

Pantheon Report

Generated at 2018-09-11 04:52:56 (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:

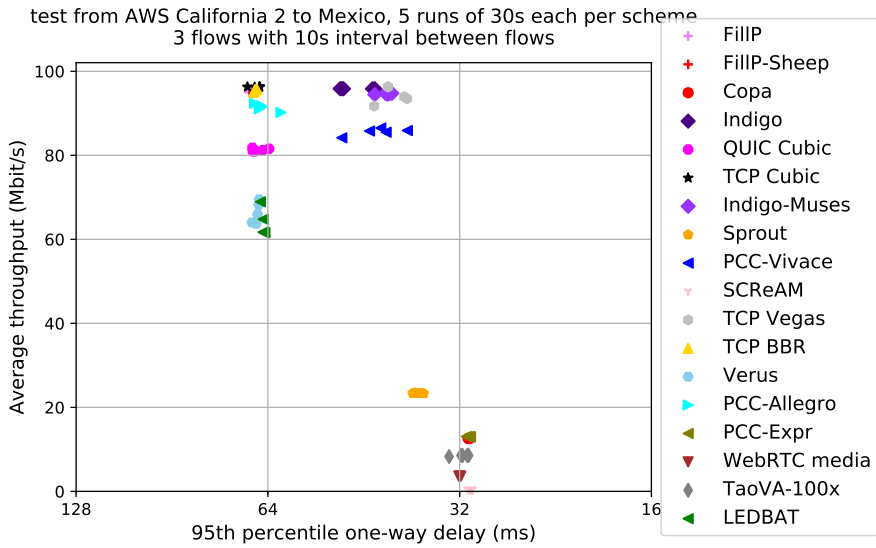
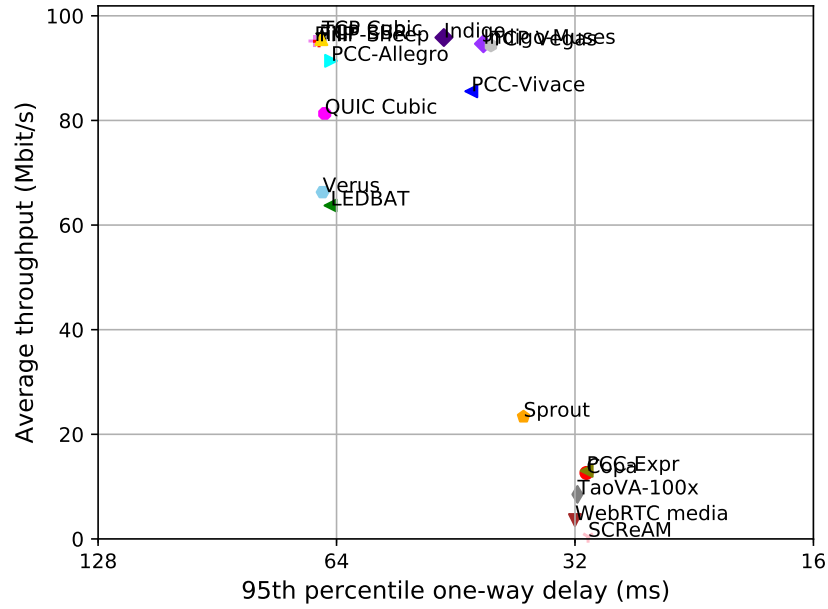
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 184101 245469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

Git summary:

```
branch: muses @ f30bceca2aec2ef14a3cf71e25642f4a30905a03
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
  M src/ScreamClient
  M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
```

```
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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



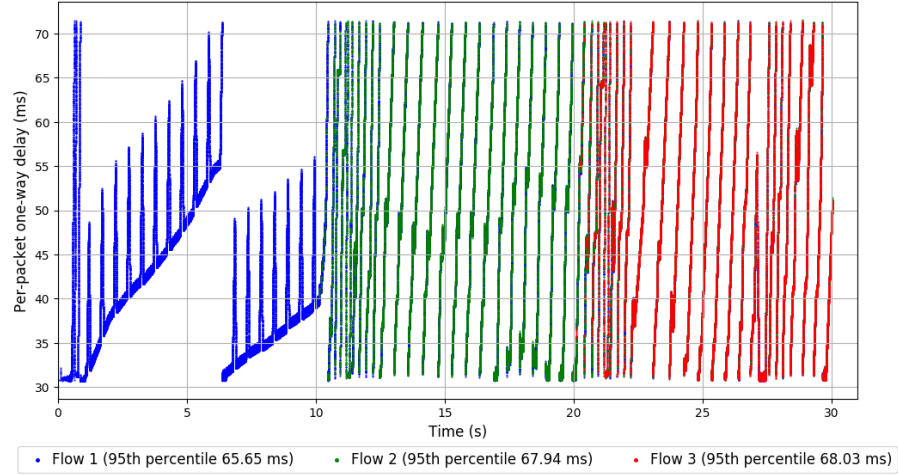
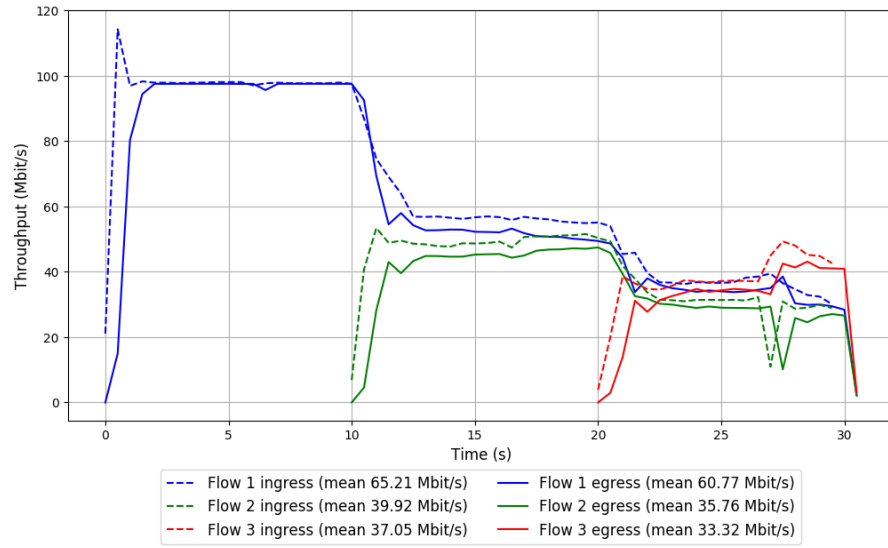
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	61.72	34.37	32.86	65.93	68.07	67.29	6.22	9.94	9.56
Copa	5	8.98	5.45	0.01	31.06	30.81	31.12	71.06	76.47	92.70
TCP Cubic	5	76.44	19.53	20.59	66.50	67.63	67.00	0.99	0.66	0.86
FillP	5	60.74	38.52	26.68	67.79	68.72	69.06	23.39	34.96	44.48
FillP-Sheep	5	58.56	40.05	30.29	65.85	68.45	68.52	13.77	25.34	29.72
Indigo	5	67.30	26.47	33.60	44.16	49.69	52.75	0.02	0.00	0.00
LEDBAT	5	40.41	24.54	21.23	65.25	66.06	53.78	0.21	0.32	0.04
Indigo-Muses	5	60.11	33.05	38.14	42.30	41.73	39.54	0.29	0.04	0.00
PCC-Allegro	5	80.75	12.31	7.49	64.66	66.43	67.17	4.44	5.67	6.17
PCC-Expr	5	8.62	4.99	4.05	30.92	30.96	30.96	44.94	35.47	28.41
QUIC Cubic	5	57.04	27.60	18.03	66.08	66.52	65.53	3.12	1.27	1.14
SCReAM	5	0.21	0.21	0.22	30.77	30.77	30.79	0.00	0.00	0.00
Sprout	5	11.78	11.71	11.51	36.96	37.24	37.56	0.00	0.01	0.00
TaoVA-100x	5	0.00	8.41	8.77	30.79	32.40	31.27	95.92	84.75	59.53
TCP Vegas	5	74.30	20.14	19.94	40.96	40.11	39.50	0.52	0.00	0.00
Verus	5	43.21	22.70	29.37	66.58	66.55	66.93	31.32	33.15	38.58
PCC-Vivace	5	63.70	24.97	15.92	42.95	45.49	43.15	0.09	0.10	0.04
WebRTC media	5	1.94	1.25	0.43	31.59	32.26	32.91	0.00	0.00	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-09-11 02:58:58
End at: 2018-09-11 02:59:28
Local clock offset: -2.74 ms
Remote clock offset: -0.774 ms

Below is generated by plot.py at 2018-09-11 04:44:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.69 Mbit/s
95th percentile per-packet one-way delay: 66.729 ms
Loss rate: 8.04%
-- Flow 1:
Average throughput: 60.77 Mbit/s
95th percentile per-packet one-way delay: 65.653 ms
Loss rate: 6.74%
-- Flow 2:
Average throughput: 35.76 Mbit/s
95th percentile per-packet one-way delay: 67.944 ms
Loss rate: 10.37%
-- Flow 3:
Average throughput: 33.32 Mbit/s
95th percentile per-packet one-way delay: 68.029 ms
Loss rate: 9.88%

Run 1: Report of TCP BBR — Data Link

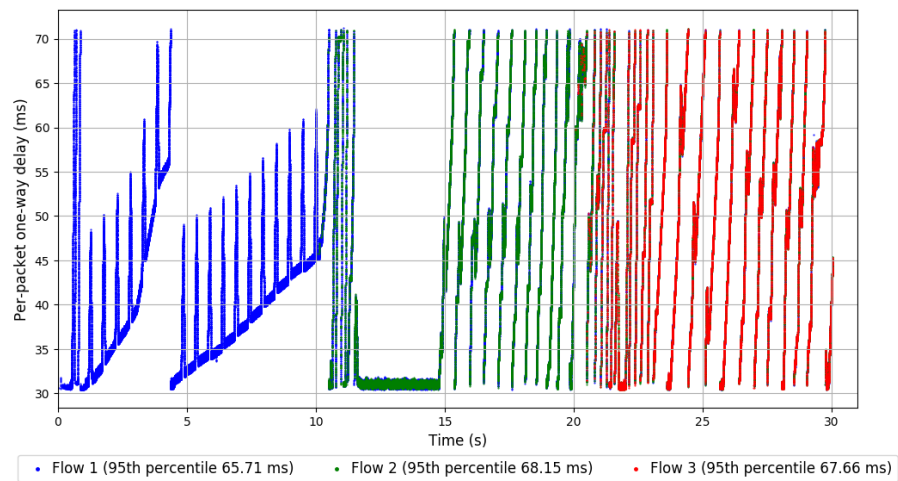
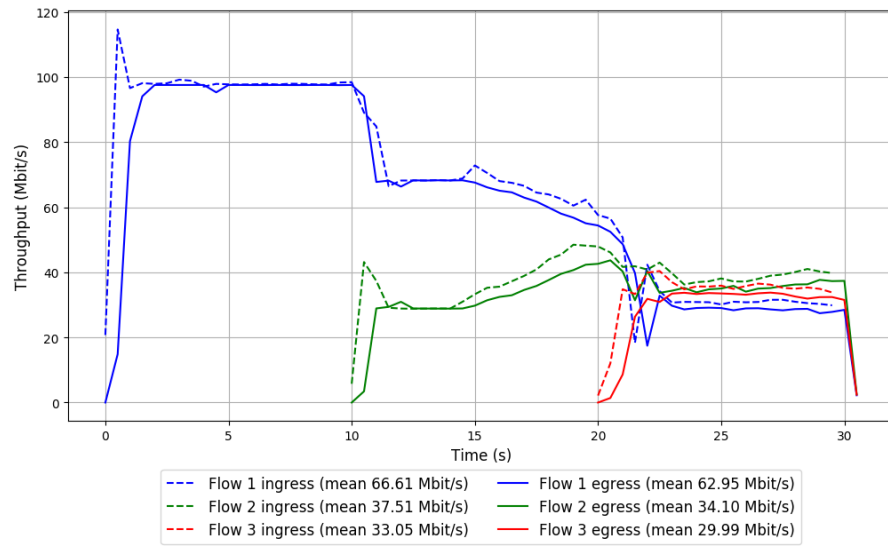


Run 2: Statistics of TCP BBR

Start at: 2018-09-11 03:23:29
End at: 2018-09-11 03:23:59
Local clock offset: -2.71 ms
Remote clock offset: -0.002 ms

Below is generated by plot.py at 2018-09-11 04:44:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.61 Mbit/s
95th percentile per-packet one-way delay: 66.792 ms
Loss rate: 6.76%
-- Flow 1:
Average throughput: 62.95 Mbit/s
95th percentile per-packet one-way delay: 65.713 ms
Loss rate: 5.45%
-- Flow 2:
Average throughput: 34.10 Mbit/s
95th percentile per-packet one-way delay: 68.147 ms
Loss rate: 9.10%
-- Flow 3:
Average throughput: 29.99 Mbit/s
95th percentile per-packet one-way delay: 67.655 ms
Loss rate: 9.41%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-11 03:47:58

End at: 2018-09-11 03:48:28

Local clock offset: 0.449 ms

Remote clock offset: 1.543 ms

Below is generated by plot.py at 2018-09-11 04:44:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.73 Mbit/s

95th percentile per-packet one-way delay: 66.563 ms

Loss rate: 6.65%

-- Flow 1:

Average throughput: 60.34 Mbit/s

95th percentile per-packet one-way delay: 65.790 ms

Loss rate: 5.55%

-- Flow 2:

Average throughput: 38.15 Mbit/s

95th percentile per-packet one-way delay: 67.870 ms

Loss rate: 9.08%

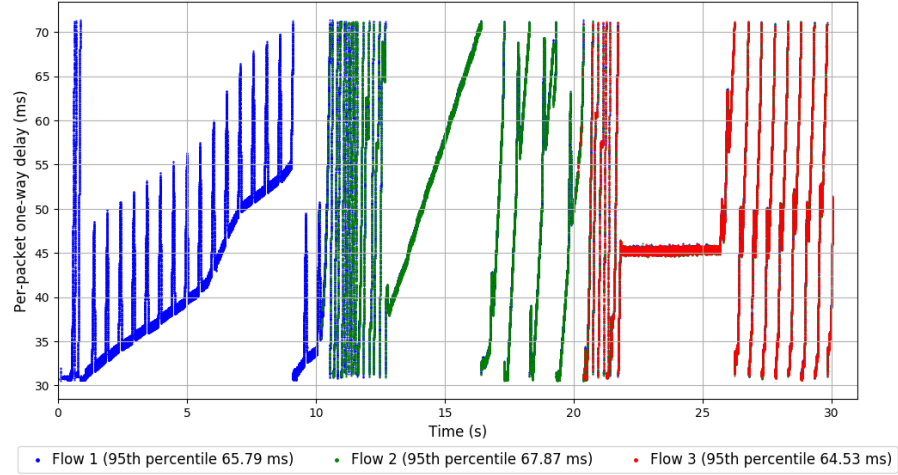
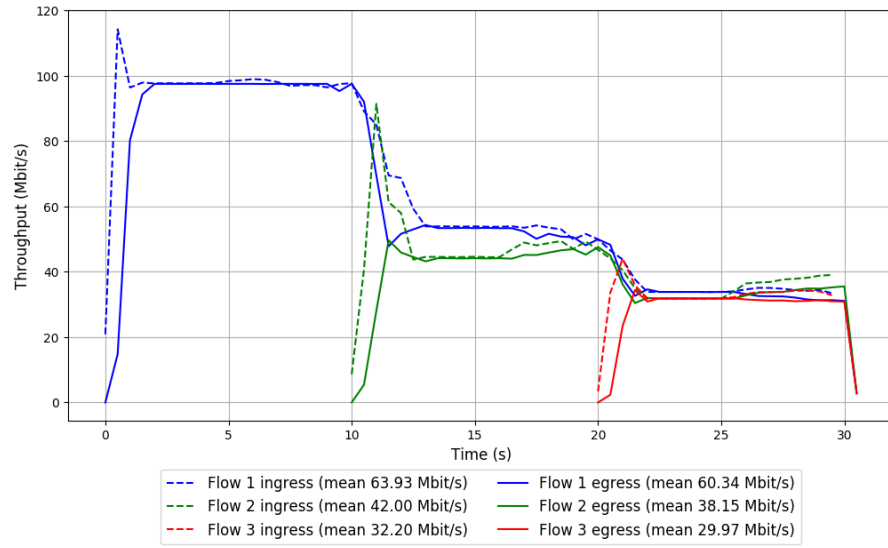
-- Flow 3:

Average throughput: 29.97 Mbit/s

95th percentile per-packet one-way delay: 64.530 ms

Loss rate: 6.90%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-11 04:12:33

End at: 2018-09-11 04:13:03

Local clock offset: -2.214 ms

Remote clock offset: 3.512 ms

Below is generated by plot.py at 2018-09-11 04:44:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.00 Mbit/s

95th percentile per-packet one-way delay: 67.292 ms

Loss rate: 8.38%

-- Flow 1:

Average throughput: 62.24 Mbit/s

95th percentile per-packet one-way delay: 66.347 ms

Loss rate: 6.86%

-- Flow 2:

Average throughput: 30.59 Mbit/s

95th percentile per-packet one-way delay: 68.315 ms

Loss rate: 11.19%

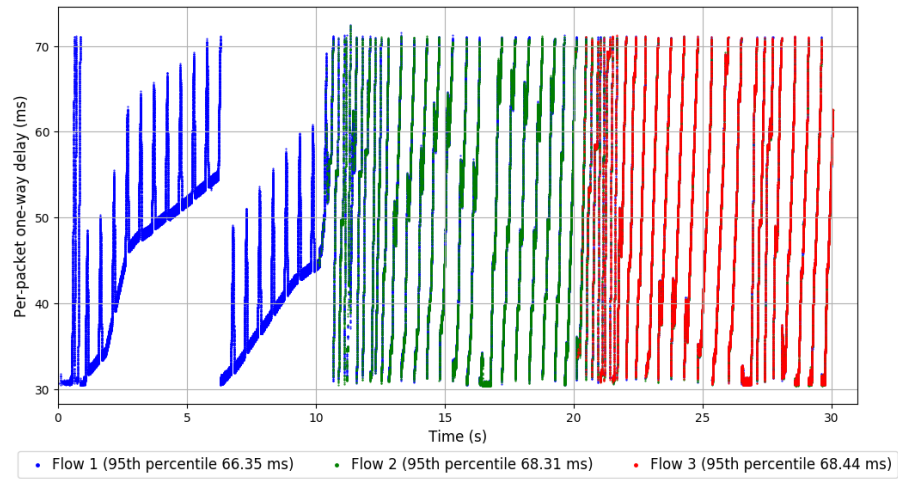
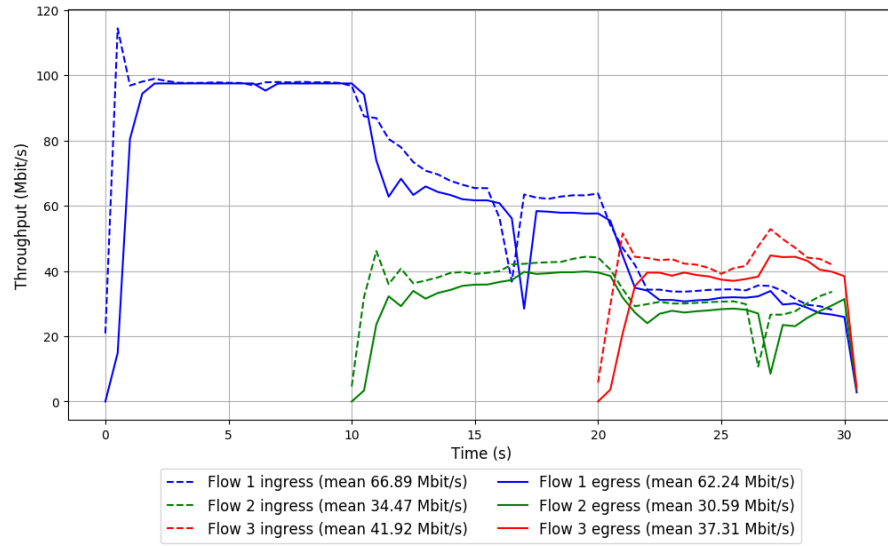
-- Flow 3:

Average throughput: 37.31 Mbit/s

95th percentile per-packet one-way delay: 68.445 ms

Loss rate: 11.05%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-11 04:37:02

End at: 2018-09-11 04:37:32

Local clock offset: -2.808 ms

Remote clock offset: 5.049 ms

Below is generated by plot.py at 2018-09-11 04:44:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.68 Mbit/s

95th percentile per-packet one-way delay: 67.043 ms

Loss rate: 7.80%

-- Flow 1:

Average throughput: 62.31 Mbit/s

95th percentile per-packet one-way delay: 66.133 ms

Loss rate: 6.48%

-- Flow 2:

Average throughput: 33.27 Mbit/s

95th percentile per-packet one-way delay: 68.082 ms

Loss rate: 9.94%

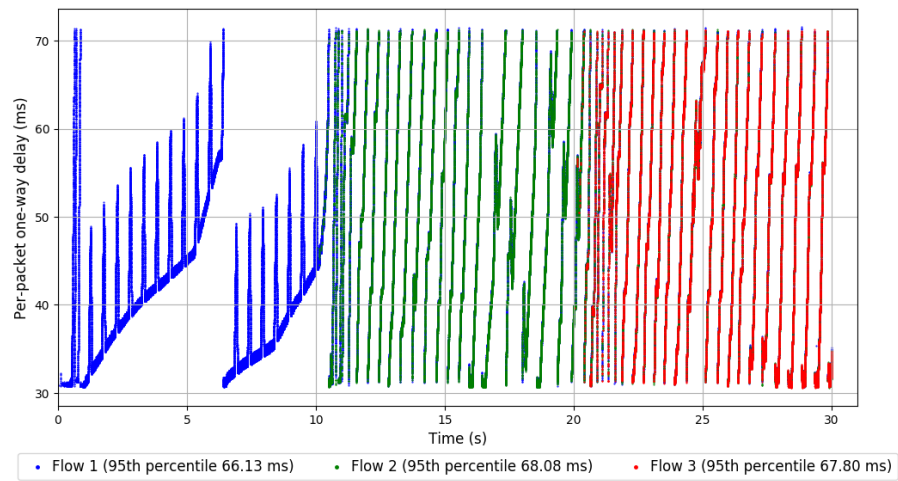
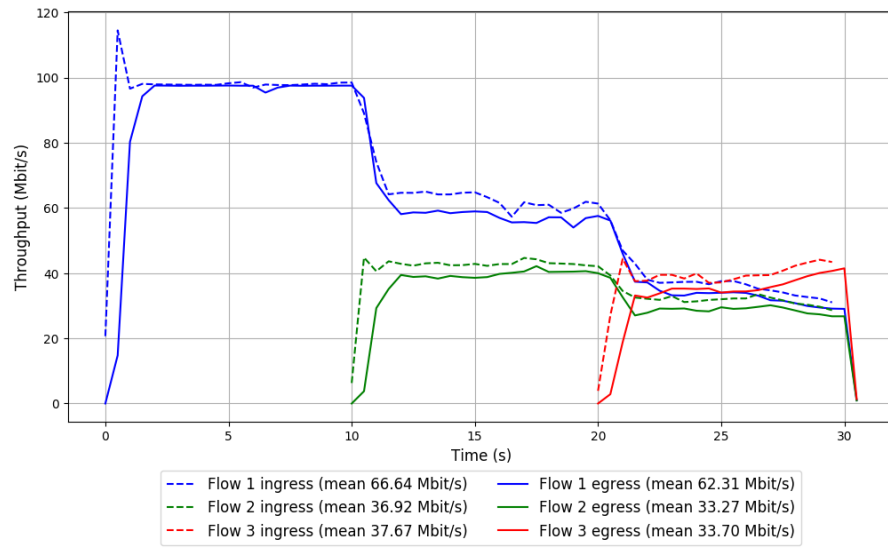
-- Flow 3:

Average throughput: 33.70 Mbit/s

95th percentile per-packet one-way delay: 67.795 ms

Loss rate: 10.57%

Run 5: Report of TCP BBR — Data Link

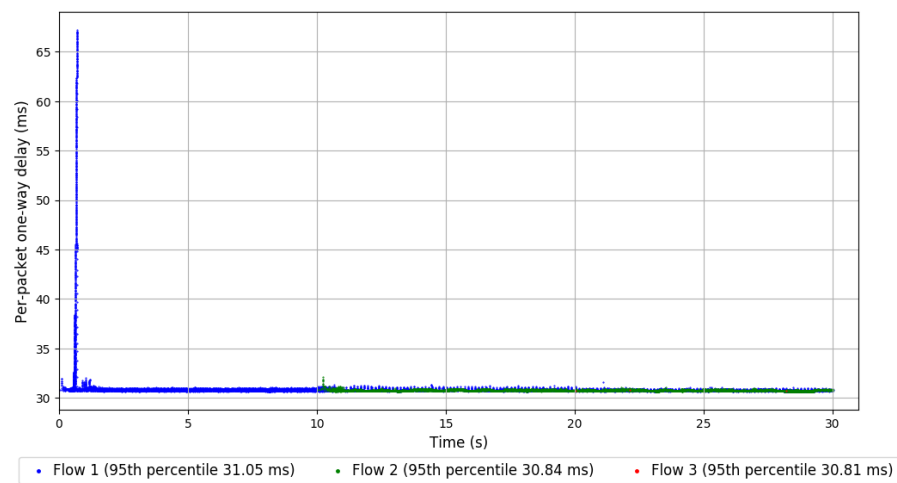
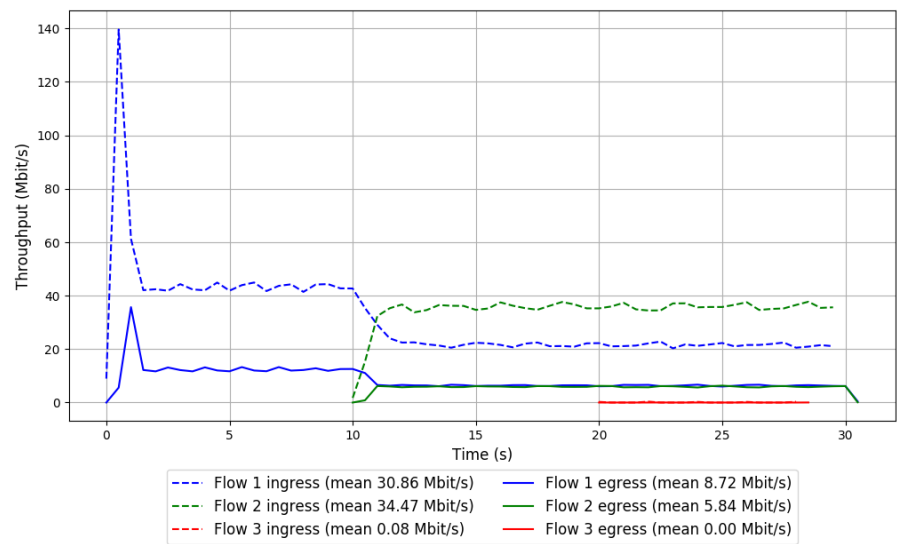


Run 1: Statistics of Copa

Start at: 2018-09-11 02:53:27
End at: 2018-09-11 02:53:57
Local clock offset: -2.61 ms
Remote clock offset: -0.888 ms

Below is generated by plot.py at 2018-09-11 04:44:18
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 30.954 ms
Loss rate: 76.57%
-- Flow 1:
Average throughput: 8.72 Mbit/s
95th percentile per-packet one-way delay: 31.053 ms
Loss rate: 71.74%
-- Flow 2:
Average throughput: 5.84 Mbit/s
95th percentile per-packet one-way delay: 30.839 ms
Loss rate: 83.05%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.809 ms
Loss rate: 96.28%

Run 1: Report of Copa — Data Link

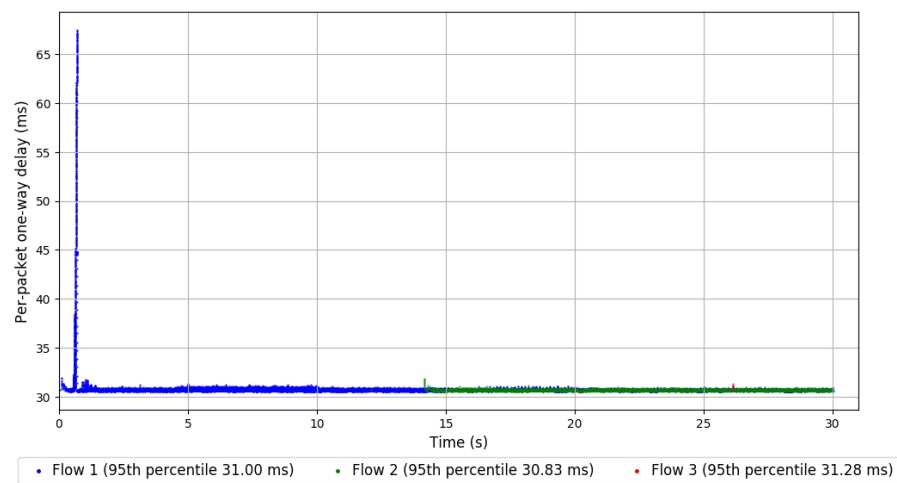
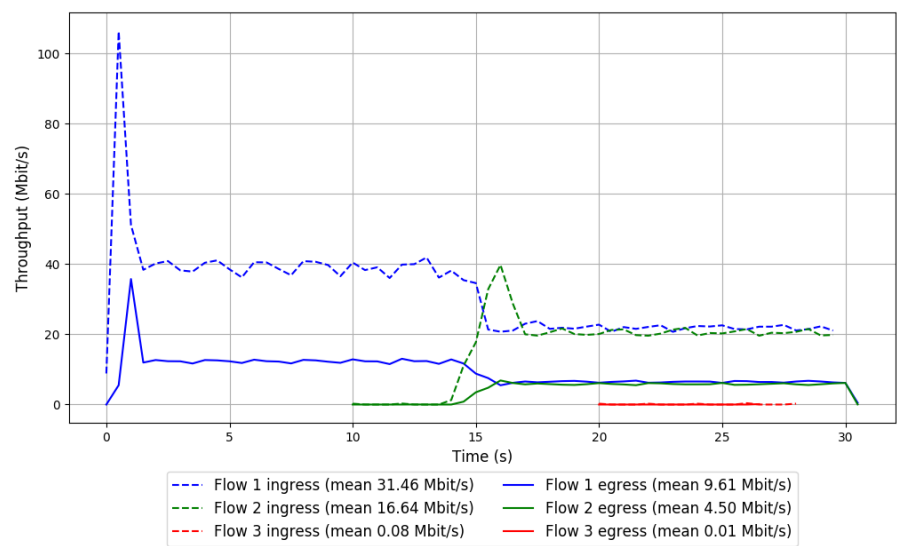


Run 2: Statistics of Copa

Start at: 2018-09-11 03:18:03
End at: 2018-09-11 03:18:33
Local clock offset: -2.696 ms
Remote clock offset: -0.078 ms

Below is generated by plot.py at 2018-09-11 04:44:18
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 30.939 ms
Loss rate: 70.37%
-- Flow 1:
Average throughput: 9.61 Mbit/s
95th percentile per-packet one-way delay: 31.001 ms
Loss rate: 69.44%
-- Flow 2:
Average throughput: 4.50 Mbit/s
95th percentile per-packet one-way delay: 30.828 ms
Loss rate: 72.95%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 31.284 ms
Loss rate: 90.93%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-11 03:42:31

End at: 2018-09-11 03:43:01

Local clock offset: 0.08 ms

Remote clock offset: 1.21 ms

Below is generated by plot.py at 2018-09-11 04:44:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.61 Mbit/s

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

Loss rate: 72.13%

-- Flow 1:

Average throughput: 8.73 Mbit/s

95th percentile per-packet one-way delay: 31.136 ms

Loss rate: 70.75%

-- Flow 2:

Average throughput: 5.83 Mbit/s

95th percentile per-packet one-way delay: 30.929 ms

Loss rate: 74.75%

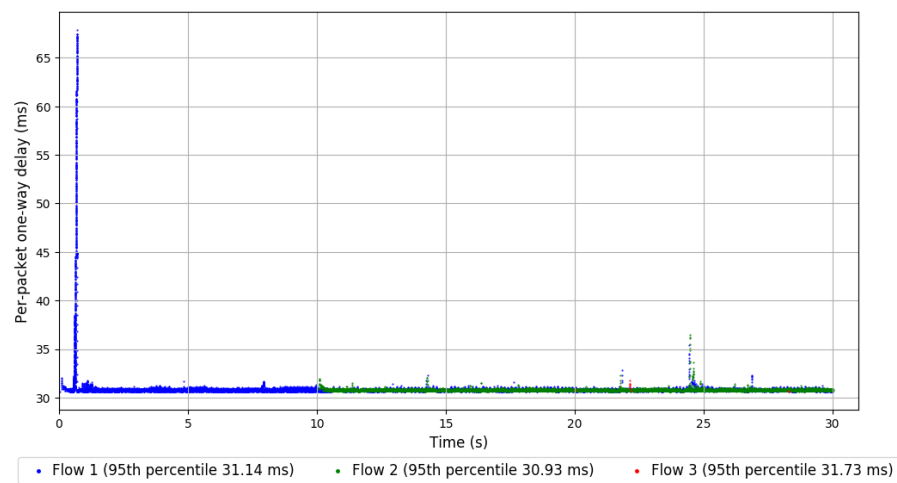
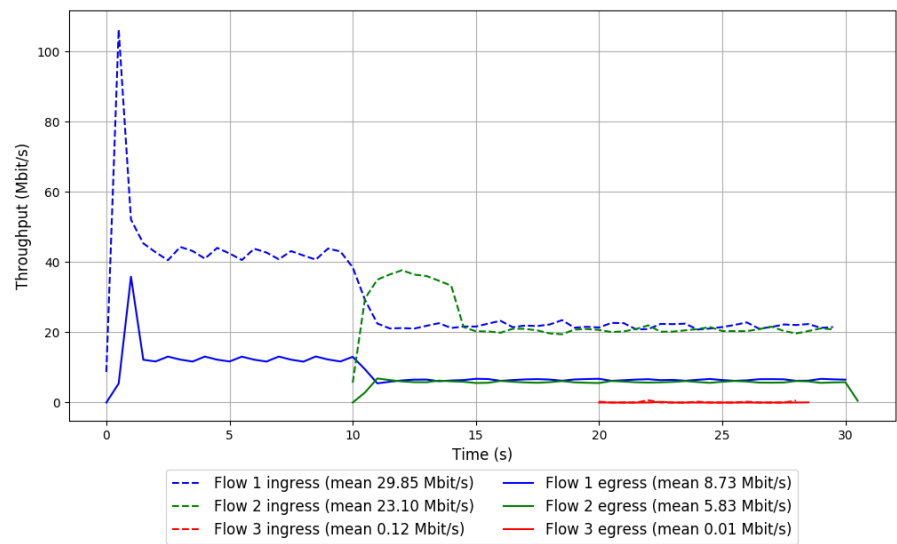
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 31.728 ms

Loss rate: 87.41%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

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

End at: 2018-09-11 04:07:34

Local clock offset: -1.568 ms

Remote clock offset: 3.159 ms

Below is generated by plot.py at 2018-09-11 04:44:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.61 Mbit/s

95th percentile per-packet one-way delay: 30.996 ms

Loss rate: 73.97%

-- Flow 1:

Average throughput: 9.09 Mbit/s

95th percentile per-packet one-way delay: 31.124 ms

Loss rate: 72.10%

-- Flow 2:

Average throughput: 5.28 Mbit/s

95th percentile per-packet one-way delay: 30.757 ms

Loss rate: 77.78%

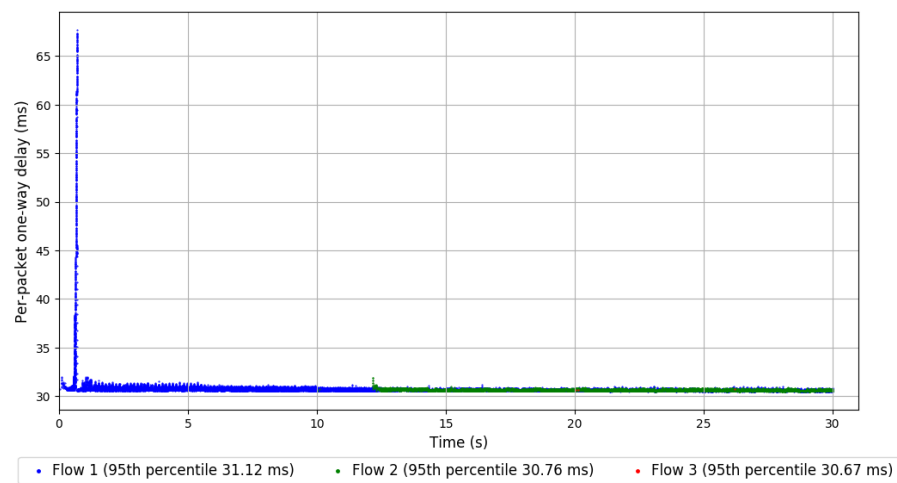
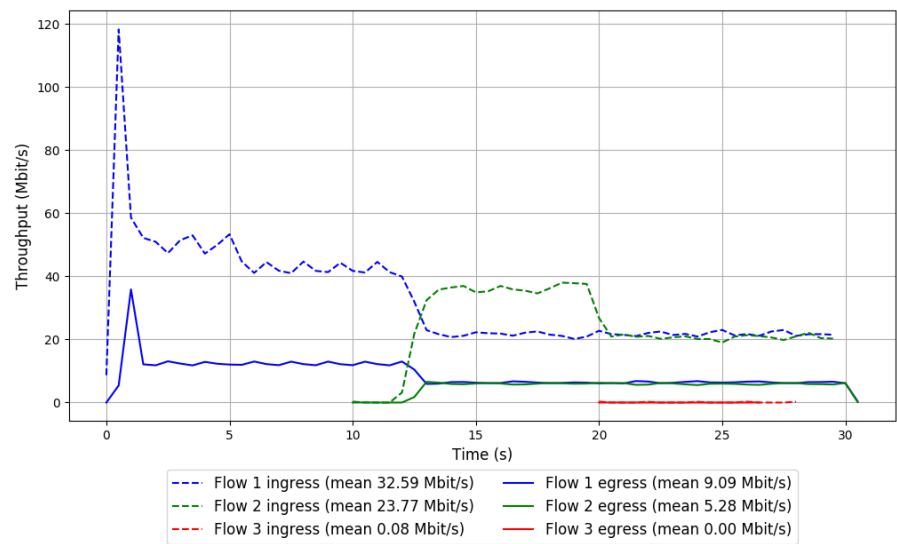
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 30.672 ms

Loss rate: 96.14%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-11 04:31:34

End at: 2018-09-11 04:32:04

Local clock offset: -2.972 ms

Remote clock offset: 4.402 ms

Below is generated by plot.py at 2018-09-11 04:44:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.61 Mbit/s

95th percentile per-packet one-way delay: 30.850 ms

Loss rate: 72.12%

-- Flow 1:

Average throughput: 8.75 Mbit/s

95th percentile per-packet one-way delay: 30.976 ms

Loss rate: 71.29%

-- Flow 2:

Average throughput: 5.81 Mbit/s

95th percentile per-packet one-way delay: 30.719 ms

Loss rate: 73.80%

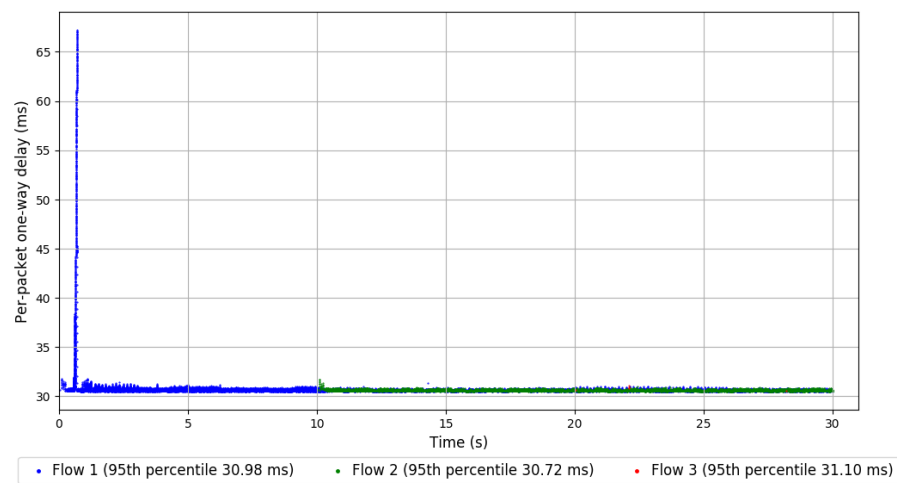
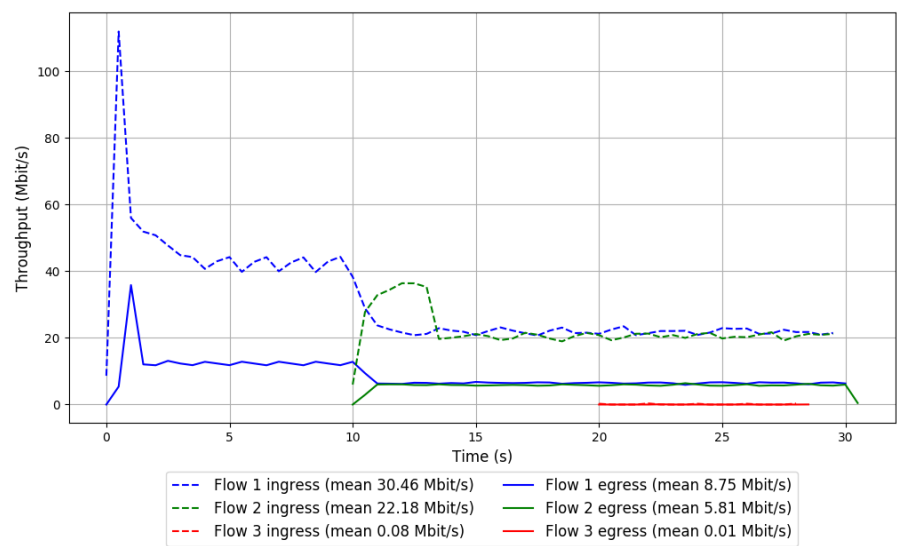
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 31.096 ms

Loss rate: 92.72%

Run 5: Report of Copa — Data Link

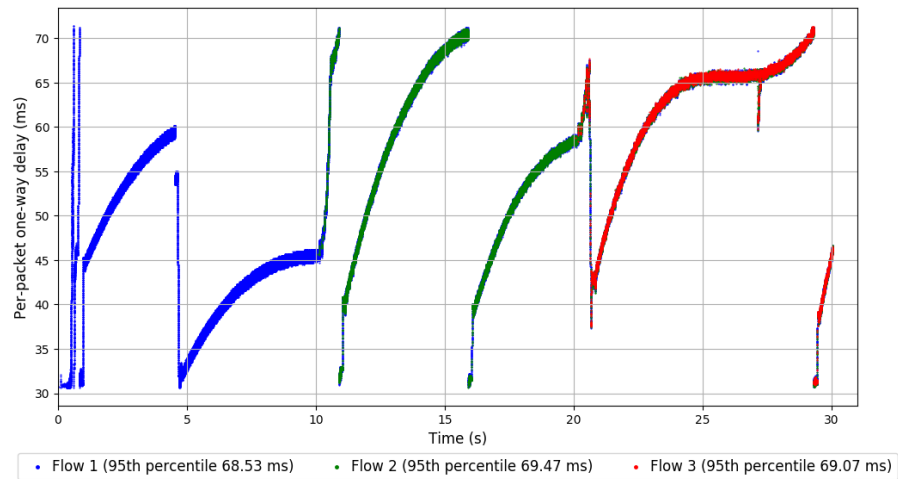
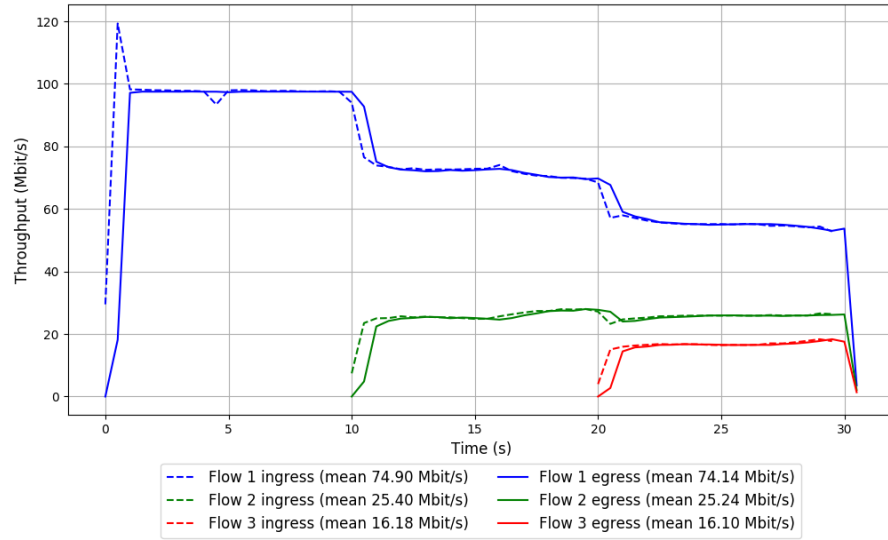


Run 1: Statistics of TCP Cubic

Start at: 2018-09-11 02:54:47
End at: 2018-09-11 02:55:17
Local clock offset: -2.642 ms
Remote clock offset: -0.831 ms

Below is generated by plot.py at 2018-09-11 04:44:35
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 68.908 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 74.14 Mbit/s
95th percentile per-packet one-way delay: 68.534 ms
Loss rate: 0.96%
-- Flow 2:
Average throughput: 25.24 Mbit/s
95th percentile per-packet one-way delay: 69.466 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 16.10 Mbit/s
95th percentile per-packet one-way delay: 69.071 ms
Loss rate: 0.60%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-11 03:19:22

End at: 2018-09-11 03:19:52

Local clock offset: -2.687 ms

Remote clock offset: -0.02 ms

Below is generated by plot.py at 2018-09-11 04:44:47

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.29 Mbit/s

95th percentile per-packet one-way delay: 65.874 ms

Loss rate: 0.99%

-- Flow 1:

Average throughput: 78.37 Mbit/s

95th percentile per-packet one-way delay: 65.426 ms

Loss rate: 1.04%

-- Flow 2:

Average throughput: 16.16 Mbit/s

95th percentile per-packet one-way delay: 67.332 ms

Loss rate: 0.62%

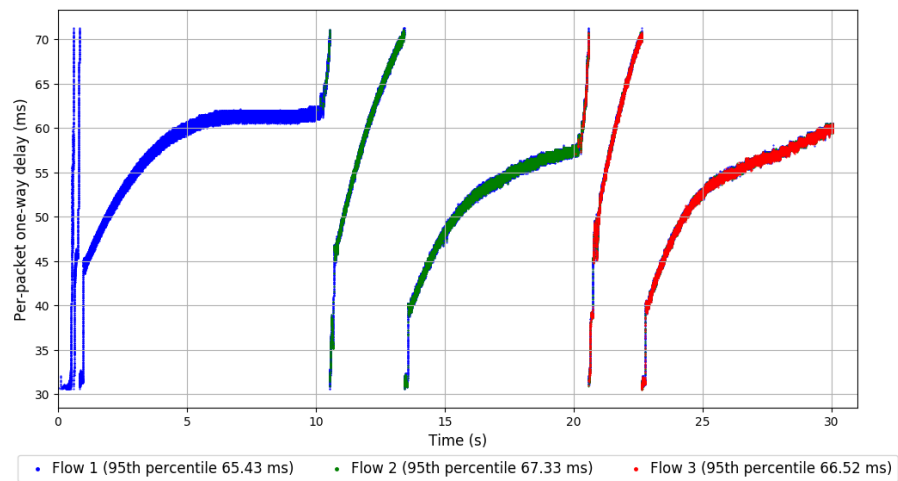
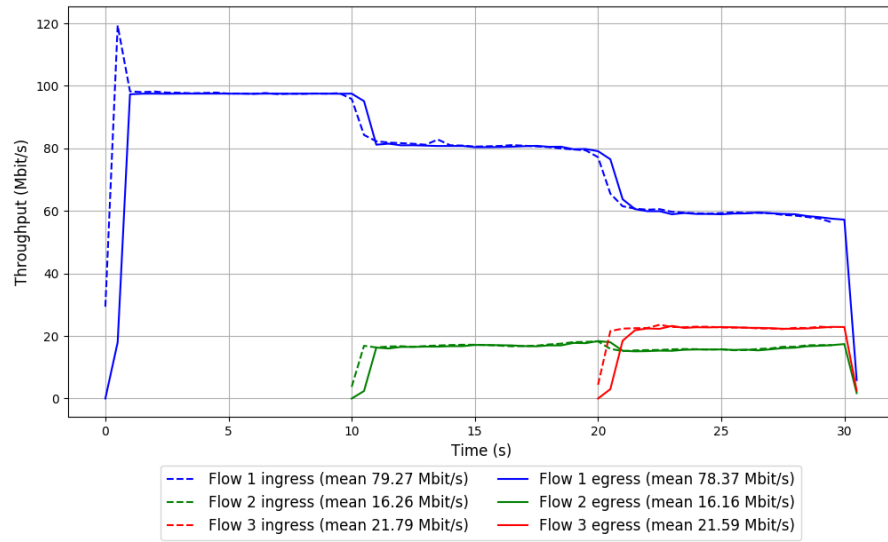
-- Flow 3:

Average throughput: 21.59 Mbit/s

95th percentile per-packet one-way delay: 66.519 ms

Loss rate: 0.89%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-11 03:43:50

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

Local clock offset: 0.235 ms

Remote clock offset: 1.326 ms

Below is generated by plot.py at 2018-09-11 04:44:47

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.29 Mbit/s

95th percentile per-packet one-way delay: 65.981 ms

Loss rate: 0.98%

-- Flow 1:

Average throughput: 78.54 Mbit/s

95th percentile per-packet one-way delay: 65.685 ms

Loss rate: 1.03%

-- Flow 2:

Average throughput: 16.00 Mbit/s

95th percentile per-packet one-way delay: 67.521 ms

Loss rate: 0.65%

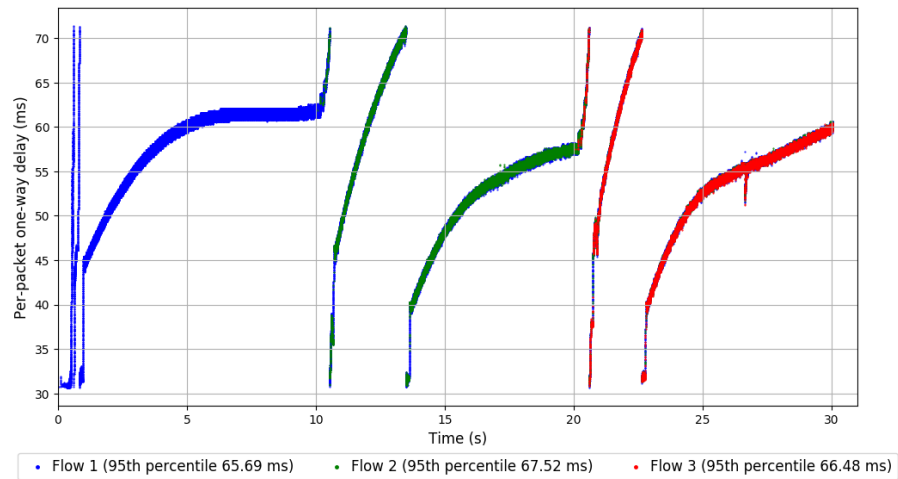
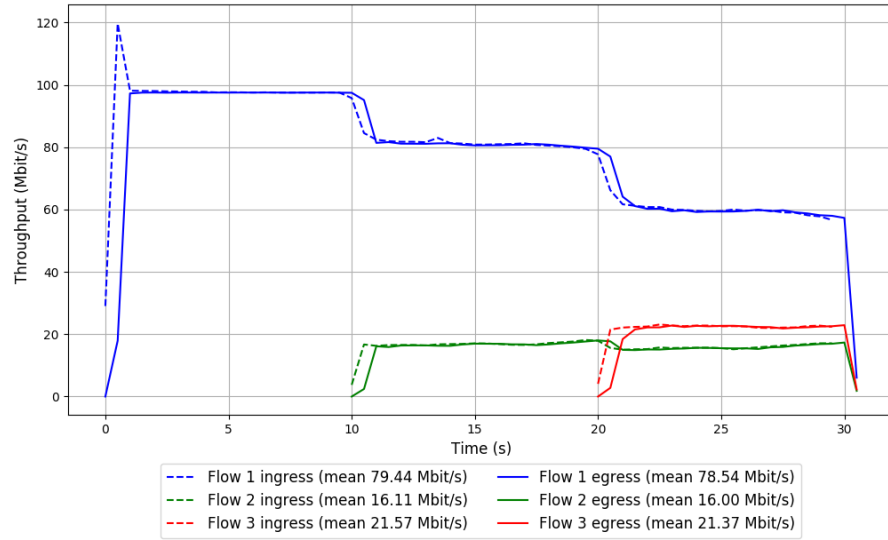
-- Flow 3:

Average throughput: 21.37 Mbit/s

95th percentile per-packet one-way delay: 66.483 ms

Loss rate: 0.91%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-11 04:08:23

End at: 2018-09-11 04:08:53

Local clock offset: -1.785 ms

Remote clock offset: 3.061 ms

Below is generated by plot.py at 2018-09-11 04:45:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.23 Mbit/s

95th percentile per-packet one-way delay: 67.139 ms

Loss rate: 0.87%

-- Flow 1:

Average throughput: 72.79 Mbit/s

95th percentile per-packet one-way delay: 67.348 ms

Loss rate: 0.88%

-- Flow 2:

Average throughput: 24.08 Mbit/s

95th percentile per-packet one-way delay: 66.389 ms

Loss rate: 0.76%

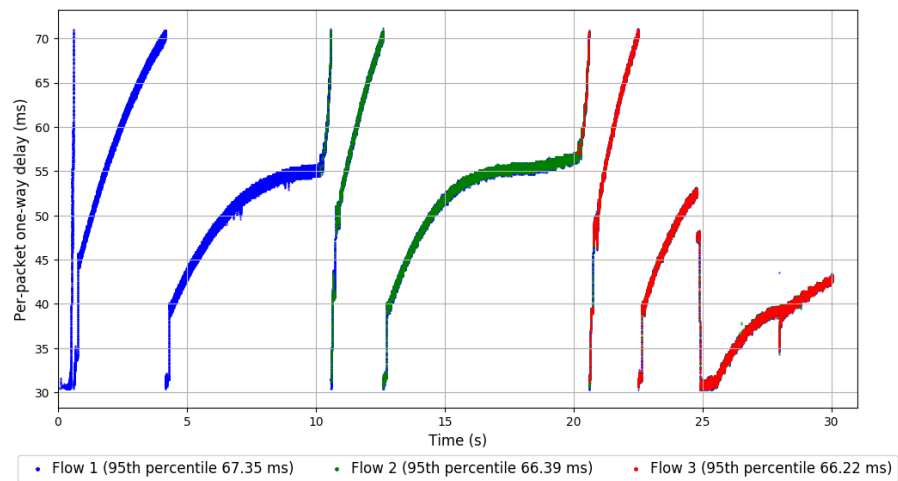
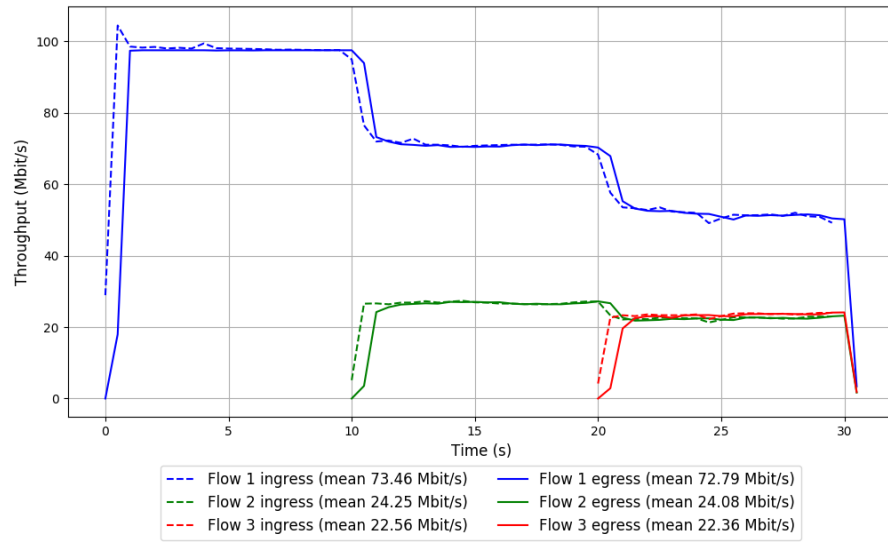
-- Flow 3:

Average throughput: 22.36 Mbit/s

95th percentile per-packet one-way delay: 66.218 ms

Loss rate: 1.01%

Run 4: Report of TCP Cubic — Data Link

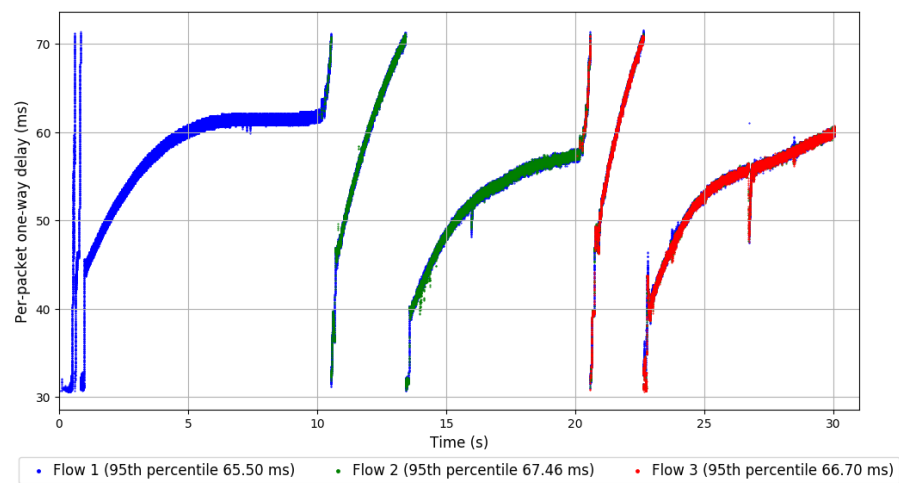
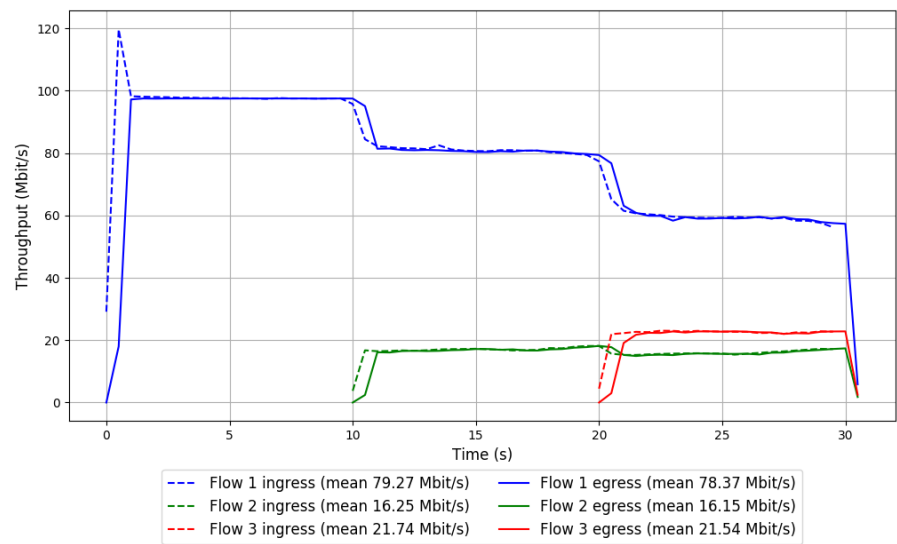


Run 5: Statistics of TCP Cubic

Start at: 2018-09-11 04:32:54
End at: 2018-09-11 04:33:24
Local clock offset: -2.937 ms
Remote clock offset: 4.667 ms

Below is generated by plot.py at 2018-09-11 04:45:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.28 Mbit/s
95th percentile per-packet one-way delay: 65.963 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 78.37 Mbit/s
95th percentile per-packet one-way delay: 65.500 ms
Loss rate: 1.04%
-- Flow 2:
Average throughput: 16.15 Mbit/s
95th percentile per-packet one-way delay: 67.462 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 21.54 Mbit/s
95th percentile per-packet one-way delay: 66.699 ms
Loss rate: 0.89%

Run 5: Report of TCP Cubic — Data Link

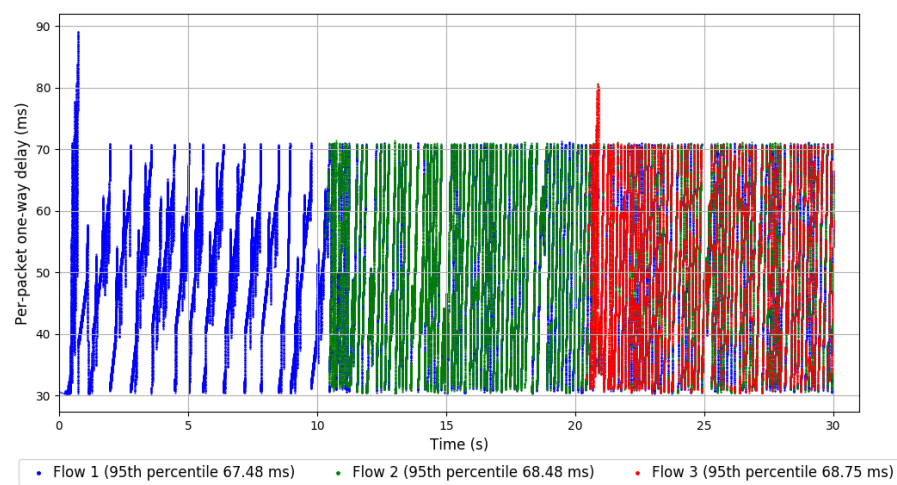
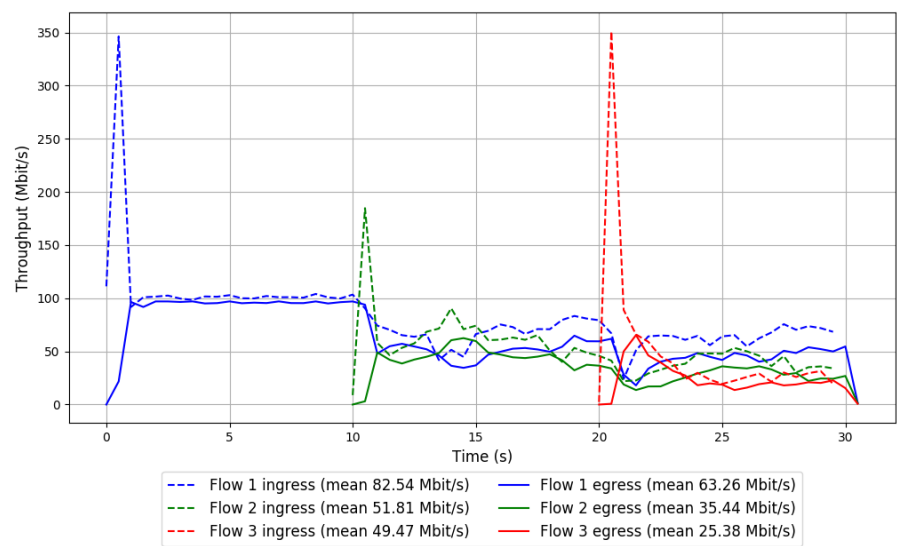


Run 1: Statistics of FillP

Start at: 2018-09-11 02:48:00
End at: 2018-09-11 02:48:30
Local clock offset: -2.355 ms
Remote clock offset: -1.141 ms

Below is generated by plot.py at 2018-09-11 04:45:47
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.25 Mbit/s
95th percentile per-packet one-way delay: 67.939 ms
Loss rate: 28.53%
-- Flow 1:
Average throughput: 63.26 Mbit/s
95th percentile per-packet one-way delay: 67.477 ms
Loss rate: 23.27%
-- Flow 2:
Average throughput: 35.44 Mbit/s
95th percentile per-packet one-way delay: 68.481 ms
Loss rate: 31.53%
-- Flow 3:
Average throughput: 25.38 Mbit/s
95th percentile per-packet one-way delay: 68.753 ms
Loss rate: 48.71%

Run 1: Report of FillP — Data Link

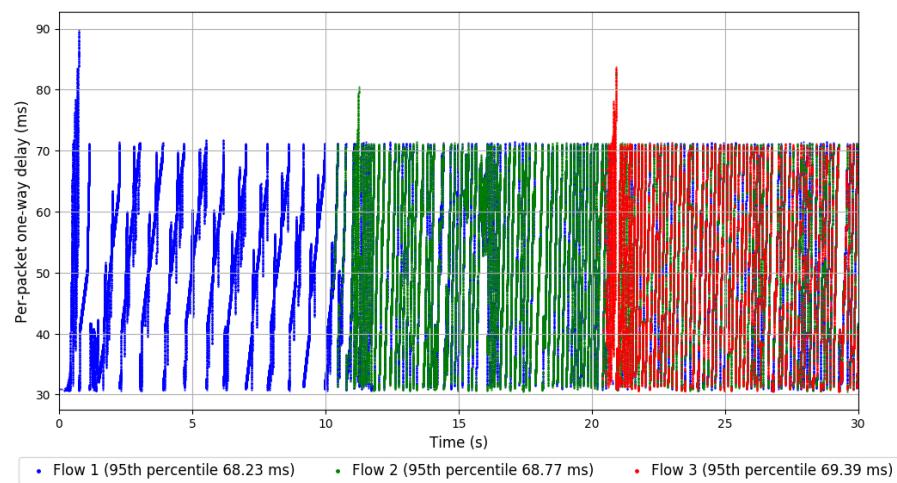
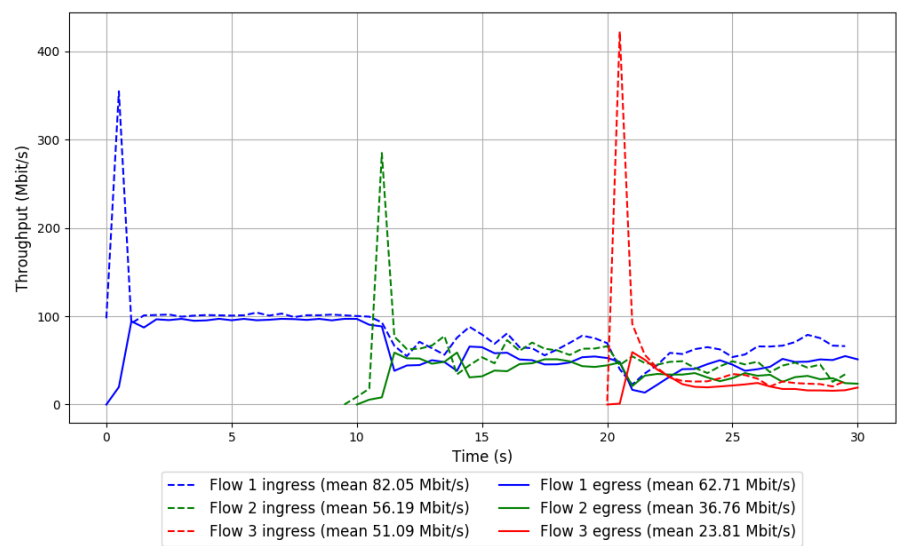


Run 2: Statistics of FillP

Start at: 2018-09-11 03:12:35
End at: 2018-09-11 03:13:05
Local clock offset: -2.761 ms
Remote clock offset: -0.27 ms

Below is generated by plot.py at 2018-09-11 04:45:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.07 Mbit/s
95th percentile per-packet one-way delay: 68.505 ms
Loss rate: 30.30%
-- Flow 1:
Average throughput: 62.71 Mbit/s
95th percentile per-packet one-way delay: 68.233 ms
Loss rate: 23.55%
-- Flow 2:
Average throughput: 36.76 Mbit/s
95th percentile per-packet one-way delay: 68.772 ms
Loss rate: 34.56%
-- Flow 3:
Average throughput: 23.81 Mbit/s
95th percentile per-packet one-way delay: 69.391 ms
Loss rate: 53.52%

Run 2: Report of FillP — Data Link

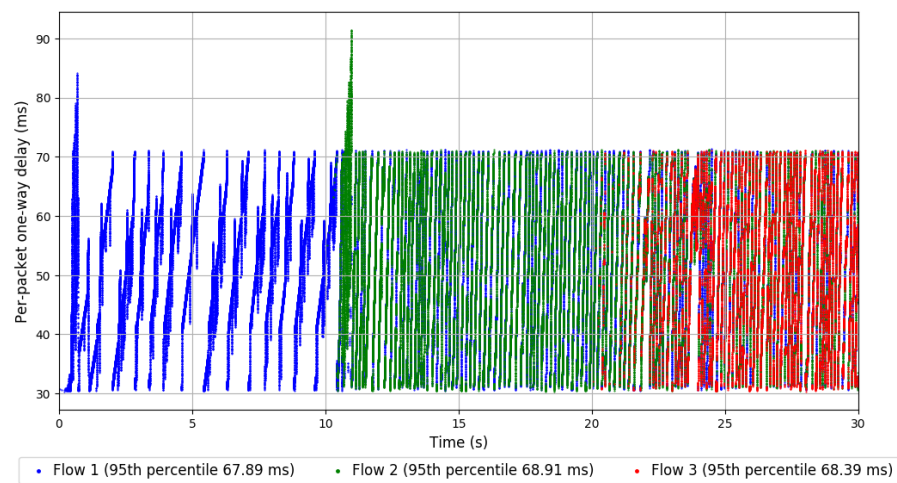
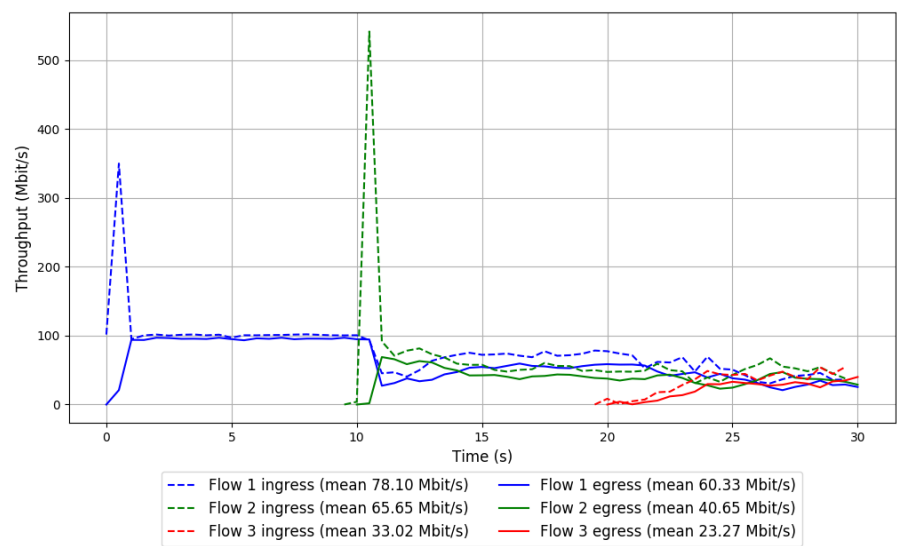


Run 3: Statistics of FillP

Start at: 2018-09-11 03:37:03
End at: 2018-09-11 03:37:33
Local clock offset: -0.607 ms
Remote clock offset: 0.744 ms

Below is generated by plot.py at 2018-09-11 04:45:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.09 Mbit/s
95th percentile per-packet one-way delay: 68.284 ms
Loss rate: 28.38%
-- Flow 1:
Average throughput: 60.33 Mbit/s
95th percentile per-packet one-way delay: 67.895 ms
Loss rate: 22.75%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 68.913 ms
Loss rate: 38.15%
-- Flow 3:
Average throughput: 23.27 Mbit/s
95th percentile per-packet one-way delay: 68.386 ms
Loss rate: 29.50%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-11 04:01:30

End at: 2018-09-11 04:02:00

Local clock offset: -0.12 ms

Remote clock offset: 2.797 ms

Below is generated by plot.py at 2018-09-11 04:46:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.20 Mbit/s

95th percentile per-packet one-way delay: 67.989 ms

Loss rate: 29.97%

-- Flow 1:

Average throughput: 60.45 Mbit/s

95th percentile per-packet one-way delay: 67.311 ms

Loss rate: 23.67%

-- Flow 2:

Average throughput: 36.49 Mbit/s

95th percentile per-packet one-way delay: 68.921 ms

Loss rate: 38.84%

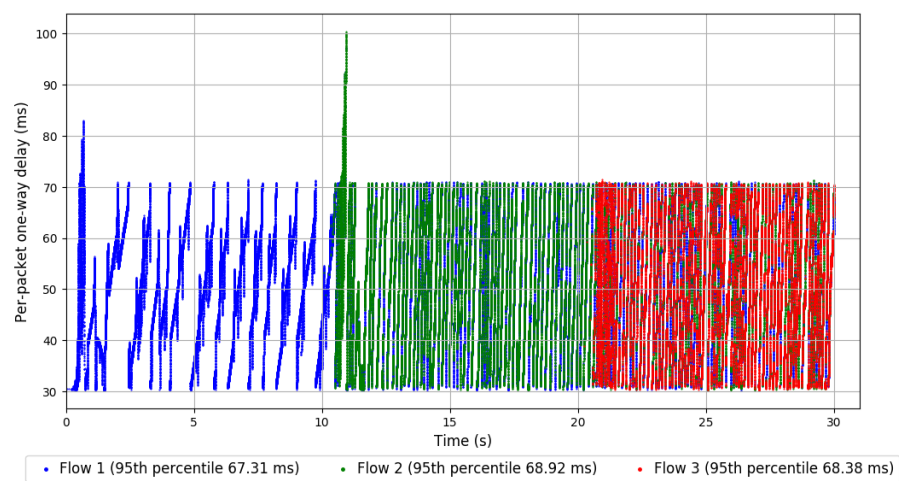
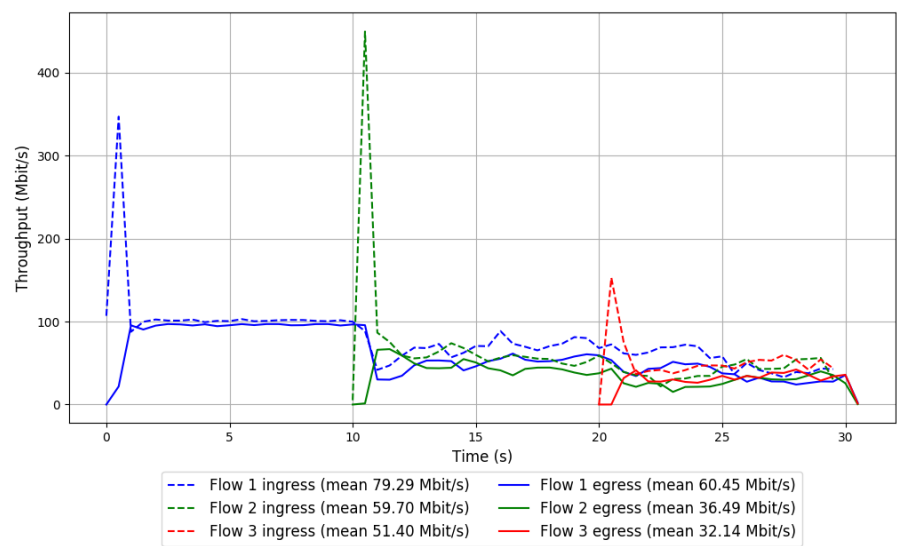
-- Flow 3:

Average throughput: 32.14 Mbit/s

95th percentile per-packet one-way delay: 68.379 ms

Loss rate: 38.57%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-11 04:26:05

End at: 2018-09-11 04:26:35

Local clock offset: -2.913 ms

Remote clock offset: 4.307 ms

Below is generated by plot.py at 2018-09-11 04:46:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.29 Mbit/s

95th percentile per-packet one-way delay: 68.461 ms

Loss rate: 30.30%

-- Flow 1:

Average throughput: 56.97 Mbit/s

95th percentile per-packet one-way delay: 68.050 ms

Loss rate: 23.71%

-- Flow 2:

Average throughput: 43.24 Mbit/s

95th percentile per-packet one-way delay: 68.535 ms

Loss rate: 31.72%

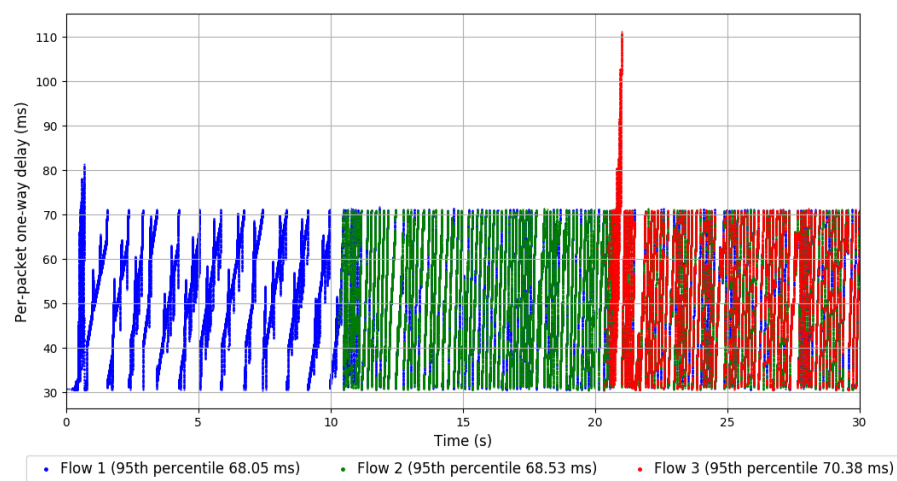
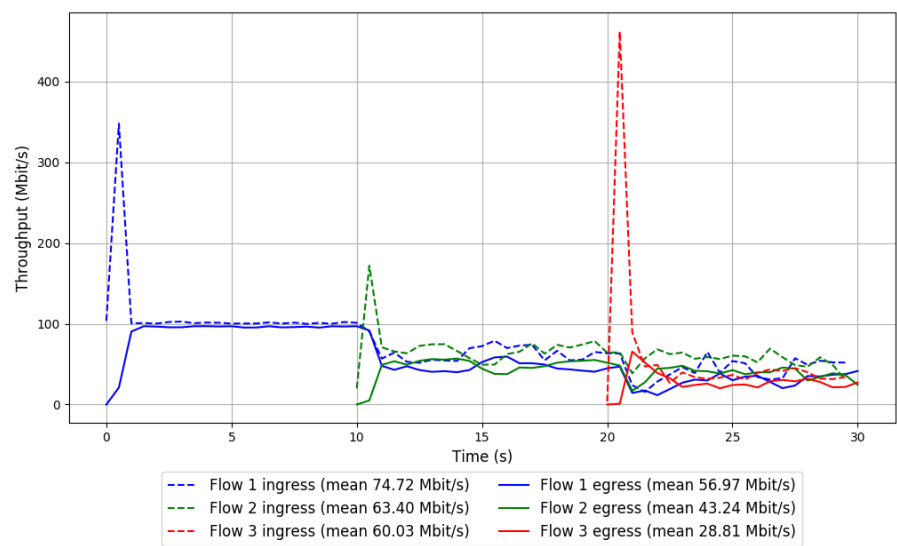
-- Flow 3:

Average throughput: 28.81 Mbit/s

95th percentile per-packet one-way delay: 70.375 ms

Loss rate: 52.08%

Run 5: Report of FillP — Data Link

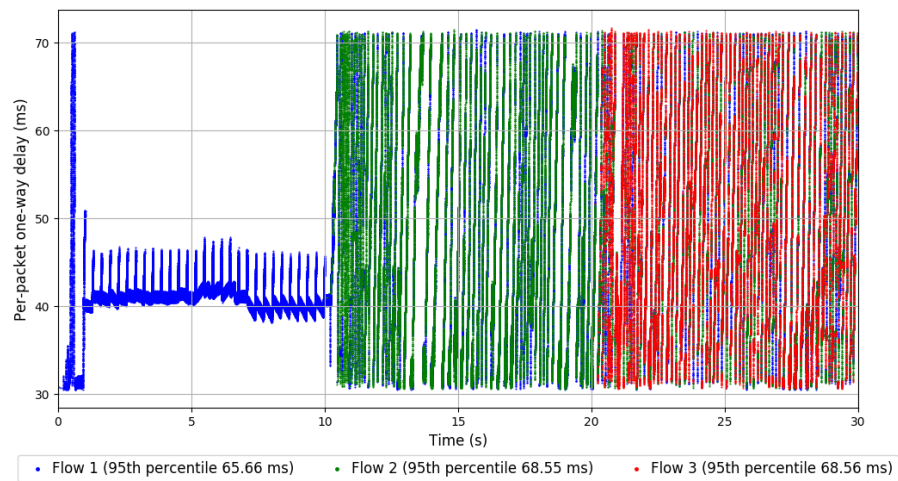
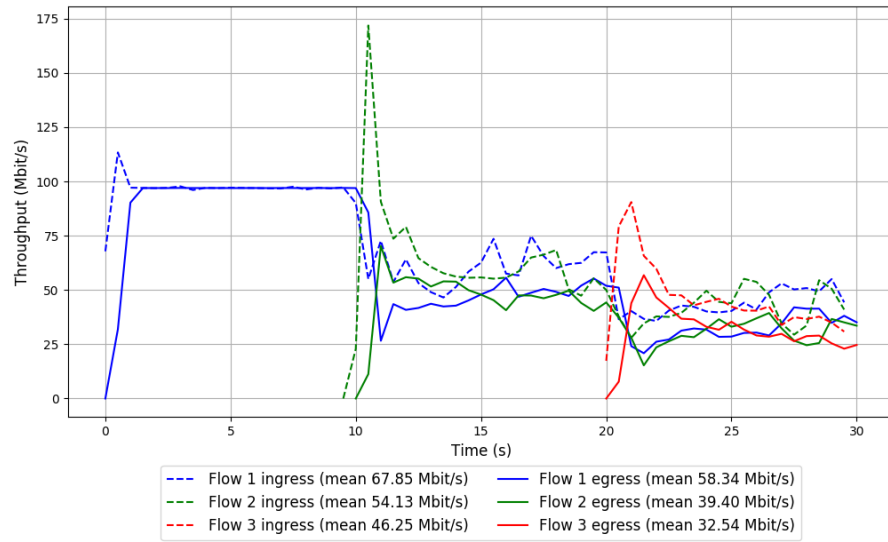


Run 1: Statistics of FillP-Sheep

Start at: 2018-09-11 02:43:55
End at: 2018-09-11 02:44:25
Local clock offset: -2.05 ms
Remote clock offset: -0.911 ms

Below is generated by plot.py at 2018-09-11 04:46:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.37 Mbit/s
95th percentile per-packet one-way delay: 67.353 ms
Loss rate: 20.01%
-- Flow 1:
Average throughput: 58.34 Mbit/s
95th percentile per-packet one-way delay: 65.656 ms
Loss rate: 14.00%
-- Flow 2:
Average throughput: 39.40 Mbit/s
95th percentile per-packet one-way delay: 68.550 ms
Loss rate: 27.22%
-- Flow 3:
Average throughput: 32.54 Mbit/s
95th percentile per-packet one-way delay: 68.556 ms
Loss rate: 29.64%

Run 1: Report of FillP-Sheep — Data Link

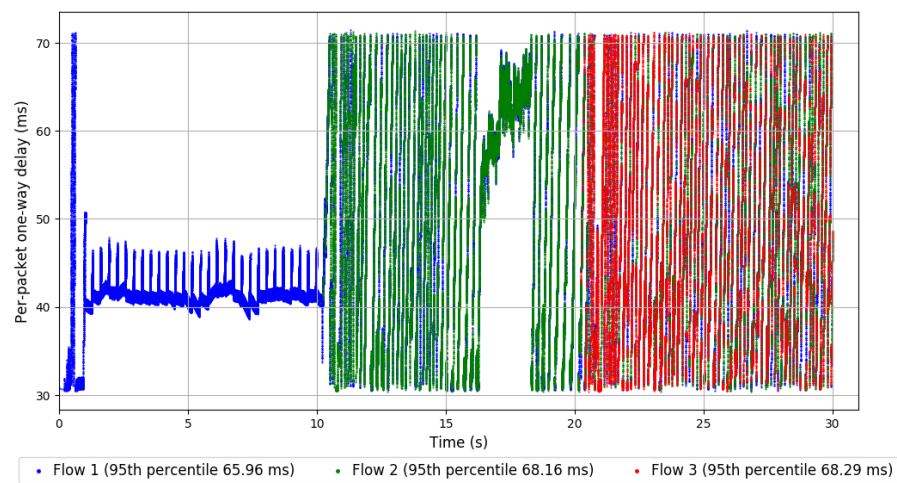
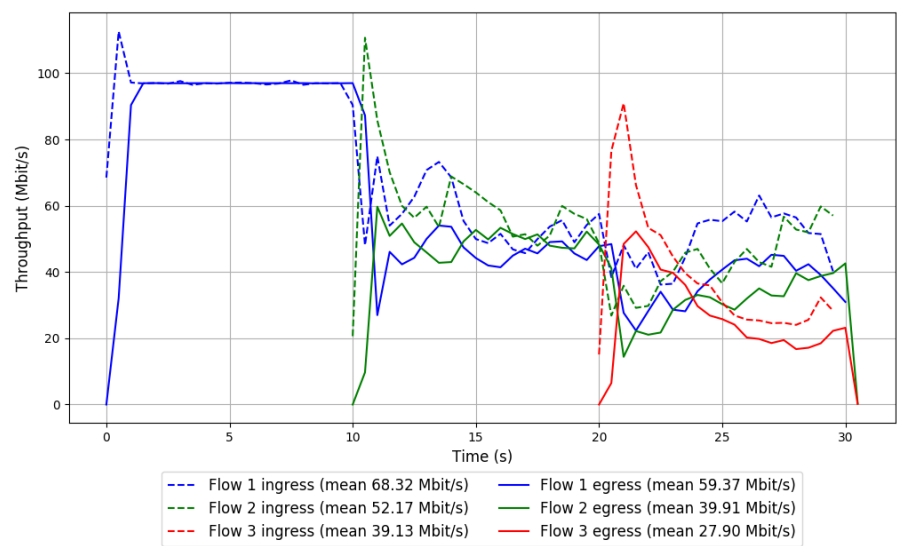


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-11 03:08:26
End at: 2018-09-11 03:08:56
Local clock offset: -2.649 ms
Remote clock offset: -0.528 ms

Below is generated by plot.py at 2018-09-11 04:46:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.15 Mbit/s
95th percentile per-packet one-way delay: 67.029 ms
Loss rate: 17.94%
-- Flow 1:
Average throughput: 59.37 Mbit/s
95th percentile per-packet one-way delay: 65.963 ms
Loss rate: 13.05%
-- Flow 2:
Average throughput: 39.91 Mbit/s
95th percentile per-packet one-way delay: 68.159 ms
Loss rate: 23.48%
-- Flow 3:
Average throughput: 27.90 Mbit/s
95th percentile per-packet one-way delay: 68.292 ms
Loss rate: 28.84%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-11 03:32:59

End at: 2018-09-11 03:33:29

Local clock offset: -1.393 ms

Remote clock offset: 0.647 ms

Below is generated by plot.py at 2018-09-11 04:46:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.33 Mbit/s

95th percentile per-packet one-way delay: 67.329 ms

Loss rate: 19.24%

-- Flow 1:

Average throughput: 56.92 Mbit/s

95th percentile per-packet one-way delay: 65.444 ms

Loss rate: 13.35%

-- Flow 2:

Average throughput: 41.71 Mbit/s

95th percentile per-packet one-way delay: 68.511 ms

Loss rate: 25.86%

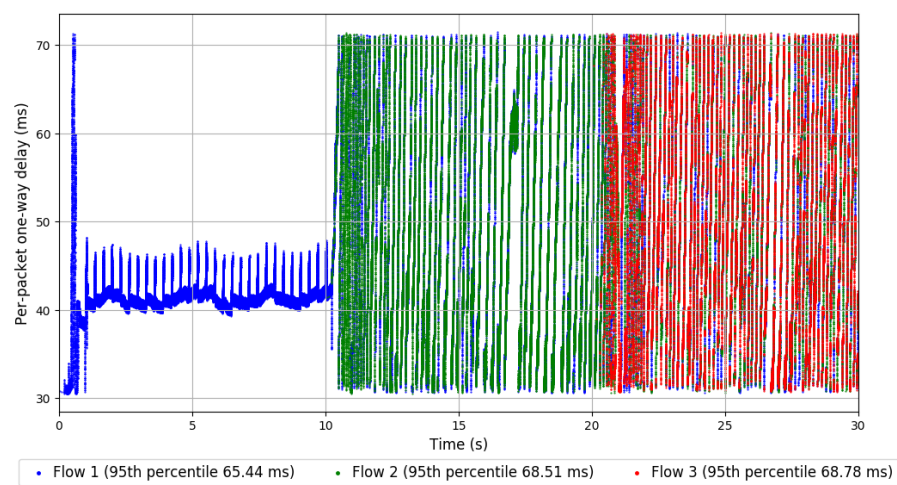
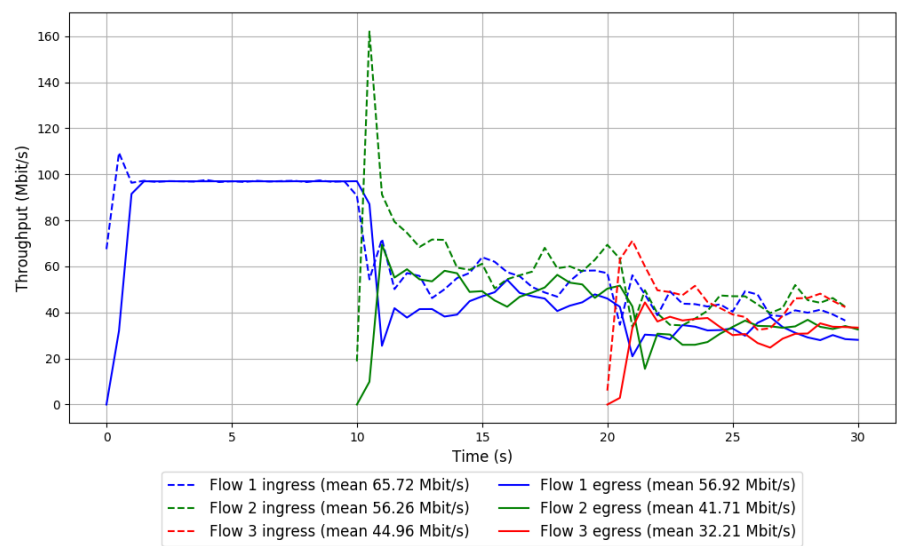
-- Flow 3:

Average throughput: 32.21 Mbit/s

95th percentile per-packet one-way delay: 68.775 ms

Loss rate: 28.55%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-11 03:57:25

End at: 2018-09-11 03:57:55

Local clock offset: 1.026 ms

Remote clock offset: 2.454 ms

Below is generated by plot.py at 2018-09-11 04:47:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.86 Mbit/s

95th percentile per-packet one-way delay: 67.574 ms

Loss rate: 19.87%

-- Flow 1:

Average throughput: 59.46 Mbit/s

95th percentile per-packet one-way delay: 66.148 ms

Loss rate: 14.54%

-- Flow 2:

Average throughput: 40.05 Mbit/s

95th percentile per-packet one-way delay: 68.660 ms

Loss rate: 26.71%

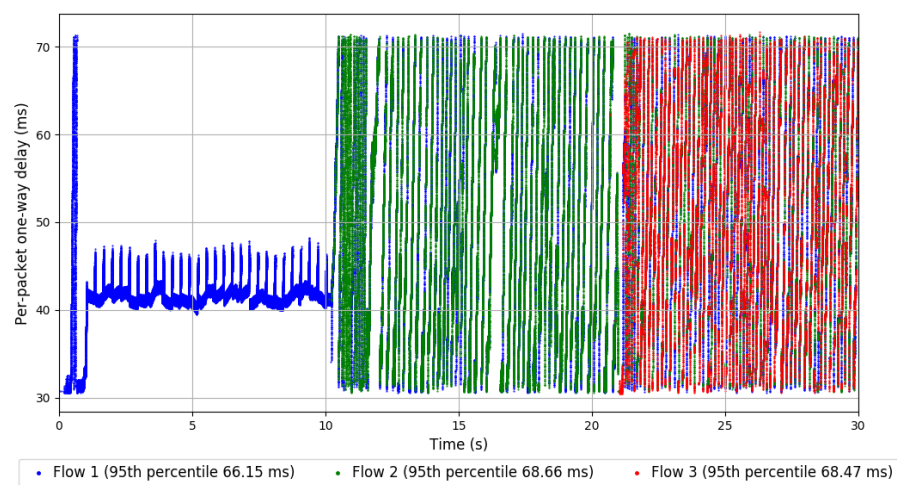
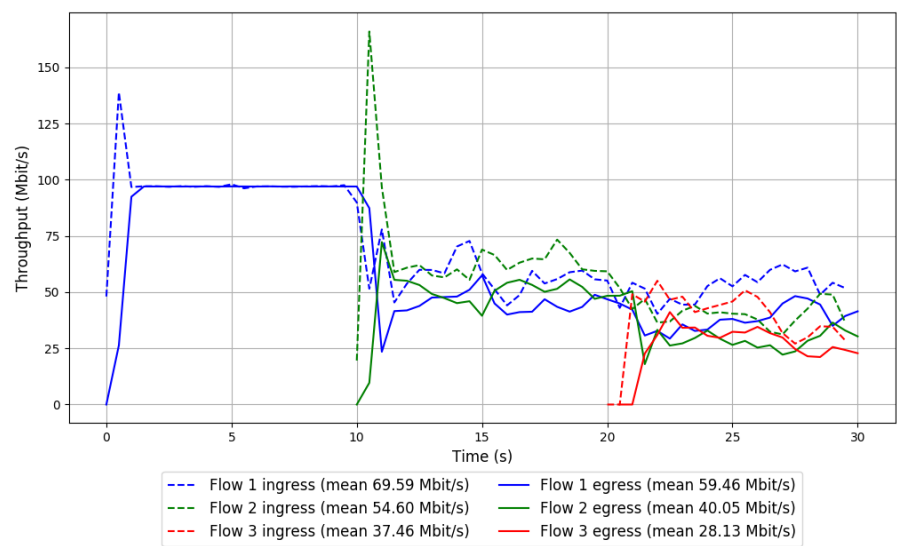
-- Flow 3:

Average throughput: 28.13 Mbit/s

95th percentile per-packet one-way delay: 68.466 ms

Loss rate: 29.68%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-11 04:22:01

End at: 2018-09-11 04:22:31

Local clock offset: -2.806 ms

Remote clock offset: 3.99 ms

Below is generated by plot.py at 2018-09-11 04:47:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.94 Mbit/s

95th percentile per-packet one-way delay: 67.406 ms

Loss rate: 18.96%

-- Flow 1:

Average throughput: 58.72 Mbit/s

95th percentile per-packet one-way delay: 66.055 ms

Loss rate: 13.93%

-- Flow 2:

Average throughput: 39.18 Mbit/s

95th percentile per-packet one-way delay: 68.391 ms

Loss rate: 23.41%

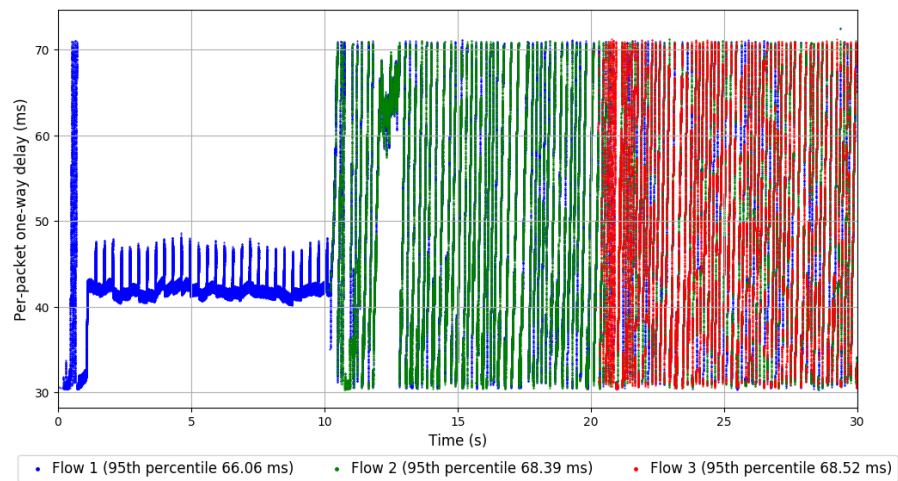
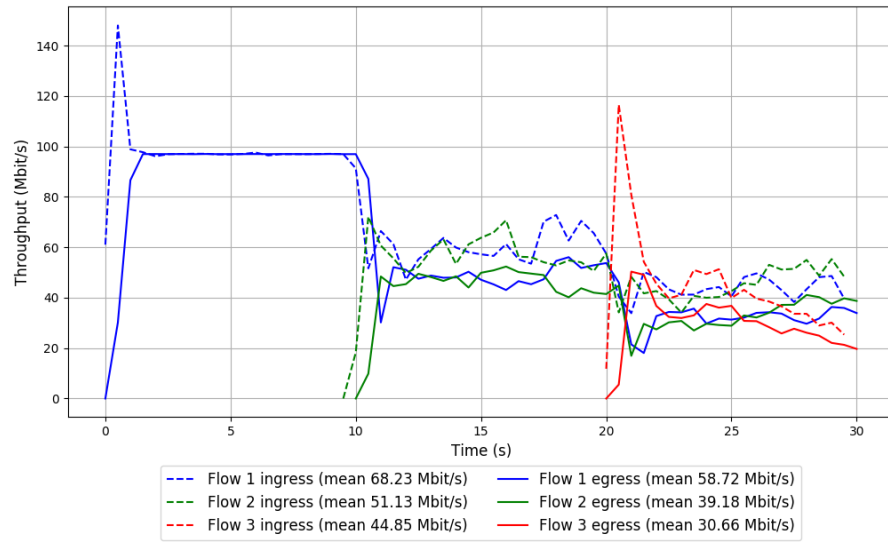
-- Flow 3:

Average throughput: 30.66 Mbit/s

95th percentile per-packet one-way delay: 68.519 ms

Loss rate: 31.89%

Run 5: Report of FillP-Sheep — Data Link

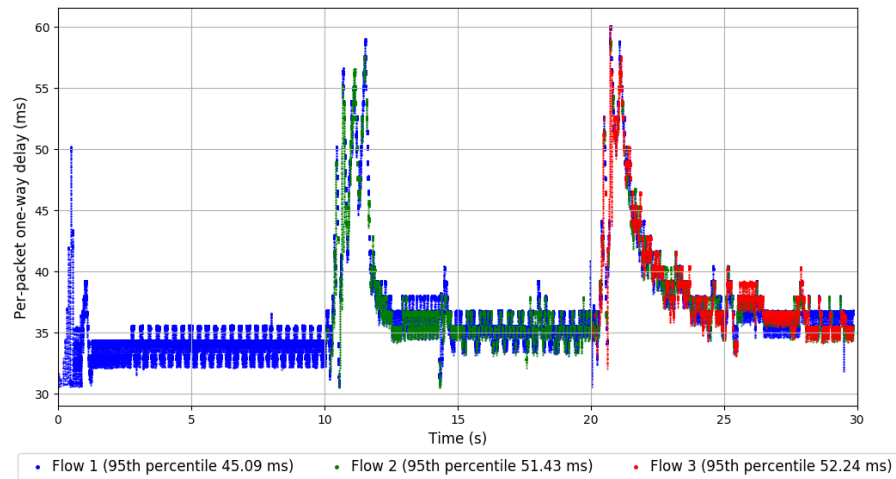
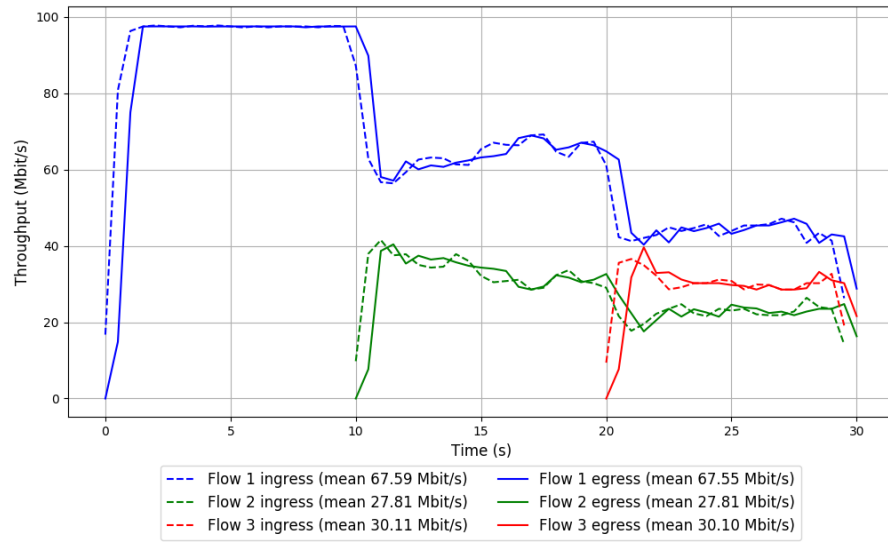


Run 1: Statistics of Indigo

Start at: 2018-09-11 02:52:03
End at: 2018-09-11 02:52:33
Local clock offset: -2.553 ms
Remote clock offset: -1.029 ms

Below is generated by plot.py at 2018-09-11 04:47:22
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.84 Mbit/s
95th percentile per-packet one-way delay: 48.693 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 67.55 Mbit/s
95th percentile per-packet one-way delay: 45.094 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 27.81 Mbit/s
95th percentile per-packet one-way delay: 51.428 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 30.10 Mbit/s
95th percentile per-packet one-way delay: 52.240 ms
Loss rate: 0.00%

Run 1: Report of Indigo — Data Link

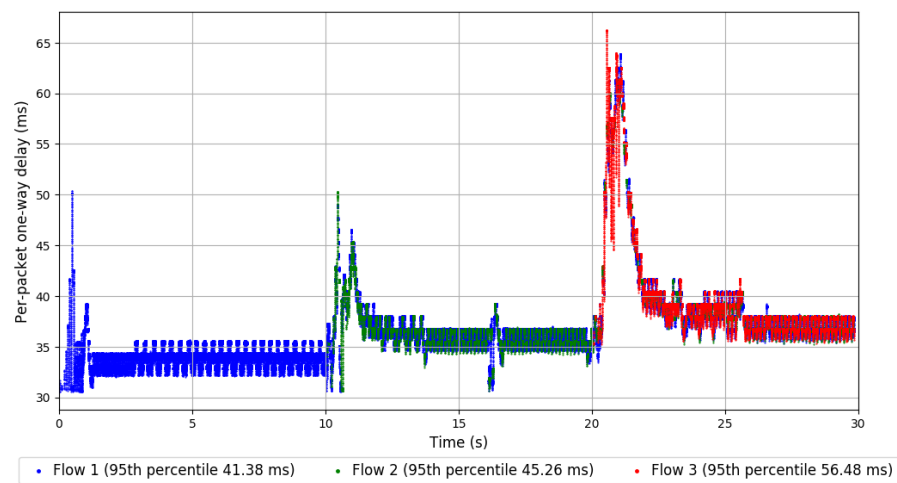
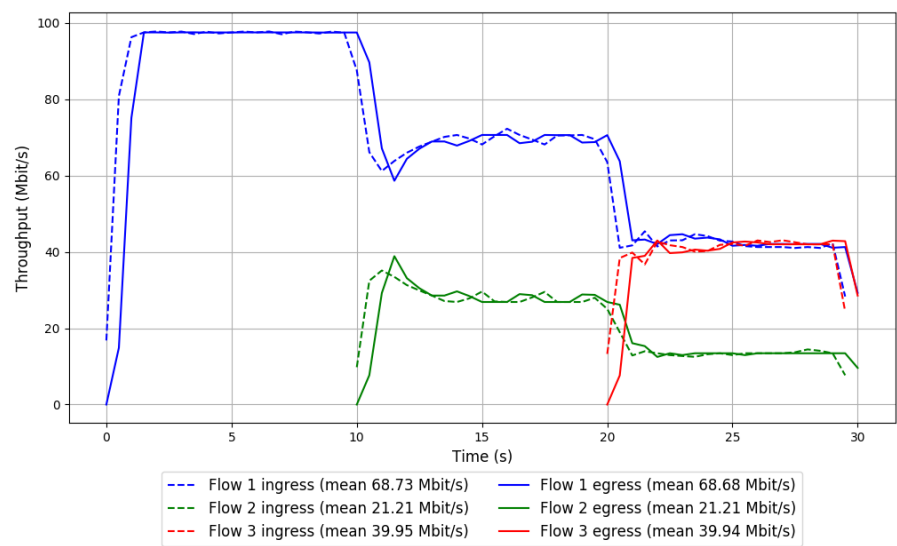


Run 2: Statistics of Indigo

Start at: 2018-09-11 03:16:40
End at: 2018-09-11 03:17:10
Local clock offset: -2.681 ms
Remote clock offset: -0.109 ms

Below is generated by plot.py at 2018-09-11 04:47:22
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.84 Mbit/s
95th percentile per-packet one-way delay: 43.851 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 68.68 Mbit/s
95th percentile per-packet one-way delay: 41.379 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 21.21 Mbit/s
95th percentile per-packet one-way delay: 45.257 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 39.94 Mbit/s
95th percentile per-packet one-way delay: 56.479 ms
Loss rate: 0.01%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-11 03:41:06

End at: 2018-09-11 03:41:36

Local clock offset: -0.048 ms

Remote clock offset: 0.939 ms

Below is generated by plot.py at 2018-09-11 04:47:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.86 Mbit/s

95th percentile per-packet one-way delay: 48.931 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 65.92 Mbit/s

95th percentile per-packet one-way delay: 46.210 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 27.84 Mbit/s

95th percentile per-packet one-way delay: 51.389 ms

Loss rate: 0.00%

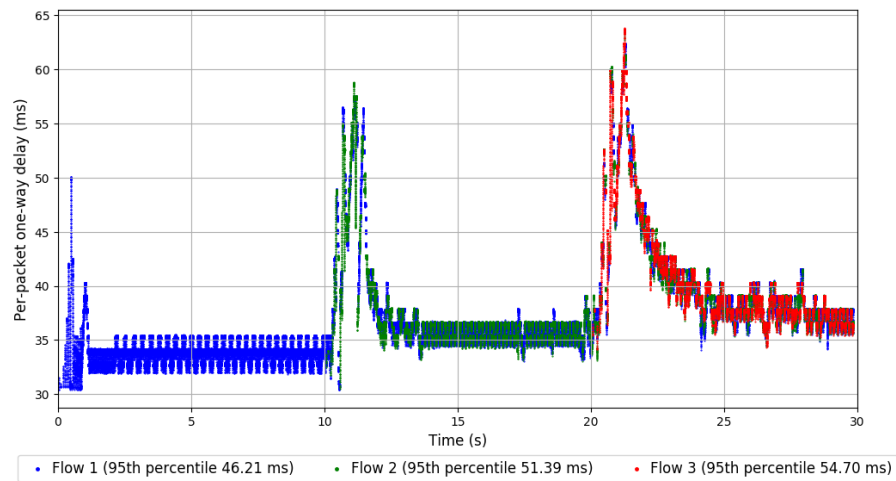
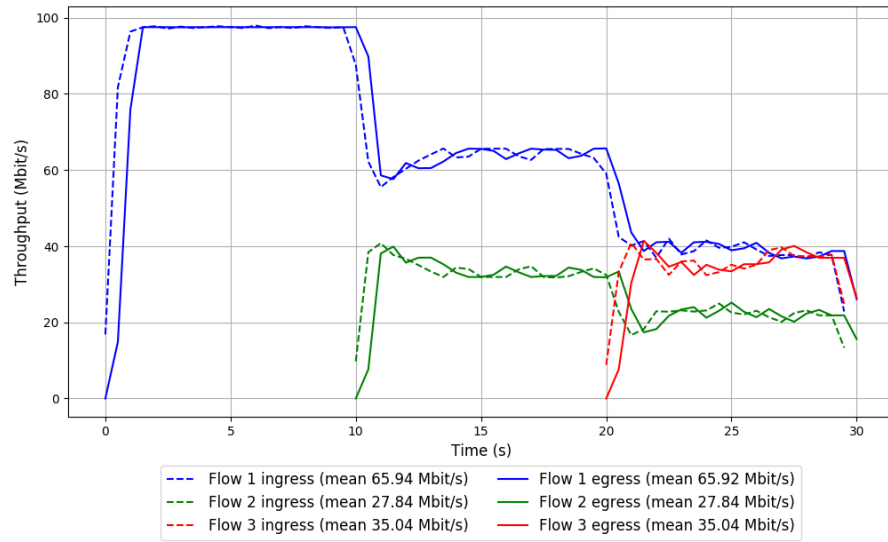
-- Flow 3:

Average throughput: 35.04 Mbit/s

95th percentile per-packet one-way delay: 54.698 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-11 04:05:38

End at: 2018-09-11 04:06:08

Local clock offset: -1.276 ms

Remote clock offset: 2.907 ms

Below is generated by plot.py at 2018-09-11 04:47:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.85 Mbit/s

95th percentile per-packet one-way delay: 49.288 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 67.07 Mbit/s

95th percentile per-packet one-way delay: 46.064 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 27.19 Mbit/s

95th percentile per-packet one-way delay: 51.190 ms

Loss rate: 0.00%

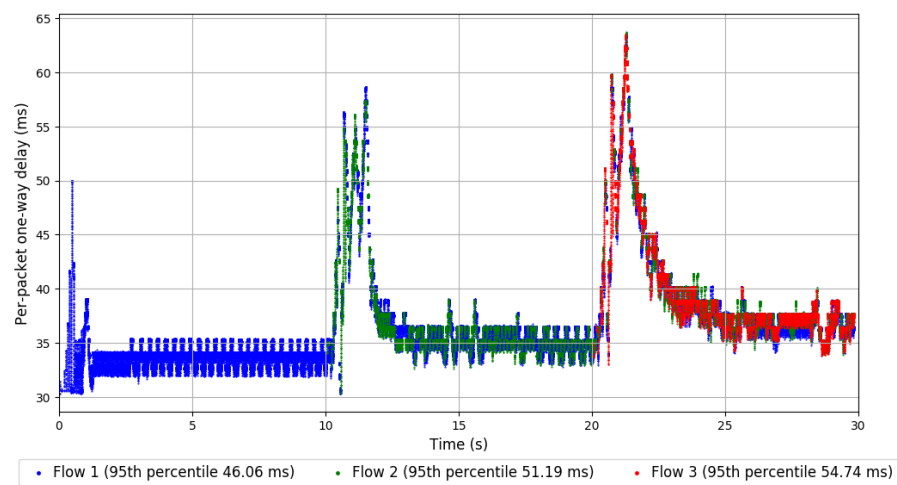
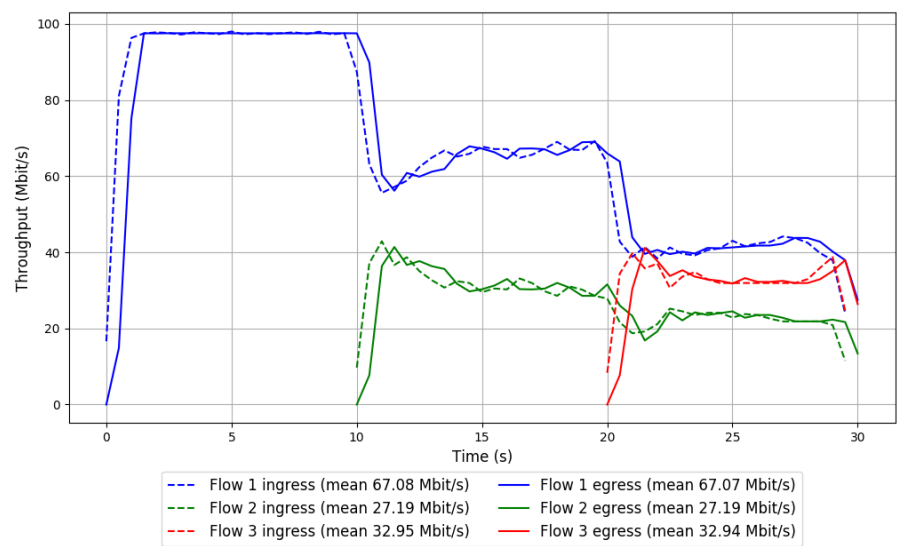
-- Flow 3:

Average throughput: 32.94 Mbit/s

95th percentile per-packet one-way delay: 54.736 ms

Loss rate: 0.00%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-11 04:30:10

End at: 2018-09-11 04:30:40

Local clock offset: -2.913 ms

Remote clock offset: 4.391 ms

Below is generated by plot.py at 2018-09-11 04:48:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.85 Mbit/s

95th percentile per-packet one-way delay: 43.488 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 67.30 Mbit/s

95th percentile per-packet one-way delay: 42.066 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 28.29 Mbit/s

95th percentile per-packet one-way delay: 49.177 ms

Loss rate: 0.00%

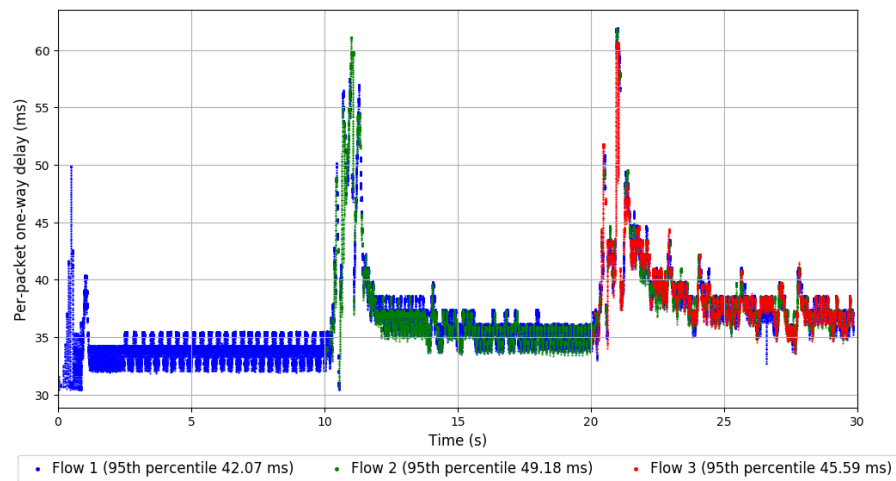
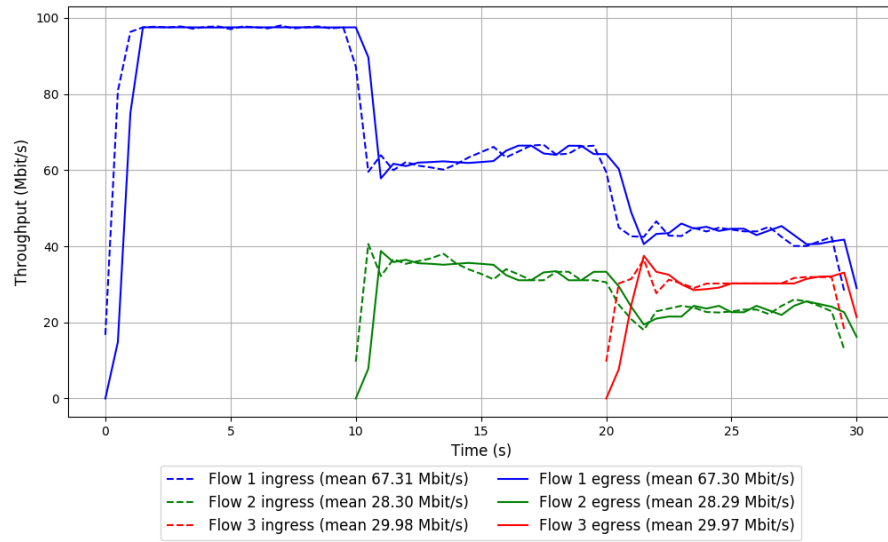
-- Flow 3:

Average throughput: 29.97 Mbit/s

95th percentile per-packet one-way delay: 45.591 ms

Loss rate: 0.00%

Run 5: Report of Indigo — Data Link

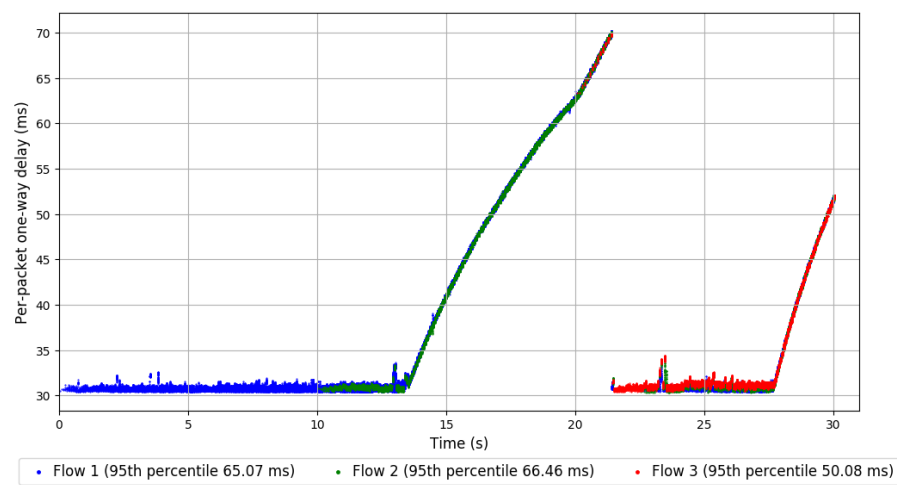
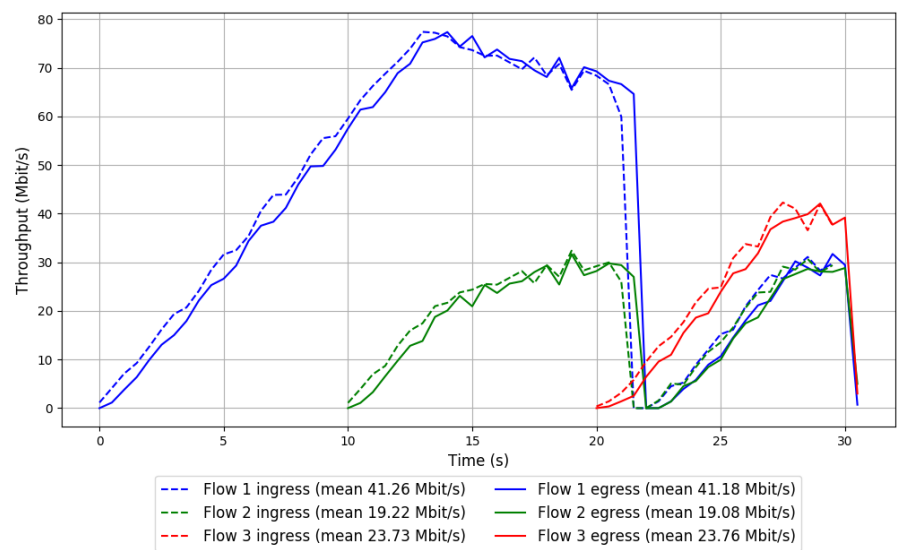


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-11 02:50:42
End at: 2018-09-11 02:51:12
Local clock offset: -2.388 ms
Remote clock offset: -1.069 ms

# Below is generated by plot.py at 2018-09-11 04:48:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.73 Mbit/s
95th percentile per-packet one-way delay: 65.023 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 41.18 Mbit/s
95th percentile per-packet one-way delay: 65.069 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 19.08 Mbit/s
95th percentile per-packet one-way delay: 66.457 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 23.76 Mbit/s
95th percentile per-packet one-way delay: 50.079 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

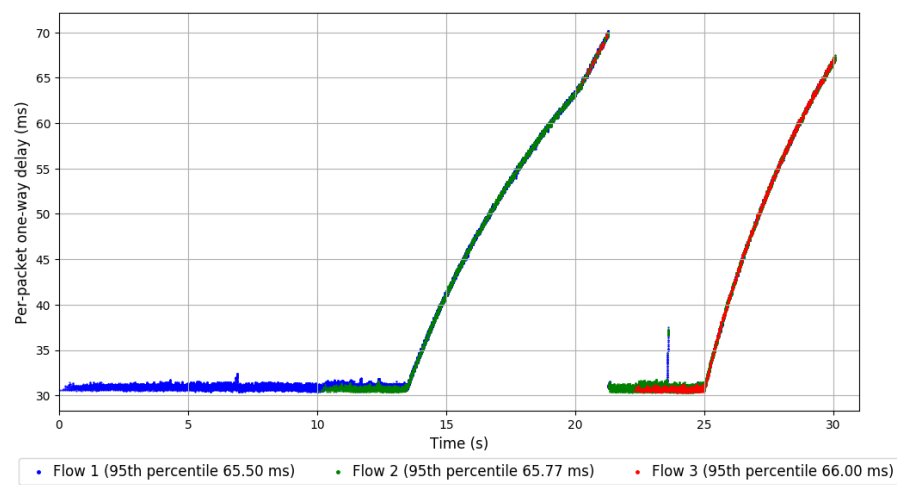
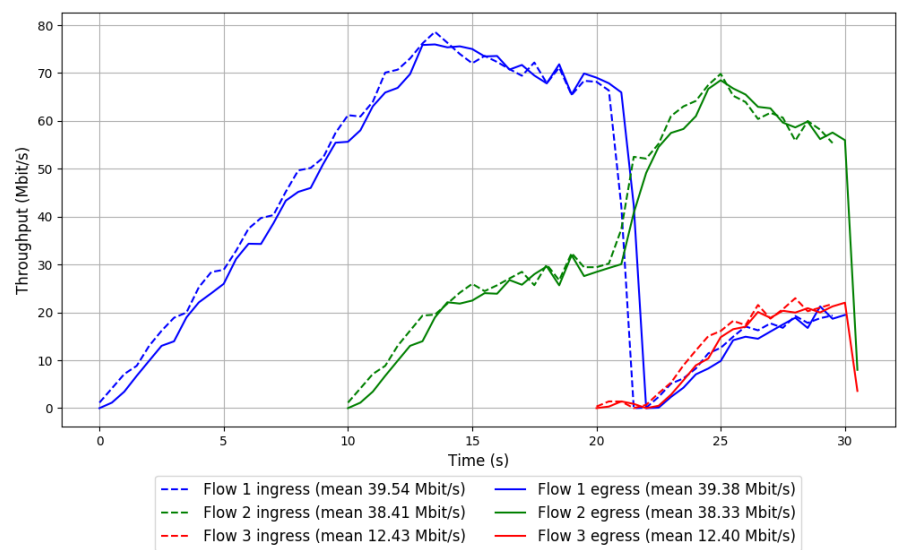


Run 2: Statistics of LEDBAT

Start at: 2018-09-11 03:15:18
End at: 2018-09-11 03:15:48
Local clock offset: -2.664 ms
Remote clock offset: -0.364 ms

Below is generated by plot.py at 2018-09-11 04:48:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 68.93 Mbit/s
95th percentile per-packet one-way delay: 65.746 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 39.38 Mbit/s
95th percentile per-packet one-way delay: 65.503 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 38.33 Mbit/s
95th percentile per-packet one-way delay: 65.770 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 66.001 ms
Loss rate: 0.20%

Run 2: Report of LEDBAT — Data Link

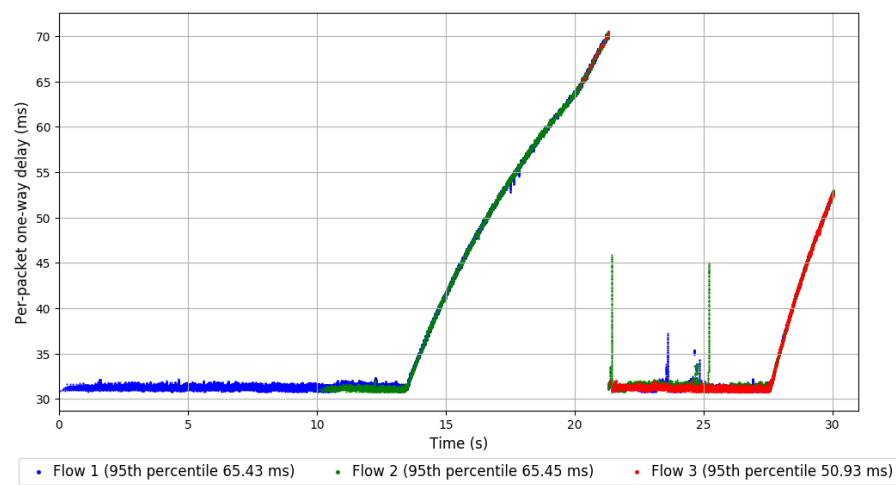
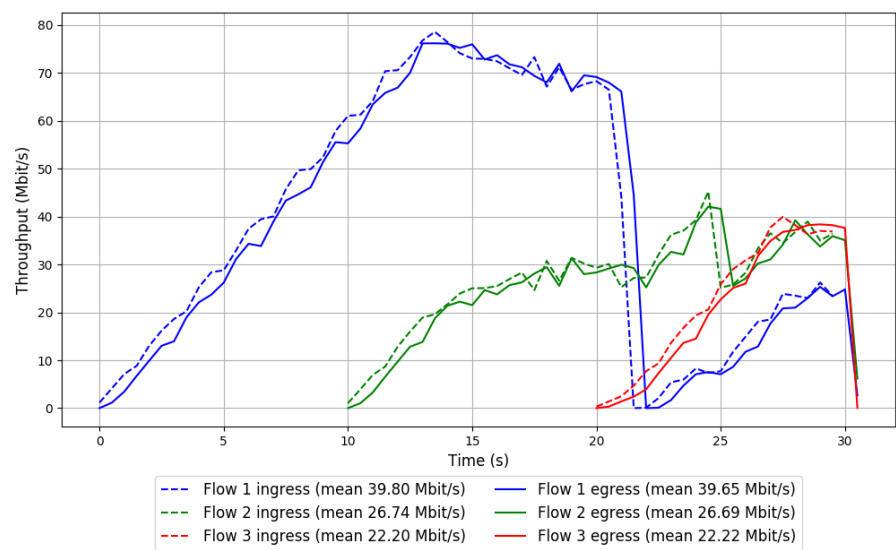


Run 3: Statistics of LEDBAT

Start at: 2018-09-11 03:39:44
End at: 2018-09-11 03:40:14
Local clock offset: -0.309 ms
Remote clock offset: 1.033 ms

Below is generated by plot.py at 2018-09-11 04:48:08
Datalink statistics
-- Total of 3 flows:
Average throughput: 64.77 Mbit/s
95th percentile per-packet one-way delay: 65.106 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 39.65 Mbit/s
95th percentile per-packet one-way delay: 65.427 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 26.69 Mbit/s
95th percentile per-packet one-way delay: 65.452 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 22.22 Mbit/s
95th percentile per-packet one-way delay: 50.929 ms
Loss rate: 0.02%

Run 3: Report of LEDBAT — Data Link

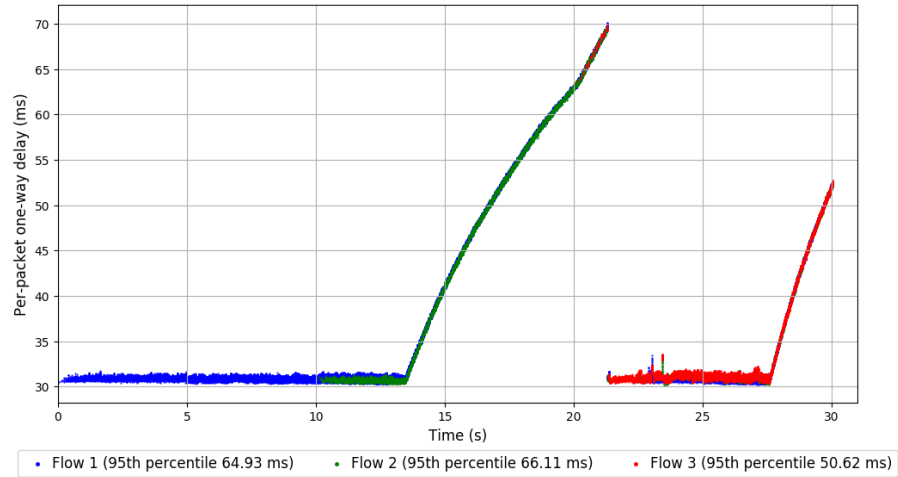
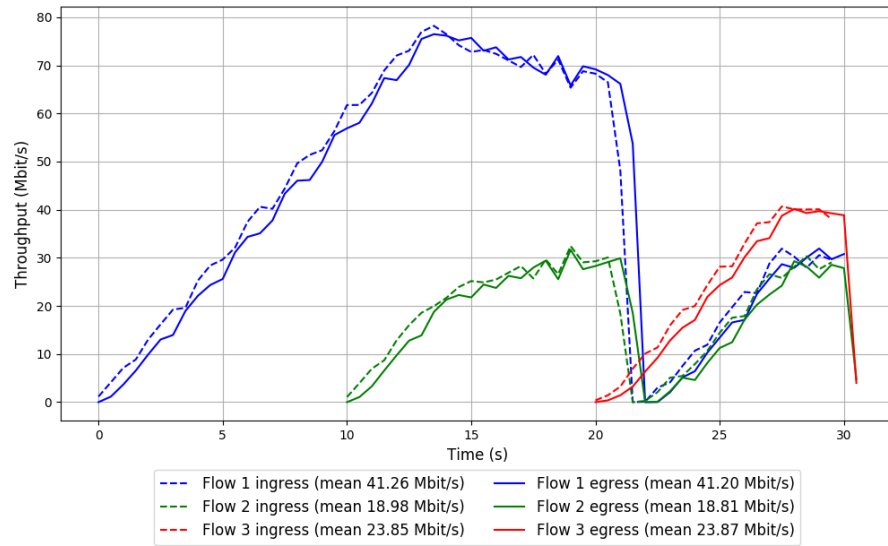


Run 4: Statistics of LEDBAT

Start at: 2018-09-11 04:04:13
End at: 2018-09-11 04:04:43
Local clock offset: -0.861 ms
Remote clock offset: 2.943 ms

Below is generated by plot.py at 2018-09-11 04:48:08
Datalink statistics
-- Total of 3 flows:
Average throughput: 61.58 Mbit/s
95th percentile per-packet one-way delay: 64.705 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 41.20 Mbit/s
95th percentile per-packet one-way delay: 64.927 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 18.81 Mbit/s
95th percentile per-packet one-way delay: 66.108 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 23.87 Mbit/s
95th percentile per-packet one-way delay: 50.623 ms
Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-11 04:28:48

End at: 2018-09-11 04:29:18

Local clock offset: -2.947 ms

Remote clock offset: 4.503 ms

Below is generated by plot.py at 2018-09-11 04:48:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 61.67 Mbit/s

95th percentile per-packet one-way delay: 65.087 ms

Loss rate: 0.20%

-- Flow 1:

Average throughput: 40.64 Mbit/s

95th percentile per-packet one-way delay: 65.308 ms

Loss rate: 0.26%

-- Flow 2:

Average throughput: 19.77 Mbit/s

95th percentile per-packet one-way delay: 66.538 ms

Loss rate: 0.15%

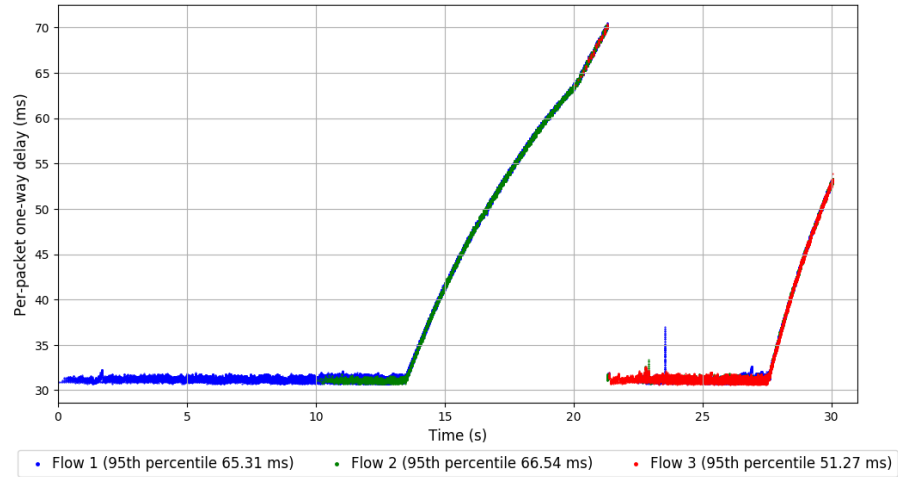
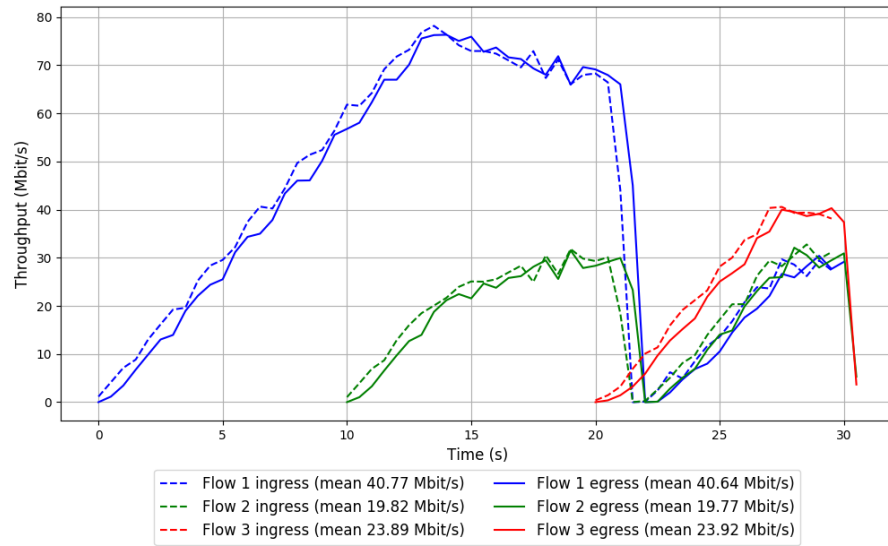
-- Flow 3:

Average throughput: 23.92 Mbit/s

95th percentile per-packet one-way delay: 51.268 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link

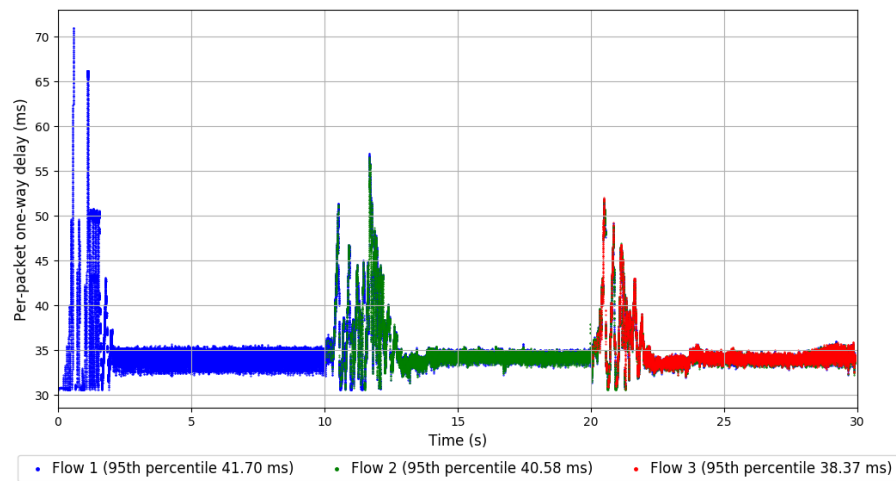
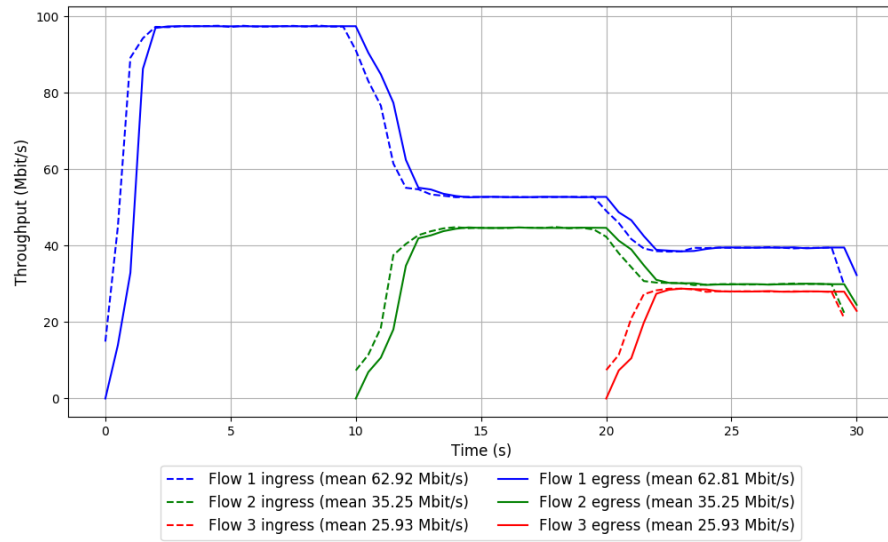


Run 1: Statistics of Indigo-Muses

Start at: 2018-09-11 02:56:11
End at: 2018-09-11 02:56:41
Local clock offset: -2.575 ms
Remote clock offset: -0.763 ms

Below is generated by plot.py at 2018-09-11 04:48:40
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.79 Mbit/s
95th percentile per-packet one-way delay: 41.148 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 62.81 Mbit/s
95th percentile per-packet one-way delay: 41.704 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 35.25 Mbit/s
95th percentile per-packet one-way delay: 40.579 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 25.93 Mbit/s
95th percentile per-packet one-way delay: 38.366 ms
Loss rate: 0.00%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

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

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

Local clock offset: -2.708 ms

Remote clock offset: -0.15 ms

Below is generated by plot.py at 2018-09-11 04:48:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.76 Mbit/s

95th percentile per-packet one-way delay: 40.881 ms

Loss rate: 0.20%

-- Flow 1:

Average throughput: 66.40 Mbit/s

95th percentile per-packet one-way delay: 41.339 ms

Loss rate: 0.24%

-- Flow 2:

Average throughput: 21.78 Mbit/s

95th percentile per-packet one-way delay: 40.747 ms

Loss rate: 0.19%

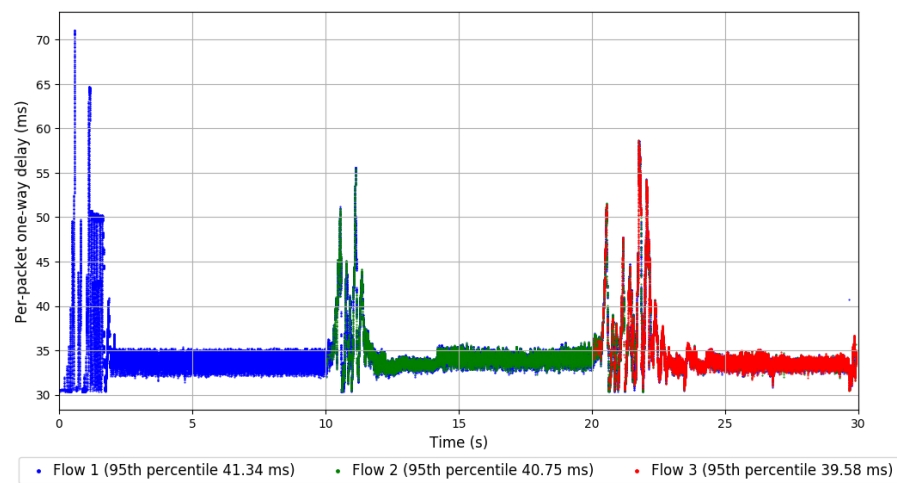
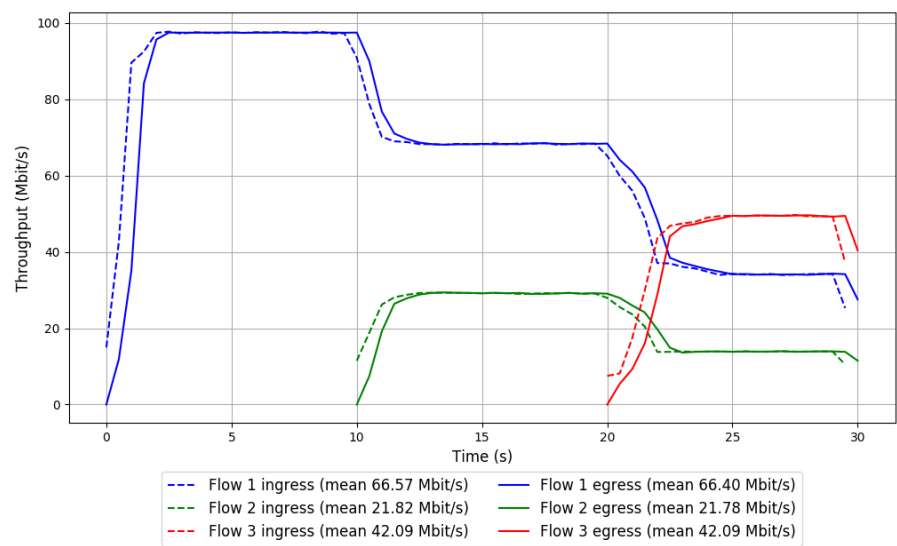
-- Flow 3:

Average throughput: 42.09 Mbit/s

95th percentile per-packet one-way delay: 39.576 ms

Loss rate: 0.00%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-11 03:45:13

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

Local clock offset: 0.327 ms

Remote clock offset: 1.283 ms

Below is generated by plot.py at 2018-09-11 04:48:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.55 Mbit/s

95th percentile per-packet one-way delay: 41.492 ms

Loss rate: 0.42%

-- Flow 1:

Average throughput: 60.79 Mbit/s

95th percentile per-packet one-way delay: 42.186 ms

Loss rate: 0.64%

-- Flow 2:

Average throughput: 34.90 Mbit/s

95th percentile per-packet one-way delay: 41.994 ms

Loss rate: 0.00%

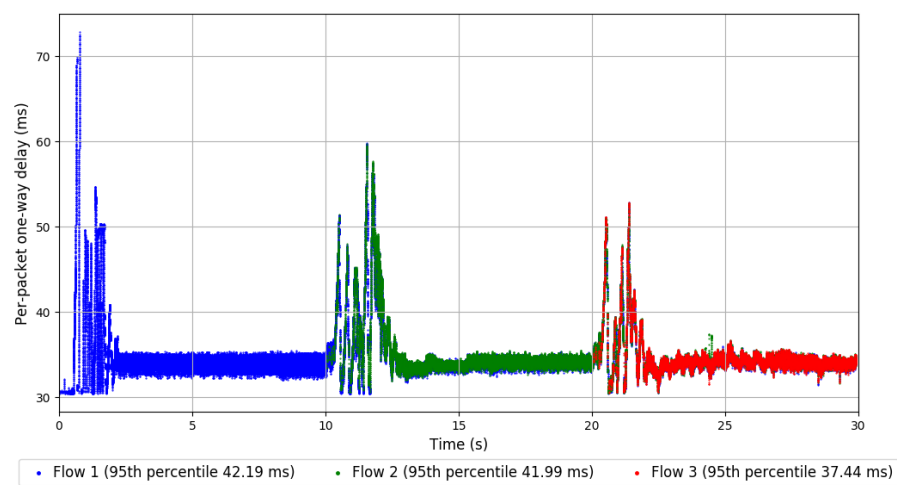
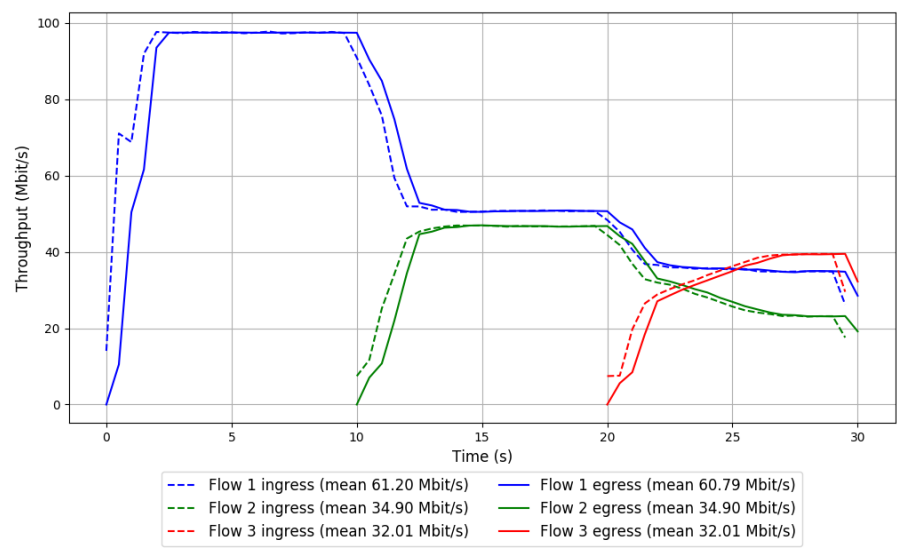
-- Flow 3:

Average throughput: 32.01 Mbit/s

95th percentile per-packet one-way delay: 37.441 ms

Loss rate: 0.01%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

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

End at: 2018-09-11 04:10:17

Local clock offset: -1.899 ms

Remote clock offset: 3.366 ms

Below is generated by plot.py at 2018-09-11 04:49:09

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.71 Mbit/s

95th percentile per-packet one-way delay: 41.799 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 56.21 Mbit/s

95th percentile per-packet one-way delay: 42.792 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 38.33 Mbit/s

95th percentile per-packet one-way delay: 41.348 ms

Loss rate: 0.00%

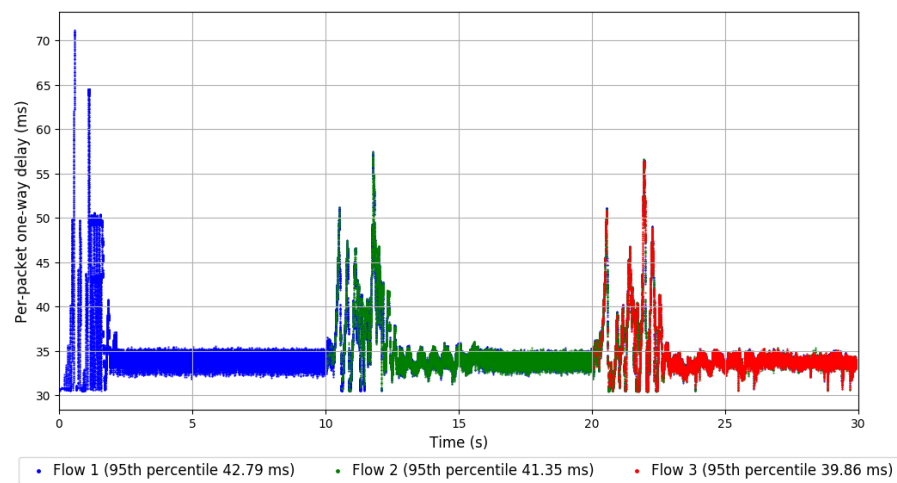
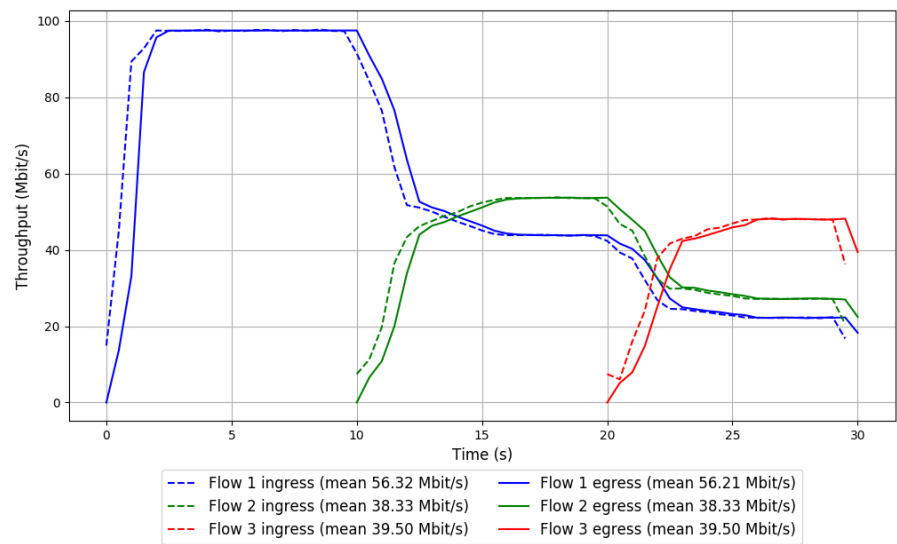
-- Flow 3:

Average throughput: 39.50 Mbit/s

95th percentile per-packet one-way delay: 39.856 ms

Loss rate: 0.00%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-11 04:34:17

End at: 2018-09-11 04:34:47

Local clock offset: -2.917 ms

Remote clock offset: 4.829 ms

Below is generated by plot.py at 2018-09-11 04:49:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.46 Mbit/s

95th percentile per-packet one-way delay: 43.487 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 54.36 Mbit/s

95th percentile per-packet one-way delay: 43.487 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 34.97 Mbit/s

95th percentile per-packet one-way delay: 43.977 ms

Loss rate: 0.00%

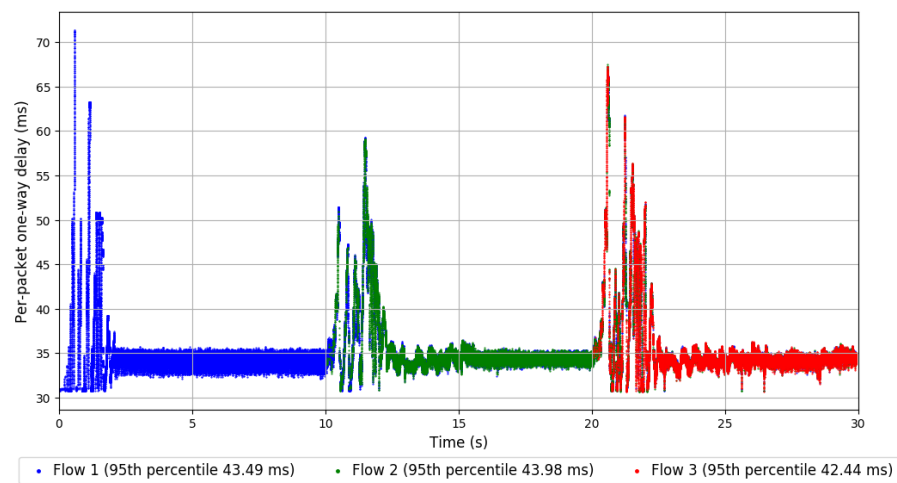
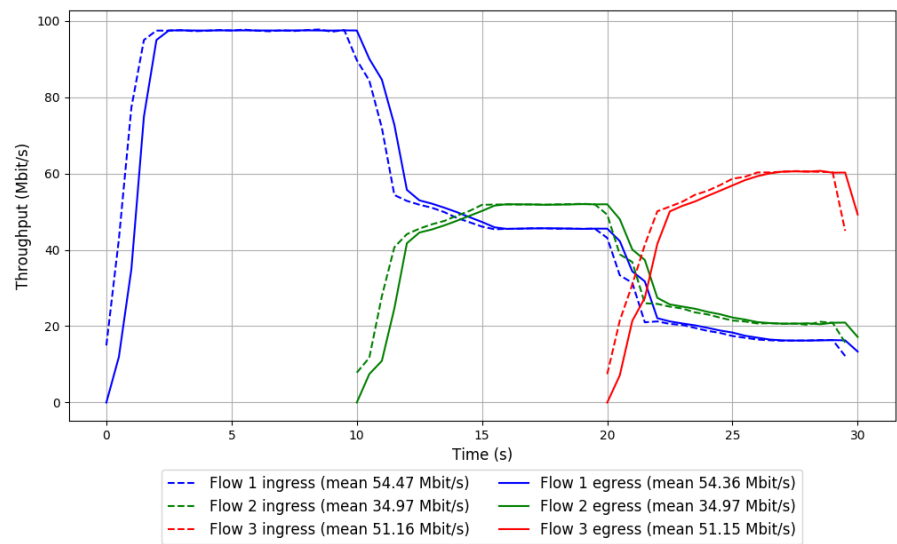
-- Flow 3:

Average throughput: 51.15 Mbit/s

95th percentile per-packet one-way delay: 42.438 ms

Loss rate: 0.00%

Run 5: Report of Indigo-Muses — Data Link

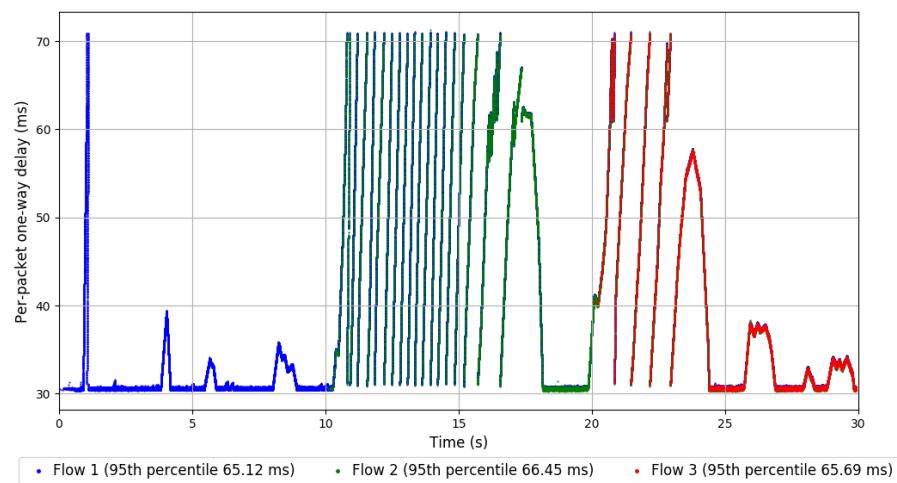
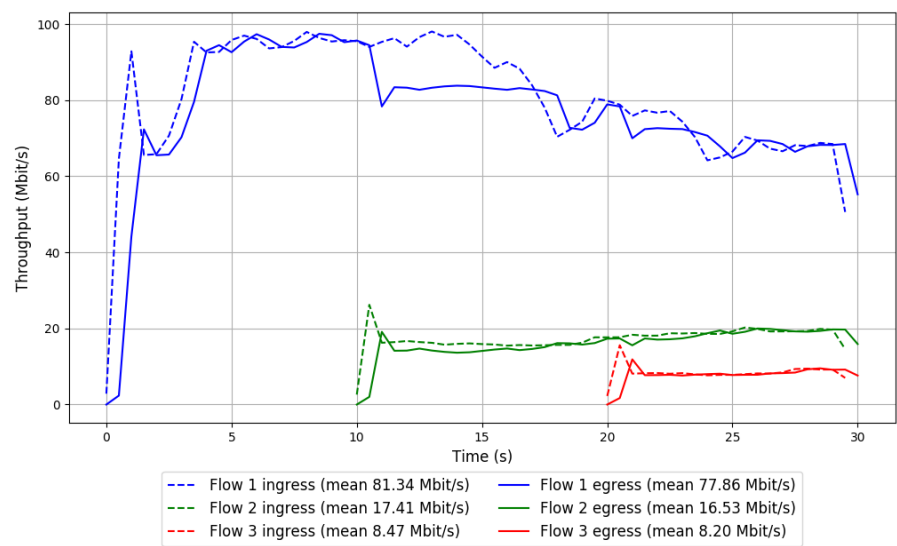



```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-11 02:42:34
End at: 2018-09-11 02:43:04
Local clock offset: -1.817 ms
Remote clock offset: -1.195 ms

# Below is generated by plot.py at 2018-09-11 04:49:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.55 Mbit/s
95th percentile per-packet one-way delay: 65.350 ms
Loss rate: 4.35%
-- Flow 1:
Average throughput: 77.86 Mbit/s
95th percentile per-packet one-way delay: 65.119 ms
Loss rate: 4.29%
-- Flow 2:
Average throughput: 16.53 Mbit/s
95th percentile per-packet one-way delay: 66.453 ms
Loss rate: 5.05%
-- Flow 3:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 65.688 ms
Loss rate: 3.34%
```

Run 1: Report of PCC-Allegro — Data Link

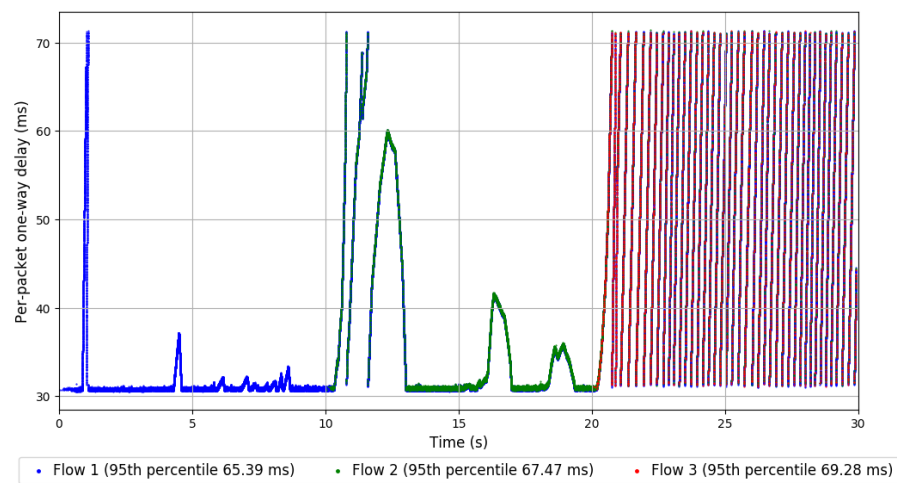
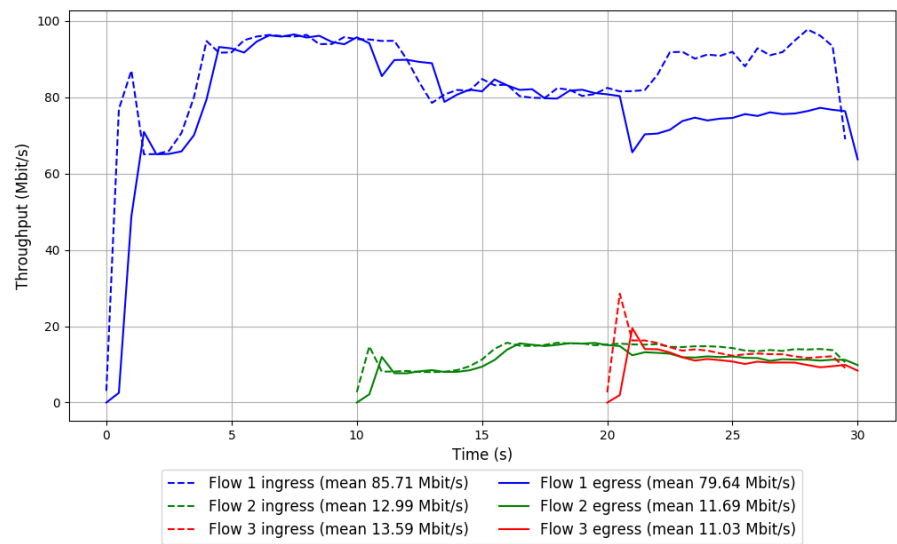


Run 2: Statistics of PCC-Allegro

Start at: 2018-09-11 03:07:05
End at: 2018-09-11 03:07:35
Local clock offset: -2.639 ms
Remote clock offset: -0.461 ms

Below is generated by plot.py at 2018-09-11 04:49:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.05 Mbit/s
95th percentile per-packet one-way delay: 66.023 ms
Loss rate: 7.83%
-- Flow 1:
Average throughput: 79.64 Mbit/s
95th percentile per-packet one-way delay: 65.393 ms
Loss rate: 7.04%
-- Flow 2:
Average throughput: 11.69 Mbit/s
95th percentile per-packet one-way delay: 67.468 ms
Loss rate: 9.96%
-- Flow 3:
Average throughput: 11.03 Mbit/s
95th percentile per-packet one-way delay: 69.276 ms
Loss rate: 18.71%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-11 03:31:37

End at: 2018-09-11 03:32:07

Local clock offset: -1.695 ms

Remote clock offset: 0.627 ms

Below is generated by plot.py at 2018-09-11 04:49:24

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.82 Mbit/s

95th percentile per-packet one-way delay: 65.532 ms

Loss rate: 2.10%

-- Flow 1:

Average throughput: 83.59 Mbit/s

95th percentile per-packet one-way delay: 65.318 ms

Loss rate: 2.08%

-- Flow 2:

Average throughput: 8.33 Mbit/s

95th percentile per-packet one-way delay: 66.561 ms

Loss rate: 2.13%

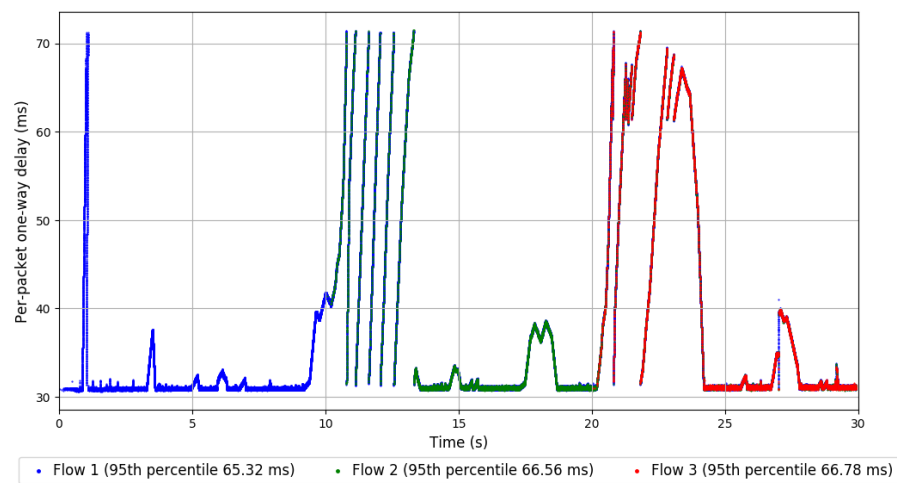
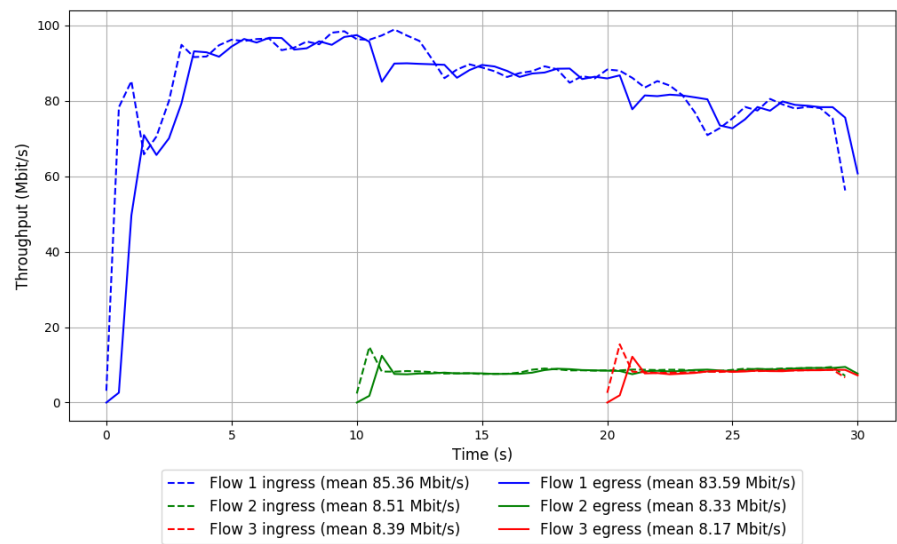
-- Flow 3:

Average throughput: 8.17 Mbit/s

95th percentile per-packet one-way delay: 66.777 ms

Loss rate: 2.58%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

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

End at: 2018-09-11 03:56:33

Local clock offset: 0.984 ms

Remote clock offset: 2.307 ms

Below is generated by plot.py at 2018-09-11 04:50:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.37 Mbit/s

95th percentile per-packet one-way delay: 67.153 ms

Loss rate: 7.83%

-- Flow 1:

Average throughput: 82.00 Mbit/s

95th percentile per-packet one-way delay: 66.955 ms

Loss rate: 7.58%

-- Flow 2:

Average throughput: 14.47 Mbit/s

95th percentile per-packet one-way delay: 68.299 ms

Loss rate: 10.17%

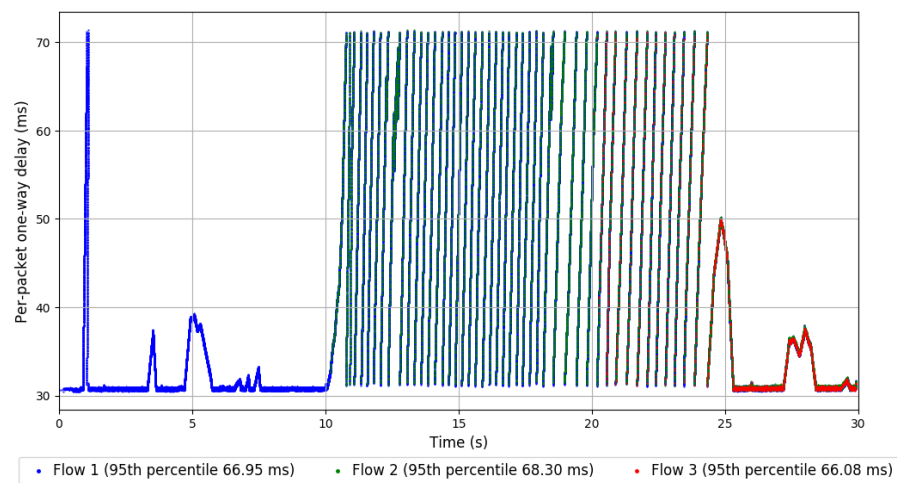
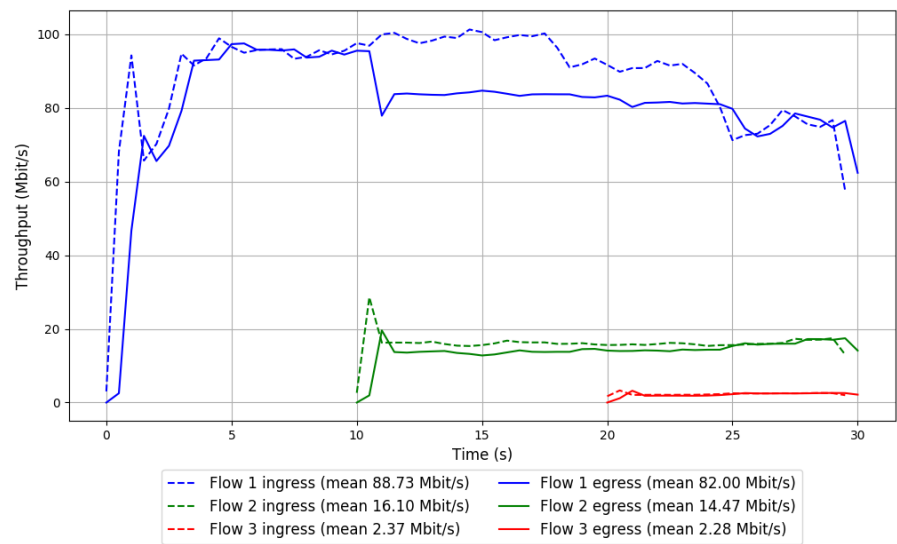
-- Flow 3:

Average throughput: 2.28 Mbit/s

95th percentile per-packet one-way delay: 66.083 ms

Loss rate: 4.26%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-11 04:20:39

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

Local clock offset: -2.777 ms

Remote clock offset: 4.038 ms

Below is generated by plot.py at 2018-09-11 04:50:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.20 Mbit/s

95th percentile per-packet one-way delay: 61.022 ms

Loss rate: 1.23%

-- Flow 1:

Average throughput: 80.64 Mbit/s

95th percentile per-packet one-way delay: 60.494 ms

Loss rate: 1.23%

-- Flow 2:

Average throughput: 10.52 Mbit/s

95th percentile per-packet one-way delay: 63.393 ms

Loss rate: 1.02%

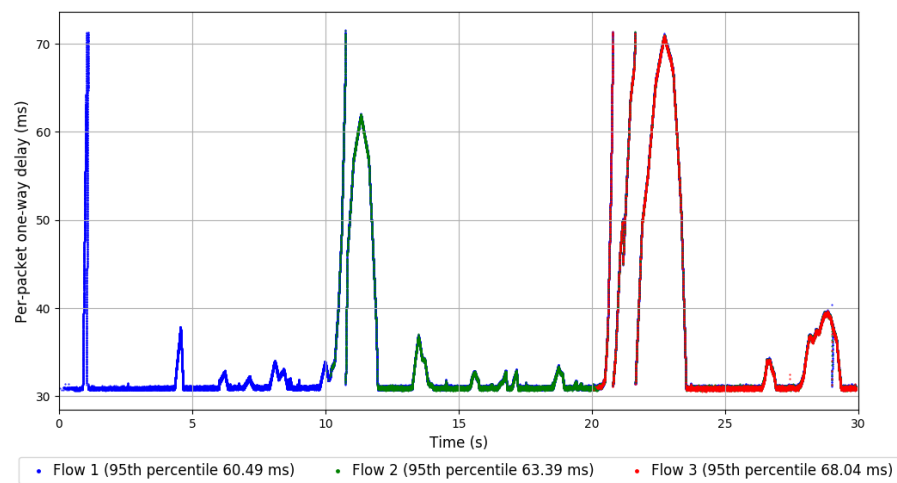
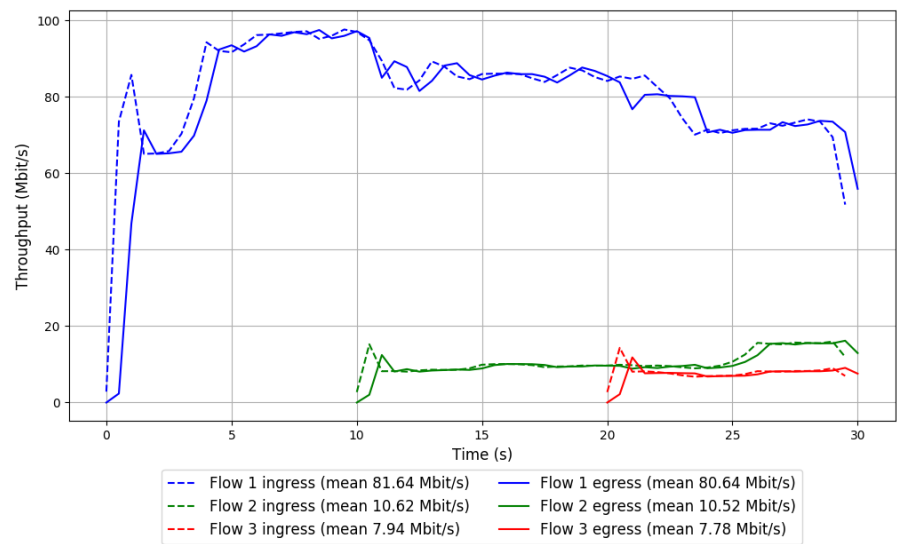
-- Flow 3:

Average throughput: 7.78 Mbit/s

95th percentile per-packet one-way delay: 68.037 ms

Loss rate: 1.97%

Run 5: Report of PCC-Allegro — Data Link

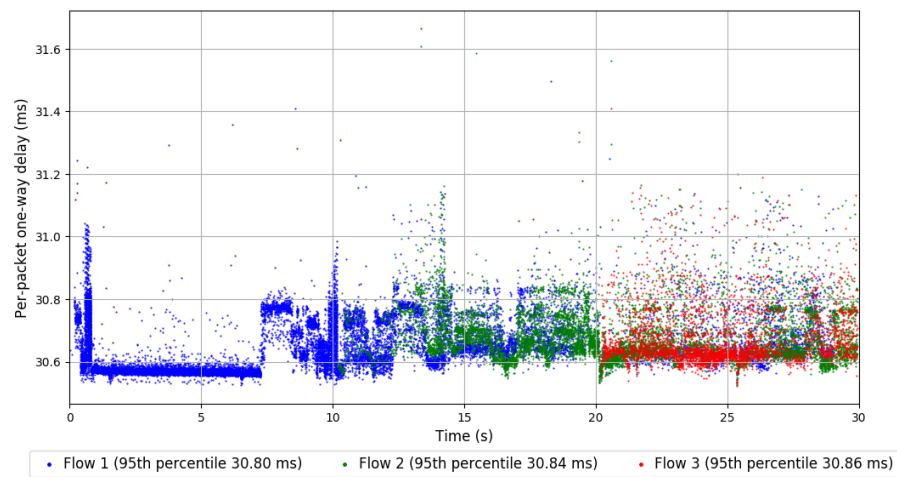
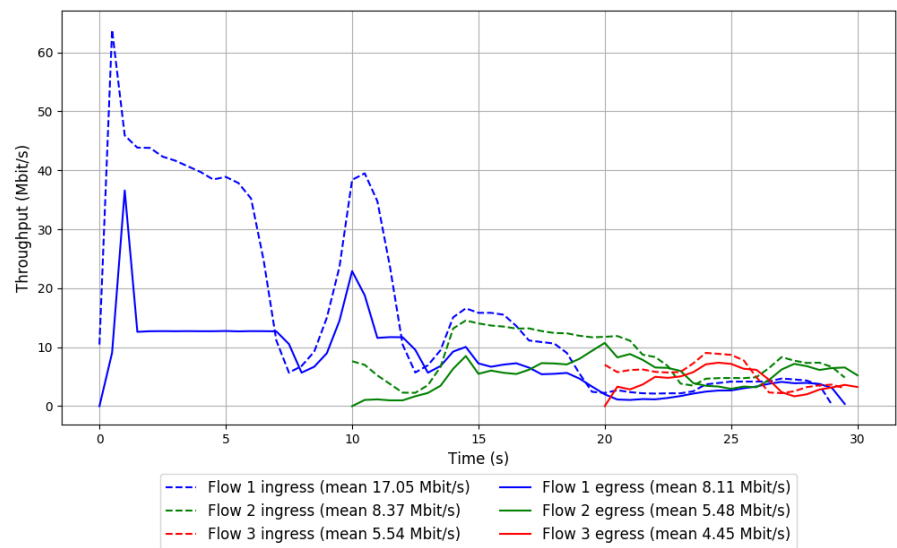


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-11 02:49:22
End at: 2018-09-11 02:49:52
Local clock offset: -2.335 ms
Remote clock offset: -0.936 ms

# Below is generated by plot.py at 2018-09-11 04:50:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.99 Mbit/s
95th percentile per-packet one-way delay: 30.823 ms
Loss rate: 45.78%
-- Flow 1:
Average throughput: 8.11 Mbit/s
95th percentile per-packet one-way delay: 30.801 ms
Loss rate: 52.45%
-- Flow 2:
Average throughput: 5.48 Mbit/s
95th percentile per-packet one-way delay: 30.837 ms
Loss rate: 34.53%
-- Flow 3:
Average throughput: 4.45 Mbit/s
95th percentile per-packet one-way delay: 30.863 ms
Loss rate: 19.72%
```

Run 1: Report of PCC-Expr — Data Link

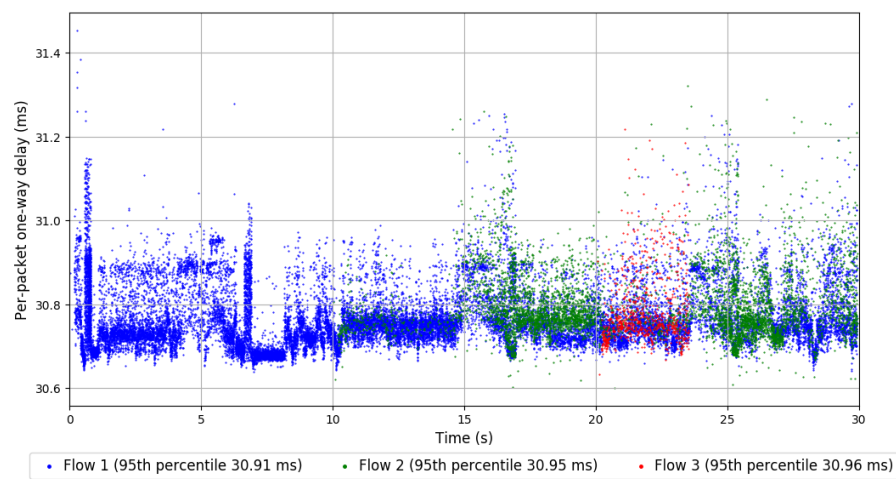
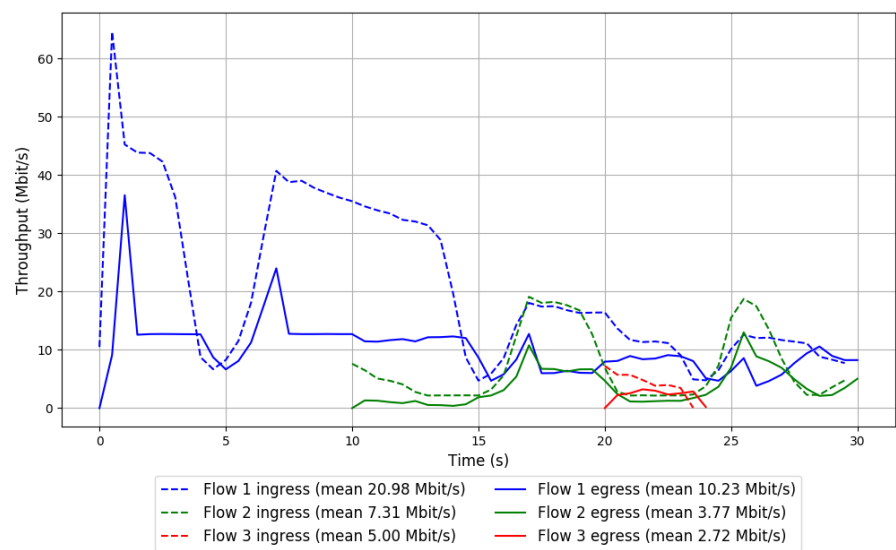


Run 2: Statistics of PCC-Expr

Start at: 2018-09-11 03:13:59
End at: 2018-09-11 03:14:29
Local clock offset: -2.766 ms
Remote clock offset: -0.246 ms

Below is generated by plot.py at 2018-09-11 04:50:00
Datalink statistics
-- Total of 3 flows:
Average throughput: 13.06 Mbit/s
95th percentile per-packet one-way delay: 30.916 ms
Loss rate: 50.58%
-- Flow 1:
Average throughput: 10.23 Mbit/s
95th percentile per-packet one-way delay: 30.907 ms
Loss rate: 51.22%
-- Flow 2:
Average throughput: 3.77 Mbit/s
95th percentile per-packet one-way delay: 30.949 ms
Loss rate: 48.40%
-- Flow 3:
Average throughput: 2.72 Mbit/s
95th percentile per-packet one-way delay: 30.961 ms
Loss rate: 45.60%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-11 03:38:25

End at: 2018-09-11 03:38:55

Local clock offset: -0.491 ms

Remote clock offset: 1.143 ms

Below is generated by plot.py at 2018-09-11 04:50:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.06 Mbit/s

95th percentile per-packet one-way delay: 31.234 ms

Loss rate: 39.21%

-- Flow 1:

Average throughput: 7.72 Mbit/s

95th percentile per-packet one-way delay: 31.209 ms

Loss rate: 42.07%

-- Flow 2:

Average throughput: 5.51 Mbit/s

95th percentile per-packet one-way delay: 31.257 ms

Loss rate: 38.41%

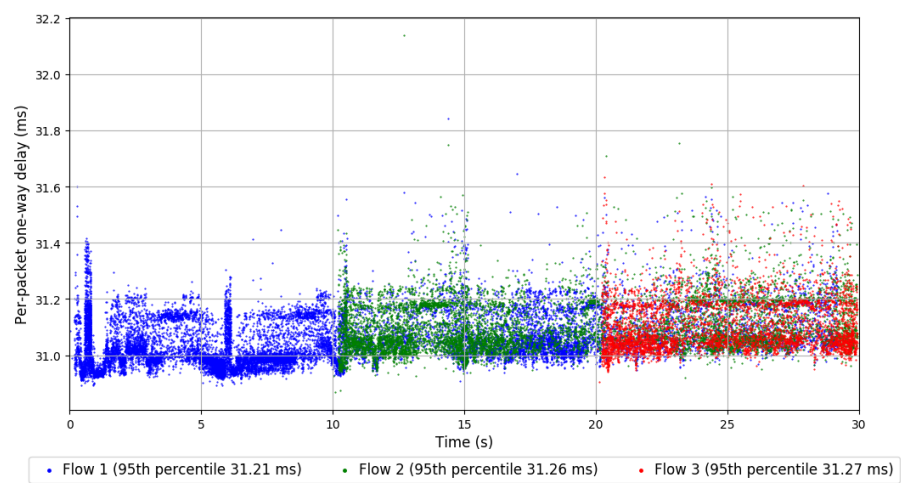
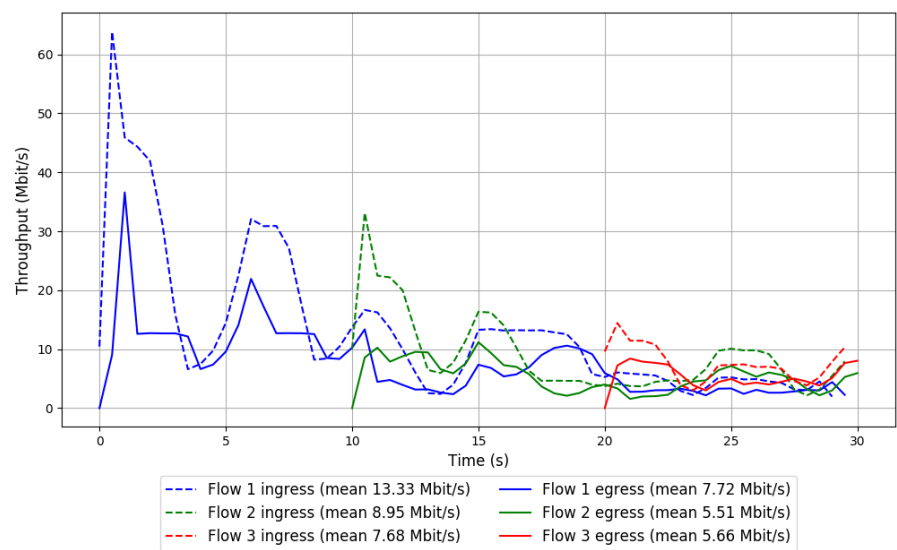
-- Flow 3:

Average throughput: 5.66 Mbit/s

95th percentile per-packet one-way delay: 31.267 ms

Loss rate: 26.38%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-11 04:02:53

End at: 2018-09-11 04:03:23

Local clock offset: -0.593 ms

Remote clock offset: 2.937 ms

Below is generated by plot.py at 2018-09-11 04:50:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.98 Mbit/s

95th percentile per-packet one-way delay: 30.772 ms

Loss rate: 37.57%

-- Flow 1:

Average throughput: 7.26 Mbit/s

95th percentile per-packet one-way delay: 30.779 ms

Loss rate: 42.58%

-- Flow 2:

Average throughput: 6.76 Mbit/s

95th percentile per-packet one-way delay: 30.754 ms

Loss rate: 31.56%

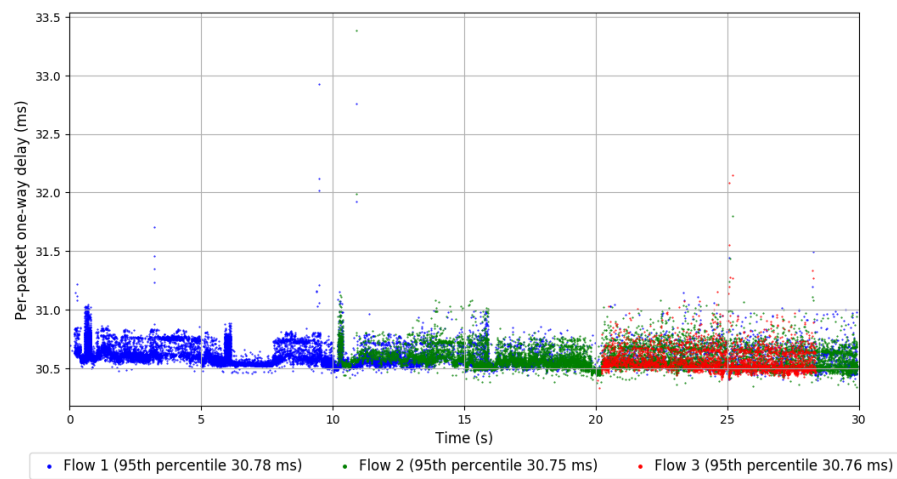
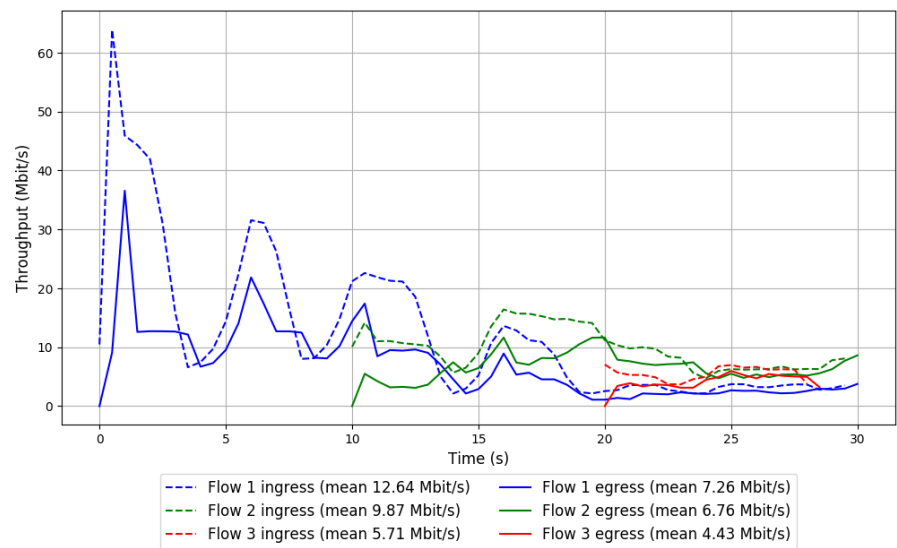
-- Flow 3:

Average throughput: 4.43 Mbit/s

95th percentile per-packet one-way delay: 30.760 ms

Loss rate: 22.45%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-11 04:27:28

End at: 2018-09-11 04:27:58

Local clock offset: -3.039 ms

Remote clock offset: 4.367 ms

Below is generated by plot.py at 2018-09-11 04:50:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.02 Mbit/s

95th percentile per-packet one-way delay: 30.938 ms

Loss rate: 33.99%

-- Flow 1:

Average throughput: 9.79 Mbit/s

95th percentile per-packet one-way delay: 30.917 ms

Loss rate: 36.38%

-- Flow 2:

Average throughput: 3.45 Mbit/s

95th percentile per-packet one-way delay: 30.988 ms

Loss rate: 24.44%

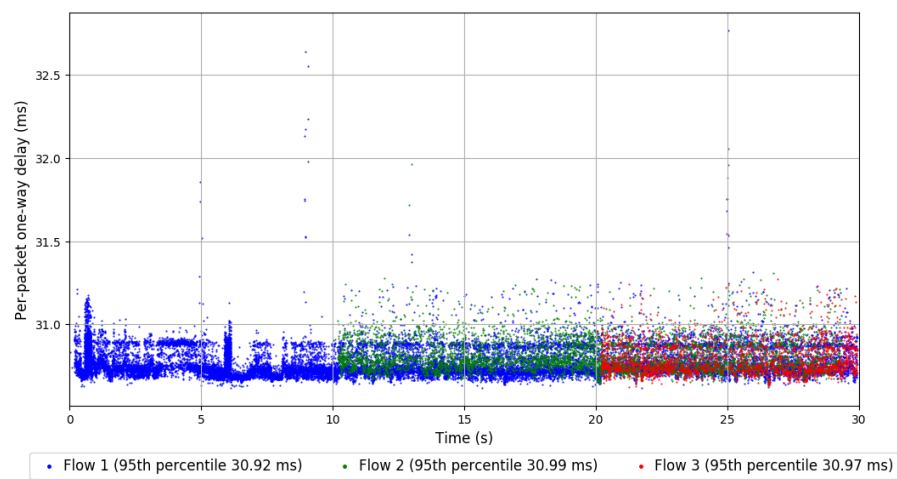
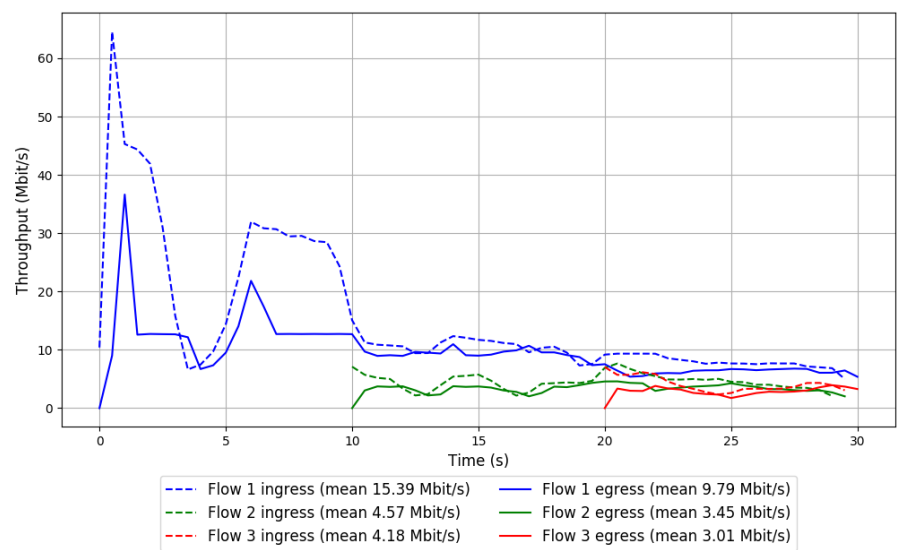
-- Flow 3:

Average throughput: 3.01 Mbit/s

95th percentile per-packet one-way delay: 30.970 ms

Loss rate: 27.90%

Run 5: Report of PCC-Expr — Data Link

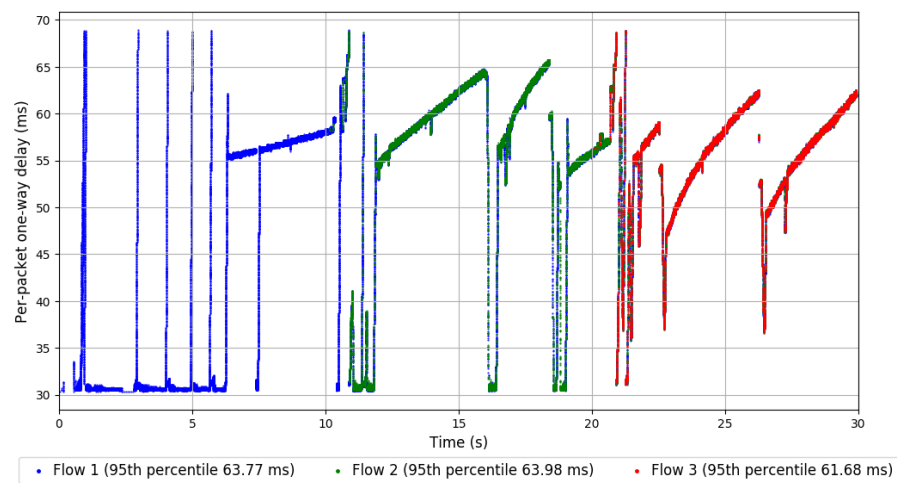
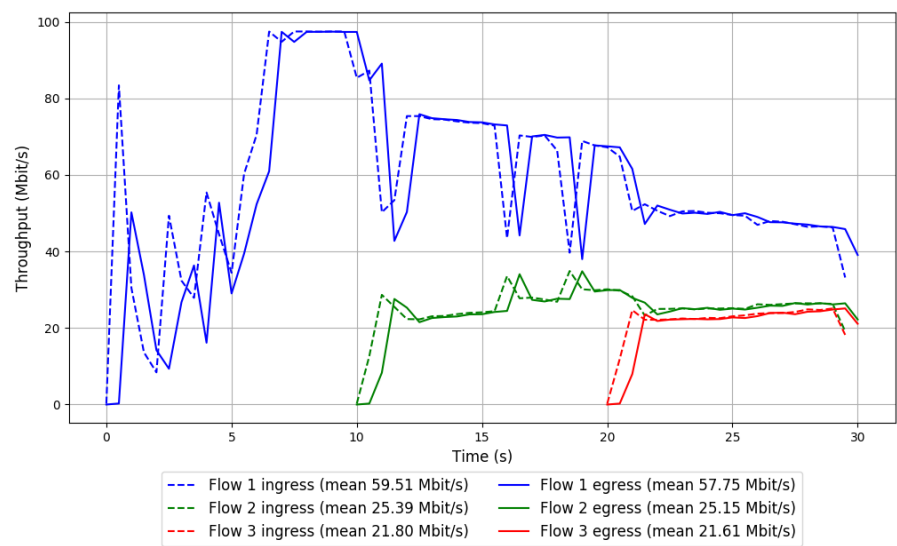


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-11 02:57:35
End at: 2018-09-11 02:58:05
Local clock offset: -2.635 ms
Remote clock offset: -0.866 ms

Below is generated by plot.py at 2018-09-11 04:50:33
Datalink statistics
-- Total of 3 flows:
Average throughput: 81.55 Mbit/s
95th percentile per-packet one-way delay: 63.729 ms
Loss rate: 2.28%
-- Flow 1:
Average throughput: 57.75 Mbit/s
95th percentile per-packet one-way delay: 63.765 ms
Loss rate: 2.84%
-- Flow 2:
Average throughput: 25.15 Mbit/s
95th percentile per-packet one-way delay: 63.980 ms
Loss rate: 0.91%
-- Flow 3:
Average throughput: 21.61 Mbit/s
95th percentile per-packet one-way delay: 61.679 ms
Loss rate: 0.85%

Run 1: Report of QUIC Cubic — Data Link

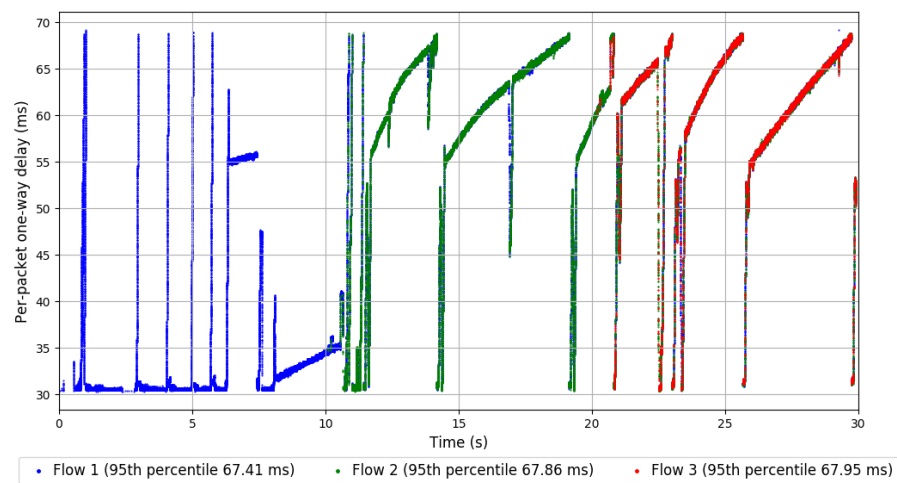
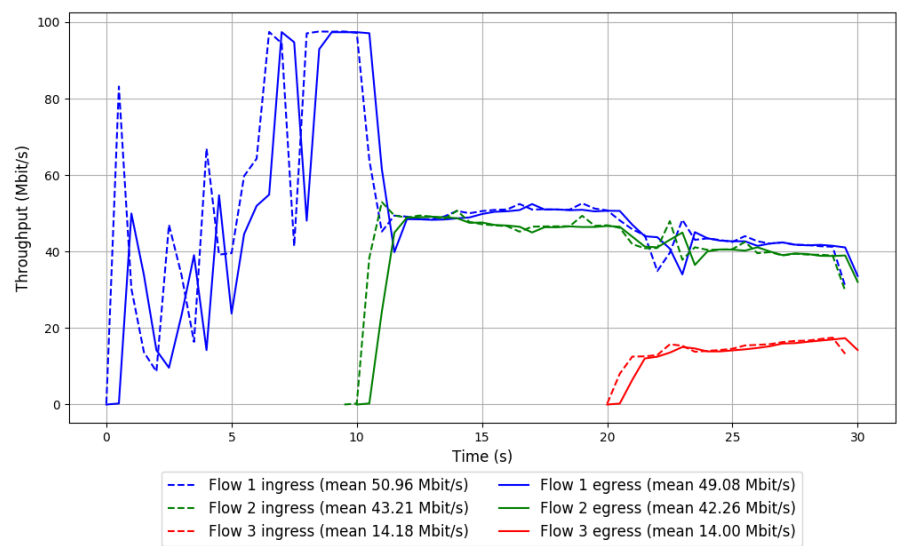


Run 2: Statistics of QUIC Cubic

Start at: 2018-09-11 03:22:07
End at: 2018-09-11 03:22:37
Local clock offset: -2.787 ms
Remote clock offset: -0.053 ms

Below is generated by plot.py at 2018-09-11 04:50:36
Datalink statistics
-- Total of 3 flows:
Average throughput: 81.79 Mbit/s
95th percentile per-packet one-way delay: 67.662 ms
Loss rate: 2.99%
-- Flow 1:
Average throughput: 49.08 Mbit/s
95th percentile per-packet one-way delay: 67.409 ms
Loss rate: 3.62%
-- Flow 2:
Average throughput: 42.26 Mbit/s
95th percentile per-packet one-way delay: 67.862 ms
Loss rate: 2.13%
-- Flow 3:
Average throughput: 14.00 Mbit/s
95th percentile per-packet one-way delay: 67.950 ms
Loss rate: 1.39%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-11 03:46:35

End at: 2018-09-11 03:47:05

Local clock offset: 0.432 ms

Remote clock offset: 1.344 ms

Below is generated by plot.py at 2018-09-11 04:50:36

Datalink statistics

-- Total of 3 flows:

Average throughput: 81.21 Mbit/s

95th percentile per-packet one-way delay: 65.226 ms

Loss rate: 2.55%

-- Flow 1:

Average throughput: 57.79 Mbit/s

95th percentile per-packet one-way delay: 65.367 ms

Loss rate: 3.15%

-- Flow 2:

Average throughput: 22.98 Mbit/s

95th percentile per-packet one-way delay: 65.582 ms

Loss rate: 1.21%

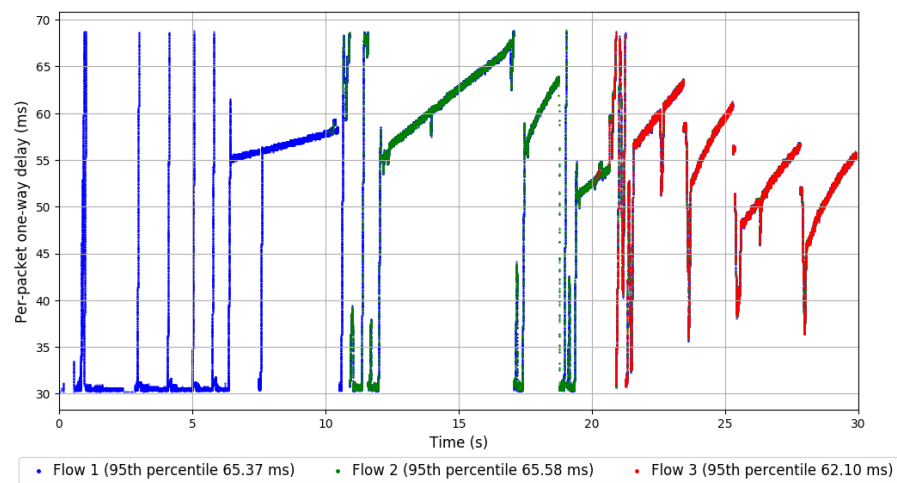
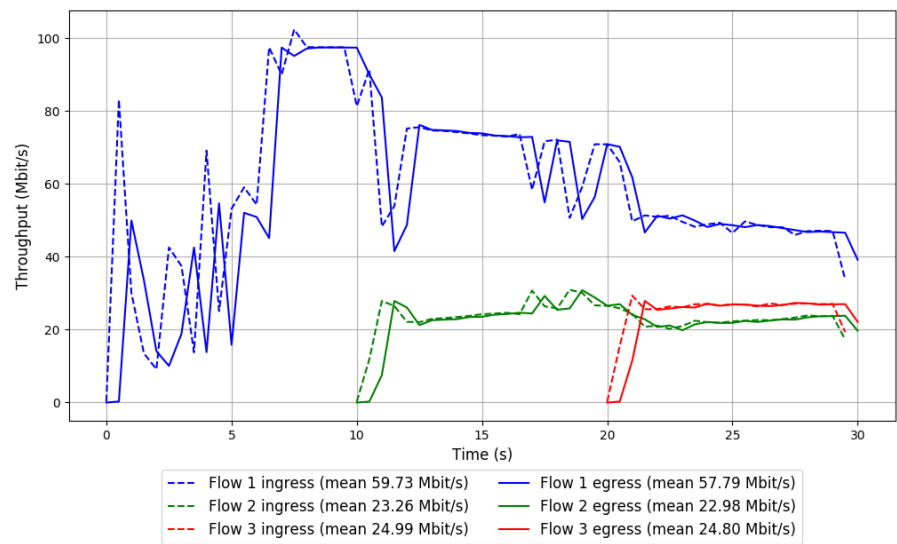
-- Flow 3:

Average throughput: 24.80 Mbit/s

95th percentile per-packet one-way delay: 62.104 ms

Loss rate: 0.71%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

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

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

Local clock offset: -2.177 ms

Remote clock offset: 3.314 ms

Below is generated by plot.py at 2018-09-11 04:50:36

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.96 Mbit/s

95th percentile per-packet one-way delay: 67.561 ms

Loss rate: 2.62%

-- Flow 1:

Average throughput: 60.63 Mbit/s

95th percentile per-packet one-way delay: 67.437 ms

Loss rate: 3.08%

-- Flow 2:

Average throughput: 25.62 Mbit/s

95th percentile per-packet one-way delay: 67.754 ms

Loss rate: 1.27%

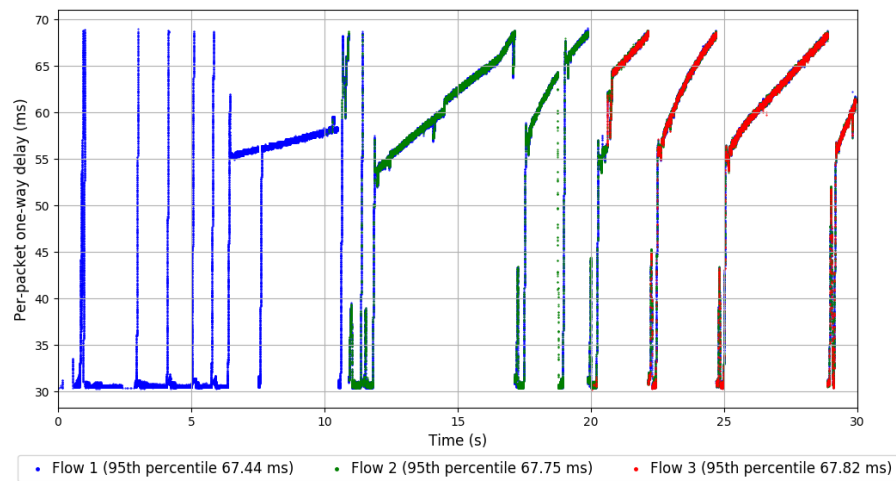
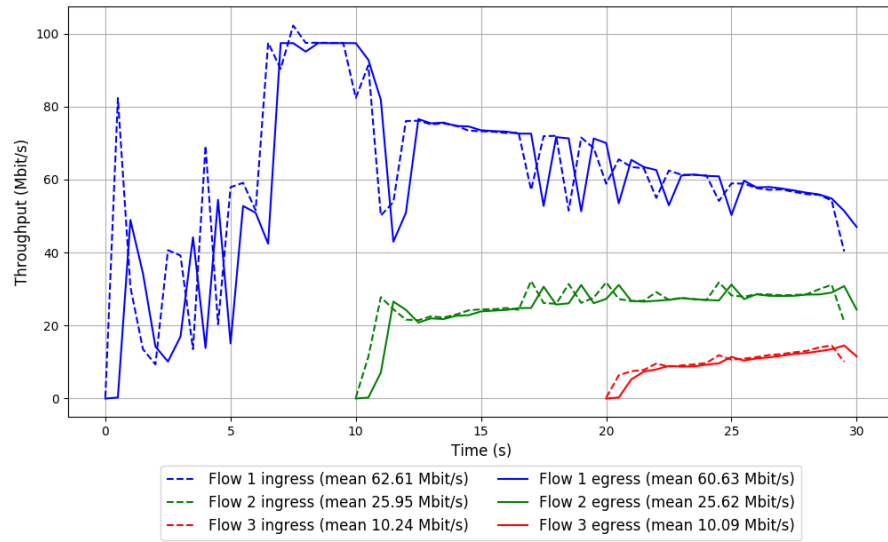
-- Flow 3:

Average throughput: 10.09 Mbit/s

95th percentile per-packet one-way delay: 67.824 ms

Loss rate: 1.17%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-11 04:35:39

End at: 2018-09-11 04:36:09

Local clock offset: -2.82 ms

Remote clock offset: 5.05 ms

Below is generated by plot.py at 2018-09-11 04:50:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 81.00 Mbit/s

95th percentile per-packet one-way delay: 66.997 ms

Loss rate: 2.42%

-- Flow 1:

Average throughput: 59.94 Mbit/s

95th percentile per-packet one-way delay: 66.418 ms

Loss rate: 2.89%

-- Flow 2:

Average throughput: 22.00 Mbit/s

95th percentile per-packet one-way delay: 67.433 ms

Loss rate: 0.82%

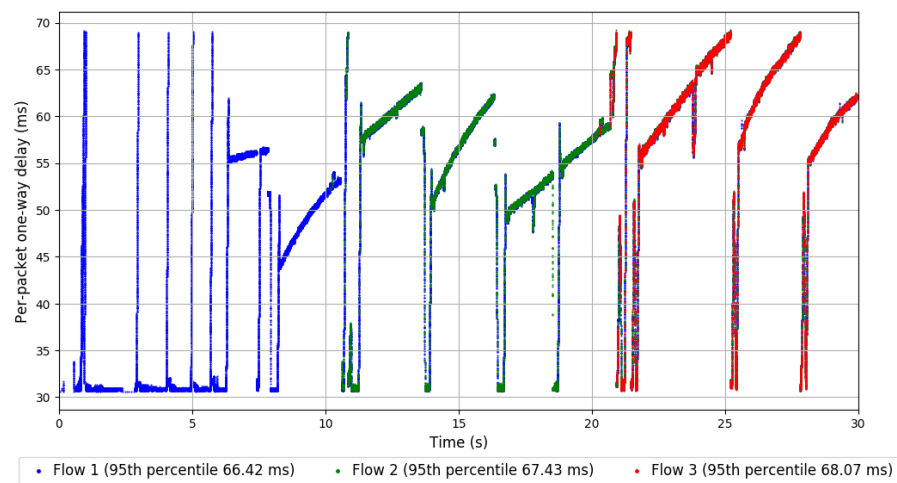
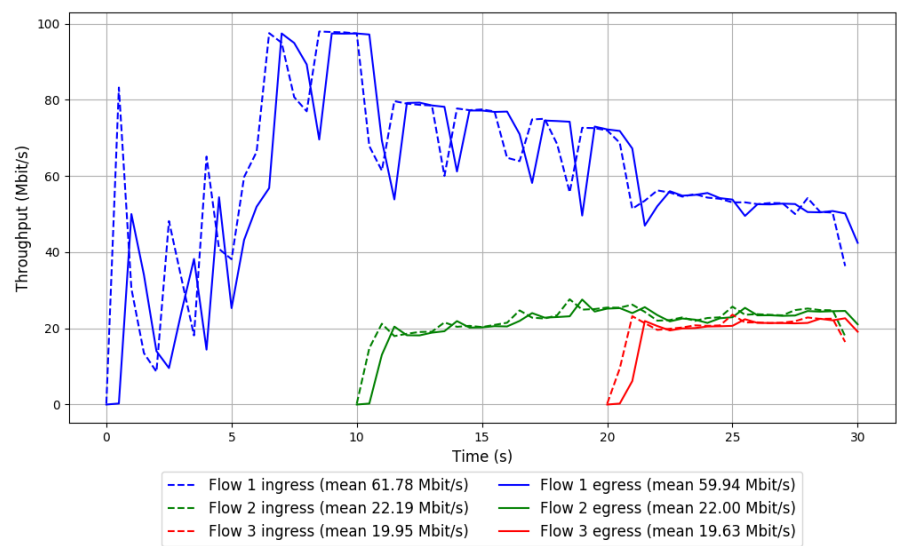
-- Flow 3:

Average throughput: 19.63 Mbit/s

95th percentile per-packet one-way delay: 68.068 ms

Loss rate: 1.56%

Run 5: Report of QUIC Cubic — Data Link

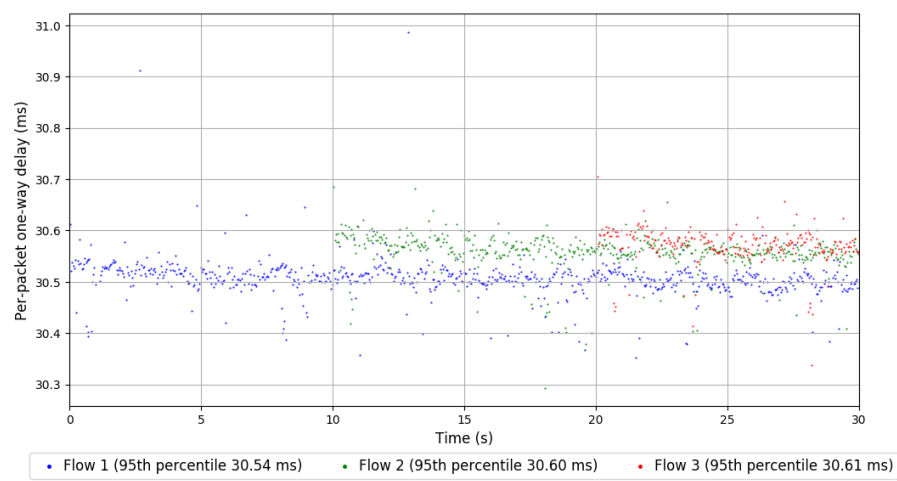
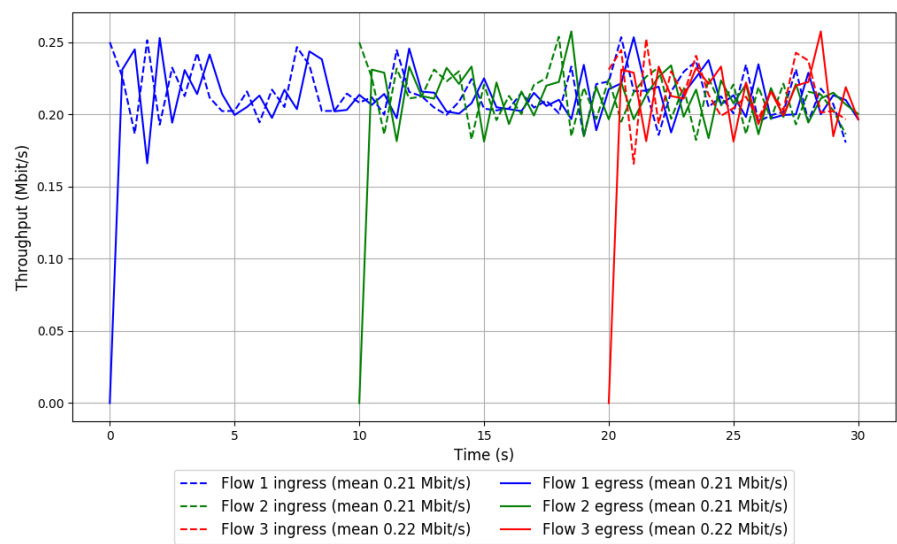


```
Run 1: Statistics of SReAM

Start at: 2018-09-11 03:03:04
End at: 2018-09-11 03:03:34
Local clock offset: -2.645 ms
Remote clock offset: -0.903 ms

# Below is generated by plot.py at 2018-09-11 04:50:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.595 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.543 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.600 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.608 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

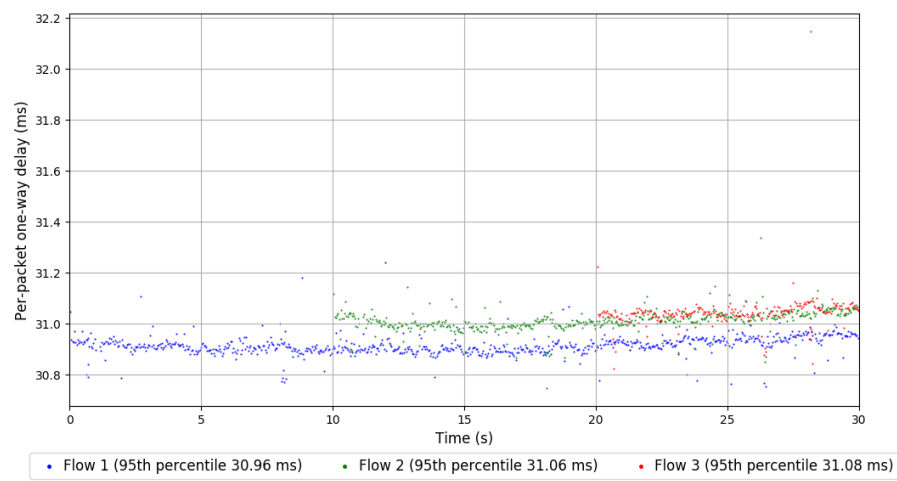
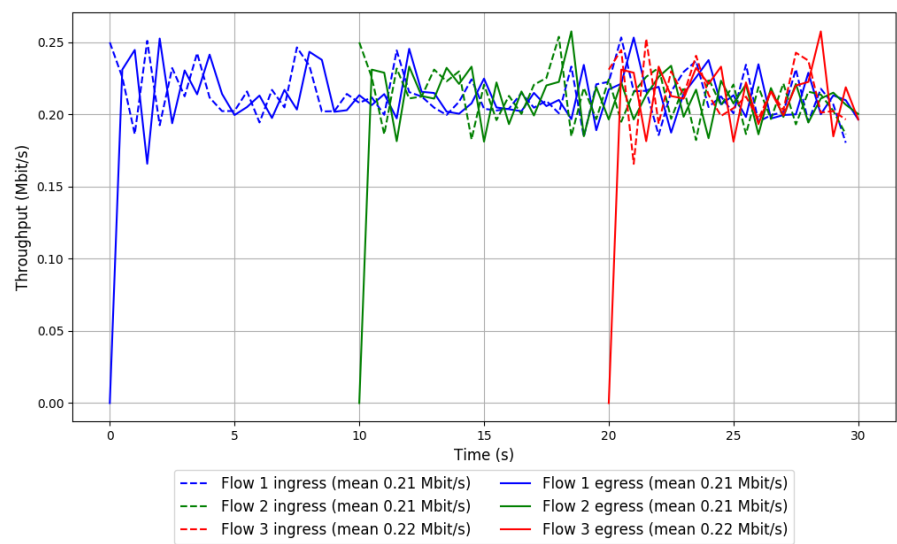


Run 2: Statistics of SReAM

Start at: 2018-09-11 03:27:37
End at: 2018-09-11 03:28:07
Local clock offset: -2.825 ms
Remote clock offset: 0.563 ms

Below is generated by plot.py at 2018-09-11 04:50:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 31.065 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.964 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 31.064 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 31.084 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

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

End at: 2018-09-11 03:52:33

Local clock offset: 0.773 ms

Remote clock offset: 1.959 ms

Below is generated by plot.py at 2018-09-11 04:50:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 30.805 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 30.766 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 30.780 ms

Loss rate: 0.00%

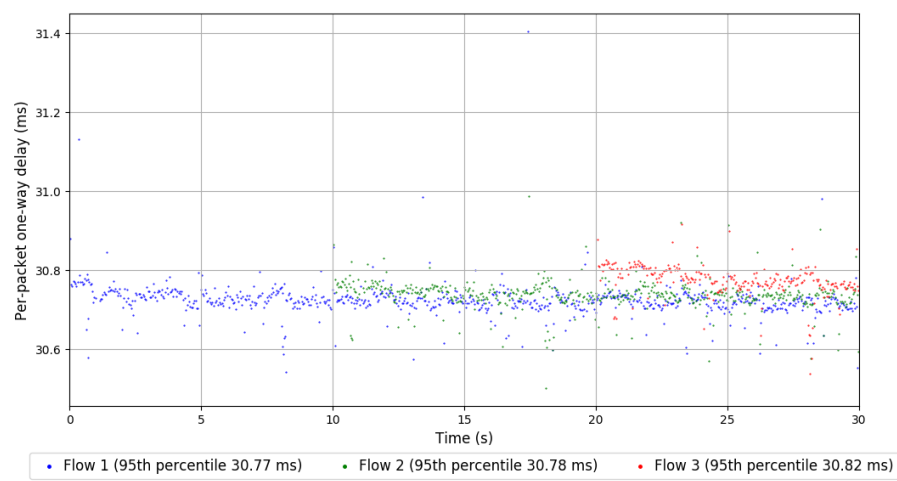
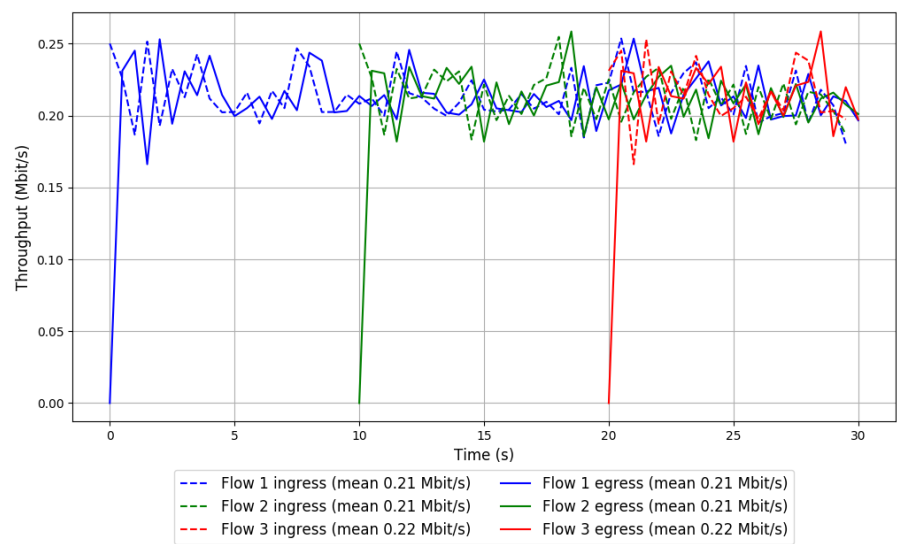
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 30.819 ms

Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

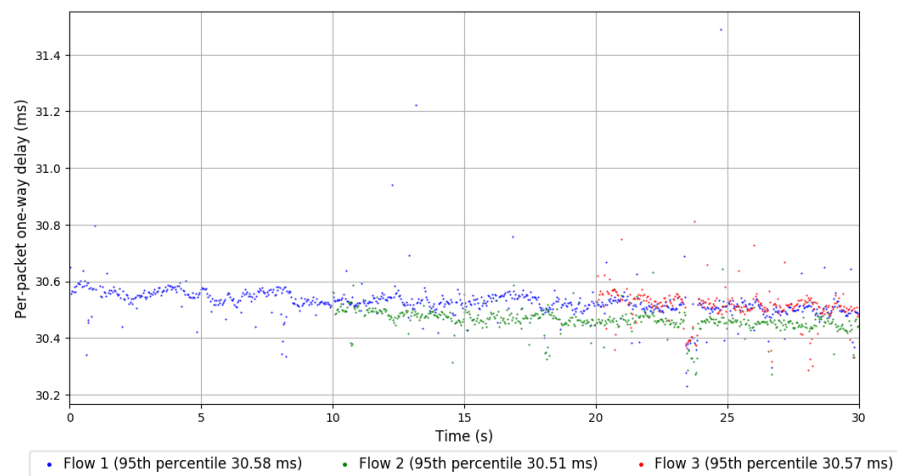
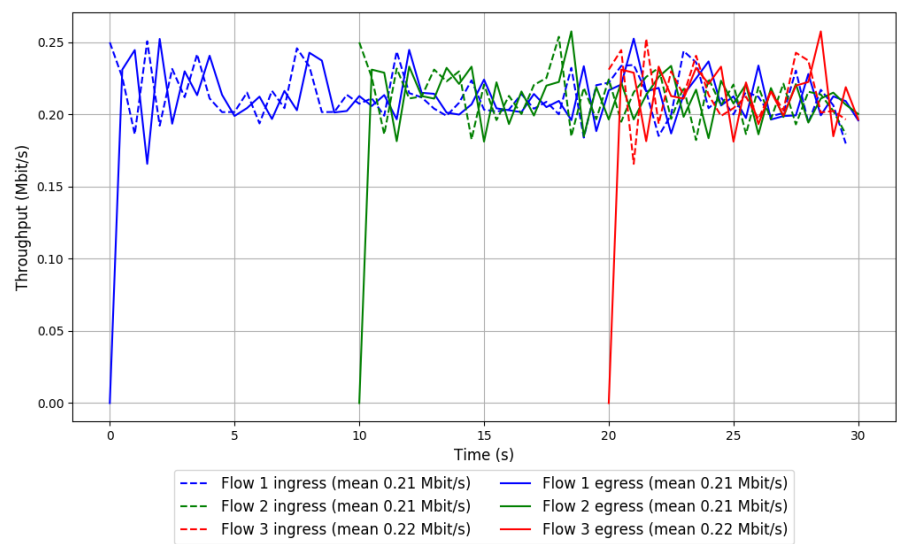


Run 4: Statistics of SReAM

Start at: 2018-09-11 04:16:40
End at: 2018-09-11 04:17:10
Local clock offset: -2.579 ms
Remote clock offset: 3.533 ms

Below is generated by plot.py at 2018-09-11 04:50:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.574 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.582 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.510 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.571 ms
Loss rate: 0.00%

Run 4: Report of SReAM — Data Link

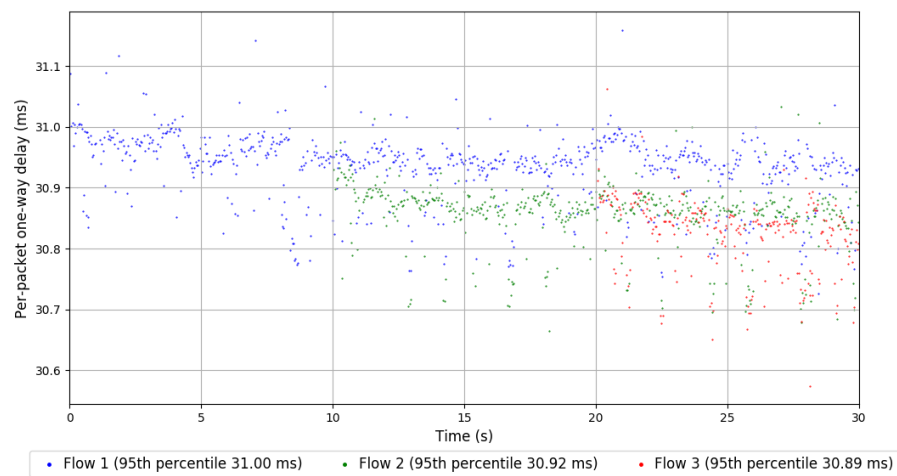
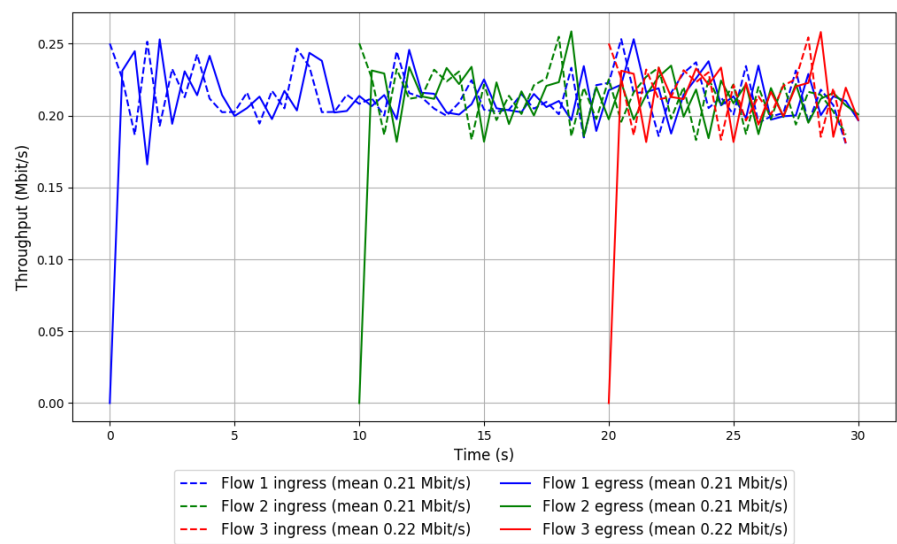


Run 5: Statistics of SReAM

Start at: 2018-09-11 04:41:10
End at: 2018-09-11 04:41:40
Local clock offset: -2.865 ms
Remote clock offset: 5.427 ms

Below is generated by plot.py at 2018-09-11 04:50:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.989 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.998 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.917 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.890 ms
Loss rate: 0.00%

Run 5: Report of SReAM — Data Link

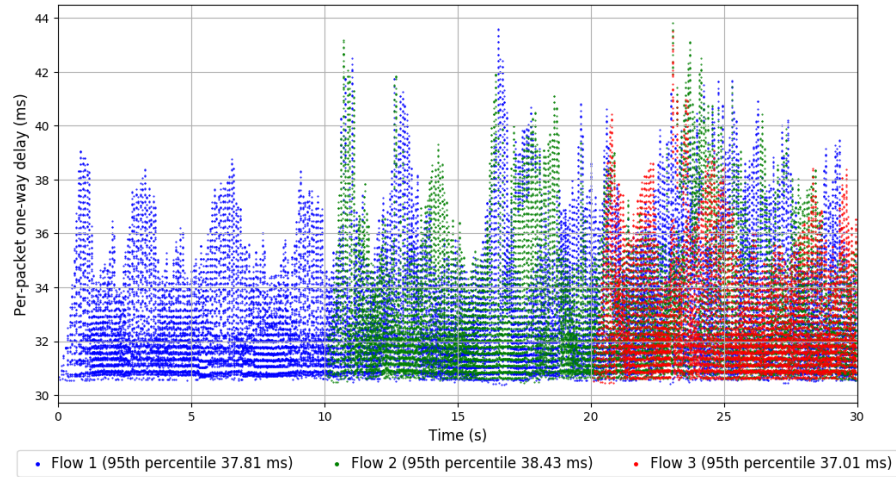
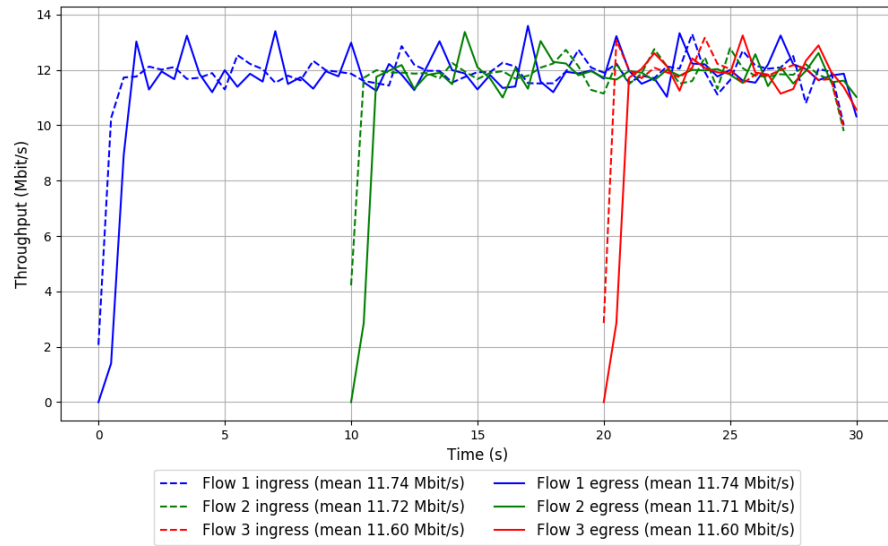


Run 1: Statistics of Sprout

Start at: 2018-09-11 02:46:41
End at: 2018-09-11 02:47:11
Local clock offset: -2.186 ms
Remote clock offset: -0.955 ms

Below is generated by plot.py at 2018-09-11 04:50:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 23.36 Mbit/s
95th percentile per-packet one-way delay: 37.913 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 11.74 Mbit/s
95th percentile per-packet one-way delay: 37.806 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 11.71 Mbit/s
95th percentile per-packet one-way delay: 38.430 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 11.60 Mbit/s
95th percentile per-packet one-way delay: 37.010 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

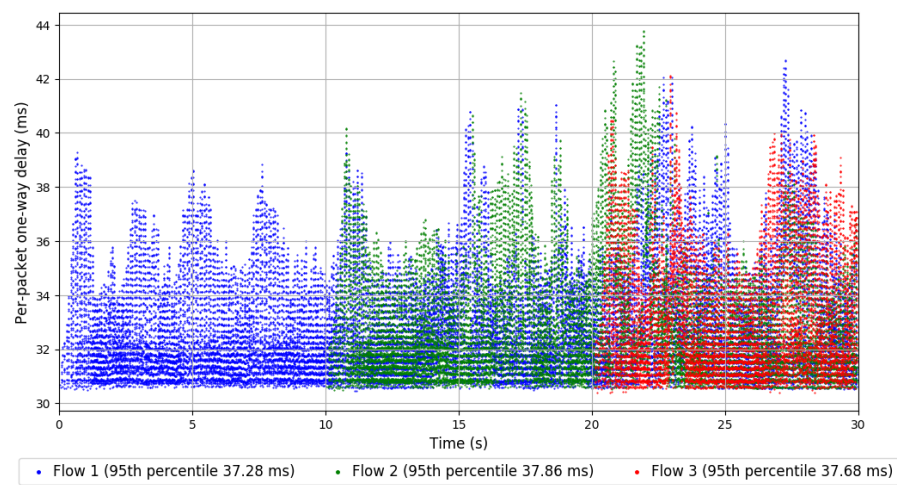
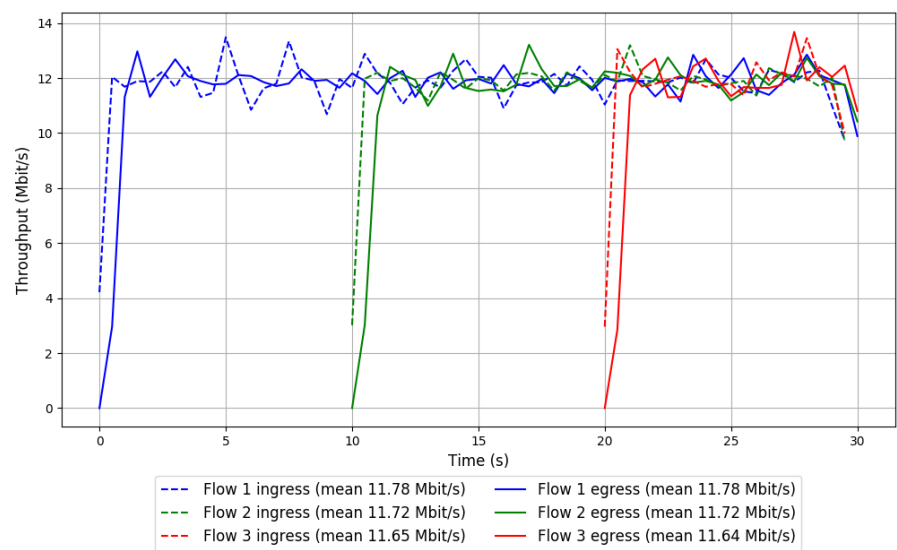


Run 2: Statistics of Sprout

Start at: 2018-09-11 03:11:16
End at: 2018-09-11 03:11:46
Local clock offset: -2.643 ms
Remote clock offset: -0.377 ms

Below is generated by plot.py at 2018-09-11 04:50:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 23.42 Mbit/s
95th percentile per-packet one-way delay: 37.570 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.78 Mbit/s
95th percentile per-packet one-way delay: 37.279 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.72 Mbit/s
95th percentile per-packet one-way delay: 37.864 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.64 Mbit/s
95th percentile per-packet one-way delay: 37.676 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

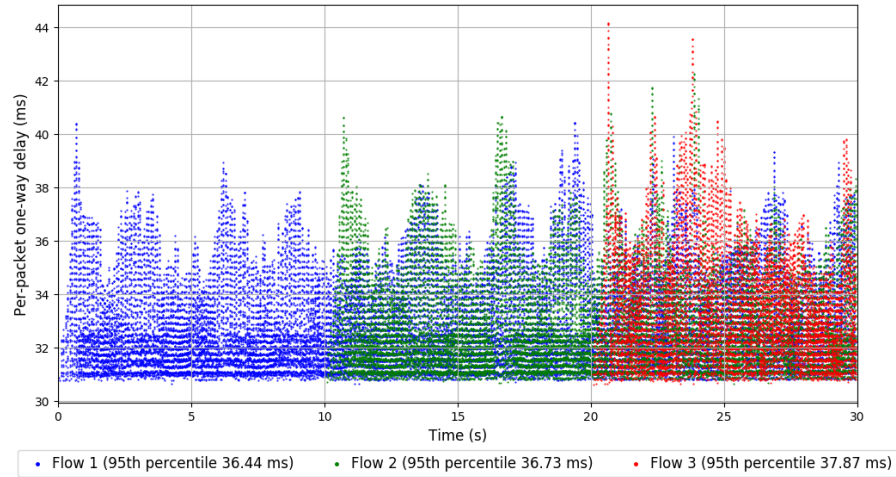
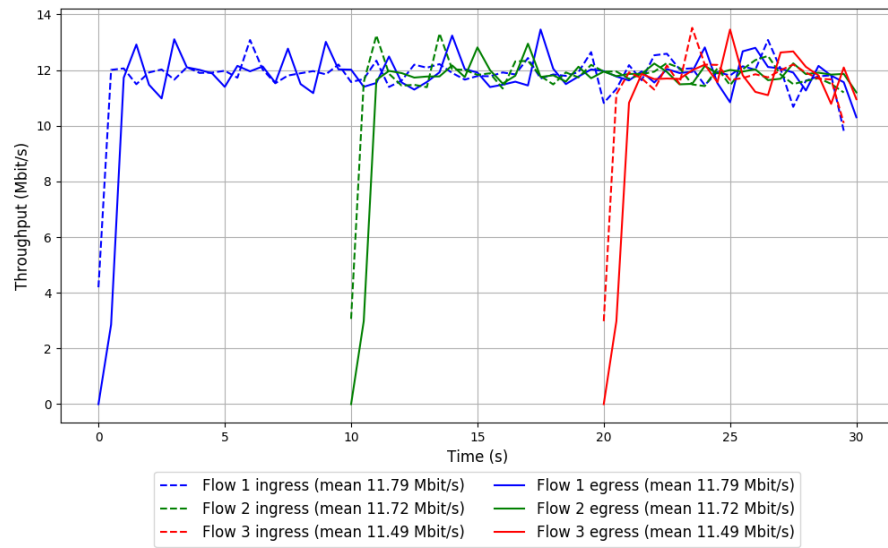


Run 3: Statistics of Sprout

Start at: 2018-09-11 03:35:44
End at: 2018-09-11 03:36:14
Local clock offset: -0.838 ms
Remote clock offset: 0.817 ms

```
# Below is generated by plot.py at 2018-09-11 04:50:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.37 Mbit/s
95th percentile per-packet one-way delay: 36.761 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.79 Mbit/s
95th percentile per-packet one-way delay: 36.435 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.72 Mbit/s
95th percentile per-packet one-way delay: 36.725 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.49 Mbit/s
95th percentile per-packet one-way delay: 37.865 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

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

End at: 2018-09-11 04:00:41

Local clock offset: 0.39 ms

Remote clock offset: 2.517 ms

Below is generated by plot.py at 2018-09-11 04:50:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 23.33 Mbit/s

95th percentile per-packet one-way delay: 36.442 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 11.79 Mbit/s

95th percentile per-packet one-way delay: 36.376 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 11.72 Mbit/s

95th percentile per-packet one-way delay: 36.470 ms

Loss rate: 0.00%

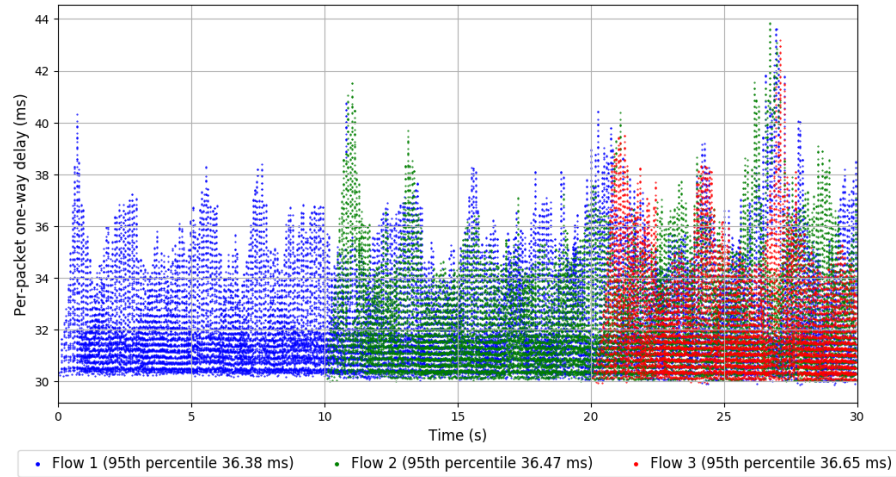
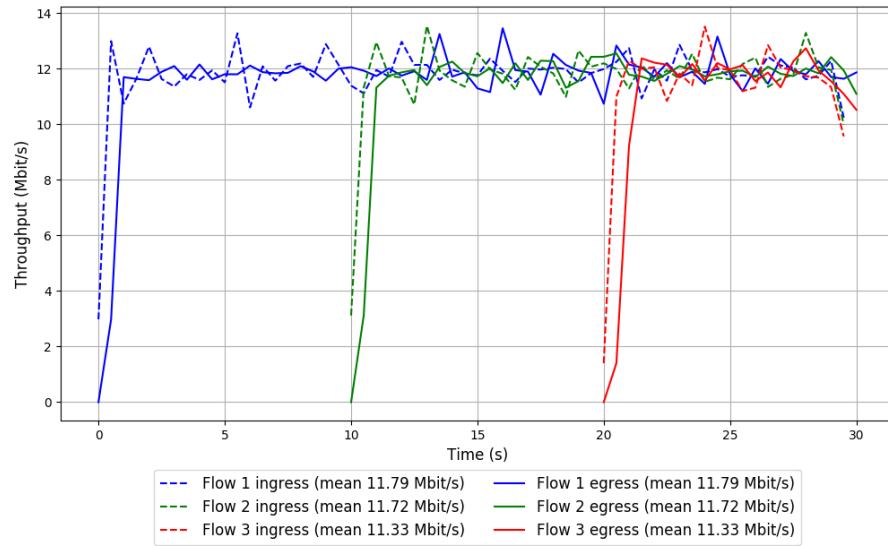
-- Flow 3:

Average throughput: 11.33 Mbit/s

95th percentile per-packet one-way delay: 36.649 ms

Loss rate: 0.00%

Run 4: Report of Sprout — Data Link

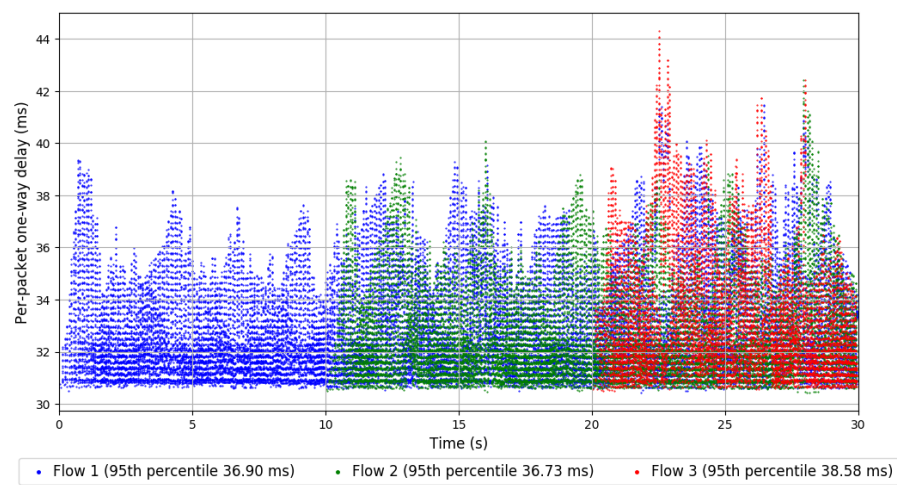
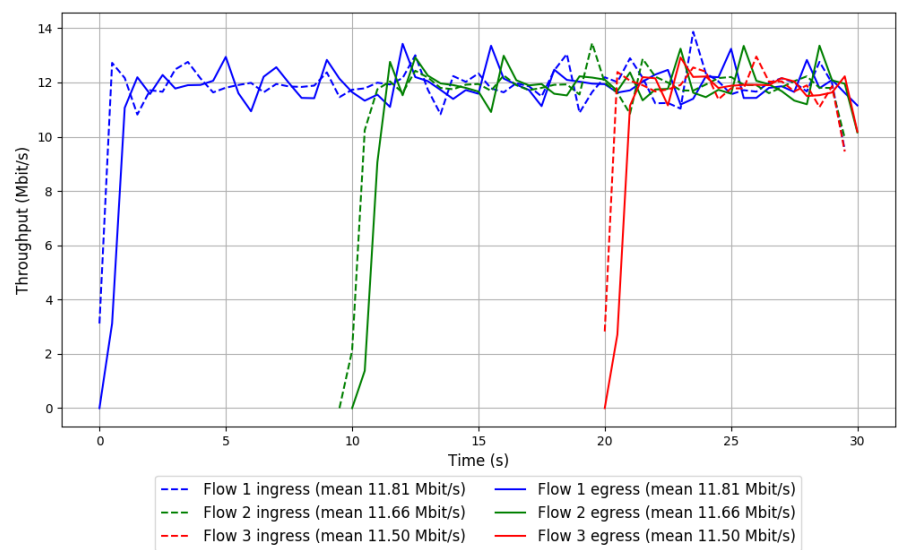


Run 5: Statistics of Sprout

Start at: 2018-09-11 04:24:46
End at: 2018-09-11 04:25:16
Local clock offset: -2.903 ms
Remote clock offset: 4.241 ms

```
# Below is generated by plot.py at 2018-09-11 04:50:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.37 Mbit/s
95th percentile per-packet one-way delay: 37.135 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.81 Mbit/s
95th percentile per-packet one-way delay: 36.895 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.66 Mbit/s
95th percentile per-packet one-way delay: 36.729 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.50 Mbit/s
95th percentile per-packet one-way delay: 38.577 ms
Loss rate: 0.00%
```

Run 5: Report of Sprout — Data Link

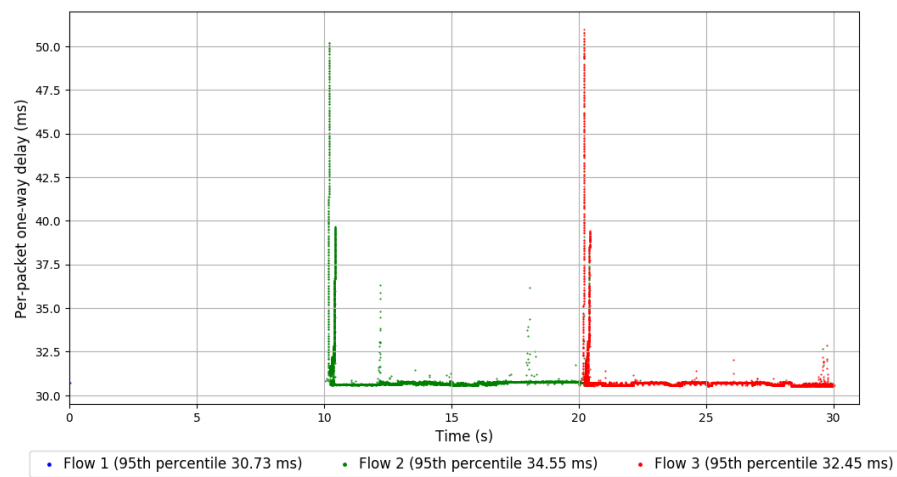
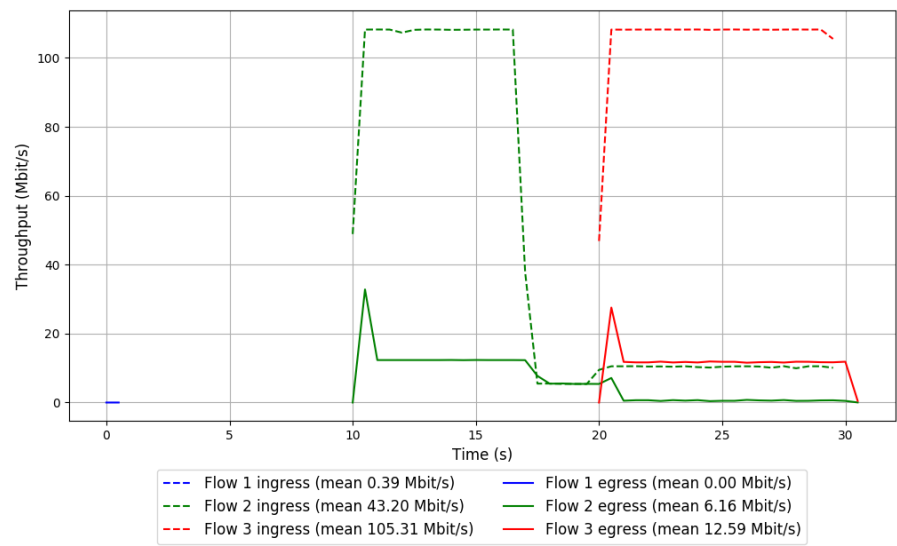


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-09-11 02:39:52
End at: 2018-09-11 02:40:22
Local clock offset: -1.552 ms
Remote clock offset: -0.972 ms

# Below is generated by plot.py at 2018-09-11 04:50:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 33.240 ms
Loss rate: 87.01%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.735 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 6.16 Mbit/s
95th percentile per-packet one-way delay: 34.545 ms
Loss rate: 85.74%
-- Flow 3:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 32.448 ms
Loss rate: 88.05%
```

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

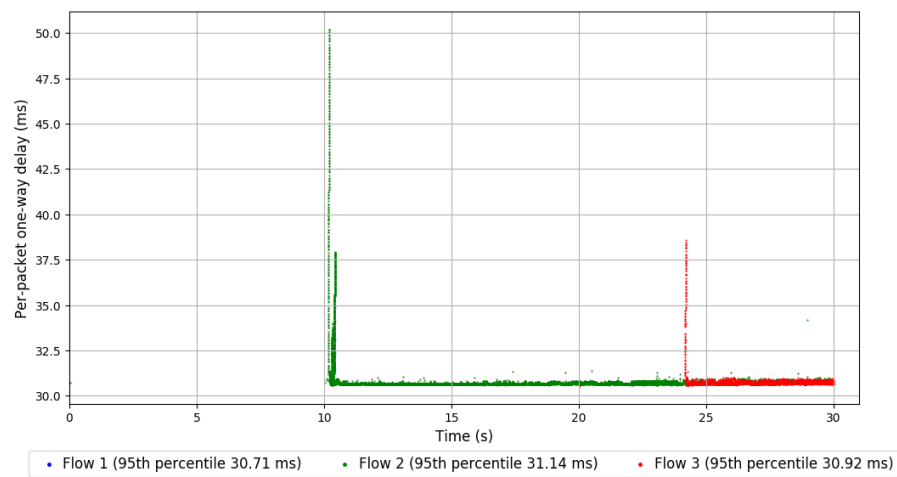
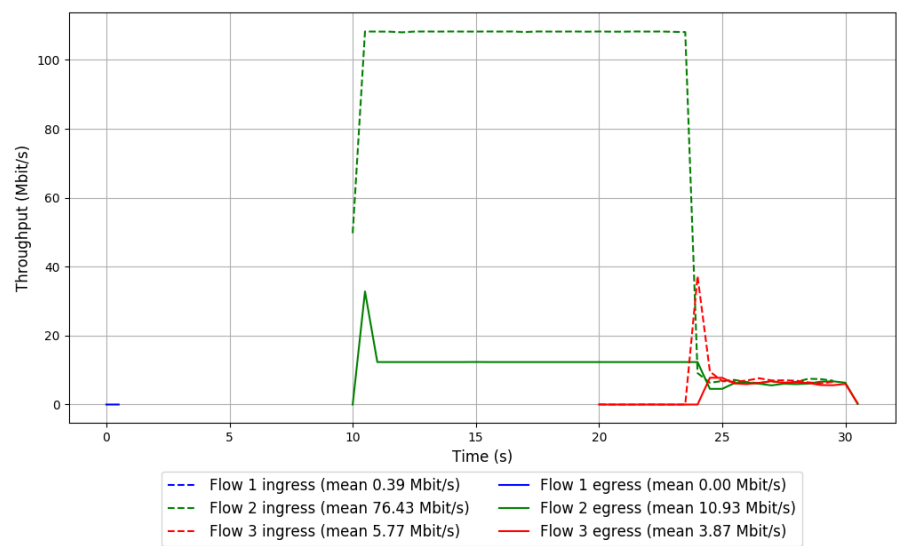


Run 2: Statistics of TaoVA-100x

Start at: 2018-09-11 03:04:22
End at: 2018-09-11 03:04:52
Local clock offset: -2.638 ms
Remote clock offset: -0.637 ms

Below is generated by plot.py at 2018-09-11 04:50:46
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 30.984 ms
Loss rate: 83.79%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.713 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 10.93 Mbit/s
95th percentile per-packet one-way delay: 31.138 ms
Loss rate: 85.70%
-- Flow 3:
Average throughput: 3.87 Mbit/s
95th percentile per-packet one-way delay: 30.918 ms
Loss rate: 32.94%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-11 03:28:54

End at: 2018-09-11 03:29:24

Local clock offset: -2.541 ms

Remote clock offset: 0.491 ms

Below is generated by plot.py at 2018-09-11 04:50:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.57 Mbit/s

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

Loss rate: 79.69%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 30.895 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 7.06 Mbit/s

95th percentile per-packet one-way delay: 32.322 ms

Loss rate: 83.25%

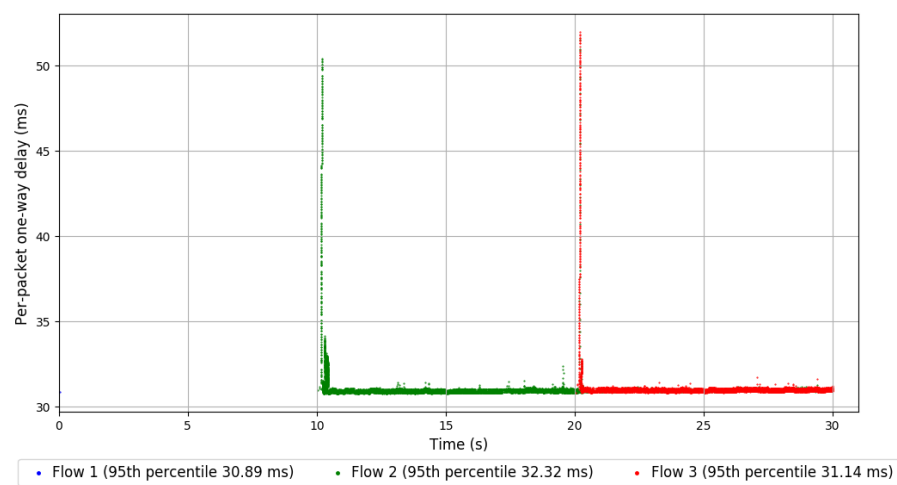
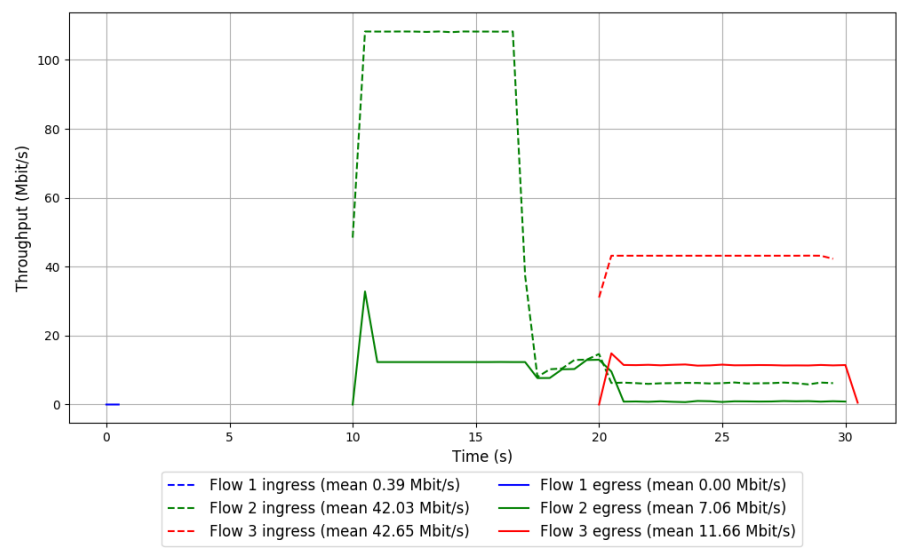
-- Flow 3:

Average throughput: 11.66 Mbit/s

95th percentile per-packet one-way delay: 31.140 ms

Loss rate: 72.65%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-11 03:53:22

End at: 2018-09-11 03:53:52

Local clock offset: 0.853 ms

Remote clock offset: 2.223 ms

Below is generated by plot.py at 2018-09-11 04:50:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.57 Mbit/s

95th percentile per-packet one-way delay: 31.131 ms

Loss rate: 83.78%

-- Flow 1:

Average throughput: 0.00 Mbit/s

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

Loss rate: 95.92%

-- Flow 2:

Average throughput: 10.83 Mbit/s

95th percentile per-packet one-way delay: 31.339 ms

Loss rate: 85.81%

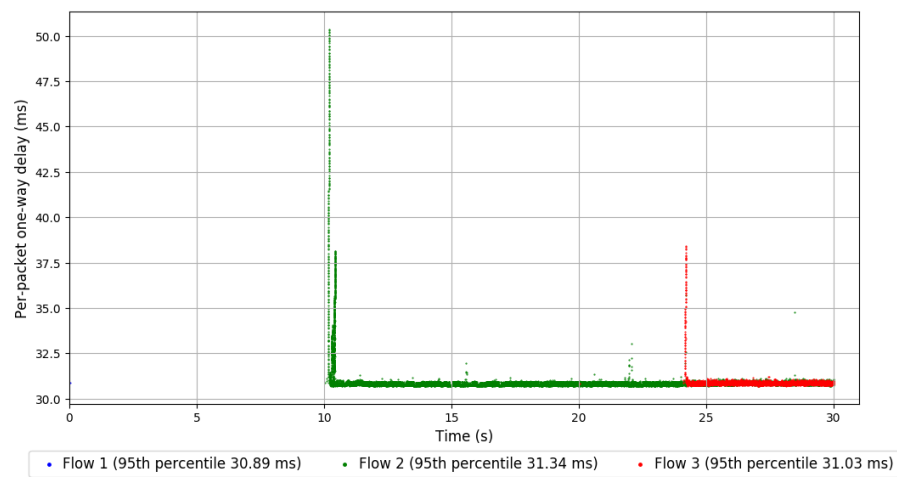
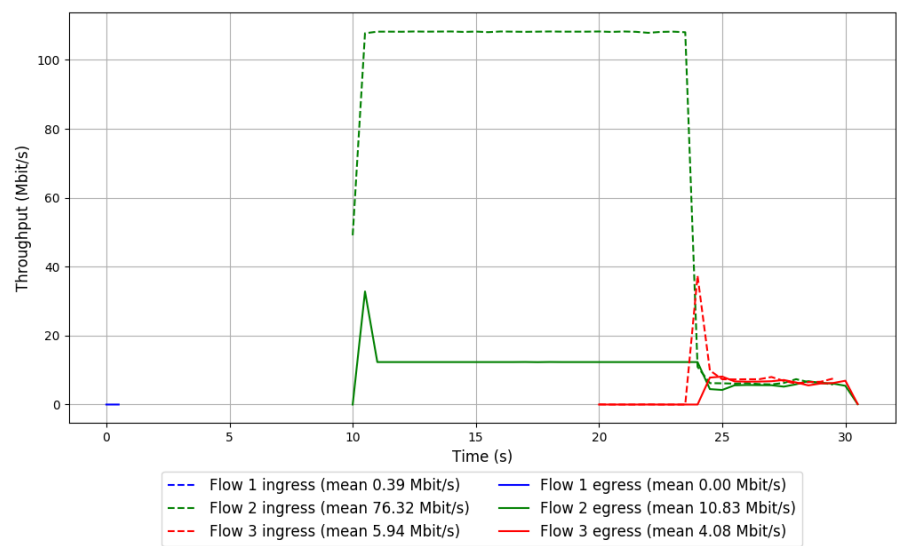
-- Flow 3:

Average throughput: 4.08 Mbit/s

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

Loss rate: 31.34%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-11 04:17:58

End at: 2018-09-11 04:18:28

Local clock offset: -2.656 ms

Remote clock offset: 3.79 ms

Below is generated by plot.py at 2018-09-11 04:50:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.57 Mbit/s

95th percentile per-packet one-way delay: 31.672 ms

Loss rate: 79.70%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 30.745 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 7.05 Mbit/s

95th percentile per-packet one-way delay: 32.652 ms

Loss rate: 83.25%

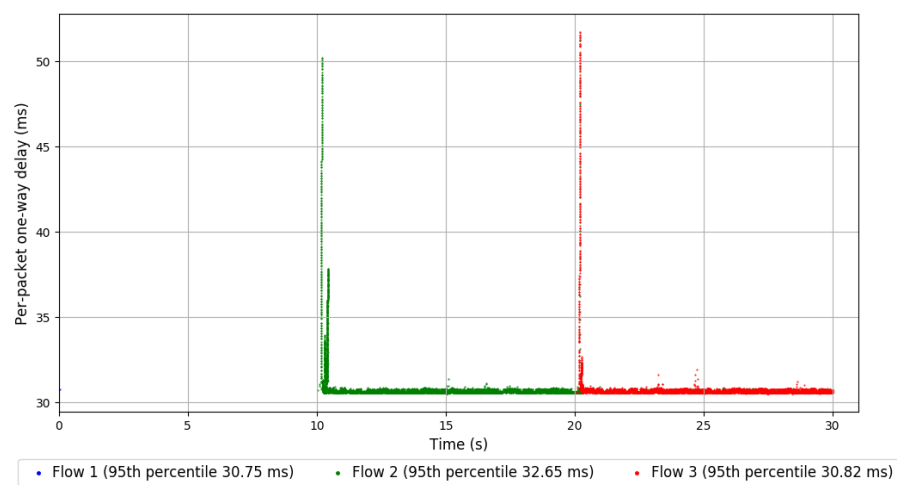
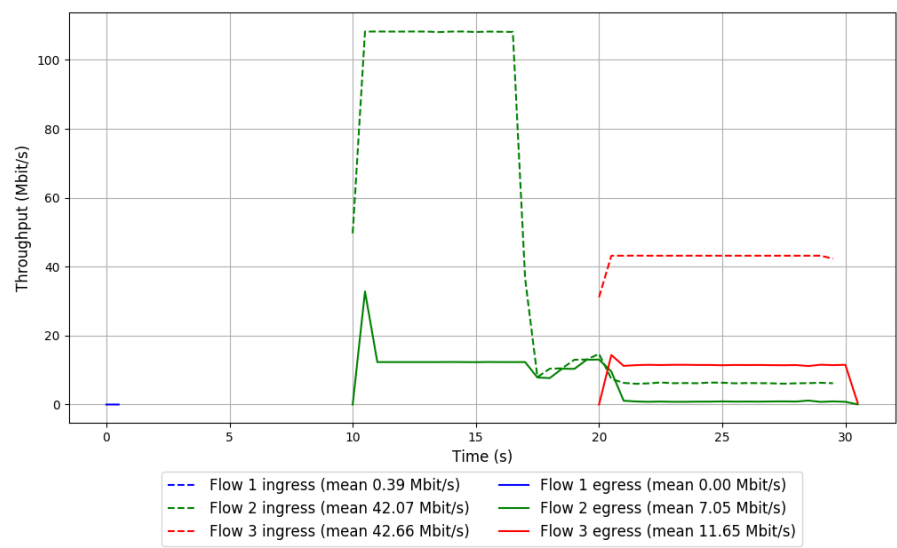
-- Flow 3:

Average throughput: 11.65 Mbit/s

95th percentile per-packet one-way delay: 30.825 ms

Loss rate: 72.69%

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

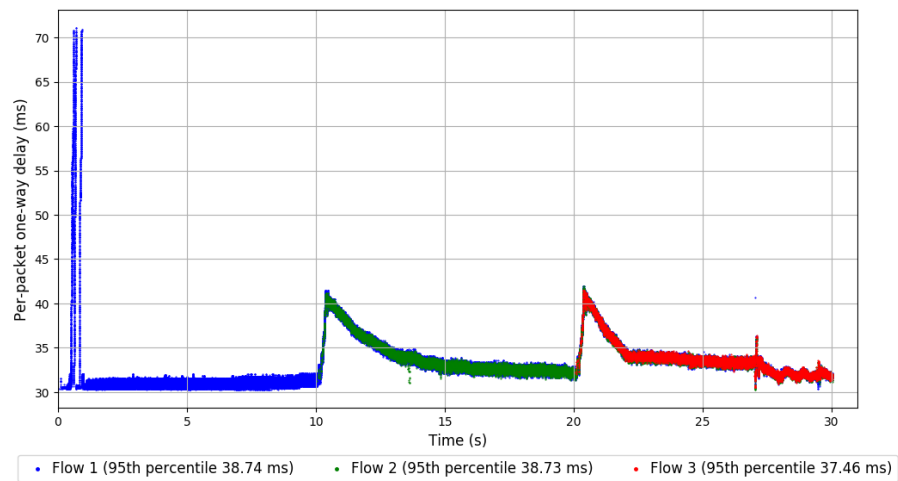
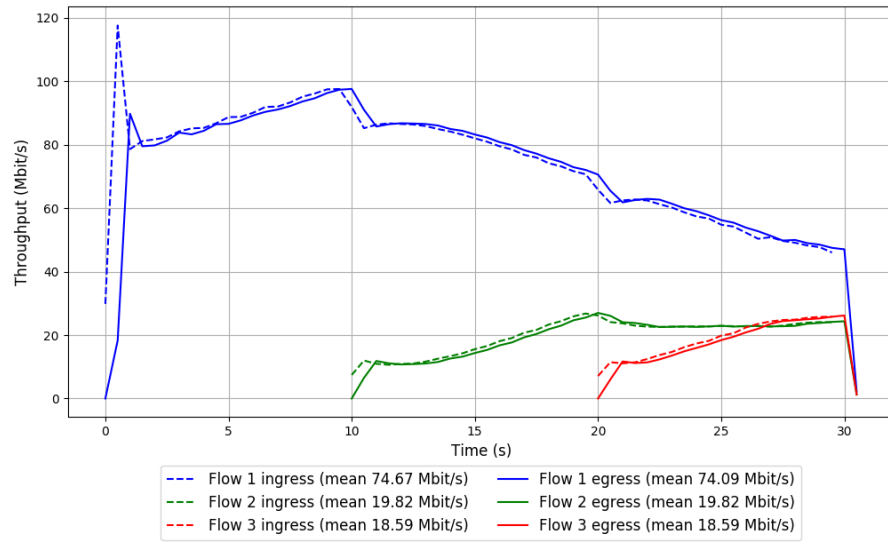


Run 1: Statistics of TCP Vegas

Start at: 2018-09-11 02:41:11
End at: 2018-09-11 02:41:41
Local clock offset: -1.655 ms
Remote clock offset: -1.163 ms

Below is generated by plot.py at 2018-09-11 04:51:44
Datalink statistics
-- Total of 3 flows:
Average throughput: 93.48 Mbit/s
95th percentile per-packet one-way delay: 38.699 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 74.09 Mbit/s
95th percentile per-packet one-way delay: 38.743 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 19.82 Mbit/s
95th percentile per-packet one-way delay: 38.725 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.59 Mbit/s
95th percentile per-packet one-way delay: 37.459 ms
Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link

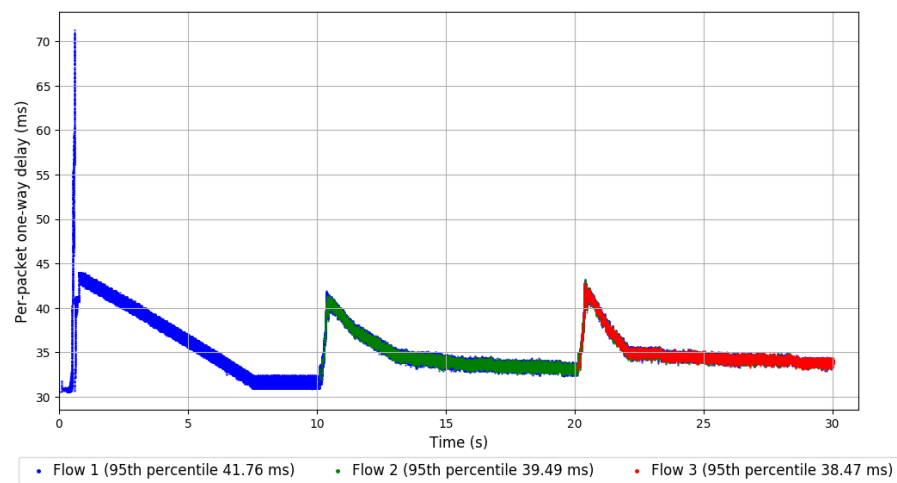
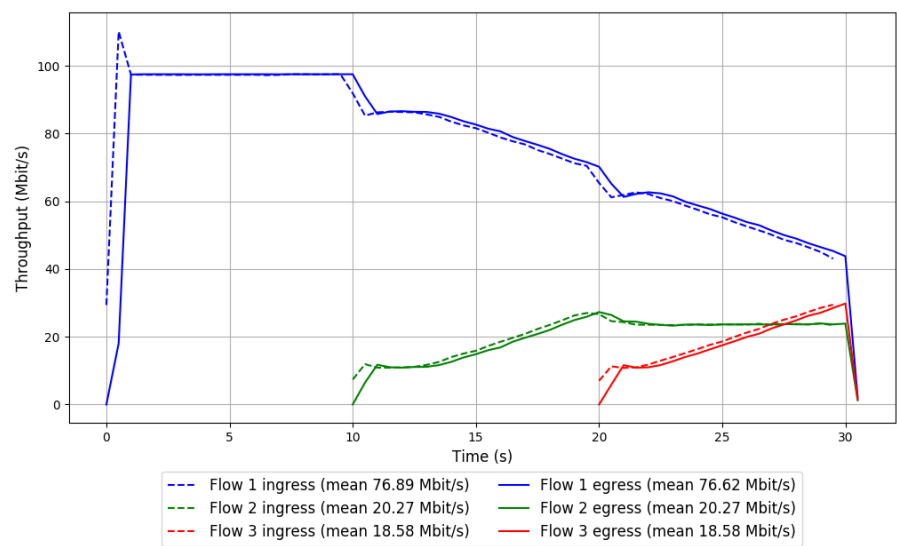


Run 2: Statistics of TCP Vegas

Start at: 2018-09-11 03:05:42
End at: 2018-09-11 03:06:12
Local clock offset: -2.747 ms
Remote clock offset: -0.745 ms

Below is generated by plot.py at 2018-09-11 04:51:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.30 Mbit/s
95th percentile per-packet one-way delay: 41.455 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 76.62 Mbit/s
95th percentile per-packet one-way delay: 41.759 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 20.27 Mbit/s
95th percentile per-packet one-way delay: 39.487 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.58 Mbit/s
95th percentile per-packet one-way delay: 38.471 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

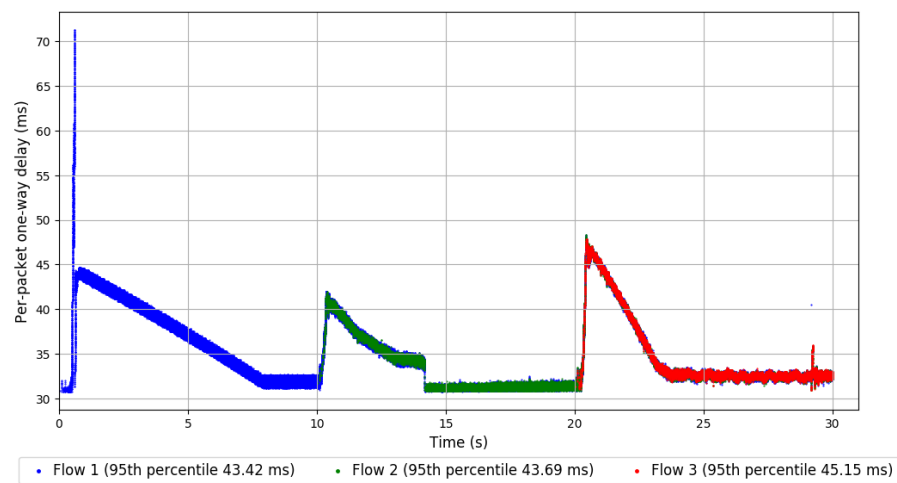
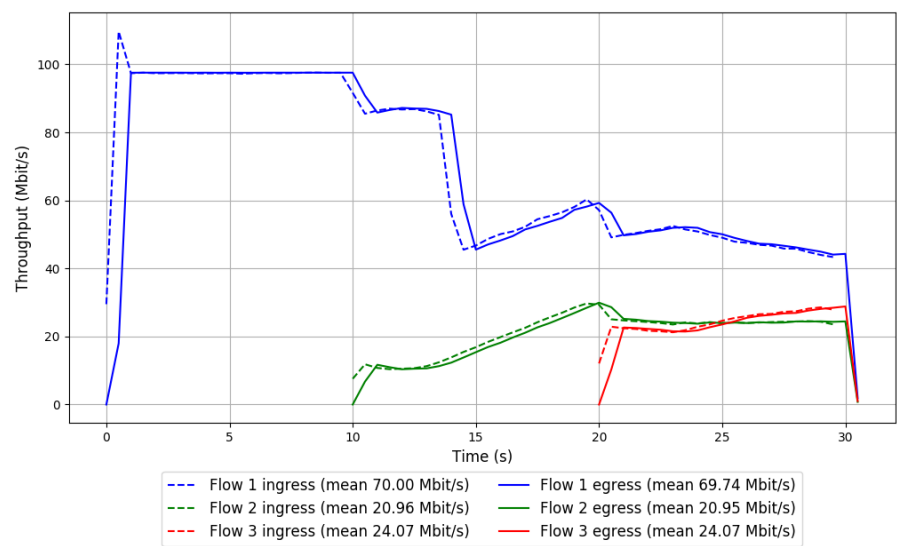


Run 3: Statistics of TCP Vegas

Start at: 2018-09-11 03:30:13
End at: 2018-09-11 03:30:43
Local clock offset: -2.161 ms
Remote clock offset: 0.564 ms

Below is generated by plot.py at 2018-09-11 04:51:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.73 Mbit/s
95th percentile per-packet one-way delay: 43.589 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 69.74 Mbit/s
95th percentile per-packet one-way delay: 43.422 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 20.95 Mbit/s
95th percentile per-packet one-way delay: 43.694 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.07 Mbit/s
95th percentile per-packet one-way delay: 45.146 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-11 03:54:41

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

Local clock offset: 0.911 ms

Remote clock offset: 2.181 ms

Below is generated by plot.py at 2018-09-11 04:51:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.30 Mbit/s

95th percentile per-packet one-way delay: 41.443 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 76.73 Mbit/s

95th percentile per-packet one-way delay: 41.775 ms

Loss rate: 0.34%

-- Flow 2:

Average throughput: 19.68 Mbit/s

95th percentile per-packet one-way delay: 39.332 ms

Loss rate: 0.00%

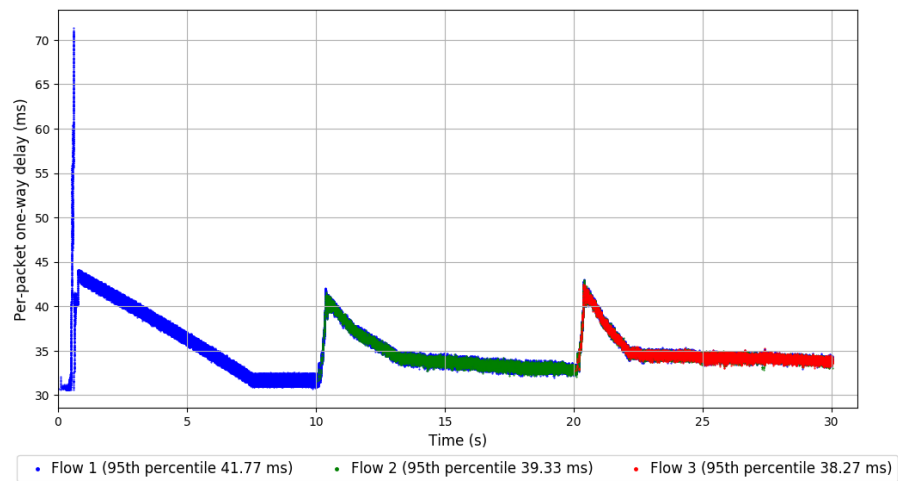
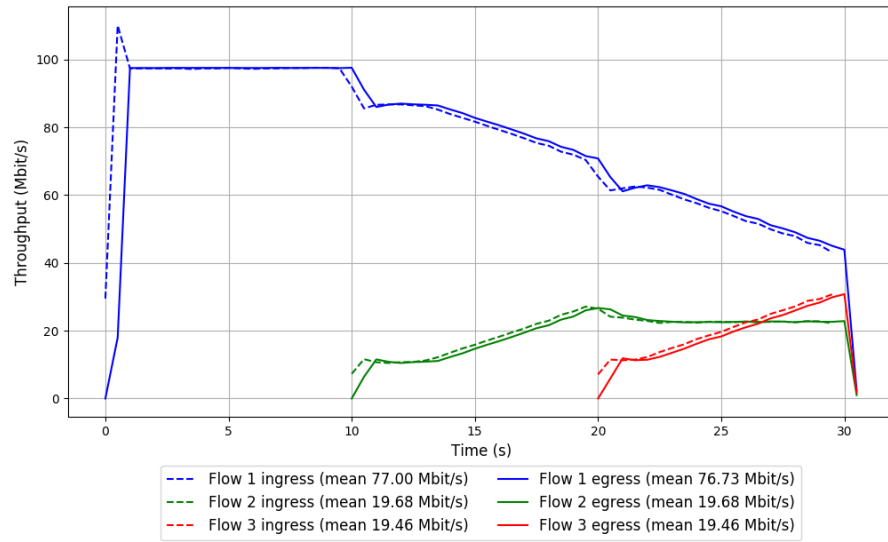
-- Flow 3:

Average throughput: 19.46 Mbit/s

95th percentile per-packet one-way delay: 38.268 ms

Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-11 04:19:17

End at: 2018-09-11 04:19:47

Local clock offset: -2.714 ms

Remote clock offset: 3.898 ms

Below is generated by plot.py at 2018-09-11 04:51:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.94 Mbit/s

95th percentile per-packet one-way delay: 39.105 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 74.33 Mbit/s

95th percentile per-packet one-way delay: 39.110 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 19.96 Mbit/s

95th percentile per-packet one-way delay: 39.318 ms

Loss rate: 0.00%

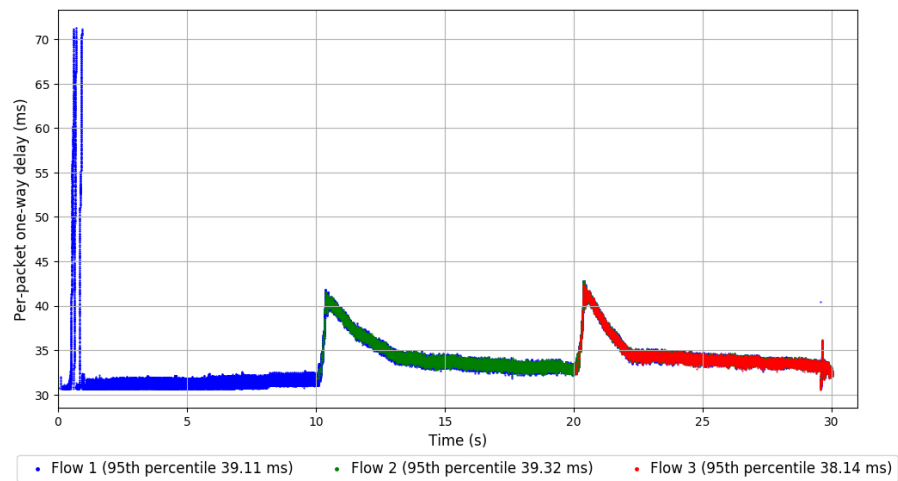
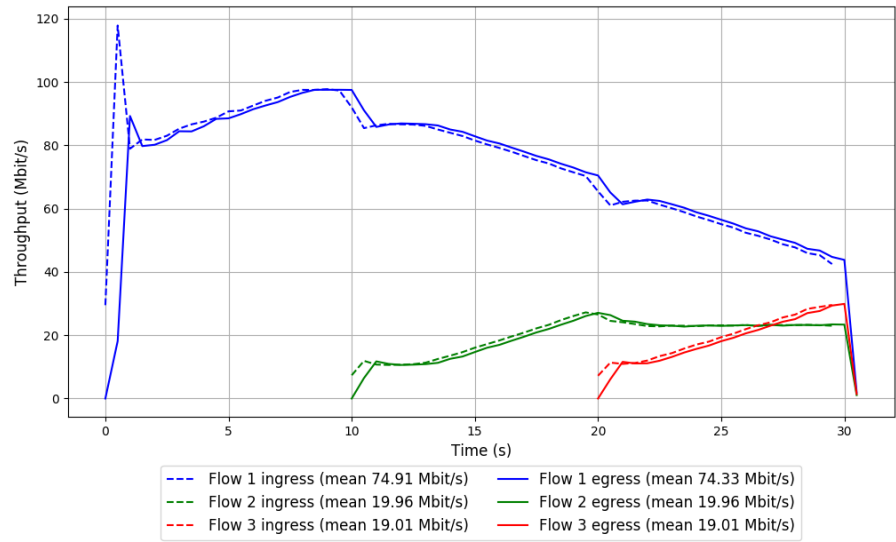
-- Flow 3:

Average throughput: 19.01 Mbit/s

95th percentile per-packet one-way delay: 38.142 ms

Loss rate: 0.00%

Run 5: Report of TCP Vegas — Data Link

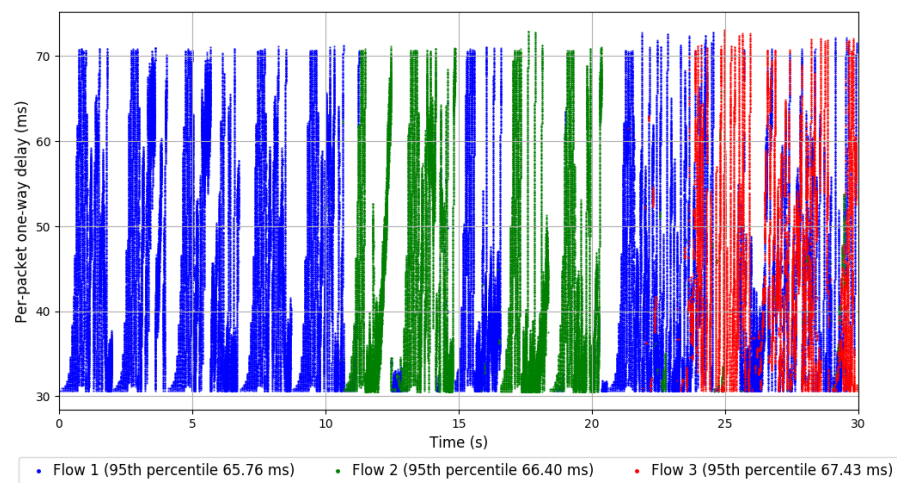
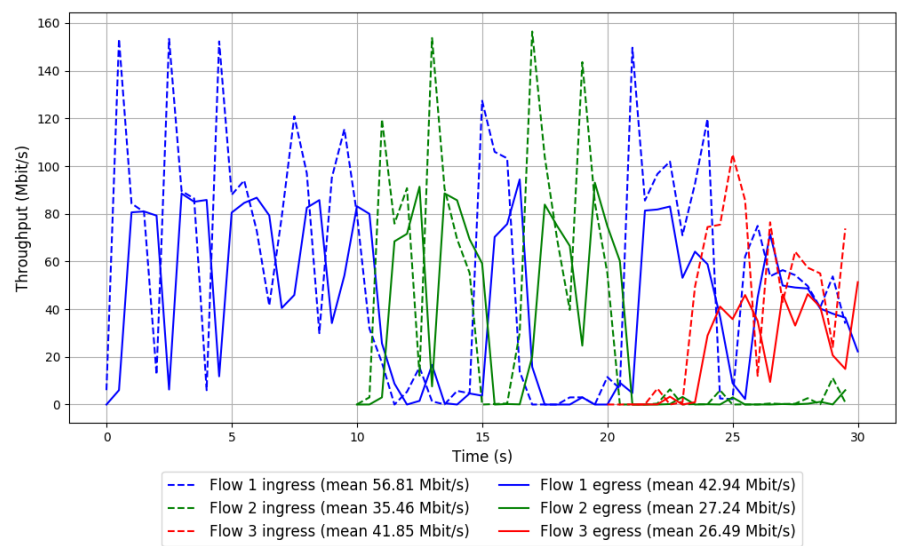


Run 1: Statistics of Verus

Start at: 2018-09-11 02:45:18
End at: 2018-09-11 02:45:48
Local clock offset: -2.163 ms
Remote clock offset: -0.987 ms

Below is generated by plot.py at 2018-09-11 04:51:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 68.22 Mbit/s
95th percentile per-packet one-way delay: 66.161 ms
Loss rate: 26.93%
-- Flow 1:
Average throughput: 42.94 Mbit/s
95th percentile per-packet one-way delay: 65.762 ms
Loss rate: 24.41%
-- Flow 2:
Average throughput: 27.24 Mbit/s
95th percentile per-packet one-way delay: 66.404 ms
Loss rate: 23.50%
-- Flow 3:
Average throughput: 26.49 Mbit/s
95th percentile per-packet one-way delay: 67.428 ms
Loss rate: 43.49%

Run 1: Report of Verus — Data Link

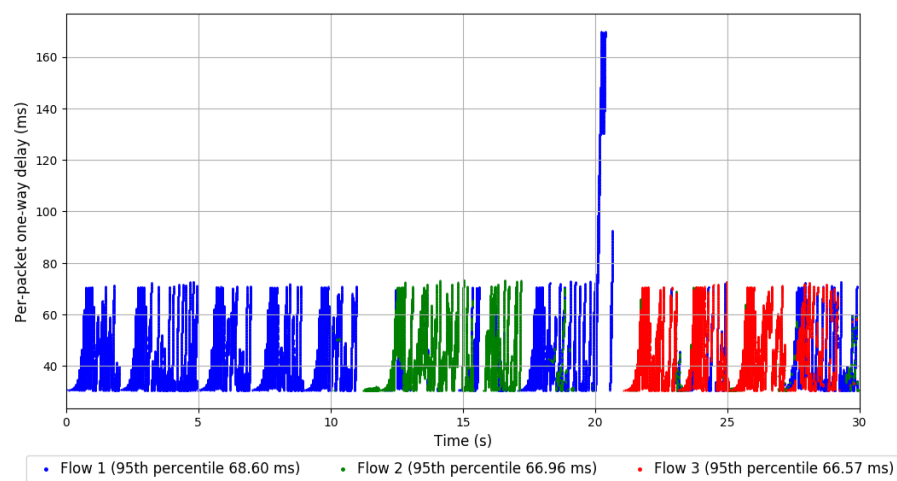
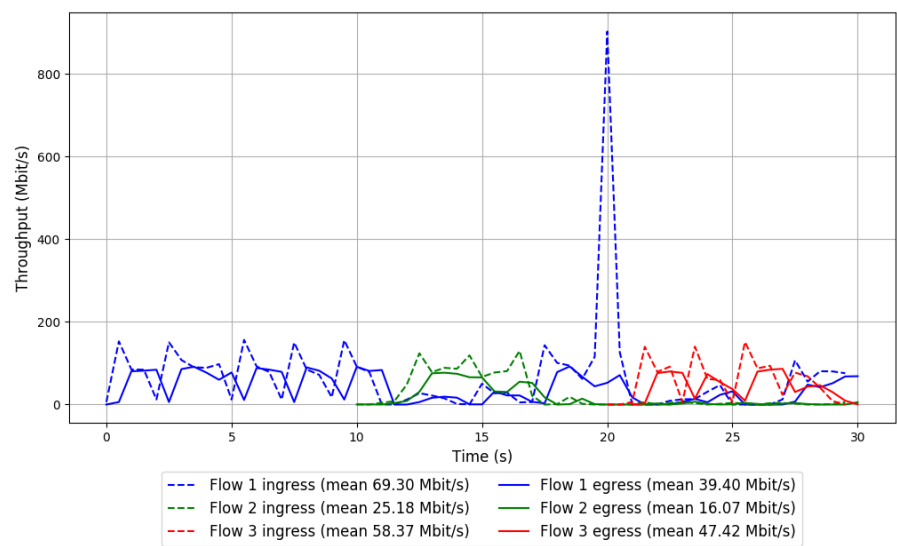


Run 2: Statistics of Verus

Start at: 2018-09-11 03:09:49
End at: 2018-09-11 03:10:19
Local clock offset: -2.649 ms
Remote clock offset: -0.467 ms

Below is generated by plot.py at 2018-09-11 04:51:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 64.01 Mbit/s
95th percentile per-packet one-way delay: 67.808 ms
Loss rate: 39.09%
-- Flow 1:
Average throughput: 39.40 Mbit/s
95th percentile per-packet one-way delay: 68.604 ms
Loss rate: 43.15%
-- Flow 2:
Average throughput: 16.07 Mbit/s
95th percentile per-packet one-way delay: 66.959 ms
Loss rate: 36.25%
-- Flow 3:
Average throughput: 47.42 Mbit/s
95th percentile per-packet one-way delay: 66.574 ms
Loss rate: 26.83%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-11 03:34:21

End at: 2018-09-11 03:34:51

Local clock offset: -1.153 ms

Remote clock offset: 0.724 ms

Below is generated by plot.py at 2018-09-11 04:51:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 69.52 Mbit/s

95th percentile per-packet one-way delay: 66.050 ms

Loss rate: 25.47%

-- Flow 1:

Average throughput: 51.81 Mbit/s

95th percentile per-packet one-way delay: 66.290 ms

Loss rate: 25.88%

-- Flow 2:

Average throughput: 25.06 Mbit/s

95th percentile per-packet one-way delay: 65.289 ms

Loss rate: 24.85%

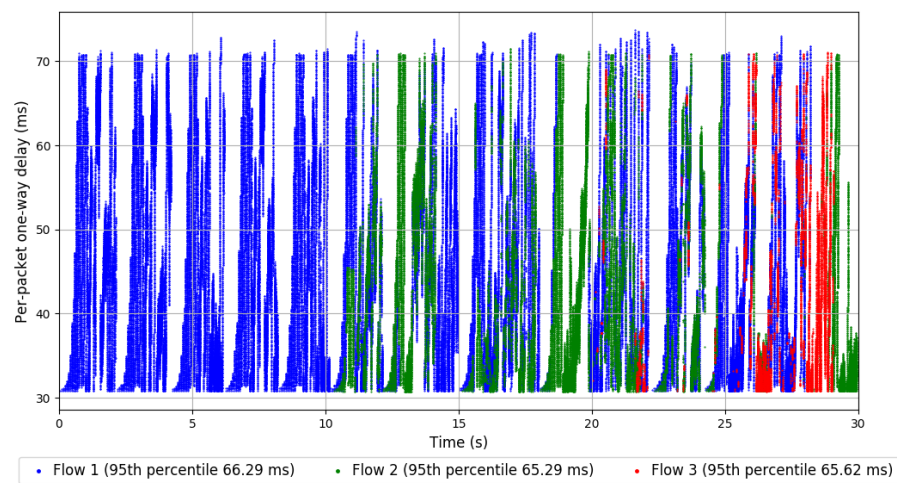
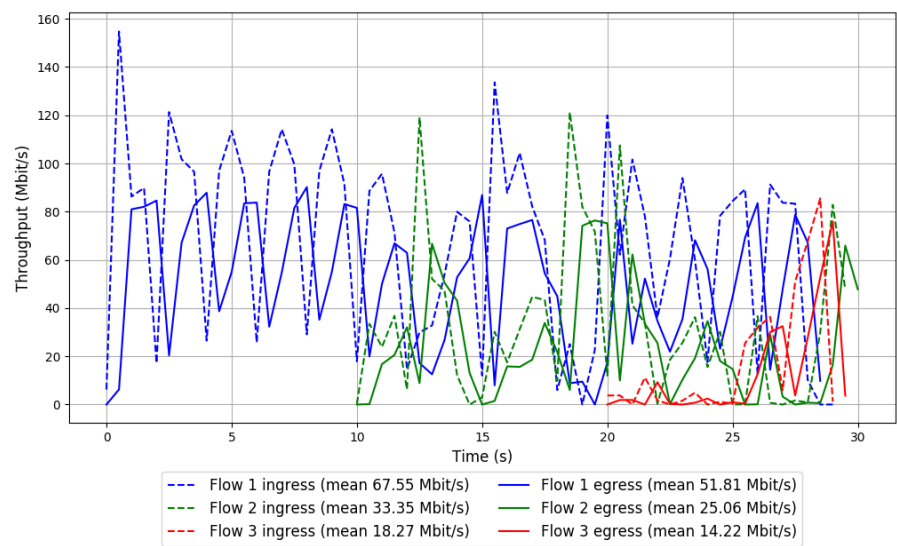
-- Flow 3:

Average throughput: 14.22 Mbit/s

95th percentile per-packet one-way delay: 65.618 ms

Loss rate: 23.06%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-09-11 03:58:48

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

Local clock offset: 0.926 ms

Remote clock offset: 2.589 ms

Below is generated by plot.py at 2018-09-11 04:52:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 65.99 Mbit/s

95th percentile per-packet one-way delay: 66.440 ms

Loss rate: 36.38%

-- Flow 1:

Average throughput: 39.56 Mbit/s

95th percentile per-packet one-way delay: 66.140 ms

Loss rate: 31.12%

-- Flow 2:

Average throughput: 22.24 Mbit/s

95th percentile per-packet one-way delay: 66.364 ms

Loss rate: 29.27%

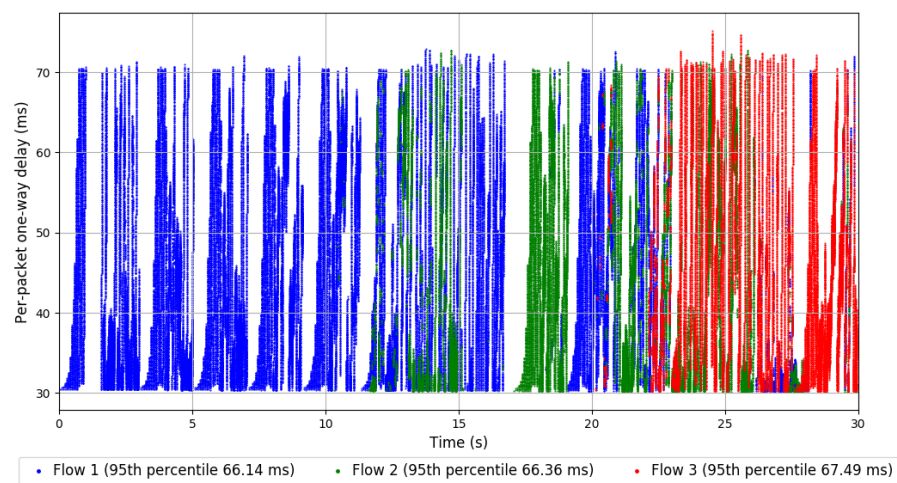
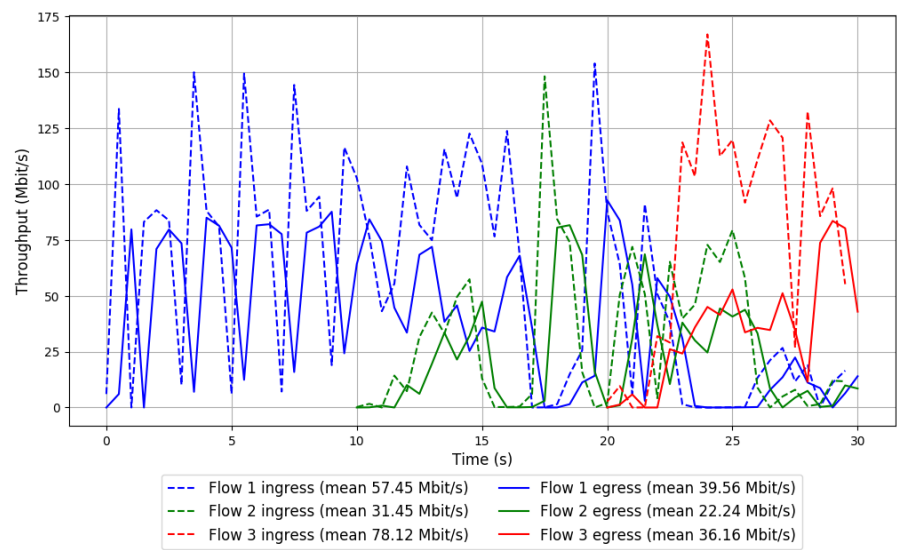
-- Flow 3:

Average throughput: 36.16 Mbit/s

95th percentile per-packet one-way delay: 67.487 ms

Loss rate: 53.77%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-11 04:23:23

End at: 2018-09-11 04:23:53

Local clock offset: -2.852 ms

Remote clock offset: 4.072 ms

Below is generated by plot.py at 2018-09-11 04:52:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 63.72 Mbit/s

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

Loss rate: 39.44%

-- Flow 1:

Average throughput: 42.36 Mbit/s

95th percentile per-packet one-way delay: 66.106 ms

Loss rate: 32.02%

-- Flow 2:

Average throughput: 22.88 Mbit/s

95th percentile per-packet one-way delay: 67.748 ms

Loss rate: 51.90%

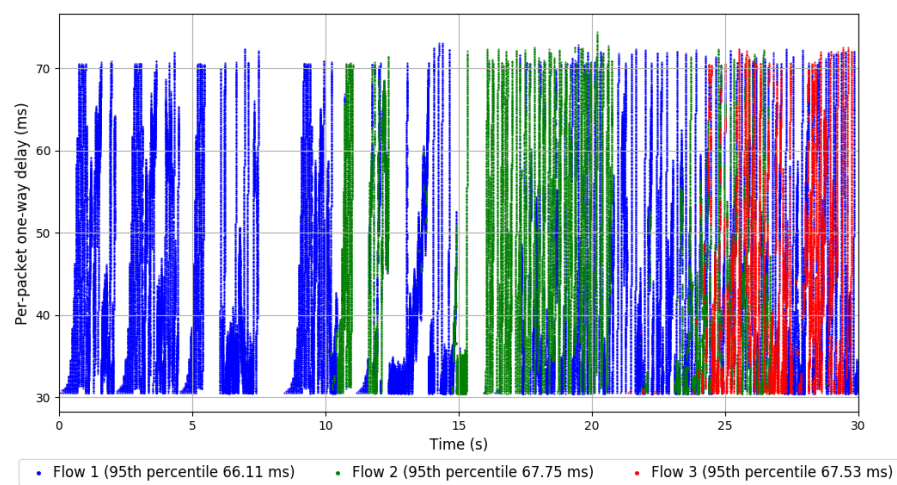
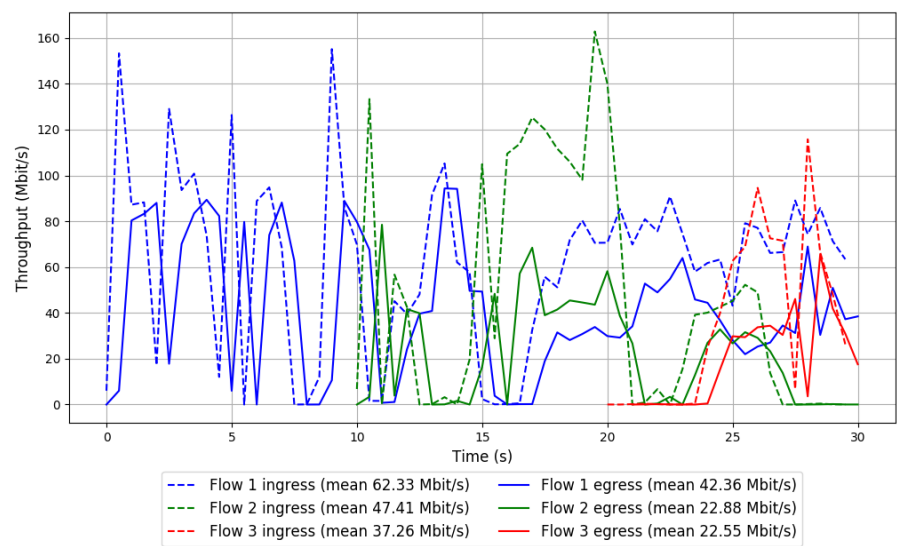
-- Flow 3:

Average throughput: 22.55 Mbit/s

95th percentile per-packet one-way delay: 67.527 ms

Loss rate: 45.76%

Run 5: Report of Verus — Data Link

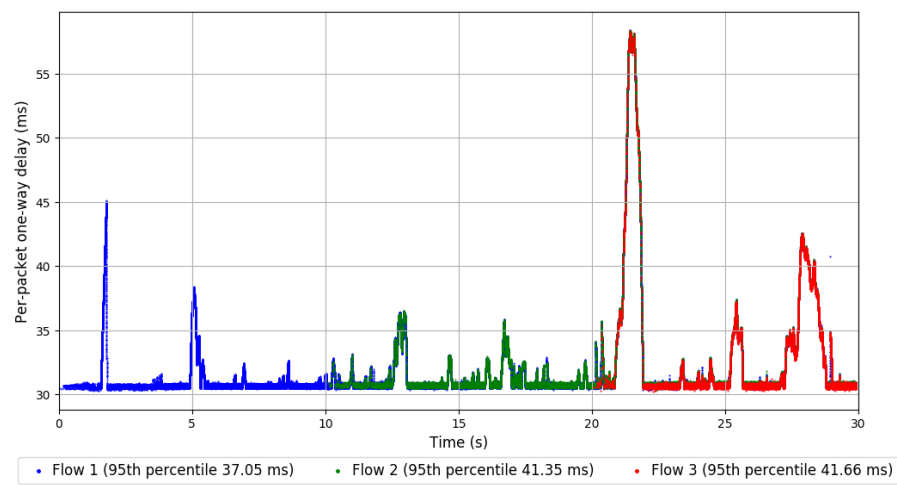
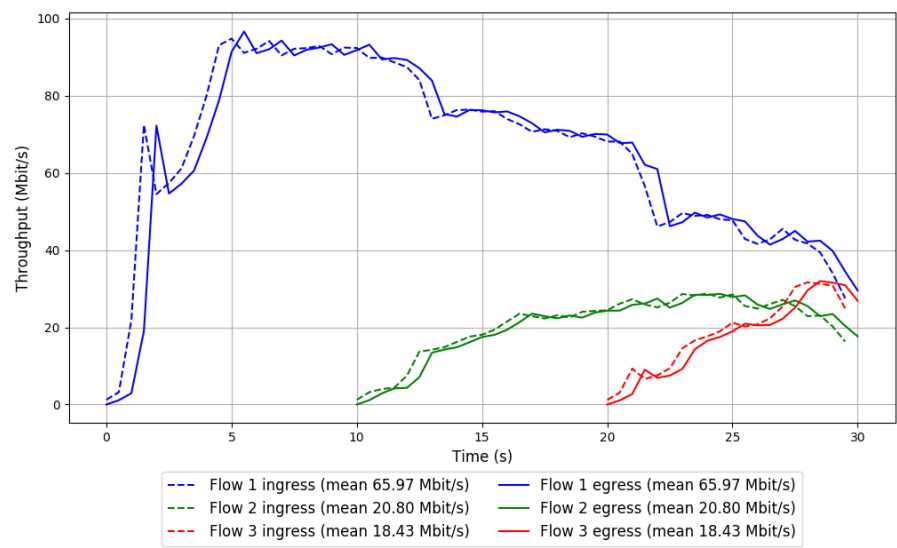


Run 1: Statistics of PCC-Vivace

Start at: 2018-09-11 03:00:22
End at: 2018-09-11 03:00:52
Local clock offset: -2.657 ms
Remote clock offset: -0.903 ms

Below is generated by plot.py at 2018-09-11 04:52:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 85.90 Mbit/s
95th percentile per-packet one-way delay: 38.657 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 65.97 Mbit/s
95th percentile per-packet one-way delay: 37.050 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 20.80 Mbit/s
95th percentile per-packet one-way delay: 41.350 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.43 Mbit/s
95th percentile per-packet one-way delay: 41.658 ms
Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-11 03:24:52

End at: 2018-09-11 03:25:22

Local clock offset: -2.815 ms

Remote clock offset: 0.258 ms

Below is generated by plot.py at 2018-09-11 04:52:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.50 Mbit/s

95th percentile per-packet one-way delay: 41.742 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 62.93 Mbit/s

95th percentile per-packet one-way delay: 42.836 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 24.23 Mbit/s

95th percentile per-packet one-way delay: 44.800 ms

Loss rate: 0.00%

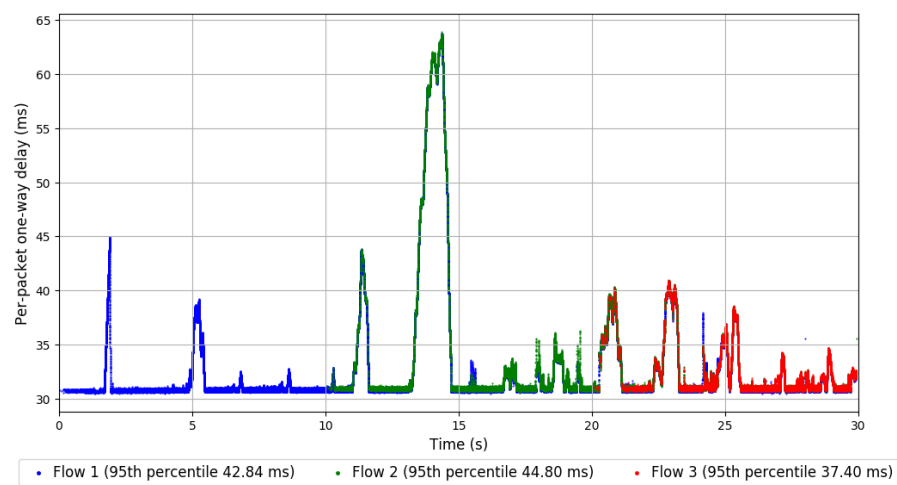
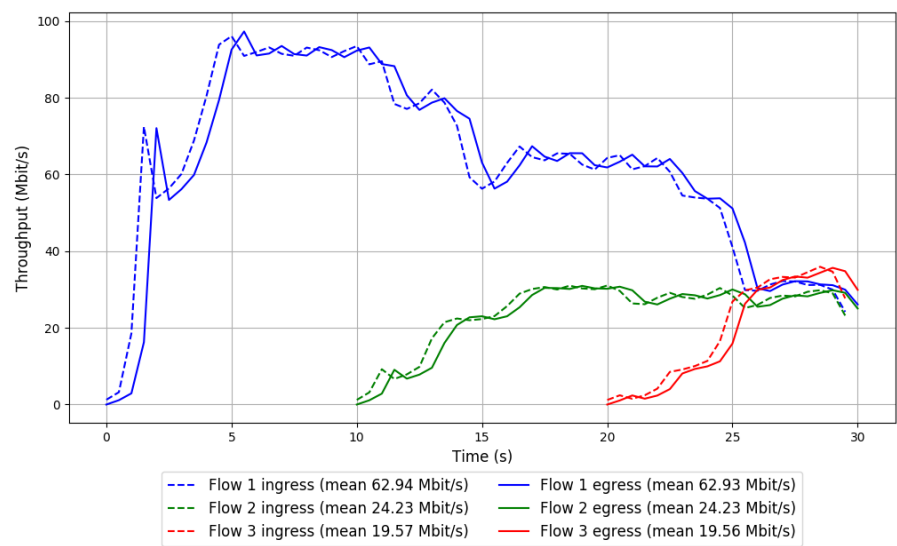
-- Flow 3:

Average throughput: 19.56 Mbit/s

95th percentile per-packet one-way delay: 37.396 ms

Loss rate: 0.01%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-11 03:49:21

End at: 2018-09-11 03:49:51

Local clock offset: 0.612 ms

Remote clock offset: 1.651 ms

Below is generated by plot.py at 2018-09-11 04:52:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 84.17 Mbit/s

95th percentile per-packet one-way delay: 48.992 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 58.38 Mbit/s

95th percentile per-packet one-way delay: 48.703 ms

Loss rate: 0.28%

-- Flow 2:

Average throughput: 32.70 Mbit/s

95th percentile per-packet one-way delay: 54.722 ms

Loss rate: 0.38%

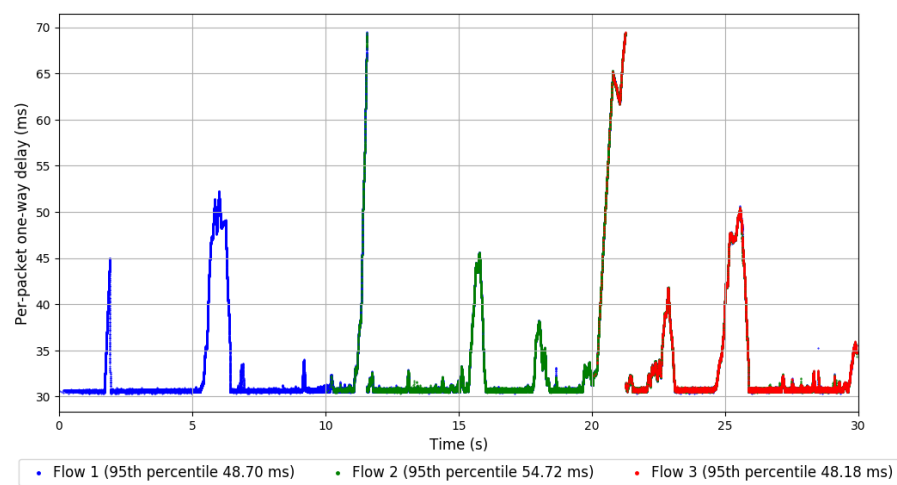
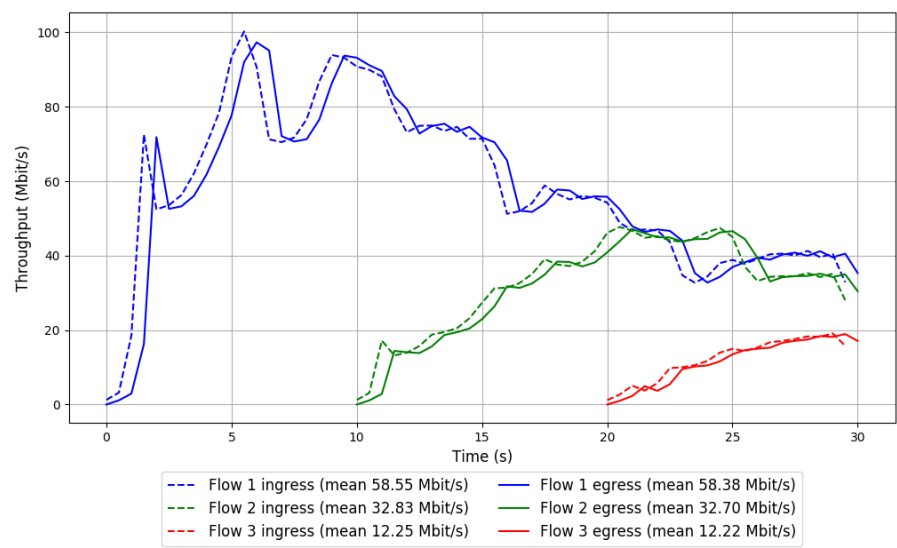
-- Flow 3:

Average throughput: 12.22 Mbit/s

95th percentile per-packet one-way delay: 48.176 ms

Loss rate: 0.20%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-11 04:13:57

End at: 2018-09-11 04:14:27

Local clock offset: -2.348 ms

Remote clock offset: 3.621 ms

Below is generated by plot.py at 2018-09-11 04:52:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.50 Mbit/s

95th percentile per-packet one-way delay: 42.562 ms

Loss rate: 0.16%

-- Flow 1:

Average throughput: 64.24 Mbit/s

95th percentile per-packet one-way delay: 41.567 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 24.32 Mbit/s

95th percentile per-packet one-way delay: 44.203 ms

Loss rate: 0.13%

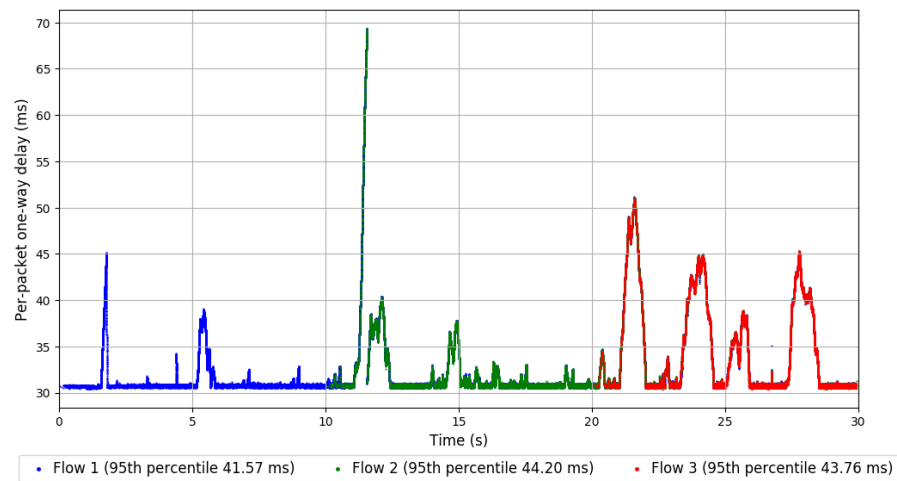
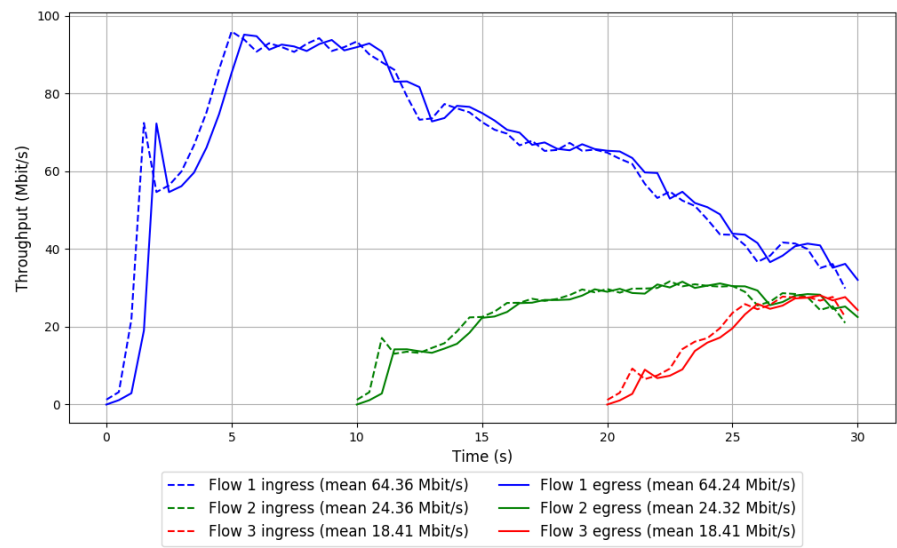
-- Flow 3:

Average throughput: 18.41 Mbit/s

95th percentile per-packet one-way delay: 43.755 ms

Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-11 04:38:26

End at: 2018-09-11 04:38:56

Local clock offset: -2.784 ms

Remote clock offset: 5.166 ms

Below is generated by plot.py at 2018-09-11 04:52:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.78 Mbit/s

95th percentile per-packet one-way delay: 44.329 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 66.98 Mbit/s

95th percentile per-packet one-way delay: 44.594 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 22.81 Mbit/s

95th percentile per-packet one-way delay: 42.356 ms

Loss rate: 0.00%

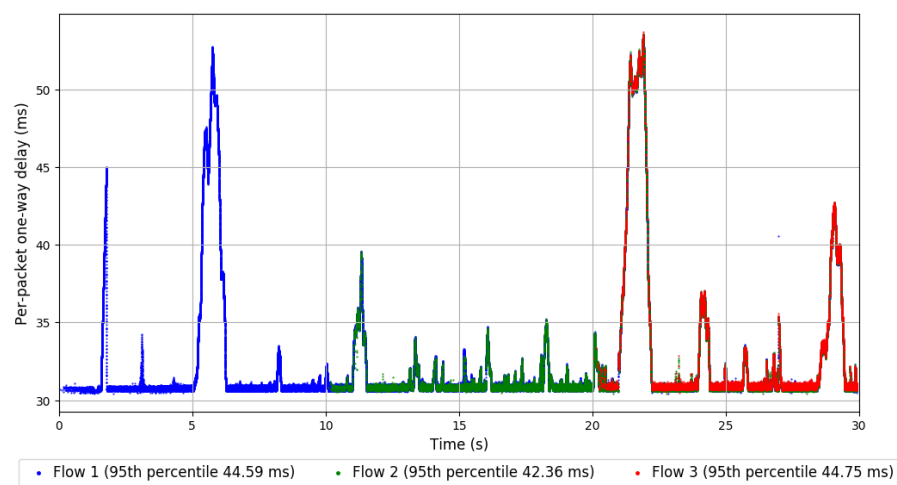
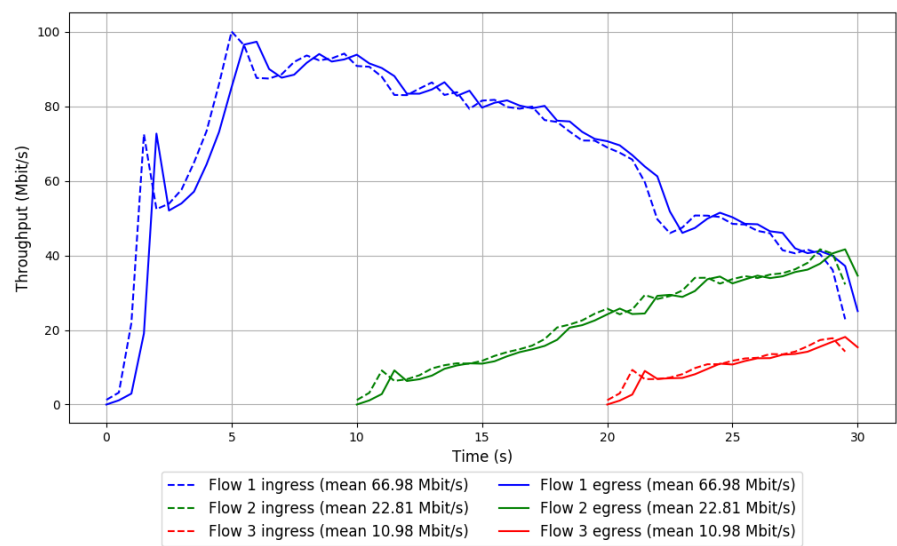
-- Flow 3:

Average throughput: 10.98 Mbit/s

95th percentile per-packet one-way delay: 44.746 ms

Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link

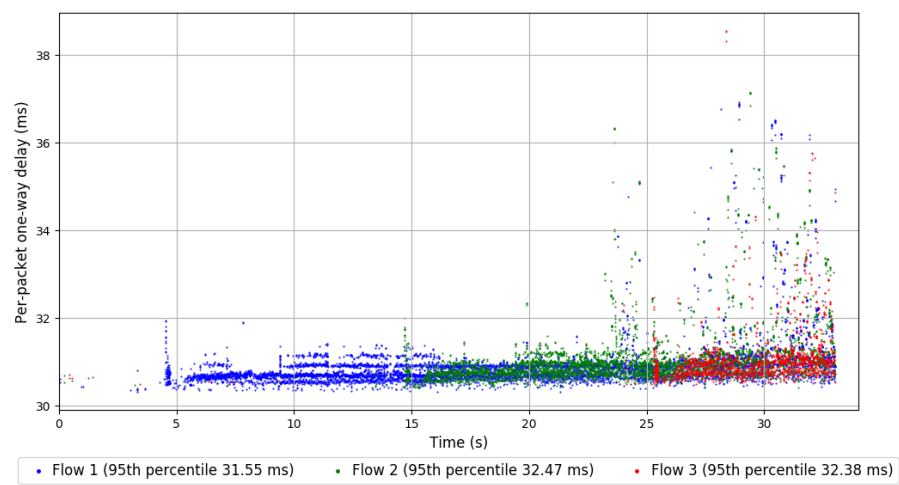
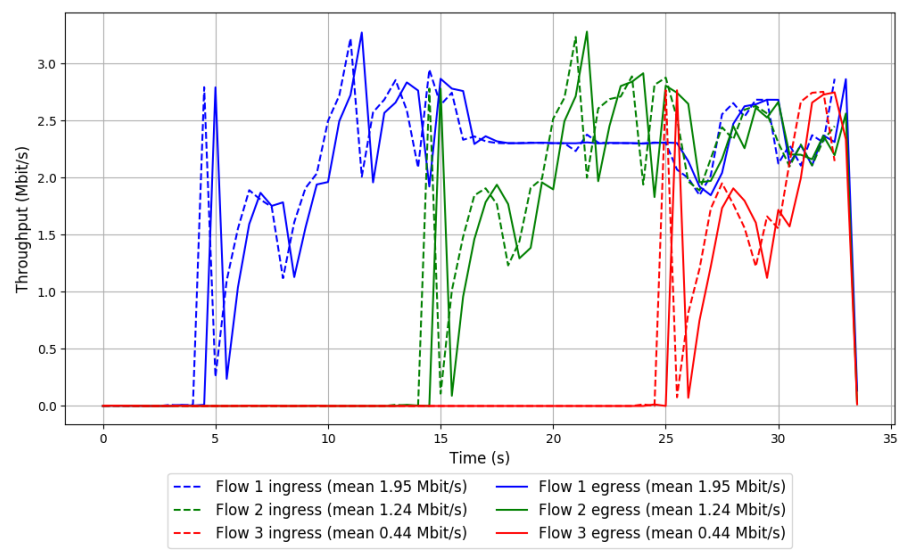


Run 1: Statistics of WebRTC media

Start at: 2018-09-11 03:01:46
End at: 2018-09-11 03:02:16
Local clock offset: -2.723 ms
Remote clock offset: -0.881 ms

Below is generated by plot.py at 2018-09-11 04:52:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.61 Mbit/s
95th percentile per-packet one-way delay: 31.999 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 31.545 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 32.470 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 32.375 ms
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-11 03:26:18

End at: 2018-09-11 03:26:48

Local clock offset: -2.703 ms

Remote clock offset: 0.298 ms

Below is generated by plot.py at 2018-09-11 04:52:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.58 Mbit/s

95th percentile per-packet one-way delay: 32.033 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 31.549 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 32.206 ms

Loss rate: 0.00%

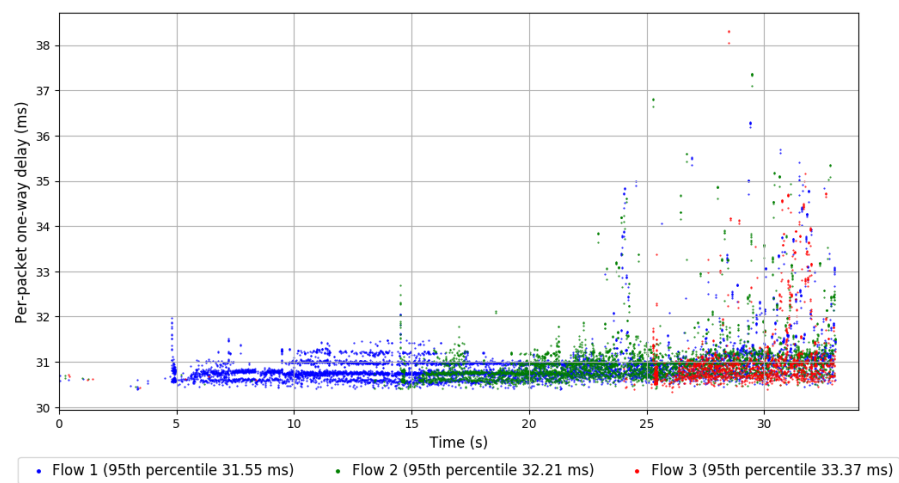
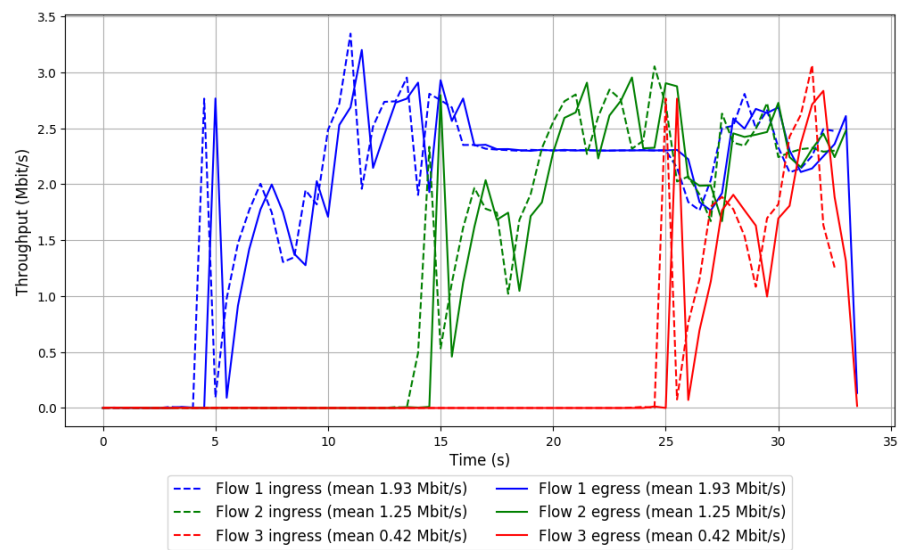
-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 33.373 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-11 03:50:45

End at: 2018-09-11 03:51:15

Local clock offset: 0.697 ms

Remote clock offset: 1.861 ms

Below is generated by plot.py at 2018-09-11 04:52:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.61 Mbit/s

95th percentile per-packet one-way delay: 32.083 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 31.709 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 32.228 ms

Loss rate: 0.00%

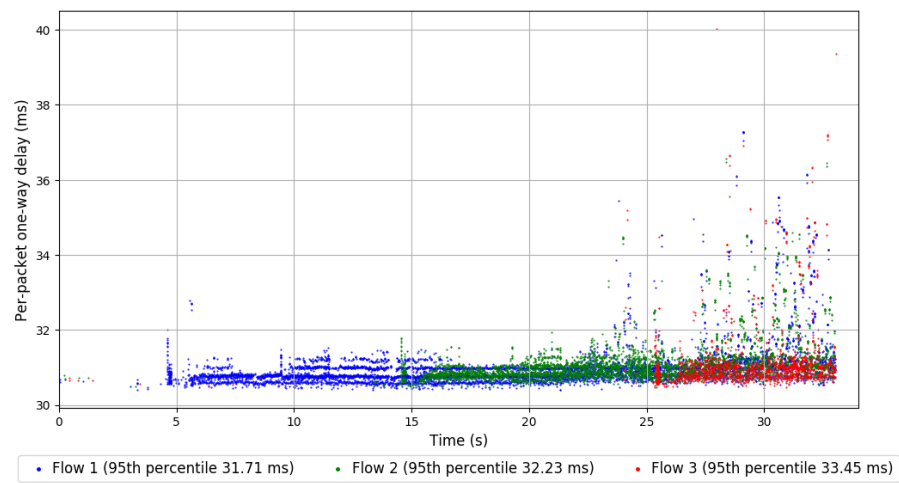
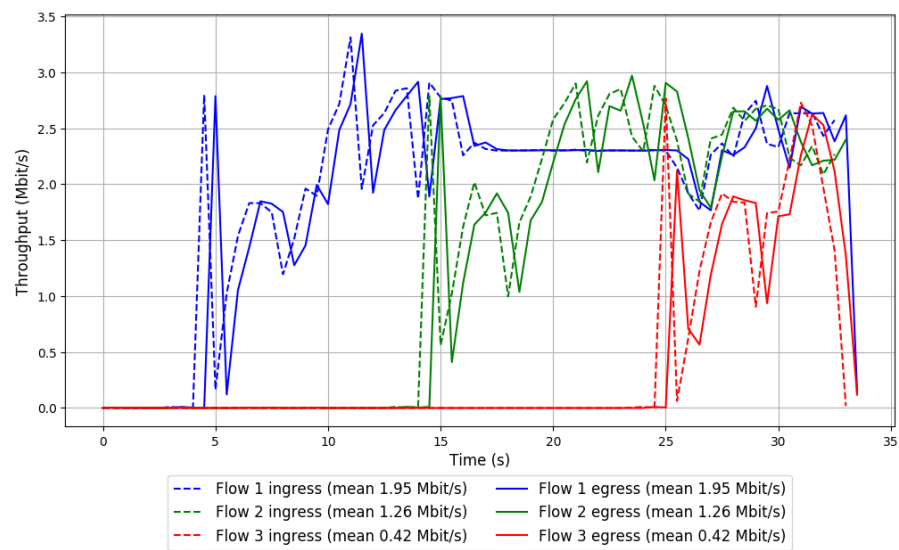
-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 33.455 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-11 04:15:21

End at: 2018-09-11 04:15:51

Local clock offset: -2.473 ms

Remote clock offset: 3.67 ms

Below is generated by plot.py at 2018-09-11 04:52:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.63 Mbit/s

95th percentile per-packet one-way delay: 31.866 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 31.502 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 32.264 ms

Loss rate: 0.00%

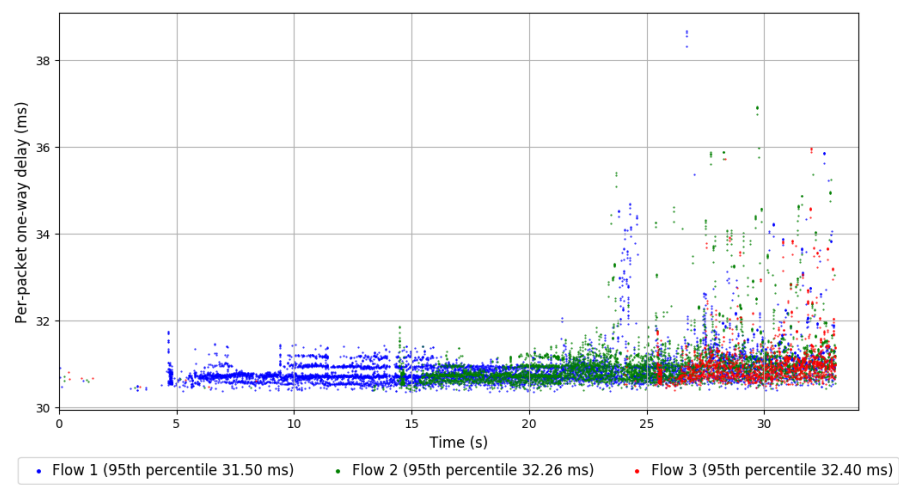
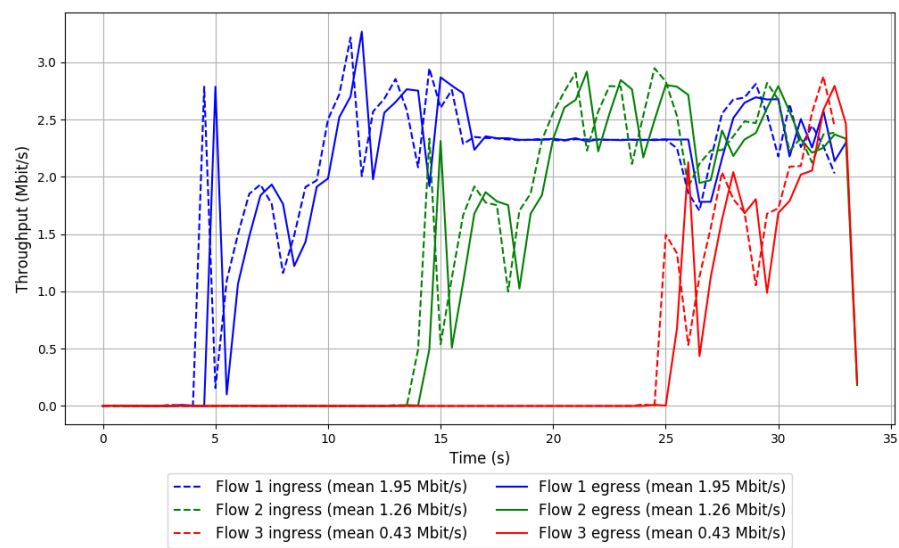
-- Flow 3:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 32.400 ms

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-11 04:39:52

End at: 2018-09-11 04:40:22

Local clock offset: -2.768 ms

Remote clock offset: 5.315 ms

Below is generated by plot.py at 2018-09-11 04:52:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.58 Mbit/s

95th percentile per-packet one-way delay: 32.037 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 31.628 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 32.155 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 32.969 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

