

## Pantheon Report

Generated at 2018-11-03 02:42:15 (UTC).

Data path: GCE London on *ens4 (remote)* → GCE Tokyo 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:

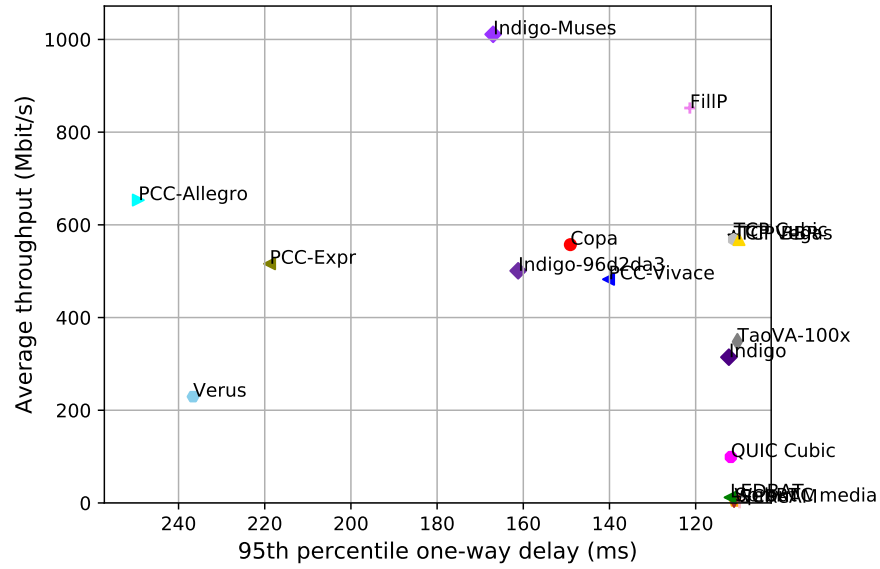
```
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

### Git summary:

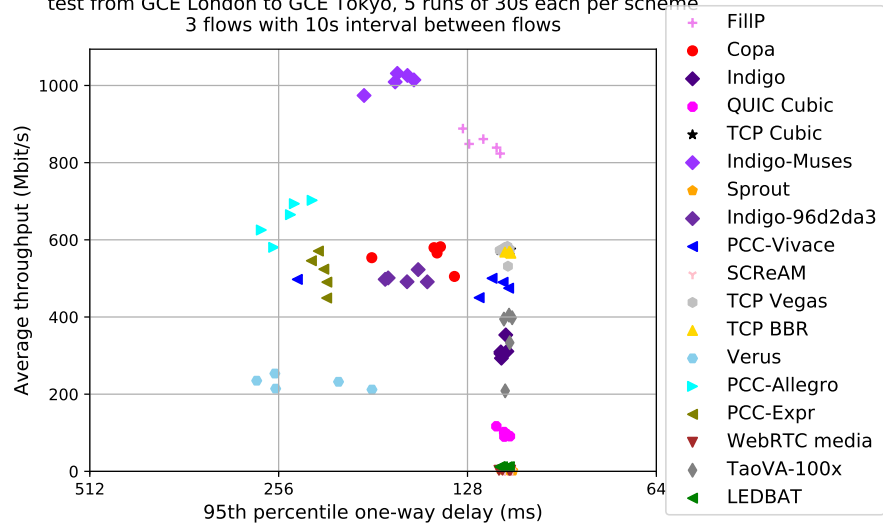
```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
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 London to GCE Tokyo, 5 runs of 30s each per scheme  
3 flows with 10s interval between flows (mean of all runs by scheme)



test from GCE London to GCE Tokyo, 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	297.06	284.16	252.52	109.53	109.87	110.02	0.69	1.01	2.70
Copa	5	294.91	277.38	239.01	144.26	145.43	158.06	0.70	1.17	2.88
TCP Cubic	5	299.55	290.67	253.77	111.21	109.70	111.44	0.79	1.22	2.80
FillP	5	538.55	346.97	256.08	125.80	116.21	113.87	0.52	0.97	2.71
Indigo	5	169.56	148.69	139.44	111.16	112.02	112.69	0.77	1.22	2.69
Indigo-96d2da3	5	268.28	248.04	212.74	167.19	151.12	164.55	1.09	1.03	3.97
LEDBAT	5	7.78	5.05	2.47	110.53	111.44	110.25	1.47	2.19	4.48
Indigo-Muses	5	574.81	488.24	346.58	163.98	165.32	190.60	0.90	1.37	4.56
PCC-Allegro	5	394.12	283.76	220.31	263.05	204.63	254.85	7.50	3.03	6.93
PCC-Expr	5	302.57	238.00	171.61	211.60	177.33	177.11	2.74	4.93	4.53
QUIC Cubic	5	55.30	47.40	37.30	111.00	109.61	109.94	1.13	1.76	0.43
SCReAM	5	0.22	0.22	0.22	108.86	109.68	109.19	0.72	1.25	2.22
Sprout	5	2.06	1.57	1.27	109.37	109.98	110.20	0.50	1.18	2.62
TaoVA-100x	5	165.32	197.14	158.37	110.06	110.34	109.16	0.78	1.31	2.48
TCP Vegas	5	302.68	276.88	250.84	110.61	112.35	112.28	0.78	1.20	2.78
Verus	5	133.88	106.35	76.25	211.21	182.39	192.32	2.15	2.94	4.94
PCC-Vivace	5	308.48	186.17	156.08	145.30	113.55	113.00	0.91	1.11	3.37
WebRTC media	5	1.68	1.03	0.35	109.64	110.04	110.16	0.88	1.34	3.92



Run 1: Statistics of TCP BBR

Start at: 2018-11-02 22:06:27

End at: 2018-11-02 22:06:57

Local clock offset: 0.548 ms

Remote clock offset: 0.341 ms

# Below is generated by plot.py at 2018-11-03 00:49:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 570.18 Mbit/s

95th percentile per-packet one-way delay: 109.806 ms

Loss rate: 1.24%

-- Flow 1:

Average throughput: 298.20 Mbit/s

95th percentile per-packet one-way delay: 109.154 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 282.73 Mbit/s

95th percentile per-packet one-way delay: 109.953 ms

Loss rate: 1.26%

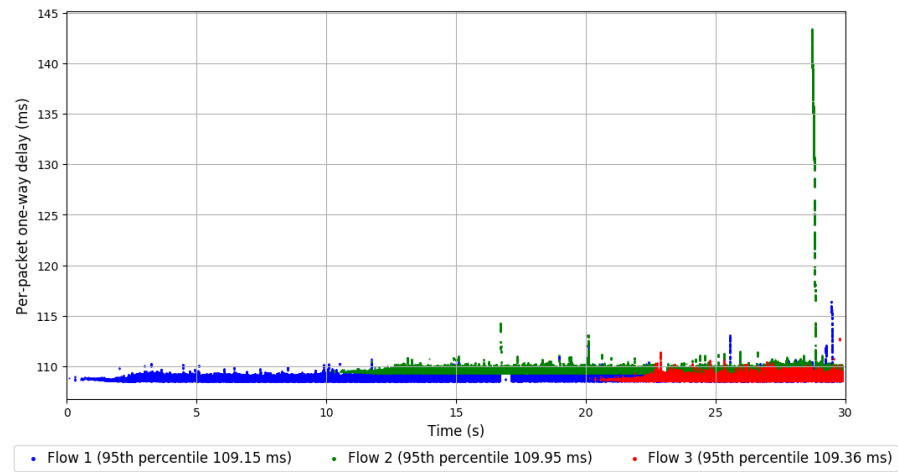
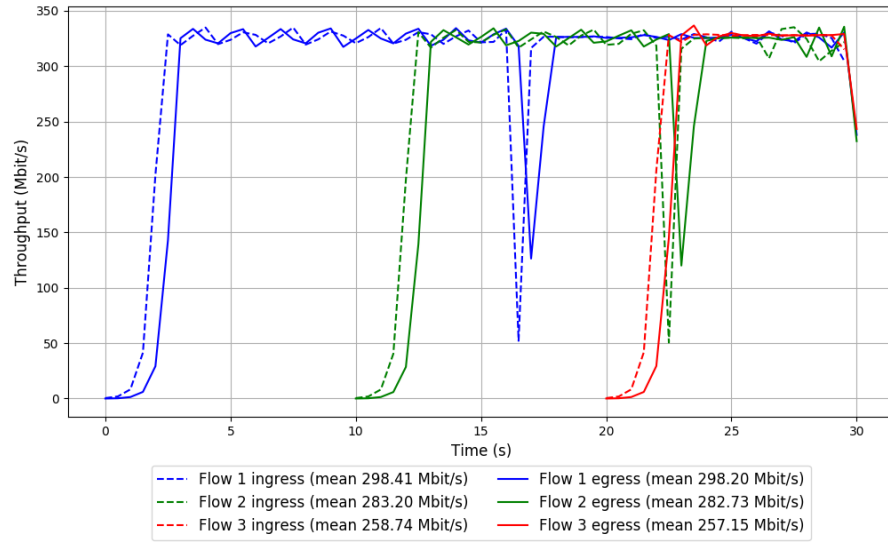
-- Flow 3:

Average throughput: 257.15 Mbit/s

95th percentile per-packet one-way delay: 109.356 ms

Loss rate: 2.76%

# Run 1: Report of TCP BBR — Data Link

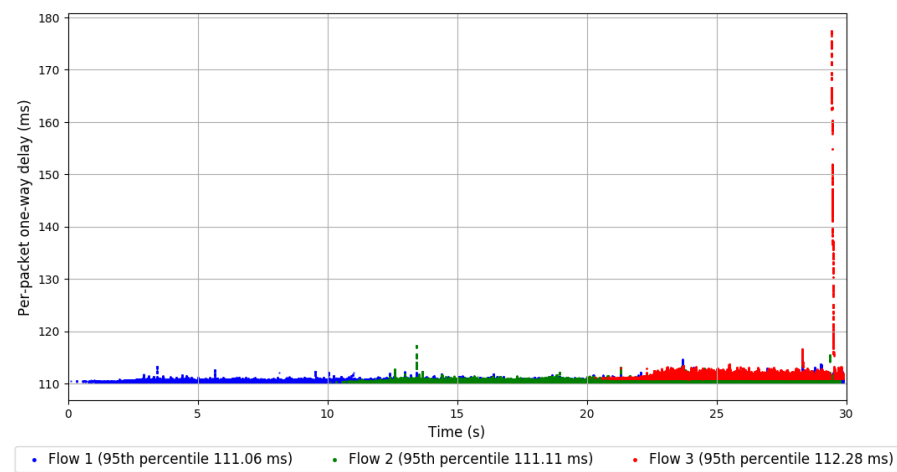
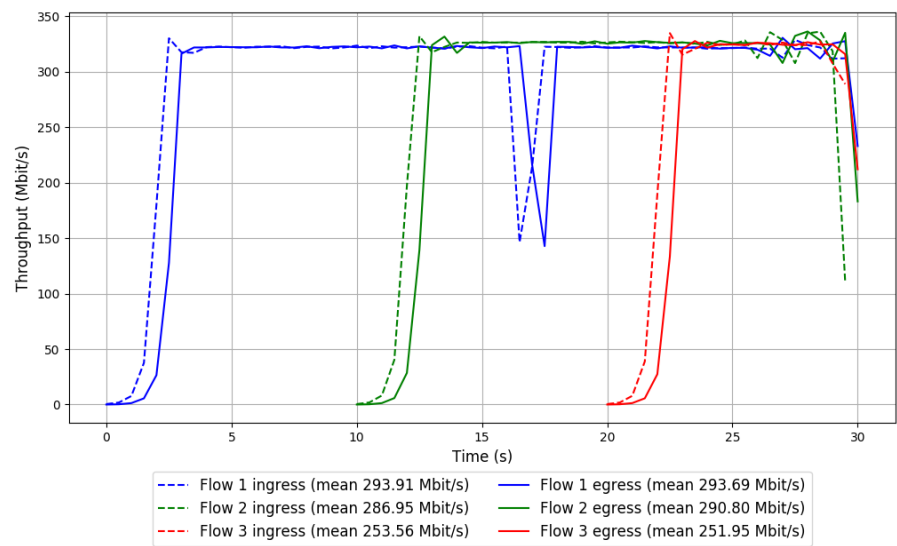


Run 2: Statistics of TCP BBR

Start at: 2018-11-02 22:38:15  
End at: 2018-11-02 22:38:45  
Local clock offset: 1.604 ms  
Remote clock offset: -0.221 ms

# Below is generated by plot.py at 2018-11-03 00:49:59  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 568.22 Mbit/s  
95th percentile per-packet one-way delay: 111.592 ms  
Loss rate: 0.83%  
-- Flow 1:  
Average throughput: 293.69 Mbit/s  
95th percentile per-packet one-way delay: 111.057 ms  
Loss rate: 0.80%  
-- Flow 2:  
Average throughput: 290.80 Mbit/s  
95th percentile per-packet one-way delay: 111.112 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 251.95 Mbit/s  
95th percentile per-packet one-way delay: 112.281 ms  
Loss rate: 2.81%

Run 2: Report of TCP BBR — Data Link

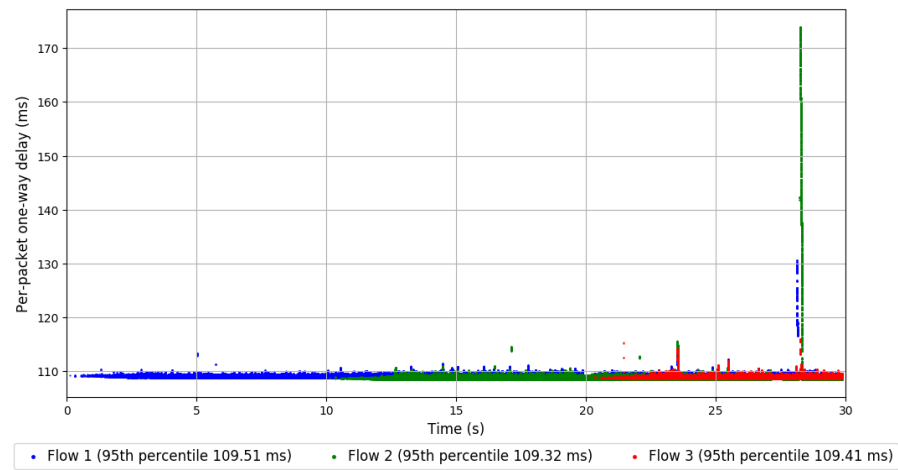
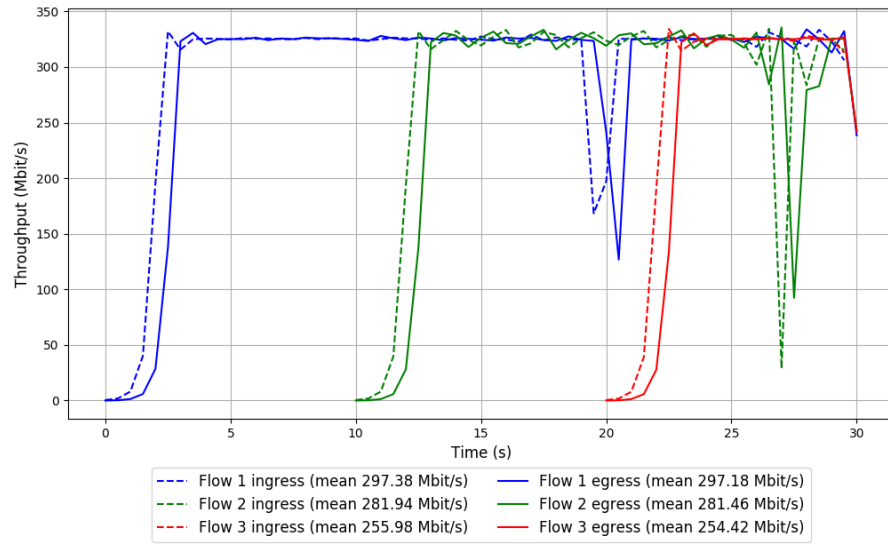


Run 3: Statistics of TCP BBR

Start at: 2018-11-02 23:09:59  
End at: 2018-11-02 23:10:29  
Local clock offset: -0.504 ms  
Remote clock offset: -0.009 ms

# Below is generated by plot.py at 2018-11-03 00:50:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 567.30 Mbit/s  
95th percentile per-packet one-way delay: 109.465 ms  
Loss rate: 1.25%  
-- Flow 1:  
Average throughput: 297.18 Mbit/s  
95th percentile per-packet one-way delay: 109.509 ms  
Loss rate: 0.80%  
-- Flow 2:  
Average throughput: 281.46 Mbit/s  
95th percentile per-packet one-way delay: 109.320 ms  
Loss rate: 1.27%  
-- Flow 3:  
Average throughput: 254.42 Mbit/s  
95th percentile per-packet one-way delay: 109.405 ms  
Loss rate: 2.79%

### Run 3: Report of TCP BBR — Data Link

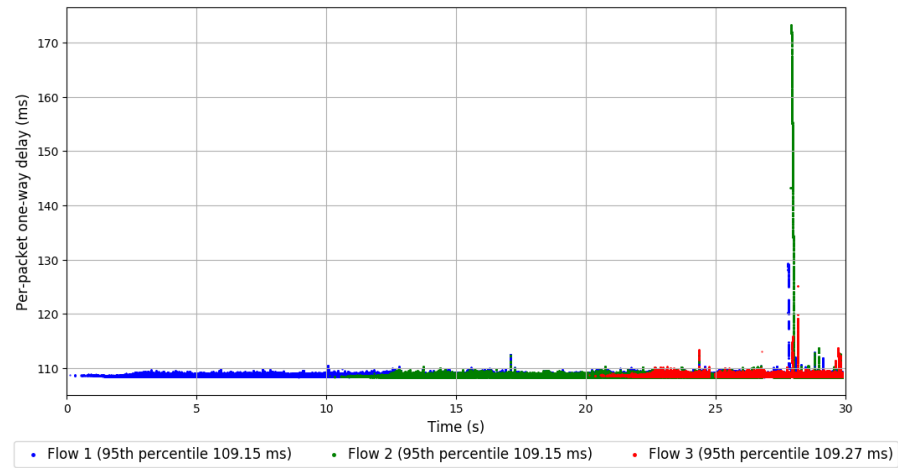
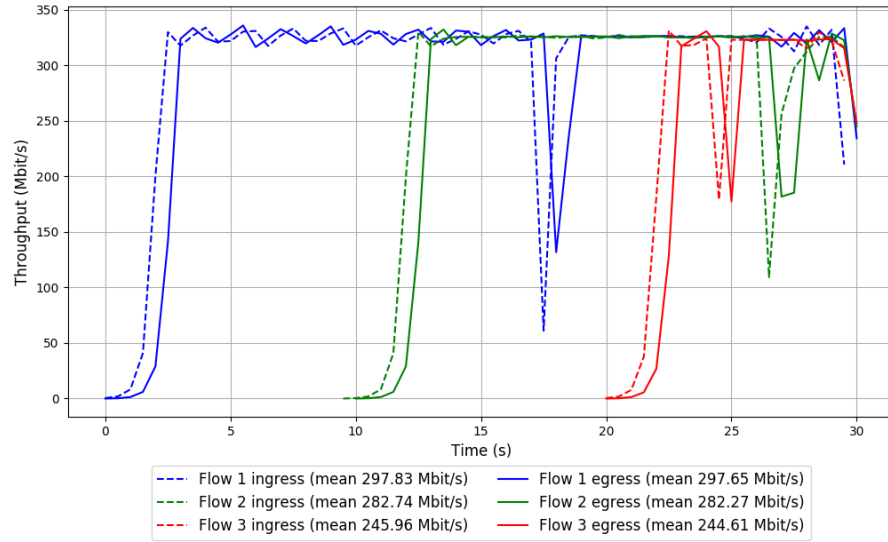


Run 4: Statistics of TCP BBR

Start at: 2018-11-02 23:42:08  
End at: 2018-11-02 23:42:38  
Local clock offset: -0.718 ms  
Remote clock offset: -0.068 ms

# Below is generated by plot.py at 2018-11-03 00:50:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 565.26 Mbit/s  
95th percentile per-packet one-way delay: 109.168 ms  
Loss rate: 0.89%  
-- Flow 1:  
Average throughput: 297.65 Mbit/s  
95th percentile per-packet one-way delay: 109.151 ms  
Loss rate: 0.25%  
-- Flow 2:  
Average throughput: 282.27 Mbit/s  
95th percentile per-packet one-way delay: 109.150 ms  
Loss rate: 1.26%  
-- Flow 3:  
Average throughput: 244.61 Mbit/s  
95th percentile per-packet one-way delay: 109.270 ms  
Loss rate: 2.33%

#### Run 4: Report of TCP BBR — Data Link



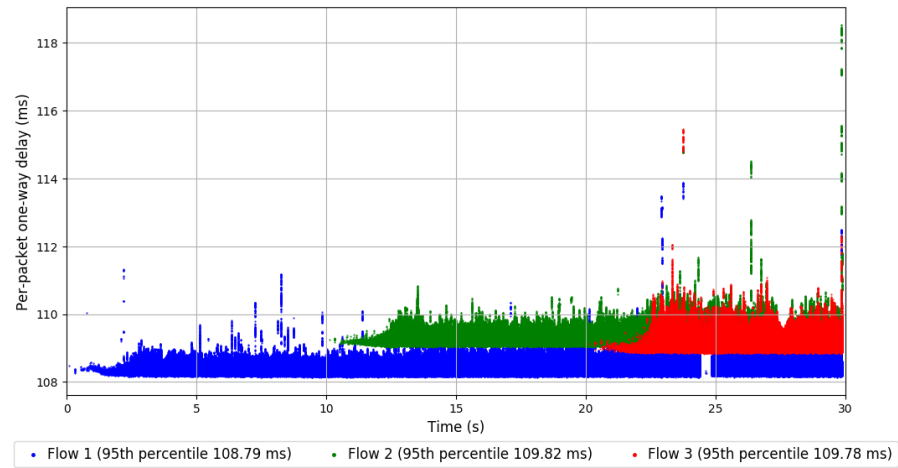
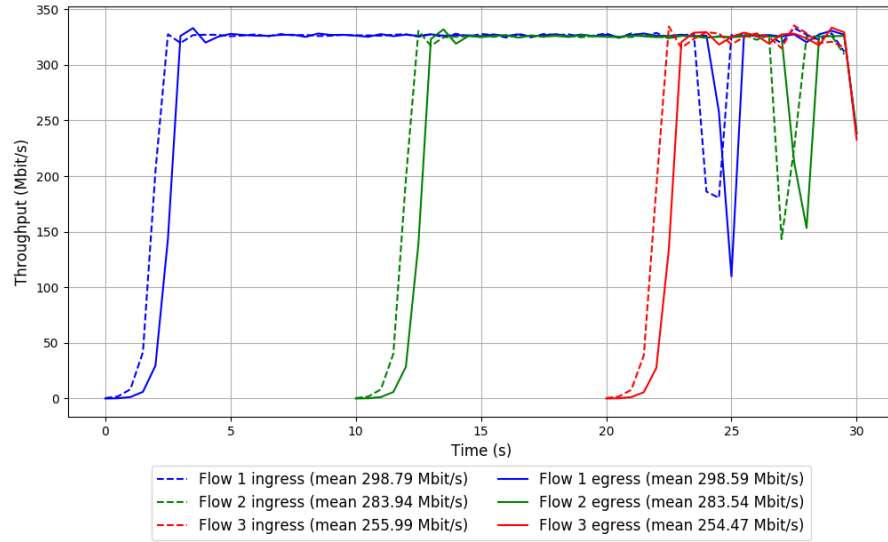


Run 5: Statistics of TCP BBR

Start at: 2018-11-03 00:14:26  
End at: 2018-11-03 00:14:56  
Local clock offset: -0.301 ms  
Remote clock offset: -0.014 ms

# Below is generated by plot.py at 2018-11-03 00:50:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 570.09 Mbit/s  
95th percentile per-packet one-way delay: 109.663 ms  
Loss rate: 1.24%  
-- Flow 1:  
Average throughput: 298.59 Mbit/s  
95th percentile per-packet one-way delay: 108.786 ms  
Loss rate: 0.79%  
-- Flow 2:  
Average throughput: 283.54 Mbit/s  
95th percentile per-packet one-way delay: 109.818 ms  
Loss rate: 1.26%  
-- Flow 3:  
Average throughput: 254.47 Mbit/s  
95th percentile per-packet one-way delay: 109.783 ms  
Loss rate: 2.80%

## Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-11-02 22:15:44

End at: 2018-11-02 22:16:14

Local clock offset: 1.431 ms

Remote clock offset: 0.178 ms

# Below is generated by plot.py at 2018-11-03 00:59:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 553.69 Mbit/s

95th percentile per-packet one-way delay: 181.876 ms

Loss rate: 1.27%

-- Flow 1:

Average throughput: 285.89 Mbit/s

95th percentile per-packet one-way delay: 168.004 ms

Loss rate: 1.03%

-- Flow 2:

Average throughput: 280.67 Mbit/s

95th percentile per-packet one-way delay: 179.752 ms

Loss rate: 1.09%

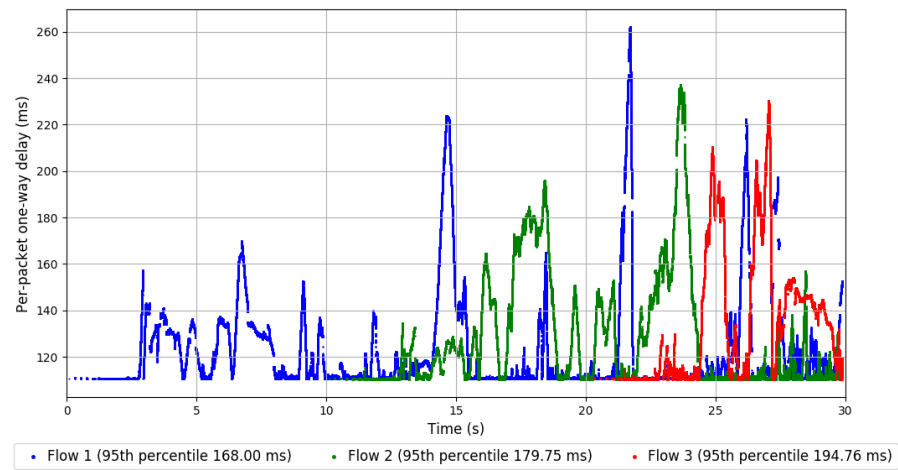
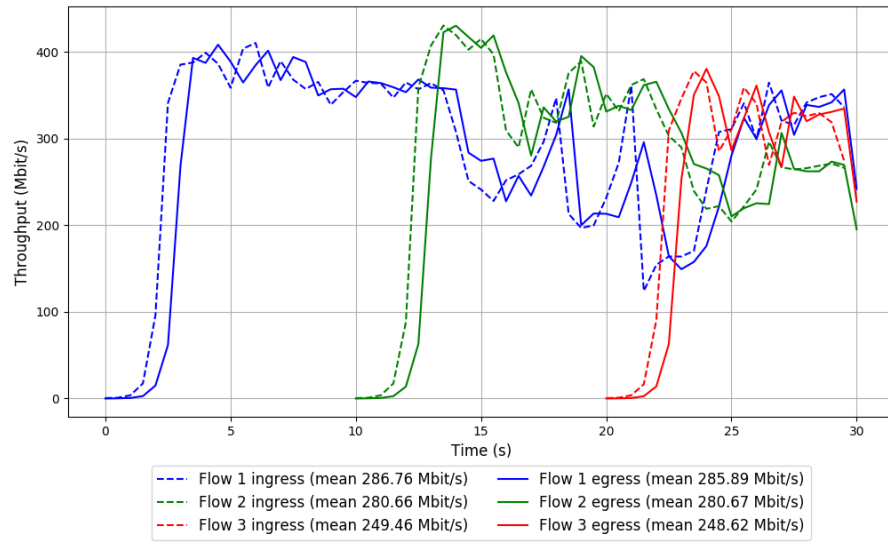
-- Flow 3:

Average throughput: 248.62 Mbit/s

95th percentile per-packet one-way delay: 194.765 ms

Loss rate: 2.52%

## Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-11-02 22:47:36

End at: 2018-11-02 22:48:06

Local clock offset: 0.209 ms

Remote clock offset: 0.06 ms

# Below is generated by plot.py at 2018-11-03 00:59:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 505.13 Mbit/s

95th percentile per-packet one-way delay: 134.285 ms

Loss rate: 1.03%

-- Flow 1:

Average throughput: 265.68 Mbit/s

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

Loss rate: 0.48%

-- Flow 2:

Average throughput: 247.55 Mbit/s

95th percentile per-packet one-way delay: 130.501 ms

Loss rate: 1.00%

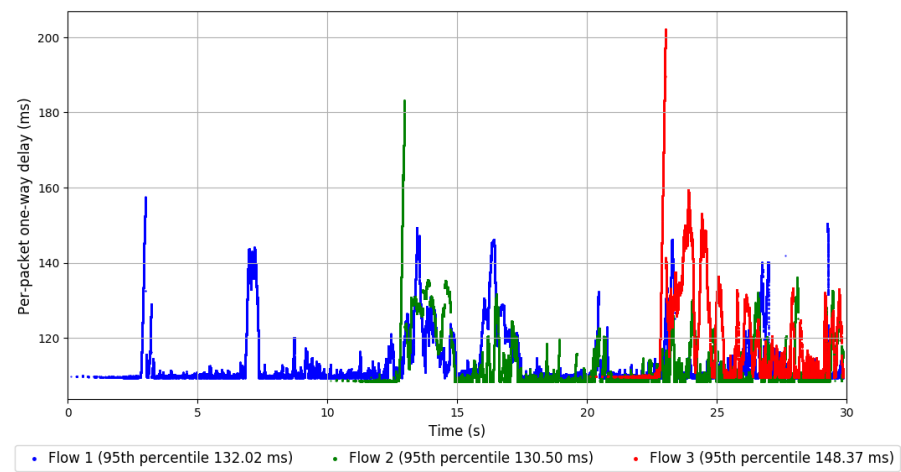
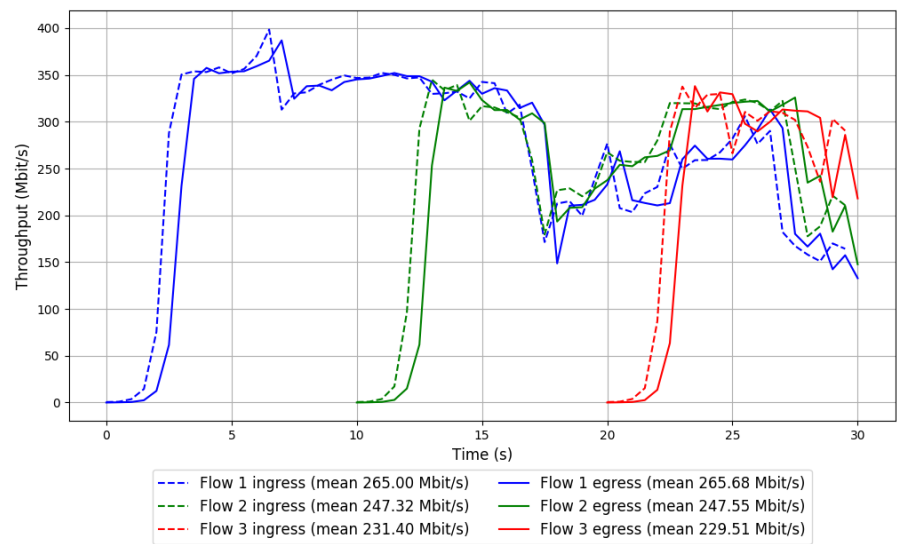
-- Flow 3:

Average throughput: 229.51 Mbit/s

95th percentile per-packet one-way delay: 148.369 ms

Loss rate: 2.99%

Run 2: Report of Copa — Data Link

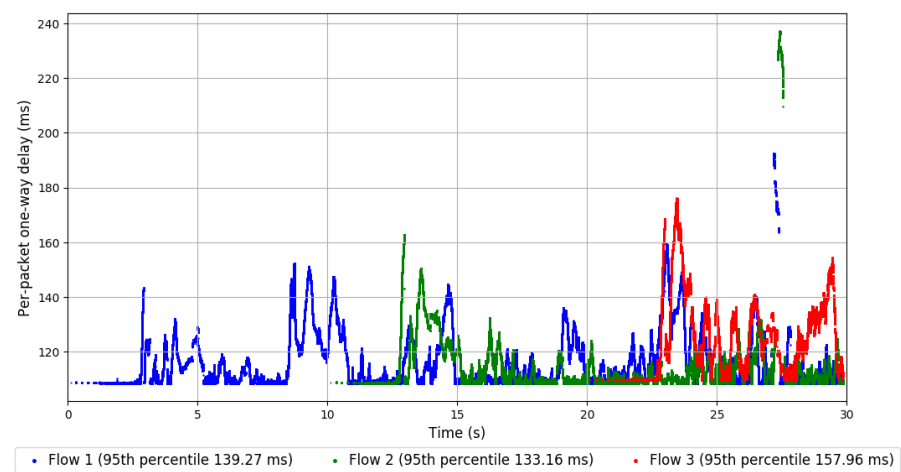
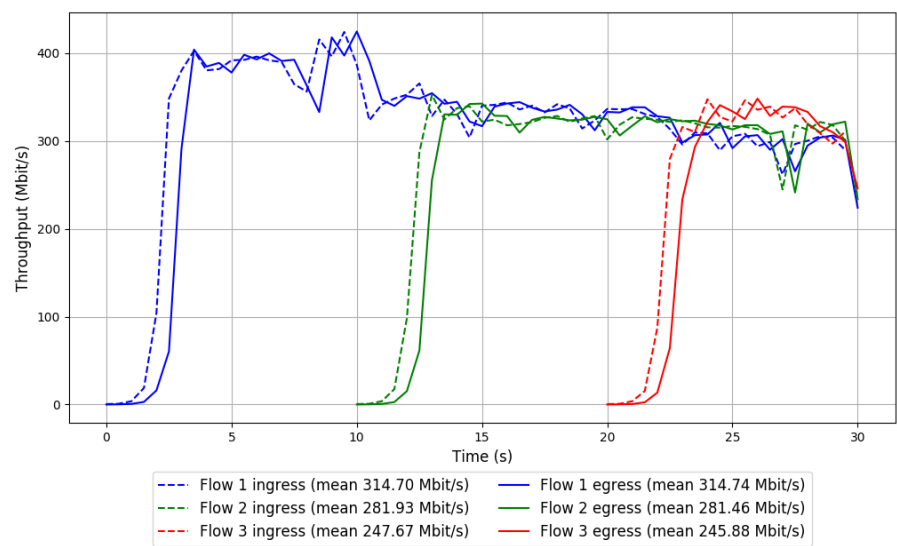


Run 3: Statistics of Copa

Start at: 2018-11-02 23:19:16  
End at: 2018-11-02 23:19:46  
Local clock offset: 0.051 ms  
Remote clock offset: -0.049 ms

# Below is generated by plot.py at 2018-11-03 01:00:19  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 582.01 Mbit/s  
95th percentile per-packet one-way delay: 141.358 ms  
Loss rate: 1.19%  
-- Flow 1:  
Average throughput: 314.74 Mbit/s  
95th percentile per-packet one-way delay: 139.270 ms  
Loss rate: 0.71%  
-- Flow 2:  
Average throughput: 281.46 Mbit/s  
95th percentile per-packet one-way delay: 133.163 ms  
Loss rate: 1.26%  
-- Flow 3:  
Average throughput: 245.88 Mbit/s  
95th percentile per-packet one-way delay: 157.957 ms  
Loss rate: 2.90%

Run 3: Report of Copa — Data Link



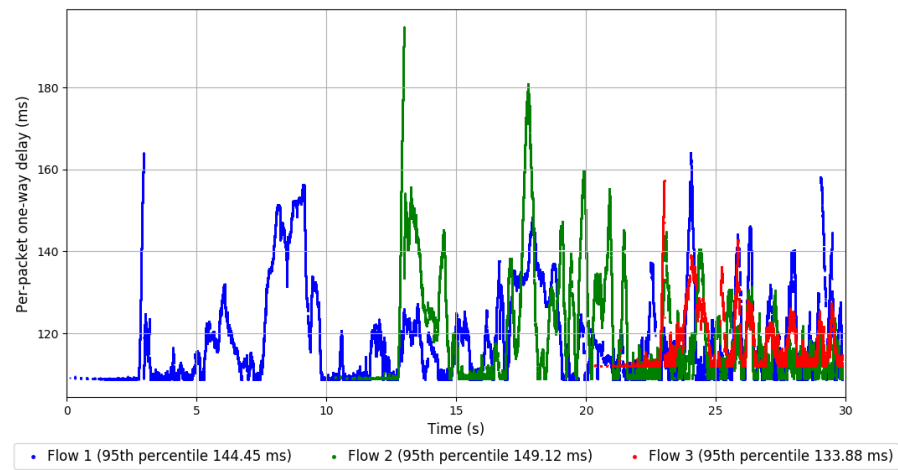
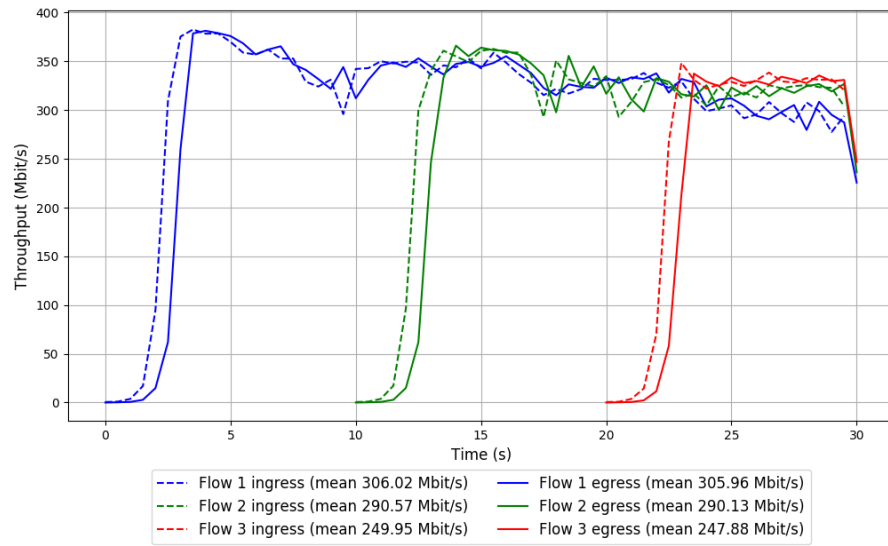


Run 4: Statistics of Copa

Start at: 2018-11-02 23:51:28  
End at: 2018-11-02 23:51:58  
Local clock offset: -0.686 ms  
Remote clock offset: -0.008 ms

# Below is generated by plot.py at 2018-11-03 01:10:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 579.65 Mbit/s  
95th percentile per-packet one-way delay: 144.746 ms  
Loss rate: 1.24%  
-- Flow 1:  
Average throughput: 305.96 Mbit/s  
95th percentile per-packet one-way delay: 144.446 ms  
Loss rate: 0.75%  
-- Flow 2:  
Average throughput: 290.13 Mbit/s  
95th percentile per-packet one-way delay: 149.124 ms  
Loss rate: 1.24%  
-- Flow 3:  
Average throughput: 247.88 Mbit/s  
95th percentile per-packet one-way delay: 133.878 ms  
Loss rate: 3.04%

#### Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-11-03 00:23:49

End at: 2018-11-03 00:24:19

Local clock offset: 0.147 ms

Remote clock offset: 0.028 ms

# Below is generated by plot.py at 2018-11-03 01:10:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 565.90 Mbit/s

95th percentile per-packet one-way delay: 143.131 ms

Loss rate: 1.10%

-- Flow 1:

Average throughput: 302.30 Mbit/s

95th percentile per-packet one-way delay: 137.539 ms

Loss rate: 0.54%

-- Flow 2:

Average throughput: 287.11 Mbit/s

95th percentile per-packet one-way delay: 134.630 ms

Loss rate: 1.27%

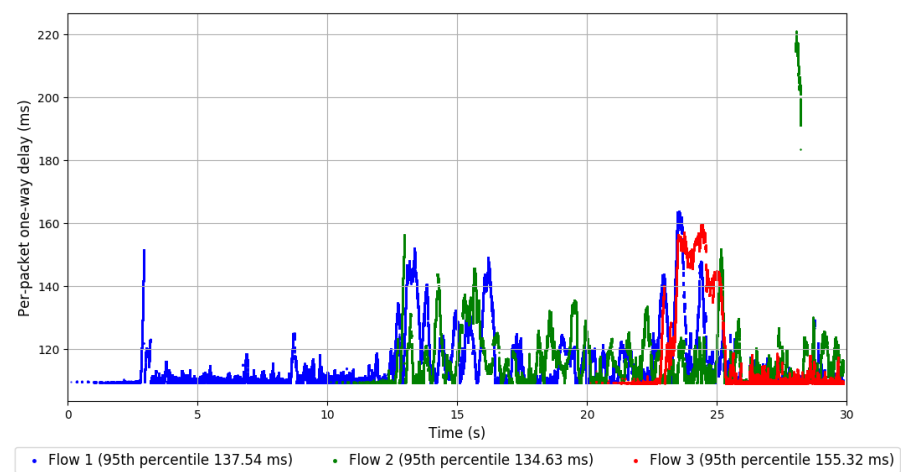
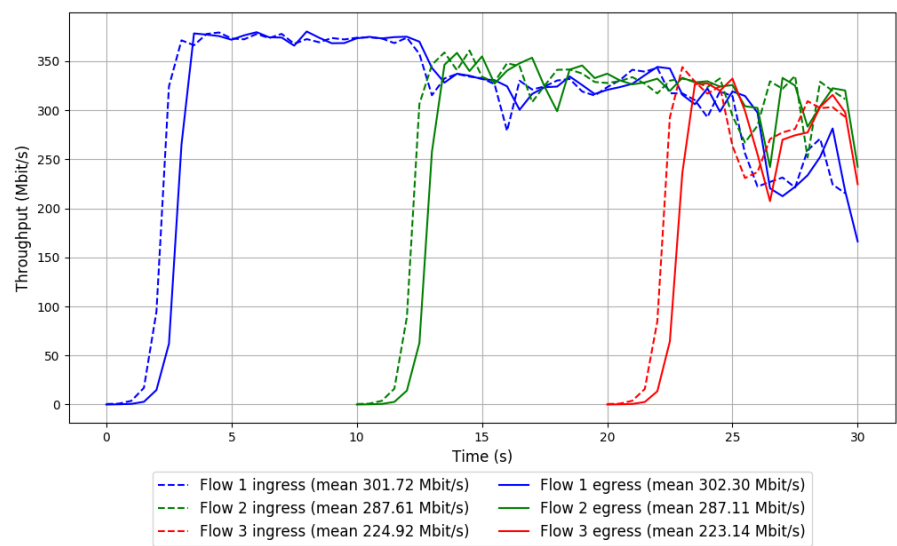
-- Flow 3:

Average throughput: 223.14 Mbit/s

95th percentile per-packet one-way delay: 155.325 ms

Loss rate: 2.97%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-11-02 22:04:36

End at: 2018-11-02 22:05:06

Local clock offset: -0.923 ms

Remote clock offset: 0.339 ms

# Below is generated by plot.py at 2018-11-03 01:10:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 573.96 Mbit/s

95th percentile per-packet one-way delay: 109.169 ms

Loss rate: 1.23%

-- Flow 1:

Average throughput: 300.60 Mbit/s

95th percentile per-packet one-way delay: 109.534 ms

Loss rate: 0.79%

-- Flow 2:

Average throughput: 288.32 Mbit/s

95th percentile per-packet one-way delay: 108.357 ms

Loss rate: 1.22%

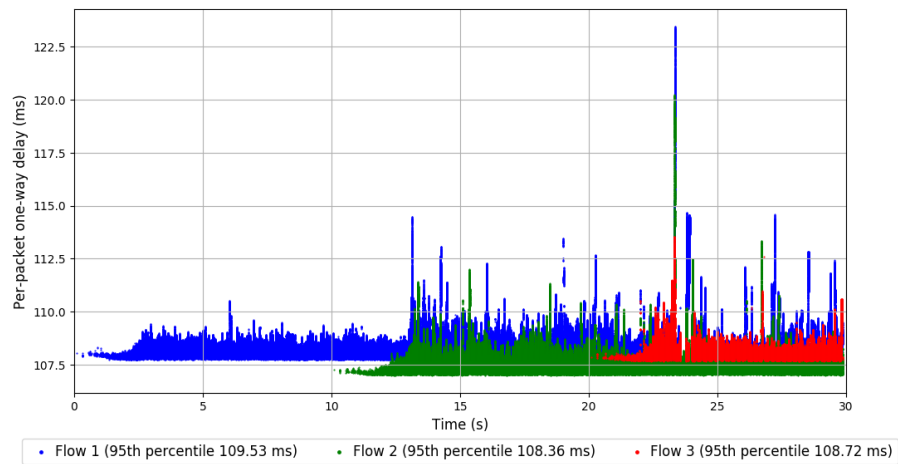
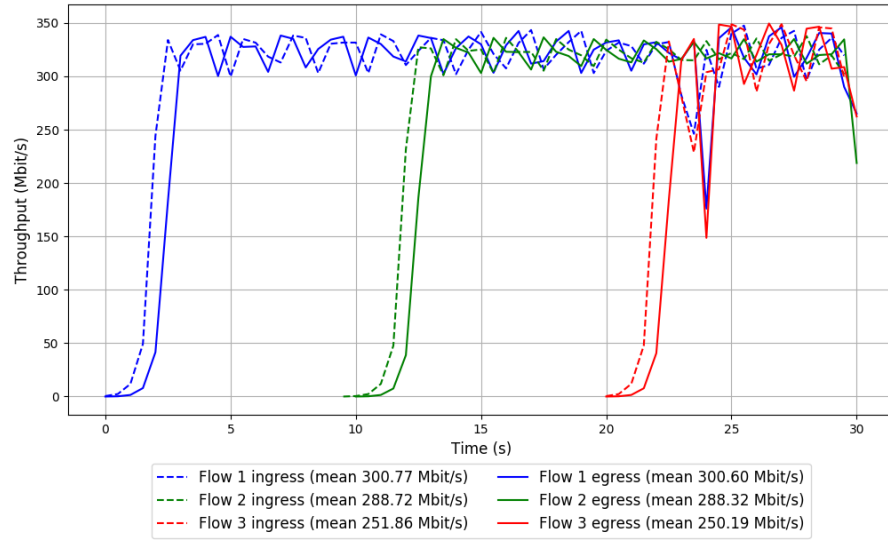
-- Flow 3:

Average throughput: 250.19 Mbit/s

95th percentile per-packet one-way delay: 108.721 ms

Loss rate: 2.84%

## Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-11-02 22:36:25

End at: 2018-11-02 22:36:55

Local clock offset: 0.357 ms

Remote clock offset: 0.21 ms

# Below is generated by plot.py at 2018-11-03 01:10:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 572.12 Mbit/s

95th percentile per-packet one-way delay: 113.567 ms

Loss rate: 1.24%

-- Flow 1:

Average throughput: 295.92 Mbit/s

95th percentile per-packet one-way delay: 113.563 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 291.60 Mbit/s

95th percentile per-packet one-way delay: 110.914 ms

Loss rate: 1.22%

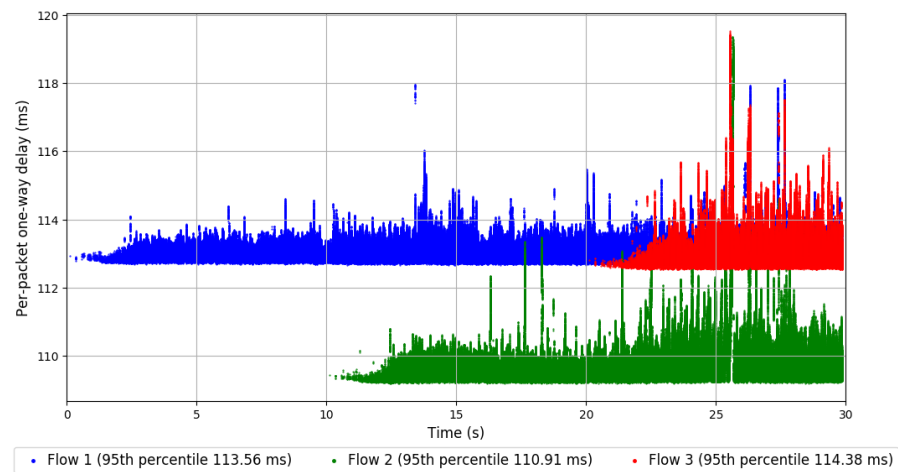
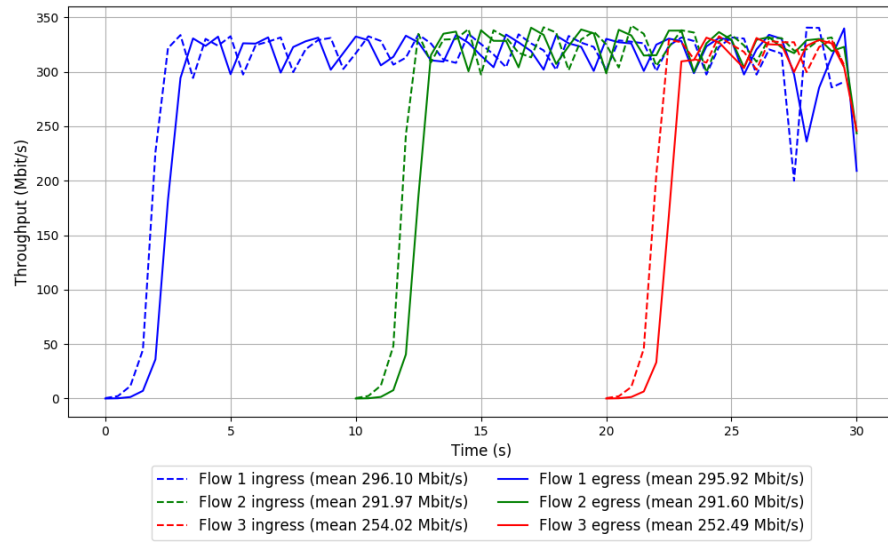
-- Flow 3:

Average throughput: 252.49 Mbit/s

95th percentile per-packet one-way delay: 114.384 ms

Loss rate: 2.82%

## Run 2: Report of TCP Cubic — Data Link





Run 3: Statistics of TCP Cubic

Start at: 2018-11-02 23:08:08

End at: 2018-11-02 23:08:38

Local clock offset: -1.205 ms

Remote clock offset: 0.012 ms

# Below is generated by plot.py at 2018-11-03 01:10:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 573.56 Mbit/s

95th percentile per-packet one-way delay: 112.016 ms

Loss rate: 1.24%

-- Flow 1:

Average throughput: 297.22 Mbit/s

95th percentile per-packet one-way delay: 111.630 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 291.88 Mbit/s

95th percentile per-packet one-way delay: 109.161 ms

Loss rate: 1.22%

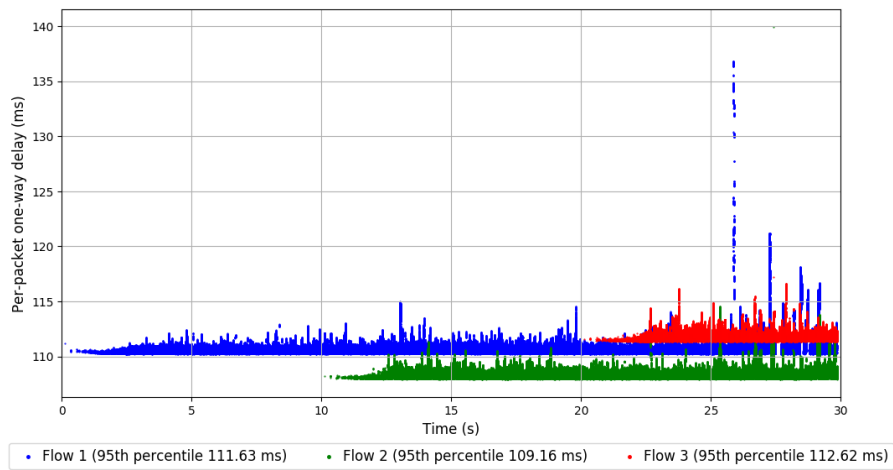
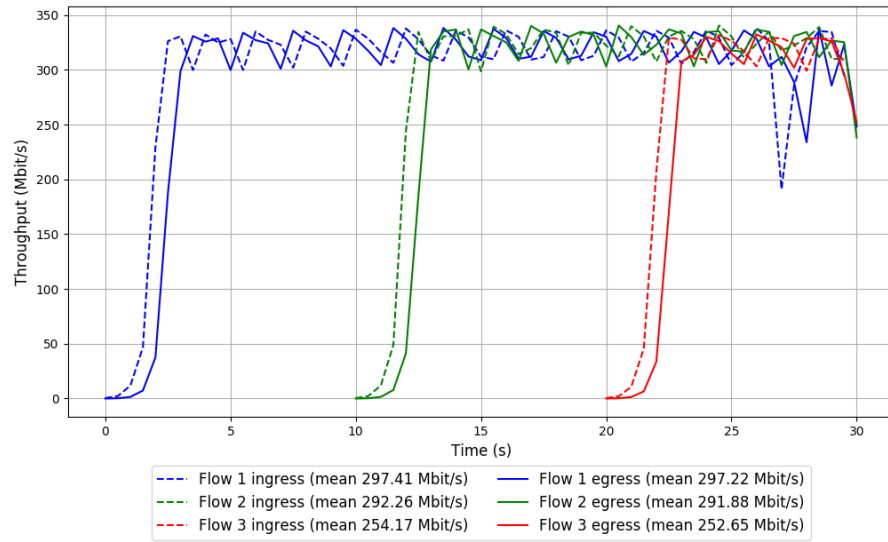
-- Flow 3:

Average throughput: 252.65 Mbit/s

95th percentile per-packet one-way delay: 112.623 ms

Loss rate: 2.81%

### Run 3: Report of TCP Cubic — Data Link

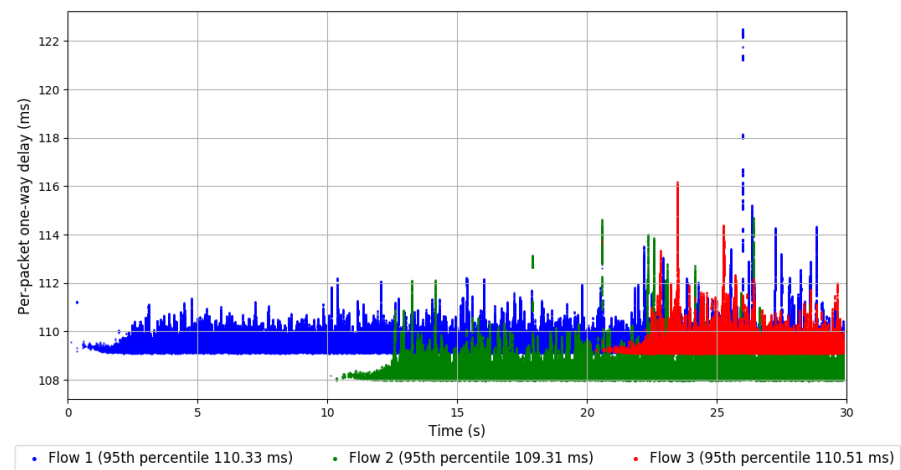
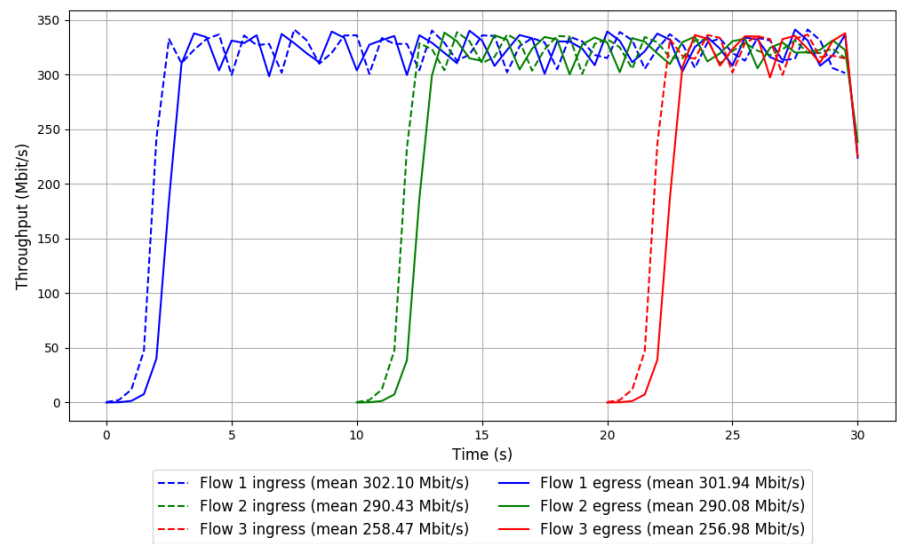


Run 4: Statistics of TCP Cubic

Start at: 2018-11-02 23:40:16  
End at: 2018-11-02 23:40:46  
Local clock offset: -0.828 ms  
Remote clock offset: -0.499 ms

# Below is generated by plot.py at 2018-11-03 01:10:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 578.62 Mbit/s  
95th percentile per-packet one-way delay: 110.211 ms  
Loss rate: 1.22%  
-- Flow 1:  
Average throughput: 301.94 Mbit/s  
95th percentile per-packet one-way delay: 110.329 ms  
Loss rate: 0.78%  
-- Flow 2:  
Average throughput: 290.08 Mbit/s  
95th percentile per-packet one-way delay: 109.314 ms  
Loss rate: 1.21%  
-- Flow 3:  
Average throughput: 256.98 Mbit/s  
95th percentile per-packet one-way delay: 110.508 ms  
Loss rate: 2.75%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-03 00:12:34

End at: 2018-11-03 00:13:04

Local clock offset: -0.082 ms

Remote clock offset: 0.035 ms

# Below is generated by plot.py at 2018-11-03 01:10:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 579.25 Mbit/s

95th percentile per-packet one-way delay: 110.910 ms

Loss rate: 1.23%

-- Flow 1:

Average throughput: 302.08 Mbit/s

95th percentile per-packet one-way delay: 111.001 ms

Loss rate: 0.79%

-- Flow 2:

Average throughput: 291.47 Mbit/s

95th percentile per-packet one-way delay: 110.758 ms

Loss rate: 1.22%

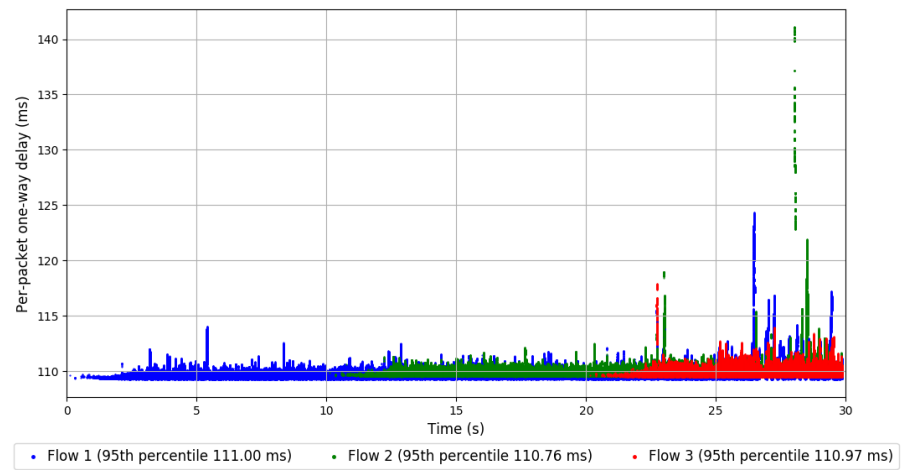
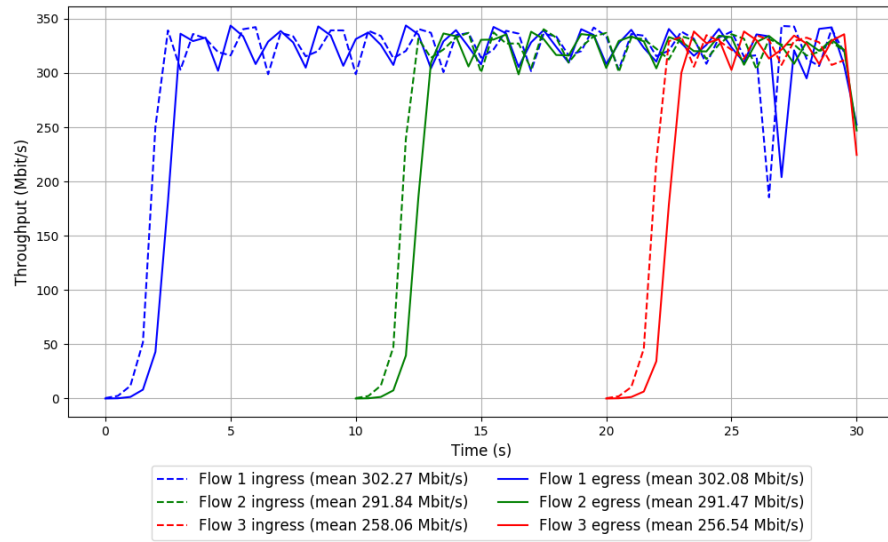
-- Flow 3:

Average throughput: 256.54 Mbit/s

95th percentile per-packet one-way delay: 110.973 ms

Loss rate: 2.78%

## Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-11-02 21:52:43

End at: 2018-11-02 21:53:13

Local clock offset: 0.303 ms

Remote clock offset: 0.316 ms

# Below is generated by plot.py at 2018-11-03 01:22:04

# Datalink statistics

-- Total of 3 flows:

Average throughput: 888.29 Mbit/s

95th percentile per-packet one-way delay: 130.172 ms

Loss rate: 0.83%

-- Flow 1:

Average throughput: 572.68 Mbit/s

95th percentile per-packet one-way delay: 140.822 ms

Loss rate: 0.53%

-- Flow 2:

Average throughput: 353.14 Mbit/s

95th percentile per-packet one-way delay: 115.110 ms

Loss rate: 0.76%

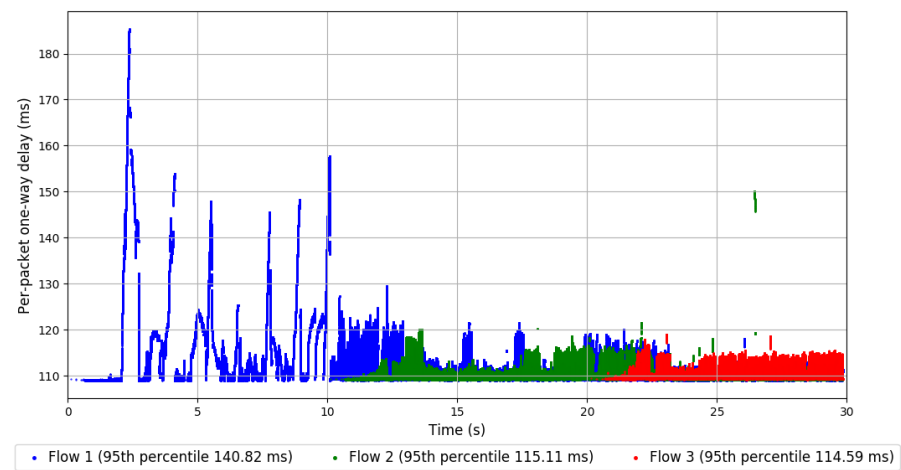
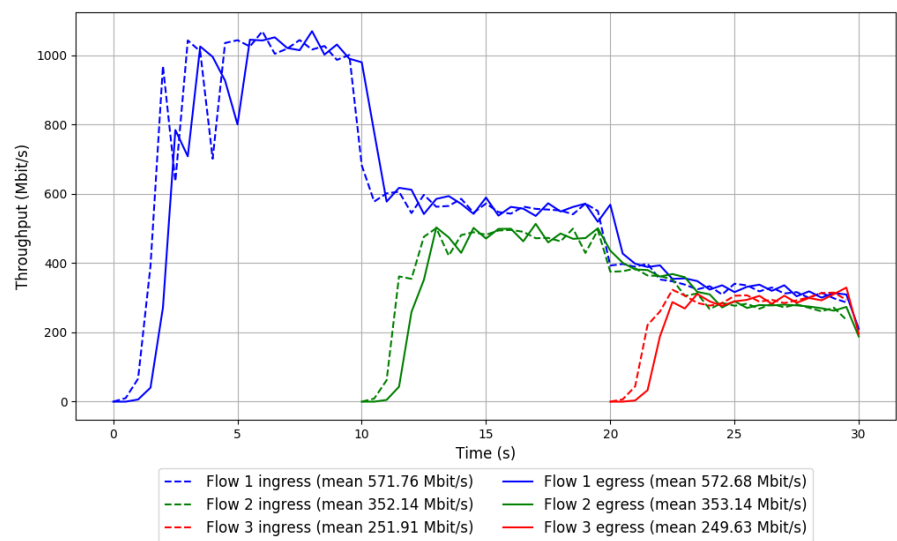
-- Flow 3:

Average throughput: 249.63 Mbit/s

95th percentile per-packet one-way delay: 114.594 ms

Loss rate: 3.10%

Run 1: Report of FillP — Data Link





Run 2: Statistics of FillP

Start at: 2018-11-02 22:24:47

End at: 2018-11-02 22:25:17

Local clock offset: -0.722 ms

Remote clock offset: 0.179 ms

# Below is generated by plot.py at 2018-11-03 01:22:04

# Datalink statistics

-- Total of 3 flows:

Average throughput: 823.56 Mbit/s

95th percentile per-packet one-way delay: 113.531 ms

Loss rate: 0.91%

-- Flow 1:

Average throughput: 511.29 Mbit/s

95th percentile per-packet one-way delay: 112.622 ms

Loss rate: 0.52%

-- Flow 2:

Average throughput: 324.82 Mbit/s

95th percentile per-packet one-way delay: 113.727 ms

Loss rate: 1.02%

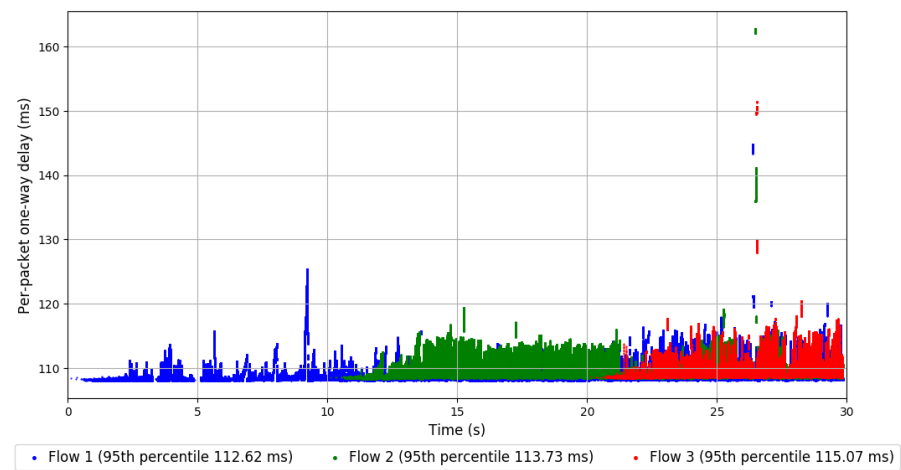
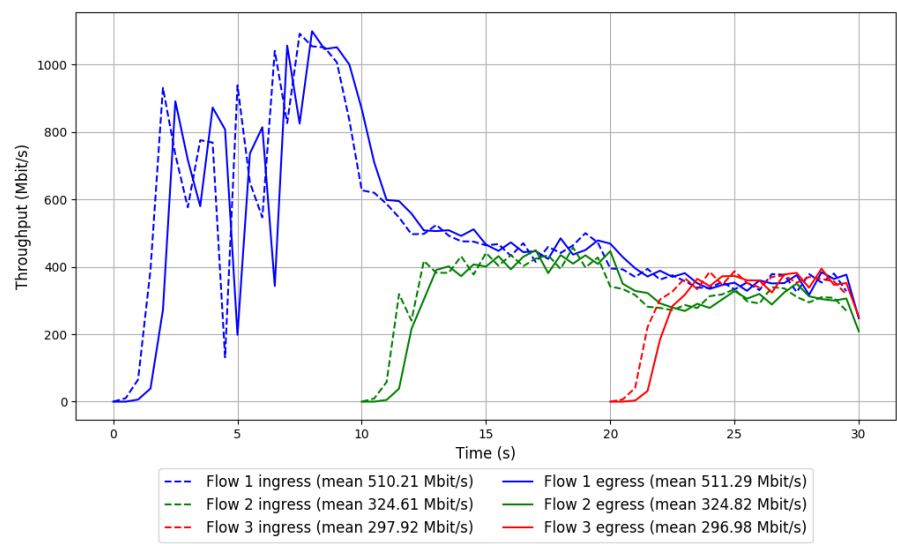
-- Flow 3:

Average throughput: 296.98 Mbit/s

95th percentile per-packet one-way delay: 115.066 ms

Loss rate: 2.65%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-11-02 22:56:41

End at: 2018-11-02 22:57:11

Local clock offset: -0.546 ms

Remote clock offset: -0.0 ms

# Below is generated by plot.py at 2018-11-03 01:22:04

# Datalink statistics

-- Total of 3 flows:

Average throughput: 838.91 Mbit/s

95th percentile per-packet one-way delay: 115.025 ms

Loss rate: 0.84%

-- Flow 1:

Average throughput: 525.48 Mbit/s

95th percentile per-packet one-way delay: 114.462 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 353.77 Mbit/s

95th percentile per-packet one-way delay: 115.724 ms

Loss rate: 1.03%

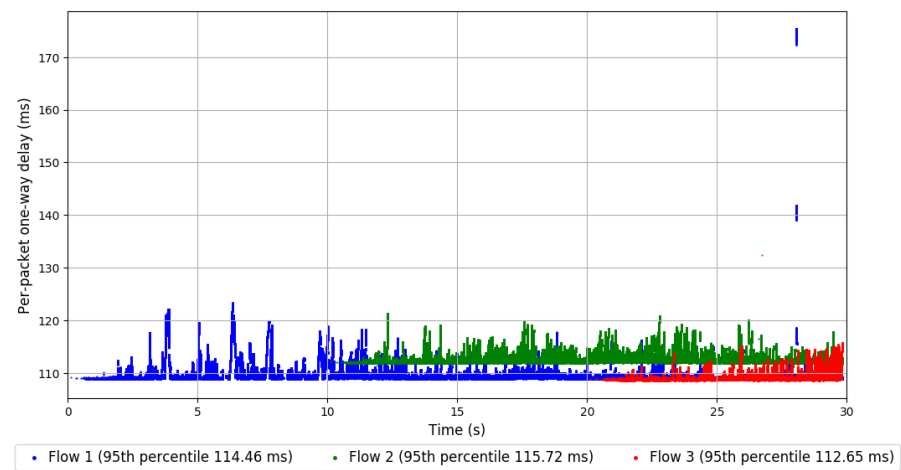
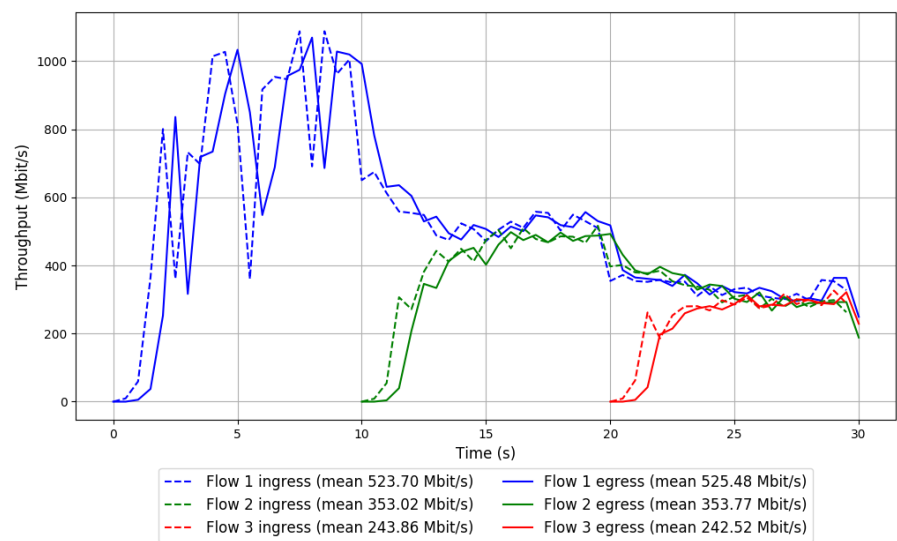
-- Flow 3:

Average throughput: 242.52 Mbit/s

95th percentile per-packet one-way delay: 112.653 ms

Loss rate: 2.74%

Run 3: Report of FillP — Data Link

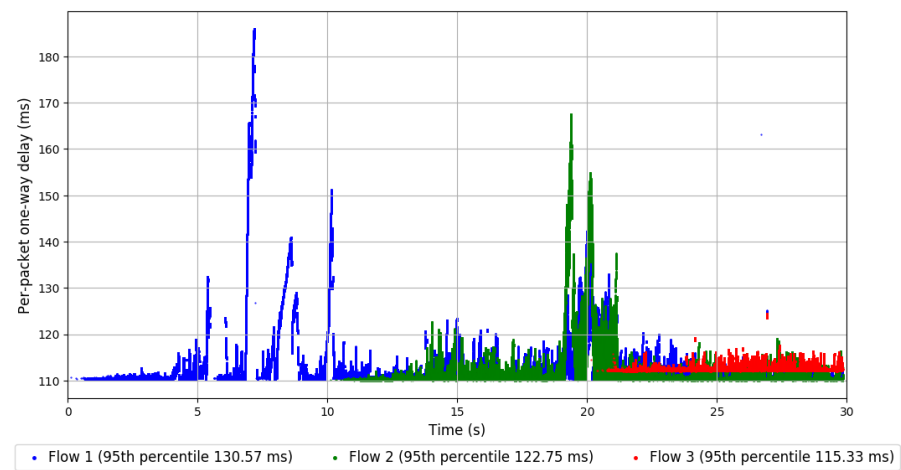
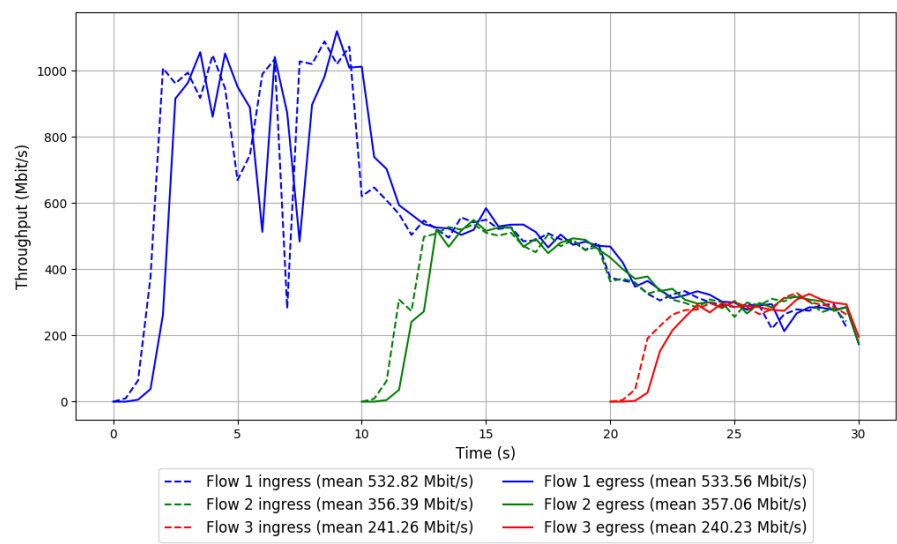


Run 4: Statistics of FillP

Start at: 2018-11-02 23:28:36  
End at: 2018-11-02 23:29:06  
Local clock offset: 0.815 ms  
Remote clock offset: -0.071 ms

# Below is generated by plot.py at 2018-11-03 01:22:08  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 848.48 Mbit/s  
95th percentile per-packet one-way delay: 127.236 ms  
Loss rate: 0.86%  
-- Flow 1:  
Average throughput: 533.56 Mbit/s  
95th percentile per-packet one-way delay: 130.570 ms  
Loss rate: 0.58%  
-- Flow 2:  
Average throughput: 357.06 Mbit/s  
95th percentile per-packet one-way delay: 122.750 ms  
Loss rate: 0.91%  
-- Flow 3:  
Average throughput: 240.23 Mbit/s  
95th percentile per-packet one-way delay: 115.333 ms  
Loss rate: 2.63%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-11-03 00:00:44

End at: 2018-11-03 00:01:14

Local clock offset: 0.196 ms

Remote clock offset: -0.01 ms

# Below is generated by plot.py at 2018-11-03 01:29:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 861.10 Mbit/s

95th percentile per-packet one-way delay: 120.782 ms

Loss rate: 0.86%

-- Flow 1:

Average throughput: 549.73 Mbit/s

95th percentile per-packet one-way delay: 130.530 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 346.07 Mbit/s

95th percentile per-packet one-way delay: 113.754 ms

Loss rate: 1.14%

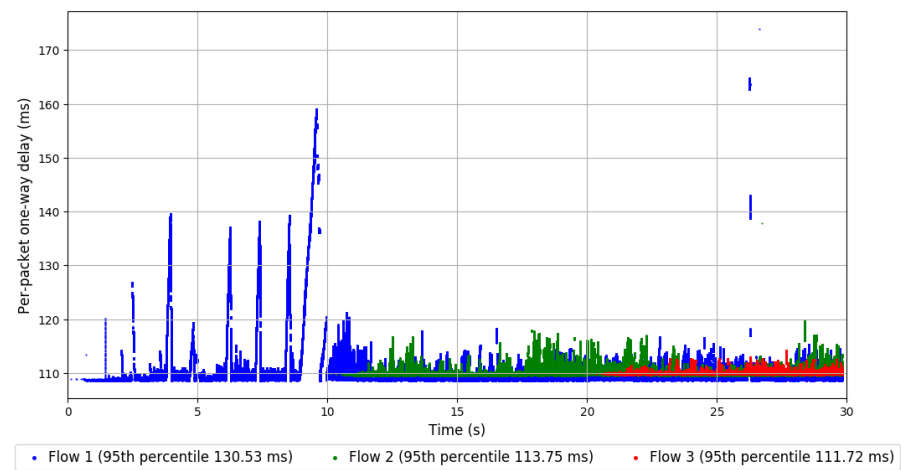
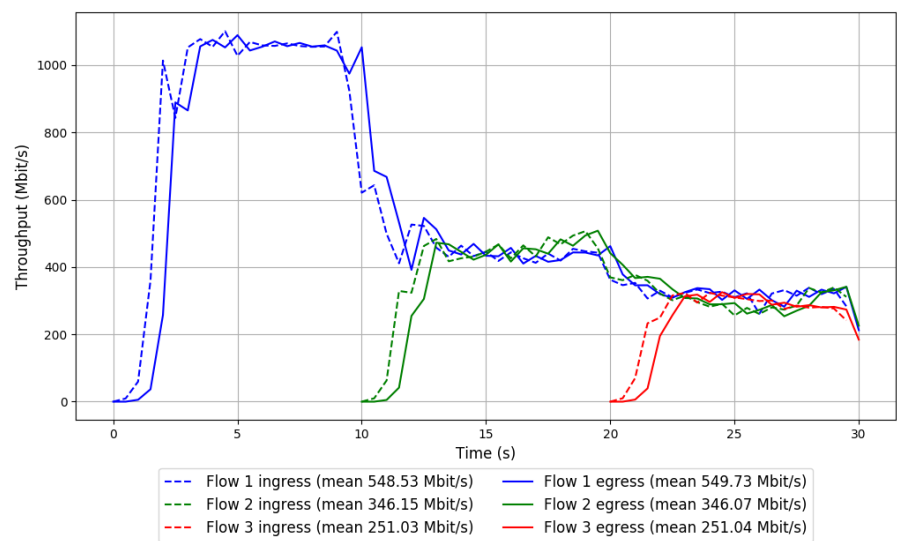
-- Flow 3:

Average throughput: 251.04 Mbit/s

95th percentile per-packet one-way delay: 111.723 ms

Loss rate: 2.42%

Run 5: Report of FillP — Data Link



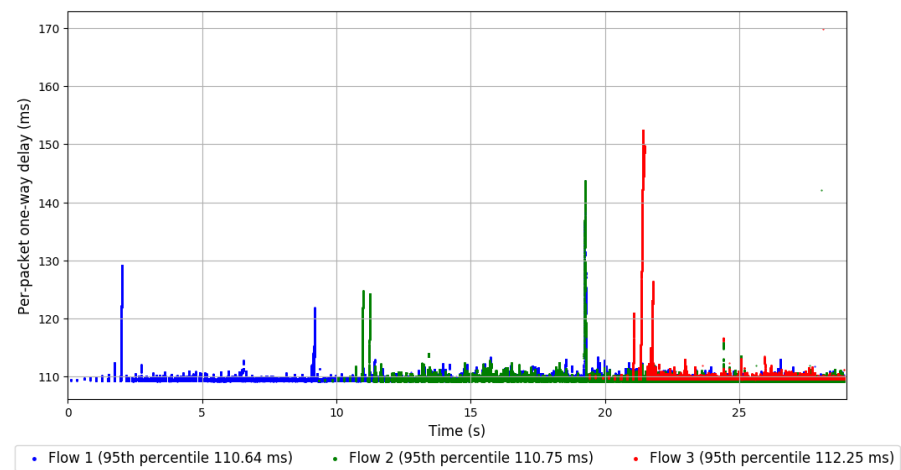
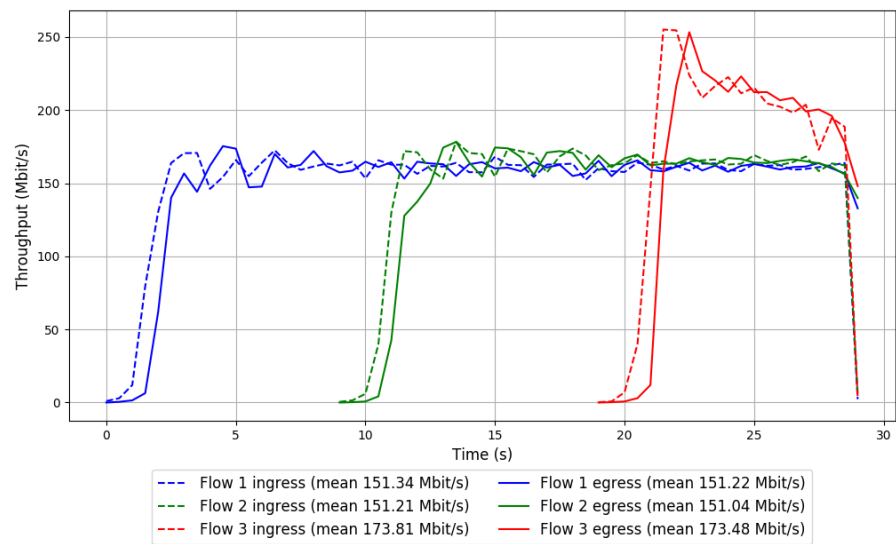


```
Run 1: Statistics of Indigo

Start at: 2018-11-02 21:47:08
End at: 2018-11-02 21:47:38
Local clock offset: 0.559 ms
Remote clock offset: 0.331 ms

# Below is generated by plot.py at 2018-11-03 01:29:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 310.92 Mbit/s
95th percentile per-packet one-way delay: 110.777 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 151.22 Mbit/s
95th percentile per-packet one-way delay: 110.637 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 151.04 Mbit/s
95th percentile per-packet one-way delay: 110.747 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 173.48 Mbit/s
95th percentile per-packet one-way delay: 112.250 ms
Loss rate: 2.44%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-11-02 22:19:16

End at: 2018-11-02 22:19:46

Local clock offset: -0.126 ms

Remote clock offset: 0.184 ms

# Below is generated by plot.py at 2018-11-03 01:29:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 309.53 Mbit/s

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

Loss rate: 1.16%

-- Flow 1:

Average throughput: 168.84 Mbit/s

95th percentile per-packet one-way delay: 109.515 ms

Loss rate: 0.74%

-- Flow 2:

Average throughput: 149.23 Mbit/s

95th percentile per-packet one-way delay: 114.388 ms

Loss rate: 1.22%

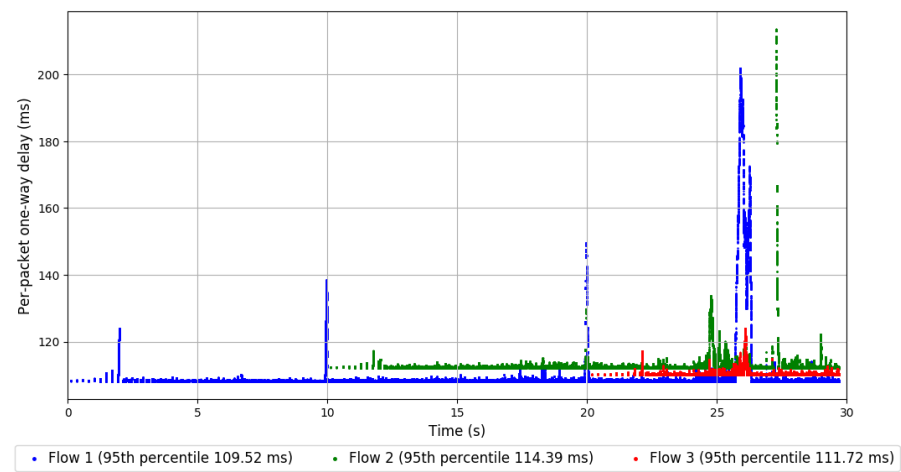
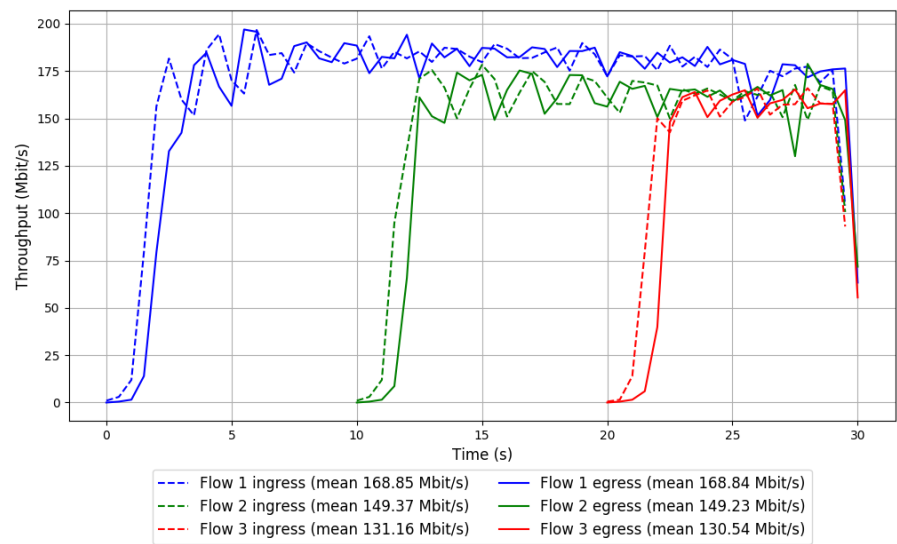
-- Flow 3:

Average throughput: 130.54 Mbit/s

95th percentile per-packet one-way delay: 111.719 ms

Loss rate: 2.73%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-11-02 22:51:05

End at: 2018-11-02 22:51:35

Local clock offset: 1.314 ms

Remote clock offset: 0.018 ms

# Below is generated by plot.py at 2018-11-03 01:29:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 293.29 Mbit/s

95th percentile per-packet one-way delay: 113.019 ms

Loss rate: 1.22%

-- Flow 1:

Average throughput: 153.12 Mbit/s

95th percentile per-packet one-way delay: 113.253 ms

Loss rate: 0.79%

-- Flow 2:

Average throughput: 147.54 Mbit/s

95th percentile per-packet one-way delay: 111.584 ms

Loss rate: 1.22%

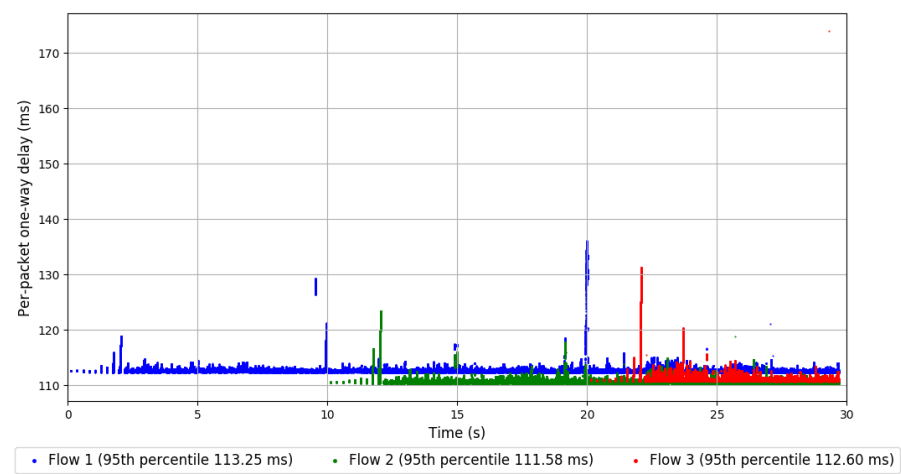
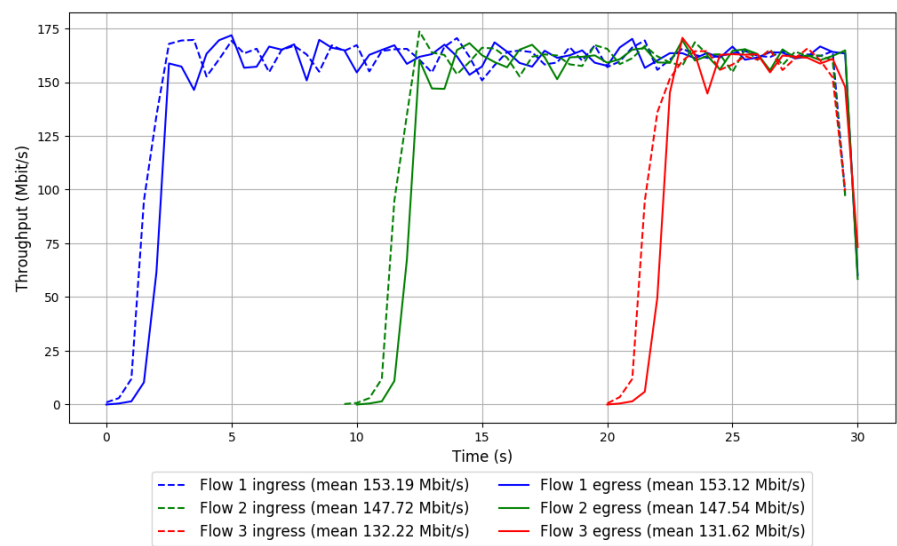
-- Flow 3:

Average throughput: 131.62 Mbit/s

95th percentile per-packet one-way delay: 112.601 ms

Loss rate: 2.70%

Run 3: Report of Indigo — Data Link

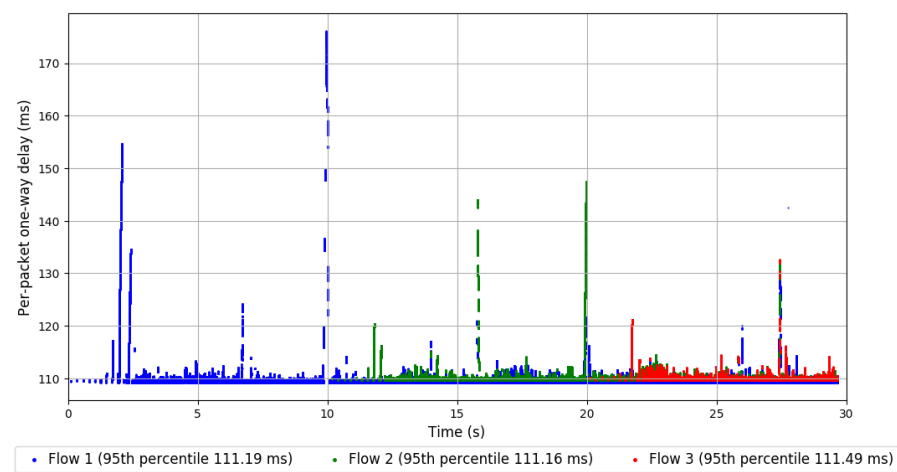
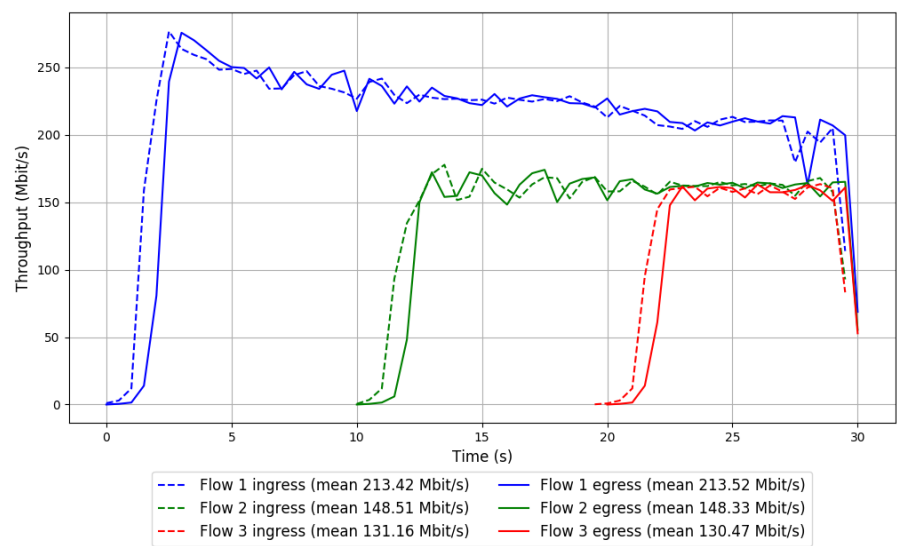


Run 4: Statistics of Indigo

Start at: 2018-11-02 23:22:54  
End at: 2018-11-02 23:23:24  
Local clock offset: 0.121 ms  
Remote clock offset: -0.074 ms

# Below is generated by plot.py at 2018-11-03 01:34:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 353.54 Mbit/s  
95th percentile per-packet one-way delay: 111.232 ms  
Loss rate: 1.09%  
-- Flow 1:  
Average throughput: 213.52 Mbit/s  
95th percentile per-packet one-way delay: 111.186 ms  
Loss rate: 0.69%  
-- Flow 2:  
Average throughput: 148.33 Mbit/s  
95th percentile per-packet one-way delay: 111.163 ms  
Loss rate: 1.23%  
-- Flow 3:  
Average throughput: 130.47 Mbit/s  
95th percentile per-packet one-way delay: 111.492 ms  
Loss rate: 2.74%

Run 4: Report of Indigo — Data Link



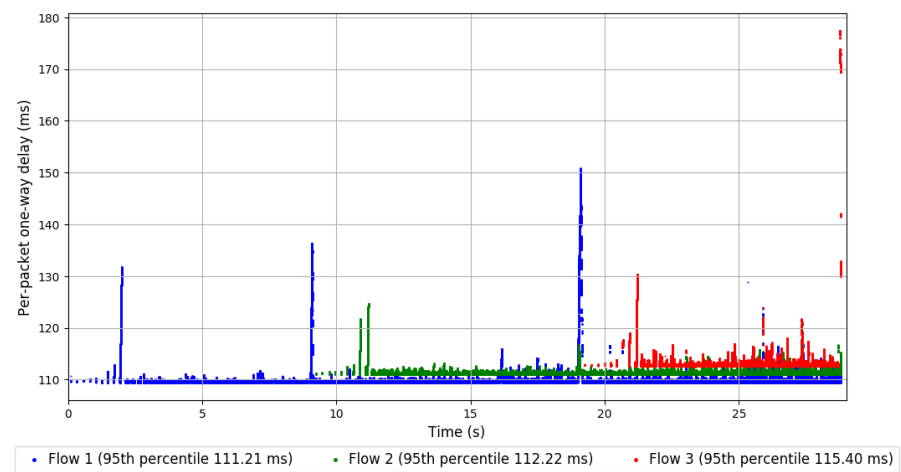
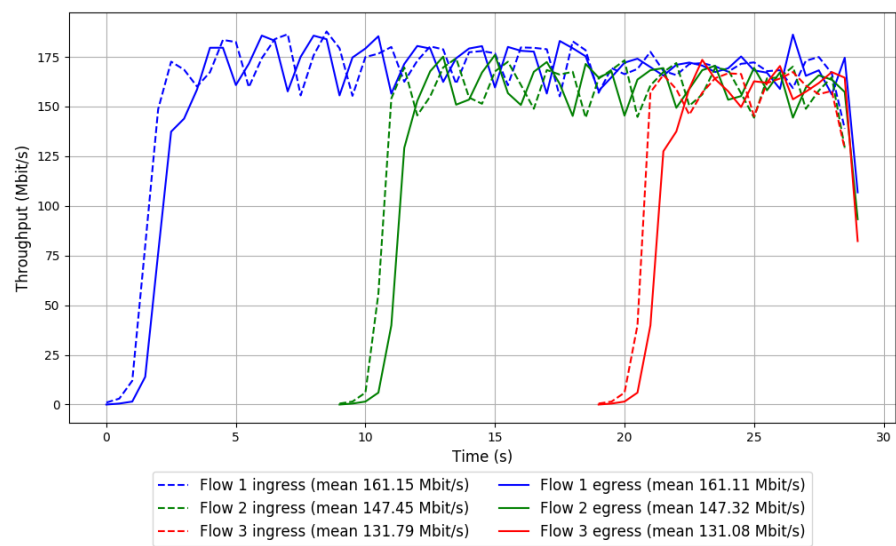


Run 5: Statistics of Indigo

Start at: 2018-11-02 23:55:05  
End at: 2018-11-02 23:55:35  
Local clock offset: -0.16 ms  
Remote clock offset: -0.039 ms

# Below is generated by plot.py at 2018-11-03 01:34:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 305.02 Mbit/s  
95th percentile per-packet one-way delay: 113.187 ms  
Loss rate: 1.23%  
-- Flow 1:  
Average throughput: 161.11 Mbit/s  
95th percentile per-packet one-way delay: 111.211 ms  
Loss rate: 0.80%  
-- Flow 2:  
Average throughput: 147.32 Mbit/s  
95th percentile per-packet one-way delay: 112.219 ms  
Loss rate: 1.23%  
-- Flow 3:  
Average throughput: 131.08 Mbit/s  
95th percentile per-packet one-way delay: 115.403 ms  
Loss rate: 2.83%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-02 22:12:41

End at: 2018-11-02 22:13:11

Local clock offset: 0.014 ms

Remote clock offset: 0.226 ms

# Below is generated by plot.py at 2018-11-03 01:34:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 491.35 Mbit/s

95th percentile per-packet one-way delay: 159.793 ms

Loss rate: 1.44%

-- Flow 1:

Average throughput: 266.40 Mbit/s

95th percentile per-packet one-way delay: 177.452 ms

Loss rate: 1.43%

-- Flow 2:

Average throughput: 239.59 Mbit/s

95th percentile per-packet one-way delay: 138.361 ms

Loss rate: 0.78%

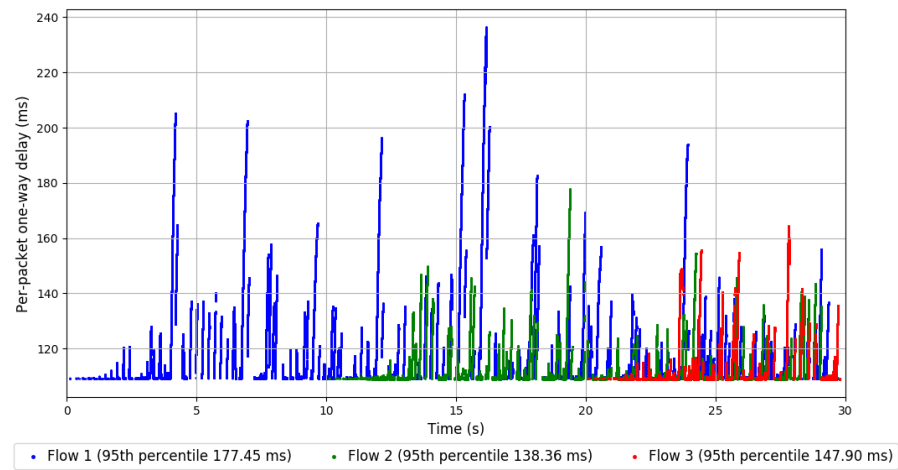
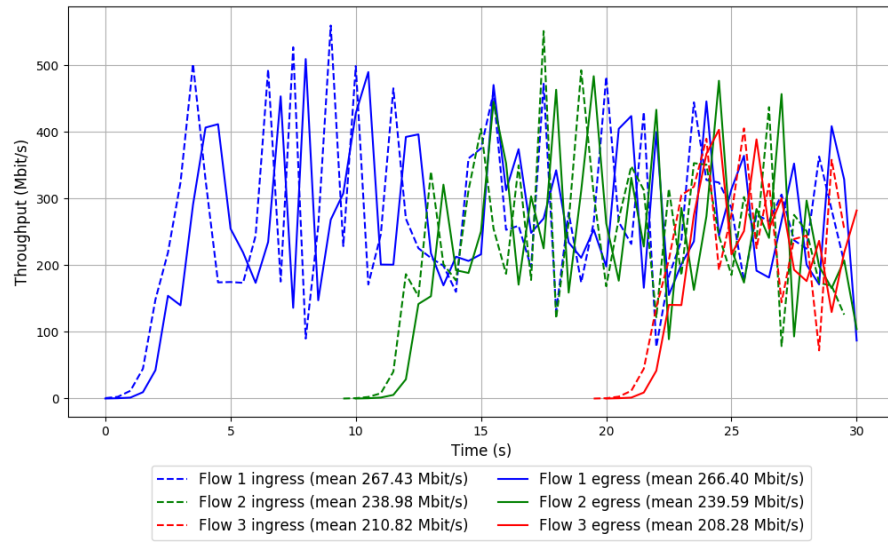
-- Flow 3:

Average throughput: 208.28 Mbit/s

95th percentile per-packet one-way delay: 147.896 ms

Loss rate: 3.02%

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



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-02 22:44:32

End at: 2018-11-02 22:45:02

Local clock offset: 0.351 ms

Remote clock offset: 0.061 ms

# Below is generated by plot.py at 2018-11-03 01:34:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 491.14 Mbit/s

95th percentile per-packet one-way delay: 148.358 ms

Loss rate: 0.73%

-- Flow 1:

Average throughput: 261.07 Mbit/s

95th percentile per-packet one-way delay: 152.434 ms

Loss rate: 0.64%

-- Flow 2:

Average throughput: 237.86 Mbit/s

95th percentile per-packet one-way delay: 140.303 ms

Loss rate: 0.32%

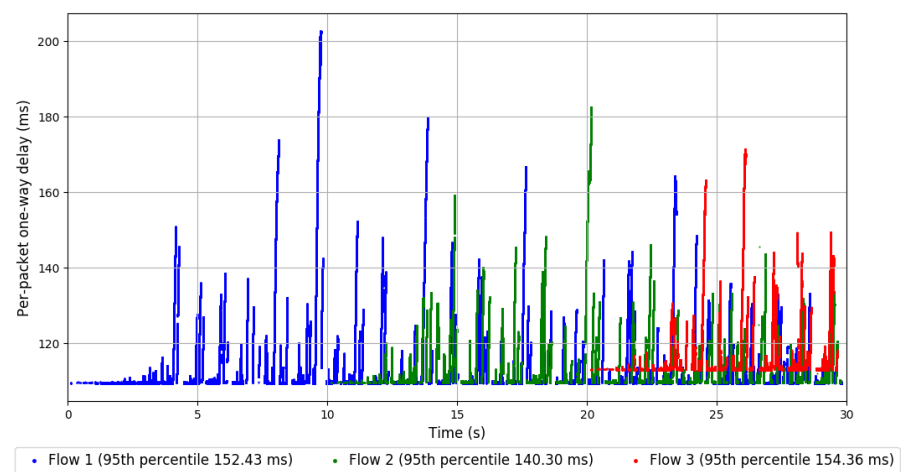
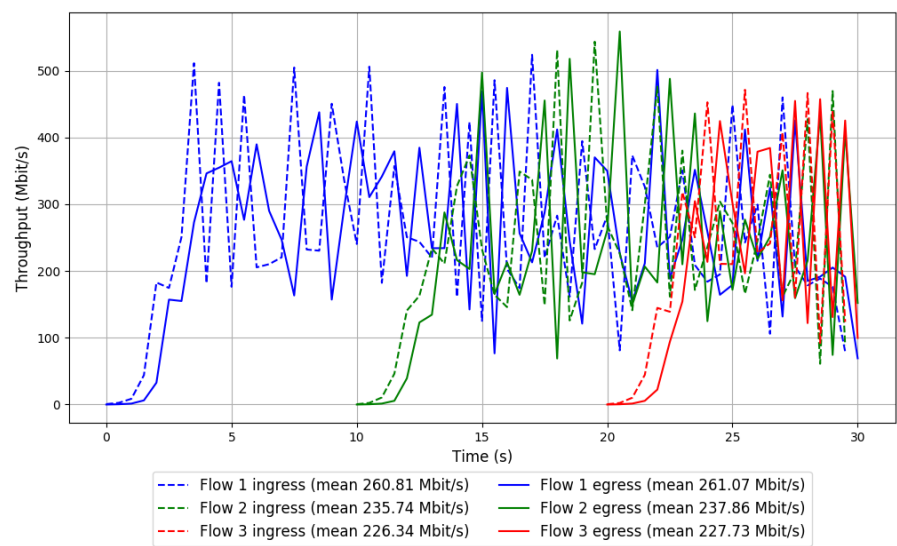
-- Flow 3:

Average throughput: 227.73 Mbit/s

95th percentile per-packet one-way delay: 154.357 ms

Loss rate: 1.93%

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

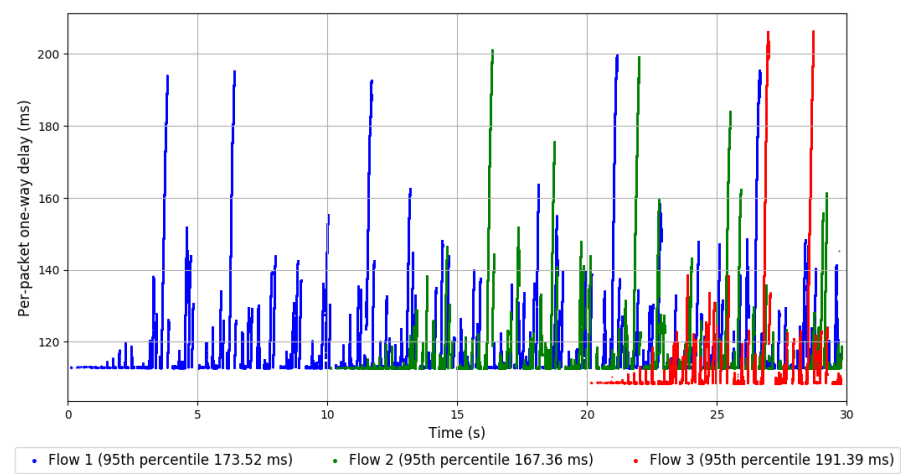
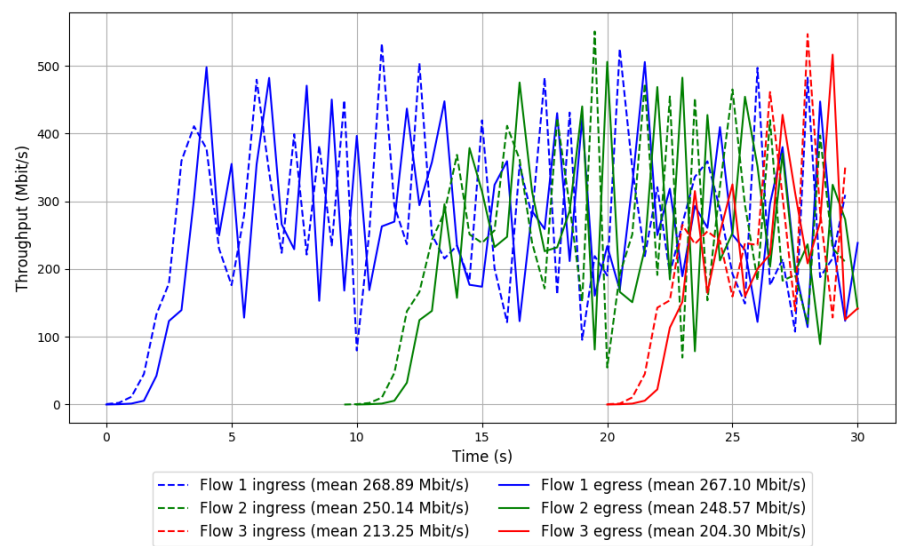


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-02 23:16:11  
End at: 2018-11-02 23:16:41  
Local clock offset: 0.18 ms  
Remote clock offset: -0.067 ms

# Below is generated by plot.py at 2018-11-03 01:34:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 497.62 Mbit/s  
95th percentile per-packet one-way delay: 173.152 ms  
Loss rate: 2.15%  
-- Flow 1:  
Average throughput: 267.10 Mbit/s  
95th percentile per-packet one-way delay: 173.522 ms  
Loss rate: 1.56%  
-- Flow 2:  
Average throughput: 248.57 Mbit/s  
95th percentile per-packet one-way delay: 167.361 ms  
Loss rate: 1.33%  
-- Flow 3:  
Average throughput: 204.30 Mbit/s  
95th percentile per-packet one-way delay: 191.386 ms  
Loss rate: 6.34%

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





Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-02 23:48:21

End at: 2018-11-02 23:48:51

Local clock offset: -0.115 ms

Remote clock offset: 0.285 ms

# Below is generated by plot.py at 2018-11-03 01:34:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 522.81 Mbit/s

95th percentile per-packet one-way delay: 153.411 ms

Loss rate: 1.26%

-- Flow 1:

Average throughput: 279.58 Mbit/s

95th percentile per-packet one-way delay: 156.840 ms

Loss rate: 0.69%

-- Flow 2:

Average throughput: 265.88 Mbit/s

95th percentile per-packet one-way delay: 154.715 ms

Loss rate: 0.98%

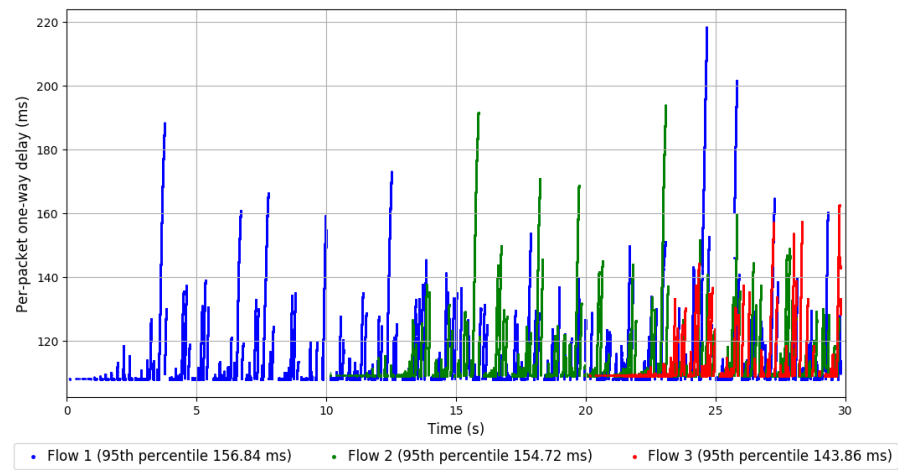
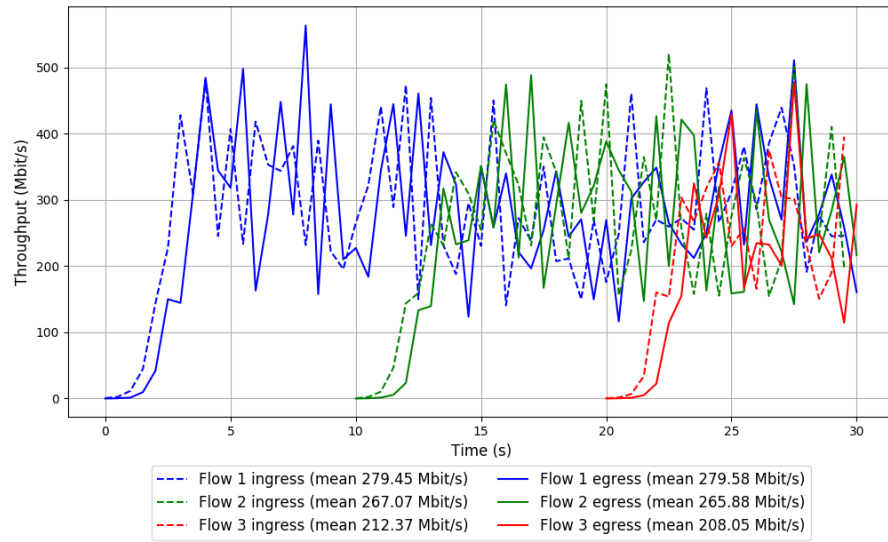
-- Flow 3:

Average throughput: 208.05 Mbit/s

95th percentile per-packet one-way delay: 143.857 ms

Loss rate: 4.24%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-03 00:20:43

End at: 2018-11-03 00:21:13

Local clock offset: -0.249 ms

Remote clock offset: 0.02 ms

# Below is generated by plot.py at 2018-11-03 01:34:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 501.27 Mbit/s

95th percentile per-packet one-way delay: 171.261 ms

Loss rate: 1.78%

-- Flow 1:

Average throughput: 267.27 Mbit/s

95th percentile per-packet one-way delay: 175.690 ms

Loss rate: 1.11%

-- Flow 2:

Average throughput: 248.32 Mbit/s

95th percentile per-packet one-way delay: 154.874 ms

Loss rate: 1.75%

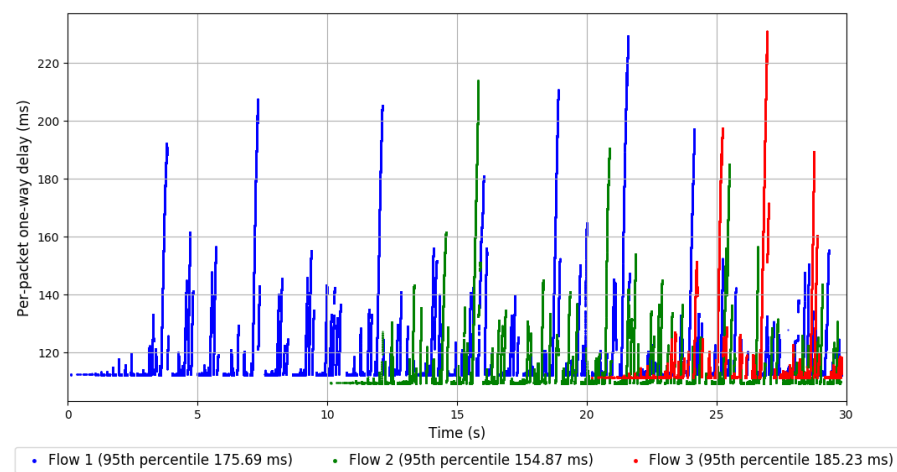
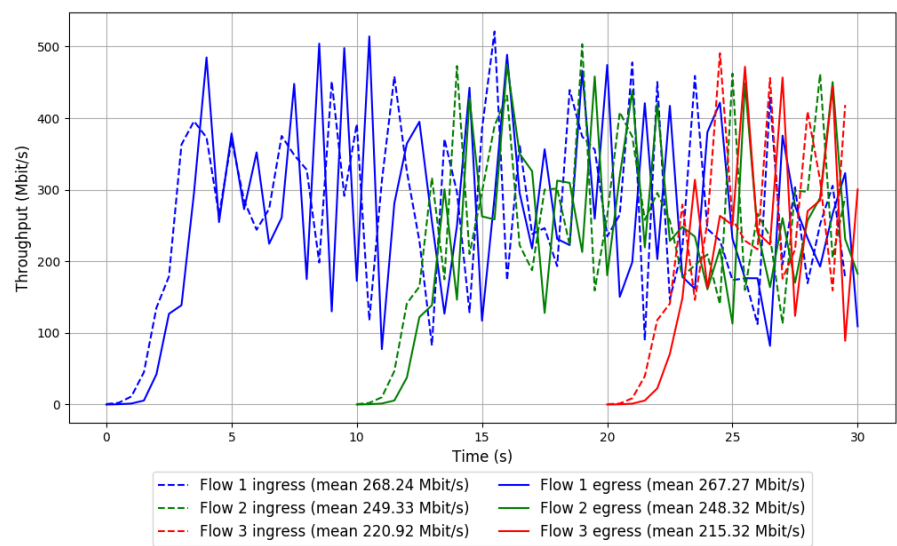
-- Flow 3:

Average throughput: 215.32 Mbit/s

95th percentile per-packet one-way delay: 185.233 ms

Loss rate: 4.34%

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

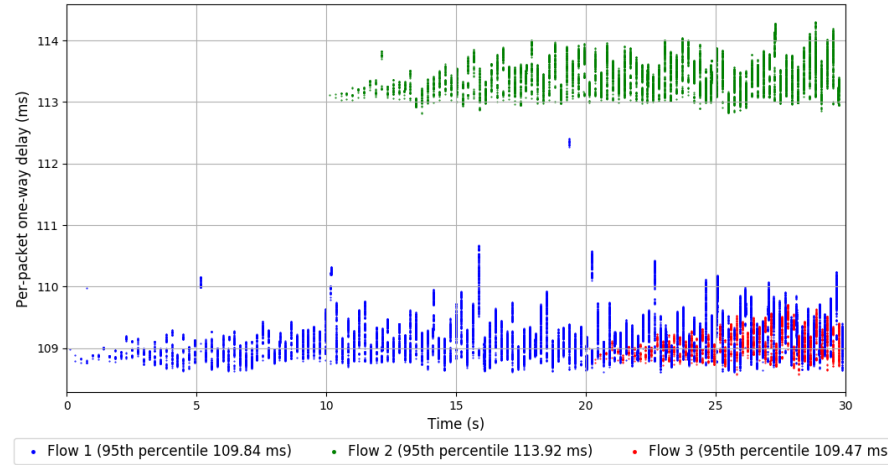
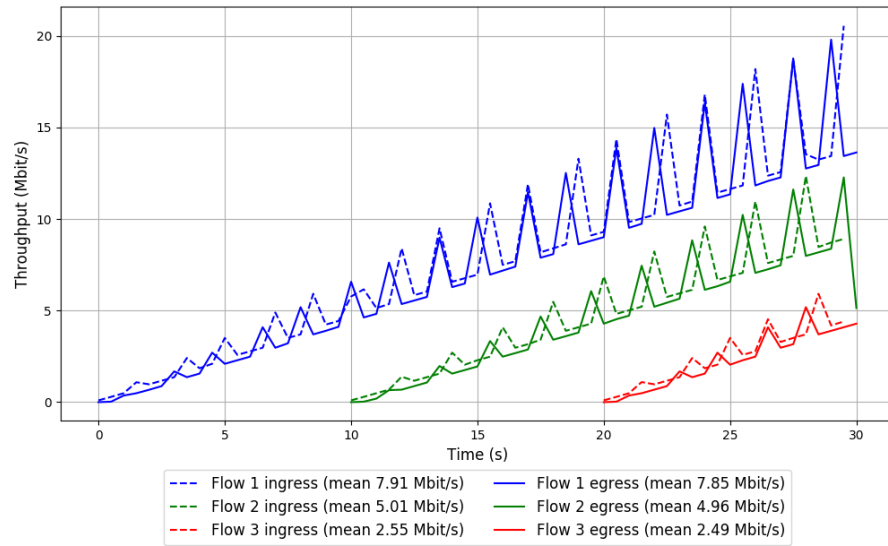


```
Run 1: Statistics of LEDBAT

Start at: 2018-11-02 22:14:26
End at: 2018-11-02 22:14:56
Local clock offset: 0.405 ms
Remote clock offset: 0.178 ms

# Below is generated by plot.py at 2018-11-03 01:34:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.92 Mbit/s
95th percentile per-packet one-way delay: 113.682 ms
Loss rate: 1.89%
-- Flow 1:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 109.837 ms
Loss rate: 1.46%
-- Flow 2:
Average throughput: 4.96 Mbit/s
95th percentile per-packet one-way delay: 113.917 ms
Loss rate: 2.25%
-- Flow 3:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 109.472 ms
Loss rate: 4.46%
```

# Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-11-02 22:46:17

End at: 2018-11-02 22:46:47

Local clock offset: 0.008 ms

Remote clock offset: 0.081 ms

# Below is generated by plot.py at 2018-11-03 01:34:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.80 Mbit/s

95th percentile per-packet one-way delay: 113.428 ms

Loss rate: 1.90%

-- Flow 1:

Average throughput: 7.61 Mbit/s

95th percentile per-packet one-way delay: 113.521 ms

Loss rate: 1.48%

-- Flow 2:

Average throughput: 5.15 Mbit/s

95th percentile per-packet one-way delay: 110.242 ms

Loss rate: 2.20%

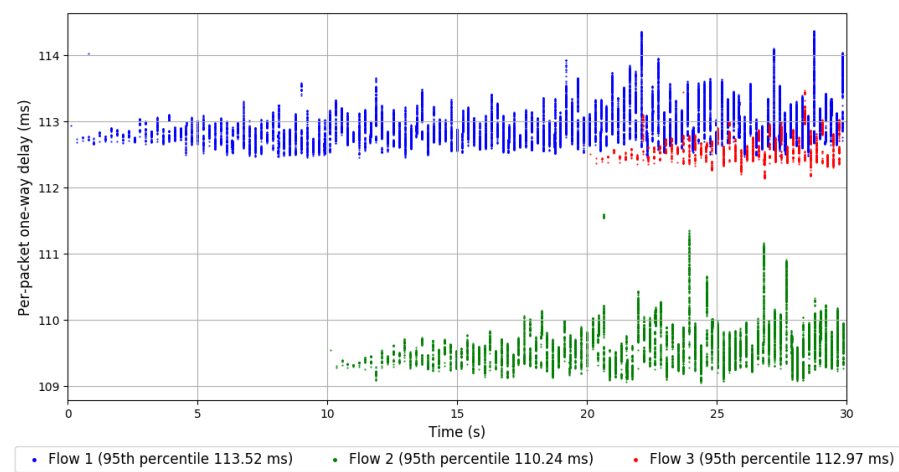
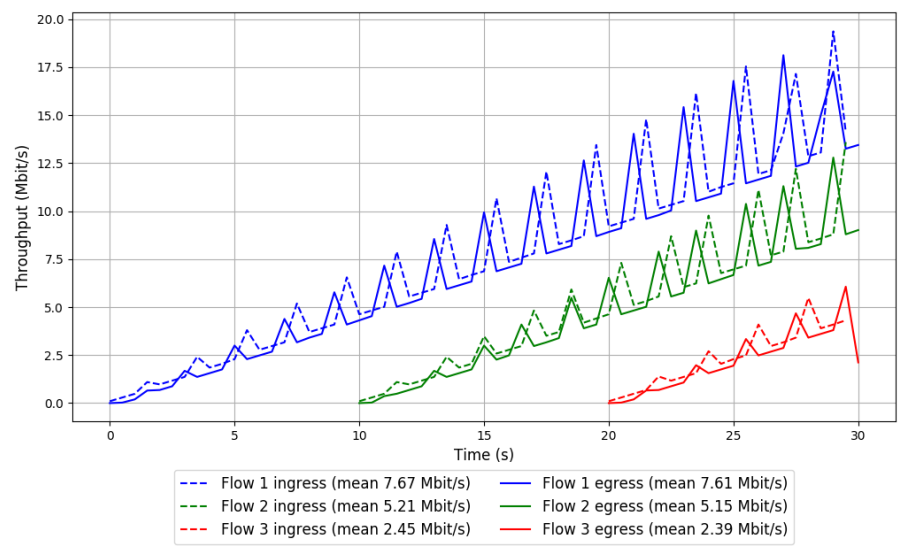
-- Flow 3:

Average throughput: 2.39 Mbit/s

95th percentile per-packet one-way delay: 112.968 ms

Loss rate: 4.57%

Run 2: Report of LEDBAT — Data Link



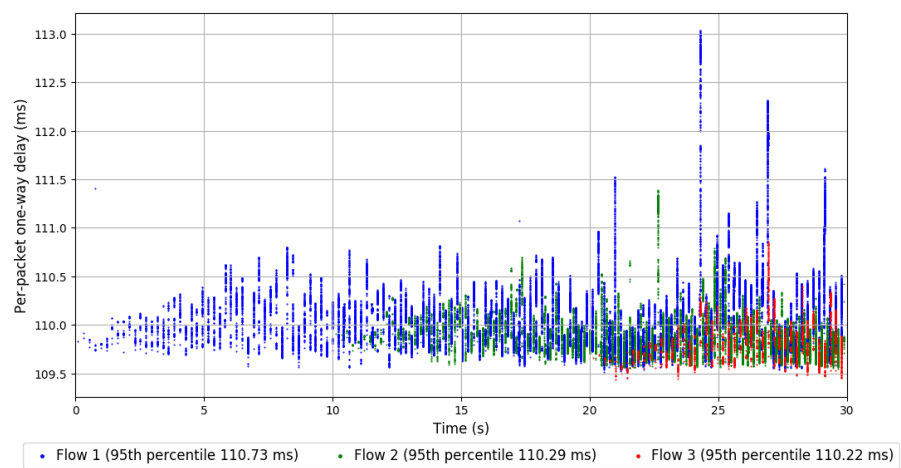
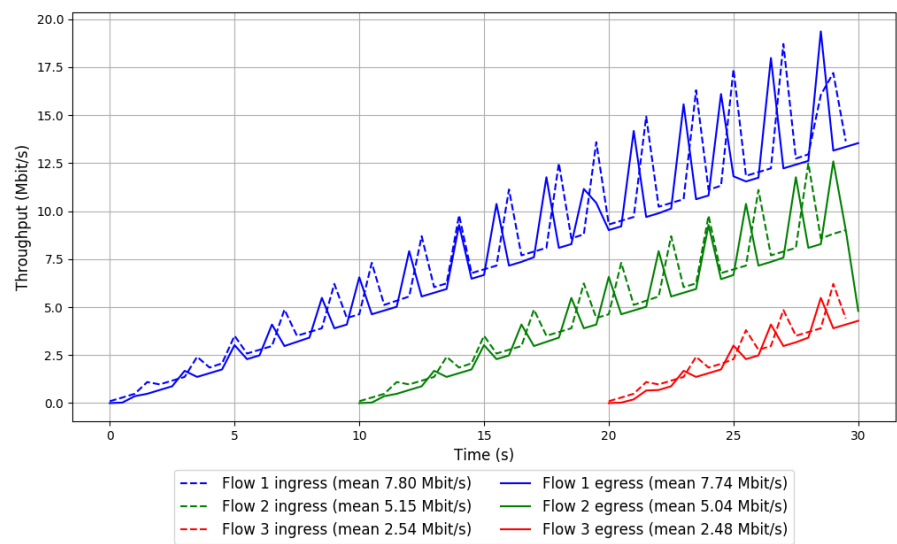


Run 3: Statistics of LEDBAT

Start at: 2018-11-02 23:17:57  
End at: 2018-11-02 23:18:27  
Local clock offset: 0.1 ms  
Remote clock offset: -0.046 ms

# Below is generated by plot.py at 2018-11-03 01:34:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 11.87 Mbit/s  
95th percentile per-packet one-way delay: 110.597 ms  
Loss rate: 1.85%  
-- Flow 1:  
Average throughput: 7.74 Mbit/s  
95th percentile per-packet one-way delay: 110.731 ms  
Loss rate: 1.47%  
-- Flow 2:  
Average throughput: 5.04 Mbit/s  
95th percentile per-packet one-way delay: 110.289 ms  
Loss rate: 2.07%  
-- Flow 3:  
Average throughput: 2.48 Mbit/s  
95th percentile per-packet one-way delay: 110.225 ms  
Loss rate: 4.46%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-11-02 23:50:10

End at: 2018-11-02 23:50:40

Local clock offset: -0.18 ms

Remote clock offset: -0.04 ms

# Below is generated by plot.py at 2018-11-03 01:34:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 12.08 Mbit/s

95th percentile per-packet one-way delay: 109.779 ms

Loss rate: 1.88%

-- Flow 1:

Average throughput: 7.86 Mbit/s

95th percentile per-packet one-way delay: 109.043 ms

Loss rate: 1.46%

-- Flow 2:

Average throughput: 5.16 Mbit/s

95th percentile per-packet one-way delay: 109.818 ms

Loss rate: 2.20%

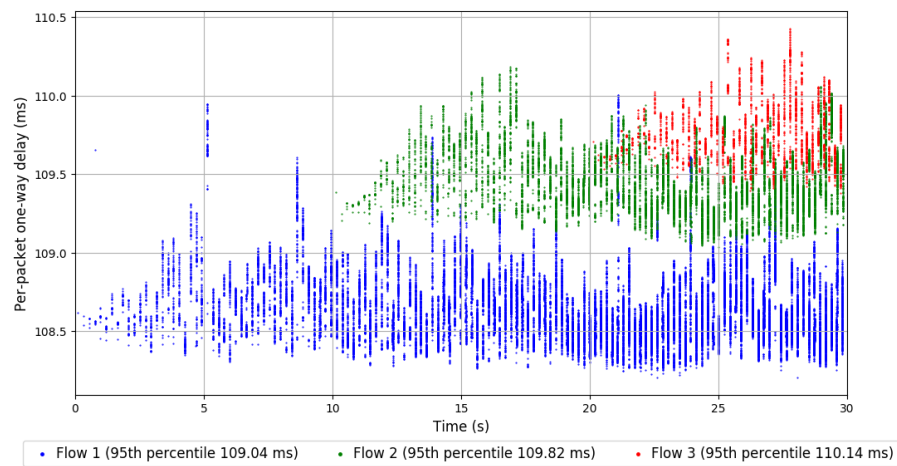
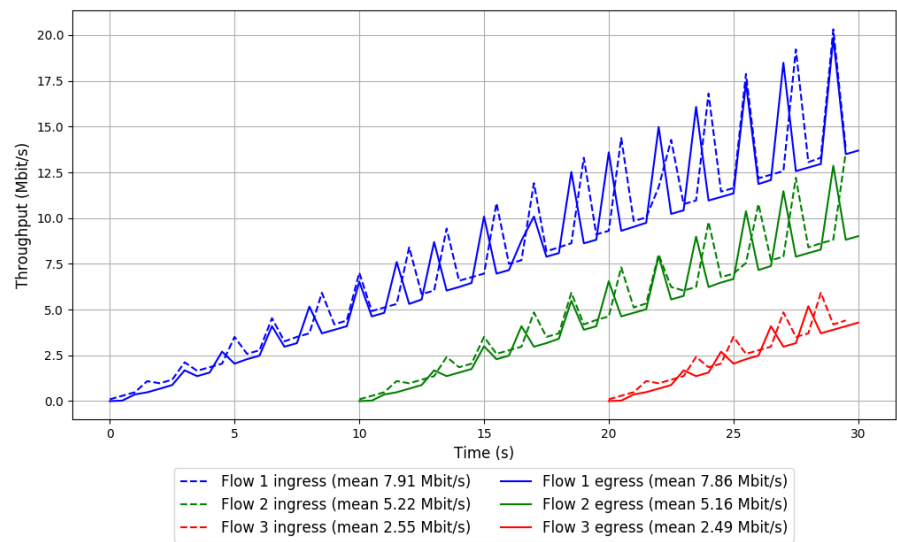
-- Flow 3:

Average throughput: 2.49 Mbit/s

95th percentile per-packet one-way delay: 110.142 ms

Loss rate: 4.46%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-11-03 00:22:31

End at: 2018-11-03 00:23:01

Local clock offset: -0.809 ms

Remote clock offset: 0.046 ms

# Below is generated by plot.py at 2018-11-03 01:34:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.94 Mbit/s

95th percentile per-packet one-way delay: 112.591 ms

Loss rate: 1.89%

-- Flow 1:

Average throughput: 7.86 Mbit/s

95th percentile per-packet one-way delay: 109.508 ms

Loss rate: 1.46%

-- Flow 2:

Average throughput: 4.96 Mbit/s

95th percentile per-packet one-way delay: 112.944 ms

Loss rate: 2.25%

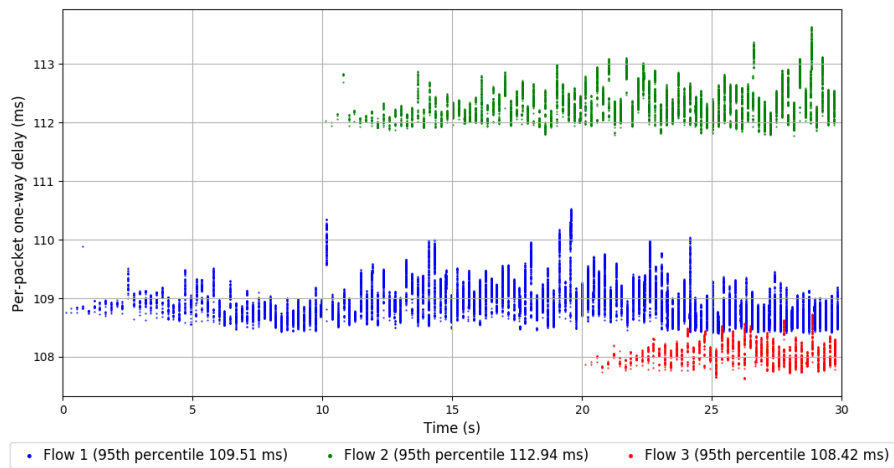
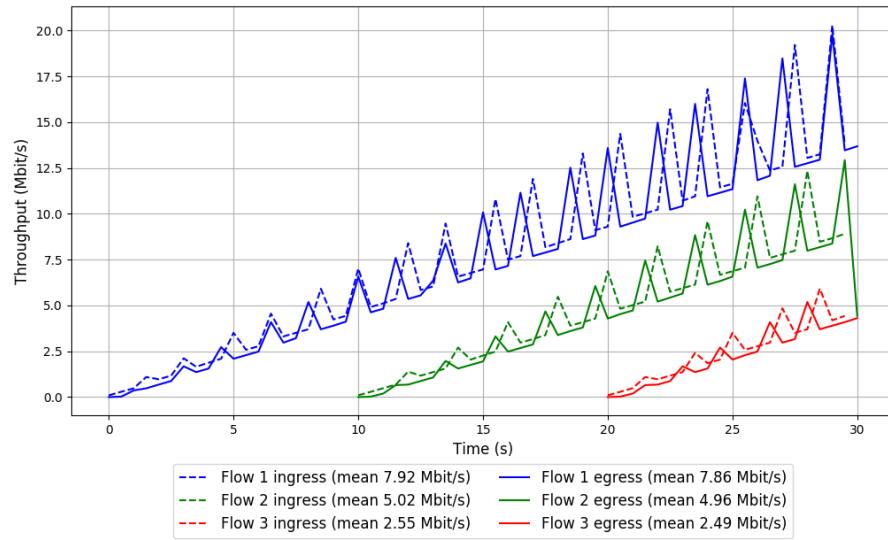
-- Flow 3:

Average throughput: 2.49 Mbit/s

95th percentile per-packet one-way delay: 108.422 ms

Loss rate: 4.46%

## Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-11-02 21:59:08

End at: 2018-11-02 21:59:38

Local clock offset: 0.324 ms

Remote clock offset: 0.42 ms

# Below is generated by plot.py at 2018-11-03 01:50:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 974.05 Mbit/s

95th percentile per-packet one-way delay: 187.107 ms

Loss rate: 1.67%

-- Flow 1:

Average throughput: 565.20 Mbit/s

95th percentile per-packet one-way delay: 171.512 ms

Loss rate: 1.19%

-- Flow 2:

Average throughput: 458.87 Mbit/s

95th percentile per-packet one-way delay: 193.503 ms

Loss rate: 1.68%

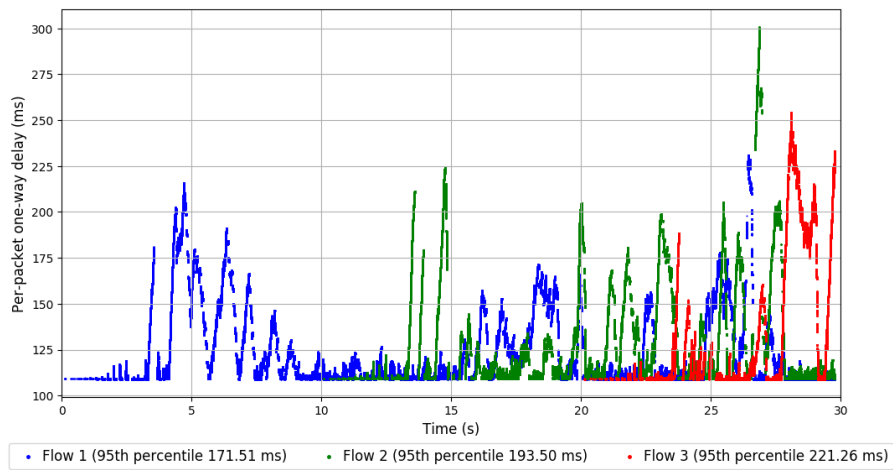
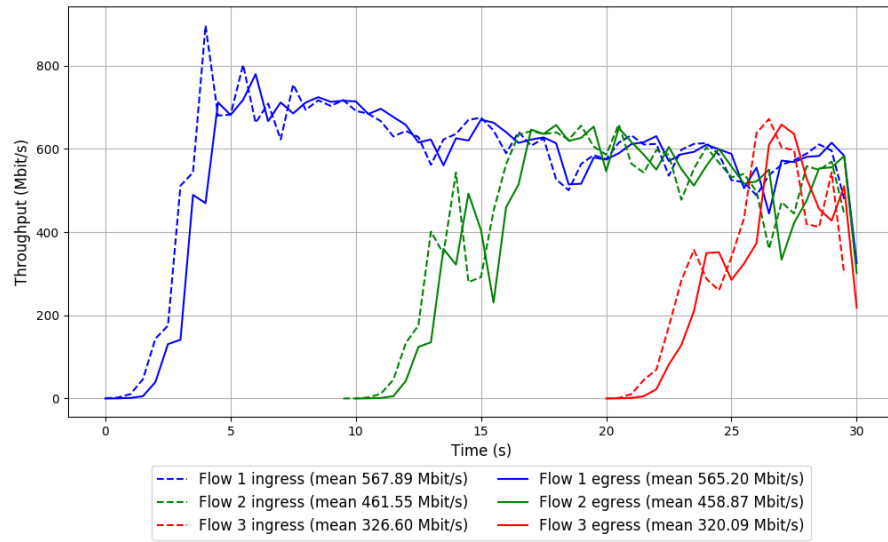
-- Flow 3:

Average throughput: 320.09 Mbit/s

95th percentile per-packet one-way delay: 221.256 ms

Loss rate: 4.16%

## Run 1: Report of Indigo-Muses — Data Link





Run 2: Statistics of Indigo-Muses

Start at: 2018-11-02 22:31:02

End at: 2018-11-02 22:31:32

Local clock offset: -0.369 ms

Remote clock offset: 0.222 ms

# Below is generated by plot.py at 2018-11-03 01:51:54

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1031.41 Mbit/s

95th percentile per-packet one-way delay: 165.602 ms

Loss rate: 1.26%

-- Flow 1:

Average throughput: 567.75 Mbit/s

95th percentile per-packet one-way delay: 171.152 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 508.27 Mbit/s

95th percentile per-packet one-way delay: 157.190 ms

Loss rate: 1.27%

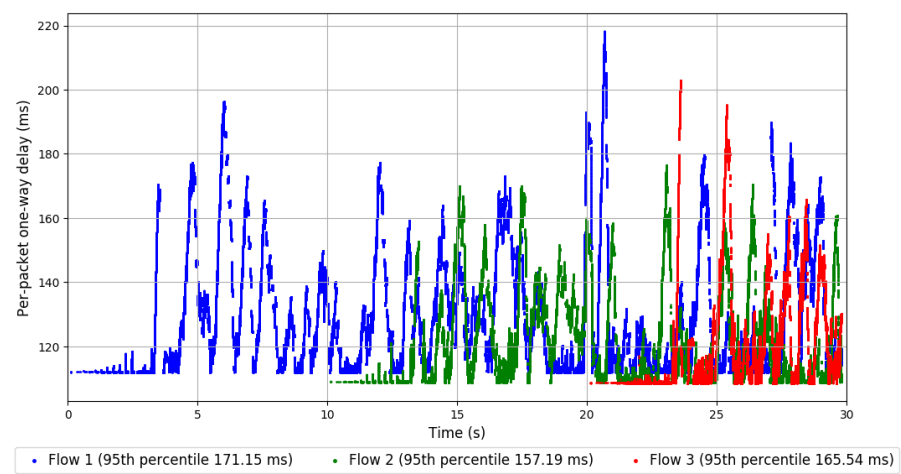
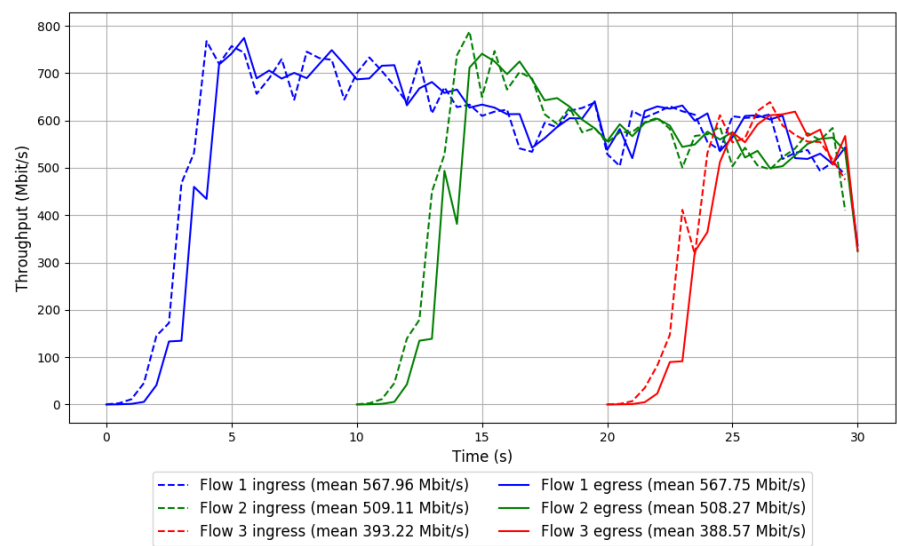
-- Flow 3:

Average throughput: 388.57 Mbit/s

95th percentile per-packet one-way delay: 165.545 ms

Loss rate: 3.32%

Run 2: Report of Indigo-Muses — Data Link



### Run 3: Statistics of Indigo-Muses

Start at: 2018-11-02 23:02:56

End at: 2018-11-02 23:03:27

Local clock offset: 0.401 ms

Remote clock offset: 0.017 ms

# Below is generated by plot.py at 2018-11-03 01:51:54

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1014.45 Mbit/s

95th percentile per-packet one-way delay: 155.830 ms

Loss rate: 1.27%

-- Flow 1:

Average throughput: 595.77 Mbit/s

95th percentile per-packet one-way delay: 154.759 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 465.83 Mbit/s

95th percentile per-packet one-way delay: 154.014 ms

Loss rate: 1.29%

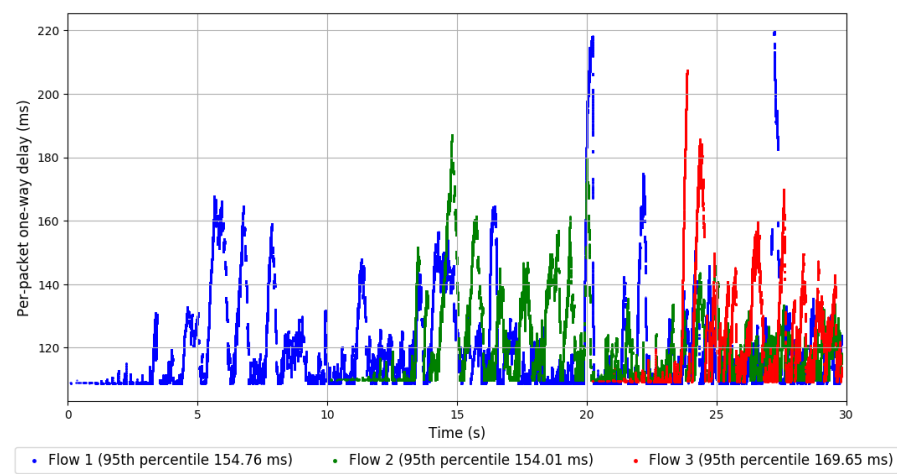
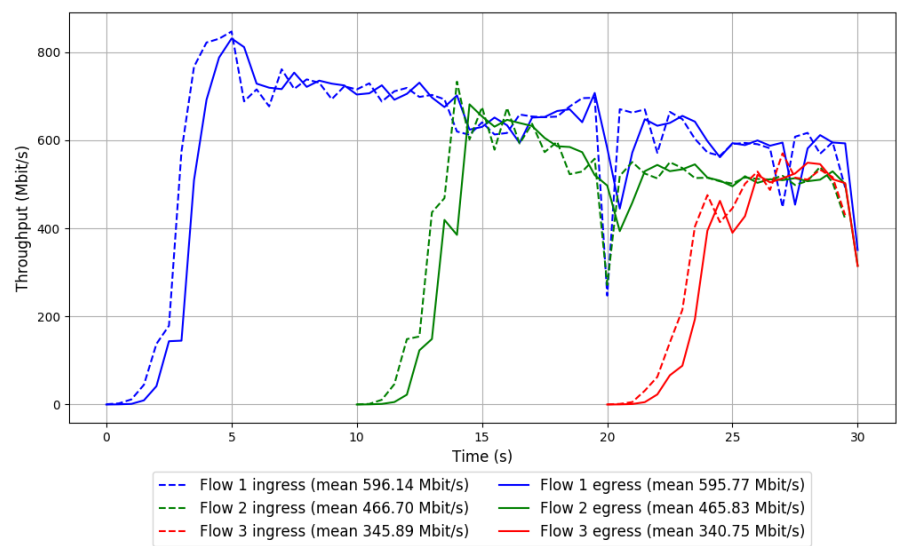
-- Flow 3:

Average throughput: 340.75 Mbit/s

95th percentile per-packet one-way delay: 169.649 ms

Loss rate: 3.68%

Run 3: Report of Indigo-Muses — Data Link

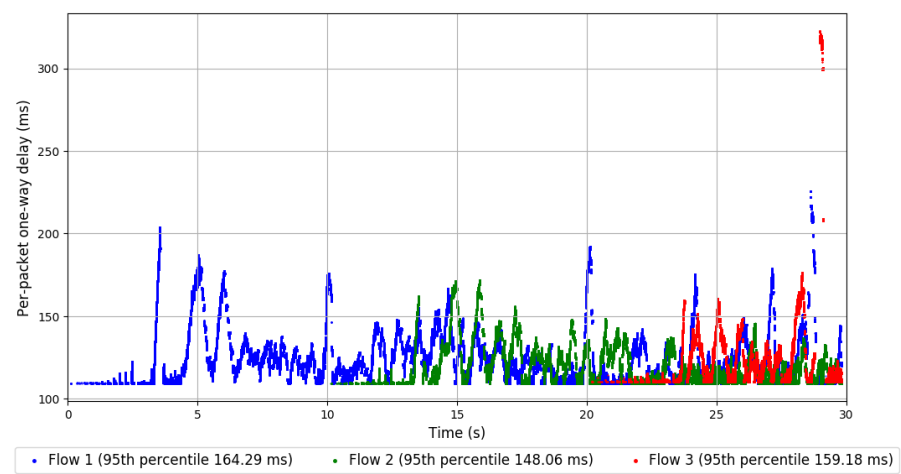
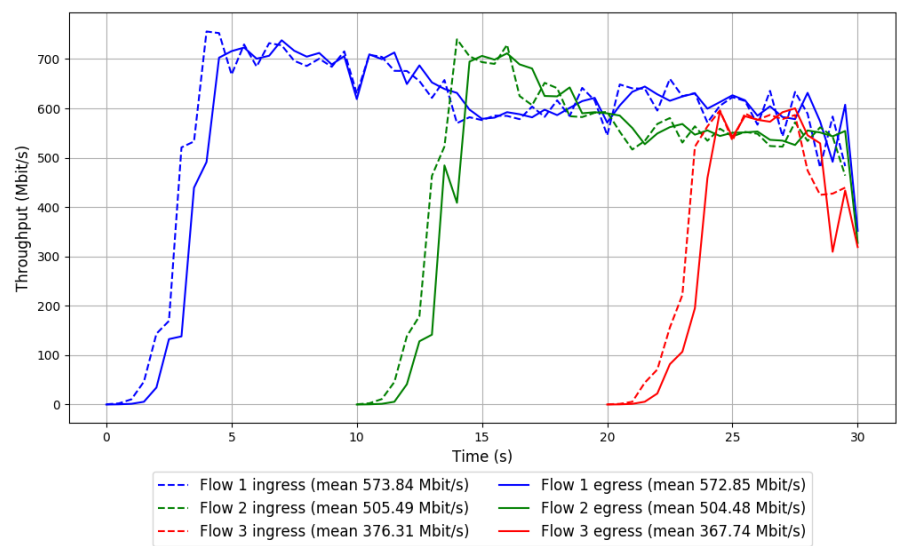


Run 4: Statistics of Indigo-Muses

Start at: 2018-11-02 23:34:42  
End at: 2018-11-02 23:35:12  
Local clock offset: -0.176 ms  
Remote clock offset: -0.067 ms

# Below is generated by plot.py at 2018-11-03 01:52:04  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1026.02 Mbit/s  
95th percentile per-packet one-way delay: 159.550 ms  
Loss rate: 1.46%  
-- Flow 1:  
Average throughput: 572.85 Mbit/s  
95th percentile per-packet one-way delay: 164.291 ms  
Loss rate: 0.90%  
-- Flow 2:  
Average throughput: 504.48 Mbit/s  
95th percentile per-packet one-way delay: 148.055 ms  
Loss rate: 1.30%  
-- Flow 3:  
Average throughput: 367.74 Mbit/s  
95th percentile per-packet one-way delay: 159.180 ms  
Loss rate: 4.46%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-03 00:07:01

End at: 2018-11-03 00:07:31

Local clock offset: -0.157 ms

Remote clock offset: 0.062 ms

# Below is generated by plot.py at 2018-11-03 01:52:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1009.22 Mbit/s

95th percentile per-packet one-way delay: 166.921 ms

Loss rate: 1.68%

-- Flow 1:

Average throughput: 572.48 Mbit/s

95th percentile per-packet one-way delay: 158.167 ms

Loss rate: 0.84%

-- Flow 2:

Average throughput: 503.75 Mbit/s

95th percentile per-packet one-way delay: 173.859 ms

Loss rate: 1.33%

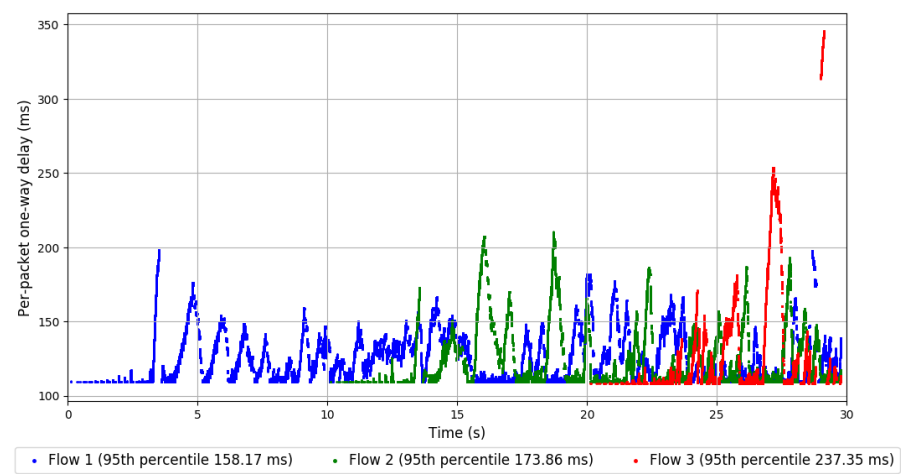
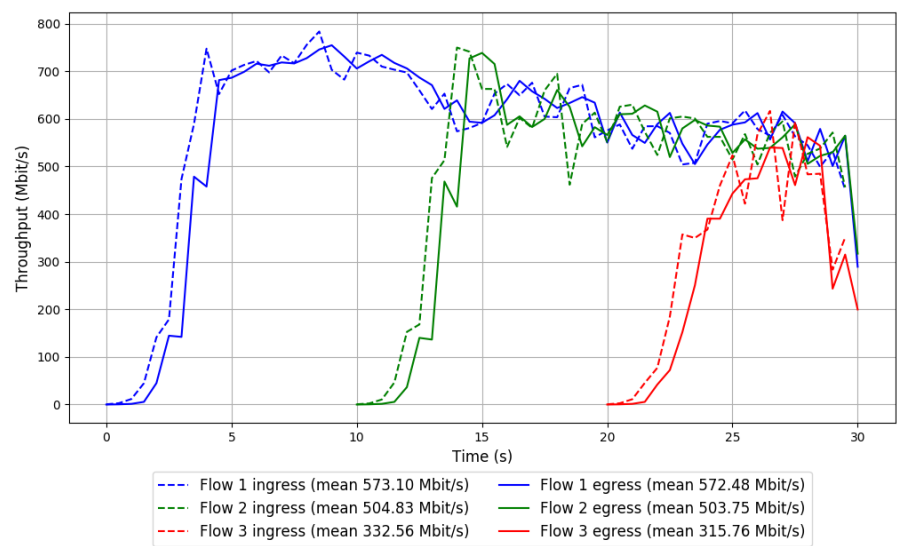
-- Flow 3:

Average throughput: 315.76 Mbit/s

95th percentile per-packet one-way delay: 237.349 ms

Loss rate: 7.17%

Run 5: Report of Indigo-Muses — Data Link



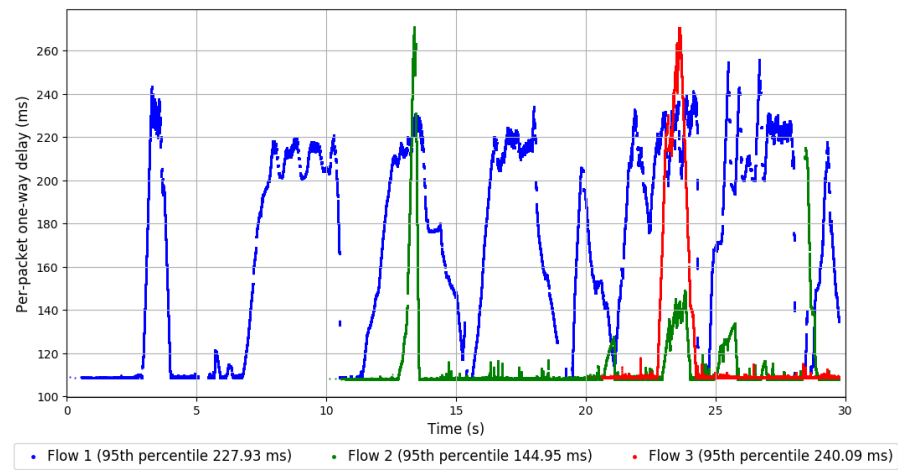
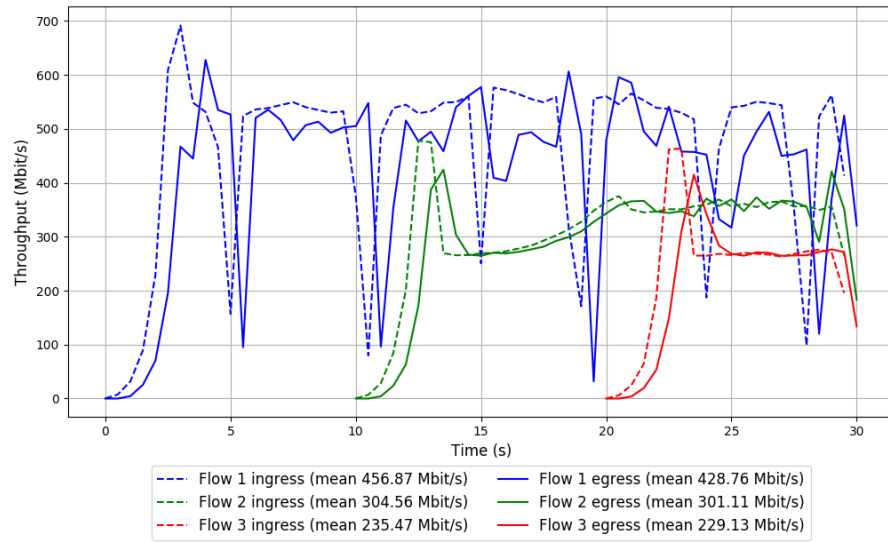


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-02 21:56:56
End at: 2018-11-02 21:57:26
Local clock offset: 0.415 ms
Remote clock offset: 0.724 ms

# Below is generated by plot.py at 2018-11-03 01:58:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 702.40 Mbit/s
95th percentile per-packet one-way delay: 226.385 ms
Loss rate: 5.37%
-- Flow 1:
Average throughput: 428.76 Mbit/s
95th percentile per-packet one-way delay: 227.929 ms
Loss rate: 6.84%
-- Flow 2:
Average throughput: 301.11 Mbit/s
95th percentile per-packet one-way delay: 144.950 ms
Loss rate: 2.22%
-- Flow 3:
Average throughput: 229.13 Mbit/s
95th percentile per-packet one-way delay: 240.088 ms
Loss rate: 4.87%
```

# Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-11-02 22:28:54

End at: 2018-11-02 22:29:24

Local clock offset: -0.373 ms

Remote clock offset: 0.18 ms

# Below is generated by plot.py at 2018-11-03 01:58:13

# Datalink statistics

-- Total of 3 flows:

Average throughput: 665.24 Mbit/s

95th percentile per-packet one-way delay: 245.144 ms

Loss rate: 7.78%

-- Flow 1:

Average throughput: 404.44 Mbit/s

95th percentile per-packet one-way delay: 254.034 ms

Loss rate: 10.67%

-- Flow 2:

Average throughput: 281.34 Mbit/s

95th percentile per-packet one-way delay: 140.214 ms

Loss rate: 2.17%

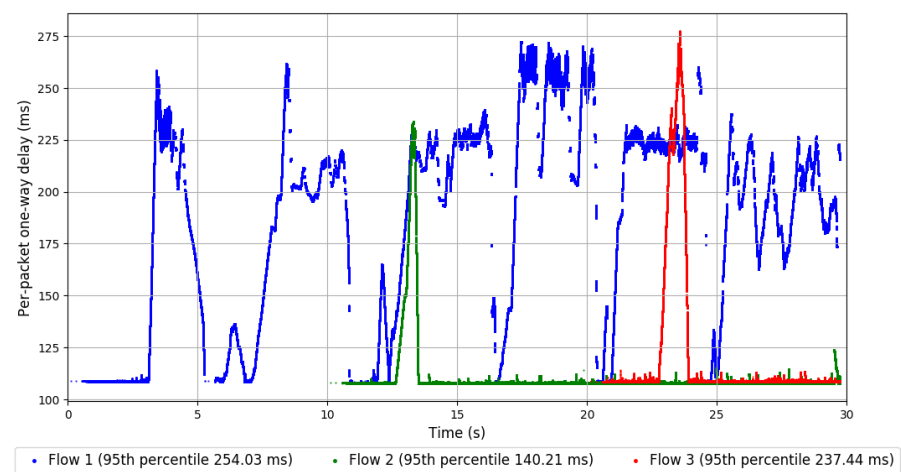
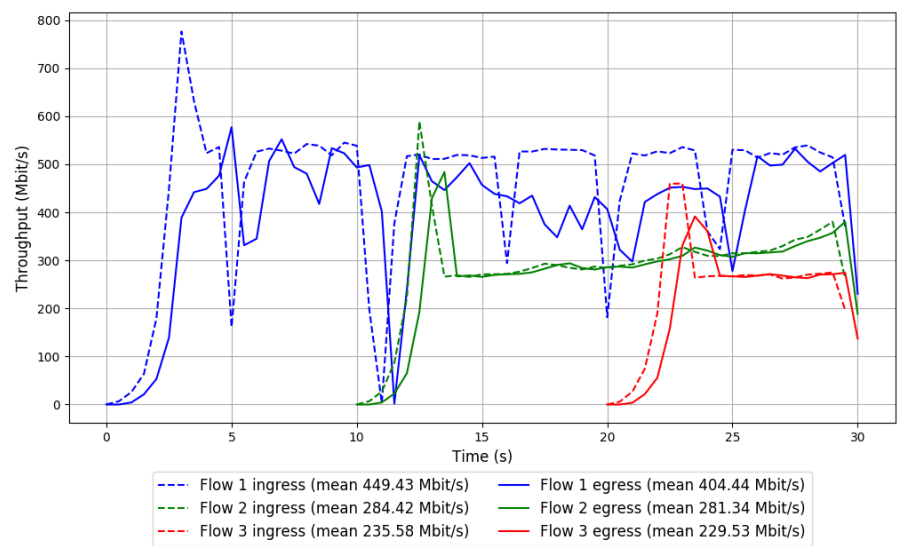
-- Flow 3:

Average throughput: 229.53 Mbit/s

95th percentile per-packet one-way delay: 237.439 ms

Loss rate: 4.74%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-11-02 23:00:46

End at: 2018-11-02 23:01:16

Local clock offset: 0.398 ms

Remote clock offset: 0.376 ms

# Below is generated by plot.py at 2018-11-03 01:59:07

# Datalink statistics

-- Total of 3 flows:

Average throughput: 693.66 Mbit/s

95th percentile per-packet one-way delay: 241.661 ms

Loss rate: 5.42%

-- Flow 1:

Average throughput: 413.23 Mbit/s

95th percentile per-packet one-way delay: 248.835 ms

Loss rate: 5.52%

-- Flow 2:

Average throughput: 285.13 Mbit/s

95th percentile per-packet one-way delay: 199.333 ms

Loss rate: 1.64%

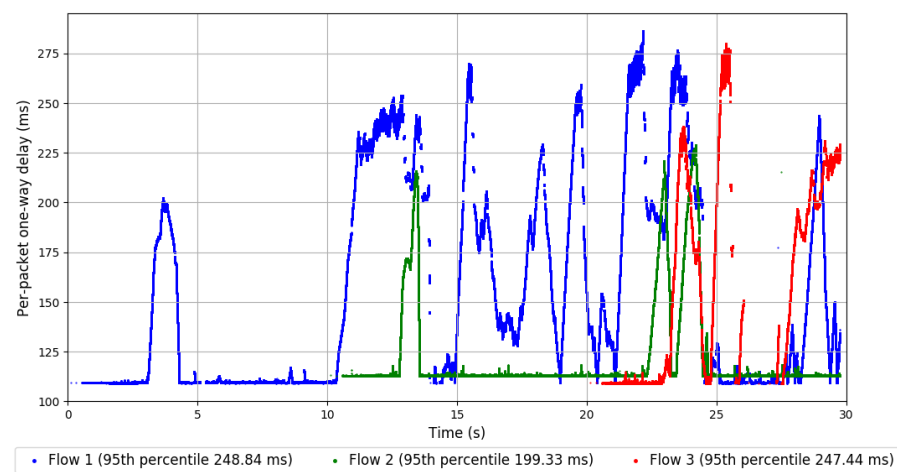
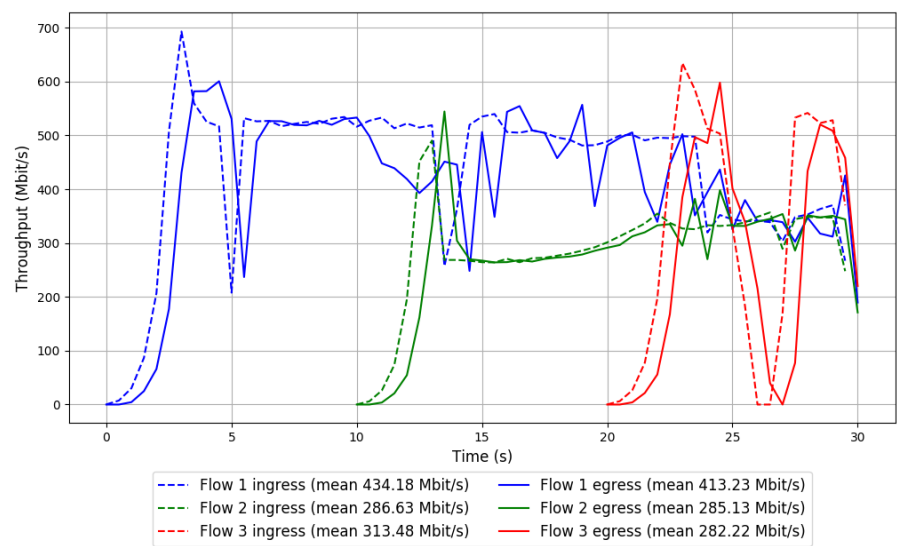
-- Flow 3:

Average throughput: 282.22 Mbit/s

95th percentile per-packet one-way delay: 247.441 ms

Loss rate: 11.98%

Run 3: Report of PCC-Allegro — Data Link

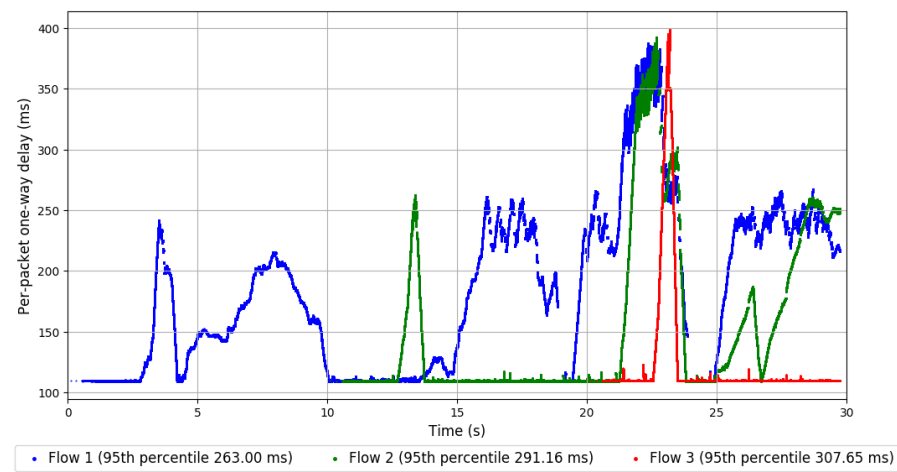
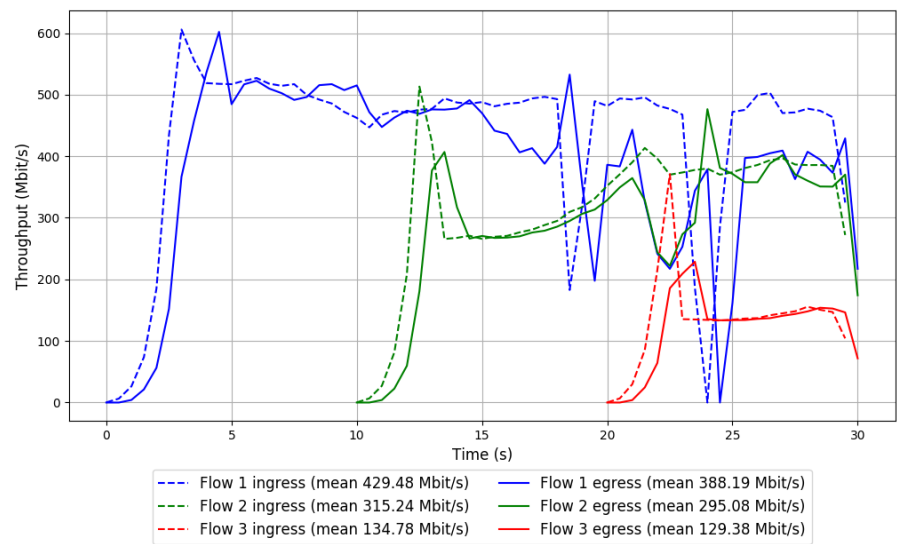


Run 4: Statistics of PCC-Allegro

Start at: 2018-11-02 23:32:36  
End at: 2018-11-02 23:33:06  
Local clock offset: 0.119 ms  
Remote clock offset: -0.095 ms

# Below is generated by plot.py at 2018-11-03 02:14:54  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 625.49 Mbit/s  
95th percentile per-packet one-way delay: 272.818 ms  
Loss rate: 9.13%  
-- Flow 1:  
Average throughput: 388.19 Mbit/s  
95th percentile per-packet one-way delay: 263.003 ms  
Loss rate: 10.28%  
-- Flow 2:  
Average throughput: 295.08 Mbit/s  
95th percentile per-packet one-way delay: 291.162 ms  
Loss rate: 7.42%  
-- Flow 3:  
Average throughput: 129.38 Mbit/s  
95th percentile per-packet one-way delay: 307.650 ms  
Loss rate: 6.16%

Run 4: Report of PCC-Allegro — Data Link



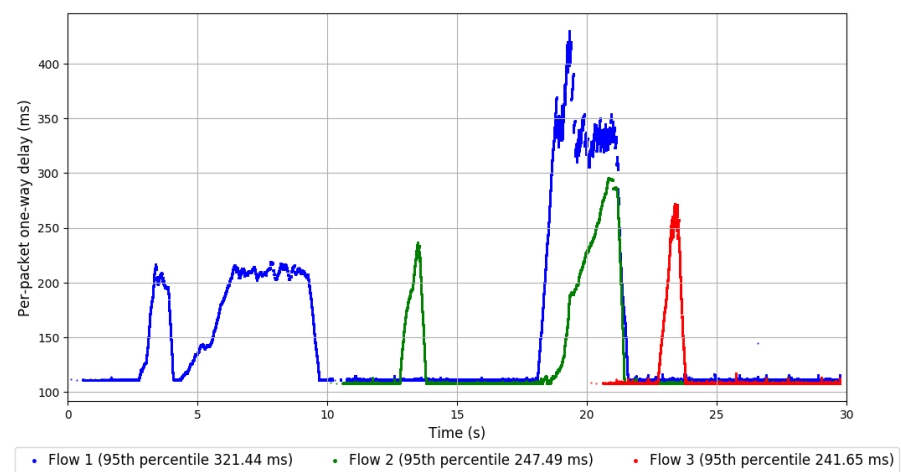
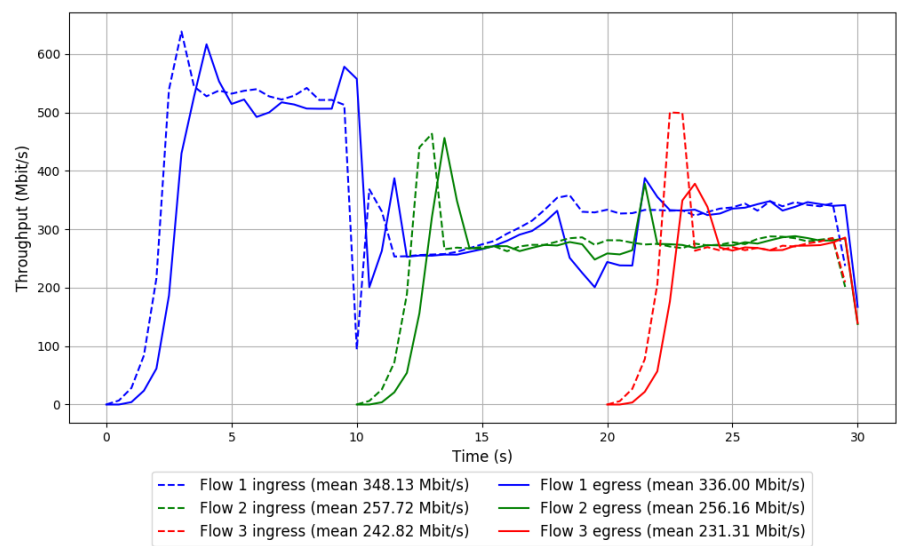


Run 5: Statistics of PCC-Allegro

Start at: 2018-11-03 00:05:00  
End at: 2018-11-03 00:05:30  
Local clock offset: -0.321 ms  
Remote clock offset: -0.006 ms

# Below is generated by plot.py at 2018-11-03 02:14:54  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 580.56 Mbit/s  
95th percentile per-packet one-way delay: 260.679 ms  
Loss rate: 3.85%  
-- Flow 1:  
Average throughput: 336.00 Mbit/s  
95th percentile per-packet one-way delay: 321.444 ms  
Loss rate: 4.21%  
-- Flow 2:  
Average throughput: 256.16 Mbit/s  
95th percentile per-packet one-way delay: 247.494 ms  
Loss rate: 1.71%  
-- Flow 3:  
Average throughput: 231.31 Mbit/s  
95th percentile per-packet one-way delay: 241.649 ms  
Loss rate: 6.89%

Run 5: Report of PCC-Allegro — Data Link

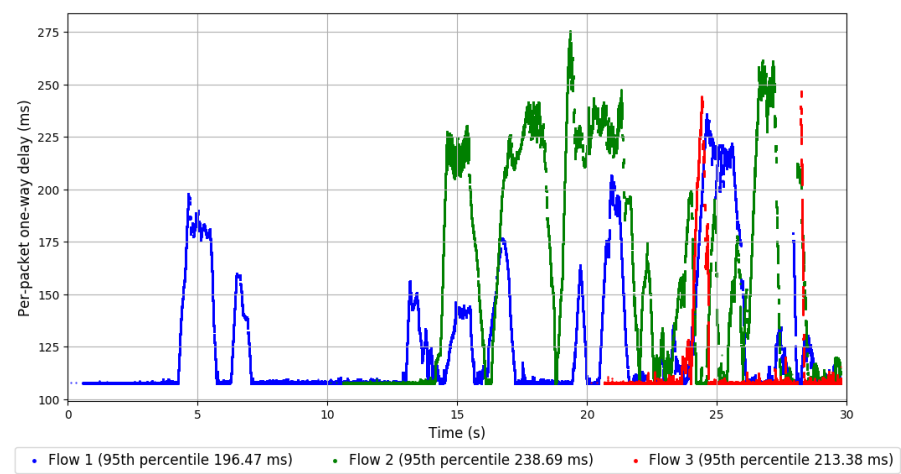
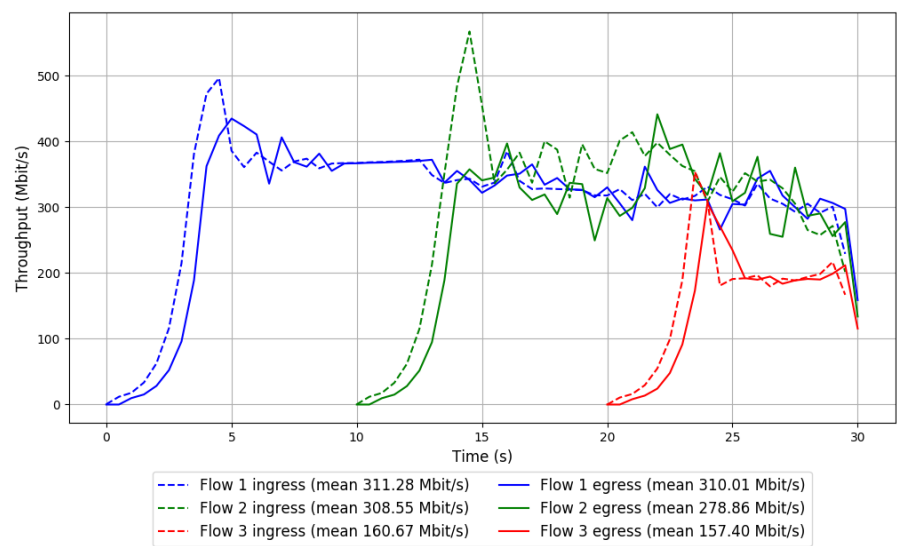


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-02 21:54:41
End at: 2018-11-02 21:55:11
Local clock offset: -0.962 ms
Remote clock offset: 0.321 ms

# Below is generated by plot.py at 2018-11-03 02:14:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 545.76 Mbit/s
95th percentile per-packet one-way delay: 227.024 ms
Loss rate: 4.83%
-- Flow 1:
Average throughput: 310.01 Mbit/s
95th percentile per-packet one-way delay: 196.475 ms
Loss rate: 1.14%
-- Flow 2:
Average throughput: 278.86 Mbit/s
95th percentile per-packet one-way delay: 238.693 ms
Loss rate: 10.60%
-- Flow 3:
Average throughput: 157.40 Mbit/s
95th percentile per-packet one-way delay: 213.384 ms
Loss rate: 4.19%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-11-02 22:26:43

End at: 2018-11-02 22:27:13

Local clock offset: 1.585 ms

Remote clock offset: 0.569 ms

# Below is generated by plot.py at 2018-11-03 02:14:54

# Datalink statistics

-- Total of 3 flows:

Average throughput: 523.89 Mbit/s

95th percentile per-packet one-way delay: 216.919 ms

Loss rate: 3.62%

-- Flow 1:

Average throughput: 304.05 Mbit/s

95th percentile per-packet one-way delay: 207.333 ms

Loss rate: 2.63%

-- Flow 2:

Average throughput: 214.56 Mbit/s

95th percentile per-packet one-way delay: 143.070 ms

Loss rate: 1.81%

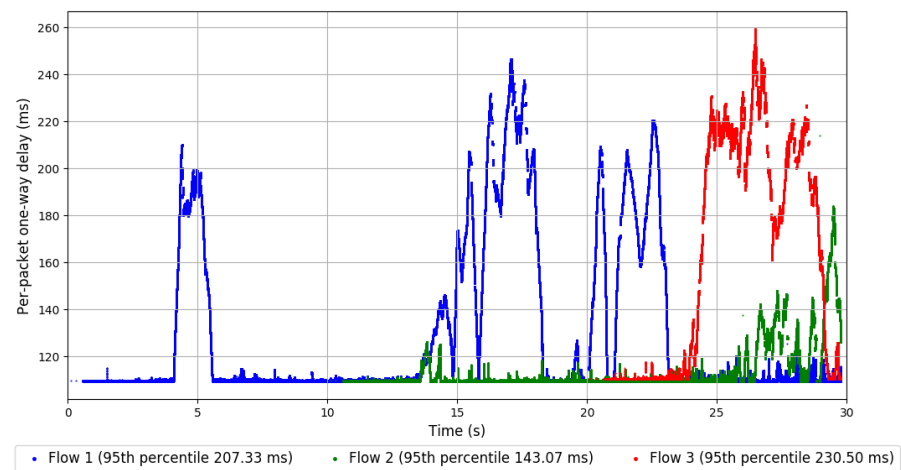
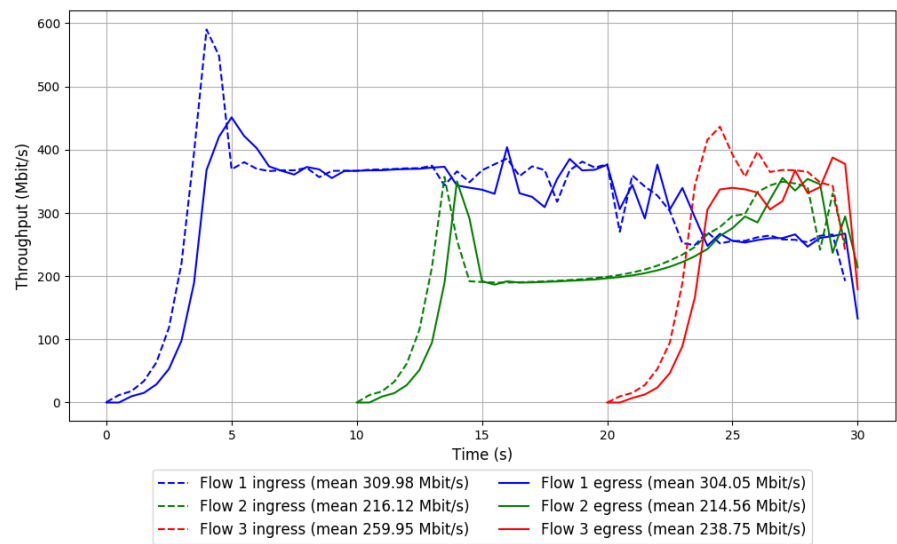
-- Flow 3:

Average throughput: 238.75 Mbit/s

95th percentile per-packet one-way delay: 230.501 ms

Loss rate: 10.20%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-11-02 22:58:38

End at: 2018-11-02 22:59:08

Local clock offset: 0.002 ms

Remote clock offset: 0.378 ms

# Below is generated by plot.py at 2018-11-03 02:14:54

# Datalink statistics

-- Total of 3 flows:

Average throughput: 490.34 Mbit/s

95th percentile per-packet one-way delay: 214.505 ms

Loss rate: 2.91%

-- Flow 1:

Average throughput: 311.12 Mbit/s

95th percentile per-packet one-way delay: 222.751 ms

Loss rate: 3.46%

-- Flow 2:

Average throughput: 194.25 Mbit/s

95th percentile per-packet one-way delay: 119.187 ms

Loss rate: 1.59%

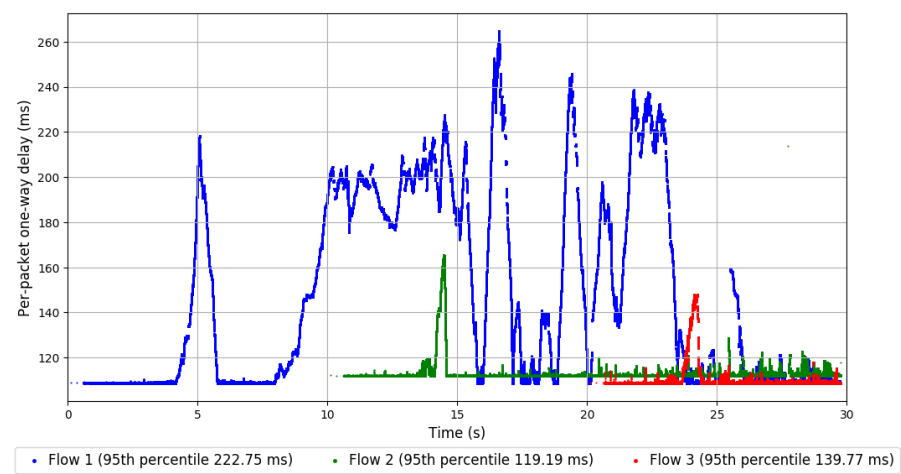
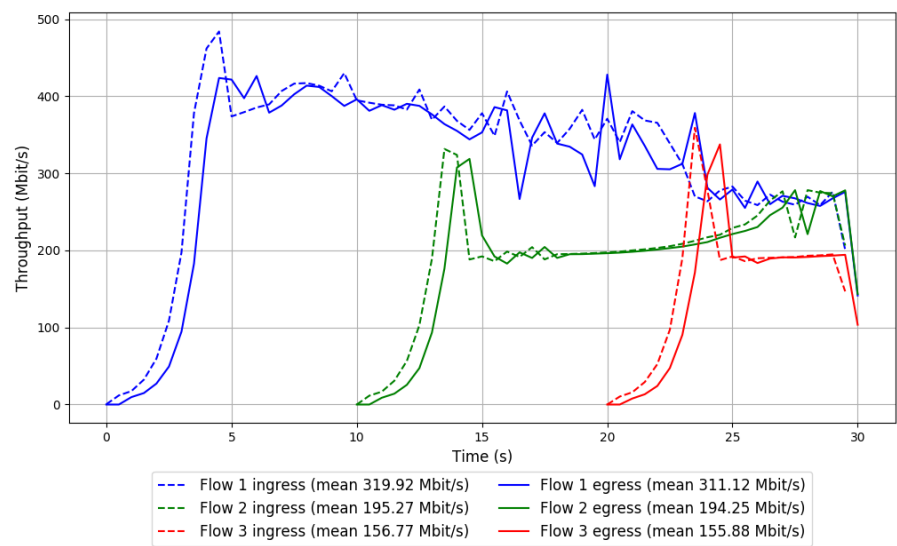
-- Flow 3:

Average throughput: 155.88 Mbit/s

95th percentile per-packet one-way delay: 139.768 ms

Loss rate: 2.79%

Run 3: Report of PCC-Expr — Data Link



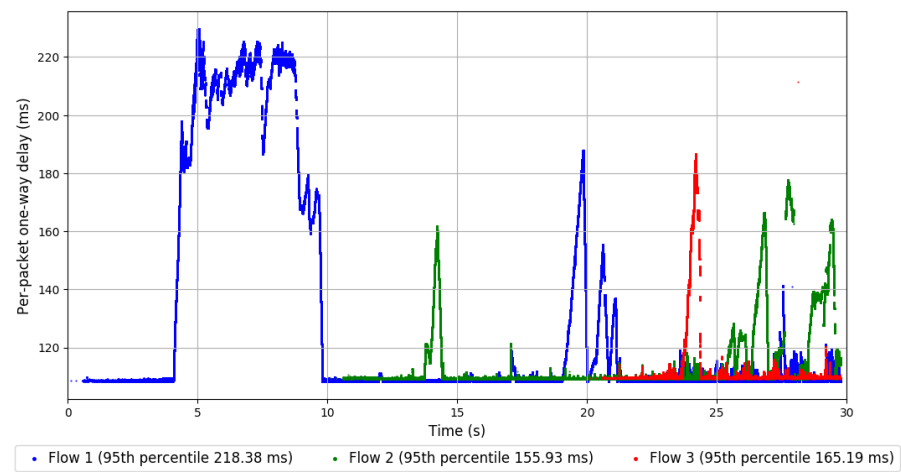
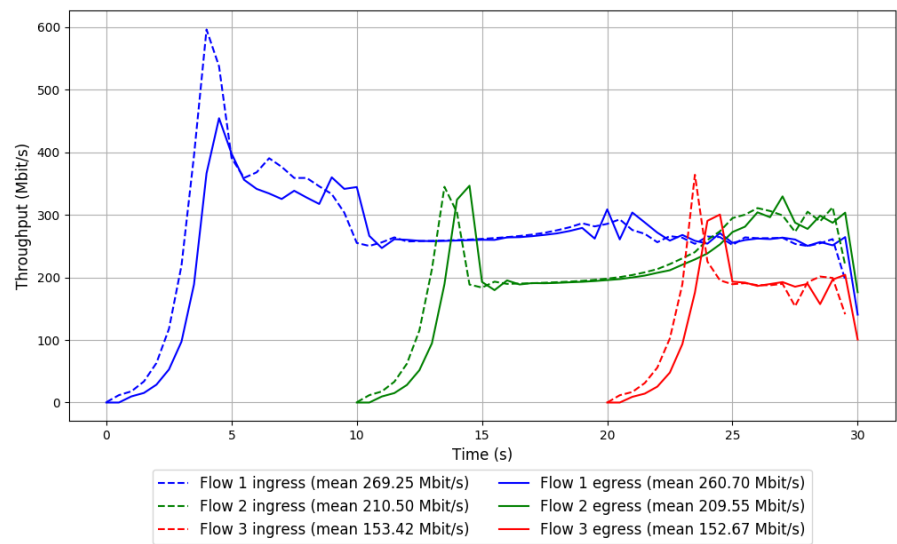


Run 4: Statistics of PCC-Expr

Start at: 2018-11-02 23:30:33  
End at: 2018-11-02 23:31:03  
Local clock offset: 0.028 ms  
Remote clock offset: -0.082 ms

# Below is generated by plot.py at 2018-11-03 02:14:54  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 449.18 Mbit/s  
95th percentile per-packet one-way delay: 214.660 ms  
Loss rate: 3.05%  
-- Flow 1:  
Average throughput: 260.70 Mbit/s  
95th percentile per-packet one-way delay: 218.375 ms  
Loss rate: 3.89%  
-- Flow 2:  
Average throughput: 209.55 Mbit/s  
95th percentile per-packet one-way delay: 155.933 ms  
Loss rate: 1.55%  
-- Flow 3:  
Average throughput: 152.67 Mbit/s  
95th percentile per-packet one-way delay: 165.187 ms  
Loss rate: 2.68%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-03 00:02:43

End at: 2018-11-03 00:03:13

Local clock offset: -0.72 ms

Remote clock offset: 0.039 ms

# Below is generated by plot.py at 2018-11-03 02:19:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 570.89 Mbit/s

95th percentile per-packet one-way delay: 221.280 ms

Loss rate: 4.93%

-- Flow 1:

Average throughput: 326.96 Mbit/s

95th percentile per-packet one-way delay: 213.074 ms

Loss rate: 2.60%

-- Flow 2:

Average throughput: 292.77 Mbit/s

95th percentile per-packet one-way delay: 229.753 ms

Loss rate: 9.10%

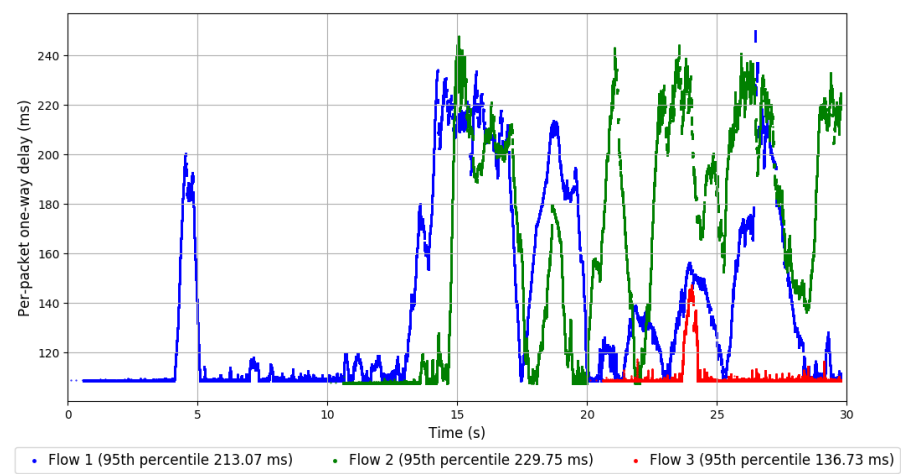
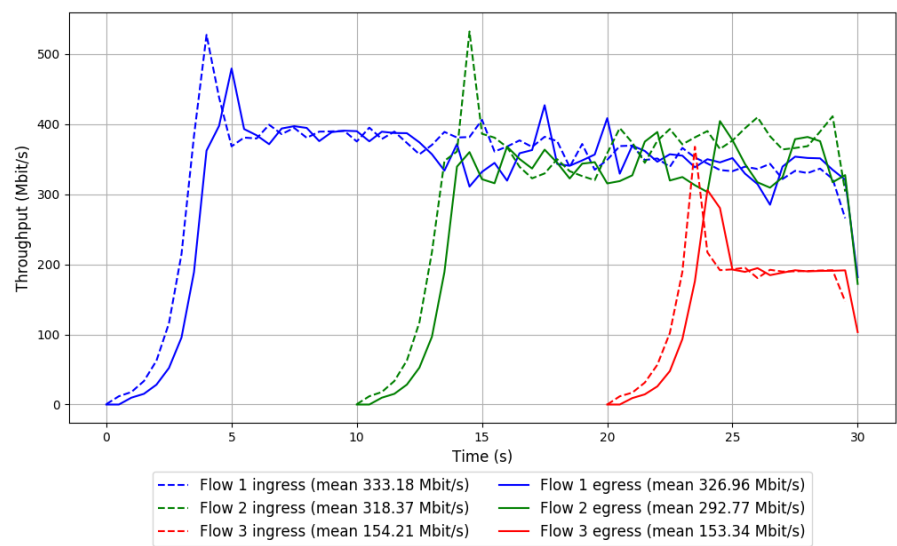
-- Flow 3:

Average throughput: 153.34 Mbit/s

95th percentile per-packet one-way delay: 136.732 ms

Loss rate: 2.81%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-11-02 22:08:18

End at: 2018-11-02 22:08:48

Local clock offset: -0.326 ms

Remote clock offset: 0.223 ms

# Below is generated by plot.py at 2018-11-03 02:19:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 101.95 Mbit/s

95th percentile per-packet one-way delay: 111.913 ms

Loss rate: 1.24%

-- Flow 1:

Average throughput: 55.48 Mbit/s

95th percentile per-packet one-way delay: 107.940 ms

Loss rate: 1.06%

-- Flow 2:

Average throughput: 50.04 Mbit/s

95th percentile per-packet one-way delay: 107.922 ms

Loss rate: 1.79%

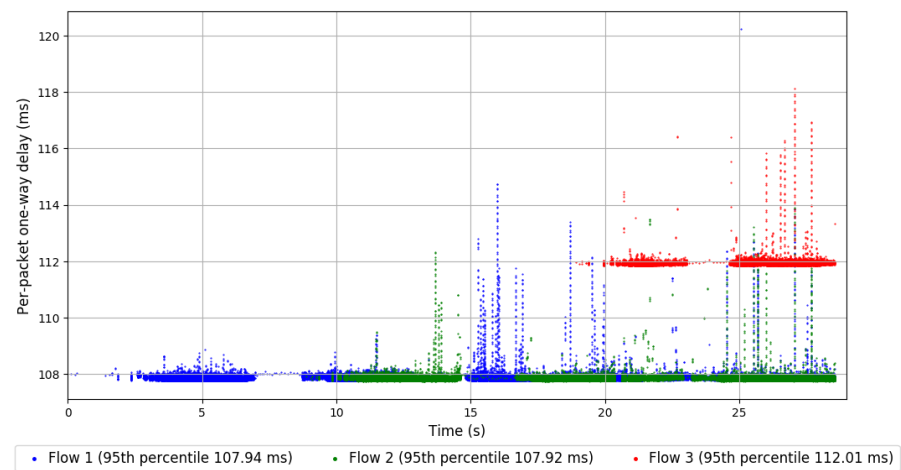
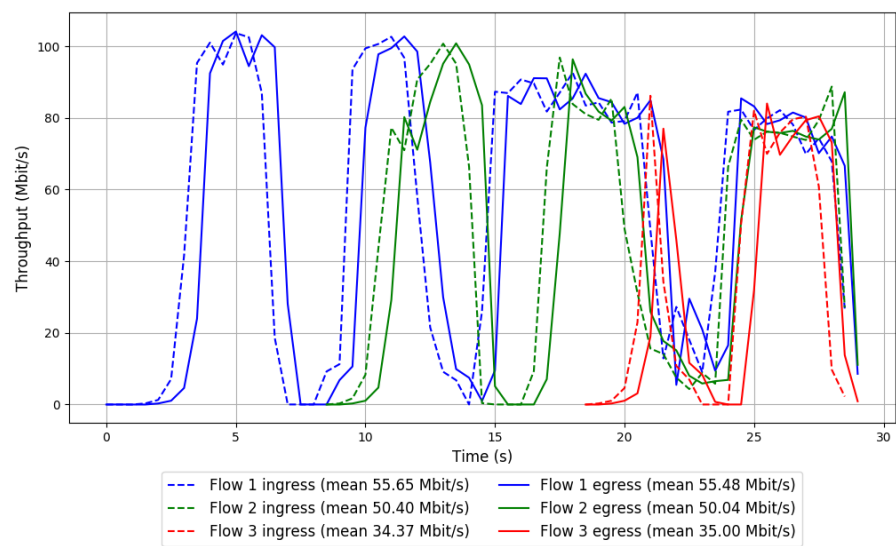
-- Flow 3:

Average throughput: 35.00 Mbit/s

95th percentile per-packet one-way delay: 112.006 ms

Loss rate: 0.44%

Run 1: Report of QUIC Cubic — Data Link

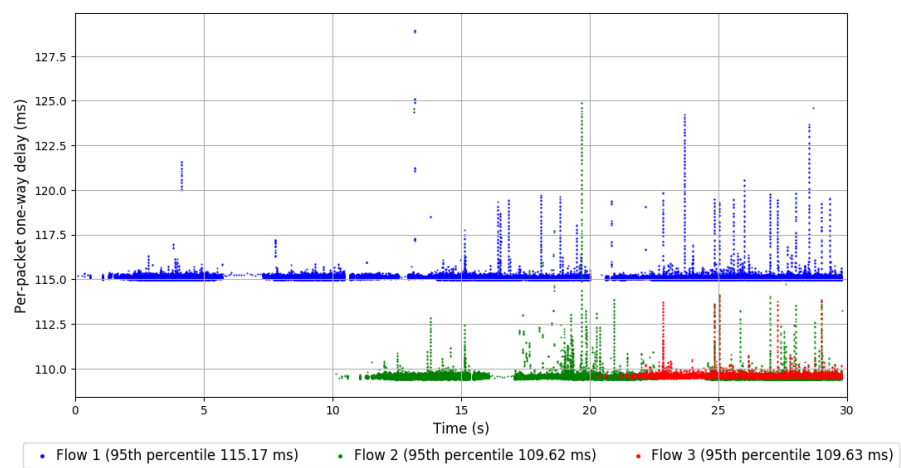
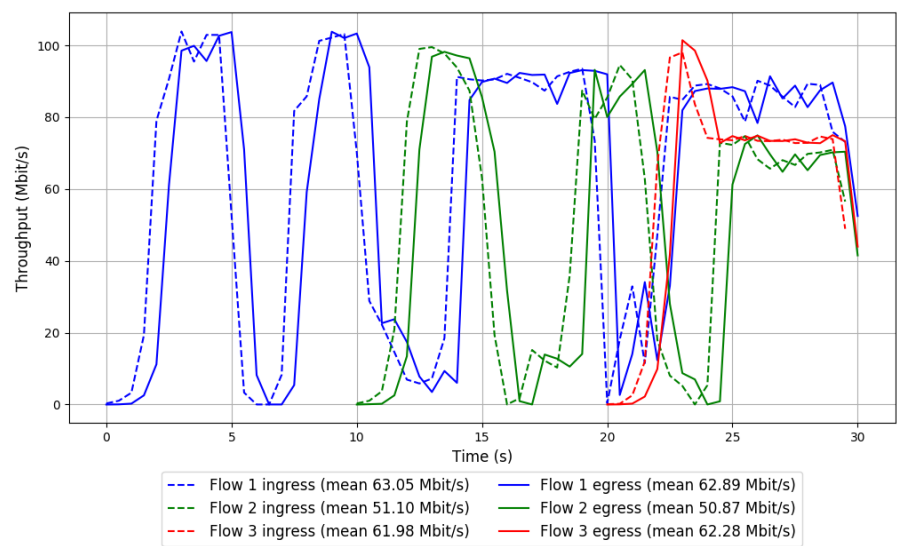


Run 2: Statistics of QUIC Cubic

Start at: 2018-11-02 22:40:06  
End at: 2018-11-02 22:40:36  
Local clock offset: 0.101 ms  
Remote clock offset: -0.259 ms

# Below is generated by plot.py at 2018-11-03 02:19:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 116.79 Mbit/s  
95th percentile per-packet one-way delay: 115.139 ms  
Loss rate: 1.29%  
-- Flow 1:  
Average throughput: 62.89 Mbit/s  
95th percentile per-packet one-way delay: 115.174 ms  
Loss rate: 1.02%  
-- Flow 2:  
Average throughput: 50.87 Mbit/s  
95th percentile per-packet one-way delay: 109.624 ms  
Loss rate: 1.52%  
-- Flow 3:  
Average throughput: 62.28 Mbit/s  
95th percentile per-packet one-way delay: 109.629 ms  
Loss rate: 1.73%

Run 2: Report of QUIC Cubic — Data Link



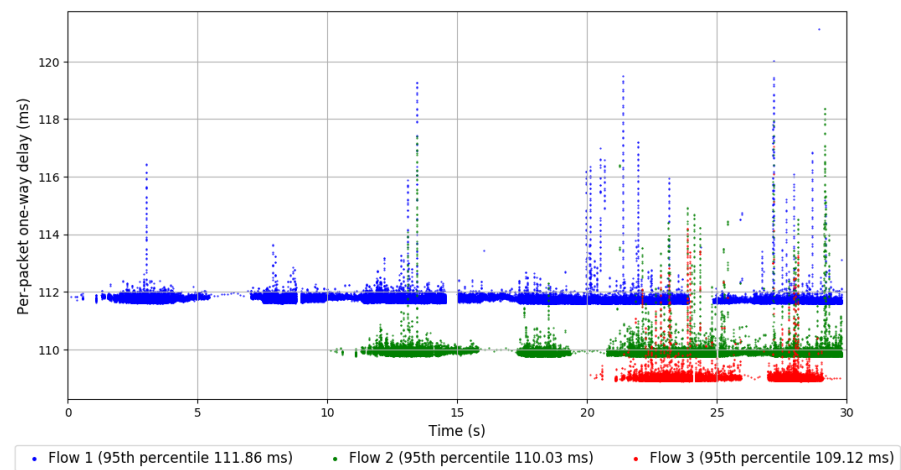
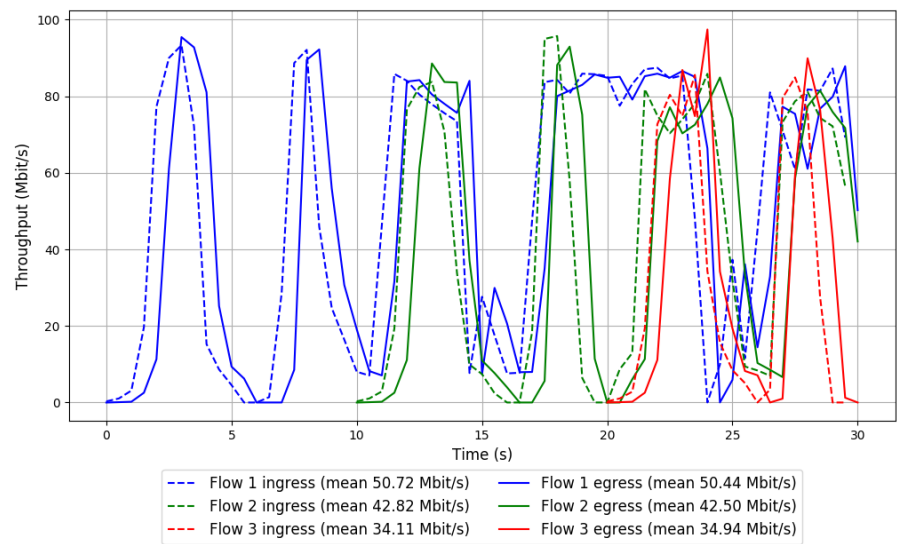


Run 3: Statistics of QUIC Cubic

Start at: 2018-11-02 23:11:49  
End at: 2018-11-02 23:12:19  
Local clock offset: 0.227 ms  
Remote clock offset: -0.344 ms

# Below is generated by plot.py at 2018-11-03 02:19:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 89.94 Mbit/s  
95th percentile per-packet one-way delay: 111.820 ms  
Loss rate: 1.29%  
-- Flow 1:  
Average throughput: 50.44 Mbit/s  
95th percentile per-packet one-way delay: 111.856 ms  
Loss rate: 1.28%  
-- Flow 2:  
Average throughput: 42.50 Mbit/s  
95th percentile per-packet one-way delay: 110.029 ms  
Loss rate: 1.82%  
-- Flow 3:  
Average throughput: 34.94 Mbit/s  
95th percentile per-packet one-way delay: 109.122 ms  
Loss rate: 0.00%

Run 3: Report of QUIC Cubic — Data Link

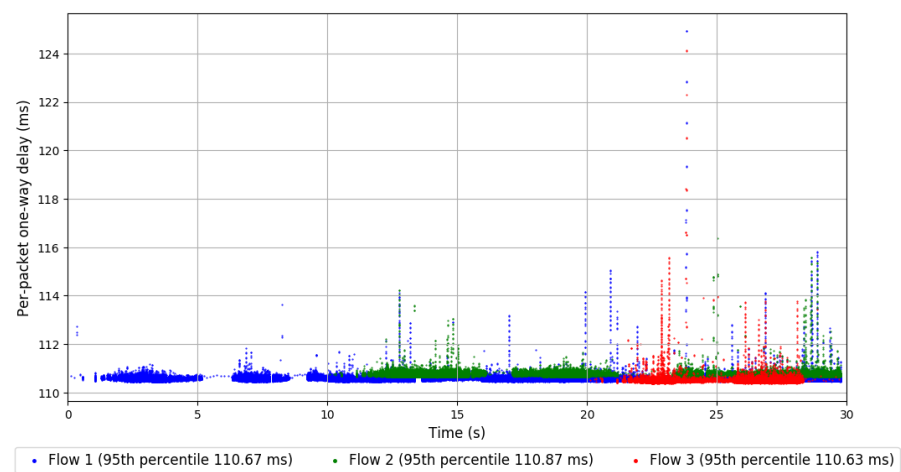
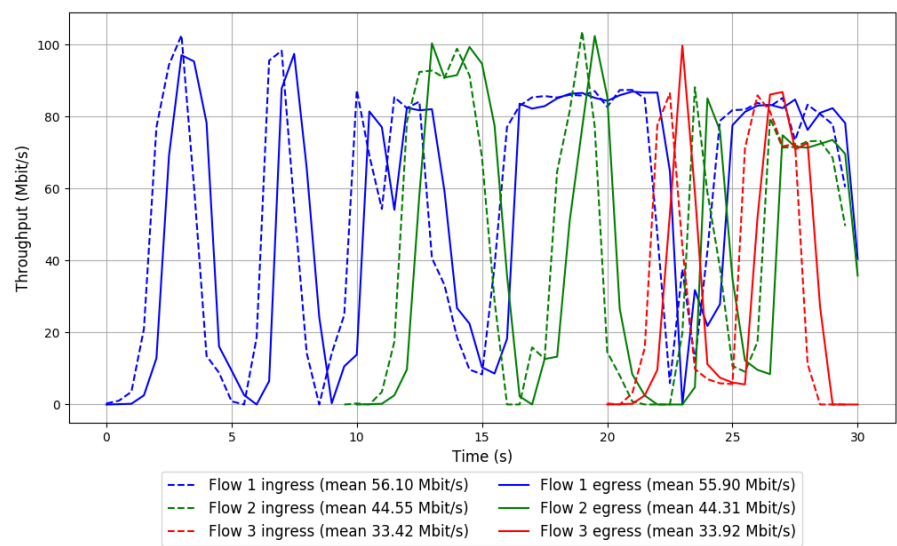


Run 4: Statistics of QUIC Cubic

Start at: 2018-11-02 23:43:58  
End at: 2018-11-02 23:44:28  
Local clock offset: 1.233 ms  
Remote clock offset: -0.027 ms

# Below is generated by plot.py at 2018-11-03 02:19:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 96.26 Mbit/s  
95th percentile per-packet one-way delay: 110.813 ms  
Loss rate: 1.13%  
-- Flow 1:  
Average throughput: 55.90 Mbit/s  
95th percentile per-packet one-way delay: 110.671 ms  
Loss rate: 1.08%  
-- Flow 2:  
Average throughput: 44.31 Mbit/s  
95th percentile per-packet one-way delay: 110.870 ms  
Loss rate: 1.62%  
-- Flow 3:  
Average throughput: 33.92 Mbit/s  
95th percentile per-packet one-way delay: 110.627 ms  
Loss rate: 0.00%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-11-03 00:16:17

End at: 2018-11-03 00:16:47

Local clock offset: -0.195 ms

Remote clock offset: 0.014 ms

# Below is generated by plot.py at 2018-11-03 02:19:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 90.94 Mbit/s

95th percentile per-packet one-way delay: 109.536 ms

Loss rate: 1.43%

-- Flow 1:

Average throughput: 51.78 Mbit/s

95th percentile per-packet one-way delay: 109.351 ms

Loss rate: 1.20%

-- Flow 2:

Average throughput: 49.26 Mbit/s

95th percentile per-packet one-way delay: 109.588 ms

Loss rate: 2.07%

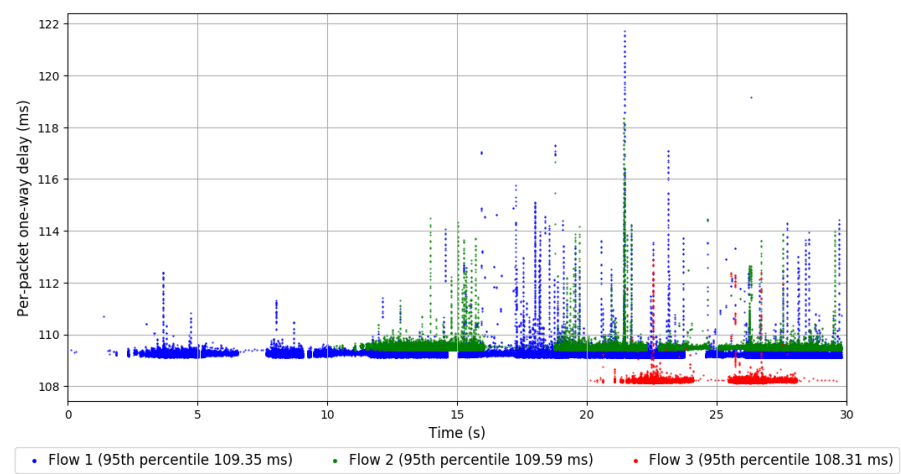
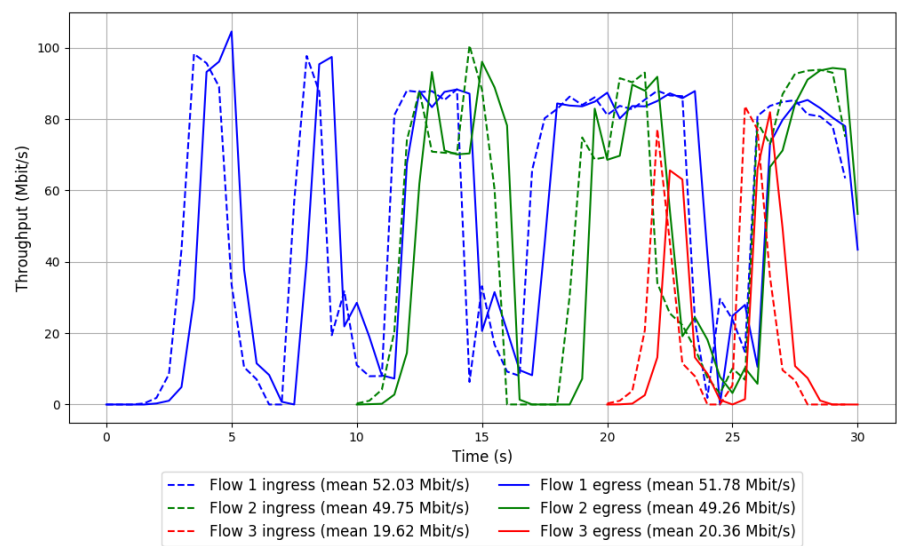
-- Flow 3:

Average throughput: 20.36 Mbit/s

95th percentile per-packet one-way delay: 108.305 ms

Loss rate: 0.00%

Run 5: Report of QUIC Cubic — Data Link

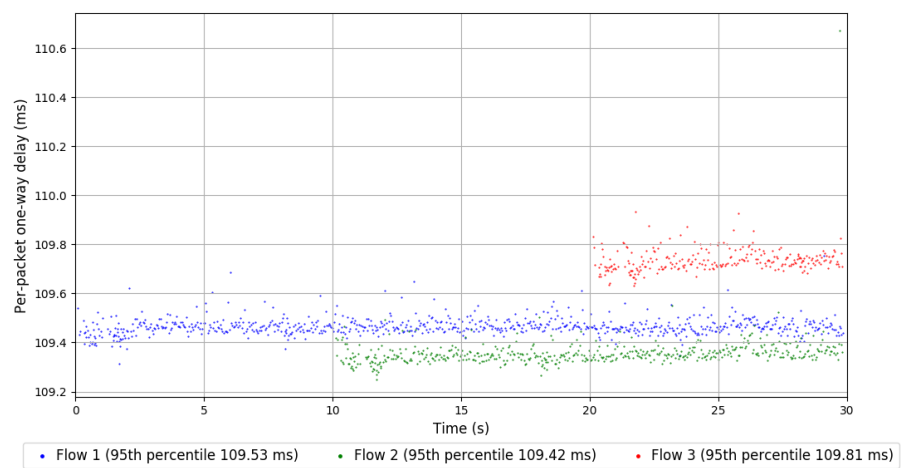
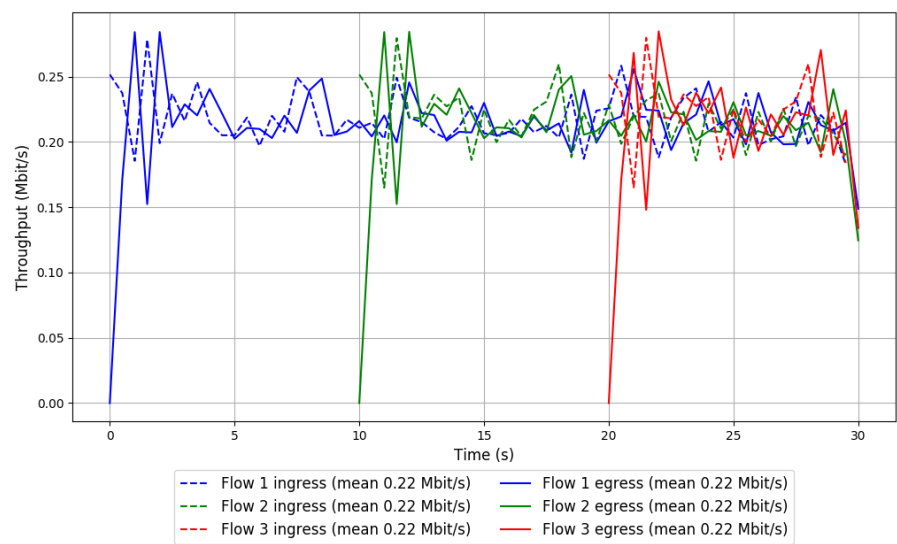


```
Run 1: Statistics of SReAM

Start at: 2018-11-02 22:03:20
End at: 2018-11-02 22:03:50
Local clock offset: 0.617 ms
Remote clock offset: 0.345 ms

# Below is generated by plot.py at 2018-11-03 02:19:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 109.750 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.526 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.422 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.806 ms
Loss rate: 2.22%
```

Run 1: Report of SReAM — Data Link



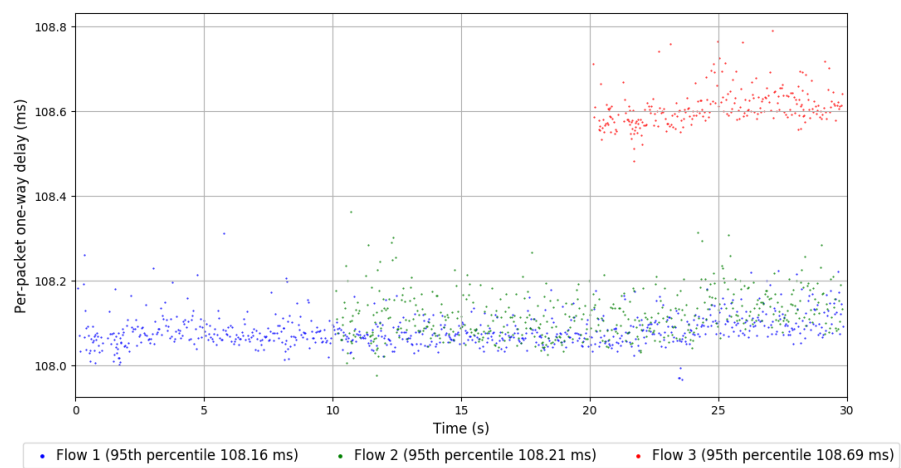
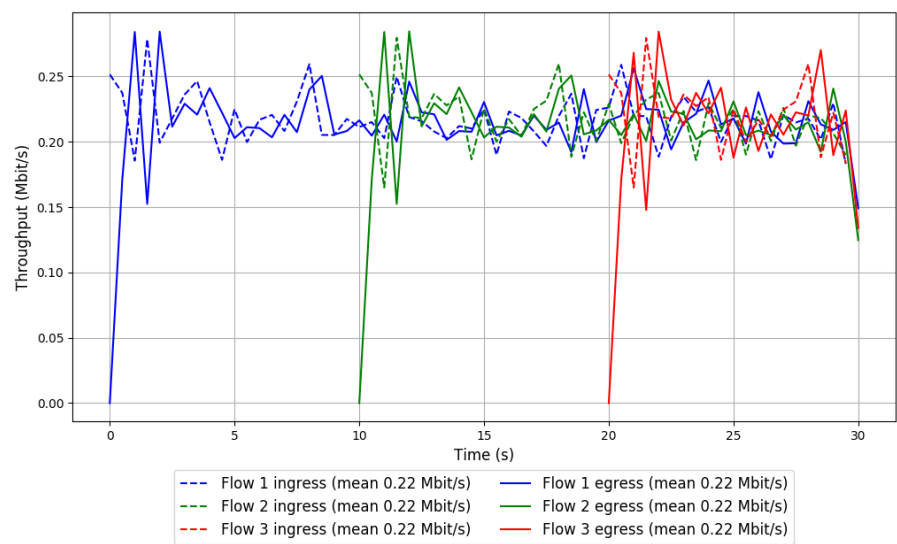


Run 2: Statistics of SReAM

Start at: 2018-11-02 22:35:09  
End at: 2018-11-02 22:35:39  
Local clock offset: -0.276 ms  
Remote clock offset: 0.221 ms

# Below is generated by plot.py at 2018-11-03 02:19:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 108.622 ms  
Loss rate: 1.11%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 108.156 ms  
Loss rate: 0.64%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 108.210 ms  
Loss rate: 1.25%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 108.695 ms  
Loss rate: 2.22%

Run 2: Report of SReAM — Data Link

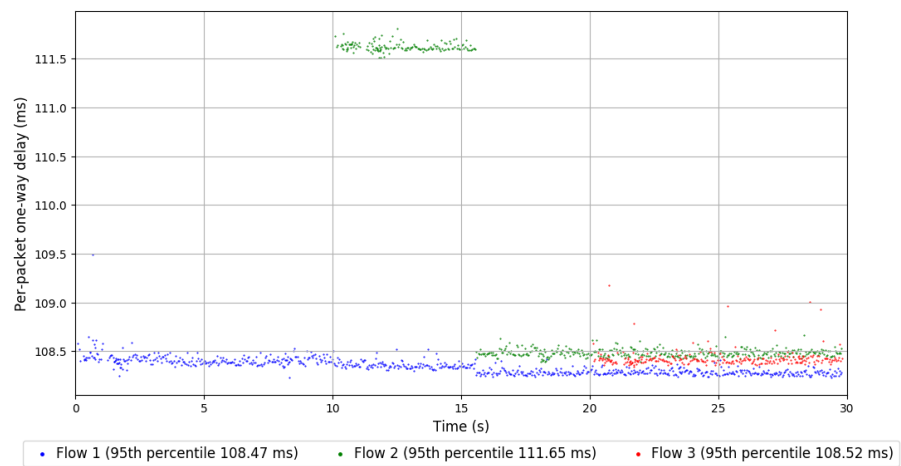
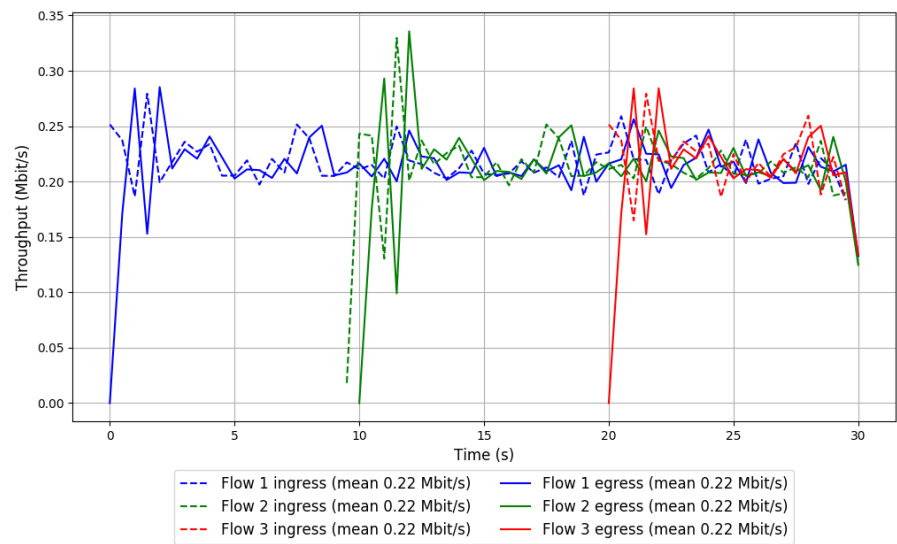


Run 3: Statistics of SReAM

Start at: 2018-11-02 23:06:52  
End at: 2018-11-02 23:07:22  
Local clock offset: -0.843 ms  
Remote clock offset: -0.039 ms

# Below is generated by plot.py at 2018-11-03 02:19:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 111.611 ms  
Loss rate: 1.17%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 108.466 ms  
Loss rate: 0.77%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 111.654 ms  
Loss rate: 1.25%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 108.520 ms  
Loss rate: 2.22%

Run 3: Report of SReAM — Data Link

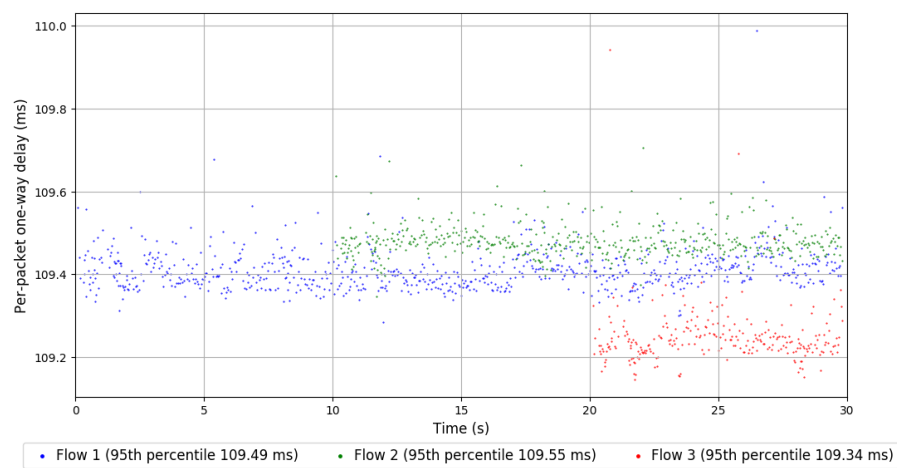
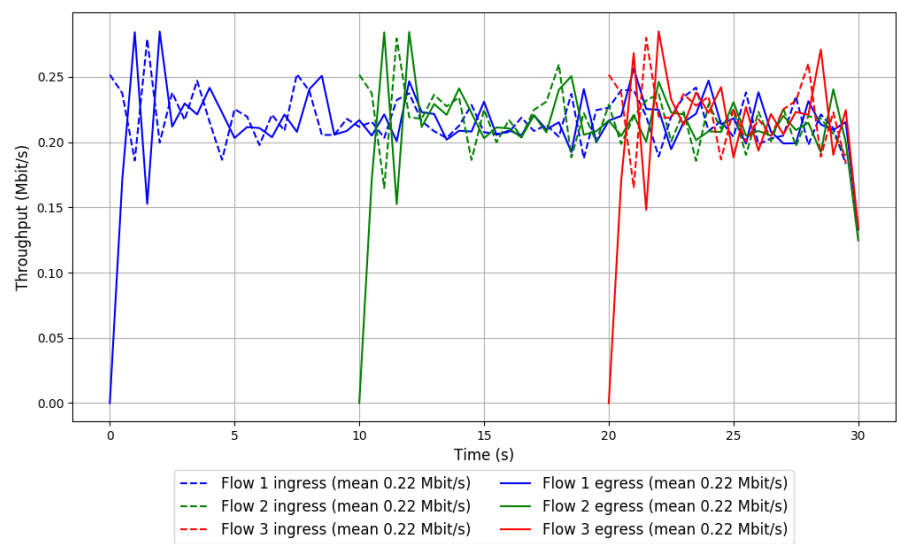


Run 4: Statistics of SReAM

Start at: 2018-11-02 23:39:00  
End at: 2018-11-02 23:39:30  
Local clock offset: -0.043 ms  
Remote clock offset: -0.072 ms

# Below is generated by plot.py at 2018-11-03 02:19:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 109.523 ms  
Loss rate: 1.17%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 109.493 ms  
Loss rate: 0.77%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 109.551 ms  
Loss rate: 1.25%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 109.338 ms  
Loss rate: 2.22%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

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

End at: 2018-11-03 00:11:47

Local clock offset: -0.143 ms

Remote clock offset: -0.03 ms

# Below is generated by plot.py at 2018-11-03 02:19:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 109.551 ms

Loss rate: 1.17%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 108.678 ms

Loss rate: 0.77%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 109.561 ms

Loss rate: 1.25%

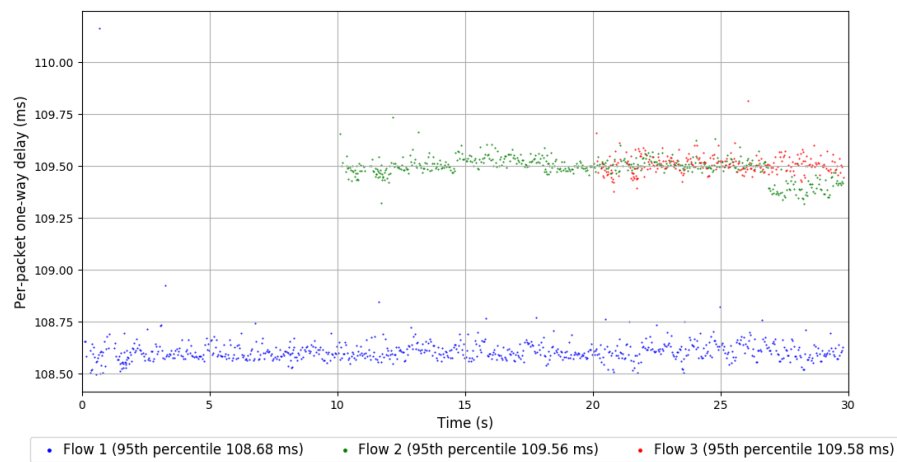
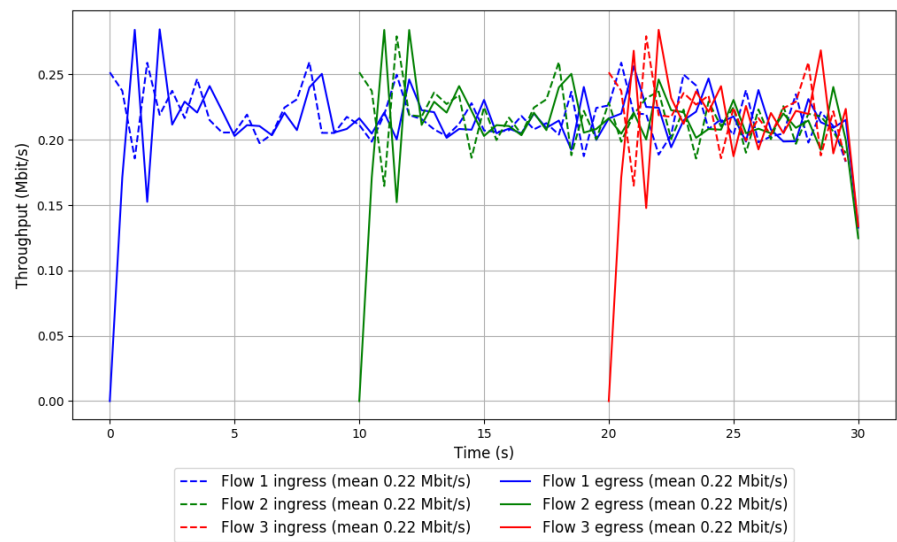
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 109.578 ms

Loss rate: 2.22%

Run 5: Report of SReAM — Data Link





Run 1: Statistics of Sprout

Start at: 2018-11-02 22:11:24

End at: 2018-11-02 22:11:54

Local clock offset: -1.016 ms

Remote clock offset: 0.214 ms

# Below is generated by plot.py at 2018-11-03 02:19:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 108.331 ms

Loss rate: 0.82%

-- Flow 1:

Average throughput: 0.64 Mbit/s

95th percentile per-packet one-way delay: 107.536 ms

Loss rate: 0.10%

-- Flow 2:

Average throughput: 0.54 Mbit/s

95th percentile per-packet one-way delay: 107.588 ms

Loss rate: 0.88%

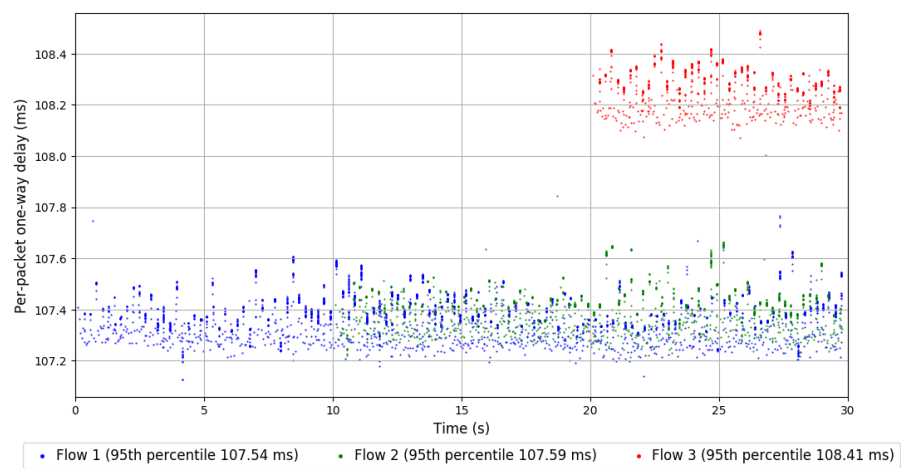
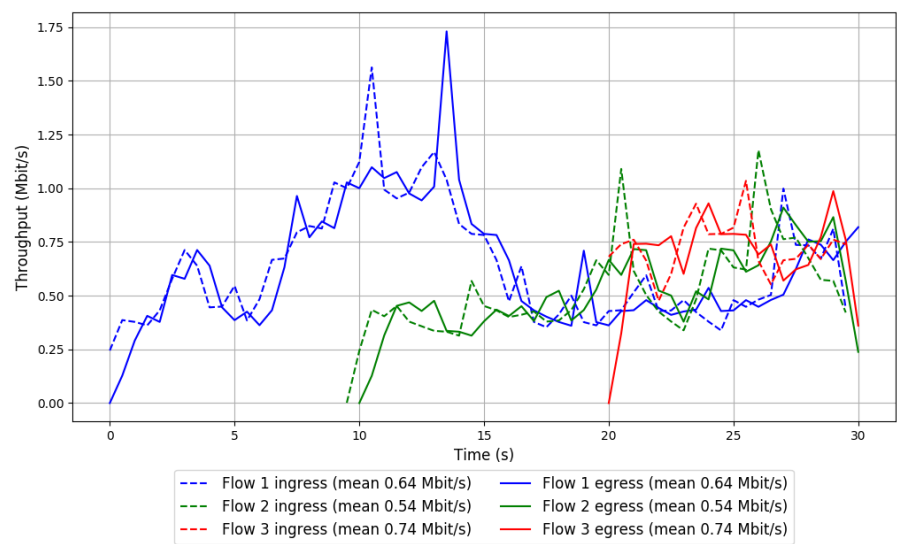
-- Flow 3:

Average throughput: 0.74 Mbit/s

95th percentile per-packet one-way delay: 108.408 ms

Loss rate: 2.63%

Run 1: Report of Sprout — Data Link



## Run 2: Statistics of Sprout

Start at: 2018-11-02 22:43:14

End at: 2018-11-02 22:43:44

Local clock offset: 0.33 ms

Remote clock offset: 0.114 ms

# Below is generated by plot.py at 2018-11-03 02:19:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 4.91 Mbit/s

95th percentile per-packet one-way delay: 113.425 ms

Loss rate: 0.74%

-- Flow 1:

Average throughput: 2.38 Mbit/s

95th percentile per-packet one-way delay: 109.910 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 3.36 Mbit/s

95th percentile per-packet one-way delay: 113.532 ms

Loss rate: 1.53%

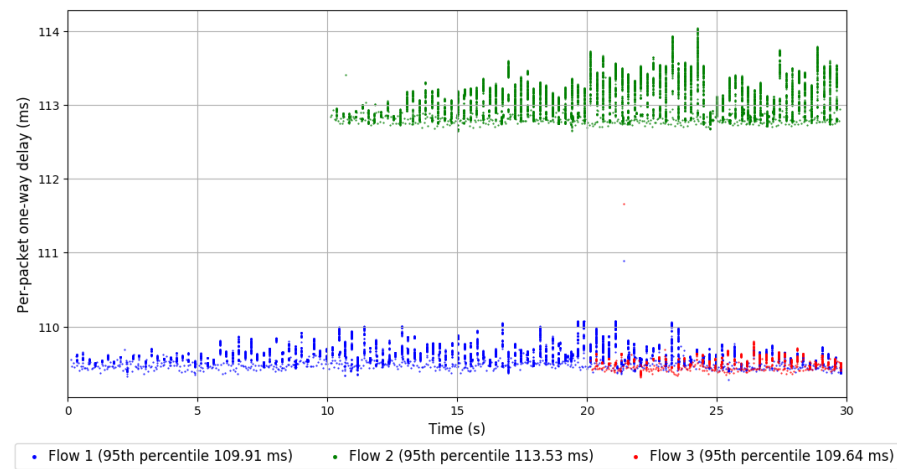
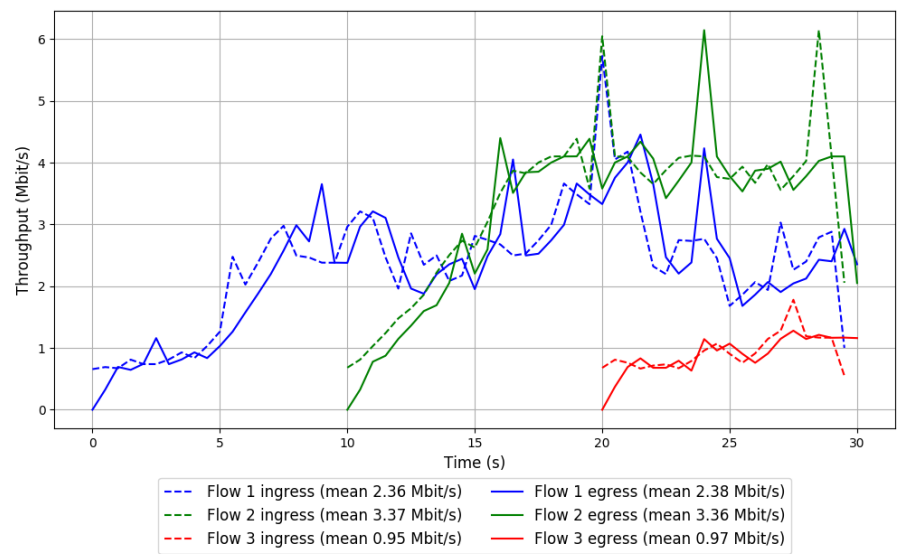
-- Flow 3:

Average throughput: 0.97 Mbit/s

95th percentile per-packet one-way delay: 109.638 ms

Loss rate: 0.03%

Run 2: Report of Sprout — Data Link

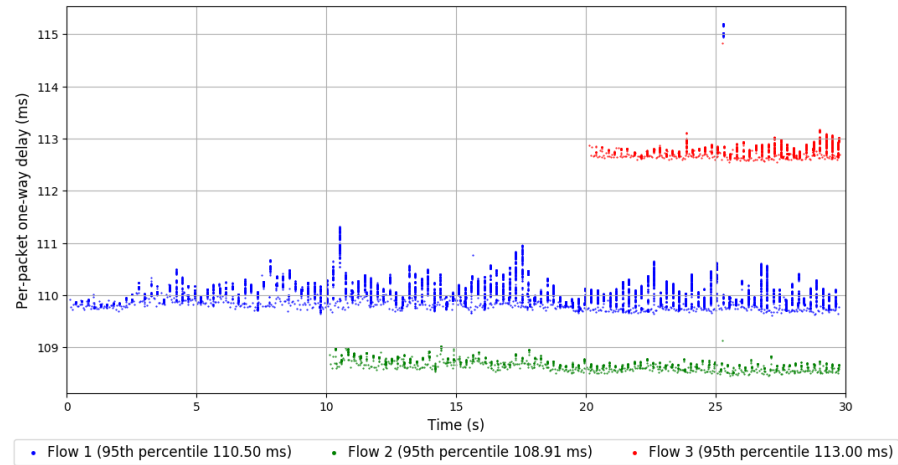
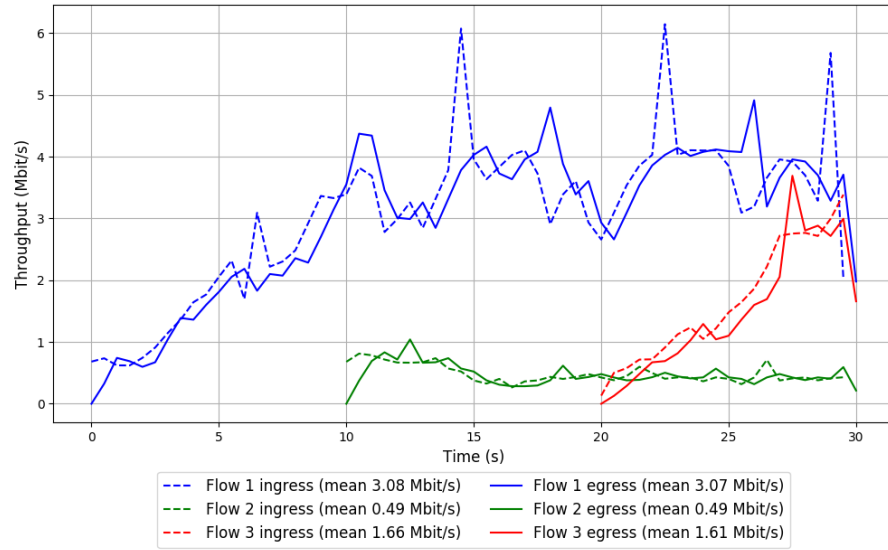


### Run 3: Statistics of Sprout

Start at: 2018-11-02 23:14:54  
End at: 2018-11-02 23:15:24  
Local clock offset: 0.018 ms  
Remote clock offset: -0.061 ms

```
# Below is generated by plot.py at 2018-11-03 02:19:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.91 Mbit/s
95th percentile per-packet one-way delay: 112.833 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 3.07 Mbit/s
95th percentile per-packet one-way delay: 110.502 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 108.906 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 112.997 ms
Loss rate: 5.28%
```

### Run 3: Report of Sprout — Data Link

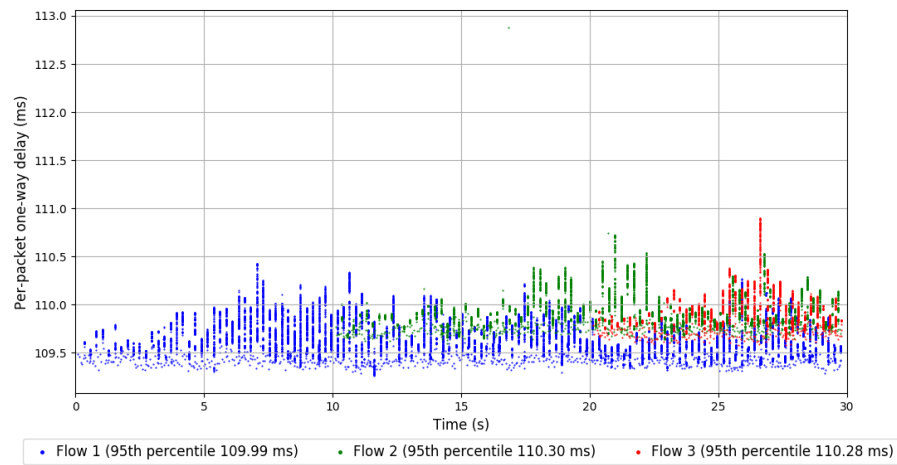
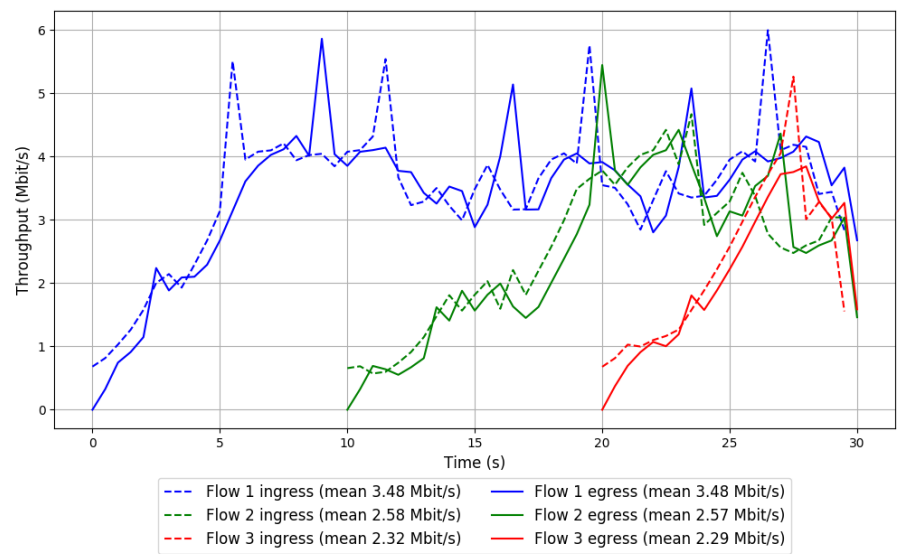


#### Run 4: Statistics of Sprout

Start at: 2018-11-02 23:47:03  
End at: 2018-11-02 23:47:33  
Local clock offset: -0.044 ms  
Remote clock offset: -0.1 ms

```
# Below is generated by plot.py at 2018-11-03 02:19:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.92 Mbit/s
95th percentile per-packet one-way delay: 110.177 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 3.48 Mbit/s
95th percentile per-packet one-way delay: 109.989 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 110.302 ms
Loss rate: 1.55%
-- Flow 3:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 110.282 ms
Loss rate: 3.13%
```

Run 4: Report of Sprout — Data Link





Run 5: Statistics of Sprout

Start at: 2018-11-03 00:19:26

End at: 2018-11-03 00:19:56

Local clock offset: 0.043 ms

Remote clock offset: 0.045 ms

# Below is generated by plot.py at 2018-11-03 02:19:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 109.597 ms

Loss rate: 0.85%

-- Flow 1:

Average throughput: 0.71 Mbit/s

95th percentile per-packet one-way delay: 108.932 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 0.91 Mbit/s

95th percentile per-packet one-way delay: 109.554 ms

Loss rate: 0.79%

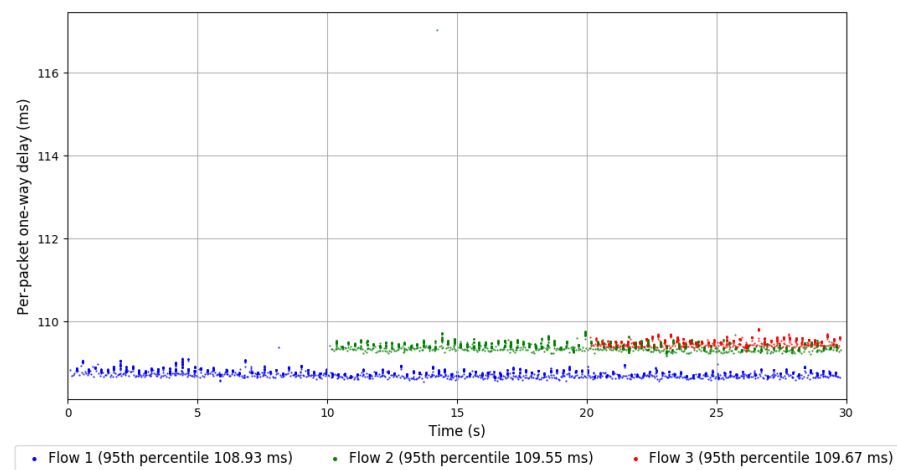
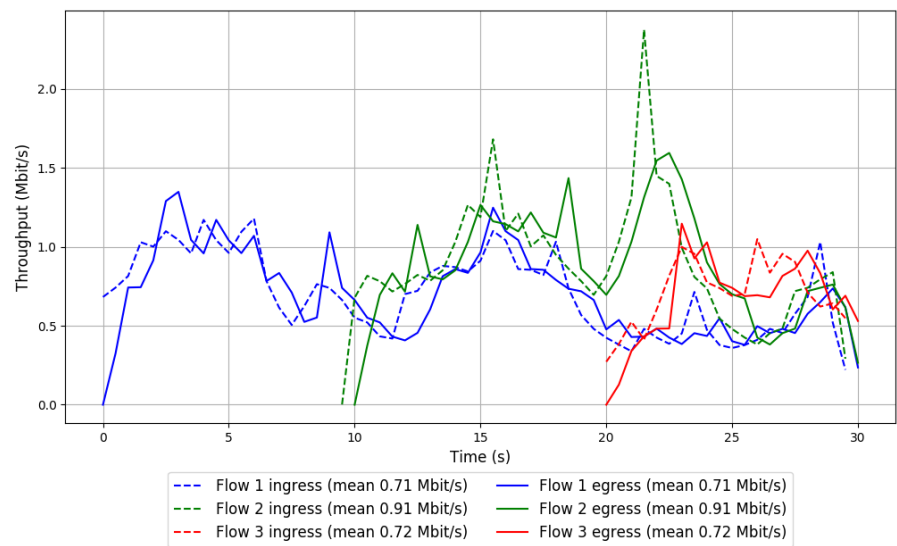
-- Flow 3:

Average throughput: 0.72 Mbit/s

95th percentile per-packet one-way delay: 109.670 ms

Loss rate: 2.04%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-11-02 22:01:21

End at: 2018-11-02 22:01:51

Local clock offset: 1.773 ms

Remote clock offset: 0.416 ms

# Below is generated by plot.py at 2018-11-03 02:26:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 394.61 Mbit/s

95th percentile per-packet one-way delay: 111.993 ms

Loss rate: 1.35%

-- Flow 1:

Average throughput: 199.93 Mbit/s

95th percentile per-packet one-way delay: 110.239 ms

Loss rate: 0.72%

-- Flow 2:

Average throughput: 198.05 Mbit/s

95th percentile per-packet one-way delay: 112.230 ms

Loss rate: 1.73%

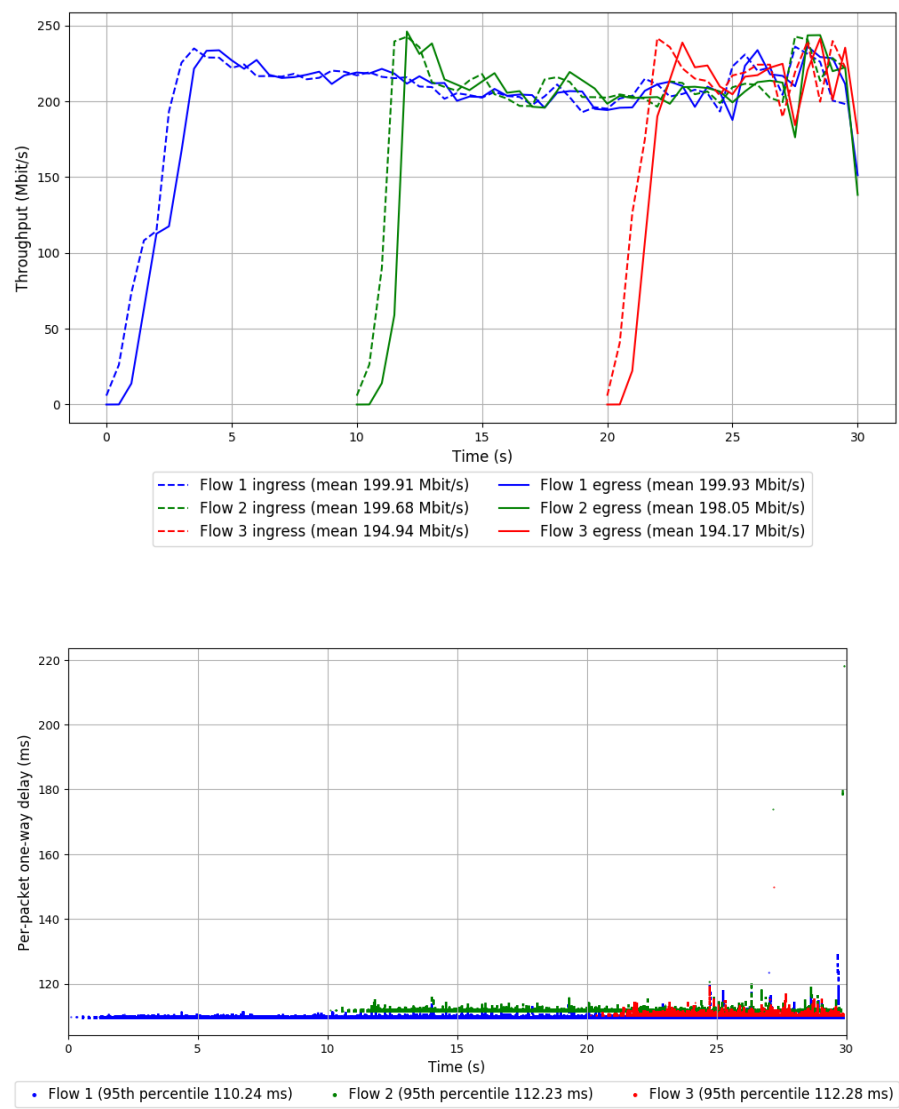
-- Flow 3:

Average throughput: 194.17 Mbit/s

95th percentile per-packet one-way delay: 112.282 ms

Loss rate: 2.56%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-11-02 22:33:17

End at: 2018-11-02 22:33:47

Local clock offset: -0.088 ms

Remote clock offset: 0.226 ms

# Below is generated by plot.py at 2018-11-03 02:26:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 333.45 Mbit/s

95th percentile per-packet one-way delay: 109.621 ms

Loss rate: 1.02%

-- Flow 1:

Average throughput: 202.24 Mbit/s

95th percentile per-packet one-way delay: 109.619 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 190.11 Mbit/s

95th percentile per-packet one-way delay: 109.637 ms

Loss rate: 1.31%

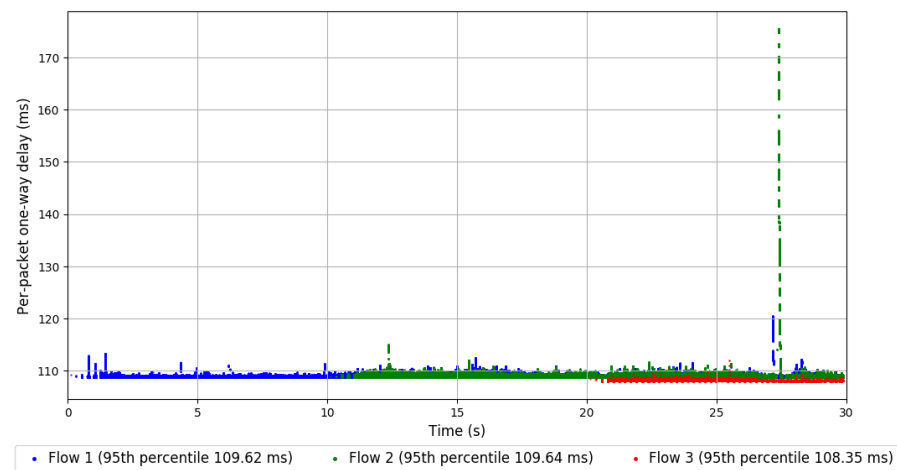
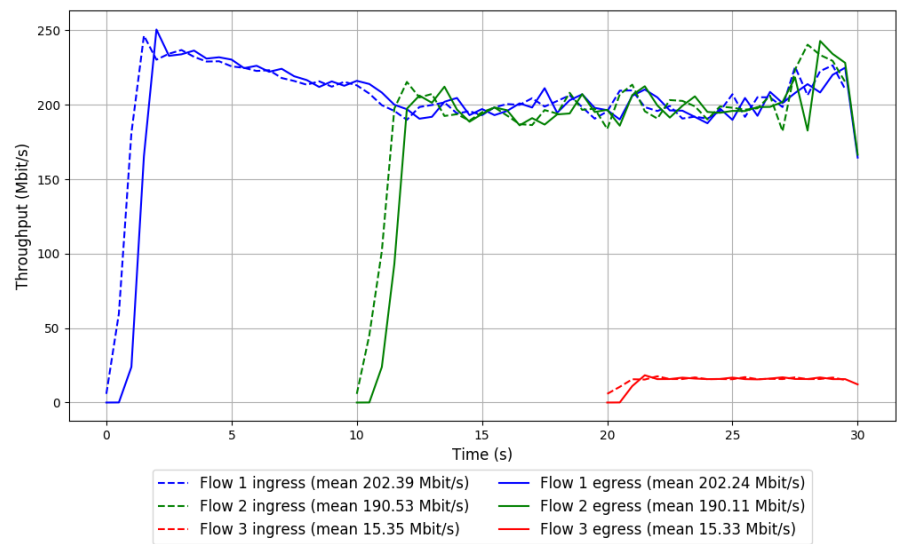
-- Flow 3:

Average throughput: 15.33 Mbit/s

95th percentile per-packet one-way delay: 108.349 ms

Loss rate: 2.30%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-11-02 23:05:12

End at: 2018-11-02 23:05:42

Local clock offset: 0.174 ms

Remote clock offset: 0.01 ms

# Below is generated by plot.py at 2018-11-03 02:26:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 208.64 Mbit/s

95th percentile per-packet one-way delay: 111.460 ms

Loss rate: 1.34%

-- Flow 1:

Average throughput: 15.61 Mbit/s

95th percentile per-packet one-way delay: 111.566 ms

Loss rate: 0.75%

-- Flow 2:

Average throughput: 196.33 Mbit/s

95th percentile per-packet one-way delay: 111.312 ms

Loss rate: 0.83%

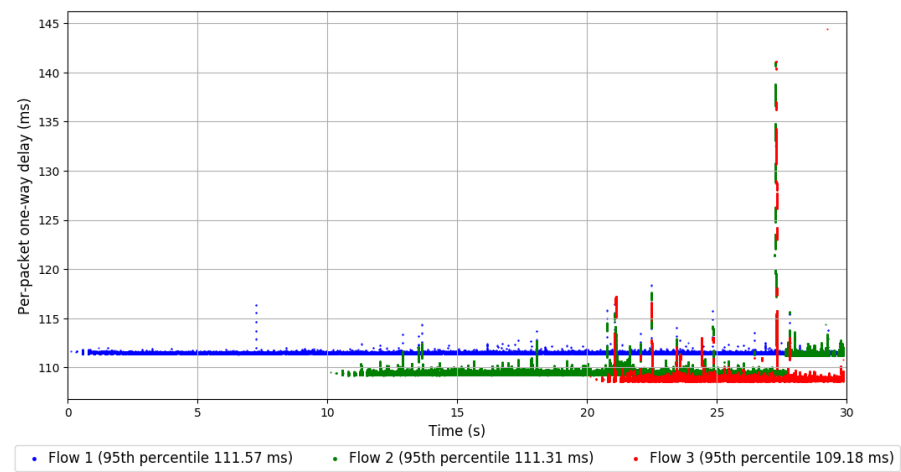
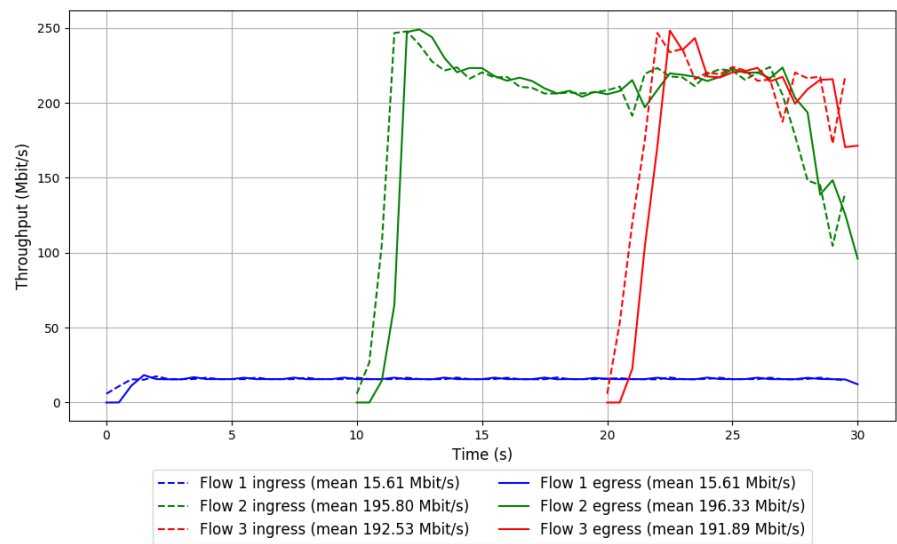
-- Flow 3:

Average throughput: 191.89 Mbit/s

95th percentile per-packet one-way delay: 109.176 ms

Loss rate: 2.52%

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





Run 4: Statistics of TaoVA-100x

Start at: 2018-11-02 23:37:01

End at: 2018-11-02 23:37:31

Local clock offset: -1.372 ms

Remote clock offset: -0.07 ms

# Below is generated by plot.py at 2018-11-03 02:27:46

# Datalink statistics

-- Total of 3 flows:

Average throughput: 398.05 Mbit/s

95th percentile per-packet one-way delay: 108.641 ms

Loss rate: 1.26%

-- Flow 1:

Average throughput: 201.65 Mbit/s

95th percentile per-packet one-way delay: 108.778 ms

Loss rate: 0.82%

-- Flow 2:

Average throughput: 205.68 Mbit/s

95th percentile per-packet one-way delay: 108.654 ms

Loss rate: 1.26%

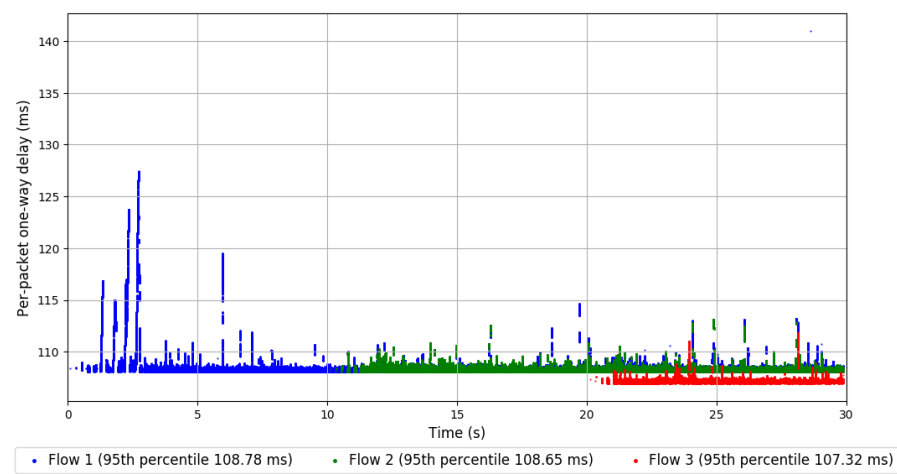
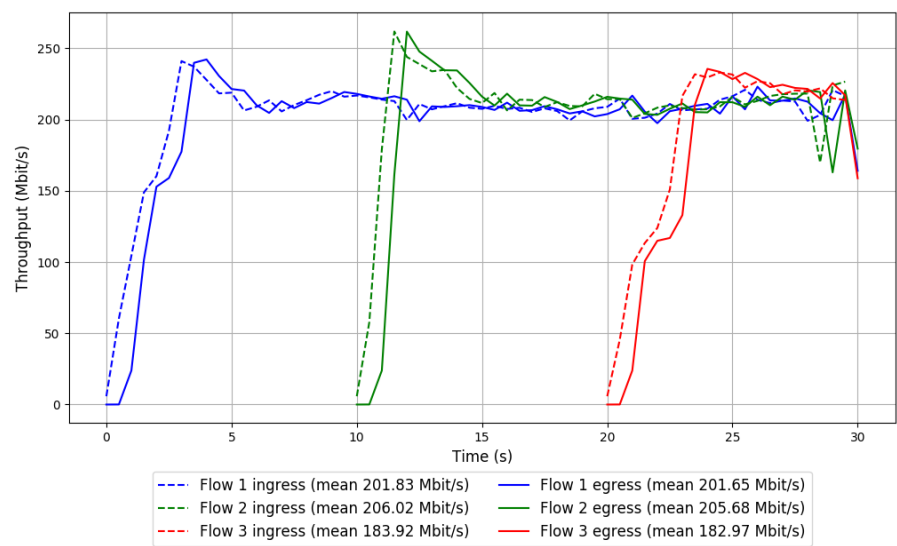
-- Flow 3:

Average throughput: 182.97 Mbit/s

95th percentile per-packet one-way delay: 107.323 ms

Loss rate: 2.68%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-03 00:09:17

End at: 2018-11-03 00:09:47

Local clock offset: -0.186 ms

Remote clock offset: 0.003 ms

# Below is generated by plot.py at 2018-11-03 02:30:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 404.80 Mbit/s

95th percentile per-packet one-way delay: 109.887 ms

Loss rate: 1.26%

-- Flow 1:

Average throughput: 207.16 Mbit/s

95th percentile per-packet one-way delay: 110.079 ms

Loss rate: 0.79%

-- Flow 2:

Average throughput: 195.52 Mbit/s

95th percentile per-packet one-way delay: 109.853 ms

Loss rate: 1.43%

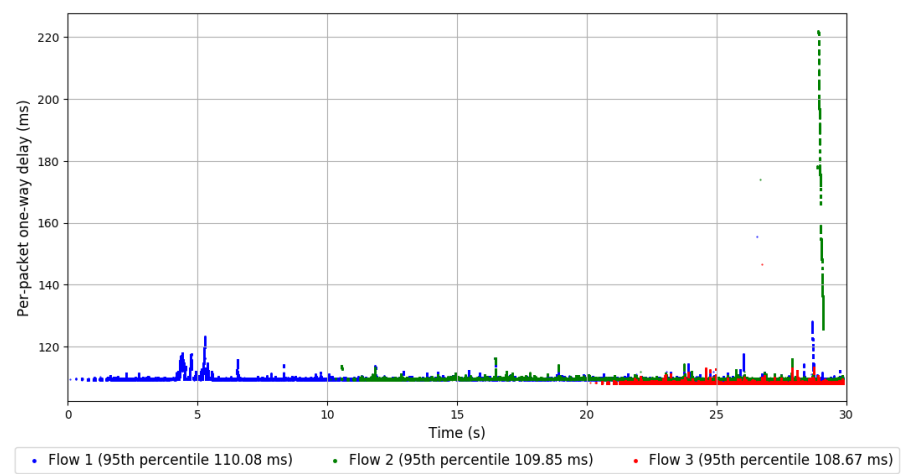
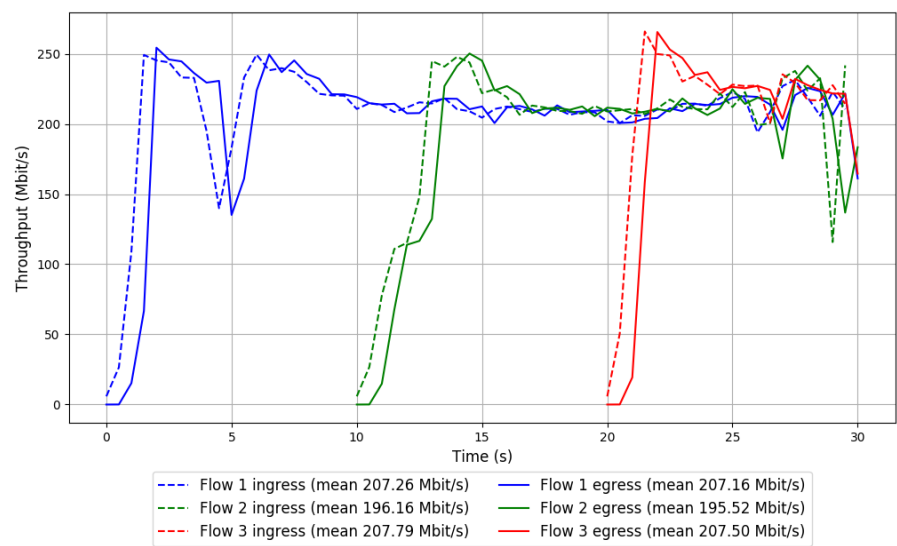
-- Flow 3:

Average throughput: 207.50 Mbit/s

95th percentile per-packet one-way delay: 108.673 ms

Loss rate: 2.36%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-11-02 21:48:58

End at: 2018-11-02 21:49:28

Local clock offset: 1.111 ms

Remote clock offset: 0.312 ms

# Below is generated by plot.py at 2018-11-03 02:30:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 580.34 Mbit/s

95th percentile per-packet one-way delay: 111.619 ms

Loss rate: 1.22%

-- Flow 1:

Average throughput: 303.07 Mbit/s

95th percentile per-packet one-way delay: 111.139 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 292.45 Mbit/s

95th percentile per-packet one-way delay: 111.675 ms

Loss rate: 1.22%

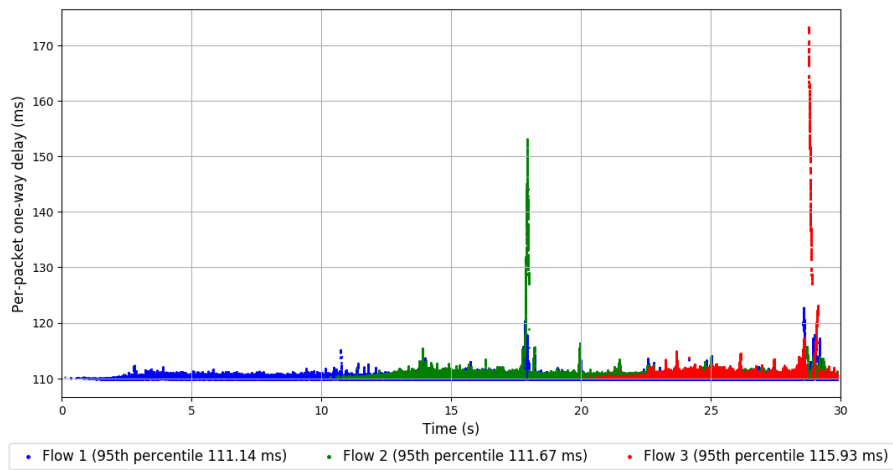
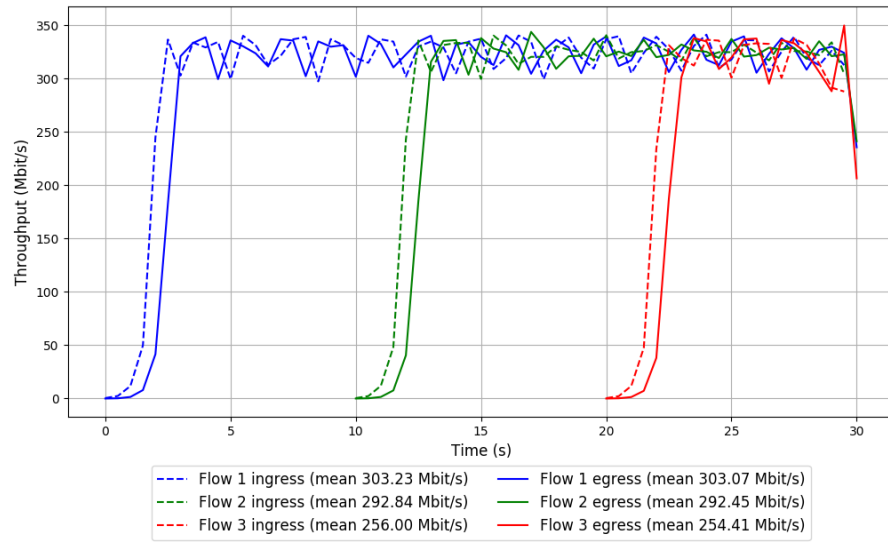
-- Flow 3:

Average throughput: 254.41 Mbit/s

95th percentile per-packet one-way delay: 115.928 ms

Loss rate: 2.79%

## Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-11-02 22:21:06

End at: 2018-11-02 22:21:36

Local clock offset: 0.423 ms

Remote clock offset: 0.178 ms

# Below is generated by plot.py at 2018-11-03 02:30:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 531.60 Mbit/s

95th percentile per-packet one-way delay: 110.342 ms

Loss rate: 1.15%

-- Flow 1:

Average throughput: 303.48 Mbit/s

95th percentile per-packet one-way delay: 110.270 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 223.22 Mbit/s

95th percentile per-packet one-way delay: 109.906 ms

Loss rate: 1.08%

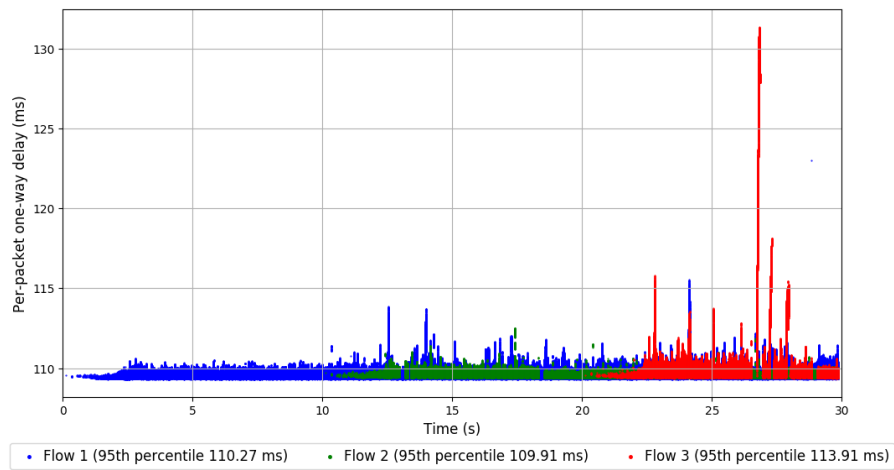
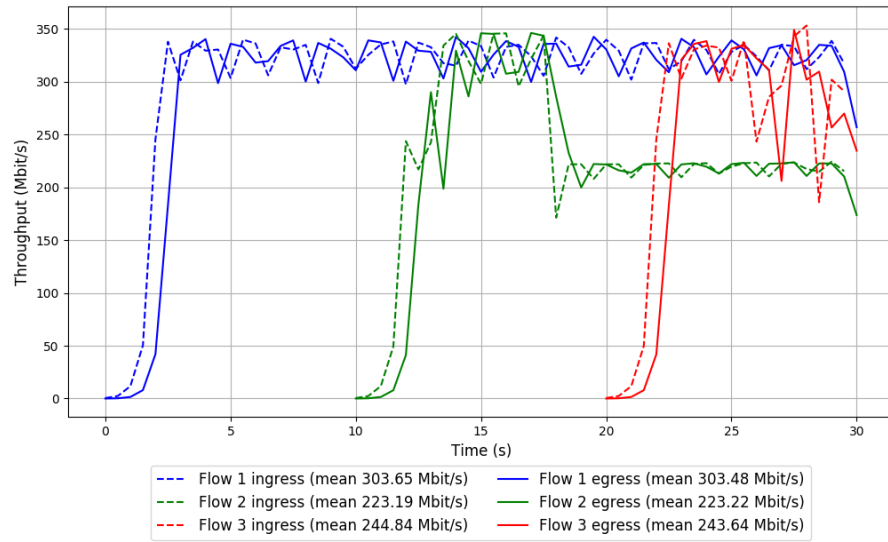
-- Flow 3:

Average throughput: 243.64 Mbit/s

95th percentile per-packet one-way delay: 113.911 ms

Loss rate: 2.67%

## Run 2: Report of TCP Vegas — Data Link



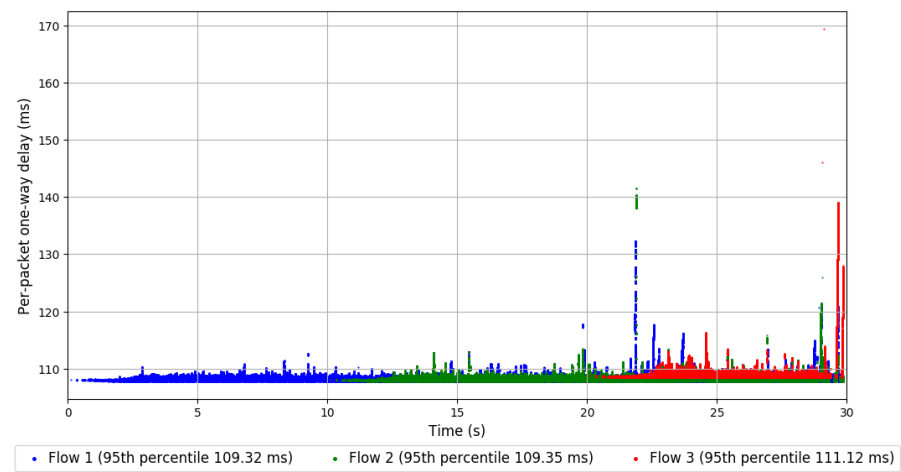
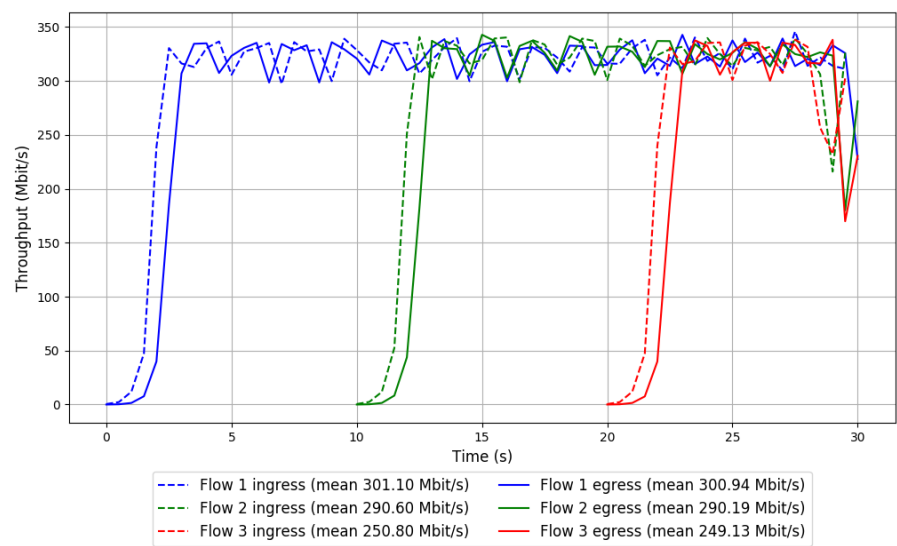


Run 3: Statistics of TCP Vegas

Start at: 2018-11-02 22:52:54  
End at: 2018-11-02 22:53:24  
Local clock offset: -0.58 ms  
Remote clock offset: -0.005 ms

# Below is generated by plot.py at 2018-11-03 02:31:45  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 575.25 Mbit/s  
95th percentile per-packet one-way delay: 109.632 ms  
Loss rate: 1.23%  
-- Flow 1:  
Average throughput: 300.94 Mbit/s  
95th percentile per-packet one-way delay: 109.321 ms  
Loss rate: 0.78%  
-- Flow 2:  
Average throughput: 290.19 Mbit/s  
95th percentile per-packet one-way delay: 109.350 ms  
Loss rate: 1.22%  
-- Flow 3:  
Average throughput: 249.13 Mbit/s  
95th percentile per-packet one-way delay: 111.116 ms  
Loss rate: 2.84%

Run 3: Report of TCP Vegas — Data Link

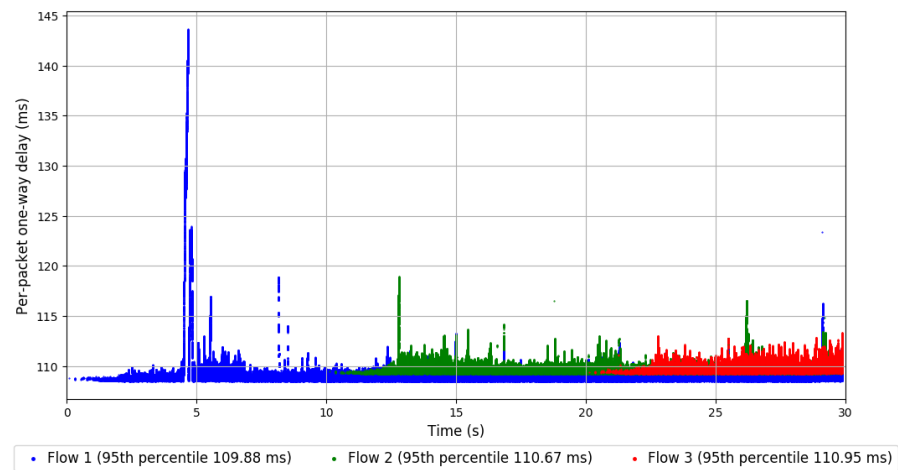
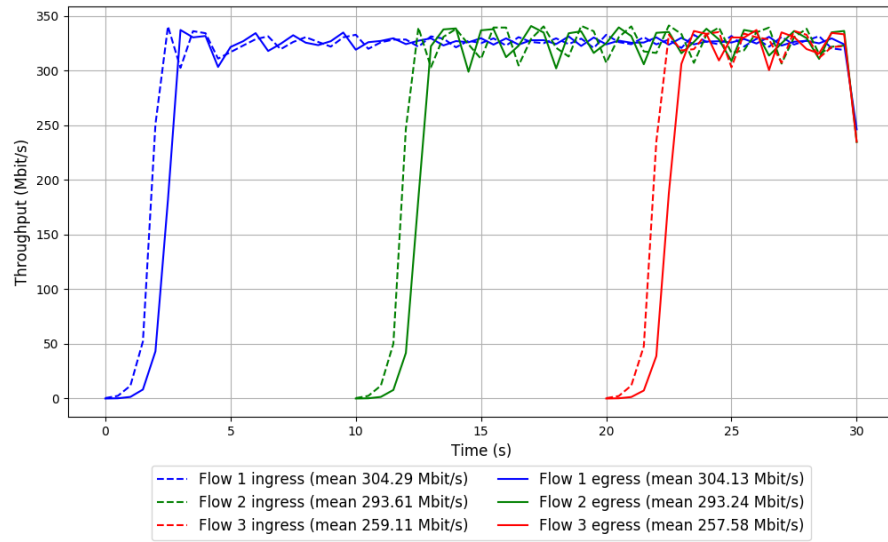


Run 4: Statistics of TCP Vegas

Start at: 2018-11-02 23:24:49  
End at: 2018-11-02 23:25:19  
Local clock offset: 0.125 ms  
Remote clock offset: -0.094 ms

# Below is generated by plot.py at 2018-11-03 02:33:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 583.08 Mbit/s  
95th percentile per-packet one-way delay: 110.548 ms  
Loss rate: 1.22%  
-- Flow 1:  
Average throughput: 304.13 Mbit/s  
95th percentile per-packet one-way delay: 109.877 ms  
Loss rate: 0.78%  
-- Flow 2:  
Average throughput: 293.24 Mbit/s  
95th percentile per-packet one-way delay: 110.672 ms  
Loss rate: 1.22%  
-- Flow 3:  
Average throughput: 257.58 Mbit/s  
95th percentile per-packet one-way delay: 110.946 ms  
Loss rate: 2.75%

#### Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-11-02 23:56:56

End at: 2018-11-02 23:57:26

Local clock offset: -0.609 ms

Remote clock offset: 0.016 ms

# Below is generated by plot.py at 2018-11-03 02:36:28

# Datalink statistics

-- Total of 3 flows:

Average throughput: 572.76 Mbit/s

95th percentile per-packet one-way delay: 113.682 ms

Loss rate: 1.24%

-- Flow 1:

Average throughput: 301.76 Mbit/s

95th percentile per-packet one-way delay: 112.453 ms

Loss rate: 0.79%

-- Flow 2:

Average throughput: 285.31 Mbit/s

95th percentile per-packet one-way delay: 120.142 ms

Loss rate: 1.25%

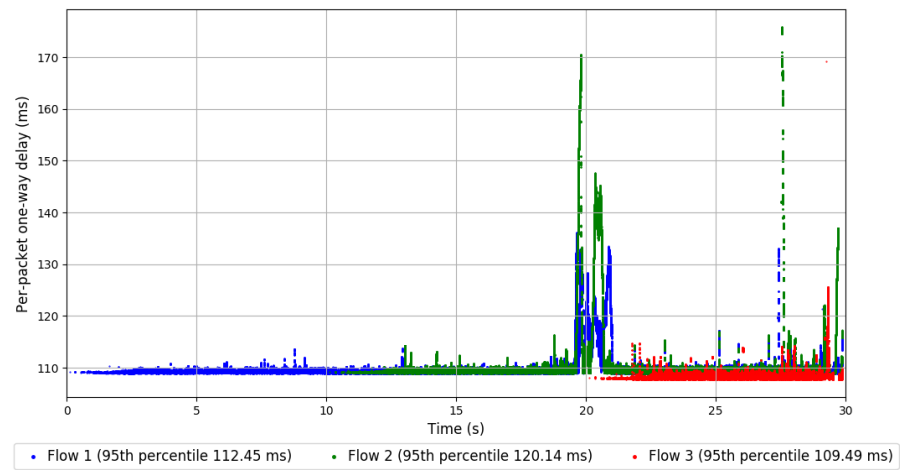
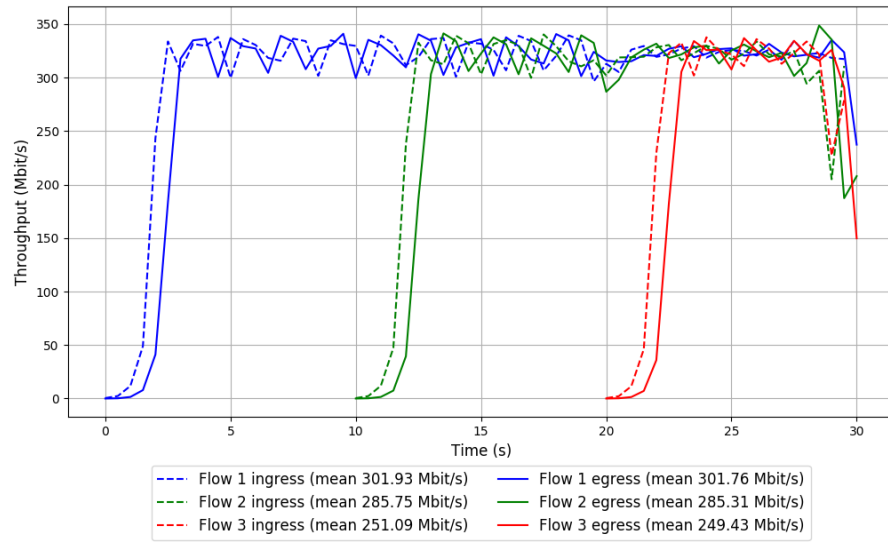
-- Flow 3:

Average throughput: 249.43 Mbit/s

95th percentile per-packet one-way delay: 109.489 ms

Loss rate: 2.85%

# Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-11-02 22:09:41

End at: 2018-11-02 22:10:11

Local clock offset: 1.523 ms

Remote clock offset: 0.209 ms

# Below is generated by plot.py at 2018-11-03 02:36:28

# Datalink statistics

-- Total of 3 flows:

Average throughput: 232.11 Mbit/s

95th percentile per-packet one-way delay: 205.489 ms

Loss rate: 1.39%

-- Flow 1:

Average throughput: 142.87 Mbit/s

95th percentile per-packet one-way delay: 216.591 ms

Loss rate: 1.49%

-- Flow 2:

Average throughput: 101.41 Mbit/s

95th percentile per-packet one-way delay: 187.466 ms

Loss rate: 0.87%

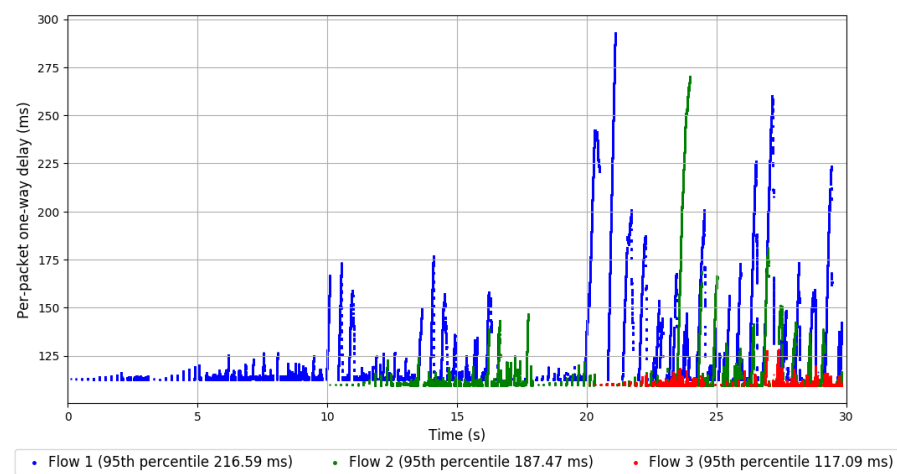
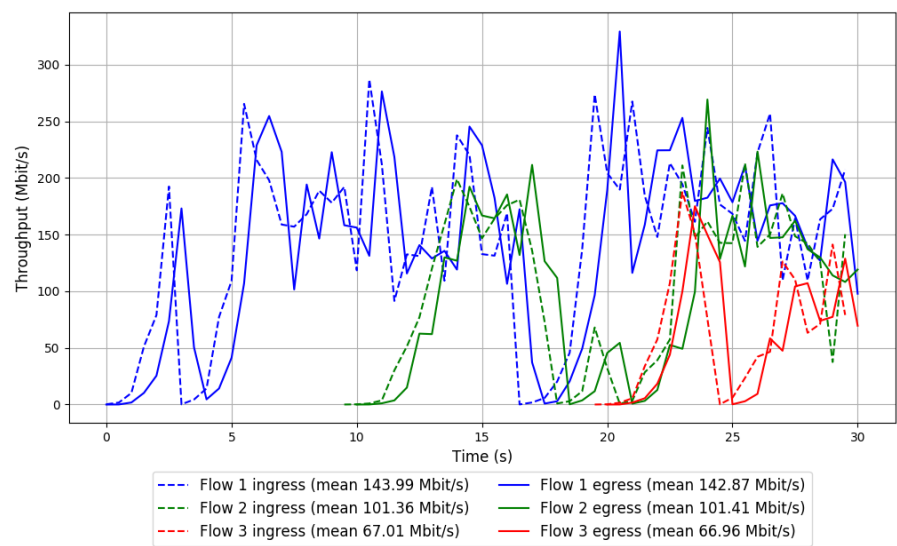
-- Flow 3:

Average throughput: 66.96 Mbit/s

95th percentile per-packet one-way delay: 117.094 ms

Loss rate: 2.28%

Run 1: Report of Verus — Data Link





Run 2: Statistics of Verus

Start at: 2018-11-02 22:41:30

End at: 2018-11-02 22:42:00

Local clock offset: 0.33 ms

Remote clock offset: 0.489 ms

# Below is generated by plot.py at 2018-11-03 02:36:28

# Datalink statistics

-- Total of 3 flows:

Average throughput: 234.97 Mbit/s

95th percentile per-packet one-way delay: 277.479 ms

Loss rate: 3.79%

-- Flow 1:

Average throughput: 112.70 Mbit/s

95th percentile per-packet one-way delay: 158.043 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 128.29 Mbit/s

95th percentile per-packet one-way delay: 189.322 ms

Loss rate: 0.92%

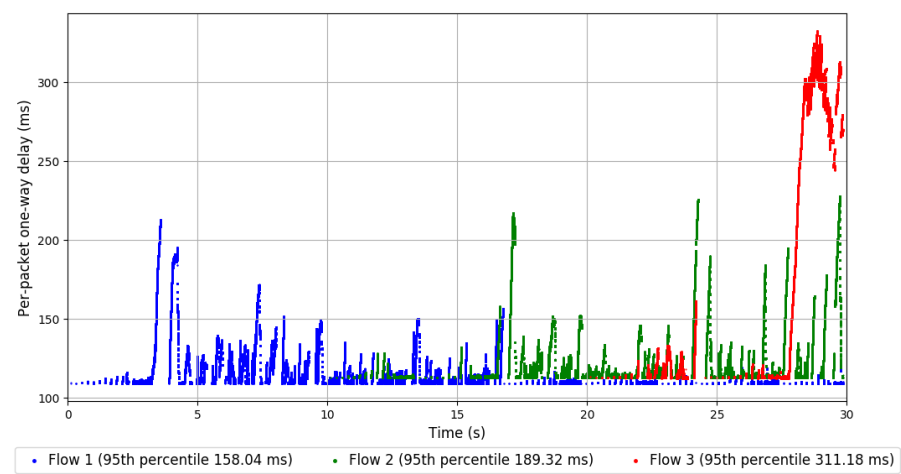
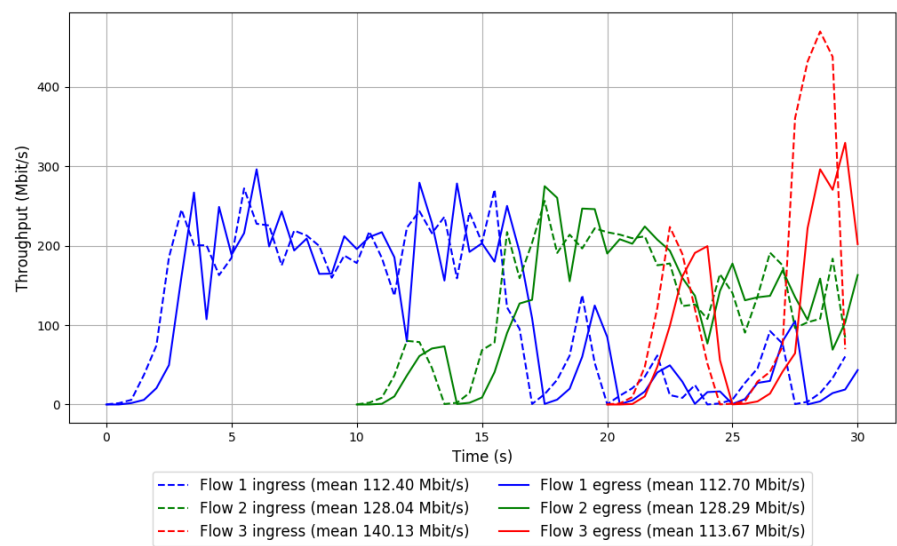
-- Flow 3:

Average throughput: 113.67 Mbit/s

95th percentile per-packet one-way delay: 311.179 ms

Loss rate: 17.61%

Run 2: Report of Verus — Data Link

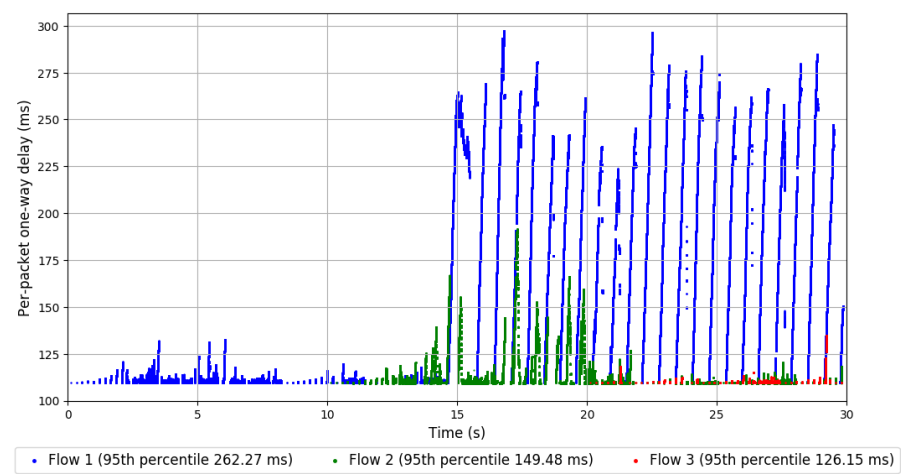
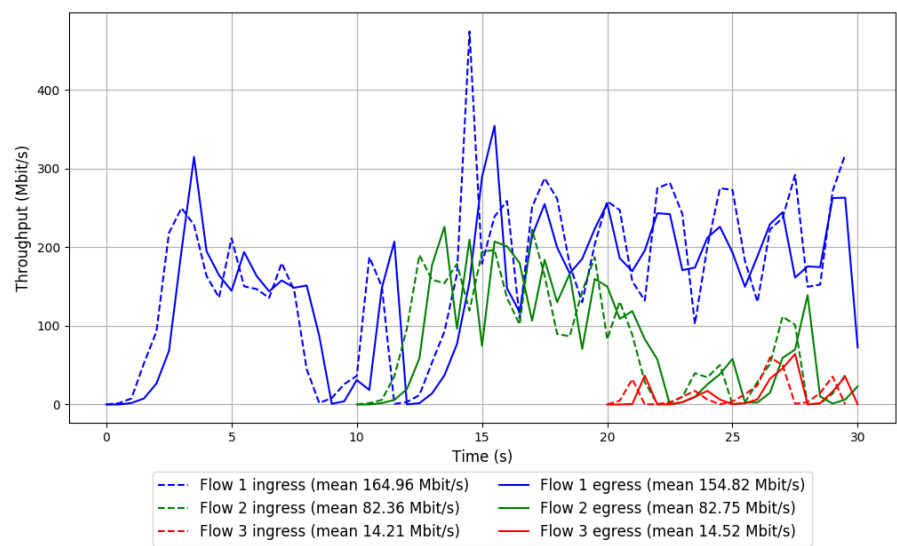


Run 3: Statistics of Verus

Start at: 2018-11-02 23:13:12  
End at: 2018-11-02 23:13:42  
Local clock offset: -0.077 ms  
Remote clock offset: -0.394 ms

# Below is generated by plot.py at 2018-11-03 02:36:28  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 214.32 Mbit/s  
95th percentile per-packet one-way delay: 258.830 ms  
Loss rate: 5.16%  
-- Flow 1:  
Average throughput: 154.82 Mbit/s  
95th percentile per-packet one-way delay: 262.270 ms  
Loss rate: 6.79%  
-- Flow 2:  
Average throughput: 82.75 Mbit/s  
95th percentile per-packet one-way delay: 149.477 ms  
Loss rate: 0.67%  
-- Flow 3:  
Average throughput: 14.52 Mbit/s  
95th percentile per-packet one-way delay: 126.153 ms  
Loss rate: 0.11%

Run 3: Report of Verus — Data Link

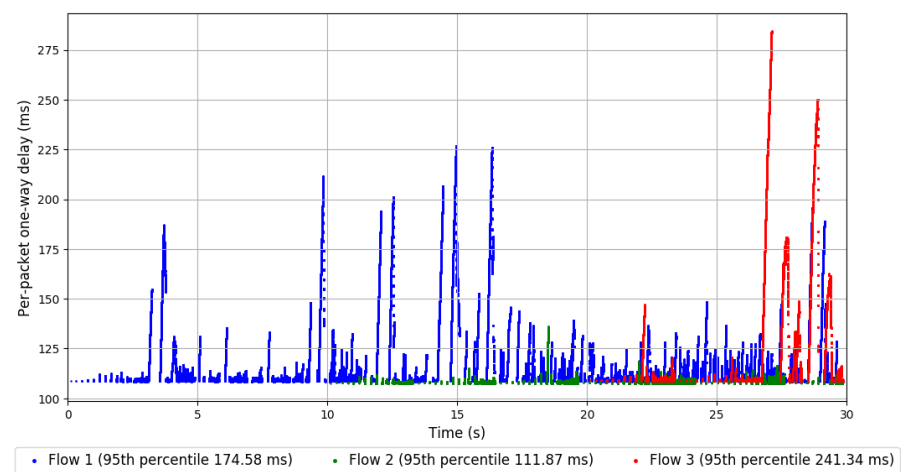
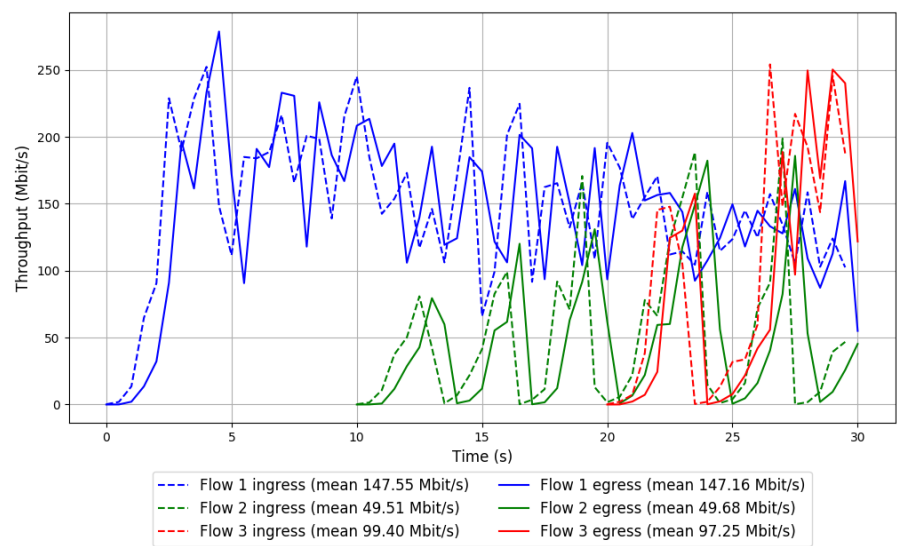


Run 4: Statistics of Verus

Start at: 2018-11-02 23:45:22  
End at: 2018-11-02 23:45:52  
Local clock offset: -0.734 ms  
Remote clock offset: -0.079 ms

# Below is generated by plot.py at 2018-11-03 02:36:38  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 211.92 Mbit/s  
95th percentile per-packet one-way delay: 181.760 ms  
Loss rate: 1.44%  
-- Flow 1:  
Average throughput: 147.16 Mbit/s  
95th percentile per-packet one-way delay: 174.577 ms  
Loss rate: 0.98%  
-- Flow 2:  
Average throughput: 49.68 Mbit/s  
95th percentile per-packet one-way delay: 111.870 ms  
Loss rate: 0.76%  
-- Flow 3:  
Average throughput: 97.25 Mbit/s  
95th percentile per-packet one-way delay: 241.339 ms  
Loss rate: 4.20%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-03 00:17:40

End at: 2018-11-03 00:18:10

Local clock offset: -0.043 ms

Remote clock offset: 0.037 ms

# Below is generated by plot.py at 2018-11-03 02:39:11

# Datalink statistics

-- Total of 3 flows:

Average throughput: 253.49 Mbit/s

95th percentile per-packet one-way delay: 259.583 ms

Loss rate: 5.91%

-- Flow 1:

Average throughput: 111.85 Mbit/s

95th percentile per-packet one-way delay: 244.552 ms

Loss rate: 1.02%

-- Flow 2:

Average throughput: 169.62 Mbit/s

95th percentile per-packet one-way delay: 273.796 ms

Loss rate: 11.49%

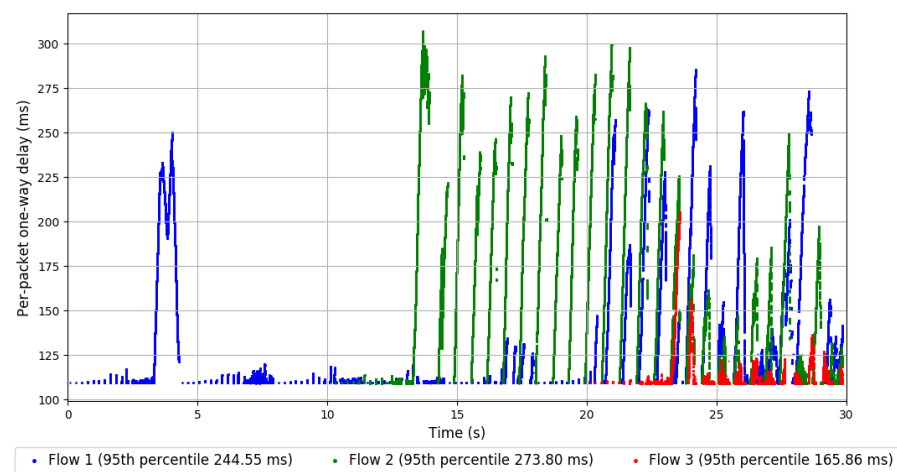
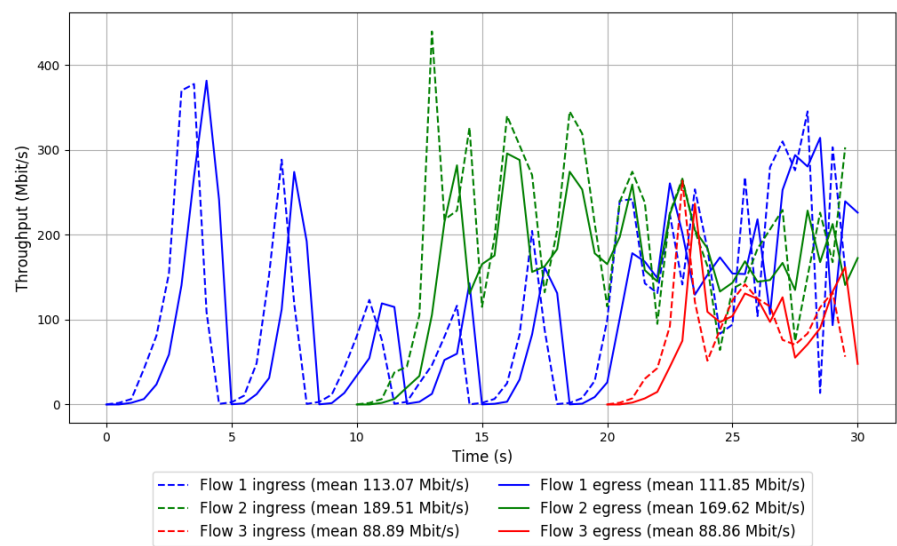
-- Flow 3:

Average throughput: 88.86 Mbit/s

95th percentile per-packet one-way delay: 165.859 ms

Loss rate: 0.48%

Run 5: Report of Verus — Data Link





Run 1: Statistics of PCC-Vivace

Start at: 2018-11-02 21:50:48

End at: 2018-11-02 21:51:18

Local clock offset: 0.283 ms

Remote clock offset: 0.341 ms

# Below is generated by plot.py at 2018-11-03 02:40:18

# Datalink statistics

-- Total of 3 flows:

Average throughput: 474.69 Mbit/s

95th percentile per-packet one-way delay: 110.077 ms

Loss rate: 1.12%

-- Flow 1:

Average throughput: 311.94 Mbit/s

95th percentile per-packet one-way delay: 108.787 ms

Loss rate: 0.76%

-- Flow 2:

Average throughput: 178.68 Mbit/s

95th percentile per-packet one-way delay: 110.743 ms

Loss rate: 1.30%

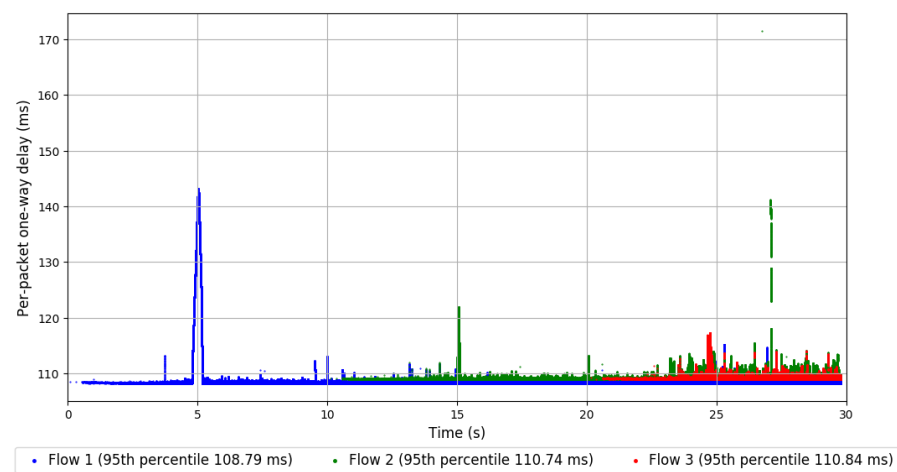
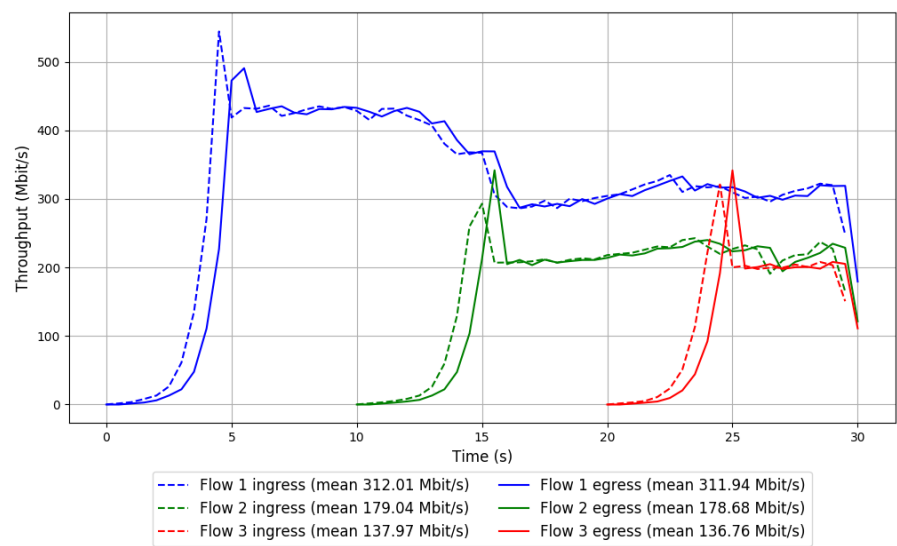
-- Flow 3:

Average throughput: 136.76 Mbit/s

95th percentile per-packet one-way delay: 110.845 ms

Loss rate: 3.09%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-11-02 22:22:55

End at: 2018-11-02 22:23:25

Local clock offset: -1.069 ms

Remote clock offset: 0.545 ms

# Below is generated by plot.py at 2018-11-03 02:40:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 450.04 Mbit/s

95th percentile per-packet one-way delay: 122.655 ms

Loss rate: 1.21%

-- Flow 1:

Average throughput: 274.87 Mbit/s

95th percentile per-packet one-way delay: 135.793 ms

Loss rate: 0.70%

-- Flow 2:

Average throughput: 194.98 Mbit/s

95th percentile per-packet one-way delay: 110.459 ms

Loss rate: 1.46%

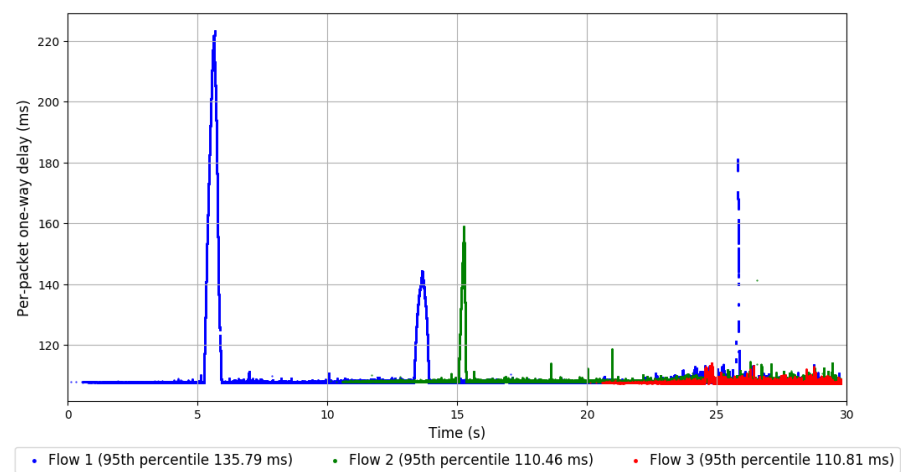
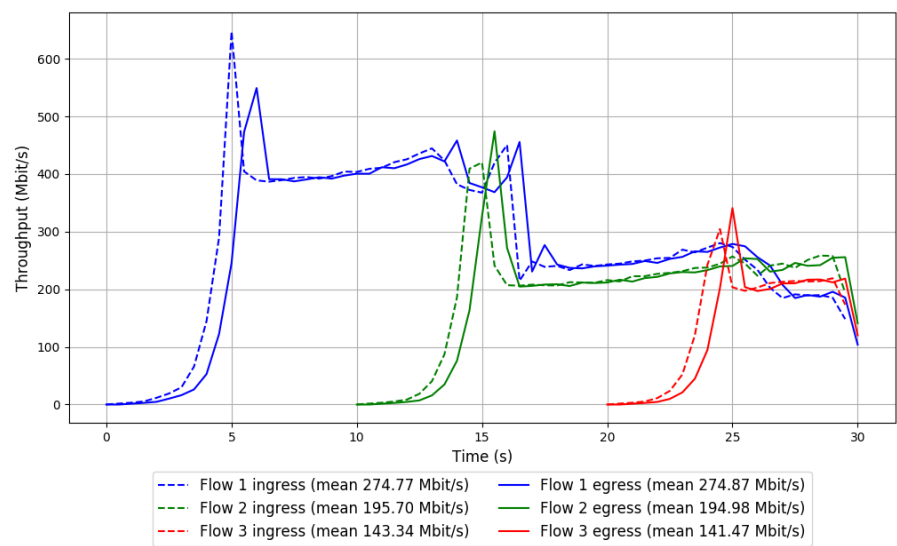
-- Flow 3:

Average throughput: 141.47 Mbit/s

95th percentile per-packet one-way delay: 110.808 ms

Loss rate: 3.50%

Run 2: Report of PCC-Vivace — Data Link

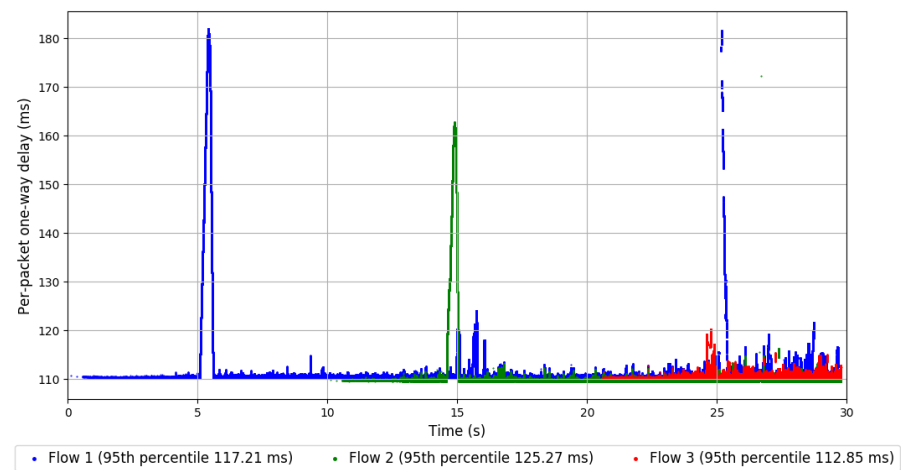
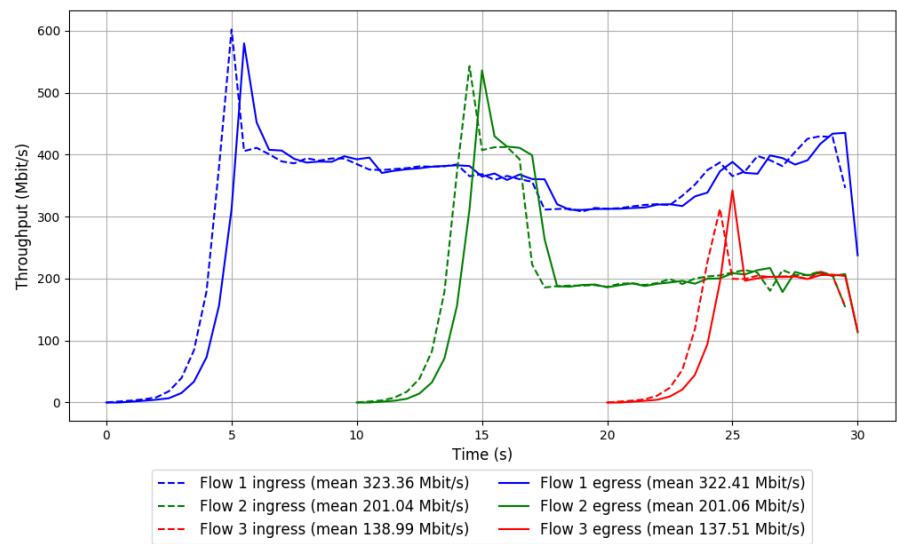


Run 3: Statistics of PCC-Vivace

Start at: 2018-11-02 22:54:44  
End at: 2018-11-02 22:55:14  
Local clock offset: 1.183 ms  
Remote clock offset: -0.005 ms

# Below is generated by plot.py at 2018-11-03 02:42:10  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 500.26 Mbit/s  
95th percentile per-packet one-way delay: 116.979 ms  
Loss rate: 1.25%  
-- Flow 1:  
Average throughput: 322.41 Mbit/s  
95th percentile per-packet one-way delay: 117.206 ms  
Loss rate: 1.03%  
-- Flow 2:  
Average throughput: 201.06 Mbit/s  
95th percentile per-packet one-way delay: 125.268 ms  
Loss rate: 1.09%  
-- Flow 3:  
Average throughput: 137.51 Mbit/s  
95th percentile per-packet one-way delay: 112.851 ms  
Loss rate: 3.24%

Run 3: Report of PCC-Vivace — Data Link

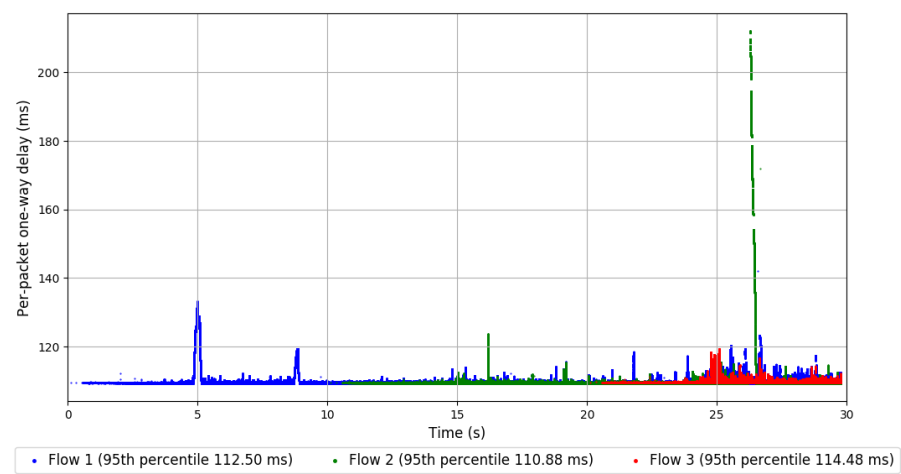
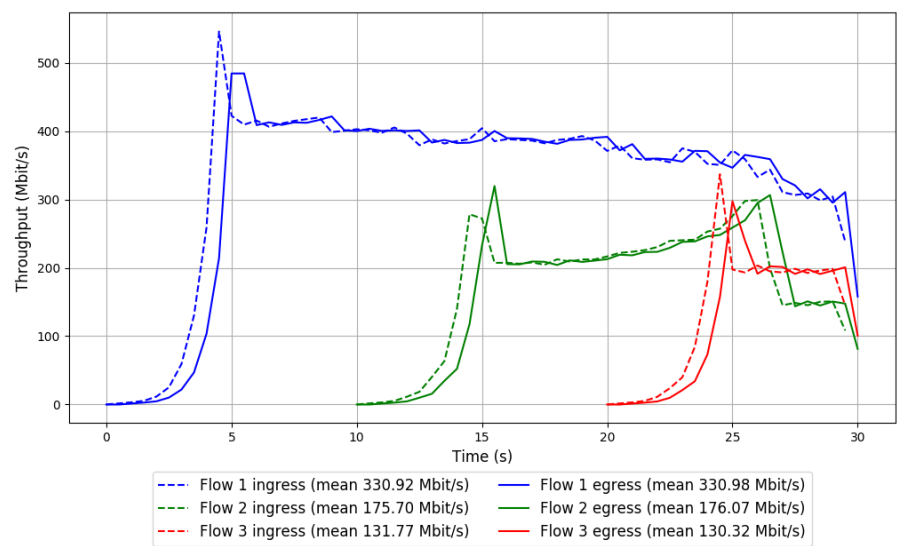


Run 4: Statistics of PCC-Vivace

Start at: 2018-11-02 23:26:41  
End at: 2018-11-02 23:27:11  
Local clock offset: -0.148 ms  
Remote clock offset: -0.086 ms

# Below is generated by plot.py at 2018-11-03 02:42:10  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 490.03 Mbit/s  
95th percentile per-packet one-way delay: 112.338 ms  
Loss rate: 0.98%  
-- Flow 1:  
Average throughput: 330.98 Mbit/s  
95th percentile per-packet one-way delay: 112.503 ms  
Loss rate: 0.71%  
-- Flow 2:  
Average throughput: 176.07 Mbit/s  
95th percentile per-packet one-way delay: 110.881 ms  
Loss rate: 0.89%  
-- Flow 3:  
Average throughput: 130.32 Mbit/s  
95th percentile per-packet one-way delay: 114.482 ms  
Loss rate: 3.29%

Run 4: Report of PCC-Vivace — Data Link



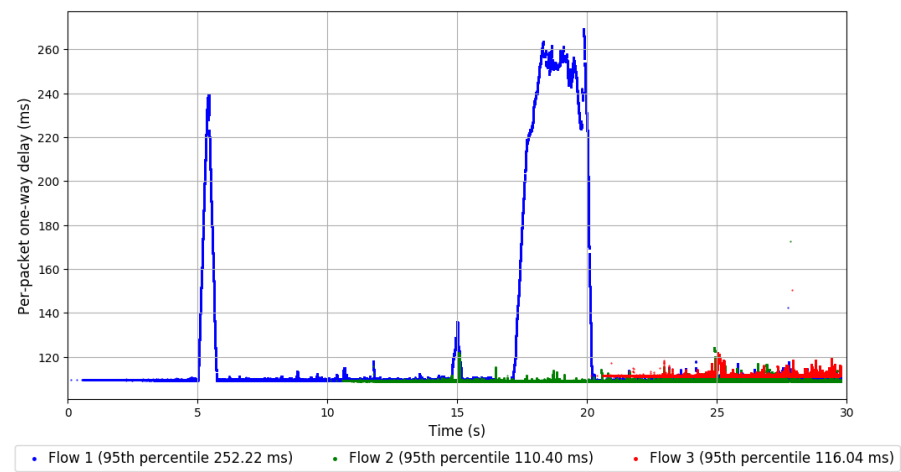
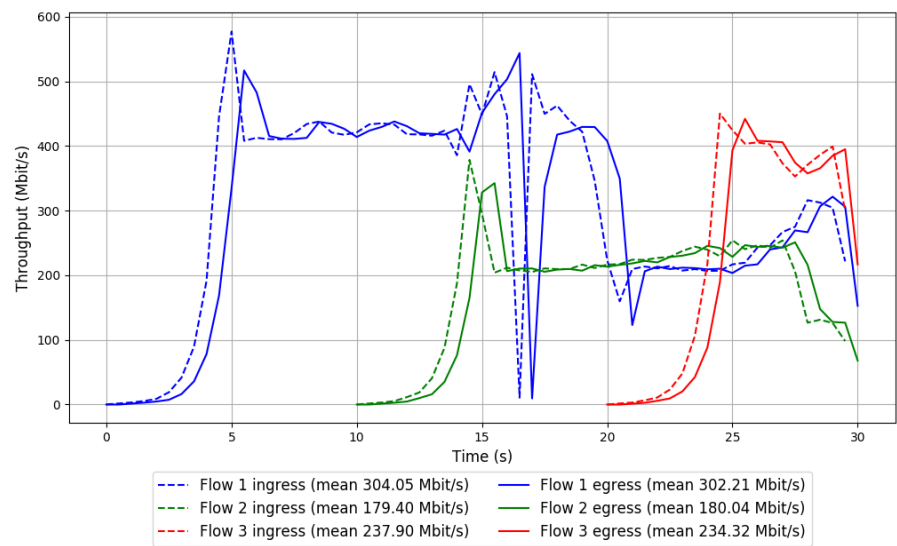


Run 5: Statistics of PCC-Vivace

Start at: 2018-11-02 23:58:47  
End at: 2018-11-02 23:59:17  
Local clock offset: -0.172 ms  
Remote clock offset: -0.042 ms

# Below is generated by plot.py at 2018-11-03 02:42:11  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 497.45 Mbit/s  
95th percentile per-packet one-way delay: 239.055 ms  
Loss rate: 1.60%  
-- Flow 1:  
Average throughput: 302.21 Mbit/s  
95th percentile per-packet one-way delay: 252.219 ms  
Loss rate: 1.35%  
-- Flow 2:  
Average throughput: 180.04 Mbit/s  
95th percentile per-packet one-way delay: 110.402 ms  
Loss rate: 0.83%  
-- Flow 3:  
Average throughput: 234.32 Mbit/s  
95th percentile per-packet one-way delay: 116.036 ms  
Loss rate: 3.75%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-11-02 22:17:59

End at: 2018-11-02 22:18:29

Local clock offset: 1.411 ms

Remote clock offset: 0.165 ms

# Below is generated by plot.py at 2018-11-03 02:42:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.76 Mbit/s

95th percentile per-packet one-way delay: 114.022 ms

Loss rate: 1.73%

-- Flow 1:

Average throughput: 1.35 Mbit/s

95th percentile per-packet one-way delay: 111.089 ms

Loss rate: 1.28%

-- Flow 2:

Average throughput: 1.07 Mbit/s

95th percentile per-packet one-way delay: 110.645 ms

Loss rate: 1.36%

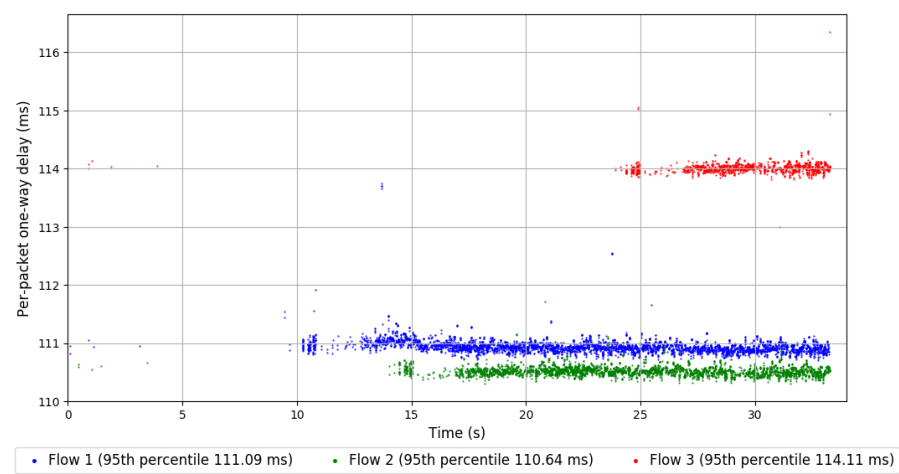
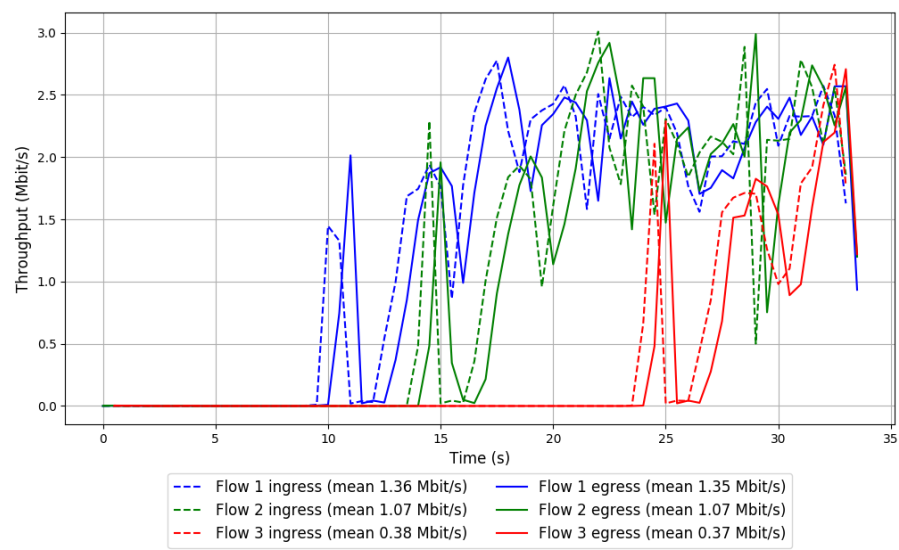
-- Flow 3:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 114.115 ms

Loss rate: 4.41%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-11-02 22:49:48

End at: 2018-11-02 22:50:18

Local clock offset: 0.012 ms

Remote clock offset: 0.362 ms

# Below is generated by plot.py at 2018-11-03 02:42:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.10 Mbit/s

95th percentile per-packet one-way delay: 109.269 ms

Loss rate: 1.35%

-- Flow 1:

Average throughput: 1.77 Mbit/s

95th percentile per-packet one-way delay: 109.309 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 1.00 Mbit/s

95th percentile per-packet one-way delay: 108.385 ms

Loss rate: 1.34%

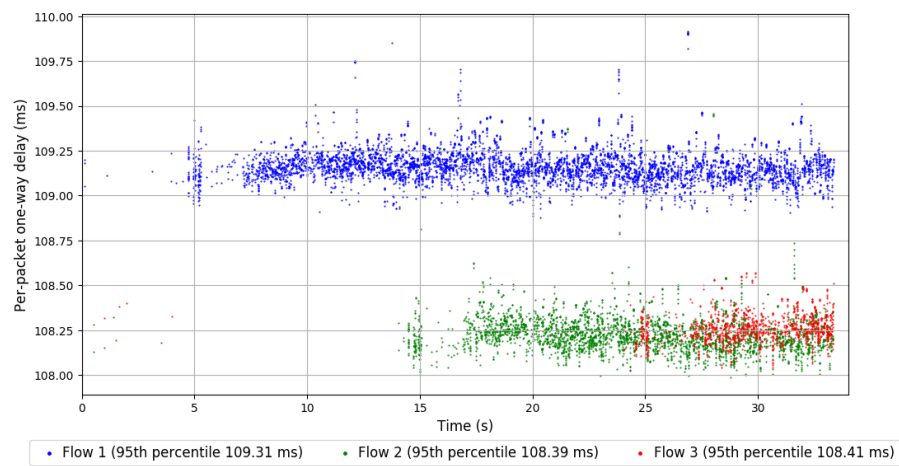
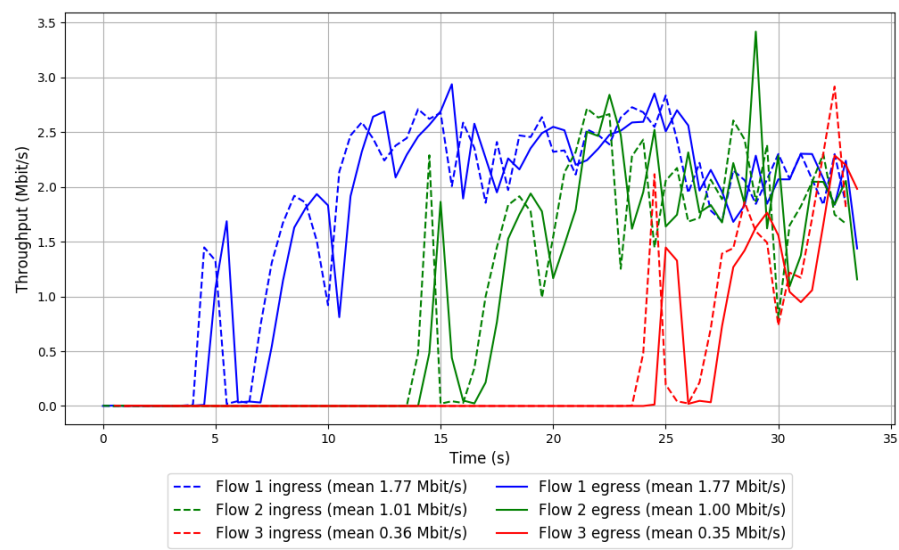
-- Flow 3:

Average throughput: 0.35 Mbit/s

95th percentile per-packet one-way delay: 108.408 ms

Loss rate: 4.26%

Run 2: Report of WebRTC media — Data Link

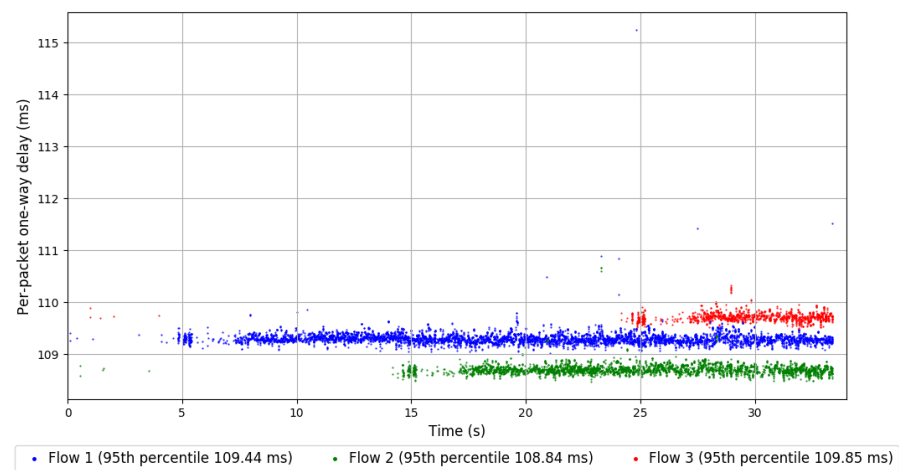
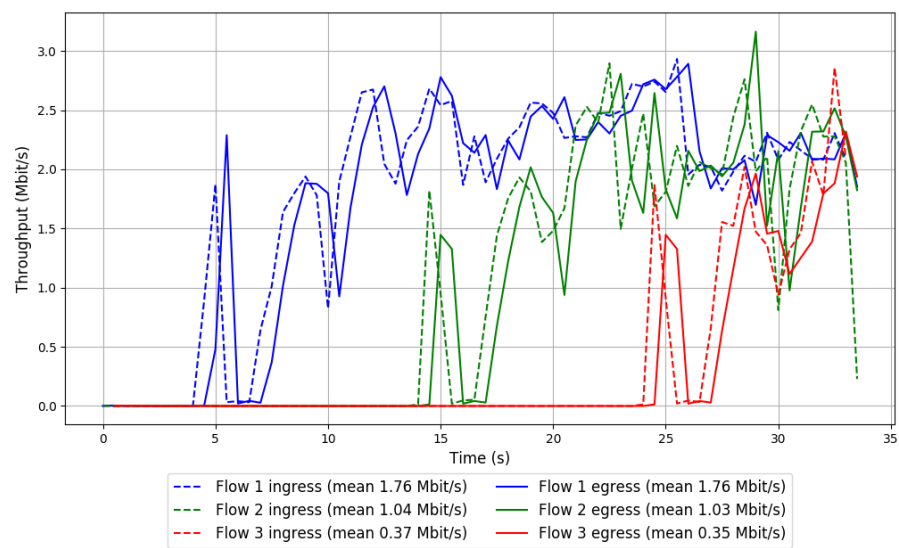


Run 3: Statistics of WebRTC media

Start at: 2018-11-02 23:21:37  
End at: 2018-11-02 23:22:07  
Local clock offset: -0.057 ms  
Remote clock offset: -0.087 ms

# Below is generated by plot.py at 2018-11-03 02:42:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.12 Mbit/s  
95th percentile per-packet one-way delay: 109.715 ms  
Loss rate: 1.27%  
-- Flow 1:  
Average throughput: 1.76 Mbit/s  
95th percentile per-packet one-way delay: 109.443 ms  
Loss rate: 0.59%  
-- Flow 2:  
Average throughput: 1.03 Mbit/s  
95th percentile per-packet one-way delay: 108.837 ms  
Loss rate: 1.34%  
-- Flow 3:  
Average throughput: 0.35 Mbit/s  
95th percentile per-packet one-way delay: 109.848 ms  
Loss rate: 4.47%

Run 3: Report of WebRTC media — Data Link



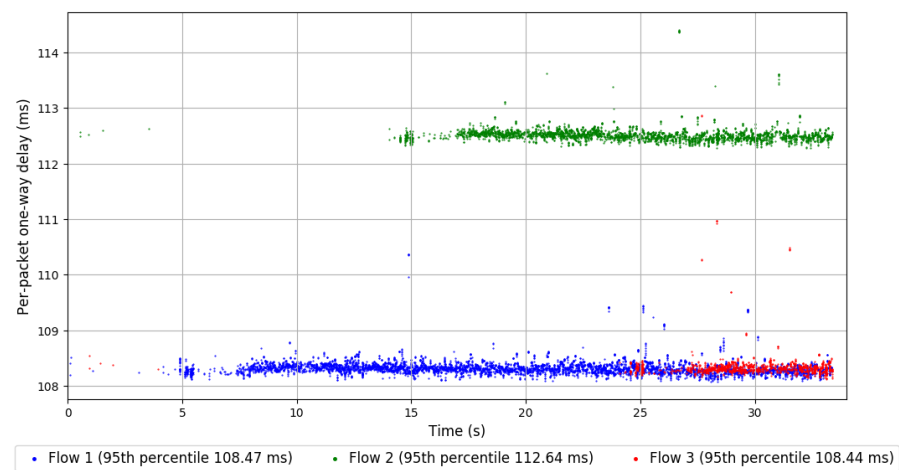
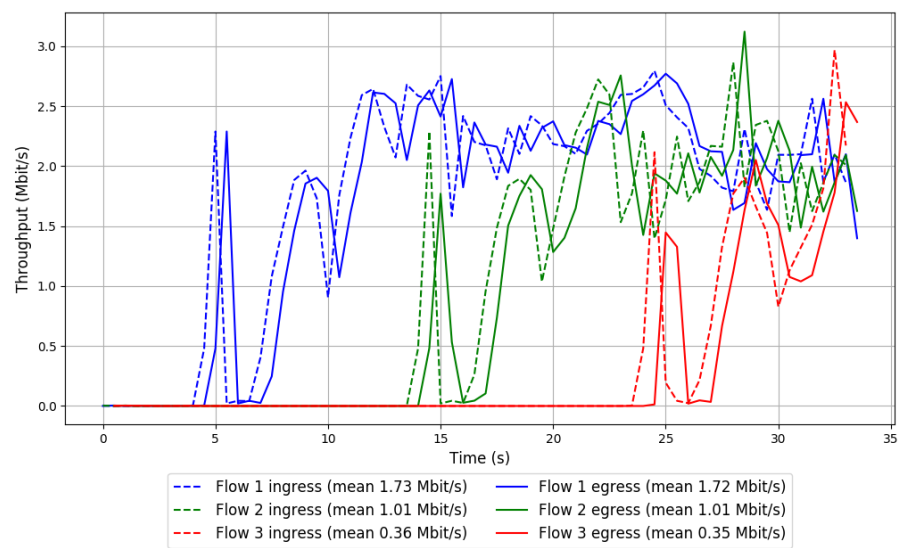


Run 4: Statistics of WebRTC media

Start at: 2018-11-02 23:53:47  
End at: 2018-11-02 23:54:17  
Local clock offset: -0.33 ms  
Remote clock offset: -0.041 ms

# Below is generated by plot.py at 2018-11-03 02:42:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.06 Mbit/s  
95th percentile per-packet one-way delay: 112.577 ms  
Loss rate: 1.20%  
-- Flow 1:  
Average throughput: 1.72 Mbit/s  
95th percentile per-packet one-way delay: 108.470 ms  
Loss rate: 0.81%  
-- Flow 2:  
Average throughput: 1.01 Mbit/s  
95th percentile per-packet one-way delay: 112.644 ms  
Loss rate: 1.27%  
-- Flow 3:  
Average throughput: 0.35 Mbit/s  
95th percentile per-packet one-way delay: 108.439 ms  
Loss rate: 2.98%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-03 00:26:08  
End at: 2018-11-03 00:26:38  
Local clock offset: 0.136 ms  
Remote clock offset: -0.031 ms

# Below is generated by plot.py at 2018-11-03 02:42:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.14 Mbit/s  
95th percentile per-packet one-way delay: 109.887 ms  
Loss rate: 1.37%  
-- Flow 1:  
Average throughput: 1.79 Mbit/s  
95th percentile per-packet one-way delay: 109.879 ms  
Loss rate: 0.95%  
-- Flow 2:  
Average throughput: 1.02 Mbit/s  
95th percentile per-packet one-way delay: 109.671 ms  
Loss rate: 1.37%  
-- Flow 3:  
Average throughput: 0.35 Mbit/s  
95th percentile per-packet one-way delay: 109.980 ms  
Loss rate: 3.49%

Run 5: Report of WebRTC media — Data Link

