

Pantheon Report

Generated at 2018-11-30 01:46:47 (UTC).

Data path: AWS California 2 on **ens5** (*local*) → Mexico on **em1** (*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 **time.stanford.edu** and have been applied to correct the timestamps in logs.

System info:

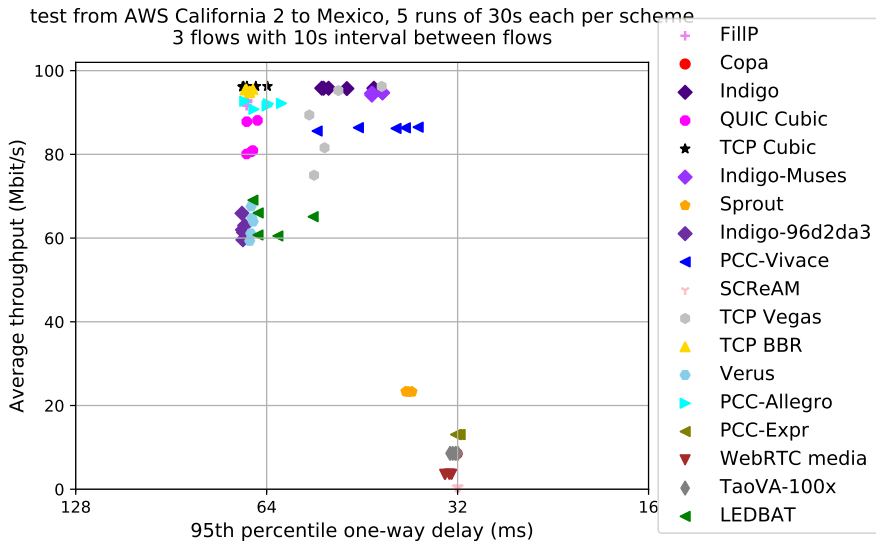
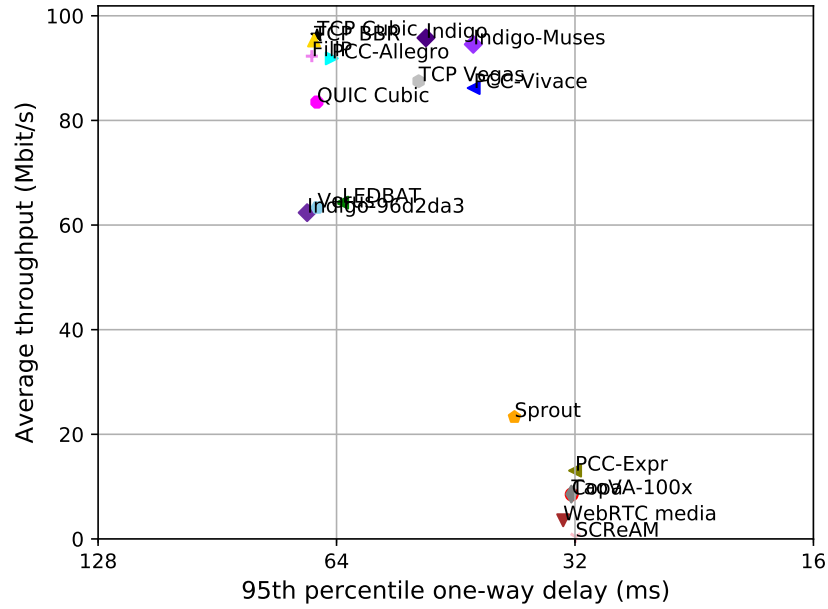
```
Linux 4.15.0-1027-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
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 California 2 to Mexico, 5 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



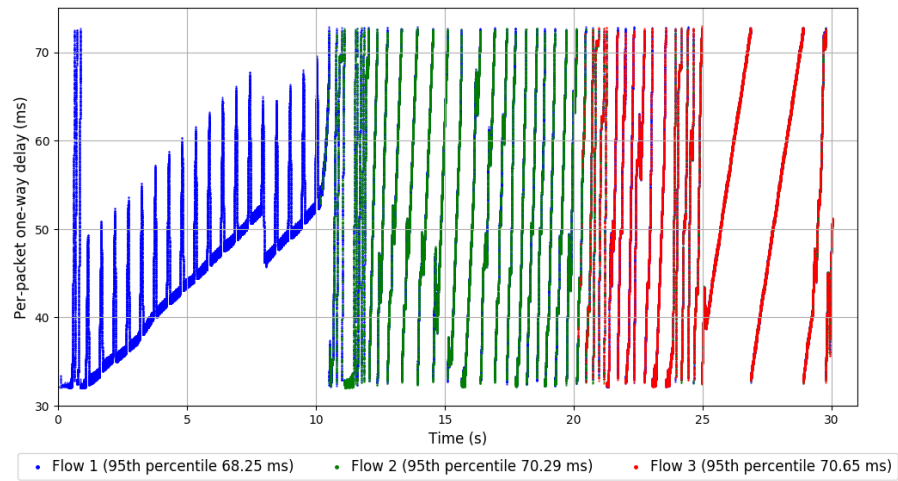
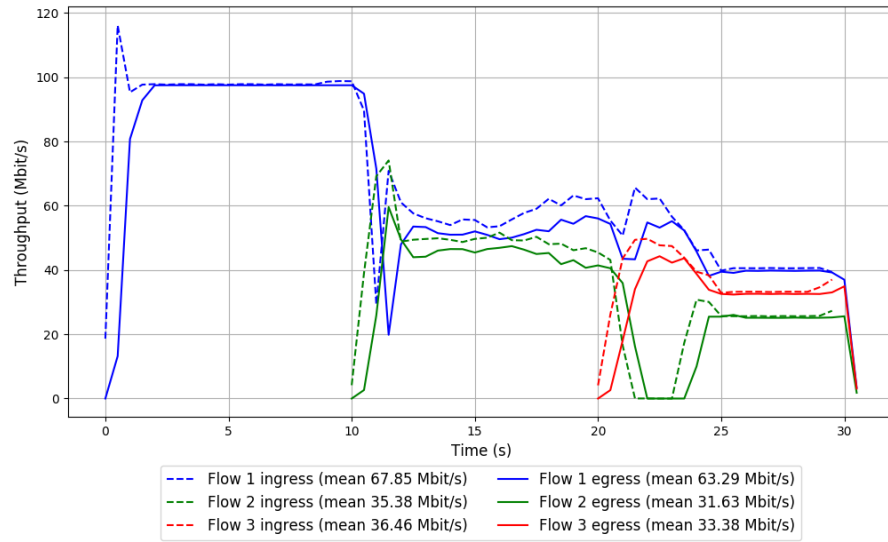
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	61.41	32.57	36.65	67.16	69.36	69.39	6.28	10.36	10.79
Copa	5	0.00	10.08	5.37	31.99	32.62	32.04	97.92	70.79	77.14
TCP Cubic	5	74.22	23.13	19.90	67.43	68.35	67.39	0.90	0.57	0.56
FillP	5	58.12	42.27	18.78	67.44	70.03	69.17	29.92	48.16	53.73
Indigo	5	66.32	29.22	30.95	46.48	51.40	55.92	0.14	0.24	0.04
Indigo-96d2da3	5	49.29	20.72	4.55	69.71	67.38	67.93	58.97	59.67	65.33
LEDBAT	5	40.34	25.34	21.38	62.75	63.89	57.66	0.15	0.08	0.00
Indigo-Muses	5	58.49	31.06	46.75	43.33	43.10	42.01	0.29	0.01	0.00
PCC-Allegro	5	82.25	11.36	6.22	64.61	66.81	63.63	5.28	6.81	6.48
PCC-Expr	5	7.65	6.51	3.26	31.99	31.98	32.01	46.61	30.76	34.57
QUIC Cubic	5	62.91	22.56	17.08	67.73	67.99	67.24	2.31	0.88	0.86
SCReAM	5	0.21	0.21	0.22	31.95	31.90	31.92	0.00	0.00	0.00
Sprout	5	11.74	11.68	11.47	37.80	38.33	38.69	0.06	0.00	0.00
TaoVA-100x	5	0.00	9.34	7.09	31.83	32.95	31.92	95.92	75.70	62.46
TCP Vegas	5	52.49	35.01	35.10	48.18	49.76	45.15	0.79	0.27	0.18
Verus	5	37.60	30.94	16.09	67.26	67.98	63.40	26.67	31.69	37.96
PCC-Vivace	5	66.31	23.72	12.44	41.30	44.52	41.55	0.07	0.09	0.12
WebRTC media	5	1.93	1.23	0.42	32.79	33.35	34.42	0.00	0.00	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-11-29 23:50:03
End at: 2018-11-29 23:50:33
Local clock offset: -1.14 ms
Remote clock offset: -4.254 ms

Below is generated by plot.py at 2018-11-30 01:38:25
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.41 Mbit/s
95th percentile per-packet one-way delay: 69.217 ms
Loss rate: 7.80%
-- Flow 1:
Average throughput: 63.29 Mbit/s
95th percentile per-packet one-way delay: 68.254 ms
Loss rate: 6.67%
-- Flow 2:
Average throughput: 31.63 Mbit/s
95th percentile per-packet one-way delay: 70.289 ms
Loss rate: 10.63%
-- Flow 3:
Average throughput: 33.38 Mbit/s
95th percentile per-packet one-way delay: 70.654 ms
Loss rate: 8.62%

Run 1: Report of TCP BBR — Data Link

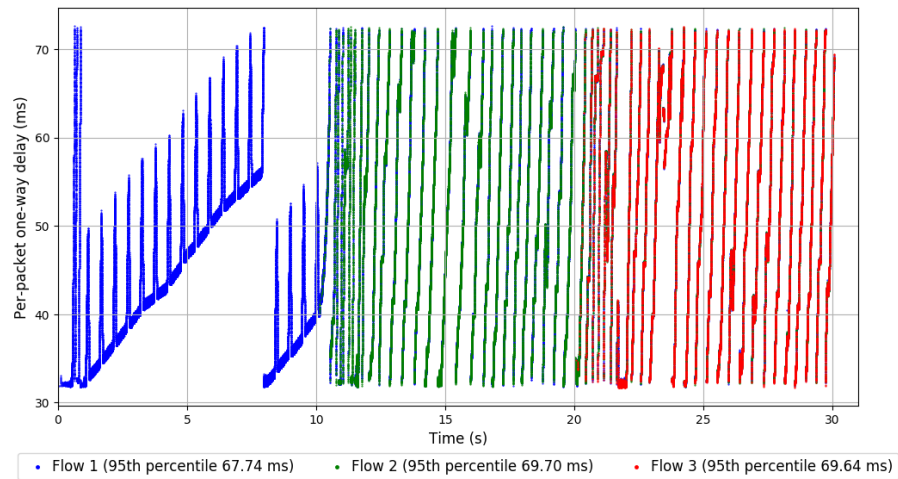
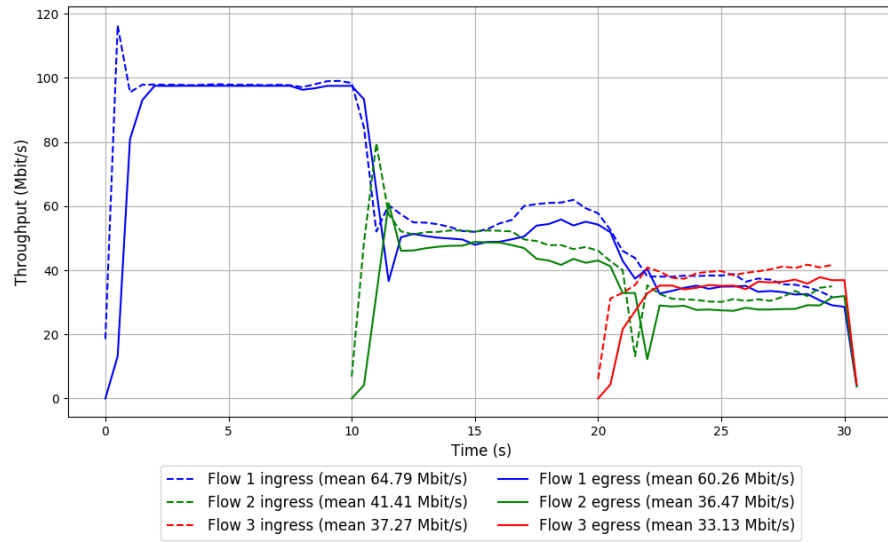


Run 2: Statistics of TCP BBR

Start at: 2018-11-30 00:11:42
End at: 2018-11-30 00:12:12
Local clock offset: 0.13 ms
Remote clock offset: -3.715 ms

Below is generated by plot.py at 2018-11-30 01:38:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.59 Mbit/s
95th percentile per-packet one-way delay: 68.892 ms
Loss rate: 8.65%
-- Flow 1:
Average throughput: 60.26 Mbit/s
95th percentile per-packet one-way delay: 67.739 ms
Loss rate: 6.88%
-- Flow 2:
Average throughput: 36.47 Mbit/s
95th percentile per-packet one-way delay: 69.701 ms
Loss rate: 11.85%
-- Flow 3:
Average throughput: 33.13 Mbit/s
95th percentile per-packet one-way delay: 69.637 ms
Loss rate: 10.80%

Run 2: Report of TCP BBR — Data Link

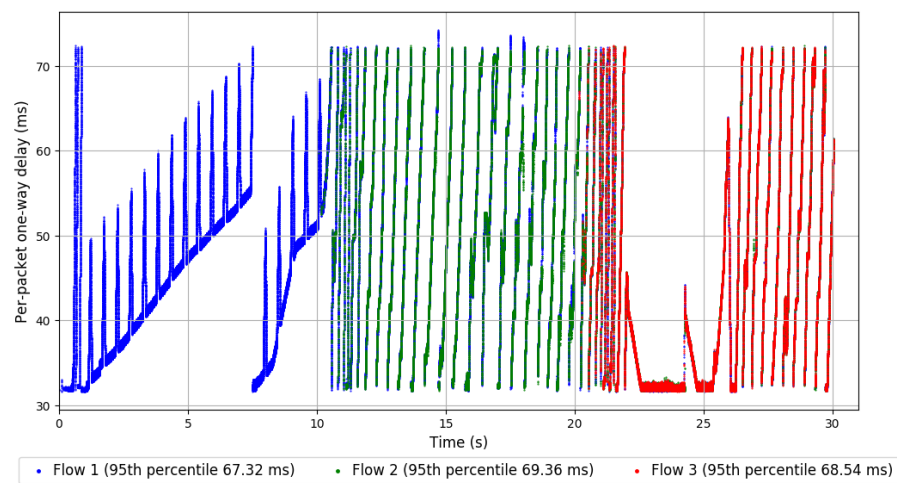
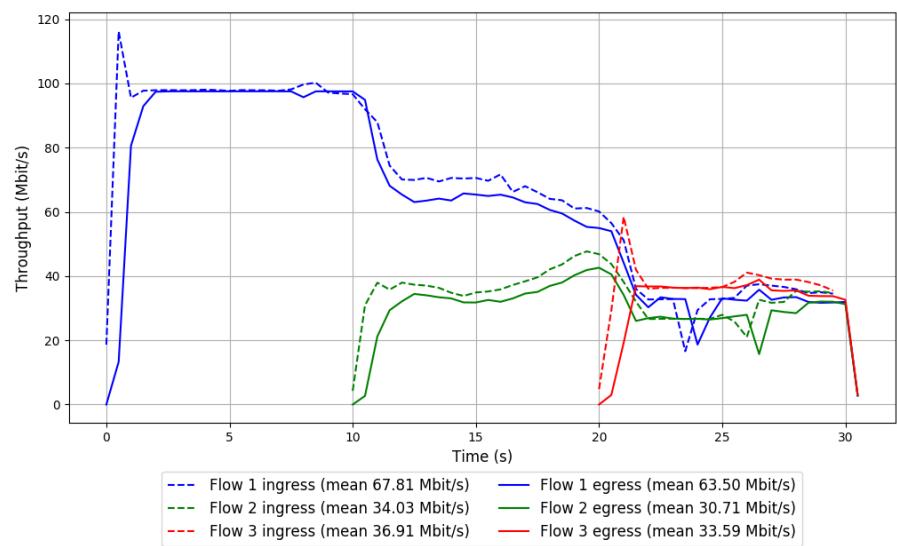


Run 3: Statistics of TCP BBR

Start at: 2018-11-30 00:33:23
End at: 2018-11-30 00:33:53
Local clock offset: 5.198 ms
Remote clock offset: -1.253 ms

Below is generated by plot.py at 2018-11-30 01:38:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.10 Mbit/s
95th percentile per-packet one-way delay: 68.148 ms
Loss rate: 7.35%
-- Flow 1:
Average throughput: 63.50 Mbit/s
95th percentile per-packet one-way delay: 67.317 ms
Loss rate: 6.26%
-- Flow 2:
Average throughput: 30.71 Mbit/s
95th percentile per-packet one-way delay: 69.359 ms
Loss rate: 9.75%
-- Flow 3:
Average throughput: 33.59 Mbit/s
95th percentile per-packet one-way delay: 68.544 ms
Loss rate: 8.97%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-11-30 00:55:14

End at: 2018-11-30 00:55:45

Local clock offset: 3.174 ms

Remote clock offset: 3.111 ms

Below is generated by plot.py at 2018-11-30 01:38:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.74 Mbit/s

95th percentile per-packet one-way delay: 68.141 ms

Loss rate: 6.91%

-- Flow 1:

Average throughput: 59.36 Mbit/s

95th percentile per-packet one-way delay: 67.307 ms

Loss rate: 5.80%

-- Flow 2:

Average throughput: 36.08 Mbit/s

95th percentile per-packet one-way delay: 68.995 ms

Loss rate: 8.97%

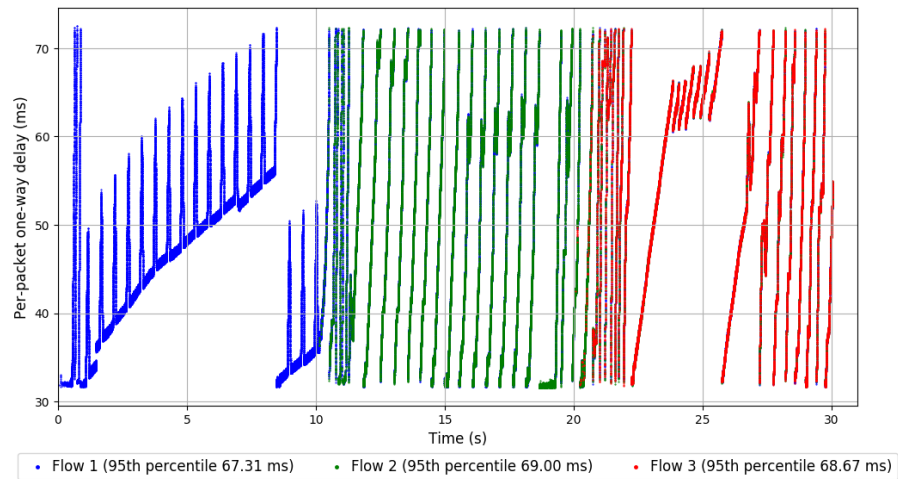
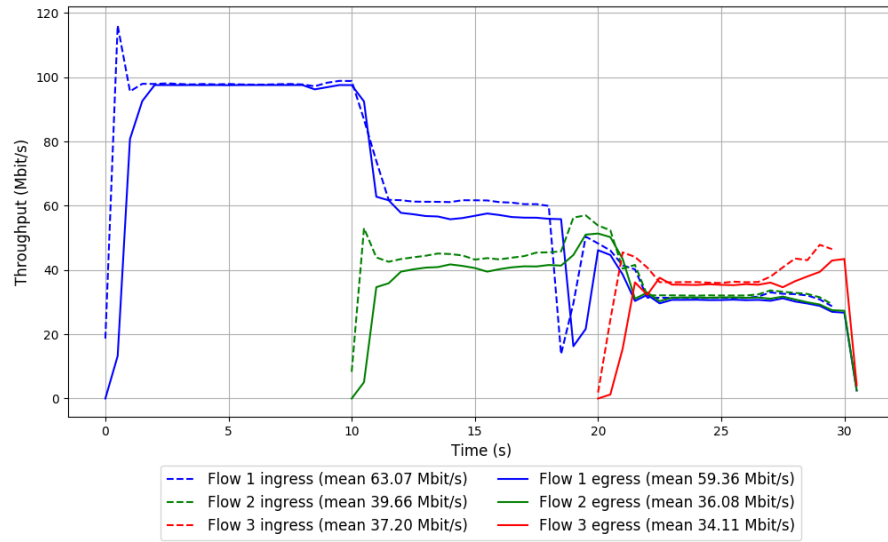
-- Flow 3:

Average throughput: 34.11 Mbit/s

95th percentile per-packet one-way delay: 68.668 ms

Loss rate: 8.19%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-11-30 01:16:59

End at: 2018-11-30 01:17:29

Local clock offset: 1.188 ms

Remote clock offset: 7.015 ms

Below is generated by plot.py at 2018-11-30 01:38:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.57 Mbit/s

95th percentile per-packet one-way delay: 67.265 ms

Loss rate: 8.92%

-- Flow 1:

Average throughput: 60.63 Mbit/s

95th percentile per-packet one-way delay: 65.190 ms

Loss rate: 5.78%

-- Flow 2:

Average throughput: 27.98 Mbit/s

95th percentile per-packet one-way delay: 68.443 ms

Loss rate: 10.61%

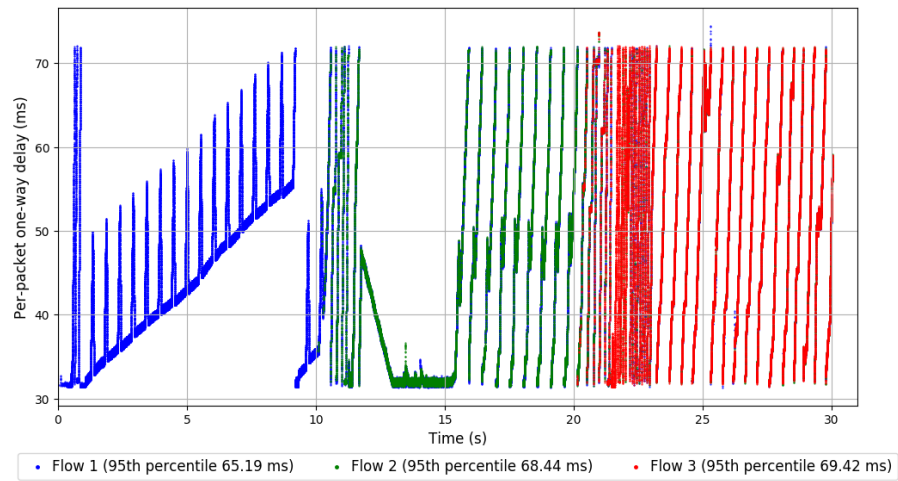
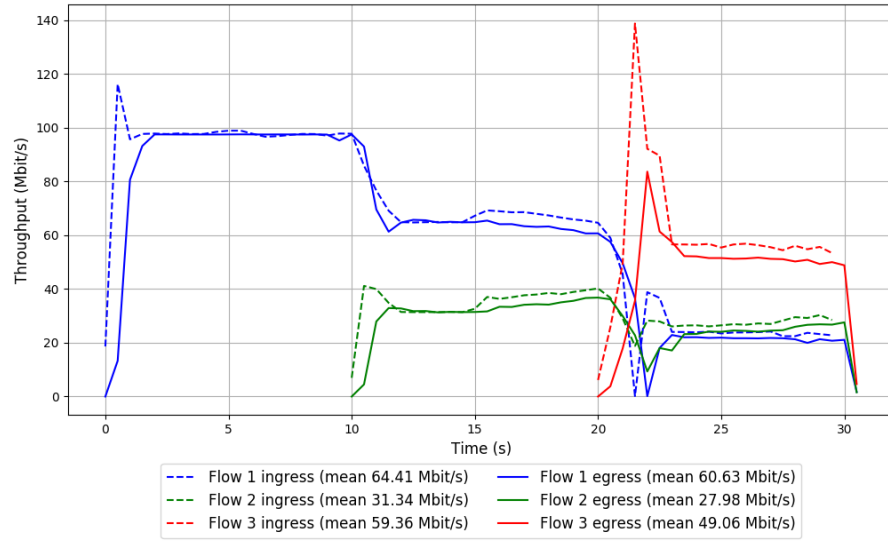
-- Flow 3:

Average throughput: 49.06 Mbit/s

95th percentile per-packet one-way delay: 69.425 ms

Loss rate: 17.39%

Run 5: Report of TCP BBR — Data Link

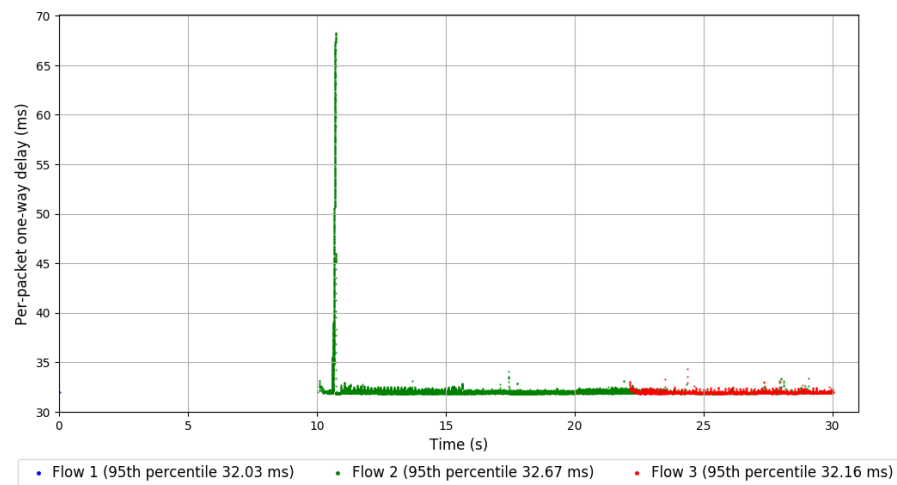
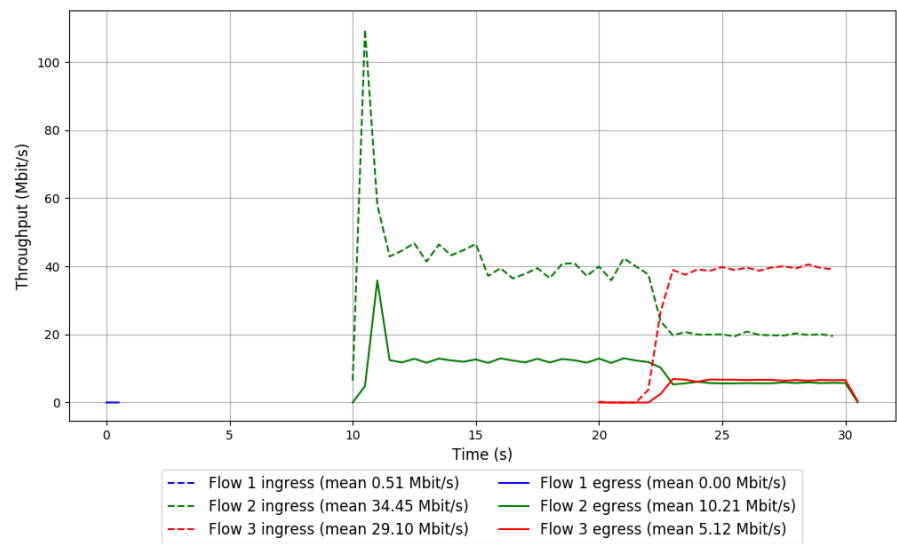


Run 1: Statistics of Copa

Start at: 2018-11-29 23:59:47
End at: 2018-11-30 00:00:17
Local clock offset: 0.268 ms
Remote clock offset: -4.198 ms

Below is generated by plot.py at 2018-11-30 01:38:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.50 Mbit/s
95th percentile per-packet one-way delay: 32.433 ms
Loss rate: 73.95%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 32.027 ms
Loss rate: 97.24%
-- Flow 2:
Average throughput: 10.21 Mbit/s
95th percentile per-packet one-way delay: 32.674 ms
Loss rate: 70.37%
-- Flow 3:
Average throughput: 5.12 Mbit/s
95th percentile per-packet one-way delay: 32.158 ms
Loss rate: 82.42%

Run 1: Report of Copa — Data Link

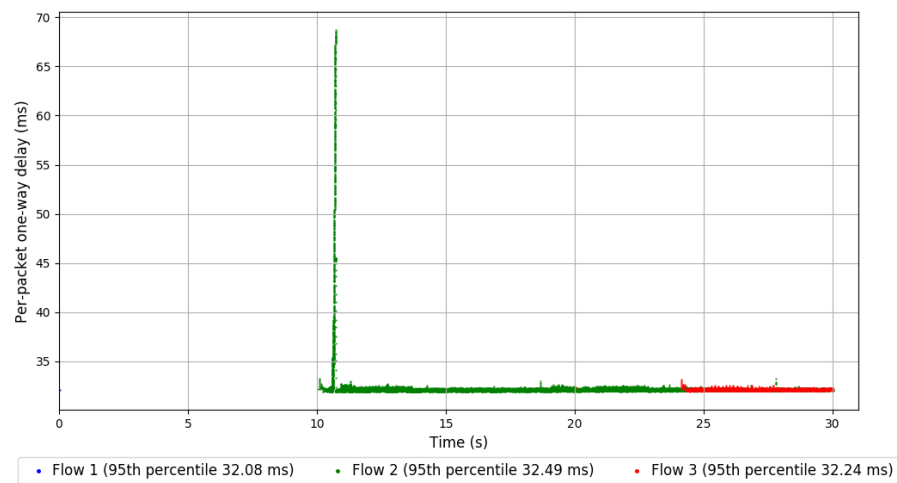
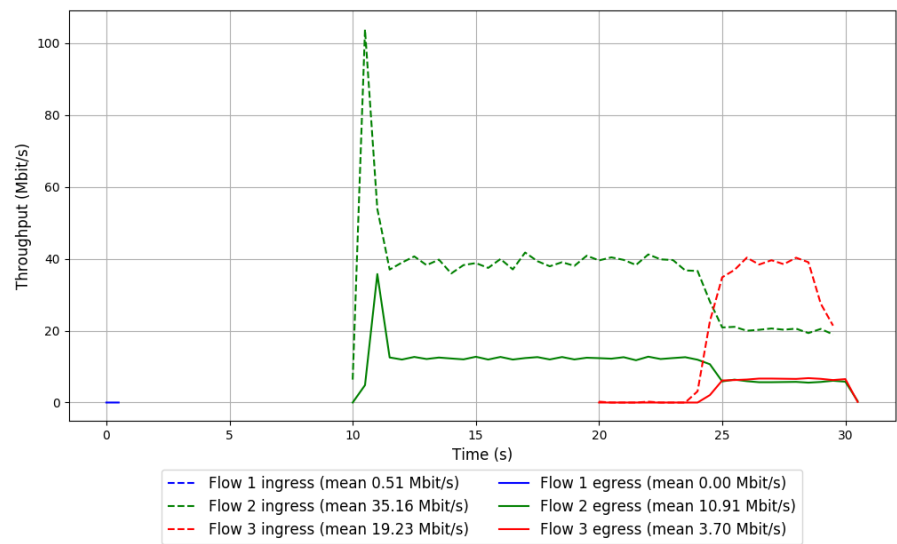


Run 2: Statistics of Copa

Start at: 2018-11-30 00:21:35
End at: 2018-11-30 00:22:05
Local clock offset: 3.153 ms
Remote clock offset: -2.676 ms

Below is generated by plot.py at 2018-11-30 01:38:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.50 Mbit/s
95th percentile per-packet one-way delay: 32.411 ms
Loss rate: 71.50%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 32.077 ms
Loss rate: 97.24%
-- Flow 2:
Average throughput: 10.91 Mbit/s
95th percentile per-packet one-way delay: 32.495 ms
Loss rate: 68.98%
-- Flow 3:
Average throughput: 3.70 Mbit/s
95th percentile per-packet one-way delay: 32.239 ms
Loss rate: 80.75%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-11-30 00:43:27

End at: 2018-11-30 00:43:57

Local clock offset: 5.765 ms

Remote clock offset: 0.834 ms

Below is generated by plot.py at 2018-11-30 01:38:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.50 Mbit/s

95th percentile per-packet one-way delay: 32.439 ms

Loss rate: 74.78%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 32.055 ms

Loss rate: 98.60%

-- Flow 2:

Average throughput: 9.85 Mbit/s

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

Loss rate: 74.21%

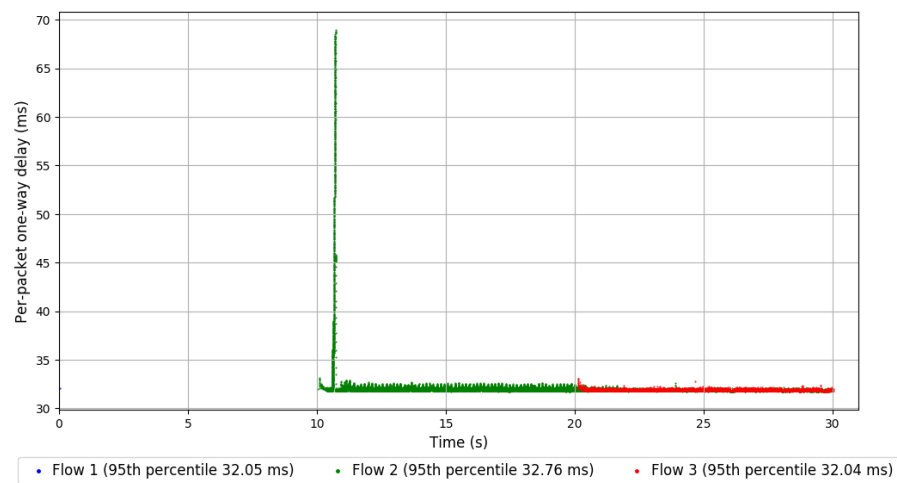
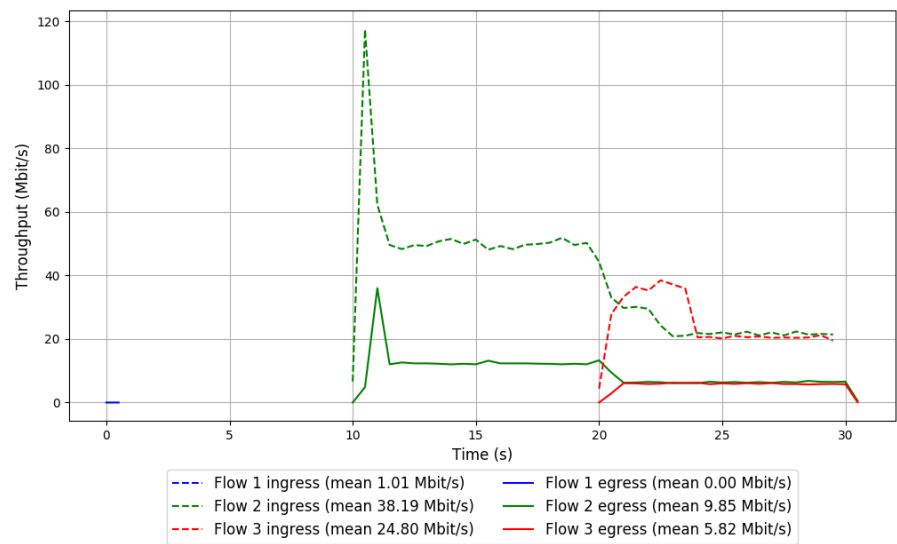
-- Flow 3:

Average throughput: 5.82 Mbit/s

95th percentile per-packet one-way delay: 32.042 ms

Loss rate: 76.55%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-11-30 01:05:07

End at: 2018-11-30 01:05:37

Local clock offset: 2.164 ms

Remote clock offset: 5.234 ms

Below is generated by plot.py at 2018-11-30 01:38:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.50 Mbit/s

95th percentile per-packet one-way delay: 32.053 ms

Loss rate: 71.82%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 31.870 ms

Loss rate: 97.92%

-- Flow 2:

Average throughput: 9.60 Mbit/s

95th percentile per-packet one-way delay: 32.580 ms

Loss rate: 70.98%

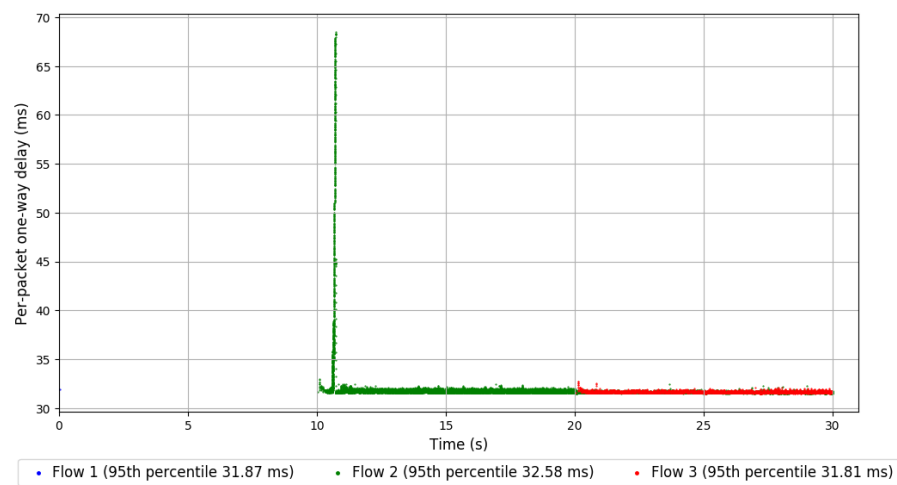
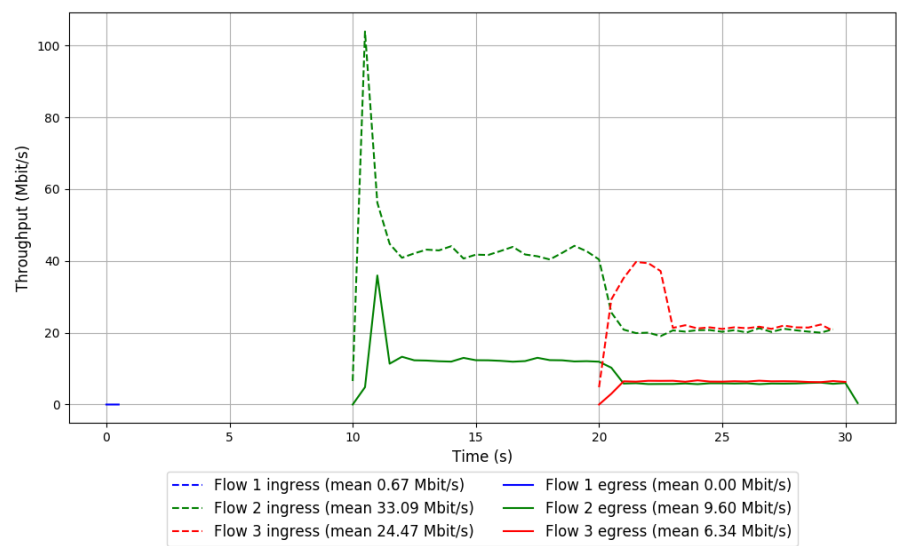
-- Flow 3:

Average throughput: 6.34 Mbit/s

95th percentile per-packet one-way delay: 31.807 ms

Loss rate: 74.10%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-11-30 01:26:53

End at: 2018-11-30 01:27:23

Local clock offset: -0.206 ms

Remote clock offset: 7.579 ms

Below is generated by plot.py at 2018-11-30 01:38:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.50 Mbit/s

95th percentile per-packet one-way delay: 32.199 ms

Loss rate: 69.99%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 31.946 ms

Loss rate: 98.60%

-- Flow 2:

Average throughput: 9.84 Mbit/s

95th percentile per-packet one-way delay: 32.599 ms

Loss rate: 69.39%

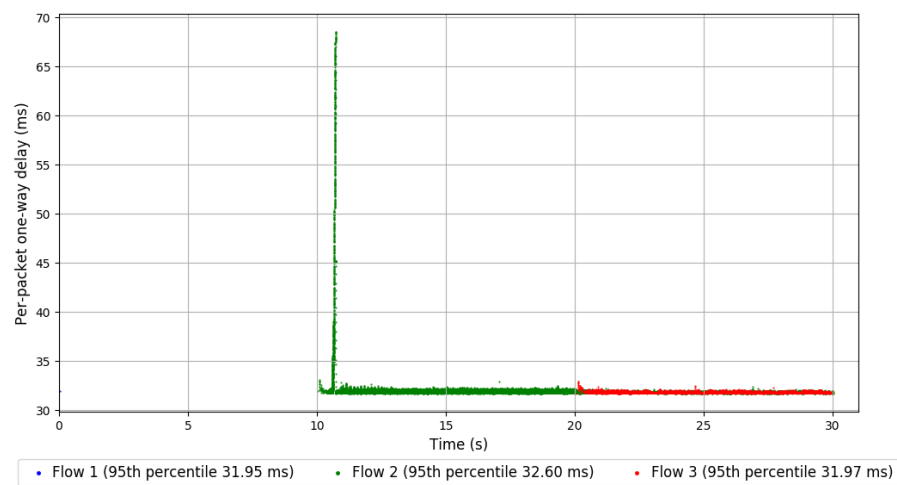
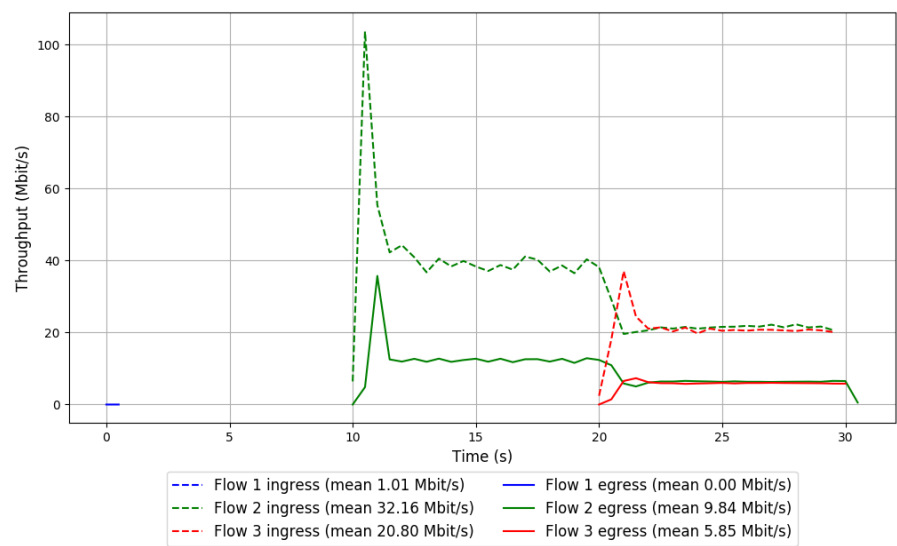
-- Flow 3:

Average throughput: 5.85 Mbit/s

95th percentile per-packet one-way delay: 31.970 ms

Loss rate: 71.86%

Run 5: Report of Copa — Data Link

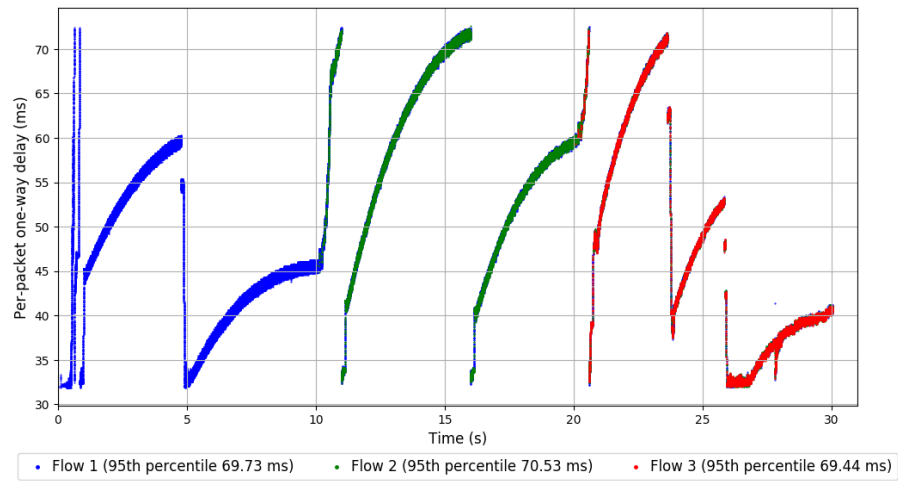
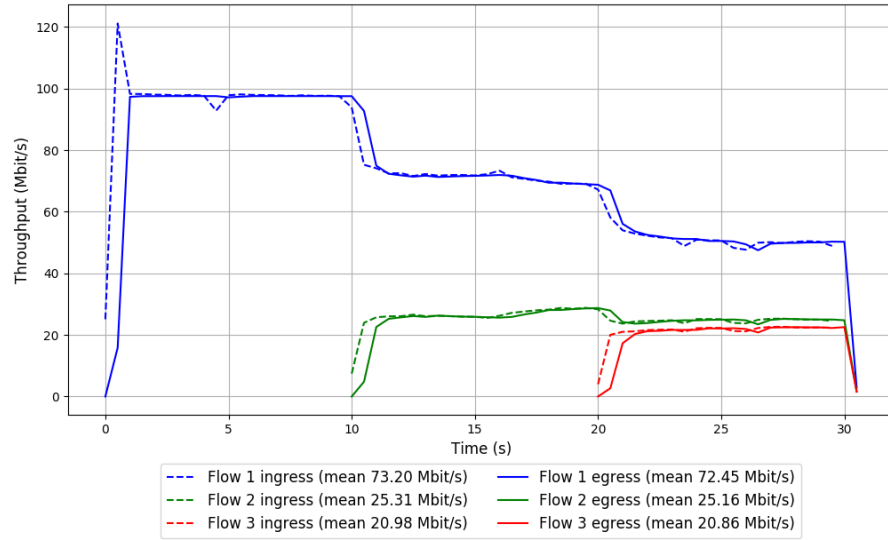


Run 1: Statistics of TCP Cubic

Start at: 2018-11-29 23:52:28
End at: 2018-11-29 23:52:58
Local clock offset: -0.546 ms
Remote clock offset: -4.415 ms

Below is generated by plot.py at 2018-11-30 01:38:38
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.13 Mbit/s
95th percentile per-packet one-way delay: 69.848 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 72.45 Mbit/s
95th percentile per-packet one-way delay: 69.731 ms
Loss rate: 1.00%
-- Flow 2:
Average throughput: 25.16 Mbit/s
95th percentile per-packet one-way delay: 70.527 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 20.86 Mbit/s
95th percentile per-packet one-way delay: 69.437 ms
Loss rate: 0.75%

Run 1: Report of TCP Cubic — Data Link

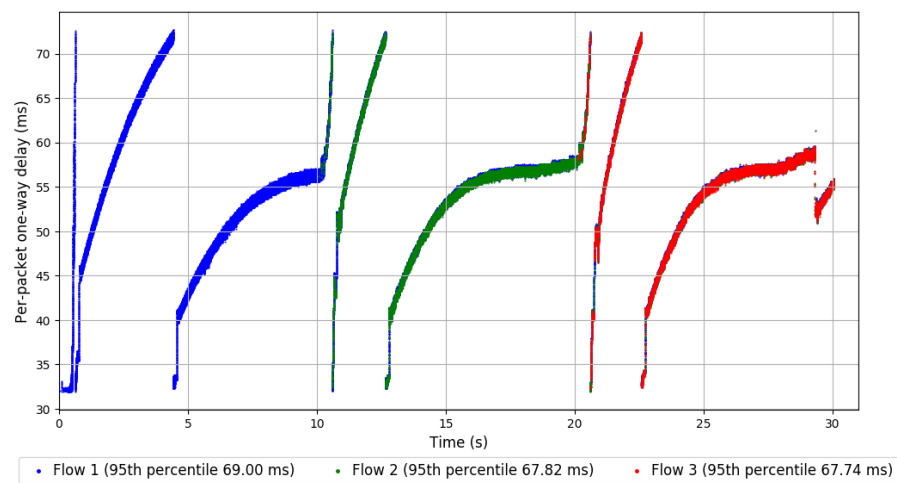
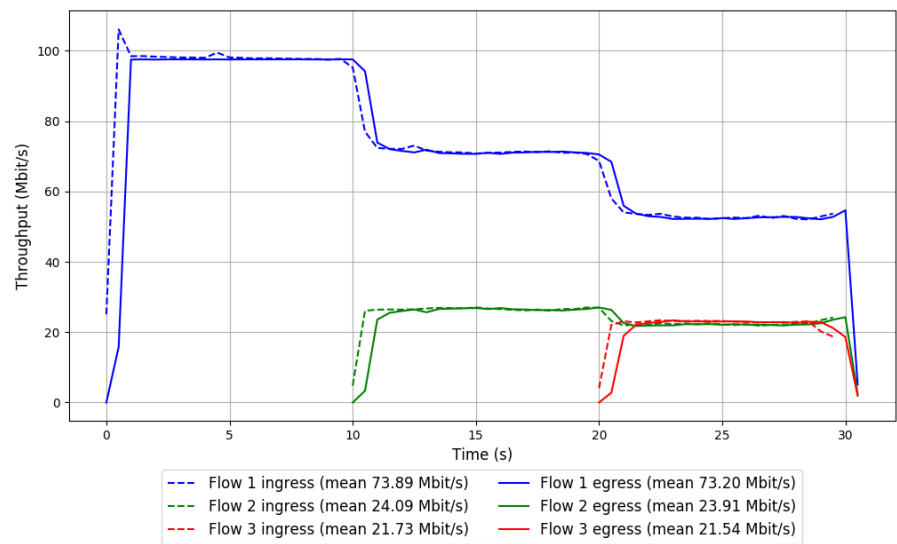


Run 2: Statistics of TCP Cubic

Start at: 2018-11-30 00:14:09
End at: 2018-11-30 00:14:39
Local clock offset: 0.014 ms
Remote clock offset: -3.432 ms

Below is generated by plot.py at 2018-11-30 01:38:47
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.27 Mbit/s
95th percentile per-packet one-way delay: 68.770 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 73.20 Mbit/s
95th percentile per-packet one-way delay: 68.998 ms
Loss rate: 0.85%
-- Flow 2:
Average throughput: 23.91 Mbit/s
95th percentile per-packet one-way delay: 67.823 ms
Loss rate: 0.76%
-- Flow 3:
Average throughput: 21.54 Mbit/s
95th percentile per-packet one-way delay: 67.740 ms
Loss rate: 0.89%

Run 2: Report of TCP Cubic — Data Link

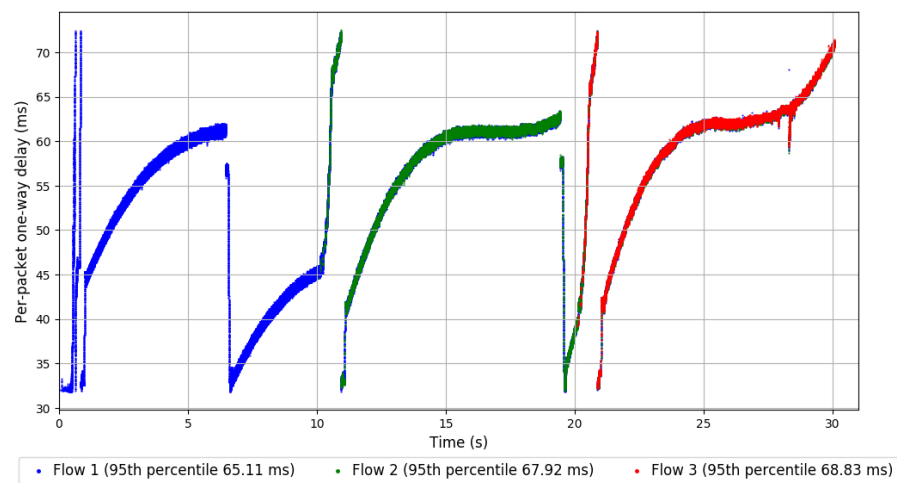
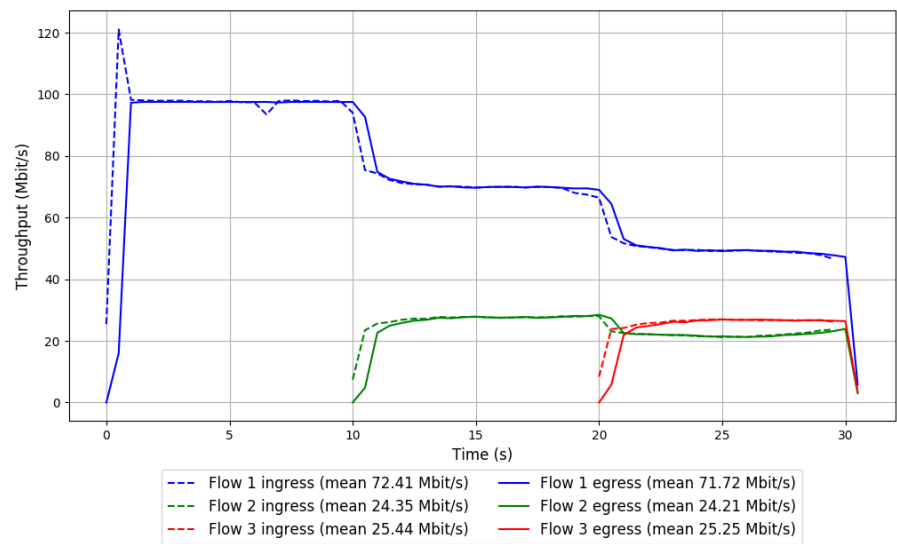


Run 3: Statistics of TCP Cubic

Start at: 2018-11-30 00:35:56
End at: 2018-11-30 00:36:26
Local clock offset: 5.386 ms
Remote clock offset: -0.679 ms

Below is generated by plot.py at 2018-11-30 01:38:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.26 Mbit/s
95th percentile per-packet one-way delay: 66.566 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 71.72 Mbit/s
95th percentile per-packet one-way delay: 65.115 ms
Loss rate: 0.83%
-- Flow 2:
Average throughput: 24.21 Mbit/s
95th percentile per-packet one-way delay: 67.925 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 25.25 Mbit/s
95th percentile per-packet one-way delay: 68.832 ms
Loss rate: 0.43%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-11-30 00:57:40

End at: 2018-11-30 00:58:10

Local clock offset: 2.832 ms

Remote clock offset: 3.678 ms

Below is generated by plot.py at 2018-11-30 01:39:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.26 Mbit/s

95th percentile per-packet one-way delay: 69.617 ms

Loss rate: 0.89%

-- Flow 1:

Average throughput: 72.66 Mbit/s

95th percentile per-packet one-way delay: 69.494 ms

Loss rate: 0.99%

-- Flow 2:

Average throughput: 24.77 Mbit/s

95th percentile per-packet one-way delay: 70.371 ms

Loss rate: 0.54%

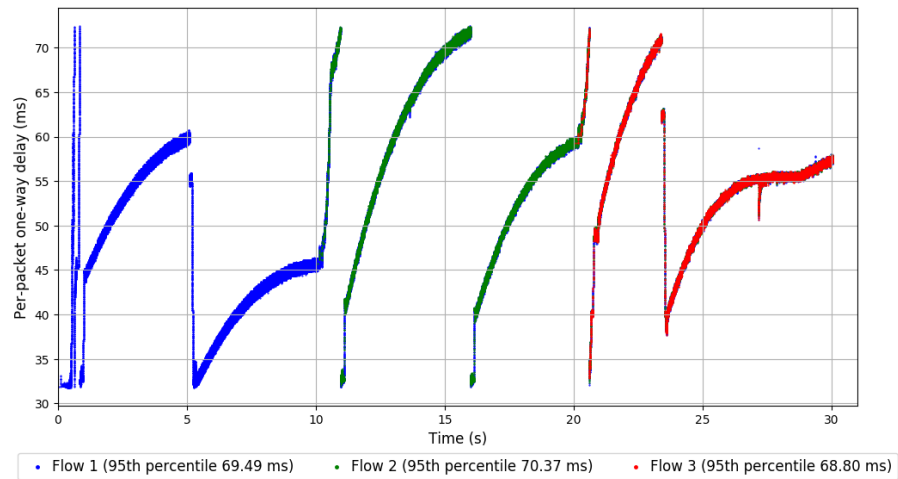
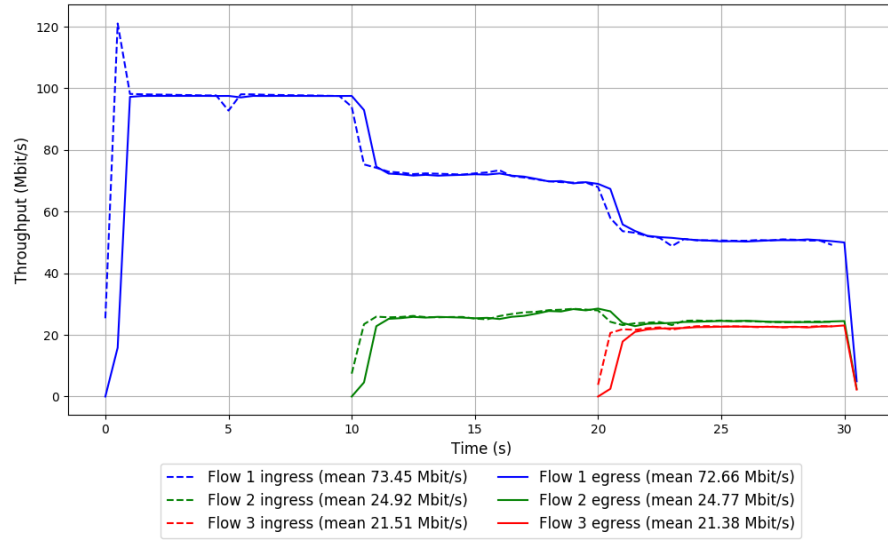
-- Flow 3:

Average throughput: 21.38 Mbit/s

95th percentile per-packet one-way delay: 68.804 ms

Loss rate: 0.60%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-30 01:19:26

End at: 2018-11-30 01:19:56

Local clock offset: 0.776 ms

Remote clock offset: 7.547 ms

Below is generated by plot.py at 2018-11-30 01:39:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.26 Mbit/s

95th percentile per-packet one-way delay: 63.817 ms

Loss rate: 0.75%

-- Flow 1:

Average throughput: 81.07 Mbit/s

95th percentile per-packet one-way delay: 63.818 ms

Loss rate: 0.82%

-- Flow 2:

Average throughput: 17.61 Mbit/s

95th percentile per-packet one-way delay: 65.102 ms

Loss rate: 0.48%

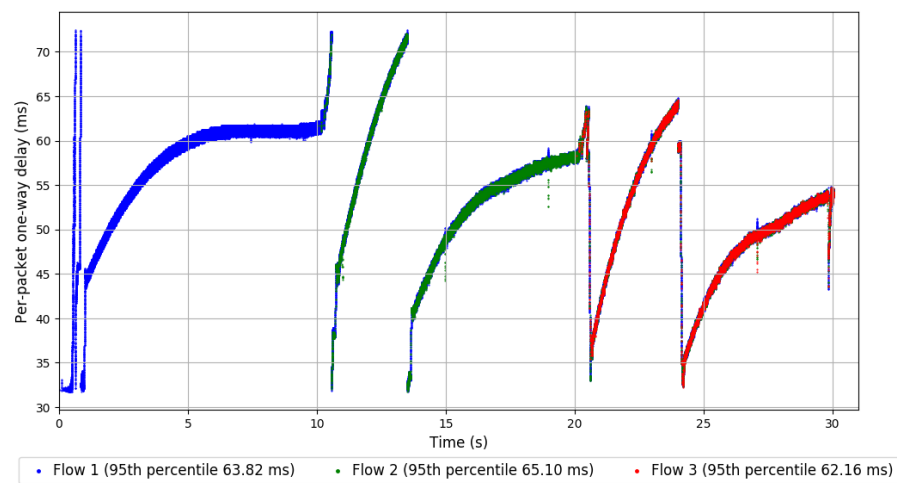
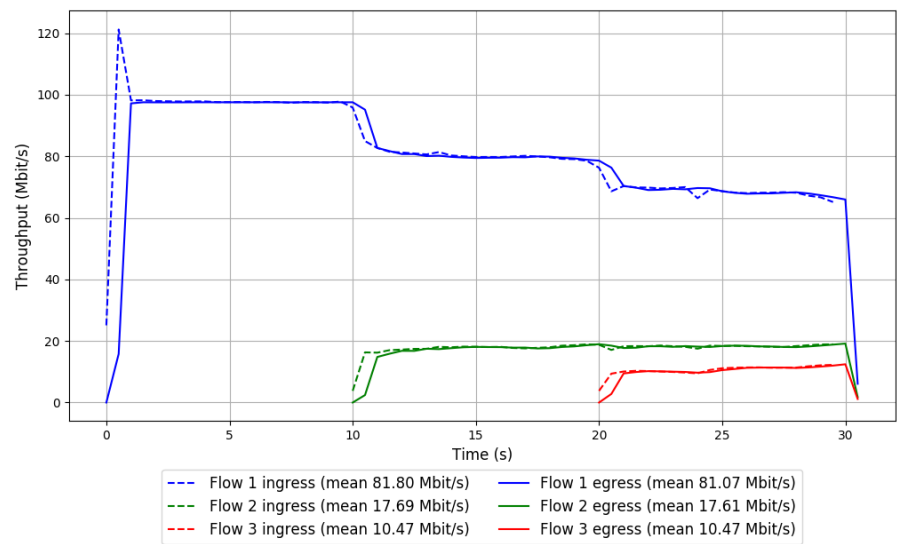
-- Flow 3:

Average throughput: 10.47 Mbit/s

95th percentile per-packet one-way delay: 62.162 ms

Loss rate: 0.11%

Run 5: Report of TCP Cubic — Data Link

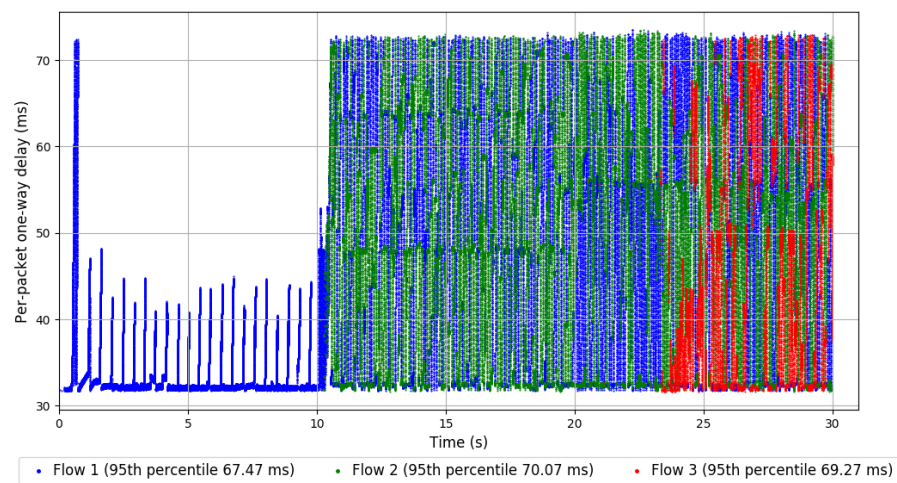
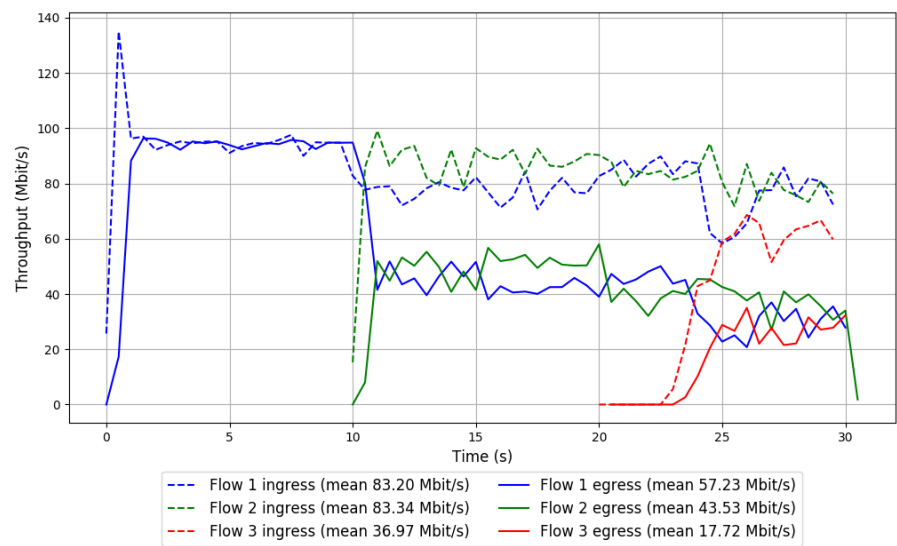


Run 1: Statistics of FillP

Start at: 2018-11-30 00:08:08
End at: 2018-11-30 00:08:38
Local clock offset: 0.284 ms
Remote clock offset: -3.955 ms

Below is generated by plot.py at 2018-11-30 01:39:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.73 Mbit/s
95th percentile per-packet one-way delay: 68.768 ms
Loss rate: 39.22%
-- Flow 1:
Average throughput: 57.23 Mbit/s
95th percentile per-packet one-way delay: 67.465 ms
Loss rate: 31.29%
-- Flow 2:
Average throughput: 43.53 Mbit/s
95th percentile per-packet one-way delay: 70.067 ms
Loss rate: 47.76%
-- Flow 3:
Average throughput: 17.72 Mbit/s
95th percentile per-packet one-way delay: 69.274 ms
Loss rate: 54.33%

Run 1: Report of FillP — Data Link

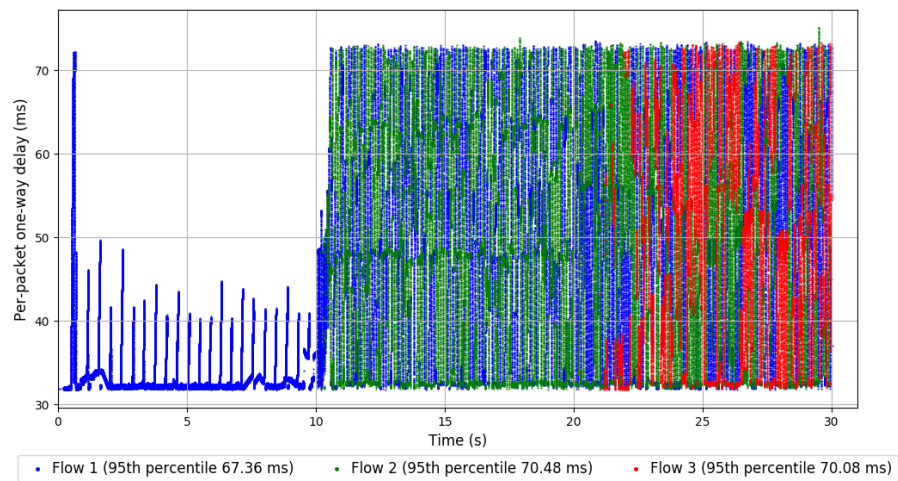
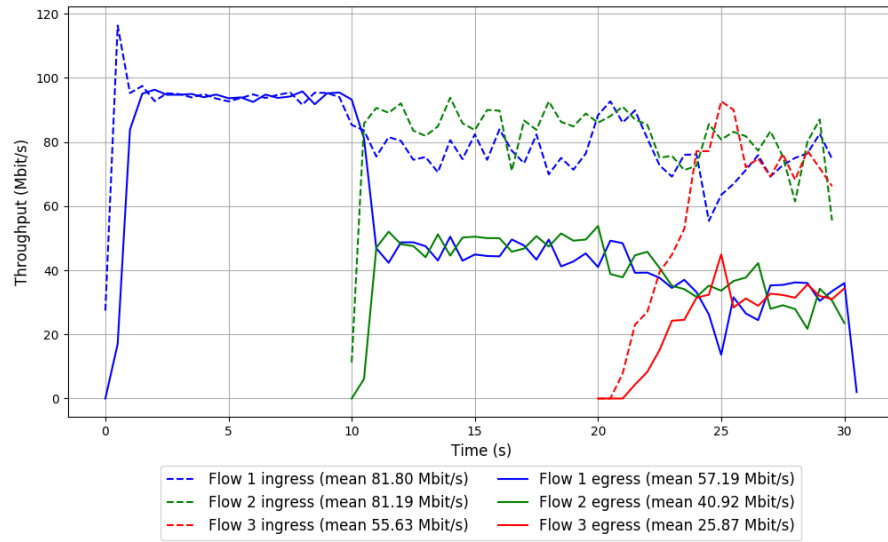


Run 2: Statistics of FillP

Start at: 2018-11-30 00:29:50
End at: 2018-11-30 00:30:20
Local clock offset: 4.804 ms
Remote clock offset: -1.665 ms

Below is generated by plot.py at 2018-11-30 01:40:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 92.66 Mbit/s
95th percentile per-packet one-way delay: 69.047 ms
Loss rate: 39.93%
-- Flow 1:
Average throughput: 57.19 Mbit/s
95th percentile per-packet one-way delay: 67.356 ms
Loss rate: 30.08%
-- Flow 2:
Average throughput: 40.92 Mbit/s
95th percentile per-packet one-way delay: 70.482 ms
Loss rate: 49.84%
-- Flow 3:
Average throughput: 25.87 Mbit/s
95th percentile per-packet one-way delay: 70.078 ms
Loss rate: 54.58%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-11-30 00:51:42

End at: 2018-11-30 00:52:12

Local clock offset: 3.83 ms

Remote clock offset: 2.353 ms

Below is generated by plot.py at 2018-11-30 01:40:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.63 Mbit/s

95th percentile per-packet one-way delay: 68.828 ms

Loss rate: 36.23%

-- Flow 1:

Average throughput: 60.76 Mbit/s

95th percentile per-packet one-way delay: 67.515 ms

Loss rate: 27.96%

-- Flow 2:

Average throughput: 41.69 Mbit/s

95th percentile per-packet one-way delay: 70.227 ms

Loss rate: 47.85%

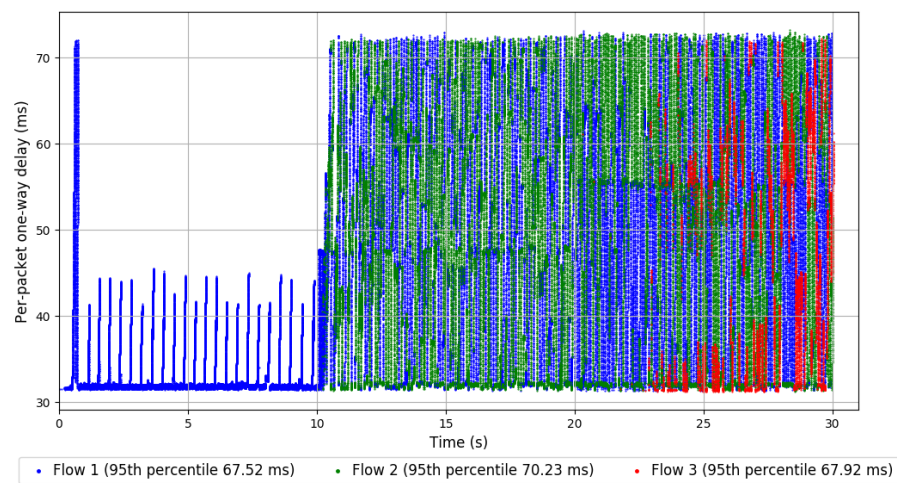
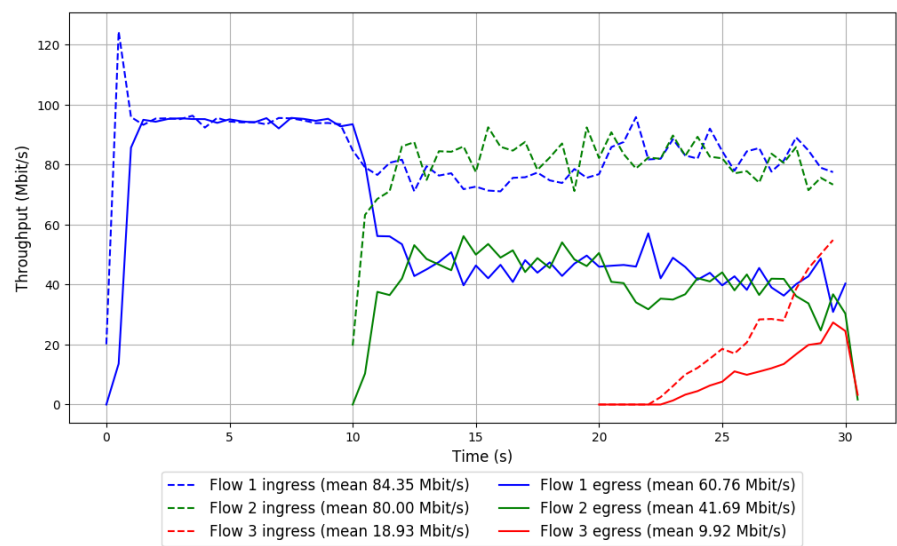
-- Flow 3:

Average throughput: 9.92 Mbit/s

95th percentile per-packet one-way delay: 67.917 ms

Loss rate: 48.75%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-11-30 01:13:26

End at: 2018-11-30 01:13:56

Local clock offset: 1.653 ms

Remote clock offset: 6.711 ms

Below is generated by plot.py at 2018-11-30 01:40:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.92 Mbit/s

95th percentile per-packet one-way delay: 68.596 ms

Loss rate: 39.04%

-- Flow 1:

Average throughput: 57.41 Mbit/s

95th percentile per-packet one-way delay: 67.033 ms

Loss rate: 30.37%

-- Flow 2:

Average throughput: 42.90 Mbit/s

95th percentile per-packet one-way delay: 69.865 ms

Loss rate: 47.93%

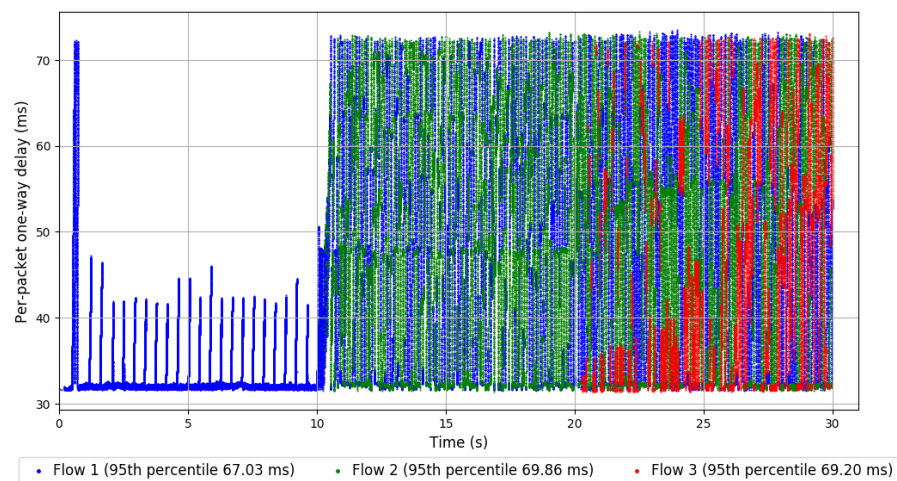
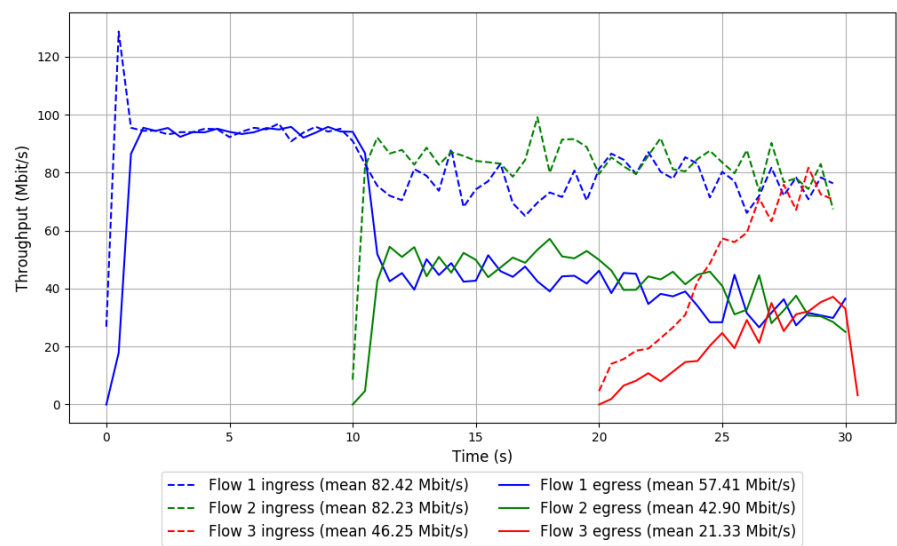
-- Flow 3:

Average throughput: 21.33 Mbit/s

95th percentile per-packet one-way delay: 69.203 ms

Loss rate: 53.89%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-11-30 01:35:15

End at: 2018-11-30 01:35:45

Local clock offset: -0.903 ms

Remote clock offset: 6.731 ms

Below is generated by plot.py at 2018-11-30 01:40:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.47 Mbit/s

95th percentile per-packet one-way delay: 68.594 ms

Loss rate: 38.78%

-- Flow 1:

Average throughput: 58.00 Mbit/s

95th percentile per-packet one-way delay: 67.835 ms

Loss rate: 29.92%

-- Flow 2:

Average throughput: 42.30 Mbit/s

95th percentile per-packet one-way delay: 69.489 ms

Loss rate: 47.41%

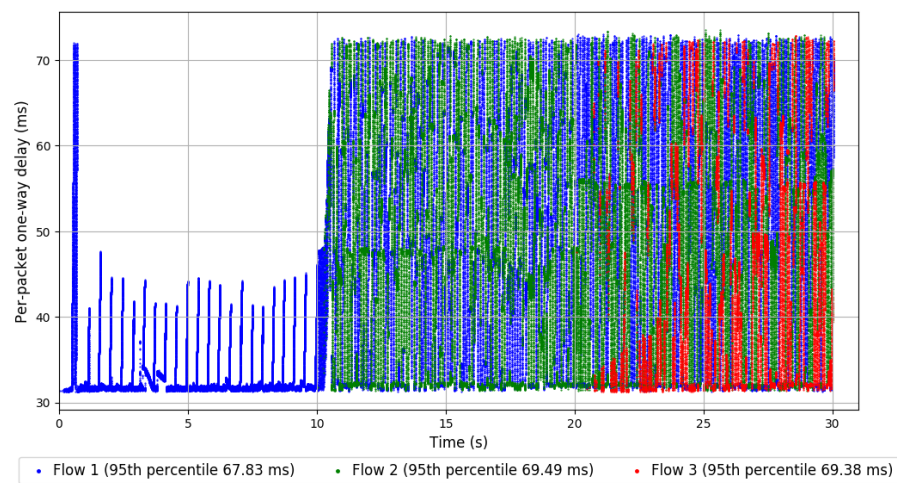
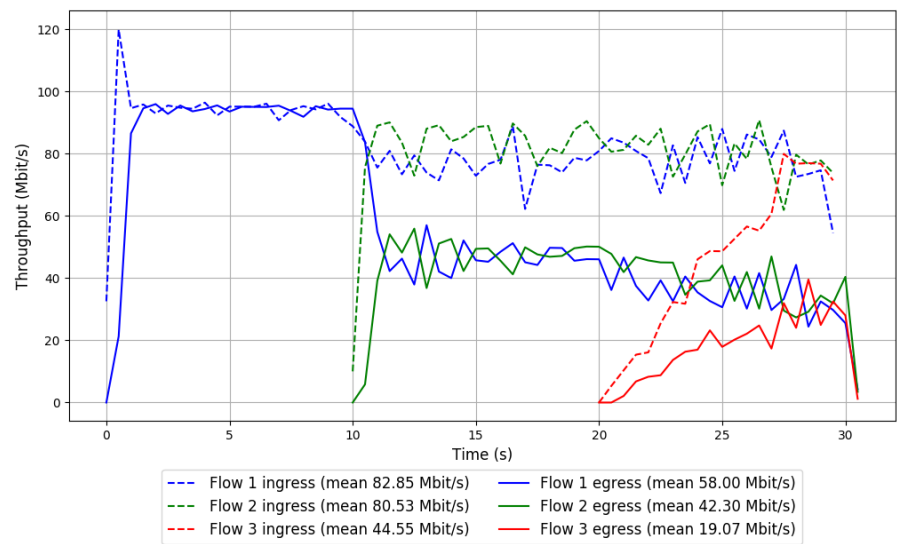
-- Flow 3:

Average throughput: 19.07 Mbit/s

95th percentile per-packet one-way delay: 69.384 ms

Loss rate: 57.08%

Run 5: Report of FillP — Data Link

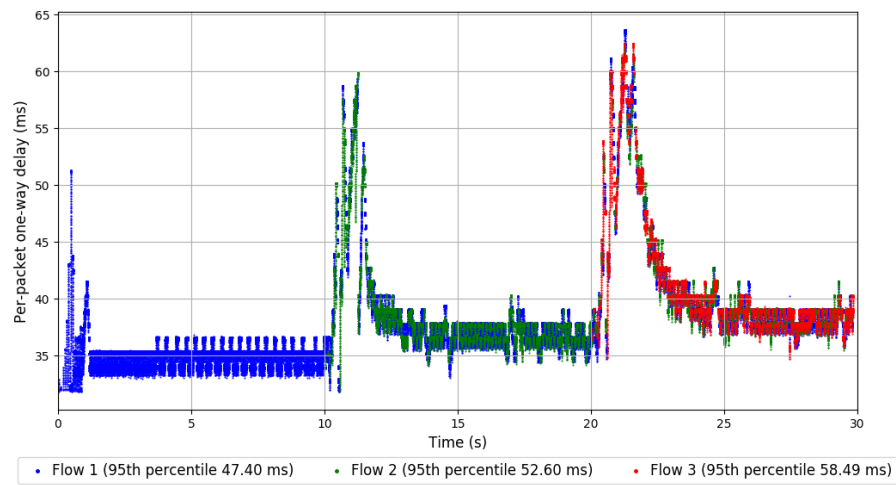
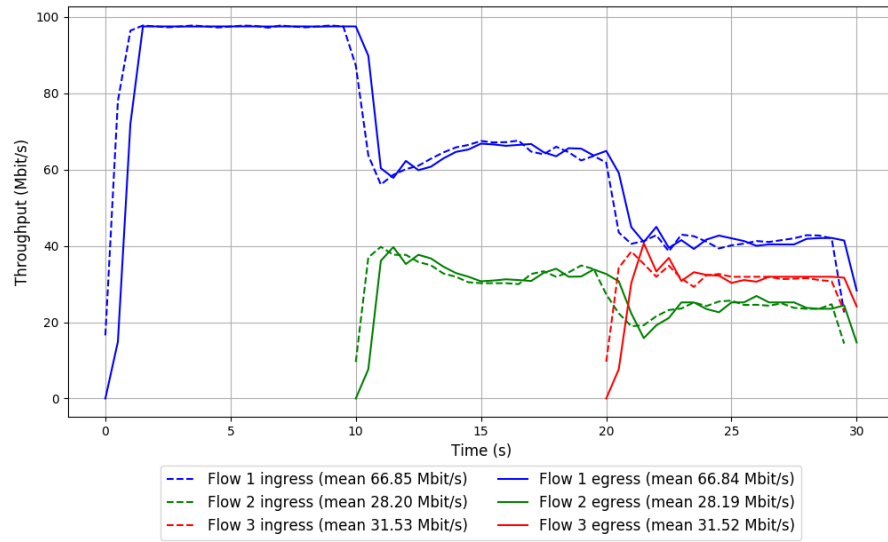


Run 1: Statistics of Indigo

Start at: 2018-11-30 00:00:56
End at: 2018-11-30 00:01:26
Local clock offset: 0.318 ms
Remote clock offset: -4.211 ms

Below is generated by plot.py at 2018-11-30 01:40:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.79 Mbit/s
95th percentile per-packet one-way delay: 51.115 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.84 Mbit/s
95th percentile per-packet one-way delay: 47.400 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 28.19 Mbit/s
95th percentile per-packet one-way delay: 52.598 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 31.52 Mbit/s
95th percentile per-packet one-way delay: 58.491 ms
Loss rate: 0.00%

Run 1: Report of Indigo — Data Link

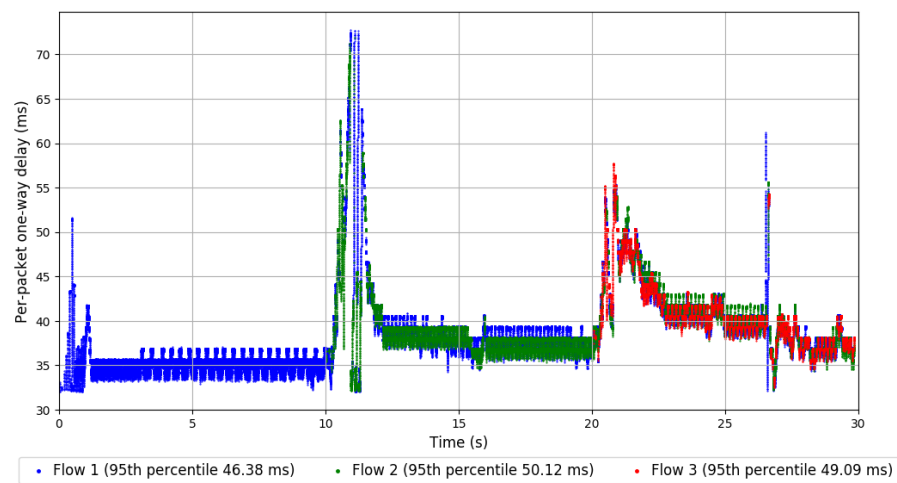
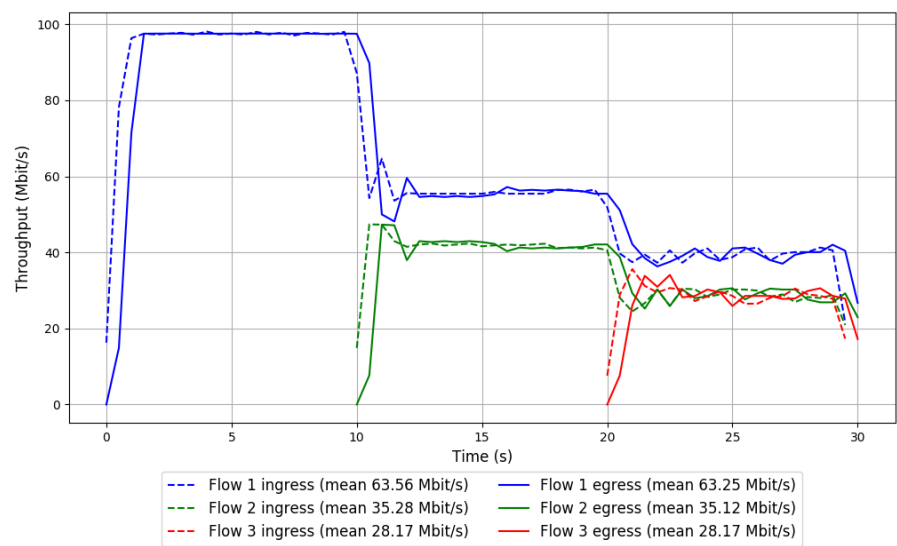


Run 2: Statistics of Indigo

Start at: 2018-11-30 00:22:44
End at: 2018-11-30 00:23:14
Local clock offset: 3.438 ms
Remote clock offset: -2.481 ms

Below is generated by plot.py at 2018-11-30 01:40:39
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.71 Mbit/s
95th percentile per-packet one-way delay: 47.834 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 63.25 Mbit/s
95th percentile per-packet one-way delay: 46.384 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 35.12 Mbit/s
95th percentile per-packet one-way delay: 50.122 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 28.17 Mbit/s
95th percentile per-packet one-way delay: 49.087 ms
Loss rate: 0.01%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-11-30 00:44:36

End at: 2018-11-30 00:45:06

Local clock offset: 5.811 ms

Remote clock offset: 0.997 ms

Below is generated by plot.py at 2018-11-30 01:40:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.79 Mbit/s

95th percentile per-packet one-way delay: 43.363 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 69.55 Mbit/s

95th percentile per-packet one-way delay: 41.225 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 22.68 Mbit/s

95th percentile per-packet one-way delay: 44.846 ms

Loss rate: 0.02%

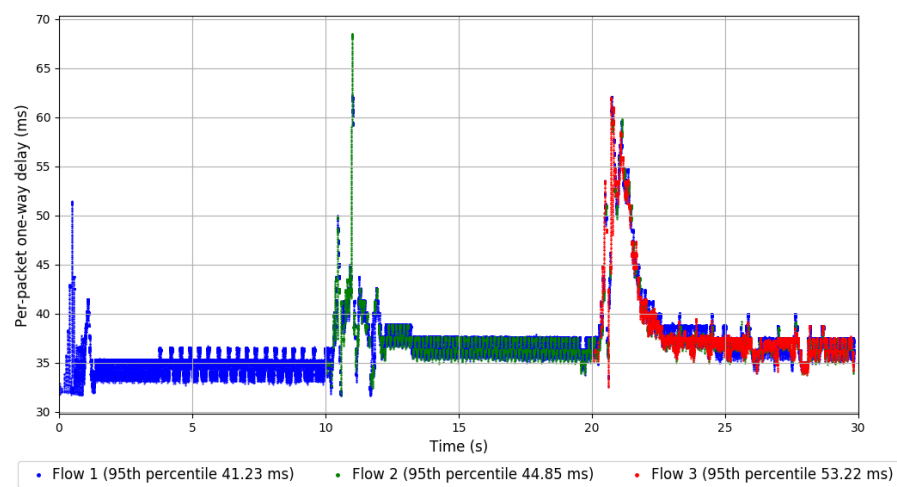
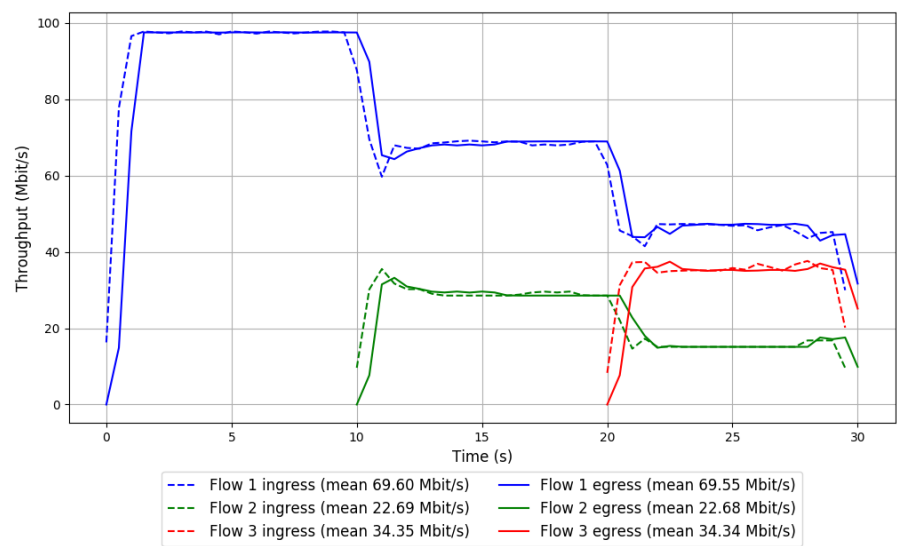
-- Flow 3:

Average throughput: 34.34 Mbit/s

95th percentile per-packet one-way delay: 53.224 ms

Loss rate: 0.03%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-11-30 01:06:17

End at: 2018-11-30 01:06:47

Local clock offset: 2.073 ms

Remote clock offset: 5.494 ms

Below is generated by plot.py at 2018-11-30 01:41:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.79 Mbit/s

95th percentile per-packet one-way delay: 52.066 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 65.09 Mbit/s

95th percentile per-packet one-way delay: 48.379 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 31.17 Mbit/s

95th percentile per-packet one-way delay: 54.779 ms

Loss rate: 0.63%

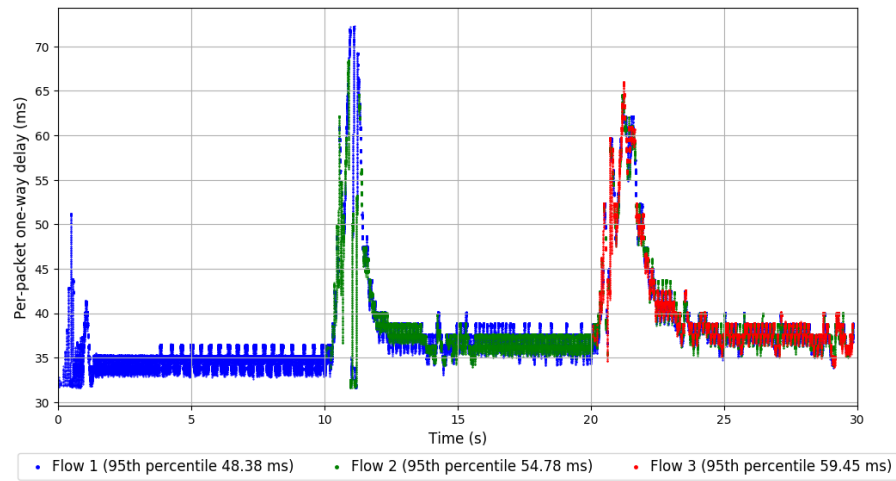
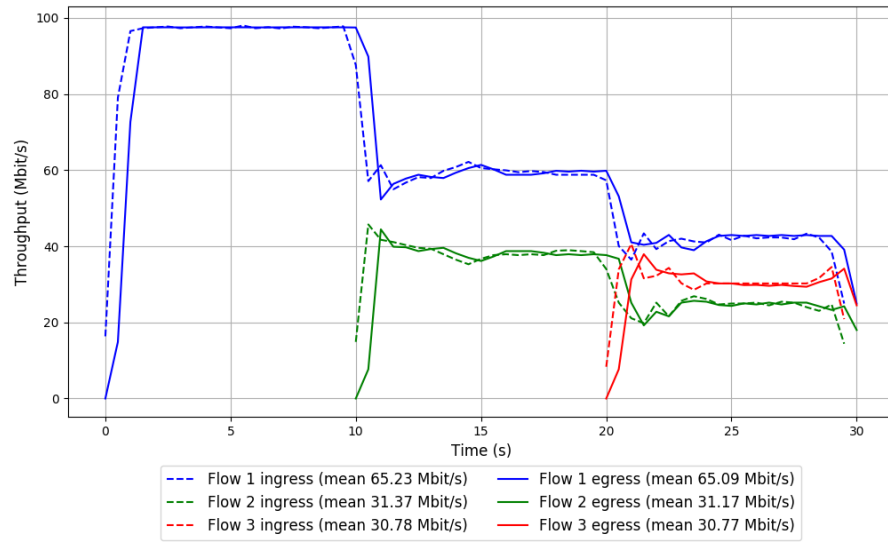
-- Flow 3:

Average throughput: 30.77 Mbit/s

95th percentile per-packet one-way delay: 59.447 ms

Loss rate: 0.00%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-11-30 01:28:03

End at: 2018-11-30 01:28:33

Local clock offset: -0.315 ms

Remote clock offset: 7.441 ms

Below is generated by plot.py at 2018-11-30 01:41:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.81 Mbit/s

95th percentile per-packet one-way delay: 52.398 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 66.85 Mbit/s

95th percentile per-packet one-way delay: 49.002 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 28.94 Mbit/s

95th percentile per-packet one-way delay: 54.657 ms

Loss rate: 0.09%

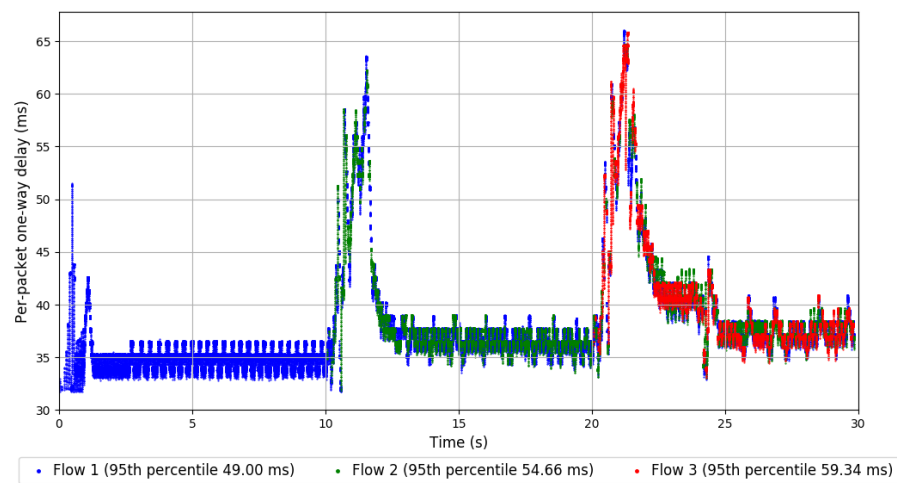
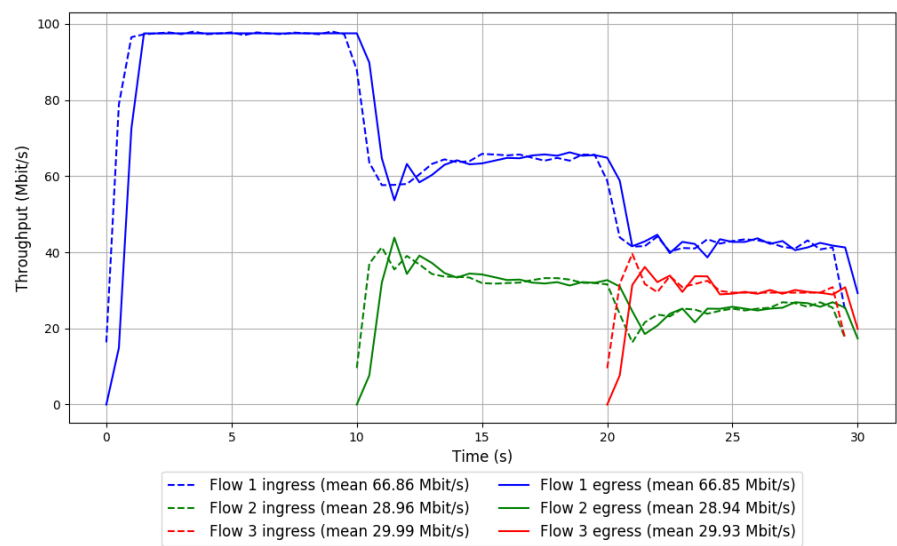
-- Flow 3:

Average throughput: 29.93 Mbit/s

95th percentile per-packet one-way delay: 59.335 ms

Loss rate: 0.18%

Run 5: Report of Indigo — Data Link

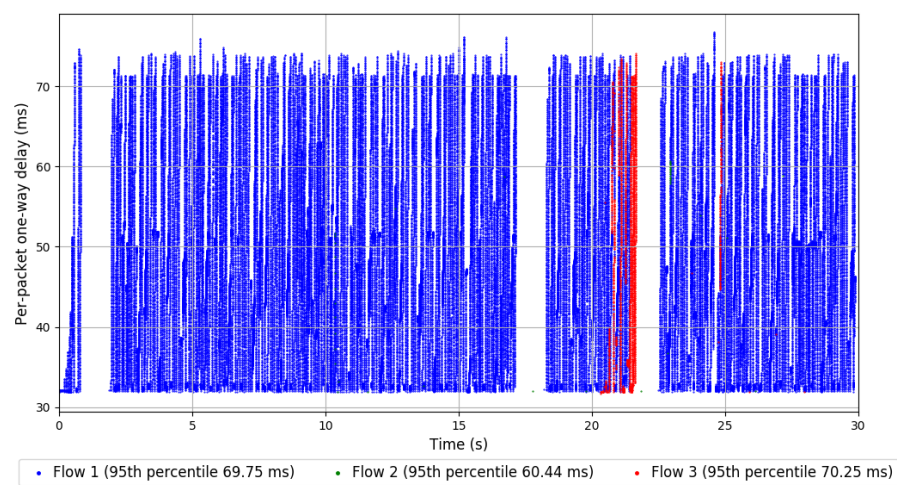
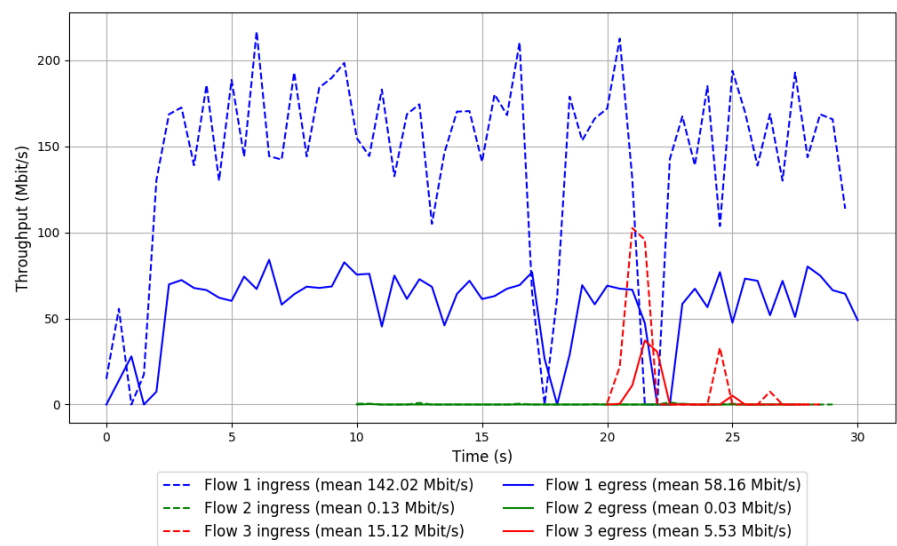


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-29 23:58:35
End at: 2018-11-29 23:59:05
Local clock offset: 0.21 ms
Remote clock offset: -4.199 ms

Below is generated by plot.py at 2018-11-30 01:41:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 59.60 Mbit/s
95th percentile per-packet one-way delay: 69.762 ms
Loss rate: 59.30%
-- Flow 1:
Average throughput: 58.16 Mbit/s
95th percentile per-packet one-way delay: 69.751 ms
Loss rate: 59.03%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 60.438 ms
Loss rate: 79.80%
-- Flow 3:
Average throughput: 5.53 Mbit/s
95th percentile per-packet one-way delay: 70.251 ms
Loss rate: 67.67%

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

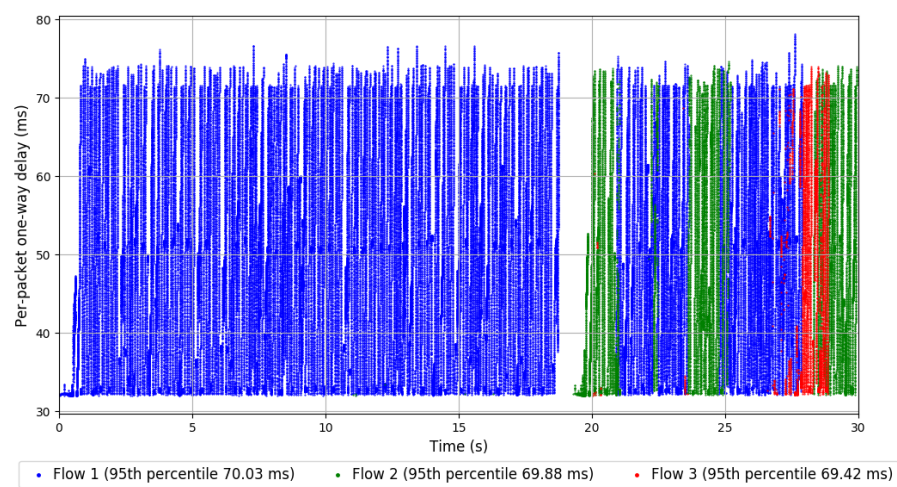
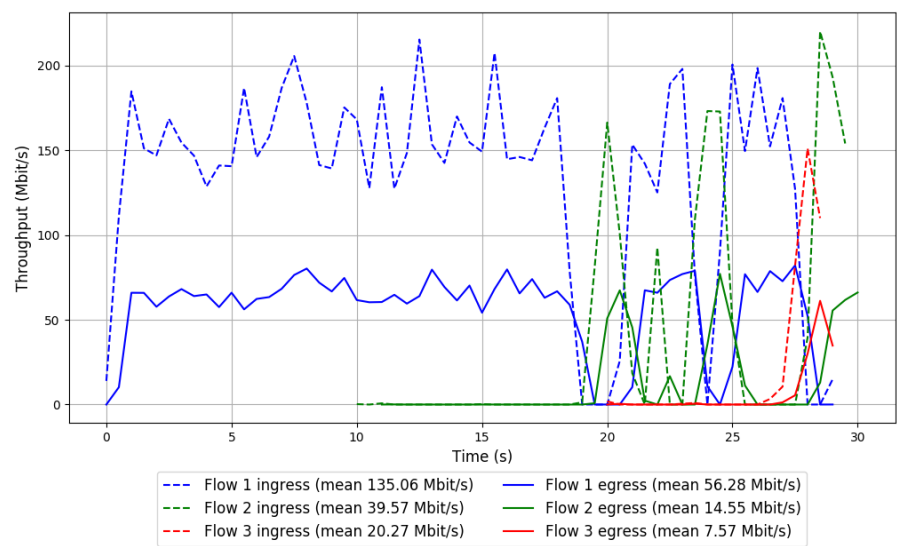


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-30 00:20:22
End at: 2018-11-30 00:20:52
Local clock offset: 2.701 ms
Remote clock offset: -2.779 ms

Below is generated by plot.py at 2018-11-30 01:41:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 65.91 Mbit/s
95th percentile per-packet one-way delay: 69.983 ms
Loss rate: 59.66%
-- Flow 1:
Average throughput: 56.28 Mbit/s
95th percentile per-packet one-way delay: 70.026 ms
Loss rate: 58.44%
-- Flow 2:
Average throughput: 14.55 Mbit/s
95th percentile per-packet one-way delay: 69.875 ms
Loss rate: 65.02%
-- Flow 3:
Average throughput: 7.57 Mbit/s
95th percentile per-packet one-way delay: 69.415 ms
Loss rate: 62.90%

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



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-30 00:42:14

End at: 2018-11-30 00:42:44

Local clock offset: 5.733 ms

Remote clock offset: 0.568 ms

Below is generated by plot.py at 2018-11-30 01:41:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 61.97 Mbit/s

95th percentile per-packet one-way delay: 69.860 ms

Loss rate: 58.92%

-- Flow 1:

Average throughput: 63.11 Mbit/s

95th percentile per-packet one-way delay: 69.885 ms

Loss rate: 59.00%

-- Flow 2:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 67.750 ms

Loss rate: 36.92%

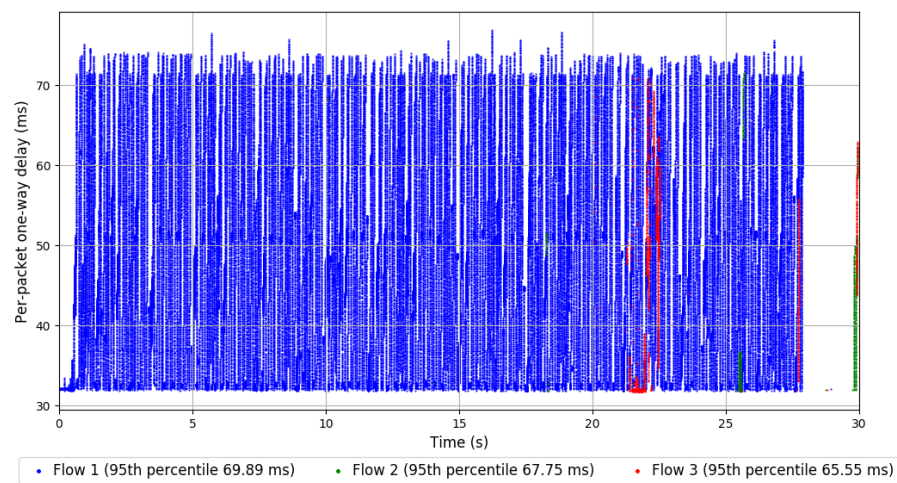
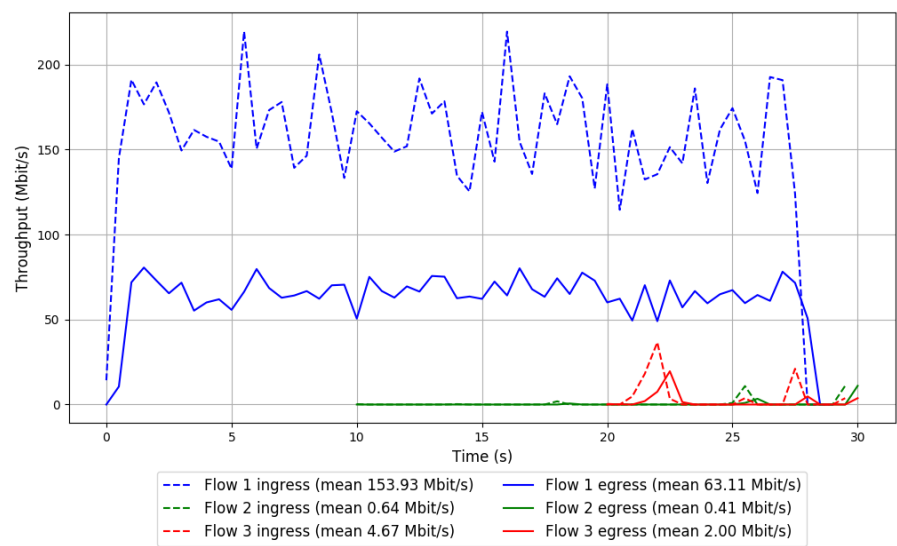
-- Flow 3:

Average throughput: 2.00 Mbit/s

95th percentile per-packet one-way delay: 65.551 ms

Loss rate: 57.16%

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



Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-30 01:03:50

End at: 2018-11-30 01:04:20

Local clock offset: 2.25 ms

Remote clock offset: 5.01 ms

Below is generated by plot.py at 2018-11-30 01:41:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 61.37 Mbit/s

95th percentile per-packet one-way delay: 69.613 ms

Loss rate: 59.47%

-- Flow 1:

Average throughput: 25.97 Mbit/s

95th percentile per-packet one-way delay: 69.549 ms

Loss rate: 59.86%

-- Flow 2:

Average throughput: 59.35 Mbit/s

95th percentile per-packet one-way delay: 69.632 ms

Loss rate: 59.24%

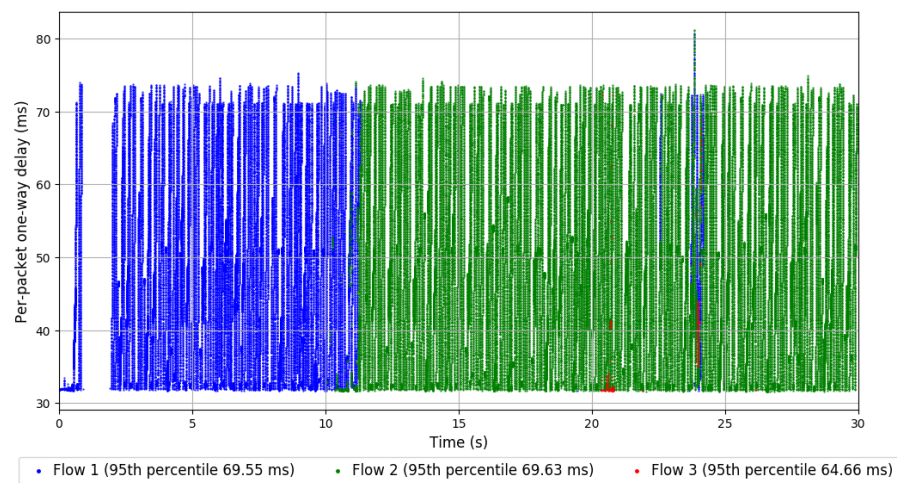
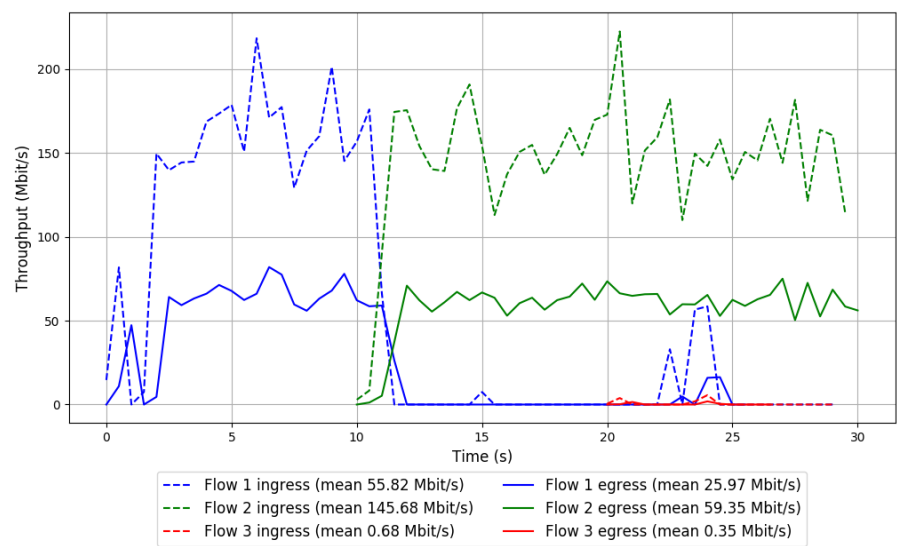
-- Flow 3:

Average throughput: 0.35 Mbit/s

95th percentile per-packet one-way delay: 64.661 ms

Loss rate: 66.47%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-30 01:25:40

End at: 2018-11-30 01:26:10

Local clock offset: -0.083 ms

Remote clock offset: 7.46 ms

Below is generated by plot.py at 2018-11-30 01:41:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 62.99 Mbit/s

95th percentile per-packet one-way delay: 69.328 ms

Loss rate: 58.97%

-- Flow 1:

Average throughput: 42.92 Mbit/s

95th percentile per-packet one-way delay: 69.359 ms

Loss rate: 58.50%

-- Flow 2:

Average throughput: 29.24 Mbit/s

95th percentile per-packet one-way delay: 69.203 ms

Loss rate: 57.35%

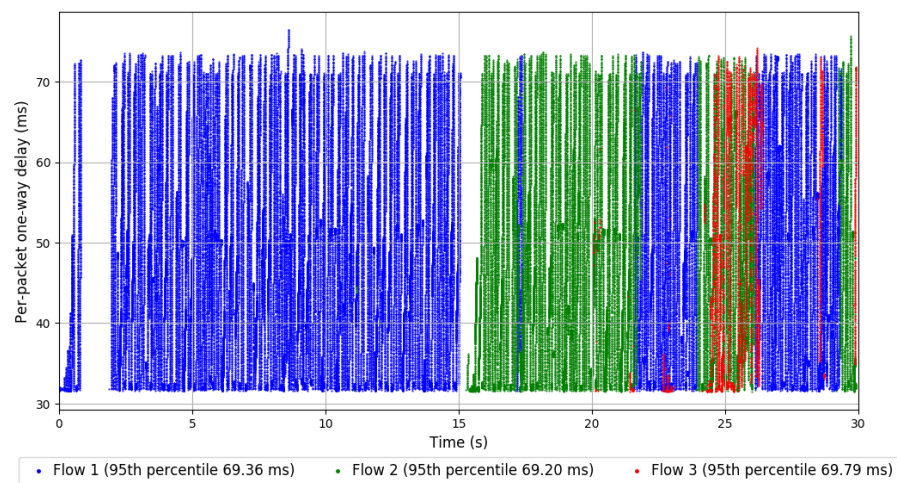
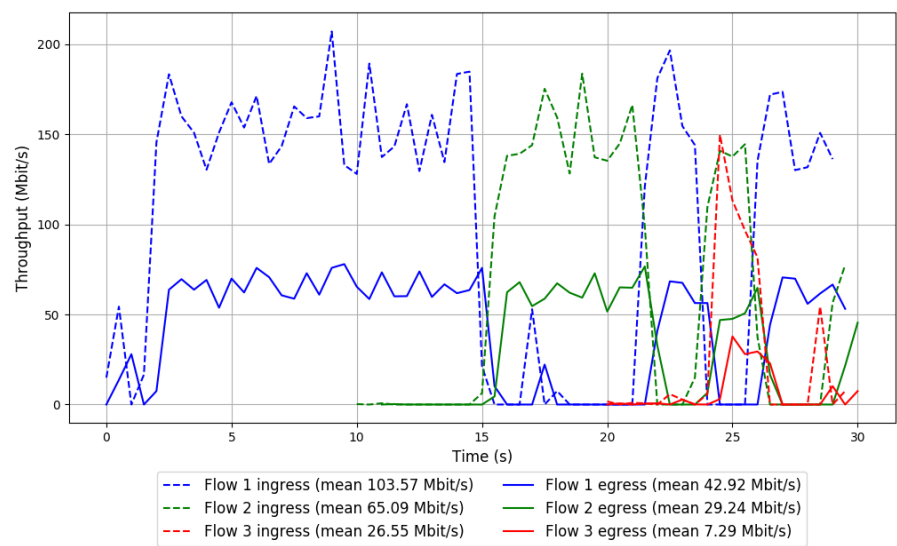
-- Flow 3:

Average throughput: 7.29 Mbit/s

95th percentile per-packet one-way delay: 69.791 ms

Loss rate: 72.46%

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

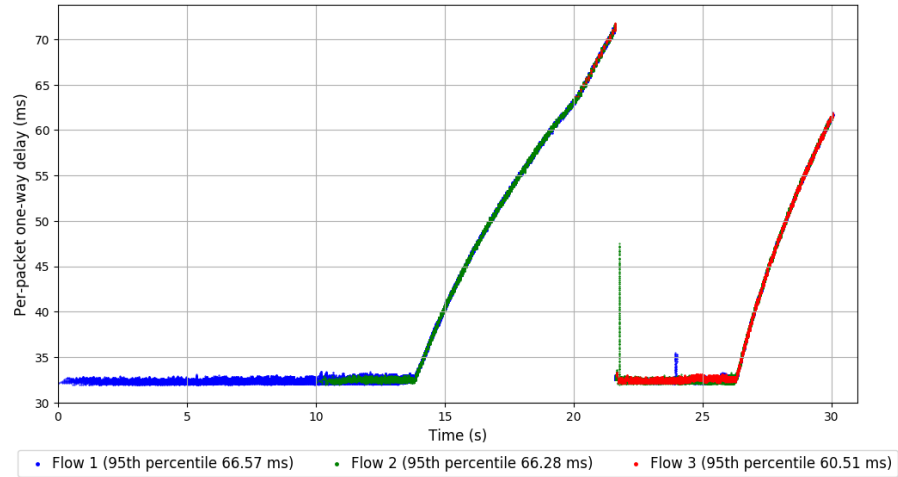
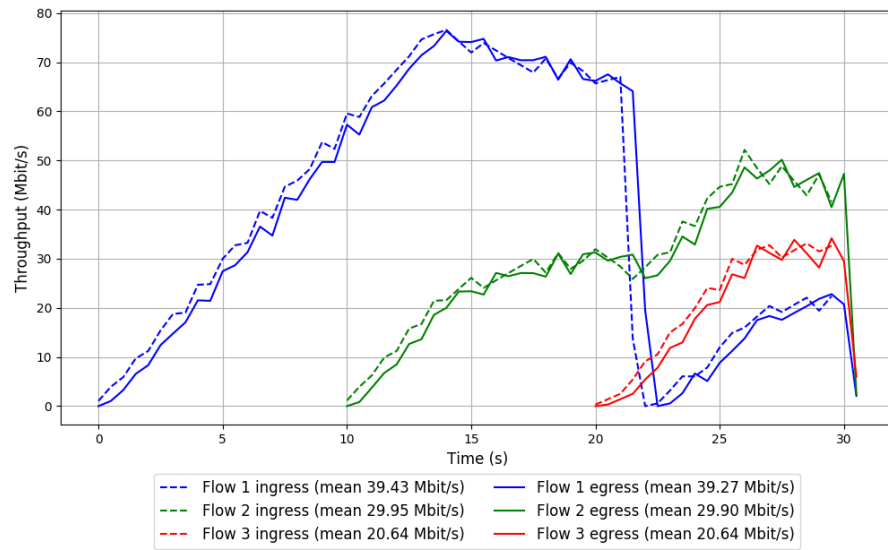


```
Run 1: Statistics of LEDBAT

Start at: 2018-11-29 23:51:16
End at: 2018-11-29 23:51:46
Local clock offset: -0.771 ms
Remote clock offset: -4.195 ms

# Below is generated by plot.py at 2018-11-30 01:41:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.00 Mbit/s
95th percentile per-packet one-way delay: 66.003 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 39.27 Mbit/s
95th percentile per-packet one-way delay: 66.568 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 29.90 Mbit/s
95th percentile per-packet one-way delay: 66.275 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 20.64 Mbit/s
95th percentile per-packet one-way delay: 60.514 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

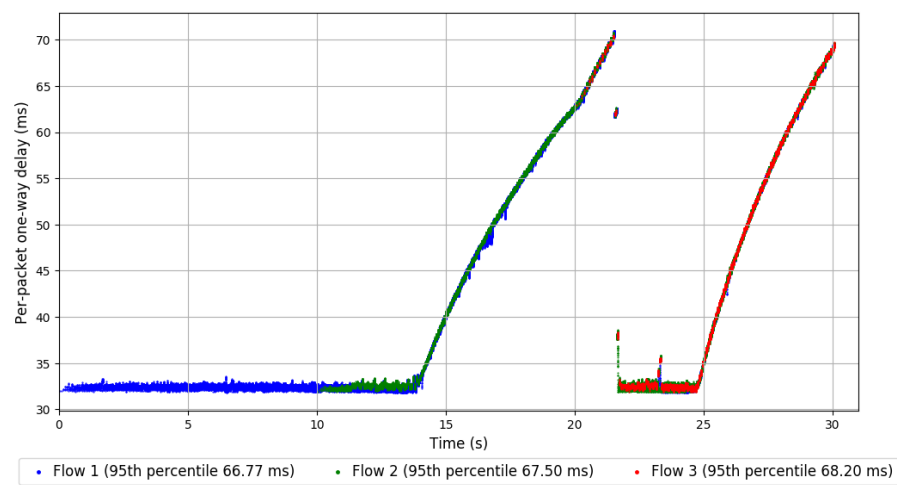
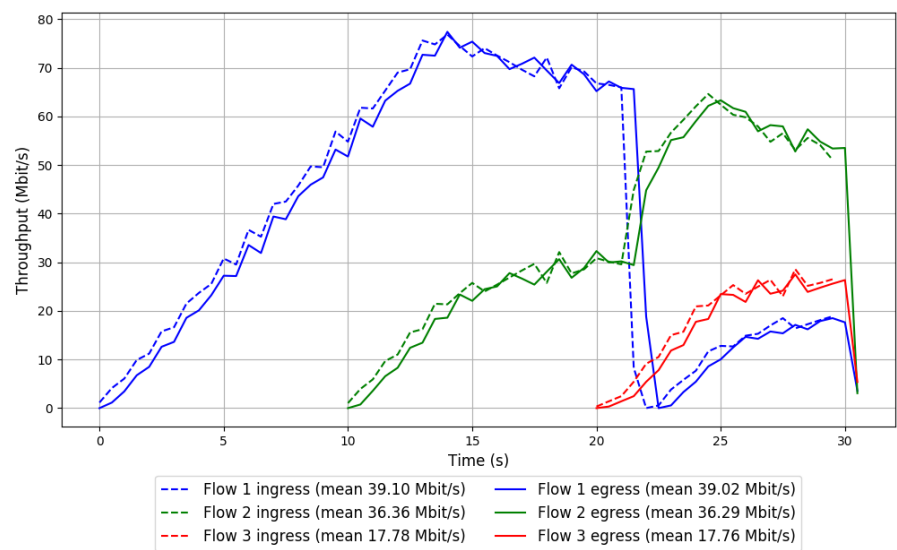


Run 2: Statistics of LEDBAT

Start at: 2018-11-30 00:12:56
End at: 2018-11-30 00:13:26
Local clock offset: 0.064 ms
Remote clock offset: -3.516 ms

Below is generated by plot.py at 2018-11-30 01:41:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 69.06 Mbit/s
95th percentile per-packet one-way delay: 67.278 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 39.02 Mbit/s
95th percentile per-packet one-way delay: 66.770 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 36.29 Mbit/s
95th percentile per-packet one-way delay: 67.503 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 17.76 Mbit/s
95th percentile per-packet one-way delay: 68.196 ms
Loss rate: 0.00%

Run 2: Report of LEDBAT — Data Link

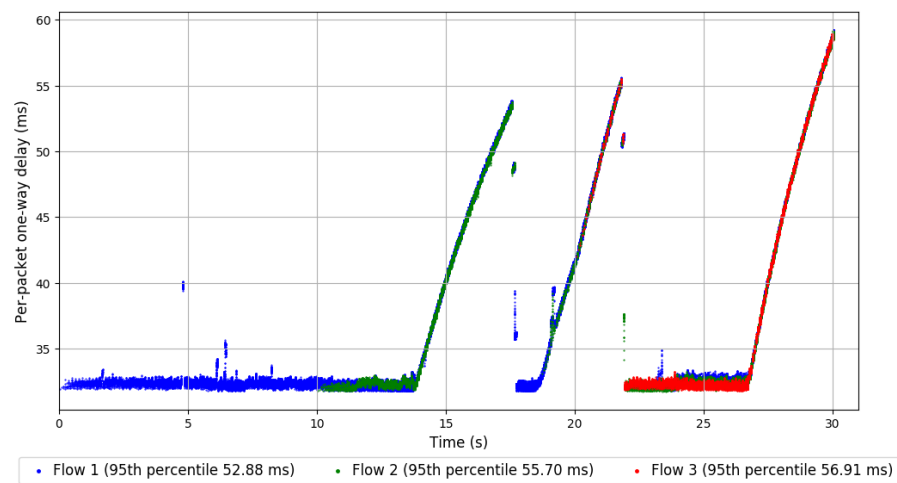
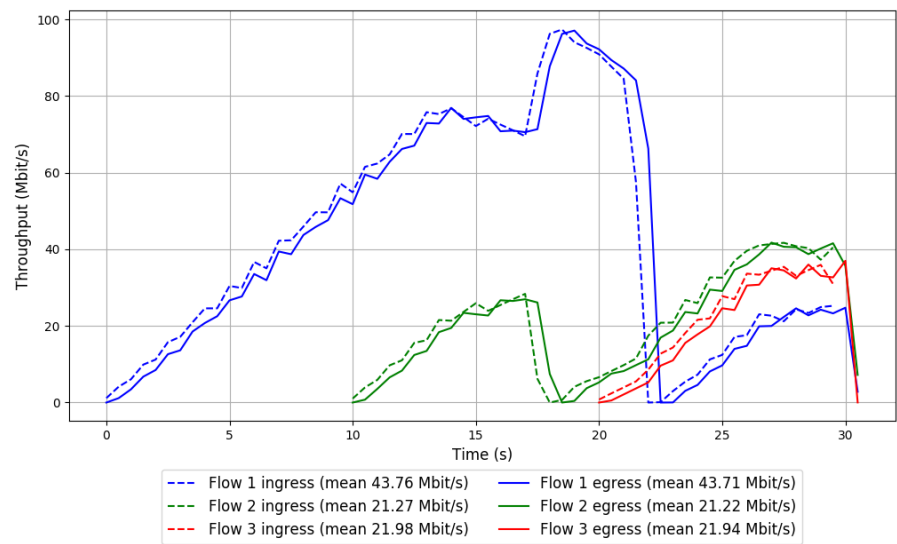


Run 3: Statistics of LEDBAT

Start at: 2018-11-30 00:34:37
End at: 2018-11-30 00:35:07
Local clock offset: 5.3 ms
Remote clock offset: -0.907 ms

Below is generated by plot.py at 2018-11-30 01:41:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 65.11 Mbit/s
95th percentile per-packet one-way delay: 54.068 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 43.71 Mbit/s
95th percentile per-packet one-way delay: 52.878 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 21.22 Mbit/s
95th percentile per-packet one-way delay: 55.695 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 21.94 Mbit/s
95th percentile per-packet one-way delay: 56.907 ms
Loss rate: 0.00%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-11-30 00:56:28

End at: 2018-11-30 00:56:58

Local clock offset: 2.996 ms

Remote clock offset: 3.173 ms

Below is generated by plot.py at 2018-11-30 01:41:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 60.51 Mbit/s

95th percentile per-packet one-way delay: 61.451 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 39.58 Mbit/s

95th percentile per-packet one-way delay: 61.475 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 19.75 Mbit/s

95th percentile per-packet one-way delay: 62.487 ms

Loss rate: 0.12%

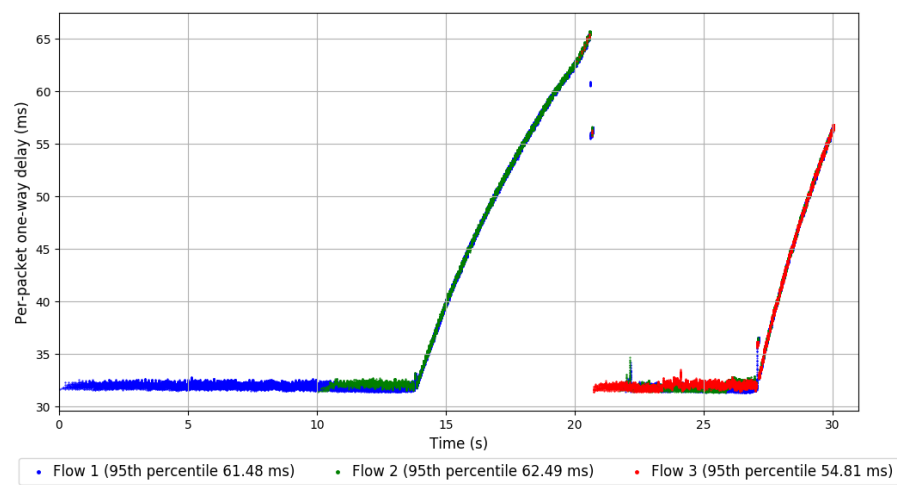
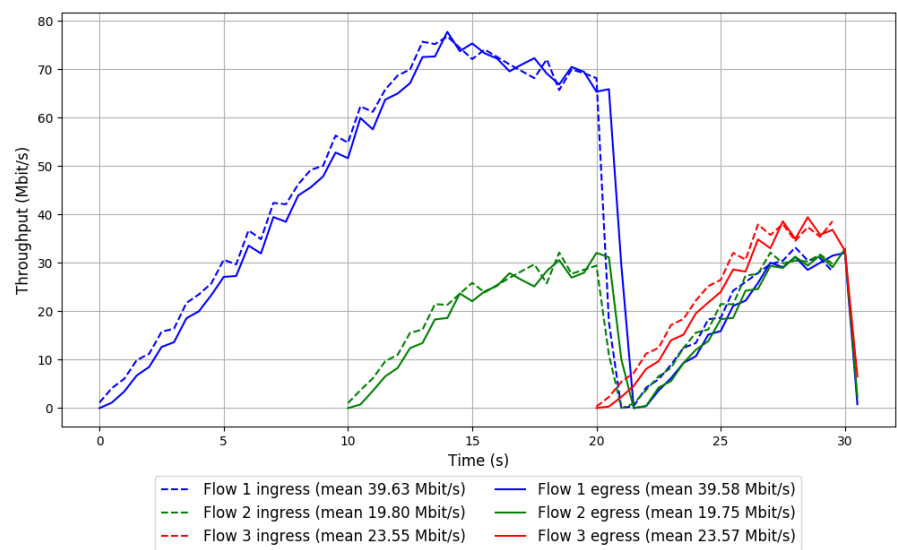
-- Flow 3:

Average throughput: 23.57 Mbit/s

95th percentile per-packet one-way delay: 54.809 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-11-30 01:18:13

End at: 2018-11-30 01:18:43

Local clock offset: 0.99 ms

Remote clock offset: 7.178 ms

Below is generated by plot.py at 2018-11-30 01:42:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 60.73 Mbit/s

95th percentile per-packet one-way delay: 66.049 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 40.12 Mbit/s

95th percentile per-packet one-way delay: 66.075 ms

Loss rate: 0.26%

-- Flow 2:

Average throughput: 19.55 Mbit/s

95th percentile per-packet one-way delay: 67.493 ms

Loss rate: 0.16%

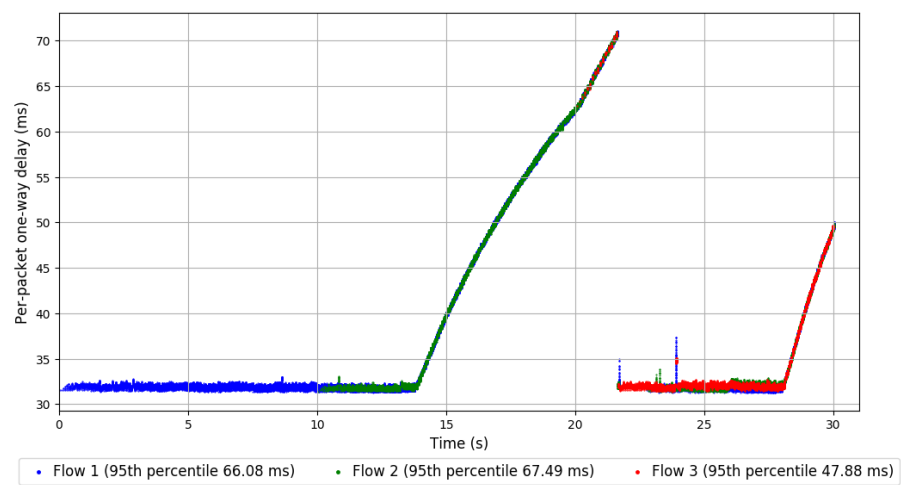
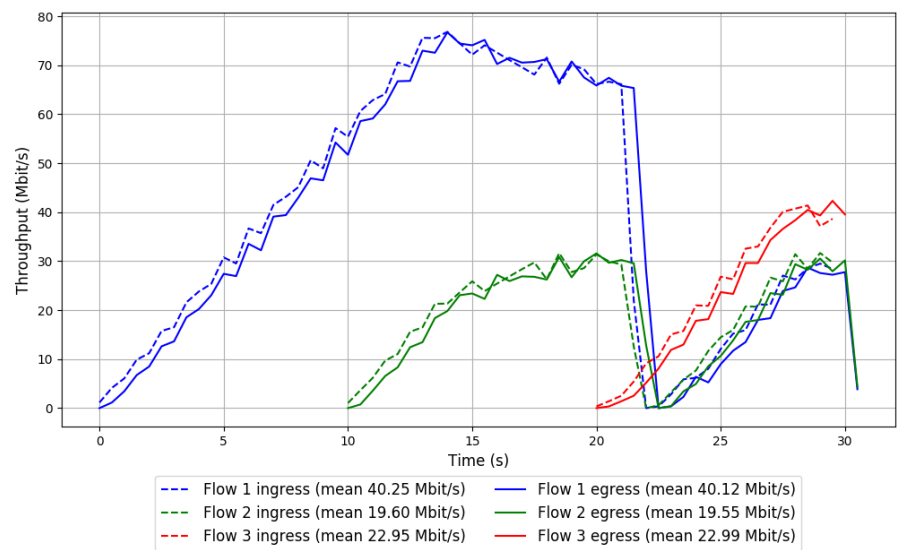
-- Flow 3:

Average throughput: 22.99 Mbit/s

95th percentile per-packet one-way delay: 47.876 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link

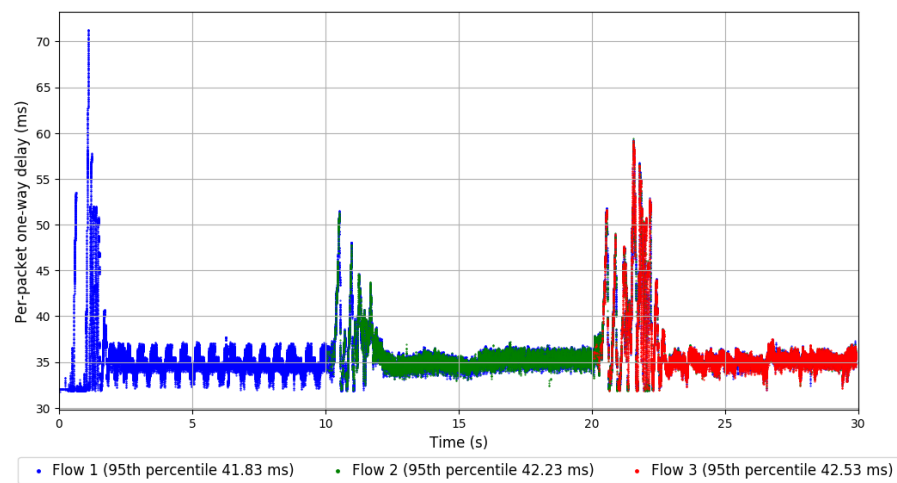
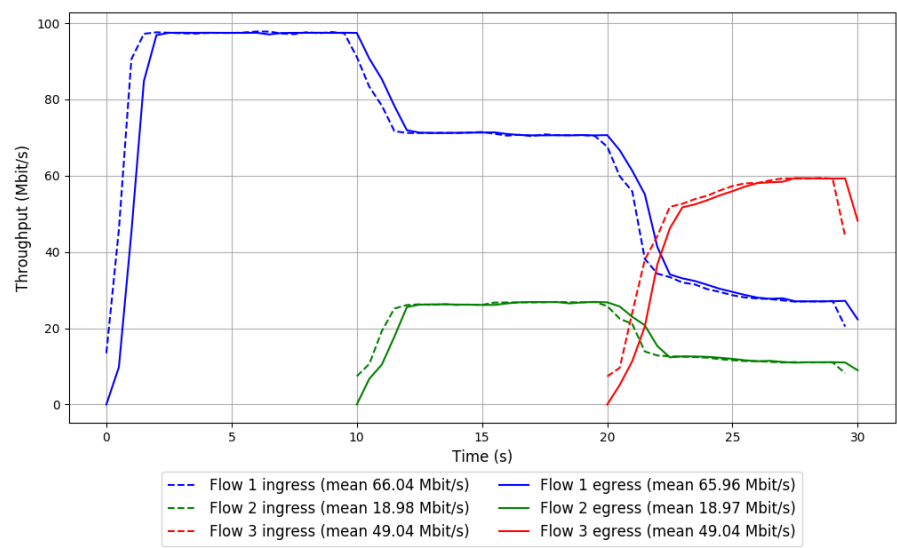


Run 1: Statistics of Indigo-Muses

Start at: 2018-11-29 23:54:54
End at: 2018-11-29 23:55:24
Local clock offset: -0.11 ms
Remote clock offset: -4.328 ms

Below is generated by plot.py at 2018-11-30 01:42:30
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.73 Mbit/s
95th percentile per-packet one-way delay: 42.012 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 65.96 Mbit/s
95th percentile per-packet one-way delay: 41.833 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 18.97 Mbit/s
95th percentile per-packet one-way delay: 42.235 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 49.04 Mbit/s
95th percentile per-packet one-way delay: 42.529 ms
Loss rate: 0.00%

Run 1: Report of Indigo-Muses — Data Link

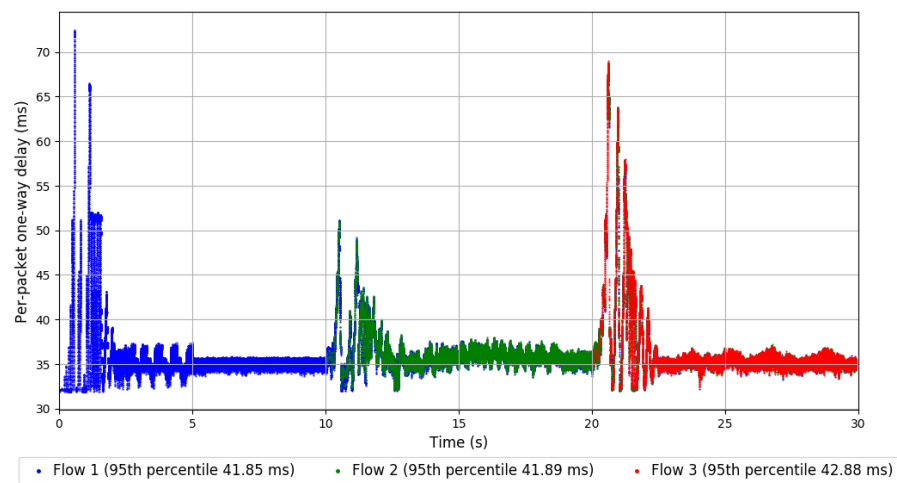
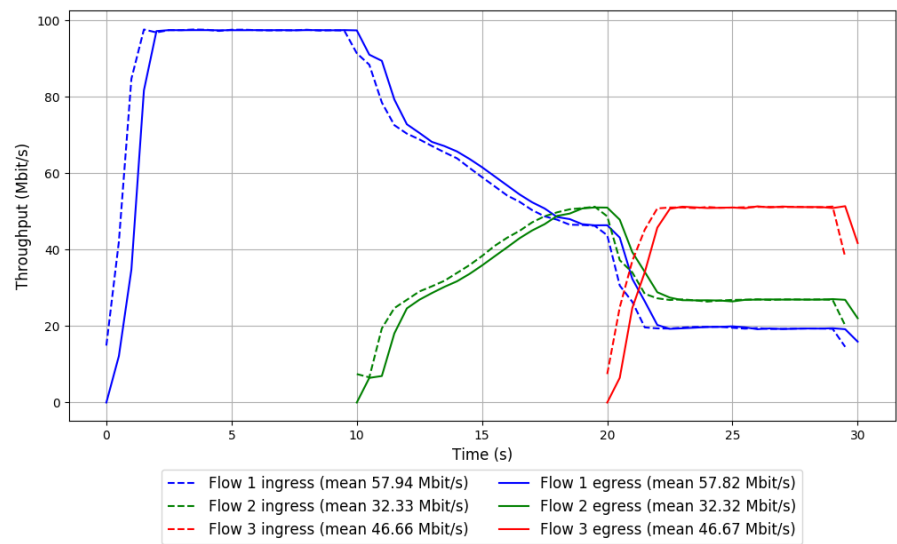


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-30 00:16:41
End at: 2018-11-30 00:17:11
Local clock offset: 0.991 ms
Remote clock offset: -3.388 ms

Below is generated by plot.py at 2018-11-30 01:42:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.68 Mbit/s
95th percentile per-packet one-way delay: 42.051 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 57.82 Mbit/s
95th percentile per-packet one-way delay: 41.846 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 32.32 Mbit/s
95th percentile per-packet one-way delay: 41.891 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 46.67 Mbit/s
95th percentile per-packet one-way delay: 42.884 ms
Loss rate: 0.00%

Run 2: Report of Indigo-Muses — Data Link

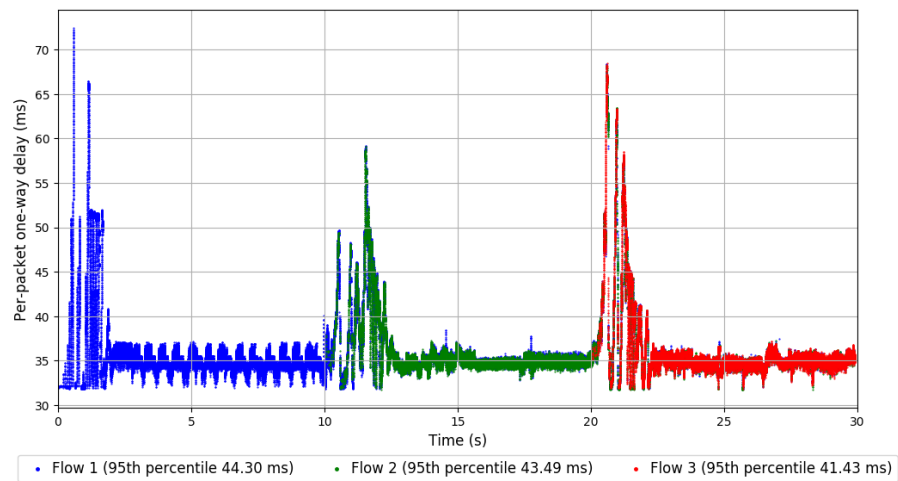
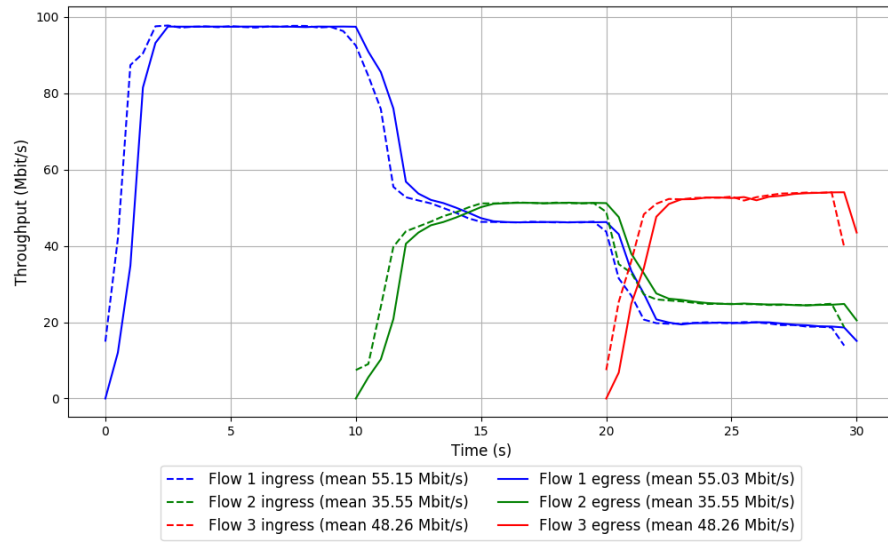


Run 3: Statistics of Indigo-Muses

Start at: 2018-11-30 00:38:26
End at: 2018-11-30 00:38:56
Local clock offset: 5.56 ms
Remote clock offset: -0.204 ms

Below is generated by plot.py at 2018-11-30 01:42:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.56 Mbit/s
95th percentile per-packet one-way delay: 43.731 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 55.03 Mbit/s
95th percentile per-packet one-way delay: 44.295 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 35.55 Mbit/s
95th percentile per-packet one-way delay: 43.494 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 48.26 Mbit/s
95th percentile per-packet one-way delay: 41.433 ms
Loss rate: 0.00%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-11-30 01:00:05

End at: 2018-11-30 01:00:35

Local clock offset: 2.582 ms

Remote clock offset: 4.26 ms

Below is generated by plot.py at 2018-11-30 01:43:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.15 Mbit/s

95th percentile per-packet one-way delay: 43.685 ms

Loss rate: 0.48%

-- Flow 1:

Average throughput: 57.73 Mbit/s

95th percentile per-packet one-way delay: 44.011 ms

Loss rate: 0.77%

-- Flow 2:

Average throughput: 32.79 Mbit/s

95th percentile per-packet one-way delay: 44.304 ms

Loss rate: 0.01%

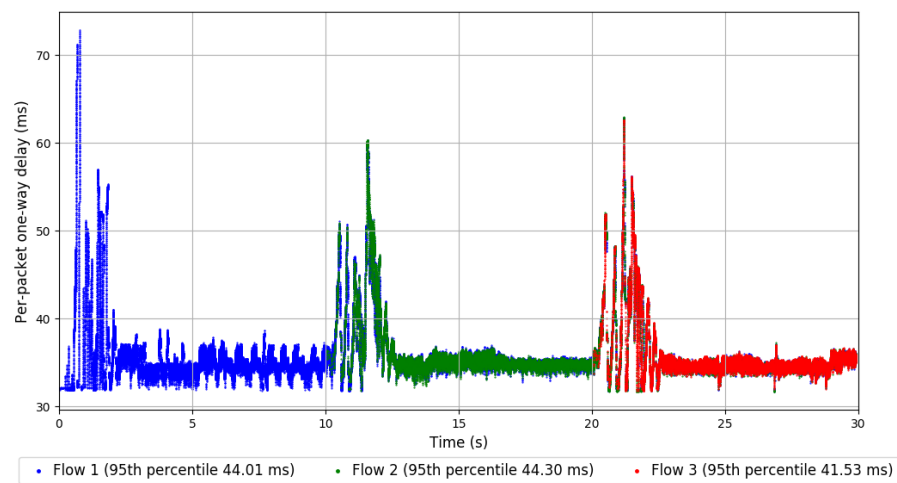
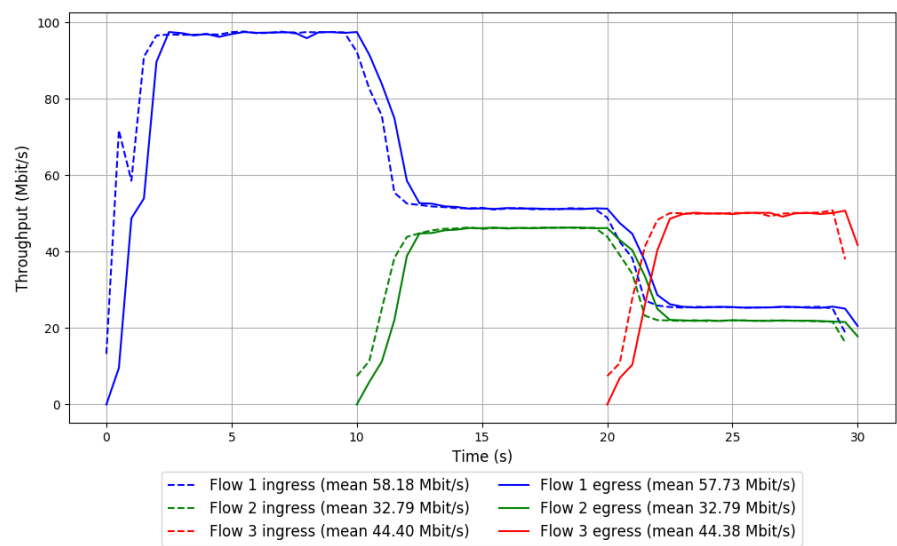
-- Flow 3:

Average throughput: 44.38 Mbit/s

95th percentile per-packet one-way delay: 41.535 ms

Loss rate: 0.02%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-30 01:21:54

End at: 2018-11-30 01:22:24

Local clock offset: 0.356 ms

Remote clock offset: 7.747 ms

Below is generated by plot.py at 2018-11-30 01:43:09

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.58 Mbit/s

95th percentile per-packet one-way delay: 43.584 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 55.93 Mbit/s

95th percentile per-packet one-way delay: 44.686 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 35.66 Mbit/s

95th percentile per-packet one-way delay: 43.591 ms

Loss rate: 0.00%

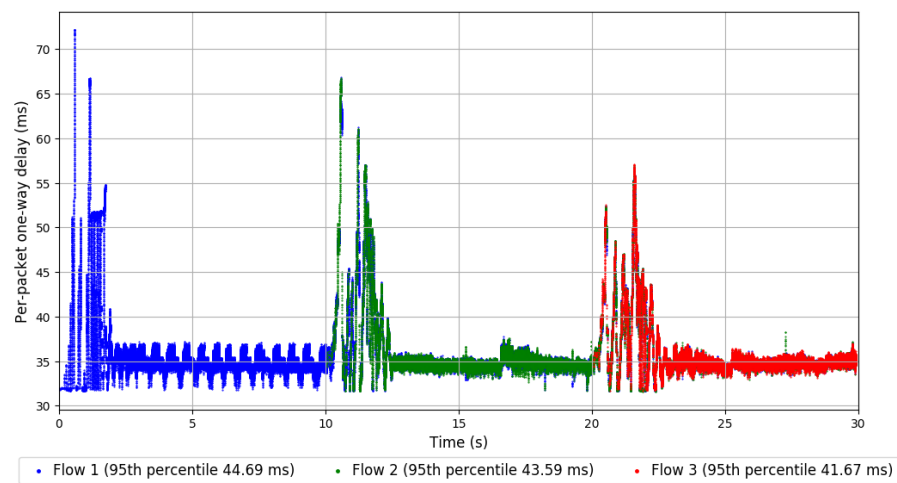
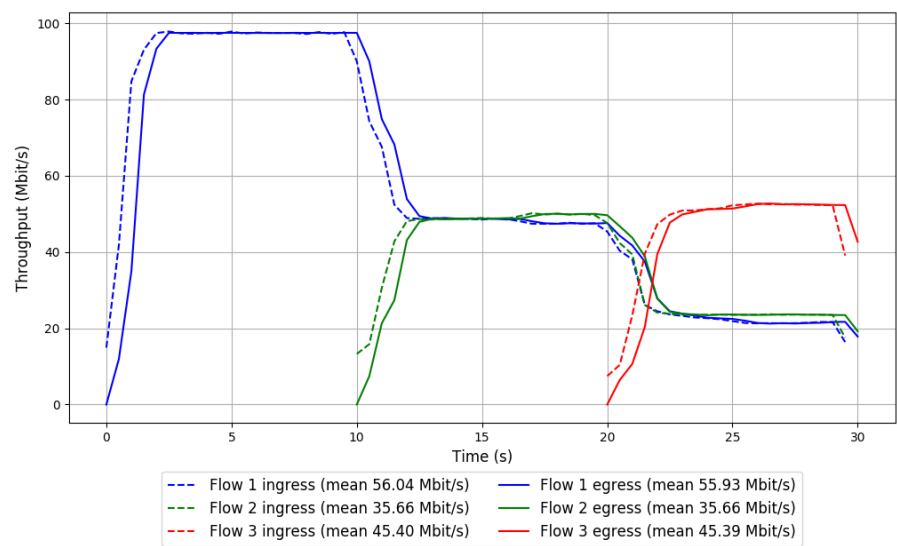
-- Flow 3:

Average throughput: 45.39 Mbit/s

95th percentile per-packet one-way delay: 41.666 ms

Loss rate: 0.00%

Run 5: Report of Indigo-Muses — Data Link

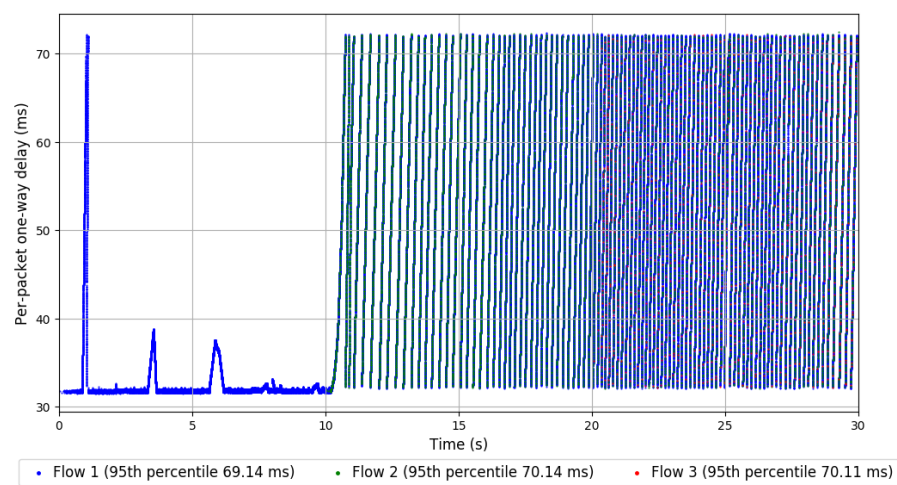
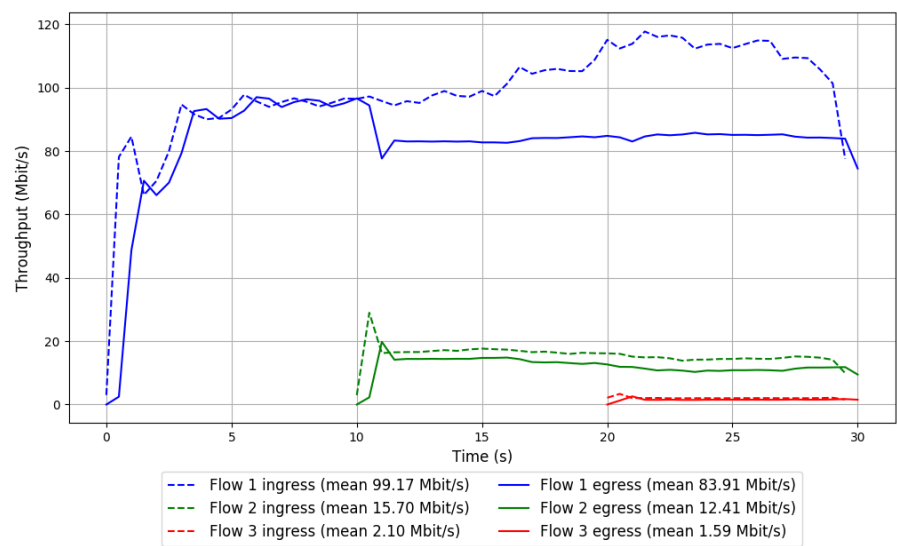


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-30 00:06:55
End at: 2018-11-30 00:07:25
Local clock offset: 0.332 ms
Remote clock offset: -4.204 ms

# Below is generated by plot.py at 2018-11-30 01:43:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.69 Mbit/s
95th percentile per-packet one-way delay: 69.283 ms
Loss rate: 15.88%
-- Flow 1:
Average throughput: 83.91 Mbit/s
95th percentile per-packet one-way delay: 69.136 ms
Loss rate: 15.30%
-- Flow 2:
Average throughput: 12.41 Mbit/s
95th percentile per-packet one-way delay: 70.142 ms
Loss rate: 20.80%
-- Flow 3:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 70.111 ms
Loss rate: 24.24%
```

Run 1: Report of PCC-Allegro — Data Link

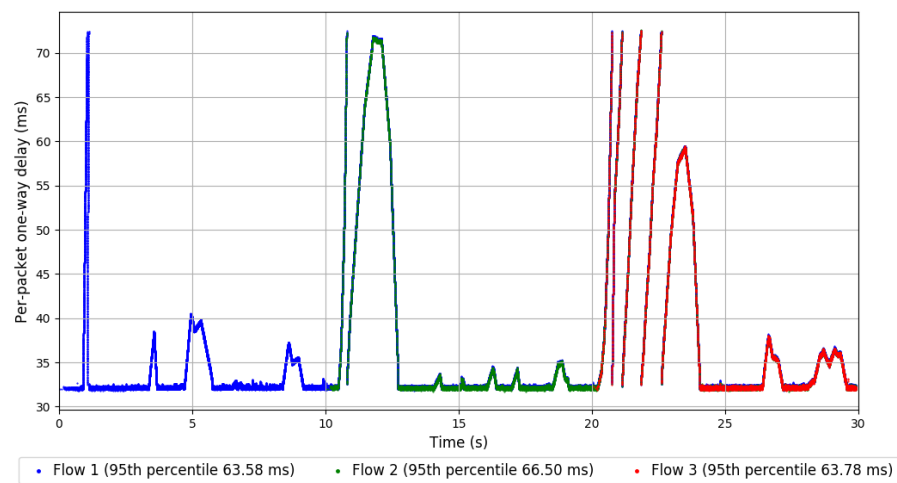
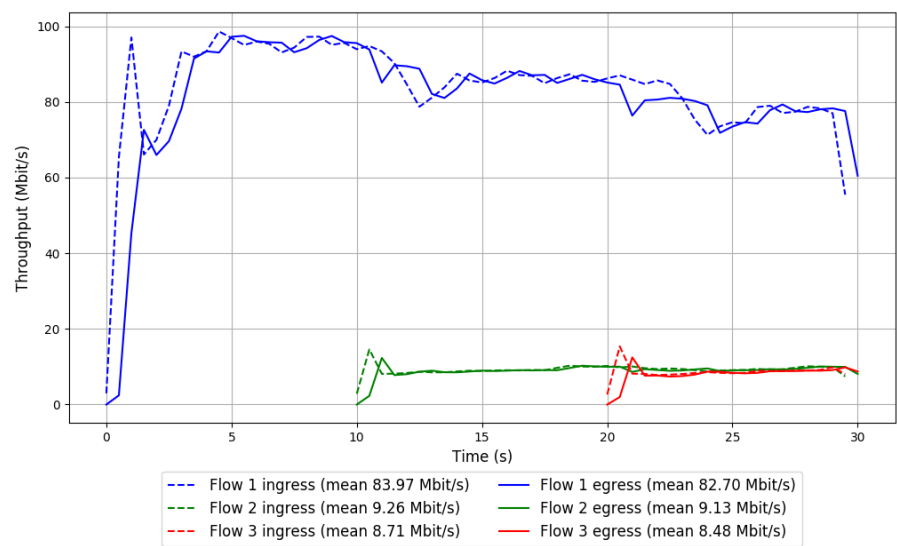


Run 2: Statistics of PCC-Allegro

Start at: 2018-11-30 00:28:38
End at: 2018-11-30 00:29:08
Local clock offset: 4.687 ms
Remote clock offset: -1.823 ms

Below is generated by plot.py at 2018-11-30 01:43:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.57 Mbit/s
95th percentile per-packet one-way delay: 63.899 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 82.70 Mbit/s
95th percentile per-packet one-way delay: 63.580 ms
Loss rate: 1.51%
-- Flow 2:
Average throughput: 9.13 Mbit/s
95th percentile per-packet one-way delay: 66.500 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 8.48 Mbit/s
95th percentile per-packet one-way delay: 63.780 ms
Loss rate: 2.63%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-11-30 00:50:30

End at: 2018-11-30 00:51:00

Local clock offset: 4.07 ms

Remote clock offset: 2.0 ms

Below is generated by plot.py at 2018-11-30 01:43:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.18 Mbit/s

95th percentile per-packet one-way delay: 60.641 ms

Loss rate: 1.82%

-- Flow 1:

Average throughput: 82.05 Mbit/s

95th percentile per-packet one-way delay: 60.235 ms

Loss rate: 1.82%

-- Flow 2:

Average throughput: 10.35 Mbit/s

95th percentile per-packet one-way delay: 63.272 ms

Loss rate: 1.67%

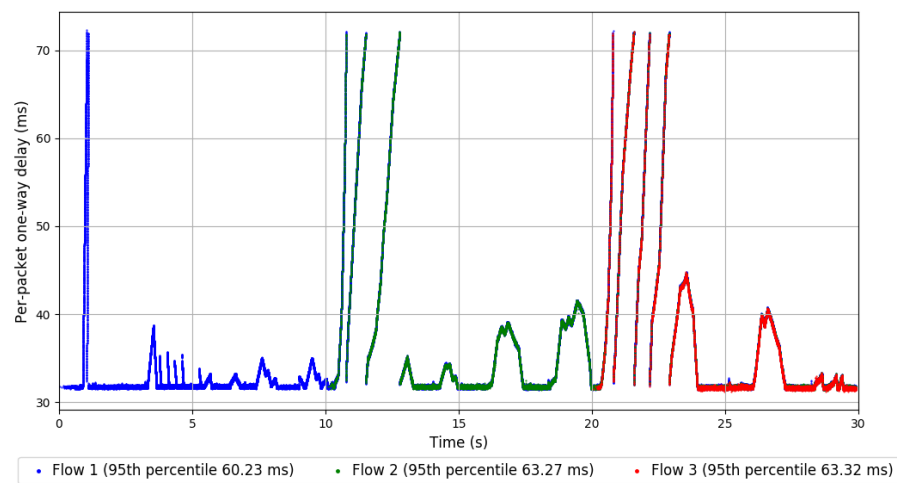
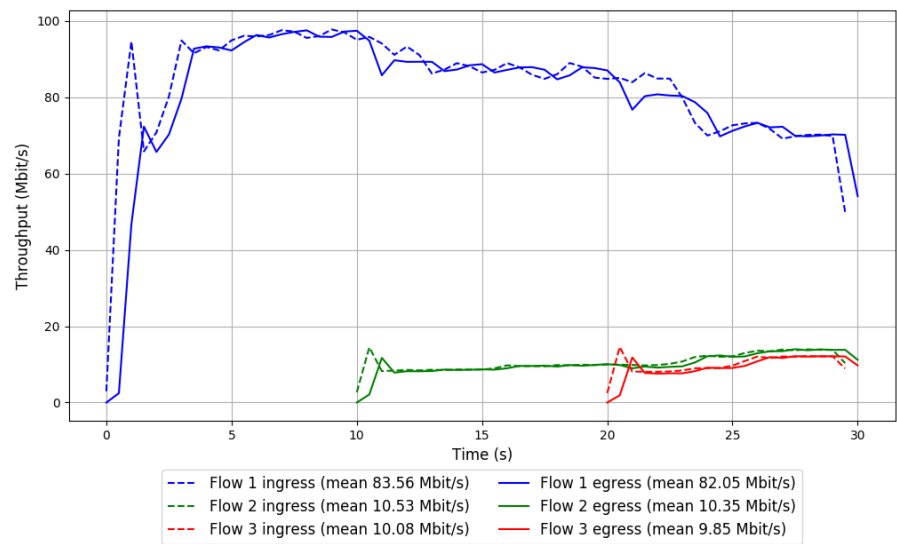
-- Flow 3:

Average throughput: 9.85 Mbit/s

95th percentile per-packet one-way delay: 63.317 ms

Loss rate: 2.30%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-11-30 01:12:13

End at: 2018-11-30 01:12:43

Local clock offset: 1.719 ms

Remote clock offset: 6.493 ms

Below is generated by plot.py at 2018-11-30 01:43:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.77 Mbit/s

95th percentile per-packet one-way delay: 67.023 ms

Loss rate: 6.52%

-- Flow 1:

Average throughput: 79.93 Mbit/s

95th percentile per-packet one-way delay: 66.764 ms

Loss rate: 6.26%

-- Flow 2:

Average throughput: 15.21 Mbit/s

95th percentile per-packet one-way delay: 68.593 ms

Loss rate: 8.84%

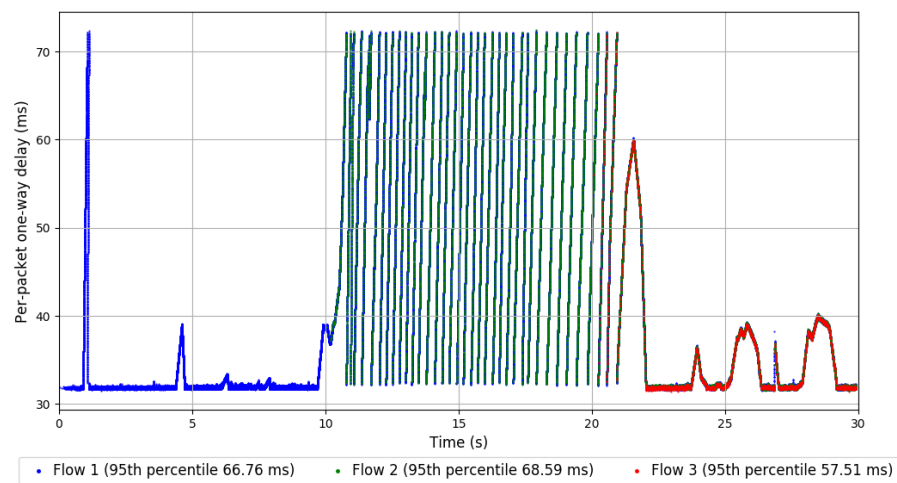
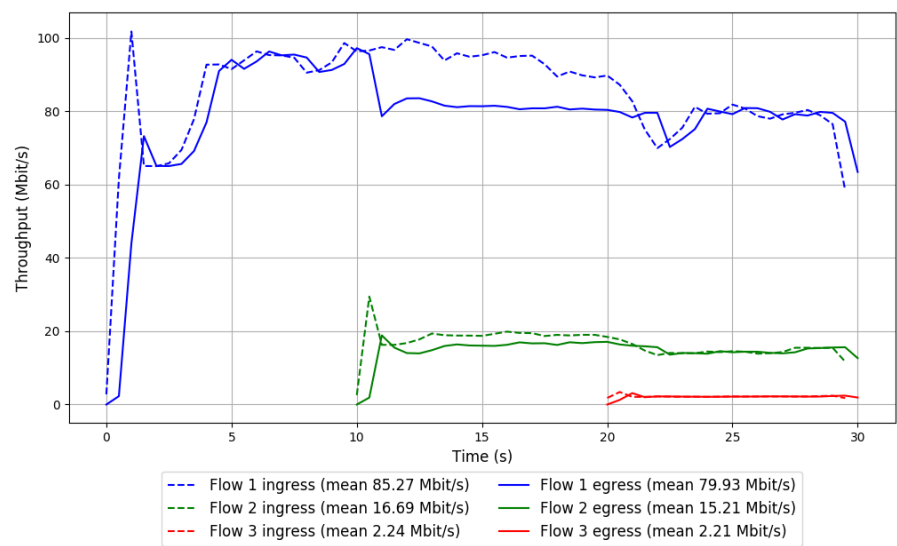
-- Flow 3:

Average throughput: 2.21 Mbit/s

95th percentile per-packet one-way delay: 57.511 ms

Loss rate: 1.51%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-11-30 01:34:03

End at: 2018-11-30 01:34:33

Local clock offset: -0.81 ms

Remote clock offset: 7.099 ms

Below is generated by plot.py at 2018-11-30 01:44:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.09 Mbit/s

95th percentile per-packet one-way delay: 63.635 ms

Loss rate: 1.51%

-- Flow 1:

Average throughput: 82.68 Mbit/s

95th percentile per-packet one-way delay: 63.330 ms

Loss rate: 1.52%

-- Flow 2:

Average throughput: 9.71 Mbit/s

95th percentile per-packet one-way delay: 65.544 ms

Loss rate: 1.29%

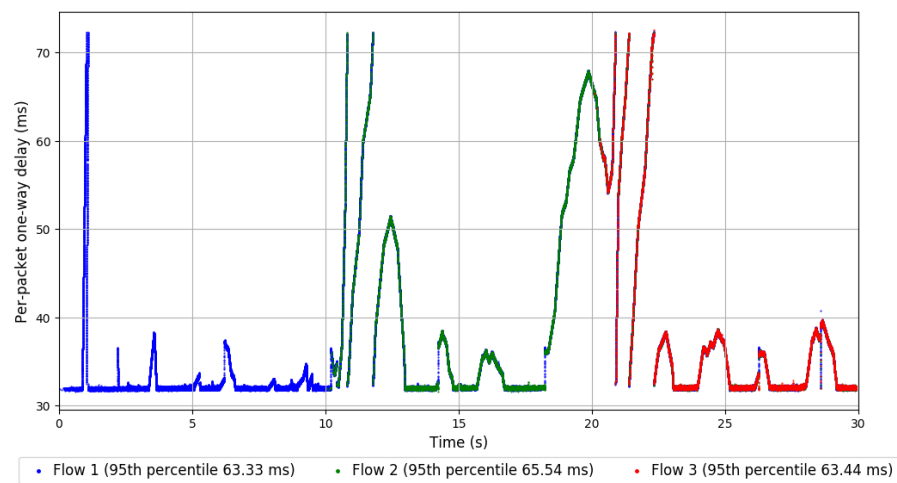
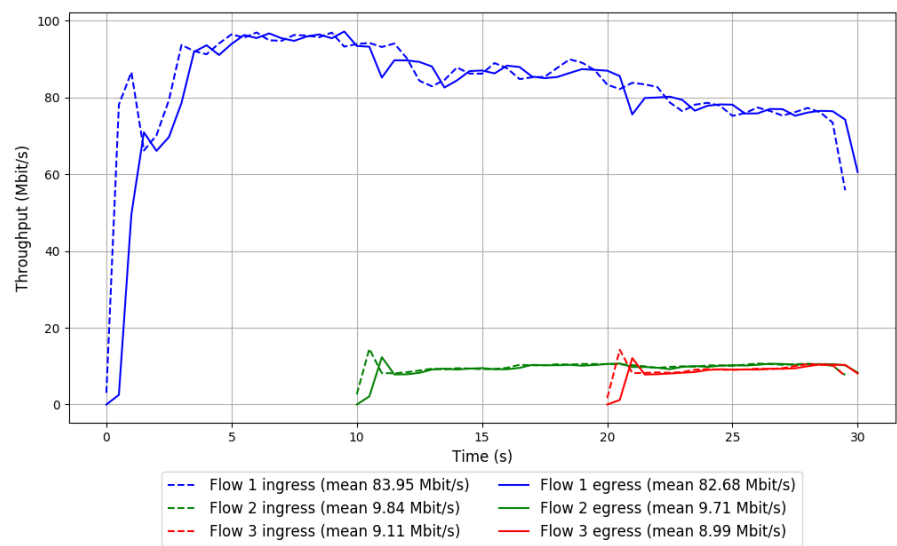
-- Flow 3:

Average throughput: 8.99 Mbit/s

95th percentile per-packet one-way delay: 63.443 ms

Loss rate: 1.71%

Run 5: Report of PCC-Allegro — Data Link

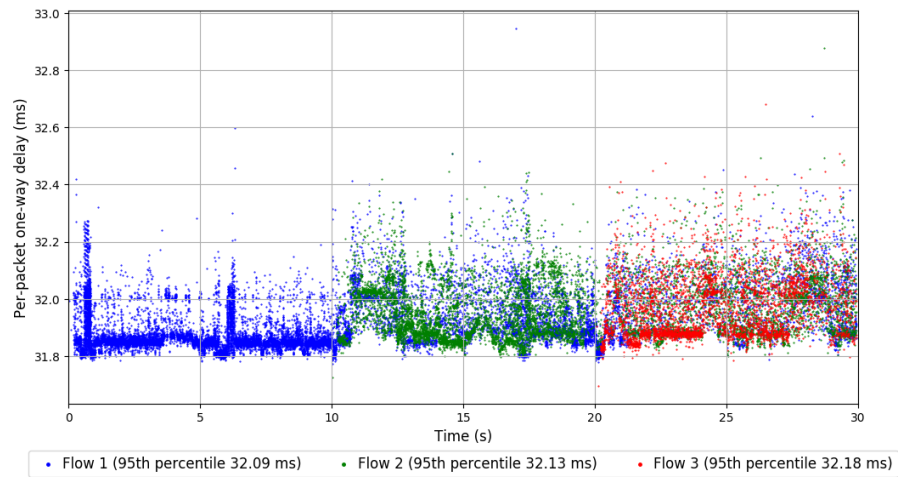
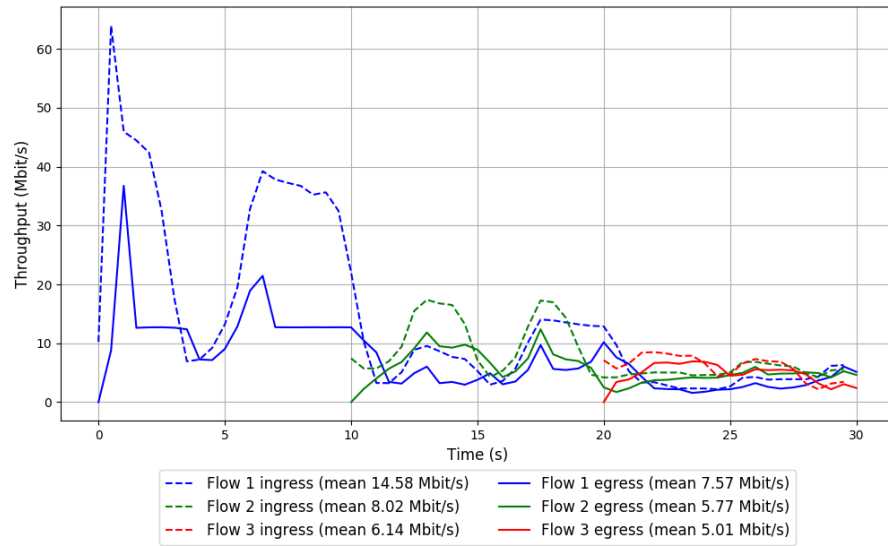


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-30 00:02:14
End at: 2018-11-30 00:02:44
Local clock offset: 0.319 ms
Remote clock offset: -4.2 ms

# Below is generated by plot.py at 2018-11-30 01:44:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.06 Mbit/s
95th percentile per-packet one-way delay: 32.122 ms
Loss rate: 40.47%
-- Flow 1:
Average throughput: 7.57 Mbit/s
95th percentile per-packet one-way delay: 32.093 ms
Loss rate: 48.07%
-- Flow 2:
Average throughput: 5.77 Mbit/s
95th percentile per-packet one-way delay: 32.135 ms
Loss rate: 28.09%
-- Flow 3:
Average throughput: 5.01 Mbit/s
95th percentile per-packet one-way delay: 32.179 ms
Loss rate: 18.46%
```

Run 1: Report of PCC-Expr — Data Link

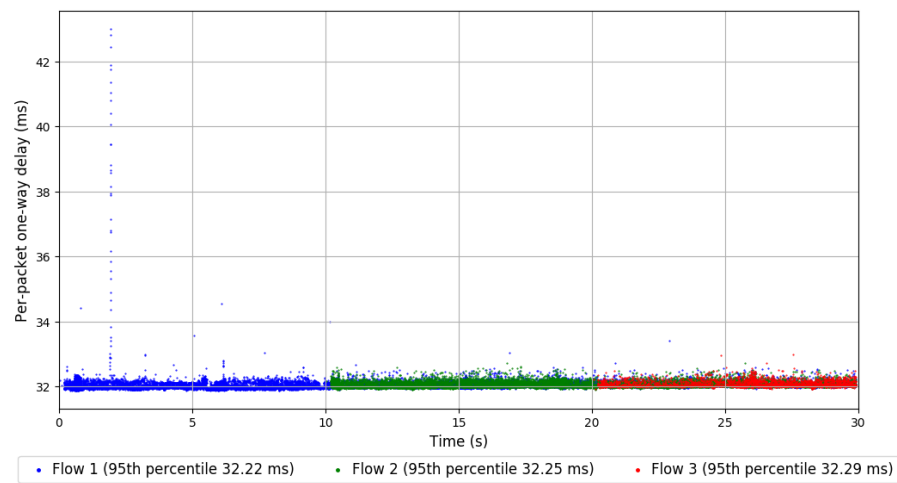
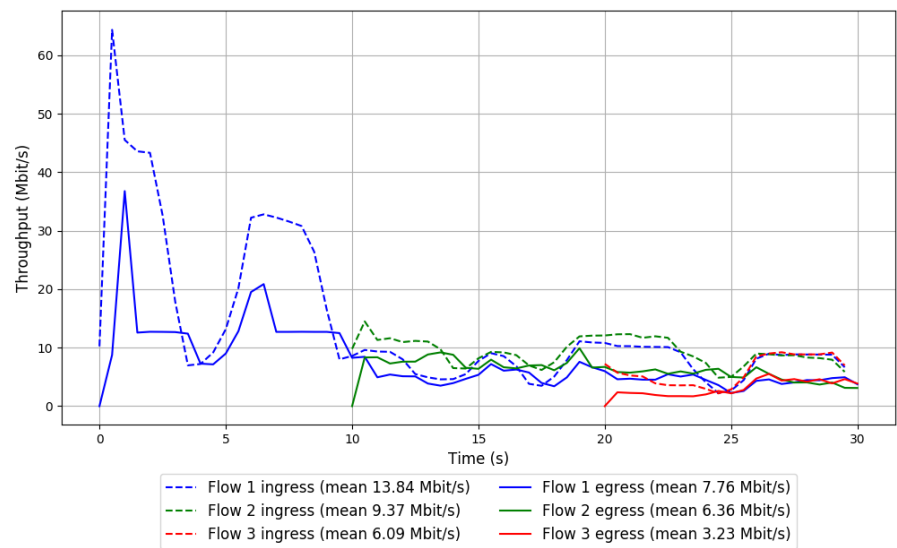


Run 2: Statistics of PCC-Expr

Start at: 2018-11-30 00:23:59
End at: 2018-11-30 00:24:29
Local clock offset: 3.792 ms
Remote clock offset: -2.385 ms

Below is generated by plot.py at 2018-11-30 01:44:02
Datalink statistics
-- Total of 3 flows:
Average throughput: 13.06 Mbit/s
95th percentile per-packet one-way delay: 32.239 ms
Loss rate: 40.88%
-- Flow 1:
Average throughput: 7.76 Mbit/s
95th percentile per-packet one-way delay: 32.219 ms
Loss rate: 43.93%
-- Flow 2:
Average throughput: 6.36 Mbit/s
95th percentile per-packet one-way delay: 32.251 ms
Loss rate: 32.16%
-- Flow 3:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 32.290 ms
Loss rate: 46.92%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-11-30 00:45:51

End at: 2018-11-30 00:46:21

Local clock offset: 5.511 ms

Remote clock offset: 1.26 ms

Below is generated by plot.py at 2018-11-30 01:44:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.06 Mbit/s

95th percentile per-packet one-way delay: 31.711 ms

Loss rate: 44.62%

-- Flow 1:

Average throughput: 7.96 Mbit/s

95th percentile per-packet one-way delay: 31.730 ms

Loss rate: 46.84%

-- Flow 2:

Average throughput: 6.46 Mbit/s

95th percentile per-packet one-way delay: 31.648 ms

Loss rate: 40.88%

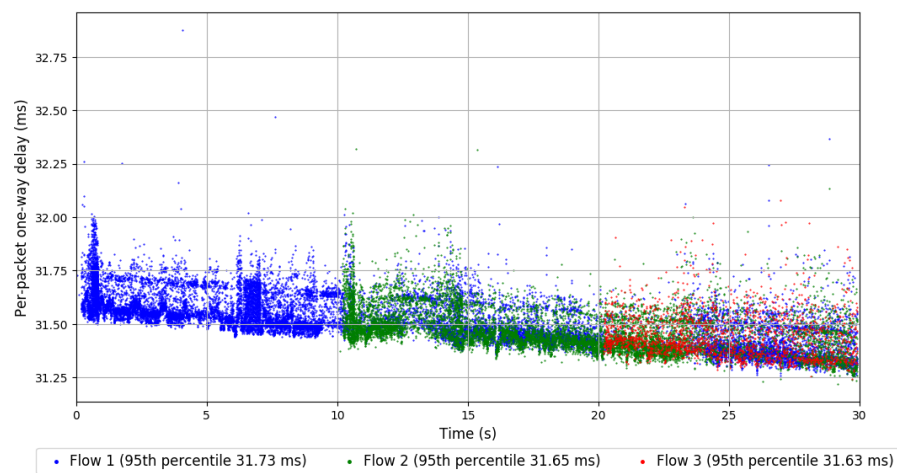
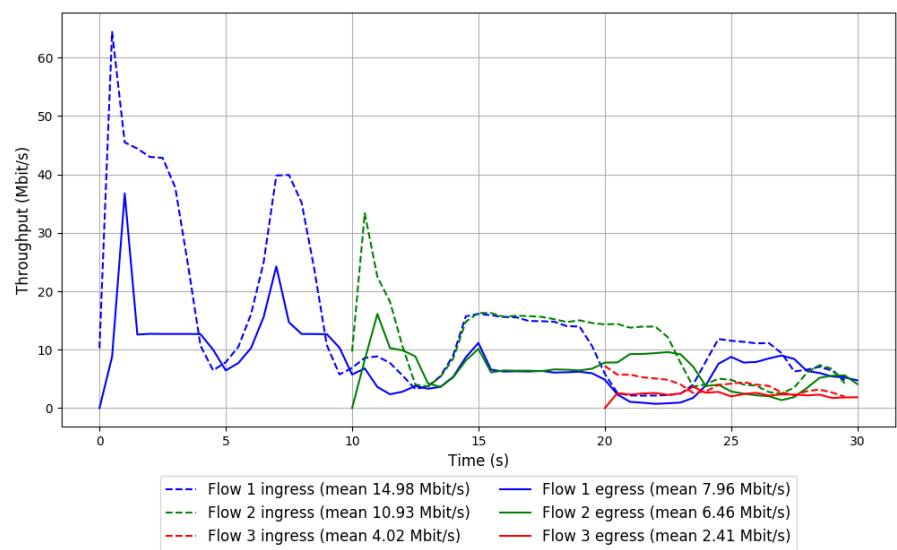
-- Flow 3:

Average throughput: 2.41 Mbit/s

95th percentile per-packet one-way delay: 31.627 ms

Loss rate: 40.00%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-11-30 01:07:34

End at: 2018-11-30 01:08:04

Local clock offset: 1.989 ms

Remote clock offset: 5.95 ms

Below is generated by plot.py at 2018-11-30 01:44:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.05 Mbit/s

95th percentile per-packet one-way delay: 32.085 ms

Loss rate: 48.09%

-- Flow 1:

Average throughput: 7.43 Mbit/s

95th percentile per-packet one-way delay: 32.092 ms

Loss rate: 55.63%

-- Flow 2:

Average throughput: 7.23 Mbit/s

95th percentile per-packet one-way delay: 32.077 ms

Loss rate: 32.20%

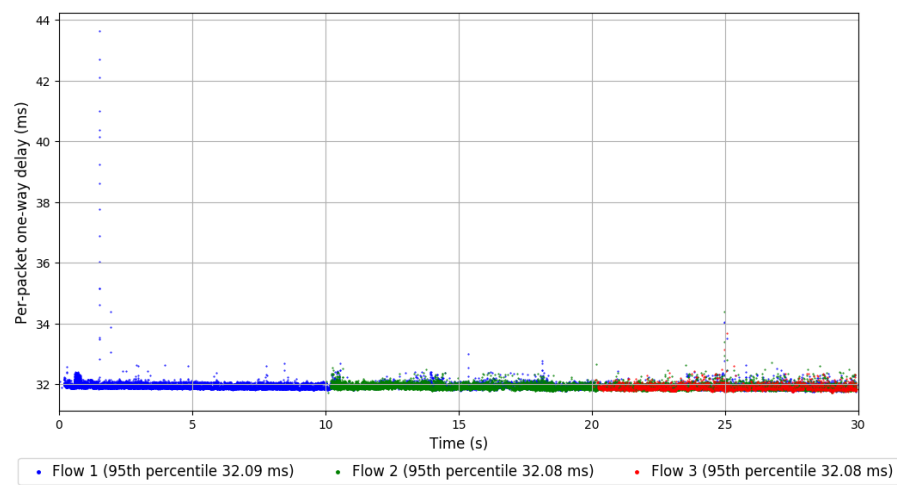
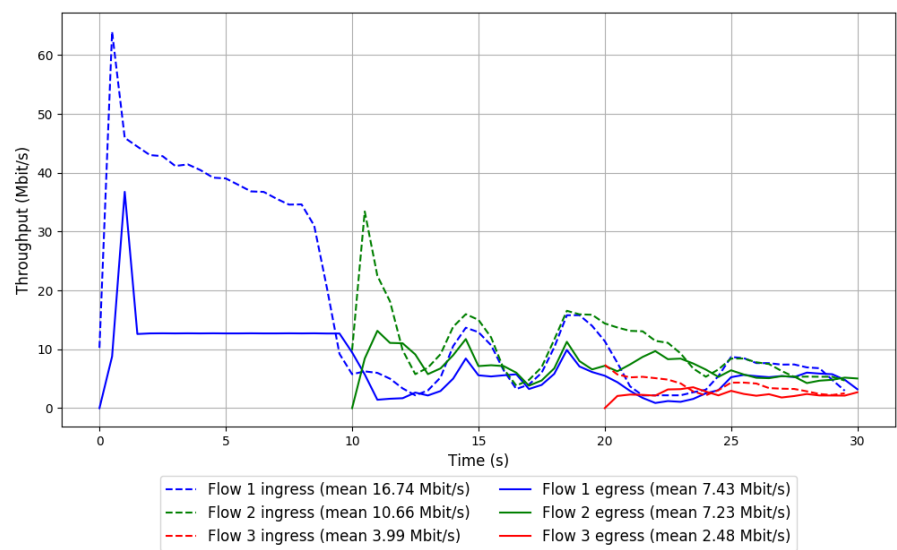
-- Flow 3:

Average throughput: 2.48 Mbit/s

95th percentile per-packet one-way delay: 32.078 ms

Loss rate: 37.83%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-30 01:29:17

End at: 2018-11-30 01:29:47

Local clock offset: -0.431 ms

Remote clock offset: 7.229 ms

Below is generated by plot.py at 2018-11-30 01:44:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.06 Mbit/s

95th percentile per-packet one-way delay: 31.805 ms

Loss rate: 32.61%

-- Flow 1:

Average throughput: 7.54 Mbit/s

95th percentile per-packet one-way delay: 31.803 ms

Loss rate: 38.56%

-- Flow 2:

Average throughput: 6.74 Mbit/s

95th percentile per-packet one-way delay: 31.791 ms

Loss rate: 20.46%

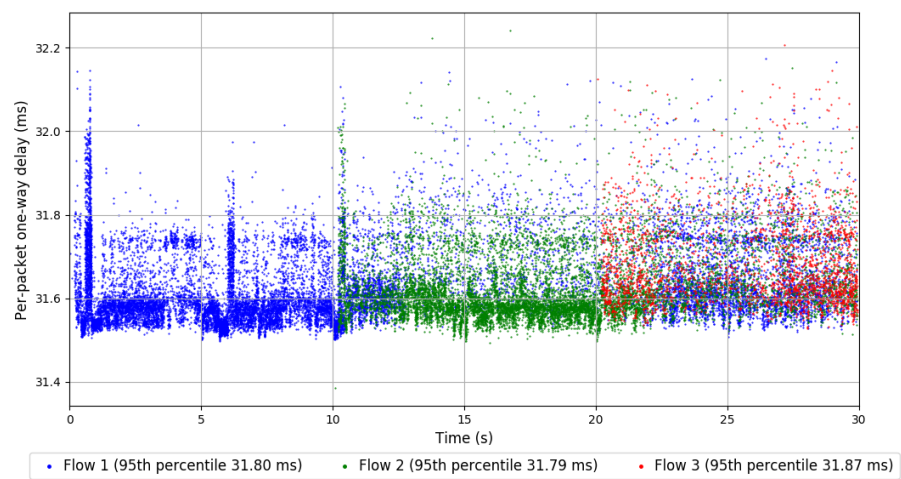
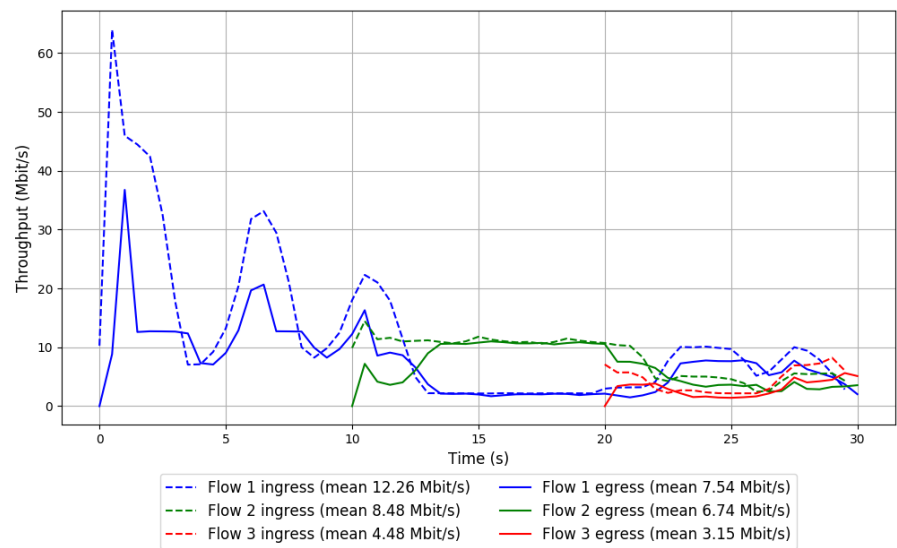
-- Flow 3:

Average throughput: 3.15 Mbit/s

95th percentile per-packet one-way delay: 31.867 ms

Loss rate: 29.64%

Run 5: Report of PCC-Expr — Data Link

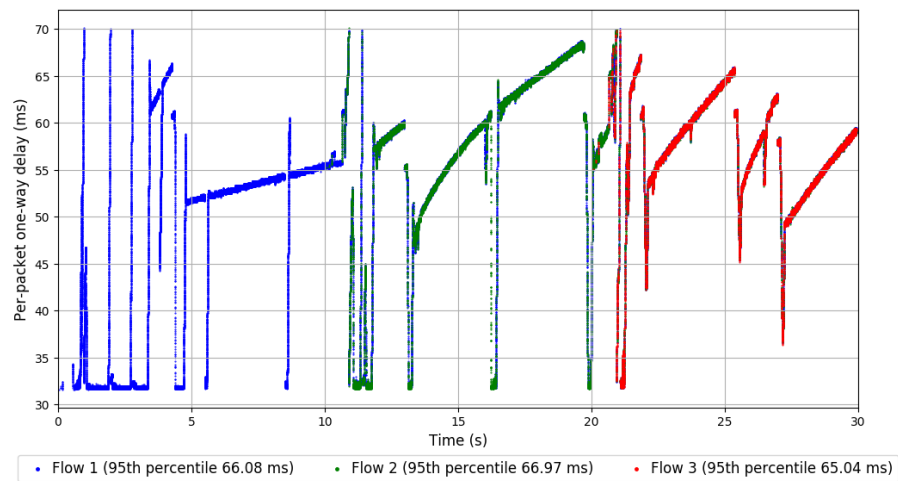
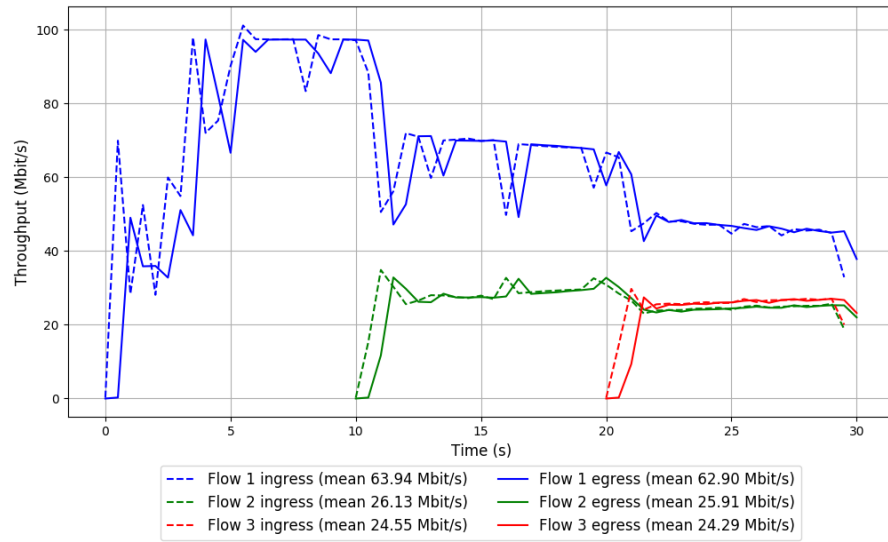


Run 1: Statistics of QUIC Cubic

Start at: 2018-11-29 23:53:41
End at: 2018-11-29 23:54:12
Local clock offset: -0.288 ms
Remote clock offset: -4.498 ms

Below is generated by plot.py at 2018-11-30 01:44:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 88.11 Mbit/s
95th percentile per-packet one-way delay: 66.168 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 62.90 Mbit/s
95th percentile per-packet one-way delay: 66.077 ms
Loss rate: 1.54%
-- Flow 2:
Average throughput: 25.91 Mbit/s
95th percentile per-packet one-way delay: 66.969 ms
Loss rate: 0.84%
-- Flow 3:
Average throughput: 24.29 Mbit/s
95th percentile per-packet one-way delay: 65.042 ms
Loss rate: 1.00%

Run 1: Report of QUIC Cubic — Data Link

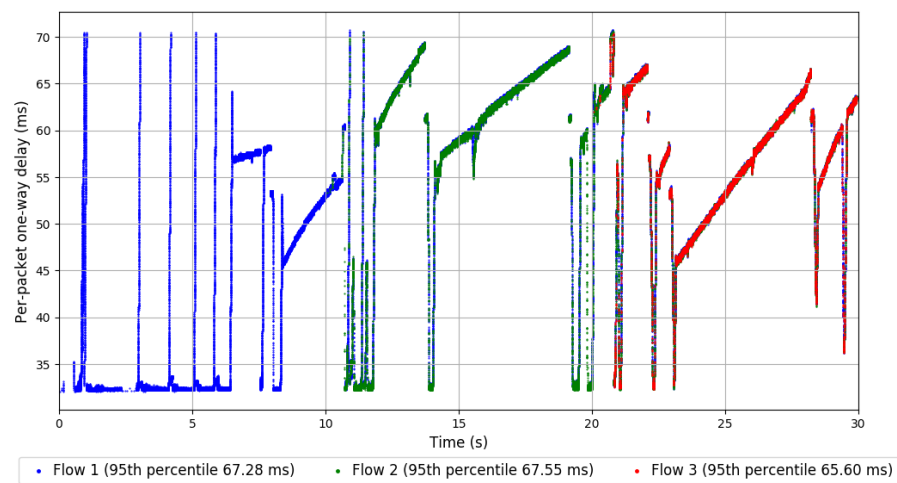
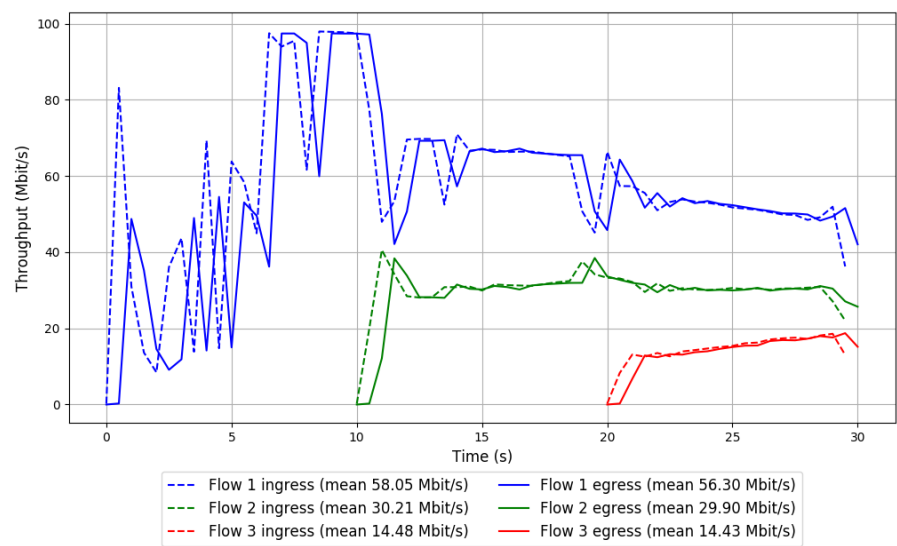


Run 2: Statistics of QUIC Cubic

Start at: 2018-11-30 00:15:24
End at: 2018-11-30 00:15:54
Local clock offset: 0.277 ms
Remote clock offset: -3.313 ms

Below is generated by plot.py at 2018-11-30 01:44:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 80.91 Mbit/s
95th percentile per-packet one-way delay: 67.289 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 56.30 Mbit/s
95th percentile per-packet one-way delay: 67.284 ms
Loss rate: 2.92%
-- Flow 2:
Average throughput: 29.90 Mbit/s
95th percentile per-packet one-way delay: 67.550 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 14.43 Mbit/s
95th percentile per-packet one-way delay: 65.601 ms
Loss rate: 0.34%

Run 2: Report of QUIC Cubic — Data Link

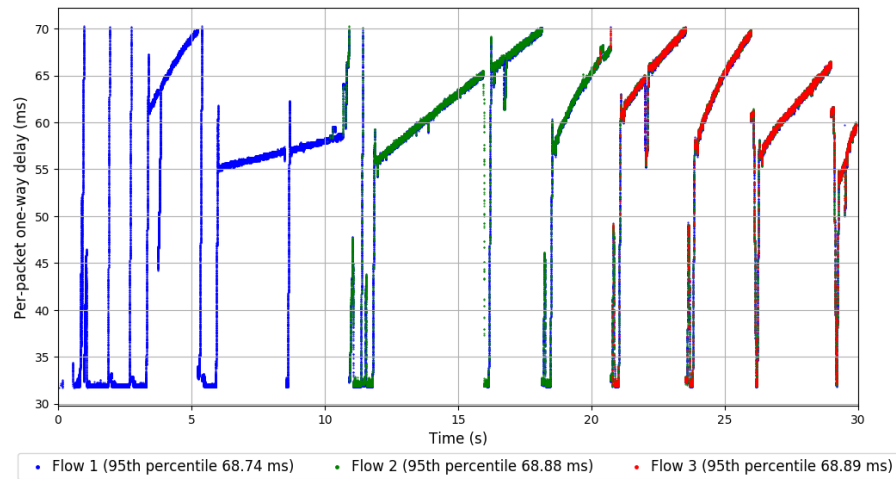
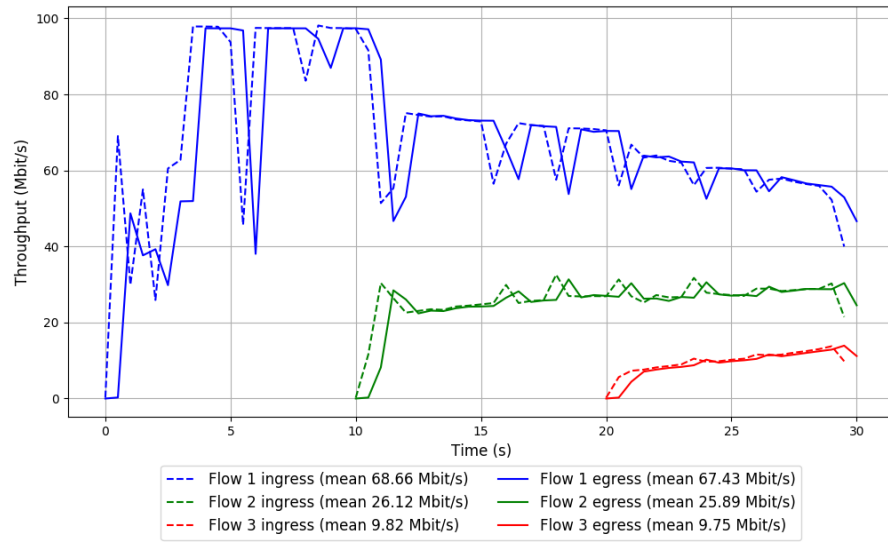


Run 3: Statistics of QUIC Cubic

Start at: 2018-11-30 00:37:11
End at: 2018-11-30 00:37:41
Local clock offset: 5.482 ms
Remote clock offset: -0.421 ms

Below is generated by plot.py at 2018-11-30 01:44:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 87.81 Mbit/s
95th percentile per-packet one-way delay: 68.790 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 67.43 Mbit/s
95th percentile per-packet one-way delay: 68.742 ms
Loss rate: 1.69%
-- Flow 2:
Average throughput: 25.89 Mbit/s
95th percentile per-packet one-way delay: 68.875 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 9.75 Mbit/s
95th percentile per-packet one-way delay: 68.893 ms
Loss rate: 0.86%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-11-30 00:58:52

End at: 2018-11-30 00:59:22

Local clock offset: 2.703 ms

Remote clock offset: 3.714 ms

Below is generated by plot.py at 2018-11-30 01:44:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.62 Mbit/s

95th percentile per-packet one-way delay: 67.709 ms

Loss rate: 2.14%

-- Flow 1:

Average throughput: 63.39 Mbit/s

95th percentile per-packet one-way delay: 67.701 ms

Loss rate: 2.54%

-- Flow 2:

Average throughput: 15.44 Mbit/s

95th percentile per-packet one-way delay: 67.697 ms

Loss rate: 0.54%

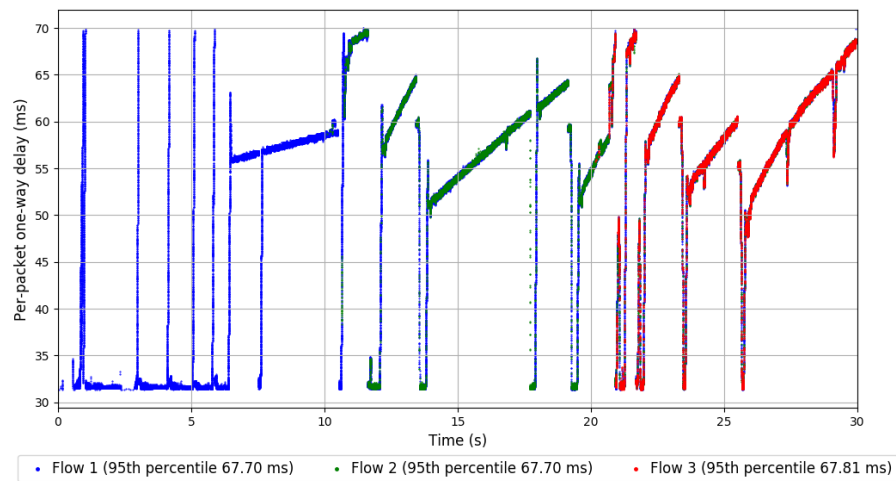
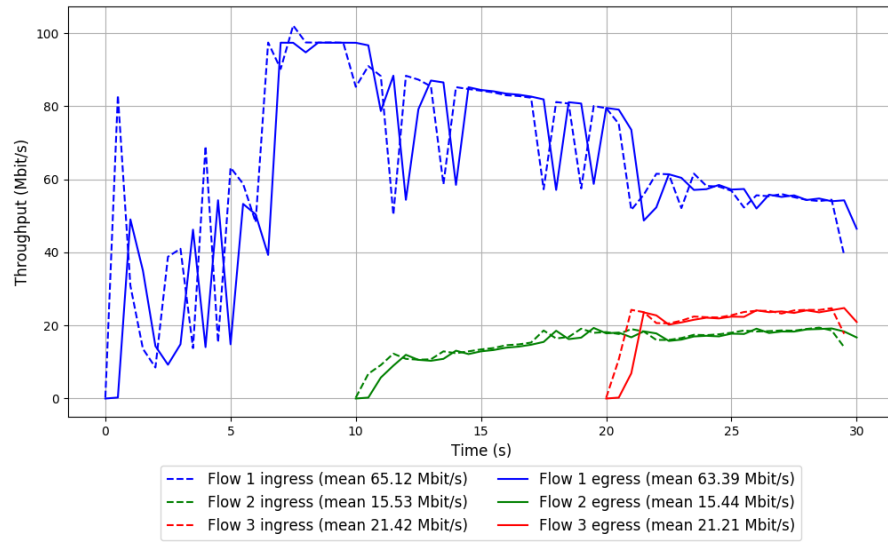
-- Flow 3:

Average throughput: 21.21 Mbit/s

95th percentile per-packet one-way delay: 67.815 ms

Loss rate: 0.83%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-11-30 01:20:40

End at: 2018-11-30 01:21:10

Local clock offset: 0.547 ms

Remote clock offset: 7.592 ms

Below is generated by plot.py at 2018-11-30 01:44:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.09 Mbit/s

95th percentile per-packet one-way delay: 68.838 ms

Loss rate: 2.53%

-- Flow 1:

Average throughput: 64.54 Mbit/s

95th percentile per-packet one-way delay: 68.832 ms

Loss rate: 2.85%

-- Flow 2:

Average throughput: 15.67 Mbit/s

95th percentile per-packet one-way delay: 68.866 ms

Loss rate: 1.16%

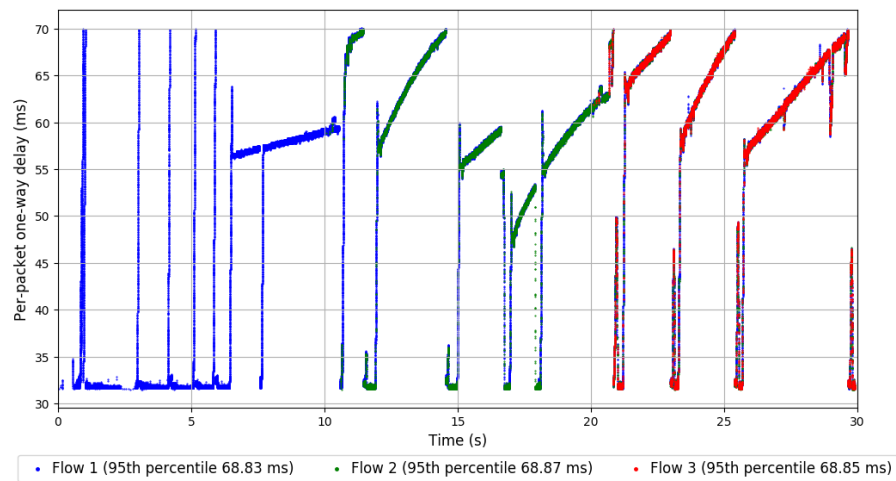
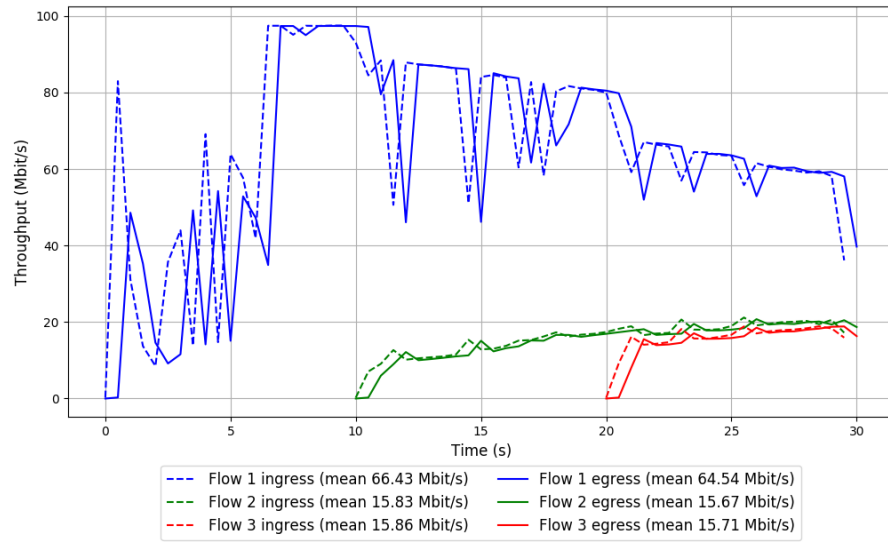
-- Flow 3:

Average throughput: 15.71 Mbit/s

95th percentile per-packet one-way delay: 68.851 ms

Loss rate: 1.26%

Run 5: Report of QUIC Cubic — Data Link

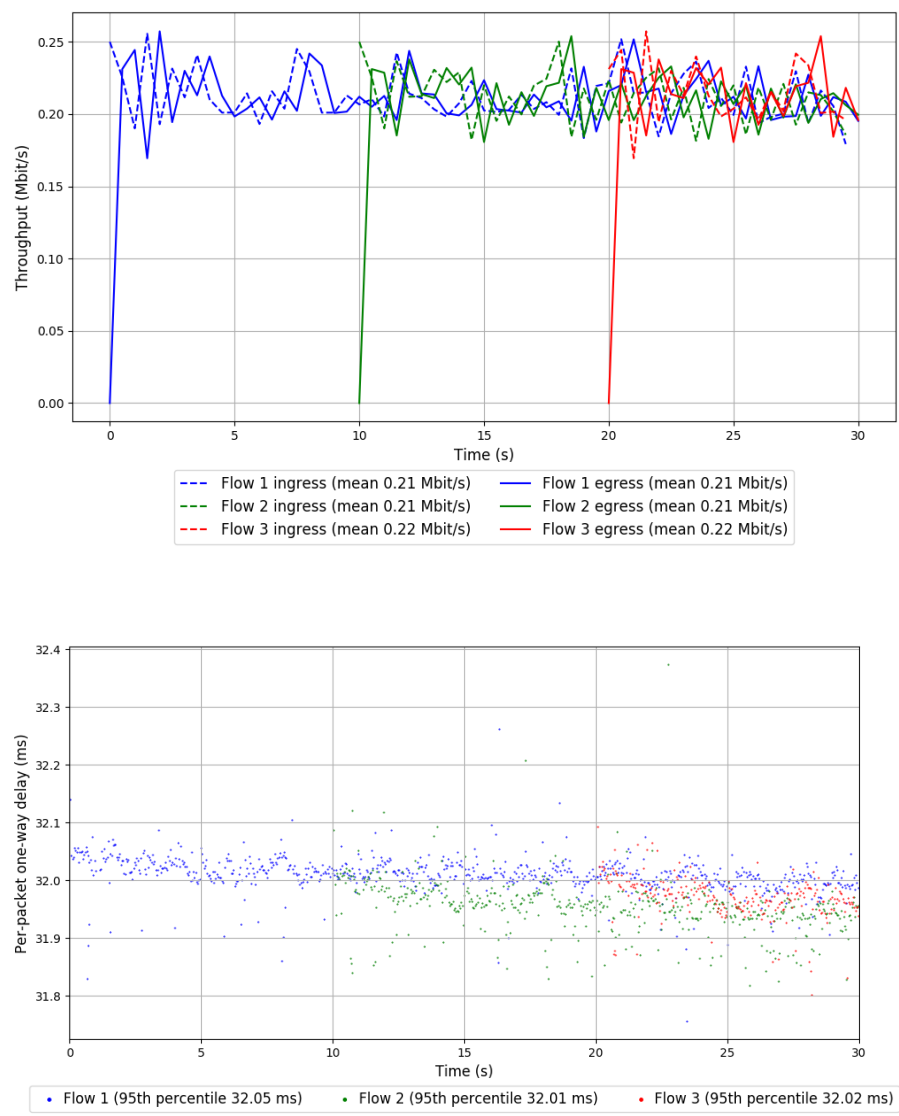


```
Run 1: Statistics of SReAM

Start at: 2018-11-30 00:05:47
End at: 2018-11-30 00:06:17
Local clock offset: 0.326 ms
Remote clock offset: -4.051 ms

# Below is generated by plot.py at 2018-11-30 01:44:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 32.044 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 32.049 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 32.014 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 32.021 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

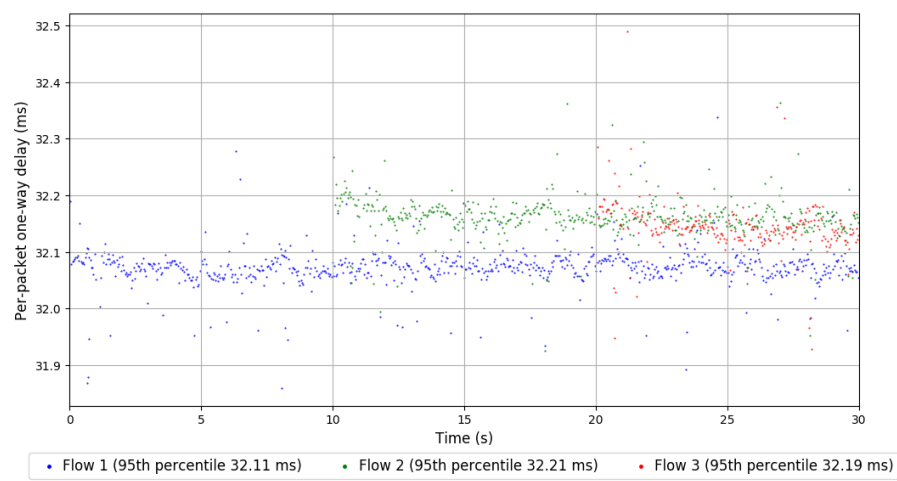
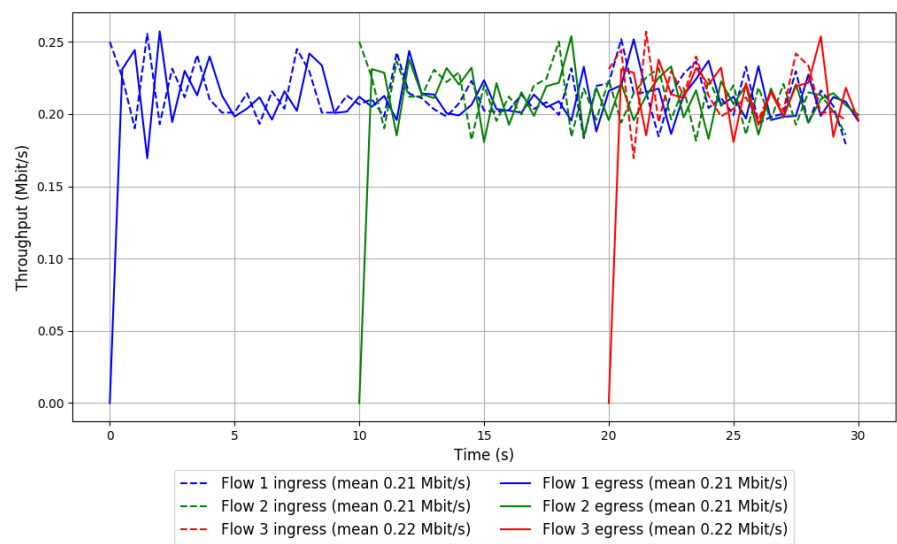


Run 2: Statistics of SReAM

Start at: 2018-11-30 00:27:30
End at: 2018-11-30 00:28:00
Local clock offset: 4.489 ms
Remote clock offset: -1.911 ms

Below is generated by plot.py at 2018-11-30 01:44:35
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 32.189 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 32.110 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 32.209 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 32.190 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SReAM

Start at: 2018-11-30 00:49:22

End at: 2018-11-30 00:49:52

Local clock offset: 4.385 ms

Remote clock offset: 1.958 ms

Below is generated by plot.py at 2018-11-30 01:44:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 31.814 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 31.831 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 31.718 ms

Loss rate: 0.00%

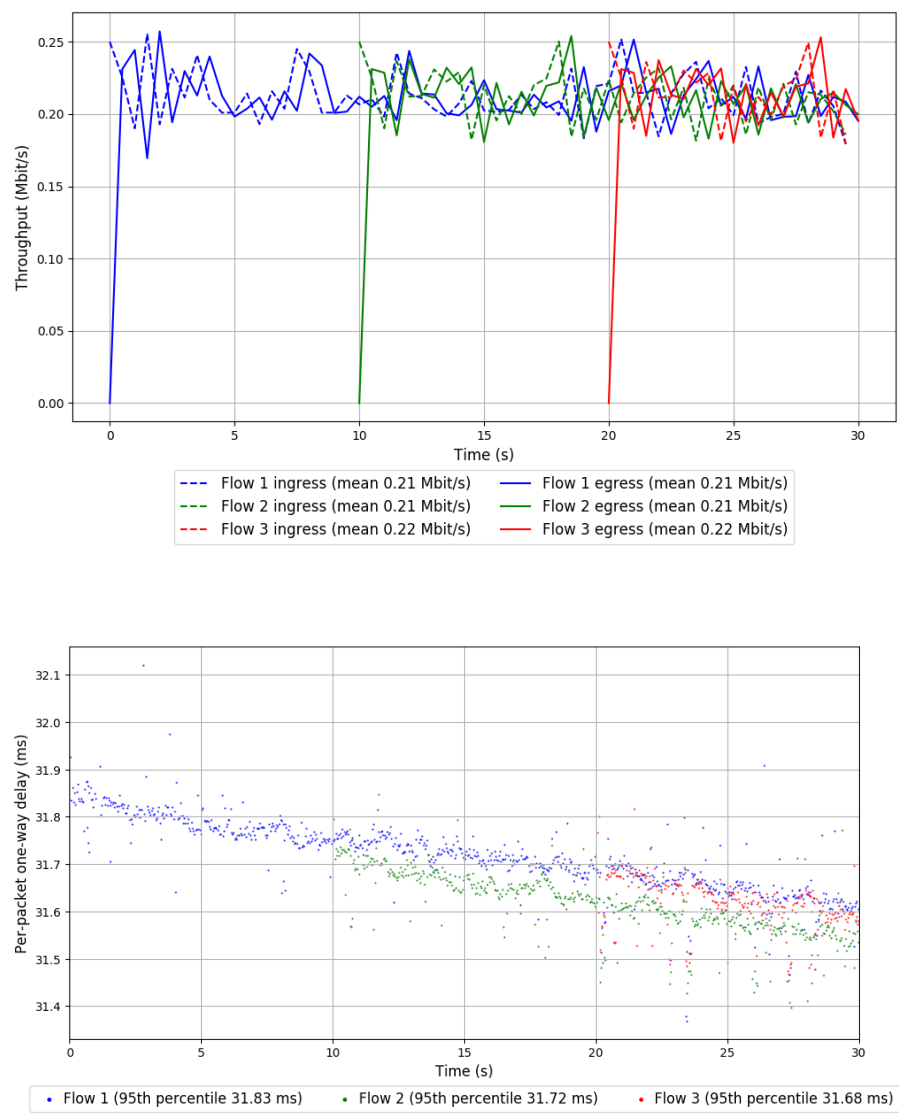
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 31.683 ms

Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-11-30 01:11:05

End at: 2018-11-30 01:11:35

Local clock offset: 1.808 ms

Remote clock offset: 6.335 ms

Below is generated by plot.py at 2018-11-30 01:44:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 31.816 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 31.838 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 31.736 ms

Loss rate: 0.00%

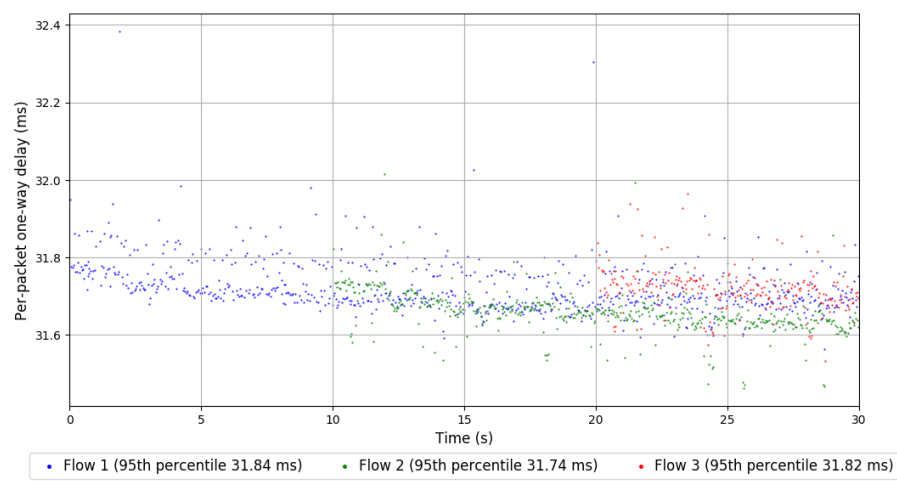
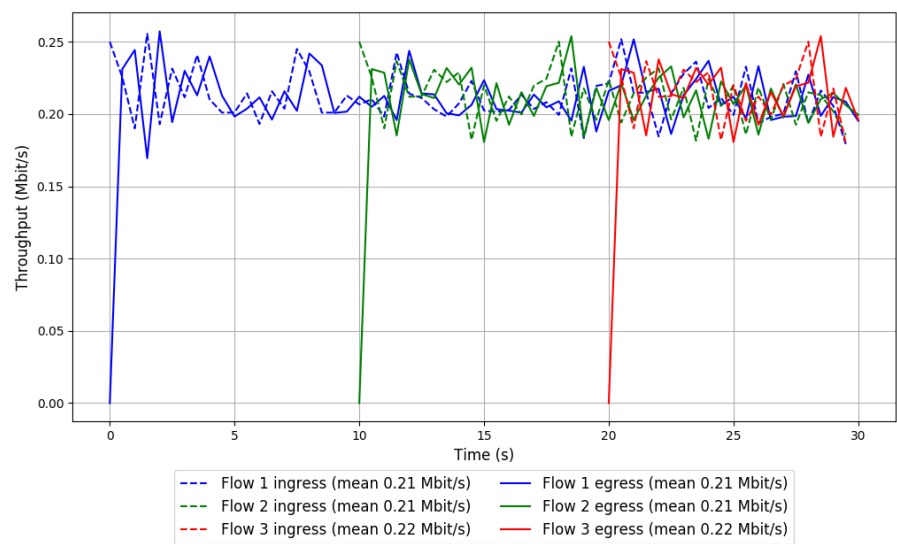
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 31.823 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-11-30 01:32:55

End at: 2018-11-30 01:33:25

Local clock offset: -0.699 ms

Remote clock offset: 7.084 ms

Below is generated by plot.py at 2018-11-30 01:44:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 31.896 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 31.917 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 31.812 ms

Loss rate: 0.00%

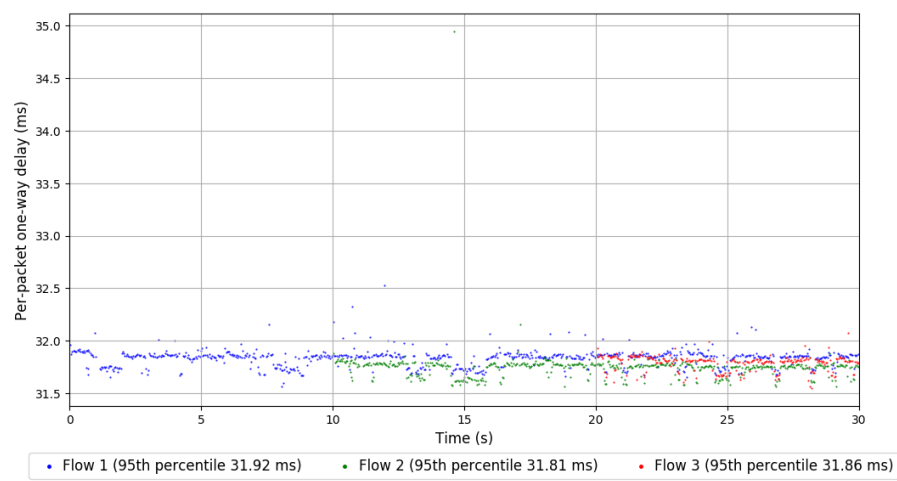
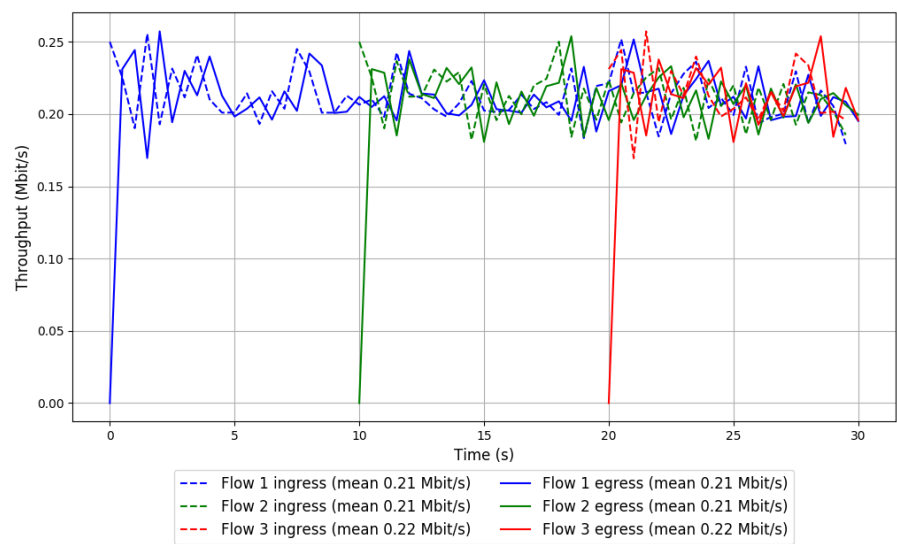
-- Flow 3:

Average throughput: 0.22 Mbit/s

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

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link

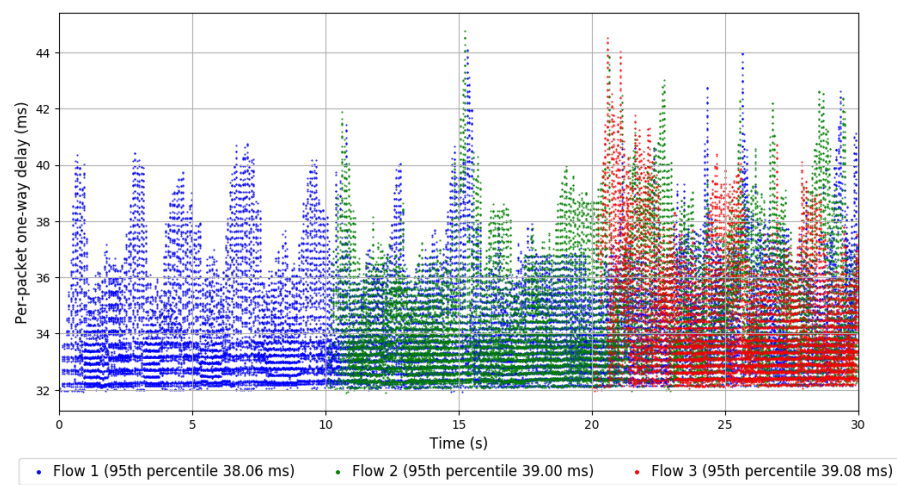
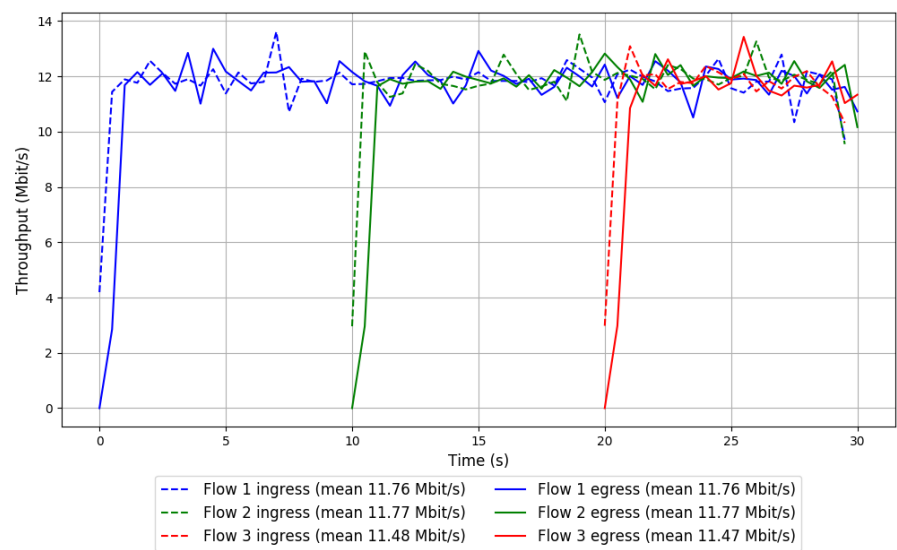


Run 1: Statistics of Sprout

Start at: 2018-11-29 23:47:44
End at: 2018-11-29 23:48:14
Local clock offset: -1.802 ms
Remote clock offset: -4.234 ms

Below is generated by plot.py at 2018-11-30 01:44:35
Datalink statistics
-- Total of 3 flows:
Average throughput: 23.37 Mbit/s
95th percentile per-packet one-way delay: 38.634 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.76 Mbit/s
95th percentile per-packet one-way delay: 38.060 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.77 Mbit/s
95th percentile per-packet one-way delay: 39.001 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.47 Mbit/s
95th percentile per-packet one-way delay: 39.077 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

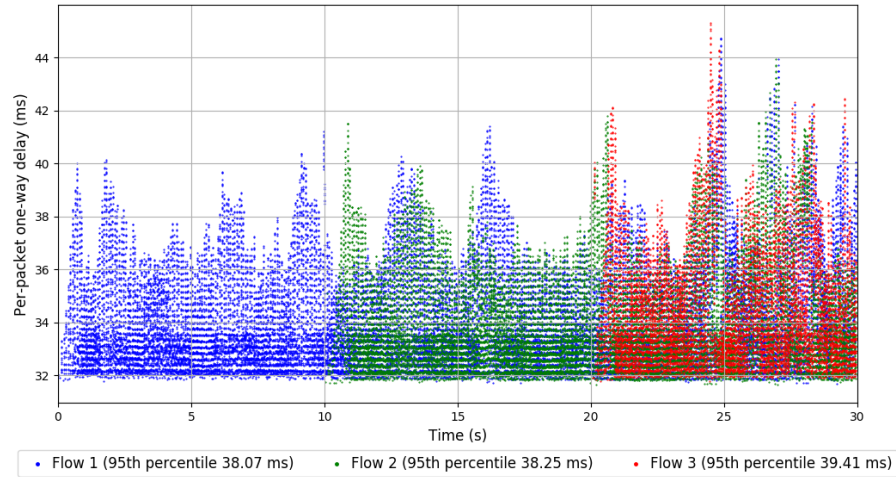
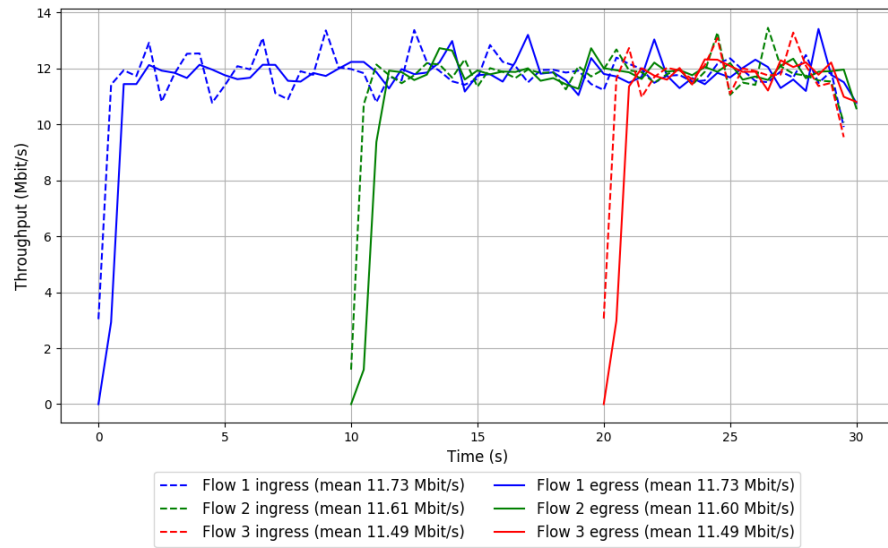


Run 2: Statistics of Sprout

Start at: 2018-11-30 00:09:21
End at: 2018-11-30 00:09:51
Local clock offset: 0.217 ms
Remote clock offset: -3.808 ms

Below is generated by plot.py at 2018-11-30 01:44:35
Datalink statistics
-- Total of 3 flows:
Average throughput: 23.24 Mbit/s
95th percentile per-packet one-way delay: 38.364 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.73 Mbit/s
95th percentile per-packet one-way delay: 38.072 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.60 Mbit/s
95th percentile per-packet one-way delay: 38.254 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.49 Mbit/s
95th percentile per-packet one-way delay: 39.413 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

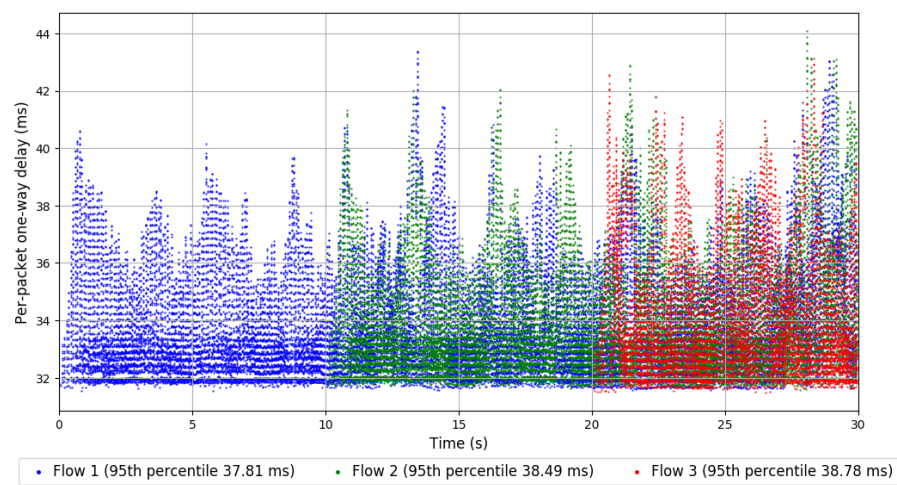
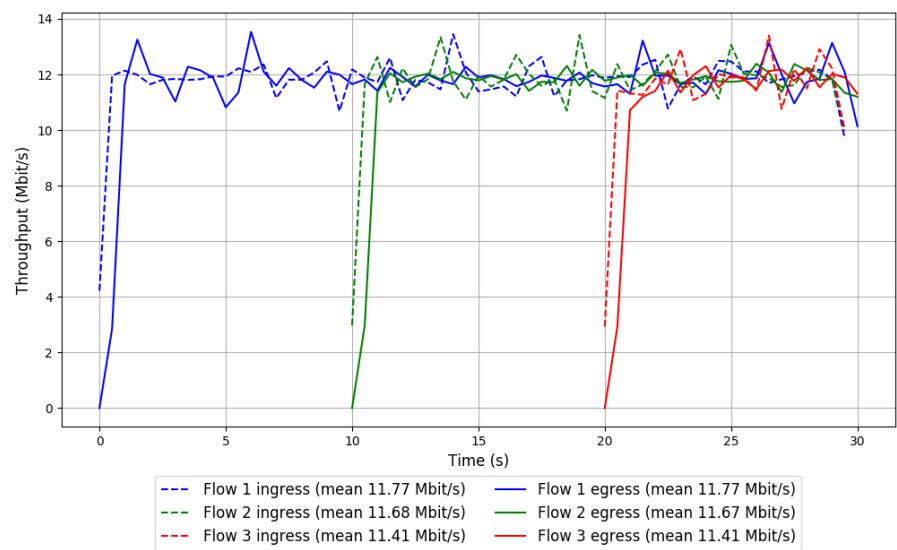


Run 3: Statistics of Sprout

Start at: 2018-11-30 00:31:04
End at: 2018-11-30 00:31:34
Local clock offset: 4.951 ms
Remote clock offset: -1.667 ms

```
# Below is generated by plot.py at 2018-11-30 01:44:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.31 Mbit/s
95th percentile per-packet one-way delay: 38.211 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 11.77 Mbit/s
95th percentile per-packet one-way delay: 37.806 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 11.67 Mbit/s
95th percentile per-packet one-way delay: 38.490 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.41 Mbit/s
95th percentile per-packet one-way delay: 38.777 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

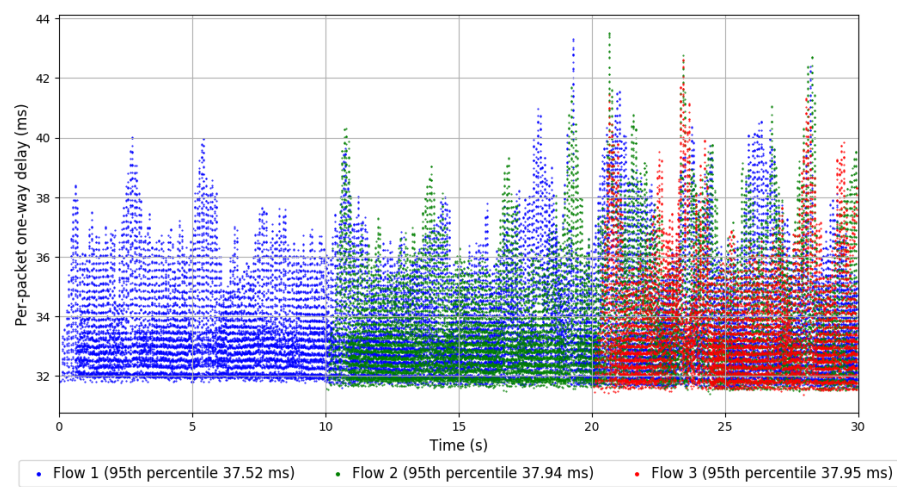
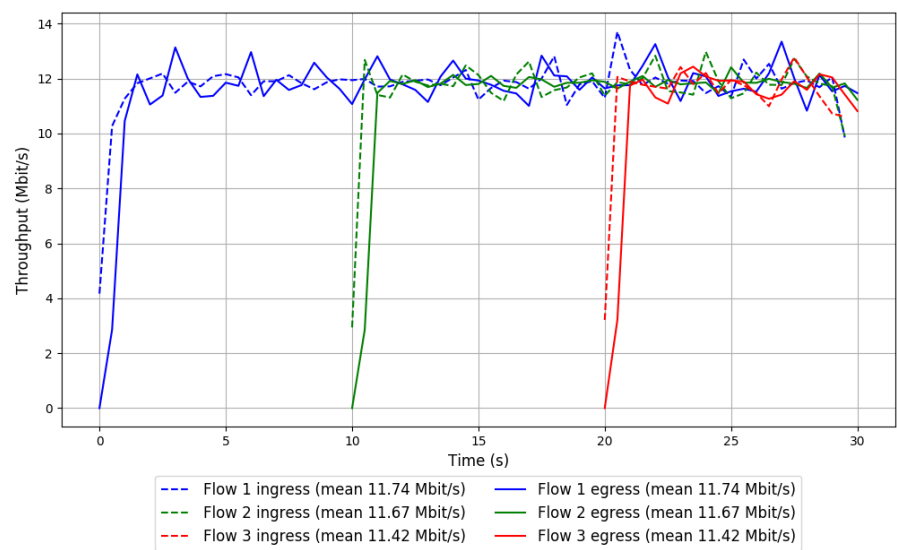


Run 4: Statistics of Sprout

Start at: 2018-11-30 00:52:55
End at: 2018-11-30 00:53:25
Local clock offset: 3.526 ms
Remote clock offset: 2.643 ms

```
# Below is generated by plot.py at 2018-11-30 01:44:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.27 Mbit/s
95th percentile per-packet one-way delay: 37.739 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.74 Mbit/s
95th percentile per-packet one-way delay: 37.521 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.67 Mbit/s
95th percentile per-packet one-way delay: 37.941 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.42 Mbit/s
95th percentile per-packet one-way delay: 37.947 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-11-30 01:14:40

End at: 2018-11-30 01:15:10

Local clock offset: 1.6 ms

Remote clock offset: 6.923 ms

Below is generated by plot.py at 2018-11-30 01:44:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 23.32 Mbit/s

95th percentile per-packet one-way delay: 37.817 ms

Loss rate: 0.14%

-- Flow 1:

Average throughput: 11.72 Mbit/s

95th percentile per-packet one-way delay: 37.518 ms

Loss rate: 0.27%

-- Flow 2:

Average throughput: 11.71 Mbit/s

95th percentile per-packet one-way delay: 37.985 ms

Loss rate: 0.00%

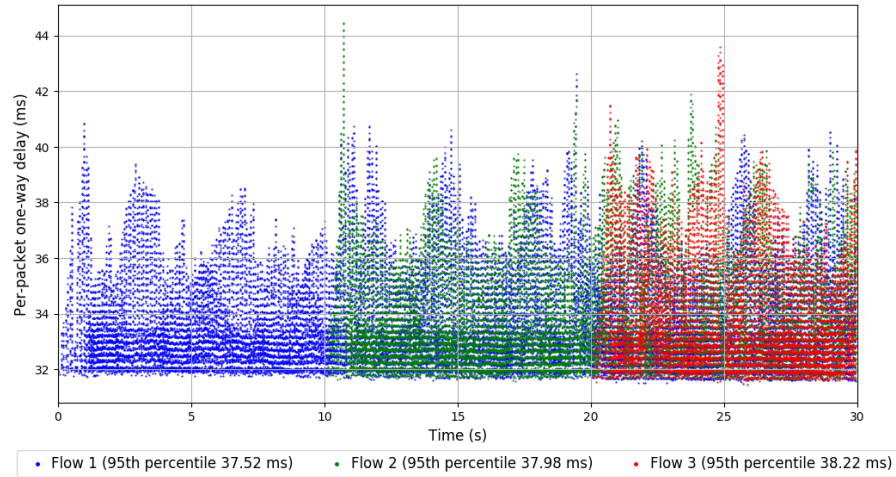
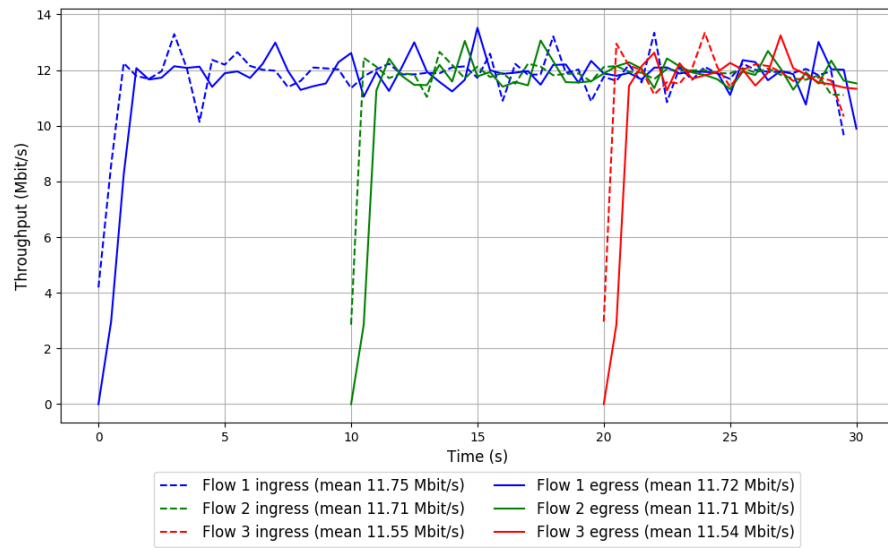
-- Flow 3:

Average throughput: 11.54 Mbit/s

95th percentile per-packet one-way delay: 38.221 ms

Loss rate: 0.00%

Run 5: Report of Sprout — Data Link

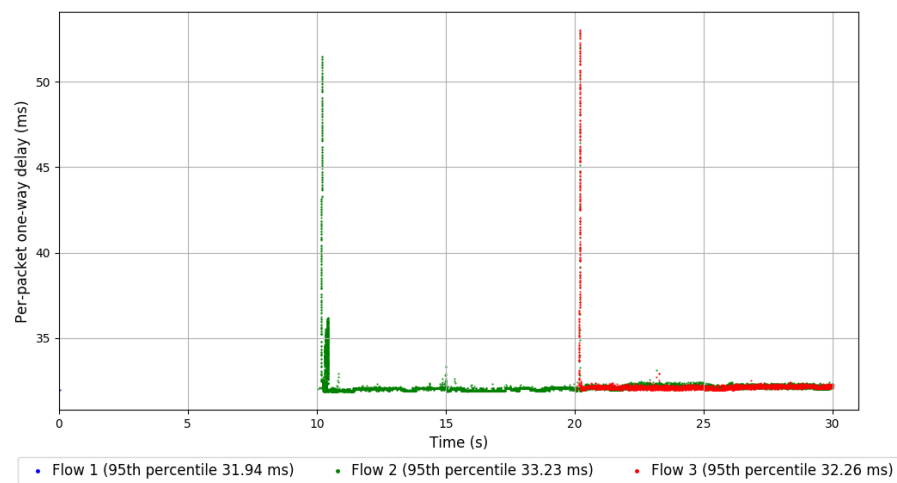
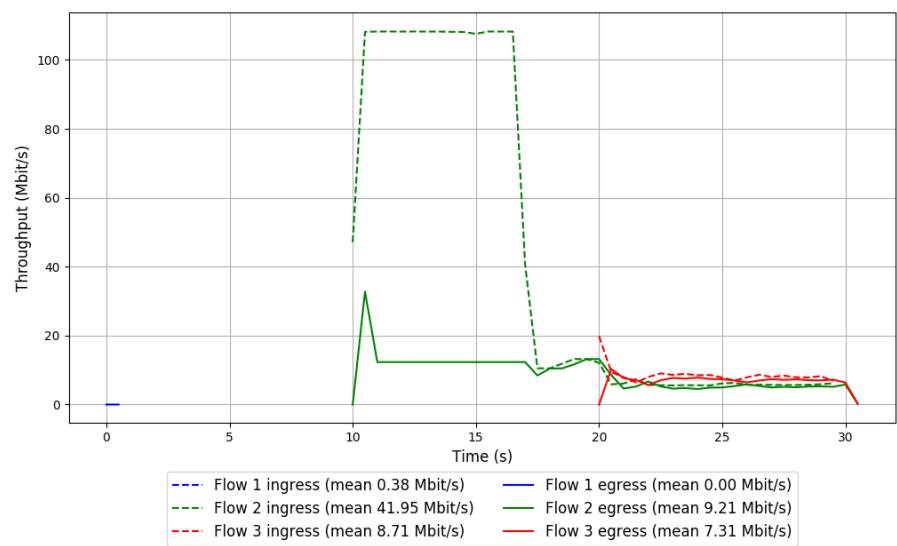


Run 1: Statistics of TaoVA-100x

Start at: 2018-11-29 23:48:54
End at: 2018-11-29 23:49:24
Local clock offset: -1.47 ms
Remote clock offset: -4.412 ms

Below is generated by plot.py at 2018-11-30 01:44:35
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.56 Mbit/s
95th percentile per-packet one-way delay: 32.888 ms
Loss rate: 72.24%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 31.939 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.21 Mbit/s
95th percentile per-packet one-way delay: 33.227 ms
Loss rate: 78.06%
-- Flow 3:
Average throughput: 7.31 Mbit/s
95th percentile per-packet one-way delay: 32.264 ms
Loss rate: 16.10%

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

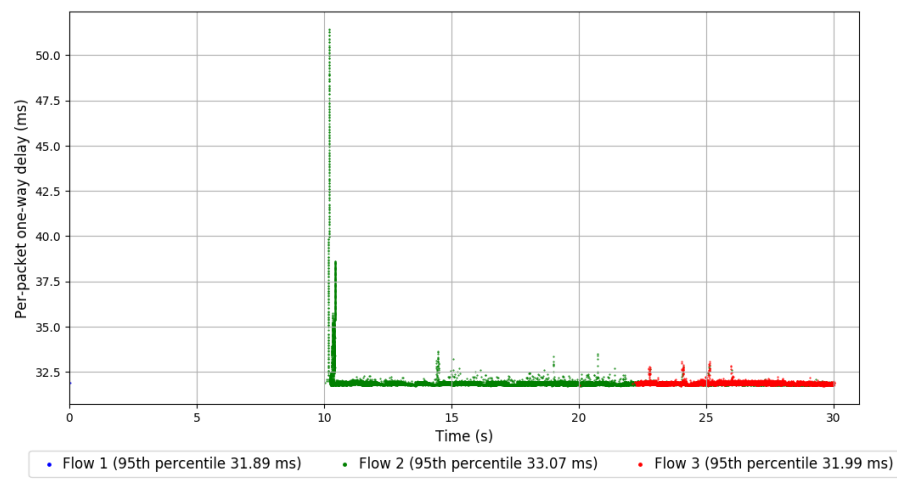
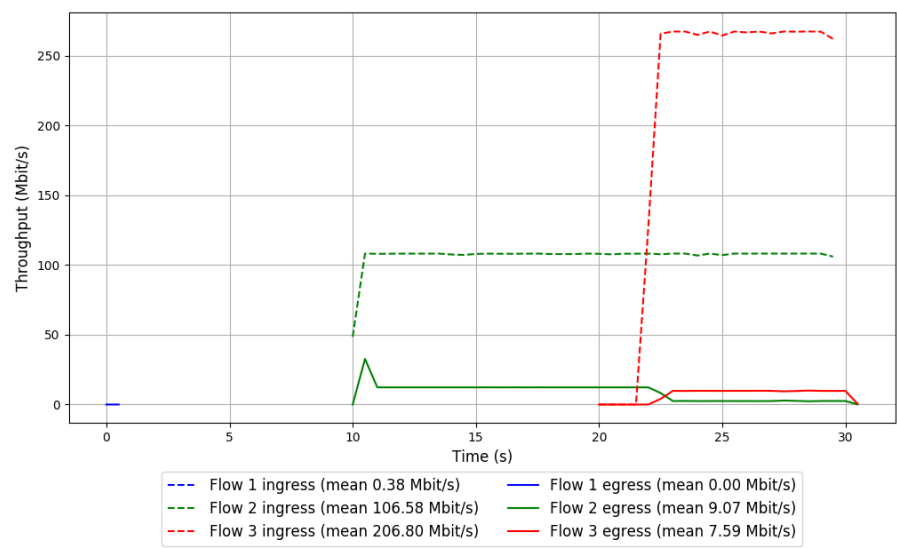


Run 2: Statistics of TaoVA-100x

Start at: 2018-11-30 00:10:31
End at: 2018-11-30 00:11:01
Local clock offset: 0.183 ms
Remote clock offset: -3.794 ms

Below is generated by plot.py at 2018-11-30 01:44:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 32.238 ms
Loss rate: 93.87%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 31.891 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.07 Mbit/s
95th percentile per-packet one-way delay: 33.068 ms
Loss rate: 91.49%
-- Flow 3:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 31.991 ms
Loss rate: 96.33%

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

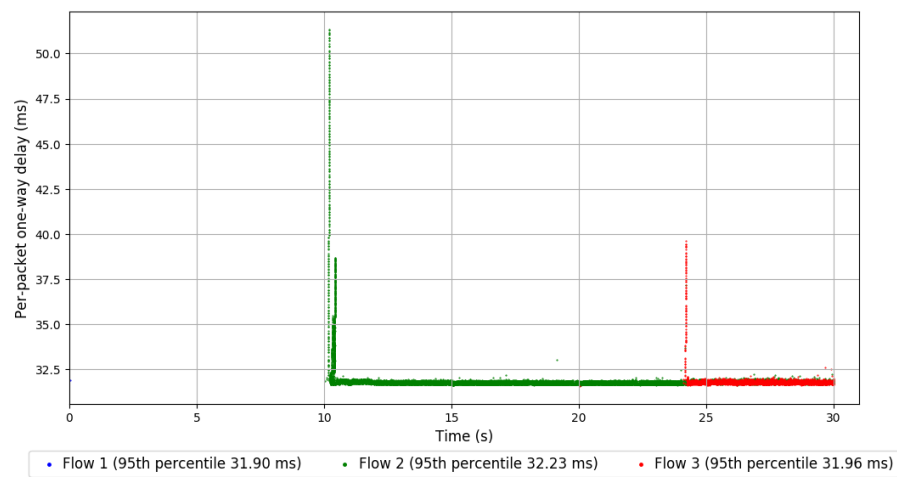
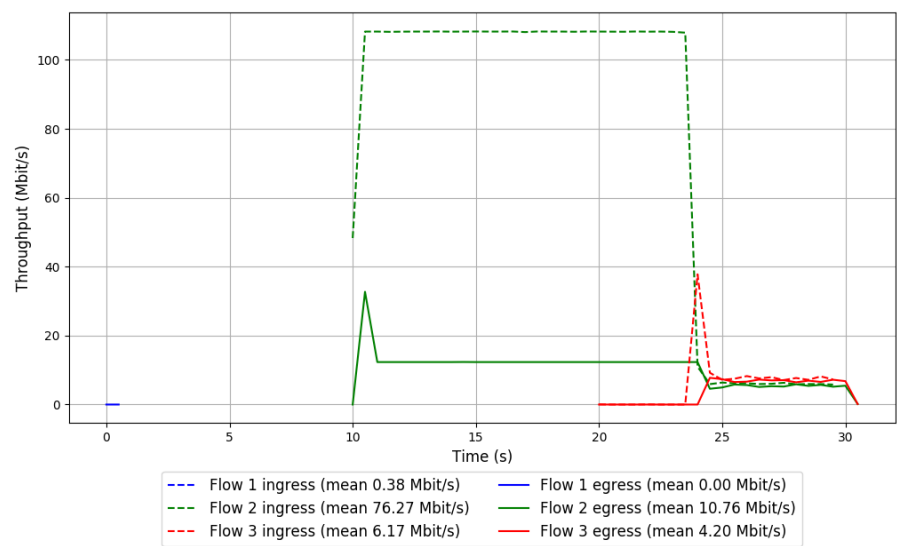


Run 3: Statistics of TaoVA-100x

Start at: 2018-11-30 00:32:14
End at: 2018-11-30 00:32:44
Local clock offset: 5.083 ms
Remote clock offset: -1.446 ms

Below is generated by plot.py at 2018-11-30 01:44:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.56 Mbit/s
95th percentile per-packet one-way delay: 32.034 ms
Loss rate: 83.80%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 31.897 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 10.76 Mbit/s
95th percentile per-packet one-way delay: 32.231 ms
Loss rate: 85.89%
-- Flow 3:
Average throughput: 4.20 Mbit/s
95th percentile per-packet one-way delay: 31.960 ms
Loss rate: 31.93%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-11-30 00:54:05

End at: 2018-11-30 00:54:35

Local clock offset: 3.363 ms

Remote clock offset: 2.921 ms

Below is generated by plot.py at 2018-11-30 01:44:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.57 Mbit/s

95th percentile per-packet one-way delay: 31.962 ms

Loss rate: 86.03%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 31.770 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 9.47 Mbit/s

95th percentile per-packet one-way delay: 33.010 ms

Loss rate: 37.31%

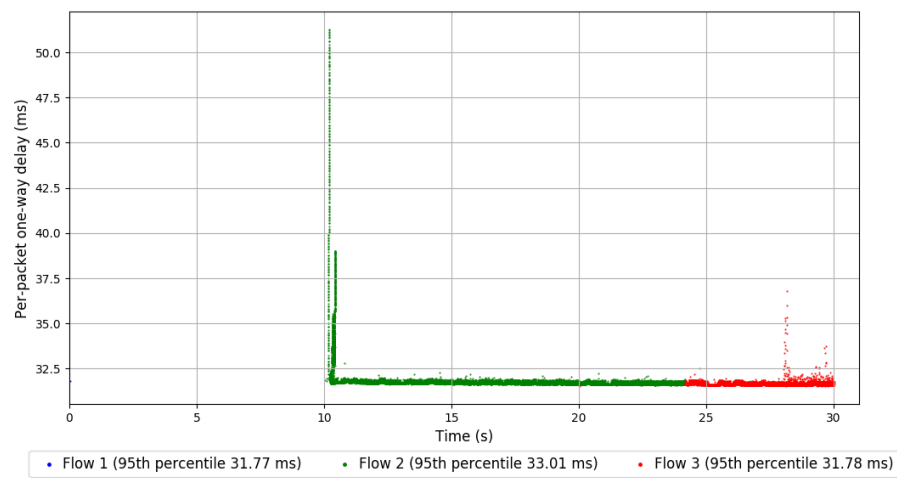
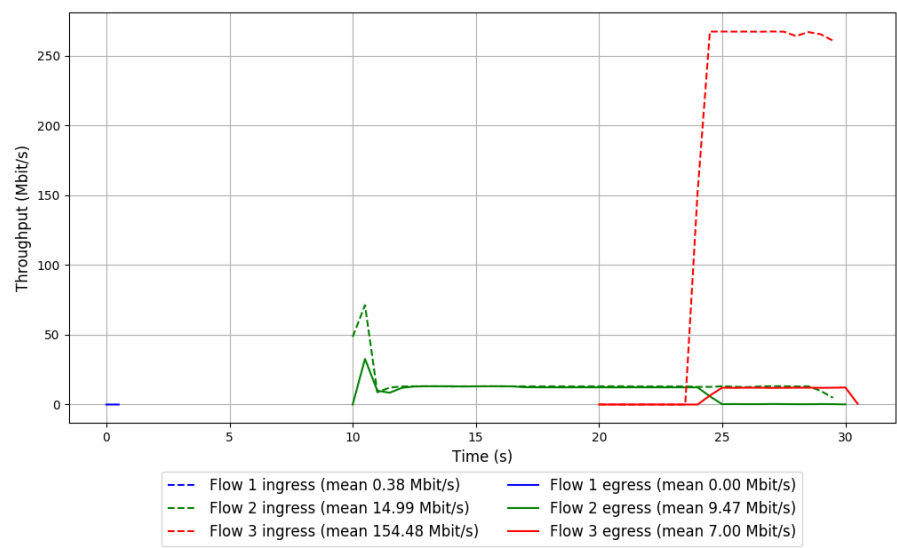
-- Flow 3:

Average throughput: 7.00 Mbit/s

95th percentile per-packet one-way delay: 31.783 ms

Loss rate: 95.47%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-30 01:15:49

End at: 2018-11-30 01:16:19

Local clock offset: 1.424 ms

Remote clock offset: 6.898 ms

Below is generated by plot.py at 2018-11-30 01:44:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.57 Mbit/s

95th percentile per-packet one-way delay: 32.580 ms

Loss rate: 82.70%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 31.677 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 8.19 Mbit/s

95th percentile per-packet one-way delay: 33.231 ms

Loss rate: 85.73%

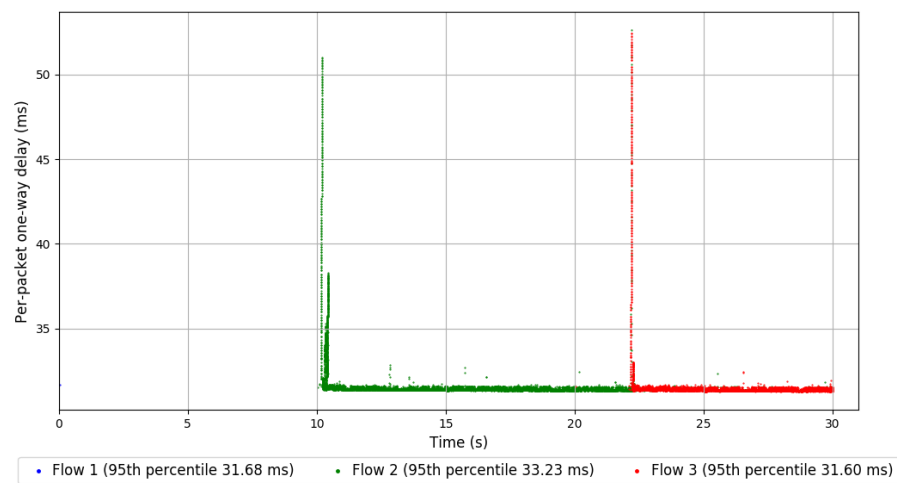
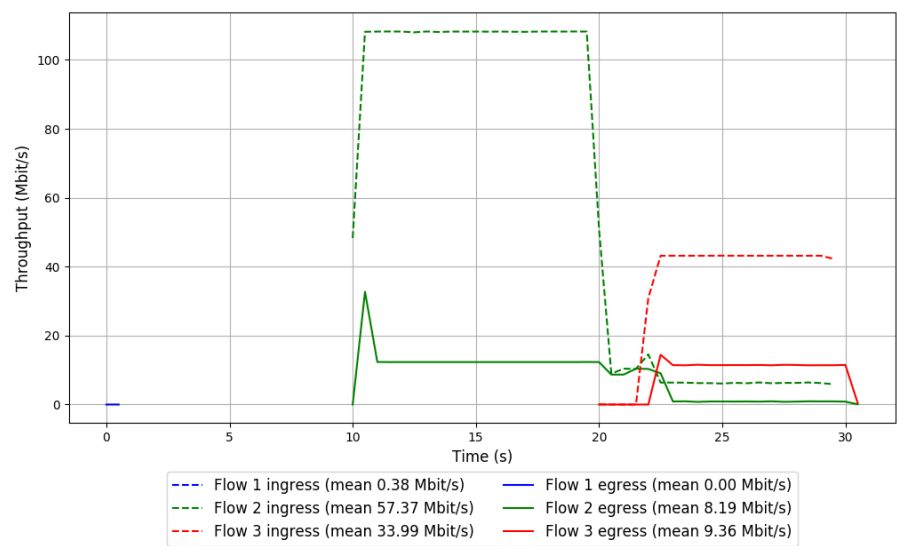
-- Flow 3:

Average throughput: 9.36 Mbit/s

95th percentile per-packet one-way delay: 31.597 ms

Loss rate: 72.47%

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

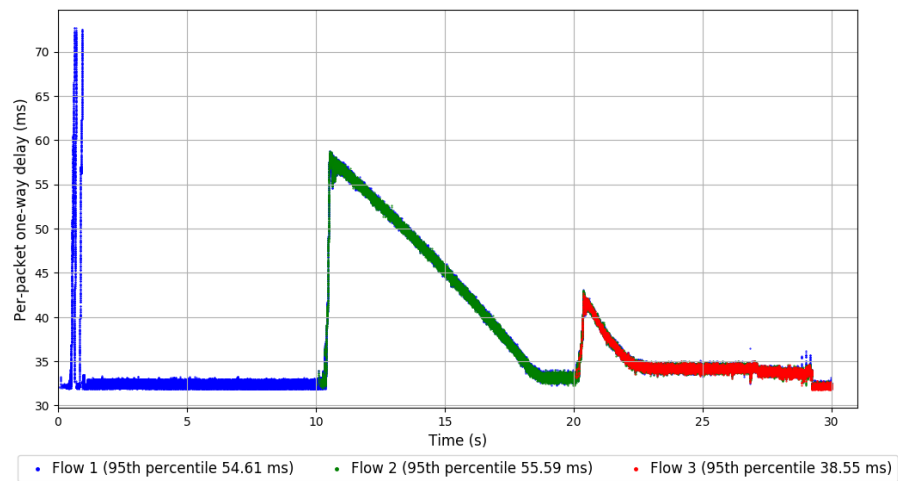
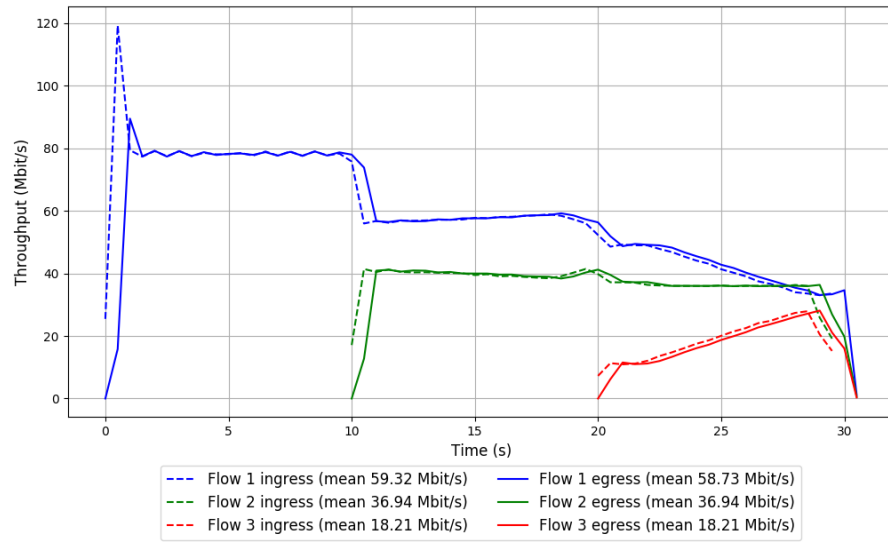


Run 1: Statistics of TCP Vegas

Start at: 2018-11-30 00:04:32
End at: 2018-11-30 00:05:02
Local clock offset: 0.348 ms
Remote clock offset: -4.052 ms

Below is generated by plot.py at 2018-11-30 01:45:36
Datalink statistics
-- Total of 3 flows:
Average throughput: 89.40 Mbit/s
95th percentile per-packet one-way delay: 54.823 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 58.73 Mbit/s
95th percentile per-packet one-way delay: 54.614 ms
Loss rate: 0.99%
-- Flow 2:
Average throughput: 36.94 Mbit/s
95th percentile per-packet one-way delay: 55.591 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.21 Mbit/s
95th percentile per-packet one-way delay: 38.554 ms
Loss rate: 0.01%

Run 1: Report of TCP Vegas — Data Link

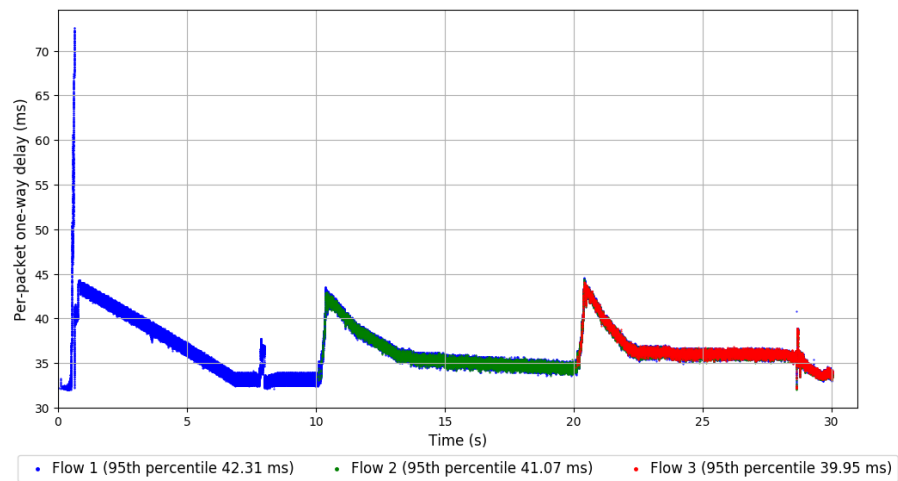
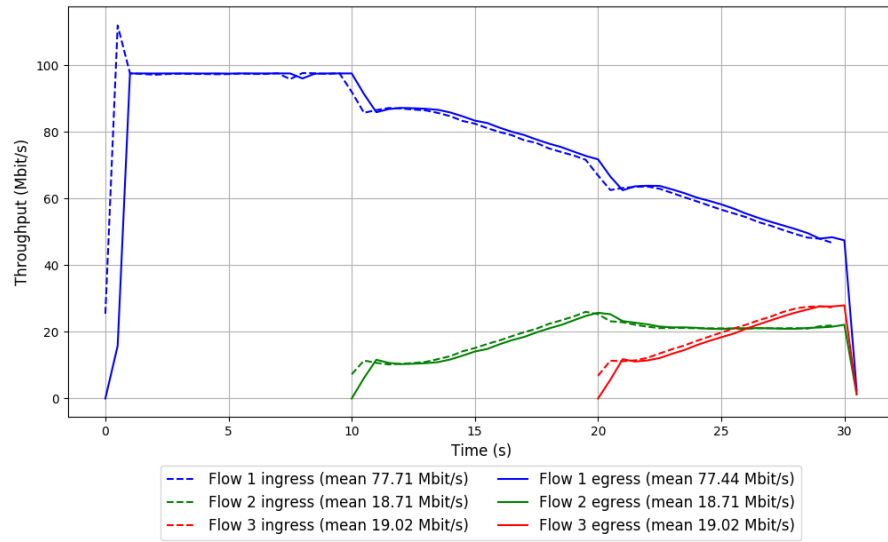


Run 2: Statistics of TCP Vegas

Start at: 2018-11-30 00:26:17
End at: 2018-11-30 00:26:47
Local clock offset: 4.266 ms
Remote clock offset: -2.026 ms

Below is generated by plot.py at 2018-11-30 01:45:41
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.23 Mbit/s
95th percentile per-packet one-way delay: 42.153 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 77.44 Mbit/s
95th percentile per-packet one-way delay: 42.315 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 18.71 Mbit/s
95th percentile per-packet one-way delay: 41.073 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 19.02 Mbit/s
95th percentile per-packet one-way delay: 39.954 ms
Loss rate: 0.01%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-11-30 00:48:09

End at: 2018-11-30 00:48:39

Local clock offset: 4.677 ms

Remote clock offset: 1.788 ms

Below is generated by plot.py at 2018-11-30 01:45:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 81.58 Mbit/s

95th percentile per-packet one-way delay: 51.868 ms

Loss rate: 0.68%

-- Flow 1:

Average throughput: 27.02 Mbit/s

95th percentile per-packet one-way delay: 50.226 ms

Loss rate: 1.17%

-- Flow 2:

Average throughput: 72.96 Mbit/s

95th percentile per-packet one-way delay: 52.593 ms

Loss rate: 0.50%

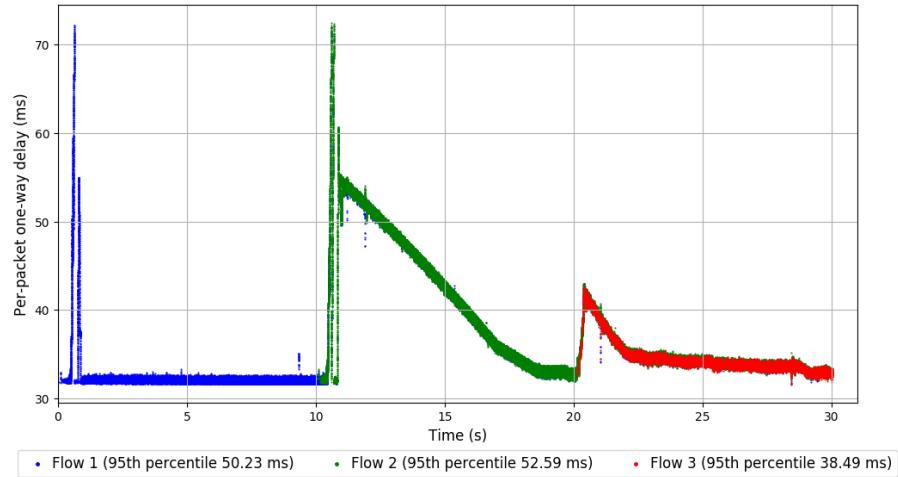
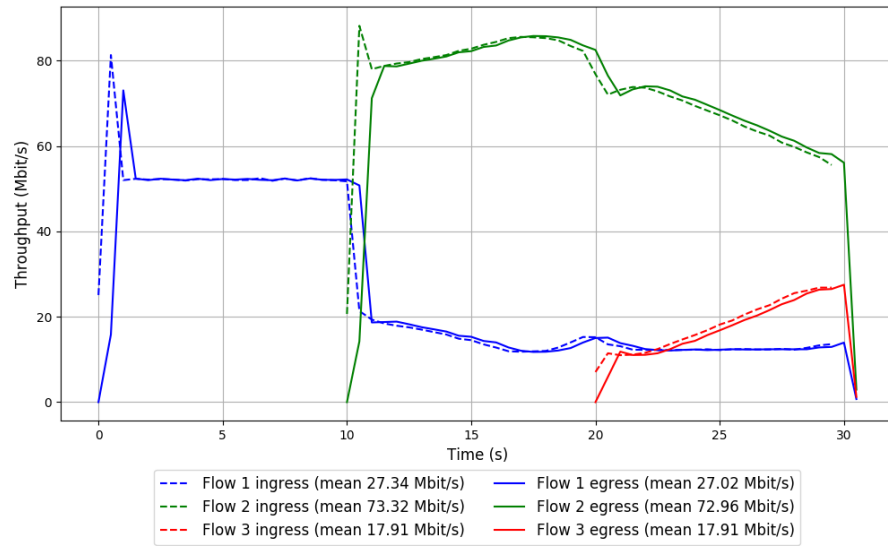
-- Flow 3:

Average throughput: 17.91 Mbit/s

95th percentile per-packet one-way delay: 38.487 ms

Loss rate: 0.01%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-11-30 01:09:52

End at: 2018-11-30 01:10:22

Local clock offset: 1.847 ms

Remote clock offset: 6.141 ms

Below is generated by plot.py at 2018-11-30 01:45:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.01 Mbit/s

95th percentile per-packet one-way delay: 53.888 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 36.99 Mbit/s

95th percentile per-packet one-way delay: 50.551 ms

Loss rate: 0.95%

-- Flow 2:

Average throughput: 36.34 Mbit/s

95th percentile per-packet one-way delay: 53.844 ms

Loss rate: 0.48%

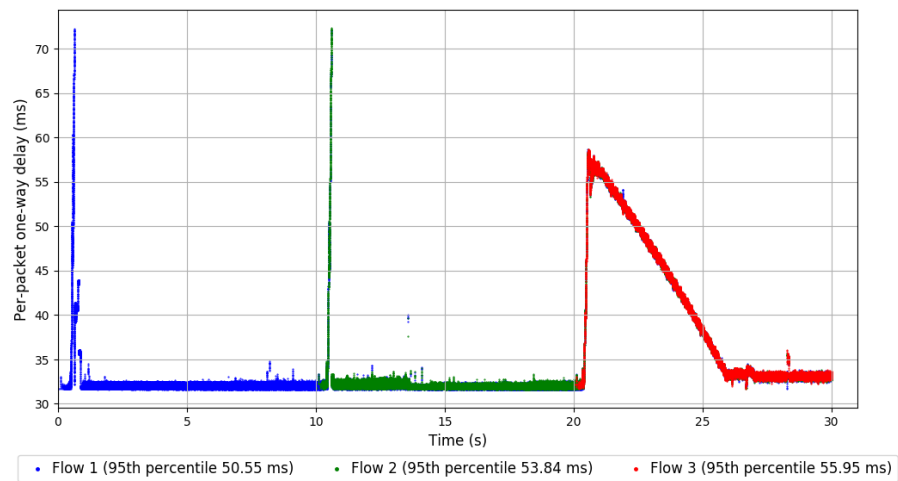
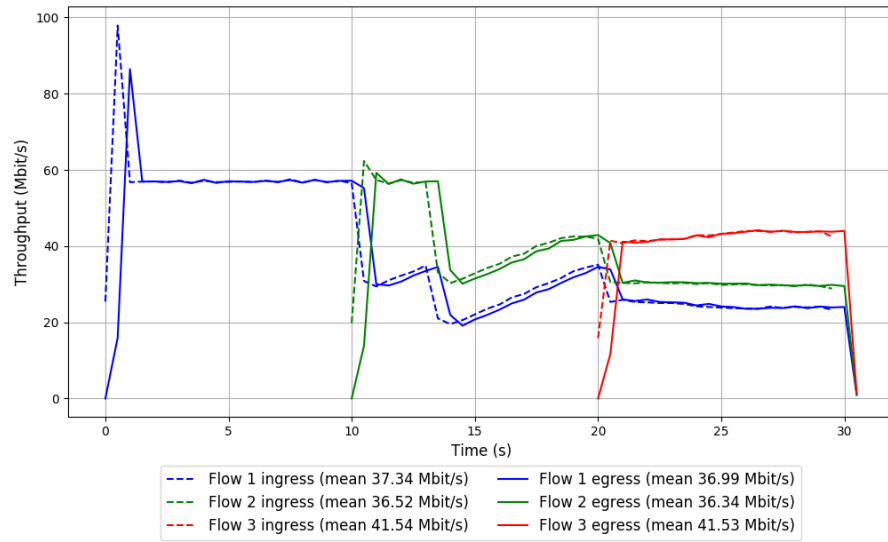
-- Flow 3:

Average throughput: 41.53 Mbit/s

95th percentile per-packet one-way delay: 55.952 ms

Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-11-30 01:31:36

End at: 2018-11-30 01:32:06

Local clock offset: -0.632 ms

Remote clock offset: 7.184 ms

Below is generated by plot.py at 2018-11-30 01:45:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.24 Mbit/s

95th percentile per-packet one-way delay: 49.327 ms

Loss rate: 0.61%

-- Flow 1:

Average throughput: 62.29 Mbit/s

95th percentile per-packet one-way delay: 43.180 ms

Loss rate: 0.52%

-- Flow 2:

Average throughput: 10.12 Mbit/s

95th percentile per-packet one-way delay: 45.705 ms

Loss rate: 0.35%

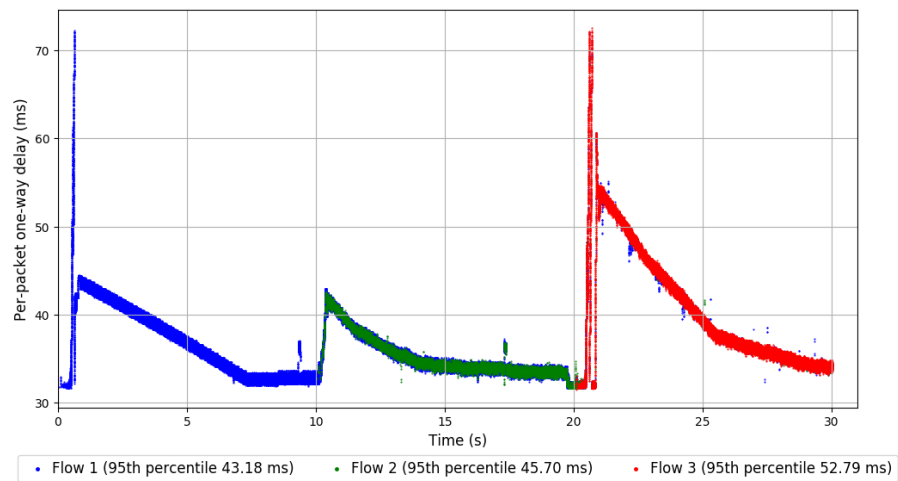
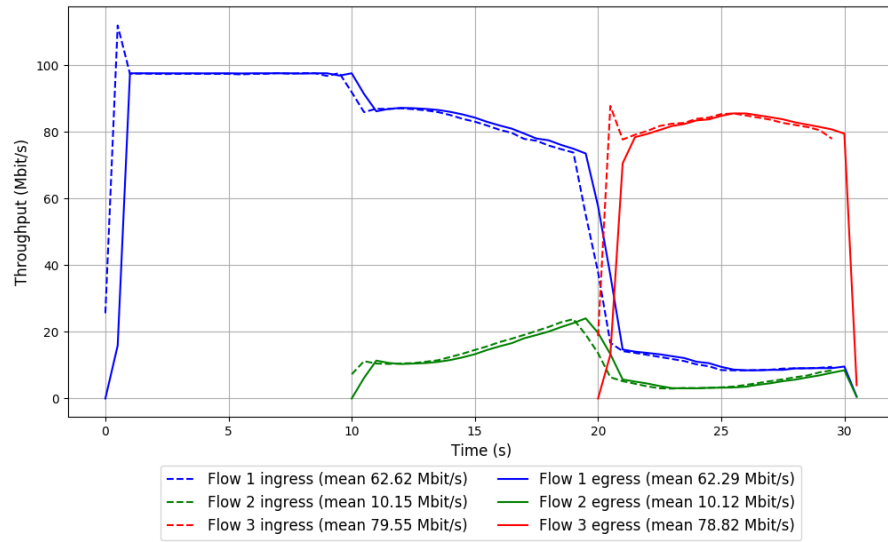
-- Flow 3:

Average throughput: 78.82 Mbit/s

95th percentile per-packet one-way delay: 52.788 ms

Loss rate: 0.89%

Run 5: Report of TCP Vegas — Data Link

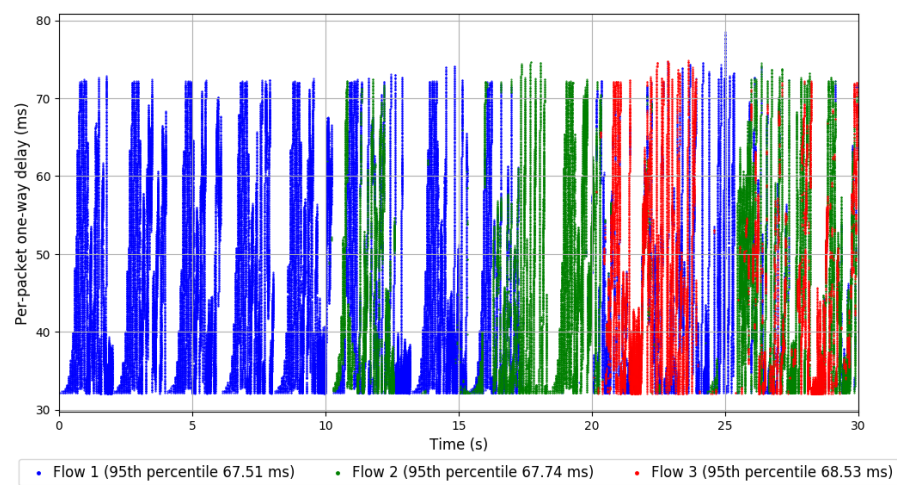
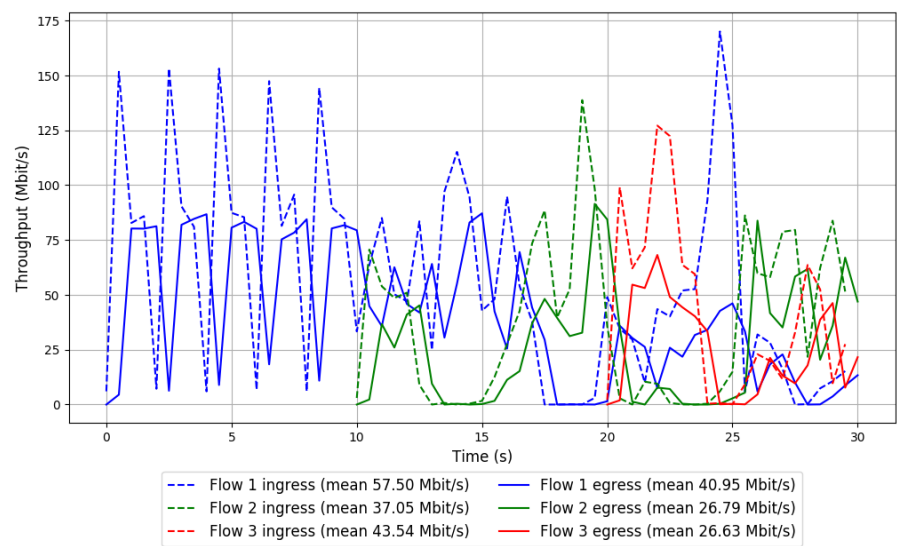


Run 1: Statistics of Verus

Start at: 2018-11-29 23:56:07
End at: 2018-11-29 23:56:37
Local clock offset: 0.028 ms
Remote clock offset: -4.061 ms

Below is generated by plot.py at 2018-11-30 01:45:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 67.55 Mbit/s
95th percentile per-packet one-way delay: 67.718 ms
Loss rate: 30.00%
-- Flow 1:
Average throughput: 40.95 Mbit/s
95th percentile per-packet one-way delay: 67.510 ms
Loss rate: 28.77%
-- Flow 2:
Average throughput: 26.79 Mbit/s
95th percentile per-packet one-way delay: 67.744 ms
Loss rate: 27.80%
-- Flow 3:
Average throughput: 26.63 Mbit/s
95th percentile per-packet one-way delay: 68.530 ms
Loss rate: 38.70%

Run 1: Report of Verus — Data Link

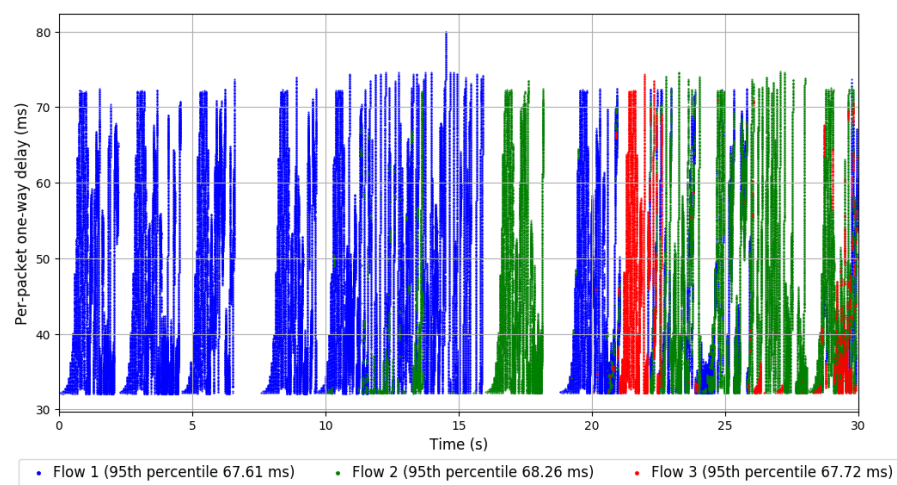
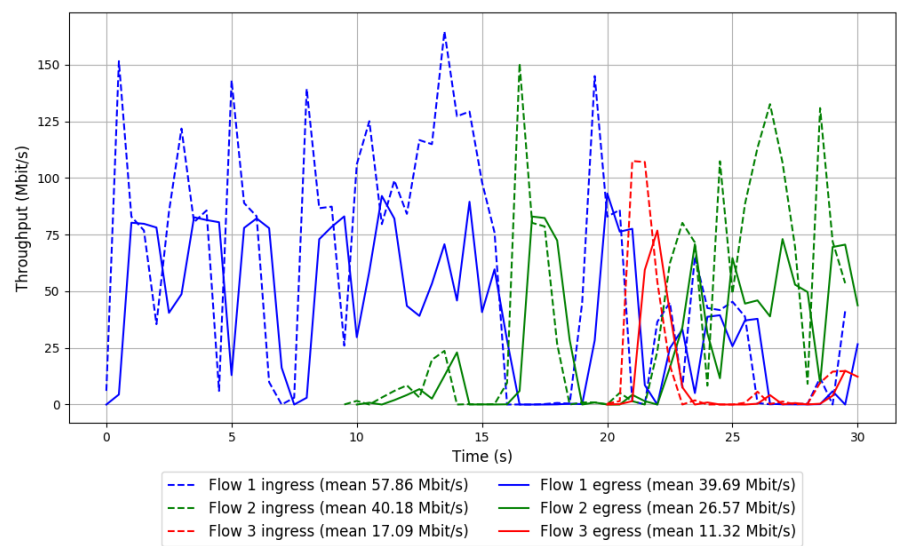


Run 2: Statistics of Verus

Start at: 2018-11-30 00:17:55
End at: 2018-11-30 00:18:25
Local clock offset: 1.636 ms
Remote clock offset: -3.063 ms

Below is generated by plot.py at 2018-11-30 01:45:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 61.12 Mbit/s
95th percentile per-packet one-way delay: 67.802 ms
Loss rate: 32.23%
-- Flow 1:
Average throughput: 39.69 Mbit/s
95th percentile per-packet one-way delay: 67.613 ms
Loss rate: 31.36%
-- Flow 2:
Average throughput: 26.57 Mbit/s
95th percentile per-packet one-way delay: 68.263 ms
Loss rate: 33.81%
-- Flow 3:
Average throughput: 11.32 Mbit/s
95th percentile per-packet one-way delay: 67.723 ms
Loss rate: 33.61%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-11-30 00:39:45

End at: 2018-11-30 00:40:15

Local clock offset: 5.628 ms

Remote clock offset: 0.003 ms

Below is generated by plot.py at 2018-11-30 01:45:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 64.80 Mbit/s

95th percentile per-packet one-way delay: 67.531 ms

Loss rate: 24.97%

-- Flow 1:

Average throughput: 42.17 Mbit/s

95th percentile per-packet one-way delay: 67.358 ms

Loss rate: 25.09%

-- Flow 2:

Average throughput: 31.19 Mbit/s

95th percentile per-packet one-way delay: 67.861 ms

Loss rate: 24.22%

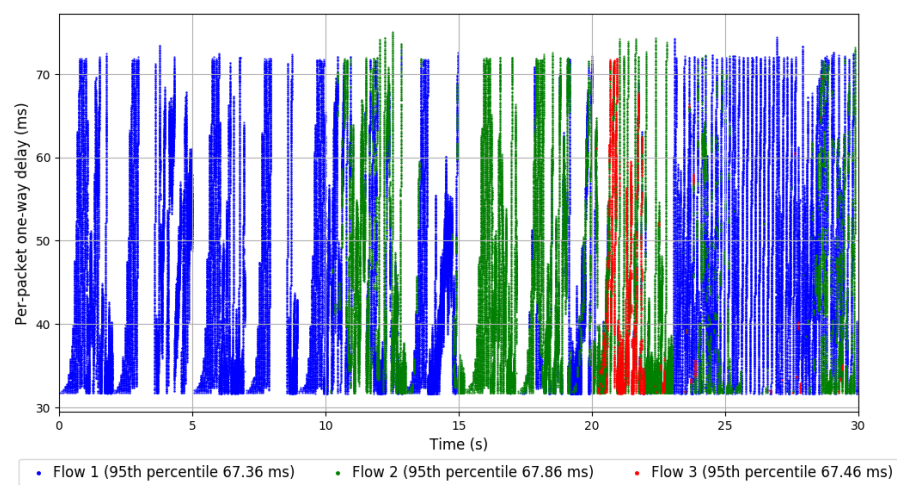
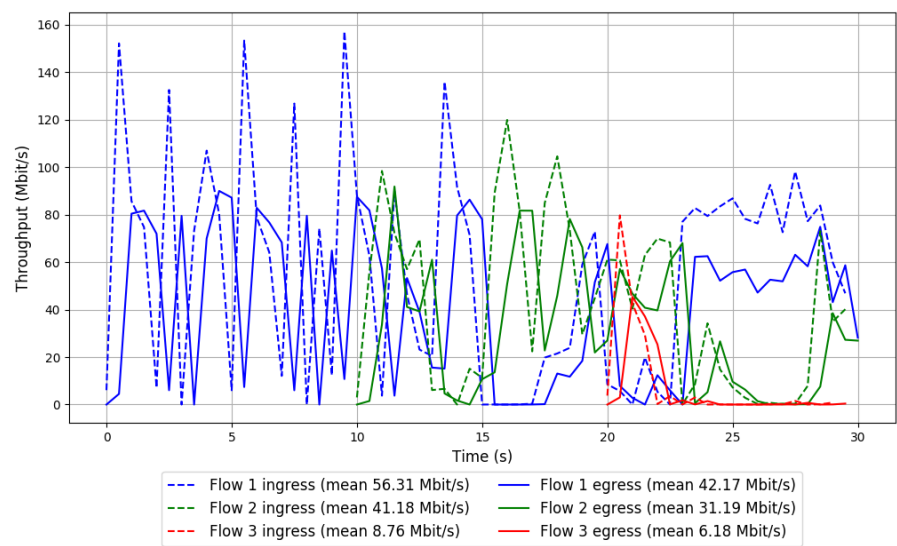
-- Flow 3:

Average throughput: 6.18 Mbit/s

95th percentile per-packet one-way delay: 67.463 ms

Loss rate: 29.96%

Run 3: Report of Verus — Data Link

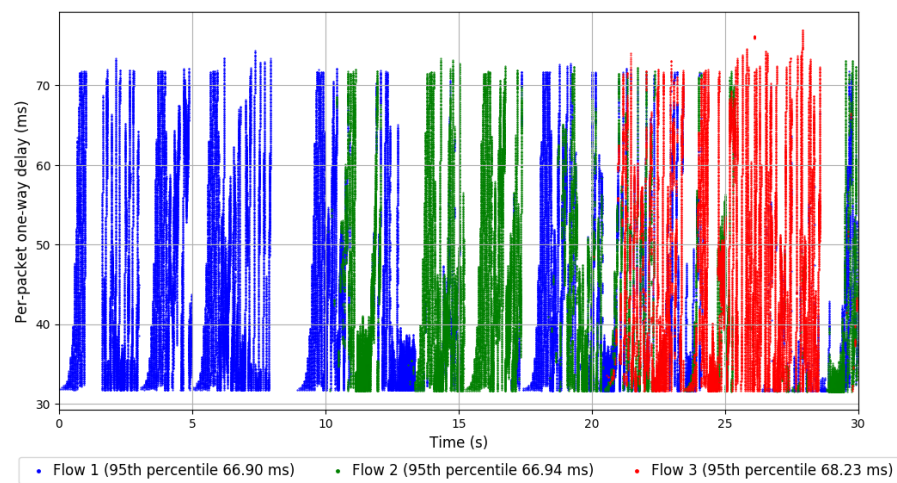
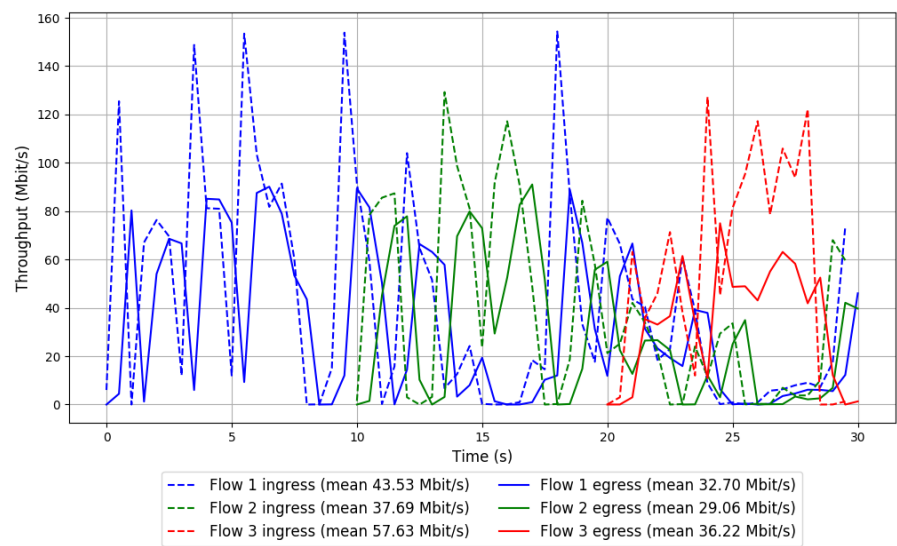


Run 4: Statistics of Verus

Start at: 2018-11-30 01:01:18
End at: 2018-11-30 01:01:48
Local clock offset: 2.507 ms
Remote clock offset: 4.489 ms

Below is generated by plot.py at 2018-11-30 01:46:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 63.94 Mbit/s
95th percentile per-packet one-way delay: 67.199 ms
Loss rate: 26.96%
-- Flow 1:
Average throughput: 32.70 Mbit/s
95th percentile per-packet one-way delay: 66.896 ms
Loss rate: 24.83%
-- Flow 2:
Average throughput: 29.06 Mbit/s
95th percentile per-packet one-way delay: 66.941 ms
Loss rate: 22.90%
-- Flow 3:
Average throughput: 36.22 Mbit/s
95th percentile per-packet one-way delay: 68.231 ms
Loss rate: 37.19%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-30 01:23:08

End at: 2018-11-30 01:23:38

Local clock offset: 0.228 ms

Remote clock offset: 7.778 ms

Below is generated by plot.py at 2018-11-30 01:46:24

Datalink statistics

-- Total of 3 flows:

Average throughput: 59.33 Mbit/s

95th percentile per-packet one-way delay: 68.062 ms

Loss rate: 38.03%

-- Flow 1:

Average throughput: 32.50 Mbit/s

95th percentile per-packet one-way delay: 66.936 ms

Loss rate: 23.29%

-- Flow 2:

Average throughput: 41.08 Mbit/s

95th percentile per-packet one-way delay: 69.080 ms

Loss rate: 49.72%

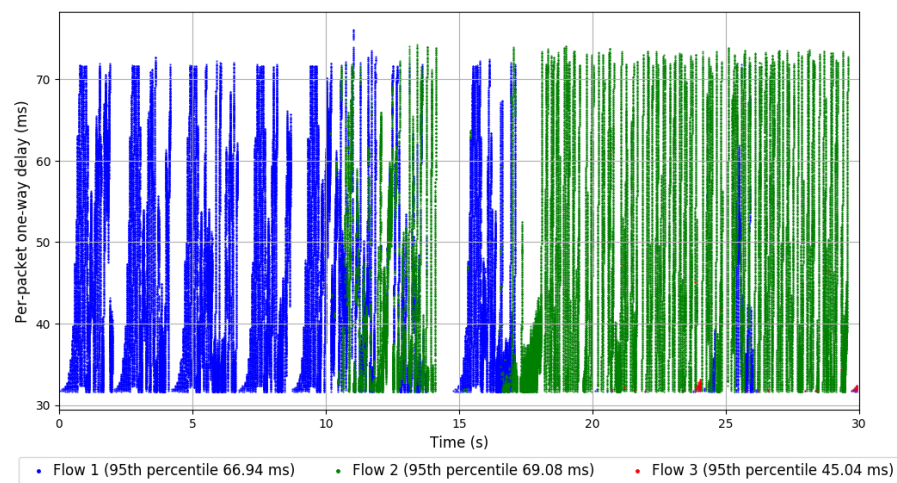
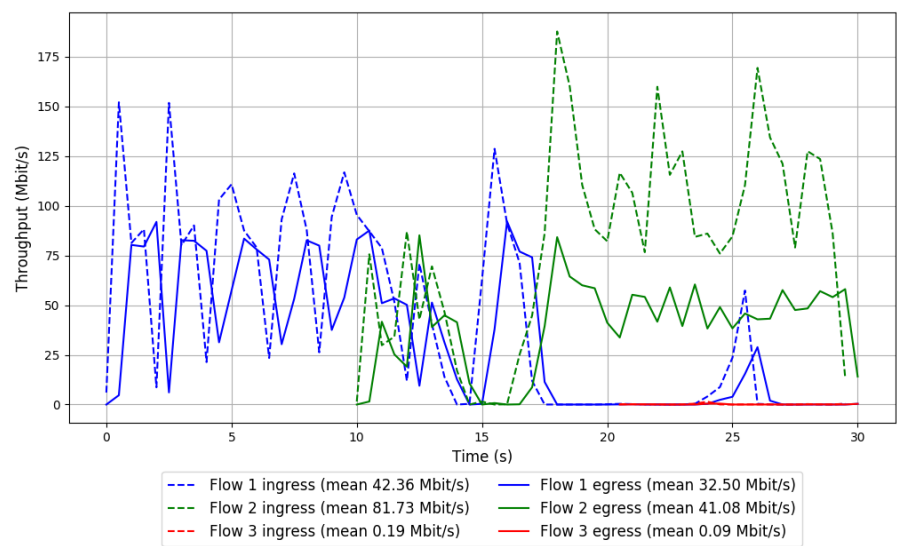
-- Flow 3:

Average throughput: 0.09 Mbit/s

95th percentile per-packet one-way delay: 45.044 ms

Loss rate: 50.34%

Run 5: Report of Verus — Data Link

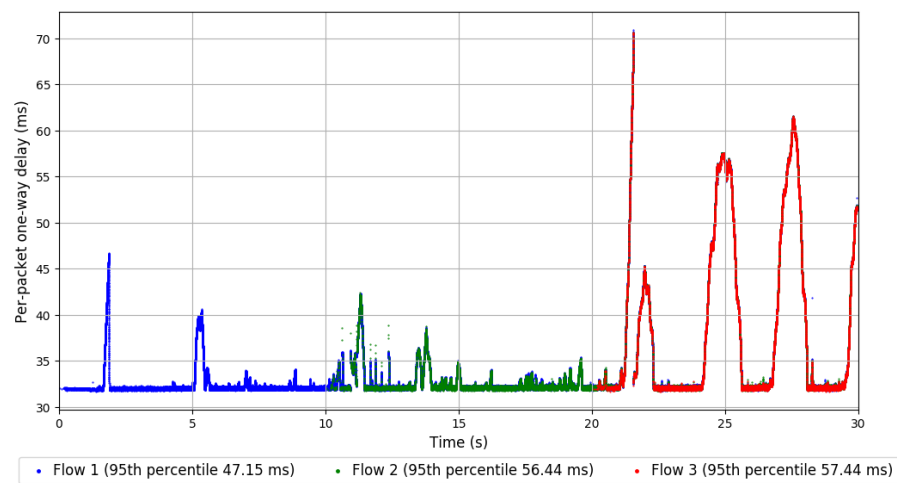
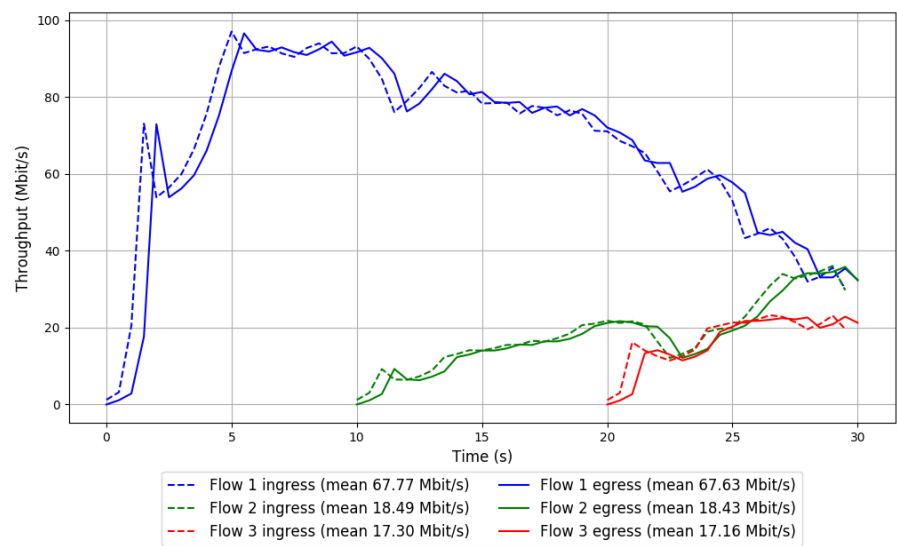


Run 1: Statistics of PCC-Vivace

Start at: 2018-11-29 23:57:21
End at: 2018-11-29 23:57:51
Local clock offset: 0.145 ms
Remote clock offset: -4.286 ms

Below is generated by plot.py at 2018-11-30 01:46:41
Datalink statistics
-- Total of 3 flows:
Average throughput: 85.57 Mbit/s
95th percentile per-packet one-way delay: 53.289 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 67.63 Mbit/s
95th percentile per-packet one-way delay: 47.154 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 18.43 Mbit/s
95th percentile per-packet one-way delay: 56.439 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 17.16 Mbit/s
95th percentile per-packet one-way delay: 57.437 ms
Loss rate: 0.59%

Run 1: Report of PCC-Vivace — Data Link

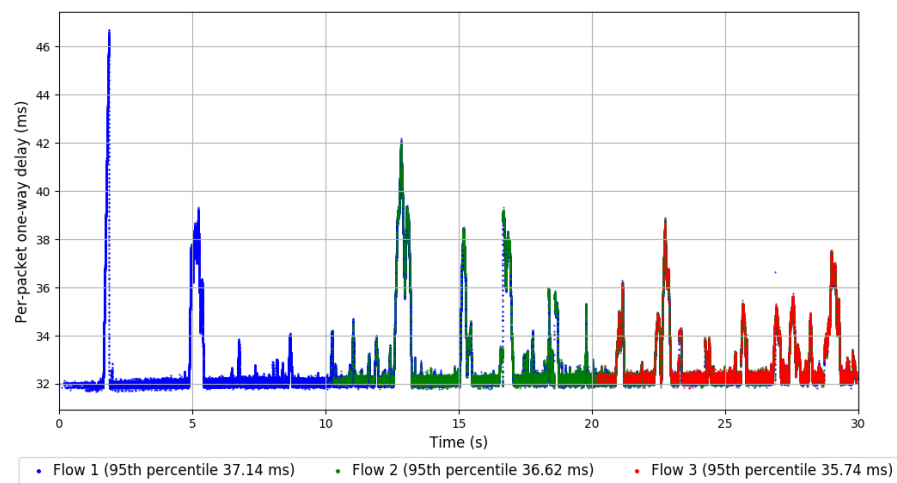
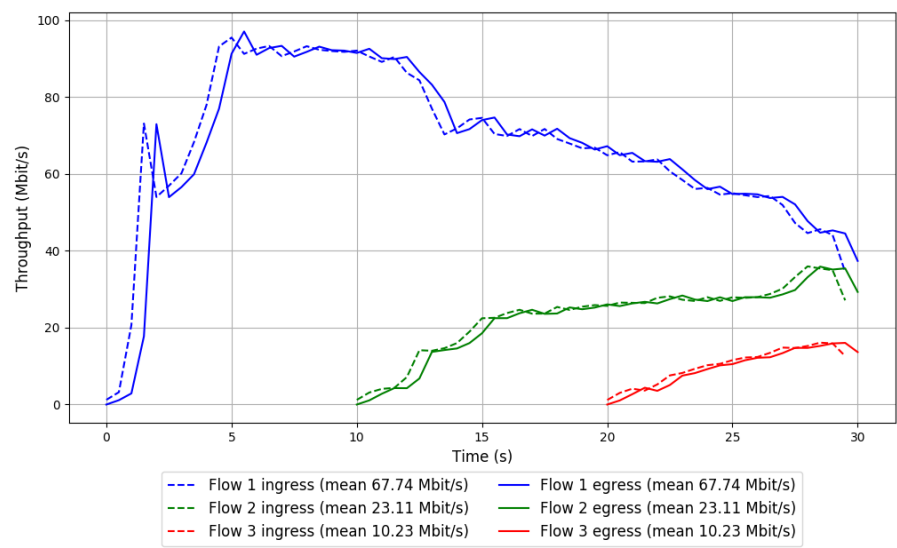


Run 2: Statistics of PCC-Vivace

Start at: 2018-11-30 00:19:08
End at: 2018-11-30 00:19:38
Local clock offset: 2.217 ms
Remote clock offset: -3.133 ms

Below is generated by plot.py at 2018-11-30 01:46:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 86.49 Mbit/s
95th percentile per-packet one-way delay: 36.929 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 67.74 Mbit/s
95th percentile per-packet one-way delay: 37.141 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 23.11 Mbit/s
95th percentile per-packet one-way delay: 36.616 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 10.23 Mbit/s
95th percentile per-packet one-way delay: 35.745 ms
Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-11-30 00:40:59

End at: 2018-11-30 00:41:30

Local clock offset: 5.68 ms

Remote clock offset: 0.282 ms

Below is generated by plot.py at 2018-11-30 01:46:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.38 Mbit/s

95th percentile per-packet one-way delay: 45.878 ms

Loss rate: 0.19%

-- Flow 1:

Average throughput: 63.98 Mbit/s

95th percentile per-packet one-way delay: 43.016 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 27.84 Mbit/s

95th percentile per-packet one-way delay: 52.186 ms

Loss rate: 0.25%

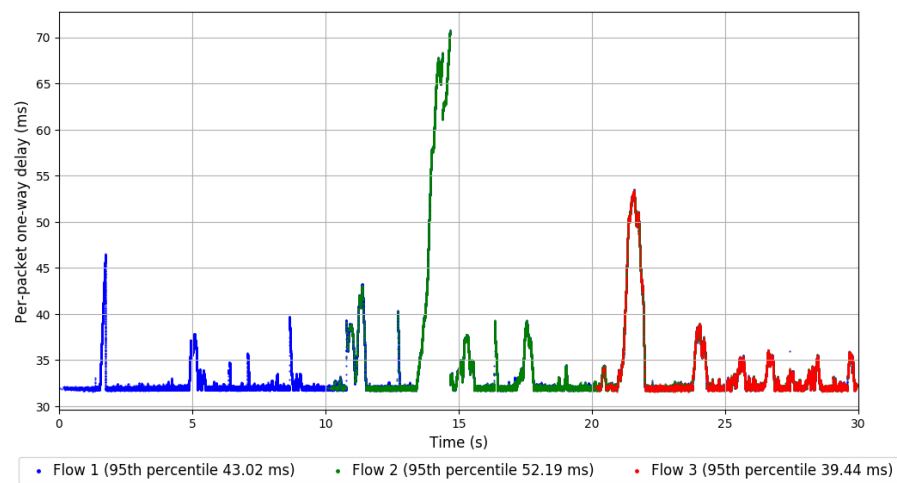
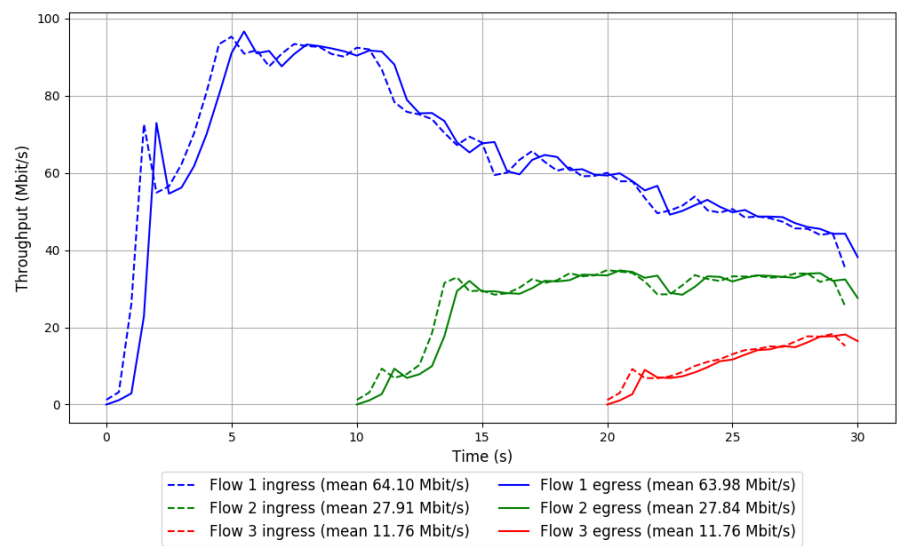
-- Flow 3:

Average throughput: 11.76 Mbit/s

95th percentile per-packet one-way delay: 39.439 ms

Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-11-30 01:02:33

End at: 2018-11-30 01:03:03

Local clock offset: 2.355 ms

Remote clock offset: 4.541 ms

Below is generated by plot.py at 2018-11-30 01:46:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.19 Mbit/s

95th percentile per-packet one-way delay: 40.021 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 65.96 Mbit/s

95th percentile per-packet one-way delay: 40.144 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 24.62 Mbit/s

95th percentile per-packet one-way delay: 39.542 ms

Loss rate: 0.00%

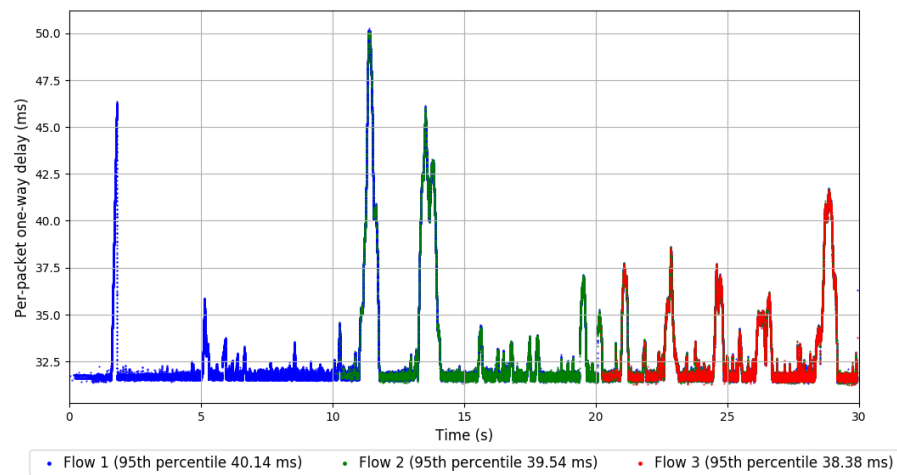
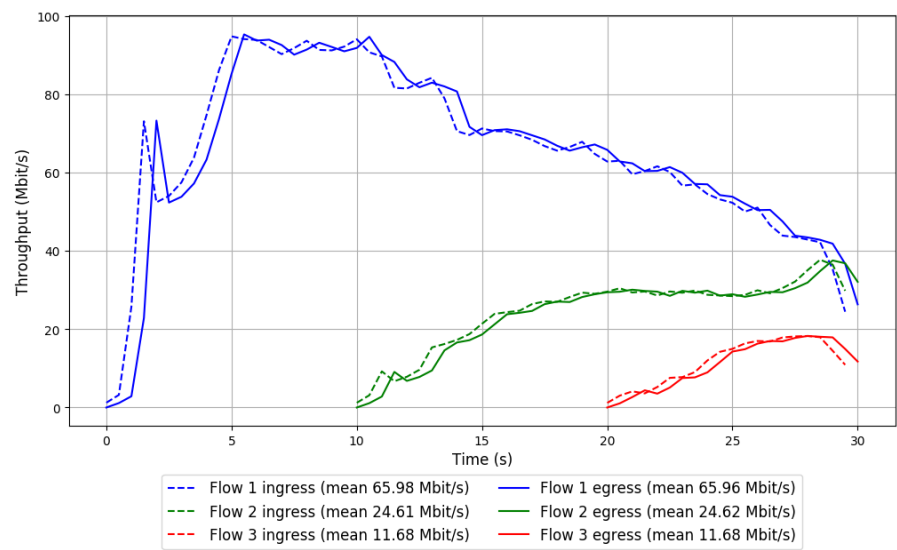
-- Flow 3:

Average throughput: 11.68 Mbit/s

95th percentile per-packet one-way delay: 38.384 ms

Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-11-30 01:24:23

End at: 2018-11-30 01:24:53

Local clock offset: 0.084 ms

Remote clock offset: 7.675 ms

Below is generated by plot.py at 2018-11-30 01:46:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.33 Mbit/s

95th percentile per-packet one-way delay: 38.684 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 66.22 Mbit/s

95th percentile per-packet one-way delay: 39.066 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 24.60 Mbit/s

95th percentile per-packet one-way delay: 37.802 ms

Loss rate: 0.00%

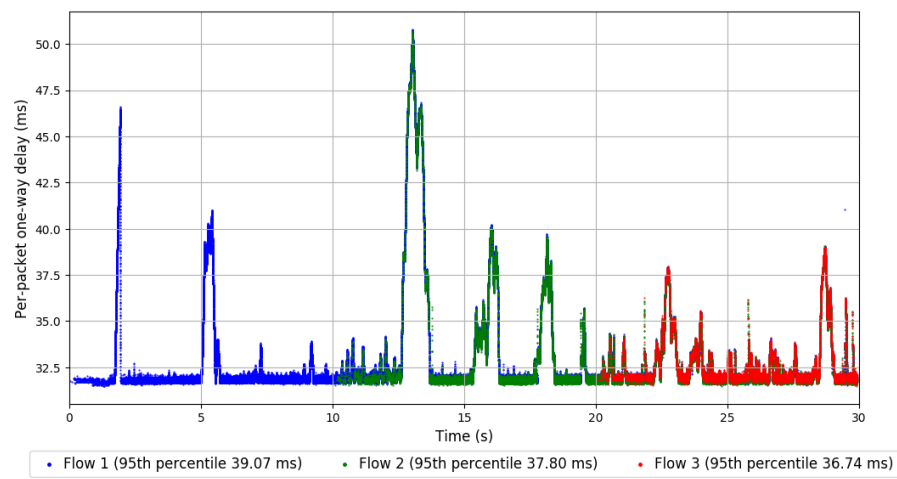
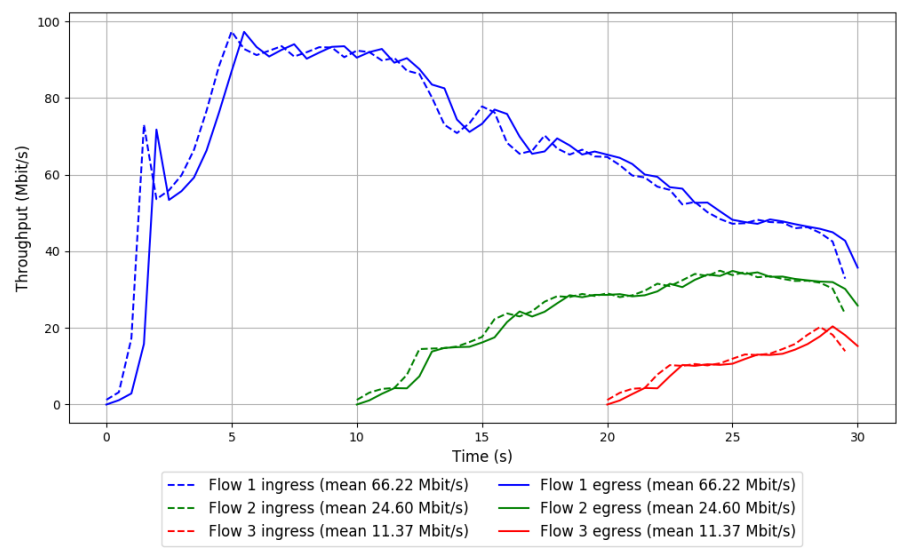
-- Flow 3:

Average throughput: 11.37 Mbit/s

95th percentile per-packet one-way delay: 36.737 ms

Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link

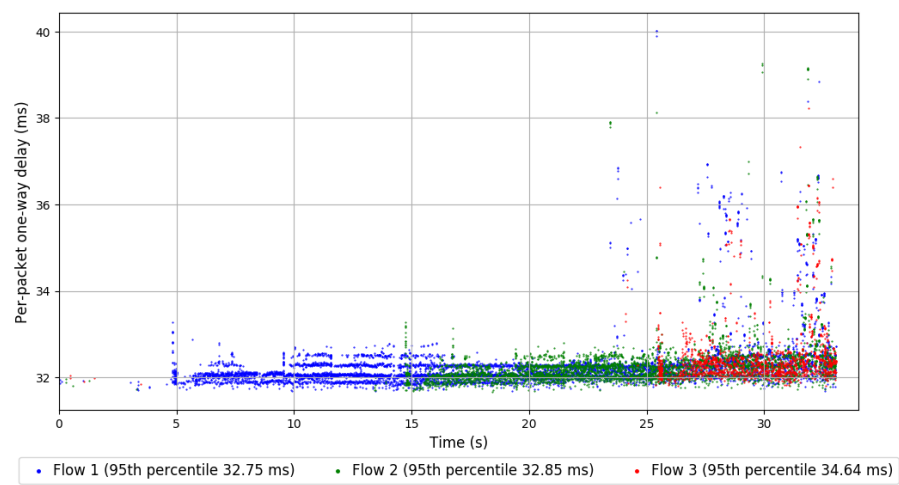
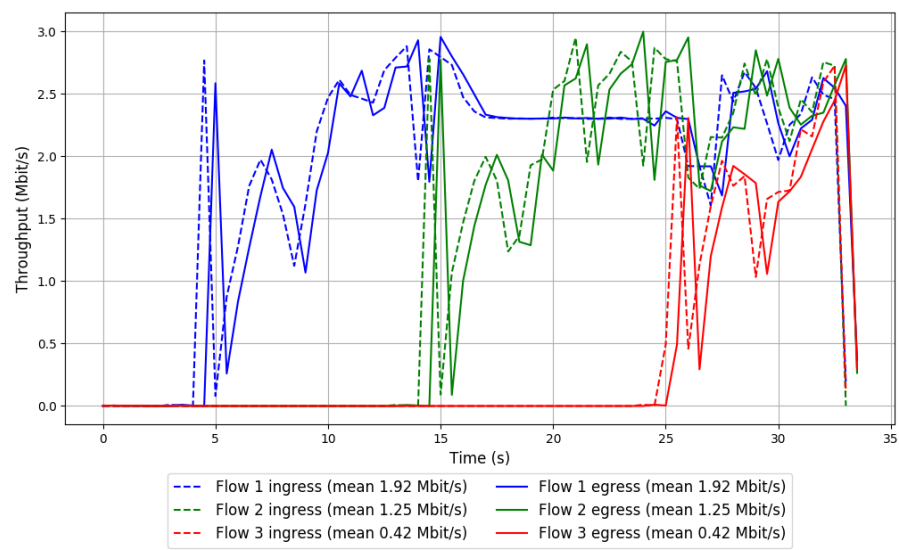


Run 1: Statistics of WebRTC media

Start at: 2018-11-30 00:03:23
End at: 2018-11-30 00:03:53
Local clock offset: 0.333 ms
Remote clock offset: -4.126 ms

Below is generated by plot.py at 2018-11-30 01:46:46
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.57 Mbit/s
95th percentile per-packet one-way delay: 32.993 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 32.748 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 32.849 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 34.641 ms
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-11-30 00:25:08

End at: 2018-11-30 00:25:38

Local clock offset: 4.05 ms

Remote clock offset: -2.33 ms

Below is generated by plot.py at 2018-11-30 01:46:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.54 Mbit/s

95th percentile per-packet one-way delay: 33.470 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 32.989 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.23 Mbit/s

95th percentile per-packet one-way delay: 33.950 ms

Loss rate: 0.00%

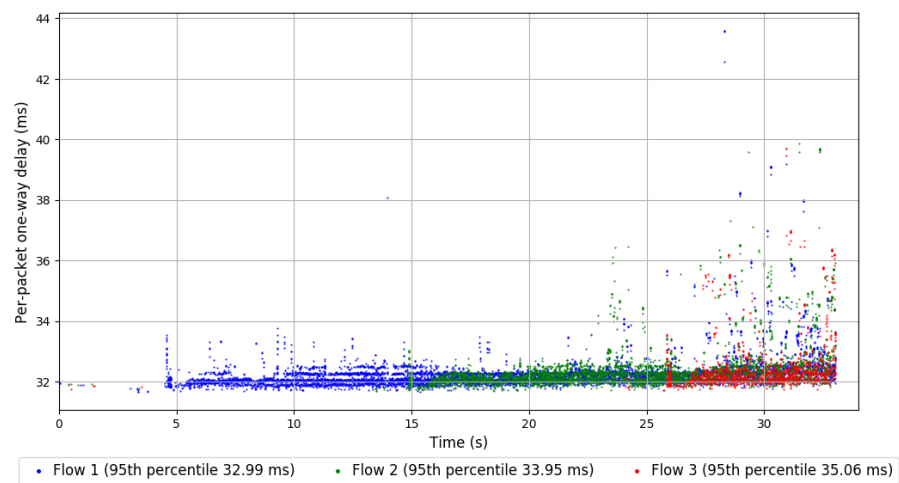
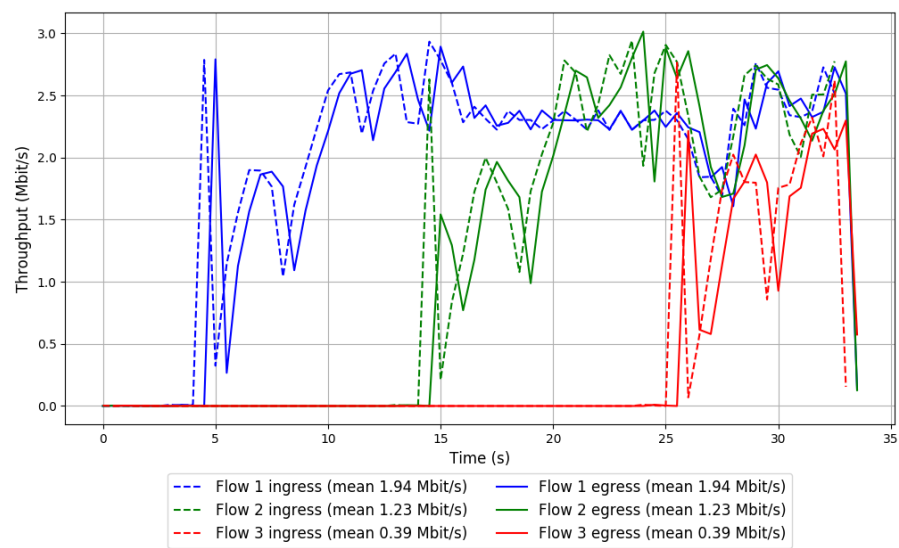
-- Flow 3:

Average throughput: 0.39 Mbit/s

95th percentile per-packet one-way delay: 35.061 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-11-30 00:47:01

End at: 2018-11-30 00:47:31

Local clock offset: 5.097 ms

Remote clock offset: 1.699 ms

Below is generated by plot.py at 2018-11-30 01:46:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.61 Mbit/s

95th percentile per-packet one-way delay: 32.892 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 32.565 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 33.370 ms

Loss rate: 0.00%

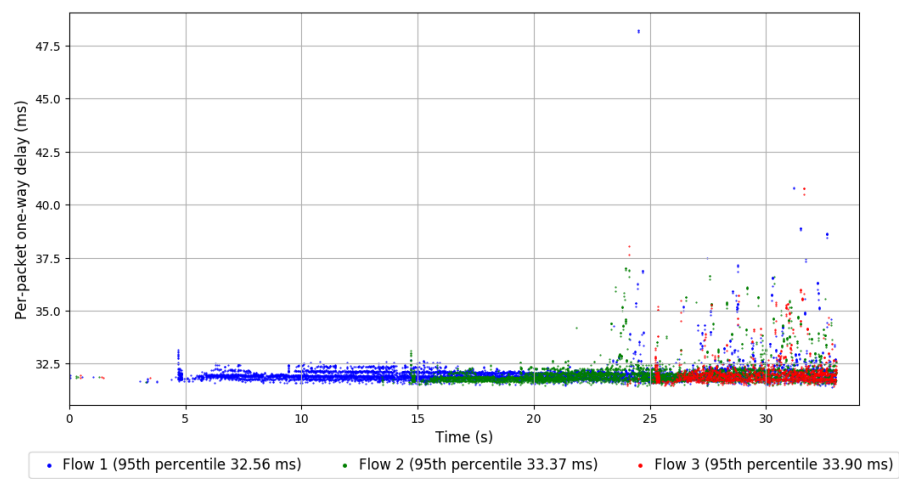
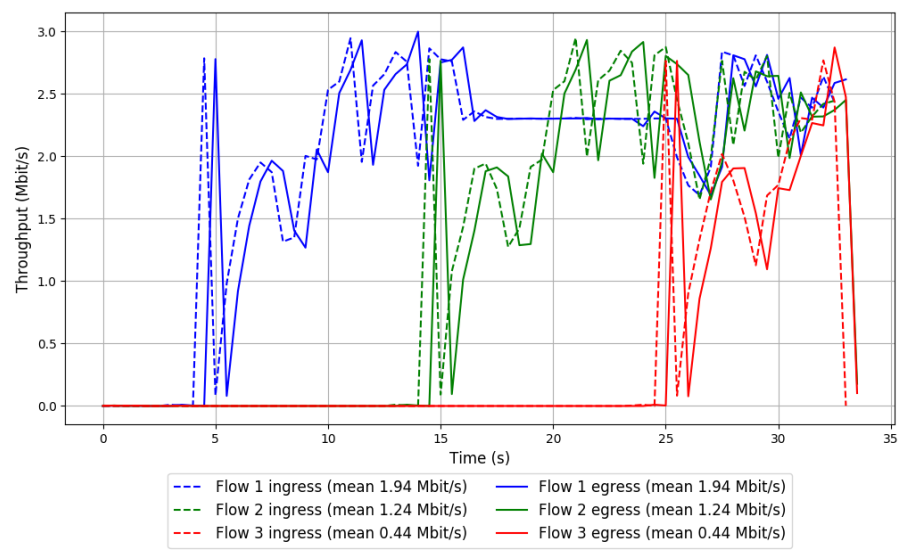
-- Flow 3:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 33.904 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-11-30 01:08:44

End at: 2018-11-30 01:09:14

Local clock offset: 1.93 ms

Remote clock offset: 6.1 ms

Below is generated by plot.py at 2018-11-30 01:46:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.55 Mbit/s

95th percentile per-packet one-way delay: 33.536 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 33.125 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.22 Mbit/s

95th percentile per-packet one-way delay: 33.994 ms

Loss rate: 0.00%

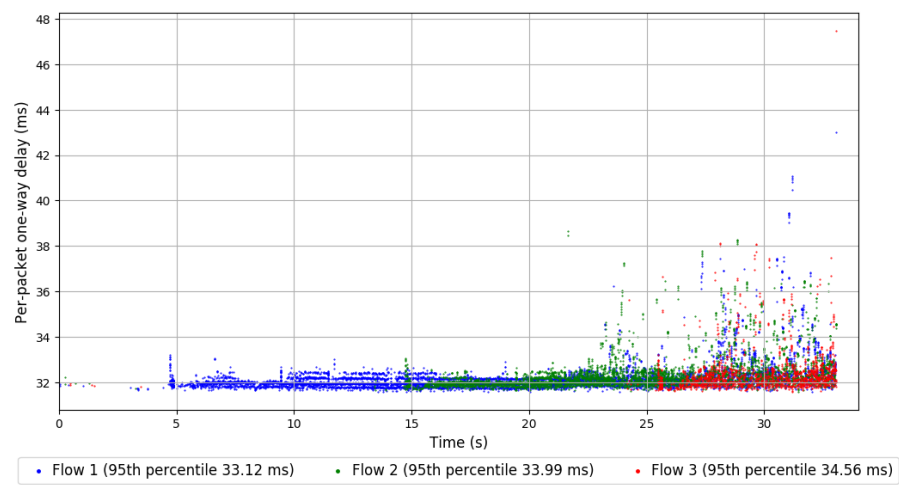
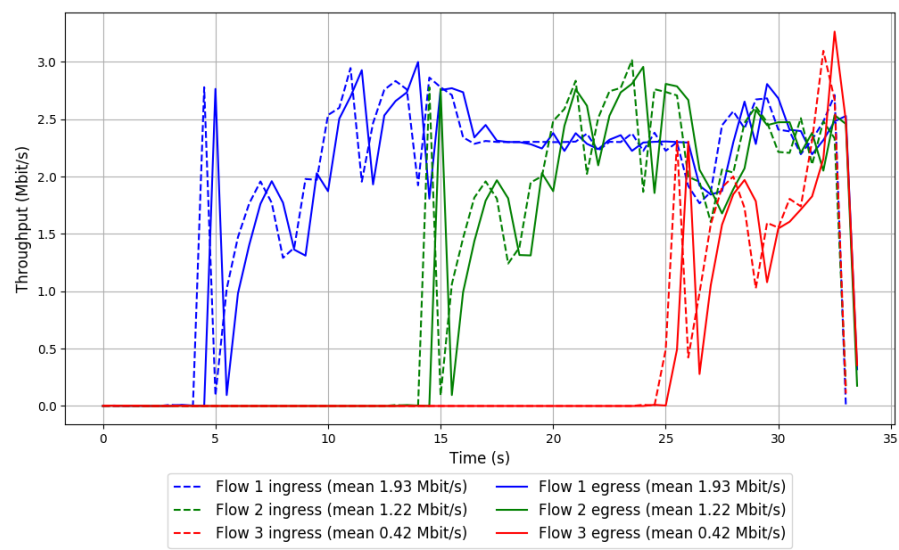
-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 34.556 ms

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-30 01:30:26

End at: 2018-11-30 01:30:56

Local clock offset: -0.548 ms

Remote clock offset: 7.099 ms

Below is generated by plot.py at 2018-11-30 01:46:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.55 Mbit/s

95th percentile per-packet one-way delay: 32.702 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.91 Mbit/s

95th percentile per-packet one-way delay: 32.542 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.23 Mbit/s

95th percentile per-packet one-way delay: 32.574 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 33.925 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

