

## Pantheon Report

Generated at 2018-10-26 06:02:41 (UTC).

Data path: AWS California 1 on `ens5` (*local*) → Stanford on `eno1` (*remote*).

Repeated the test of 18 congestion control schemes 5 times.

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

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

### System info:

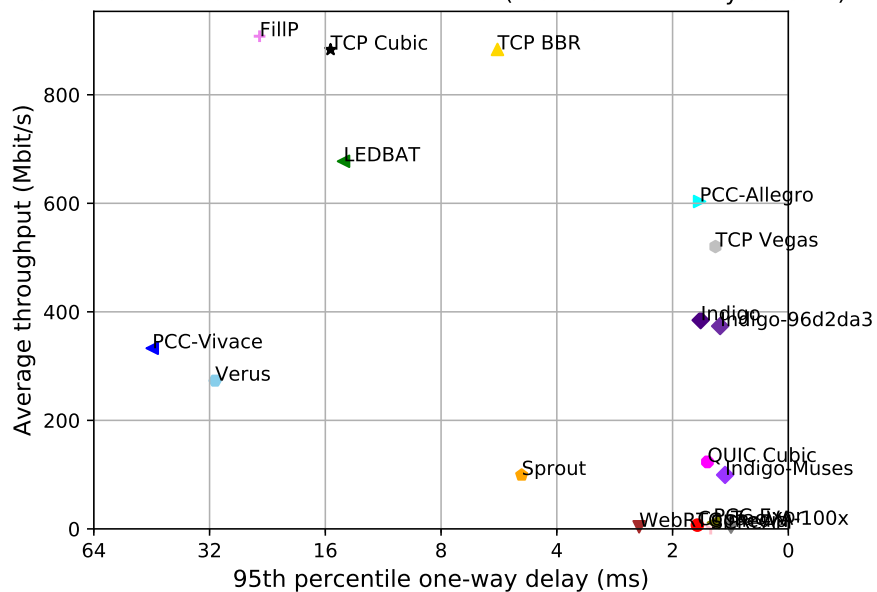
```
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

### Git summary:

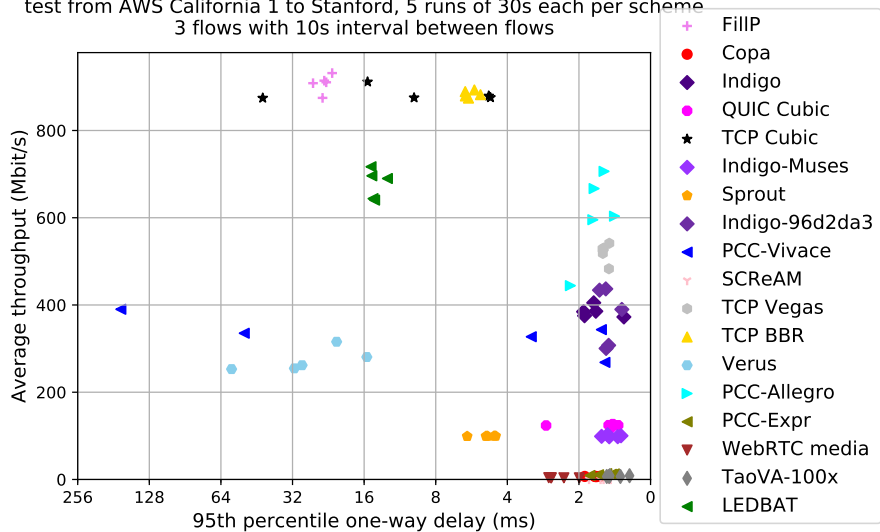
```
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
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 AWS California 1 to Stanford, 5 runs of 30s each per scheme  
3 flows with 10s interval between flows (mean of all runs by scheme)



test from AWS California 1 to Stanford, 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	493.62	439.10	298.38	5.58	6.08	3.04	5.43	8.91	13.29
Copa	5	0.00	7.43	6.97	1.27	1.56	1.57	98.45	45.42	42.00
TCP Cubic	5	520.99	387.25	313.25	19.45	2.19	2.22	0.07	0.06	0.07
FillP	5	562.83	354.89	329.65	23.95	13.90	27.31	14.38	24.17	27.60
Indigo	5	199.08	189.72	184.61	1.33	1.51	1.90	0.00	0.00	0.00
Indigo-96d2da3	5	197.76	177.85	175.58	1.21	1.13	1.09	0.00	0.00	0.00
LEDBAT	5	388.35	304.88	272.55	15.75	7.47	6.94	0.14	0.32	0.33
Indigo-Muses	5	49.78	49.56	50.98	1.10	1.10	1.04	0.00	0.00	0.00
PCC-Allegro	5	297.62	440.70	38.50	1.35	1.65	1.79	0.03	0.06	0.07
PCC-Expr	5	6.28	5.66	4.71	1.30	1.28	1.27	77.80	78.77	79.40
QUIC Cubic	5	65.49	62.29	50.51	1.34	2.32	3.44	0.00	0.00	0.00
SCReAM	5	0.22	0.22	0.22	1.35	1.33	1.31	0.00	0.00	0.00
Sprout	5	49.89	49.85	49.39	4.86	4.97	5.11	0.09	0.10	0.24
TaoVA-100x	5	0.00	5.96	10.91	1.17	1.02	0.93	95.92	49.68	75.27
TCP Vegas	5	253.26	270.53	260.88	1.38	1.19	1.25	0.01	0.01	0.02
Verus	5	151.45	121.59	124.83	17.30	36.05	58.66	3.28	6.56	6.14
PCC-Vivace	5	169.51	153.08	186.46	12.90	3.79	41.55	0.05	0.19	1.42
WebRTC media	5	1.99	1.37	0.49	2.40	2.37	2.69	0.00	0.00	0.00

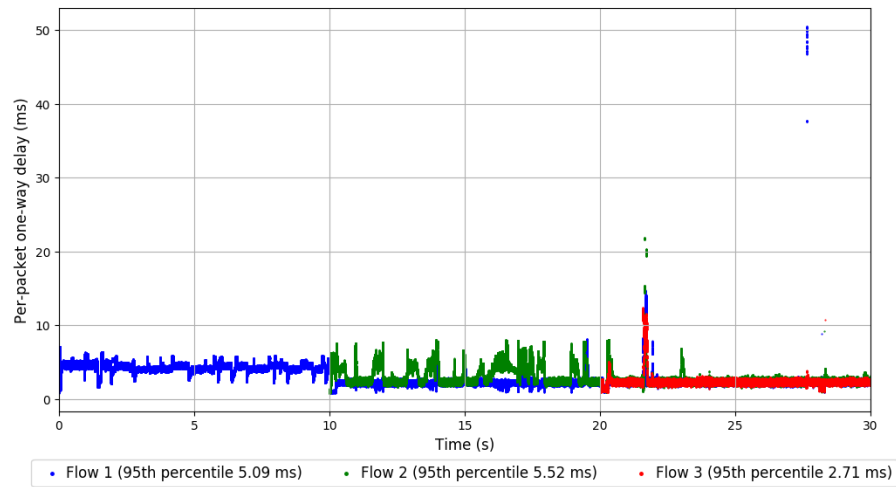
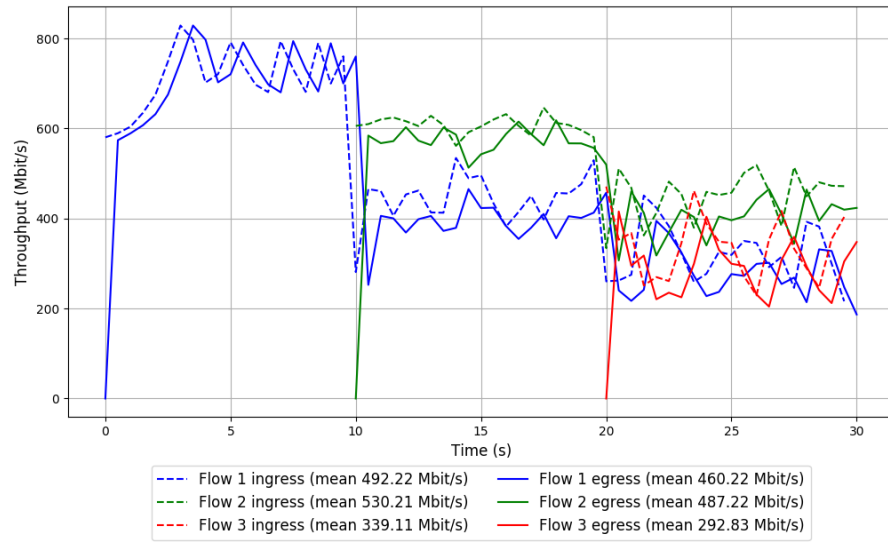


Run 1: Statistics of TCP BBR

Start at: 2018-10-26 02:56:14  
End at: 2018-10-26 02:56:44  
Local clock offset: 0.456 ms  
Remote clock offset: -2.244 ms

# Below is generated by plot.py at 2018-10-26 05:24:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 882.19 Mbit/s  
95th percentile per-packet one-way delay: 5.188 ms  
Loss rate: 7.93%  
-- Flow 1:  
Average throughput: 460.22 Mbit/s  
95th percentile per-packet one-way delay: 5.095 ms  
Loss rate: 6.50%  
-- Flow 2:  
Average throughput: 487.22 Mbit/s  
95th percentile per-packet one-way delay: 5.522 ms  
Loss rate: 8.10%  
-- Flow 3:  
Average throughput: 292.83 Mbit/s  
95th percentile per-packet one-way delay: 2.707 ms  
Loss rate: 13.65%

# Run 1: Report of TCP BBR — Data Link

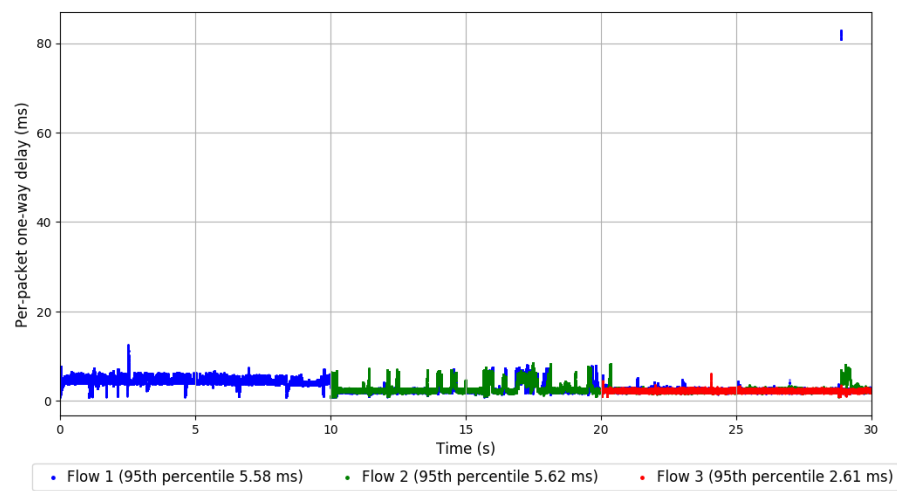
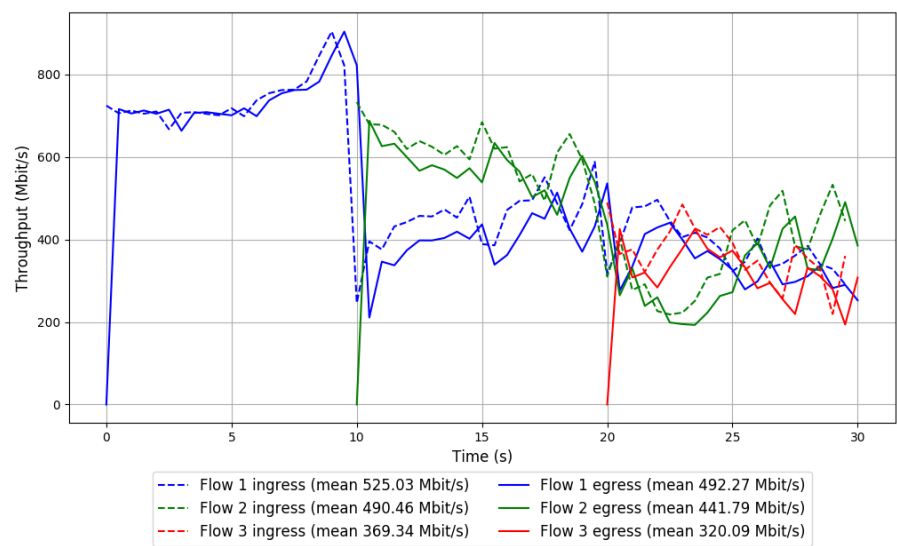


Run 2: Statistics of TCP BBR

Start at: 2018-10-26 03:23:50  
End at: 2018-10-26 03:24:20  
Local clock offset: 0.466 ms  
Remote clock offset: -5.688 ms

# Below is generated by plot.py at 2018-10-26 05:24:23  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 893.01 Mbit/s  
95th percentile per-packet one-way delay: 5.503 ms  
Loss rate: 8.36%  
-- Flow 1:  
Average throughput: 492.27 Mbit/s  
95th percentile per-packet one-way delay: 5.579 ms  
Loss rate: 6.23%  
-- Flow 2:  
Average throughput: 441.79 Mbit/s  
95th percentile per-packet one-way delay: 5.615 ms  
Loss rate: 9.92%  
-- Flow 3:  
Average throughput: 320.09 Mbit/s  
95th percentile per-packet one-way delay: 2.610 ms  
Loss rate: 13.33%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-10-26 03:51:21

End at: 2018-10-26 03:51:51

Local clock offset: -2.906 ms

Remote clock offset: -7.76 ms

# Below is generated by plot.py at 2018-10-26 05:24:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 879.23 Mbit/s

95th percentile per-packet one-way delay: 6.004 ms

Loss rate: 6.35%

-- Flow 1:

Average throughput: 479.27 Mbit/s

95th percentile per-packet one-way delay: 5.793 ms

Loss rate: 5.16%

-- Flow 2:

Average throughput: 482.47 Mbit/s

95th percentile per-packet one-way delay: 6.488 ms

Loss rate: 6.23%

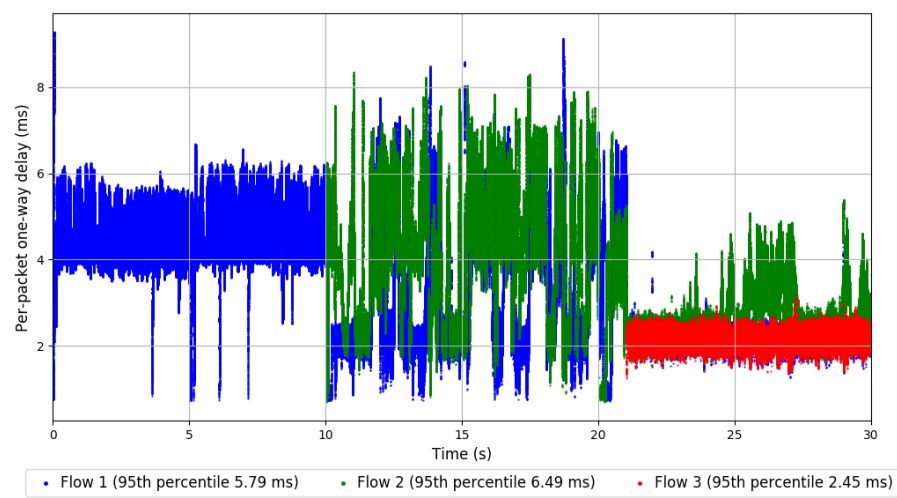
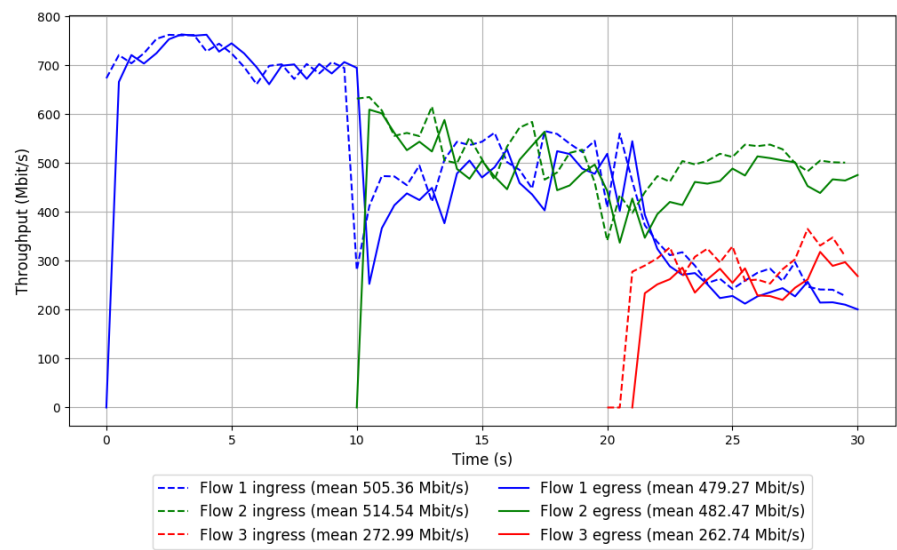
-- Flow 3:

Average throughput: 262.74 Mbit/s

95th percentile per-packet one-way delay: 2.450 ms

Loss rate: 13.43%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-10-26 04:18:45

End at: 2018-10-26 04:19:15

Local clock offset: -2.836 ms

Remote clock offset: 5.887 ms

# Below is generated by plot.py at 2018-10-26 05:24:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 889.23 Mbit/s

95th percentile per-packet one-way delay: 6.013 ms

Loss rate: 7.98%

-- Flow 1:

Average throughput: 493.73 Mbit/s

95th percentile per-packet one-way delay: 5.756 ms

Loss rate: 5.76%

-- Flow 2:

Average throughput: 411.51 Mbit/s

95th percentile per-packet one-way delay: 6.455 ms

Loss rate: 9.90%

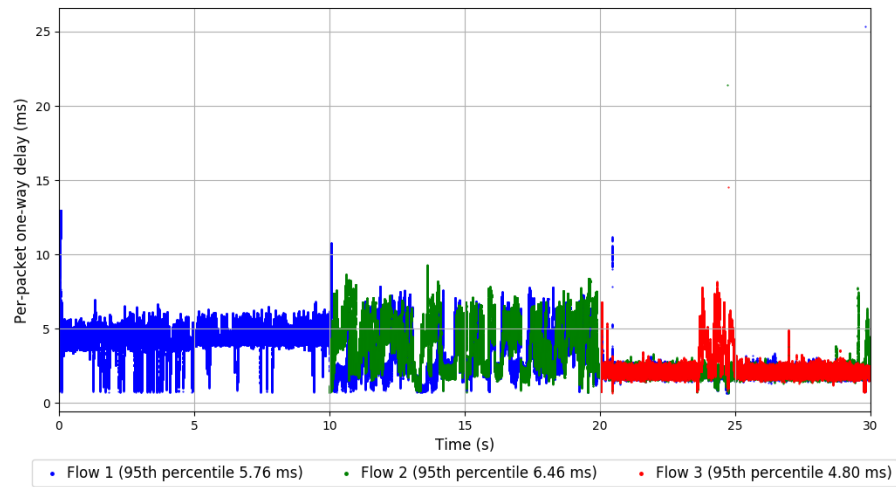
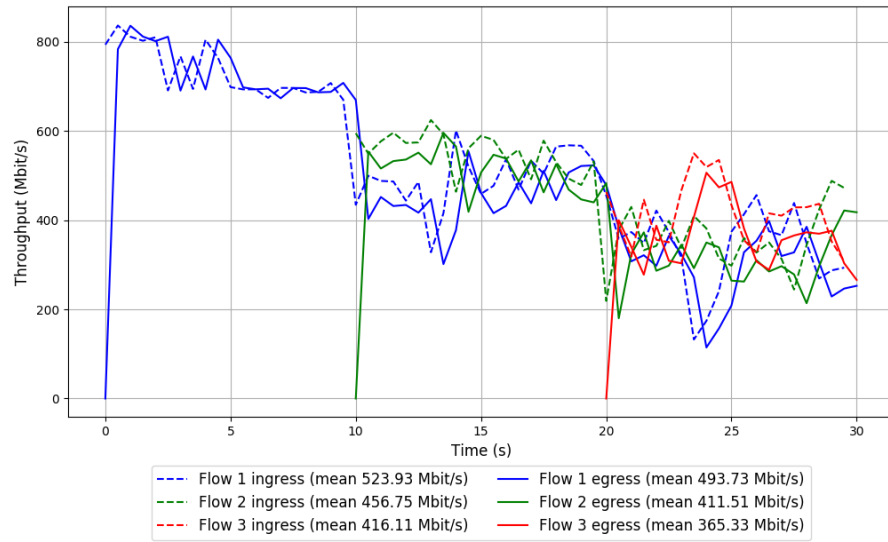
-- Flow 3:

Average throughput: 365.33 Mbit/s

95th percentile per-packet one-way delay: 4.800 ms

Loss rate: 12.20%

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





Run 5: Statistics of TCP BBR

Start at: 2018-10-26 04:46:16

End at: 2018-10-26 04:46:46

Local clock offset: 0.038 ms

Remote clock offset: 4.805 ms

# Below is generated by plot.py at 2018-10-26 05:24:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 874.26 Mbit/s

95th percentile per-packet one-way delay: 5.827 ms

Loss rate: 6.61%

-- Flow 1:

Average throughput: 542.60 Mbit/s

95th percentile per-packet one-way delay: 5.694 ms

Loss rate: 3.50%

-- Flow 2:

Average throughput: 372.53 Mbit/s

95th percentile per-packet one-way delay: 6.297 ms

Loss rate: 10.39%

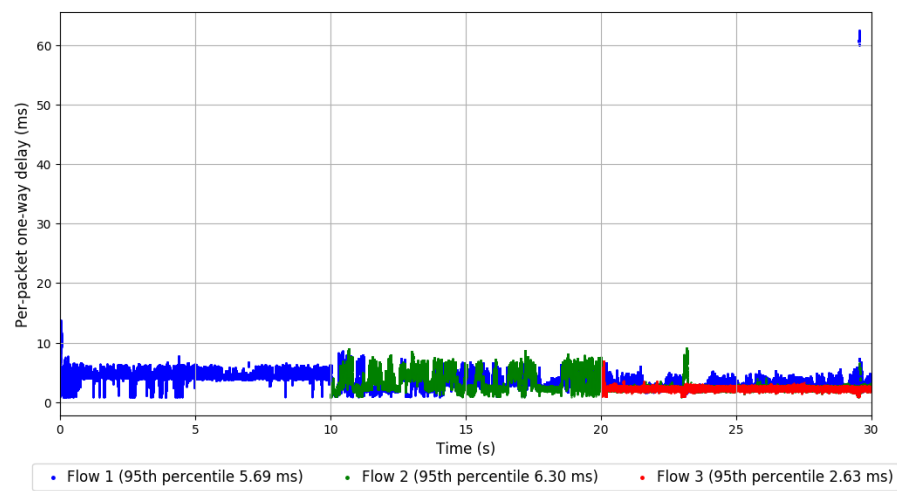
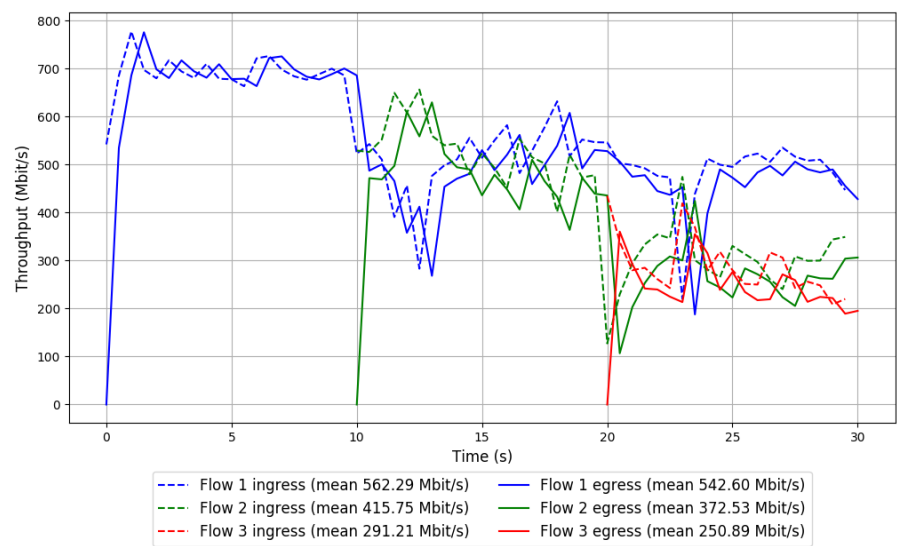
-- Flow 3:

Average throughput: 250.89 Mbit/s

95th percentile per-packet one-way delay: 2.635 ms

Loss rate: 13.85%

Run 5: Report of TCP BBR — Data Link

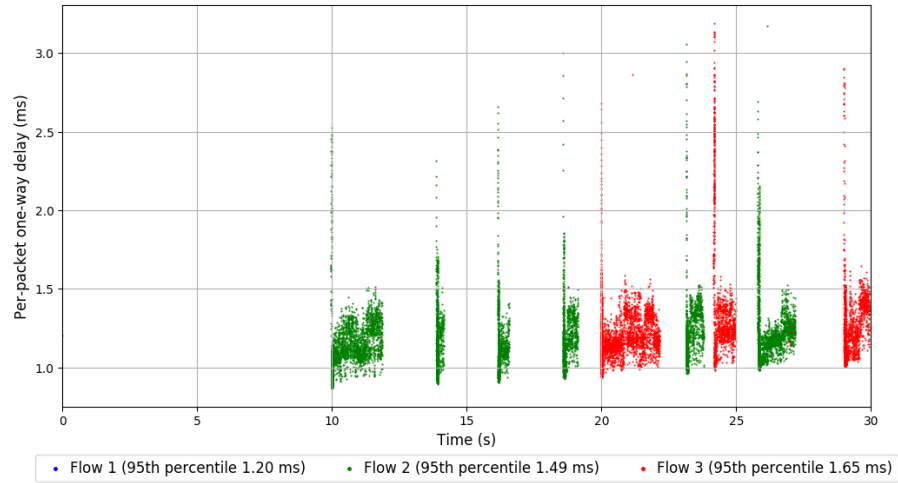
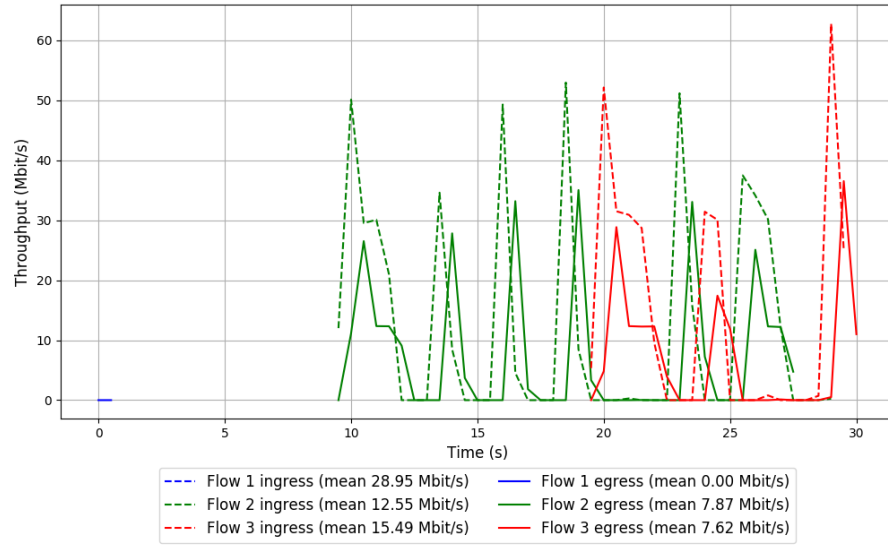


Run 1: Statistics of Copa

Start at: 2018-10-26 02:50:07  
End at: 2018-10-26 02:50:37  
Local clock offset: 0.387 ms  
Remote clock offset: -0.283 ms

# Below is generated by plot.py at 2018-10-26 05:24:23  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 7.06 Mbit/s  
95th percentile per-packet one-way delay: 1.540 ms  
Loss rate: 46.57%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 1.204 ms  
Loss rate: 98.80%  
-- Flow 2:  
Average throughput: 7.87 Mbit/s  
95th percentile per-packet one-way delay: 1.492 ms  
Loss rate: 43.84%  
-- Flow 3:  
Average throughput: 7.62 Mbit/s  
95th percentile per-packet one-way delay: 1.654 ms  
Loss rate: 50.81%

## Run 1: Report of Copa — Data Link

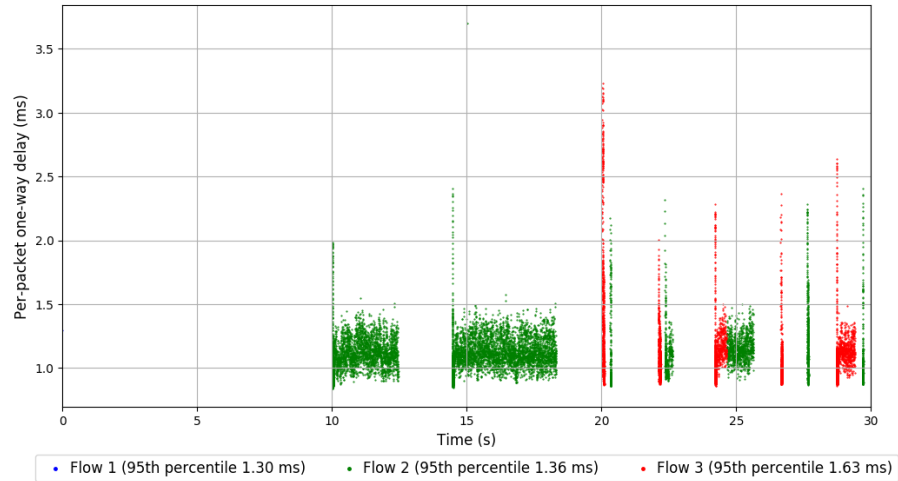
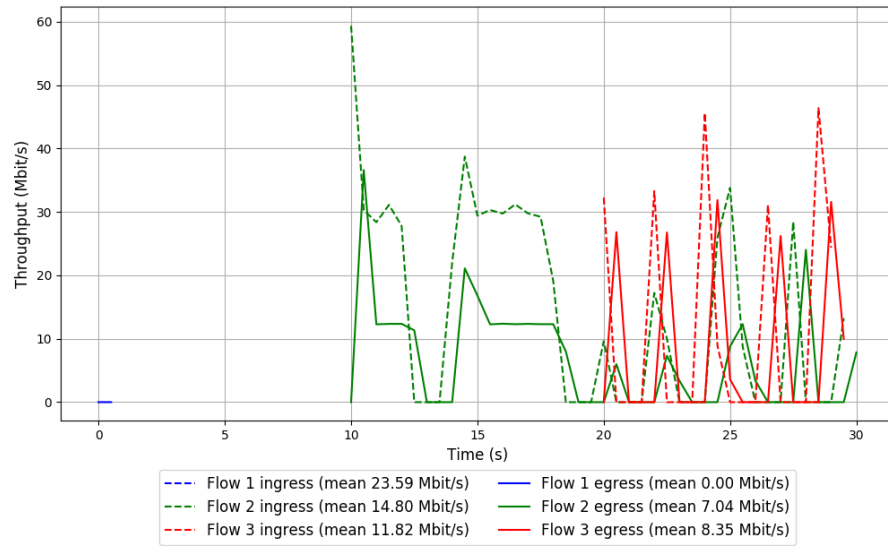


Run 2: Statistics of Copa

Start at: 2018-10-26 03:17:49  
End at: 2018-10-26 03:18:19  
Local clock offset: 0.46 ms  
Remote clock offset: -5.147 ms

# Below is generated by plot.py at 2018-10-26 05:24:23  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 7.31 Mbit/s  
95th percentile per-packet one-way delay: 1.405 ms  
Loss rate: 46.06%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 1.296 ms  
Loss rate: 98.60%  
-- Flow 2:  
Average throughput: 7.04 Mbit/s  
95th percentile per-packet one-way delay: 1.360 ms  
Loss rate: 52.41%  
-- Flow 3:  
Average throughput: 8.35 Mbit/s  
95th percentile per-packet one-way delay: 1.626 ms  
Loss rate: 29.33%

## Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-10-26 03:45:18

End at: 2018-10-26 03:45:48

Local clock offset: -2.376 ms

Remote clock offset: -7.21 ms

# Below is generated by plot.py at 2018-10-26 05:24:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 6.46 Mbit/s

95th percentile per-packet one-way delay: 1.516 ms

Loss rate: 43.66%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.416 ms

Loss rate: 98.33%

-- Flow 2:

Average throughput: 5.67 Mbit/s

95th percentile per-packet one-way delay: 1.516 ms

Loss rate: 37.33%

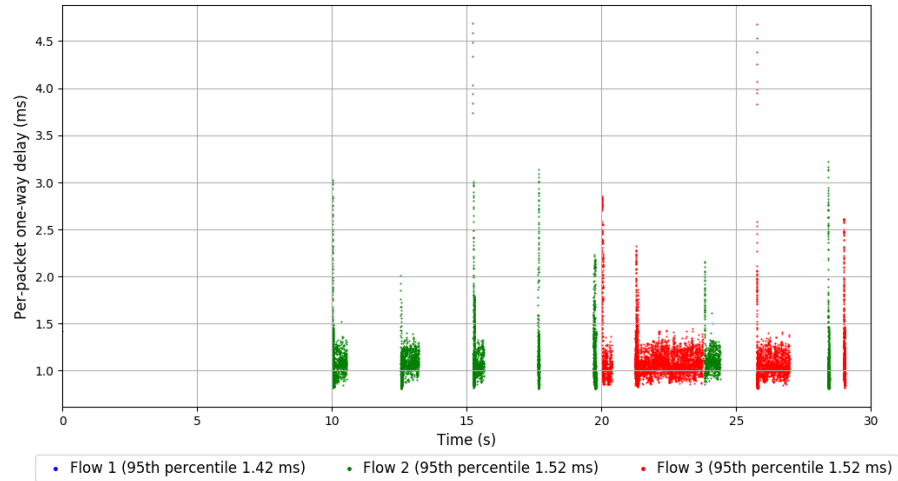
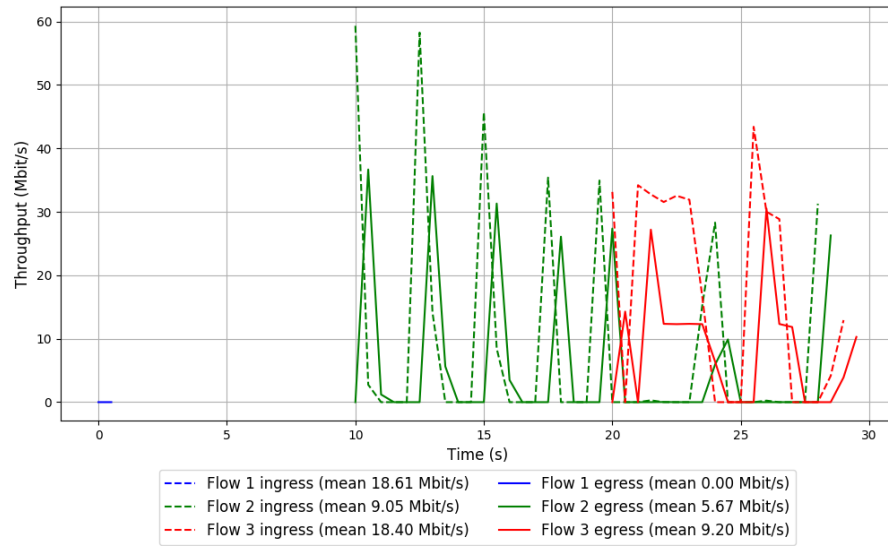
-- Flow 3:

Average throughput: 9.20 Mbit/s

95th percentile per-packet one-way delay: 1.521 ms

Loss rate: 50.01%

### Run 3: Report of Copa — Data Link





Run 4: Statistics of Copa

Start at: 2018-10-26 04:12:46

End at: 2018-10-26 04:13:16

Local clock offset: -2.884 ms

Remote clock offset: 4.503 ms

# Below is generated by plot.py at 2018-10-26 05:24:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 6.87 Mbit/s

95th percentile per-packet one-way delay: 1.557 ms

Loss rate: 47.91%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.139 ms

Loss rate: 97.92%

-- Flow 2:

Average throughput: 9.55 Mbit/s

95th percentile per-packet one-way delay: 1.588 ms

Loss rate: 48.95%

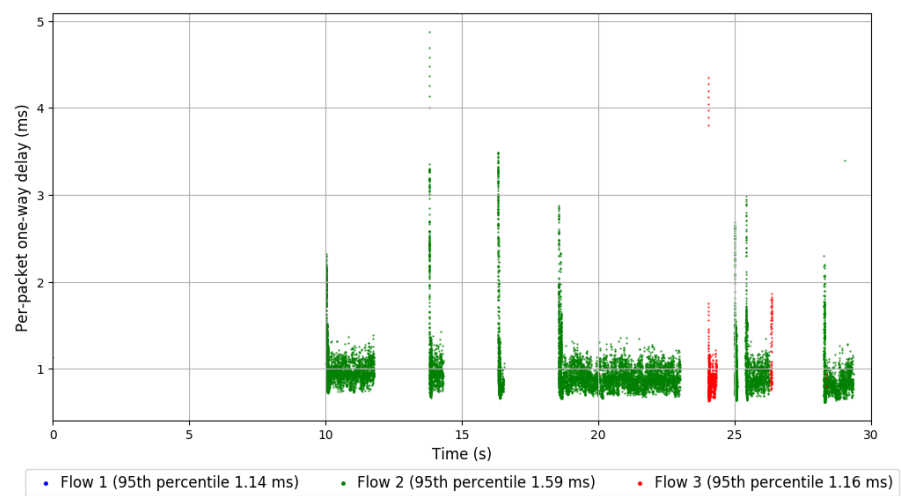
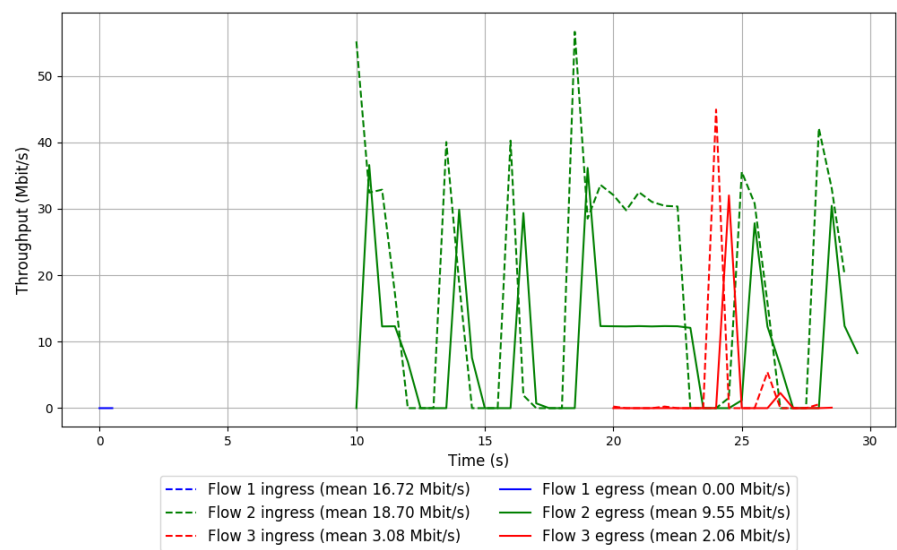
-- Flow 3:

Average throughput: 2.06 Mbit/s

95th percentile per-packet one-way delay: 1.164 ms

Loss rate: 33.14%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-10-26 04:40:16

End at: 2018-10-26 04:40:46

Local clock offset: -0.737 ms

Remote clock offset: 4.853 ms

# Below is generated by plot.py at 2018-10-26 05:24:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 6.97 Mbit/s

95th percentile per-packet one-way delay: 1.838 ms

Loss rate: 45.31%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.307 ms

Loss rate: 98.60%

-- Flow 2:

Average throughput: 7.03 Mbit/s

95th percentile per-packet one-way delay: 1.830 ms

Loss rate: 44.55%

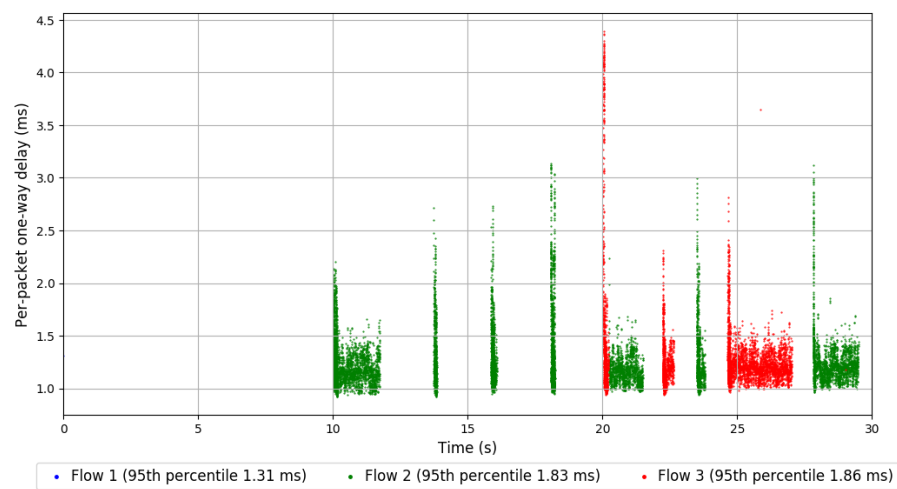
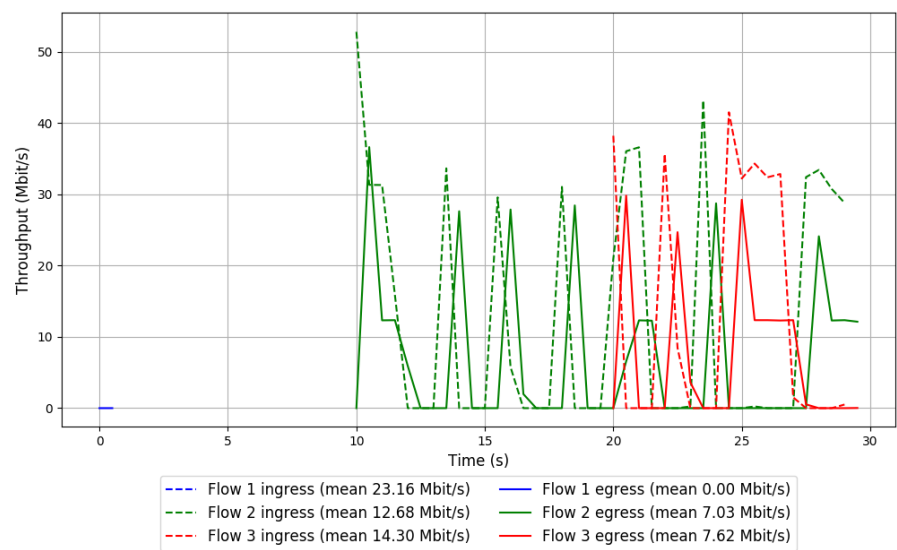
-- Flow 3:

Average throughput: 7.62 Mbit/s

95th percentile per-packet one-way delay: 1.862 ms

Loss rate: 46.73%

Run 5: Report of Copa — Data Link

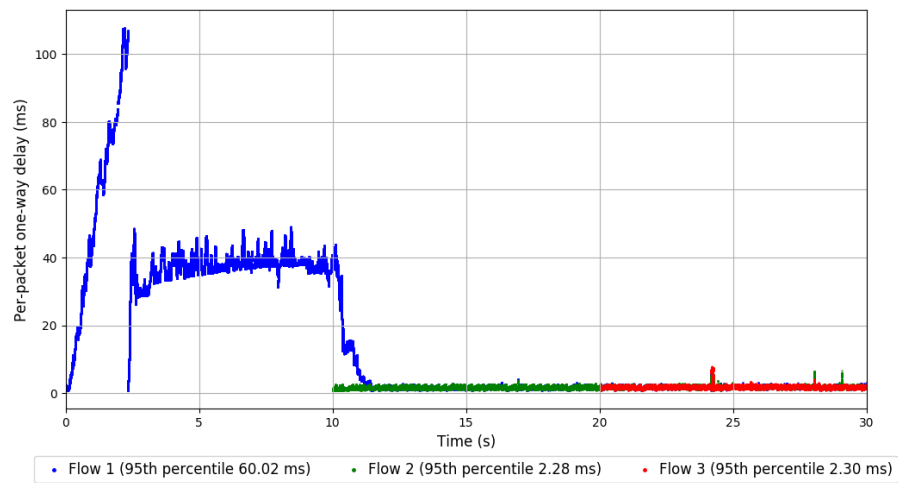
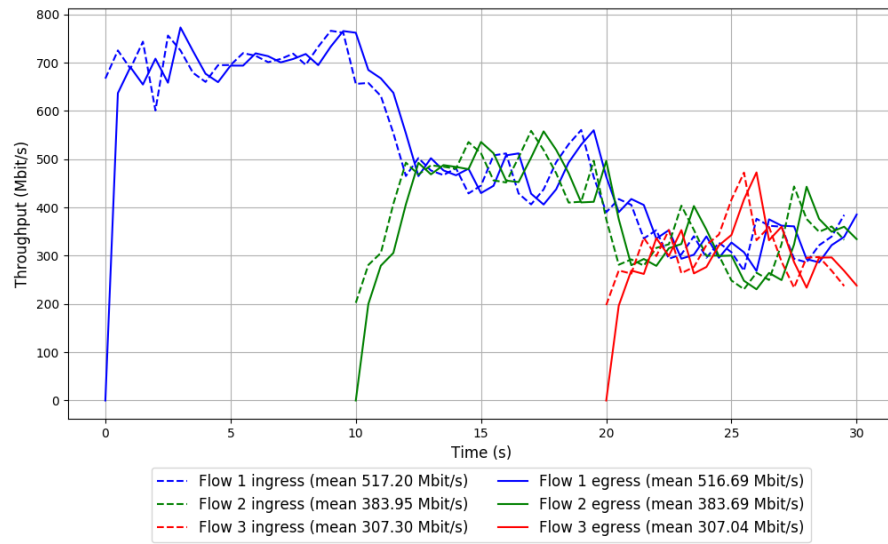


Run 1: Statistics of TCP Cubic

Start at: 2018-10-26 03:08:46  
End at: 2018-10-26 03:09:16  
Local clock offset: 0.453 ms  
Remote clock offset: -4.244 ms

# Below is generated by plot.py at 2018-10-26 05:24:23  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 874.41 Mbit/s  
95th percentile per-packet one-way delay: 42.698 ms  
Loss rate: 0.08%  
-- Flow 1:  
Average throughput: 516.69 Mbit/s  
95th percentile per-packet one-way delay: 60.016 ms  
Loss rate: 0.09%  
-- Flow 2:  
Average throughput: 383.69 Mbit/s  
95th percentile per-packet one-way delay: 2.280 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 307.04 Mbit/s  
95th percentile per-packet one-way delay: 2.296 ms  
Loss rate: 0.08%

# Run 1: Report of TCP Cubic — Data Link

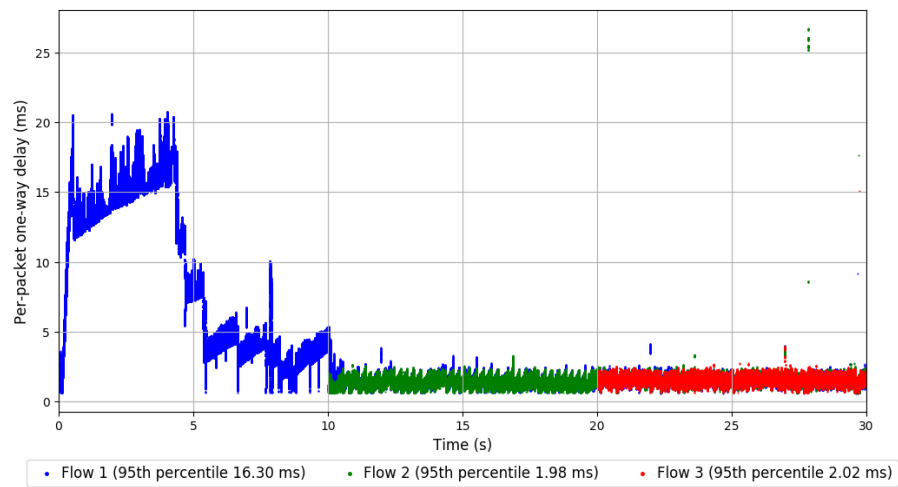
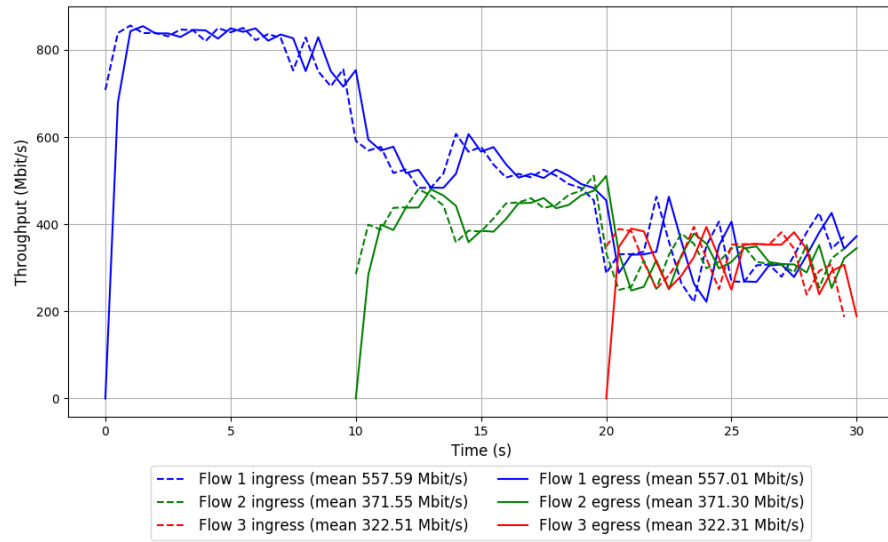


Run 2: Statistics of TCP Cubic

Start at: 2018-10-26 03:36:20  
End at: 2018-10-26 03:36:50  
Local clock offset: -0.86 ms  
Remote clock offset: -6.595 ms

# Below is generated by plot.py at 2018-10-26 05:24:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 911.47 Mbit/s  
95th percentile per-packet one-way delay: 15.480 ms  
Loss rate: 0.08%  
-- Flow 1:  
Average throughput: 557.01 Mbit/s  
95th percentile per-packet one-way delay: 16.296 ms  
Loss rate: 0.10%  
-- Flow 2:  
Average throughput: 371.30 Mbit/s  
95th percentile per-packet one-way delay: 1.980 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 322.31 Mbit/s  
95th percentile per-packet one-way delay: 2.019 ms  
Loss rate: 0.06%

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





Run 3: Statistics of TCP Cubic

Start at: 2018-10-26 04:03:51

End at: 2018-10-26 04:04:21

Local clock offset: -3.285 ms

Remote clock offset: 1.171 ms

# Below is generated by plot.py at 2018-10-26 05:24:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 879.14 Mbit/s

95th percentile per-packet one-way delay: 4.790 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 509.77 Mbit/s

95th percentile per-packet one-way delay: 5.173 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 400.22 Mbit/s

95th percentile per-packet one-way delay: 1.941 ms

Loss rate: 0.05%

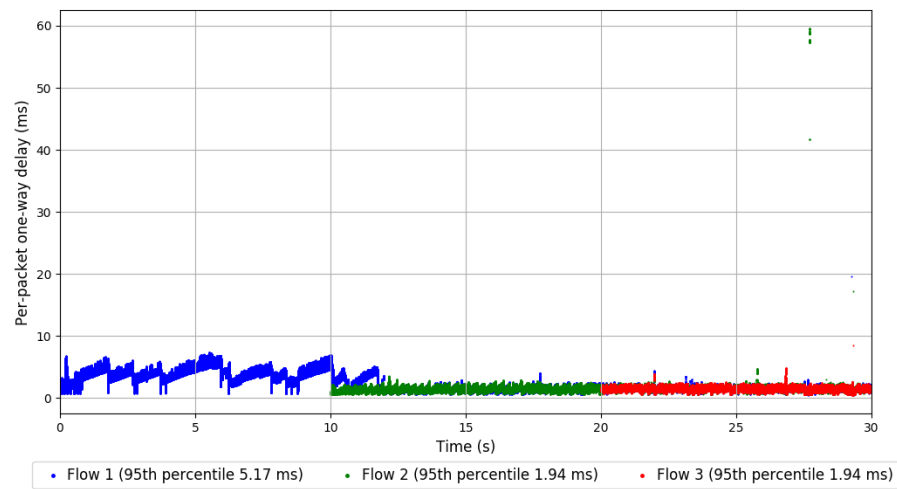
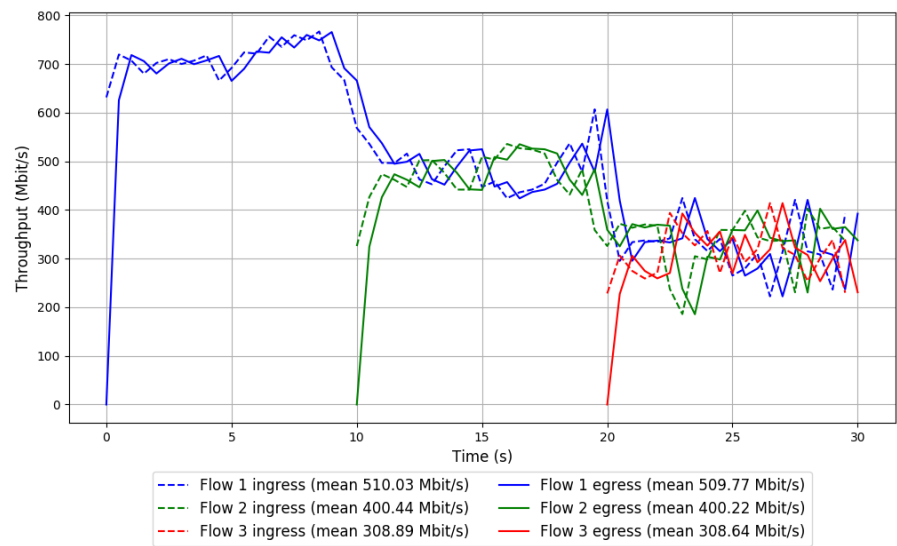
-- Flow 3:

Average throughput: 308.64 Mbit/s

95th percentile per-packet one-way delay: 1.936 ms

Loss rate: 0.07%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-10-26 04:31:22

End at: 2018-10-26 04:31:52

Local clock offset: -2.967 ms

Remote clock offset: 6.098 ms

# Below is generated by plot.py at 2018-10-26 05:32:26

# Datalink statistics

-- Total of 3 flows:

Average throughput: 875.10 Mbit/s

95th percentile per-packet one-way delay: 9.865 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 509.91 Mbit/s

95th percentile per-packet one-way delay: 10.621 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 393.98 Mbit/s

95th percentile per-packet one-way delay: 2.515 ms

Loss rate: 0.06%

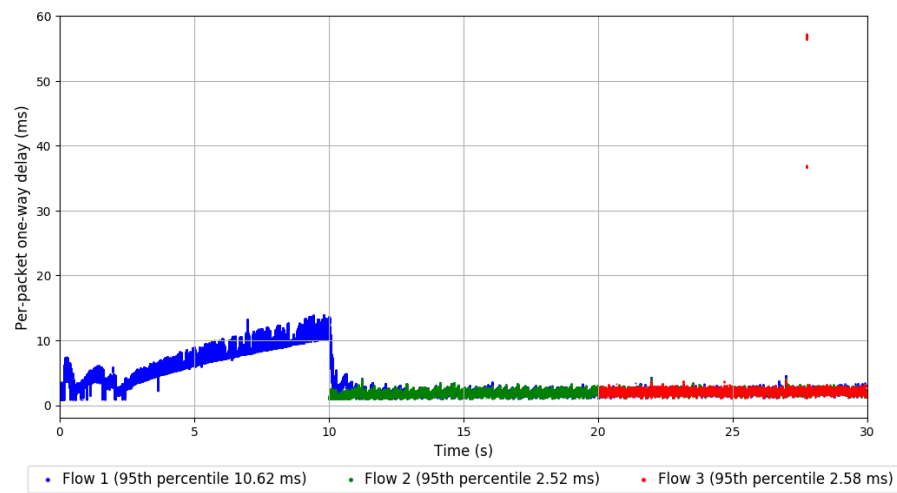
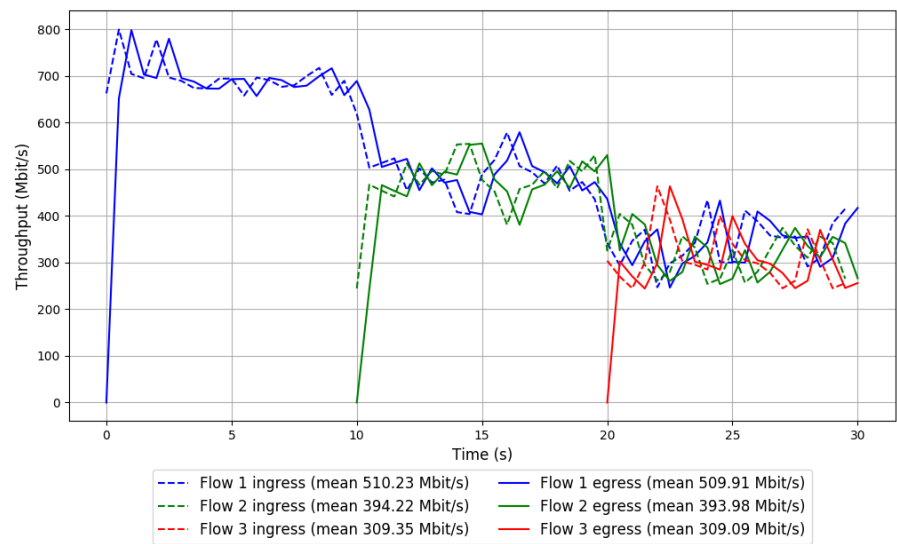
-- Flow 3:

Average throughput: 309.09 Mbit/s

95th percentile per-packet one-way delay: 2.578 ms

Loss rate: 0.07%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-10-26 04:58:50

End at: 2018-10-26 04:59:20

Local clock offset: 0.823 ms

Remote clock offset: 5.32 ms

# Below is generated by plot.py at 2018-10-26 05:32:41

# Datalink statistics

-- Total of 3 flows:

Average throughput: 875.54 Mbit/s

95th percentile per-packet one-way delay: 4.710 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 511.56 Mbit/s

95th percentile per-packet one-way delay: 5.167 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 387.04 Mbit/s

95th percentile per-packet one-way delay: 2.244 ms

Loss rate: 0.05%

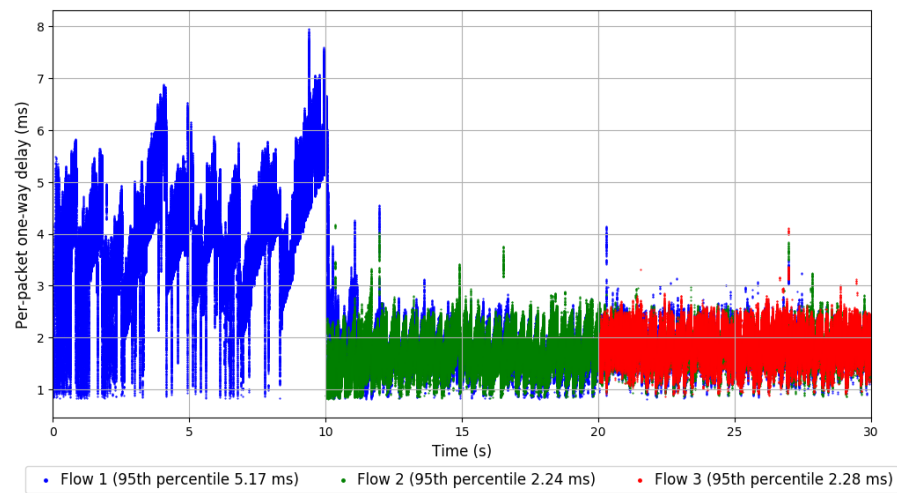
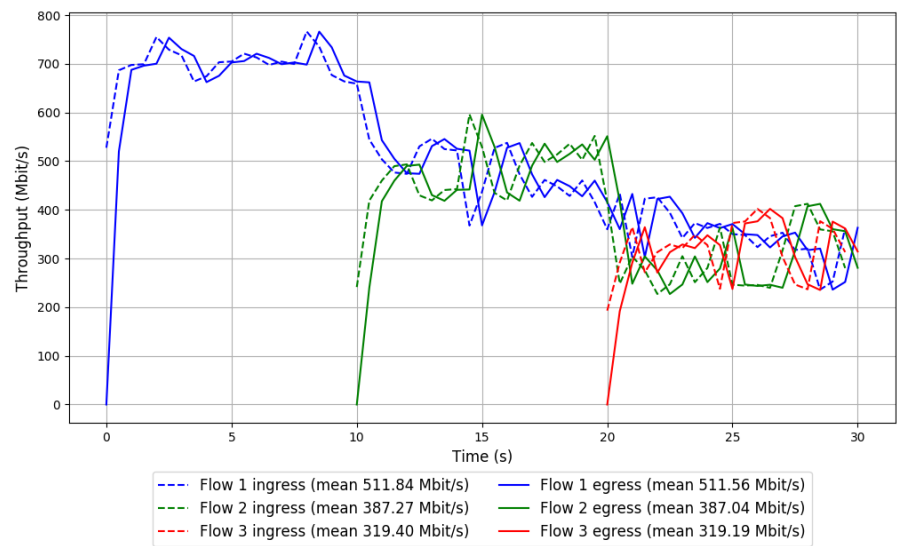
-- Flow 3:

Average throughput: 319.19 Mbit/s

95th percentile per-packet one-way delay: 2.284 ms

Loss rate: 0.06%

Run 5: Report of TCP Cubic — Data Link

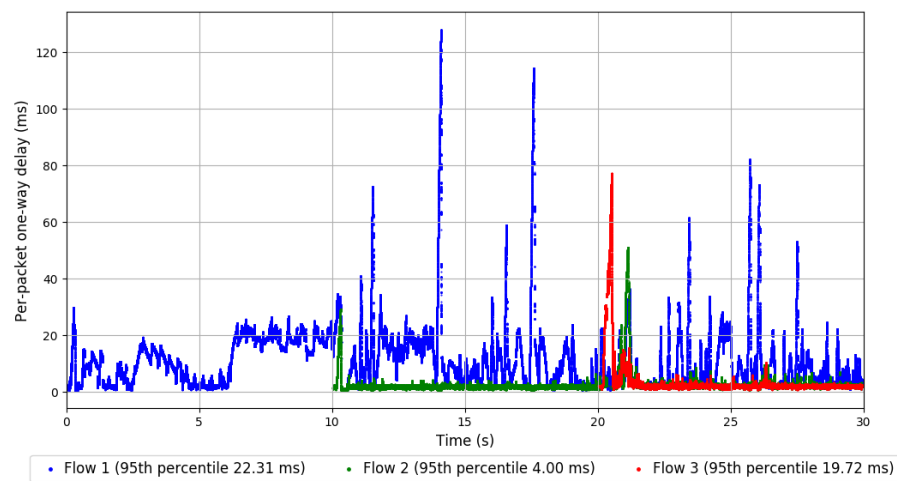
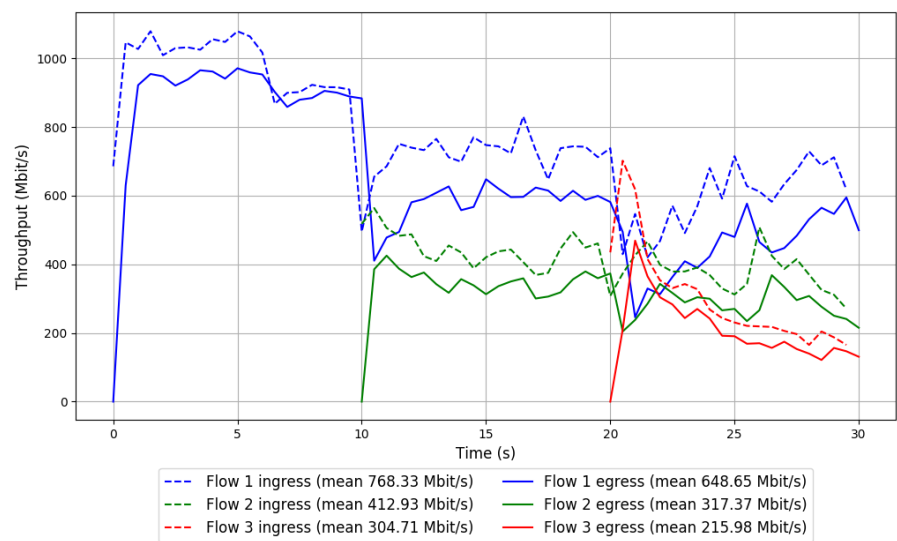


Run 1: Statistics of FillP

Start at: 2018-10-26 03:01:20  
End at: 2018-10-26 03:01:50  
Local clock offset: 0.514 ms  
Remote clock offset: -3.341 ms

# Below is generated by plot.py at 2018-10-26 05:38:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 931.58 Mbit/s  
95th percentile per-packet one-way delay: 21.802 ms  
Loss rate: 18.59%  
-- Flow 1:  
Average throughput: 648.65 Mbit/s  
95th percentile per-packet one-way delay: 22.311 ms  
Loss rate: 15.58%  
-- Flow 2:  
Average throughput: 317.37 Mbit/s  
95th percentile per-packet one-way delay: 4.001 ms  
Loss rate: 23.13%  
-- Flow 3:  
Average throughput: 215.98 Mbit/s  
95th percentile per-packet one-way delay: 19.717 ms  
Loss rate: 29.12%

Run 1: Report of FillP — Data Link



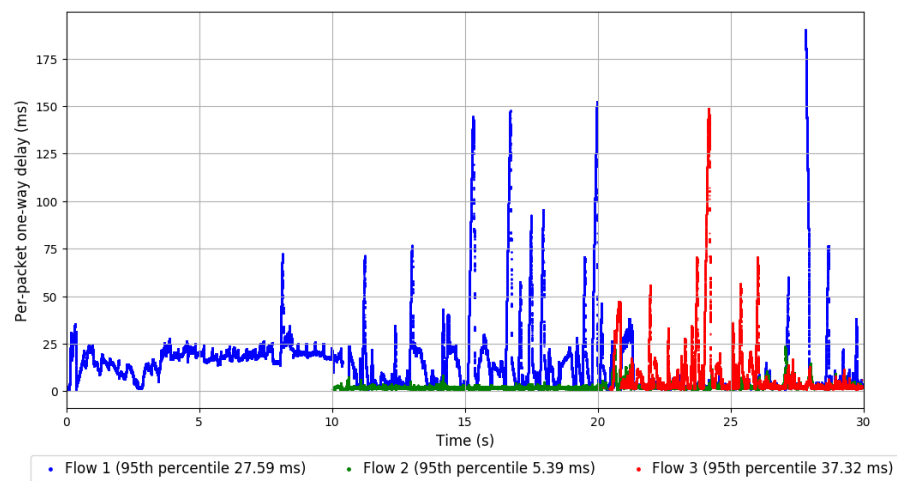
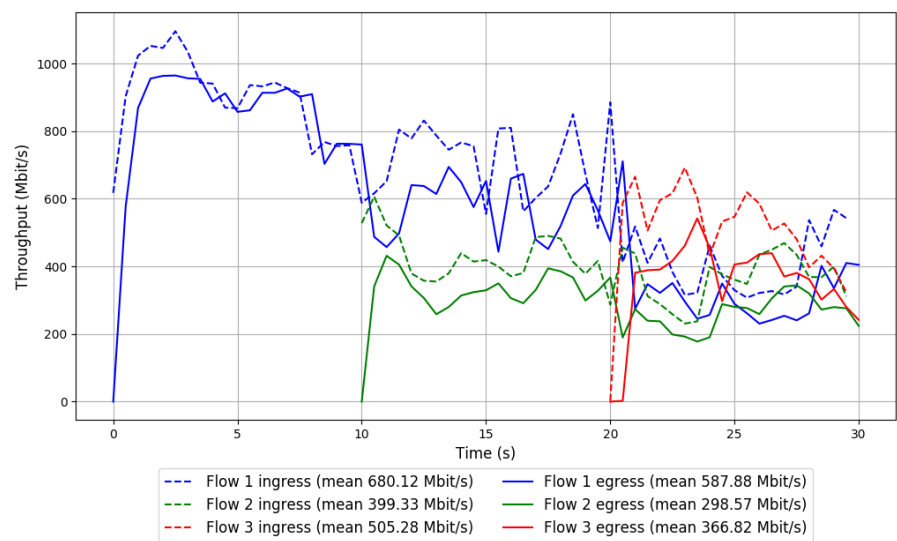


Run 2: Statistics of FillP

Start at: 2018-10-26 03:28:57  
End at: 2018-10-26 03:29:27  
Local clock offset: 0.526 ms  
Remote clock offset: -6.081 ms

# Below is generated by plot.py at 2018-10-26 05:38:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 908.44 Mbit/s  
95th percentile per-packet one-way delay: 26.237 ms  
Loss rate: 18.43%  
-- Flow 1:  
Average throughput: 587.88 Mbit/s  
95th percentile per-packet one-way delay: 27.587 ms  
Loss rate: 13.56%  
-- Flow 2:  
Average throughput: 298.57 Mbit/s  
95th percentile per-packet one-way delay: 5.386 ms  
Loss rate: 25.23%  
-- Flow 3:  
Average throughput: 366.82 Mbit/s  
95th percentile per-packet one-way delay: 37.323 ms  
Loss rate: 27.37%

Run 2: Report of FillP — Data Link

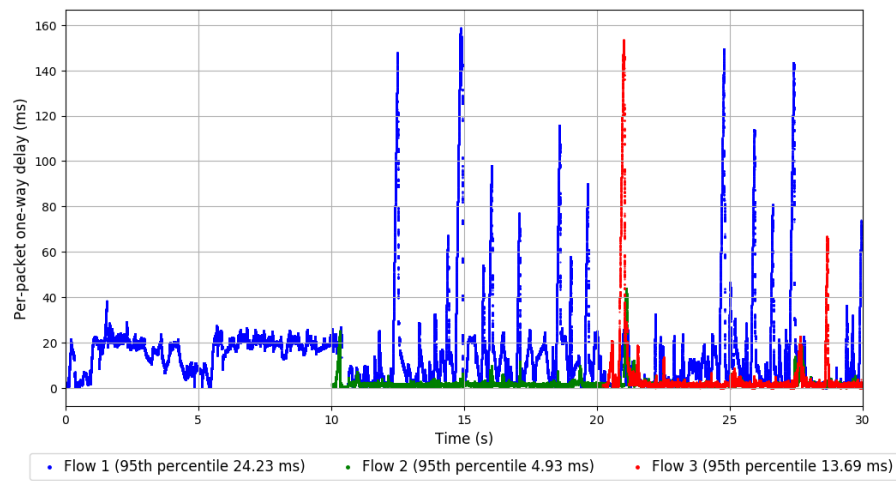
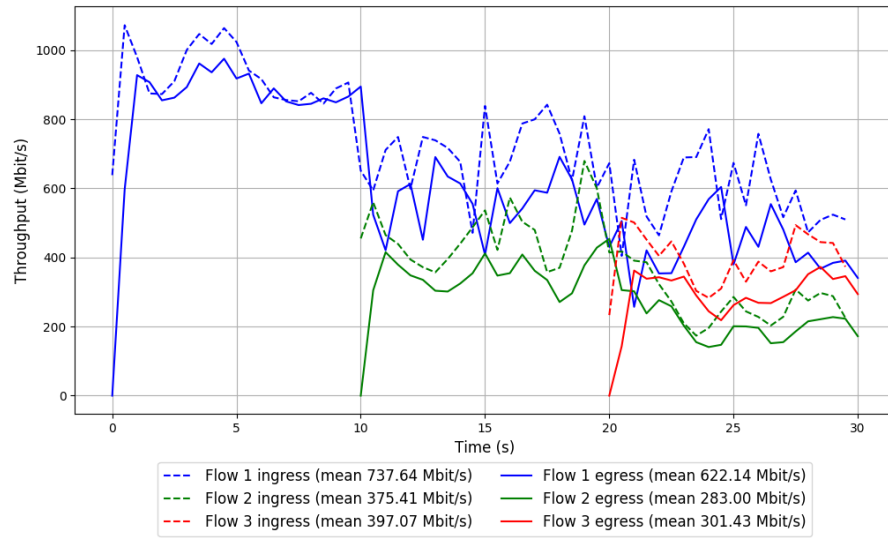


Run 3: Statistics of FillP

Start at: 2018-10-26 03:56:24  
End at: 2018-10-26 03:56:54  
Local clock offset: -3.202 ms  
Remote clock offset: -4.302 ms

# Below is generated by plot.py at 2018-10-26 05:38:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 910.52 Mbit/s  
95th percentile per-packet one-way delay: 23.088 ms  
Loss rate: 18.65%  
-- Flow 1:  
Average throughput: 622.14 Mbit/s  
95th percentile per-packet one-way delay: 24.227 ms  
Loss rate: 15.66%  
-- Flow 2:  
Average throughput: 283.00 Mbit/s  
95th percentile per-packet one-way delay: 4.930 ms  
Loss rate: 24.62%  
-- Flow 3:  
Average throughput: 301.43 Mbit/s  
95th percentile per-packet one-way delay: 13.691 ms  
Loss rate: 24.08%

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



Run 4: Statistics of FillP

Start at: 2018-10-26 04:23:52

End at: 2018-10-26 04:24:22

Local clock offset: -2.872 ms

Remote clock offset: 6.77 ms

# Below is generated by plot.py at 2018-10-26 05:38:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 914.22 Mbit/s

95th percentile per-packet one-way delay: 23.536 ms

Loss rate: 20.05%

-- Flow 1:

Average throughput: 514.73 Mbit/s

95th percentile per-packet one-way delay: 22.958 ms

Loss rate: 14.43%

-- Flow 2:

Average throughput: 422.00 Mbit/s

95th percentile per-packet one-way delay: 31.815 ms

Loss rate: 25.74%

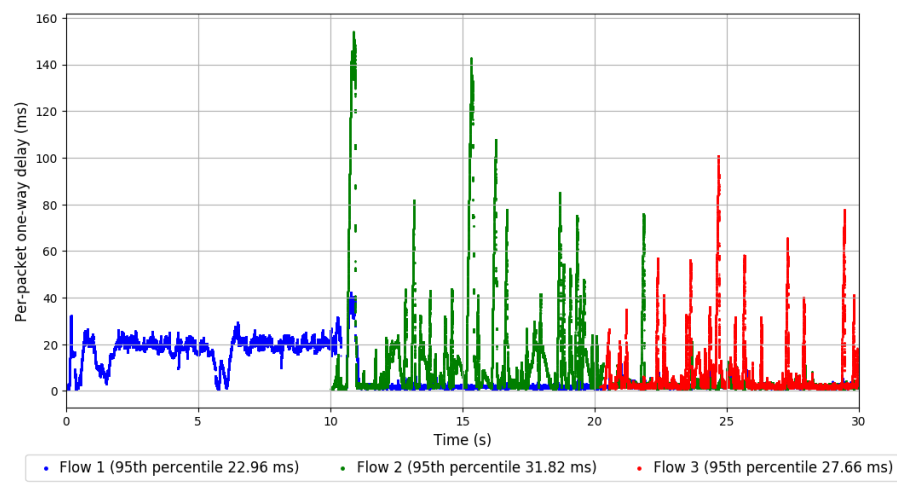
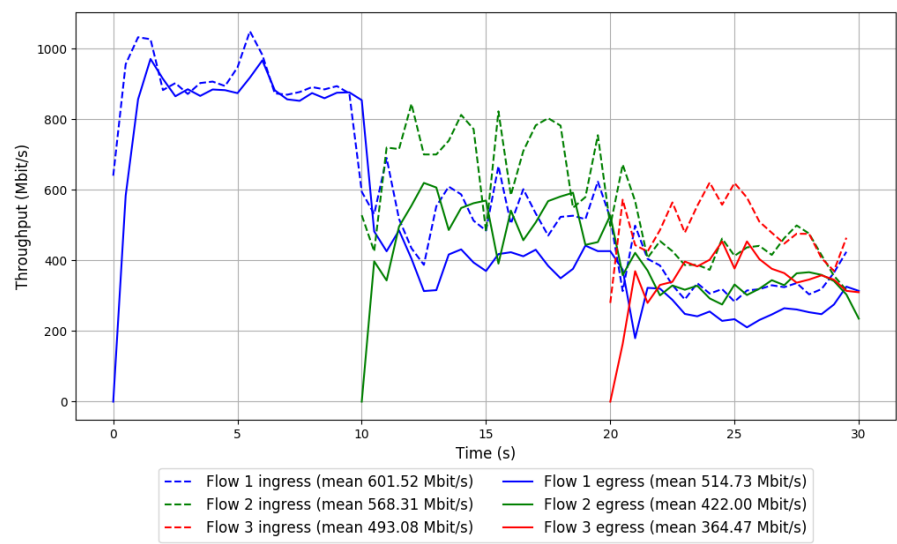
-- Flow 3:

Average throughput: 364.47 Mbit/s

95th percentile per-packet one-way delay: 27.661 ms

Loss rate: 27.57%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-10-26 04:51:21

End at: 2018-10-26 04:51:51

Local clock offset: 0.449 ms

Remote clock offset: 4.909 ms

# Below is generated by plot.py at 2018-10-26 05:38:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 874.74 Mbit/s

95th percentile per-packet one-way delay: 23.926 ms

Loss rate: 19.08%

-- Flow 1:

Average throughput: 440.77 Mbit/s

95th percentile per-packet one-way delay: 22.676 ms

Loss rate: 12.68%

-- Flow 2:

Average throughput: 453.51 Mbit/s

95th percentile per-packet one-way delay: 23.356 ms

Loss rate: 22.14%

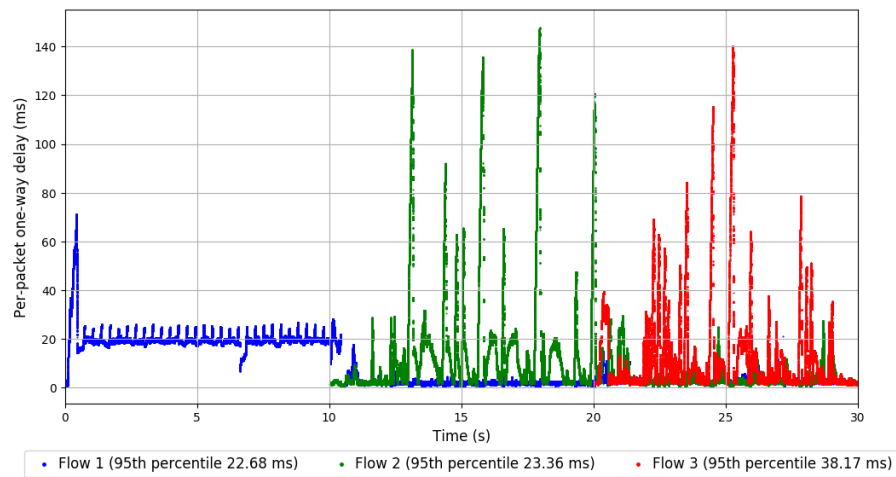
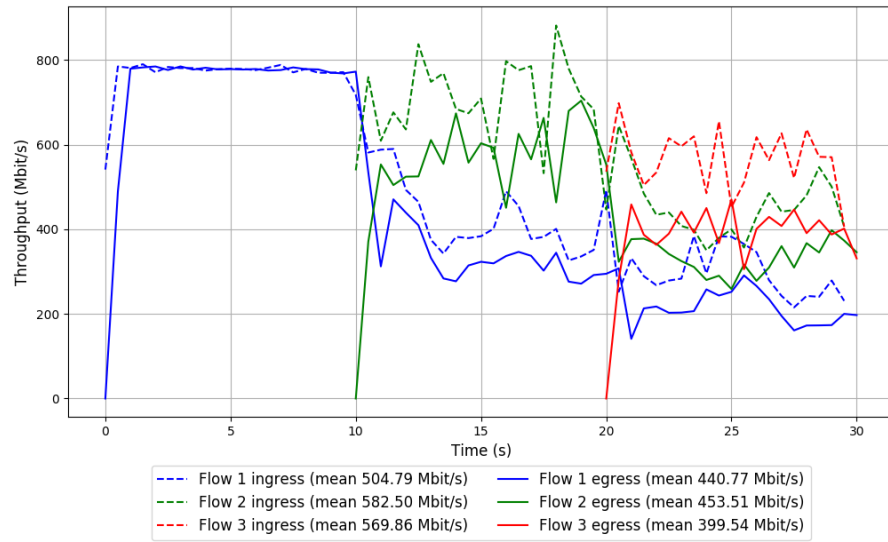
-- Flow 3:

Average throughput: 399.54 Mbit/s

95th percentile per-packet one-way delay: 38.167 ms

Loss rate: 29.88%

# Run 5: Report of FillP — Data Link



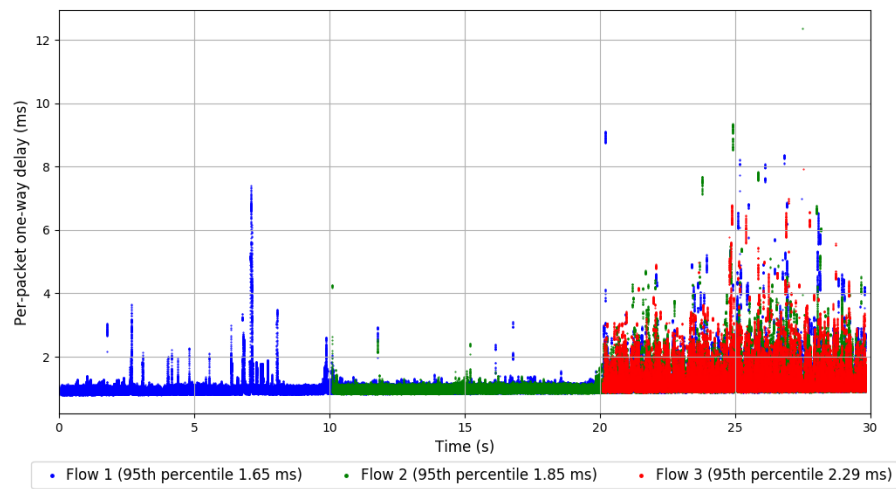
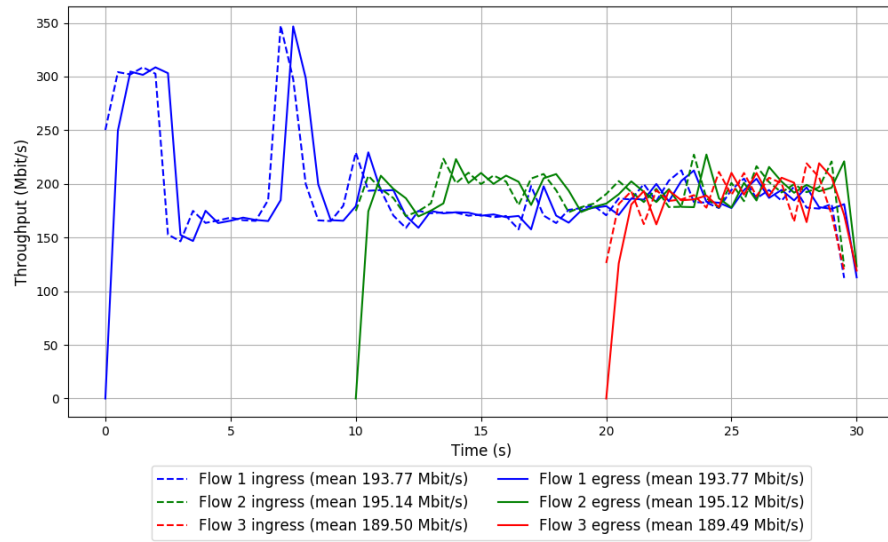


```
Run 1: Statistics of Indigo

Start at: 2018-10-26 02:59:44
End at: 2018-10-26 03:00:14
Local clock offset: 0.497 ms
Remote clock offset: -3.005 ms

# Below is generated by plot.py at 2018-10-26 05:38:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 384.61 Mbit/s
95th percentile per-packet one-way delay: 1.871 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 193.77 Mbit/s
95th percentile per-packet one-way delay: 1.654 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 195.12 Mbit/s
95th percentile per-packet one-way delay: 1.848 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 189.49 Mbit/s
95th percentile per-packet one-way delay: 2.293 ms
Loss rate: 0.00%
```

## Run 1: Report of Indigo — Data Link

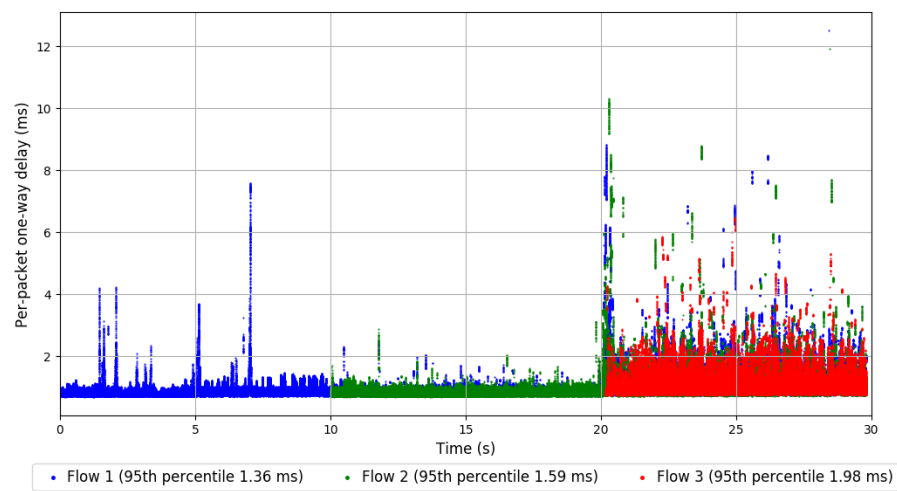
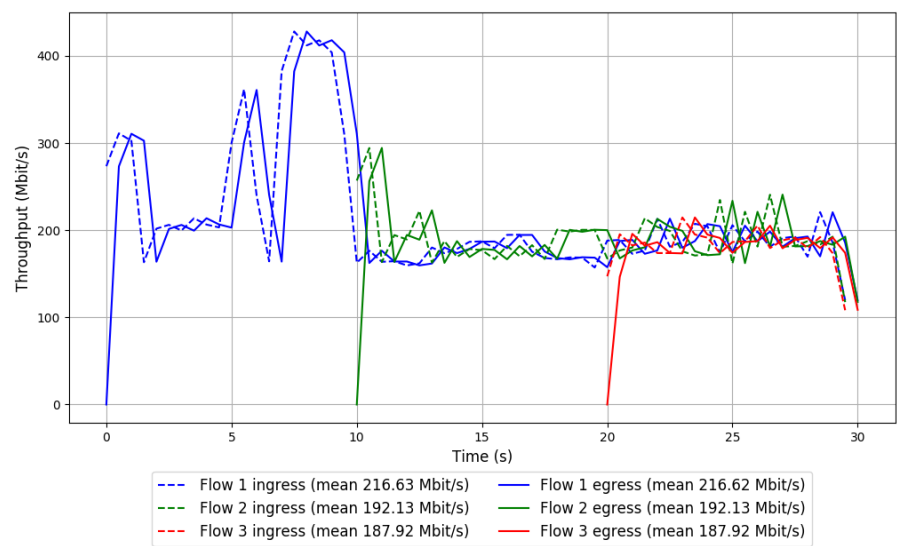


Run 2: Statistics of Indigo

Start at: 2018-10-26 03:27:21  
End at: 2018-10-26 03:27:51  
Local clock offset: 0.533 ms  
Remote clock offset: -6.032 ms

# Below is generated by plot.py at 2018-10-26 05:38:16  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 405.02 Mbit/s  
95th percentile per-packet one-way delay: 1.587 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 216.62 Mbit/s  
95th percentile per-packet one-way delay: 1.363 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 192.13 Mbit/s  
95th percentile per-packet one-way delay: 1.595 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 187.92 Mbit/s  
95th percentile per-packet one-way delay: 1.984 ms  
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-10-26 03:54:49

End at: 2018-10-26 03:55:19

Local clock offset: -3.106 ms

Remote clock offset: -6.25 ms

# Below is generated by plot.py at 2018-10-26 05:38:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 372.53 Mbit/s

95th percentile per-packet one-way delay: 0.745 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 189.73 Mbit/s

95th percentile per-packet one-way delay: 0.628 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 187.48 Mbit/s

95th percentile per-packet one-way delay: 0.731 ms

Loss rate: 0.00%

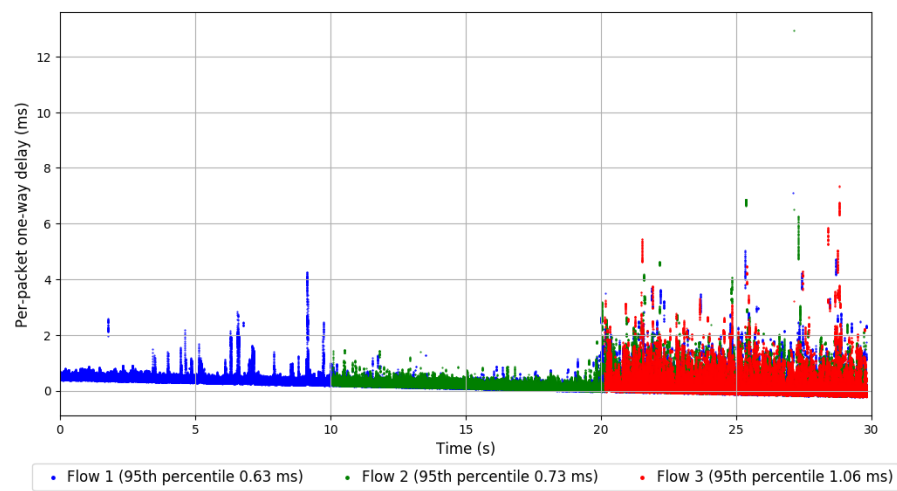
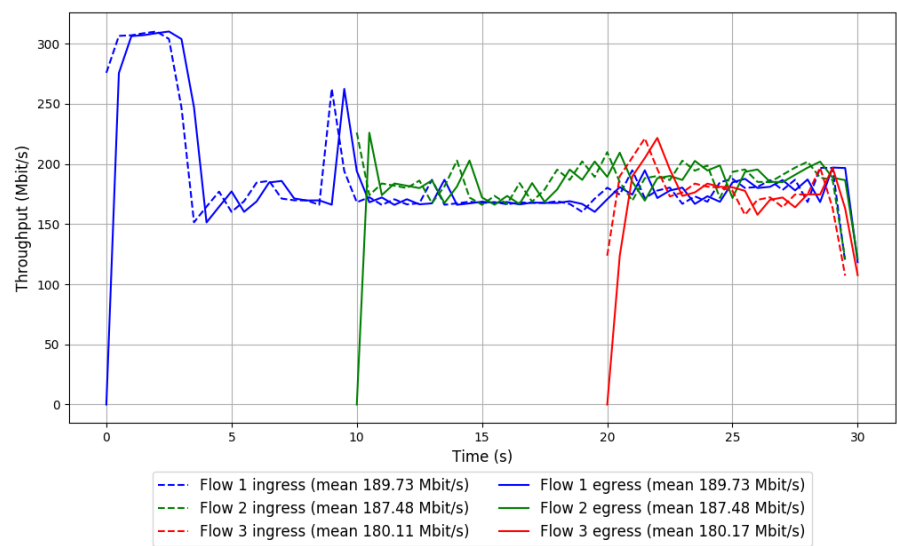
-- Flow 3:

Average throughput: 180.17 Mbit/s

95th percentile per-packet one-way delay: 1.065 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-10-26 04:22:17

End at: 2018-10-26 04:22:47

Local clock offset: -2.85 ms

Remote clock offset: 6.519 ms

# Below is generated by plot.py at 2018-10-26 05:38:26

# Datalink statistics

-- Total of 3 flows:

Average throughput: 385.59 Mbit/s

95th percentile per-packet one-way delay: 1.529 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 201.02 Mbit/s

95th percentile per-packet one-way delay: 1.374 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 190.25 Mbit/s

95th percentile per-packet one-way delay: 1.564 ms

Loss rate: 0.00%

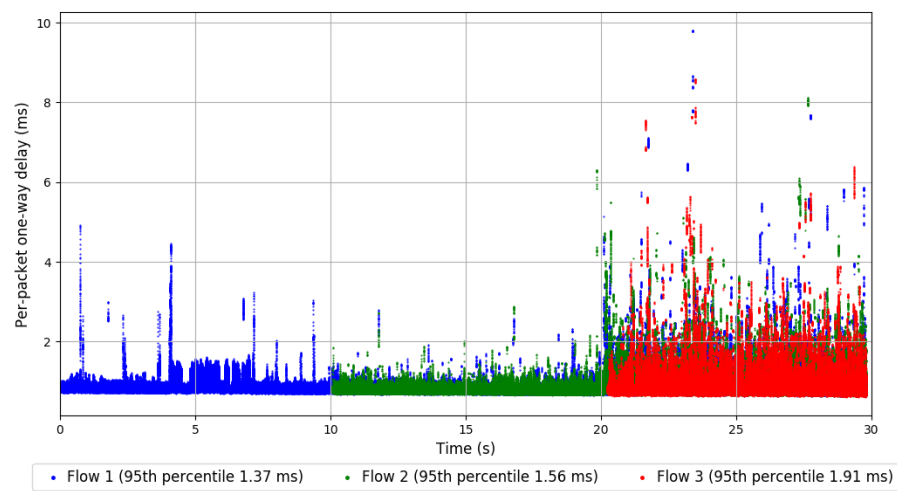
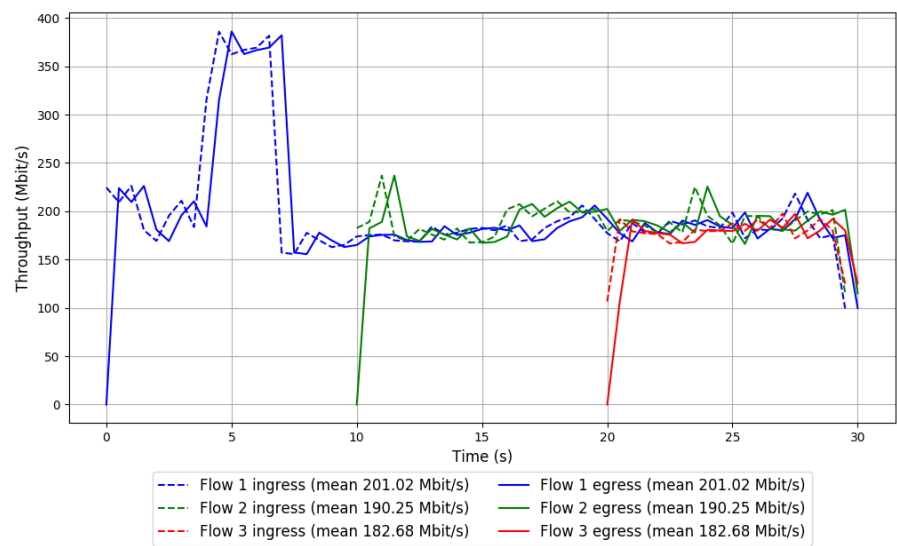
-- Flow 3:

Average throughput: 182.68 Mbit/s

95th percentile per-packet one-way delay: 1.905 ms

Loss rate: 0.00%

Run 4: Report of Indigo — Data Link





Run 5: Statistics of Indigo

Start at: 2018-10-26 04:49:46

End at: 2018-10-26 04:50:16

Local clock offset: 0.341 ms

Remote clock offset: 4.919 ms

# Below is generated by plot.py at 2018-10-26 05:38:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 375.32 Mbit/s

95th percentile per-packet one-way delay: 1.844 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 194.25 Mbit/s

95th percentile per-packet one-way delay: 1.650 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 183.60 Mbit/s

95th percentile per-packet one-way delay: 1.832 ms

Loss rate: 0.00%

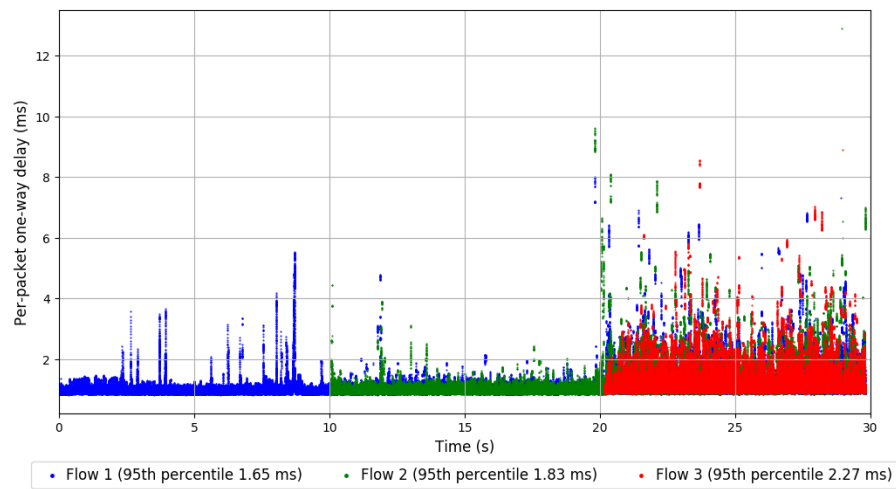
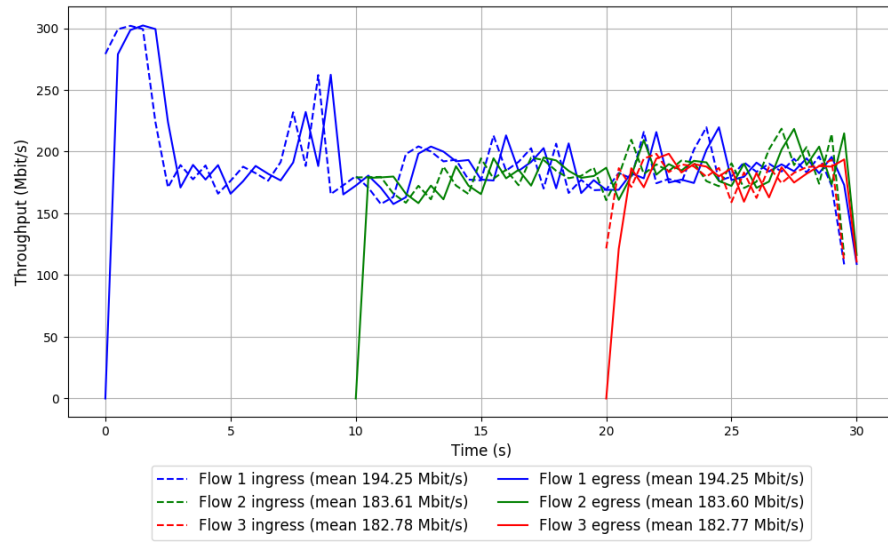
-- Flow 3:

Average throughput: 182.77 Mbit/s

95th percentile per-packet one-way delay: 2.267 ms

Loss rate: 0.00%

## Run 5: Report of Indigo — Data Link

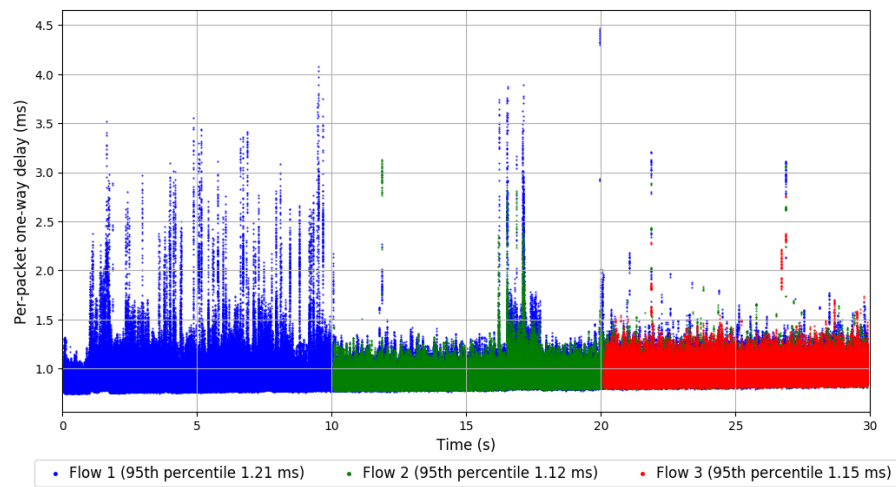
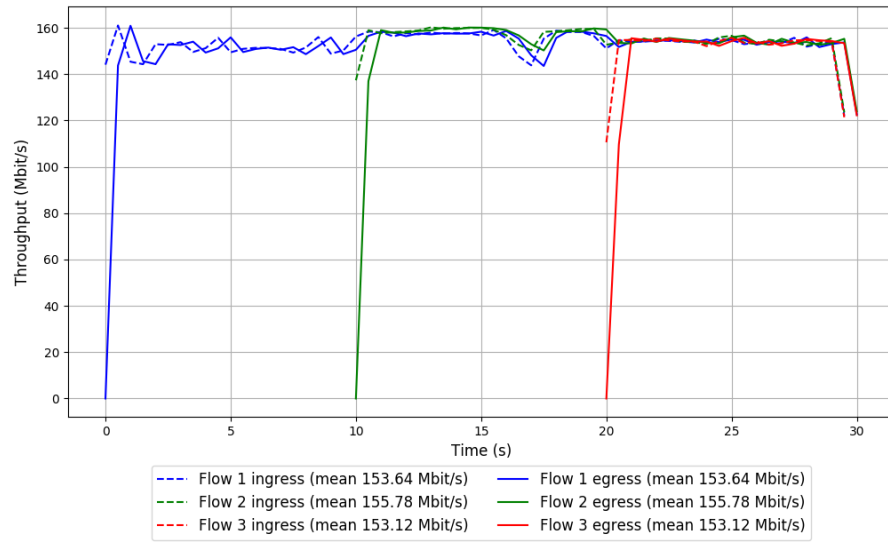


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-26 03:03:12  
End at: 2018-10-26 03:03:42  
Local clock offset: 0.5 ms  
Remote clock offset: -3.585 ms

# Below is generated by plot.py at 2018-10-26 05:40:47  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 307.50 Mbit/s  
95th percentile per-packet one-way delay: 1.171 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 153.64 Mbit/s  
95th percentile per-packet one-way delay: 1.213 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 155.78 Mbit/s  
95th percentile per-packet one-way delay: 1.123 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 153.12 Mbit/s  
95th percentile per-packet one-way delay: 1.151 ms  
Loss rate: 0.00%

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

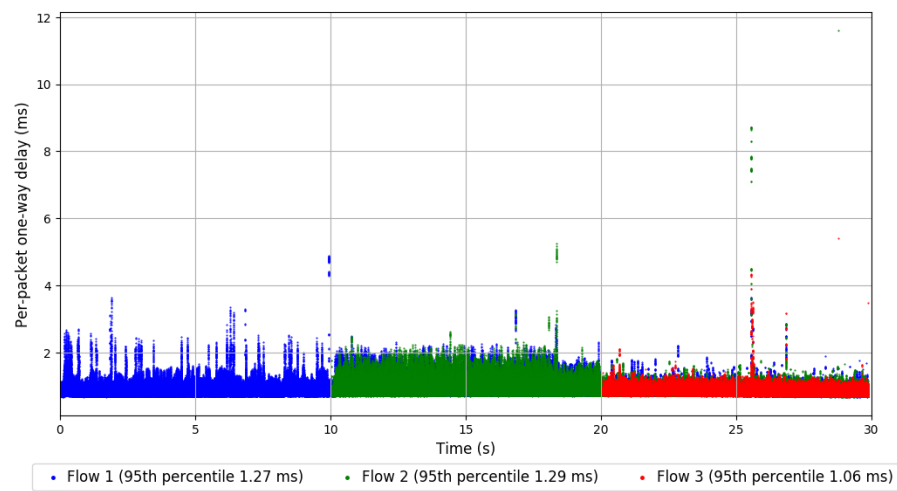
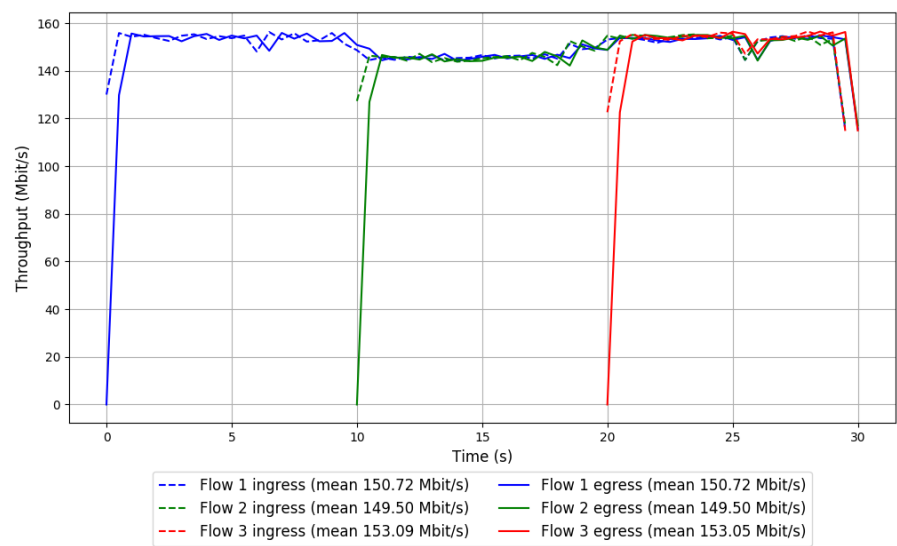


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-26 03:30:48  
End at: 2018-10-26 03:31:18  
Local clock offset: 0.54 ms  
Remote clock offset: -6.296 ms

# Below is generated by plot.py at 2018-10-26 05:40:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 300.37 Mbit/s  
95th percentile per-packet one-way delay: 1.242 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 150.72 Mbit/s  
95th percentile per-packet one-way delay: 1.272 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 149.50 Mbit/s  
95th percentile per-packet one-way delay: 1.293 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 153.05 Mbit/s  
95th percentile per-packet one-way delay: 1.056 ms  
Loss rate: 0.00%

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

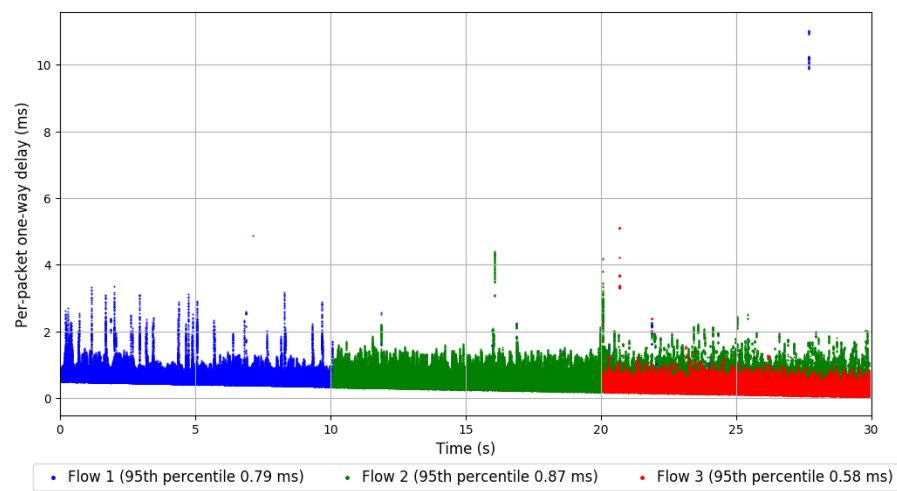
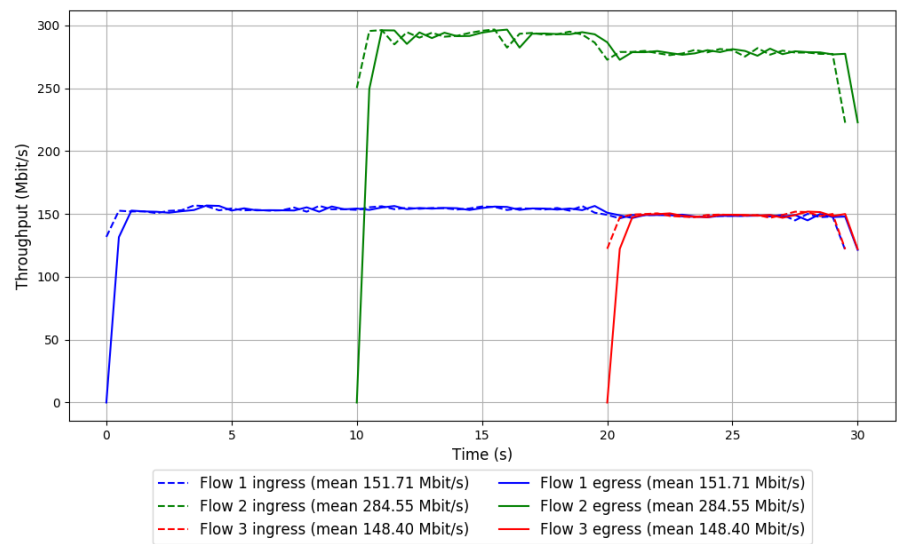


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-26 03:58:15  
End at: 2018-10-26 03:58:45  
Local clock offset: -3.317 ms  
Remote clock offset: -2.649 ms

# Below is generated by plot.py at 2018-10-26 05:41:59  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 389.86 Mbit/s  
95th percentile per-packet one-way delay: 0.802 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 151.71 Mbit/s  
95th percentile per-packet one-way delay: 0.787 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 284.55 Mbit/s  
95th percentile per-packet one-way delay: 0.867 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 148.40 Mbit/s  
95th percentile per-packet one-way delay: 0.583 ms  
Loss rate: 0.00%

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





Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-26 04:25:44

End at: 2018-10-26 04:26:14

Local clock offset: -2.895 ms

Remote clock offset: 7.113 ms

# Below is generated by plot.py at 2018-10-26 05:42:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 436.90 Mbit/s

95th percentile per-packet one-way delay: 1.251 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 288.26 Mbit/s

95th percentile per-packet one-way delay: 1.337 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 150.49 Mbit/s

95th percentile per-packet one-way delay: 1.079 ms

Loss rate: 0.00%

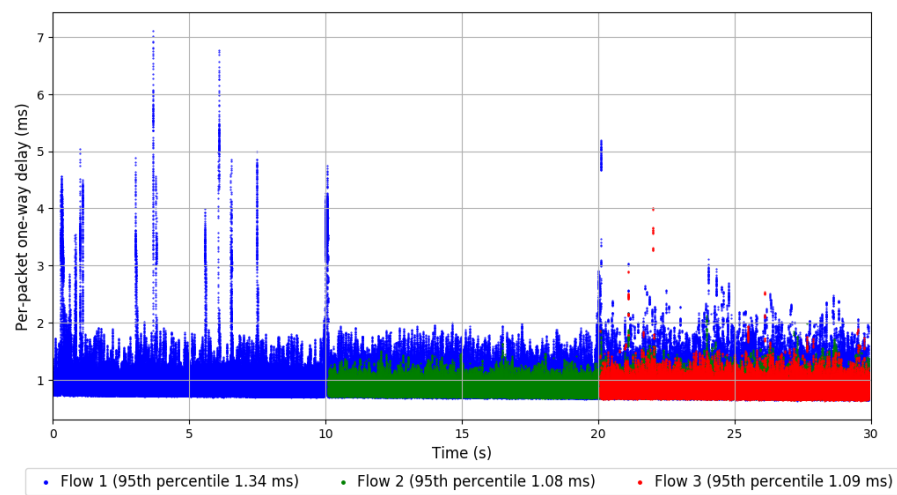
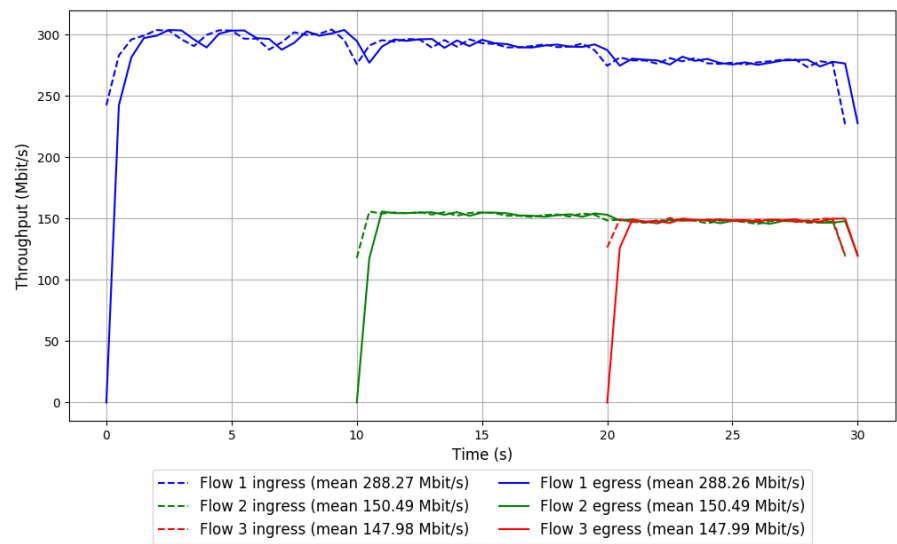
-- Flow 3:

Average throughput: 147.99 Mbit/s

95th percentile per-packet one-way delay: 1.094 ms

Loss rate: 0.00%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-26 04:53:12

End at: 2018-10-26 04:53:42

Local clock offset: 0.552 ms

Remote clock offset: 5.041 ms

# Below is generated by plot.py at 2018-10-26 05:42:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 433.99 Mbit/s

95th percentile per-packet one-way delay: 1.426 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 244.45 Mbit/s

95th percentile per-packet one-way delay: 1.420 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 148.91 Mbit/s

95th percentile per-packet one-way delay: 1.270 ms

Loss rate: 0.00%

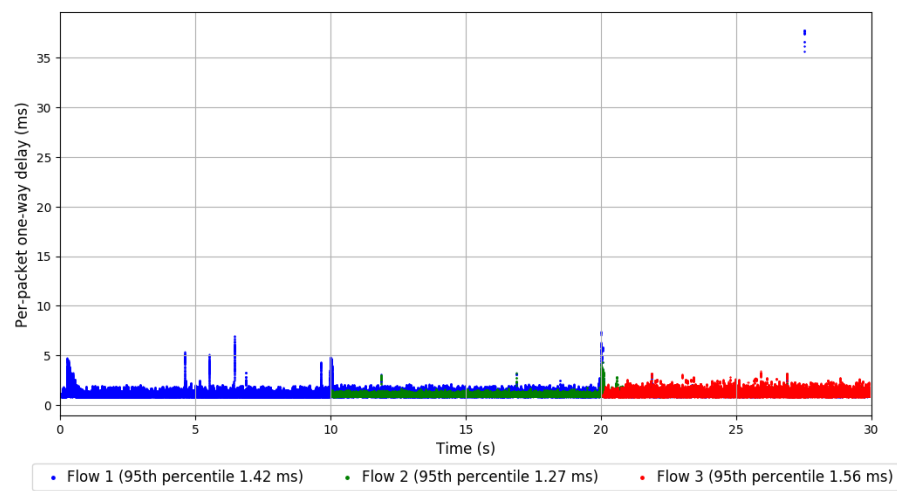
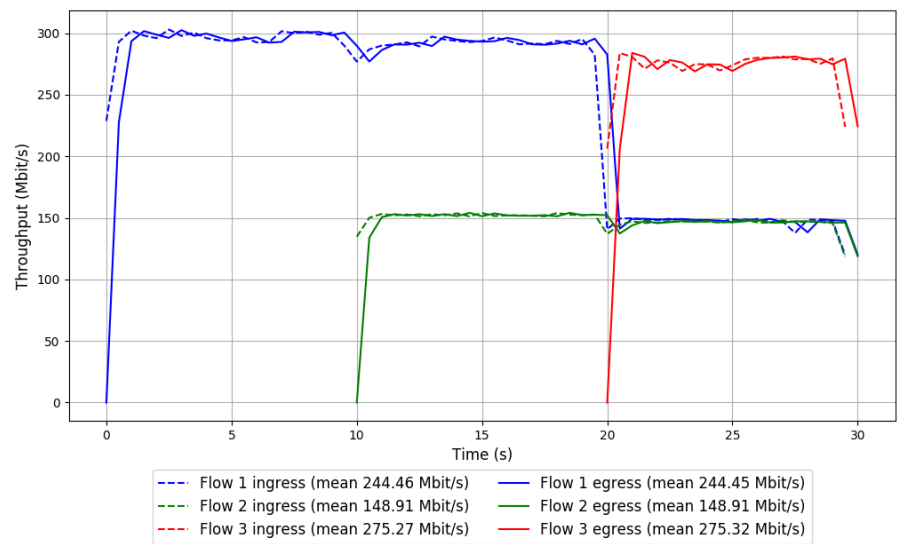
-- Flow 3:

Average throughput: 275.32 Mbit/s

95th percentile per-packet one-way delay: 1.564 ms

Loss rate: 0.01%

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

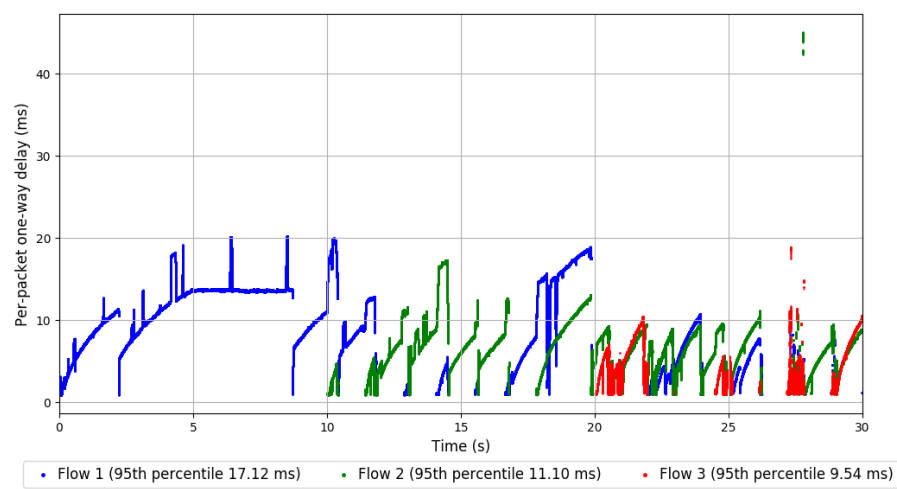
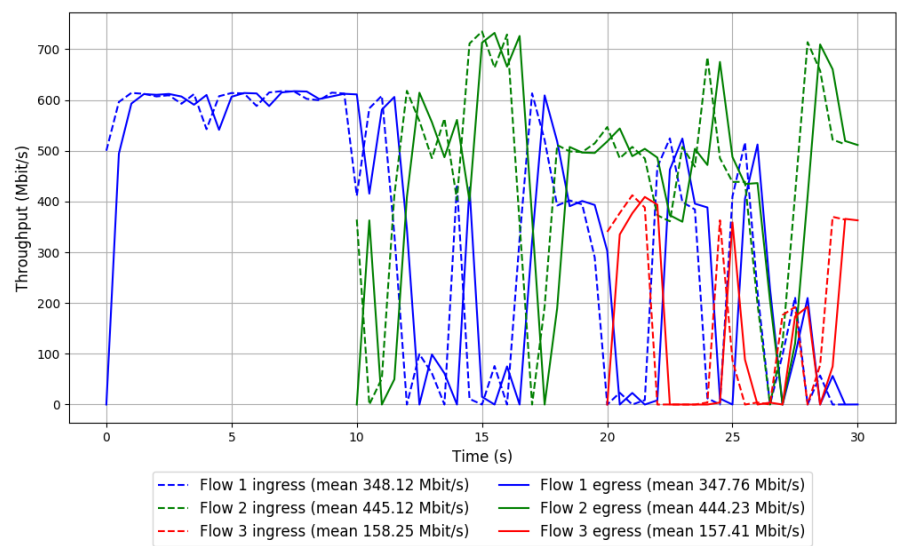


Run 1: Statistics of LEDBAT

Start at: 2018-10-26 02:53:03  
End at: 2018-10-26 02:53:33  
Local clock offset: 0.428 ms  
Remote clock offset: -1.339 ms

# Below is generated by plot.py at 2018-10-26 05:46:11  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 696.10 Mbit/s  
95th percentile per-packet one-way delay: 14.853 ms  
Loss rate: 0.18%  
-- Flow 1:  
Average throughput: 347.76 Mbit/s  
95th percentile per-packet one-way delay: 17.120 ms  
Loss rate: 0.10%  
-- Flow 2:  
Average throughput: 444.23 Mbit/s  
95th percentile per-packet one-way delay: 11.101 ms  
Loss rate: 0.20%  
-- Flow 3:  
Average throughput: 157.41 Mbit/s  
95th percentile per-packet one-way delay: 9.542 ms  
Loss rate: 0.53%

Run 1: Report of LEDBAT — Data Link

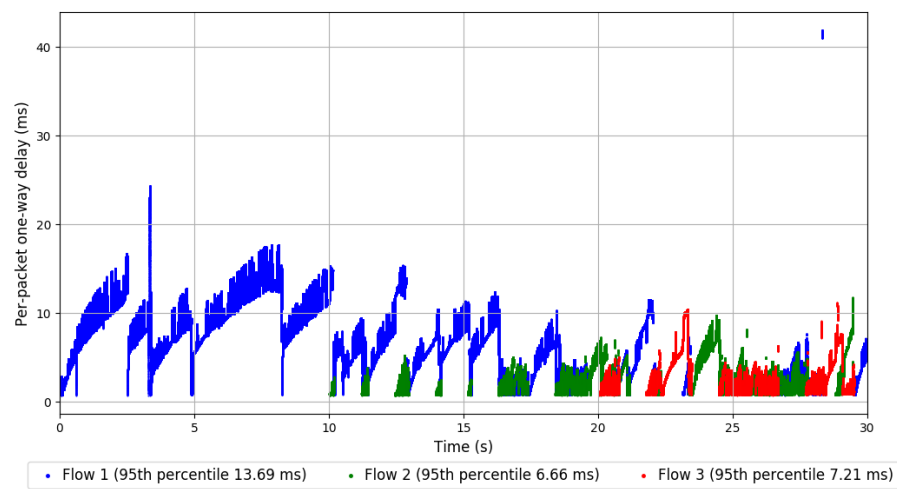
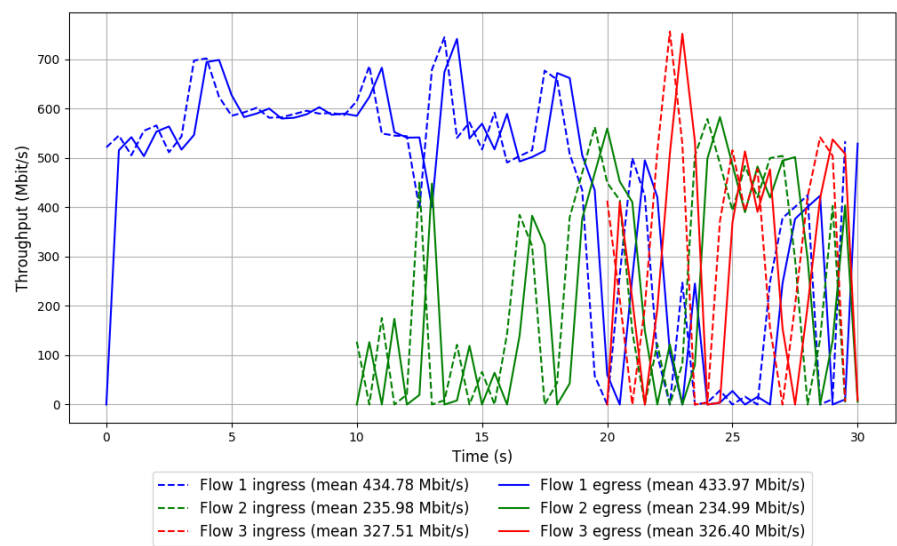


Run 2: Statistics of LEDBAT

Start at: 2018-10-26 03:20:40  
End at: 2018-10-26 03:21:10  
Local clock offset: 0.484 ms  
Remote clock offset: -5.444 ms

# Below is generated by plot.py at 2018-10-26 05:46:18  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 689.95 Mbit/s  
95th percentile per-packet one-way delay: 12.776 ms  
Loss rate: 0.26%  
-- Flow 1:  
Average throughput: 433.97 Mbit/s  
95th percentile per-packet one-way delay: 13.687 ms  
Loss rate: 0.19%  
-- Flow 2:  
Average throughput: 234.99 Mbit/s  
95th percentile per-packet one-way delay: 6.658 ms  
Loss rate: 0.42%  
-- Flow 3:  
Average throughput: 326.40 Mbit/s  
95th percentile per-packet one-way delay: 7.215 ms  
Loss rate: 0.34%

Run 2: Report of LEDBAT — Data Link



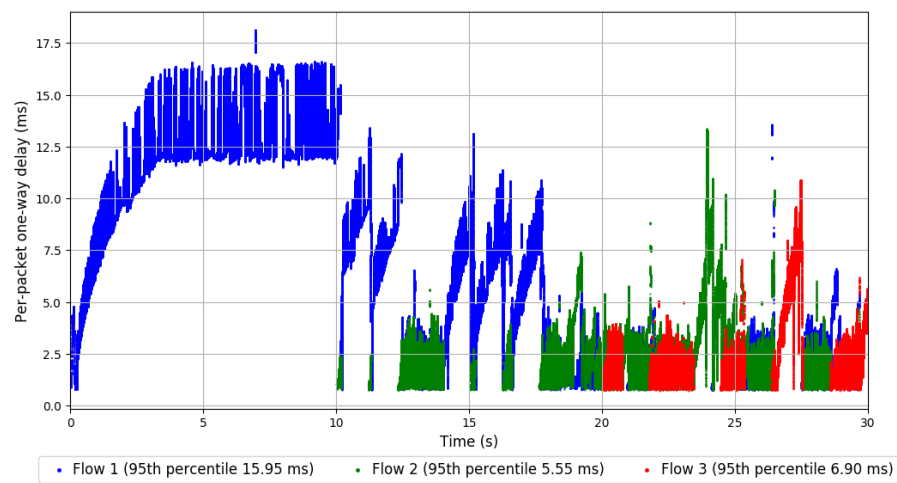
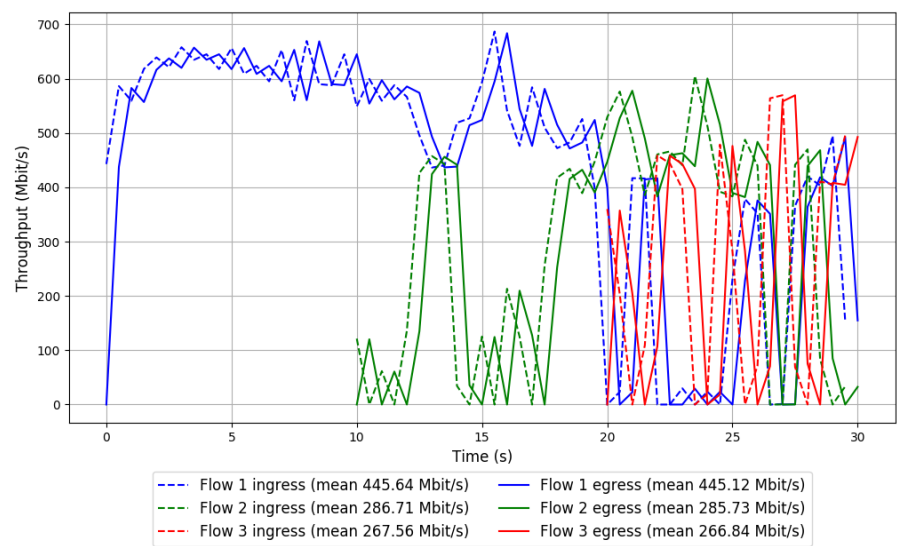


Run 3: Statistics of LEDBAT

Start at: 2018-10-26 03:48:10  
End at: 2018-10-26 03:48:40  
Local clock offset: -2.621 ms  
Remote clock offset: -7.442 ms

# Below is generated by plot.py at 2018-10-26 05:46:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 716.92 Mbit/s  
95th percentile per-packet one-way delay: 14.971 ms  
Loss rate: 0.20%  
-- Flow 1:  
Average throughput: 445.12 Mbit/s  
95th percentile per-packet one-way delay: 15.949 ms  
Loss rate: 0.12%  
-- Flow 2:  
Average throughput: 285.73 Mbit/s  
95th percentile per-packet one-way delay: 5.549 ms  
Loss rate: 0.34%  
-- Flow 3:  
Average throughput: 266.84 Mbit/s  
95th percentile per-packet one-way delay: 6.898 ms  
Loss rate: 0.27%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-10-26 04:15:39

End at: 2018-10-26 04:16:09

Local clock offset: -2.86 ms

Remote clock offset: 5.243 ms

# Below is generated by plot.py at 2018-10-26 05:48:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 640.37 Mbit/s

95th percentile per-packet one-way delay: 14.461 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 333.76 Mbit/s

95th percentile per-packet one-way delay: 16.100 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 323.42 Mbit/s

95th percentile per-packet one-way delay: 7.564 ms

Loss rate: 0.27%

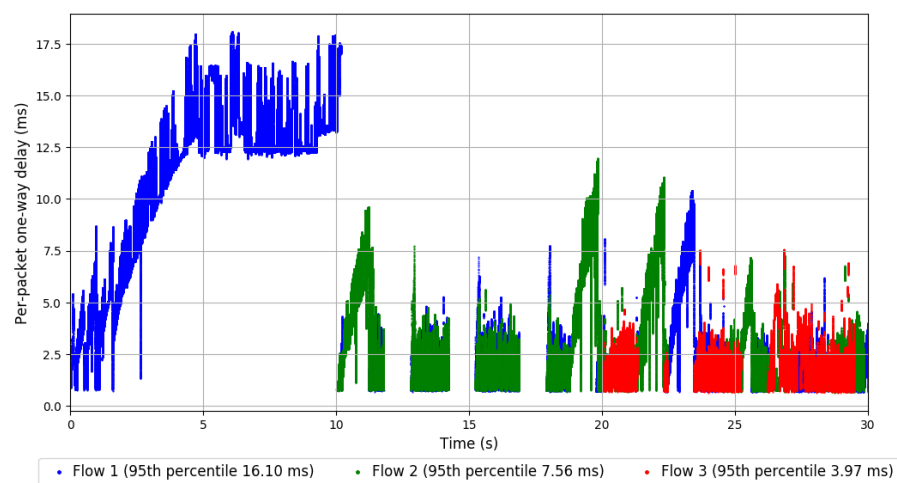
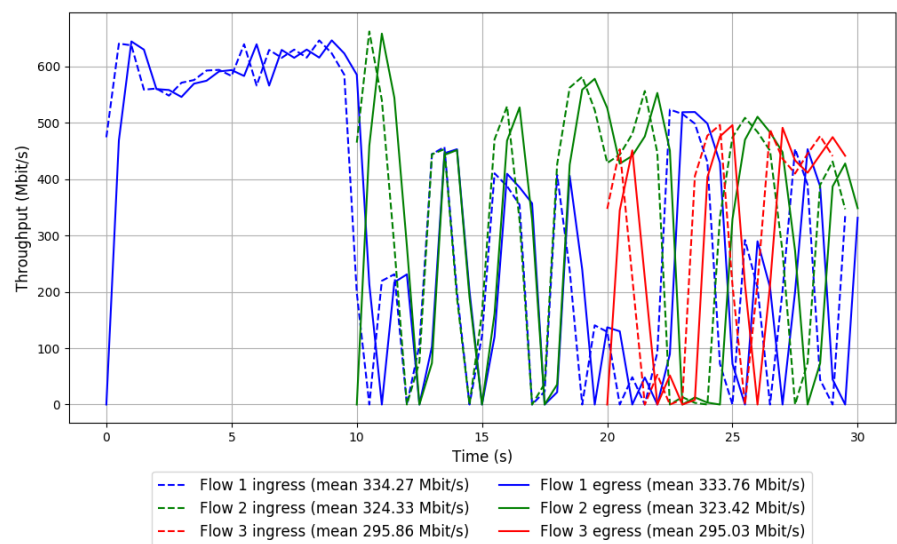
-- Flow 3:

Average throughput: 295.03 Mbit/s

95th percentile per-packet one-way delay: 3.973 ms

Loss rate: 0.27%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-10-26 04:43:10

End at: 2018-10-26 04:43:40

Local clock offset: -0.294 ms

Remote clock offset: 4.816 ms

# Below is generated by plot.py at 2018-10-26 05:48:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 643.83 Mbit/s

95th percentile per-packet one-way delay: 14.682 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 381.16 Mbit/s

95th percentile per-packet one-way delay: 15.877 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 236.04 Mbit/s

95th percentile per-packet one-way delay: 6.494 ms

Loss rate: 0.38%

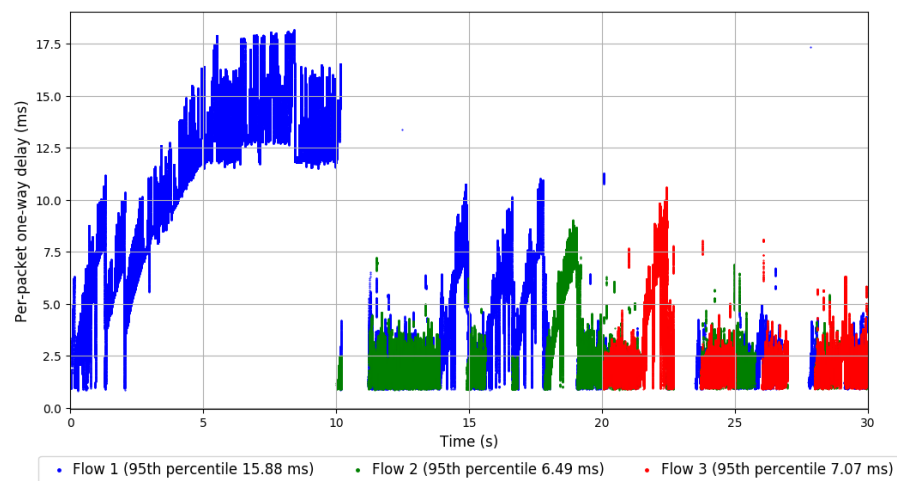
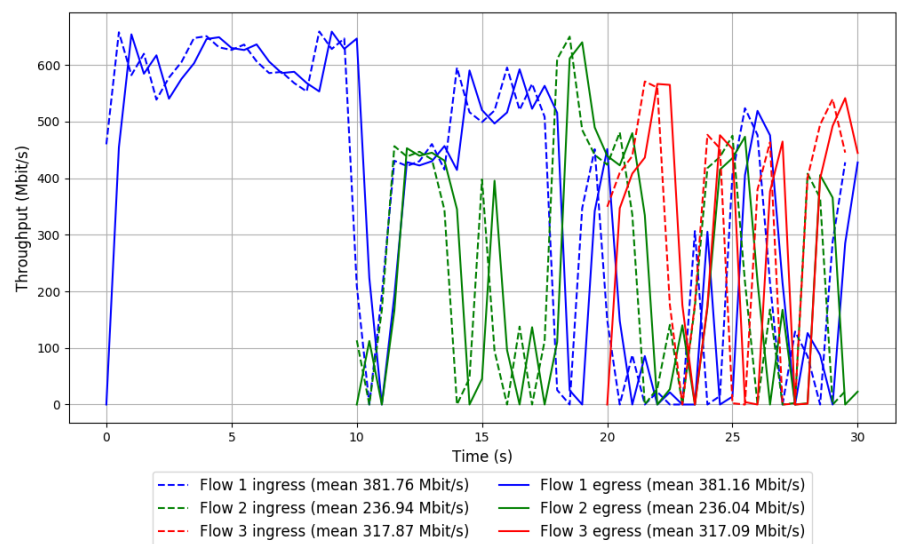
-- Flow 3:

Average throughput: 317.09 Mbit/s

95th percentile per-packet one-way delay: 7.073 ms

Loss rate: 0.24%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-10-26 03:06:01

End at: 2018-10-26 03:06:31

Local clock offset: 0.474 ms

Remote clock offset: -3.9 ms

# Below is generated by plot.py at 2018-10-26 05:48:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 102.52 Mbit/s

95th percentile per-packet one-way delay: 1.200 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 51.35 Mbit/s

95th percentile per-packet one-way delay: 1.213 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 51.23 Mbit/s

95th percentile per-packet one-way delay: 1.191 ms

Loss rate: 0.00%

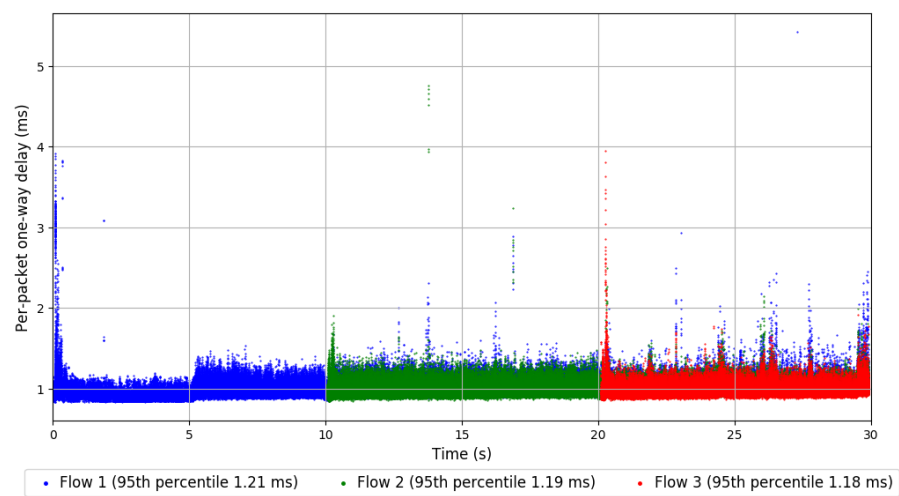
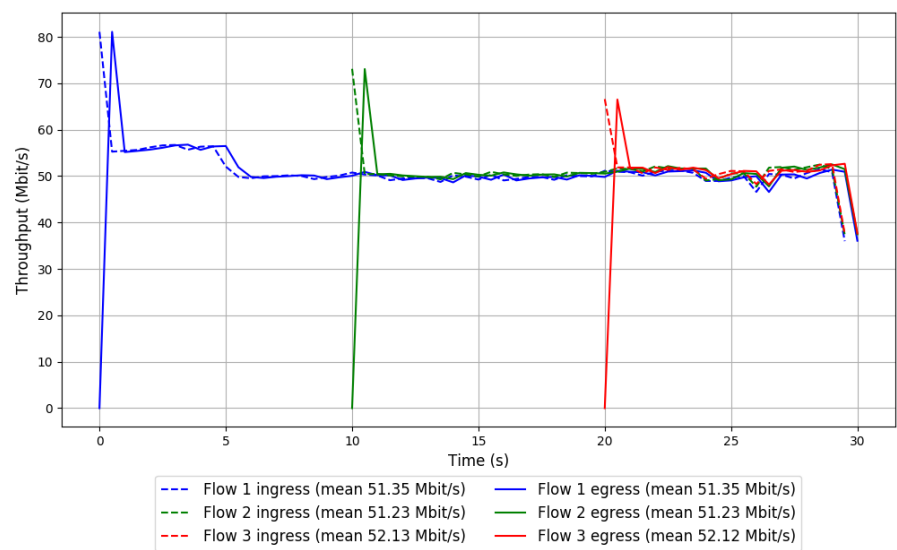
-- Flow 3:

Average throughput: 52.12 Mbit/s

95th percentile per-packet one-way delay: 1.177 ms

Loss rate: 0.00%

Run 1: Report of Indigo-Muses — Data Link



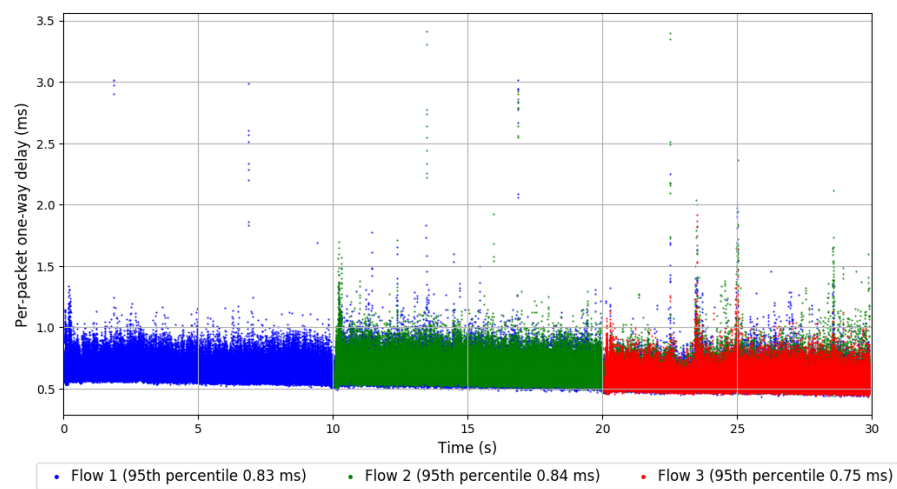
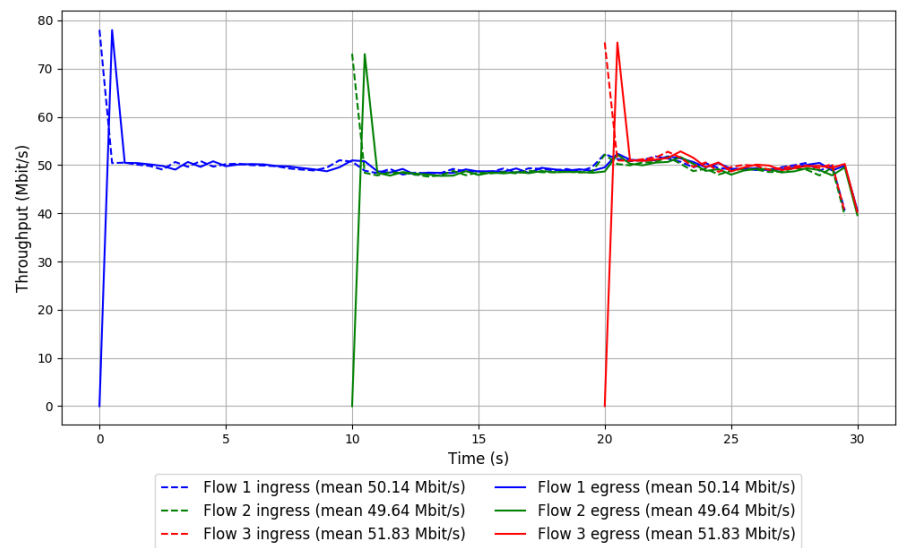


## Run 2: Statistics of Indigo-Muses

Start at: 2018-10-26 03:33:35  
End at: 2018-10-26 03:34:05  
Local clock offset: -0.067 ms  
Remote clock offset: -6.432 ms

```
# Below is generated by plot.py at 2018-10-26 05:48:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.17 Mbit/s
95th percentile per-packet one-way delay: 0.826 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.14 Mbit/s
95th percentile per-packet one-way delay: 0.835 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 49.64 Mbit/s
95th percentile per-packet one-way delay: 0.839 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 51.83 Mbit/s
95th percentile per-packet one-way delay: 0.749 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo-Muses — Data Link

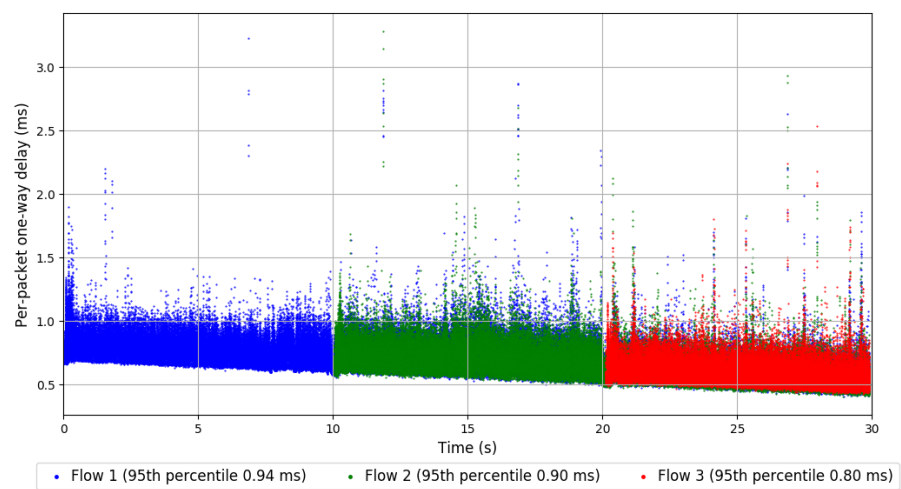
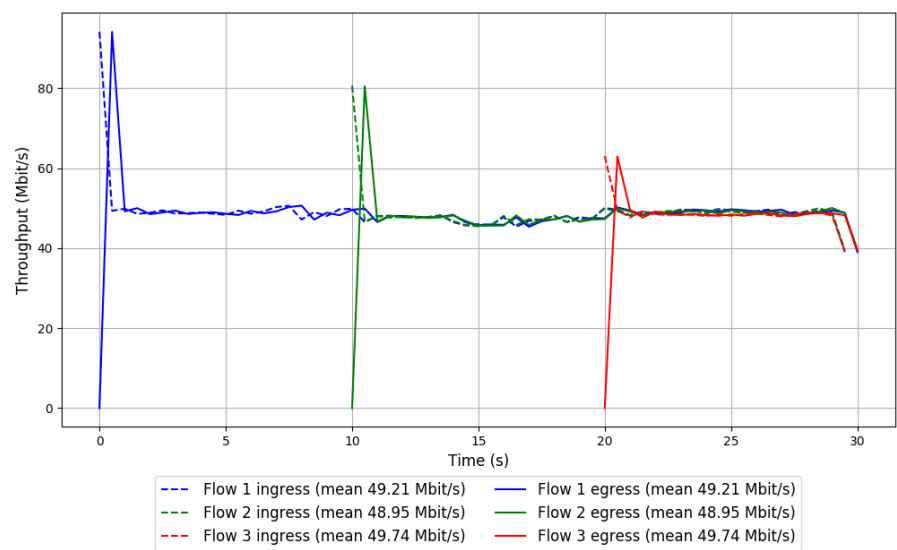


Run 3: Statistics of Indigo-Muses

Start at: 2018-10-26 04:01:06  
End at: 2018-10-26 04:01:36  
Local clock offset: -3.44 ms  
Remote clock offset: -0.323 ms

# Below is generated by plot.py at 2018-10-26 05:48:37  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 98.04 Mbit/s  
95th percentile per-packet one-way delay: 0.917 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 49.21 Mbit/s  
95th percentile per-packet one-way delay: 0.945 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 48.95 Mbit/s  
95th percentile per-packet one-way delay: 0.895 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 49.74 Mbit/s  
95th percentile per-packet one-way delay: 0.804 ms  
Loss rate: 0.00%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-10-26 04:28:36

End at: 2018-10-26 04:29:06

Local clock offset: -2.923 ms

Remote clock offset: 7.095 ms

# Below is generated by plot.py at 2018-10-26 05:48:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 98.86 Mbit/s

95th percentile per-packet one-way delay: 1.368 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 49.54 Mbit/s

95th percentile per-packet one-way delay: 1.345 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 49.20 Mbit/s

95th percentile per-packet one-way delay: 1.387 ms

Loss rate: 0.00%

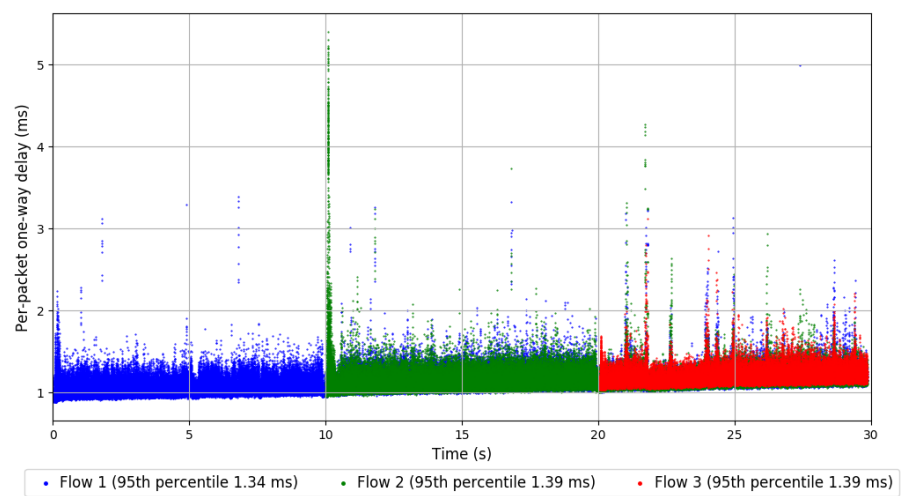
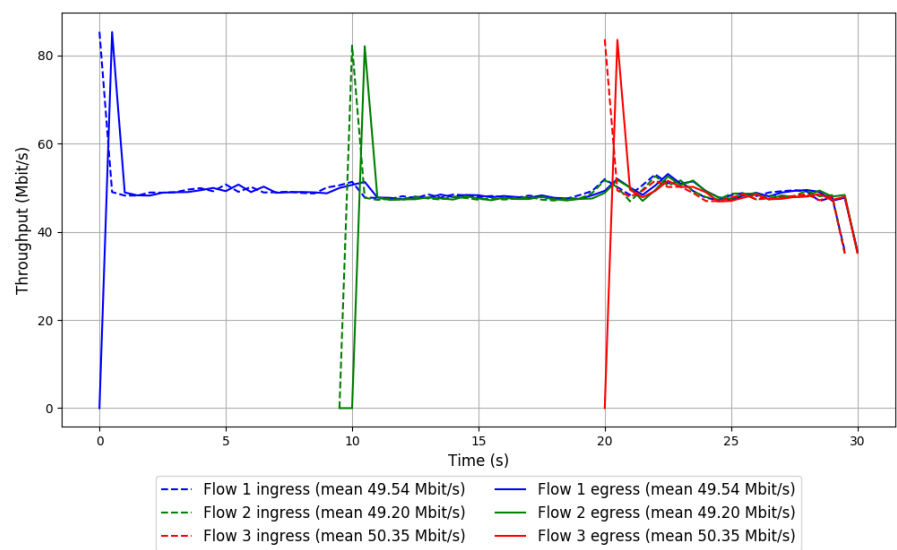
-- Flow 3:

Average throughput: 50.35 Mbit/s

95th percentile per-packet one-way delay: 1.390 ms

Loss rate: 0.00%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-10-26 04:56:05

End at: 2018-10-26 04:56:35

Local clock offset: 0.708 ms

Remote clock offset: 5.116 ms

# Below is generated by plot.py at 2018-10-26 05:48:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 97.82 Mbit/s

95th percentile per-packet one-way delay: 1.154 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 48.66 Mbit/s

95th percentile per-packet one-way delay: 1.164 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 48.77 Mbit/s

95th percentile per-packet one-way delay: 1.167 ms

Loss rate: 0.01%

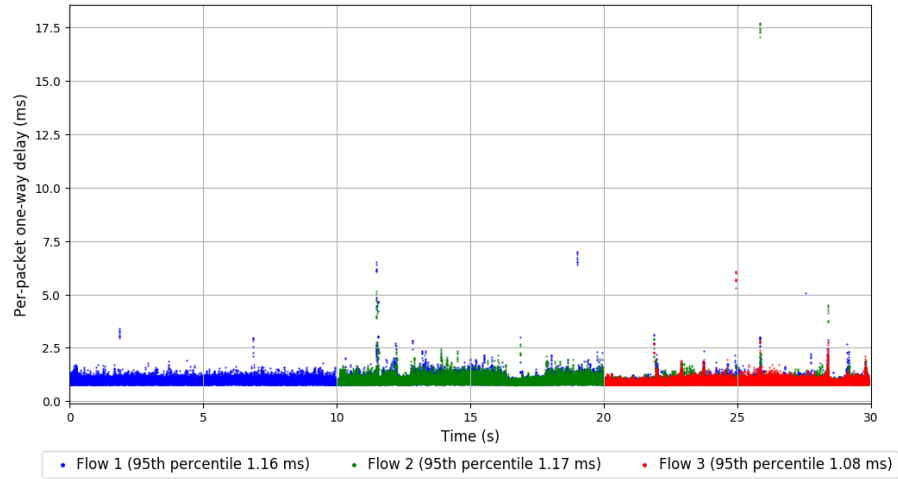
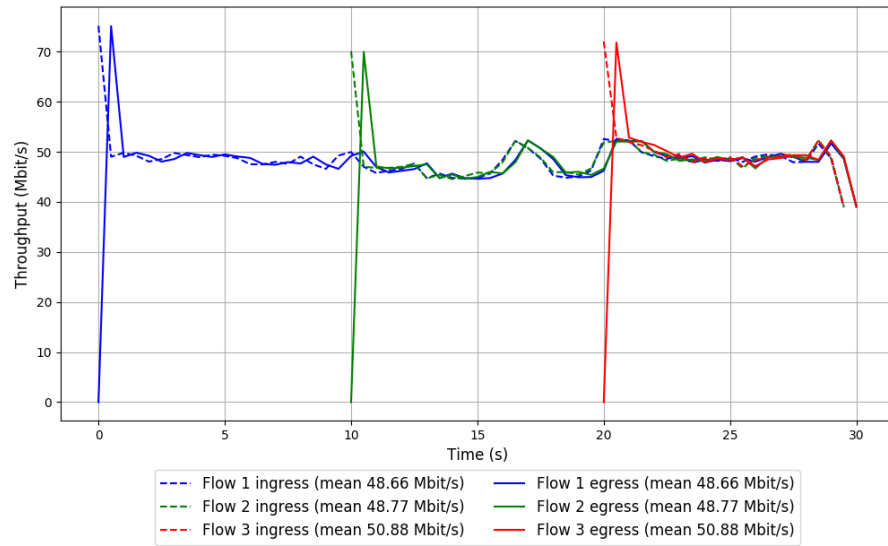
-- Flow 3:

Average throughput: 50.88 Mbit/s

95th percentile per-packet one-way delay: 1.082 ms

Loss rate: 0.00%

## Run 5: Report of Indigo-Muses — Data Link



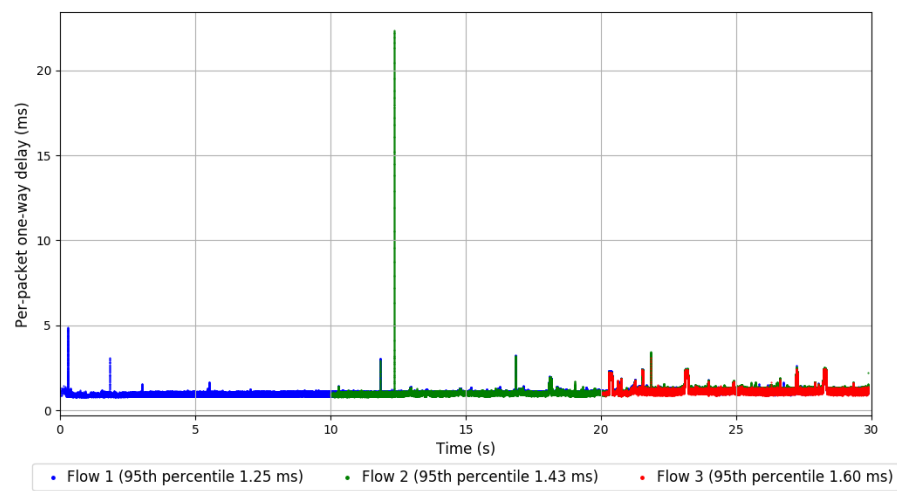
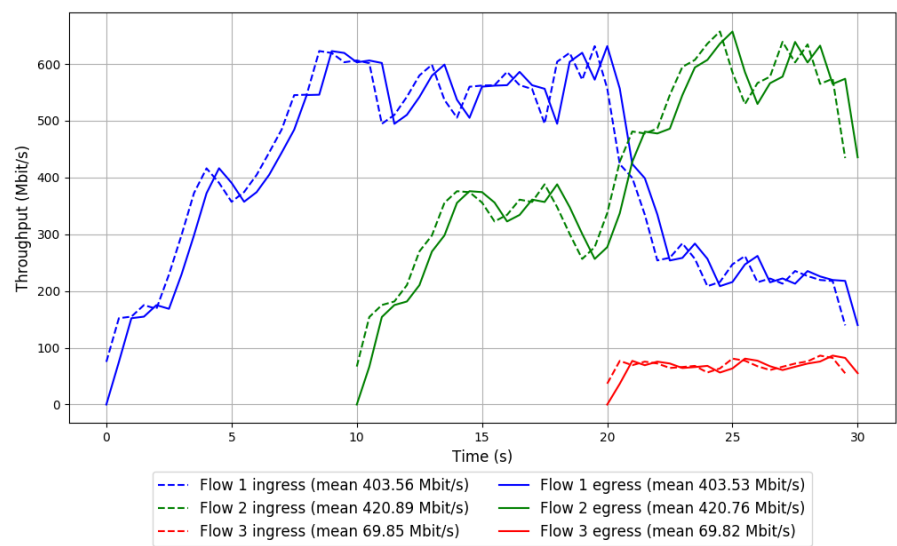


Run 1: Statistics of PCC-Allegro

Start at: 2018-10-26 03:14:40  
End at: 2018-10-26 03:15:10  
Local clock offset: 0.437 ms  
Remote clock offset: -4.918 ms

# Below is generated by plot.py at 2018-10-26 05:52:40  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 706.31 Mbit/s  
95th percentile per-packet one-way delay: 1.298 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 403.53 Mbit/s  
95th percentile per-packet one-way delay: 1.248 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 420.76 Mbit/s  
95th percentile per-packet one-way delay: 1.428 ms  
Loss rate: 0.03%  
-- Flow 3:  
Average throughput: 69.82 Mbit/s  
95th percentile per-packet one-way delay: 1.605 ms  
Loss rate: 0.04%

Run 1: Report of PCC-Allegro — Data Link

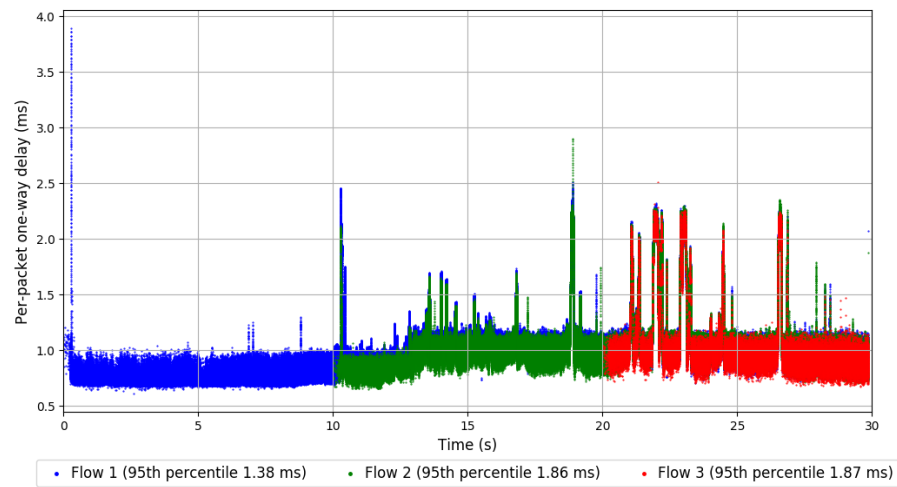
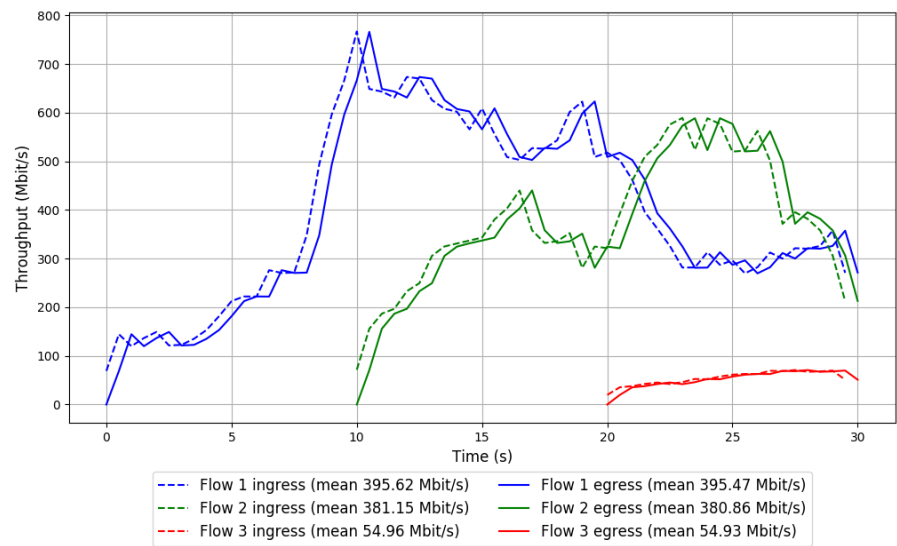


Run 2: Statistics of PCC-Allegro

Start at: 2018-10-26 03:42:13  
End at: 2018-10-26 03:42:43  
Local clock offset: -1.992 ms  
Remote clock offset: -7.101 ms

# Below is generated by plot.py at 2018-10-26 05:52:40  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 666.87 Mbit/s  
95th percentile per-packet one-way delay: 1.576 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 395.47 Mbit/s  
95th percentile per-packet one-way delay: 1.379 ms  
Loss rate: 0.04%  
-- Flow 2:  
Average throughput: 380.86 Mbit/s  
95th percentile per-packet one-way delay: 1.864 ms  
Loss rate: 0.07%  
-- Flow 3:  
Average throughput: 54.93 Mbit/s  
95th percentile per-packet one-way delay: 1.867 ms  
Loss rate: 0.07%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-10-26 04:09:42

End at: 2018-10-26 04:10:12

Local clock offset: -2.946 ms

Remote clock offset: 3.546 ms

# Below is generated by plot.py at 2018-10-26 05:52:40

# Datalink statistics

-- Total of 3 flows:

Average throughput: 603.53 Mbit/s

95th percentile per-packet one-way delay: 1.007 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 373.64 Mbit/s

95th percentile per-packet one-way delay: 1.005 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 333.68 Mbit/s

95th percentile per-packet one-way delay: 1.011 ms

Loss rate: 0.01%

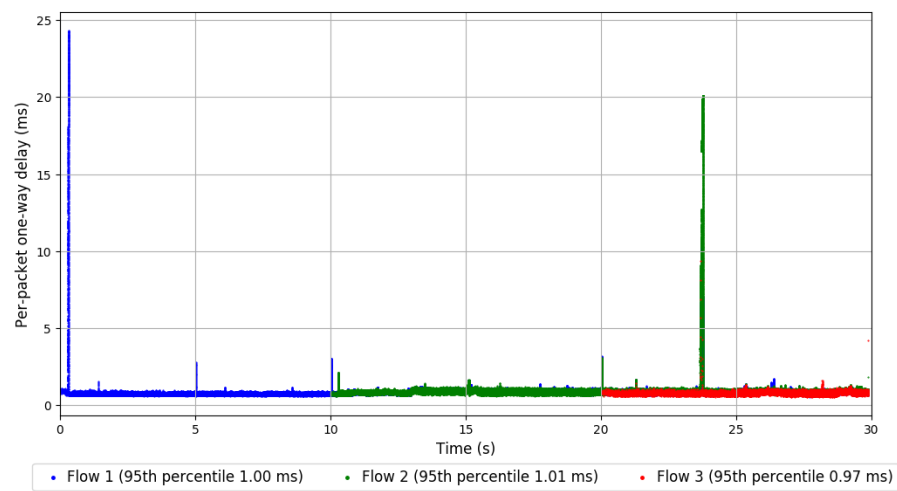
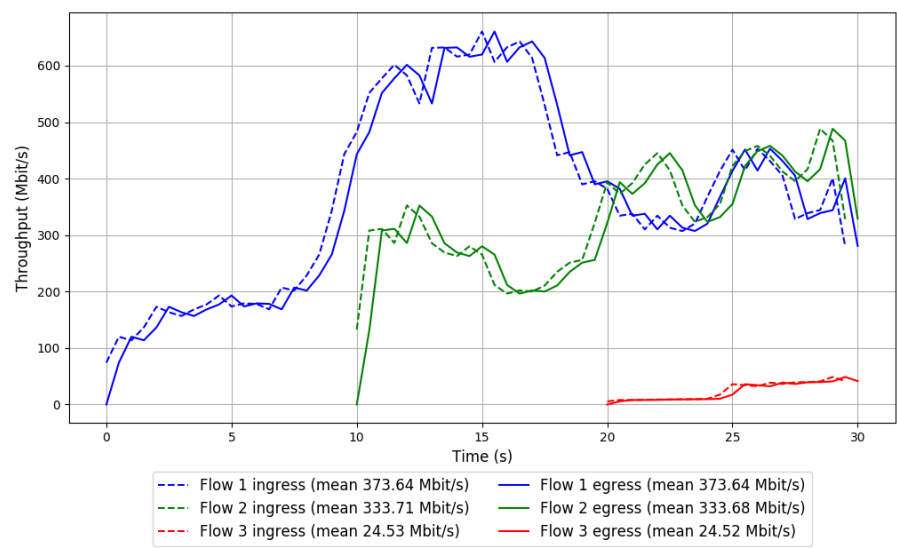
-- Flow 3:

Average throughput: 24.52 Mbit/s

95th percentile per-packet one-way delay: 0.966 ms

Loss rate: 0.00%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-10-26 04:37:13

End at: 2018-10-26 04:37:43

Local clock offset: -1.312 ms

Remote clock offset: 5.161 ms

# Below is generated by plot.py at 2018-10-26 05:53:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 595.46 Mbit/s

95th percentile per-packet one-way delay: 1.611 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 282.20 Mbit/s

95th percentile per-packet one-way delay: 1.576 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 461.51 Mbit/s

95th percentile per-packet one-way delay: 1.658 ms

Loss rate: 0.12%

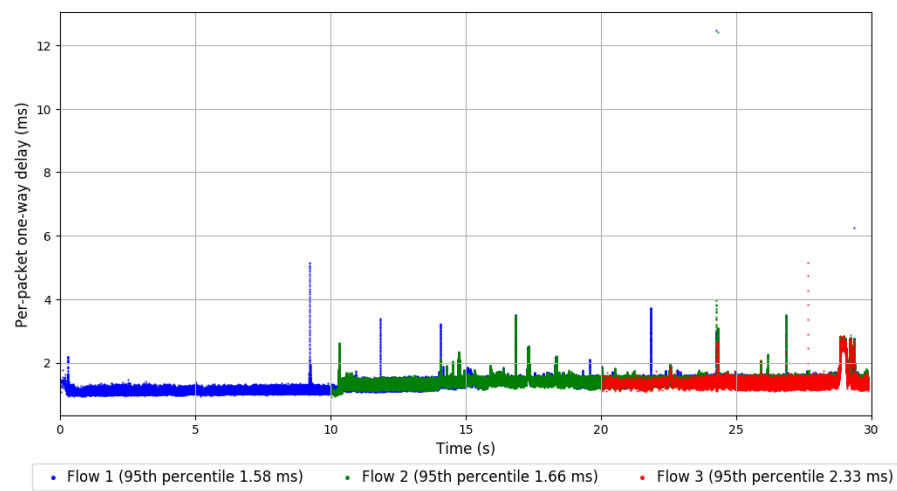
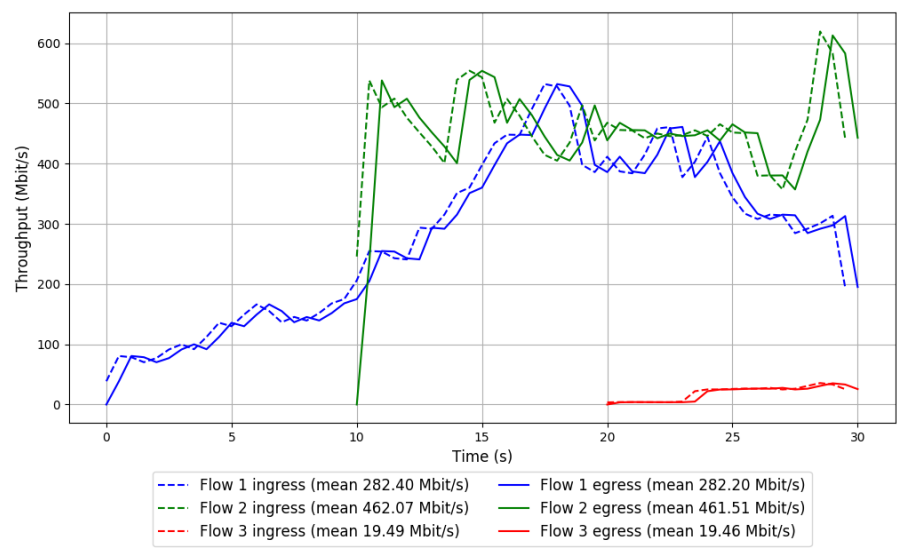
-- Flow 3:

Average throughput: 19.46 Mbit/s

95th percentile per-packet one-way delay: 2.334 ms

Loss rate: 0.17%

Run 4: Report of PCC-Allegro — Data Link





Run 5: Statistics of PCC-Allegro

Start at: 2018-10-26 05:04:34

End at: 2018-10-26 05:05:04

Local clock offset: 1.253 ms

Remote clock offset: 3.871 ms

# Below is generated by plot.py at 2018-10-26 05:53:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 444.33 Mbit/s

95th percentile per-packet one-way delay: 2.173 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 33.24 Mbit/s

95th percentile per-packet one-way delay: 1.565 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 606.70 Mbit/s

95th percentile per-packet one-way delay: 2.278 ms

Loss rate: 0.08%

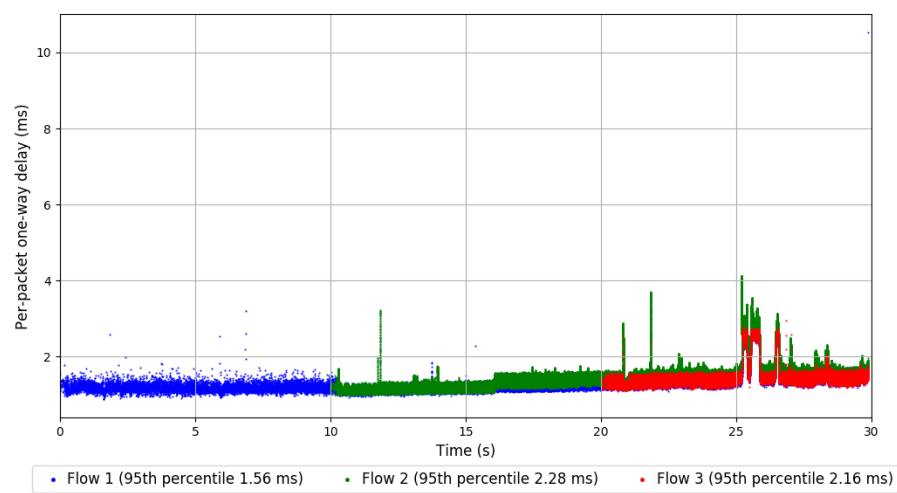
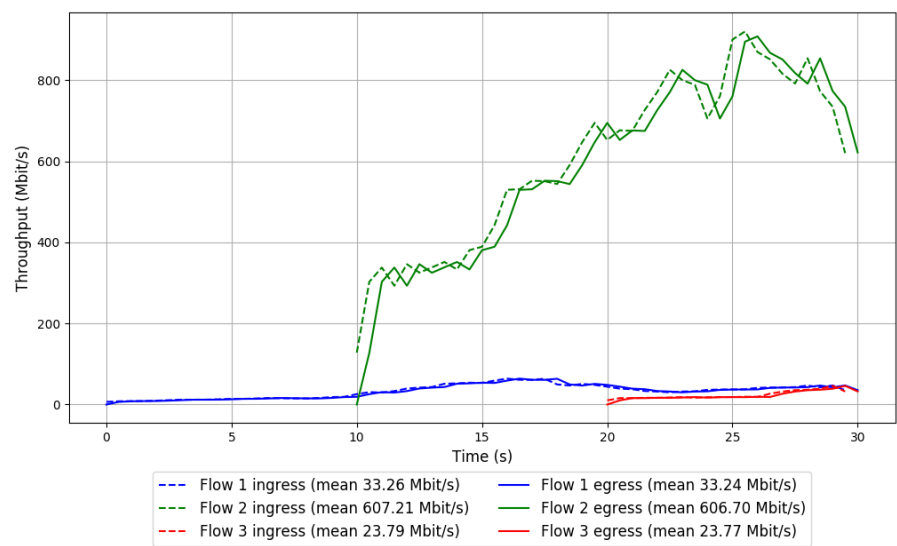
-- Flow 3:

Average throughput: 23.77 Mbit/s

95th percentile per-packet one-way delay: 2.158 ms

Loss rate: 0.08%

Run 5: Report of PCC-Allegro — Data Link

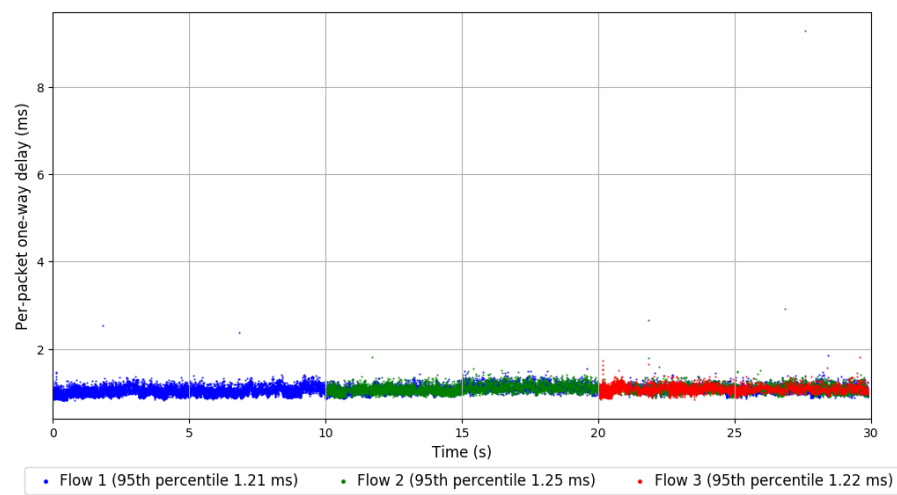
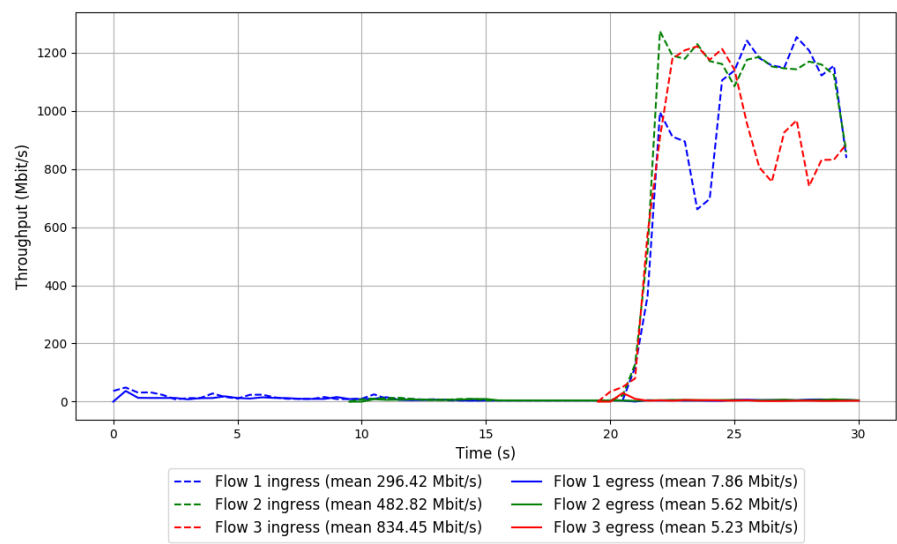


```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-26 03:11:52
End at: 2018-10-26 03:12:22
Local clock offset: 0.453 ms
Remote clock offset: -4.582 ms

# Below is generated by plot.py at 2018-10-26 05:53:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.33 Mbit/s
95th percentile per-packet one-way delay: 1.224 ms
Loss rate: 98.51%
-- Flow 1:
Average throughput: 7.86 Mbit/s
95th percentile per-packet one-way delay: 1.212 ms
Loss rate: 97.35%
-- Flow 2:
Average throughput: 5.62 Mbit/s
95th percentile per-packet one-way delay: 1.247 ms
Loss rate: 98.84%
-- Flow 3:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 1.219 ms
Loss rate: 99.37%
```

Run 1: Report of PCC-Expr — Data Link

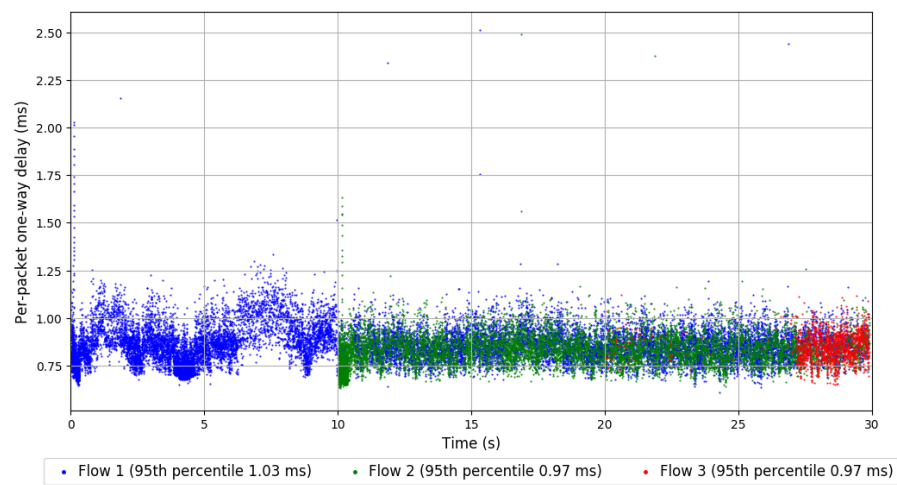
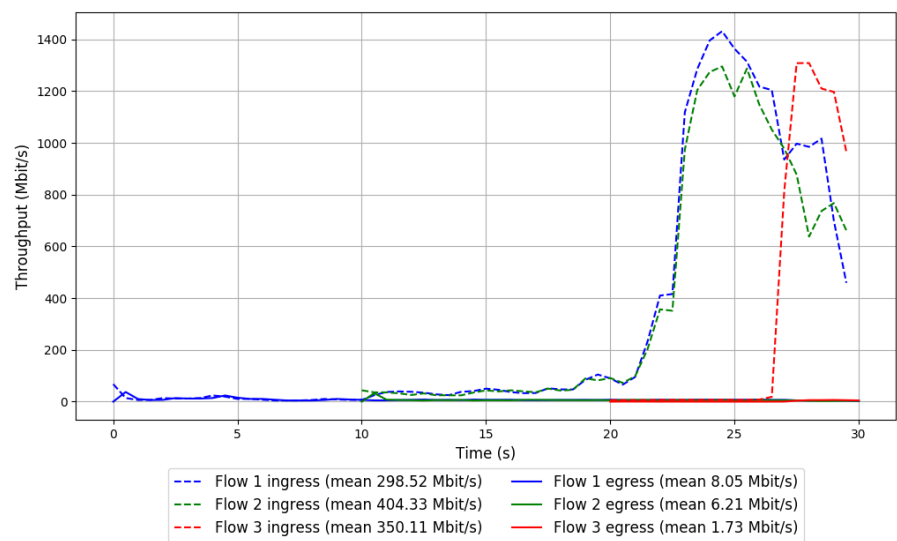


Run 2: Statistics of PCC-Expr

Start at: 2018-10-26 03:39:27  
End at: 2018-10-26 03:39:57  
Local clock offset: -1.545 ms  
Remote clock offset: -6.872 ms

# Below is generated by plot.py at 2018-10-26 05:53:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 12.76 Mbit/s  
95th percentile per-packet one-way delay: 1.010 ms  
Loss rate: 98.13%  
-- Flow 1:  
Average throughput: 8.05 Mbit/s  
95th percentile per-packet one-way delay: 1.029 ms  
Loss rate: 97.30%  
-- Flow 2:  
Average throughput: 6.21 Mbit/s  
95th percentile per-packet one-way delay: 0.967 ms  
Loss rate: 98.46%  
-- Flow 3:  
Average throughput: 1.73 Mbit/s  
95th percentile per-packet one-way delay: 0.972 ms  
Loss rate: 99.50%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-10-26 04:06:57

End at: 2018-10-26 04:07:27

Local clock offset: -3.081 ms

Remote clock offset: 2.654 ms

# Below is generated by plot.py at 2018-10-26 05:53:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.87 Mbit/s

95th percentile per-packet one-way delay: 1.093 ms

Loss rate: 98.07%

-- Flow 1:

Average throughput: 6.57 Mbit/s

95th percentile per-packet one-way delay: 1.112 ms

Loss rate: 96.55%

-- Flow 2:

Average throughput: 4.48 Mbit/s

95th percentile per-packet one-way delay: 1.086 ms

Loss rate: 98.59%

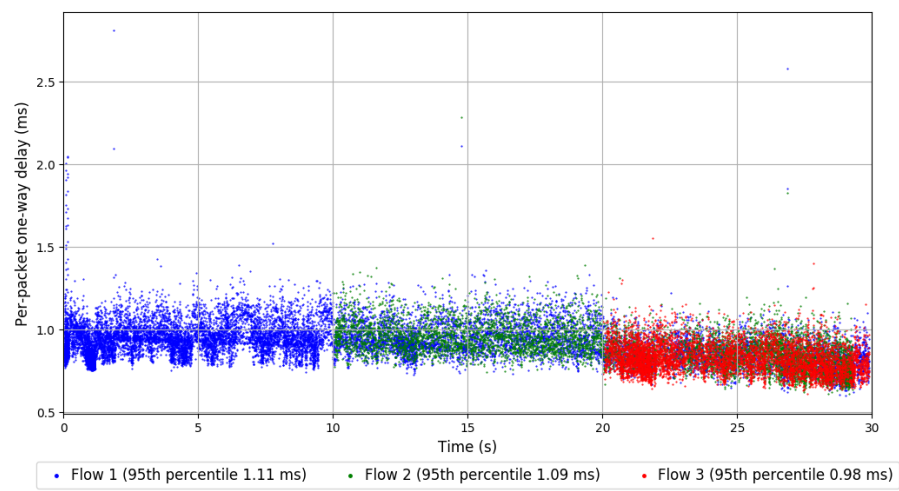
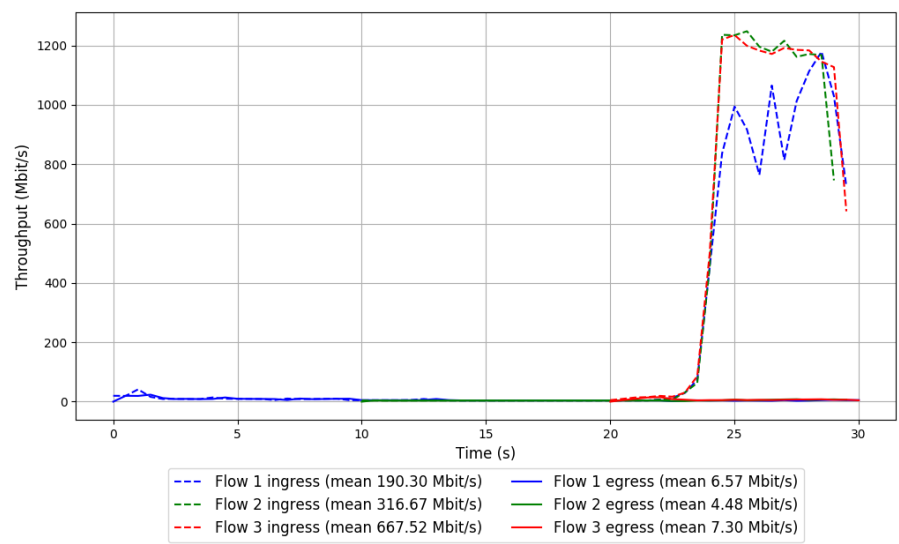
-- Flow 3:

Average throughput: 7.30 Mbit/s

95th percentile per-packet one-way delay: 0.980 ms

Loss rate: 98.91%

Run 3: Report of PCC-Expr — Data Link





Run 4: Statistics of PCC-Expr

Start at: 2018-10-26 04:34:28

End at: 2018-10-26 04:34:58

Local clock offset: -1.999 ms

Remote clock offset: 5.462 ms

# Below is generated by plot.py at 2018-10-26 05:53:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 10.79 Mbit/s

95th percentile per-packet one-way delay: 1.452 ms

Loss rate: 98.26%

-- Flow 1:

Average throughput: 5.12 Mbit/s

95th percentile per-packet one-way delay: 1.468 ms

Loss rate: 97.79%

-- Flow 2:

Average throughput: 6.51 Mbit/s

95th percentile per-packet one-way delay: 1.420 ms

Loss rate: 97.96%

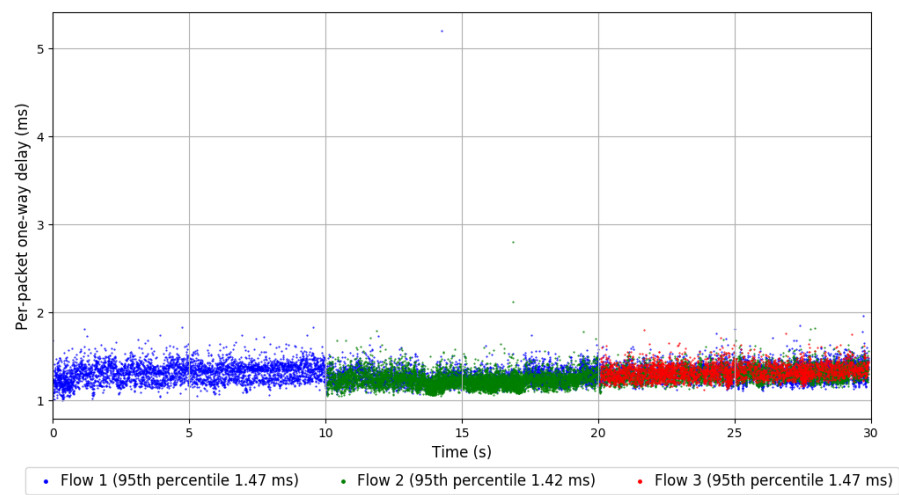
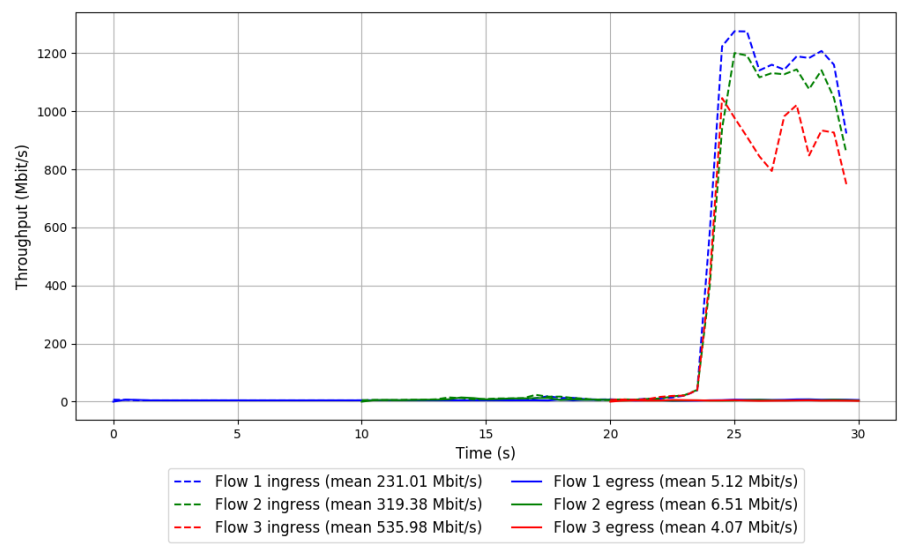
-- Flow 3:

Average throughput: 4.07 Mbit/s

95th percentile per-packet one-way delay: 1.471 ms

Loss rate: 99.24%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-10-26 05:01:56

End at: 2018-10-26 05:02:26

Local clock offset: 0.948 ms

Remote clock offset: 5.383 ms

# Below is generated by plot.py at 2018-10-26 05:53:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 9.16 Mbit/s

95th percentile per-packet one-way delay: 1.694 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 3.78 Mbit/s

95th percentile per-packet one-way delay: 1.682 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 5.49 Mbit/s

95th percentile per-packet one-way delay: 1.691 ms

Loss rate: 0.00%

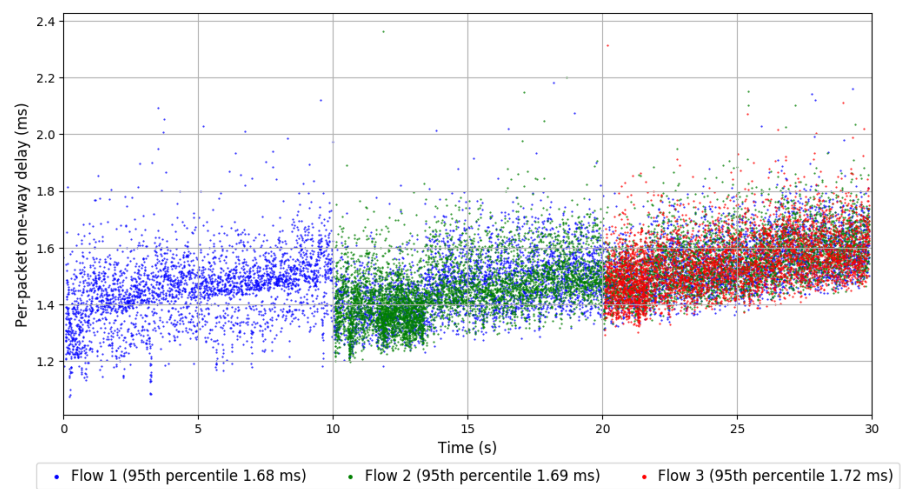
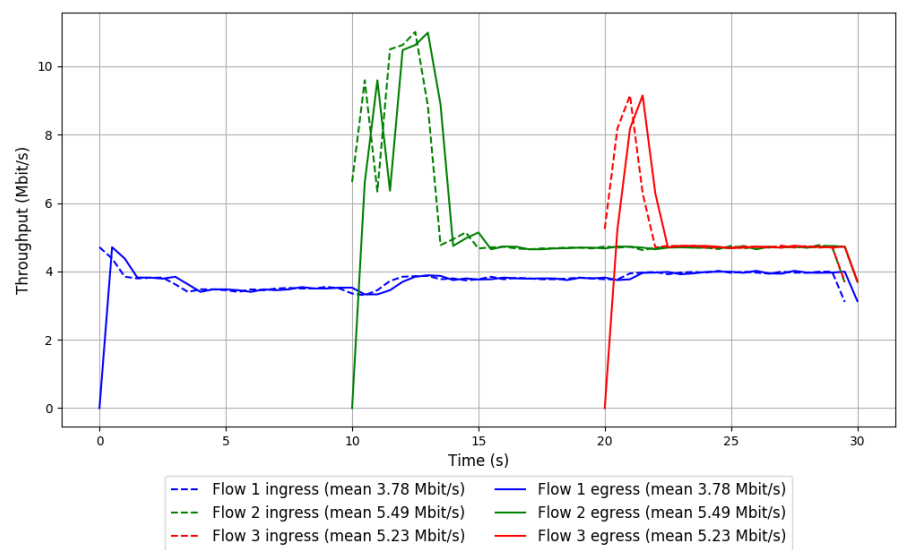
-- Flow 3:

Average throughput: 5.23 Mbit/s

95th percentile per-packet one-way delay: 1.715 ms

Loss rate: 0.00%

Run 5: Report of PCC-Expr — Data Link

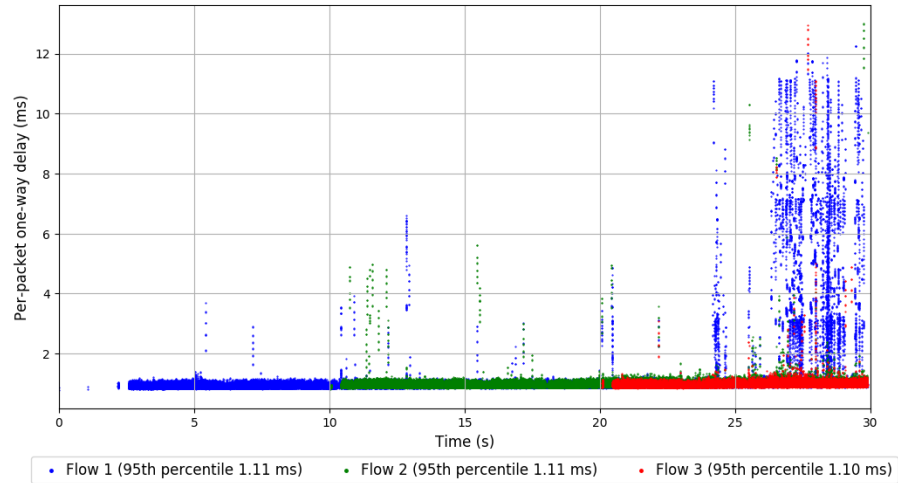
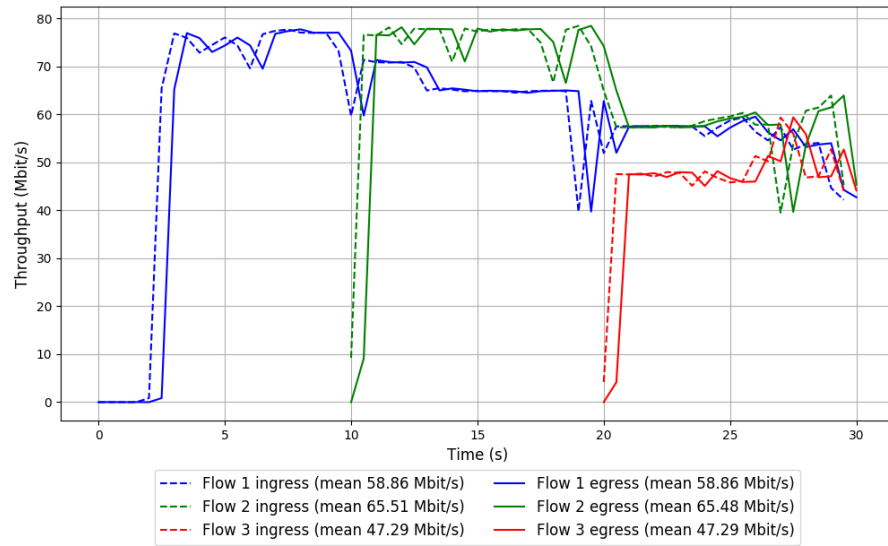


Run 1: Statistics of QUIC Cubic

Start at: 2018-10-26 03:07:23  
End at: 2018-10-26 03:07:53  
Local clock offset: 0.458 ms  
Remote clock offset: -4.093 ms

# Below is generated by plot.py at 2018-10-26 05:53:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 117.89 Mbit/s  
95th percentile per-packet one-way delay: 1.110 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 58.86 Mbit/s  
95th percentile per-packet one-way delay: 1.115 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 65.48 Mbit/s  
95th percentile per-packet one-way delay: 1.109 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 47.29 Mbit/s  
95th percentile per-packet one-way delay: 1.104 ms  
Loss rate: 0.00%

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

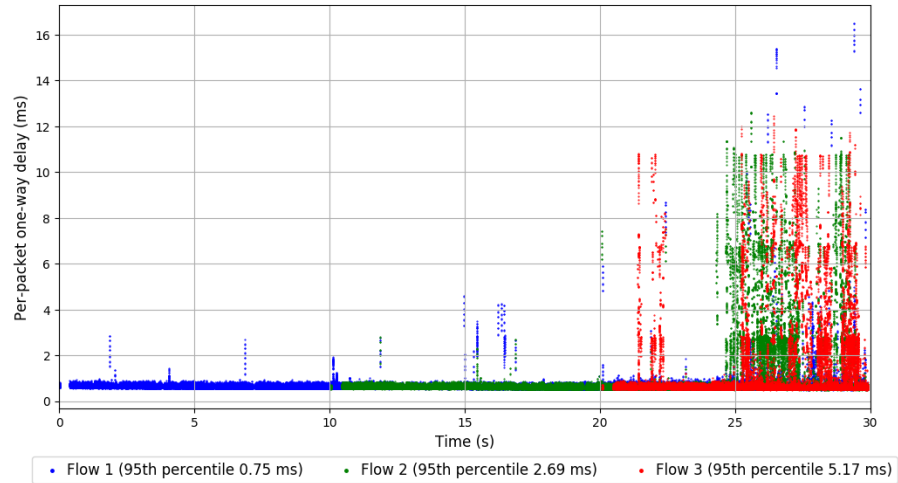
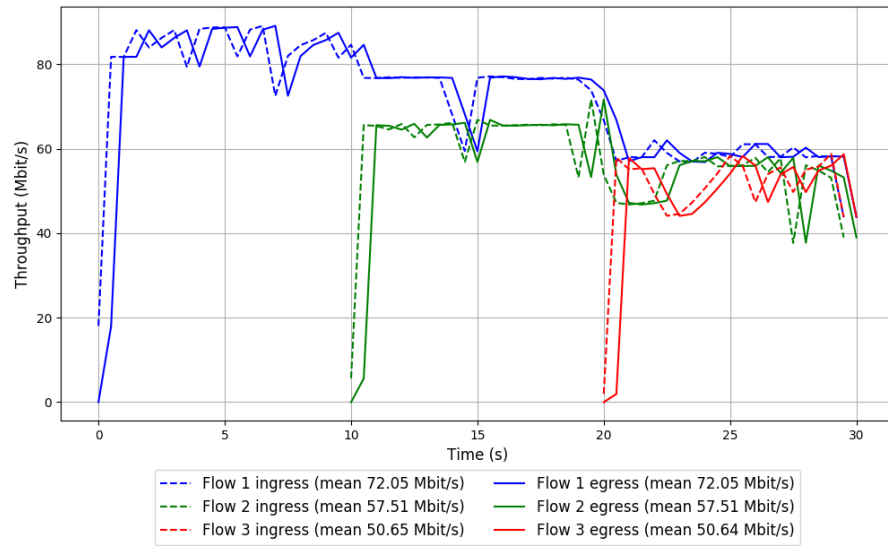


Run 2: Statistics of QUIC Cubic

Start at: 2018-10-26 03:34:57  
End at: 2018-10-26 03:35:27  
Local clock offset: -0.469 ms  
Remote clock offset: -6.505 ms

# Below is generated by plot.py at 2018-10-26 05:53:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 126.90 Mbit/s  
95th percentile per-packet one-way delay: 1.055 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 72.05 Mbit/s  
95th percentile per-packet one-way delay: 0.754 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 57.51 Mbit/s  
95th percentile per-packet one-way delay: 2.695 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 50.64 Mbit/s  
95th percentile per-packet one-way delay: 5.173 ms  
Loss rate: 0.00%

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





Run 3: Statistics of QUIC Cubic

Start at: 2018-10-26 04:02:28

End at: 2018-10-26 04:02:58

Local clock offset: -3.391 ms

Remote clock offset: 0.574 ms

# Below is generated by plot.py at 2018-10-26 05:53:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 124.25 Mbit/s

95th percentile per-packet one-way delay: 0.904 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 63.26 Mbit/s

95th percentile per-packet one-way delay: 0.912 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 64.59 Mbit/s

95th percentile per-packet one-way delay: 0.895 ms

Loss rate: 0.00%

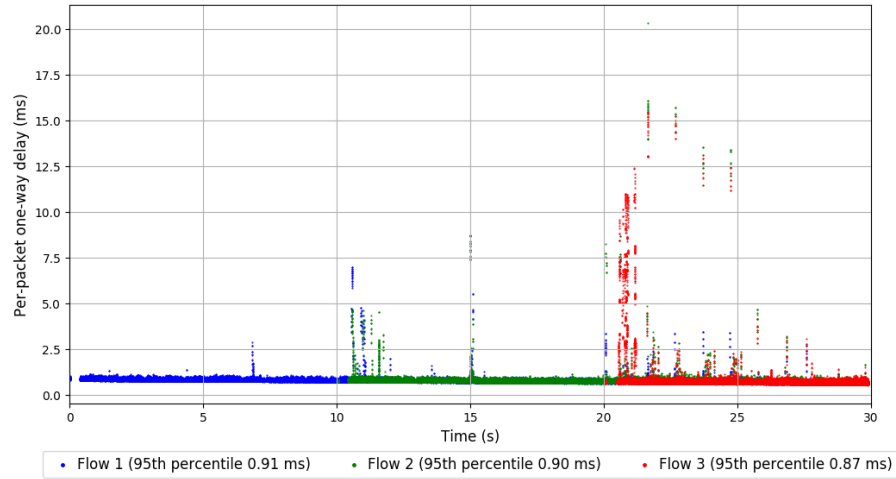
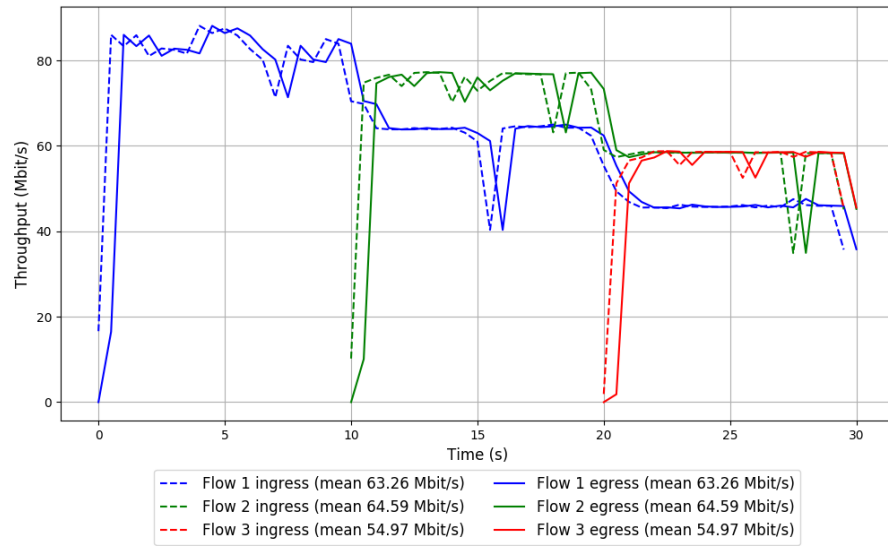
-- Flow 3:

Average throughput: 54.97 Mbit/s

95th percentile per-packet one-way delay: 0.867 ms

Loss rate: 0.00%

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



Run 4: Statistics of QUIC Cubic

Start at: 2018-10-26 04:29:58

End at: 2018-10-26 04:30:28

Local clock offset: -2.942 ms

Remote clock offset: 6.498 ms

# Below is generated by plot.py at 2018-10-26 05:54:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 123.76 Mbit/s

95th percentile per-packet one-way delay: 2.749 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 66.57 Mbit/s

95th percentile per-packet one-way delay: 2.880 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 61.85 Mbit/s

95th percentile per-packet one-way delay: 2.141 ms

Loss rate: 0.00%

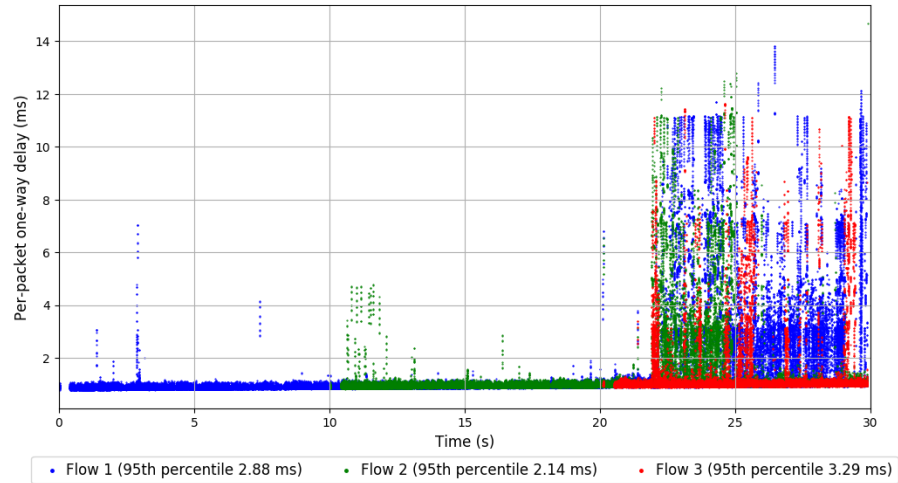
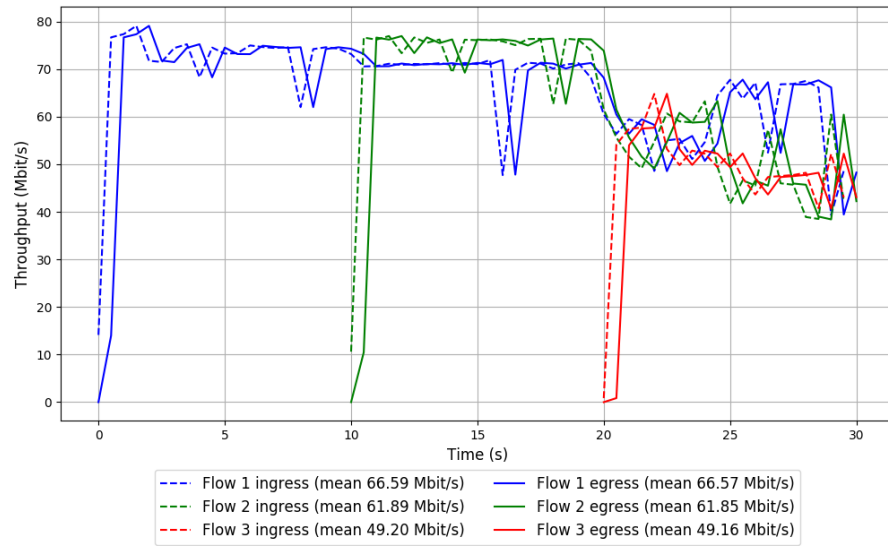
-- Flow 3:

Average throughput: 49.16 Mbit/s

95th percentile per-packet one-way delay: 3.291 ms

Loss rate: 0.00%

#### Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-10-26 04:57:27

End at: 2018-10-26 04:57:57

Local clock offset: 0.774 ms

Remote clock offset: 5.22 ms

# Below is generated by plot.py at 2018-10-26 05:54:20

# Datalink statistics

-- Total of 3 flows:

Average throughput: 124.44 Mbit/s

95th percentile per-packet one-way delay: 1.171 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 66.69 Mbit/s

95th percentile per-packet one-way delay: 1.027 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 62.01 Mbit/s

95th percentile per-packet one-way delay: 4.784 ms

Loss rate: 0.00%

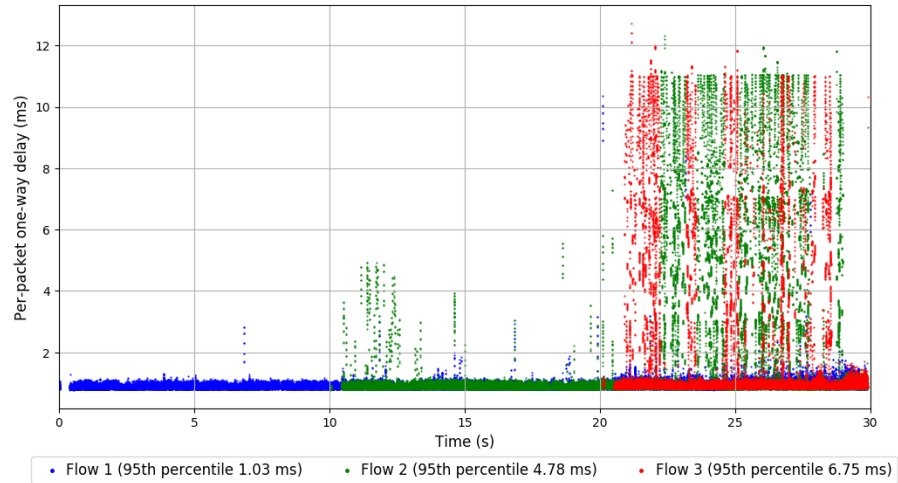
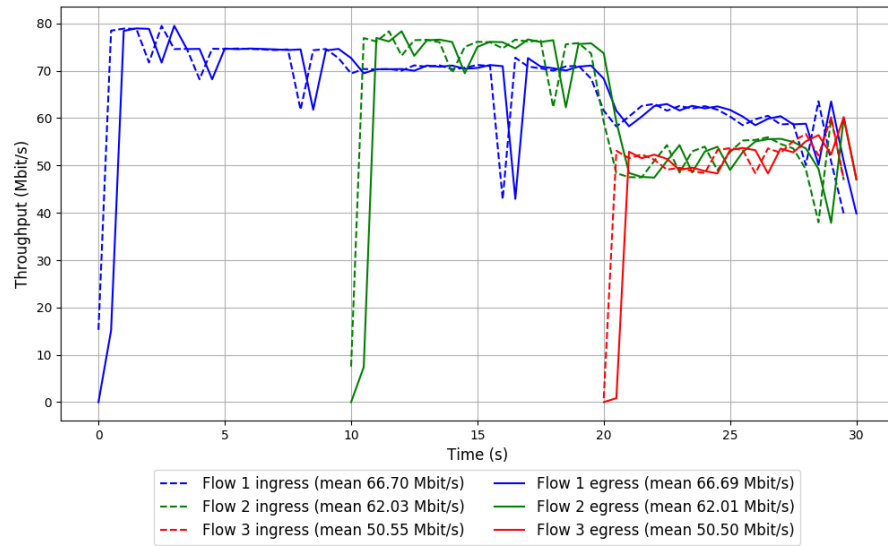
-- Flow 3:

Average throughput: 50.50 Mbit/s

95th percentile per-packet one-way delay: 6.745 ms

Loss rate: 0.00%

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

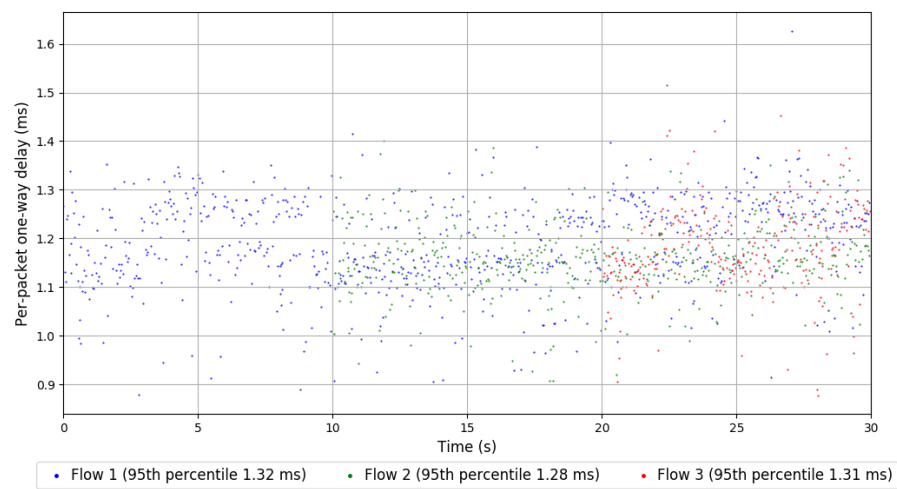
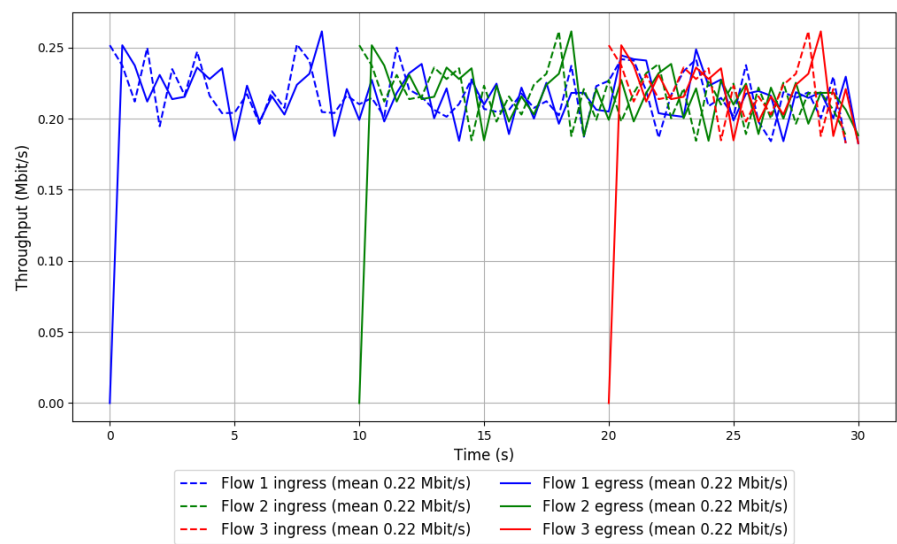


```
Run 1: Statistics of SReAM

Start at: 2018-10-26 03:10:33
End at: 2018-10-26 03:11:03
Local clock offset: 0.459 ms
Remote clock offset: -4.502 ms

# Below is generated by plot.py at 2018-10-26 05:54:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.313 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.322 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.281 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.315 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



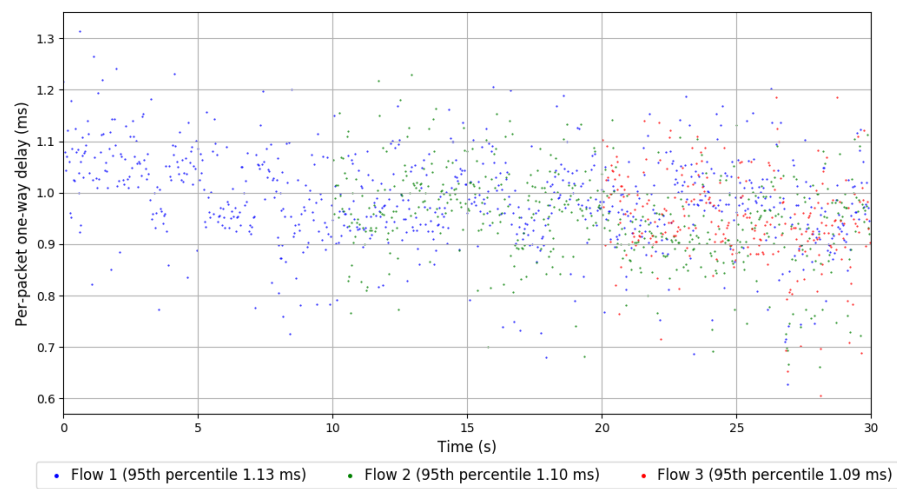
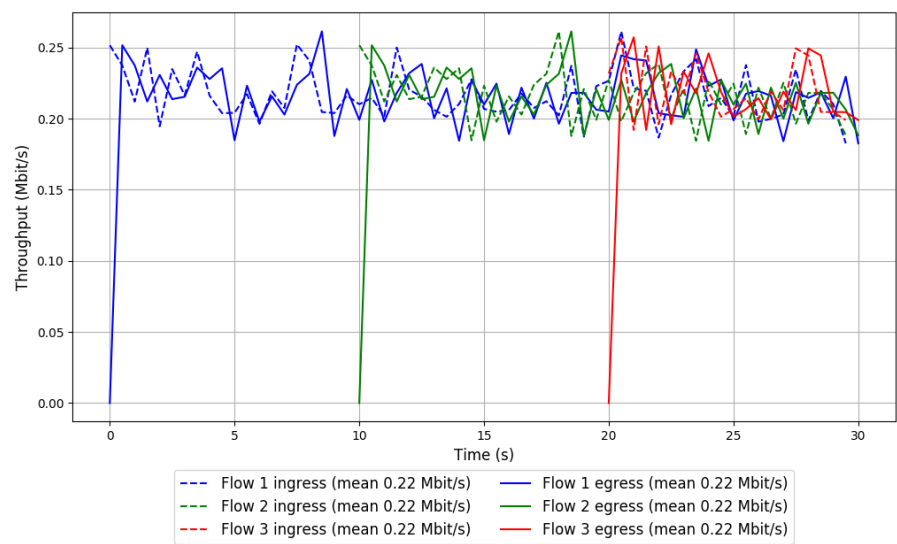


Run 2: Statistics of SReAM

Start at: 2018-10-26 03:38:09  
End at: 2018-10-26 03:38:39  
Local clock offset: -1.313 ms  
Remote clock offset: -6.817 ms

# Below is generated by plot.py at 2018-10-26 05:54:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.114 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.132 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.104 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.088 ms  
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

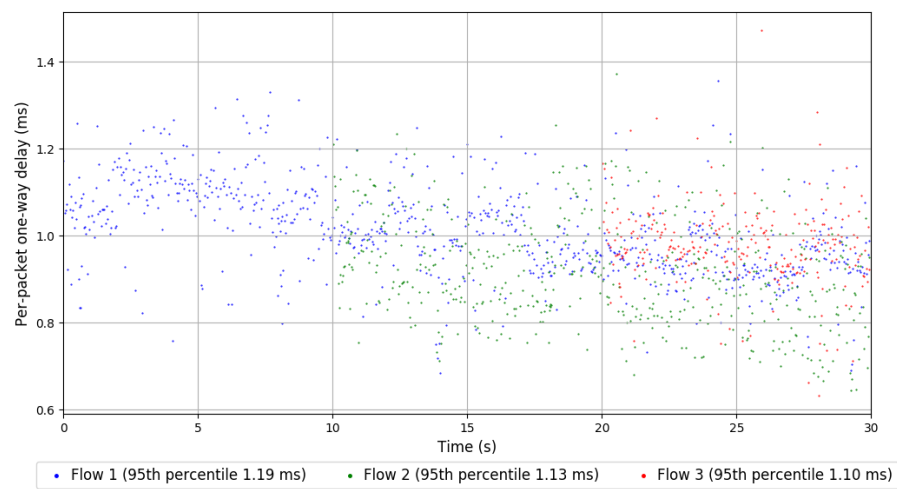
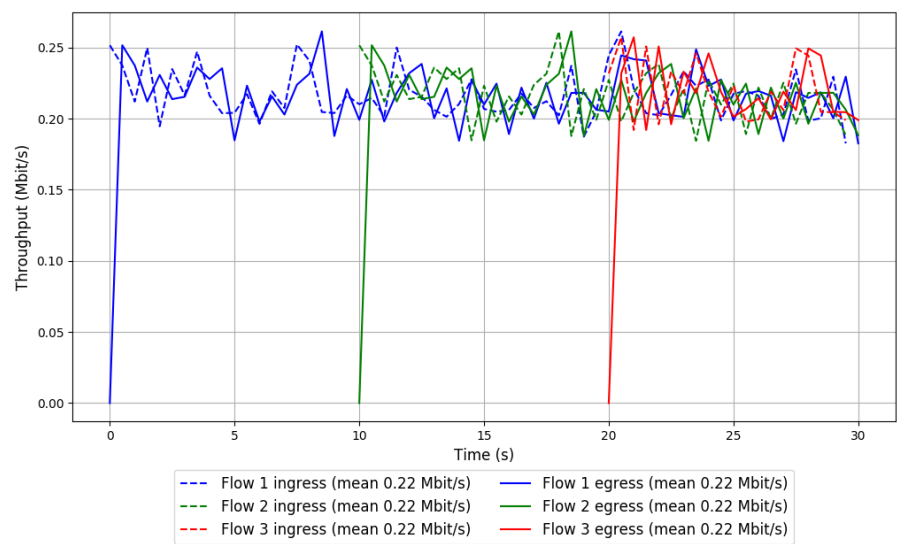


Run 3: Statistics of SReAM

Start at: 2018-10-26 04:05:38  
End at: 2018-10-26 04:06:08  
Local clock offset: -3.154 ms  
Remote clock offset: 2.075 ms

# Below is generated by plot.py at 2018-10-26 05:54:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.163 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.188 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.130 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.100 ms  
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-10-26 04:33:09

End at: 2018-10-26 04:33:39

Local clock offset: -2.413 ms

Remote clock offset: 5.679 ms

# Below is generated by plot.py at 2018-10-26 05:54:20

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 1.718 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.646 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.770 ms

Loss rate: 0.00%

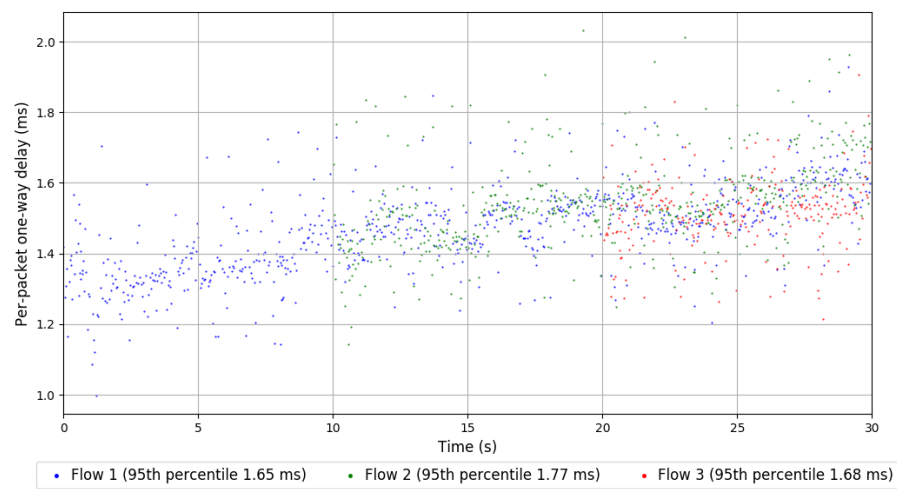
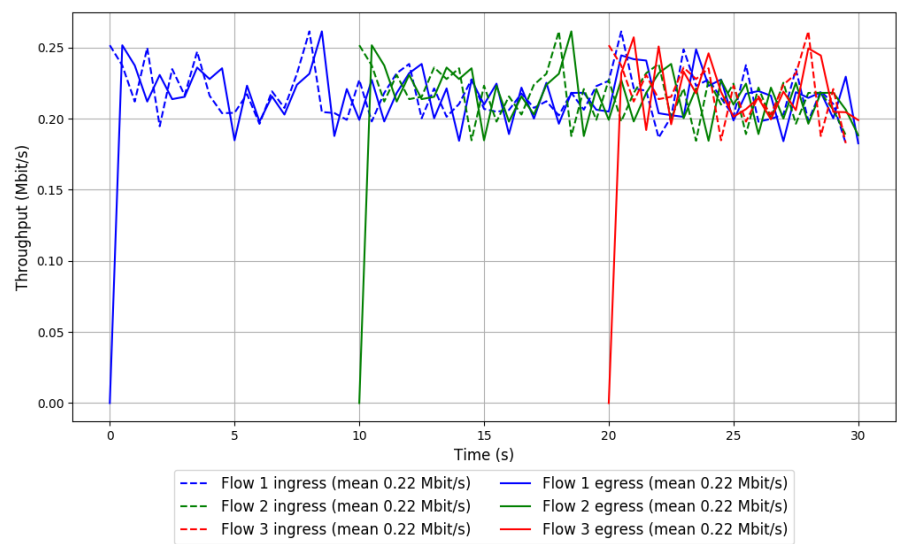
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.681 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-10-26 05:00:37

End at: 2018-10-26 05:01:07

Local clock offset: 0.902 ms

Remote clock offset: 5.397 ms

# Below is generated by plot.py at 2018-10-26 05:54:20

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 1.396 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.444 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.348 ms

Loss rate: 0.00%

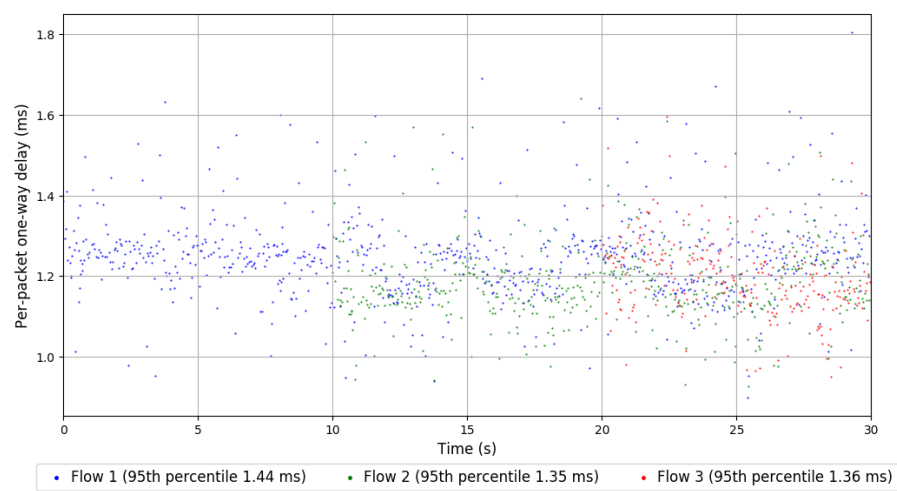
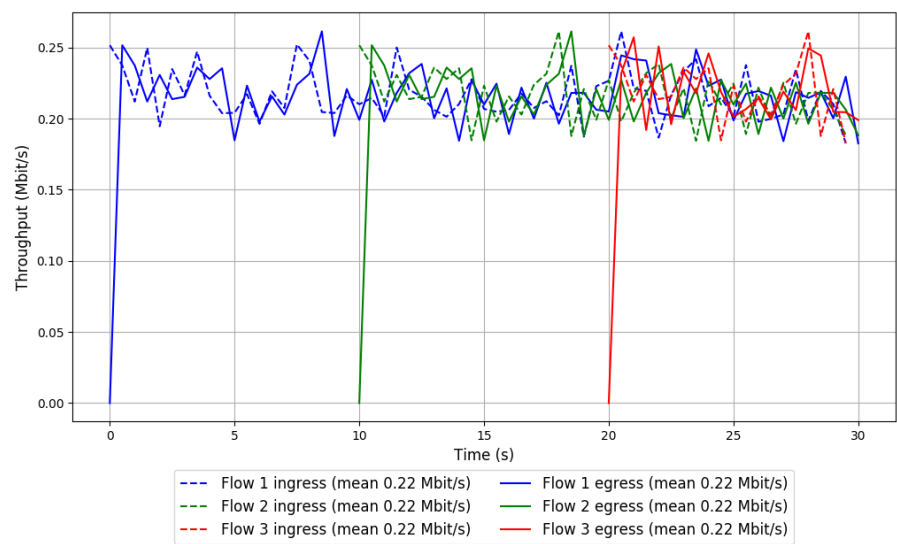
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.359 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



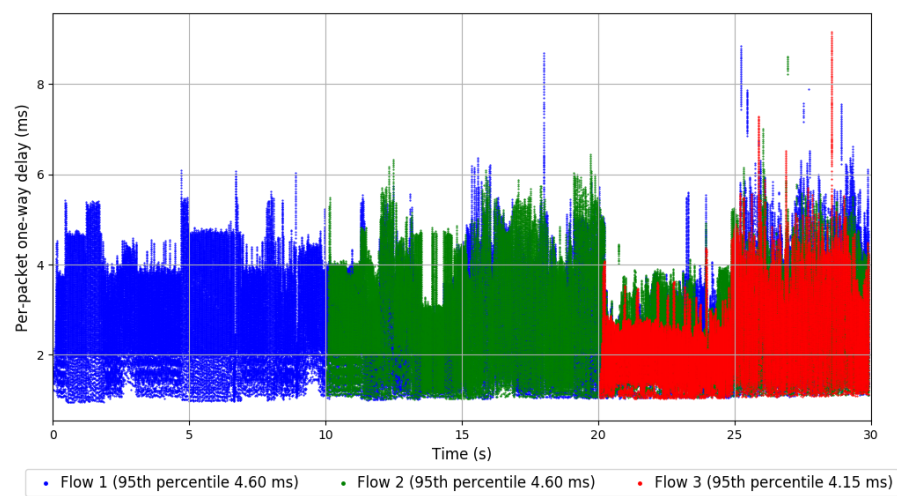
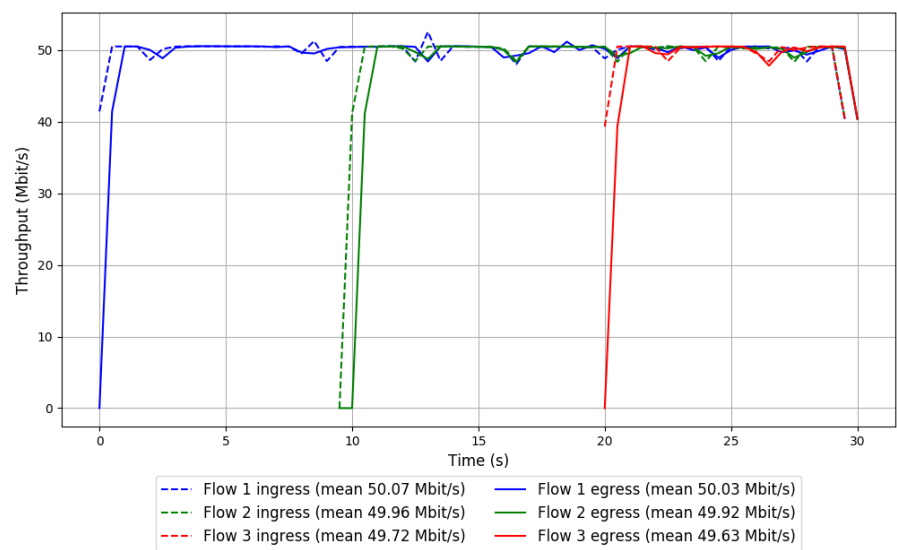


Run 1: Statistics of Sprout

Start at: 2018-10-26 02:54:53  
End at: 2018-10-26 02:55:23  
Local clock offset: 0.434 ms  
Remote clock offset: -1.794 ms

# Below is generated by plot.py at 2018-10-26 05:54:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 99.67 Mbit/s  
95th percentile per-packet one-way delay: 4.544 ms  
Loss rate: 0.08%  
-- Flow 1:  
Average throughput: 50.03 Mbit/s  
95th percentile per-packet one-way delay: 4.597 ms  
Loss rate: 0.07%  
-- Flow 2:  
Average throughput: 49.92 Mbit/s  
95th percentile per-packet one-way delay: 4.599 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 49.63 Mbit/s  
95th percentile per-packet one-way delay: 4.146 ms  
Loss rate: 0.14%

Run 1: Report of Sprout — Data Link

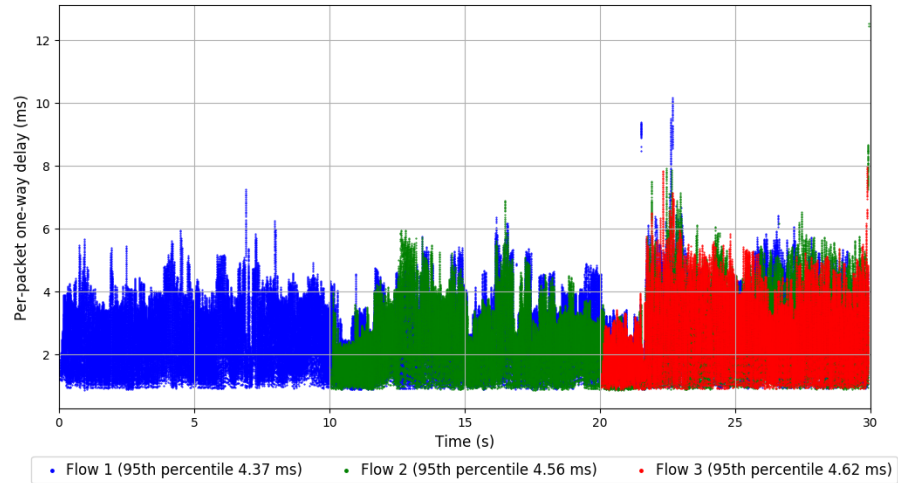
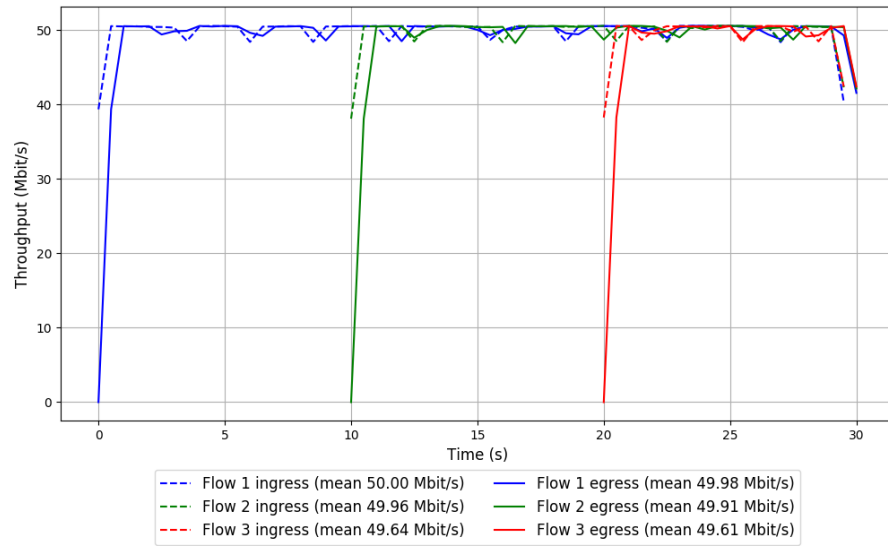


Run 2: Statistics of Sprout

Start at: 2018-10-26 03:22:29  
End at: 2018-10-26 03:22:59  
Local clock offset: 0.486 ms  
Remote clock offset: -5.539 ms

# Below is generated by plot.py at 2018-10-26 05:54:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 99.56 Mbit/s  
95th percentile per-packet one-way delay: 4.480 ms  
Loss rate: 0.03%  
-- Flow 1:  
Average throughput: 49.98 Mbit/s  
95th percentile per-packet one-way delay: 4.367 ms  
Loss rate: 0.03%  
-- Flow 2:  
Average throughput: 49.91 Mbit/s  
95th percentile per-packet one-way delay: 4.562 ms  
Loss rate: 0.03%  
-- Flow 3:  
Average throughput: 49.61 Mbit/s  
95th percentile per-packet one-way delay: 4.615 ms  
Loss rate: 0.03%

## Run 2: Report of Sprout — Data Link

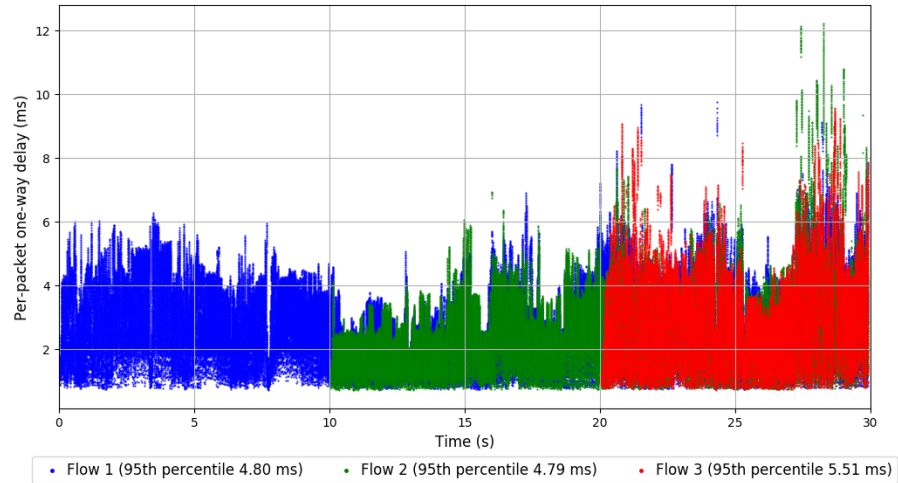
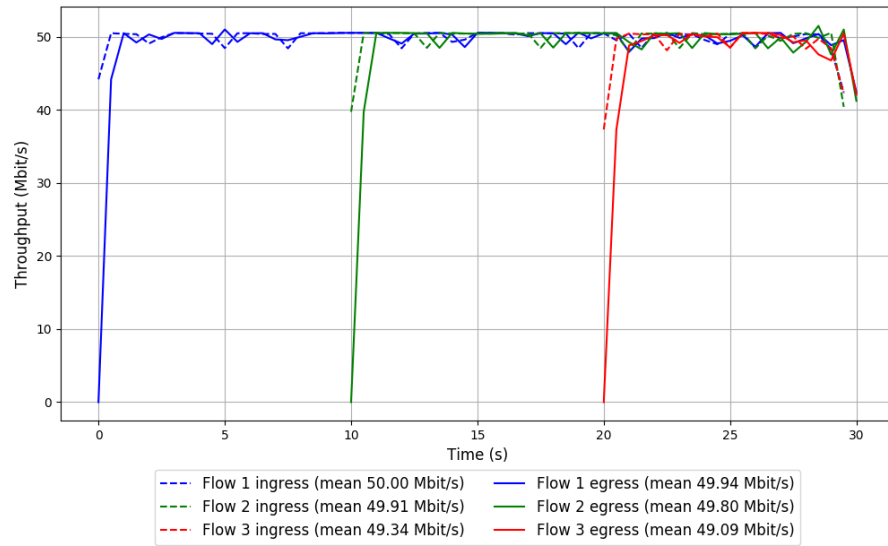


Run 3: Statistics of Sprout

Start at: 2018-10-26 03:50:00  
End at: 2018-10-26 03:50:30  
Local clock offset: -2.777 ms  
Remote clock offset: -7.654 ms

# Below is generated by plot.py at 2018-10-26 05:54:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 99.29 Mbit/s  
95th percentile per-packet one-way delay: 4.917 ms  
Loss rate: 0.19%  
-- Flow 1:  
Average throughput: 49.94 Mbit/s  
95th percentile per-packet one-way delay: 4.796 ms  
Loss rate: 0.09%  
-- Flow 2:  
Average throughput: 49.80 Mbit/s  
95th percentile per-packet one-way delay: 4.791 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 49.09 Mbit/s  
95th percentile per-packet one-way delay: 5.508 ms  
Loss rate: 0.46%

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

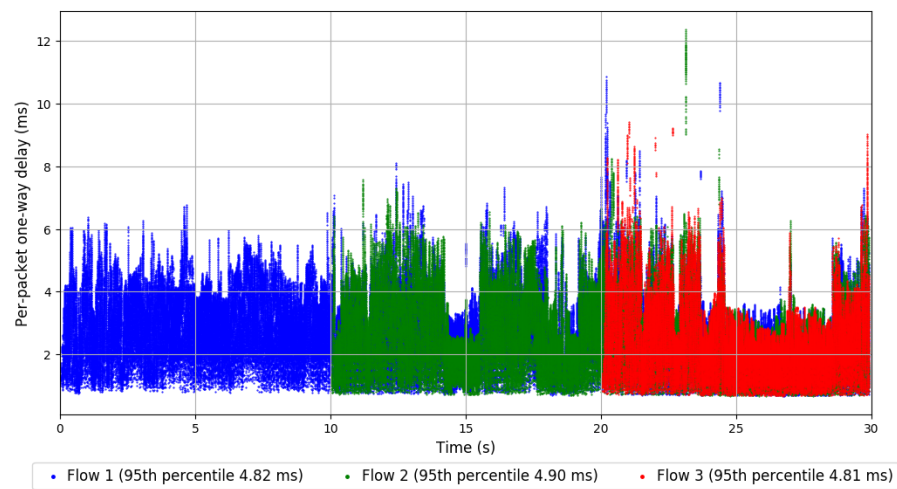
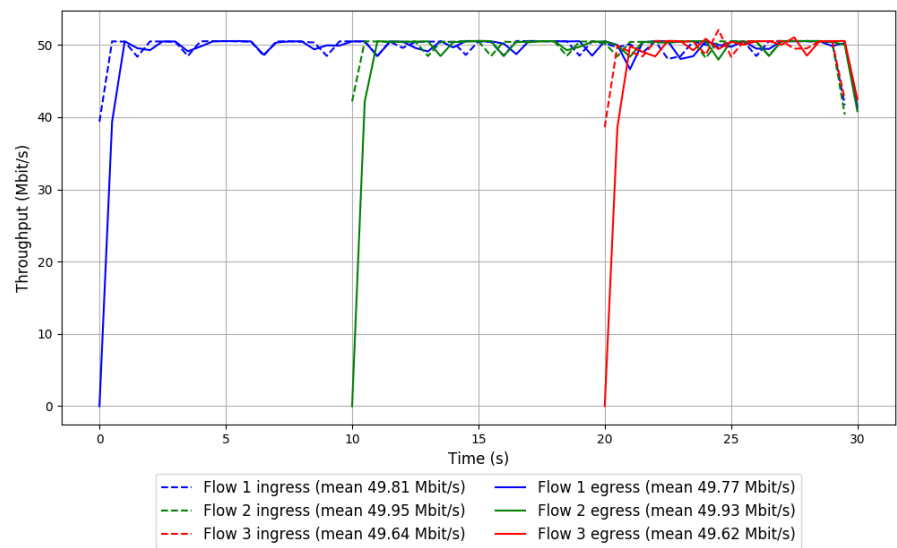


#### Run 4: Statistics of Sprout

Start at: 2018-10-26 04:17:25  
End at: 2018-10-26 04:17:55  
Local clock offset: -2.844 ms  
Remote clock offset: 5.612 ms

```
# Below is generated by plot.py at 2018-10-26 05:54:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.37 Mbit/s
95th percentile per-packet one-way delay: 4.847 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 49.77 Mbit/s
95th percentile per-packet one-way delay: 4.822 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 49.93 Mbit/s
95th percentile per-packet one-way delay: 4.900 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 49.62 Mbit/s
95th percentile per-packet one-way delay: 4.809 ms
Loss rate: 0.02%
```

Run 4: Report of Sprout — Data Link



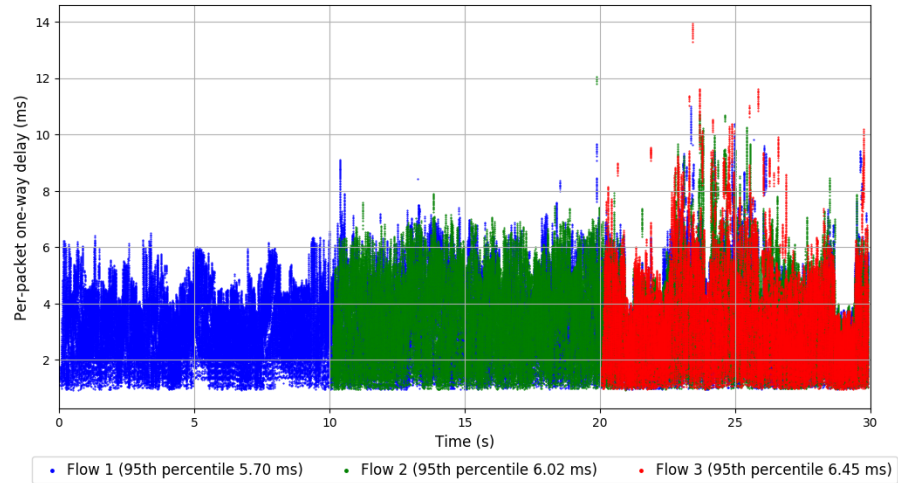
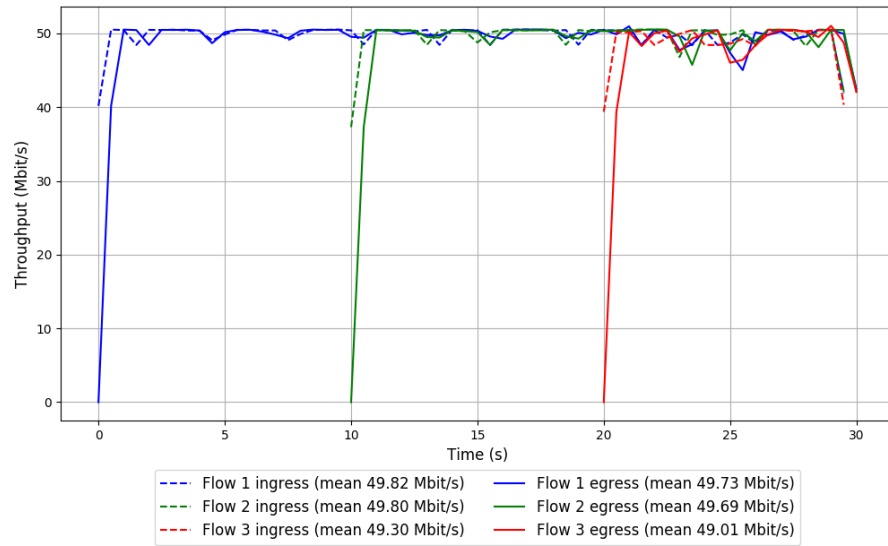


Run 5: Statistics of Sprout

Start at: 2018-10-26 04:44:55  
End at: 2018-10-26 04:45:25  
Local clock offset: -0.115 ms  
Remote clock offset: 4.807 ms

# Below is generated by plot.py at 2018-10-26 05:54:41  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 98.97 Mbit/s  
95th percentile per-packet one-way delay: 5.900 ms  
Loss rate: 0.24%  
-- Flow 1:  
Average throughput: 49.73 Mbit/s  
95th percentile per-packet one-way delay: 5.698 ms  
Loss rate: 0.16%  
-- Flow 2:  
Average throughput: 49.69 Mbit/s  
95th percentile per-packet one-way delay: 6.021 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 49.01 Mbit/s  
95th percentile per-packet one-way delay: 6.453 ms  
Loss rate: 0.56%

## Run 5: Report of Sprout — Data Link

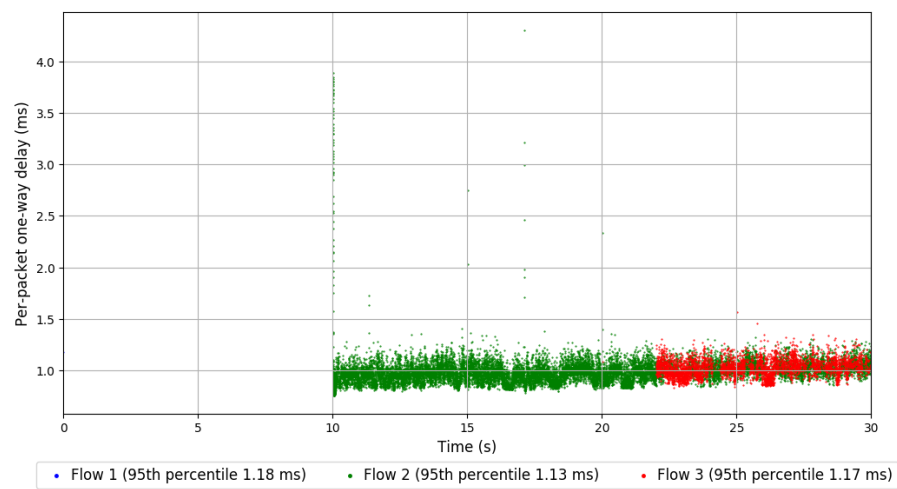
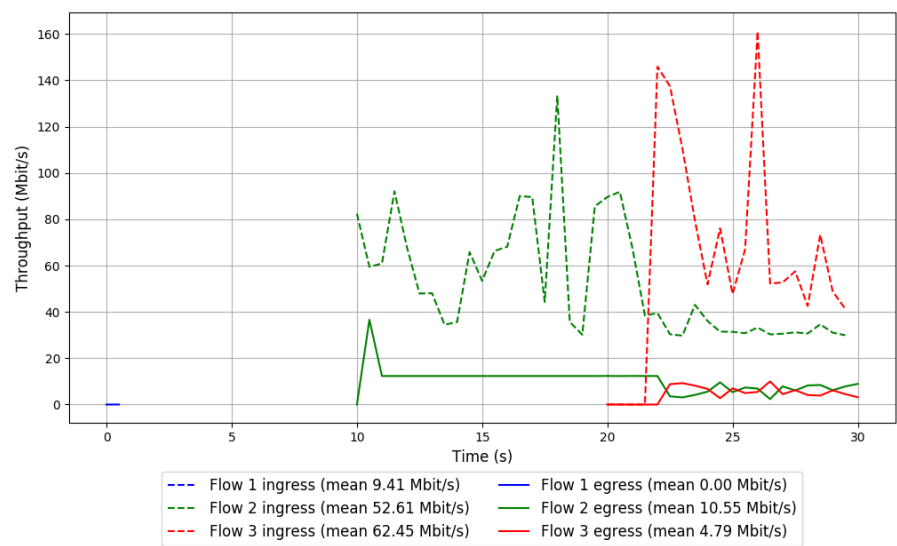


Run 1: Statistics of TaoVA-100x

Start at: 2018-10-26 03:04:41  
End at: 2018-10-26 03:05:11  
Local clock offset: 0.496 ms  
Remote clock offset: -3.794 ms

# Below is generated by plot.py at 2018-10-26 05:54:41  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 8.62 Mbit/s  
95th percentile per-packet one-way delay: 1.140 ms  
Loss rate: 84.56%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 1.182 ms  
Loss rate: 95.92%  
-- Flow 2:  
Average throughput: 10.55 Mbit/s  
95th percentile per-packet one-way delay: 1.133 ms  
Loss rate: 79.96%  
-- Flow 3:  
Average throughput: 4.79 Mbit/s  
95th percentile per-packet one-way delay: 1.165 ms  
Loss rate: 92.33%

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

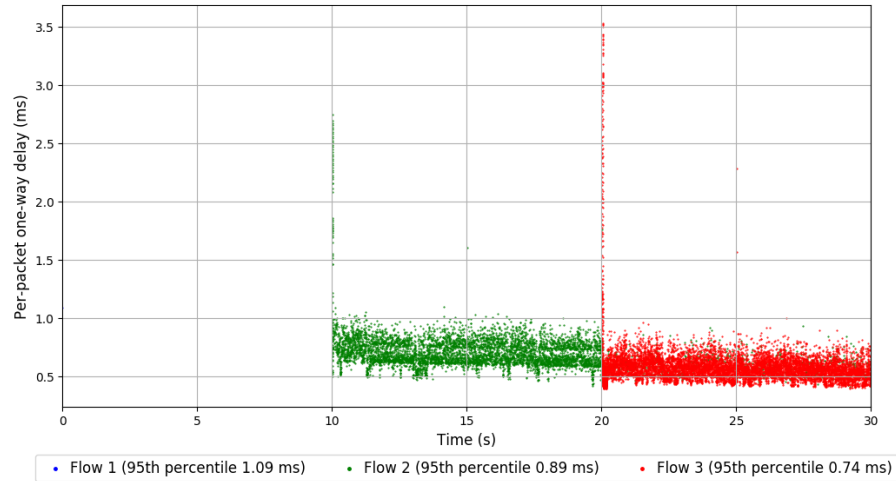
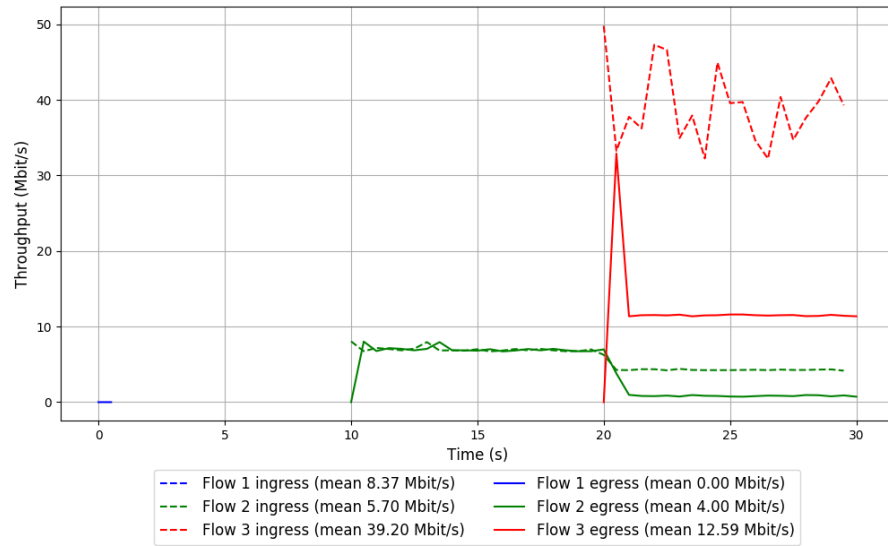


Run 2: Statistics of TaoVA-100x

Start at: 2018-10-26 03:32:16  
End at: 2018-10-26 03:32:46  
Local clock offset: 0.413 ms  
Remote clock offset: -6.328 ms

# Below is generated by plot.py at 2018-10-26 05:54:41  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.85 Mbit/s  
95th percentile per-packet one-way delay: 0.842 ms  
Loss rate: 59.31%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 1.090 ms  
Loss rate: 95.92%  
-- Flow 2:  
Average throughput: 4.00 Mbit/s  
95th percentile per-packet one-way delay: 0.888 ms  
Loss rate: 29.82%  
-- Flow 3:  
Average throughput: 12.59 Mbit/s  
95th percentile per-packet one-way delay: 0.742 ms  
Loss rate: 67.89%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-10-26 03:59:47

End at: 2018-10-26 04:00:17

Local clock offset: -3.363 ms

Remote clock offset: -1.39 ms

# Below is generated by plot.py at 2018-10-26 05:54:41

# Datalink statistics

-- Total of 3 flows:

Average throughput: 8.62 Mbit/s

95th percentile per-packet one-way delay: 0.587 ms

Loss rate: 74.66%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 0.999 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 7.07 Mbit/s

95th percentile per-packet one-way delay: 0.617 ms

Loss rate: 77.29%

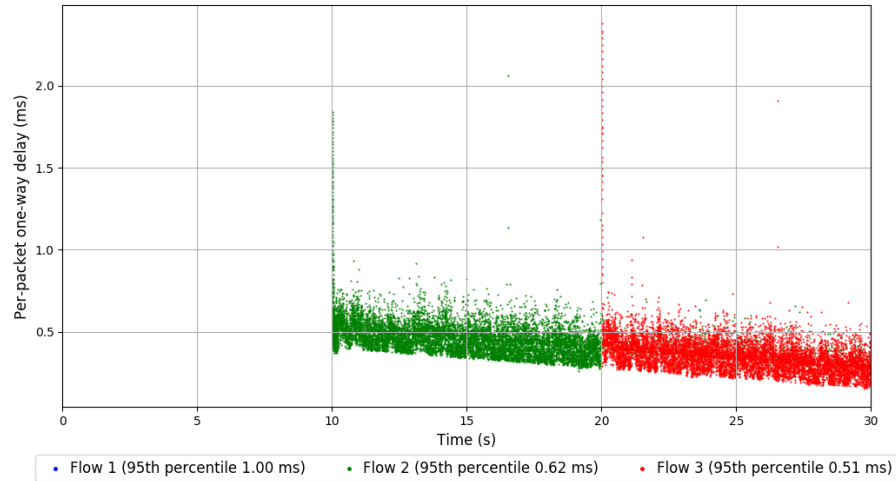
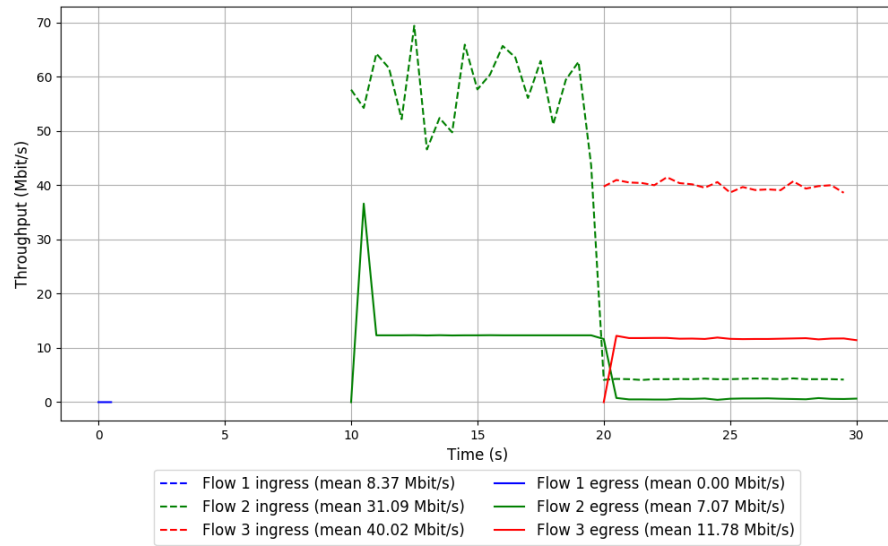
-- Flow 3:

Average throughput: 11.78 Mbit/s

95th percentile per-packet one-way delay: 0.512 ms

Loss rate: 70.57%

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





Run 4: Statistics of TaoVA-100x

Start at: 2018-10-26 04:27:17

End at: 2018-10-26 04:27:47

Local clock offset: -2.914 ms

Remote clock offset: 7.433 ms

# Below is generated by plot.py at 2018-10-26 05:54:41

# Datalink statistics

-- Total of 3 flows:

Average throughput: 6.93 Mbit/s

95th percentile per-packet one-way delay: 1.224 ms

Loss rate: 62.55%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.276 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 4.08 Mbit/s

95th percentile per-packet one-way delay: 1.272 ms

Loss rate: 30.21%

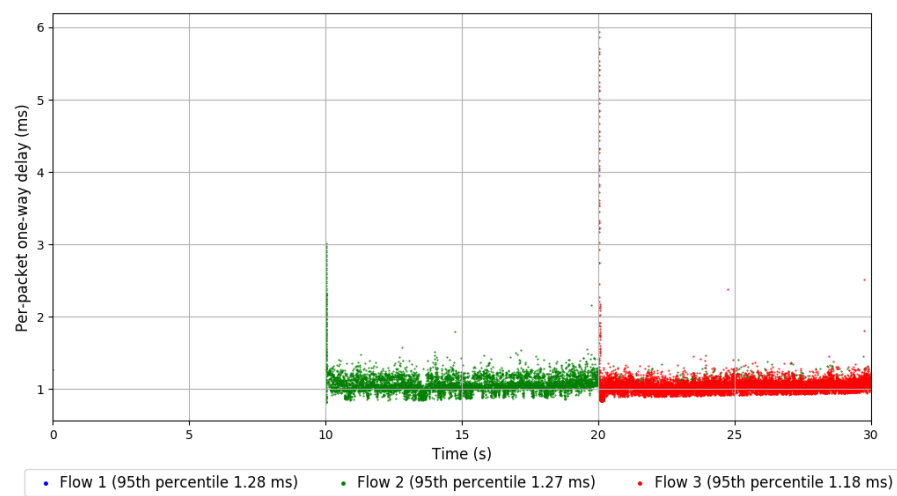
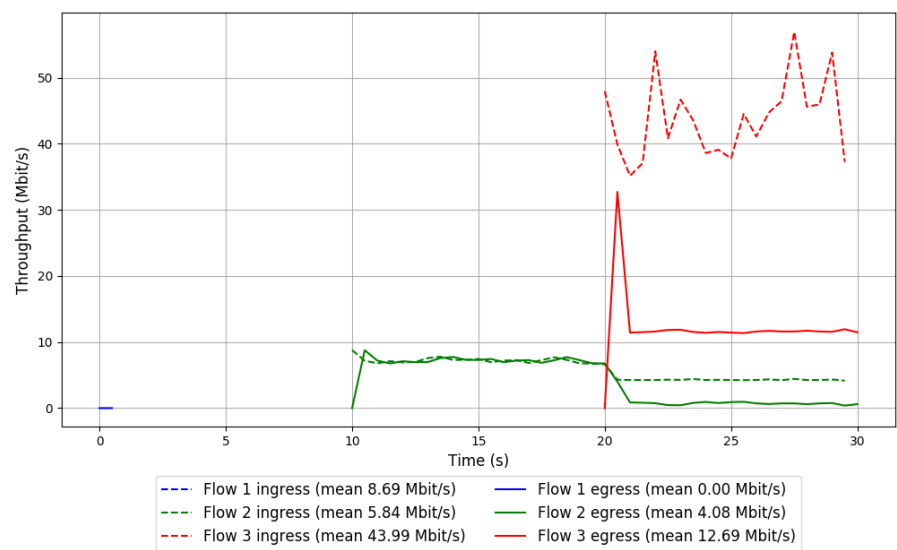
-- Flow 3:

Average throughput: 12.69 Mbit/s

95th percentile per-packet one-way delay: 1.175 ms

Loss rate: 71.15%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-10-26 04:54:46

End at: 2018-10-26 04:55:16

Local clock offset: 0.636 ms

Remote clock offset: 5.039 ms

# Below is generated by plot.py at 2018-10-26 05:54:41

# Datalink statistics

-- Total of 3 flows:

Average throughput: 6.95 Mbit/s

95th percentile per-packet one-way delay: 1.157 ms

Loss rate: 66.03%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.321 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 4.09 Mbit/s

95th percentile per-packet one-way delay: 1.206 ms

Loss rate: 31.12%

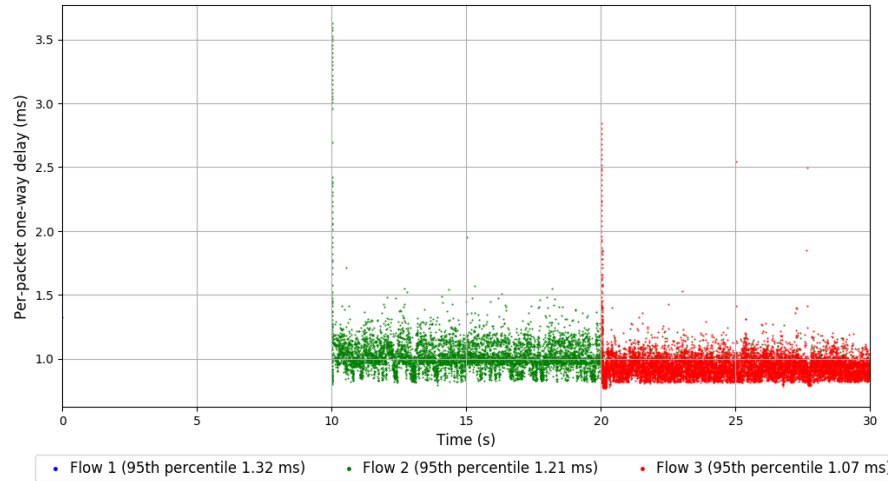
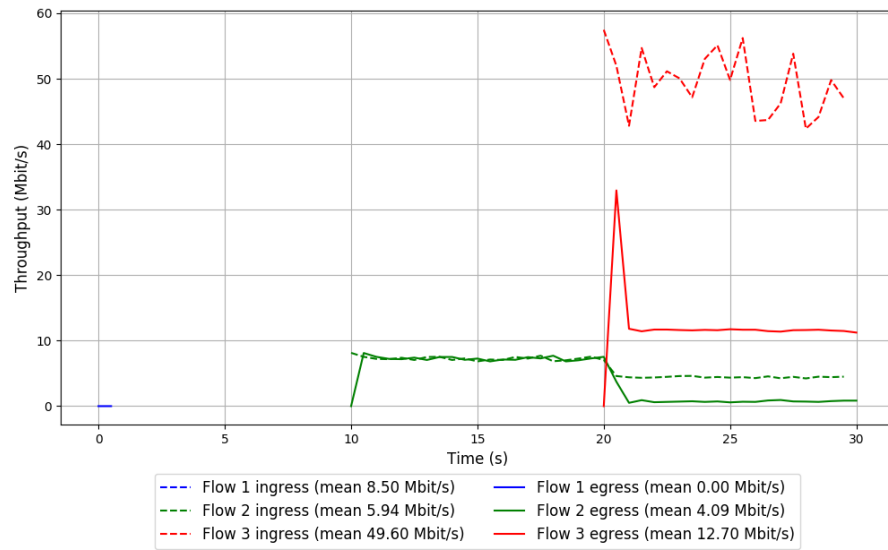
-- Flow 3:

Average throughput: 12.70 Mbit/s

95th percentile per-packet one-way delay: 1.074 ms

Loss rate: 74.40%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-10-26 02:58:09

End at: 2018-10-26 02:58:39

Local clock offset: 0.485 ms

Remote clock offset: -2.68 ms

# Below is generated by plot.py at 2018-10-26 05:59:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 518.15 Mbit/s

95th percentile per-packet one-way delay: 1.333 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 316.46 Mbit/s

95th percentile per-packet one-way delay: 1.356 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 135.03 Mbit/s

95th percentile per-packet one-way delay: 1.251 ms

Loss rate: 0.00%

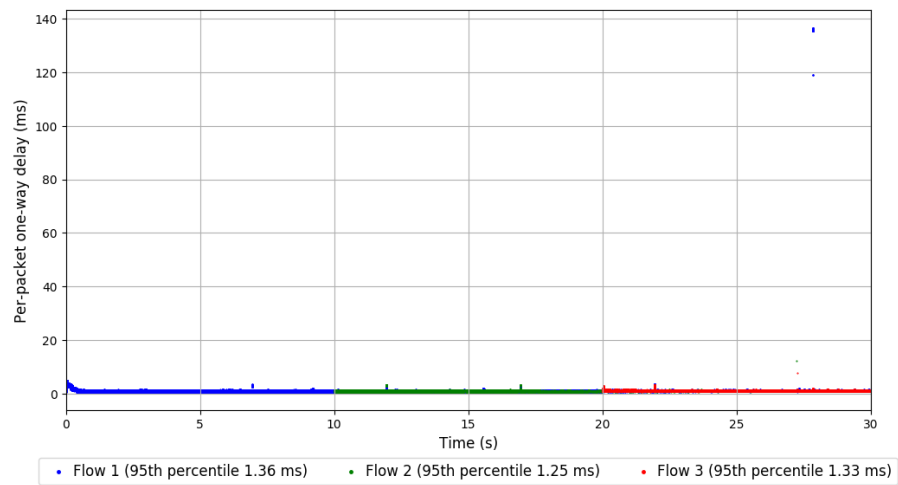
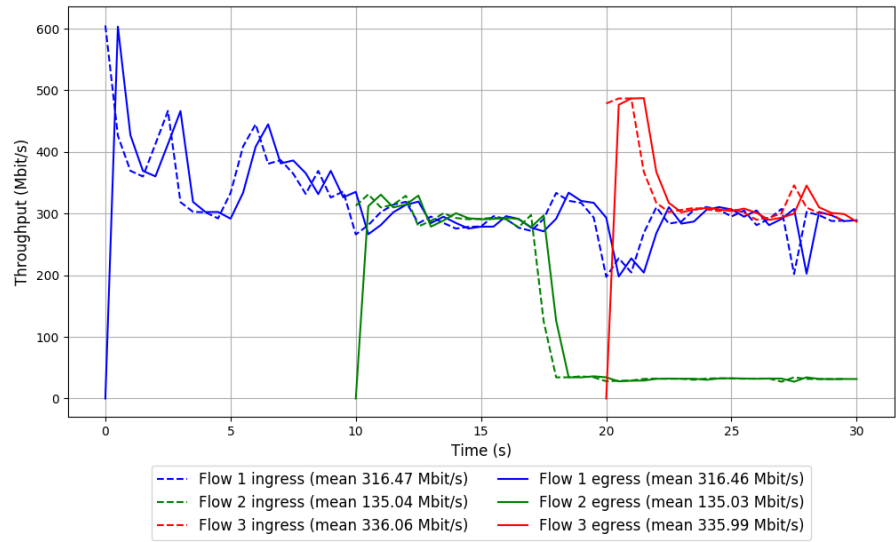
-- Flow 3:

Average throughput: 335.99 Mbit/s

95th percentile per-packet one-way delay: 1.327 ms

Loss rate: 0.02%

# Run 1: Report of TCP Vegas — Data Link

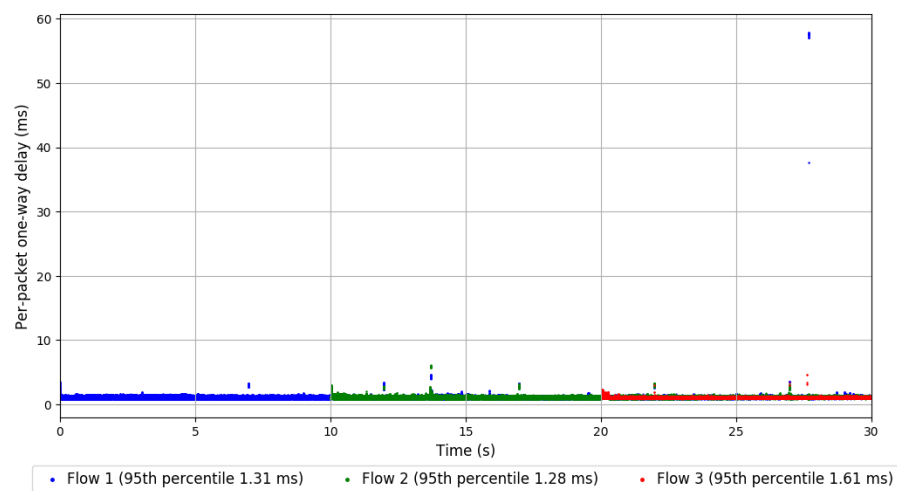
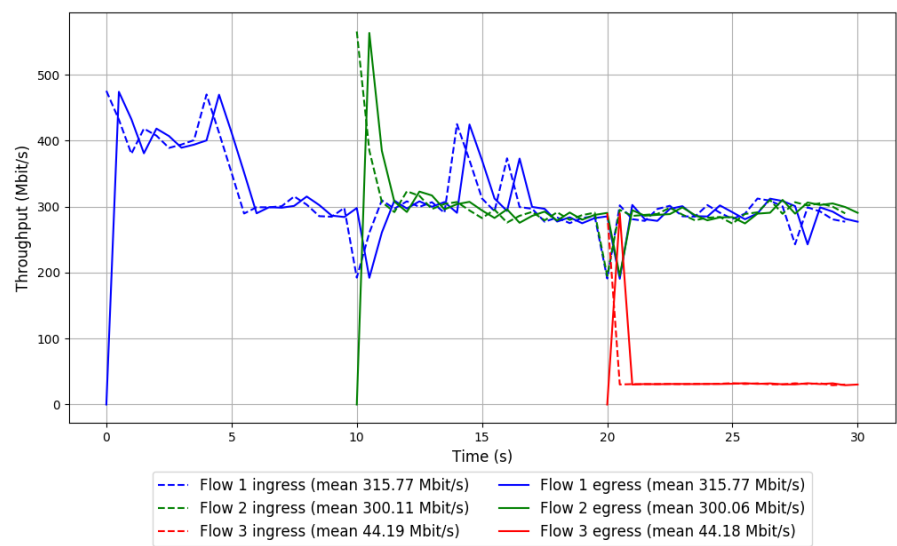


Run 2: Statistics of TCP Vegas

Start at: 2018-10-26 03:25:45  
End at: 2018-10-26 03:26:15  
Local clock offset: 0.485 ms  
Remote clock offset: -5.813 ms

# Below is generated by plot.py at 2018-10-26 06:00:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 530.37 Mbit/s  
95th percentile per-packet one-way delay: 1.306 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 315.77 Mbit/s  
95th percentile per-packet one-way delay: 1.308 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 300.06 Mbit/s  
95th percentile per-packet one-way delay: 1.284 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 44.18 Mbit/s  
95th percentile per-packet one-way delay: 1.607 ms  
Loss rate: 0.02%

Run 2: Report of TCP Vegas — Data Link



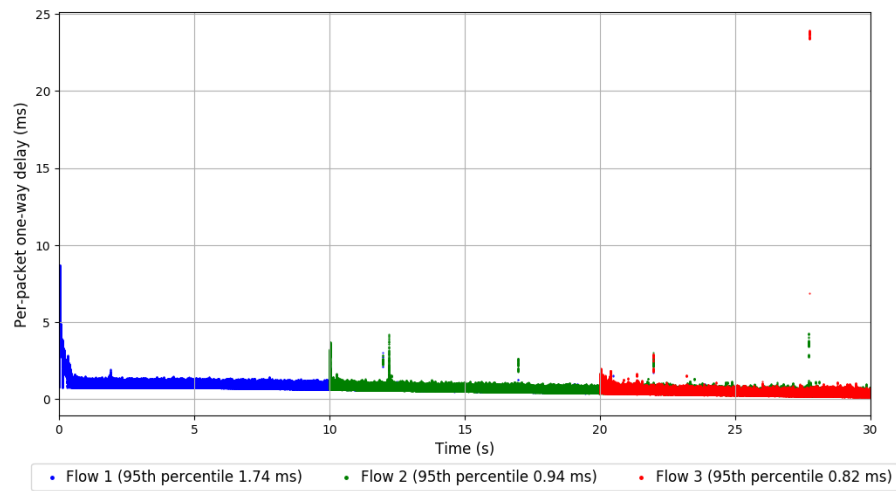
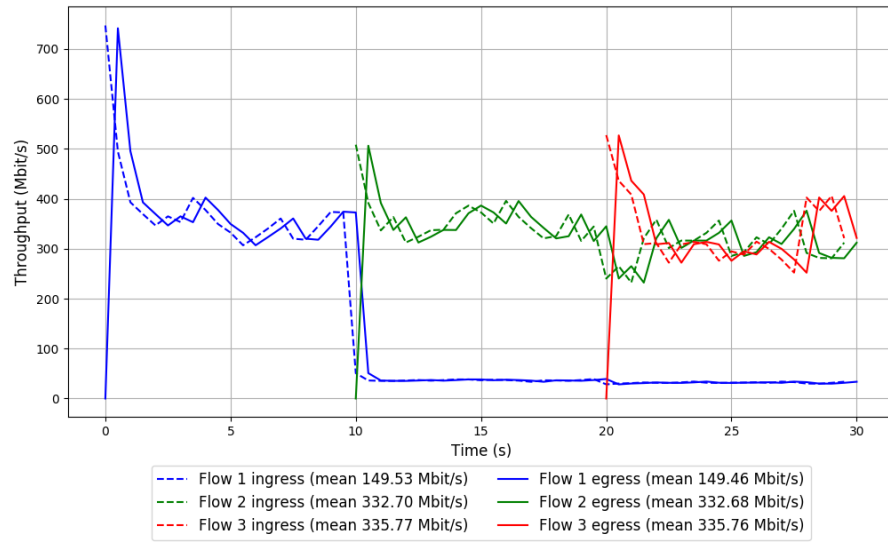


Run 3: Statistics of TCP Vegas

Start at: 2018-10-26 03:53:14  
End at: 2018-10-26 03:53:44  
Local clock offset: -3.002 ms  
Remote clock offset: -7.841 ms

# Below is generated by plot.py at 2018-10-26 06:00:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 482.96 Mbit/s  
95th percentile per-packet one-way delay: 1.163 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 149.46 Mbit/s  
95th percentile per-packet one-way delay: 1.737 ms  
Loss rate: 0.05%  
-- Flow 2:  
Average throughput: 332.68 Mbit/s  
95th percentile per-packet one-way delay: 0.937 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 335.76 Mbit/s  
95th percentile per-packet one-way delay: 0.822 ms  
Loss rate: 0.00%

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



Run 4: Statistics of TCP Vegas

Start at: 2018-10-26 04:20:40

End at: 2018-10-26 04:21:10

Local clock offset: -2.851 ms

Remote clock offset: 6.226 ms

# Below is generated by plot.py at 2018-10-26 06:00:19

# Datalink statistics

-- Total of 3 flows:

Average throughput: 541.44 Mbit/s

95th percentile per-packet one-way delay: 1.153 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 210.68 Mbit/s

95th percentile per-packet one-way delay: 1.151 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 331.10 Mbit/s

95th percentile per-packet one-way delay: 1.175 ms

Loss rate: 0.01%

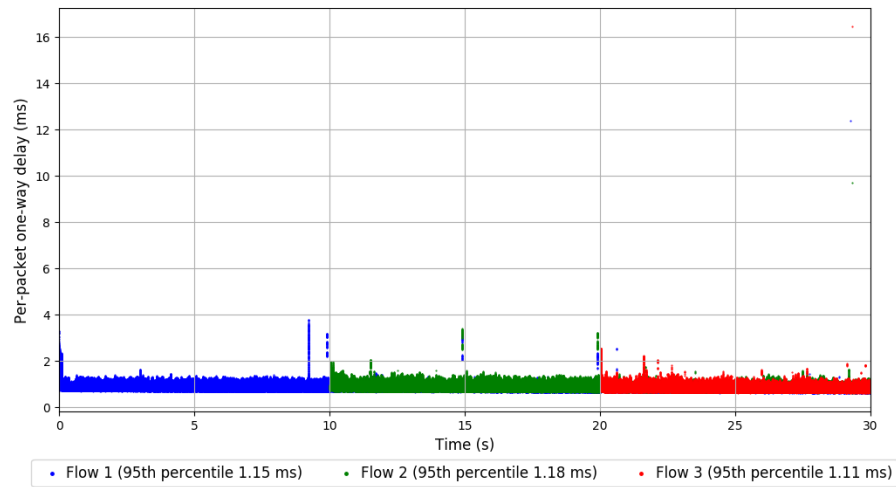
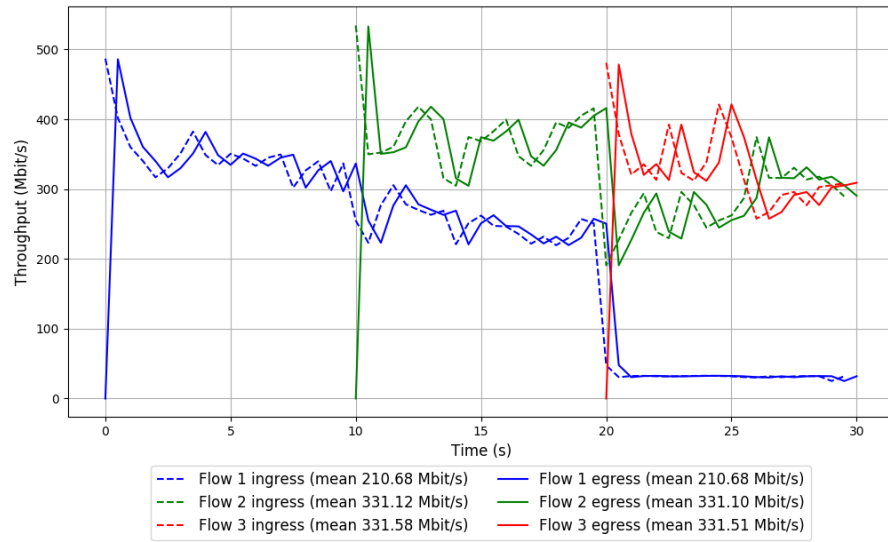
-- Flow 3:

Average throughput: 331.51 Mbit/s

95th percentile per-packet one-way delay: 1.106 ms

Loss rate: 0.02%

# Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-10-26 04:48:10

End at: 2018-10-26 04:48:40

Local clock offset: 0.225 ms

Remote clock offset: 4.866 ms

# Below is generated by plot.py at 2018-10-26 06:00:19

# Datalink statistics

-- Total of 3 flows:

Average throughput: 528.49 Mbit/s

95th percentile per-packet one-way delay: 1.341 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 273.94 Mbit/s

95th percentile per-packet one-way delay: 1.332 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 253.76 Mbit/s

95th percentile per-packet one-way delay: 1.321 ms

Loss rate: 0.00%

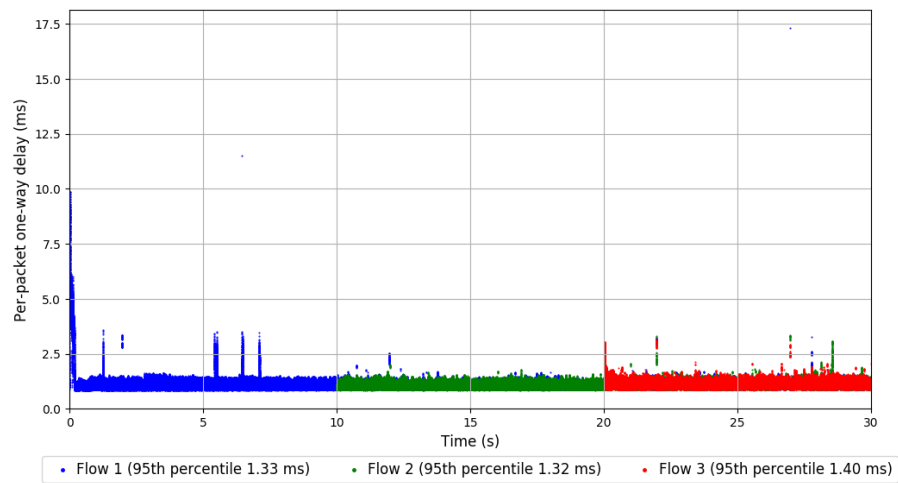
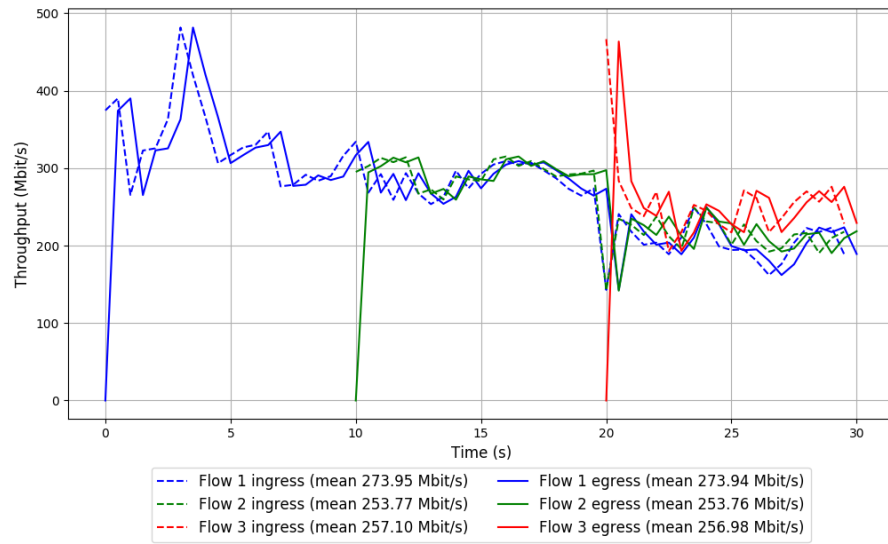
-- Flow 3:

Average throughput: 256.98 Mbit/s

95th percentile per-packet one-way delay: 1.396 ms

Loss rate: 0.05%

# Run 5: Report of TCP Vegas — Data Link

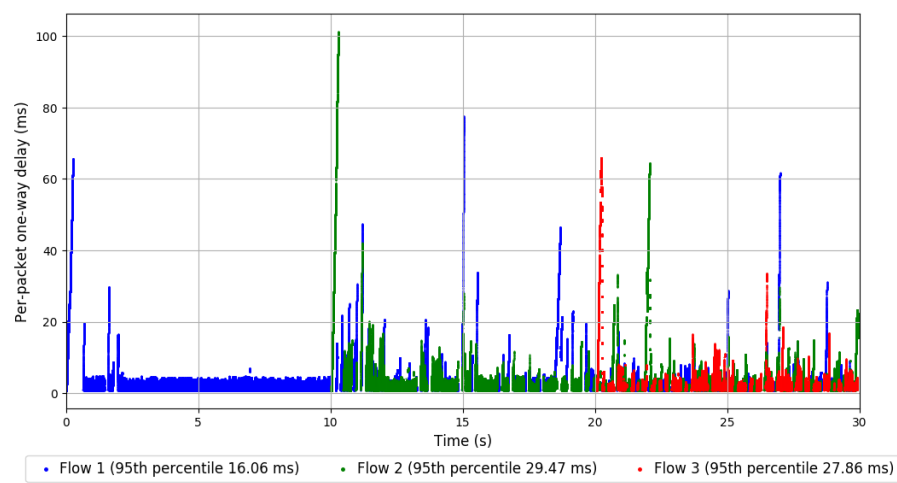
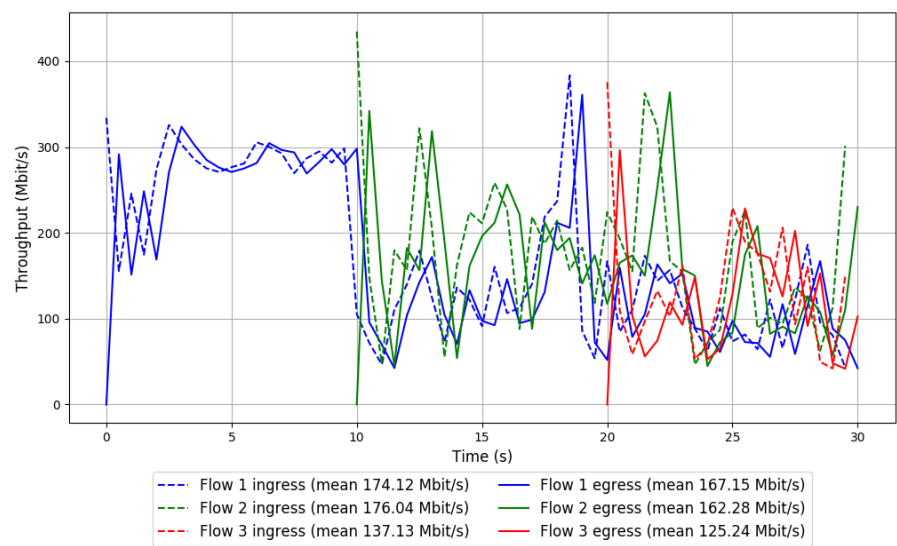


Run 1: Statistics of Verus

Start at: 2018-10-26 03:16:16  
End at: 2018-10-26 03:16:46  
Local clock offset: 0.448 ms  
Remote clock offset: -5.076 ms

# Below is generated by plot.py at 2018-10-26 06:00:19  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 315.70 Mbit/s  
95th percentile per-packet one-way delay: 20.878 ms  
Loss rate: 5.96%  
-- Flow 1:  
Average throughput: 167.15 Mbit/s  
95th percentile per-packet one-way delay: 16.056 ms  
Loss rate: 4.01%  
-- Flow 2:  
Average throughput: 162.28 Mbit/s  
95th percentile per-packet one-way delay: 29.467 ms  
Loss rate: 7.81%  
-- Flow 3:  
Average throughput: 125.24 Mbit/s  
95th percentile per-packet one-way delay: 27.856 ms  
Loss rate: 8.65%

Run 1: Report of Verus — Data Link



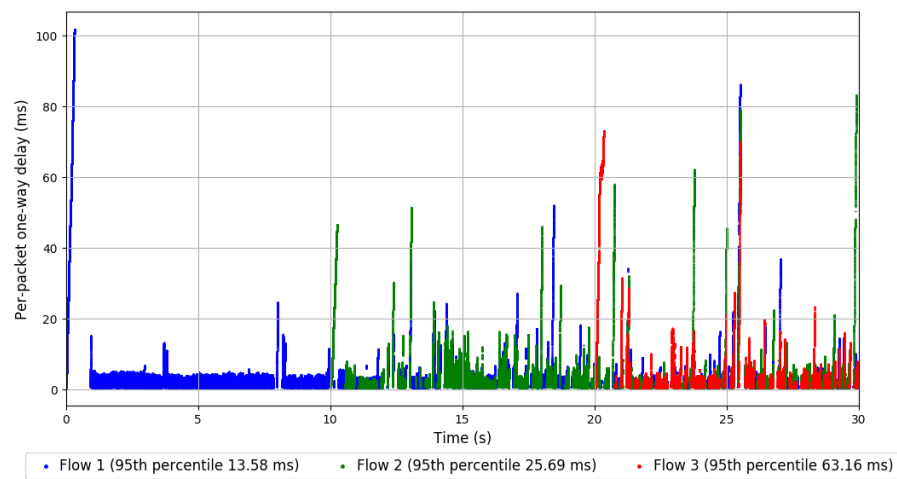
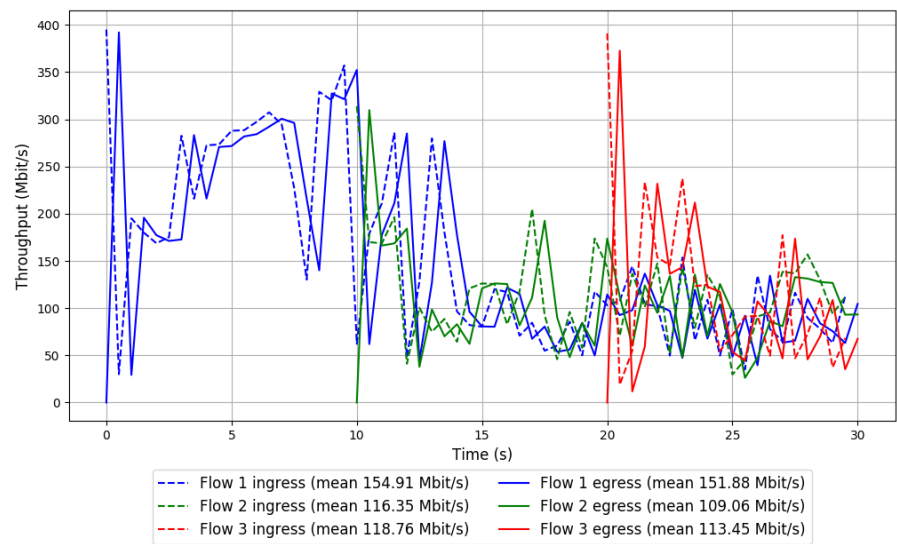


Run 2: Statistics of Verus

Start at: 2018-10-26 03:43:47  
End at: 2018-10-26 03:44:18  
Local clock offset: -2.165 ms  
Remote clock offset: -7.251 ms

# Below is generated by plot.py at 2018-10-26 06:00:19  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 261.90 Mbit/s  
95th percentile per-packet one-way delay: 29.167 ms  
Loss rate: 3.43%  
-- Flow 1:  
Average throughput: 151.88 Mbit/s  
95th percentile per-packet one-way delay: 13.581 ms  
Loss rate: 1.96%  
-- Flow 2:  
Average throughput: 109.06 Mbit/s  
95th percentile per-packet one-way delay: 25.691 ms  
Loss rate: 5.88%  
-- Flow 3:  
Average throughput: 113.45 Mbit/s  
95th percentile per-packet one-way delay: 63.155 ms  
Loss rate: 4.45%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-10-26 04:11:15

End at: 2018-10-26 04:11:45

Local clock offset: -2.91 ms

Remote clock offset: 4.117 ms

# Below is generated by plot.py at 2018-10-26 06:00:19

# Datalink statistics

-- Total of 3 flows:

Average throughput: 280.70 Mbit/s

95th percentile per-packet one-way delay: 15.587 ms

Loss rate: 4.19%

-- Flow 1:

Average throughput: 165.57 Mbit/s

95th percentile per-packet one-way delay: 9.392 ms

Loss rate: 2.71%

-- Flow 2:

Average throughput: 104.95 Mbit/s

95th percentile per-packet one-way delay: 42.904 ms

Loss rate: 7.12%

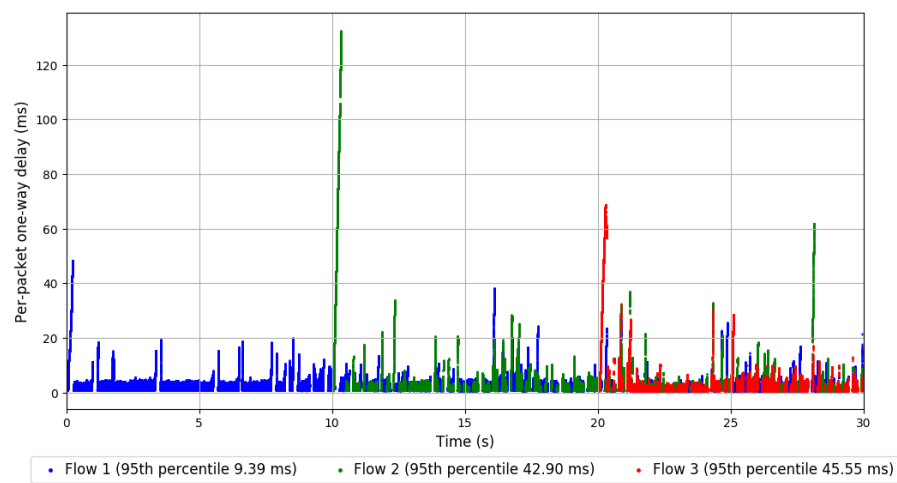
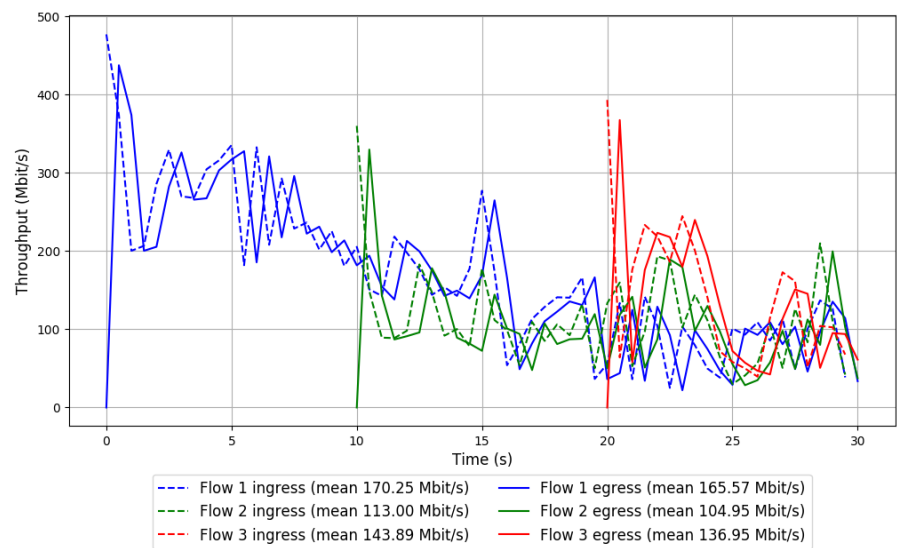
-- Flow 3:

Average throughput: 136.95 Mbit/s

95th percentile per-packet one-way delay: 45.545 ms

Loss rate: 4.83%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-10-26 04:38:46

End at: 2018-10-26 04:39:16

Local clock offset: -0.969 ms

Remote clock offset: 5.031 ms

# Below is generated by plot.py at 2018-10-26 06:00:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 253.01 Mbit/s

95th percentile per-packet one-way delay: 57.722 ms

Loss rate: 5.06%

-- Flow 1:

Average throughput: 130.92 Mbit/s

95th percentile per-packet one-way delay: 31.269 ms

Loss rate: 4.36%

-- Flow 2:

Average throughput: 113.31 Mbit/s

95th percentile per-packet one-way delay: 55.464 ms

Loss rate: 5.87%

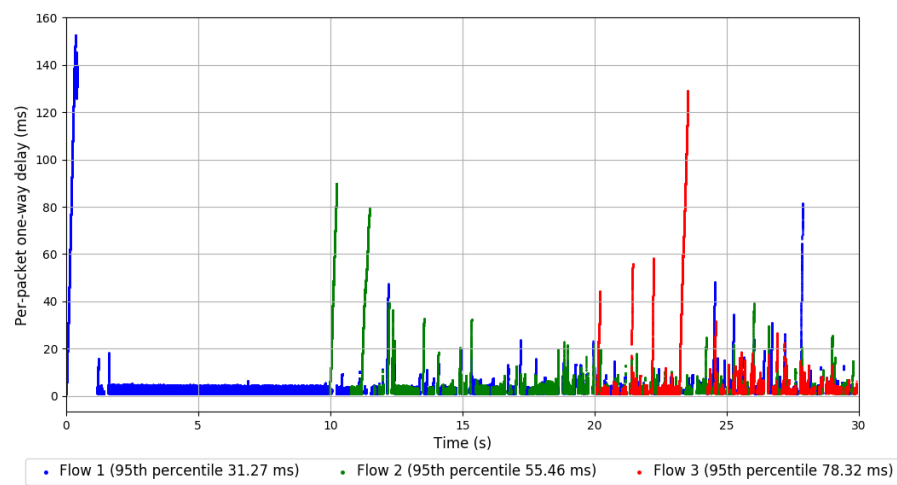
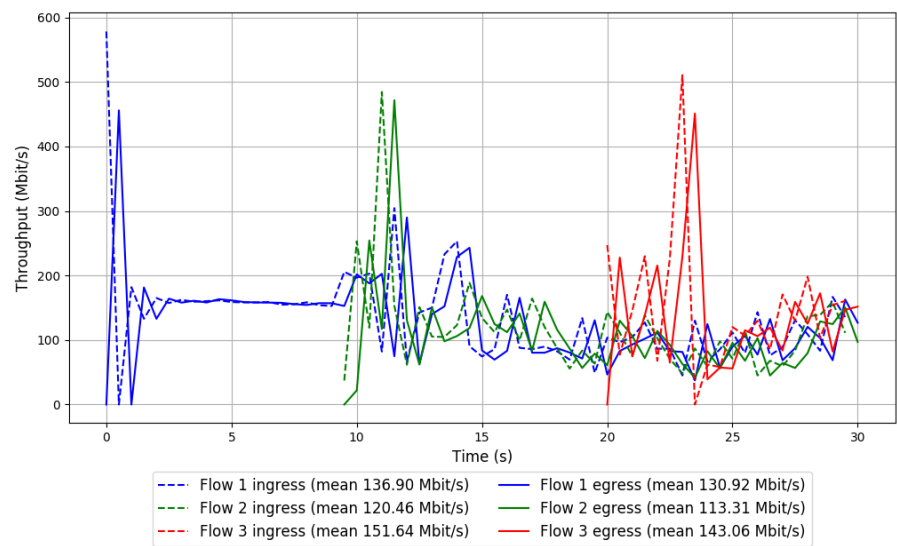
-- Flow 3:

Average throughput: 143.06 Mbit/s

95th percentile per-packet one-way delay: 78.322 ms

Loss rate: 5.66%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-10-26 05:06:04

End at: 2018-10-26 05:06:34

Local clock offset: 1.401 ms

Remote clock offset: 3.166 ms

# Below is generated by plot.py at 2018-10-26 06:00:52

# Datalink statistics

-- Total of 3 flows:

Average throughput: 254.73 Mbit/s

95th percentile per-packet one-way delay: 31.429 ms

Loss rate: 4.76%

-- Flow 1:

Average throughput: 141.71 Mbit/s

95th percentile per-packet one-way delay: 16.215 ms

Loss rate: 3.37%

-- Flow 2:

Average throughput: 118.37 Mbit/s

95th percentile per-packet one-way delay: 26.741 ms

Loss rate: 6.14%

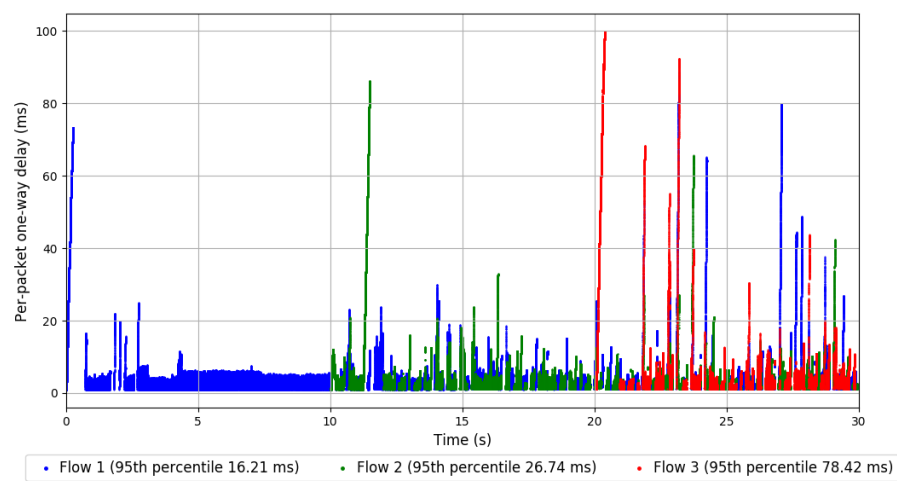
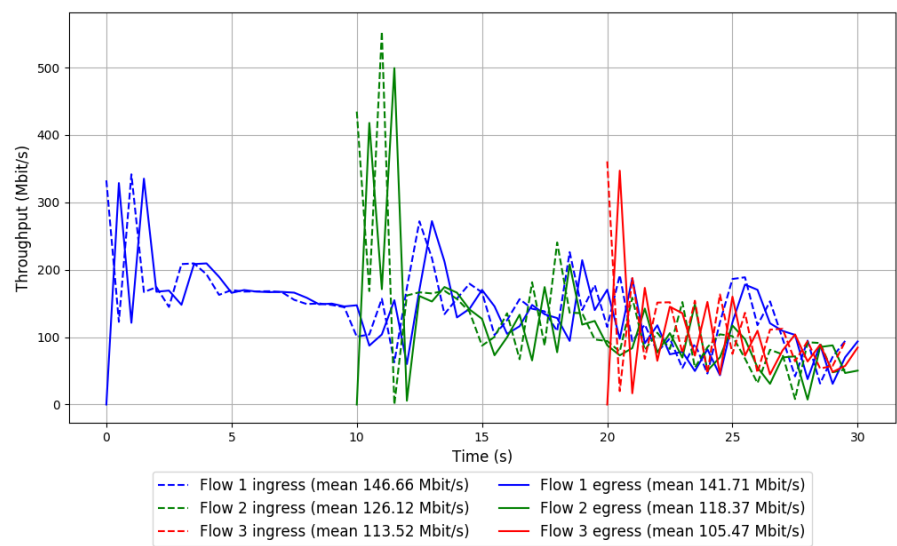
-- Flow 3:

Average throughput: 105.47 Mbit/s

95th percentile per-packet one-way delay: 78.417 ms

Loss rate: 7.09%

Run 5: Report of Verus — Data Link



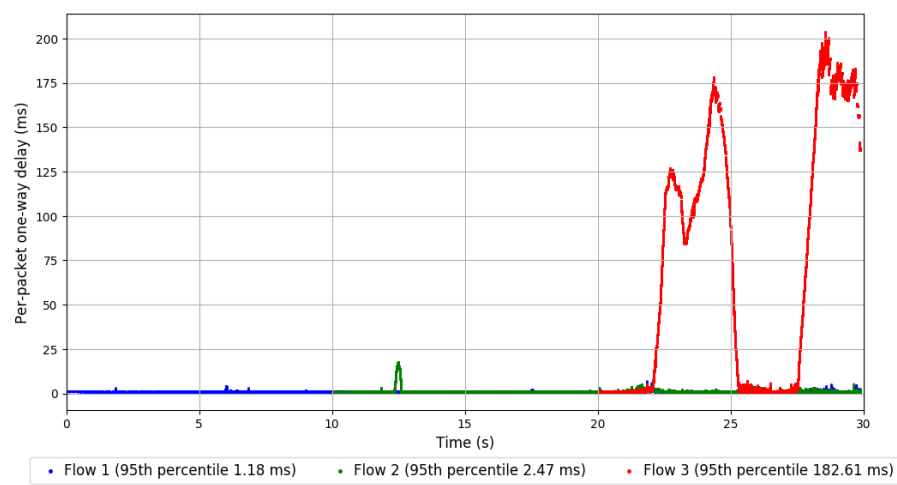
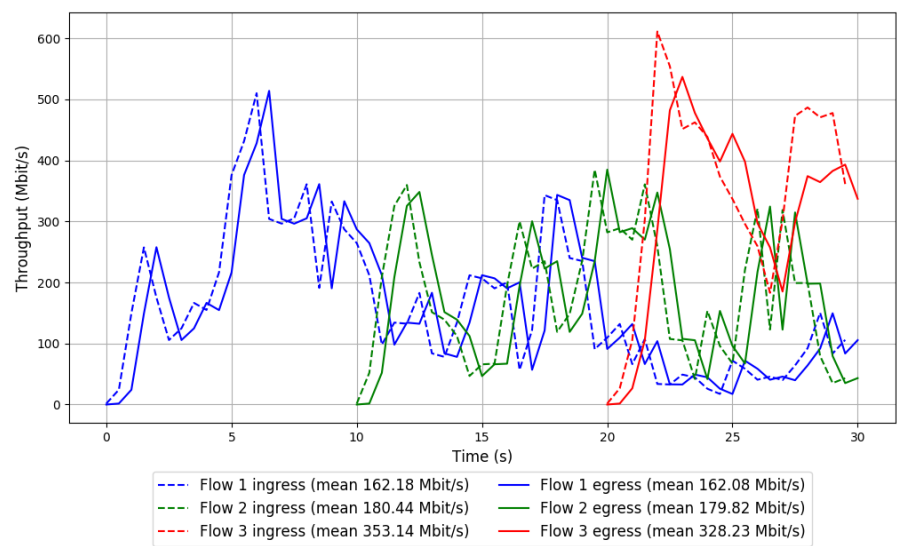


Run 1: Statistics of PCC-Vivace

Start at: 2018-10-26 02:51:26  
End at: 2018-10-26 02:51:56  
Local clock offset: 0.426 ms  
Remote clock offset: -0.793 ms

# Below is generated by plot.py at 2018-10-26 06:01:55  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 390.13 Mbit/s  
95th percentile per-packet one-way delay: 168.656 ms  
Loss rate: 2.19%  
-- Flow 1:  
Average throughput: 162.08 Mbit/s  
95th percentile per-packet one-way delay: 1.178 ms  
Loss rate: 0.06%  
-- Flow 2:  
Average throughput: 179.82 Mbit/s  
95th percentile per-packet one-way delay: 2.470 ms  
Loss rate: 0.34%  
-- Flow 3:  
Average throughput: 328.23 Mbit/s  
95th percentile per-packet one-way delay: 182.613 ms  
Loss rate: 7.05%

Run 1: Report of PCC-Vivace — Data Link

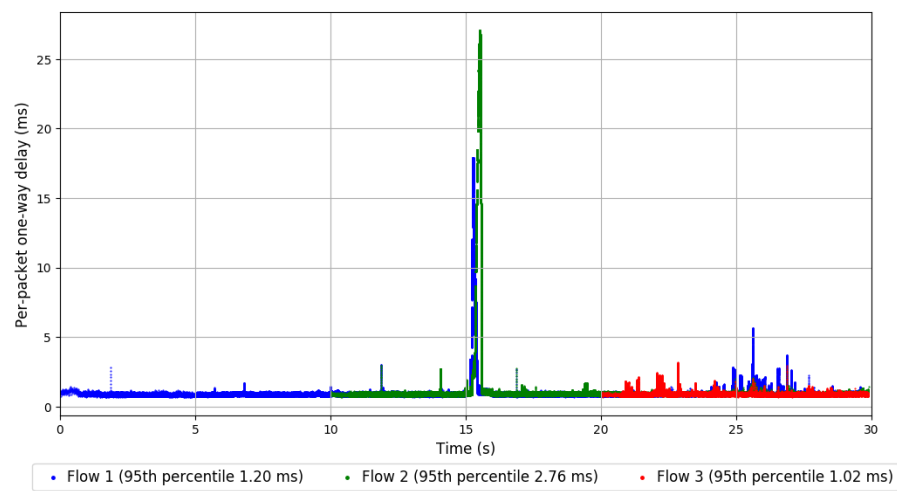
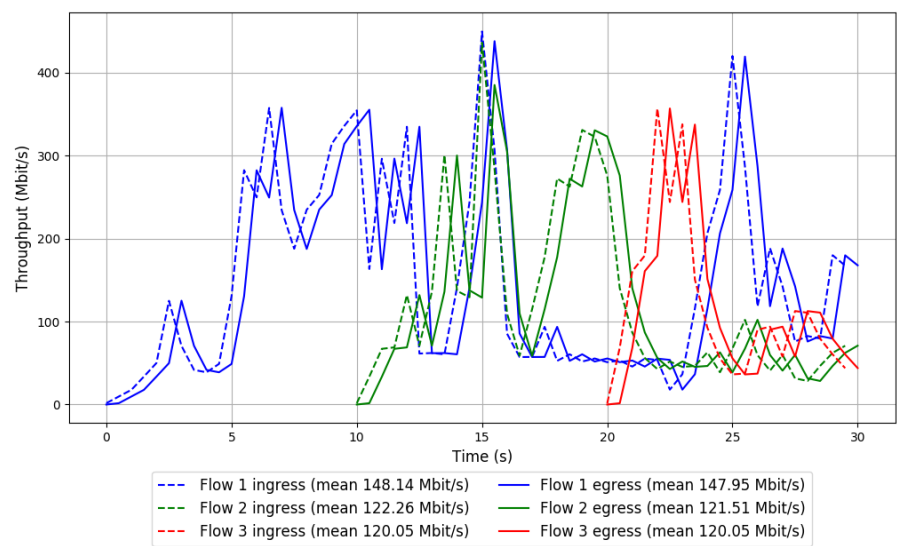


Run 2: Statistics of PCC-Vivace

Start at: 2018-10-26 03:19:08  
End at: 2018-10-26 03:19:38  
Local clock offset: 0.468 ms  
Remote clock offset: -5.345 ms

# Below is generated by plot.py at 2018-10-26 06:01:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 268.39 Mbit/s  
95th percentile per-packet one-way delay: 1.275 ms  
Loss rate: 0.26%  
-- Flow 1:  
Average throughput: 147.95 Mbit/s  
95th percentile per-packet one-way delay: 1.198 ms  
Loss rate: 0.13%  
-- Flow 2:  
Average throughput: 121.51 Mbit/s  
95th percentile per-packet one-way delay: 2.757 ms  
Loss rate: 0.61%  
-- Flow 3:  
Average throughput: 120.05 Mbit/s  
95th percentile per-packet one-way delay: 1.023 ms  
Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link

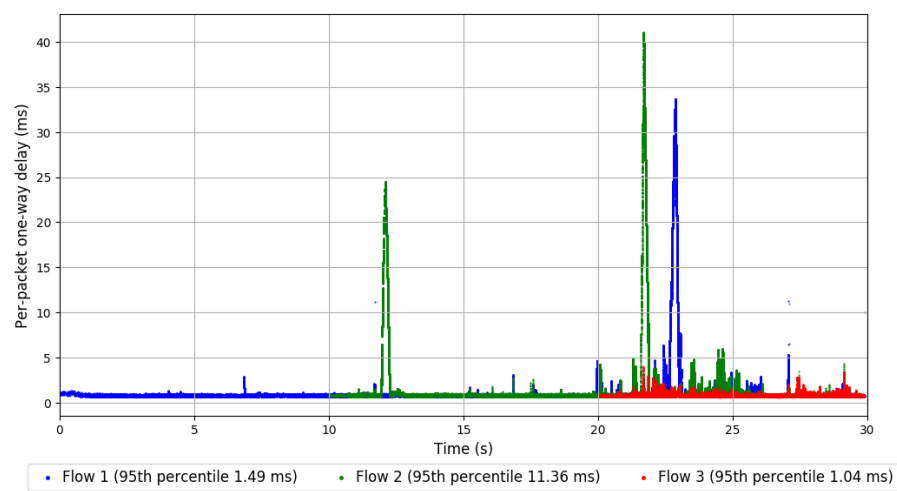
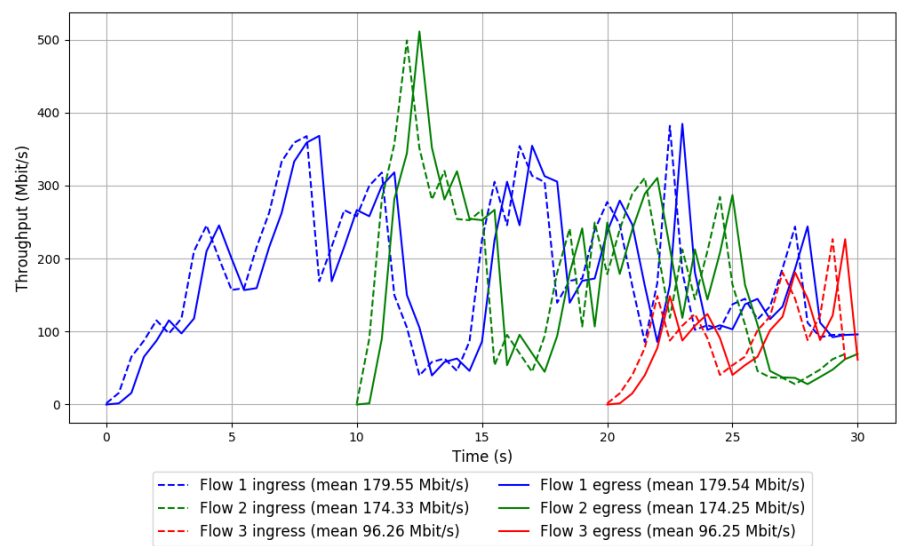


Run 3: Statistics of PCC-Vivace

Start at: 2018-10-26 03:46:37  
End at: 2018-10-26 03:47:07  
Local clock offset: -2.483 ms  
Remote clock offset: -7.425 ms

# Below is generated by plot.py at 2018-10-26 06:02:32  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 327.18 Mbit/s  
95th percentile per-packet one-way delay: 3.174 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 179.54 Mbit/s  
95th percentile per-packet one-way delay: 1.493 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 174.25 Mbit/s  
95th percentile per-packet one-way delay: 11.357 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 96.25 Mbit/s  
95th percentile per-packet one-way delay: 1.039 ms  
Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-10-26 04:14:05

End at: 2018-10-26 04:14:35

Local clock offset: -2.844 ms

Remote clock offset: 4.887 ms

# Below is generated by plot.py at 2018-10-26 06:02:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 335.21 Mbit/s

95th percentile per-packet one-way delay: 51.077 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 192.46 Mbit/s

95th percentile per-packet one-way delay: 59.322 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 100.60 Mbit/s

95th percentile per-packet one-way delay: 0.932 ms

Loss rate: 0.01%

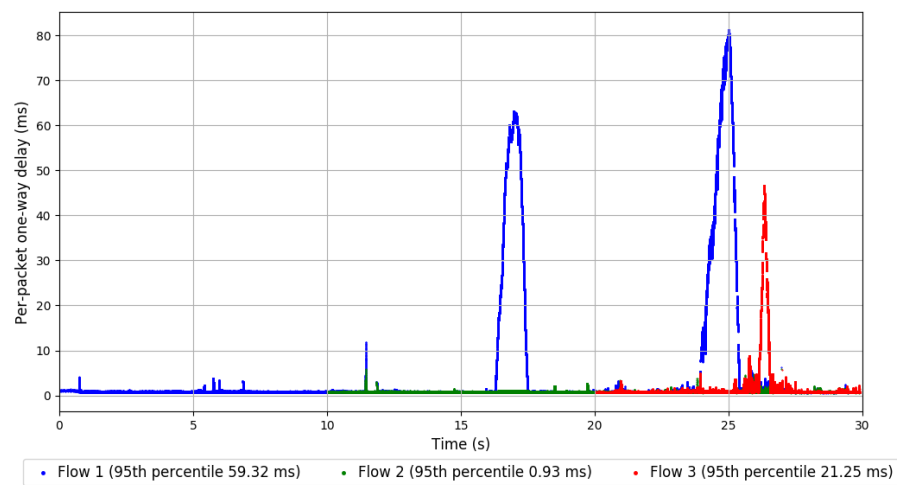
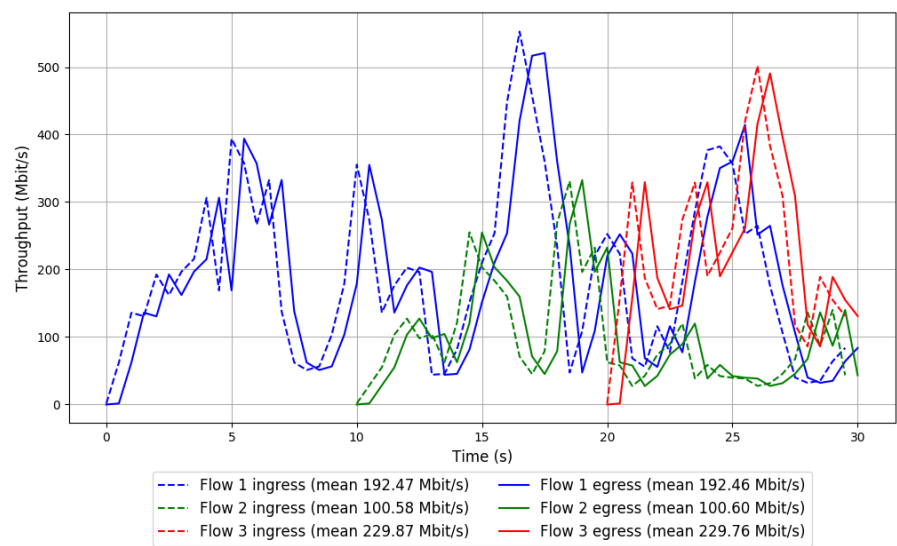
-- Flow 3:

Average throughput: 229.76 Mbit/s

95th percentile per-packet one-way delay: 21.251 ms

Loss rate: 0.05%

Run 4: Report of PCC-Vivace — Data Link





Run 5: Statistics of PCC-Vivace

Start at: 2018-10-26 04:41:35

End at: 2018-10-26 04:42:05

Local clock offset: -0.515 ms

Remote clock offset: 4.81 ms

# Below is generated by plot.py at 2018-10-26 06:02:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 343.49 Mbit/s

95th percentile per-packet one-way delay: 1.374 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 165.50 Mbit/s

95th percentile per-packet one-way delay: 1.297 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 189.22 Mbit/s

95th percentile per-packet one-way delay: 1.443 ms

Loss rate: 0.01%

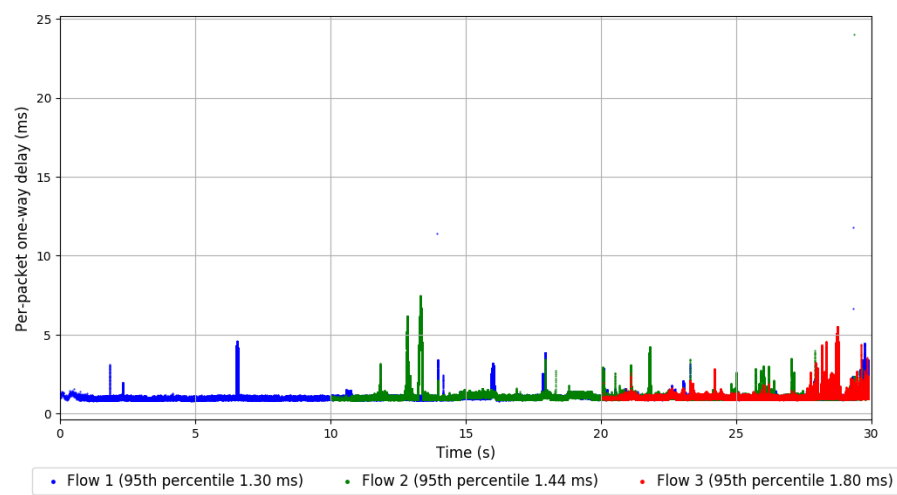
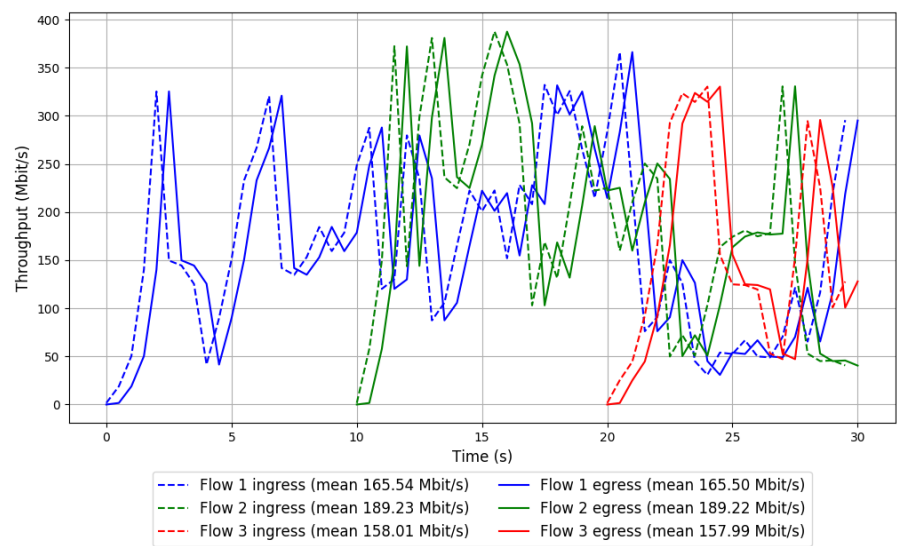
-- Flow 3:

Average throughput: 157.99 Mbit/s

95th percentile per-packet one-way delay: 1.803 ms

Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-10-26 03:13:21

End at: 2018-10-26 03:13:51

Local clock offset: 0.443 ms

Remote clock offset: -4.81 ms

# Below is generated by plot.py at 2018-10-26 06:02:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 4.09 Mbit/s

95th percentile per-packet one-way delay: 2.679 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 2.18 Mbit/s

95th percentile per-packet one-way delay: 2.447 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.40 Mbit/s

95th percentile per-packet one-way delay: 2.503 ms

Loss rate: 0.00%

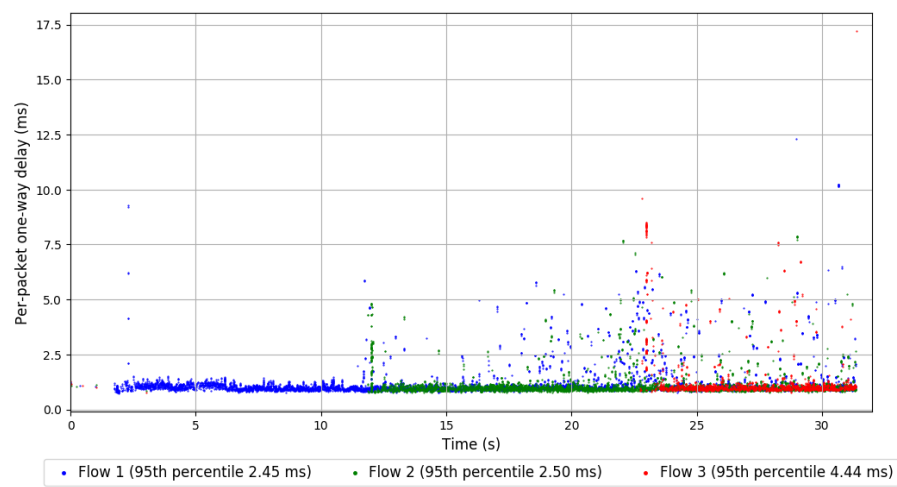
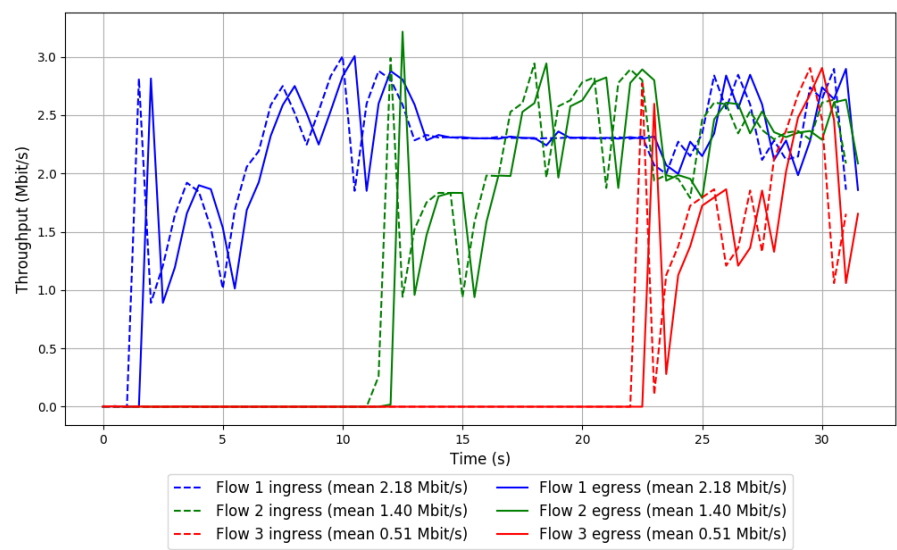
-- Flow 3:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 4.442 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link

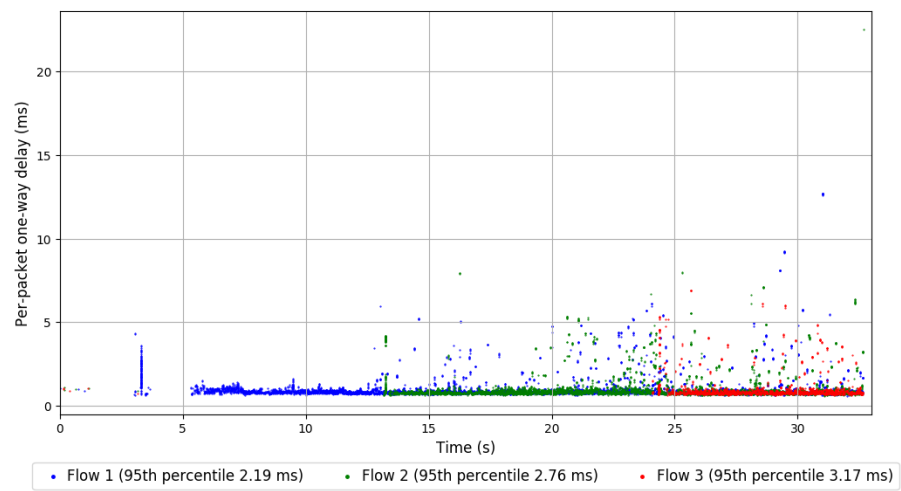
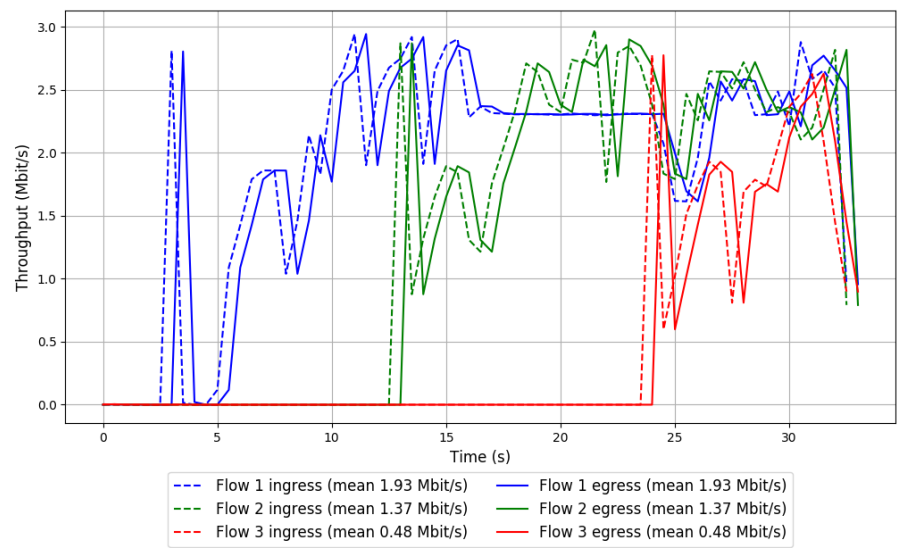


Run 2: Statistics of WebRTC media

Start at: 2018-10-26 03:40:54  
End at: 2018-10-26 03:41:24  
Local clock offset: -1.774 ms  
Remote clock offset: -6.961 ms

# Below is generated by plot.py at 2018-10-26 06:02:39  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.77 Mbit/s  
95th percentile per-packet one-way delay: 2.622 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.93 Mbit/s  
95th percentile per-packet one-way delay: 2.194 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.37 Mbit/s  
95th percentile per-packet one-way delay: 2.760 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.48 Mbit/s  
95th percentile per-packet one-way delay: 3.174 ms  
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-10-26 04:08:23

End at: 2018-10-26 04:08:53

Local clock offset: -3.011 ms

Remote clock offset: 3.11 ms

# Below is generated by plot.py at 2018-10-26 06:02:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.76 Mbit/s

95th percentile per-packet one-way delay: 1.989 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.93 Mbit/s

95th percentile per-packet one-way delay: 2.339 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.36 Mbit/s

95th percentile per-packet one-way delay: 1.884 ms

Loss rate: 0.00%

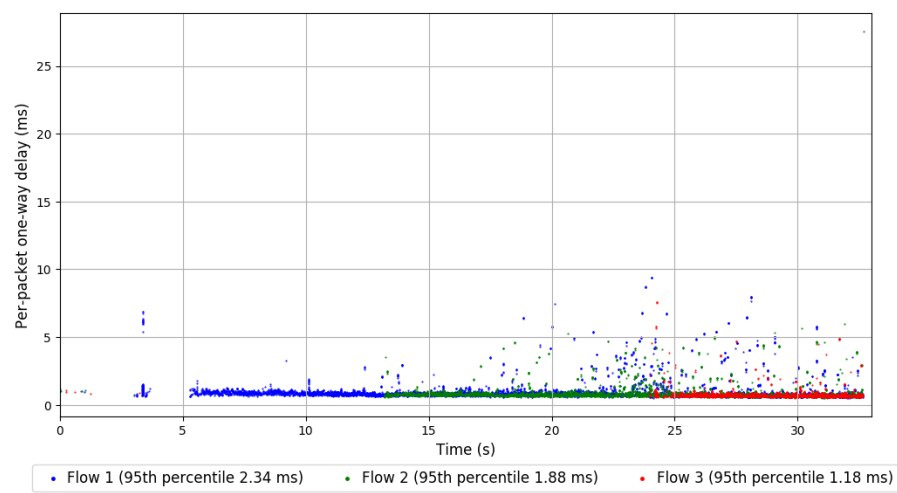
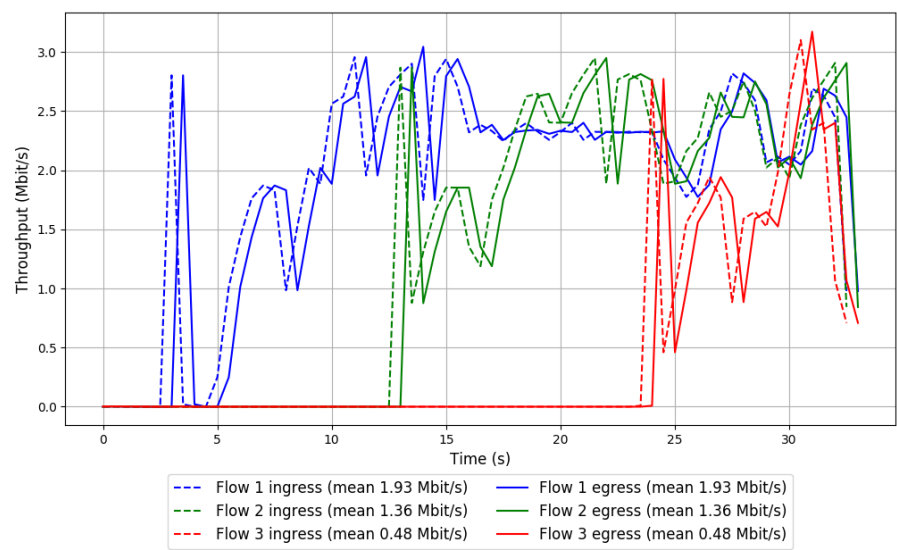
-- Flow 3:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 1.178 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link





Run 4: Statistics of WebRTC media

Start at: 2018-10-26 04:35:54

End at: 2018-10-26 04:36:24

Local clock offset: -1.598 ms

Remote clock offset: 5.234 ms

# Below is generated by plot.py at 2018-10-26 06:02:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.77 Mbit/s

95th percentile per-packet one-way delay: 2.314 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 2.425 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.35 Mbit/s

95th percentile per-packet one-way delay: 2.057 ms

Loss rate: 0.00%

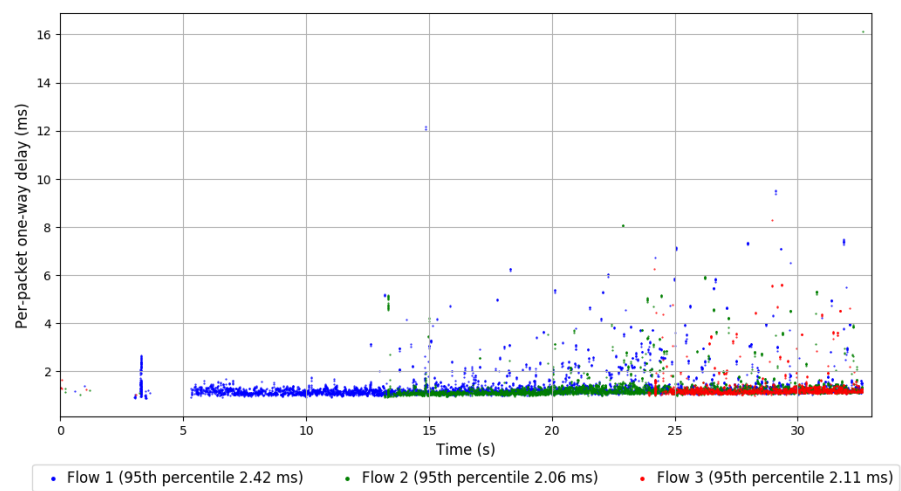
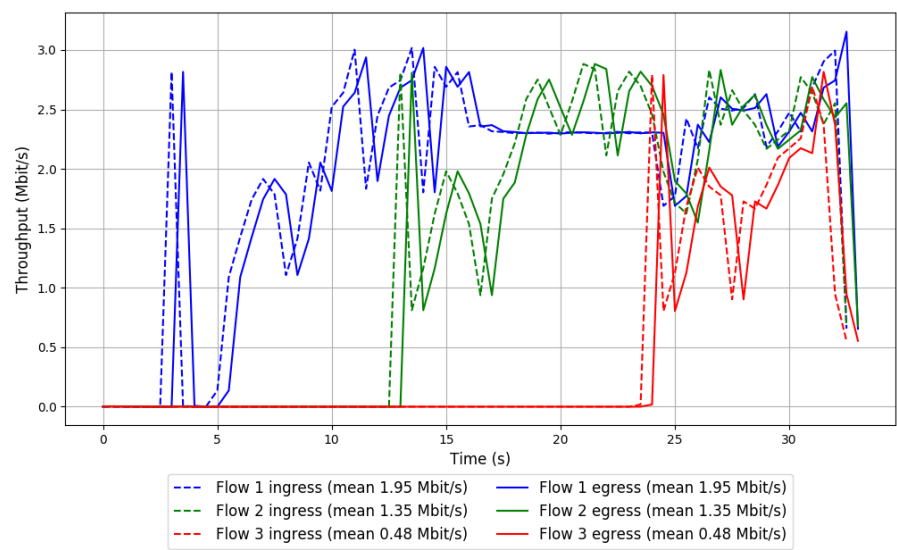
-- Flow 3:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 2.108 ms

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-10-26 05:03:15

End at: 2018-10-26 05:03:45

Local clock offset: 1.146 ms

Remote clock offset: 4.59 ms

# Below is generated by plot.py at 2018-10-26 06:02:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.79 Mbit/s

95th percentile per-packet one-way delay: 2.614 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 2.586 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.37 Mbit/s

95th percentile per-packet one-way delay: 2.644 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.49 Mbit/s

95th percentile per-packet one-way delay: 2.530 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

