

Pantheon Report

Generated at 2018-09-06 11:11:08 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

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

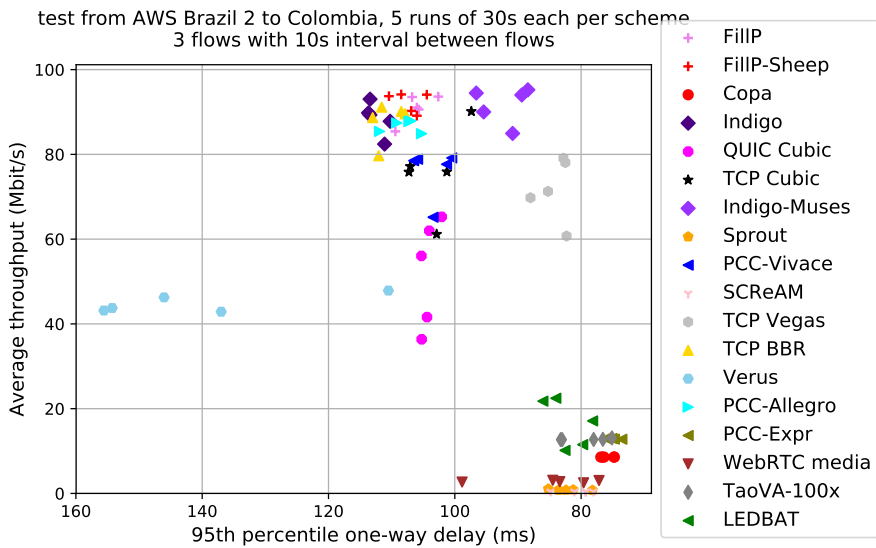
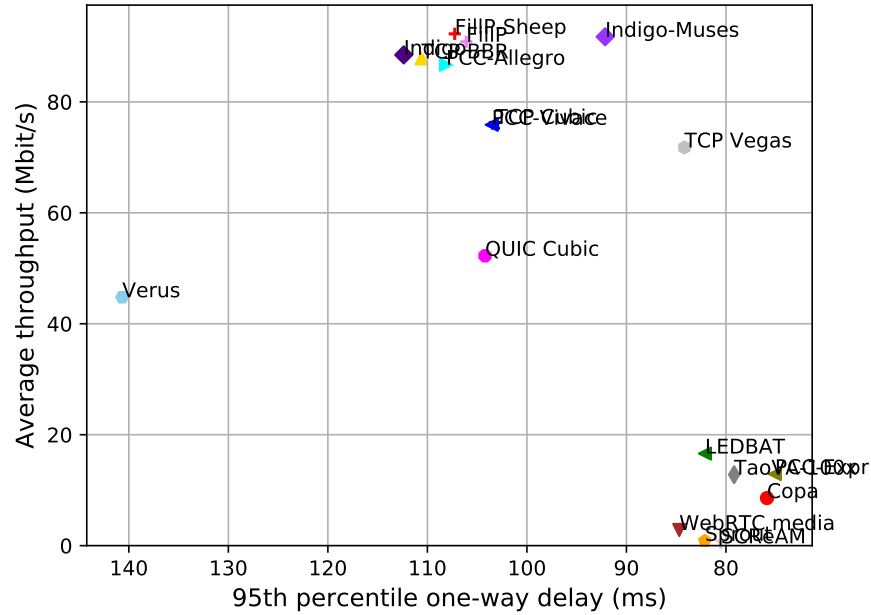
System info:

```
Linux 4.15.0-1020-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 @ 77961f1a82733a86b42f1bc8143ebc978f3cfff42
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 AWS Brazil 2 to Colombia, 5 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



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	51.97	38.67	33.19	108.55	107.94	108.32	12.94	19.37	24.37
Copa	5	0.00	10.26	5.28	77.19	75.44	75.15	98.47	74.03	81.21
TCP Cubic	5	37.80	42.35	30.16	103.29	102.47	102.38	1.71	1.42	0.65
FillP	5	58.08	38.18	22.22	105.15	105.54	105.02	17.69	22.17	22.04
FillP-Sheep	5	54.34	41.56	31.30	106.16	104.28	103.77	15.58	24.20	27.38
Indigo	5	57.36	34.60	25.33	110.60	111.37	110.52	5.38	14.84	24.32
LEDBAT	5	10.87	6.93	3.42	81.46	78.56	81.36	0.32	0.42	1.04
Indigo-Muses	5	64.97	26.62	27.89	90.49	94.94	97.34	2.50	3.36	6.22
PCC-Allegro	5	79.97	6.51	7.24	108.11	109.03	109.20	2.97	6.21	5.36
PCC-Expr	5	8.09	5.41	3.68	74.43	75.12	74.43	57.53	38.15	40.33
QUIC Cubic	5	34.21	18.22	18.18	103.92	103.50	102.54	1.88	3.37	6.37
SCReAM	5	0.22	0.22	0.21	76.83	77.79	79.74	0.10	0.18	0.54
Sprout	5	0.40	0.50	0.39	79.83	79.10	78.14	0.66	0.25	1.62
TaoVA-100x	5	6.59	5.38	7.93	85.67	80.64	74.90	36.26	70.92	87.23
TCP Vegas	5	46.70	12.12	51.17	83.52	94.05	85.90	1.19	4.05	1.83
Verus	5	24.76	21.57	21.31	116.43	118.47	143.89	32.44	29.70	57.47
PCC-Vivace	5	66.62	10.76	6.33	103.94	97.78	97.47	0.73	1.96	2.89
WebRTC media	5	1.73	0.87	0.24	102.67	80.30	83.33	1.28	1.81	1.58

Run 1: Statistics of TCP BBR

Start at: 2018-09-06 09:20:26

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

Local clock offset: 4.885 ms

Remote clock offset: 0.794 ms

Below is generated by plot.py at 2018-09-06 11:04:08

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.12 Mbit/s

95th percentile per-packet one-way delay: 108.475 ms

Loss rate: 16.11%

-- Flow 1:

Average throughput: 52.42 Mbit/s

95th percentile per-packet one-way delay: 108.063 ms

Loss rate: 11.93%

-- Flow 2:

Average throughput: 37.67 Mbit/s

95th percentile per-packet one-way delay: 104.499 ms

Loss rate: 20.23%

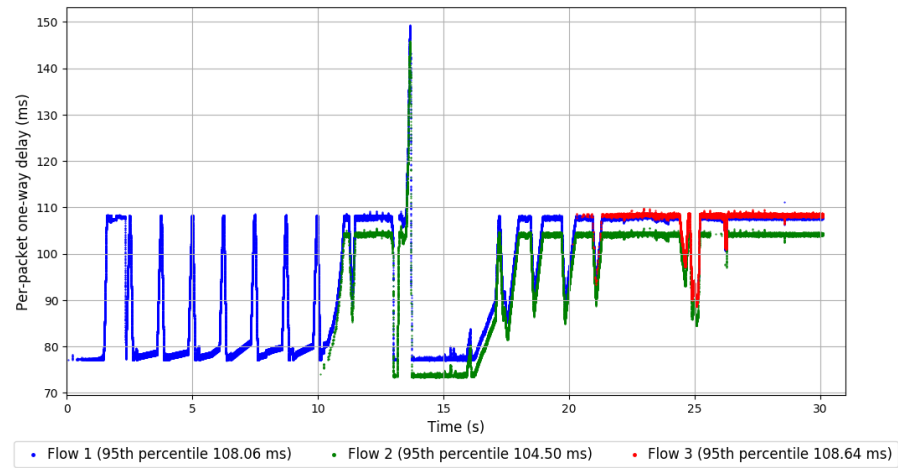
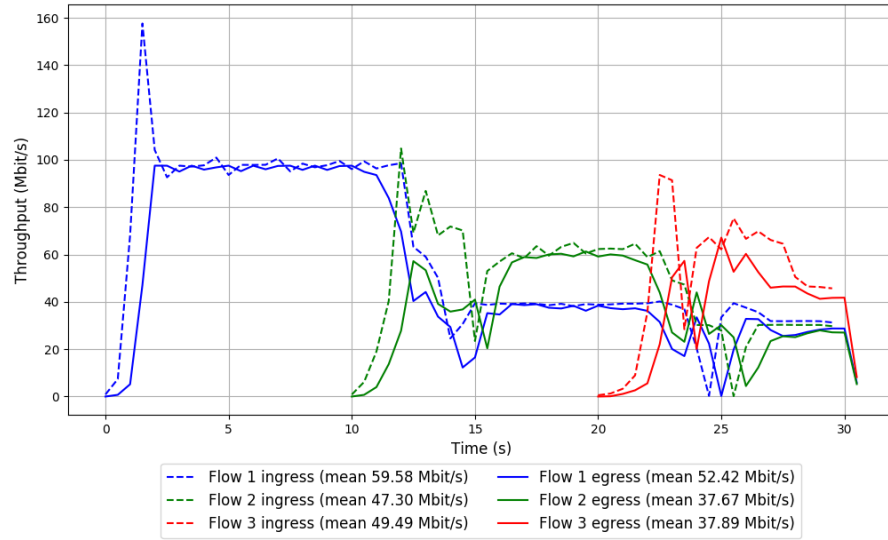
-- Flow 3:

Average throughput: 37.89 Mbit/s

95th percentile per-packet one-way delay: 108.640 ms

Loss rate: 23.40%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-06 09:43:34

End at: 2018-09-06 09:44:04

Local clock offset: 4.347 ms

Remote clock offset: 1.878 ms

Below is generated by plot.py at 2018-09-06 11:04:08

Datalink statistics

-- Total of 3 flows:

Average throughput: 88.67 Mbit/s

95th percentile per-packet one-way delay: 113.010 ms

Loss rate: 16.47%

-- Flow 1:

Average throughput: 51.93 Mbit/s

95th percentile per-packet one-way delay: 112.777 ms

Loss rate: 15.03%

-- Flow 2:

Average throughput: 35.68 Mbit/s

95th percentile per-packet one-way delay: 113.168 ms

Loss rate: 16.14%

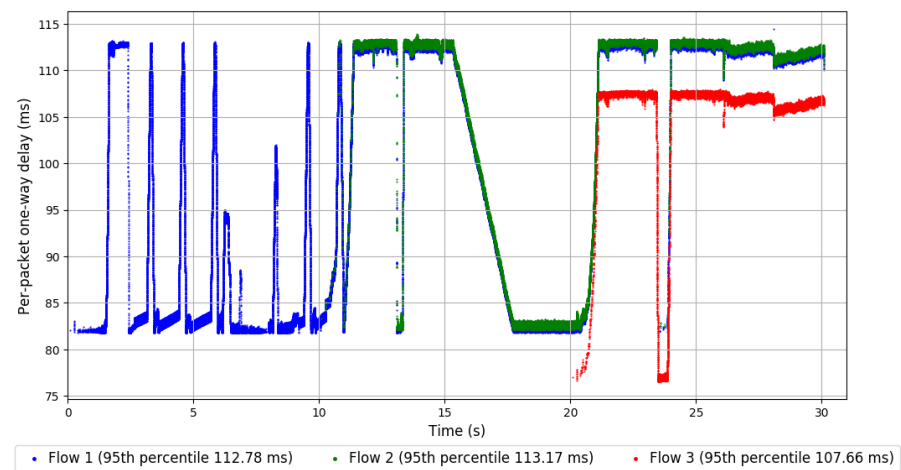
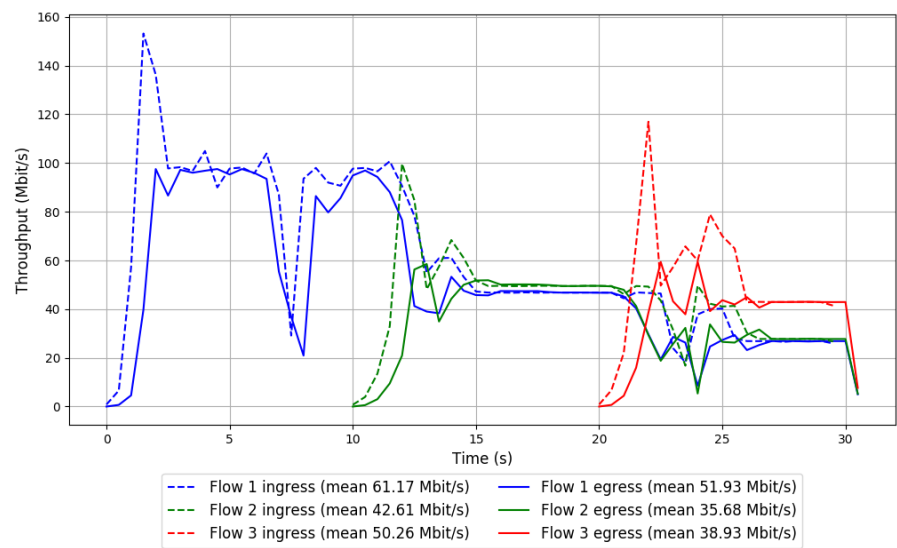
-- Flow 3:

Average throughput: 38.93 Mbit/s

95th percentile per-packet one-way delay: 107.656 ms

Loss rate: 22.32%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-06 10:06:32

End at: 2018-09-06 10:07:02

Local clock offset: 4.633 ms

Remote clock offset: 0.926 ms

Below is generated by plot.py at 2018-09-06 11:04:08

Datalink statistics

-- Total of 3 flows:

Average throughput: 79.68 Mbit/s

95th percentile per-packet one-way delay: 112.049 ms

Loss rate: 15.68%

-- Flow 1:

Average throughput: 44.08 Mbit/s

95th percentile per-packet one-way delay: 105.244 ms

Loss rate: 12.31%

-- Flow 2:

Average throughput: 44.21 Mbit/s

95th percentile per-packet one-way delay: 106.683 ms

Loss rate: 19.11%

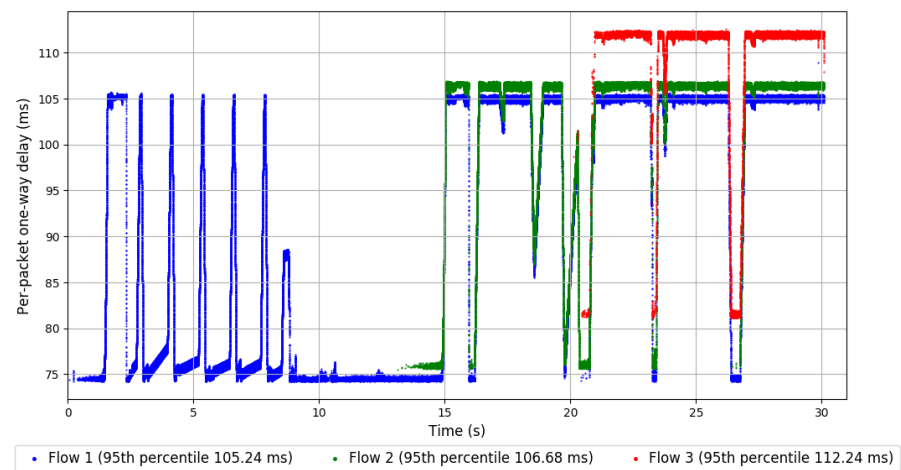
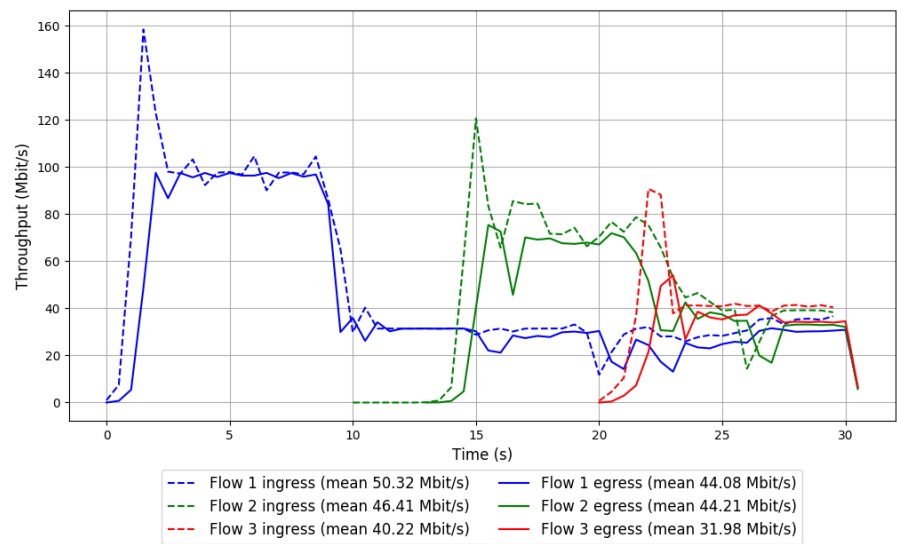
-- Flow 3:

Average throughput: 31.98 Mbit/s

95th percentile per-packet one-way delay: 112.243 ms

Loss rate: 20.41%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-06 10:29:17

End at: 2018-09-06 10:29:47

Local clock offset: 4.614 ms

Remote clock offset: 1.026 ms

Below is generated by plot.py at 2018-09-06 11:04:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.57 Mbit/s

95th percentile per-packet one-way delay: 107.845 ms

Loss rate: 18.23%

-- Flow 1:

Average throughput: 52.77 Mbit/s

95th percentile per-packet one-way delay: 105.050 ms

Loss rate: 12.78%

-- Flow 2:

Average throughput: 42.37 Mbit/s

95th percentile per-packet one-way delay: 107.944 ms

Loss rate: 22.85%

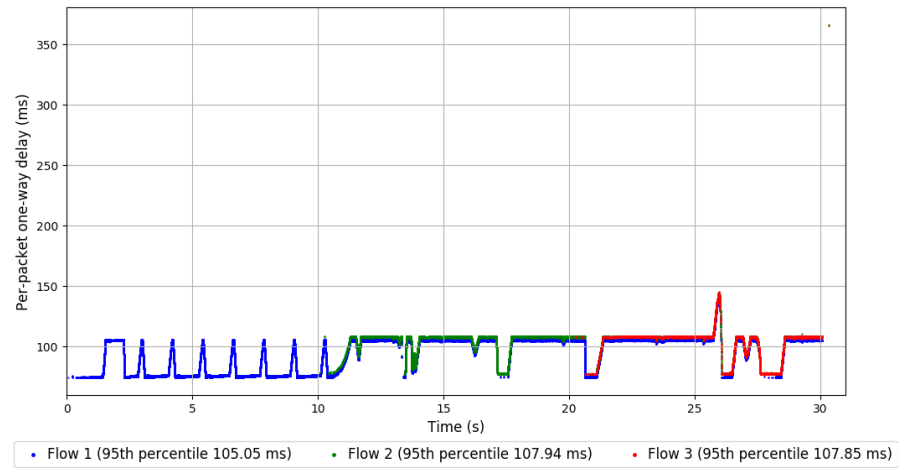
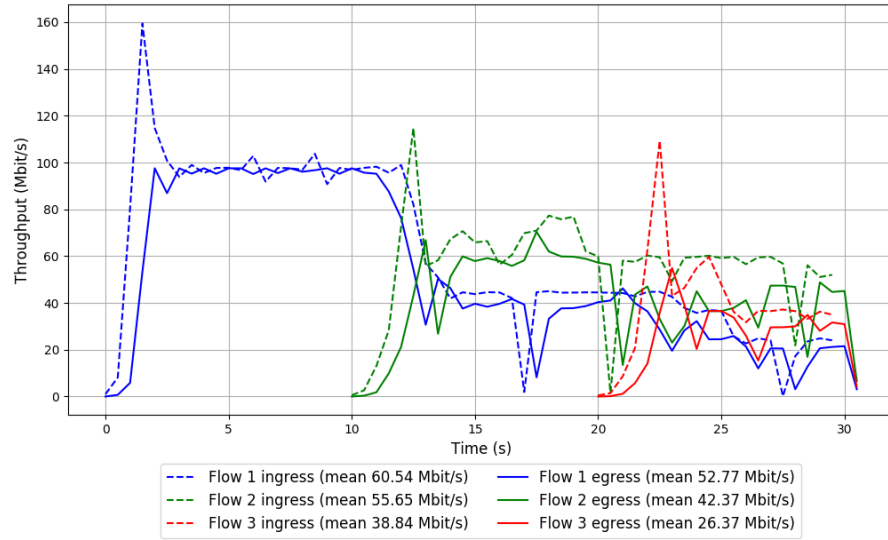
-- Flow 3:

Average throughput: 26.37 Mbit/s

95th percentile per-packet one-way delay: 107.848 ms

Loss rate: 30.48%

Run 4: Report of TCP BBR — Data Link

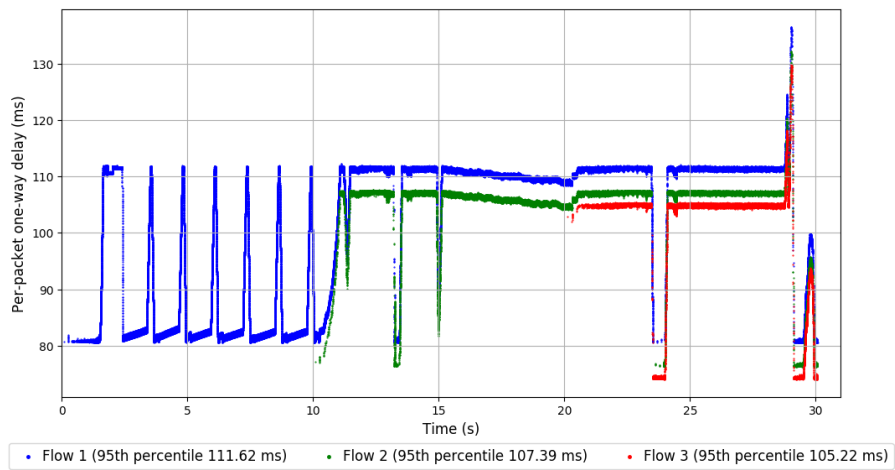
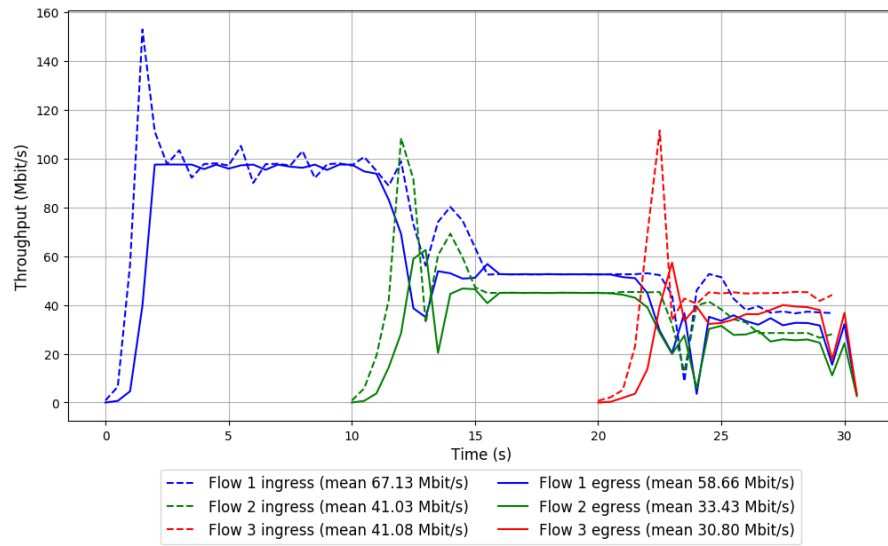


Run 5: Statistics of TCP BBR

Start at: 2018-09-06 10:52:13
End at: 2018-09-06 10:52:43
Local clock offset: 4.938 ms
Remote clock offset: -0.013 ms

Below is generated by plot.py at 2018-09-06 11:04:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.14 Mbit/s
95th percentile per-packet one-way delay: 111.584 ms
Loss rate: 15.71%
-- Flow 1:
Average throughput: 58.66 Mbit/s
95th percentile per-packet one-way delay: 111.621 ms
Loss rate: 12.63%
-- Flow 2:
Average throughput: 33.43 Mbit/s
95th percentile per-packet one-way delay: 107.392 ms
Loss rate: 18.52%
-- Flow 3:
Average throughput: 30.80 Mbit/s
95th percentile per-packet one-way delay: 105.218 ms
Loss rate: 25.24%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-09-06 09:08:56

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

Local clock offset: 4.213 ms

Remote clock offset: 0.836 ms

Below is generated by plot.py at 2018-09-06 11:04:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.58 Mbit/s

95th percentile per-packet one-way delay: 74.740 ms

Loss rate: 76.31%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 78.622 ms

Loss rate: 98.65%

-- Flow 2:

Average throughput: 10.02 Mbit/s

95th percentile per-packet one-way delay: 74.859 ms

Loss rate: 74.02%

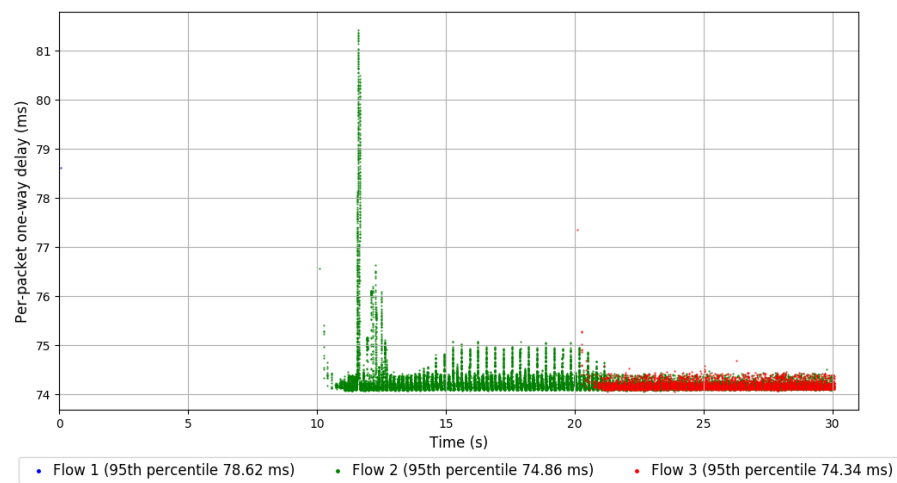
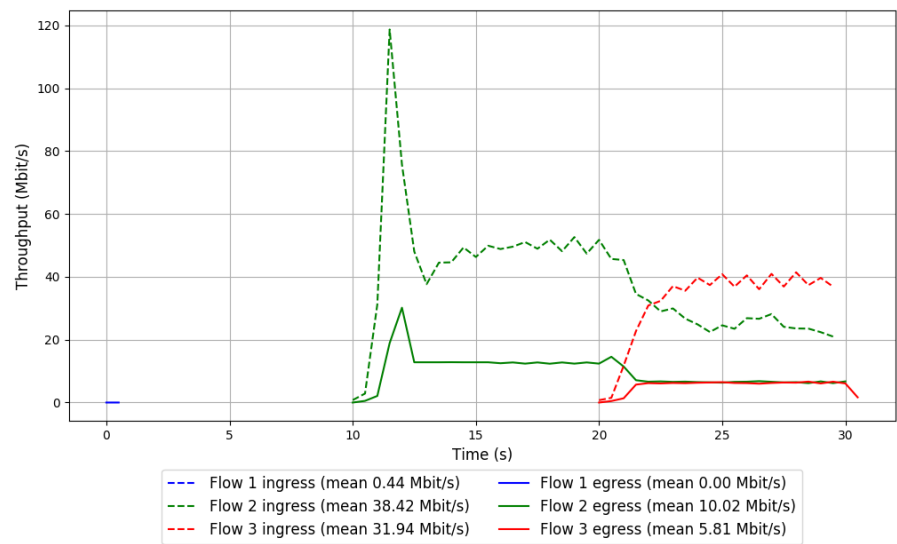
-- Flow 3:

Average throughput: 5.81 Mbit/s

95th percentile per-packet one-way delay: 74.345 ms

Loss rate: 81.82%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-06 09:31:45

End at: 2018-09-06 09:32:15

Local clock offset: 4.493 ms

Remote clock offset: 0.789 ms

Below is generated by plot.py at 2018-09-06 11:04:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.57 Mbit/s

95th percentile per-packet one-way delay: 76.611 ms

Loss rate: 77.99%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 75.729 ms

Loss rate: 98.65%

-- Flow 2:

Average throughput: 10.51 Mbit/s

95th percentile per-packet one-way delay: 76.729 ms

Loss rate: 76.82%

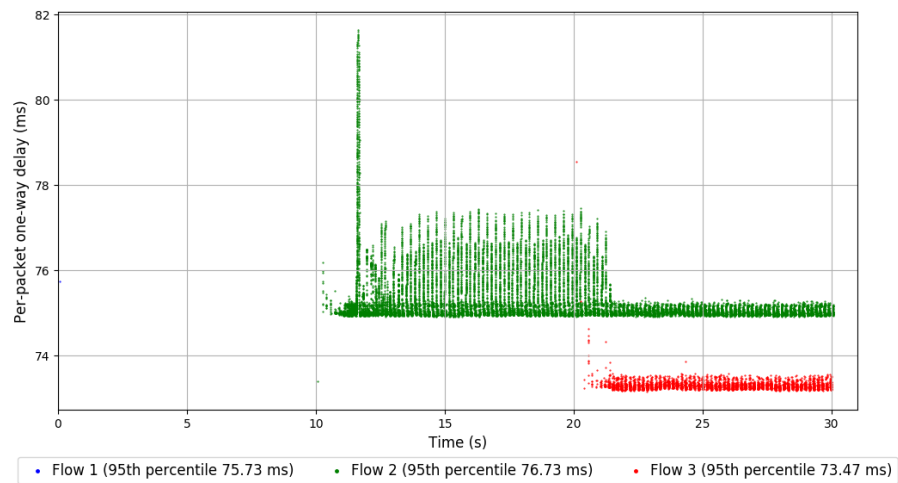
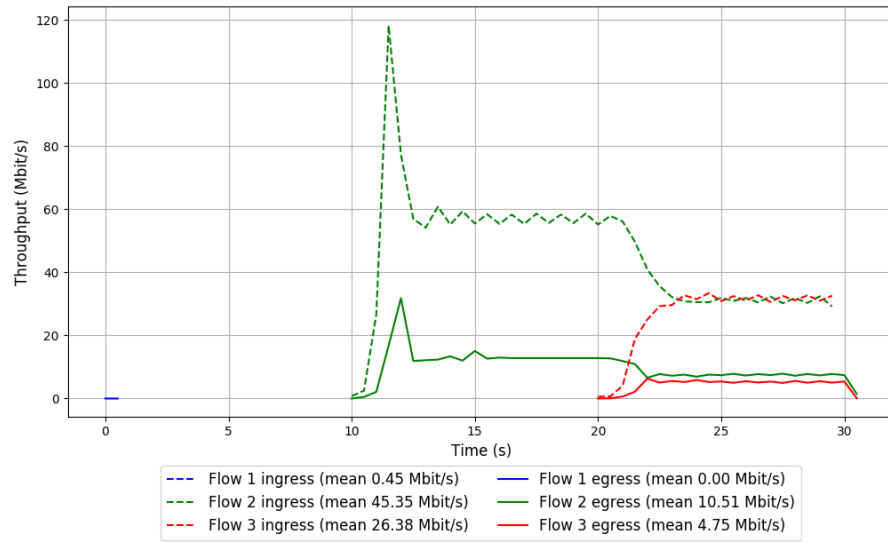
-- Flow 3:

Average throughput: 4.75 Mbit/s

95th percentile per-packet one-way delay: 73.467 ms

Loss rate: 82.02%

Run 2: Report of Copa — Data Link

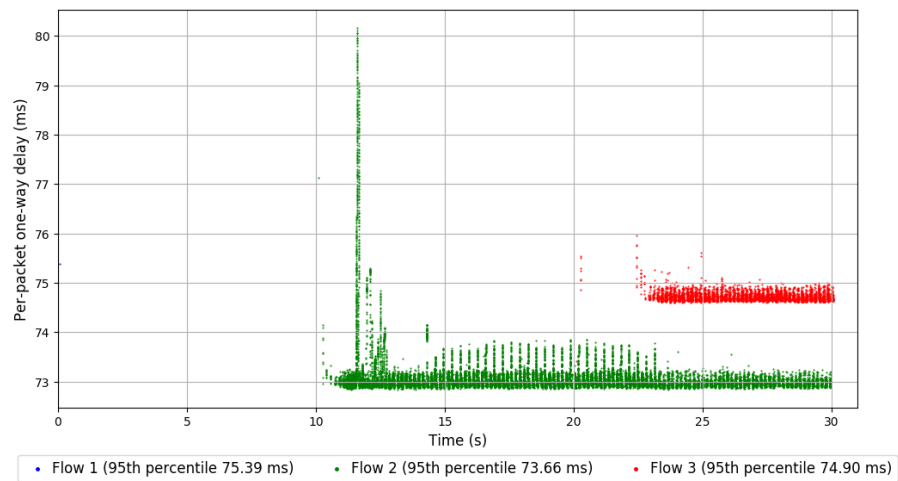
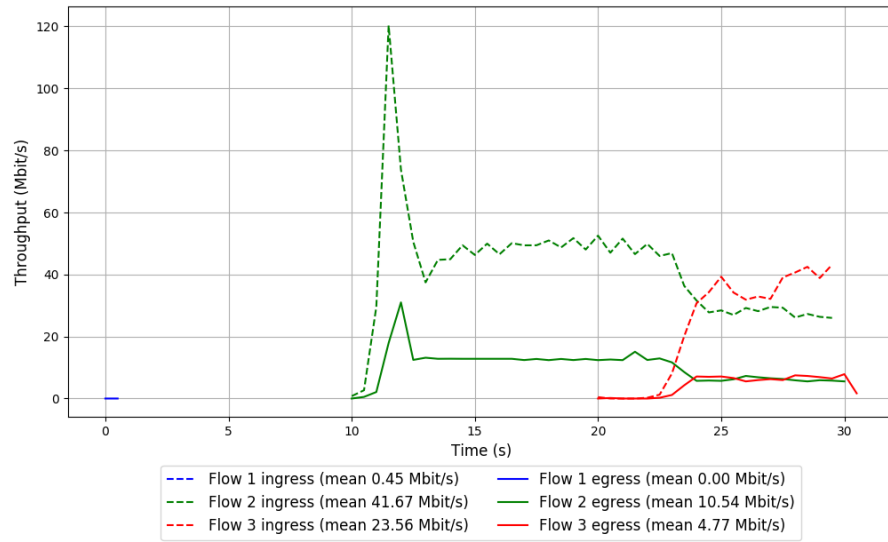


Run 3: Statistics of Copa

Start at: 2018-09-06 09:55:03
End at: 2018-09-06 09:55:33
Local clock offset: 3.787 ms
Remote clock offset: -0.233 ms

Below is generated by plot.py at 2018-09-06 11:04:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.58 Mbit/s
95th percentile per-packet one-way delay: 74.802 ms
Loss rate: 75.83%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 75.388 ms
Loss rate: 98.65%
-- Flow 2:
Average throughput: 10.54 Mbit/s
95th percentile per-packet one-way delay: 73.663 ms
Loss rate: 74.71%
-- Flow 3:
Average throughput: 4.77 Mbit/s
95th percentile per-packet one-way delay: 74.898 ms
Loss rate: 79.77%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-06 10:17:56

End at: 2018-09-06 10:18:26

Local clock offset: 4.102 ms

Remote clock offset: 1.003 ms

Below is generated by plot.py at 2018-09-06 11:04:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.58 Mbit/s

95th percentile per-packet one-way delay: 76.369 ms

Loss rate: 76.12%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 78.297 ms

Loss rate: 98.39%

-- Flow 2:

Average throughput: 9.68 Mbit/s

95th percentile per-packet one-way delay: 76.492 ms

Loss rate: 73.54%

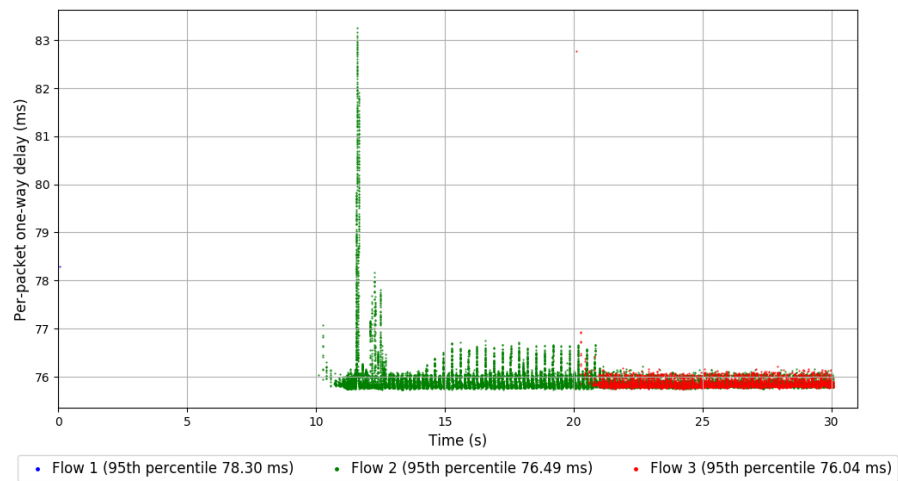
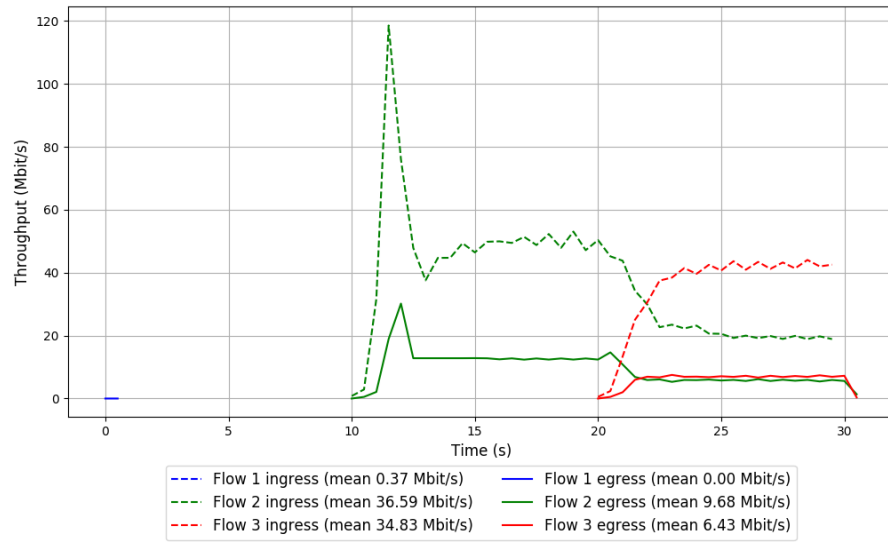
-- Flow 3:

Average throughput: 6.43 Mbit/s

95th percentile per-packet one-way delay: 76.043 ms

Loss rate: 81.55%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-06 10:40:43

End at: 2018-09-06 10:41:13

Local clock offset: 4.889 ms

Remote clock offset: 2.045 ms

Below is generated by plot.py at 2018-09-06 11:04:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 8.58 Mbit/s

95th percentile per-packet one-way delay: 76.882 ms

Loss rate: 73.51%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 77.901 ms

Loss rate: 97.99%

-- Flow 2:

Average throughput: 10.56 Mbit/s

95th percentile per-packet one-way delay: 75.461 ms

Loss rate: 71.06%

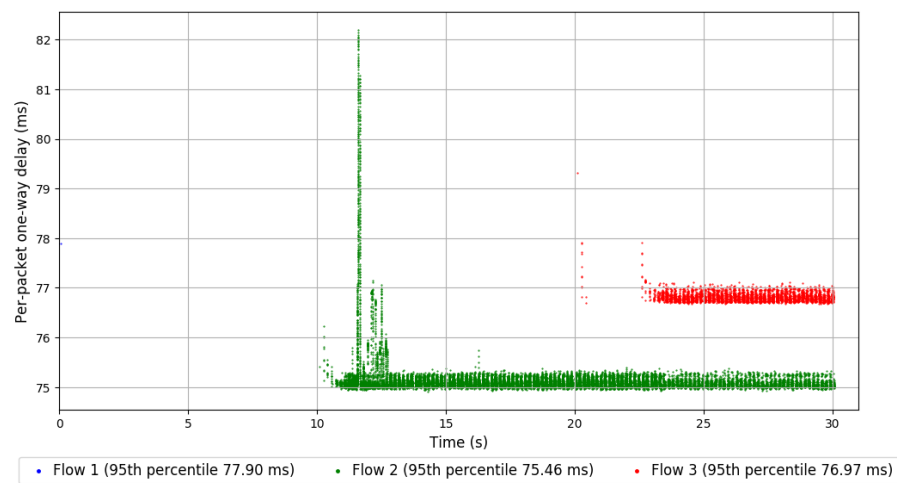
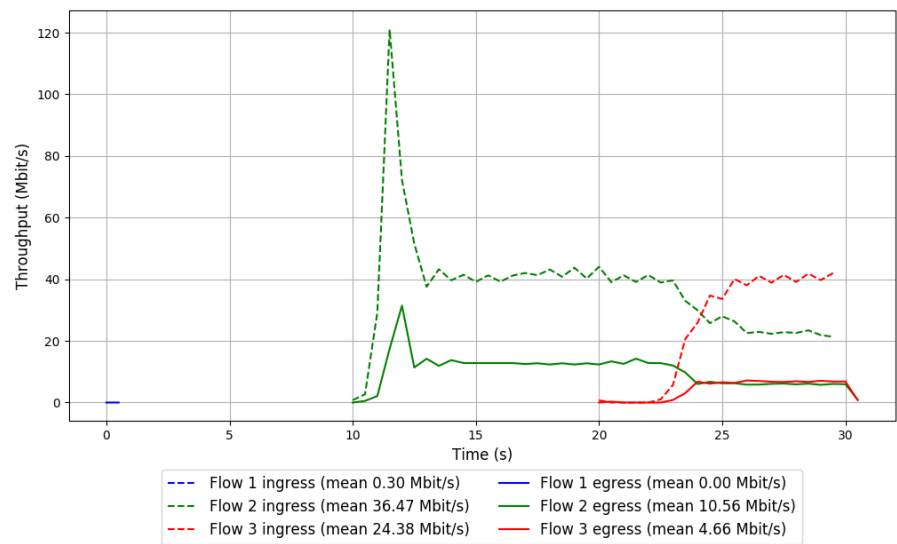
-- Flow 3:

Average throughput: 4.66 Mbit/s

95th percentile per-packet one-way delay: 76.974 ms

Loss rate: 80.87%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 09:07:36

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

Local clock offset: 4.994 ms

Remote clock offset: 0.722 ms

Below is generated by plot.py at 2018-09-06 11:04:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.84 Mbit/s

95th percentile per-packet one-way delay: 107.266 ms

Loss rate: 1.70%

-- Flow 1:

Average throughput: 33.41 Mbit/s

95th percentile per-packet one-way delay: 109.050 ms

Loss rate: 2.80%

-- Flow 2:

Average throughput: 56.86 Mbit/s

95th percentile per-packet one-way delay: 105.795 ms

Loss rate: 0.87%

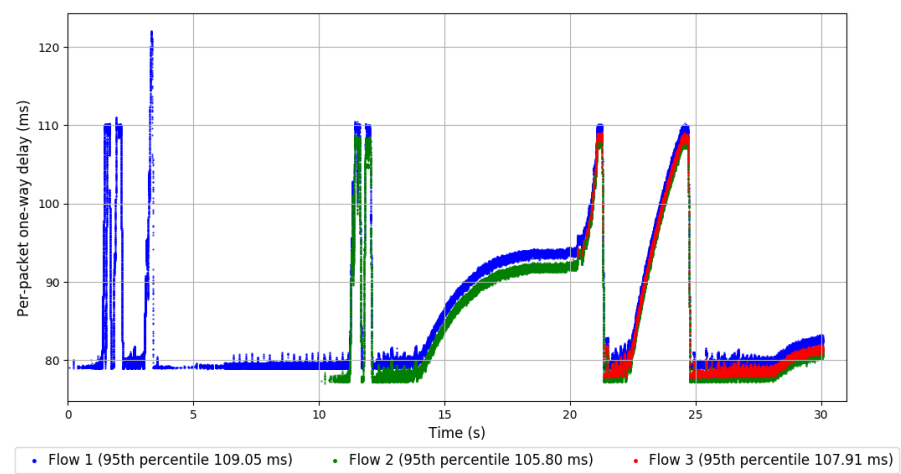
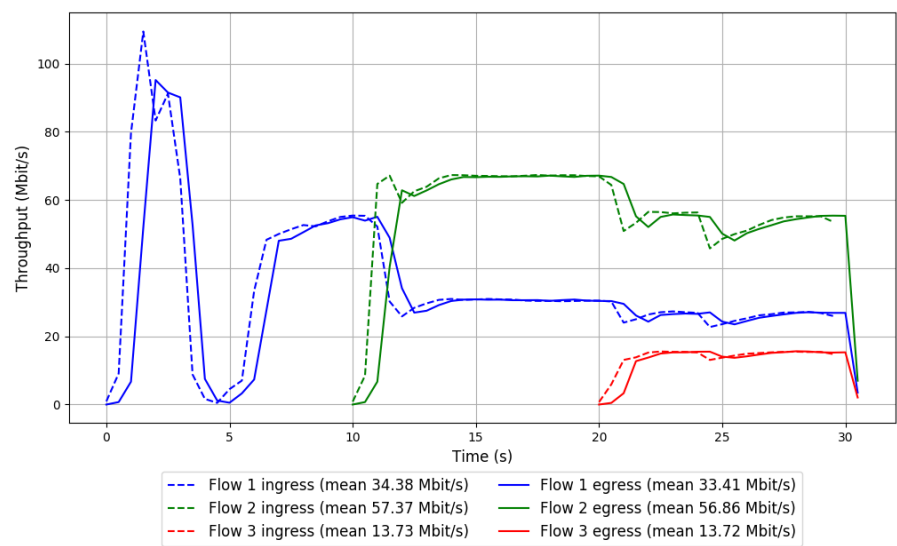
-- Flow 3:

Average throughput: 13.72 Mbit/s

95th percentile per-packet one-way delay: 107.907 ms

Loss rate: 0.25%

Run 1: Report of TCP Cubic — Data Link

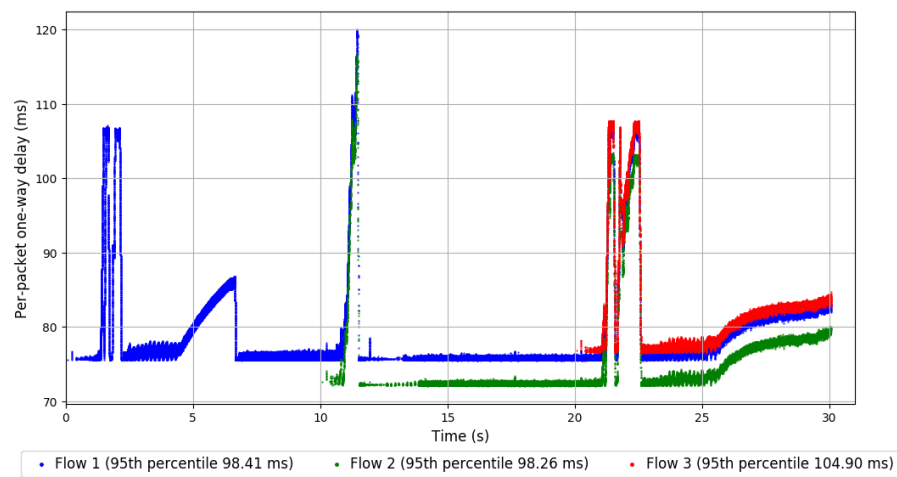
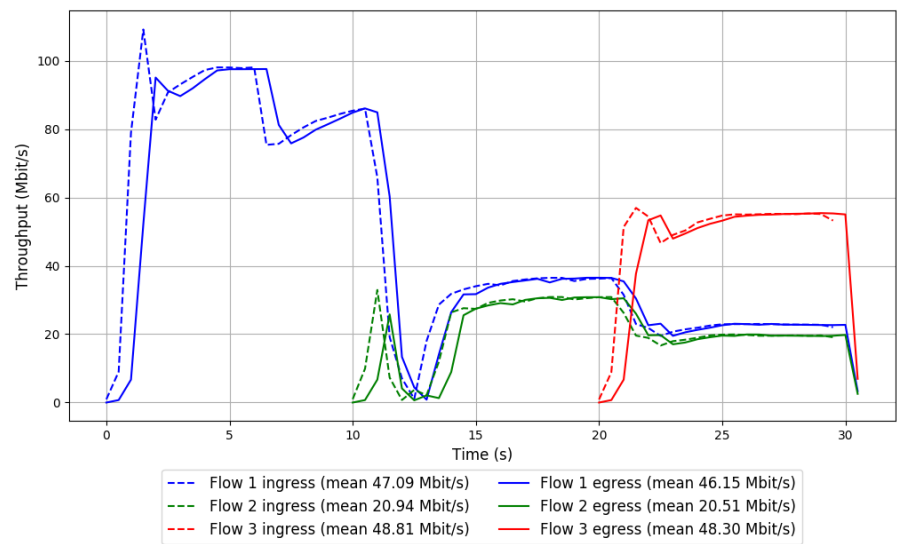


Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 09:30:28
End at: 2018-09-06 09:30:58
Local clock offset: 4.518 ms
Remote clock offset: -0.456 ms

Below is generated by plot.py at 2018-09-06 11:04:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 75.89 Mbit/s
95th percentile per-packet one-way delay: 101.254 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 46.15 Mbit/s
95th percentile per-packet one-way delay: 98.414 ms
Loss rate: 1.97%
-- Flow 2:
Average throughput: 20.51 Mbit/s
95th percentile per-packet one-way delay: 98.263 ms
Loss rate: 2.04%
-- Flow 3:
Average throughput: 48.30 Mbit/s
95th percentile per-packet one-way delay: 104.899 ms
Loss rate: 0.98%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 09:53:46

End at: 2018-09-06 09:54:16

Local clock offset: 4.482 ms

Remote clock offset: 0.709 ms

Below is generated by plot.py at 2018-09-06 11:04:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.13 Mbit/s

95th percentile per-packet one-way delay: 97.382 ms

Loss rate: 0.99%

-- Flow 1:

Average throughput: 50.45 Mbit/s

95th percentile per-packet one-way delay: 96.722 ms

Loss rate: 1.12%

-- Flow 2:

Average throughput: 51.01 Mbit/s

95th percentile per-packet one-way delay: 99.306 ms

Loss rate: 0.93%

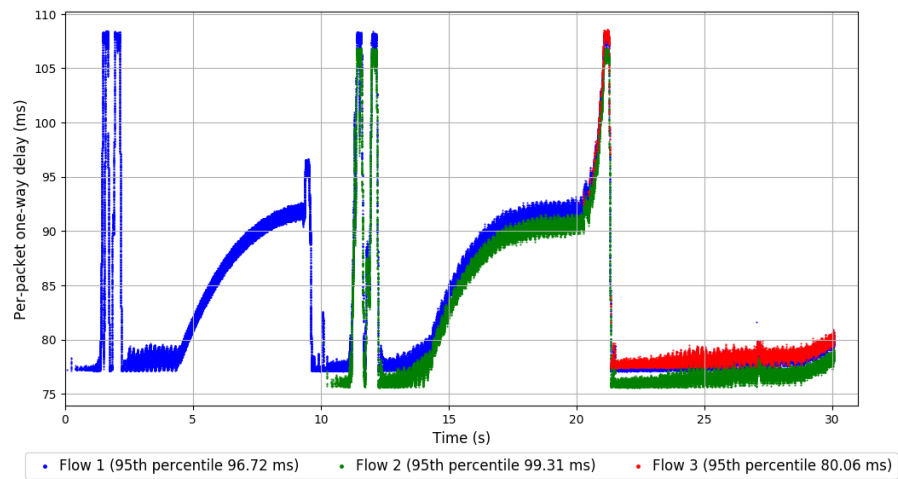
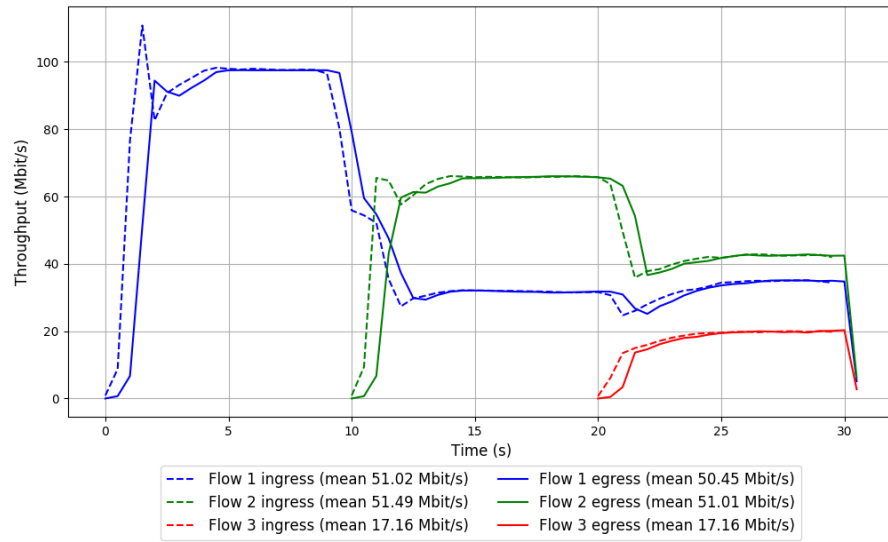
-- Flow 3:

Average throughput: 17.16 Mbit/s

95th percentile per-packet one-way delay: 80.058 ms

Loss rate: 0.13%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-06 10:16:41

End at: 2018-09-06 10:17:11

Local clock offset: 4.772 ms

Remote clock offset: 0.965 ms

Below is generated by plot.py at 2018-09-06 11:04:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 61.16 Mbit/s

95th percentile per-packet one-way delay: 102.882 ms

Loss rate: 0.73%

-- Flow 1:

Average throughput: 5.56 Mbit/s

95th percentile per-packet one-way delay: 105.492 ms

Loss rate: 1.09%

-- Flow 2:

Average throughput: 77.55 Mbit/s

95th percentile per-packet one-way delay: 102.318 ms

Loss rate: 0.74%

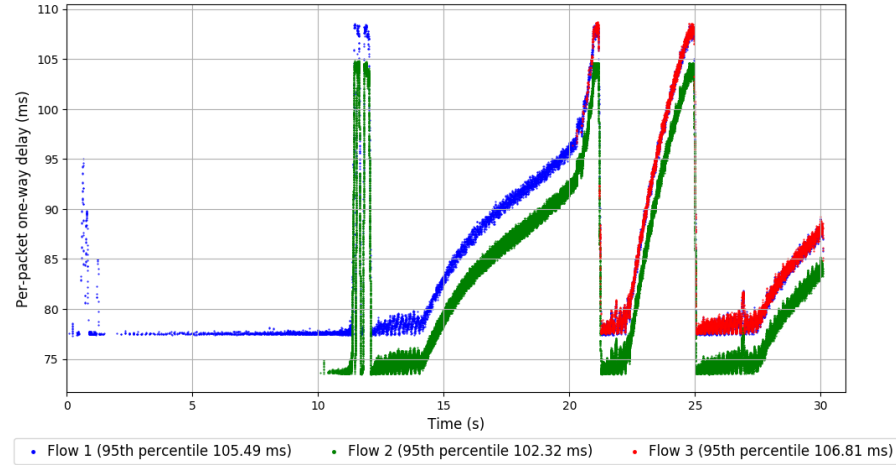
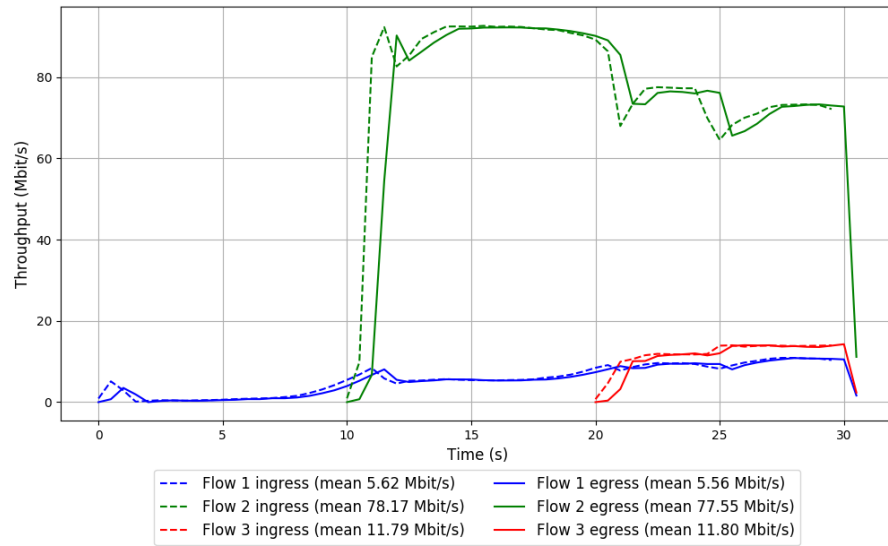
-- Flow 3:

Average throughput: 11.80 Mbit/s

95th percentile per-packet one-way delay: 106.814 ms

Loss rate: 0.09%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-06 10:39:26

End at: 2018-09-06 10:39:56

Local clock offset: 4.81 ms

Remote clock offset: 0.909 ms

Below is generated by plot.py at 2018-09-06 11:04:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.16 Mbit/s

95th percentile per-packet one-way delay: 107.044 ms

Loss rate: 1.68%

-- Flow 1:

Average throughput: 53.43 Mbit/s

95th percentile per-packet one-way delay: 106.767 ms

Loss rate: 1.58%

-- Flow 2:

Average throughput: 5.80 Mbit/s

95th percentile per-packet one-way delay: 106.657 ms

Loss rate: 2.53%

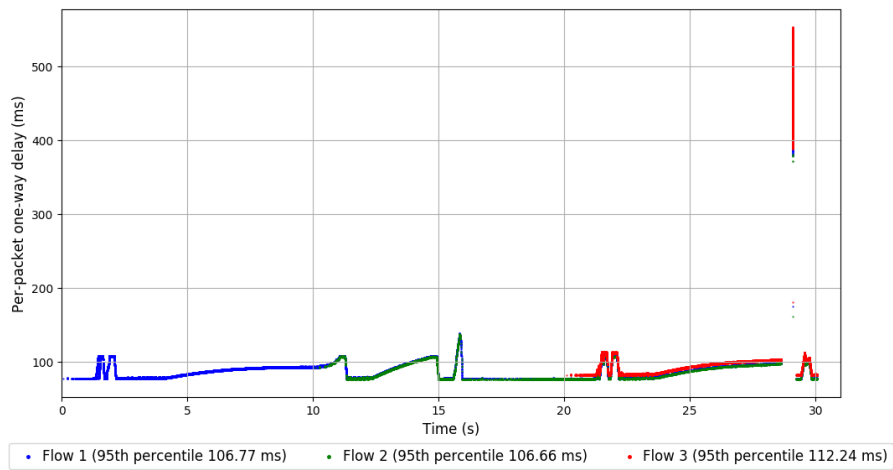
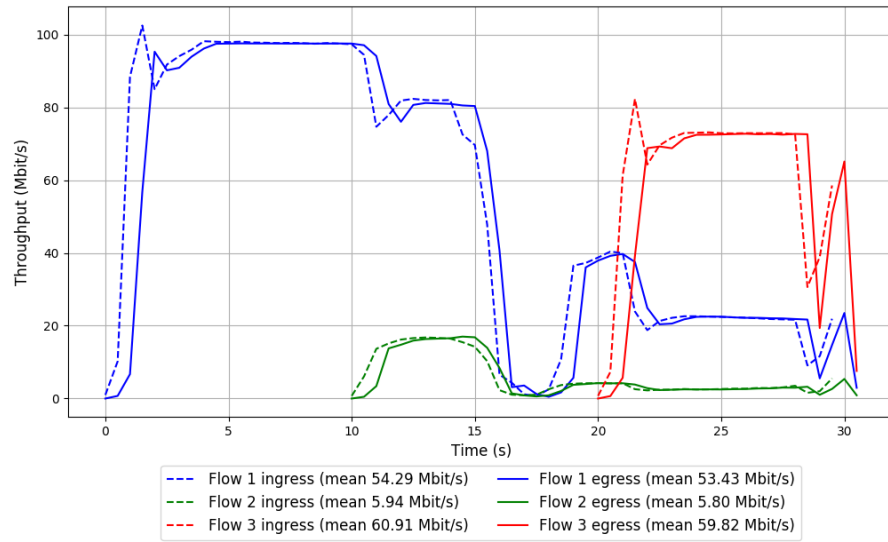
-- Flow 3:

Average throughput: 59.82 Mbit/s

95th percentile per-packet one-way delay: 112.236 ms

Loss rate: 1.78%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-09-06 09:24:13

End at: 2018-09-06 09:24:43

Local clock offset: 3.927 ms

Remote clock offset: 0.808 ms

Below is generated by plot.py at 2018-09-06 11:05:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.04 Mbit/s

95th percentile per-packet one-way delay: 106.011 ms

Loss rate: 18.58%

-- Flow 1:

Average throughput: 58.11 Mbit/s

95th percentile per-packet one-way delay: 106.104 ms

Loss rate: 17.69%

-- Flow 2:

Average throughput: 42.58 Mbit/s

95th percentile per-packet one-way delay: 103.824 ms

Loss rate: 20.66%

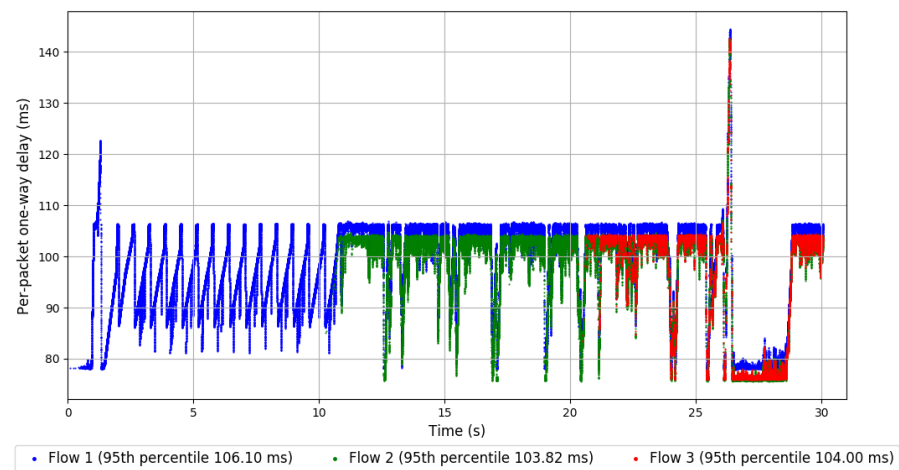
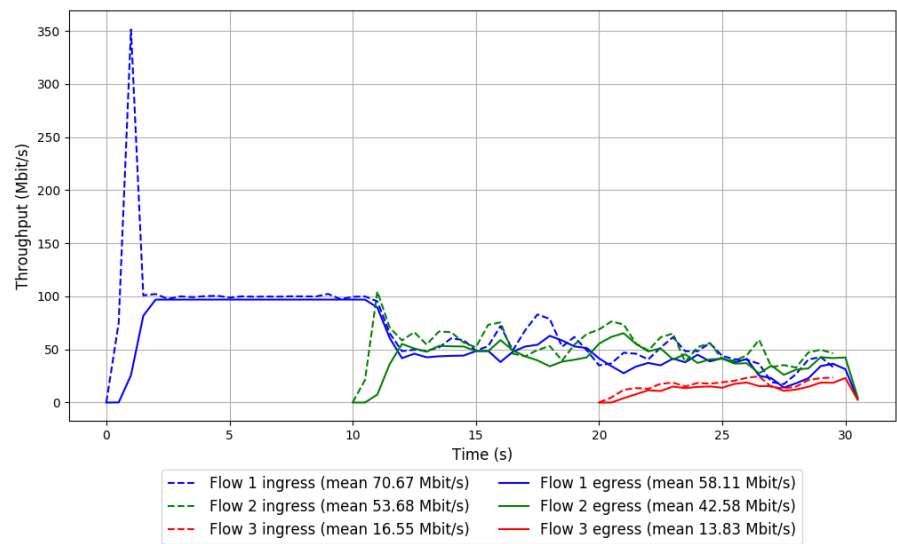
-- Flow 3:

Average throughput: 13.83 Mbit/s

95th percentile per-packet one-way delay: 104.004 ms

Loss rate: 16.44%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

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

End at: 2018-09-06 09:47:51

Local clock offset: 3.574 ms

Remote clock offset: 1.969 ms

Below is generated by plot.py at 2018-09-06 11:05:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.59 Mbit/s

95th percentile per-packet one-way delay: 105.710 ms

Loss rate: 17.73%

-- Flow 1:

Average throughput: 63.48 Mbit/s

95th percentile per-packet one-way delay: 103.623 ms

Loss rate: 16.70%

-- Flow 2:

Average throughput: 37.76 Mbit/s

95th percentile per-packet one-way delay: 105.935 ms

Loss rate: 20.57%

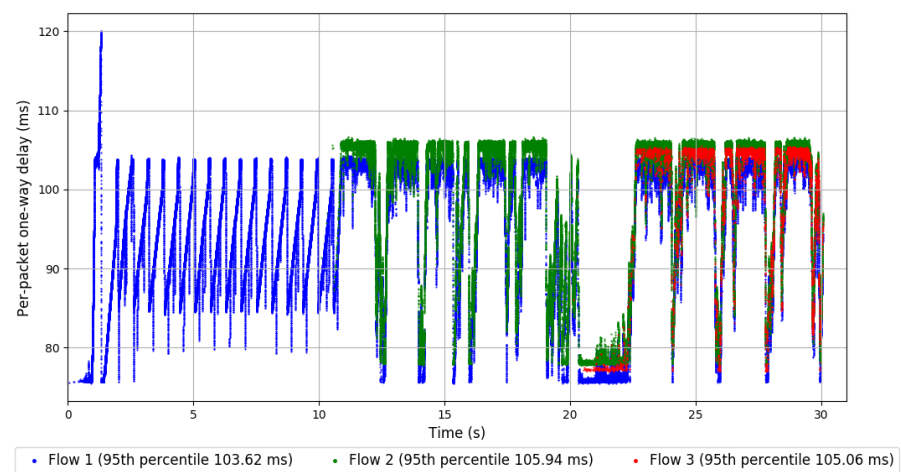
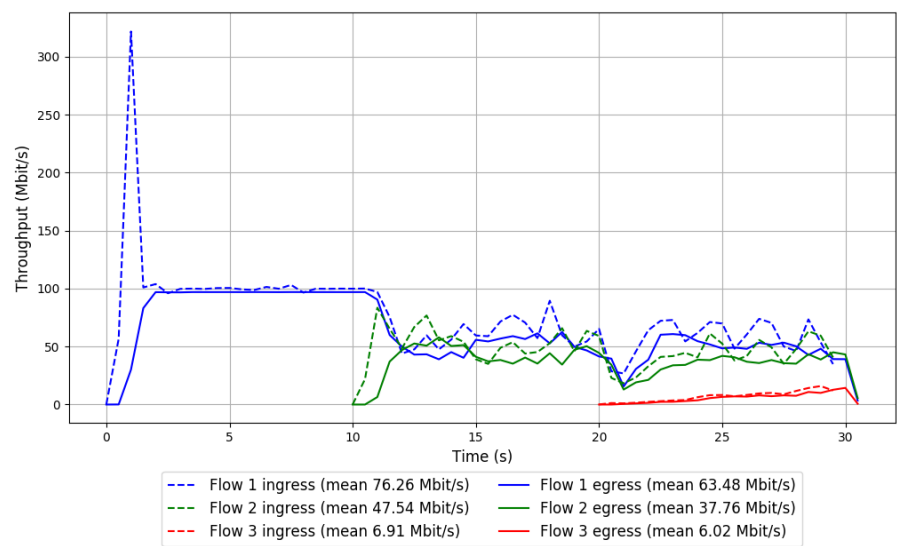
-- Flow 3:

Average throughput: 6.02 Mbit/s

95th percentile per-packet one-way delay: 105.064 ms

Loss rate: 12.75%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-06 10:10:24

End at: 2018-09-06 10:10:54

Local clock offset: 3.889 ms

Remote clock offset: 2.194 ms

Below is generated by plot.py at 2018-09-06 11:05:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.42 Mbit/s

95th percentile per-packet one-way delay: 109.411 ms

Loss rate: 22.66%

-- Flow 1:

Average throughput: 52.69 Mbit/s

95th percentile per-packet one-way delay: 106.461 ms

Loss rate: 18.55%

-- Flow 2:

Average throughput: 29.13 Mbit/s

95th percentile per-packet one-way delay: 109.659 ms

Loss rate: 22.77%

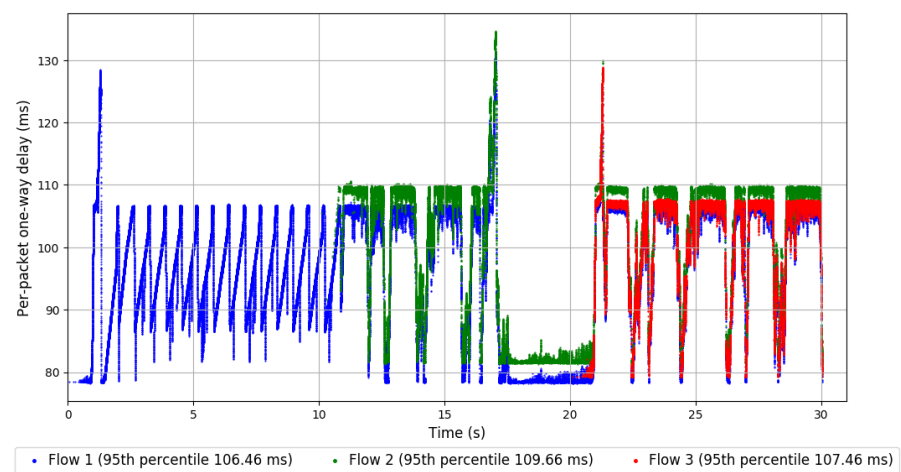
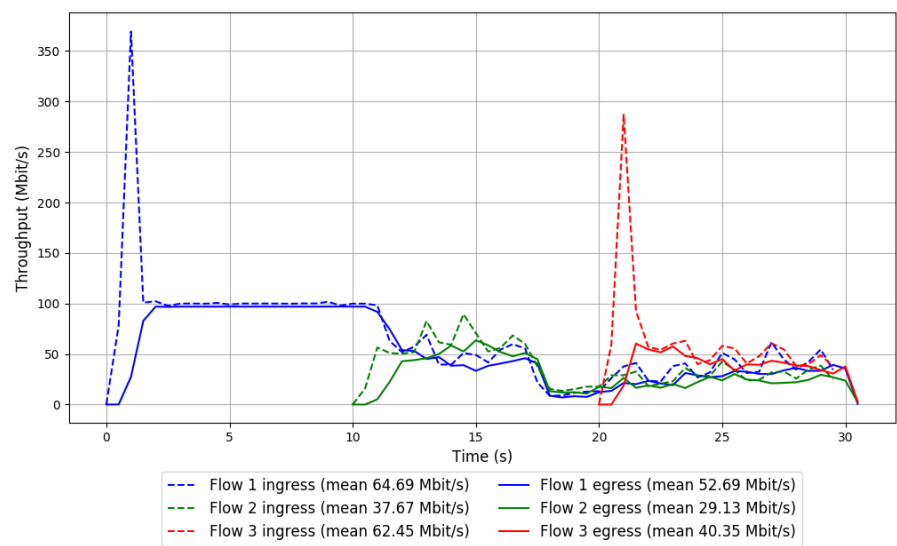
-- Flow 3:

Average throughput: 40.35 Mbit/s

95th percentile per-packet one-way delay: 107.464 ms

Loss rate: 35.37%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-06 10:33:03

End at: 2018-09-06 10:33:33

Local clock offset: 5.53 ms

Remote clock offset: 2.052 ms

Below is generated by plot.py at 2018-09-06 11:05:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.52 Mbit/s

95th percentile per-packet one-way delay: 106.753 ms

Loss rate: 20.92%

-- Flow 1:

Average throughput: 55.54 Mbit/s

95th percentile per-packet one-way delay: 106.861 ms

Loss rate: 18.02%

-- Flow 2:

Average throughput: 38.94 Mbit/s

95th percentile per-packet one-way delay: 106.301 ms

Loss rate: 23.81%

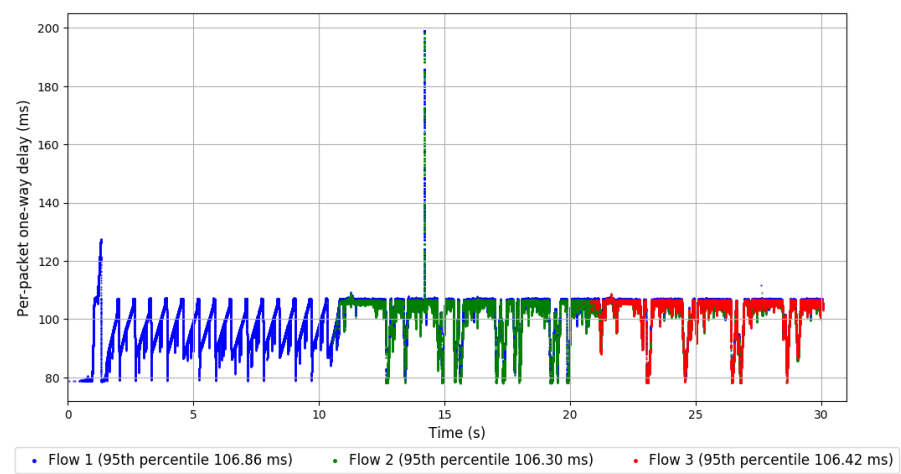
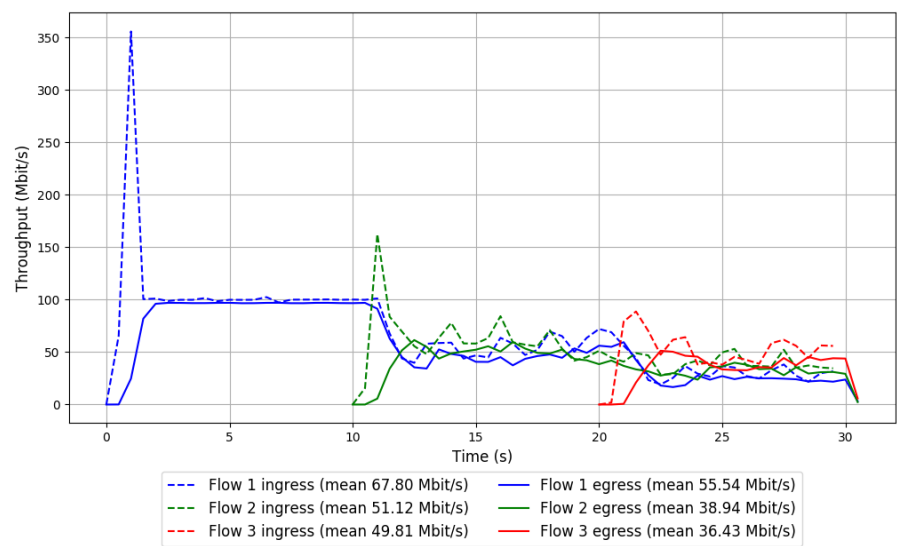
-- Flow 3:

Average throughput: 36.43 Mbit/s

95th percentile per-packet one-way delay: 106.424 ms

Loss rate: 26.84%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-06 10:56:03

End at: 2018-09-06 10:56:33

Local clock offset: 4.691 ms

Remote clock offset: 0.173 ms

Below is generated by plot.py at 2018-09-06 11:05:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.63 Mbit/s

95th percentile per-packet one-way delay: 102.612 ms

Loss rate: 19.31%

-- Flow 1:

Average throughput: 60.56 Mbit/s

95th percentile per-packet one-way delay: 102.684 ms

Loss rate: 17.47%

-- Flow 2:

Average throughput: 42.50 Mbit/s

95th percentile per-packet one-way delay: 101.967 ms

Loss rate: 23.06%

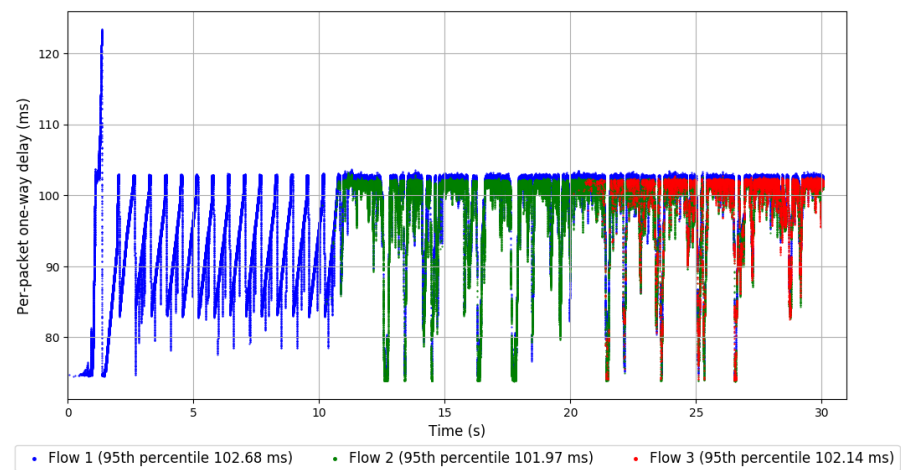
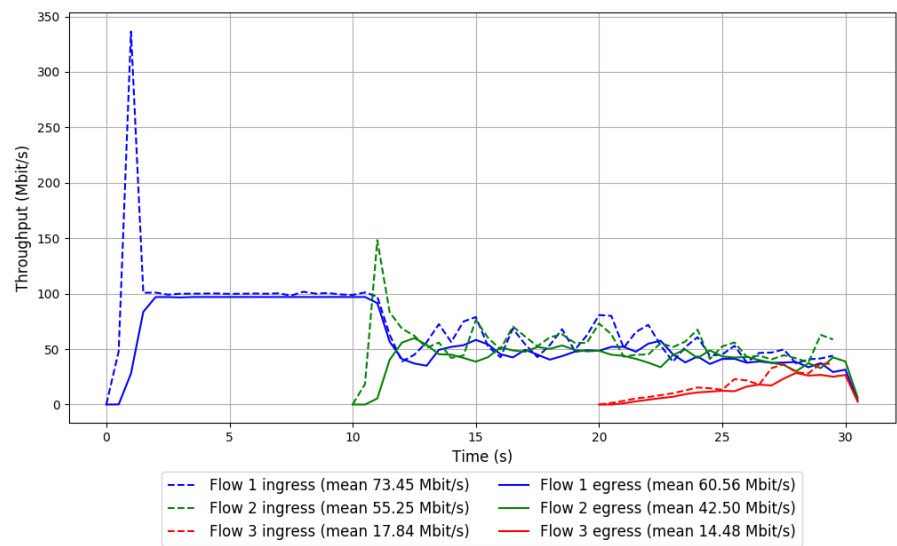
-- Flow 3:

Average throughput: 14.48 Mbit/s

95th percentile per-packet one-way delay: 102.140 ms

Loss rate: 18.82%

Run 5: Report of FillP — Data Link

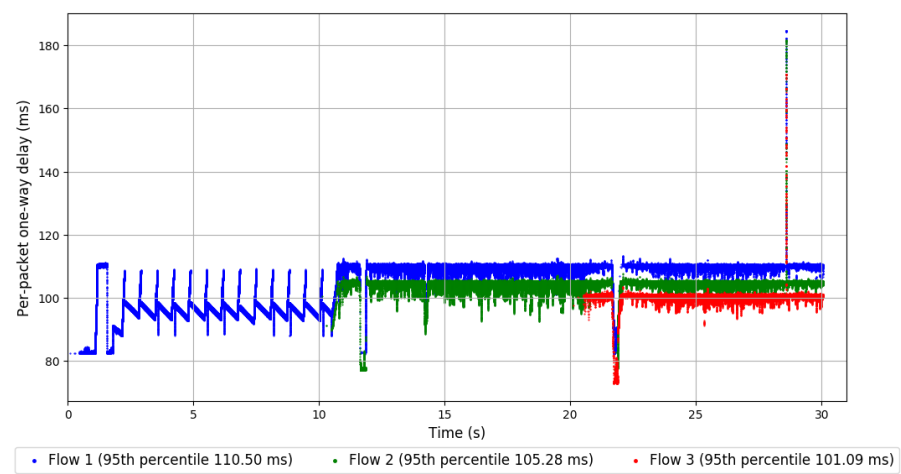
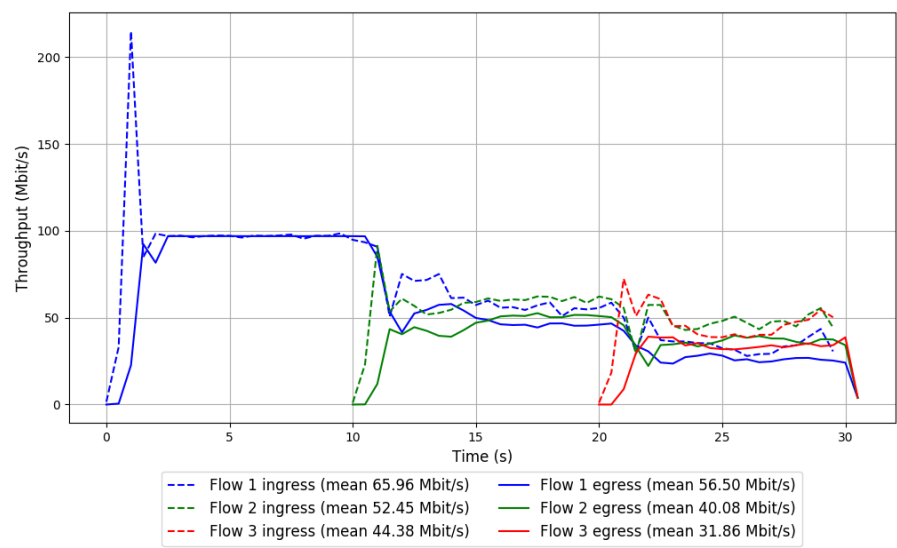


Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 09:26:42
End at: 2018-09-06 09:27:12
Local clock offset: 3.825 ms
Remote clock offset: -0.461 ms

Below is generated by plot.py at 2018-09-06 11:05:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 93.73 Mbit/s
95th percentile per-packet one-way delay: 110.429 ms
Loss rate: 18.85%
-- Flow 1:
Average throughput: 56.50 Mbit/s
95th percentile per-packet one-way delay: 110.496 ms
Loss rate: 14.28%
-- Flow 2:
Average throughput: 40.08 Mbit/s
95th percentile per-packet one-way delay: 105.281 ms
Loss rate: 23.55%
-- Flow 3:
Average throughput: 31.86 Mbit/s
95th percentile per-packet one-way delay: 101.094 ms
Loss rate: 28.17%

Run 1: Report of FillP-Sheep — Data Link

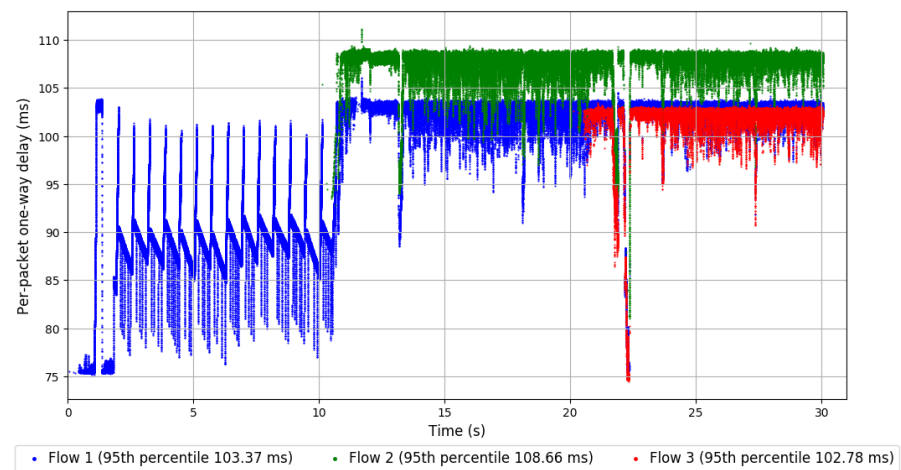
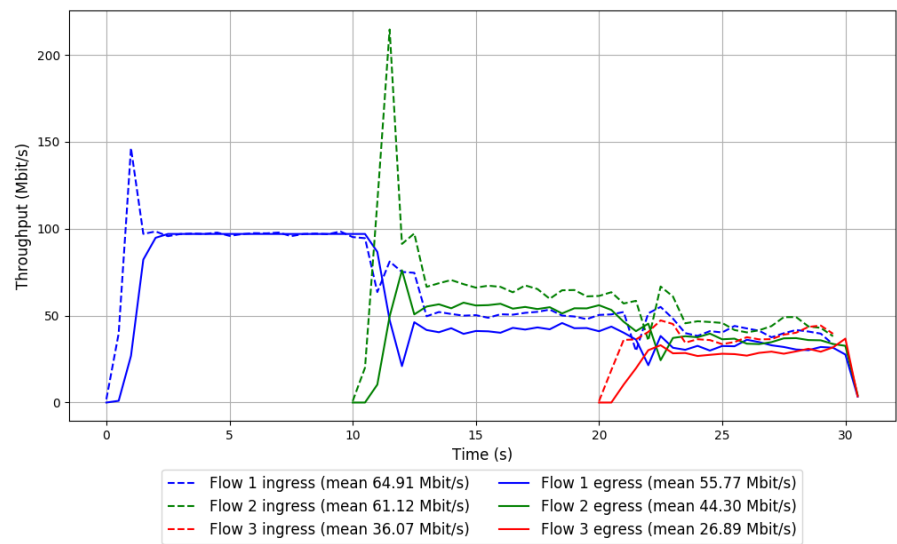


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 09:49:59
End at: 2018-09-06 09:50:29
Local clock offset: 4.46 ms
Remote clock offset: -0.186 ms

Below is generated by plot.py at 2018-09-06 11:06:06
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.14 Mbit/s
95th percentile per-packet one-way delay: 108.487 ms
Loss rate: 19.85%
-- Flow 1:
Average throughput: 55.77 Mbit/s
95th percentile per-packet one-way delay: 103.370 ms
Loss rate: 14.01%
-- Flow 2:
Average throughput: 44.30 Mbit/s
95th percentile per-packet one-way delay: 108.655 ms
Loss rate: 27.53%
-- Flow 3:
Average throughput: 26.89 Mbit/s
95th percentile per-packet one-way delay: 102.778 ms
Loss rate: 25.45%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 10:12:54

End at: 2018-09-06 10:13:24

Local clock offset: 3.82 ms

Remote clock offset: 1.067 ms

Below is generated by plot.py at 2018-09-06 11:06:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.09 Mbit/s

95th percentile per-packet one-way delay: 104.437 ms

Loss rate: 19.40%

-- Flow 1:

Average throughput: 55.74 Mbit/s

95th percentile per-packet one-way delay: 103.932 ms

Loss rate: 14.51%

-- Flow 2:

Average throughput: 41.68 Mbit/s

95th percentile per-packet one-way delay: 102.328 ms

Loss rate: 24.40%

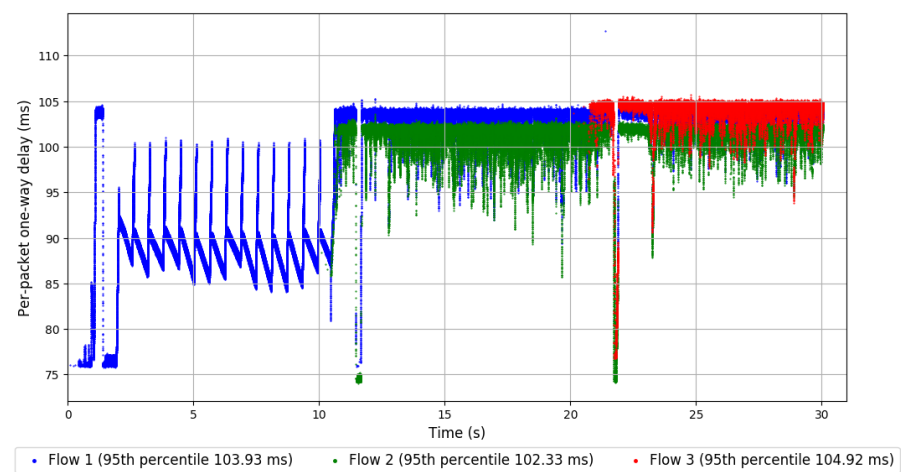
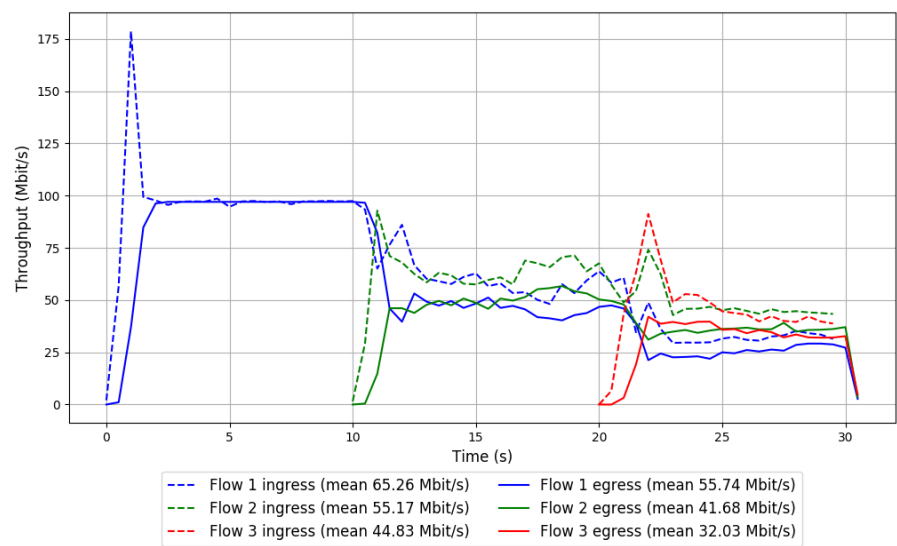
-- Flow 3:

Average throughput: 32.03 Mbit/s

95th percentile per-packet one-way delay: 104.919 ms

Loss rate: 28.56%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-06 10:35:34

End at: 2018-09-06 10:36:04

Local clock offset: 4.804 ms

Remote clock offset: 1.004 ms

Below is generated by plot.py at 2018-09-06 11:06:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.13 Mbit/s

95th percentile per-packet one-way delay: 106.009 ms

Loss rate: 20.40%

-- Flow 1:

Average throughput: 49.65 Mbit/s

95th percentile per-packet one-way delay: 105.999 ms

Loss rate: 17.32%

-- Flow 2:

Average throughput: 42.82 Mbit/s

95th percentile per-packet one-way delay: 102.291 ms

Loss rate: 22.18%

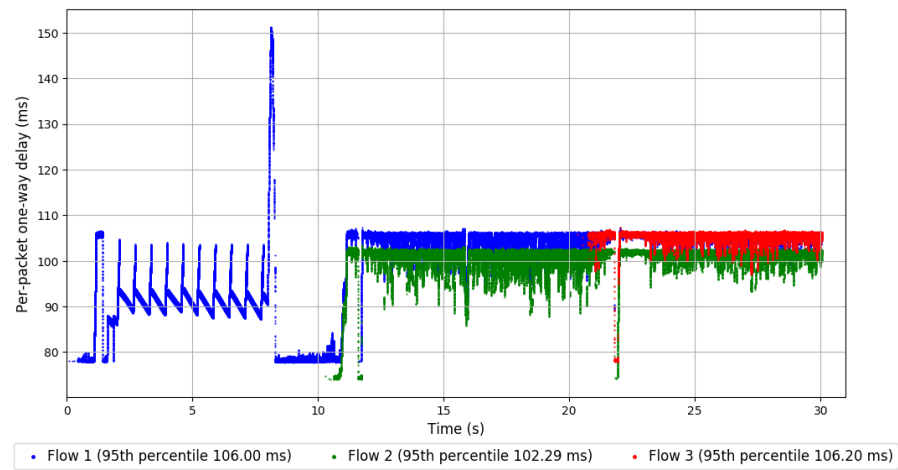
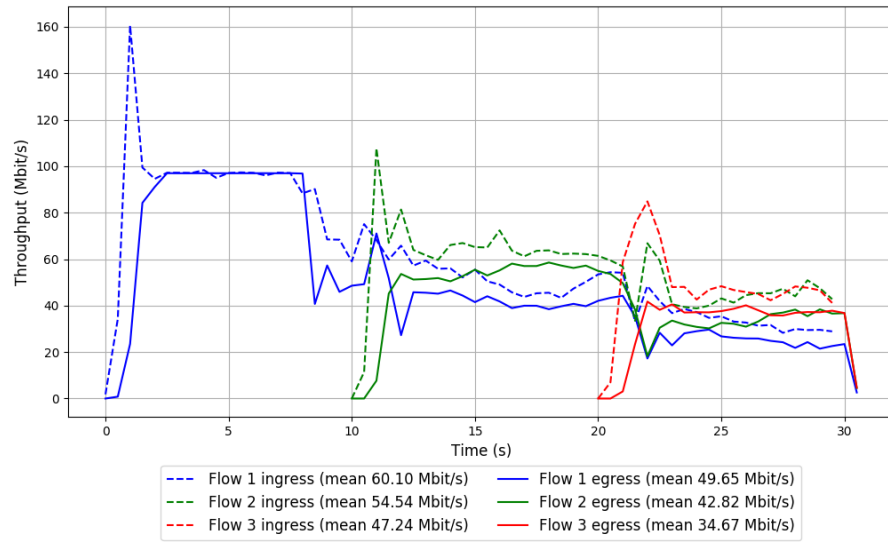
-- Flow 3:

Average throughput: 34.67 Mbit/s

95th percentile per-packet one-way delay: 106.197 ms

Loss rate: 28.11%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-06 10:58:35

End at: 2018-09-06 10:59:05

Local clock offset: 3.812 ms

Remote clock offset: 1.125 ms

Below is generated by plot.py at 2018-09-06 11:06:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.25 Mbit/s

95th percentile per-packet one-way delay: 106.911 ms

Loss rate: 20.53%

-- Flow 1:

Average throughput: 54.05 Mbit/s

95th percentile per-packet one-way delay: 107.027 ms

Loss rate: 17.80%

-- Flow 2:

Average throughput: 38.93 Mbit/s

95th percentile per-packet one-way delay: 102.846 ms

Loss rate: 23.34%

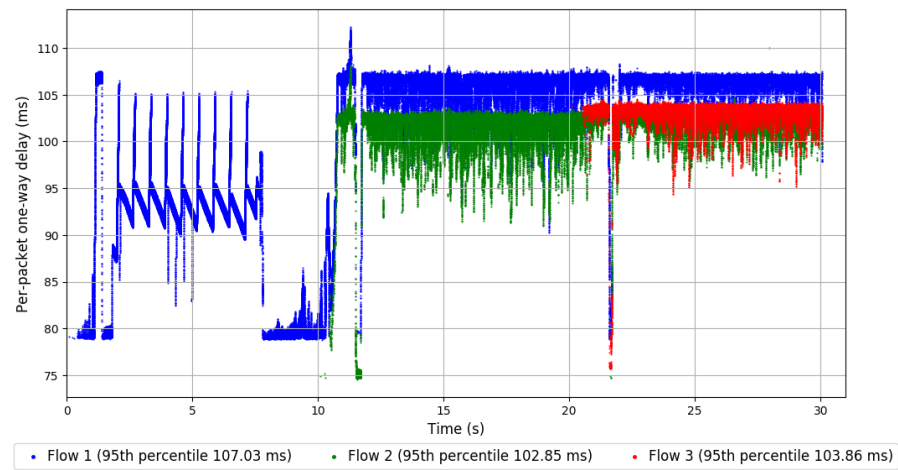
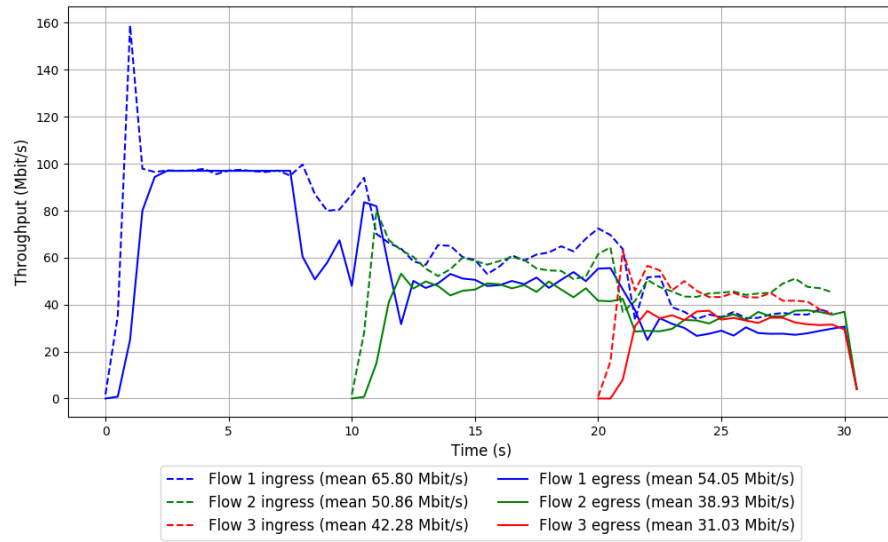
-- Flow 3:

Average throughput: 31.03 Mbit/s

95th percentile per-packet one-way delay: 103.856 ms

Loss rate: 26.61%

Run 5: Report of FillP-Sheep — Data Link

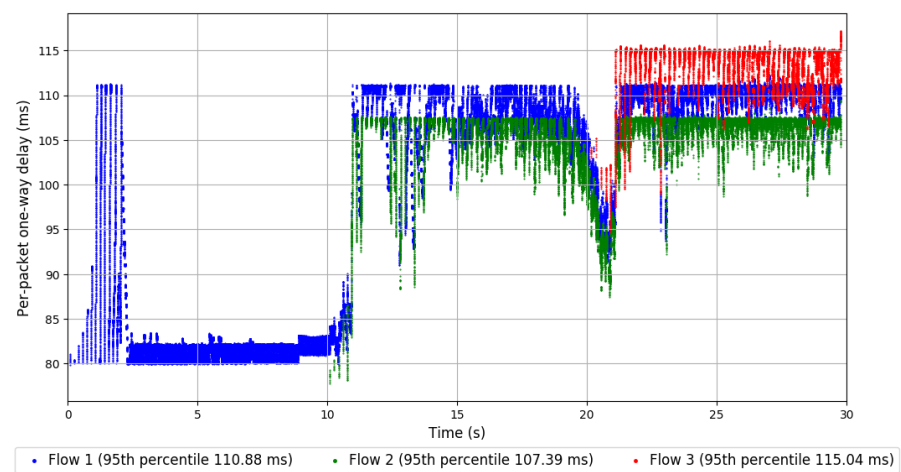
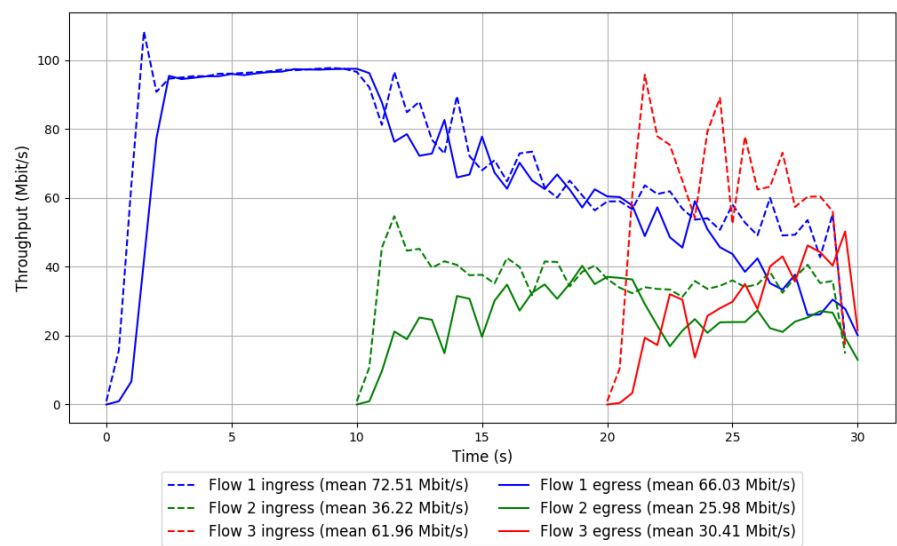


```
Run 1: Statistics of Indigo

Start at: 2018-09-06 09:10:09
End at: 2018-09-06 09:10:39
Local clock offset: 4.34 ms
Remote clock offset: 0.821 ms

# Below is generated by plot.py at 2018-09-06 11:06:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.03 Mbit/s
95th percentile per-packet one-way delay: 113.418 ms
Loss rate: 20.05%
-- Flow 1:
Average throughput: 66.03 Mbit/s
95th percentile per-packet one-way delay: 110.878 ms
Loss rate: 8.85%
-- Flow 2:
Average throughput: 25.98 Mbit/s
95th percentile per-packet one-way delay: 107.385 ms
Loss rate: 28.15%
-- Flow 3:
Average throughput: 30.41 Mbit/s
95th percentile per-packet one-way delay: 115.044 ms
Loss rate: 50.86%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-06 09:33:04

End at: 2018-09-06 09:33:34

Local clock offset: 3.702 ms

Remote clock offset: 0.73 ms

Below is generated by plot.py at 2018-09-06 11:06:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 82.42 Mbit/s

95th percentile per-packet one-way delay: 111.121 ms

Loss rate: 1.71%

-- Flow 1:

Average throughput: 46.41 Mbit/s

95th percentile per-packet one-way delay: 109.938 ms

Loss rate: 0.85%

-- Flow 2:

Average throughput: 42.39 Mbit/s

95th percentile per-packet one-way delay: 113.252 ms

Loss rate: 2.61%

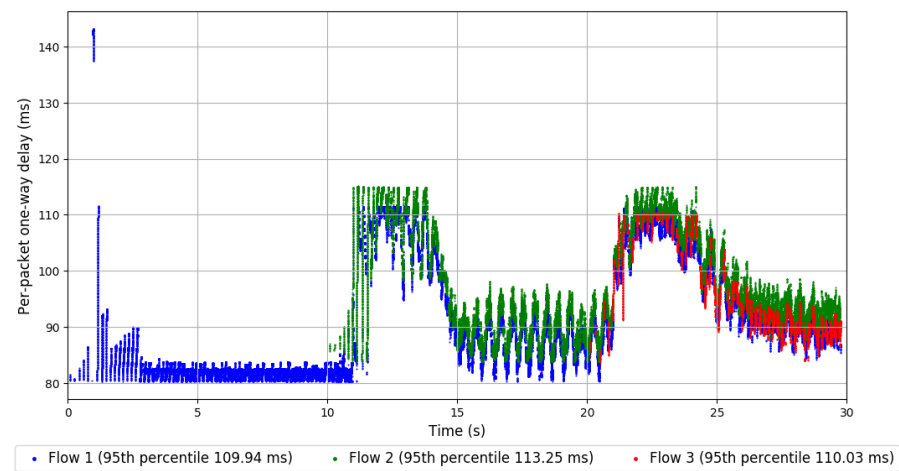
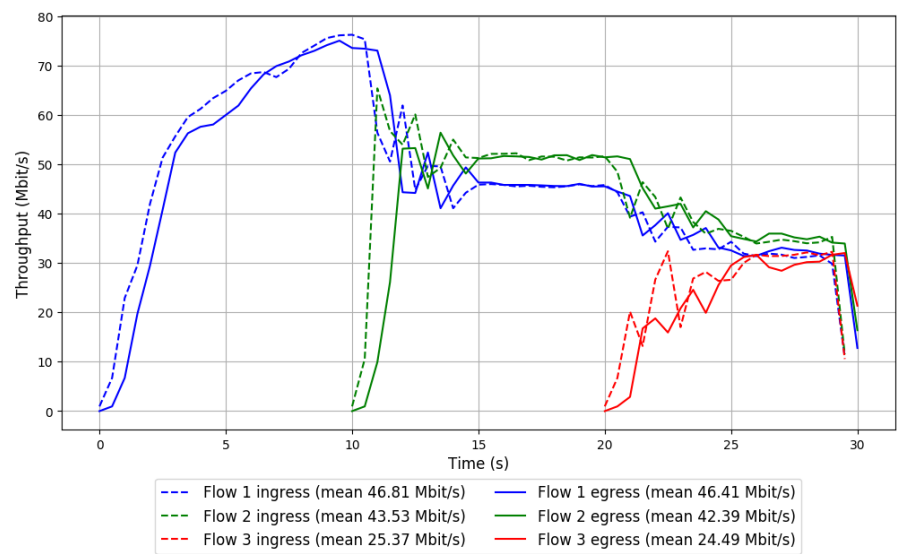
-- Flow 3:

Average throughput: 24.49 Mbit/s

95th percentile per-packet one-way delay: 110.032 ms

Loss rate: 3.41%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-06 09:56:17

End at: 2018-09-06 09:56:47

Local clock offset: 3.802 ms

Remote clock offset: 0.94 ms

Below is generated by plot.py at 2018-09-06 11:06:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 87.81 Mbit/s

95th percentile per-packet one-way delay: 110.244 ms

Loss rate: 15.04%

-- Flow 1:

Average throughput: 57.21 Mbit/s

95th percentile per-packet one-way delay: 110.679 ms

Loss rate: 6.46%

-- Flow 2:

Average throughput: 34.68 Mbit/s

95th percentile per-packet one-way delay: 106.927 ms

Loss rate: 22.75%

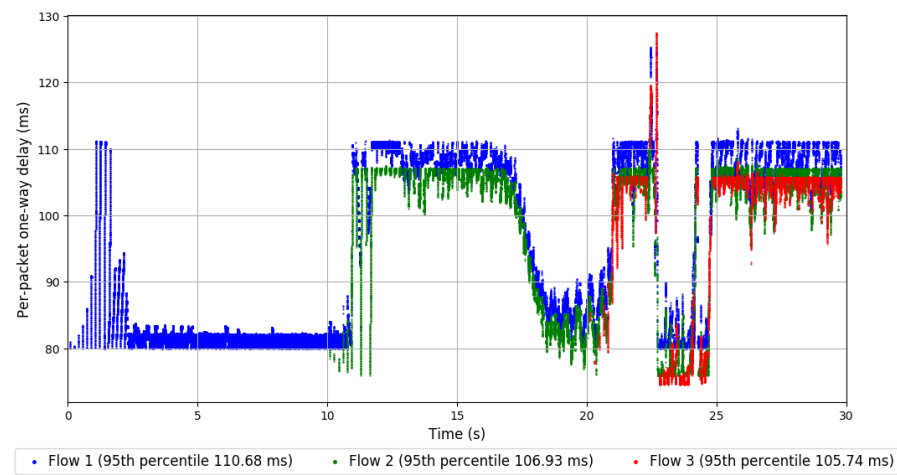
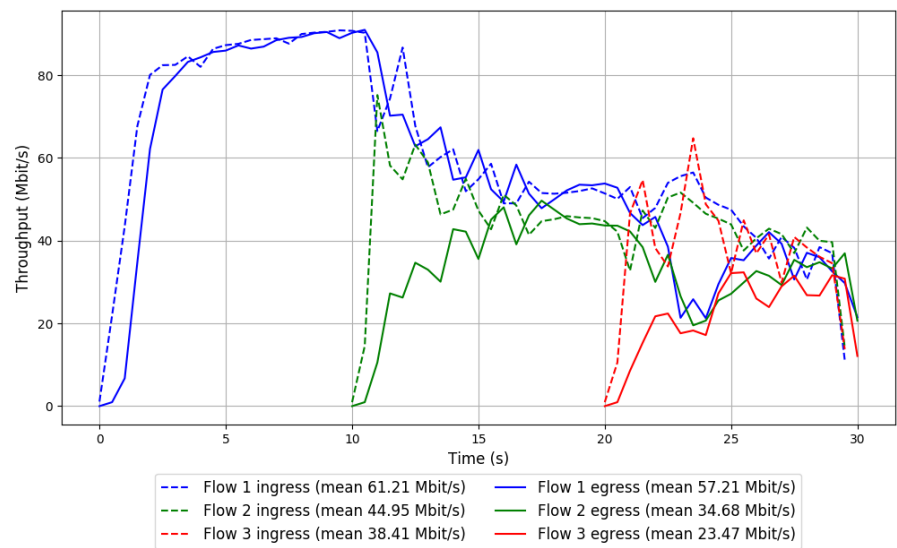
-- Flow 3:

Average throughput: 23.47 Mbit/s

95th percentile per-packet one-way delay: 105.744 ms

Loss rate: 38.77%

Run 3: Report of Indigo — Data Link

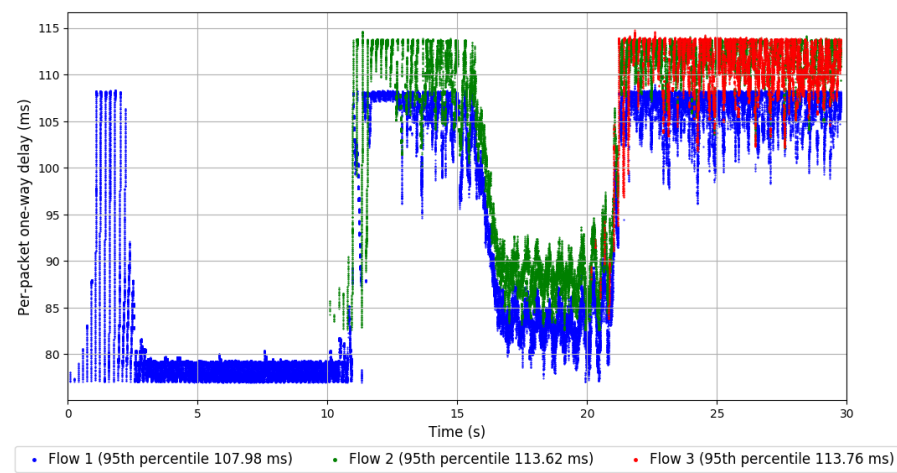
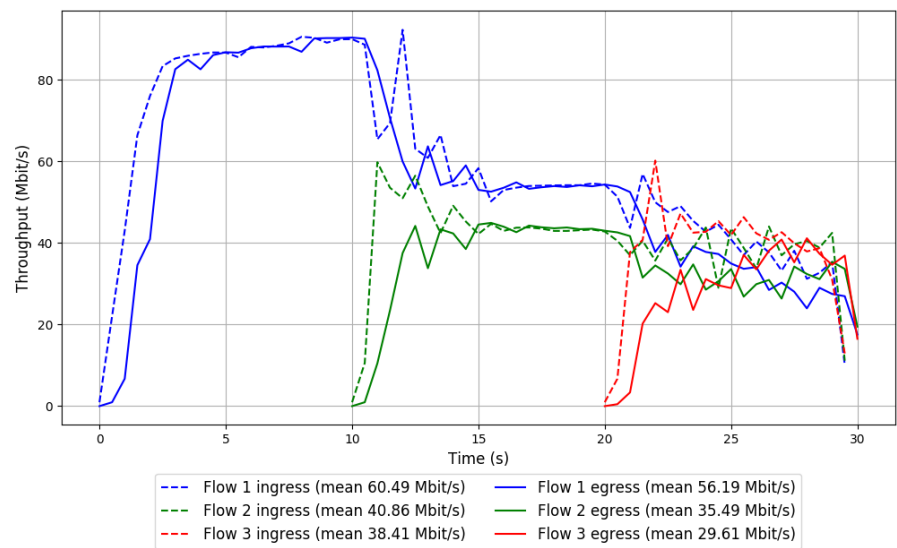


Run 4: Statistics of Indigo

Start at: 2018-09-06 10:19:09
End at: 2018-09-06 10:19:39
Local clock offset: 4.131 ms
Remote clock offset: -0.302 ms

Below is generated by plot.py at 2018-09-06 11:07:06
Datalink statistics
-- Total of 3 flows:
Average throughput: 89.31 Mbit/s
95th percentile per-packet one-way delay: 113.433 ms
Loss rate: 10.59%
-- Flow 1:
Average throughput: 56.19 Mbit/s
95th percentile per-packet one-way delay: 107.982 ms
Loss rate: 7.00%
-- Flow 2:
Average throughput: 35.49 Mbit/s
95th percentile per-packet one-way delay: 113.624 ms
Loss rate: 13.04%
-- Flow 3:
Average throughput: 29.61 Mbit/s
95th percentile per-packet one-way delay: 113.760 ms
Loss rate: 22.70%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-06 10:41:56

End at: 2018-09-06 10:42:26

Local clock offset: 4.898 ms

Remote clock offset: 2.158 ms

Below is generated by plot.py at 2018-09-06 11:07:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.79 Mbit/s

95th percentile per-packet one-way delay: 113.671 ms

Loss rate: 4.89%

-- Flow 1:

Average throughput: 60.98 Mbit/s

95th percentile per-packet one-way delay: 113.505 ms

Loss rate: 3.72%

-- Flow 2:

Average throughput: 34.44 Mbit/s

95th percentile per-packet one-way delay: 115.684 ms

Loss rate: 7.64%

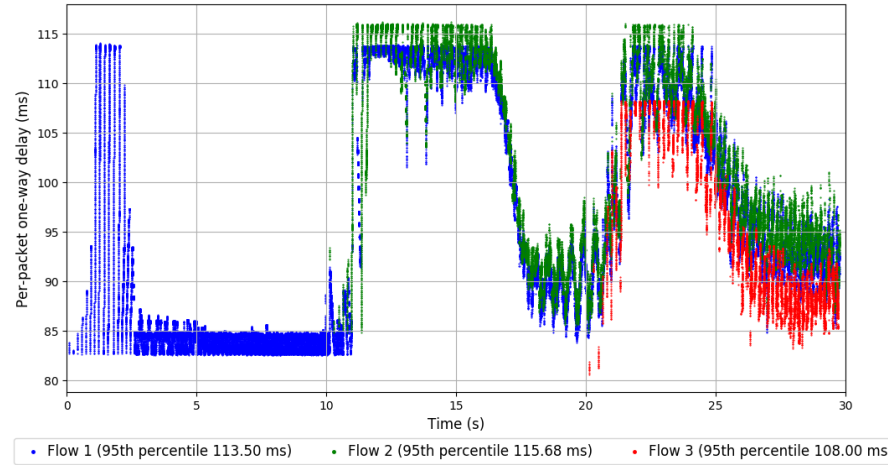
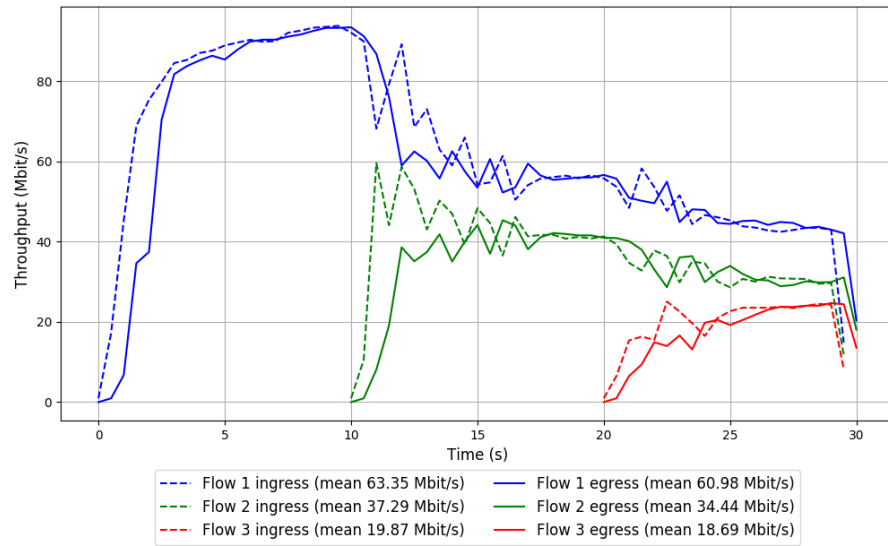
-- Flow 3:

Average throughput: 18.69 Mbit/s

95th percentile per-packet one-way delay: 108.003 ms

Loss rate: 5.85%

Run 5: Report of Indigo — Data Link

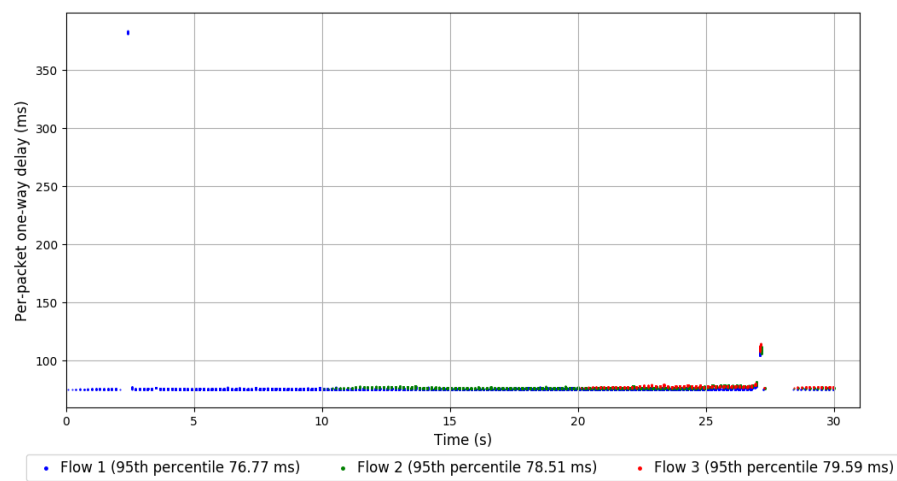
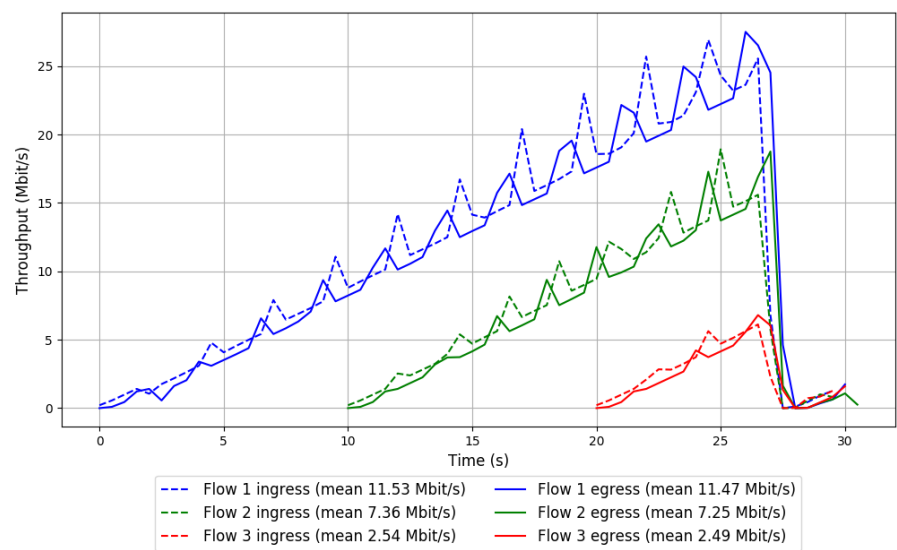


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-06 09:19:12
End at: 2018-09-06 09:19:42
Local clock offset: 4.952 ms
Remote clock offset: 0.831 ms

# Below is generated by plot.py at 2018-09-06 11:07:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 17.11 Mbit/s
95th percentile per-packet one-way delay: 78.183 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 11.47 Mbit/s
95th percentile per-packet one-way delay: 76.767 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 7.25 Mbit/s
95th percentile per-packet one-way delay: 78.514 ms
Loss rate: 1.40%
-- Flow 3:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 79.589 ms
Loss rate: 2.05%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-06 09:42:21

End at: 2018-09-06 09:42:51

Local clock offset: 3.579 ms

Remote clock offset: 0.738 ms

Below is generated by plot.py at 2018-09-06 11:07:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 10.16 Mbit/s

95th percentile per-packet one-way delay: 82.555 ms

Loss rate: 0.12%

-- Flow 1:

Average throughput: 5.96 Mbit/s

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

Loss rate: 0.07%

-- Flow 2:

Average throughput: 3.98 Mbit/s

95th percentile per-packet one-way delay: 78.630 ms

Loss rate: 0.29%

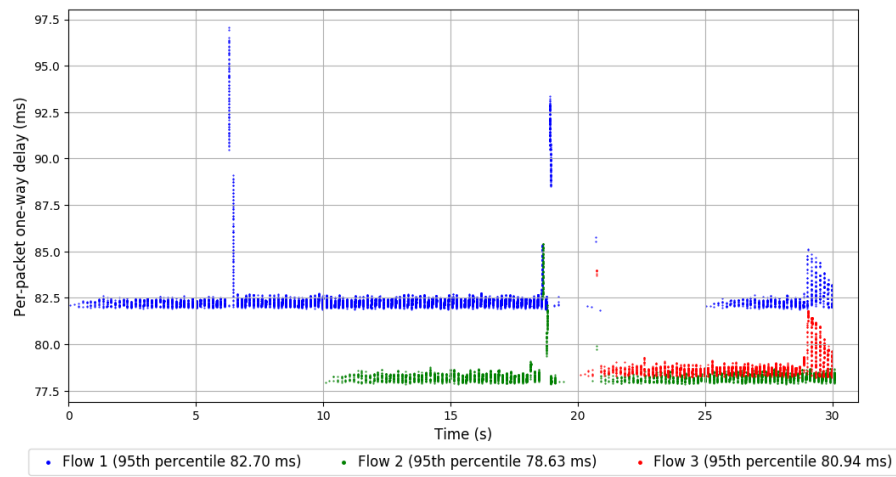
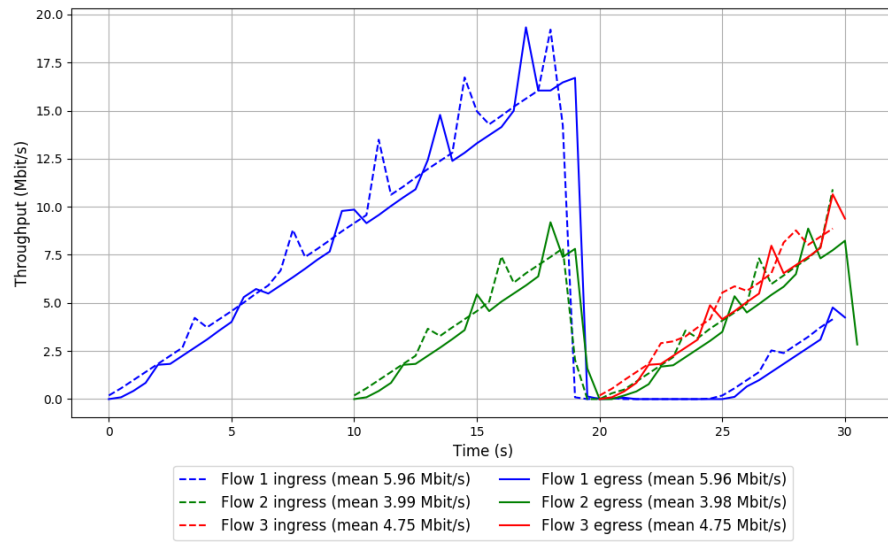
-- Flow 3:

Average throughput: 4.75 Mbit/s

95th percentile per-packet one-way delay: 80.938 ms

Loss rate: 0.00%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-06 10:05:18

End at: 2018-09-06 10:05:48

Local clock offset: 4.649 ms

Remote clock offset: 2.038 ms

Below is generated by plot.py at 2018-09-06 11:07:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 11.52 Mbit/s

95th percentile per-packet one-way delay: 79.754 ms

Loss rate: 0.94%

-- Flow 1:

Average throughput: 8.60 Mbit/s

95th percentile per-packet one-way delay: 79.855 ms

Loss rate: 1.02%

-- Flow 2:

Average throughput: 3.92 Mbit/s

95th percentile per-packet one-way delay: 78.776 ms

Loss rate: 0.39%

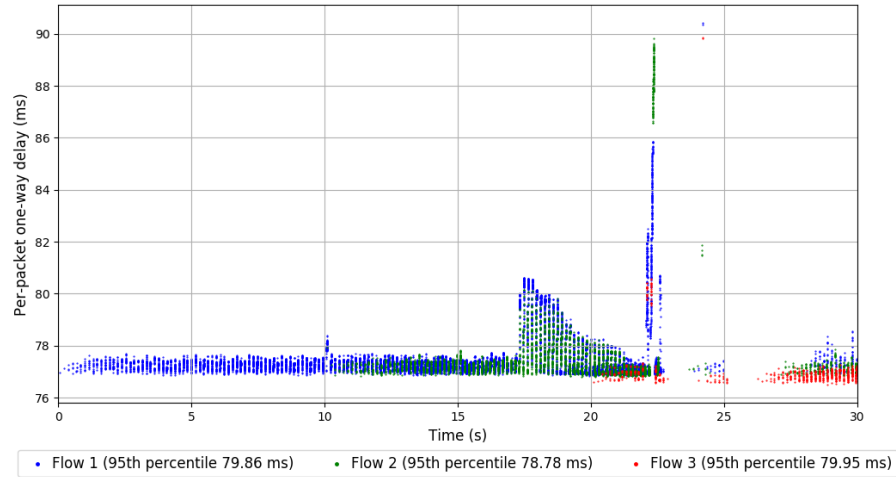
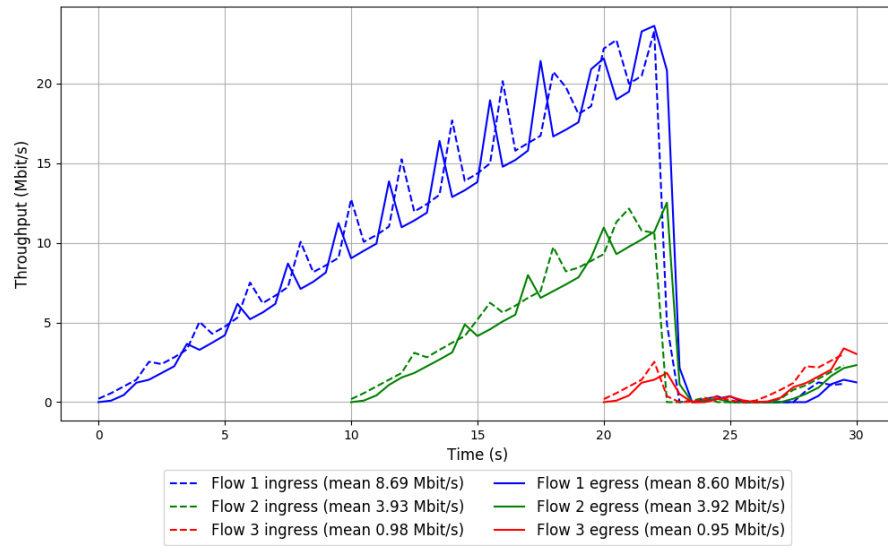
-- Flow 3:

Average throughput: 0.95 Mbit/s

95th percentile per-packet one-way delay: 79.947 ms

Loss rate: 3.16%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-06 10:28:03

End at: 2018-09-06 10:28:33

Local clock offset: 4.628 ms

Remote clock offset: 2.138 ms

Below is generated by plot.py at 2018-09-06 11:07:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 21.77 Mbit/s

95th percentile per-packet one-way delay: 86.059 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 13.81 Mbit/s

95th percentile per-packet one-way delay: 86.444 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 9.72 Mbit/s

95th percentile per-packet one-way delay: 79.451 ms

Loss rate: 0.00%

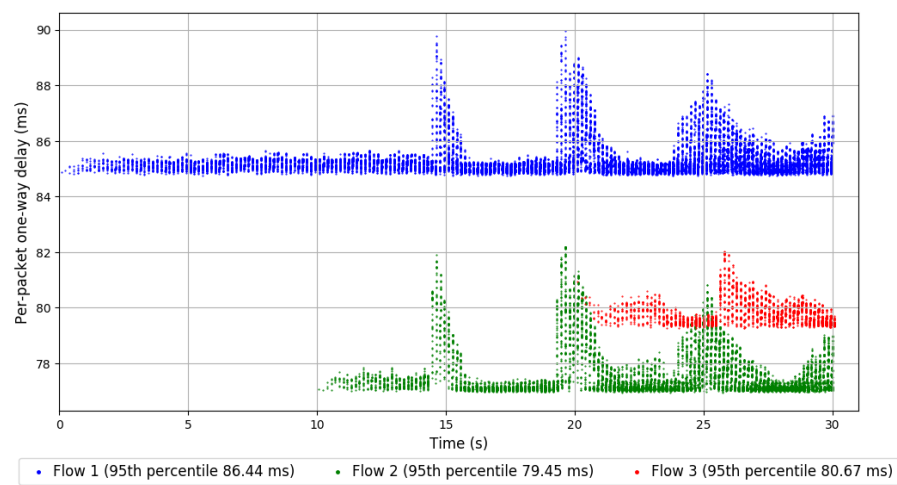
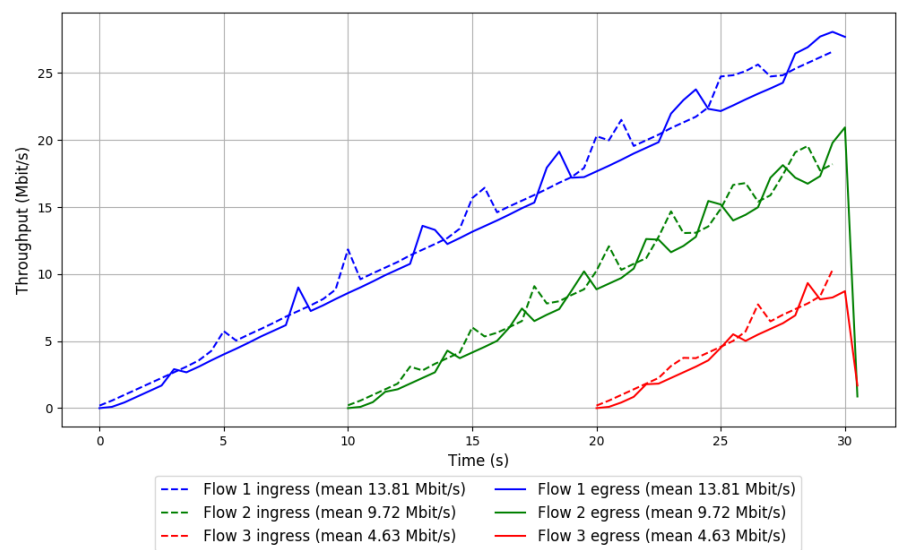
-- Flow 3:

Average throughput: 4.63 Mbit/s

95th percentile per-packet one-way delay: 80.671 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-06 10:50:59

End at: 2018-09-06 10:51:29

Local clock offset: 4.265 ms

Remote clock offset: 1.094 ms

Below is generated by plot.py at 2018-09-06 11:07:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 22.46 Mbit/s

95th percentile per-packet one-way delay: 84.007 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 14.53 Mbit/s

95th percentile per-packet one-way delay: 81.550 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 9.78 Mbit/s

95th percentile per-packet one-way delay: 77.438 ms

Loss rate: 0.00%

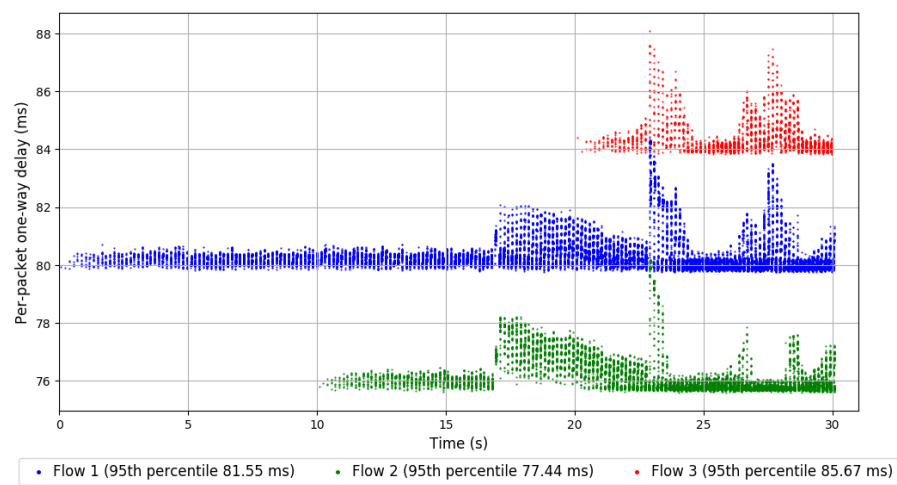
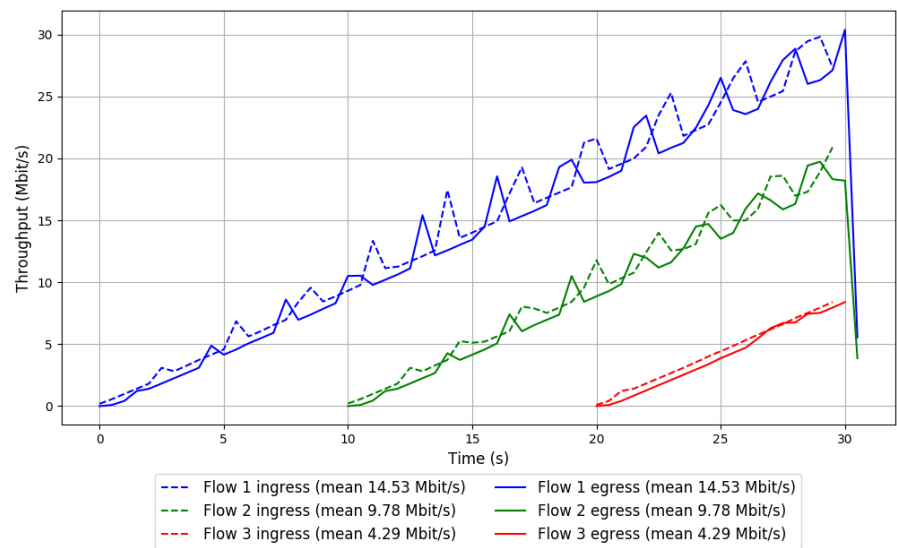
-- Flow 3:

Average throughput: 4.29 Mbit/s

95th percentile per-packet one-way delay: 85.668 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 09:16:42

End at: 2018-09-06 09:17:12

Local clock offset: 4.411 ms

Remote clock offset: 1.82 ms

Below is generated by plot.py at 2018-09-06 11:08:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.47 Mbit/s

95th percentile per-packet one-way delay: 96.602 ms

Loss rate: 2.25%

-- Flow 1:

Average throughput: 68.42 Mbit/s

95th percentile per-packet one-way delay: 94.876 ms

Loss rate: 1.77%

-- Flow 2:

Average throughput: 23.41 Mbit/s

95th percentile per-packet one-way delay: 103.565 ms

Loss rate: 3.94%

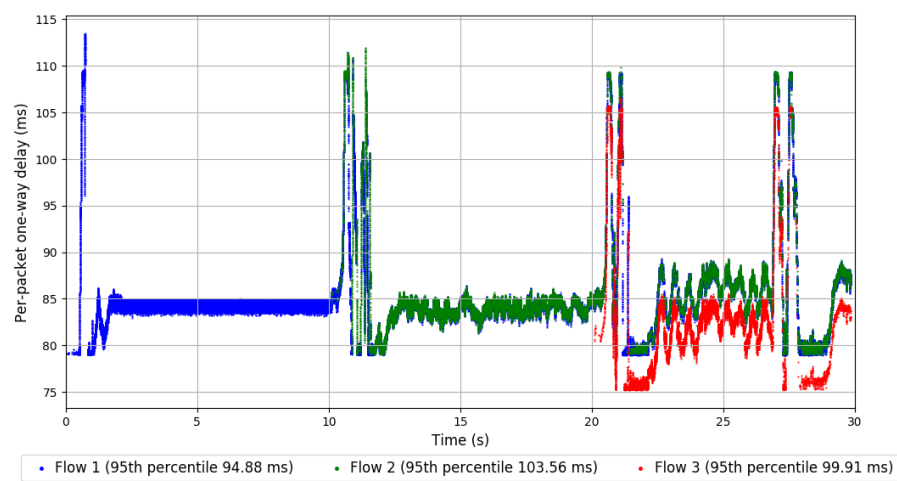
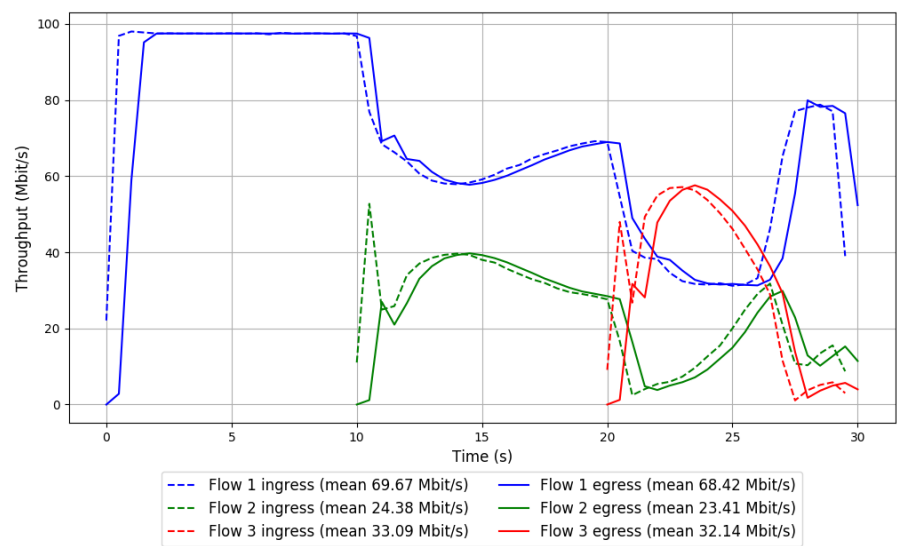
-- Flow 3:

Average throughput: 32.14 Mbit/s

95th percentile per-packet one-way delay: 99.912 ms

Loss rate: 2.82%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 09:39:50

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

Local clock offset: 4.384 ms

Remote clock offset: -0.48 ms

Below is generated by plot.py at 2018-09-06 11:08:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 94.01 Mbit/s

95th percentile per-packet one-way delay: 89.396 ms

Loss rate: 2.73%

-- Flow 1:

Average throughput: 73.30 Mbit/s

95th percentile per-packet one-way delay: 89.083 ms

Loss rate: 1.92%

-- Flow 2:

Average throughput: 21.46 Mbit/s

95th percentile per-packet one-way delay: 90.199 ms

Loss rate: 3.05%

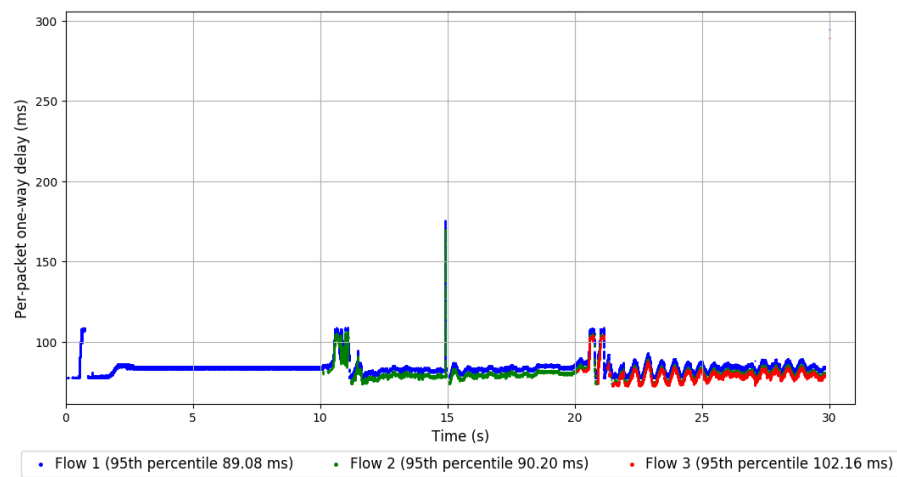
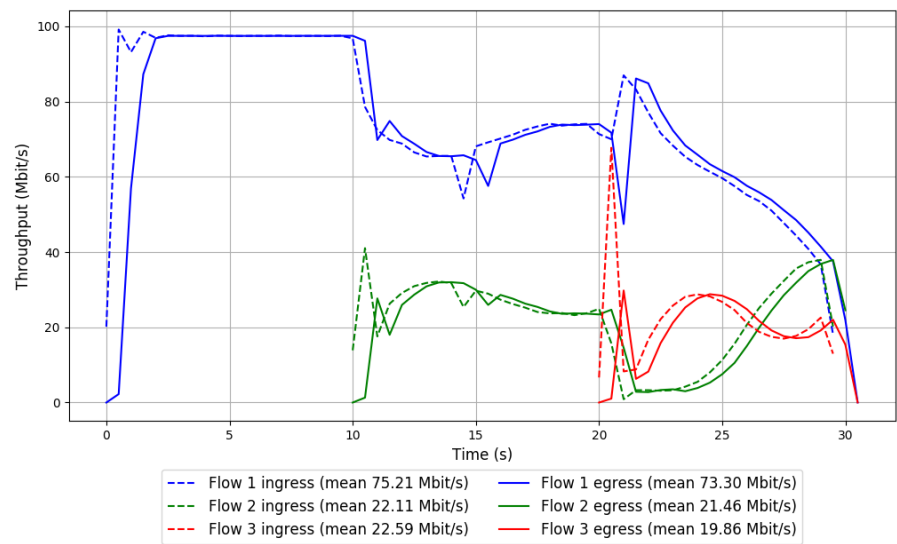
-- Flow 3:

Average throughput: 19.86 Mbit/s

95th percentile per-packet one-way delay: 102.158 ms

Loss rate: 10.40%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 10:02:47

End at: 2018-09-06 10:03:17

Local clock offset: 3.865 ms

Remote clock offset: 0.927 ms

Below is generated by plot.py at 2018-09-06 11:08:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.23 Mbit/s

95th percentile per-packet one-way delay: 88.434 ms

Loss rate: 1.48%

-- Flow 1:

Average throughput: 63.93 Mbit/s

95th percentile per-packet one-way delay: 87.476 ms

Loss rate: 1.27%

-- Flow 2:

Average throughput: 32.29 Mbit/s

95th percentile per-packet one-way delay: 89.663 ms

Loss rate: 1.66%

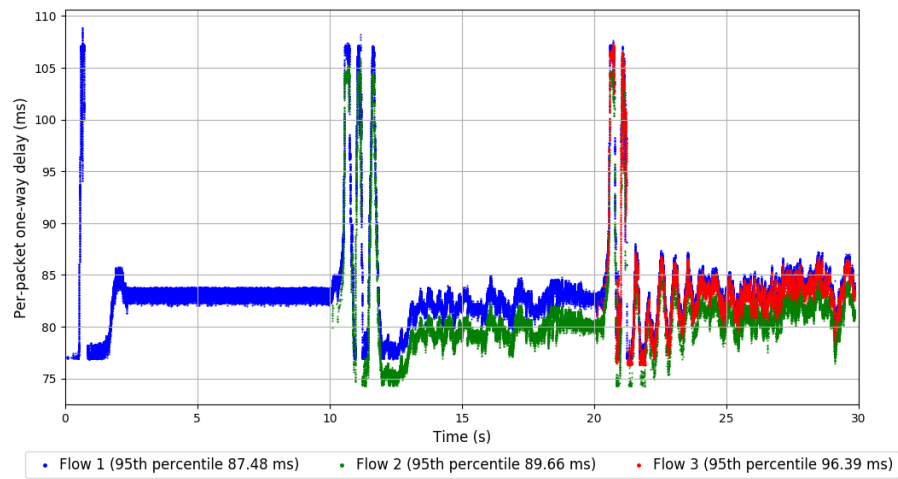
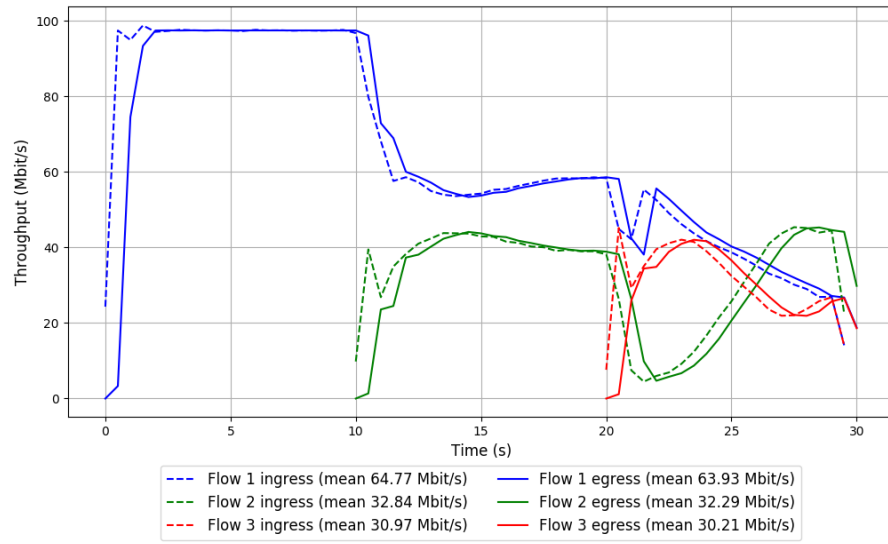
-- Flow 3:

Average throughput: 30.21 Mbit/s

95th percentile per-packet one-way delay: 96.395 ms

Loss rate: 2.42%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-06 10:25:32

End at: 2018-09-06 10:26:02

Local clock offset: 4.532 ms

Remote clock offset: 0.972 ms

Below is generated by plot.py at 2018-09-06 11:08:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.01 Mbit/s

95th percentile per-packet one-way delay: 95.427 ms

Loss rate: 4.57%

-- Flow 1:

Average throughput: 61.39 Mbit/s

95th percentile per-packet one-way delay: 93.184 ms

Loss rate: 4.56%

-- Flow 2:

Average throughput: 28.38 Mbit/s

95th percentile per-packet one-way delay: 101.954 ms

Loss rate: 4.16%

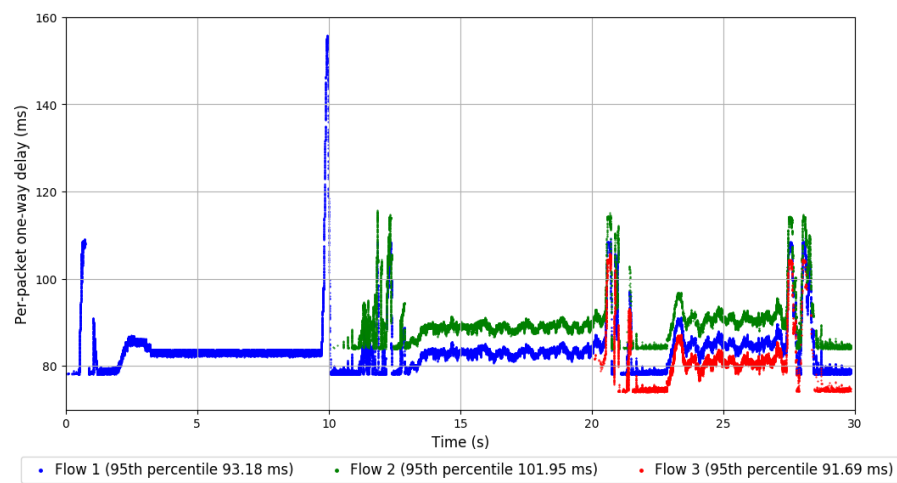
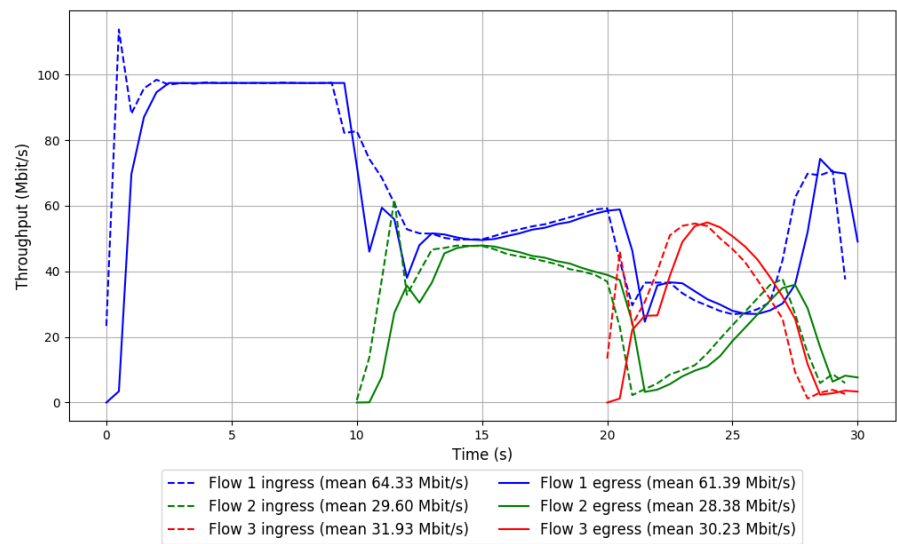
-- Flow 3:

Average throughput: 30.23 Mbit/s

95th percentile per-packet one-way delay: 91.693 ms

Loss rate: 5.39%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-06 10:48:26

End at: 2018-09-06 10:48:56

Local clock offset: 4.484 ms

Remote clock offset: 1.083 ms

Below is generated by plot.py at 2018-09-06 11:08:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 84.94 Mbit/s

95th percentile per-packet one-way delay: 90.843 ms

Loss rate: 3.99%

-- Flow 1:

Average throughput: 57.82 Mbit/s

95th percentile per-packet one-way delay: 87.840 ms

Loss rate: 2.99%

-- Flow 2:

Average throughput: 27.57 Mbit/s

95th percentile per-packet one-way delay: 89.331 ms

Loss rate: 3.99%

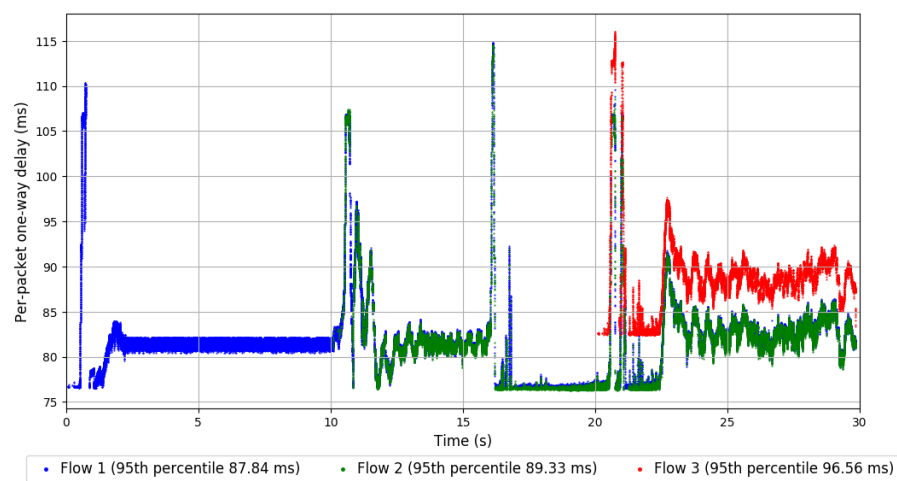
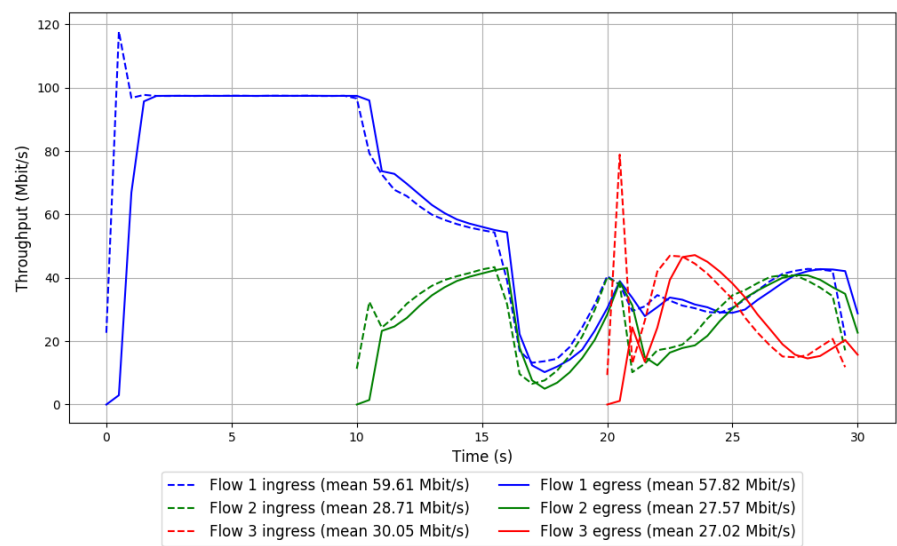
-- Flow 3:

Average throughput: 27.02 Mbit/s

95th percentile per-packet one-way delay: 96.565 ms

Loss rate: 10.06%

Run 5: Report of Indigo-Muses — Data Link

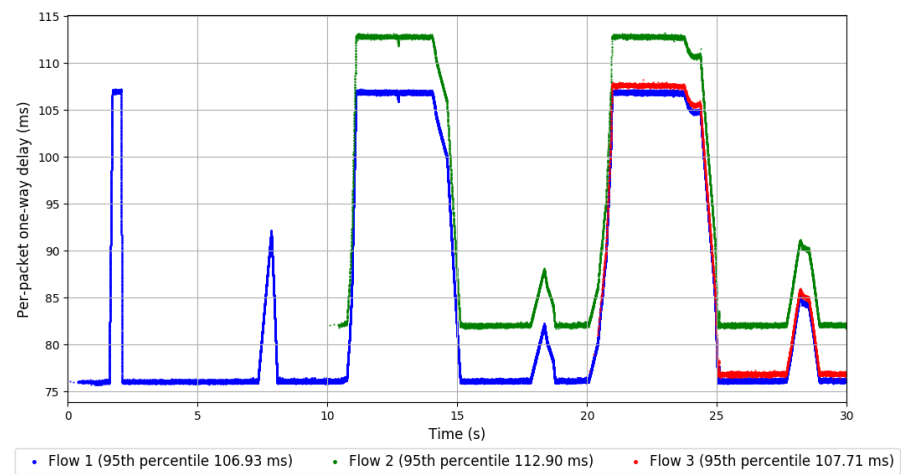
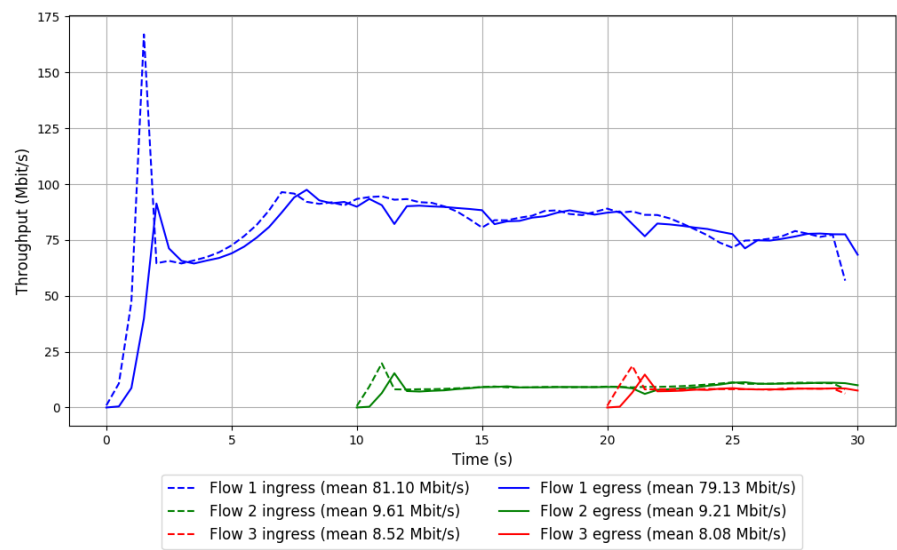


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 09:12:53
End at: 2018-09-06 09:13:23
Local clock offset: 4.431 ms
Remote clock offset: 0.884 ms

# Below is generated by plot.py at 2018-09-06 11:08:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.90 Mbit/s
95th percentile per-packet one-way delay: 106.986 ms
Loss rate: 2.64%
-- Flow 1:
Average throughput: 79.13 Mbit/s
95th percentile per-packet one-way delay: 106.930 ms
Loss rate: 2.44%
-- Flow 2:
Average throughput: 9.21 Mbit/s
95th percentile per-packet one-way delay: 112.896 ms
Loss rate: 4.15%
-- Flow 3:
Average throughput: 8.08 Mbit/s
95th percentile per-packet one-way delay: 107.709 ms
Loss rate: 5.10%
```


Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 09:35:44

End at: 2018-09-06 09:36:14

Local clock offset: 4.43 ms

Remote clock offset: 0.723 ms

Below is generated by plot.py at 2018-09-06 11:08:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.43 Mbit/s

95th percentile per-packet one-way delay: 111.918 ms

Loss rate: 2.63%

-- Flow 1:

Average throughput: 80.10 Mbit/s

95th percentile per-packet one-way delay: 111.924 ms

Loss rate: 2.39%

-- Flow 2:

Average throughput: 4.16 Mbit/s

95th percentile per-packet one-way delay: 104.350 ms

Loss rate: 4.95%

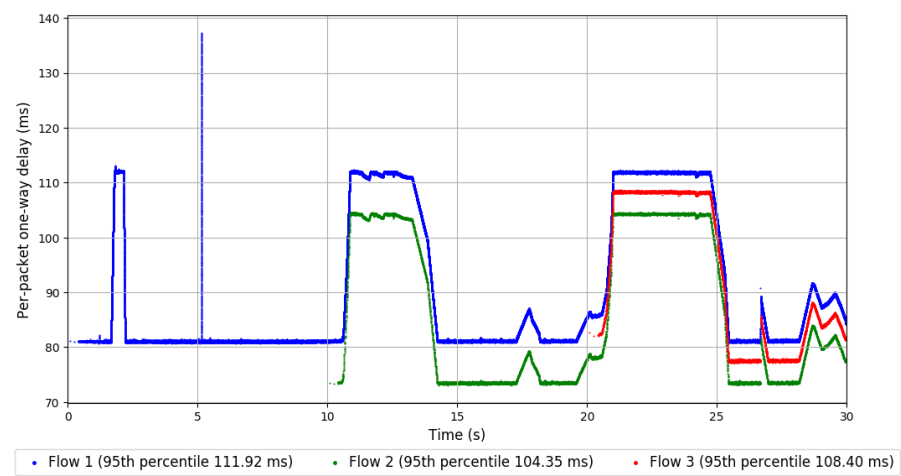
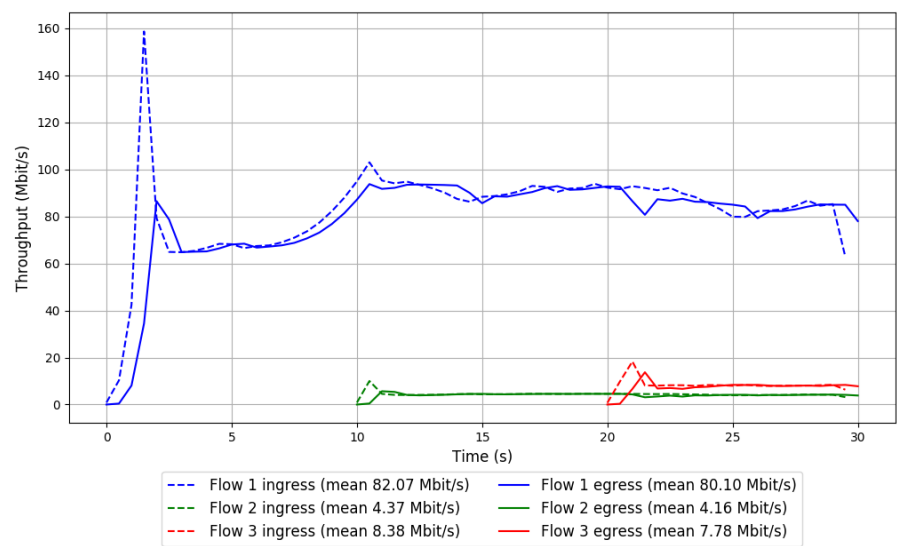
-- Flow 3:

Average throughput: 7.78 Mbit/s

95th percentile per-packet one-way delay: 108.402 ms

Loss rate: 7.14%

Run 2: Report of PCC-Allegro — Data Link

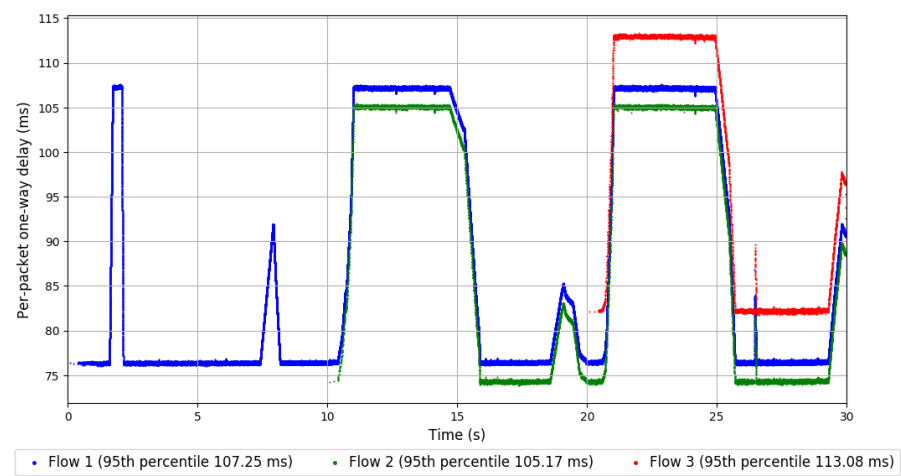
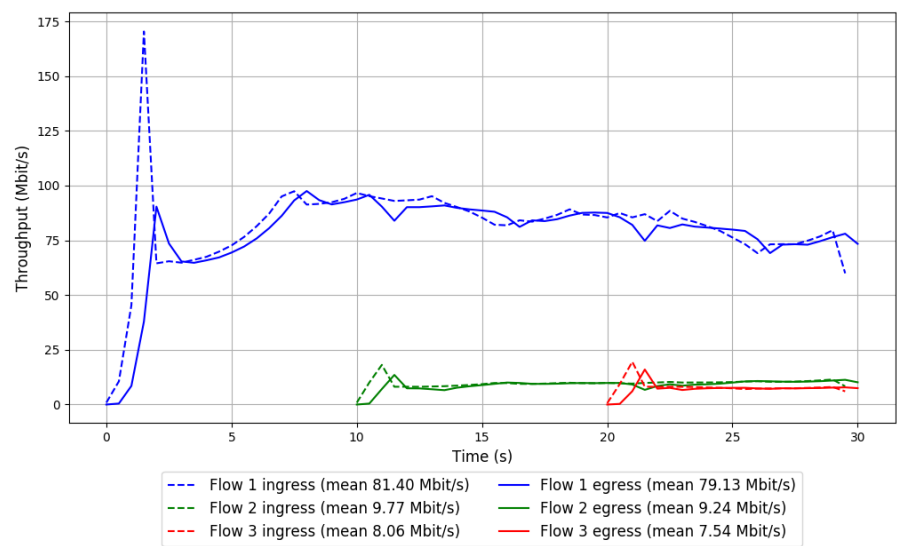


Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 09:58:59
End at: 2018-09-06 09:59:29
Local clock offset: 4.536 ms
Remote clock offset: -0.169 ms

Below is generated by plot.py at 2018-09-06 11:08:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 87.76 Mbit/s
95th percentile per-packet one-way delay: 107.268 ms
Loss rate: 3.03%
-- Flow 1:
Average throughput: 79.13 Mbit/s
95th percentile per-packet one-way delay: 107.255 ms
Loss rate: 2.74%
-- Flow 2:
Average throughput: 9.24 Mbit/s
95th percentile per-packet one-way delay: 105.166 ms
Loss rate: 5.31%
-- Flow 3:
Average throughput: 7.54 Mbit/s
95th percentile per-packet one-way delay: 113.081 ms
Loss rate: 6.34%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-06 10:21:43

End at: 2018-09-06 10:22:13

Local clock offset: 4.344 ms

Remote clock offset: 0.989 ms

Below is generated by plot.py at 2018-09-06 11:09:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 87.43 Mbit/s

95th percentile per-packet one-way delay: 109.202 ms

Loss rate: 2.22%

-- Flow 1:

Average throughput: 80.69 Mbit/s

95th percentile per-packet one-way delay: 109.200 ms

Loss rate: 2.14%

-- Flow 2:

Average throughput: 8.04 Mbit/s

95th percentile per-packet one-way delay: 109.249 ms

Loss rate: 3.19%

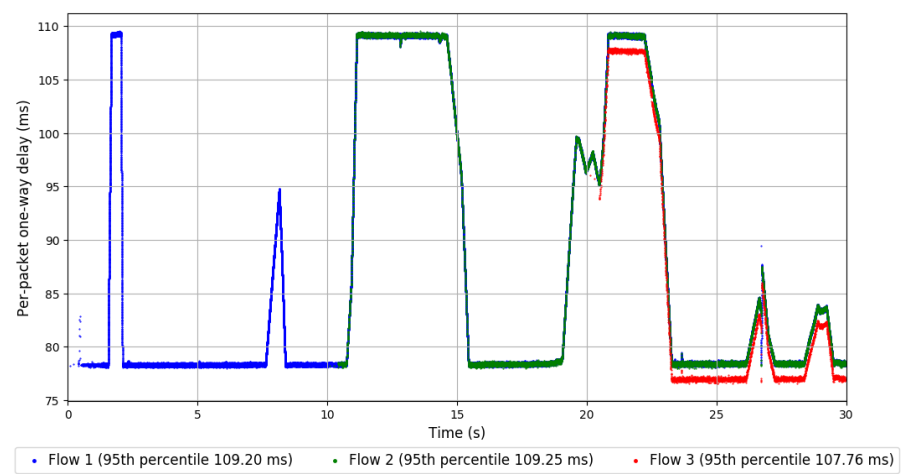
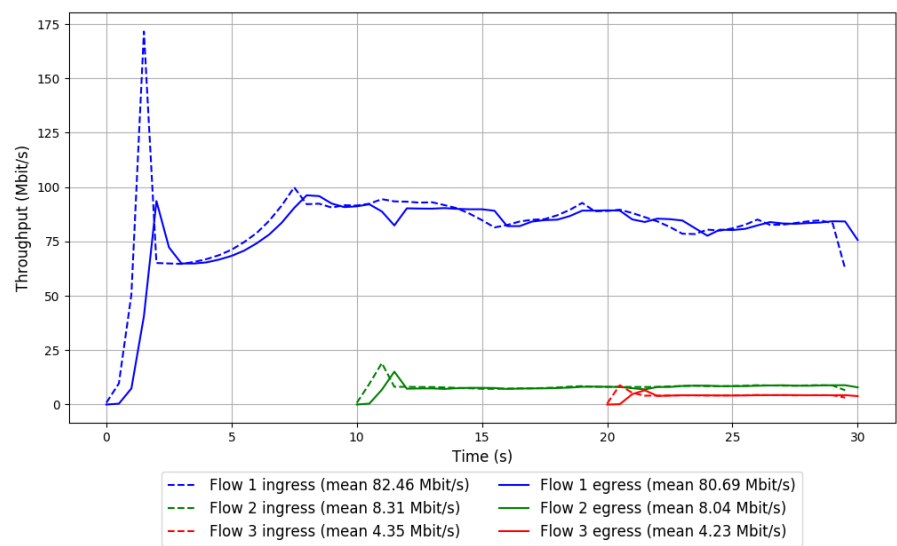
-- Flow 3:

Average throughput: 4.23 Mbit/s

95th percentile per-packet one-way delay: 107.761 ms

Loss rate: 3.00%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-06 10:44:31

End at: 2018-09-06 10:45:01

Local clock offset: 4.92 ms

Remote clock offset: 0.932 ms

Below is generated by plot.py at 2018-09-06 11:09:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 84.89 Mbit/s

95th percentile per-packet one-way delay: 105.258 ms

Loss rate: 5.26%

-- Flow 1:

Average throughput: 80.82 Mbit/s

95th percentile per-packet one-way delay: 105.233 ms

Loss rate: 5.12%

-- Flow 2:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 113.482 ms

Loss rate: 13.43%

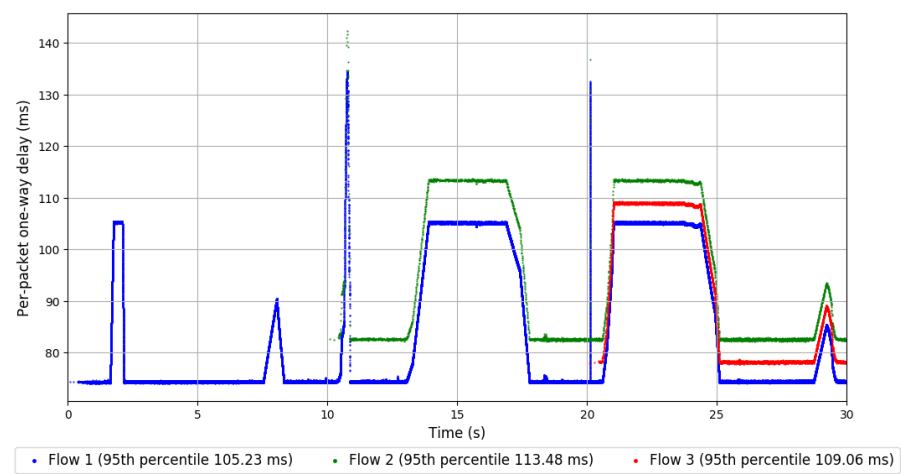
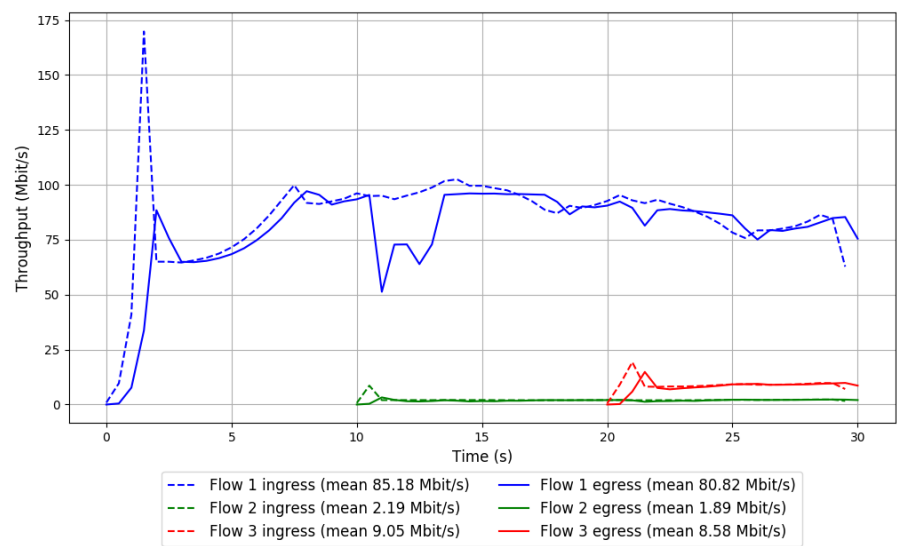
-- Flow 3:

Average throughput: 8.58 Mbit/s

95th percentile per-packet one-way delay: 109.059 ms

Loss rate: 5.23%

Run 5: Report of PCC-Allegro — Data Link

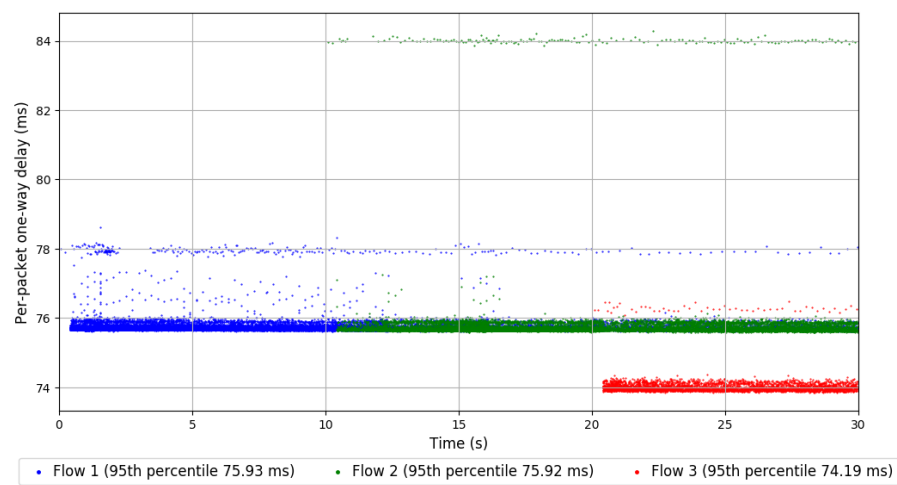
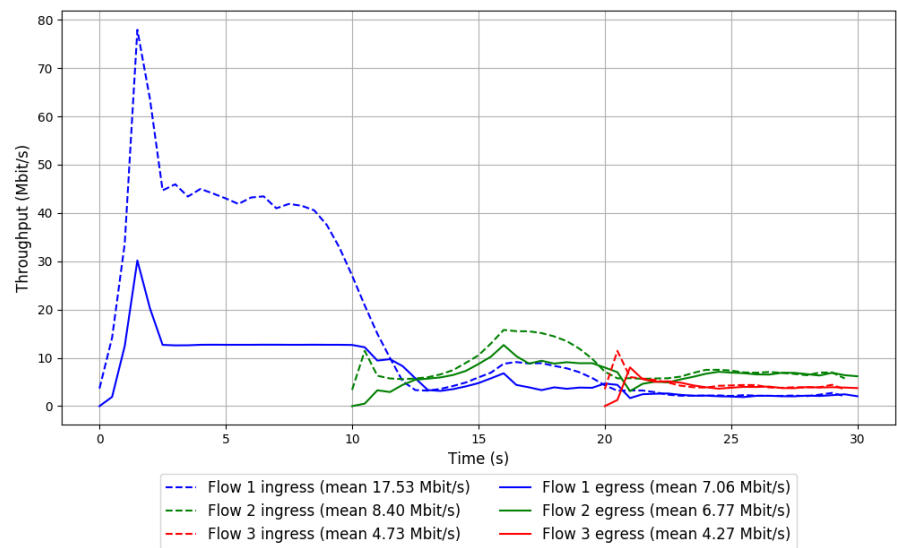


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-06 09:17:59
End at: 2018-09-06 09:18:29
Local clock offset: 4.23 ms
Remote clock offset: 0.738 ms

# Below is generated by plot.py at 2018-09-06 11:09:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.97 Mbit/s
95th percentile per-packet one-way delay: 75.918 ms
Loss rate: 47.44%
-- Flow 1:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 75.928 ms
Loss rate: 59.74%
-- Flow 2:
Average throughput: 6.77 Mbit/s
95th percentile per-packet one-way delay: 75.915 ms
Loss rate: 19.41%
-- Flow 3:
Average throughput: 4.27 Mbit/s
95th percentile per-packet one-way delay: 74.192 ms
Loss rate: 9.73%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-06 09:41:08

End at: 2018-09-06 09:41:38

Local clock offset: 4.366 ms

Remote clock offset: 0.88 ms

Below is generated by plot.py at 2018-09-06 11:09:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.79 Mbit/s

95th percentile per-packet one-way delay: 73.549 ms

Loss rate: 50.53%

-- Flow 1:

Average throughput: 7.19 Mbit/s

95th percentile per-packet one-way delay: 73.551 ms

Loss rate: 55.07%

-- Flow 2:

Average throughput: 7.60 Mbit/s

95th percentile per-packet one-way delay: 73.547 ms

Loss rate: 40.73%

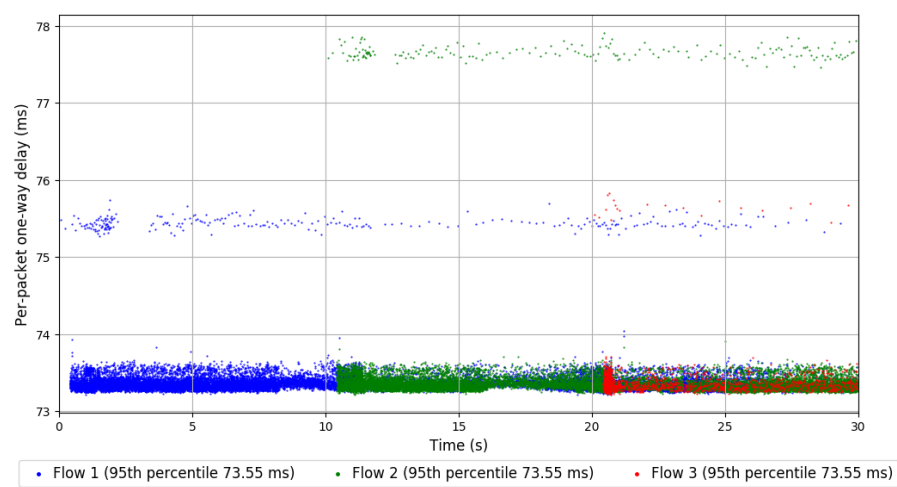
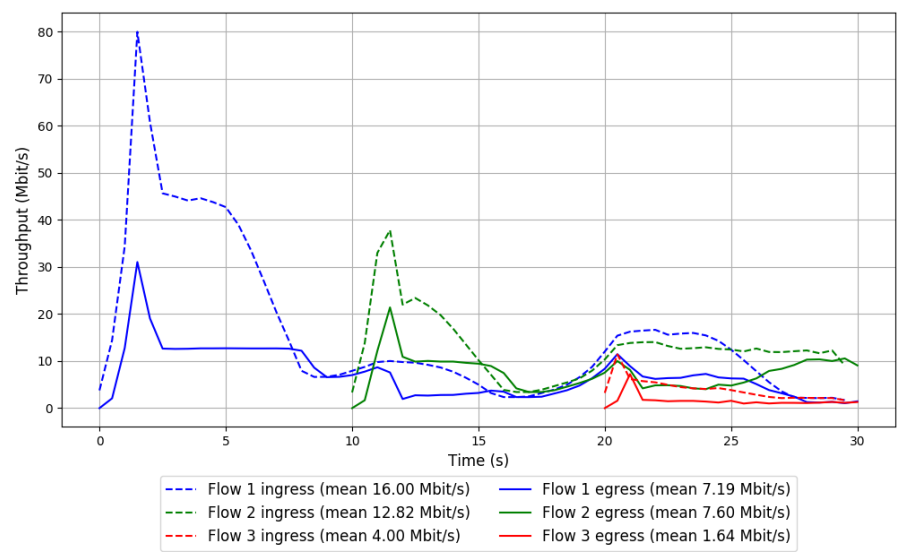
-- Flow 3:

Average throughput: 1.64 Mbit/s

95th percentile per-packet one-way delay: 73.553 ms

Loss rate: 58.93%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-06 10:04:04

End at: 2018-09-06 10:04:34

Local clock offset: 4.638 ms

Remote clock offset: 0.86 ms

Below is generated by plot.py at 2018-09-06 11:09:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.96 Mbit/s

95th percentile per-packet one-way delay: 75.126 ms

Loss rate: 51.42%

-- Flow 1:

Average throughput: 8.62 Mbit/s

95th percentile per-packet one-way delay: 75.115 ms

Loss rate: 52.34%

-- Flow 2:

Average throughput: 5.56 Mbit/s

95th percentile per-packet one-way delay: 75.150 ms

Loss rate: 46.48%

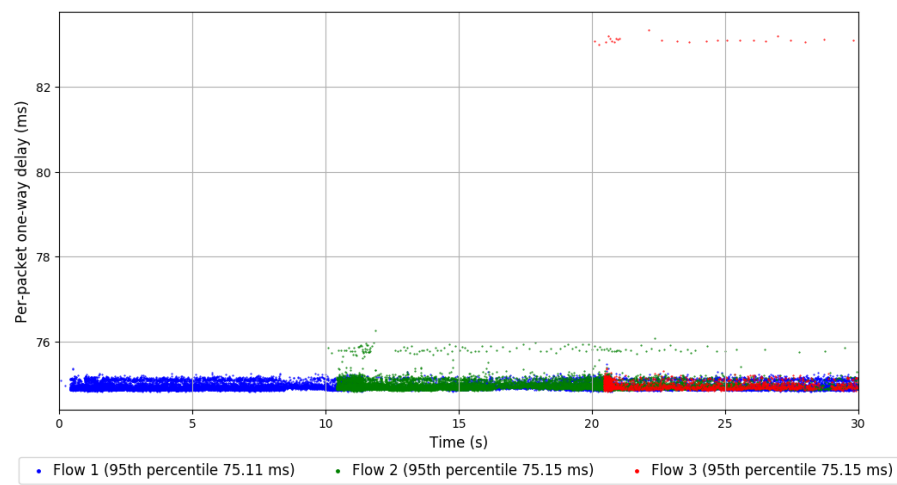
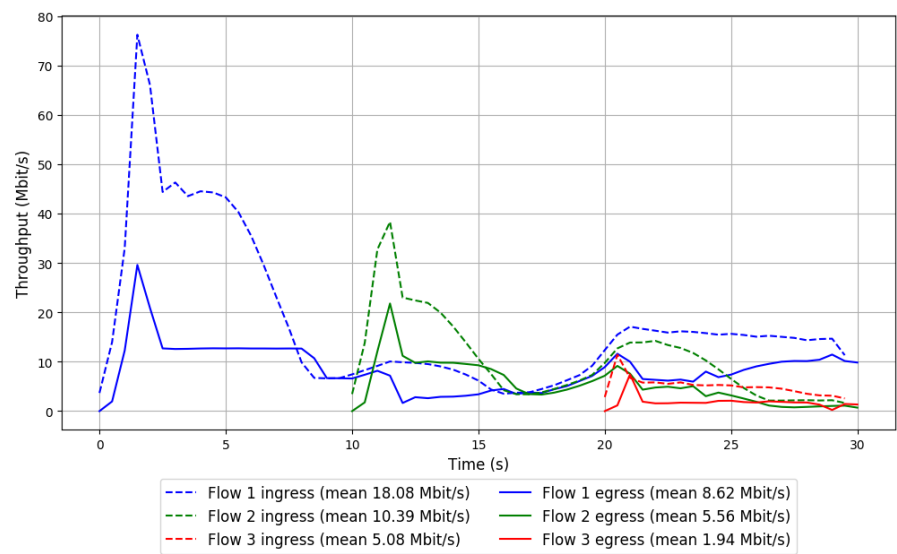
-- Flow 3:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 75.153 ms

Loss rate: 61.93%

Run 3: Report of PCC-Expr — Data Link

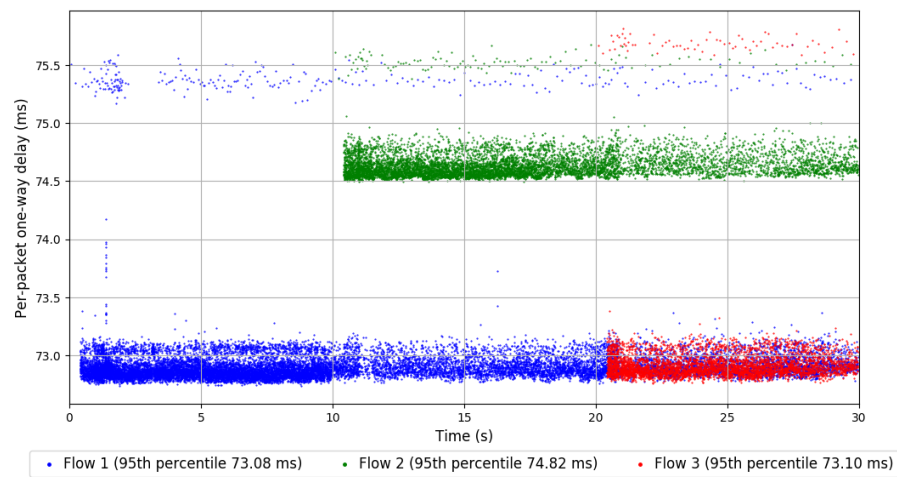
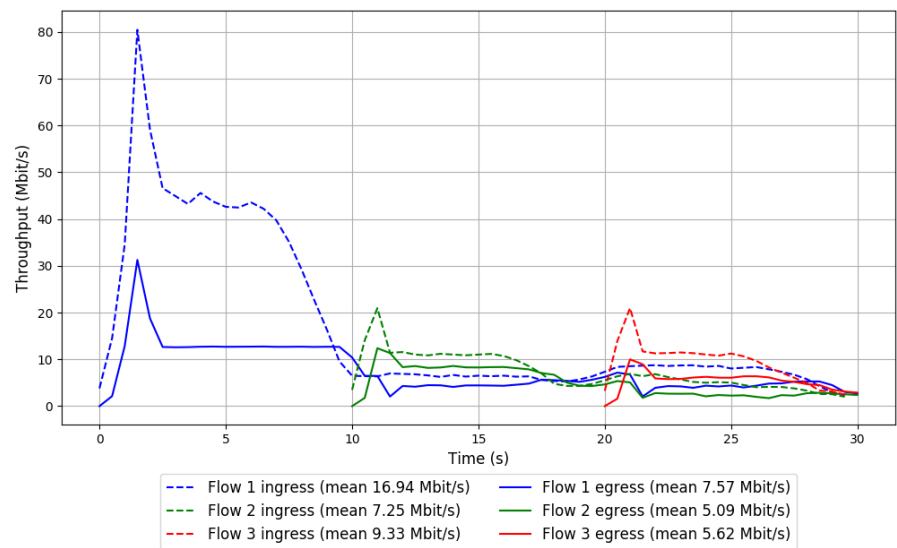


Run 4: Statistics of PCC-Expr

Start at: 2018-09-06 10:26:49
End at: 2018-09-06 10:27:19
Local clock offset: 4.587 ms
Remote clock offset: -0.195 ms

Below is generated by plot.py at 2018-09-06 11:09:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.81 Mbit/s
95th percentile per-packet one-way delay: 74.741 ms
Loss rate: 48.44%
-- Flow 1:
Average throughput: 7.57 Mbit/s
95th percentile per-packet one-way delay: 73.082 ms
Loss rate: 55.34%
-- Flow 2:
Average throughput: 5.09 Mbit/s
95th percentile per-packet one-way delay: 74.821 ms
Loss rate: 29.77%
-- Flow 3:
Average throughput: 5.62 Mbit/s
95th percentile per-packet one-way delay: 73.103 ms
Loss rate: 39.73%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-06 10:49:45

End at: 2018-09-06 10:50:15

Local clock offset: 5.091 ms

Remote clock offset: 2.051 ms

Below is generated by plot.py at 2018-09-06 11:09:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.97 Mbit/s

95th percentile per-packet one-way delay: 76.088 ms

Loss rate: 61.85%

-- Flow 1:

Average throughput: 9.99 Mbit/s

95th percentile per-packet one-way delay: 74.479 ms

Loss rate: 65.15%

-- Flow 2:

Average throughput: 2.03 Mbit/s

95th percentile per-packet one-way delay: 76.179 ms

Loss rate: 54.38%

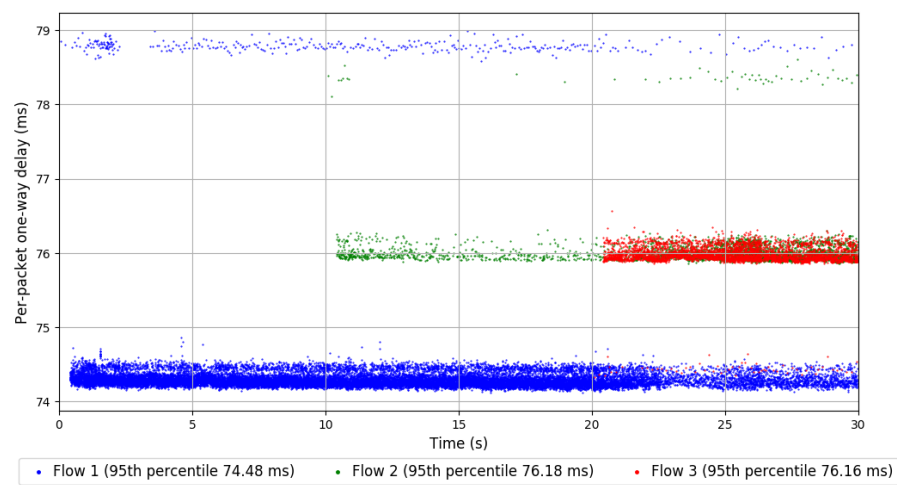
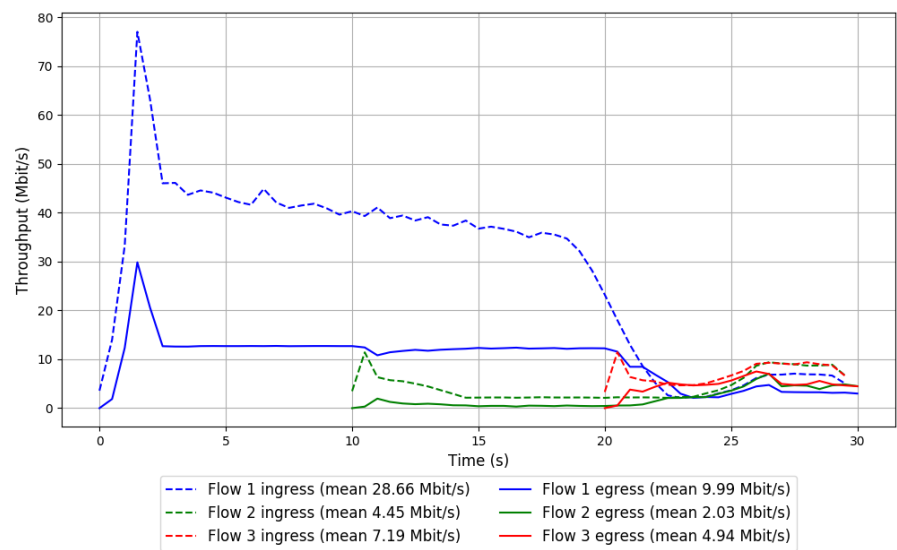
-- Flow 3:

Average throughput: 4.94 Mbit/s

95th percentile per-packet one-way delay: 76.160 ms

Loss rate: 31.35%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-06 09:11:38

End at: 2018-09-06 09:12:08

Local clock offset: 4.392 ms

Remote clock offset: 2.005 ms

Below is generated by plot.py at 2018-09-06 11:09:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 41.60 Mbit/s

95th percentile per-packet one-way delay: 104.400 ms

Loss rate: 1.43%

-- Flow 1:

Average throughput: 9.33 Mbit/s

95th percentile per-packet one-way delay: 105.473 ms

Loss rate: 0.79%

-- Flow 2:

Average throughput: 38.82 Mbit/s

95th percentile per-packet one-way delay: 104.160 ms

Loss rate: 1.91%

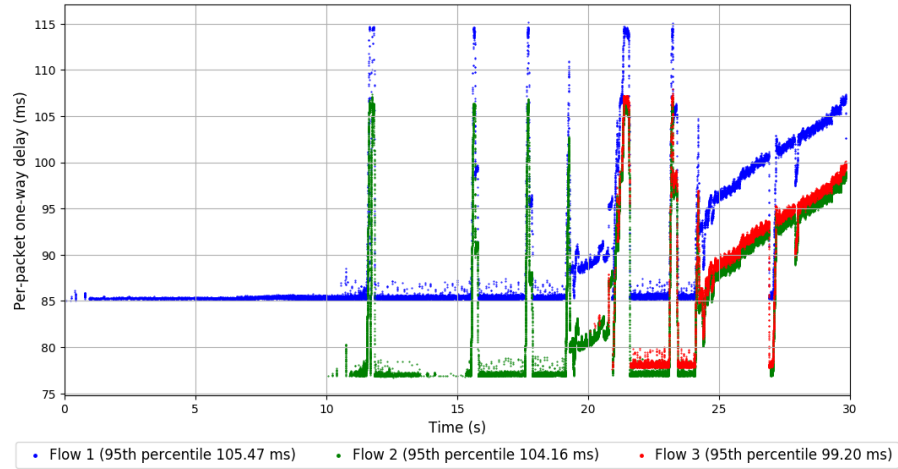
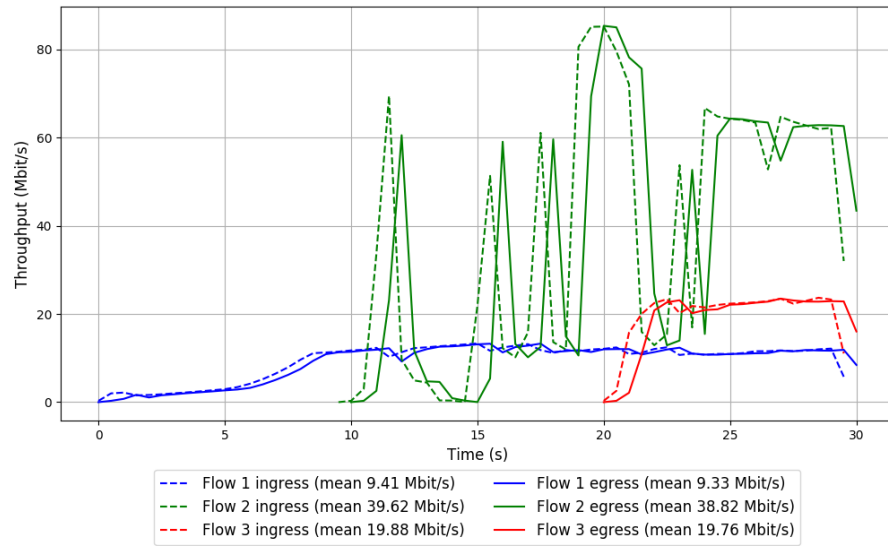
-- Flow 3:

Average throughput: 19.76 Mbit/s

95th percentile per-packet one-way delay: 99.196 ms

Loss rate: 0.41%

Run 1: Report of QUIC Cubic — Data Link

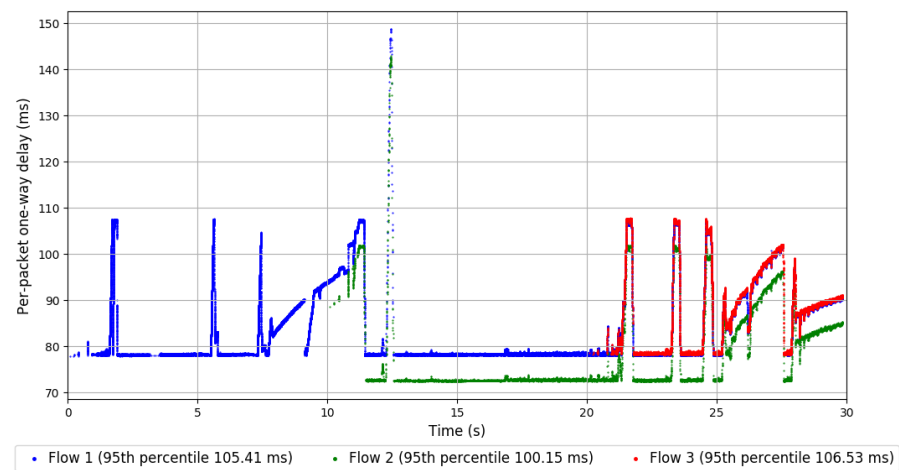
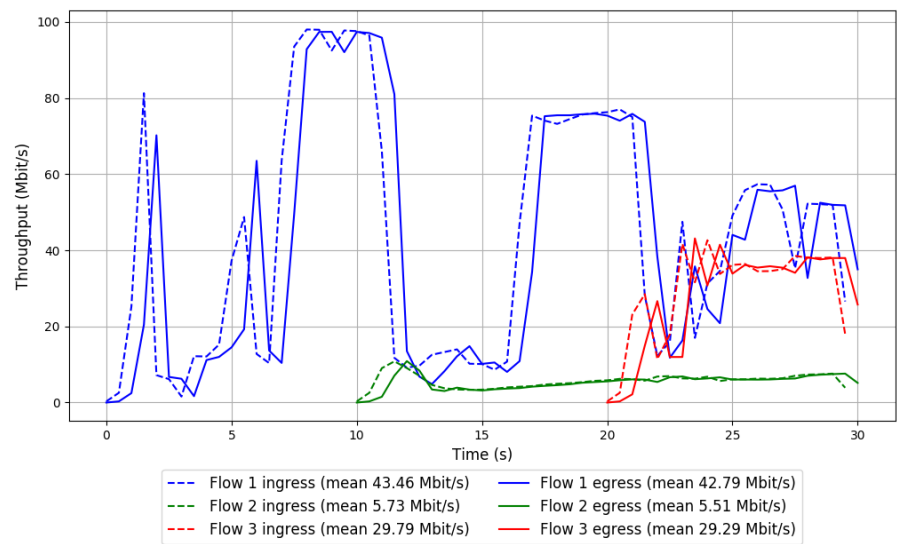


Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 09:34:27
End at: 2018-09-06 09:34:57
Local clock offset: 4.441 ms
Remote clock offset: -0.234 ms

Below is generated by plot.py at 2018-09-06 11:09:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 56.04 Mbit/s
95th percentile per-packet one-way delay: 105.285 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 42.79 Mbit/s
95th percentile per-packet one-way delay: 105.411 ms
Loss rate: 1.50%
-- Flow 2:
Average throughput: 5.51 Mbit/s
95th percentile per-packet one-way delay: 100.147 ms
Loss rate: 4.00%
-- Flow 3:
Average throughput: 29.29 Mbit/s
95th percentile per-packet one-way delay: 106.531 ms
Loss rate: 1.58%

Run 2: Report of QUIC Cubic — Data Link

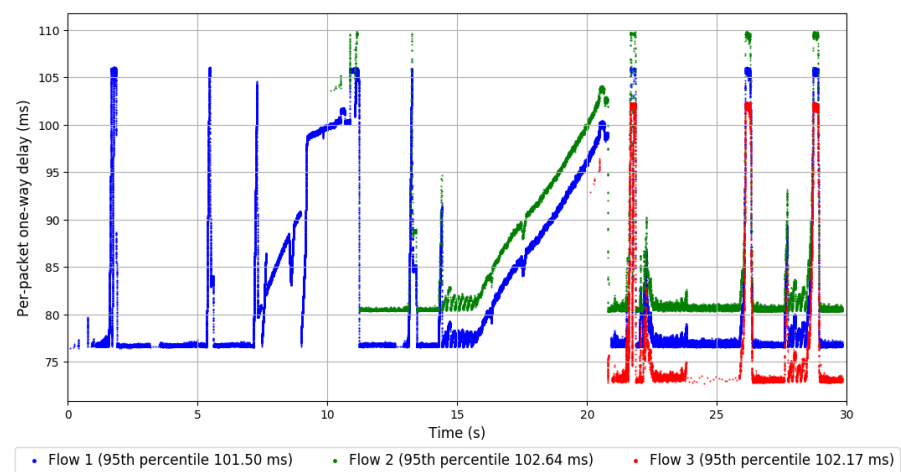
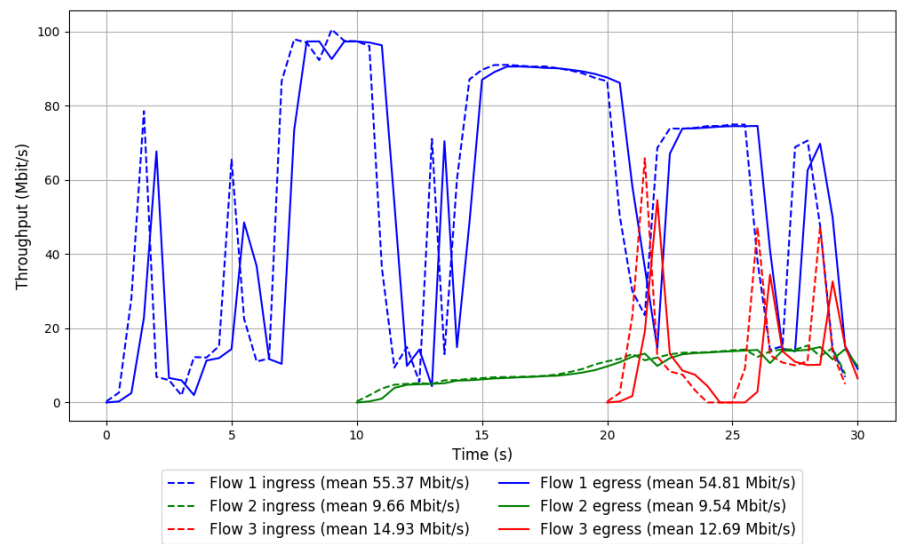


Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 09:57:42
End at: 2018-09-06 09:58:12
Local clock offset: 3.806 ms
Remote clock offset: -0.234 ms

Below is generated by plot.py at 2018-09-06 11:09:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 65.27 Mbit/s
95th percentile per-packet one-way delay: 102.069 ms
Loss rate: 2.09%
-- Flow 1:
Average throughput: 54.81 Mbit/s
95th percentile per-packet one-way delay: 101.495 ms
Loss rate: 1.02%
-- Flow 2:
Average throughput: 9.54 Mbit/s
95th percentile per-packet one-way delay: 102.638 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 12.69 Mbit/s
95th percentile per-packet one-way delay: 102.175 ms
Loss rate: 15.20%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-09-06 10:20:29

End at: 2018-09-06 10:20:59

Local clock offset: 4.277 ms

Remote clock offset: 0.869 ms

Below is generated by plot.py at 2018-09-06 11:09:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 36.37 Mbit/s

95th percentile per-packet one-way delay: 105.248 ms

Loss rate: 5.48%

-- Flow 1:

Average throughput: 23.62 Mbit/s

95th percentile per-packet one-way delay: 105.073 ms

Loss rate: 3.87%

-- Flow 2:

Average throughput: 11.02 Mbit/s

95th percentile per-packet one-way delay: 102.518 ms

Loss rate: 7.47%

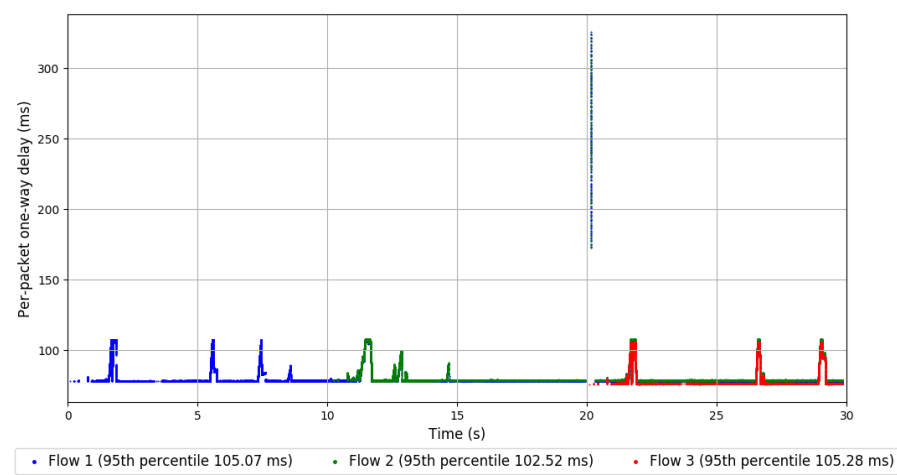
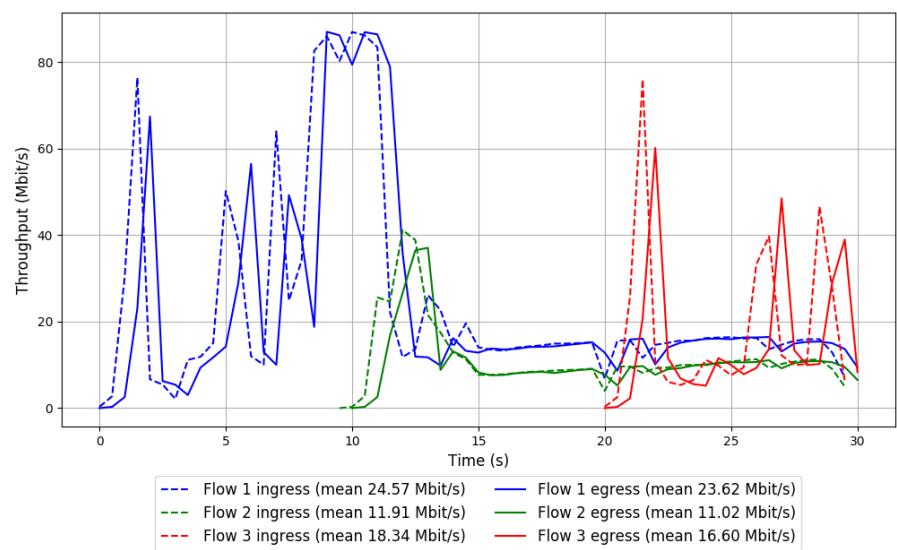
-- Flow 3:

Average throughput: 16.60 Mbit/s

95th percentile per-packet one-way delay: 105.279 ms

Loss rate: 9.47%

Run 4: Report of QUIC Cubic — Data Link

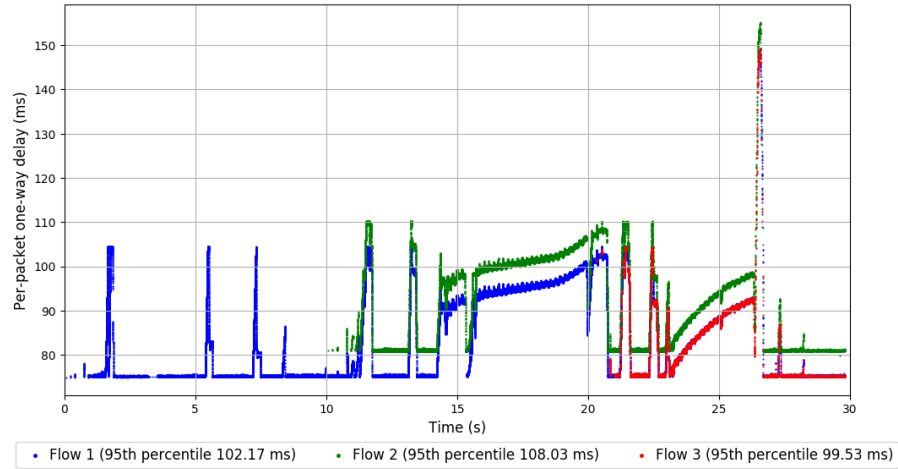
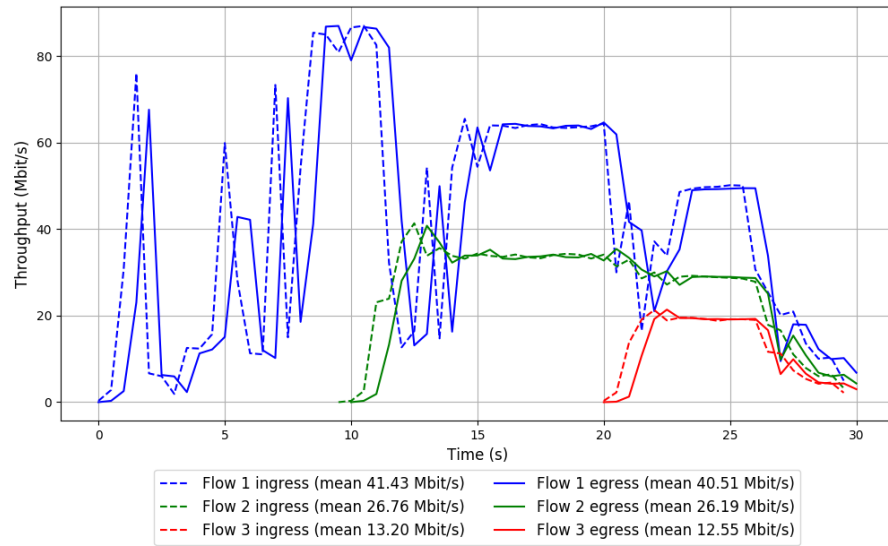


Run 5: Statistics of QUIC Cubic

Start at: 2018-09-06 10:43:16
End at: 2018-09-06 10:43:46
Local clock offset: 4.911 ms
Remote clock offset: -0.096 ms

Below is generated by plot.py at 2018-09-06 11:09:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 61.98 Mbit/s
95th percentile per-packet one-way delay: 104.043 ms
Loss rate: 2.39%
-- Flow 1:
Average throughput: 40.51 Mbit/s
95th percentile per-packet one-way delay: 102.166 ms
Loss rate: 2.21%
-- Flow 2:
Average throughput: 26.19 Mbit/s
95th percentile per-packet one-way delay: 108.027 ms
Loss rate: 2.12%
-- Flow 3:
Average throughput: 12.55 Mbit/s
95th percentile per-packet one-way delay: 99.526 ms
Loss rate: 5.18%

Run 5: Report of QUIC Cubic — Data Link

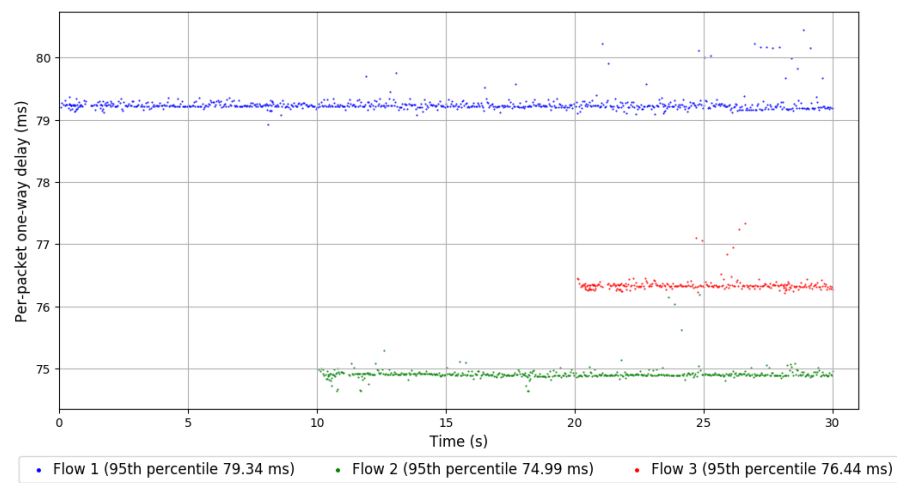
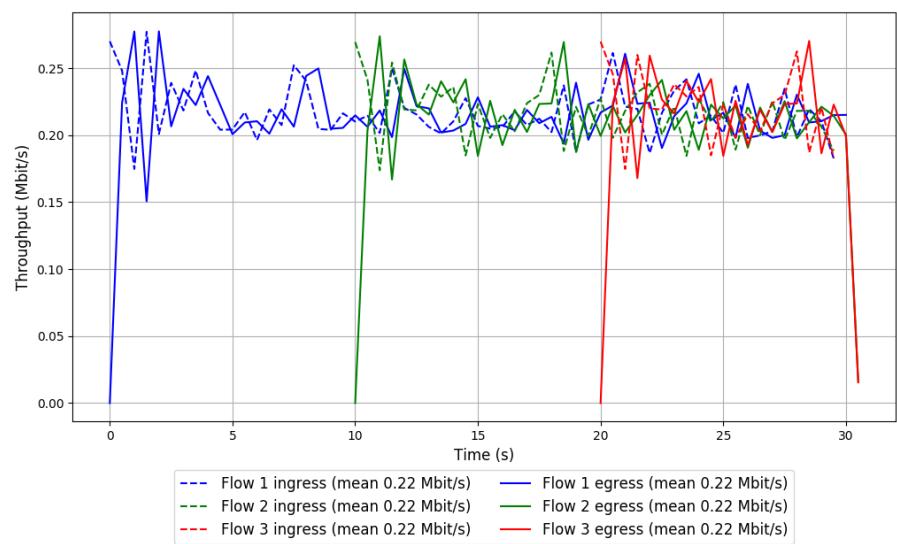


```
Run 1: Statistics of SReAM

Start at: 2018-09-06 09:23:01
End at: 2018-09-06 09:23:31
Local clock offset: 4.684 ms
Remote clock offset: 1.943 ms

# Below is generated by plot.py at 2018-09-06 11:09:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 79.303 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.336 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 74.990 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 76.436 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

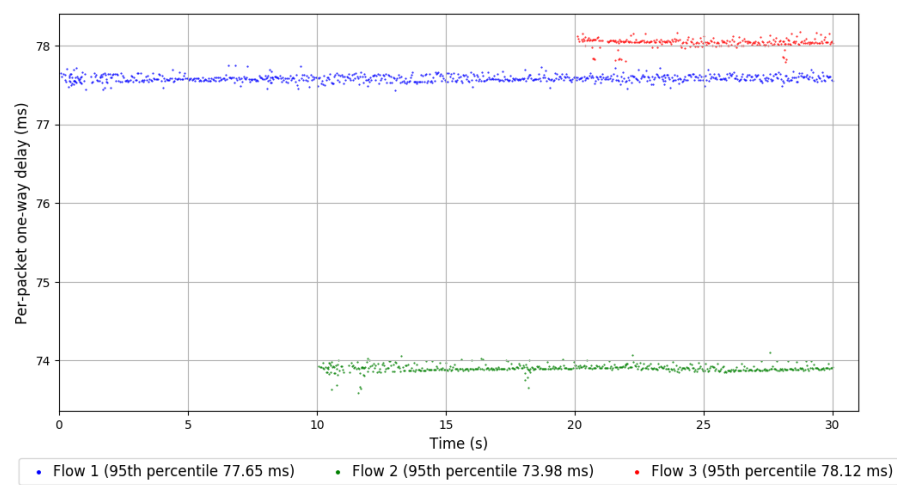
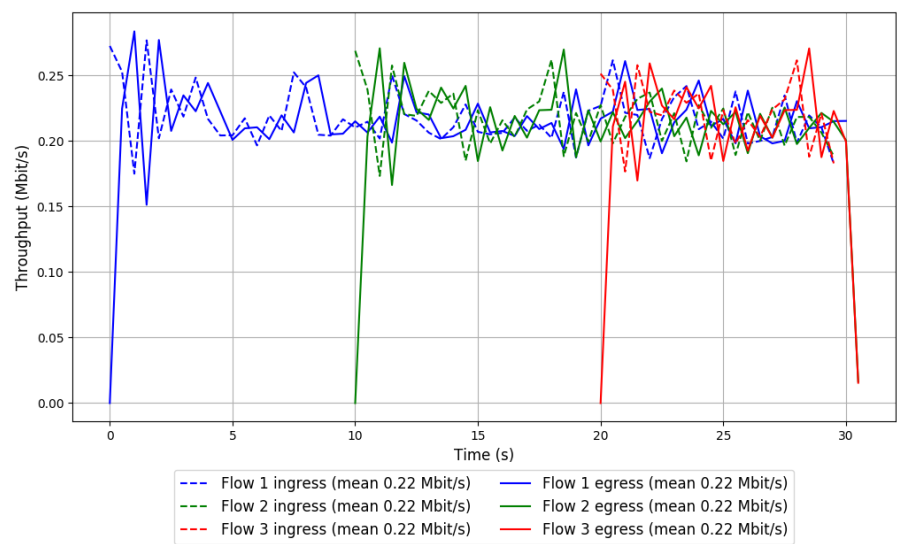


Run 2: Statistics of SReAM

Start at: 2018-09-06 09:46:08
End at: 2018-09-06 09:46:38
Local clock offset: 4.363 ms
Remote clock offset: -0.537 ms

Below is generated by plot.py at 2018-09-06 11:09:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 78.059 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 77.651 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 73.985 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 78.120 ms
Loss rate: 0.00%

Run 2: Report of SCReAM — Data Link



Run 3: Statistics of SReAM

Start at: 2018-09-06 10:09:11

End at: 2018-09-06 10:09:41

Local clock offset: 3.877 ms

Remote clock offset: 2.091 ms

Below is generated by plot.py at 2018-09-06 11:09:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 84.861 ms

Loss rate: 1.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 75.974 ms

Loss rate: 0.49%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 84.900 ms

Loss rate: 0.92%

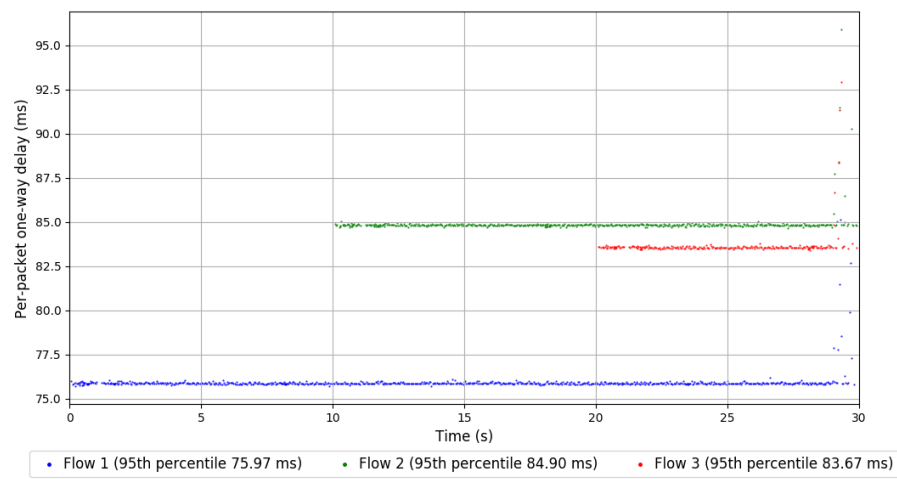
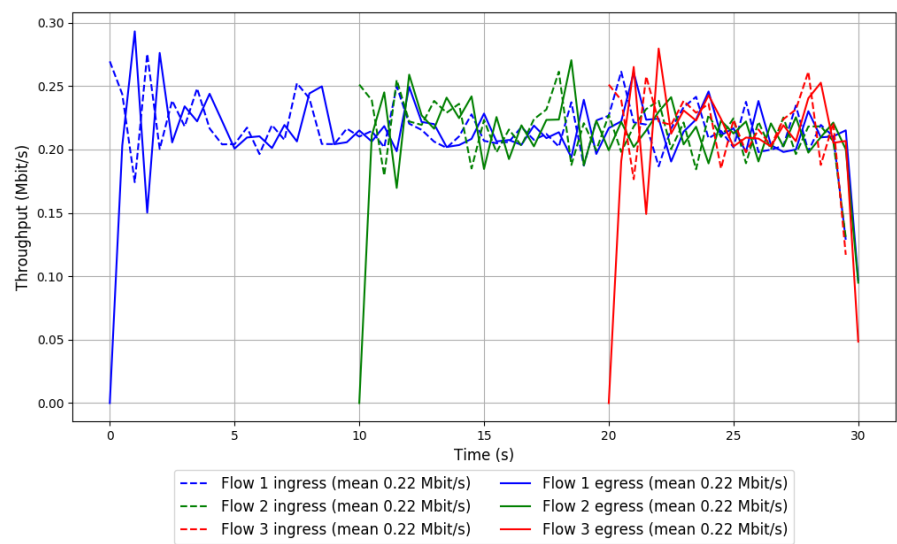
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 83.674 ms

Loss rate: 2.69%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-09-06 10:31:51

End at: 2018-09-06 10:32:21

Local clock offset: 5.509 ms

Remote clock offset: 0.912 ms

Below is generated by plot.py at 2018-09-06 11:09:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 81.076 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 75.478 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 77.664 ms

Loss rate: 0.00%

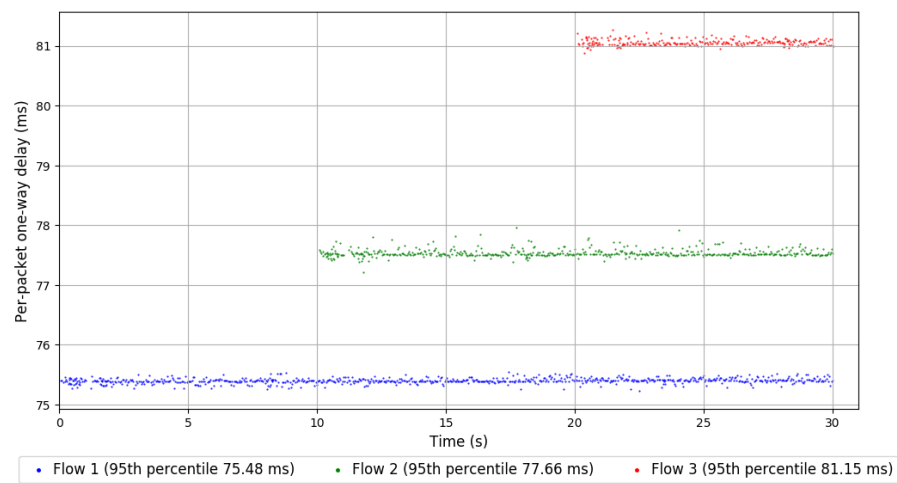
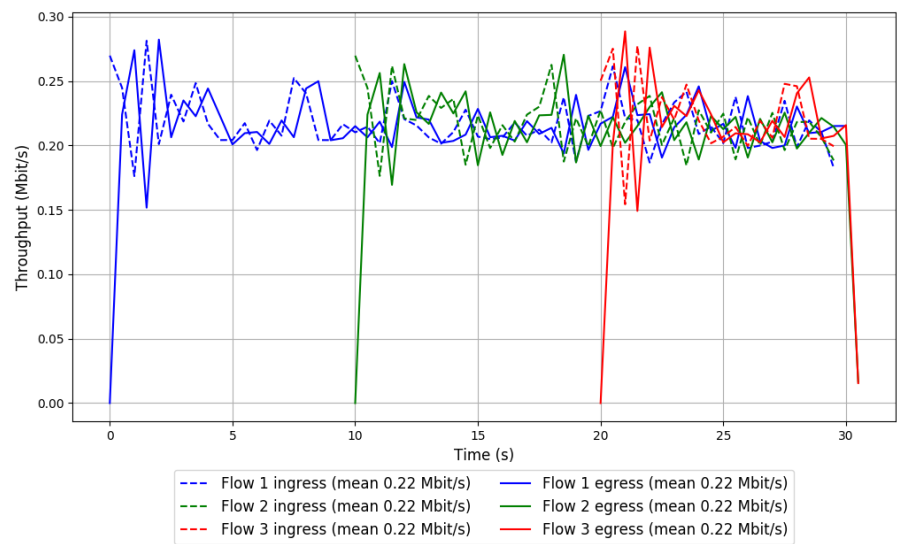
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 81.146 ms

Loss rate: 0.00%

Run 4: Report of SCSReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-09-06 10:54:51

End at: 2018-09-06 10:55:21

Local clock offset: 4.757 ms

Remote clock offset: 1.067 ms

Below is generated by plot.py at 2018-09-06 11:09:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 79.245 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 75.728 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 77.424 ms

Loss rate: 0.00%

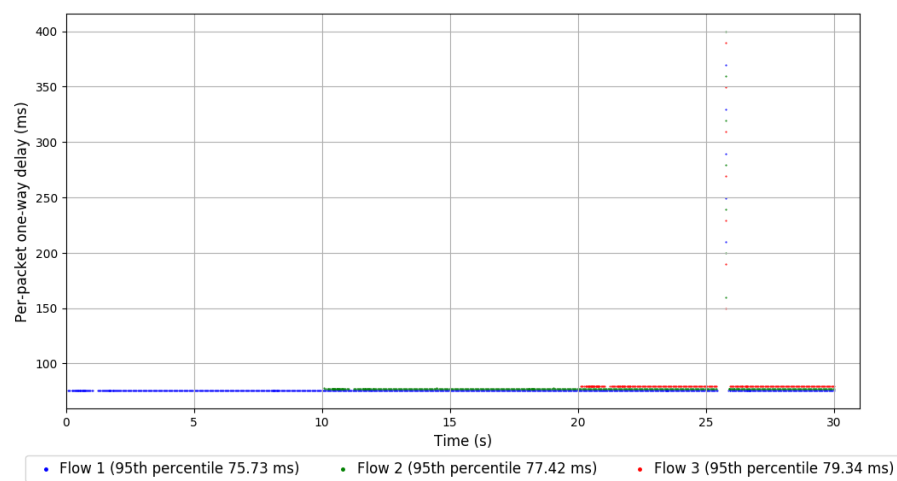
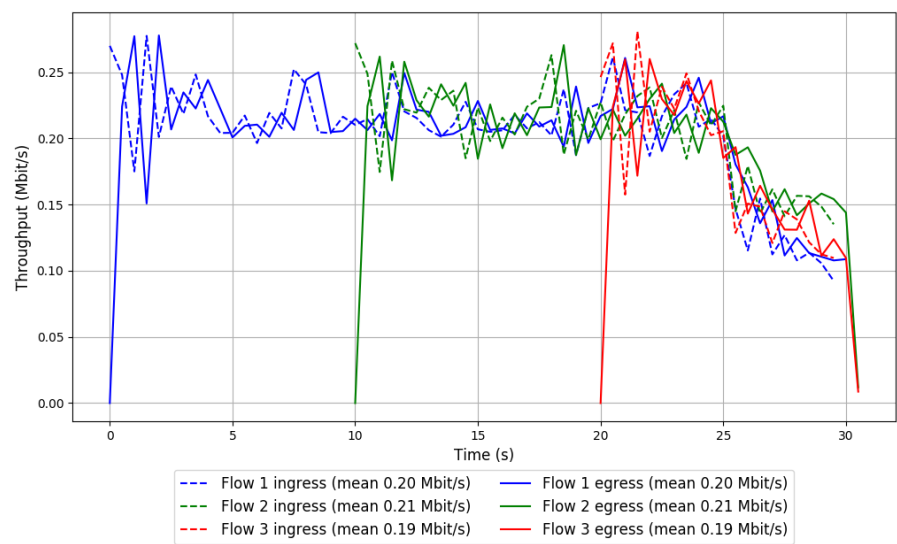
-- Flow 3:

Average throughput: 0.19 Mbit/s

95th percentile per-packet one-way delay: 79.336 ms

Loss rate: 0.00%

Run 5: Report of SCReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-06 09:25:30

End at: 2018-09-06 09:26:00

Local clock offset: 3.819 ms

Remote clock offset: 1.719 ms

Below is generated by plot.py at 2018-09-06 11:09:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.87 Mbit/s

95th percentile per-packet one-way delay: 81.247 ms

Loss rate: 0.54%

-- Flow 1:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 81.762 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 0.32 Mbit/s

95th percentile per-packet one-way delay: 78.214 ms

Loss rate: 0.20%

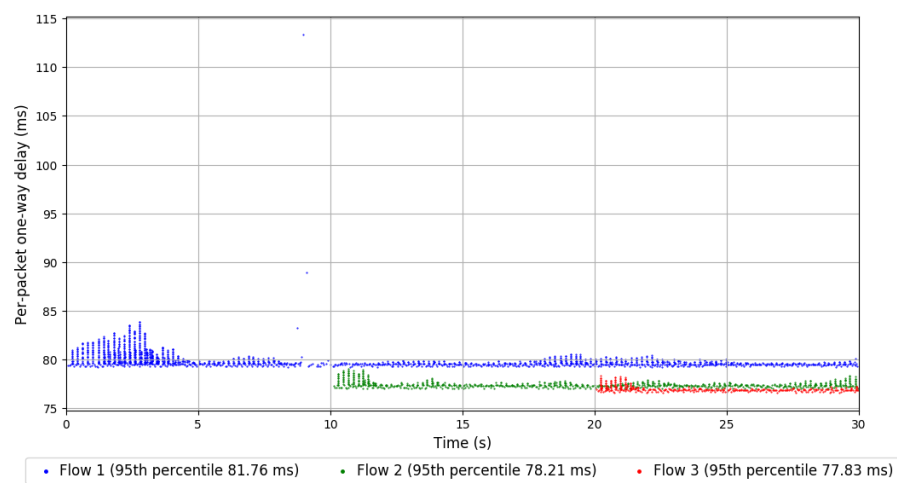
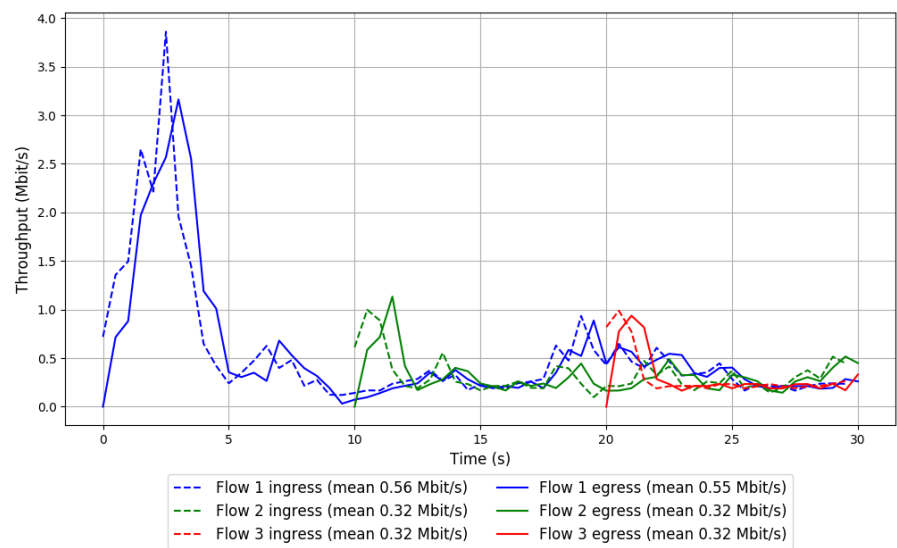
-- Flow 3:

Average throughput: 0.32 Mbit/s

95th percentile per-packet one-way delay: 77.827 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

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

End at: 2018-09-06 09:49:18

Local clock offset: 4.442 ms

Remote clock offset: 0.675 ms

Below is generated by plot.py at 2018-09-06 11:09:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.80 Mbit/s

95th percentile per-packet one-way delay: 83.576 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.38 Mbit/s

95th percentile per-packet one-way delay: 83.771 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 78.769 ms

Loss rate: 0.00%

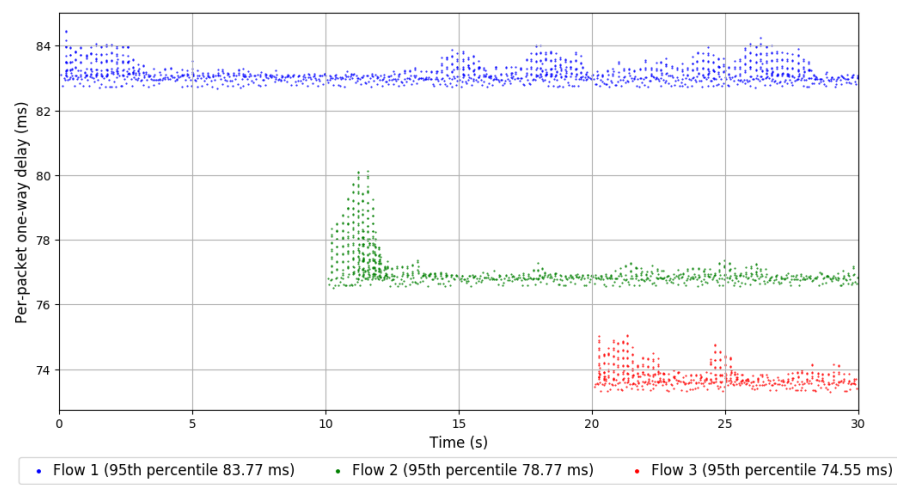
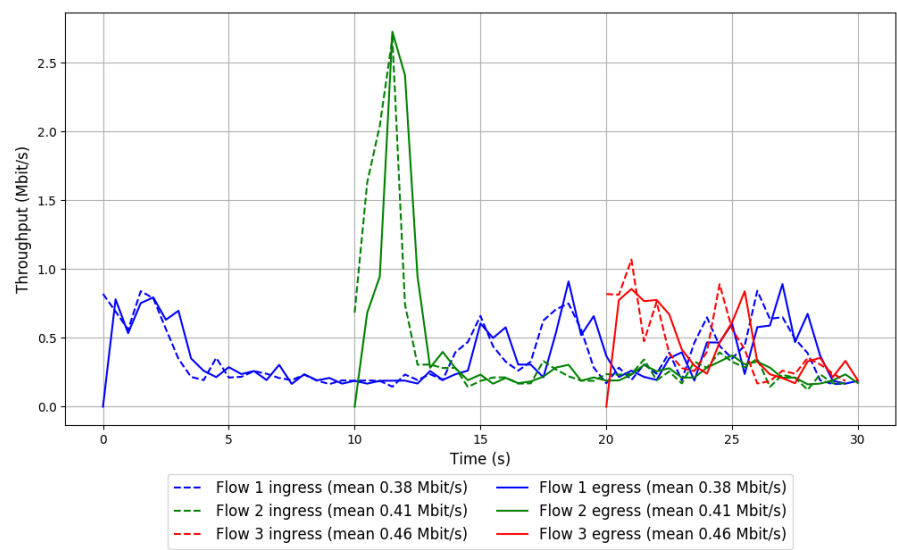
-- Flow 3:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 74.549 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-09-06 10:11:42

End at: 2018-09-06 10:12:12

Local clock offset: 3.88 ms

Remote clock offset: 0.905 ms

Below is generated by plot.py at 2018-09-06 11:09:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.80 Mbit/s

95th percentile per-packet one-way delay: 82.393 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 78.469 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 74.977 ms

Loss rate: 0.00%

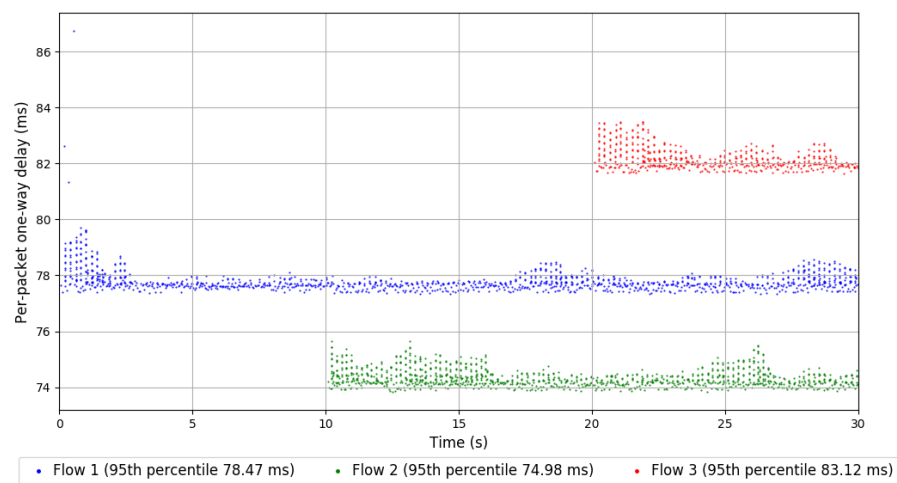
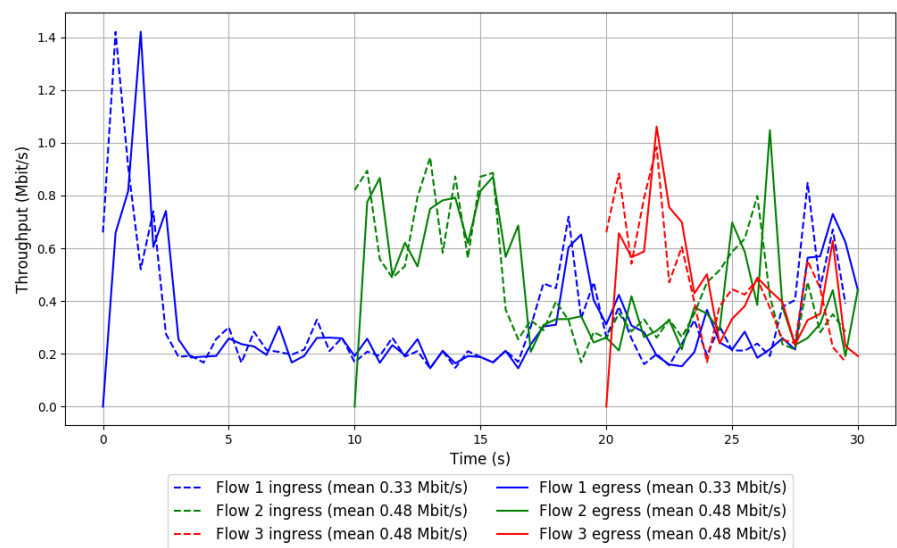
-- Flow 3:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 83.119 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-06 10:34:22

End at: 2018-09-06 10:34:52

Local clock offset: 4.786 ms

Remote clock offset: 1.122 ms

Below is generated by plot.py at 2018-09-06 11:09:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.06 Mbit/s

95th percentile per-packet one-way delay: 85.194 ms

Loss rate: 1.13%

-- Flow 1:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 76.649 ms

Loss rate: 1.08%

-- Flow 2:

Average throughput: 0.80 Mbit/s

95th percentile per-packet one-way delay: 86.160 ms

Loss rate: 0.50%

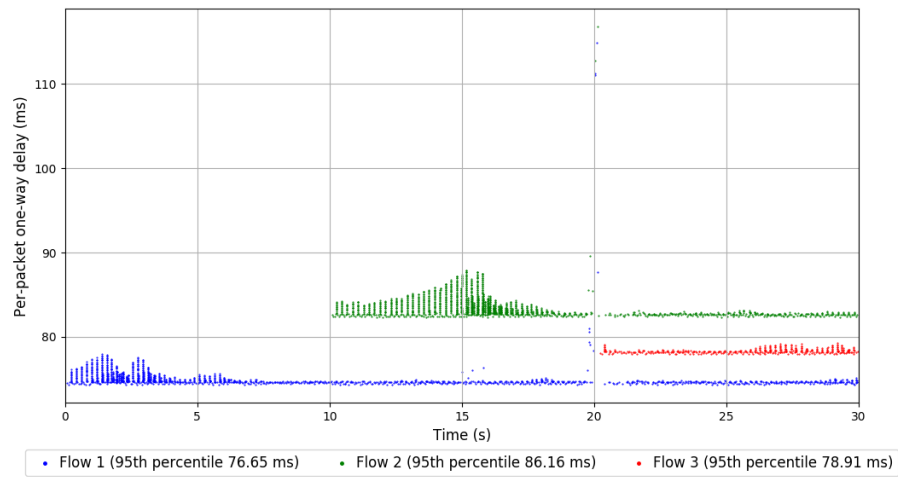
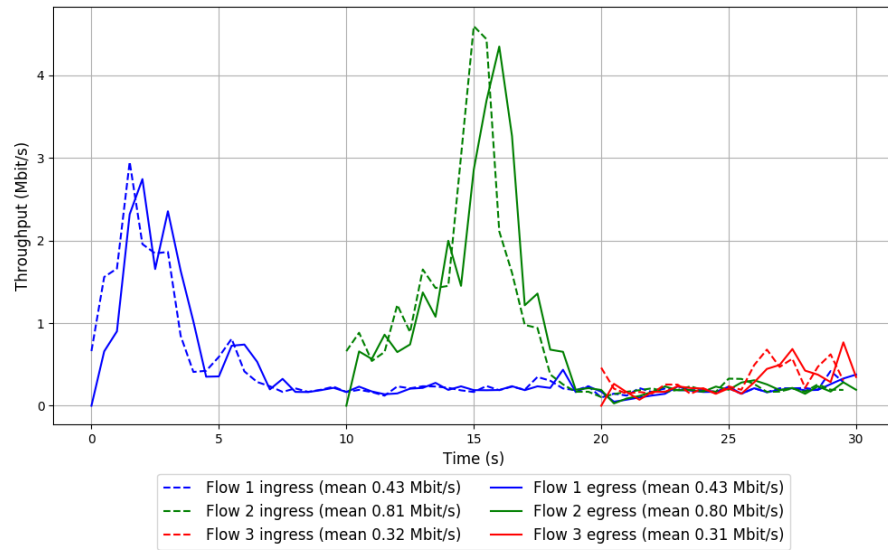
-- Flow 3:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 78.908 ms

Loss rate: 4.47%

Run 4: Report of Sprout — Data Link

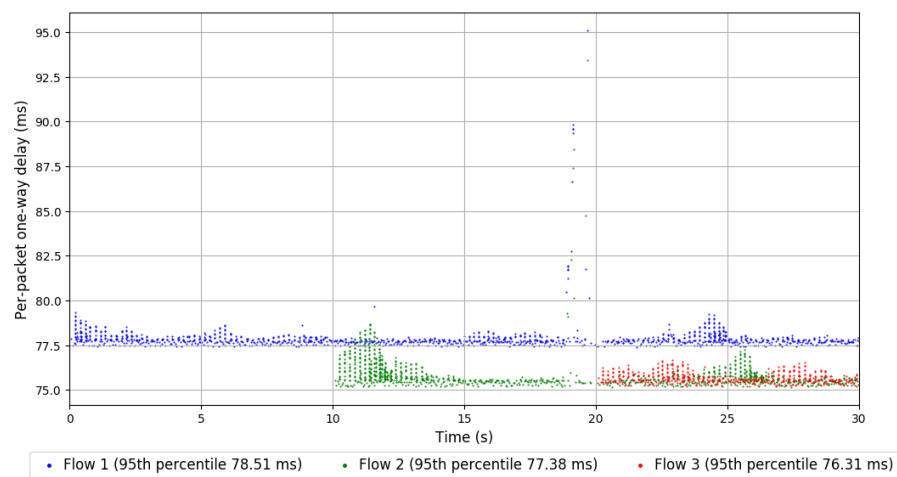
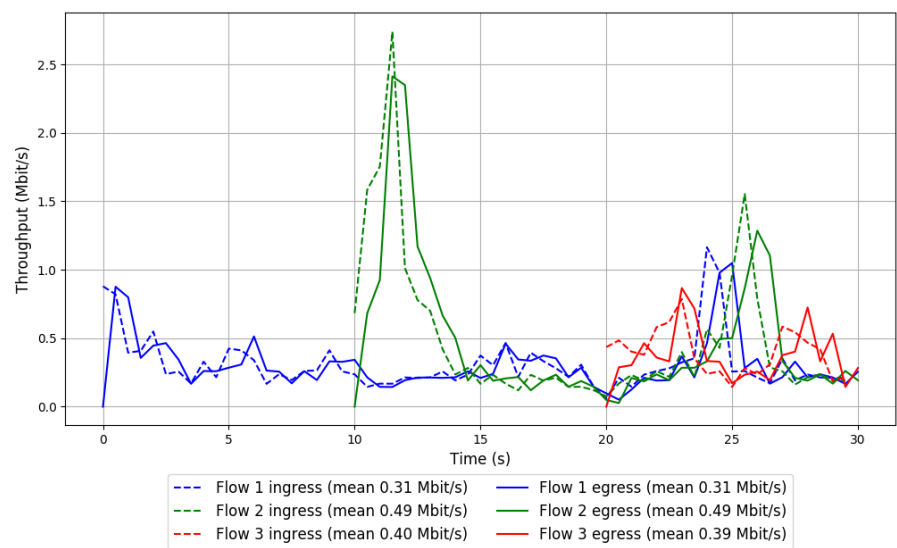


Run 5: Statistics of Sprout

Start at: 2018-09-06 10:57:23
End at: 2018-09-06 10:57:53
Local clock offset: 3.802 ms
Remote clock offset: -0.09 ms

Below is generated by plot.py at 2018-09-06 11:09:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 78.206 ms
Loss rate: 1.41%
-- Flow 1:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 78.514 ms
Loss rate: 1.39%
-- Flow 2:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 77.381 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 76.306 ms
Loss rate: 3.61%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-06 09:15:28

End at: 2018-09-06 09:15:58

Local clock offset: 4.515 ms

Remote clock offset: 1.813 ms

Below is generated by plot.py at 2018-09-06 11:09:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.73 Mbit/s

95th percentile per-packet one-way delay: 78.016 ms

Loss rate: 39.14%

-- Flow 1:

Average throughput: 8.03 Mbit/s

95th percentile per-packet one-way delay: 84.147 ms

Loss rate: 21.16%

-- Flow 2:

Average throughput: 5.04 Mbit/s

95th percentile per-packet one-way delay: 76.920 ms

Loss rate: 55.34%

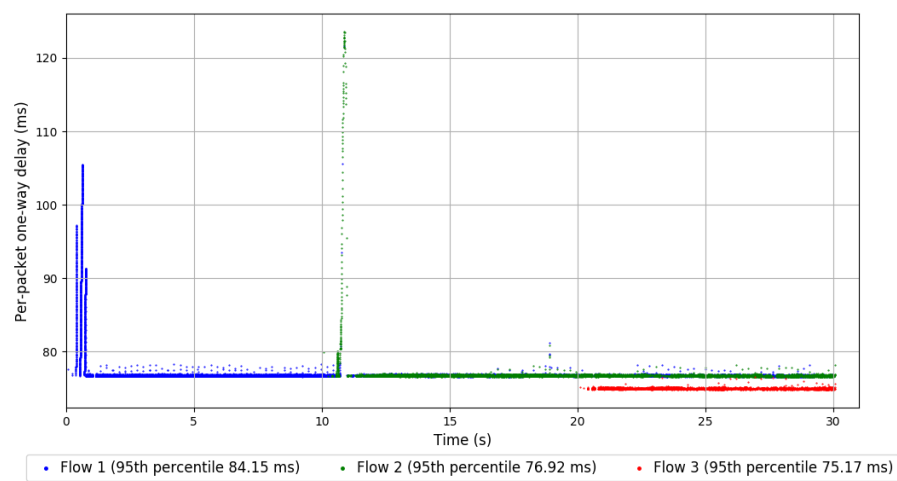
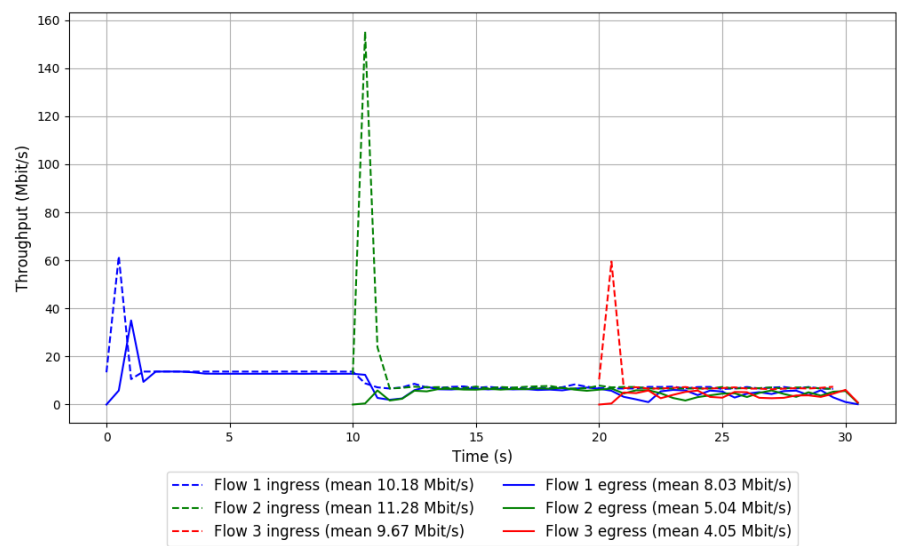
-- Flow 3:

Average throughput: 4.05 Mbit/s

95th percentile per-packet one-way delay: 75.165 ms

Loss rate: 58.19%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-06 09:38:35

End at: 2018-09-06 09:39:05

Local clock offset: 3.615 ms

Remote clock offset: 0.716 ms

Below is generated by plot.py at 2018-09-06 11:09:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.70 Mbit/s

95th percentile per-packet one-way delay: 82.995 ms

Loss rate: 87.58%

-- Flow 1:

Average throughput: 6.36 Mbit/s

95th percentile per-packet one-way delay: 86.181 ms

Loss rate: 34.15%

-- Flow 2:

Average throughput: 3.63 Mbit/s

95th percentile per-packet one-way delay: 89.579 ms

Loss rate: 51.76%

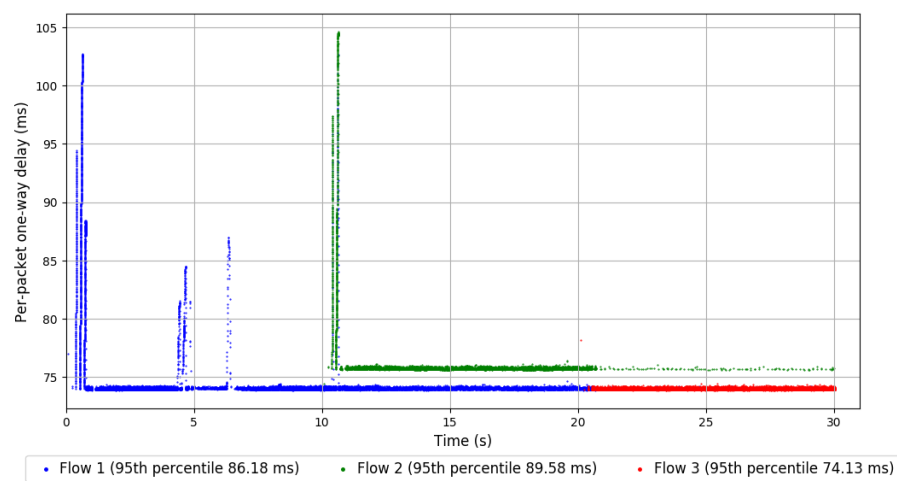
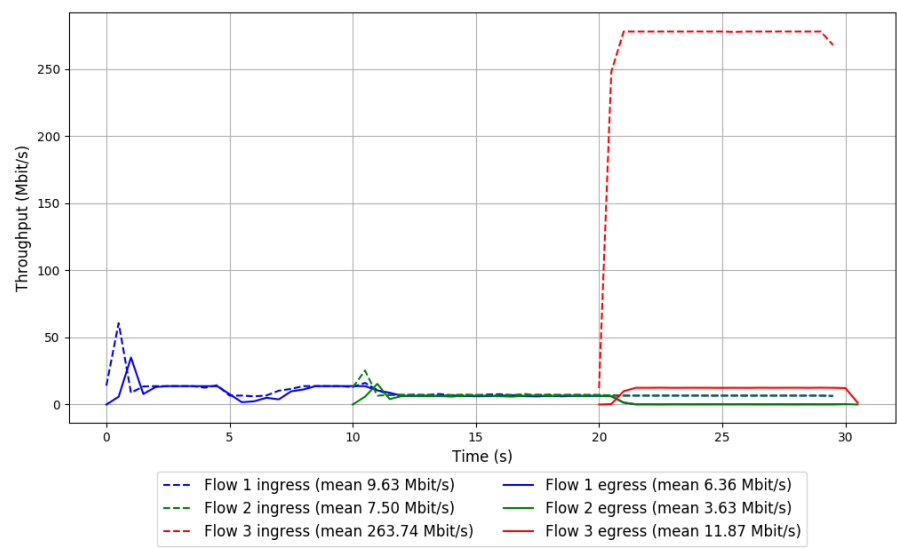
-- Flow 3:

Average throughput: 11.87 Mbit/s

95th percentile per-packet one-way delay: 74.126 ms

Loss rate: 95.50%

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

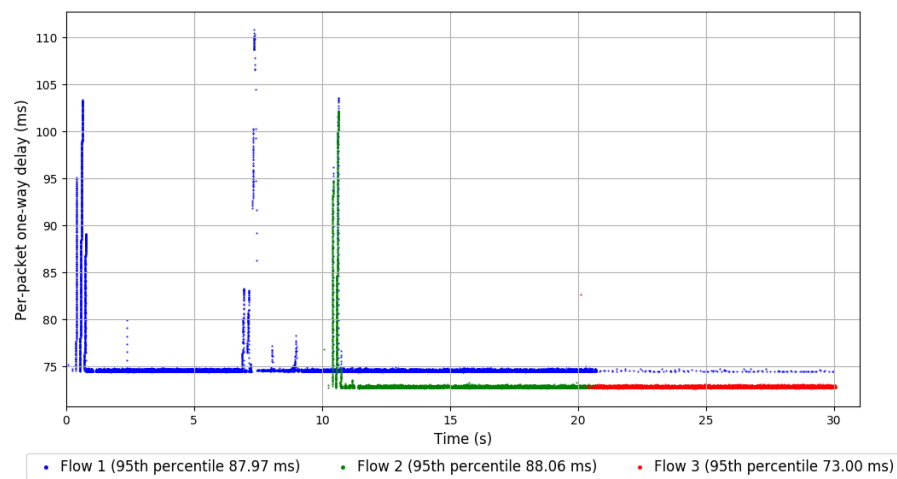
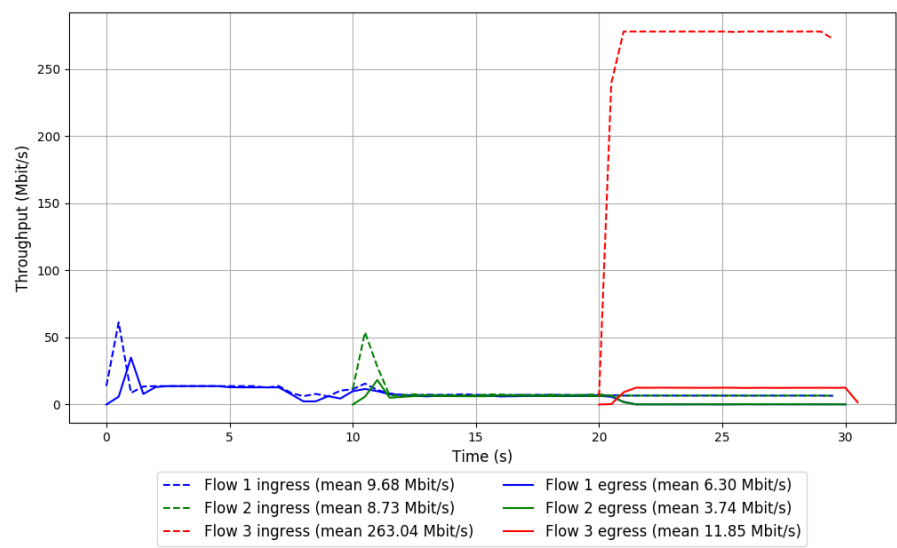


Run 3: Statistics of TaoVA-100x

Start at: 2018-09-06 10:01:33
End at: 2018-09-06 10:02:03
Local clock offset: 3.849 ms
Remote clock offset: -0.315 ms

Below is generated by plot.py at 2018-09-06 11:09:24
Datalink statistics
-- Total of 3 flows:
Average throughput: 12.70 Mbit/s
95th percentile per-packet one-way delay: 83.236 ms
Loss rate: 87.66%
-- Flow 1:
Average throughput: 6.30 Mbit/s
95th percentile per-packet one-way delay: 87.971 ms
Loss rate: 35.02%
-- Flow 2:
Average throughput: 3.74 Mbit/s
95th percentile per-packet one-way delay: 88.056 ms
Loss rate: 57.34%
-- Flow 3:
Average throughput: 11.85 Mbit/s
95th percentile per-packet one-way delay: 72.995 ms
Loss rate: 95.50%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-06 10:24:18

End at: 2018-09-06 10:24:48

Local clock offset: 5.253 ms

Remote clock offset: 1.091 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.77 Mbit/s

95th percentile per-packet one-way delay: 76.557 ms

Loss rate: 90.22%

-- Flow 1:

Average throughput: 6.13 Mbit/s

95th percentile per-packet one-way delay: 84.208 ms

Loss rate: 47.57%

-- Flow 2:

Average throughput: 7.33 Mbit/s

95th percentile per-packet one-way delay: 75.311 ms

Loss rate: 95.03%

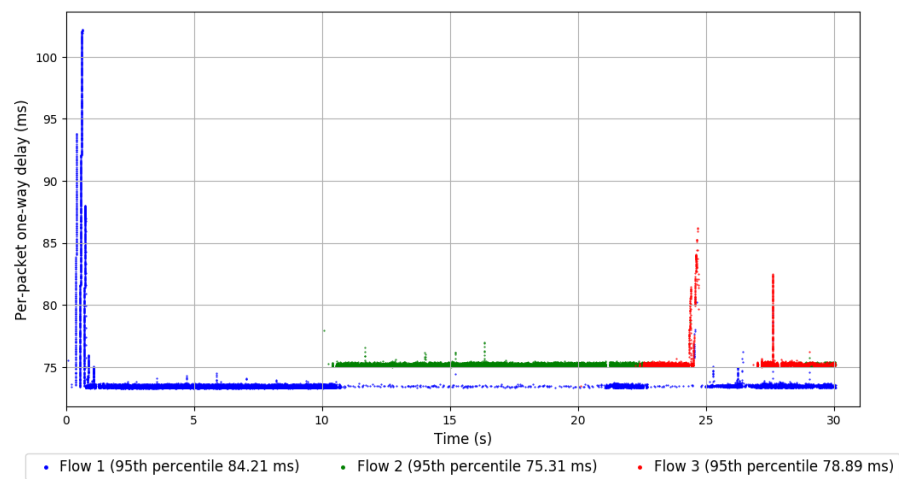
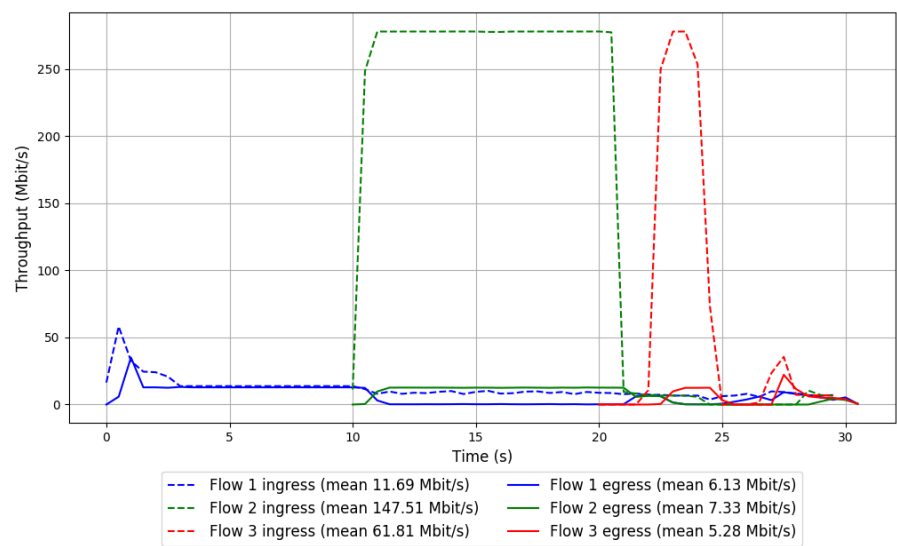
-- Flow 3:

Average throughput: 5.28 Mbit/s

95th percentile per-packet one-way delay: 78.891 ms

Loss rate: 91.46%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-06 10:47:10

End at: 2018-09-06 10:47:40

Local clock offset: 5.445 ms

Remote clock offset: 1.017 ms

Below is generated by plot.py at 2018-09-06 11:09:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.10 Mbit/s

95th percentile per-packet one-way delay: 75.119 ms

Loss rate: 91.71%

-- Flow 1:

Average throughput: 6.13 Mbit/s

95th percentile per-packet one-way delay: 85.837 ms

Loss rate: 43.40%

-- Flow 2:

Average throughput: 7.18 Mbit/s

95th percentile per-packet one-way delay: 73.344 ms

Loss rate: 95.15%

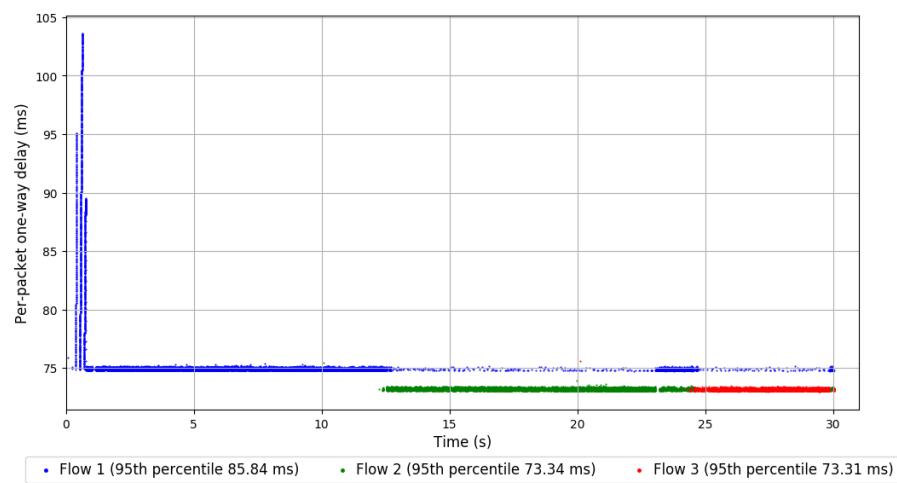
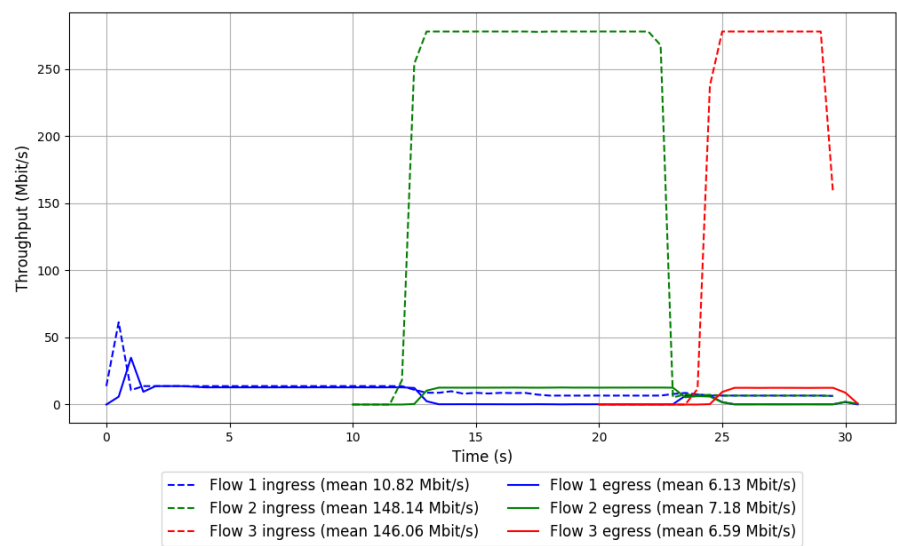
-- Flow 3:

Average throughput: 6.59 Mbit/s

95th percentile per-packet one-way delay: 73.313 ms

Loss rate: 95.49%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 09:29:12

End at: 2018-09-06 09:29:42

Local clock offset: 3.775 ms

Remote clock offset: 0.817 ms

Below is generated by plot.py at 2018-09-06 11:10:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 69.77 Mbit/s

95th percentile per-packet one-way delay: 88.019 ms

Loss rate: 1.51%

-- Flow 1:

Average throughput: 48.01 Mbit/s

95th percentile per-packet one-way delay: 85.764 ms

Loss rate: 1.04%

-- Flow 2:

Average throughput: 18.34 Mbit/s

95th percentile per-packet one-way delay: 90.387 ms

Loss rate: 1.27%

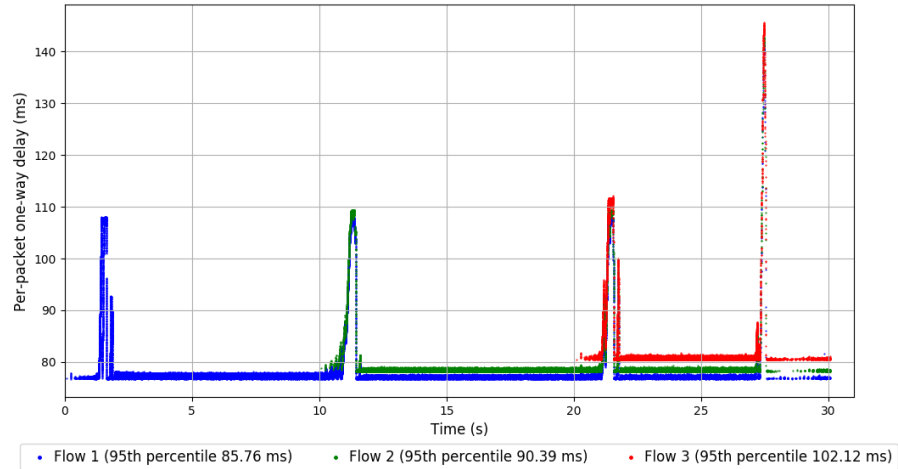
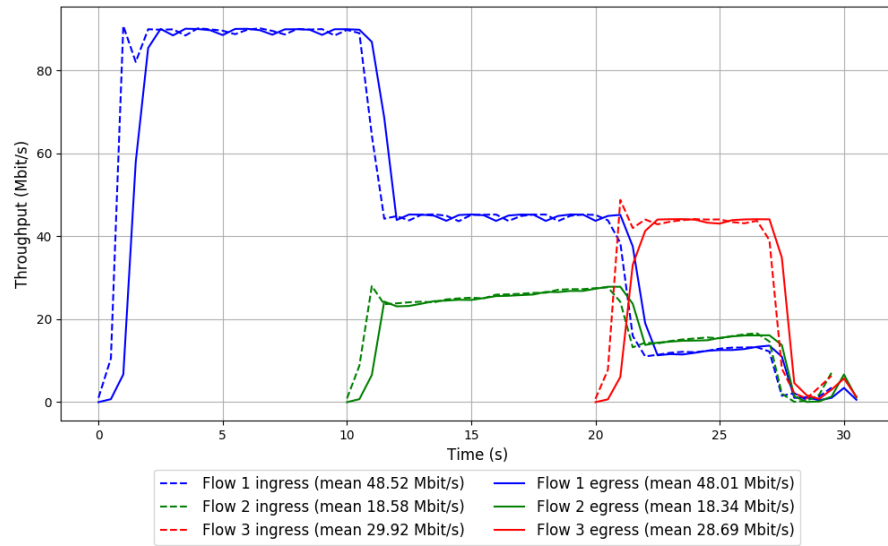
-- Flow 3:

Average throughput: 28.69 Mbit/s

95th percentile per-packet one-way delay: 102.116 ms

Loss rate: 4.09%

Run 1: Report of TCP Vegas — Data Link

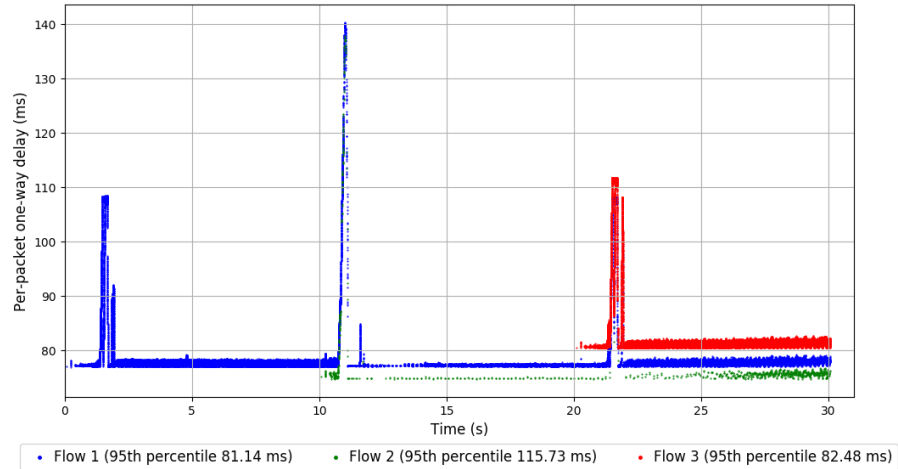
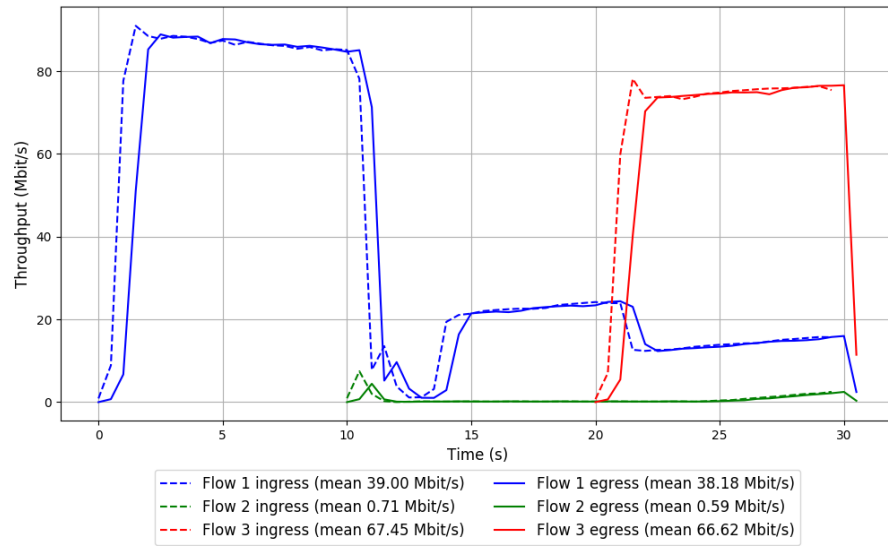


Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 09:52:30
End at: 2018-09-06 09:53:00
Local clock offset: 3.752 ms
Remote clock offset: -0.192 ms

Below is generated by plot.py at 2018-09-06 11:10:01
Datalink statistics
-- Total of 3 flows:
Average throughput: 60.72 Mbit/s
95th percentile per-packet one-way delay: 82.305 ms
Loss rate: 1.89%
-- Flow 1:
Average throughput: 38.18 Mbit/s
95th percentile per-packet one-way delay: 81.144 ms
Loss rate: 2.10%
-- Flow 2:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 115.733 ms
Loss rate: 16.31%
-- Flow 3:
Average throughput: 66.62 Mbit/s
95th percentile per-packet one-way delay: 82.479 ms
Loss rate: 1.23%

Run 2: Report of TCP Vegas — Data Link

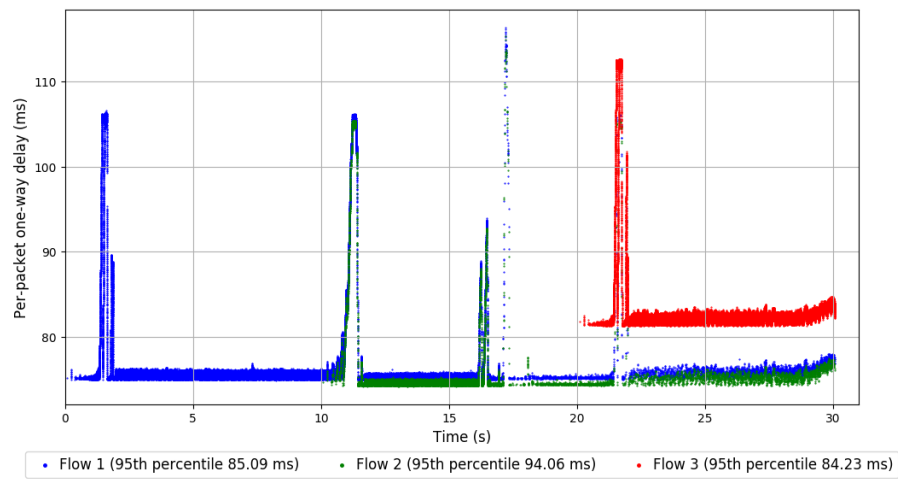
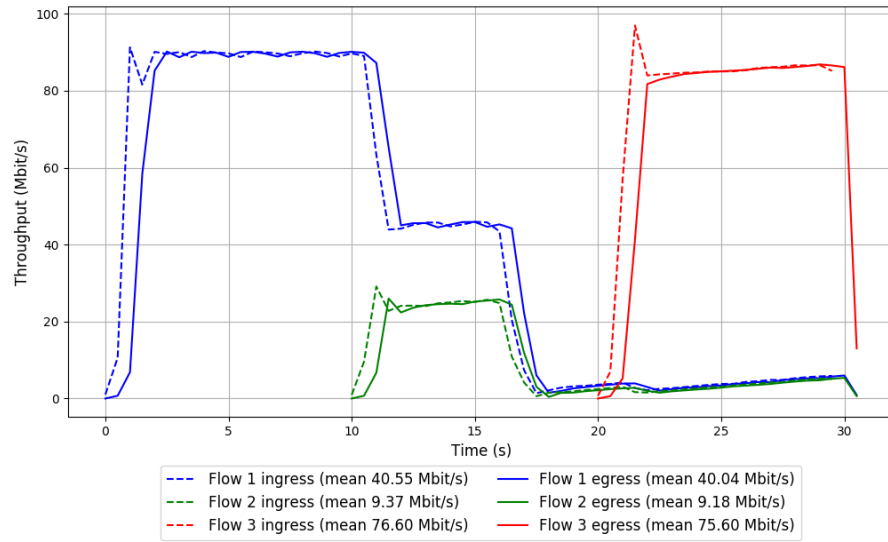


Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 10:15:25
End at: 2018-09-06 10:15:55
Local clock offset: 3.82 ms
Remote clock offset: -0.263 ms

Below is generated by plot.py at 2018-09-06 11:10:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 71.27 Mbit/s
95th percentile per-packet one-way delay: 85.244 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 40.04 Mbit/s
95th percentile per-packet one-way delay: 85.089 ms
Loss rate: 1.26%
-- Flow 2:
Average throughput: 9.18 Mbit/s
95th percentile per-packet one-way delay: 94.057 ms
Loss rate: 2.00%
-- Flow 3:
Average throughput: 75.60 Mbit/s
95th percentile per-packet one-way delay: 84.229 ms
Loss rate: 1.29%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-06 10:38:09

End at: 2018-09-06 10:38:39

Local clock offset: 5.548 ms

Remote clock offset: 1.141 ms

Below is generated by plot.py at 2018-09-06 11:10:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 78.06 Mbit/s

95th percentile per-packet one-way delay: 82.499 ms

Loss rate: 0.76%

-- Flow 1:

Average throughput: 54.80 Mbit/s

95th percentile per-packet one-way delay: 83.019 ms

Loss rate: 0.71%

-- Flow 2:

Average throughput: 12.29 Mbit/s

95th percentile per-packet one-way delay: 86.270 ms

Loss rate: 0.16%

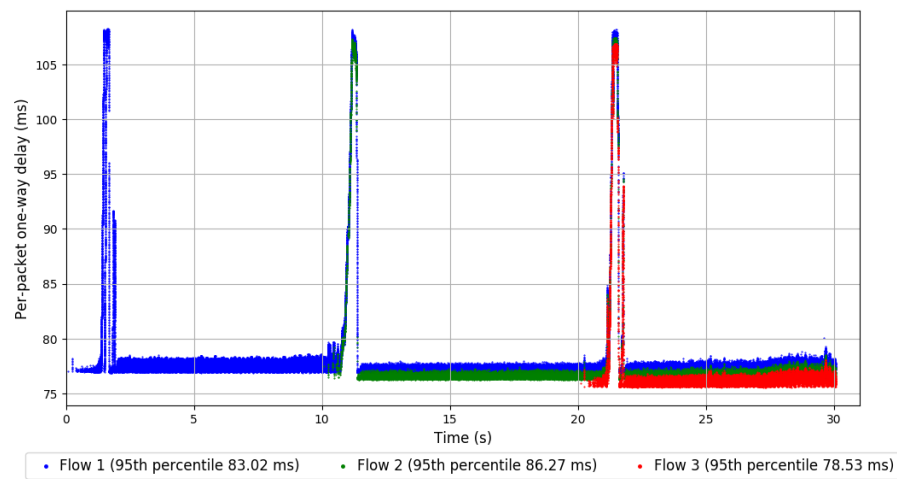
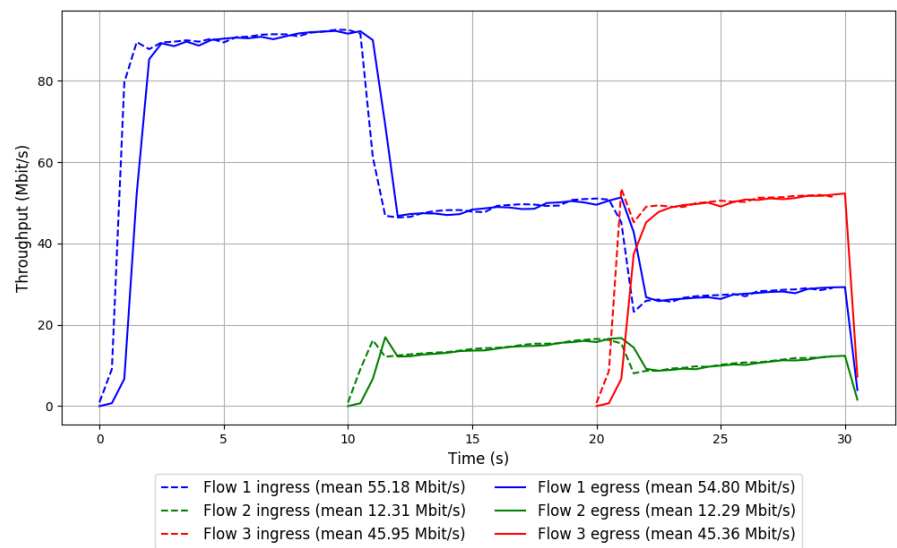
-- Flow 3:

Average throughput: 45.36 Mbit/s

95th percentile per-packet one-way delay: 78.525 ms

Loss rate: 1.27%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-06 11:01:05

End at: 2018-09-06 11:01:35

Local clock offset: 3.728 ms

Remote clock offset: 1.121 ms

Below is generated by plot.py at 2018-09-06 11:10:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 79.09 Mbit/s

95th percentile per-packet one-way delay: 82.803 ms

Loss rate: 0.85%

-- Flow 1:

Average throughput: 52.47 Mbit/s

95th percentile per-packet one-way delay: 82.585 ms

Loss rate: 0.83%

-- Flow 2:

Average throughput: 20.20 Mbit/s

95th percentile per-packet one-way delay: 83.779 ms

Loss rate: 0.50%

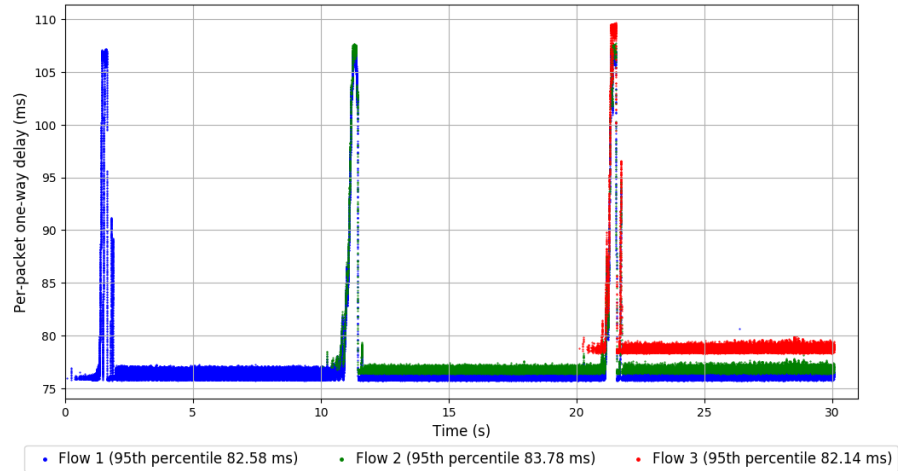
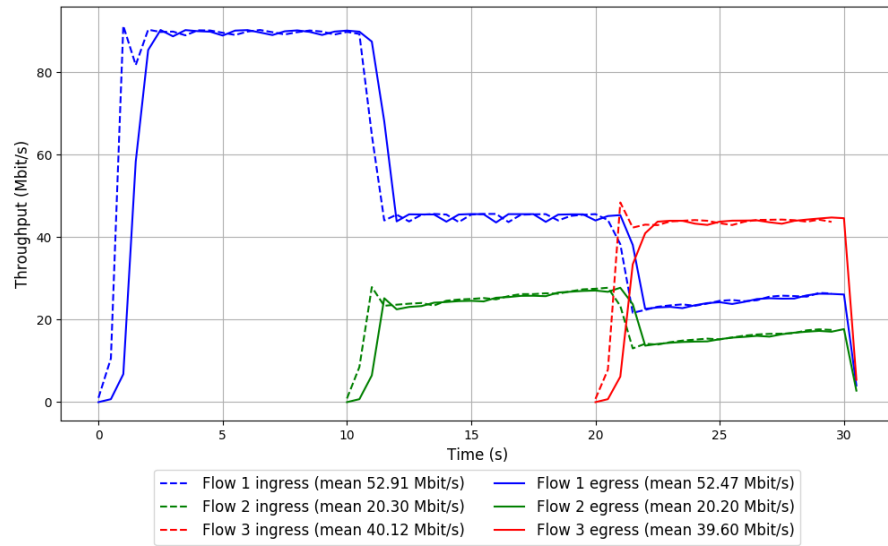
-- Flow 3:

Average throughput: 39.60 Mbit/s

95th percentile per-packet one-way delay: 82.136 ms

Loss rate: 1.29%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-09-06 09:21:45

End at: 2018-09-06 09:22:15

Local clock offset: 4.818 ms

Remote clock offset: 0.728 ms

Below is generated by plot.py at 2018-09-06 11:10:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 42.88 Mbit/s

95th percentile per-packet one-way delay: 136.993 ms

Loss rate: 54.48%

-- Flow 1:

Average throughput: 24.77 Mbit/s

95th percentile per-packet one-way delay: 145.125 ms

Loss rate: 59.21%

-- Flow 2:

Average throughput: 18.80 Mbit/s

95th percentile per-packet one-way delay: 106.023 ms

Loss rate: 23.79%

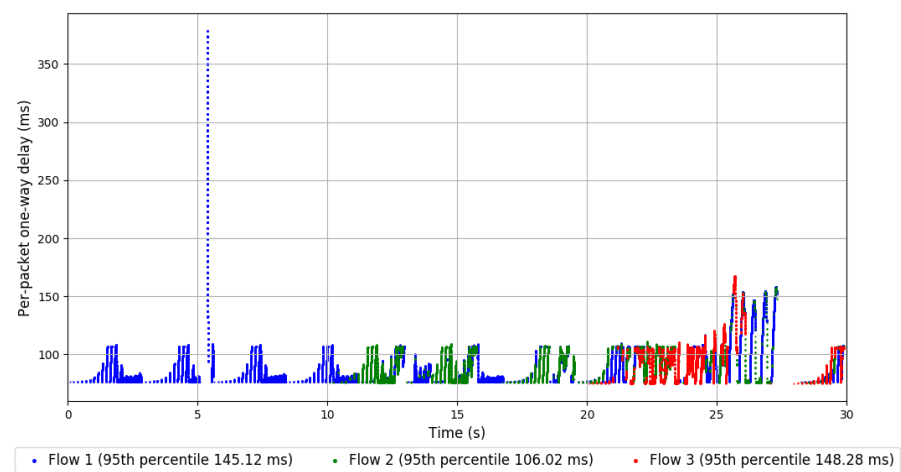
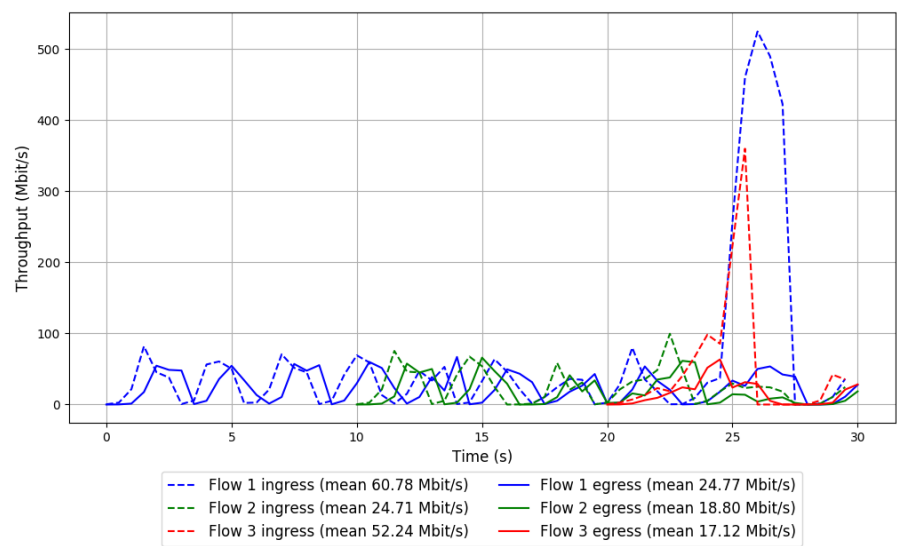
-- Flow 3:

Average throughput: 17.12 Mbit/s

95th percentile per-packet one-way delay: 148.285 ms

Loss rate: 67.12%

Run 1: Report of Verus — Data Link

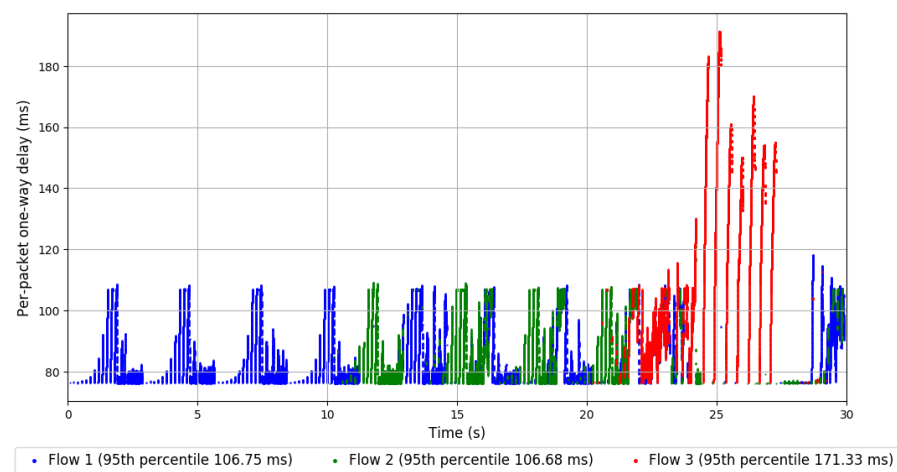
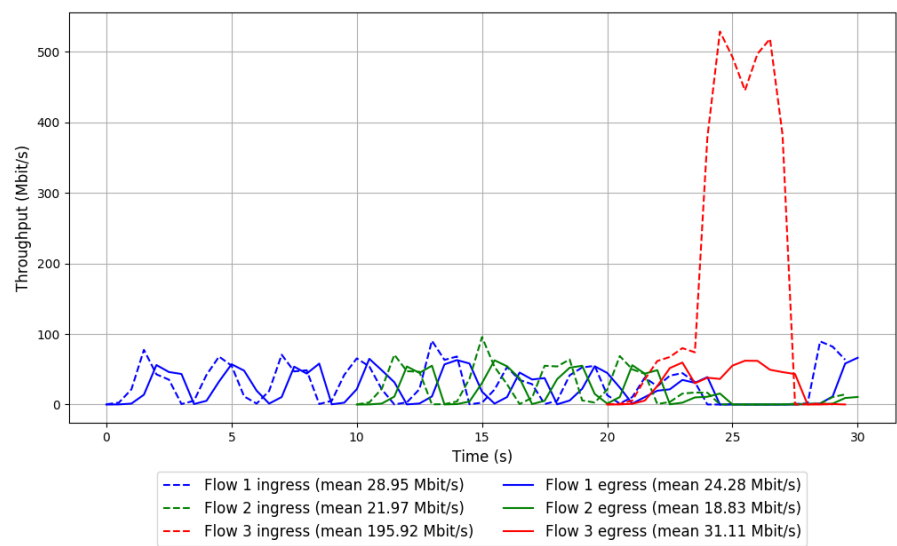


Run 2: Statistics of Verus

Start at: 2018-09-06 09:44:52
End at: 2018-09-06 09:45:22
Local clock offset: 3.569 ms
Remote clock offset: 0.88 ms

Below is generated by plot.py at 2018-09-06 11:10:18
Datalink statistics
-- Total of 3 flows:
Average throughput: 46.26 Mbit/s
95th percentile per-packet one-way delay: 146.034 ms
Loss rate: 55.23%
-- Flow 1:
Average throughput: 24.28 Mbit/s
95th percentile per-packet one-way delay: 106.752 ms
Loss rate: 16.08%
-- Flow 2:
Average throughput: 18.83 Mbit/s
95th percentile per-packet one-way delay: 106.683 ms
Loss rate: 14.21%
-- Flow 3:
Average throughput: 31.11 Mbit/s
95th percentile per-packet one-way delay: 171.326 ms
Loss rate: 84.12%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-06 10:07:54

End at: 2018-09-06 10:08:24

Local clock offset: 3.813 ms

Remote clock offset: 1.083 ms

Below is generated by plot.py at 2018-09-06 11:10:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 47.87 Mbit/s

95th percentile per-packet one-way delay: 110.513 ms

Loss rate: 34.97%

-- Flow 1:

Average throughput: 29.66 Mbit/s

95th percentile per-packet one-way delay: 109.516 ms

Loss rate: 41.93%

-- Flow 2:

Average throughput: 19.11 Mbit/s

95th percentile per-packet one-way delay: 108.818 ms

Loss rate: 10.60%

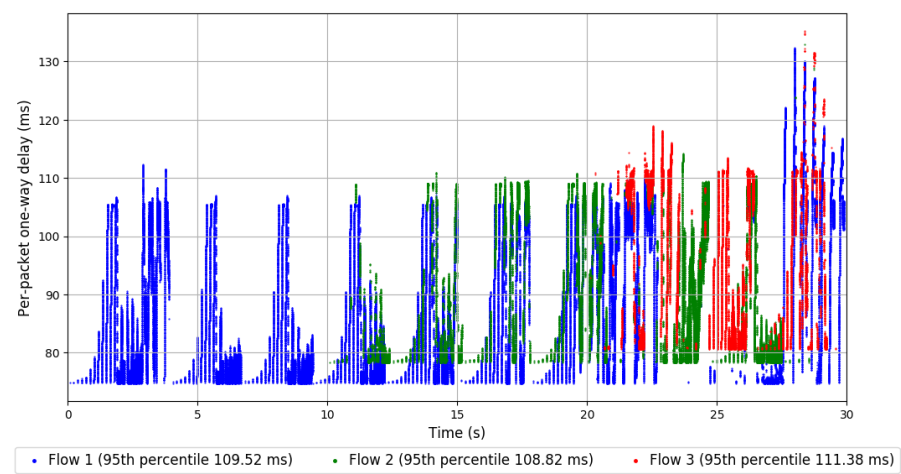
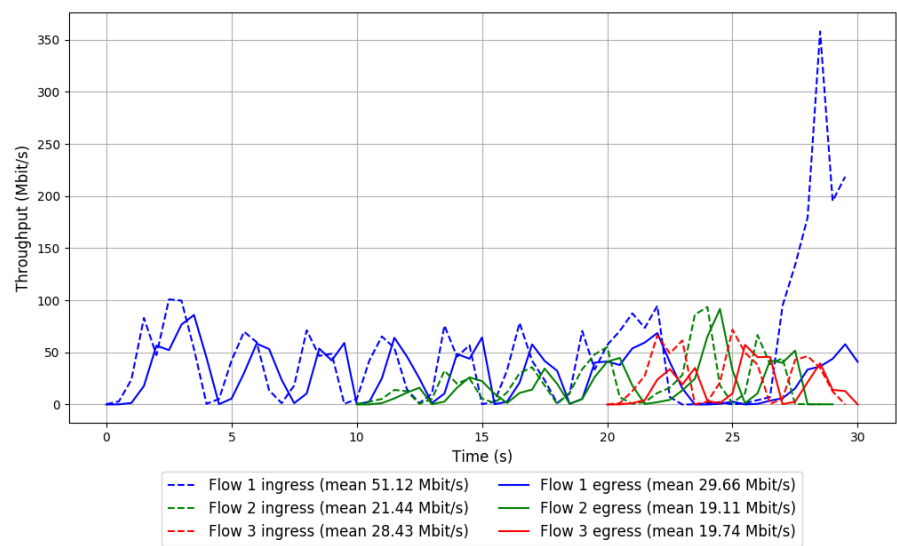
-- Flow 3:

Average throughput: 19.74 Mbit/s

95th percentile per-packet one-way delay: 111.375 ms

Loss rate: 31.77%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-09-06 10:30:35

End at: 2018-09-06 10:31:05

Local clock offset: 5.463 ms

Remote clock offset: 1.007 ms

Below is generated by plot.py at 2018-09-06 11:10:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 43.16 Mbit/s

95th percentile per-packet one-way delay: 155.564 ms

Loss rate: 63.92%

-- Flow 1:

Average throughput: 27.21 Mbit/s

95th percentile per-packet one-way delay: 107.215 ms

Loss rate: 24.85%

-- Flow 2:

Average throughput: 14.65 Mbit/s

95th percentile per-packet one-way delay: 113.758 ms

Loss rate: 15.36%

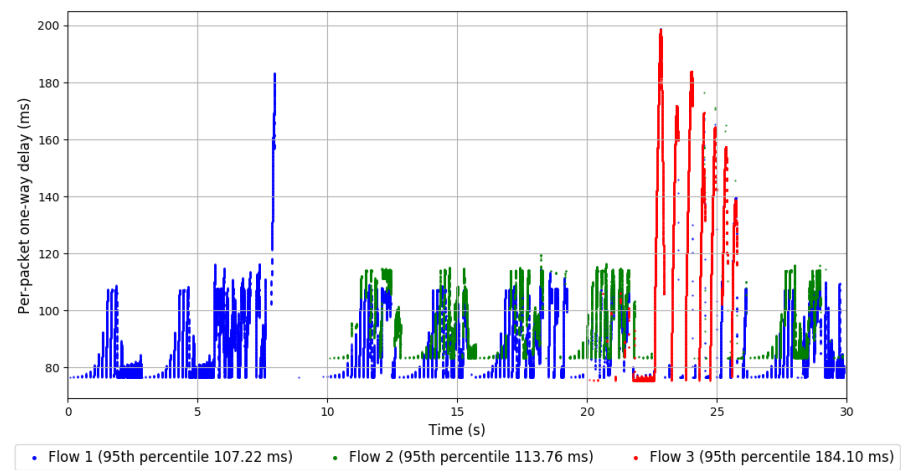
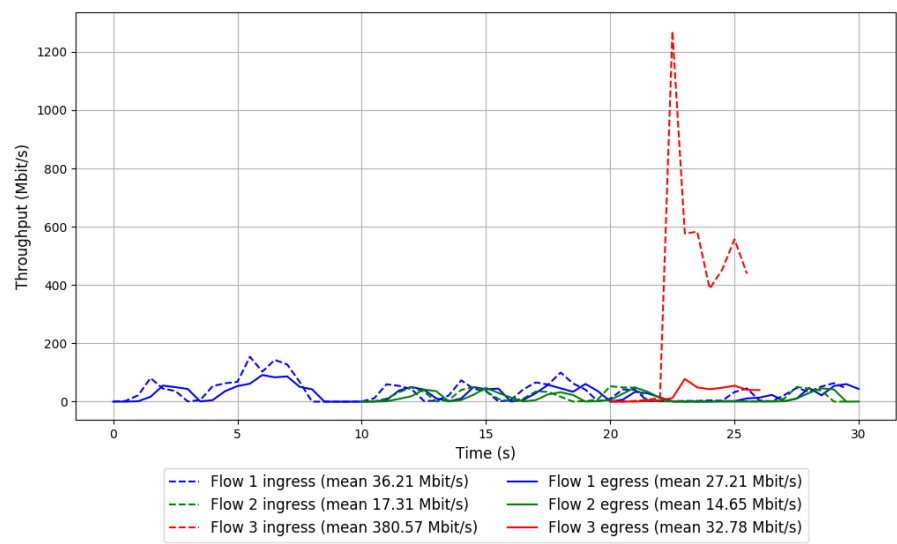
-- Flow 3:

Average throughput: 32.78 Mbit/s

95th percentile per-packet one-way delay: 184.105 ms

Loss rate: 91.33%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-06 10:53:33

End at: 2018-09-06 10:54:03

Local clock offset: 4.799 ms

Remote clock offset: 1.166 ms

Below is generated by plot.py at 2018-09-06 11:11:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 43.75 Mbit/s

95th percentile per-packet one-way delay: 154.248 ms

Loss rate: 75.71%

-- Flow 1:

Average throughput: 17.89 Mbit/s

95th percentile per-packet one-way delay: 113.518 ms

Loss rate: 20.15%

-- Flow 2:

Average throughput: 36.44 Mbit/s

95th percentile per-packet one-way delay: 157.059 ms

Loss rate: 84.55%

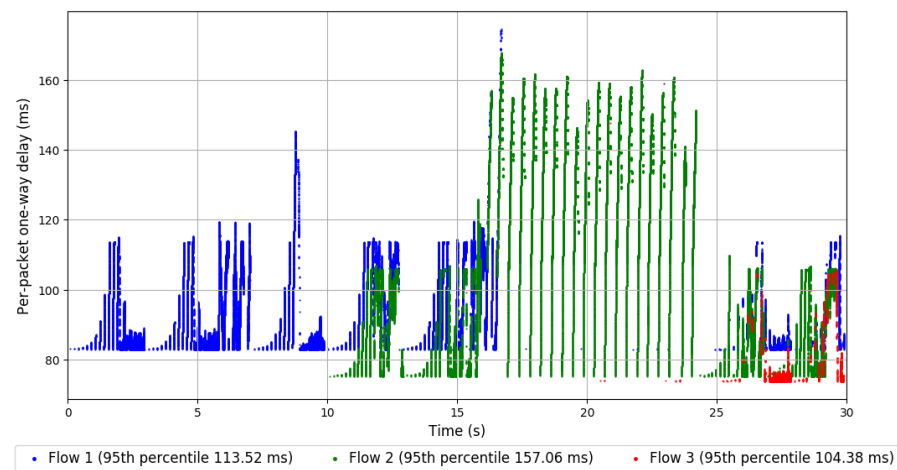
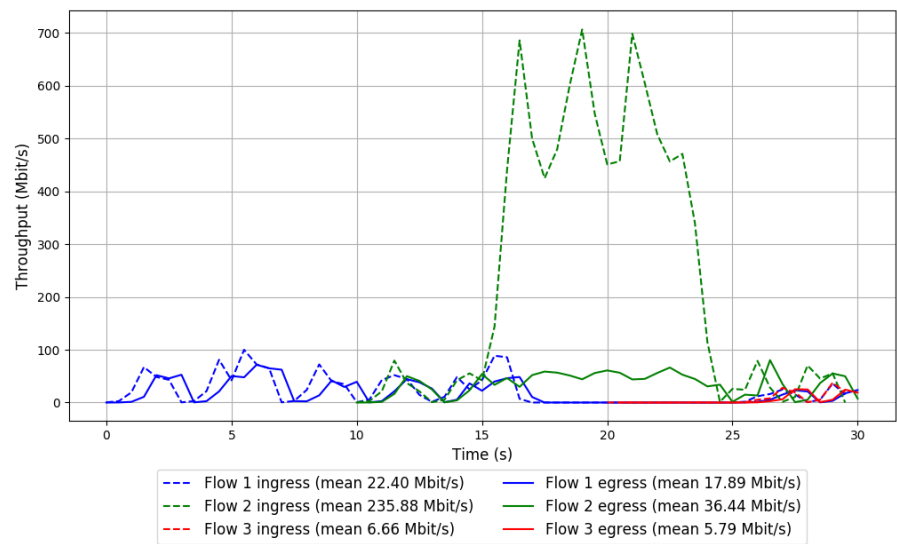
-- Flow 3:

Average throughput: 5.79 Mbit/s

95th percentile per-packet one-way delay: 104.378 ms

Loss rate: 13.00%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

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

End at: 2018-09-06 09:14:39

Local clock offset: 5.238 ms

Remote clock offset: 0.91 ms

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

Datalink statistics

-- Total of 3 flows:

Average throughput: 77.67 Mbit/s

95th percentile per-packet one-way delay: 101.317 ms

Loss rate: 0.91%

-- Flow 1:

Average throughput: 68.99 Mbit/s

95th percentile per-packet one-way delay: 102.895 ms

Loss rate: 0.71%

-- Flow 2:

Average throughput: 10.81 Mbit/s

95th percentile per-packet one-way delay: 89.868 ms

Loss rate: 1.99%

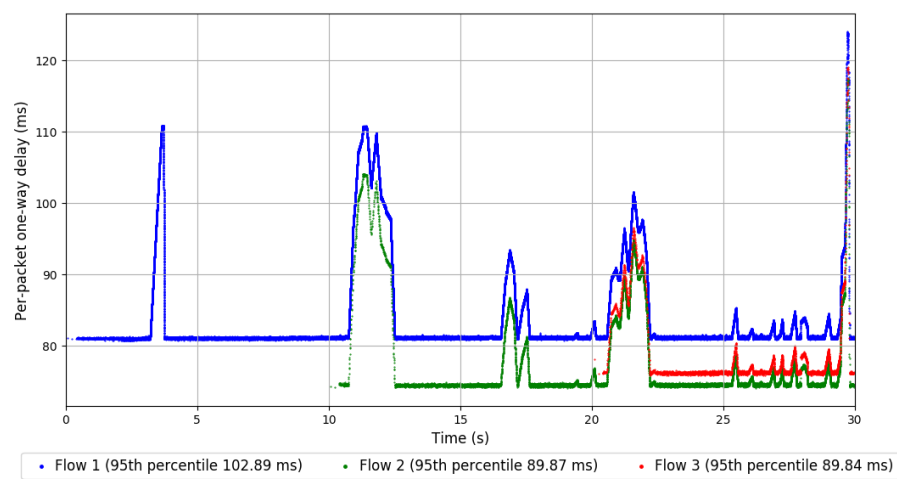
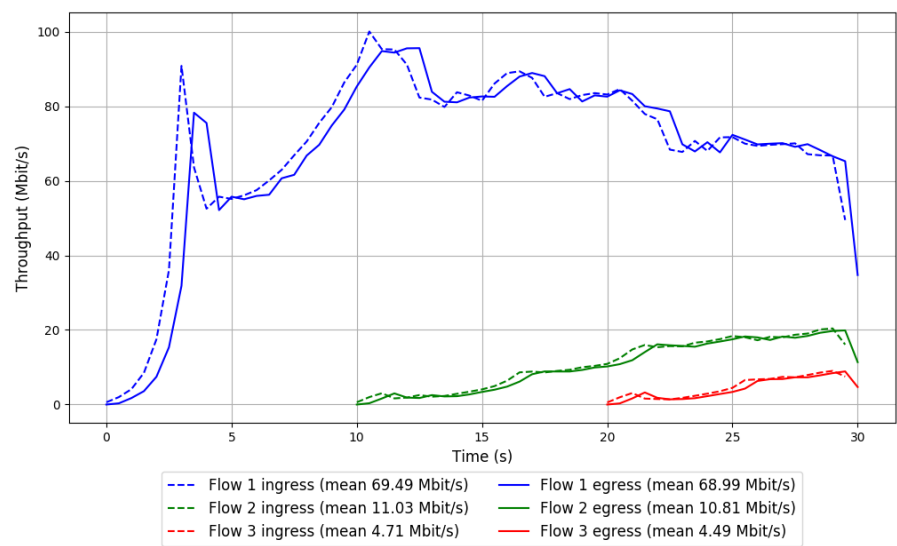
-- Flow 3:

Average throughput: 4.49 Mbit/s

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

Loss rate: 4.73%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

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

End at: 2018-09-06 09:37:39

Local clock offset: 3.641 ms

Remote clock offset: 1.846 ms

Below is generated by plot.py at 2018-09-06 11:11:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 78.51 Mbit/s

95th percentile per-packet one-way delay: 106.518 ms

Loss rate: 0.41%

-- Flow 1:

Average throughput: 70.25 Mbit/s

95th percentile per-packet one-way delay: 106.449 ms

Loss rate: 0.32%

-- Flow 2:

Average throughput: 8.26 Mbit/s

95th percentile per-packet one-way delay: 106.731 ms

Loss rate: 0.94%

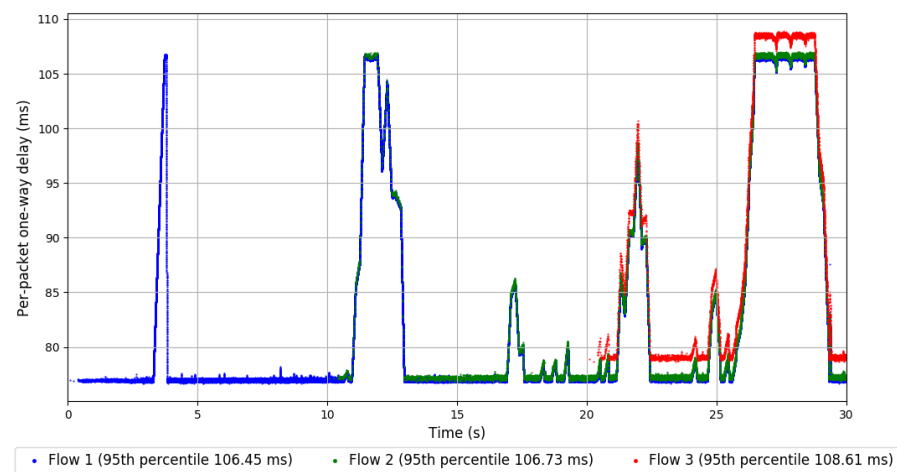
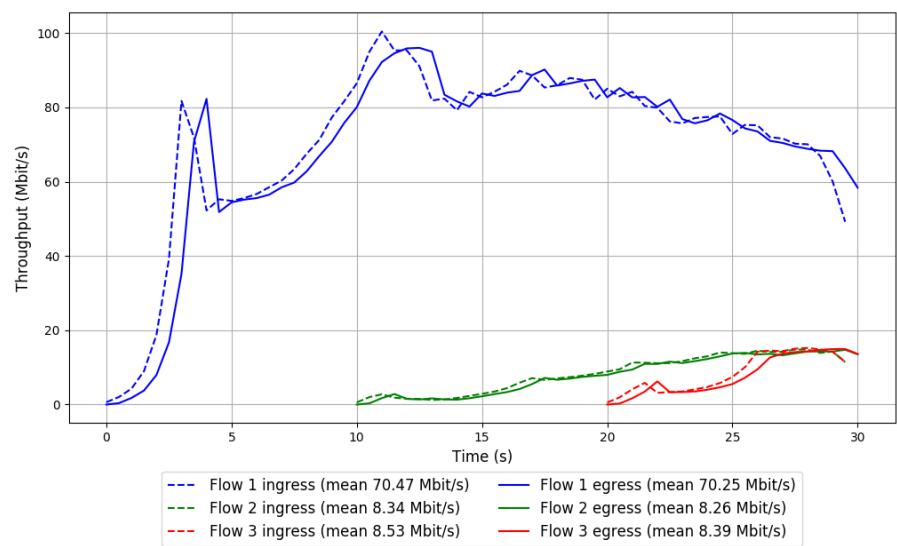
-- Flow 3:

Average throughput: 8.39 Mbit/s

95th percentile per-packet one-way delay: 108.608 ms

Loss rate: 1.62%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 10:00:16

End at: 2018-09-06 10:00:46

Local clock offset: 4.607 ms

Remote clock offset: 0.751 ms

Below is generated by plot.py at 2018-09-06 11:11:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 65.17 Mbit/s

95th percentile per-packet one-way delay: 103.449 ms

Loss rate: 2.43%

-- Flow 1:

Average throughput: 55.92 Mbit/s

95th percentile per-packet one-way delay: 103.402 ms

Loss rate: 1.87%

-- Flow 2:

Average throughput: 12.03 Mbit/s

95th percentile per-packet one-way delay: 104.966 ms

Loss rate: 5.32%

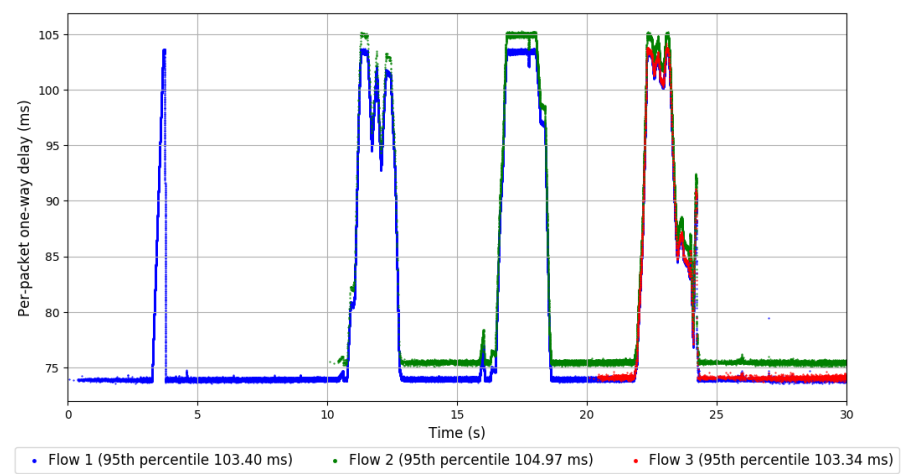
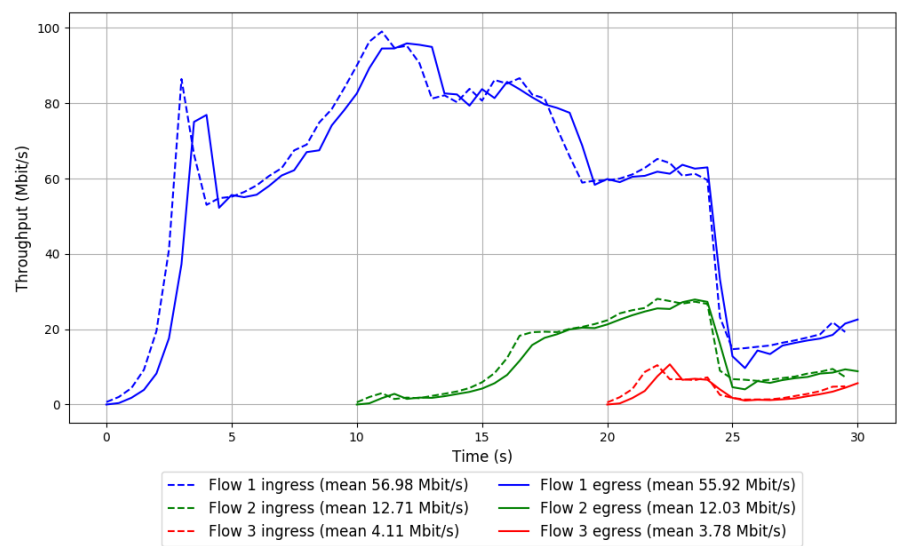
-- Flow 3:

Average throughput: 3.78 Mbit/s

95th percentile per-packet one-way delay: 103.340 ms

Loss rate: 8.11%

Run 3: Report of PCC-Vivace — Data Link

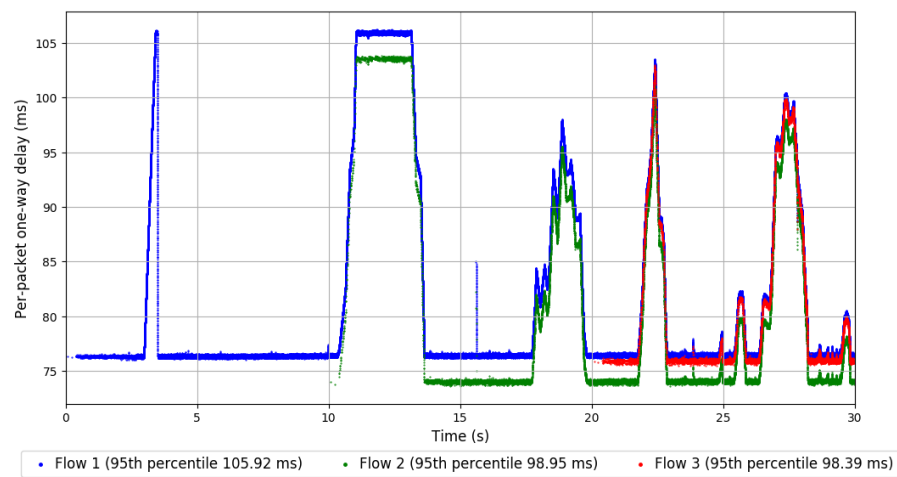
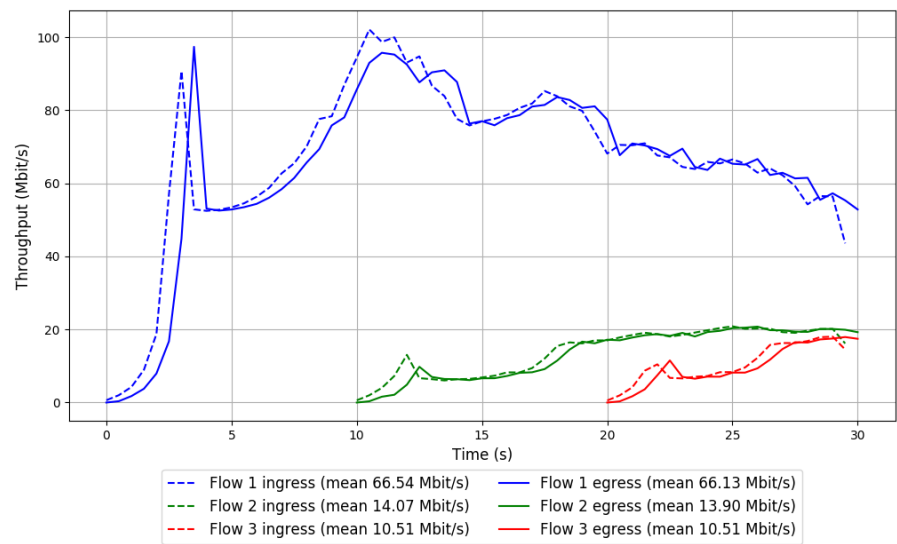


Run 4: Statistics of PCC-Vivace

Start at: 2018-09-06 10:22:59
End at: 2018-09-06 10:23:29
Local clock offset: 5.17 ms
Remote clock offset: -0.132 ms

Below is generated by plot.py at 2018-09-06 11:11:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 78.85 Mbit/s
95th percentile per-packet one-way delay: 105.897 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 66.13 Mbit/s
95th percentile per-packet one-way delay: 105.921 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 13.90 Mbit/s
95th percentile per-packet one-way delay: 98.953 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 10.51 Mbit/s
95th percentile per-packet one-way delay: 98.393 ms
Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-06 10:45:52

End at: 2018-09-06 10:46:22

Local clock offset: 5.668 ms

Remote clock offset: 2.068 ms

Below is generated by plot.py at 2018-09-06 11:11:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 79.15 Mbit/s

95th percentile per-packet one-way delay: 100.495 ms

Loss rate: 0.13%

-- Flow 1:

Average throughput: 71.82 Mbit/s

95th percentile per-packet one-way delay: 101.014 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 8.81 Mbit/s

95th percentile per-packet one-way delay: 88.378 ms

Loss rate: 0.37%

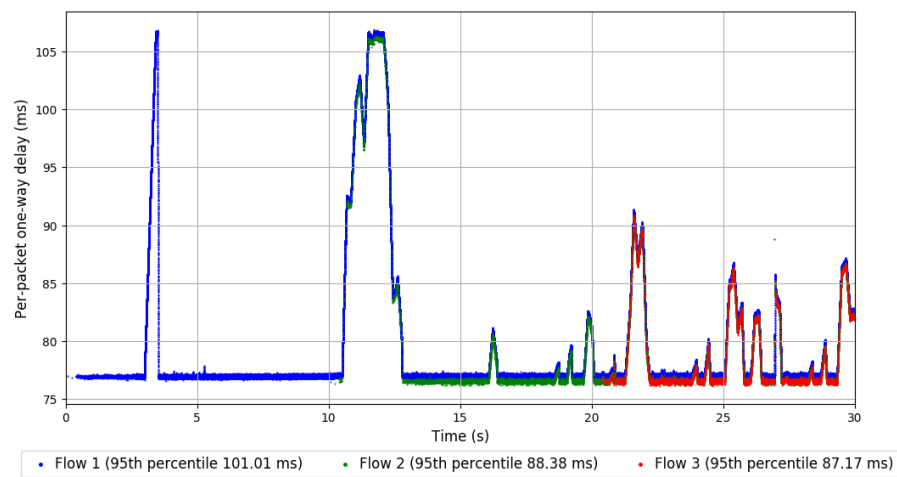
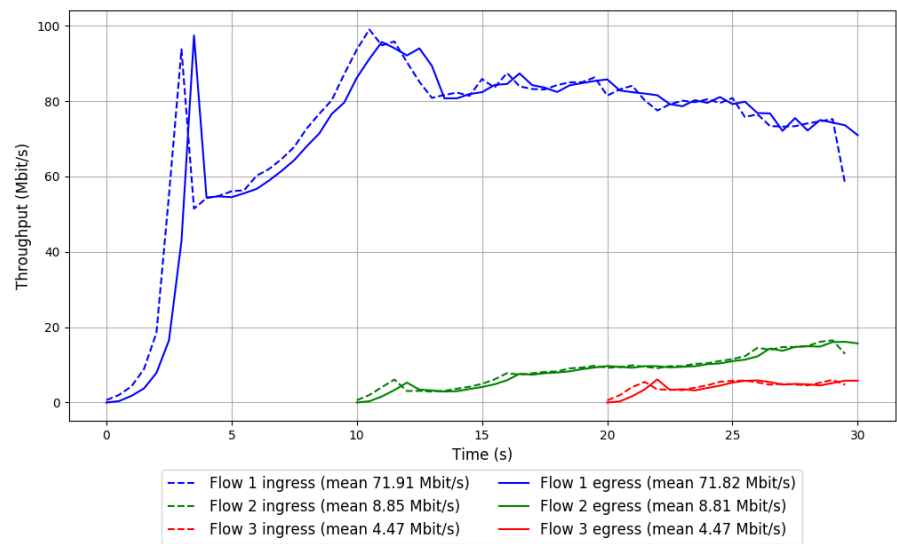
-- Flow 3:

Average throughput: 4.47 Mbit/s

95th percentile per-packet one-way delay: 87.166 ms

Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link

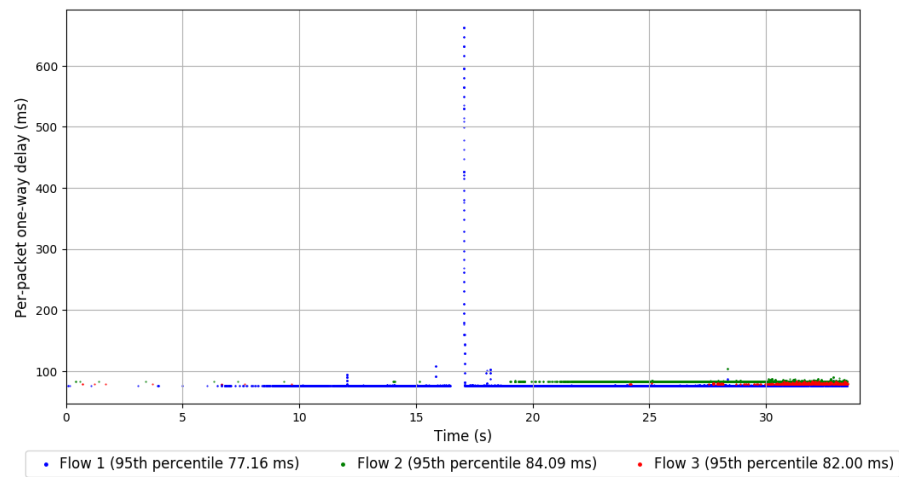
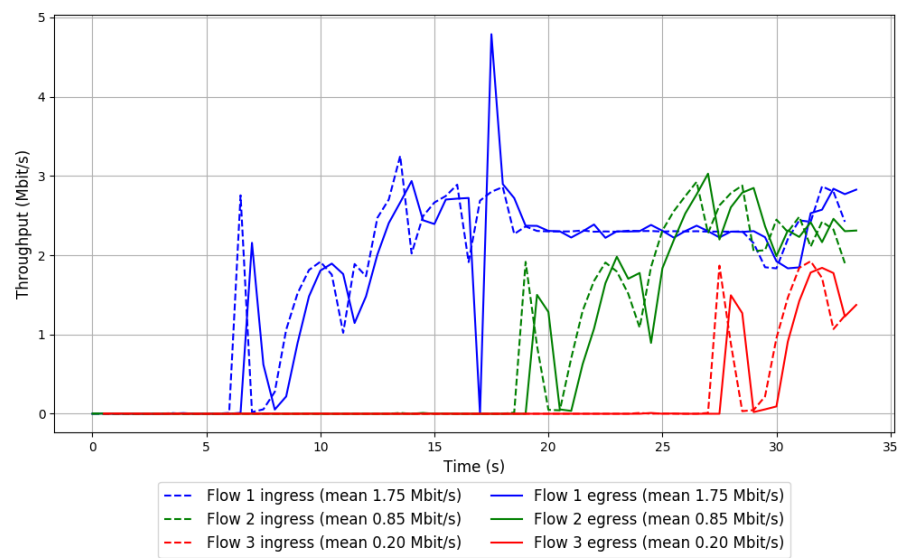


Run 1: Statistics of WebRTC media

Start at: 2018-09-06 09:28:00
End at: 2018-09-06 09:28:30
Local clock offset: 3.739 ms
Remote clock offset: -0.512 ms

Below is generated by plot.py at 2018-09-06 11:11:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 83.378 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 77.156 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 84.091 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 81.997 ms
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link

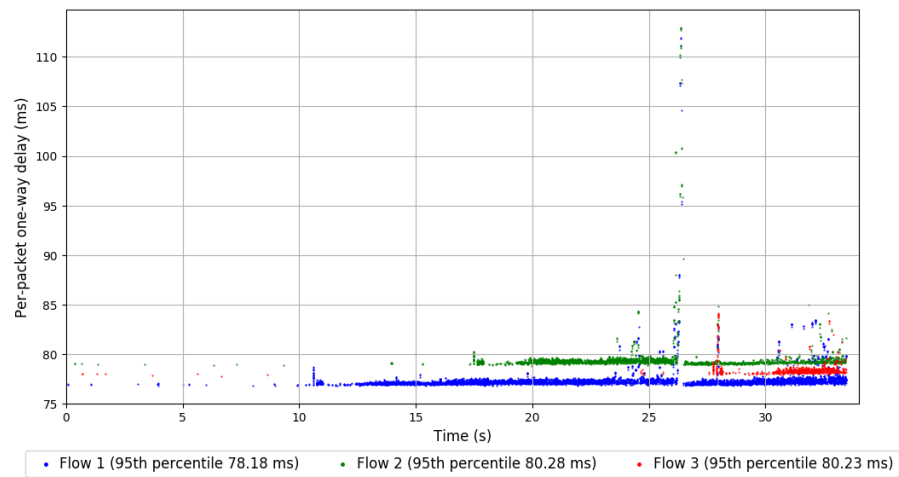
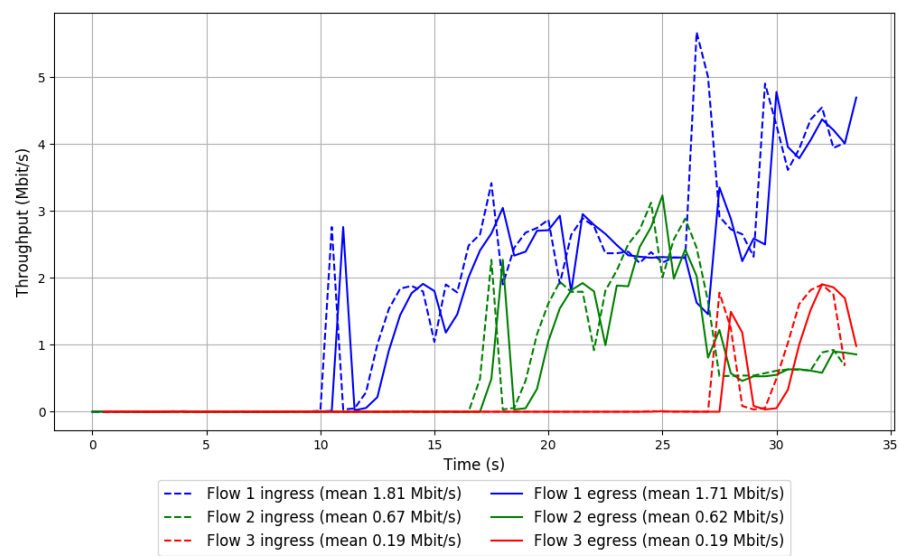


Run 2: Statistics of WebRTC media

Start at: 2018-09-06 09:51:18
End at: 2018-09-06 09:51:48
Local clock offset: 3.717 ms
Remote clock offset: -0.334 ms

Below is generated by plot.py at 2018-09-06 11:11:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 79.609 ms
Loss rate: 6.00%
-- Flow 1:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 78.181 ms
Loss rate: 5.76%
-- Flow 2:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 80.275 ms
Loss rate: 7.55%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 80.235 ms
Loss rate: 2.80%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-06 10:14:12

End at: 2018-09-06 10:14:42

Local clock offset: 4.647 ms

Remote clock offset: 0.873 ms

Below is generated by plot.py at 2018-09-06 11:11:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.69 Mbit/s

95th percentile per-packet one-way delay: 98.847 ms

Loss rate: 1.33%

-- Flow 1:

Average throughput: 1.64 Mbit/s

95th percentile per-packet one-way delay: 202.995 ms

Loss rate: 0.66%

-- Flow 2:

Average throughput: 0.81 Mbit/s

95th percentile per-packet one-way delay: 76.631 ms

Loss rate: 1.48%

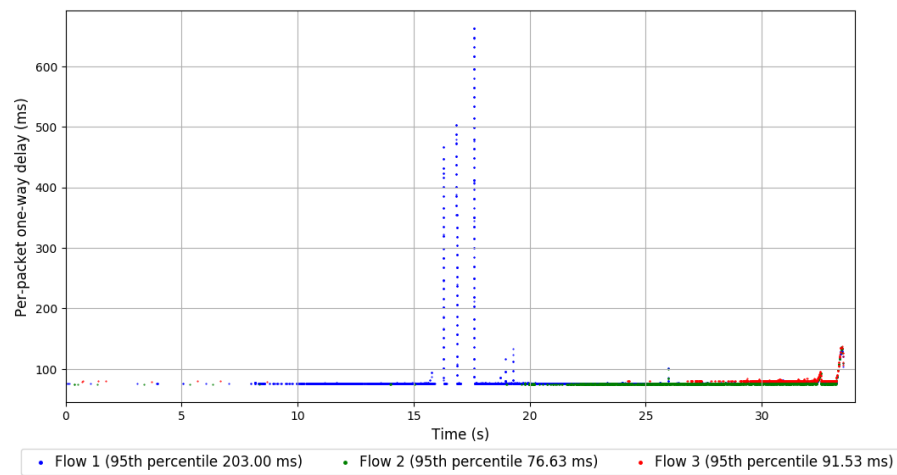
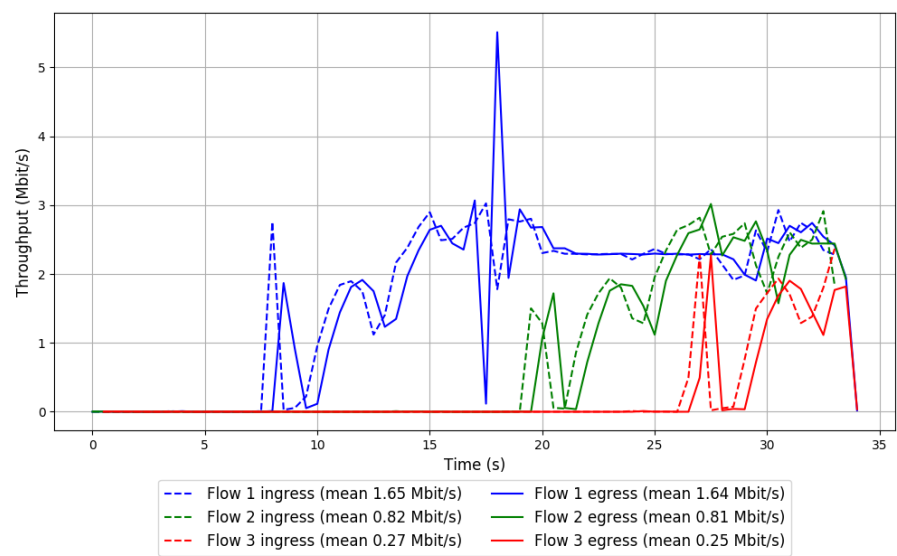
-- Flow 3:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 91.534 ms

Loss rate: 5.09%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-06 10:36:56

End at: 2018-09-06 10:37:26

Local clock offset: 4.761 ms

Remote clock offset: 1.005 ms

Below is generated by plot.py at 2018-09-06 11:11:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.10 Mbit/s

95th percentile per-packet one-way delay: 84.489 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.78 Mbit/s

95th percentile per-packet one-way delay: 77.739 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.07 Mbit/s

95th percentile per-packet one-way delay: 84.728 ms

Loss rate: 0.00%

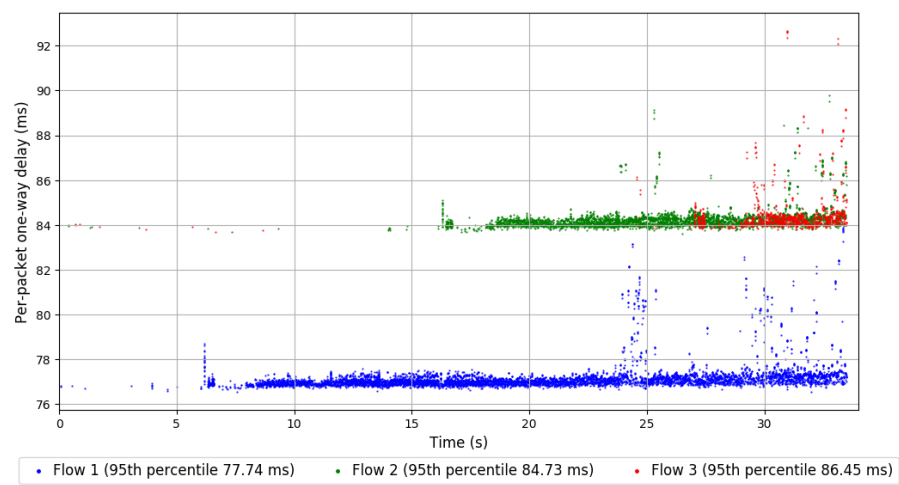
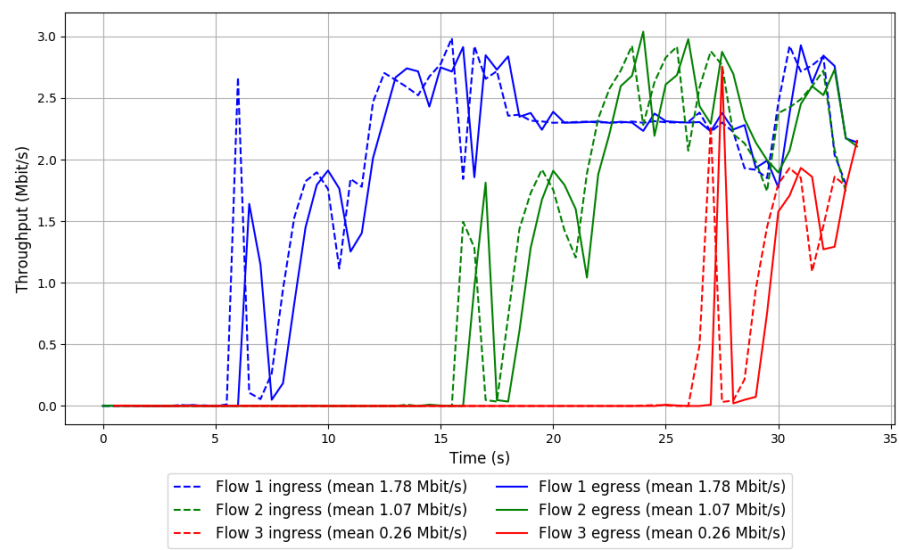
-- Flow 3:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 86.451 ms

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-06 10:59:52

End at: 2018-09-06 11:00:22

Local clock offset: 3.771 ms

Remote clock offset: 0.912 ms

Below is generated by plot.py at 2018-09-06 11:11:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.05 Mbit/s

95th percentile per-packet one-way delay: 77.162 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.77 Mbit/s

95th percentile per-packet one-way delay: 77.260 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.02 Mbit/s

95th percentile per-packet one-way delay: 75.769 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.28 Mbit/s

95th percentile per-packet one-way delay: 76.456 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

