

Pantheon Report

Generated at 2018-11-03 21:26:11 (UTC).

Data path: GCE Tokyo on `ens4` (*remote*) → GCE Sydney on `ens4` (*local*).

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.

System info:

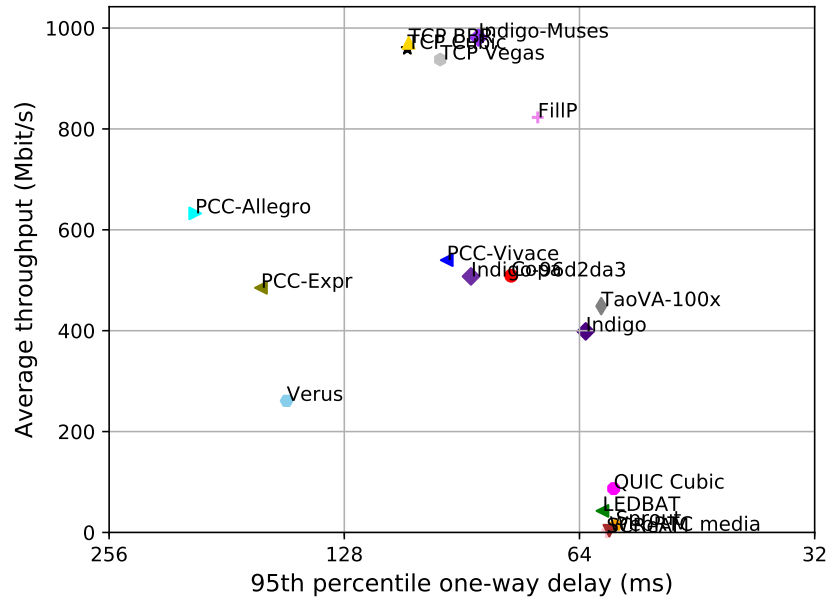
```
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

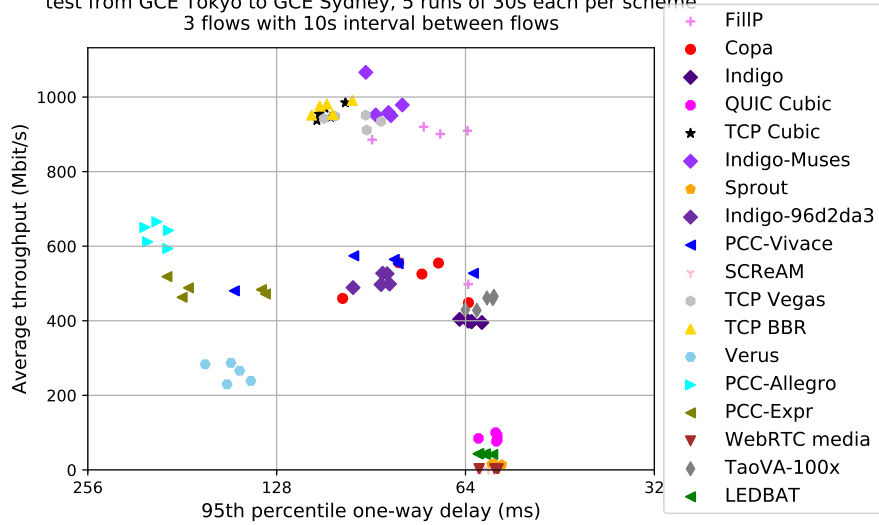
```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from GCE Tokyo to GCE Sydney, 5 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from GCE Tokyo to GCE Sydney, 5 runs of 30s each per scheme
 3 flows with 10s interval between flows



scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	509.59	464.87	461.29	105.81	106.96	99.14	0.43	0.76	1.37
Copa	5	268.55	248.52	227.97	72.81	80.96	89.92	0.40	0.64	1.25
TCP Cubic	5	497.86	473.69	442.04	109.01	98.40	99.87	0.47	0.72	1.60
FillP	5	478.84	386.03	266.82	75.07	61.66	61.31	0.51	0.49	1.21
Indigo	5	215.54	194.12	167.59	62.31	66.12	60.88	0.40	0.64	1.31
Indigo-96d2da3	5	266.33	252.87	226.75	87.83	90.32	84.03	0.28	0.49	1.30
LEDBAT	5	27.64	18.24	9.10	59.02	59.21	59.12	0.77	1.11	2.33
Indigo-Muses	5	550.04	463.90	382.09	86.86	86.54	81.50	0.35	0.65	1.65
PCC-Allegro	5	357.25	290.37	253.52	208.48	117.21	104.57	8.49	1.40	1.45
PCC-Expr	5	286.43	242.49	114.99	168.00	145.54	75.06	2.26	1.94	1.96
QUIC Cubic	5	51.98	34.82	34.80	57.24	57.01	57.87	0.57	0.72	1.18
SCReAM	5	0.22	0.22	0.22	57.94	57.15	59.08	0.38	0.61	1.08
Sprout	5	7.52	7.40	6.99	57.43	57.48	57.45	0.37	0.68	1.36
TaoVA-100x	5	234.41	228.16	190.01	59.09	60.76	60.64	0.42	0.62	0.95
TCP Vegas	5	507.47	451.45	394.22	95.58	87.53	89.08	0.37	0.62	1.43
Verus	5	147.68	129.14	84.23	149.02	166.32	122.24	0.89	1.07	2.01
PCC-Vivace	5	328.79	258.33	121.23	117.65	69.83	59.90	0.61	0.66	1.70
WebRTC media	5	1.83	1.15	0.43	58.62	57.92	58.53	0.43	0.72	1.53

Run 1: Statistics of TCP BBR

Start at: 2018-11-03 16:16:26

End at: 2018-11-03 16:16:56

Local clock offset: 0.282 ms

Remote clock offset: 0.004 ms

Below is generated by plot.py at 2018-11-03 19:12:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 953.53 Mbit/s

95th percentile per-packet one-way delay: 104.149 ms

Loss rate: 0.57%

-- Flow 1:

Average throughput: 513.34 Mbit/s

95th percentile per-packet one-way delay: 94.838 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 439.75 Mbit/s

95th percentile per-packet one-way delay: 112.208 ms

Loss rate: 0.81%

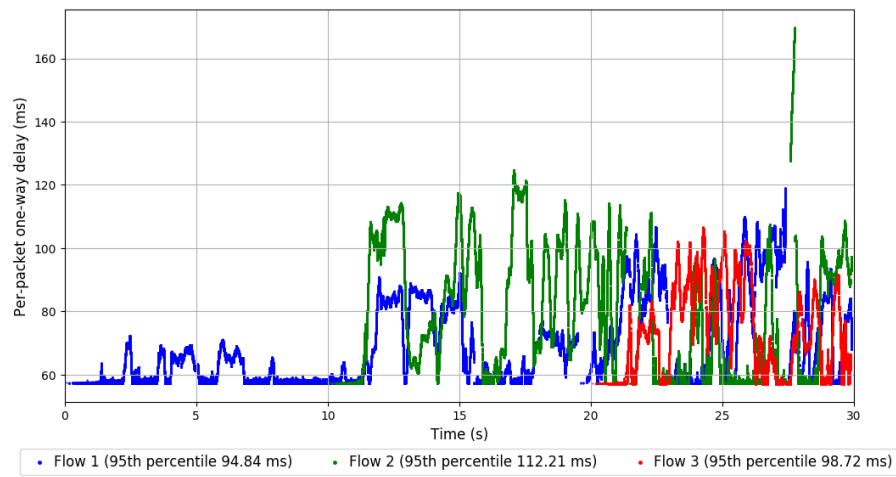
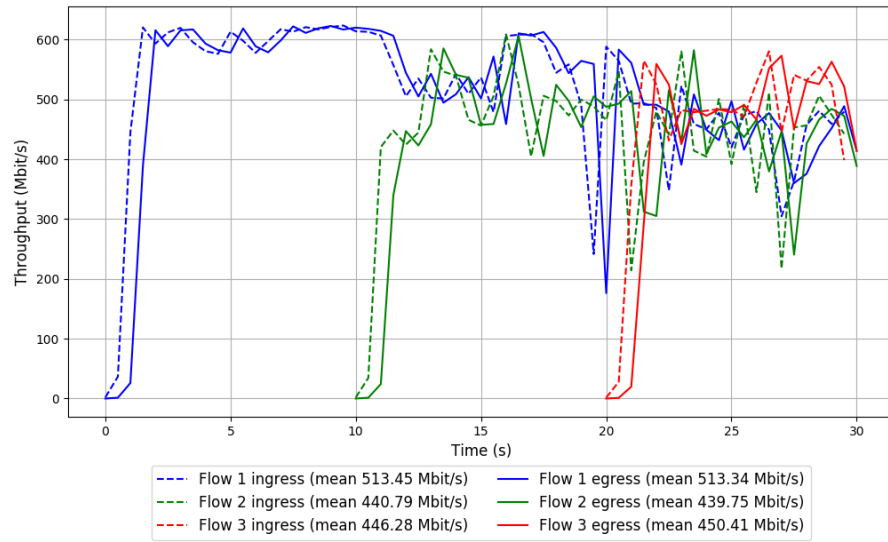
-- Flow 3:

Average throughput: 450.41 Mbit/s

95th percentile per-packet one-way delay: 98.717 ms

Loss rate: 0.70%

Run 1: Report of TCP BBR — Data Link

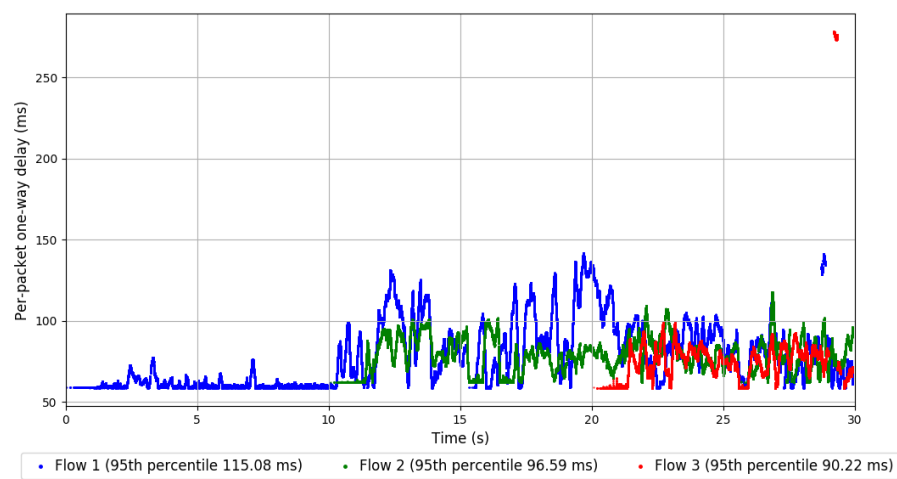
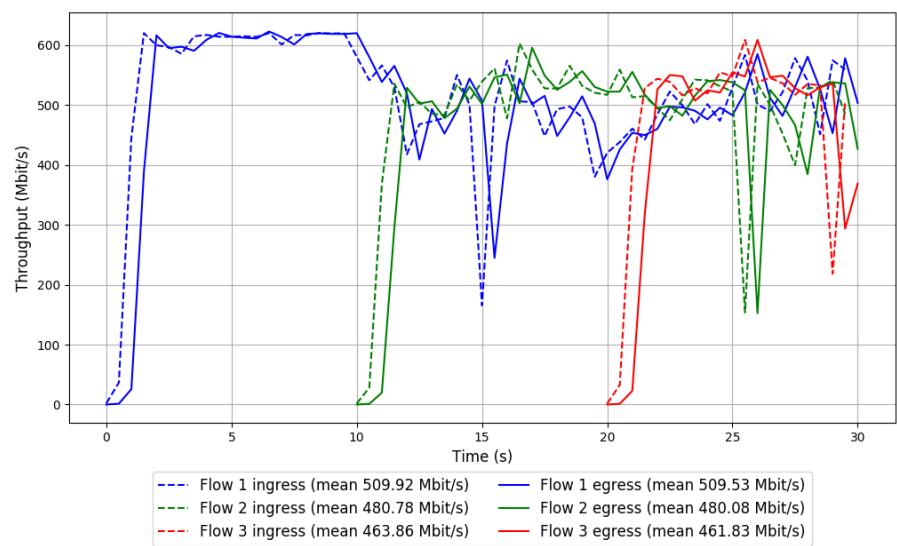


Run 2: Statistics of TCP BBR

Start at: 2018-11-03 16:49:59
End at: 2018-11-03 16:50:29
Local clock offset: 0.36 ms
Remote clock offset: -1.375 ms

Below is generated by plot.py at 2018-11-03 19:12:56
Datalink statistics
-- Total of 3 flows:
Average throughput: 980.94 Mbit/s
95th percentile per-packet one-way delay: 106.407 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 509.53 Mbit/s
95th percentile per-packet one-way delay: 115.083 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 480.08 Mbit/s
95th percentile per-packet one-way delay: 96.589 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 461.83 Mbit/s
95th percentile per-packet one-way delay: 90.216 ms
Loss rate: 1.57%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-11-03 17:23:56

End at: 2018-11-03 17:24:26

Local clock offset: -0.188 ms

Remote clock offset: -0.01 ms

Below is generated by plot.py at 2018-11-03 19:12:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 975.67 Mbit/s

95th percentile per-packet one-way delay: 109.270 ms

Loss rate: 0.72%

-- Flow 1:

Average throughput: 509.79 Mbit/s

95th percentile per-packet one-way delay: 116.509 ms

Loss rate: 0.46%

-- Flow 2:

Average throughput: 473.88 Mbit/s

95th percentile per-packet one-way delay: 106.280 ms

Loss rate: 0.75%

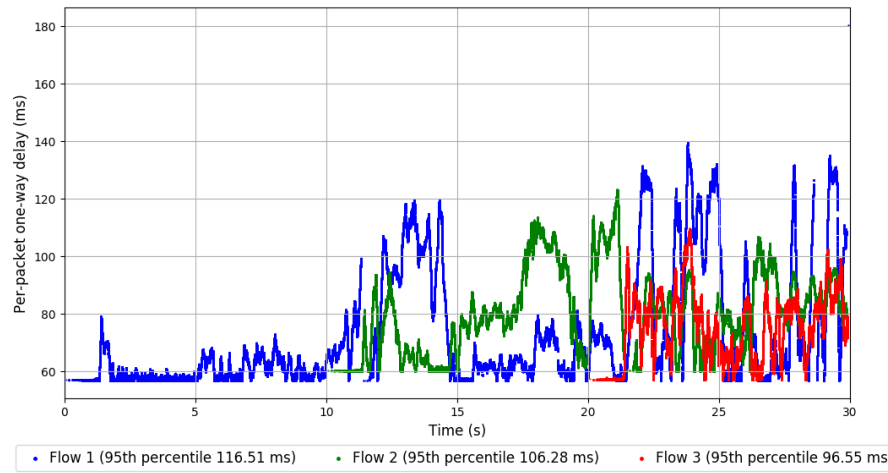
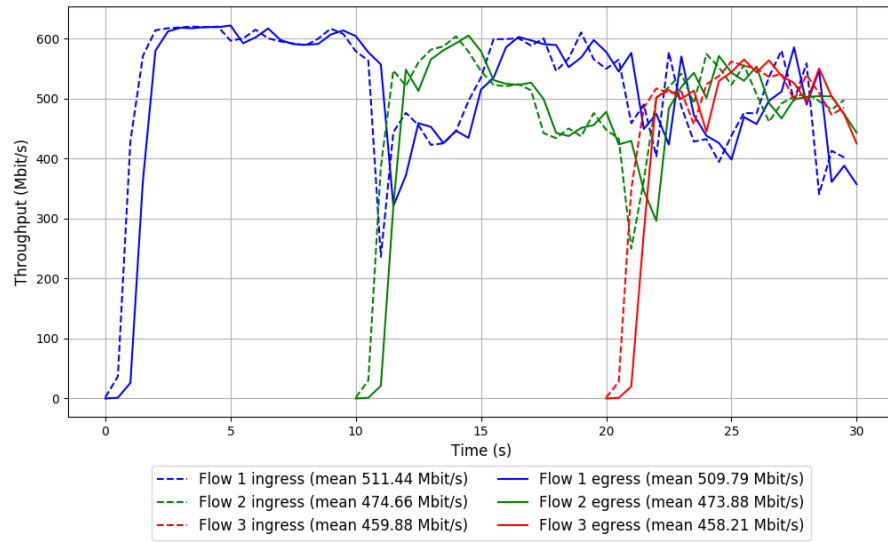
-- Flow 3:

Average throughput: 458.21 Mbit/s

95th percentile per-packet one-way delay: 96.545 ms

Loss rate: 1.52%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-11-03 17:57:31

End at: 2018-11-03 17:58:01

Local clock offset: 0.081 ms

Remote clock offset: -0.05 ms

Below is generated by plot.py at 2018-11-03 19:12:56

Datalink statistics

-- Total of 3 flows:

Average throughput: 951.62 Mbit/s

95th percentile per-packet one-way delay: 112.570 ms

Loss rate: 0.74%

-- Flow 1:

Average throughput: 507.30 Mbit/s

95th percentile per-packet one-way delay: 104.594 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 441.92 Mbit/s

95th percentile per-packet one-way delay: 127.345 ms

Loss rate: 0.80%

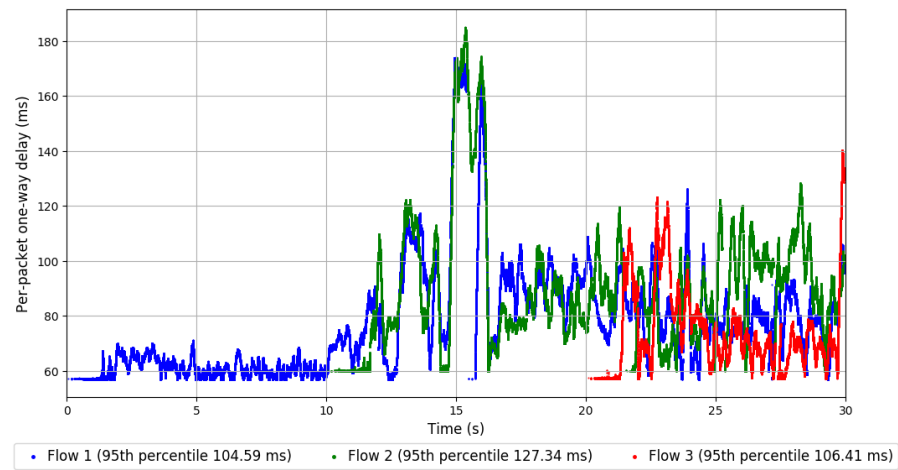
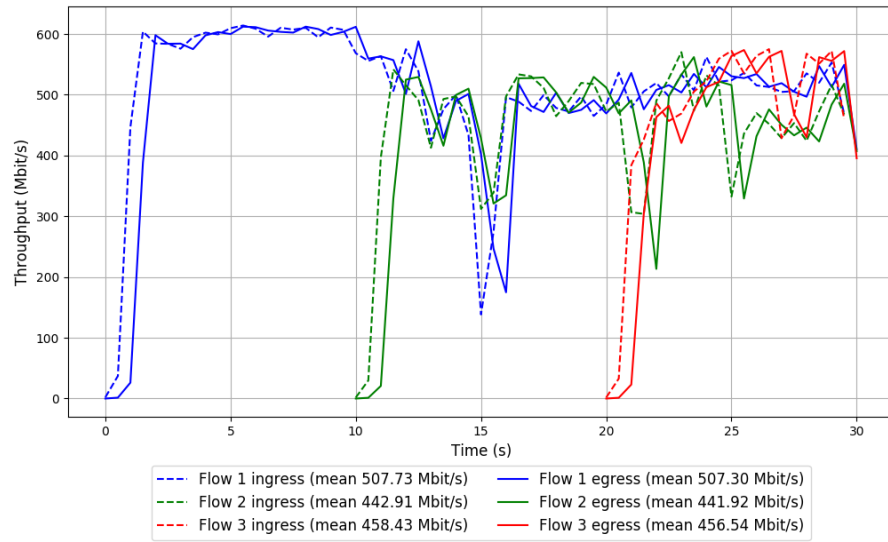
-- Flow 3:

Average throughput: 456.54 Mbit/s

95th percentile per-packet one-way delay: 106.408 ms

Loss rate: 1.56%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-11-03 18:31:58

End at: 2018-11-03 18:32:28

Local clock offset: 0.306 ms

Remote clock offset: 0.248 ms

Below is generated by plot.py at 2018-11-03 19:13:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 991.09 Mbit/s

95th percentile per-packet one-way delay: 96.983 ms

Loss rate: 0.68%

-- Flow 1:

Average throughput: 508.00 Mbit/s

95th percentile per-packet one-way delay: 98.036 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 488.71 Mbit/s

95th percentile per-packet one-way delay: 92.382 ms

Loss rate: 0.73%

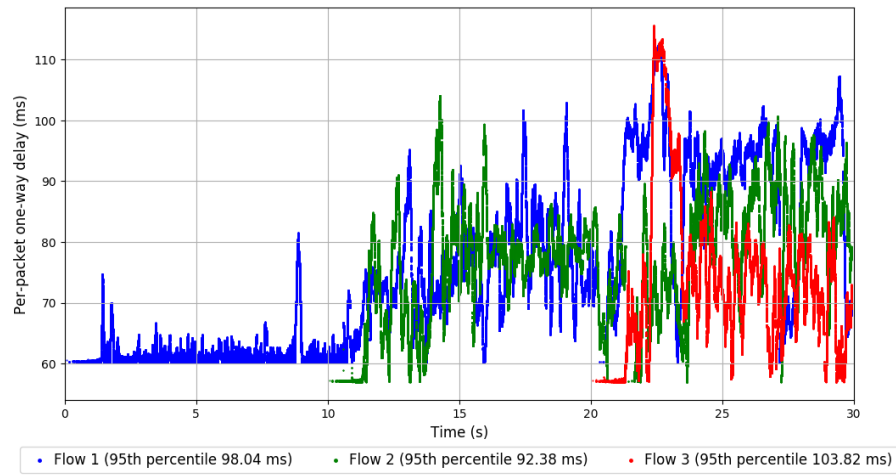
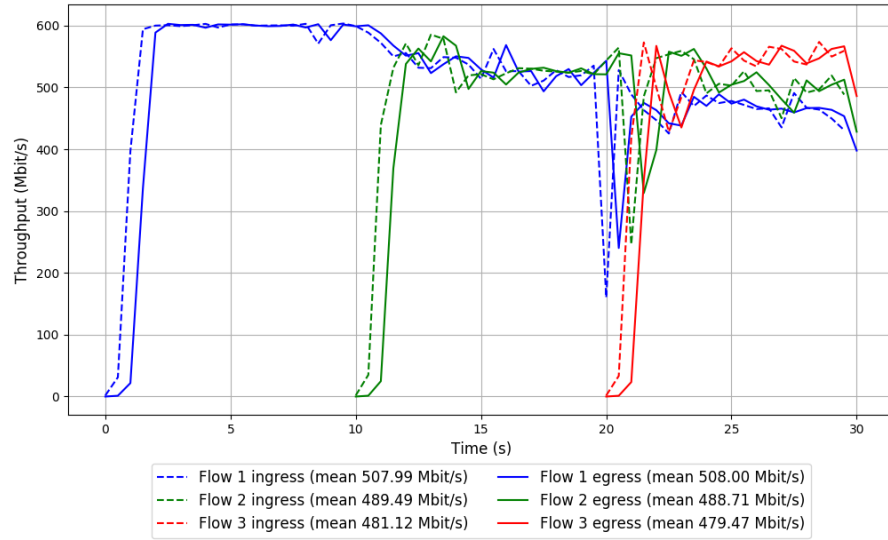
-- Flow 3:

Average throughput: 479.47 Mbit/s

95th percentile per-packet one-way delay: 103.819 ms

Loss rate: 1.48%

Run 5: Report of TCP BBR — Data Link

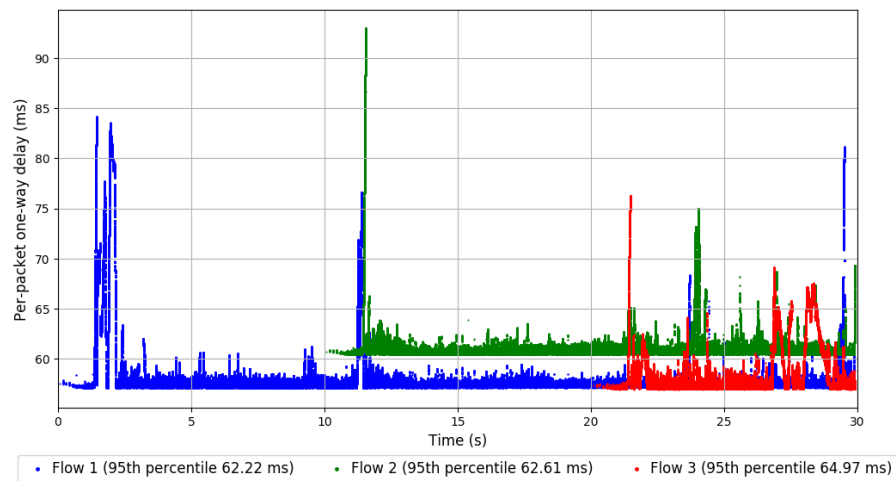
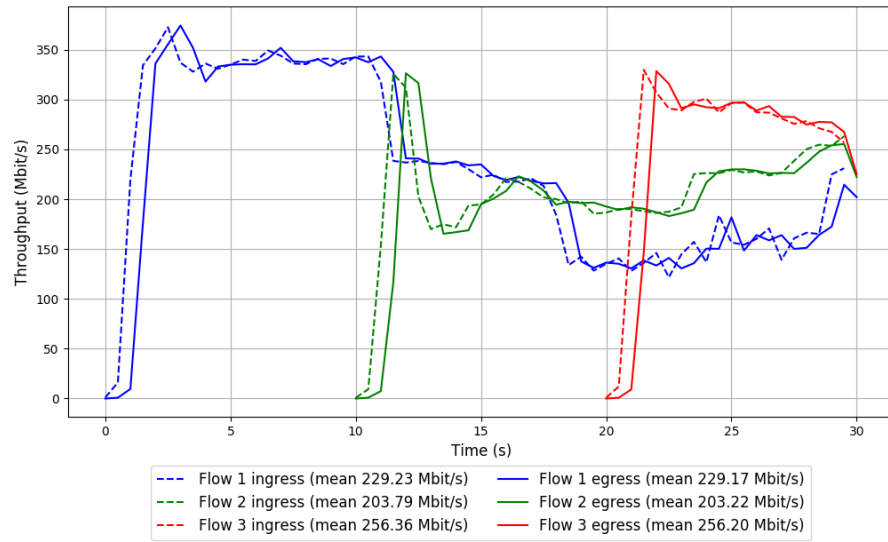


Run 1: Statistics of Copa

Start at: 2018-11-03 15:49:55
End at: 2018-11-03 15:50:25
Local clock offset: -0.121 ms
Remote clock offset: -0.295 ms

Below is generated by plot.py at 2018-11-03 19:13:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 448.47 Mbit/s
95th percentile per-packet one-way delay: 63.309 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 229.17 Mbit/s
95th percentile per-packet one-way delay: 62.223 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 203.22 Mbit/s
95th percentile per-packet one-way delay: 62.613 ms
Loss rate: 0.87%
-- Flow 3:
Average throughput: 256.20 Mbit/s
95th percentile per-packet one-way delay: 64.971 ms
Loss rate: 1.21%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-11-03 16:23:19

End at: 2018-11-03 16:23:49

Local clock offset: 0.284 ms

Remote clock offset: 0.132 ms

Below is generated by plot.py at 2018-11-03 19:13:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 554.83 Mbit/s

95th percentile per-packet one-way delay: 70.671 ms

Loss rate: 0.63%

-- Flow 1:

Average throughput: 282.77 Mbit/s

95th percentile per-packet one-way delay: 68.277 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 278.76 Mbit/s

95th percentile per-packet one-way delay: 75.091 ms

Loss rate: 0.59%

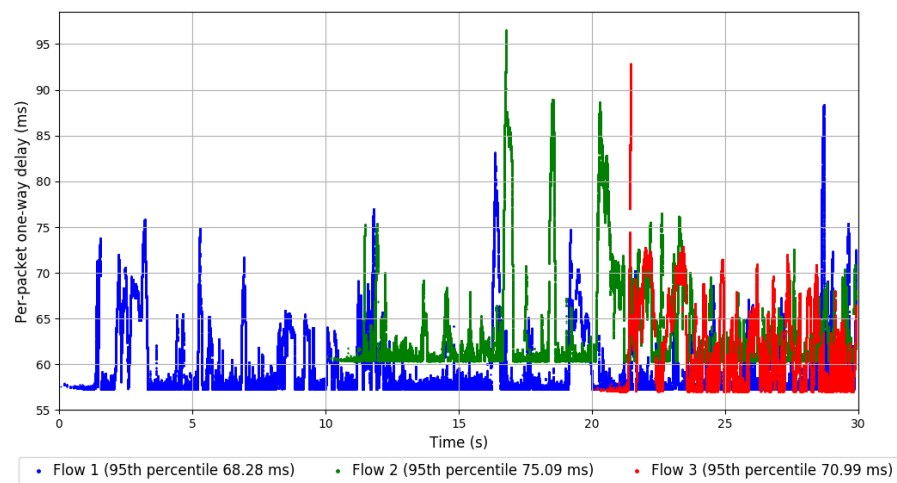
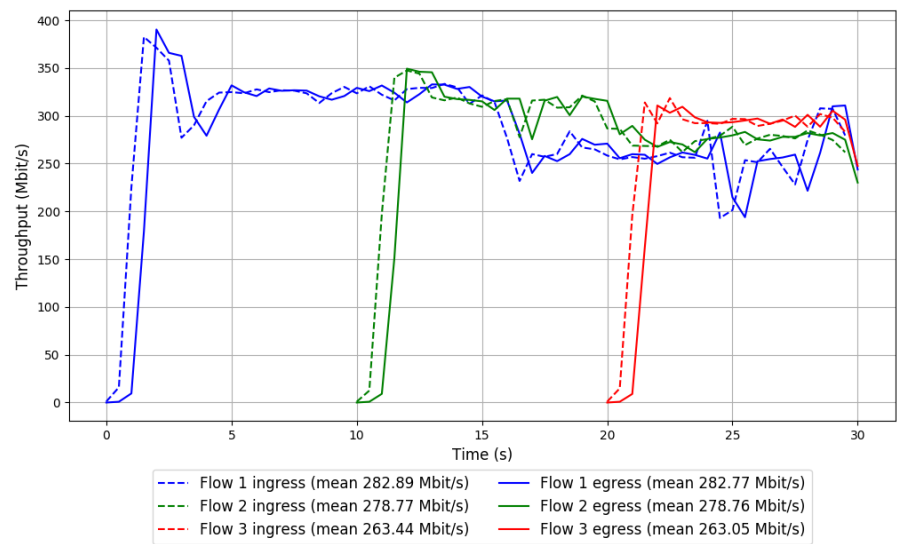
-- Flow 3:

Average throughput: 263.05 Mbit/s

95th percentile per-packet one-way delay: 70.989 ms

Loss rate: 1.34%

Run 2: Report of Copa — Data Link

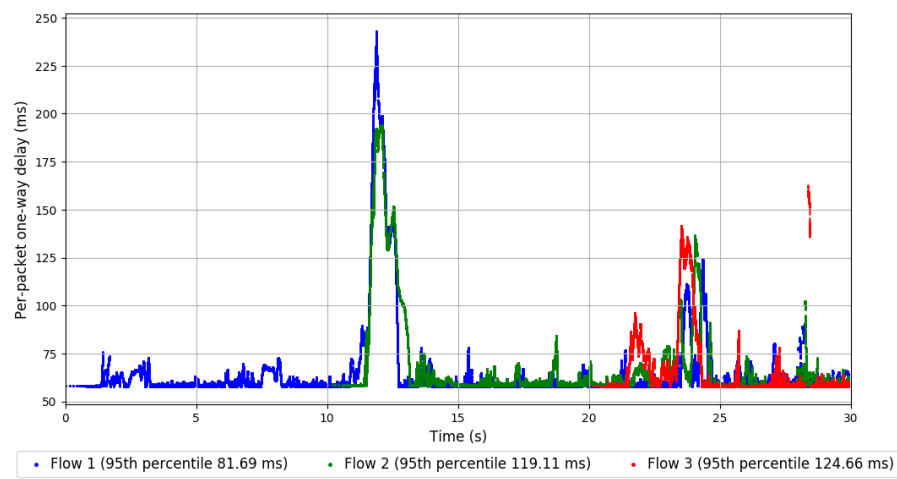
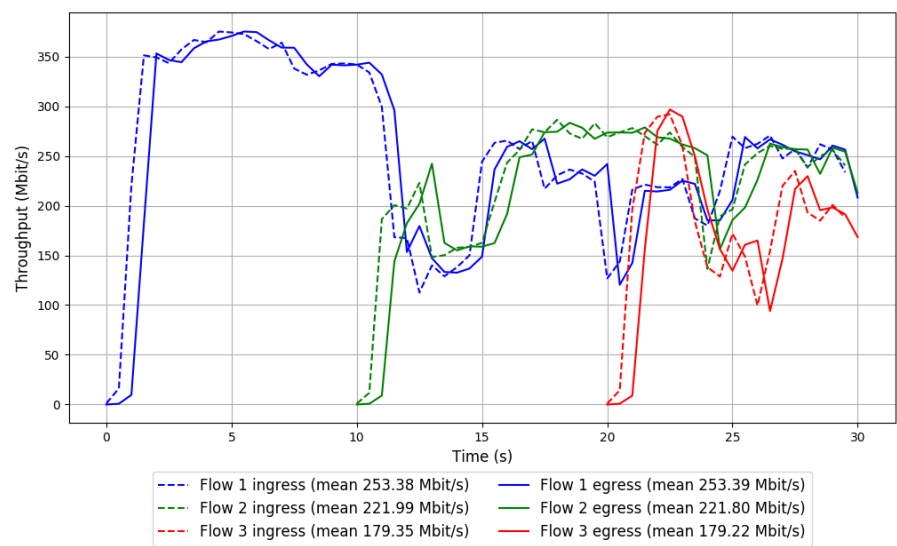


Run 3: Statistics of Copa

Start at: 2018-11-03 16:57:05
End at: 2018-11-03 16:57:35
Local clock offset: -0.455 ms
Remote clock offset: -1.356 ms

Below is generated by plot.py at 2018-11-03 19:13:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 459.97 Mbit/s
95th percentile per-packet one-way delay: 100.467 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 253.39 Mbit/s
95th percentile per-packet one-way delay: 81.689 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 221.80 Mbit/s
95th percentile per-packet one-way delay: 119.107 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 179.22 Mbit/s
95th percentile per-packet one-way delay: 124.659 ms
Loss rate: 1.21%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-11-03 17:30:56

End at: 2018-11-03 17:31:26

Local clock offset: -0.1 ms

Remote clock offset: 0.717 ms

Below is generated by plot.py at 2018-11-03 19:29:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 525.30 Mbit/s

95th percentile per-packet one-way delay: 75.094 ms

Loss rate: 0.58%

-- Flow 1:

Average throughput: 275.79 Mbit/s

95th percentile per-packet one-way delay: 70.144 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 279.41 Mbit/s

95th percentile per-packet one-way delay: 74.236 ms

Loss rate: 0.55%

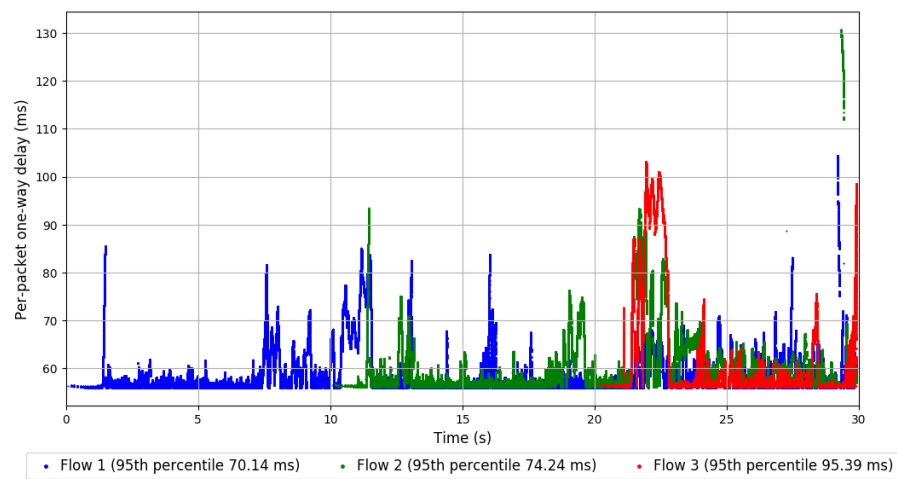
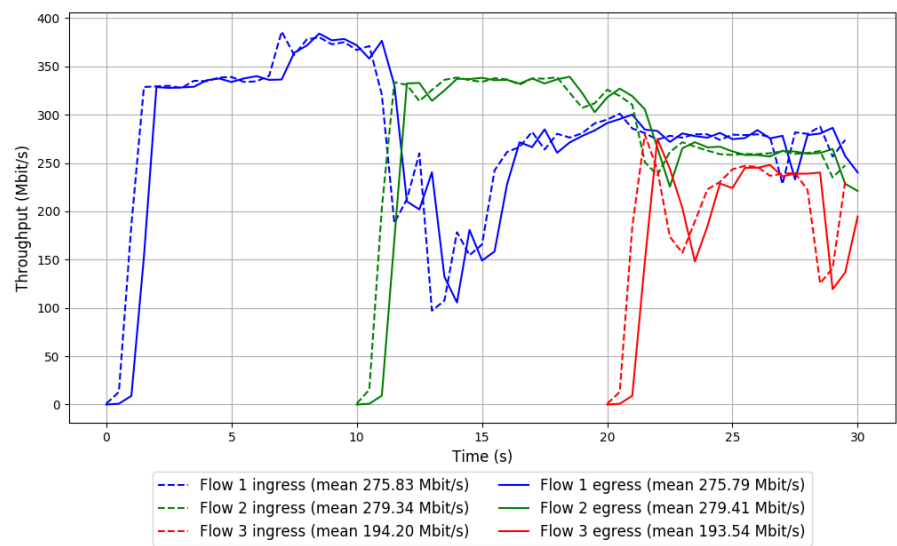
-- Flow 3:

Average throughput: 193.54 Mbit/s

95th percentile per-packet one-way delay: 95.391 ms

Loss rate: 1.47%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-11-03 18:04:25

End at: 2018-11-03 18:04:55

Local clock offset: -0.003 ms

Remote clock offset: -0.21 ms

Below is generated by plot.py at 2018-11-03 19:31:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 555.89 Mbit/s

95th percentile per-packet one-way delay: 81.786 ms

Loss rate: 0.54%

-- Flow 1:

Average throughput: 301.64 Mbit/s

95th percentile per-packet one-way delay: 81.709 ms

Loss rate: 0.41%

-- Flow 2:

Average throughput: 259.42 Mbit/s

95th percentile per-packet one-way delay: 73.767 ms

Loss rate: 0.53%

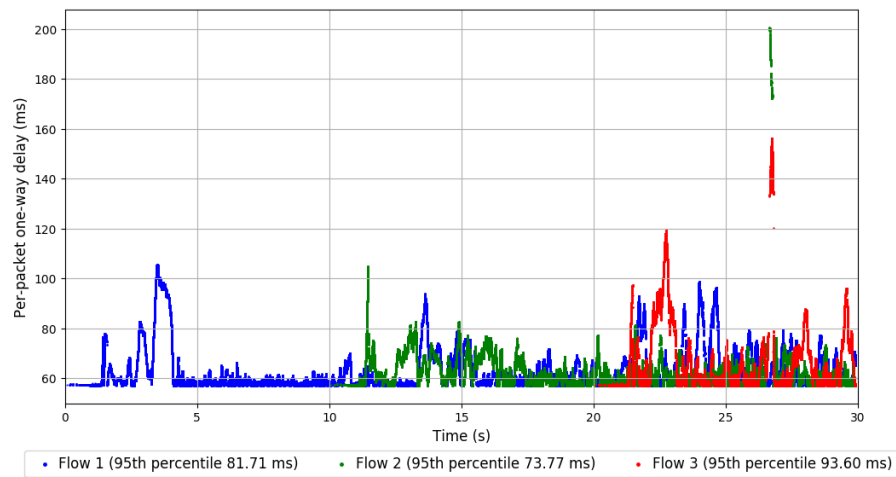
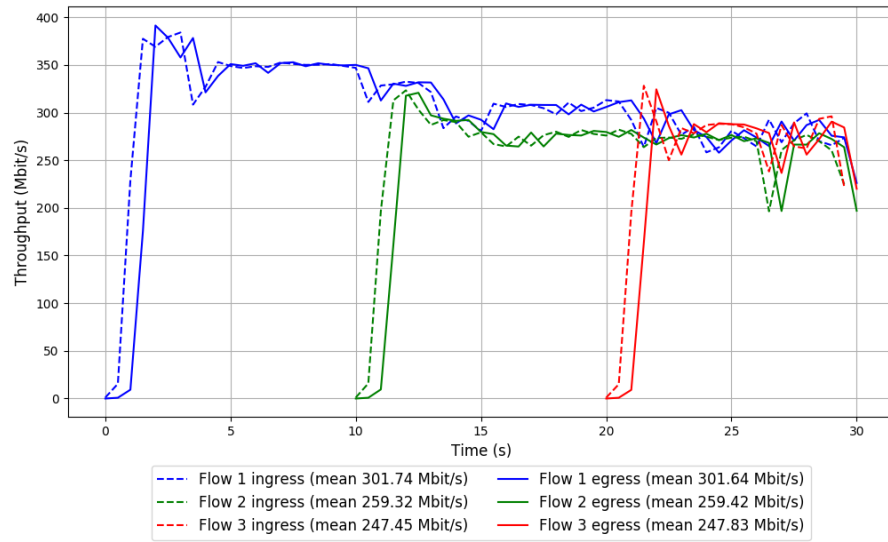
-- Flow 3:

Average throughput: 247.83 Mbit/s

95th percentile per-packet one-way delay: 93.599 ms

Loss rate: 1.00%

Run 5: Report of Copa — Data Link

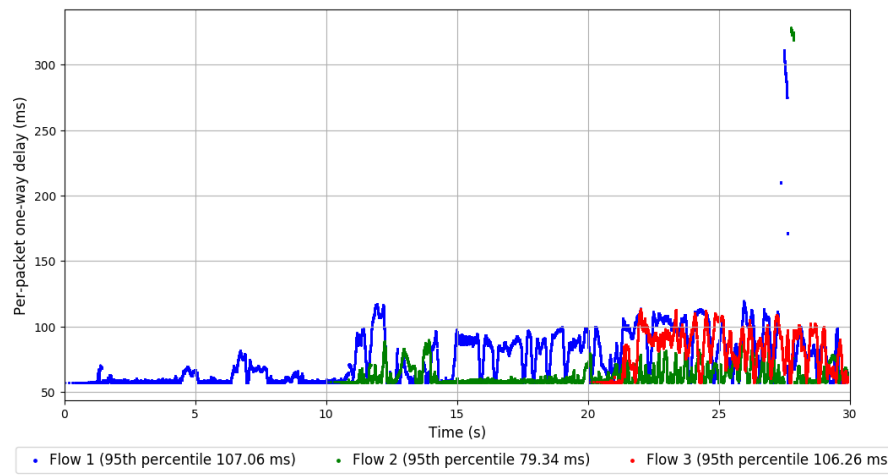
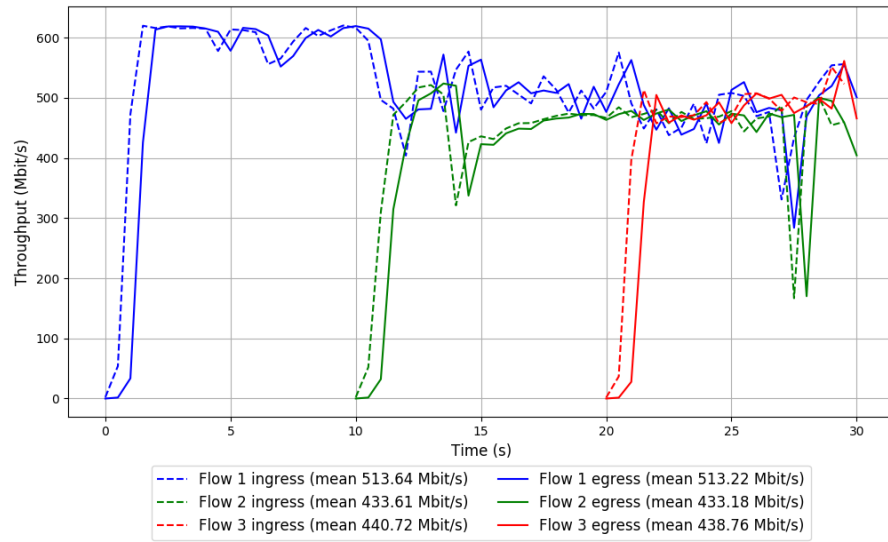


Run 1: Statistics of TCP Cubic

Start at: 2018-11-03 16:18:45
End at: 2018-11-03 16:19:15
Local clock offset: 0.104 ms
Remote clock offset: -0.157 ms

Below is generated by plot.py at 2018-11-03 19:32:01
Datalink statistics
-- Total of 3 flows:
Average throughput: 945.96 Mbit/s
95th percentile per-packet one-way delay: 104.927 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 513.22 Mbit/s
95th percentile per-packet one-way delay: 107.065 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 433.18 Mbit/s
95th percentile per-packet one-way delay: 79.336 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 438.76 Mbit/s
95th percentile per-packet one-way delay: 106.259 ms
Loss rate: 1.59%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-11-03 16:52:17

End at: 2018-11-03 16:52:47

Local clock offset: -0.082 ms

Remote clock offset: 1.17 ms

Below is generated by plot.py at 2018-11-03 19:32:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 937.46 Mbit/s

95th percentile per-packet one-way delay: 110.434 ms

Loss rate: 0.74%

-- Flow 1:

Average throughput: 481.39 Mbit/s

95th percentile per-packet one-way delay: 114.201 ms

Loss rate: 0.48%

-- Flow 2:

Average throughput: 482.04 Mbit/s

95th percentile per-packet one-way delay: 97.832 ms

Loss rate: 0.73%

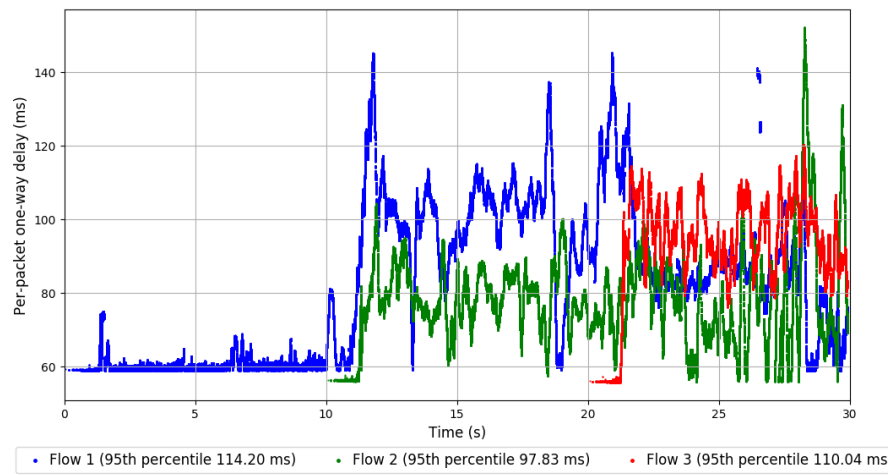
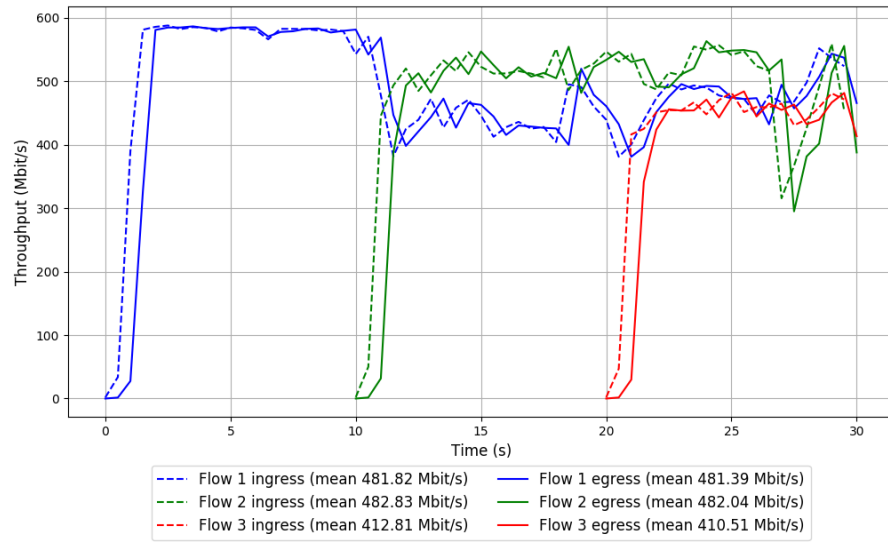
-- Flow 3:

Average throughput: 410.51 Mbit/s

95th percentile per-packet one-way delay: 110.036 ms

Loss rate: 1.70%

Run 2: Report of TCP Cubic — Data Link

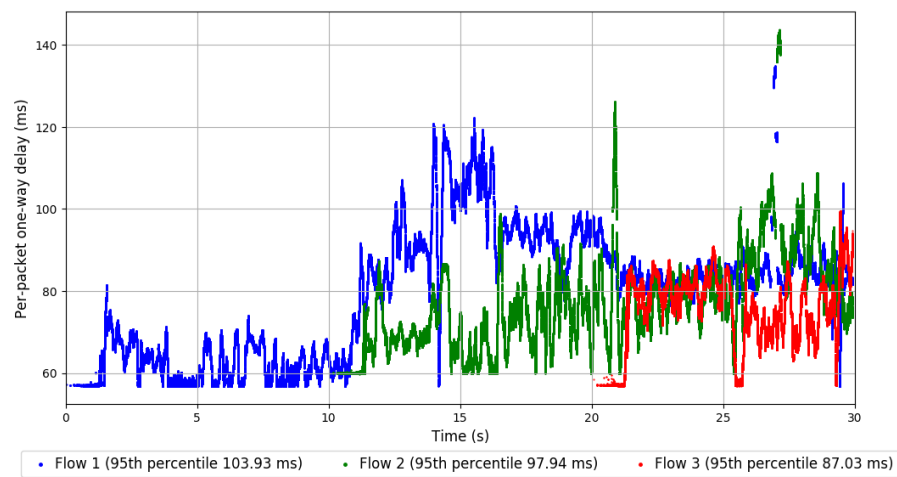
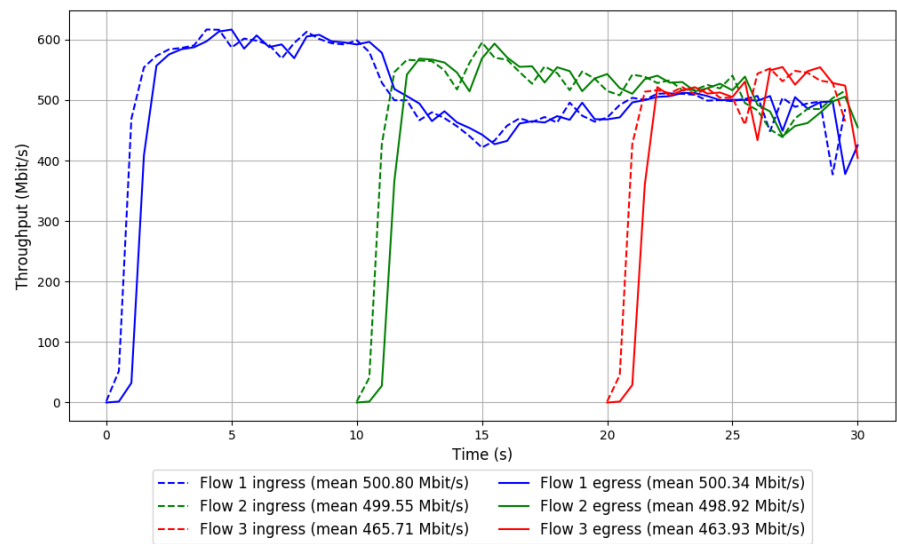


Run 3: Statistics of TCP Cubic

Start at: 2018-11-03 17:26:09
End at: 2018-11-03 17:26:39
Local clock offset: -0.35 ms
Remote clock offset: -0.004 ms

Below is generated by plot.py at 2018-11-03 19:33:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 985.00 Mbit/s
95th percentile per-packet one-way delay: 99.445 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 500.34 Mbit/s
95th percentile per-packet one-way delay: 103.931 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 498.92 Mbit/s
95th percentile per-packet one-way delay: 97.936 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 463.93 Mbit/s
95th percentile per-packet one-way delay: 87.035 ms
Loss rate: 1.54%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-11-03 17:59:44

End at: 2018-11-03 18:00:14

Local clock offset: 0.352 ms

Remote clock offset: 0.306 ms

Below is generated by plot.py at 2018-11-03 19:33:10

Datalink statistics

-- Total of 3 flows:

Average throughput: 954.59 Mbit/s

95th percentile per-packet one-way delay: 109.478 ms

Loss rate: 0.74%

-- Flow 1:

Average throughput: 500.71 Mbit/s

95th percentile per-packet one-way delay: 111.992 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 468.10 Mbit/s

95th percentile per-packet one-way delay: 107.225 ms

Loss rate: 0.76%

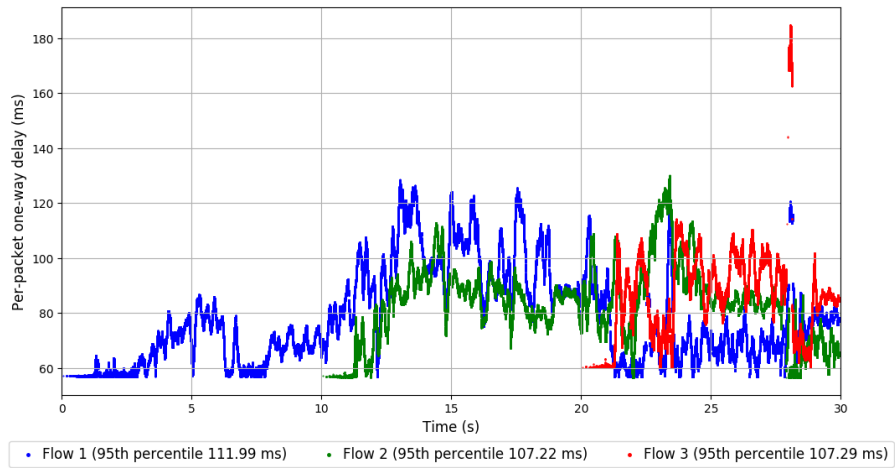
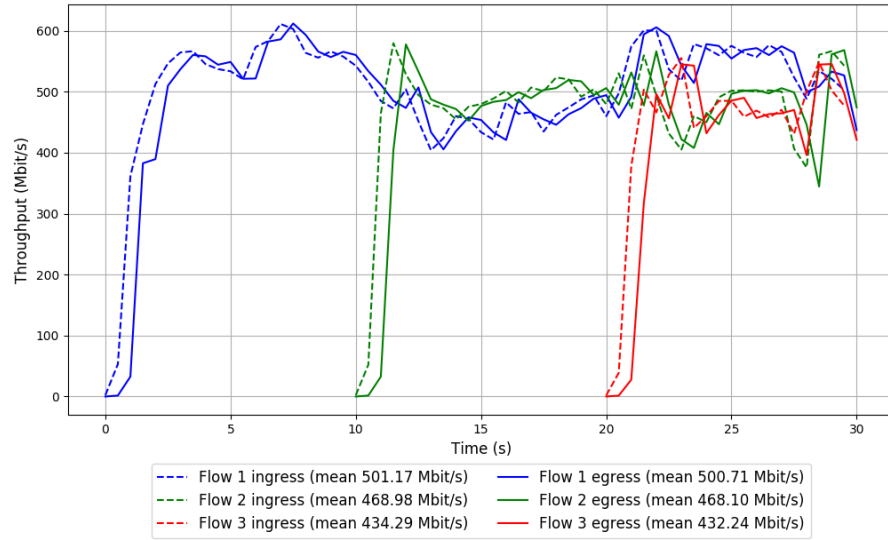
-- Flow 3:

Average throughput: 432.24 Mbit/s

95th percentile per-packet one-way delay: 107.292 ms

Loss rate: 1.65%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-03 18:34:14

End at: 2018-11-03 18:34:44

Local clock offset: -0.075 ms

Remote clock offset: 1.167 ms

Below is generated by plot.py at 2018-11-03 19:33:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 970.19 Mbit/s

95th percentile per-packet one-way delay: 107.171 ms

Loss rate: 0.73%

-- Flow 1:

Average throughput: 493.62 Mbit/s

95th percentile per-packet one-way delay: 107.863 ms

Loss rate: 0.48%

-- Flow 2:

Average throughput: 486.21 Mbit/s

95th percentile per-packet one-way delay: 109.690 ms

Loss rate: 0.73%

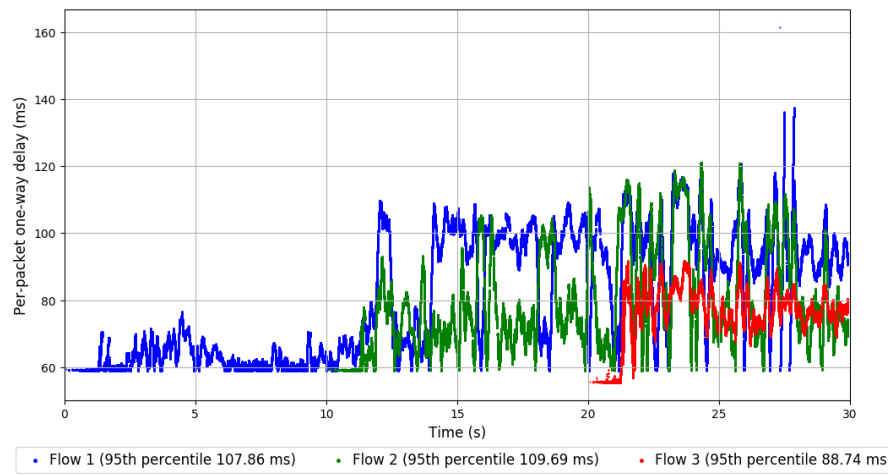
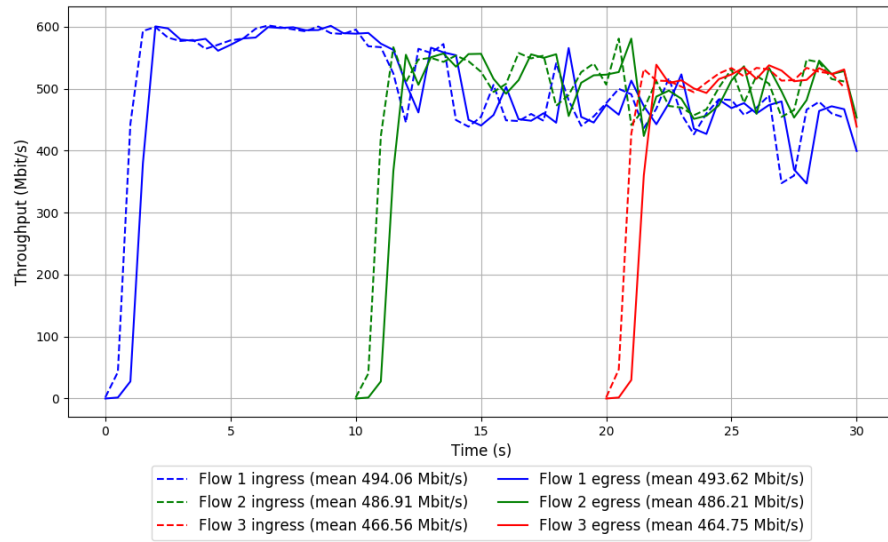
-- Flow 3:

Average throughput: 464.75 Mbit/s

95th percentile per-packet one-way delay: 88.744 ms

Loss rate: 1.53%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-11-03 15:54:07

End at: 2018-11-03 15:54:37

Local clock offset: 0.023 ms

Remote clock offset: 0.352 ms

Below is generated by plot.py at 2018-11-03 19:36:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 900.89 Mbit/s

95th percentile per-packet one-way delay: 70.208 ms

Loss rate: 0.42%

-- Flow 1:

Average throughput: 580.65 Mbit/s

95th percentile per-packet one-way delay: 72.448 ms

Loss rate: 0.27%

-- Flow 2:

Average throughput: 362.30 Mbit/s

95th percentile per-packet one-way delay: 59.527 ms

Loss rate: 0.44%

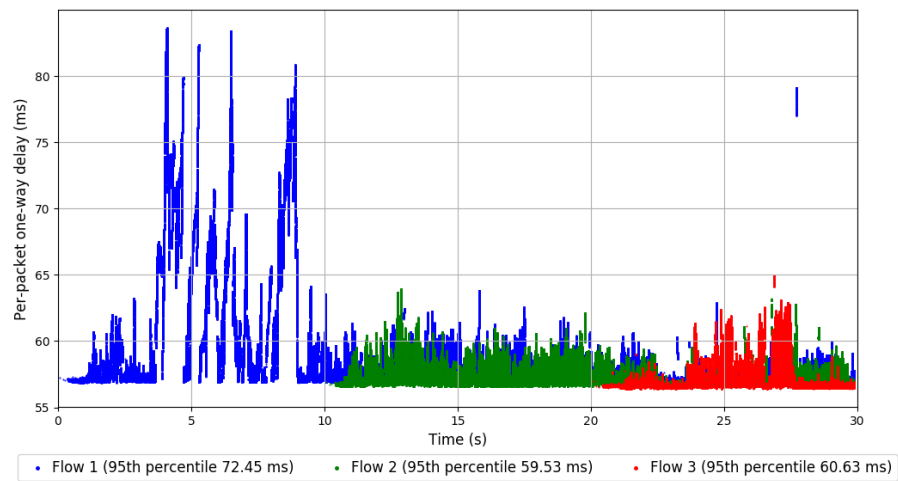
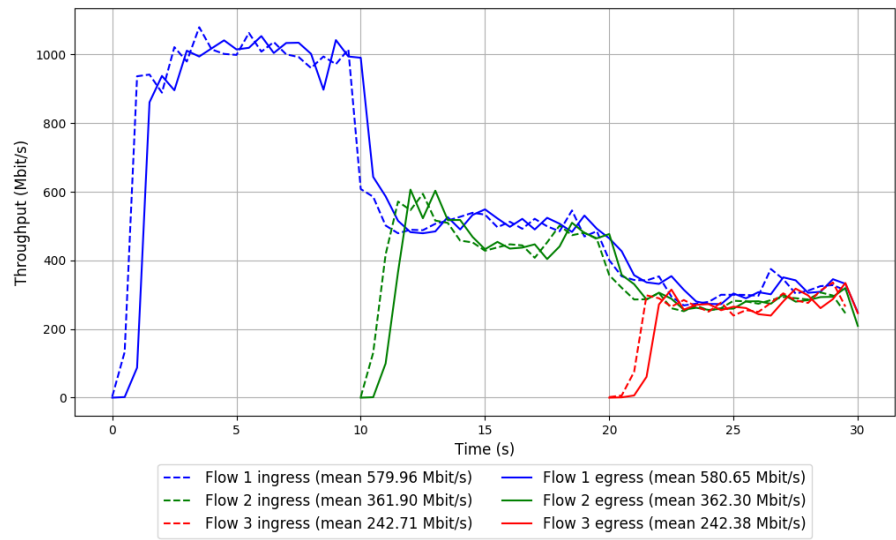
-- Flow 3:

Average throughput: 242.38 Mbit/s

95th percentile per-packet one-way delay: 60.635 ms

Loss rate: 1.42%

Run 1: Report of FillP — Data Link

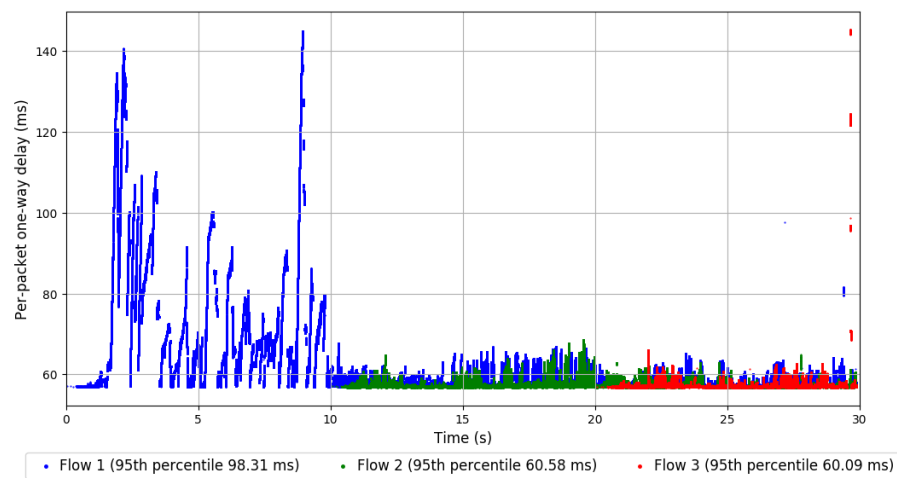
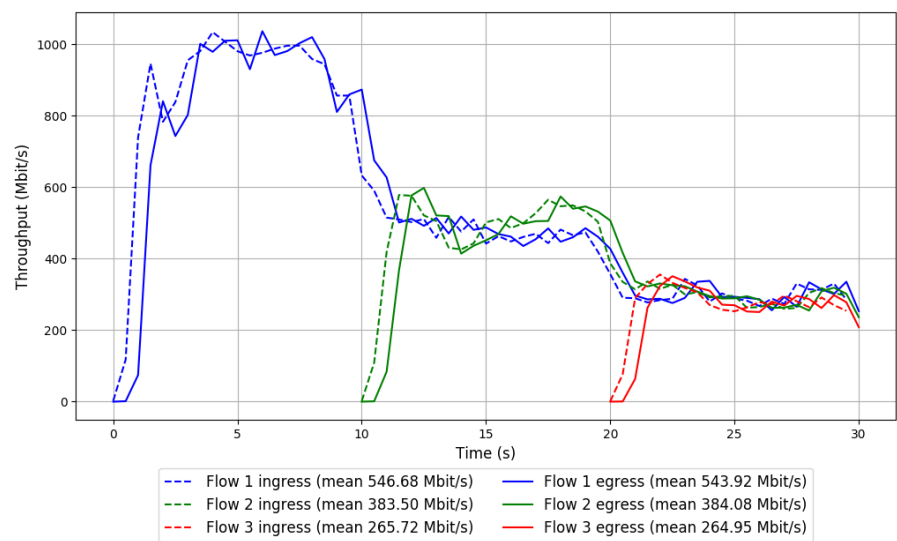


Run 2: Statistics of FillP

Start at: 2018-11-03 16:27:48
End at: 2018-11-03 16:28:18
Local clock offset: -0.092 ms
Remote clock offset: -0.114 ms

Below is generated by plot.py at 2018-11-03 19:52:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 885.67 Mbit/s
95th percentile per-packet one-way delay: 90.166 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 543.92 Mbit/s
95th percentile per-packet one-way delay: 98.313 ms
Loss rate: 0.94%
-- Flow 2:
Average throughput: 384.08 Mbit/s
95th percentile per-packet one-way delay: 60.583 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 264.95 Mbit/s
95th percentile per-packet one-way delay: 60.088 ms
Loss rate: 1.37%

Run 2: Report of FillP — Data Link

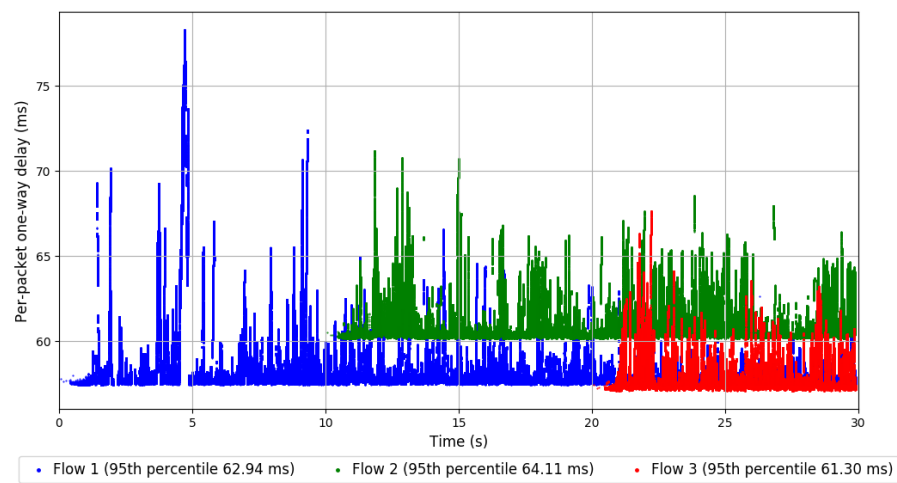
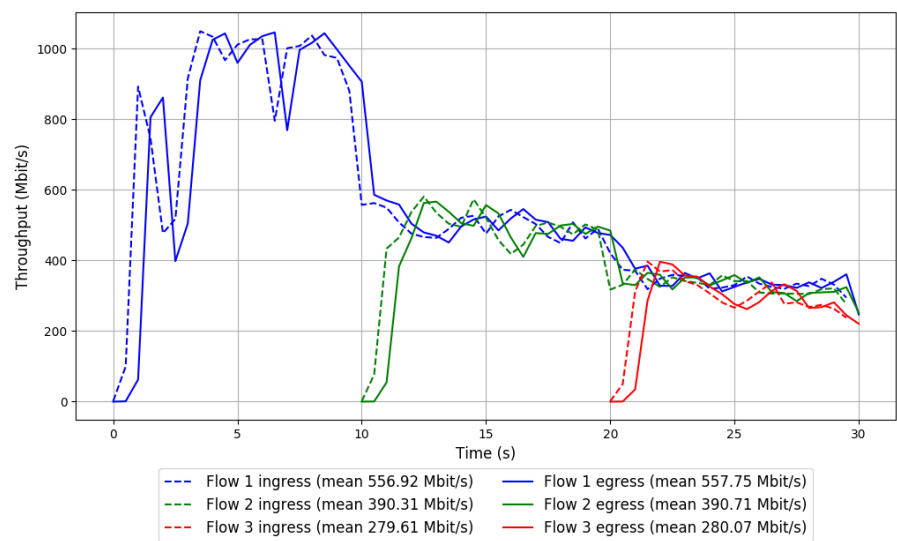


Run 3: Statistics of FillP

Start at: 2018-11-03 17:01:35
End at: 2018-11-03 17:02:05
Local clock offset: 0.084 ms
Remote clock offset: -0.041 ms

Below is generated by plot.py at 2018-11-03 19:54:22
Datalink statistics
-- Total of 3 flows:
Average throughput: 909.60 Mbit/s
95th percentile per-packet one-way delay: 63.524 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 557.75 Mbit/s
95th percentile per-packet one-way delay: 62.943 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 390.71 Mbit/s
95th percentile per-packet one-way delay: 64.110 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 280.07 Mbit/s
95th percentile per-packet one-way delay: 61.304 ms
Loss rate: 1.00%

Run 3: Report of FillP — Data Link

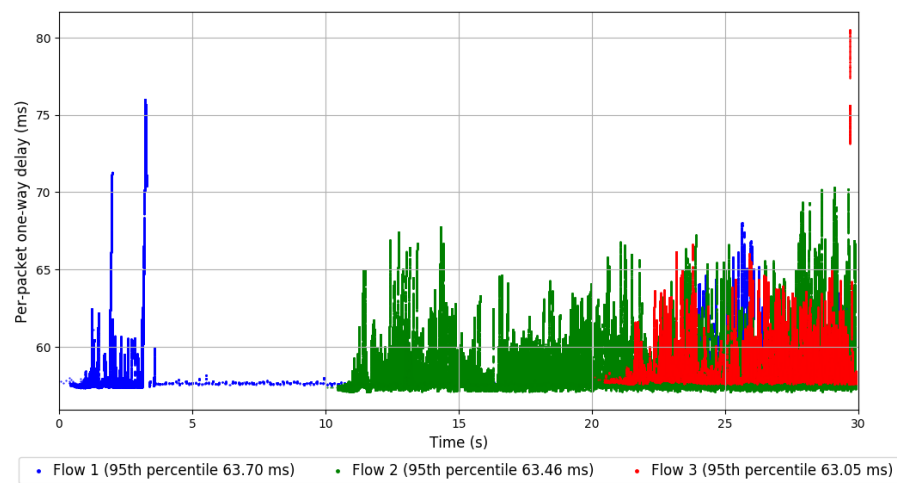
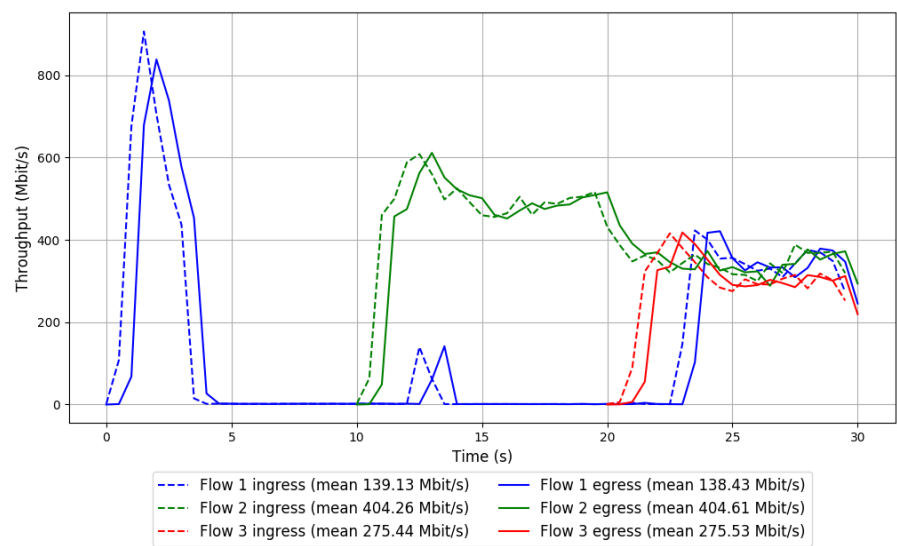


Run 4: Statistics of FillP

Start at: 2018-11-03 17:35:20
End at: 2018-11-03 17:35:50
Local clock offset: -0.077 ms
Remote clock offset: -0.561 ms

Below is generated by plot.py at 2018-11-03 19:54:22
Datalink statistics
-- Total of 3 flows:
Average throughput: 497.87 Mbit/s
95th percentile per-packet one-way delay: 63.364 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 138.43 Mbit/s
95th percentile per-packet one-way delay: 63.704 ms
Loss rate: 0.93%
-- Flow 2:
Average throughput: 404.61 Mbit/s
95th percentile per-packet one-way delay: 63.456 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 275.53 Mbit/s
95th percentile per-packet one-way delay: 63.047 ms
Loss rate: 1.02%

Run 4: Report of FillP — Data Link

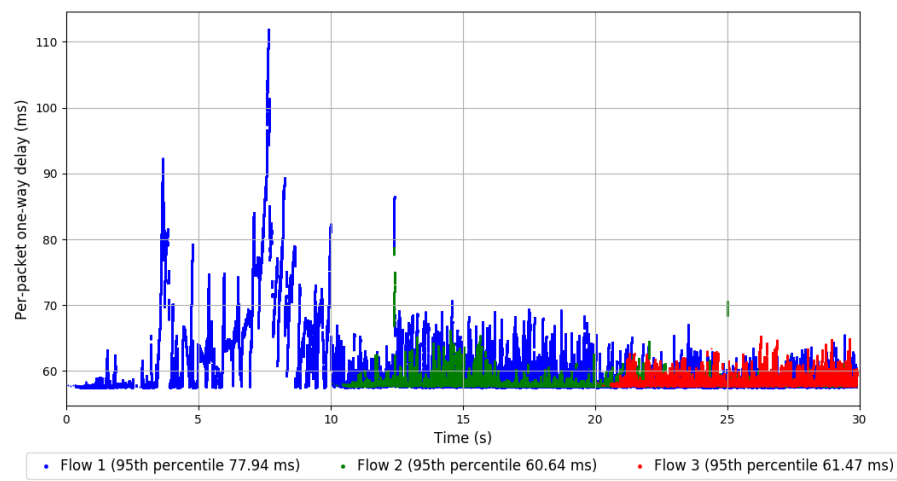
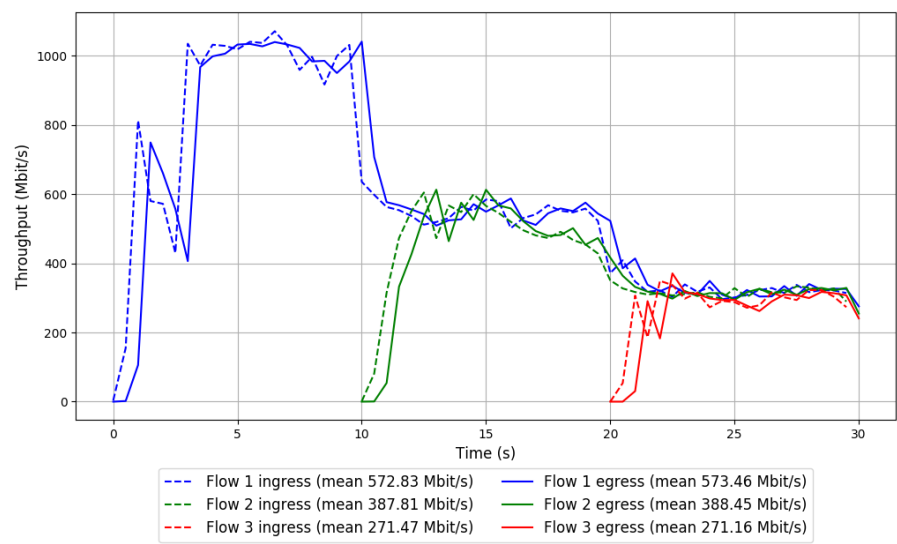


Run 5: Statistics of FillP

Start at: 2018-11-03 18:09:09
End at: 2018-11-03 18:09:39
Local clock offset: -0.014 ms
Remote clock offset: -0.777 ms

Below is generated by plot.py at 2018-11-03 19:54:46
Datalink statistics
-- Total of 3 flows:
Average throughput: 920.22 Mbit/s
95th percentile per-packet one-way delay: 74.613 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 573.46 Mbit/s
95th percentile per-packet one-way delay: 77.941 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 388.45 Mbit/s
95th percentile per-packet one-way delay: 60.643 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 271.16 Mbit/s
95th percentile per-packet one-way delay: 61.469 ms
Loss rate: 1.24%

Run 5: Report of FillP — Data Link

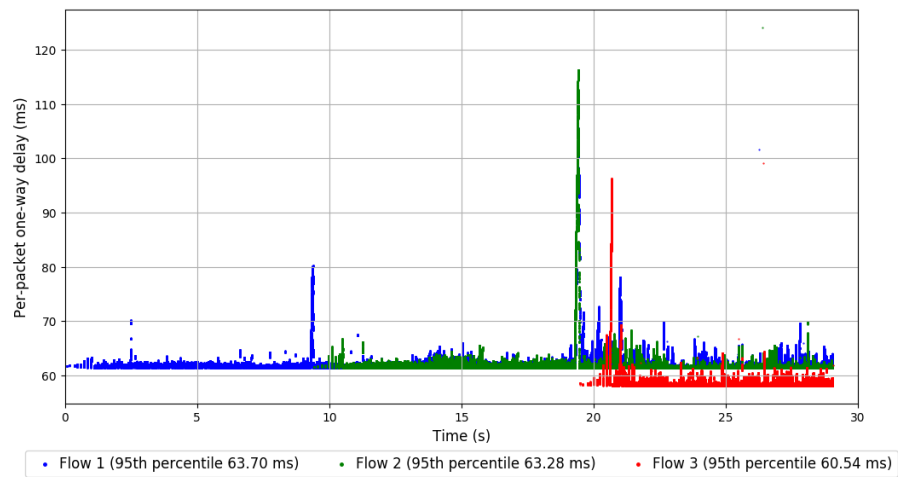
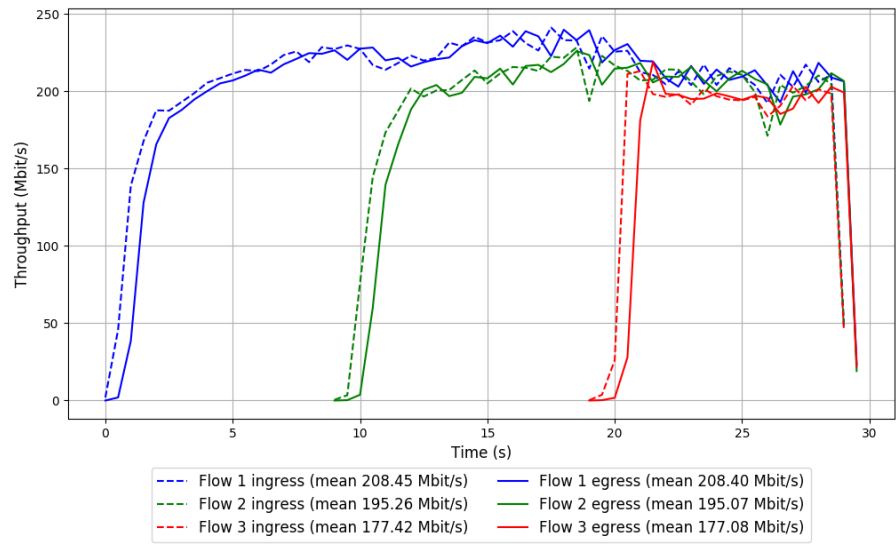



```
Run 1: Statistics of Indigo

Start at: 2018-11-03 15:52:04
End at: 2018-11-03 15:52:34
Local clock offset: -0.13 ms
Remote clock offset: -1.407 ms

# Below is generated by plot.py at 2018-11-03 19:54:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 398.86 Mbit/s
95th percentile per-packet one-way delay: 63.350 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 208.40 Mbit/s
95th percentile per-packet one-way delay: 63.705 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 195.07 Mbit/s
95th percentile per-packet one-way delay: 63.282 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 177.08 Mbit/s
95th percentile per-packet one-way delay: 60.539 ms
Loss rate: 1.32%
```

Run 1: Report of Indigo — Data Link

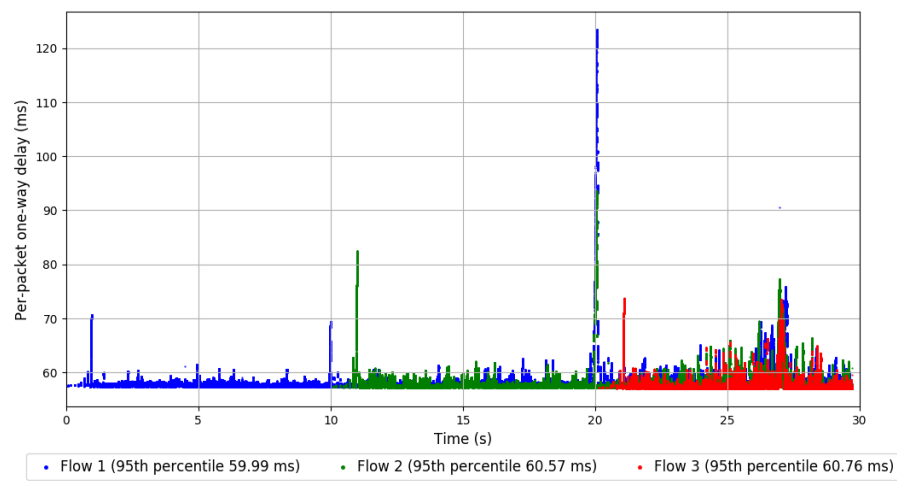
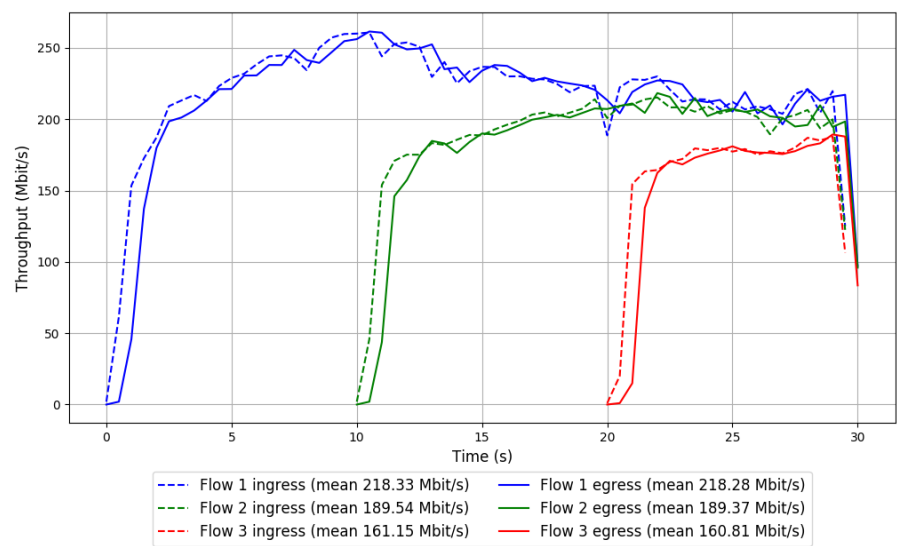


Run 2: Statistics of Indigo

Start at: 2018-11-03 16:25:36
End at: 2018-11-03 16:26:06
Local clock offset: 0.158 ms
Remote clock offset: -0.152 ms

Below is generated by plot.py at 2018-11-03 19:54:46
Datalink statistics
-- Total of 3 flows:
Average throughput: 395.35 Mbit/s
95th percentile per-packet one-way delay: 60.266 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 218.28 Mbit/s
95th percentile per-packet one-way delay: 59.992 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 189.37 Mbit/s
95th percentile per-packet one-way delay: 60.573 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 160.81 Mbit/s
95th percentile per-packet one-way delay: 60.757 ms
Loss rate: 1.37%

Run 2: Report of Indigo — Data Link

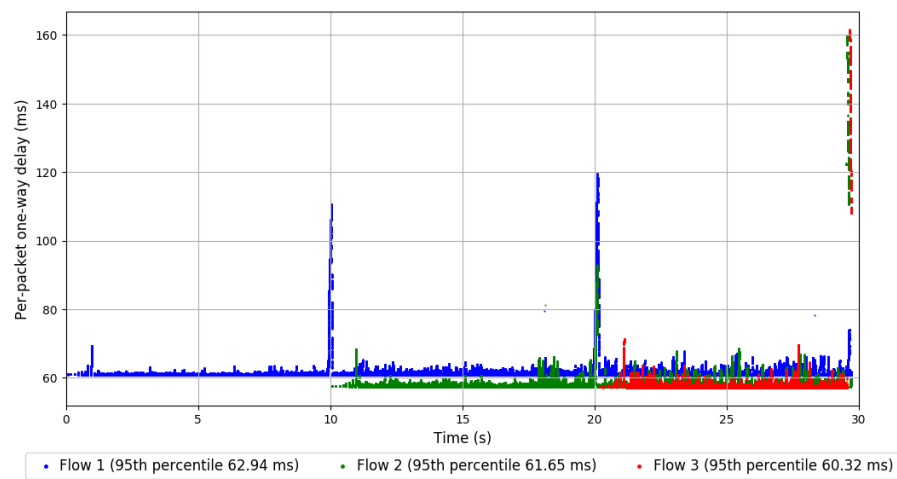
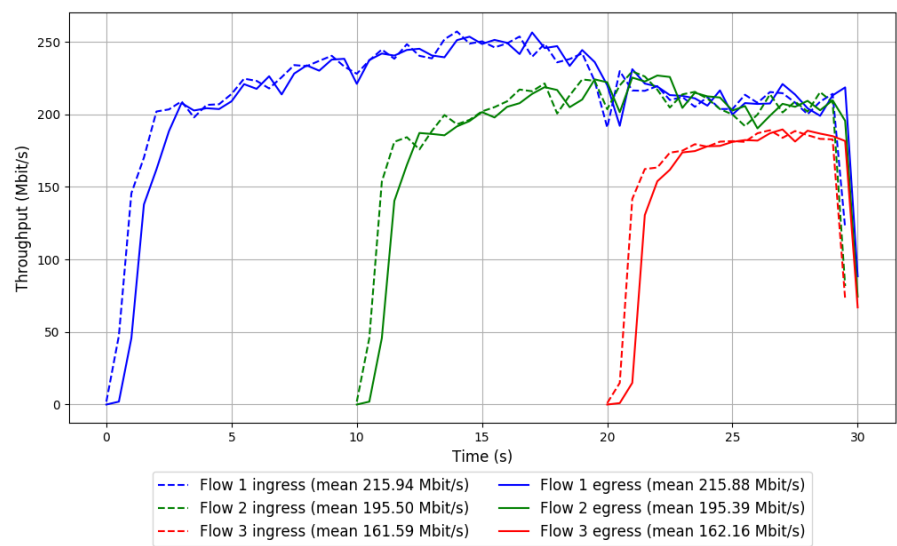


Run 3: Statistics of Indigo

Start at: 2018-11-03 16:59:34
End at: 2018-11-03 17:00:04
Local clock offset: 0.286 ms
Remote clock offset: -0.131 ms

Below is generated by plot.py at 2018-11-03 19:54:46
Datalink statistics
-- Total of 3 flows:
Average throughput: 397.14 Mbit/s
95th percentile per-packet one-way delay: 62.609 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 215.88 Mbit/s
95th percentile per-packet one-way delay: 62.939 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 195.39 Mbit/s
95th percentile per-packet one-way delay: 61.649 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 162.16 Mbit/s
95th percentile per-packet one-way delay: 60.323 ms
Loss rate: 0.85%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-11-03 17:33:15

End at: 2018-11-03 17:33:45

Local clock offset: -0.303 ms

Remote clock offset: 0.168 ms

Below is generated by plot.py at 2018-11-03 19:54:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 403.80 Mbit/s

95th percentile per-packet one-way delay: 65.399 ms

Loss rate: 0.61%

-- Flow 1:

Average throughput: 221.51 Mbit/s

95th percentile per-packet one-way delay: 63.062 ms

Loss rate: 0.38%

-- Flow 2:

Average throughput: 193.51 Mbit/s

95th percentile per-packet one-way delay: 83.653 ms

Loss rate: 0.63%

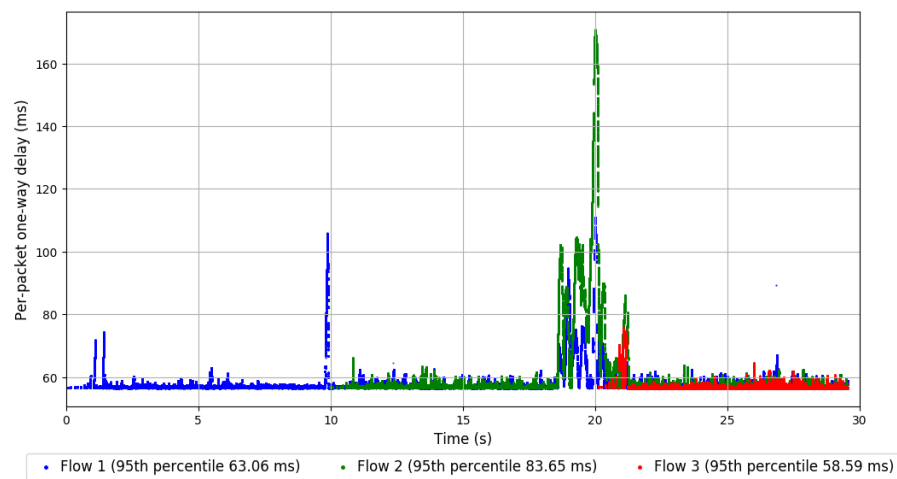
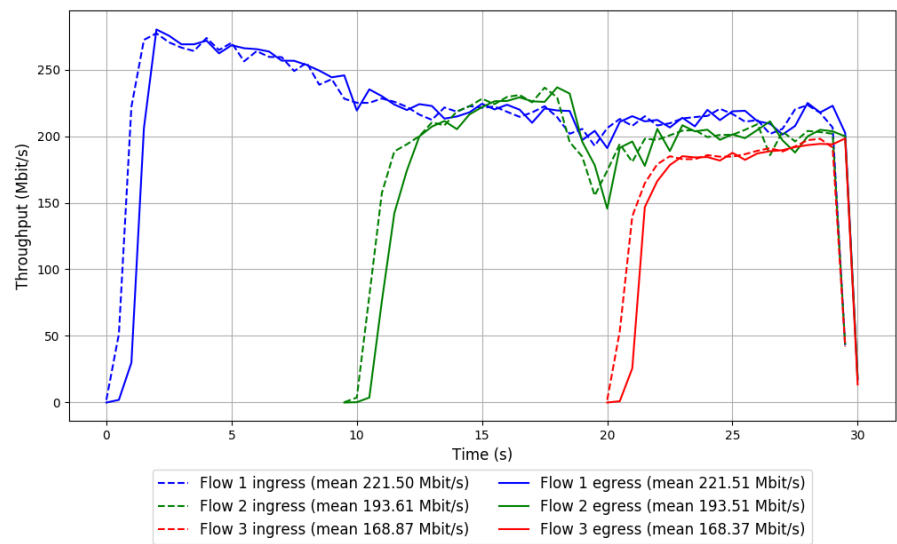
-- Flow 3:

Average throughput: 168.37 Mbit/s

95th percentile per-packet one-way delay: 58.595 ms

Loss rate: 1.46%

Run 4: Report of Indigo — Data Link

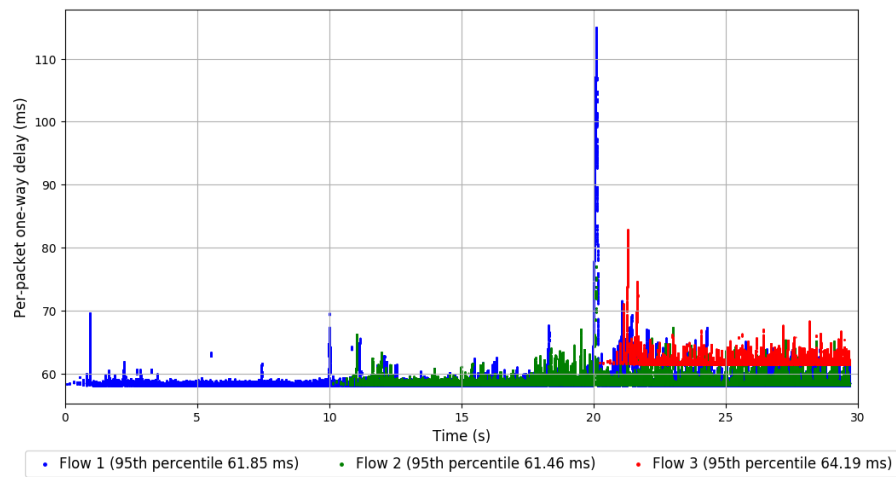
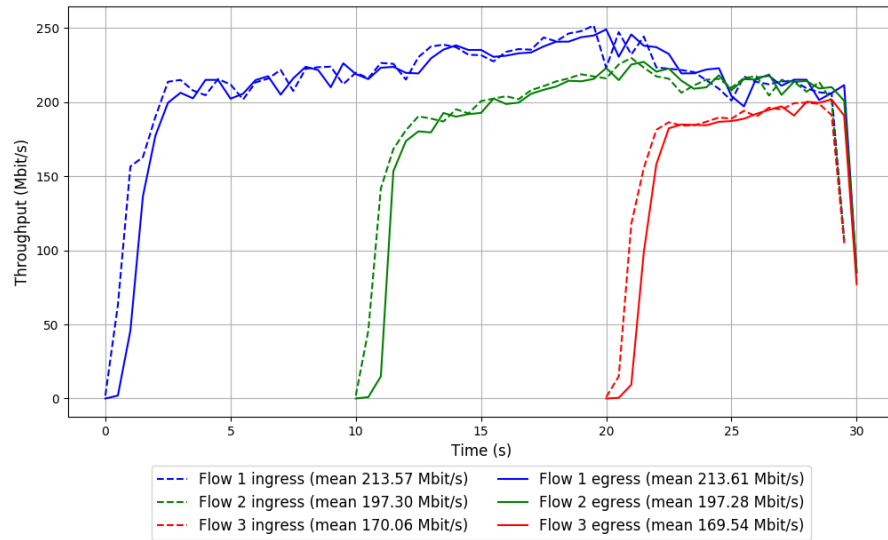


Run 5: Statistics of Indigo

Start at: 2018-11-03 18:07:07
End at: 2018-11-03 18:07:37
Local clock offset: -0.023 ms
Remote clock offset: -1.367 ms

Below is generated by plot.py at 2018-11-03 20:00:44
Datalink statistics
-- Total of 3 flows:
Average throughput: 397.88 Mbit/s
95th percentile per-packet one-way delay: 62.574 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 213.61 Mbit/s
95th percentile per-packet one-way delay: 61.849 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 197.28 Mbit/s
95th percentile per-packet one-way delay: 61.464 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 169.54 Mbit/s
95th percentile per-packet one-way delay: 64.192 ms
Loss rate: 1.54%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-03 16:10:18

End at: 2018-11-03 16:10:48

Local clock offset: 0.271 ms

Remote clock offset: 0.222 ms

Below is generated by plot.py at 2018-11-03 20:00:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 526.15 Mbit/s

95th percentile per-packet one-way delay: 85.348 ms

Loss rate: 0.55%

-- Flow 1:

Average throughput: 279.64 Mbit/s

95th percentile per-packet one-way delay: 83.461 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 250.37 Mbit/s

95th percentile per-packet one-way delay: 83.483 ms

Loss rate: 0.72%

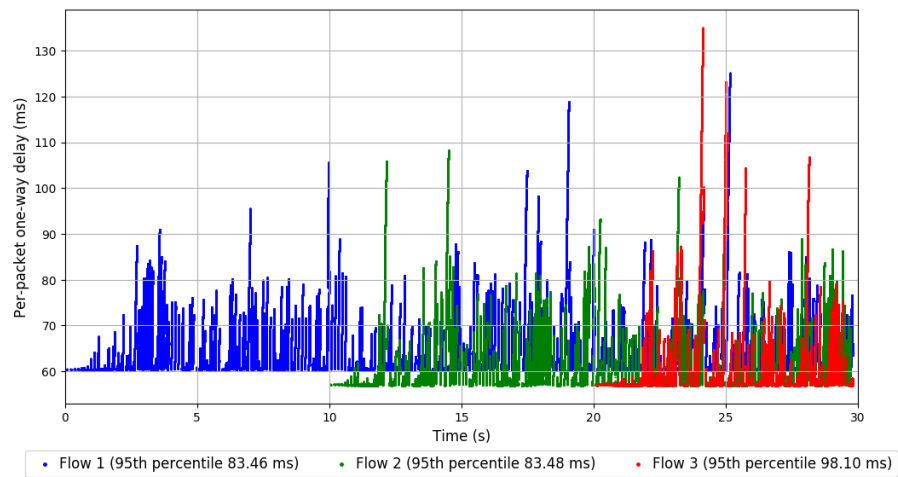
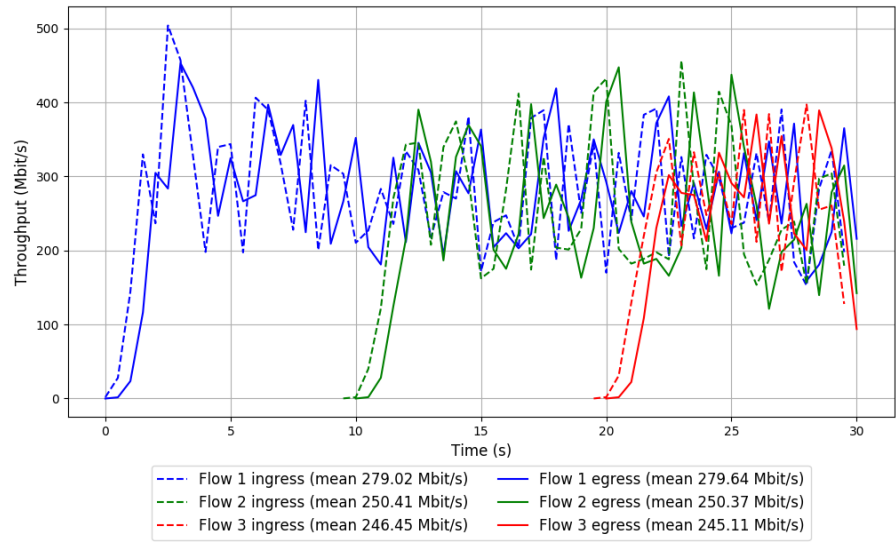
-- Flow 3:

Average throughput: 245.11 Mbit/s

95th percentile per-packet one-way delay: 98.096 ms

Loss rate: 1.49%

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



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-03 16:43:51

End at: 2018-11-03 16:44:21

Local clock offset: 0.192 ms

Remote clock offset: 0.222 ms

Below is generated by plot.py at 2018-11-03 20:00:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 497.08 Mbit/s

95th percentile per-packet one-way delay: 87.260 ms

Loss rate: 0.56%

-- Flow 1:

Average throughput: 259.26 Mbit/s

95th percentile per-packet one-way delay: 87.828 ms

Loss rate: 0.52%

-- Flow 2:

Average throughput: 239.90 Mbit/s

95th percentile per-packet one-way delay: 88.994 ms

Loss rate: 0.50%

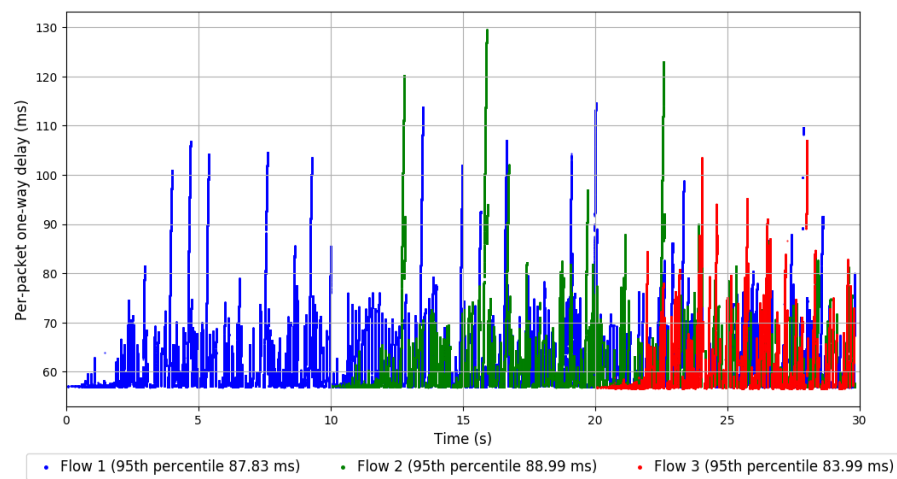
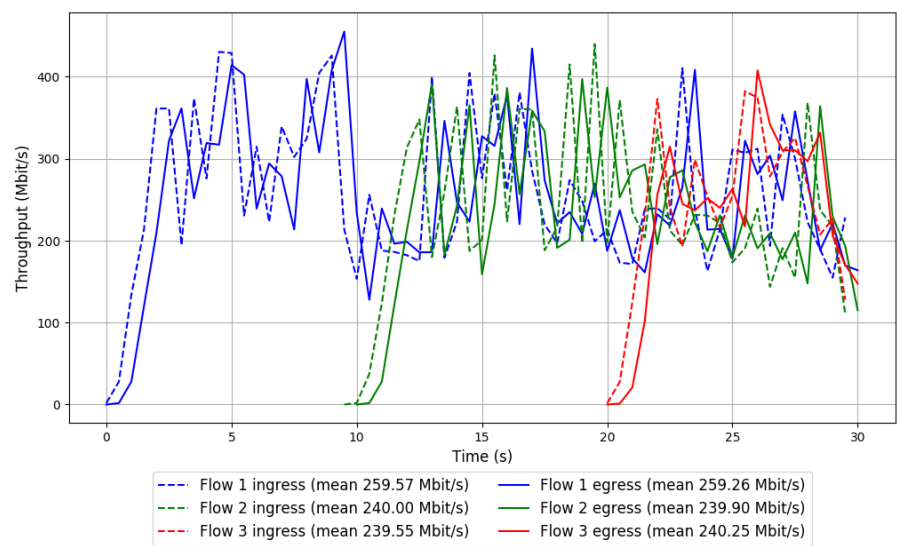
-- Flow 3:

Average throughput: 240.25 Mbit/s

95th percentile per-packet one-way delay: 83.993 ms

Loss rate: 0.84%

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

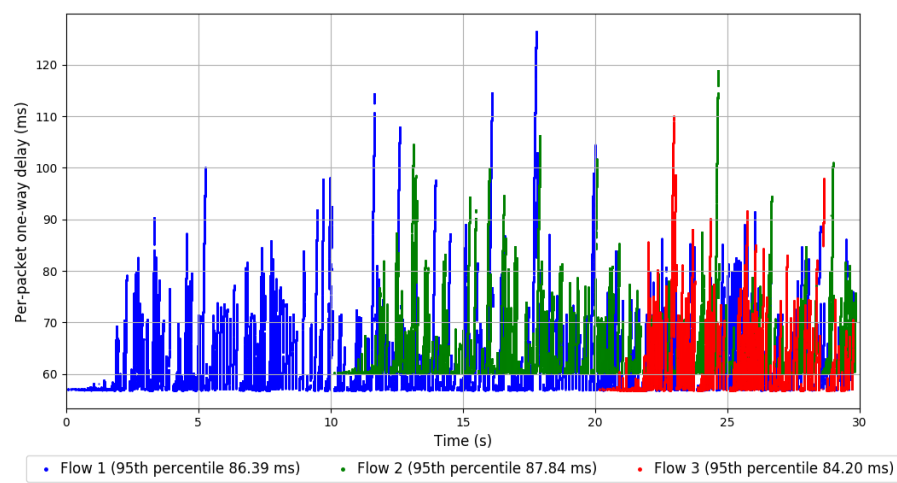
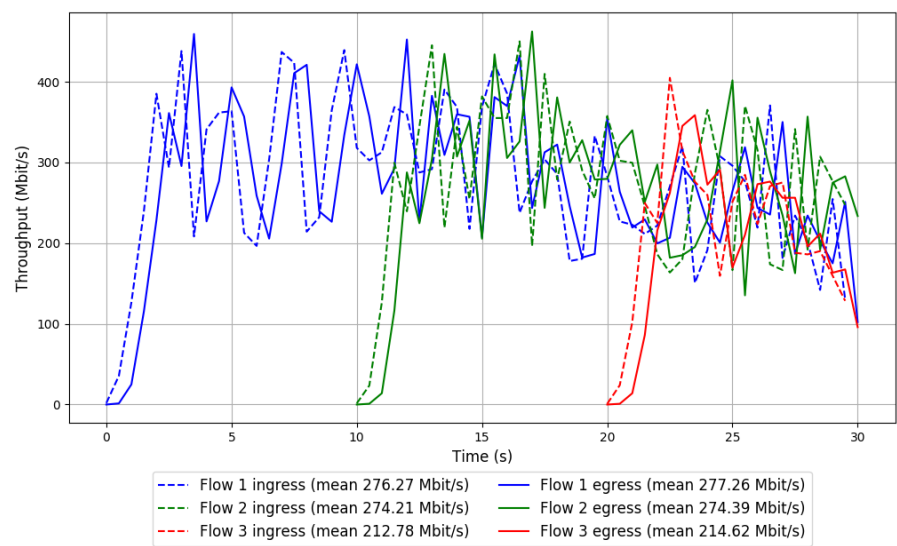


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-03 17:17:48
End at: 2018-11-03 17:18:18
Local clock offset: -0.334 ms
Remote clock offset: -0.077 ms

Below is generated by plot.py at 2018-11-03 20:00:44
Datalink statistics
-- Total of 3 flows:
Average throughput: 527.35 Mbit/s
95th percentile per-packet one-way delay: 86.743 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 277.26 Mbit/s
95th percentile per-packet one-way delay: 86.385 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 274.39 Mbit/s
95th percentile per-packet one-way delay: 87.839 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 214.62 Mbit/s
95th percentile per-packet one-way delay: 84.205 ms
Loss rate: 1.24%

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

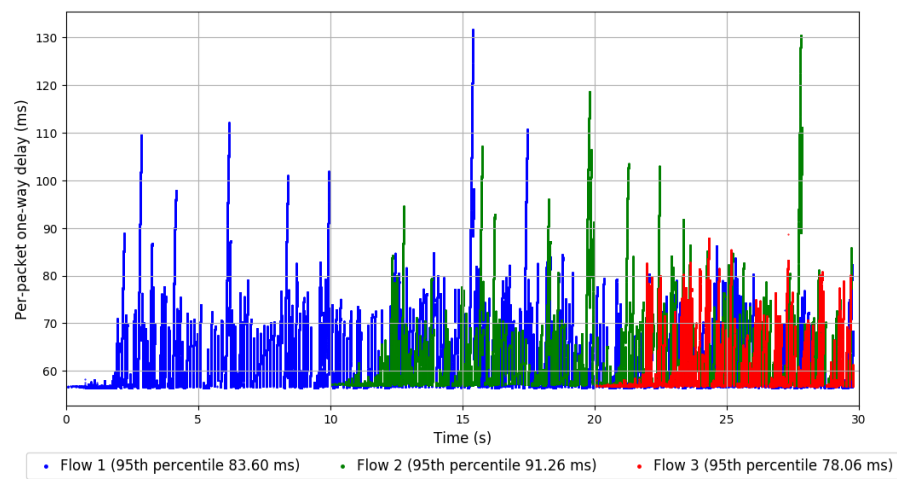
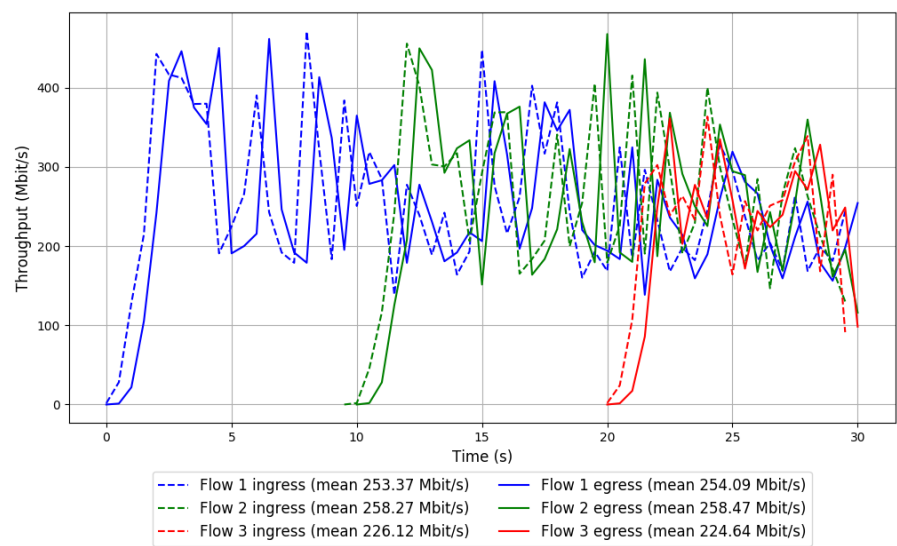


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-03 17:51:22
End at: 2018-11-03 17:51:52
Local clock offset: -0.208 ms
Remote clock offset: -0.118 ms

Below is generated by plot.py at 2018-11-03 20:03:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 498.50 Mbit/s
95th percentile per-packet one-way delay: 84.568 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 254.09 Mbit/s
95th percentile per-packet one-way delay: 83.598 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 258.47 Mbit/s
95th percentile per-packet one-way delay: 91.258 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 224.64 Mbit/s
95th percentile per-packet one-way delay: 78.063 ms
Loss rate: 0.78%

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

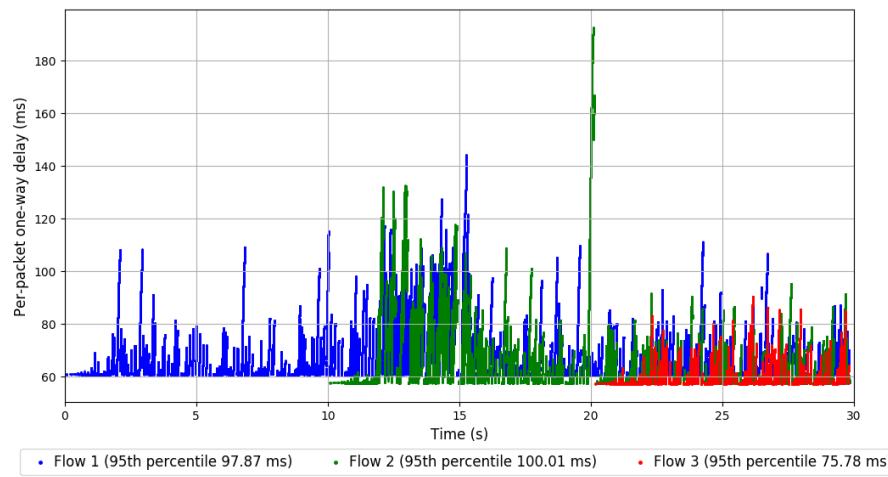
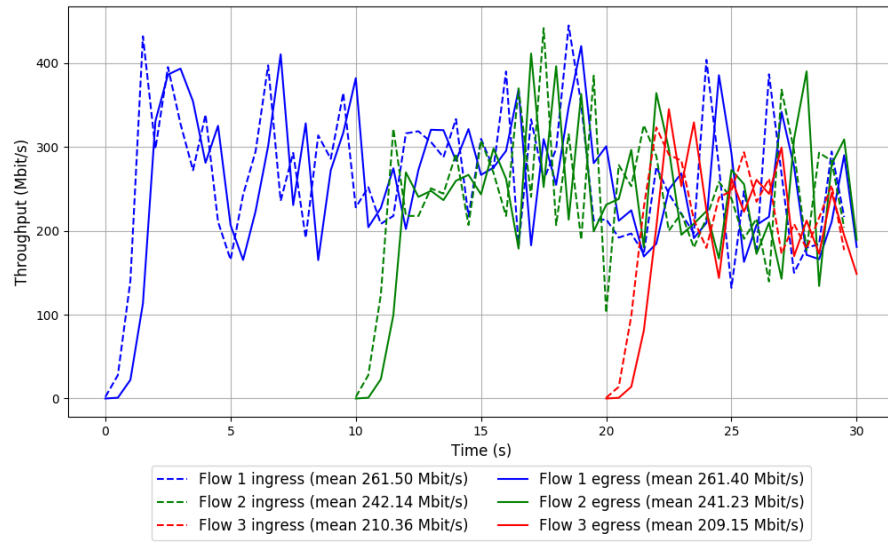


Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-03 18:25:43
End at: 2018-11-03 18:26:13
Local clock offset: 0.158 ms
Remote clock offset: -0.144 ms

Below is generated by plot.py at 2018-11-03 20:03:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 488.95 Mbit/s
95th percentile per-packet one-way delay: 96.710 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 261.40 Mbit/s
95th percentile per-packet one-way delay: 97.867 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 241.23 Mbit/s
95th percentile per-packet one-way delay: 100.010 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 209.15 Mbit/s
95th percentile per-packet one-way delay: 75.783 ms
Loss rate: 2.14%

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

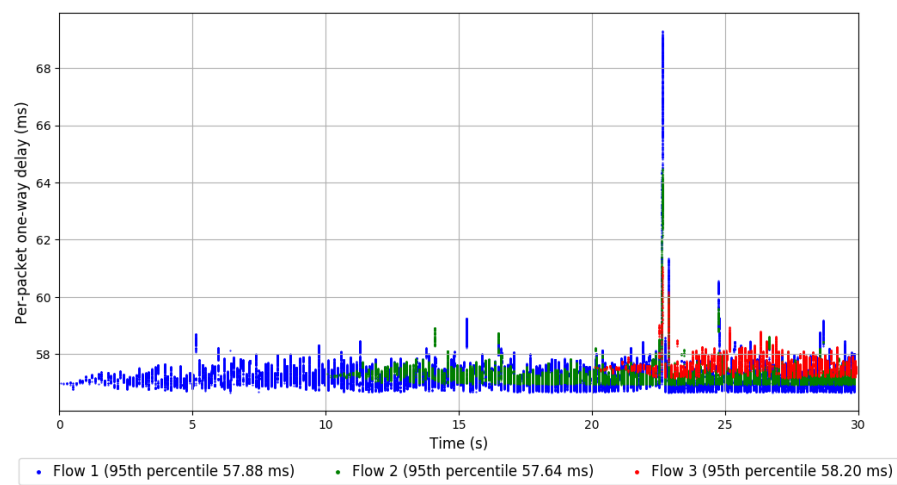
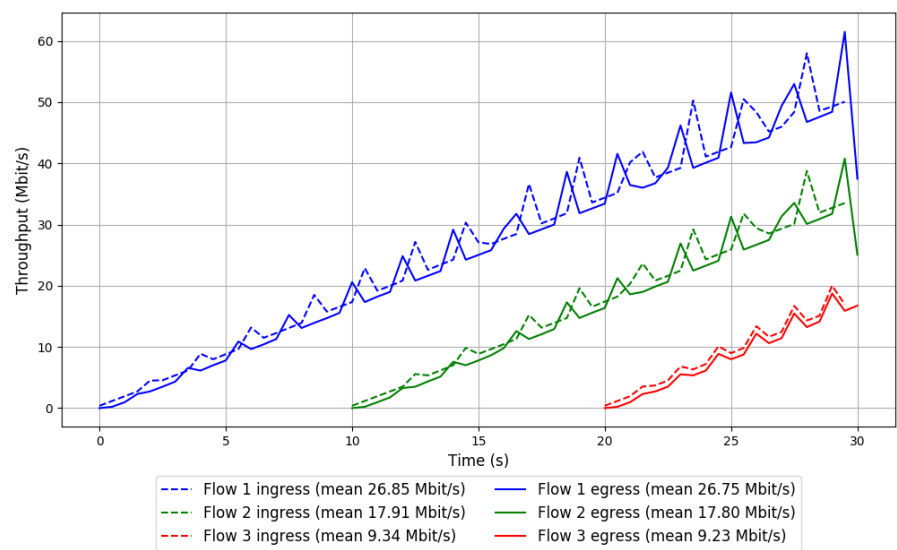


```
Run 1: Statistics of LEDBAT

Start at: 2018-11-03 15:48:38
End at: 2018-11-03 15:49:08
Local clock offset: -0.063 ms
Remote clock offset: -0.08 ms

# Below is generated by plot.py at 2018-11-03 20:03:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.55 Mbit/s
95th percentile per-packet one-way delay: 57.906 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 26.75 Mbit/s
95th percentile per-packet one-way delay: 57.880 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 17.80 Mbit/s
95th percentile per-packet one-way delay: 57.641 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 9.23 Mbit/s
95th percentile per-packet one-way delay: 58.202 ms
Loss rate: 2.33%
```

Run 1: Report of LEDBAT — Data Link

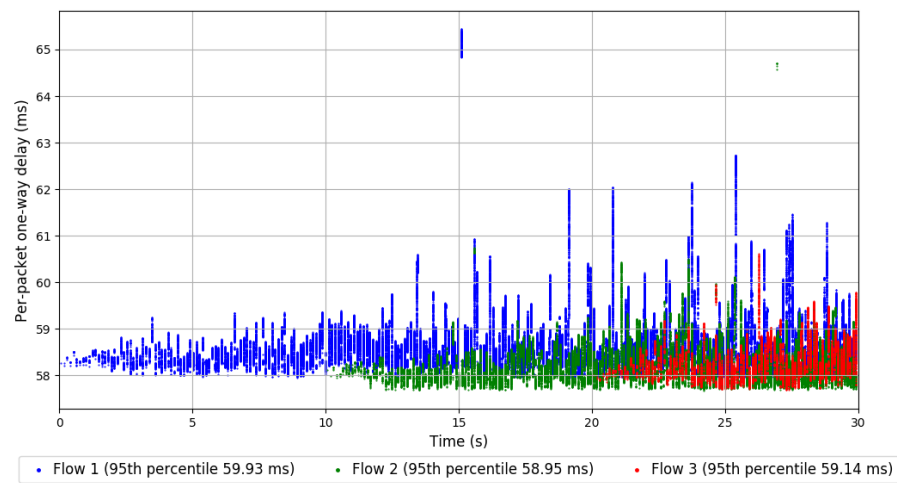
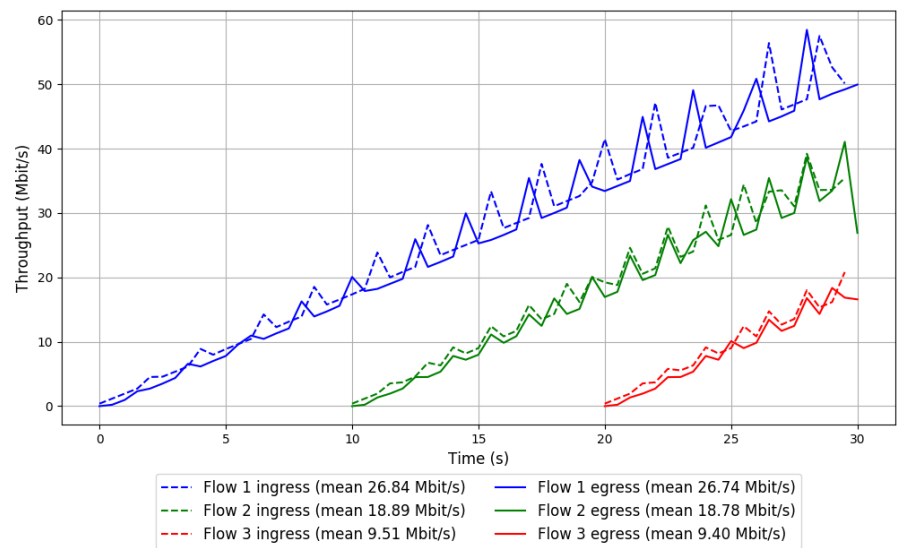


Run 2: Statistics of LEDBAT

Start at: 2018-11-03 16:22:02
End at: 2018-11-03 16:22:32
Local clock offset: -0.363 ms
Remote clock offset: -1.417 ms

Below is generated by plot.py at 2018-11-03 20:03:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 42.30 Mbit/s
95th percentile per-packet one-way delay: 59.645 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 26.74 Mbit/s
95th percentile per-packet one-way delay: 59.932 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 18.78 Mbit/s
95th percentile per-packet one-way delay: 58.954 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 9.40 Mbit/s
95th percentile per-packet one-way delay: 59.137 ms
Loss rate: 2.24%

Run 2: Report of LEDBAT — Data Link

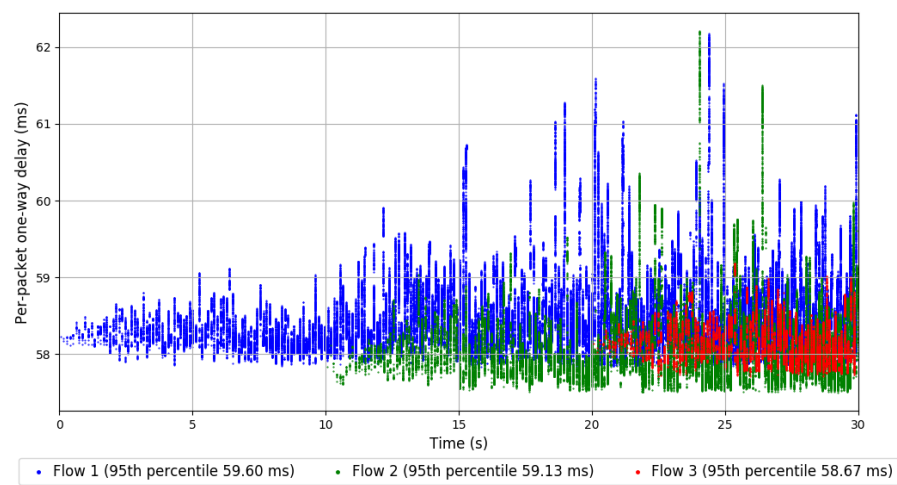
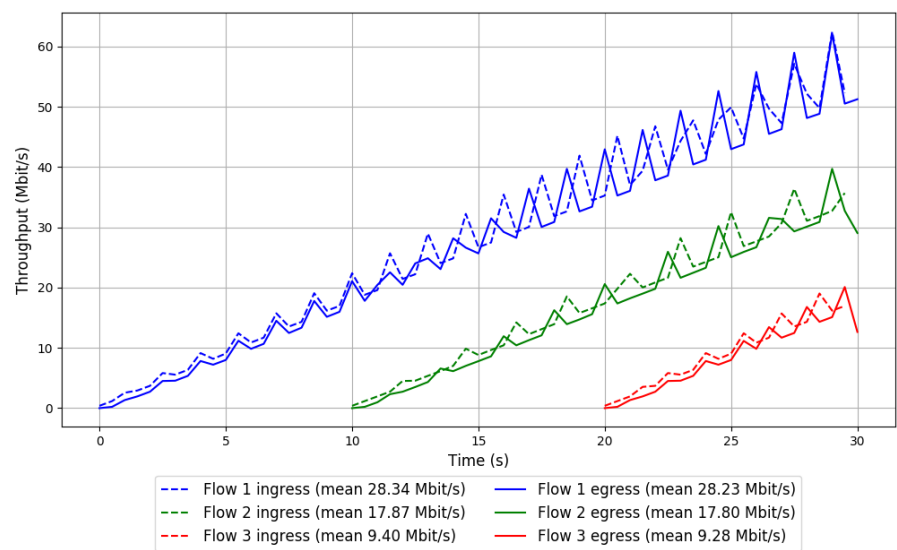


Run 3: Statistics of LEDBAT

Start at: 2018-11-03 16:55:46
End at: 2018-11-03 16:56:16
Local clock offset: -0.334 ms
Remote clock offset: -1.134 ms

Below is generated by plot.py at 2018-11-03 20:03:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 43.09 Mbit/s
95th percentile per-packet one-way delay: 59.455 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 28.23 Mbit/s
95th percentile per-packet one-way delay: 59.605 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 17.80 Mbit/s
95th percentile per-packet one-way delay: 59.132 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 9.28 Mbit/s
95th percentile per-packet one-way delay: 58.670 ms
Loss rate: 2.32%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-11-03 17:29:37

End at: 2018-11-03 17:30:07

Local clock offset: 0.043 ms

Remote clock offset: 0.02 ms

Below is generated by plot.py at 2018-11-03 20:03:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 43.02 Mbit/s

95th percentile per-packet one-way delay: 61.122 ms

Loss rate: 0.99%

-- Flow 1:

Average throughput: 28.22 Mbit/s

95th percentile per-packet one-way delay: 58.732 ms

Loss rate: 0.76%

-- Flow 2:

Average throughput: 17.93 Mbit/s

95th percentile per-packet one-way delay: 61.426 ms

Loss rate: 1.18%

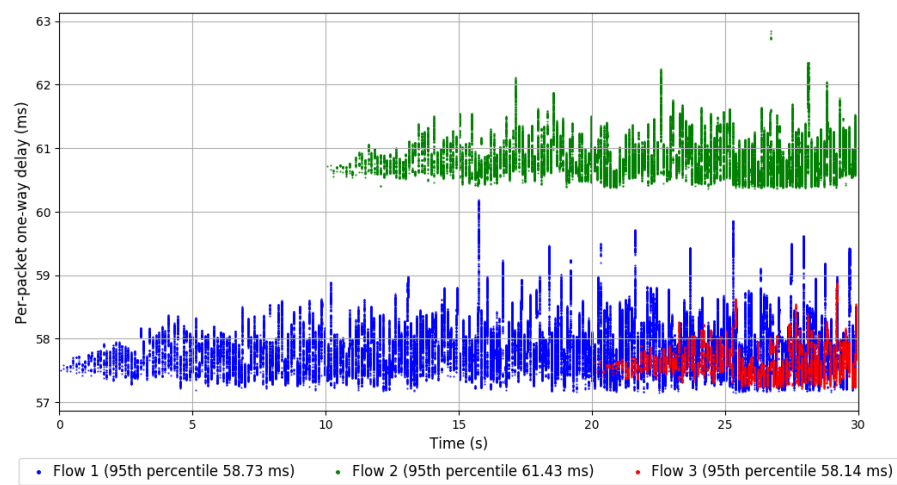
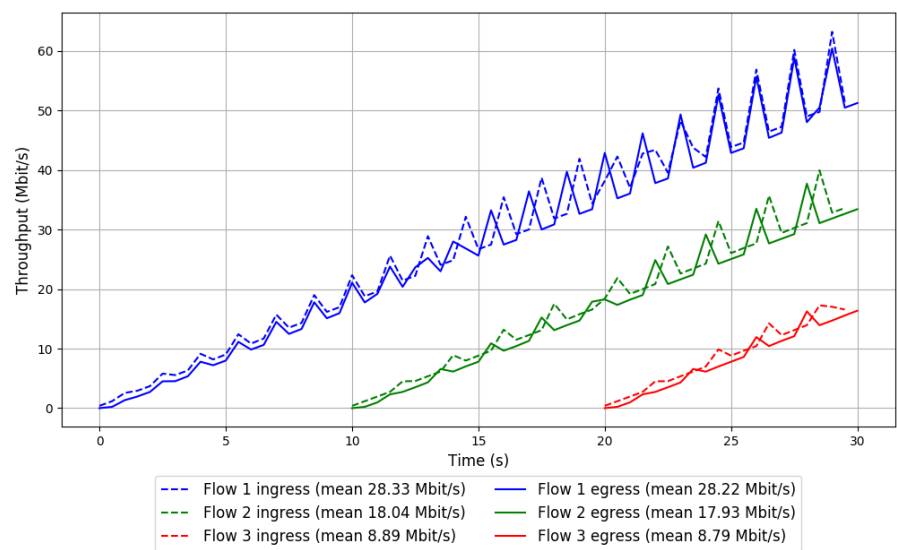
-- Flow 3:

Average throughput: 8.79 Mbit/s

95th percentile per-packet one-way delay: 58.144 ms

Loss rate: 2.38%

Run 4: Report of LEDBAT — Data Link

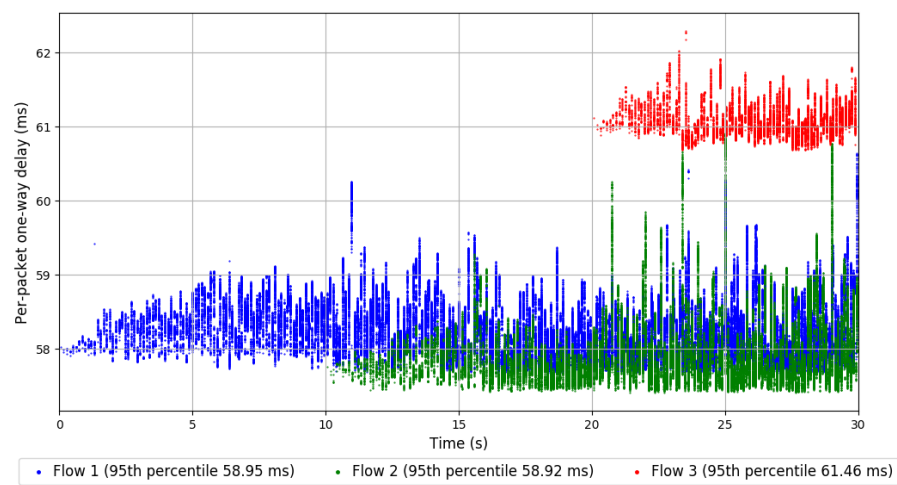
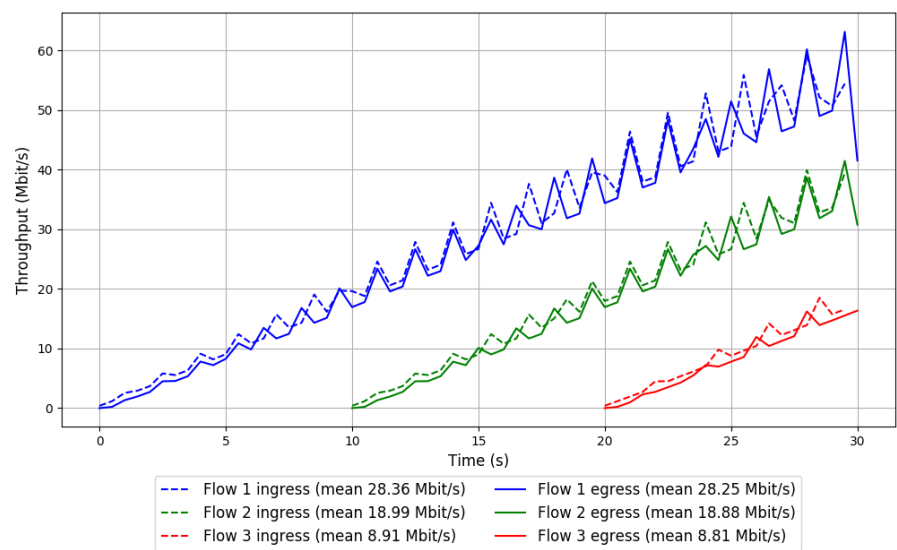


Run 5: Statistics of LEDBAT

Start at: 2018-11-03 18:03:07
End at: 2018-11-03 18:03:37
Local clock offset: 0.036 ms
Remote clock offset: -0.801 ms

Below is generated by plot.py at 2018-11-03 20:03:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 43.69 Mbit/s
95th percentile per-packet one-way delay: 60.932 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 28.25 Mbit/s
95th percentile per-packet one-way delay: 58.946 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 18.88 Mbit/s
95th percentile per-packet one-way delay: 58.921 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 8.81 Mbit/s
95th percentile per-packet one-way delay: 61.460 ms
Loss rate: 2.38%

Run 5: Report of LEDBAT — Data Link

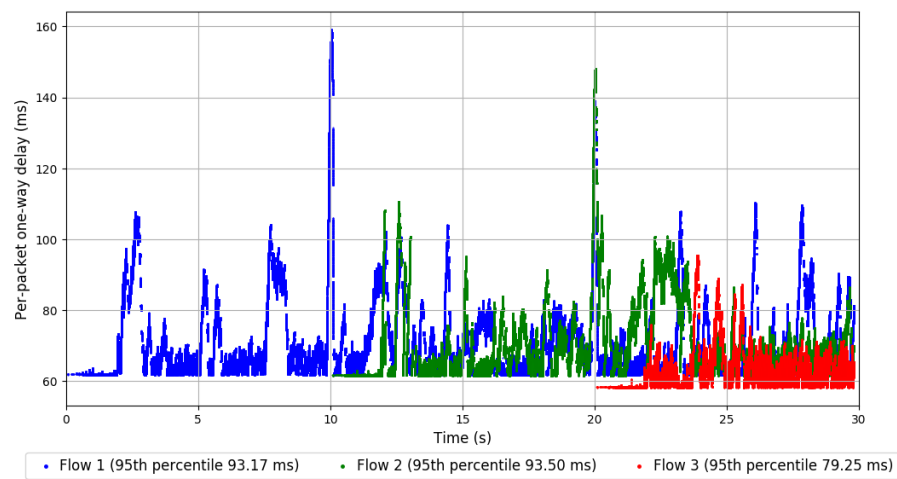
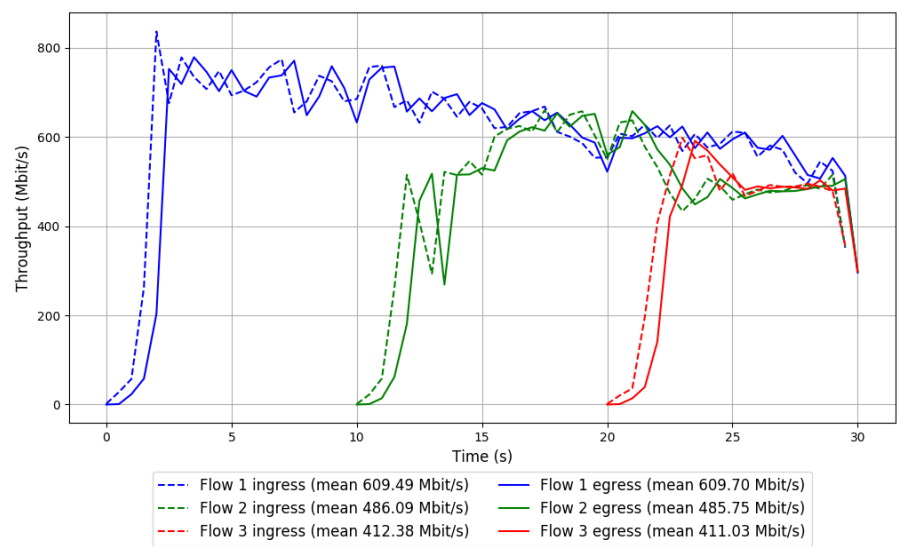


Run 1: Statistics of Indigo-Muses

Start at: 2018-11-03 16:12:07
End at: 2018-11-03 16:12:37
Local clock offset: -0.124 ms
Remote clock offset: -1.432 ms

Below is generated by plot.py at 2018-11-03 20:22:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 1066.23 Mbit/s
95th percentile per-packet one-way delay: 92.284 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 609.70 Mbit/s
95th percentile per-packet one-way delay: 93.169 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 485.75 Mbit/s
95th percentile per-packet one-way delay: 93.498 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 411.03 Mbit/s
95th percentile per-packet one-way delay: 79.245 ms
Loss rate: 1.48%

Run 1: Report of Indigo-Muses — Data Link

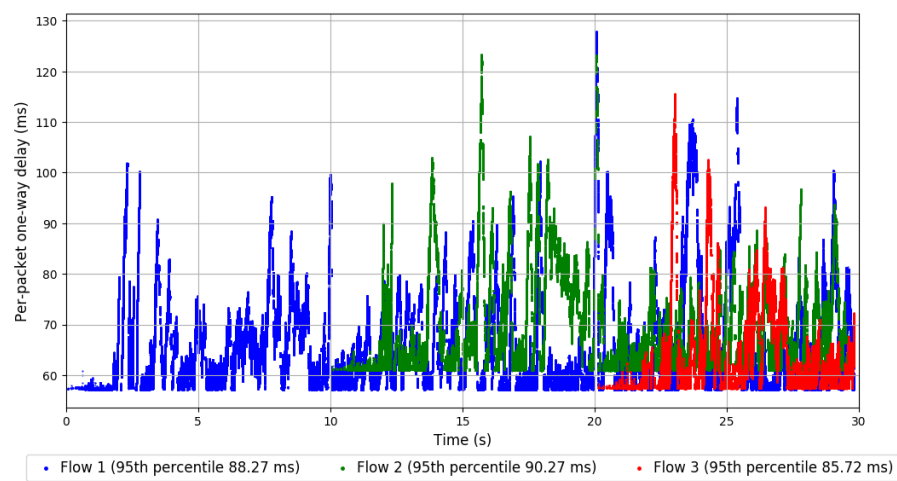
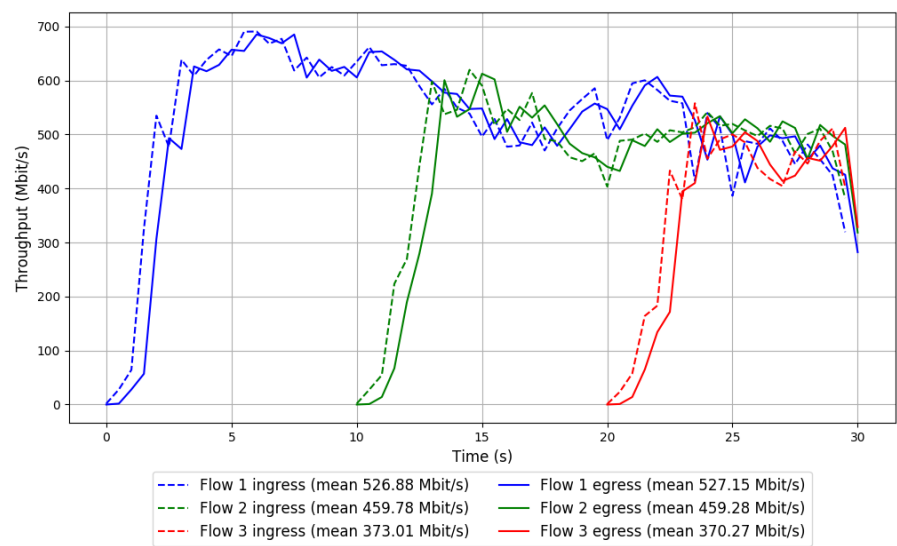


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-03 16:45:36
End at: 2018-11-03 16:46:06
Local clock offset: 0.332 ms
Remote clock offset: -0.173 ms

Below is generated by plot.py at 2018-11-03 20:22:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 952.17 Mbit/s
95th percentile per-packet one-way delay: 88.969 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 527.15 Mbit/s
95th percentile per-packet one-way delay: 88.269 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 459.28 Mbit/s
95th percentile per-packet one-way delay: 90.265 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 370.27 Mbit/s
95th percentile per-packet one-way delay: 85.722 ms
Loss rate: 1.84%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-11-03 17:19:42

End at: 2018-11-03 17:20:12

Local clock offset: -0.59 ms

Remote clock offset: 0.023 ms

Below is generated by plot.py at 2018-11-03 20:22:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 958.46 Mbit/s

95th percentile per-packet one-way delay: 84.907 ms

Loss rate: 0.65%

-- Flow 1:

Average throughput: 541.39 Mbit/s

95th percentile per-packet one-way delay: 88.082 ms

Loss rate: 0.37%

-- Flow 2:

Average throughput: 438.81 Mbit/s

95th percentile per-packet one-way delay: 82.839 ms

Loss rate: 0.64%

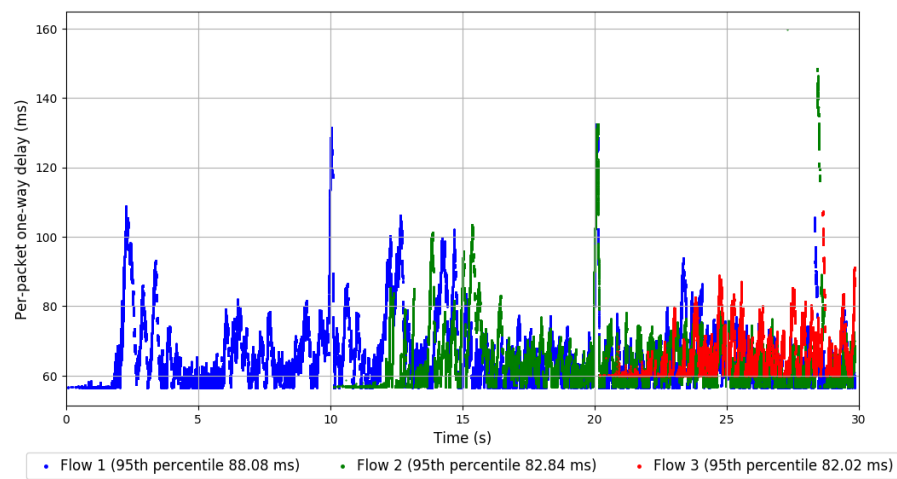
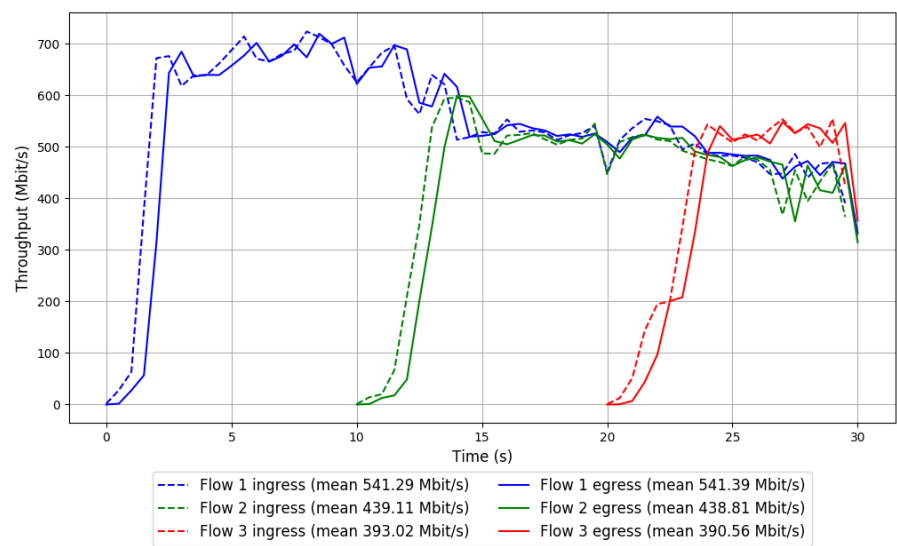
-- Flow 3:

Average throughput: 390.56 Mbit/s

95th percentile per-packet one-way delay: 82.017 ms

Loss rate: 1.83%

Run 3: Report of Indigo-Muses — Data Link

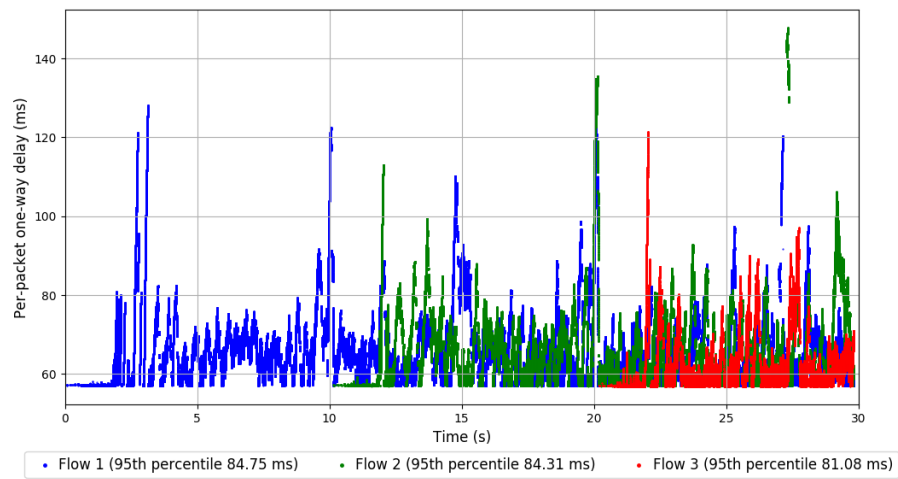
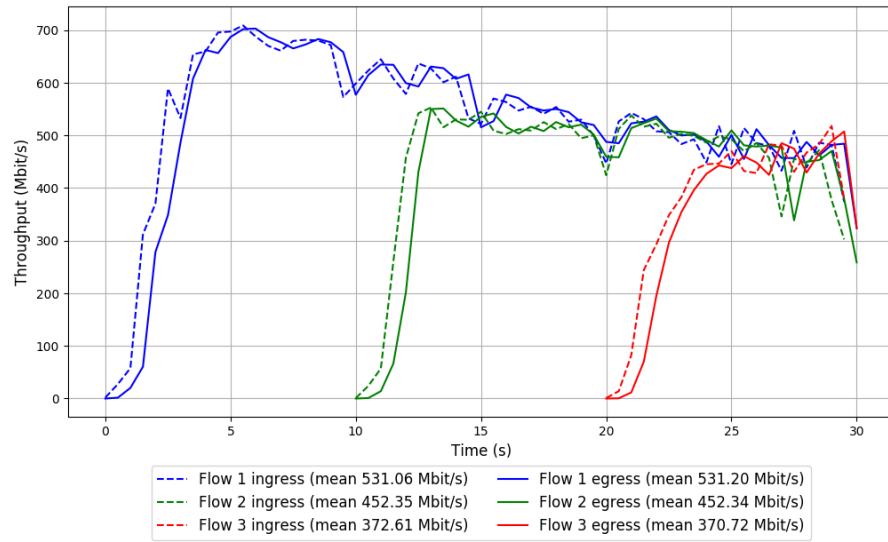


Run 4: Statistics of Indigo-Muses

Start at: 2018-11-03 17:53:08
End at: 2018-11-03 17:53:38
Local clock offset: 0.081 ms
Remote clock offset: -0.062 ms

Below is generated by plot.py at 2018-11-03 20:22:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 950.16 Mbit/s
95th percentile per-packet one-way delay: 84.158 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 531.20 Mbit/s
95th percentile per-packet one-way delay: 84.750 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 452.34 Mbit/s
95th percentile per-packet one-way delay: 84.308 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 370.72 Mbit/s
95th percentile per-packet one-way delay: 81.076 ms
Loss rate: 1.70%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-03 18:27:29

End at: 2018-11-03 18:27:59

Local clock offset: -0.451 ms

Remote clock offset: 0.215 ms

Below is generated by plot.py at 2018-11-03 20:22:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 978.72 Mbit/s

95th percentile per-packet one-way delay: 80.709 ms

Loss rate: 0.56%

-- Flow 1:

Average throughput: 540.77 Mbit/s

95th percentile per-packet one-way delay: 80.021 ms

Loss rate: 0.33%

-- Flow 2:

Average throughput: 483.30 Mbit/s

95th percentile per-packet one-way delay: 81.788 ms

Loss rate: 0.63%

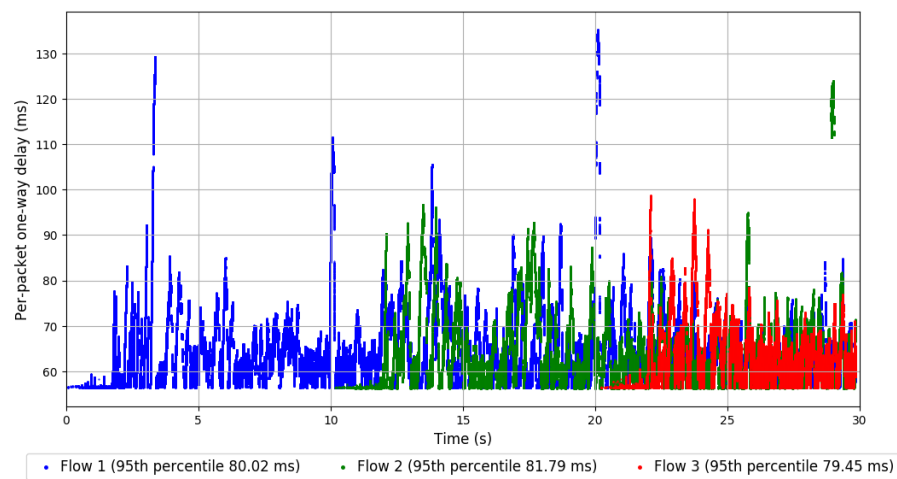
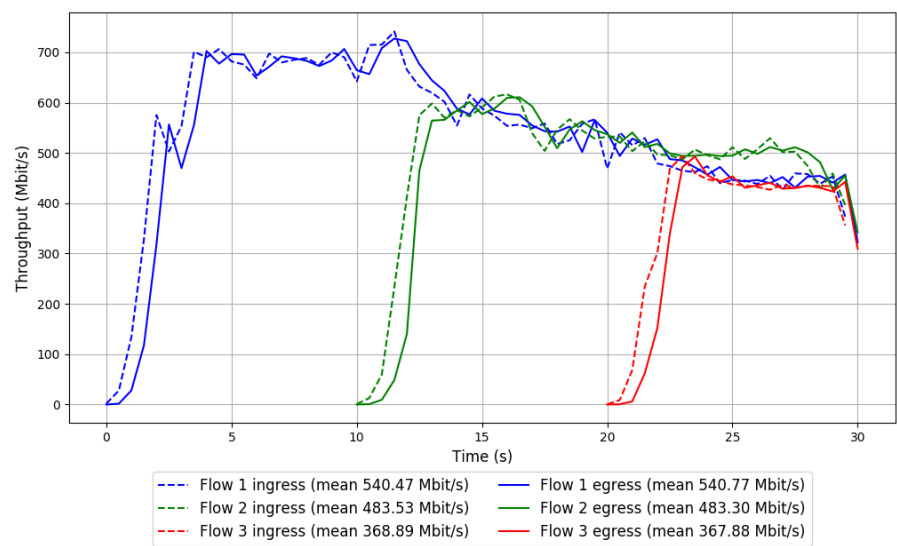
-- Flow 3:

Average throughput: 367.88 Mbit/s

95th percentile per-packet one-way delay: 79.446 ms

Loss rate: 1.42%

Run 5: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-11-03 16:14:22

End at: 2018-11-03 16:14:52

Local clock offset: -0.579 ms

Remote clock offset: 0.547 ms

Below is generated by plot.py at 2018-11-03 20:25:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 593.68 Mbit/s

95th percentile per-packet one-way delay: 190.893 ms

Loss rate: 4.55%

-- Flow 1:

Average throughput: 304.19 Mbit/s

95th percentile per-packet one-way delay: 221.759 ms

Loss rate: 7.75%

-- Flow 2:

Average throughput: 307.07 Mbit/s

95th percentile per-packet one-way delay: 103.941 ms

Loss rate: 0.74%

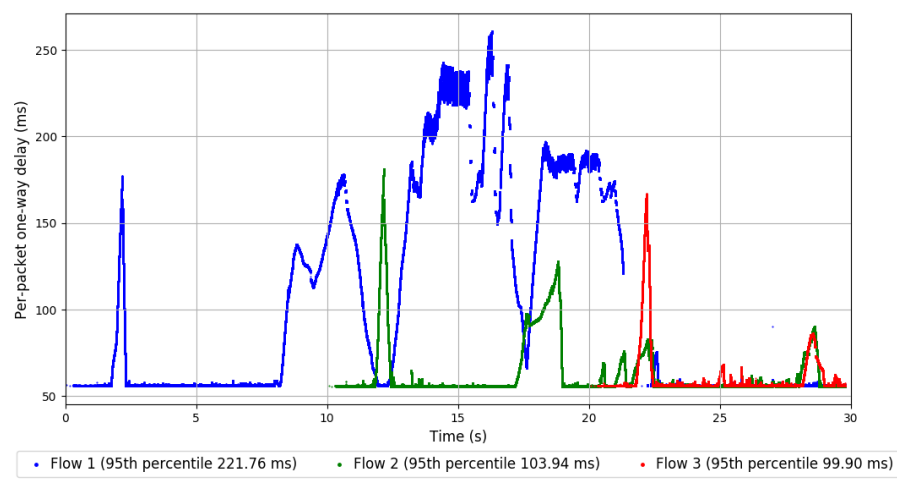
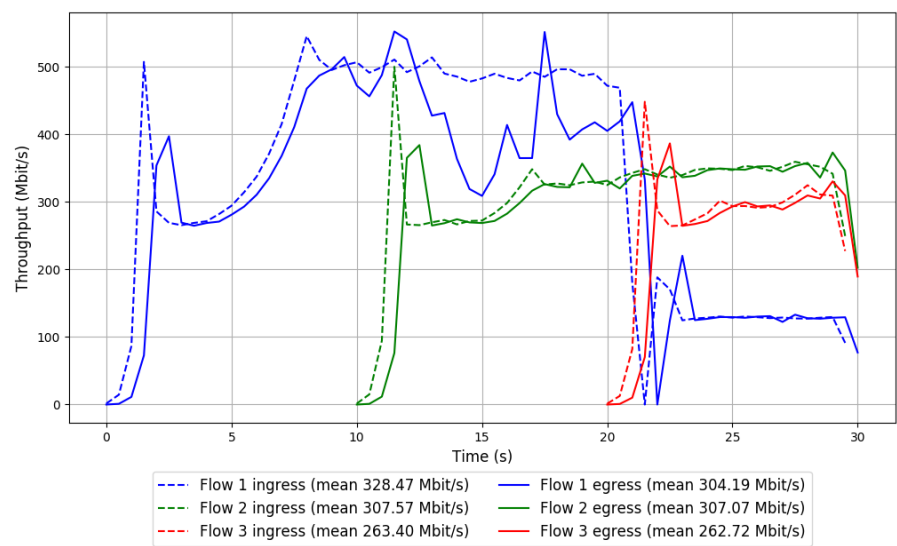
-- Flow 3:

Average throughput: 262.72 Mbit/s

95th percentile per-packet one-way delay: 99.898 ms

Loss rate: 1.41%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-11-03 16:47:46

End at: 2018-11-03 16:48:16

Local clock offset: -0.54 ms

Remote clock offset: 0.508 ms

Below is generated by plot.py at 2018-11-03 20:30:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 665.48 Mbit/s

95th percentile per-packet one-way delay: 198.660 ms

Loss rate: 4.64%

-- Flow 1:

Average throughput: 387.06 Mbit/s

95th percentile per-packet one-way delay: 200.851 ms

Loss rate: 6.73%

-- Flow 2:

Average throughput: 295.21 Mbit/s

95th percentile per-packet one-way delay: 199.970 ms

Loss rate: 1.66%

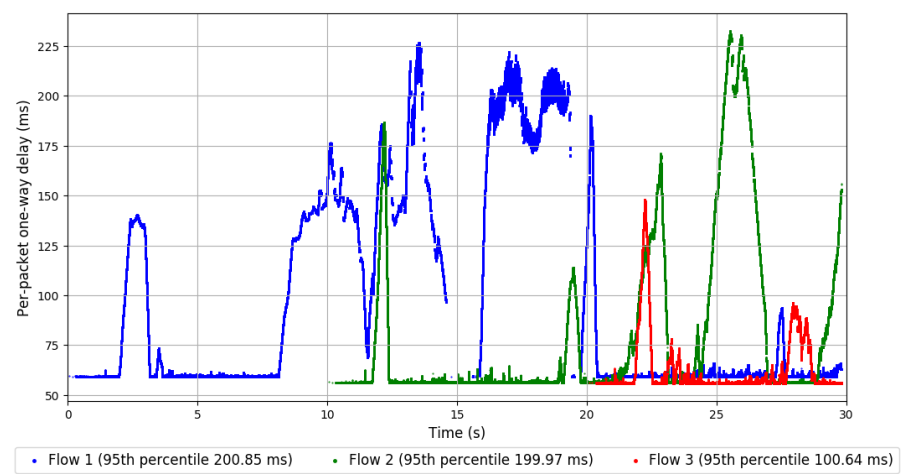
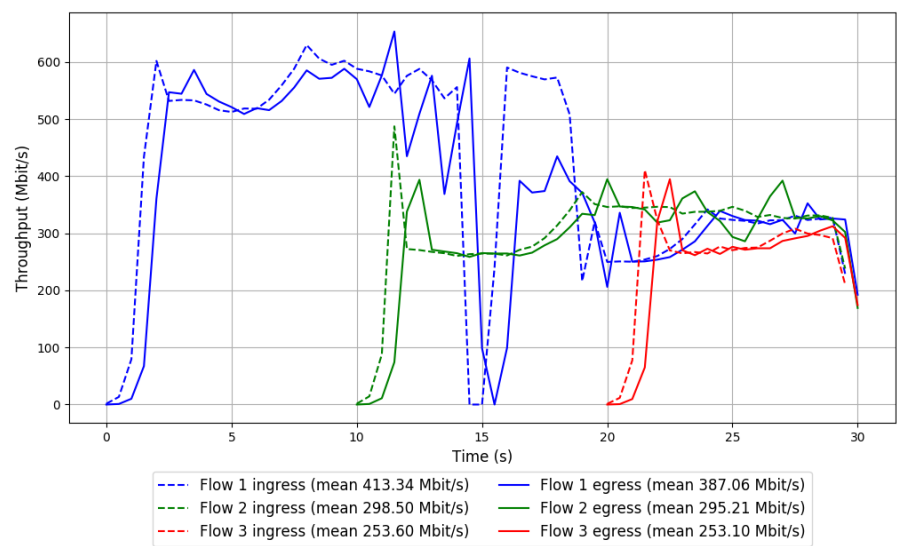
-- Flow 3:

Average throughput: 253.10 Mbit/s

95th percentile per-packet one-way delay: 100.637 ms

Loss rate: 1.38%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-11-03 17:21:49

End at: 2018-11-03 17:22:19

Local clock offset: -0.443 ms

Remote clock offset: 0.704 ms

Below is generated by plot.py at 2018-11-03 20:30:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 650.39 Mbit/s

95th percentile per-packet one-way delay: 207.682 ms

Loss rate: 7.57%

-- Flow 1:

Average throughput: 374.69 Mbit/s

95th percentile per-packet one-way delay: 216.012 ms

Loss rate: 11.73%

-- Flow 2:

Average throughput: 289.99 Mbit/s

95th percentile per-packet one-way delay: 69.448 ms

Loss rate: 1.18%

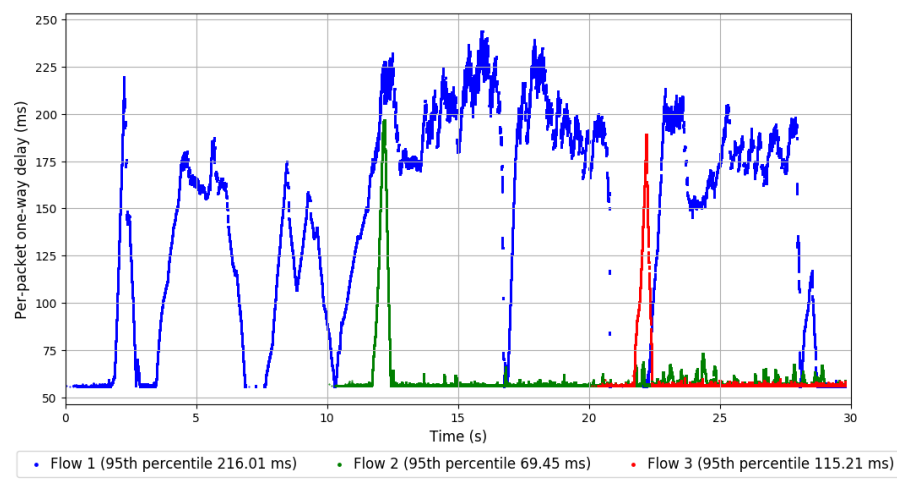
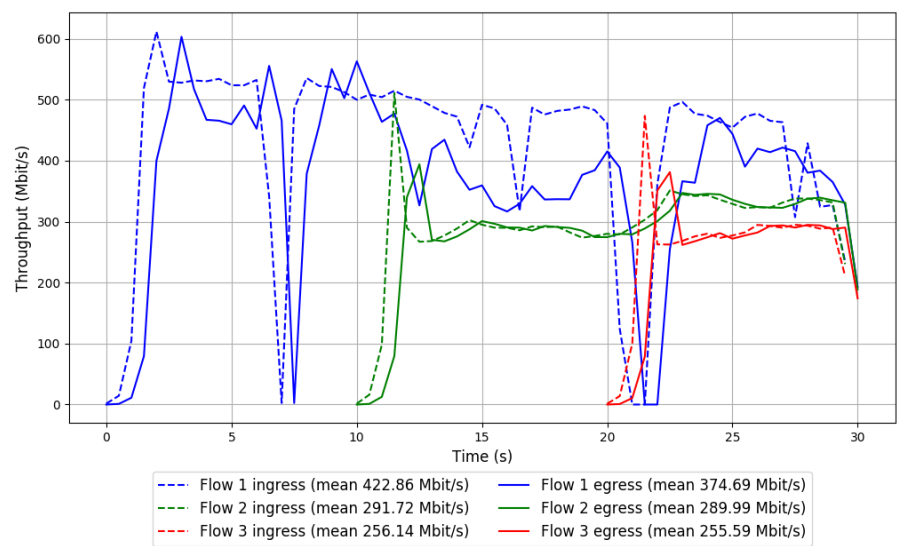
-- Flow 3:

Average throughput: 255.59 Mbit/s

95th percentile per-packet one-way delay: 115.210 ms

Loss rate: 1.39%

Run 3: Report of PCC-Allegro — Data Link

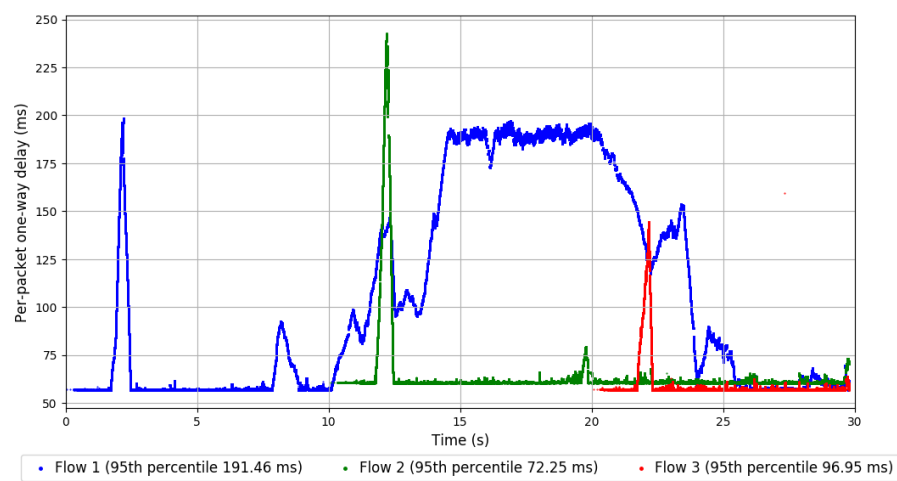
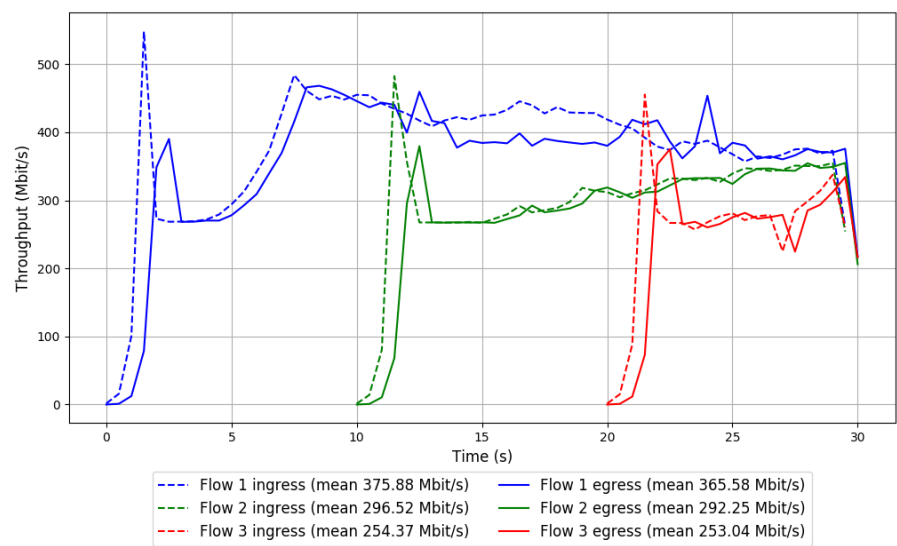


Run 4: Statistics of PCC-Allegro

Start at: 2018-11-03 17:55:26
End at: 2018-11-03 17:55:56
Local clock offset: 0.054 ms
Remote clock offset: -0.053 ms

Below is generated by plot.py at 2018-11-03 20:48:03
Datalink statistics
-- Total of 3 flows:
Average throughput: 642.15 Mbit/s
95th percentile per-packet one-way delay: 190.397 ms
Loss rate: 2.61%
-- Flow 1:
Average throughput: 365.58 Mbit/s
95th percentile per-packet one-way delay: 191.456 ms
Loss rate: 3.11%
-- Flow 2:
Average throughput: 292.25 Mbit/s
95th percentile per-packet one-way delay: 72.254 ms
Loss rate: 2.03%
-- Flow 3:
Average throughput: 253.04 Mbit/s
95th percentile per-packet one-way delay: 96.955 ms
Loss rate: 1.69%

Run 4: Report of PCC-Allegro — Data Link

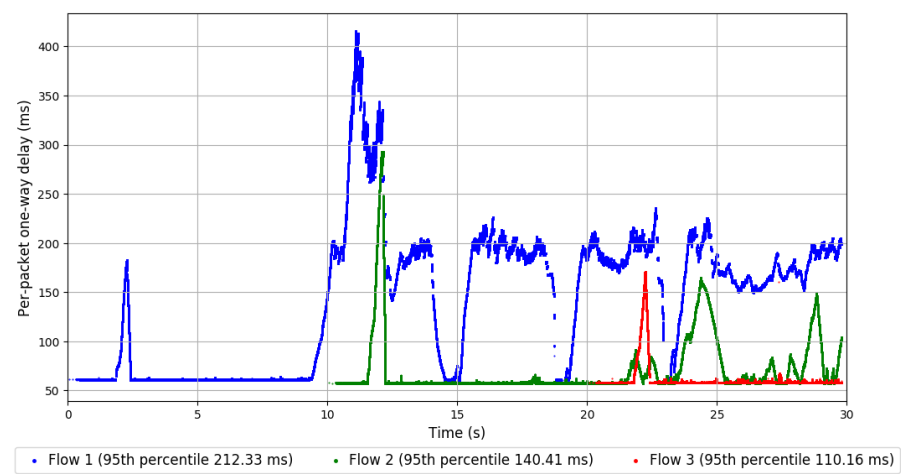
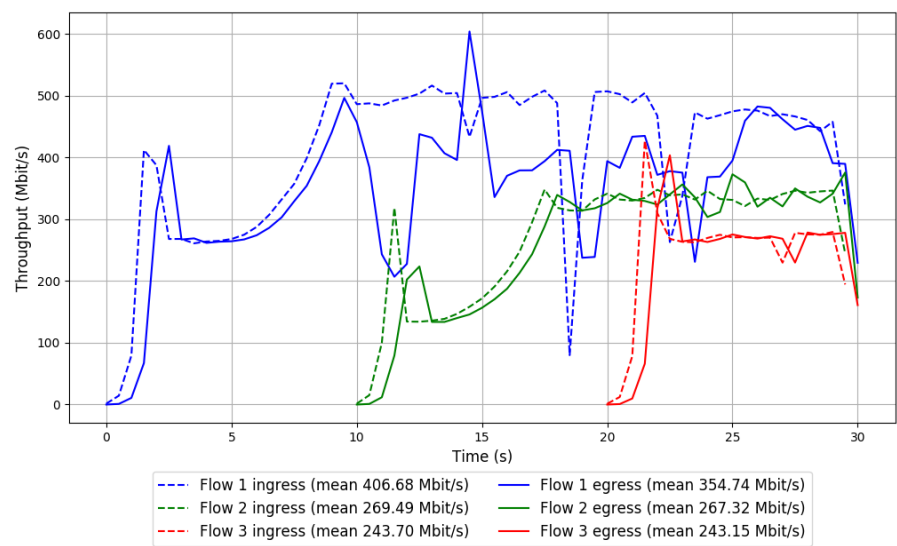


Run 5: Statistics of PCC-Allegro

Start at: 2018-11-03 18:29:48
End at: 2018-11-03 18:30:18
Local clock offset: 0.327 ms
Remote clock offset: -0.134 ms

```
# Below is generated by plot.py at 2018-11-03 20:48:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 611.42 Mbit/s
95th percentile per-packet one-way delay: 205.564 ms
Loss rate: 8.55%
-- Flow 1:
Average throughput: 354.74 Mbit/s
95th percentile per-packet one-way delay: 212.333 ms
Loss rate: 13.12%
-- Flow 2:
Average throughput: 267.32 Mbit/s
95th percentile per-packet one-way delay: 140.415 ms
Loss rate: 1.38%
-- Flow 3:
Average throughput: 243.15 Mbit/s
95th percentile per-packet one-way delay: 110.157 ms
Loss rate: 1.39%
```

Run 5: Report of PCC-Allegro — Data Link

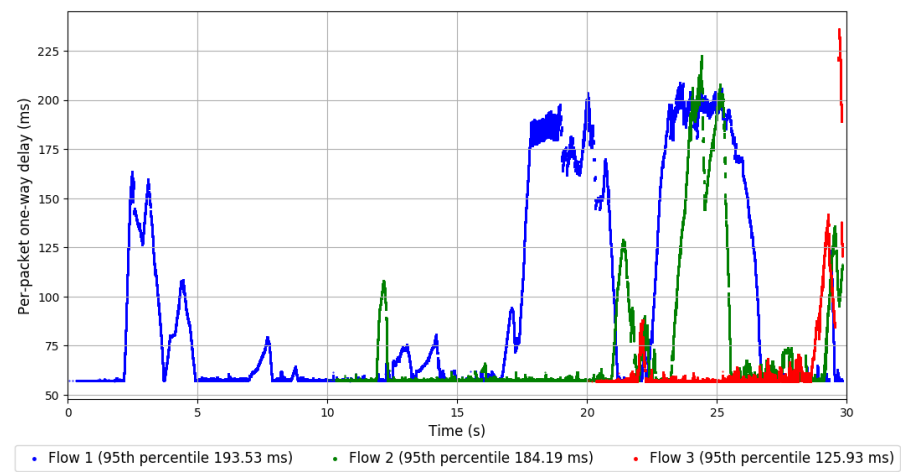
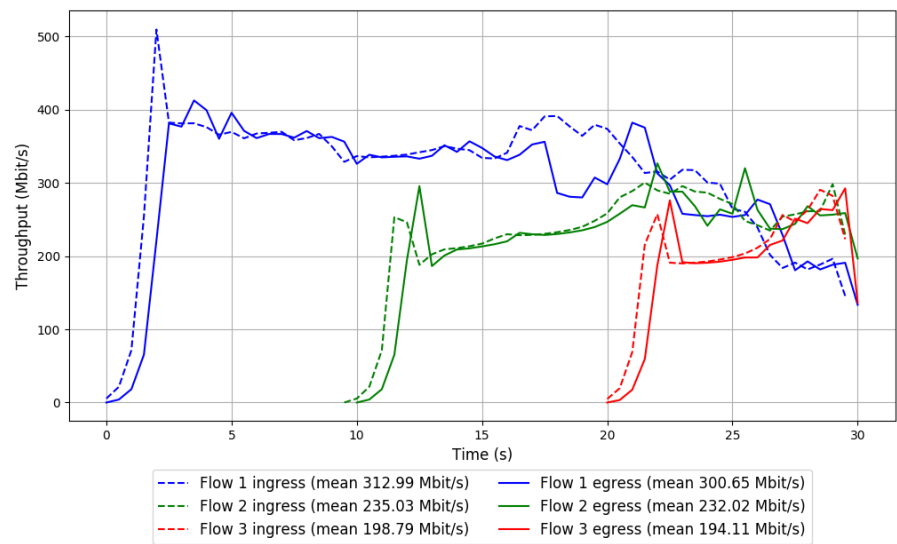


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-03 16:04:32
End at: 2018-11-03 16:05:02
Local clock offset: 0.026 ms
Remote clock offset: -0.143 ms

# Below is generated by plot.py at 2018-11-03 20:48:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 518.37 Mbit/s
95th percentile per-packet one-way delay: 191.473 ms
Loss rate: 3.49%
-- Flow 1:
Average throughput: 300.65 Mbit/s
95th percentile per-packet one-way delay: 193.528 ms
Loss rate: 4.31%
-- Flow 2:
Average throughput: 232.02 Mbit/s
95th percentile per-packet one-way delay: 184.189 ms
Loss rate: 1.85%
-- Flow 3:
Average throughput: 194.11 Mbit/s
95th percentile per-packet one-way delay: 125.930 ms
Loss rate: 3.48%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-11-03 16:38:13

End at: 2018-11-03 16:38:43

Local clock offset: -0.085 ms

Remote clock offset: 0.089 ms

Below is generated by plot.py at 2018-11-03 20:48:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 462.95 Mbit/s

95th percentile per-packet one-way delay: 181.098 ms

Loss rate: 2.91%

-- Flow 1:

Average throughput: 291.54 Mbit/s

95th percentile per-packet one-way delay: 182.786 ms

Loss rate: 3.28%

-- Flow 2:

Average throughput: 235.35 Mbit/s

95th percentile per-packet one-way delay: 179.723 ms

Loss rate: 2.33%

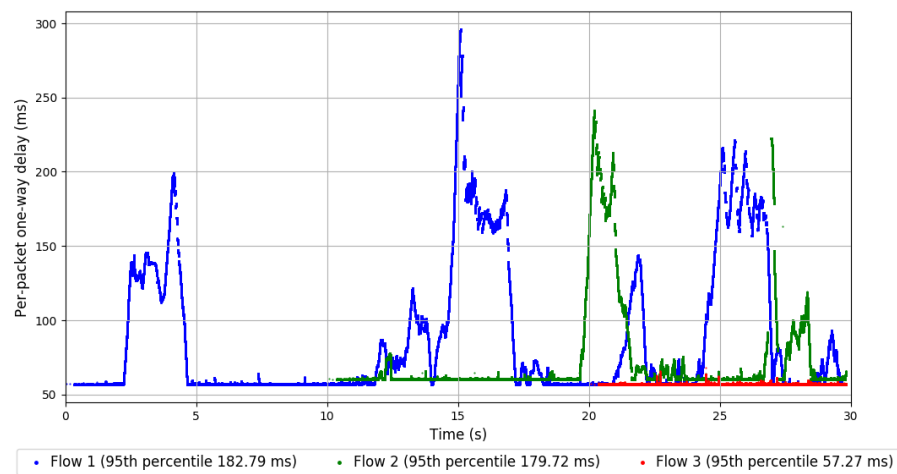
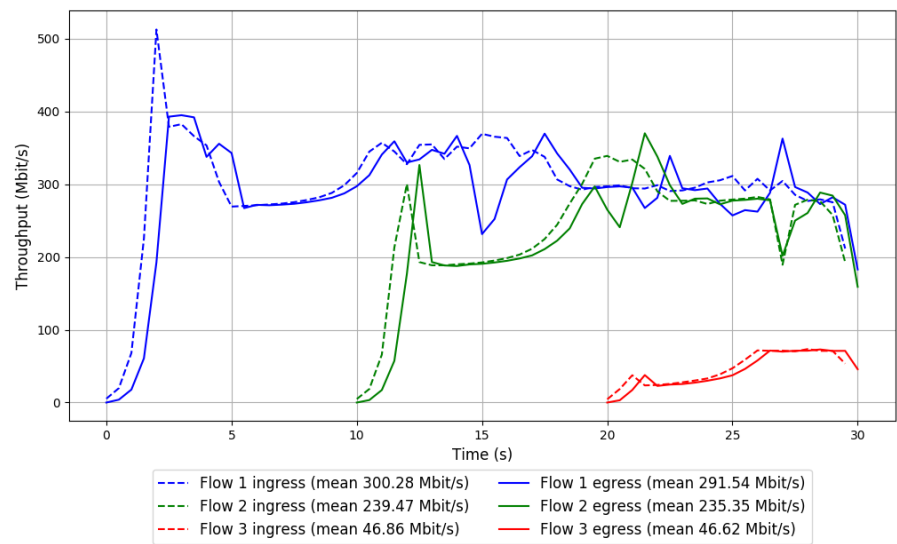
-- Flow 3:

Average throughput: 46.62 Mbit/s

95th percentile per-packet one-way delay: 57.269 ms

Loss rate: 1.68%

Run 2: Report of PCC-Expr — Data Link

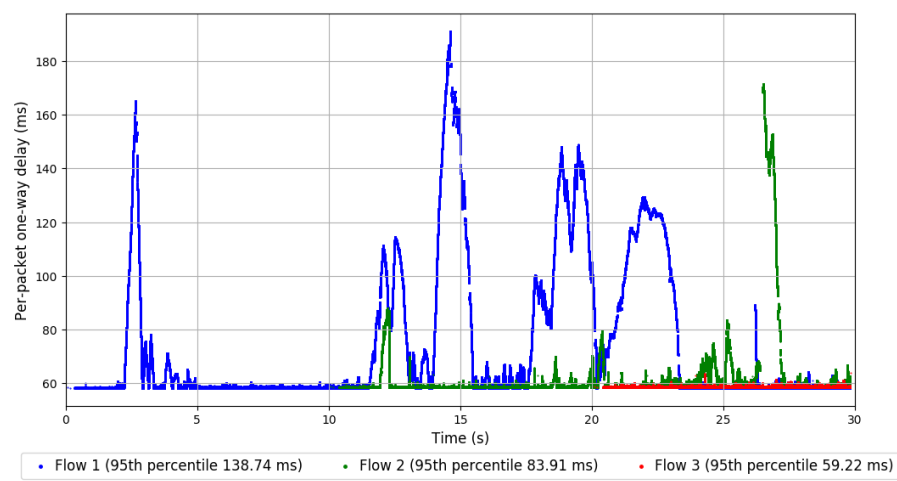
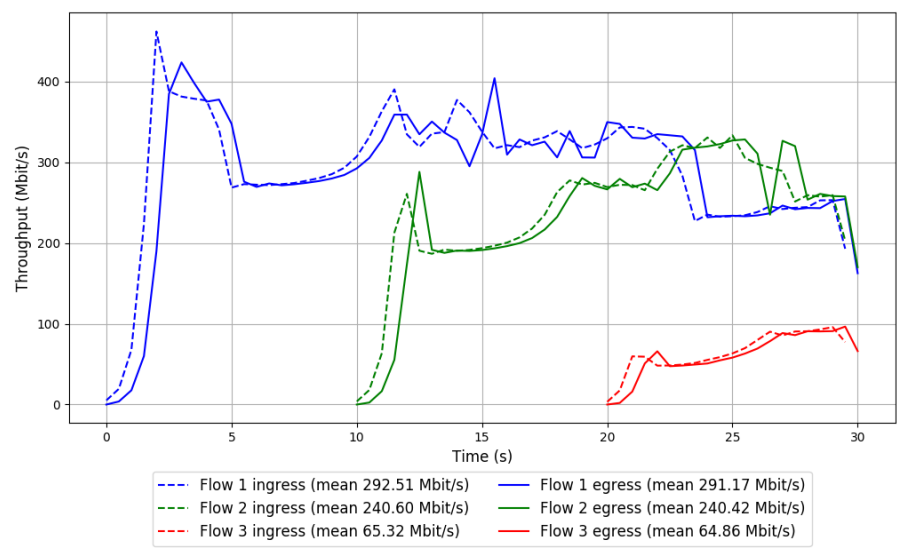


Run 3: Statistics of PCC-Expr

Start at: 2018-11-03 17:12:09
End at: 2018-11-03 17:12:39
Local clock offset: 0.059 ms
Remote clock offset: -1.335 ms

Below is generated by plot.py at 2018-11-03 20:48:03
Datalink statistics
-- Total of 3 flows:
Average throughput: 471.90 Mbit/s
95th percentile per-packet one-way delay: 133.411 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 291.17 Mbit/s
95th percentile per-packet one-way delay: 138.735 ms
Loss rate: 0.84%
-- Flow 2:
Average throughput: 240.42 Mbit/s
95th percentile per-packet one-way delay: 83.912 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 64.86 Mbit/s
95th percentile per-packet one-way delay: 59.219 ms
Loss rate: 1.81%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-11-03 17:45:33

End at: 2018-11-03 17:46:03

Local clock offset: -0.003 ms

Remote clock offset: 0.036 ms

Below is generated by plot.py at 2018-11-03 20:48:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 483.64 Mbit/s

95th percentile per-packet one-way delay: 135.355 ms

Loss rate: 1.03%

-- Flow 1:

Average throughput: 262.31 Mbit/s

95th percentile per-packet one-way delay: 159.258 ms

Loss rate: 1.17%

-- Flow 2:

Average throughput: 245.80 Mbit/s

95th percentile per-packet one-way delay: 93.290 ms

Loss rate: 0.66%

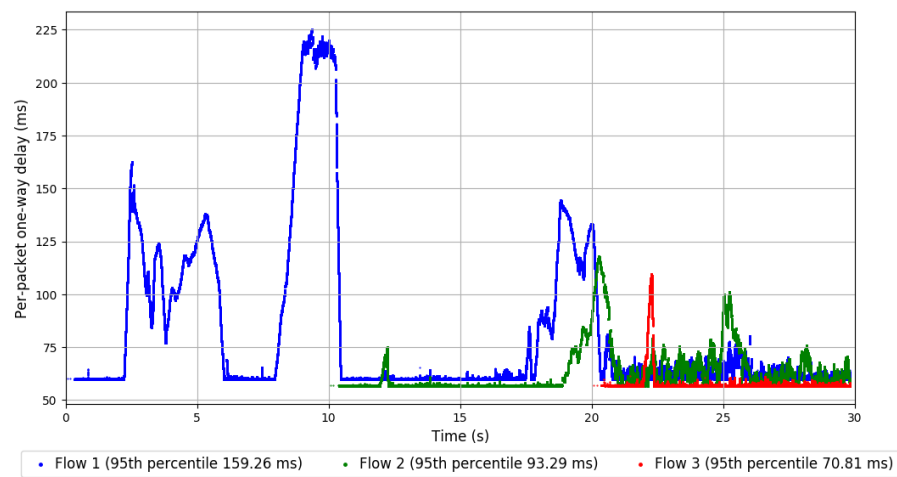
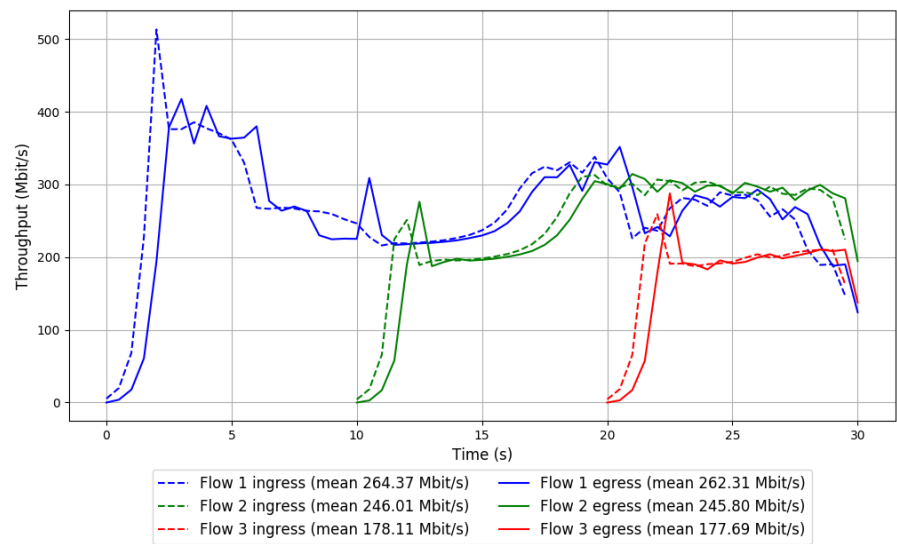
-- Flow 3:

Average throughput: 177.69 Mbit/s

95th percentile per-packet one-way delay: 70.806 ms

Loss rate: 1.39%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-03 18:19:48

End at: 2018-11-03 18:20:18

Local clock offset: -0.303 ms

Remote clock offset: -0.09 ms

Below is generated by plot.py at 2018-11-03 20:51:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 488.28 Mbit/s

95th percentile per-packet one-way delay: 176.920 ms

Loss rate: 2.59%

-- Flow 1:

Average throughput: 286.50 Mbit/s

95th percentile per-packet one-way delay: 165.703 ms

Loss rate: 1.72%

-- Flow 2:

Average throughput: 258.88 Mbit/s

95th percentile per-packet one-way delay: 186.576 ms

Loss rate: 4.20%

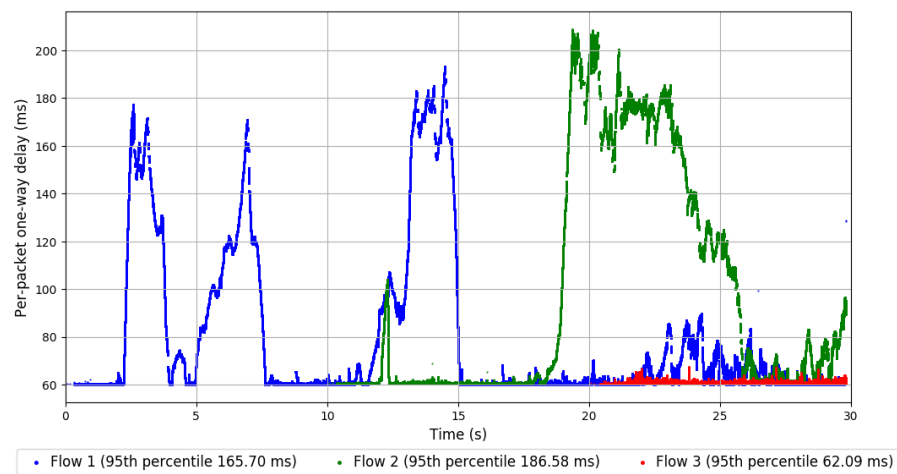
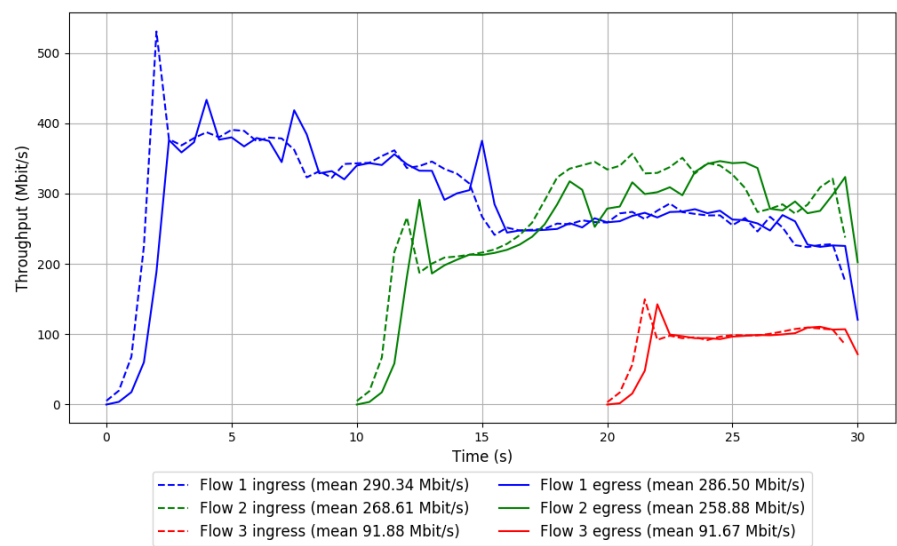
-- Flow 3:

Average throughput: 91.67 Mbit/s

95th percentile per-packet one-way delay: 62.090 ms

Loss rate: 1.46%

Run 5: Report of PCC-Expr — Data Link

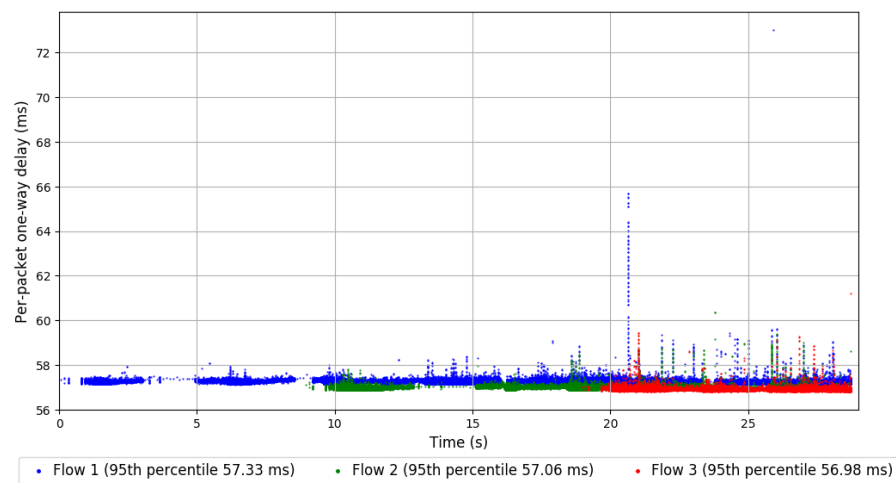
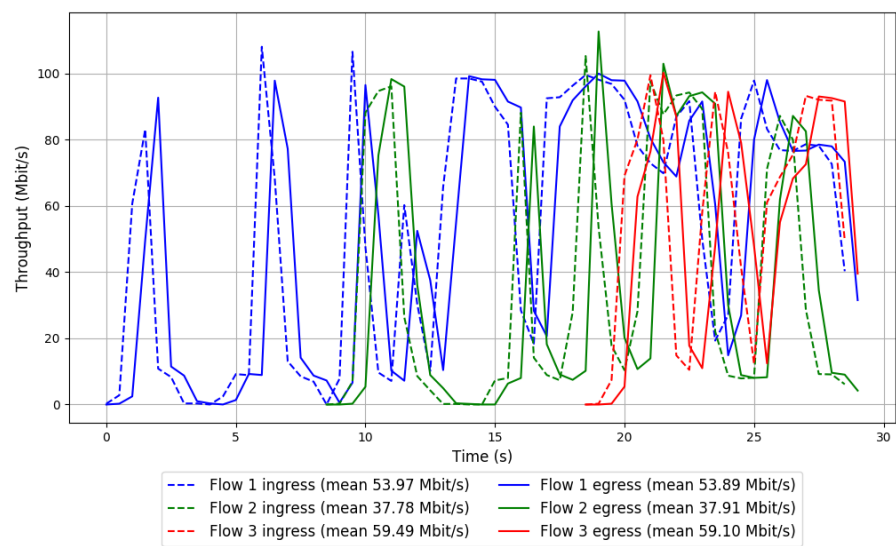


Run 1: Statistics of QUIC Cubic

Start at: 2018-11-03 15:58:15
End at: 2018-11-03 15:58:45
Local clock offset: -0.414 ms
Remote clock offset: -0.438 ms

Below is generated by plot.py at 2018-11-03 20:51:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 100.18 Mbit/s
95th percentile per-packet one-way delay: 57.301 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 53.89 Mbit/s
95th percentile per-packet one-way delay: 57.332 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 37.91 Mbit/s
95th percentile per-packet one-way delay: 57.058 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 59.10 Mbit/s
95th percentile per-packet one-way delay: 56.982 ms
Loss rate: 1.76%

Run 1: Report of QUIC Cubic — Data Link

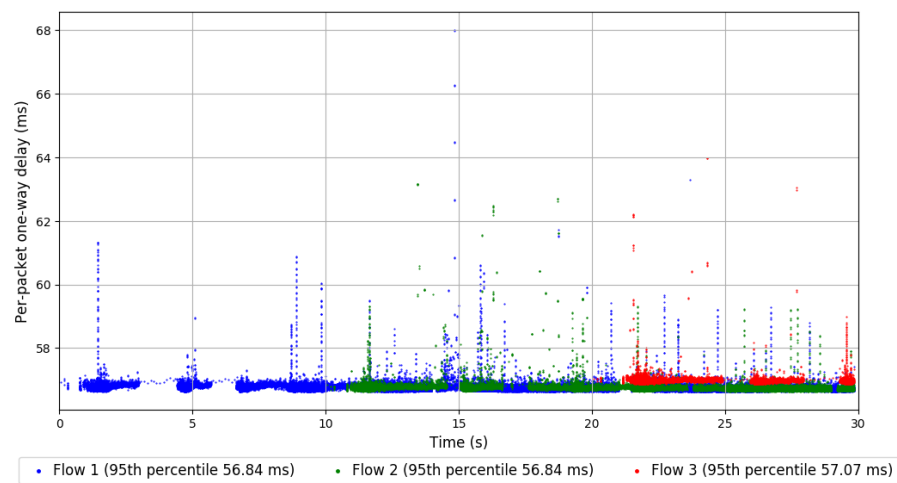
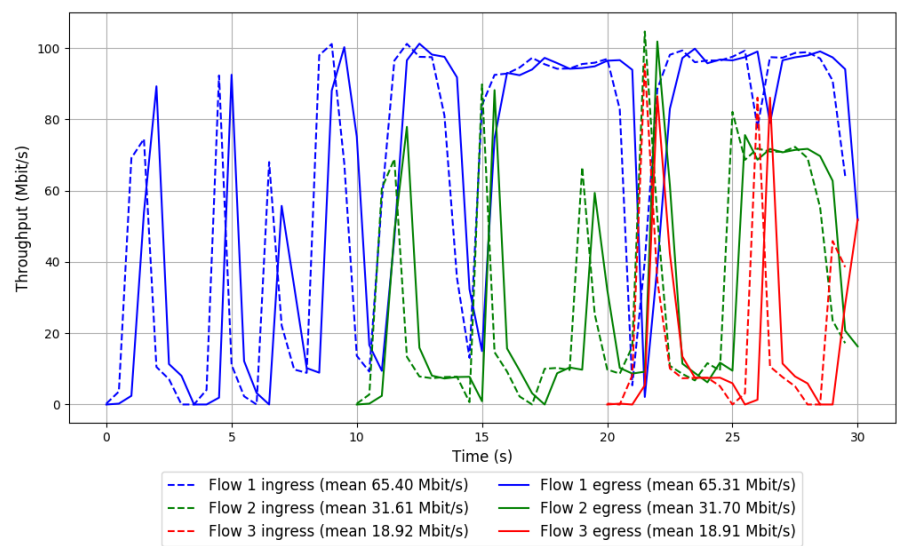


Run 2: Statistics of QUIC Cubic

Start at: 2018-11-03 16:31:56
End at: 2018-11-03 16:32:26
Local clock offset: -0.493 ms
Remote clock offset: -0.283 ms

Below is generated by plot.py at 2018-11-03 20:51:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 92.55 Mbit/s
95th percentile per-packet one-way delay: 56.940 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 65.31 Mbit/s
95th percentile per-packet one-way delay: 56.835 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 31.70 Mbit/s
95th percentile per-packet one-way delay: 56.835 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 18.91 Mbit/s
95th percentile per-packet one-way delay: 57.066 ms
Loss rate: 1.21%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-11-03 17:05:45

End at: 2018-11-03 17:06:15

Local clock offset: -0.514 ms

Remote clock offset: 0.075 ms

Below is generated by plot.py at 2018-11-03 20:51:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 80.89 Mbit/s

95th percentile per-packet one-way delay: 56.950 ms

Loss rate: 0.76%

-- Flow 1:

Average throughput: 51.35 Mbit/s

95th percentile per-packet one-way delay: 56.967 ms

Loss rate: 0.55%

-- Flow 2:

Average throughput: 35.21 Mbit/s

95th percentile per-packet one-way delay: 56.630 ms

Loss rate: 1.27%

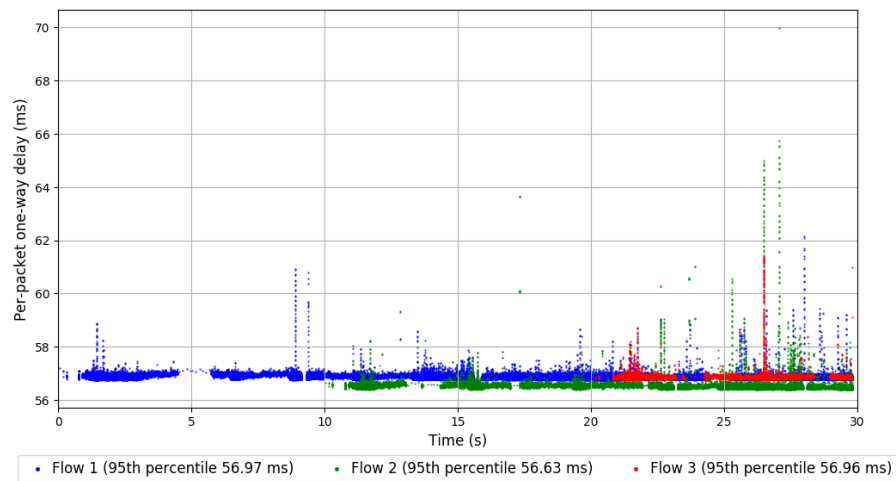
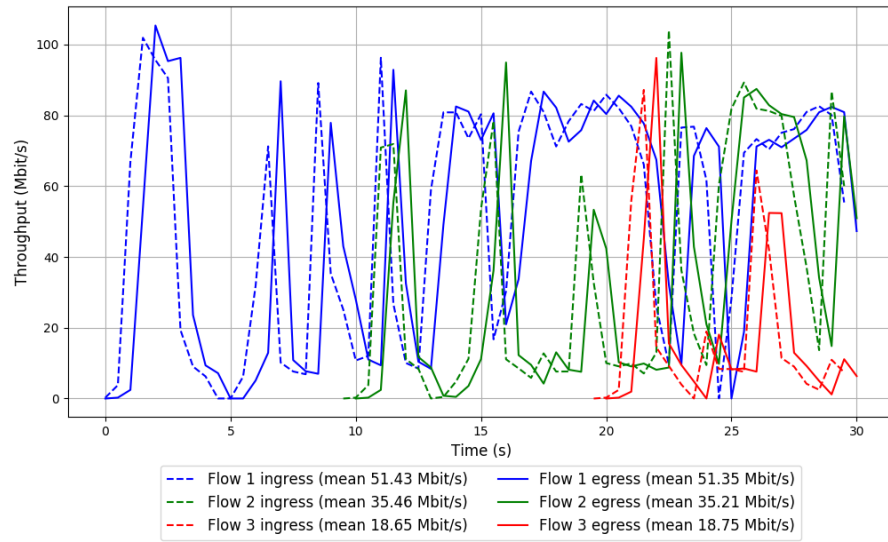
-- Flow 3:

Average throughput: 18.75 Mbit/s

95th percentile per-packet one-way delay: 56.957 ms

Loss rate: 0.60%

Run 3: Report of QUIC Cubic — Data Link

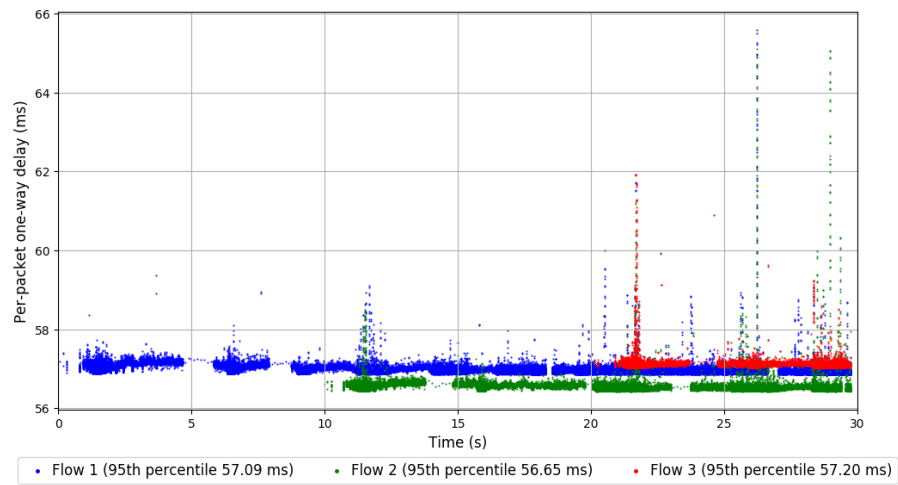
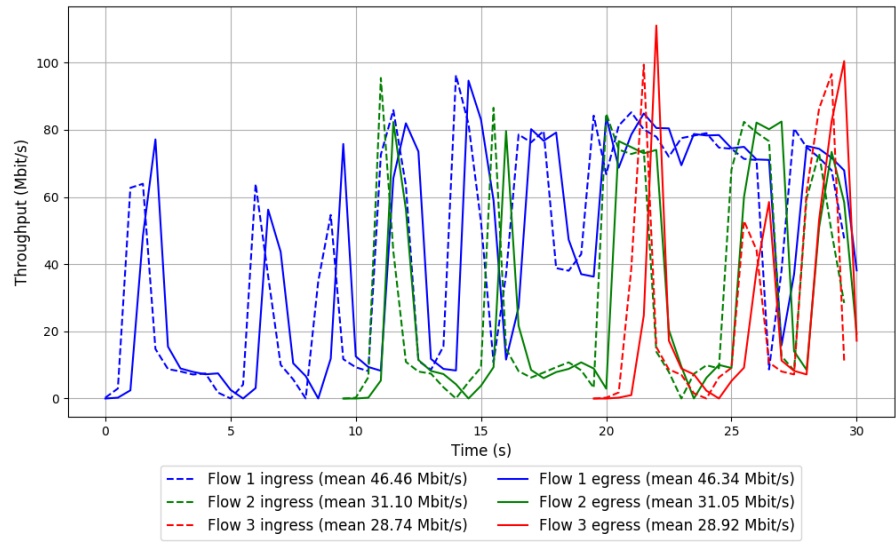


Run 4: Statistics of QUIC Cubic

Start at: 2018-11-03 17:39:10
End at: 2018-11-03 17:39:40
Local clock offset: -0.296 ms
Remote clock offset: -0.116 ms

Below is generated by plot.py at 2018-11-03 20:51:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 76.50 Mbit/s
95th percentile per-packet one-way delay: 57.129 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 46.34 Mbit/s
95th percentile per-packet one-way delay: 57.092 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 31.05 Mbit/s
95th percentile per-packet one-way delay: 56.649 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 28.92 Mbit/s
95th percentile per-packet one-way delay: 57.196 ms
Loss rate: 0.52%

Run 4: Report of QUIC Cubic — Data Link

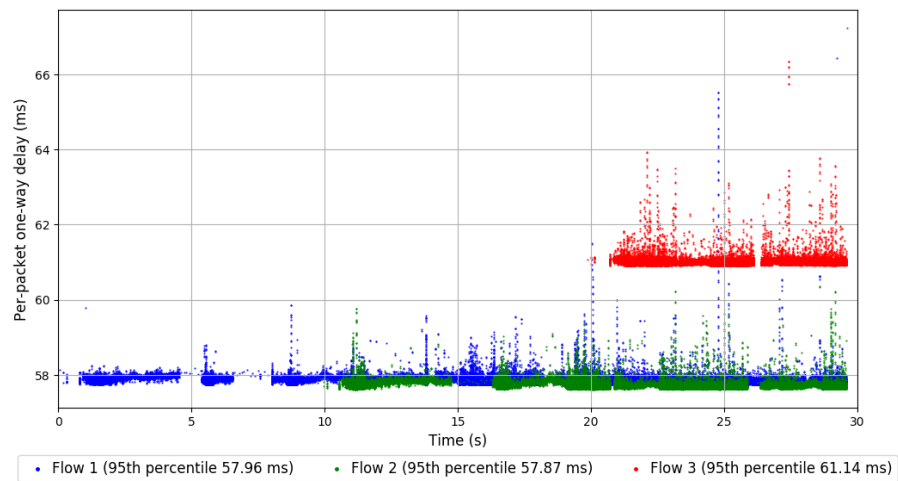
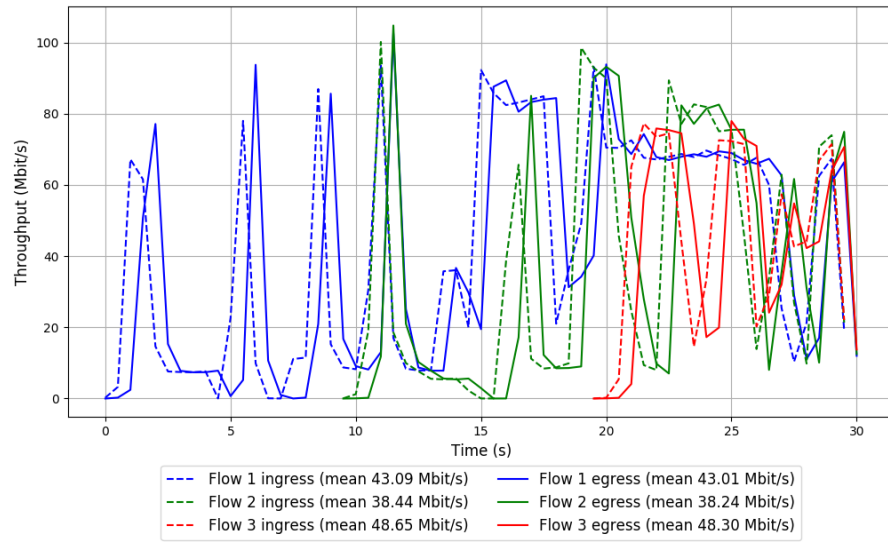


Run 5: Statistics of QUIC Cubic

Start at: 2018-11-03 18:13:23
End at: 2018-11-03 18:13:53
Local clock offset: -0.466 ms
Remote clock offset: -1.298 ms

Below is generated by plot.py at 2018-11-03 20:51:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 84.50 Mbit/s
95th percentile per-packet one-way delay: 61.019 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 43.01 Mbit/s
95th percentile per-packet one-way delay: 57.964 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 38.24 Mbit/s
95th percentile per-packet one-way delay: 57.870 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 48.30 Mbit/s
95th percentile per-packet one-way delay: 61.136 ms
Loss rate: 1.83%

Run 5: Report of QUIC Cubic — Data Link

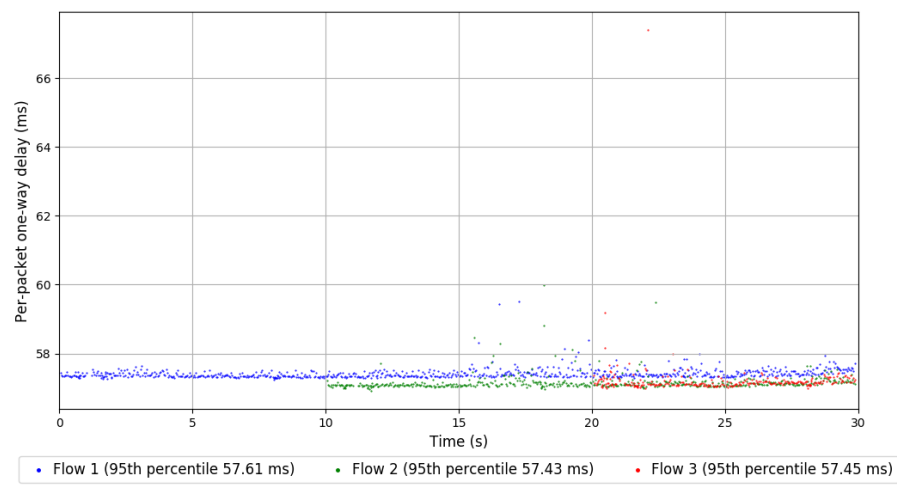
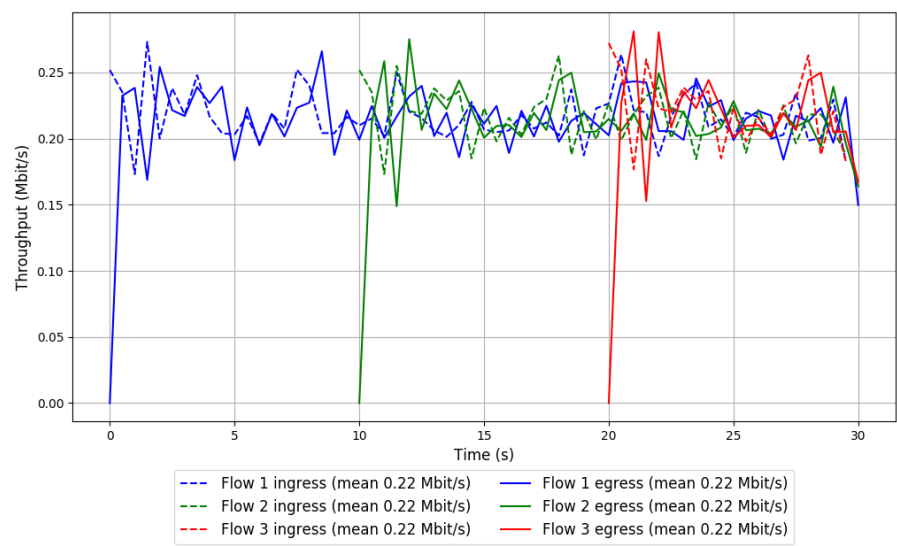


```
Run 1: Statistics of SReAM

Start at: 2018-11-03 16:20:49
End at: 2018-11-03 16:21:19
Local clock offset: -0.154 ms
Remote clock offset: -0.146 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 57.582 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.607 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.429 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.446 ms
Loss rate: 1.07%
```

Run 1: Report of SReAM — Data Link

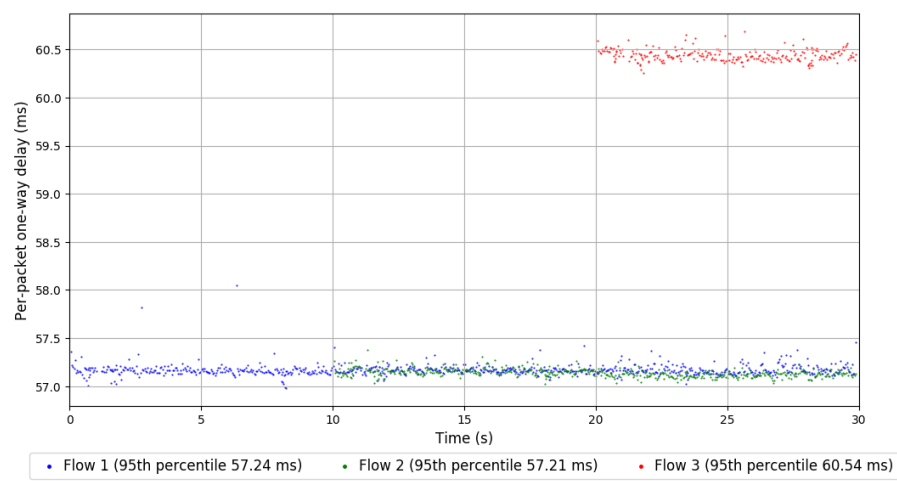
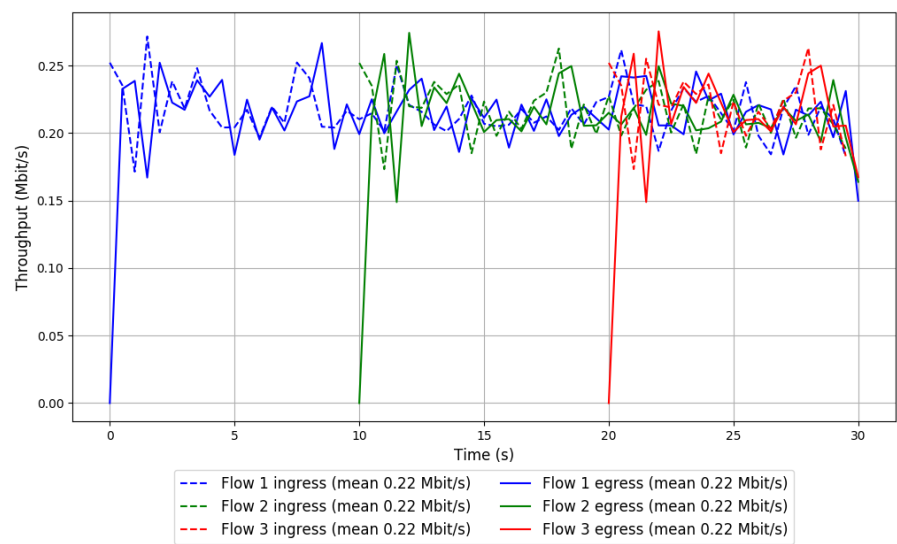


Run 2: Statistics of SReAM

Start at: 2018-11-03 16:54:34
End at: 2018-11-03 16:55:04
Local clock offset: -0.087 ms
Remote clock offset: -0.088 ms

Below is generated by plot.py at 2018-11-03 20:51:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 60.470 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.244 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.214 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.544 ms
Loss rate: 1.08%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SReAM

Start at: 2018-11-03 17:28:25

End at: 2018-11-03 17:28:55

Local clock offset: -0.402 ms

Remote clock offset: 1.281 ms

Below is generated by plot.py at 2018-11-03 20:51:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 58.822 ms

Loss rate: 0.58%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 56.078 ms

Loss rate: 0.38%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 55.634 ms

Loss rate: 0.61%

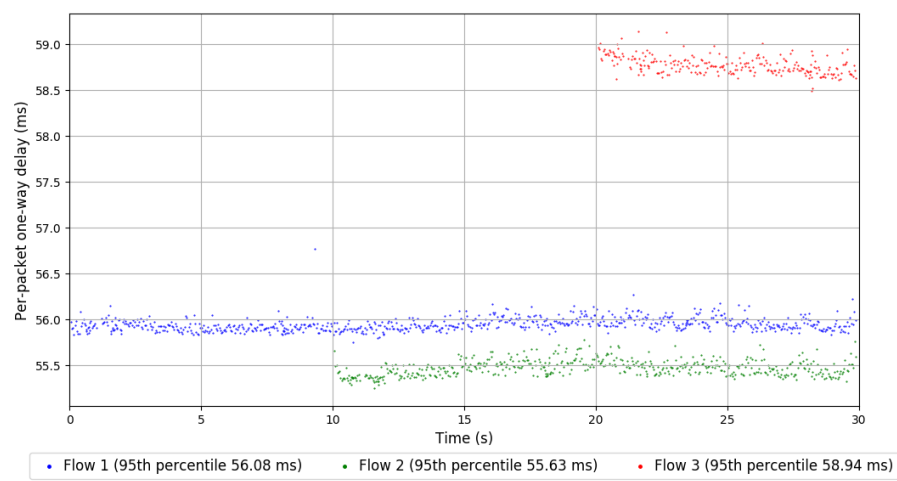
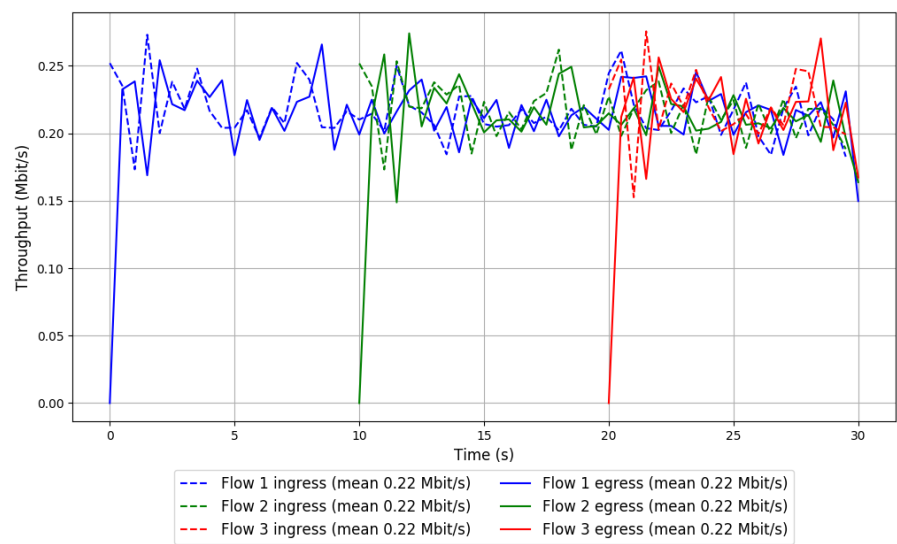
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 58.942 ms

Loss rate: 1.08%

Run 3: Report of SReAM — Data Link

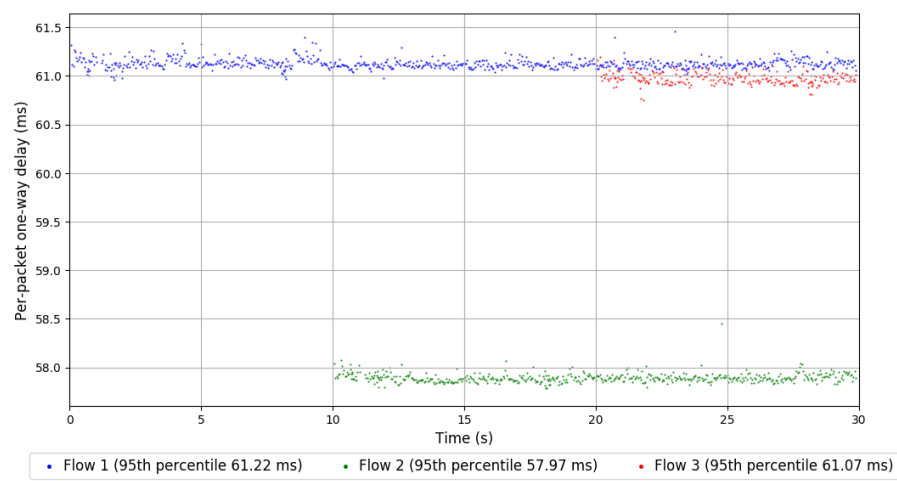
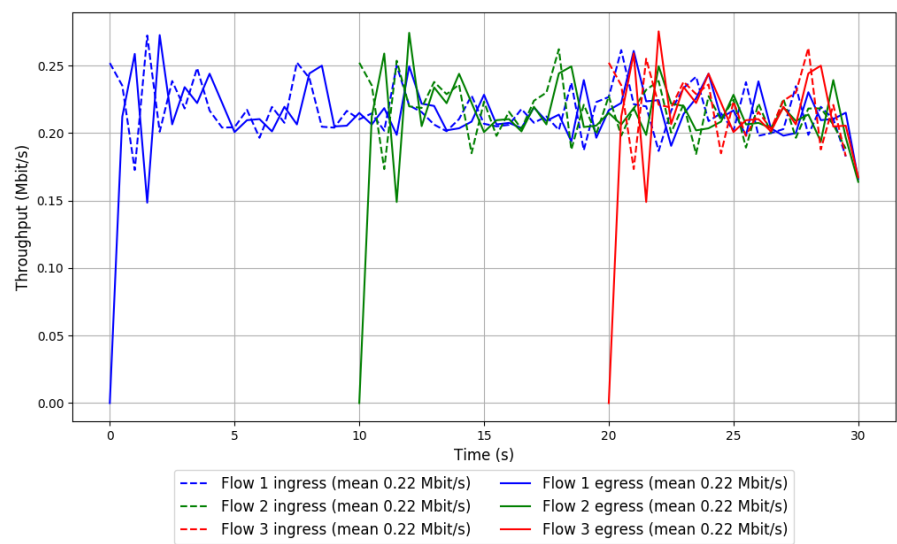


Run 4: Statistics of SReAM

Start at: 2018-11-03 18:01:54
End at: 2018-11-03 18:02:24
Local clock offset: -0.229 ms
Remote clock offset: -1.101 ms

Below is generated by plot.py at 2018-11-03 20:51:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 61.189 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.221 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.974 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.071 ms
Loss rate: 1.08%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-11-03 18:36:27

End at: 2018-11-03 18:36:57

Local clock offset: 0.383 ms

Remote clock offset: 0.065 ms

Below is generated by plot.py at 2018-11-03 20:51:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 57.539 ms

Loss rate: 0.58%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 57.558 ms

Loss rate: 0.38%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 57.516 ms

Loss rate: 0.61%

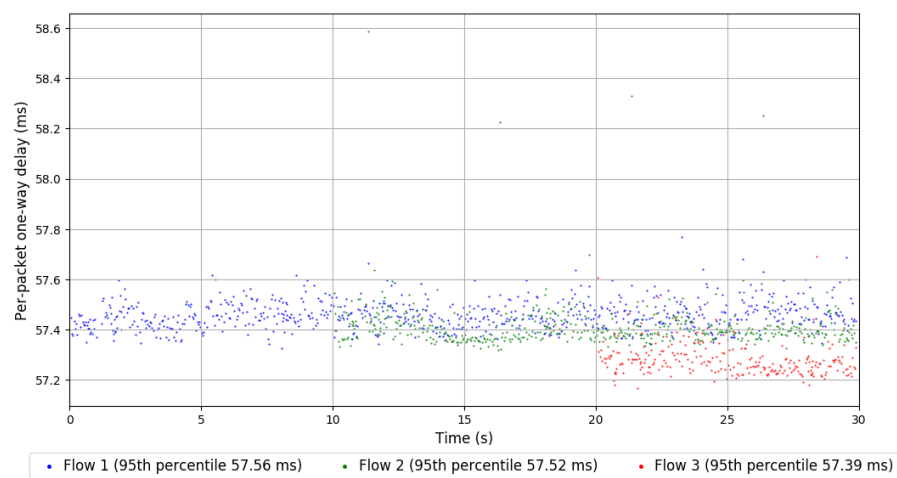
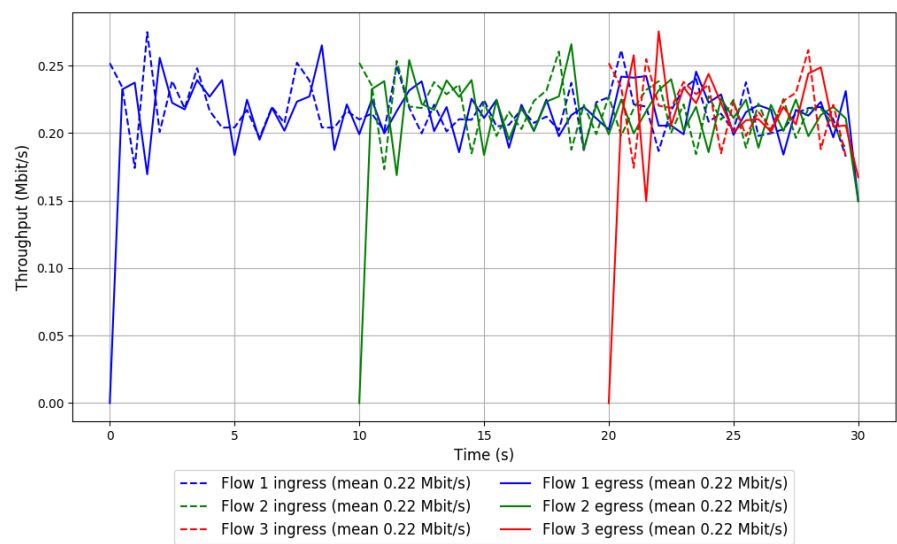
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 57.386 ms

Loss rate: 1.09%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-11-03 16:06:52

End at: 2018-11-03 16:07:22

Local clock offset: -0.153 ms

Remote clock offset: -0.54 ms

Below is generated by plot.py at 2018-11-03 20:51:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 13.62 Mbit/s

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

Loss rate: 0.69%

-- Flow 1:

Average throughput: 6.94 Mbit/s

95th percentile per-packet one-way delay: 57.951 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 7.00 Mbit/s

95th percentile per-packet one-way delay: 58.231 ms

Loss rate: 0.71%

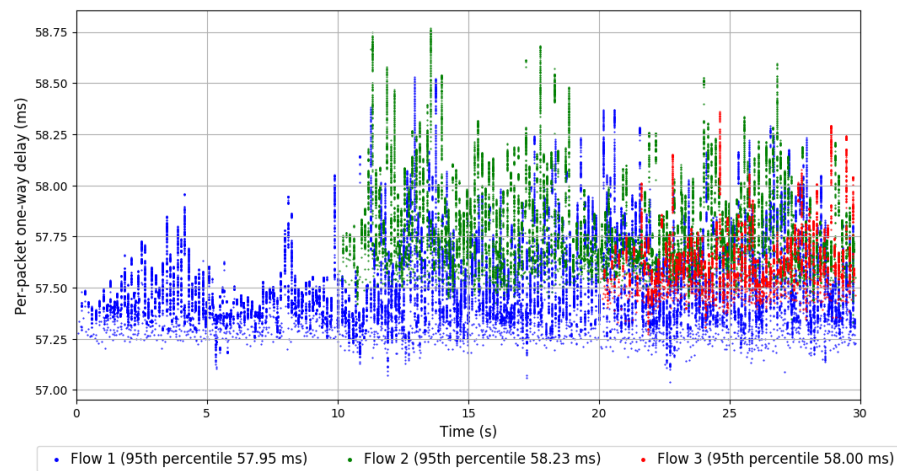
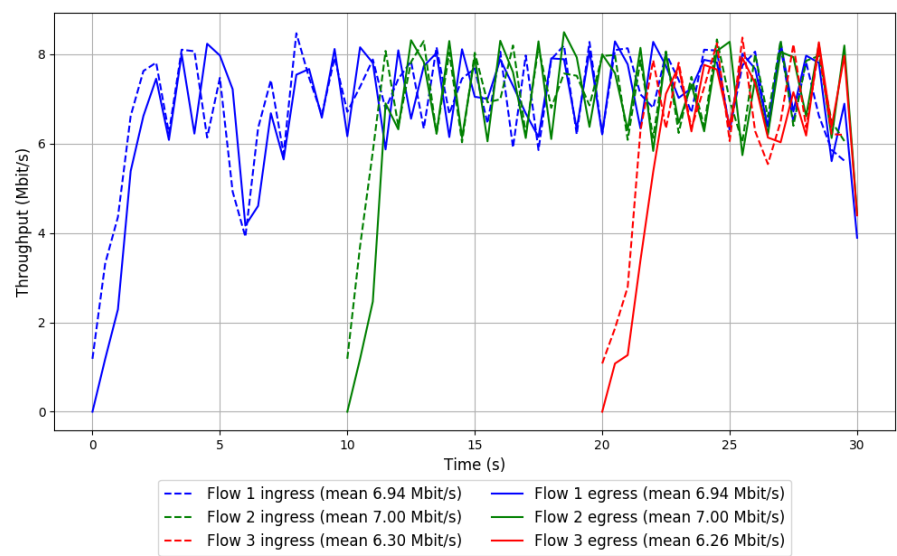
-- Flow 3:

Average throughput: 6.26 Mbit/s

95th percentile per-packet one-way delay: 58.002 ms

Loss rate: 1.57%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-11-03 16:40:24

End at: 2018-11-03 16:40:54

Local clock offset: -0.451 ms

Remote clock offset: 1.204 ms

Below is generated by plot.py at 2018-11-03 20:51:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 14.11 Mbit/s

95th percentile per-packet one-way delay: 56.012 ms

Loss rate: 0.63%

-- Flow 1:

Average throughput: 7.15 Mbit/s

95th percentile per-packet one-way delay: 56.066 ms

Loss rate: 0.43%

-- Flow 2:

Average throughput: 6.95 Mbit/s

95th percentile per-packet one-way delay: 55.929 ms

Loss rate: 0.67%

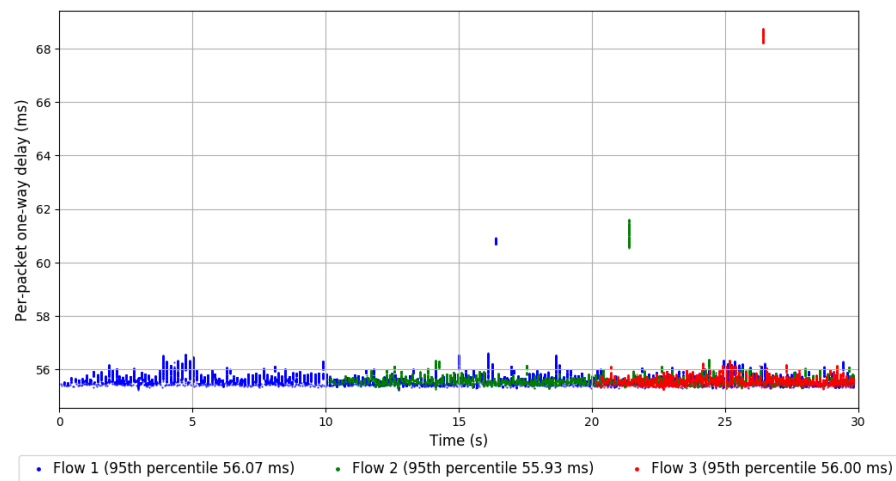
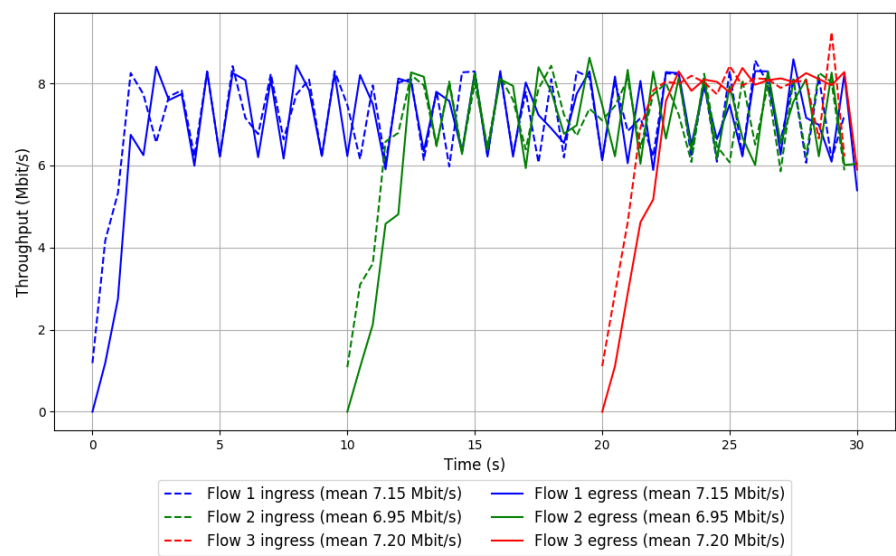
-- Flow 3:

Average throughput: 7.20 Mbit/s

95th percentile per-packet one-way delay: 56.002 ms

Loss rate: 1.14%

Run 2: Report of Sprout — Data Link

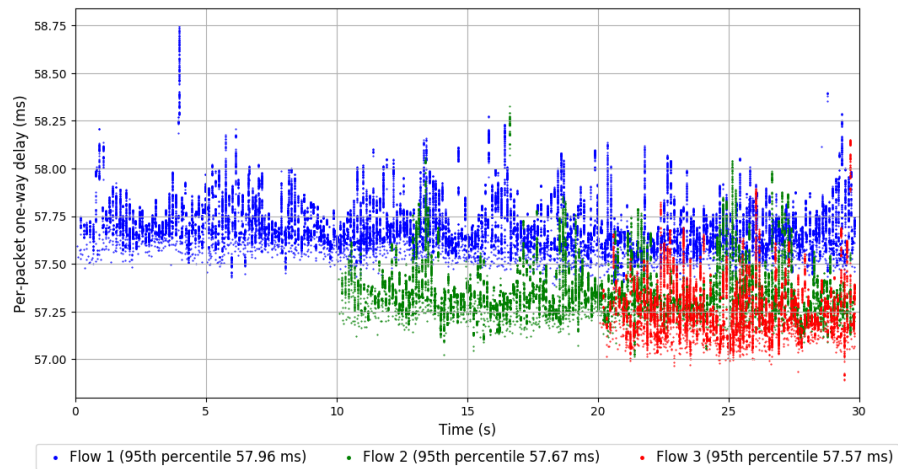
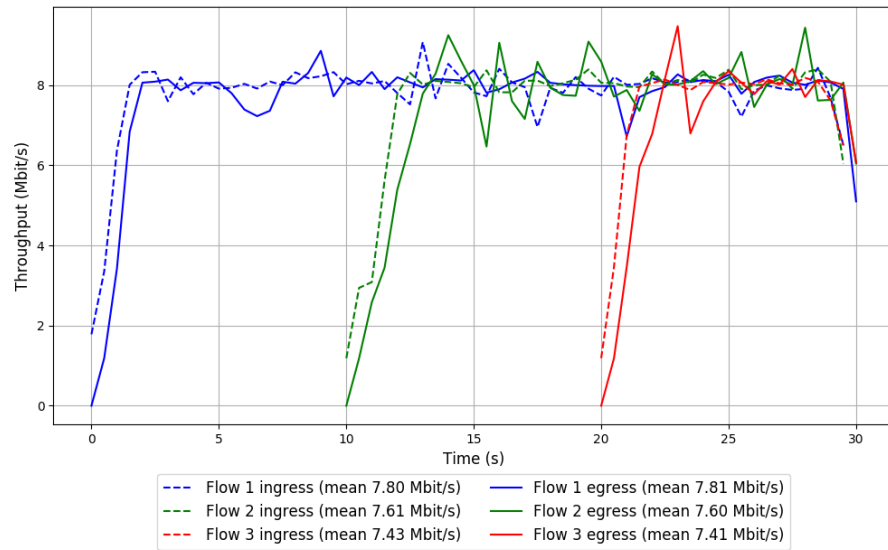


Run 3: Statistics of Sprout

Start at: 2018-11-03 17:14:20
End at: 2018-11-03 17:14:50
Local clock offset: -0.204 ms
Remote clock offset: -0.075 ms

```
# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.27 Mbit/s
95th percentile per-packet one-way delay: 57.882 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 57.956 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 7.60 Mbit/s
95th percentile per-packet one-way delay: 57.666 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 7.41 Mbit/s
95th percentile per-packet one-way delay: 57.568 ms
Loss rate: 1.40%
```

Run 3: Report of Sprout — Data Link

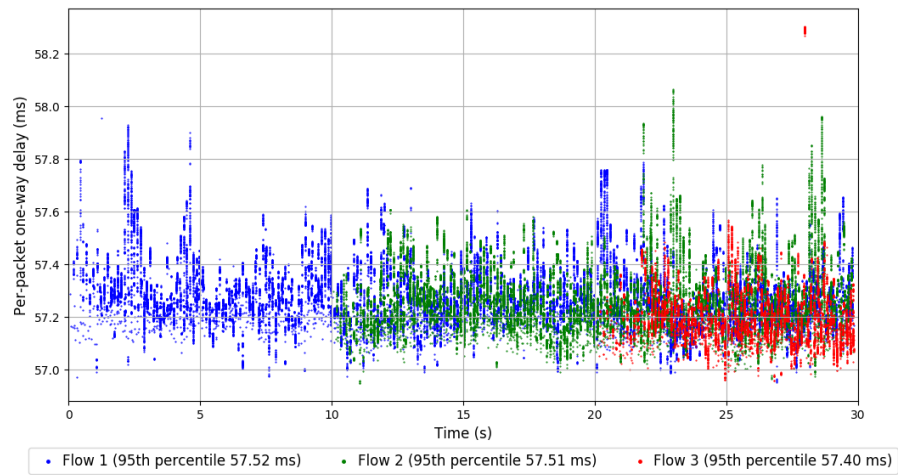
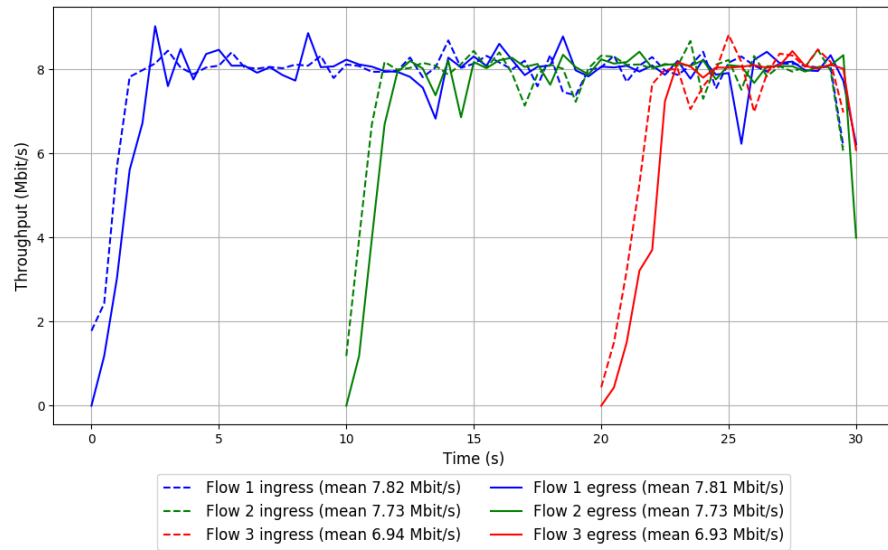


Run 4: Statistics of Sprout

Start at: 2018-11-03 17:47:45
End at: 2018-11-03 17:48:15
Local clock offset: 0.048 ms
Remote clock offset: -0.038 ms

```
# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.21 Mbit/s
95th percentile per-packet one-way delay: 57.503 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 57.518 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 57.514 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 6.93 Mbit/s
95th percentile per-packet one-way delay: 57.400 ms
Loss rate: 1.25%
```

Run 4: Report of Sprout — Data Link

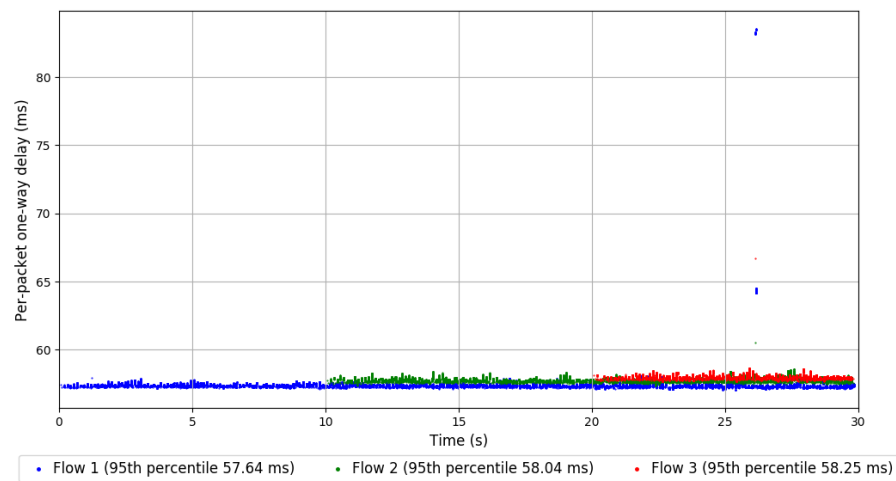
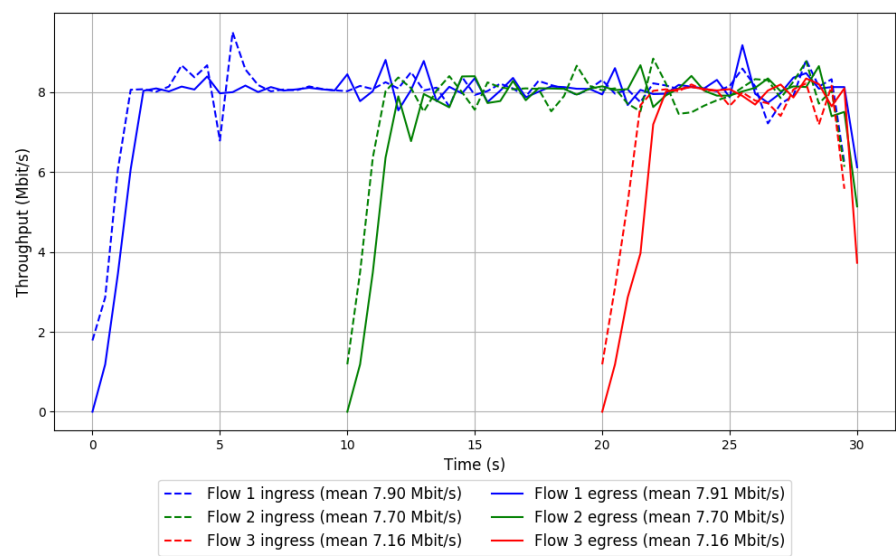


Run 5: Statistics of Sprout

Start at: 2018-11-03 18:22:13
End at: 2018-11-03 18:22:43
Local clock offset: -0.083 ms
Remote clock offset: -0.411 ms

Below is generated by plot.py at 2018-11-03 20:51:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 15.35 Mbit/s
95th percentile per-packet one-way delay: 58.076 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 57.642 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 7.70 Mbit/s
95th percentile per-packet one-way delay: 58.038 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 58.254 ms
Loss rate: 1.46%

Run 5: Report of Sprout — Data Link

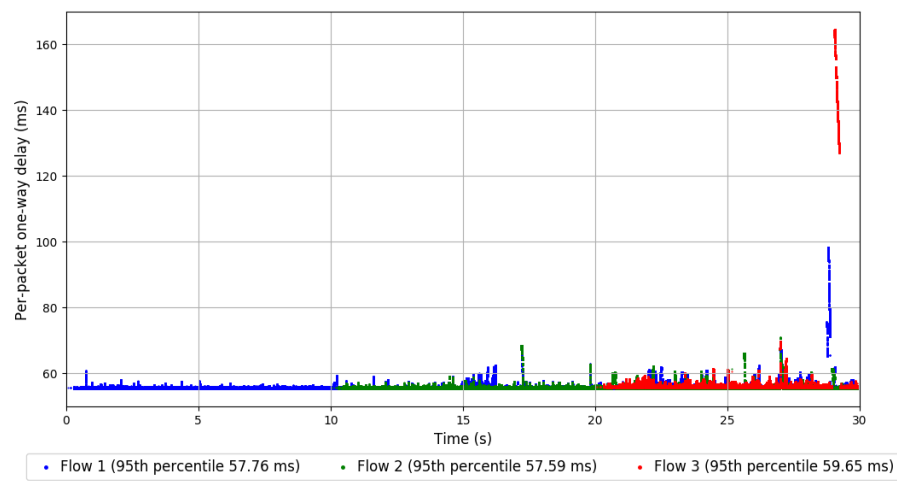
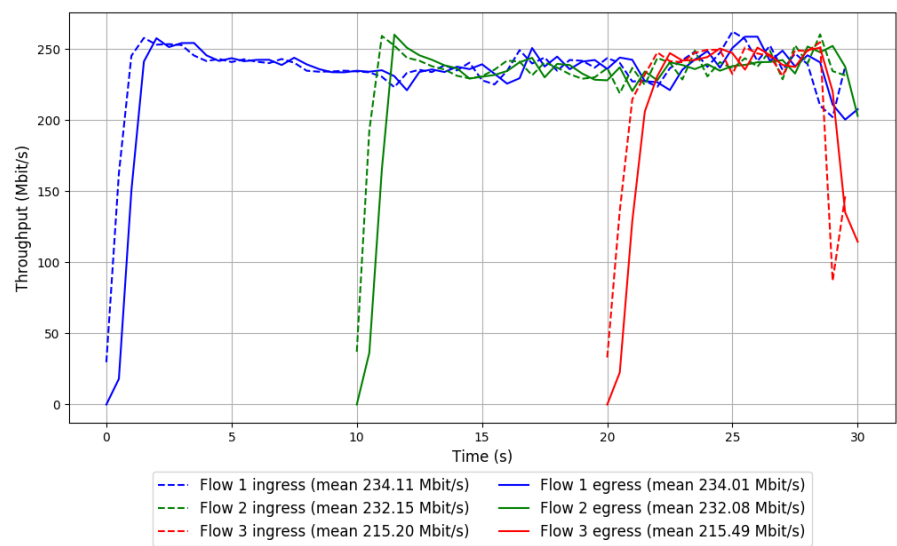


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-11-03 15:56:11
End at: 2018-11-03 15:56:41
Local clock offset: -0.316 ms
Remote clock offset: 1.267 ms

# Below is generated by plot.py at 2018-11-03 21:02:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 459.23 Mbit/s
95th percentile per-packet one-way delay: 57.890 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 234.01 Mbit/s
95th percentile per-packet one-way delay: 57.763 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 232.08 Mbit/s
95th percentile per-packet one-way delay: 57.594 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 215.49 Mbit/s
95th percentile per-packet one-way delay: 59.653 ms
Loss rate: 1.03%
```

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

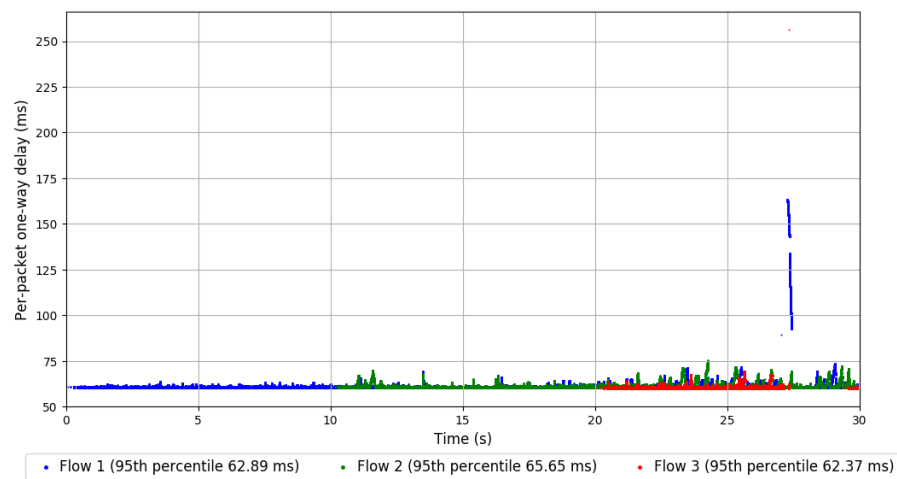
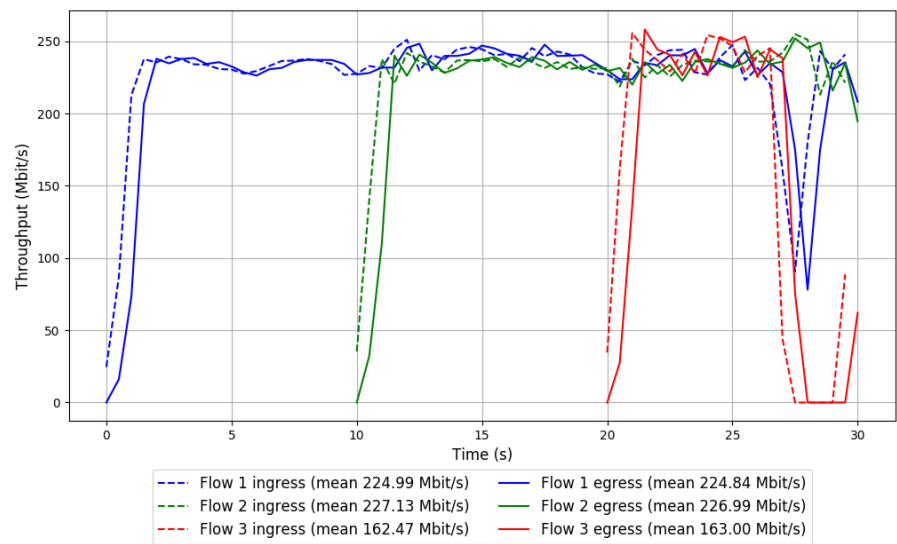


Run 2: Statistics of TaoVA-100x

Start at: 2018-11-03 16:29:51
End at: 2018-11-03 16:30:21
Local clock offset: -0.084 ms
Remote clock offset: -0.036 ms

Below is generated by plot.py at 2018-11-03 21:02:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 429.38 Mbit/s
95th percentile per-packet one-way delay: 64.032 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 224.84 Mbit/s
95th percentile per-packet one-way delay: 62.890 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 226.99 Mbit/s
95th percentile per-packet one-way delay: 65.650 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 163.00 Mbit/s
95th percentile per-packet one-way delay: 62.373 ms
Loss rate: 0.83%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-11-03 17:03:38

End at: 2018-11-03 17:04:08

Local clock offset: -0.552 ms

Remote clock offset: 0.017 ms

Below is generated by plot.py at 2018-11-03 21:03:08

Datalink statistics

-- Total of 3 flows:

Average throughput: 465.77 Mbit/s

95th percentile per-packet one-way delay: 57.663 ms

Loss rate: 0.61%

-- Flow 1:

Average throughput: 236.82 Mbit/s

95th percentile per-packet one-way delay: 56.865 ms

Loss rate: 0.41%

-- Flow 2:

Average throughput: 233.54 Mbit/s

95th percentile per-packet one-way delay: 58.751 ms

Loss rate: 0.61%

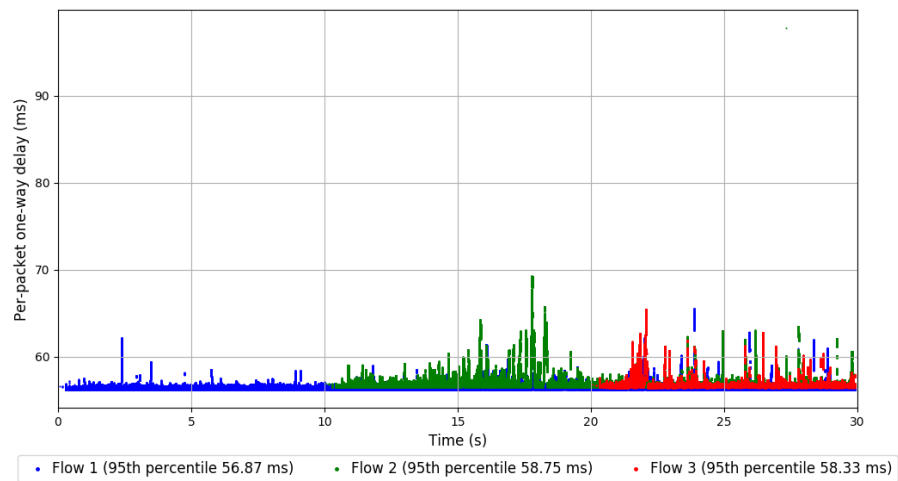
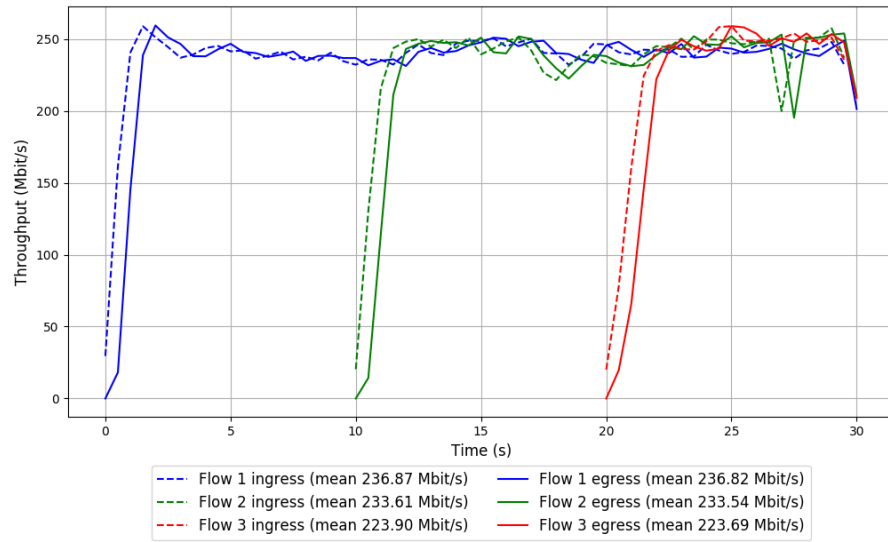
-- Flow 3:

Average throughput: 223.69 Mbit/s

95th percentile per-packet one-way delay: 58.330 ms

Loss rate: 1.26%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-11-03 17:37:00

End at: 2018-11-03 17:37:30

Local clock offset: -0.194 ms

Remote clock offset: 0.266 ms

Below is generated by plot.py at 2018-11-03 21:03:08

Datalink statistics

-- Total of 3 flows:

Average throughput: 460.97 Mbit/s

95th percentile per-packet one-way delay: 59.144 ms

Loss rate: 0.57%

-- Flow 1:

Average throughput: 239.75 Mbit/s

95th percentile per-packet one-way delay: 58.363 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 232.24 Mbit/s

95th percentile per-packet one-way delay: 59.832 ms

Loss rate: 0.60%

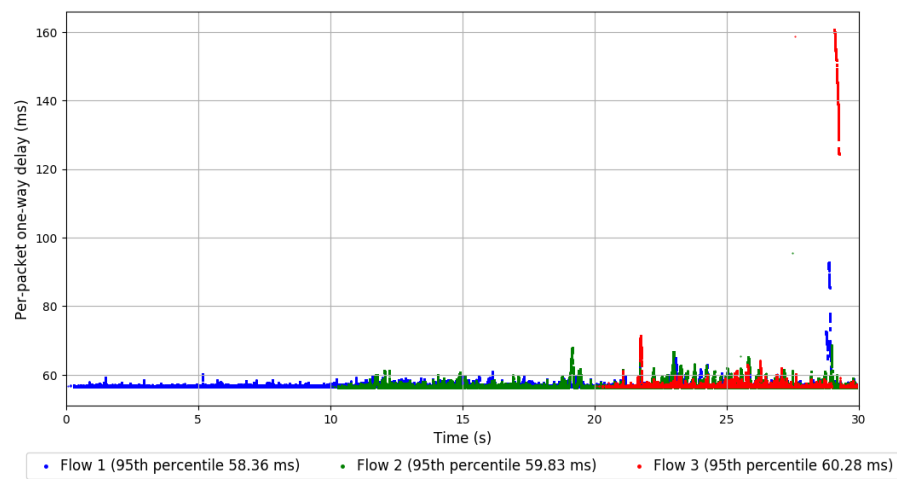
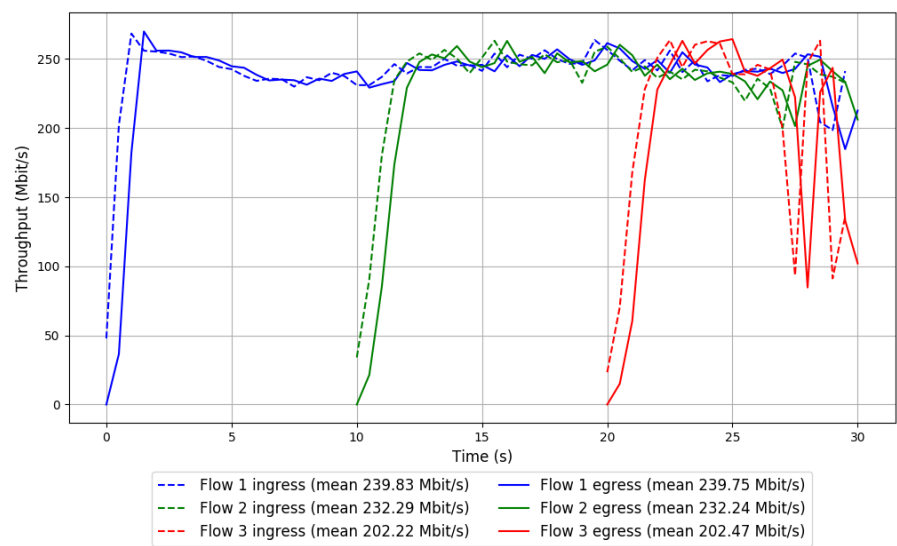
-- Flow 3:

Average throughput: 202.47 Mbit/s

95th percentile per-packet one-way delay: 60.283 ms

Loss rate: 1.03%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-03 18:11:14

End at: 2018-11-03 18:11:44

Local clock offset: 0.345 ms

Remote clock offset: 0.481 ms

Below is generated by plot.py at 2018-11-03 21:03:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 428.10 Mbit/s

95th percentile per-packet one-way delay: 61.397 ms

Loss rate: 0.50%

-- Flow 1:

Average throughput: 236.63 Mbit/s

95th percentile per-packet one-way delay: 59.589 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 215.95 Mbit/s

95th percentile per-packet one-way delay: 61.974 ms

Loss rate: 0.64%

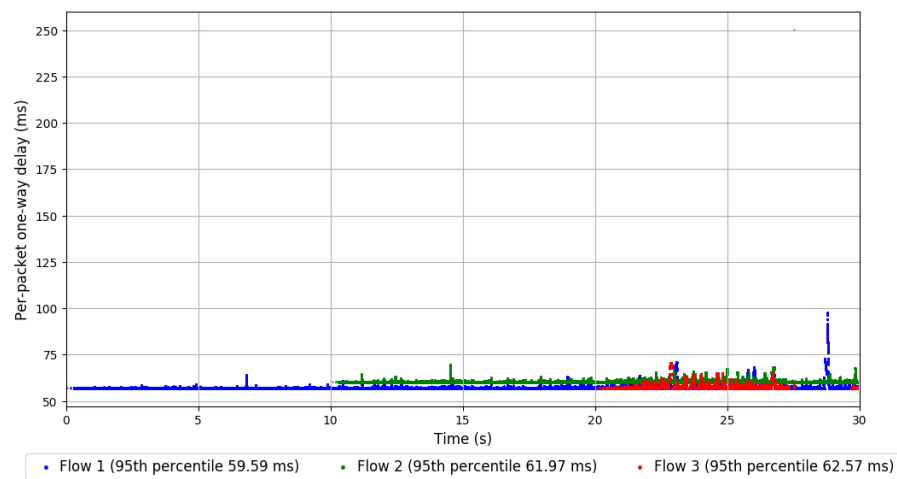
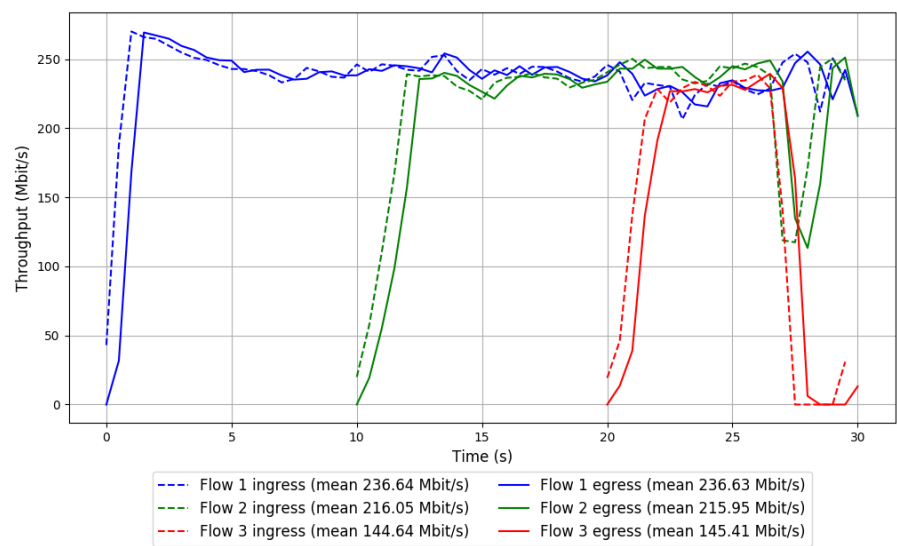
-- Flow 3:

Average throughput: 145.41 Mbit/s

95th percentile per-packet one-way delay: 62.572 ms

Loss rate: 0.62%

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

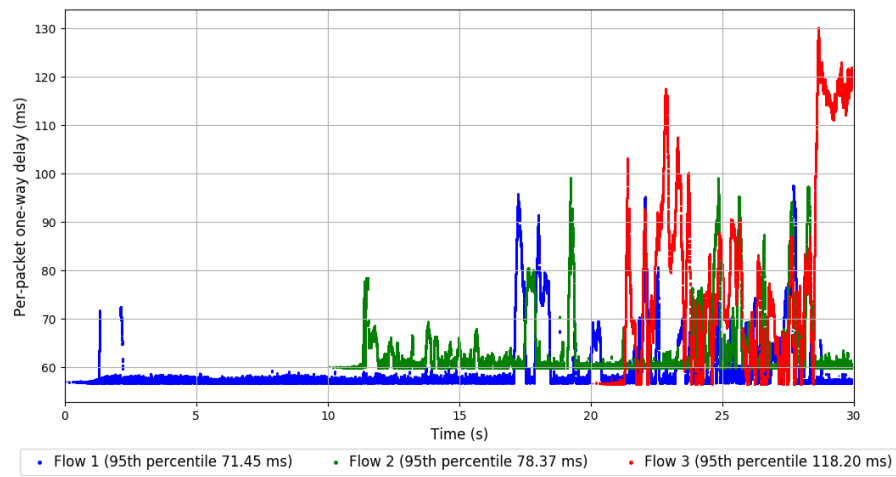
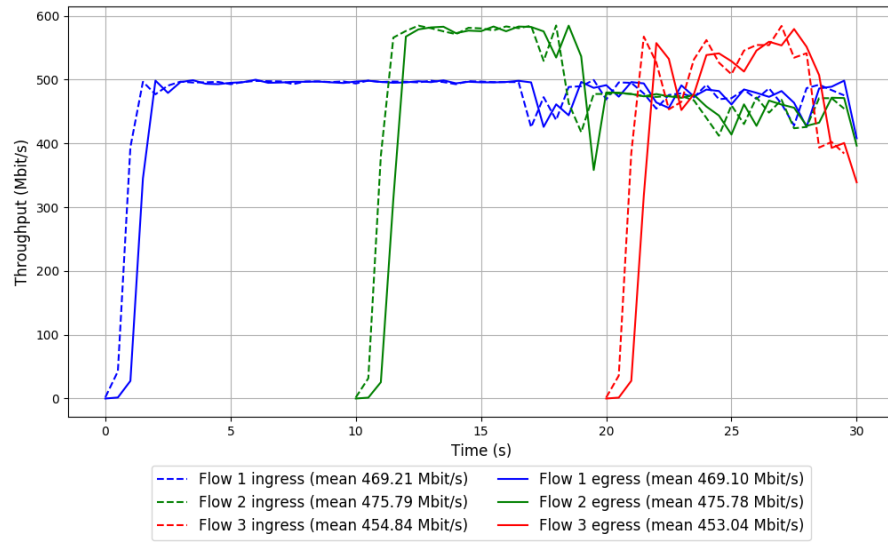


Run 1: Statistics of TCP Vegas

Start at: 2018-11-03 16:08:06
End at: 2018-11-03 16:08:36
Local clock offset: -0.547 ms
Remote clock offset: -0.101 ms

Below is generated by plot.py at 2018-11-03 21:08:06
Datalink statistics
-- Total of 3 flows:
Average throughput: 934.70 Mbit/s
95th percentile per-packet one-way delay: 87.254 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 469.10 Mbit/s
95th percentile per-packet one-way delay: 71.453 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 475.78 Mbit/s
95th percentile per-packet one-way delay: 78.372 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 453.04 Mbit/s
95th percentile per-packet one-way delay: 118.199 ms
Loss rate: 1.55%

Run 1: Report of TCP Vegas — Data Link

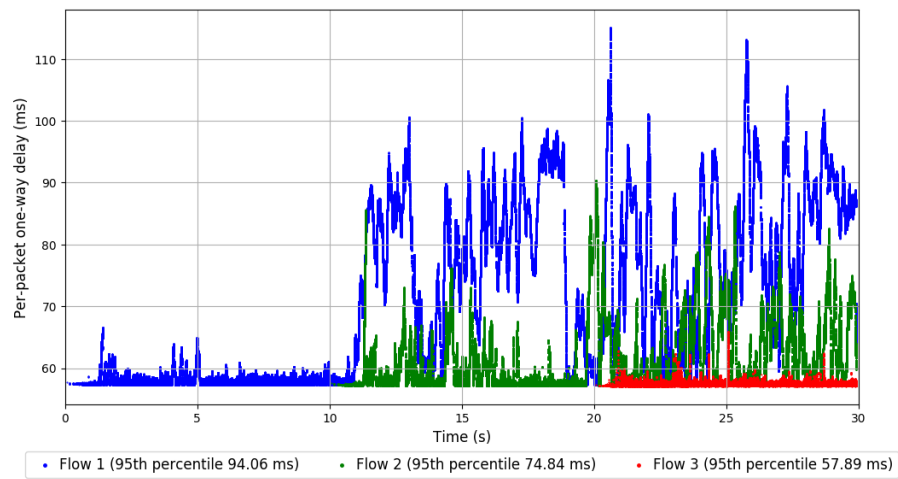
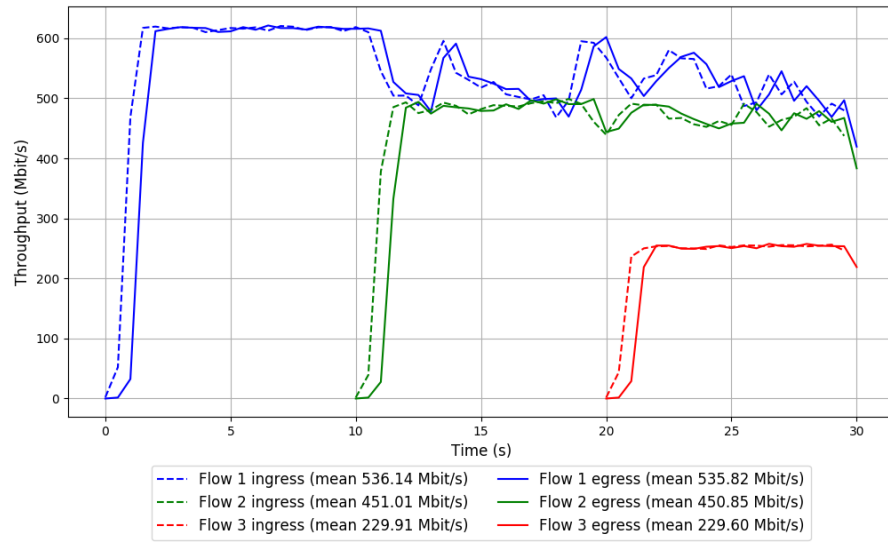


Run 2: Statistics of TCP Vegas

Start at: 2018-11-03 16:41:38
End at: 2018-11-03 16:42:08
Local clock offset: -0.226 ms
Remote clock offset: -0.287 ms

Below is generated by plot.py at 2018-11-03 21:08:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 911.30 Mbit/s
95th percentile per-packet one-way delay: 91.967 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 535.82 Mbit/s
95th percentile per-packet one-way delay: 94.062 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 450.85 Mbit/s
95th percentile per-packet one-way delay: 74.839 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 229.60 Mbit/s
95th percentile per-packet one-way delay: 57.888 ms
Loss rate: 1.28%

Run 2: Report of TCP Vegas — Data Link

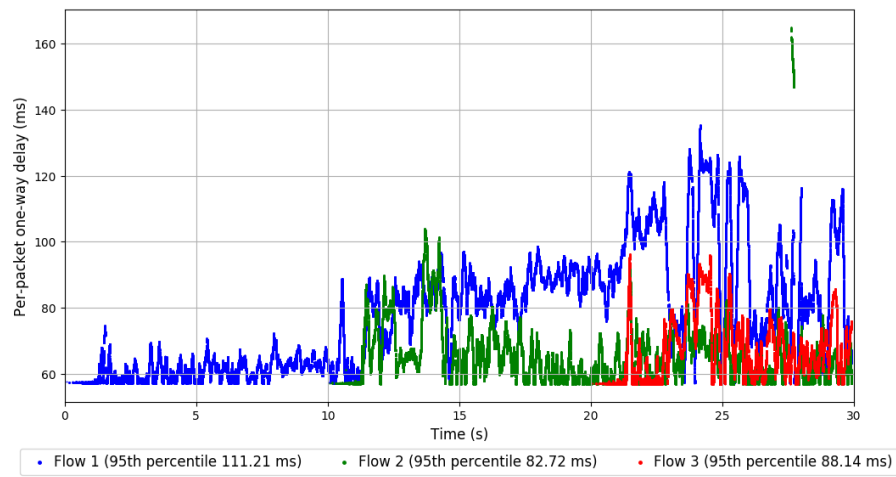
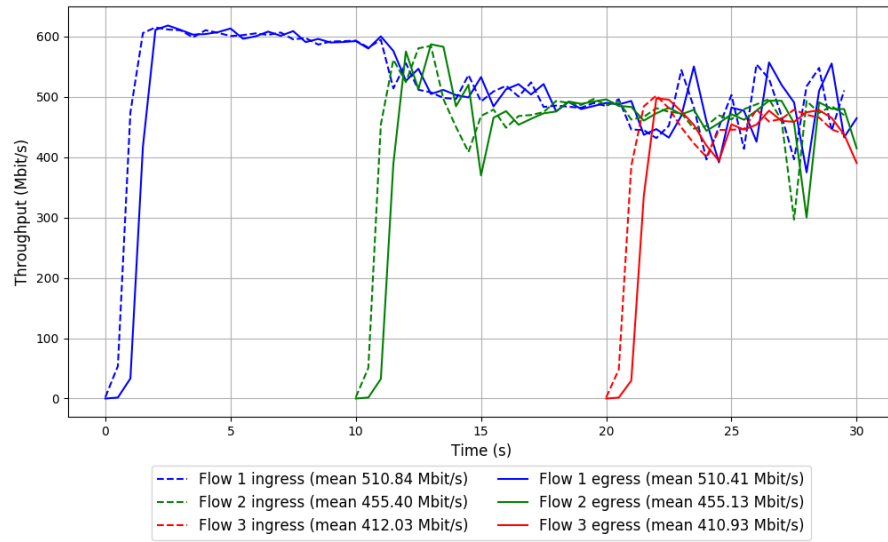


Run 3: Statistics of TCP Vegas

Start at: 2018-11-03 17:15:34
End at: 2018-11-03 17:16:04
Local clock offset: 0.087 ms
Remote clock offset: -0.041 ms

Below is generated by plot.py at 2018-11-03 21:13:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 948.55 Mbit/s
95th percentile per-packet one-way delay: 103.296 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 510.41 Mbit/s
95th percentile per-packet one-way delay: 111.206 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 455.13 Mbit/s
95th percentile per-packet one-way delay: 82.721 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 410.93 Mbit/s
95th percentile per-packet one-way delay: 88.138 ms
Loss rate: 1.40%

Run 3: Report of TCP Vegas — Data Link

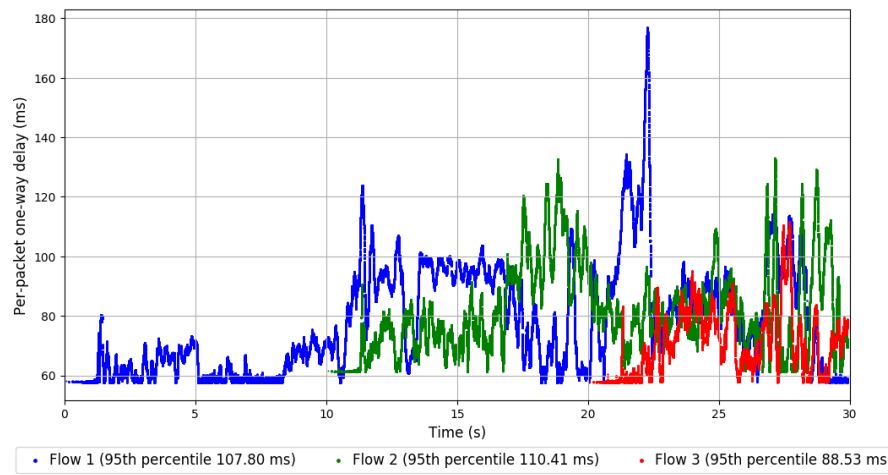
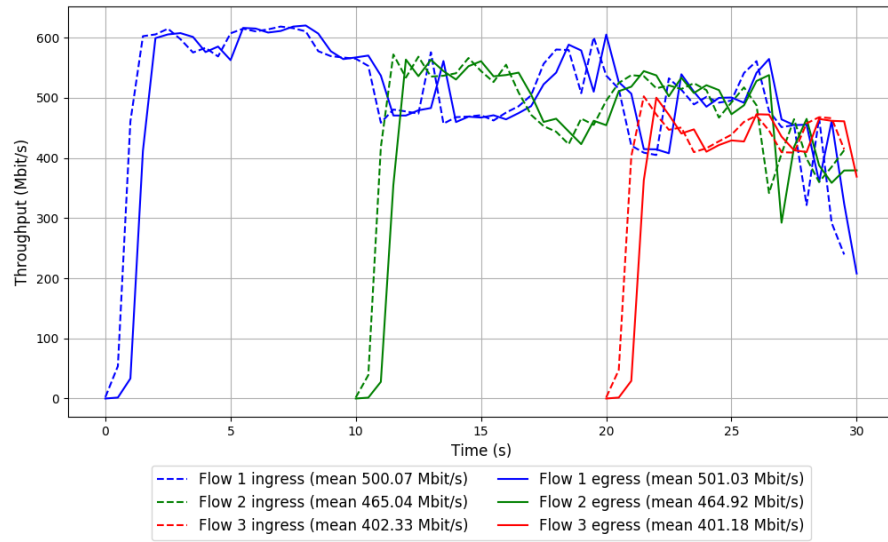


Run 4: Statistics of TCP Vegas

Start at: 2018-11-03 17:49:00
End at: 2018-11-03 17:49:30
Local clock offset: 0.076 ms
Remote clock offset: -0.797 ms

Below is generated by plot.py at 2018-11-03 21:22:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 942.33 Mbit/s
95th percentile per-packet one-way delay: 107.564 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 501.03 Mbit/s
95th percentile per-packet one-way delay: 107.804 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 464.92 Mbit/s
95th percentile per-packet one-way delay: 110.411 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 401.18 Mbit/s
95th percentile per-packet one-way delay: 88.531 ms
Loss rate: 1.43%

Run 4: Report of TCP Vegas — Data Link

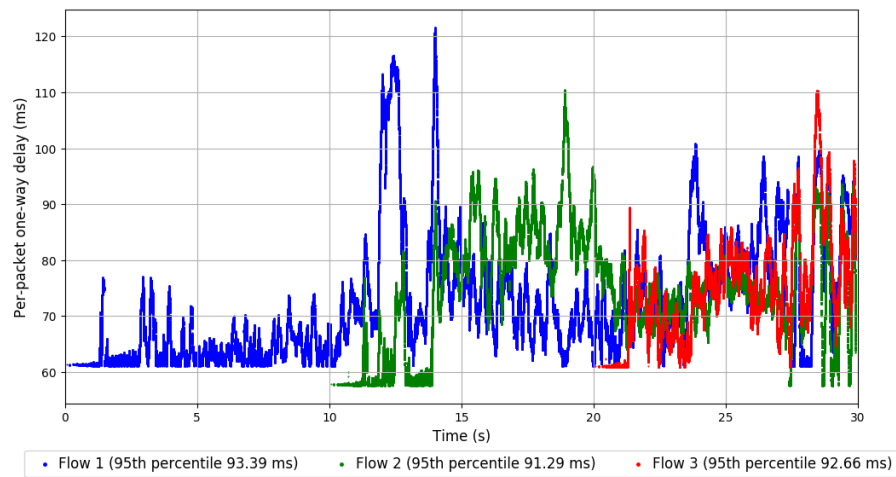
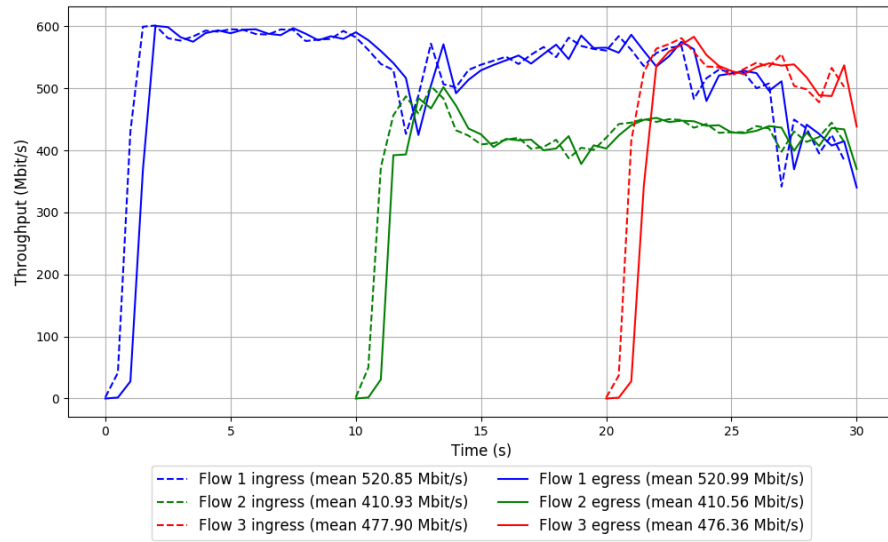


Run 5: Statistics of TCP Vegas

Start at: 2018-11-03 18:23:27
End at: 2018-11-03 18:23:57
Local clock offset: -0.056 ms
Remote clock offset: -0.719 ms

Below is generated by plot.py at 2018-11-03 21:23:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 951.02 Mbit/s
95th percentile per-packet one-way delay: 92.323 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 520.99 Mbit/s
95th percentile per-packet one-way delay: 93.394 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 410.56 Mbit/s
95th percentile per-packet one-way delay: 91.288 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 476.36 Mbit/s
95th percentile per-packet one-way delay: 92.661 ms
Loss rate: 1.49%

Run 5: Report of TCP Vegas — Data Link

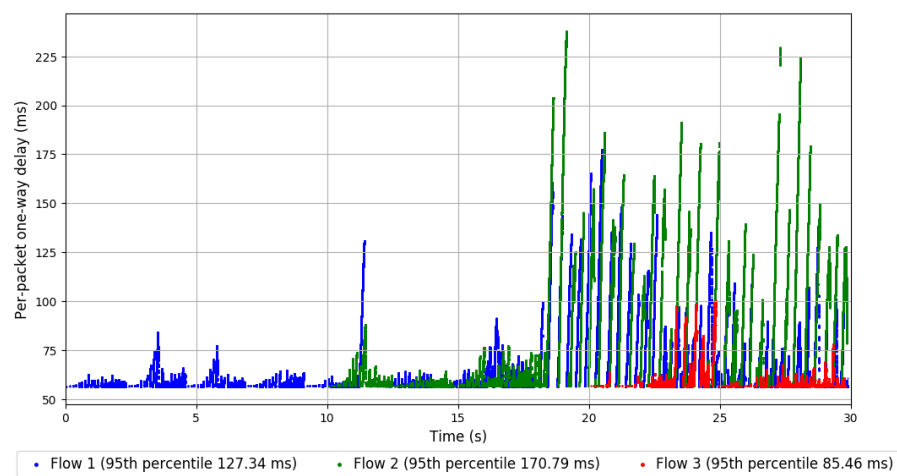
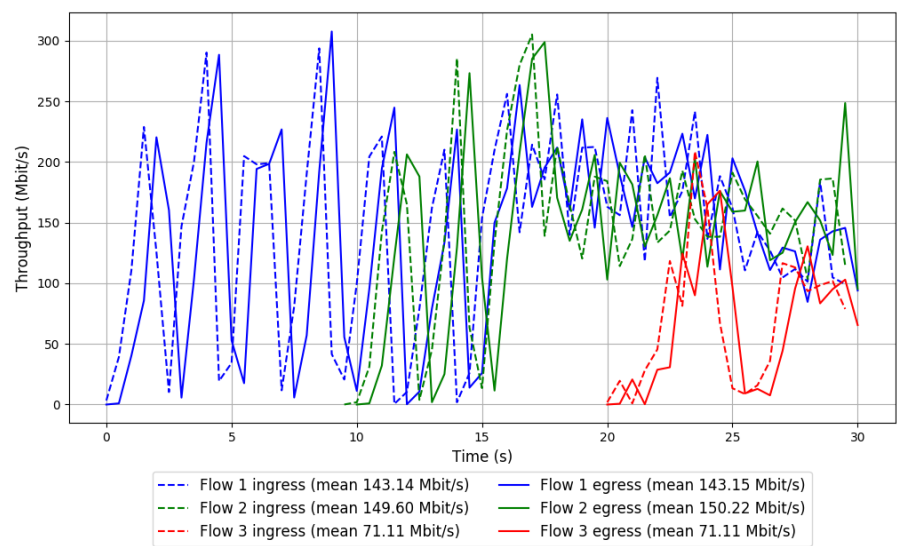


Run 1: Statistics of Verus

Start at: 2018-11-03 15:59:34
End at: 2018-11-03 16:00:04
Local clock offset: -0.532 ms
Remote clock offset: -0.179 ms

Below is generated by plot.py at 2018-11-03 21:23:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 266.07 Mbit/s
95th percentile per-packet one-way delay: 146.593 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 143.15 Mbit/s
95th percentile per-packet one-way delay: 127.336 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 150.22 Mbit/s
95th percentile per-packet one-way delay: 170.790 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 71.11 Mbit/s
95th percentile per-packet one-way delay: 85.464 ms
Loss rate: 2.07%

Run 1: Report of Verus — Data Link

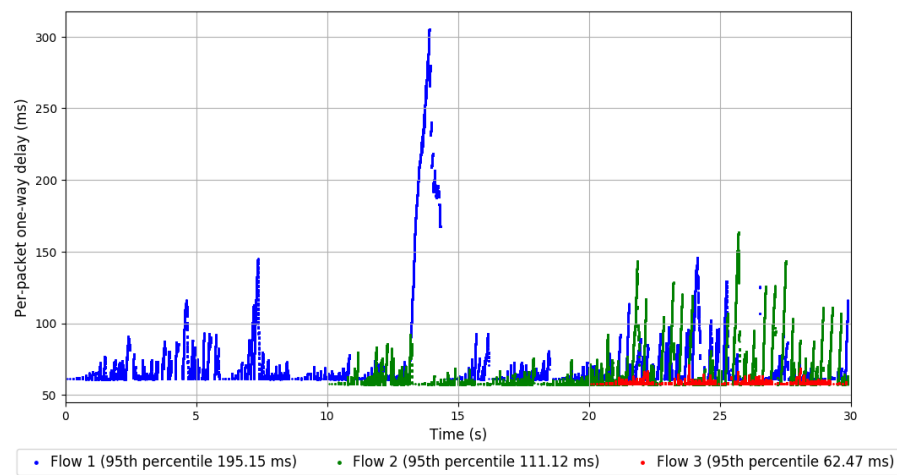
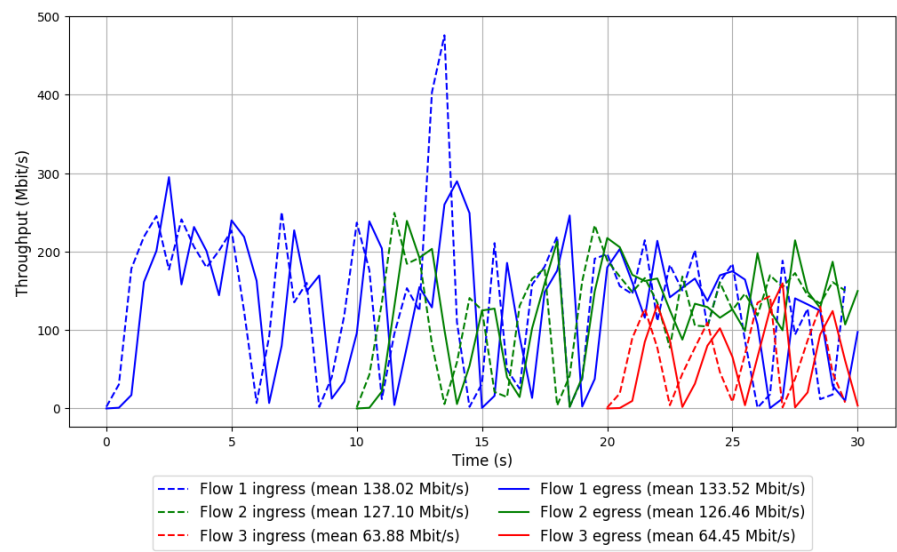


Run 2: Statistics of Verus

Start at: 2018-11-03 16:33:16
End at: 2018-11-03 16:33:46
Local clock offset: 0.387 ms
Remote clock offset: -0.254 ms

Below is generated by plot.py at 2018-11-03 21:23:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 238.61 Mbit/s
95th percentile per-packet one-way delay: 140.713 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 133.52 Mbit/s
95th percentile per-packet one-way delay: 195.149 ms
Loss rate: 3.36%
-- Flow 2:
Average throughput: 126.46 Mbit/s
95th percentile per-packet one-way delay: 111.122 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 64.45 Mbit/s
95th percentile per-packet one-way delay: 62.466 ms
Loss rate: 0.31%

Run 2: Report of Verus — Data Link

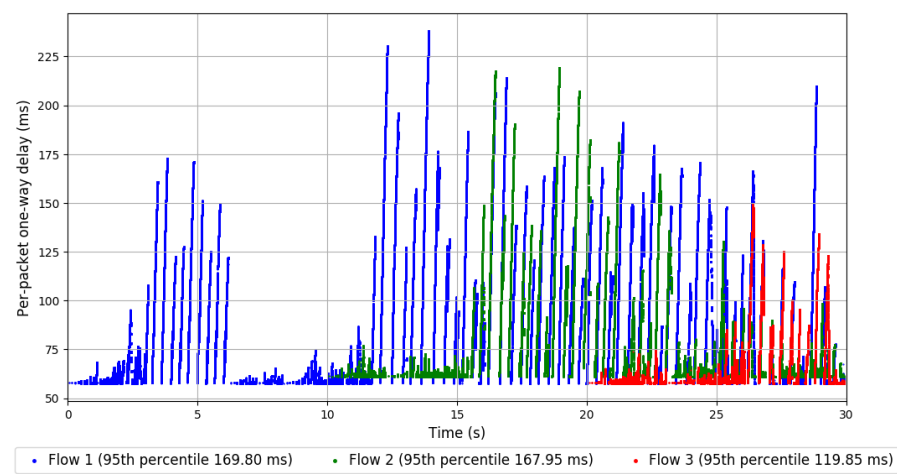
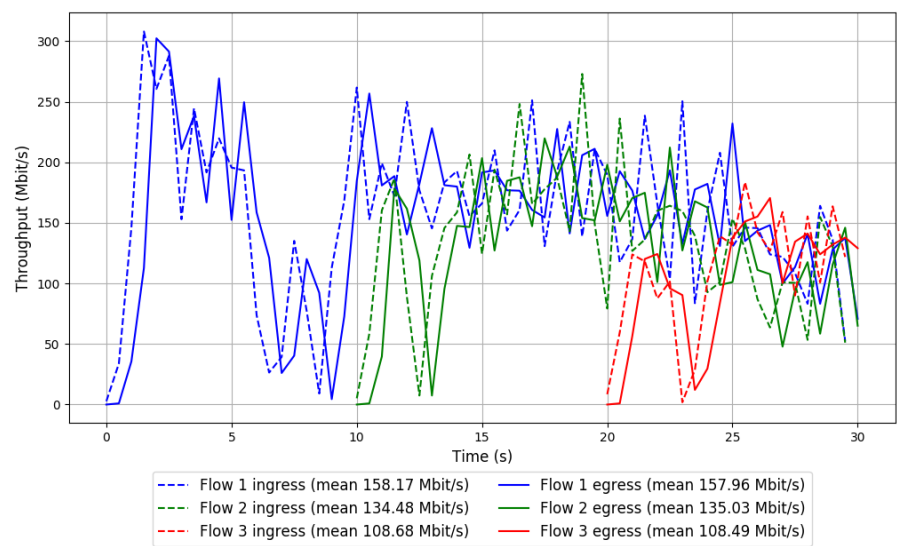


Run 3: Statistics of Verus

Start at: 2018-11-03 17:07:04
End at: 2018-11-03 17:07:34
Local clock offset: -0.363 ms
Remote clock offset: -0.917 ms

Below is generated by plot.py at 2018-11-03 21:23:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 283.33 Mbit/s
95th percentile per-packet one-way delay: 166.400 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 157.96 Mbit/s
95th percentile per-packet one-way delay: 169.803 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 135.03 Mbit/s
95th percentile per-packet one-way delay: 167.950 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 108.49 Mbit/s
95th percentile per-packet one-way delay: 119.853 ms
Loss rate: 0.87%

Run 3: Report of Verus — Data Link

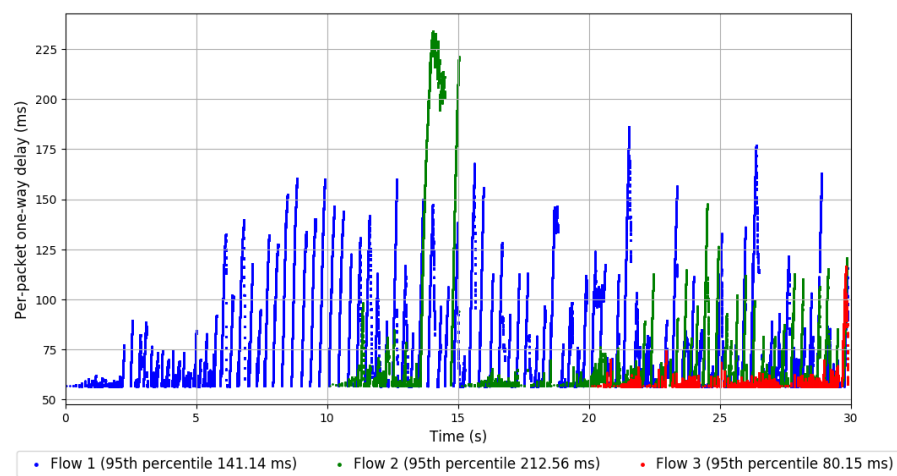
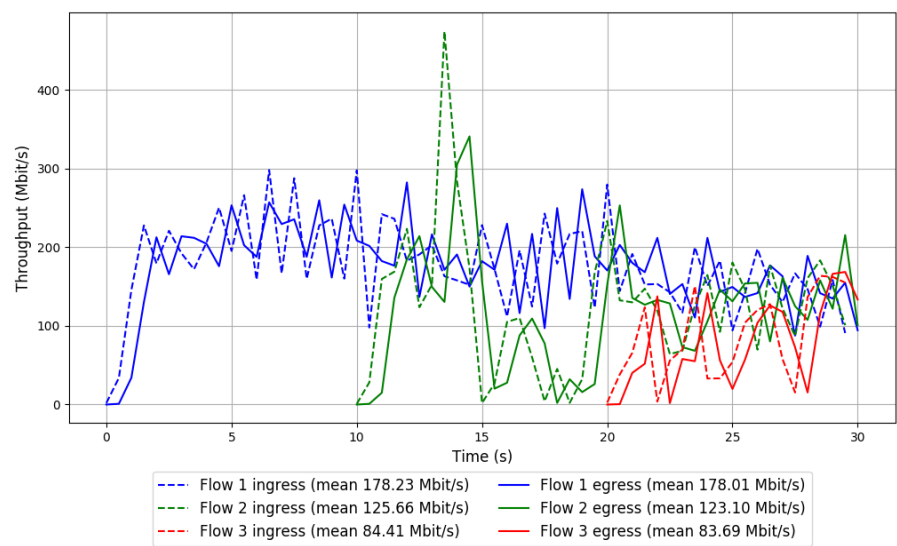


Run 4: Statistics of Verus

Start at: 2018-11-03 17:40:29
End at: 2018-11-03 17:40:59
Local clock offset: -0.317 ms
Remote clock offset: -0.047 ms

Below is generated by plot.py at 2018-11-03 21:23:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 287.00 Mbit/s
95th percentile per-packet one-way delay: 151.343 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 178.01 Mbit/s
95th percentile per-packet one-way delay: 141.144 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 123.10 Mbit/s
95th percentile per-packet one-way delay: 212.556 ms
Loss rate: 2.73%
-- Flow 3:
Average throughput: 83.69 Mbit/s
95th percentile per-packet one-way delay: 80.146 ms
Loss rate: 1.99%

Run 4: Report of Verus — Data Link

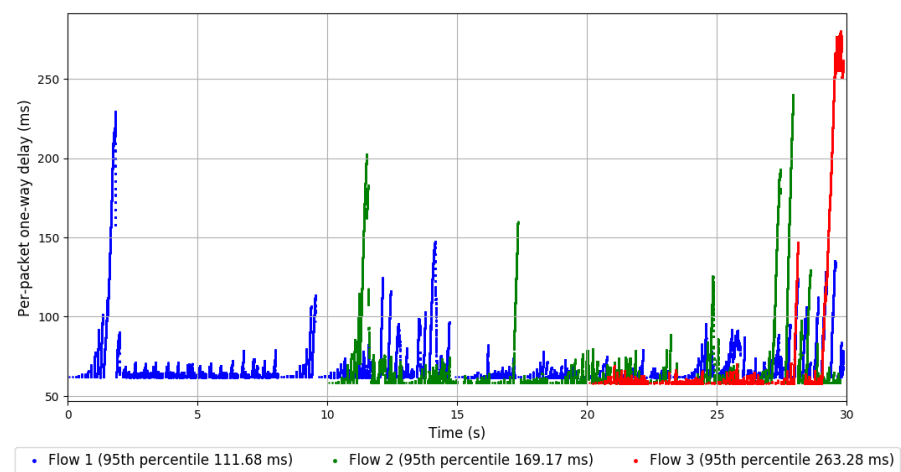
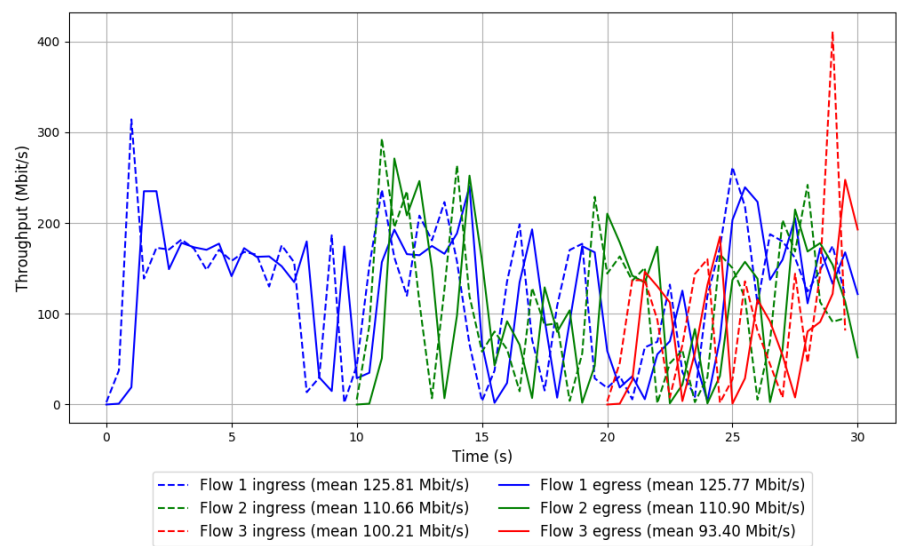


Run 5: Statistics of Verus

Start at: 2018-11-03 18:14:43
End at: 2018-11-03 18:15:13
Local clock offset: 0.35 ms
Remote clock offset: -0.853 ms

Below is generated by plot.py at 2018-11-03 21:23:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 229.64 Mbit/s
95th percentile per-packet one-way delay: 153.555 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 125.77 Mbit/s
95th percentile per-packet one-way delay: 111.683 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 110.90 Mbit/s
95th percentile per-packet one-way delay: 169.171 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 93.40 Mbit/s
95th percentile per-packet one-way delay: 263.278 ms
Loss rate: 4.81%

Run 5: Report of Verus — Data Link

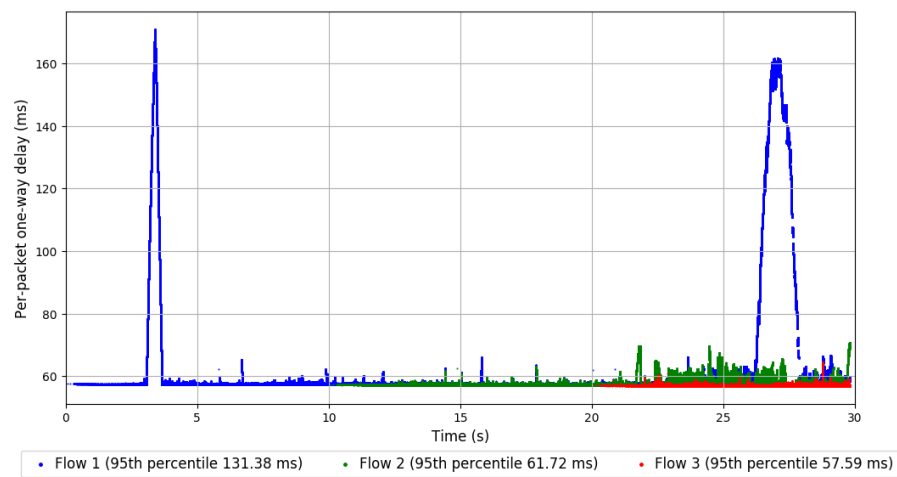
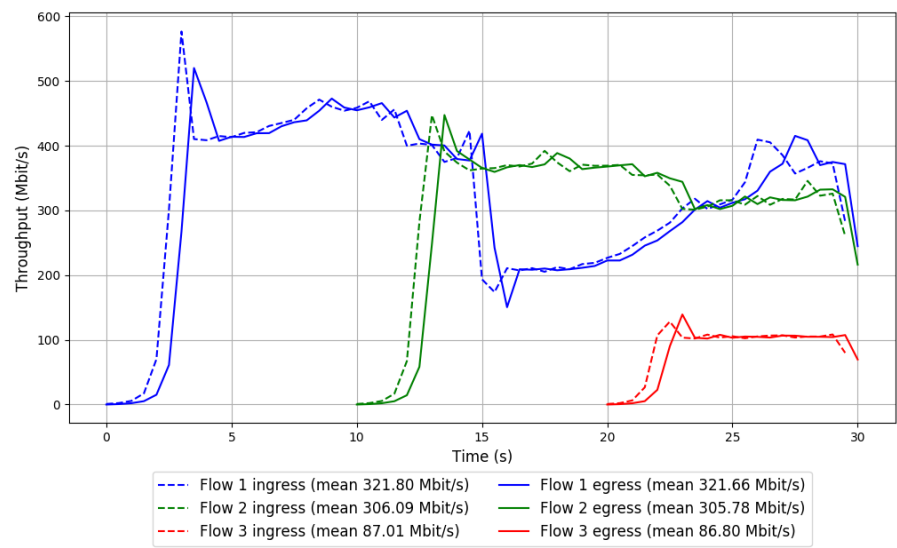


Run 1: Statistics of PCC-Vivace

Start at: 2018-11-03 16:02:32
End at: 2018-11-03 16:03:02
Local clock offset: 0.056 ms
Remote clock offset: -0.188 ms

Below is generated by plot.py at 2018-11-03 21:25:12
Datalink statistics
-- Total of 3 flows:
Average throughput: 553.04 Mbit/s
95th percentile per-packet one-way delay: 81.960 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 321.66 Mbit/s
95th percentile per-packet one-way delay: 131.378 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 305.78 Mbit/s
95th percentile per-packet one-way delay: 61.717 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 86.80 Mbit/s
95th percentile per-packet one-way delay: 57.592 ms
Loss rate: 1.40%

Run 1: Report of PCC-Vivace — Data Link

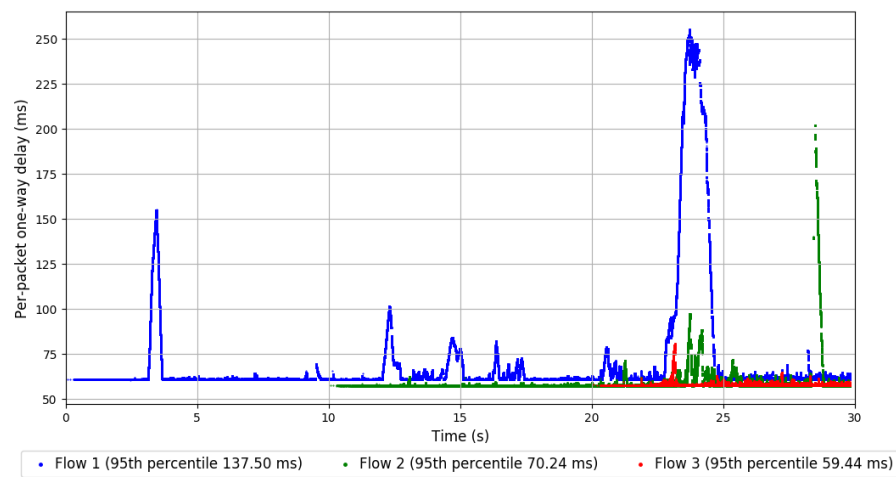
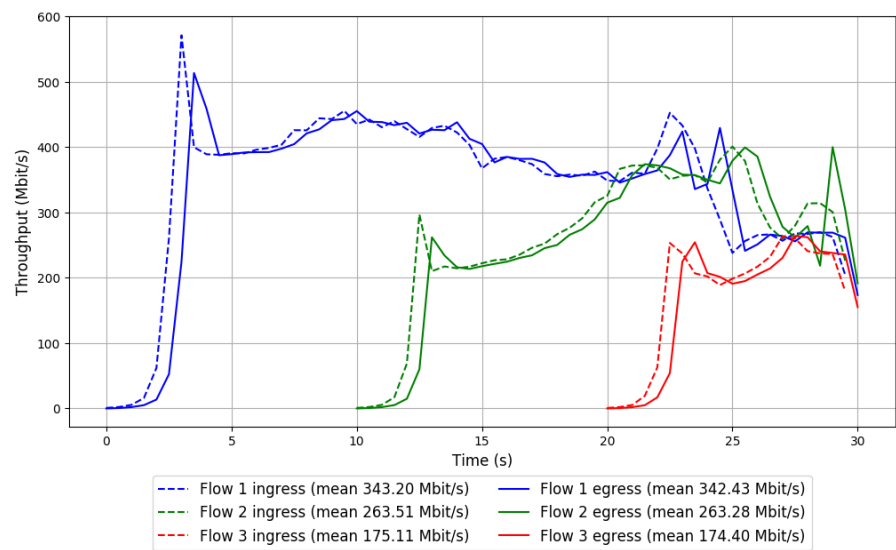


Run 2: Statistics of PCC-Vivace

Start at: 2018-11-03 16:36:10
End at: 2018-11-03 16:36:40
Local clock offset: 0.063 ms
Remote clock offset: -0.132 ms

Below is generated by plot.py at 2018-11-03 21:25:44
Datalink statistics
-- Total of 3 flows:
Average throughput: 574.22 Mbit/s
95th percentile per-packet one-way delay: 96.454 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 342.43 Mbit/s
95th percentile per-packet one-way delay: 137.504 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 263.28 Mbit/s
95th percentile per-packet one-way delay: 70.239 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 174.40 Mbit/s
95th percentile per-packet one-way delay: 59.439 ms
Loss rate: 1.54%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-11-03 17:10:07

End at: 2018-11-03 17:10:37

Local clock offset: 0.031 ms

Remote clock offset: 0.507 ms

Below is generated by plot.py at 2018-11-03 21:25:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 564.64 Mbit/s

95th percentile per-packet one-way delay: 83.133 ms

Loss rate: 0.57%

-- Flow 1:

Average throughput: 333.05 Mbit/s

95th percentile per-packet one-way delay: 59.656 ms

Loss rate: 0.48%

-- Flow 2:

Average throughput: 273.25 Mbit/s

95th percentile per-packet one-way delay: 93.915 ms

Loss rate: 0.42%

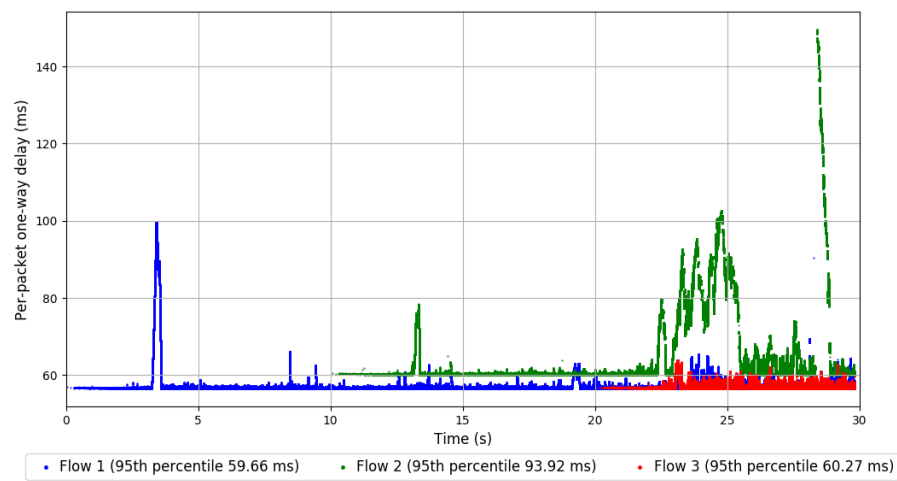
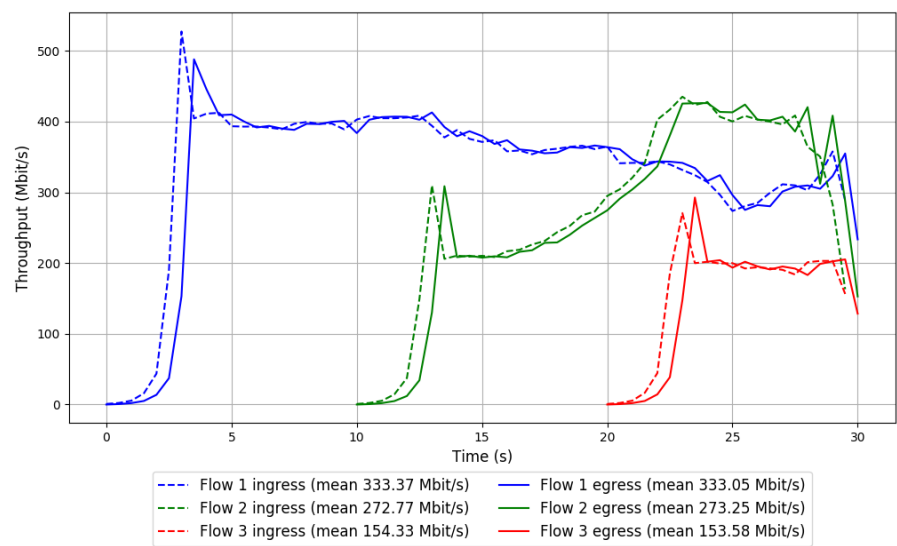
-- Flow 3:

Average throughput: 153.58 Mbit/s

95th percentile per-packet one-way delay: 60.274 ms

Loss rate: 1.63%

Run 3: Report of PCC-Vivace — Data Link

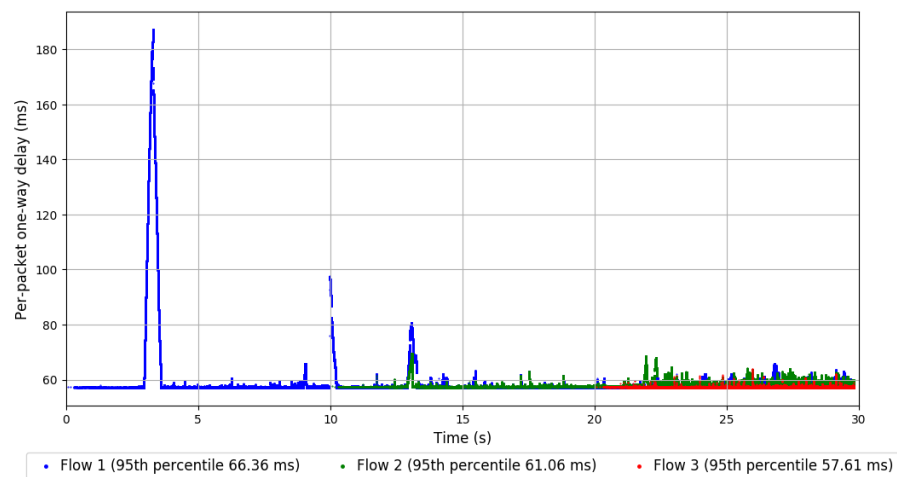
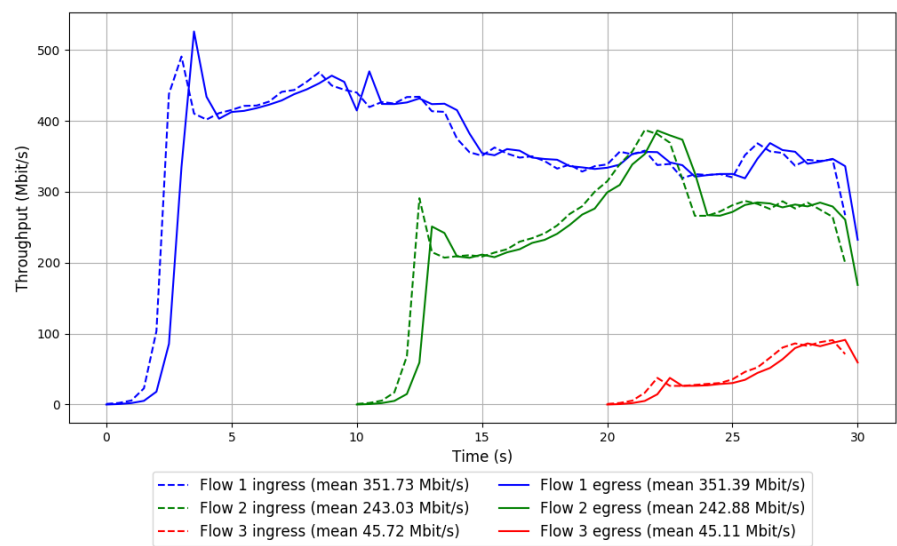


Run 4: Statistics of PCC-Vivace

Start at: 2018-11-03 17:43:29
End at: 2018-11-03 17:43:59
Local clock offset: -0.399 ms
Remote clock offset: -0.732 ms

Below is generated by plot.py at 2018-11-03 21:26:00
Datalink statistics
-- Total of 3 flows:
Average throughput: 527.33 Mbit/s
95th percentile per-packet one-way delay: 62.175 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 351.39 Mbit/s
95th percentile per-packet one-way delay: 66.360 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 242.88 Mbit/s
95th percentile per-packet one-way delay: 61.063 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 45.11 Mbit/s
95th percentile per-packet one-way delay: 57.611 ms
Loss rate: 2.47%

Run 4: Report of PCC-Vivace — Data Link

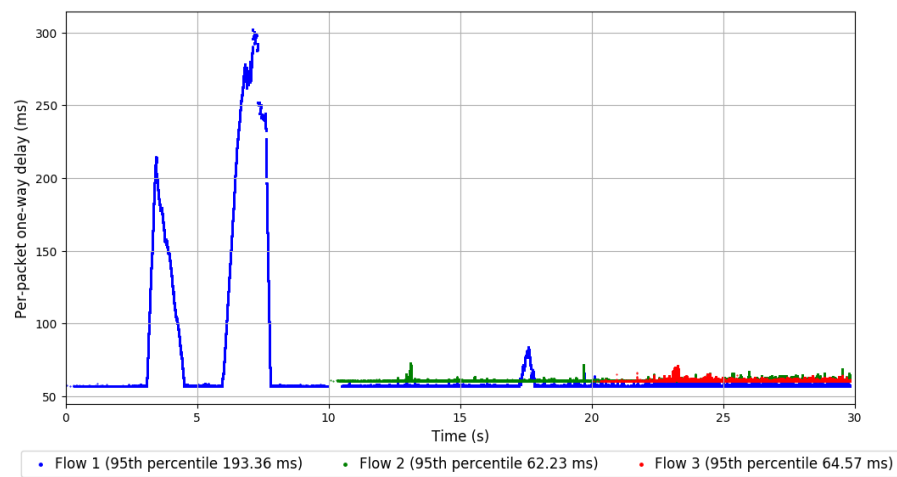
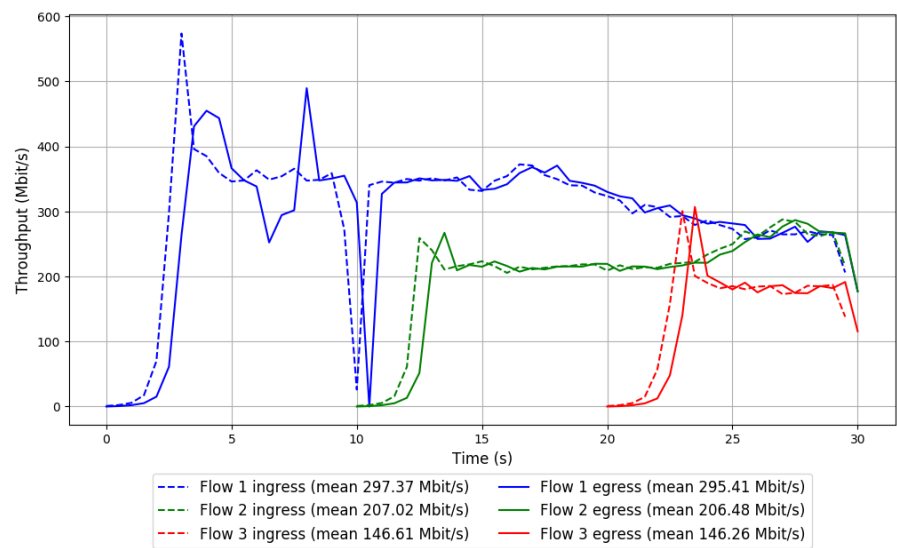


Run 5: Statistics of PCC-Vivace

Start at: 2018-11-03 18:17:46
End at: 2018-11-03 18:18:16
Local clock offset: -0.065 ms
Remote clock offset: -0.165 ms

Below is generated by plot.py at 2018-11-03 21:26:08
Datalink statistics
-- Total of 3 flows:
Average throughput: 480.29 Mbit/s
95th percentile per-packet one-way delay: 149.501 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 295.41 Mbit/s
95th percentile per-packet one-way delay: 193.364 ms
Loss rate: 1.04%
-- Flow 2:
Average throughput: 206.48 Mbit/s
95th percentile per-packet one-way delay: 62.229 ms
Loss rate: 0.85%
-- Flow 3:
Average throughput: 146.26 Mbit/s
95th percentile per-packet one-way delay: 64.573 ms
Loss rate: 1.45%

Run 5: Report of PCC-Vivace — Data Link

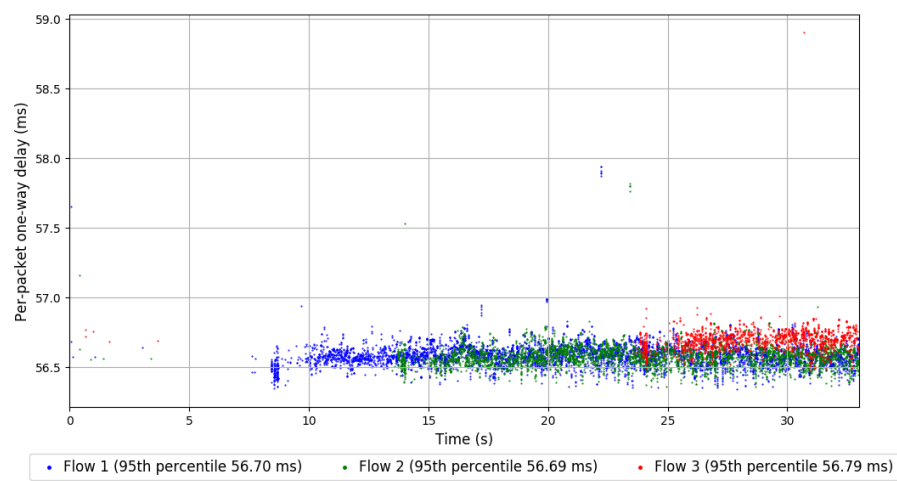
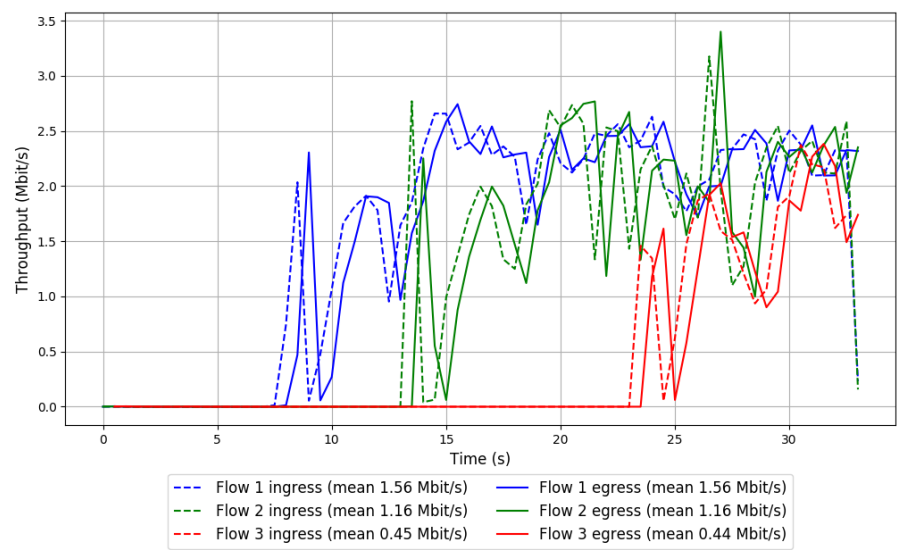


Run 1: Statistics of WebRTC media

Start at: 2018-11-03 16:01:19
End at: 2018-11-03 16:01:49
Local clock offset: -0.575 ms
Remote clock offset: -0.156 ms

Below is generated by plot.py at 2018-11-03 21:26:08
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.14 Mbit/s
95th percentile per-packet one-way delay: 56.737 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 56.702 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 1.16 Mbit/s
95th percentile per-packet one-way delay: 56.685 ms
Loss rate: 0.83%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 56.793 ms
Loss rate: 0.92%

Run 1: Report of WebRTC media — Data Link

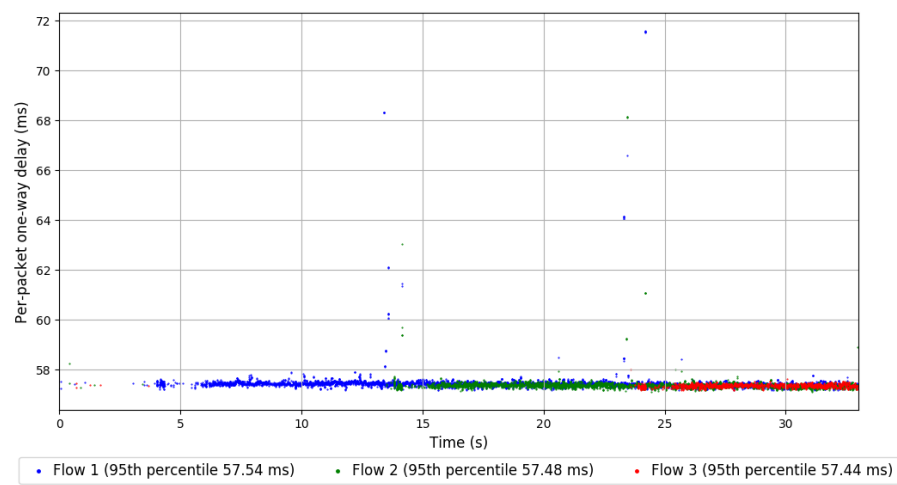
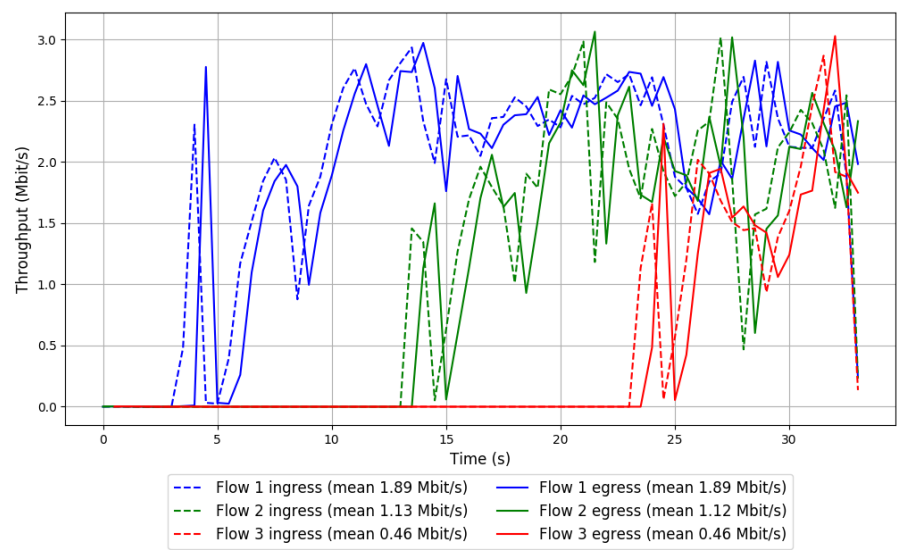


Run 2: Statistics of WebRTC media

Start at: 2018-11-03 16:34:57
End at: 2018-11-03 16:35:27
Local clock offset: -0.073 ms
Remote clock offset: -0.307 ms

Below is generated by plot.py at 2018-11-03 21:26:08
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.44 Mbit/s
95th percentile per-packet one-way delay: 57.518 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 57.544 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 1.12 Mbit/s
95th percentile per-packet one-way delay: 57.479 ms
Loss rate: 0.91%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 57.438 ms
Loss rate: 1.35%

Run 2: Report of WebRTC media — Data Link

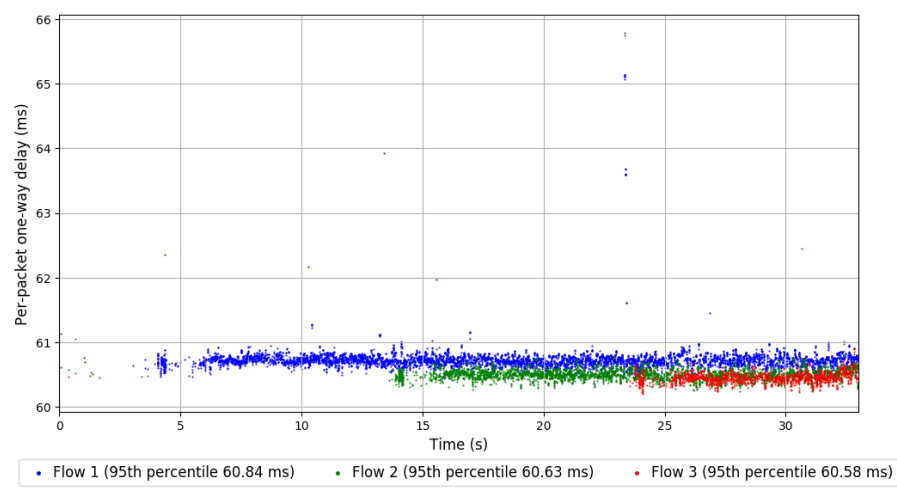
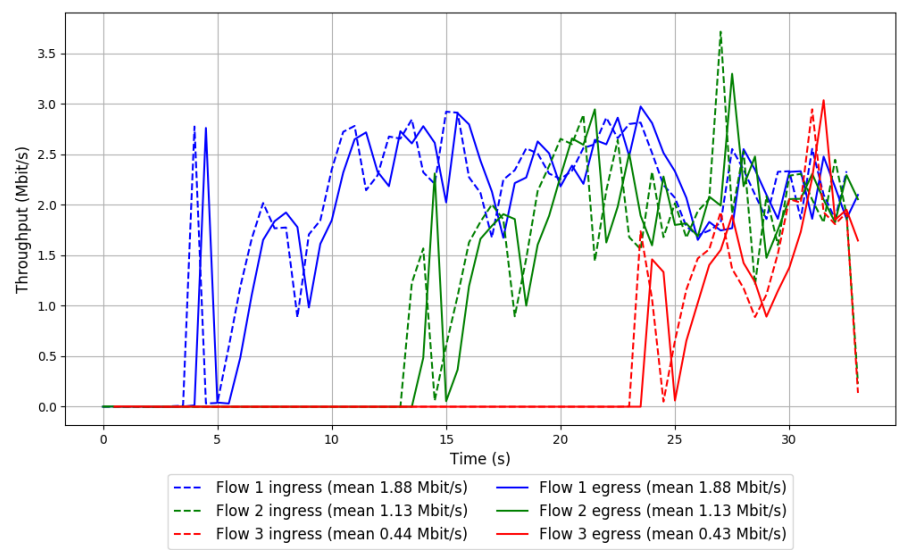


Run 3: Statistics of WebRTC media

Start at: 2018-11-03 17:08:54
End at: 2018-11-03 17:09:24
Local clock offset: -0.163 ms
Remote clock offset: -0.002 ms

Below is generated by plot.py at 2018-11-03 21:26:08
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.42 Mbit/s
95th percentile per-packet one-way delay: 60.815 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 60.838 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 60.635 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 60.581 ms
Loss rate: 1.92%

Run 3: Report of WebRTC media — Data Link

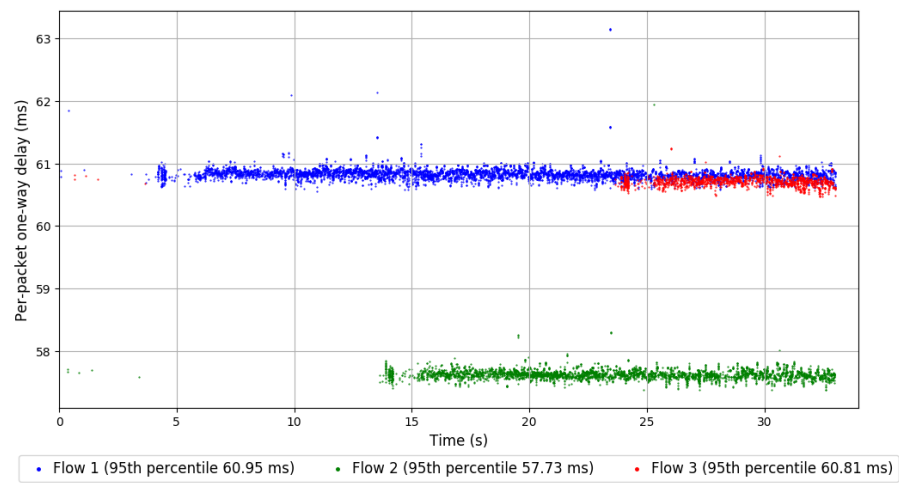
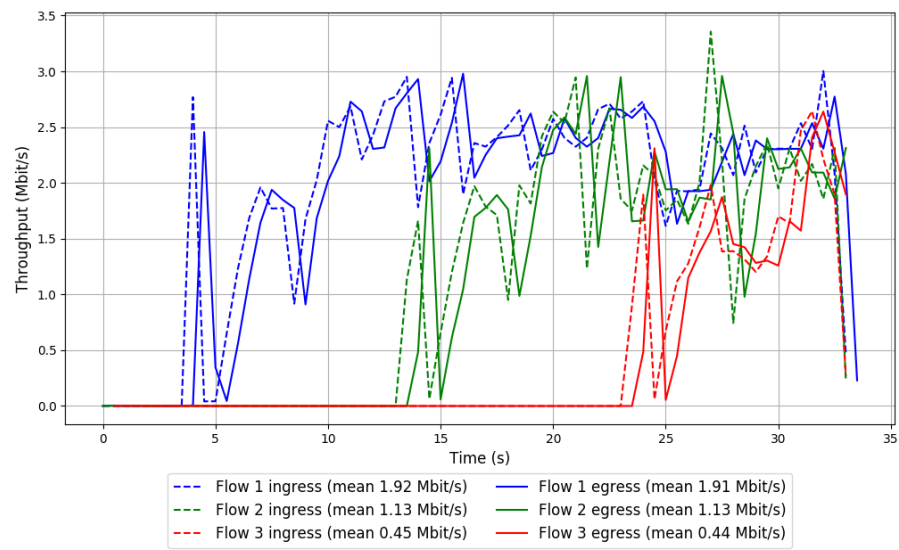


Run 4: Statistics of WebRTC media

Start at: 2018-11-03 17:42:16
End at: 2018-11-03 17:42:46
Local clock offset: -0.021 ms
Remote clock offset: -0.359 ms

Below is generated by plot.py at 2018-11-03 21:26:08
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.46 Mbit/s
95th percentile per-packet one-way delay: 60.919 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 1.91 Mbit/s
95th percentile per-packet one-way delay: 60.950 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 57.735 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 60.810 ms
Loss rate: 1.87%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-03 18:16:33

End at: 2018-11-03 18:17:03

Local clock offset: -0.078 ms

Remote clock offset: 0.165 ms

Below is generated by plot.py at 2018-11-03 21:26:08

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.44 Mbit/s

95th percentile per-packet one-way delay: 57.058 ms

Loss rate: 0.58%

-- Flow 1:

Average throughput: 1.90 Mbit/s

95th percentile per-packet one-way delay: 57.057 ms

Loss rate: 0.37%

-- Flow 2:

Average throughput: 1.19 Mbit/s

95th percentile per-packet one-way delay: 57.067 ms

Loss rate: 0.61%

-- Flow 3:

Average throughput: 0.38 Mbit/s

95th percentile per-packet one-way delay: 57.020 ms

Loss rate: 1.59%

Run 5: Report of WebRTC media — Data Link

