

## Pantheon Report

Generated at 2018-10-10 07:27:04 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

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

### System info:

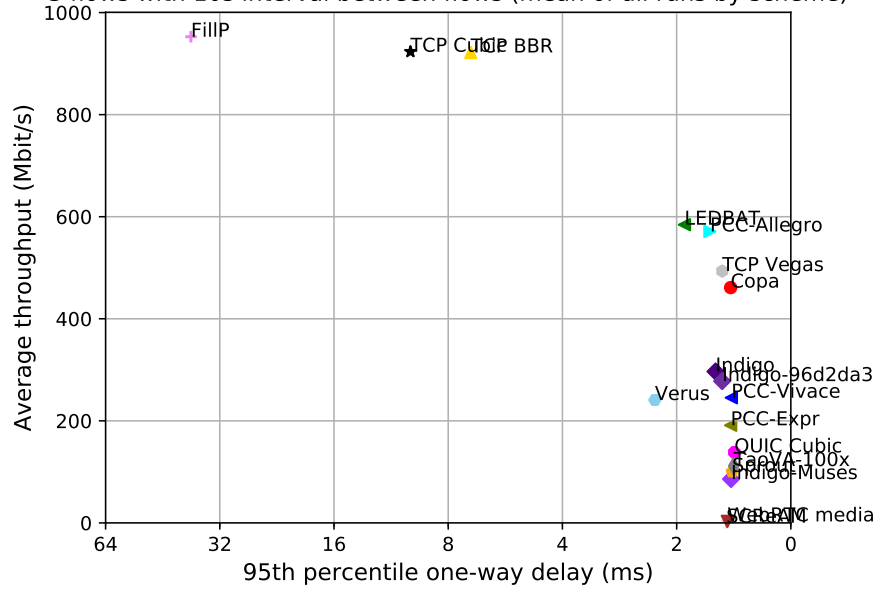
```
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

### Git summary:

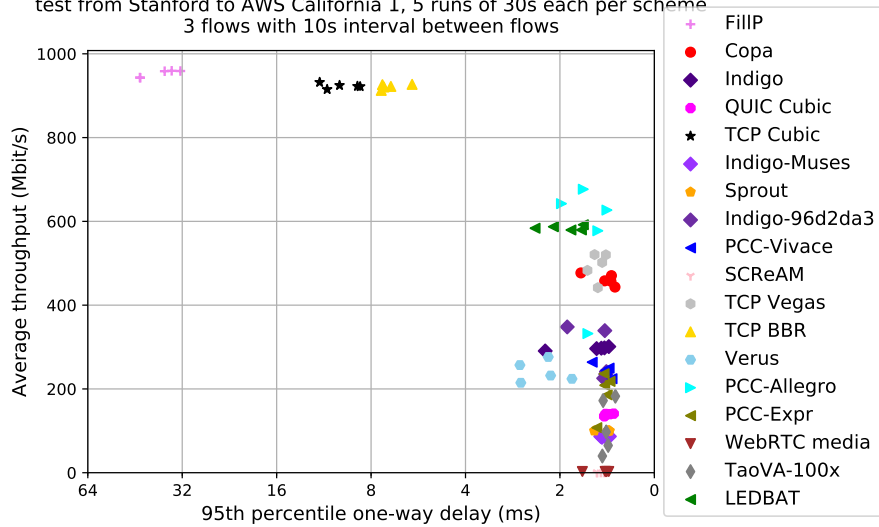
```
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95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



test from Stanford to AWS California 1, 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	543.03	404.96	328.22	7.06	6.24	6.64	0.02	0.03	0.06
Copa	5	276.04	214.95	126.41	1.05	1.04	1.05	0.00	0.00	0.01
TCP Cubic	5	548.46	402.26	321.22	10.43	7.54	7.75	0.02	0.03	0.08
FillP	5	577.67	402.27	324.01	37.22	46.75	43.13	0.86	1.00	1.33
Indigo	5	160.64	146.41	117.63	1.23	1.55	1.26	0.01	0.02	0.04
Indigo-96d2da3	5	161.51	113.94	122.22	1.19	1.20	1.23	0.00	0.01	0.02
LEDBAT	5	350.23	259.69	184.11	1.87	1.97	1.63	0.00	0.01	0.01
Indigo-Muses	5	42.24	41.11	45.19	1.05	1.04	1.01	0.01	0.01	0.01
PCC-Allegro	5	457.84	120.63	100.85	1.51	1.31	1.48	0.01	0.02	0.03
PCC-Expr	5	150.94	44.44	32.78	1.05	1.04	1.03	0.00	0.00	0.02
QUIC Cubic	5	74.27	67.96	56.37	0.99	0.99	0.99	0.01	0.01	0.01
SCReAM	5	0.22	0.22	0.22	1.08	1.08	1.13	0.00	0.00	0.07
Sprout	5	50.26	50.15	49.99	1.03	1.02	1.03	0.01	0.01	0.06
TaoVA-100x	5	66.91	48.17	37.41	1.00	1.00	1.00	0.00	0.01	0.02
TCP Vegas	5	241.96	250.83	253.81	1.12	1.34	1.34	0.00	0.01	0.02
Verus	5	148.08	100.91	77.12	2.49	1.56	1.43	0.00	0.00	0.02
PCC-Vivace	5	150.29	104.17	78.18	1.02	1.09	1.15	0.00	0.01	0.03
WebRTC media	5	1.48	1.06	0.45	1.11	1.11	1.11	0.00	0.00	0.03



Run 1: Statistics of TCP BBR

Start at: 2018-10-10 04:27:28

End at: 2018-10-10 04:27:58

Local clock offset: 5.243 ms

Remote clock offset: 4.392 ms

# Below is generated by plot.py at 2018-10-10 06:43:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 922.21 Mbit/s

95th percentile per-packet one-way delay: 6.918 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 543.03 Mbit/s

95th percentile per-packet one-way delay: 6.952 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 405.32 Mbit/s

95th percentile per-packet one-way delay: 6.762 ms

Loss rate: 0.03%

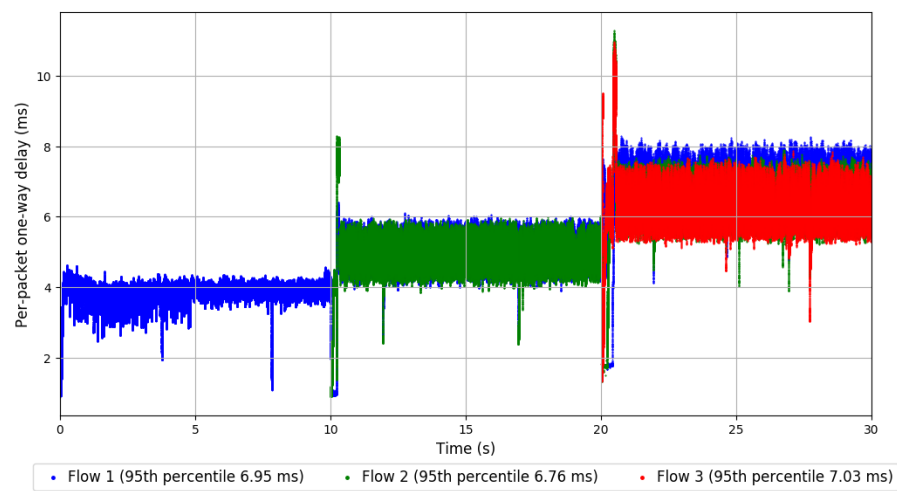
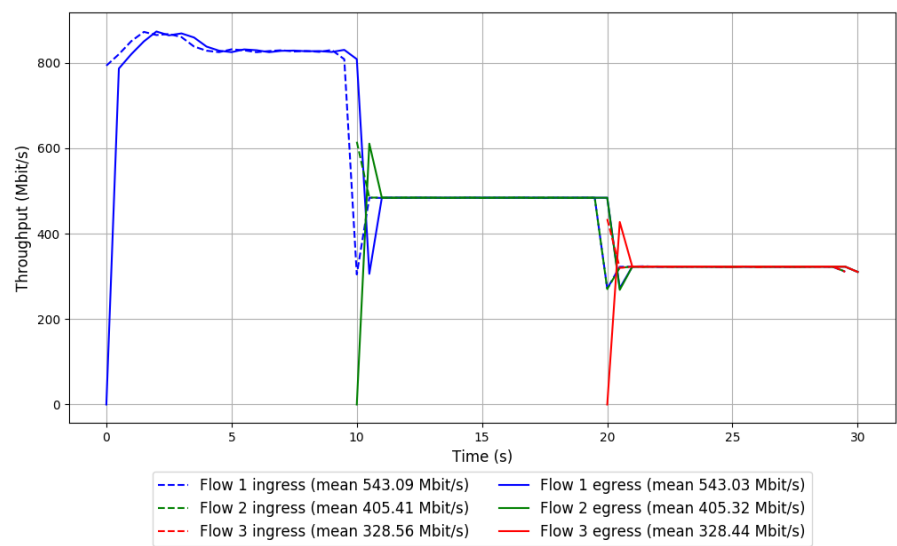
-- Flow 3:

Average throughput: 328.44 Mbit/s

95th percentile per-packet one-way delay: 7.025 ms

Loss rate: 0.07%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-10-10 04:55:18

End at: 2018-10-10 04:55:48

Local clock offset: 7.835 ms

Remote clock offset: 0.82 ms

# Below is generated by plot.py at 2018-10-10 06:43:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 926.45 Mbit/s

95th percentile per-packet one-way delay: 7.360 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 547.26 Mbit/s

95th percentile per-packet one-way delay: 7.463 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 405.63 Mbit/s

95th percentile per-packet one-way delay: 6.828 ms

Loss rate: 0.03%

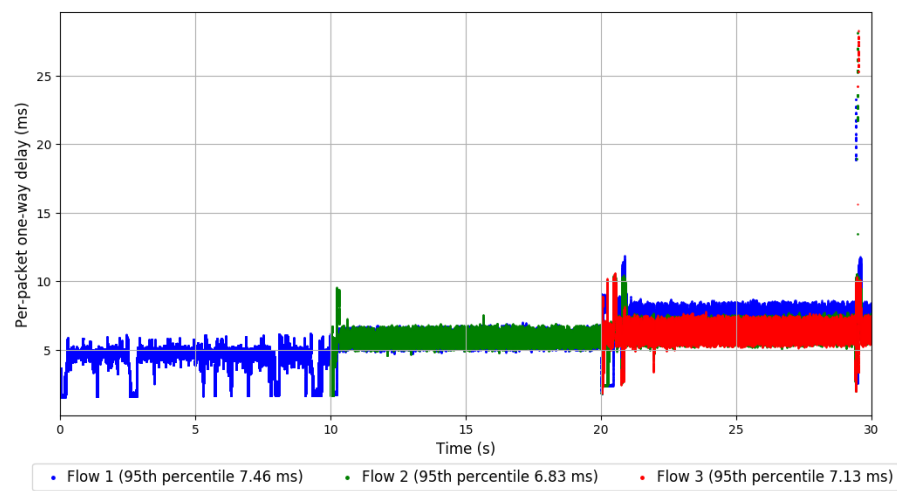
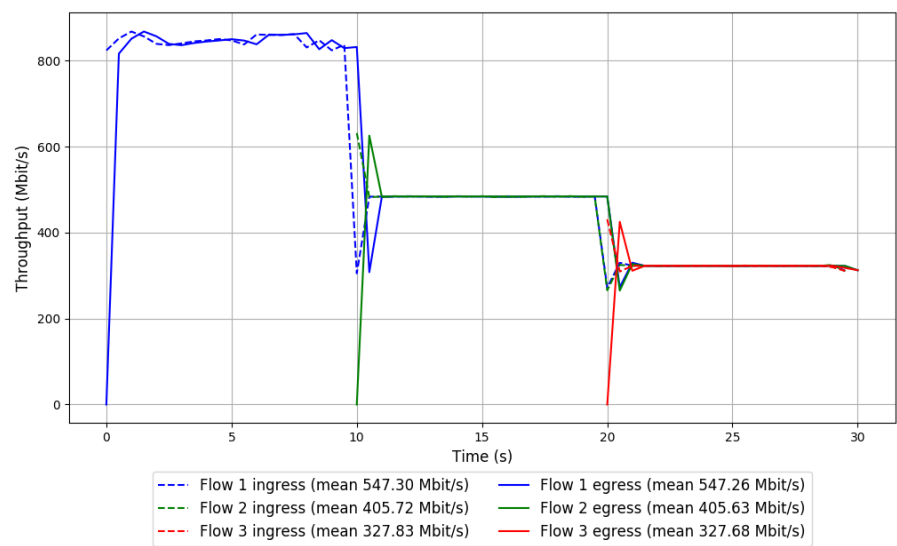
-- Flow 3:

Average throughput: 327.68 Mbit/s

95th percentile per-packet one-way delay: 7.128 ms

Loss rate: 0.06%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-10-10 05:23:04

End at: 2018-10-10 05:23:34

Local clock offset: -0.764 ms

Remote clock offset: 0.013 ms

# Below is generated by plot.py at 2018-10-10 06:43:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 920.78 Mbit/s

95th percentile per-packet one-way delay: 7.280 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 542.18 Mbit/s

95th percentile per-packet one-way delay: 7.438 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 404.46 Mbit/s

95th percentile per-packet one-way delay: 5.922 ms

Loss rate: 0.02%

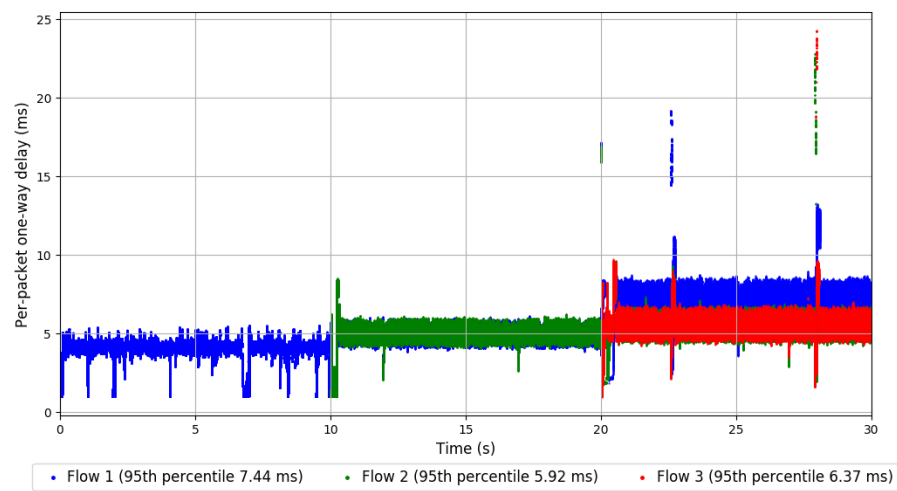
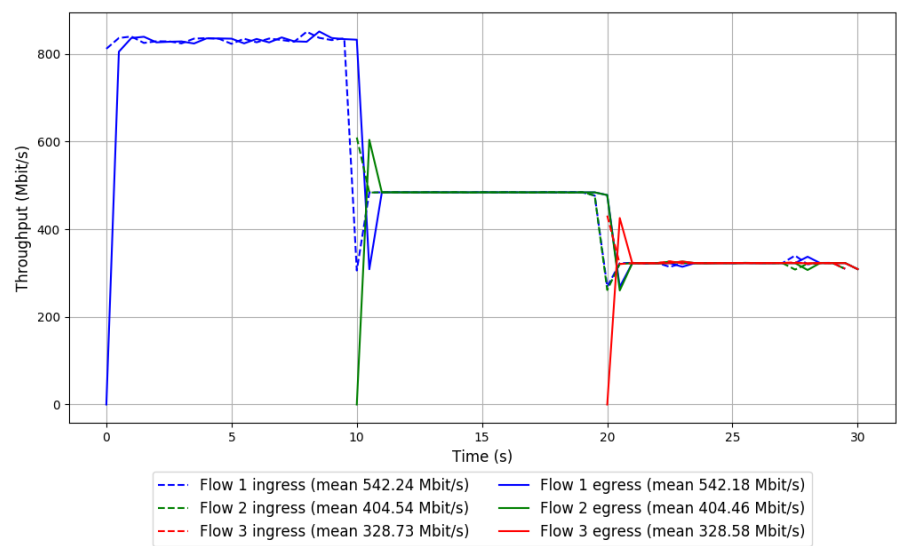
-- Flow 3:

Average throughput: 328.58 Mbit/s

95th percentile per-packet one-way delay: 6.365 ms

Loss rate: 0.06%

Run 3: Report of TCP BBR — Data Link

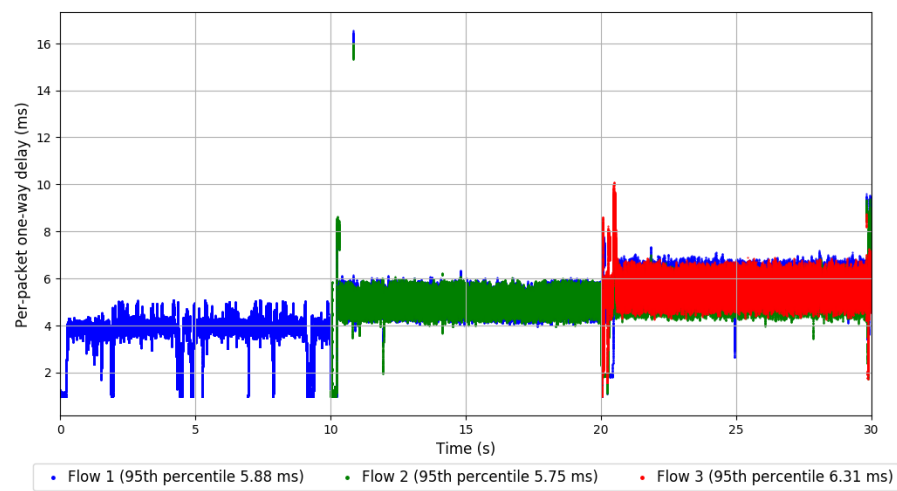
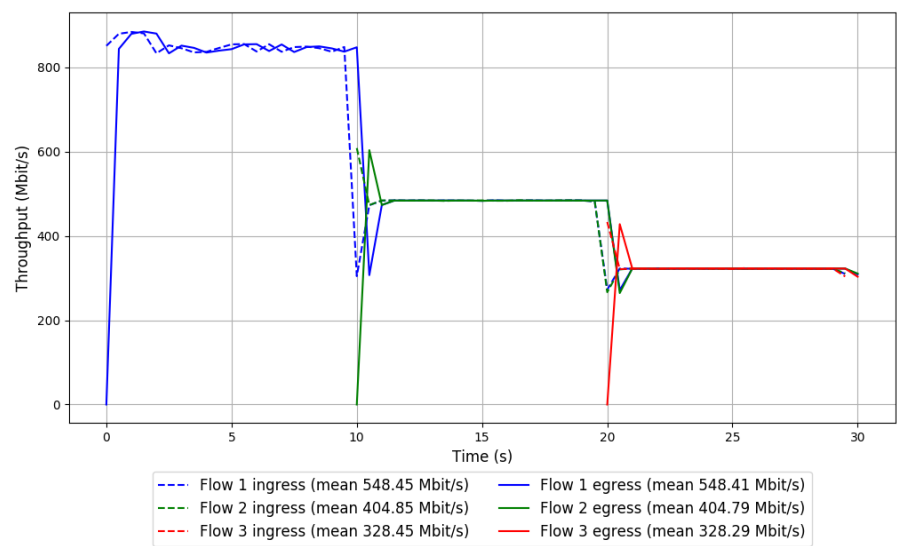


Run 4: Statistics of TCP BBR

Start at: 2018-10-10 05:50:48  
End at: 2018-10-10 05:51:18  
Local clock offset: -0.858 ms  
Remote clock offset: -0.123 ms

# Below is generated by plot.py at 2018-10-10 06:43:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 927.11 Mbit/s  
95th percentile per-packet one-way delay: 5.919 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 548.41 Mbit/s  
95th percentile per-packet one-way delay: 5.877 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 404.79 Mbit/s  
95th percentile per-packet one-way delay: 5.750 ms  
Loss rate: 0.02%  
-- Flow 3:  
Average throughput: 328.29 Mbit/s  
95th percentile per-packet one-way delay: 6.307 ms  
Loss rate: 0.06%

Run 4: Report of TCP BBR — Data Link



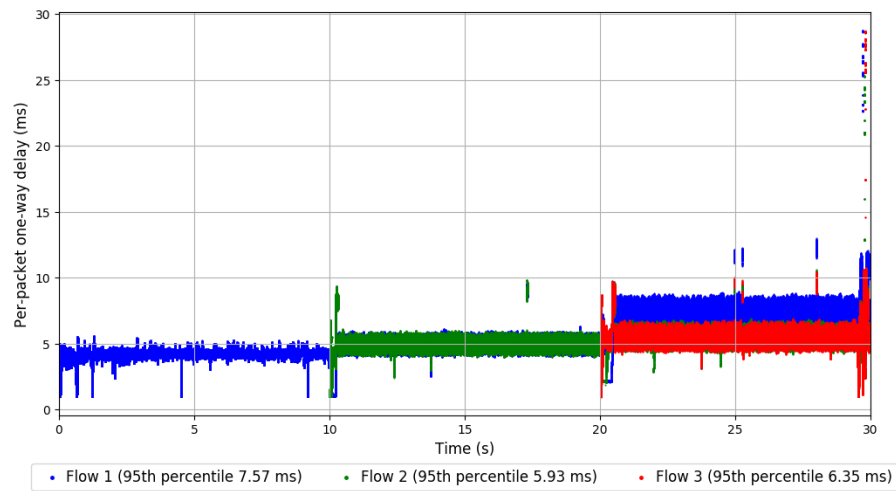
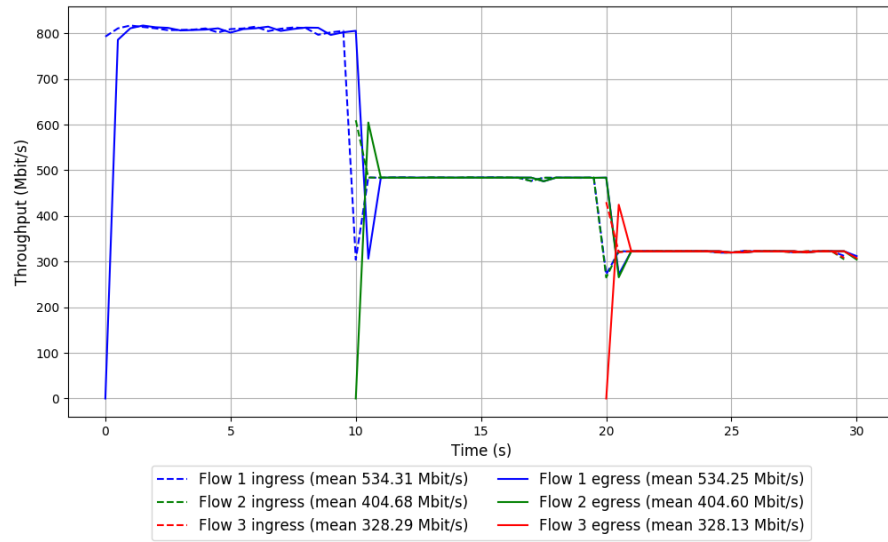


Run 5: Statistics of TCP BBR

Start at: 2018-10-10 06:18:37  
End at: 2018-10-10 06:19:07  
Local clock offset: -0.298 ms  
Remote clock offset: -0.202 ms

# Below is generated by plot.py at 2018-10-10 06:43:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 912.74 Mbit/s  
95th percentile per-packet one-way delay: 7.424 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 534.25 Mbit/s  
95th percentile per-packet one-way delay: 7.572 ms  
Loss rate: 0.02%  
-- Flow 2:  
Average throughput: 404.60 Mbit/s  
95th percentile per-packet one-way delay: 5.932 ms  
Loss rate: 0.03%  
-- Flow 3:  
Average throughput: 328.13 Mbit/s  
95th percentile per-packet one-way delay: 6.352 ms  
Loss rate: 0.07%

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



Run 1: Statistics of Copa

Start at: 2018-10-10 04:32:27

End at: 2018-10-10 04:32:57

Local clock offset: 5.783 ms

Remote clock offset: 5.053 ms

# Below is generated by plot.py at 2018-10-10 06:43:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 443.17 Mbit/s

95th percentile per-packet one-way delay: 0.834 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 280.92 Mbit/s

95th percentile per-packet one-way delay: 0.841 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 188.71 Mbit/s

95th percentile per-packet one-way delay: 0.810 ms

Loss rate: 0.00%

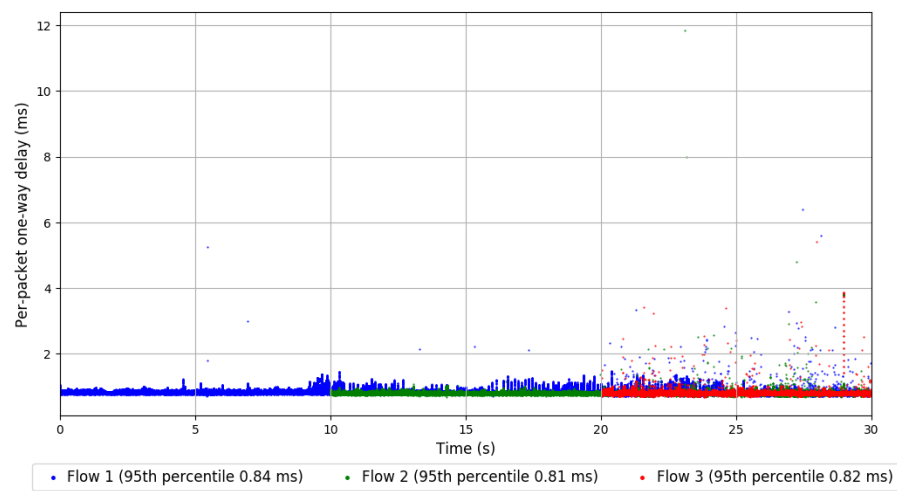
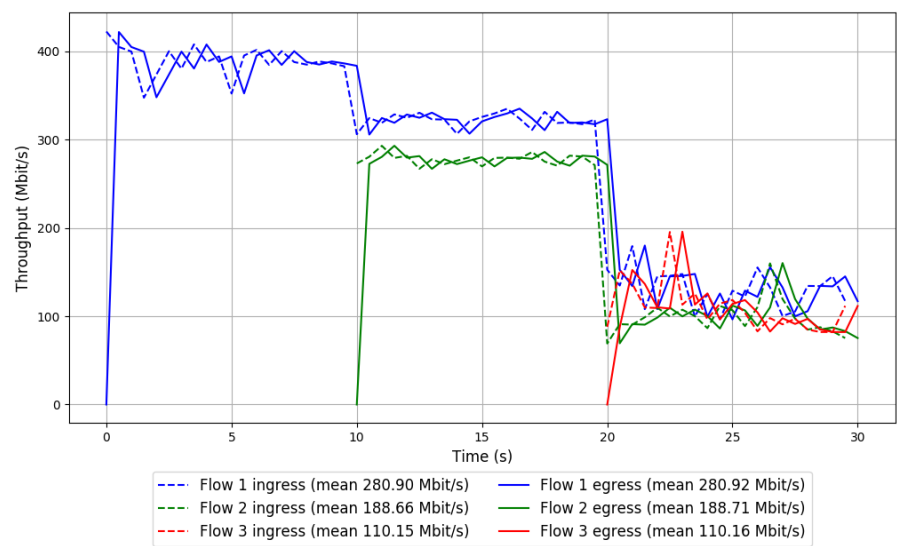
-- Flow 3:

Average throughput: 110.16 Mbit/s

95th percentile per-packet one-way delay: 0.819 ms

Loss rate: 0.00%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-10-10 05:00:23

End at: 2018-10-10 05:00:53

Local clock offset: 4.212 ms

Remote clock offset: 0.526 ms

# Below is generated by plot.py at 2018-10-10 06:43:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 476.96 Mbit/s

95th percentile per-packet one-way delay: 1.556 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 285.26 Mbit/s

95th percentile per-packet one-way delay: 1.544 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 224.50 Mbit/s

95th percentile per-packet one-way delay: 1.554 ms

Loss rate: 0.00%

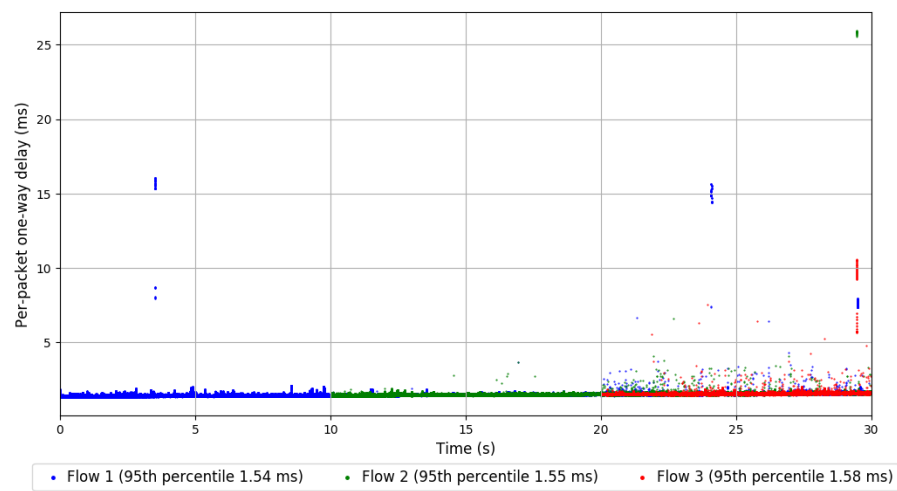
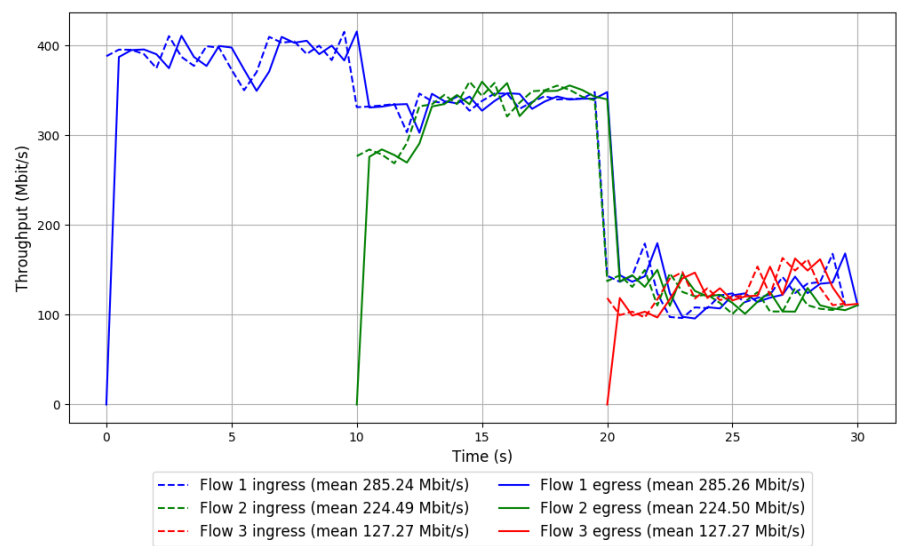
-- Flow 3:

Average throughput: 127.27 Mbit/s

95th percentile per-packet one-way delay: 1.584 ms

Loss rate: 0.02%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-10-10 05:28:04

End at: 2018-10-10 05:28:34

Local clock offset: -0.708 ms

Remote clock offset: 0.021 ms

# Below is generated by plot.py at 2018-10-10 06:43:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 457.10 Mbit/s

95th percentile per-packet one-way delay: 0.920 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 264.05 Mbit/s

95th percentile per-packet one-way delay: 0.923 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 219.35 Mbit/s

95th percentile per-packet one-way delay: 0.917 ms

Loss rate: 0.00%

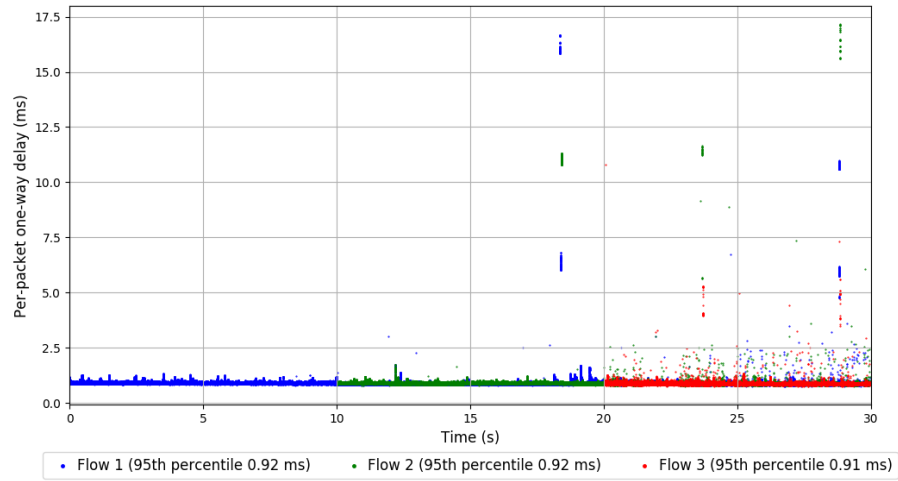
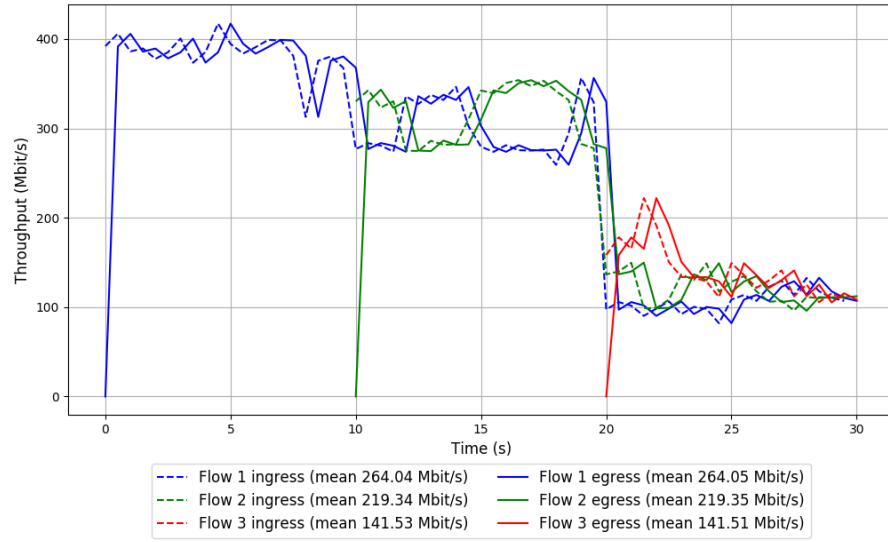
-- Flow 3:

Average throughput: 141.51 Mbit/s

95th percentile per-packet one-way delay: 0.905 ms

Loss rate: 0.02%

### Run 3: Report of Copa — Data Link



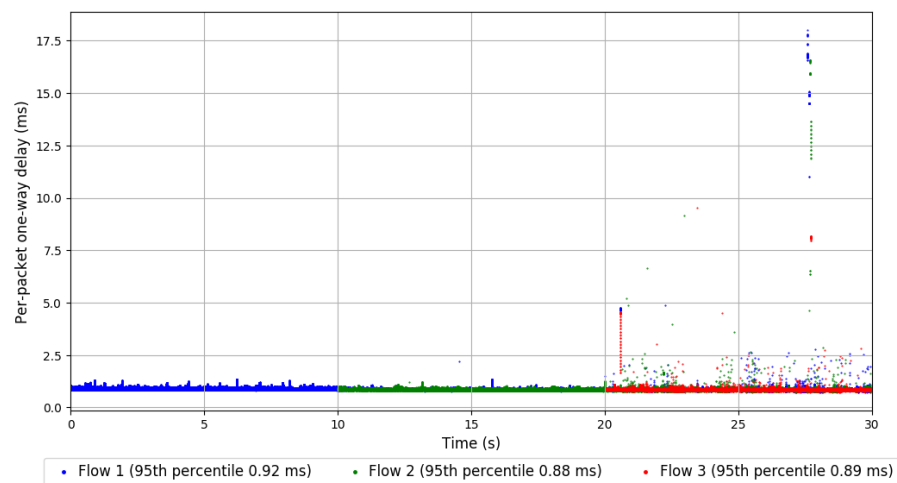
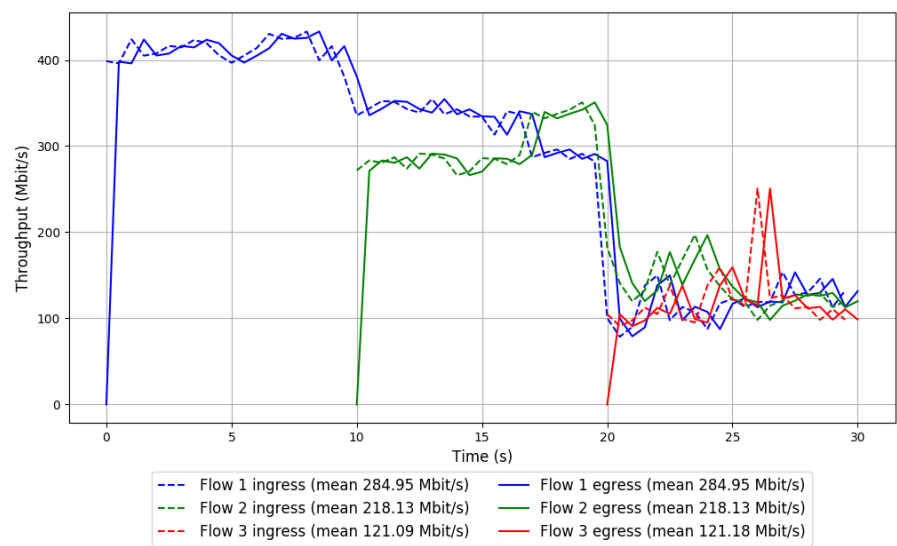


Run 4: Statistics of Copa

Start at: 2018-10-10 05:55:51  
End at: 2018-10-10 05:56:21  
Local clock offset: -0.897 ms  
Remote clock offset: -0.141 ms

# Below is generated by plot.py at 2018-10-10 06:52:45  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 470.46 Mbit/s  
95th percentile per-packet one-way delay: 0.909 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 284.95 Mbit/s  
95th percentile per-packet one-way delay: 0.919 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 218.13 Mbit/s  
95th percentile per-packet one-way delay: 0.879 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 121.18 Mbit/s  
95th percentile per-packet one-way delay: 0.886 ms  
Loss rate: 0.00%

Run 4: Report of Copa — Data Link

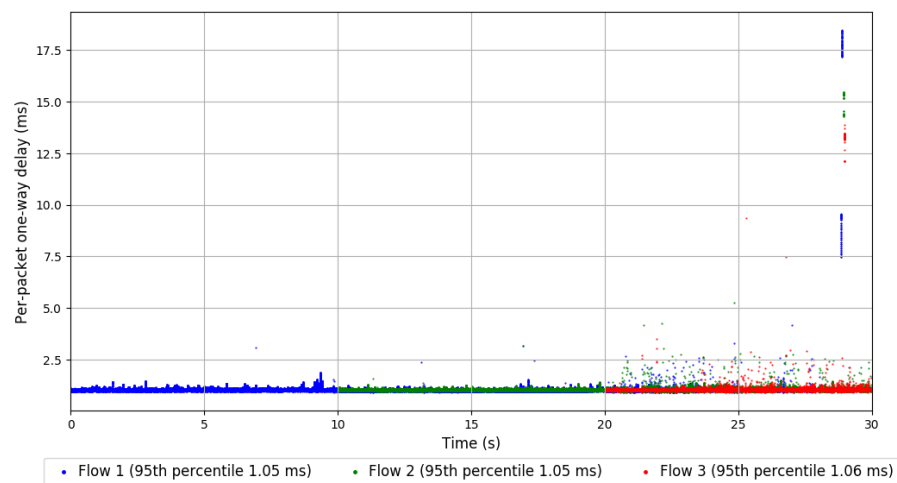
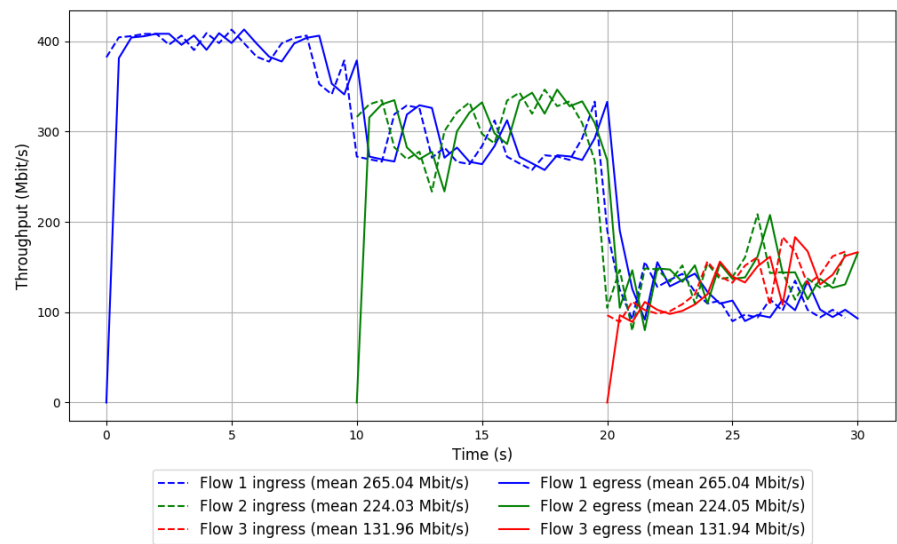


Run 5: Statistics of Copa

Start at: 2018-10-10 06:23:38  
End at: 2018-10-10 06:24:08  
Local clock offset: -0.375 ms  
Remote clock offset: -0.166 ms

# Below is generated by plot.py at 2018-10-10 06:52:45  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 458.04 Mbit/s  
95th percentile per-packet one-way delay: 1.052 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 265.04 Mbit/s  
95th percentile per-packet one-way delay: 1.046 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 224.05 Mbit/s  
95th percentile per-packet one-way delay: 1.055 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 131.94 Mbit/s  
95th percentile per-packet one-way delay: 1.062 ms  
Loss rate: 0.03%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-10-10 04:21:32

End at: 2018-10-10 04:22:02

Local clock offset: 4.523 ms

Remote clock offset: 3.739 ms

# Below is generated by plot.py at 2018-10-10 06:53:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 915.02 Mbit/s

95th percentile per-packet one-way delay: 11.044 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 540.02 Mbit/s

95th percentile per-packet one-way delay: 11.684 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 402.51 Mbit/s

95th percentile per-packet one-way delay: 7.523 ms

Loss rate: 0.03%

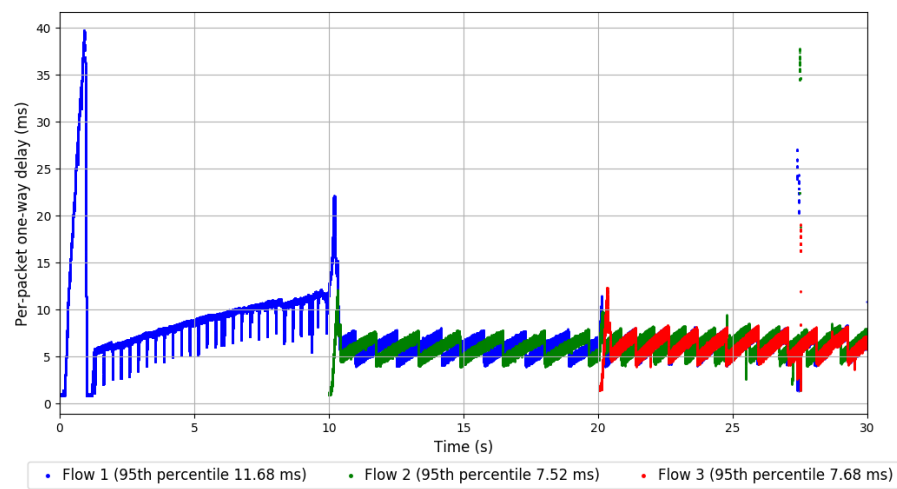
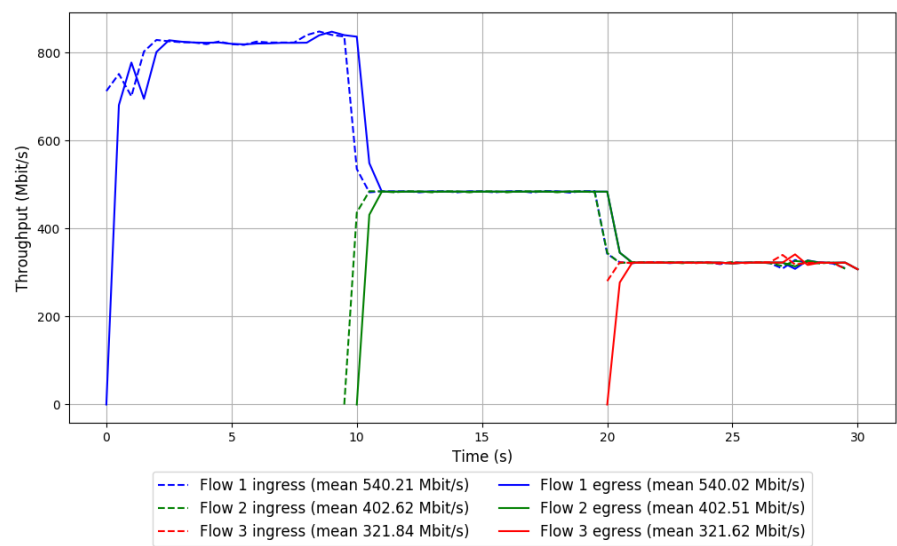
-- Flow 3:

Average throughput: 321.62 Mbit/s

95th percentile per-packet one-way delay: 7.682 ms

Loss rate: 0.08%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-10-10 04:49:15

End at: 2018-10-10 04:49:45

Local clock offset: 7.502 ms

Remote clock offset: 1.599 ms

# Below is generated by plot.py at 2018-10-10 06:53:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 921.81 Mbit/s

95th percentile per-packet one-way delay: 8.668 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 546.91 Mbit/s

95th percentile per-packet one-way delay: 9.055 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 402.31 Mbit/s

95th percentile per-packet one-way delay: 7.323 ms

Loss rate: 0.03%

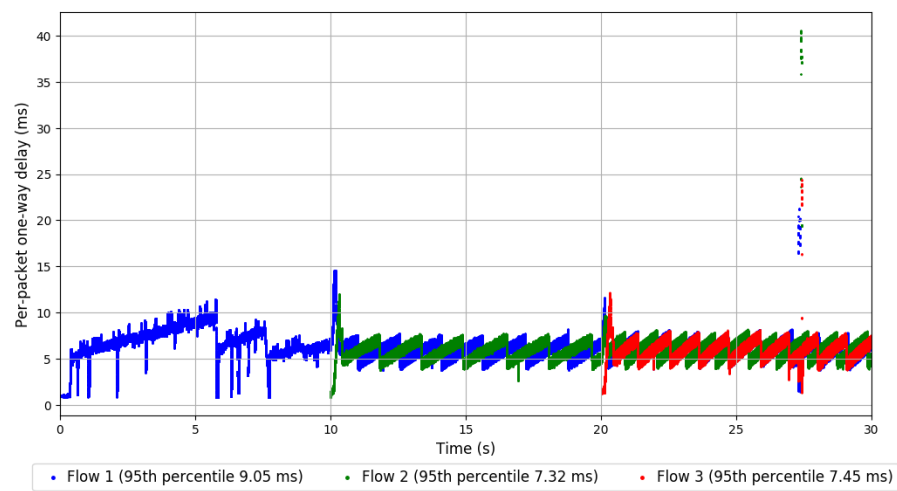
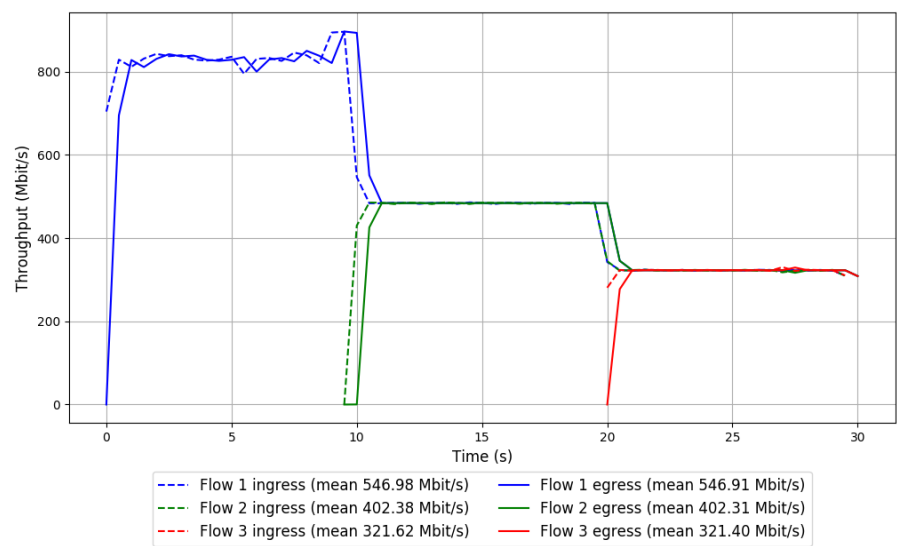
-- Flow 3:

Average throughput: 321.40 Mbit/s

95th percentile per-packet one-way delay: 7.453 ms

Loss rate: 0.09%

Run 2: Report of TCP Cubic — Data Link





Run 3: Statistics of TCP Cubic

Start at: 2018-10-10 05:17:01

End at: 2018-10-10 05:17:31

Local clock offset: -0.175 ms

Remote clock offset: 0.195 ms

# Below is generated by plot.py at 2018-10-10 06:53:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 932.02 Mbit/s

95th percentile per-packet one-way delay: 11.670 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 557.48 Mbit/s

95th percentile per-packet one-way delay: 11.978 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 402.29 Mbit/s

95th percentile per-packet one-way delay: 7.663 ms

Loss rate: 0.03%

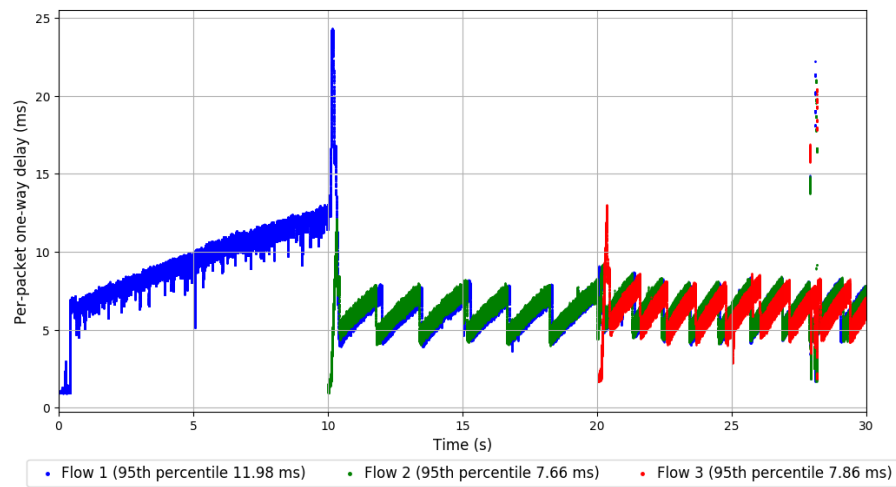
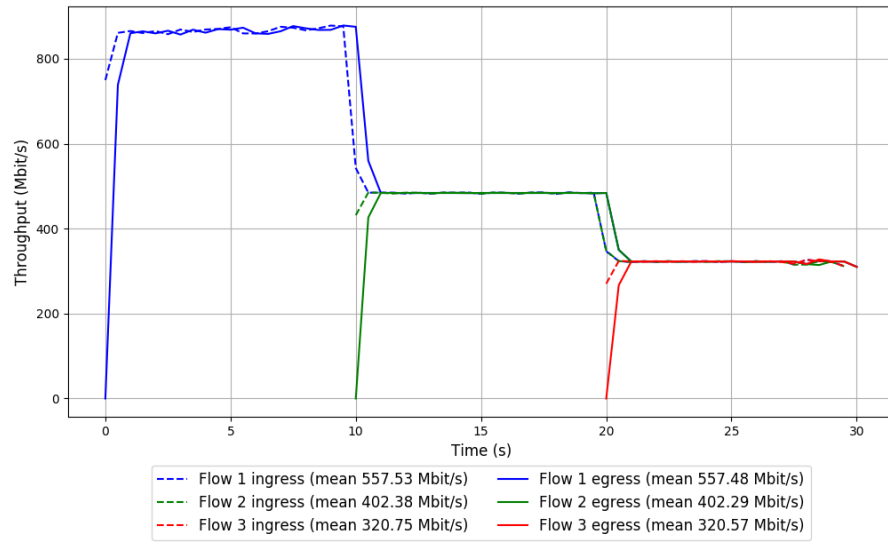
-- Flow 3:

Average throughput: 320.57 Mbit/s

95th percentile per-packet one-way delay: 7.858 ms

Loss rate: 0.08%

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



Run 4: Statistics of TCP Cubic

Start at: 2018-10-10 05:44:55

End at: 2018-10-10 05:45:25

Local clock offset: -0.692 ms

Remote clock offset: -0.03 ms

# Below is generated by plot.py at 2018-10-10 06:53:57

# Datalink statistics

-- Total of 3 flows:

Average throughput: 922.56 Mbit/s

95th percentile per-packet one-way delay: 8.842 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 548.00 Mbit/s

95th percentile per-packet one-way delay: 9.084 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 401.95 Mbit/s

95th percentile per-packet one-way delay: 7.558 ms

Loss rate: 0.03%

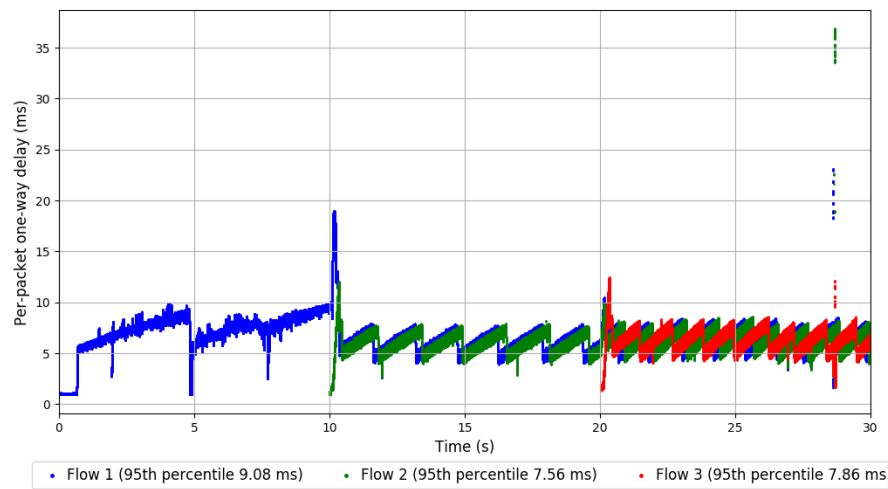
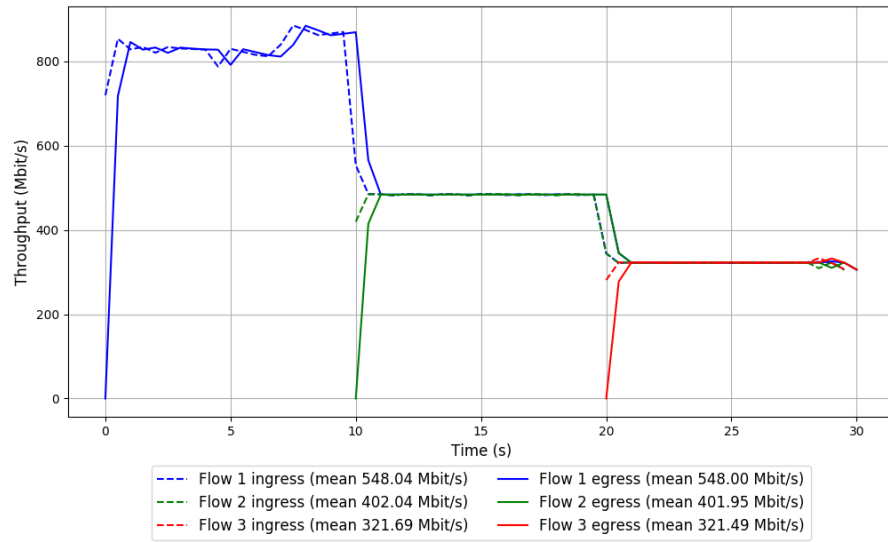
-- Flow 3:

Average throughput: 321.49 Mbit/s

95th percentile per-packet one-way delay: 7.856 ms

Loss rate: 0.07%

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

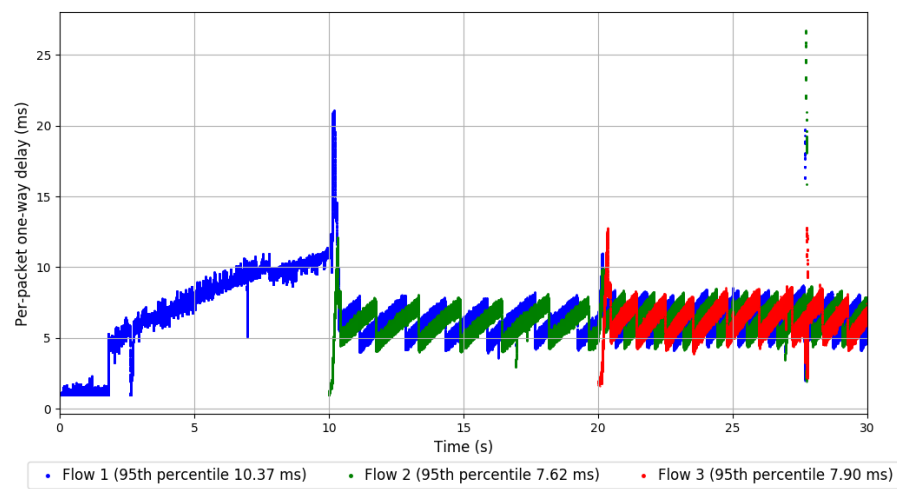
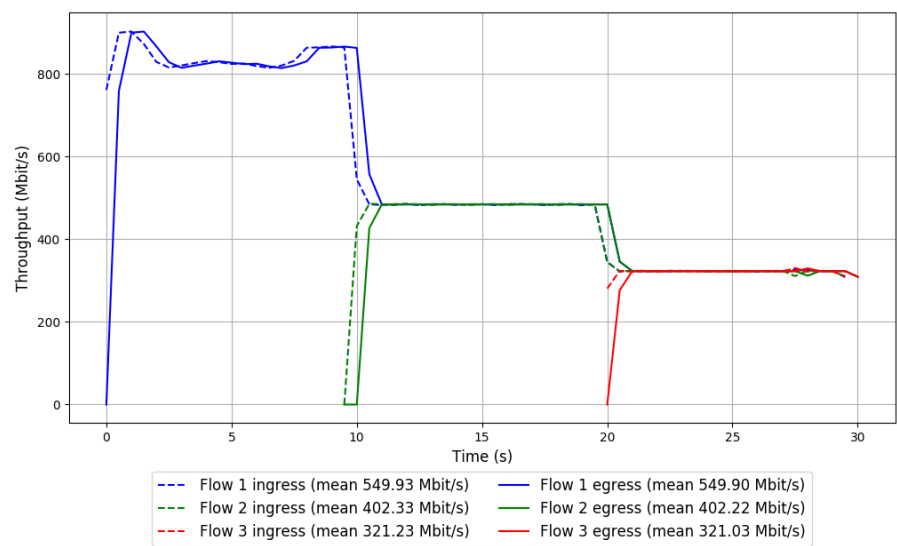


Run 5: Statistics of TCP Cubic

Start at: 2018-10-10 06:12:39  
End at: 2018-10-10 06:13:09  
Local clock offset: -0.251 ms  
Remote clock offset: -0.166 ms

# Below is generated by plot.py at 2018-10-10 06:53:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 924.69 Mbit/s  
95th percentile per-packet one-way delay: 10.083 ms  
Loss rate: 0.03%  
-- Flow 1:  
Average throughput: 549.90 Mbit/s  
95th percentile per-packet one-way delay: 10.368 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 402.22 Mbit/s  
95th percentile per-packet one-way delay: 7.620 ms  
Loss rate: 0.04%  
-- Flow 3:  
Average throughput: 321.03 Mbit/s  
95th percentile per-packet one-way delay: 7.900 ms  
Loss rate: 0.07%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-10-10 04:12:14

End at: 2018-10-10 04:12:44

Local clock offset: 2.983 ms

Remote clock offset: 2.105 ms

# Below is generated by plot.py at 2018-10-10 06:56:58

# Datalink statistics

-- Total of 3 flows:

Average throughput: 942.83 Mbit/s

95th percentile per-packet one-way delay: 43.551 ms

Loss rate: 0.88%

-- Flow 1:

Average throughput: 568.95 Mbit/s

95th percentile per-packet one-way delay: 43.889 ms

Loss rate: 0.84%

-- Flow 2:

Average throughput: 401.30 Mbit/s

95th percentile per-packet one-way delay: 42.986 ms

Loss rate: 0.92%

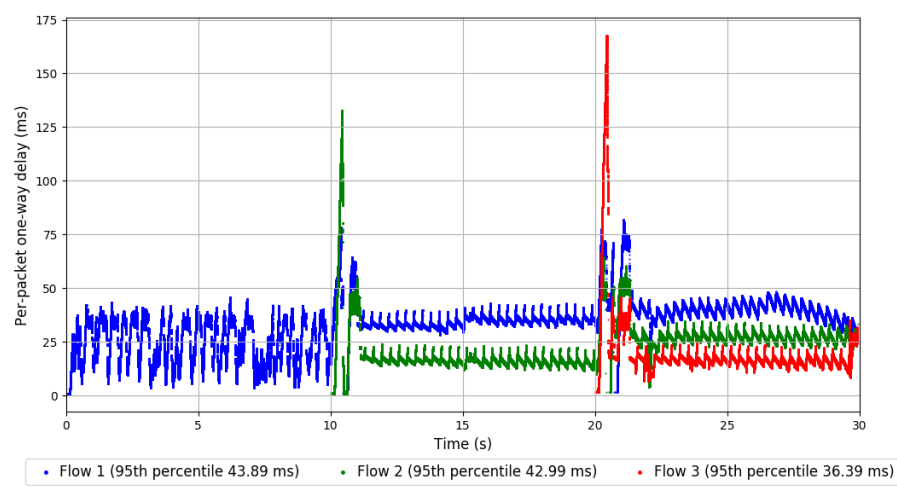
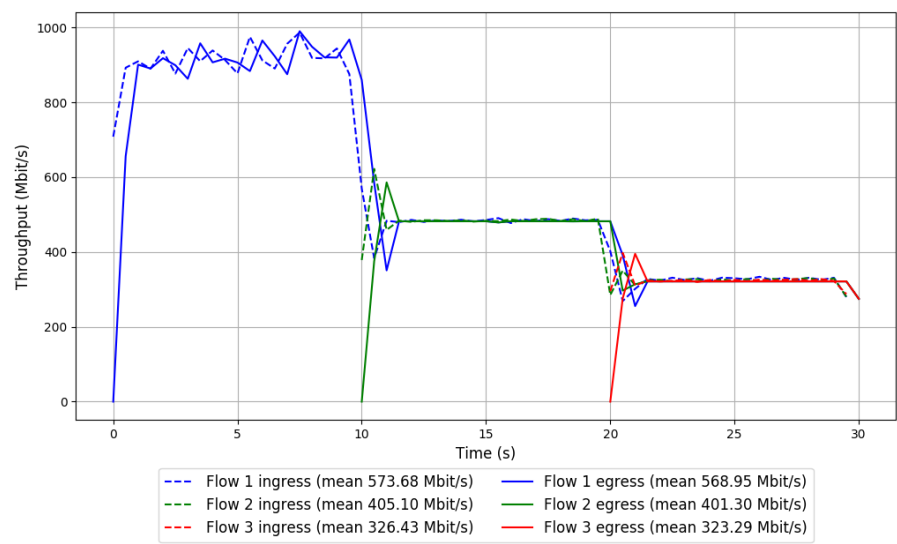
-- Flow 3:

Average throughput: 323.29 Mbit/s

95th percentile per-packet one-way delay: 36.389 ms

Loss rate: 0.98%

Run 1: Report of FillP — Data Link





Run 2: Statistics of FillP

Start at: 2018-10-10 04:39:59

End at: 2018-10-10 04:40:29

Local clock offset: 6.573 ms

Remote clock offset: 4.533 ms

# Below is generated by plot.py at 2018-10-10 07:05:54

# Datalink statistics

-- Total of 3 flows:

Average throughput: 958.47 Mbit/s

95th percentile per-packet one-way delay: 36.402 ms

Loss rate: 0.86%

-- Flow 1:

Average throughput: 583.27 Mbit/s

95th percentile per-packet one-way delay: 36.199 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 402.57 Mbit/s

95th percentile per-packet one-way delay: 45.004 ms

Loss rate: 0.79%

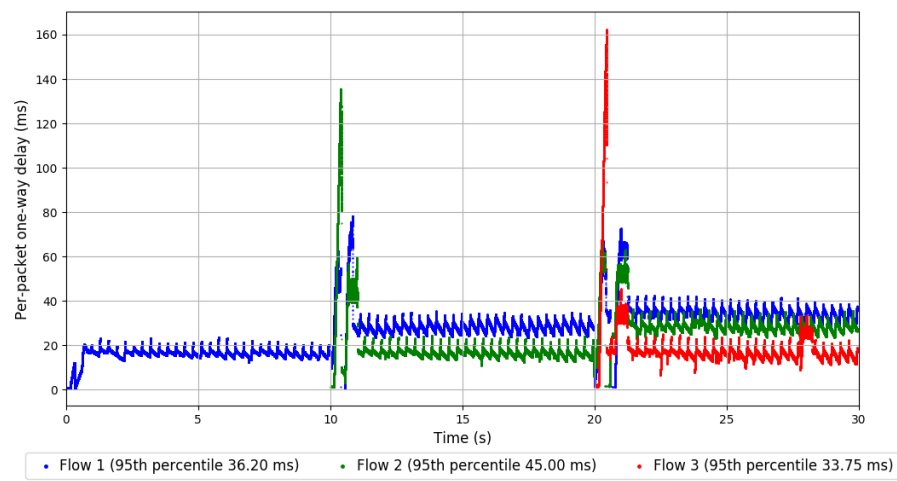
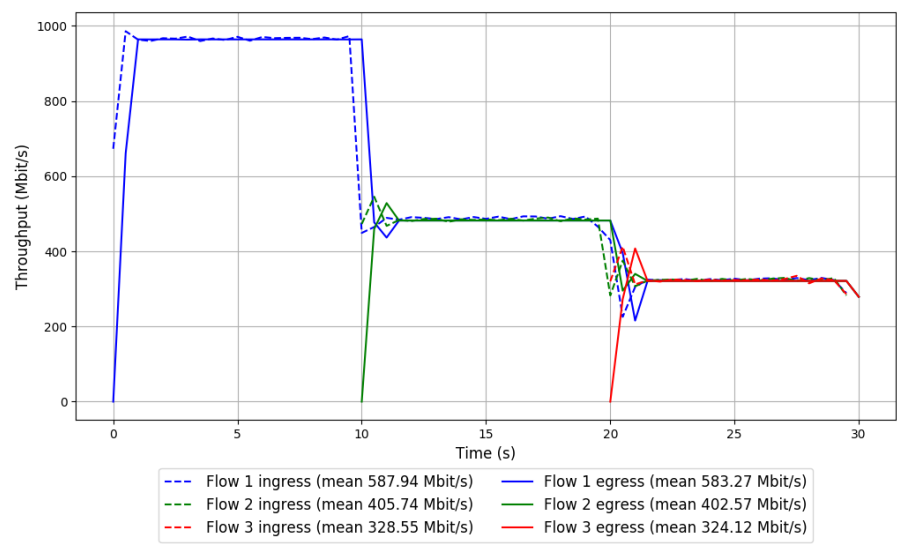
-- Flow 3:

Average throughput: 324.12 Mbit/s

95th percentile per-packet one-way delay: 33.747 ms

Loss rate: 1.36%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-10-10 05:08:00

End at: 2018-10-10 05:08:30

Local clock offset: 1.384 ms

Remote clock offset: 0.344 ms

# Below is generated by plot.py at 2018-10-10 07:05:58

# Datalink statistics

-- Total of 3 flows:

Average throughput: 958.94 Mbit/s

95th percentile per-packet one-way delay: 32.429 ms

Loss rate: 1.00%

-- Flow 1:

Average throughput: 583.47 Mbit/s

95th percentile per-packet one-way delay: 30.493 ms

Loss rate: 0.96%

-- Flow 2:

Average throughput: 402.51 Mbit/s

95th percentile per-packet one-way delay: 47.295 ms

Loss rate: 1.12%

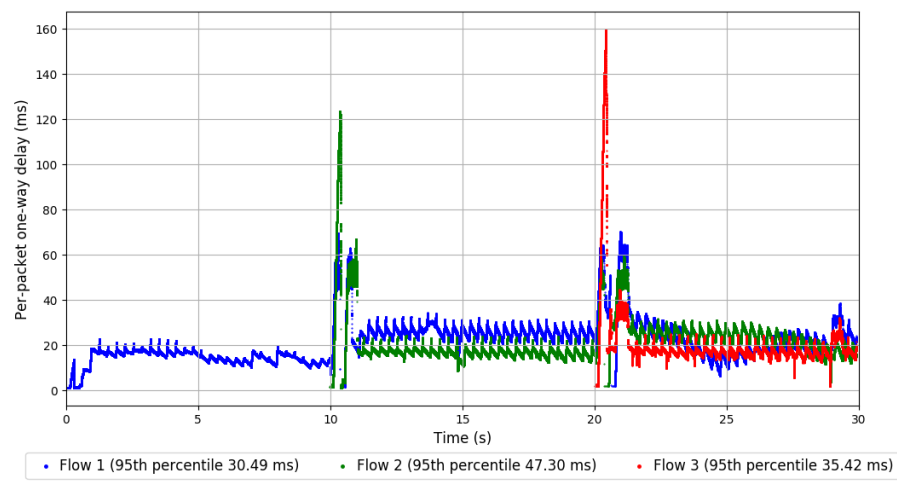
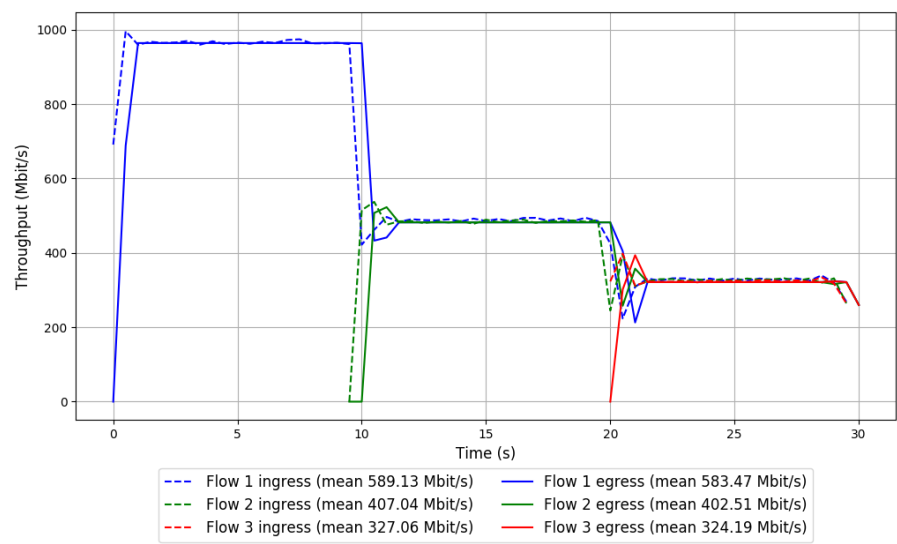
-- Flow 3:

Average throughput: 324.19 Mbit/s

95th percentile per-packet one-way delay: 35.419 ms

Loss rate: 0.90%

Run 3: Report of FillP — Data Link

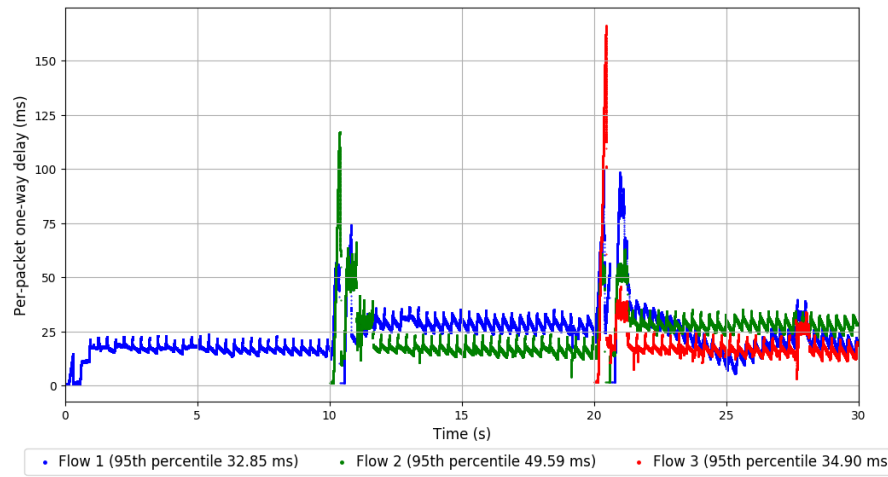
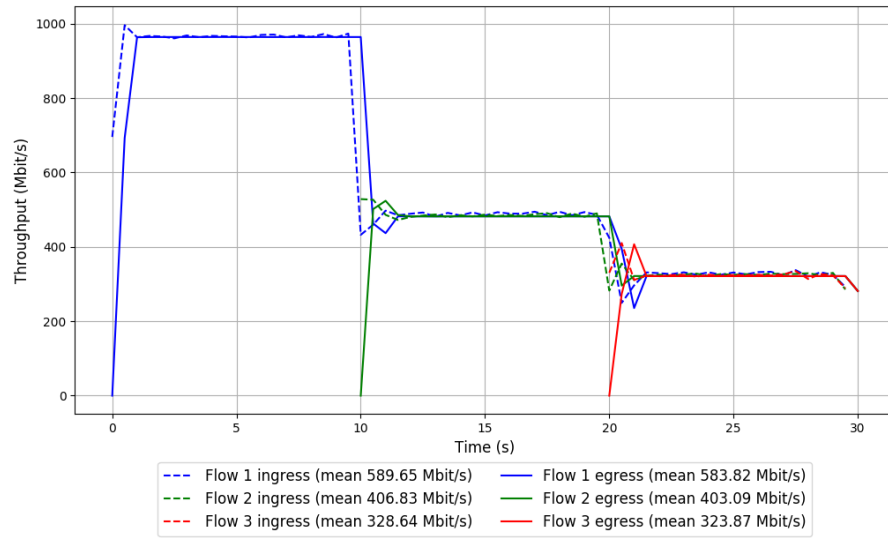


Run 4: Statistics of FillP

Start at: 2018-10-10 05:35:40  
End at: 2018-10-10 05:36:10  
Local clock offset: -0.551 ms  
Remote clock offset: -0.052 ms

# Below is generated by plot.py at 2018-10-10 07:06:27  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 959.43 Mbit/s  
95th percentile per-packet one-way delay: 34.575 ms  
Loss rate: 1.03%  
-- Flow 1:  
Average throughput: 583.82 Mbit/s  
95th percentile per-packet one-way delay: 32.850 ms  
Loss rate: 0.99%  
-- Flow 2:  
Average throughput: 403.09 Mbit/s  
95th percentile per-packet one-way delay: 49.588 ms  
Loss rate: 0.93%  
-- Flow 3:  
Average throughput: 323.87 Mbit/s  
95th percentile per-packet one-way delay: 34.899 ms  
Loss rate: 1.48%

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

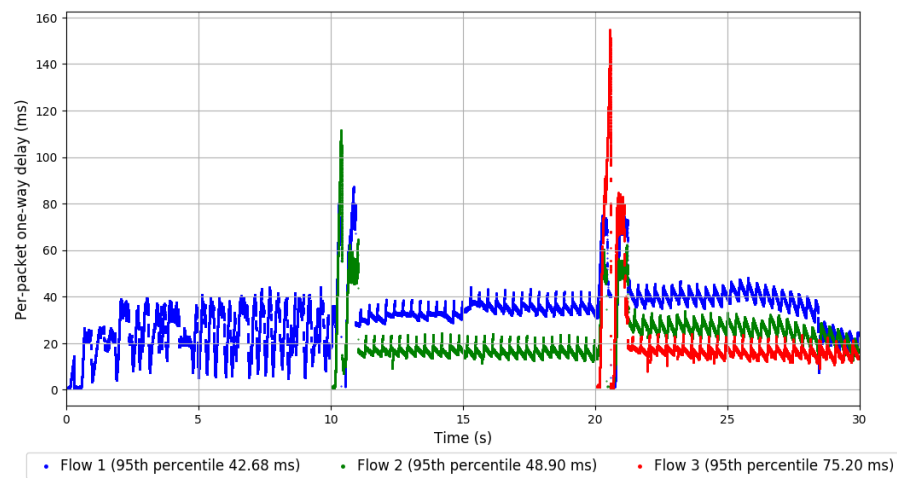
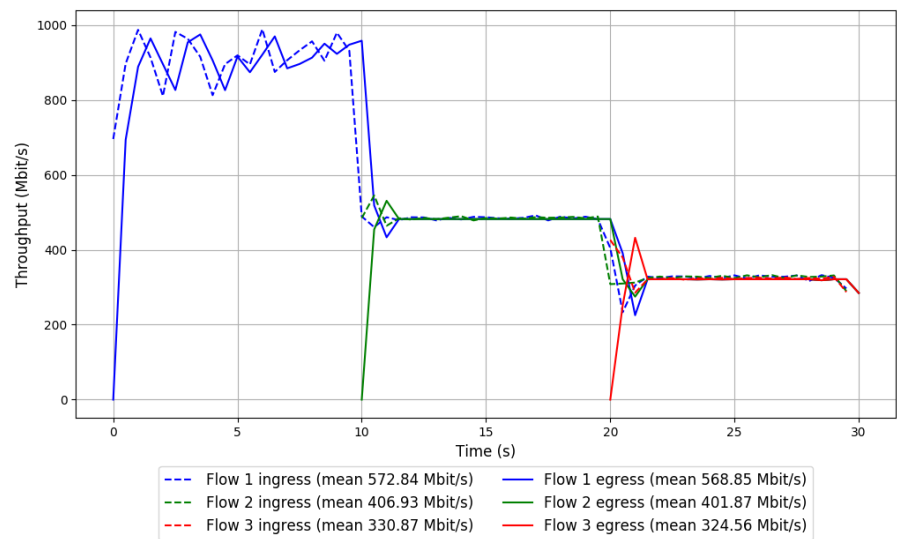


Run 5: Statistics of FillP

Start at: 2018-10-10 06:03:25  
End at: 2018-10-10 06:03:55  
Local clock offset: -0.365 ms  
Remote clock offset: -0.087 ms

# Below is generated by plot.py at 2018-10-10 07:06:27  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 943.37 Mbit/s  
95th percentile per-packet one-way delay: 43.668 ms  
Loss rate: 1.00%  
-- Flow 1:  
Average throughput: 568.85 Mbit/s  
95th percentile per-packet one-way delay: 42.677 ms  
Loss rate: 0.70%  
-- Flow 2:  
Average throughput: 401.87 Mbit/s  
95th percentile per-packet one-way delay: 48.896 ms  
Loss rate: 1.25%  
-- Flow 3:  
Average throughput: 324.56 Mbit/s  
95th percentile per-packet one-way delay: 75.202 ms  
Loss rate: 1.93%

Run 5: Report of FillP — Data Link



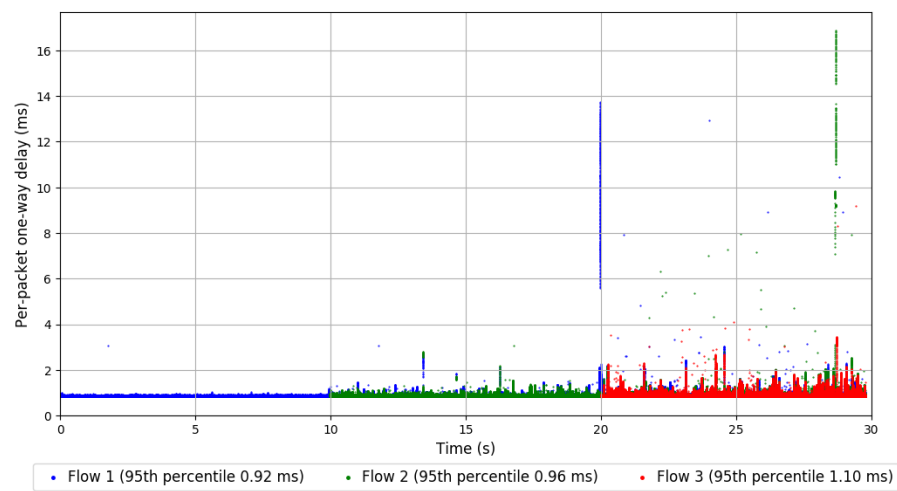
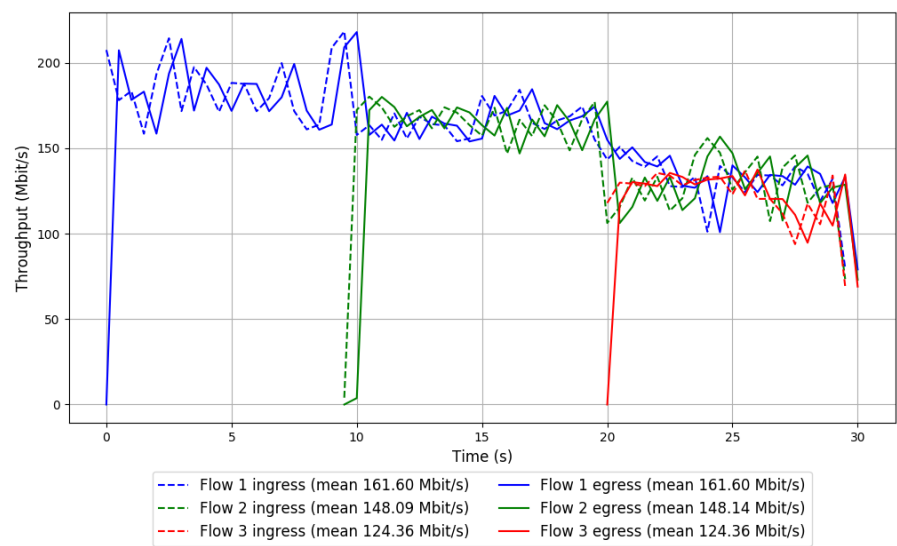


```
Run 1: Statistics of Indigo

Start at: 2018-10-10 04:18:25
End at: 2018-10-10 04:18:55
Local clock offset: 4.07 ms
Remote clock offset: 3.282 ms

# Below is generated by plot.py at 2018-10-10 07:06:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 301.05 Mbit/s
95th percentile per-packet one-way delay: 0.965 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 161.60 Mbit/s
95th percentile per-packet one-way delay: 0.921 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 148.14 Mbit/s
95th percentile per-packet one-way delay: 0.964 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 124.36 Mbit/s
95th percentile per-packet one-way delay: 1.099 ms
Loss rate: 0.01%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-10-10 04:46:08

End at: 2018-10-10 04:46:38

Local clock offset: 7.358 ms

Remote clock offset: 2.23 ms

# Below is generated by plot.py at 2018-10-10 07:06:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 290.66 Mbit/s

95th percentile per-packet one-way delay: 2.228 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 156.99 Mbit/s

95th percentile per-packet one-way delay: 1.982 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 140.14 Mbit/s

95th percentile per-packet one-way delay: 3.392 ms

Loss rate: 0.04%

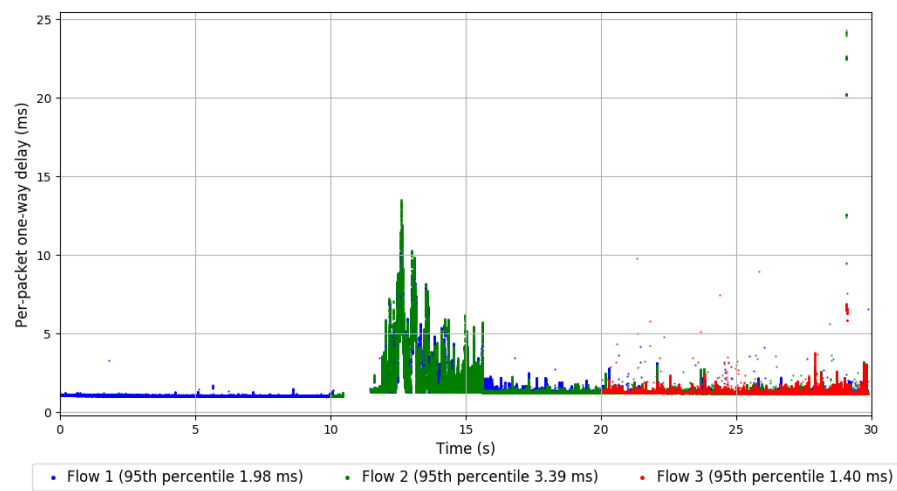
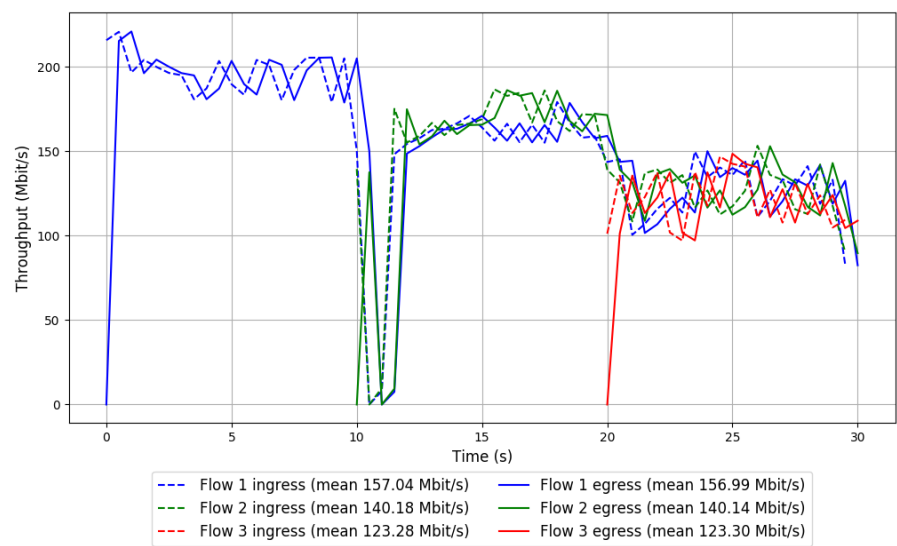
-- Flow 3:

Average throughput: 123.30 Mbit/s

95th percentile per-packet one-way delay: 1.398 ms

Loss rate: 0.03%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-10-10 05:14:02

End at: 2018-10-10 05:14:32

Local clock offset: 0.212 ms

Remote clock offset: 0.228 ms

# Below is generated by plot.py at 2018-10-10 07:06:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 296.31 Mbit/s

95th percentile per-packet one-way delay: 1.223 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 158.77 Mbit/s

95th percentile per-packet one-way delay: 1.165 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 147.94 Mbit/s

95th percentile per-packet one-way delay: 1.230 ms

Loss rate: 0.01%

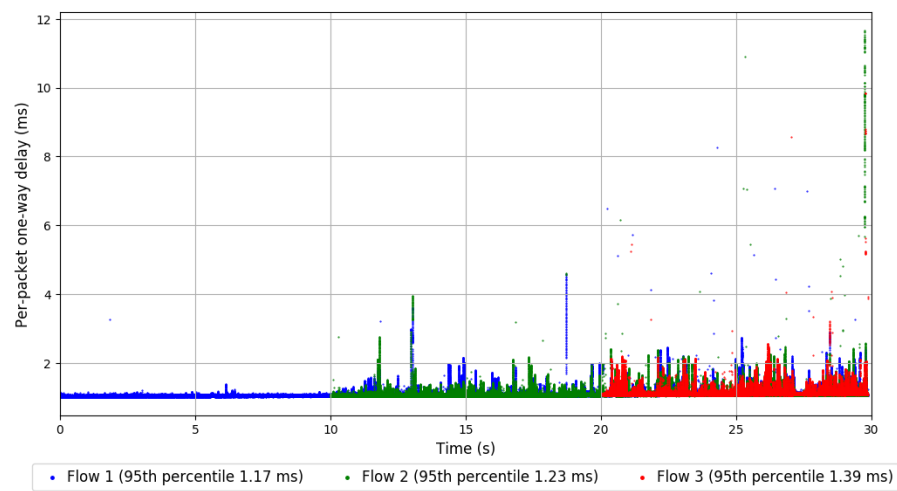
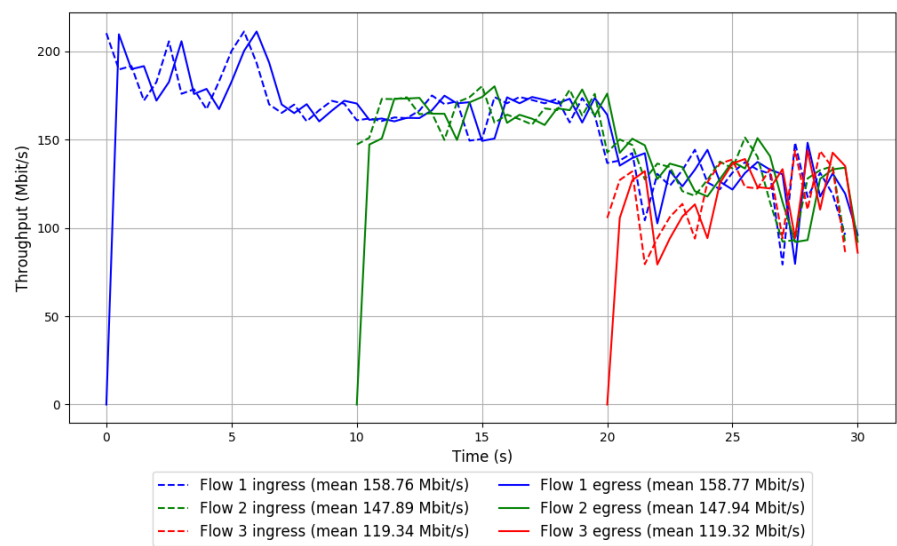
-- Flow 3:

Average throughput: 119.32 Mbit/s

95th percentile per-packet one-way delay: 1.386 ms

Loss rate: 0.01%

Run 3: Report of Indigo — Data Link

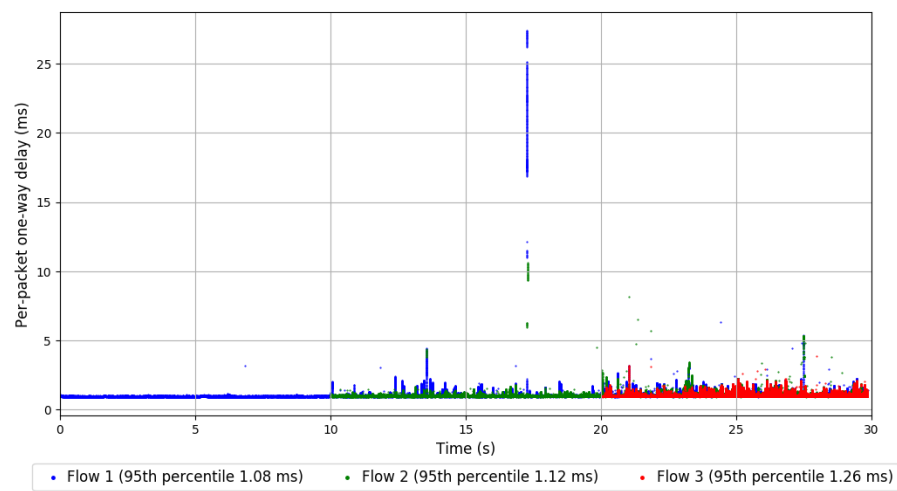
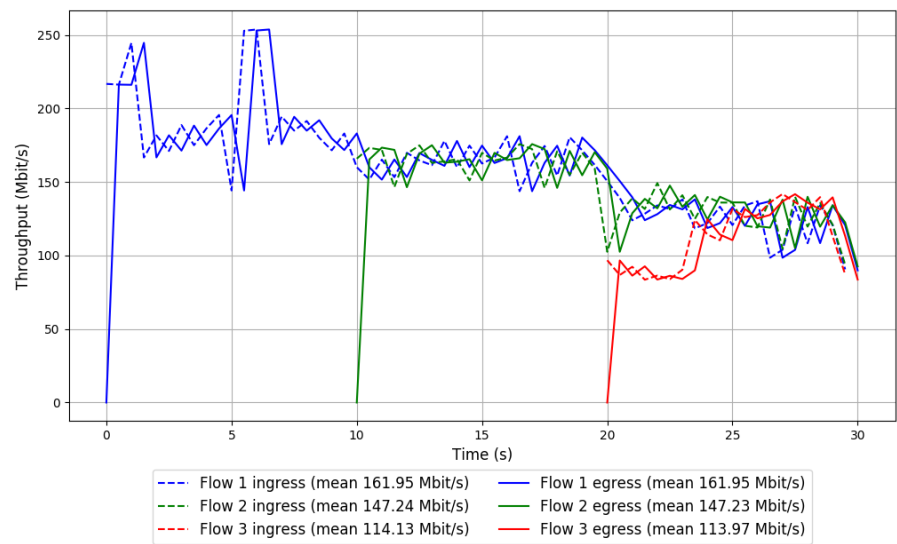


Run 4: Statistics of Indigo

Start at: 2018-10-10 05:41:51  
End at: 2018-10-10 05:42:21  
Local clock offset: -0.618 ms  
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2018-10-10 07:06:27  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 297.25 Mbit/s  
95th percentile per-packet one-way delay: 1.123 ms  
Loss rate: 0.03%  
-- Flow 1:  
Average throughput: 161.95 Mbit/s  
95th percentile per-packet one-way delay: 1.076 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 147.23 Mbit/s  
95th percentile per-packet one-way delay: 1.123 ms  
Loss rate: 0.02%  
-- Flow 3:  
Average throughput: 113.97 Mbit/s  
95th percentile per-packet one-way delay: 1.261 ms  
Loss rate: 0.16%

Run 4: Report of Indigo — Data Link



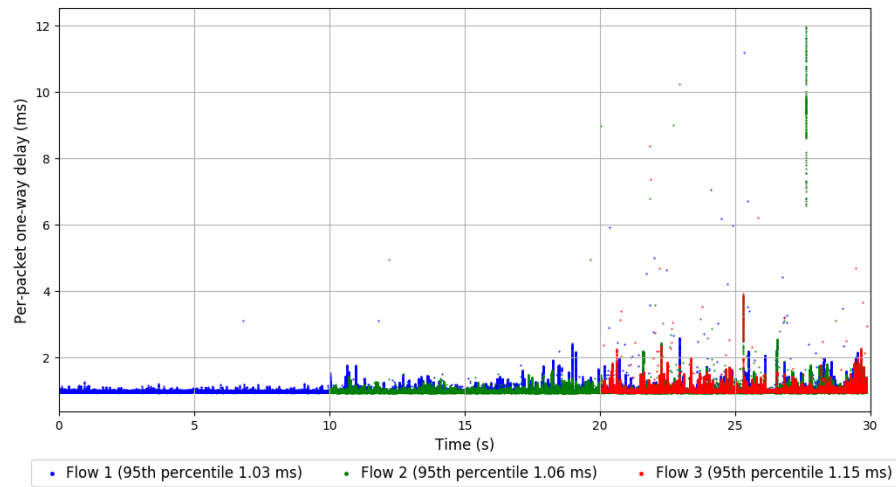
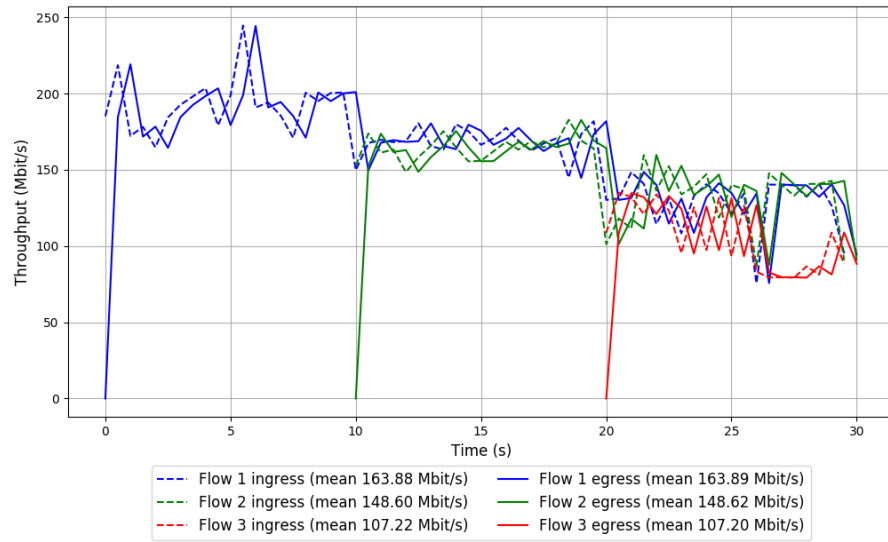


Run 5: Statistics of Indigo

Start at: 2018-10-10 06:09:33  
End at: 2018-10-10 06:10:03  
Local clock offset: -0.25 ms  
Remote clock offset: -0.174 ms

# Below is generated by plot.py at 2018-10-10 07:06:27  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 298.00 Mbit/s  
95th percentile per-packet one-way delay: 1.057 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 163.89 Mbit/s  
95th percentile per-packet one-way delay: 1.028 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 148.62 Mbit/s  
95th percentile per-packet one-way delay: 1.060 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 107.20 Mbit/s  
95th percentile per-packet one-way delay: 1.148 ms  
Loss rate: 0.00%

## Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-10 04:29:17

End at: 2018-10-10 04:29:47

Local clock offset: 5.437 ms

Remote clock offset: 4.603 ms

# Below is generated by plot.py at 2018-10-10 07:06:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 241.35 Mbit/s

95th percentile per-packet one-way delay: 1.016 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 127.70 Mbit/s

95th percentile per-packet one-way delay: 0.982 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 73.52 Mbit/s

95th percentile per-packet one-way delay: 0.981 ms

Loss rate: 0.01%

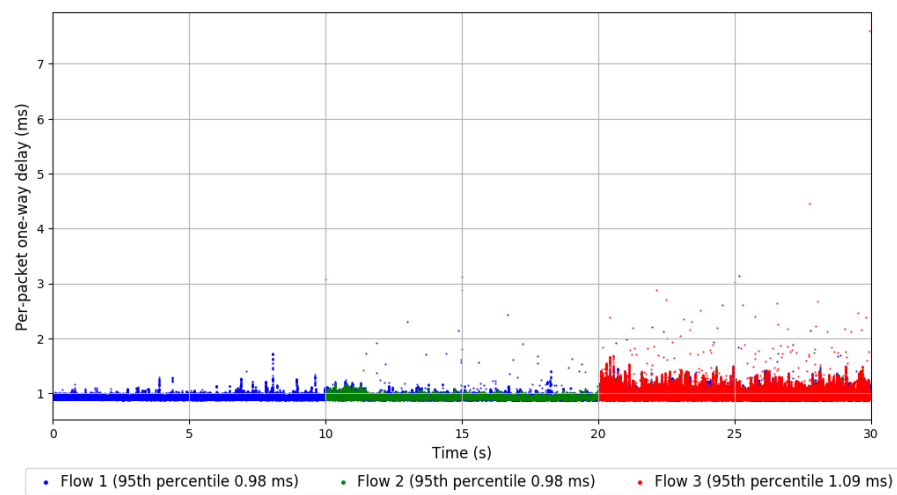
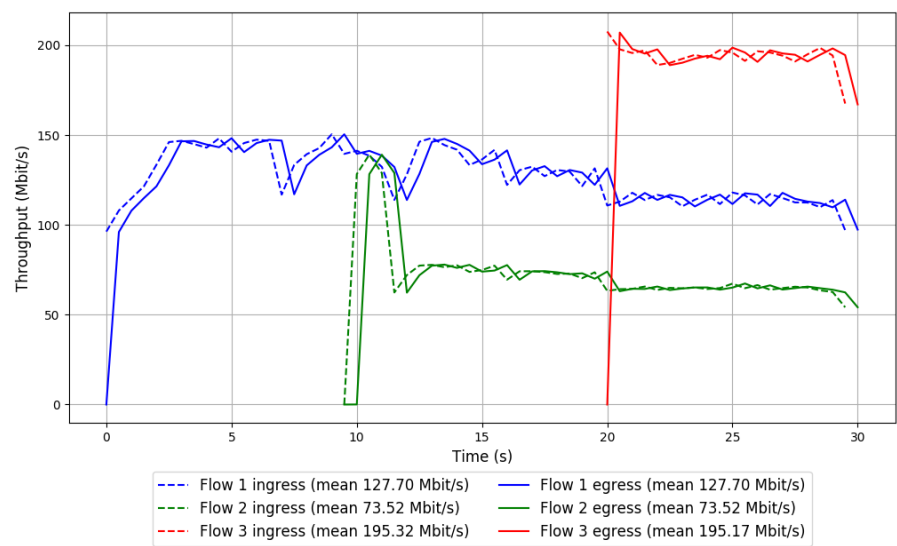
-- Flow 3:

Average throughput: 195.17 Mbit/s

95th percentile per-packet one-way delay: 1.088 ms

Loss rate: 0.02%

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



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-10 04:57:08

End at: 2018-10-10 04:57:38

Local clock offset: 6.298 ms

Remote clock offset: 0.678 ms

# Below is generated by plot.py at 2018-10-10 07:06:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 348.03 Mbit/s

95th percentile per-packet one-way delay: 1.845 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 230.56 Mbit/s

95th percentile per-packet one-way delay: 1.836 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 118.77 Mbit/s

95th percentile per-packet one-way delay: 1.837 ms

Loss rate: 0.00%

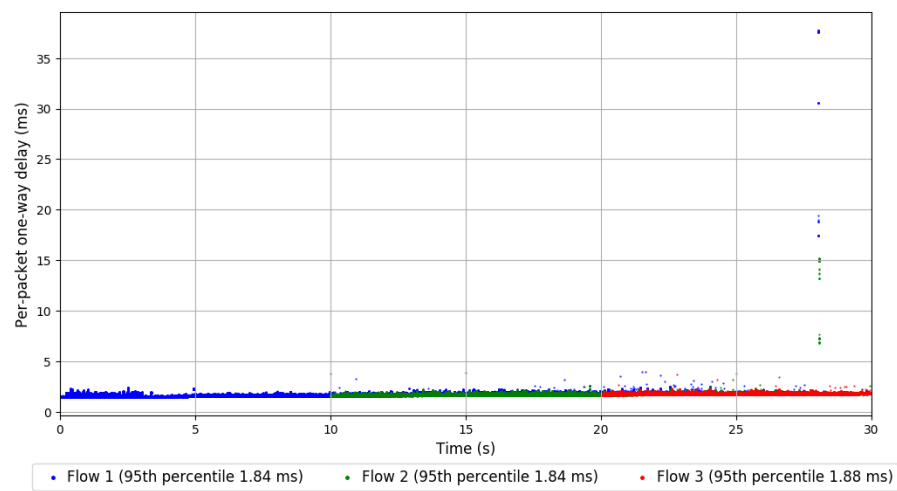
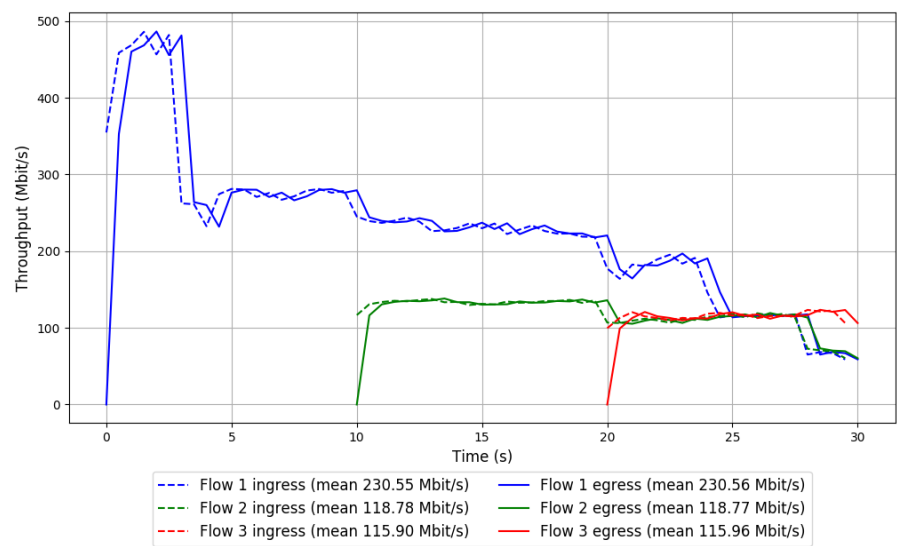
-- Flow 3:

Average throughput: 115.96 Mbit/s

95th percentile per-packet one-way delay: 1.879 ms

Loss rate: 0.01%

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

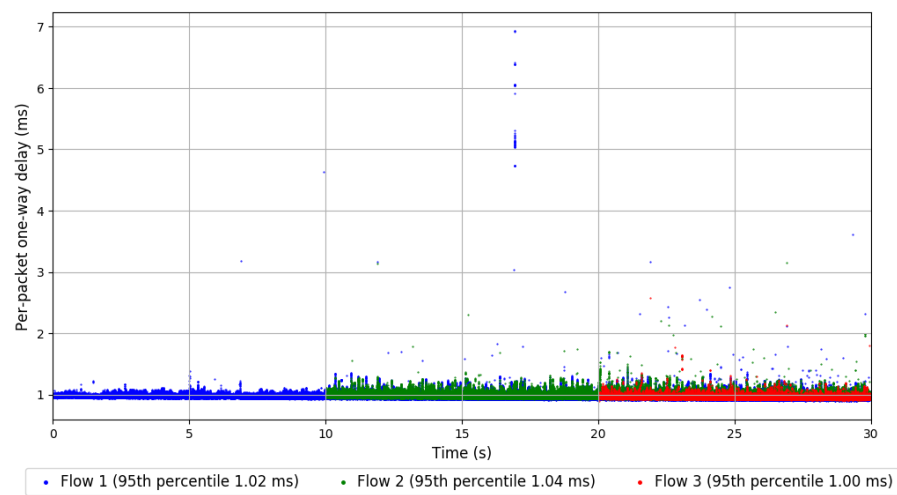
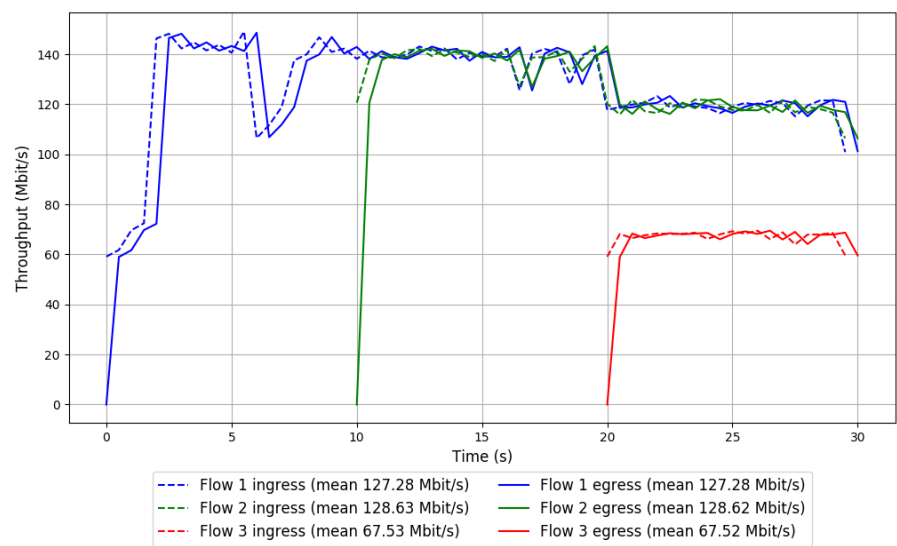


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-10 05:24:53  
End at: 2018-10-10 05:25:23  
Local clock offset: -0.892 ms  
Remote clock offset: -0.025 ms

# Below is generated by plot.py at 2018-10-10 07:06:27  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 235.25 Mbit/s  
95th percentile per-packet one-way delay: 1.030 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 127.28 Mbit/s  
95th percentile per-packet one-way delay: 1.025 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 128.62 Mbit/s  
95th percentile per-packet one-way delay: 1.041 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 67.52 Mbit/s  
95th percentile per-packet one-way delay: 1.002 ms  
Loss rate: 0.01%

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



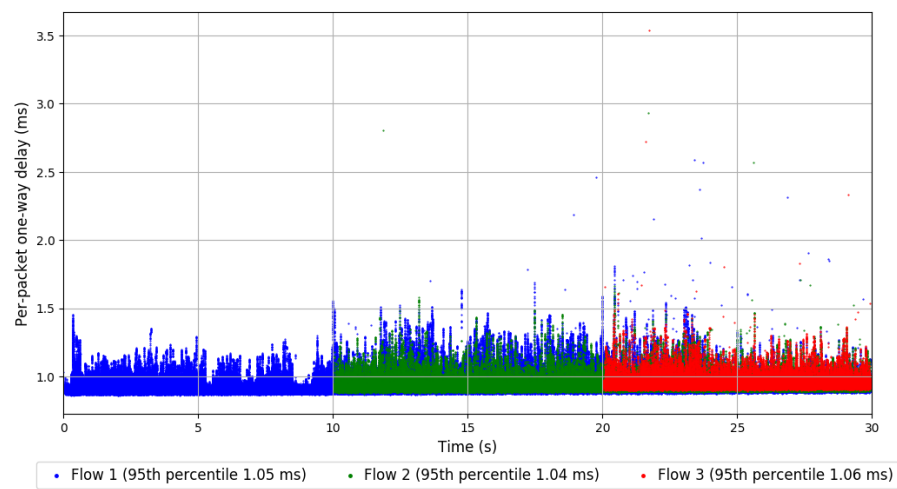
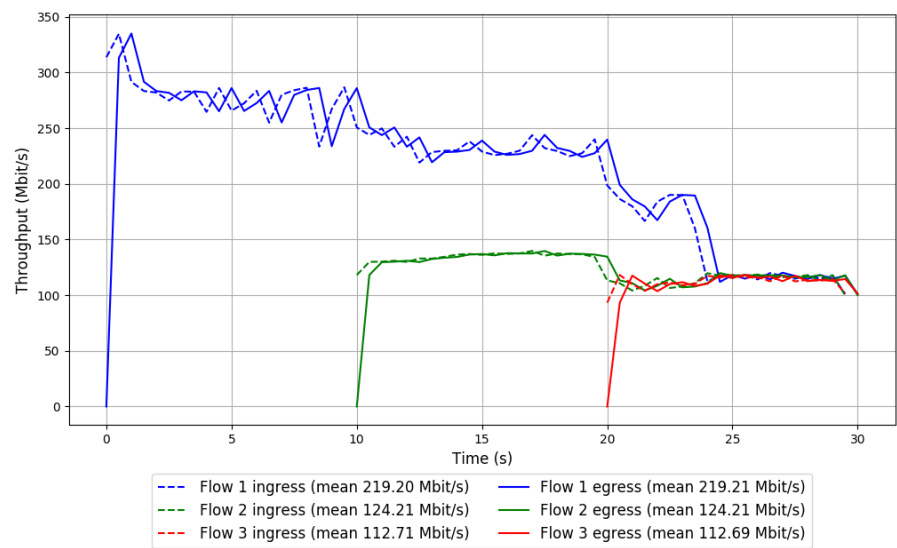


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-10 05:52:37  
End at: 2018-10-10 05:53:07  
Local clock offset: -0.894 ms  
Remote clock offset: -0.036 ms

# Below is generated by plot.py at 2018-10-10 07:06:27  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 339.19 Mbit/s  
95th percentile per-packet one-way delay: 1.049 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 219.21 Mbit/s  
95th percentile per-packet one-way delay: 1.052 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 124.21 Mbit/s  
95th percentile per-packet one-way delay: 1.038 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 112.69 Mbit/s  
95th percentile per-packet one-way delay: 1.057 ms  
Loss rate: 0.02%

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

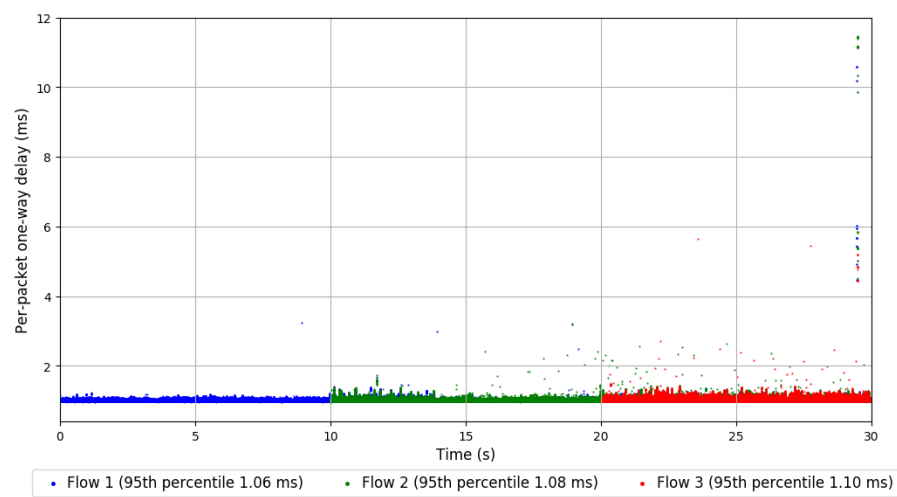
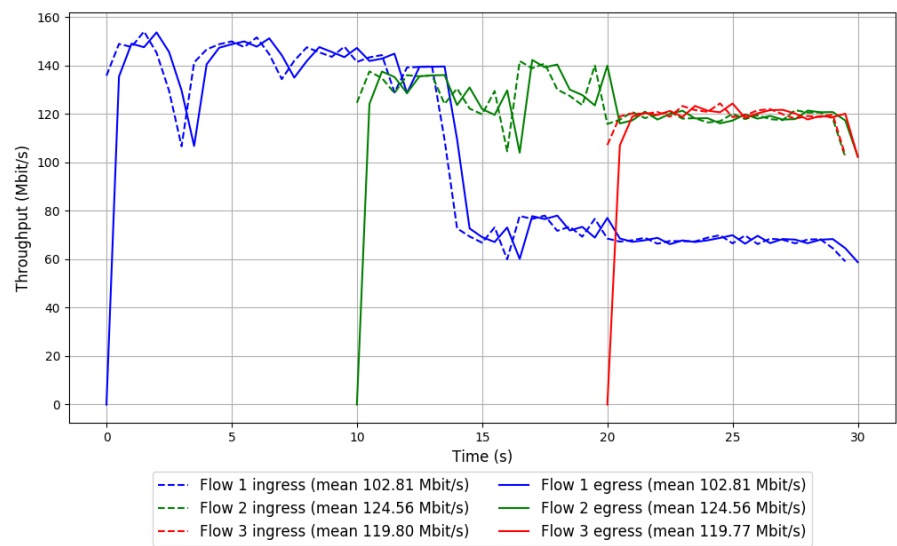


Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-10 06:20:26  
End at: 2018-10-10 06:20:56  
Local clock offset: -0.322 ms  
Remote clock offset: -0.204 ms

# Below is generated by plot.py at 2018-10-10 07:06:27  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 225.39 Mbit/s  
95th percentile per-packet one-way delay: 1.074 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 102.81 Mbit/s  
95th percentile per-packet one-way delay: 1.057 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 124.56 Mbit/s  
95th percentile per-packet one-way delay: 1.080 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 119.77 Mbit/s  
95th percentile per-packet one-way delay: 1.100 ms  
Loss rate: 0.03%

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

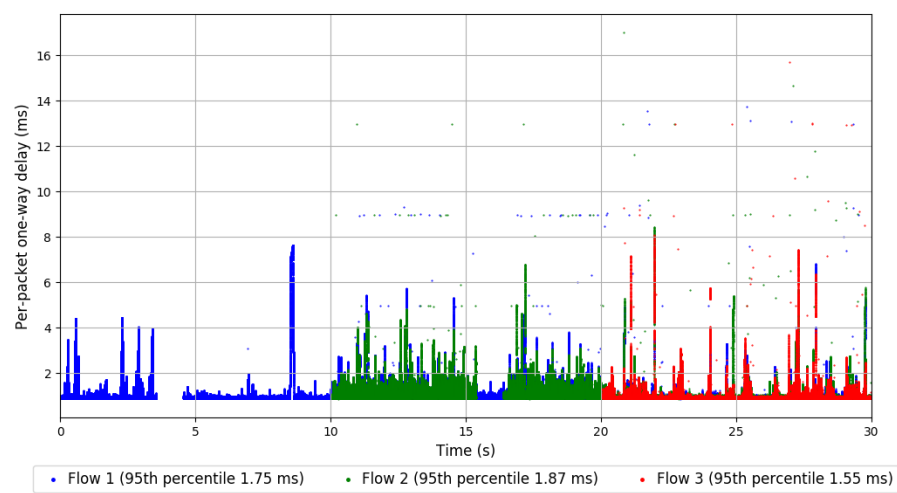
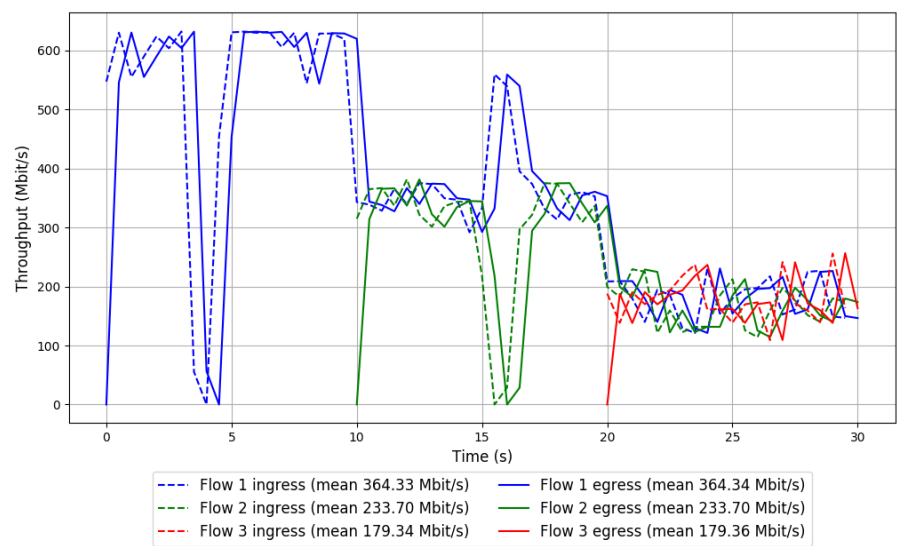


```
Run 1: Statistics of LEDBAT

Start at: 2018-10-10 04:30:44
End at: 2018-10-10 04:31:14
Local clock offset: 5.601 ms
Remote clock offset: 4.75 ms

# Below is generated by plot.py at 2018-10-10 07:08:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 579.45 Mbit/s
95th percentile per-packet one-way delay: 1.767 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 364.34 Mbit/s
95th percentile per-packet one-way delay: 1.746 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 233.70 Mbit/s
95th percentile per-packet one-way delay: 1.870 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 179.36 Mbit/s
95th percentile per-packet one-way delay: 1.549 ms
Loss rate: 0.01%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-10-10 04:58:39

End at: 2018-10-10 04:59:09

Local clock offset: 5.226 ms

Remote clock offset: 0.603 ms

# Below is generated by plot.py at 2018-10-10 07:09:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 583.61 Mbit/s

95th percentile per-packet one-way delay: 2.401 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 337.04 Mbit/s

95th percentile per-packet one-way delay: 2.418 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 266.78 Mbit/s

95th percentile per-packet one-way delay: 2.476 ms

Loss rate: 0.01%

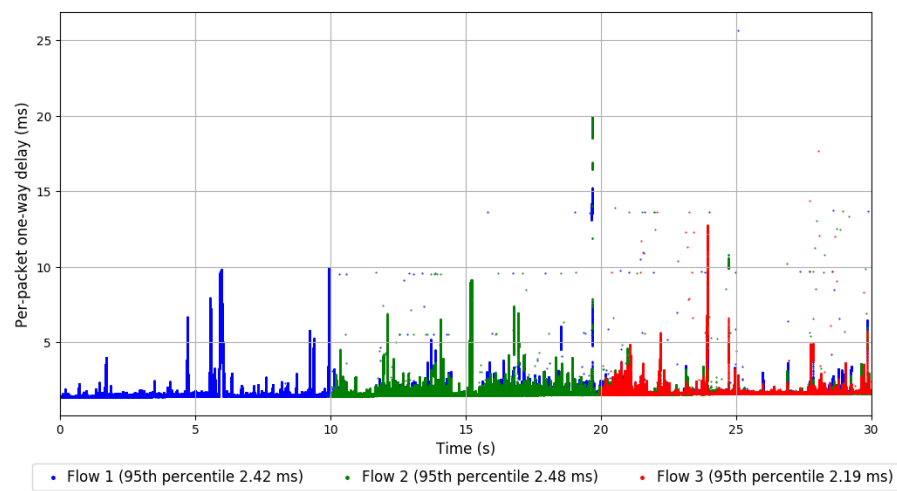
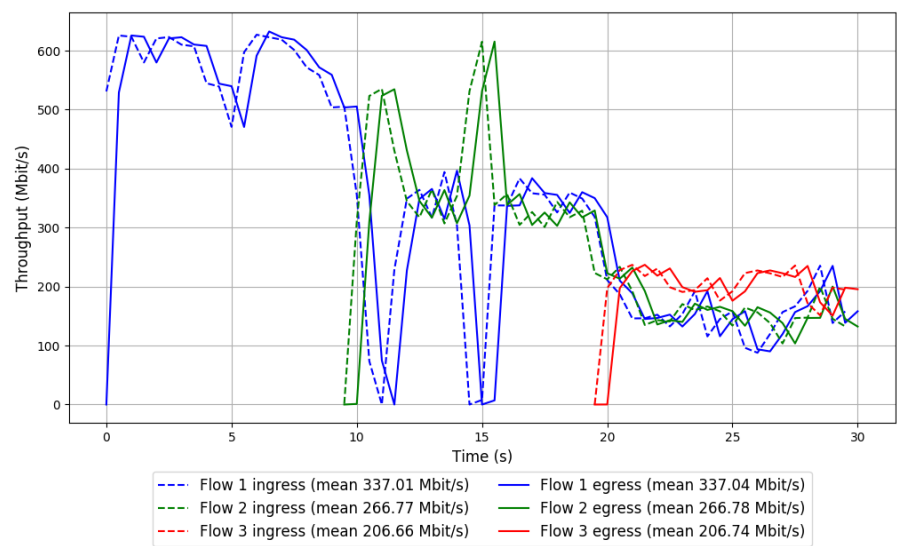
-- Flow 3:

Average throughput: 206.74 Mbit/s

95th percentile per-packet one-way delay: 2.185 ms

Loss rate: 0.00%

Run 2: Report of LEDBAT — Data Link



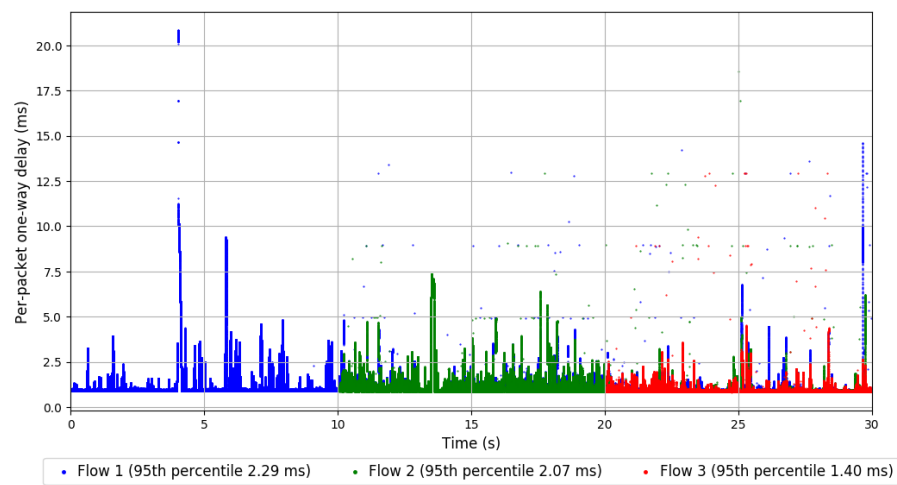
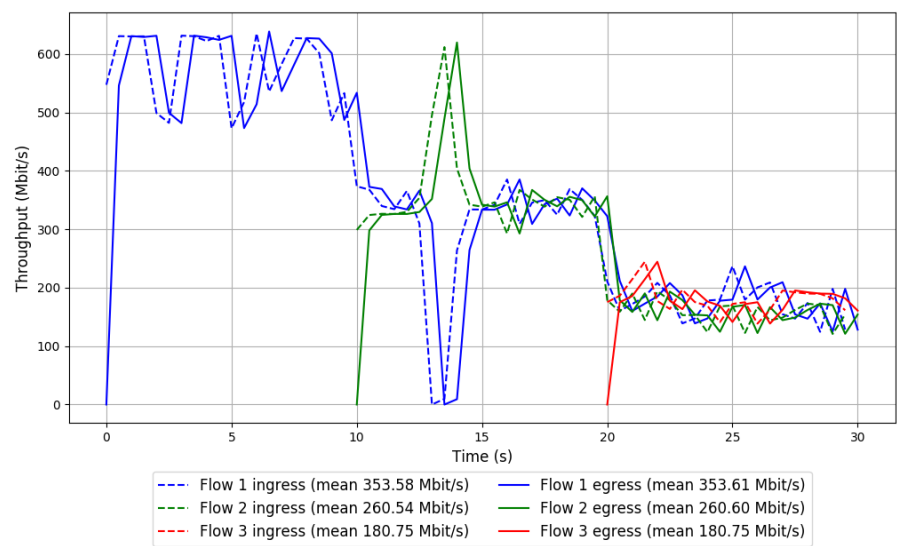


Run 3: Statistics of LEDBAT

Start at: 2018-10-10 05:26:20  
End at: 2018-10-10 05:26:50  
Local clock offset: -0.825 ms  
Remote clock offset: -0.029 ms

# Below is generated by plot.py at 2018-10-10 07:09:41  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 587.18 Mbit/s  
95th percentile per-packet one-way delay: 2.099 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 353.61 Mbit/s  
95th percentile per-packet one-way delay: 2.295 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 260.60 Mbit/s  
95th percentile per-packet one-way delay: 2.074 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 180.75 Mbit/s  
95th percentile per-packet one-way delay: 1.399 ms  
Loss rate: 0.02%

Run 3: Report of LEDBAT — Data Link

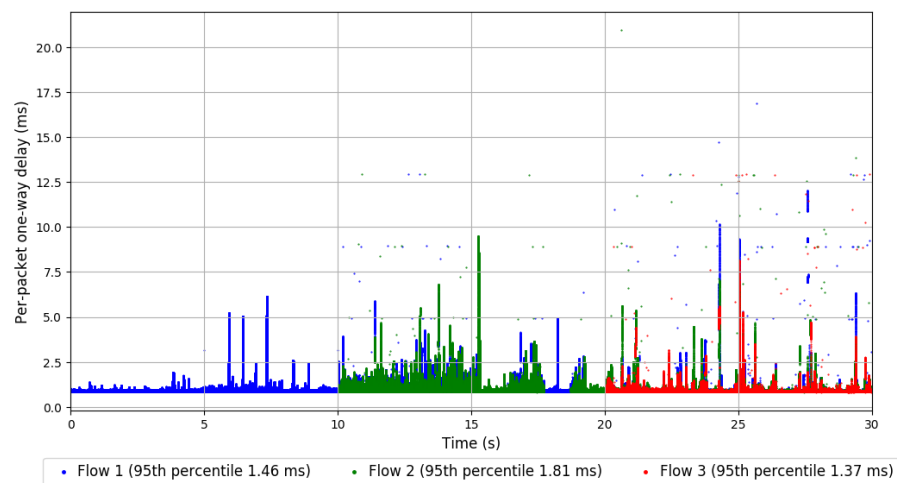
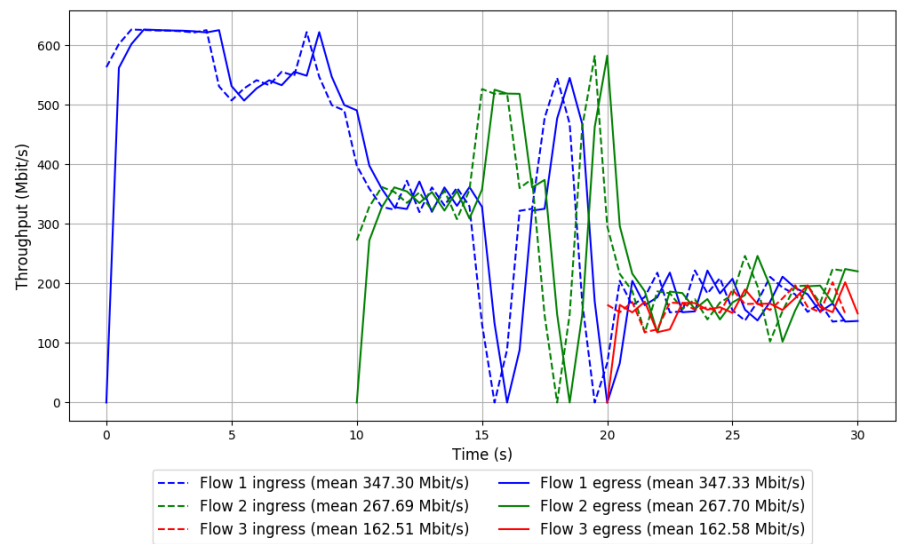


Run 4: Statistics of LEDBAT

Start at: 2018-10-10 05:54:08  
End at: 2018-10-10 05:54:38  
Local clock offset: -0.971 ms  
Remote clock offset: -0.047 ms

# Below is generated by plot.py at 2018-10-10 07:10:42  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 579.58 Mbit/s  
95th percentile per-packet one-way delay: 1.546 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 347.33 Mbit/s  
95th percentile per-packet one-way delay: 1.456 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 267.70 Mbit/s  
95th percentile per-packet one-way delay: 1.807 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 162.58 Mbit/s  
95th percentile per-packet one-way delay: 1.371 ms  
Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link

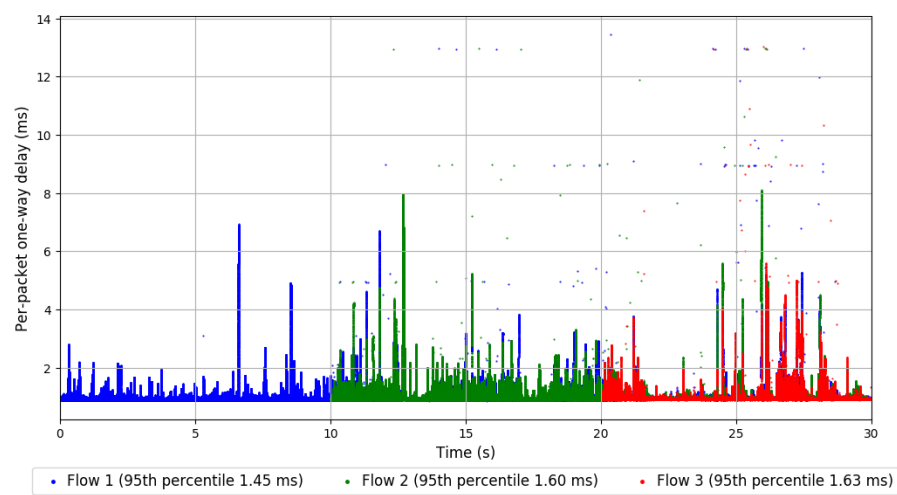
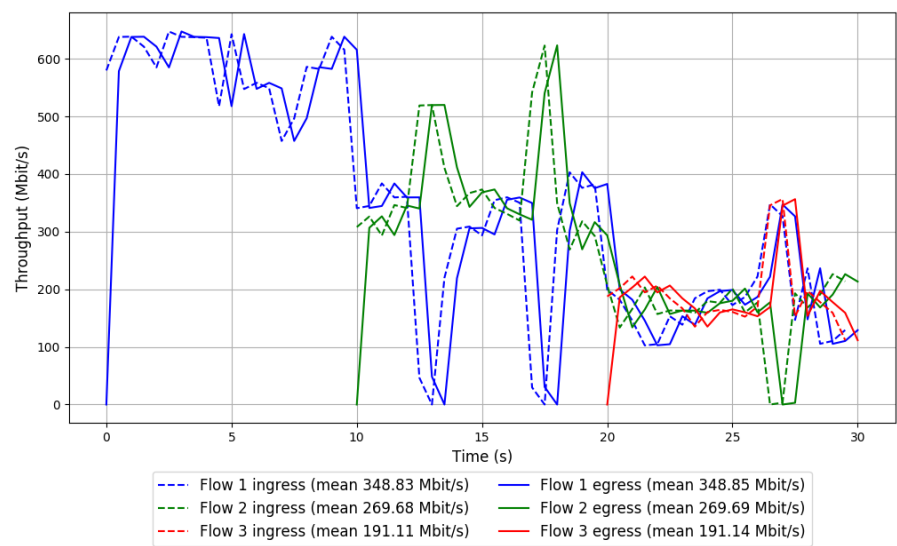


Run 5: Statistics of LEDBAT

Start at: 2018-10-10 06:21:53  
End at: 2018-10-10 06:22:23  
Local clock offset: -0.347 ms  
Remote clock offset: -0.089 ms

# Below is generated by plot.py at 2018-10-10 07:12:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 591.96 Mbit/s  
95th percentile per-packet one-way delay: 1.505 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 348.85 Mbit/s  
95th percentile per-packet one-way delay: 1.452 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 269.69 Mbit/s  
95th percentile per-packet one-way delay: 1.603 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 191.14 Mbit/s  
95th percentile per-packet one-way delay: 1.626 ms  
Loss rate: 0.01%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-10-10 04:13:59

End at: 2018-10-10 04:14:29

Local clock offset: 3.352 ms

Remote clock offset: 2.478 ms

# Below is generated by plot.py at 2018-10-10 07:12:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 86.68 Mbit/s

95th percentile per-packet one-way delay: 0.952 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 42.61 Mbit/s

95th percentile per-packet one-way delay: 0.953 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 42.90 Mbit/s

95th percentile per-packet one-way delay: 0.954 ms

Loss rate: 0.00%

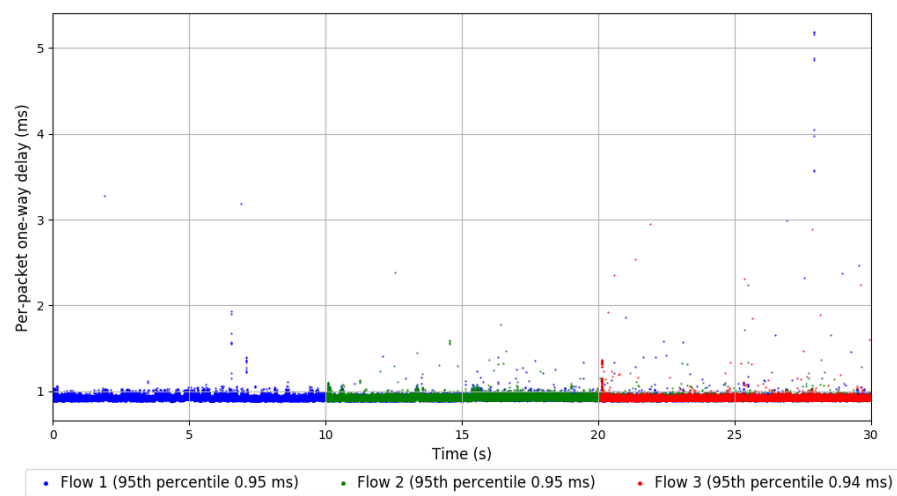
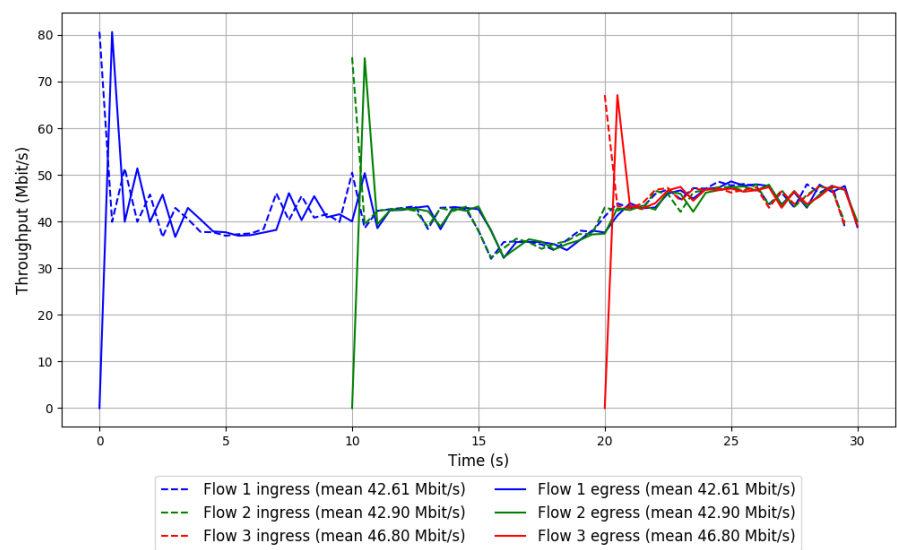
-- Flow 3:

Average throughput: 46.80 Mbit/s

95th percentile per-packet one-way delay: 0.944 ms

Loss rate: 0.01%

Run 1: Report of Indigo-Muses — Data Link





Run 2: Statistics of Indigo-Muses

Start at: 2018-10-10 04:41:44

End at: 2018-10-10 04:42:14

Local clock offset: 6.737 ms

Remote clock offset: 3.669 ms

# Below is generated by plot.py at 2018-10-10 07:12:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 84.58 Mbit/s

95th percentile per-packet one-way delay: 1.110 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 42.31 Mbit/s

95th percentile per-packet one-way delay: 1.130 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 34.20 Mbit/s

95th percentile per-packet one-way delay: 1.056 ms

Loss rate: 0.00%

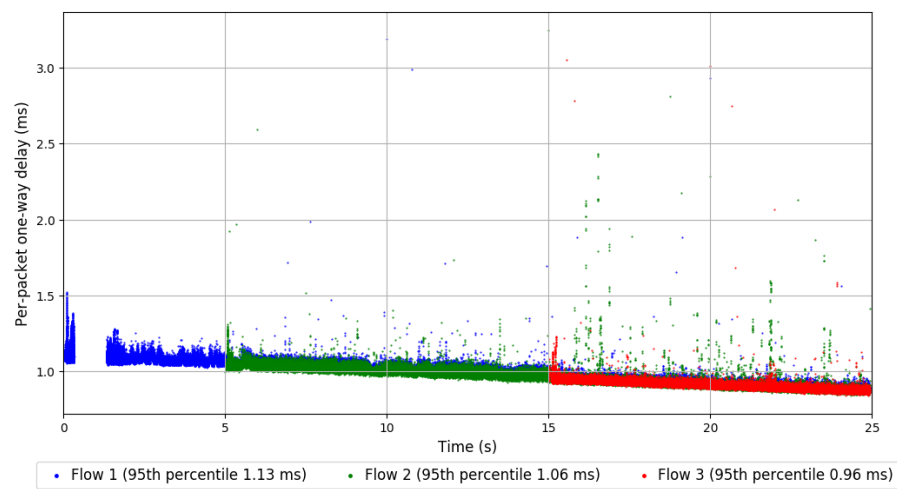
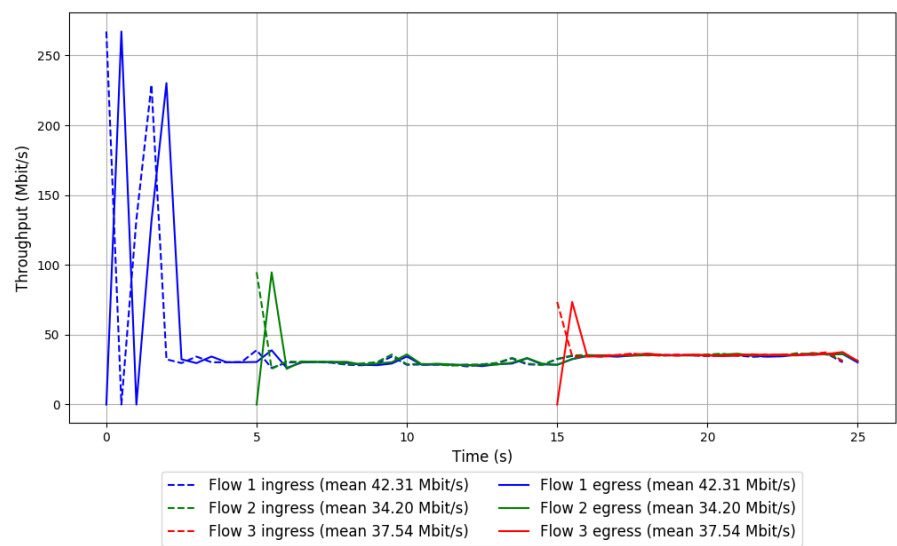
-- Flow 3:

Average throughput: 37.54 Mbit/s

95th percentile per-packet one-way delay: 0.961 ms

Loss rate: 0.00%

Run 2: Report of Indigo-Muses — Data Link



### Run 3: Statistics of Indigo-Muses

Start at: 2018-10-10 05:09:45

End at: 2018-10-10 05:10:15

Local clock offset: 0.968 ms

Remote clock offset: 0.389 ms

# Below is generated by plot.py at 2018-10-10 07:12:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 86.74 Mbit/s

95th percentile per-packet one-way delay: 1.136 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 42.14 Mbit/s

95th percentile per-packet one-way delay: 1.129 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 43.62 Mbit/s

95th percentile per-packet one-way delay: 1.128 ms

Loss rate: 0.01%

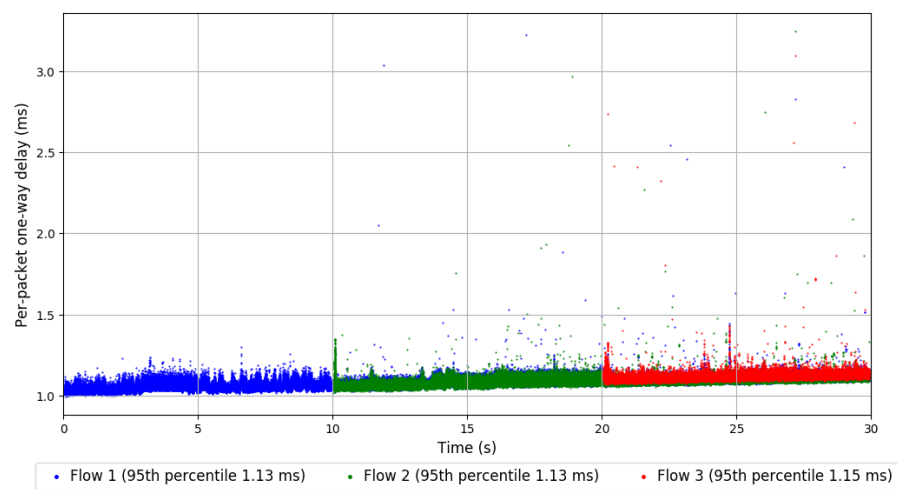
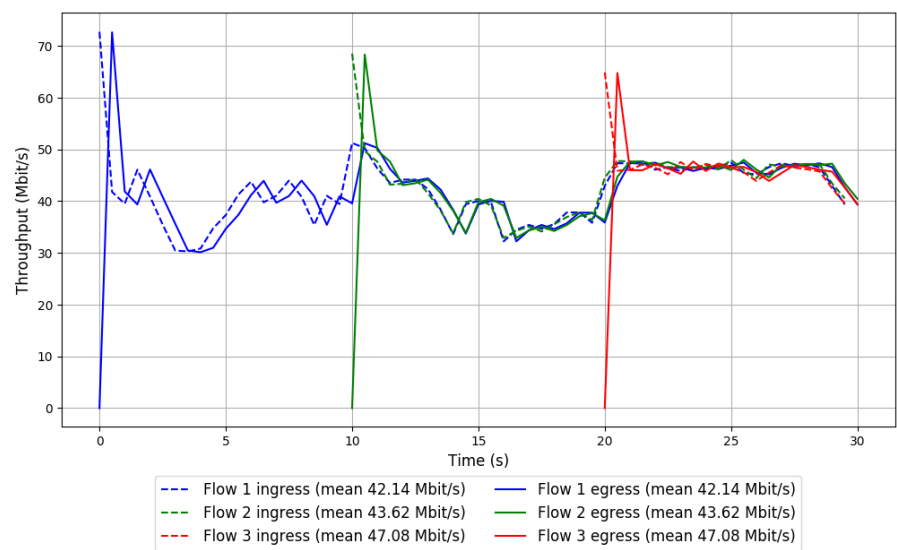
-- Flow 3:

Average throughput: 47.08 Mbit/s

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

Loss rate: 0.01%

Run 3: Report of Indigo-Muses — Data Link

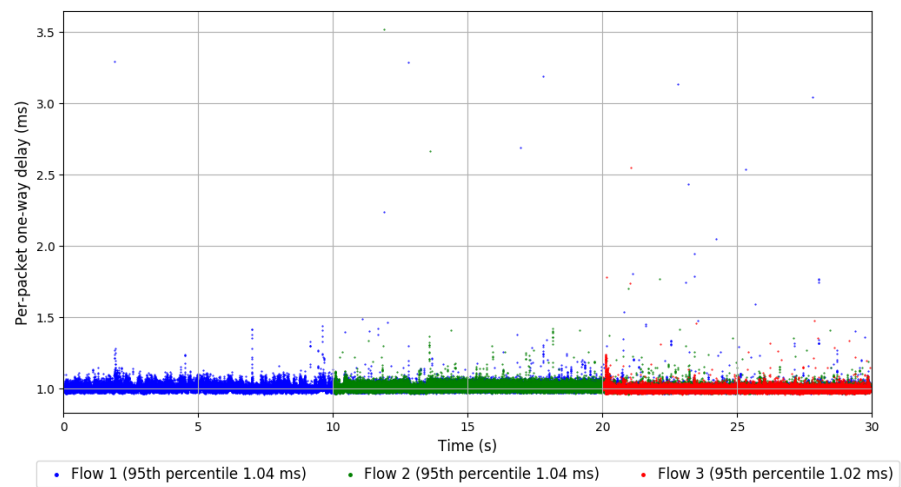
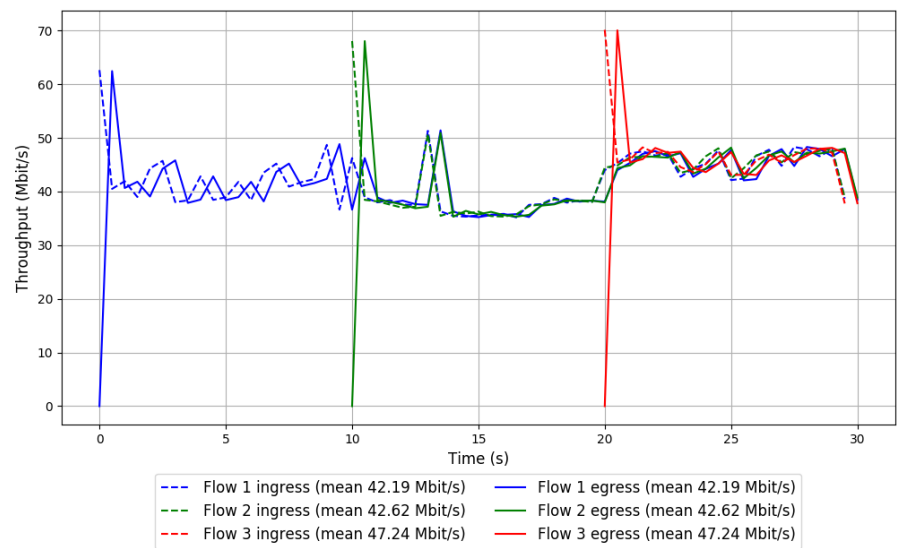


Run 4: Statistics of Indigo-Muses

Start at: 2018-10-10 05:37:26  
End at: 2018-10-10 05:37:56  
Local clock offset: -0.566 ms  
Remote clock offset: -0.095 ms

# Below is generated by plot.py at 2018-10-10 07:12:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 86.20 Mbit/s  
95th percentile per-packet one-way delay: 1.038 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 42.19 Mbit/s  
95th percentile per-packet one-way delay: 1.042 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 42.62 Mbit/s  
95th percentile per-packet one-way delay: 1.039 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 47.24 Mbit/s  
95th percentile per-packet one-way delay: 1.022 ms  
Loss rate: 0.01%

Run 4: Report of Indigo-Muses — Data Link

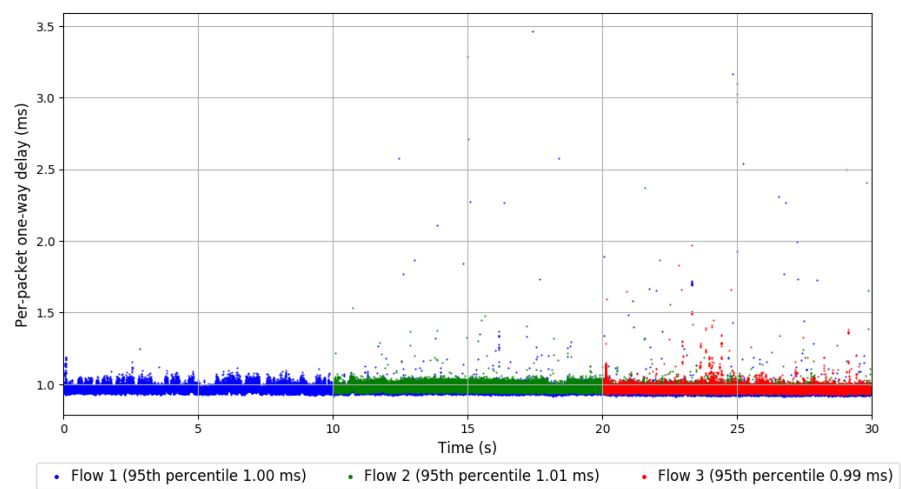
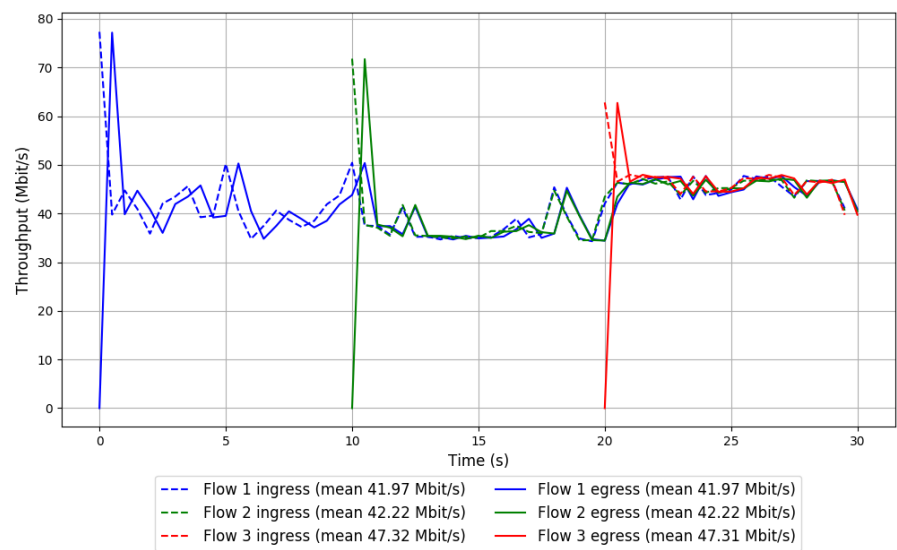


Run 5: Statistics of Indigo-Muses

Start at: 2018-10-10 06:05:11  
End at: 2018-10-10 06:05:41  
Local clock offset: -0.312 ms  
Remote clock offset: -0.156 ms

# Below is generated by plot.py at 2018-10-10 07:12:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 85.74 Mbit/s  
95th percentile per-packet one-way delay: 1.001 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 41.97 Mbit/s  
95th percentile per-packet one-way delay: 0.999 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 42.22 Mbit/s  
95th percentile per-packet one-way delay: 1.006 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 47.31 Mbit/s  
95th percentile per-packet one-way delay: 0.993 ms  
Loss rate: 0.01%

Run 5: Report of Indigo-Muses — Data Link



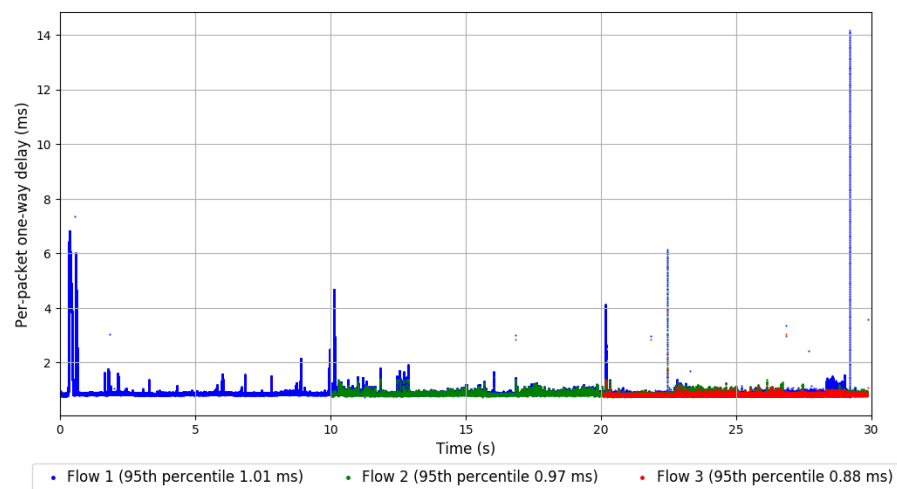
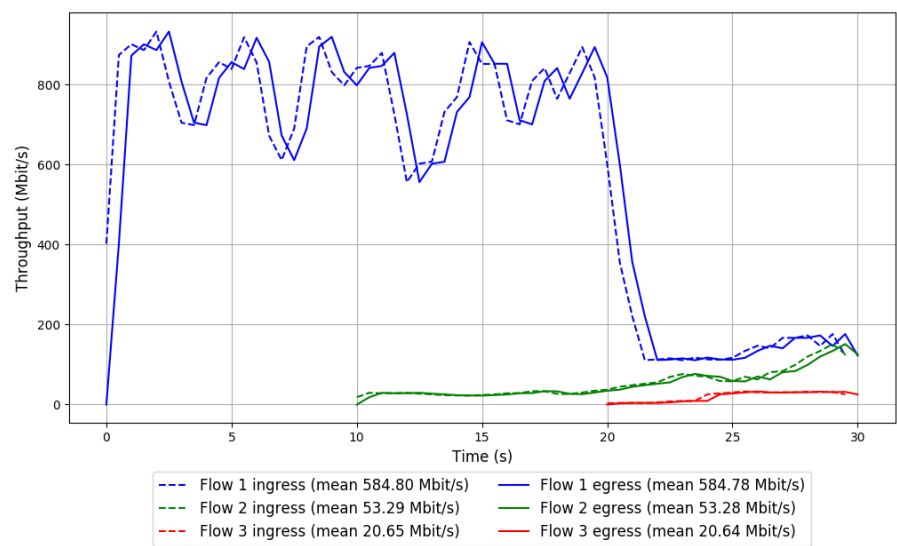


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-10 04:19:57
End at: 2018-10-10 04:20:27
Local clock offset: 4.294 ms
Remote clock offset: 3.559 ms

# Below is generated by plot.py at 2018-10-10 07:14:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 626.94 Mbit/s
95th percentile per-packet one-way delay: 1.004 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 584.78 Mbit/s
95th percentile per-packet one-way delay: 1.011 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 53.28 Mbit/s
95th percentile per-packet one-way delay: 0.966 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 20.64 Mbit/s
95th percentile per-packet one-way delay: 0.879 ms
Loss rate: 0.03%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-10-10 04:47:39

End at: 2018-10-10 04:48:09

Local clock offset: 7.307 ms

Remote clock offset: 1.942 ms

# Below is generated by plot.py at 2018-10-10 07:16:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 676.73 Mbit/s

95th percentile per-packet one-way delay: 1.505 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 511.36 Mbit/s

95th percentile per-packet one-way delay: 1.604 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 184.40 Mbit/s

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

Loss rate: 0.02%

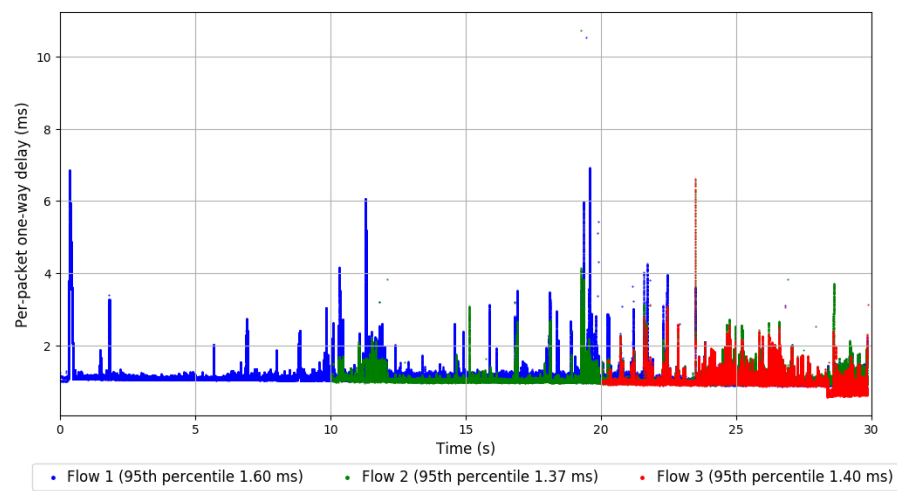
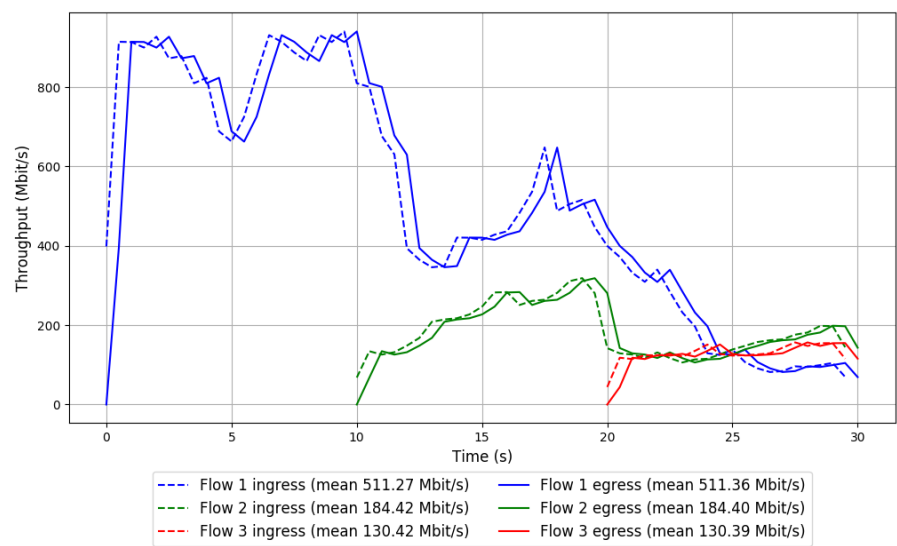
-- Flow 3:

Average throughput: 130.39 Mbit/s

95th percentile per-packet one-way delay: 1.402 ms

Loss rate: 0.00%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-10-10 05:15:34

End at: 2018-10-10 05:16:04

Local clock offset: 0.053 ms

Remote clock offset: 0.178 ms

# Below is generated by plot.py at 2018-10-10 07:16:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 332.16 Mbit/s

95th percentile per-packet one-way delay: 1.407 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 181.88 Mbit/s

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

Loss rate: 0.02%

-- Flow 2:

Average throughput: 199.58 Mbit/s

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

Loss rate: 0.01%

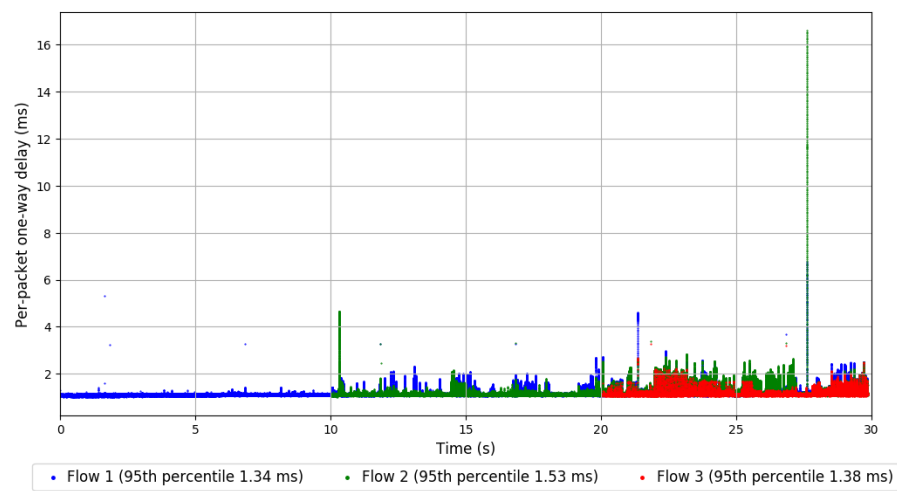
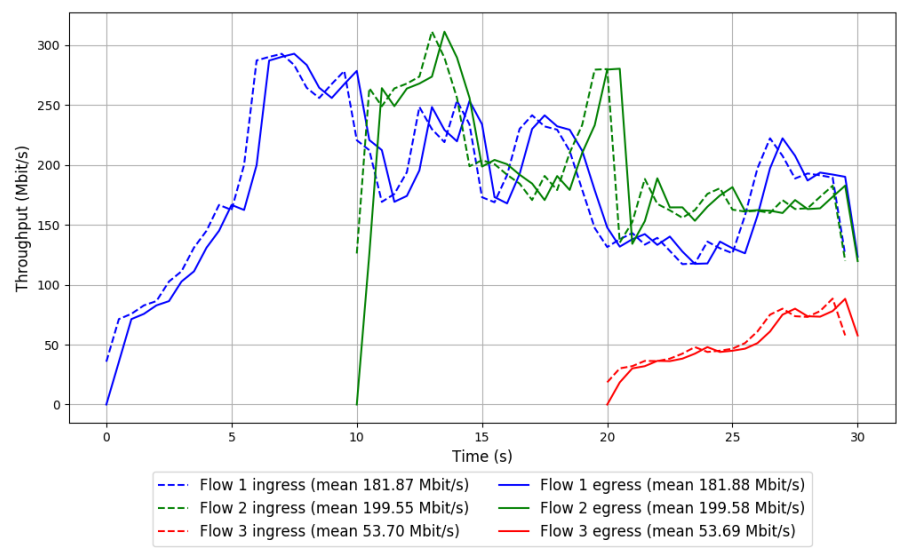
-- Flow 3:

Average throughput: 53.69 Mbit/s

95th percentile per-packet one-way delay: 1.377 ms

Loss rate: 0.03%

Run 3: Report of PCC-Allegro — Data Link

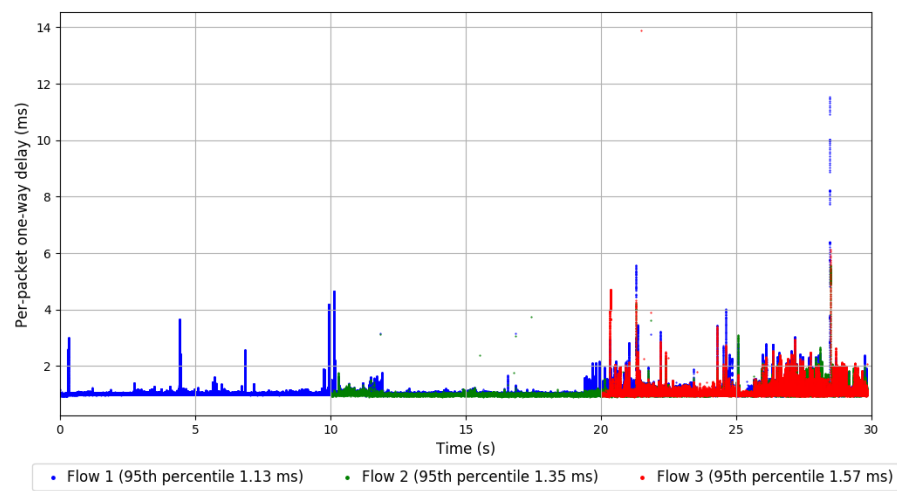
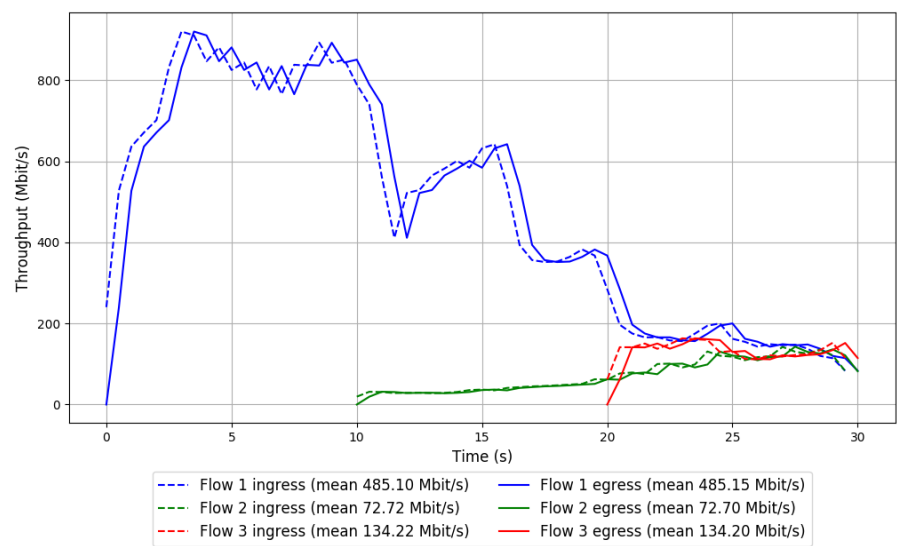


Run 4: Statistics of PCC-Allegro

Start at: 2018-10-10 05:43:23  
End at: 2018-10-10 05:43:53  
Local clock offset: -0.647 ms  
Remote clock offset: -0.085 ms

# Below is generated by plot.py at 2018-10-10 07:16:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 577.57 Mbit/s  
95th percentile per-packet one-way delay: 1.197 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 485.15 Mbit/s  
95th percentile per-packet one-way delay: 1.129 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 72.70 Mbit/s  
95th percentile per-packet one-way delay: 1.351 ms  
Loss rate: 0.03%  
-- Flow 3:  
Average throughput: 134.20 Mbit/s  
95th percentile per-packet one-way delay: 1.570 ms  
Loss rate: 0.02%

Run 4: Report of PCC-Allegro — Data Link



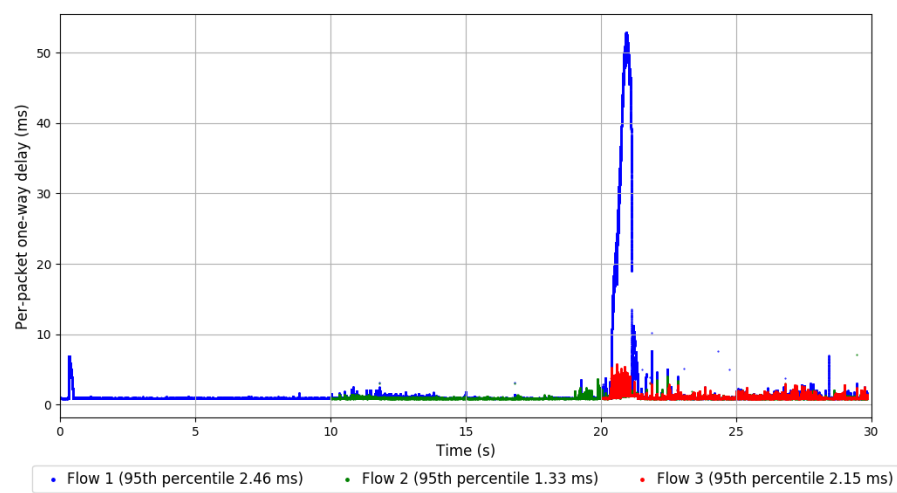
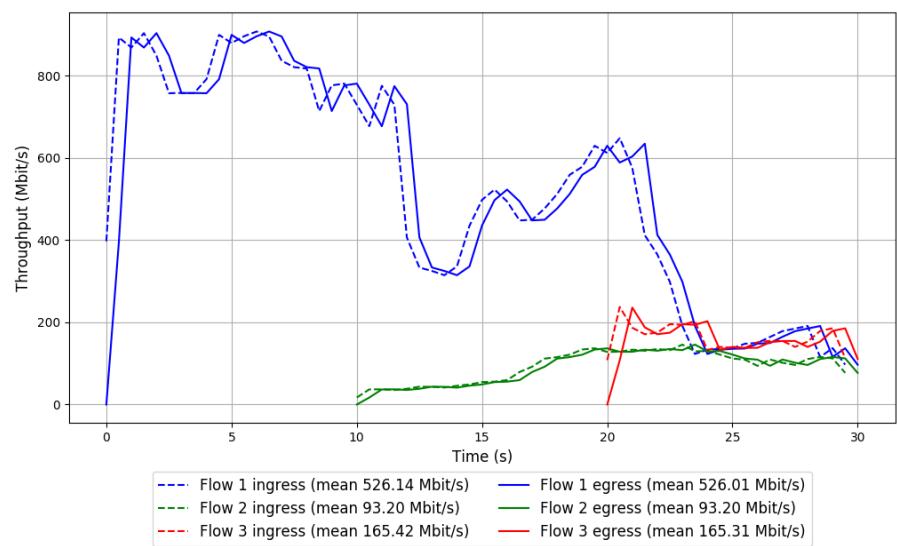


Run 5: Statistics of PCC-Allegro

Start at: 2018-10-10 06:11:04  
End at: 2018-10-10 06:11:34  
Local clock offset: -0.247 ms  
Remote clock offset: -0.079 ms

# Below is generated by plot.py at 2018-10-10 07:17:18  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 642.34 Mbit/s  
95th percentile per-packet one-way delay: 1.967 ms  
Loss rate: 0.03%  
-- Flow 1:  
Average throughput: 526.01 Mbit/s  
95th percentile per-packet one-way delay: 2.465 ms  
Loss rate: 0.03%  
-- Flow 2:  
Average throughput: 93.20 Mbit/s  
95th percentile per-packet one-way delay: 1.330 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 165.31 Mbit/s  
95th percentile per-packet one-way delay: 2.150 ms  
Loss rate: 0.08%

Run 5: Report of PCC-Allegro — Data Link

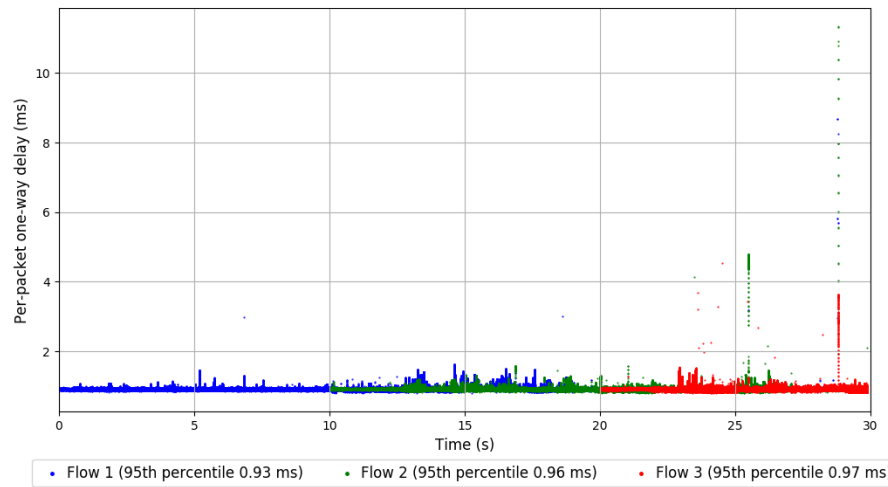
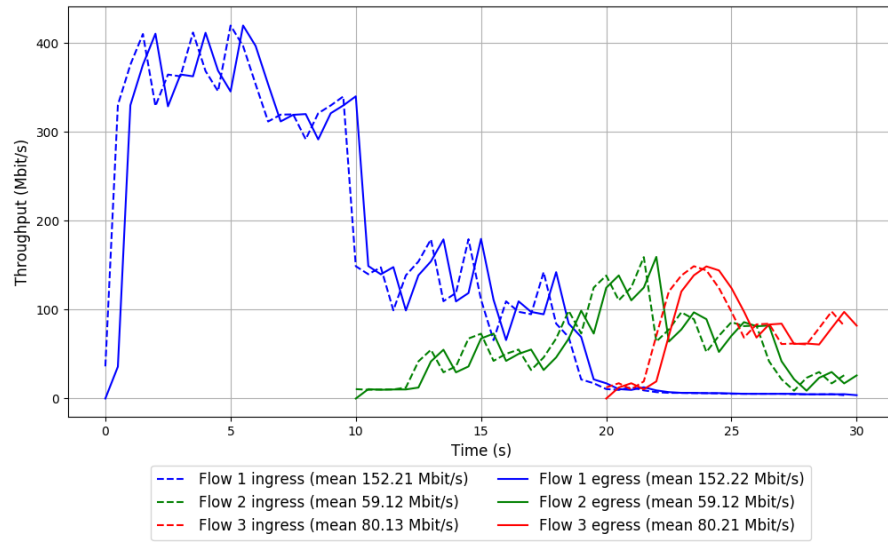


```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-10 04:16:52
End at: 2018-10-10 04:17:22
Local clock offset: 3.845 ms
Remote clock offset: 3.024 ms

# Below is generated by plot.py at 2018-10-10 07:17:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 218.01 Mbit/s
95th percentile per-packet one-way delay: 0.939 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 152.22 Mbit/s
95th percentile per-packet one-way delay: 0.927 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 59.12 Mbit/s
95th percentile per-packet one-way delay: 0.964 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 80.21 Mbit/s
95th percentile per-packet one-way delay: 0.970 ms
Loss rate: 0.02%
```

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



Run 2: Statistics of PCC-Expr

Start at: 2018-10-10 04:44:36

End at: 2018-10-10 04:45:06

Local clock offset: 7.18 ms

Remote clock offset: 2.611 ms

# Below is generated by plot.py at 2018-10-10 07:17:18

# Datalink statistics

-- Total of 3 flows:

Average throughput: 208.66 Mbit/s

95th percentile per-packet one-way delay: 1.052 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 183.83 Mbit/s

95th percentile per-packet one-way delay: 1.054 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 4.81 Mbit/s

95th percentile per-packet one-way delay: 0.989 ms

Loss rate: 0.01%

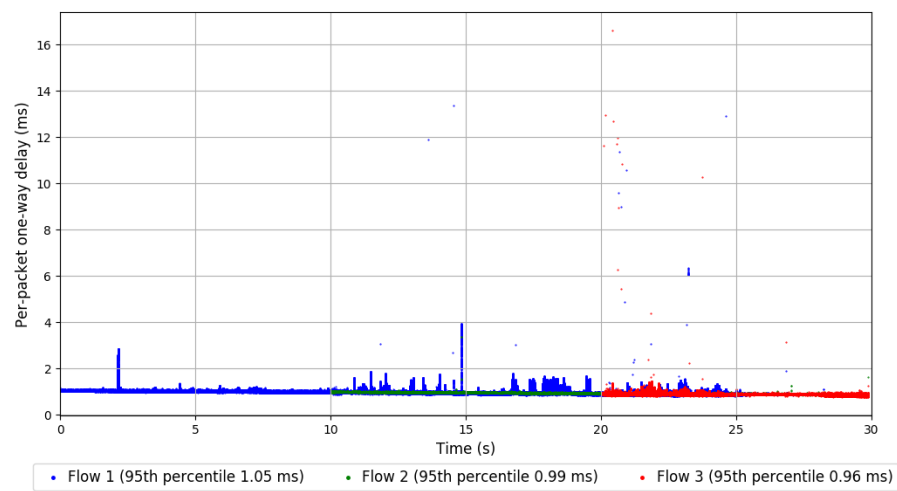
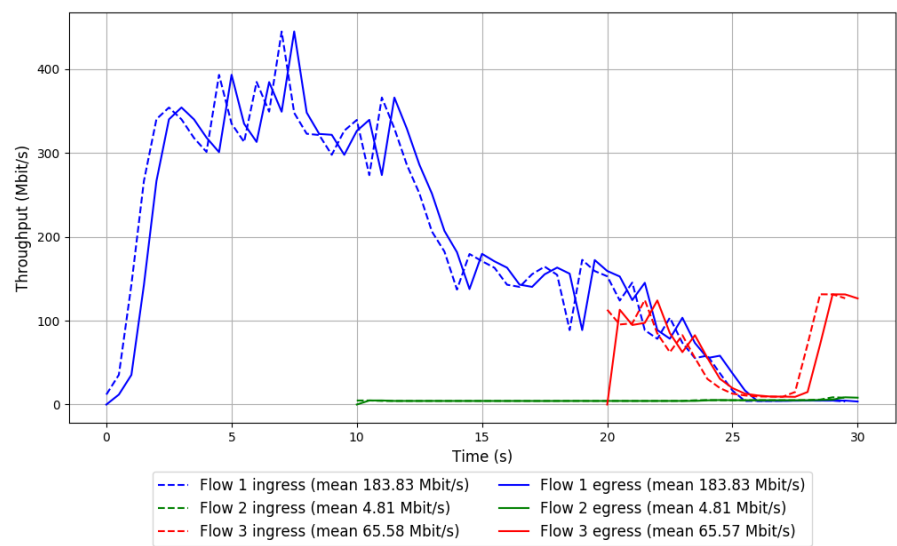
-- Flow 3:

Average throughput: 65.57 Mbit/s

95th percentile per-packet one-way delay: 0.960 ms

Loss rate: 0.03%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-10-10 05:12:36

End at: 2018-10-10 05:13:06

Local clock offset: 0.46 ms

Remote clock offset: 0.25 ms

# Below is generated by plot.py at 2018-10-10 07:17:18

# Datalink statistics

-- Total of 3 flows:

Average throughput: 107.62 Mbit/s

95th percentile per-packet one-way delay: 1.219 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 6.13 Mbit/s

95th percentile per-packet one-way delay: 1.194 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 149.35 Mbit/s

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

Loss rate: 0.00%

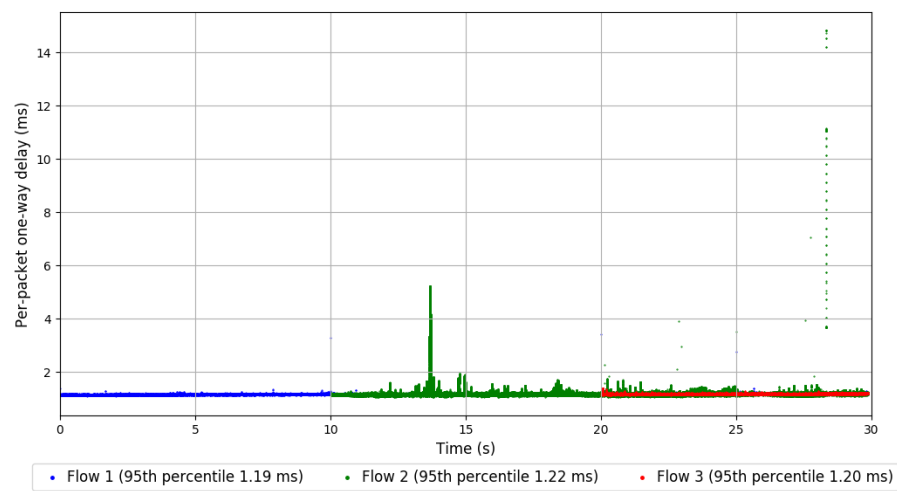
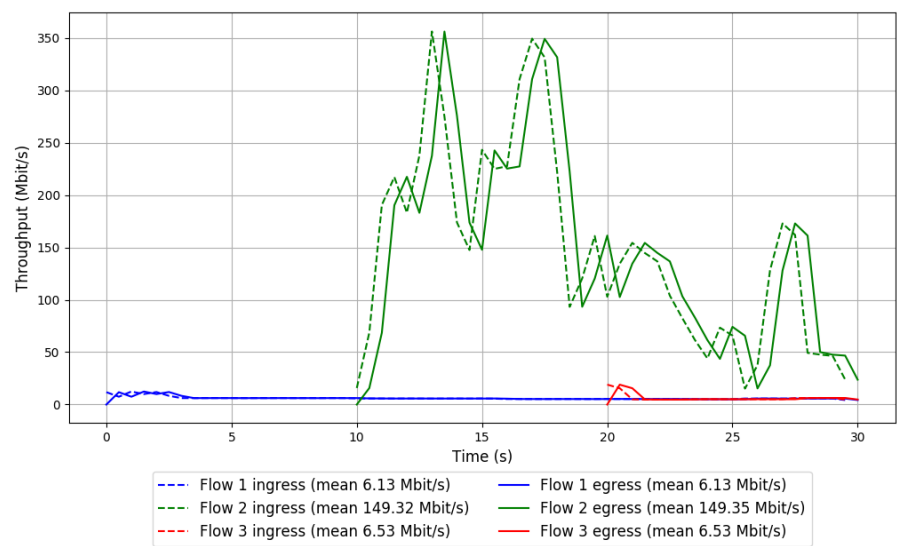
-- Flow 3:

Average throughput: 6.53 Mbit/s

95th percentile per-packet one-way delay: 1.195 ms

Loss rate: 0.02%

Run 3: Report of PCC-Expr — Data Link



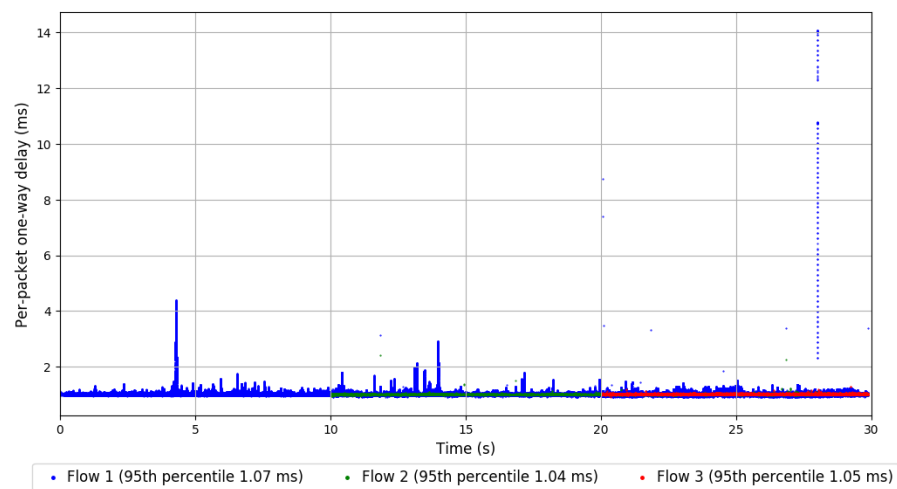
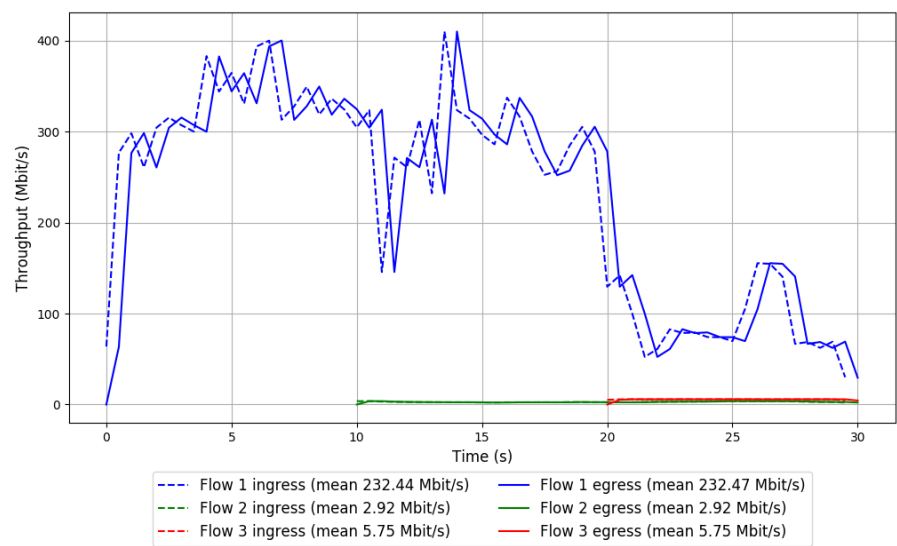


Run 4: Statistics of PCC-Expr

Start at: 2018-10-10 05:40:18  
End at: 2018-10-10 05:40:48  
Local clock offset: -0.585 ms  
Remote clock offset: -0.086 ms

# Below is generated by plot.py at 2018-10-10 07:18:35  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 236.30 Mbit/s  
95th percentile per-packet one-way delay: 1.065 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 232.47 Mbit/s  
95th percentile per-packet one-way delay: 1.066 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 2.92 Mbit/s  
95th percentile per-packet one-way delay: 1.038 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 5.75 Mbit/s  
95th percentile per-packet one-way delay: 1.050 ms  
Loss rate: 0.02%

Run 4: Report of PCC-Expr — Data Link

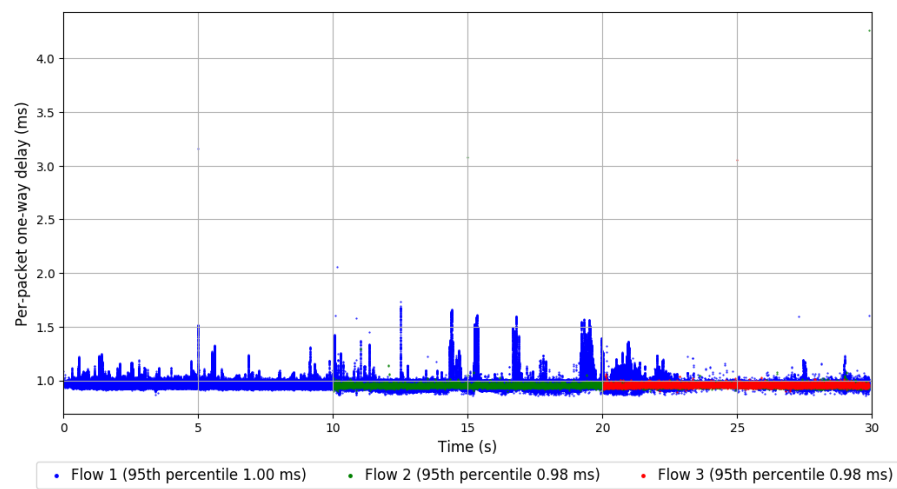
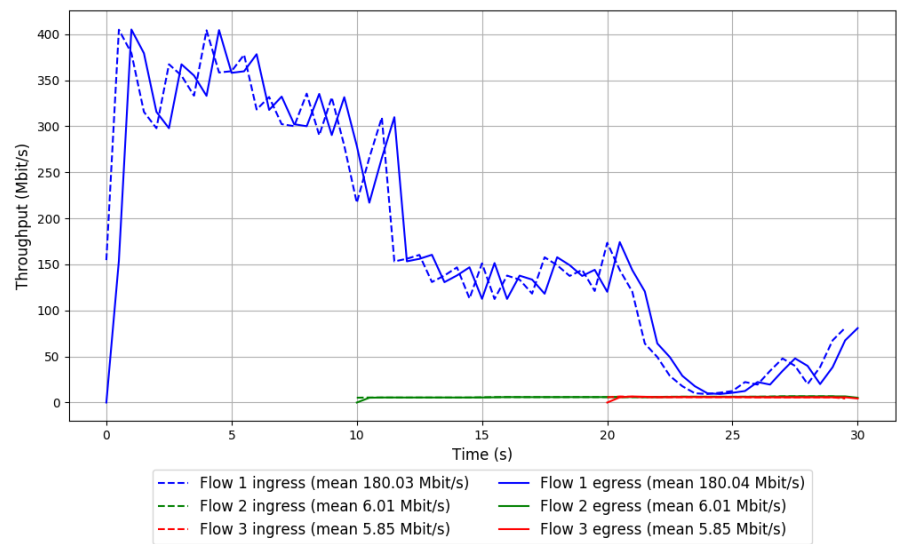


Run 5: Statistics of PCC-Expr

Start at: 2018-10-10 06:08:02  
End at: 2018-10-10 06:08:32  
Local clock offset: -0.259 ms  
Remote clock offset: -0.146 ms

# Below is generated by plot.py at 2018-10-10 07:18:35  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 185.95 Mbit/s  
95th percentile per-packet one-way delay: 0.999 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 180.04 Mbit/s  
95th percentile per-packet one-way delay: 1.000 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 6.01 Mbit/s  
95th percentile per-packet one-way delay: 0.977 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 5.85 Mbit/s  
95th percentile per-packet one-way delay: 0.981 ms  
Loss rate: 0.00%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-10-10 04:24:40

End at: 2018-10-10 04:25:10

Local clock offset: 4.901 ms

Remote clock offset: 4.099 ms

# Below is generated by plot.py at 2018-10-10 07:18:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 139.81 Mbit/s

95th percentile per-packet one-way delay: 0.944 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 73.59 Mbit/s

95th percentile per-packet one-way delay: 0.943 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 69.97 Mbit/s

95th percentile per-packet one-way delay: 0.936 ms

Loss rate: 0.01%

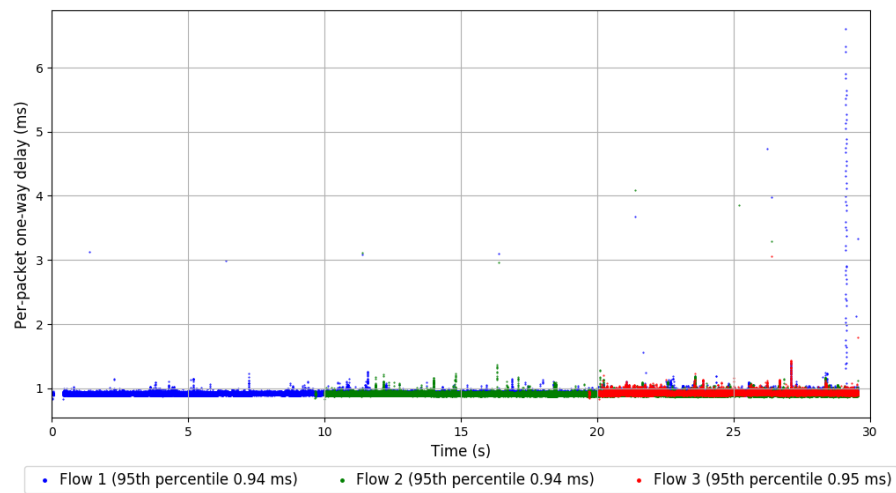
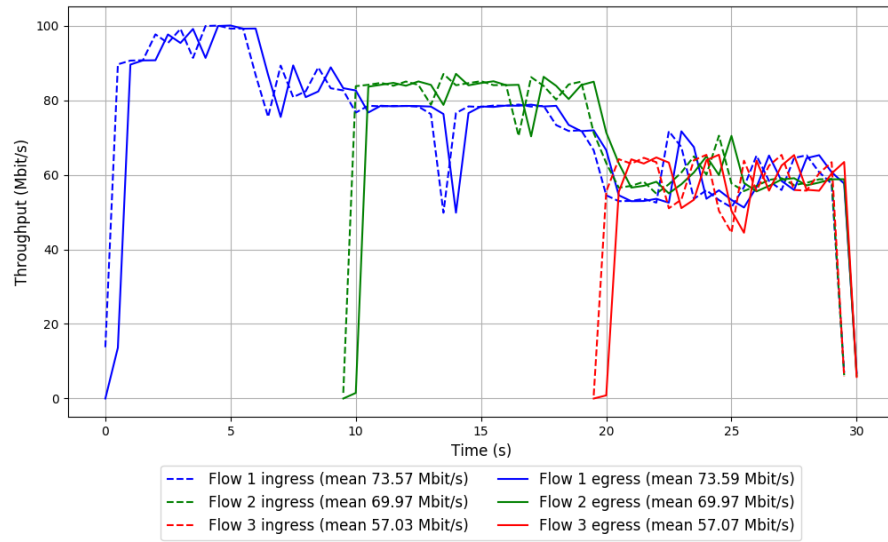
-- Flow 3:

Average throughput: 57.07 Mbit/s

95th percentile per-packet one-way delay: 0.954 ms

Loss rate: 0.02%

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



Run 2: Statistics of QUIC Cubic

Start at: 2018-10-10 04:52:24

End at: 2018-10-10 04:52:54

Local clock offset: 7.78 ms

Remote clock offset: 1.15 ms

# Below is generated by plot.py at 2018-10-10 07:18:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 141.00 Mbit/s

95th percentile per-packet one-way delay: 0.860 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 78.40 Mbit/s

95th percentile per-packet one-way delay: 0.864 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 66.79 Mbit/s

95th percentile per-packet one-way delay: 0.852 ms

Loss rate: 0.01%

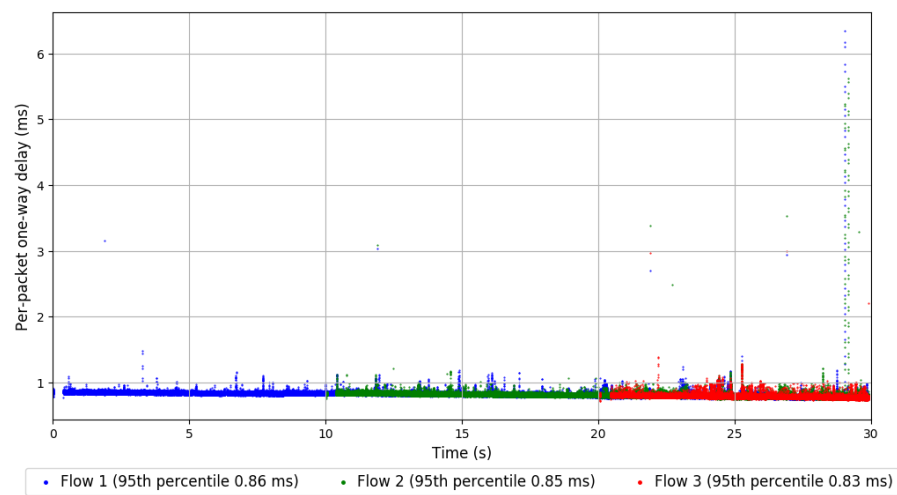
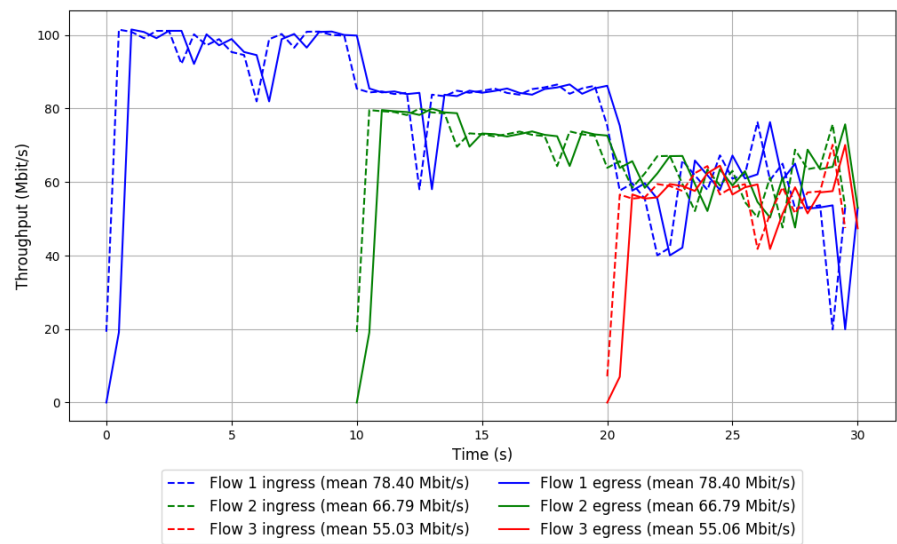
-- Flow 3:

Average throughput: 55.06 Mbit/s

95th percentile per-packet one-way delay: 0.830 ms

Loss rate: 0.01%

Run 2: Report of QUIC Cubic — Data Link





Run 3: Statistics of QUIC Cubic

Start at: 2018-10-10 05:20:10

End at: 2018-10-10 05:20:40

Local clock offset: -0.5 ms

Remote clock offset: 0.087 ms

# Below is generated by plot.py at 2018-10-10 07:18:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 134.83 Mbit/s

95th percentile per-packet one-way delay: 1.063 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 69.22 Mbit/s

95th percentile per-packet one-way delay: 1.056 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 69.39 Mbit/s

95th percentile per-packet one-way delay: 1.063 ms

Loss rate: 0.01%

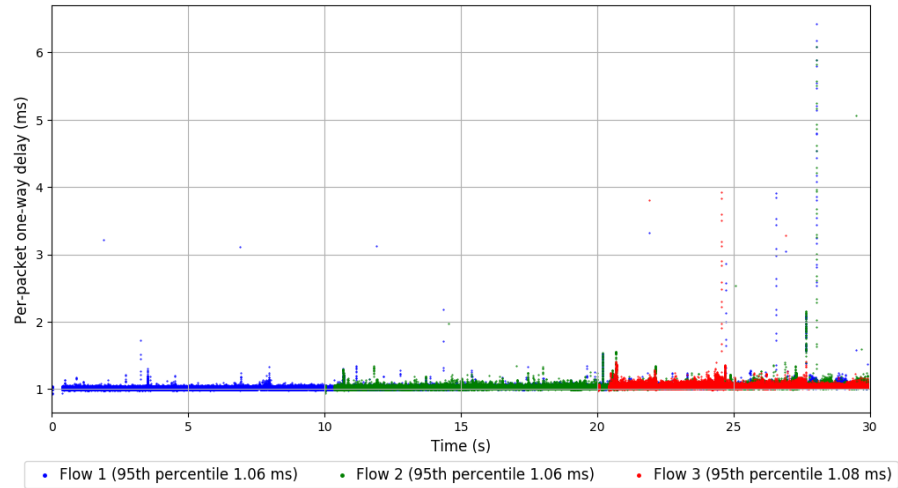
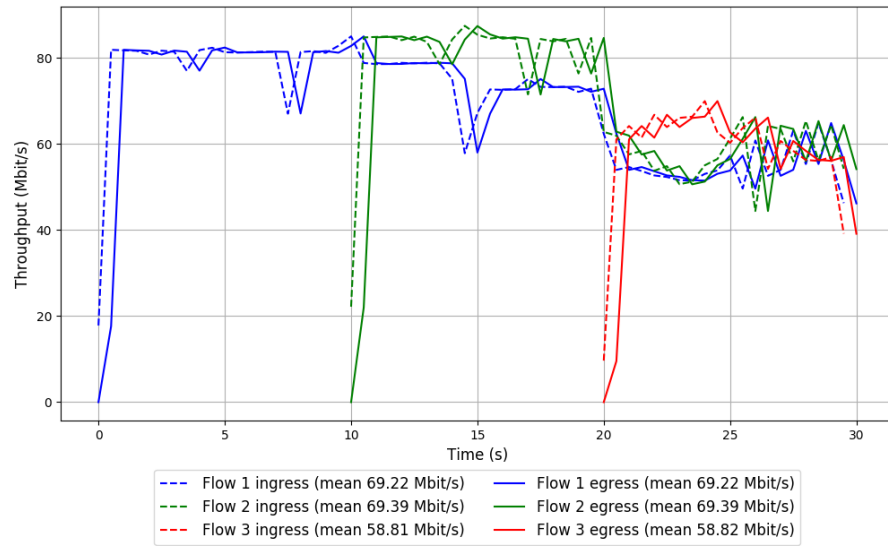
-- Flow 3:

Average throughput: 58.82 Mbit/s

95th percentile per-packet one-way delay: 1.081 ms

Loss rate: 0.01%

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



Run 4: Statistics of QUIC Cubic

Start at: 2018-10-10 05:48:03

End at: 2018-10-10 05:48:33

Local clock offset: -0.764 ms

Remote clock offset: -0.1 ms

# Below is generated by plot.py at 2018-10-10 07:18:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 135.44 Mbit/s

95th percentile per-packet one-way delay: 1.048 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 70.63 Mbit/s

95th percentile per-packet one-way delay: 1.036 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 70.24 Mbit/s

95th percentile per-packet one-way delay: 1.056 ms

Loss rate: 0.01%

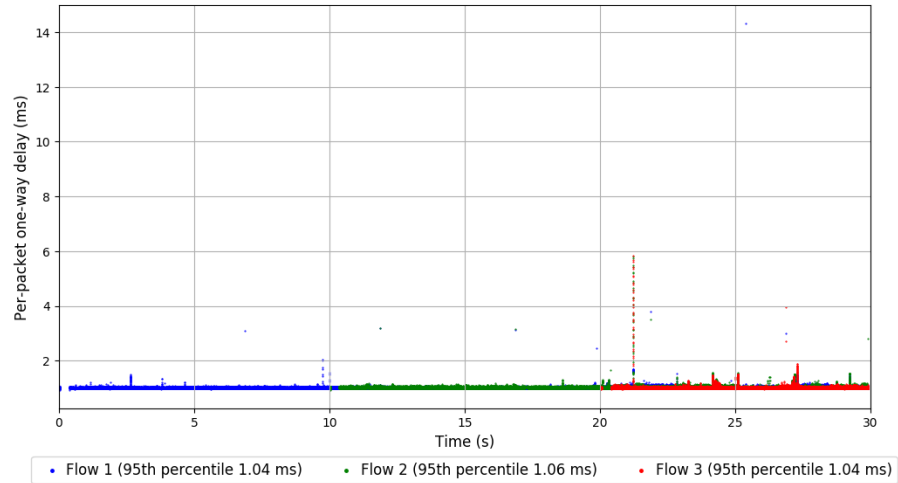
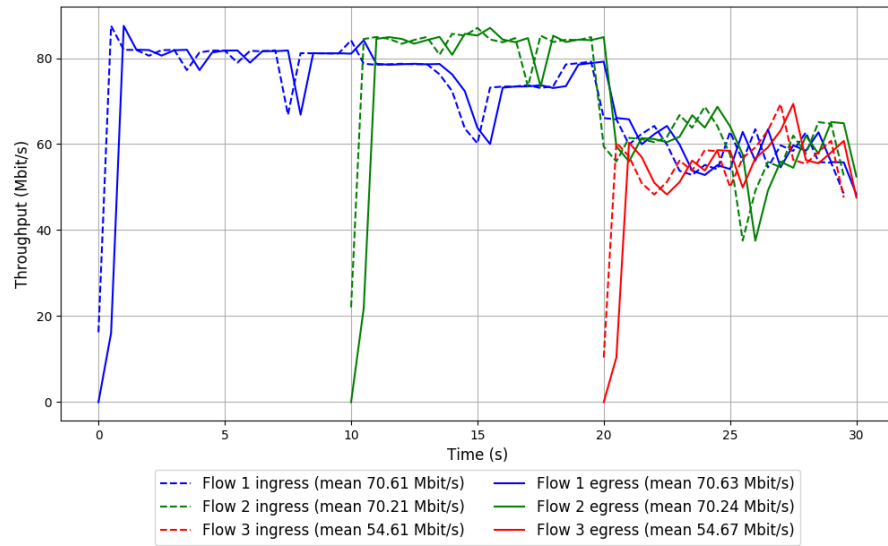
-- Flow 3:

Average throughput: 54.67 Mbit/s

95th percentile per-packet one-way delay: 1.044 ms

Loss rate: 0.01%

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

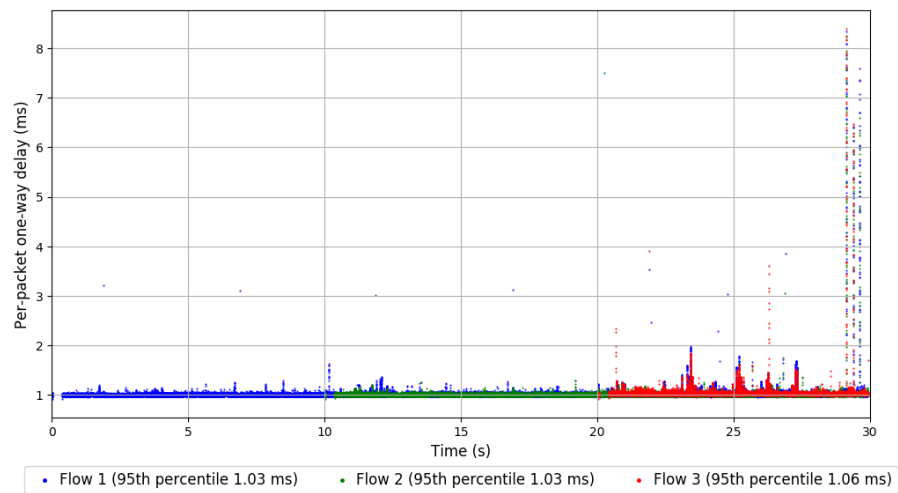
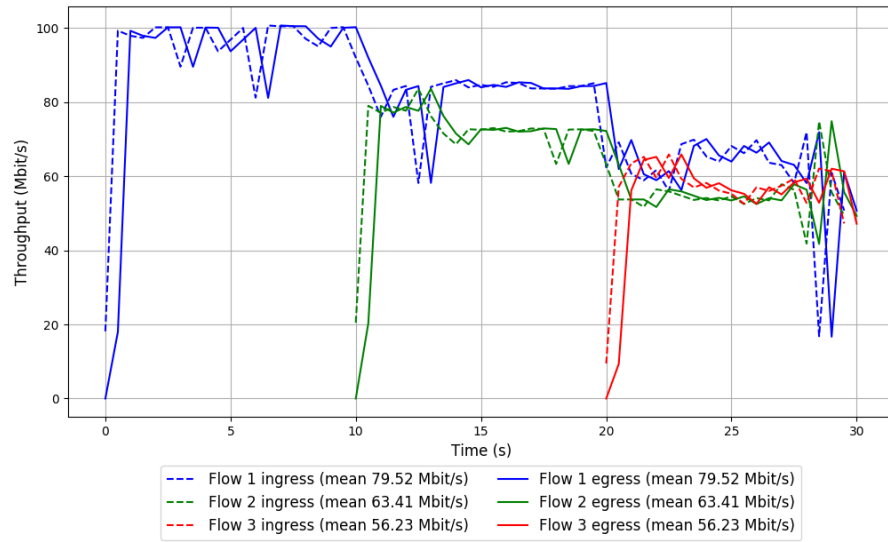


Run 5: Statistics of QUIC Cubic

Start at: 2018-10-10 06:15:48  
End at: 2018-10-10 06:16:18  
Local clock offset: -0.258 ms  
Remote clock offset: -0.181 ms

# Below is generated by plot.py at 2018-10-10 07:18:35  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 140.29 Mbit/s  
95th percentile per-packet one-way delay: 1.035 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 79.52 Mbit/s  
95th percentile per-packet one-way delay: 1.028 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 63.41 Mbit/s  
95th percentile per-packet one-way delay: 1.026 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 56.23 Mbit/s  
95th percentile per-packet one-way delay: 1.060 ms  
Loss rate: 0.02%

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

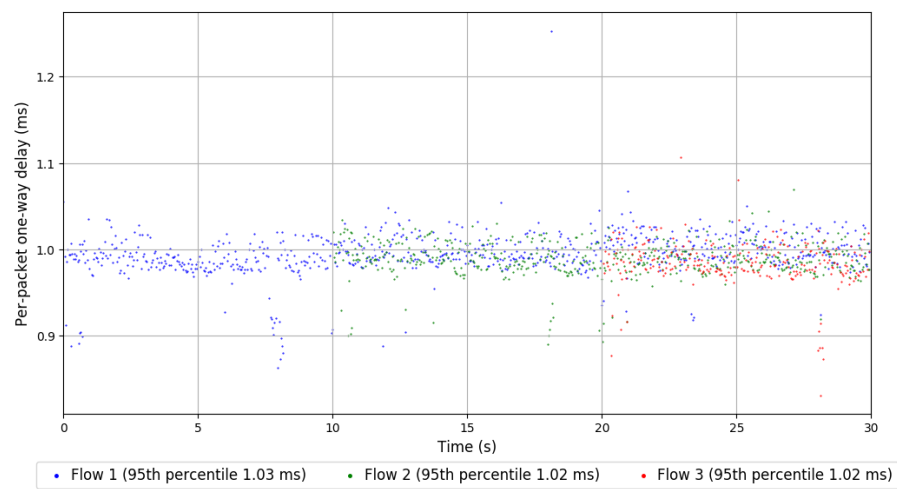
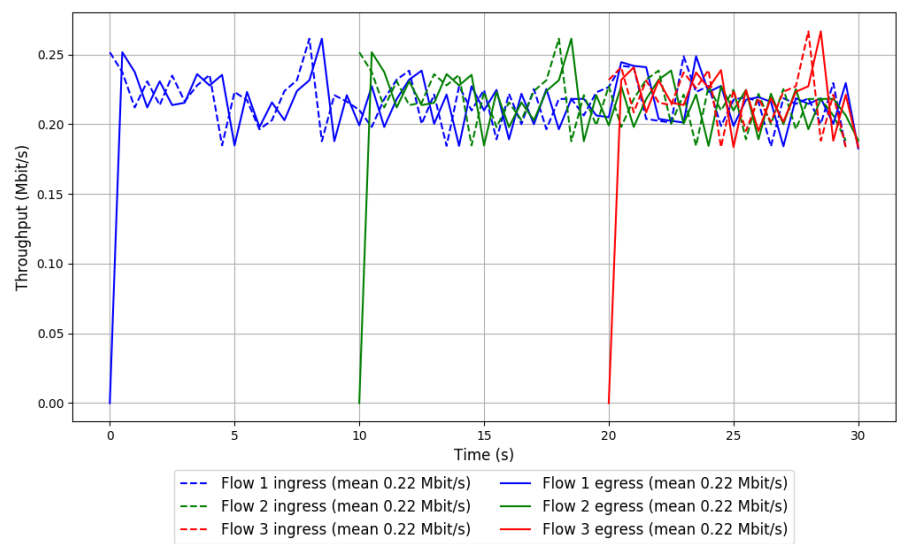


```
Run 1: Statistics of SReAM

Start at: 2018-10-10 04:23:21
End at: 2018-10-10 04:23:51
Local clock offset: 4.766 ms
Remote clock offset: 3.987 ms

# Below is generated by plot.py at 2018-10-10 07:18:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.023 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.027 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.019 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.019 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link





Run 2: Statistics of SReAM

Start at: 2018-10-10 04:51:05

End at: 2018-10-10 04:51:35

Local clock offset: 7.66 ms

Remote clock offset: 1.302 ms

# Below is generated by plot.py at 2018-10-10 07:18:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 1.216 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.001 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.979 ms

Loss rate: 0.00%

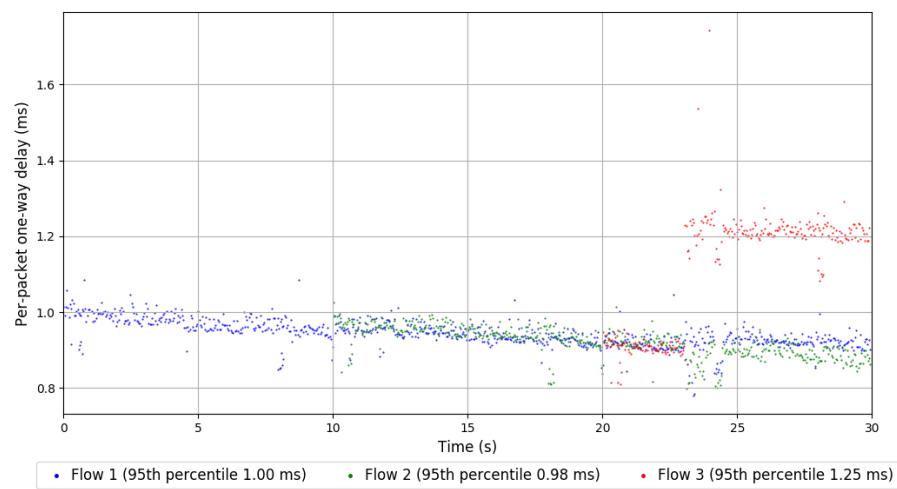
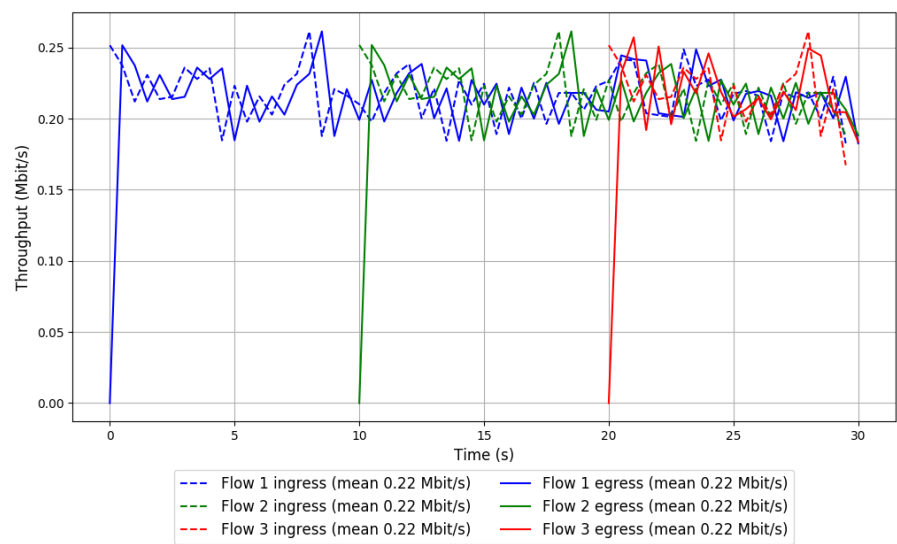
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.245 ms

Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

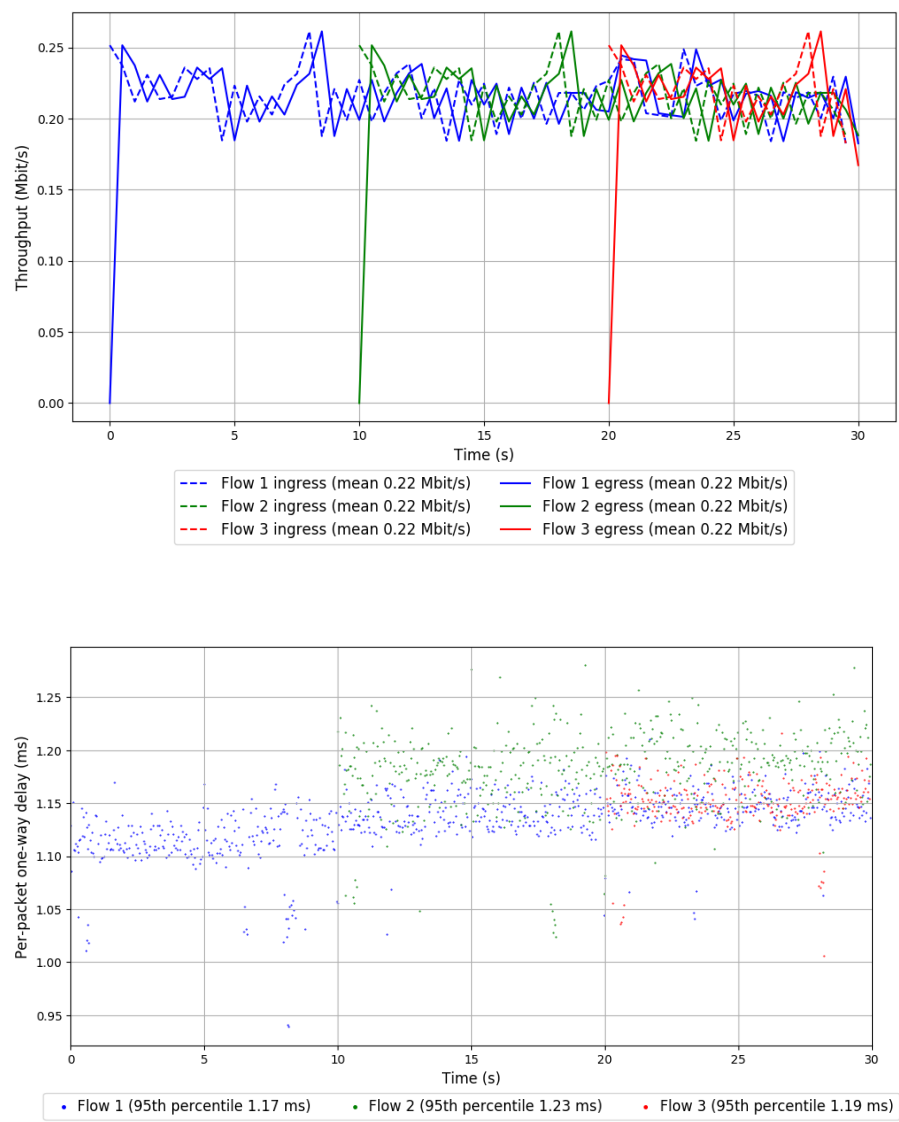


Run 3: Statistics of SReAM

Start at: 2018-10-10 05:18:51  
End at: 2018-10-10 05:19:21  
Local clock offset: -0.395 ms  
Remote clock offset: 0.093 ms

# Below is generated by plot.py at 2018-10-10 07:18:35  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.213 ms  
Loss rate: 0.06%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.170 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.229 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.186 ms  
Loss rate: 0.35%

Run 3: Report of SReAM — Data Link

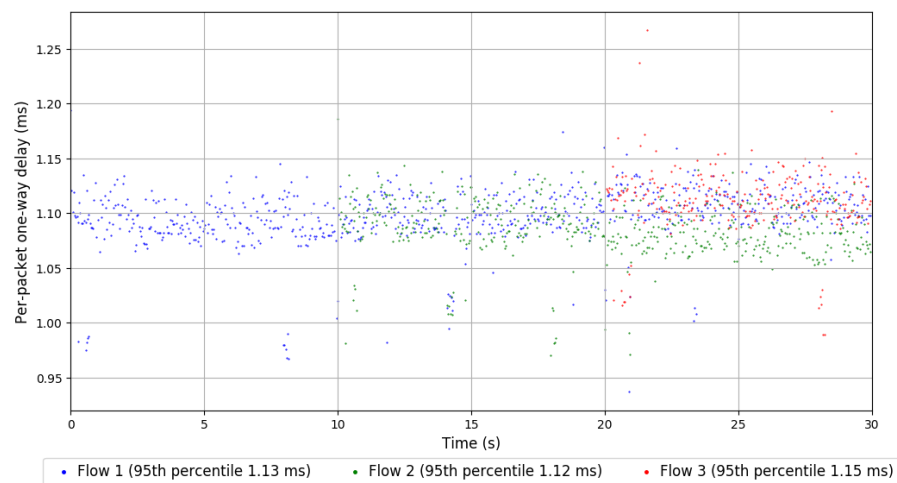
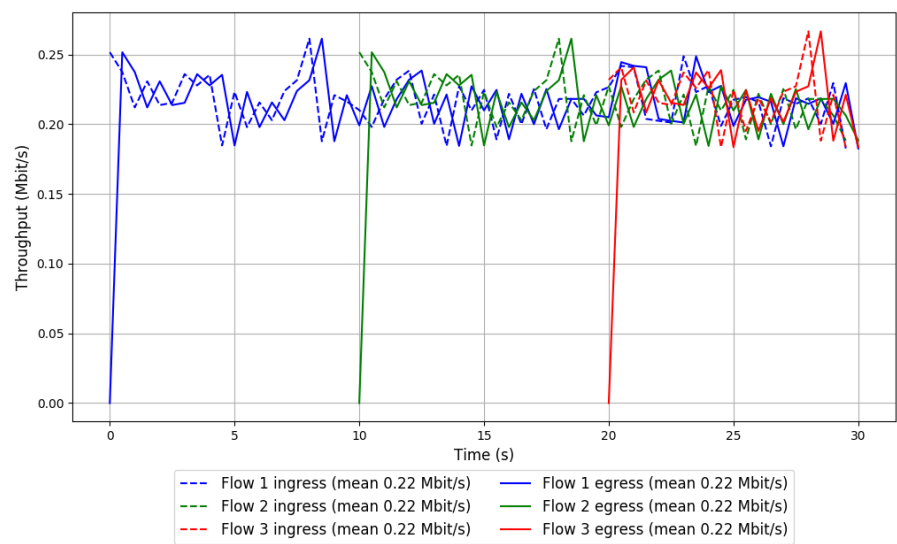


Run 4: Statistics of SReAM

Start at: 2018-10-10 05:46:45  
End at: 2018-10-10 05:47:15  
Local clock offset: -0.736 ms  
Remote clock offset: -0.073 ms

# Below is generated by plot.py at 2018-10-10 07:18:35  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.134 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: 1.123 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.148 ms  
Loss rate: 0.00%

Run 4: Report of SReAM — Data Link

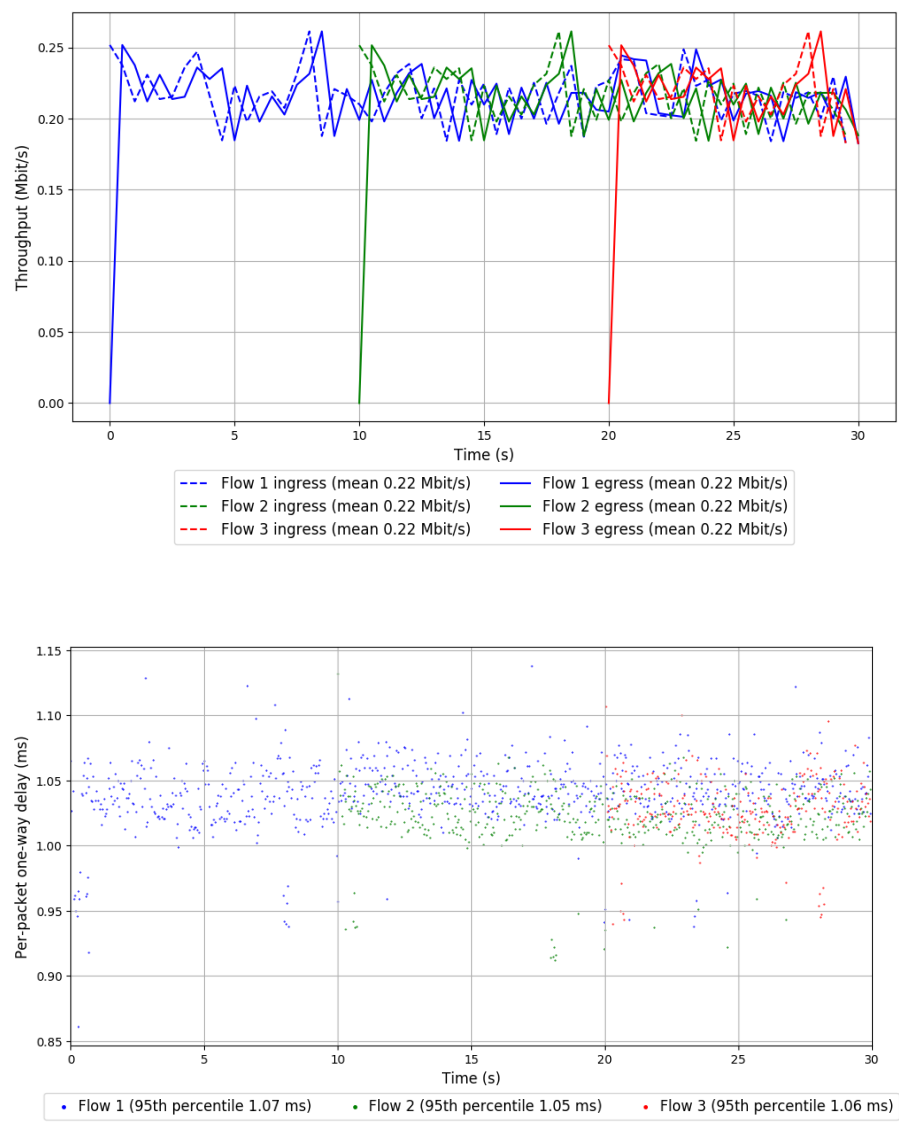


Run 5: Statistics of SReAM

Start at: 2018-10-10 06:14:29  
End at: 2018-10-10 06:14:59  
Local clock offset: -0.265 ms  
Remote clock offset: -0.114 ms

# Below is generated by plot.py at 2018-10-10 07:18:35  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.068 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.073 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.053 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.060 ms  
Loss rate: 0.00%

Run 5: Report of SReAM — Data Link





Run 1: Statistics of Sprout

Start at: 2018-10-10 04:09:16

End at: 2018-10-10 04:09:46

Local clock offset: 2.364 ms

Remote clock offset: 1.359 ms

# Below is generated by plot.py at 2018-10-10 07:18:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 100.01 Mbit/s

95th percentile per-packet one-way delay: 0.979 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 50.25 Mbit/s

95th percentile per-packet one-way delay: 0.973 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.17 Mbit/s

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

Loss rate: 0.01%

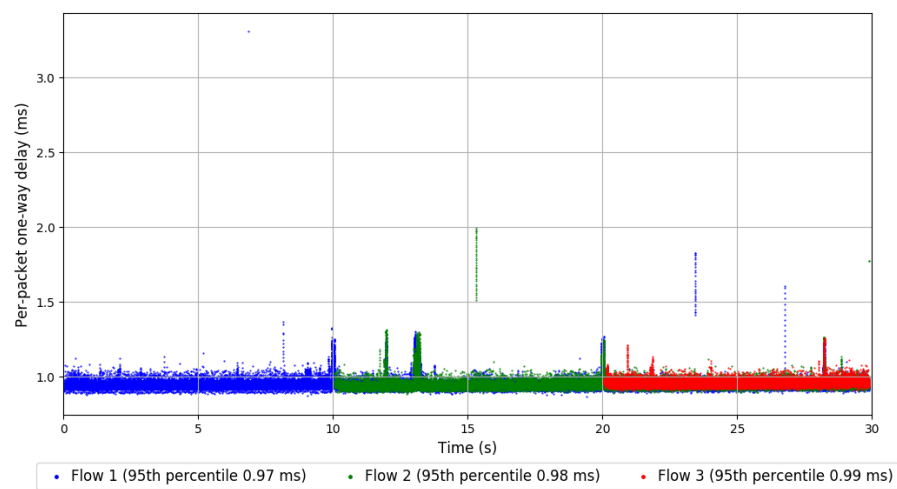
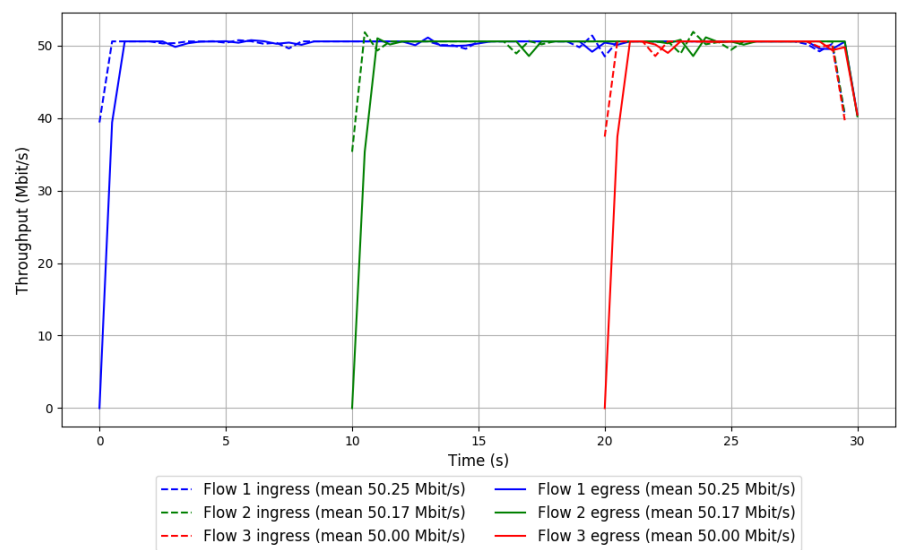
-- Flow 3:

Average throughput: 50.00 Mbit/s

95th percentile per-packet one-way delay: 0.986 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link



## Run 2: Statistics of Sprout

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

End at: 2018-10-10 04:37:34

Local clock offset: 6.281 ms

Remote clock offset: 5.412 ms

# Below is generated by plot.py at 2018-10-10 07:18:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 100.09 Mbit/s

95th percentile per-packet one-way delay: 0.987 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 50.24 Mbit/s

95th percentile per-packet one-way delay: 0.991 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.11 Mbit/s

95th percentile per-packet one-way delay: 0.986 ms

Loss rate: 0.04%

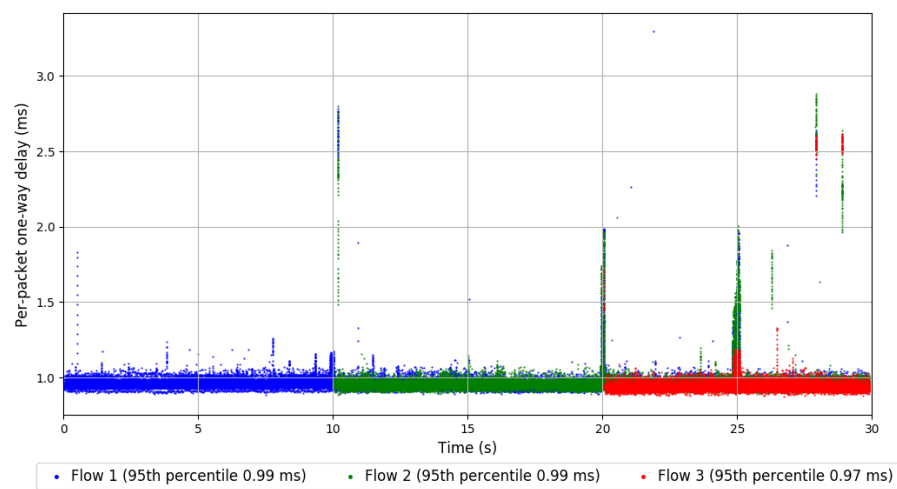
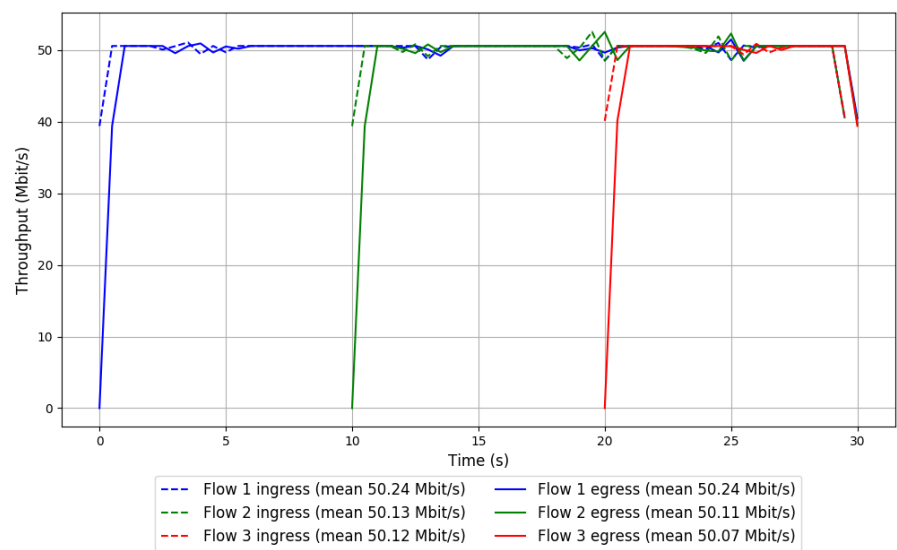
-- Flow 3:

Average throughput: 50.07 Mbit/s

95th percentile per-packet one-way delay: 0.973 ms

Loss rate: 0.11%

Run 2: Report of Sprout — Data Link

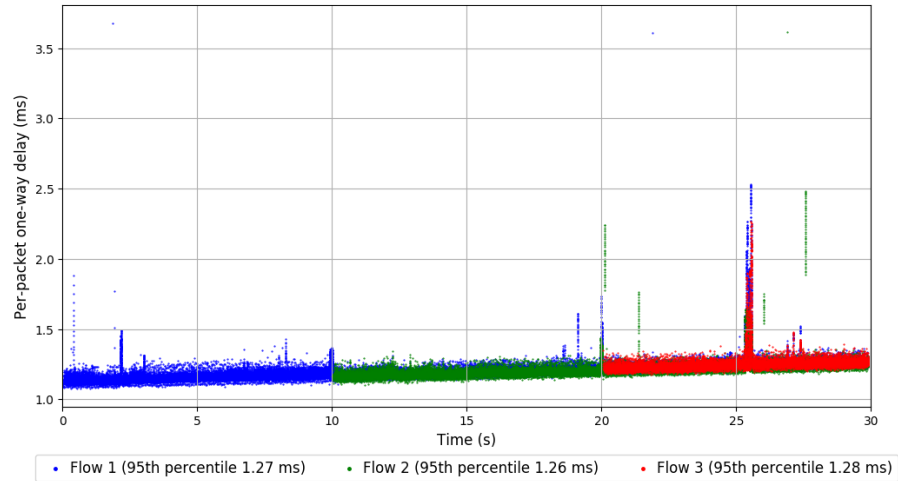
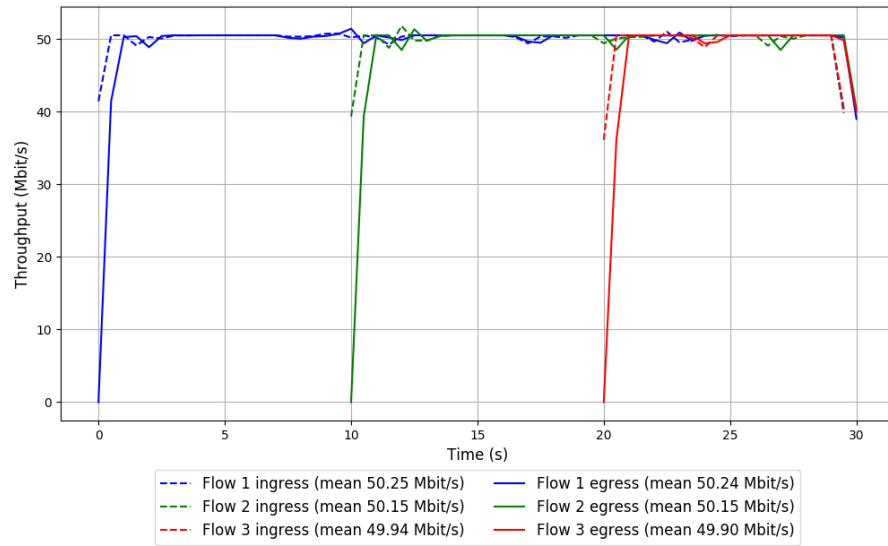


### Run 3: Statistics of Sprout

Start at: 2018-10-10 05:05:03  
End at: 2018-10-10 05:05:33  
Local clock offset: 2.215 ms  
Remote clock offset: 0.479 ms

```
# Below is generated by plot.py at 2018-10-10 07:18:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.04 Mbit/s
95th percentile per-packet one-way delay: 1.271 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 1.268 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 50.15 Mbit/s
95th percentile per-packet one-way delay: 1.262 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 49.90 Mbit/s
95th percentile per-packet one-way delay: 1.285 ms
Loss rate: 0.12%
```

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

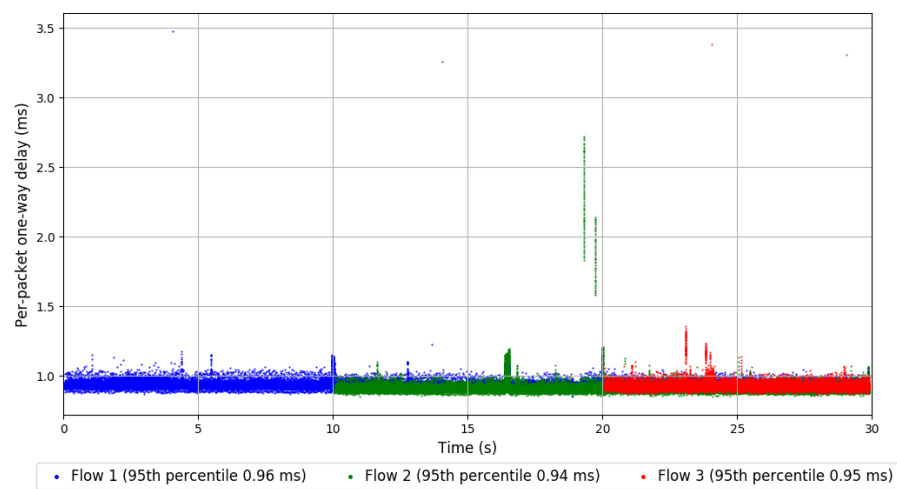
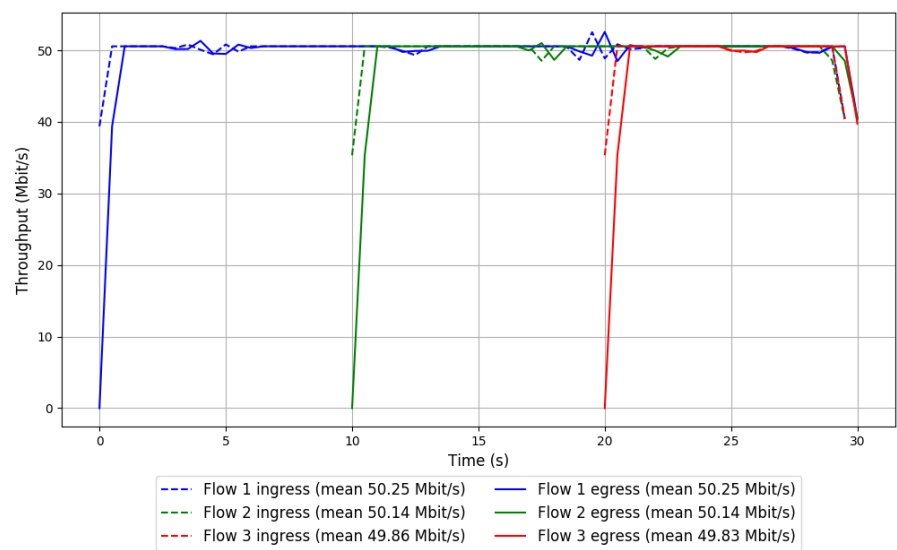


#### Run 4: Statistics of Sprout

Start at: 2018-10-10 05:32:42  
End at: 2018-10-10 05:33:12  
Local clock offset: -0.568 ms  
Remote clock offset: 0.018 ms

```
# Below is generated by plot.py at 2018-10-10 07:18:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.96 Mbit/s
95th percentile per-packet one-way delay: 0.953 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 50.25 Mbit/s
95th percentile per-packet one-way delay: 0.958 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.14 Mbit/s
95th percentile per-packet one-way delay: 0.936 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 49.83 Mbit/s
95th percentile per-packet one-way delay: 0.954 ms
Loss rate: 0.07%
```

Run 4: Report of Sprout — Data Link



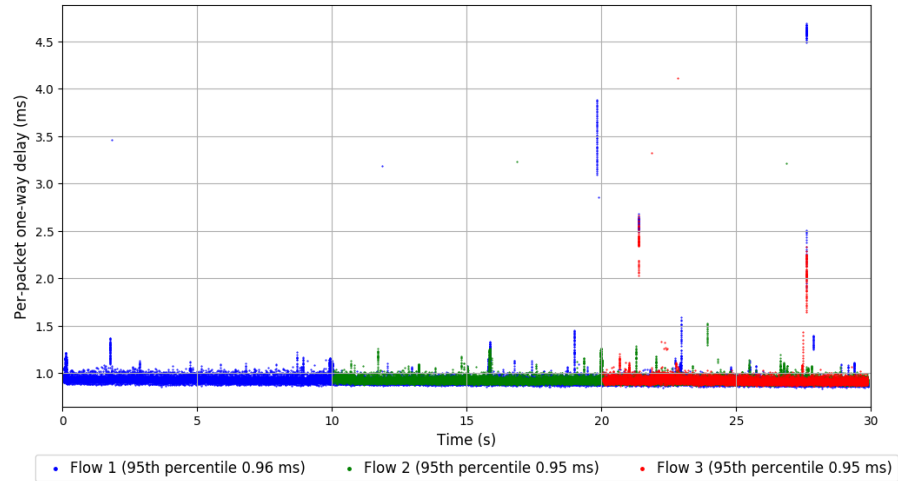
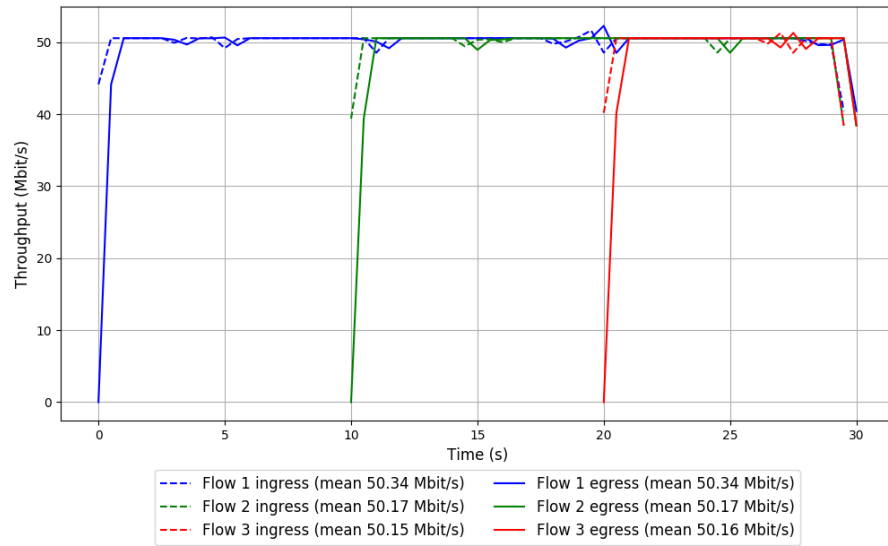


Run 5: Statistics of Sprout

Start at: 2018-10-10 06:00:29  
End at: 2018-10-10 06:00:59  
Local clock offset: -0.5 ms  
Remote clock offset: -0.117 ms

```
# Below is generated by plot.py at 2018-10-10 07:18:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.22 Mbit/s
95th percentile per-packet one-way delay: 0.954 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.34 Mbit/s
95th percentile per-packet one-way delay: 0.956 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.17 Mbit/s
95th percentile per-packet one-way delay: 0.953 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 50.16 Mbit/s
95th percentile per-packet one-way delay: 0.951 ms
Loss rate: 0.00%
```

## Run 5: Report of Sprout — Data Link

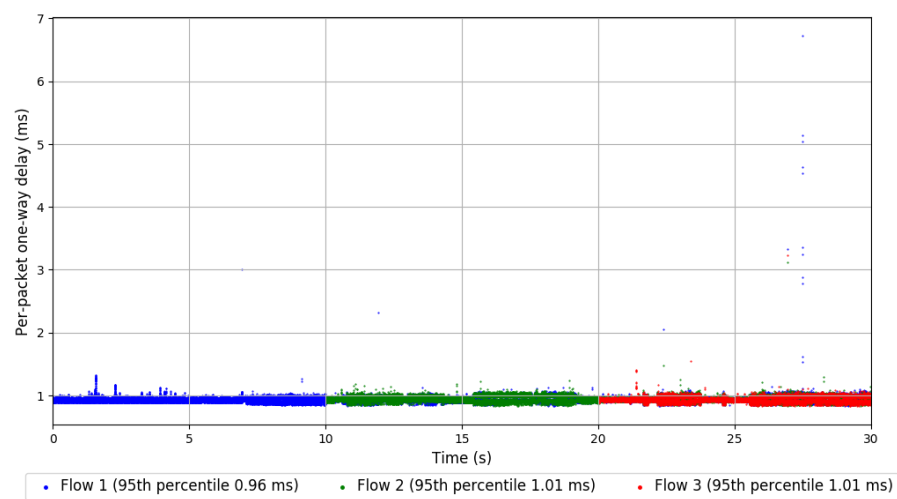
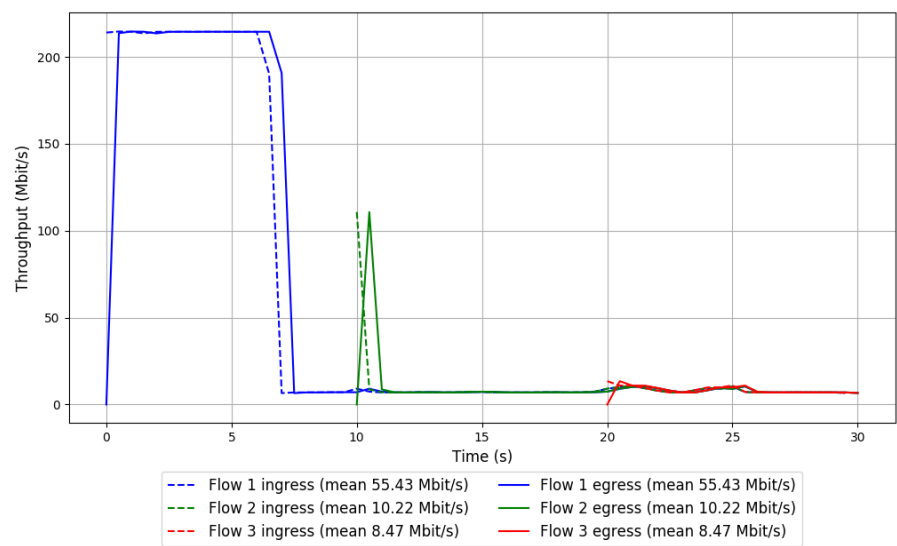


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-10-10 04:26:04
End at: 2018-10-10 04:26:34
Local clock offset: 5.101 ms
Remote clock offset: 4.284 ms

# Below is generated by plot.py at 2018-10-10 07:18:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.05 Mbit/s
95th percentile per-packet one-way delay: 0.978 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 55.43 Mbit/s
95th percentile per-packet one-way delay: 0.958 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 10.22 Mbit/s
95th percentile per-packet one-way delay: 1.012 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 1.006 ms
Loss rate: 0.03%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-10-10 04:53:48

End at: 2018-10-10 04:54:18

Local clock offset: 7.895 ms

Remote clock offset: 1.016 ms

# Below is generated by plot.py at 2018-10-10 07:21:26

# Datalink statistics

-- Total of 3 flows:

Average throughput: 182.61 Mbit/s

95th percentile per-packet one-way delay: 0.825 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 124.74 Mbit/s

95th percentile per-packet one-way delay: 0.828 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 81.45 Mbit/s

95th percentile per-packet one-way delay: 0.800 ms

Loss rate: 0.01%

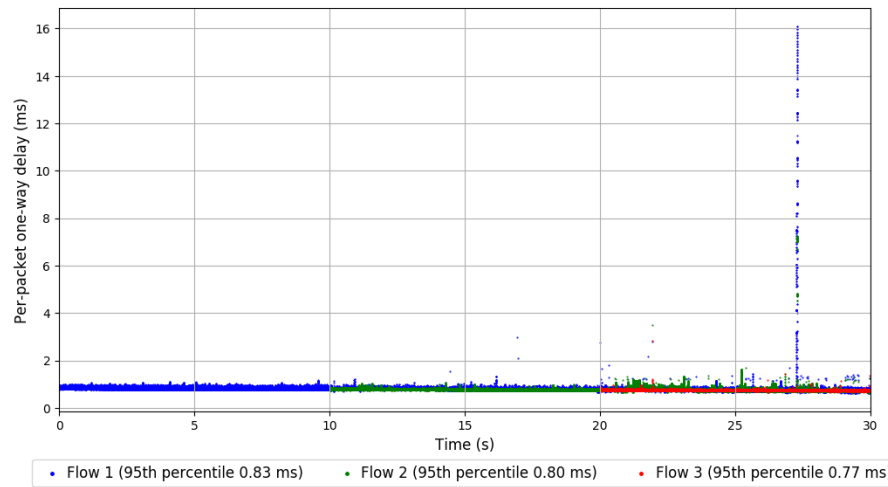
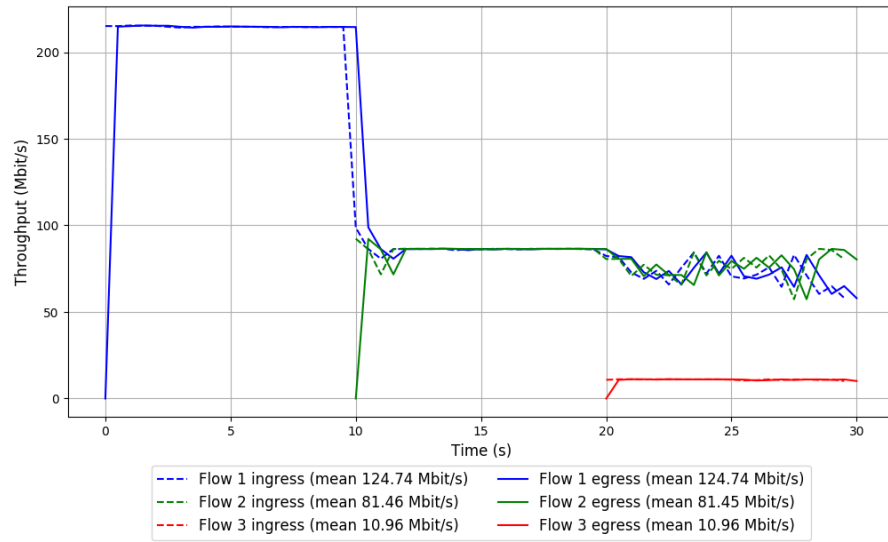
-- Flow 3:

Average throughput: 10.96 Mbit/s

95th percentile per-packet one-way delay: 0.774 ms

Loss rate: 0.01%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-10-10 05:21:34

End at: 2018-10-10 05:22:04

Local clock offset: -0.62 ms

Remote clock offset: 0.043 ms

# Below is generated by plot.py at 2018-10-10 07:21:26

# Datalink statistics

-- Total of 3 flows:

Average throughput: 172.14 Mbit/s

95th percentile per-packet one-way delay: 1.085 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 92.04 Mbit/s

95th percentile per-packet one-way delay: 1.072 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 81.83 Mbit/s

95th percentile per-packet one-way delay: 1.095 ms

Loss rate: 0.01%

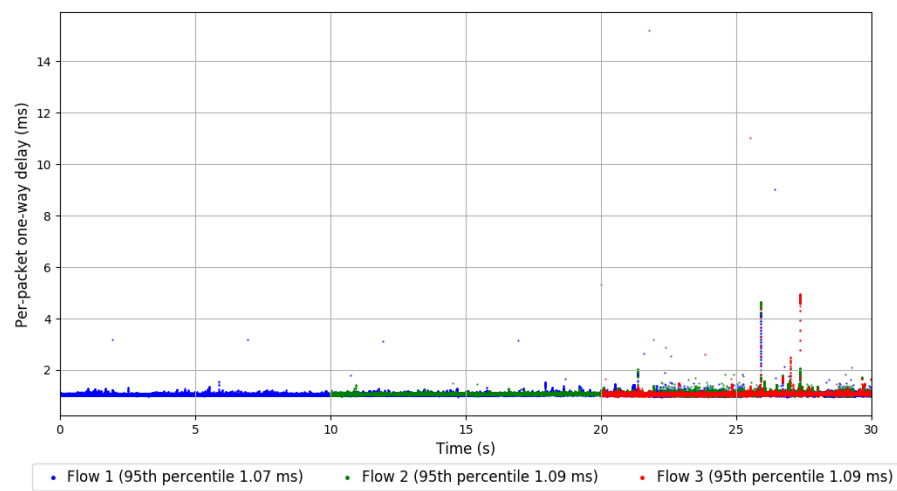
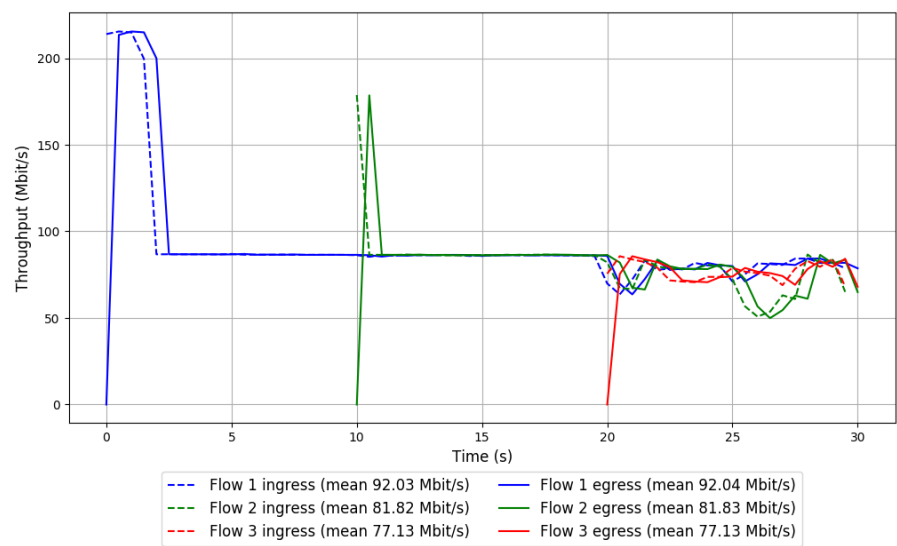
-- Flow 3:

Average throughput: 77.13 Mbit/s

95th percentile per-packet one-way delay: 1.091 ms

Loss rate: 0.02%

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



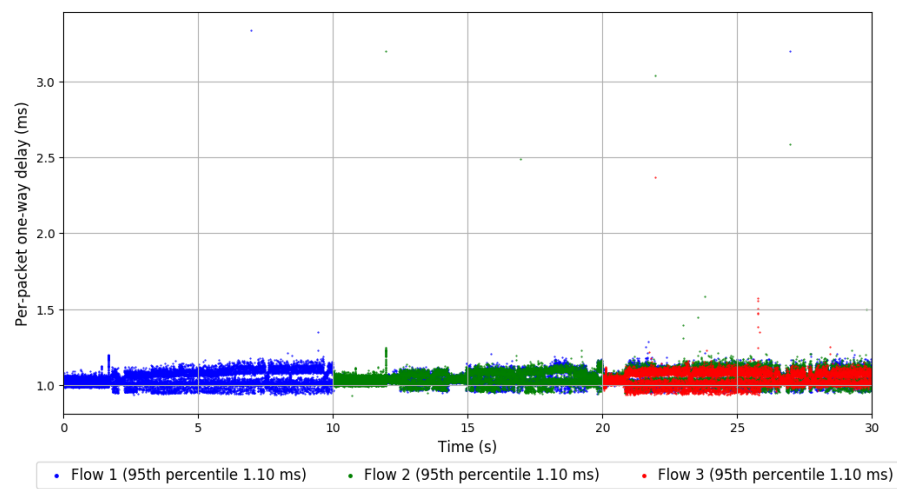
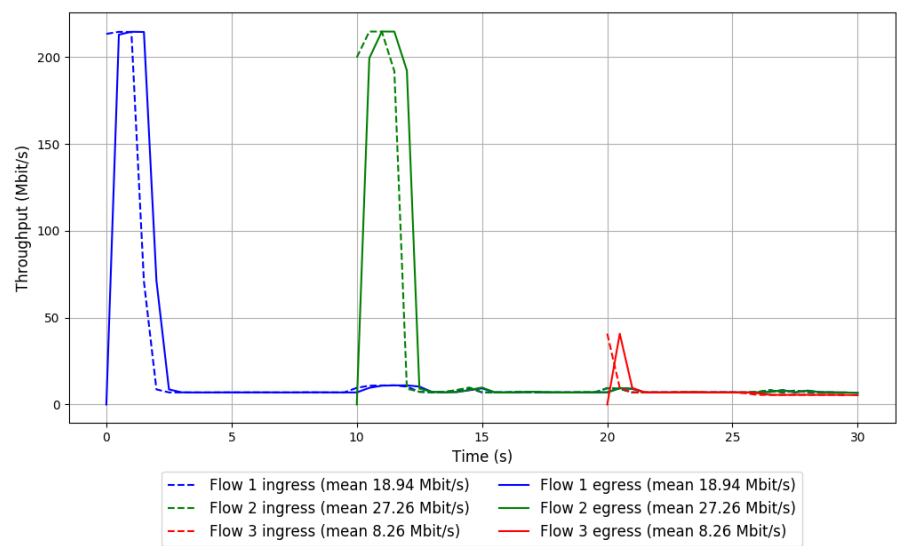


Run 4: Statistics of TaoVA-100x

Start at: 2018-10-10 05:49:27  
End at: 2018-10-10 05:49:57  
Local clock offset: -0.802 ms  
Remote clock offset: -0.121 ms

# Below is generated by plot.py at 2018-10-10 07:21:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 39.81 Mbit/s  
95th percentile per-packet one-way delay: 1.101 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 18.94 Mbit/s  
95th percentile per-packet one-way delay: 1.104 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 27.26 Mbit/s  
95th percentile per-packet one-way delay: 1.096 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 8.26 Mbit/s  
95th percentile per-packet one-way delay: 1.105 ms  
Loss rate: 0.02%

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

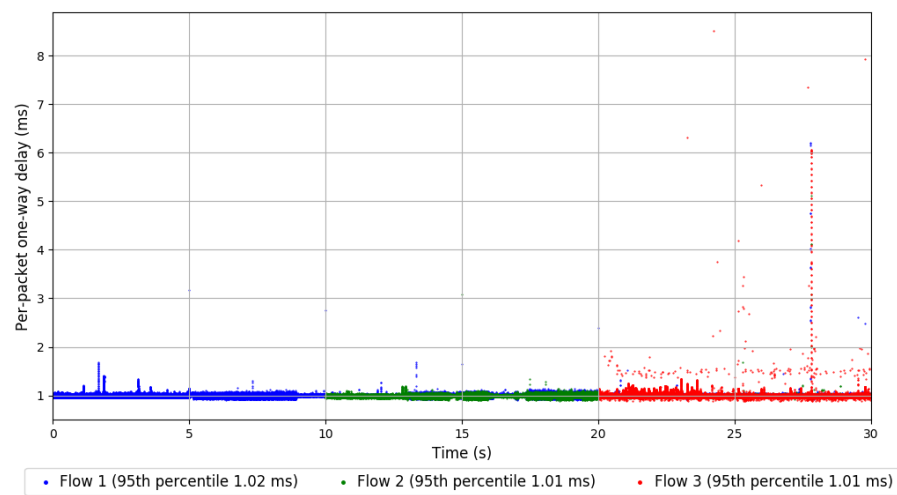
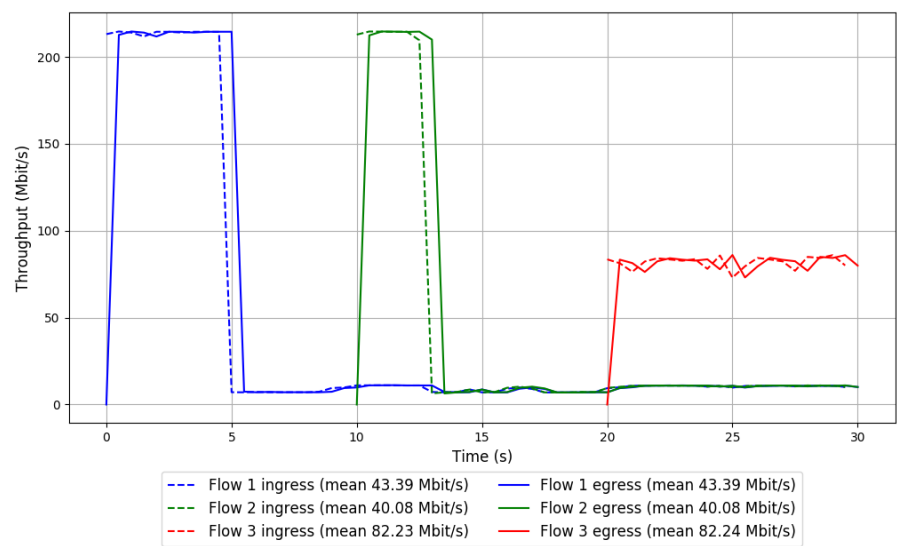


Run 5: Statistics of TaoVA-100x

Start at: 2018-10-10 06:17:12  
End at: 2018-10-10 06:17:42  
Local clock offset: -0.289 ms  
Remote clock offset: -0.189 ms

# Below is generated by plot.py at 2018-10-10 07:21:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 97.39 Mbit/s  
95th percentile per-packet one-way delay: 1.020 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 43.39 Mbit/s  
95th percentile per-packet one-way delay: 1.024 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 40.08 Mbit/s  
95th percentile per-packet one-way delay: 1.008 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 82.24 Mbit/s  
95th percentile per-packet one-way delay: 1.014 ms  
Loss rate: 0.02%

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



Run 1: Statistics of TCP Vegas

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

End at: 2018-10-10 04:11:07

Local clock offset: 2.636 ms

Remote clock offset: 1.814 ms

# Below is generated by plot.py at 2018-10-10 07:24:17

# Datalink statistics

-- Total of 3 flows:

Average throughput: 520.12 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 258.47 Mbit/s

95th percentile per-packet one-way delay: 0.995 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 272.02 Mbit/s

95th percentile per-packet one-way delay: 1.104 ms

Loss rate: 0.01%

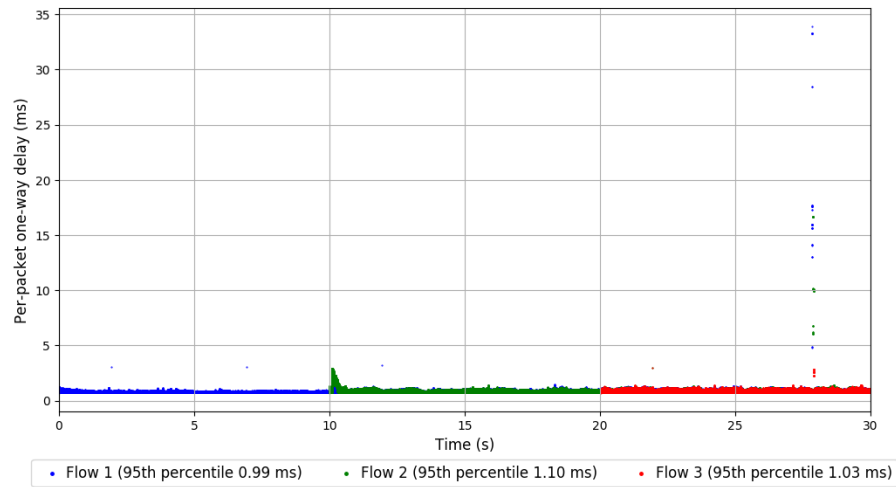
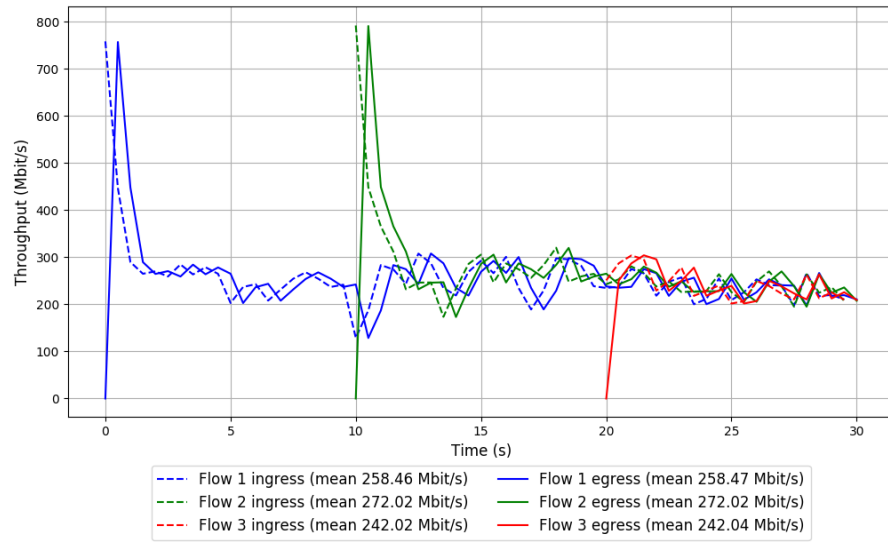
-- Flow 3:

Average throughput: 242.04 Mbit/s

95th percentile per-packet one-way delay: 1.032 ms

Loss rate: 0.02%

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



Run 2: Statistics of TCP Vegas

Start at: 2018-10-10 04:38:25

End at: 2018-10-10 04:38:55

Local clock offset: 6.398 ms

Remote clock offset: 5.369 ms

# Below is generated by plot.py at 2018-10-10 07:24:17

# Datalink statistics

-- Total of 3 flows:

Average throughput: 441.69 Mbit/s

95th percentile per-packet one-way delay: 1.197 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 204.81 Mbit/s

95th percentile per-packet one-way delay: 0.943 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 226.50 Mbit/s

95th percentile per-packet one-way delay: 1.779 ms

Loss rate: 0.01%

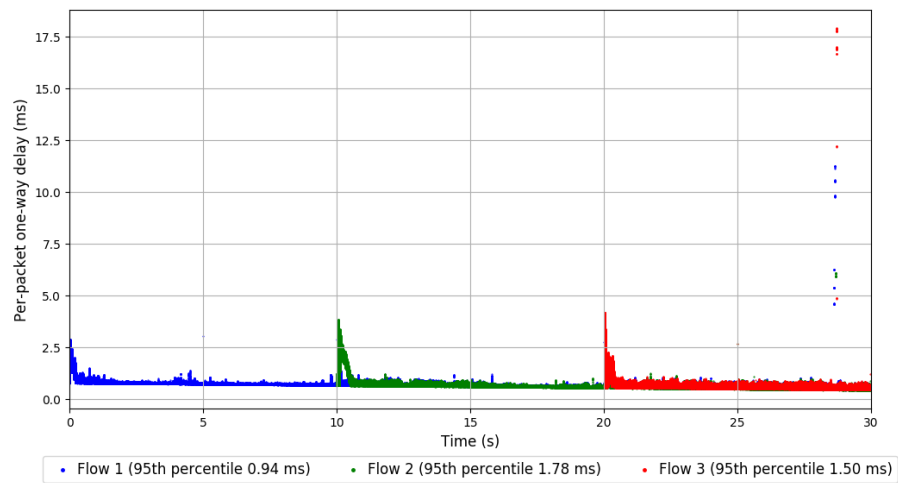
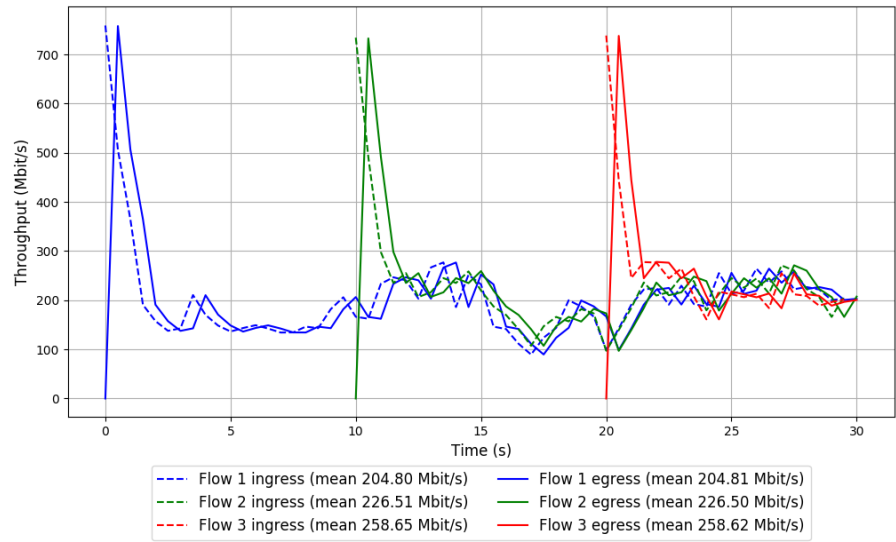
-- Flow 3:

Average throughput: 258.62 Mbit/s

95th percentile per-packet one-way delay: 1.499 ms

Loss rate: 0.02%

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





Run 3: Statistics of TCP Vegas

Start at: 2018-10-10 05:06:25

End at: 2018-10-10 05:06:55

Local clock offset: 1.796 ms

Remote clock offset: 0.387 ms

# Below is generated by plot.py at 2018-10-10 07:24:17

# Datalink statistics

-- Total of 3 flows:

Average throughput: 483.06 Mbit/s

95th percentile per-packet one-way delay: 1.417 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 247.20 Mbit/s

95th percentile per-packet one-way delay: 1.400 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 241.40 Mbit/s

95th percentile per-packet one-way delay: 1.417 ms

Loss rate: 0.01%

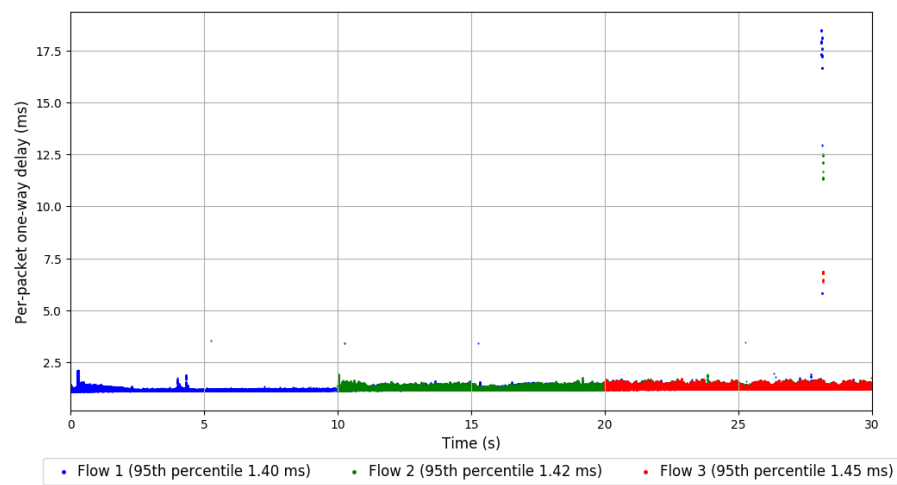
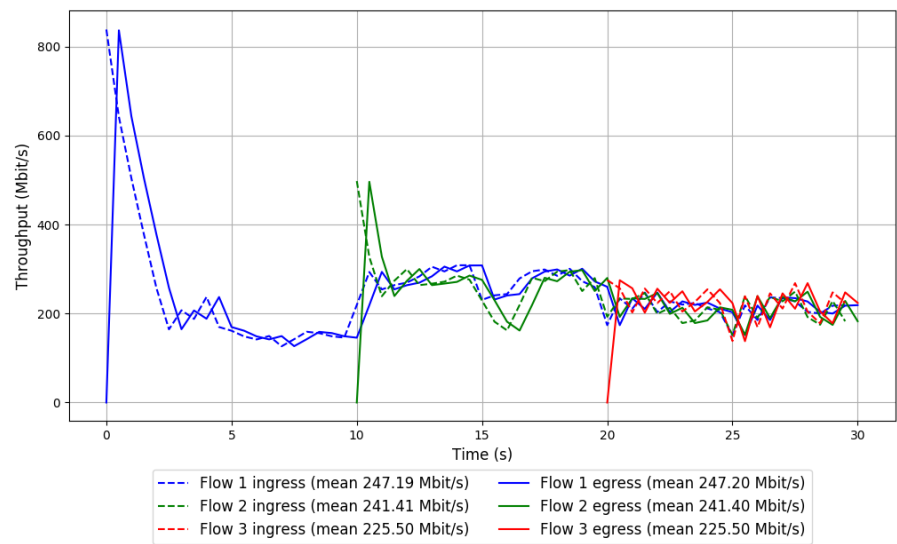
-- Flow 3:

Average throughput: 225.50 Mbit/s

95th percentile per-packet one-way delay: 1.449 ms

Loss rate: 0.01%

Run 3: Report of TCP Vegas — Data Link

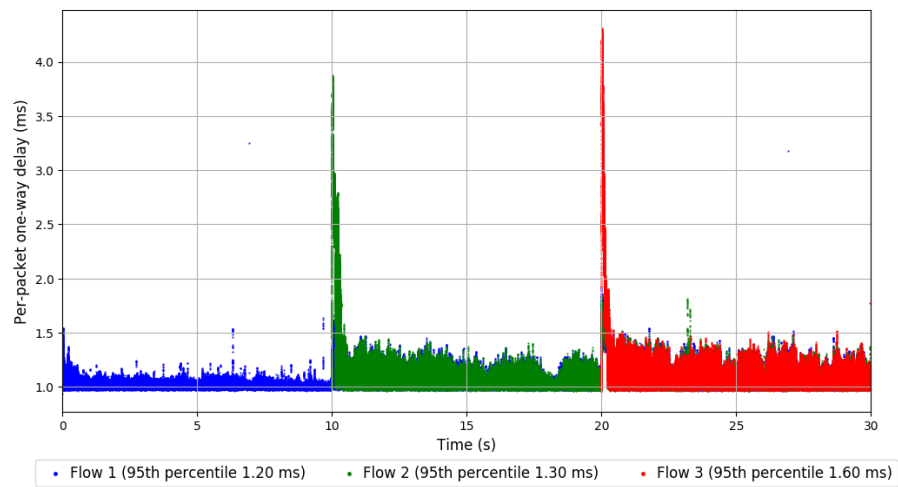
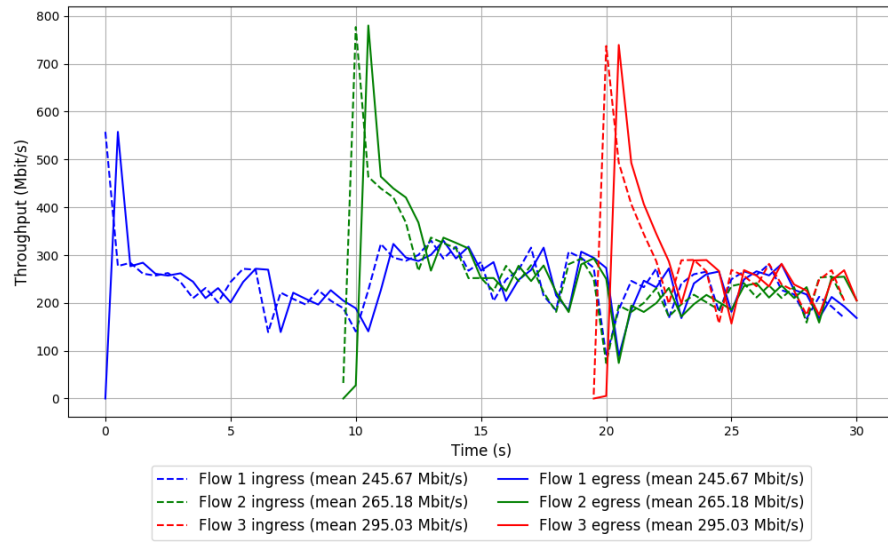


Run 4: Statistics of TCP Vegas

Start at: 2018-10-10 05:34:04  
End at: 2018-10-10 05:34:34  
Local clock offset: -0.522 ms  
Remote clock offset: -0.052 ms

# Below is generated by plot.py at 2018-10-10 07:24:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 520.67 Mbit/s  
95th percentile per-packet one-way delay: 1.266 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 245.67 Mbit/s  
95th percentile per-packet one-way delay: 1.197 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 265.18 Mbit/s  
95th percentile per-packet one-way delay: 1.297 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 295.03 Mbit/s  
95th percentile per-packet one-way delay: 1.605 ms  
Loss rate: 0.01%

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

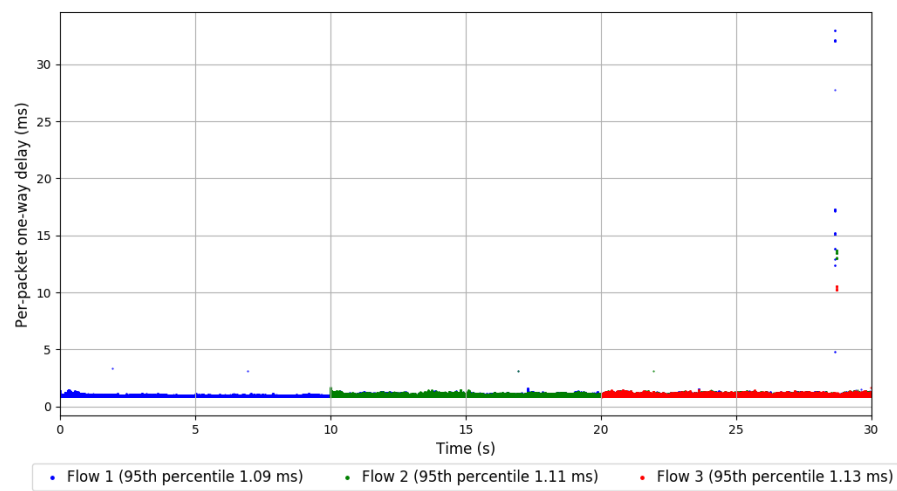
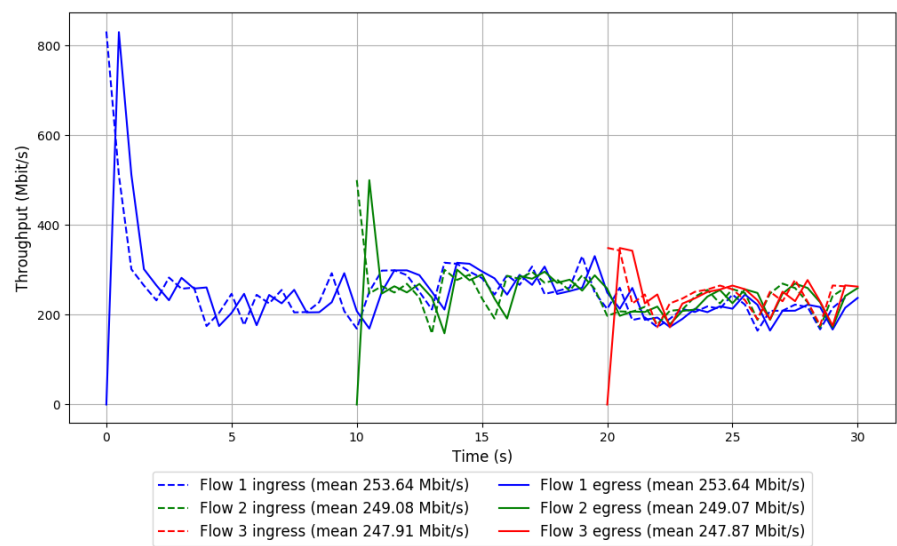


Run 5: Statistics of TCP Vegas

Start at: 2018-10-10 06:01:50  
End at: 2018-10-10 06:02:20  
Local clock offset: -0.425 ms  
Remote clock offset: -0.101 ms

# Below is generated by plot.py at 2018-10-10 07:24:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 501.94 Mbit/s  
95th percentile per-packet one-way delay: 1.105 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 253.64 Mbit/s  
95th percentile per-packet one-way delay: 1.089 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 249.07 Mbit/s  
95th percentile per-packet one-way delay: 1.109 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 247.87 Mbit/s  
95th percentile per-packet one-way delay: 1.129 ms  
Loss rate: 0.02%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-10-10 04:15:21

End at: 2018-10-10 04:15:51

Local clock offset: 3.604 ms

Remote clock offset: 2.715 ms

# Below is generated by plot.py at 2018-10-10 07:24:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 276.31 Mbit/s

95th percentile per-packet one-way delay: 2.179 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 180.30 Mbit/s

95th percentile per-packet one-way delay: 2.358 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 106.44 Mbit/s

95th percentile per-packet one-way delay: 1.469 ms

Loss rate: 0.00%

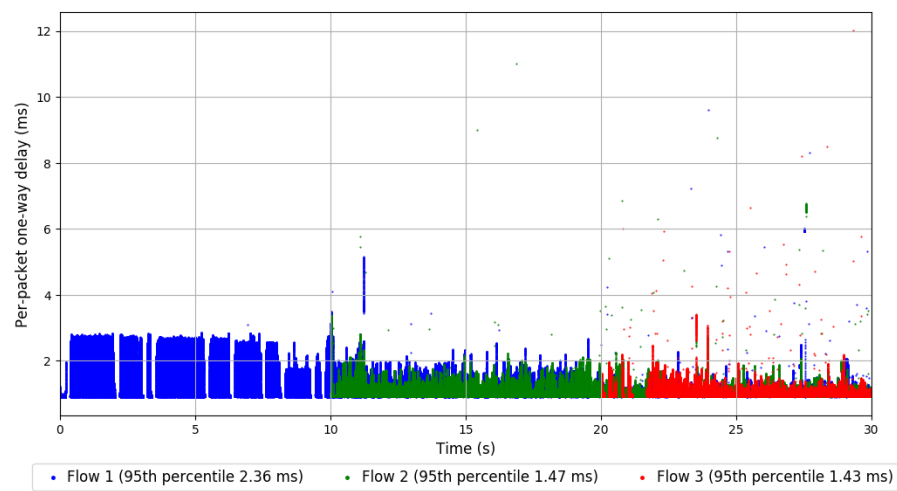
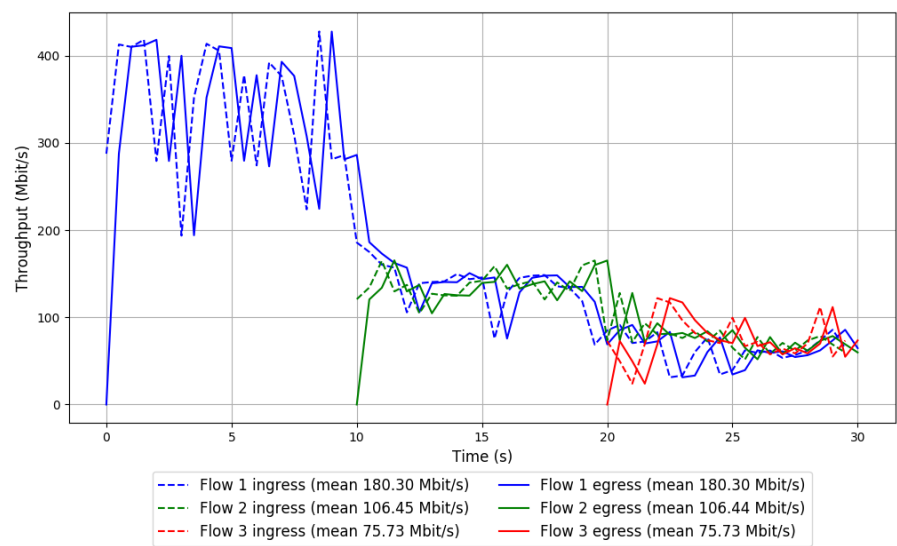
-- Flow 3:

Average throughput: 75.73 Mbit/s

95th percentile per-packet one-way delay: 1.425 ms

Loss rate: 0.00%

Run 1: Report of Verus — Data Link





Run 2: Statistics of Verus

Start at: 2018-10-10 04:43:06

End at: 2018-10-10 04:43:36

Local clock offset: 6.877 ms

Remote clock offset: 3.167 ms

# Below is generated by plot.py at 2018-10-10 07:24:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 231.96 Mbit/s

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

Loss rate: 0.00%

-- Flow 1:

Average throughput: 141.65 Mbit/s

95th percentile per-packet one-way delay: 2.236 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 96.65 Mbit/s

95th percentile per-packet one-way delay: 1.733 ms

Loss rate: 0.00%

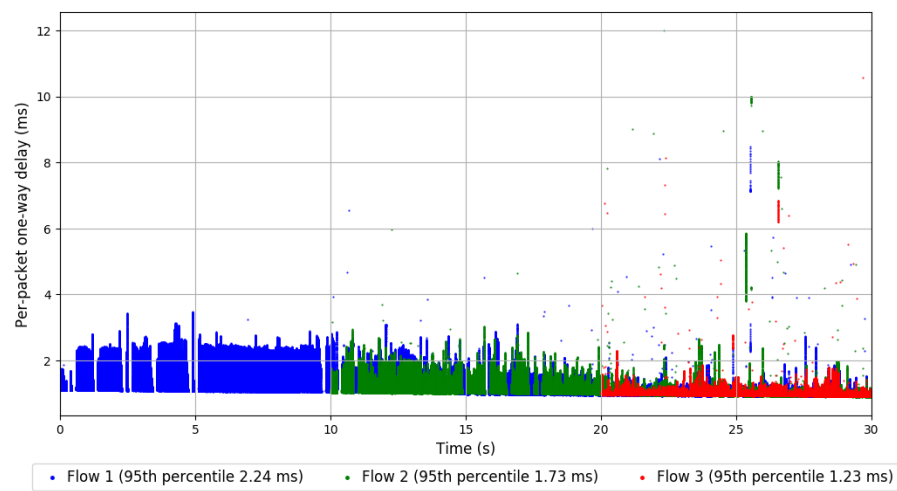
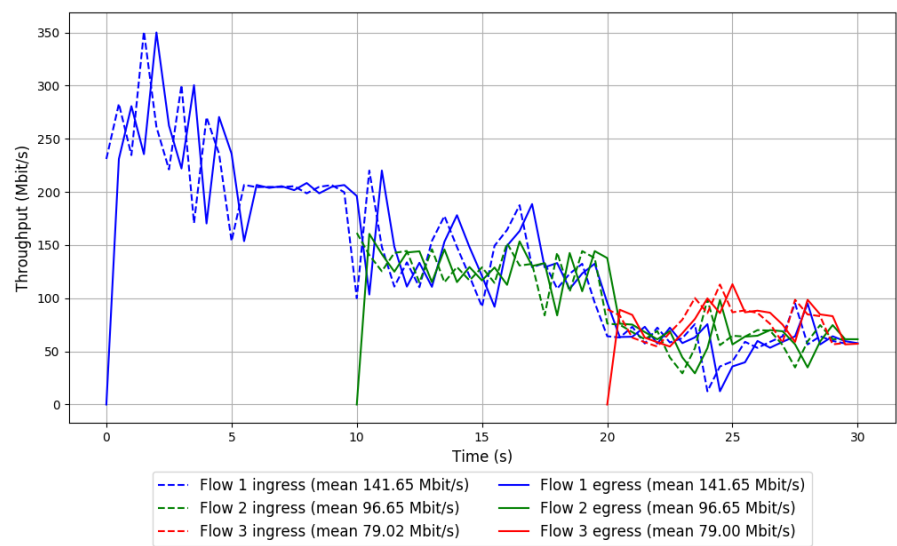
-- Flow 3:

Average throughput: 79.00 Mbit/s

95th percentile per-packet one-way delay: 1.231 ms

Loss rate: 0.04%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-10-10 05:11:08

End at: 2018-10-10 05:11:38

Local clock offset: 0.751 ms

Remote clock offset: 0.382 ms

# Below is generated by plot.py at 2018-10-10 07:24:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 214.72 Mbit/s

95th percentile per-packet one-way delay: 2.665 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 128.31 Mbit/s

95th percentile per-packet one-way delay: 3.167 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 96.32 Mbit/s

95th percentile per-packet one-way delay: 1.610 ms

Loss rate: 0.00%

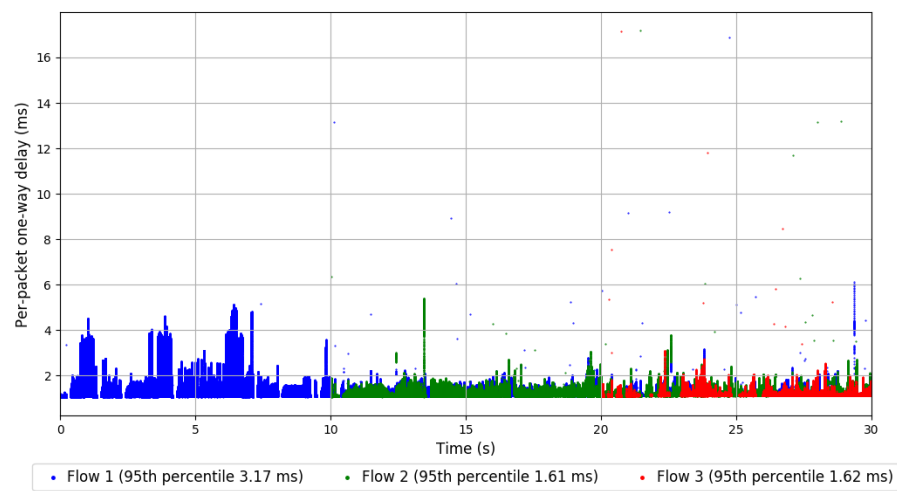
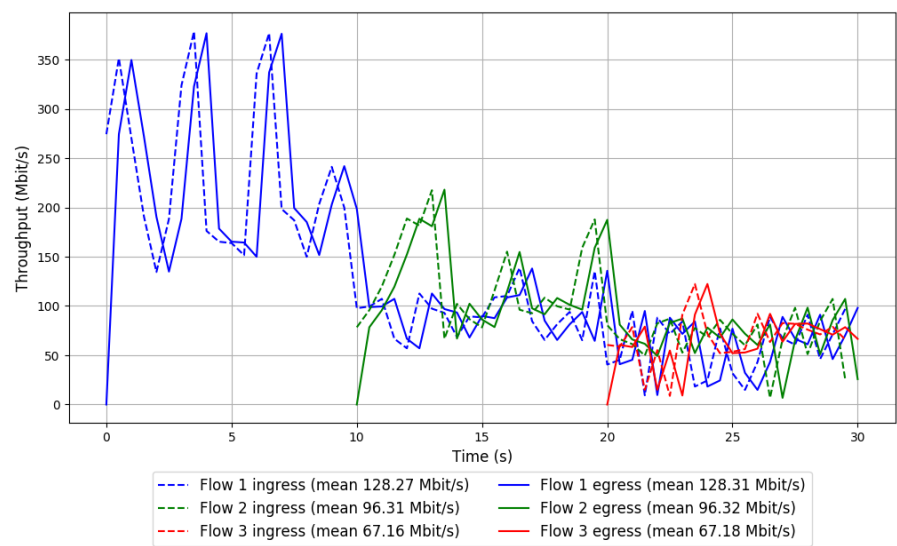
-- Flow 3:

Average throughput: 67.18 Mbit/s

95th percentile per-packet one-way delay: 1.617 ms

Loss rate: 0.00%

Run 3: Report of Verus — Data Link

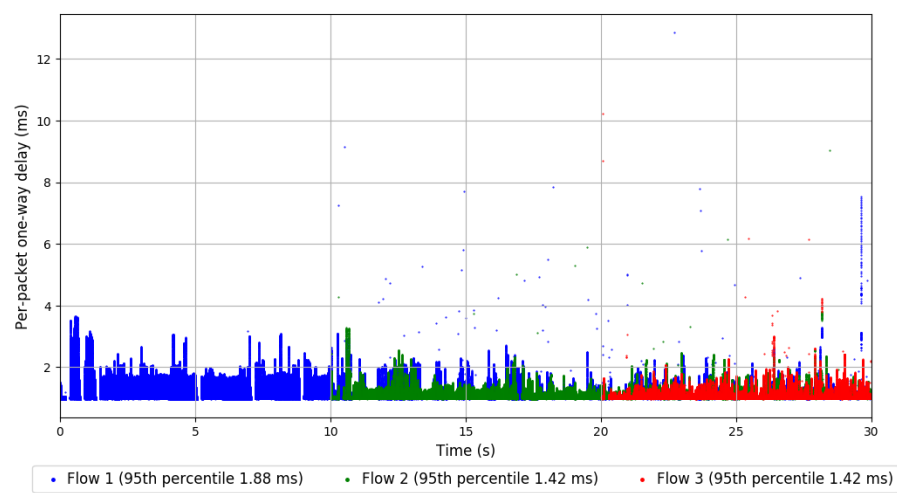
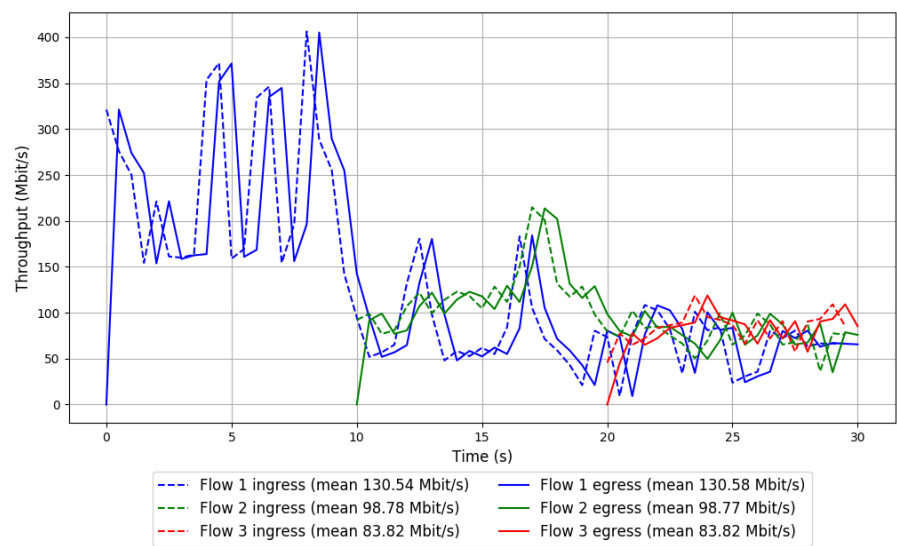


Run 4: Statistics of Verus

Start at: 2018-10-10 05:38:48  
End at: 2018-10-10 05:39:18  
Local clock offset: -0.567 ms  
Remote clock offset: -0.082 ms

# Below is generated by plot.py at 2018-10-10 07:26:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 224.13 Mbit/s  
95th percentile per-packet one-way delay: 1.745 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 130.58 Mbit/s  
95th percentile per-packet one-way delay: 1.878 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 98.77 Mbit/s  
95th percentile per-packet one-way delay: 1.419 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 83.82 Mbit/s  
95th percentile per-packet one-way delay: 1.415 ms  
Loss rate: 0.00%

Run 4: Report of Verus — Data Link

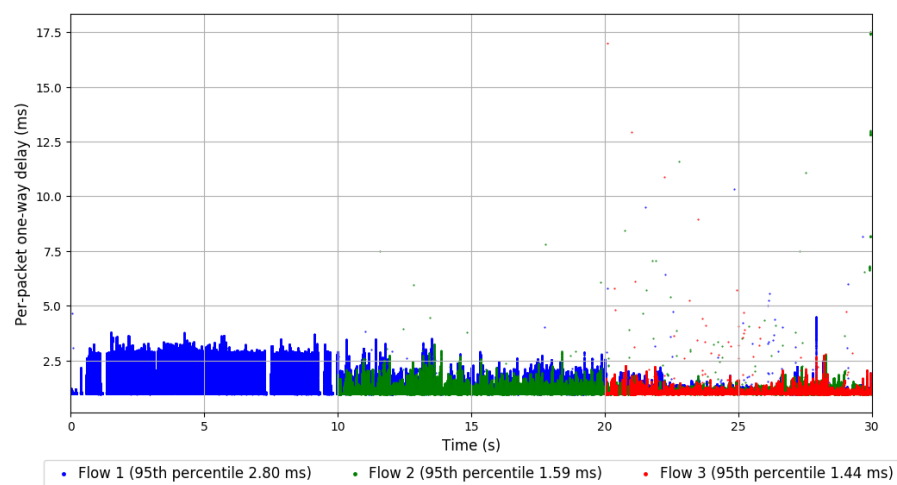
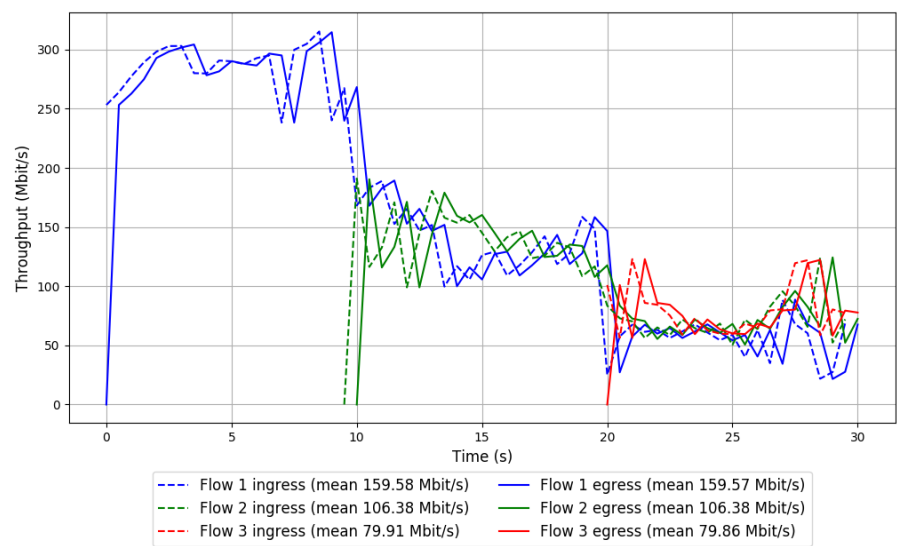


Run 5: Statistics of Verus

Start at: 2018-10-10 06:06:32  
End at: 2018-10-10 06:07:02  
Local clock offset: -0.276 ms  
Remote clock offset: -0.191 ms

# Below is generated by plot.py at 2018-10-10 07:26:33  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 256.97 Mbit/s  
95th percentile per-packet one-way delay: 2.683 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 159.57 Mbit/s  
95th percentile per-packet one-way delay: 2.800 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 106.38 Mbit/s  
95th percentile per-packet one-way delay: 1.592 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 79.86 Mbit/s  
95th percentile per-packet one-way delay: 1.444 ms  
Loss rate: 0.06%

Run 5: Report of Verus — Data Link





Run 1: Statistics of PCC-Vivace

Start at: 2018-10-10 04:07:46

End at: 2018-10-10 04:08:16

Local clock offset: 1.894 ms

Remote clock offset: 0.935 ms

# Below is generated by plot.py at 2018-10-10 07:26:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 224.45 Mbit/s

95th percentile per-packet one-way delay: 0.897 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 119.29 Mbit/s

95th percentile per-packet one-way delay: 0.901 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 115.92 Mbit/s

95th percentile per-packet one-way delay: 0.877 ms

Loss rate: 0.00%

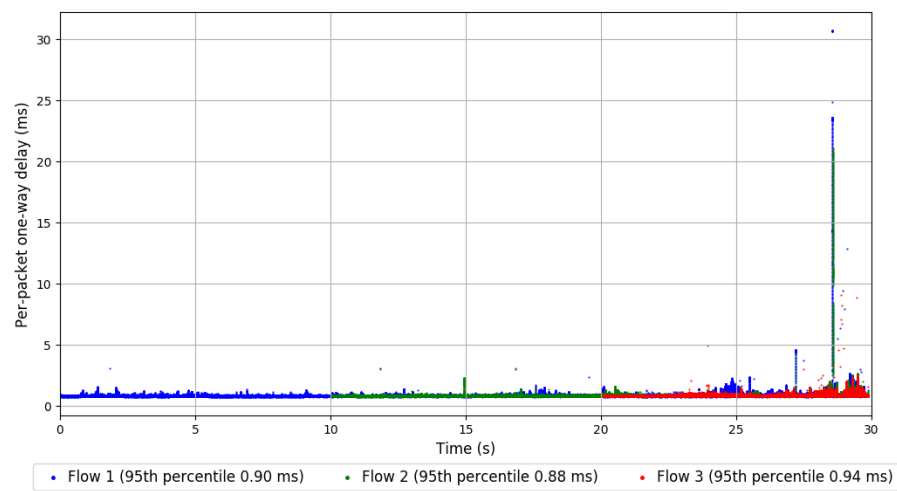
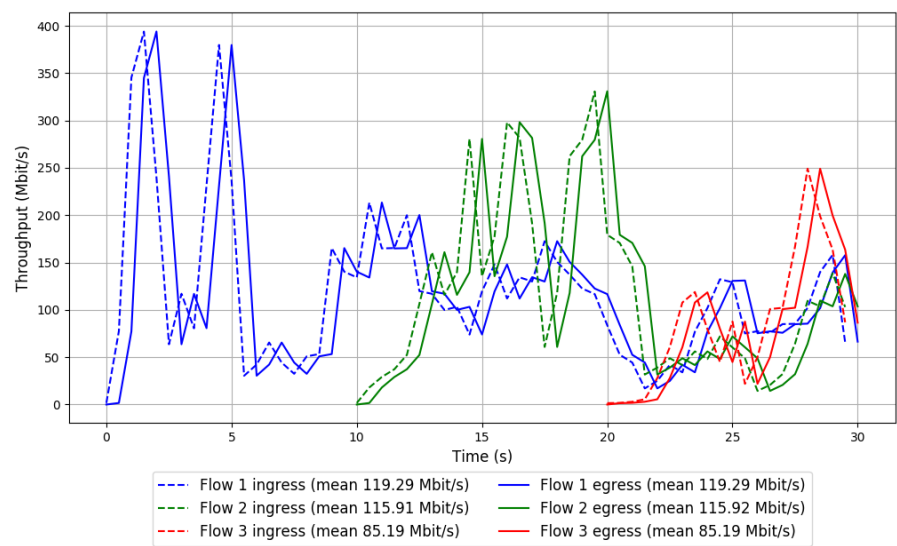
-- Flow 3:

Average throughput: 85.19 Mbit/s

95th percentile per-packet one-way delay: 0.945 ms

Loss rate: 0.02%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-10-10 04:35:34

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

Local clock offset: 6.124 ms

Remote clock offset: 5.266 ms

# Below is generated by plot.py at 2018-10-10 07:26:50

# Datalink statistics

-- Total of 3 flows:

Average throughput: 244.68 Mbit/s

95th percentile per-packet one-way delay: 1.006 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 146.51 Mbit/s

95th percentile per-packet one-way delay: 0.965 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 115.05 Mbit/s

95th percentile per-packet one-way delay: 1.037 ms

Loss rate: 0.02%

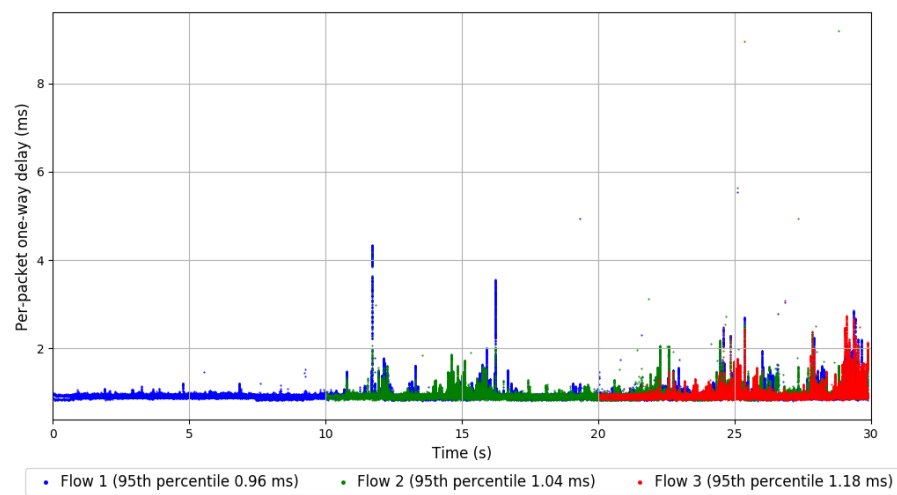
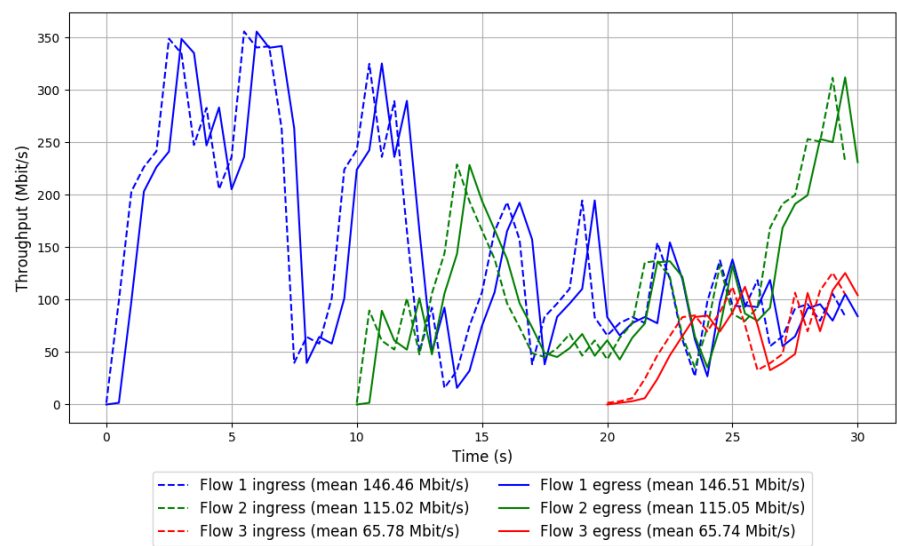
-- Flow 3:

Average throughput: 65.74 Mbit/s

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

Loss rate: 0.09%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-10-10 05:03:32

End at: 2018-10-10 05:04:02

Local clock offset: 2.78 ms

Remote clock offset: 0.521 ms

# Below is generated by plot.py at 2018-10-10 07:26:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 263.87 Mbit/s

95th percentile per-packet one-way delay: 1.317 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 173.32 Mbit/s

95th percentile per-packet one-way delay: 1.310 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 104.13 Mbit/s

95th percentile per-packet one-way delay: 1.317 ms

Loss rate: 0.01%

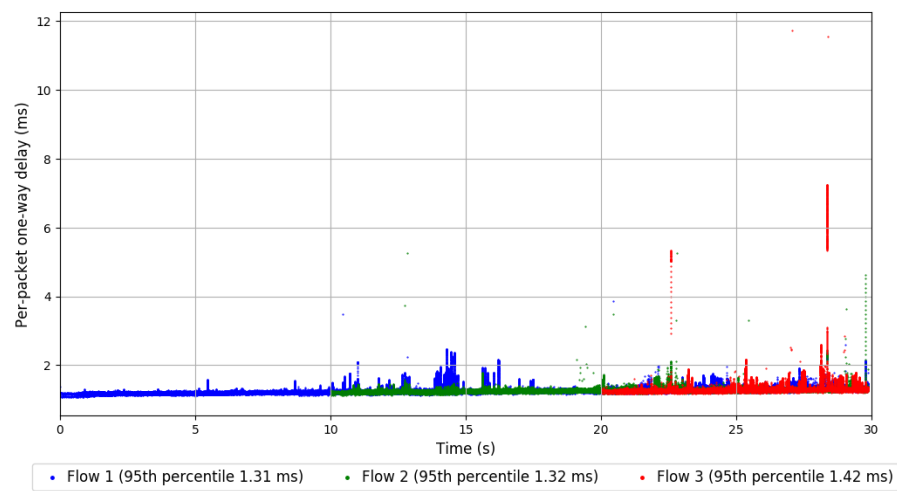
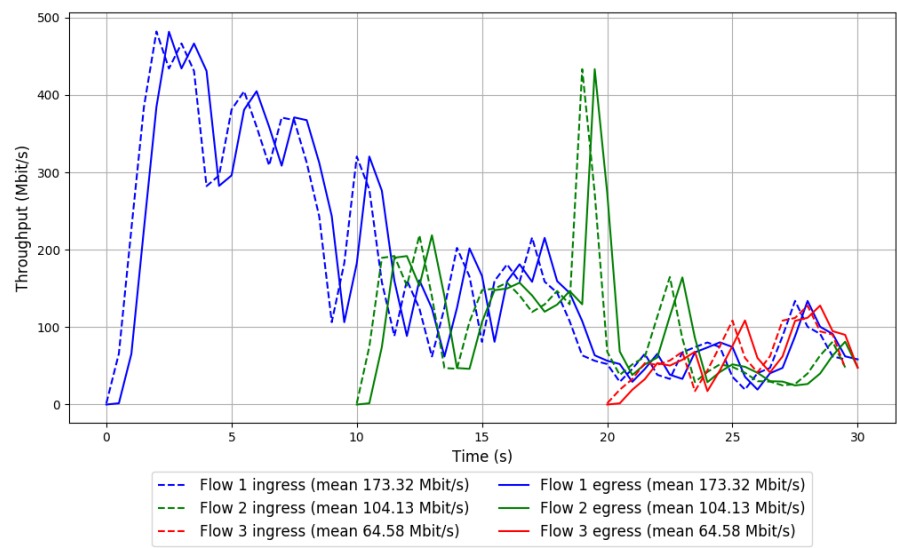
-- Flow 3:

Average throughput: 64.58 Mbit/s

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

Loss rate: 0.01%

Run 3: Report of PCC-Vivace — Data Link

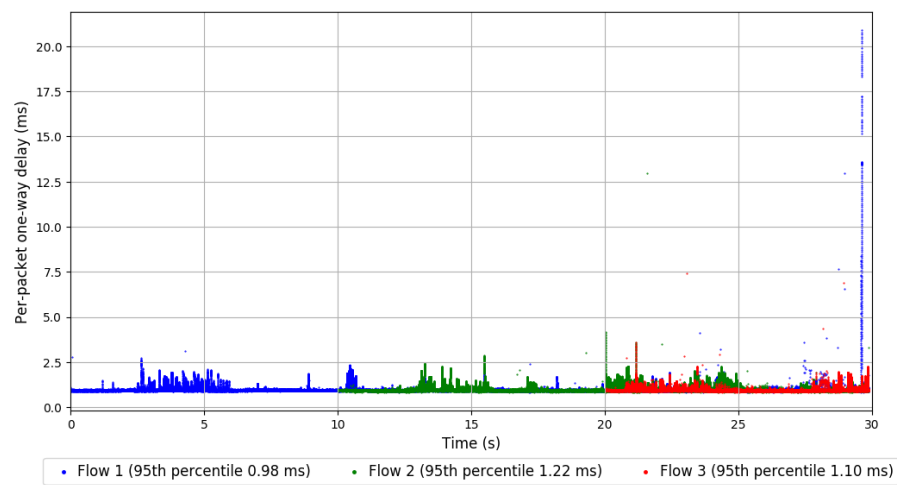
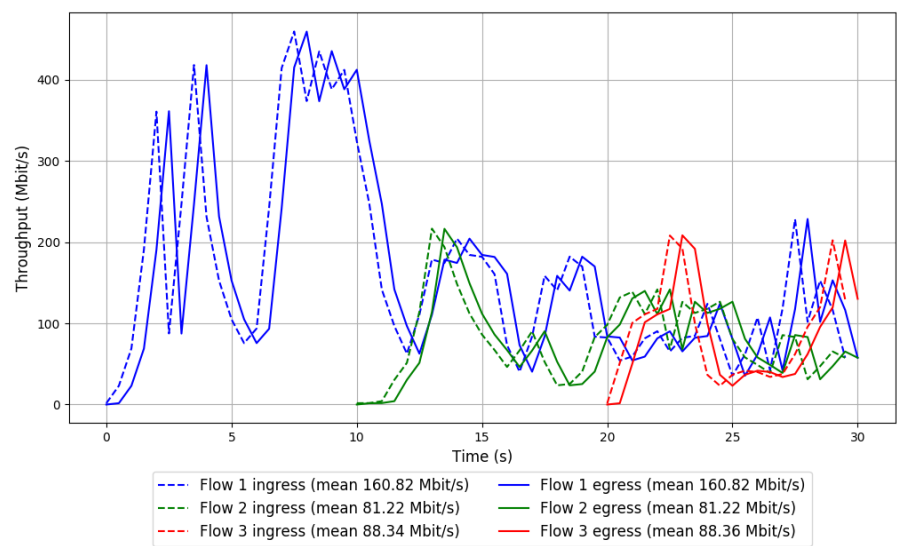


Run 4: Statistics of PCC-Vivace

Start at: 2018-10-10 05:31:12  
End at: 2018-10-10 05:31:42  
Local clock offset: -0.594 ms  
Remote clock offset: -0.041 ms

# Below is generated by plot.py at 2018-10-10 07:26:59  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 243.98 Mbit/s  
95th percentile per-packet one-way delay: 1.033 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 160.82 Mbit/s  
95th percentile per-packet one-way delay: 0.982 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 81.22 Mbit/s  
95th percentile per-packet one-way delay: 1.219 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 88.36 Mbit/s  
95th percentile per-packet one-way delay: 1.105 ms  
Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link





Run 5: Statistics of PCC-Vivace

Start at: 2018-10-10 05:58:58

End at: 2018-10-10 05:59:28

Local clock offset: -0.61 ms

Remote clock offset: -0.15 ms

# Below is generated by plot.py at 2018-10-10 07:27:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 249.71 Mbit/s

95th percentile per-packet one-way delay: 0.959 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 151.50 Mbit/s

95th percentile per-packet one-way delay: 0.949 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 104.55 Mbit/s

95th percentile per-packet one-way delay: 0.983 ms

Loss rate: 0.01%

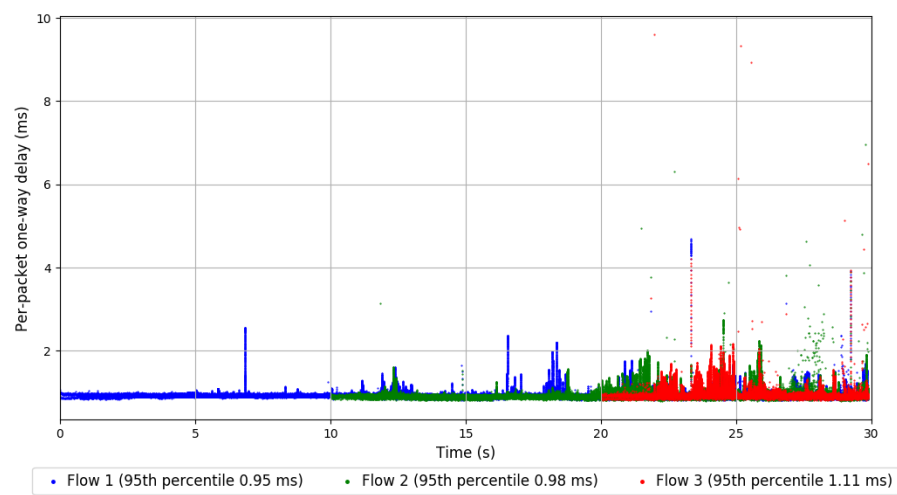
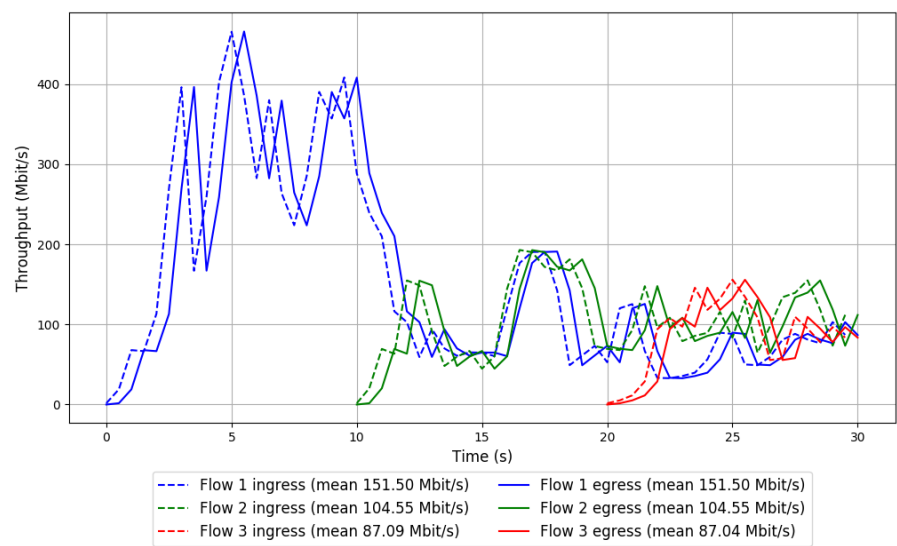
-- Flow 3:

Average throughput: 87.04 Mbit/s

95th percentile per-packet one-way delay: 1.111 ms

Loss rate: 0.01%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-10-10 04:34:14

End at: 2018-10-10 04:34:44

Local clock offset: 5.969 ms

Remote clock offset: 5.1 ms

# Below is generated by plot.py at 2018-10-10 07:27:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.95 Mbit/s

95th percentile per-packet one-way delay: 1.021 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 1.44 Mbit/s

95th percentile per-packet one-way delay: 1.021 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.09 Mbit/s

95th percentile per-packet one-way delay: 1.016 ms

Loss rate: 0.00%

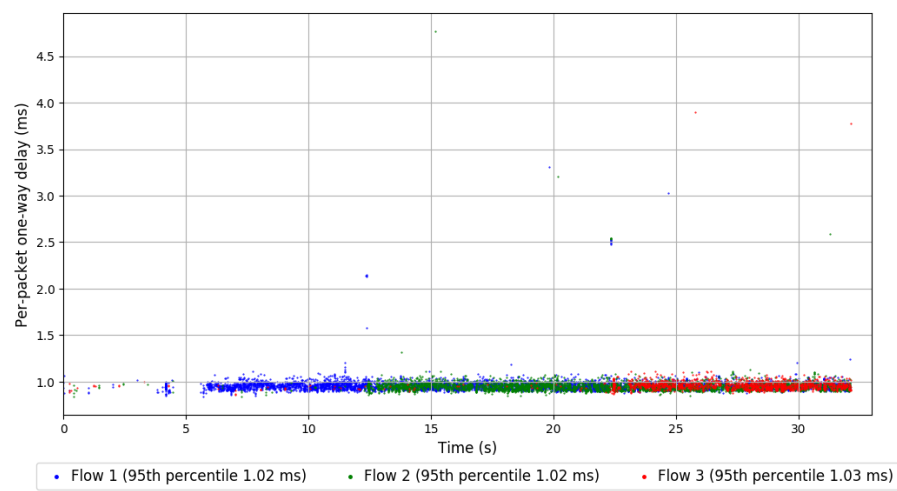
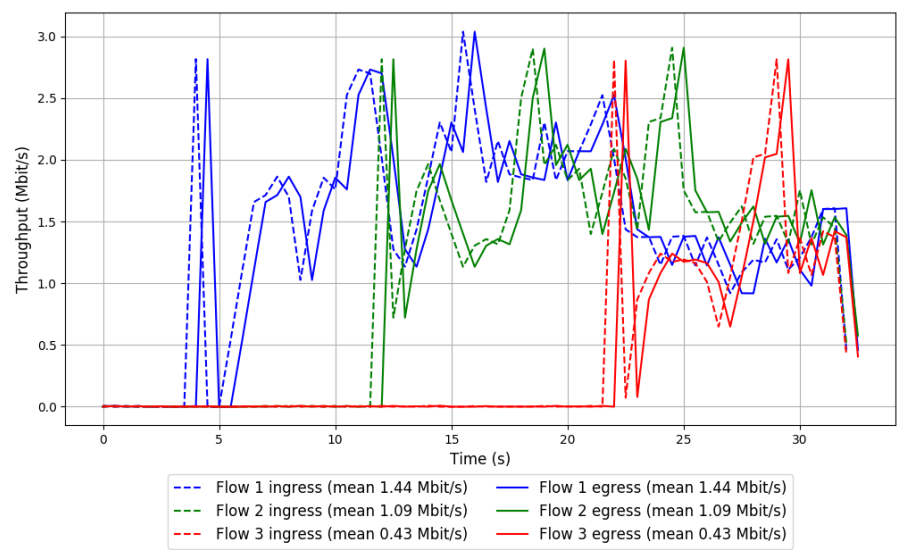
-- Flow 3:

Average throughput: 0.43 Mbit/s

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

Loss rate: 0.07%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-10-10 05:02:13

End at: 2018-10-10 05:02:43

Local clock offset: 3.317 ms

Remote clock offset: 0.437 ms

# Below is generated by plot.py at 2018-10-10 07:27:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.96 Mbit/s

95th percentile per-packet one-way delay: 1.524 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 1.518 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.97 Mbit/s

95th percentile per-packet one-way delay: 1.523 ms

Loss rate: 0.00%

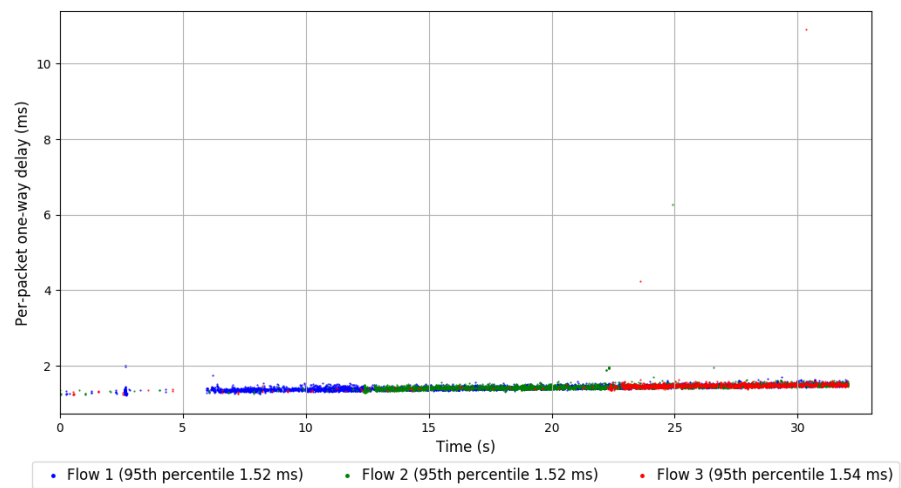
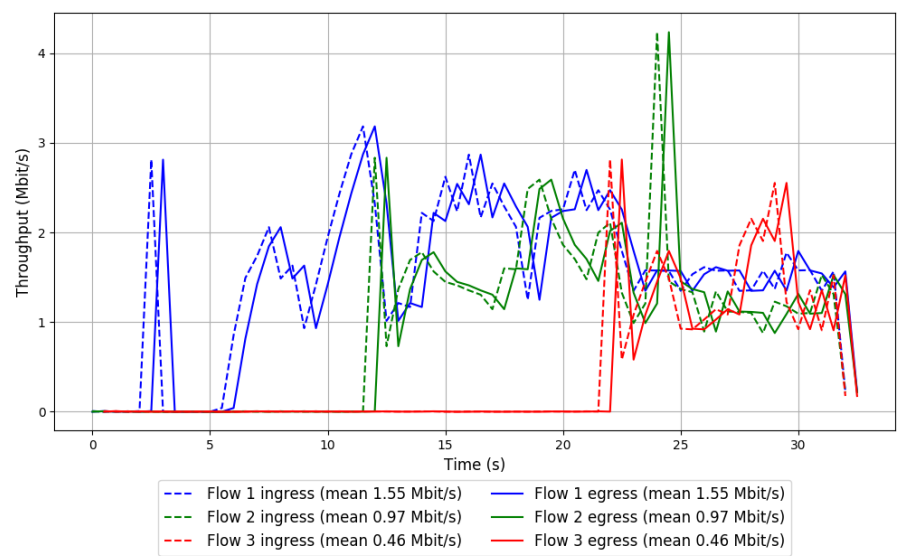
-- Flow 3:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 1.538 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

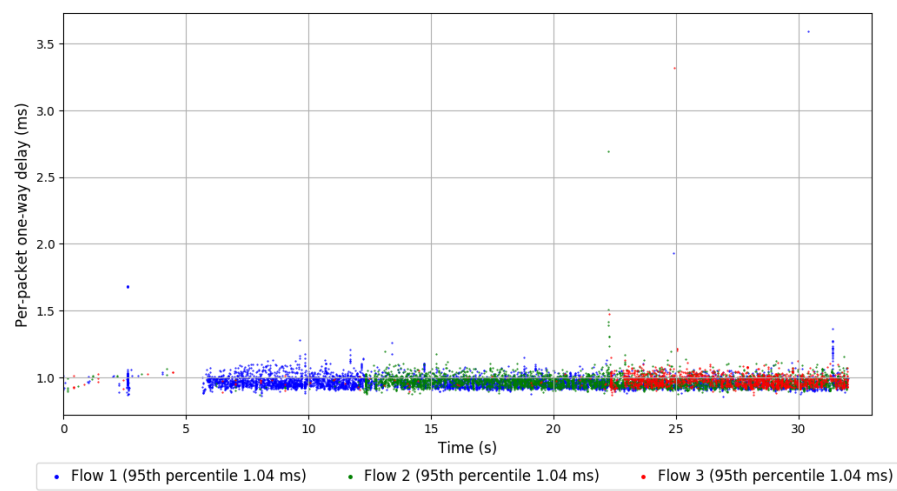
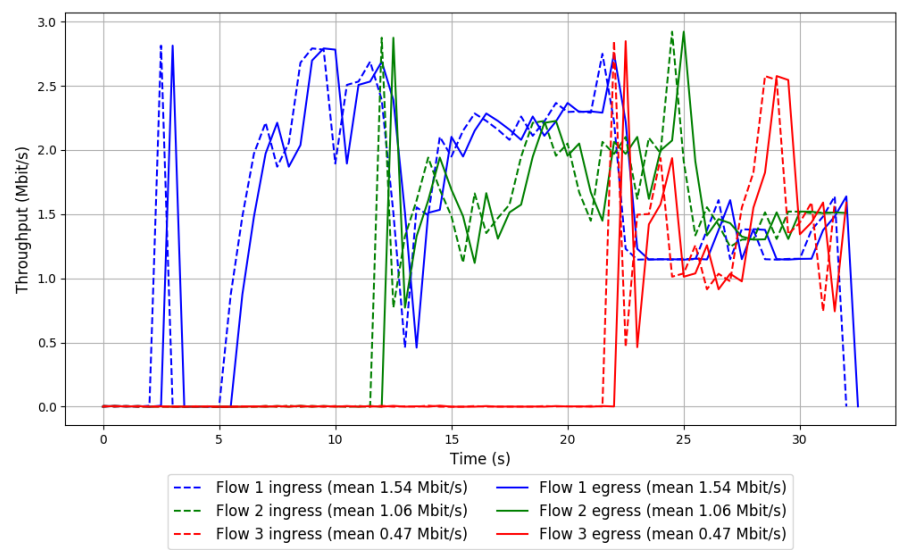


Run 3: Statistics of WebRTC media

Start at: 2018-10-10 05:29:53  
End at: 2018-10-10 05:30:23  
Local clock offset: -0.634 ms  
Remote clock offset: -0.049 ms

# Below is generated by plot.py at 2018-10-10 07:27:01  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.06 Mbit/s  
95th percentile per-packet one-way delay: 1.041 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.54 Mbit/s  
95th percentile per-packet one-way delay: 1.040 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.06 Mbit/s  
95th percentile per-packet one-way delay: 1.042 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.47 Mbit/s  
95th percentile per-packet one-way delay: 1.042 ms  
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



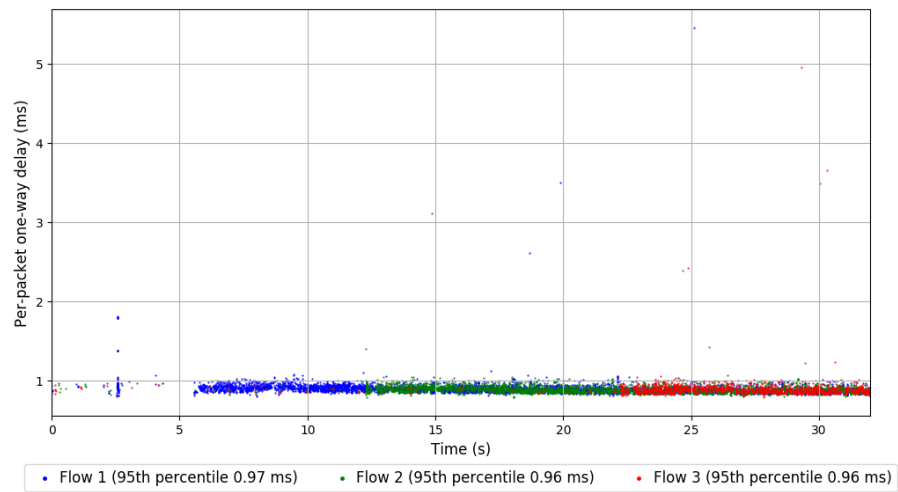
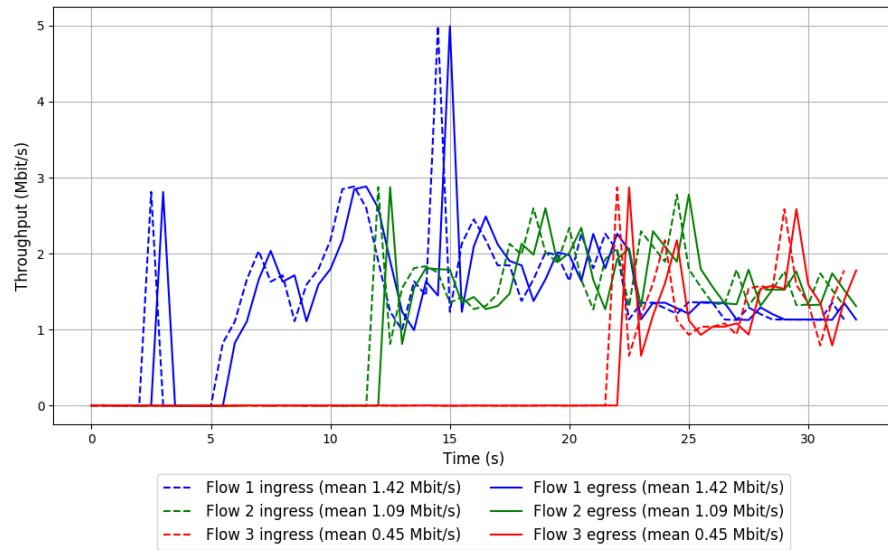


Run 4: Statistics of WebRTC media

Start at: 2018-10-10 05:57:40  
End at: 2018-10-10 05:58:10  
Local clock offset: -0.69 ms  
Remote clock offset: -0.102 ms

# Below is generated by plot.py at 2018-10-10 07:27:01  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.95 Mbit/s  
95th percentile per-packet one-way delay: 0.966 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.42 Mbit/s  
95th percentile per-packet one-way delay: 0.970 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.09 Mbit/s  
95th percentile per-packet one-way delay: 0.964 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.45 Mbit/s  
95th percentile per-packet one-way delay: 0.959 ms  
Loss rate: 0.01%

#### Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-10-10 06:25:26  
End at: 2018-10-10 06:25:56  
Local clock offset: -0.371 ms  
Remote clock offset: -0.119 ms

# Below is generated by plot.py at 2018-10-10 07:27:01  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.95 Mbit/s  
95th percentile per-packet one-way delay: 1.007 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 1.43 Mbit/s  
95th percentile per-packet one-way delay: 1.014 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.08 Mbit/s  
95th percentile per-packet one-way delay: 1.001 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.004 ms  
Loss rate: 0.07%

Run 5: Report of WebRTC media — Data Link

