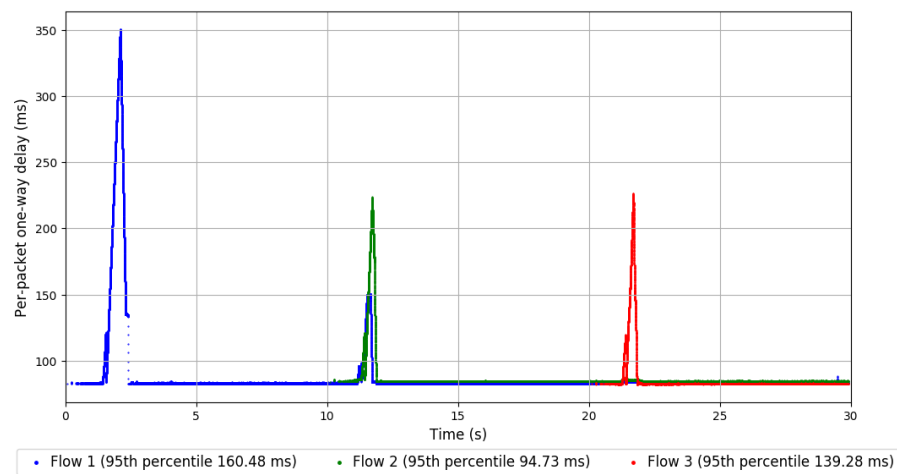
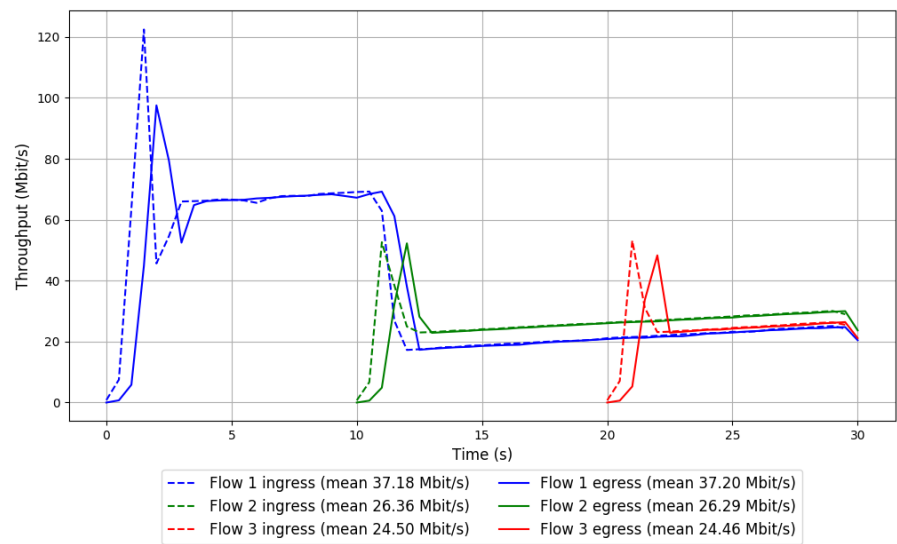


Run 3: Statistics of TCP Vegas

Start at: 2018-10-10 05:02:26
End at: 2018-10-10 05:02:56
Local clock offset: -1.249 ms
Remote clock offset: -0.738 ms

Below is generated by plot.py at 2018-10-10 06:15:18
Datalink statistics
-- Total of 3 flows:
Average throughput: 62.70 Mbit/s
95th percentile per-packet one-way delay: 144.313 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 37.20 Mbit/s
95th percentile per-packet one-way delay: 160.479 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 26.29 Mbit/s
95th percentile per-packet one-way delay: 94.734 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 24.46 Mbit/s
95th percentile per-packet one-way delay: 139.280 ms
Loss rate: 1.80%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-10-10 05:25:51

End at: 2018-10-10 05:26:21

Local clock offset: -1.385 ms

Remote clock offset: 2.365 ms

Below is generated by plot.py at 2018-10-10 06:15:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 39.57 Mbit/s

95th percentile per-packet one-way delay: 204.111 ms

Loss rate: 0.78%

-- Flow 1:

Average throughput: 28.99 Mbit/s

95th percentile per-packet one-way delay: 208.095 ms

Loss rate: 0.61%

-- Flow 2:

Average throughput: 14.63 Mbit/s

95th percentile per-packet one-way delay: 205.085 ms

Loss rate: 1.08%

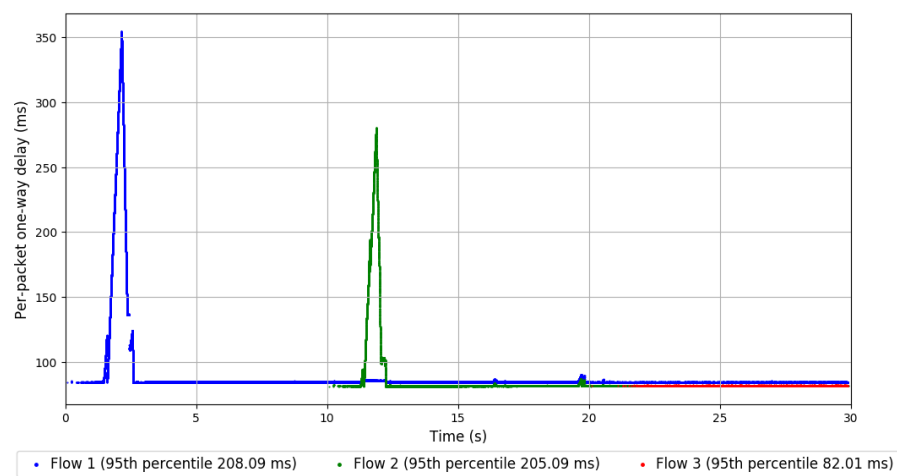
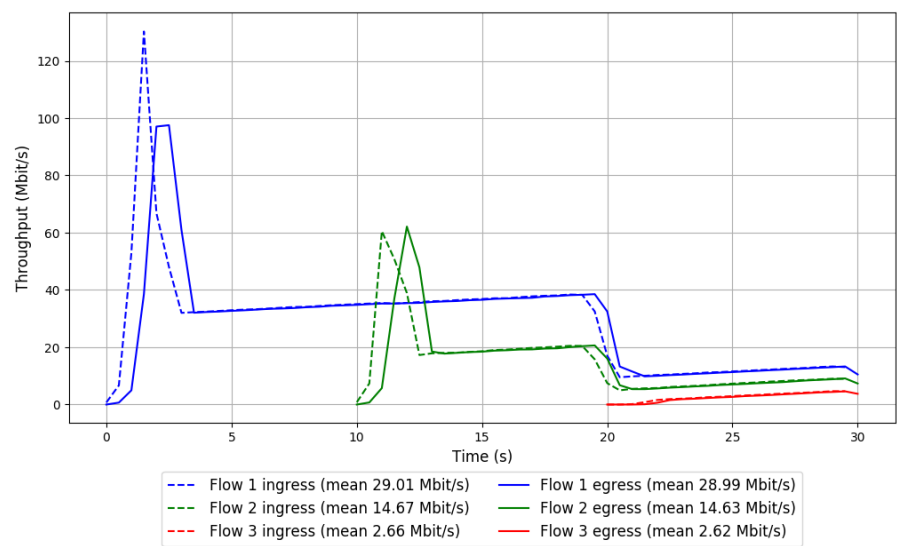
-- Flow 3:

Average throughput: 2.62 Mbit/s

95th percentile per-packet one-way delay: 82.013 ms

Loss rate: 2.99%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-10-10 05:49:07

End at: 2018-10-10 05:49:37

Local clock offset: -1.7 ms

Remote clock offset: 7.716 ms

Below is generated by plot.py at 2018-10-10 06:15:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 48.78 Mbit/s

95th percentile per-packet one-way delay: 180.120 ms

Loss rate: 0.93%

-- Flow 1:

Average throughput: 17.67 Mbit/s

95th percentile per-packet one-way delay: 262.100 ms

Loss rate: 0.95%

-- Flow 2:

Average throughput: 36.00 Mbit/s

95th percentile per-packet one-way delay: 115.472 ms

Loss rate: 0.64%

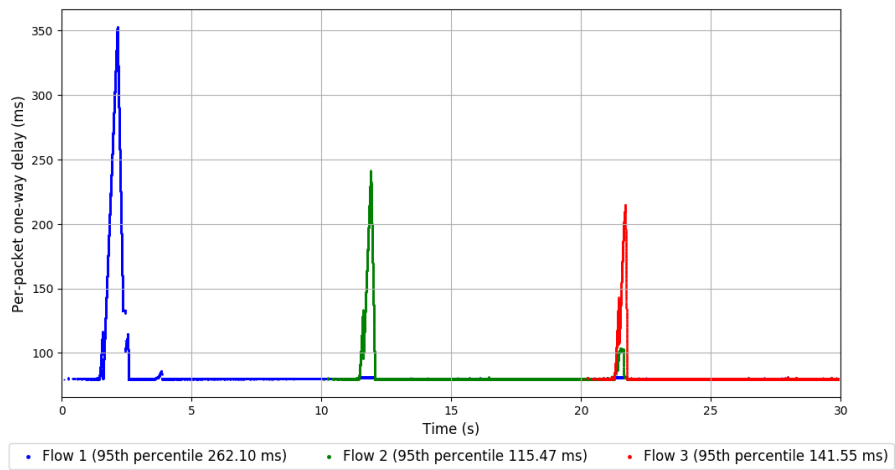
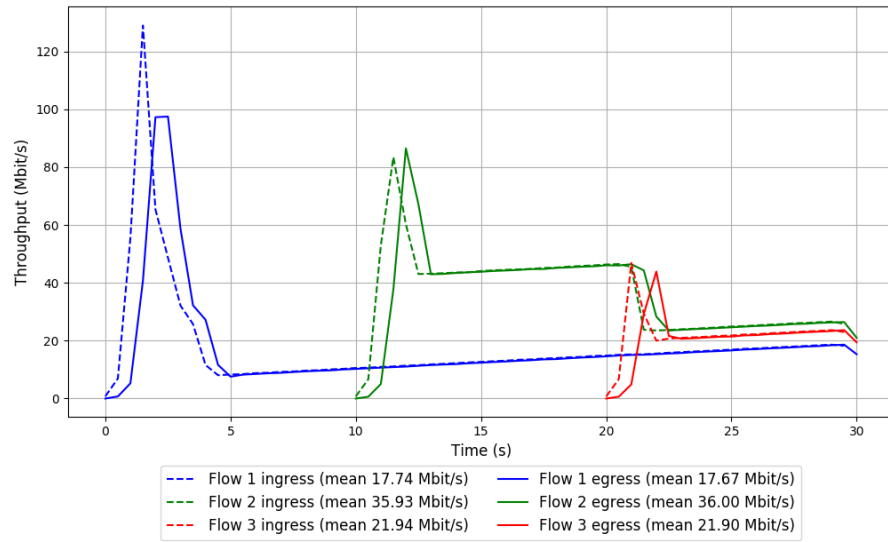
-- Flow 3:

Average throughput: 21.90 Mbit/s

95th percentile per-packet one-way delay: 141.553 ms

Loss rate: 1.83%

Run 5: Report of TCP Vegas — Data Link

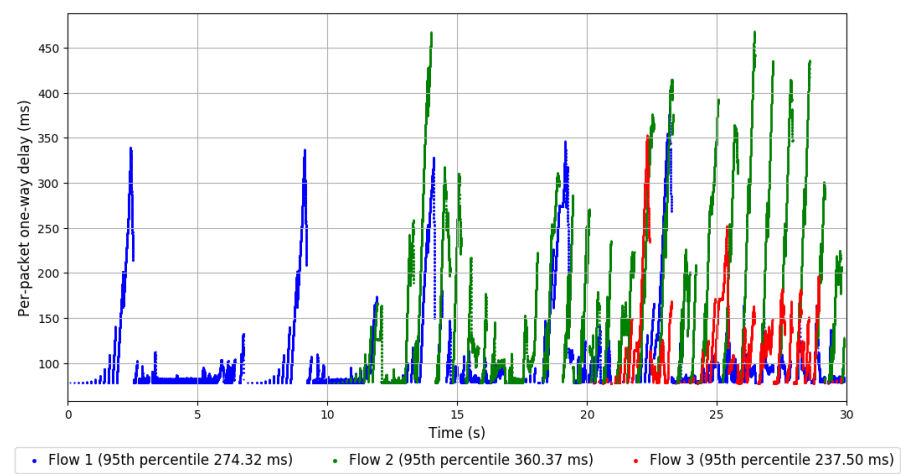
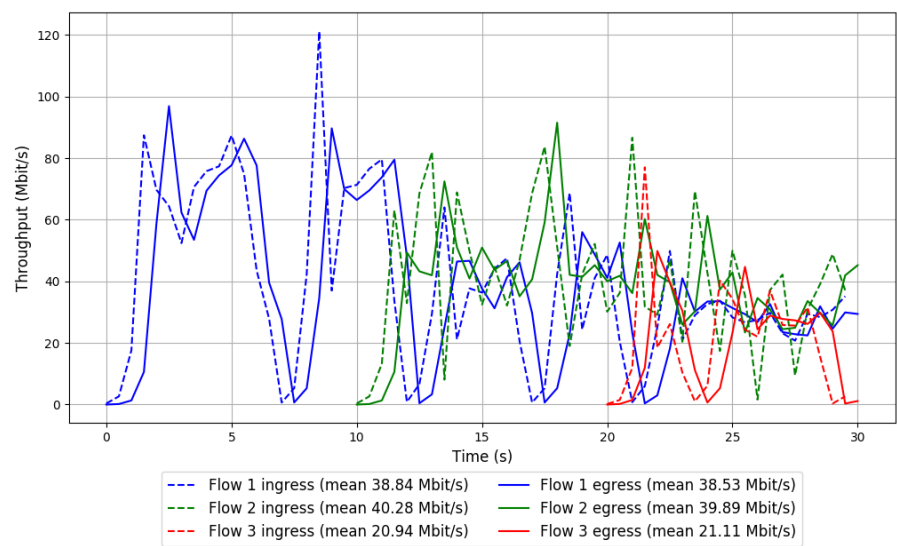


Run 1: Statistics of Verus

Start at: 2018-10-10 04:17:05
End at: 2018-10-10 04:17:35
Local clock offset: -1.432 ms
Remote clock offset: -0.482 ms

Below is generated by plot.py at 2018-10-10 06:15:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 71.88 Mbit/s
95th percentile per-packet one-way delay: 306.543 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 38.53 Mbit/s
95th percentile per-packet one-way delay: 274.317 ms
Loss rate: 1.32%
-- Flow 2:
Average throughput: 39.89 Mbit/s
95th percentile per-packet one-way delay: 360.374 ms
Loss rate: 1.62%
-- Flow 3:
Average throughput: 21.11 Mbit/s
95th percentile per-packet one-way delay: 237.503 ms
Loss rate: 0.91%

Run 1: Report of Verus — Data Link

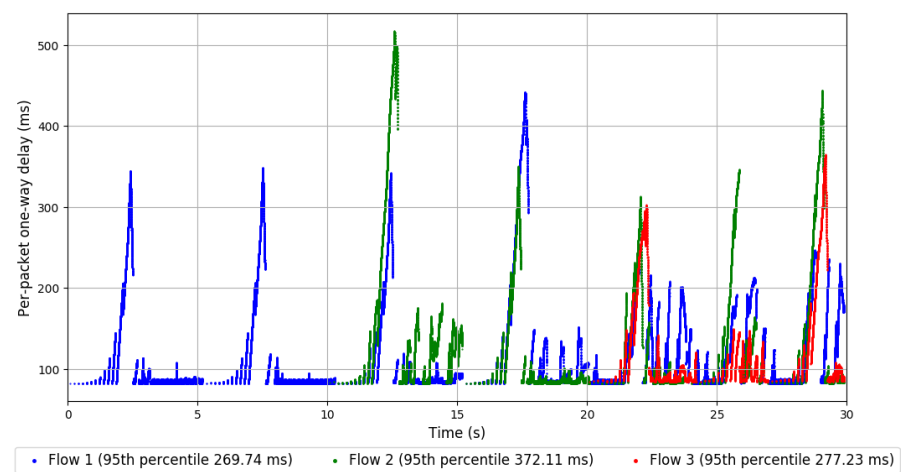
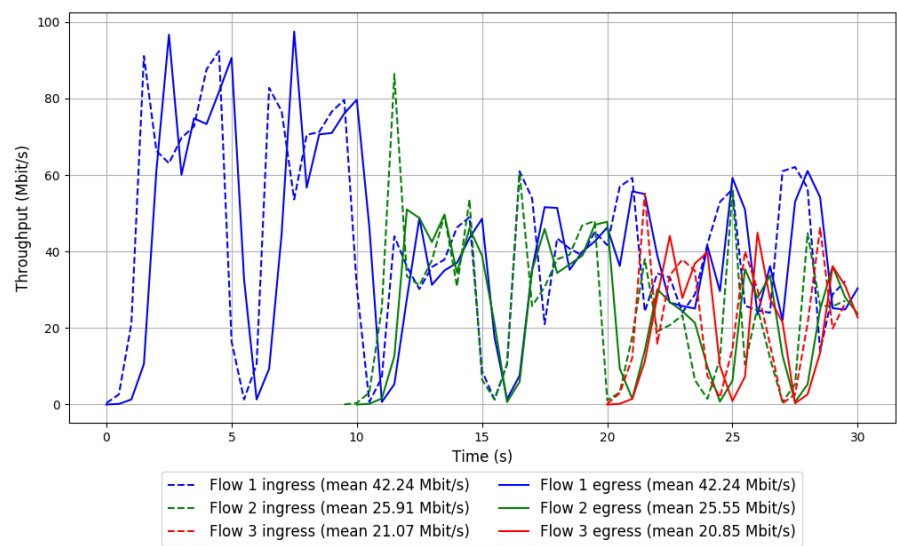


Run 2: Statistics of Verus

Start at: 2018-10-10 04:40:32
End at: 2018-10-10 04:41:02
Local clock offset: -1.012 ms
Remote clock offset: -2.612 ms

Below is generated by plot.py at 2018-10-10 06:15:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 66.07 Mbit/s
95th percentile per-packet one-way delay: 303.989 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 42.24 Mbit/s
95th percentile per-packet one-way delay: 269.736 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 25.55 Mbit/s
95th percentile per-packet one-way delay: 372.108 ms
Loss rate: 2.22%
-- Flow 3:
Average throughput: 20.85 Mbit/s
95th percentile per-packet one-way delay: 277.230 ms
Loss rate: 2.62%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-10-10 05:03:42

End at: 2018-10-10 05:04:12

Local clock offset: -1.232 ms

Remote clock offset: -0.58 ms

Below is generated by plot.py at 2018-10-10 06:15:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.23 Mbit/s

95th percentile per-packet one-way delay: 257.382 ms

Loss rate: 1.96%

-- Flow 1:

Average throughput: 44.19 Mbit/s

95th percentile per-packet one-way delay: 247.434 ms

Loss rate: 1.14%

-- Flow 2:

Average throughput: 35.24 Mbit/s

95th percentile per-packet one-way delay: 239.558 ms

Loss rate: 1.78%

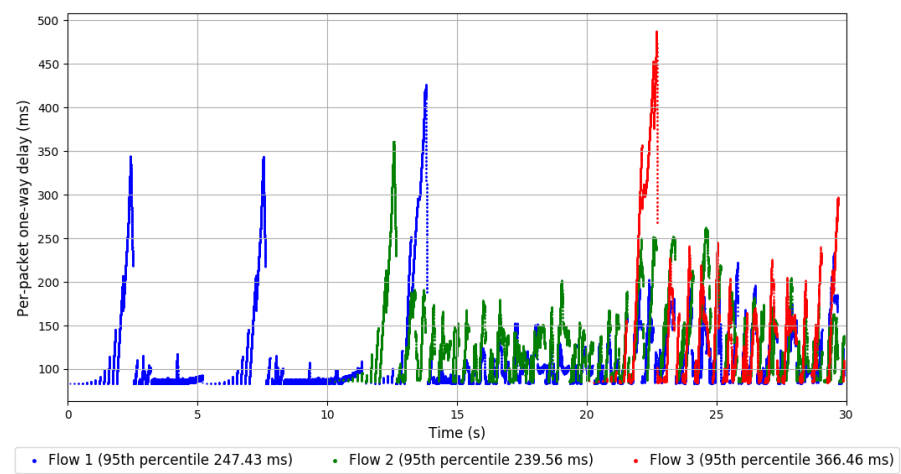
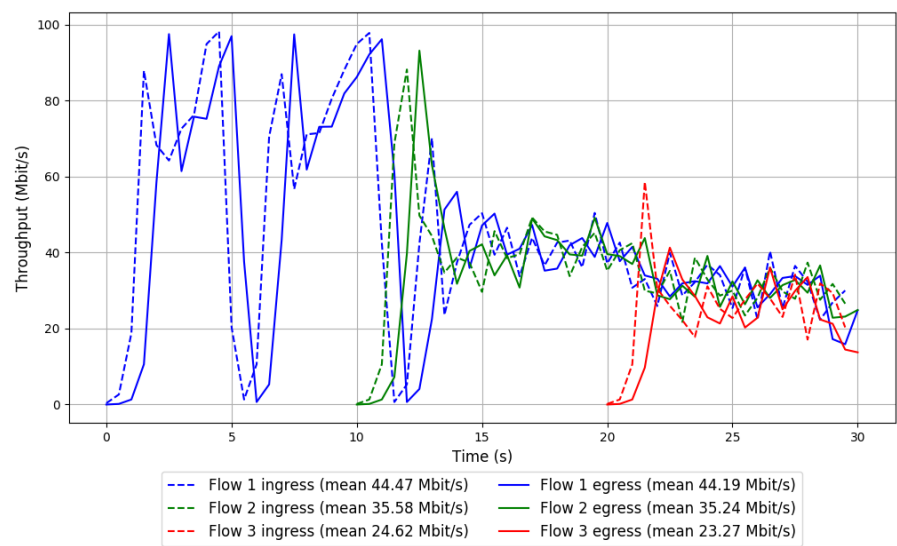
-- Flow 3:

Average throughput: 23.27 Mbit/s

95th percentile per-packet one-way delay: 366.461 ms

Loss rate: 6.93%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-10-10 05:27:06

End at: 2018-10-10 05:27:36

Local clock offset: -1.458 ms

Remote clock offset: 7.422 ms

Below is generated by plot.py at 2018-10-10 06:15:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 64.19 Mbit/s

95th percentile per-packet one-way delay: 462.677 ms

Loss rate: 1.83%

-- Flow 1:

Average throughput: 35.33 Mbit/s

95th percentile per-packet one-way delay: 299.523 ms

Loss rate: 1.84%

-- Flow 2:

Average throughput: 30.21 Mbit/s

95th percentile per-packet one-way delay: 459.807 ms

Loss rate: 0.80%

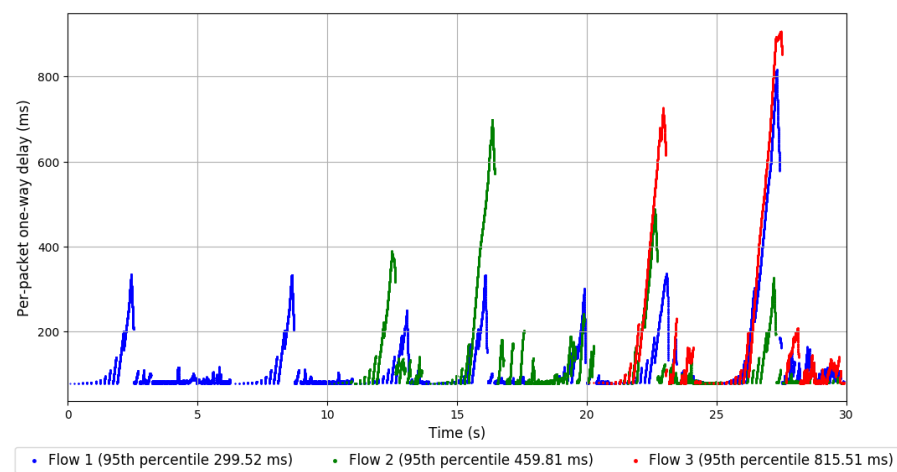
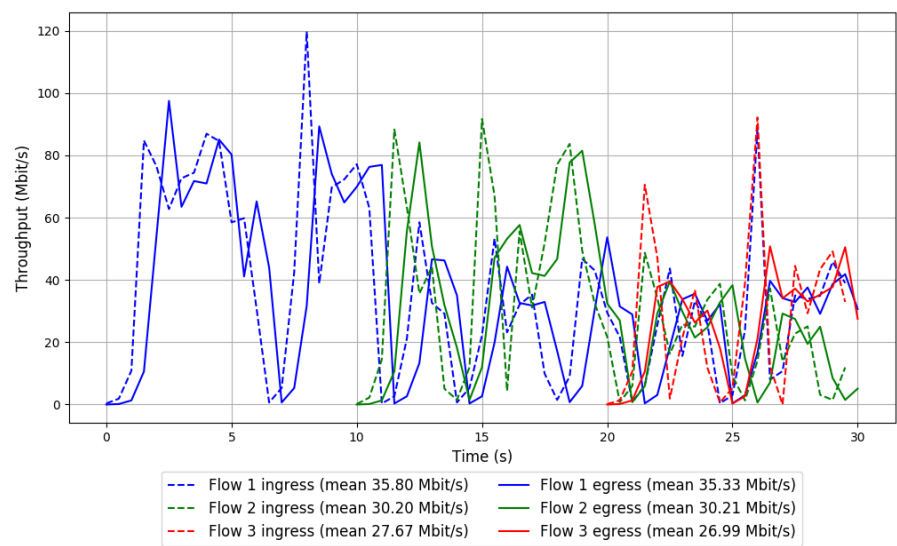
-- Flow 3:

Average throughput: 26.99 Mbit/s

95th percentile per-packet one-way delay: 815.510 ms

Loss rate: 4.04%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-10-10 05:50:22

End at: 2018-10-10 05:50:52

Local clock offset: -1.683 ms

Remote clock offset: 4.033 ms

Below is generated by plot.py at 2018-10-10 06:15:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 66.11 Mbit/s

95th percentile per-packet one-way delay: 343.058 ms

Loss rate: 0.85%

-- Flow 1:

Average throughput: 37.74 Mbit/s

95th percentile per-packet one-way delay: 316.688 ms

Loss rate: 0.59%

-- Flow 2:

Average throughput: 30.43 Mbit/s

95th percentile per-packet one-way delay: 371.767 ms

Loss rate: 1.18%

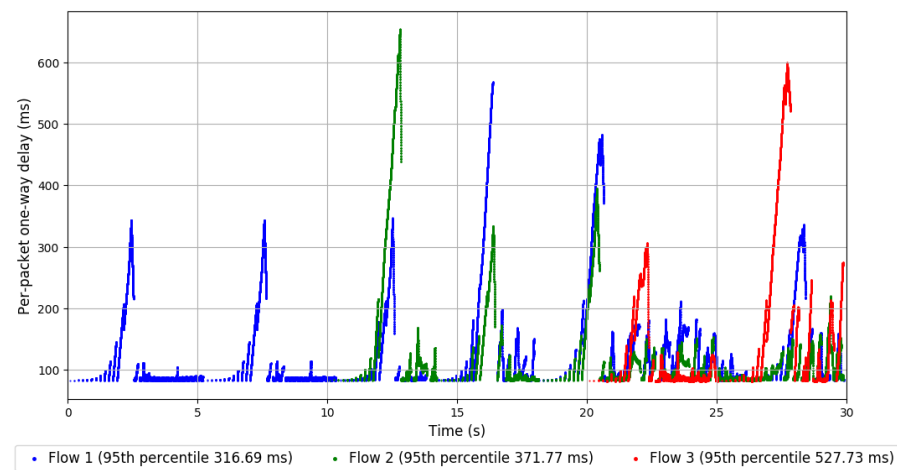
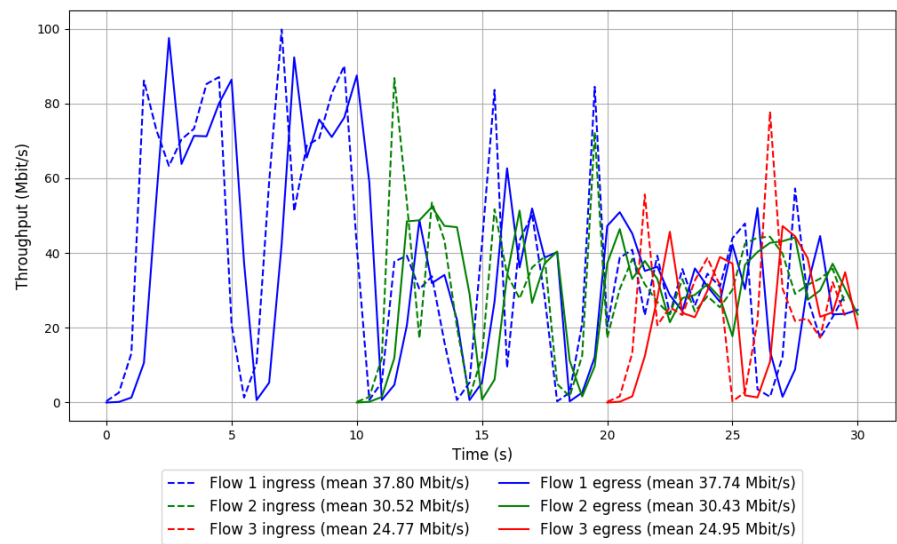
-- Flow 3:

Average throughput: 24.95 Mbit/s

95th percentile per-packet one-way delay: 527.725 ms

Loss rate: 1.23%

Run 5: Report of Verus — Data Link

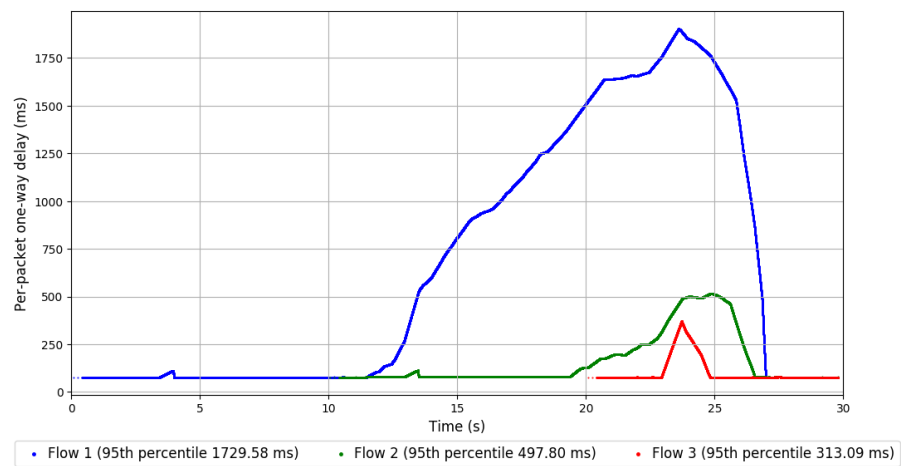
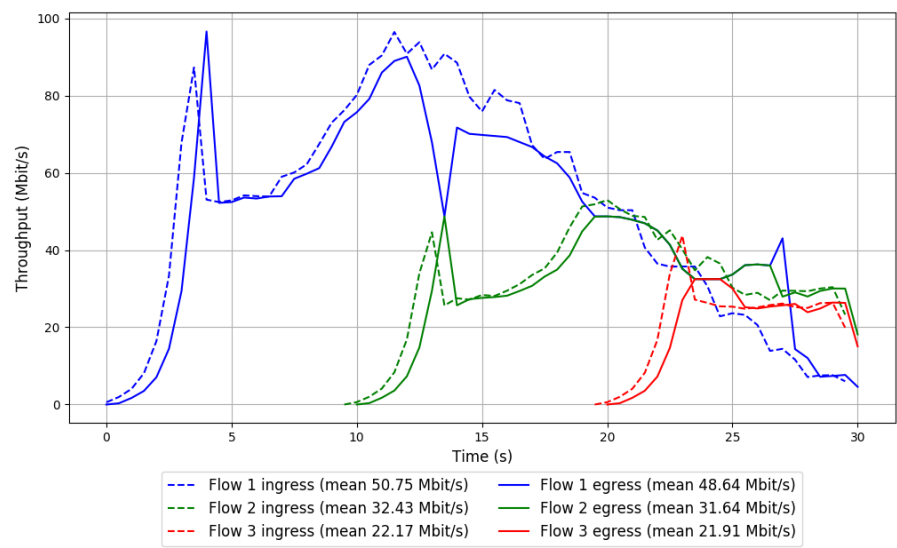


Run 1: Statistics of PCC-Vivace

Start at: 2018-10-10 04:19:40
End at: 2018-10-10 04:20:10
Local clock offset: -1.195 ms
Remote clock offset: -0.246 ms

Below is generated by plot.py at 2018-10-10 06:16:12
Datalink statistics
-- Total of 3 flows:
Average throughput: 76.81 Mbit/s
95th percentile per-packet one-way delay: 1659.100 ms
Loss rate: 4.11%
-- Flow 1:
Average throughput: 48.64 Mbit/s
95th percentile per-packet one-way delay: 1729.579 ms
Loss rate: 4.67%
-- Flow 2:
Average throughput: 31.64 Mbit/s
95th percentile per-packet one-way delay: 497.795 ms
Loss rate: 3.23%
-- Flow 3:
Average throughput: 21.91 Mbit/s
95th percentile per-packet one-way delay: 313.091 ms
Loss rate: 2.79%

Run 1: Report of PCC-Vivace — Data Link

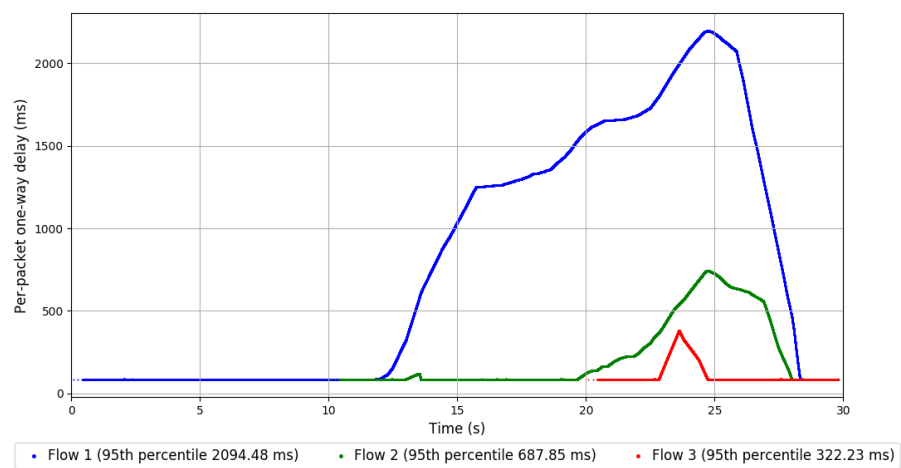
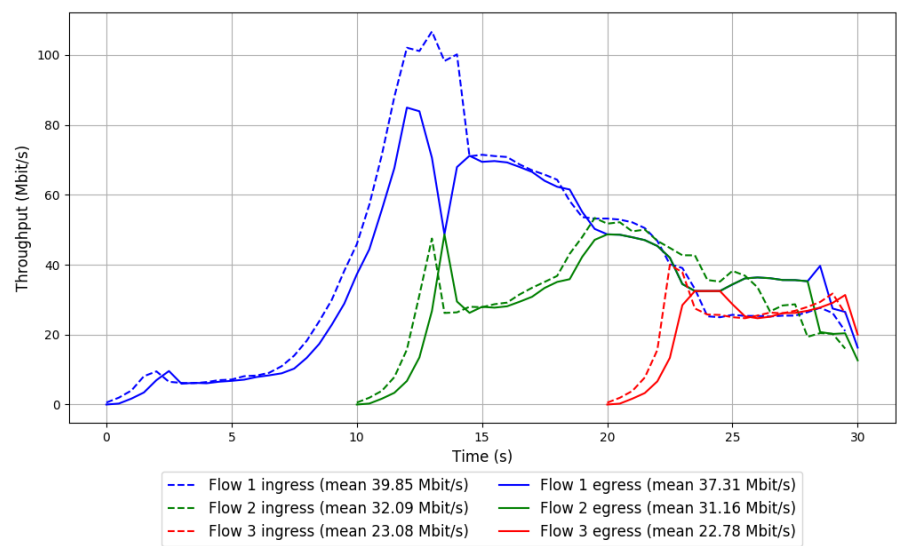


Run 2: Statistics of PCC-Vivace

Start at: 2018-10-10 04:43:08
End at: 2018-10-10 04:43:38
Local clock offset: -0.877 ms
Remote clock offset: -2.383 ms

Below is generated by plot.py at 2018-10-10 06:16:12
Datalink statistics
-- Total of 3 flows:
Average throughput: 65.41 Mbit/s
95th percentile per-packet one-way delay: 1898.387 ms
Loss rate: 5.46%
-- Flow 1:
Average throughput: 37.31 Mbit/s
95th percentile per-packet one-way delay: 2094.483 ms
Loss rate: 6.90%
-- Flow 2:
Average throughput: 31.16 Mbit/s
95th percentile per-packet one-way delay: 687.851 ms
Loss rate: 3.66%
-- Flow 3:
Average throughput: 22.78 Mbit/s
95th percentile per-packet one-way delay: 322.227 ms
Loss rate: 2.99%

Run 2: Report of PCC-Vivace — Data Link

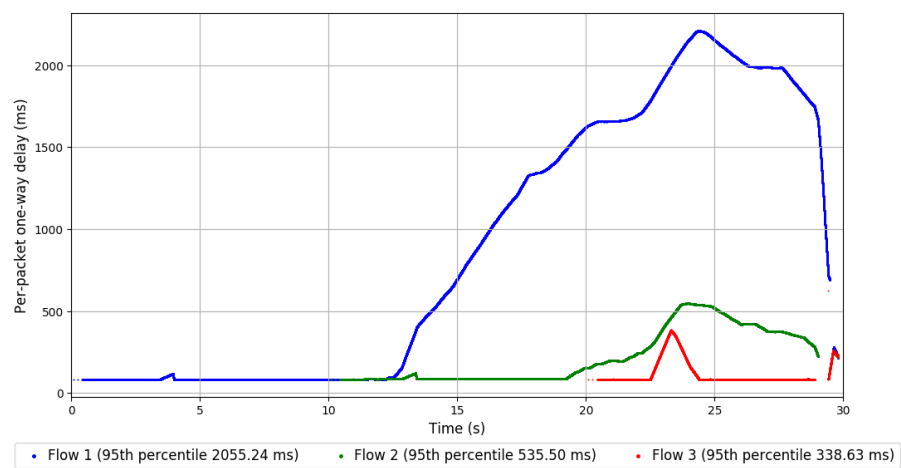
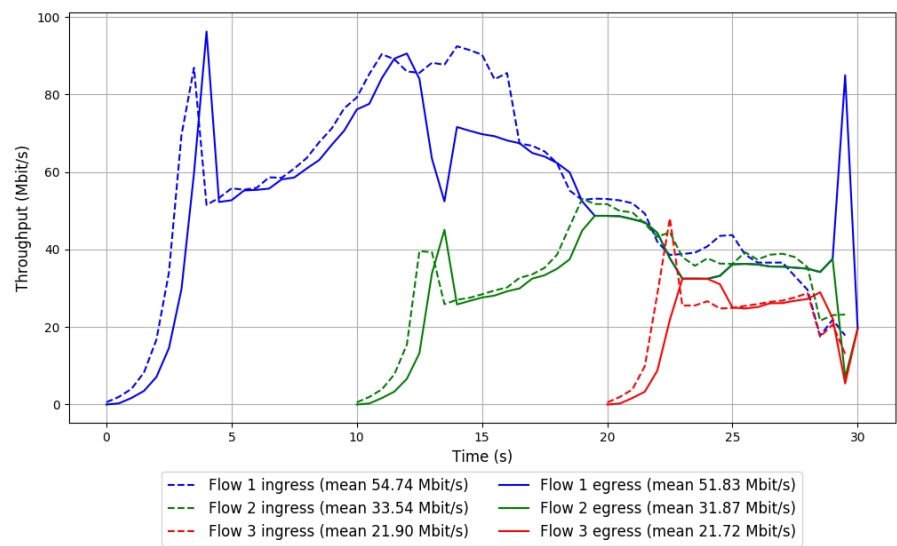


Run 3: Statistics of PCC-Vivace

Start at: 2018-10-10 05:06:18
End at: 2018-10-10 05:06:48
Local clock offset: -1.312 ms
Remote clock offset: -0.418 ms

Below is generated by plot.py at 2018-10-10 06:16:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 80.07 Mbit/s
95th percentile per-packet one-way delay: 1988.392 ms
Loss rate: 5.52%
-- Flow 1:
Average throughput: 51.83 Mbit/s
95th percentile per-packet one-way delay: 2055.238 ms
Loss rate: 5.82%
-- Flow 2:
Average throughput: 31.87 Mbit/s
95th percentile per-packet one-way delay: 535.498 ms
Loss rate: 5.77%
-- Flow 3:
Average throughput: 21.72 Mbit/s
95th percentile per-packet one-way delay: 338.627 ms
Loss rate: 2.48%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-10-10 05:29:41

End at: 2018-10-10 05:30:11

Local clock offset: -1.513 ms

Remote clock offset: 5.345 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 78.94 Mbit/s

95th percentile per-packet one-way delay: 1631.961 ms

Loss rate: 4.41%

-- Flow 1:

Average throughput: 51.03 Mbit/s

95th percentile per-packet one-way delay: 1649.108 ms

Loss rate: 4.95%

-- Flow 2:

Average throughput: 30.84 Mbit/s

95th percentile per-packet one-way delay: 648.390 ms

Loss rate: 3.48%

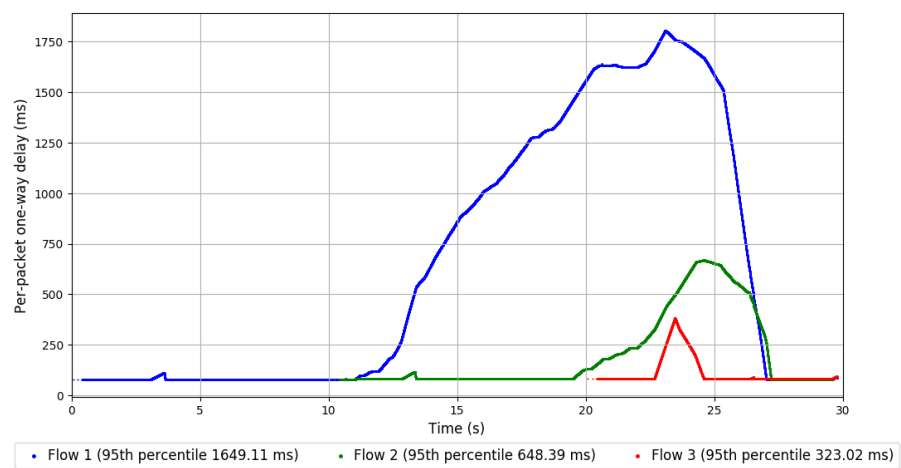
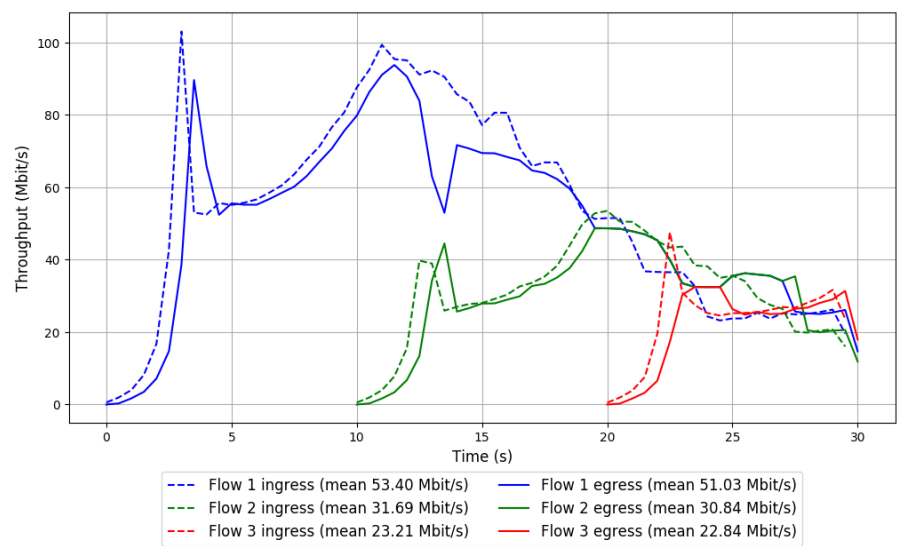
-- Flow 3:

Average throughput: 22.84 Mbit/s

95th percentile per-packet one-way delay: 323.023 ms

Loss rate: 3.21%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-10-10 05:52:58

End at: 2018-10-10 05:53:28

Local clock offset: -1.754 ms

Remote clock offset: 7.827 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 66.89 Mbit/s

95th percentile per-packet one-way delay: 1415.538 ms

Loss rate: 10.79%

-- Flow 1:

Average throughput: 43.38 Mbit/s

95th percentile per-packet one-way delay: 1355.147 ms

Loss rate: 10.47%

-- Flow 2:

Average throughput: 24.19 Mbit/s

95th percentile per-packet one-way delay: 1535.660 ms

Loss rate: 14.90%

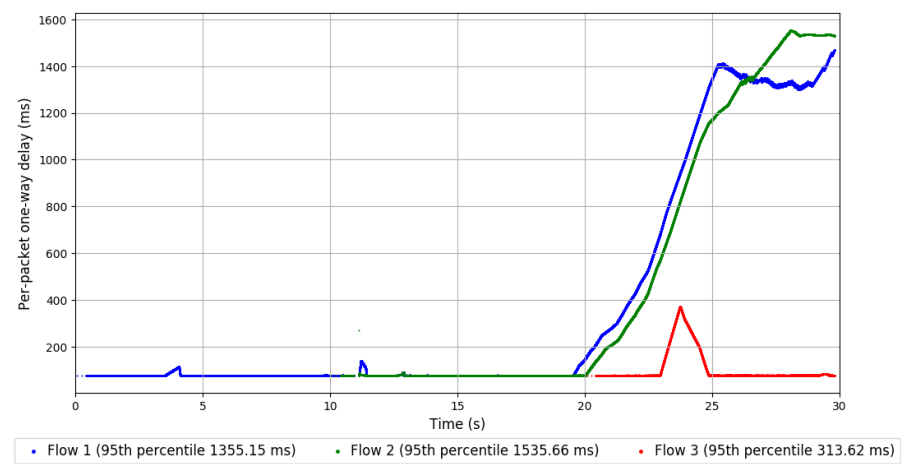
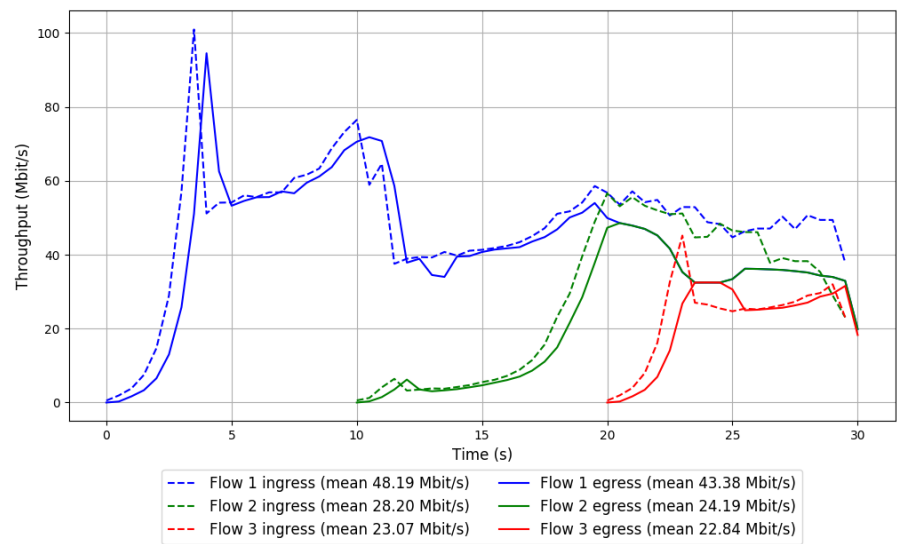
-- Flow 3:

Average throughput: 22.84 Mbit/s

95th percentile per-packet one-way delay: 313.625 ms

Loss rate: 2.64%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-10-10 04:30:03

End at: 2018-10-10 04:30:33

Local clock offset: -0.955 ms

Remote clock offset: 0.722 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.26 Mbit/s

95th percentile per-packet one-way delay: 78.655 ms

Loss rate: 0.74%

-- Flow 1:

Average throughput: 2.02 Mbit/s

95th percentile per-packet one-way delay: 77.575 ms

Loss rate: 0.44%

-- Flow 2:

Average throughput: 0.94 Mbit/s

95th percentile per-packet one-way delay: 78.849 ms

Loss rate: 0.74%

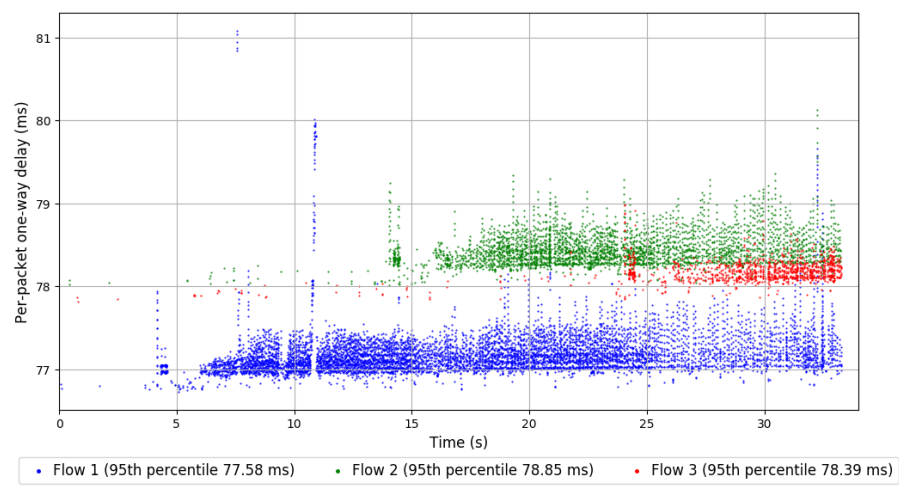
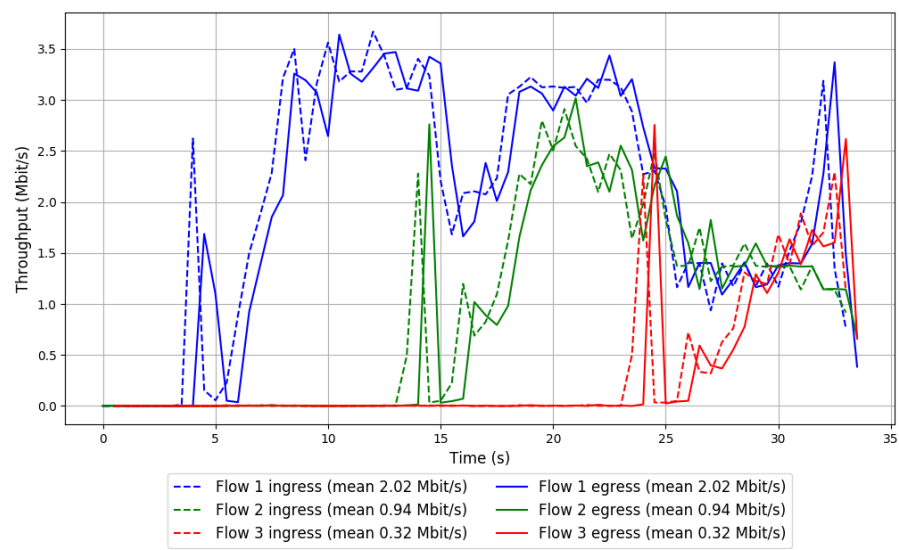
-- Flow 3:

Average throughput: 0.32 Mbit/s

95th percentile per-packet one-way delay: 78.387 ms

Loss rate: 2.65%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-10-10 04:53:21

End at: 2018-10-10 04:53:51

Local clock offset: -0.634 ms

Remote clock offset: 3.276 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.96 Mbit/s

95th percentile per-packet one-way delay: 81.046 ms

Loss rate: 1.06%

-- Flow 1:

Average throughput: 1.65 Mbit/s

95th percentile per-packet one-way delay: 81.043 ms

Loss rate: 0.88%

-- Flow 2:

Average throughput: 0.93 Mbit/s

95th percentile per-packet one-way delay: 81.147 ms

Loss rate: 0.72%

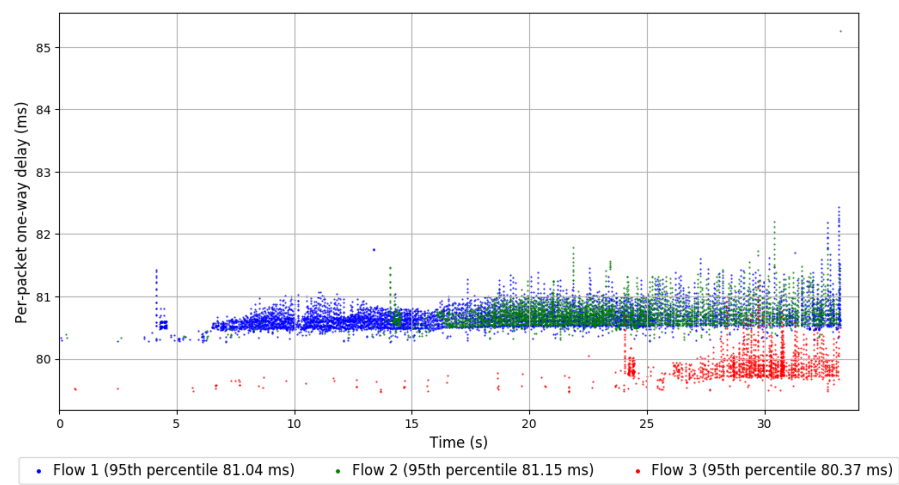
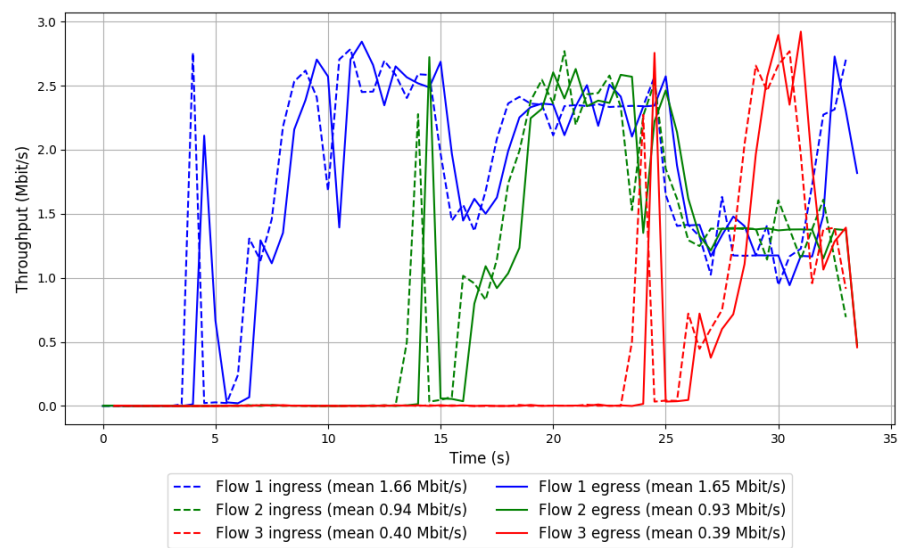
-- Flow 3:

Average throughput: 0.39 Mbit/s

95th percentile per-packet one-way delay: 80.369 ms

Loss rate: 2.63%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-10-10 05:16:43

End at: 2018-10-10 05:17:13

Local clock offset: -1.474 ms

Remote clock offset: 4.284 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.96 Mbit/s

95th percentile per-packet one-way delay: 81.498 ms

Loss rate: 0.56%

-- Flow 1:

Average throughput: 1.67 Mbit/s

95th percentile per-packet one-way delay: 78.965 ms

Loss rate: 0.36%

-- Flow 2:

Average throughput: 0.94 Mbit/s

95th percentile per-packet one-way delay: 81.271 ms

Loss rate: 0.38%

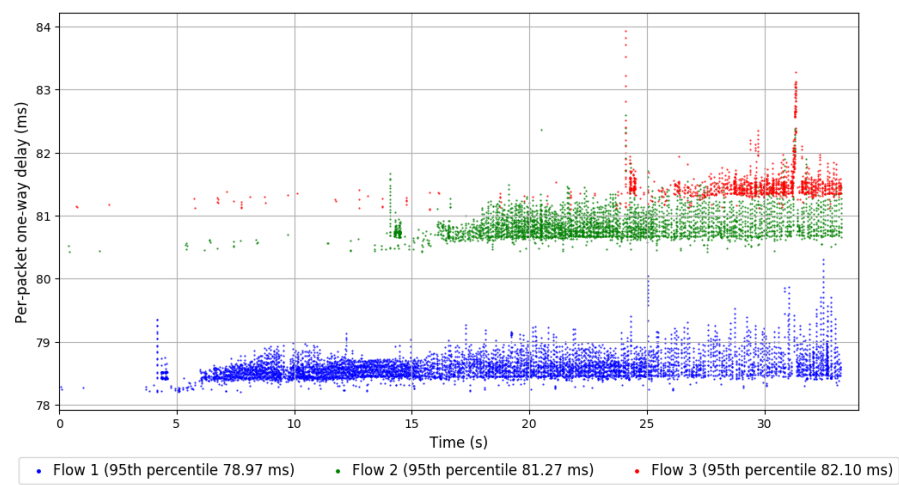
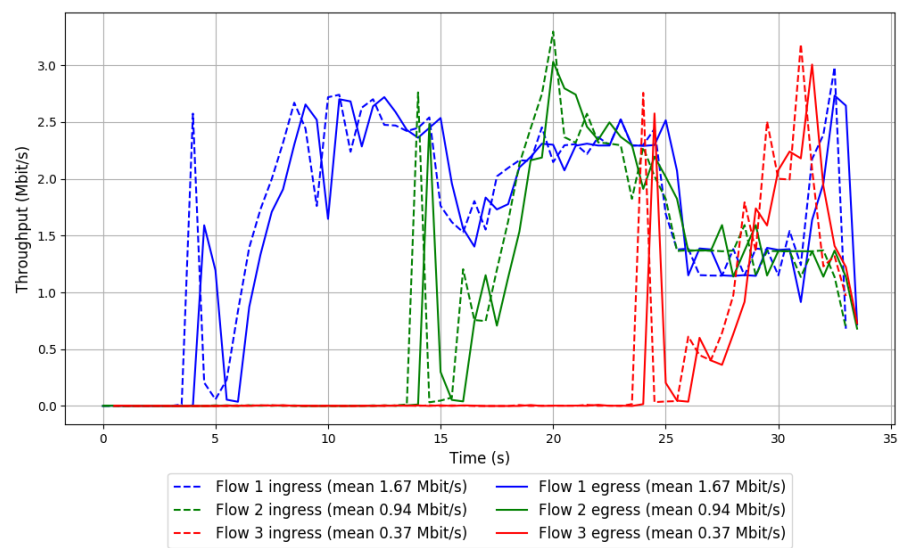
-- Flow 3:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 82.099 ms

Loss rate: 1.98%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-10-10 05:40:06

End at: 2018-10-10 05:40:36

Local clock offset: -1.682 ms

Remote clock offset: 6.964 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.23 Mbit/s

95th percentile per-packet one-way delay: 80.842 ms

Loss rate: 0.57%

-- Flow 1:

Average throughput: 1.91 Mbit/s

95th percentile per-packet one-way delay: 78.741 ms

Loss rate: 0.43%

-- Flow 2:

Average throughput: 0.95 Mbit/s

95th percentile per-packet one-way delay: 81.030 ms

Loss rate: 0.72%

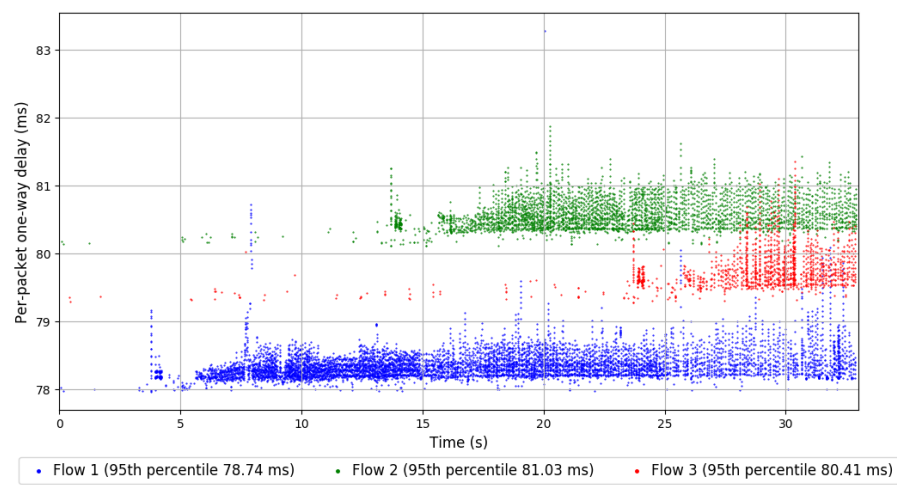
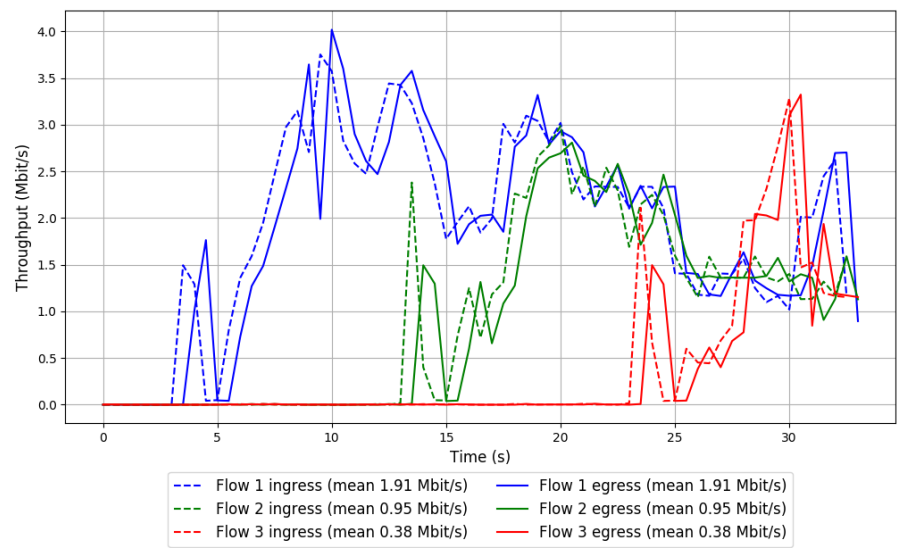
-- Flow 3:

Average throughput: 0.38 Mbit/s

95th percentile per-packet one-way delay: 80.407 ms

Loss rate: 0.93%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-10-10 06:03:12

End at: 2018-10-10 06:03:42

Local clock offset: -1.706 ms

Remote clock offset: 3.816 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.87 Mbit/s

95th percentile per-packet one-way delay: 84.127 ms

Loss rate: 0.51%

-- Flow 1:

Average throughput: 1.70 Mbit/s

95th percentile per-packet one-way delay: 81.511 ms

Loss rate: 0.35%

-- Flow 2:

Average throughput: 0.94 Mbit/s

95th percentile per-packet one-way delay: 83.910 ms

Loss rate: 0.75%

-- Flow 3:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 84.333 ms

Loss rate: 0.63%

Run 5: Report of WebRTC media — Data Link

