

Pantheon Report

Generated at 2018-10-09 22:57:17 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

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

System info:

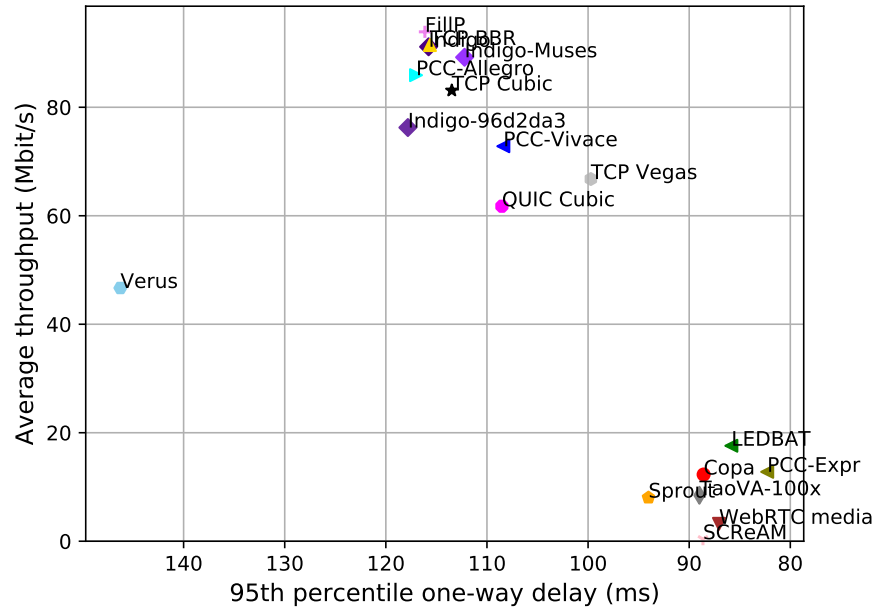
```
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

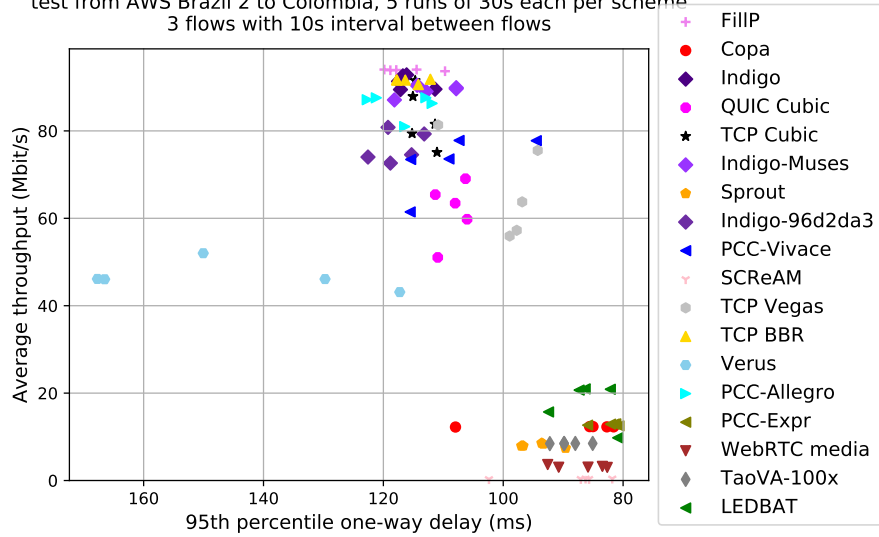
```
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
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 AWS Brazil 2 to Colombia, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)



test from AWS Brazil 2 to Colombia, 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	53.57	40.19	33.46	115.31	112.87	116.28	12.57	18.72	27.48
Copa	5	8.17	6.02	0.39	88.35	88.21	88.06	63.97	68.44	83.59
TCP Cubic	5	59.47	28.49	13.96	113.31	114.81	108.97	0.74	0.52	0.43
FillP	5	55.84	39.81	35.18	113.75	116.17	112.19	14.99	28.59	28.76
Indigo	5	62.55	30.80	25.61	114.55	114.54	114.19	8.42	20.82	30.13
Indigo-96d2da3	5	46.22	33.57	25.66	117.25	118.54	119.35	55.63	58.92	61.92
LEDBAT	5	10.96	7.93	4.13	85.78	84.94	85.44	0.04	0.09	0.02
Indigo-Muses	5	70.89	19.69	16.14	112.67	110.09	110.84	2.63	0.89	1.62
PCC-Allegro	5	77.32	8.91	8.10	116.63	117.28	115.36	2.69	3.44	5.48
PCC-Expr	5	7.13	5.72	5.61	81.56	82.40	81.97	60.59	43.18	37.03
QUIC Cubic	5	38.86	23.87	21.52	107.10	107.28	104.60	1.14	0.95	0.91
SCReAM	5	0.16	0.22	0.22	88.36	87.36	89.55	0.61	0.04	0.17
Sprout	5	4.12	4.08	3.67	93.77	92.21	93.48	0.21	0.04	0.39
TaoVA-100x	5	0.00	10.09	5.29	84.70	91.66	82.74	95.92	41.36	56.38
TCP Vegas	5	41.98	23.33	27.84	100.81	103.25	102.69	1.59	0.62	0.88
Verus	5	28.71	23.49	11.70	137.91	125.12	133.75	51.45	40.14	34.12
PCC-Vivace	5	58.07	18.85	6.68	108.21	108.04	101.91	0.94	1.35	0.62
WebRTC media	5	1.85	1.12	0.25	85.50	86.14	85.38	0.06	0.09	0.08

Run 1: Statistics of TCP BBR

Start at: 2018-10-09 21:04:24

End at: 2018-10-09 21:04:54

Local clock offset: -1.767 ms

Remote clock offset: 4.852 ms

Below is generated by plot.py at 2018-10-09 22:50:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.67 Mbit/s

95th percentile per-packet one-way delay: 117.805 ms

Loss rate: 17.27%

-- Flow 1:

Average throughput: 52.75 Mbit/s

95th percentile per-packet one-way delay: 117.888 ms

Loss rate: 12.84%

-- Flow 2:

Average throughput: 45.62 Mbit/s

95th percentile per-packet one-way delay: 112.559 ms

Loss rate: 20.63%

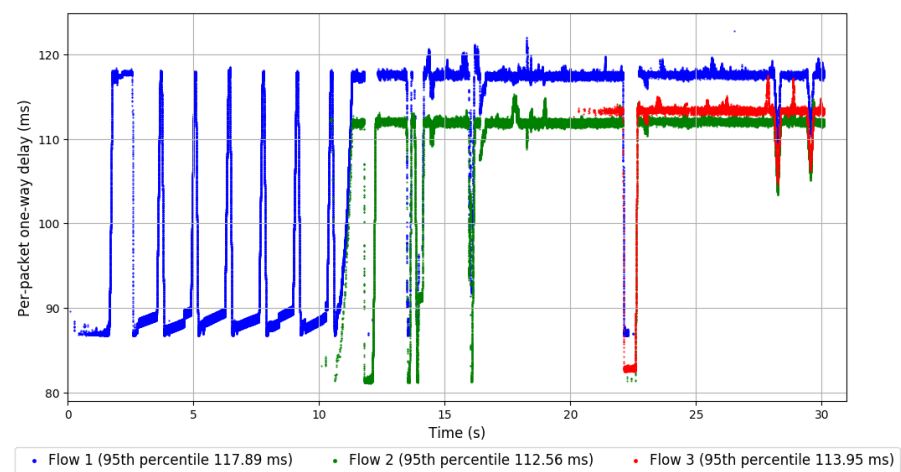
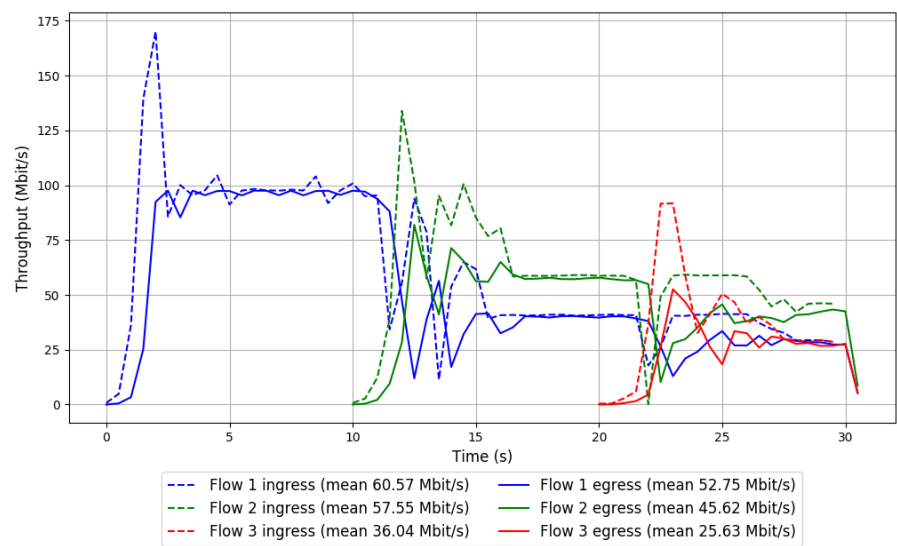
-- Flow 3:

Average throughput: 25.63 Mbit/s

95th percentile per-packet one-way delay: 113.951 ms

Loss rate: 28.89%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-10-09 21:27:16

End at: 2018-10-09 21:27:46

Local clock offset: -1.888 ms

Remote clock offset: 1.535 ms

Below is generated by plot.py at 2018-10-09 22:50:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.83 Mbit/s

95th percentile per-packet one-way delay: 112.156 ms

Loss rate: 16.94%

-- Flow 1:

Average throughput: 56.47 Mbit/s

95th percentile per-packet one-way delay: 111.020 ms

Loss rate: 12.83%

-- Flow 2:

Average throughput: 35.14 Mbit/s

95th percentile per-packet one-way delay: 111.753 ms

Loss rate: 19.08%

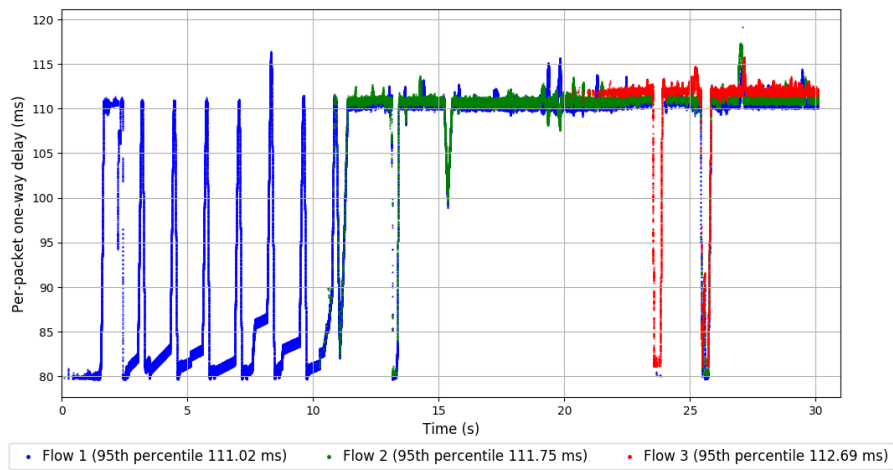
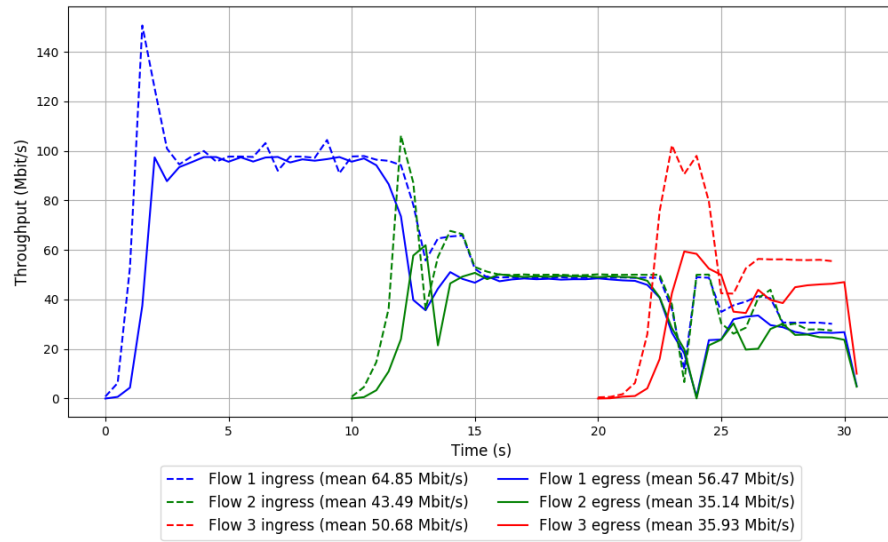
-- Flow 3:

Average throughput: 35.93 Mbit/s

95th percentile per-packet one-way delay: 112.695 ms

Loss rate: 29.10%

Run 2: Report of TCP BBR — Data Link

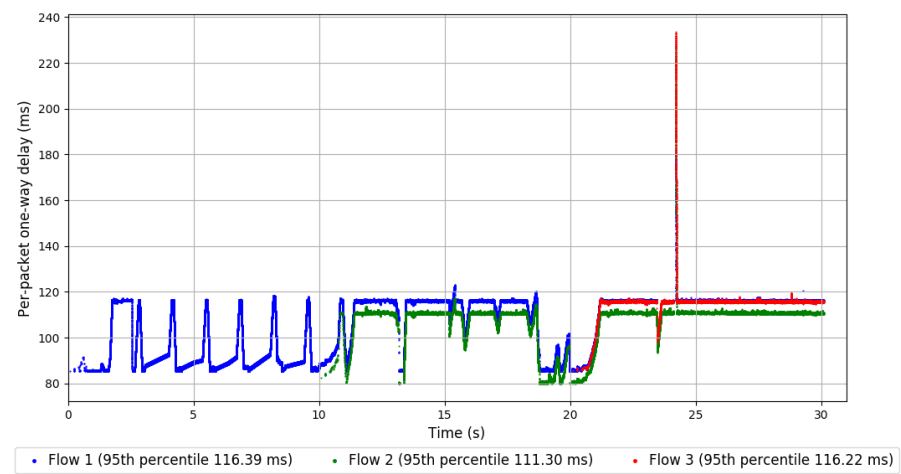
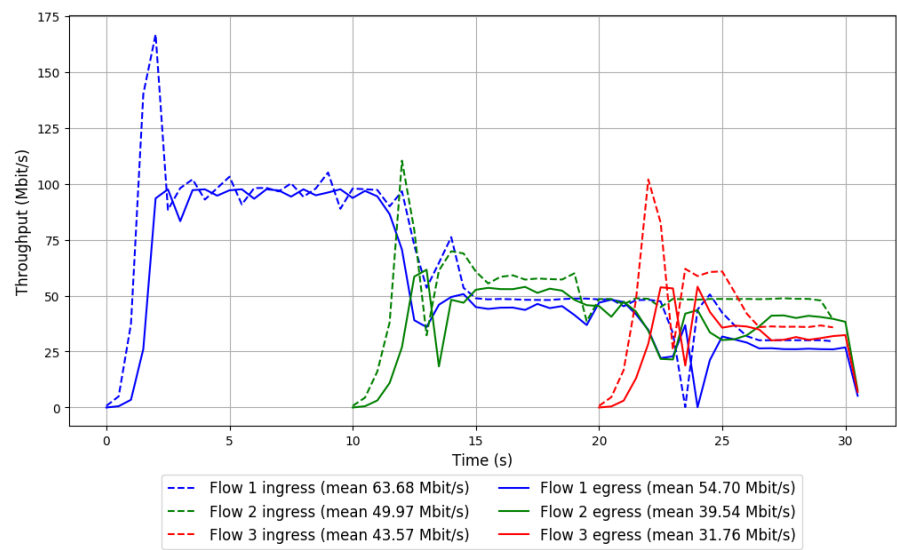


Run 3: Statistics of TCP BBR

Start at: 2018-10-09 21:49:52
End at: 2018-10-09 21:50:22
Local clock offset: -1.722 ms
Remote clock offset: -0.689 ms

Below is generated by plot.py at 2018-10-09 22:50:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.63 Mbit/s
95th percentile per-packet one-way delay: 116.339 ms
Loss rate: 17.72%
-- Flow 1:
Average throughput: 54.70 Mbit/s
95th percentile per-packet one-way delay: 116.387 ms
Loss rate: 14.04%
-- Flow 2:
Average throughput: 39.54 Mbit/s
95th percentile per-packet one-way delay: 111.304 ms
Loss rate: 20.76%
-- Flow 3:
Average throughput: 31.76 Mbit/s
95th percentile per-packet one-way delay: 116.217 ms
Loss rate: 26.91%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-10-09 22:12:46

End at: 2018-10-09 22:13:16

Local clock offset: -2.853 ms

Remote clock offset: -3.21 ms

Below is generated by plot.py at 2018-10-09 22:50:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.61 Mbit/s

95th percentile per-packet one-way delay: 114.166 ms

Loss rate: 15.88%

-- Flow 1:

Average throughput: 53.45 Mbit/s

95th percentile per-packet one-way delay: 113.449 ms

Loss rate: 11.75%

-- Flow 2:

Average throughput: 38.23 Mbit/s

95th percentile per-packet one-way delay: 114.938 ms

Loss rate: 18.08%

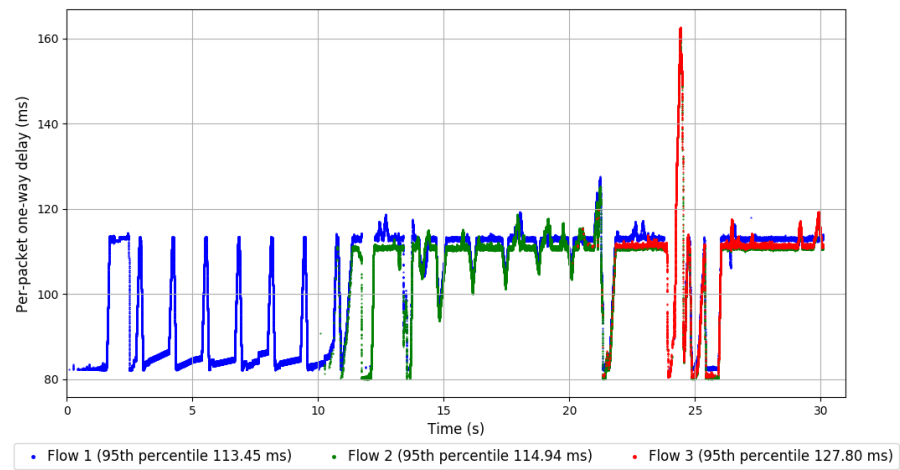
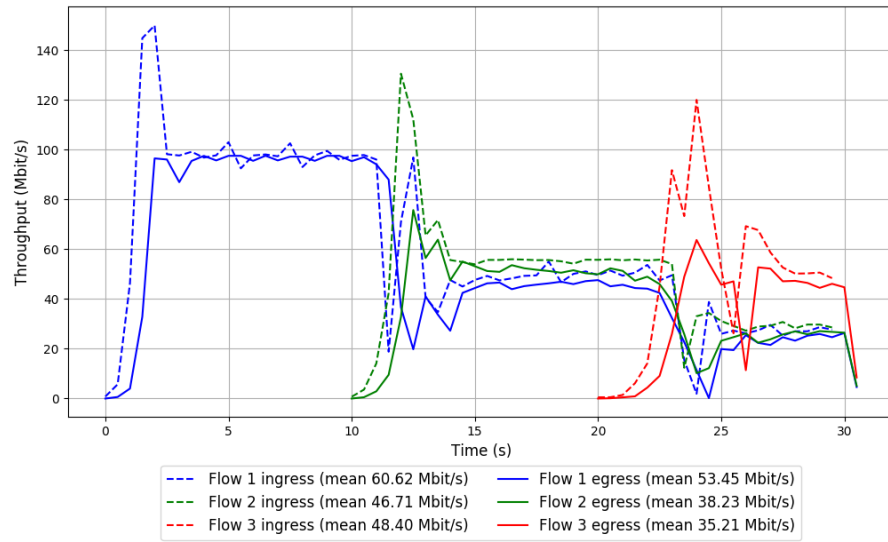
-- Flow 3:

Average throughput: 35.21 Mbit/s

95th percentile per-packet one-way delay: 127.804 ms

Loss rate: 27.21%

Run 4: Report of TCP BBR — Data Link

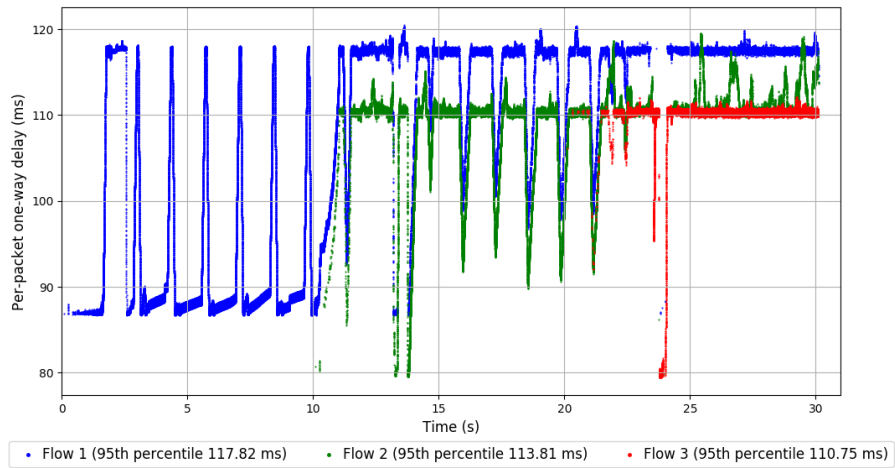
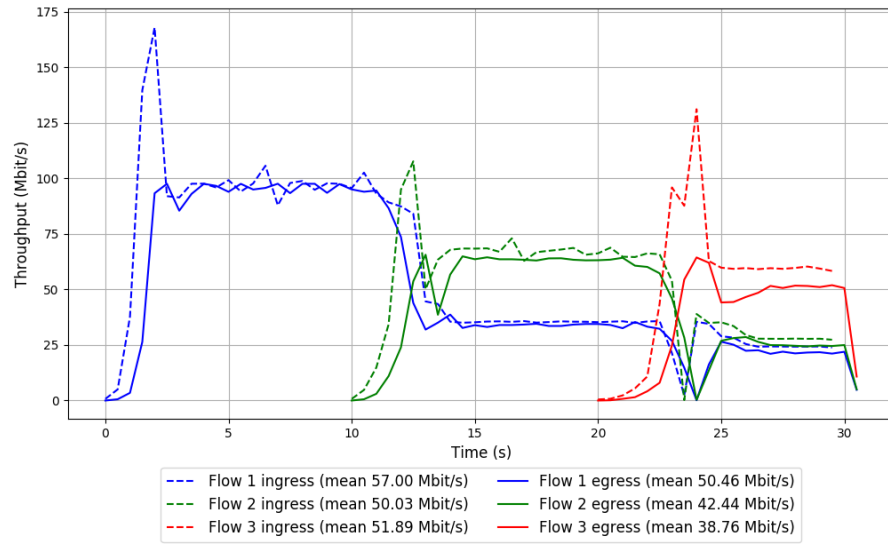


Run 5: Statistics of TCP BBR

Start at: 2018-10-09 22:35:36
End at: 2018-10-09 22:36:06
Local clock offset: -6.135 ms
Remote clock offset: -6.083 ms

Below is generated by plot.py at 2018-10-09 22:50:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.63 Mbit/s
95th percentile per-packet one-way delay: 117.723 ms
Loss rate: 14.75%
-- Flow 1:
Average throughput: 50.46 Mbit/s
95th percentile per-packet one-way delay: 117.822 ms
Loss rate: 11.40%
-- Flow 2:
Average throughput: 42.44 Mbit/s
95th percentile per-packet one-way delay: 113.814 ms
Loss rate: 15.04%
-- Flow 3:
Average throughput: 38.76 Mbit/s
95th percentile per-packet one-way delay: 110.754 ms
Loss rate: 25.27%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-10-09 21:06:57

End at: 2018-10-09 21:07:27

Local clock offset: -1.79 ms

Remote clock offset: 4.733 ms

Below is generated by plot.py at 2018-10-09 22:50:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.28 Mbit/s

95th percentile per-packet one-way delay: 82.701 ms

Loss rate: 67.47%

-- Flow 1:

Average throughput: 7.10 Mbit/s

95th percentile per-packet one-way delay: 81.330 ms

Loss rate: 66.61%

-- Flow 2:

Average throughput: 7.81 Mbit/s

95th percentile per-packet one-way delay: 82.858 ms

Loss rate: 68.54%

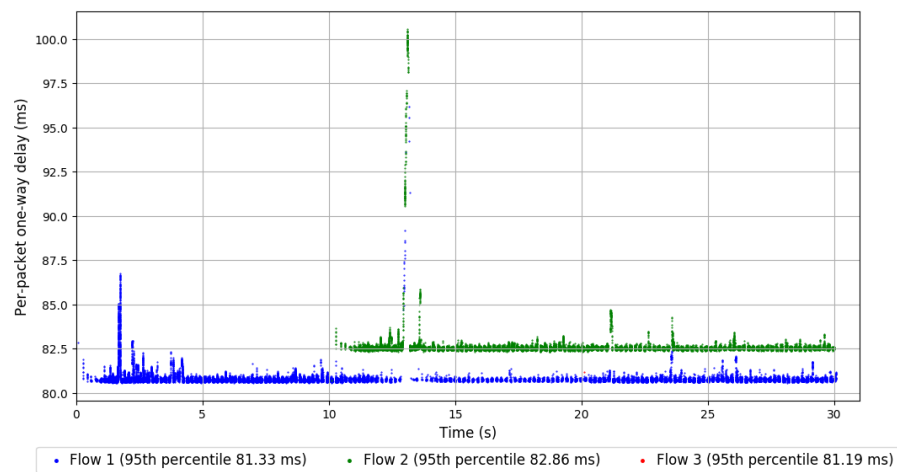
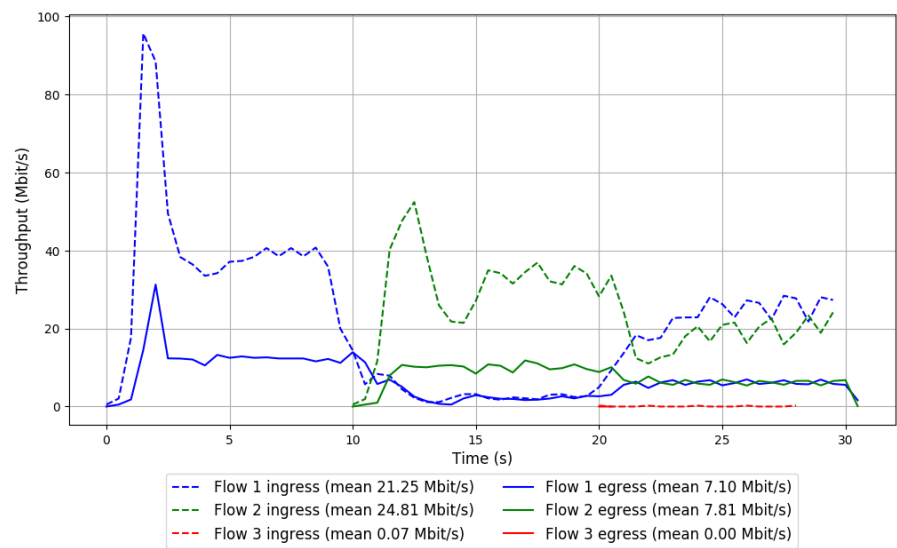
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 81.188 ms

Loss rate: 99.83%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-10-09 21:29:46

End at: 2018-10-09 21:30:16

Local clock offset: -1.8 ms

Remote clock offset: 1.012 ms

Below is generated by plot.py at 2018-10-09 22:50:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.28 Mbit/s

95th percentile per-packet one-way delay: 81.588 ms

Loss rate: 72.32%

-- Flow 1:

Average throughput: 8.17 Mbit/s

95th percentile per-packet one-way delay: 81.816 ms

Loss rate: 70.36%

-- Flow 2:

Average throughput: 6.17 Mbit/s

95th percentile per-packet one-way delay: 79.503 ms

Loss rate: 75.52%

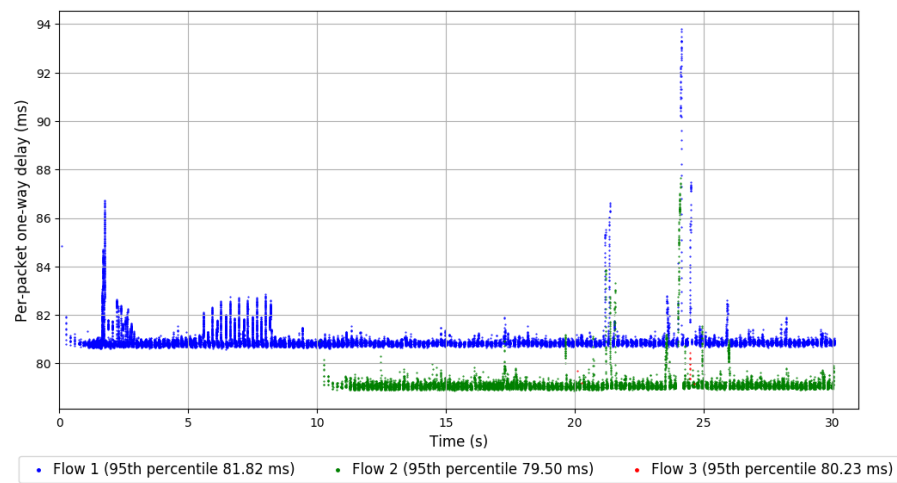
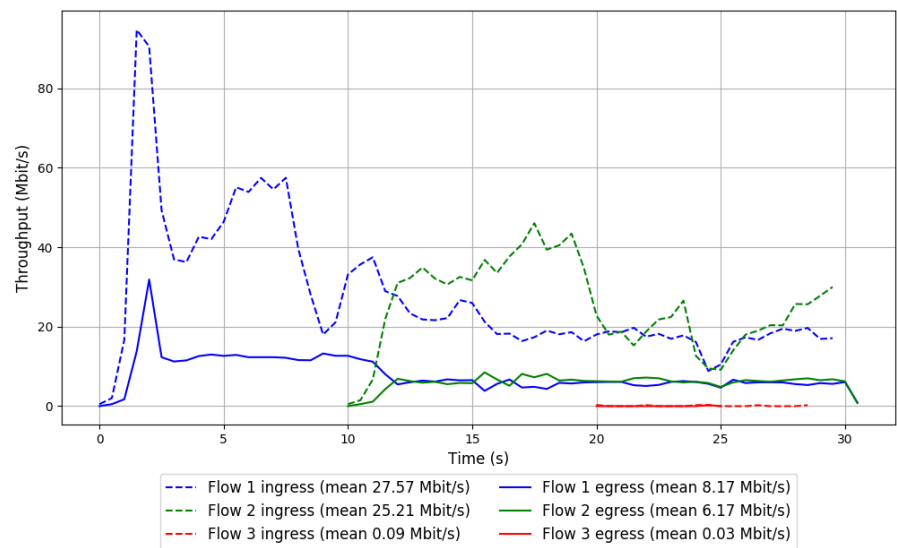
-- Flow 3:

Average throughput: 0.03 Mbit/s

95th percentile per-packet one-way delay: 80.229 ms

Loss rate: 81.14%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-10-09 21:52:23

End at: 2018-10-09 21:52:53

Local clock offset: -1.719 ms

Remote clock offset: 3.963 ms

Below is generated by plot.py at 2018-10-09 22:50:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.24 Mbit/s

95th percentile per-packet one-way delay: 107.967 ms

Loss rate: 43.83%

-- Flow 1:

Average throughput: 8.26 Mbit/s

95th percentile per-packet one-way delay: 107.876 ms

Loss rate: 40.88%

-- Flow 2:

Average throughput: 5.78 Mbit/s

95th percentile per-packet one-way delay: 108.093 ms

Loss rate: 47.29%

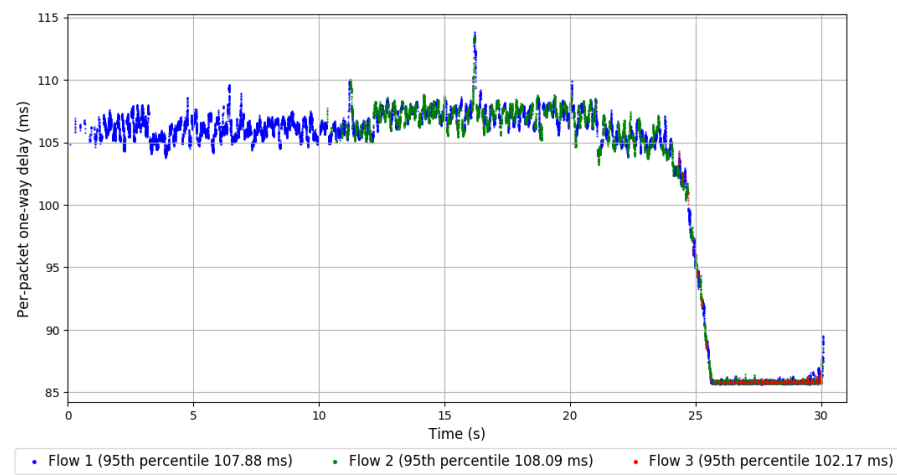
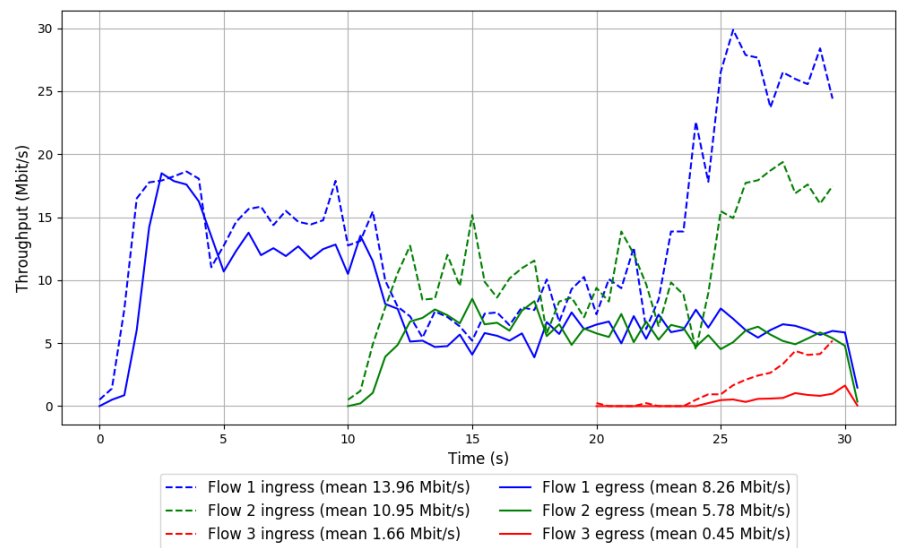
-- Flow 3:

Average throughput: 0.45 Mbit/s

95th percentile per-packet one-way delay: 102.174 ms

Loss rate: 73.09%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-10-09 22:15:16

End at: 2018-10-09 22:15:46

Local clock offset: -2.904 ms

Remote clock offset: 1.172 ms

Below is generated by plot.py at 2018-10-09 22:50:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.34 Mbit/s

95th percentile per-packet one-way delay: 85.026 ms

Loss rate: 75.29%

-- Flow 1:

Average throughput: 8.32 Mbit/s

95th percentile per-packet one-way delay: 85.306 ms

Loss rate: 72.64%

-- Flow 2:

Average throughput: 6.05 Mbit/s

95th percentile per-packet one-way delay: 84.384 ms

Loss rate: 79.39%

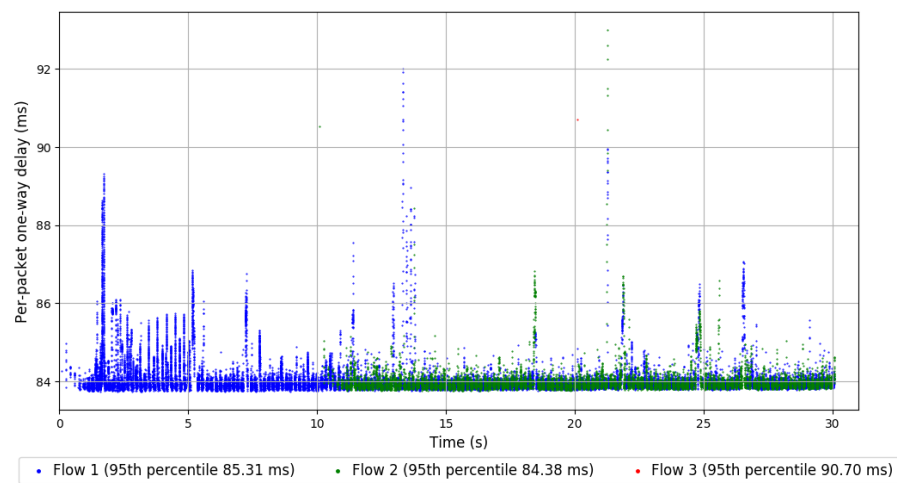
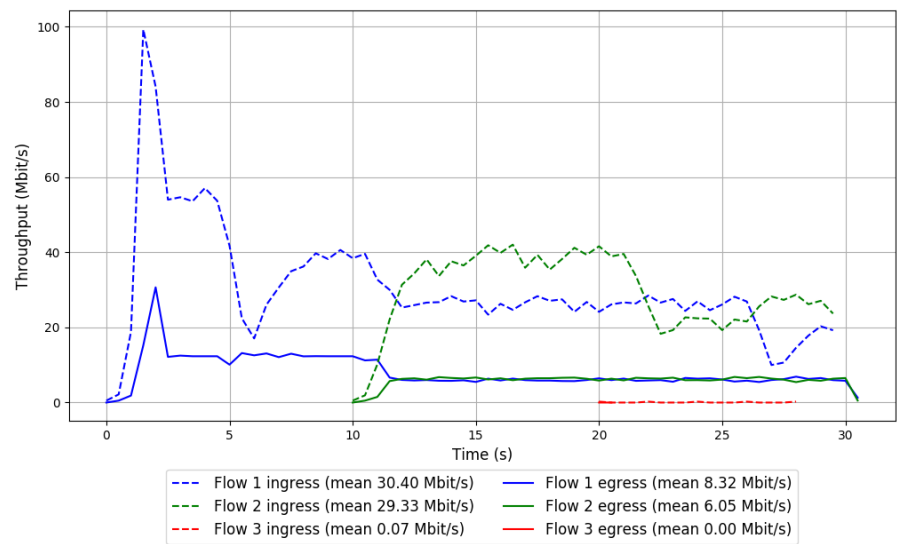
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 90.703 ms

Loss rate: 99.83%

Run 4: Report of Copa — Data Link

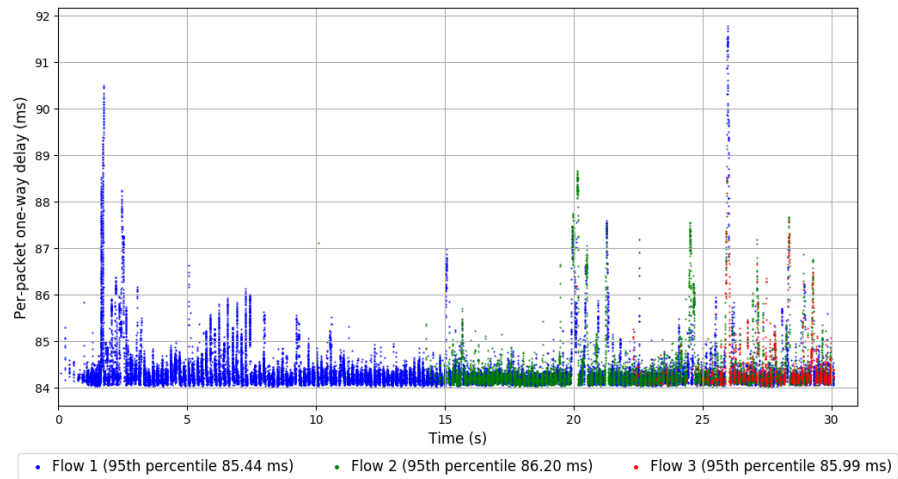
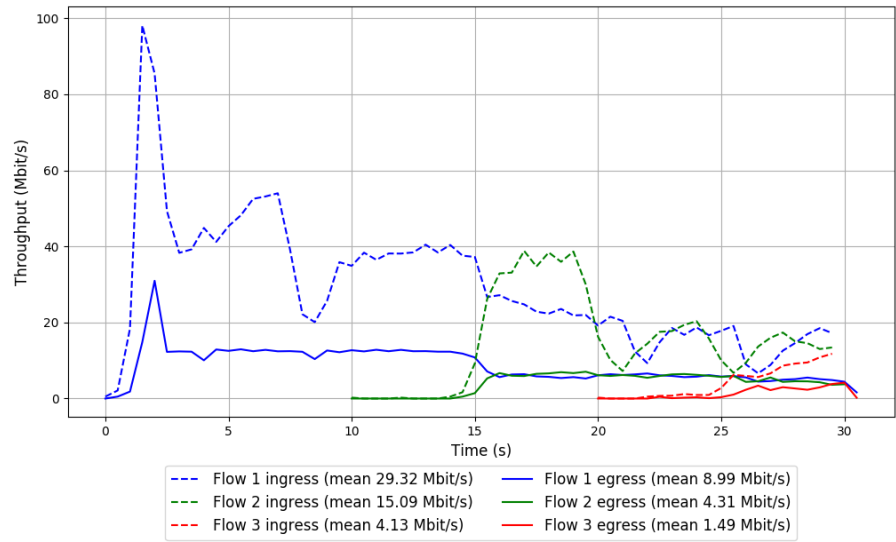


Run 5: Statistics of Copa

Start at: 2018-10-09 22:38:20
End at: 2018-10-09 22:38:51
Local clock offset: -6.558 ms
Remote clock offset: -1.297 ms

Below is generated by plot.py at 2018-10-09 22:50:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.34 Mbit/s
95th percentile per-packet one-way delay: 85.582 ms
Loss rate: 69.69%
-- Flow 1:
Average throughput: 8.99 Mbit/s
95th percentile per-packet one-way delay: 85.440 ms
Loss rate: 69.35%
-- Flow 2:
Average throughput: 4.31 Mbit/s
95th percentile per-packet one-way delay: 86.196 ms
Loss rate: 71.45%
-- Flow 3:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 85.989 ms
Loss rate: 64.04%

Run 5: Report of Copa — Data Link

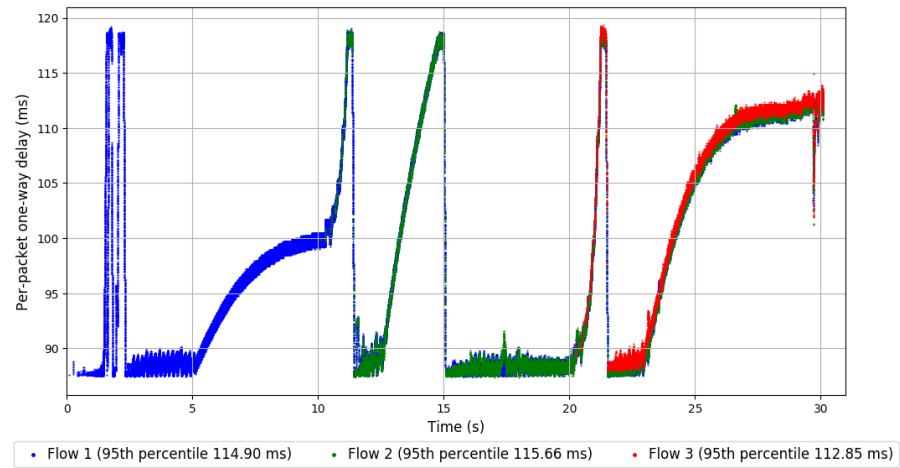
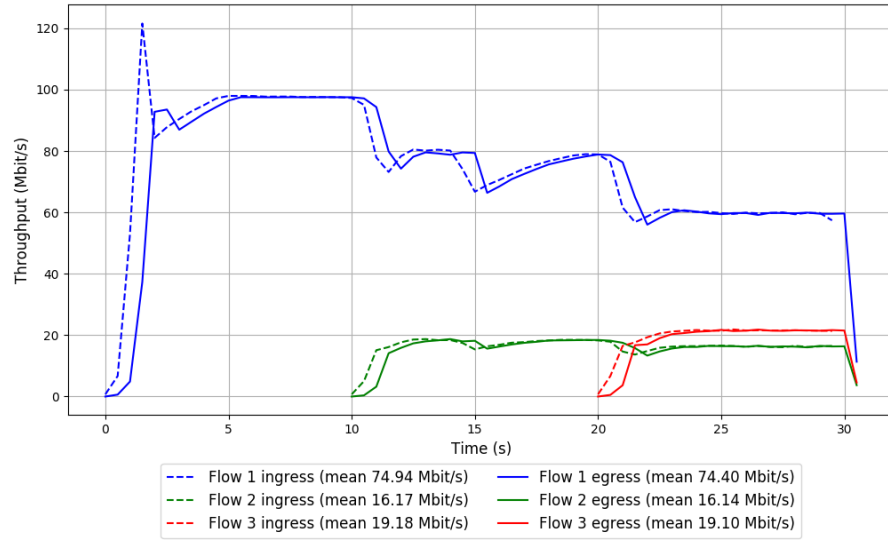


Run 1: Statistics of TCP Cubic

Start at: 2018-10-09 20:59:19
End at: 2018-10-09 20:59:49
Local clock offset: -1.76 ms
Remote clock offset: 10.022 ms

Below is generated by plot.py at 2018-10-09 22:50:20
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.51 Mbit/s
95th percentile per-packet one-way delay: 114.687 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 74.40 Mbit/s
95th percentile per-packet one-way delay: 114.899 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 16.14 Mbit/s
95th percentile per-packet one-way delay: 115.656 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 19.10 Mbit/s
95th percentile per-packet one-way delay: 112.851 ms
Loss rate: 0.19%

Run 1: Report of TCP Cubic — Data Link

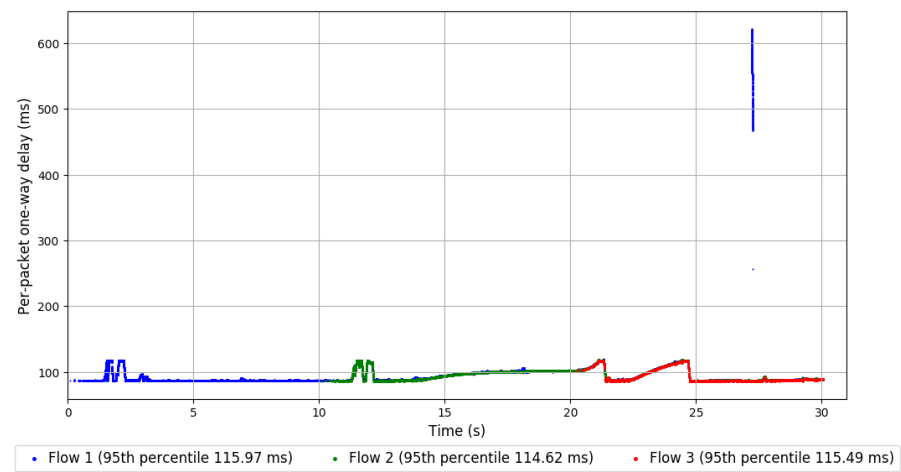
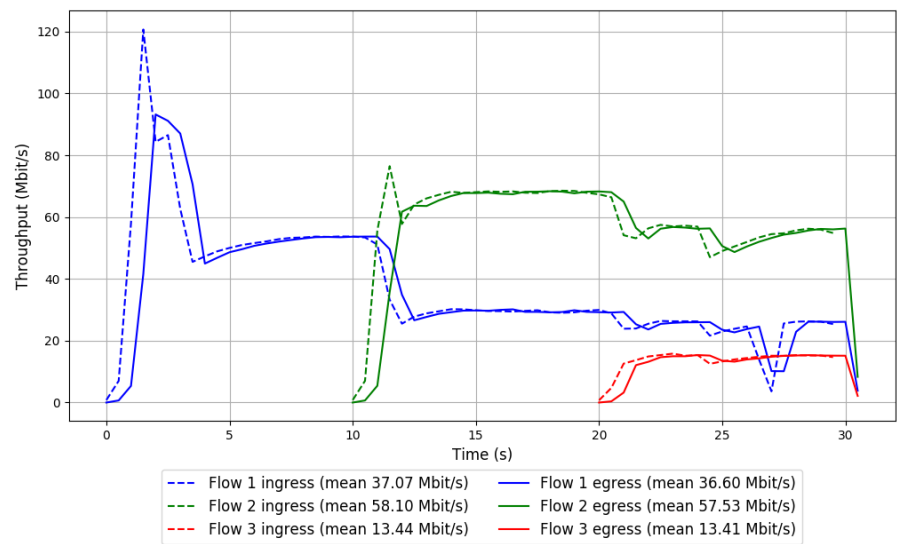


Run 2: Statistics of TCP Cubic

Start at: 2018-10-09 21:22:12
End at: 2018-10-09 21:22:42
Local clock offset: -1.914 ms
Remote clock offset: 6.934 ms

Below is generated by plot.py at 2018-10-09 22:50:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 79.40 Mbit/s
95th percentile per-packet one-way delay: 115.212 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 36.60 Mbit/s
95th percentile per-packet one-way delay: 115.968 ms
Loss rate: 1.24%
-- Flow 2:
Average throughput: 57.53 Mbit/s
95th percentile per-packet one-way delay: 114.619 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 13.41 Mbit/s
95th percentile per-packet one-way delay: 115.487 ms
Loss rate: 0.31%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-10-09 21:44:48

End at: 2018-10-09 21:45:18

Local clock offset: -1.801 ms

Remote clock offset: 4.517 ms

Below is generated by plot.py at 2018-10-09 22:50:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.10 Mbit/s

95th percentile per-packet one-way delay: 111.053 ms

Loss rate: 0.64%

-- Flow 1:

Average throughput: 64.26 Mbit/s

95th percentile per-packet one-way delay: 111.001 ms

Loss rate: 0.71%

-- Flow 2:

Average throughput: 15.05 Mbit/s

95th percentile per-packet one-way delay: 112.514 ms

Loss rate: 0.21%

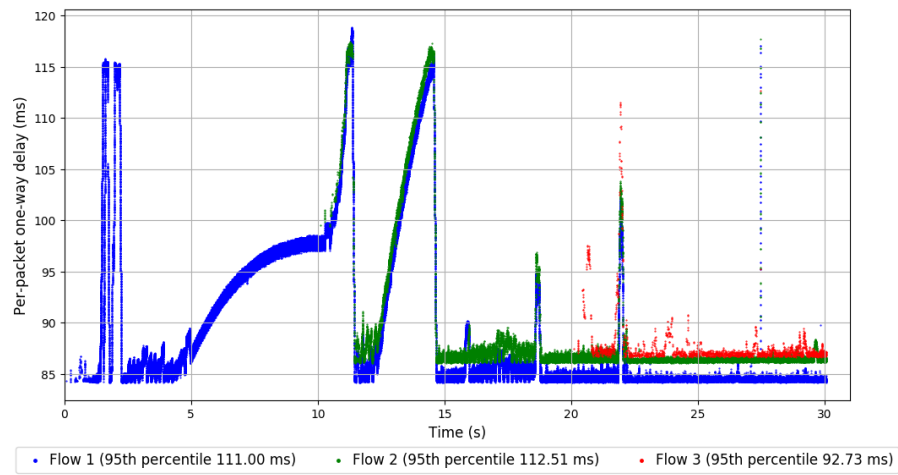
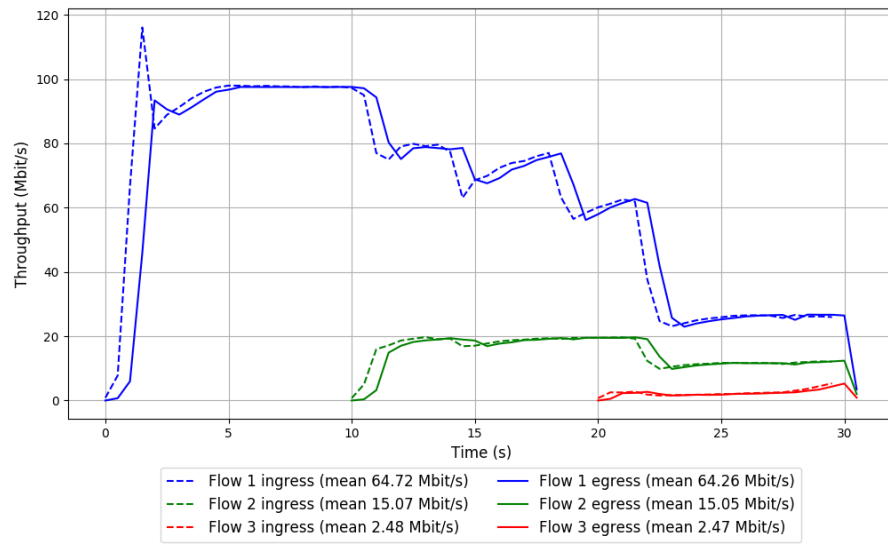
-- Flow 3:

Average throughput: 2.47 Mbit/s

95th percentile per-packet one-way delay: 92.731 ms

Loss rate: 0.39%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-10-09 22:07:40

End at: 2018-10-09 22:08:10

Local clock offset: -2.681 ms

Remote clock offset: 2.293 ms

Below is generated by plot.py at 2018-10-09 22:51:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 87.88 Mbit/s

95th percentile per-packet one-way delay: 115.071 ms

Loss rate: 0.83%

-- Flow 1:

Average throughput: 72.75 Mbit/s

95th percentile per-packet one-way delay: 114.427 ms

Loss rate: 0.84%

-- Flow 2:

Average throughput: 13.95 Mbit/s

95th percentile per-packet one-way delay: 120.162 ms

Loss rate: 0.66%

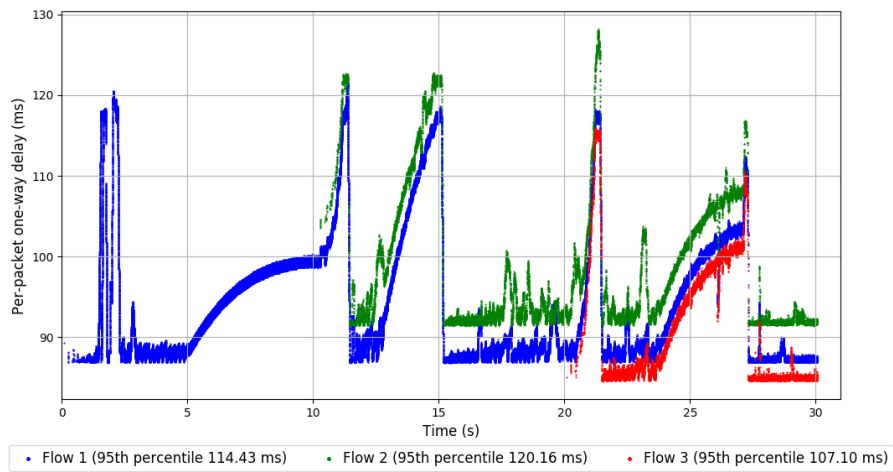
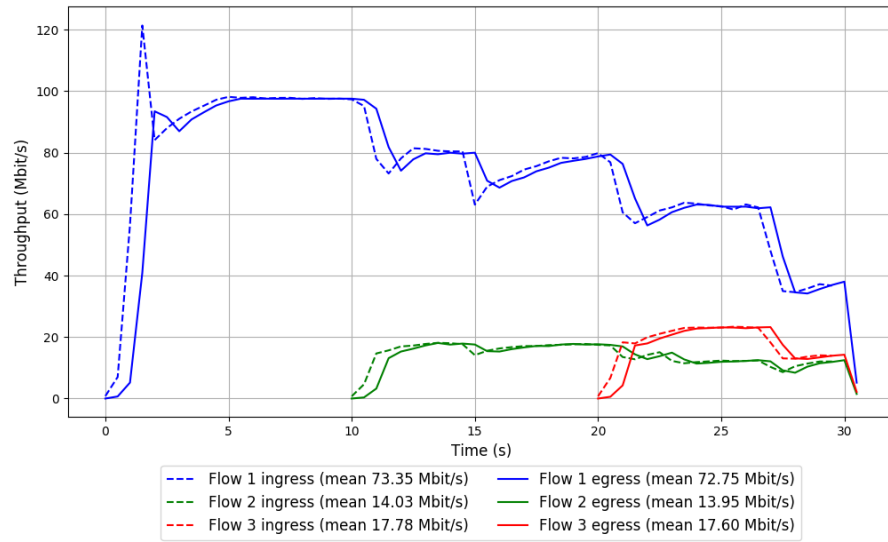
-- Flow 3:

Average throughput: 17.60 Mbit/s

95th percentile per-packet one-way delay: 107.102 ms

Loss rate: 1.04%

Run 4: Report of TCP Cubic — Data Link

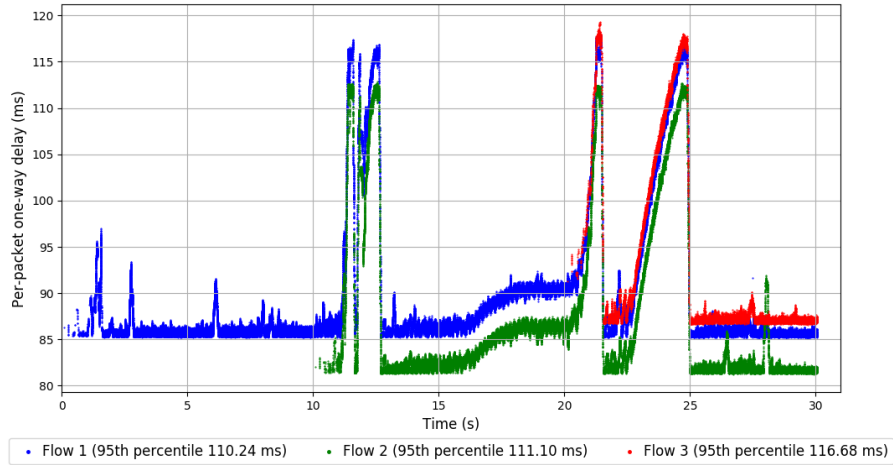
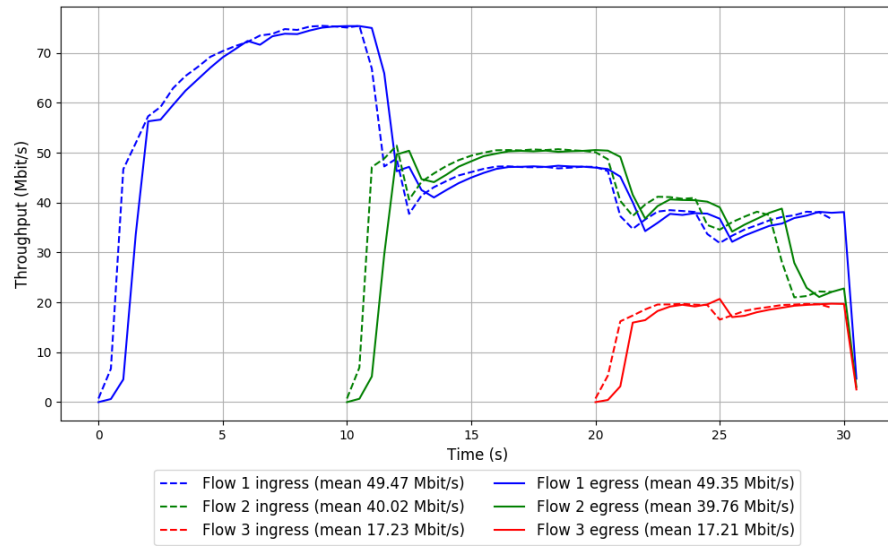


Run 5: Statistics of TCP Cubic

Start at: 2018-10-09 22:30:31
End at: 2018-10-09 22:31:01
Local clock offset: -5.023 ms
Remote clock offset: -5.364 ms

Below is generated by plot.py at 2018-10-09 22:51:00
Datalink statistics
-- Total of 3 flows:
Average throughput: 81.55 Mbit/s
95th percentile per-packet one-way delay: 111.371 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 49.35 Mbit/s
95th percentile per-packet one-way delay: 110.241 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 39.76 Mbit/s
95th percentile per-packet one-way delay: 111.099 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 17.21 Mbit/s
95th percentile per-packet one-way delay: 116.683 ms
Loss rate: 0.23%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-10-09 20:58:01

End at: 2018-10-09 20:58:31

Local clock offset: -1.653 ms

Remote clock offset: 5.223 ms

Below is generated by plot.py at 2018-10-09 22:51:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.03 Mbit/s

95th percentile per-packet one-way delay: 114.455 ms

Loss rate: 20.66%

-- Flow 1:

Average throughput: 54.35 Mbit/s

95th percentile per-packet one-way delay: 110.591 ms

Loss rate: 13.90%

-- Flow 2:

Average throughput: 41.94 Mbit/s

95th percentile per-packet one-way delay: 114.761 ms

Loss rate: 29.47%

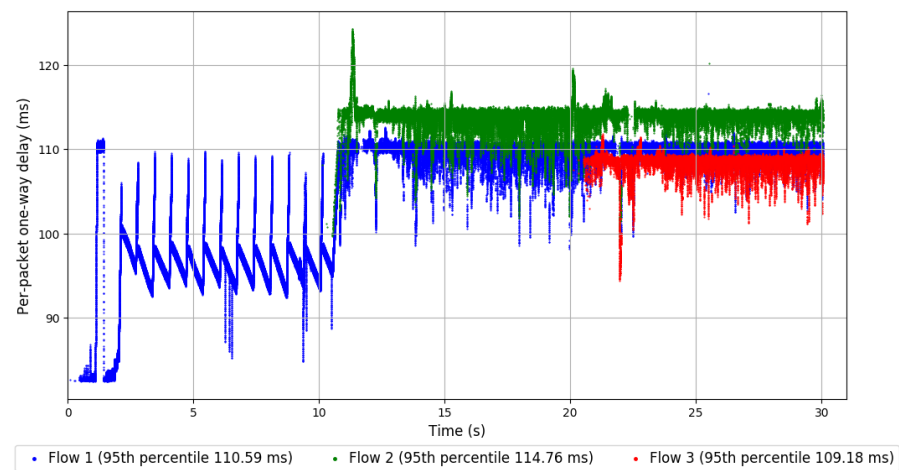
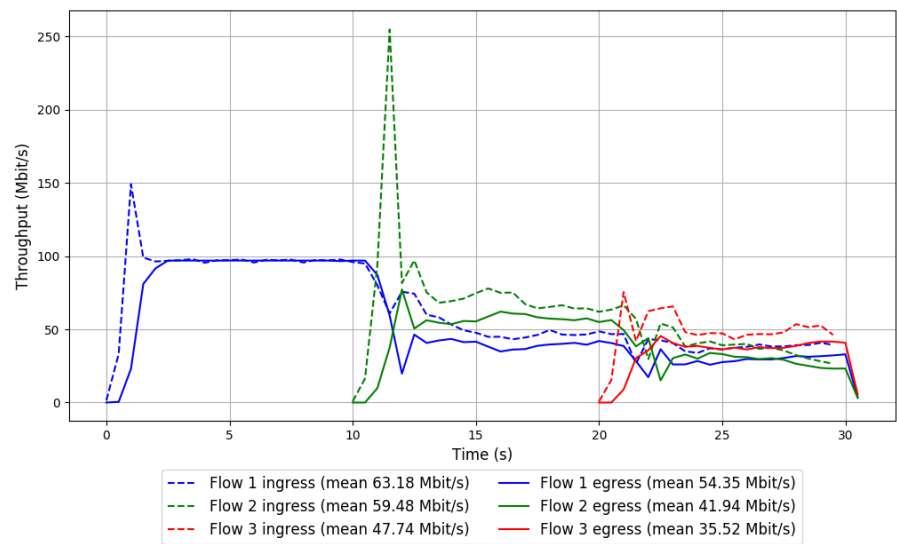
-- Flow 3:

Average throughput: 35.52 Mbit/s

95th percentile per-packet one-way delay: 109.182 ms

Loss rate: 25.59%

Run 1: Report of FillP — Data Link

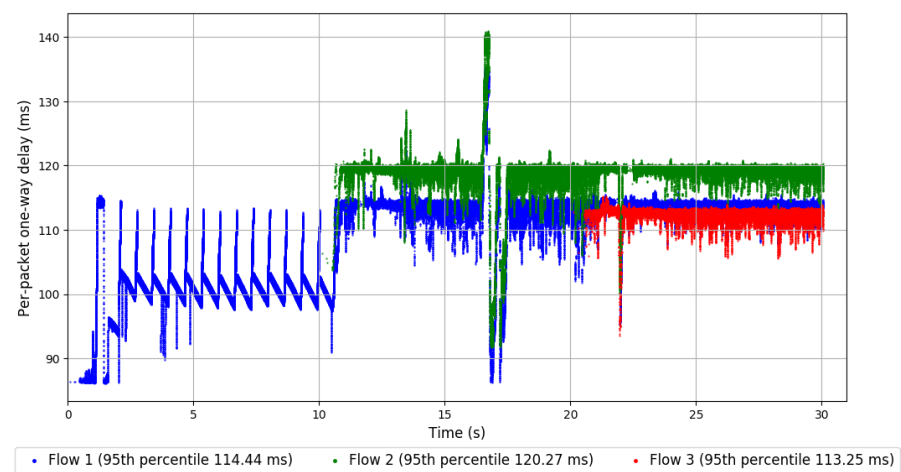
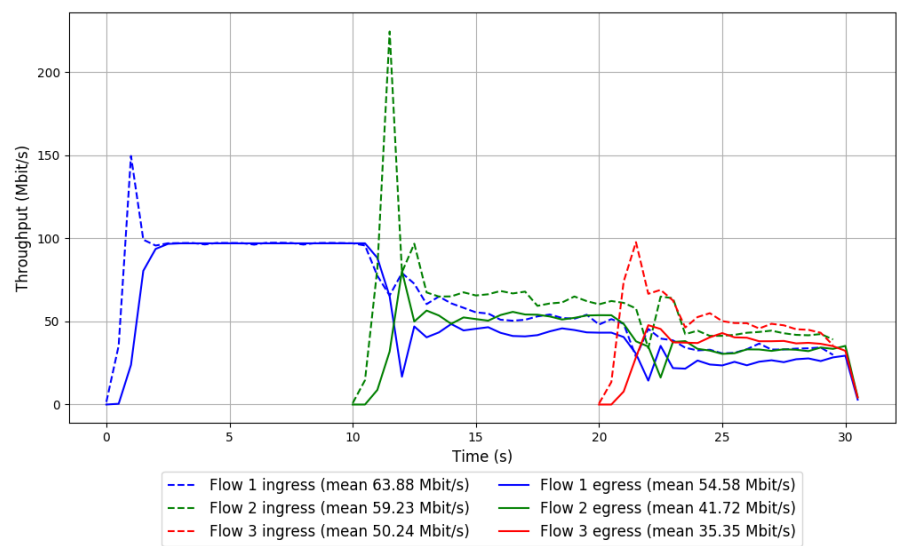


Run 2: Statistics of FillP

Start at: 2018-10-09 21:20:54
End at: 2018-10-09 21:21:24
Local clock offset: -1.85 ms
Remote clock offset: 7.023 ms

Below is generated by plot.py at 2018-10-09 22:51:33
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.04 Mbit/s
95th percentile per-packet one-way delay: 119.842 ms
Loss rate: 21.53%
-- Flow 1:
Average throughput: 54.58 Mbit/s
95th percentile per-packet one-way delay: 114.441 ms
Loss rate: 14.48%
-- Flow 2:
Average throughput: 41.72 Mbit/s
95th percentile per-packet one-way delay: 120.268 ms
Loss rate: 29.53%
-- Flow 3:
Average throughput: 35.35 Mbit/s
95th percentile per-packet one-way delay: 113.250 ms
Loss rate: 29.64%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-10-09 21:43:31

End at: 2018-10-09 21:44:01

Local clock offset: -1.814 ms

Remote clock offset: 4.945 ms

Below is generated by plot.py at 2018-10-09 22:51:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.88 Mbit/s

95th percentile per-packet one-way delay: 118.837 ms

Loss rate: 21.33%

-- Flow 1:

Average throughput: 59.02 Mbit/s

95th percentile per-packet one-way delay: 118.417 ms

Loss rate: 15.80%

-- Flow 2:

Average throughput: 37.41 Mbit/s

95th percentile per-packet one-way delay: 120.460 ms

Loss rate: 30.20%

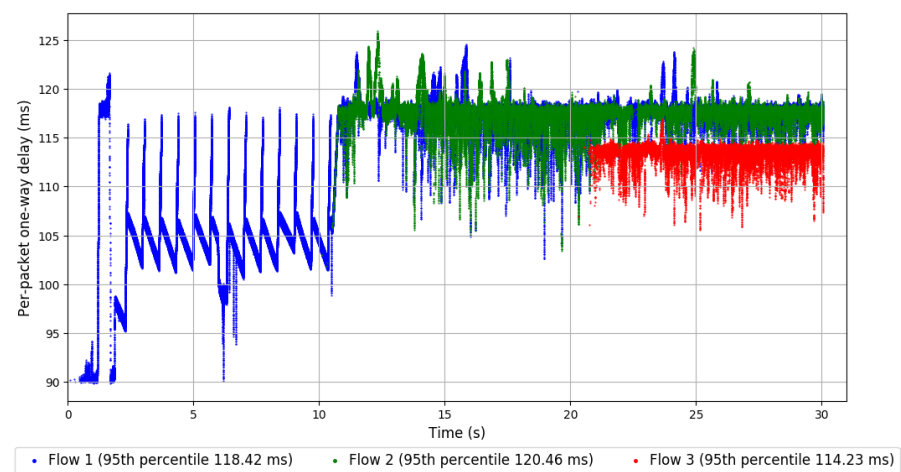
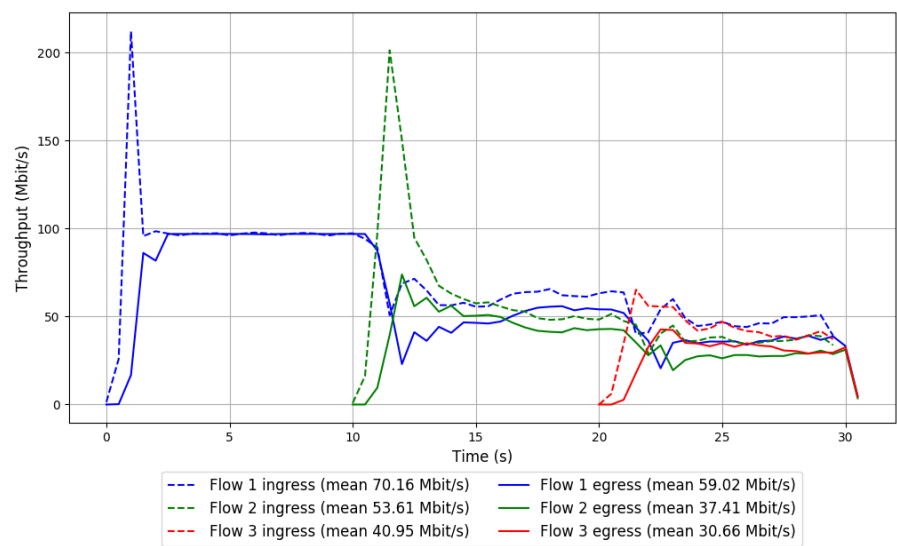
-- Flow 3:

Average throughput: 30.66 Mbit/s

95th percentile per-packet one-way delay: 114.231 ms

Loss rate: 26.58%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

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

End at: 2018-10-09 22:06:52

Local clock offset: -2.687 ms

Remote clock offset: 1.956 ms

Below is generated by plot.py at 2018-10-09 22:51:47

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.93 Mbit/s

95th percentile per-packet one-way delay: 117.848 ms

Loss rate: 21.04%

-- Flow 1:

Average throughput: 55.36 Mbit/s

95th percentile per-packet one-way delay: 117.839 ms

Loss rate: 15.46%

-- Flow 2:

Average throughput: 38.78 Mbit/s

95th percentile per-packet one-way delay: 118.002 ms

Loss rate: 26.87%

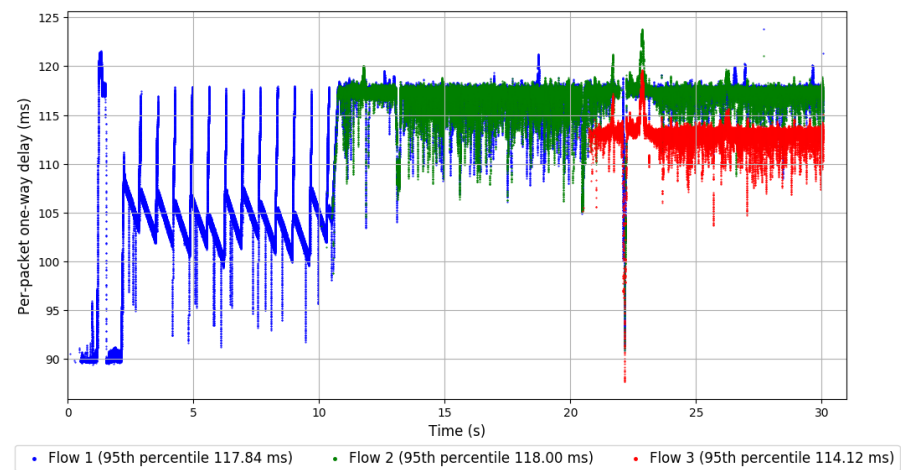
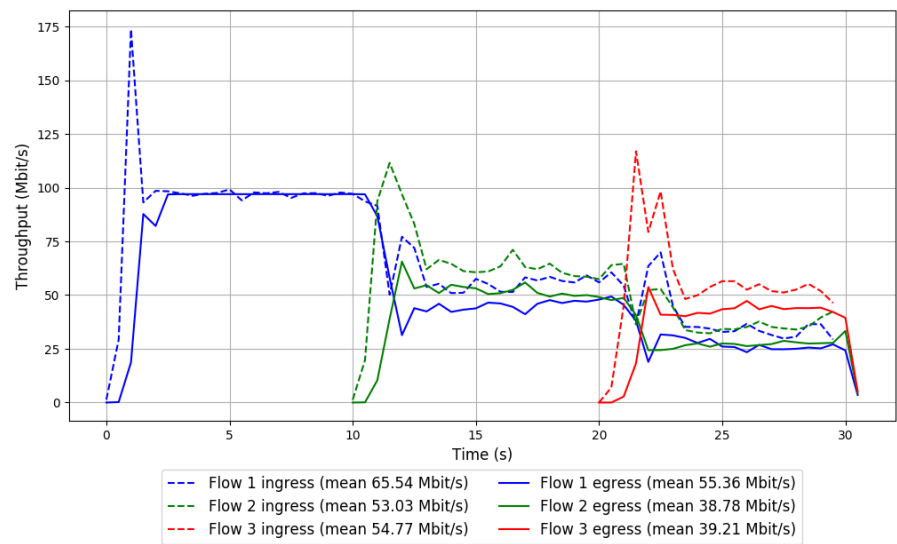
-- Flow 3:

Average throughput: 39.21 Mbit/s

95th percentile per-packet one-way delay: 114.117 ms

Loss rate: 29.85%

Run 4: Report of FillP — Data Link

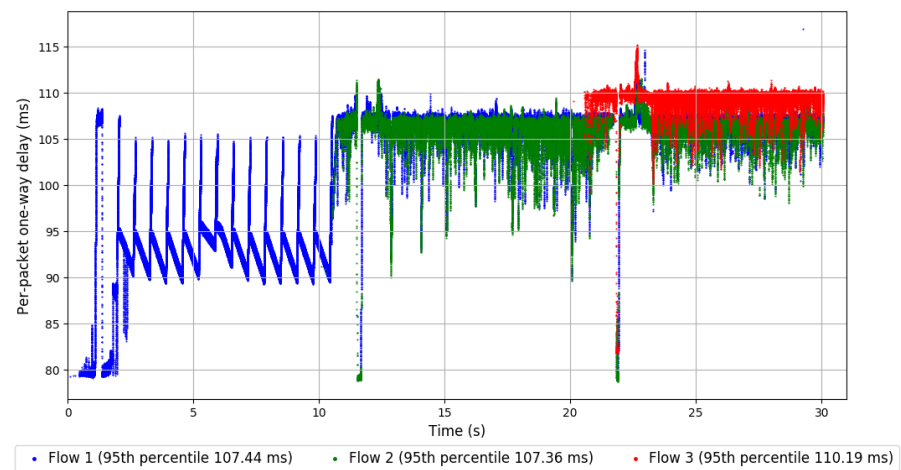
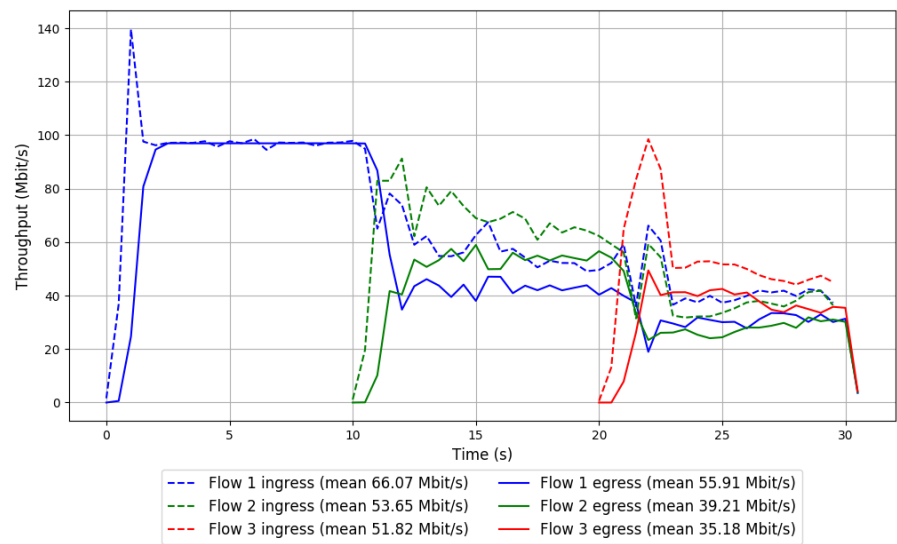


Run 5: Statistics of FillP

Start at: 2018-10-09 22:29:12
End at: 2018-10-09 22:29:42
Local clock offset: -4.627 ms
Remote clock offset: -5.202 ms

Below is generated by plot.py at 2018-10-09 22:51:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 93.66 Mbit/s
95th percentile per-packet one-way delay: 109.712 ms
Loss rate: 21.20%
-- Flow 1:
Average throughput: 55.91 Mbit/s
95th percentile per-packet one-way delay: 107.443 ms
Loss rate: 15.30%
-- Flow 2:
Average throughput: 39.21 Mbit/s
95th percentile per-packet one-way delay: 107.363 ms
Loss rate: 26.86%
-- Flow 3:
Average throughput: 35.18 Mbit/s
95th percentile per-packet one-way delay: 110.185 ms
Loss rate: 32.12%

Run 5: Report of FillP — Data Link

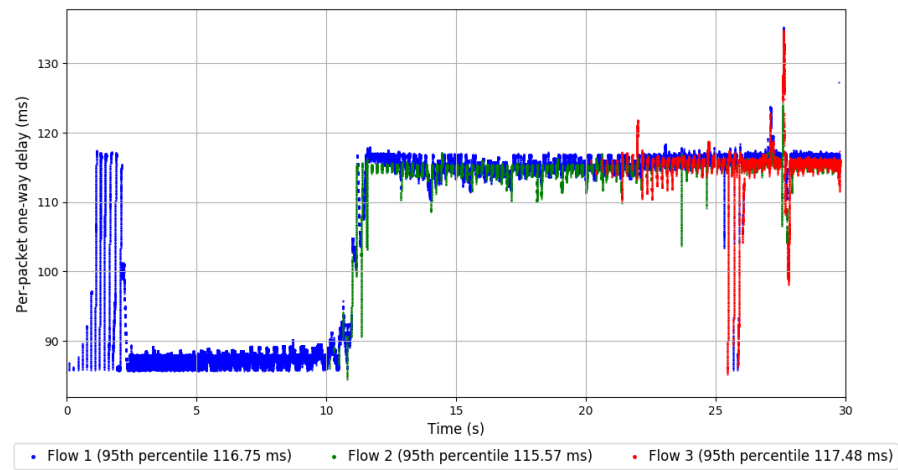
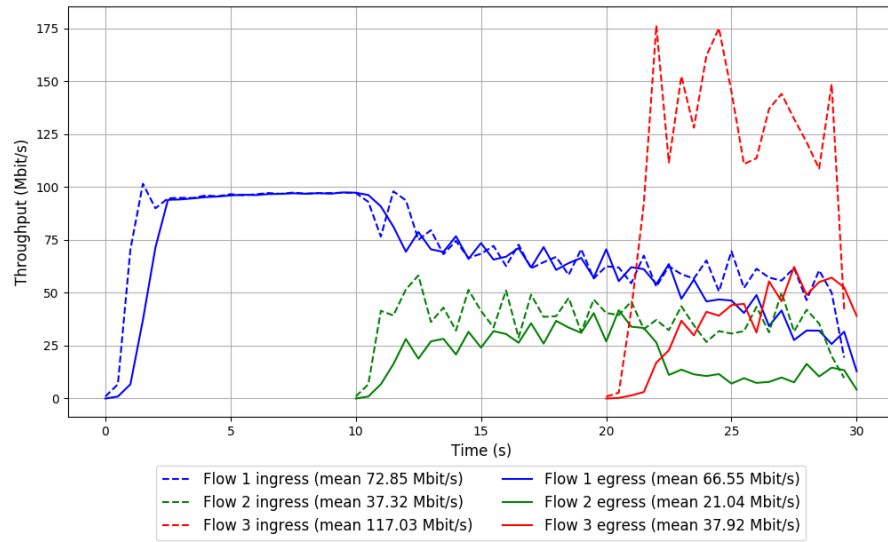


```
Run 1: Statistics of Indigo

Start at: 2018-10-09 21:14:30
End at: 2018-10-09 21:15:00
Local clock offset: -1.851 ms
Remote clock offset: 7.494 ms

# Below is generated by plot.py at 2018-10-09 22:51:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.59 Mbit/s
95th percentile per-packet one-way delay: 116.741 ms
Loss rate: 31.44%
-- Flow 1:
Average throughput: 66.55 Mbit/s
95th percentile per-packet one-way delay: 116.747 ms
Loss rate: 8.56%
-- Flow 2:
Average throughput: 21.04 Mbit/s
95th percentile per-packet one-way delay: 115.569 ms
Loss rate: 43.53%
-- Flow 3:
Average throughput: 37.92 Mbit/s
95th percentile per-packet one-way delay: 117.477 ms
Loss rate: 67.59%
```

Run 1: Report of Indigo — Data Link

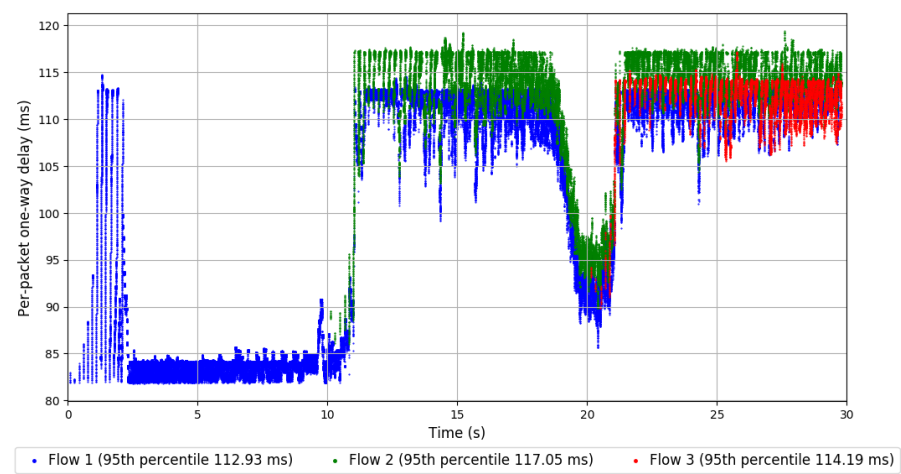
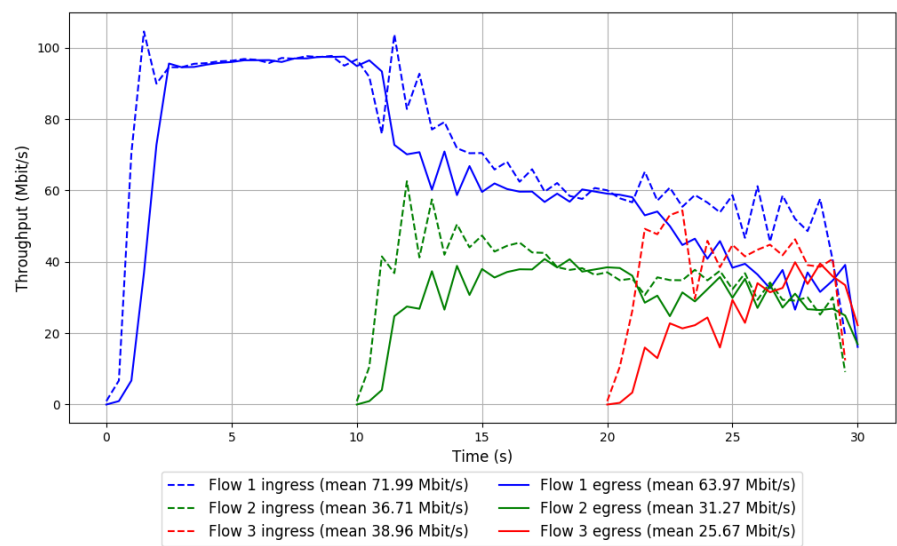


Run 2: Statistics of Indigo

Start at: 2018-10-09 21:37:10
End at: 2018-10-09 21:37:40
Local clock offset: -2.522 ms
Remote clock offset: 0.452 ms

Below is generated by plot.py at 2018-10-09 22:52:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 92.82 Mbit/s
95th percentile per-packet one-way delay: 116.124 ms
Loss rate: 14.54%
-- Flow 1:
Average throughput: 63.97 Mbit/s
95th percentile per-packet one-way delay: 112.934 ms
Loss rate: 11.05%
-- Flow 2:
Average throughput: 31.27 Mbit/s
95th percentile per-packet one-way delay: 117.052 ms
Loss rate: 14.73%
-- Flow 3:
Average throughput: 25.67 Mbit/s
95th percentile per-packet one-way delay: 114.190 ms
Loss rate: 34.01%

Run 2: Report of Indigo — Data Link

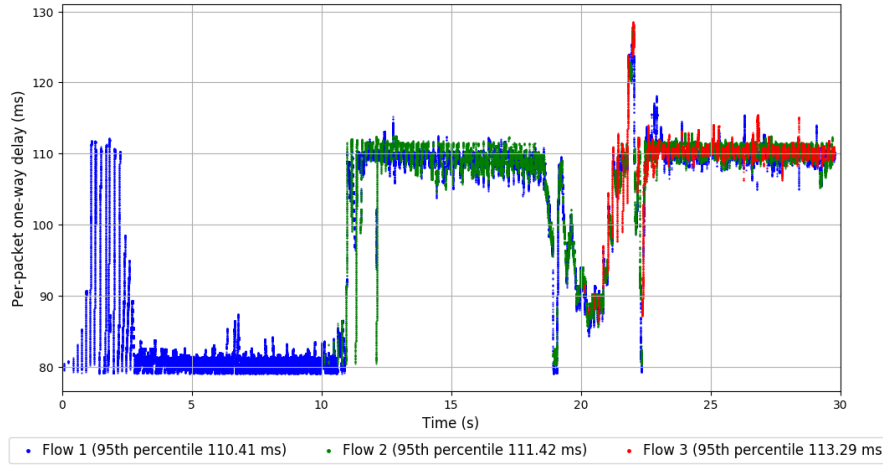
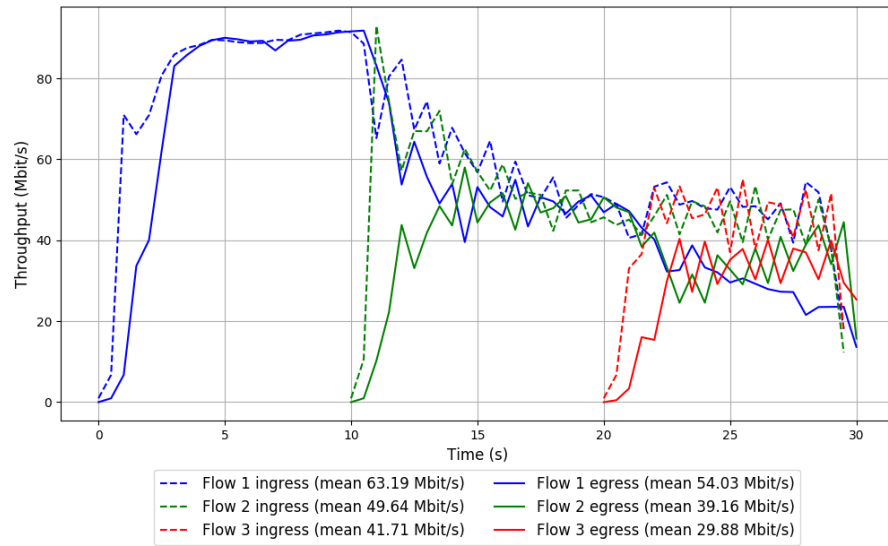


Run 3: Statistics of Indigo

Start at: 2018-10-09 21:59:48
End at: 2018-10-09 22:00:18
Local clock offset: -2.197 ms
Remote clock offset: -1.467 ms

Below is generated by plot.py at 2018-10-09 22:52:12
Datalink statistics
-- Total of 3 flows:
Average throughput: 89.54 Mbit/s
95th percentile per-packet one-way delay: 111.385 ms
Loss rate: 18.08%
-- Flow 1:
Average throughput: 54.03 Mbit/s
95th percentile per-packet one-way delay: 110.405 ms
Loss rate: 14.41%
-- Flow 2:
Average throughput: 39.16 Mbit/s
95th percentile per-packet one-way delay: 111.415 ms
Loss rate: 20.98%
-- Flow 3:
Average throughput: 29.88 Mbit/s
95th percentile per-packet one-way delay: 113.293 ms
Loss rate: 28.22%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-10-09 22:22:41

End at: 2018-10-09 22:23:11

Local clock offset: -3.067 ms

Remote clock offset: 0.434 ms

Below is generated by plot.py at 2018-10-09 22:52:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.45 Mbit/s

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

Loss rate: 5.83%

-- Flow 1:

Average throughput: 59.26 Mbit/s

95th percentile per-packet one-way delay: 115.020 ms

Loss rate: 3.43%

-- Flow 2:

Average throughput: 34.21 Mbit/s

95th percentile per-packet one-way delay: 117.976 ms

Loss rate: 8.28%

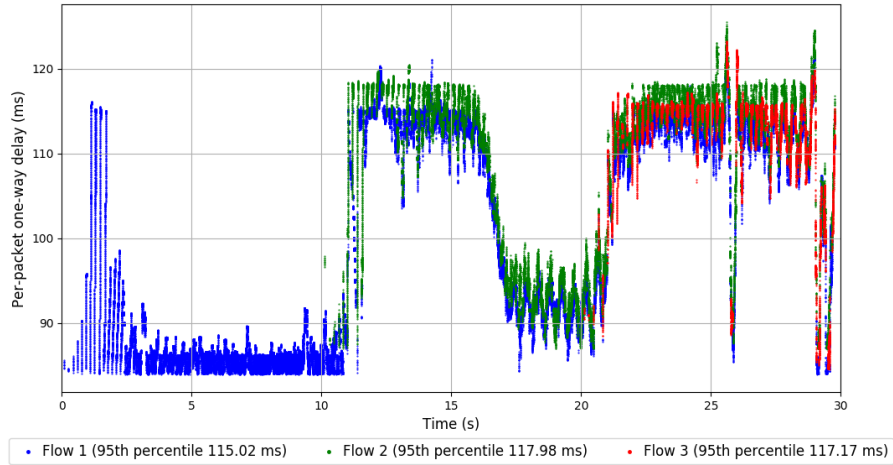
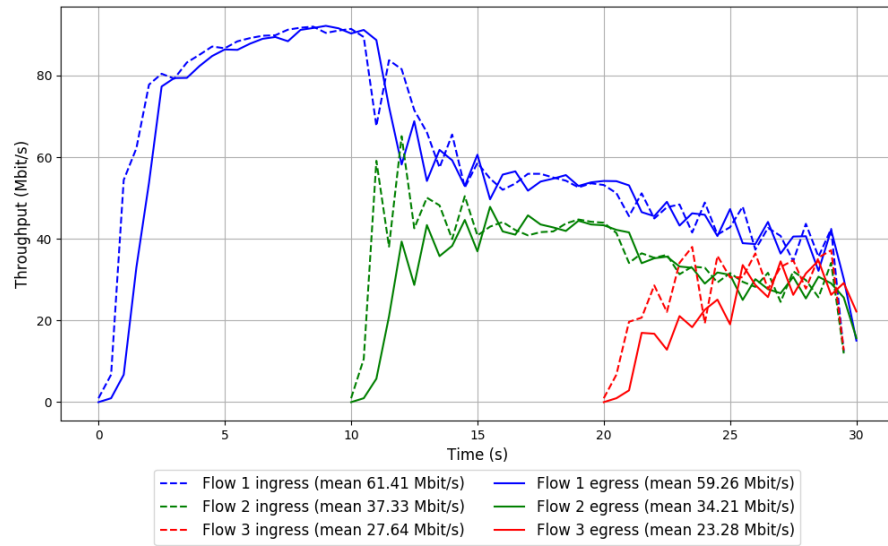
-- Flow 3:

Average throughput: 23.28 Mbit/s

95th percentile per-packet one-way delay: 117.169 ms

Loss rate: 15.60%

Run 4: Report of Indigo — Data Link

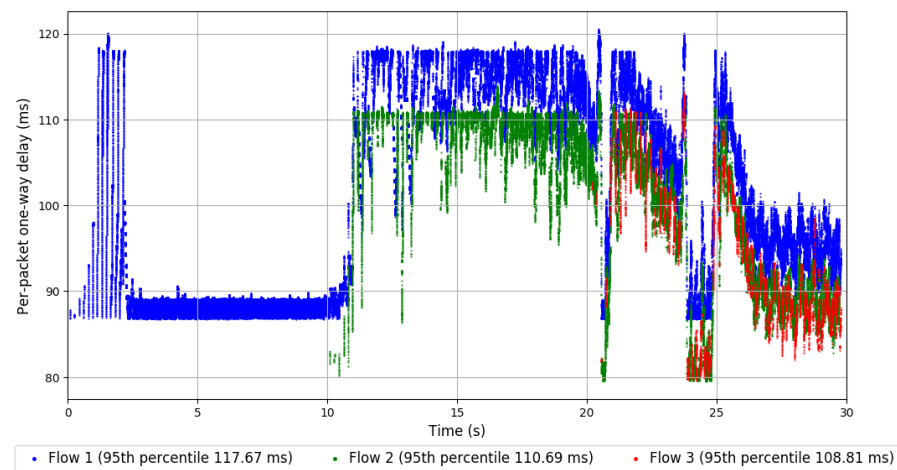
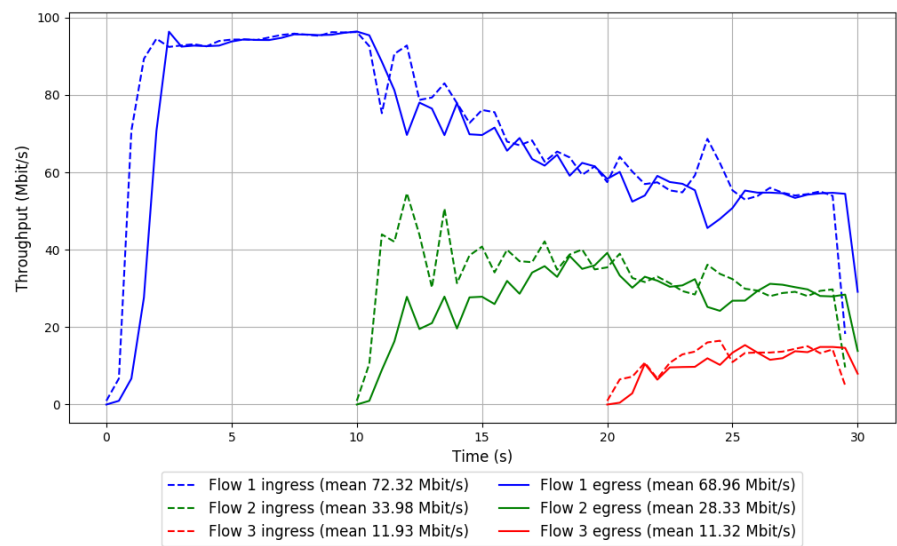


Run 5: Statistics of Indigo

Start at: 2018-10-09 22:45:46
End at: 2018-10-09 22:46:16
Local clock offset: -7.387 ms
Remote clock offset: -7.086 ms

Below is generated by plot.py at 2018-10-09 22:52:39
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.34 Mbit/s
95th percentile per-packet one-way delay: 117.463 ms
Loss rate: 7.38%
-- Flow 1:
Average throughput: 68.96 Mbit/s
95th percentile per-packet one-way delay: 117.667 ms
Loss rate: 4.64%
-- Flow 2:
Average throughput: 28.33 Mbit/s
95th percentile per-packet one-way delay: 110.692 ms
Loss rate: 16.59%
-- Flow 3:
Average throughput: 11.32 Mbit/s
95th percentile per-packet one-way delay: 108.814 ms
Loss rate: 5.23%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-09 20:54:09

End at: 2018-10-09 20:54:39

Local clock offset: -1.566 ms

Remote clock offset: 8.88 ms

Below is generated by plot.py at 2018-10-09 22:52:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.81 Mbit/s

95th percentile per-packet one-way delay: 119.222 ms

Loss rate: 55.53%

-- Flow 1:

Average throughput: 50.92 Mbit/s

95th percentile per-packet one-way delay: 117.760 ms

Loss rate: 51.64%

-- Flow 2:

Average throughput: 31.46 Mbit/s

95th percentile per-packet one-way delay: 122.405 ms

Loss rate: 60.26%

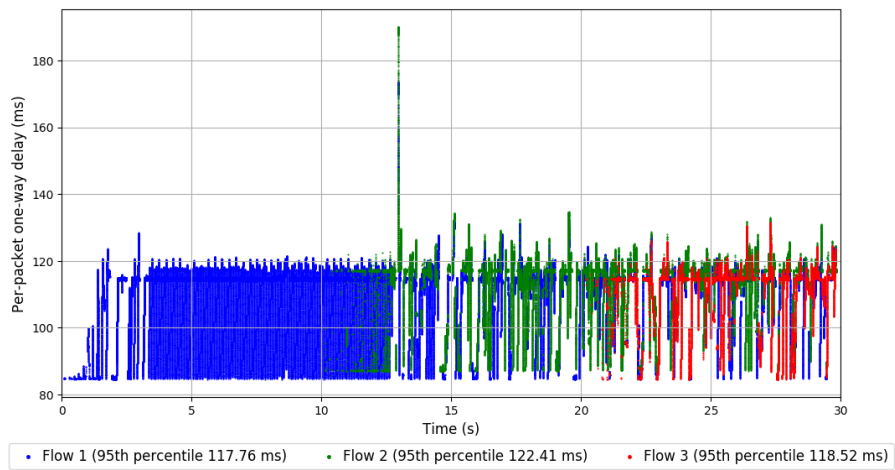
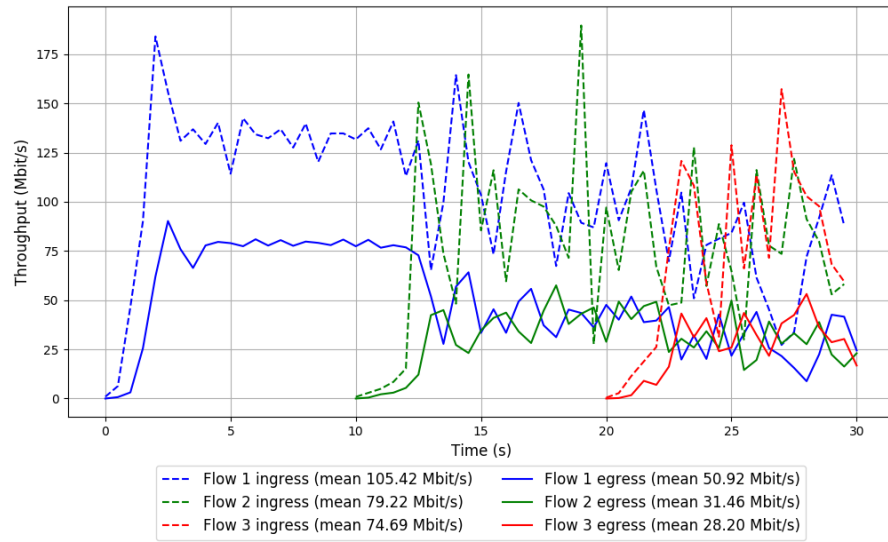
-- Flow 3:

Average throughput: 28.20 Mbit/s

95th percentile per-packet one-way delay: 118.520 ms

Loss rate: 62.22%

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



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-09 21:17:02

End at: 2018-10-09 21:17:32

Local clock offset: -1.853 ms

Remote clock offset: 2.492 ms

Below is generated by plot.py at 2018-10-09 22:52:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 74.55 Mbit/s

95th percentile per-packet one-way delay: 115.296 ms

Loss rate: 58.89%

-- Flow 1:

Average throughput: 43.82 Mbit/s

95th percentile per-packet one-way delay: 115.090 ms

Loss rate: 57.62%

-- Flow 2:

Average throughput: 34.63 Mbit/s

95th percentile per-packet one-way delay: 115.225 ms

Loss rate: 60.05%

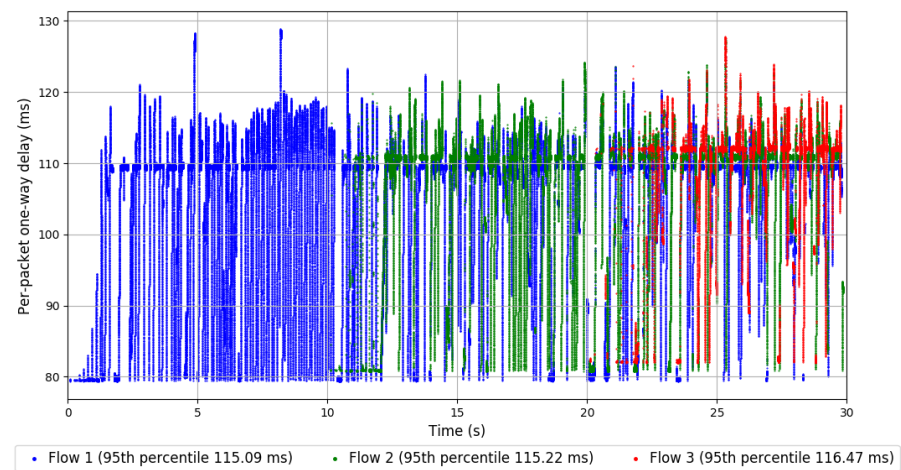
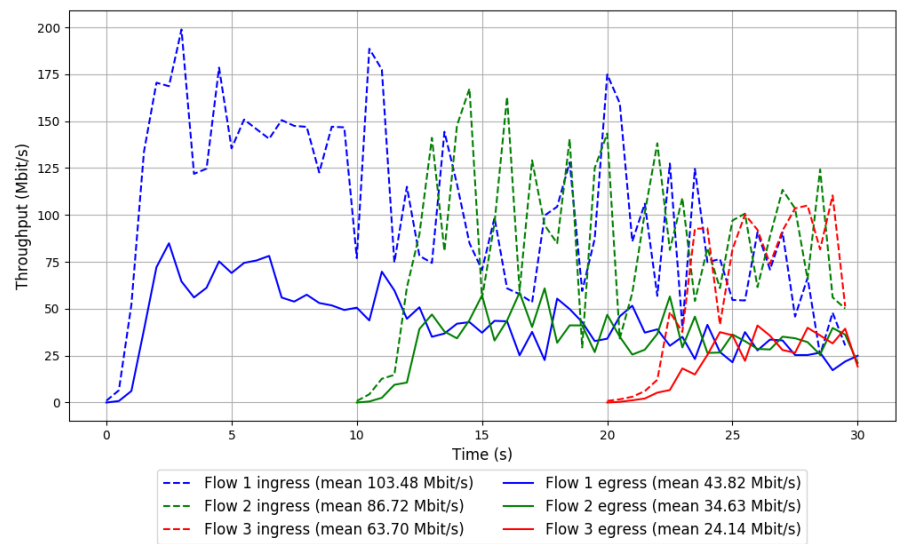
-- Flow 3:

Average throughput: 24.14 Mbit/s

95th percentile per-packet one-way delay: 116.472 ms

Loss rate: 61.99%

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



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-09 21:39:41

End at: 2018-10-09 21:40:11

Local clock offset: -1.742 ms

Remote clock offset: 5.17 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 74.02 Mbit/s

95th percentile per-packet one-way delay: 122.569 ms

Loss rate: 58.64%

-- Flow 1:

Average throughput: 42.90 Mbit/s

95th percentile per-packet one-way delay: 121.753 ms

Loss rate: 57.48%

-- Flow 2:

Average throughput: 32.86 Mbit/s

95th percentile per-packet one-way delay: 122.845 ms

Loss rate: 58.62%

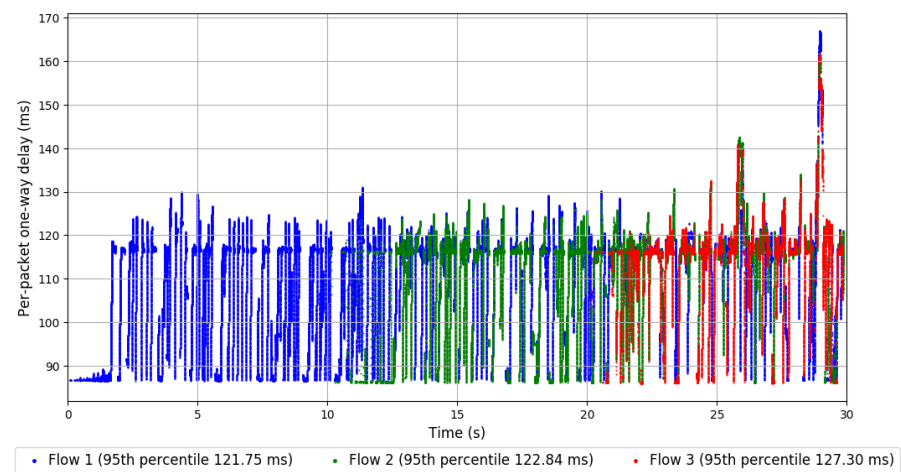
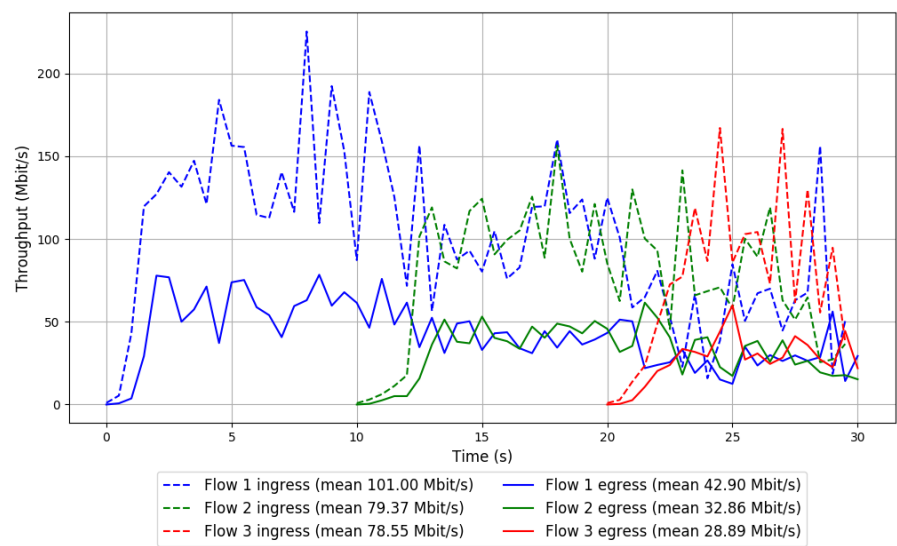
-- Flow 3:

Average throughput: 28.89 Mbit/s

95th percentile per-packet one-way delay: 127.296 ms

Loss rate: 63.23%

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

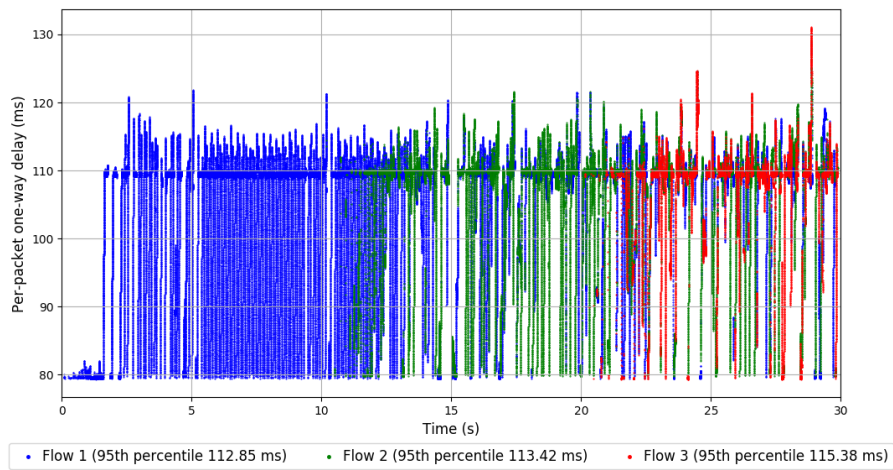
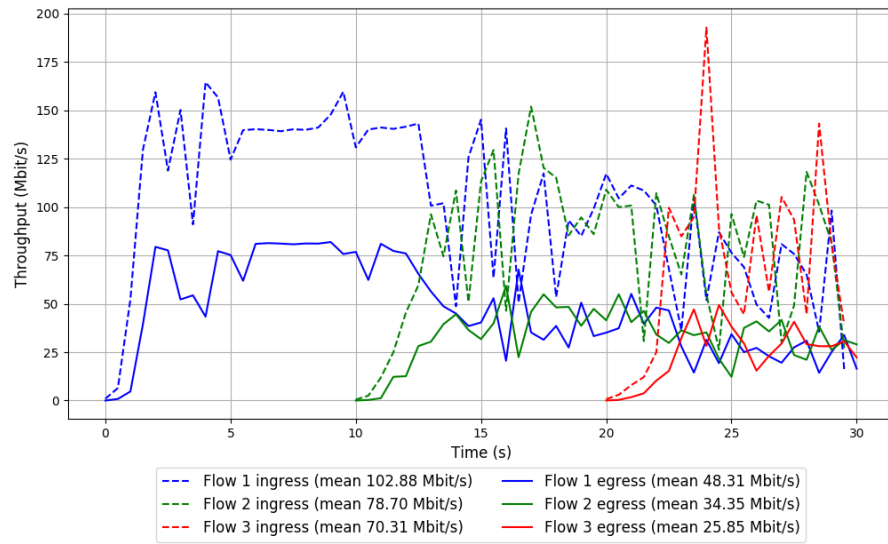


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-09 22:02:19
End at: 2018-10-09 22:02:49
Local clock offset: -2.412 ms
Remote clock offset: -1.653 ms

Below is generated by plot.py at 2018-10-09 22:53:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 79.30 Mbit/s
95th percentile per-packet one-way delay: 113.188 ms
Loss rate: 55.31%
-- Flow 1:
Average throughput: 48.31 Mbit/s
95th percentile per-packet one-way delay: 112.850 ms
Loss rate: 52.99%
-- Flow 2:
Average throughput: 34.35 Mbit/s
95th percentile per-packet one-way delay: 113.419 ms
Loss rate: 56.37%
-- Flow 3:
Average throughput: 25.85 Mbit/s
95th percentile per-packet one-way delay: 115.380 ms
Loss rate: 63.25%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-09 22:25:12

End at: 2018-10-09 22:25:42

Local clock offset: -3.23 ms

Remote clock offset: 0.148 ms

Below is generated by plot.py at 2018-10-09 22:53:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 72.63 Mbit/s

95th percentile per-packet one-way delay: 118.833 ms

Loss rate: 58.73%

-- Flow 1:

Average throughput: 45.14 Mbit/s

95th percentile per-packet one-way delay: 118.815 ms

Loss rate: 58.43%

-- Flow 2:

Average throughput: 34.56 Mbit/s

95th percentile per-packet one-way delay: 118.792 ms

Loss rate: 59.29%

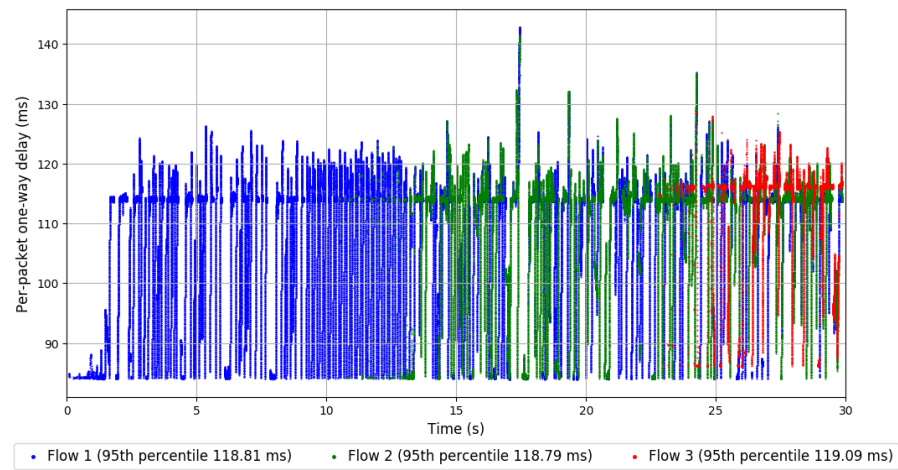
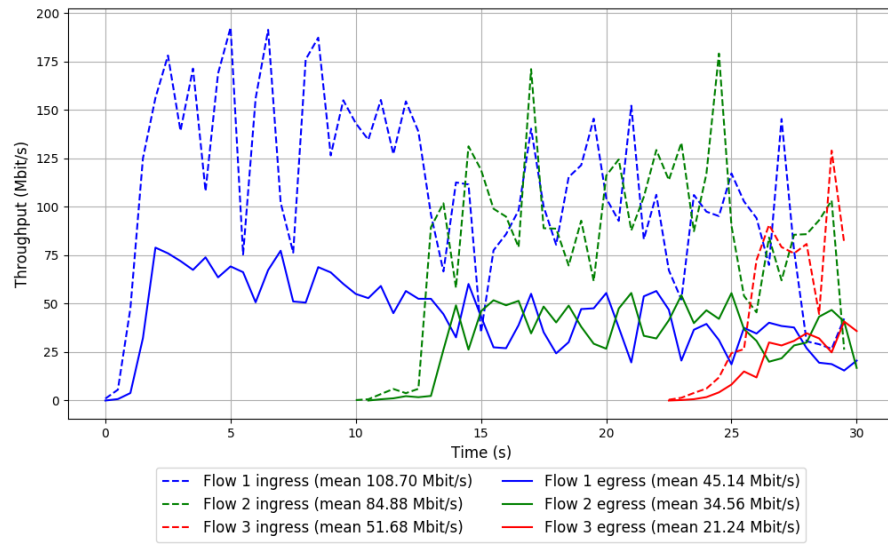
-- Flow 3:

Average throughput: 21.24 Mbit/s

95th percentile per-packet one-way delay: 119.095 ms

Loss rate: 58.90%

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

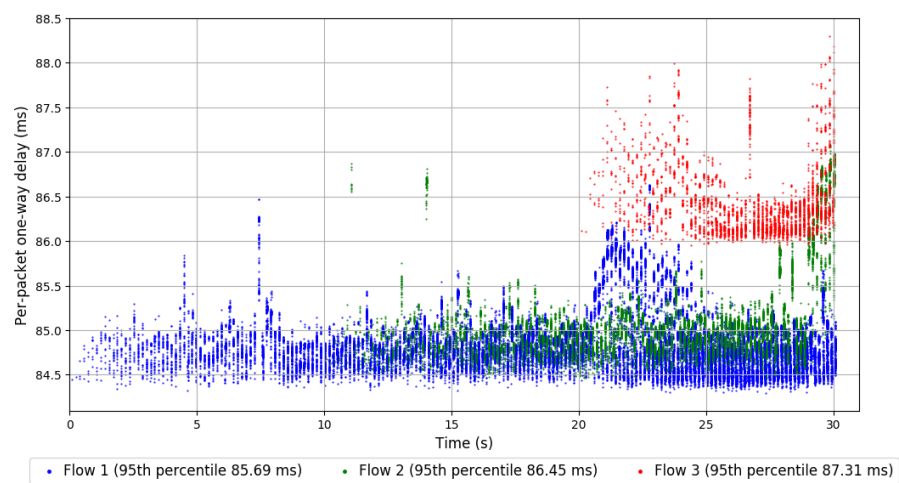
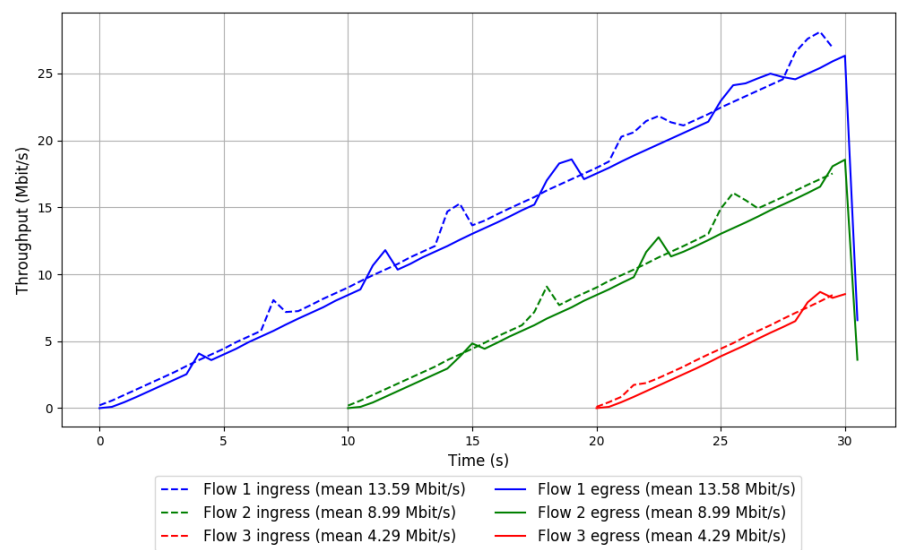


```
Run 1: Statistics of LEDBAT

Start at: 2018-10-09 21:13:16
End at: 2018-10-09 21:13:46
Local clock offset: -1.848 ms
Remote clock offset: 7.677 ms

# Below is generated by plot.py at 2018-10-09 22:53:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.97 Mbit/s
95th percentile per-packet one-way delay: 86.333 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.58 Mbit/s
95th percentile per-packet one-way delay: 85.690 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 8.99 Mbit/s
95th percentile per-packet one-way delay: 86.448 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.29 Mbit/s
95th percentile per-packet one-way delay: 87.310 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-10-09 21:35:57

End at: 2018-10-09 21:36:27

Local clock offset: -1.768 ms

Remote clock offset: 0.555 ms

Below is generated by plot.py at 2018-10-09 22:53:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 9.77 Mbit/s

95th percentile per-packet one-way delay: 80.907 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 6.04 Mbit/s

95th percentile per-packet one-way delay: 80.467 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 3.98 Mbit/s

95th percentile per-packet one-way delay: 81.452 ms

Loss rate: 0.38%

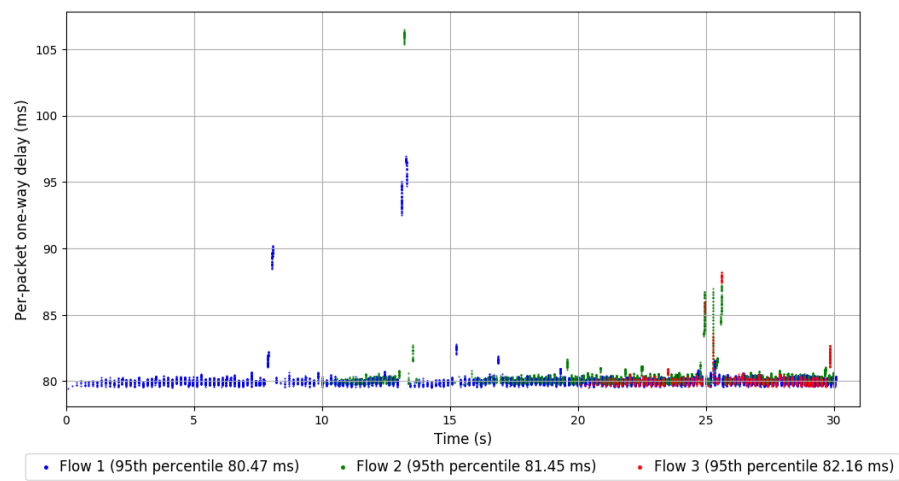
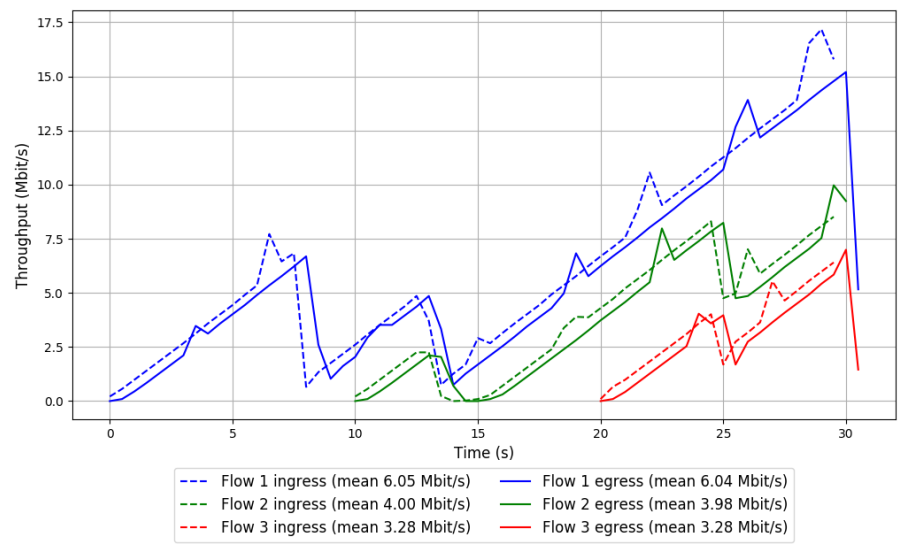
-- Flow 3:

Average throughput: 3.28 Mbit/s

95th percentile per-packet one-way delay: 82.158 ms

Loss rate: 0.07%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-10-09 21:58:34

End at: 2018-10-09 21:59:04

Local clock offset: -2.108 ms

Remote clock offset: 3.498 ms

Below is generated by plot.py at 2018-10-09 22:53:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 20.69 Mbit/s

95th percentile per-packet one-way delay: 87.341 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 13.30 Mbit/s

95th percentile per-packet one-way delay: 87.411 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 8.92 Mbit/s

95th percentile per-packet one-way delay: 86.741 ms

Loss rate: 0.00%

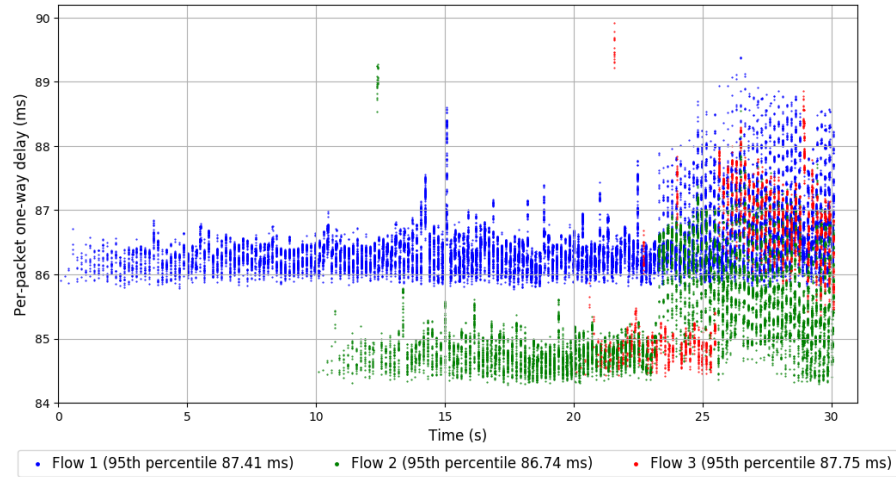
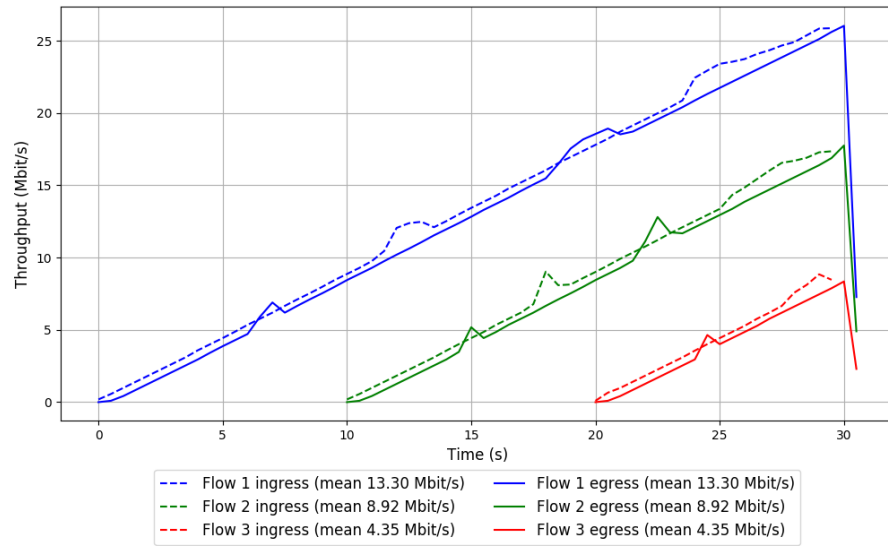
-- Flow 3:

Average throughput: 4.35 Mbit/s

95th percentile per-packet one-way delay: 87.753 ms

Loss rate: 0.03%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-10-09 22:21:28

End at: 2018-10-09 22:21:58

Local clock offset: -3.05 ms

Remote clock offset: 0.085 ms

Below is generated by plot.py at 2018-10-09 22:53:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.69 Mbit/s

95th percentile per-packet one-way delay: 92.442 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 8.30 Mbit/s

95th percentile per-packet one-way delay: 93.589 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 8.92 Mbit/s

95th percentile per-packet one-way delay: 87.571 ms

Loss rate: 0.00%

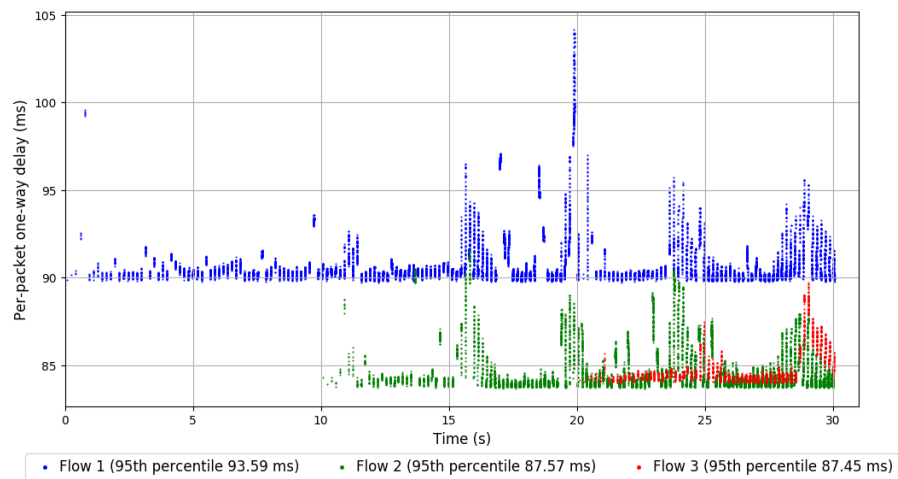
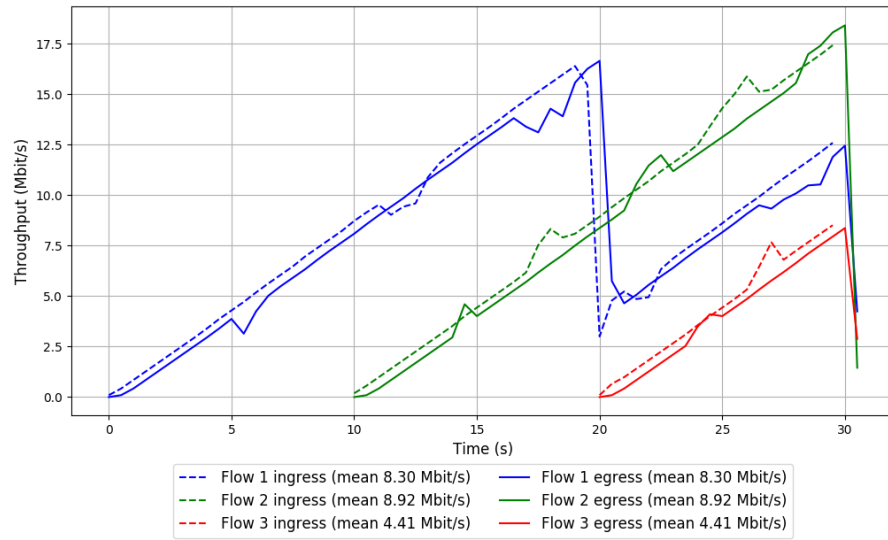
-- Flow 3:

Average throughput: 4.41 Mbit/s

95th percentile per-packet one-way delay: 87.452 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link

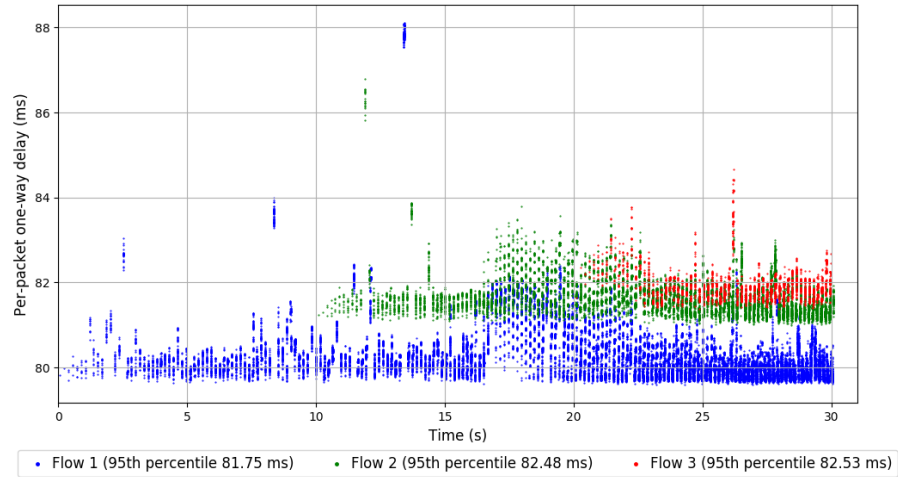
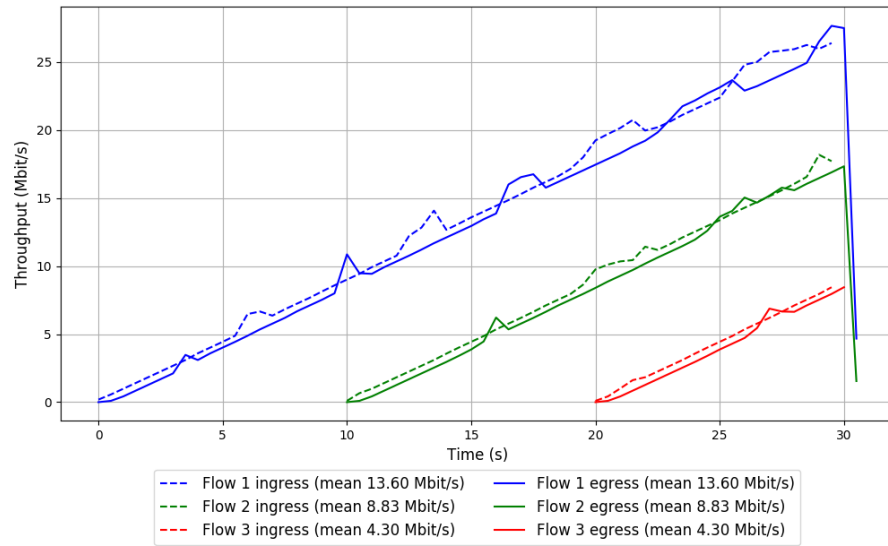


Run 5: Statistics of LEDBAT

Start at: 2018-10-09 22:44:33
End at: 2018-10-09 22:45:03
Local clock offset: -7.209 ms
Remote clock offset: -6.816 ms

Below is generated by plot.py at 2018-10-09 22:53:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 20.88 Mbit/s
95th percentile per-packet one-way delay: 82.138 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 13.60 Mbit/s
95th percentile per-packet one-way delay: 81.746 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 8.83 Mbit/s
95th percentile per-packet one-way delay: 82.479 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 4.30 Mbit/s
95th percentile per-packet one-way delay: 82.526 ms
Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-10-09 21:03:07

End at: 2018-10-09 21:03:37

Local clock offset: -1.762 ms

Remote clock offset: 9.714 ms

Below is generated by plot.py at 2018-10-09 22:53:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.02 Mbit/s

95th percentile per-packet one-way delay: 112.867 ms

Loss rate: 2.17%

-- Flow 1:

Average throughput: 71.87 Mbit/s

95th percentile per-packet one-way delay: 112.946 ms

Loss rate: 2.45%

-- Flow 2:

Average throughput: 18.02 Mbit/s

95th percentile per-packet one-way delay: 112.740 ms

Loss rate: 1.29%

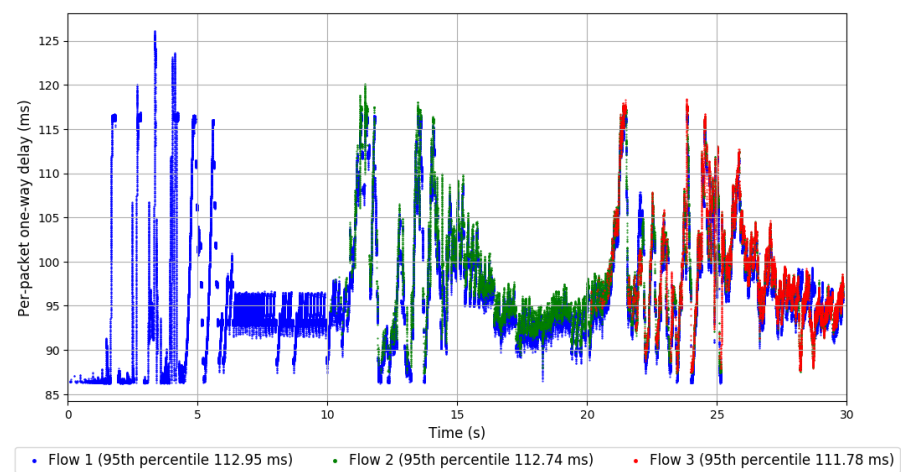
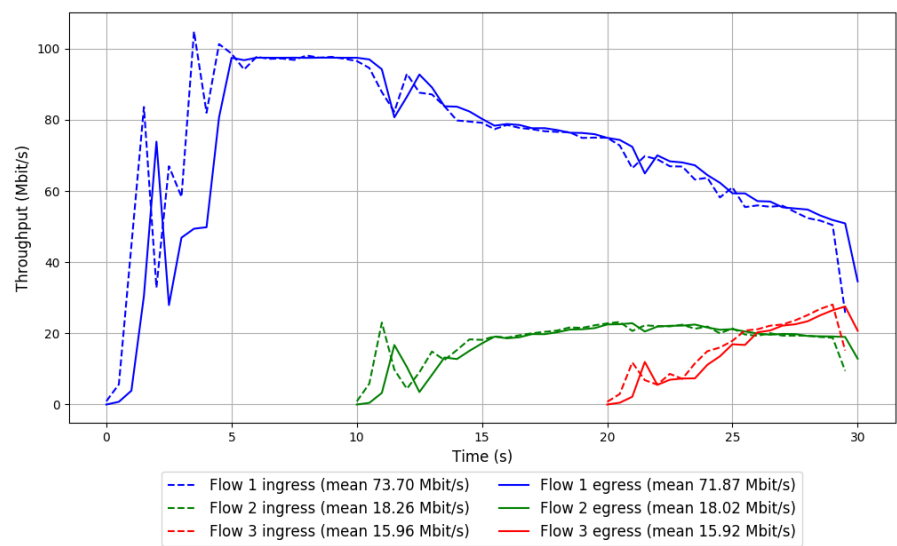
-- Flow 3:

Average throughput: 15.92 Mbit/s

95th percentile per-packet one-way delay: 111.779 ms

Loss rate: 0.17%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-10-09 21:25:59

End at: 2018-10-09 21:26:29

Local clock offset: -1.845 ms

Remote clock offset: 6.515 ms

Below is generated by plot.py at 2018-10-09 22:54:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 87.09 Mbit/s

95th percentile per-packet one-way delay: 118.158 ms

Loss rate: 2.55%

-- Flow 1:

Average throughput: 70.60 Mbit/s

95th percentile per-packet one-way delay: 118.928 ms

Loss rate: 2.87%

-- Flow 2:

Average throughput: 17.17 Mbit/s

95th percentile per-packet one-way delay: 112.087 ms

Loss rate: 1.21%

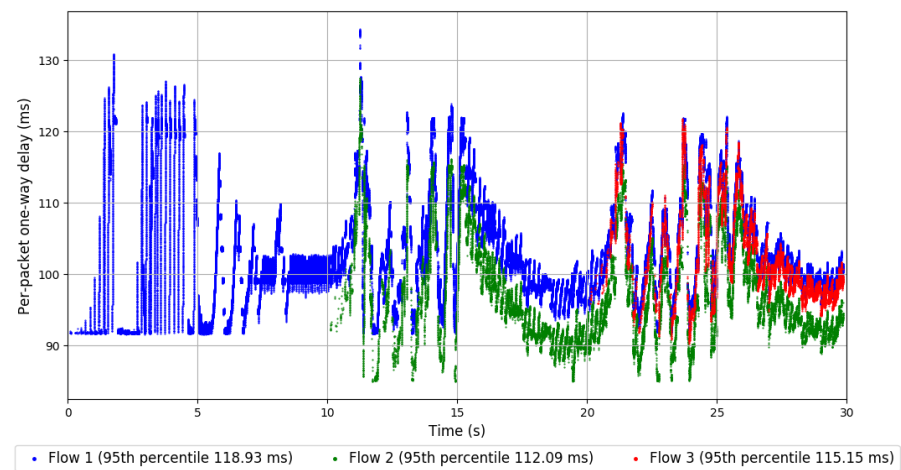
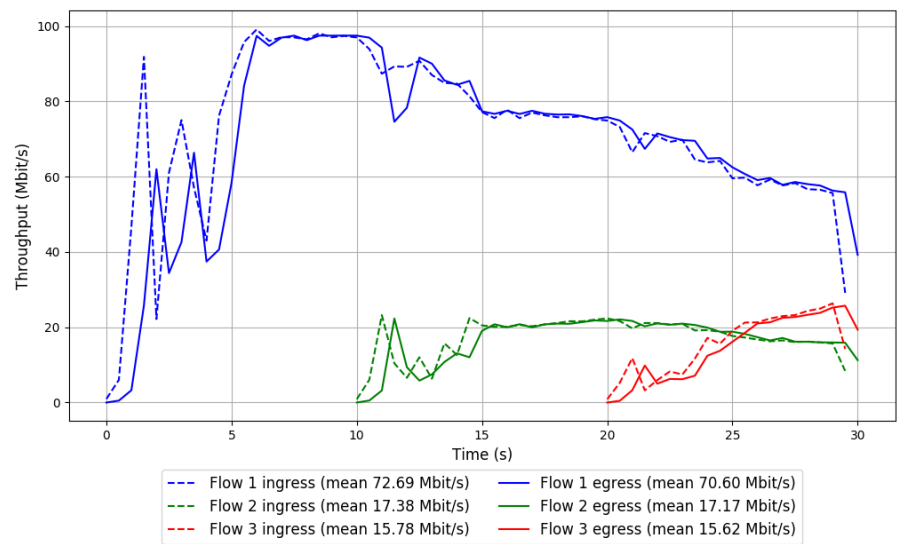
-- Flow 3:

Average throughput: 15.62 Mbit/s

95th percentile per-packet one-way delay: 115.154 ms

Loss rate: 1.05%

Run 2: Report of Indigo-Muses — Data Link

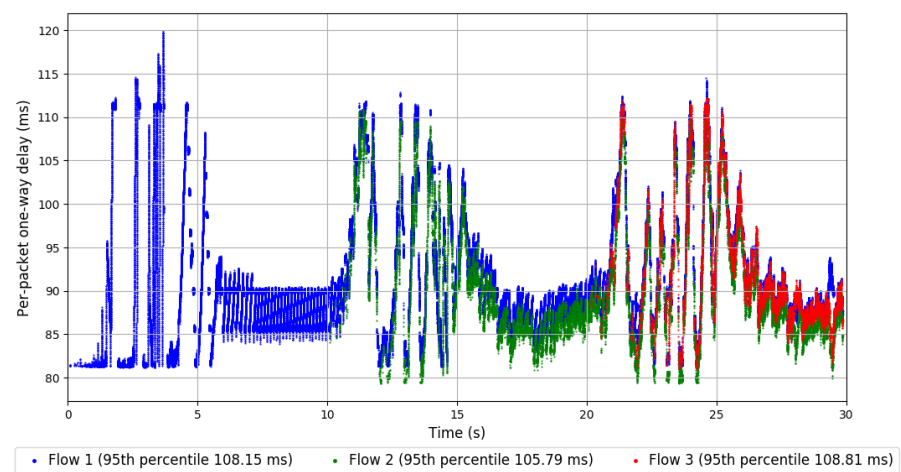
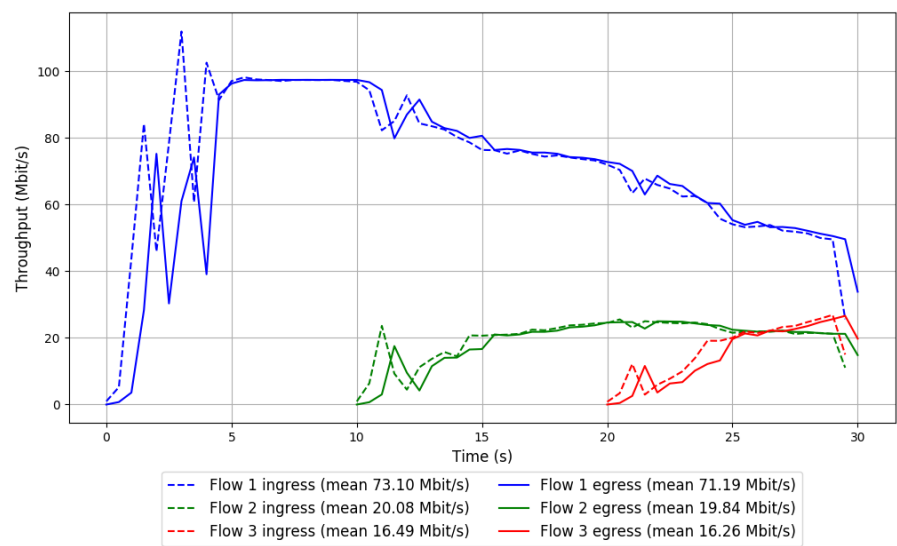


Run 3: Statistics of Indigo-Muses

Start at: 2018-10-09 21:48:34
End at: 2018-10-09 21:49:04
Local clock offset: -1.729 ms
Remote clock offset: -0.411 ms

Below is generated by plot.py at 2018-10-09 22:54:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 89.65 Mbit/s
95th percentile per-packet one-way delay: 107.846 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 71.19 Mbit/s
95th percentile per-packet one-way delay: 108.149 ms
Loss rate: 2.61%
-- Flow 2:
Average throughput: 19.84 Mbit/s
95th percentile per-packet one-way delay: 105.790 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 16.26 Mbit/s
95th percentile per-packet one-way delay: 108.815 ms
Loss rate: 1.38%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-10-09 22:11:29

End at: 2018-10-09 22:11:59

Local clock offset: -2.891 ms

Remote clock offset: 1.872 ms

Below is generated by plot.py at 2018-10-09 22:54:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.43 Mbit/s

95th percentile per-packet one-way delay: 114.355 ms

Loss rate: 2.18%

-- Flow 1:

Average throughput: 69.70 Mbit/s

95th percentile per-packet one-way delay: 114.895 ms

Loss rate: 2.51%

-- Flow 2:

Average throughput: 23.29 Mbit/s

95th percentile per-packet one-way delay: 113.256 ms

Loss rate: 0.39%

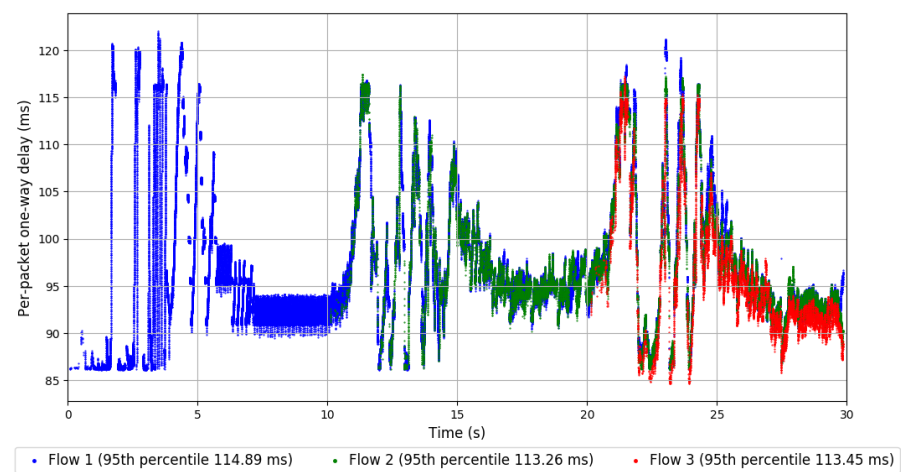
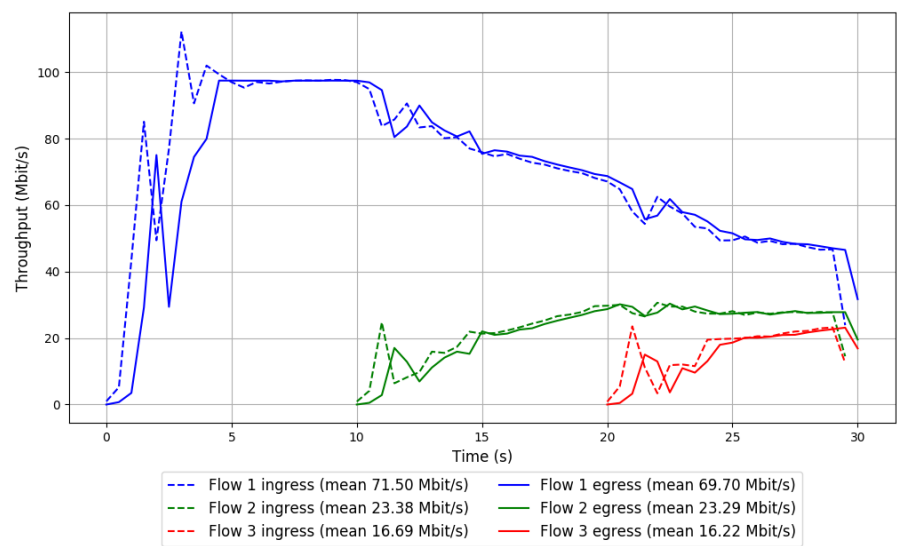
-- Flow 3:

Average throughput: 16.22 Mbit/s

95th percentile per-packet one-way delay: 113.451 ms

Loss rate: 2.85%

Run 4: Report of Indigo-Muses — Data Link

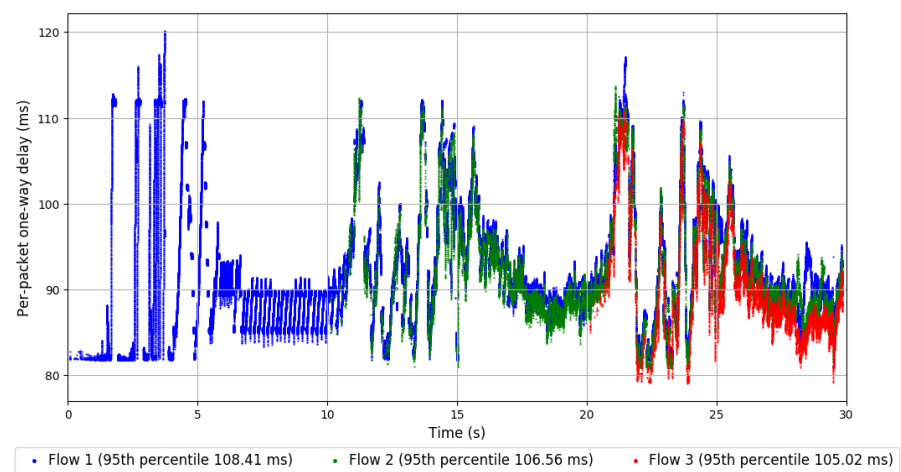
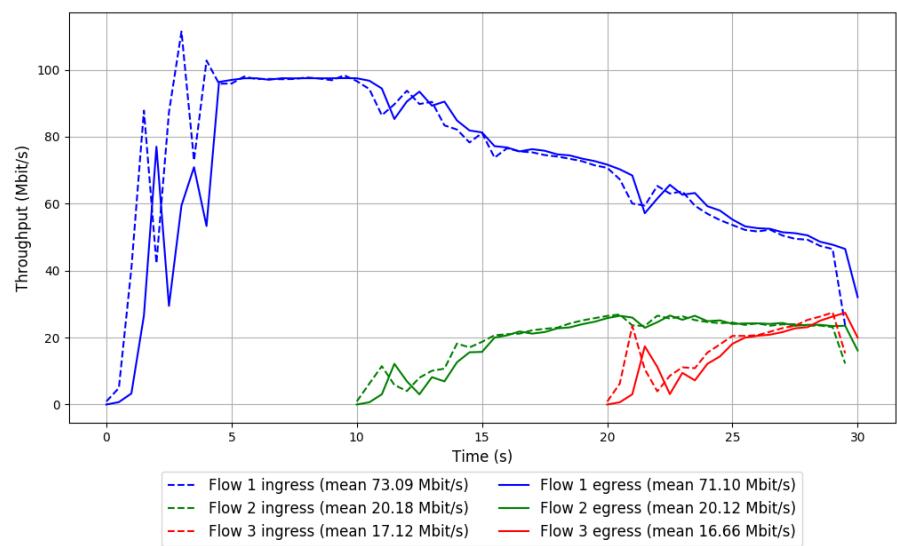


Run 5: Statistics of Indigo-Muses

Start at: 2018-10-09 22:34:19
End at: 2018-10-09 22:34:49
Local clock offset: -5.829 ms
Remote clock offset: -5.815 ms

Below is generated by plot.py at 2018-10-09 22:54:06
Datalink statistics
-- Total of 3 flows:
Average throughput: 89.89 Mbit/s
95th percentile per-packet one-way delay: 107.843 ms
Loss rate: 2.35%
-- Flow 1:
Average throughput: 71.10 Mbit/s
95th percentile per-packet one-way delay: 108.413 ms
Loss rate: 2.70%
-- Flow 2:
Average throughput: 20.12 Mbit/s
95th percentile per-packet one-way delay: 106.556 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 16.66 Mbit/s
95th percentile per-packet one-way delay: 105.024 ms
Loss rate: 2.64%

Run 5: Report of Indigo-Muses — Data Link

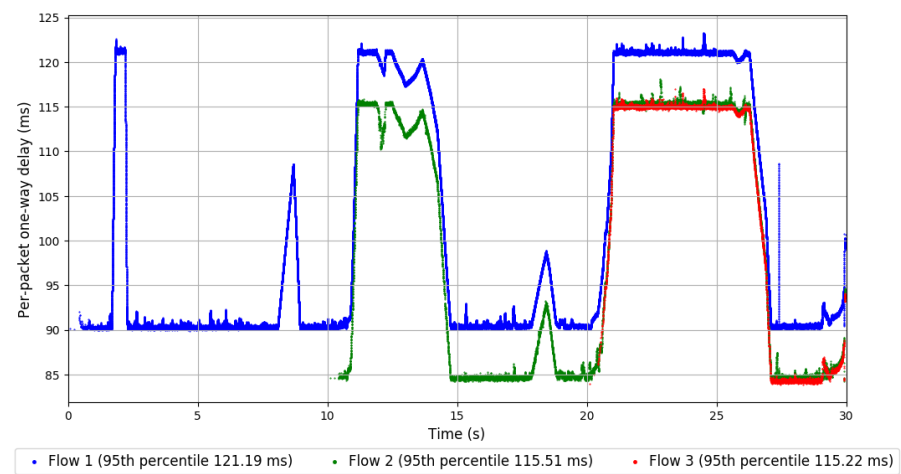
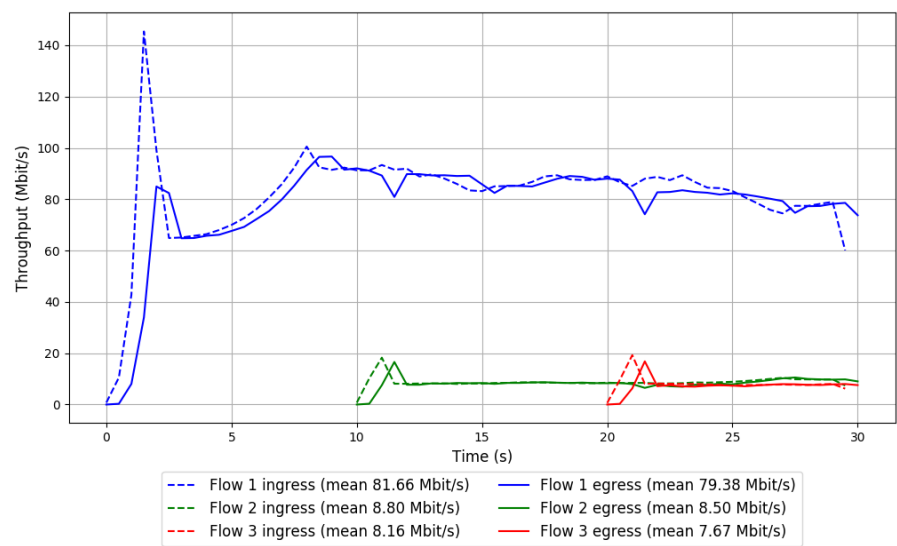


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-09 21:08:16
End at: 2018-10-09 21:08:46
Local clock offset: -1.805 ms
Remote clock offset: 8.007 ms

# Below is generated by plot.py at 2018-10-09 22:54:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.57 Mbit/s
95th percentile per-packet one-way delay: 121.177 ms
Loss rate: 2.91%
-- Flow 1:
Average throughput: 79.38 Mbit/s
95th percentile per-packet one-way delay: 121.189 ms
Loss rate: 2.77%
-- Flow 2:
Average throughput: 8.50 Mbit/s
95th percentile per-packet one-way delay: 115.508 ms
Loss rate: 3.36%
-- Flow 3:
Average throughput: 7.67 Mbit/s
95th percentile per-packet one-way delay: 115.223 ms
Loss rate: 5.97%
```

Run 1: Report of PCC-Allegro — Data Link

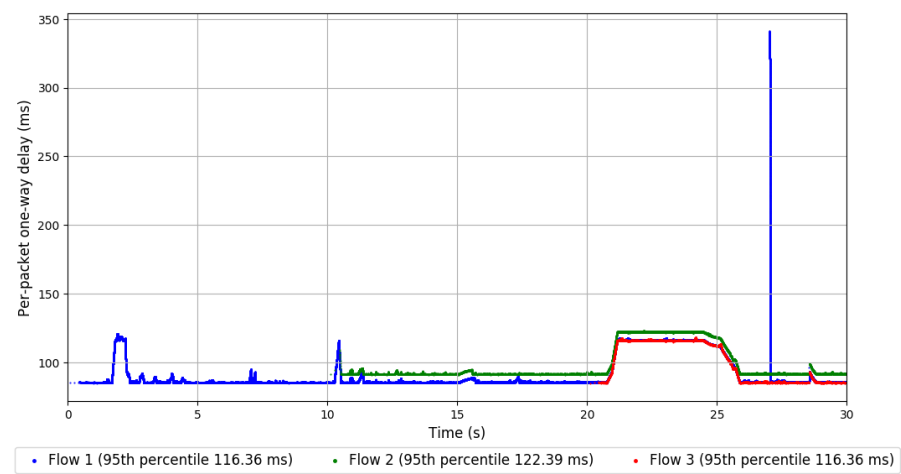
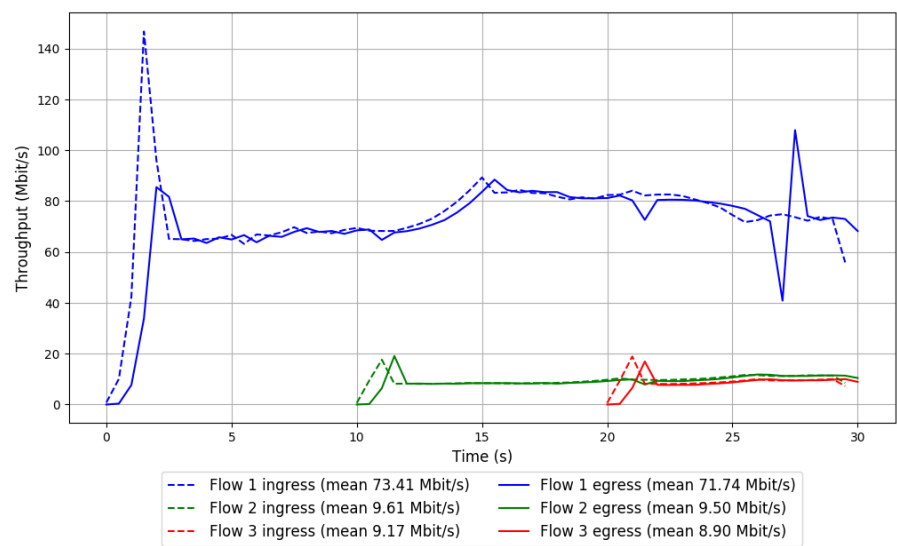


Run 2: Statistics of PCC-Allegro

Start at: 2018-10-09 21:31:00
End at: 2018-10-09 21:31:30
Local clock offset: -1.803 ms
Remote clock offset: 5.662 ms

Below is generated by plot.py at 2018-10-09 22:54:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 80.99 Mbit/s
95th percentile per-packet one-way delay: 116.435 ms
Loss rate: 2.22%
-- Flow 1:
Average throughput: 71.74 Mbit/s
95th percentile per-packet one-way delay: 116.357 ms
Loss rate: 2.28%
-- Flow 2:
Average throughput: 9.50 Mbit/s
95th percentile per-packet one-way delay: 122.392 ms
Loss rate: 1.16%
-- Flow 3:
Average throughput: 8.90 Mbit/s
95th percentile per-packet one-way delay: 116.363 ms
Loss rate: 2.94%

Run 2: Report of PCC-Allegro — Data Link

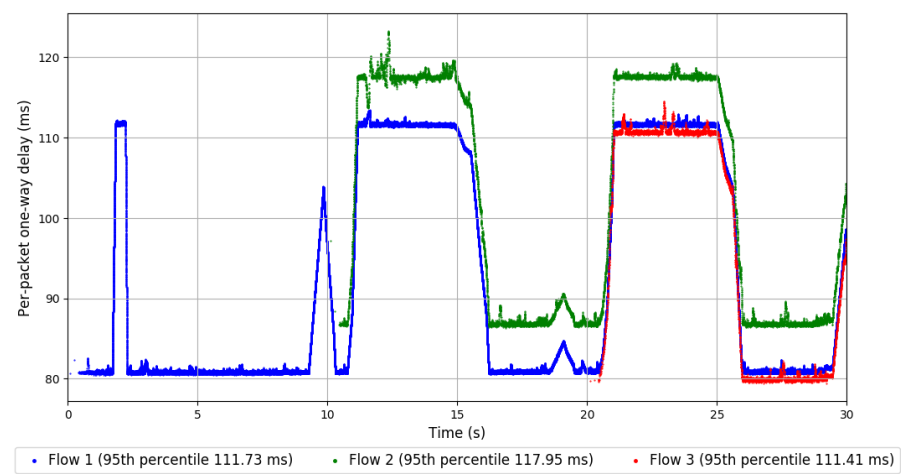
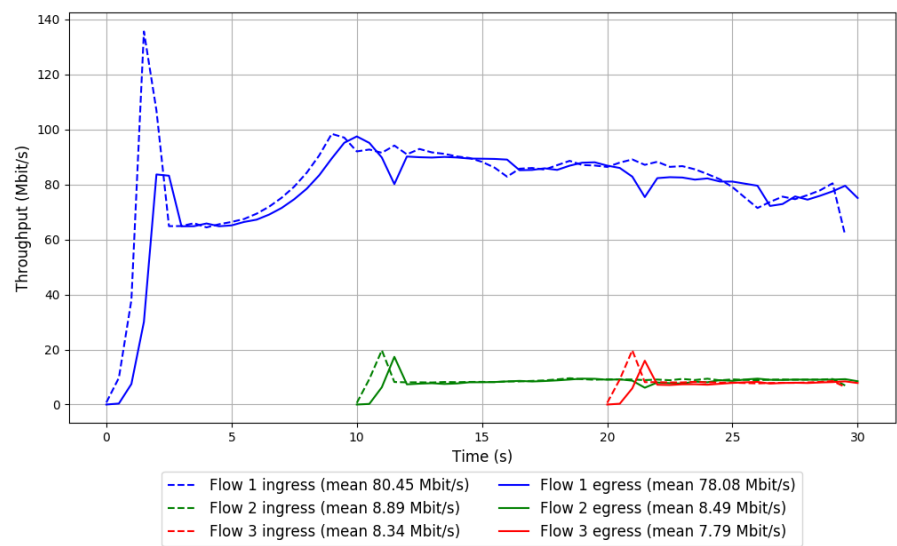


Run 3: Statistics of PCC-Allegro

Start at: 2018-10-09 21:53:36
End at: 2018-10-09 21:54:06
Local clock offset: -1.708 ms
Remote clock offset: -0.964 ms

Below is generated by plot.py at 2018-10-09 22:54:38
Datalink statistics
-- Total of 3 flows:
Average throughput: 86.29 Mbit/s
95th percentile per-packet one-way delay: 111.859 ms
Loss rate: 3.10%
-- Flow 1:
Average throughput: 78.08 Mbit/s
95th percentile per-packet one-way delay: 111.734 ms
Loss rate: 2.89%
-- Flow 2:
Average throughput: 8.49 Mbit/s
95th percentile per-packet one-way delay: 117.954 ms
Loss rate: 4.46%
-- Flow 3:
Average throughput: 7.79 Mbit/s
95th percentile per-packet one-way delay: 111.413 ms
Loss rate: 6.43%

Run 3: Report of PCC-Allegro — Data Link

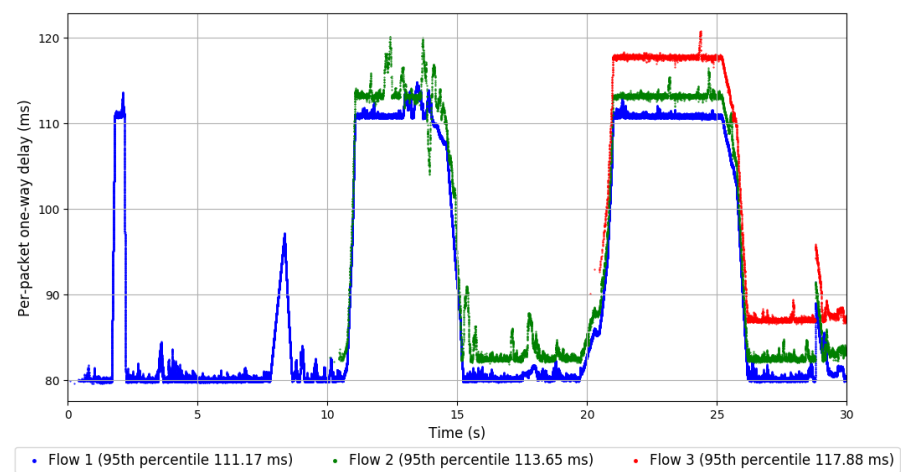
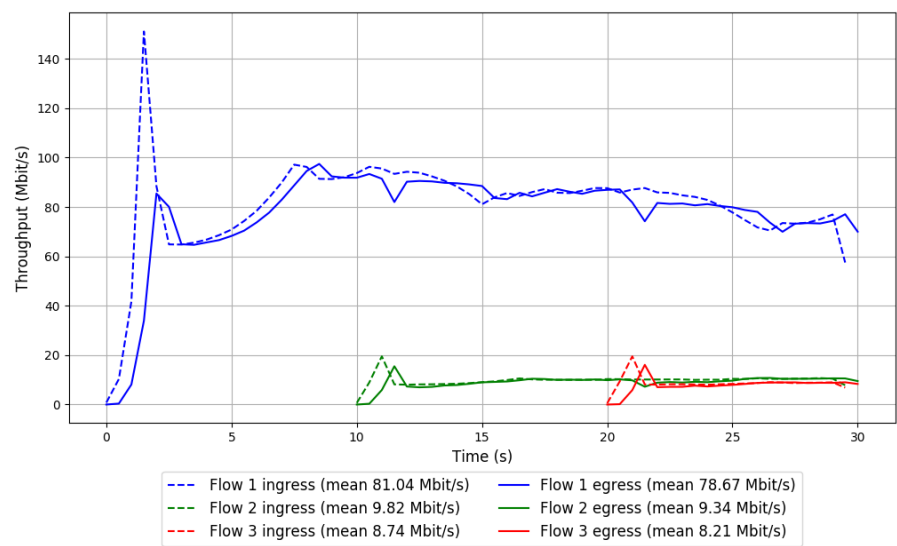


Run 4: Statistics of PCC-Allegro

Start at: 2018-10-09 22:16:30
End at: 2018-10-09 22:17:00
Local clock offset: -2.954 ms
Remote clock offset: -3.684 ms

Below is generated by plot.py at 2018-10-09 22:55:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 87.59 Mbit/s
95th percentile per-packet one-way delay: 112.904 ms
Loss rate: 3.17%
-- Flow 1:
Average throughput: 78.67 Mbit/s
95th percentile per-packet one-way delay: 111.165 ms
Loss rate: 2.92%
-- Flow 2:
Average throughput: 9.34 Mbit/s
95th percentile per-packet one-way delay: 113.648 ms
Loss rate: 4.85%
-- Flow 3:
Average throughput: 8.21 Mbit/s
95th percentile per-packet one-way delay: 117.881 ms
Loss rate: 6.19%

Run 4: Report of PCC-Allegro — Data Link

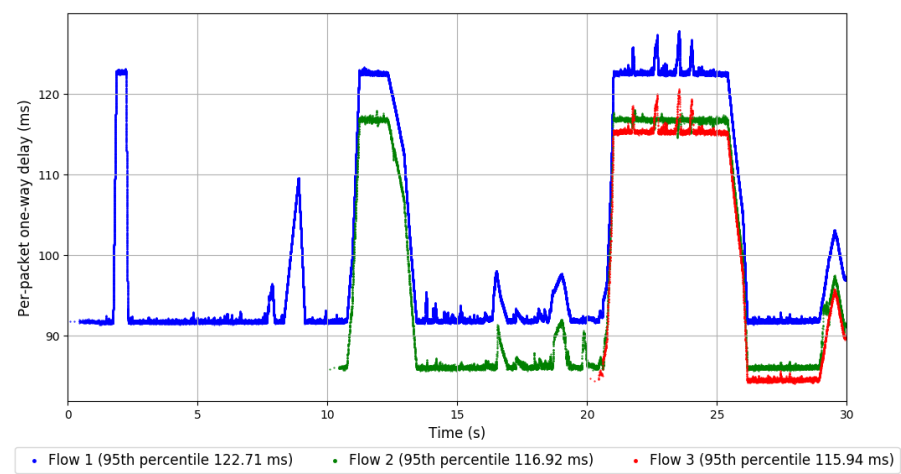
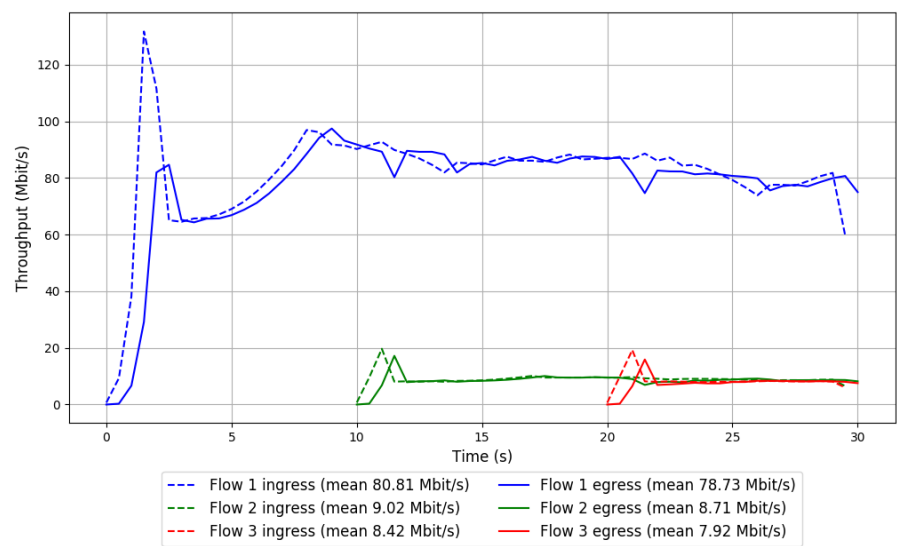


Run 5: Statistics of PCC-Allegro

Start at: 2018-10-09 22:39:34
End at: 2018-10-09 22:40:04
Local clock offset: -6.659 ms
Remote clock offset: -1.515 ms

Below is generated by plot.py at 2018-10-09 22:55:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 87.14 Mbit/s
95th percentile per-packet one-way delay: 122.690 ms
Loss rate: 2.74%
-- Flow 1:
Average throughput: 78.73 Mbit/s
95th percentile per-packet one-way delay: 122.710 ms
Loss rate: 2.58%
-- Flow 2:
Average throughput: 8.71 Mbit/s
95th percentile per-packet one-way delay: 116.917 ms
Loss rate: 3.37%
-- Flow 3:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 115.936 ms
Loss rate: 5.88%

Run 5: Report of PCC-Allegro — Data Link

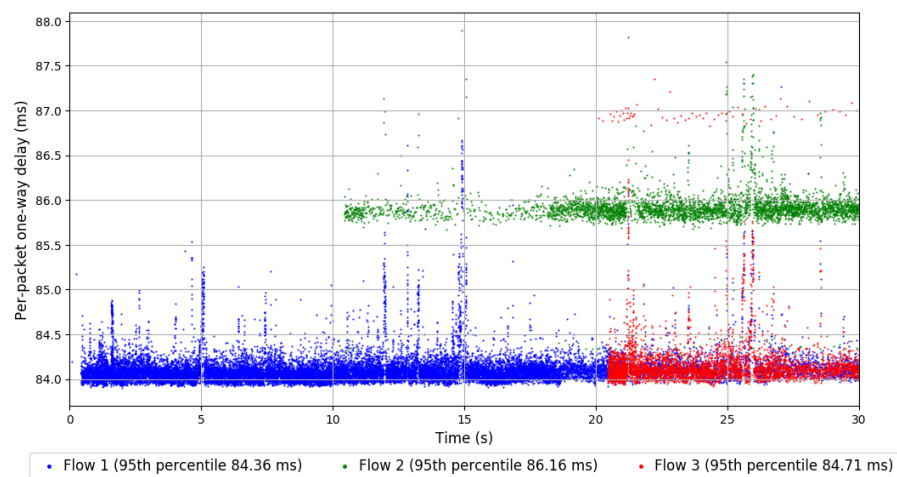
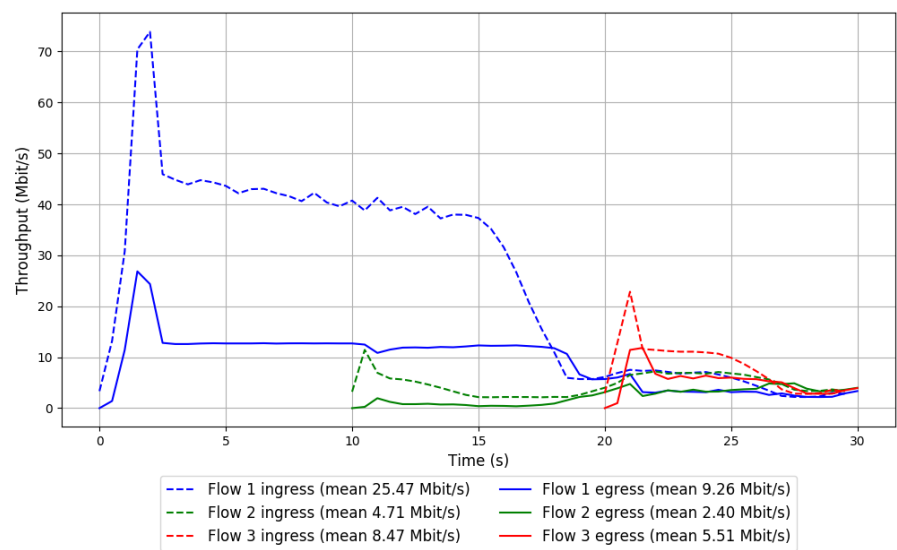


```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-09 21:09:34
End at: 2018-10-09 21:10:04
Local clock offset: -1.805 ms
Remote clock offset: 7.936 ms

# Below is generated by plot.py at 2018-10-09 22:55:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.67 Mbit/s
95th percentile per-packet one-way delay: 85.923 ms
Loss rate: 59.65%
-- Flow 1:
Average throughput: 9.26 Mbit/s
95th percentile per-packet one-way delay: 84.357 ms
Loss rate: 63.66%
-- Flow 2:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 86.162 ms
Loss rate: 49.15%
-- Flow 3:
Average throughput: 5.51 Mbit/s
95th percentile per-packet one-way delay: 84.707 ms
Loss rate: 34.96%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-10-09 21:32:15

End at: 2018-10-09 21:32:45

Local clock offset: -1.801 ms

Remote clock offset: 1.032 ms

Below is generated by plot.py at 2018-10-09 22:55:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.96 Mbit/s

95th percentile per-packet one-way delay: 81.225 ms

Loss rate: 49.41%

-- Flow 1:

Average throughput: 5.81 Mbit/s

95th percentile per-packet one-way delay: 80.065 ms

Loss rate: 58.43%

-- Flow 2:

Average throughput: 8.54 Mbit/s

95th percentile per-packet one-way delay: 79.980 ms

Loss rate: 41.04%

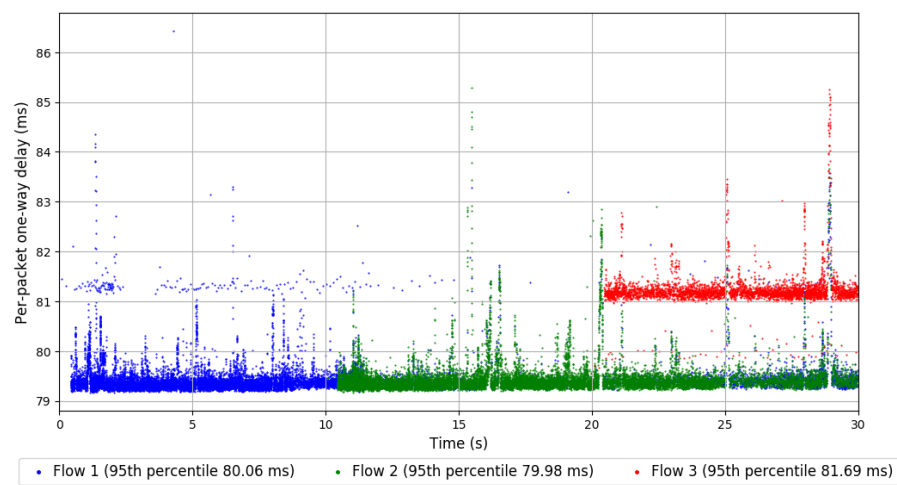
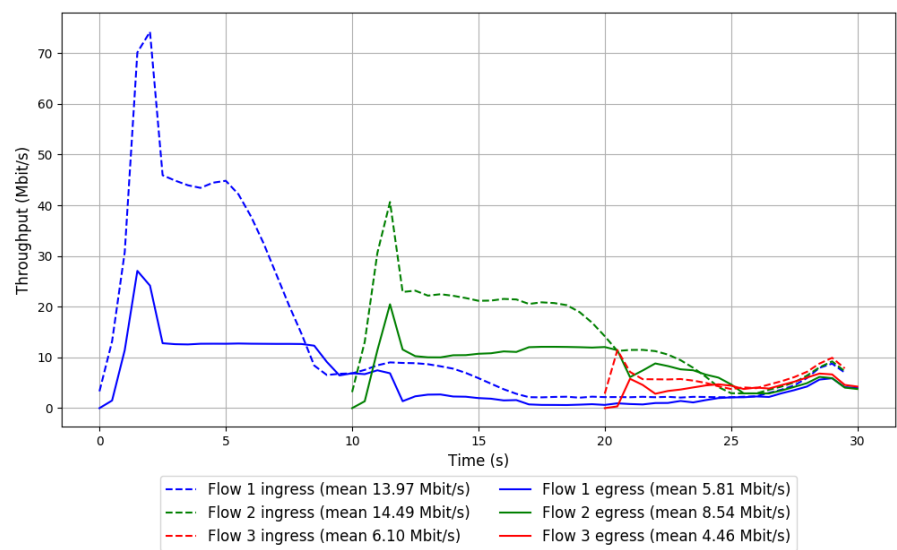
-- Flow 3:

Average throughput: 4.46 Mbit/s

95th percentile per-packet one-way delay: 81.688 ms

Loss rate: 26.92%

Run 2: Report of PCC-Expr — Data Link

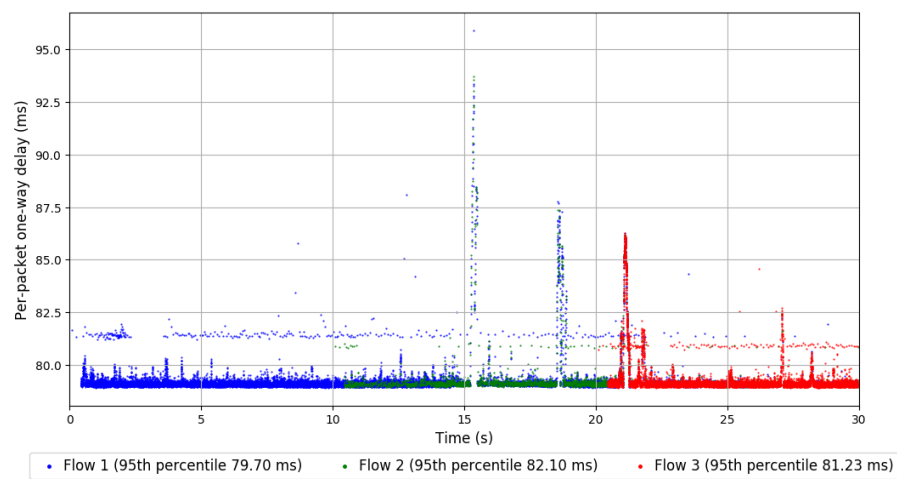
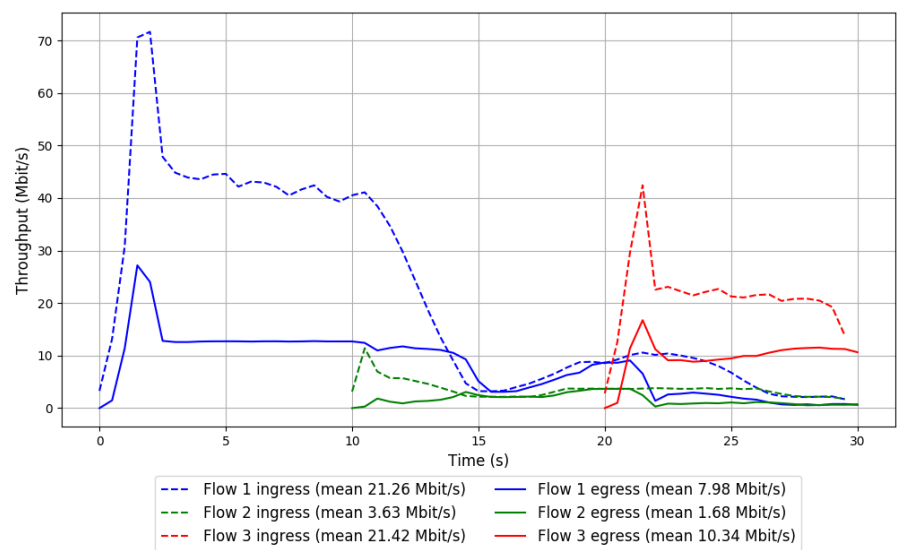


Run 3: Statistics of PCC-Expr

Start at: 2018-10-09 21:54:52
End at: 2018-10-09 21:55:22
Local clock offset: -1.703 ms
Remote clock offset: -1.082 ms

Below is generated by plot.py at 2018-10-09 22:55:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.50 Mbit/s
95th percentile per-packet one-way delay: 80.699 ms
Loss rate: 59.33%
-- Flow 1:
Average throughput: 7.98 Mbit/s
95th percentile per-packet one-way delay: 79.703 ms
Loss rate: 62.48%
-- Flow 2:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 82.104 ms
Loss rate: 53.89%
-- Flow 3:
Average throughput: 10.34 Mbit/s
95th percentile per-packet one-way delay: 81.234 ms
Loss rate: 51.73%

Run 3: Report of PCC-Expr — Data Link

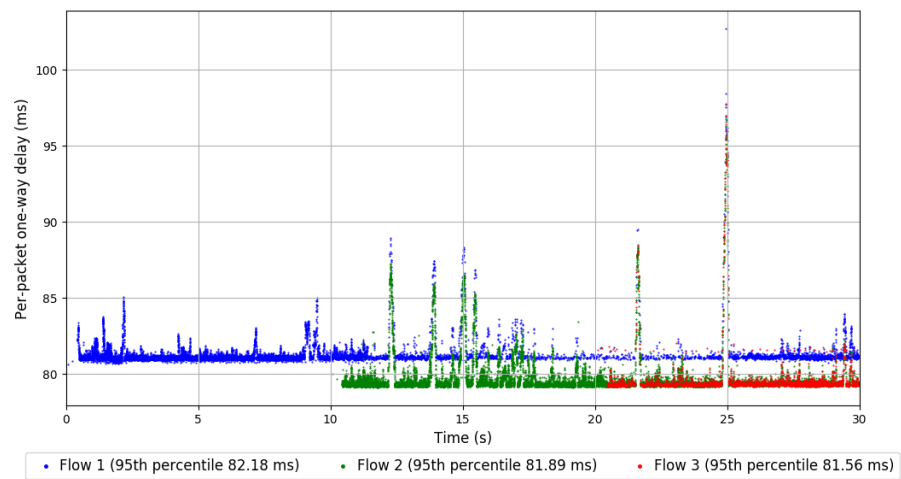
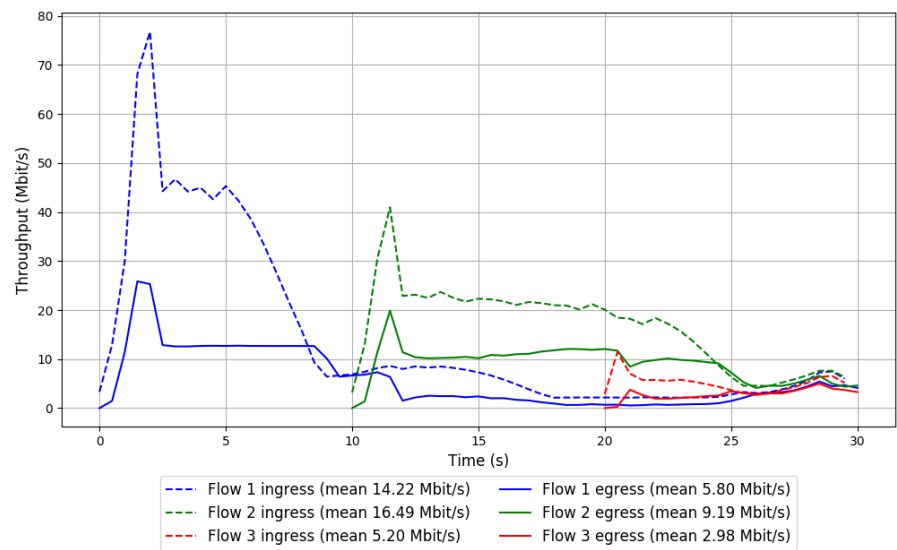


Run 4: Statistics of PCC-Expr

Start at: 2018-10-09 22:17:45
End at: 2018-10-09 22:18:15
Local clock offset: -2.992 ms
Remote clock offset: -3.821 ms

Below is generated by plot.py at 2018-10-09 22:55:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.90 Mbit/s
95th percentile per-packet one-way delay: 82.091 ms
Loss rate: 52.05%
-- Flow 1:
Average throughput: 5.80 Mbit/s
95th percentile per-packet one-way delay: 82.183 ms
Loss rate: 59.20%
-- Flow 2:
Average throughput: 9.19 Mbit/s
95th percentile per-packet one-way delay: 81.888 ms
Loss rate: 44.25%
-- Flow 3:
Average throughput: 2.98 Mbit/s
95th percentile per-packet one-way delay: 81.555 ms
Loss rate: 42.72%

Run 4: Report of PCC-Expr — Data Link

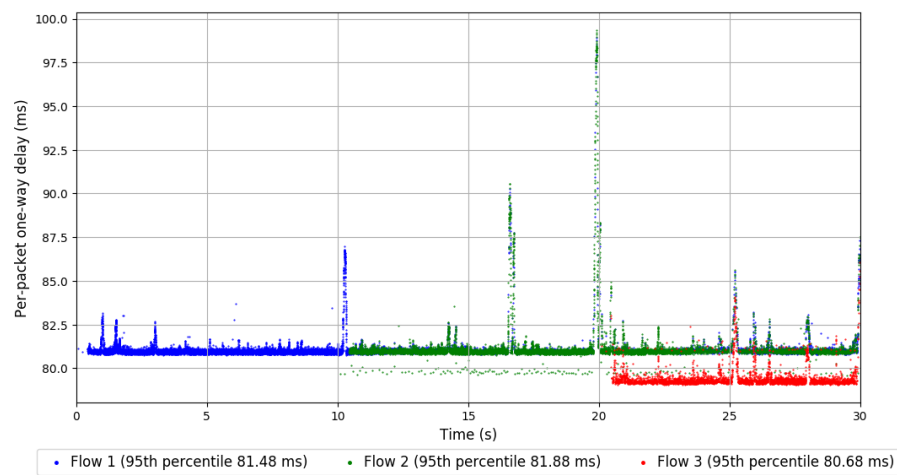
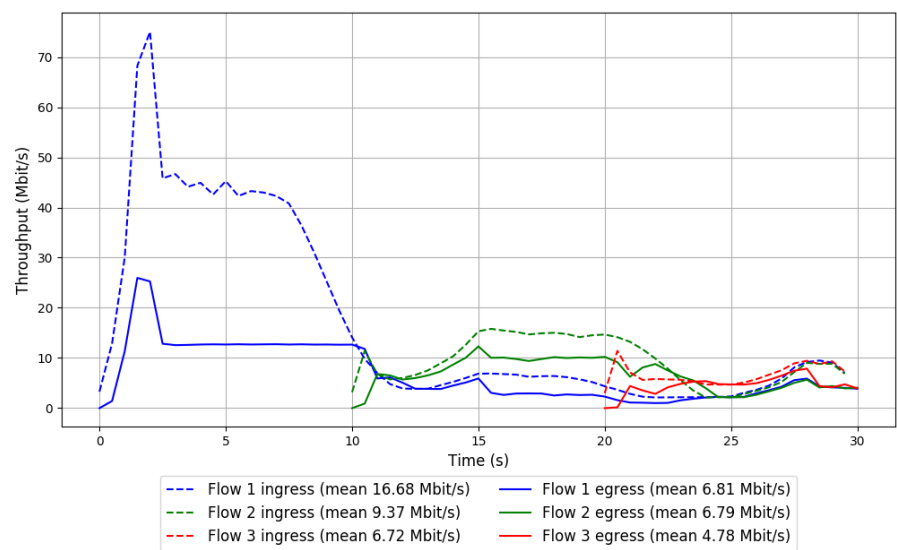


Run 5: Statistics of PCC-Expr

Start at: 2018-10-09 22:40:50
End at: 2018-10-09 22:41:20
Local clock offset: -6.844 ms
Remote clock offset: -6.532 ms

Below is generated by plot.py at 2018-10-09 22:55:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.90 Mbit/s
95th percentile per-packet one-way delay: 81.499 ms
Loss rate: 48.67%
-- Flow 1:
Average throughput: 6.81 Mbit/s
95th percentile per-packet one-way delay: 81.480 ms
Loss rate: 59.19%
-- Flow 2:
Average throughput: 6.79 Mbit/s
95th percentile per-packet one-way delay: 81.884 ms
Loss rate: 27.56%
-- Flow 3:
Average throughput: 4.78 Mbit/s
95th percentile per-packet one-way delay: 80.682 ms
Loss rate: 28.81%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-10-09 21:10:47

End at: 2018-10-09 21:11:17

Local clock offset: -1.882 ms

Remote clock offset: 3.025 ms

Below is generated by plot.py at 2018-10-09 22:55:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 59.79 Mbit/s

95th percentile per-packet one-way delay: 106.032 ms

Loss rate: 1.34%

-- Flow 1:

Average throughput: 39.00 Mbit/s

95th percentile per-packet one-way delay: 107.374 ms

Loss rate: 1.46%

-- Flow 2:

Average throughput: 14.18 Mbit/s

95th percentile per-packet one-way delay: 101.499 ms

Loss rate: 0.90%

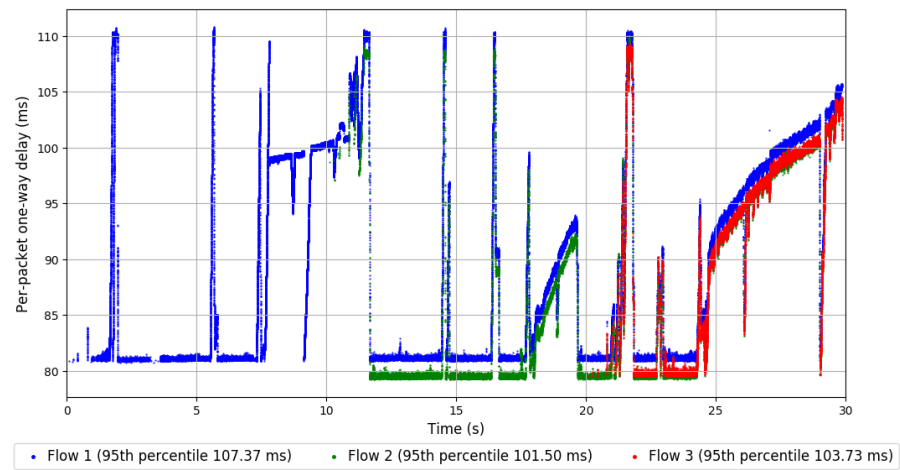
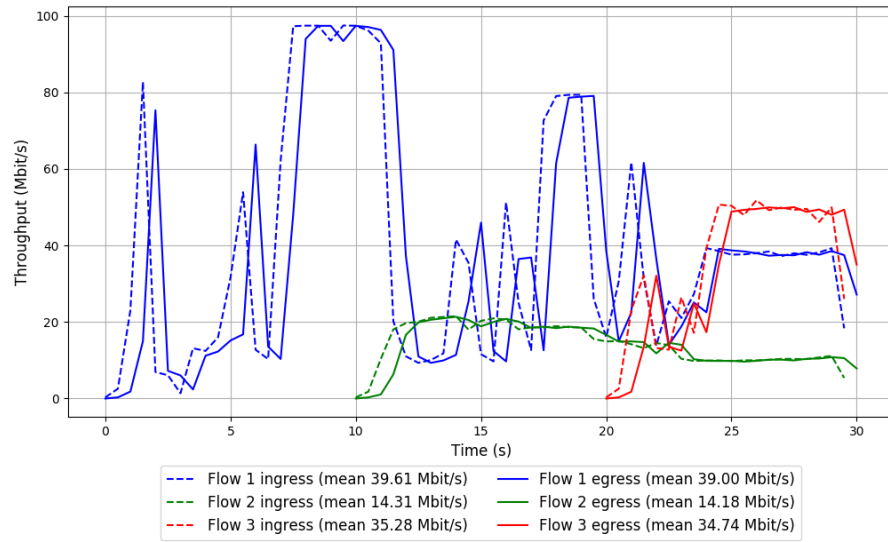
-- Flow 3:

Average throughput: 34.74 Mbit/s

95th percentile per-packet one-way delay: 103.731 ms

Loss rate: 1.31%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-10-09 21:33:29

End at: 2018-10-09 21:33:59

Local clock offset: -1.788 ms

Remote clock offset: 5.185 ms

Below is generated by plot.py at 2018-10-09 22:55:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 65.42 Mbit/s

95th percentile per-packet one-way delay: 111.338 ms

Loss rate: 0.52%

-- Flow 1:

Average throughput: 52.16 Mbit/s

95th percentile per-packet one-way delay: 111.480 ms

Loss rate: 0.60%

-- Flow 2:

Average throughput: 17.56 Mbit/s

95th percentile per-packet one-way delay: 110.998 ms

Loss rate: 0.22%

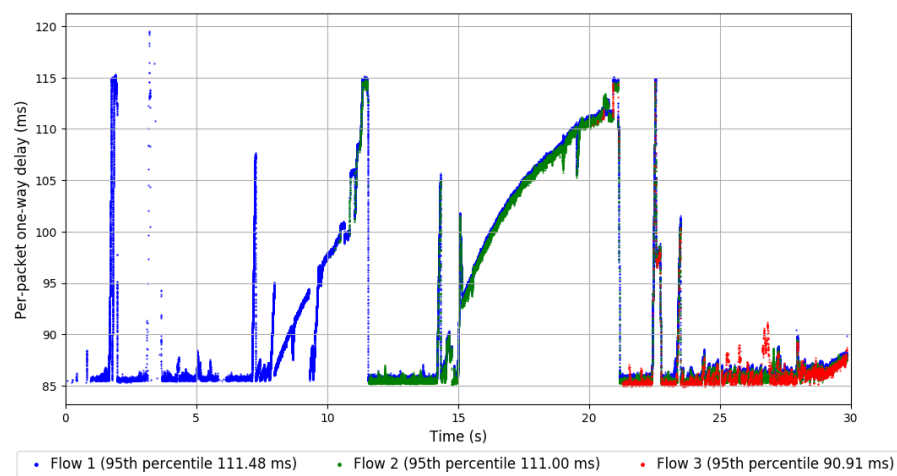
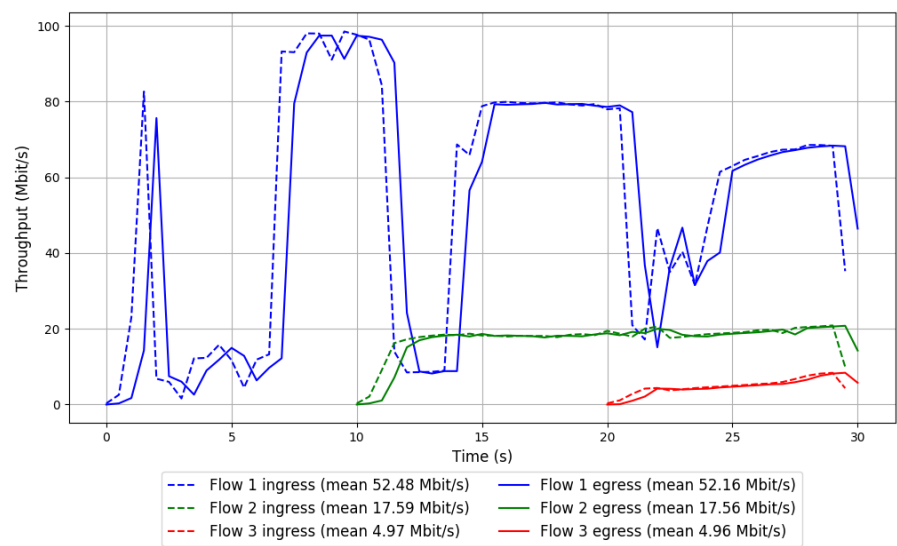
-- Flow 3:

Average throughput: 4.96 Mbit/s

95th percentile per-packet one-way delay: 90.912 ms

Loss rate: 0.33%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-10-09 21:56:05

End at: 2018-10-09 21:56:35

Local clock offset: -1.854 ms

Remote clock offset: 3.802 ms

Below is generated by plot.py at 2018-10-09 22:55:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 63.46 Mbit/s

95th percentile per-packet one-way delay: 108.023 ms

Loss rate: 0.87%

-- Flow 1:

Average throughput: 33.50 Mbit/s

95th percentile per-packet one-way delay: 100.968 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 36.90 Mbit/s

95th percentile per-packet one-way delay: 112.054 ms

Loss rate: 1.46%

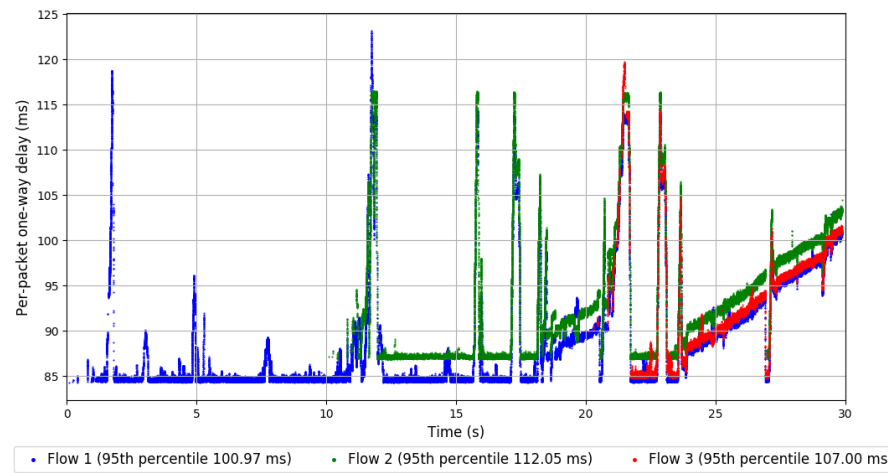
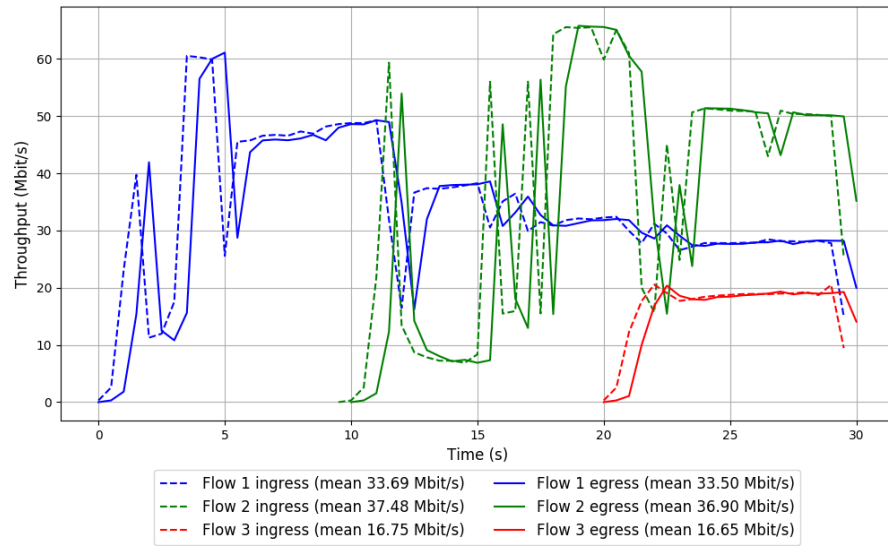
-- Flow 3:

Average throughput: 16.65 Mbit/s

95th percentile per-packet one-way delay: 106.996 ms

Loss rate: 0.49%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-10-09 22:18:59

End at: 2018-10-09 22:19:29

Local clock offset: -3.078 ms

Remote clock offset: 0.135 ms

Below is generated by plot.py at 2018-10-09 22:55:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 51.05 Mbit/s

95th percentile per-packet one-way delay: 110.925 ms

Loss rate: 1.89%

-- Flow 1:

Average throughput: 31.92 Mbit/s

95th percentile per-packet one-way delay: 109.110 ms

Loss rate: 2.01%

-- Flow 2:

Average throughput: 12.08 Mbit/s

95th percentile per-packet one-way delay: 105.225 ms

Loss rate: 1.38%

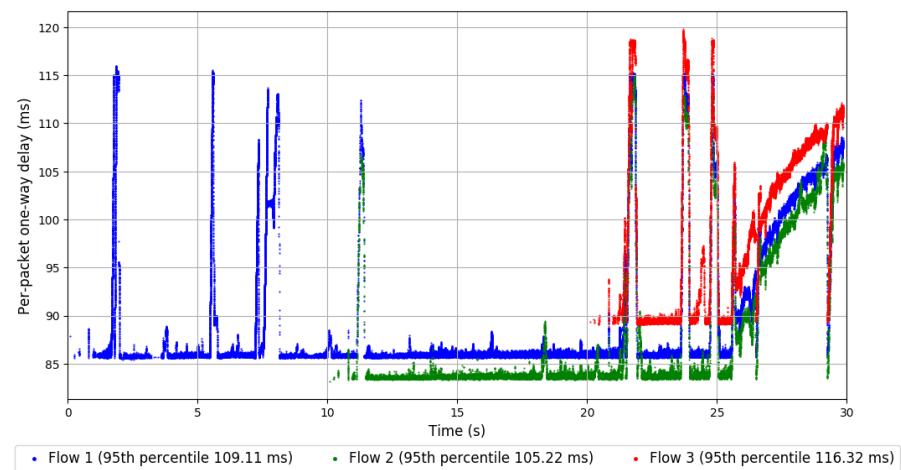
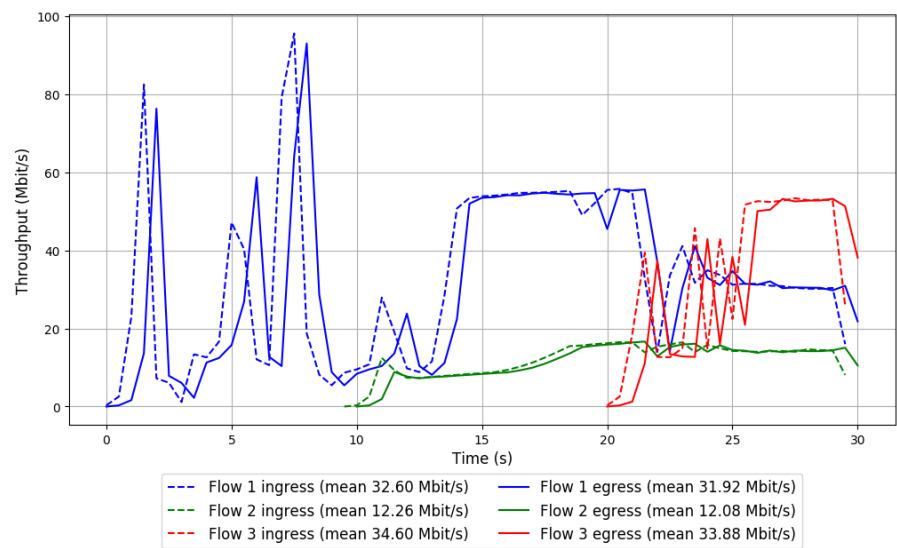
-- Flow 3:

Average throughput: 33.88 Mbit/s

95th percentile per-packet one-way delay: 116.321 ms

Loss rate: 1.92%

Run 4: Report of QUIC Cubic — Data Link

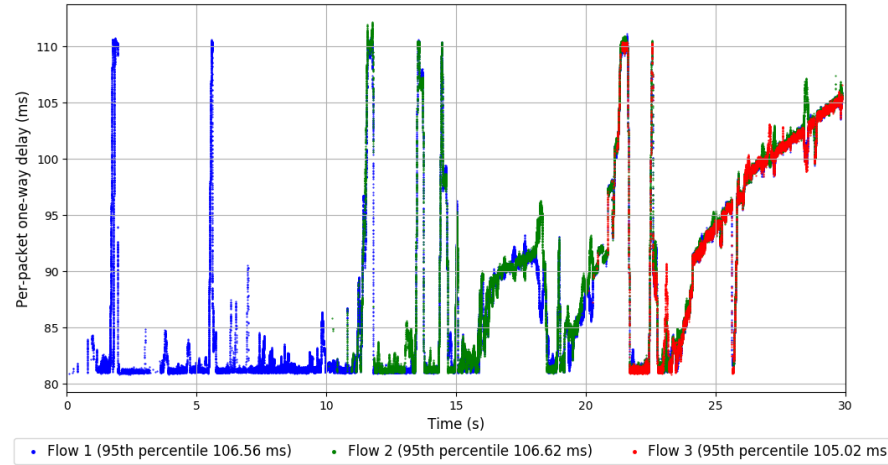
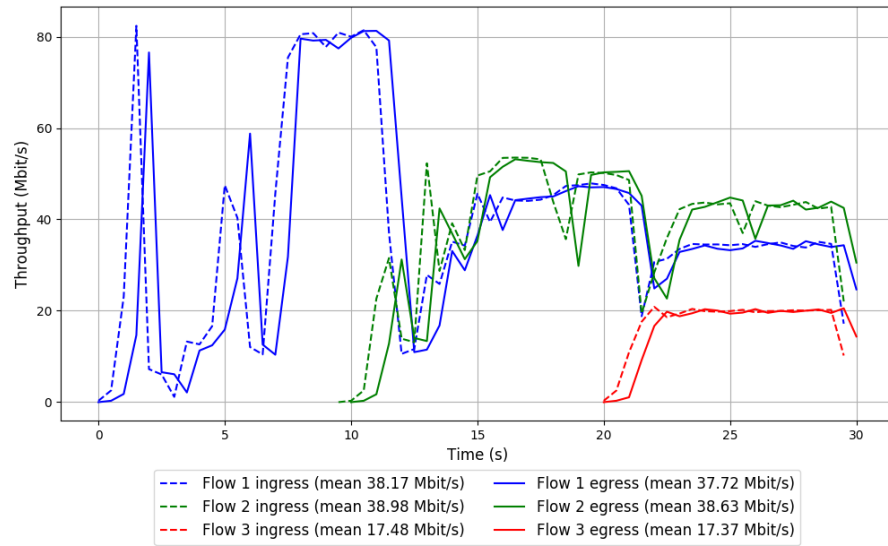


Run 5: Statistics of QUIC Cubic

Start at: 2018-10-09 22:42:04
End at: 2018-10-09 22:42:34
Local clock offset: -6.966 ms
Remote clock offset: -6.652 ms

Below is generated by plot.py at 2018-10-09 22:55:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 69.06 Mbit/s
95th percentile per-packet one-way delay: 106.302 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 37.72 Mbit/s
95th percentile per-packet one-way delay: 106.563 ms
Loss rate: 1.11%
-- Flow 2:
Average throughput: 38.63 Mbit/s
95th percentile per-packet one-way delay: 106.622 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 17.37 Mbit/s
95th percentile per-packet one-way delay: 105.023 ms
Loss rate: 0.48%

Run 5: Report of QUIC Cubic — Data Link

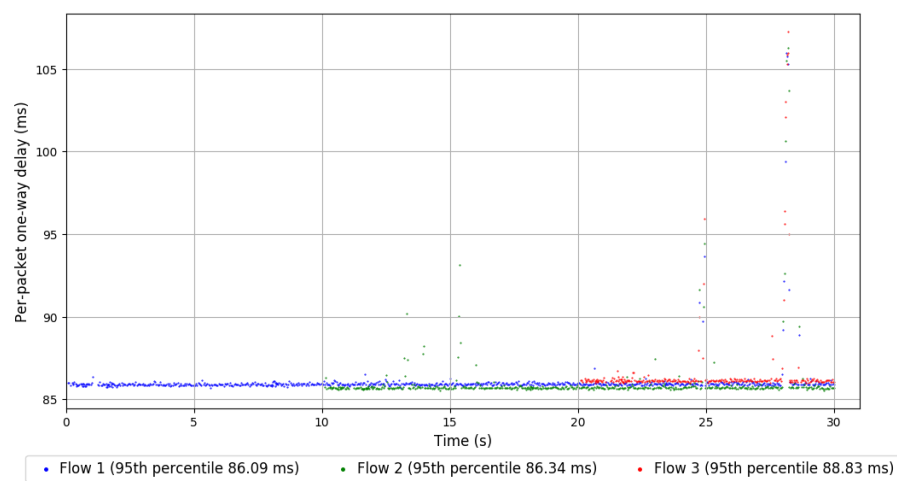
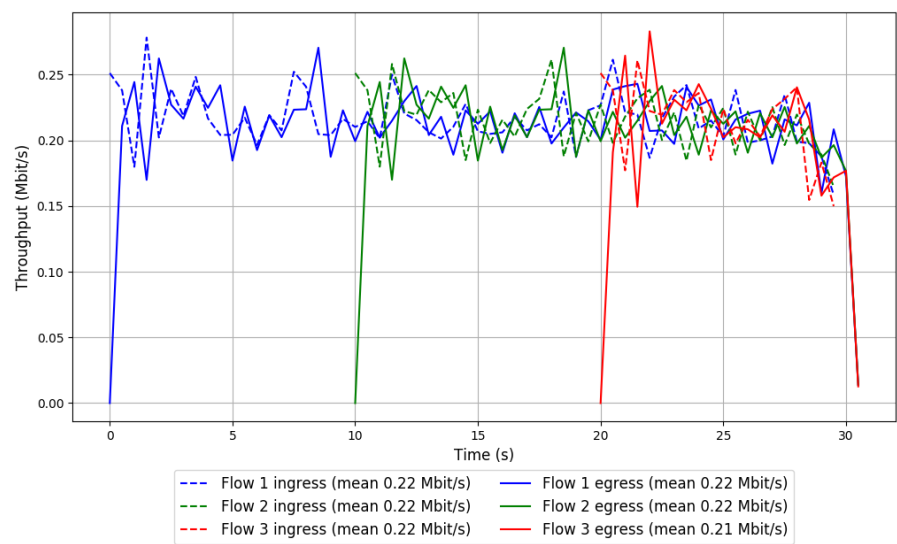


```
Run 1: Statistics of SReAM

Start at: 2018-10-09 21:05:42
End at: 2018-10-09 21:06:12
Local clock offset: -1.785 ms
Remote clock offset: 9.589 ms

# Below is generated by plot.py at 2018-10-09 22:55:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 86.263 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.092 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.343 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 88.833 ms
Loss rate: 0.84%
```

Run 1: Report of SReAM — Data Link

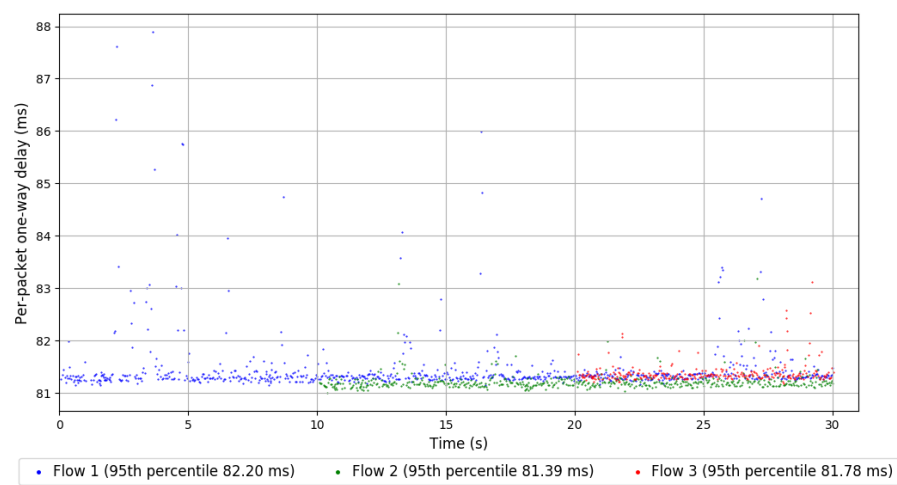
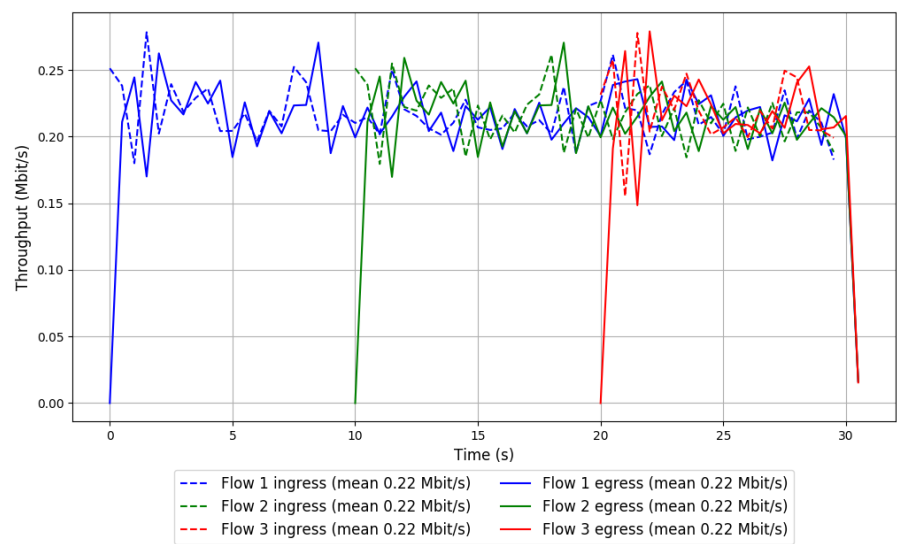


Run 2: Statistics of SReAM

Start at: 2018-10-09 21:28:34
End at: 2018-10-09 21:29:04
Local clock offset: -1.872 ms
Remote clock offset: 1.31 ms

Below is generated by plot.py at 2018-10-09 22:55:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 81.810 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.204 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.386 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.780 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

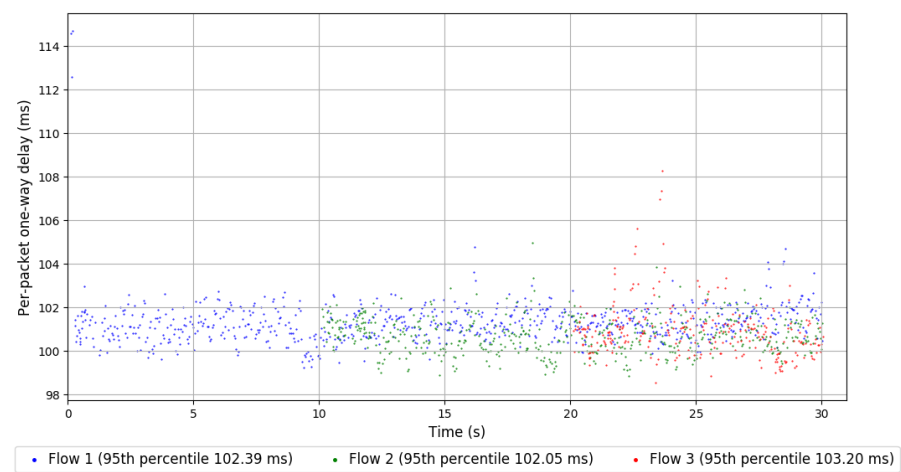
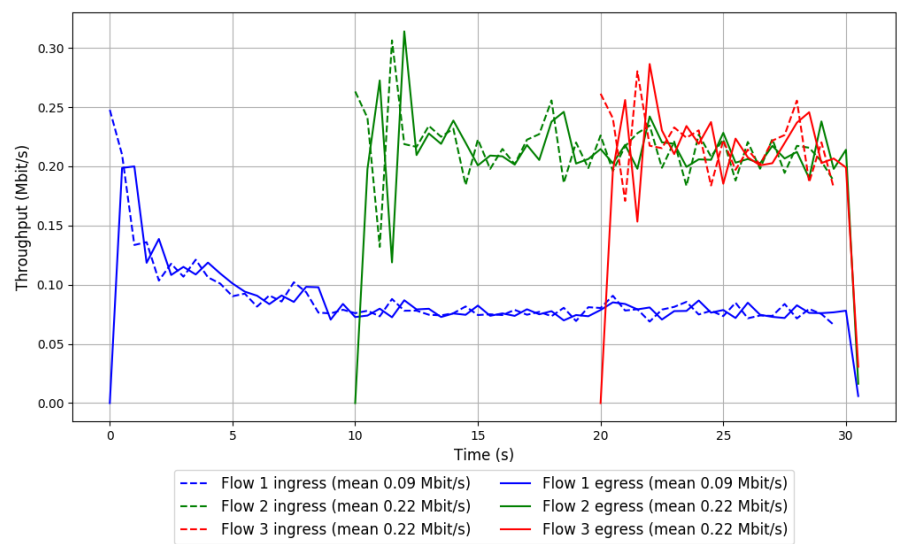


Run 3: Statistics of SReAM

Start at: 2018-10-09 21:51:10
End at: 2018-10-09 21:51:40
Local clock offset: -1.705 ms
Remote clock offset: -0.777 ms

Below is generated by plot.py at 2018-10-09 22:55:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 102.385 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 102.393 ms
Loss rate: 1.03%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 102.046 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 103.199 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

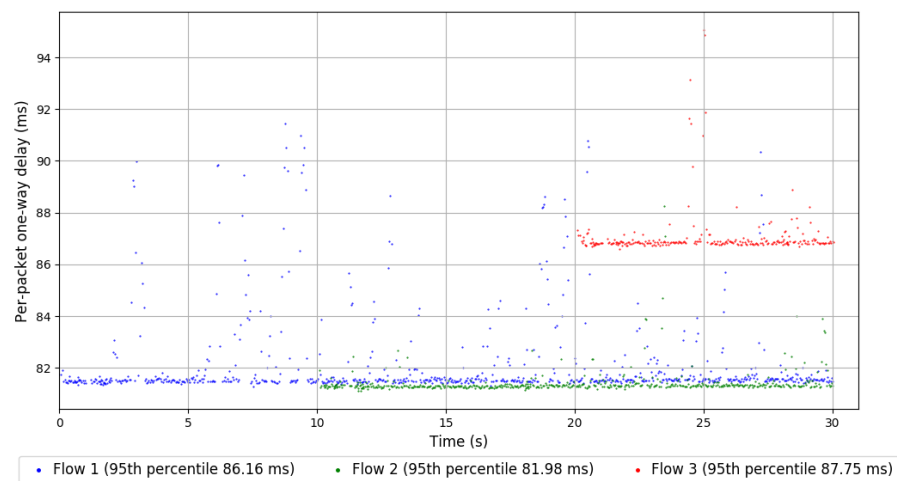
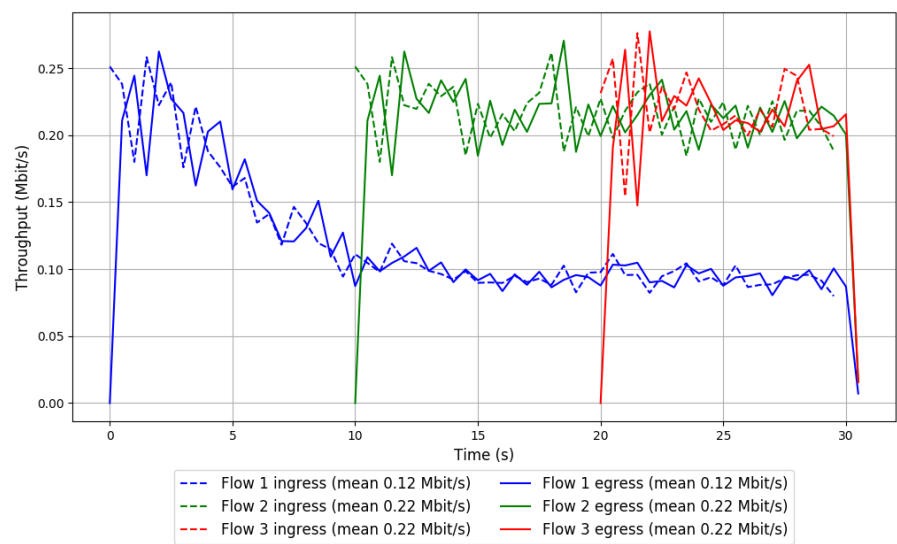


Run 4: Statistics of SReAM

Start at: 2018-10-09 22:14:04
End at: 2018-10-09 22:14:34
Local clock offset: -2.908 ms
Remote clock offset: -3.415 ms

Below is generated by plot.py at 2018-10-09 22:55:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 87.053 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 86.155 ms
Loss rate: 1.09%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.980 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 87.749 ms
Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-10-09 22:37:09

End at: 2018-10-09 22:37:39

Local clock offset: -6.335 ms

Remote clock offset: -1.26 ms

Below is generated by plot.py at 2018-10-09 22:55:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.35 Mbit/s

95th percentile per-packet one-way delay: 85.681 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 84.973 ms

Loss rate: 0.79%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 85.063 ms

Loss rate: 0.00%

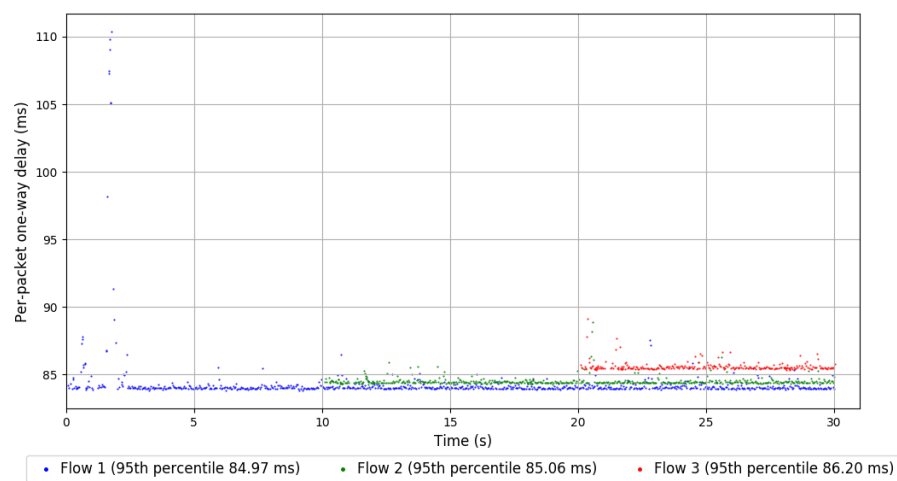
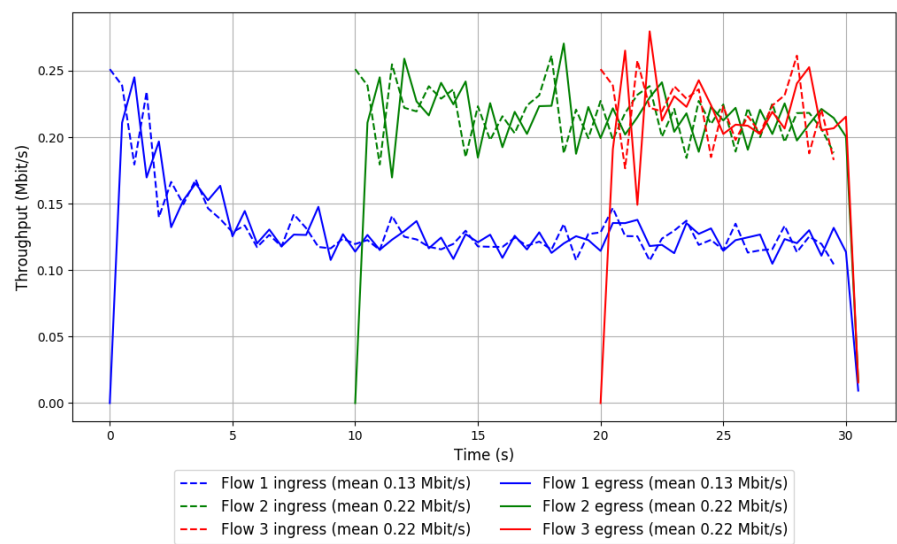
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.196 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-10-09 21:15:49

End at: 2018-10-09 21:16:19

Local clock offset: -1.848 ms

Remote clock offset: 2.632 ms

Below is generated by plot.py at 2018-10-09 22:55:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.42 Mbit/s

95th percentile per-packet one-way delay: 89.601 ms

Loss rate: 0.50%

-- Flow 1:

Average throughput: 4.07 Mbit/s

95th percentile per-packet one-way delay: 88.026 ms

Loss rate: 0.35%

-- Flow 2:

Average throughput: 3.74 Mbit/s

95th percentile per-packet one-way delay: 88.835 ms

Loss rate: 0.22%

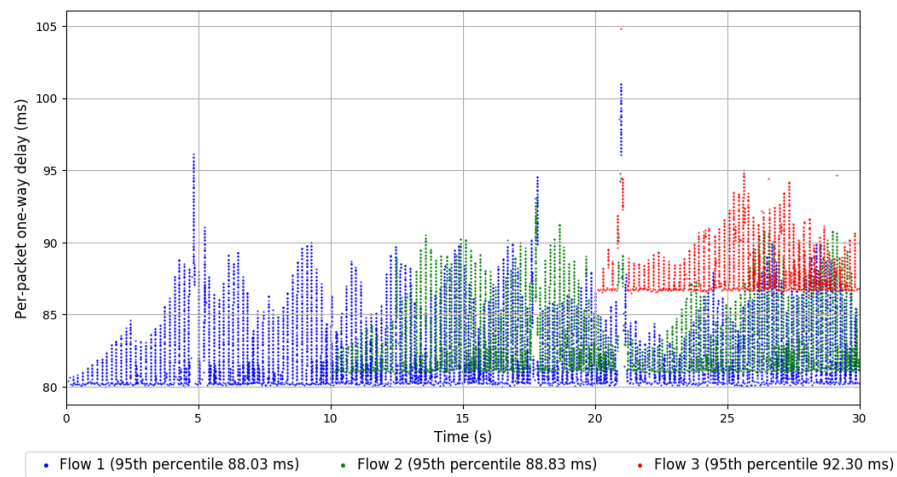
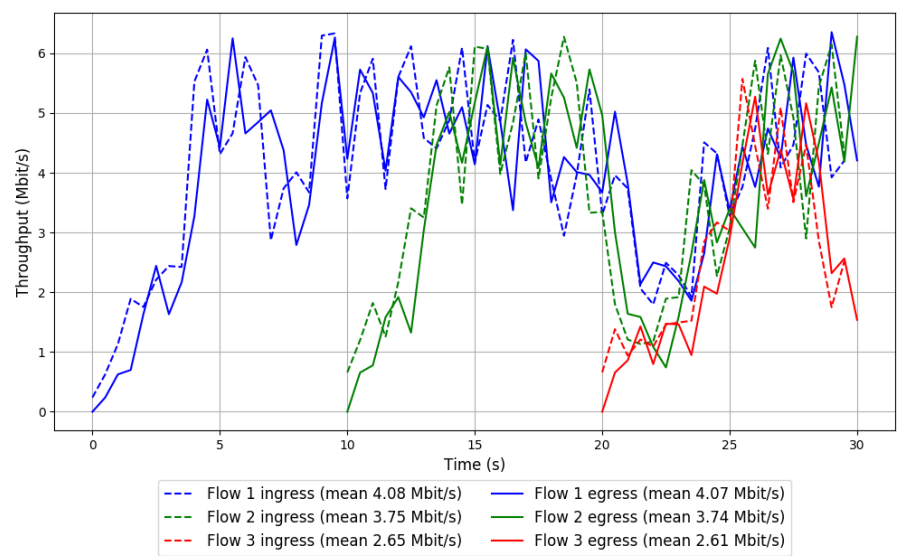
-- Flow 3:

Average throughput: 2.61 Mbit/s

95th percentile per-packet one-way delay: 92.297 ms

Loss rate: 1.95%

Run 1: Report of Sprout — Data Link

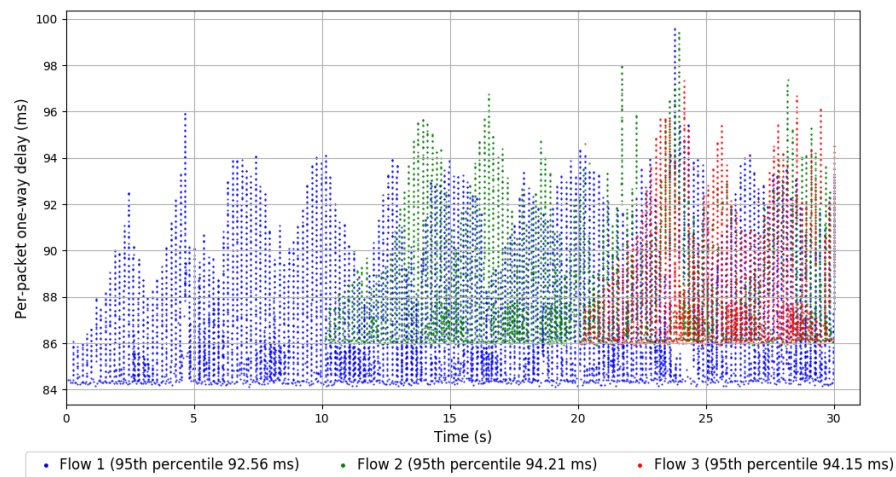
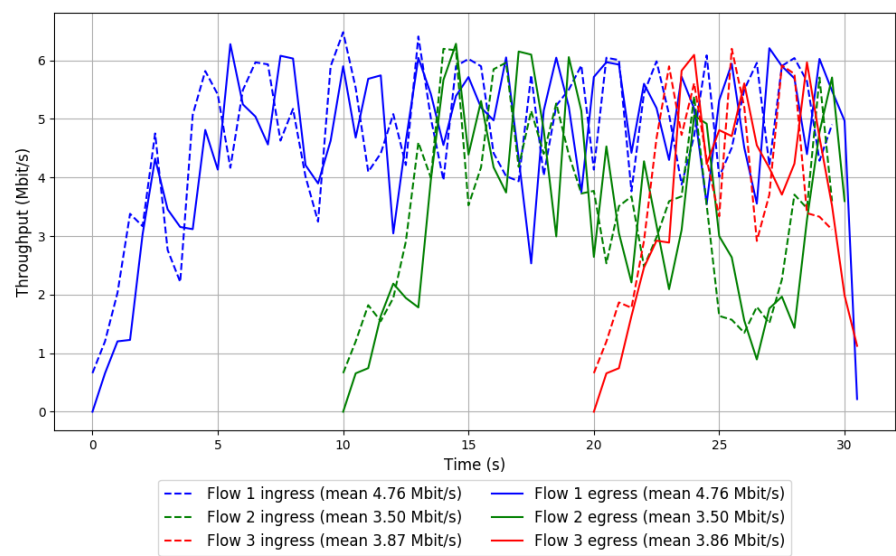


Run 2: Statistics of Sprout

Start at: 2018-10-09 21:38:29
End at: 2018-10-09 21:38:59
Local clock offset: -1.832 ms
Remote clock offset: 5.327 ms

Below is generated by plot.py at 2018-10-09 22:55:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.37 Mbit/s
95th percentile per-packet one-way delay: 93.331 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 92.565 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.50 Mbit/s
95th percentile per-packet one-way delay: 94.213 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.86 Mbit/s
95th percentile per-packet one-way delay: 94.154 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

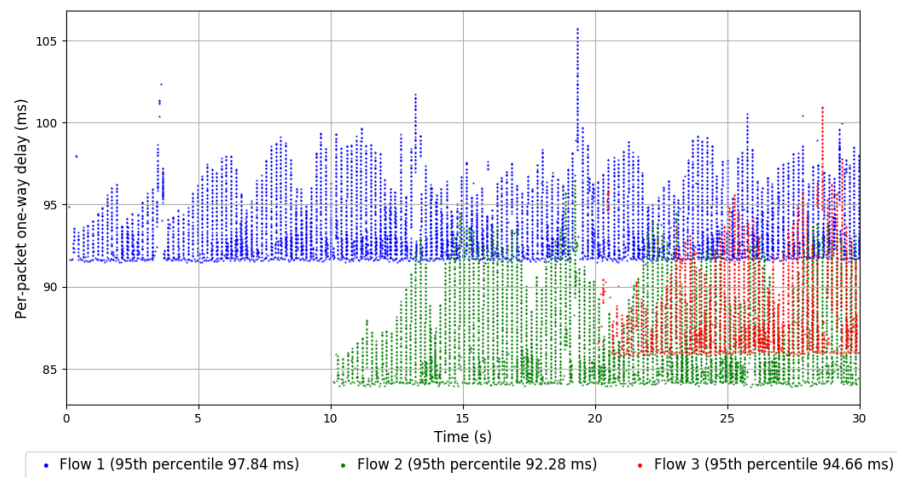
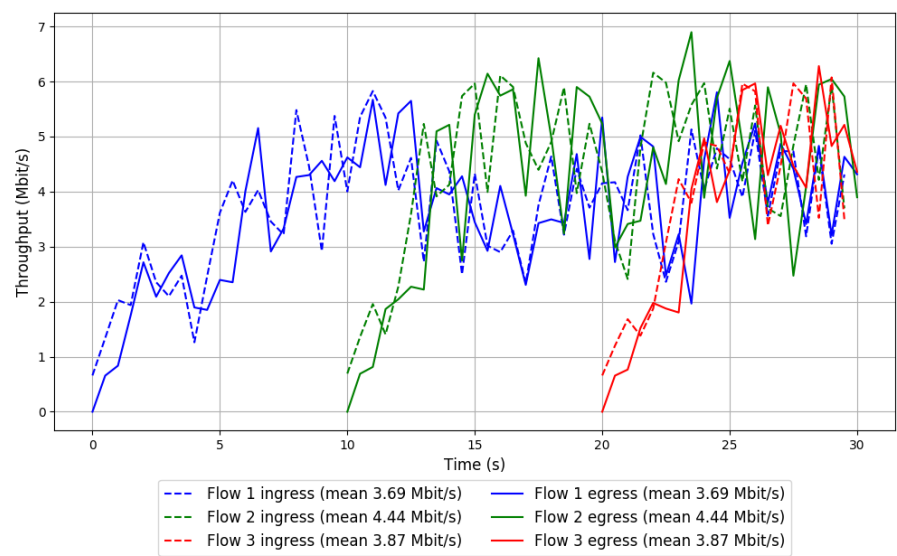


Run 3: Statistics of Sprout

Start at: 2018-10-09 22:01:07
End at: 2018-10-09 22:01:37
Local clock offset: -2.315 ms
Remote clock offset: 3.344 ms

```
# Below is generated by plot.py at 2018-10-09 22:55:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 96.955 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 3.69 Mbit/s
95th percentile per-packet one-way delay: 97.843 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 4.44 Mbit/s
95th percentile per-packet one-way delay: 92.277 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.87 Mbit/s
95th percentile per-packet one-way delay: 94.664 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-10-09 22:24:00

End at: 2018-10-09 22:24:30

Local clock offset: -3.1 ms

Remote clock offset: 0.069 ms

Below is generated by plot.py at 2018-10-09 22:55:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.94 Mbit/s

95th percentile per-packet one-way delay: 96.670 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 3.81 Mbit/s

95th percentile per-packet one-way delay: 97.516 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 4.34 Mbit/s

95th percentile per-packet one-way delay: 91.880 ms

Loss rate: 0.00%

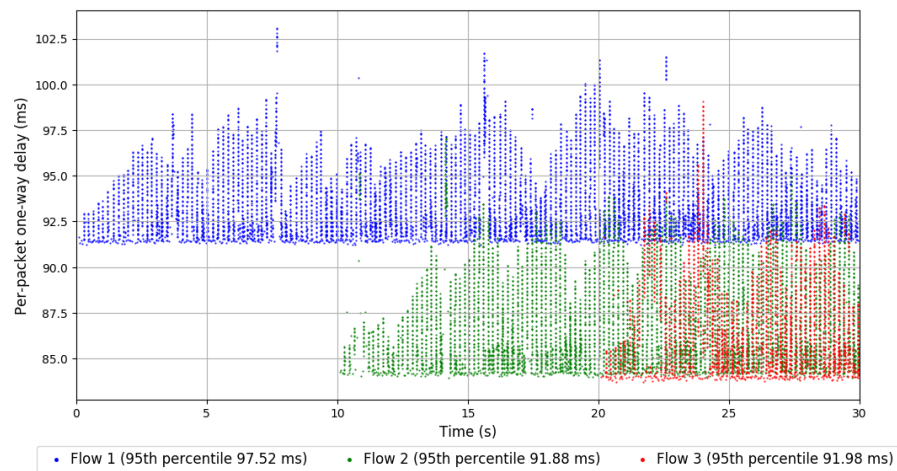
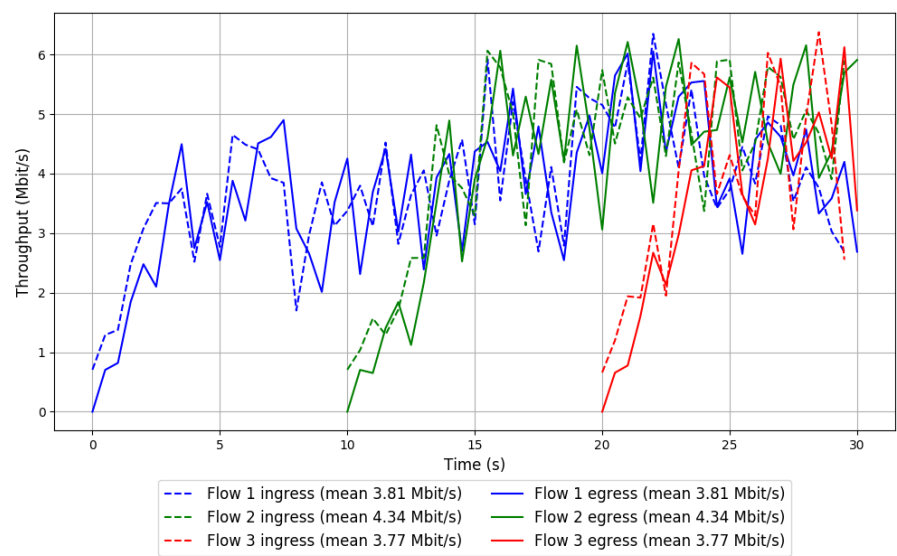
-- Flow 3:

Average throughput: 3.77 Mbit/s

95th percentile per-packet one-way delay: 91.977 ms

Loss rate: 0.00%

Run 4: Report of Sprout — Data Link

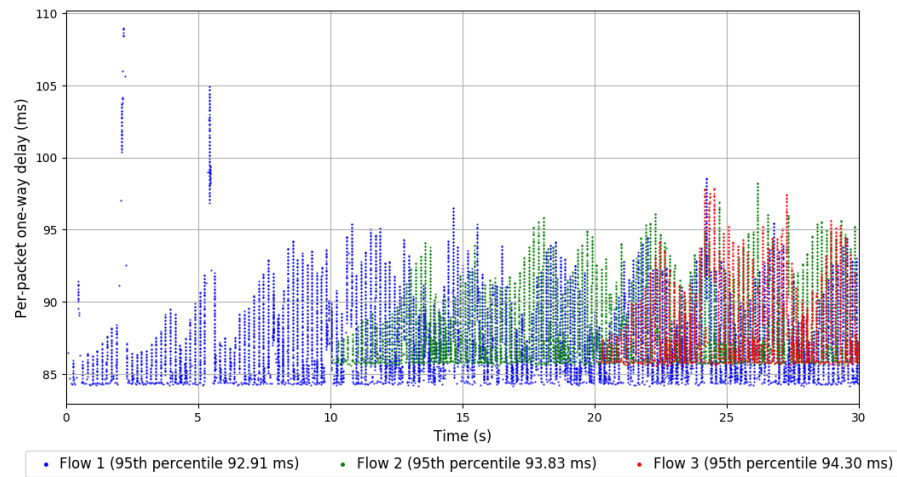
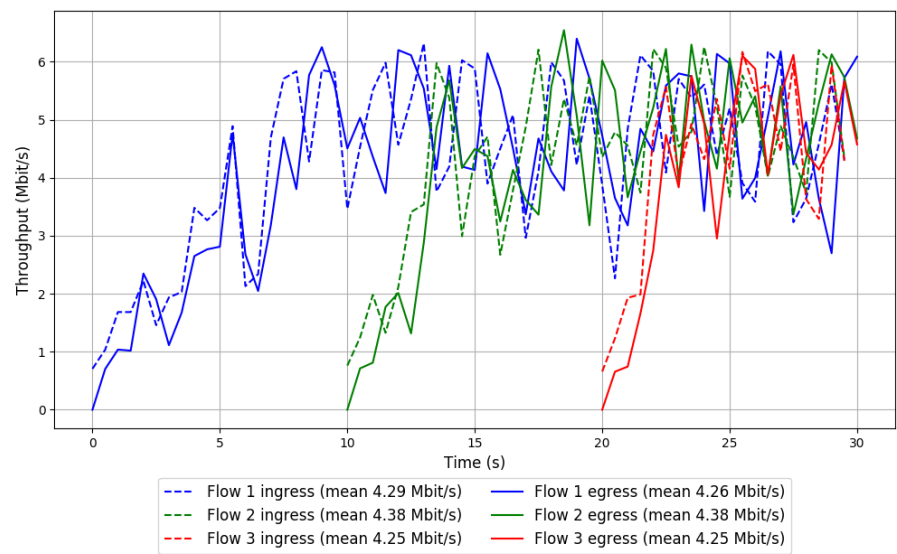


Run 5: Statistics of Sprout

Start at: 2018-10-09 22:47:05
End at: 2018-10-09 22:47:35
Local clock offset: -7.465 ms
Remote clock offset: -2.377 ms

Below is generated by plot.py at 2018-10-09 22:55:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 93.586 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 4.26 Mbit/s
95th percentile per-packet one-way delay: 92.909 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 4.38 Mbit/s
95th percentile per-packet one-way delay: 93.830 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.25 Mbit/s
95th percentile per-packet one-way delay: 94.296 ms
Loss rate: 0.00%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-10-09 21:01:54

End at: 2018-10-09 21:02:24

Local clock offset: -1.756 ms

Remote clock offset: 4.947 ms

Below is generated by plot.py at 2018-10-09 22:55:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.45 Mbit/s

95th percentile per-packet one-way delay: 89.839 ms

Loss rate: 57.96%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 80.953 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 9.97 Mbit/s

95th percentile per-packet one-way delay: 91.946 ms

Loss rate: 52.31%

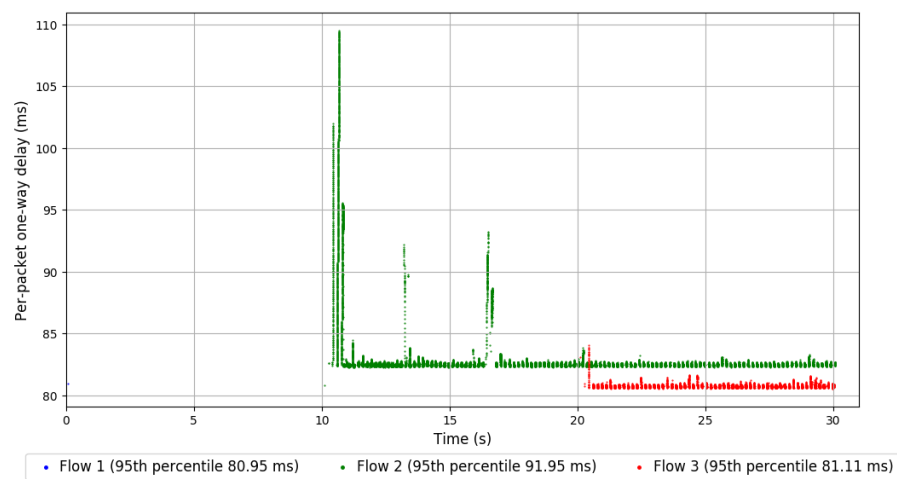
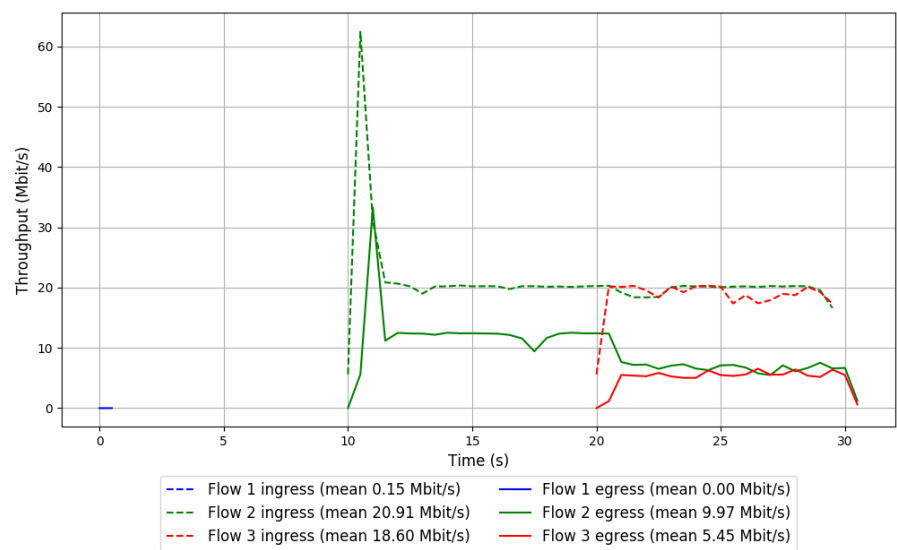
-- Flow 3:

Average throughput: 5.45 Mbit/s

95th percentile per-packet one-way delay: 81.113 ms

Loss rate: 70.72%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-10-09 21:24:46

End at: 2018-10-09 21:25:16

Local clock offset: -1.848 ms

Remote clock offset: 1.807 ms

Below is generated by plot.py at 2018-10-09 22:55:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.48 Mbit/s

95th percentile per-packet one-way delay: 87.972 ms

Loss rate: 58.52%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 88.202 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 9.74 Mbit/s

95th percentile per-packet one-way delay: 90.656 ms

Loss rate: 53.72%

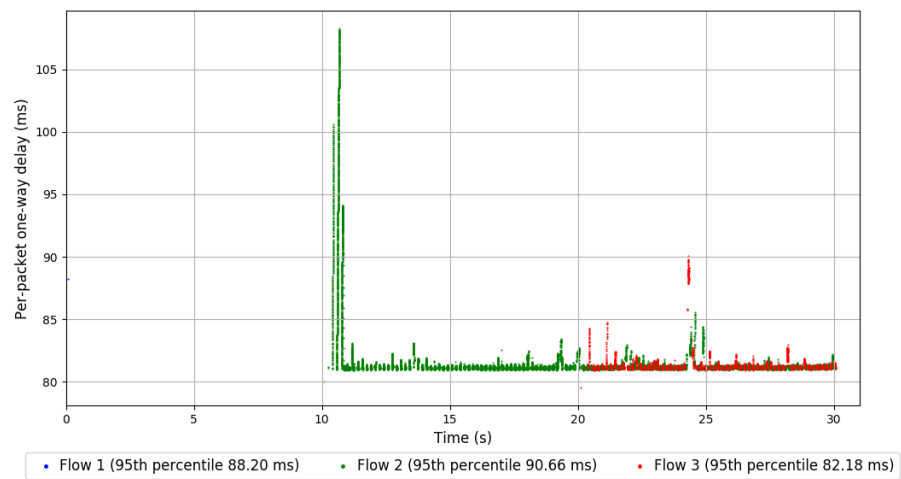
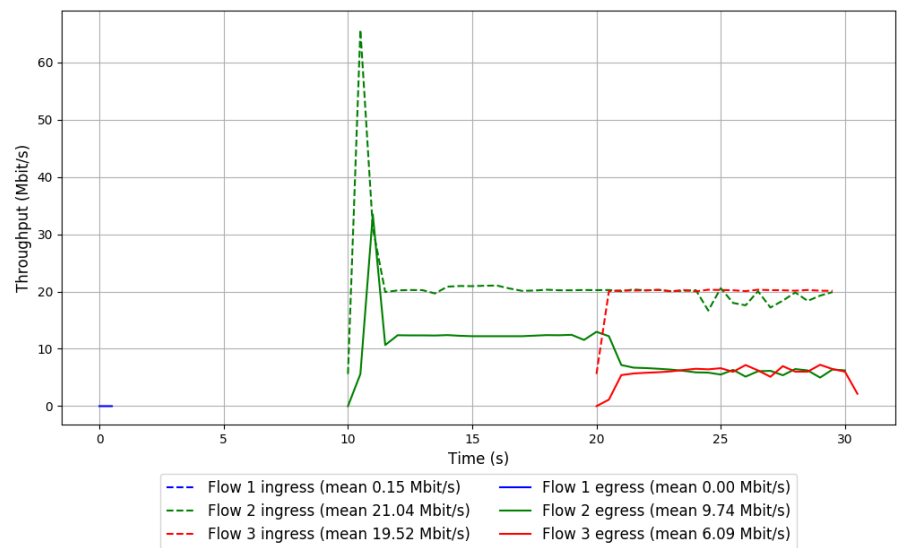
-- Flow 3:

Average throughput: 6.09 Mbit/s

95th percentile per-packet one-way delay: 82.180 ms

Loss rate: 68.82%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-10-09 21:47:21

End at: 2018-10-09 21:47:51

Local clock offset: -1.714 ms

Remote clock offset: 4.553 ms

Below is generated by plot.py at 2018-10-09 22:55:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.49 Mbit/s

95th percentile per-packet one-way delay: 89.842 ms

Loss rate: 56.59%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 84.261 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 10.62 Mbit/s

95th percentile per-packet one-way delay: 92.613 ms

Loss rate: 50.77%

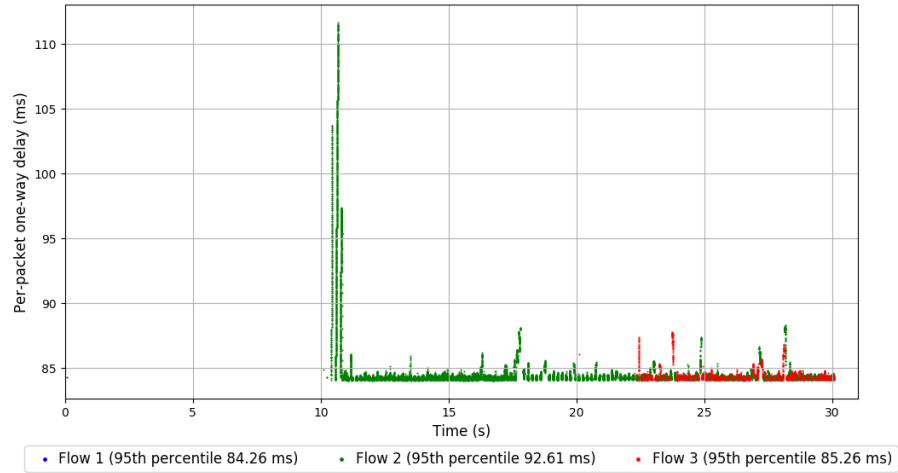
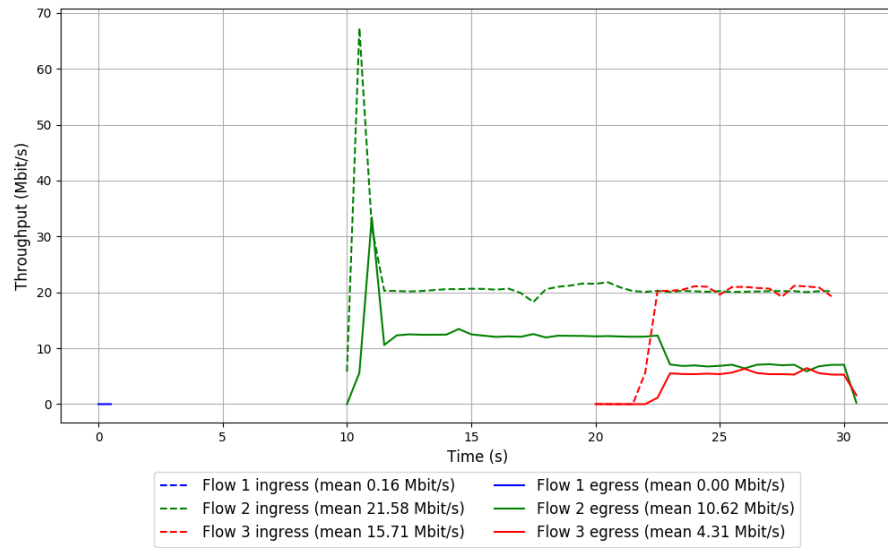
-- Flow 3:

Average throughput: 4.31 Mbit/s

95th percentile per-packet one-way delay: 85.261 ms

Loss rate: 72.57%

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

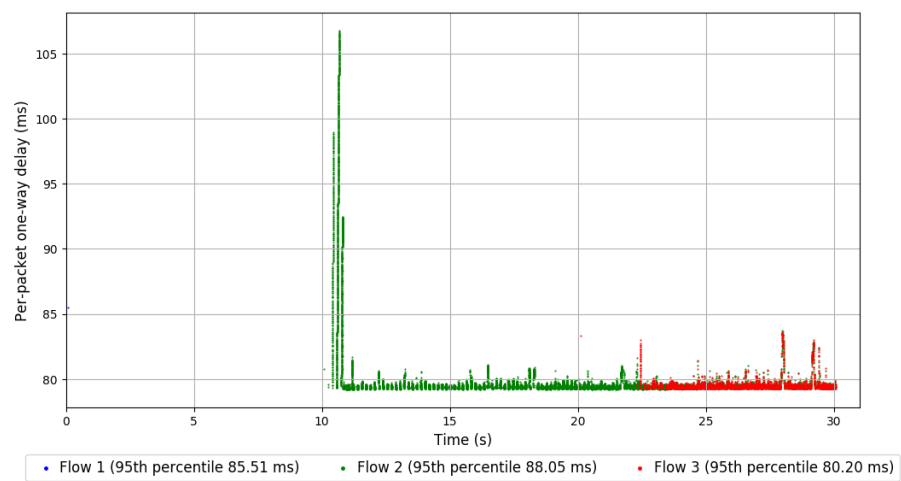
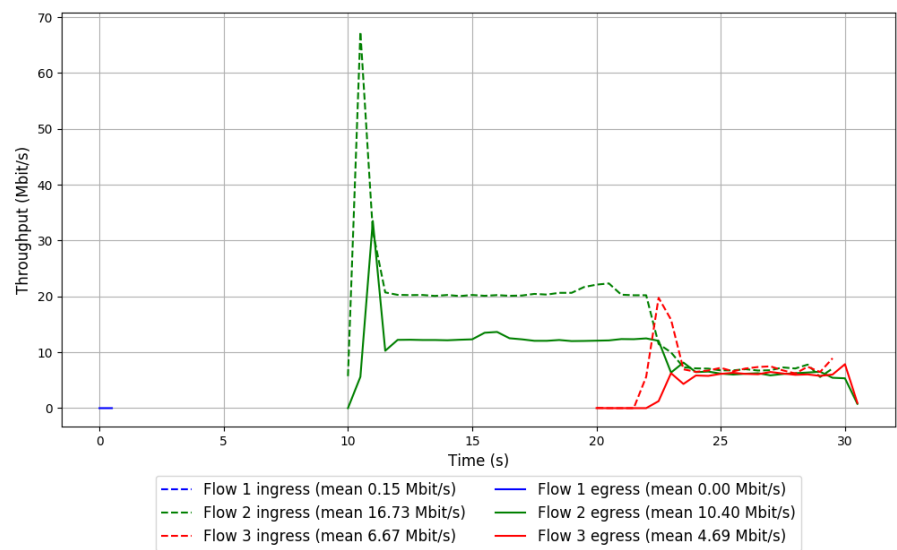


Run 4: Statistics of TaoVA-100x

Start at: 2018-10-09 22:10:16
End at: 2018-10-09 22:10:46
Local clock offset: -2.783 ms
Remote clock offset: -2.757 ms

Below is generated by plot.py at 2018-10-09 22:55:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.49 Mbit/s
95th percentile per-packet one-way delay: 85.073 ms
Loss rate: 36.49%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 85.508 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 10.40 Mbit/s
95th percentile per-packet one-way delay: 88.045 ms
Loss rate: 37.82%
-- Flow 3:
Average throughput: 4.69 Mbit/s
95th percentile per-packet one-way delay: 80.205 ms
Loss rate: 29.76%

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

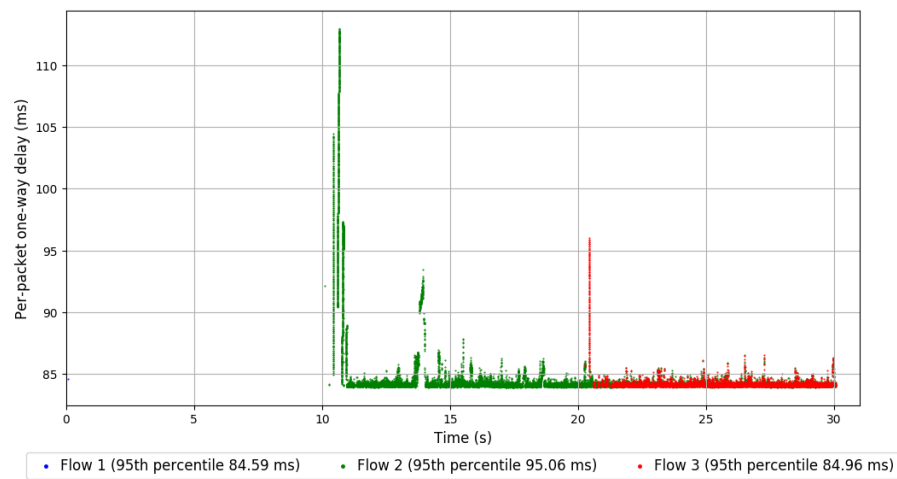
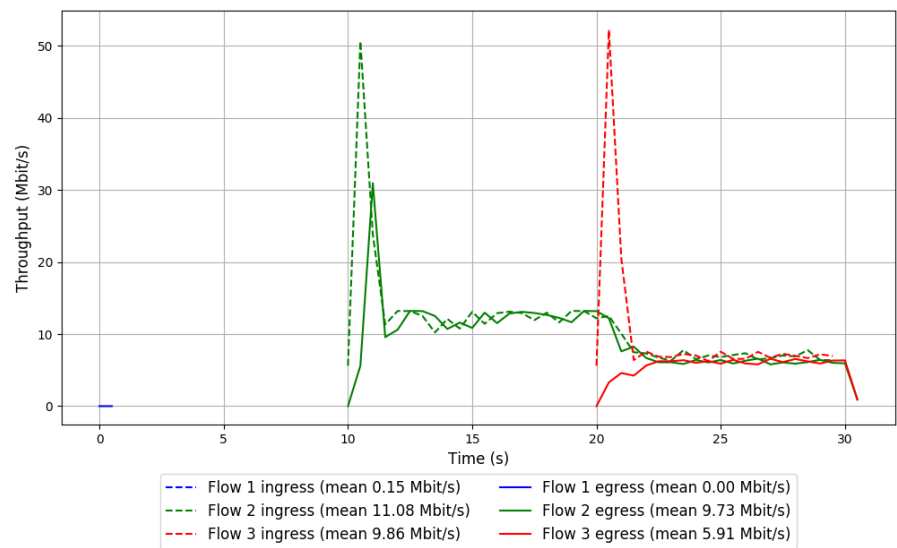


Run 5: Statistics of TaoVA-100x

Start at: 2018-10-09 22:33:06
End at: 2018-10-09 22:33:36
Local clock offset: -5.649 ms
Remote clock offset: -0.722 ms

Below is generated by plot.py at 2018-10-09 22:55:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.45 Mbit/s
95th percentile per-packet one-way delay: 92.227 ms
Loss rate: 20.73%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 84.589 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.73 Mbit/s
95th percentile per-packet one-way delay: 95.057 ms
Loss rate: 12.16%
-- Flow 3:
Average throughput: 5.91 Mbit/s
95th percentile per-packet one-way delay: 84.957 ms
Loss rate: 40.02%

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

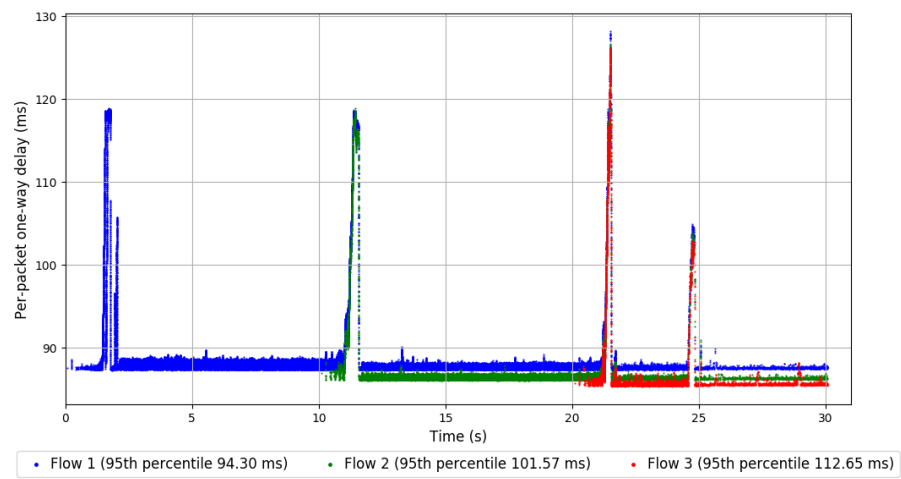
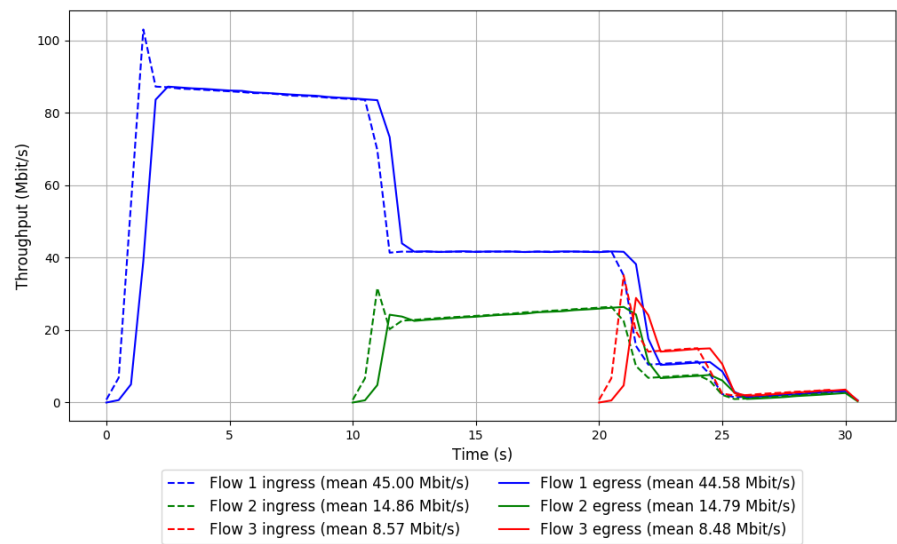


Run 1: Statistics of TCP Vegas

Start at: 2018-10-09 20:56:46
End at: 2018-10-09 20:57:16
Local clock offset: -1.612 ms
Remote clock offset: 10.052 ms

Below is generated by plot.py at 2018-10-09 22:56:03
Datalink statistics
-- Total of 3 flows:
Average throughput: 57.25 Mbit/s
95th percentile per-packet one-way delay: 97.749 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 44.58 Mbit/s
95th percentile per-packet one-way delay: 94.300 ms
Loss rate: 0.92%
-- Flow 2:
Average throughput: 14.79 Mbit/s
95th percentile per-packet one-way delay: 101.566 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 8.48 Mbit/s
95th percentile per-packet one-way delay: 112.649 ms
Loss rate: 0.98%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-10-09 21:19:37

End at: 2018-10-09 21:20:08

Local clock offset: -1.855 ms

Remote clock offset: 7.226 ms

Below is generated by plot.py at 2018-10-09 22:56:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.53 Mbit/s

95th percentile per-packet one-way delay: 94.244 ms

Loss rate: 0.86%

-- Flow 1:

Average throughput: 49.64 Mbit/s

95th percentile per-packet one-way delay: 92.135 ms

Loss rate: 0.86%

-- Flow 2:

Average throughput: 20.00 Mbit/s

95th percentile per-packet one-way delay: 92.890 ms

Loss rate: 0.43%

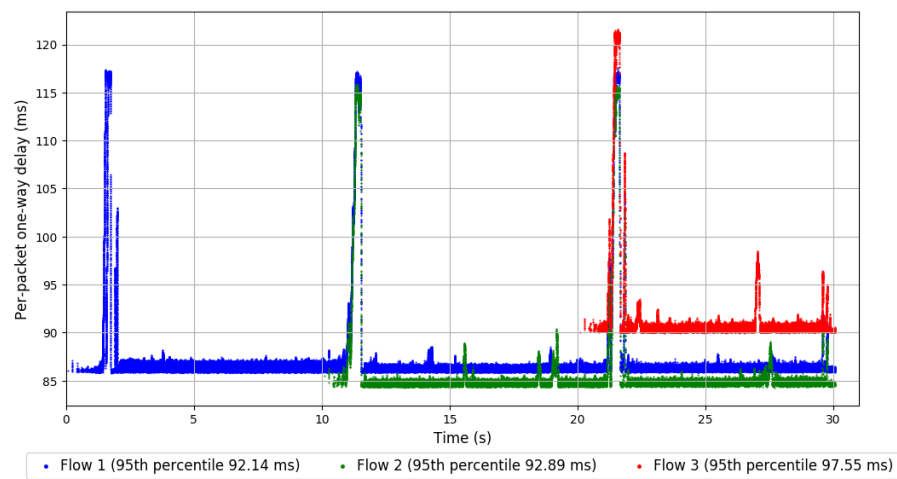
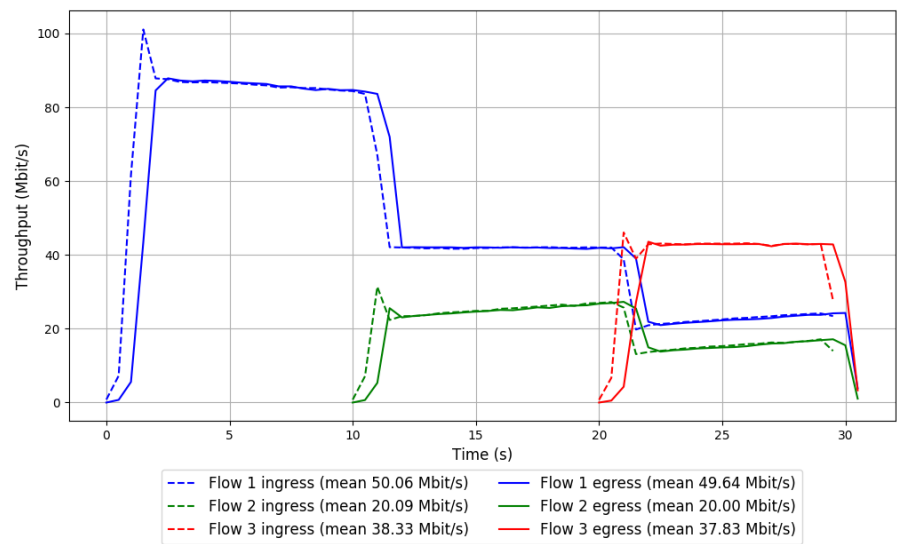
-- Flow 3:

Average throughput: 37.83 Mbit/s

95th percentile per-packet one-way delay: 97.549 ms

Loss rate: 1.35%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-10-09 21:42:15

End at: 2018-10-09 21:42:45

Local clock offset: -1.75 ms

Remote clock offset: 3.358 ms

Below is generated by plot.py at 2018-10-09 22:56:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 81.36 Mbit/s

95th percentile per-packet one-way delay: 110.865 ms

Loss rate: 0.44%

-- Flow 1:

Average throughput: 69.83 Mbit/s

95th percentile per-packet one-way delay: 108.176 ms

Loss rate: 0.50%

-- Flow 2:

Average throughput: 13.95 Mbit/s

95th percentile per-packet one-way delay: 115.663 ms

Loss rate: 0.04%

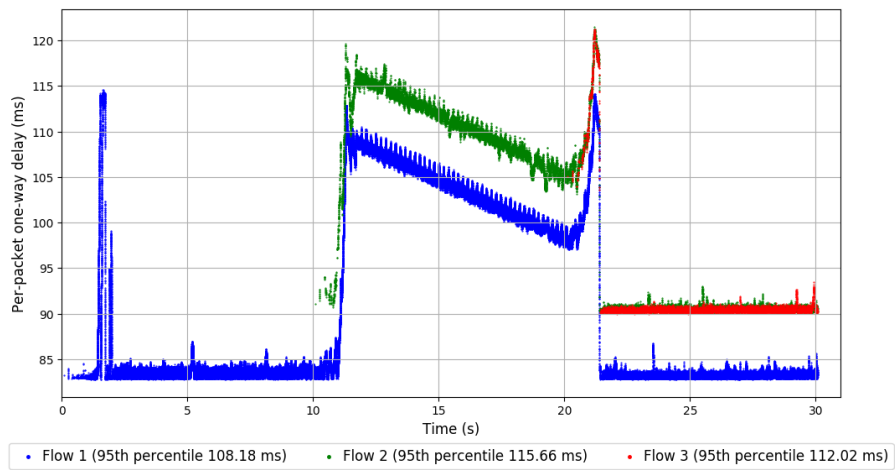
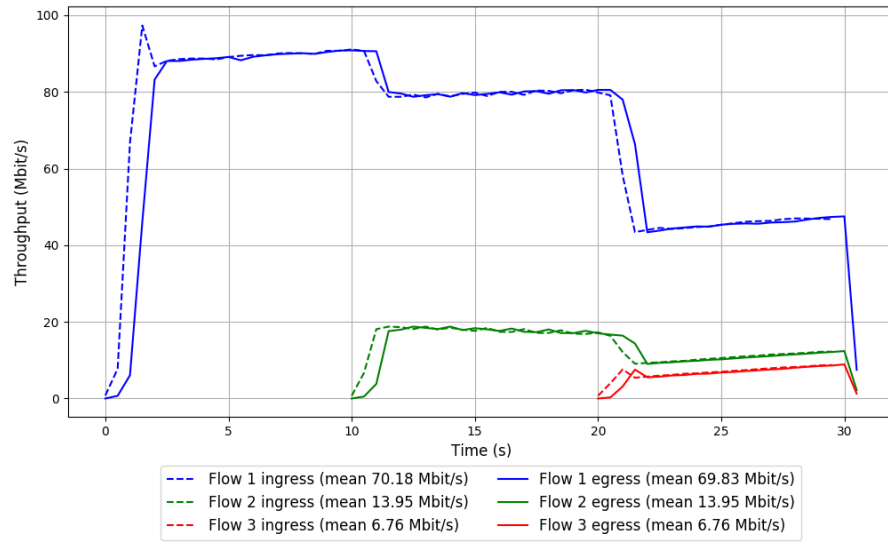
-- Flow 3:

Average throughput: 6.76 Mbit/s

95th percentile per-packet one-way delay: 112.022 ms

Loss rate: 0.18%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-10-09 22:05:05

End at: 2018-10-09 22:05:35

Local clock offset: -2.554 ms

Remote clock offset: 2.436 ms

Below is generated by plot.py at 2018-10-09 22:56:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 55.94 Mbit/s

95th percentile per-packet one-way delay: 98.929 ms

Loss rate: 1.47%

-- Flow 1:

Average throughput: 8.69 Mbit/s

95th percentile per-packet one-way delay: 113.095 ms

Loss rate: 4.50%

-- Flow 2:

Average throughput: 59.90 Mbit/s

95th percentile per-packet one-way delay: 93.780 ms

Loss rate: 0.96%

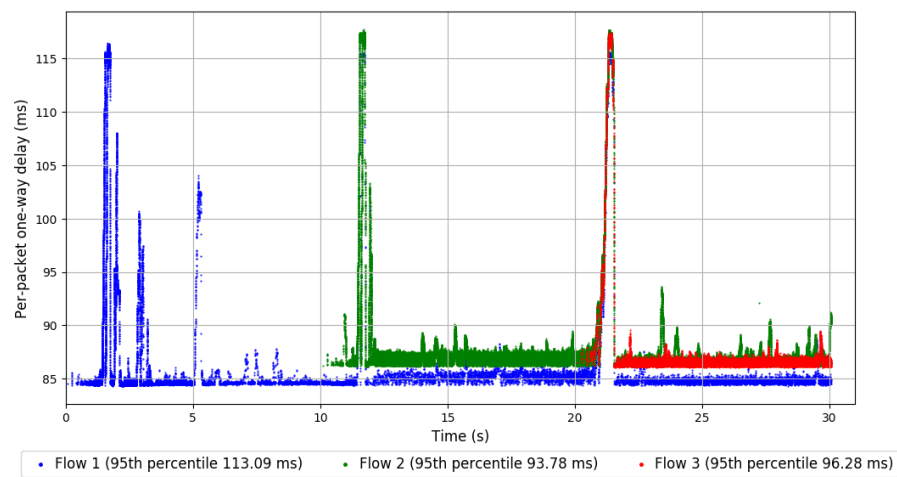
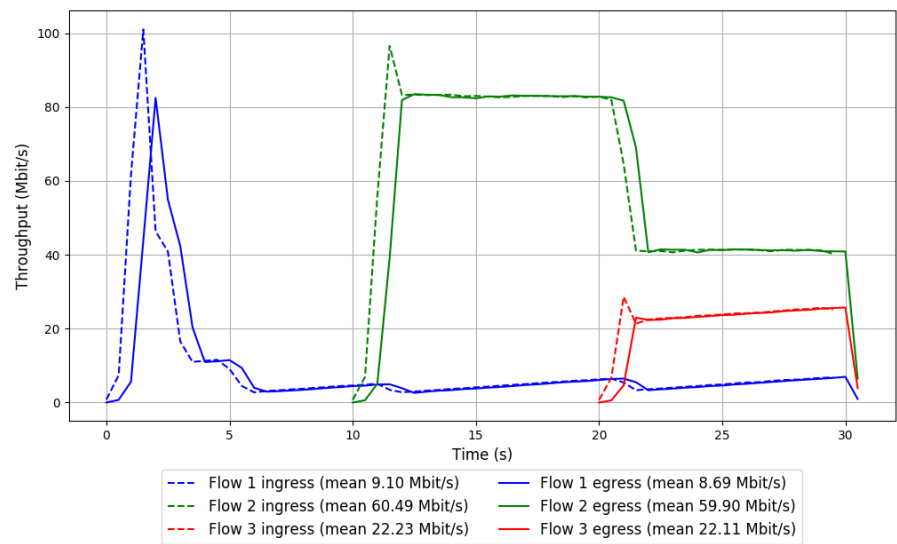
-- Flow 3:

Average throughput: 22.11 Mbit/s

95th percentile per-packet one-way delay: 96.284 ms

Loss rate: 0.54%

Run 4: Report of TCP Vegas — Data Link

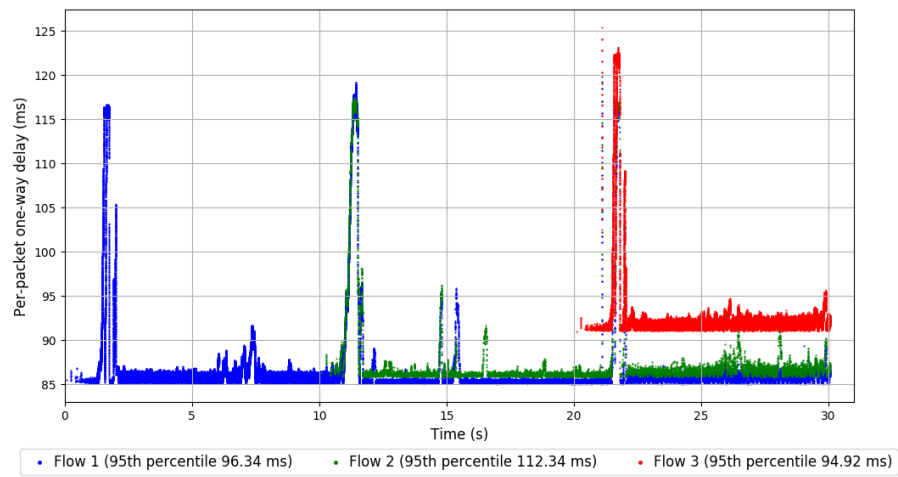
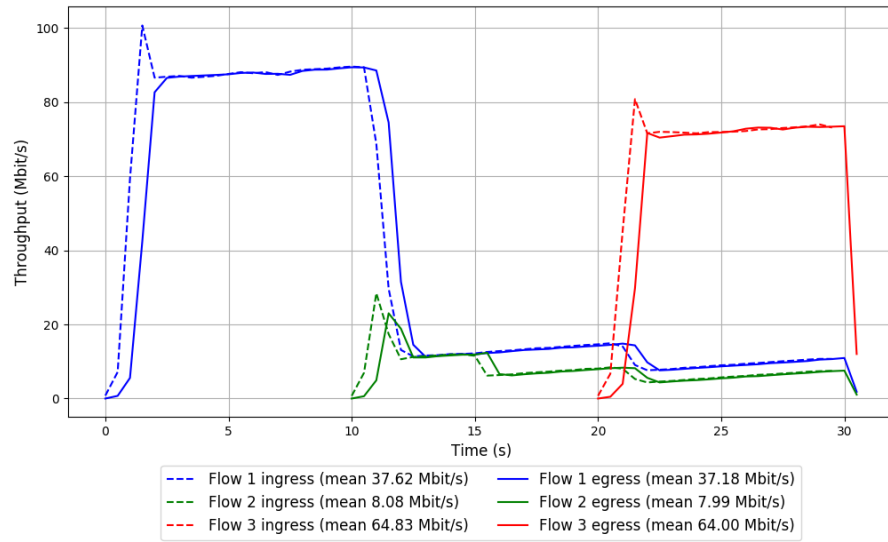


Run 5: Statistics of TCP Vegas

Start at: 2018-10-09 22:27:56
End at: 2018-10-09 22:28:26
Local clock offset: -4.259 ms
Remote clock offset: -0.477 ms

```
# Below is generated by plot.py at 2018-10-09 22:56:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.76 Mbit/s
95th percentile per-packet one-way delay: 96.837 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 37.18 Mbit/s
95th percentile per-packet one-way delay: 96.337 ms
Loss rate: 1.17%
-- Flow 2:
Average throughput: 7.99 Mbit/s
95th percentile per-packet one-way delay: 112.343 ms
Loss rate: 1.20%
-- Flow 3:
Average throughput: 64.00 Mbit/s
95th percentile per-packet one-way delay: 94.924 ms
Loss rate: 1.33%
```

Run 5: Report of TCP Vegas — Data Link

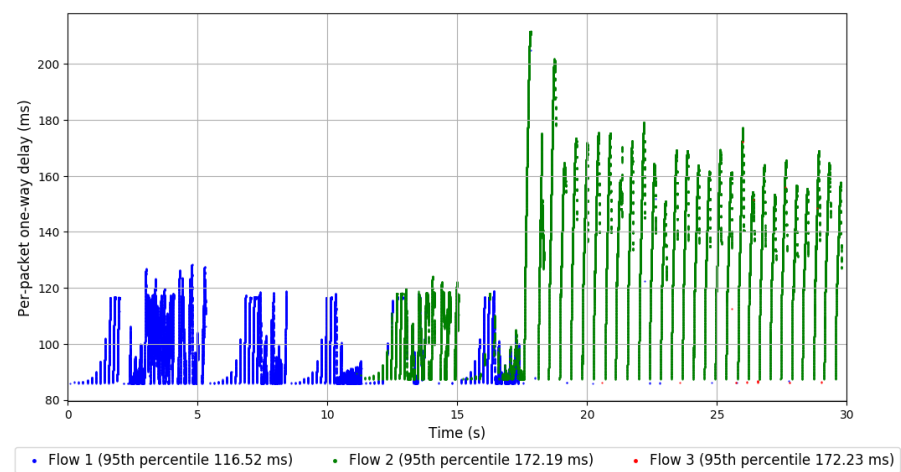
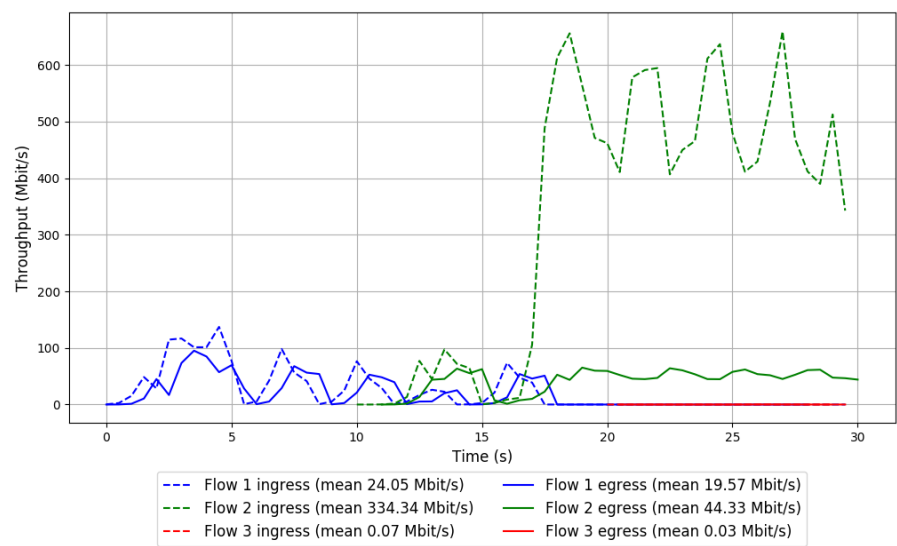


Run 1: Statistics of Verus

Start at: 2018-10-09 20:55:28
End at: 2018-10-09 20:55:58
Local clock offset: -1.634 ms
Remote clock offset: 10.216 ms

Below is generated by plot.py at 2018-10-09 22:56:40
Datalink statistics
-- Total of 3 flows:
Average throughput: 46.13 Mbit/s
95th percentile per-packet one-way delay: 167.719 ms
Loss rate: 81.19%
-- Flow 1:
Average throughput: 19.57 Mbit/s
95th percentile per-packet one-way delay: 116.521 ms
Loss rate: 24.08%
-- Flow 2:
Average throughput: 44.33 Mbit/s
95th percentile per-packet one-way delay: 172.195 ms
Loss rate: 87.39%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 172.231 ms
Loss rate: 60.38%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-10-09 21:18:20

End at: 2018-10-09 21:18:50

Local clock offset: -1.857 ms

Remote clock offset: 2.394 ms

Below is generated by plot.py at 2018-10-09 22:56:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 52.01 Mbit/s

95th percentile per-packet one-way delay: 150.054 ms

Loss rate: 63.55%

-- Flow 1:

Average throughput: 36.55 Mbit/s

95th percentile per-packet one-way delay: 150.327 ms

Loss rate: 67.69%

-- Flow 2:

Average throughput: 8.53 Mbit/s

95th percentile per-packet one-way delay: 109.726 ms

Loss rate: 11.86%

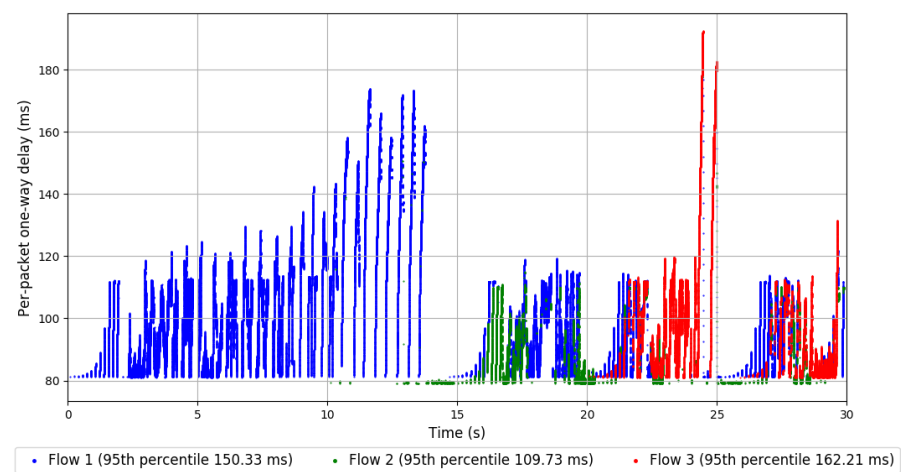
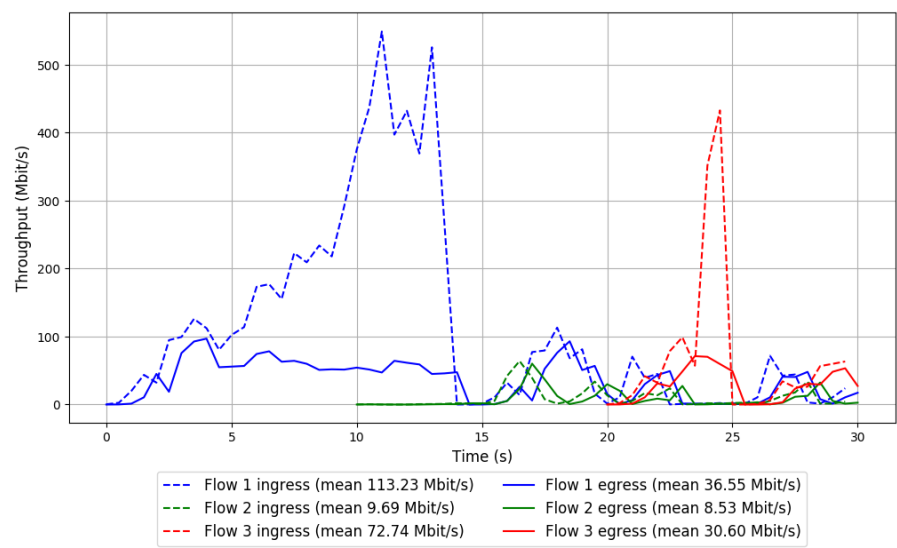
-- Flow 3:

Average throughput: 30.60 Mbit/s

95th percentile per-packet one-way delay: 162.205 ms

Loss rate: 57.71%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-10-09 21:40:59

End at: 2018-10-09 21:41:29

Local clock offset: -1.739 ms

Remote clock offset: 4.902 ms

Below is generated by plot.py at 2018-10-09 22:56:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 43.12 Mbit/s

95th percentile per-packet one-way delay: 117.267 ms

Loss rate: 25.45%

-- Flow 1:

Average throughput: 25.15 Mbit/s

95th percentile per-packet one-way delay: 115.671 ms

Loss rate: 18.66%

-- Flow 2:

Average throughput: 21.10 Mbit/s

95th percentile per-packet one-way delay: 118.160 ms

Loss rate: 38.44%

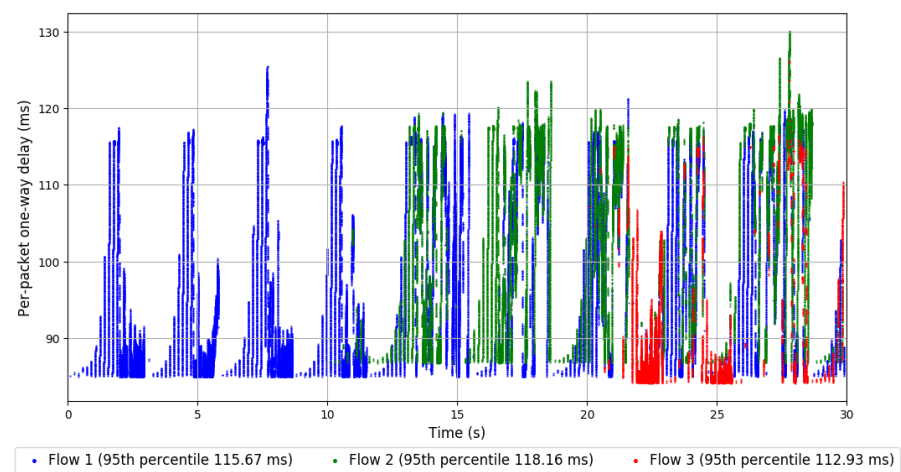
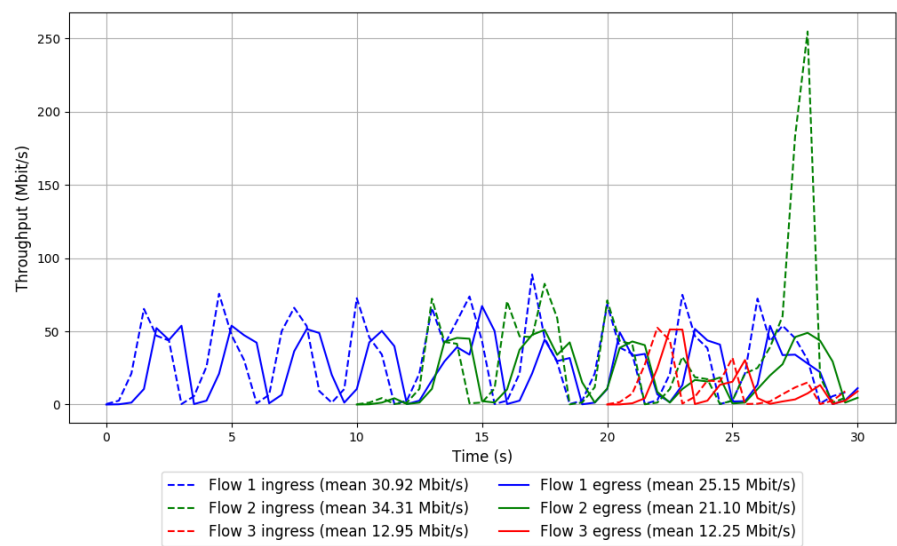
-- Flow 3:

Average throughput: 12.25 Mbit/s

95th percentile per-packet one-way delay: 112.932 ms

Loss rate: 5.33%

Run 3: Report of Verus — Data Link

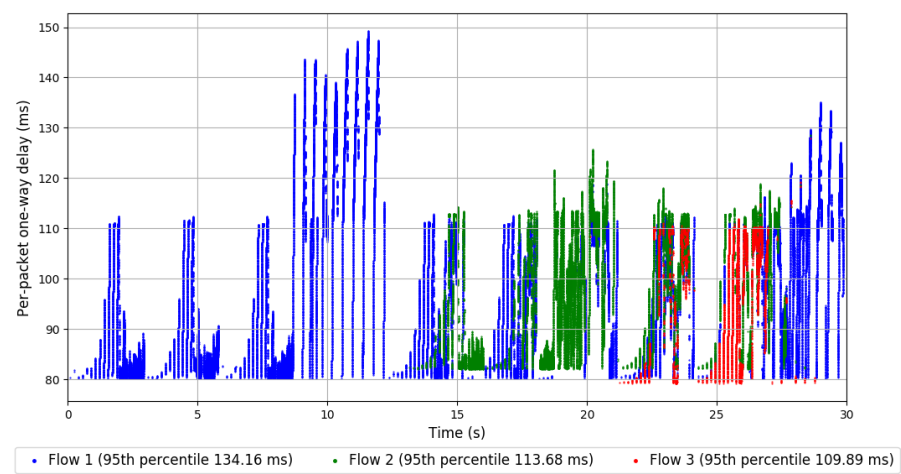
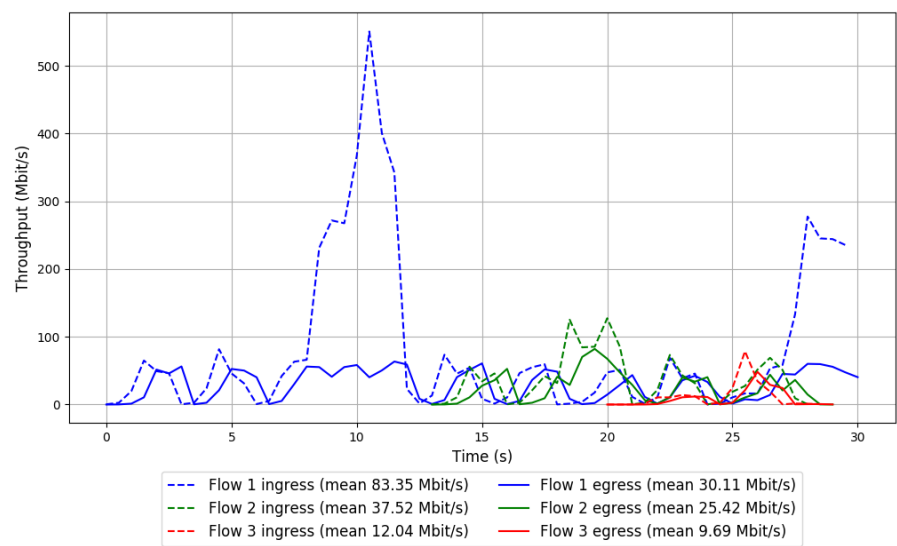


Run 4: Statistics of Verus

Start at: 2018-10-09 22:03:37
End at: 2018-10-09 22:04:07
Local clock offset: -2.513 ms
Remote clock offset: -1.944 ms

Below is generated by plot.py at 2018-10-09 22:56:46
Datalink statistics
-- Total of 3 flows:
Average throughput: 46.10 Mbit/s
95th percentile per-packet one-way delay: 129.735 ms
Loss rate: 56.60%
-- Flow 1:
Average throughput: 30.11 Mbit/s
95th percentile per-packet one-way delay: 134.161 ms
Loss rate: 63.84%
-- Flow 2:
Average throughput: 25.42 Mbit/s
95th percentile per-packet one-way delay: 113.684 ms
Loss rate: 32.04%
-- Flow 3:
Average throughput: 9.69 Mbit/s
95th percentile per-packet one-way delay: 109.893 ms
Loss rate: 21.28%

Run 4: Report of Verus — Data Link

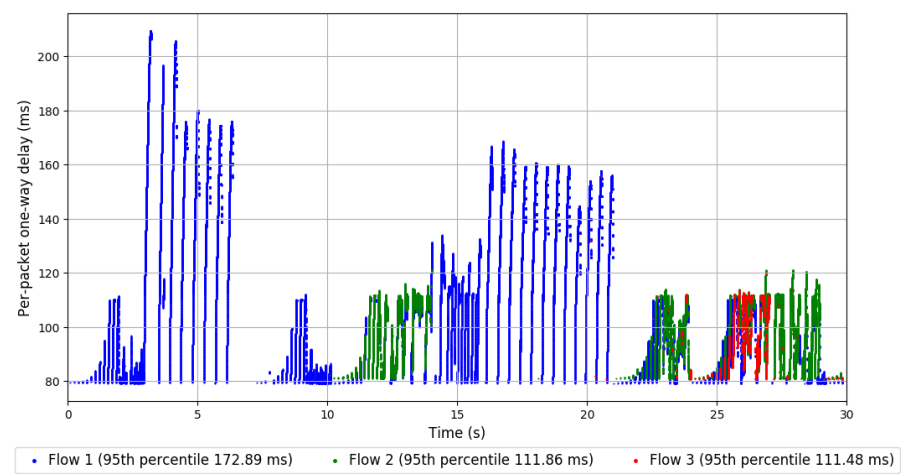
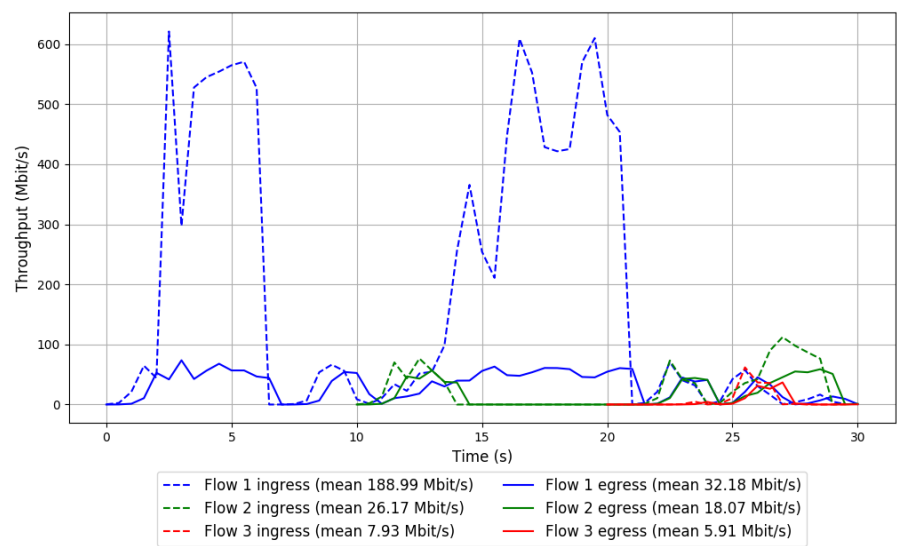


Run 5: Statistics of Verus

Start at: 2018-10-09 22:26:30
End at: 2018-10-09 22:27:00
Local clock offset: -3.723 ms
Remote clock offset: -4.761 ms

Below is generated by plot.py at 2018-10-09 22:57:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 46.06 Mbit/s
95th percentile per-packet one-way delay: 166.503 ms
Loss rate: 77.95%
-- Flow 1:
Average throughput: 32.18 Mbit/s
95th percentile per-packet one-way delay: 172.891 ms
Loss rate: 82.97%
-- Flow 2:
Average throughput: 18.07 Mbit/s
95th percentile per-packet one-way delay: 111.856 ms
Loss rate: 30.96%
-- Flow 3:
Average throughput: 5.91 Mbit/s
95th percentile per-packet one-way delay: 111.481 ms
Loss rate: 25.89%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-10-09 21:00:36

End at: 2018-10-09 21:01:06

Local clock offset: -1.715 ms

Remote clock offset: 4.983 ms

Below is generated by plot.py at 2018-10-09 22:57:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.76 Mbit/s

95th percentile per-packet one-way delay: 94.493 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 67.63 Mbit/s

95th percentile per-packet one-way delay: 95.757 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 12.18 Mbit/s

95th percentile per-packet one-way delay: 91.357 ms

Loss rate: 0.06%

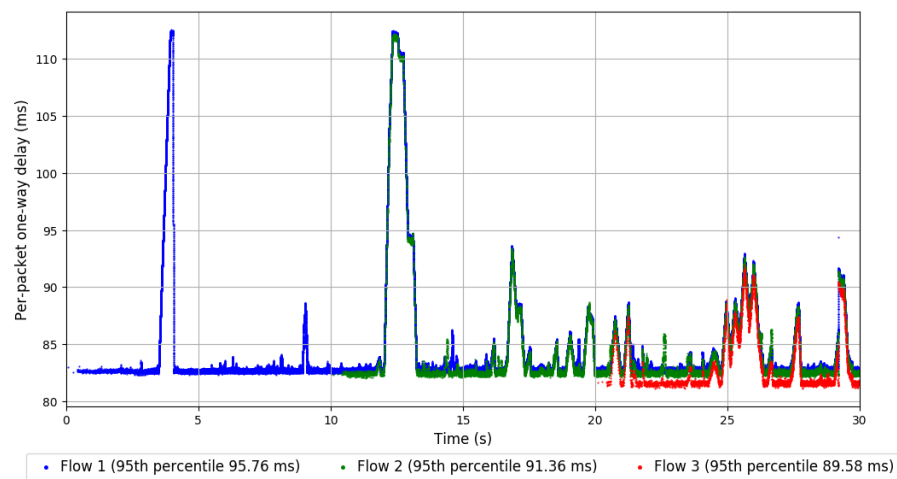
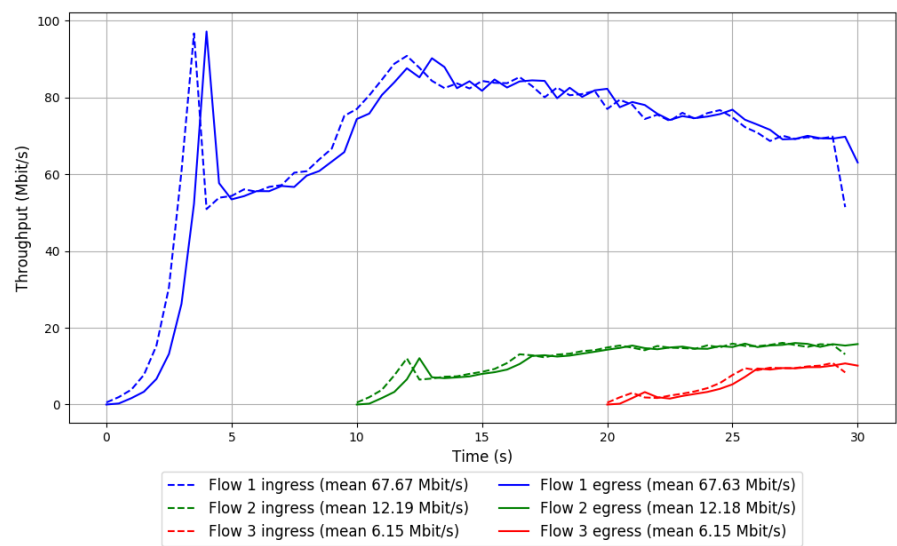
-- Flow 3:

Average throughput: 6.15 Mbit/s

95th percentile per-packet one-way delay: 89.576 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-10-09 21:23:28

End at: 2018-10-09 21:23:58

Local clock offset: -1.865 ms

Remote clock offset: 1.994 ms

Below is generated by plot.py at 2018-10-09 22:57:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.82 Mbit/s

95th percentile per-packet one-way delay: 107.376 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 68.11 Mbit/s

95th percentile per-packet one-way delay: 106.493 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 10.17 Mbit/s

95th percentile per-packet one-way delay: 110.477 ms

Loss rate: 0.42%

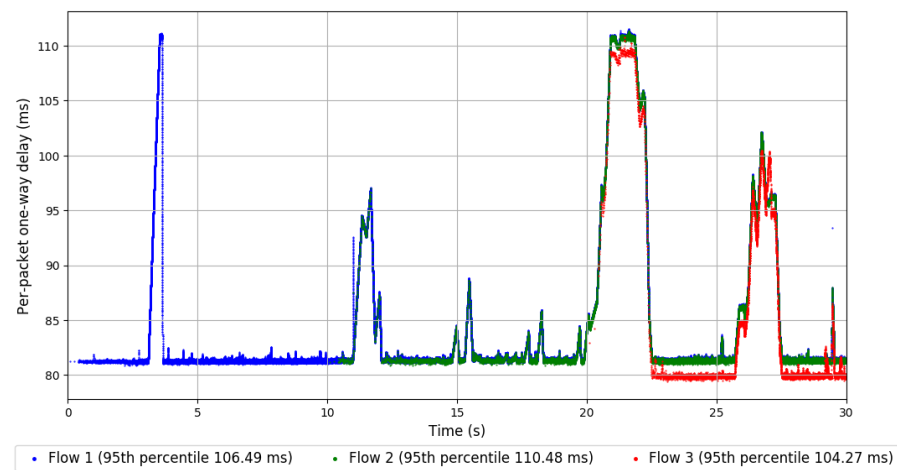
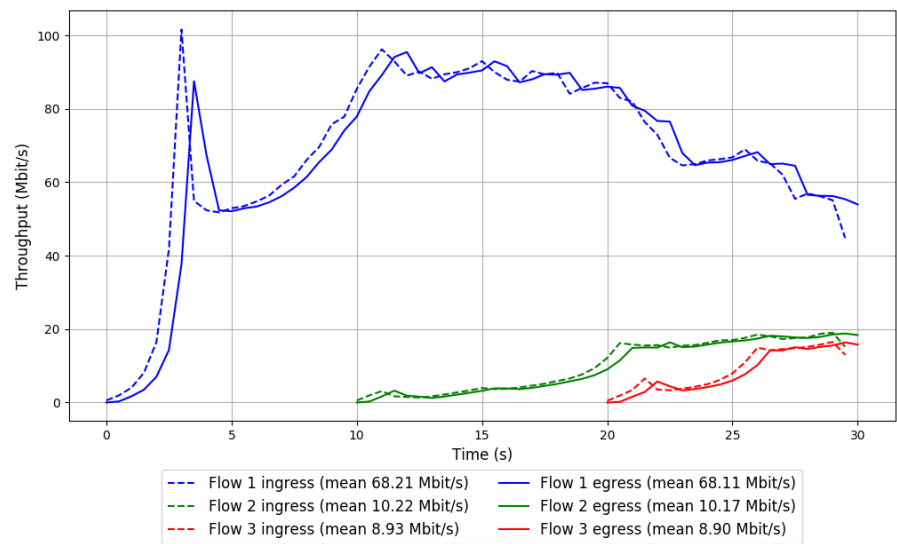
-- Flow 3:

Average throughput: 8.90 Mbit/s

95th percentile per-packet one-way delay: 104.265 ms

Loss rate: 0.35%

Run 2: Report of PCC-Vivace — Data Link

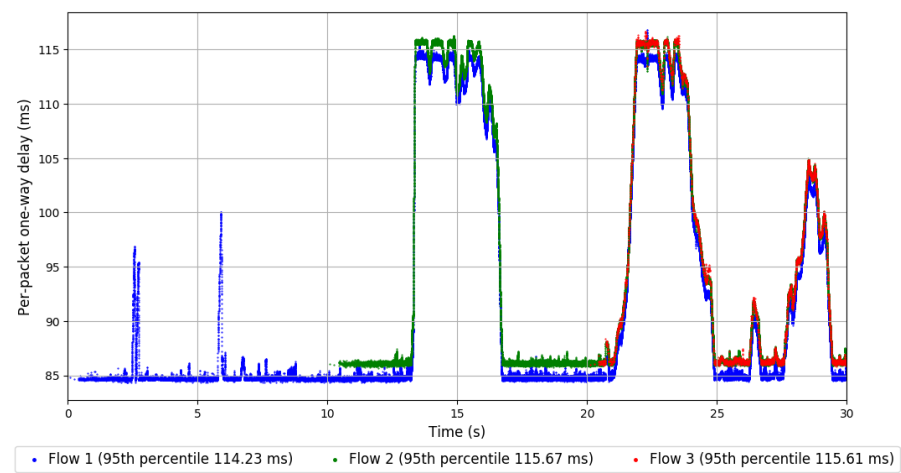
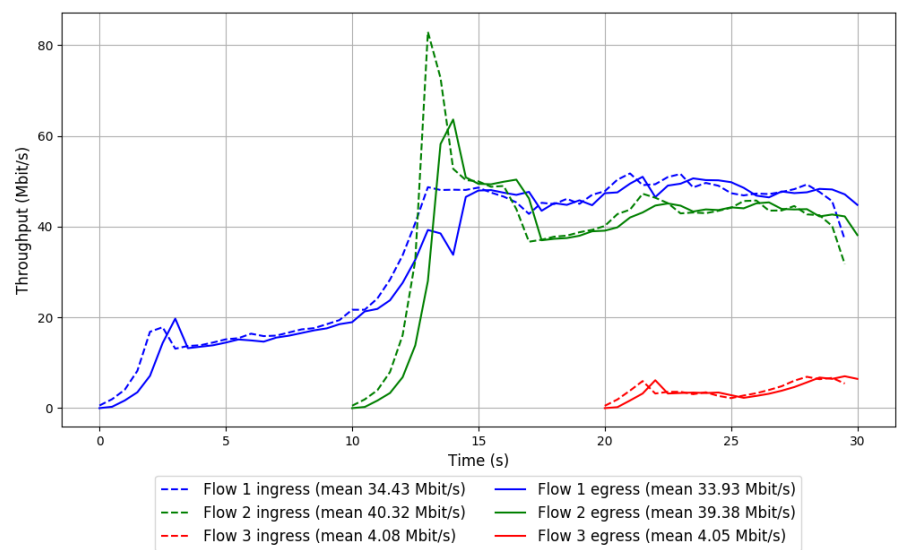


Run 3: Statistics of PCC-Vivace

Start at: 2018-10-09 21:46:04
End at: 2018-10-09 21:46:34
Local clock offset: -1.731 ms
Remote clock offset: 4.614 ms

Below is generated by plot.py at 2018-10-09 22:57:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 61.45 Mbit/s
95th percentile per-packet one-way delay: 115.534 ms
Loss rate: 1.81%
-- Flow 1:
Average throughput: 33.93 Mbit/s
95th percentile per-packet one-way delay: 114.226 ms
Loss rate: 1.44%
-- Flow 2:
Average throughput: 39.38 Mbit/s
95th percentile per-packet one-way delay: 115.675 ms
Loss rate: 2.35%
-- Flow 3:
Average throughput: 4.05 Mbit/s
95th percentile per-packet one-way delay: 115.610 ms
Loss rate: 0.71%

Run 3: Report of PCC-Vivace — Data Link

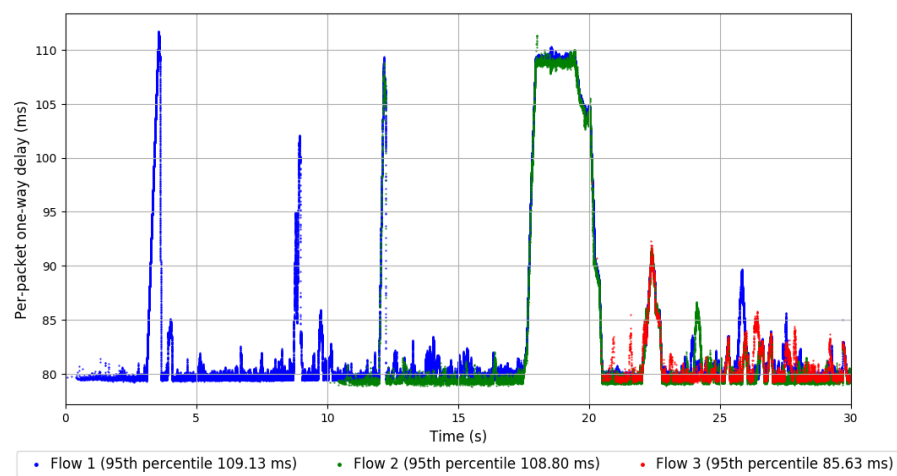
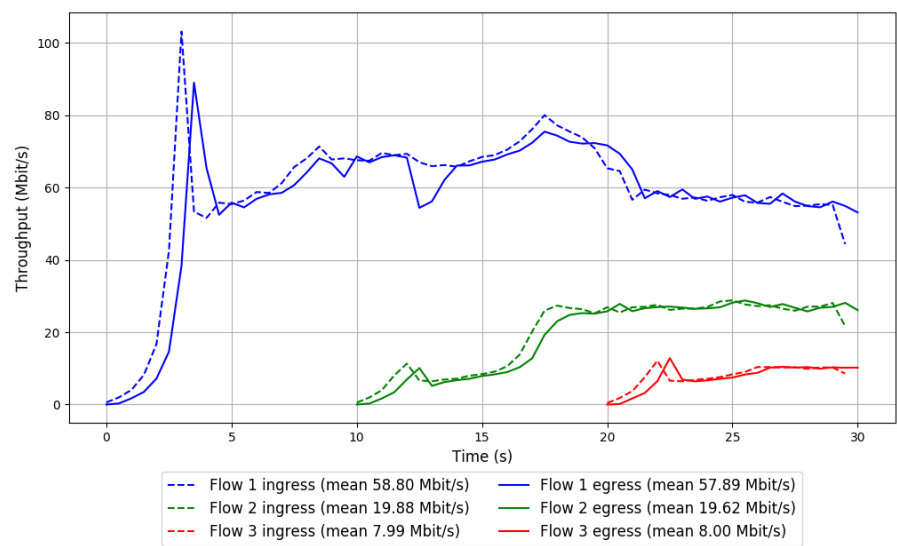


Run 4: Statistics of PCC-Vivace

Start at: 2018-10-09 22:08:58
End at: 2018-10-09 22:09:28
Local clock offset: -2.744 ms
Remote clock offset: -2.775 ms

Below is generated by plot.py at 2018-10-09 22:57:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 73.58 Mbit/s
95th percentile per-packet one-way delay: 109.059 ms
Loss rate: 1.44%
-- Flow 1:
Average throughput: 57.89 Mbit/s
95th percentile per-packet one-way delay: 109.133 ms
Loss rate: 1.54%
-- Flow 2:
Average throughput: 19.62 Mbit/s
95th percentile per-packet one-way delay: 108.798 ms
Loss rate: 1.28%
-- Flow 3:
Average throughput: 8.00 Mbit/s
95th percentile per-packet one-way delay: 85.627 ms
Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link

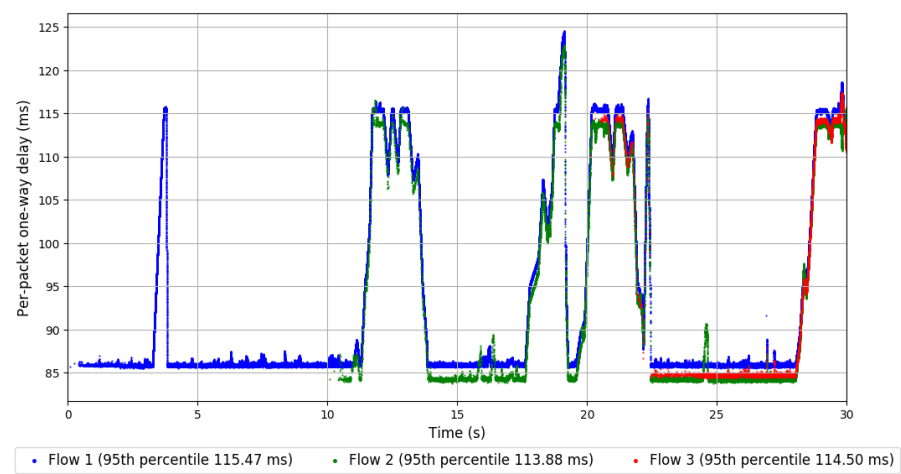
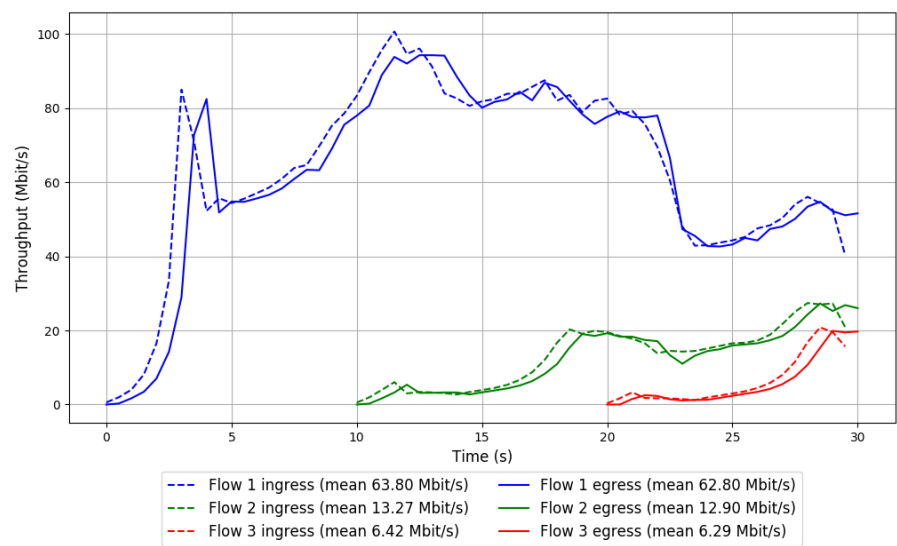


Run 5: Statistics of PCC-Vivace

Start at: 2018-10-09 22:31:48
End at: 2018-10-09 22:32:18
Local clock offset: -5.336 ms
Remote clock offset: -0.803 ms

Below is generated by plot.py at 2018-10-09 22:57:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 73.46 Mbit/s
95th percentile per-packet one-way delay: 115.447 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 62.80 Mbit/s
95th percentile per-packet one-way delay: 115.466 ms
Loss rate: 1.48%
-- Flow 2:
Average throughput: 12.90 Mbit/s
95th percentile per-packet one-way delay: 113.875 ms
Loss rate: 2.64%
-- Flow 3:
Average throughput: 6.29 Mbit/s
95th percentile per-packet one-way delay: 114.496 ms
Loss rate: 2.02%

Run 5: Report of PCC-Vivace — Data Link

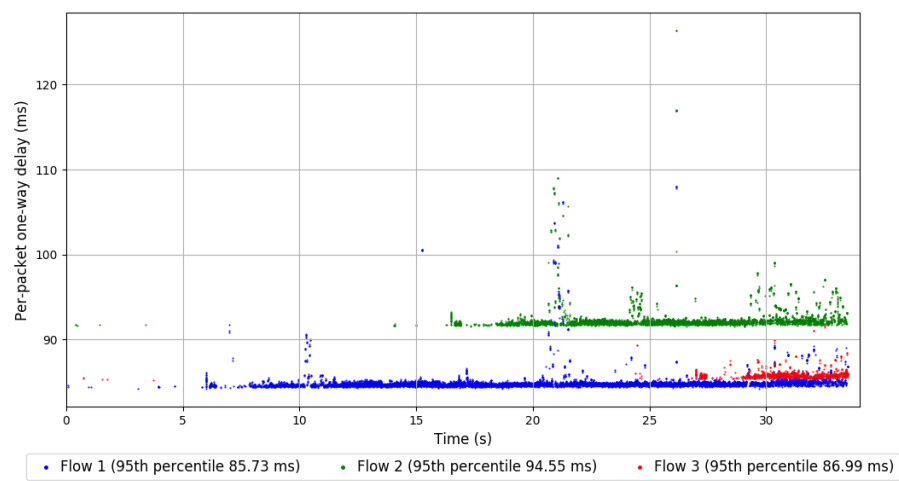
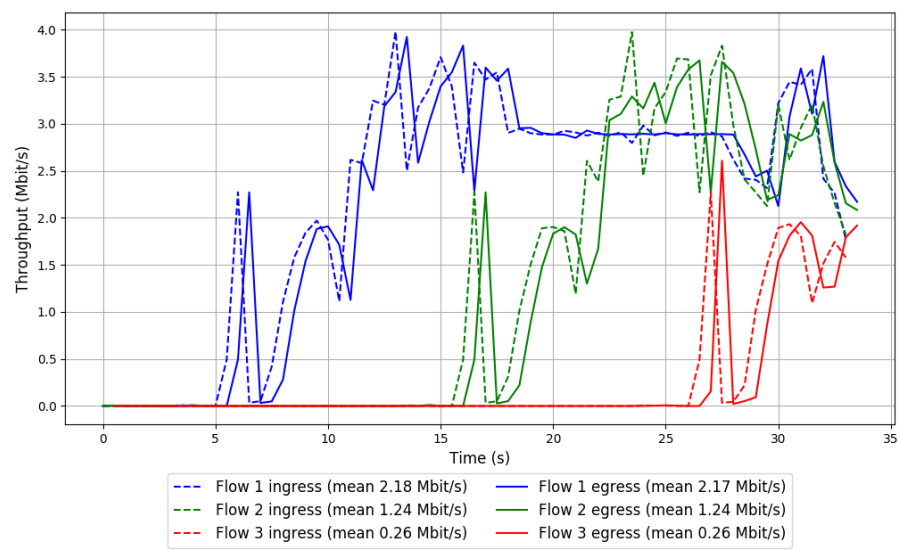


```
Run 1: Statistics of WebRTC media

Start at: 2018-10-09 21:12:04
End at: 2018-10-09 21:12:34
Local clock offset: -1.837 ms
Remote clock offset: 7.857 ms

# Below is generated by plot.py at 2018-10-09 22:57:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 92.581 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 85.728 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 94.546 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 86.993 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-10-09 21:34:45

End at: 2018-10-09 21:35:15

Local clock offset: -1.789 ms

Remote clock offset: 0.737 ms

Below is generated by plot.py at 2018-10-09 22:57:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.24 Mbit/s

95th percentile per-packet one-way delay: 83.451 ms

Loss rate: 0.25%

-- Flow 1:

Average throughput: 1.79 Mbit/s

95th percentile per-packet one-way delay: 83.718 ms

Loss rate: 0.22%

-- Flow 2:

Average throughput: 1.16 Mbit/s

95th percentile per-packet one-way delay: 83.197 ms

Loss rate: 0.27%

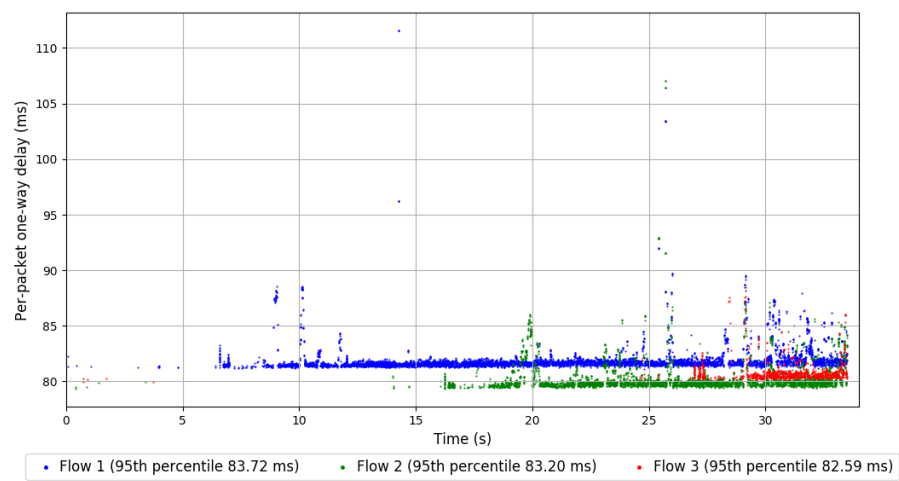
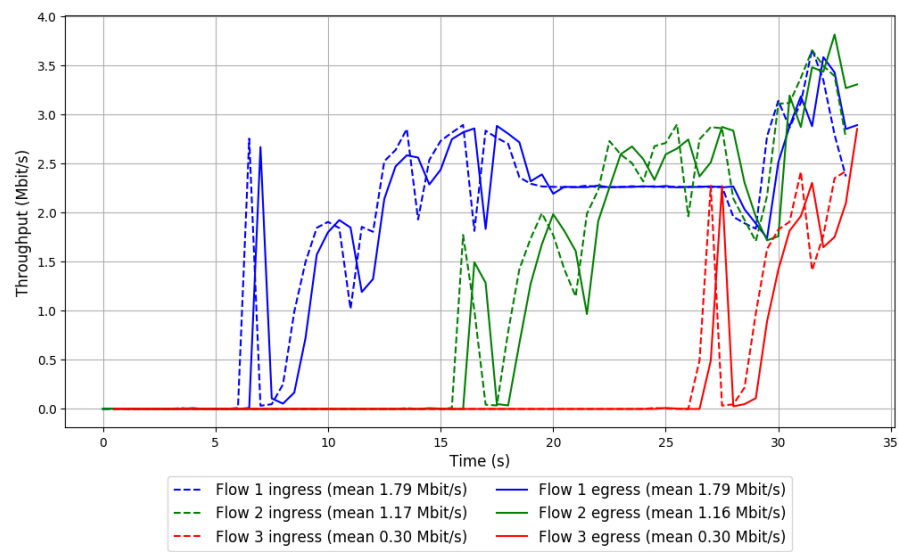
-- Flow 3:

Average throughput: 0.30 Mbit/s

95th percentile per-packet one-way delay: 82.587 ms

Loss rate: 0.38%

Run 2: Report of WebRTC media — Data Link

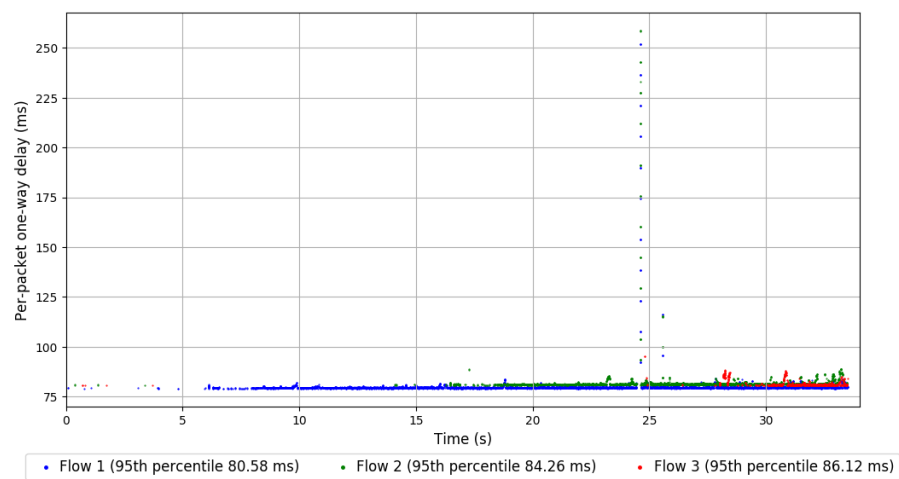
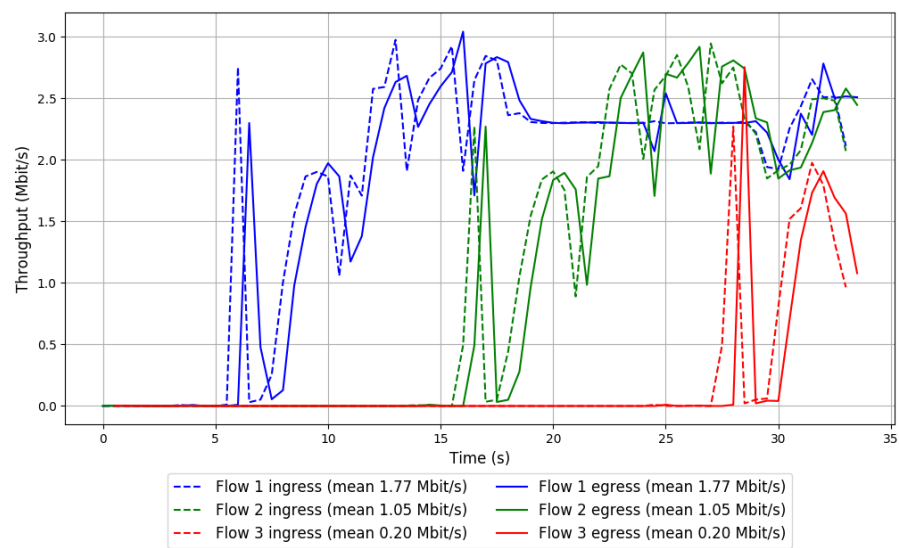


Run 3: Statistics of WebRTC media

Start at: 2018-10-09 21:57:21
End at: 2018-10-09 21:57:51
Local clock offset: -1.973 ms
Remote clock offset: -1.299 ms

Below is generated by plot.py at 2018-10-09 22:57:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.00 Mbit/s
95th percentile per-packet one-way delay: 82.646 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 80.575 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 84.261 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 86.117 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

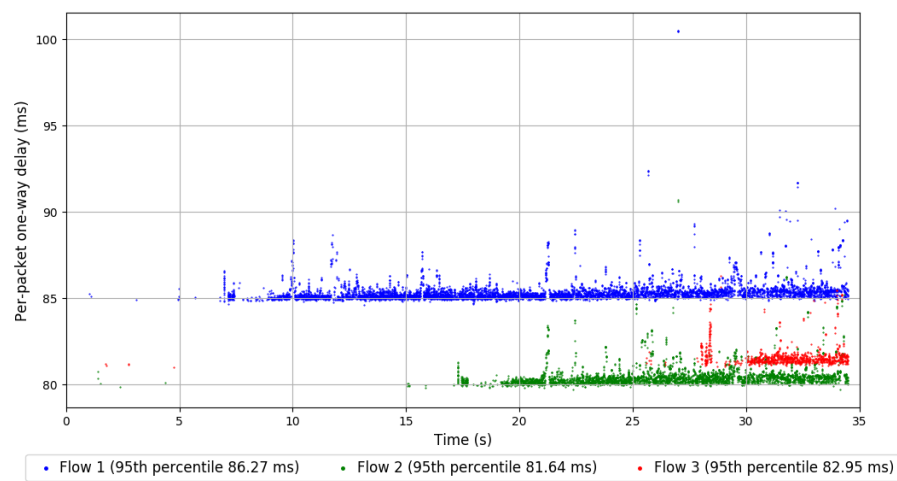
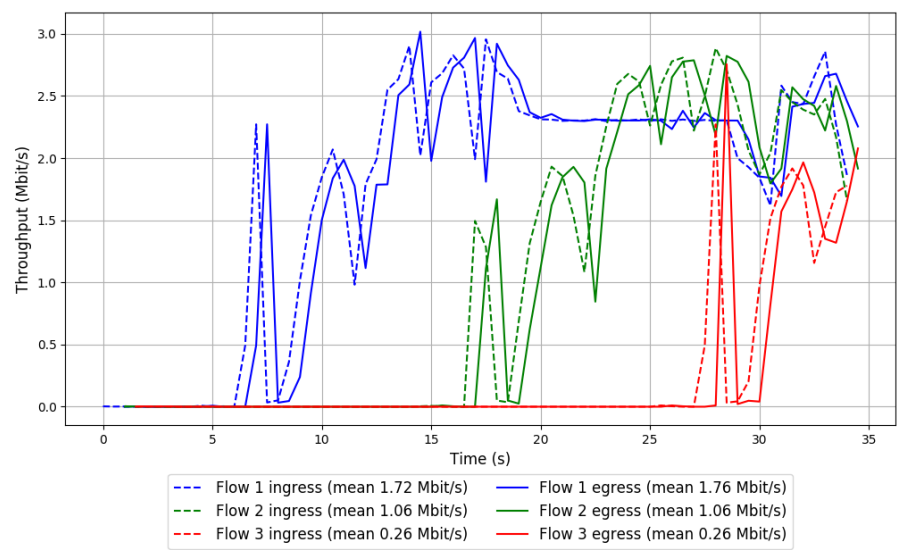


Run 4: Statistics of WebRTC media

Start at: 2018-10-09 22:20:15
End at: 2018-10-09 22:20:45
Local clock offset: -3.05 ms
Remote clock offset: -4.251 ms

Below is generated by plot.py at 2018-10-09 22:57:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.07 Mbit/s
95th percentile per-packet one-way delay: 85.851 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 86.273 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.06 Mbit/s
95th percentile per-packet one-way delay: 81.637 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 82.952 ms
Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-10-09 22:43:20
End at: 2018-10-09 22:43:50
Local clock offset: -7.117 ms
Remote clock offset: -1.977 ms

Below is generated by plot.py at 2018-10-09 22:57:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.04 Mbit/s
95th percentile per-packet one-way delay: 90.747 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 91.185 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 87.043 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 88.228 ms
Loss rate: 0.01%

Run 5: Report of WebRTC media — Data Link

