

Pantheon Report

Generated at 2018-09-06 21:30:35 (UTC).

Data path: Mexico on **em1** (*remote*) → AWS California 2 on **ens5** (*local*).

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against **time.stanford.edu** and have been applied to correct the timestamps in logs.

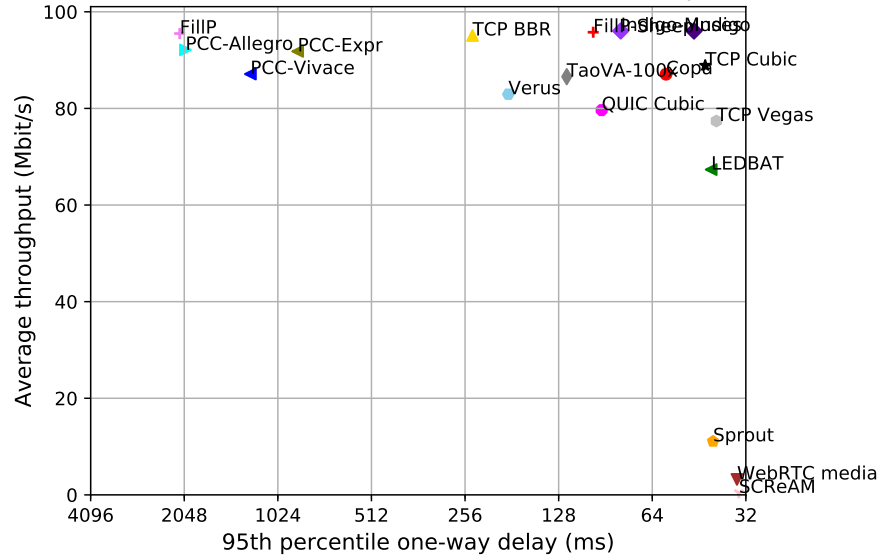
System info:

```
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 = 536870912 536870912 536870912
```

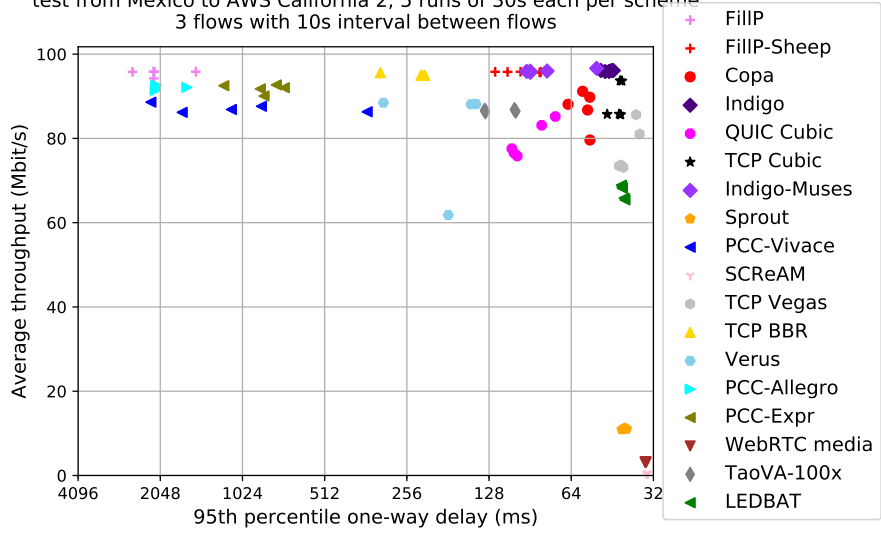
Git summary:

```
branch: muses @ f392ce15d580343f4432c3d7e068b3290f03eb4a
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ a28d20fb82a95a965a3da65fd1eb71b8994e9b84
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webRTC @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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



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



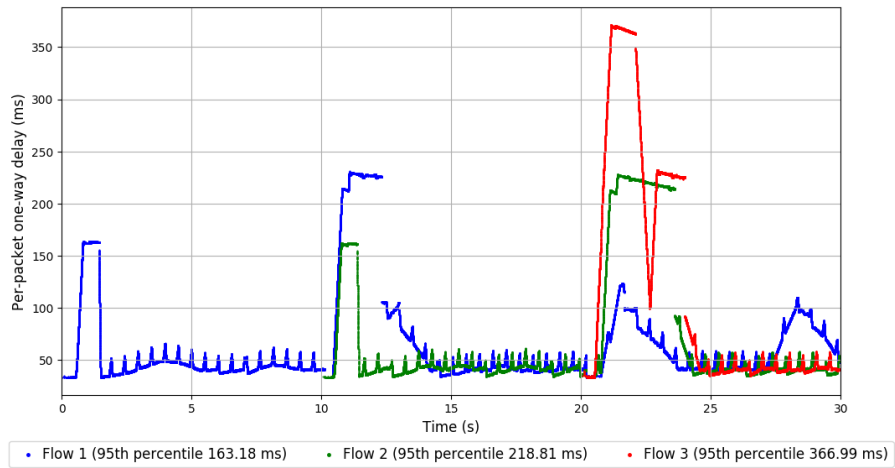
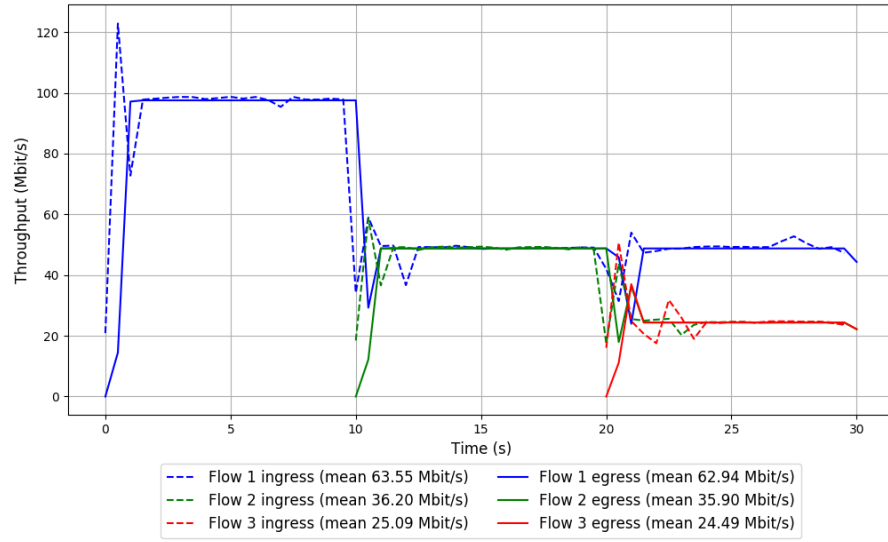
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	57.95	37.43	36.98	186.00	226.34	372.33	1.29	1.38	2.70
Copa	5	51.46	41.47	24.19	65.52	49.23	46.05	0.16	0.24	0.69
TCP Cubic	5	50.97	39.08	35.97	45.81	41.85	46.98	0.15	0.26	0.72
FillP	5	58.14	41.52	29.54	1285.77	1565.17	2056.60	6.02	8.70	18.72
FillP-Sheep	5	58.21	39.26	34.69	90.35	110.39	120.76	0.85	0.75	0.90
Indigo	5	57.45	40.13	36.37	48.06	47.18	47.75	0.19	0.35	0.74
LEDBAT	5	39.20	30.66	23.40	41.34	41.69	40.94	0.15	0.36	0.95
Indigo-Muses	5	59.11	39.61	32.12	56.35	85.17	126.11	0.20	0.47	1.26
PCC-Allegro	5	57.08	36.59	32.60	2059.44	1810.88	780.90	13.89	15.25	8.01
PCC-Expr	5	55.69	40.18	28.61	823.69	679.69	168.20	36.57	9.64	1.93
QUIC Cubic	5	46.33	36.34	27.84	79.96	110.76	144.49	0.18	0.53	1.02
SCReAM	5	0.21	0.21	0.22	33.68	33.70	33.70	0.26	0.40	0.71
Sprout	5	8.71	10.65	10.41	40.58	40.89	40.37	6.72	0.52	0.69
TaoVA-100x	5	50.38	40.22	28.43	118.18	122.33	138.91	0.63	1.47	3.48
TCP Vegas	5	42.37	36.60	32.21	45.91	36.11	42.17	0.18	0.30	0.69
Verus	5	50.60	39.65	18.11	150.87	209.10	200.02	1.29	3.36	1.54
PCC-Vivace	5	54.26	37.23	24.66	1040.27	677.18	123.09	3.02	4.44	1.39
WebRTC media	5	1.77	1.01	0.44	34.12	34.14	34.37	0.10	0.20	0.50

Run 1: Statistics of TCP BBR

Start at: 2018-09-06 19:33:13
End at: 2018-09-06 19:33:43
Local clock offset: 0.769 ms
Remote clock offset: -1.147 ms

Below is generated by plot.py at 2018-09-06 21:19:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.93 Mbit/s
95th percentile per-packet one-way delay: 222.840 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 62.94 Mbit/s
95th percentile per-packet one-way delay: 163.183 ms
Loss rate: 1.18%
-- Flow 2:
Average throughput: 35.90 Mbit/s
95th percentile per-packet one-way delay: 218.810 ms
Loss rate: 1.15%
-- Flow 3:
Average throughput: 24.49 Mbit/s
95th percentile per-packet one-way delay: 366.986 ms
Loss rate: 3.03%

Run 1: Report of TCP BBR — Data Link

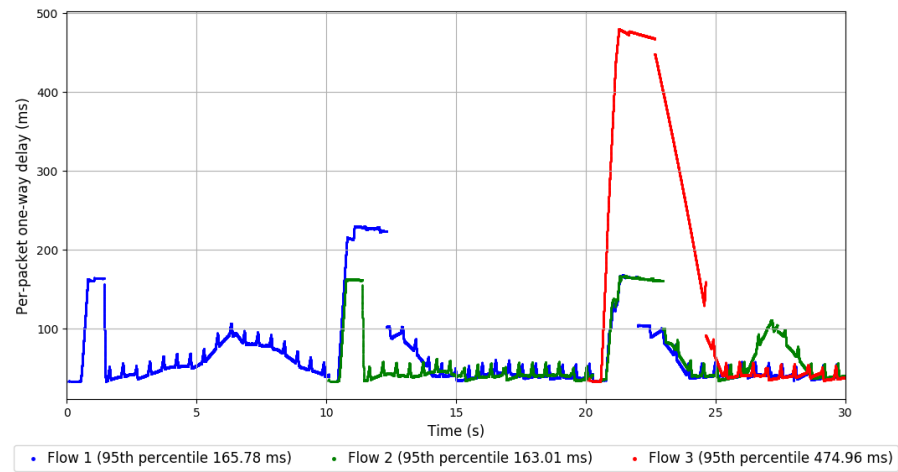
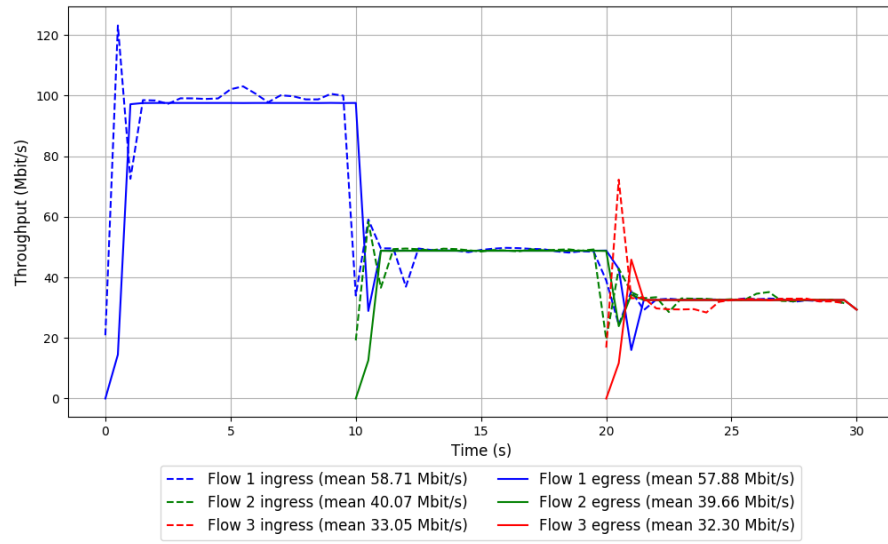


Run 2: Statistics of TCP BBR

Start at: 2018-09-06 19:58:14
End at: 2018-09-06 19:58:44
Local clock offset: 0.373 ms
Remote clock offset: -0.058 ms

Below is generated by plot.py at 2018-09-06 21:19:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.97 Mbit/s
95th percentile per-packet one-way delay: 227.394 ms
Loss rate: 1.69%
-- Flow 1:
Average throughput: 57.88 Mbit/s
95th percentile per-packet one-way delay: 165.782 ms
Loss rate: 1.62%
-- Flow 2:
Average throughput: 39.66 Mbit/s
95th percentile per-packet one-way delay: 163.011 ms
Loss rate: 1.35%
-- Flow 3:
Average throughput: 32.30 Mbit/s
95th percentile per-packet one-way delay: 474.964 ms
Loss rate: 2.92%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-06 20:23:02

End at: 2018-09-06 20:23:32

Local clock offset: 0.38 ms

Remote clock offset: 0.406 ms

Below is generated by plot.py at 2018-09-06 21:19:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.01 Mbit/s

95th percentile per-packet one-way delay: 220.214 ms

Loss rate: 1.63%

-- Flow 1:

Average throughput: 55.41 Mbit/s

95th percentile per-packet one-way delay: 210.385 ms

Loss rate: 1.37%

-- Flow 2:

Average throughput: 35.90 Mbit/s

95th percentile per-packet one-way delay: 212.481 ms

Loss rate: 1.46%

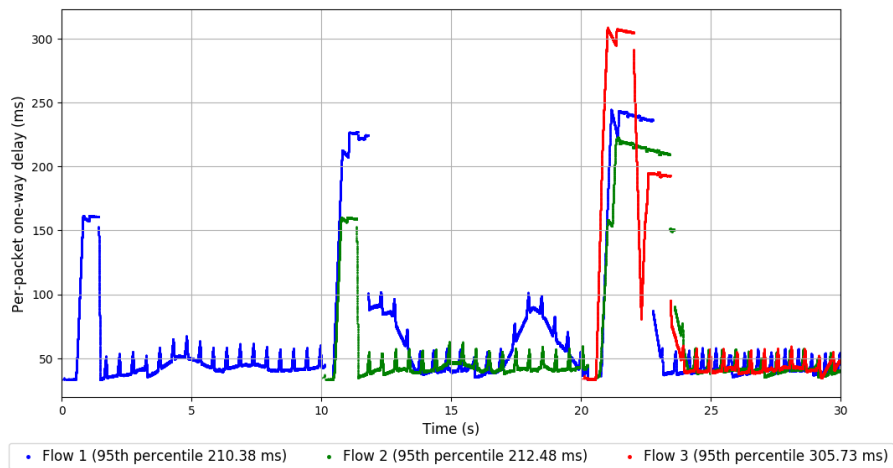
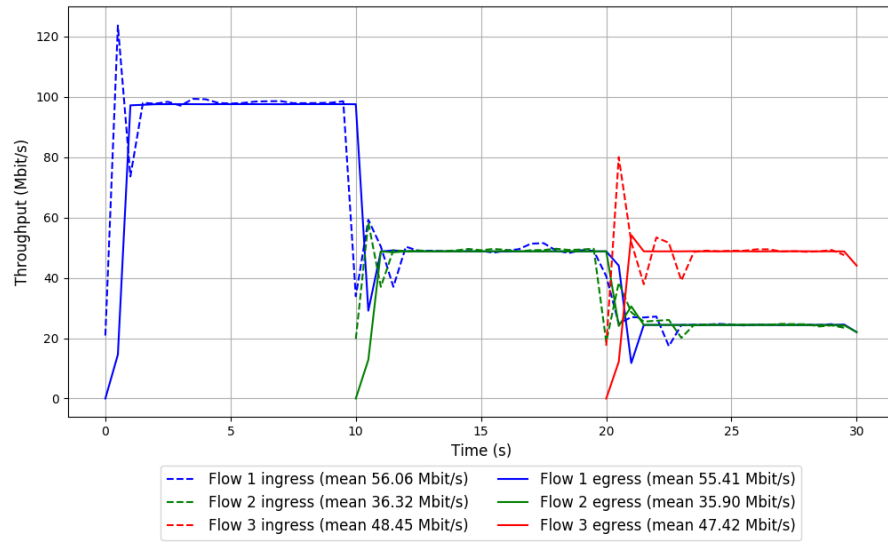
-- Flow 3:

Average throughput: 47.42 Mbit/s

95th percentile per-packet one-way delay: 305.729 ms

Loss rate: 2.75%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-06 20:48:01

End at: 2018-09-06 20:48:31

Local clock offset: 0.133 ms

Remote clock offset: 0.828 ms

Below is generated by plot.py at 2018-09-06 21:19:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.97 Mbit/s

95th percentile per-packet one-way delay: 220.721 ms

Loss rate: 1.32%

-- Flow 1:

Average throughput: 55.48 Mbit/s

95th percentile per-packet one-way delay: 227.416 ms

Loss rate: 1.15%

-- Flow 2:

Average throughput: 35.90 Mbit/s

95th percentile per-packet one-way delay: 217.668 ms

Loss rate: 1.43%

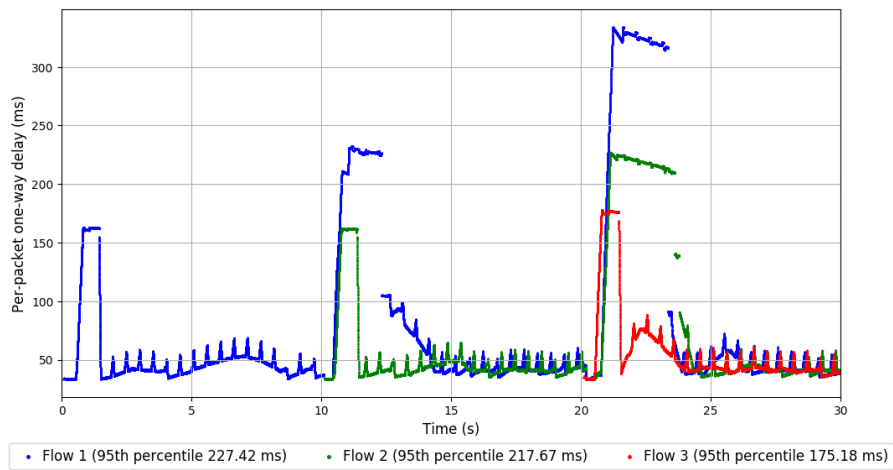
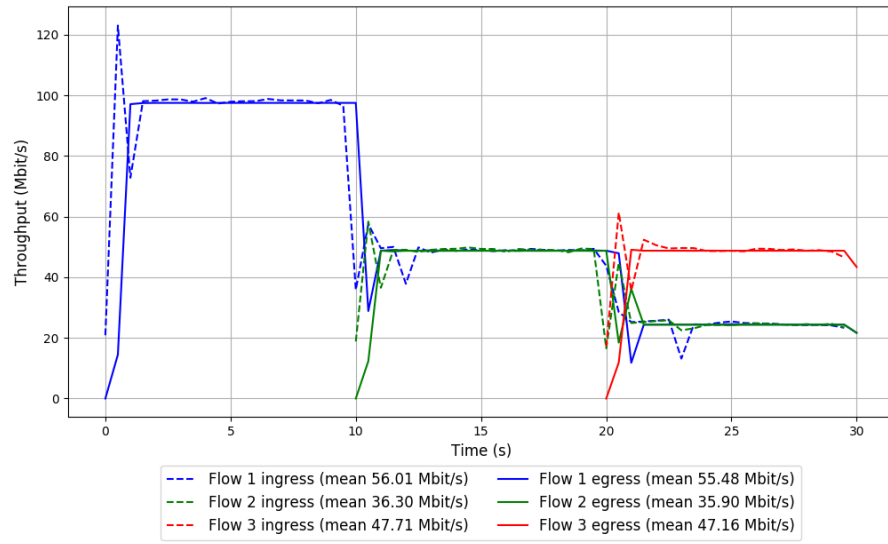
-- Flow 3:

Average throughput: 47.16 Mbit/s

95th percentile per-packet one-way delay: 175.184 ms

Loss rate: 1.80%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-06 21:12:48

End at: 2018-09-06 21:13:18

Local clock offset: 0.014 ms

Remote clock offset: 1.097 ms

Below is generated by plot.py at 2018-09-06 21:19:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.60 Mbit/s

95th percentile per-packet one-way delay: 319.903 ms

Loss rate: 1.45%

-- Flow 1:

Average throughput: 58.05 Mbit/s

95th percentile per-packet one-way delay: 163.231 ms

Loss rate: 1.13%

-- Flow 2:

Average throughput: 39.77 Mbit/s

95th percentile per-packet one-way delay: 319.732 ms

Loss rate: 1.49%

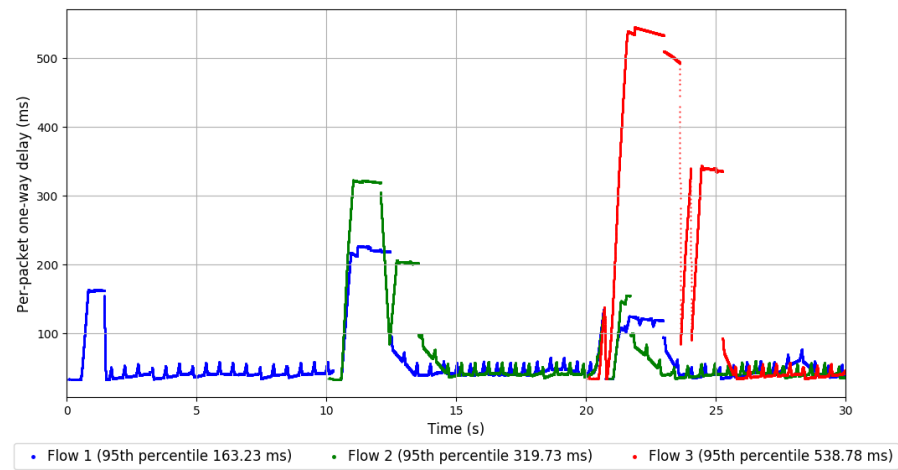
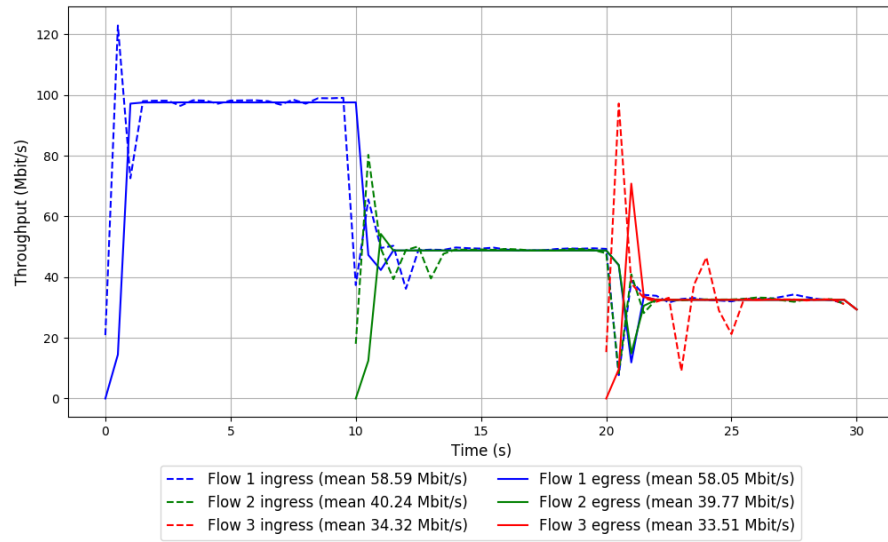
-- Flow 3:

Average throughput: 33.51 Mbit/s

95th percentile per-packet one-way delay: 538.776 ms

Loss rate: 3.00%

Run 5: Report of TCP BBR — Data Link

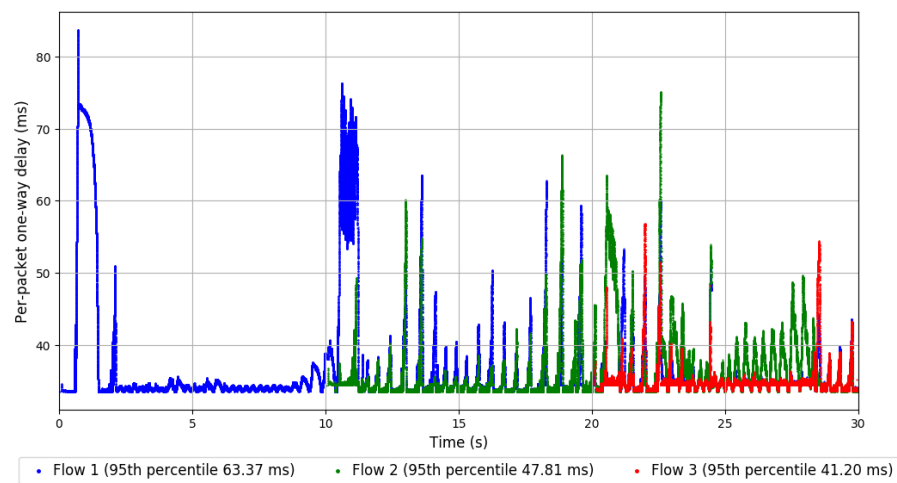
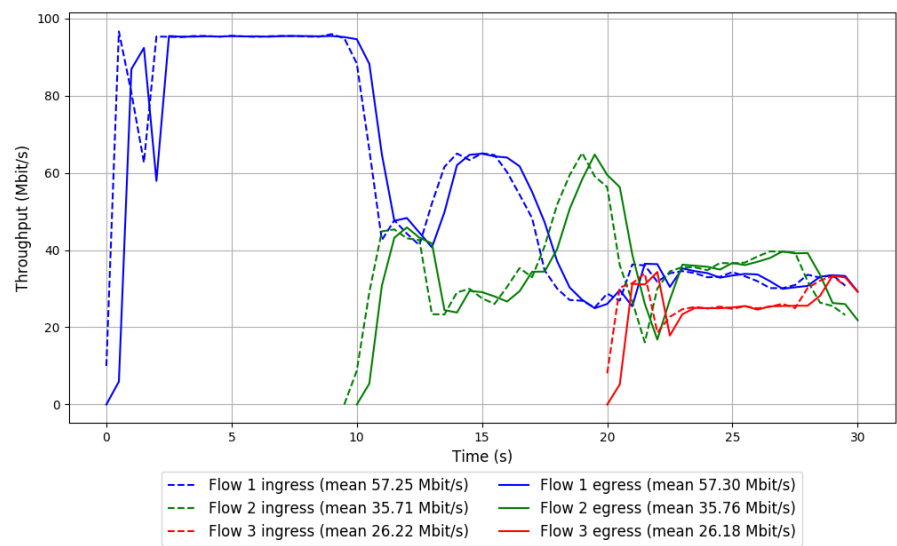


Run 1: Statistics of Copa

Start at: 2018-09-06 19:29:00
End at: 2018-09-06 19:29:31
Local clock offset: 0.759 ms
Remote clock offset: -1.278 ms

Below is generated by plot.py at 2018-09-06 21:20:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 89.77 Mbit/s
95th percentile per-packet one-way delay: 54.736 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 57.30 Mbit/s
95th percentile per-packet one-way delay: 63.373 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 35.76 Mbit/s
95th percentile per-packet one-way delay: 47.808 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 26.18 Mbit/s
95th percentile per-packet one-way delay: 41.198 ms
Loss rate: 0.76%

Run 1: Report of Copa — Data Link

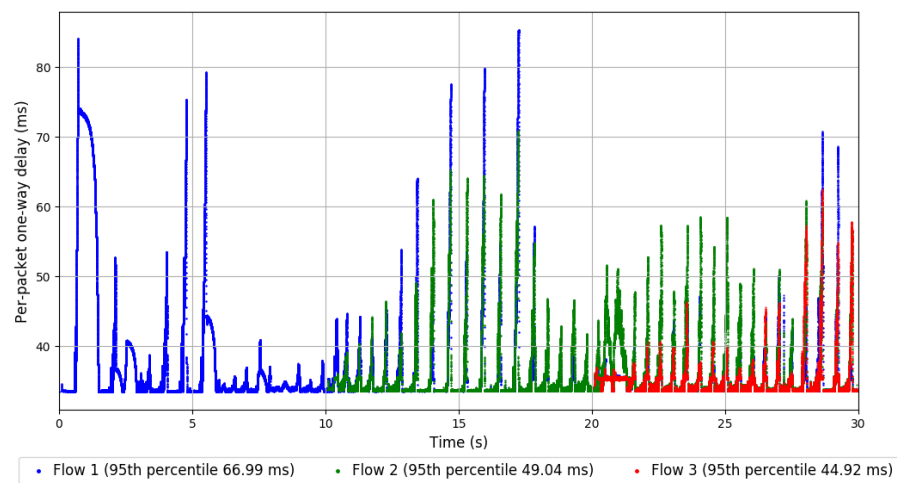
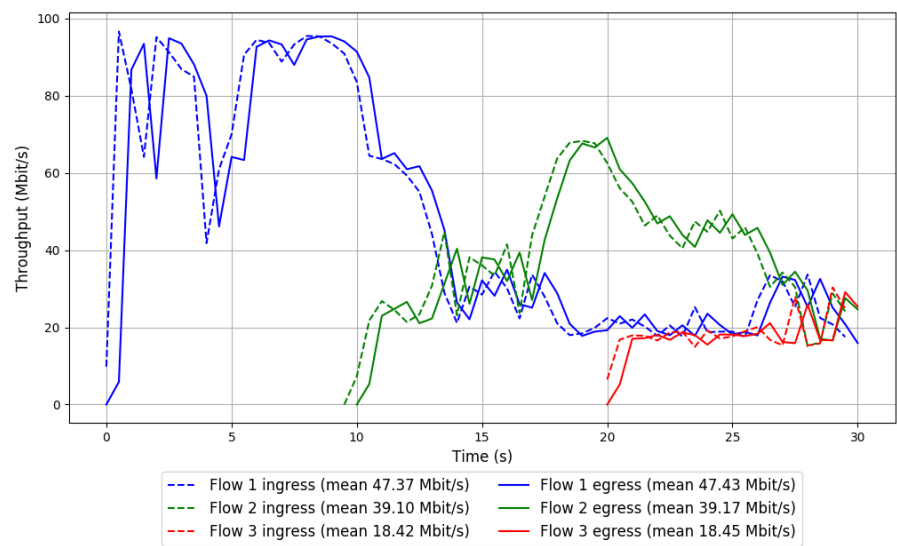


Run 2: Statistics of Copa

Start at: 2018-09-06 19:54:00
End at: 2018-09-06 19:54:30
Local clock offset: 0.582 ms
Remote clock offset: -0.206 ms

Below is generated by plot.py at 2018-09-06 21:20:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 79.62 Mbit/s
95th percentile per-packet one-way delay: 54.656 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 47.43 Mbit/s
95th percentile per-packet one-way delay: 66.988 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 39.17 Mbit/s
95th percentile per-packet one-way delay: 49.040 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 18.45 Mbit/s
95th percentile per-packet one-way delay: 44.916 ms
Loss rate: 0.49%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-06 20:18:50

End at: 2018-09-06 20:19:20

Local clock offset: 0.387 ms

Remote clock offset: 0.261 ms

Below is generated by plot.py at 2018-09-06 21:20:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 88.09 Mbit/s

95th percentile per-packet one-way delay: 65.732 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 46.98 Mbit/s

95th percentile per-packet one-way delay: 70.562 ms

Loss rate: 0.21%

-- Flow 2:

Average throughput: 47.34 Mbit/s

95th percentile per-packet one-way delay: 50.846 ms

Loss rate: 0.24%

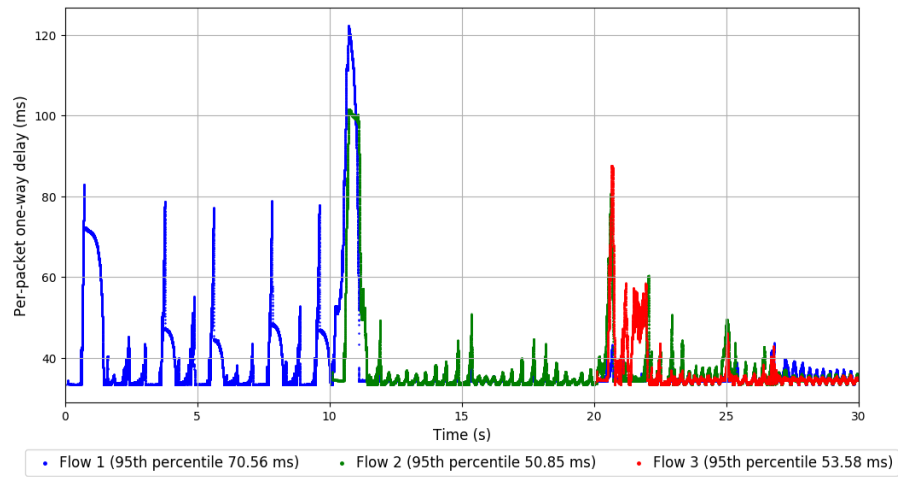
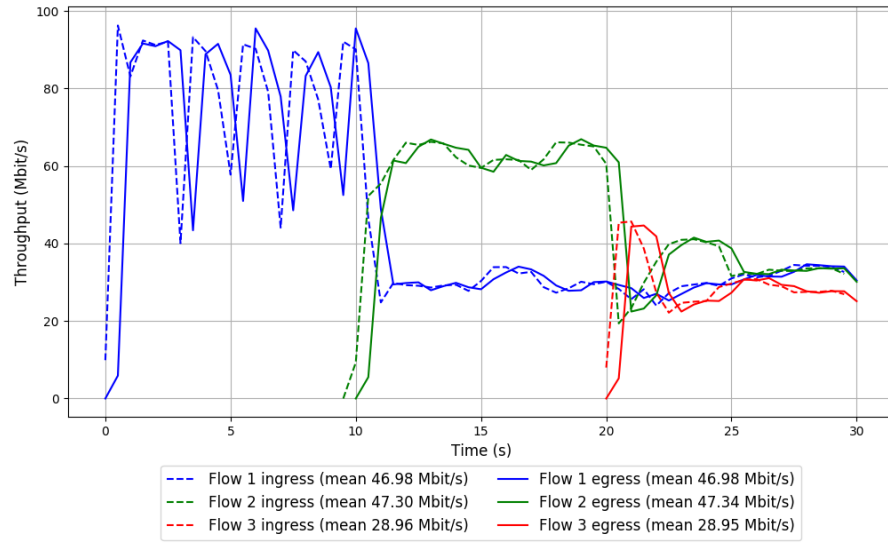
-- Flow 3:

Average throughput: 28.95 Mbit/s

95th percentile per-packet one-way delay: 53.576 ms

Loss rate: 0.65%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-06 20:43:47

End at: 2018-09-06 20:44:17

Local clock offset: 0.271 ms

Remote clock offset: 0.575 ms

Below is generated by plot.py at 2018-09-06 21:21:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.18 Mbit/s

95th percentile per-packet one-way delay: 58.132 ms

Loss rate: 0.25%

-- Flow 1:

Average throughput: 55.01 Mbit/s

95th percentile per-packet one-way delay: 62.129 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 44.21 Mbit/s

95th percentile per-packet one-way delay: 55.287 ms

Loss rate: 0.34%

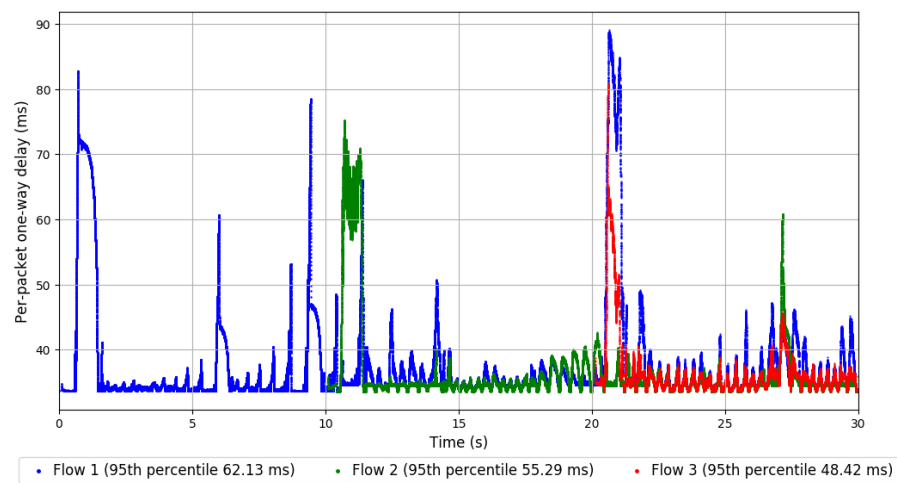
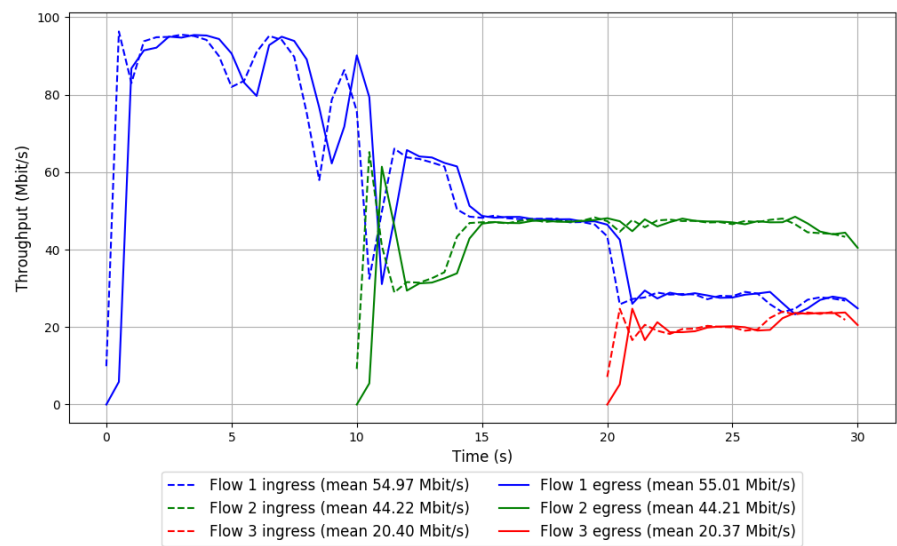
-- Flow 3:

Average throughput: 20.37 Mbit/s

95th percentile per-packet one-way delay: 48.421 ms

Loss rate: 0.77%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-06 21:08:34

End at: 2018-09-06 21:09:04

Local clock offset: 0.106 ms

Remote clock offset: 0.875 ms

Below is generated by plot.py at 2018-09-06 21:21:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.74 Mbit/s

95th percentile per-packet one-way delay: 55.740 ms

Loss rate: 0.31%

-- Flow 1:

Average throughput: 50.58 Mbit/s

95th percentile per-packet one-way delay: 64.572 ms

Loss rate: 0.25%

-- Flow 2:

Average throughput: 40.89 Mbit/s

95th percentile per-packet one-way delay: 43.156 ms

Loss rate: 0.26%

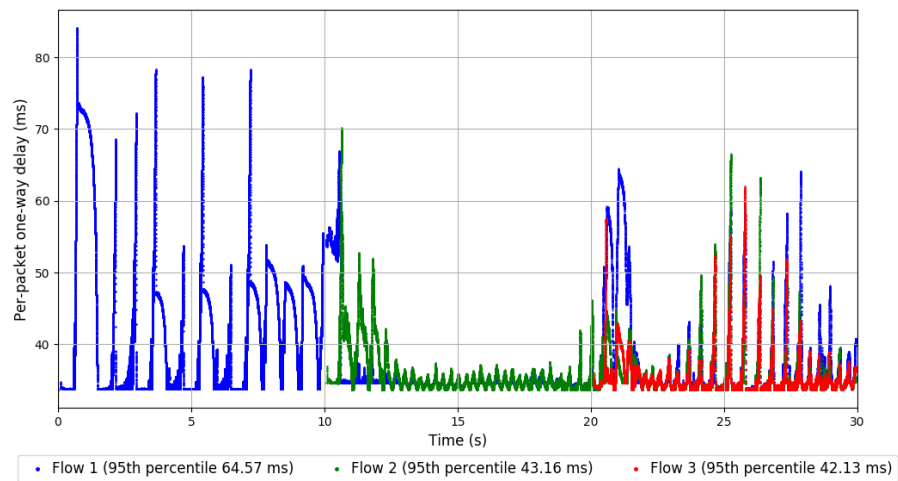
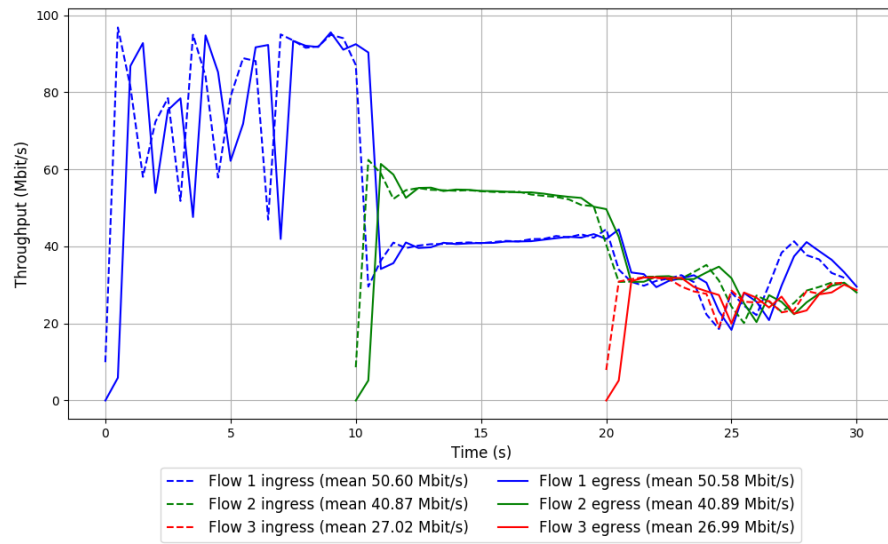
-- Flow 3:

Average throughput: 26.99 Mbit/s

95th percentile per-packet one-way delay: 42.129 ms

Loss rate: 0.78%

Run 5: Report of Copa — Data Link

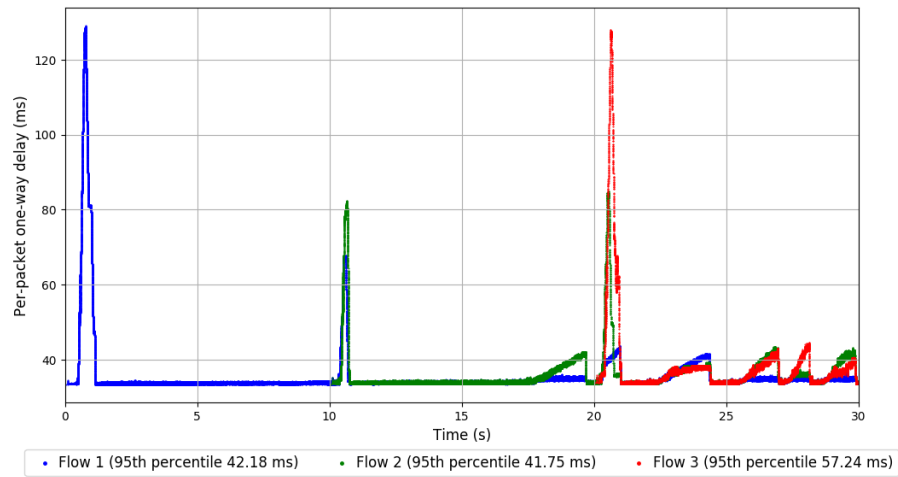
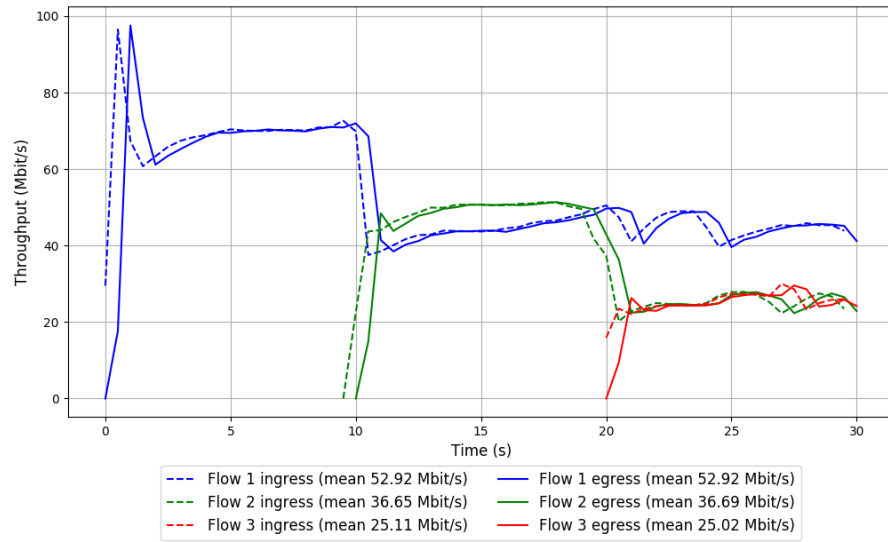


Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 19:18:07
End at: 2018-09-06 19:18:37
Local clock offset: 0.942 ms
Remote clock offset: -1.514 ms

Below is generated by plot.py at 2018-09-06 21:21:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 85.63 Mbit/s
95th percentile per-packet one-way delay: 42.150 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 52.92 Mbit/s
95th percentile per-packet one-way delay: 42.183 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 36.69 Mbit/s
95th percentile per-packet one-way delay: 41.746 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 25.02 Mbit/s
95th percentile per-packet one-way delay: 57.243 ms
Loss rate: 1.03%

Run 1: Report of TCP Cubic — Data Link

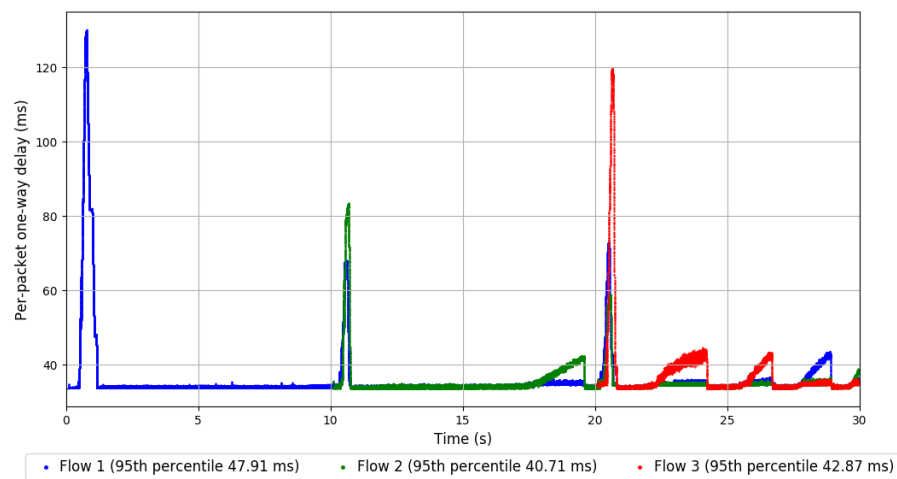
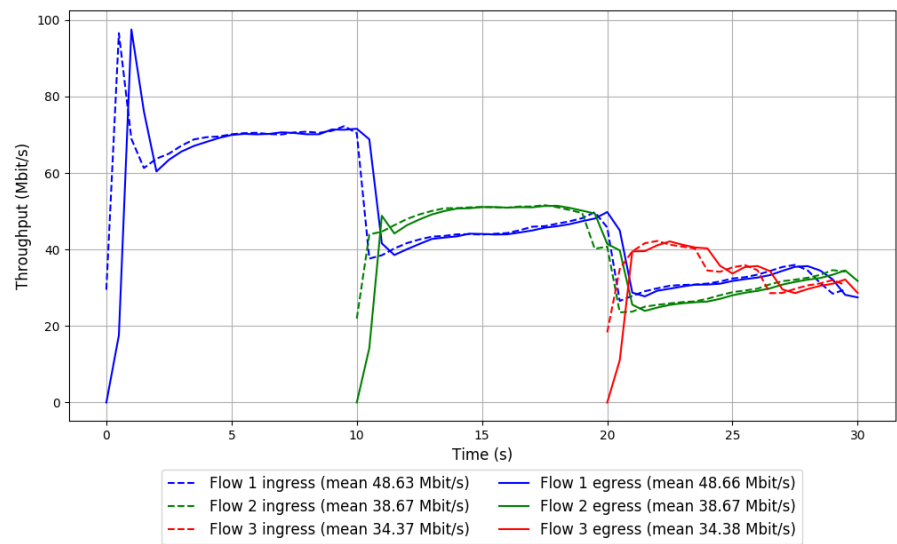


Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 19:42:54
End at: 2018-09-06 19:43:24
Local clock offset: 0.909 ms
Remote clock offset: -0.685 ms

Below is generated by plot.py at 2018-09-06 21:21:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 85.77 Mbit/s
95th percentile per-packet one-way delay: 42.689 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 48.66 Mbit/s
95th percentile per-packet one-way delay: 47.913 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 38.67 Mbit/s
95th percentile per-packet one-way delay: 40.710 ms
Loss rate: 0.32%
-- Flow 3:
Average throughput: 34.38 Mbit/s
95th percentile per-packet one-way delay: 42.866 ms
Loss rate: 0.62%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 20:07:55

End at: 2018-09-06 20:08:25

Local clock offset: 0.296 ms

Remote clock offset: 0.097 ms

Below is generated by plot.py at 2018-09-06 21:21:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.69 Mbit/s

95th percentile per-packet one-way delay: 42.364 ms

Loss rate: 0.24%

-- Flow 1:

Average throughput: 54.07 Mbit/s

95th percentile per-packet one-way delay: 47.762 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 46.74 Mbit/s

95th percentile per-packet one-way delay: 40.816 ms

Loss rate: 0.34%

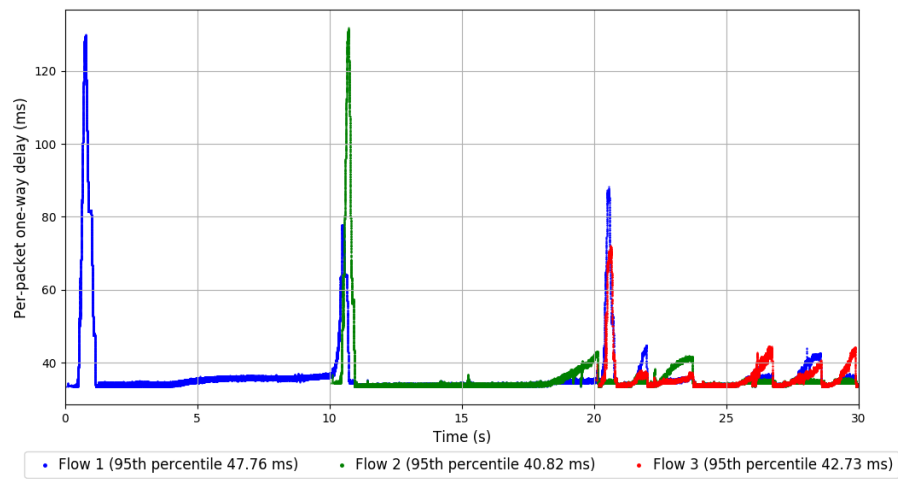
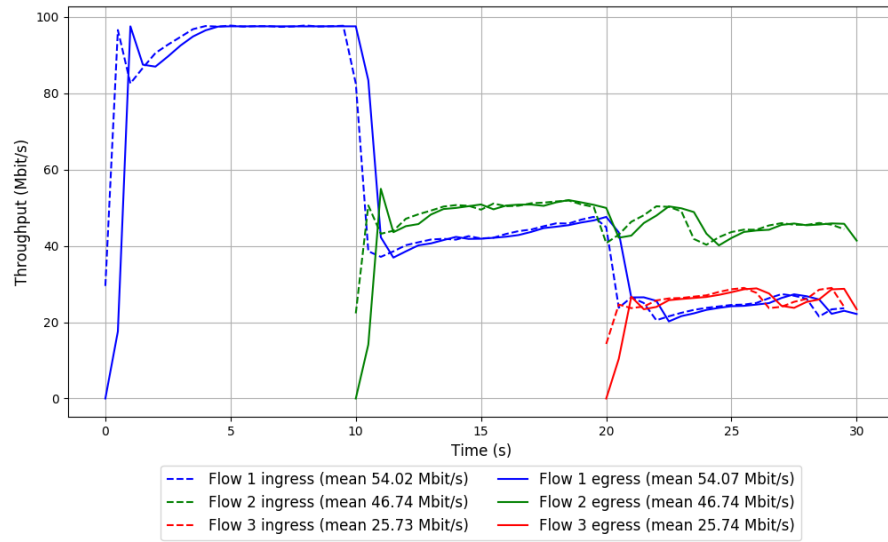
-- Flow 3:

Average throughput: 25.74 Mbit/s

95th percentile per-packet one-way delay: 42.730 ms

Loss rate: 0.65%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-06 20:32:48

End at: 2018-09-06 20:33:18

Local clock offset: 0.348 ms

Remote clock offset: 0.633 ms

Below is generated by plot.py at 2018-09-06 21:21:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.63 Mbit/s

95th percentile per-packet one-way delay: 41.745 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 53.66 Mbit/s

95th percentile per-packet one-way delay: 40.316 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 36.52 Mbit/s

95th percentile per-packet one-way delay: 42.463 ms

Loss rate: 0.22%

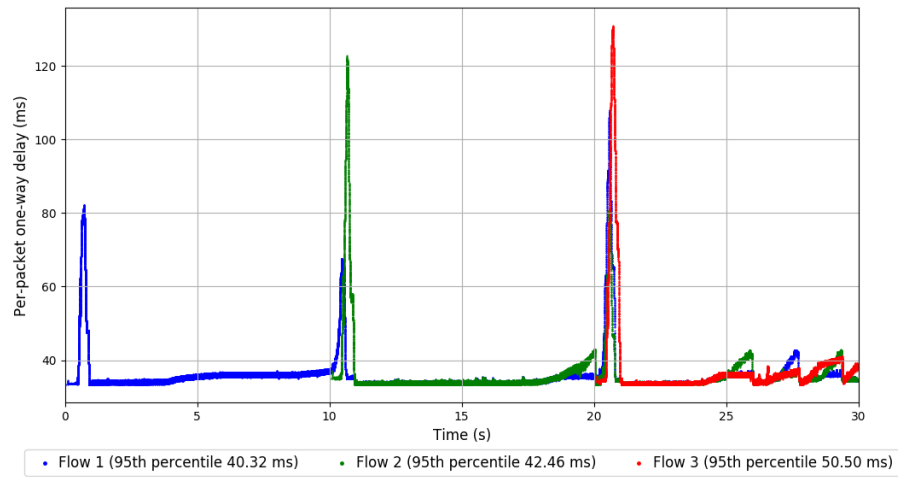
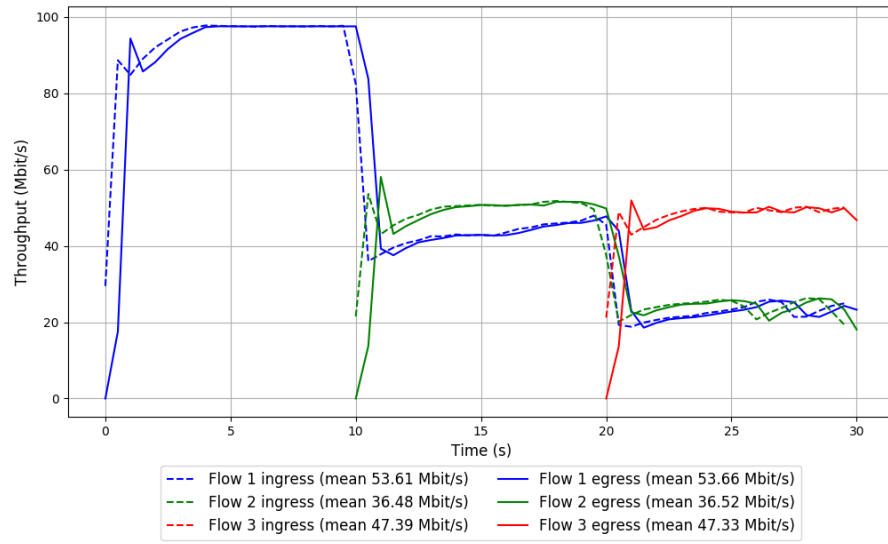
-- Flow 3:

Average throughput: 47.33 Mbit/s

95th percentile per-packet one-way delay: 50.502 ms

Loss rate: 0.77%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-06 20:57:40

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

Local clock offset: 0.153 ms

Remote clock offset: 0.877 ms

Below is generated by plot.py at 2018-09-06 21:21:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.73 Mbit/s

95th percentile per-packet one-way delay: 47.249 ms

Loss rate: 0.25%

-- Flow 1:

Average throughput: 45.56 Mbit/s

95th percentile per-packet one-way delay: 50.875 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 36.77 Mbit/s

95th percentile per-packet one-way delay: 43.536 ms

Loss rate: 0.24%

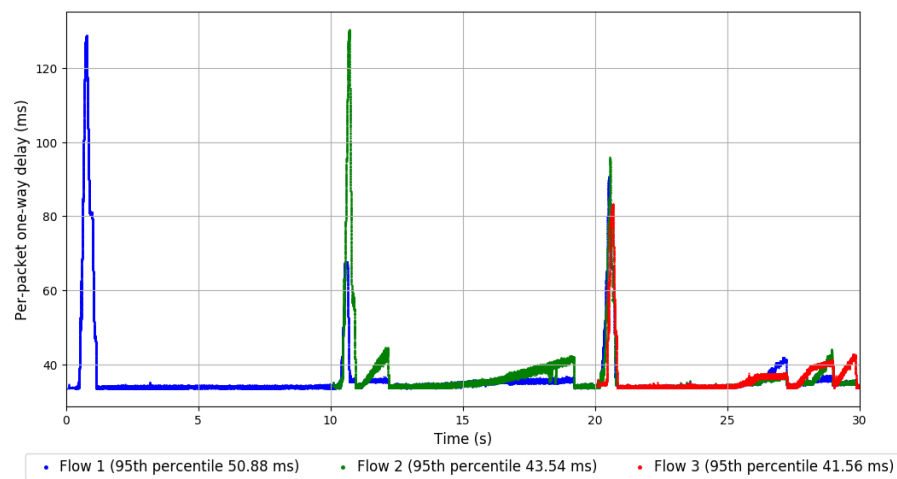
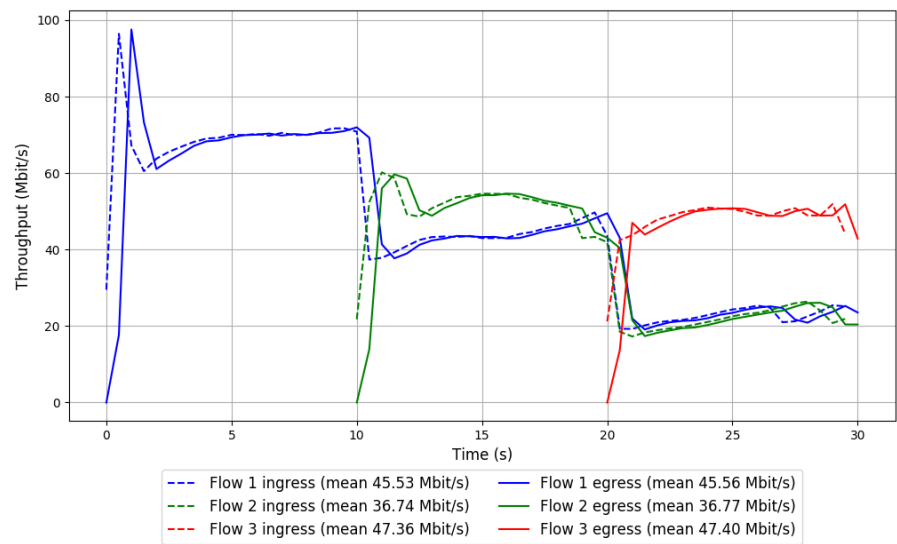
-- Flow 3:

Average throughput: 47.40 Mbit/s

95th percentile per-packet one-way delay: 41.559 ms

Loss rate: 0.55%

Run 5: Report of TCP Cubic — Data Link

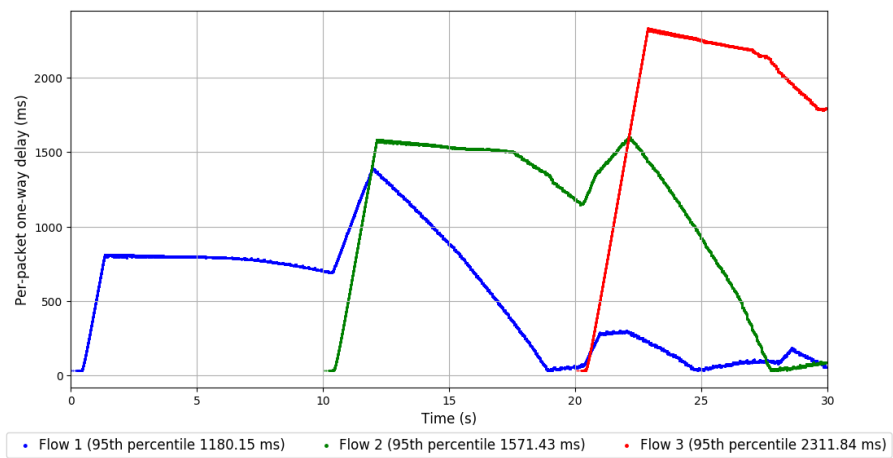
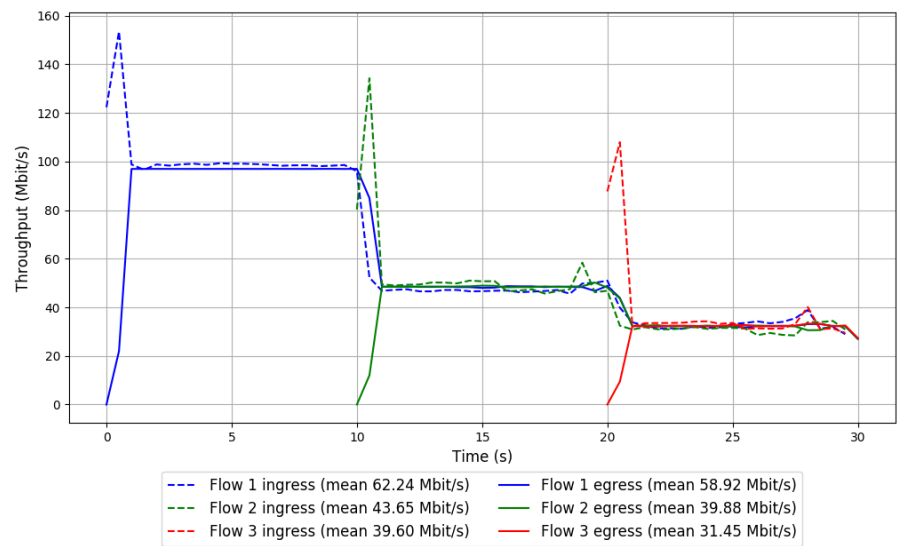


Run 1: Statistics of FillP

Start at: 2018-09-06 19:27:37
End at: 2018-09-06 19:28:07
Local clock offset: 0.762 ms
Remote clock offset: -1.297 ms

Below is generated by plot.py at 2018-09-06 21:21:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.83 Mbit/s
95th percentile per-packet one-way delay: 2168.957 ms
Loss rate: 8.45%
-- Flow 1:
Average throughput: 58.92 Mbit/s
95th percentile per-packet one-way delay: 1180.146 ms
Loss rate: 5.55%
-- Flow 2:
Average throughput: 39.88 Mbit/s
95th percentile per-packet one-way delay: 1571.433 ms
Loss rate: 8.93%
-- Flow 3:
Average throughput: 31.45 Mbit/s
95th percentile per-packet one-way delay: 2311.837 ms
Loss rate: 21.10%

Run 1: Report of FillP — Data Link

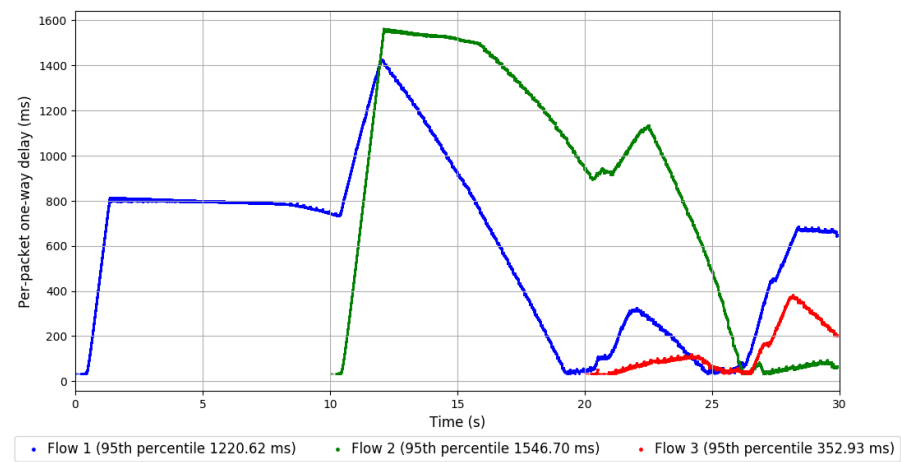
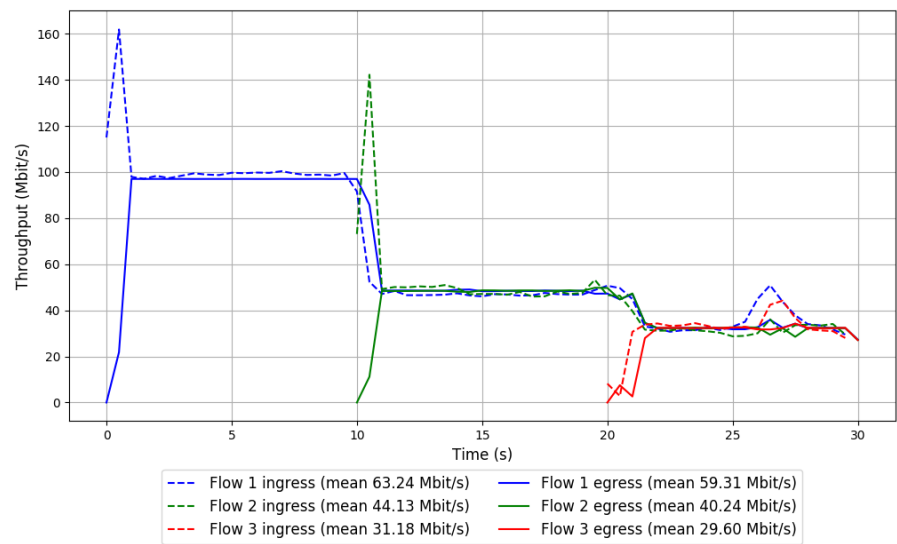


Run 2: Statistics of FillP

Start at: 2018-09-06 19:52:37
End at: 2018-09-06 19:53:07
Local clock offset: 0.629 ms
Remote clock offset: -0.454 ms

Below is generated by plot.py at 2018-09-06 21:21:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.83 Mbit/s
95th percentile per-packet one-way delay: 1517.440 ms
Loss rate: 7.10%
-- Flow 1:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 1220.616 ms
Loss rate: 6.40%
-- Flow 2:
Average throughput: 40.24 Mbit/s
95th percentile per-packet one-way delay: 1546.701 ms
Loss rate: 9.10%
-- Flow 3:
Average throughput: 29.60 Mbit/s
95th percentile per-packet one-way delay: 352.927 ms
Loss rate: 5.65%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-06 20:17:27

End at: 2018-09-06 20:17:57

Local clock offset: 0.429 ms

Remote clock offset: 0.254 ms

Below is generated by plot.py at 2018-09-06 21:21:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.23 Mbit/s

95th percentile per-packet one-way delay: 2162.130 ms

Loss rate: 8.66%

-- Flow 1:

Average throughput: 57.32 Mbit/s

95th percentile per-packet one-way delay: 1358.867 ms

Loss rate: 5.90%

-- Flow 2:

Average throughput: 39.86 Mbit/s

95th percentile per-packet one-way delay: 1573.004 ms

Loss rate: 9.13%

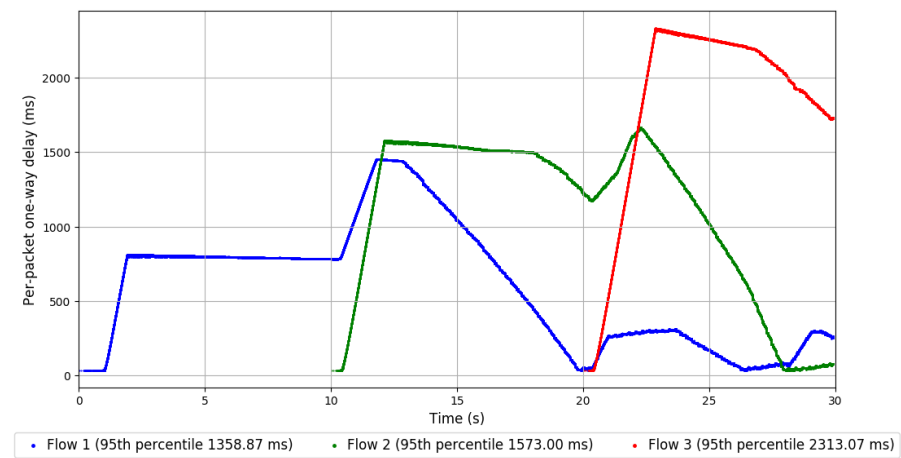
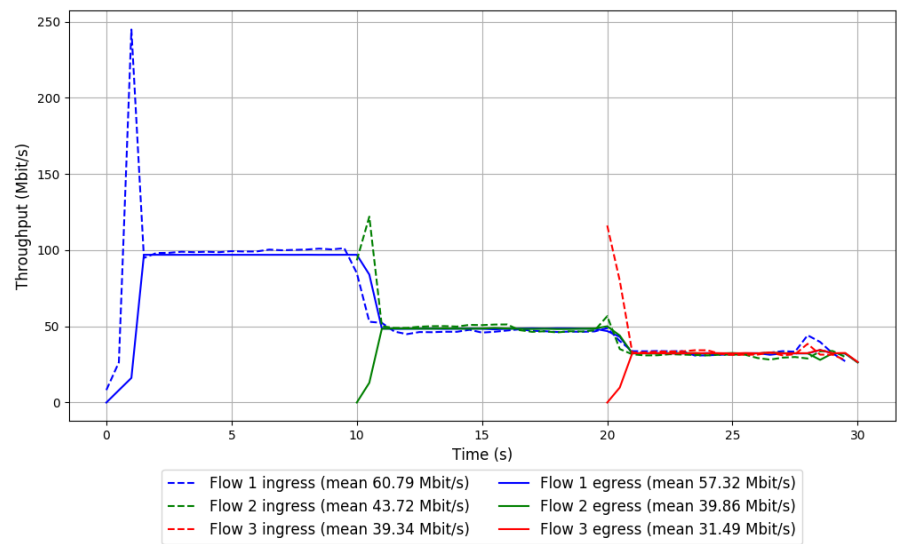
-- Flow 3:

Average throughput: 31.49 Mbit/s

95th percentile per-packet one-way delay: 2313.075 ms

Loss rate: 20.47%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-06 20:42:24

End at: 2018-09-06 20:42:54

Local clock offset: 0.271 ms

Remote clock offset: 0.756 ms

Below is generated by plot.py at 2018-09-06 21:21:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.82 Mbit/s

95th percentile per-packet one-way delay: 2152.570 ms

Loss rate: 8.75%

-- Flow 1:

Average throughput: 58.87 Mbit/s

95th percentile per-packet one-way delay: 1324.290 ms

Loss rate: 6.10%

-- Flow 2:

Average throughput: 39.93 Mbit/s

95th percentile per-packet one-way delay: 1567.797 ms

Loss rate: 8.98%

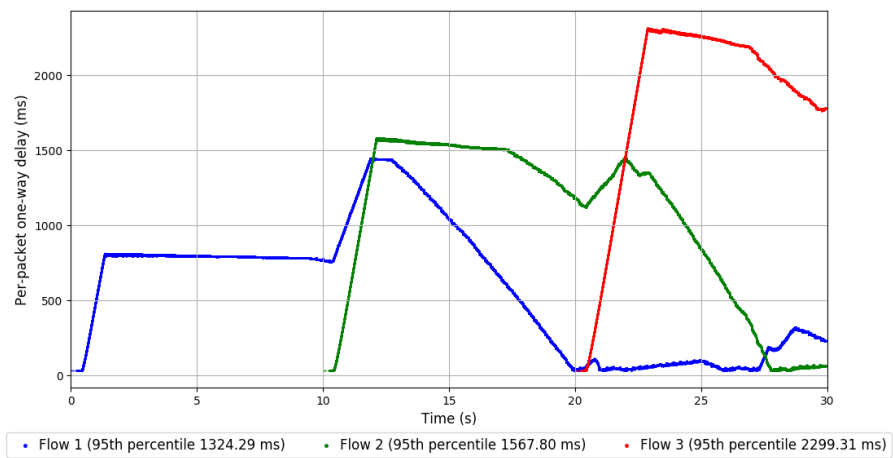
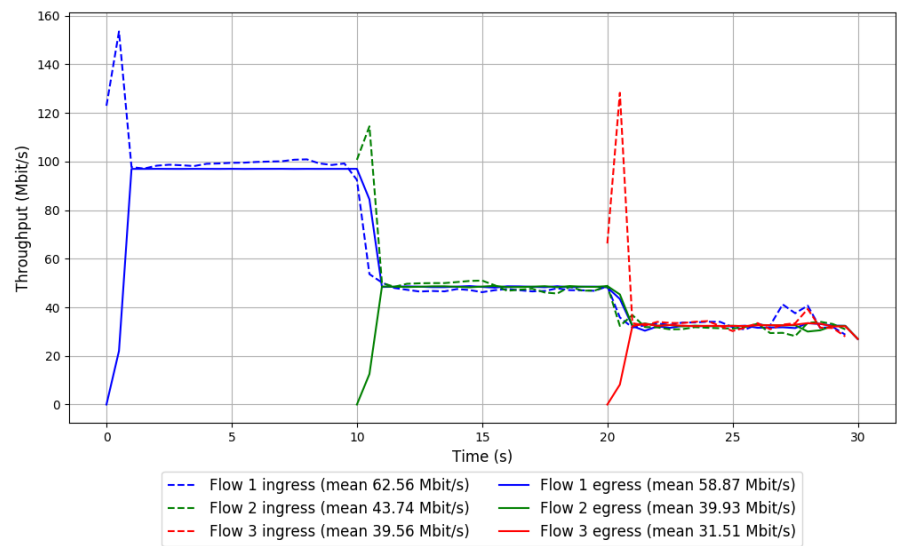
-- Flow 3:

Average throughput: 31.51 Mbit/s

95th percentile per-packet one-way delay: 2299.306 ms

Loss rate: 20.87%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-06 21:07:12

End at: 2018-09-06 21:07:42

Local clock offset: 0.114 ms

Remote clock offset: 0.853 ms

Below is generated by plot.py at 2018-09-06 21:22:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.79 Mbit/s

95th percentile per-packet one-way delay: 2588.273 ms

Loss rate: 8.50%

-- Flow 1:

Average throughput: 56.27 Mbit/s

95th percentile per-packet one-way delay: 1344.912 ms

Loss rate: 6.17%

-- Flow 2:

Average throughput: 47.69 Mbit/s

95th percentile per-packet one-way delay: 1566.913 ms

Loss rate: 7.38%

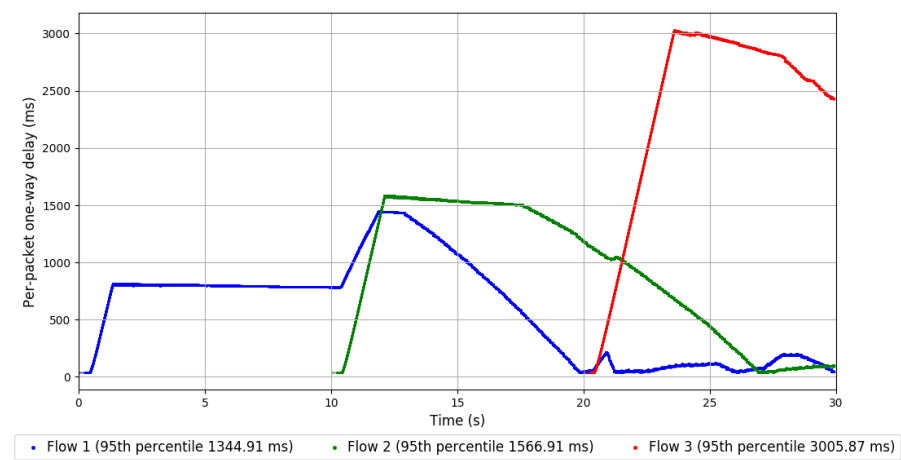
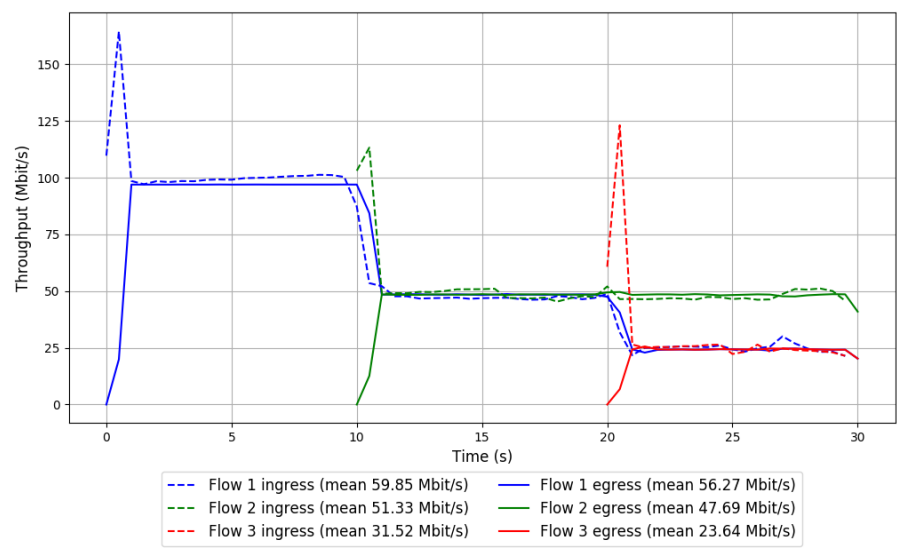
-- Flow 3:

Average throughput: 23.64 Mbit/s

95th percentile per-packet one-way delay: 3005.873 ms

Loss rate: 25.49%

Run 5: Report of FillP — Data Link

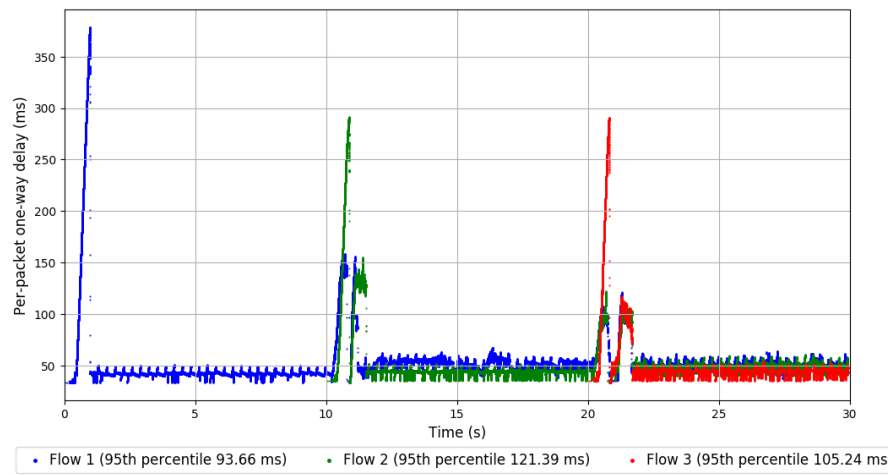
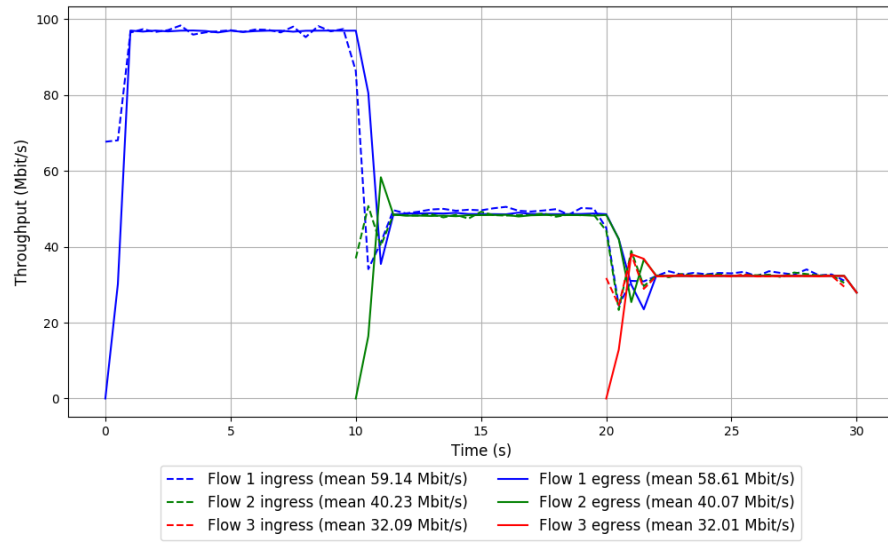


Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 19:20:52
End at: 2018-09-06 19:21:22
Local clock offset: 0.859 ms
Remote clock offset: -1.671 ms

Below is generated by plot.py at 2018-09-06 21:22:28
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.82 Mbit/s
95th percentile per-packet one-way delay: 98.166 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 58.61 Mbit/s
95th percentile per-packet one-way delay: 93.657 ms
Loss rate: 1.11%
-- Flow 2:
Average throughput: 40.07 Mbit/s
95th percentile per-packet one-way delay: 121.395 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 32.01 Mbit/s
95th percentile per-packet one-way delay: 105.237 ms
Loss rate: 0.86%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 19:45:40

End at: 2018-09-06 19:46:10

Local clock offset: 0.864 ms

Remote clock offset: -0.74 ms

Below is generated by plot.py at 2018-09-06 21:22:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.63 Mbit/s

95th percentile per-packet one-way delay: 83.535 ms

Loss rate: 0.81%

-- Flow 1:

Average throughput: 56.61 Mbit/s

95th percentile per-packet one-way delay: 90.815 ms

Loss rate: 0.77%

-- Flow 2:

Average throughput: 36.18 Mbit/s

95th percentile per-packet one-way delay: 80.425 ms

Loss rate: 0.89%

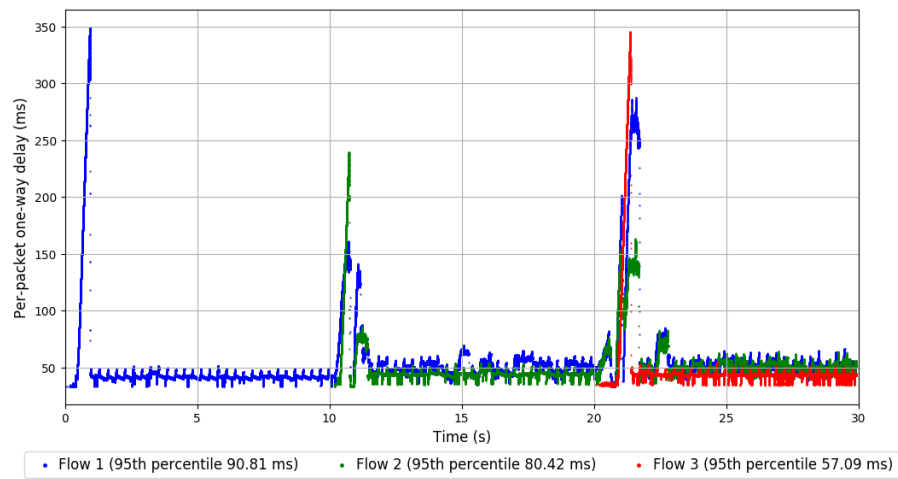
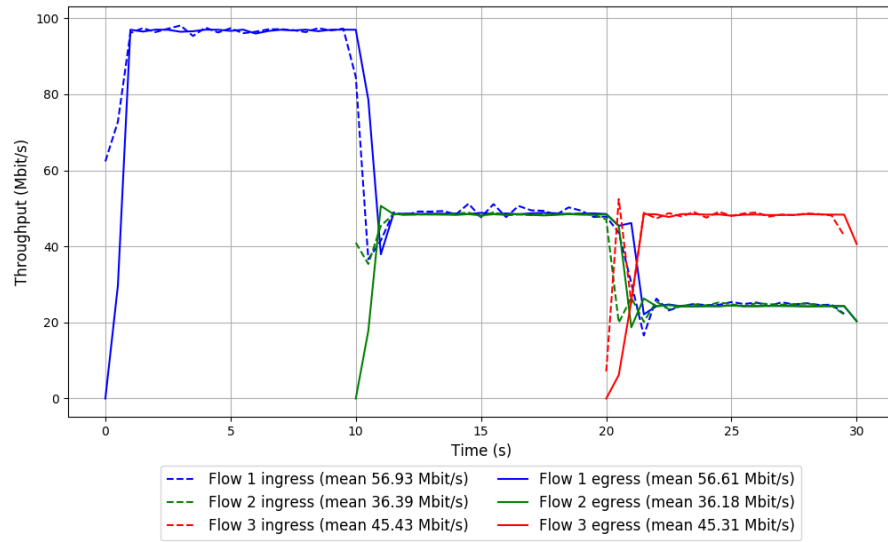
-- Flow 3:

Average throughput: 45.31 Mbit/s

95th percentile per-packet one-way delay: 57.091 ms

Loss rate: 0.82%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 20:10:40

End at: 2018-09-06 20:11:10

Local clock offset: 0.414 ms

Remote clock offset: 0.15 ms

Below is generated by plot.py at 2018-09-06 21:22:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.79 Mbit/s

95th percentile per-packet one-way delay: 109.467 ms

Loss rate: 0.77%

-- Flow 1:

Average throughput: 56.07 Mbit/s

95th percentile per-packet one-way delay: 89.678 ms

Loss rate: 0.86%

-- Flow 2:

Average throughput: 47.55 Mbit/s

95th percentile per-packet one-way delay: 118.823 ms

Loss rate: 0.55%

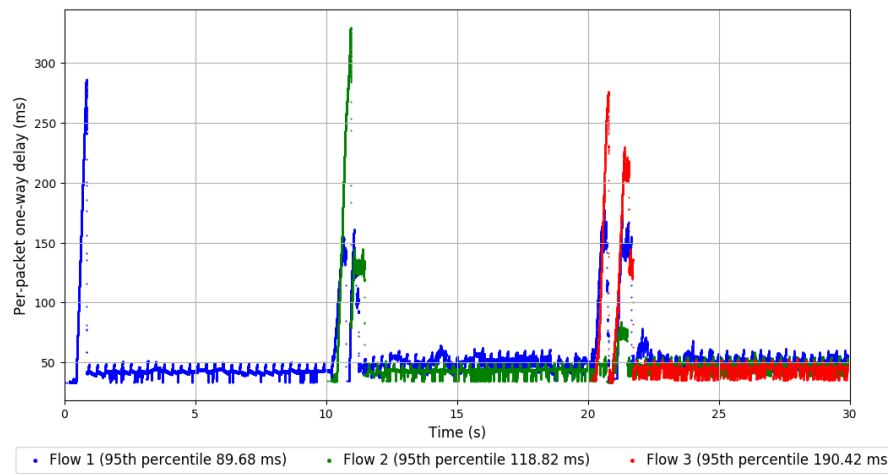
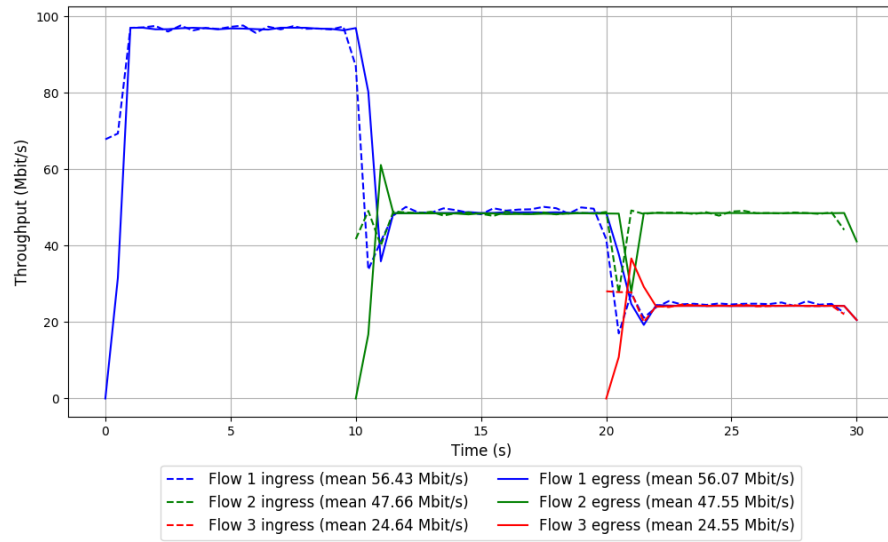
-- Flow 3:

Average throughput: 24.55 Mbit/s

95th percentile per-packet one-way delay: 190.418 ms

Loss rate: 1.00%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-06 20:35:35

End at: 2018-09-06 20:36:05

Local clock offset: 0.346 ms

Remote clock offset: 0.742 ms

Below is generated by plot.py at 2018-09-06 21:22:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.80 Mbit/s

95th percentile per-packet one-way delay: 82.760 ms

Loss rate: 0.58%

-- Flow 1:

Average throughput: 63.67 Mbit/s

95th percentile per-packet one-way delay: 65.016 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 36.19 Mbit/s

95th percentile per-packet one-way delay: 97.160 ms

Loss rate: 0.62%

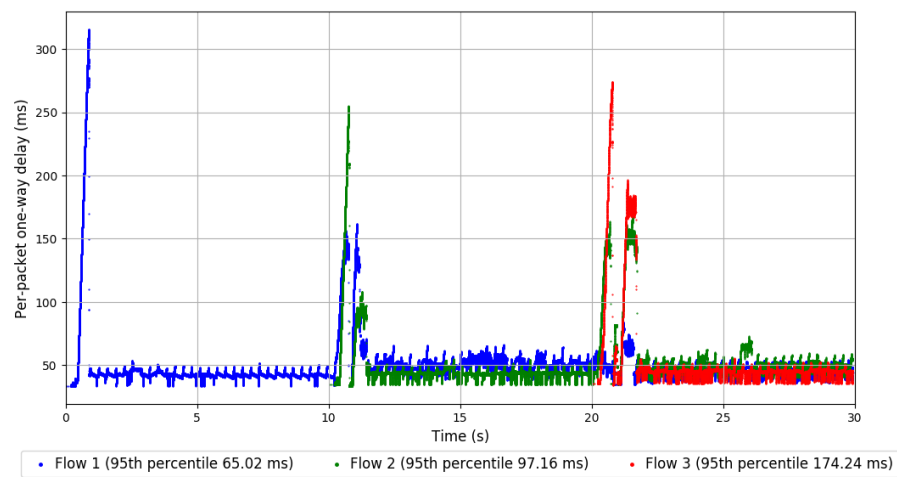
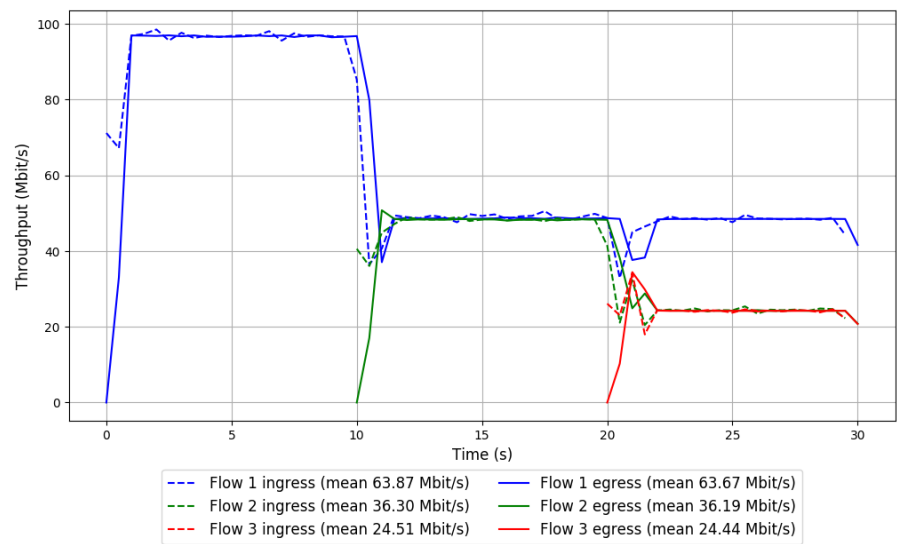
-- Flow 3:

Average throughput: 24.44 Mbit/s

95th percentile per-packet one-way delay: 174.235 ms

Loss rate: 0.92%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-06 21:00:24

End at: 2018-09-06 21:00:54

Local clock offset: 0.129 ms

Remote clock offset: 0.935 ms

Below is generated by plot.py at 2018-09-06 21:23:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.81 Mbit/s

95th percentile per-packet one-way delay: 121.569 ms

Loss rate: 1.00%

-- Flow 1:

Average throughput: 56.09 Mbit/s

95th percentile per-packet one-way delay: 112.574 ms

Loss rate: 1.02%

-- Flow 2:

Average throughput: 36.31 Mbit/s

95th percentile per-packet one-way delay: 134.165 ms

Loss rate: 1.02%

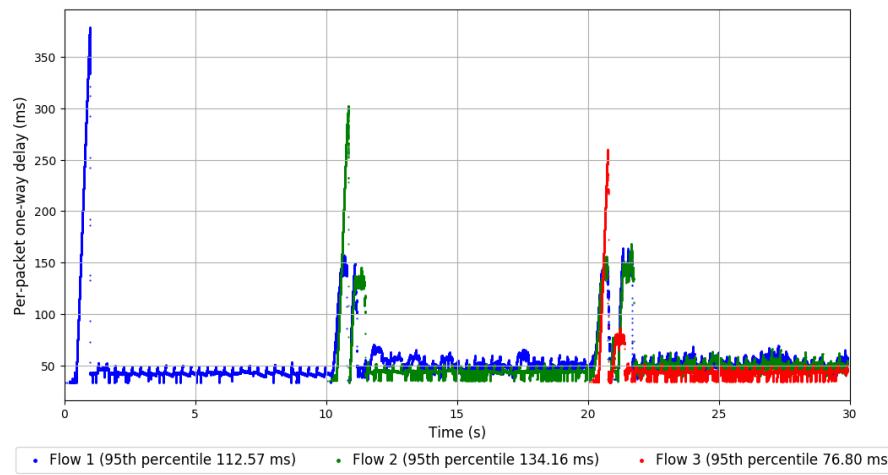
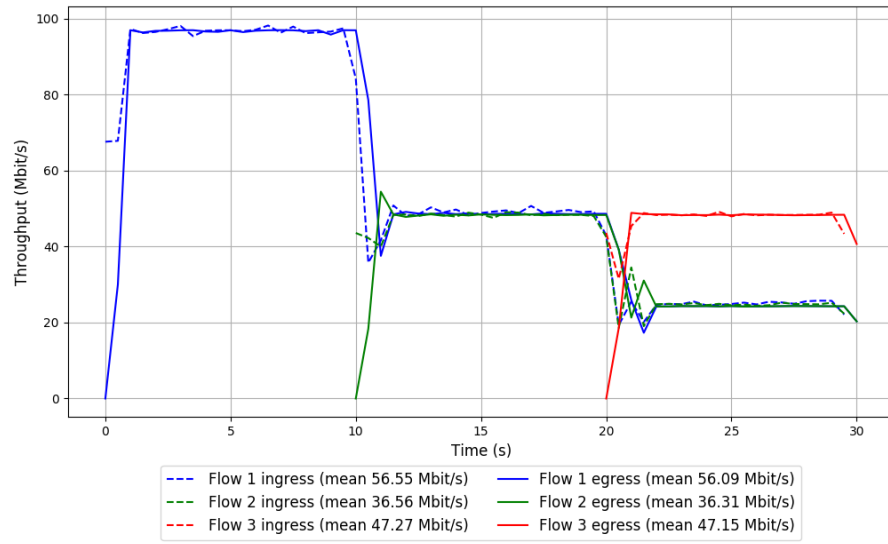
-- Flow 3:

Average throughput: 47.15 Mbit/s

95th percentile per-packet one-way delay: 76.800 ms

Loss rate: 0.90%

Run 5: Report of FillP-Sheep — Data Link

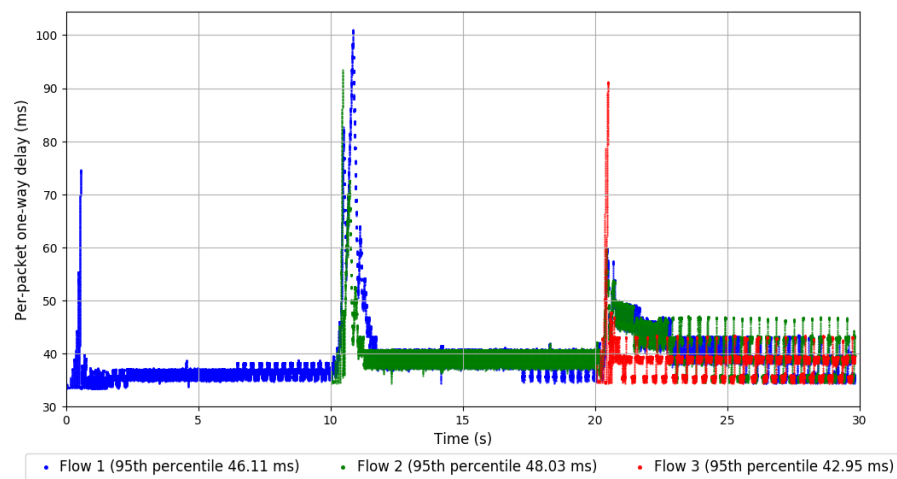
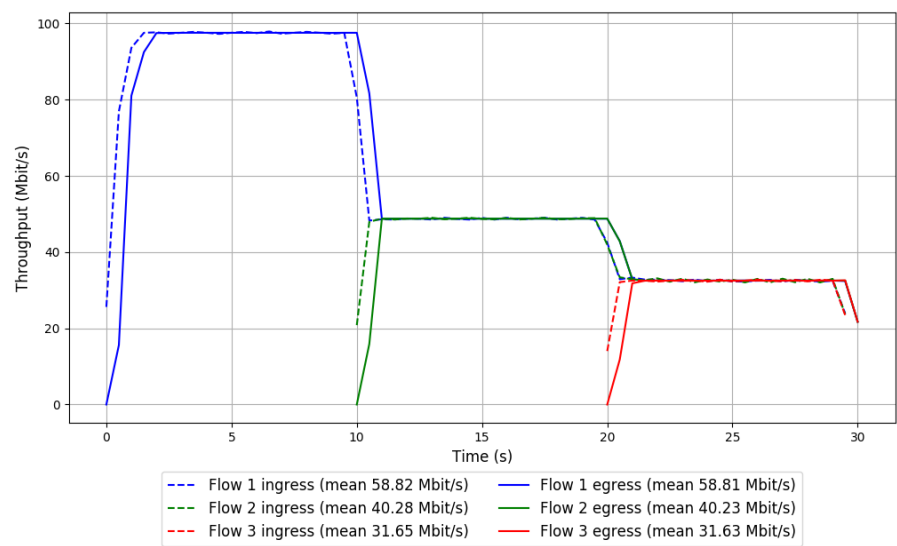


```
Run 1: Statistics of Indigo

Start at: 2018-09-06 19:23:32
End at: 2018-09-06 19:24:02
Local clock offset: 0.788 ms
Remote clock offset: -1.424 ms

# Below is generated by plot.py at 2018-09-06 21:23:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.90 Mbit/s
95th percentile per-packet one-way delay: 46.538 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 58.81 Mbit/s
95th percentile per-packet one-way delay: 46.108 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 40.23 Mbit/s
95th percentile per-packet one-way delay: 48.026 ms
Loss rate: 0.43%
-- Flow 3:
Average throughput: 31.63 Mbit/s
95th percentile per-packet one-way delay: 42.952 ms
Loss rate: 0.69%
```

Run 1: Report of Indigo — Data Link

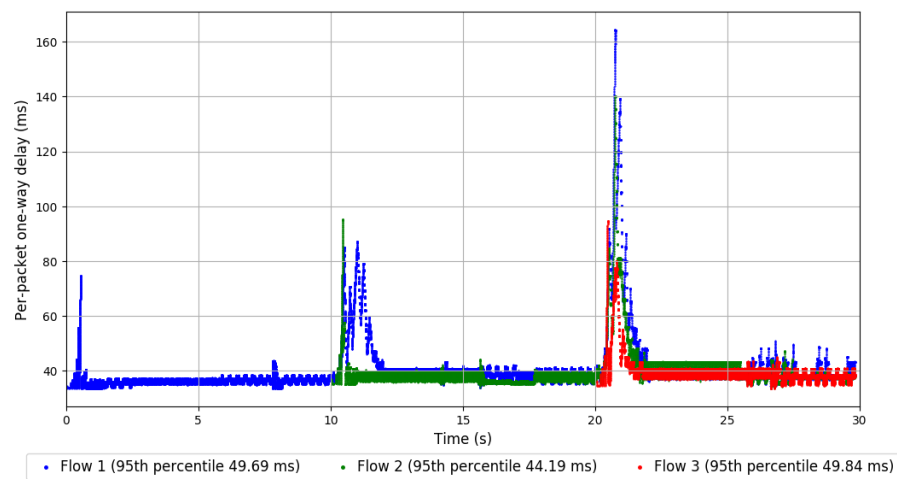
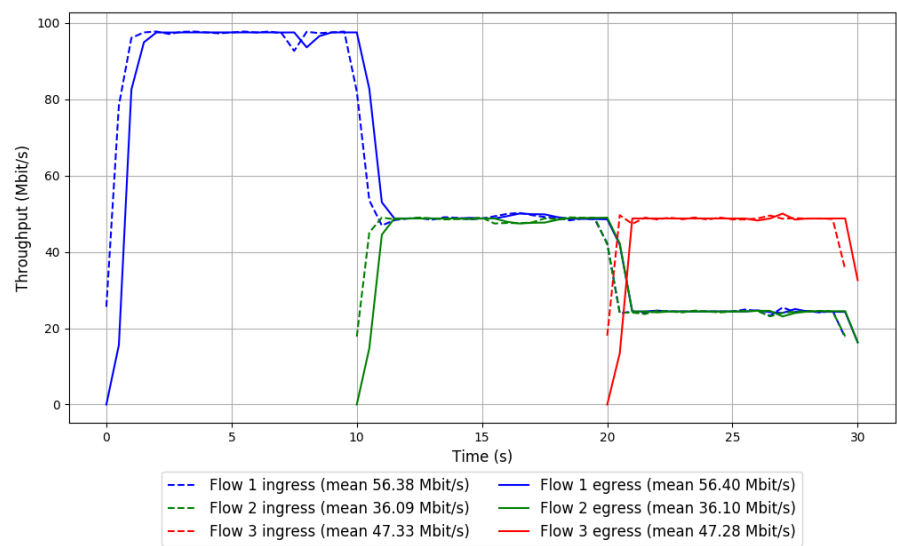


Run 2: Statistics of Indigo

Start at: 2018-09-06 19:48:24
End at: 2018-09-06 19:48:54
Local clock offset: 0.789 ms
Remote clock offset: -0.465 ms

Below is generated by plot.py at 2018-09-06 21:23:06
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.87 Mbit/s
95th percentile per-packet one-way delay: 48.095 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 56.40 Mbit/s
95th percentile per-packet one-way delay: 49.692 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 36.10 Mbit/s
95th percentile per-packet one-way delay: 44.186 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 47.28 Mbit/s
95th percentile per-packet one-way delay: 49.836 ms
Loss rate: 0.73%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-06 20:13:21

End at: 2018-09-06 20:13:51

Local clock offset: 0.442 ms

Remote clock offset: 0.3 ms

Below is generated by plot.py at 2018-09-06 21:23:37

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.12 Mbit/s

95th percentile per-packet one-way delay: 49.838 ms

Loss rate: 0.31%

-- Flow 1:

Average throughput: 56.44 Mbit/s

95th percentile per-packet one-way delay: 47.860 ms

Loss rate: 0.17%

-- Flow 2:

Average throughput: 36.38 Mbit/s

95th percentile per-packet one-way delay: 56.786 ms

Loss rate: 0.36%

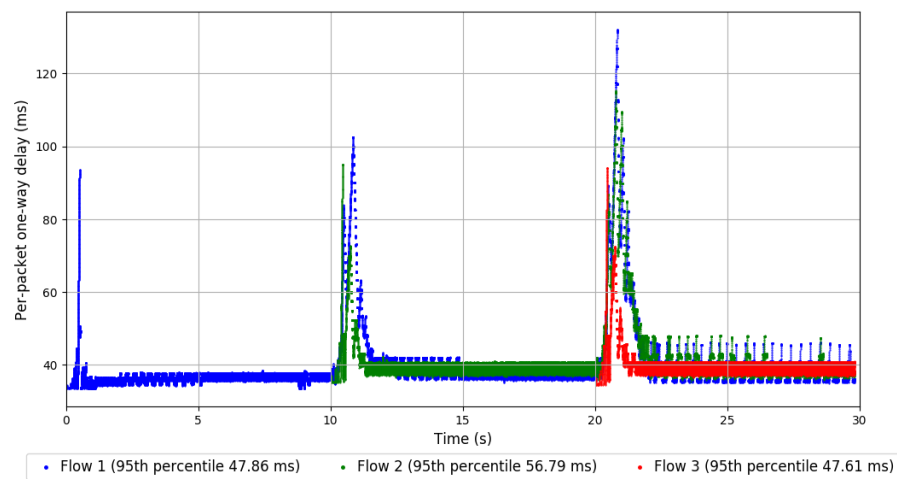
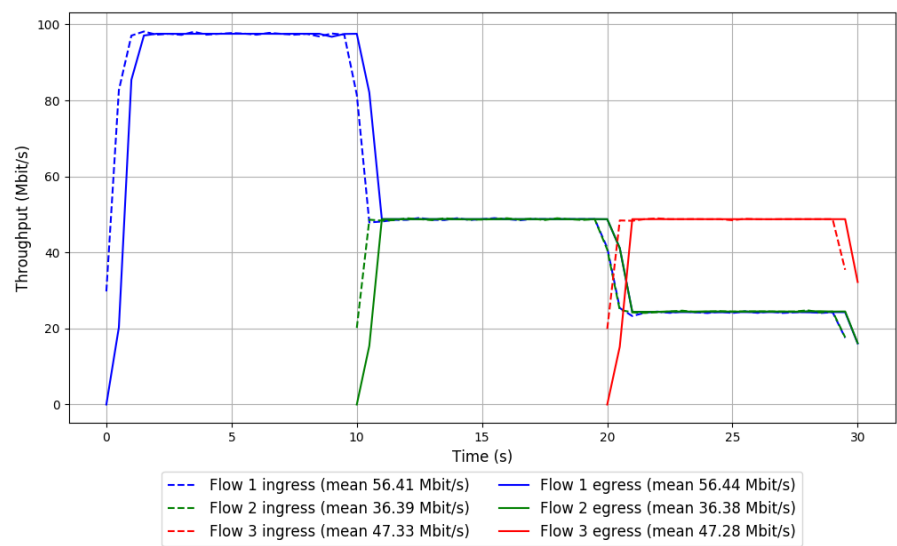
-- Flow 3:

Average throughput: 47.28 Mbit/s

95th percentile per-packet one-way delay: 47.607 ms

Loss rate: 0.76%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-06 20:38:17

End at: 2018-09-06 20:38:47

Local clock offset: 0.227 ms

Remote clock offset: 0.746 ms

Below is generated by plot.py at 2018-09-06 21:23:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.10 Mbit/s

95th percentile per-packet one-way delay: 45.610 ms

Loss rate: 0.31%

-- Flow 1:

Average throughput: 59.18 Mbit/s

95th percentile per-packet one-way delay: 48.505 ms

Loss rate: 0.23%

-- Flow 2:

Average throughput: 39.96 Mbit/s

95th percentile per-packet one-way delay: 44.425 ms

Loss rate: 0.30%

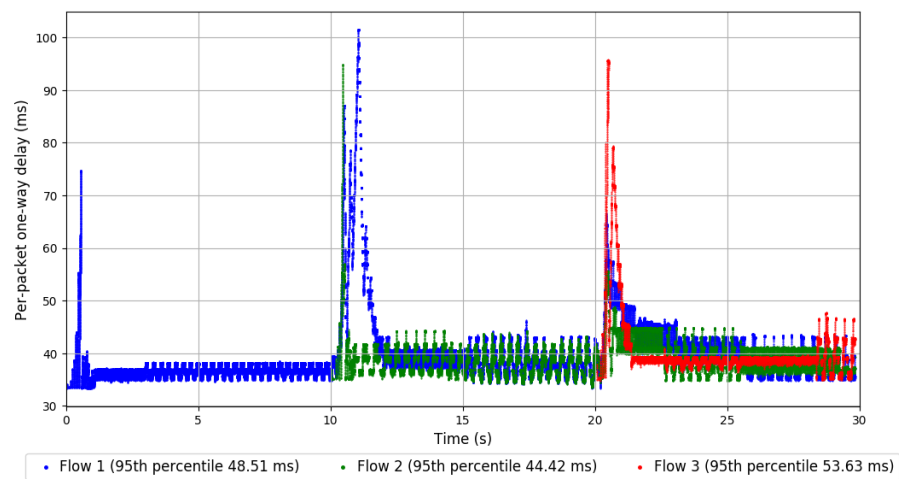
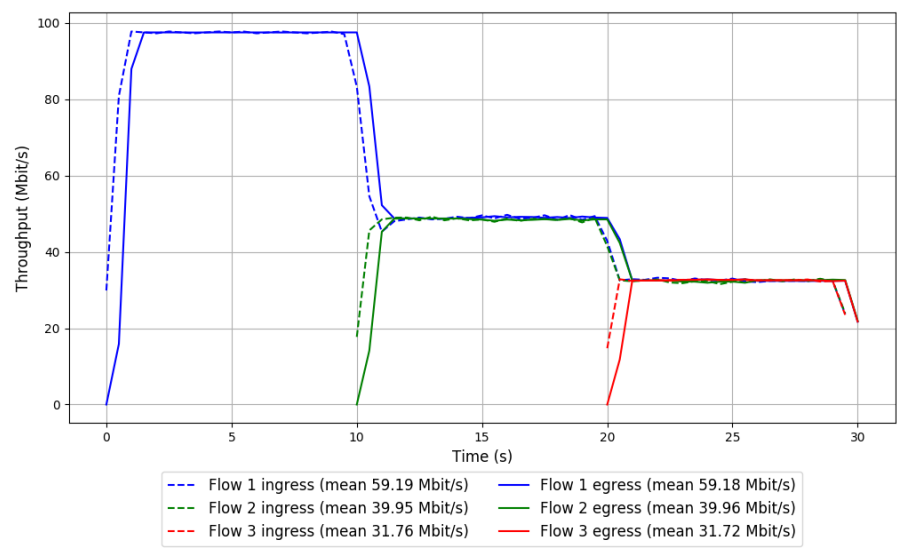
-- Flow 3:

Average throughput: 31.72 Mbit/s

95th percentile per-packet one-way delay: 53.626 ms

Loss rate: 0.79%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-06 21:03:06

End at: 2018-09-06 21:03:36

Local clock offset: 0.128 ms

Remote clock offset: 0.865 ms

Below is generated by plot.py at 2018-09-06 21:23:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.11 Mbit/s

95th percentile per-packet one-way delay: 44.863 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 56.40 Mbit/s

95th percentile per-packet one-way delay: 48.120 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 48.00 Mbit/s

95th percentile per-packet one-way delay: 42.463 ms

Loss rate: 0.38%

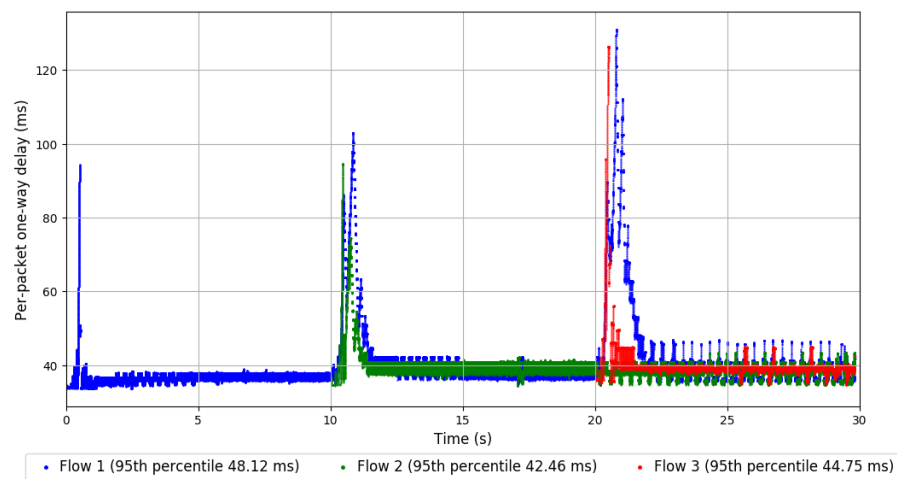
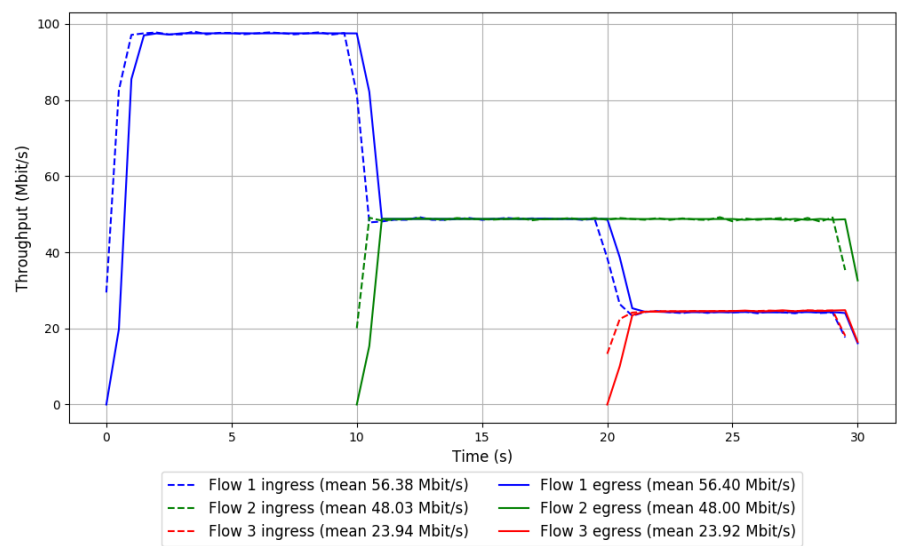
-- Flow 3:

Average throughput: 23.92 Mbit/s

95th percentile per-packet one-way delay: 44.750 ms

Loss rate: 0.73%

Run 5: Report of Indigo — Data Link

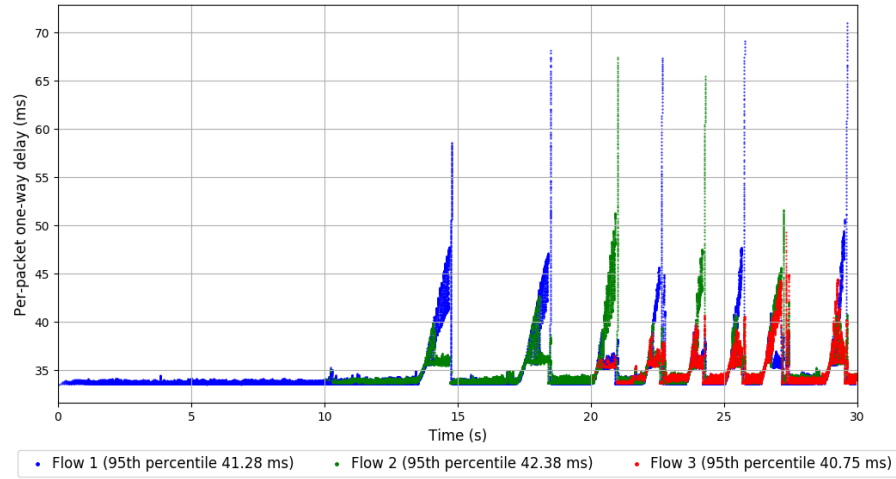
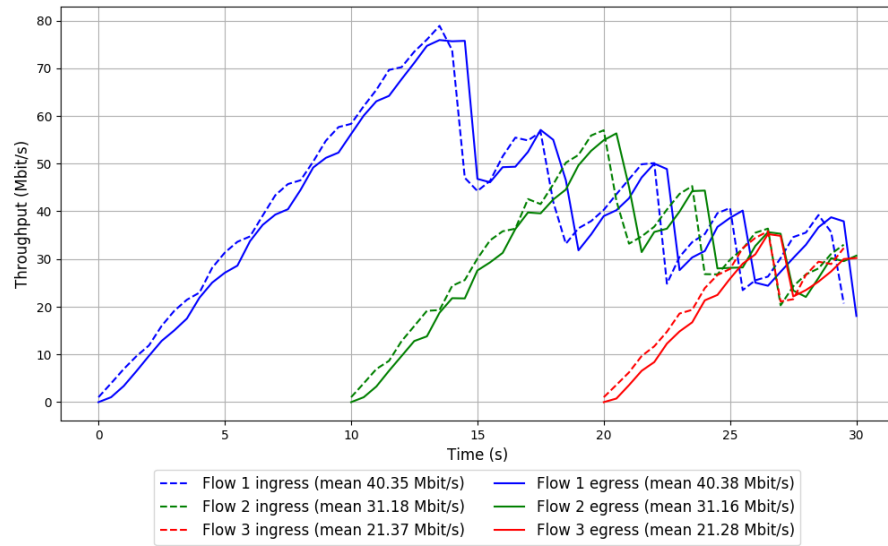


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-06 19:19:29
End at: 2018-09-06 19:19:59
Local clock offset: 0.88 ms
Remote clock offset: -1.524 ms

# Below is generated by plot.py at 2018-09-06 21:23:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.15 Mbit/s
95th percentile per-packet one-way delay: 41.585 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 40.38 Mbit/s
95th percentile per-packet one-way delay: 41.284 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 31.16 Mbit/s
95th percentile per-packet one-way delay: 42.377 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 21.28 Mbit/s
95th percentile per-packet one-way delay: 40.747 ms
Loss rate: 1.07%
```

Run 1: Report of LEDBAT — Data Link

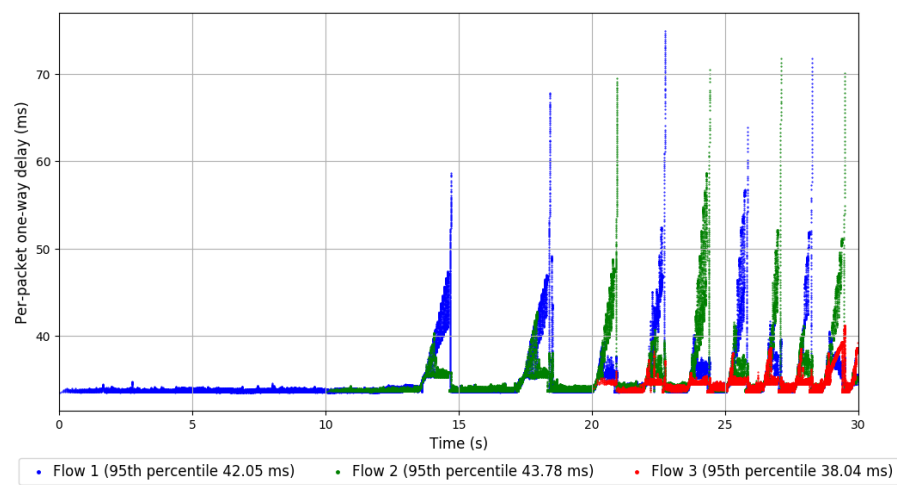
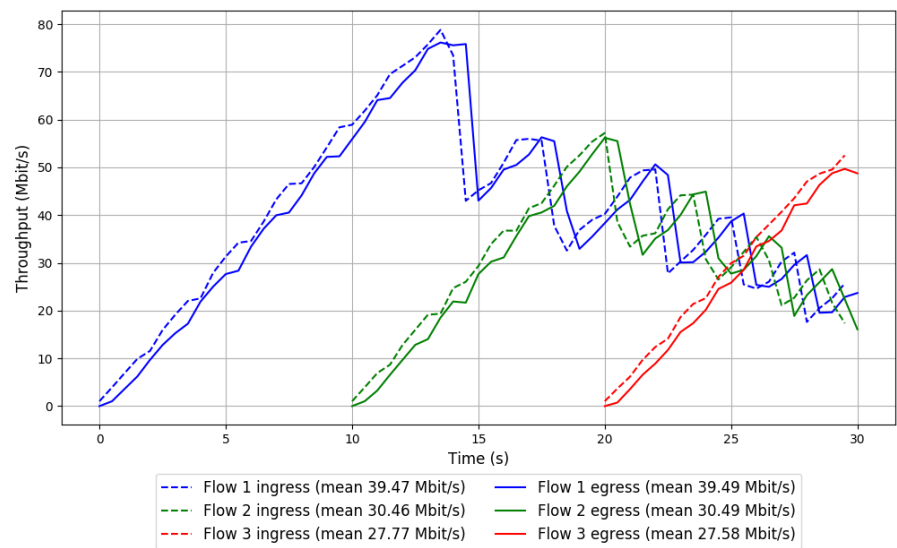


Run 2: Statistics of LEDBAT

Start at: 2018-09-06 19:44:17
End at: 2018-09-06 19:44:47
Local clock offset: 0.931 ms
Remote clock offset: -0.589 ms

Below is generated by plot.py at 2018-09-06 21:23:47
Datalink statistics
-- Total of 3 flows:
Average throughput: 68.90 Mbit/s
95th percentile per-packet one-way delay: 41.952 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 39.49 Mbit/s
95th percentile per-packet one-way delay: 42.045 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 30.49 Mbit/s
95th percentile per-packet one-way delay: 43.781 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 27.58 Mbit/s
95th percentile per-packet one-way delay: 38.044 ms
Loss rate: 1.31%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-06 20:09:18

End at: 2018-09-06 20:09:48

Local clock offset: 0.402 ms

Remote clock offset: 0.28 ms

Below is generated by plot.py at 2018-09-06 21:23:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 68.41 Mbit/s

95th percentile per-packet one-way delay: 41.740 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 40.07 Mbit/s

95th percentile per-packet one-way delay: 41.674 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 31.25 Mbit/s

95th percentile per-packet one-way delay: 41.605 ms

Loss rate: 0.38%

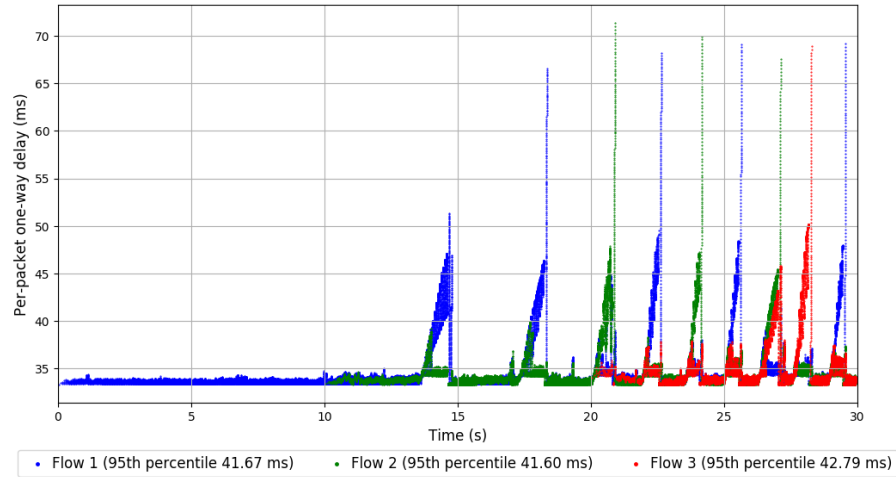
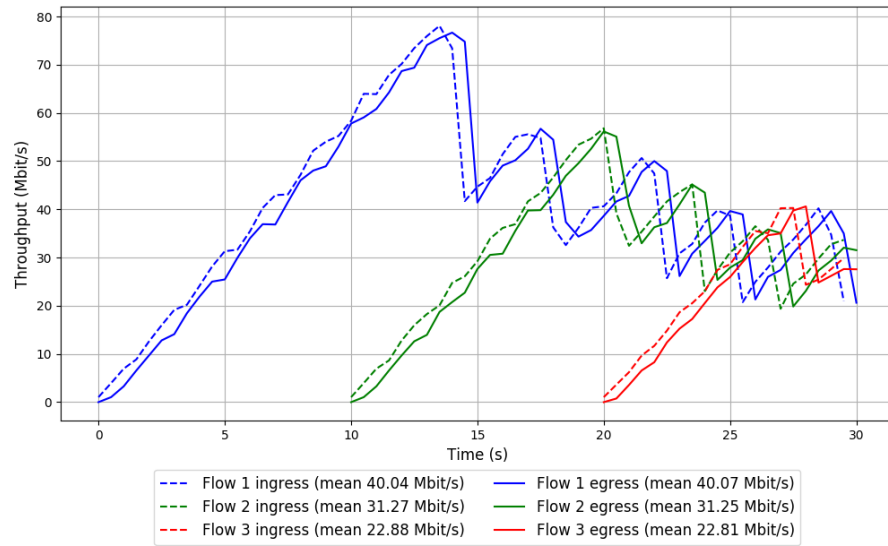
-- Flow 3:

Average throughput: 22.81 Mbit/s

95th percentile per-packet one-way delay: 42.791 ms

Loss rate: 0.92%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-06 20:34:12

End at: 2018-09-06 20:34:42

Local clock offset: 0.359 ms

Remote clock offset: 0.632 ms

Below is generated by plot.py at 2018-09-06 21:23:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 65.82 Mbit/s

95th percentile per-packet one-way delay: 40.968 ms

Loss rate: 0.34%

-- Flow 1:

Average throughput: 36.76 Mbit/s

95th percentile per-packet one-way delay: 41.047 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 34.57 Mbit/s

95th percentile per-packet one-way delay: 39.032 ms

Loss rate: 0.53%

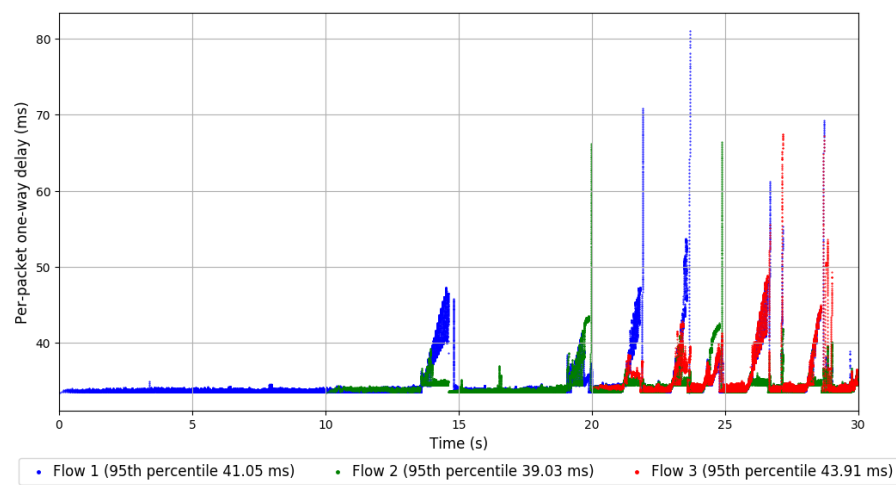
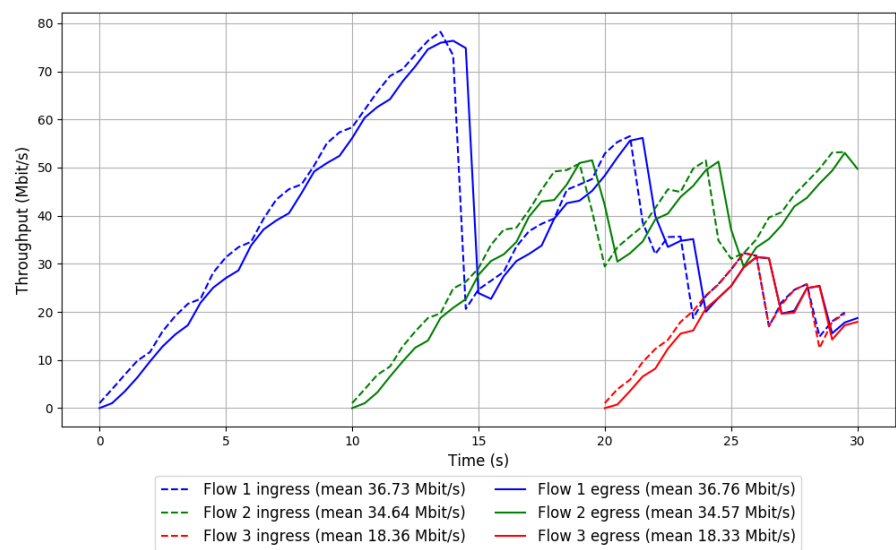
-- Flow 3:

Average throughput: 18.33 Mbit/s

95th percentile per-packet one-way delay: 43.907 ms

Loss rate: 0.78%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-06 20:59:02

End at: 2018-09-06 20:59:32

Local clock offset: 0.154 ms

Remote clock offset: 0.94 ms

Below is generated by plot.py at 2018-09-06 21:24:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 65.41 Mbit/s

95th percentile per-packet one-way delay: 40.690 ms

Loss rate: 0.28%

-- Flow 1:

Average throughput: 39.29 Mbit/s

95th percentile per-packet one-way delay: 40.669 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 25.84 Mbit/s

95th percentile per-packet one-way delay: 41.636 ms

Loss rate: 0.31%

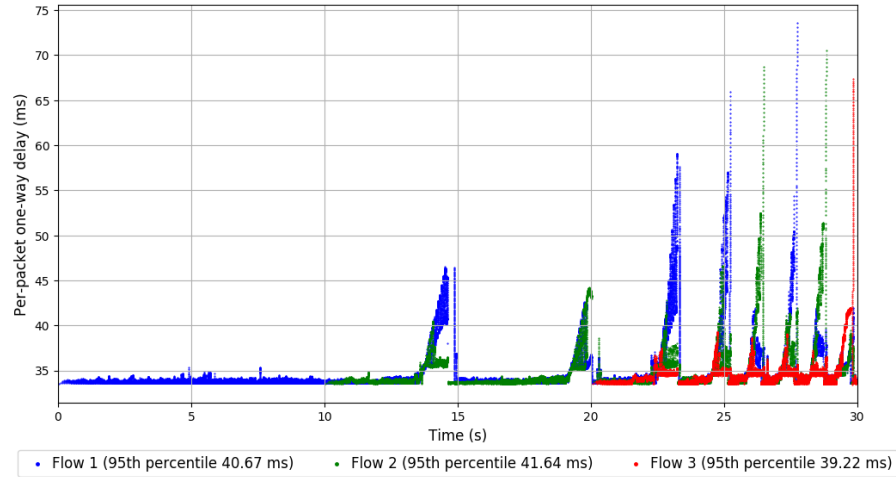
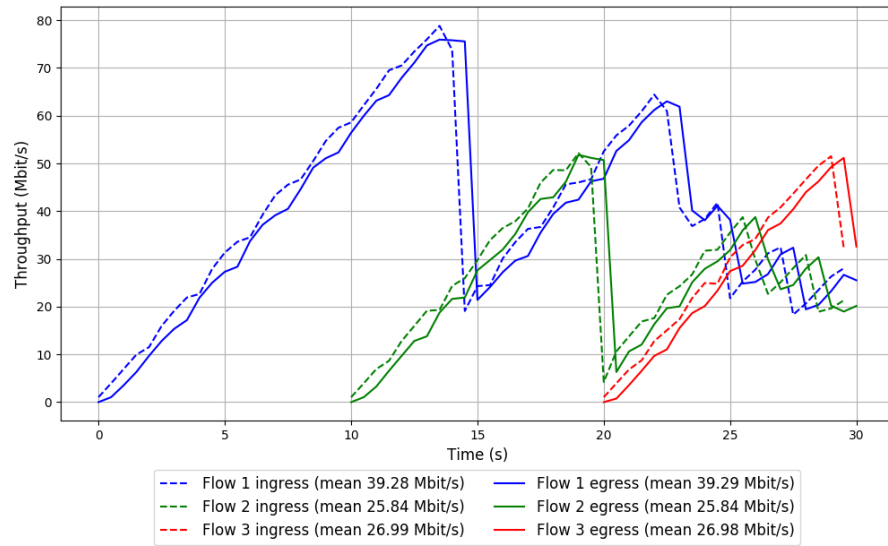
-- Flow 3:

Average throughput: 26.98 Mbit/s

95th percentile per-packet one-way delay: 39.220 ms

Loss rate: 0.68%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 19:36:05

End at: 2018-09-06 19:36:35

Local clock offset: 0.803 ms

Remote clock offset: -0.89 ms

Below is generated by plot.py at 2018-09-06 21:24:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.68 Mbit/s

95th percentile per-packet one-way delay: 90.446 ms

Loss rate: 0.49%

-- Flow 1:

Average throughput: 56.25 Mbit/s

95th percentile per-packet one-way delay: 88.825 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 41.69 Mbit/s

95th percentile per-packet one-way delay: 96.796 ms

Loss rate: 0.60%

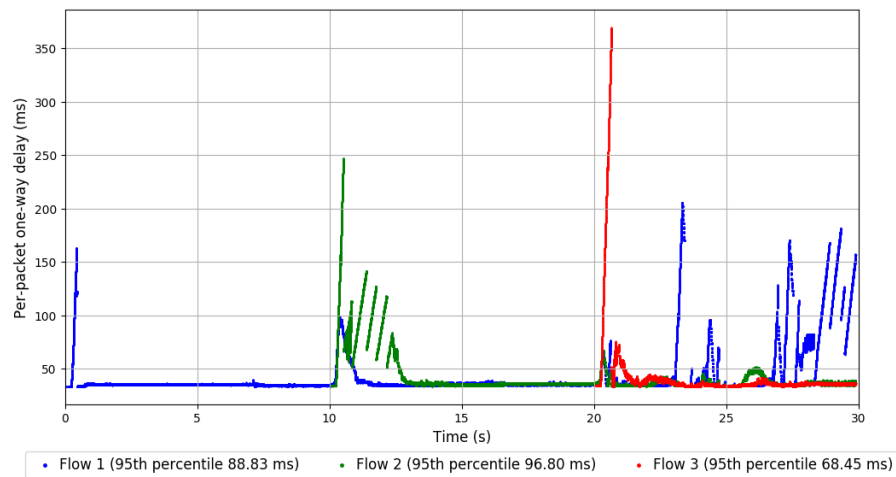
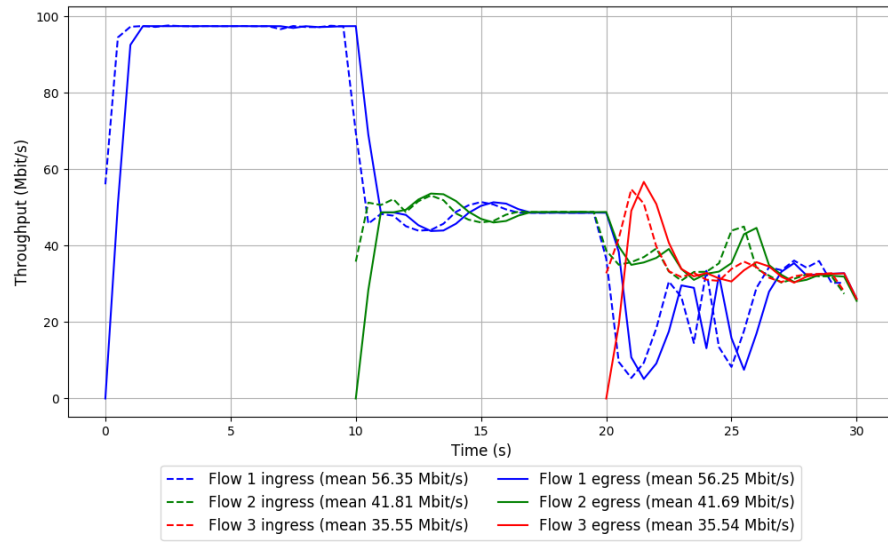
-- Flow 3:

Average throughput: 35.54 Mbit/s

95th percentile per-packet one-way delay: 68.452 ms

Loss rate: 0.68%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 20:01:05

End at: 2018-09-06 20:01:35

Local clock offset: 0.409 ms

Remote clock offset: 0.04 ms

Below is generated by plot.py at 2018-09-06 21:24:47

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.99 Mbit/s

95th percentile per-packet one-way delay: 78.470 ms

Loss rate: 0.32%

-- Flow 1:

Average throughput: 62.47 Mbit/s

95th percentile per-packet one-way delay: 56.798 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 33.56 Mbit/s

95th percentile per-packet one-way delay: 87.039 ms

Loss rate: 0.24%

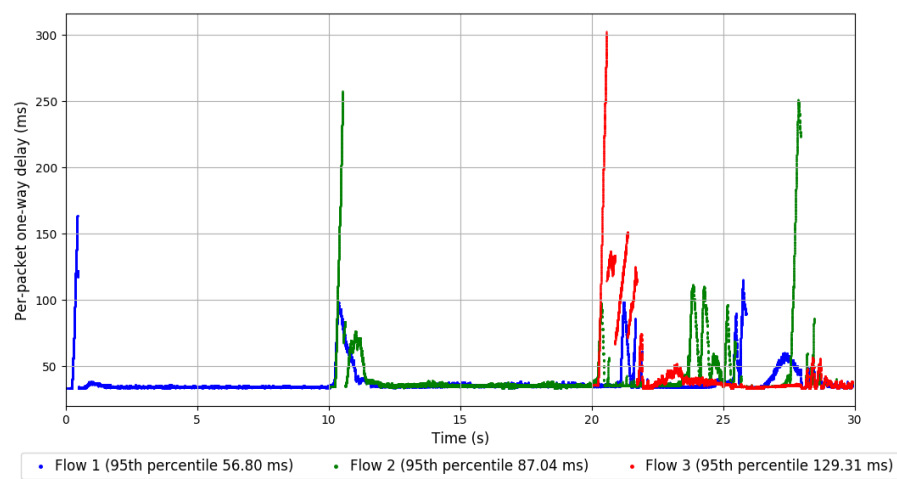
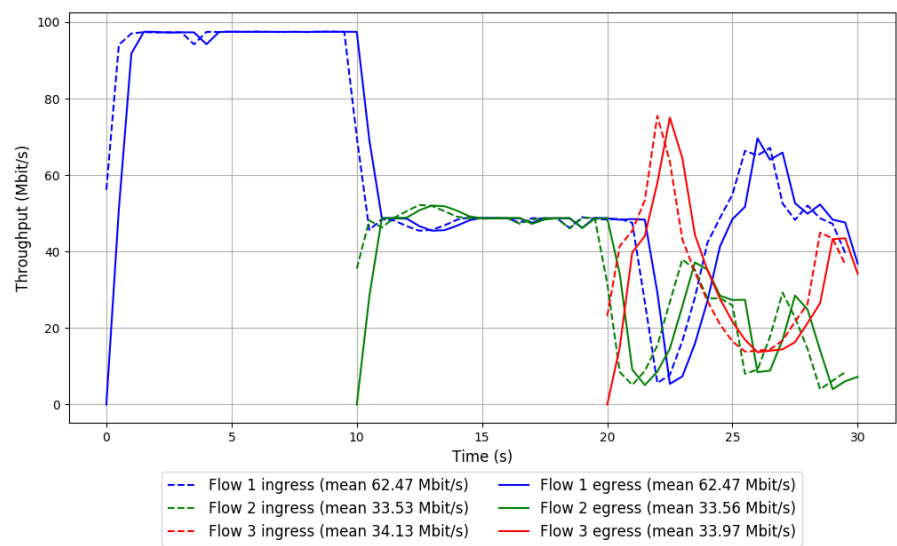
-- Flow 3:

Average throughput: 33.97 Mbit/s

95th percentile per-packet one-way delay: 129.314 ms

Loss rate: 1.13%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 20:25:51

End at: 2018-09-06 20:26:21

Local clock offset: 0.379 ms

Remote clock offset: 0.476 ms

Below is generated by plot.py at 2018-09-06 21:24:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.96 Mbit/s

95th percentile per-packet one-way delay: 90.472 ms

Loss rate: 0.42%

-- Flow 1:

Average throughput: 64.33 Mbit/s

95th percentile per-packet one-way delay: 40.441 ms

Loss rate: 0.17%

-- Flow 2:

Average throughput: 32.77 Mbit/s

95th percentile per-packet one-way delay: 107.581 ms

Loss rate: 0.61%

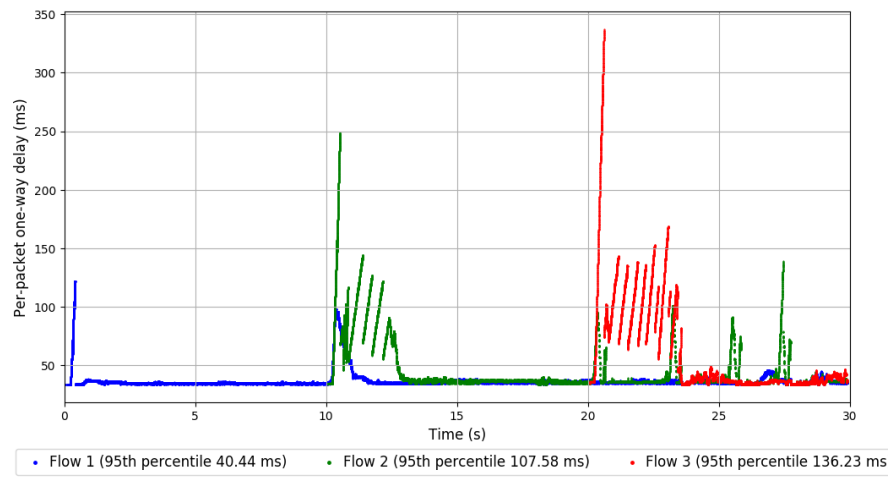
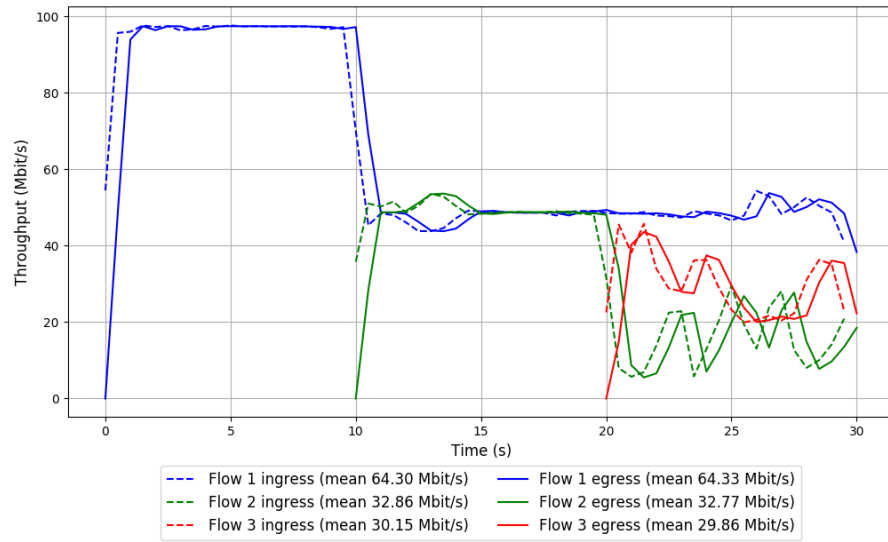
-- Flow 3:

Average throughput: 29.86 Mbit/s

95th percentile per-packet one-way delay: 136.234 ms

Loss rate: 1.61%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-06 20:50:52

End at: 2018-09-06 20:51:22

Local clock offset: 0.199 ms

Remote clock offset: 0.806 ms

Below is generated by plot.py at 2018-09-06 21:24:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.90 Mbit/s

95th percentile per-packet one-way delay: 93.190 ms

Loss rate: 0.43%

-- Flow 1:

Average throughput: 53.80 Mbit/s

95th percentile per-packet one-way delay: 56.166 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 49.02 Mbit/s

95th percentile per-packet one-way delay: 92.351 ms

Loss rate: 0.60%

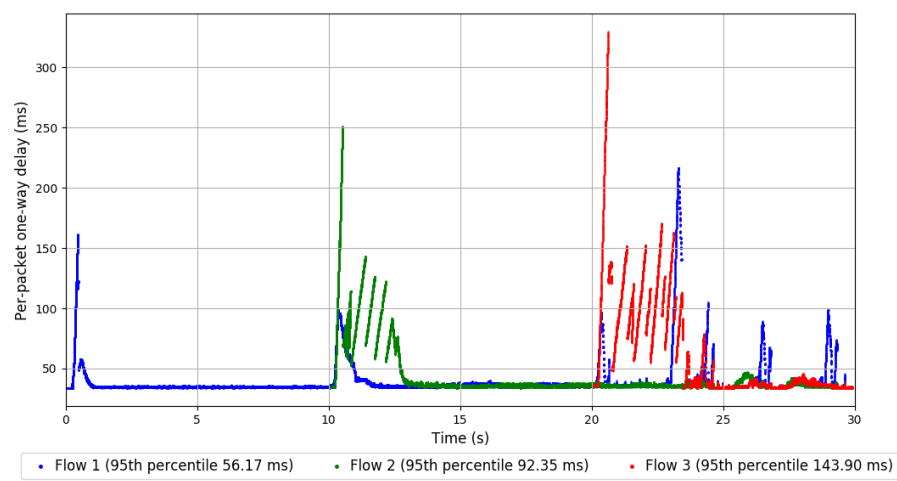
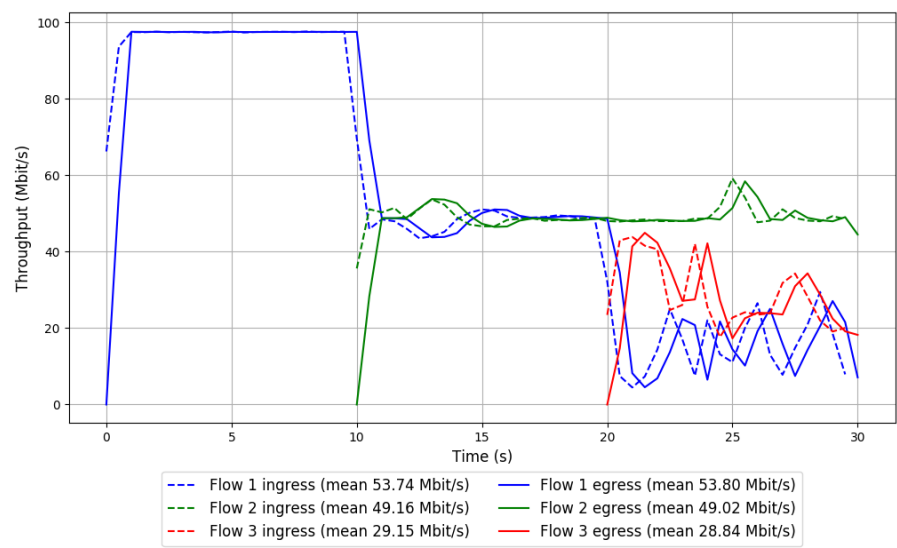
-- Flow 3:

Average throughput: 28.84 Mbit/s

95th percentile per-packet one-way delay: 143.902 ms

Loss rate: 1.70%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-06 21:15:39

End at: 2018-09-06 21:16:10

Local clock offset: 0.005 ms

Remote clock offset: 1.196 ms

Below is generated by plot.py at 2018-09-06 21:24:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.62 Mbit/s

95th percentile per-packet one-way delay: 51.672 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 58.69 Mbit/s

95th percentile per-packet one-way delay: 39.521 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 40.99 Mbit/s

95th percentile per-packet one-way delay: 42.092 ms

Loss rate: 0.29%

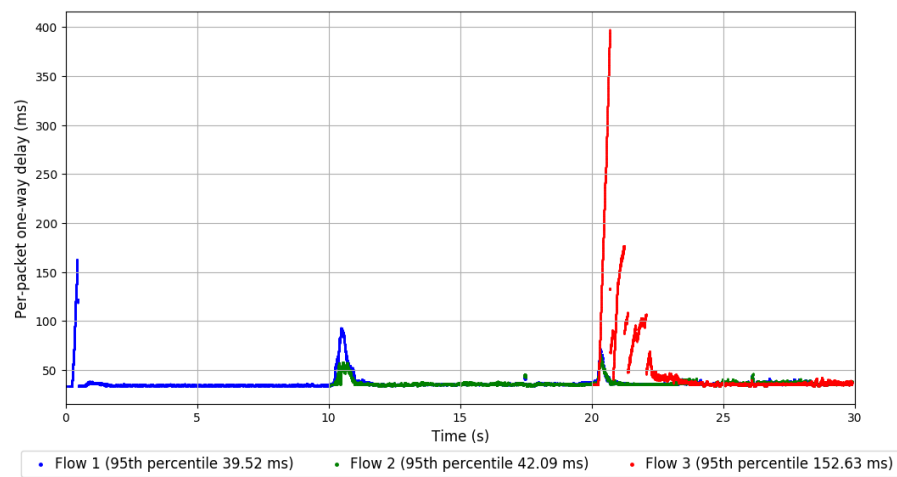
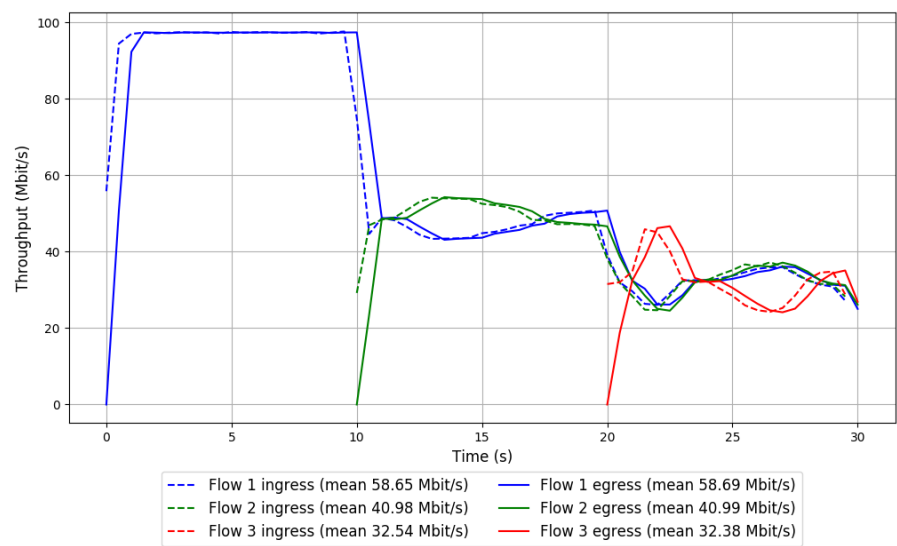
-- Flow 3:

Average throughput: 32.38 Mbit/s

95th percentile per-packet one-way delay: 152.633 ms

Loss rate: 1.16%

Run 5: Report of Indigo-Muses — Data Link

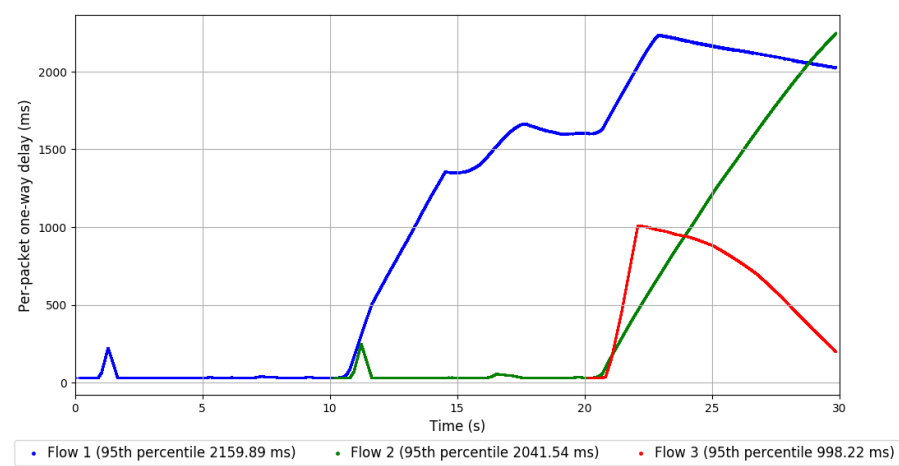
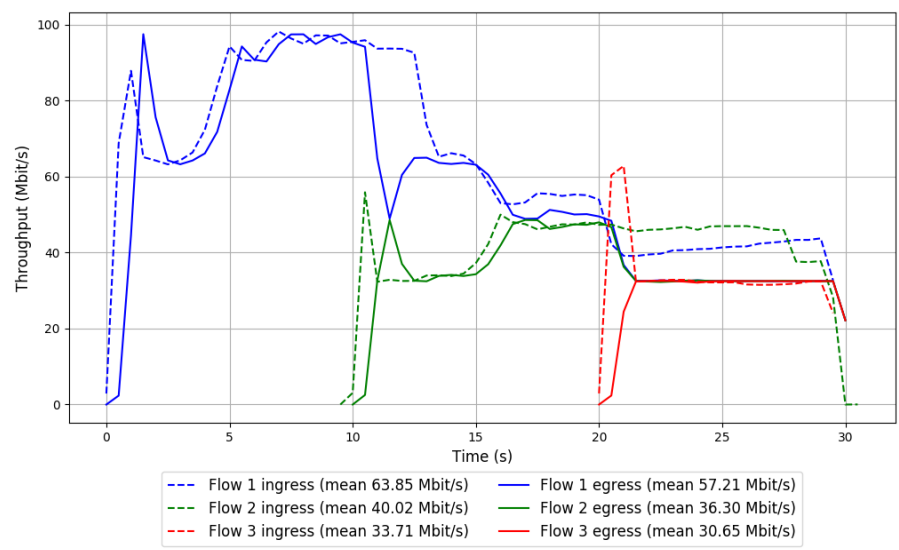


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 19:30:26
End at: 2018-09-06 19:30:56
Local clock offset: 0.79 ms
Remote clock offset: -1.174 ms

# Below is generated by plot.py at 2018-09-06 21:24:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.41 Mbit/s
95th percentile per-packet one-way delay: 2137.341 ms
Loss rate: 11.40%
-- Flow 1:
Average throughput: 57.21 Mbit/s
95th percentile per-packet one-way delay: 2159.894 ms
Loss rate: 10.59%
-- Flow 2:
Average throughput: 36.30 Mbit/s
95th percentile per-packet one-way delay: 2041.544 ms
Loss rate: 13.93%
-- Flow 3:
Average throughput: 30.65 Mbit/s
95th percentile per-packet one-way delay: 998.224 ms
Loss rate: 9.69%
```


Run 1: Report of PCC-Allegro — Data Link

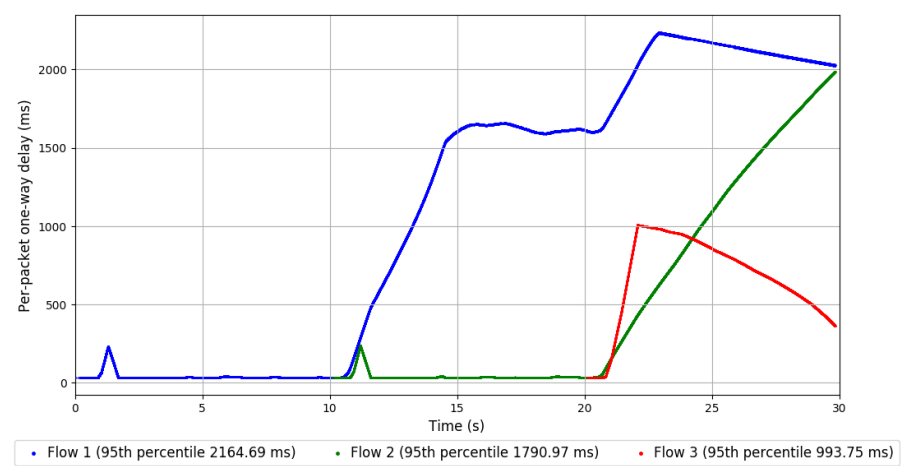
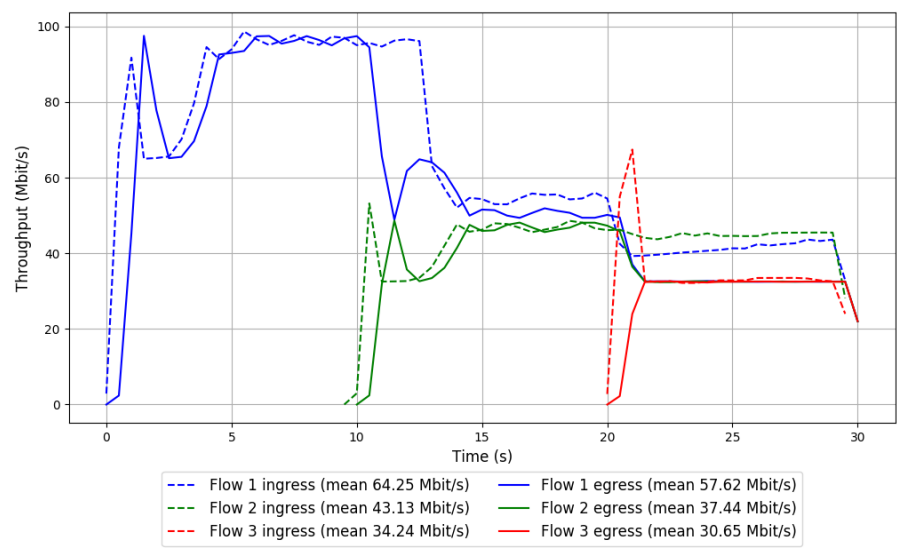


Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 19:55:26
End at: 2018-09-06 19:55:56
Local clock offset: 0.445 ms
Remote clock offset: -0.134 ms

Below is generated by plot.py at 2018-09-06 21:25:06
Datalink statistics
-- Total of 3 flows:
Average throughput: 92.57 Mbit/s
95th percentile per-packet one-way delay: 2119.802 ms
Loss rate: 11.37%
-- Flow 1:
Average throughput: 57.62 Mbit/s
95th percentile per-packet one-way delay: 2164.694 ms
Loss rate: 10.50%
-- Flow 2:
Average throughput: 37.44 Mbit/s
95th percentile per-packet one-way delay: 1790.969 ms
Loss rate: 13.46%
-- Flow 3:
Average throughput: 30.65 Mbit/s
95th percentile per-packet one-way delay: 993.745 ms
Loss rate: 11.05%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 20:20:15

End at: 2018-09-06 20:20:45

Local clock offset: 0.311 ms

Remote clock offset: 0.311 ms

Below is generated by plot.py at 2018-09-06 21:25:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.12 Mbit/s

95th percentile per-packet one-way delay: 1637.062 ms

Loss rate: 22.87%

-- Flow 1:

Average throughput: 55.32 Mbit/s

95th percentile per-packet one-way delay: 1646.182 ms

Loss rate: 27.31%

-- Flow 2:

Average throughput: 35.42 Mbit/s

95th percentile per-packet one-way delay: 1306.762 ms

Loss rate: 21.42%

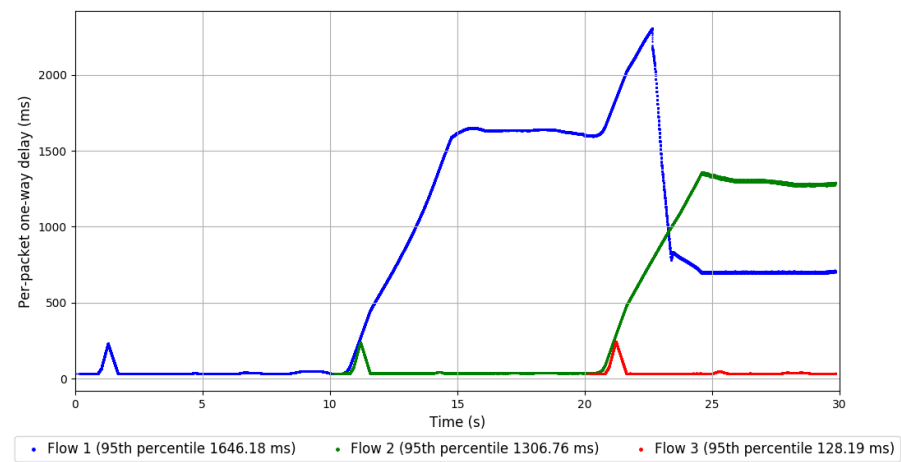
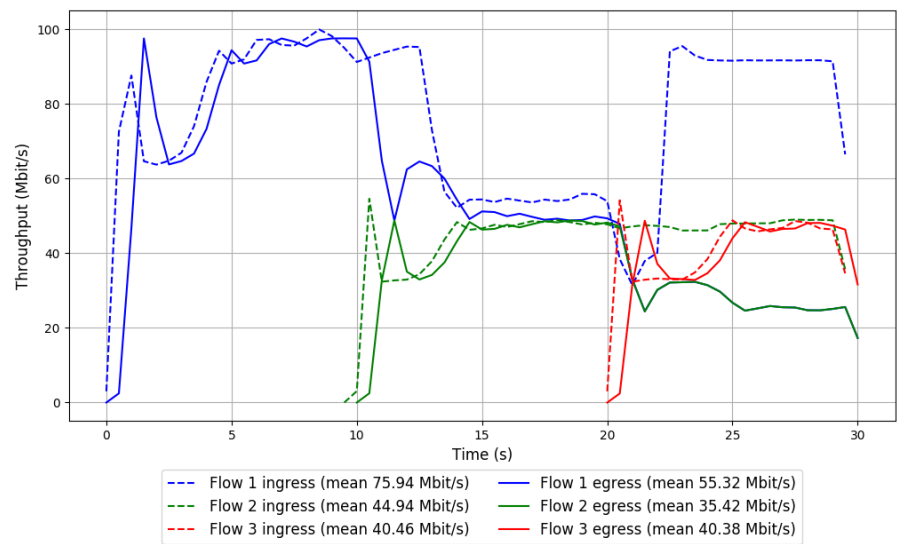
-- Flow 3:

Average throughput: 40.38 Mbit/s

95th percentile per-packet one-way delay: 128.187 ms

Loss rate: 0.84%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-06 20:45:13

End at: 2018-09-06 20:45:43

Local clock offset: 0.157 ms

Remote clock offset: 0.807 ms

Below is generated by plot.py at 2018-09-06 21:25:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.93 Mbit/s

95th percentile per-packet one-way delay: 2129.916 ms

Loss rate: 11.33%

-- Flow 1:

Average throughput: 57.40 Mbit/s

95th percentile per-packet one-way delay: 2163.661 ms

Loss rate: 10.56%

-- Flow 2:

Average throughput: 36.78 Mbit/s

95th percentile per-packet one-way delay: 1987.013 ms

Loss rate: 13.81%

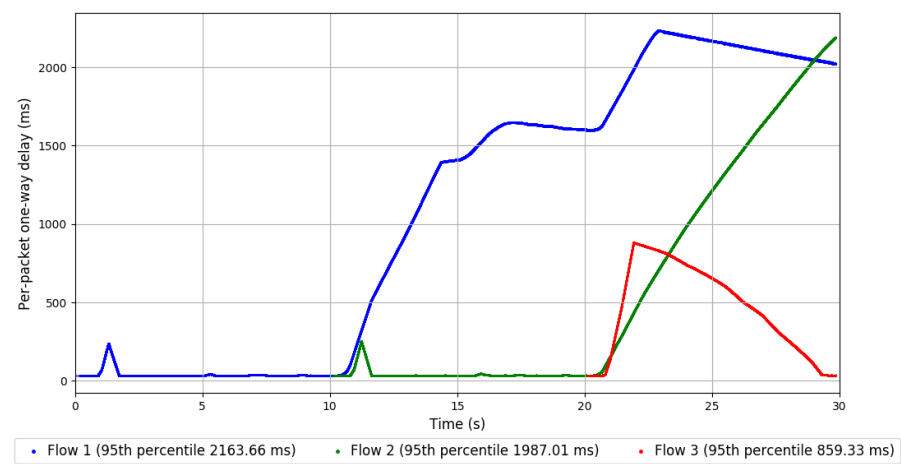
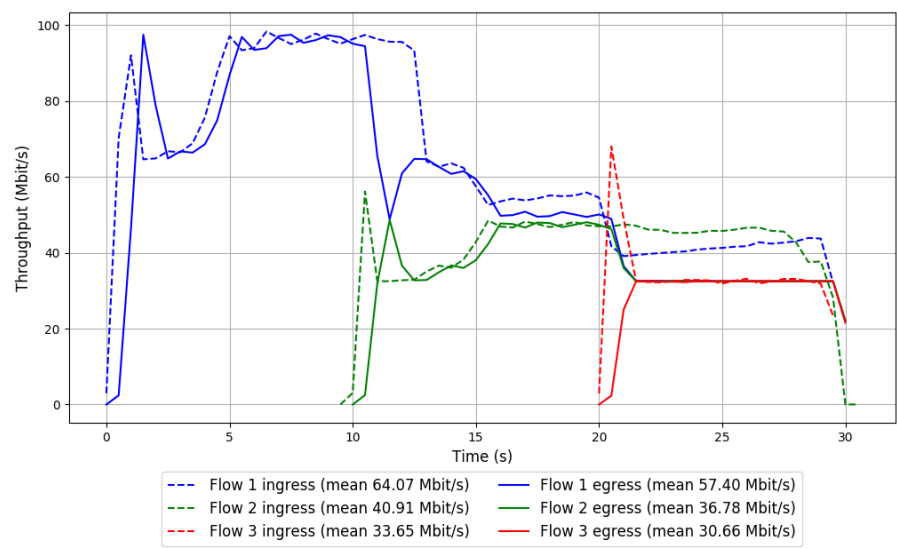
-- Flow 3:

Average throughput: 30.66 Mbit/s

95th percentile per-packet one-way delay: 859.332 ms

Loss rate: 9.47%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-06 21:09:59

End at: 2018-09-06 21:10:29

Local clock offset: 0.013 ms

Remote clock offset: 1.069 ms

Below is generated by plot.py at 2018-09-06 21:25:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.55 Mbit/s

95th percentile per-packet one-way delay: 2122.349 ms

Loss rate: 11.20%

-- Flow 1:

Average throughput: 57.87 Mbit/s

95th percentile per-packet one-way delay: 2162.755 ms

Loss rate: 10.51%

-- Flow 2:

Average throughput: 37.03 Mbit/s

95th percentile per-packet one-way delay: 1928.113 ms

Loss rate: 13.61%

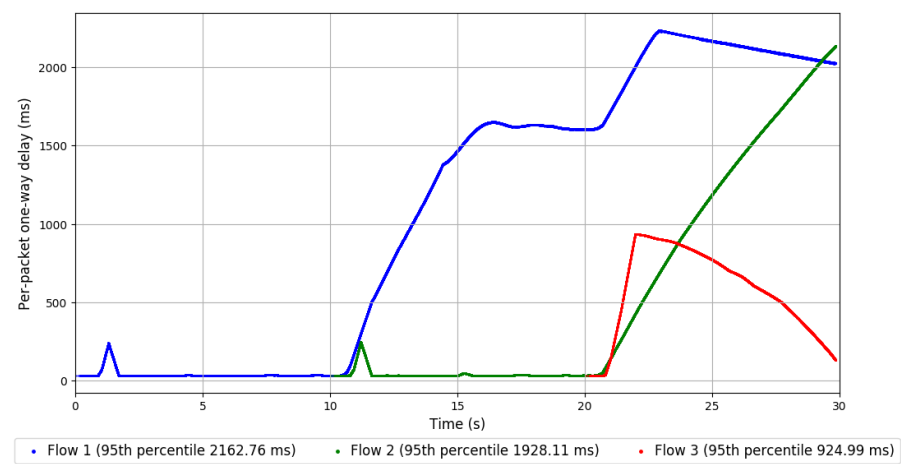
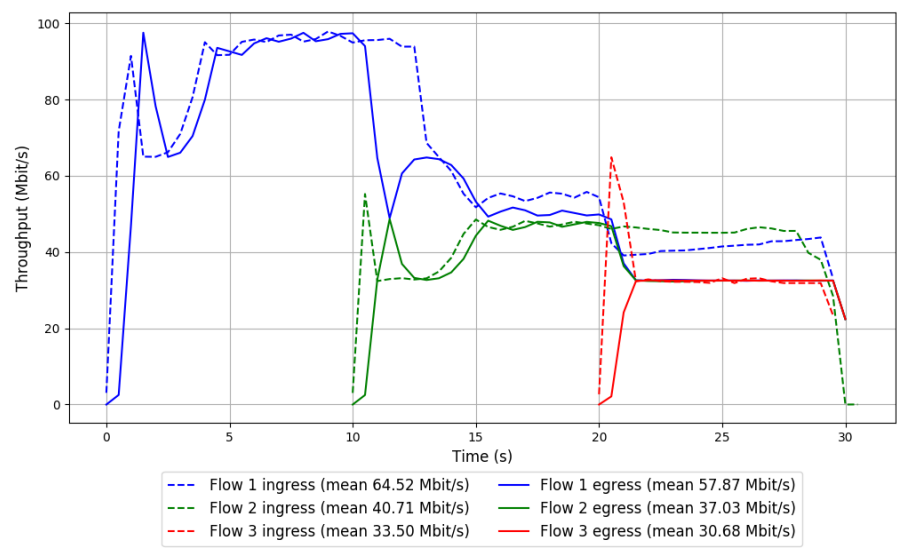
-- Flow 3:

Average throughput: 30.68 Mbit/s

95th percentile per-packet one-way delay: 924.991 ms

Loss rate: 9.01%

Run 5: Report of PCC-Allegro — Data Link

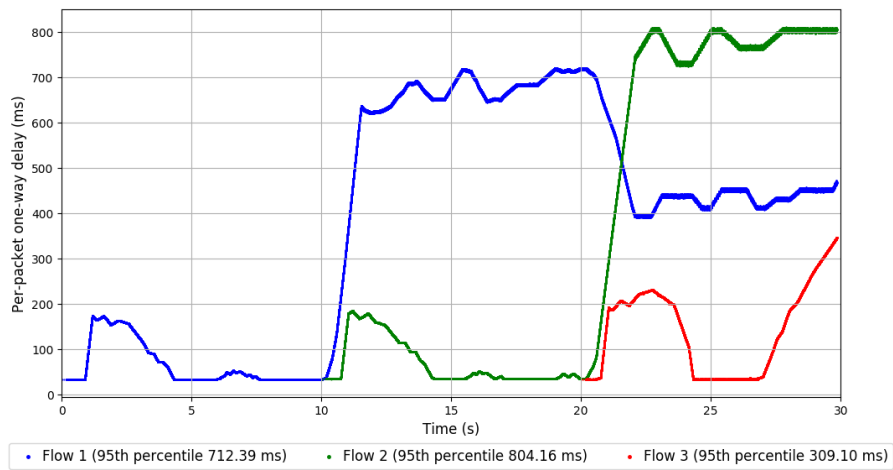
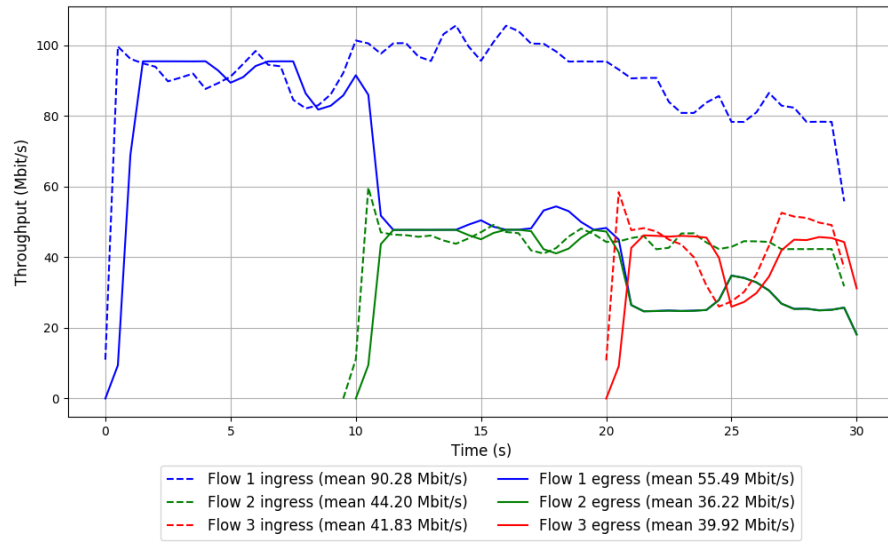


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-06 19:34:37
End at: 2018-09-06 19:35:07
Local clock offset: 0.8 ms
Remote clock offset: -1.078 ms

# Below is generated by plot.py at 2018-09-06 21:27:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.70 Mbit/s
95th percentile per-packet one-way delay: 769.835 ms
Loss rate: 30.72%
-- Flow 1:
Average throughput: 55.49 Mbit/s
95th percentile per-packet one-way delay: 712.393 ms
Loss rate: 38.67%
-- Flow 2:
Average throughput: 36.22 Mbit/s
95th percentile per-packet one-way delay: 804.163 ms
Loss rate: 18.32%
-- Flow 3:
Average throughput: 39.92 Mbit/s
95th percentile per-packet one-way delay: 309.102 ms
Loss rate: 5.19%
```

Run 1: Report of PCC-Expr — Data Link

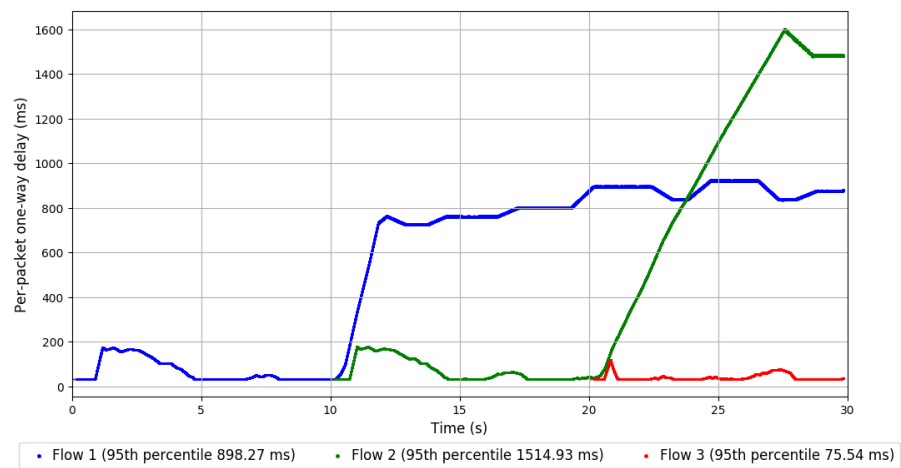
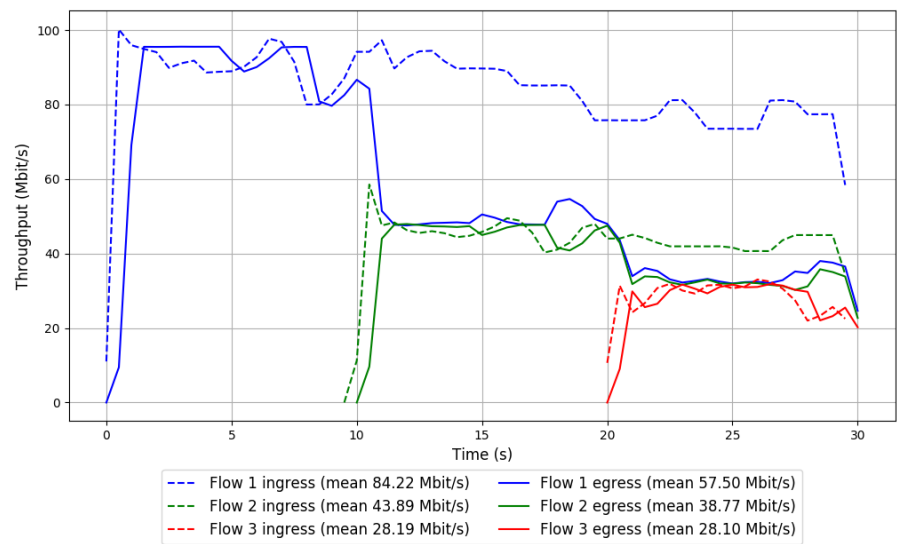


```
Run 2: Statistics of PCC-Expr

Start at: 2018-09-06 19:59:38
End at: 2018-09-06 20:00:08
Local clock offset: 0.433 ms
Remote clock offset: 0.032 ms

# Below is generated by plot.py at 2018-09-06 21:27:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.51 Mbit/s
95th percentile per-packet one-way delay: 1198.694 ms
Loss rate: 24.78%
-- Flow 1:
Average throughput: 57.50 Mbit/s
95th percentile per-packet one-way delay: 898.275 ms
Loss rate: 31.87%
-- Flow 2:
Average throughput: 38.77 Mbit/s
95th percentile per-packet one-way delay: 1514.926 ms
Loss rate: 11.95%
-- Flow 3:
Average throughput: 28.10 Mbit/s
95th percentile per-packet one-way delay: 75.536 ms
Loss rate: 0.94%
```

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-06 20:24:25

End at: 2018-09-06 20:24:55

Local clock offset: 0.365 ms

Remote clock offset: 0.505 ms

Below is generated by plot.py at 2018-09-06 21:27:08

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.06 Mbit/s

95th percentile per-packet one-way delay: 853.839 ms

Loss rate: 24.75%

-- Flow 1:

Average throughput: 52.44 Mbit/s

95th percentile per-packet one-way delay: 897.935 ms

Loss rate: 35.88%

-- Flow 2:

Average throughput: 45.01 Mbit/s

95th percentile per-packet one-way delay: 166.261 ms

Loss rate: 0.64%

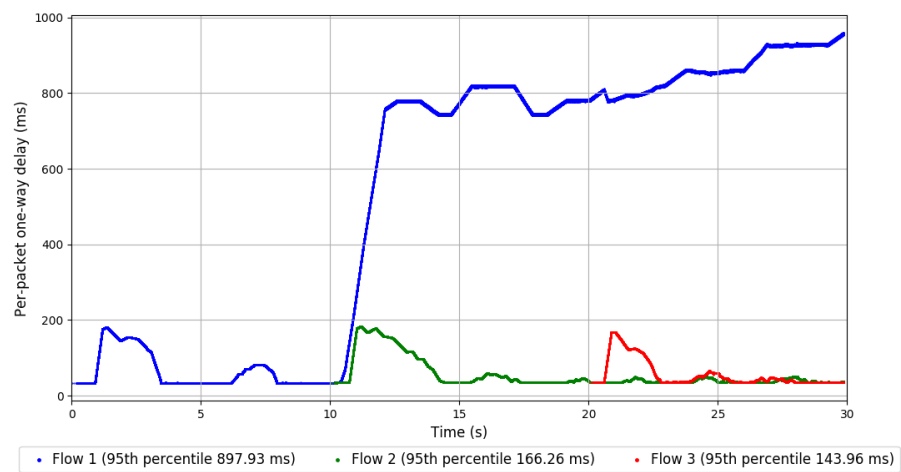
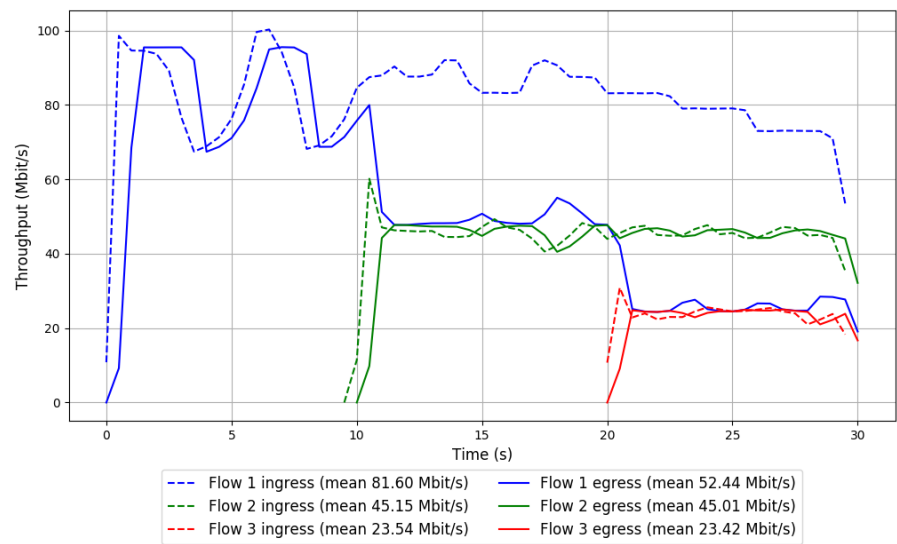
-- Flow 3:

Average throughput: 23.42 Mbit/s

95th percentile per-packet one-way delay: 143.964 ms

Loss rate: 1.20%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-06 20:49:25

End at: 2018-09-06 20:49:55

Local clock offset: 0.127 ms

Remote clock offset: 0.854 ms

Below is generated by plot.py at 2018-09-06 21:27:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.03 Mbit/s

95th percentile per-packet one-way delay: 719.494 ms

Loss rate: 34.55%

-- Flow 1:

Average throughput: 57.40 Mbit/s

95th percentile per-packet one-way delay: 703.398 ms

Loss rate: 43.17%

-- Flow 2:

Average throughput: 38.01 Mbit/s

95th percentile per-packet one-way delay: 741.818 ms

Loss rate: 16.30%

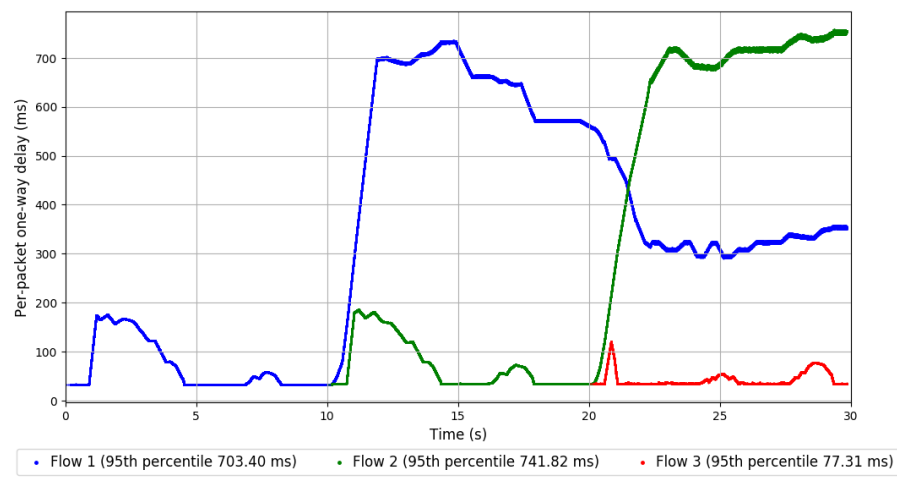
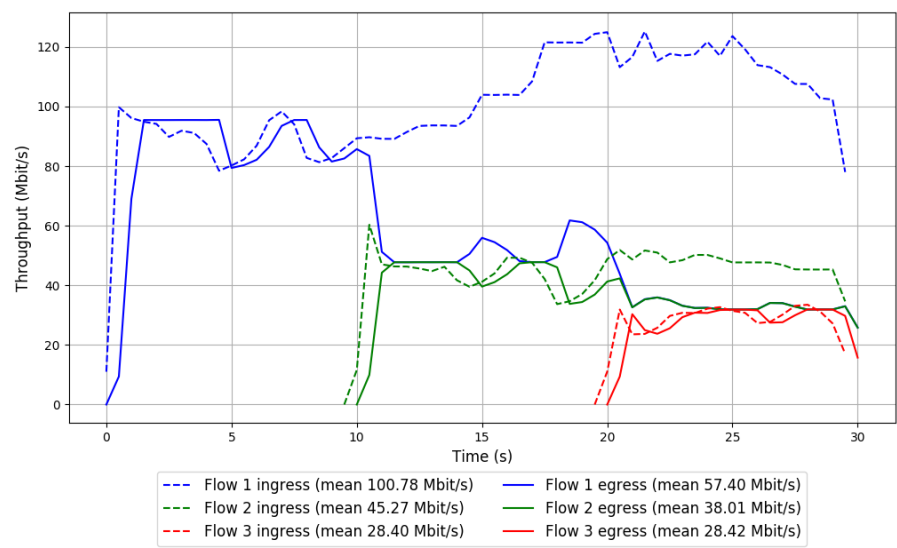
-- Flow 3:

Average throughput: 28.42 Mbit/s

95th percentile per-packet one-way delay: 77.315 ms

Loss rate: 0.60%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-06 21:14:12

End at: 2018-09-06 21:14:42

Local clock offset: 0.094 ms

Remote clock offset: 1.089 ms

Below is generated by plot.py at 2018-09-06 21:27:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.75 Mbit/s

95th percentile per-packet one-way delay: 881.073 ms

Loss rate: 23.46%

-- Flow 1:

Average throughput: 55.63 Mbit/s

95th percentile per-packet one-way delay: 906.471 ms

Loss rate: 33.24%

-- Flow 2:

Average throughput: 42.87 Mbit/s

95th percentile per-packet one-way delay: 171.277 ms

Loss rate: 0.97%

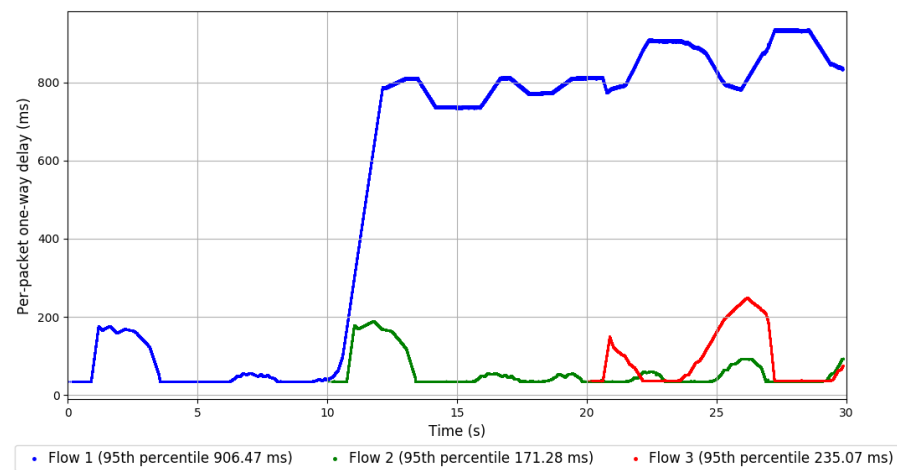
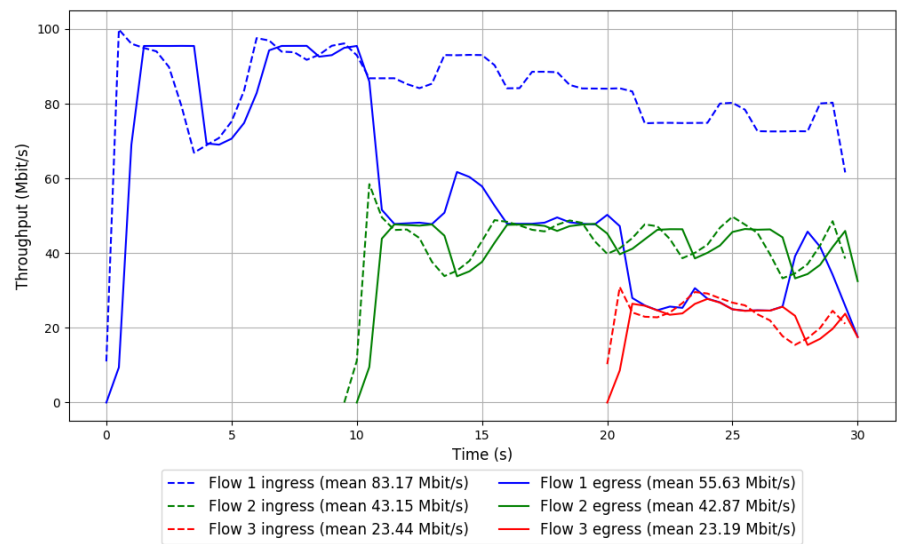
-- Flow 3:

Average throughput: 23.19 Mbit/s

95th percentile per-packet one-way delay: 235.067 ms

Loss rate: 1.73%

Run 5: Report of PCC-Expr — Data Link

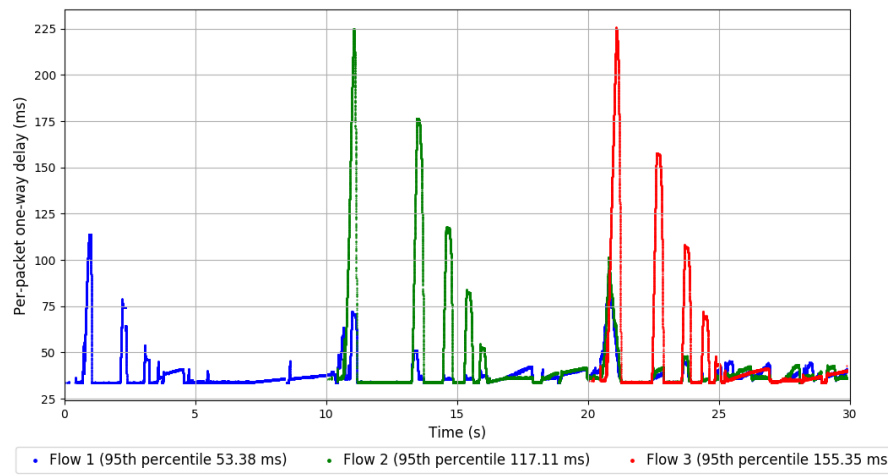
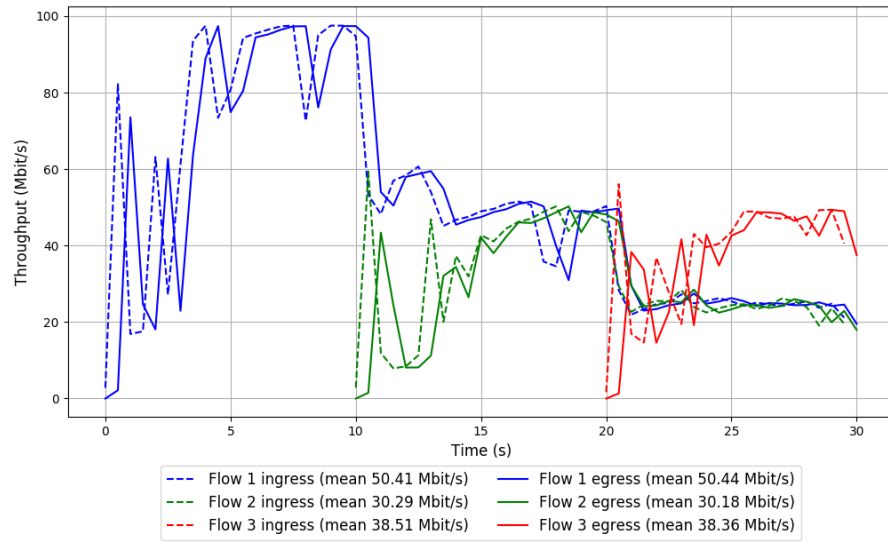


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-06 19:15:27
End at: 2018-09-06 19:15:57
Local clock offset: 1.104 ms
Remote clock offset: -1.719 ms

Below is generated by plot.py at 2018-09-06 21:27:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 83.12 Mbit/s
95th percentile per-packet one-way delay: 82.117 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 50.44 Mbit/s
95th percentile per-packet one-way delay: 53.376 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 30.18 Mbit/s
95th percentile per-packet one-way delay: 117.114 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 38.36 Mbit/s
95th percentile per-packet one-way delay: 155.349 ms
Loss rate: 1.02%

Run 1: Report of QUIC Cubic — Data Link

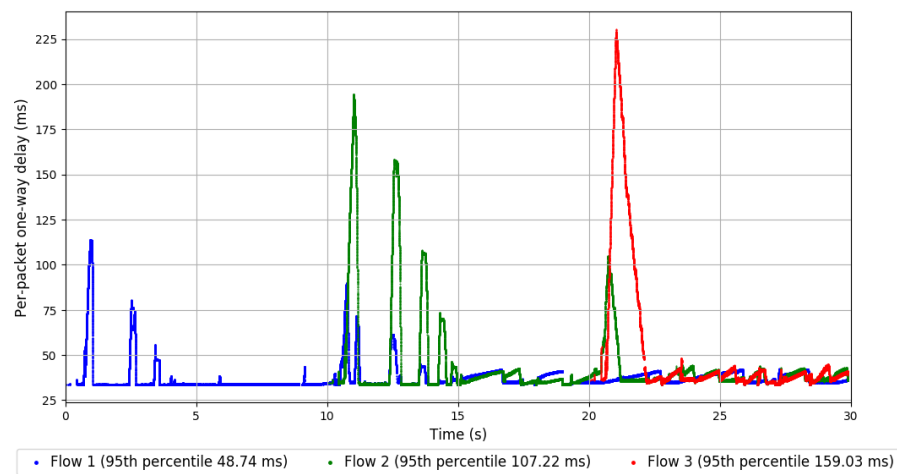
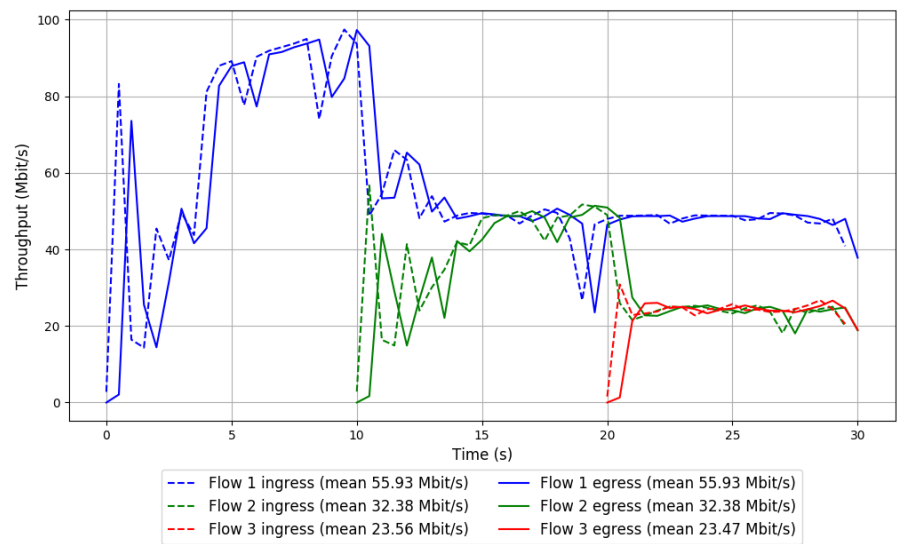


Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 19:40:13
End at: 2018-09-06 19:40:43
Local clock offset: 0.843 ms
Remote clock offset: -0.942 ms

Below is generated by plot.py at 2018-09-06 21:27:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 85.19 Mbit/s
95th percentile per-packet one-way delay: 73.199 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 55.93 Mbit/s
95th percentile per-packet one-way delay: 48.741 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 32.38 Mbit/s
95th percentile per-packet one-way delay: 107.220 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 23.47 Mbit/s
95th percentile per-packet one-way delay: 159.031 ms
Loss rate: 1.05%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 20:05:14

End at: 2018-09-06 20:05:44

Local clock offset: 0.364 ms

Remote clock offset: 0.158 ms

Below is generated by plot.py at 2018-09-06 21:27:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.57 Mbit/s

95th percentile per-packet one-way delay: 105.619 ms

Loss rate: 0.37%

-- Flow 1:

Average throughput: 41.46 Mbit/s

95th percentile per-packet one-way delay: 101.220 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 42.61 Mbit/s

95th percentile per-packet one-way delay: 112.501 ms

Loss rate: 0.45%

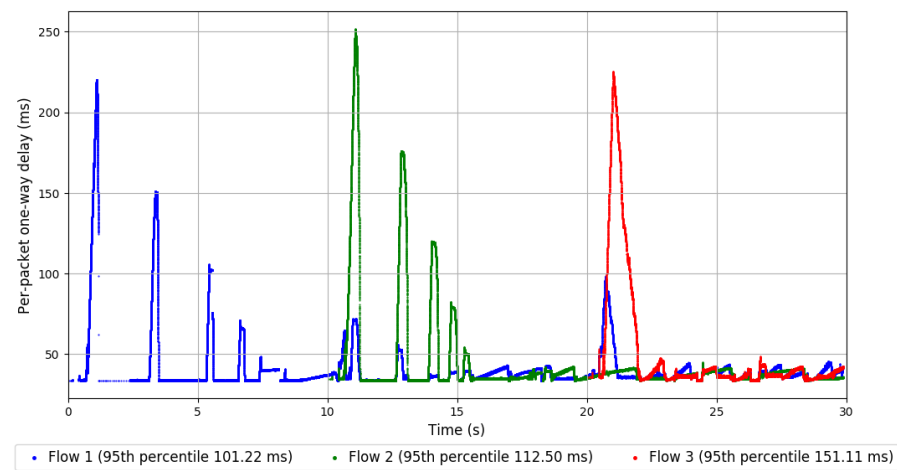
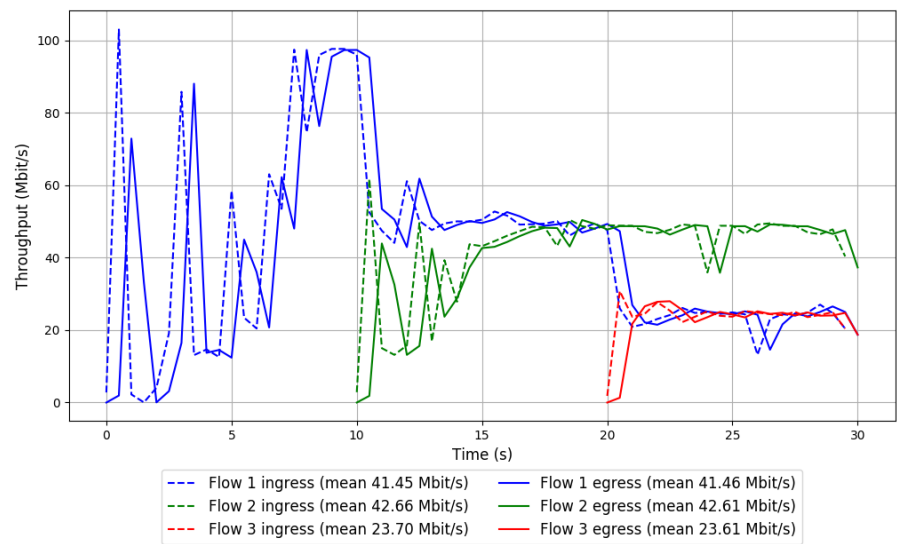
-- Flow 3:

Average throughput: 23.61 Mbit/s

95th percentile per-packet one-way delay: 151.107 ms

Loss rate: 1.04%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-09-06 20:30:07

End at: 2018-09-06 20:30:37

Local clock offset: 0.383 ms

Remote clock offset: 0.472 ms

Below is generated by plot.py at 2018-09-06 21:27:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.82 Mbit/s

95th percentile per-packet one-way delay: 100.904 ms

Loss rate: 0.42%

-- Flow 1:

Average throughput: 42.77 Mbit/s

95th percentile per-packet one-way delay: 99.490 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 34.77 Mbit/s

95th percentile per-packet one-way delay: 104.463 ms

Loss rate: 0.59%

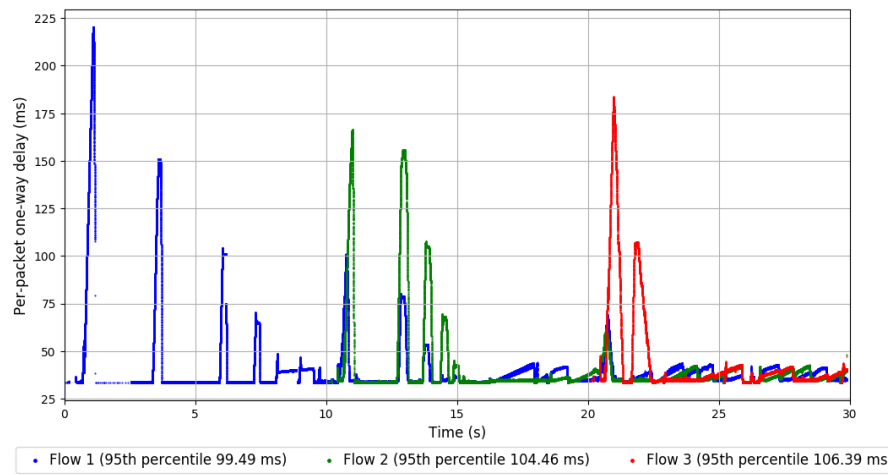
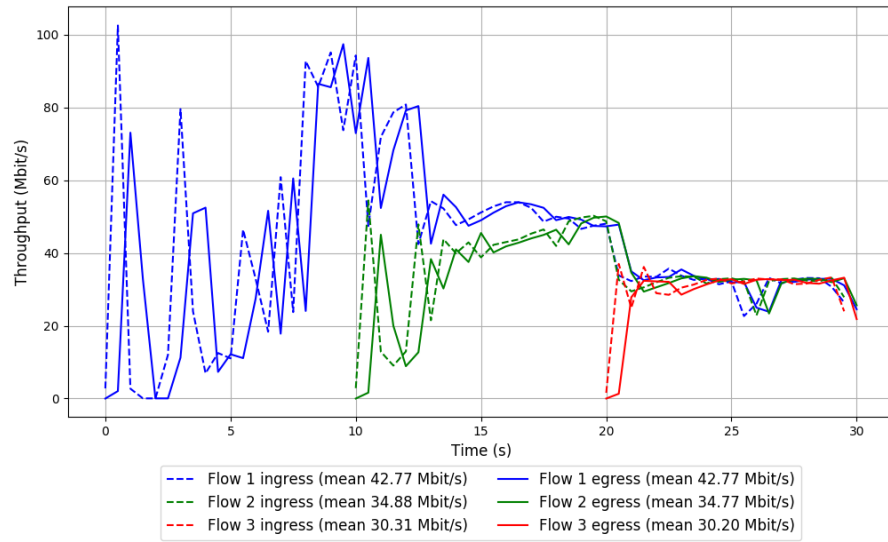
-- Flow 3:

Average throughput: 30.20 Mbit/s

95th percentile per-packet one-way delay: 106.387 ms

Loss rate: 0.94%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-06 20:55:00

End at: 2018-09-06 20:55:30

Local clock offset: 0.07 ms

Remote clock offset: 0.634 ms

Below is generated by plot.py at 2018-09-06 21:27:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 76.53 Mbit/s

95th percentile per-packet one-way delay: 103.696 ms

Loss rate: 0.41%

-- Flow 1:

Average throughput: 41.03 Mbit/s

95th percentile per-packet one-way delay: 96.974 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 41.74 Mbit/s

95th percentile per-packet one-way delay: 112.521 ms

Loss rate: 0.59%

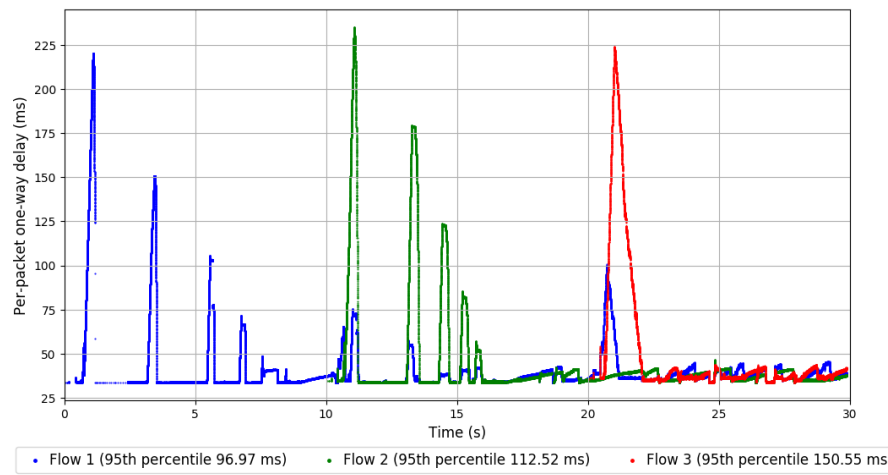
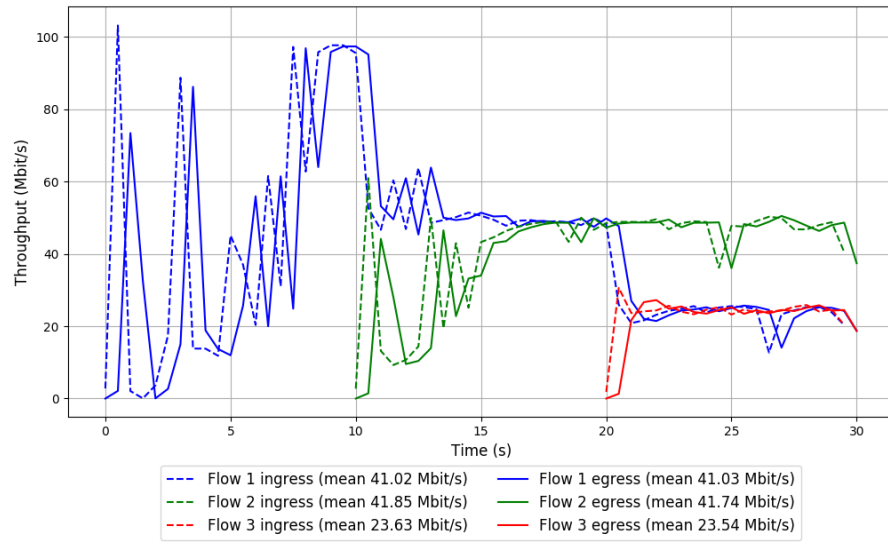
-- Flow 3:

Average throughput: 23.54 Mbit/s

95th percentile per-packet one-way delay: 150.552 ms

Loss rate: 1.03%

Run 5: Report of QUIC Cubic — Data Link

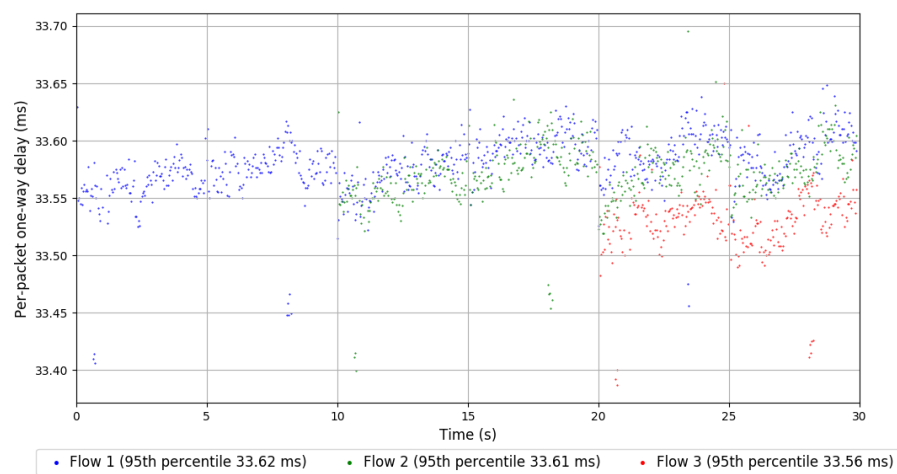
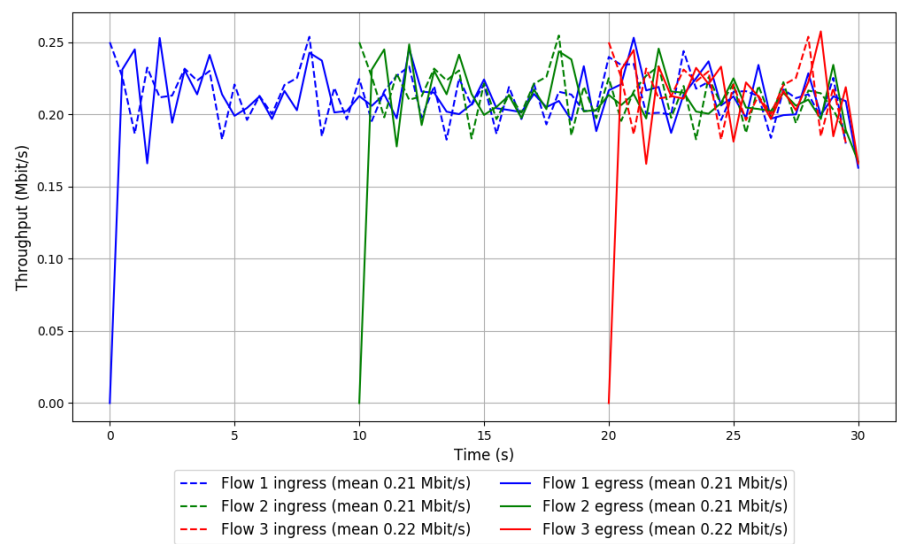


```
Run 1: Statistics of SReAM

Start at: 2018-09-06 19:26:20
End at: 2018-09-06 19:26:50
Local clock offset: 0.687 ms
Remote clock offset: -1.359 ms

# Below is generated by plot.py at 2018-09-06 21:27:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 33.613 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 33.616 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 33.610 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 33.561 ms
Loss rate: 0.71%
```

Run 1: Report of SReAM — Data Link

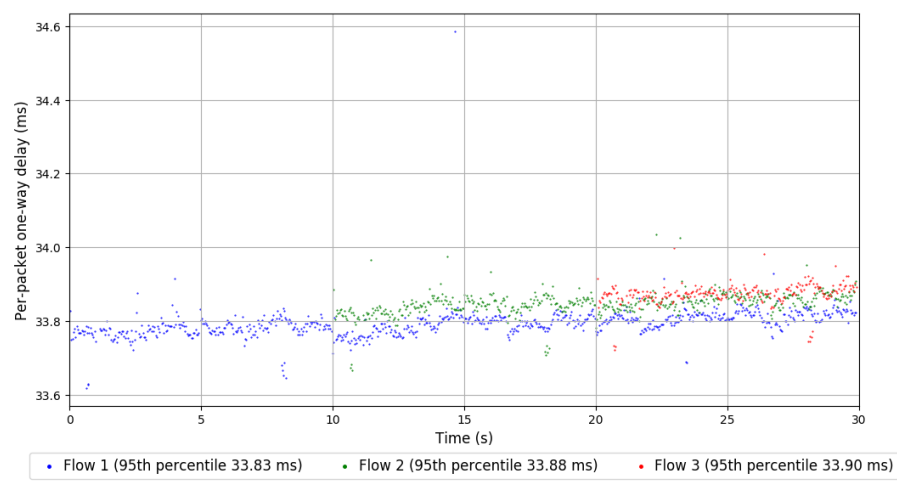
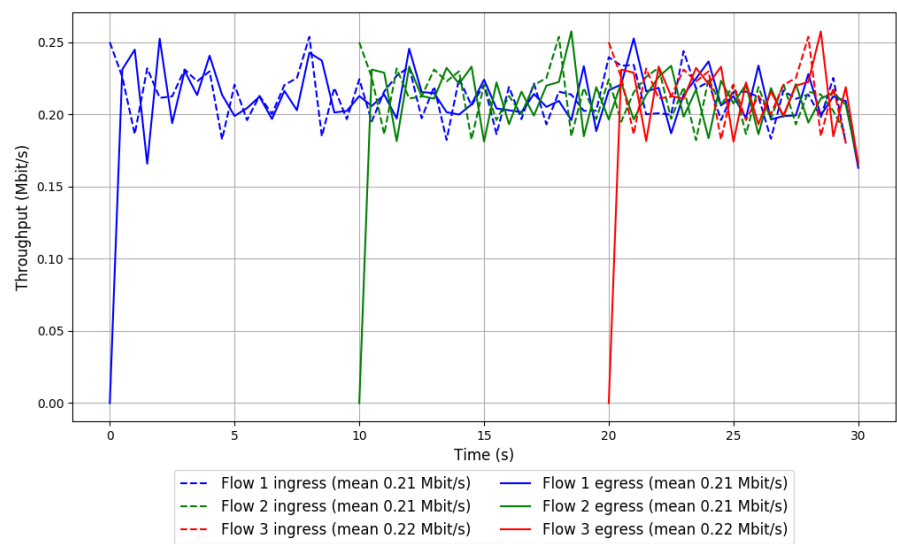


Run 2: Statistics of SReAM

Start at: 2018-09-06 19:51:19
End at: 2018-09-06 19:51:49
Local clock offset: 0.667 ms
Remote clock offset: -0.505 ms

Below is generated by plot.py at 2018-09-06 21:27:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 33.889 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 33.831 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 33.883 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 33.904 ms
Loss rate: 0.71%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SReAM

Start at: 2018-09-06 20:16:08

End at: 2018-09-06 20:16:39

Local clock offset: 0.455 ms

Remote clock offset: 0.301 ms

Below is generated by plot.py at 2018-09-06 21:27:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 33.556 ms

Loss rate: 0.38%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 33.545 ms

Loss rate: 0.26%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 33.560 ms

Loss rate: 0.40%

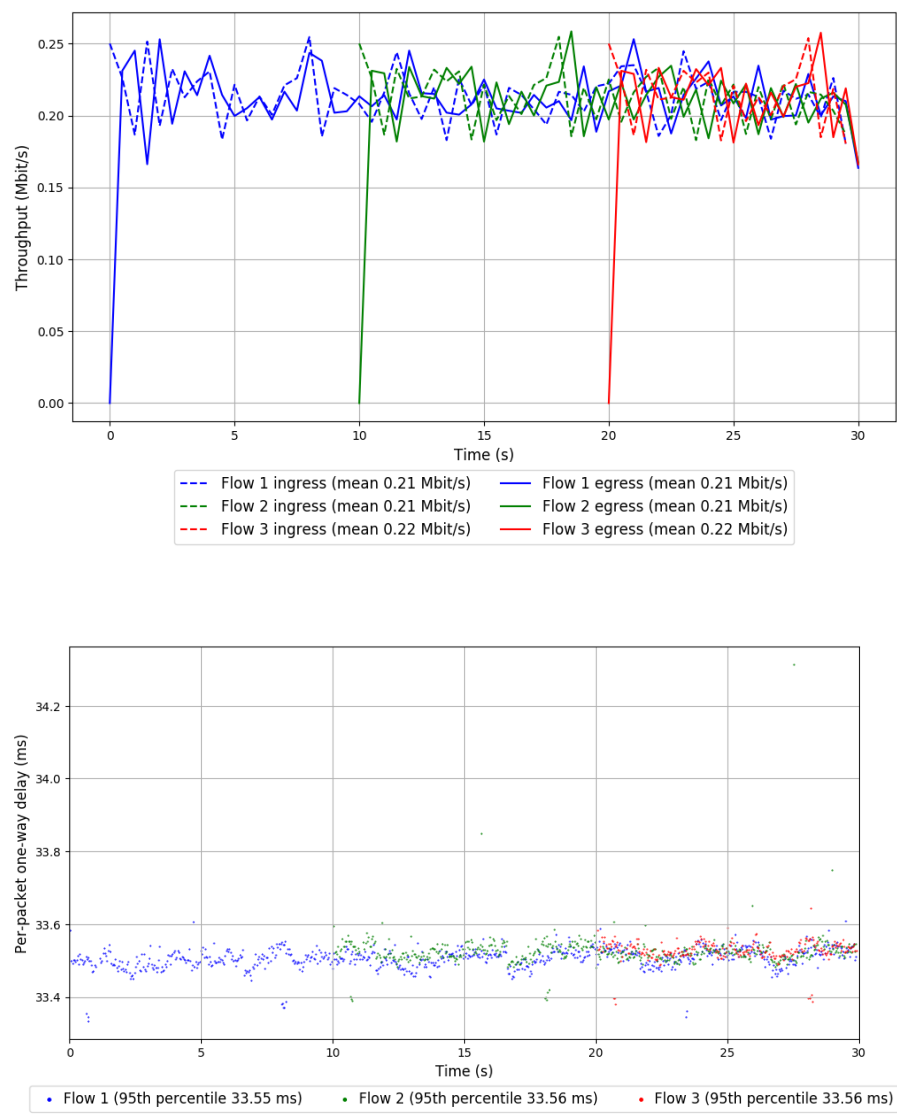
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 33.561 ms

Loss rate: 0.71%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-09-06 20:41:06

End at: 2018-09-06 20:41:36

Local clock offset: 0.282 ms

Remote clock offset: 0.765 ms

Below is generated by plot.py at 2018-09-06 21:27:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 33.572 ms

Loss rate: 0.38%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 33.558 ms

Loss rate: 0.26%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 33.581 ms

Loss rate: 0.40%

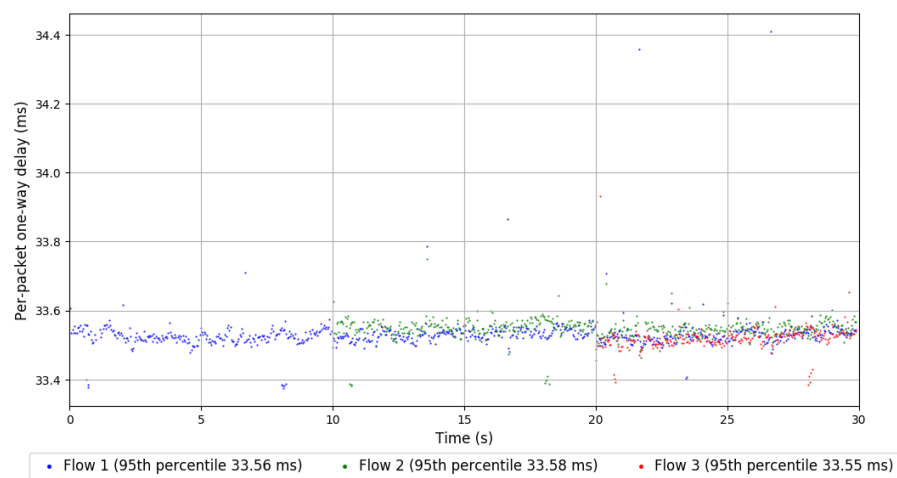
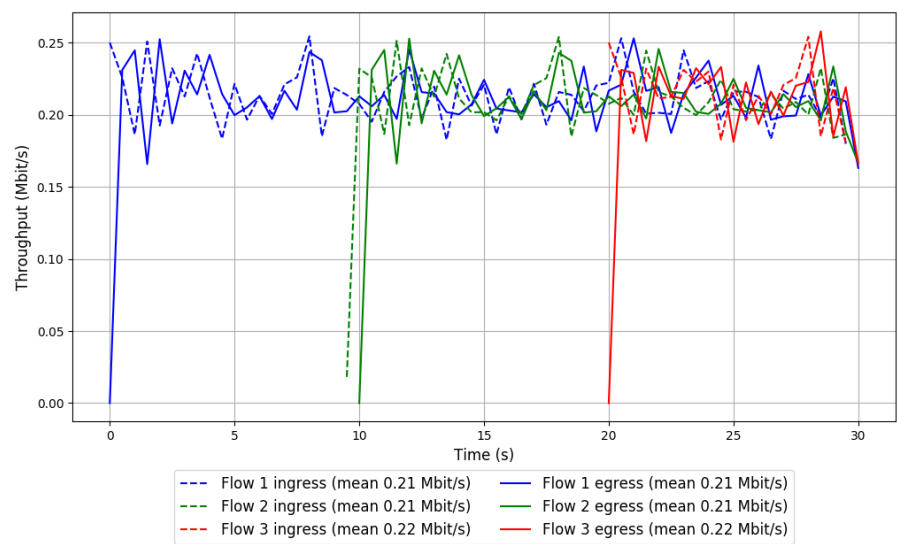
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 33.554 ms

Loss rate: 0.71%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-09-06 21:05:54

End at: 2018-09-06 21:06:24

Local clock offset: 0.116 ms

Remote clock offset: 0.834 ms

Below is generated by plot.py at 2018-09-06 21:27:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 33.893 ms

Loss rate: 0.38%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 33.871 ms

Loss rate: 0.26%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 33.889 ms

Loss rate: 0.40%

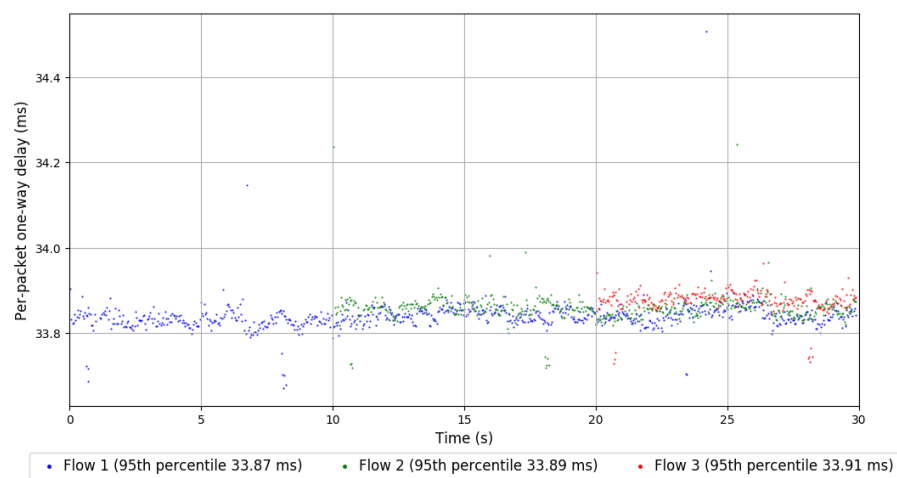
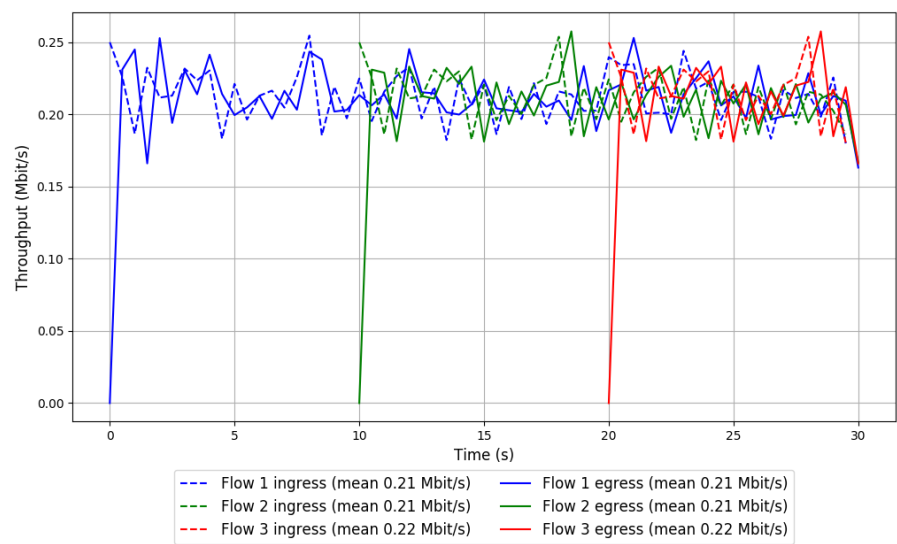
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 33.907 ms

Loss rate: 0.71%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-06 19:22:13

End at: 2018-09-06 19:22:43

Local clock offset: 0.712 ms

Remote clock offset: -1.62 ms

Below is generated by plot.py at 2018-09-06 21:27:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 10.92 Mbit/s

95th percentile per-packet one-way delay: 41.756 ms

Loss rate: 1.01%

-- Flow 1:

Average throughput: 8.59 Mbit/s

95th percentile per-packet one-way delay: 41.263 ms

Loss rate: 8.11%

-- Flow 2:

Average throughput: 10.31 Mbit/s

95th percentile per-packet one-way delay: 42.154 ms

Loss rate: 0.57%

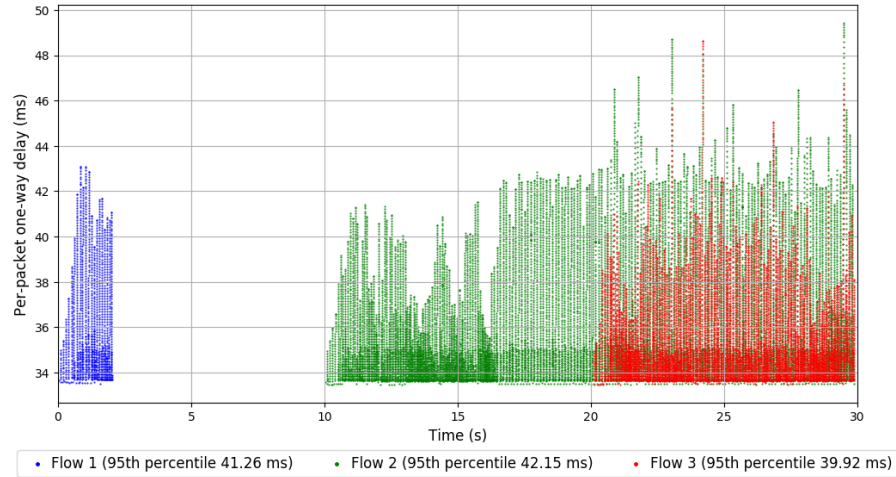
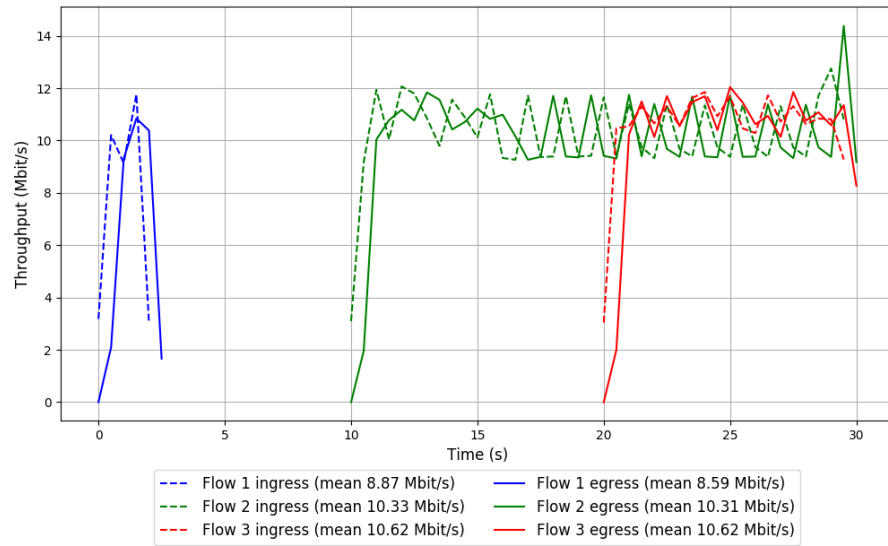
-- Flow 3:

Average throughput: 10.62 Mbit/s

95th percentile per-packet one-way delay: 39.917 ms

Loss rate: 0.61%

Run 1: Report of Sprout — Data Link

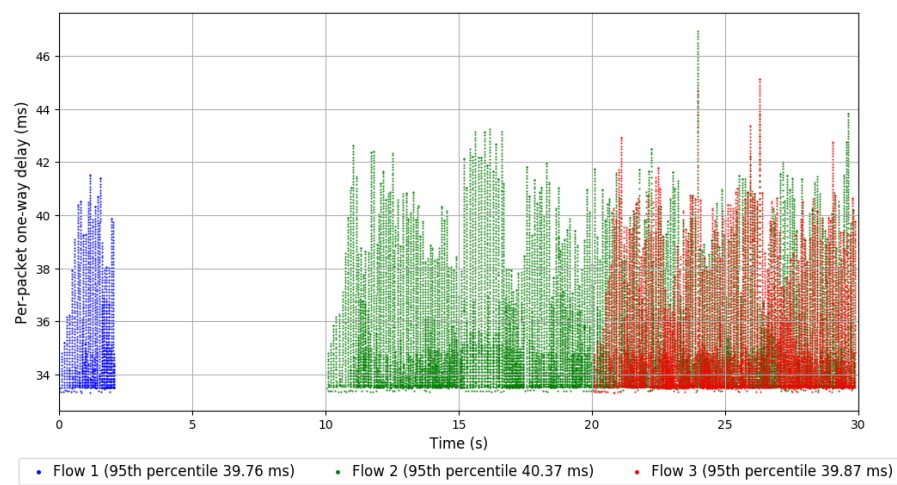
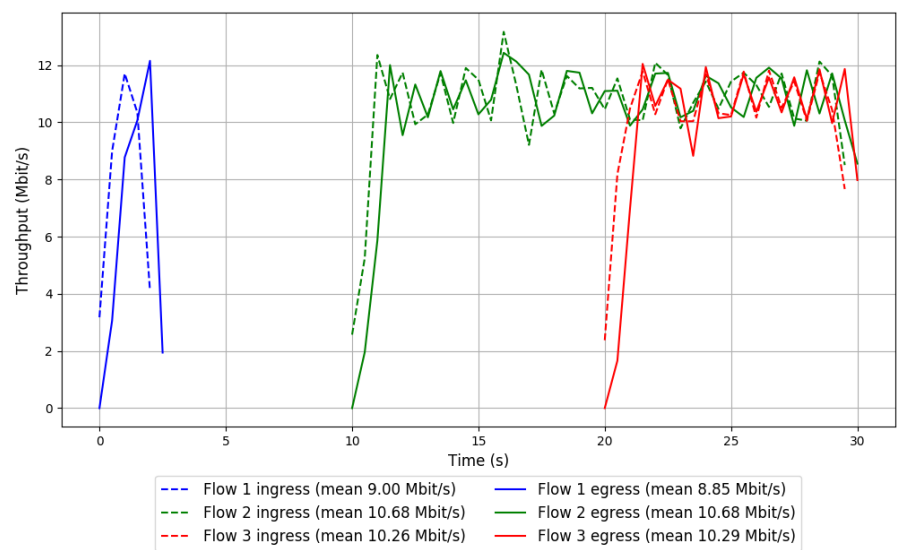


Run 2: Statistics of Sprout

Start at: 2018-09-06 19:47:03
End at: 2018-09-06 19:47:33
Local clock offset: 0.772 ms
Remote clock offset: -0.444 ms

Below is generated by plot.py at 2018-09-06 21:27:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 11.09 Mbit/s
95th percentile per-packet one-way delay: 40.197 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 8.85 Mbit/s
95th percentile per-packet one-way delay: 39.756 ms
Loss rate: 6.05%
-- Flow 2:
Average throughput: 10.68 Mbit/s
95th percentile per-packet one-way delay: 40.372 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 10.29 Mbit/s
95th percentile per-packet one-way delay: 39.874 ms
Loss rate: 0.09%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-09-06 20:12:02

End at: 2018-09-06 20:12:32

Local clock offset: 0.413 ms

Remote clock offset: 0.048 ms

Below is generated by plot.py at 2018-09-06 21:27:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 11.19 Mbit/s

95th percentile per-packet one-way delay: 40.821 ms

Loss rate: 1.10%

-- Flow 1:

Average throughput: 8.26 Mbit/s

95th percentile per-packet one-way delay: 40.560 ms

Loss rate: 8.09%

-- Flow 2:

Average throughput: 10.74 Mbit/s

95th percentile per-packet one-way delay: 40.319 ms

Loss rate: 0.44%

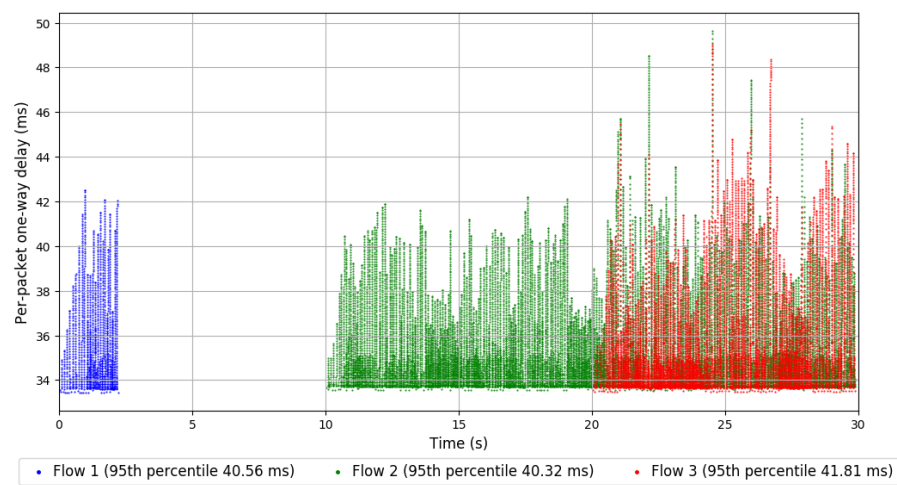
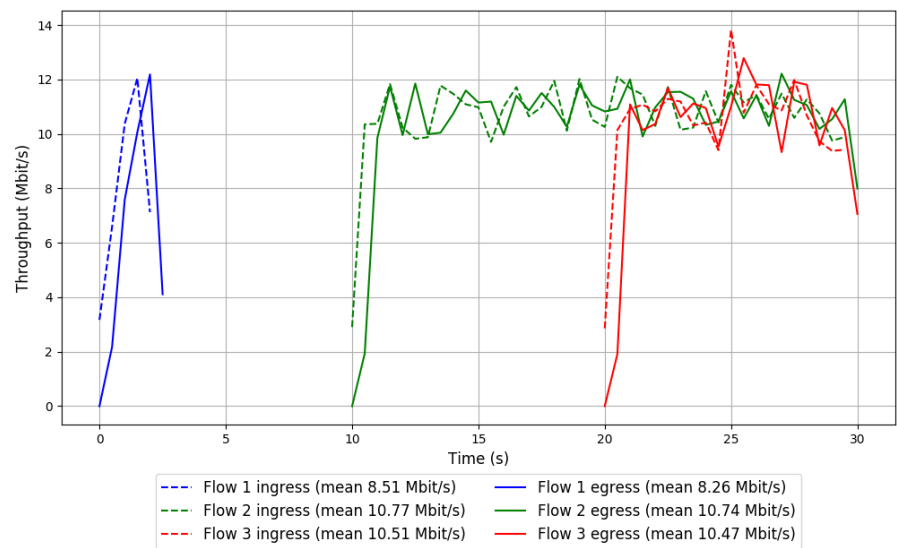
-- Flow 3:

Average throughput: 10.47 Mbit/s

95th percentile per-packet one-way delay: 41.815 ms

Loss rate: 1.14%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-06 20:36:58

End at: 2018-09-06 20:37:28

Local clock offset: 0.317 ms

Remote clock offset: 0.696 ms

Below is generated by plot.py at 2018-09-06 21:27:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 11.05 Mbit/s

95th percentile per-packet one-way delay: 40.202 ms

Loss rate: 0.75%

-- Flow 1:

Average throughput: 8.82 Mbit/s

95th percentile per-packet one-way delay: 40.696 ms

Loss rate: 5.45%

-- Flow 2:

Average throughput: 10.68 Mbit/s

95th percentile per-packet one-way delay: 40.207 ms

Loss rate: 0.47%

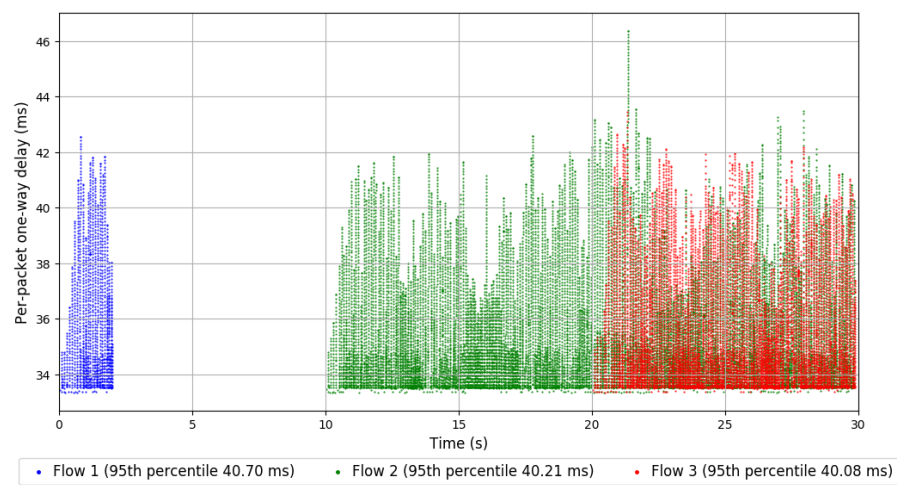
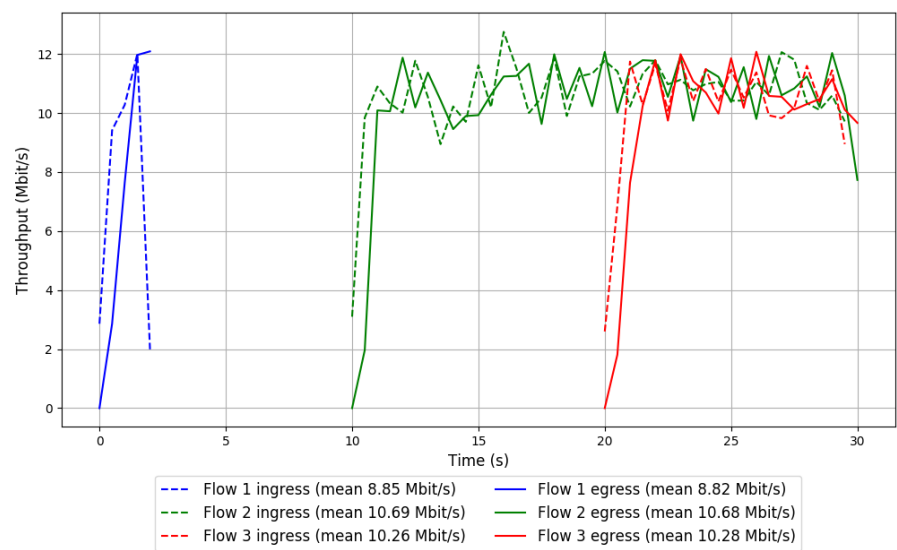
-- Flow 3:

Average throughput: 10.28 Mbit/s

95th percentile per-packet one-way delay: 40.079 ms

Loss rate: 0.48%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-06 21:01:47

End at: 2018-09-06 21:02:17

Local clock offset: 0.139 ms

Remote clock offset: 0.973 ms

Below is generated by plot.py at 2018-09-06 21:27:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 11.20 Mbit/s

95th percentile per-packet one-way delay: 41.003 ms

Loss rate: 1.08%

-- Flow 1:

Average throughput: 9.02 Mbit/s

95th percentile per-packet one-way delay: 40.642 ms

Loss rate: 5.88%

-- Flow 2:

Average throughput: 10.85 Mbit/s

95th percentile per-packet one-way delay: 41.381 ms

Loss rate: 0.65%

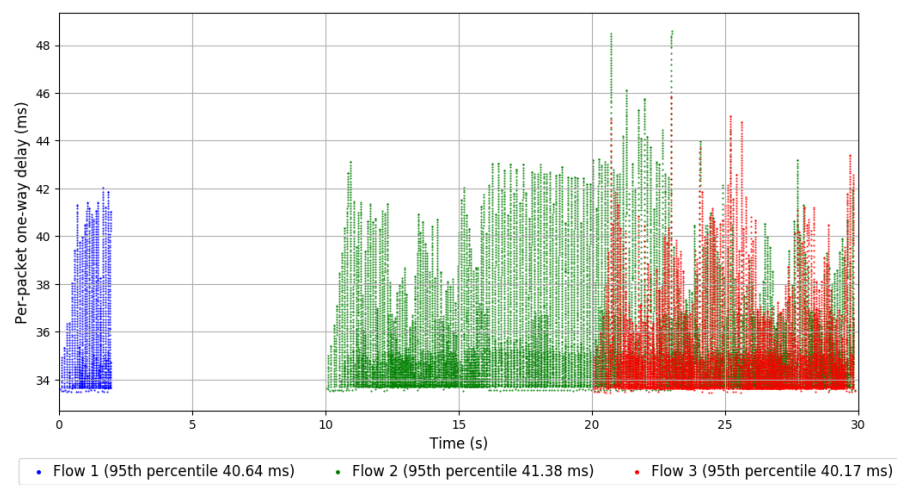
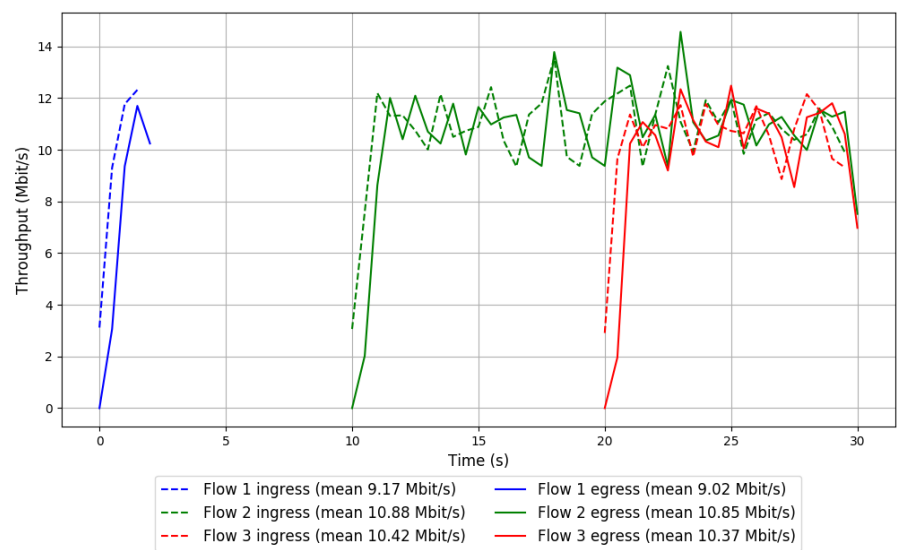
-- Flow 3:

Average throughput: 10.37 Mbit/s

95th percentile per-packet one-way delay: 40.168 ms

Loss rate: 1.14%

Run 5: Report of Sprout — Data Link

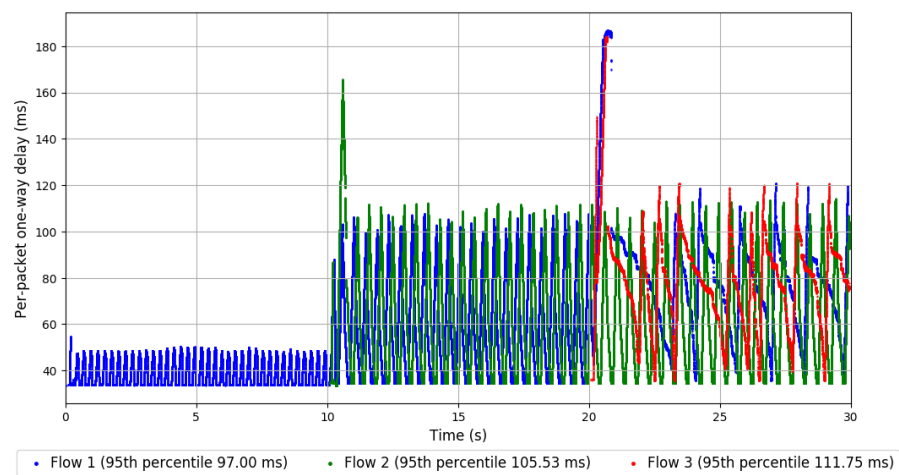
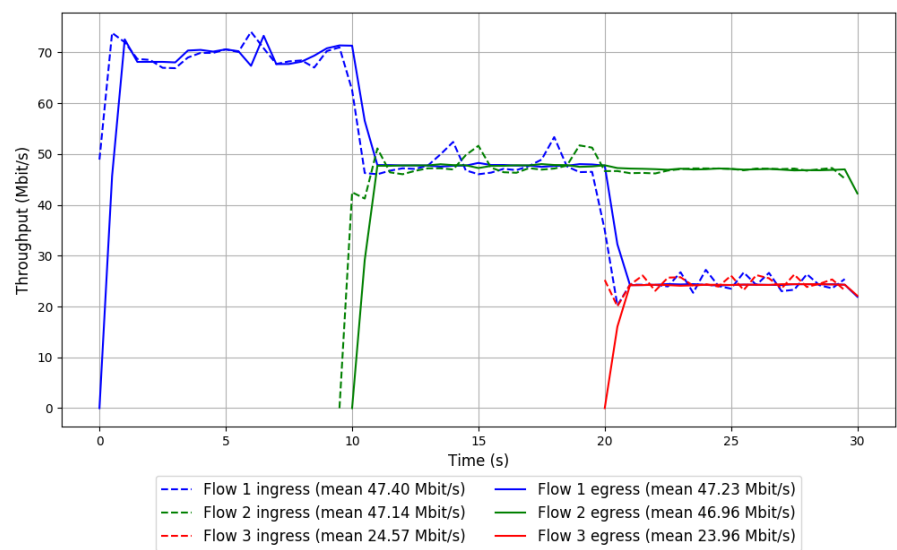


Run 1: Statistics of TaoVA-100x

Start at: 2018-09-06 19:31:48
End at: 2018-09-06 19:32:18
Local clock offset: 0.683 ms
Remote clock offset: -1.365 ms

Below is generated by plot.py at 2018-09-06 21:29:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 86.44 Mbit/s
95th percentile per-packet one-way delay: 102.175 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 47.23 Mbit/s
95th percentile per-packet one-way delay: 96.997 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 46.96 Mbit/s
95th percentile per-packet one-way delay: 105.532 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 23.96 Mbit/s
95th percentile per-packet one-way delay: 111.745 ms
Loss rate: 3.10%

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

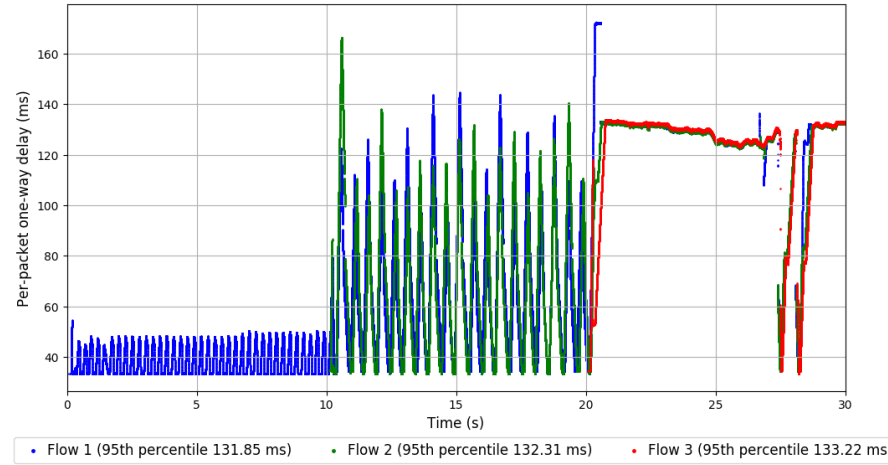
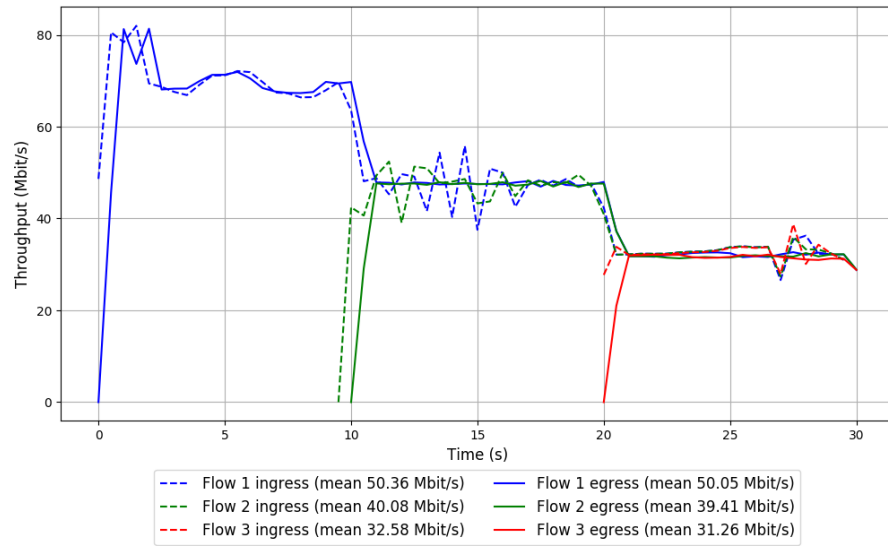


Run 2: Statistics of TaoVA-100x

Start at: 2018-09-06 19:56:48
End at: 2018-09-06 19:57:18
Local clock offset: 0.469 ms
Remote clock offset: -0.072 ms

Below is generated by plot.py at 2018-09-06 21:29:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 86.65 Mbit/s
95th percentile per-packet one-way delay: 132.468 ms
Loss rate: 1.67%
-- Flow 1:
Average throughput: 50.05 Mbit/s
95th percentile per-packet one-way delay: 131.852 ms
Loss rate: 0.84%
-- Flow 2:
Average throughput: 39.41 Mbit/s
95th percentile per-packet one-way delay: 132.313 ms
Loss rate: 1.99%
-- Flow 3:
Average throughput: 31.26 Mbit/s
95th percentile per-packet one-way delay: 133.224 ms
Loss rate: 4.69%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-06 20:21:37

End at: 2018-09-06 20:22:07

Local clock offset: 0.394 ms

Remote clock offset: 0.375 ms

Below is generated by plot.py at 2018-09-06 21:29:11

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.83 Mbit/s

95th percentile per-packet one-way delay: 103.343 ms

Loss rate: 0.77%

-- Flow 1:

Average throughput: 55.01 Mbit/s

95th percentile per-packet one-way delay: 98.161 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 35.85 Mbit/s

95th percentile per-packet one-way delay: 109.135 ms

Loss rate: 0.96%

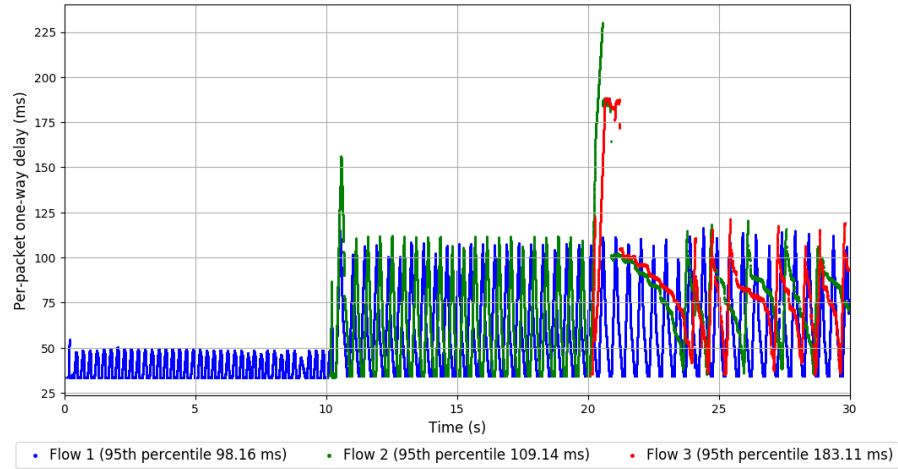
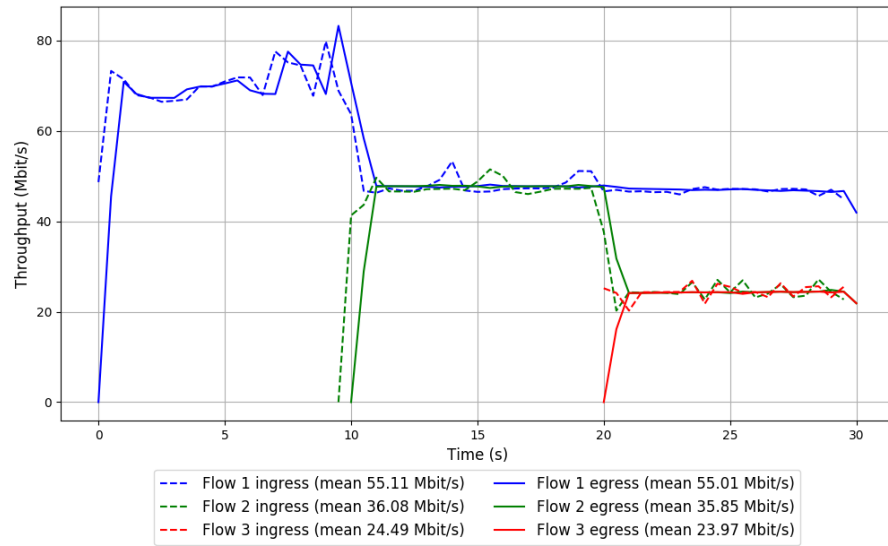
-- Flow 3:

Average throughput: 23.97 Mbit/s

95th percentile per-packet one-way delay: 183.109 ms

Loss rate: 2.75%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-06 20:46:36

End at: 2018-09-06 20:47:06

Local clock offset: 0.143 ms

Remote clock offset: 0.842 ms

Below is generated by plot.py at 2018-09-06 21:29:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.32 Mbit/s

95th percentile per-packet one-way delay: 131.982 ms

Loss rate: 1.63%

-- Flow 1:

Average throughput: 49.73 Mbit/s

95th percentile per-packet one-way delay: 131.238 ms

Loss rate: 0.72%

-- Flow 2:

Average throughput: 39.29 Mbit/s

95th percentile per-packet one-way delay: 132.017 ms

Loss rate: 2.40%

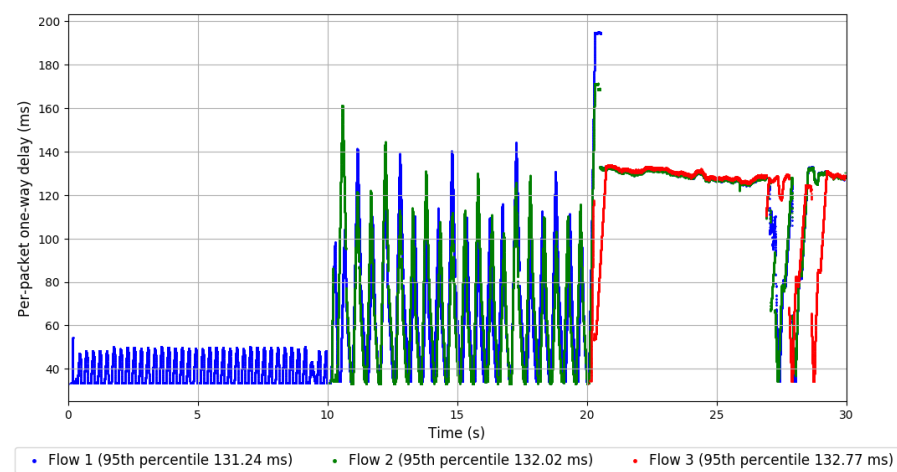
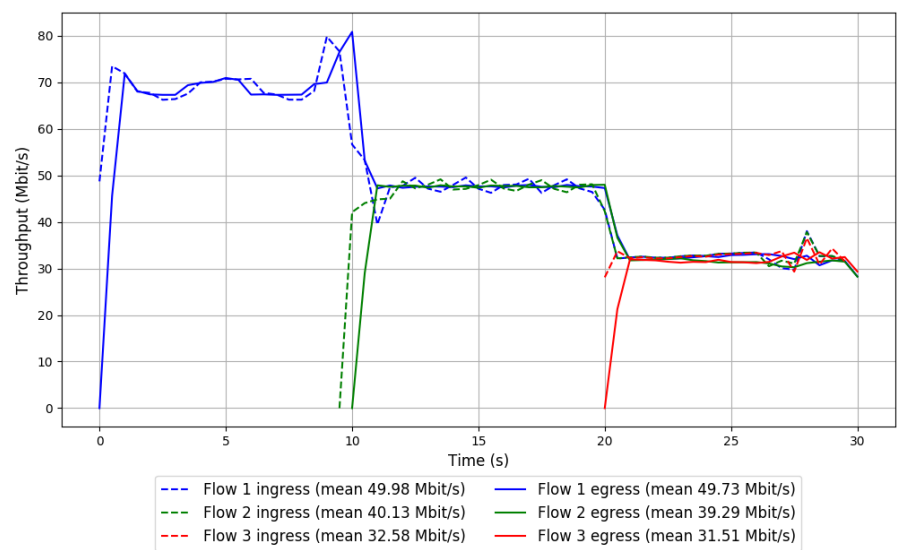
-- Flow 3:

Average throughput: 31.51 Mbit/s

95th percentile per-packet one-way delay: 132.769 ms

Loss rate: 3.92%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-06 21:11:22

End at: 2018-09-06 21:11:52

Local clock offset: 0.009 ms

Remote clock offset: 0.838 ms

Below is generated by plot.py at 2018-09-06 21:29:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.63 Mbit/s

95th percentile per-packet one-way delay: 132.889 ms

Loss rate: 1.12%

-- Flow 1:

Average throughput: 49.87 Mbit/s

95th percentile per-packet one-way delay: 132.633 ms

Loss rate: 0.64%

-- Flow 2:

Average throughput: 39.57 Mbit/s

95th percentile per-packet one-way delay: 132.673 ms

Loss rate: 1.28%

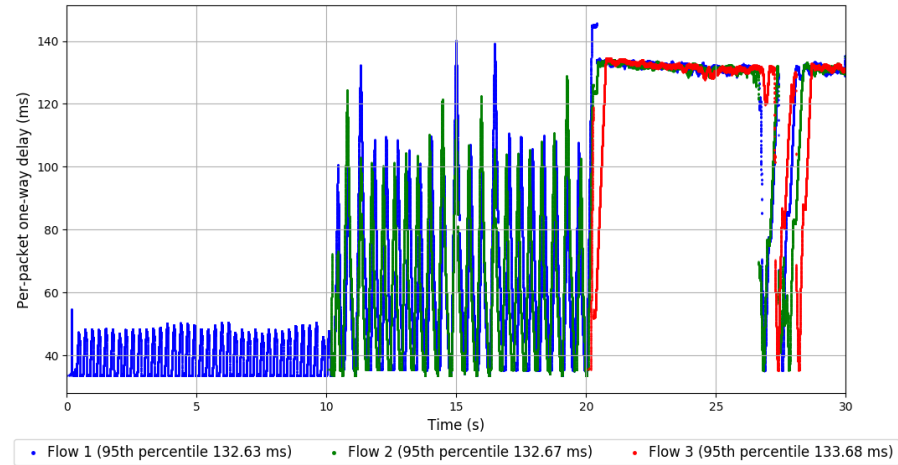
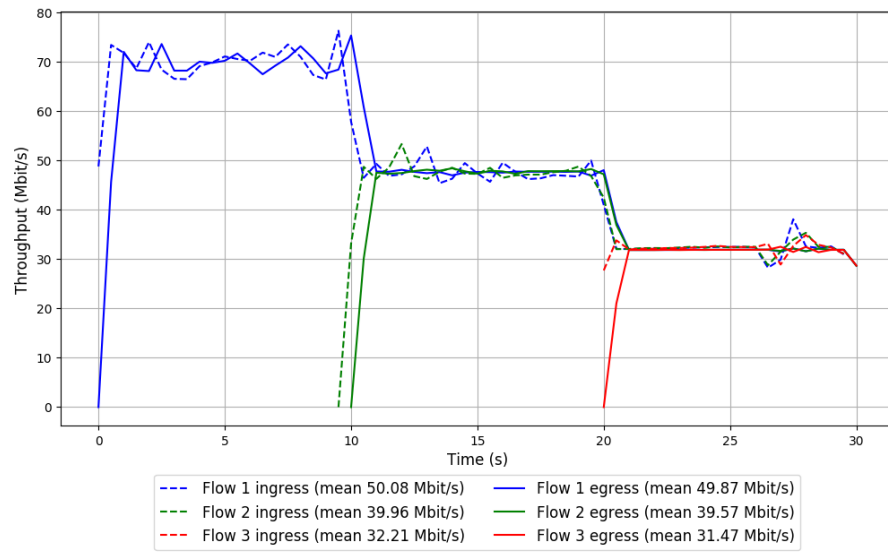
-- Flow 3:

Average throughput: 31.47 Mbit/s

95th percentile per-packet one-way delay: 133.679 ms

Loss rate: 2.96%

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

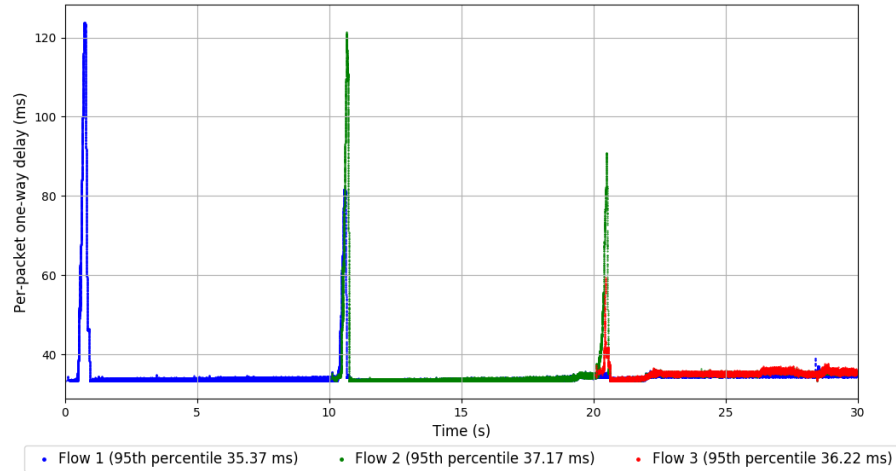
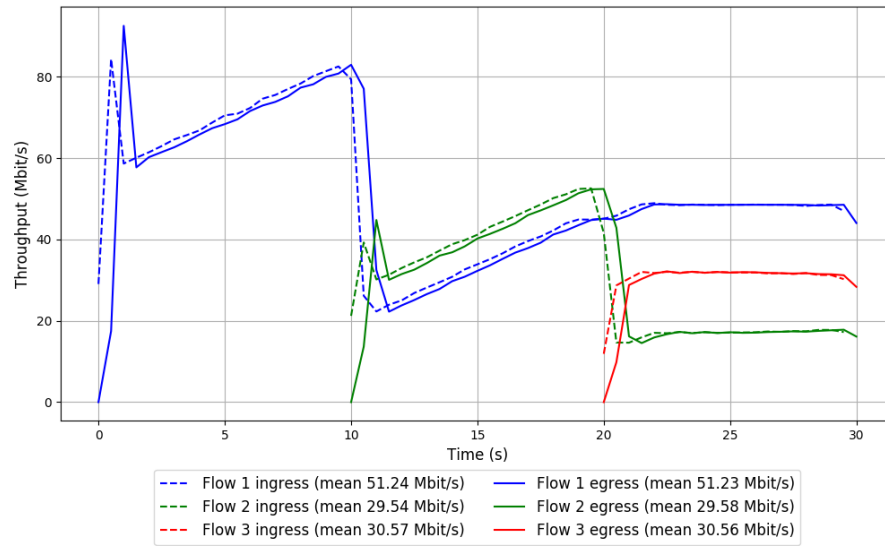


Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 19:14:05
End at: 2018-09-06 19:14:35
Local clock offset: 0.958 ms
Remote clock offset: -1.527 ms

Below is generated by plot.py at 2018-09-06 21:29:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 81.03 Mbit/s
95th percentile per-packet one-way delay: 35.954 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 51.23 Mbit/s
95th percentile per-packet one-way delay: 35.369 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 29.58 Mbit/s
95th percentile per-packet one-way delay: 37.168 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 30.56 Mbit/s
95th percentile per-packet one-way delay: 36.219 ms
Loss rate: 0.68%

Run 1: Report of TCP Vegas — Data Link

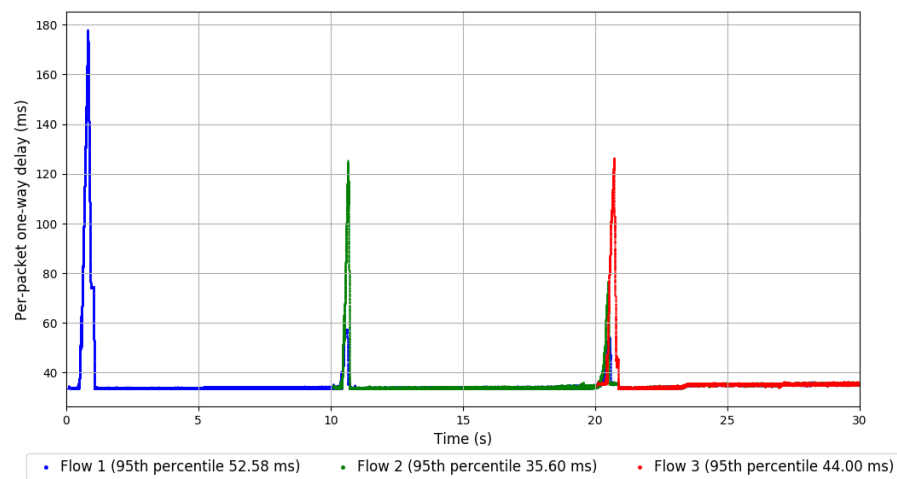
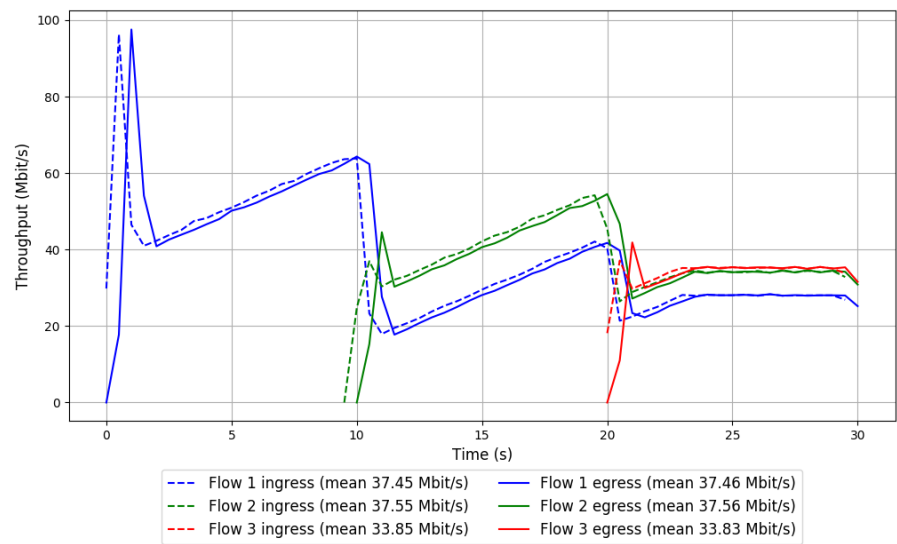


Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 19:38:52
End at: 2018-09-06 19:39:22
Local clock offset: 0.742 ms
Remote clock offset: -0.904 ms

Below is generated by plot.py at 2018-09-06 21:29:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 73.66 Mbit/s
95th percentile per-packet one-way delay: 42.023 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 37.46 Mbit/s
95th percentile per-packet one-way delay: 52.577 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 37.56 Mbit/s
95th percentile per-packet one-way delay: 35.600 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 33.83 Mbit/s
95th percentile per-packet one-way delay: 44.001 ms
Loss rate: 0.70%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 20:03:52

End at: 2018-09-06 20:04:22

Local clock offset: 0.363 ms

Remote clock offset: 0.133 ms

Below is generated by plot.py at 2018-09-06 21:29:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.63 Mbit/s

95th percentile per-packet one-way delay: 37.014 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 48.19 Mbit/s

95th percentile per-packet one-way delay: 37.009 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 41.20 Mbit/s

95th percentile per-packet one-way delay: 35.259 ms

Loss rate: 0.37%

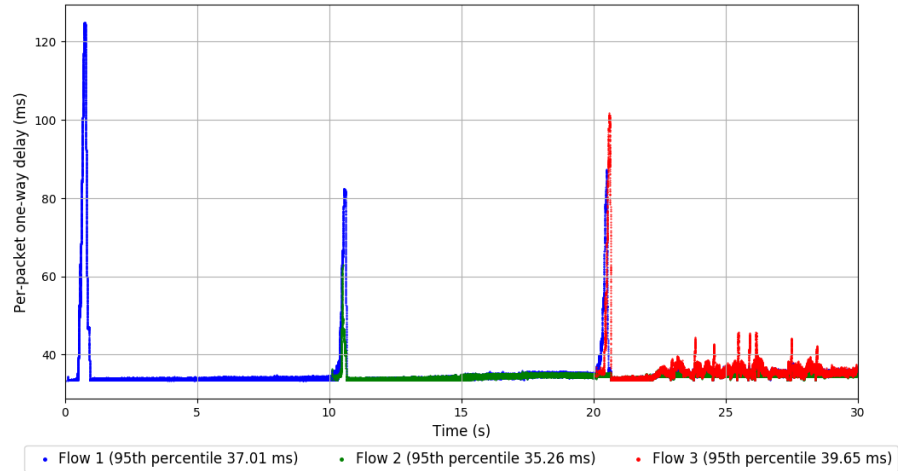
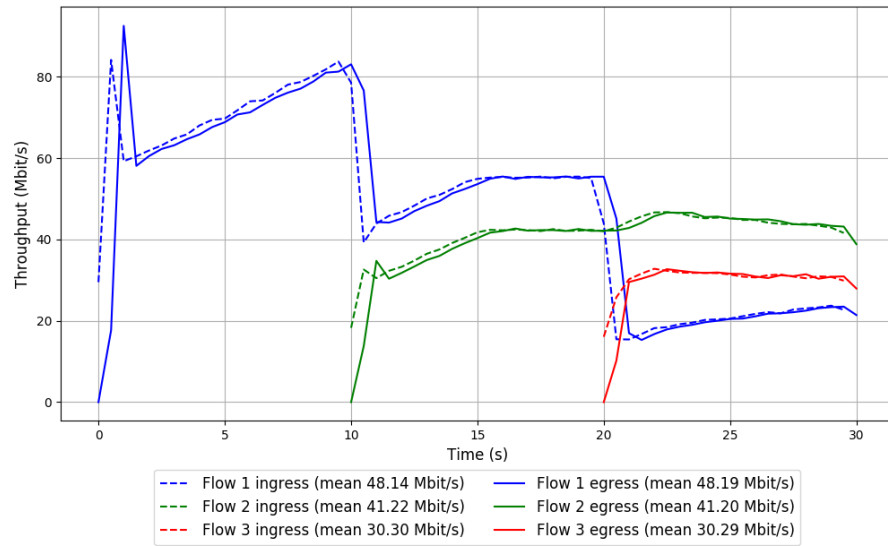
-- Flow 3:

Average throughput: 30.29 Mbit/s

95th percentile per-packet one-way delay: 39.649 ms

Loss rate: 0.69%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-06 20:28:41

End at: 2018-09-06 20:29:11

Local clock offset: 0.29 ms

Remote clock offset: 0.569 ms

Below is generated by plot.py at 2018-09-06 21:29:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 73.14 Mbit/s

95th percentile per-packet one-way delay: 41.238 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 37.55 Mbit/s

95th percentile per-packet one-way delay: 51.647 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 37.08 Mbit/s

95th percentile per-packet one-way delay: 36.475 ms

Loss rate: 0.30%

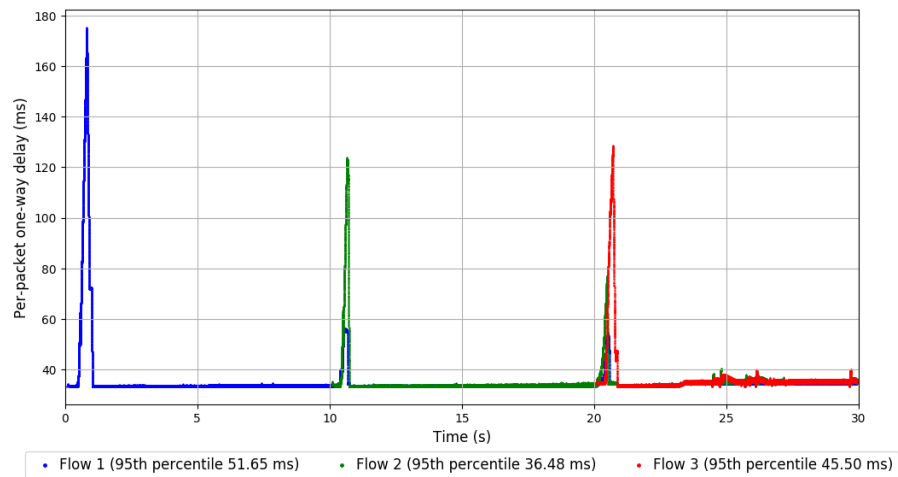
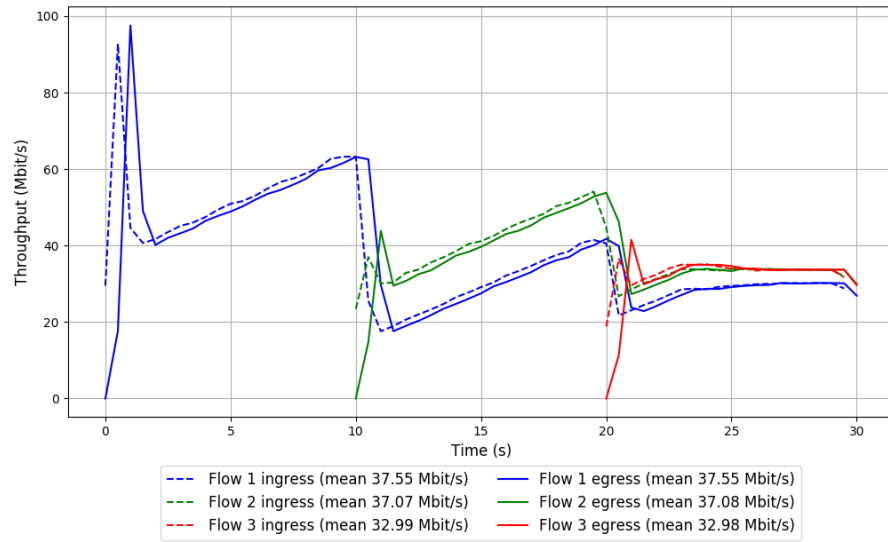
-- Flow 3:

Average throughput: 32.98 Mbit/s

95th percentile per-packet one-way delay: 45.496 ms

Loss rate: 0.69%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-06 20:53:38

End at: 2018-09-06 20:54:08

Local clock offset: 0.186 ms

Remote clock offset: 0.794 ms

Below is generated by plot.py at 2018-09-06 21:29:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 73.48 Mbit/s

95th percentile per-packet one-way delay: 42.754 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 37.43 Mbit/s

95th percentile per-packet one-way delay: 52.954 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 37.56 Mbit/s

95th percentile per-packet one-way delay: 36.071 ms

Loss rate: 0.31%

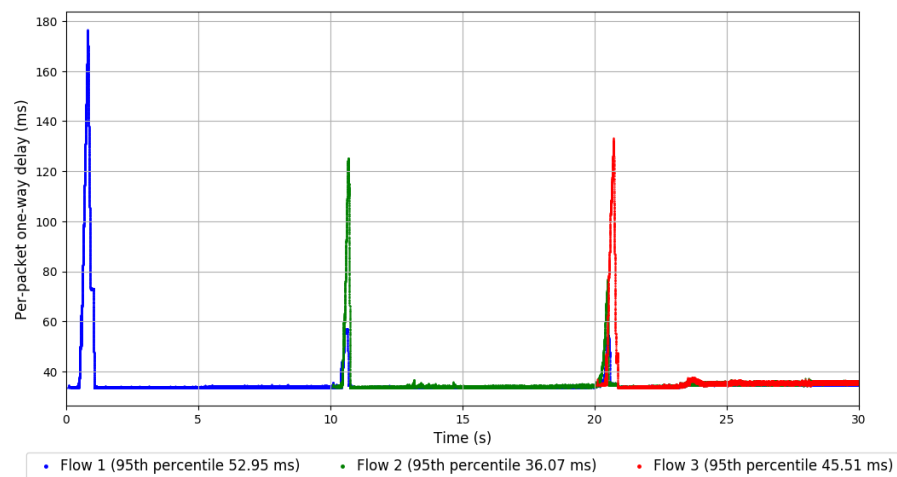
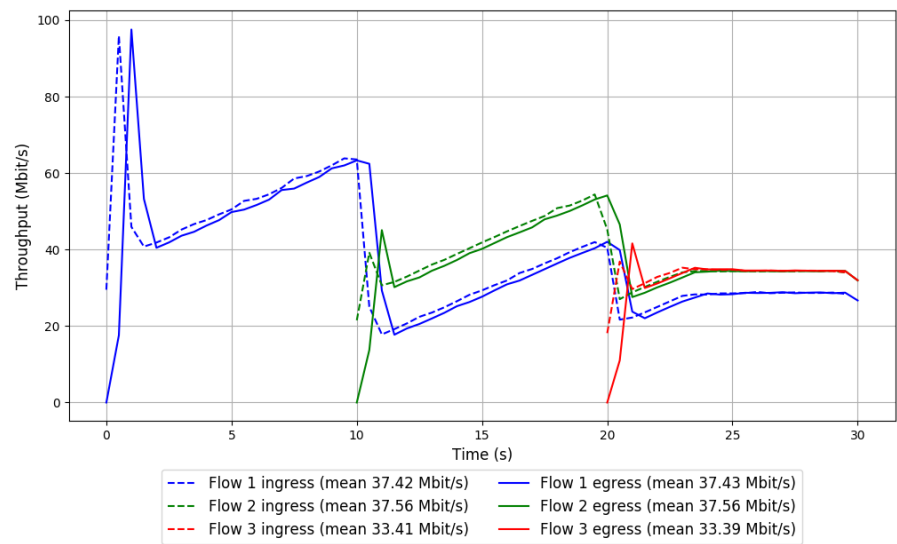
-- Flow 3:

Average throughput: 33.39 Mbit/s

95th percentile per-packet one-way delay: 45.509 ms

Loss rate: 0.70%

Run 5: Report of TCP Vegas — Data Link

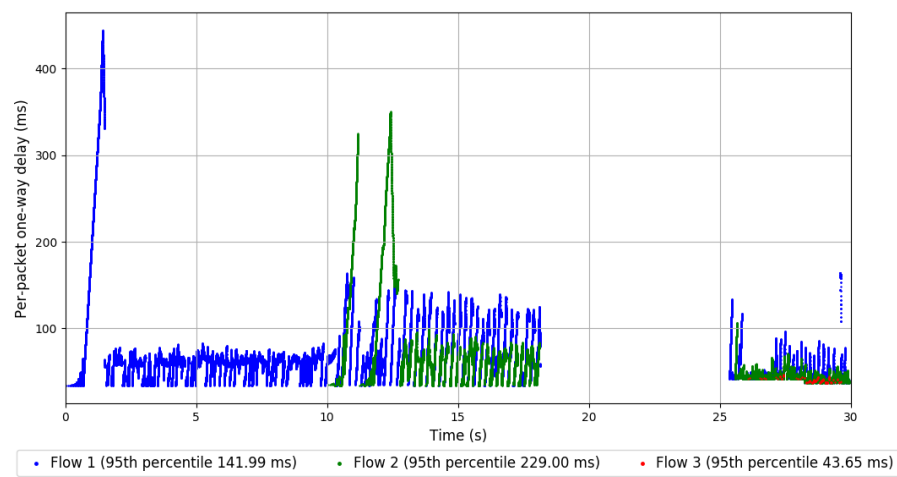
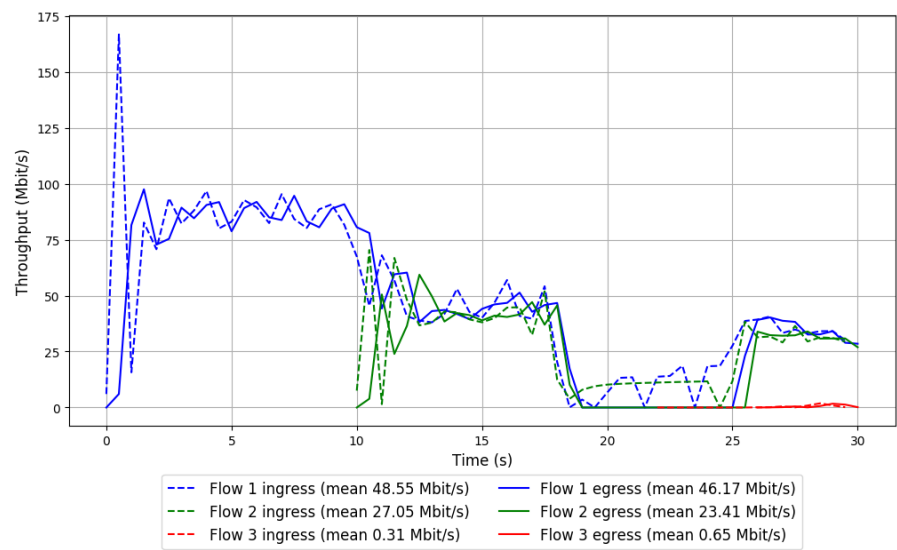


Run 1: Statistics of Verus

Start at: 2018-09-06 19:12:42
End at: 2018-09-06 19:13:12
Local clock offset: 0.989 ms
Remote clock offset: -1.586 ms

Below is generated by plot.py at 2018-09-06 21:29:41
Datalink statistics
-- Total of 3 flows:
Average throughput: 61.82 Mbit/s
95th percentile per-packet one-way delay: 180.578 ms
Loss rate: 7.40%
-- Flow 1:
Average throughput: 46.17 Mbit/s
95th percentile per-packet one-way delay: 141.988 ms
Loss rate: 5.07%
-- Flow 2:
Average throughput: 23.41 Mbit/s
95th percentile per-packet one-way delay: 228.998 ms
Loss rate: 13.71%
-- Flow 3:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 43.649 ms
Loss rate: 2.01%

Run 1: Report of Verus — Data Link

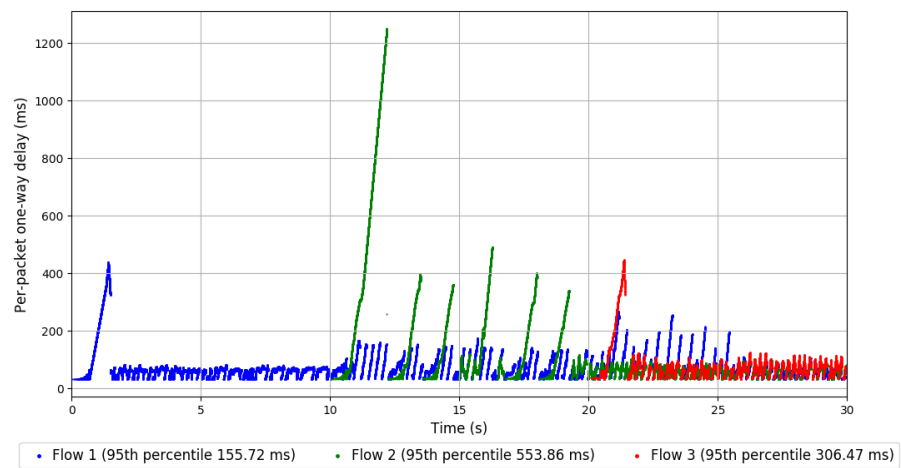
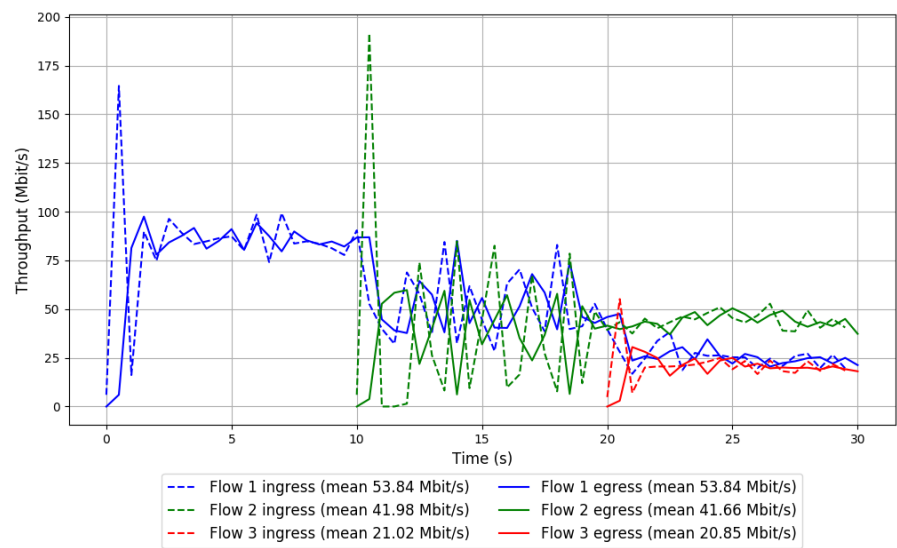


Run 2: Statistics of Verus

Start at: 2018-09-06 19:37:28
End at: 2018-09-06 19:37:58
Local clock offset: 0.728 ms
Remote clock offset: -0.967 ms

Below is generated by plot.py at 2018-09-06 21:30:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 88.45 Mbit/s
95th percentile per-packet one-way delay: 311.818 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 53.84 Mbit/s
95th percentile per-packet one-way delay: 155.722 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 41.66 Mbit/s
95th percentile per-packet one-way delay: 553.856 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 20.85 Mbit/s
95th percentile per-packet one-way delay: 306.467 ms
Loss rate: 1.43%

Run 2: Report of Verus — Data Link

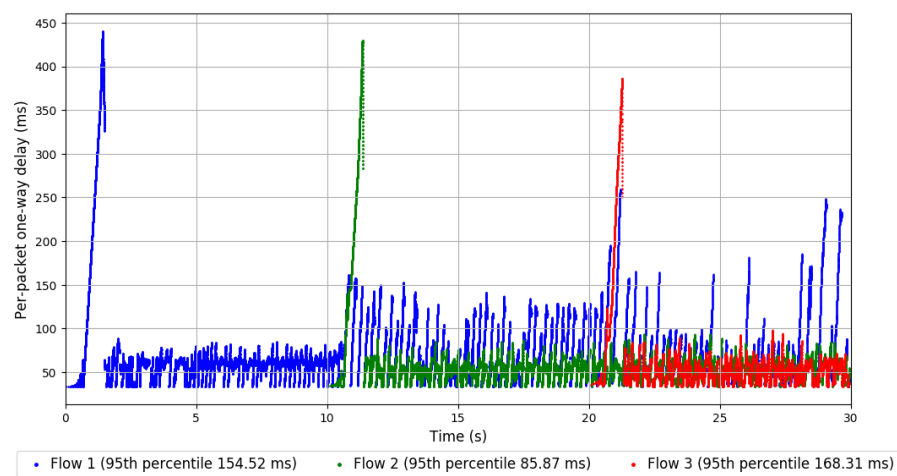
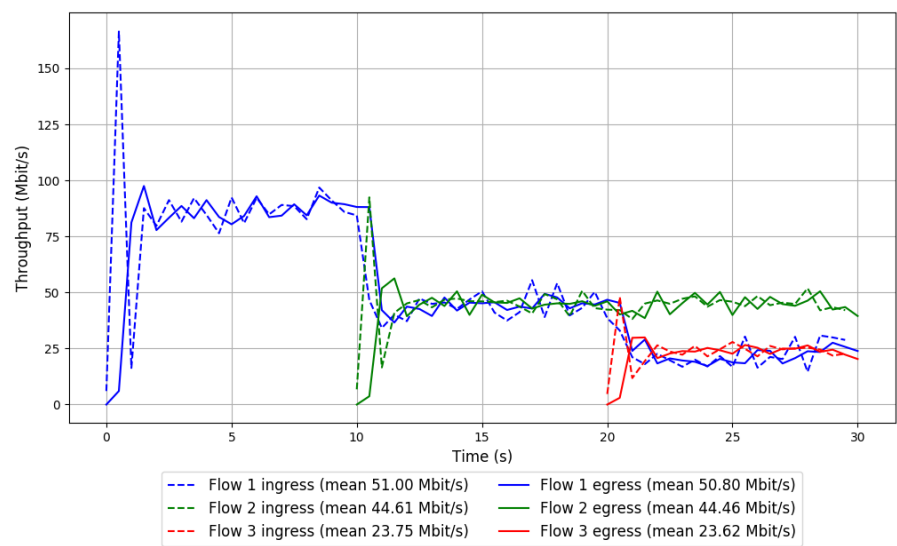


Run 3: Statistics of Verus

Start at: 2018-09-06 20:02:28
End at: 2018-09-06 20:02:58
Local clock offset: 0.382 ms
Remote clock offset: -0.091 ms

Below is generated by plot.py at 2018-09-06 21:30:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 88.19 Mbit/s
95th percentile per-packet one-way delay: 144.795 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 50.80 Mbit/s
95th percentile per-packet one-way delay: 154.518 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 44.46 Mbit/s
95th percentile per-packet one-way delay: 85.874 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 23.62 Mbit/s
95th percentile per-packet one-way delay: 168.314 ms
Loss rate: 1.24%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-09-06 20:27:14

End at: 2018-09-06 20:27:44

Local clock offset: 0.294 ms

Remote clock offset: 0.554 ms

Below is generated by plot.py at 2018-09-06 21:30:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 88.14 Mbit/s

95th percentile per-packet one-way delay: 142.732 ms

Loss rate: 0.61%

-- Flow 1:

Average throughput: 51.10 Mbit/s

95th percentile per-packet one-way delay: 146.107 ms

Loss rate: 0.35%

-- Flow 2:

Average throughput: 43.83 Mbit/s

95th percentile per-packet one-way delay: 89.725 ms

Loss rate: 0.80%

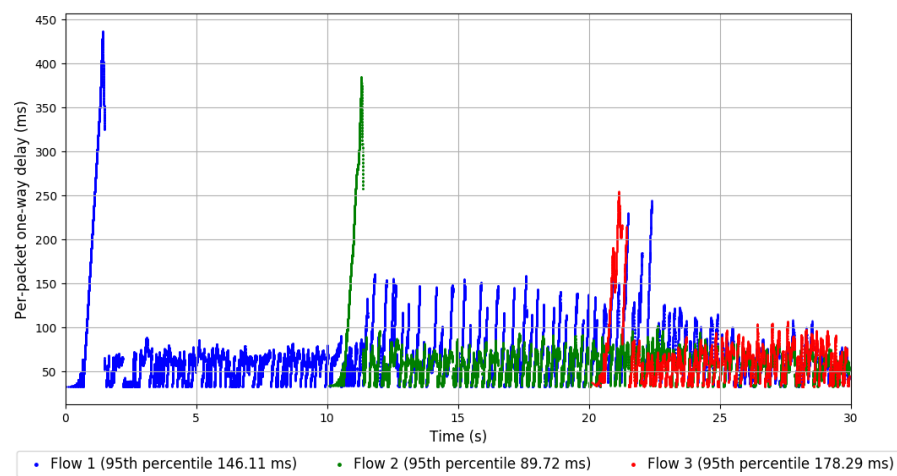
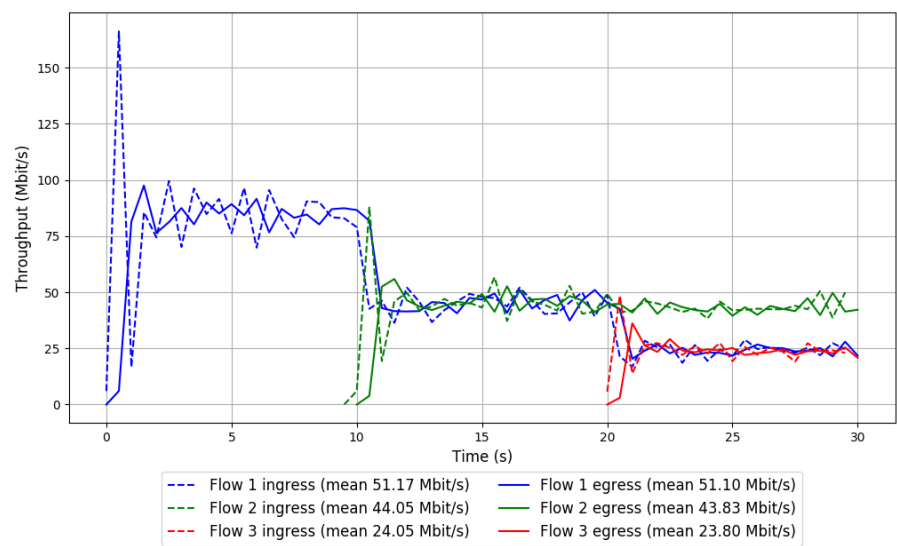
-- Flow 3:

Average throughput: 23.80 Mbit/s

95th percentile per-packet one-way delay: 178.287 ms

Loss rate: 1.64%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-06 20:52:15

End at: 2018-09-06 20:52:45

Local clock offset: 0.088 ms

Remote clock offset: 0.865 ms

Below is generated by plot.py at 2018-09-06 21:30:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 88.10 Mbit/s

95th percentile per-packet one-way delay: 149.130 ms

Loss rate: 0.46%

-- Flow 1:

Average throughput: 51.08 Mbit/s

95th percentile per-packet one-way delay: 156.032 ms

Loss rate: 0.25%

-- Flow 2:

Average throughput: 44.91 Mbit/s

95th percentile per-packet one-way delay: 87.039 ms

Loss rate: 0.59%

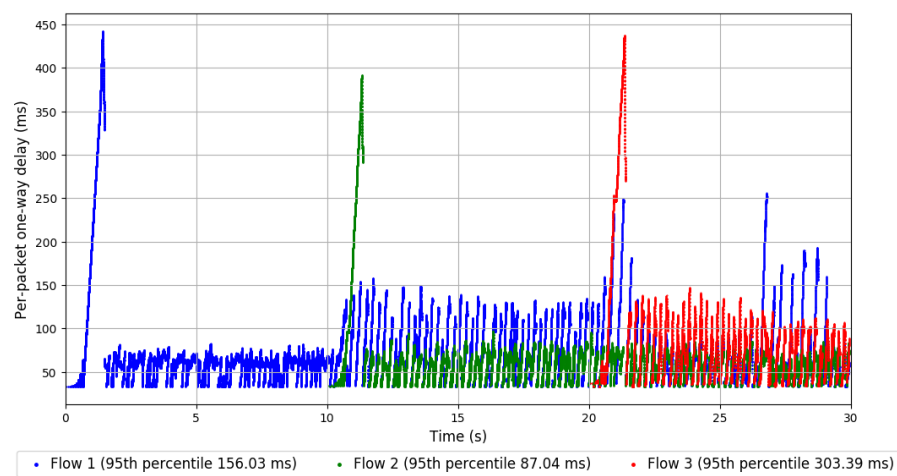
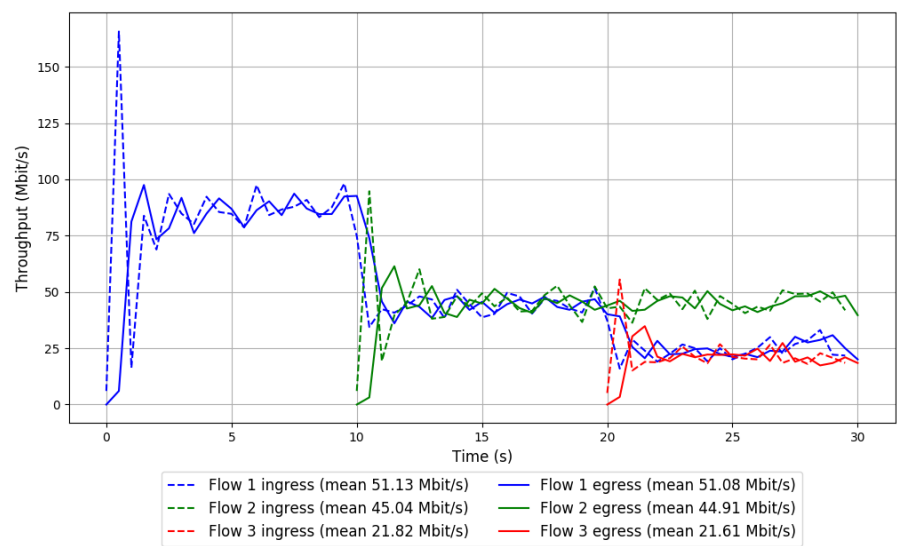
-- Flow 3:

Average throughput: 21.61 Mbit/s

95th percentile per-packet one-way delay: 303.391 ms

Loss rate: 1.40%

Run 5: Report of Verus — Data Link

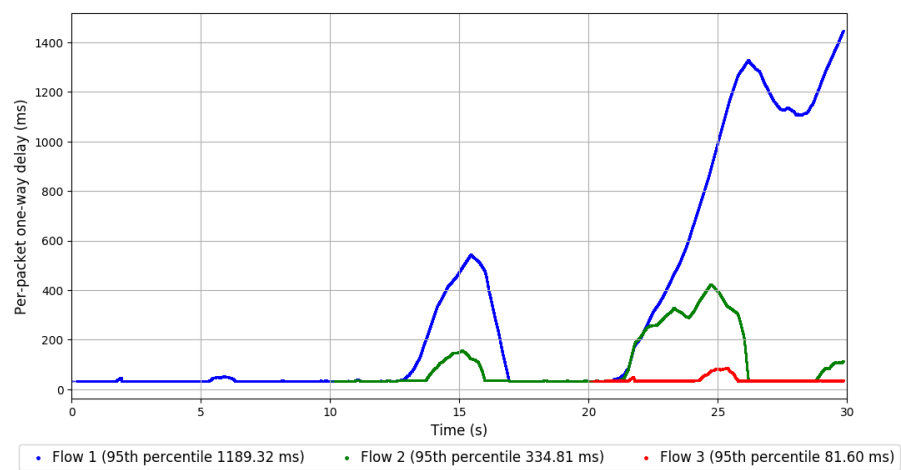
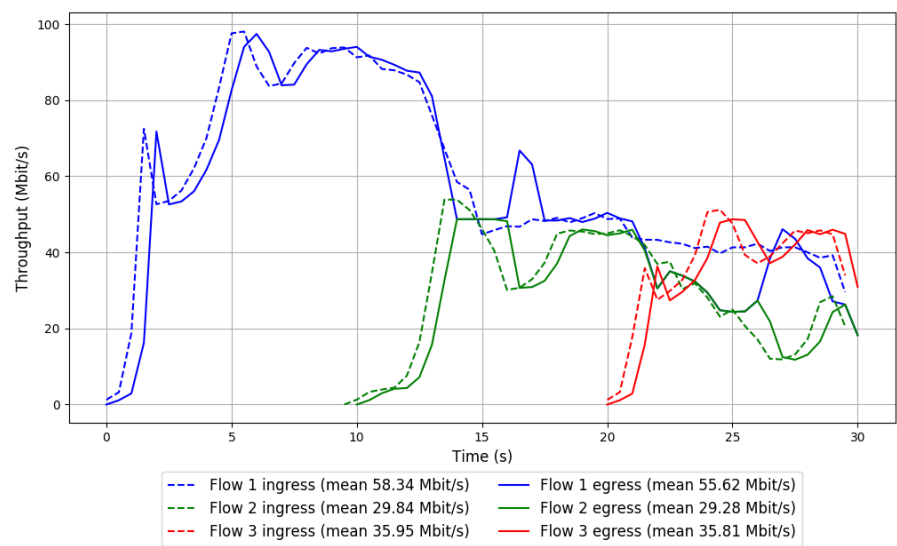


Run 1: Statistics of PCC-Vivace

Start at: 2018-09-06 19:24:56
End at: 2018-09-06 19:25:26
Local clock offset: 0.762 ms
Remote clock offset: -1.449 ms

Below is generated by plot.py at 2018-09-06 21:30:24
Datalink statistics
-- Total of 3 flows:
Average throughput: 86.86 Mbit/s
95th percentile per-packet one-way delay: 1124.440 ms
Loss rate: 3.77%
-- Flow 1:
Average throughput: 55.62 Mbit/s
95th percentile per-packet one-way delay: 1189.320 ms
Loss rate: 4.87%
-- Flow 2:
Average throughput: 29.28 Mbit/s
95th percentile per-packet one-way delay: 334.813 ms
Loss rate: 2.18%
-- Flow 3:
Average throughput: 35.81 Mbit/s
95th percentile per-packet one-way delay: 81.602 ms
Loss rate: 1.03%

Run 1: Report of PCC-Vivace — Data Link

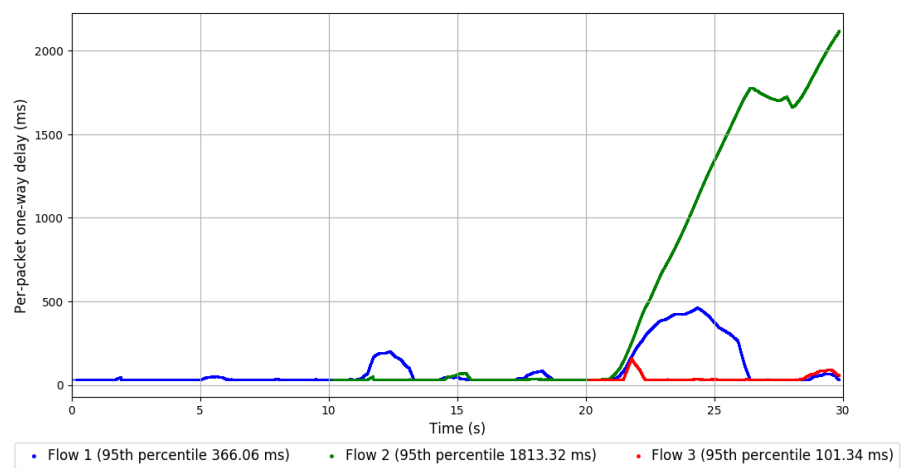
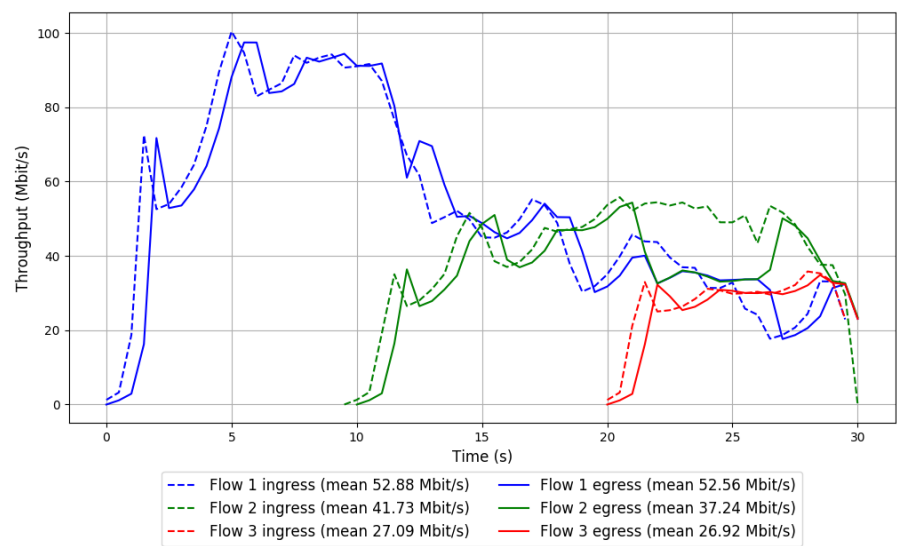


Run 2: Statistics of PCC-Vivace

Start at: 2018-09-06 19:49:54
End at: 2018-09-06 19:50:24
Local clock offset: 0.734 ms
Remote clock offset: -0.559 ms

Below is generated by plot.py at 2018-09-06 21:30:24
Datalink statistics
-- Total of 3 flows:
Average throughput: 86.18 Mbit/s
95th percentile per-packet one-way delay: 1703.117 ms
Loss rate: 4.67%
-- Flow 1:
Average throughput: 52.56 Mbit/s
95th percentile per-packet one-way delay: 366.056 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 37.24 Mbit/s
95th percentile per-packet one-way delay: 1813.320 ms
Loss rate: 12.90%
-- Flow 3:
Average throughput: 26.92 Mbit/s
95th percentile per-packet one-way delay: 101.336 ms
Loss rate: 1.29%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 20:14:45

End at: 2018-09-06 20:15:15

Local clock offset: 0.369 ms

Remote clock offset: 0.273 ms

Below is generated by plot.py at 2018-09-06 21:30:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 87.62 Mbit/s

95th percentile per-packet one-way delay: 873.159 ms

Loss rate: 2.81%

-- Flow 1:

Average throughput: 56.85 Mbit/s

95th percentile per-packet one-way delay: 864.525 ms

Loss rate: 1.57%

-- Flow 2:

Average throughput: 35.90 Mbit/s

95th percentile per-packet one-way delay: 976.702 ms

Loss rate: 6.01%

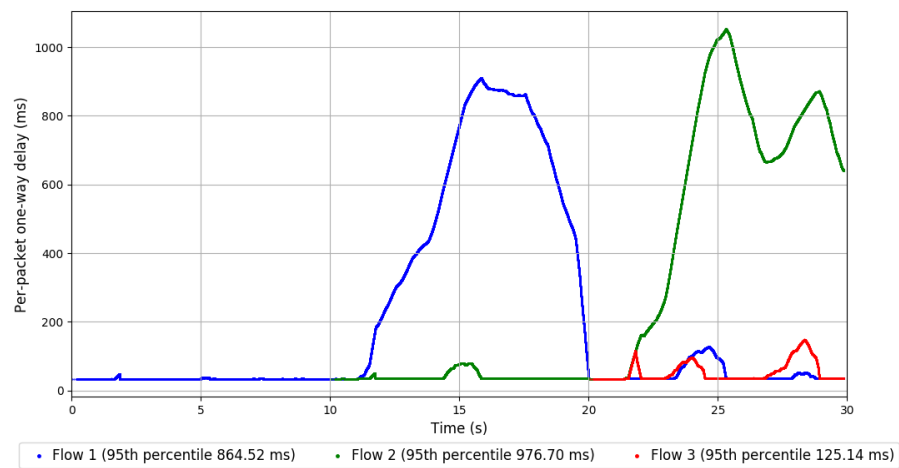
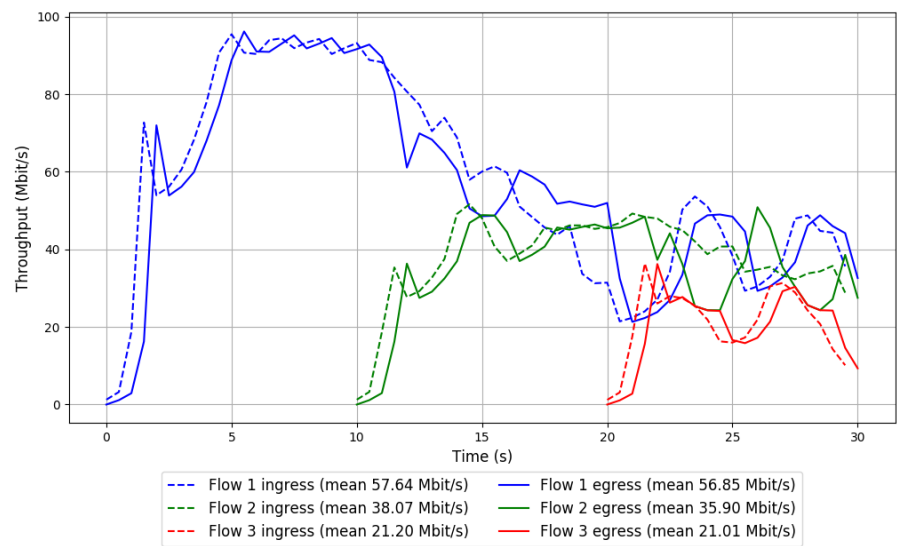
-- Flow 3:

Average throughput: 21.01 Mbit/s

95th percentile per-packet one-way delay: 125.142 ms

Loss rate: 1.53%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-06 20:39:42

End at: 2018-09-06 20:40:12

Local clock offset: 0.297 ms

Remote clock offset: 0.791 ms

Below is generated by plot.py at 2018-09-06 21:30:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 88.60 Mbit/s

95th percentile per-packet one-way delay: 2218.093 ms

Loss rate: 4.56%

-- Flow 1:

Average throughput: 54.22 Mbit/s

95th percentile per-packet one-way delay: 2284.277 ms

Loss rate: 6.81%

-- Flow 2:

Average throughput: 41.18 Mbit/s

95th percentile per-packet one-way delay: 69.188 ms

Loss rate: 0.45%

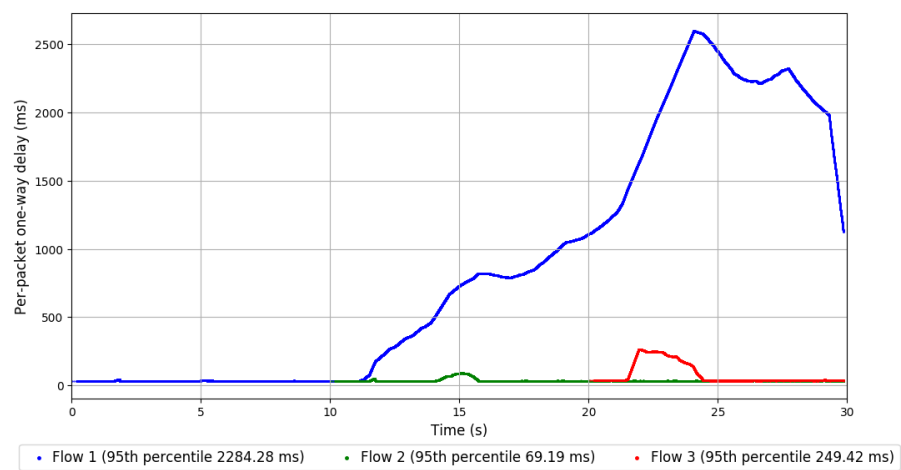
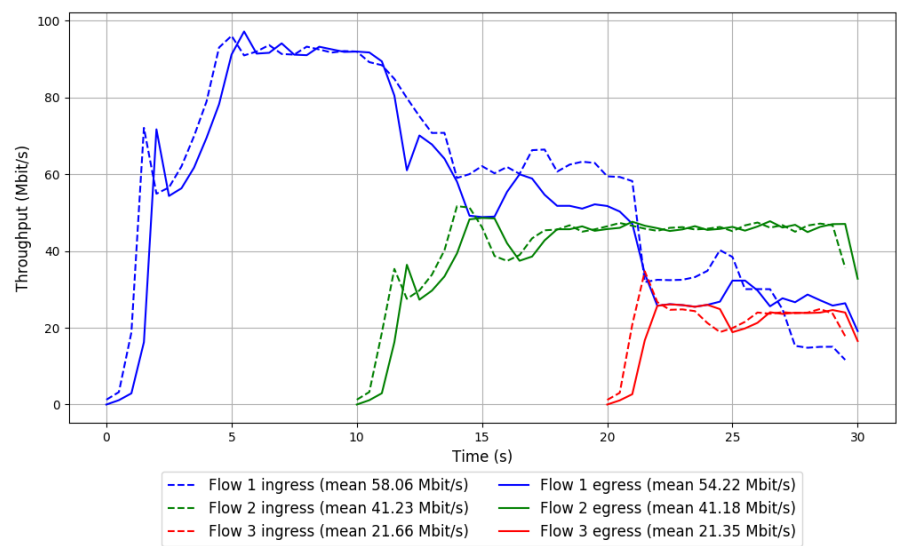
-- Flow 3:

Average throughput: 21.35 Mbit/s

95th percentile per-packet one-way delay: 249.420 ms

Loss rate: 2.03%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-06 21:04:30

End at: 2018-09-06 21:05:00

Local clock offset: 0.101 ms

Remote clock offset: 1.07 ms

Below is generated by plot.py at 2018-09-06 21:30:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.31 Mbit/s

95th percentile per-packet one-way delay: 357.863 ms

Loss rate: 0.91%

-- Flow 1:

Average throughput: 52.07 Mbit/s

95th percentile per-packet one-way delay: 497.178 ms

Loss rate: 1.02%

-- Flow 2:

Average throughput: 42.53 Mbit/s

95th percentile per-packet one-way delay: 191.857 ms

Loss rate: 0.67%

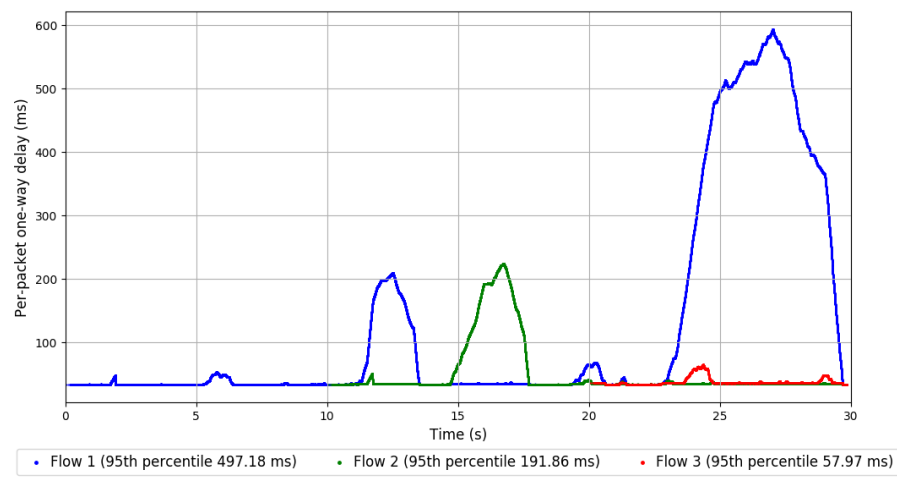
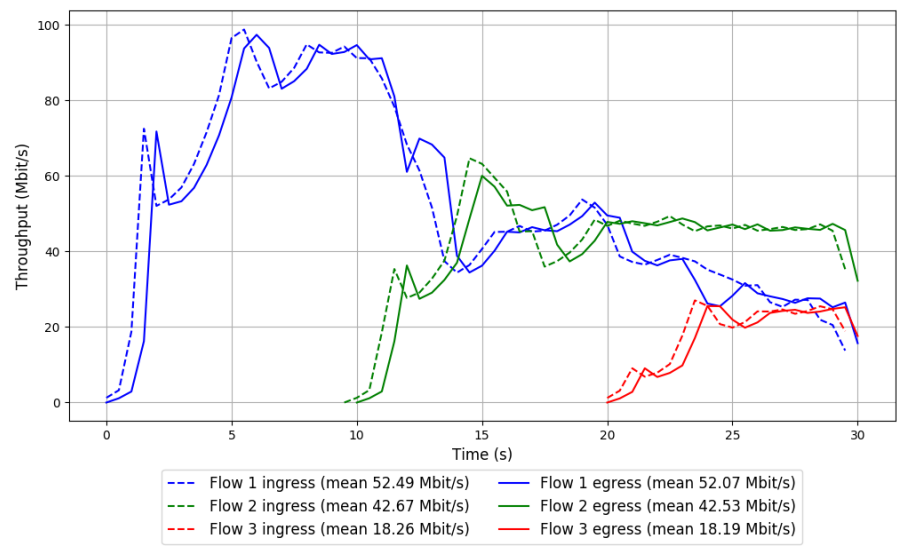
-- Flow 3:

Average throughput: 18.19 Mbit/s

95th percentile per-packet one-way delay: 57.967 ms

Loss rate: 1.06%

Run 5: Report of PCC-Vivace — Data Link

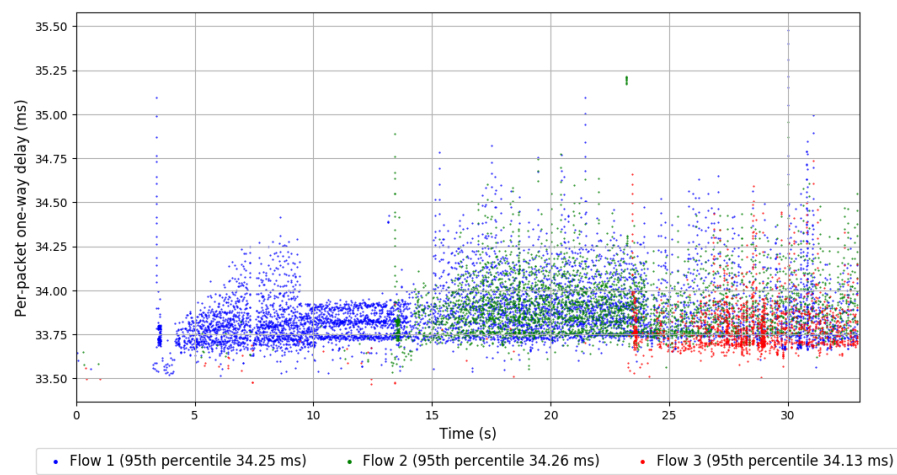
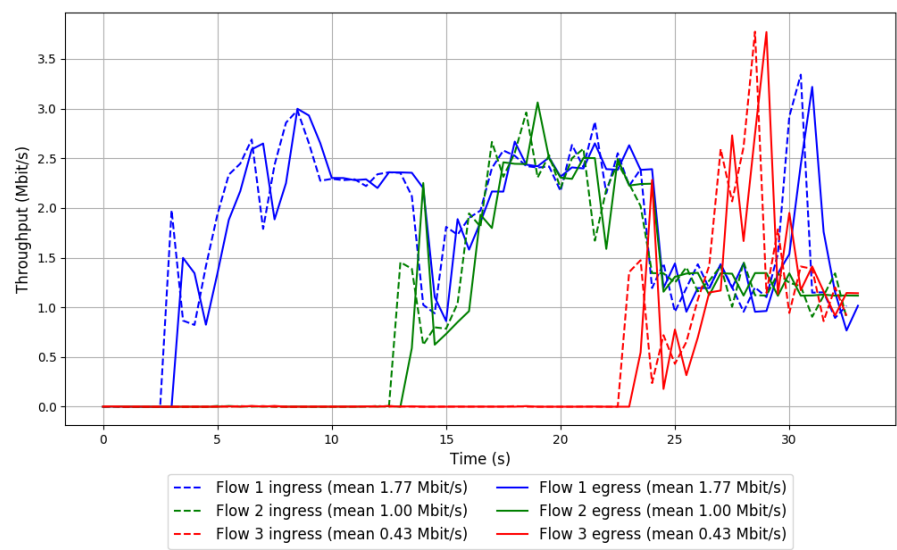


Run 1: Statistics of WebRTC media

Start at: 2018-09-06 19:16:49
End at: 2018-09-06 19:17:19
Local clock offset: 1.012 ms
Remote clock offset: -1.604 ms

Below is generated by plot.py at 2018-09-06 21:30:33
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.19 Mbit/s
95th percentile per-packet one-way delay: 34.243 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 34.247 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 34.259 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 34.127 ms
Loss rate: 0.01%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-06 19:41:36

End at: 2018-09-06 19:42:06

Local clock offset: 0.78 ms

Remote clock offset: -0.68 ms

Below is generated by plot.py at 2018-09-06 21:30:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.25 Mbit/s

95th percentile per-packet one-way delay: 34.100 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 1.80 Mbit/s

95th percentile per-packet one-way delay: 34.033 ms

Loss rate: 0.11%

-- Flow 2:

Average throughput: 1.02 Mbit/s

95th percentile per-packet one-way delay: 34.117 ms

Loss rate: 0.31%

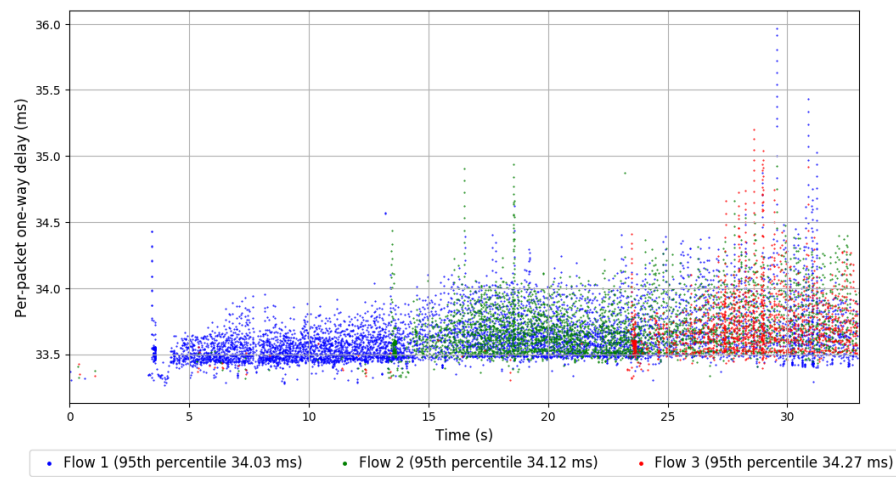
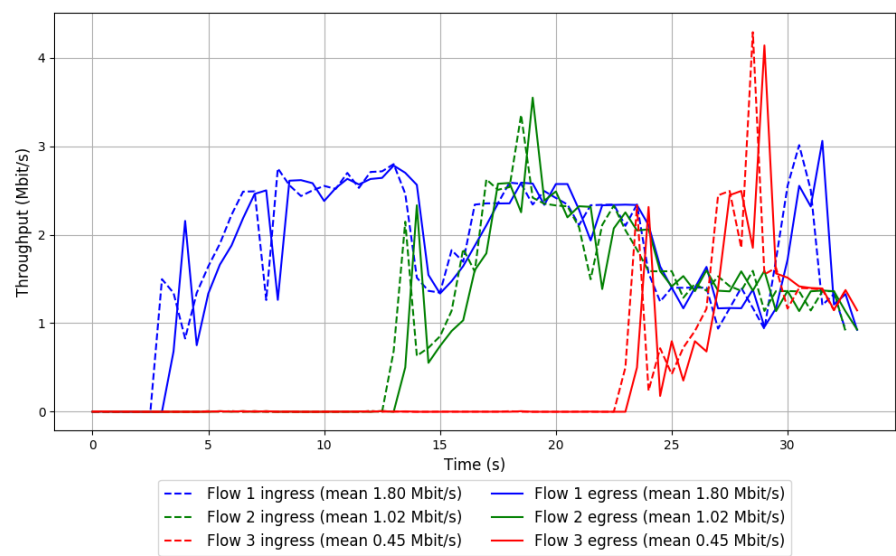
-- Flow 3:

Average throughput: 0.45 Mbit/s

95th percentile per-packet one-way delay: 34.273 ms

Loss rate: 0.78%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-06 20:06:36

End at: 2018-09-06 20:07:06

Local clock offset: 0.365 ms

Remote clock offset: 0.266 ms

Below is generated by plot.py at 2018-09-06 21:30:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.15 Mbit/s

95th percentile per-packet one-way delay: 34.008 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 1.75 Mbit/s

95th percentile per-packet one-way delay: 33.991 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.98 Mbit/s

95th percentile per-packet one-way delay: 33.869 ms

Loss rate: 0.34%

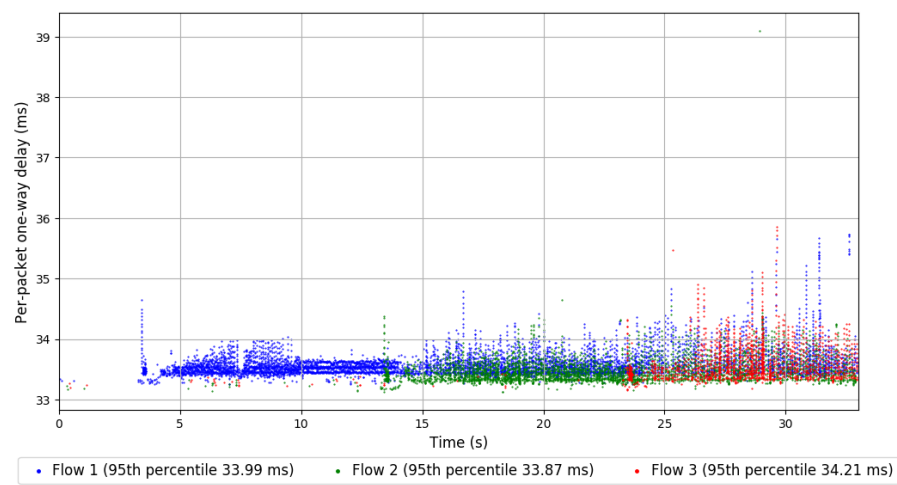
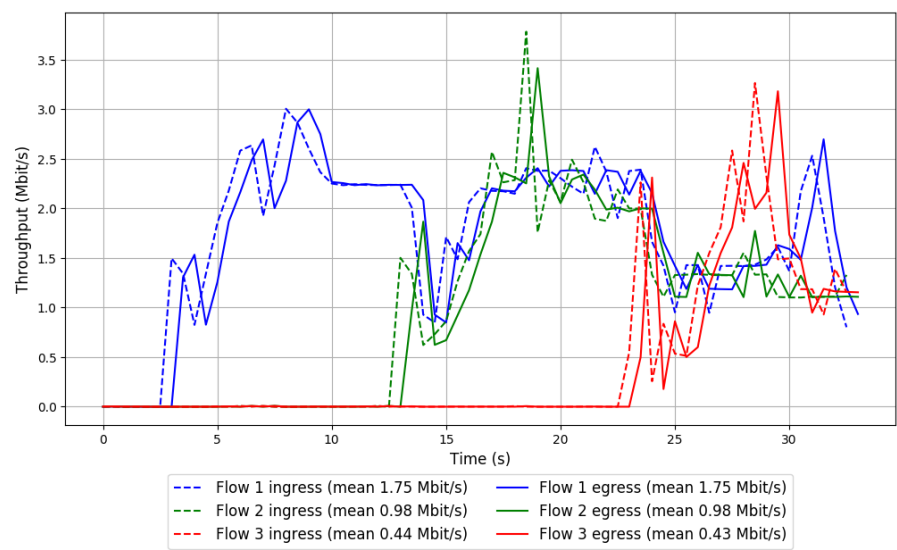
-- Flow 3:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 34.207 ms

Loss rate: 0.81%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-06 20:31:30

End at: 2018-09-06 20:32:00

Local clock offset: 0.29 ms

Remote clock offset: 0.432 ms

Below is generated by plot.py at 2018-09-06 21:30:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.17 Mbit/s

95th percentile per-packet one-way delay: 34.333 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 1.75 Mbit/s

95th percentile per-packet one-way delay: 34.250 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 1.01 Mbit/s

95th percentile per-packet one-way delay: 34.316 ms

Loss rate: 0.00%

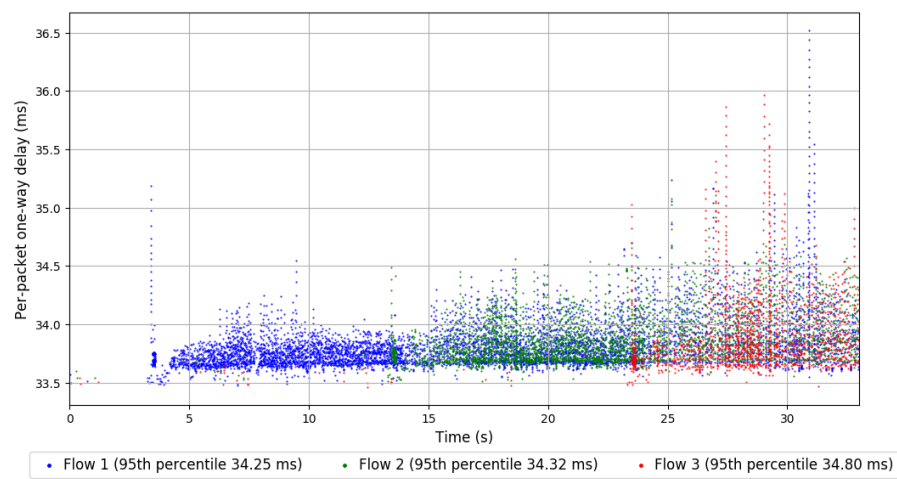
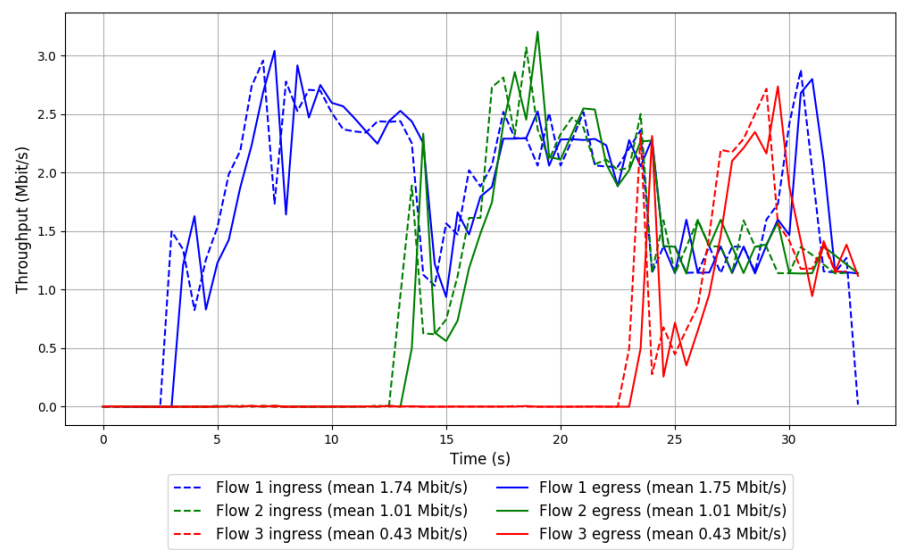
-- Flow 3:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 34.805 ms

Loss rate: 0.14%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-06 20:56:22

End at: 2018-09-06 20:56:52

Local clock offset: 0.045 ms

Remote clock offset: 0.888 ms

Below is generated by plot.py at 2018-09-06 21:30:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.23 Mbit/s

95th percentile per-packet one-way delay: 34.181 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 1.77 Mbit/s

95th percentile per-packet one-way delay: 34.062 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 1.02 Mbit/s

95th percentile per-packet one-way delay: 34.140 ms

Loss rate: 0.34%

-- Flow 3:

Average throughput: 0.45 Mbit/s

95th percentile per-packet one-way delay: 34.431 ms

Loss rate: 0.78%

Run 5: Report of WebRTC media — Data Link

