

Pantheon Report

Generated at 2018-09-07 14:01:34 (UTC).

Data path: AWS Brazil 2 on `ens5` (*local*) → Colombia cellular on `ppp0` (*remote*).

Repeated the test of 18 congestion control schemes 3 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:

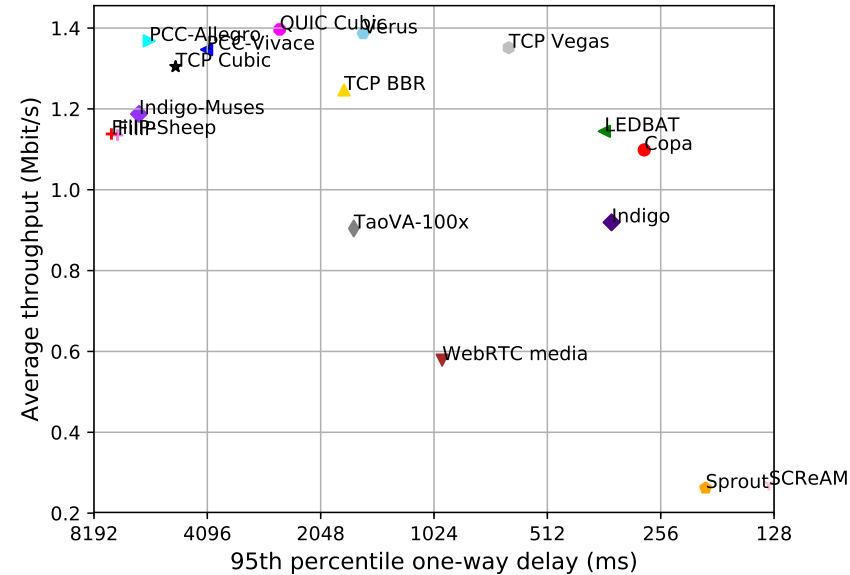
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912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

Git summary:

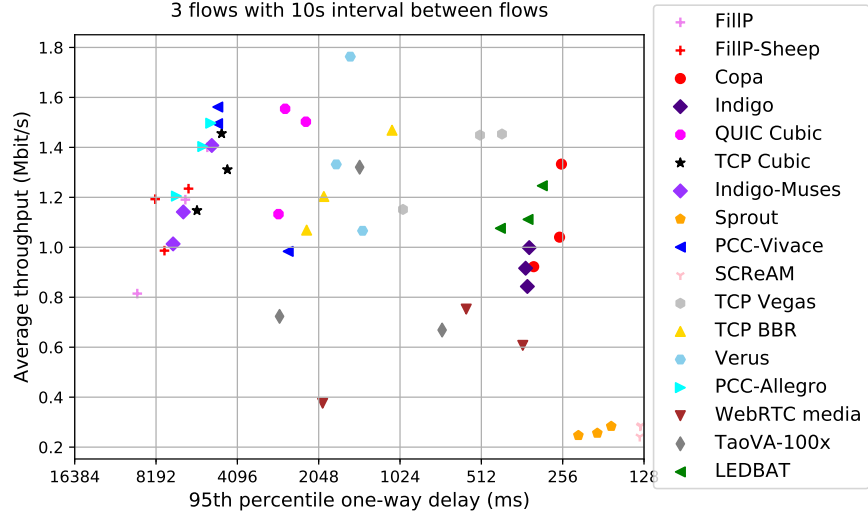
```
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
```

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

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



test from AWS Brazil 2 to Colombia cellular, 3 runs of 30s each per scheme
 3 flows with 10s interval between flows



scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	0.87	0.41	0.38	1804.58	1863.63	1616.89	1.23	4.35	13.05
Copa	3	0.81	0.56	0.44	292.89	266.57	278.57	0.36	0.56	1.34
TCP Cubic	3	1.26	0.07	0.00	4955.61	5045.08	4498.19	12.34	30.01	60.19
FillP	3	1.13	0.01	0.00	7103.55	6787.23	6321.57	94.65	19.61	86.82
FillP-Sheep	3	0.83	0.57	0.00	6184.71	7365.24	6939.04	38.37	79.86	83.81
Indigo	3	0.58	0.33	0.38	340.54	349.64	349.36	0.09	0.44	0.38
LEDBAT	3	0.87	0.28	0.30	351.50	381.75	544.48	0.38	0.22	0.91
Indigo-Muses	3	0.80	1.03	0.47	6042.43	5869.06	3458.25	93.07	81.47	70.43
PCC-Allegro	3	1.37	0.00	0.00	5841.37	5214.08	5878.47	46.26	0.00	45.01
PCC-Expr	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
QUIC Cubic	3	1.08	0.43	0.09	2560.26	2664.22	2627.18	6.69	14.62	45.83
SCReAM	3	0.08	0.19	0.20	118.19	137.89	134.22	0.08	0.26	0.44
Sprout	3	0.12	0.14	0.14	221.54	173.48	173.94	0.10	0.50	0.30
TaoVA-100x	3	0.41	0.53	0.50	955.69	1567.55	1965.84	29.81	3.92	9.85
TCP Vegas	3	0.72	0.62	0.67	530.36	647.13	711.51	0.29	0.57	2.69
Verus	3	1.27	0.18	0.02	1579.63	1497.16	1322.15	1.52	6.83	7.65
PCC-Vivace	3	0.59	1.13	0.00	3991.84	4163.37	3754.22	22.23	30.57	16.84
WebRTC media	3	0.26	0.25	0.08	930.38	923.72	1058.37	0.17	0.45	1.18

Run 1: Statistics of TCP BBR

Start at: 2018-09-07 13:08:40

End at: 2018-09-07 13:09:10

Local clock offset: 3.456 ms

Remote clock offset: 0.472 ms

Below is generated by plot.py at 2018-09-07 14:00:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.20 Mbit/s

95th percentile per-packet one-way delay: 1959.927 ms

Loss rate: 3.30%

-- Flow 1:

Average throughput: 0.91 Mbit/s

95th percentile per-packet one-way delay: 1959.395 ms

Loss rate: 1.95%

-- Flow 2:

Average throughput: 0.24 Mbit/s

95th percentile per-packet one-way delay: 2359.141 ms

Loss rate: 3.71%

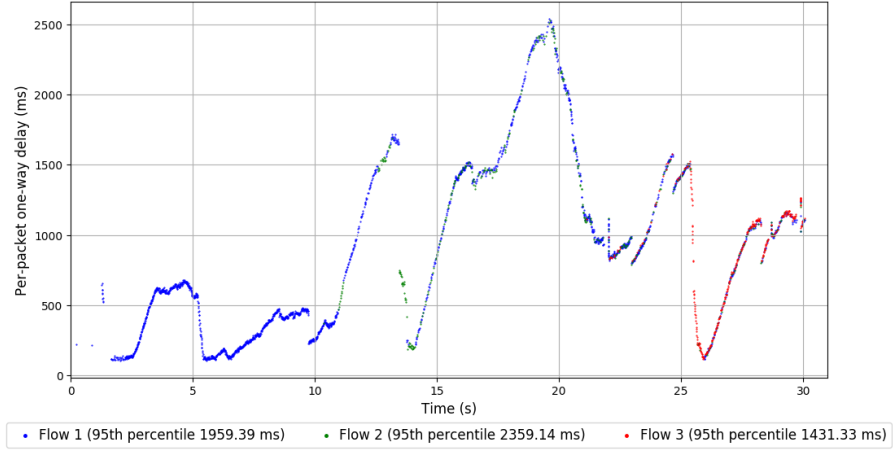
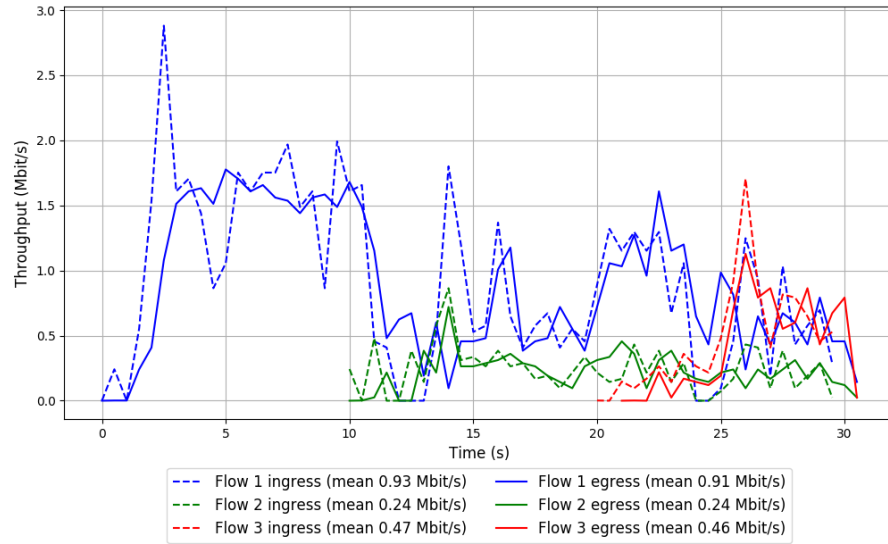
-- Flow 3:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 1431.327 ms

Loss rate: 10.85%

Run 1: Report of TCP BBR — Data Link

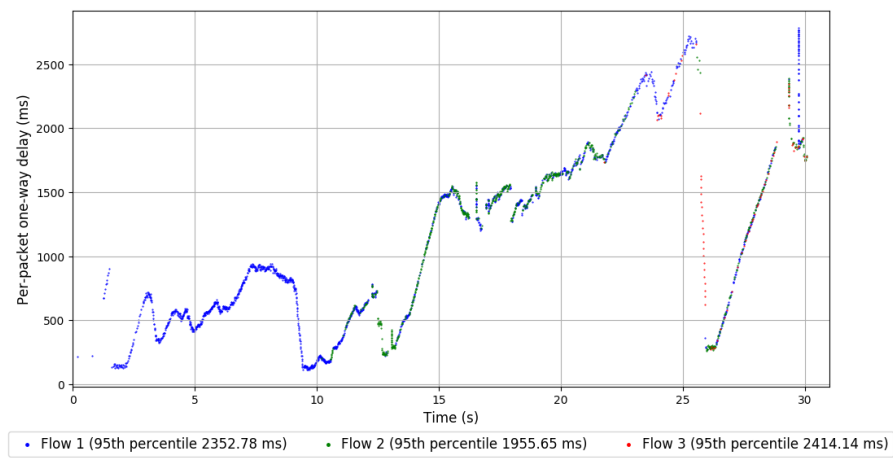
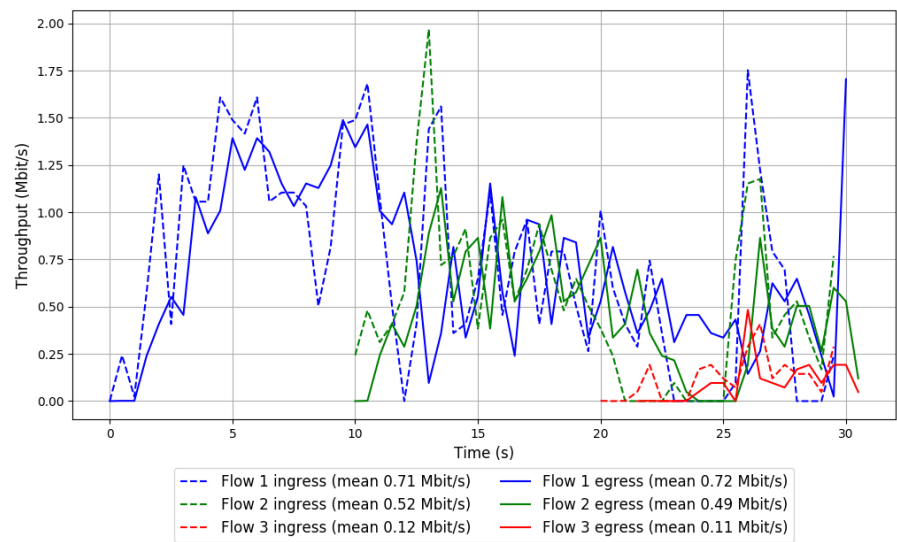


Run 2: Statistics of TCP BBR

Start at: 2018-09-07 13:30:46
End at: 2018-09-07 13:31:16
Local clock offset: 3.357 ms
Remote clock offset: -0.272 ms

Below is generated by plot.py at 2018-09-07 14:00:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 2269.476 ms
Loss rate: 3.48%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 2352.783 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 1955.652 ms
Loss rate: 7.37%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 2414.138 ms
Loss rate: 21.72%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-07 13:52:50

End at: 2018-09-07 13:53:20

Local clock offset: 3.701 ms

Remote clock offset: 4.333 ms

Below is generated by plot.py at 2018-09-07 14:00:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.47 Mbit/s

95th percentile per-packet one-way delay: 1095.992 ms

Loss rate: 2.04%

-- Flow 1:

Average throughput: 0.97 Mbit/s

95th percentile per-packet one-way delay: 1101.575 ms

Loss rate: 1.19%

-- Flow 2:

Average throughput: 0.49 Mbit/s

95th percentile per-packet one-way delay: 1276.094 ms

Loss rate: 1.97%

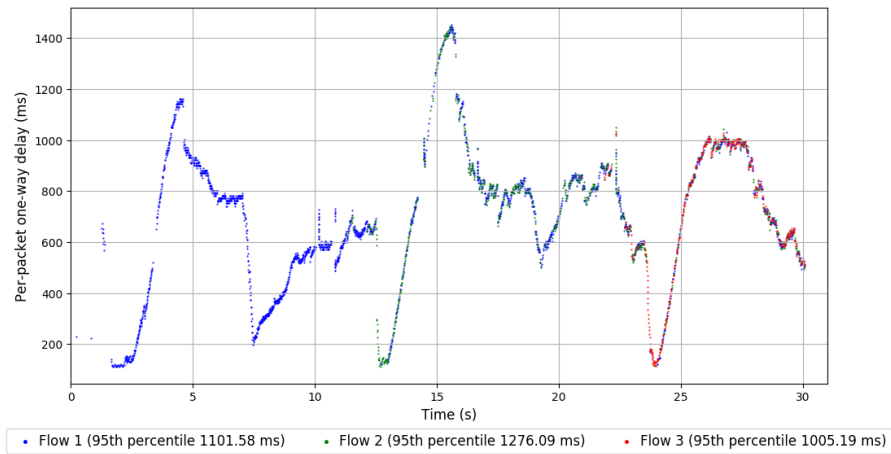
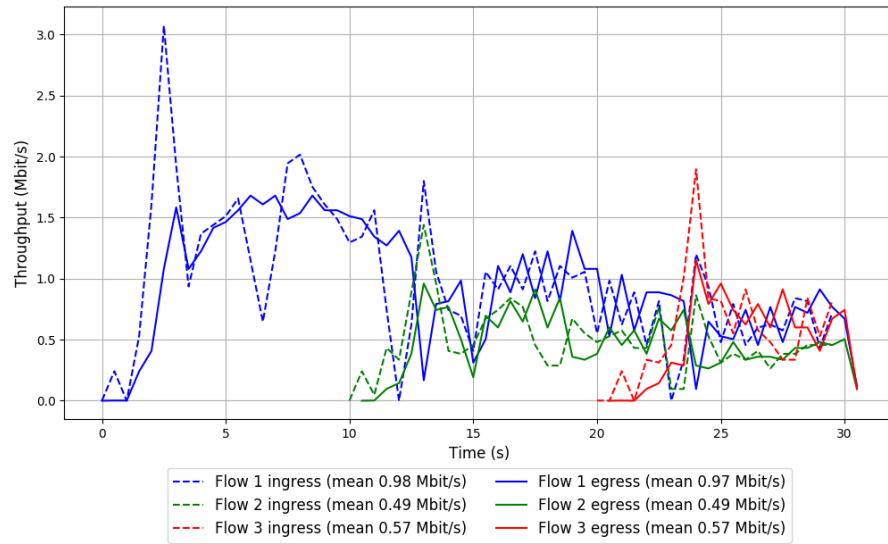
-- Flow 3:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 1005.190 ms

Loss rate: 6.59%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-09-07 13:04:59

End at: 2018-09-07 13:05:29

Local clock offset: 4.51 ms

Remote clock offset: 0.753 ms

Below is generated by plot.py at 2018-09-07 14:00:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.33 Mbit/s

95th percentile per-packet one-way delay: 258.702 ms

Loss rate: 0.63%

-- Flow 1:

Average throughput: 0.78 Mbit/s

95th percentile per-packet one-way delay: 268.713 ms

Loss rate: 0.41%

-- Flow 2:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 251.828 ms

Loss rate: 1.00%

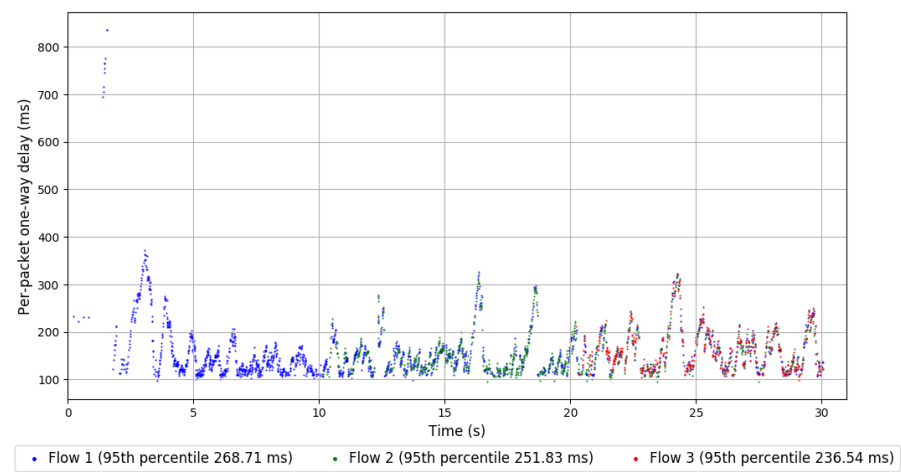
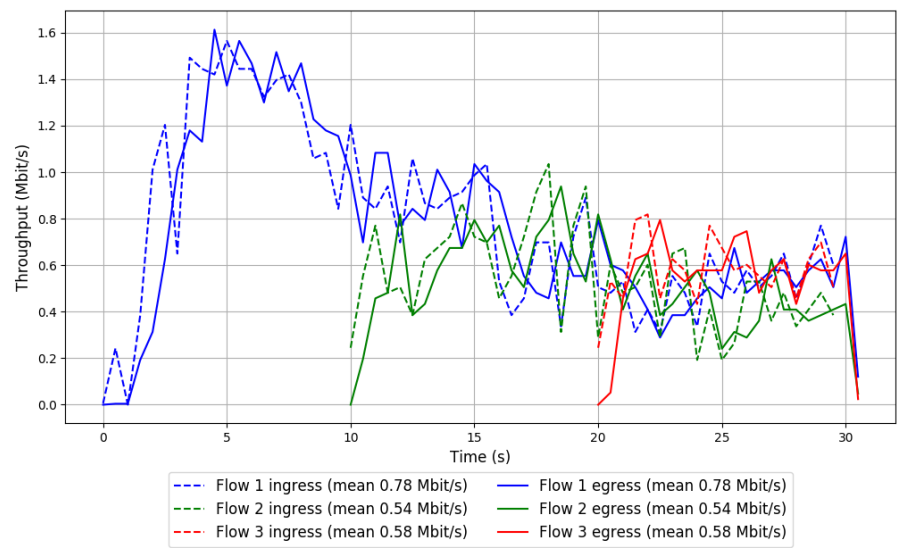
-- Flow 3:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 236.539 ms

Loss rate: 0.83%

Run 1: Report of Copa — Data Link

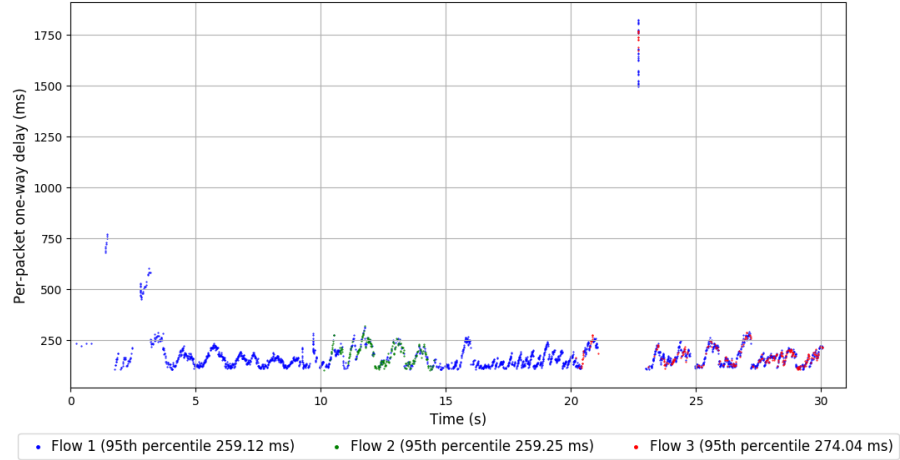
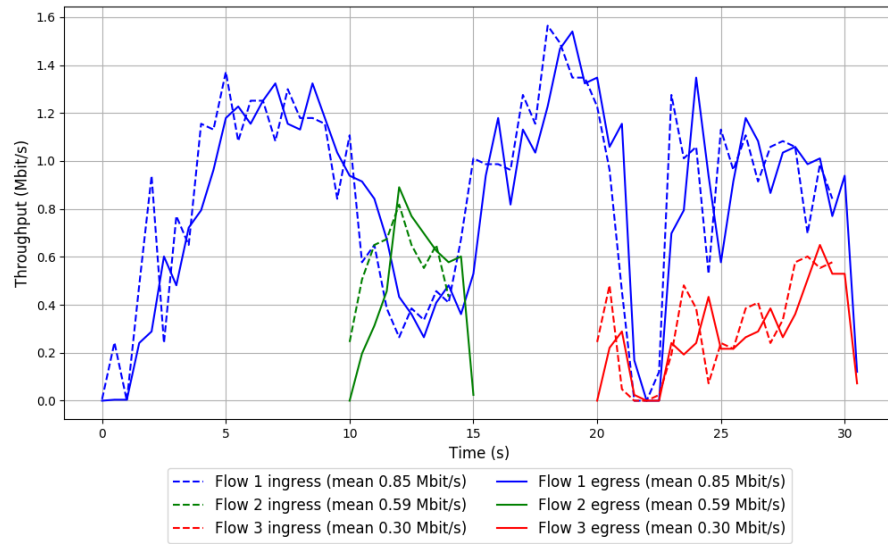


Run 2: Statistics of Copa

Start at: 2018-09-07 13:27:03
End at: 2018-09-07 13:27:33
Local clock offset: 4.2 ms
Remote clock offset: -0.174 ms

Below is generated by plot.py at 2018-09-07 14:00:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 262.879 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 259.118 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 259.246 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 274.041 ms
Loss rate: 2.38%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-07 13:49:09

End at: 2018-09-07 13:49:39

Local clock offset: 4.299 ms

Remote clock offset: 5.345 ms

Below is generated by plot.py at 2018-09-07 14:00:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.92 Mbit/s

95th percentile per-packet one-way delay: 327.743 ms

Loss rate: 0.35%

-- Flow 1:

Average throughput: 0.79 Mbit/s

95th percentile per-packet one-way delay: 350.847 ms

Loss rate: 0.30%

-- Flow 2:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 288.651 ms

Loss rate: 0.21%

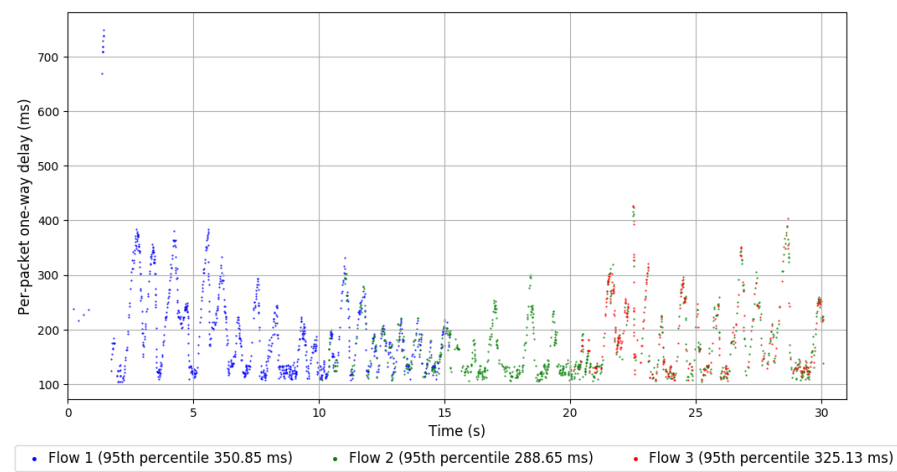
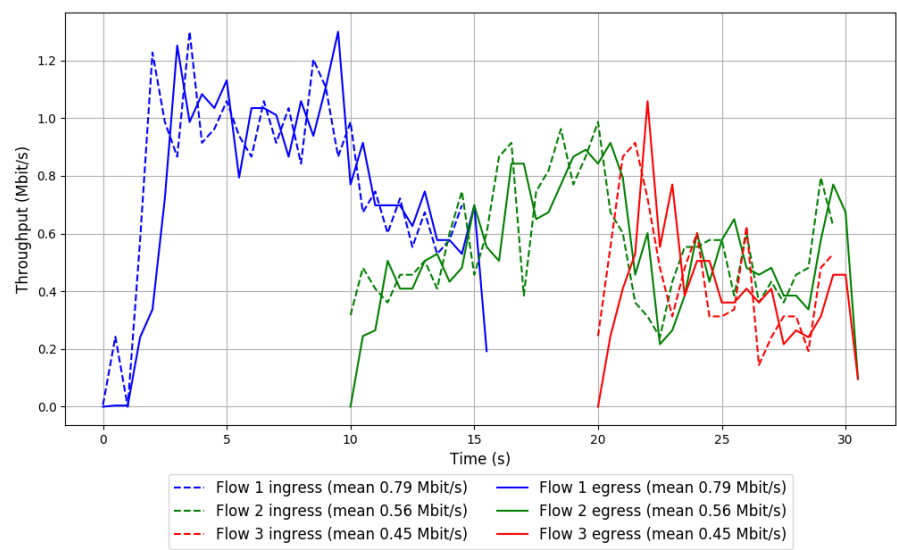
-- Flow 3:

Average throughput: 0.45 Mbit/s

95th percentile per-packet one-way delay: 325.133 ms

Loss rate: 0.80%

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-07 13:00:04

End at: 2018-09-07 13:00:34

Local clock offset: 4.876 ms

Remote clock offset: 5.249 ms

Below is generated by plot.py at 2018-09-07 14:00:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.15 Mbit/s

95th percentile per-packet one-way delay: 5778.236 ms

Loss rate: 14.04%

-- Flow 1:

Average throughput: 1.10 Mbit/s

95th percentile per-packet one-way delay: 5782.571 ms

Loss rate: 13.09%

-- Flow 2:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 5671.062 ms

Loss rate: 30.90%

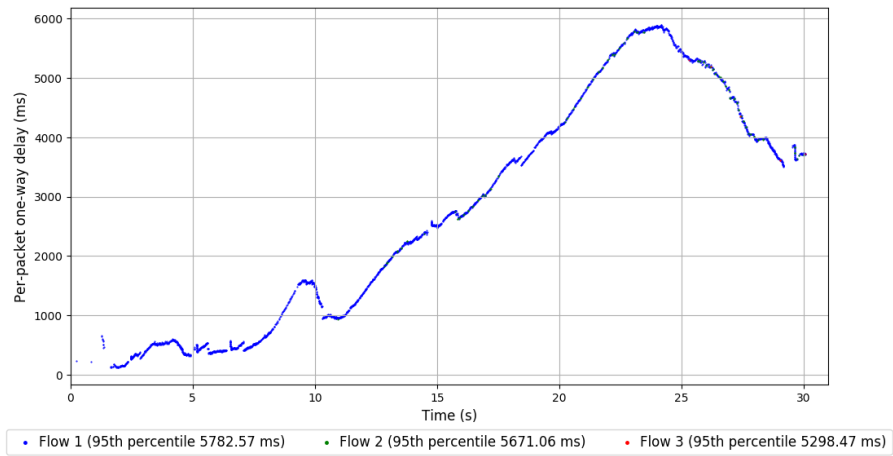
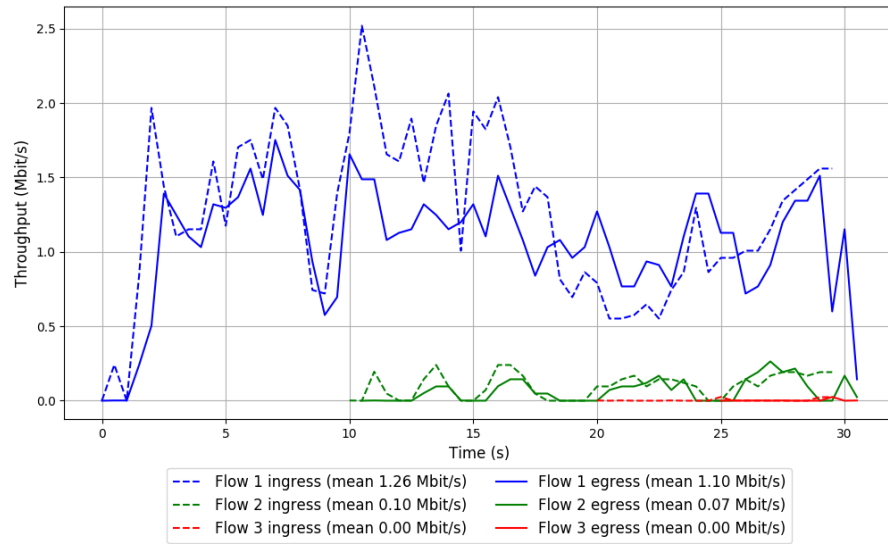
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 5298.474 ms

Loss rate: 61.12%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-07 13:22:08

End at: 2018-09-07 13:22:38

Local clock offset: 3.416 ms

Remote clock offset: 0.096 ms

Below is generated by plot.py at 2018-09-07 14:00:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.31 Mbit/s

95th percentile per-packet one-way delay: 4459.896 ms

Loss rate: 13.87%

-- Flow 1:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 4430.320 ms

Loss rate: 12.68%

-- Flow 2:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 4685.650 ms

Loss rate: 34.83%

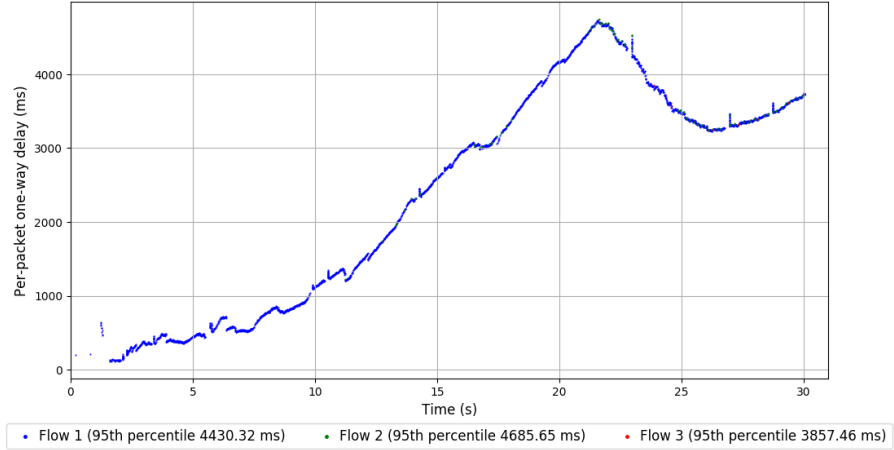
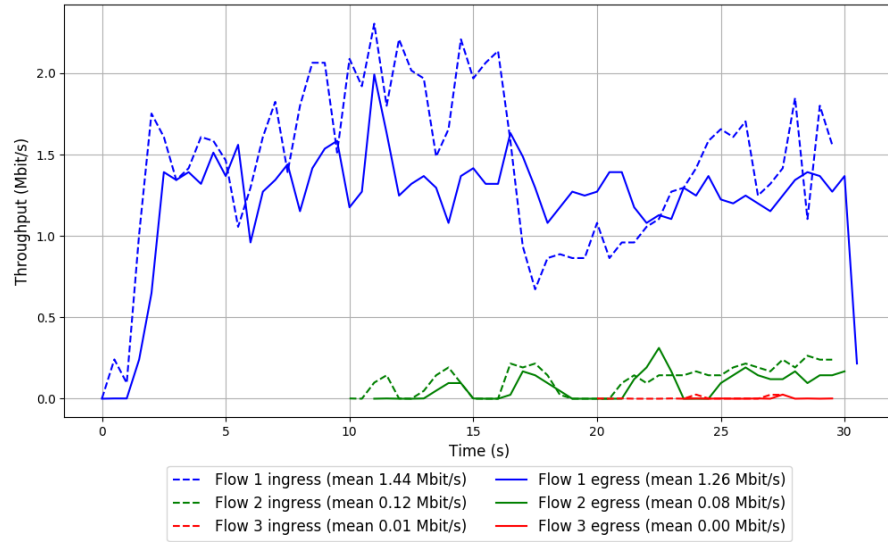
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 3857.459 ms

Loss rate: 60.08%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-07 13:44:15

End at: 2018-09-07 13:44:45

Local clock offset: 4.069 ms

Remote clock offset: 4.131 ms

Below is generated by plot.py at 2018-09-07 14:00:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.46 Mbit/s

95th percentile per-packet one-way delay: 4684.103 ms

Loss rate: 11.79%

-- Flow 1:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 4653.948 ms

Loss rate: 11.26%

-- Flow 2:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 4778.531 ms

Loss rate: 24.30%

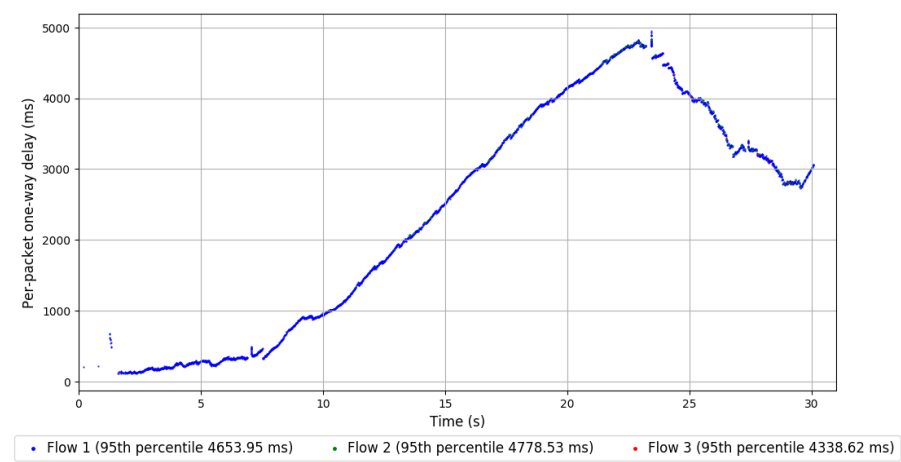
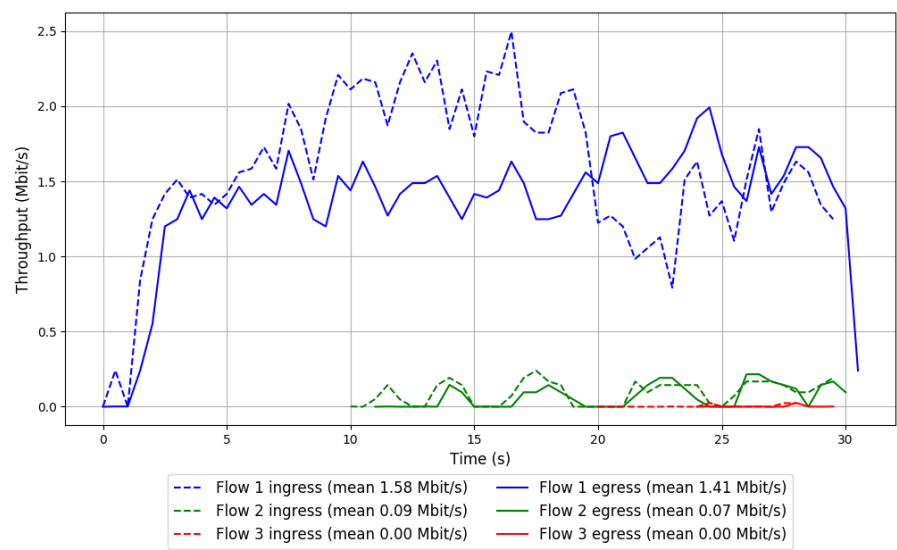
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 4338.622 ms

Loss rate: 59.38%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-09-07 13:07:26

End at: 2018-09-07 13:07:56

Local clock offset: 3.587 ms

Remote clock offset: 3.821 ms

Below is generated by plot.py at 2018-09-07 14:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.19 Mbit/s

95th percentile per-packet one-way delay: 6381.261 ms

Loss rate: 94.74%

-- Flow 1:

Average throughput: 1.19 Mbit/s

95th percentile per-packet one-way delay: 6390.897 ms

Loss rate: 94.75%

-- Flow 2:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 6059.467 ms

Loss rate: 13.18%

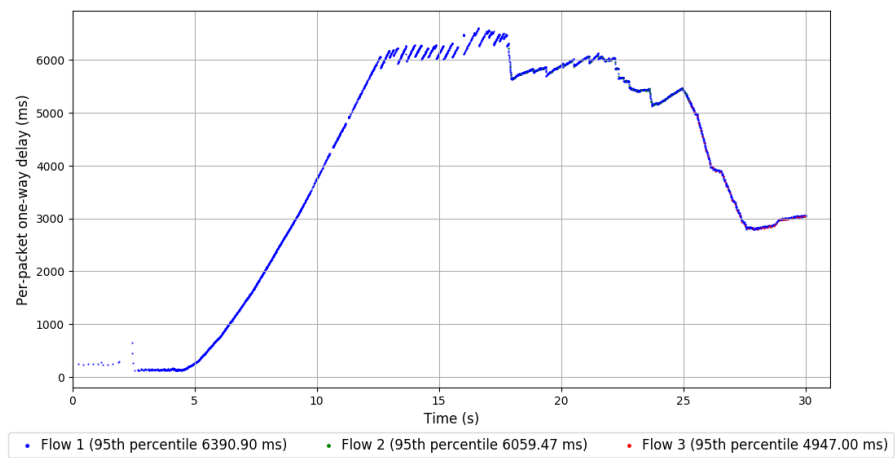
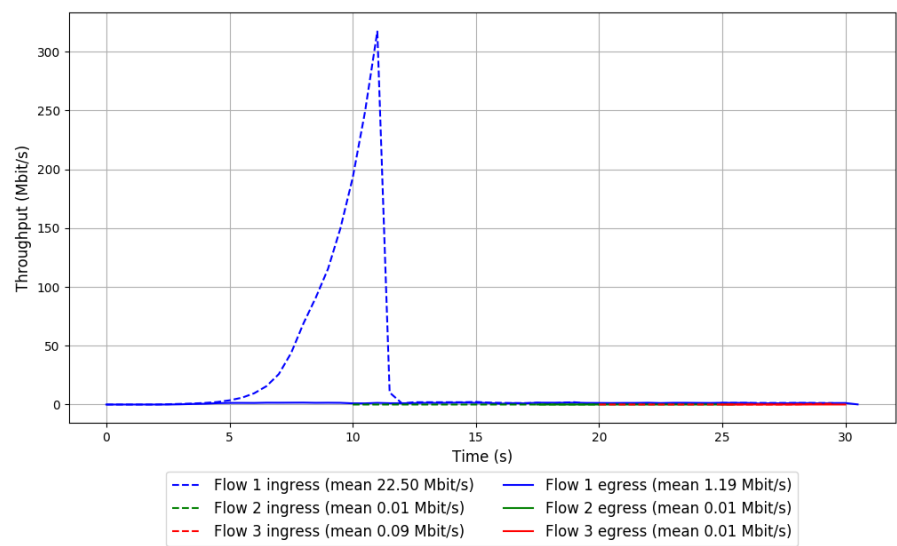
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 4947.004 ms

Loss rate: 93.43%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-07 13:29:32

End at: 2018-09-07 13:30:02

Local clock offset: 4.13 ms

Remote clock offset: 5.118 ms

Below is generated by plot.py at 2018-09-07 14:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.81 Mbit/s

95th percentile per-packet one-way delay: 9611.770 ms

Loss rate: 95.61%

-- Flow 1:

Average throughput: 0.81 Mbit/s

95th percentile per-packet one-way delay: 9628.900 ms

Loss rate: 95.62%

-- Flow 2:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 9329.790 ms

Loss rate: 25.20%

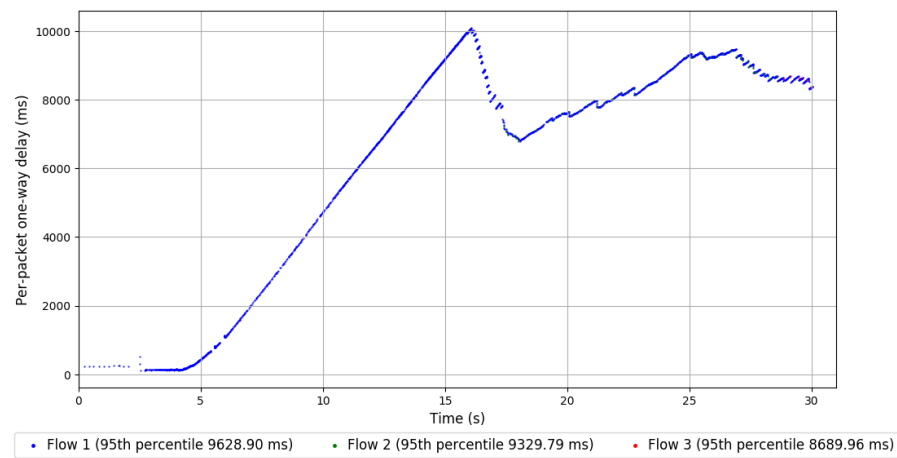
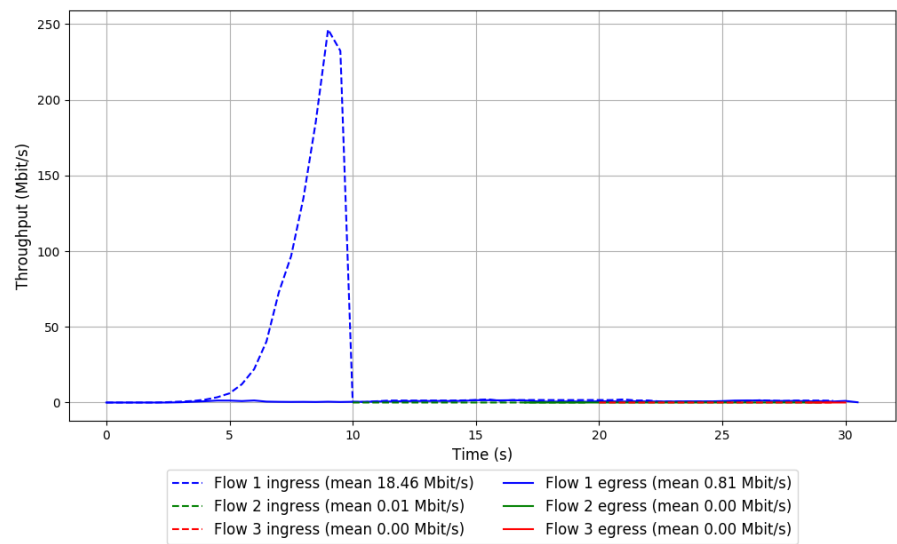
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 8689.960 ms

Loss rate: 90.29%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-07 13:51:36

End at: 2018-09-07 13:52:06

Local clock offset: 3.709 ms

Remote clock offset: 0.095 ms

Below is generated by plot.py at 2018-09-07 14:01:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 5291.353 ms

Loss rate: 93.57%

-- Flow 1:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 5290.857 ms

Loss rate: 93.58%

-- Flow 2:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 4972.420 ms

Loss rate: 20.45%

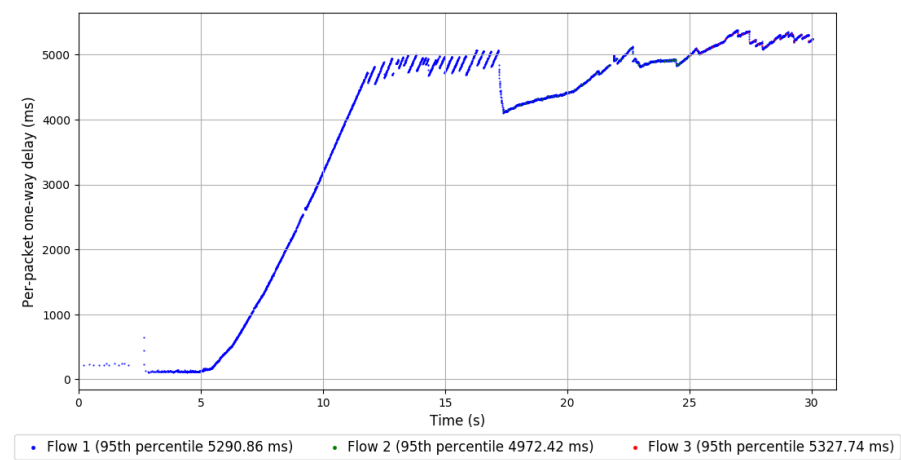
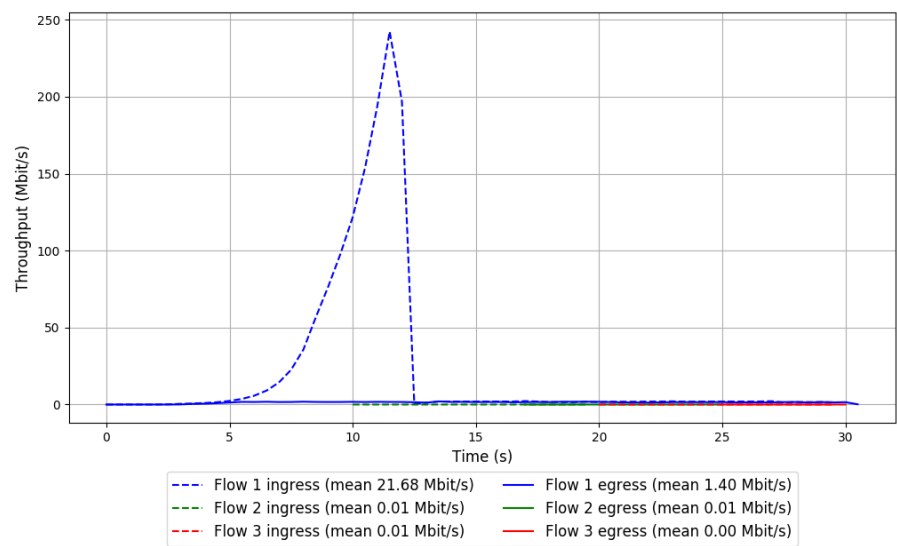
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 5327.738 ms

Loss rate: 76.73%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-07 13:06:12

End at: 2018-09-07 13:06:42

Local clock offset: 4.418 ms

Remote clock offset: 0.701 ms

Below is generated by plot.py at 2018-09-07 14:01:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.19 Mbit/s

95th percentile per-packet one-way delay: 8251.606 ms

Loss rate: 60.37%

-- Flow 1:

Average throughput: 0.83 Mbit/s

95th percentile per-packet one-way delay: 4755.283 ms

Loss rate: 29.10%

-- Flow 2:

Average throughput: 0.64 Mbit/s

95th percentile per-packet one-way delay: 8372.501 ms

Loss rate: 80.24%

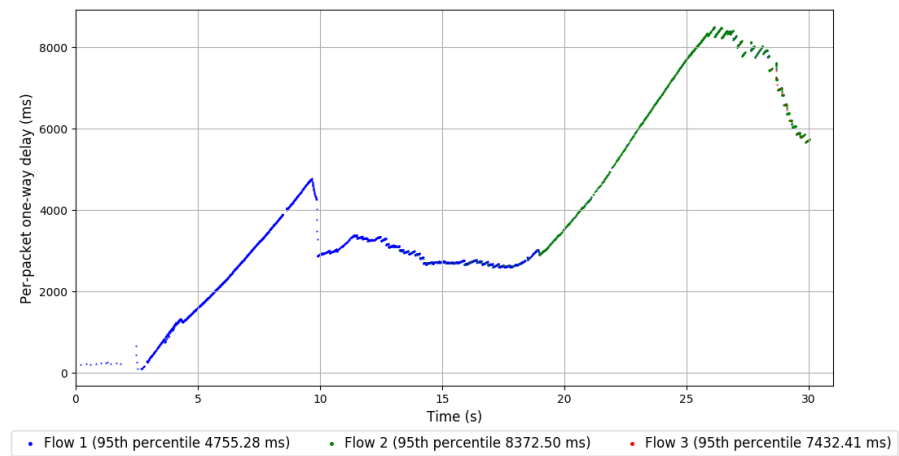
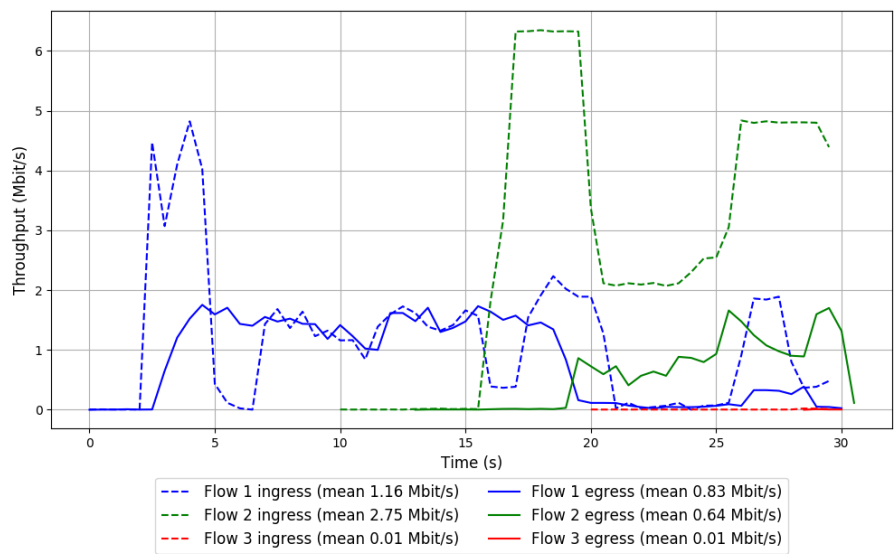
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 7432.413 ms

Loss rate: 84.33%

Run 1: Report of FillP-Sheep — Data Link

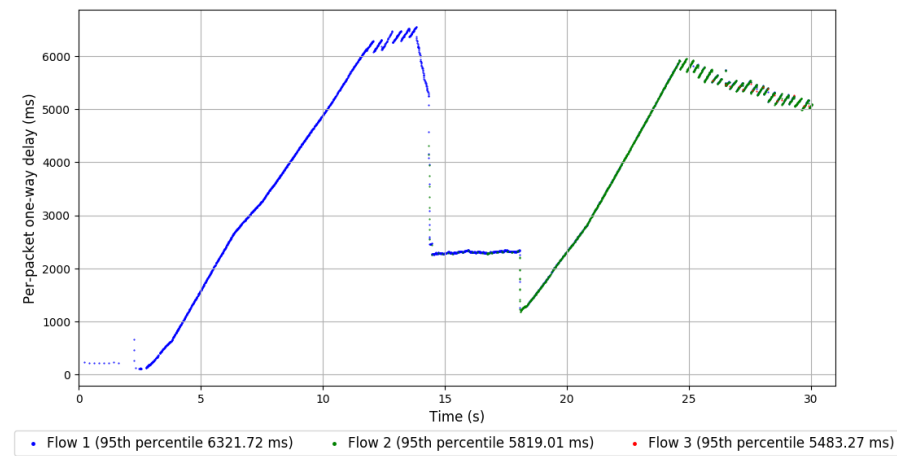
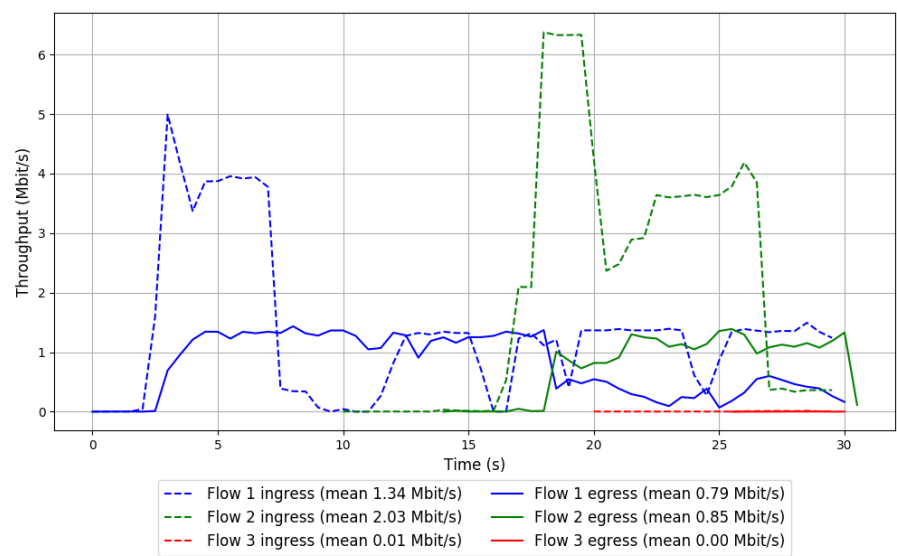


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-07 13:28:18
End at: 2018-09-07 13:28:48
Local clock offset: 4.196 ms
Remote clock offset: -0.275 ms

Below is generated by plot.py at 2018-09-07 14:01:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 6210.446 ms
Loss rate: 54.27%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 6321.724 ms
Loss rate: 41.30%
-- Flow 2:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 5819.010 ms
Loss rate: 67.05%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 5483.265 ms
Loss rate: 81.45%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-07 13:50:23

End at: 2018-09-07 13:50:53

Local clock offset: 4.429 ms

Remote clock offset: 4.165 ms

Below is generated by plot.py at 2018-09-07 14:01:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.99 Mbit/s

95th percentile per-packet one-way delay: 7624.216 ms

Loss rate: 67.21%

-- Flow 1:

Average throughput: 0.88 Mbit/s

95th percentile per-packet one-way delay: 7477.135 ms

Loss rate: 44.72%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 7904.220 ms

Loss rate: 92.28%

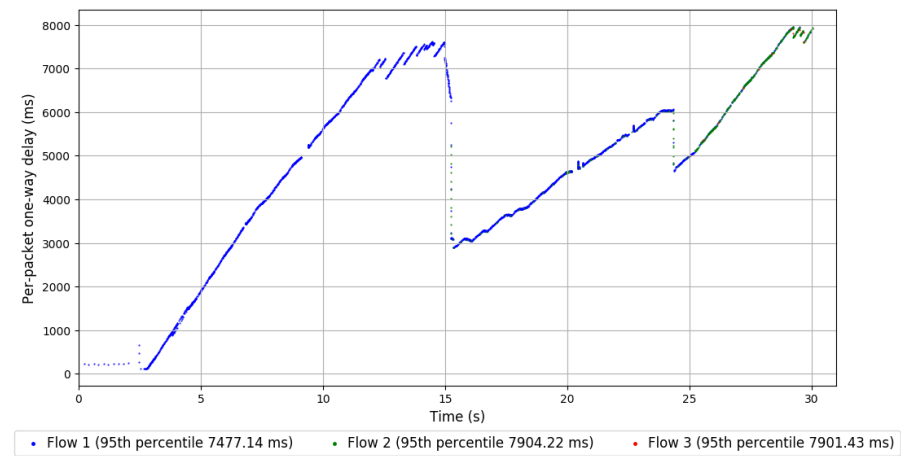
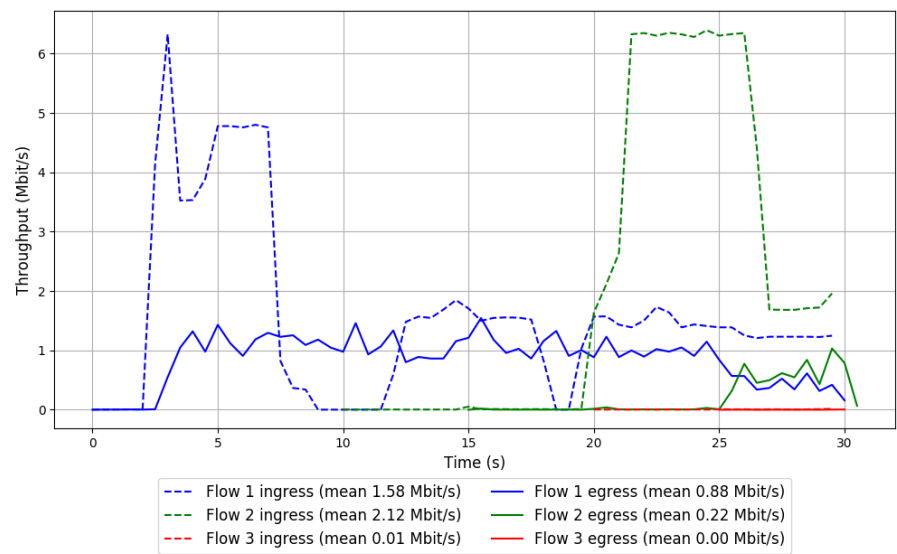
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 7901.434 ms

Loss rate: 85.64%

Run 3: Report of FillP-Sheep — Data Link

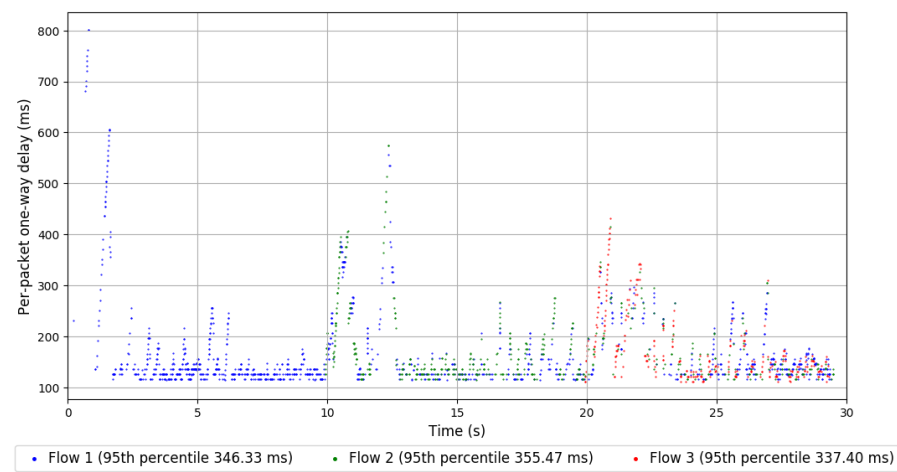
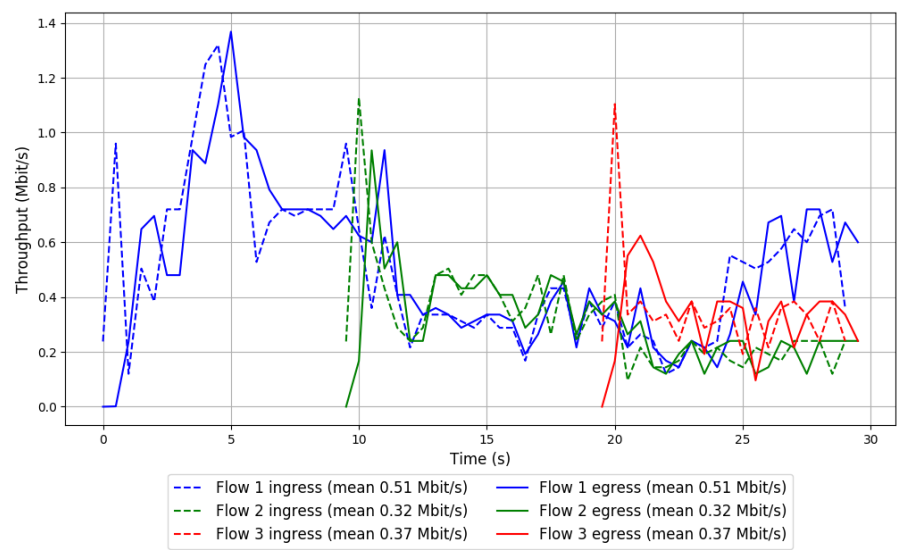


```
Run 1: Statistics of Indigo

Start at: 2018-09-07 12:58:50
End at: 2018-09-07 12:59:20
Local clock offset: 4.257 ms
Remote clock offset: 0.936 ms

# Below is generated by plot.py at 2018-09-07 14:01:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 345.881 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 346.330 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 355.467 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 337.401 ms
Loss rate: 0.69%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-07 13:20:54

End at: 2018-09-07 13:21:24

Local clock offset: 3.397 ms

Remote clock offset: 3.248 ms

Below is generated by plot.py at 2018-09-07 14:01:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.92 Mbit/s

95th percentile per-packet one-way delay: 351.038 ms

Loss rate: 0.31%

-- Flow 1:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 331.110 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 315.819 ms

Loss rate: 0.58%

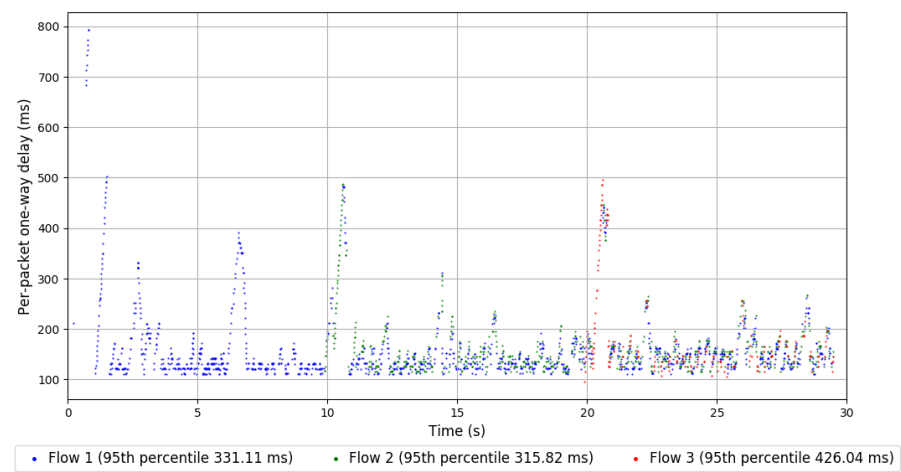
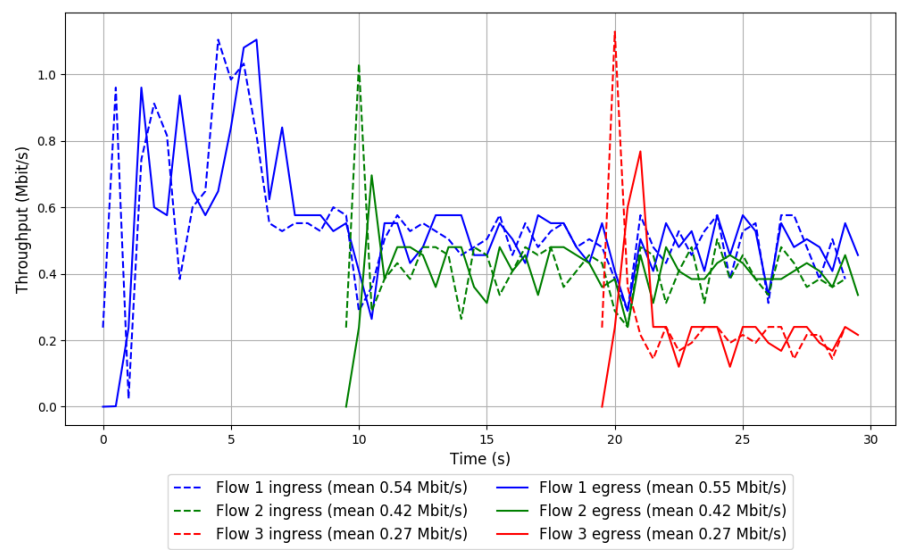
-- Flow 3:

Average throughput: 0.27 Mbit/s

95th percentile per-packet one-way delay: 426.040 ms

Loss rate: 0.46%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-07 13:43:02

End at: 2018-09-07 13:43:32

Local clock offset: 4.097 ms

Remote clock offset: -0.1 ms

Below is generated by plot.py at 2018-09-07 14:01:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.00 Mbit/s

95th percentile per-packet one-way delay: 340.462 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 0.68 Mbit/s

95th percentile per-packet one-way delay: 344.176 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 377.644 ms

Loss rate: 0.75%

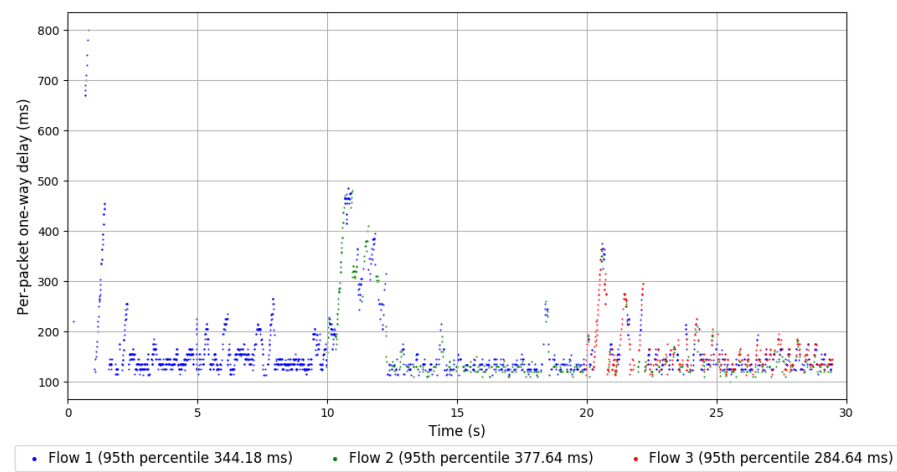
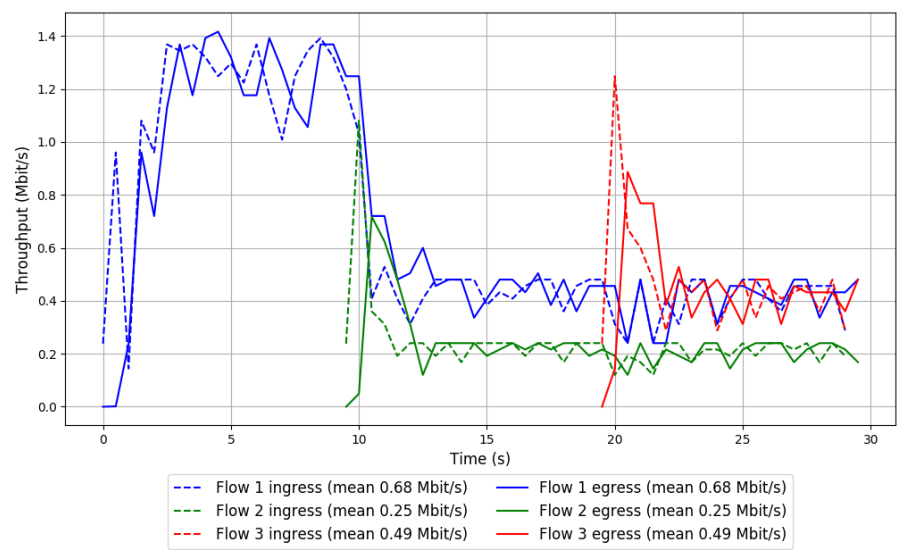
-- Flow 3:

Average throughput: 0.49 Mbit/s

95th percentile per-packet one-way delay: 284.642 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

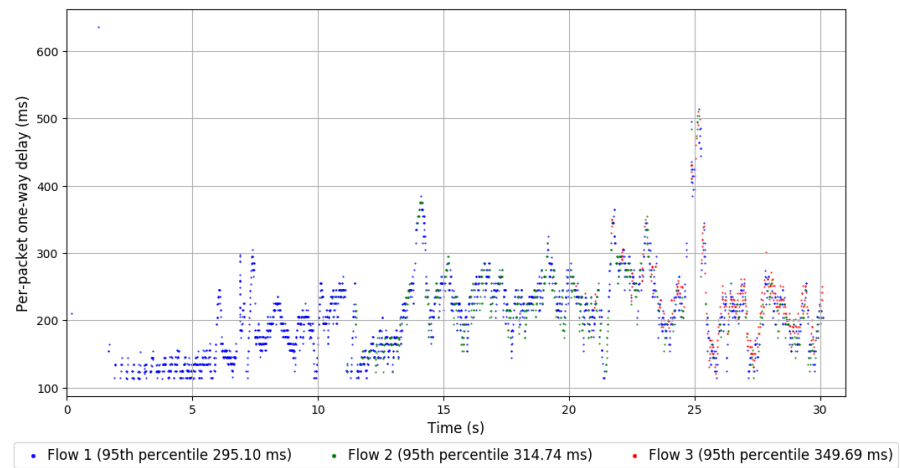
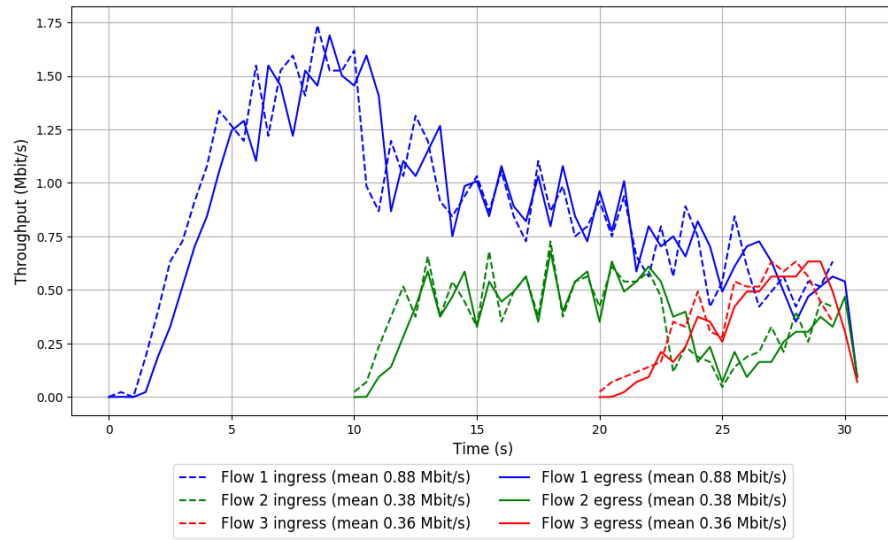


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-07 12:57:37
End at: 2018-09-07 12:58:07
Local clock offset: 4.377 ms
Remote clock offset: 6.619 ms

# Below is generated by plot.py at 2018-09-07 14:01:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 304.579 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 295.098 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 314.738 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 349.687 ms
Loss rate: 1.97%
```

Run 1: Report of LEDBAT — Data Link

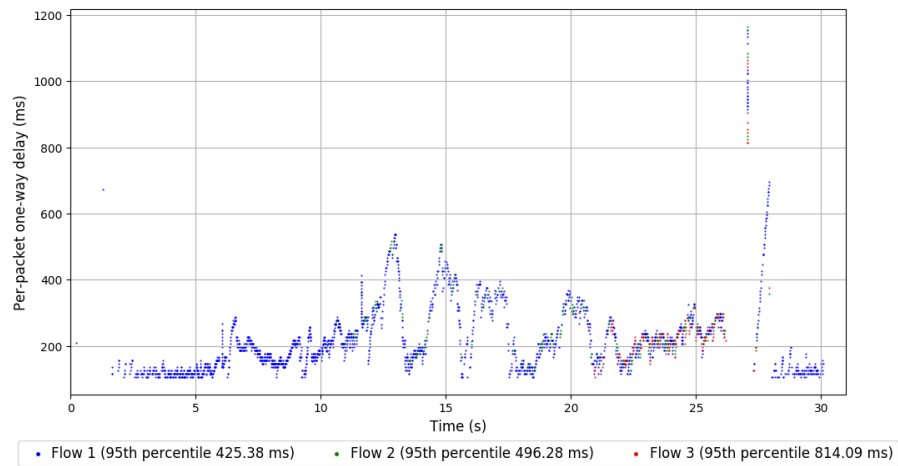
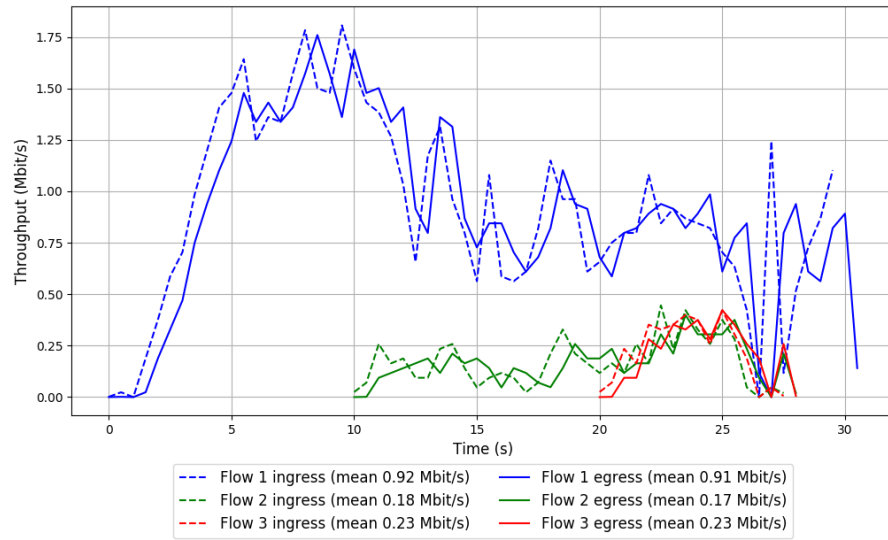


```
Run 2: Statistics of LEDBAT

Start at: 2018-09-07 13:19:41
End at: 2018-09-07 13:20:11
Local clock offset: 3.399 ms
Remote clock offset: 4.285 ms

# Below is generated by plot.py at 2018-09-07 14:01:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 435.388 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 425.380 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 496.279 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 814.092 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-07 13:41:48

End at: 2018-09-07 13:42:18

Local clock offset: 4.096 ms

Remote clock offset: 3.069 ms

Below is generated by plot.py at 2018-09-07 14:01:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 343.955 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 0.81 Mbit/s

95th percentile per-packet one-way delay: 334.035 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 0.29 Mbit/s

95th percentile per-packet one-way delay: 334.229 ms

Loss rate: 0.20%

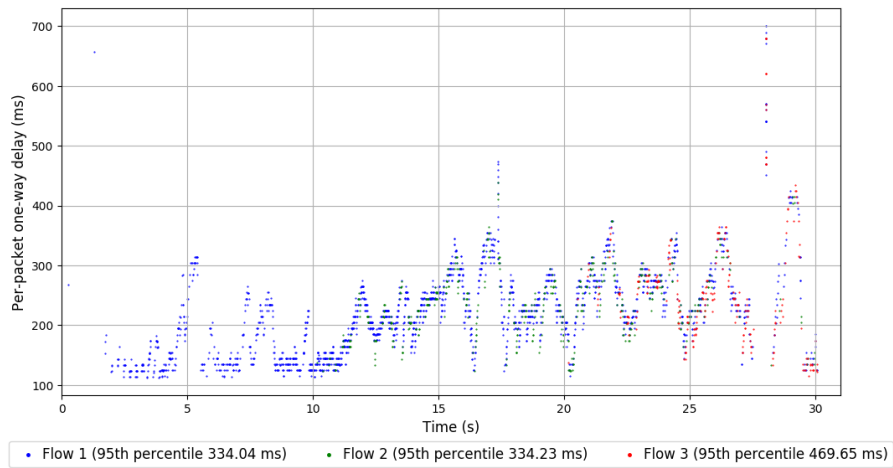
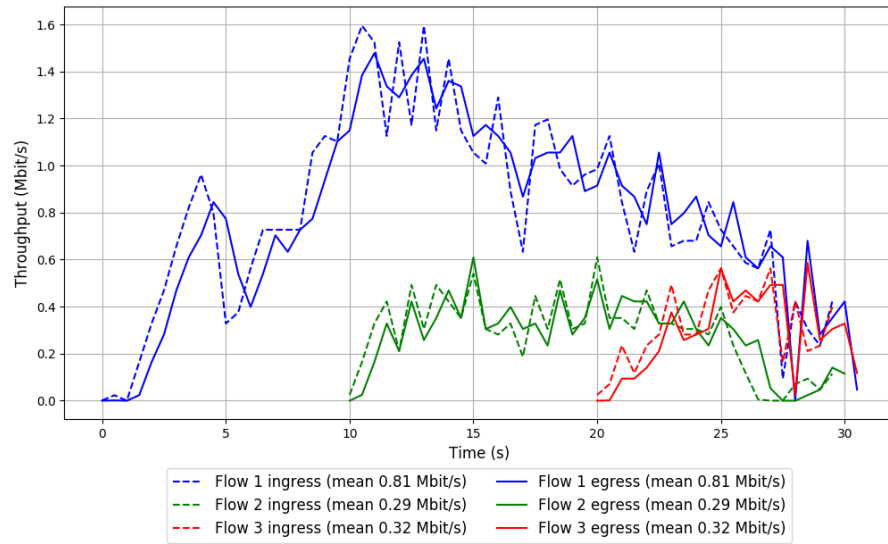
-- Flow 3:

Average throughput: 0.32 Mbit/s

95th percentile per-packet one-way delay: 469.648 ms

Loss rate: 0.75%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-07 13:13:35

End at: 2018-09-07 13:14:05

Local clock offset: 4.108 ms

Remote clock offset: 0.39 ms

Below is generated by plot.py at 2018-09-07 14:01:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.01 Mbit/s

95th percentile per-packet one-way delay: 7082.025 ms

Loss rate: 91.57%

-- Flow 1:

Average throughput: 0.99 Mbit/s

95th percentile per-packet one-way delay: 6411.773 ms

Loss rate: 93.78%

-- Flow 2:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 7329.223 ms

Loss rate: 87.61%

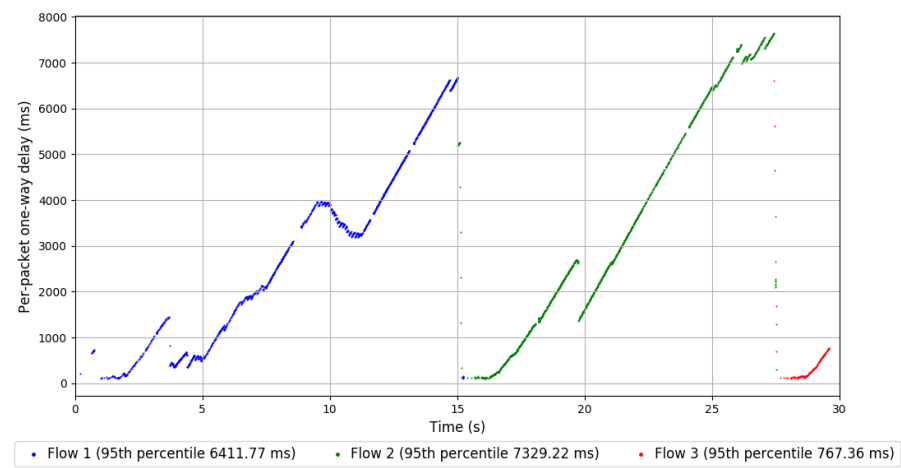
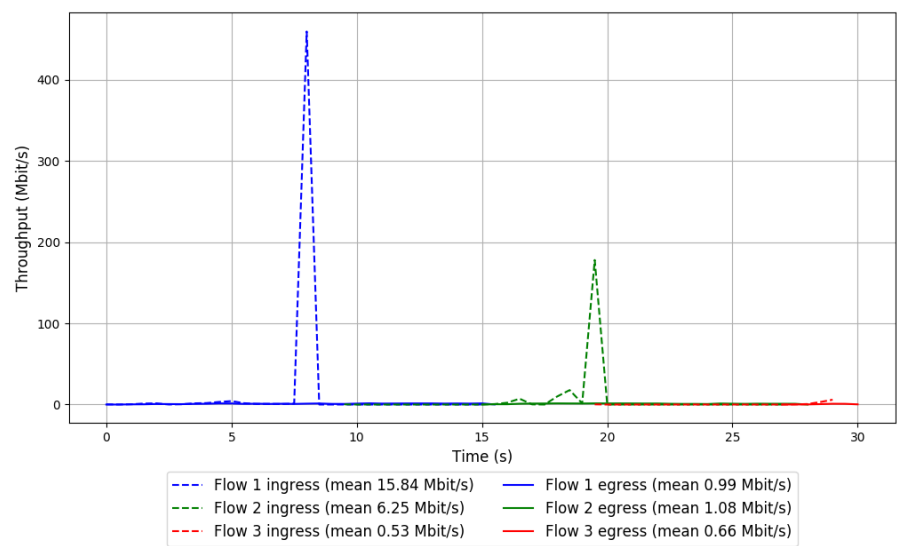
-- Flow 3:

Average throughput: 0.66 Mbit/s

95th percentile per-packet one-way delay: 767.355 ms

Loss rate: 71.99%

Run 1: Report of Indigo-Muses — Data Link

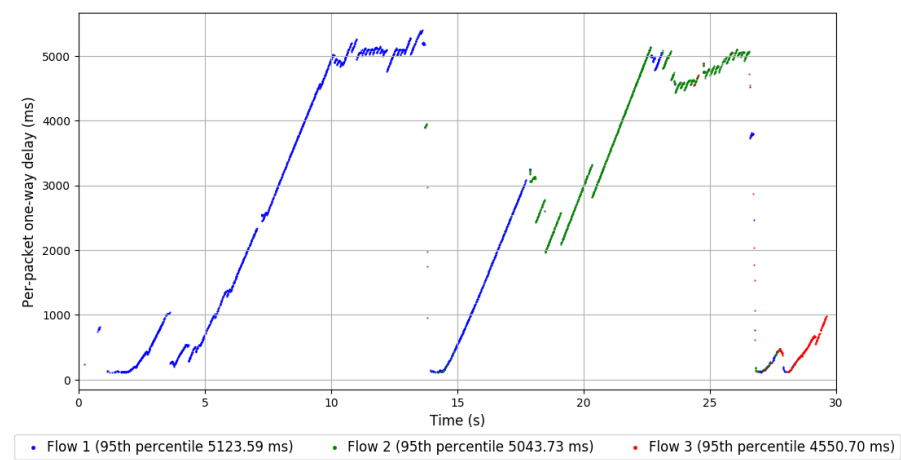
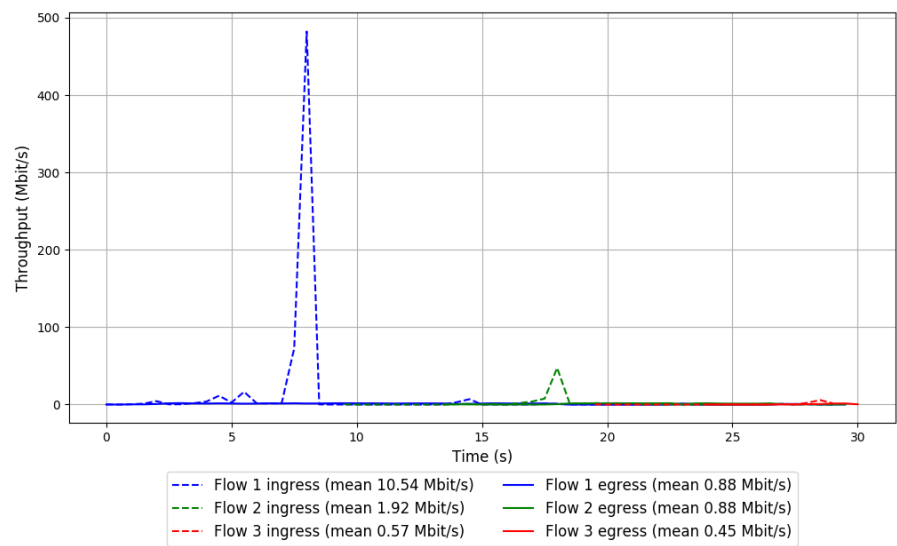


Run 2: Statistics of Indigo-Muses

Start at: 2018-09-07 13:35:41
End at: 2018-09-07 13:36:11
Local clock offset: 3.311 ms
Remote clock offset: -0.386 ms

Below is generated by plot.py at 2018-09-07 14:01:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 5093.766 ms
Loss rate: 88.23%
-- Flow 1:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 5123.587 ms
Loss rate: 91.79%
-- Flow 2:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 5043.728 ms
Loss rate: 63.41%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 4550.701 ms
Loss rate: 56.49%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-07 13:57:45

End at: 2018-09-07 13:58:15

Local clock offset: 4.59 ms

Remote clock offset: 4.196 ms

Below is generated by plot.py at 2018-09-07 14:01:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.14 Mbit/s

95th percentile per-packet one-way delay: 6491.772 ms

Loss rate: 93.32%

-- Flow 1:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 6591.932 ms

Loss rate: 93.64%

-- Flow 2:

Average throughput: 1.13 Mbit/s

95th percentile per-packet one-way delay: 5234.236 ms

Loss rate: 93.38%

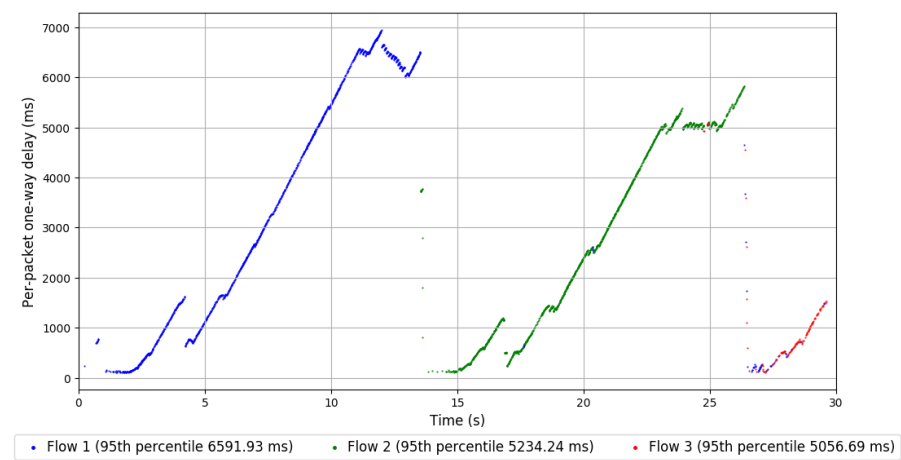
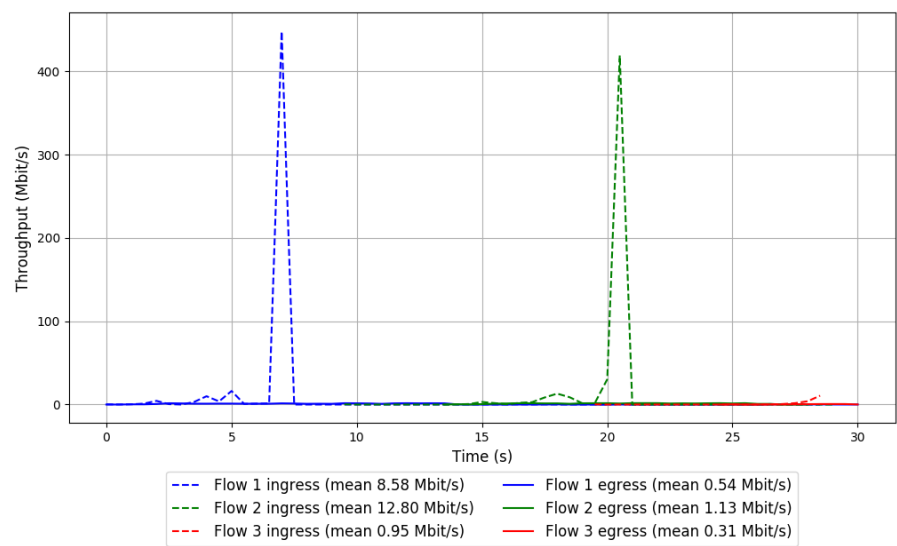
-- Flow 3:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 5056.692 ms

Loss rate: 82.81%

Run 3: Report of Indigo-Muses — Data Link

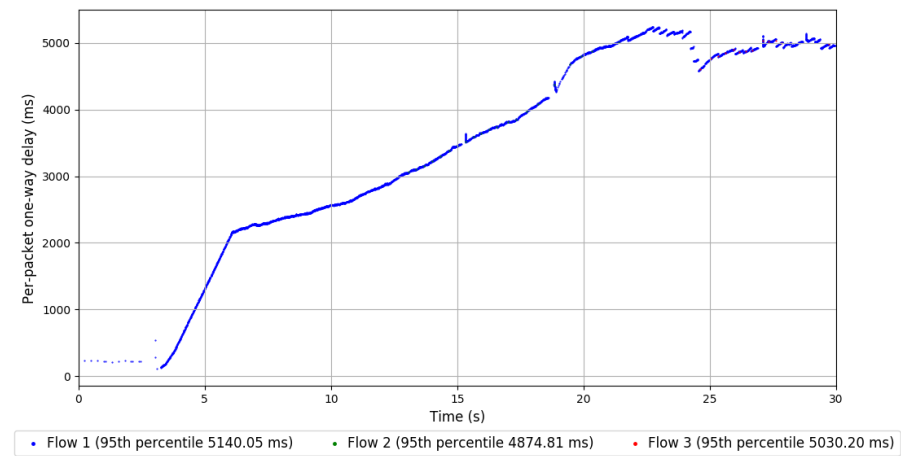
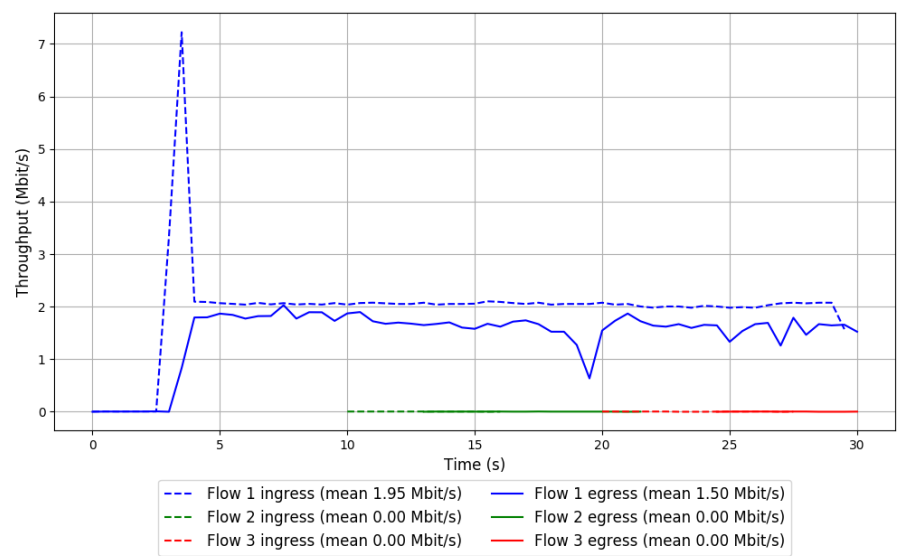


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-07 13:02:31
End at: 2018-09-07 13:03:01
Local clock offset: 3.89 ms
Remote clock offset: 5.129 ms

# Below is generated by plot.py at 2018-09-07 14:01:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 5139.020 ms
Loss rate: 23.71%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 5140.051 ms
Loss rate: 23.71%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 4874.814 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 5030.202 ms
Loss rate: 42.45%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-07 13:24:36

End at: 2018-09-07 13:25:06

Local clock offset: 4.136 ms

Remote clock offset: 4.354 ms

Below is generated by plot.py at 2018-09-07 14:01:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.20 Mbit/s

95th percentile per-packet one-way delay: 6886.649 ms

Loss rate: 42.21%

-- Flow 1:

Average throughput: 1.20 Mbit/s

95th percentile per-packet one-way delay: 6885.071 ms

Loss rate: 42.22%

-- Flow 2:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 5493.812 ms

Loss rate: 0.00%

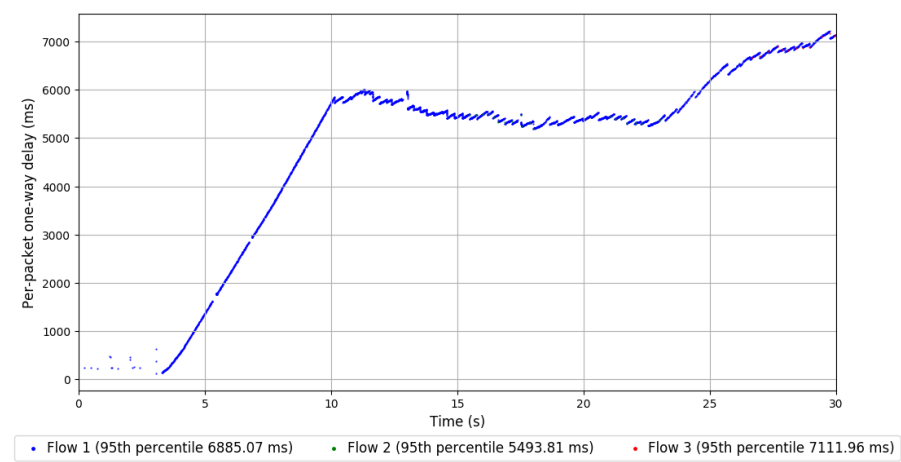
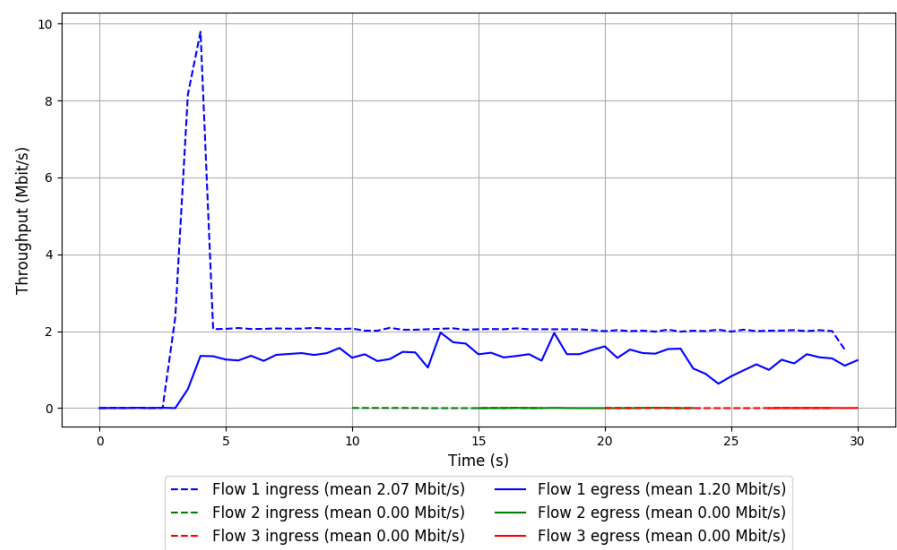
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 7111.960 ms

Loss rate: 44.83%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-07 13:46:42

End at: 2018-09-07 13:47:12

Local clock offset: 3.378 ms

Remote clock offset: 0.018 ms

Below is generated by plot.py at 2018-09-07 14:01:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 5498.999 ms

Loss rate: 72.84%

-- Flow 1:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 5499.002 ms

Loss rate: 72.85%

-- Flow 2:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 5273.601 ms

Loss rate: 0.00%

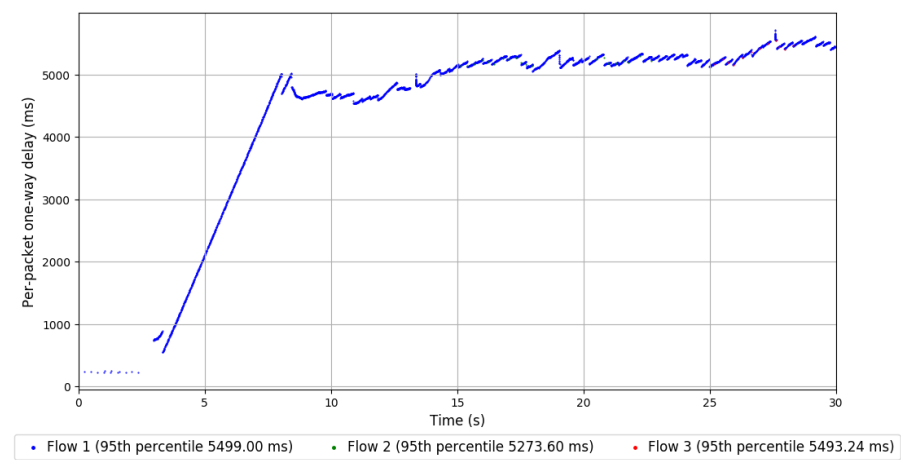
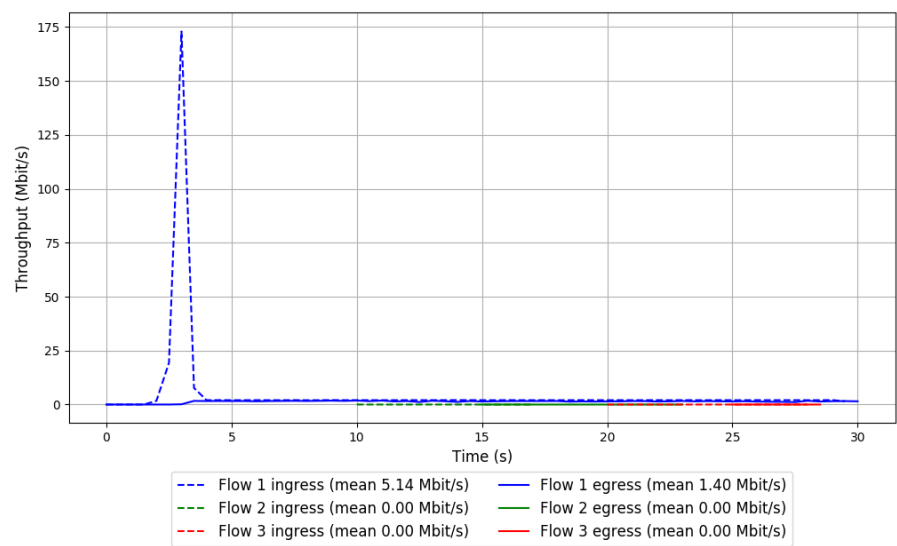
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 5493.241 ms

Loss rate: 47.76%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

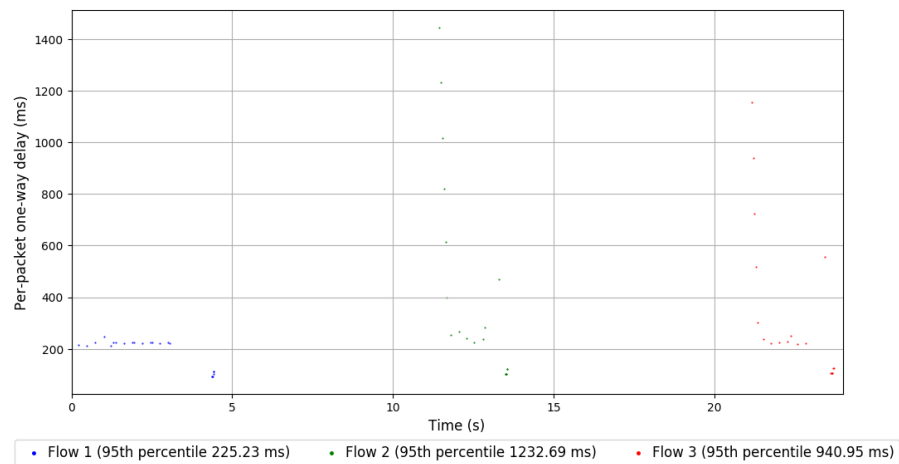
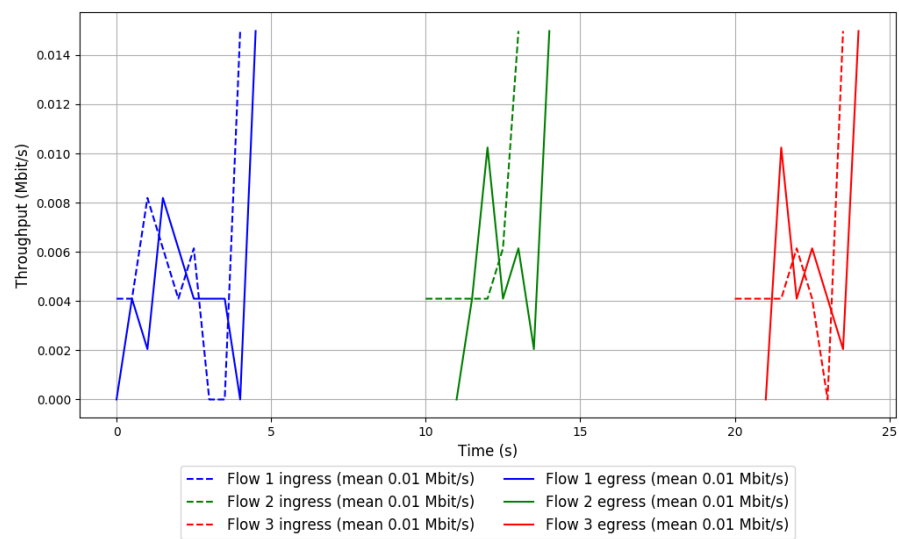
Start at: 2018-09-07 12:55:10

End at: 2018-09-07 12:55:40

Local clock offset: 5.505 ms

Remote clock offset: 1.349 ms

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

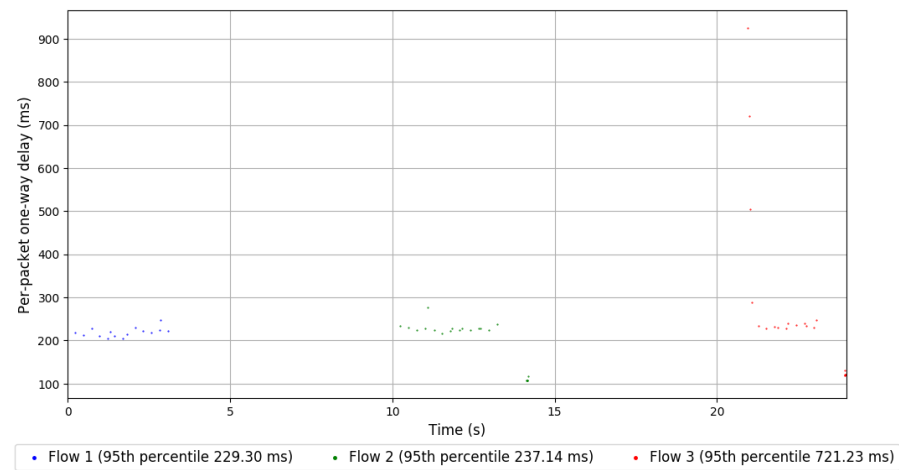
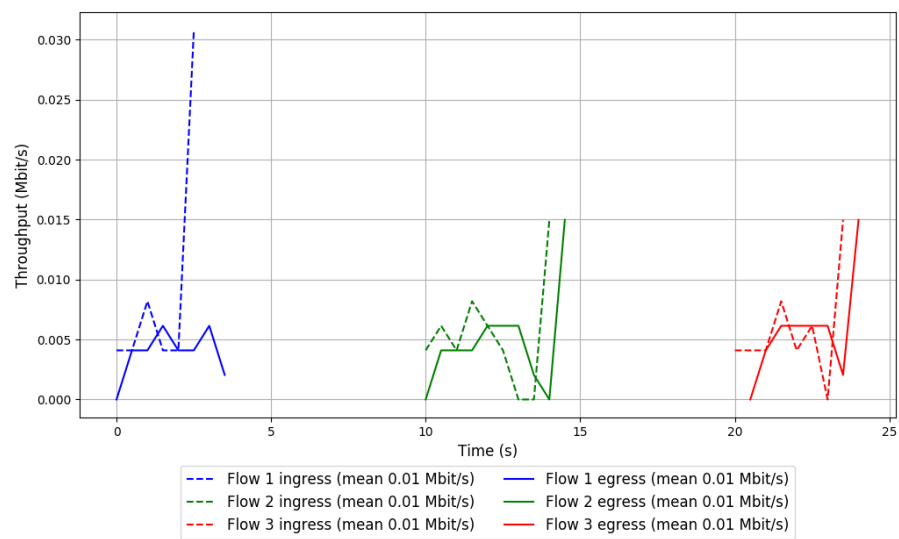
Start at: 2018-09-07 13:17:15

End at: 2018-09-07 13:17:45

Local clock offset: 4.134 ms

Remote clock offset: 4.427 ms

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

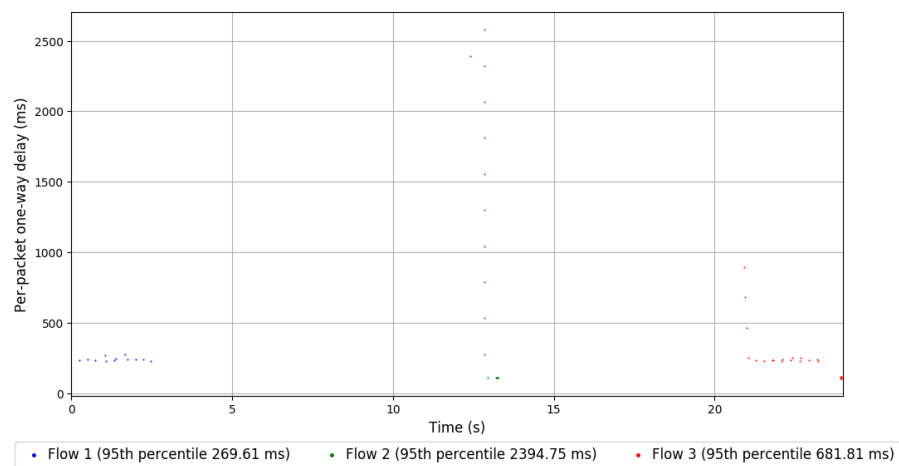
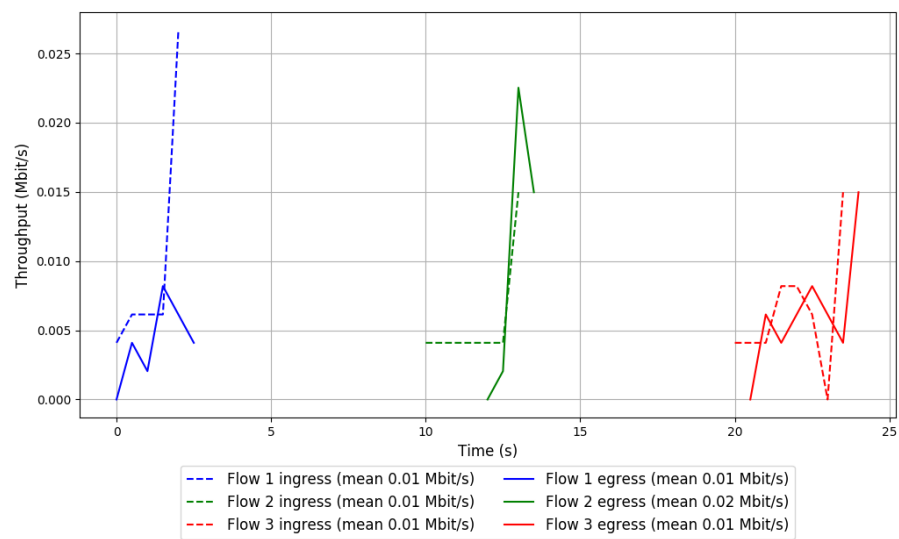
Start at: 2018-09-07 13:39:22

End at: 2018-09-07 13:39:52

Local clock offset: 3.274 ms

Remote clock offset: -1.175 ms

Run 3: Report of PCC-Expr — Data Link

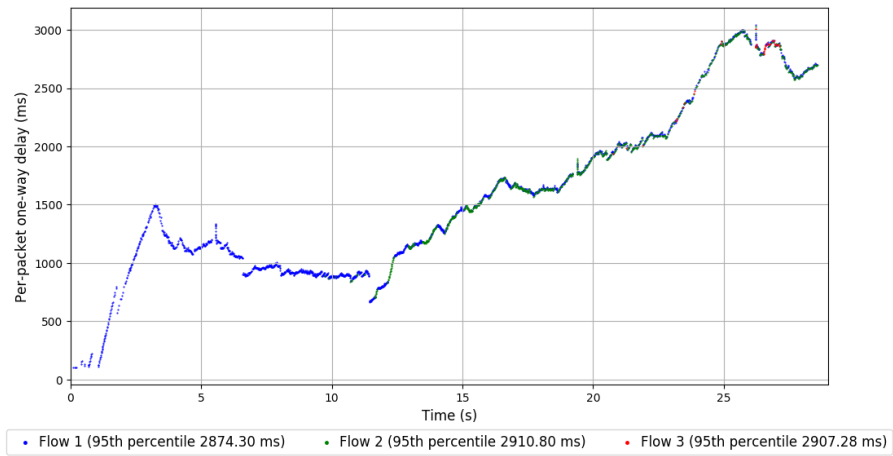
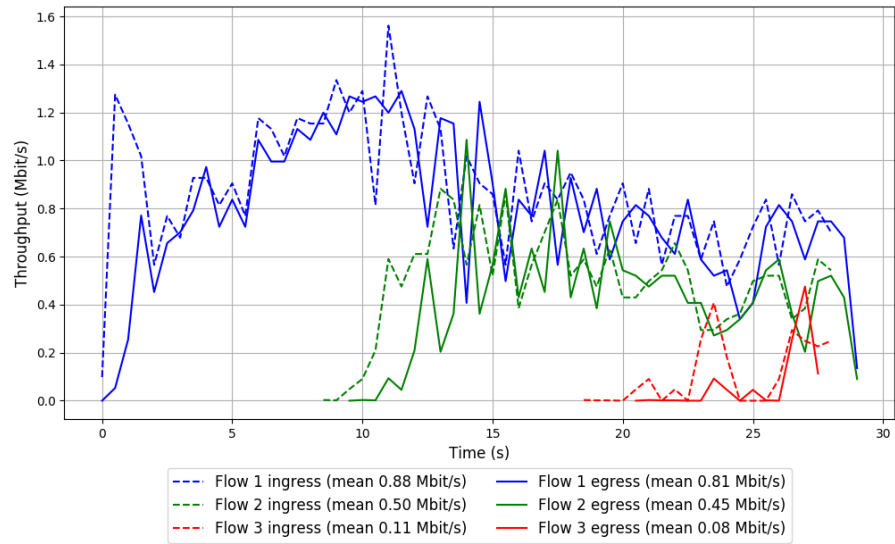


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-07 13:12:21
End at: 2018-09-07 13:12:51
Local clock offset: 3.386 ms
Remote clock offset: -0.795 ms

Below is generated by plot.py at 2018-09-07 14:01:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 2884.714 ms
Loss rate: 10.40%
-- Flow 1:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 2874.298 ms
Loss rate: 7.70%
-- Flow 2:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 2910.805 ms
Loss rate: 12.81%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 2907.280 ms
Loss rate: 51.77%

Run 1: Report of QUIC Cubic — Data Link

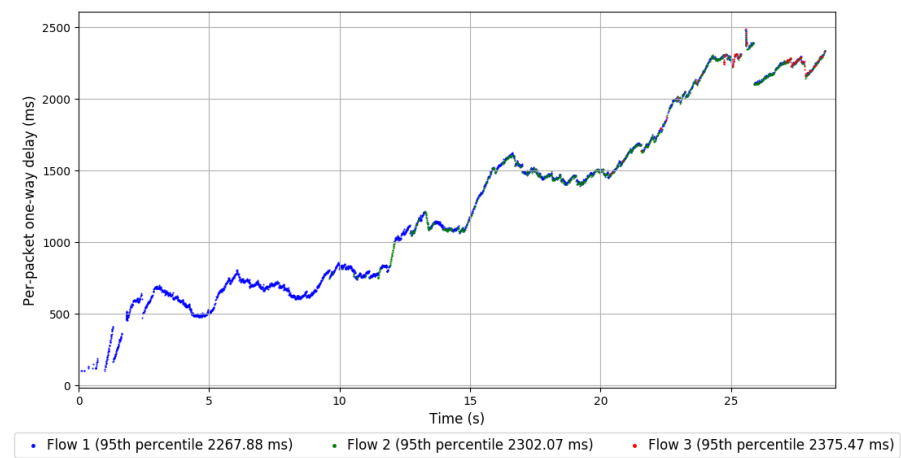
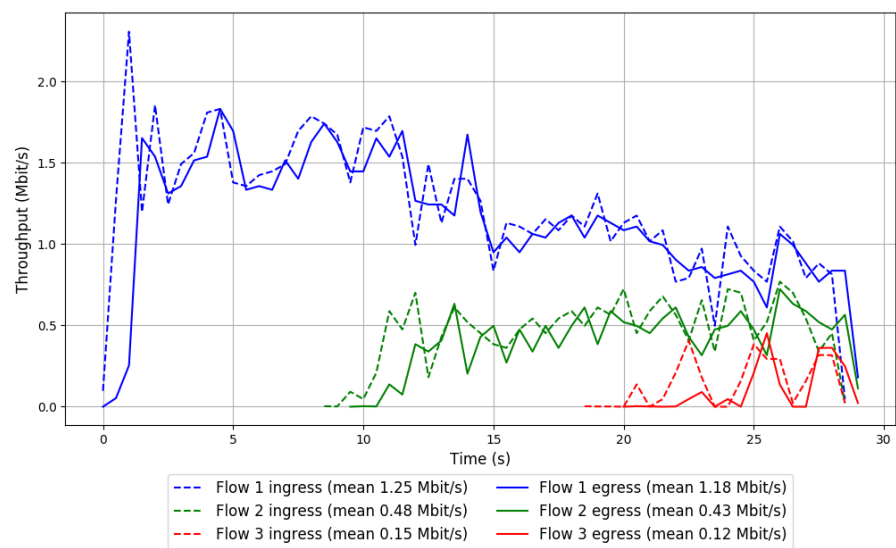


Run 2: Statistics of QUIC Cubic

Start at: 2018-09-07 13:34:28
End at: 2018-09-07 13:34:58
Local clock offset: 3.395 ms
Remote clock offset: -1.284 ms

Below is generated by plot.py at 2018-09-07 14:01:20
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 2284.156 ms
Loss rate: 8.02%
-- Flow 1:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 2267.877 ms
Loss rate: 5.68%
-- Flow 2:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 2302.067 ms
Loss rate: 12.91%
-- Flow 3:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 2375.467 ms
Loss rate: 32.95%

Run 2: Report of QUIC Cubic — Data Link

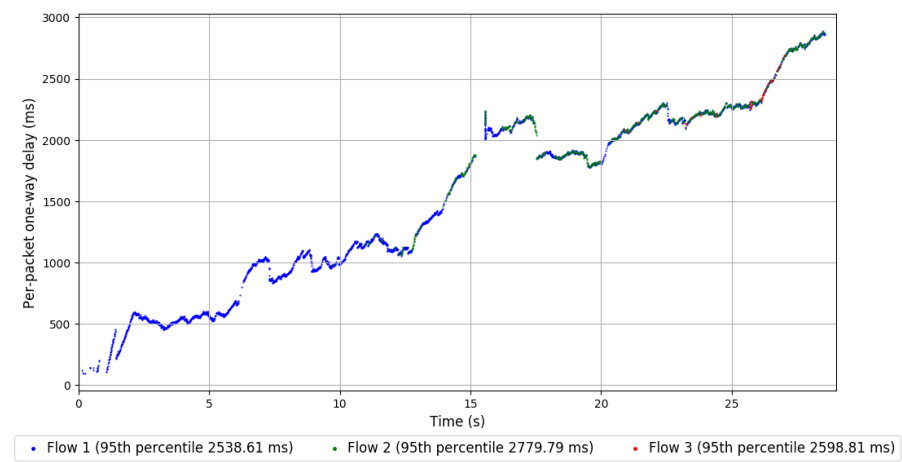
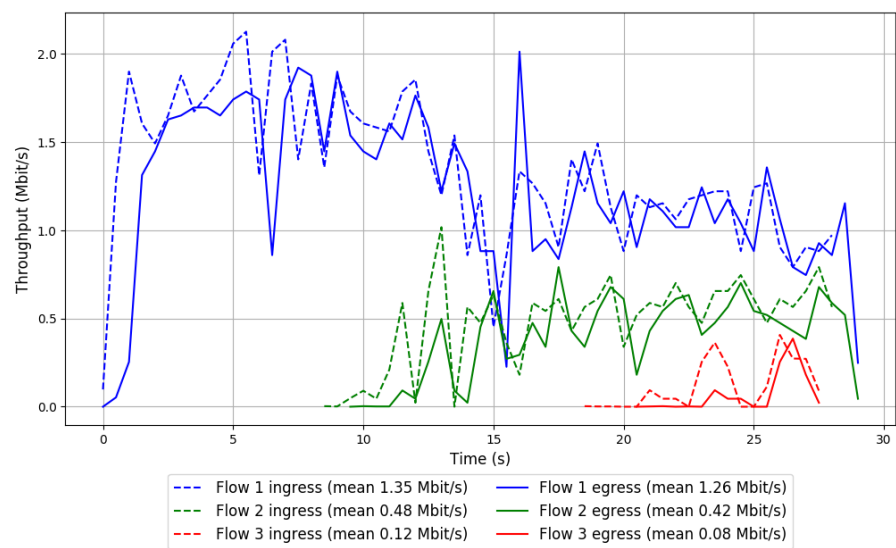


Run 3: Statistics of QUIC Cubic

Start at: 2018-09-07 13:56:31
End at: 2018-09-07 13:57:01
Local clock offset: 3.873 ms
Remote clock offset: -0.056 ms

Below is generated by plot.py at 2018-09-07 14:01:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 2726.396 ms
Loss rate: 9.93%
-- Flow 1:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 2538.612 ms
Loss rate: 6.68%
-- Flow 2:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 2779.787 ms
Loss rate: 18.14%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 2598.806 ms
Loss rate: 52.77%

Run 3: Report of QUIC Cubic — Data Link

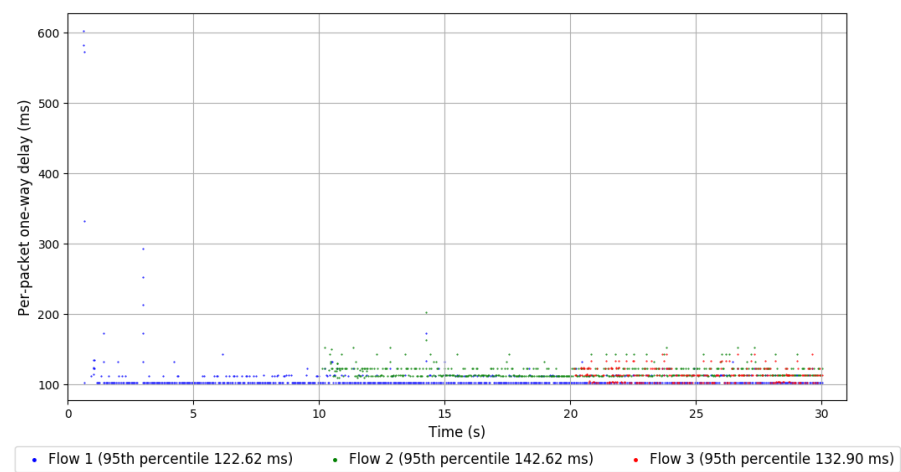
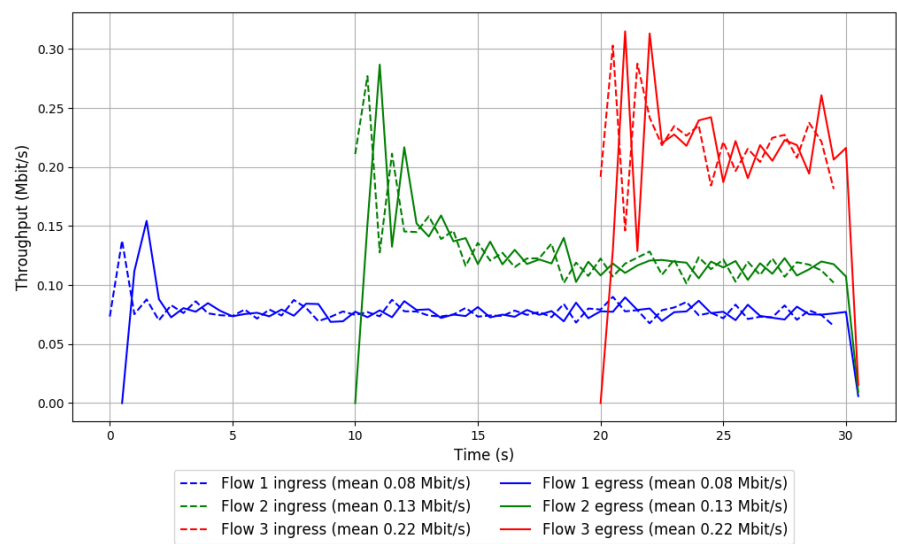


Run 1: Statistics of SCReAM

Start at: 2018-09-07 13:16:02
End at: 2018-09-07 13:16:32
Local clock offset: 4.097 ms
Remote clock offset: -0.909 ms

Below is generated by plot.py at 2018-09-07 14:01:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 132.727 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 122.616 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 142.620 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 132.902 ms
Loss rate: 0.35%

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SReAM

Start at: 2018-09-07 13:38:09

End at: 2018-09-07 13:38:39

Local clock offset: 3.306 ms

Remote clock offset: 4.062 ms

Below is generated by plot.py at 2018-09-07 14:01:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.29 Mbit/s

95th percentile per-packet one-way delay: 131.555 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 119.036 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 138.783 ms

Loss rate: 0.19%

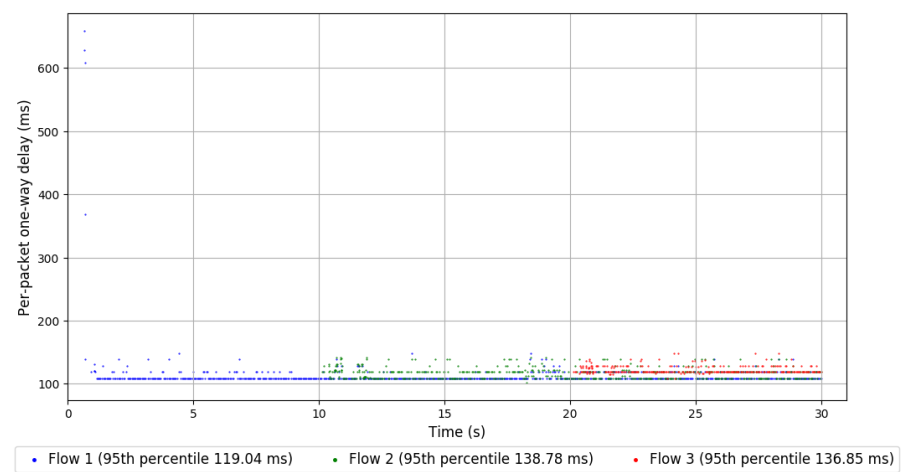
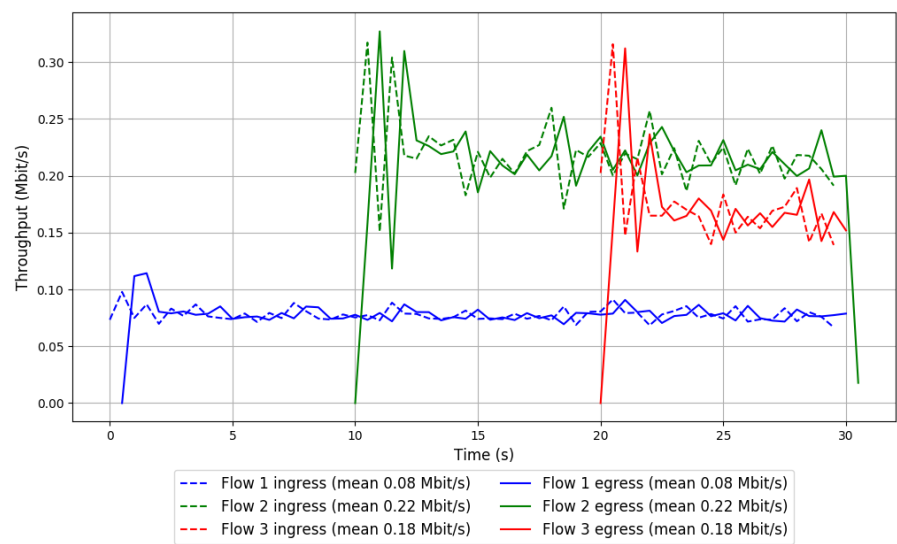
-- Flow 3:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 136.853 ms

Loss rate: 0.67%

Run 2: Report of SReAM — Data Link

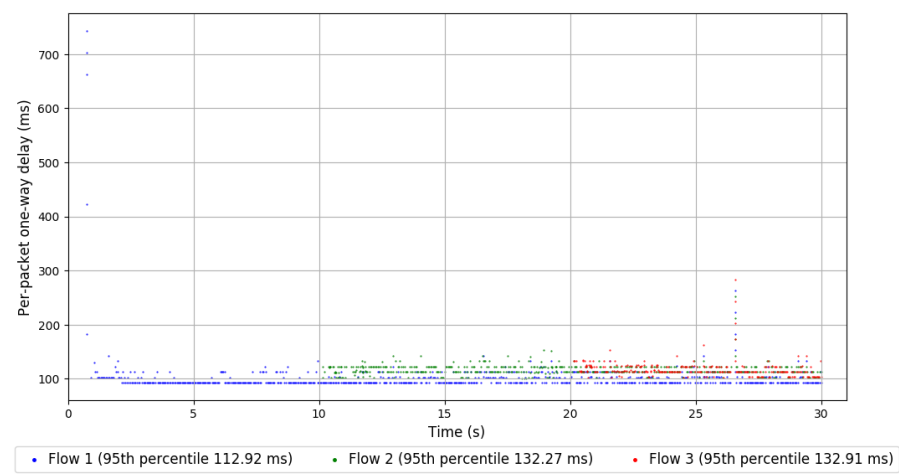
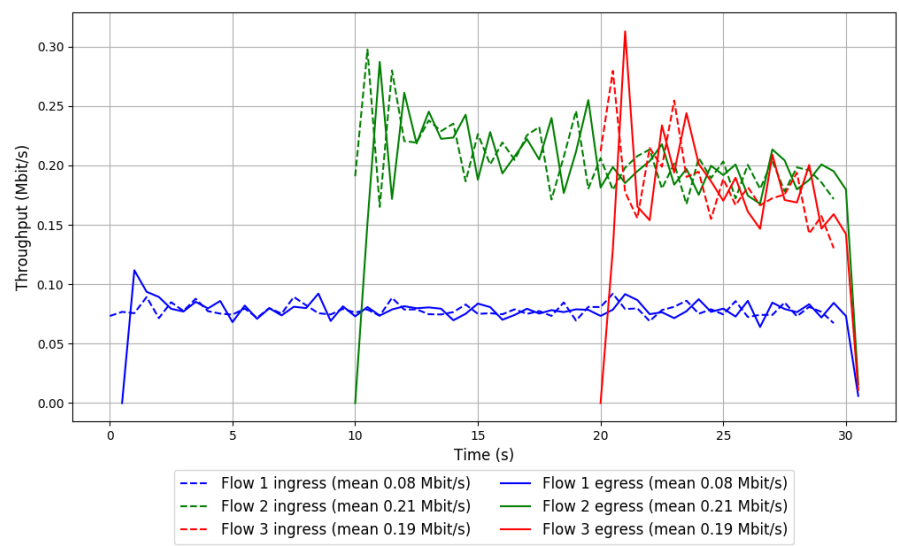


Run 3: Statistics of SCReAM

Start at: 2018-09-07 14:00:12
End at: 2018-09-07 14:00:42
Local clock offset: 4.693 ms
Remote clock offset: -1.179 ms

Below is generated by plot.py at 2018-09-07 14:01:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 132.220 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 112.917 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 132.267 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 132.911 ms
Loss rate: 0.30%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-07 12:56:23

End at: 2018-09-07 12:56:53

Local clock offset: 4.566 ms

Remote clock offset: 6.649 ms

Below is generated by plot.py at 2018-09-07 14:01:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 190.553 ms

Loss rate: 0.43%

-- Flow 1:

Average throughput: 0.12 Mbit/s

95th percentile per-packet one-way delay: 212.284 ms

Loss rate: 0.23%

-- Flow 2:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 170.131 ms

Loss rate: 0.47%

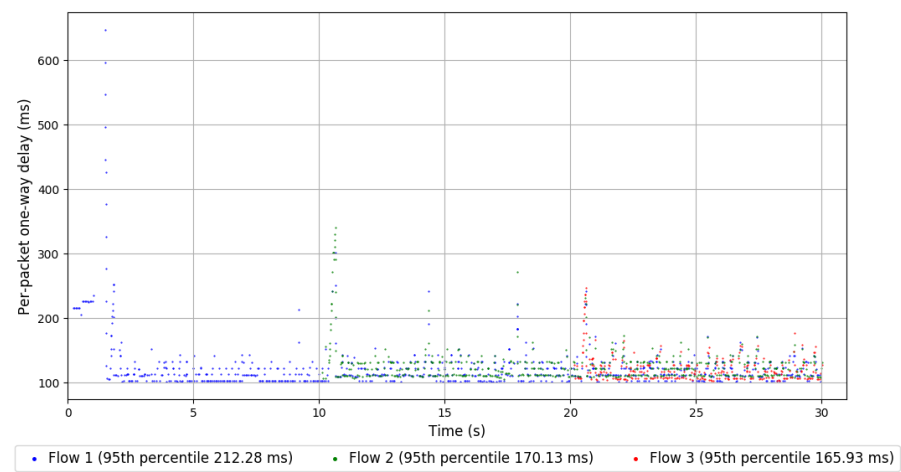
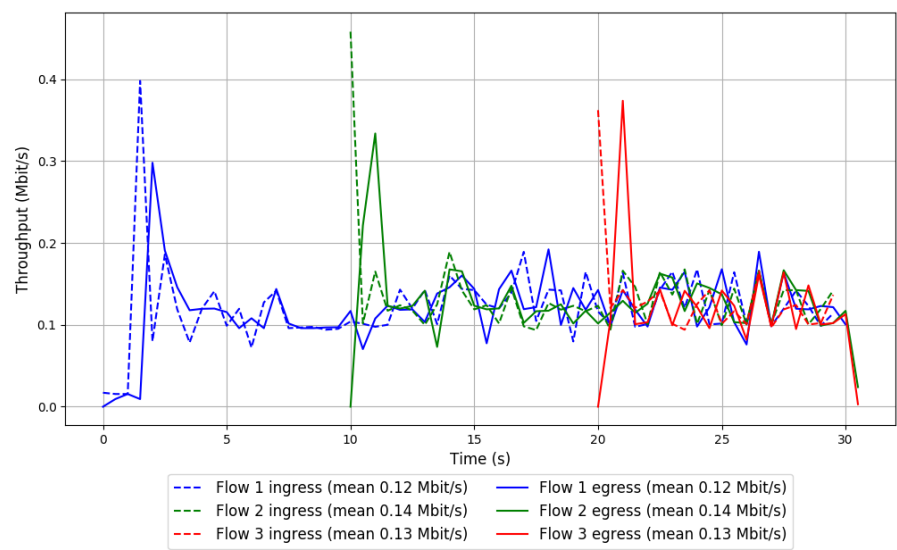
-- Flow 3:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 165.927 ms

Loss rate: 0.90%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-09-07 13:18:28

End at: 2018-09-07 13:18:58

Local clock offset: 4.085 ms

Remote clock offset: 5.488 ms

Below is generated by plot.py at 2018-09-07 14:01:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 223.941 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 244.548 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 186.945 ms

Loss rate: 0.00%

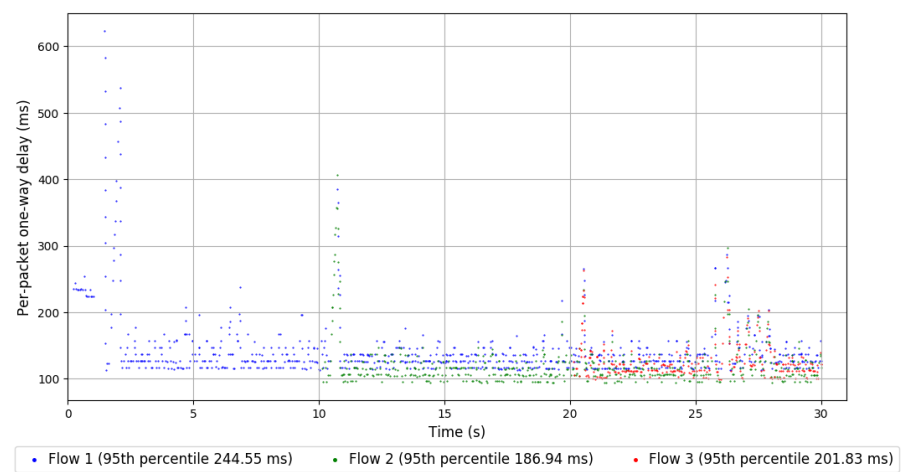
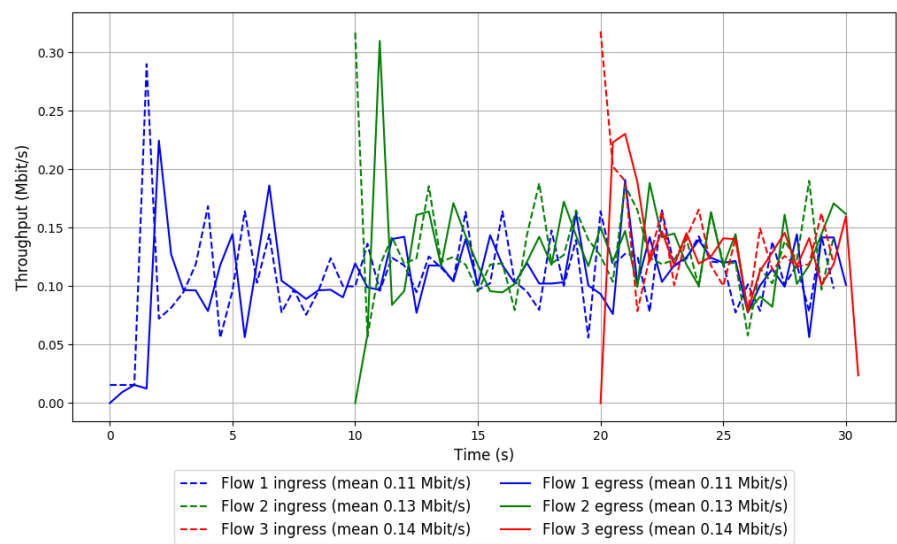
-- Flow 3:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 201.828 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

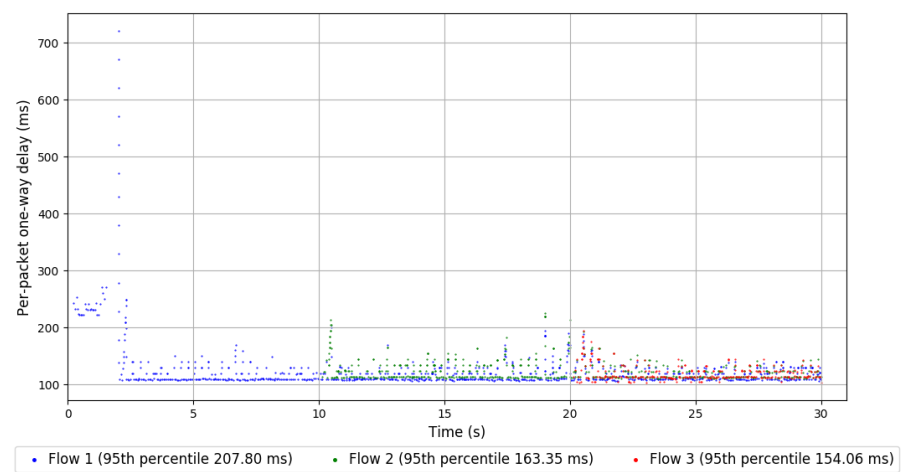
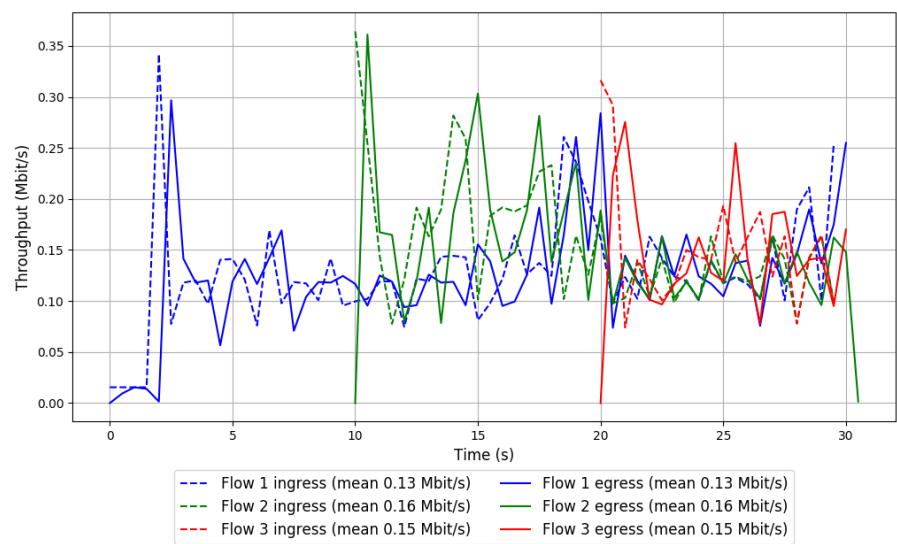


Run 3: Statistics of Sprout

Start at: 2018-09-07 13:40:35
End at: 2018-09-07 13:41:05
Local clock offset: 4.113 ms
Remote clock offset: 2.994 ms

```
# Below is generated by plot.py at 2018-09-07 14:01:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 169.251 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 207.799 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 163.352 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 154.065 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

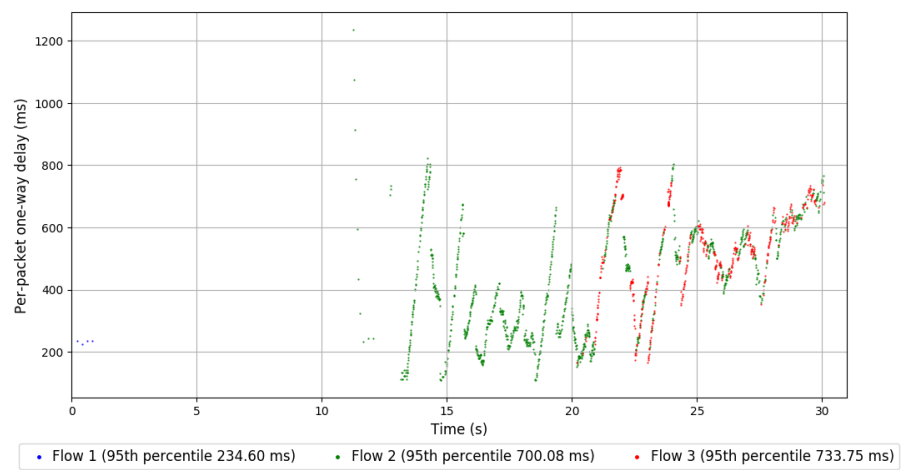
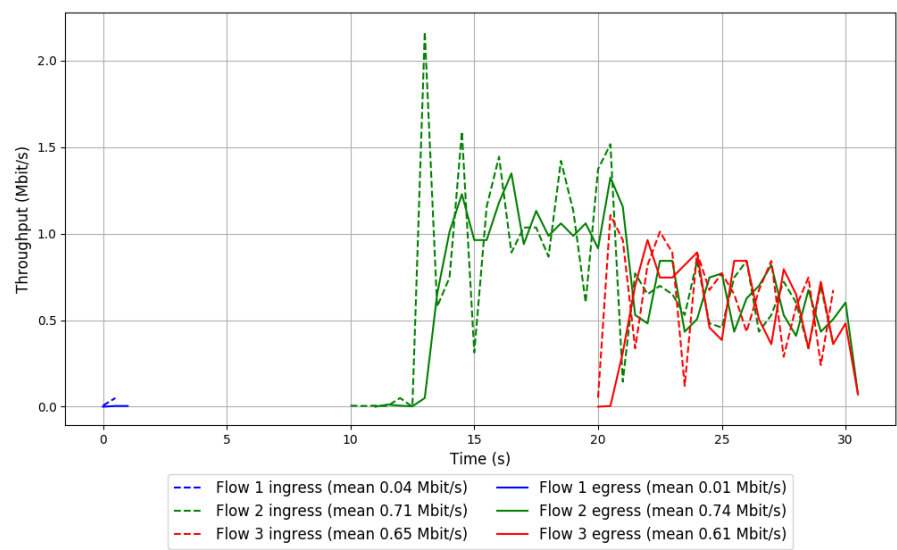


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-09-07 13:01:18
End at: 2018-09-07 13:01:48
Local clock offset: 4.786 ms
Remote clock offset: 4.032 ms

# Below is generated by plot.py at 2018-09-07 14:01:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 715.228 ms
Loss rate: 3.21%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 234.602 ms
Loss rate: 85.45%
-- Flow 2:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 700.075 ms
Loss rate: 1.78%
-- Flow 3:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 733.751 ms
Loss rate: 6.04%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-07 13:23:23

End at: 2018-09-07 13:23:53

Local clock offset: 3.436 ms

Remote clock offset: 5.395 ms

Below is generated by plot.py at 2018-09-07 14:01:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.72 Mbit/s

95th percentile per-packet one-way delay: 2858.696 ms

Loss rate: 5.03%

-- Flow 1:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 1876.154 ms

Loss rate: 2.37%

-- Flow 2:

Average throughput: 0.30 Mbit/s

95th percentile per-packet one-way delay: 2832.735 ms

Loss rate: 7.15%

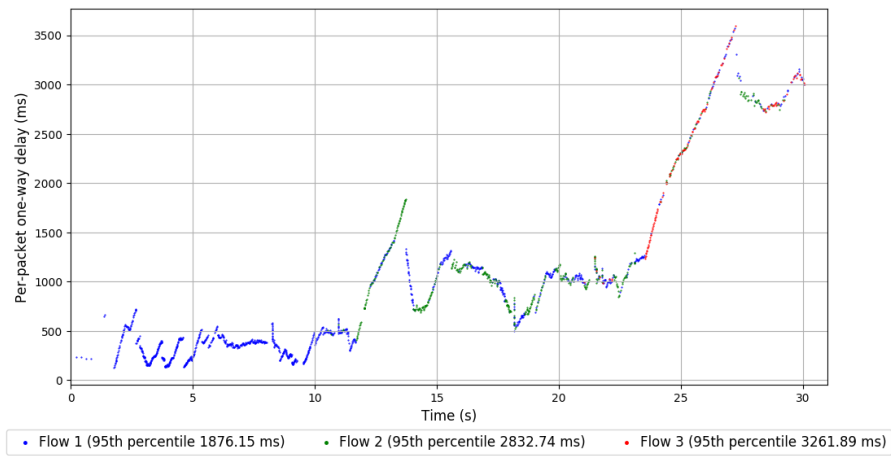
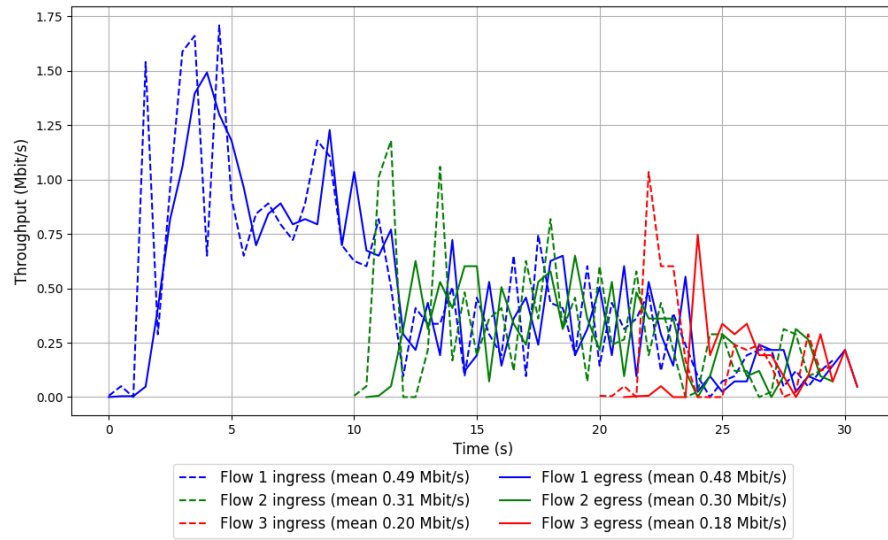
-- Flow 3:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 3261.895 ms

Loss rate: 18.57%

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

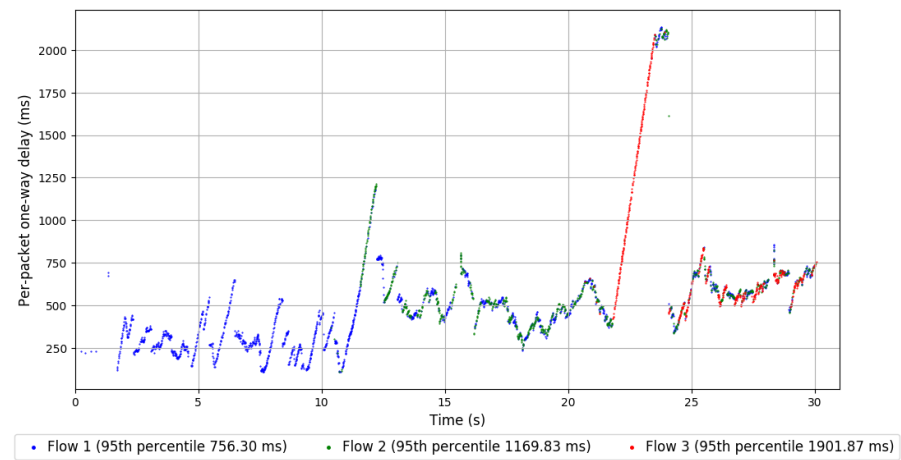
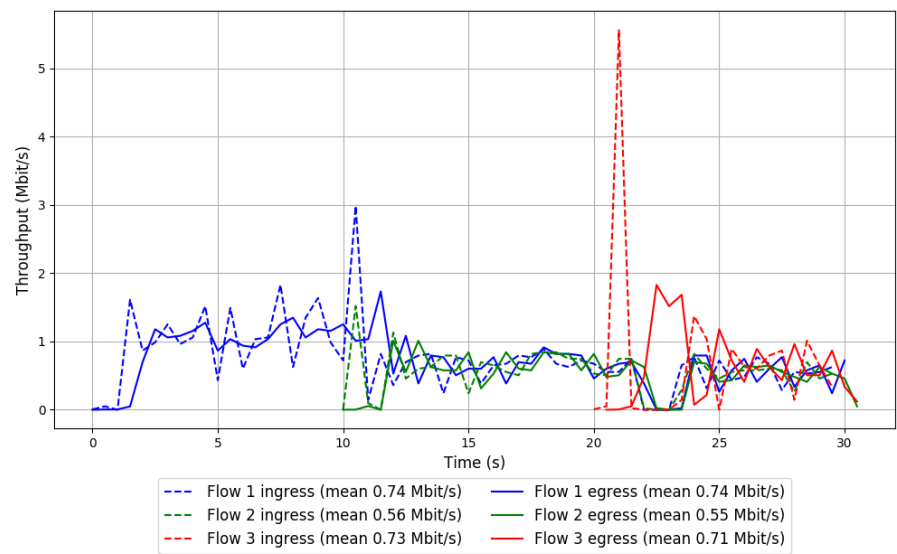


Run 3: Statistics of TaoVA-100x

Start at: 2018-09-07 13:45:29
End at: 2018-09-07 13:45:59
Local clock offset: 4.118 ms
Remote clock offset: -0.995 ms

Below is generated by plot.py at 2018-09-07 14:01:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 1444.698 ms
Loss rate: 2.53%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 756.300 ms
Loss rate: 1.62%
-- Flow 2:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 1169.833 ms
Loss rate: 2.82%
-- Flow 3:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 1901.865 ms
Loss rate: 4.95%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-07 13:09:53

End at: 2018-09-07 13:10:23

Local clock offset: 4.253 ms

Remote clock offset: 5.771 ms

Below is generated by plot.py at 2018-09-07 14:01:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.15 Mbit/s

95th percentile per-packet one-way delay: 998.769 ms

Loss rate: 1.92%

-- Flow 1:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 677.480 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 932.299 ms

Loss rate: 1.03%

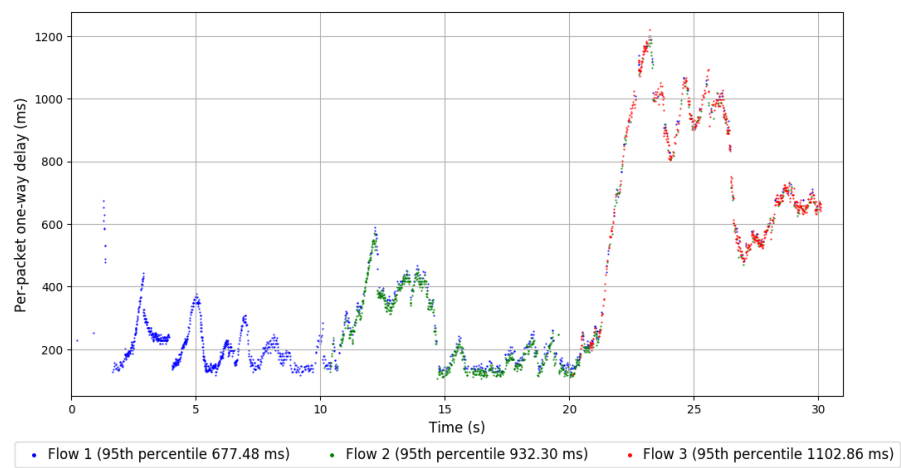
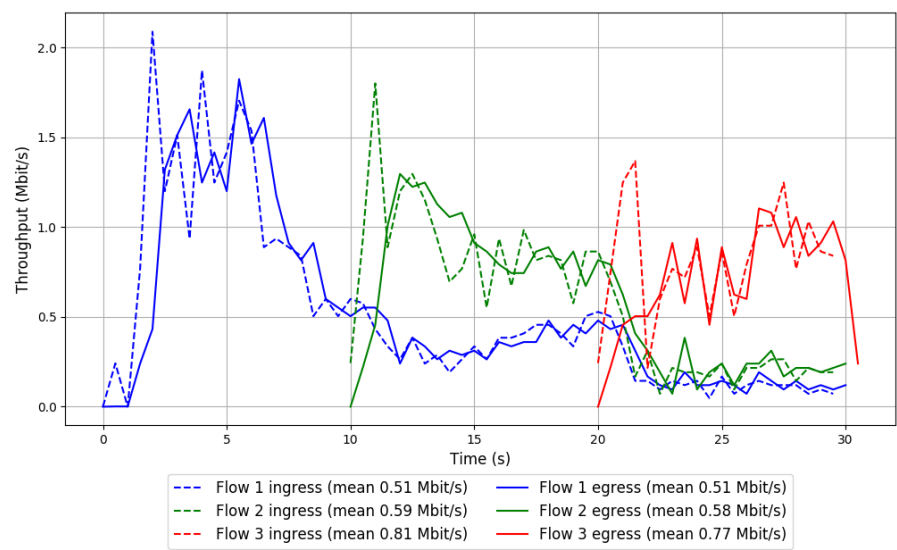
-- Flow 3:

Average throughput: 0.77 Mbit/s

95th percentile per-packet one-way delay: 1102.862 ms

Loss rate: 5.92%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-09-07 13:32:00

End at: 2018-09-07 13:32:30

Local clock offset: 3.399 ms

Remote clock offset: 2.869 ms

Below is generated by plot.py at 2018-09-07 14:01:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.45 Mbit/s

95th percentile per-packet one-way delay: 429.504 ms

Loss rate: 0.39%

-- Flow 1:

Average throughput: 0.94 Mbit/s

95th percentile per-packet one-way delay: 425.370 ms

Loss rate: 0.17%

-- Flow 2:

Average throughput: 0.45 Mbit/s

95th percentile per-packet one-way delay: 454.462 ms

Loss rate: 0.53%

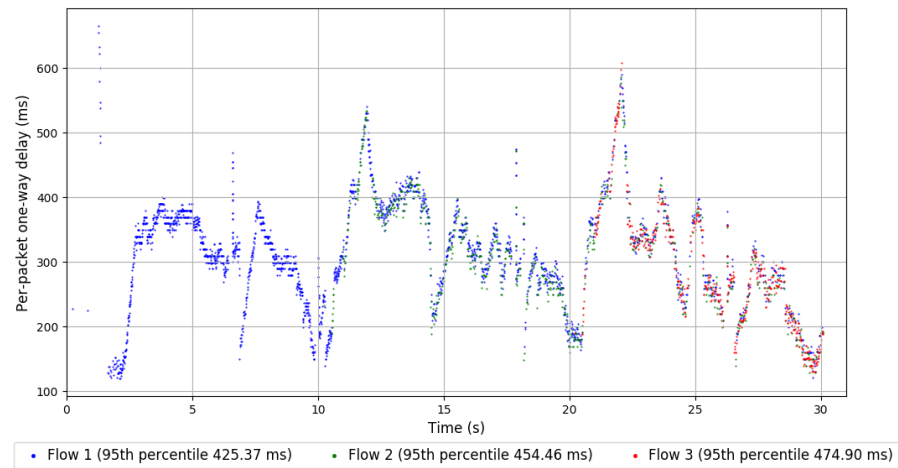
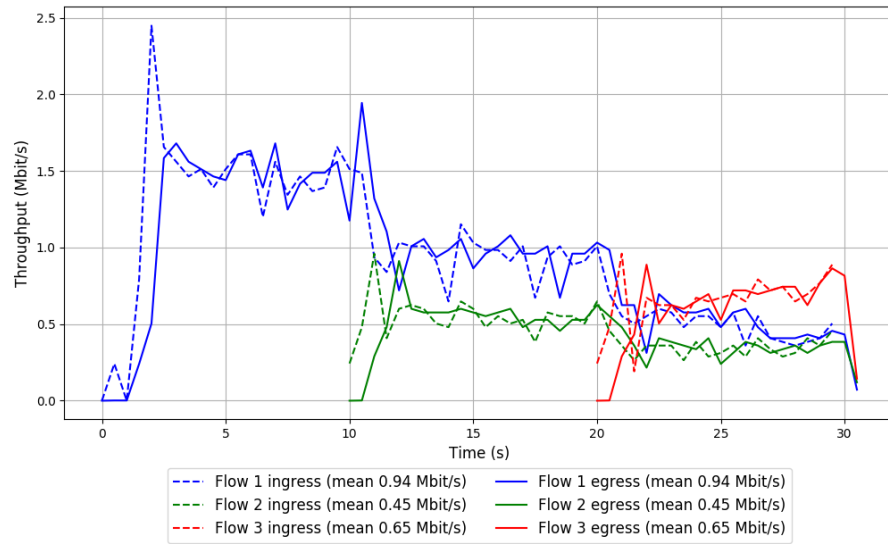
-- Flow 3:

Average throughput: 0.65 Mbit/s

95th percentile per-packet one-way delay: 474.896 ms

Loss rate: 1.11%

Run 2: Report of TCP Vegas — Data Link

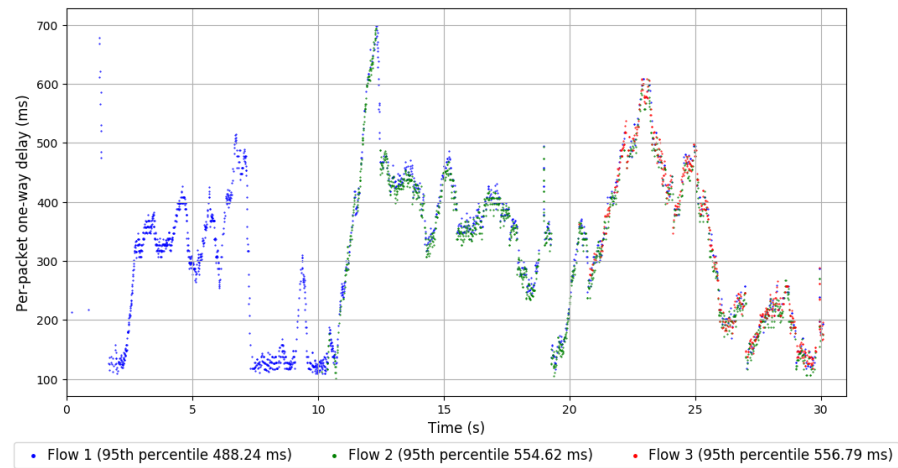
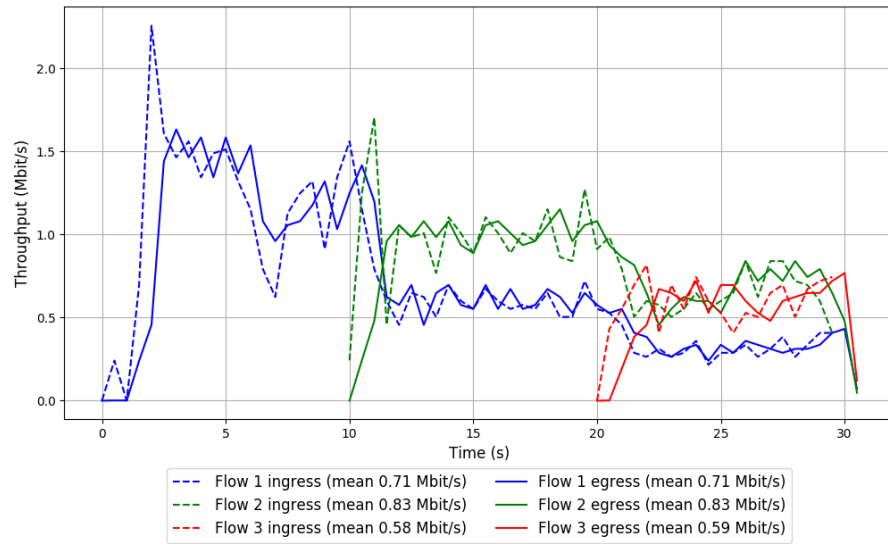


Run 3: Statistics of TCP Vegas

Start at: 2018-09-07 13:54:03
End at: 2018-09-07 13:54:33
Local clock offset: 4.503 ms
Remote clock offset: -1.148 ms

Below is generated by plot.py at 2018-09-07 14:01:28
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 517.886 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 488.242 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 554.625 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 556.787 ms
Loss rate: 1.05%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-09-07 13:03:46

End at: 2018-09-07 13:04:16

Local clock offset: 4.578 ms

Remote clock offset: 3.942 ms

Below is generated by plot.py at 2018-09-07 14:01:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.07 Mbit/s

95th percentile per-packet one-way delay: 1408.598 ms

Loss rate: 4.87%

-- Flow 1:

Average throughput: 0.74 Mbit/s

95th percentile per-packet one-way delay: 1408.598 ms

Loss rate: 0.34%

-- Flow 2:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 1418.921 ms

Loss rate: 13.07%

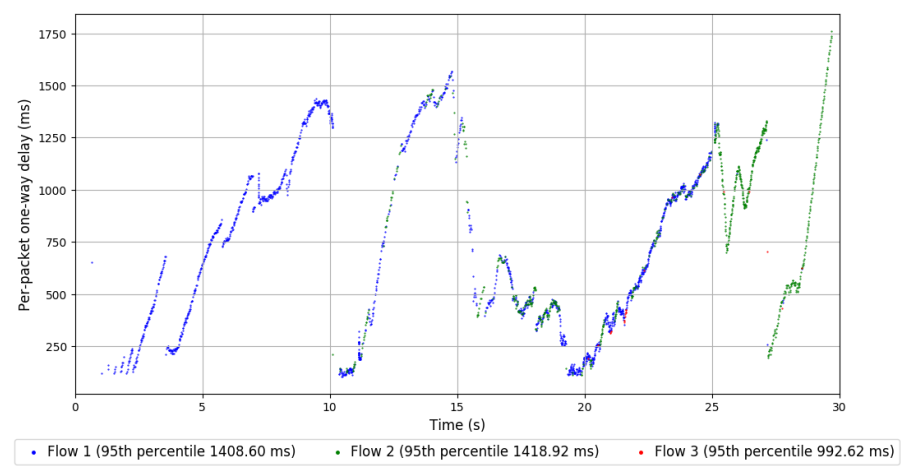
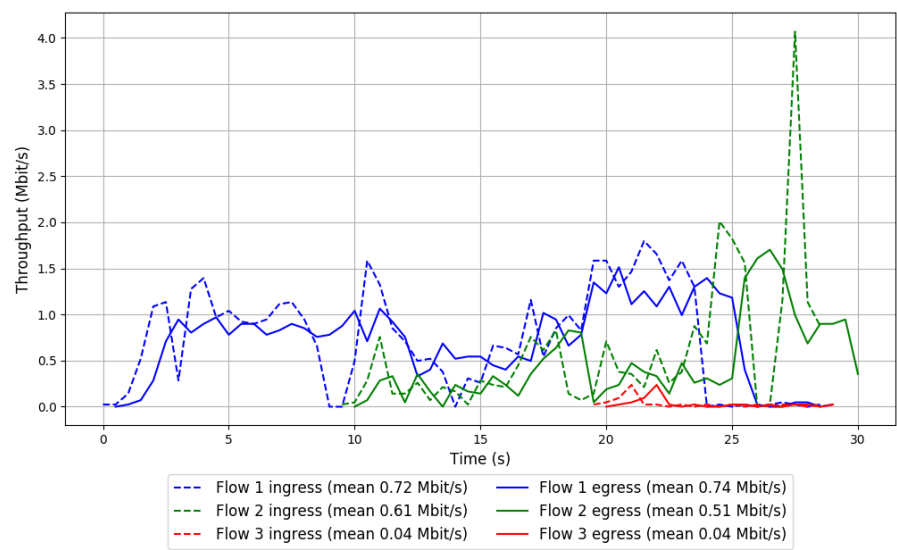
-- Flow 3:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 992.625 ms

Loss rate: 3.85%

Run 1: Report of Verus — Data Link

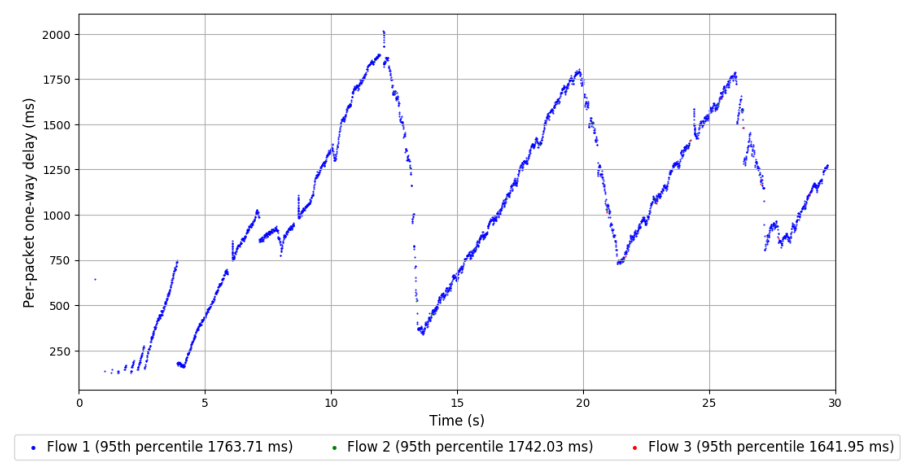
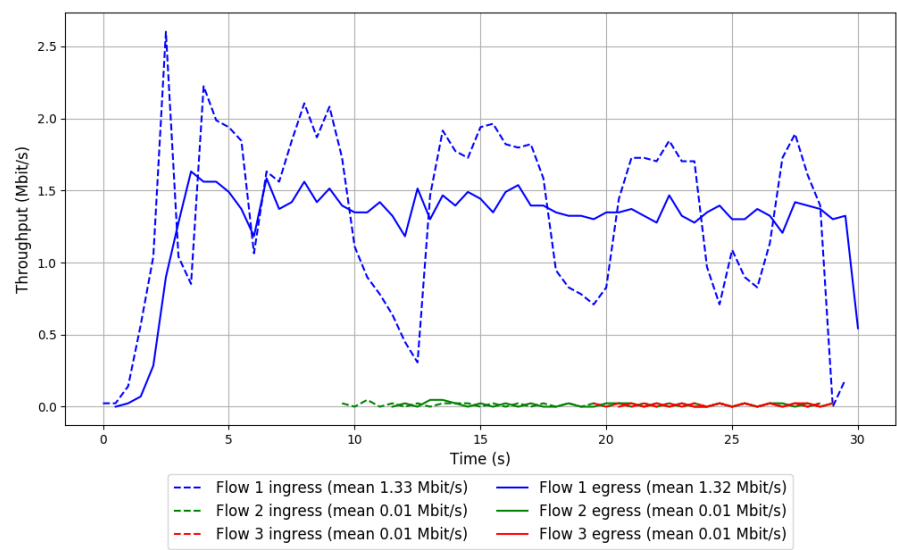


Run 2: Statistics of Verus

Start at: 2018-09-07 13:25:50
End at: 2018-09-07 13:26:20
Local clock offset: 3.428 ms
Remote clock offset: -1.249 ms

Below is generated by plot.py at 2018-09-07 14:01:29
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 1763.192 ms
Loss rate: 2.45%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 1763.713 ms
Loss rate: 2.41%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1742.032 ms
Loss rate: 4.55%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1641.948 ms
Loss rate: 10.00%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-07 13:47:56

End at: 2018-09-07 13:48:26

Local clock offset: 3.532 ms

Remote clock offset: 0.043 ms

Below is generated by plot.py at 2018-09-07 14:01:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.76 Mbit/s

95th percentile per-packet one-way delay: 1564.465 ms

Loss rate: 1.84%

-- Flow 1:

Average throughput: 1.75 Mbit/s

95th percentile per-packet one-way delay: 1566.591 ms

Loss rate: 1.81%

-- Flow 2:

Average throughput: 0.02 Mbit/s

95th percentile per-packet one-way delay: 1330.529 ms

Loss rate: 2.86%

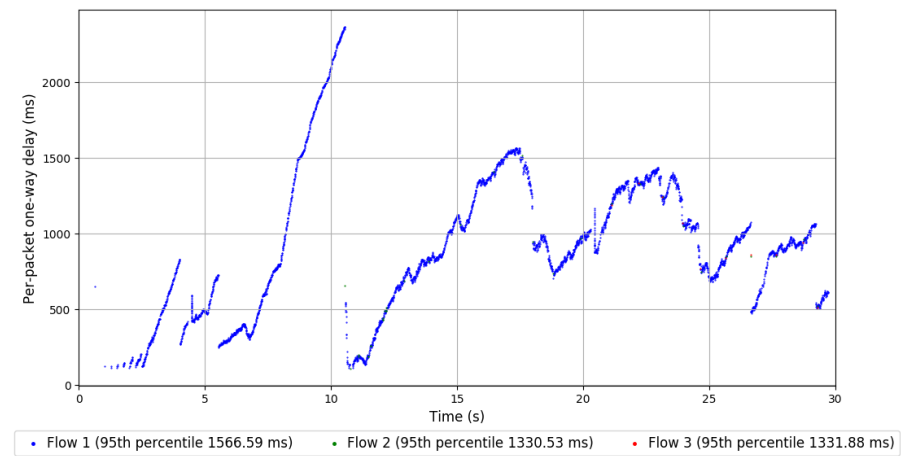
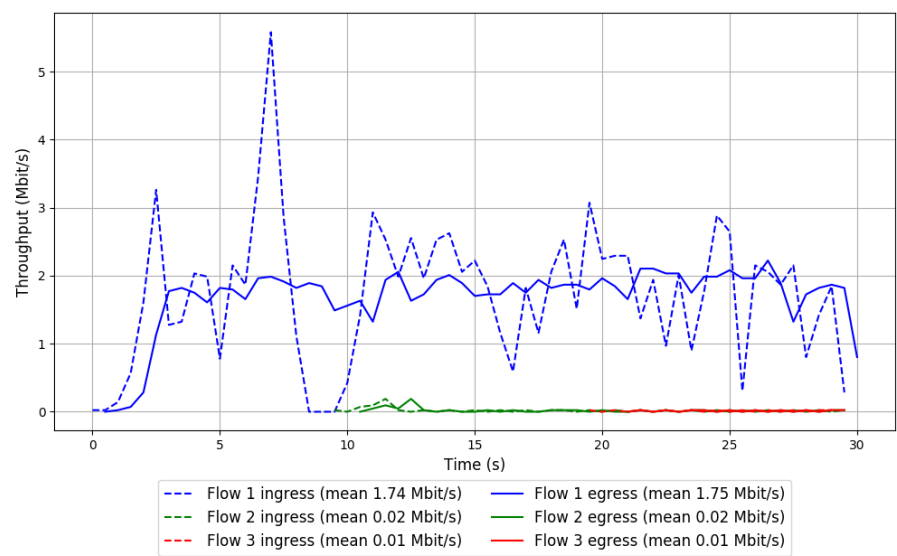
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 1331.881 ms

Loss rate: 9.09%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-07 13:11:06

End at: 2018-09-07 13:11:36

Local clock offset: 4.201 ms

Remote clock offset: -0.66 ms

Below is generated by plot.py at 2018-09-07 14:01:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.98 Mbit/s

95th percentile per-packet one-way delay: 2656.090 ms

Loss rate: 4.58%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2609.284 ms

Loss rate: 2.15%

-- Flow 2:

Average throughput: 1.47 Mbit/s

95th percentile per-packet one-way delay: 2656.128 ms

Loss rate: 4.59%

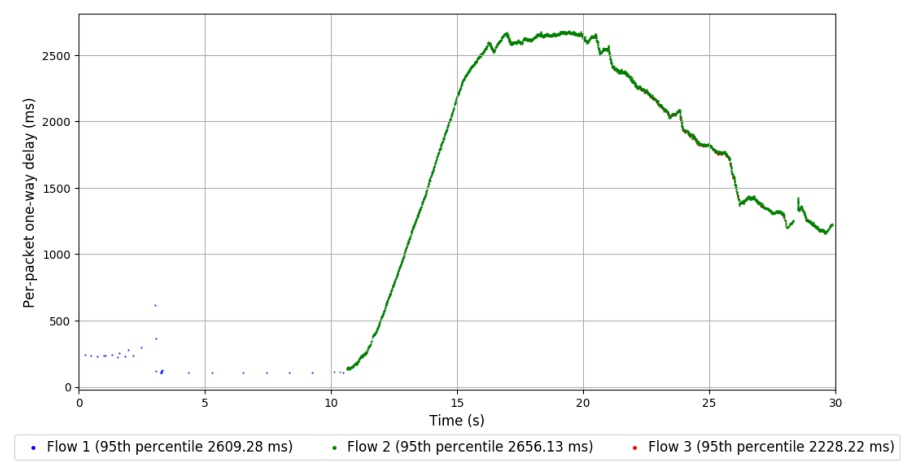
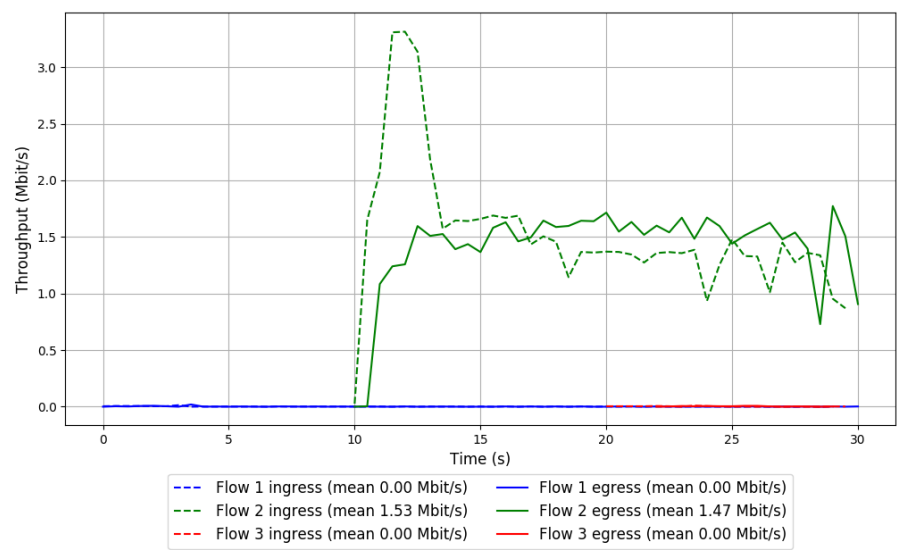
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2228.222 ms

Loss rate: 7.77%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-07 13:33:14

End at: 2018-09-07 13:33:44

Local clock offset: 4.171 ms

Remote clock offset: 2.799 ms

Below is generated by plot.py at 2018-09-07 14:01:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.49 Mbit/s

95th percentile per-packet one-way delay: 4848.820 ms

Loss rate: 39.97%

-- Flow 1:

Average throughput: 0.87 Mbit/s

95th percentile per-packet one-way delay: 4534.041 ms

Loss rate: 33.24%

-- Flow 2:

Average throughput: 0.95 Mbit/s

95th percentile per-packet one-way delay: 4989.053 ms

Loss rate: 47.35%

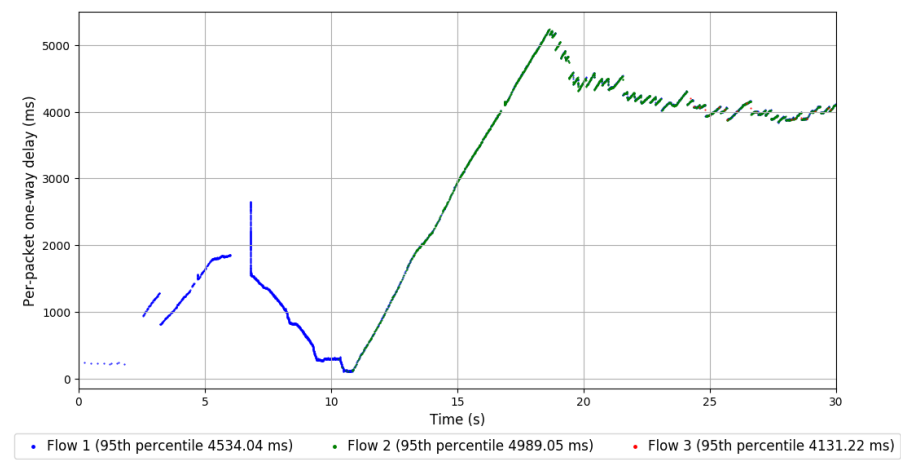
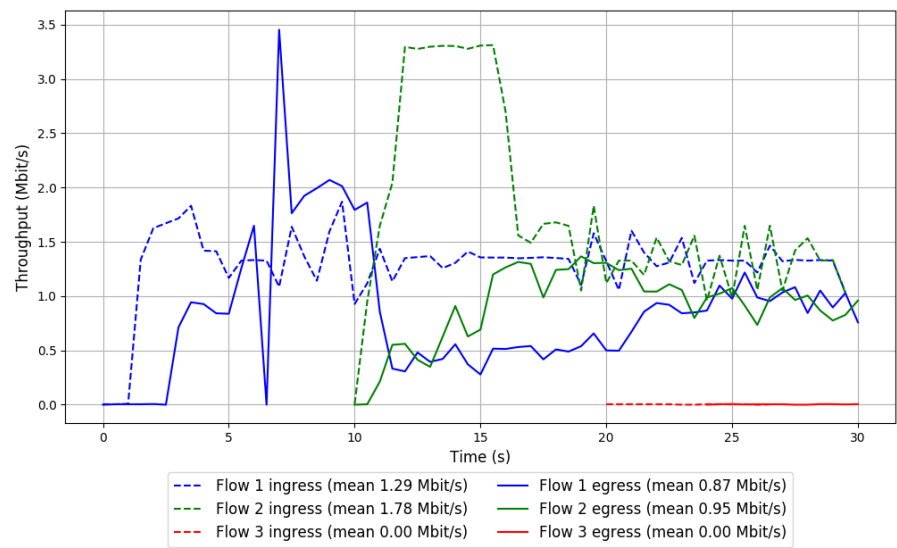
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 4131.217 ms

Loss rate: 5.60%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-07 13:55:17

End at: 2018-09-07 13:55:47

Local clock offset: 4.548 ms

Remote clock offset: 4.284 ms

Below is generated by plot.py at 2018-09-07 14:01:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.56 Mbit/s

95th percentile per-packet one-way delay: 4840.009 ms

Loss rate: 35.09%

-- Flow 1:

Average throughput: 0.91 Mbit/s

95th percentile per-packet one-way delay: 4832.204 ms

Loss rate: 31.30%

-- Flow 2:

Average throughput: 0.97 Mbit/s

95th percentile per-packet one-way delay: 4844.915 ms

Loss rate: 39.78%

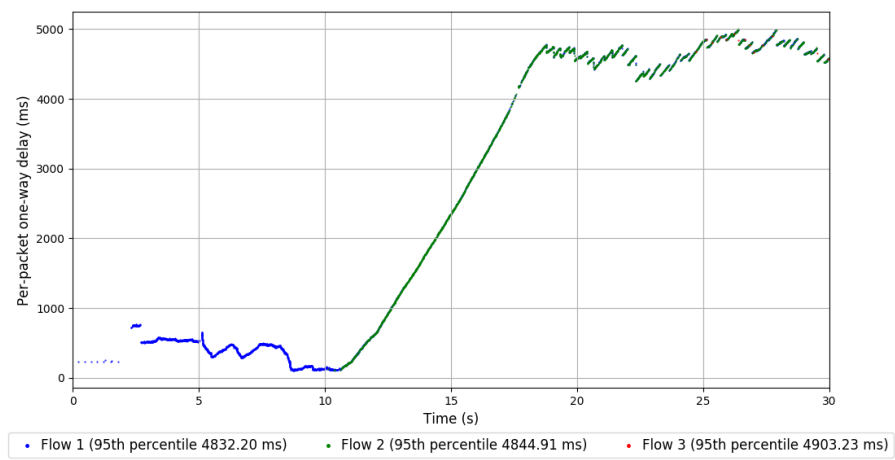
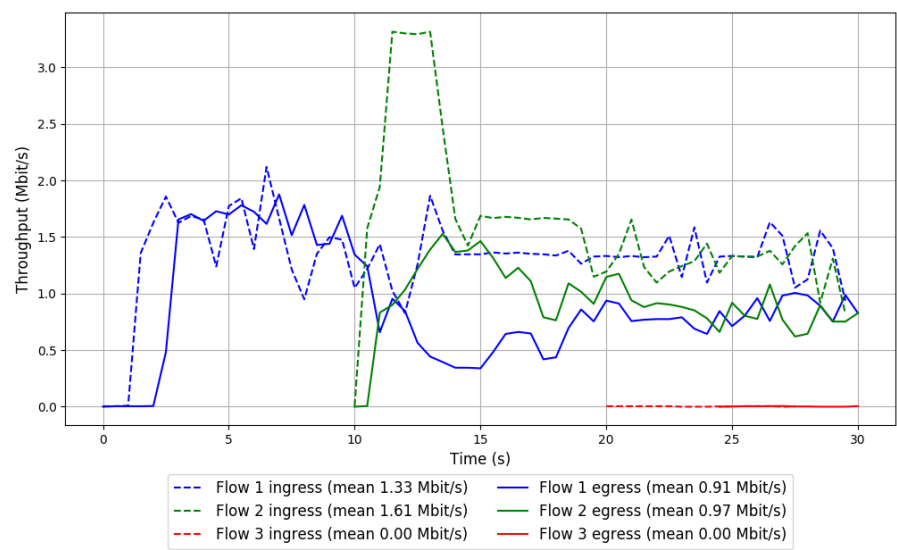
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 4903.235 ms

Loss rate: 37.14%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-09-07 13:14:48

End at: 2018-09-07 13:15:18

Local clock offset: 4.086 ms

Remote clock offset: 4.604 ms

Below is generated by plot.py at 2018-09-07 14:01:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.38 Mbit/s

95th percentile per-packet one-way delay: 1980.461 ms

Loss rate: 0.25%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 1907.330 ms

Loss rate: 0.17%

-- Flow 2:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 1774.883 ms

Loss rate: 0.47%

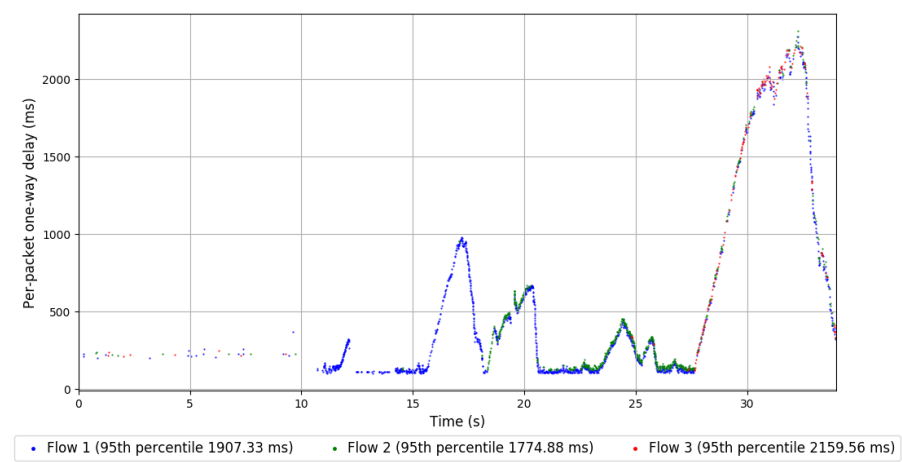
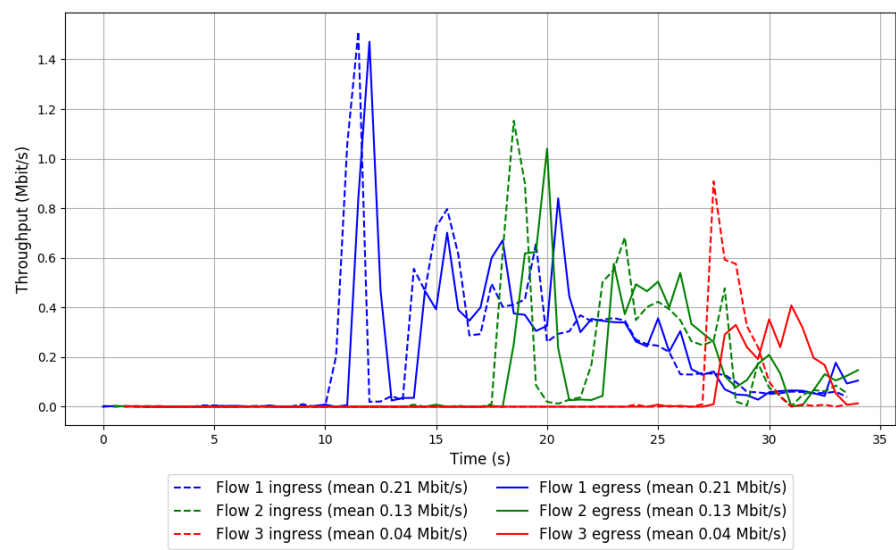
-- Flow 3:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 2159.564 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-07 13:36:55

End at: 2018-09-07 13:37:25

Local clock offset: 4.122 ms

Remote clock offset: 4.081 ms

Below is generated by plot.py at 2018-09-07 14:01:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 359.693 ms

Loss rate: 0.84%

-- Flow 1:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 371.293 ms

Loss rate: 0.17%

-- Flow 2:

Average throughput: 0.24 Mbit/s

95th percentile per-packet one-way delay: 361.901 ms

Loss rate: 0.66%

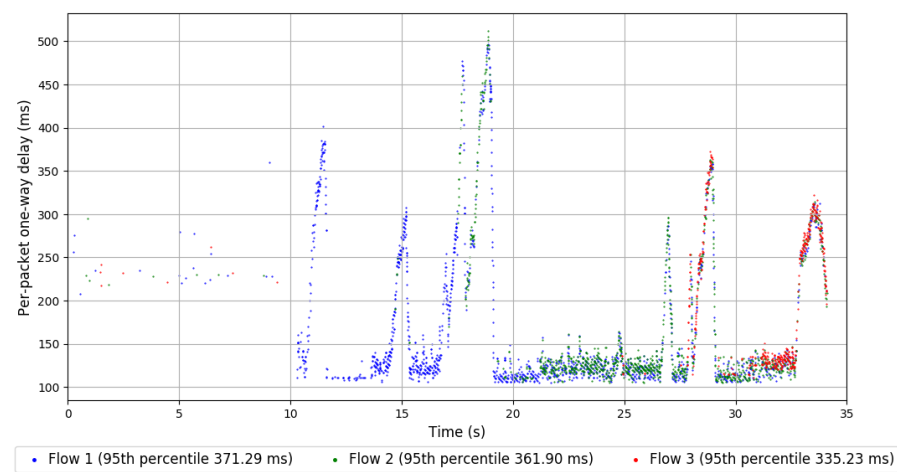
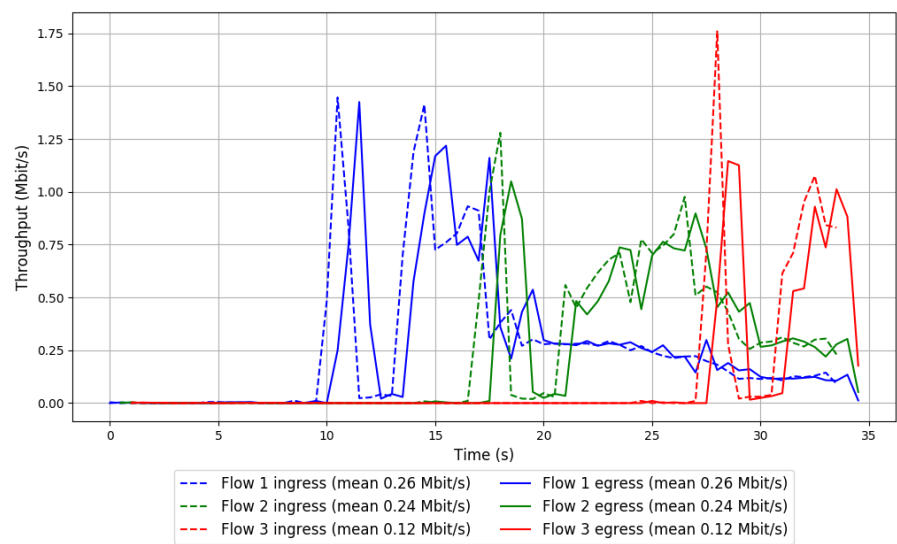
-- Flow 3:

Average throughput: 0.12 Mbit/s

95th percentile per-packet one-way delay: 335.232 ms

Loss rate: 2.70%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-07 13:58:58

End at: 2018-09-07 13:59:28

Local clock offset: 4.671 ms

Remote clock offset: 4.132 ms

Below is generated by plot.py at 2018-09-07 14:01:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.75 Mbit/s

95th percentile per-packet one-way delay: 582.359 ms

Loss rate: 0.25%

-- Flow 1:

Average throughput: 0.30 Mbit/s

95th percentile per-packet one-way delay: 512.526 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 0.38 Mbit/s

95th percentile per-packet one-way delay: 634.374 ms

Loss rate: 0.21%

-- Flow 3:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 680.323 ms

Loss rate: 0.83%

Run 3: Report of WebRTC media — Data Link

