

## Pantheon Report

Generated at 2018-10-02 19:52:55 (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:

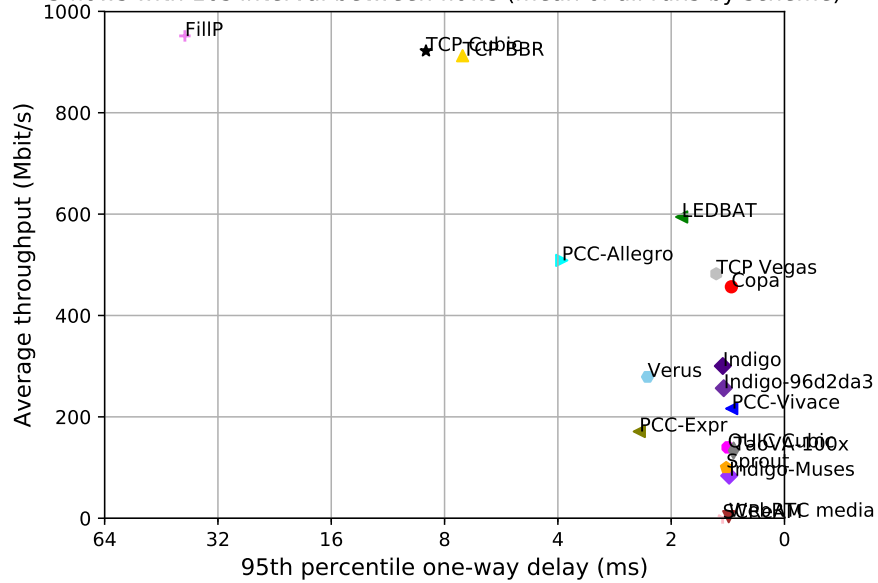
```
Linux 4.15.0-1021-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

### Git summary:

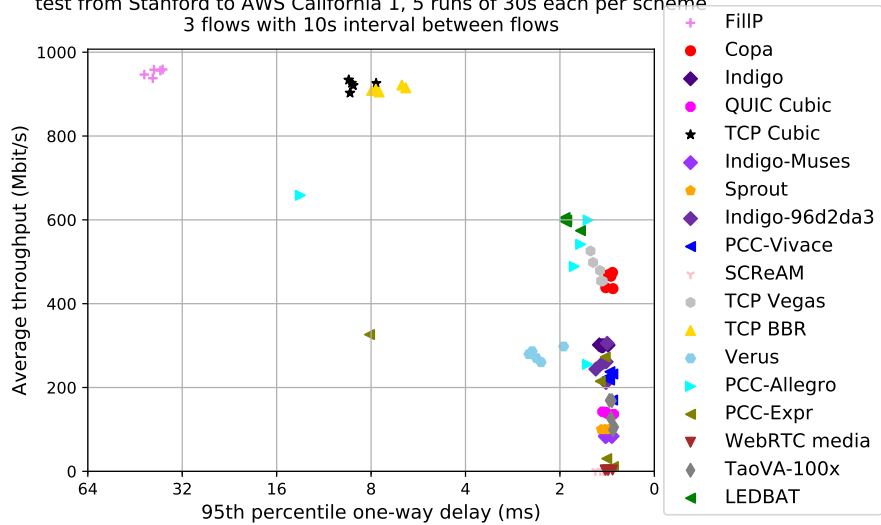
```
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
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      | 533.41                 | 404.94 | 328.90 | 7.21                      | 6.30   | 6.76   | 0.02               | 0.03   | 0.08   |
| Copa           | 5      | 267.87                 | 225.13 | 116.88 | 0.95                      | 0.92   | 0.91   | 0.00               | 0.01   | 0.02   |
| TCP Cubic      | 5      | 547.32                 | 402.01 | 321.07 | 9.34                      | 7.58   | 7.75   | 0.02               | 0.04   | 0.08   |
| FillP          | 5      | 576.27                 | 402.86 | 323.74 | 37.44                     | 49.99  | 38.33  | 0.78               | 1.00   | 1.27   |
| Indigo         | 5      | 160.12                 | 147.66 | 127.71 | 1.05                      | 1.11   | 1.19   | 0.01               | 0.01   | 0.02   |
| Indigo-96d2da3 | 5      | 120.17                 | 134.26 | 141.85 | 1.05                      | 1.08   | 1.11   | 0.00               | 0.01   | 0.01   |
| LEDBAT         | 5      | 367.90                 | 249.11 | 182.36 | 1.79                      | 1.88   | 1.74   | 0.00               | 0.00   | 0.02   |
| Indigo-Muses   | 5      | 40.90                  | 41.57  | 46.28  | 0.99                      | 0.97   | 0.94   | 0.01               | 0.01   | 0.01   |
| PCC-Allegro    | 5      | 352.75                 | 185.97 | 98.45  | 5.90                      | 1.51   | 1.42   | 0.00               | 0.00   | 0.03   |
| PCC-Expr       | 5      | 137.15                 | 31.04  | 40.39  | 4.17                      | 1.04   | 1.06   | 0.00               | 0.01   | 0.01   |
| QUIC Cubic     | 5      | 76.46                  | 66.81  | 56.62  | 1.00                      | 1.00   | 1.00   | 0.01               | 0.02   | 0.01   |
| SCReAM         | 5      | 0.22                   | 0.22   | 0.22   | 1.10                      | 1.08   | 1.05   | 0.00               | 0.00   | 0.14   |
| Sprout         | 5      | 50.25                  | 50.14  | 49.87  | 1.03                      | 1.02   | 1.02   | 0.00               | 0.01   | 0.03   |
| TaoVA-100x     | 5      | 90.20                  | 40.84  | 48.93  | 0.90                      | 0.89   | 0.93   | 0.01               | 0.01   | 0.02   |
| TCP Vegas      | 5      | 230.86                 | 248.19 | 259.40 | 1.17                      | 1.33   | 1.38   | 0.01               | 0.01   | 0.01   |
| Verus          | 5      | 180.61                 | 107.79 | 80.06  | 2.47                      | 1.52   | 1.44   | 0.00               | 0.01   | 0.03   |
| PCC-Vivace     | 5      | 138.39                 | 84.36  | 66.18  | 0.92                      | 0.98   | 0.96   | 0.00               | 0.01   | 0.05   |
| WebRTC media   | 5      | 1.54                   | 1.01   | 0.46   | 0.99                      | 0.98   | 0.97   | 0.03               | 0.00   | 0.01   |



Run 1: Statistics of TCP BBR

Start at: 2018-10-02 16:40:12

End at: 2018-10-02 16:40:42

Local clock offset: 3.697 ms

Remote clock offset: 3.051 ms

# Below is generated by plot.py at 2018-10-02 19:10:11

# Datalink statistics

-- Total of 3 flows:

Average throughput: 921.79 Mbit/s

95th percentile per-packet one-way delay: 6.382 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 542.88 Mbit/s

95th percentile per-packet one-way delay: 6.452 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 404.75 Mbit/s

95th percentile per-packet one-way delay: 5.843 ms

Loss rate: 0.03%

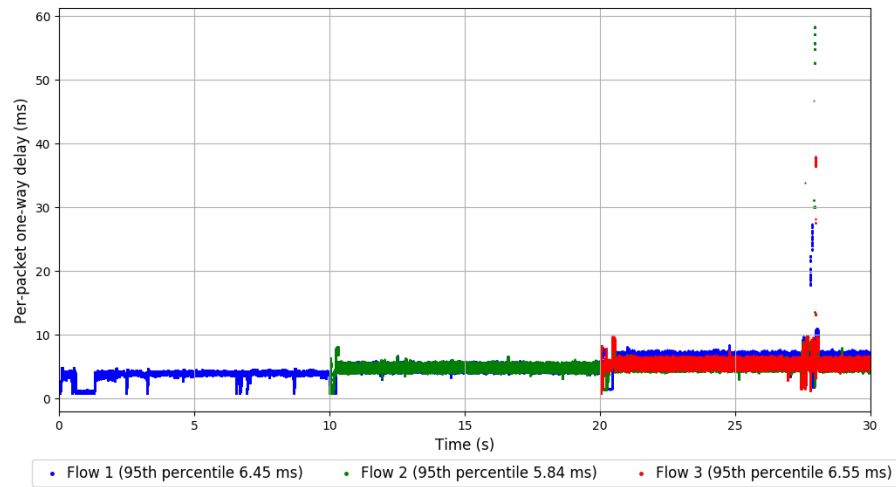
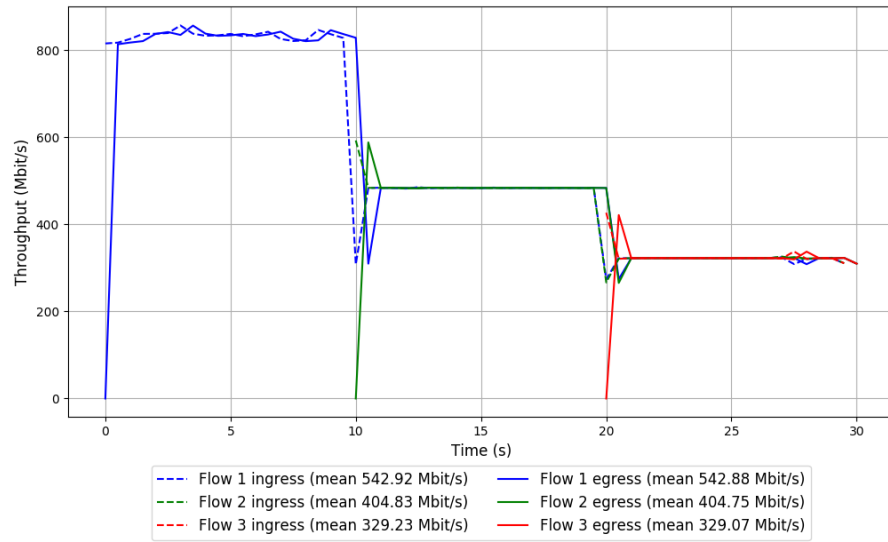
-- Flow 3:

Average throughput: 329.07 Mbit/s

95th percentile per-packet one-way delay: 6.548 ms

Loss rate: 0.07%

# Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-10-02 17:08:05

End at: 2018-10-02 17:08:35

Local clock offset: 4.085 ms

Remote clock offset: 0.319 ms

# Below is generated by plot.py at 2018-10-02 19:10:11

# Datalink statistics

-- Total of 3 flows:

Average throughput: 908.76 Mbit/s

95th percentile per-packet one-way delay: 7.968 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 530.23 Mbit/s

95th percentile per-packet one-way delay: 8.171 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 404.40 Mbit/s

95th percentile per-packet one-way delay: 6.210 ms

Loss rate: 0.03%

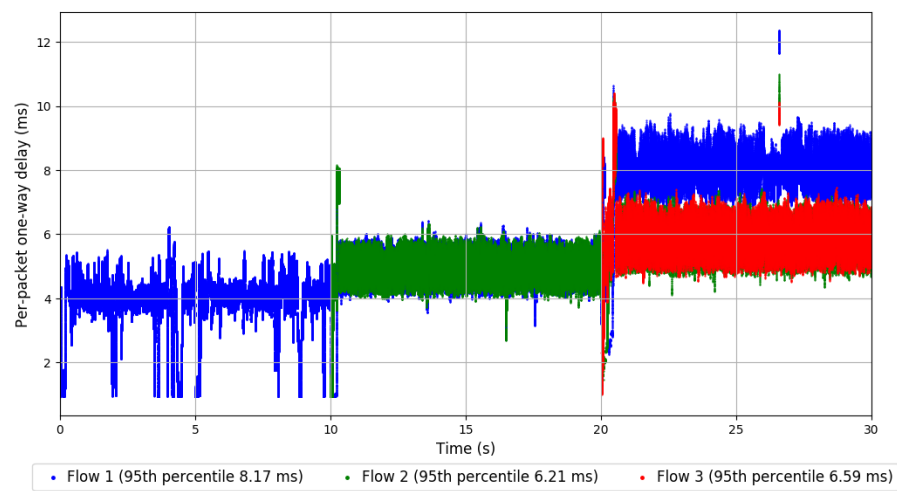
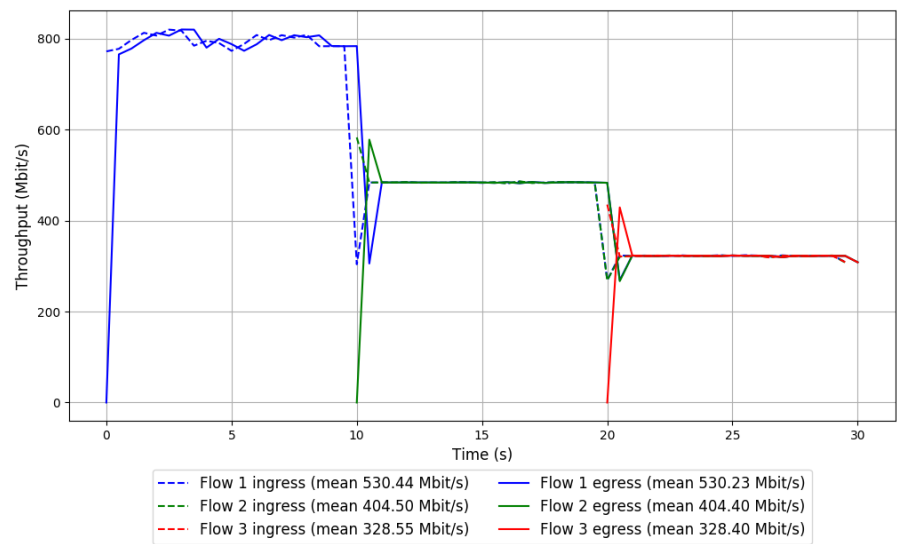
-- Flow 3:

Average throughput: 328.40 Mbit/s

95th percentile per-packet one-way delay: 6.586 ms

Loss rate: 0.07%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-10-02 17:35:47

End at: 2018-10-02 17:36:17

Local clock offset: 4.578 ms

Remote clock offset: 2.476 ms

# Below is generated by plot.py at 2018-10-02 19:10:11

# Datalink statistics

-- Total of 3 flows:

Average throughput: 911.76 Mbit/s

95th percentile per-packet one-way delay: 7.727 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 531.78 Mbit/s

95th percentile per-packet one-way delay: 7.884 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 405.75 Mbit/s

95th percentile per-packet one-way delay: 5.984 ms

Loss rate: 0.03%

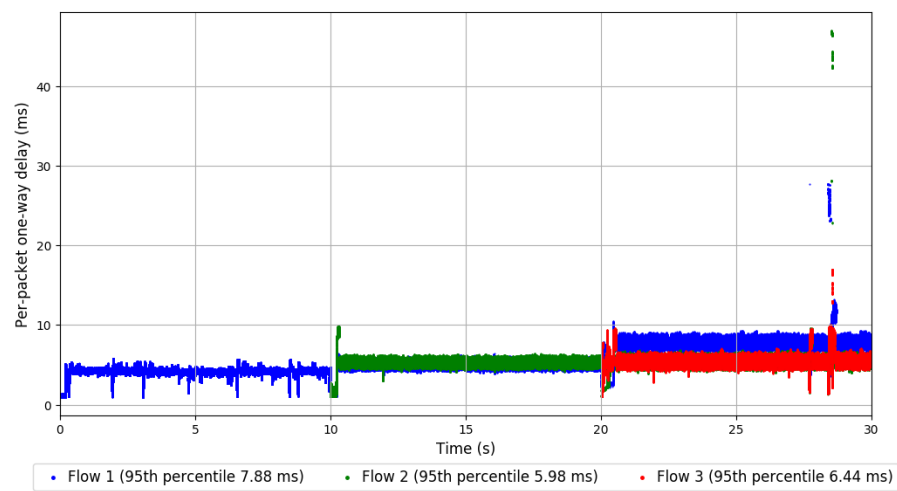
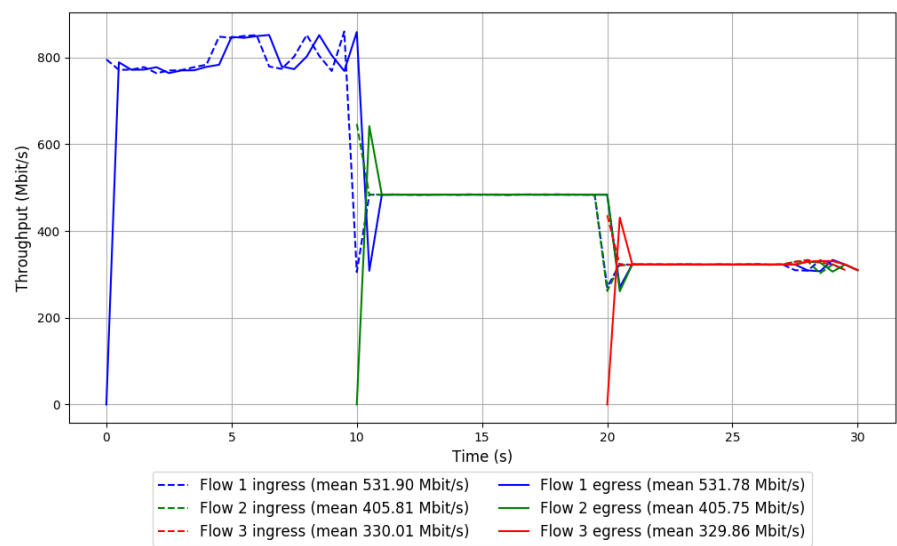
-- Flow 3:

Average throughput: 329.86 Mbit/s

95th percentile per-packet one-way delay: 6.440 ms

Loss rate: 0.06%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-10-02 18:03:30

End at: 2018-10-02 18:04:00

Local clock offset: 6.213 ms

Remote clock offset: 2.539 ms

# Below is generated by plot.py at 2018-10-02 19:10:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 915.05 Mbit/s

95th percentile per-packet one-way delay: 6.203 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 536.15 Mbit/s

95th percentile per-packet one-way delay: 6.318 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 404.91 Mbit/s

95th percentile per-packet one-way delay: 5.822 ms

Loss rate: 0.04%

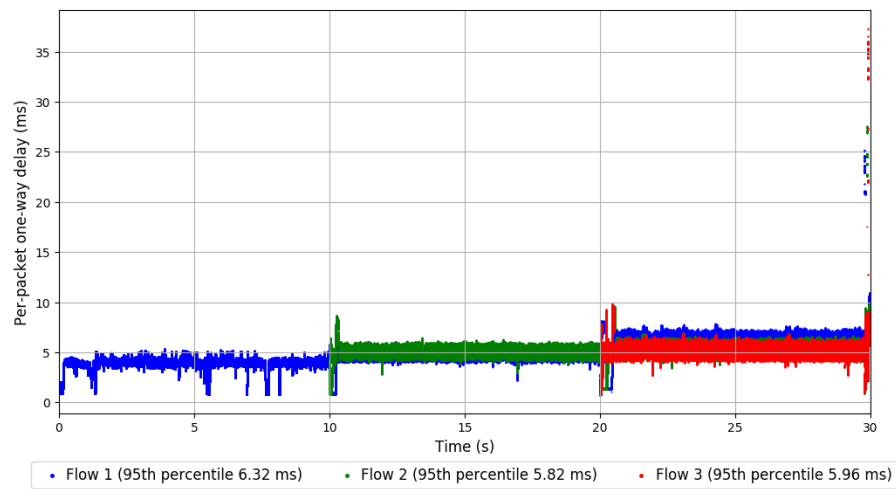
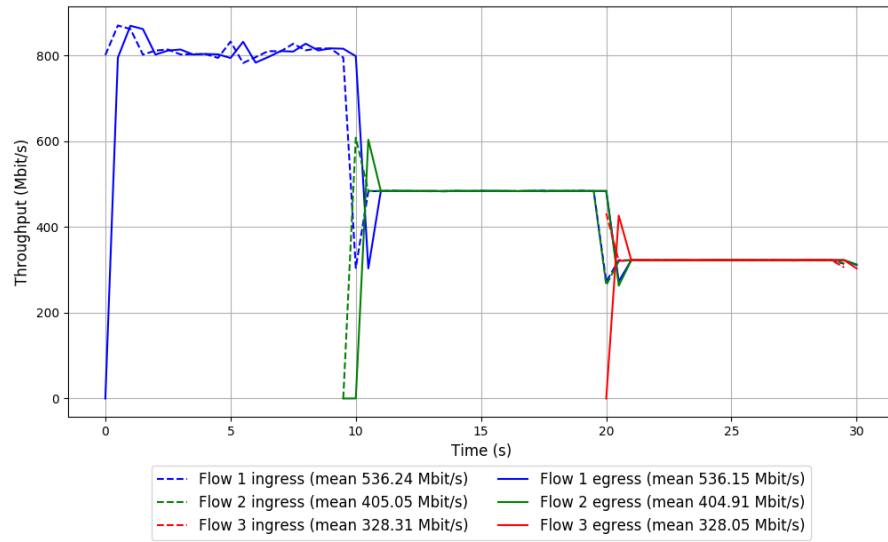
-- Flow 3:

Average throughput: 328.05 Mbit/s

95th percentile per-packet one-way delay: 5.959 ms

Loss rate: 0.09%

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



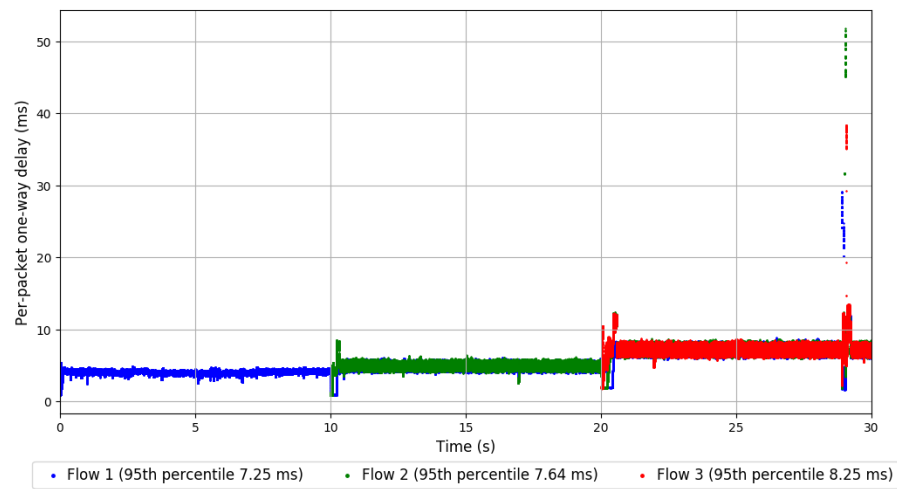
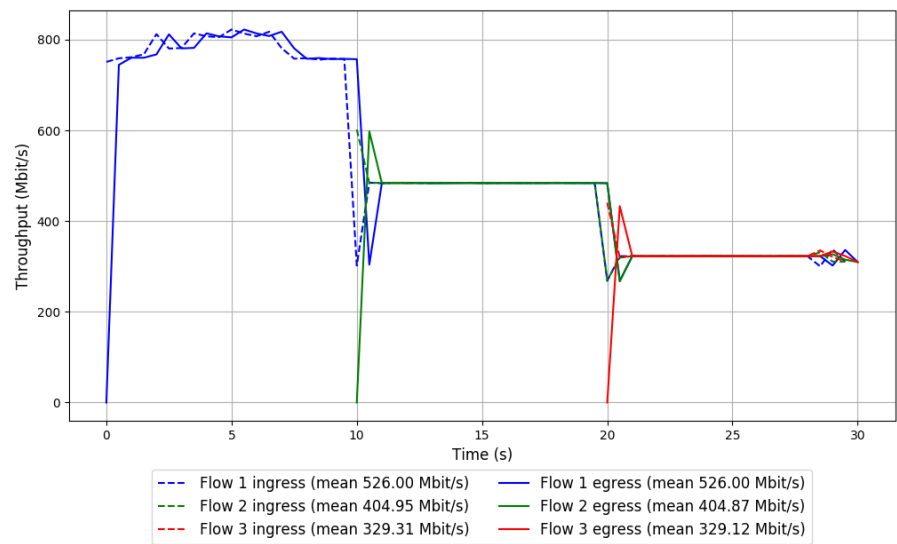


Run 5: Statistics of TCP BBR

Start at: 2018-10-02 18:31:11  
End at: 2018-10-02 18:31:41  
Local clock offset: 7.531 ms  
Remote clock offset: -0.152 ms

# Below is generated by plot.py at 2018-10-02 19:10:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 905.13 Mbit/s  
95th percentile per-packet one-way delay: 7.542 ms  
Loss rate: 0.03%  
-- Flow 1:  
Average throughput: 526.00 Mbit/s  
95th percentile per-packet one-way delay: 7.245 ms  
Loss rate: 0.02%  
-- Flow 2:  
Average throughput: 404.87 Mbit/s  
95th percentile per-packet one-way delay: 7.640 ms  
Loss rate: 0.03%  
-- Flow 3:  
Average throughput: 329.12 Mbit/s  
95th percentile per-packet one-way delay: 8.248 ms  
Loss rate: 0.09%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-10-02 16:54:10

End at: 2018-10-02 16:54:40

Local clock offset: 3.973 ms

Remote clock offset: 2.265 ms

# Below is generated by plot.py at 2018-10-02 19:10:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 435.95 Mbit/s

95th percentile per-packet one-way delay: 0.876 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 248.75 Mbit/s

95th percentile per-packet one-way delay: 0.882 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 229.30 Mbit/s

95th percentile per-packet one-way delay: 0.855 ms

Loss rate: 0.00%

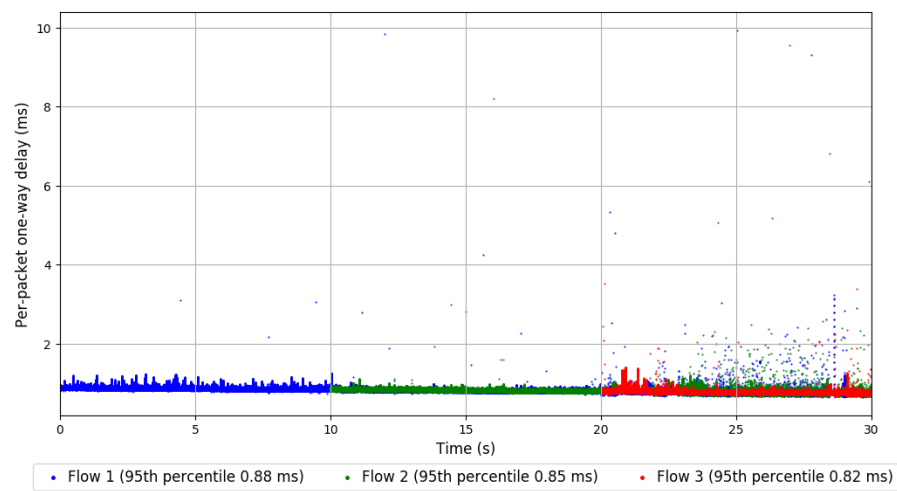
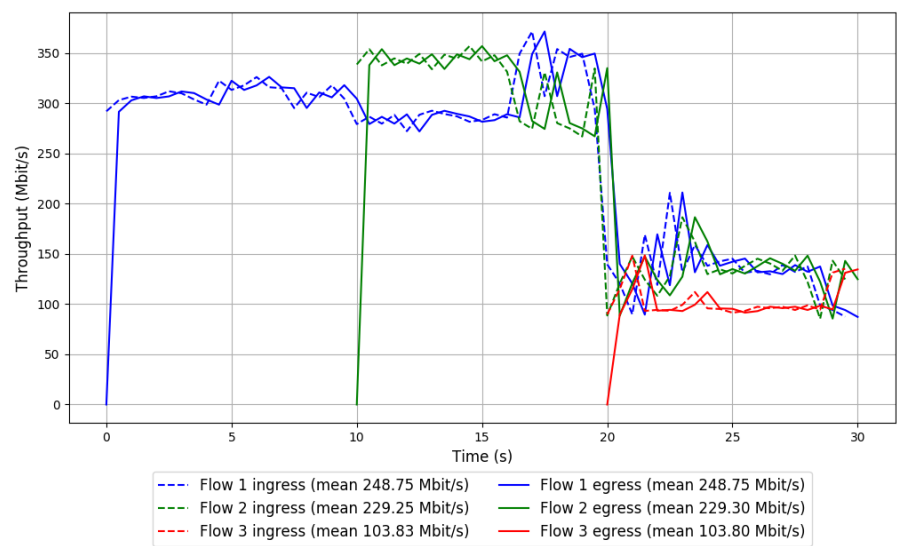
-- Flow 3:

Average throughput: 103.80 Mbit/s

95th percentile per-packet one-way delay: 0.821 ms

Loss rate: 0.04%

Run 1: Report of Copa — Data Link

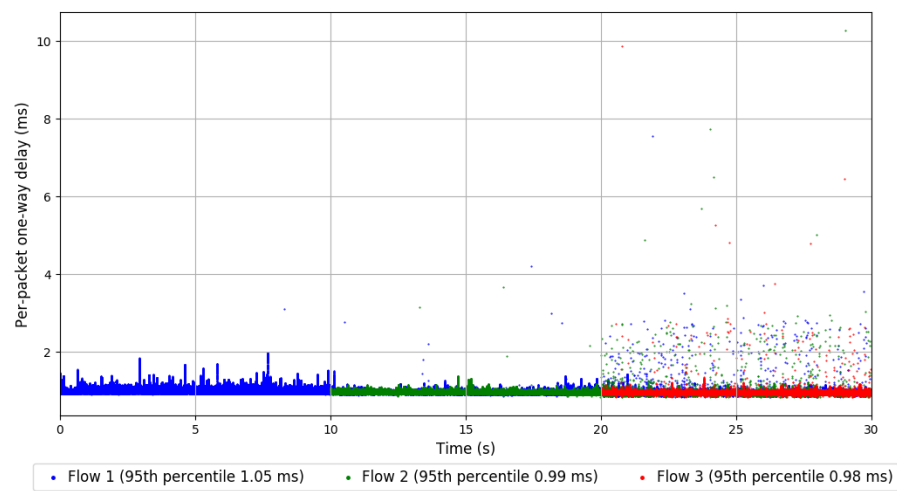
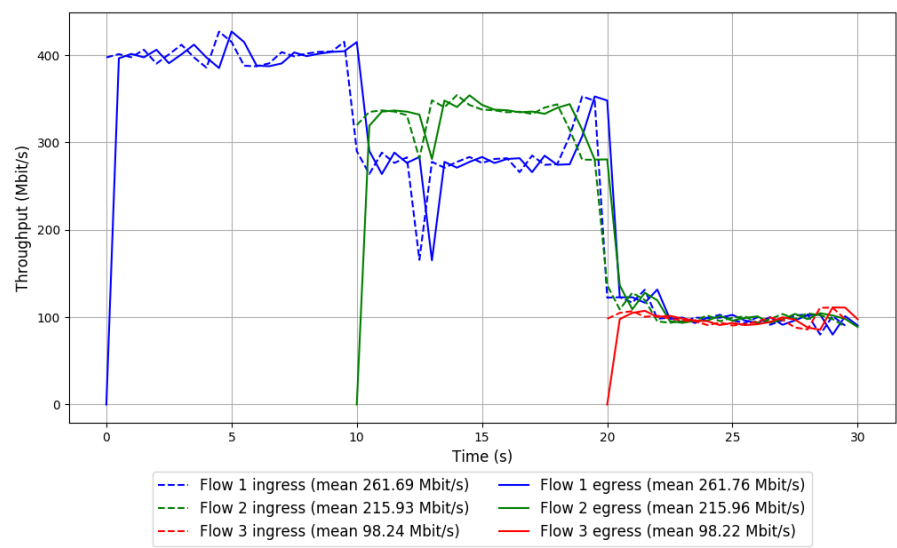


Run 2: Statistics of Copa

Start at: 2018-10-02 17:21:56  
End at: 2018-10-02 17:22:26  
Local clock offset: 4.337 ms  
Remote clock offset: -0.167 ms

# Below is generated by plot.py at 2018-10-02 19:10:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 438.15 Mbit/s  
95th percentile per-packet one-way delay: 1.028 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 261.76 Mbit/s  
95th percentile per-packet one-way delay: 1.053 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 215.96 Mbit/s  
95th percentile per-packet one-way delay: 0.987 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 98.22 Mbit/s  
95th percentile per-packet one-way delay: 0.983 ms  
Loss rate: 0.01%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-10-02 17:49:49

End at: 2018-10-02 17:50:19

Local clock offset: 5.205 ms

Remote clock offset: 3.822 ms

# Below is generated by plot.py at 2018-10-02 19:10:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 468.99 Mbit/s

95th percentile per-packet one-way delay: 0.976 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 276.60 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 227.26 Mbit/s

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

Loss rate: 0.00%

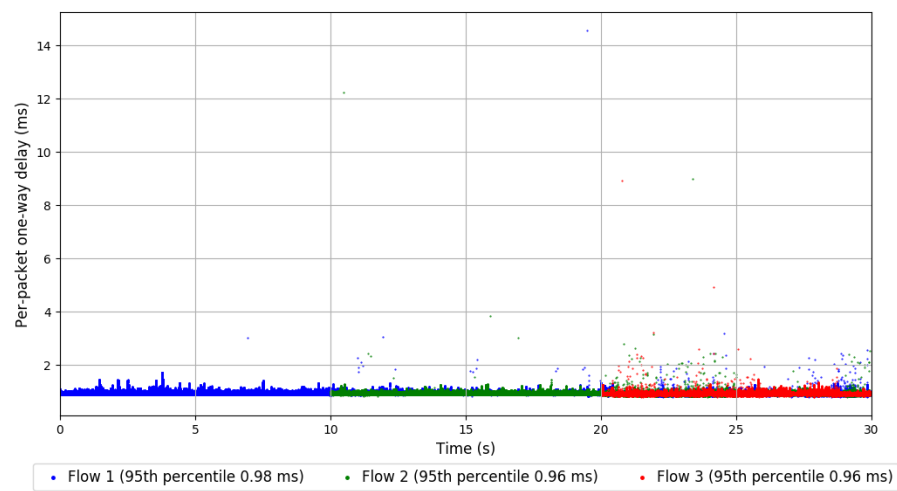
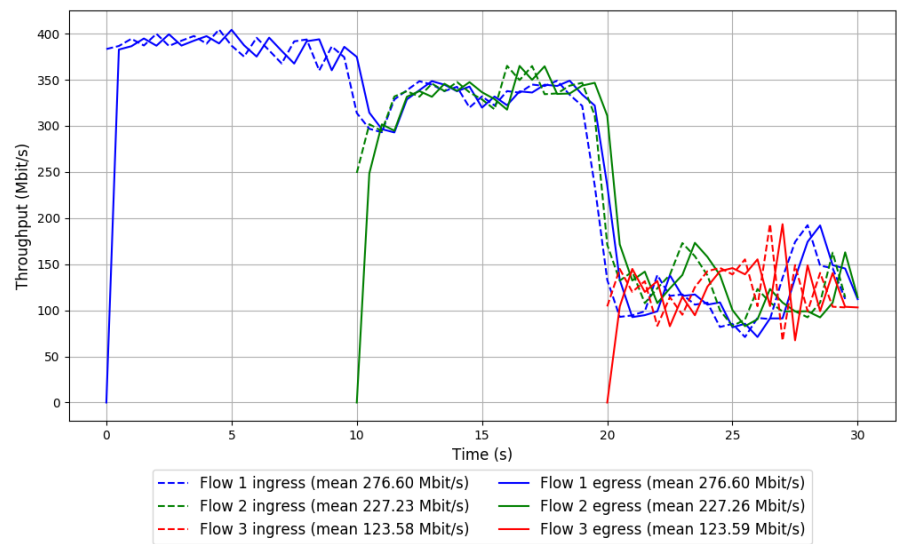
-- Flow 3:

Average throughput: 123.59 Mbit/s

95th percentile per-packet one-way delay: 0.964 ms

Loss rate: 0.02%

Run 3: Report of Copa — Data Link





Run 4: Statistics of Copa

Start at: 2018-10-02 18:17:28

End at: 2018-10-02 18:17:58

Local clock offset: 6.847 ms

Remote clock offset: 0.49 ms

# Below is generated by plot.py at 2018-10-02 19:19:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 474.52 Mbit/s

95th percentile per-packet one-way delay: 0.886 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 273.68 Mbit/s

95th percentile per-packet one-way delay: 0.896 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 234.39 Mbit/s

95th percentile per-packet one-way delay: 0.873 ms

Loss rate: 0.01%

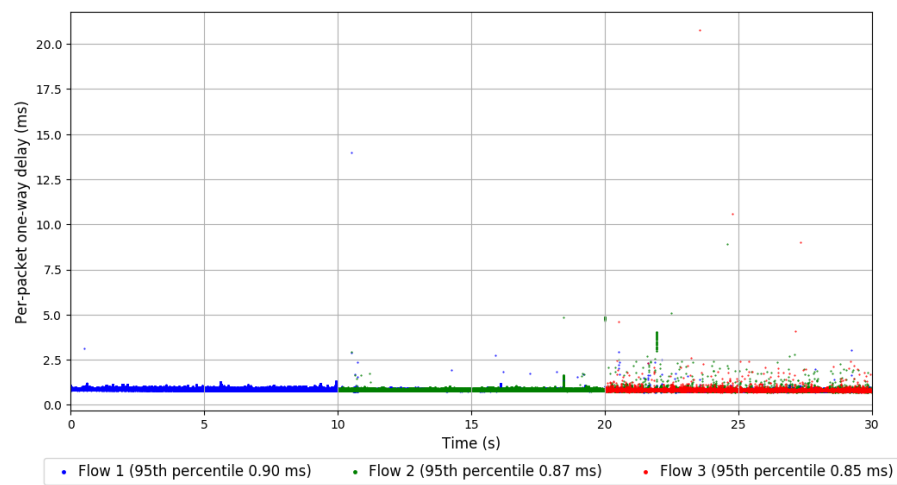
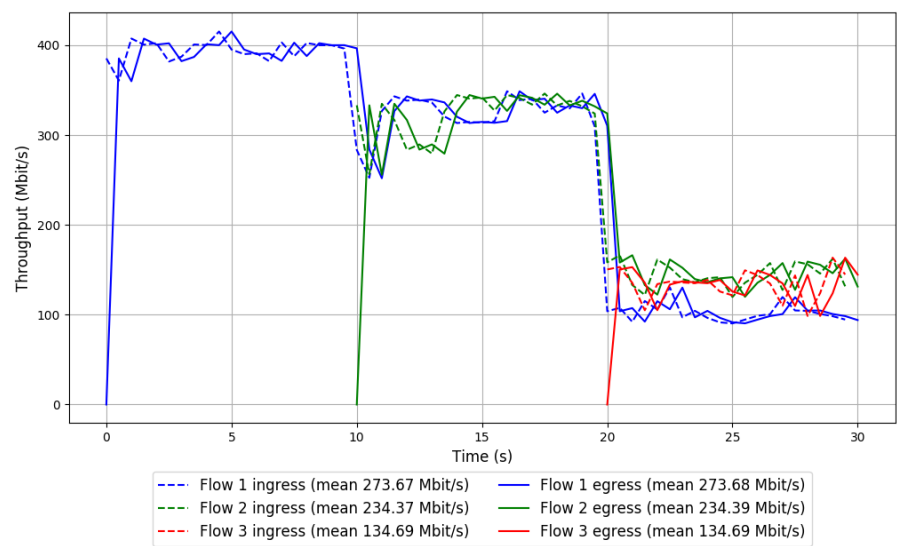
-- Flow 3:

Average throughput: 134.69 Mbit/s

95th percentile per-packet one-way delay: 0.850 ms

Loss rate: 0.02%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-10-02 18:45:08

End at: 2018-10-02 18:45:38

Local clock offset: 8.088 ms

Remote clock offset: 0.177 ms

# Below is generated by plot.py at 2018-10-02 19:19:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 465.49 Mbit/s

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

Loss rate: 0.00%

-- Flow 1:

Average throughput: 278.58 Mbit/s

95th percentile per-packet one-way delay: 0.928 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 218.73 Mbit/s

95th percentile per-packet one-way delay: 0.899 ms

Loss rate: 0.01%

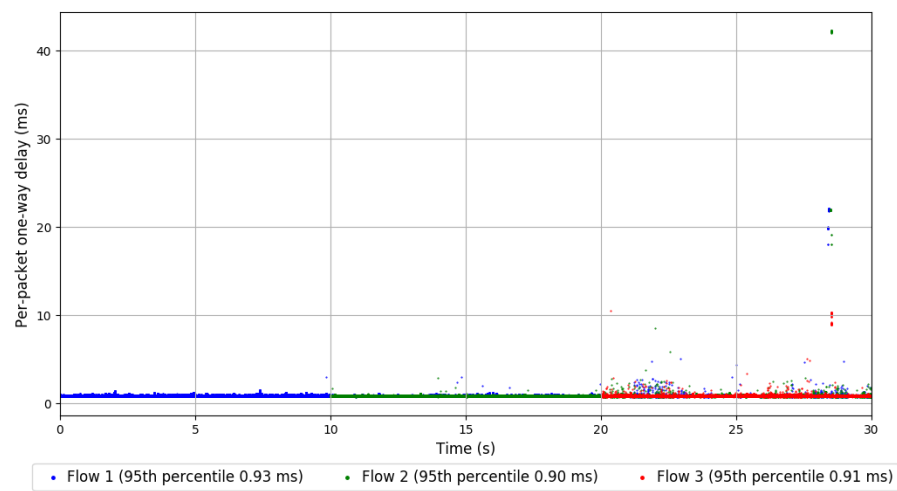
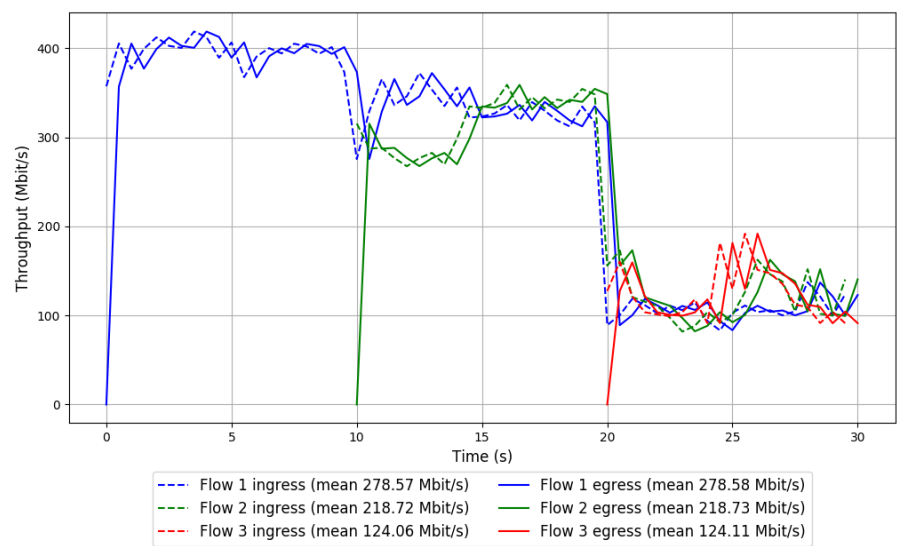
-- Flow 3:

Average throughput: 124.11 Mbit/s

95th percentile per-packet one-way delay: 0.914 ms

Loss rate: 0.00%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-10-02 17:00:26

End at: 2018-10-02 17:00:56

Local clock offset: 4.048 ms

Remote clock offset: 1.12 ms

# Below is generated by plot.py at 2018-10-02 19:19:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 902.82 Mbit/s

95th percentile per-packet one-way delay: 9.337 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 528.41 Mbit/s

95th percentile per-packet one-way delay: 9.845 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 400.60 Mbit/s

95th percentile per-packet one-way delay: 7.574 ms

Loss rate: 0.04%

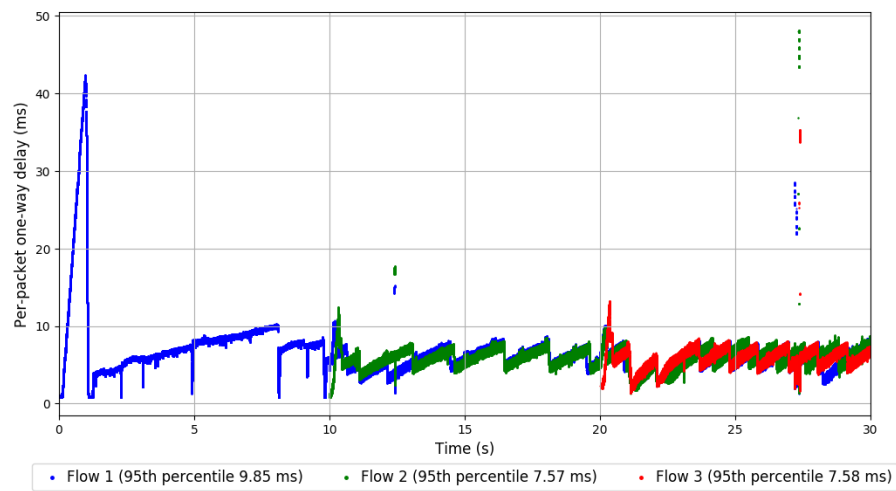
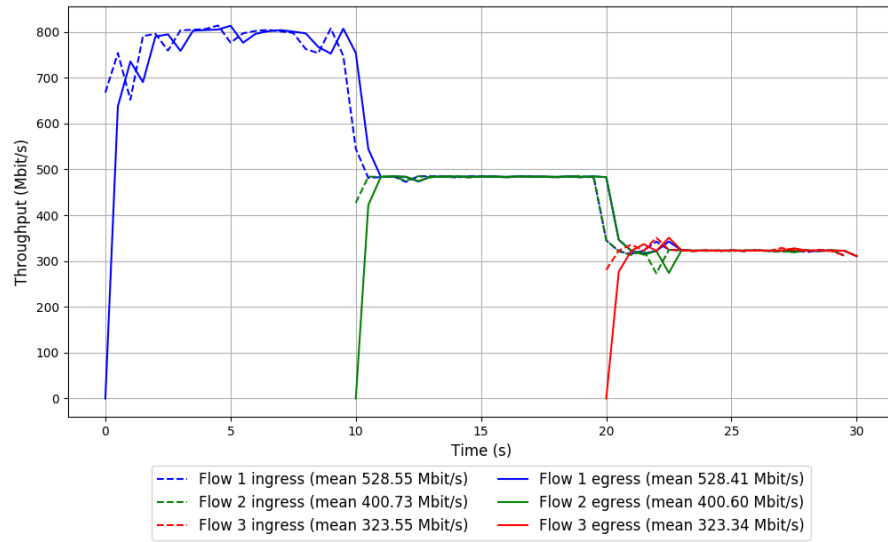
-- Flow 3:

Average throughput: 323.34 Mbit/s

95th percentile per-packet one-way delay: 7.576 ms

Loss rate: 0.09%

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



Run 2: Statistics of TCP Cubic

Start at: 2018-10-02 17:28:14

End at: 2018-10-02 17:28:44

Local clock offset: 4.472 ms

Remote clock offset: 0.963 ms

# Below is generated by plot.py at 2018-10-02 19:20:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 920.73 Mbit/s

95th percentile per-packet one-way delay: 9.116 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 546.56 Mbit/s

95th percentile per-packet one-way delay: 9.578 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 402.77 Mbit/s

95th percentile per-packet one-way delay: 7.575 ms

Loss rate: 0.04%

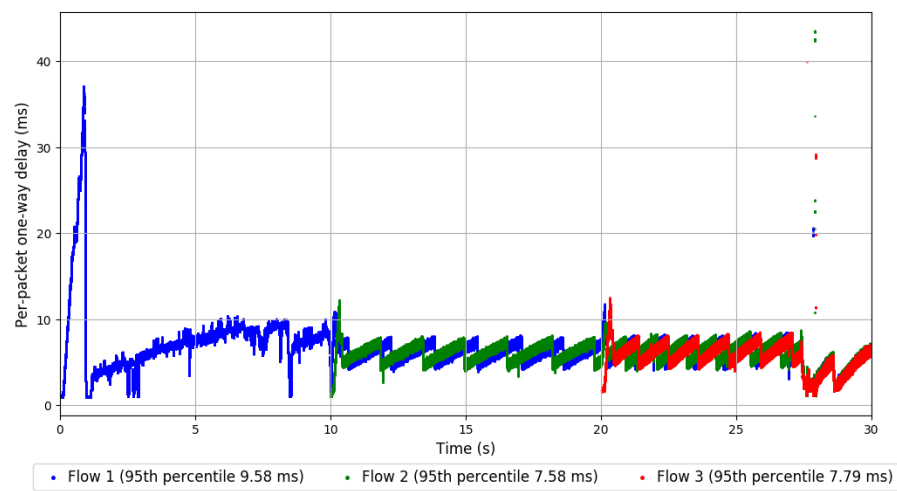
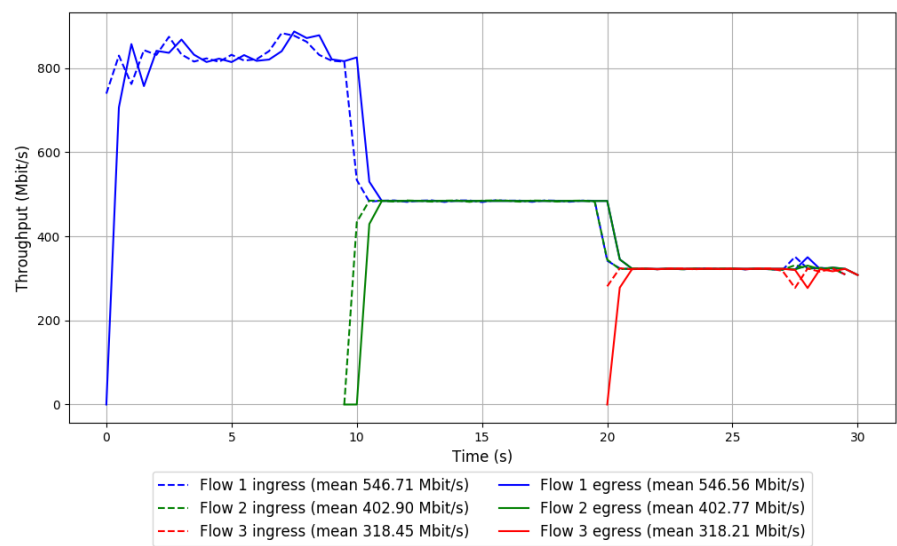
-- Flow 3:

Average throughput: 318.21 Mbit/s

95th percentile per-packet one-way delay: 7.792 ms

Loss rate: 0.10%

Run 2: Report of TCP Cubic — Data Link





Run 3: Statistics of TCP Cubic

Start at: 2018-10-02 17:56:09

End at: 2018-10-02 17:56:39

Local clock offset: 5.791 ms

Remote clock offset: 4.214 ms

# Below is generated by plot.py at 2018-10-02 19:20:13

# Datalink statistics

-- Total of 3 flows:

Average throughput: 925.71 Mbit/s

95th percentile per-packet one-way delay: 7.710 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 550.98 Mbit/s

95th percentile per-packet one-way delay: 7.794 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 402.44 Mbit/s

95th percentile per-packet one-way delay: 7.512 ms

Loss rate: 0.03%

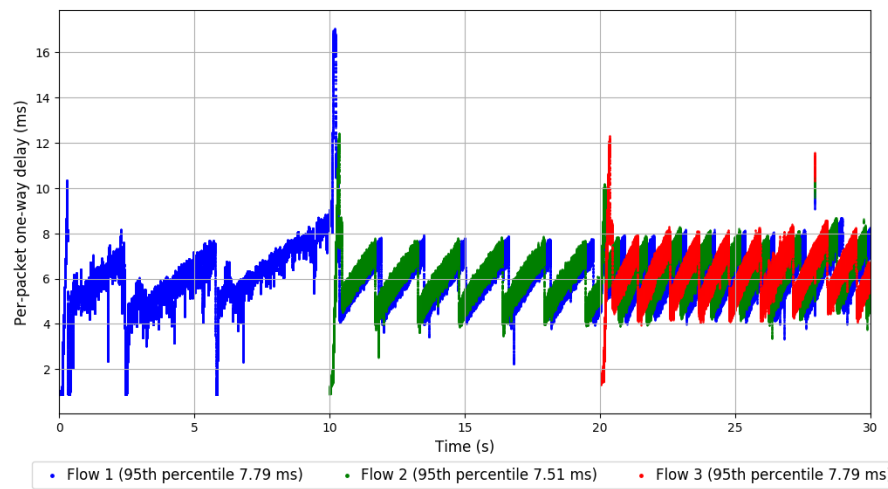
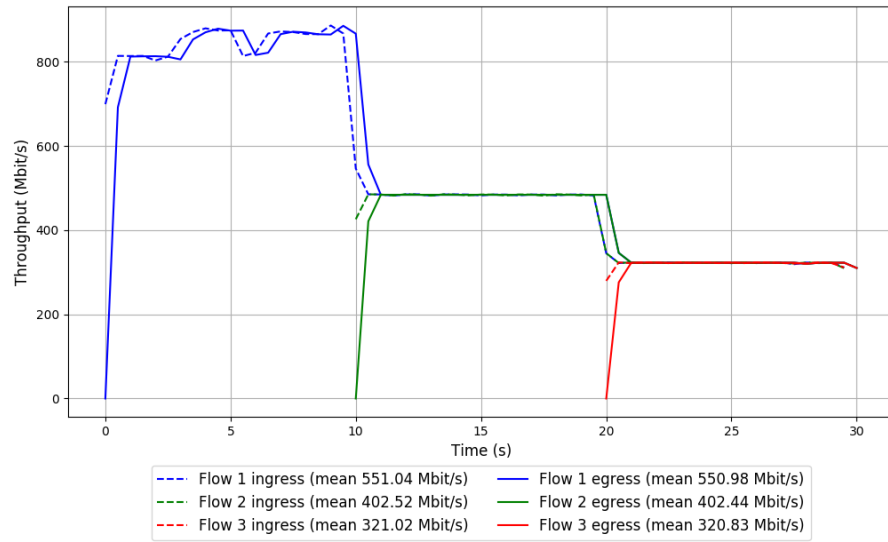
-- Flow 3:

Average throughput: 320.83 Mbit/s

95th percentile per-packet one-way delay: 7.790 ms

Loss rate: 0.08%

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



Run 4: Statistics of TCP Cubic

Start at: 2018-10-02 18:23:49

End at: 2018-10-02 18:24:19

Local clock offset: 7.192 ms

Remote clock offset: 0.083 ms

# Below is generated by plot.py at 2018-10-02 19:20:22

# Datalink statistics

-- Total of 3 flows:

Average throughput: 933.90 Mbit/s

95th percentile per-packet one-way delay: 9.426 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 559.48 Mbit/s

95th percentile per-packet one-way delay: 9.872 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 402.02 Mbit/s

95th percentile per-packet one-way delay: 7.615 ms

Loss rate: 0.03%

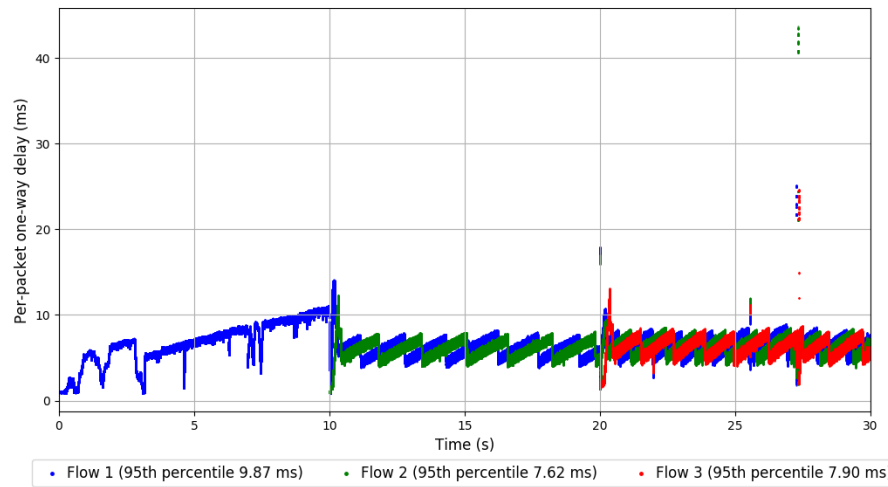
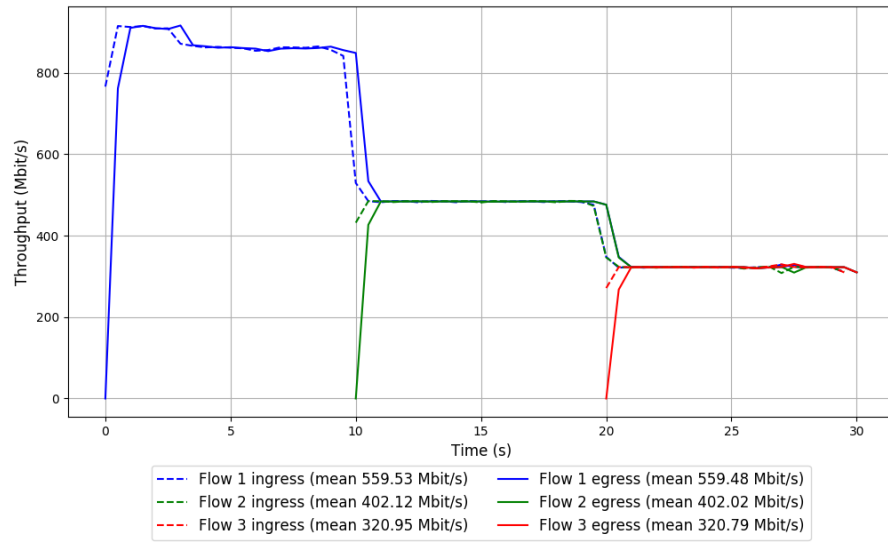
-- Flow 3:

Average throughput: 320.79 Mbit/s

95th percentile per-packet one-way delay: 7.899 ms

Loss rate: 0.07%

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



Run 5: Statistics of TCP Cubic

Start at: 2018-10-02 18:51:24

End at: 2018-10-02 18:51:54

Local clock offset: 8.338 ms

Remote clock offset: 0.159 ms

# Below is generated by plot.py at 2018-10-02 19:20:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 926.23 Mbit/s

95th percentile per-packet one-way delay: 9.228 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 551.17 Mbit/s

95th percentile per-packet one-way delay: 9.614 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 402.20 Mbit/s

95th percentile per-packet one-way delay: 7.643 ms

Loss rate: 0.04%

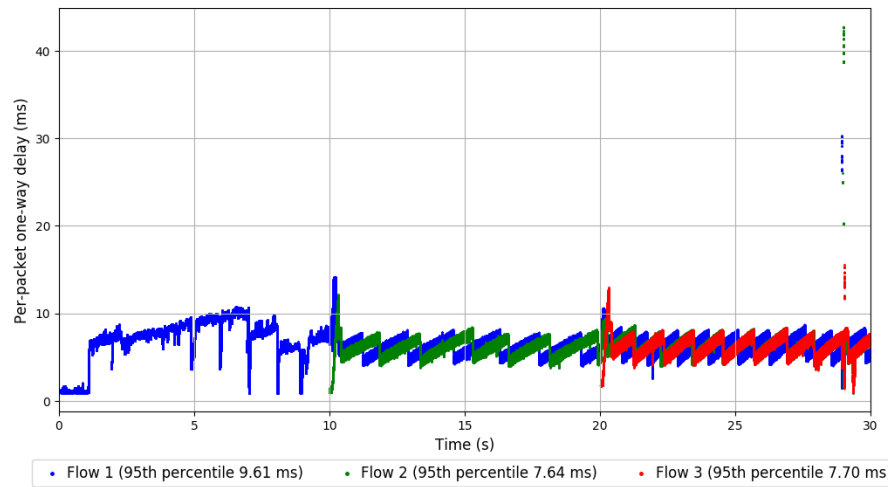
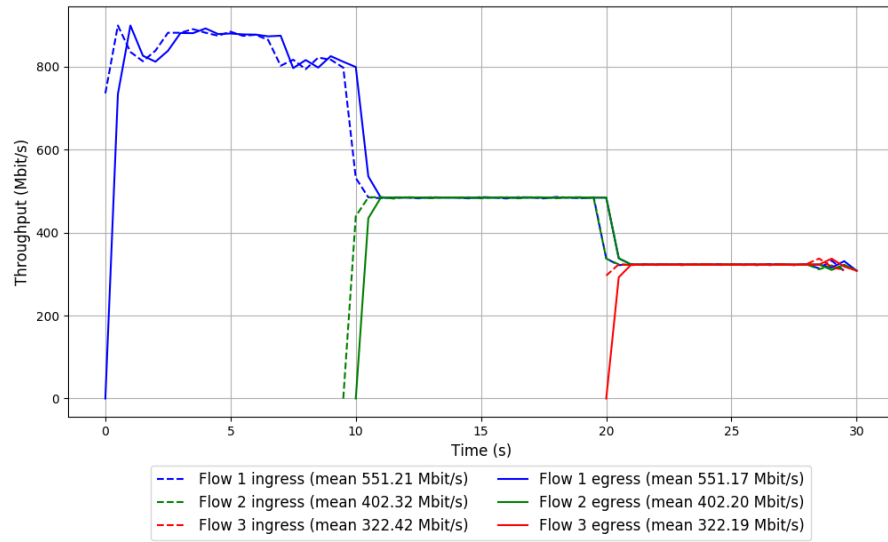
-- Flow 3:

Average throughput: 322.19 Mbit/s

95th percentile per-packet one-way delay: 7.696 ms

Loss rate: 0.08%

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



Run 1: Statistics of FillP

Start at: 2018-10-02 16:48:13

End at: 2018-10-02 16:48:43

Local clock offset: 3.815 ms

Remote clock offset: 3.272 ms

# Below is generated by plot.py at 2018-10-02 19:23:31

# Datalink statistics

-- Total of 3 flows:

Average throughput: 958.23 Mbit/s

95th percentile per-packet one-way delay: 39.345 ms

Loss rate: 0.97%

-- Flow 1:

Average throughput: 582.87 Mbit/s

95th percentile per-packet one-way delay: 38.063 ms

Loss rate: 0.85%

-- Flow 2:

Average throughput: 402.50 Mbit/s

95th percentile per-packet one-way delay: 51.134 ms

Loss rate: 1.25%

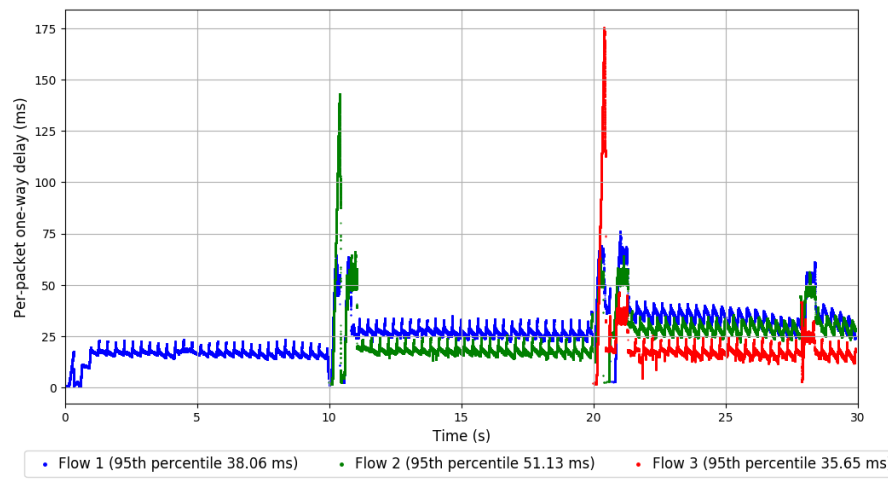
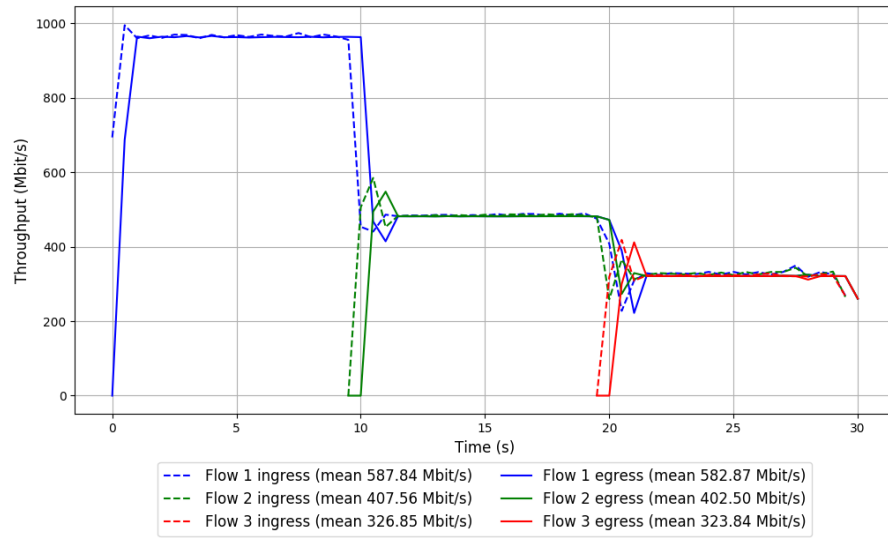
-- Flow 3:

Average throughput: 323.84 Mbit/s

95th percentile per-packet one-way delay: 35.650 ms

Loss rate: 0.94%

# Run 1: Report of FillP — Data Link



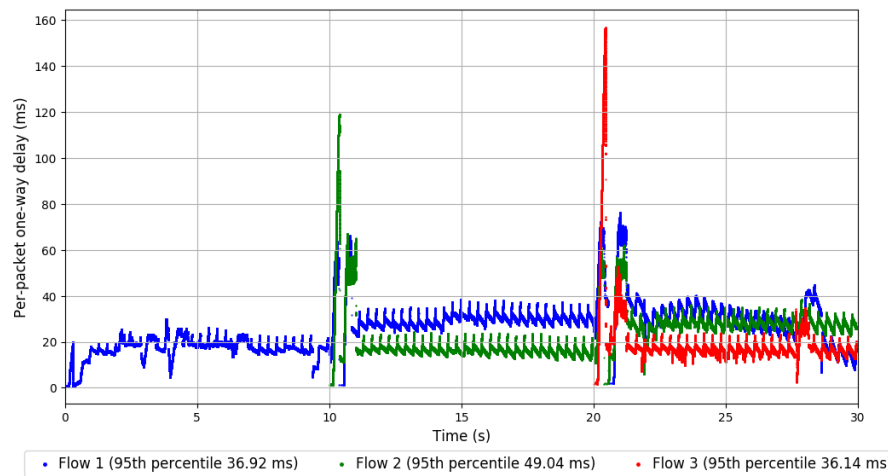
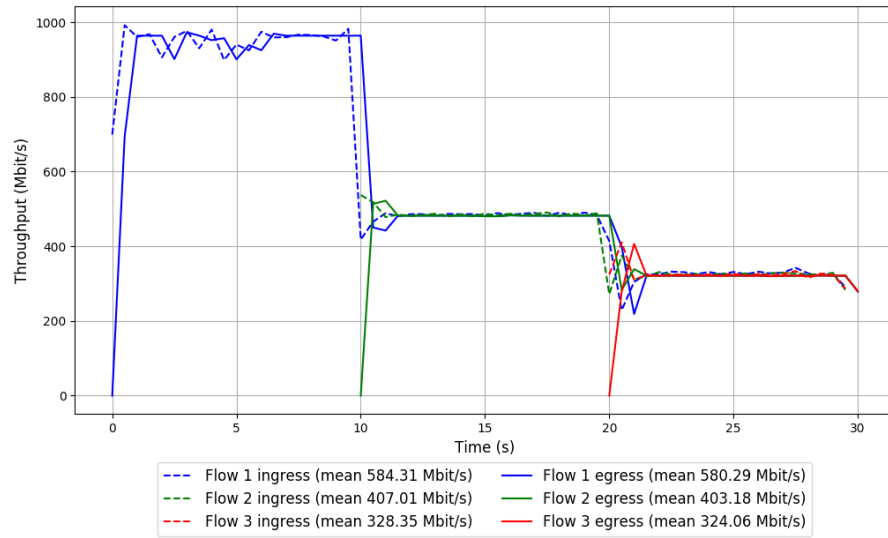


Run 2: Statistics of FillP

Start at: 2018-10-02 17:15:59  
End at: 2018-10-02 17:16:29  
Local clock offset: 4.122 ms  
Remote clock offset: -0.025 ms

# Below is generated by plot.py at 2018-10-02 19:32:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 956.01 Mbit/s  
95th percentile per-packet one-way delay: 37.570 ms  
Loss rate: 0.83%  
-- Flow 1:  
Average throughput: 580.29 Mbit/s  
95th percentile per-packet one-way delay: 36.923 ms  
Loss rate: 0.69%  
-- Flow 2:  
Average throughput: 403.18 Mbit/s  
95th percentile per-packet one-way delay: 49.041 ms  
Loss rate: 0.94%  
-- Flow 3:  
Average throughput: 324.06 Mbit/s  
95th percentile per-packet one-way delay: 36.136 ms  
Loss rate: 1.33%

## Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-10-02 17:43:51

End at: 2018-10-02 17:44:21

Local clock offset: 4.636 ms

Remote clock offset: 3.385 ms

# Below is generated by plot.py at 2018-10-02 19:32:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 958.91 Mbit/s

95th percentile per-packet one-way delay: 36.931 ms

Loss rate: 0.95%

-- Flow 1:

Average throughput: 583.75 Mbit/s

95th percentile per-packet one-way delay: 33.577 ms

Loss rate: 0.94%

-- Flow 2:

Average throughput: 402.96 Mbit/s

95th percentile per-packet one-way delay: 50.396 ms

Loss rate: 0.72%

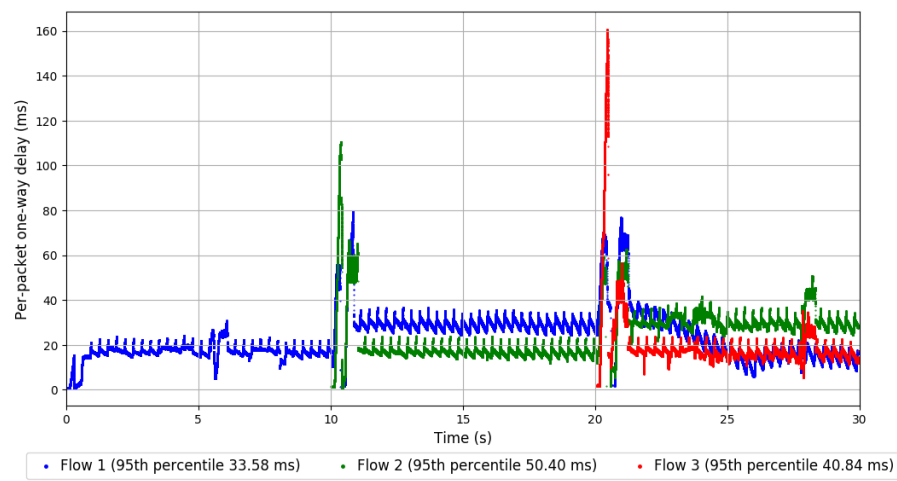
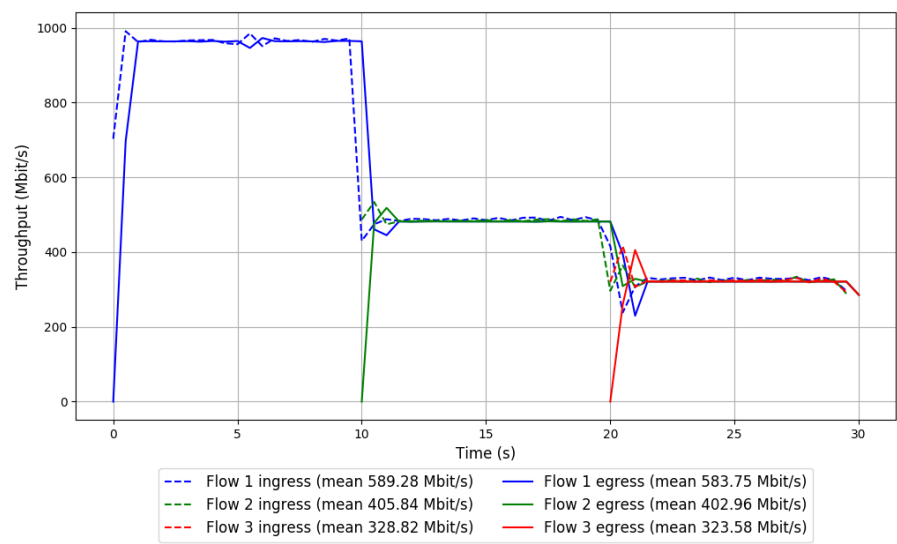
-- Flow 3:

Average throughput: 323.58 Mbit/s

95th percentile per-packet one-way delay: 40.836 ms

Loss rate: 1.60%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-10-02 18:11:35

End at: 2018-10-02 18:12:05

Local clock offset: 6.58 ms

Remote clock offset: 0.951 ms

# Below is generated by plot.py at 2018-10-02 19:32:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 937.94 Mbit/s

95th percentile per-packet one-way delay: 39.719 ms

Loss rate: 0.90%

-- Flow 1:

Average throughput: 563.31 Mbit/s

95th percentile per-packet one-way delay: 36.724 ms

Loss rate: 0.83%

-- Flow 2:

Average throughput: 402.79 Mbit/s

95th percentile per-packet one-way delay: 51.845 ms

Loss rate: 0.94%

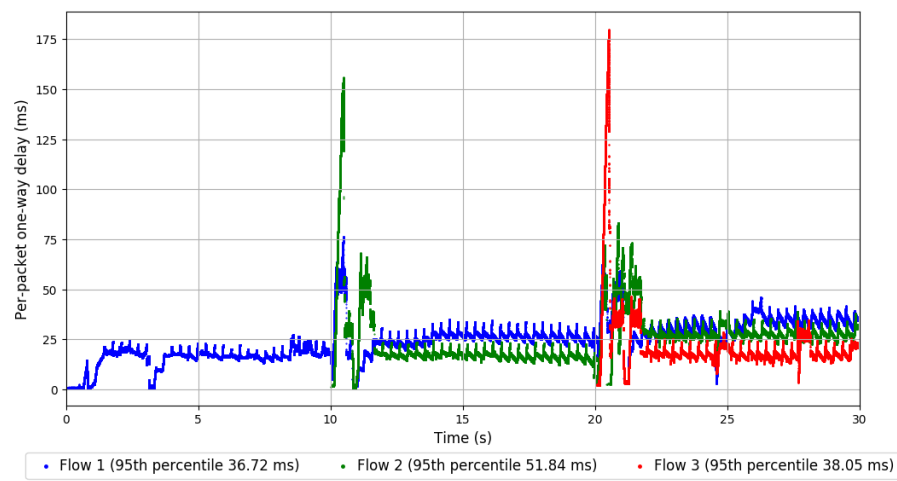
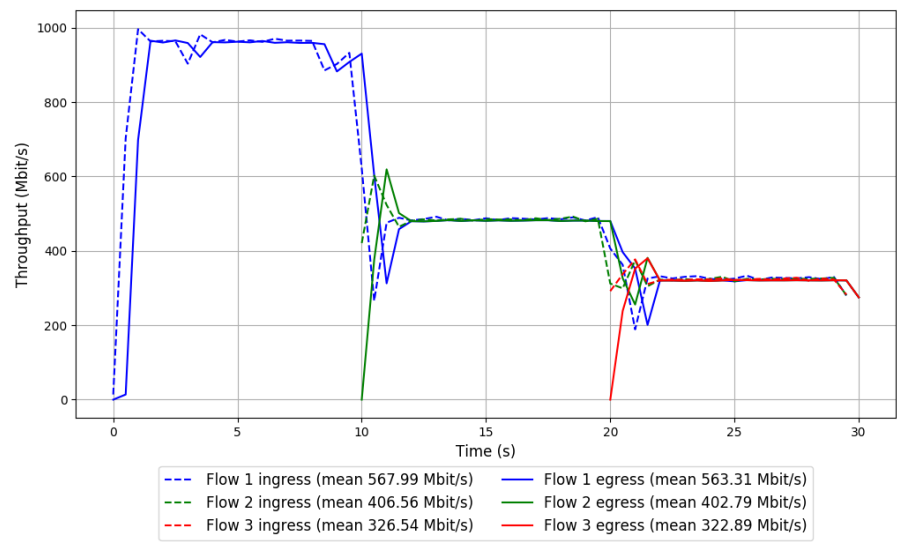
-- Flow 3:

Average throughput: 322.89 Mbit/s

95th percentile per-packet one-way delay: 38.053 ms

Loss rate: 1.15%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-10-02 18:39:12

End at: 2018-10-02 18:39:42

Local clock offset: 7.863 ms

Remote clock offset: 0.073 ms

# Below is generated by plot.py at 2018-10-02 19:33:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 946.62 Mbit/s

95th percentile per-packet one-way delay: 42.267 ms

Loss rate: 0.84%

-- Flow 1:

Average throughput: 571.15 Mbit/s

95th percentile per-packet one-way delay: 41.935 ms

Loss rate: 0.60%

-- Flow 2:

Average throughput: 402.89 Mbit/s

95th percentile per-packet one-way delay: 47.545 ms

Loss rate: 1.17%

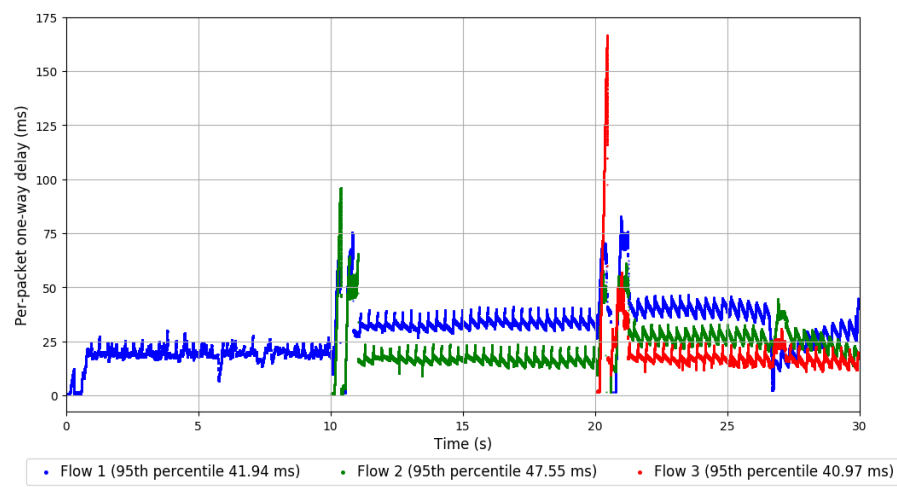
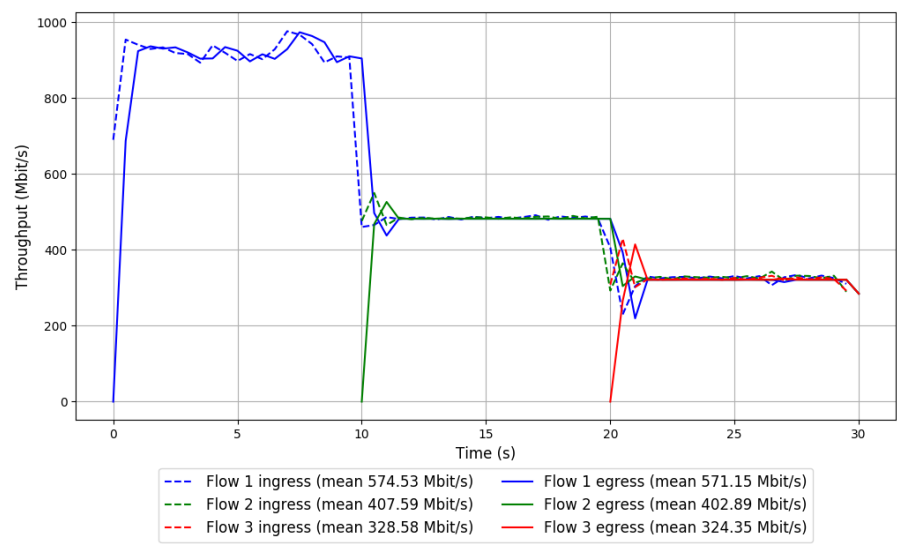
-- Flow 3:

Average throughput: 324.35 Mbit/s

95th percentile per-packet one-way delay: 40.971 ms

Loss rate: 1.31%

Run 5: Report of FillP — Data Link



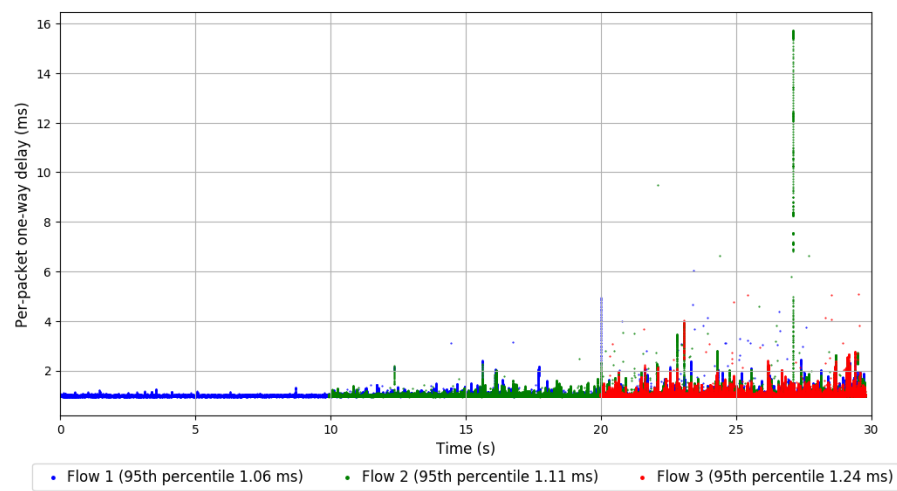
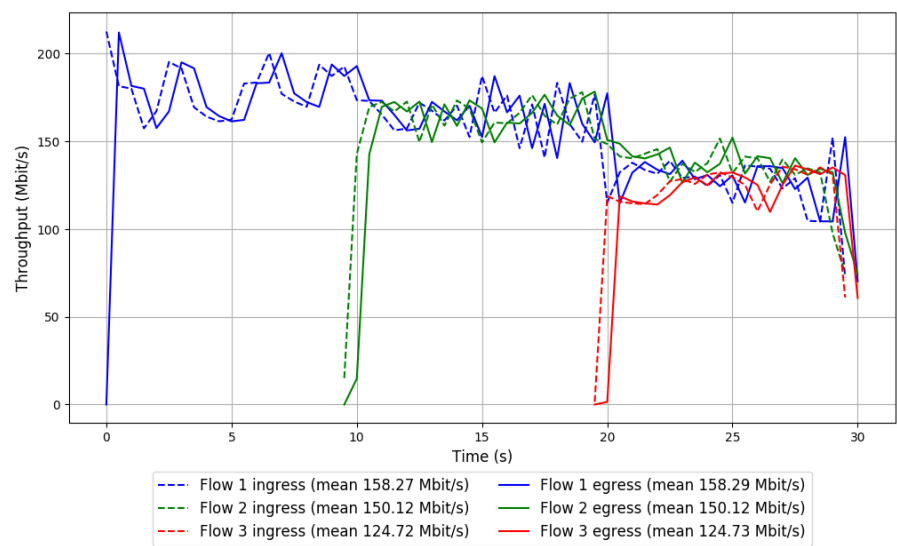


```
Run 1: Statistics of Indigo

Start at: 2018-10-02 16:42:01
End at: 2018-10-02 16:42:31
Local clock offset: 3.728 ms
Remote clock offset: 3.038 ms

# Below is generated by plot.py at 2018-10-02 19:33:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 299.46 Mbit/s
95th percentile per-packet one-way delay: 1.102 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 158.29 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 150.12 Mbit/s
95th percentile per-packet one-way delay: 1.110 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 124.73 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.03%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-10-02 17:09:54

End at: 2018-10-02 17:10:24

Local clock offset: 4.093 ms

Remote clock offset: 0.197 ms

# Below is generated by plot.py at 2018-10-02 19:33:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 299.88 Mbit/s

95th percentile per-packet one-way delay: 1.078 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 159.04 Mbit/s

95th percentile per-packet one-way delay: 1.035 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 146.68 Mbit/s

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

Loss rate: 0.01%

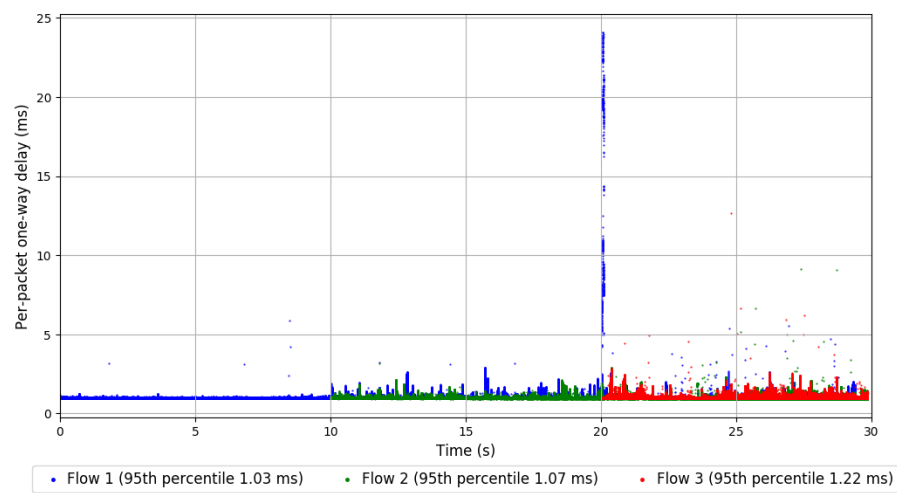
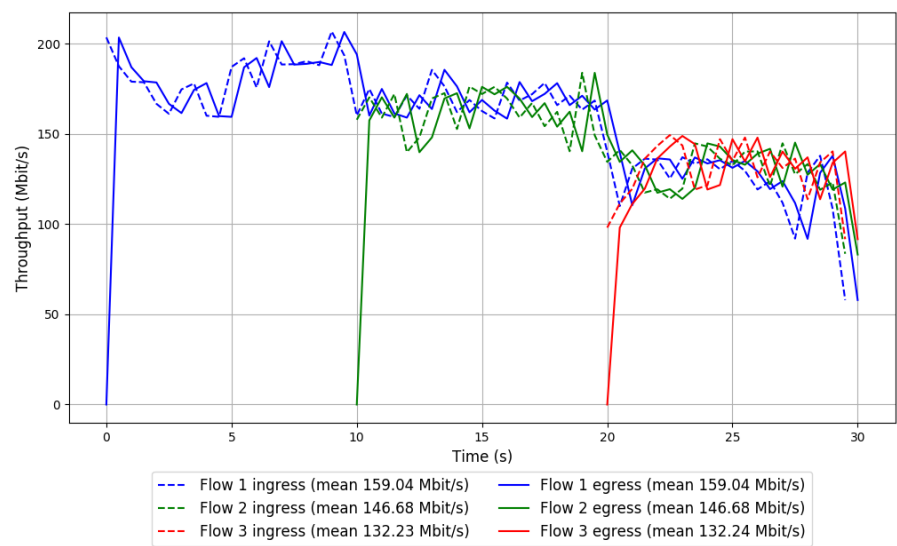
-- Flow 3:

Average throughput: 132.24 Mbit/s

95th percentile per-packet one-way delay: 1.221 ms

Loss rate: 0.01%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-10-02 17:37:36

End at: 2018-10-02 17:38:06

Local clock offset: 4.589 ms

Remote clock offset: 2.735 ms

# Below is generated by plot.py at 2018-10-02 19:33:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 301.81 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 161.29 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 147.15 Mbit/s

95th percentile per-packet one-way delay: 1.193 ms

Loss rate: 0.02%

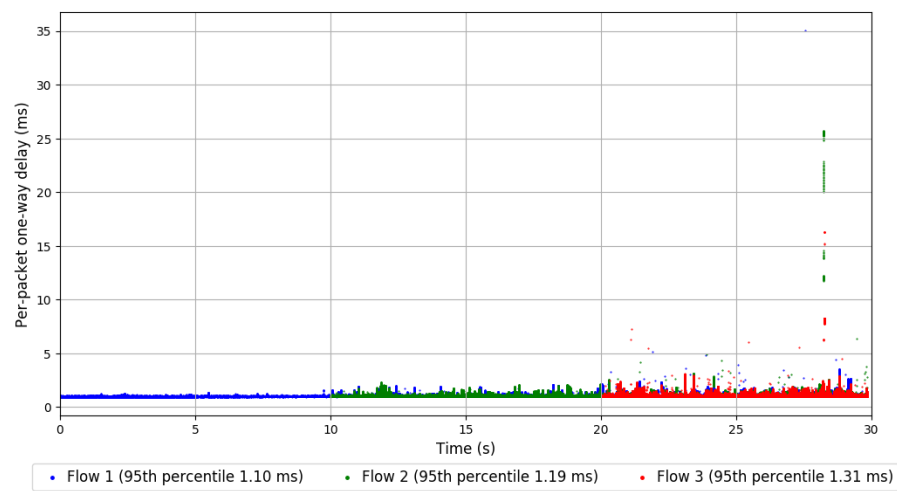
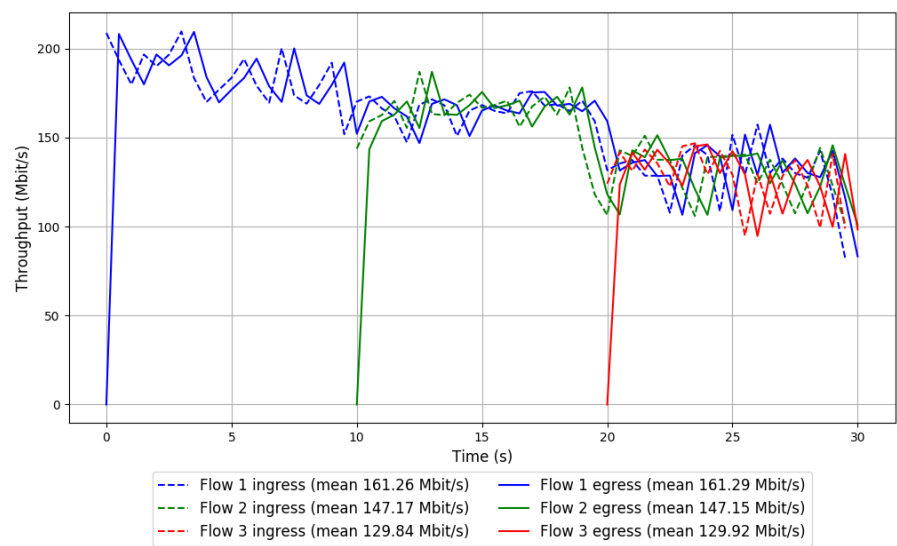
-- Flow 3:

Average throughput: 129.92 Mbit/s

95th percentile per-packet one-way delay: 1.306 ms

Loss rate: 0.02%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-10-02 18:05:19

End at: 2018-10-02 18:05:49

Local clock offset: 6.312 ms

Remote clock offset: 2.015 ms

# Below is generated by plot.py at 2018-10-02 19:33:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 301.06 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 161.97 Mbit/s

95th percentile per-packet one-way delay: 0.972 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 146.62 Mbit/s

95th percentile per-packet one-way delay: 1.018 ms

Loss rate: 0.01%

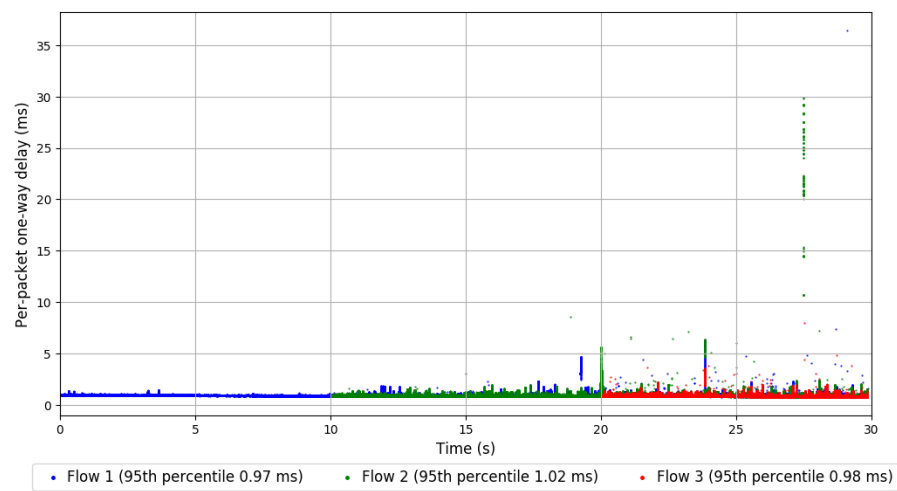
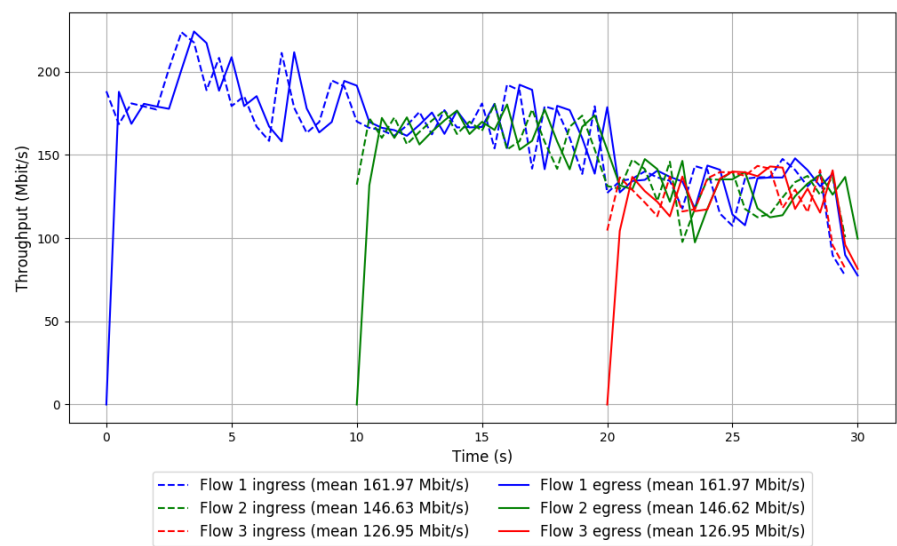
-- Flow 3:

Average throughput: 126.95 Mbit/s

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

Loss rate: 0.02%

Run 4: Report of Indigo — Data Link



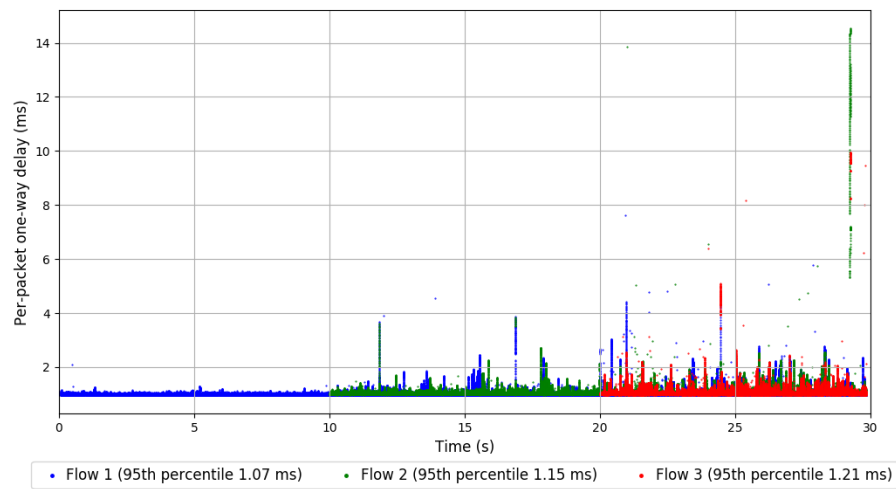
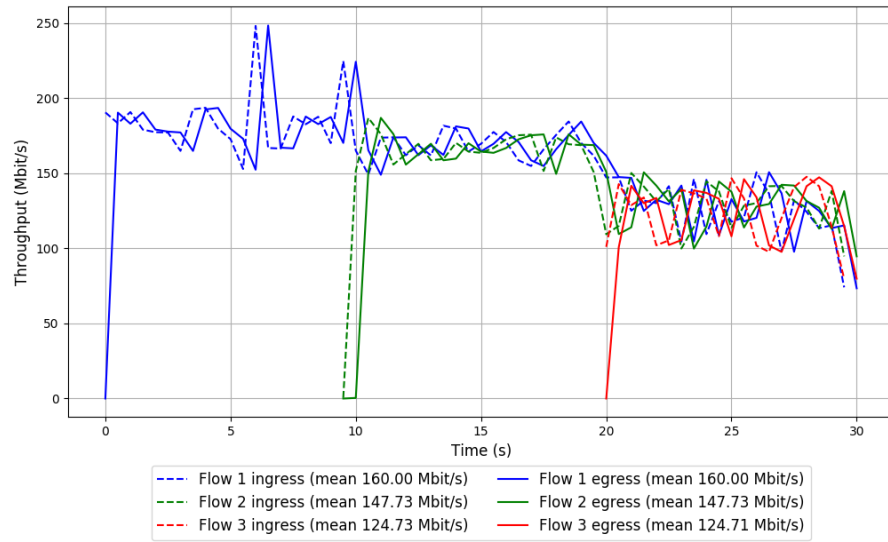


Run 5: Statistics of Indigo

Start at: 2018-10-02 18:32:59  
End at: 2018-10-02 18:33:29  
Local clock offset: 7.613 ms  
Remote clock offset: -0.238 ms

# Below is generated by plot.py at 2018-10-02 19:33:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 299.31 Mbit/s  
95th percentile per-packet one-way delay: 1.121 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 160.00 Mbit/s  
95th percentile per-packet one-way delay: 1.068 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 147.73 Mbit/s  
95th percentile per-packet one-way delay: 1.148 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 124.71 Mbit/s  
95th percentile per-packet one-way delay: 1.211 ms  
Loss rate: 0.00%

## Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-02 16:57:23

End at: 2018-10-02 16:57:53

Local clock offset: 4.036 ms

Remote clock offset: 1.601 ms

# Below is generated by plot.py at 2018-10-02 19:33:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 305.53 Mbit/s

95th percentile per-packet one-way delay: 0.998 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 145.63 Mbit/s

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

Loss rate: 0.01%

-- Flow 2:

Average throughput: 183.43 Mbit/s

95th percentile per-packet one-way delay: 1.028 ms

Loss rate: 0.00%

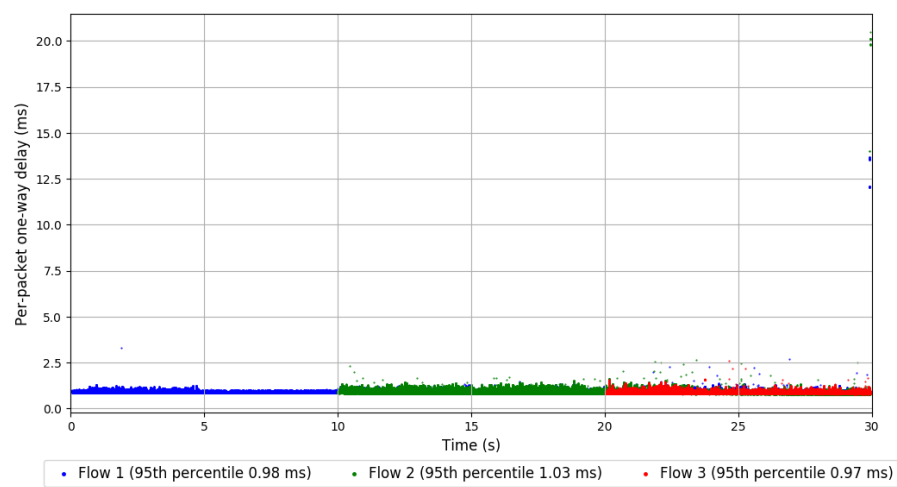
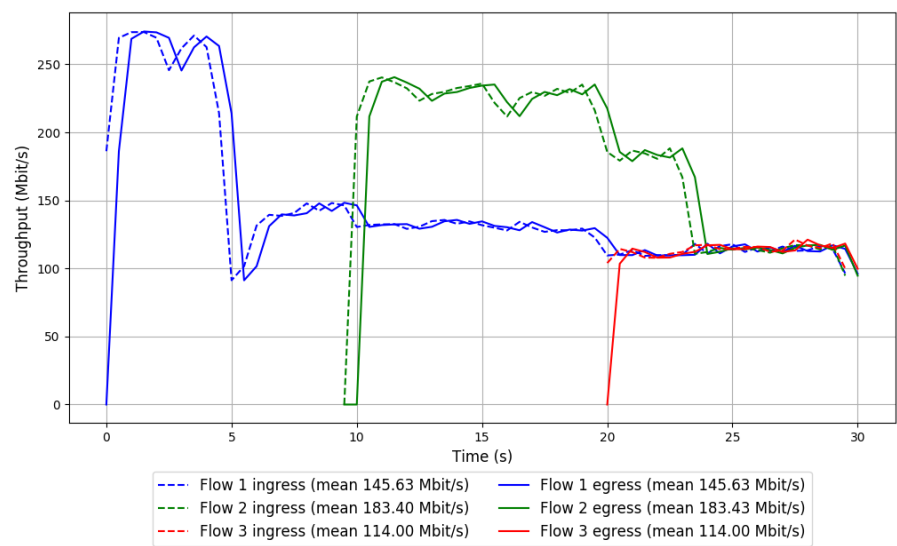
-- Flow 3:

Average throughput: 114.00 Mbit/s

95th percentile per-packet one-way delay: 0.967 ms

Loss rate: 0.01%

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

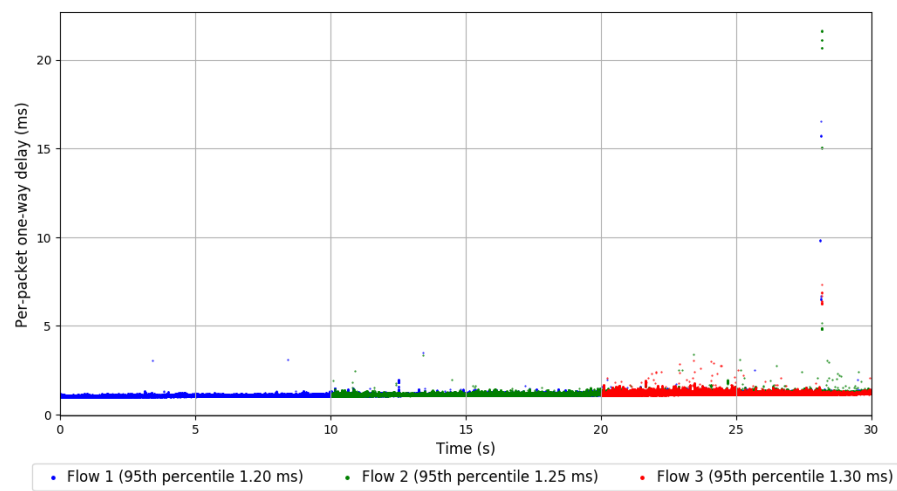
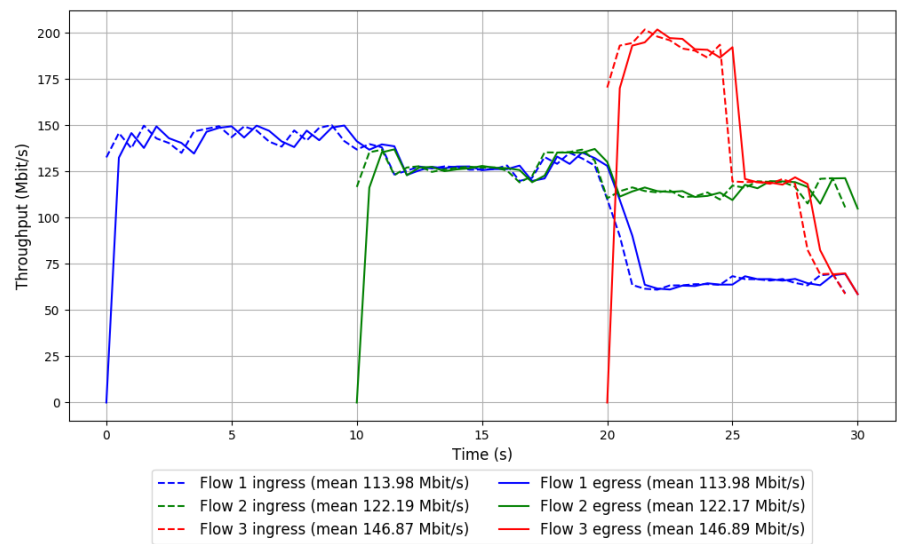


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-02 17:25:10  
End at: 2018-10-02 17:25:40  
Local clock offset: 4.417 ms  
Remote clock offset: -0.067 ms

# Below is generated by plot.py at 2018-10-02 19:33:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 243.88 Mbit/s  
95th percentile per-packet one-way delay: 1.240 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 113.98 Mbit/s  
95th percentile per-packet one-way delay: 1.198 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 122.17 Mbit/s  
95th percentile per-packet one-way delay: 1.249 ms  
Loss rate: 0.02%  
-- Flow 3:  
Average throughput: 146.89 Mbit/s  
95th percentile per-packet one-way delay: 1.297 ms  
Loss rate: 0.01%

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



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-02 17:53:08

End at: 2018-10-02 17:53:38

Local clock offset: 5.548 ms

Remote clock offset: 4.022 ms

# Below is generated by plot.py at 2018-10-02 19:33:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 211.89 Mbit/s

95th percentile per-packet one-way delay: 1.024 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 94.10 Mbit/s

95th percentile per-packet one-way delay: 0.997 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 117.98 Mbit/s

95th percentile per-packet one-way delay: 1.031 ms

Loss rate: 0.00%

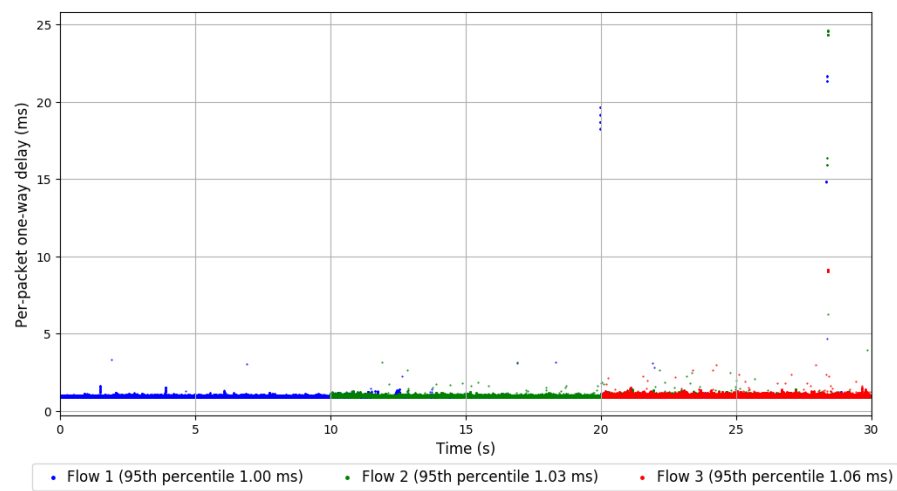
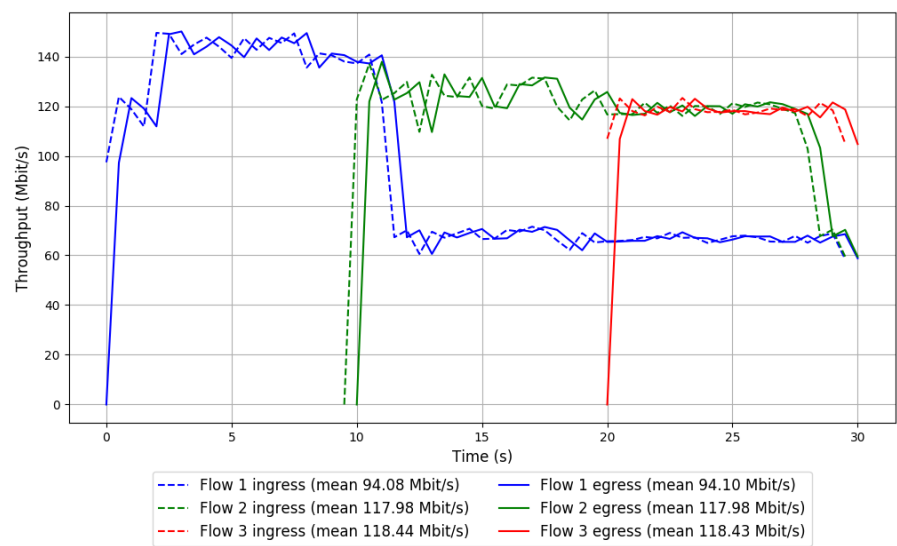
-- Flow 3:

Average throughput: 118.43 Mbit/s

95th percentile per-packet one-way delay: 1.062 ms

Loss rate: 0.01%

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





Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-02 18:20:46

End at: 2018-10-02 18:21:16

Local clock offset: 7.04 ms

Remote clock offset: 0.237 ms

# Below is generated by plot.py at 2018-10-02 19:33:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 261.31 Mbit/s

95th percentile per-packet one-way delay: 1.020 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 116.54 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 123.18 Mbit/s

95th percentile per-packet one-way delay: 1.019 ms

Loss rate: 0.01%

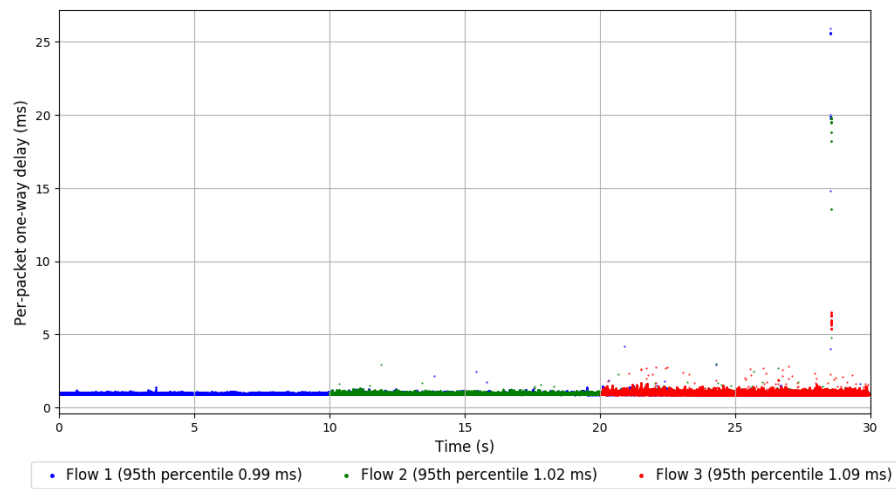
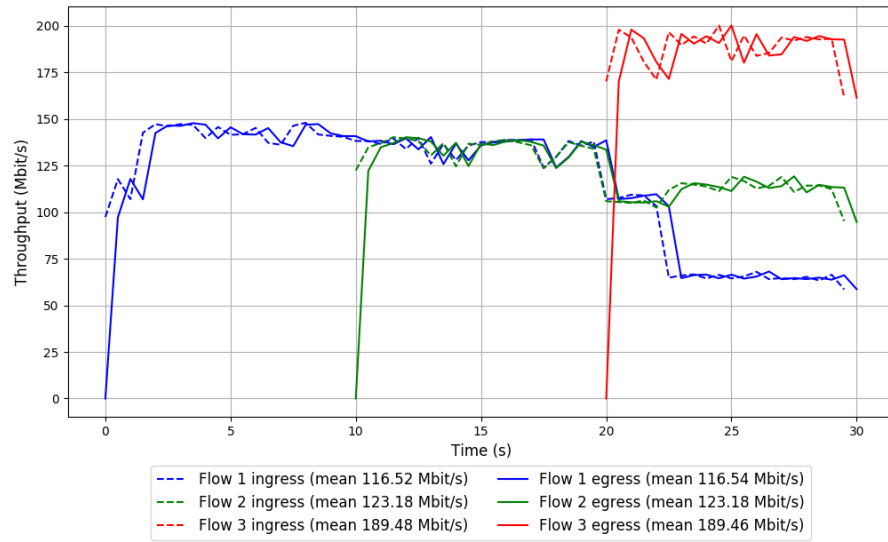
-- Flow 3:

Average throughput: 189.46 Mbit/s

95th percentile per-packet one-way delay: 1.090 ms

Loss rate: 0.02%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-02 18:48:22

End at: 2018-10-02 18:48:52

Local clock offset: 8.21 ms

Remote clock offset: 0.108 ms

# Below is generated by plot.py at 2018-10-02 19:33:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 260.06 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 130.60 Mbit/s

95th percentile per-packet one-way delay: 1.068 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 124.52 Mbit/s

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

Loss rate: 0.01%

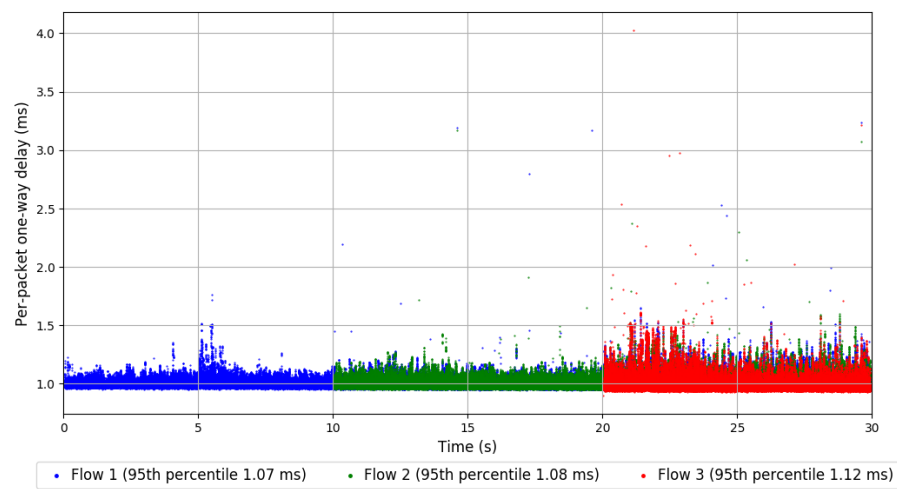
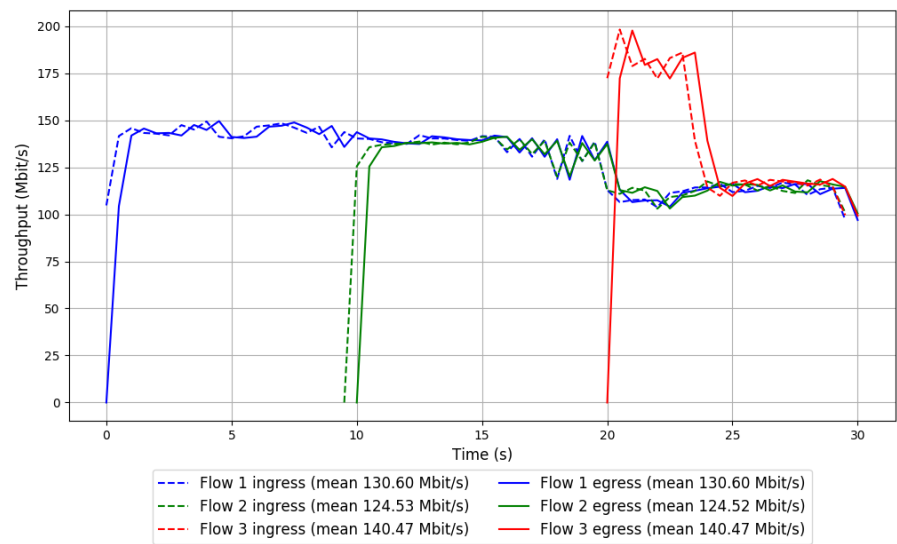
-- Flow 3:

Average throughput: 140.47 Mbit/s

95th percentile per-packet one-way delay: 1.116 ms

Loss rate: 0.01%

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

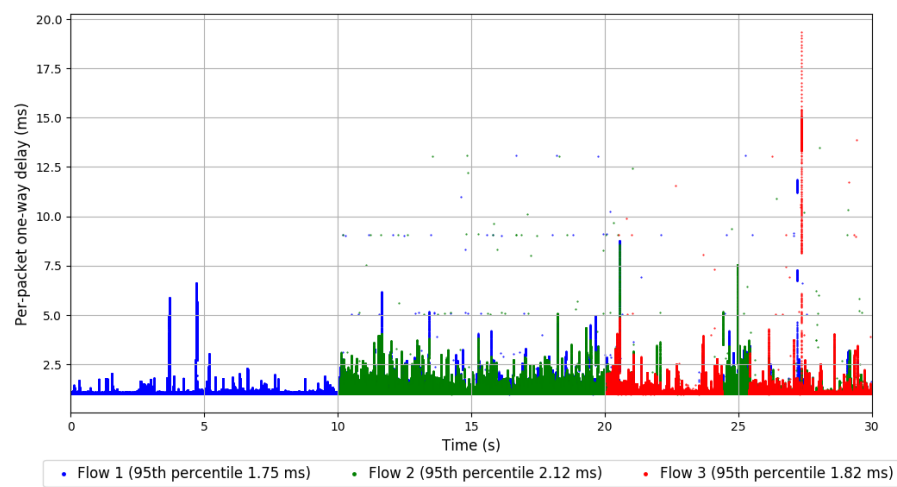
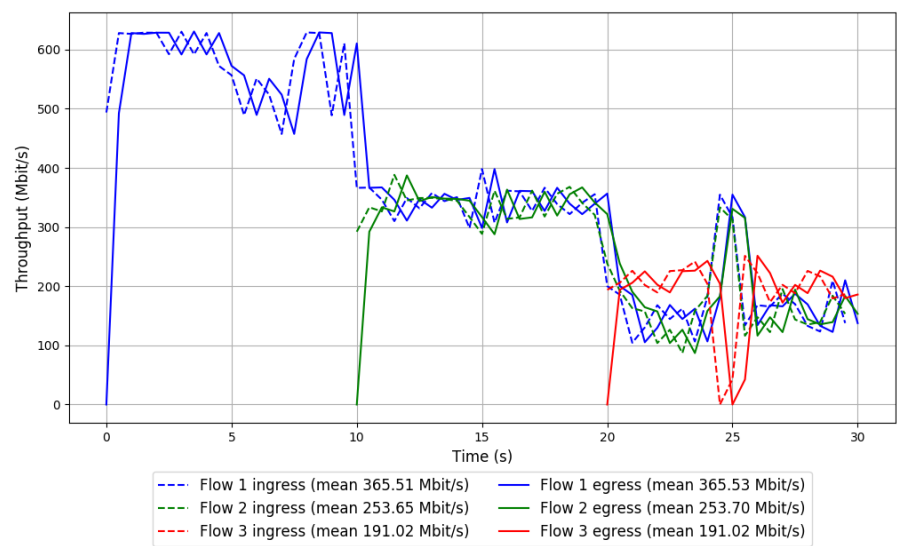


```
Run 1: Statistics of LEDBAT

Start at: 2018-10-02 16:43:33
End at: 2018-10-02 16:44:03
Local clock offset: 3.728 ms
Remote clock offset: 3.049 ms

# Below is generated by plot.py at 2018-10-02 19:34:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 597.88 Mbit/s
95th percentile per-packet one-way delay: 1.896 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 365.53 Mbit/s
95th percentile per-packet one-way delay: 1.753 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 253.70 Mbit/s
95th percentile per-packet one-way delay: 2.124 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 191.02 Mbit/s
95th percentile per-packet one-way delay: 1.823 ms
Loss rate: 0.02%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-10-02 17:11:26

End at: 2018-10-02 17:11:56

Local clock offset: 4.095 ms

Remote clock offset: 0.131 ms

# Below is generated by plot.py at 2018-10-02 19:35:52

# Datalink statistics

-- Total of 3 flows:

Average throughput: 574.28 Mbit/s

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

Loss rate: 0.00%

-- Flow 1:

Average throughput: 347.98 Mbit/s

95th percentile per-packet one-way delay: 1.501 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 255.48 Mbit/s

95th percentile per-packet one-way delay: 1.685 ms

Loss rate: 0.00%

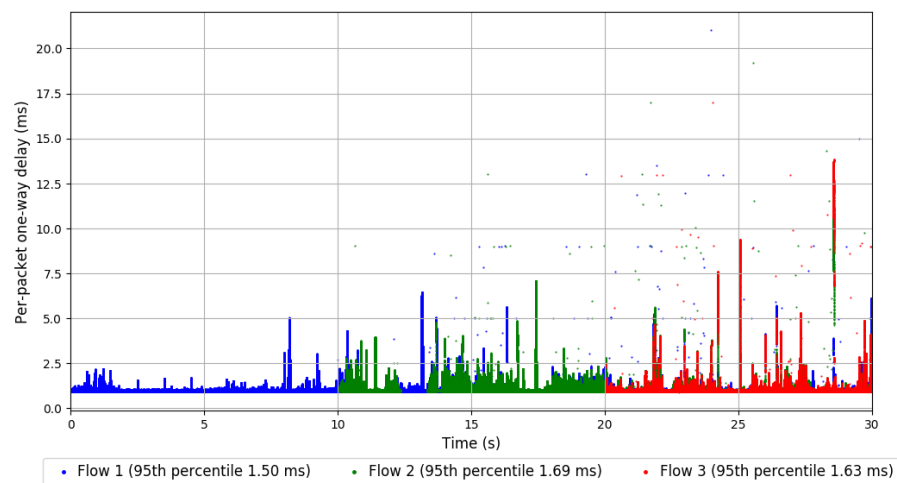
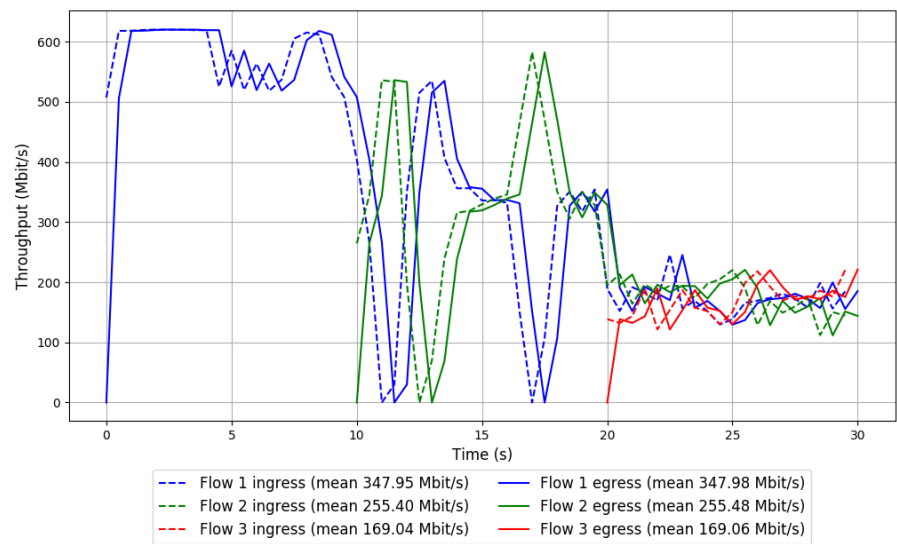
-- Flow 3:

Average throughput: 169.06 Mbit/s

95th percentile per-packet one-way delay: 1.626 ms

Loss rate: 0.01%

Run 2: Report of LEDBAT — Data Link





Run 3: Statistics of LEDBAT

Start at: 2018-10-02 17:39:09

End at: 2018-10-02 17:39:39

Local clock offset: 4.604 ms

Remote clock offset: 2.916 ms

# Below is generated by plot.py at 2018-10-02 19:36:32

# Datalink statistics

-- Total of 3 flows:

Average throughput: 594.88 Mbit/s

95th percentile per-packet one-way delay: 1.865 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 382.02 Mbit/s

95th percentile per-packet one-way delay: 1.850 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 234.47 Mbit/s

95th percentile per-packet one-way delay: 1.873 ms

Loss rate: 0.00%

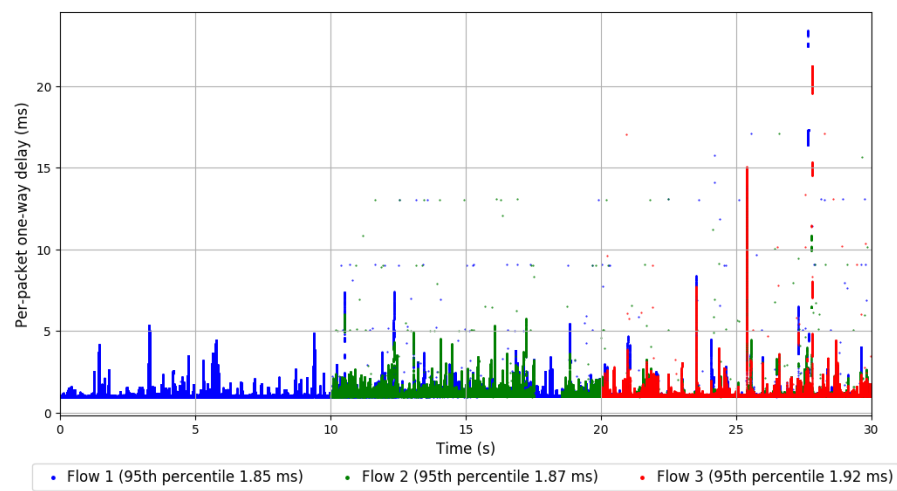
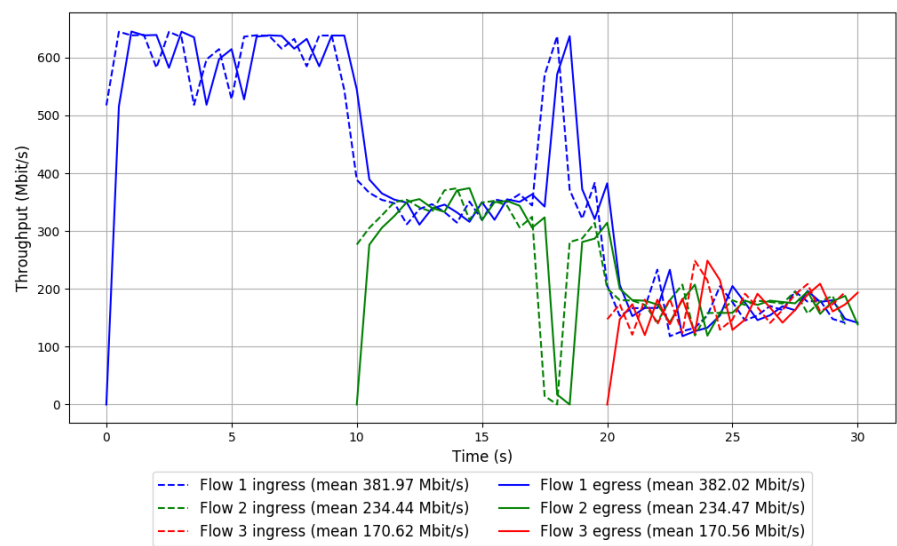
-- Flow 3:

Average throughput: 170.56 Mbit/s

95th percentile per-packet one-way delay: 1.922 ms

Loss rate: 0.05%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-10-02 18:06:52

End at: 2018-10-02 18:07:22

Local clock offset: 6.381 ms

Remote clock offset: 1.789 ms

# Below is generated by plot.py at 2018-10-02 19:36:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 605.48 Mbit/s

95th percentile per-packet one-way delay: 1.891 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 365.96 Mbit/s

95th percentile per-packet one-way delay: 1.926 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 268.58 Mbit/s

95th percentile per-packet one-way delay: 1.858 ms

Loss rate: 0.01%

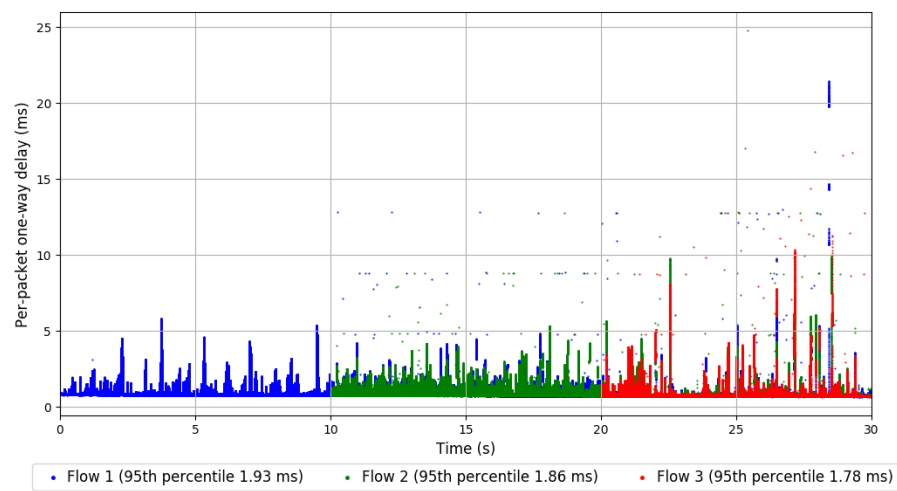
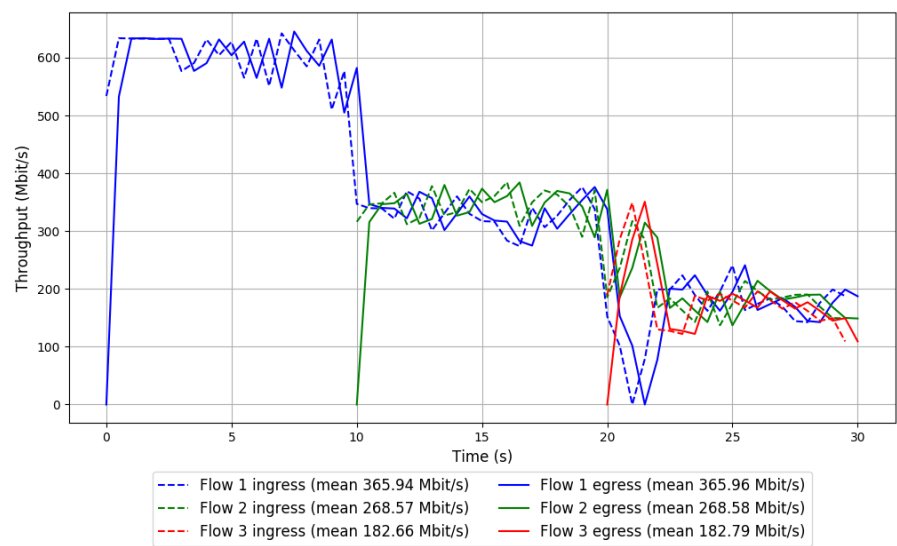
-- Flow 3:

Average throughput: 182.79 Mbit/s

95th percentile per-packet one-way delay: 1.785 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link

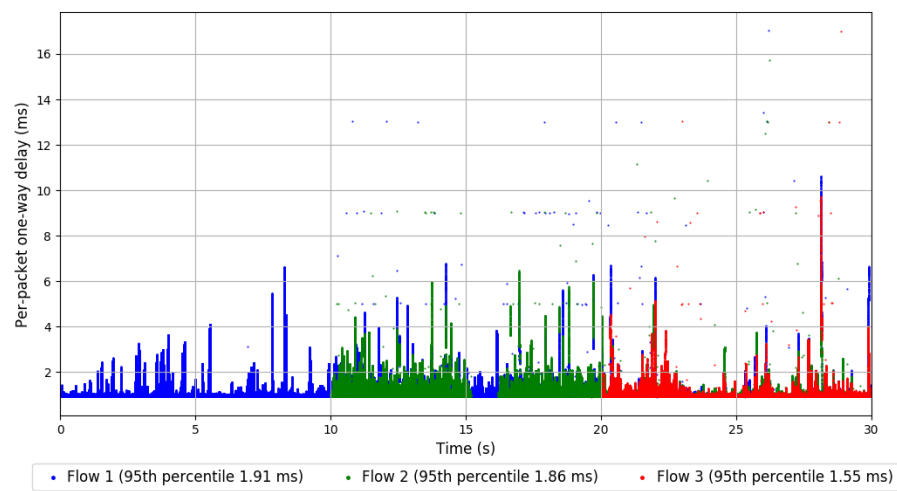
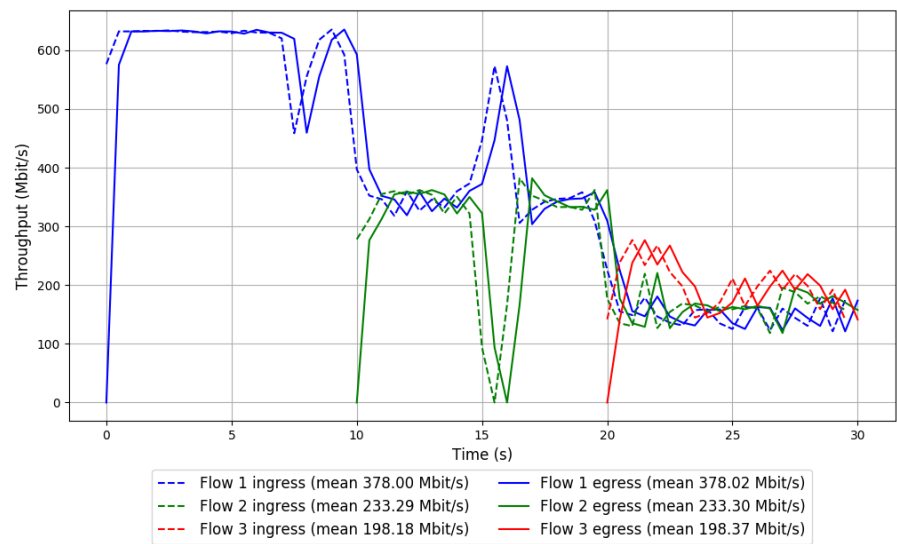


Run 5: Statistics of LEDBAT

Start at: 2018-10-02 18:34:31  
End at: 2018-10-02 18:35:01  
Local clock offset: 7.663 ms  
Remote clock offset: -0.165 ms

# Below is generated by plot.py at 2018-10-02 19:39:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 599.24 Mbit/s  
95th percentile per-packet one-way delay: 1.856 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 378.02 Mbit/s  
95th percentile per-packet one-way delay: 1.905 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 233.30 Mbit/s  
95th percentile per-packet one-way delay: 1.856 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 198.37 Mbit/s  
95th percentile per-packet one-way delay: 1.546 ms  
Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-10-02 16:49:59

End at: 2018-10-02 16:50:29

Local clock offset: 3.878 ms

Remote clock offset: 3.251 ms

# Below is generated by plot.py at 2018-10-02 19:39:00

# Datalink statistics

-- Total of 3 flows:

Average throughput: 82.99 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 40.47 Mbit/s

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

Loss rate: 0.01%

-- Flow 2:

Average throughput: 40.95 Mbit/s

95th percentile per-packet one-way delay: 1.042 ms

Loss rate: 0.00%

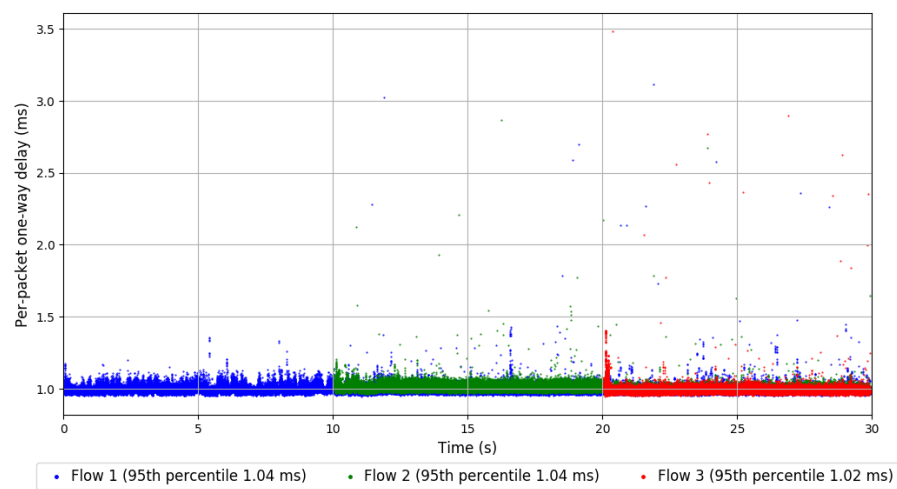
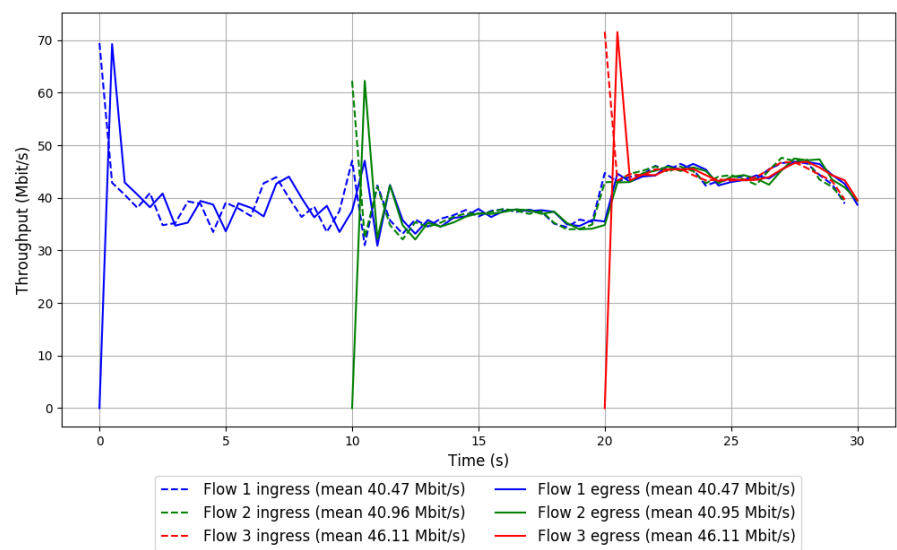
-- Flow 3:

Average throughput: 46.11 Mbit/s

95th percentile per-packet one-way delay: 1.022 ms

Loss rate: 0.01%

Run 1: Report of Indigo-Muses — Data Link



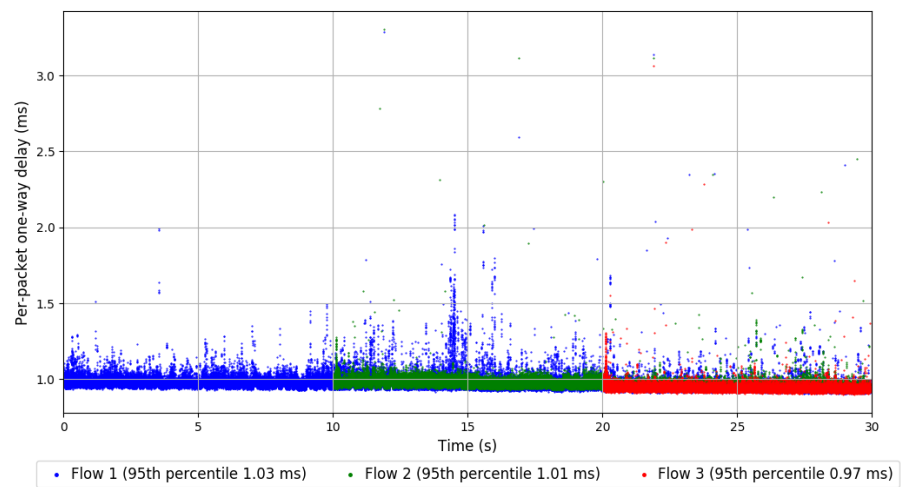
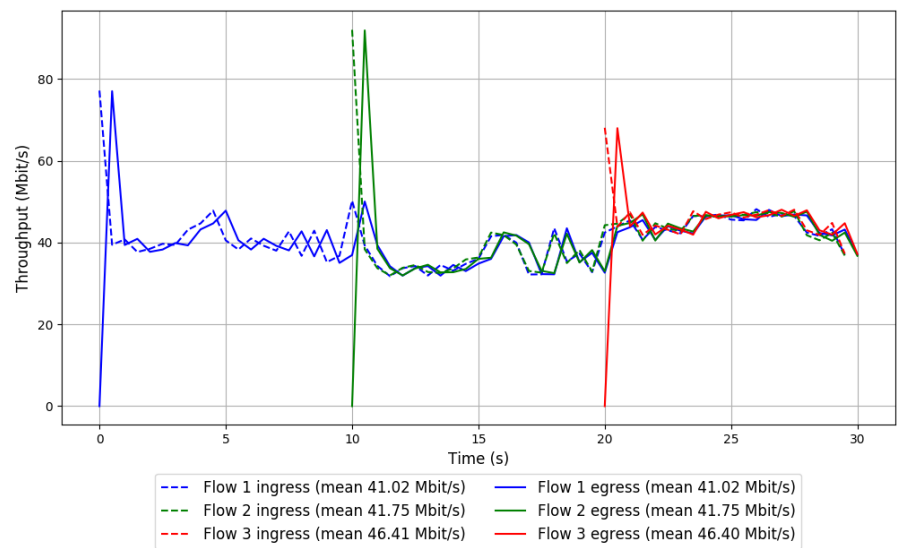


Run 2: Statistics of Indigo-Muses

Start at: 2018-10-02 17:17:45  
End at: 2018-10-02 17:18:15  
Local clock offset: 4.214 ms  
Remote clock offset: -0.075 ms

# Below is generated by plot.py at 2018-10-02 19:39:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 84.19 Mbit/s  
95th percentile per-packet one-way delay: 1.016 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 41.02 Mbit/s  
95th percentile per-packet one-way delay: 1.033 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 41.75 Mbit/s  
95th percentile per-packet one-way delay: 1.009 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 46.40 Mbit/s  
95th percentile per-packet one-way delay: 0.972 ms  
Loss rate: 0.02%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-10-02 17:45:37

End at: 2018-10-02 17:46:07

Local clock offset: 4.654 ms

Remote clock offset: 3.599 ms

# Below is generated by plot.py at 2018-10-02 19:39:00

# Datalink statistics

-- Total of 3 flows:

Average throughput: 83.88 Mbit/s

95th percentile per-packet one-way delay: 0.893 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 41.11 Mbit/s

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

Loss rate: 0.01%

-- Flow 2:

Average throughput: 41.42 Mbit/s

95th percentile per-packet one-way delay: 0.875 ms

Loss rate: 0.00%

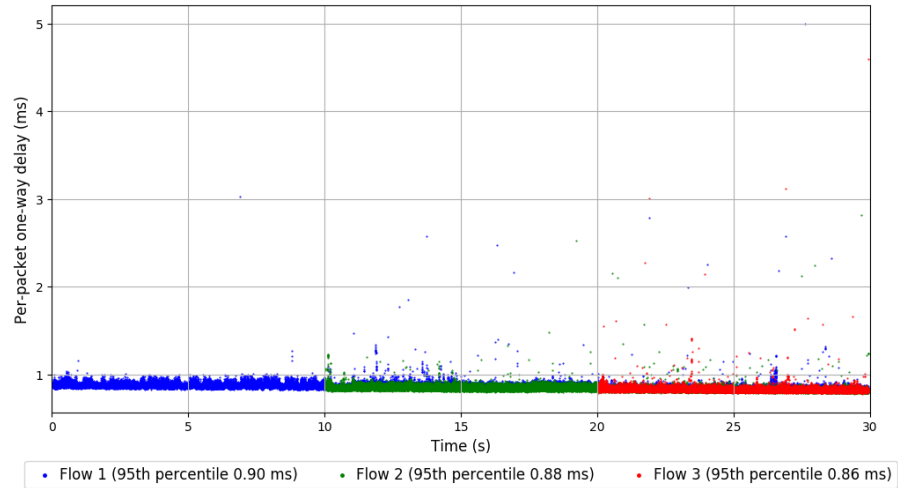
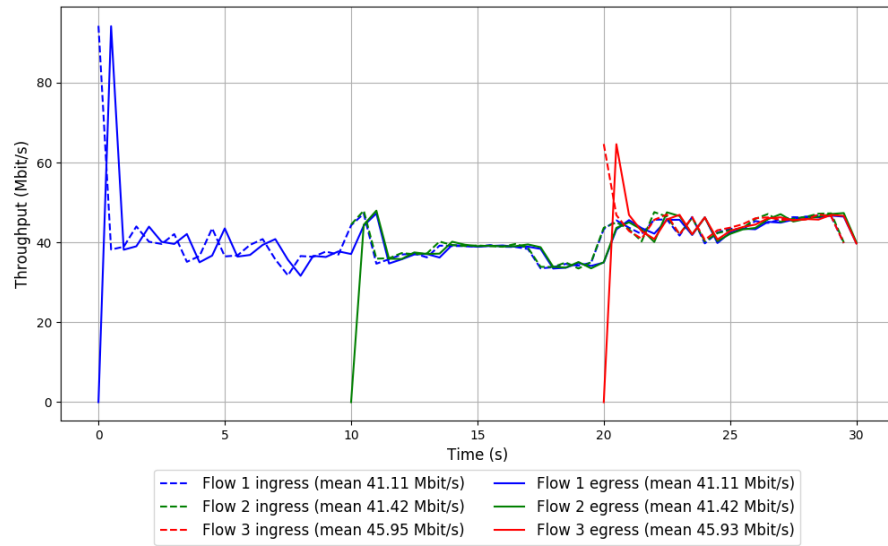
-- Flow 3:

Average throughput: 45.93 Mbit/s

95th percentile per-packet one-way delay: 0.857 ms

Loss rate: 0.01%

### Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-10-02 18:13:21

End at: 2018-10-02 18:13:51

Local clock offset: 6.628 ms

Remote clock offset: 0.806 ms

# Below is generated by plot.py at 2018-10-02 19:39:00

# Datalink statistics

-- Total of 3 flows:

Average throughput: 83.57 Mbit/s

95th percentile per-packet one-way delay: 0.907 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 40.74 Mbit/s

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

Loss rate: 0.01%

-- Flow 2:

Average throughput: 41.44 Mbit/s

95th percentile per-packet one-way delay: 0.883 ms

Loss rate: 0.01%

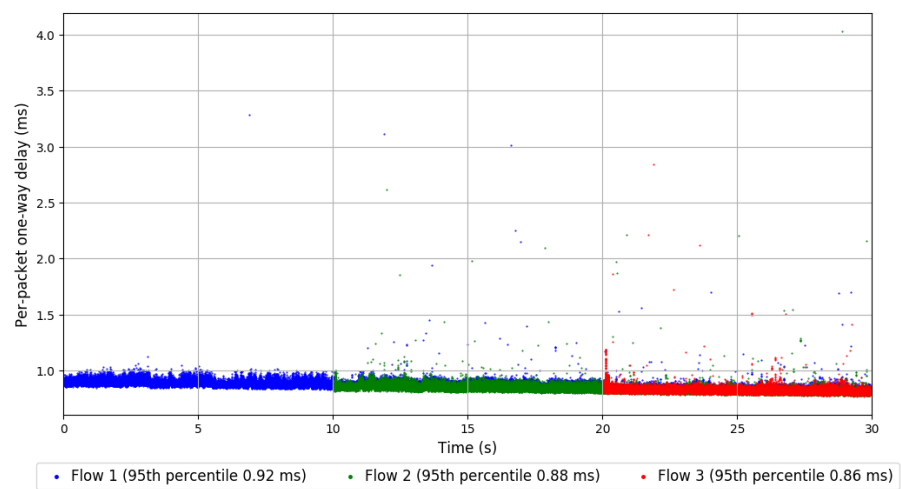
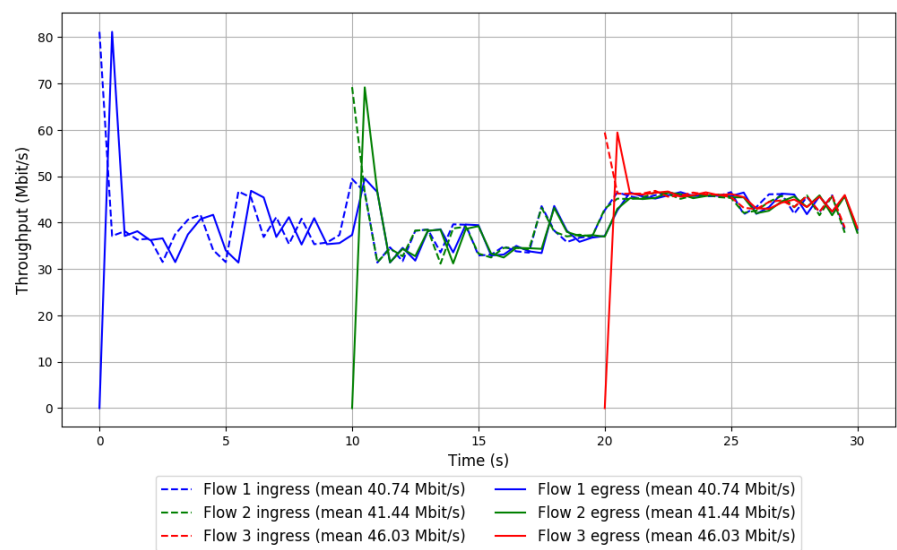
-- Flow 3:

Average throughput: 46.03 Mbit/s

95th percentile per-packet one-way delay: 0.856 ms

Loss rate: 0.01%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-10-02 18:40:58

End at: 2018-10-02 18:41:28

Local clock offset: 7.94 ms

Remote clock offset: 0.01 ms

# Below is generated by plot.py at 2018-10-02 19:39:00

# Datalink statistics

-- Total of 3 flows:

Average throughput: 84.84 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 41.17 Mbit/s

95th percentile per-packet one-way delay: 1.040 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 42.28 Mbit/s

95th percentile per-packet one-way delay: 1.023 ms

Loss rate: 0.01%

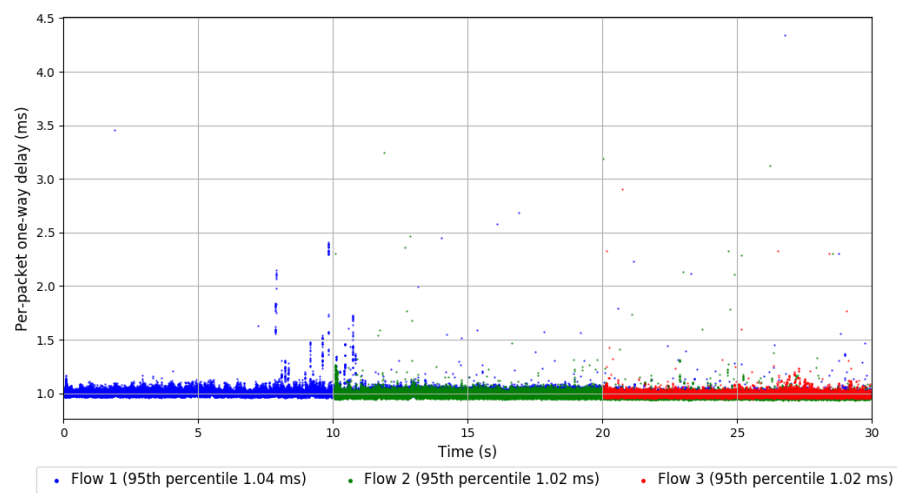
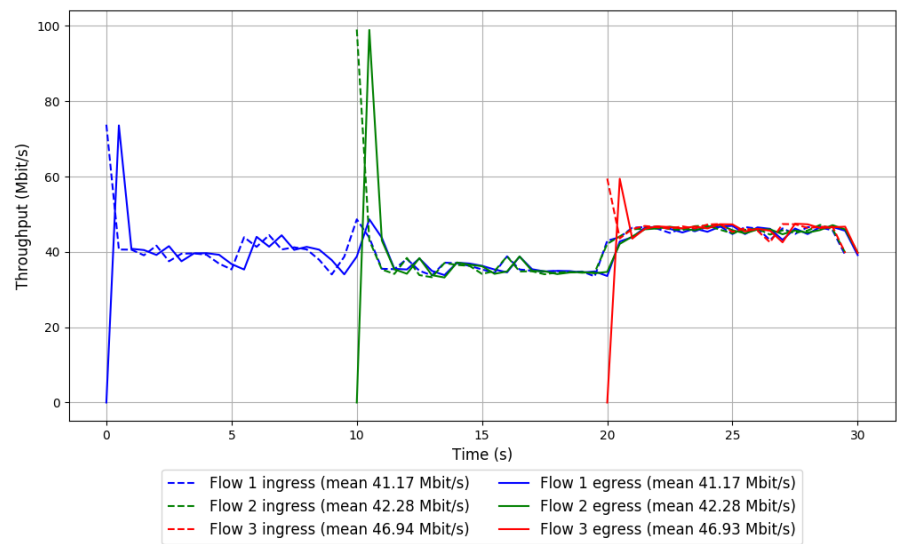
-- Flow 3:

Average throughput: 46.93 Mbit/s

95th percentile per-packet one-way delay: 1.018 ms

Loss rate: 0.01%

Run 5: Report of Indigo-Muses — Data Link



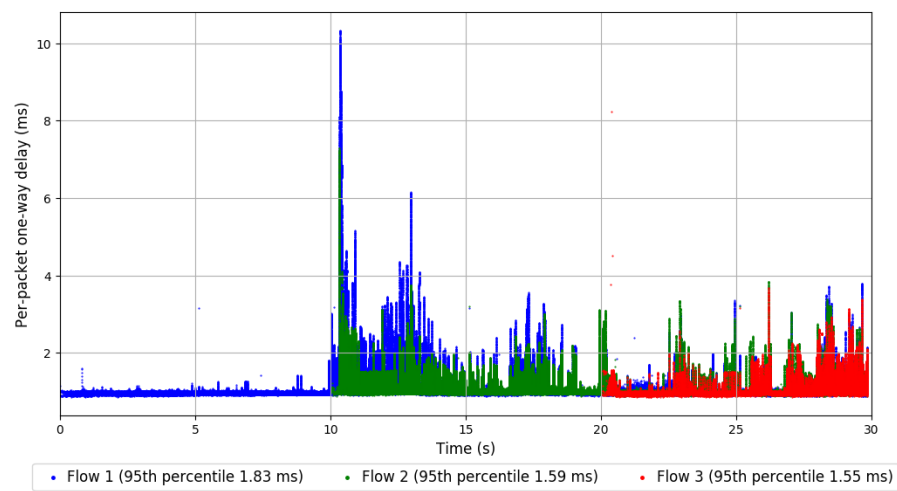
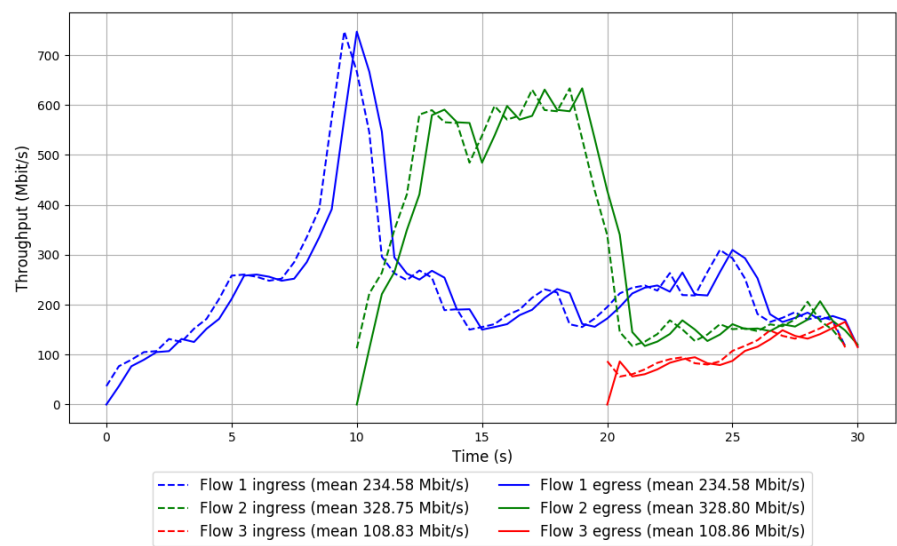


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-02 16:45:18
End at: 2018-10-02 16:45:48
Local clock offset: 3.706 ms
Remote clock offset: 3.127 ms

# Below is generated by plot.py at 2018-10-02 19:39:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 488.77 Mbit/s
95th percentile per-packet one-way delay: 1.696 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 234.58 Mbit/s
95th percentile per-packet one-way delay: 1.835 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 328.80 Mbit/s
95th percentile per-packet one-way delay: 1.593 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 108.86 Mbit/s
95th percentile per-packet one-way delay: 1.553 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-10-02 17:13:10

End at: 2018-10-02 17:13:40

Local clock offset: 4.095 ms

Remote clock offset: 0.066 ms

# Below is generated by plot.py at 2018-10-02 19:39:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 255.29 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 99.31 Mbit/s

95th percentile per-packet one-way delay: 1.240 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 154.20 Mbit/s

95th percentile per-packet one-way delay: 1.437 ms

Loss rate: 0.01%

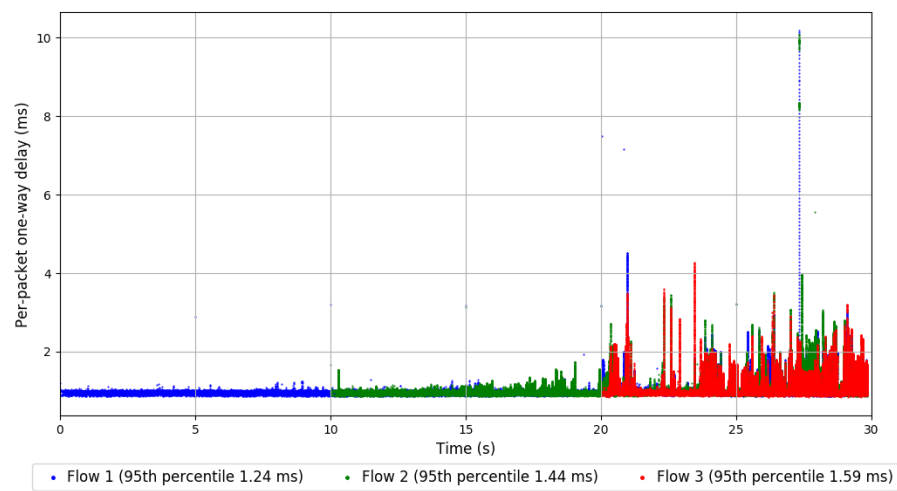
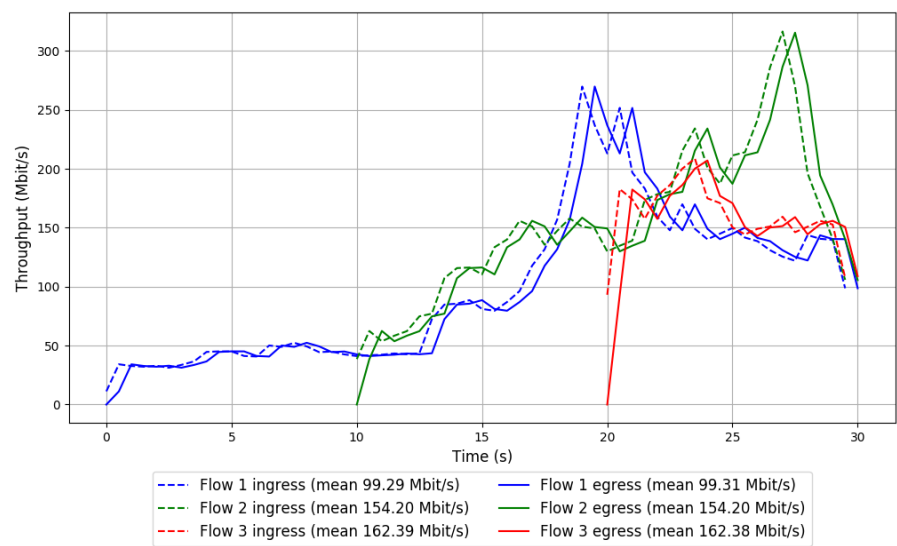
-- Flow 3:

Average throughput: 162.38 Mbit/s

95th percentile per-packet one-way delay: 1.593 ms

Loss rate: 0.02%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-10-02 17:40:54

End at: 2018-10-02 17:41:24

Local clock offset: 4.62 ms

Remote clock offset: 3.078 ms

# Below is generated by plot.py at 2018-10-02 19:41:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 599.43 Mbit/s

95th percentile per-packet one-way delay: 1.404 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 526.31 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 103.78 Mbit/s

95th percentile per-packet one-way delay: 1.352 ms

Loss rate: 0.00%

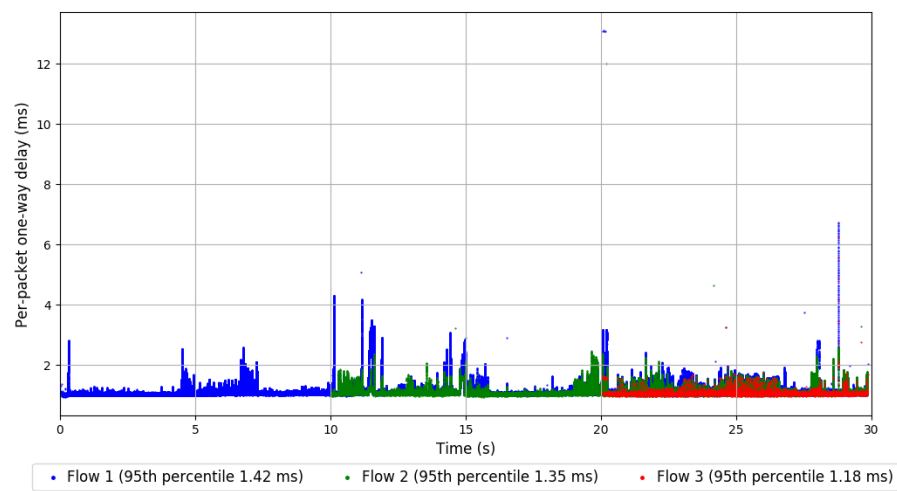
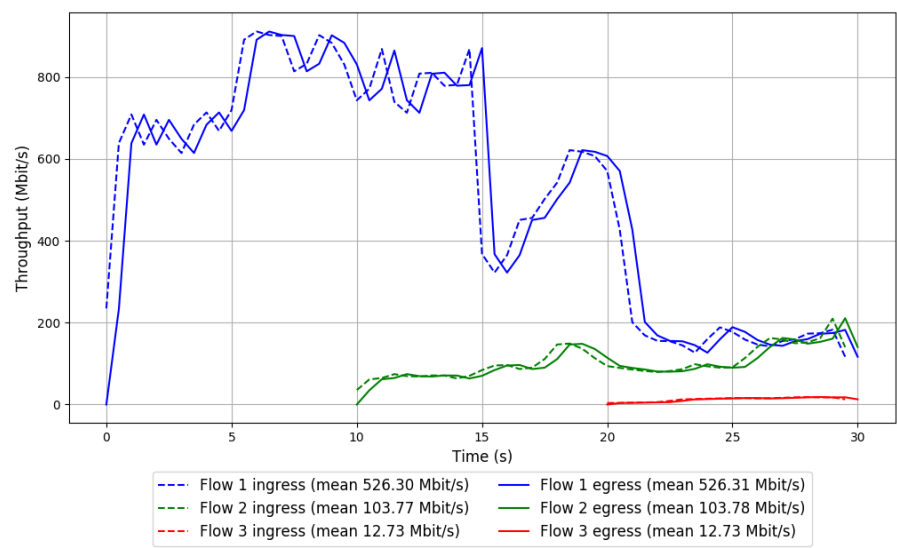
-- Flow 3:

Average throughput: 12.73 Mbit/s

95th percentile per-packet one-way delay: 1.180 ms

Loss rate: 0.02%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-10-02 18:08:37

End at: 2018-10-02 18:09:07

Local clock offset: 6.451 ms

Remote clock offset: 1.349 ms

# Below is generated by plot.py at 2018-10-02 19:42:32

# Datalink statistics

-- Total of 3 flows:

Average throughput: 658.54 Mbit/s

95th percentile per-packet one-way delay: 13.448 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 519.13 Mbit/s

95th percentile per-packet one-way delay: 23.430 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 197.17 Mbit/s

95th percentile per-packet one-way delay: 1.696 ms

Loss rate: 0.01%

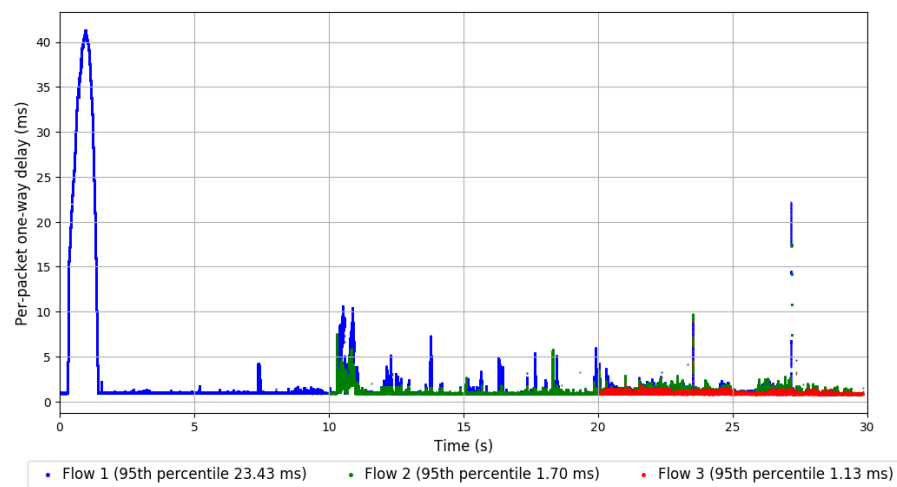
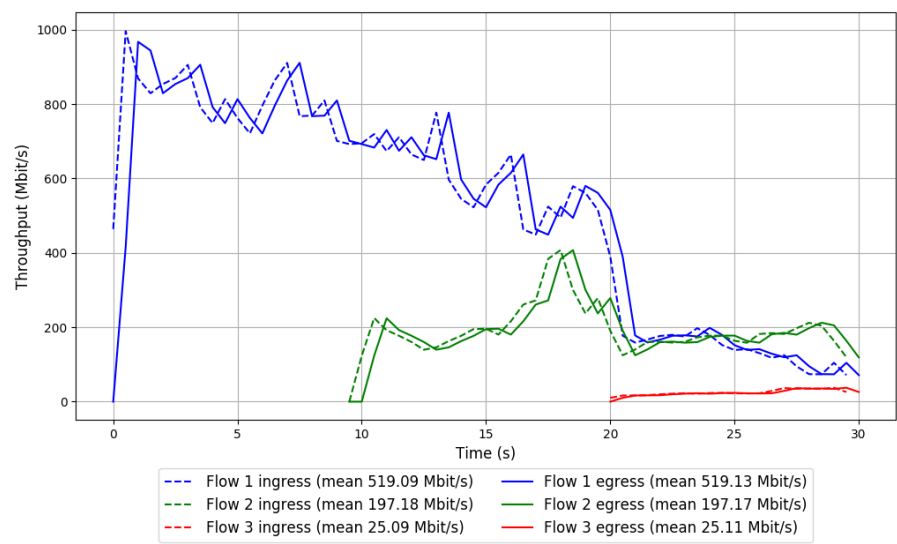
-- Flow 3:

Average throughput: 25.11 Mbit/s

95th percentile per-packet one-way delay: 1.132 ms

Loss rate: 0.03%

Run 4: Report of PCC-Allegro — Data Link



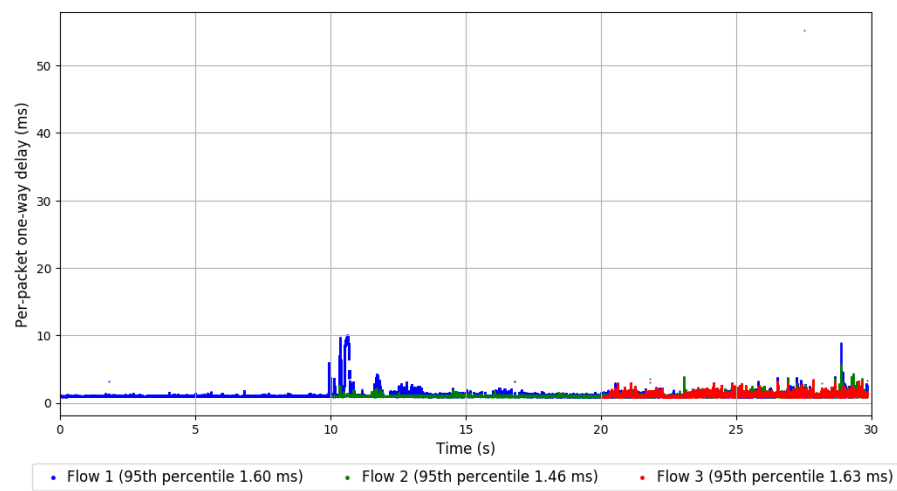
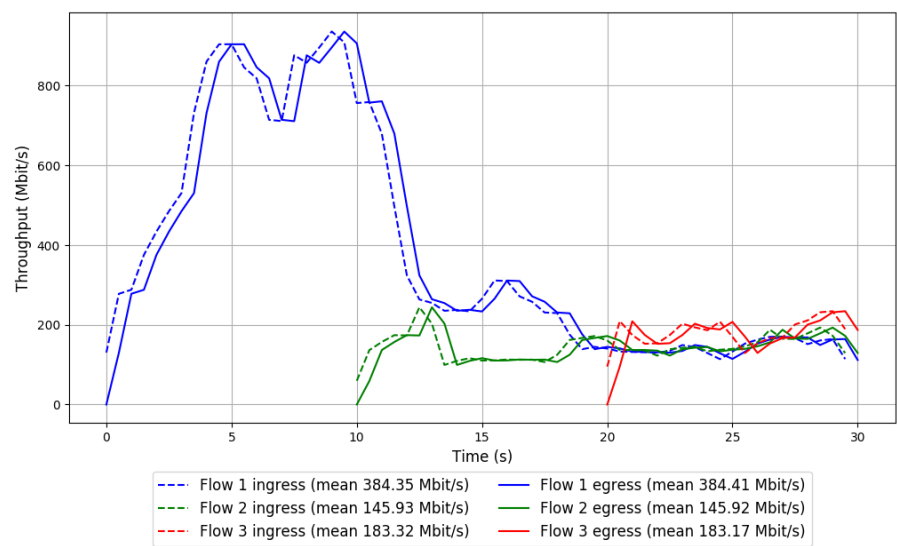


Run 5: Statistics of PCC-Allegro

Start at: 2018-10-02 18:36:16  
End at: 2018-10-02 18:36:46  
Local clock offset: 7.745 ms  
Remote clock offset: -0.107 ms

# Below is generated by plot.py at 2018-10-02 19:42:32  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 541.53 Mbit/s  
95th percentile per-packet one-way delay: 1.562 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 384.41 Mbit/s  
95th percentile per-packet one-way delay: 1.596 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 145.92 Mbit/s  
95th percentile per-packet one-way delay: 1.458 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 183.17 Mbit/s  
95th percentile per-packet one-way delay: 1.634 ms  
Loss rate: 0.07%

Run 5: Report of PCC-Allegro — Data Link

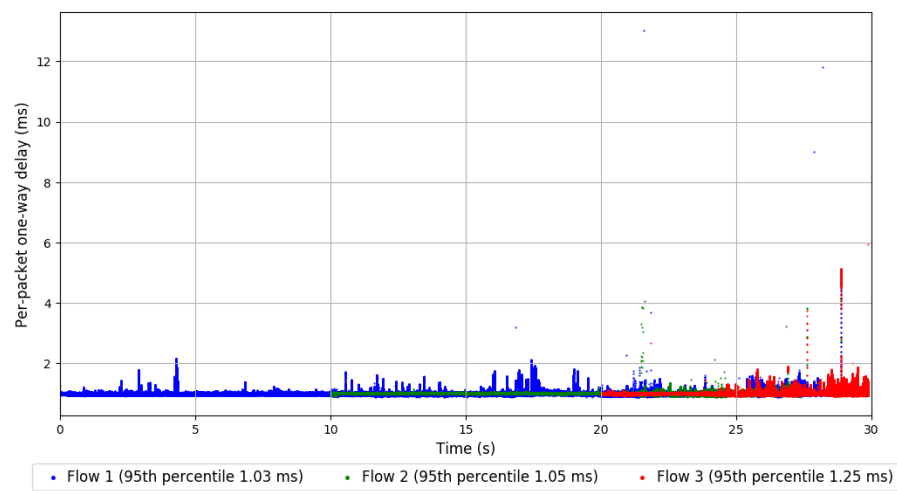
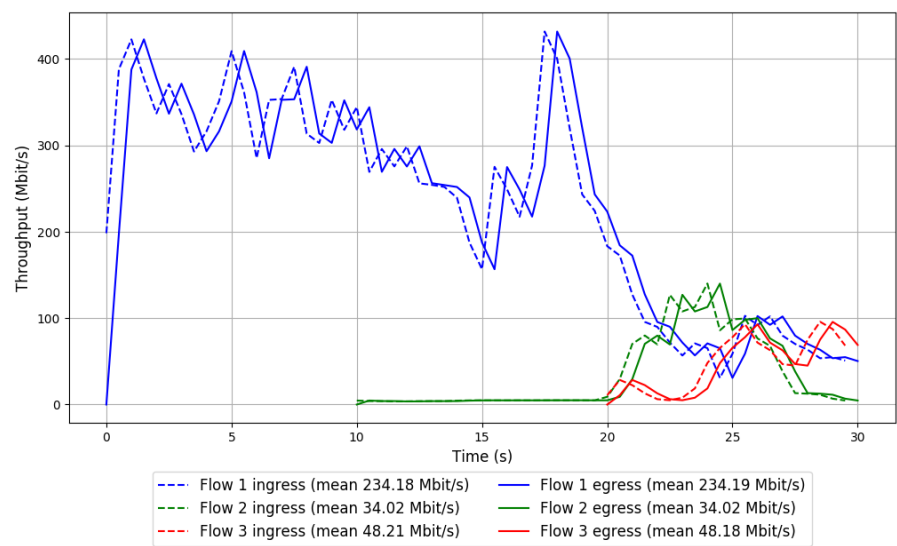


```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-02 16:38:36
End at: 2018-10-02 16:39:06
Local clock offset: 3.751 ms
Remote clock offset: 2.98 ms

# Below is generated by plot.py at 2018-10-02 19:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 272.65 Mbit/s
95th percentile per-packet one-way delay: 1.041 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 234.19 Mbit/s
95th percentile per-packet one-way delay: 1.030 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 34.02 Mbit/s
95th percentile per-packet one-way delay: 1.049 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 48.18 Mbit/s
95th percentile per-packet one-way delay: 1.249 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-10-02 17:06:26

End at: 2018-10-02 17:06:56

Local clock offset: 4.097 ms

Remote clock offset: 0.41 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 326.35 Mbit/s

95th percentile per-packet one-way delay: 8.091 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 241.77 Mbit/s

95th percentile per-packet one-way delay: 16.814 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 107.49 Mbit/s

95th percentile per-packet one-way delay: 1.218 ms

Loss rate: 0.01%

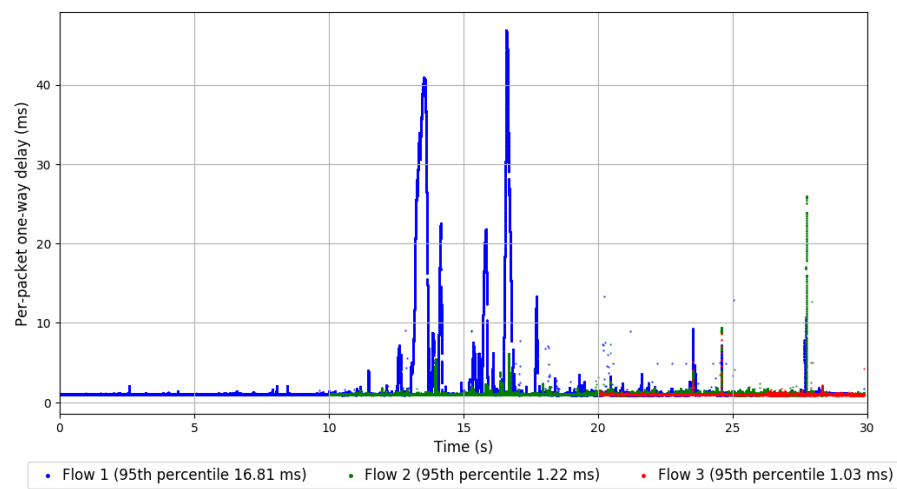
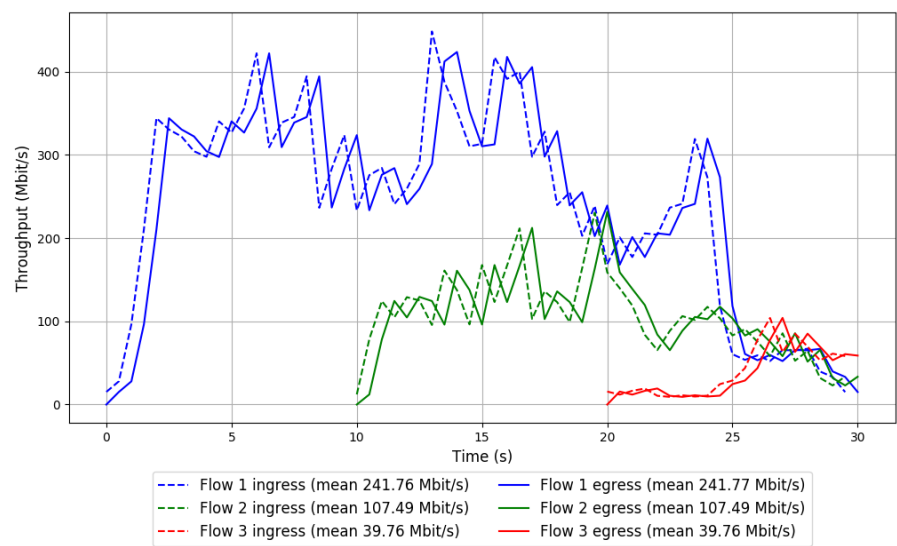
-- Flow 3:

Average throughput: 39.76 Mbit/s

95th percentile per-packet one-way delay: 1.026 ms

Loss rate: 0.01%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-10-02 17:34:16

End at: 2018-10-02 17:34:46

Local clock offset: 4.557 ms

Remote clock offset: 2.202 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 214.95 Mbit/s

95th percentile per-packet one-way delay: 1.146 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 198.64 Mbit/s

95th percentile per-packet one-way delay: 1.138 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 3.08 Mbit/s

95th percentile per-packet one-way delay: 1.152 ms

Loss rate: 0.00%

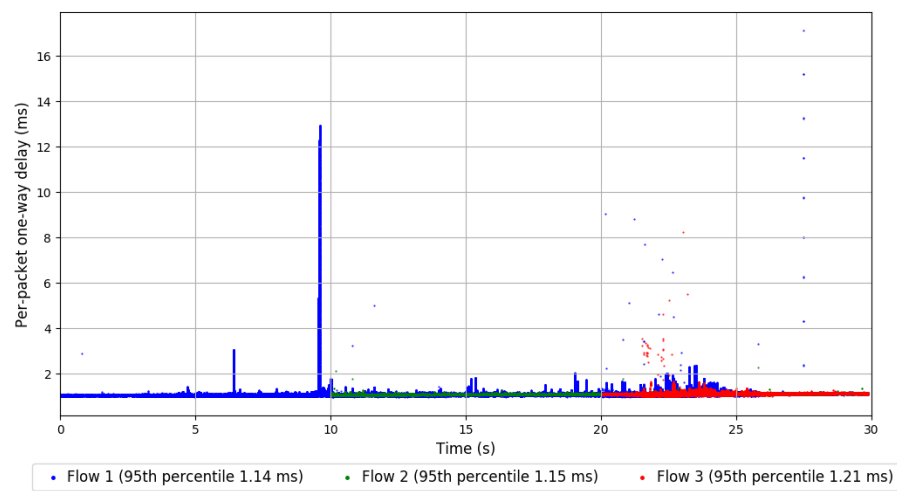
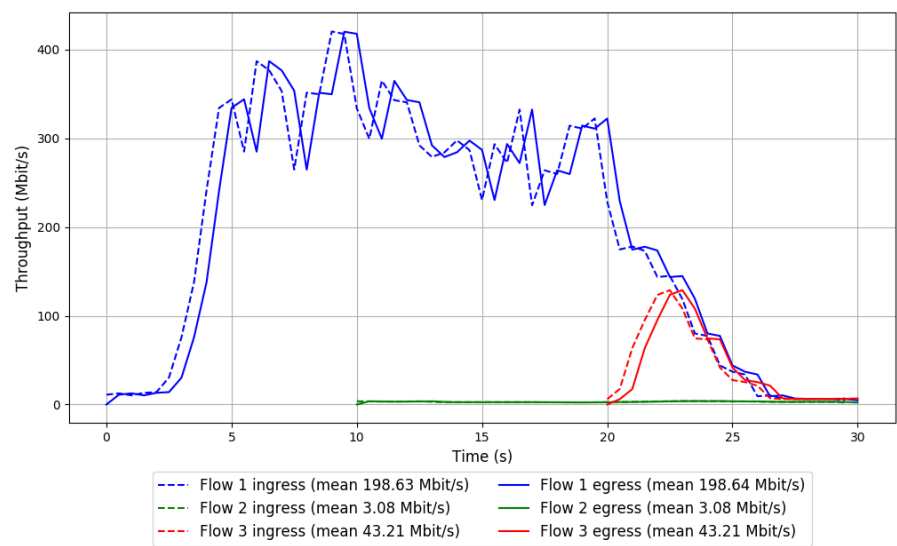
-- Flow 3:

Average throughput: 43.21 Mbit/s

95th percentile per-packet one-way delay: 1.207 ms

Loss rate: 0.00%

Run 3: Report of PCC-Expr — Data Link





Run 4: Statistics of PCC-Expr

Start at: 2018-10-02 18:02:11

End at: 2018-10-02 18:02:41

Local clock offset: 6.175 ms

Remote clock offset: 3.05 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.26 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 5.58 Mbit/s

95th percentile per-packet one-way delay: 0.879 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 5.60 Mbit/s

95th percentile per-packet one-way delay: 0.815 ms

Loss rate: 0.01%

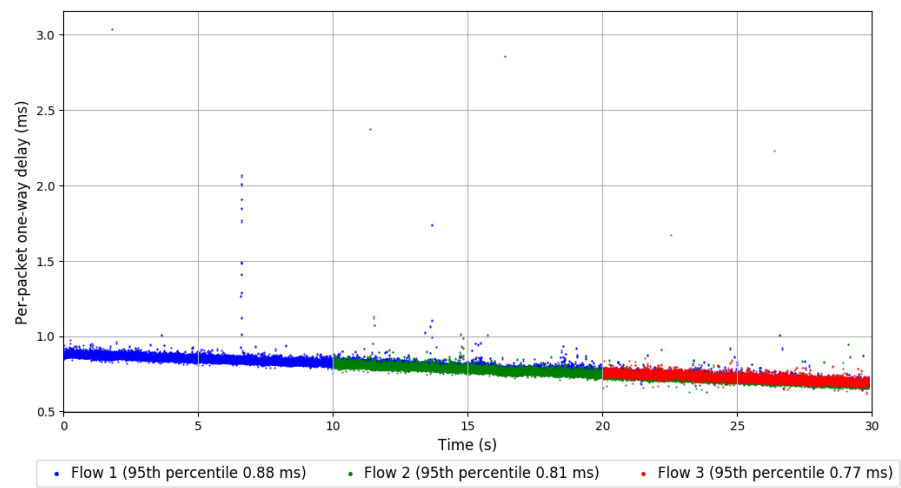
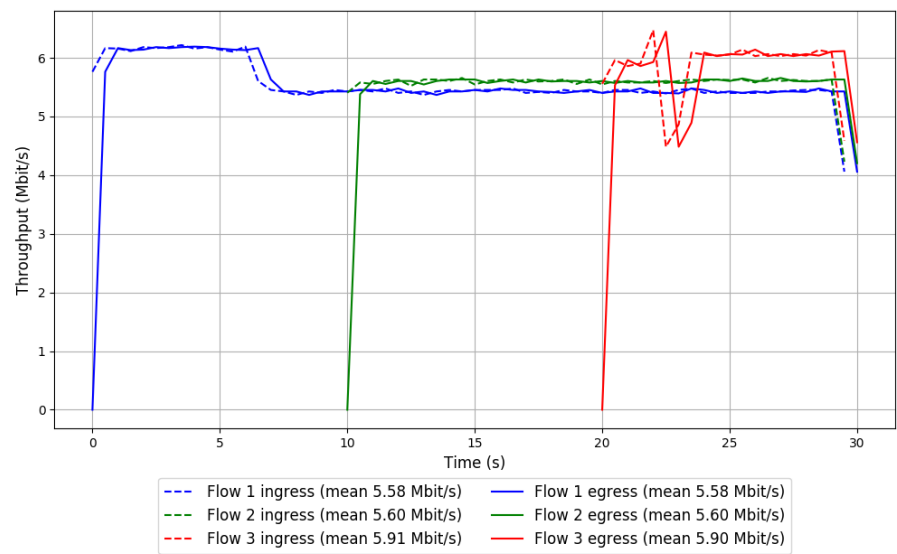
-- Flow 3:

Average throughput: 5.90 Mbit/s

95th percentile per-packet one-way delay: 0.767 ms

Loss rate: 0.02%

Run 4: Report of PCC-Expr — Data Link

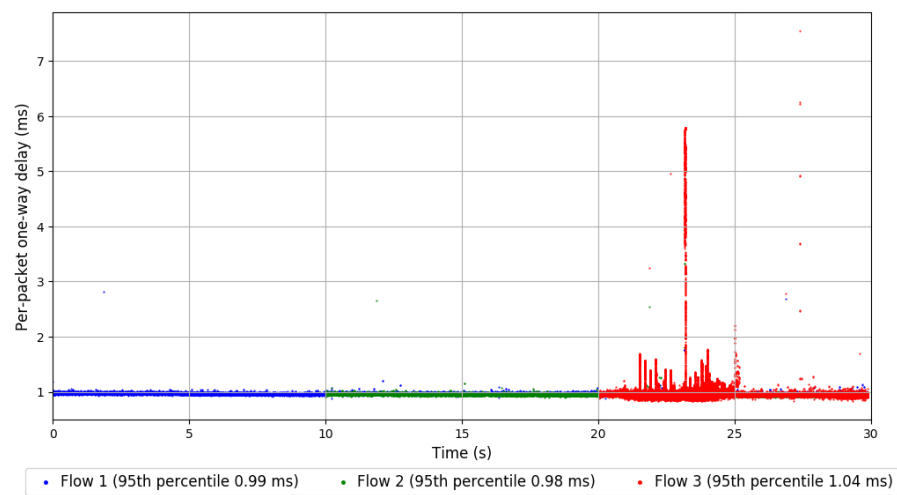
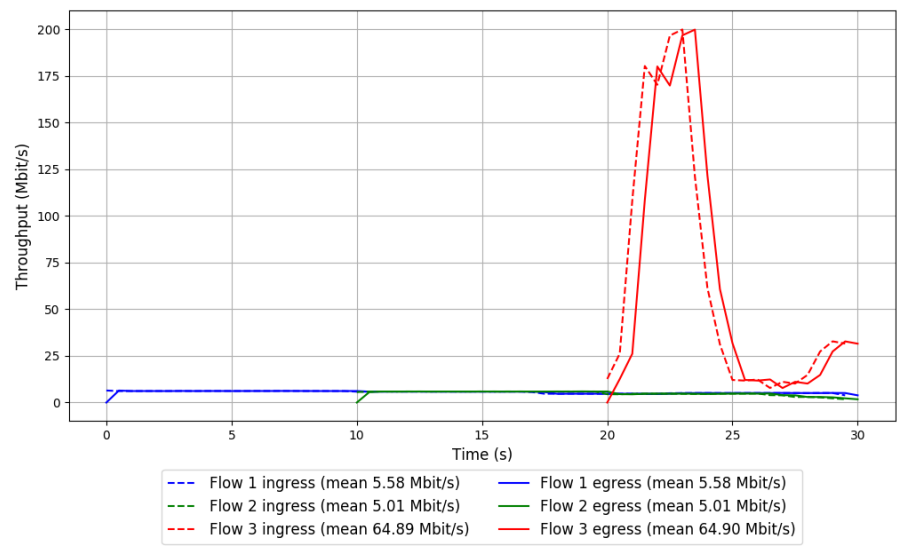


Run 5: Statistics of PCC-Expr

Start at: 2018-10-02 18:29:50  
End at: 2018-10-02 18:30:20  
Local clock offset: 7.471 ms  
Remote clock offset: -0.133 ms

# Below is generated by plot.py at 2018-10-02 19:44:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 30.33 Mbit/s  
95th percentile per-packet one-way delay: 1.009 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 5.58 Mbit/s  
95th percentile per-packet one-way delay: 0.994 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 5.01 Mbit/s  
95th percentile per-packet one-way delay: 0.979 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 64.90 Mbit/s  
95th percentile per-packet one-way delay: 1.038 ms  
Loss rate: 0.01%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-10-02 16:46:49

End at: 2018-10-02 16:47:19

Local clock offset: 3.76 ms

Remote clock offset: 3.139 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 141.24 Mbit/s

95th percentile per-packet one-way delay: 1.030 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 76.97 Mbit/s

95th percentile per-packet one-way delay: 1.028 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 67.23 Mbit/s

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

Loss rate: 0.04%

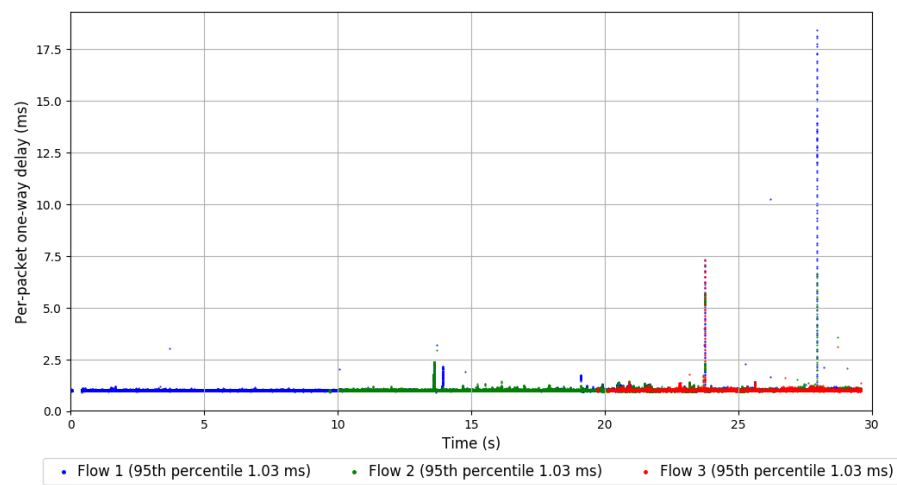
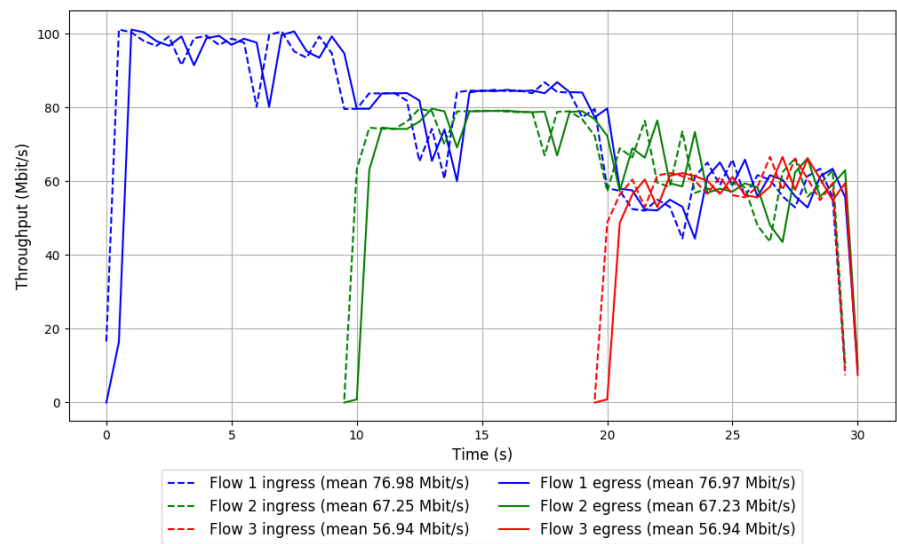
-- Flow 3:

Average throughput: 56.94 Mbit/s

95th percentile per-packet one-way delay: 1.035 ms

Loss rate: 0.00%

Run 1: Report of QUIC Cubic — Data Link

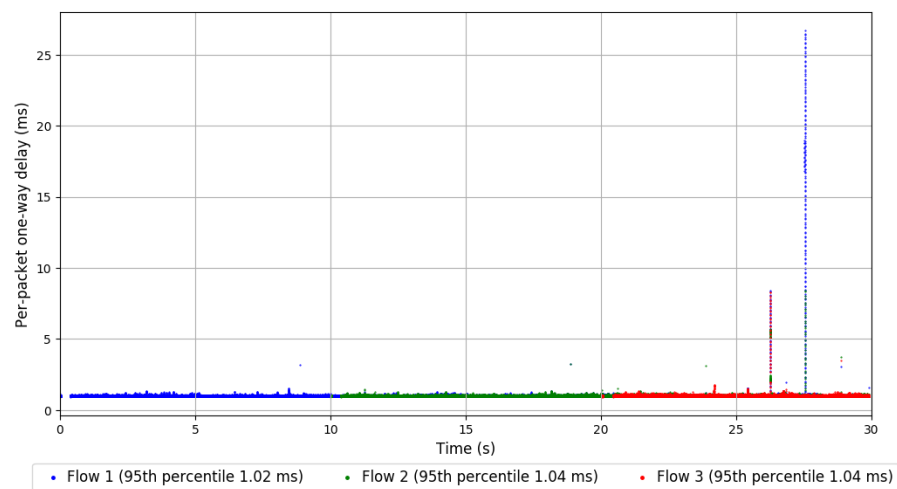
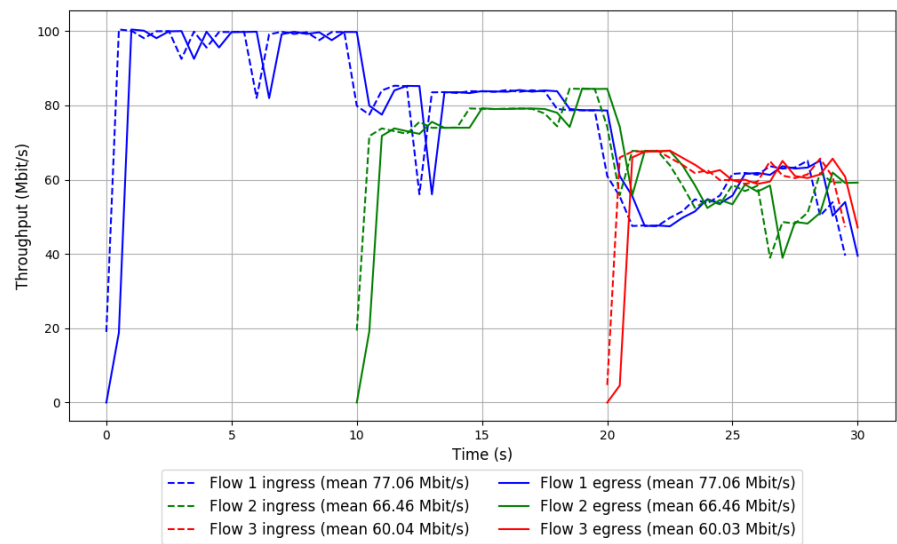


Run 2: Statistics of QUIC Cubic

Start at: 2018-10-02 17:14:35  
End at: 2018-10-02 17:15:05  
Local clock offset: 4.113 ms  
Remote clock offset: -0.006 ms

# Below is generated by plot.py at 2018-10-02 19:44:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 141.13 Mbit/s  
95th percentile per-packet one-way delay: 1.032 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 77.06 Mbit/s  
95th percentile per-packet one-way delay: 1.023 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 66.46 Mbit/s  
95th percentile per-packet one-way delay: 1.037 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 60.03 Mbit/s  
95th percentile per-packet one-way delay: 1.045 ms  
Loss rate: 0.02%

Run 2: Report of QUIC Cubic — Data Link





Run 3: Statistics of QUIC Cubic

Start at: 2018-10-02 17:42:27

End at: 2018-10-02 17:42:57

Local clock offset: 4.637 ms

Remote clock offset: 3.224 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 142.34 Mbit/s

95th percentile per-packet one-way delay: 1.099 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 79.26 Mbit/s

95th percentile per-packet one-way delay: 1.099 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 67.78 Mbit/s

95th percentile per-packet one-way delay: 1.092 ms

Loss rate: 0.01%

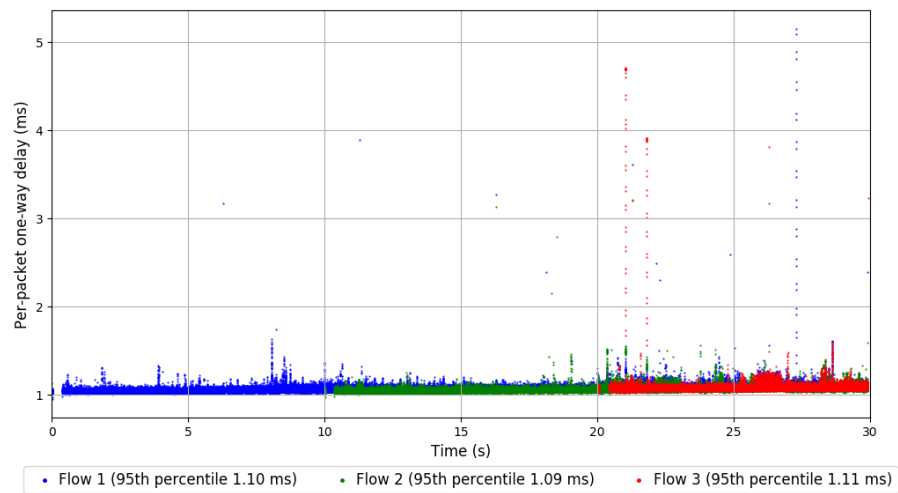
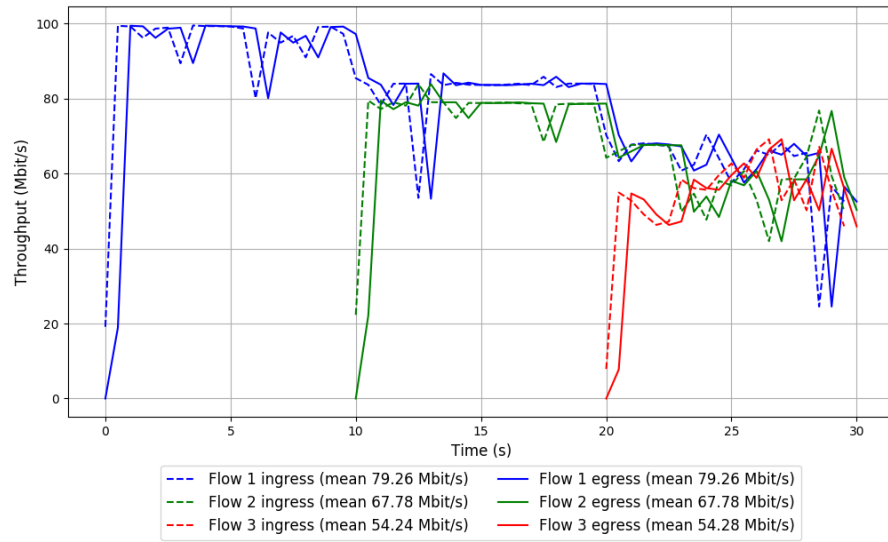
-- Flow 3:

Average throughput: 54.28 Mbit/s

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

Loss rate: 0.02%

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



Run 4: Statistics of QUIC Cubic

Start at: 2018-10-02 18:10:12

End at: 2018-10-02 18:10:42

Local clock offset: 6.508 ms

Remote clock offset: 1.21 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 136.43 Mbit/s

95th percentile per-packet one-way delay: 0.858 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 71.81 Mbit/s

95th percentile per-packet one-way delay: 0.863 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 68.85 Mbit/s

95th percentile per-packet one-way delay: 0.844 ms

Loss rate: 0.01%

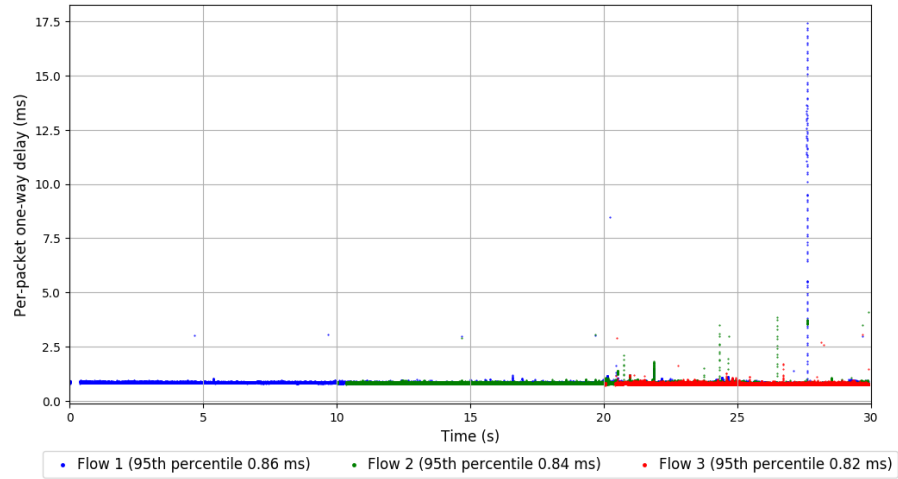
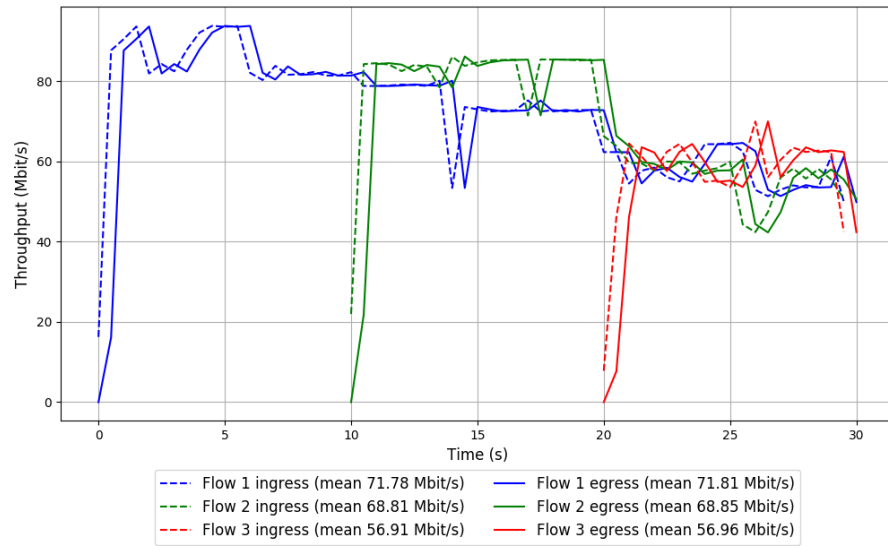
-- Flow 3:

Average throughput: 56.96 Mbit/s

95th percentile per-packet one-way delay: 0.818 ms

Loss rate: 0.02%

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

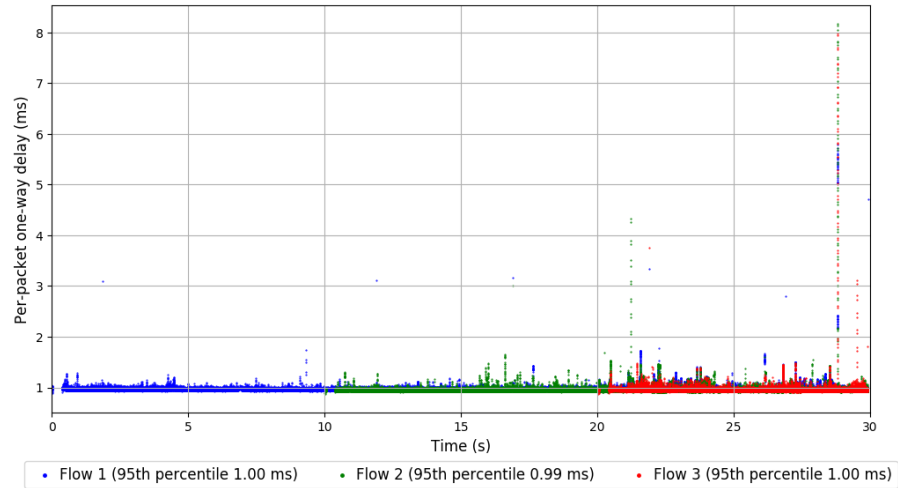
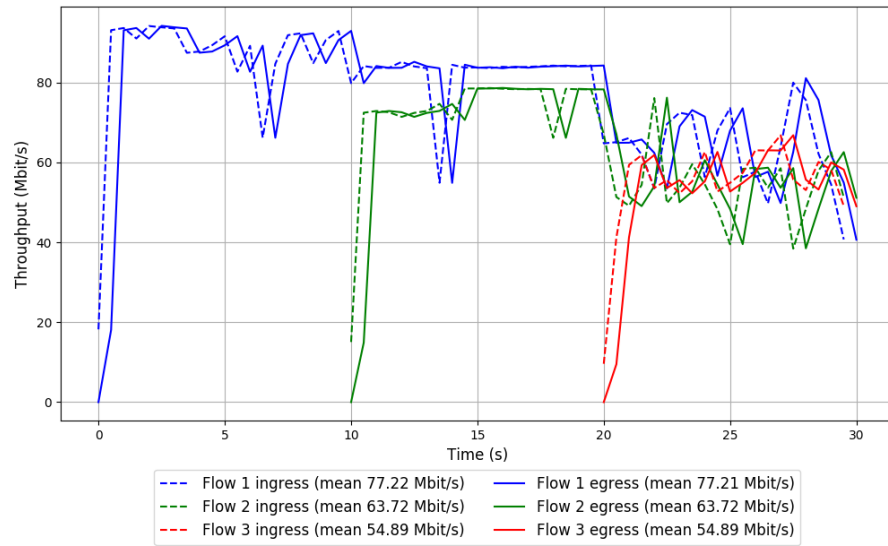


Run 5: Statistics of QUIC Cubic

Start at: 2018-10-02 18:37:48  
End at: 2018-10-02 18:38:18  
Local clock offset: 7.801 ms  
Remote clock offset: -0.047 ms

# Below is generated by plot.py at 2018-10-02 19:44:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 137.74 Mbit/s  
95th percentile per-packet one-way delay: 0.995 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 77.21 Mbit/s  
95th percentile per-packet one-way delay: 0.997 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 63.72 Mbit/s  
95th percentile per-packet one-way delay: 0.987 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 54.89 Mbit/s  
95th percentile per-packet one-way delay: 0.996 ms  
Loss rate: 0.01%

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

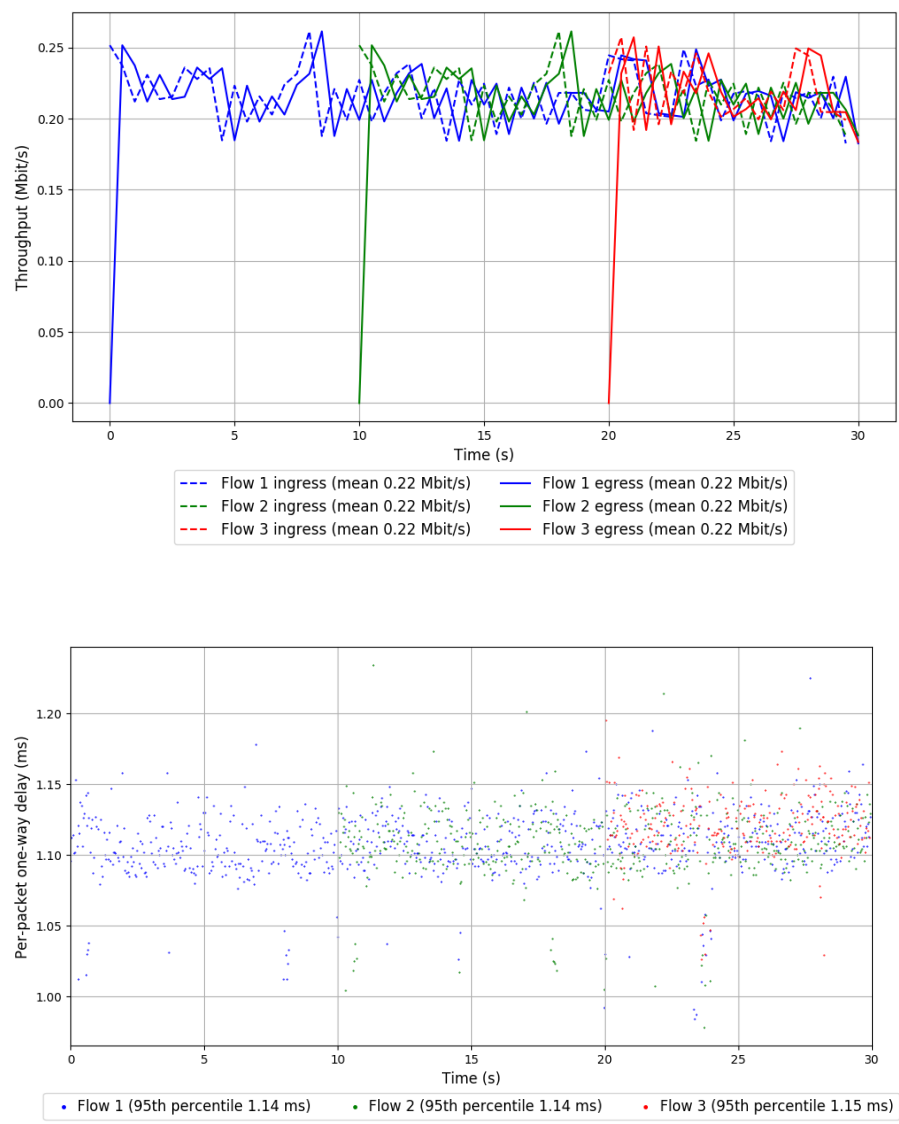


```
Run 1: Statistics of SReAM

Start at: 2018-10-02 16:35:45
End at: 2018-10-02 16:36:15
Local clock offset: 3.756 ms
Remote clock offset: 2.909 ms

# Below is generated by plot.py at 2018-10-02 19:44:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.144 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.141 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.143 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.153 ms
Loss rate: 0.35%
```

Run 1: Report of SReAM — Data Link





Run 2: Statistics of SReAM

Start at: 2018-10-02 17:03:36

End at: 2018-10-02 17:04:06

Local clock offset: 4.061 ms

Remote clock offset: 0.745 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 1.019 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: 1.003 ms

Loss rate: 0.00%

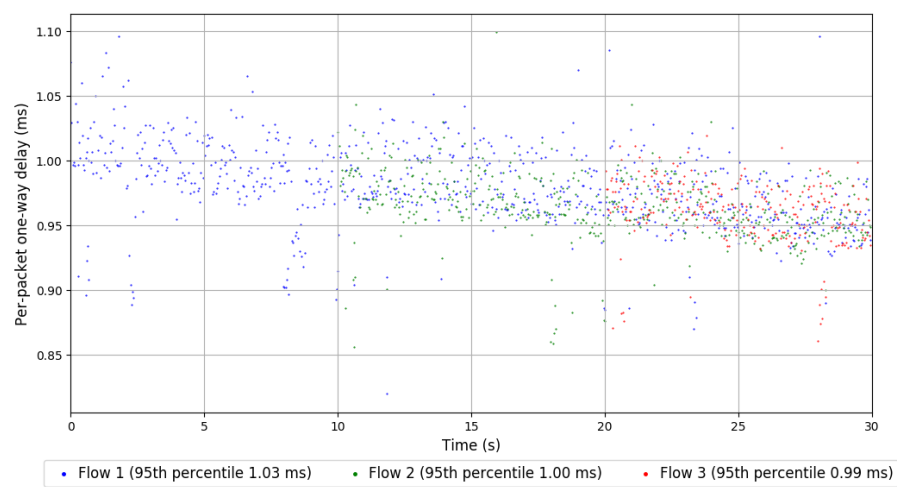
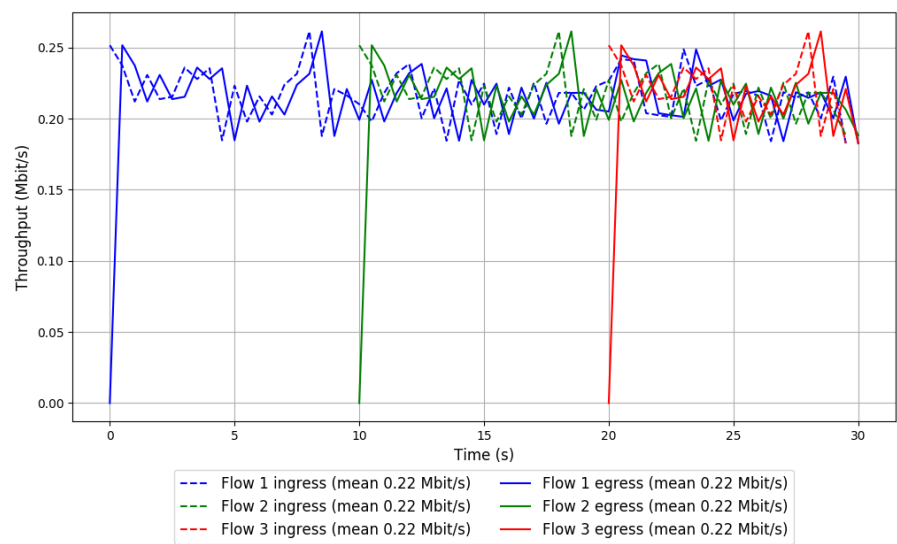
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.994 ms

Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

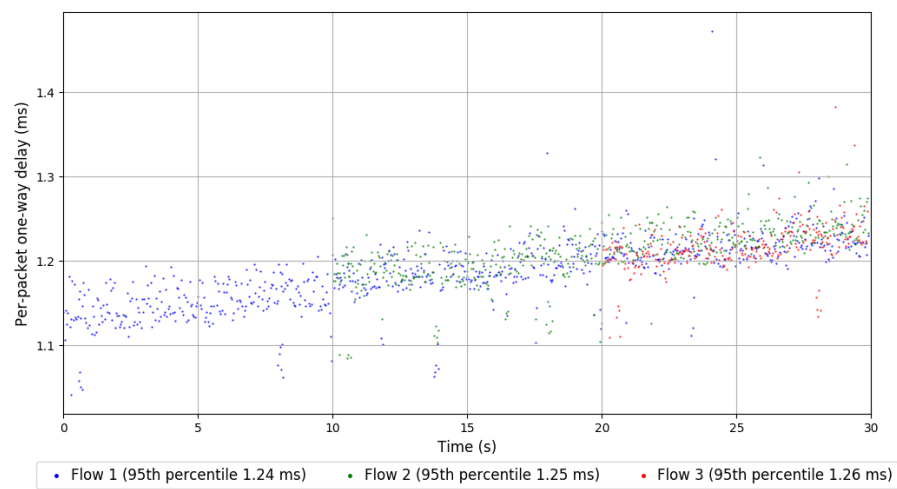
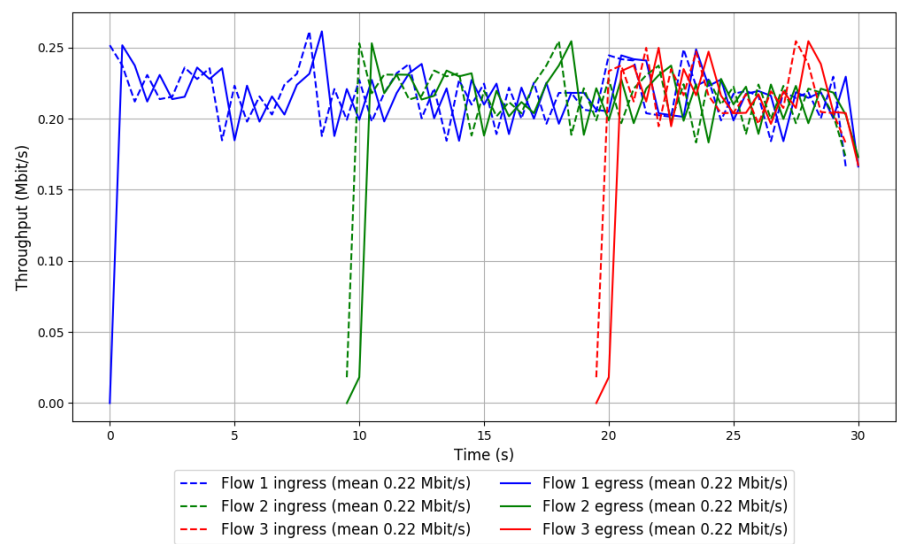


Run 3: Statistics of SReAM

Start at: 2018-10-02 17:31:25  
End at: 2018-10-02 17:31:55  
Local clock offset: 4.512 ms  
Remote clock offset: 1.711 ms

# Below is generated by plot.py at 2018-10-02 19:44:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.248 ms  
Loss rate: 0.06%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.236 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.252 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.256 ms  
Loss rate: 0.35%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-10-02 17:59:20

End at: 2018-10-02 17:59:50

Local clock offset: 5.985 ms

Remote clock offset: 4.153 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 0.975 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.990 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.924 ms

Loss rate: 0.00%

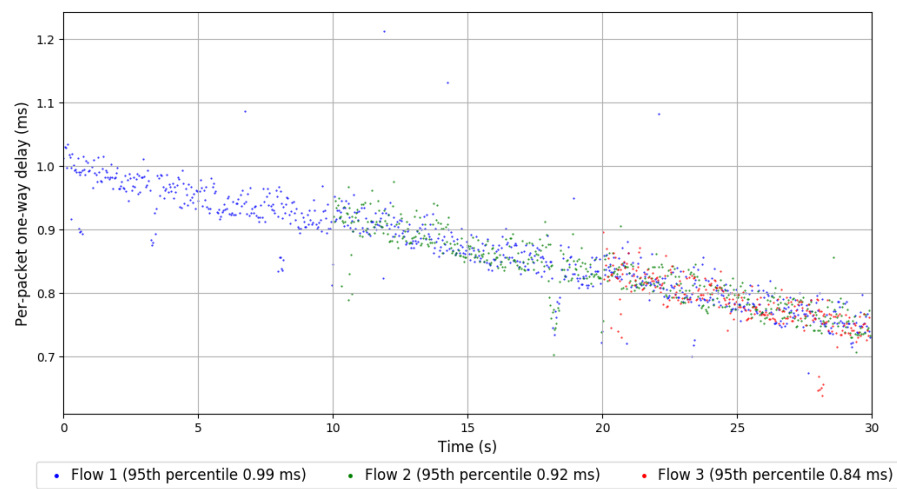
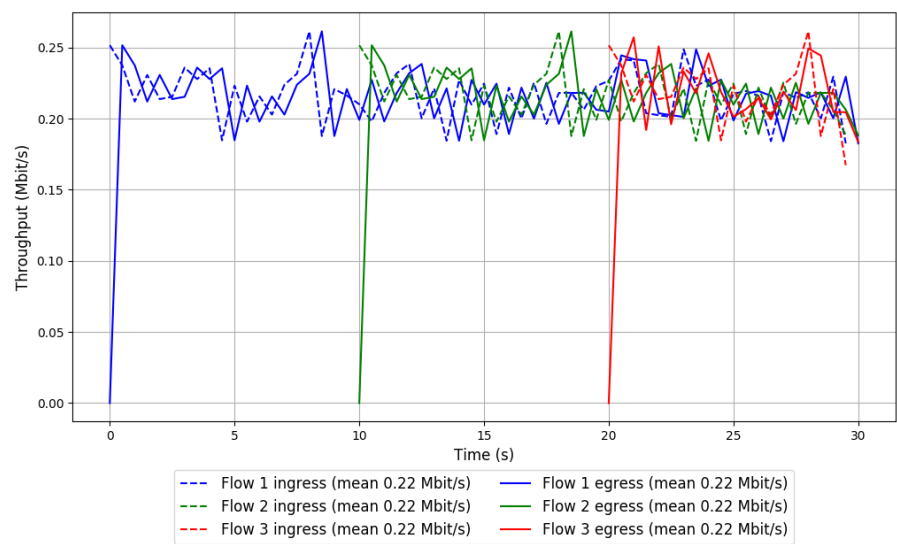
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.844 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link

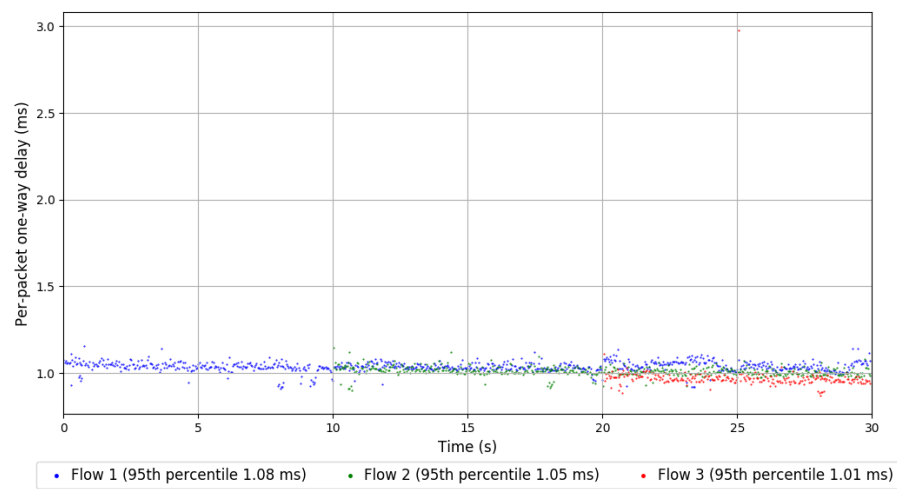
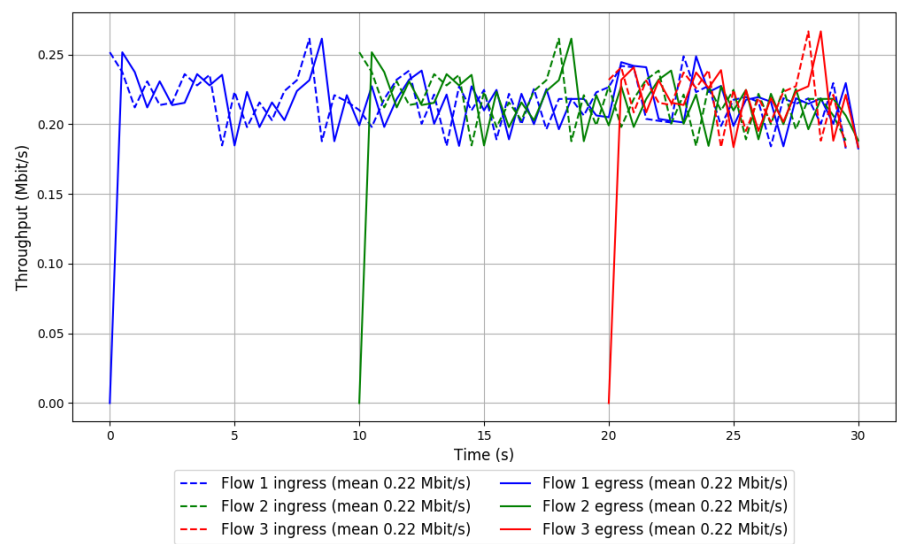


Run 5: Statistics of SReAM

Start at: 2018-10-02 18:26:59  
End at: 2018-10-02 18:27:29  
Local clock offset: 7.347 ms  
Remote clock offset: -0.007 ms

# Below is generated by plot.py at 2018-10-02 19:44:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.074 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.082 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.055 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.009 ms  
Loss rate: 0.00%

Run 5: Report of SReAM — Data Link





Run 1: Statistics of Sprout

Start at: 2018-10-02 16:34:23

End at: 2018-10-02 16:34:54

Local clock offset: 3.752 ms

Remote clock offset: 2.901 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 99.97 Mbit/s

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

Loss rate: 0.02%

-- Flow 1:

Average throughput: 50.31 Mbit/s

95th percentile per-packet one-way delay: 1.045 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.09 Mbit/s

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

Loss rate: 0.00%

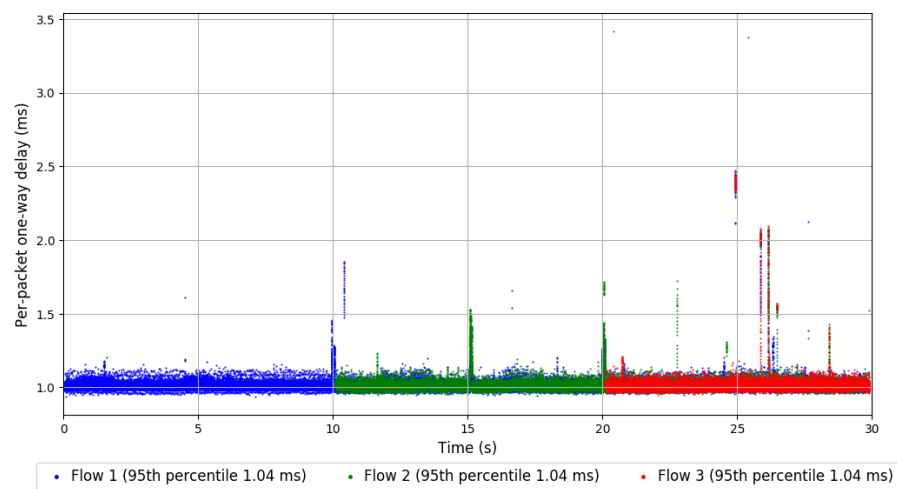
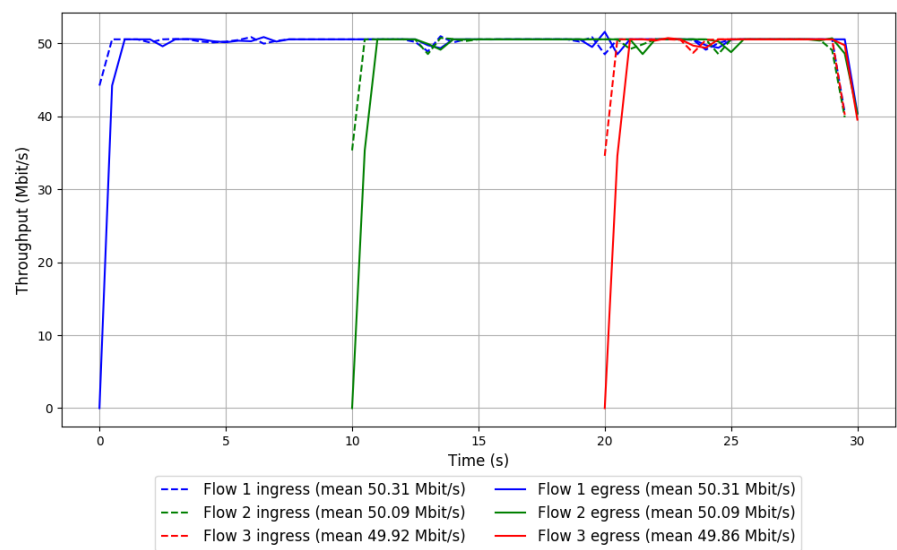
-- Flow 3:

Average throughput: 49.86 Mbit/s

95th percentile per-packet one-way delay: 1.041 ms

Loss rate: 0.15%

Run 1: Report of Sprout — Data Link

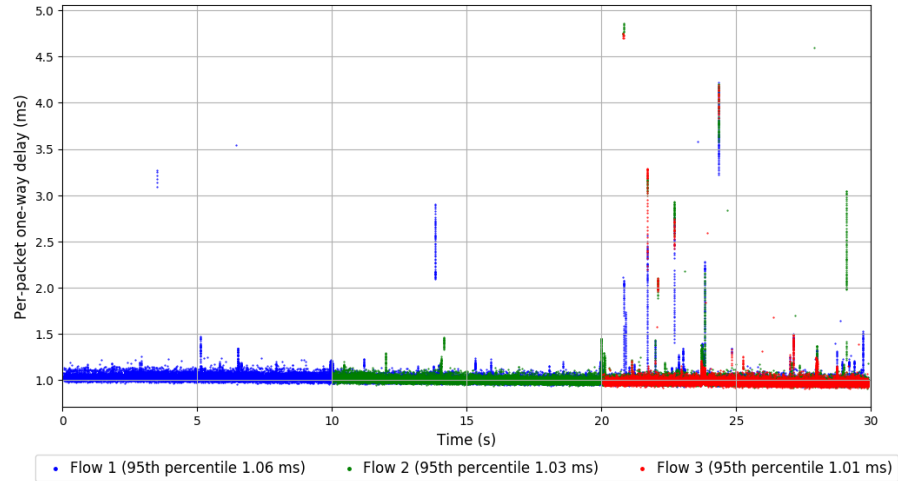
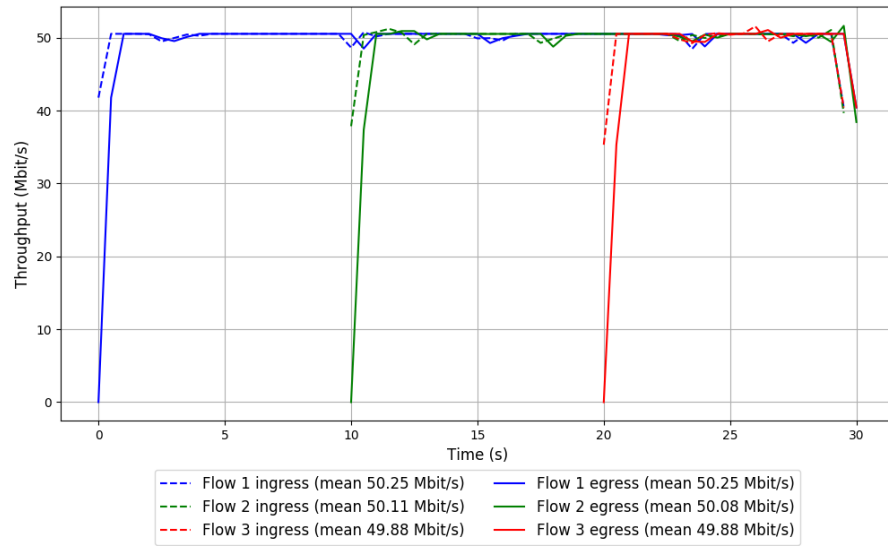


Run 2: Statistics of Sprout

Start at: 2018-10-02 17:02:15  
End at: 2018-10-02 17:02:45  
Local clock offset: 4.085 ms  
Remote clock offset: 0.82 ms

# Below is generated by plot.py at 2018-10-02 19:44:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 100.01 Mbit/s  
95th percentile per-packet one-way delay: 1.050 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 50.25 Mbit/s  
95th percentile per-packet one-way delay: 1.059 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 50.08 Mbit/s  
95th percentile per-packet one-way delay: 1.035 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 49.88 Mbit/s  
95th percentile per-packet one-way delay: 1.015 ms  
Loss rate: 0.00%

## Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-10-02 17:30:03

End at: 2018-10-02 17:30:33

Local clock offset: 4.5 ms

Remote clock offset: 1.461 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 99.93 Mbit/s

95th percentile per-packet one-way delay: 1.124 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 50.20 Mbit/s

95th percentile per-packet one-way delay: 1.124 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.15 Mbit/s

95th percentile per-packet one-way delay: 1.120 ms

Loss rate: 0.00%

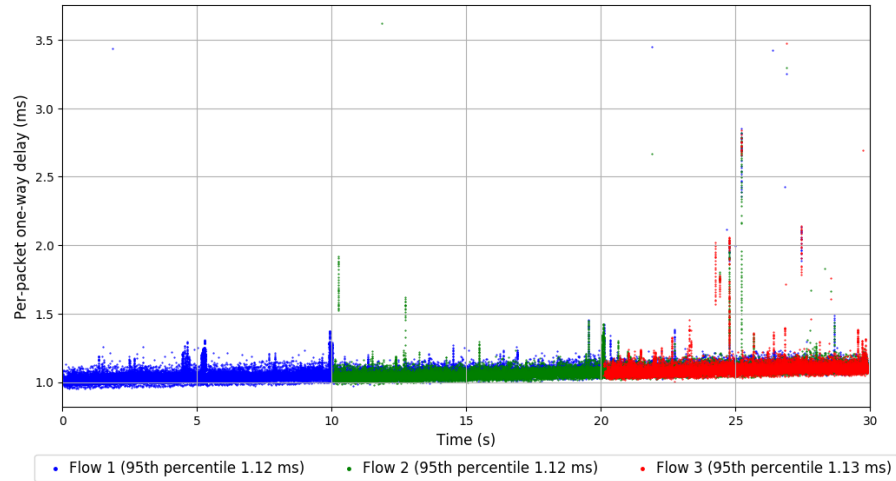
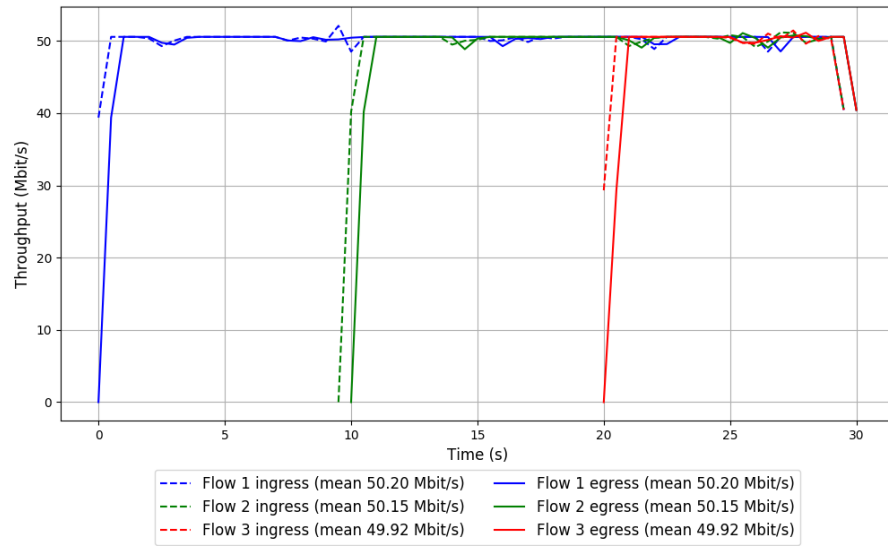
-- Flow 3:

Average throughput: 49.92 Mbit/s

95th percentile per-packet one-way delay: 1.131 ms

Loss rate: 0.00%

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



Run 4: Statistics of Sprout

Start at: 2018-10-02 17:57:59

End at: 2018-10-02 17:58:29

Local clock offset: 5.929 ms

Remote clock offset: 4.363 ms

# Below is generated by plot.py at 2018-10-02 19:44:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 99.98 Mbit/s

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

Loss rate: 0.00%

-- Flow 1:

Average throughput: 50.24 Mbit/s

95th percentile per-packet one-way delay: 0.955 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.13 Mbit/s

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

Loss rate: 0.00%

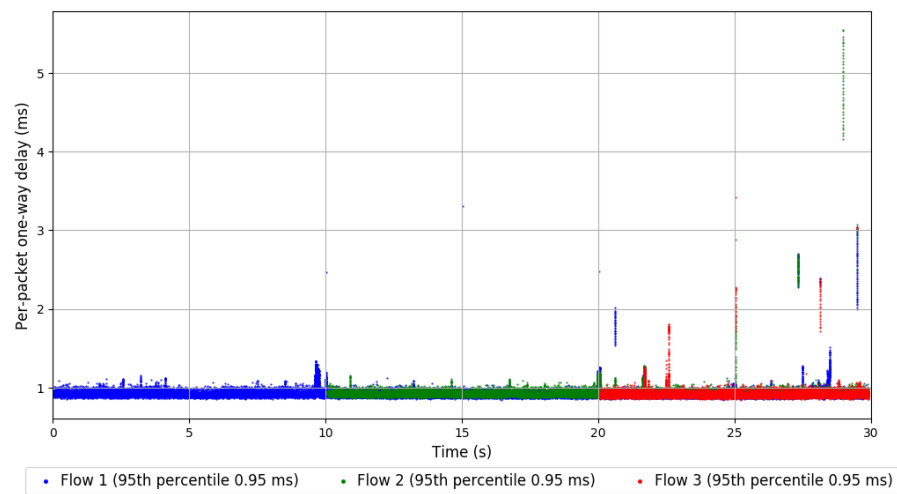
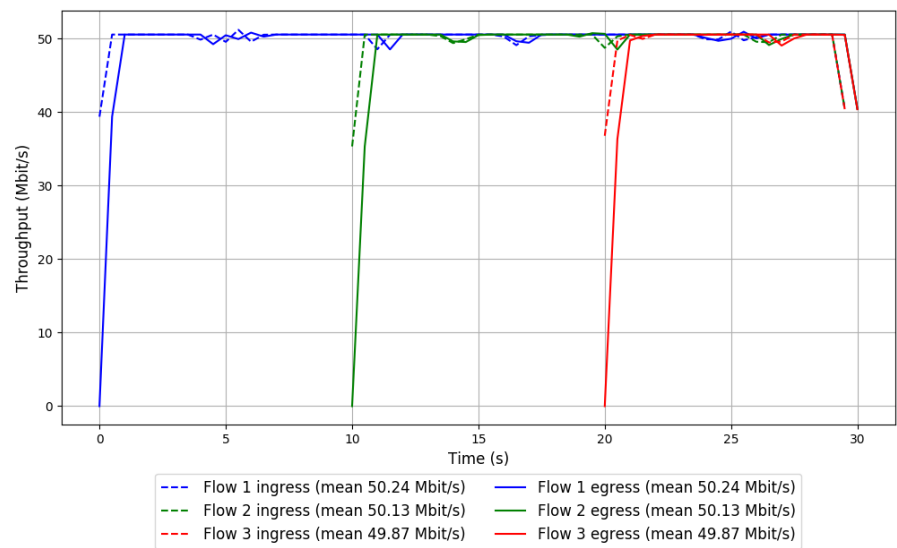
-- Flow 3:

Average throughput: 49.87 Mbit/s

95th percentile per-packet one-way delay: 0.947 ms

Loss rate: 0.00%

Run 4: Report of Sprout — Data Link





Run 5: Statistics of Sprout

Start at: 2018-10-02 18:25:38

End at: 2018-10-02 18:26:08

Local clock offset: 7.29 ms

Remote clock offset: 0.045 ms

# Below is generated by plot.py at 2018-10-02 19:44:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 100.10 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 50.23 Mbit/s

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

Loss rate: 0.01%

-- Flow 2:

Average throughput: 50.24 Mbit/s

95th percentile per-packet one-way delay: 0.956 ms

Loss rate: 0.00%

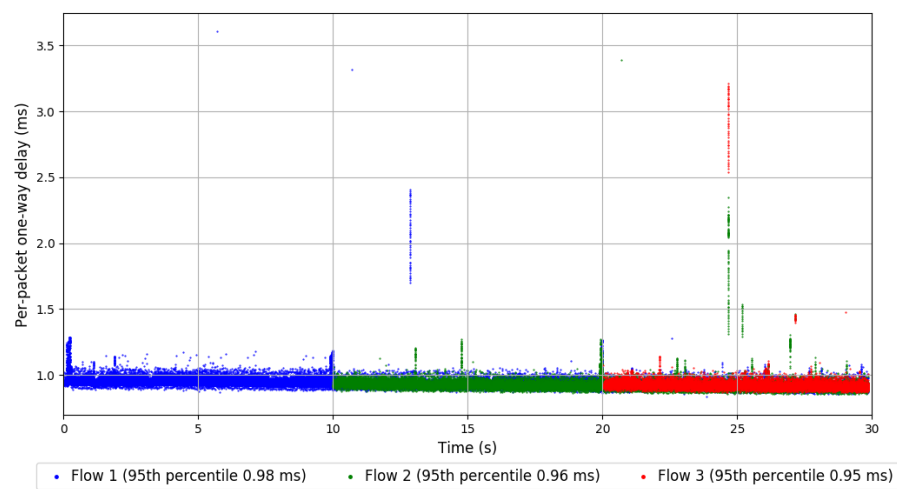
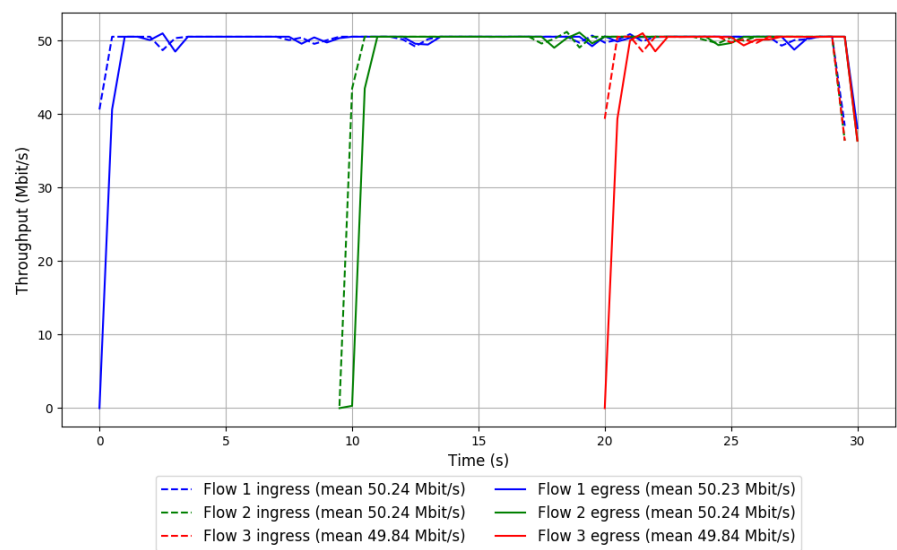
-- Flow 3:

Average throughput: 49.84 Mbit/s

95th percentile per-packet one-way delay: 0.955 ms

Loss rate: 0.00%

Run 5: Report of Sprout — Data Link

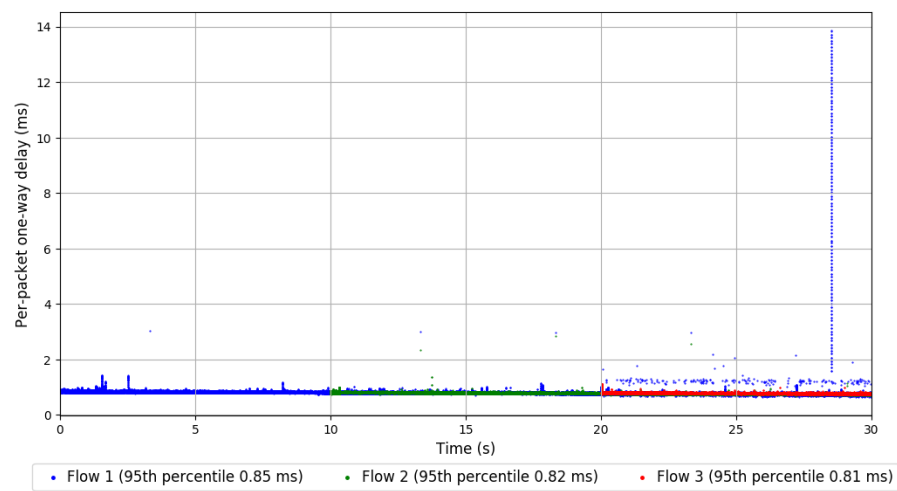
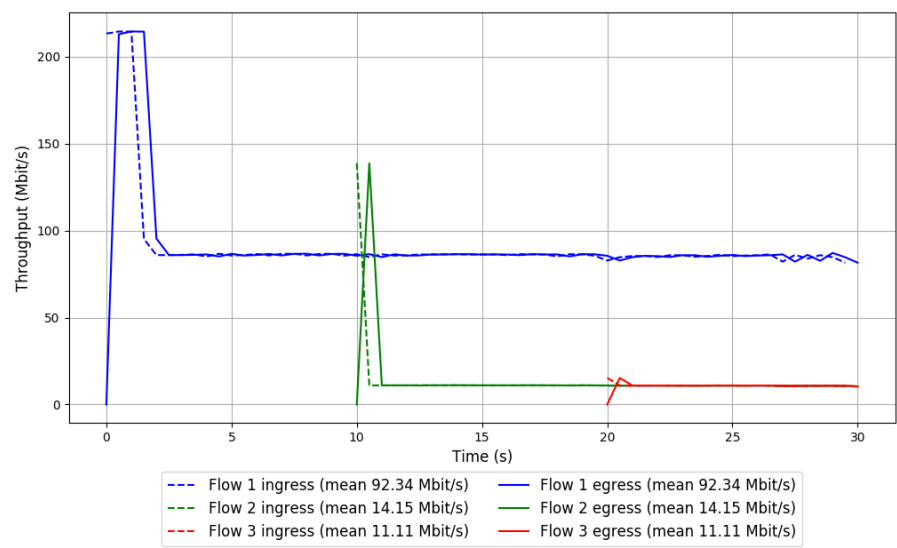


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-10-02 16:55:57
End at: 2018-10-02 16:56:27
Local clock offset: 3.999 ms
Remote clock offset: 1.897 ms

# Below is generated by plot.py at 2018-10-02 19:45:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 105.45 Mbit/s
95th percentile per-packet one-way delay: 0.848 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 92.34 Mbit/s
95th percentile per-packet one-way delay: 0.850 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 14.15 Mbit/s
95th percentile per-packet one-way delay: 0.819 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.11 Mbit/s
95th percentile per-packet one-way delay: 0.813 ms
Loss rate: 0.02%
```

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

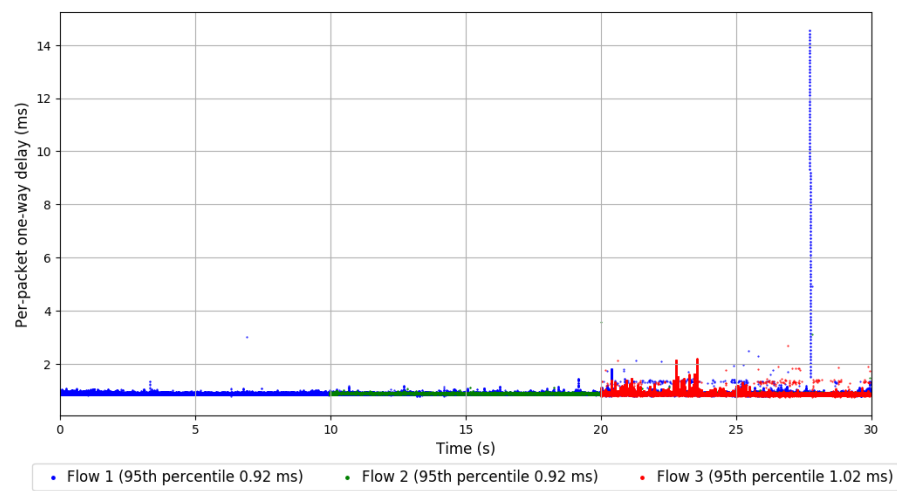
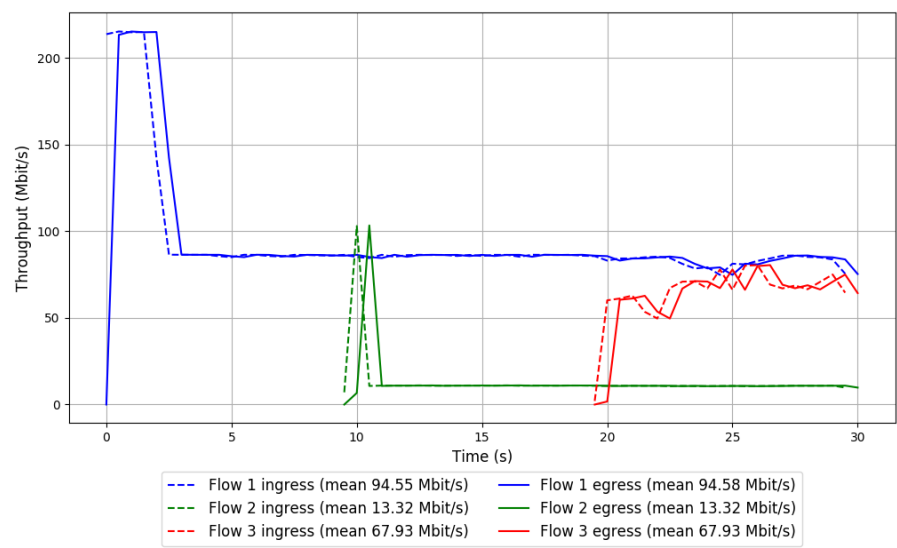


Run 2: Statistics of TaoVA-100x

Start at: 2018-10-02 17:23:43  
End at: 2018-10-02 17:24:13  
Local clock offset: 4.385 ms  
Remote clock offset: -0.117 ms

# Below is generated by plot.py at 2018-10-02 19:46:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 126.03 Mbit/s  
95th percentile per-packet one-way delay: 0.921 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 94.58 Mbit/s  
95th percentile per-packet one-way delay: 0.918 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 13.32 Mbit/s  
95th percentile per-packet one-way delay: 0.916 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 67.93 Mbit/s  
95th percentile per-packet one-way delay: 1.017 ms  
Loss rate: 0.03%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-10-02 17:51:38

End at: 2018-10-02 17:52:08

Local clock offset: 5.418 ms

Remote clock offset: 3.951 ms

# Below is generated by plot.py at 2018-10-02 19:46:57

# Datalink statistics

-- Total of 3 flows:

Average throughput: 169.07 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 87.17 Mbit/s

95th percentile per-packet one-way delay: 0.947 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 83.26 Mbit/s

95th percentile per-packet one-way delay: 0.947 ms

Loss rate: 0.01%

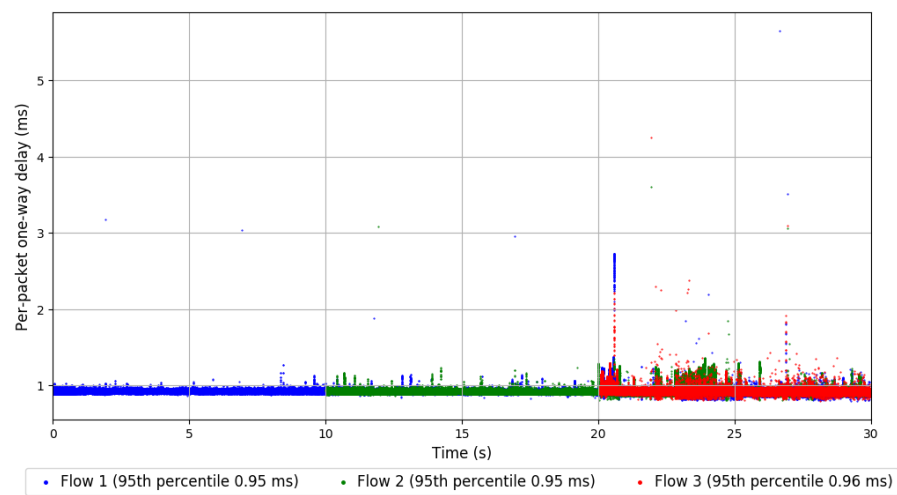
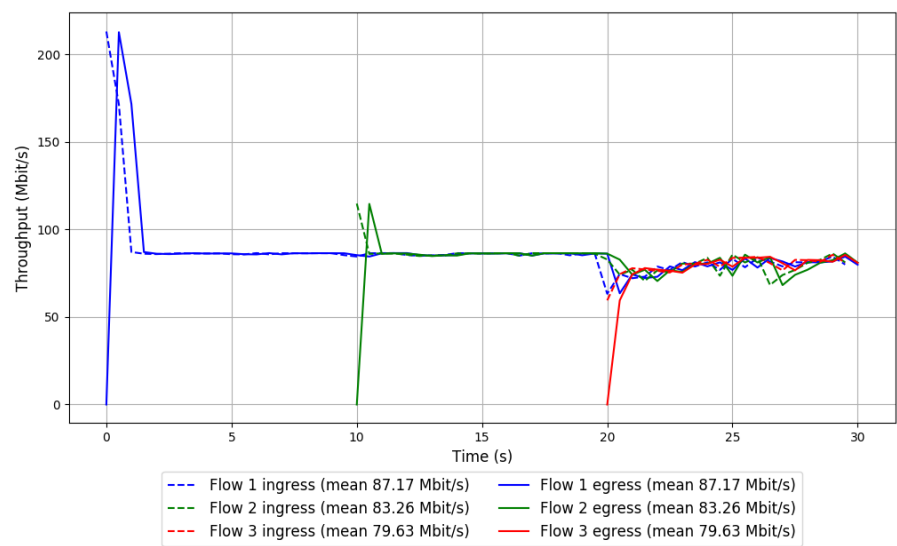
-- Flow 3:

Average throughput: 79.63 Mbit/s

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

Loss rate: 0.02%

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





Run 4: Statistics of TaoVA-100x

Start at: 2018-10-02 18:19:17

End at: 2018-10-02 18:19:47

Local clock offset: 6.938 ms

Remote clock offset: 0.347 ms

# Below is generated by plot.py at 2018-10-02 19:47:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 168.65 Mbit/s

95th percentile per-packet one-way delay: 0.898 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 89.39 Mbit/s

95th percentile per-packet one-way delay: 0.900 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 81.65 Mbit/s

95th percentile per-packet one-way delay: 0.878 ms

Loss rate: 0.01%

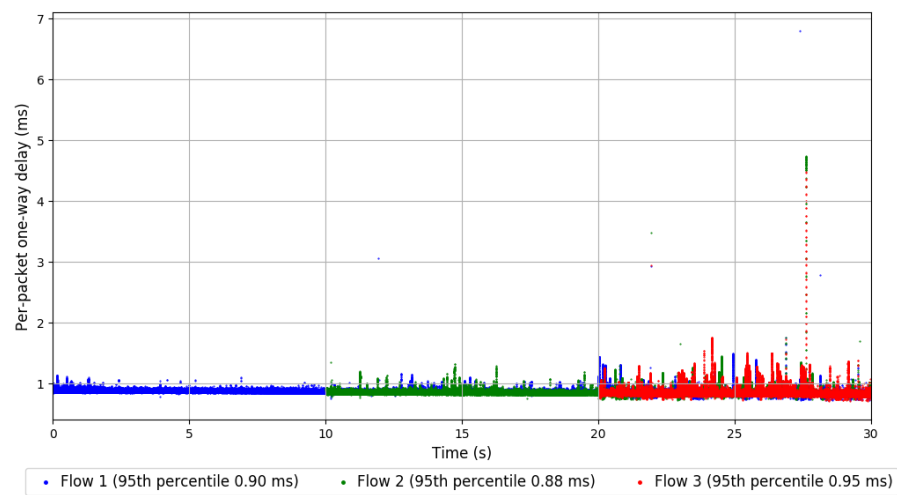
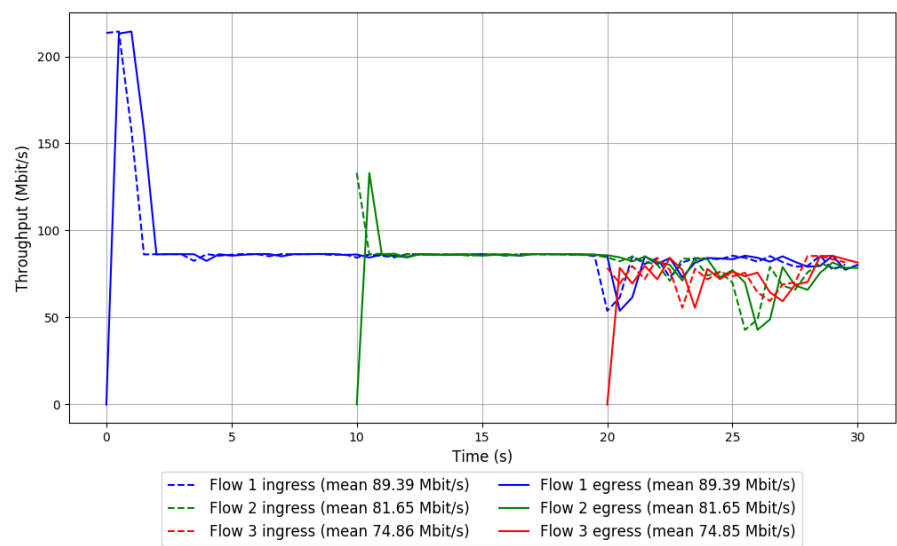
-- Flow 3:

Average throughput: 74.85 Mbit/s

95th percentile per-packet one-way delay: 0.946 ms

Loss rate: 0.02%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-10-02 18:46:57

End at: 2018-10-02 18:47:27

Local clock offset: 8.156 ms

Remote clock offset: 0.208 ms

# Below is generated by plot.py at 2018-10-02 19:47:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 99.10 Mbit/s

95th percentile per-packet one-way delay: 0.878 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 87.54 Mbit/s

95th percentile per-packet one-way delay: 0.876 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 11.81 Mbit/s

95th percentile per-packet one-way delay: 0.885 ms

Loss rate: 0.01%

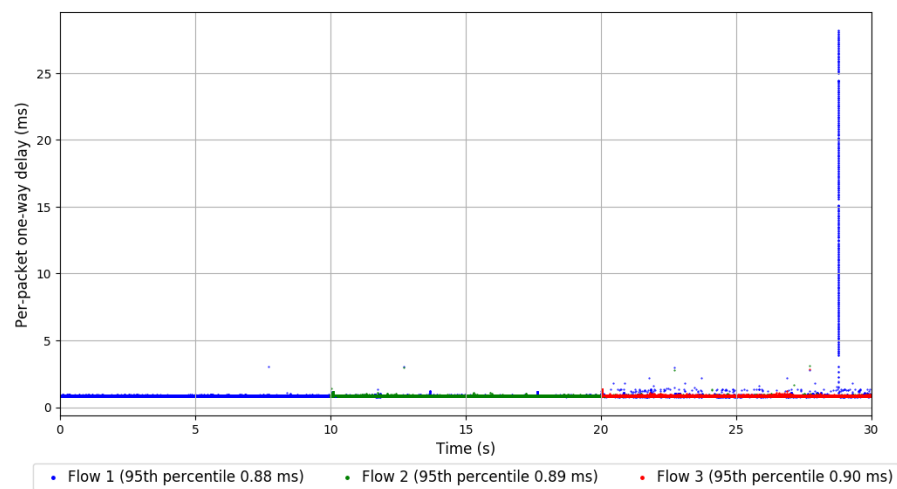
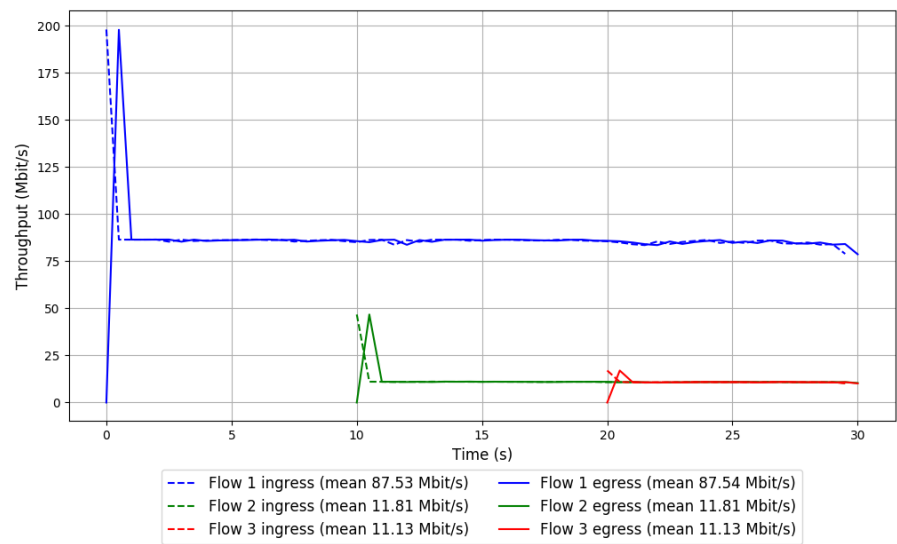
-- Flow 3:

Average throughput: 11.13 Mbit/s

95th percentile per-packet one-way delay: 0.900 ms

Loss rate: 0.01%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-10-02 16:58:52

End at: 2018-10-02 16:59:22

Local clock offset: 4.047 ms

Remote clock offset: 1.387 ms

# Below is generated by plot.py at 2018-10-02 19:48:40

# Datalink statistics

-- Total of 3 flows:

Average throughput: 453.93 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 201.97 Mbit/s

95th percentile per-packet one-way delay: 1.029 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 252.84 Mbit/s

95th percentile per-packet one-way delay: 1.504 ms

Loss rate: 0.01%

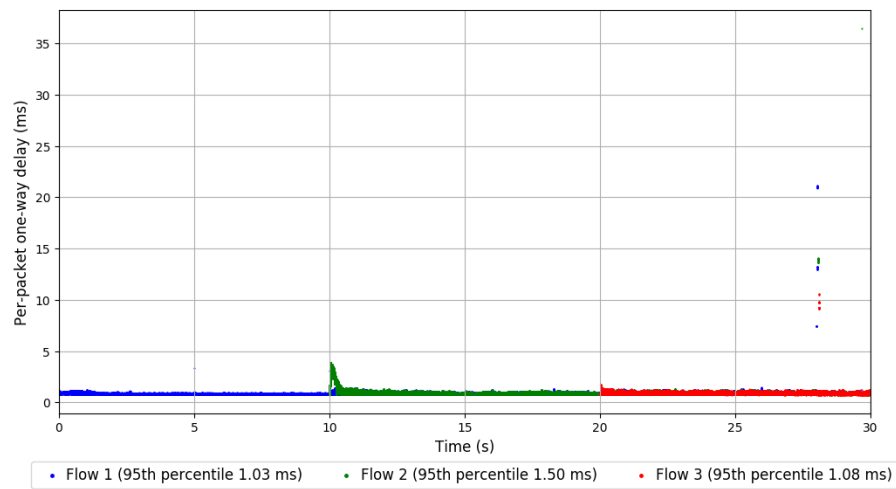
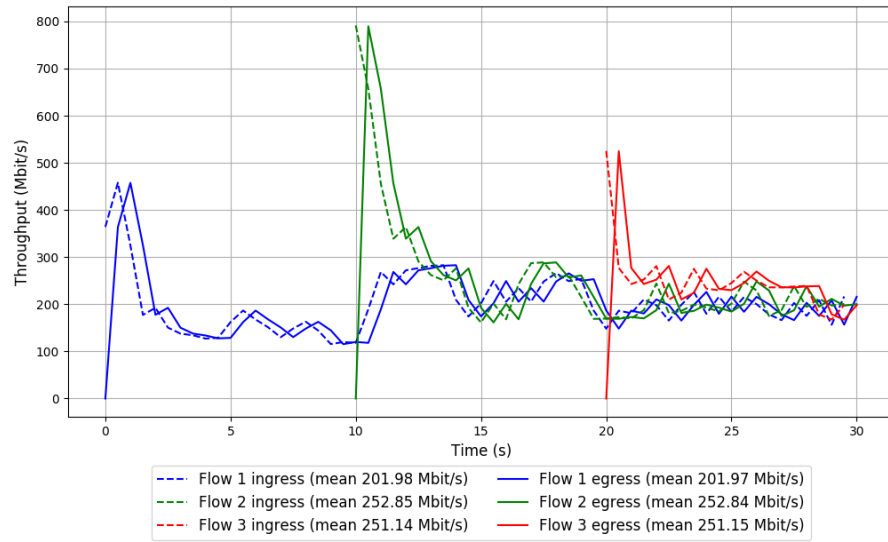
-- Flow 3:

Average throughput: 251.15 Mbit/s

95th percentile per-packet one-way delay: 1.077 ms

Loss rate: 0.01%

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



Run 2: Statistics of TCP Vegas

Start at: 2018-10-02 17:26:38

End at: 2018-10-02 17:27:08

Local clock offset: 4.449 ms

Remote clock offset: 0.487 ms

# Below is generated by plot.py at 2018-10-02 19:50:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 525.76 Mbit/s

95th percentile per-packet one-way delay: 1.352 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 270.61 Mbit/s

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

Loss rate: 0.01%

-- Flow 2:

Average throughput: 252.81 Mbit/s

95th percentile per-packet one-way delay: 1.331 ms

Loss rate: 0.01%

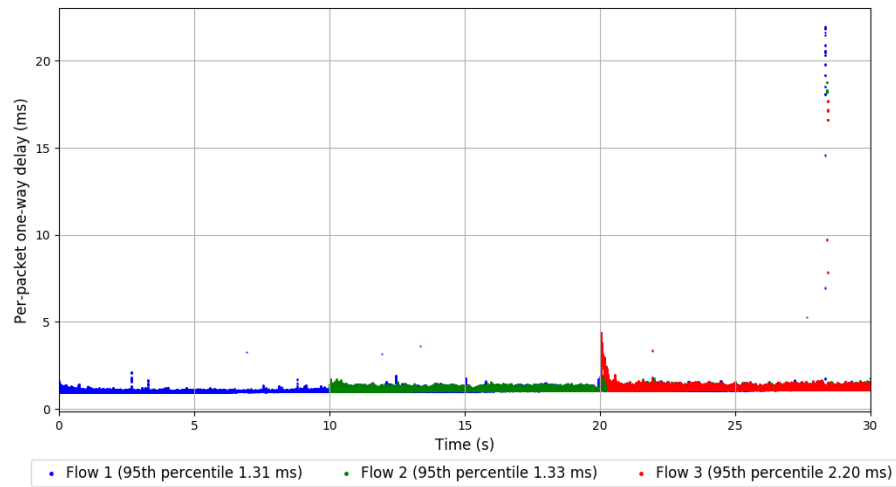
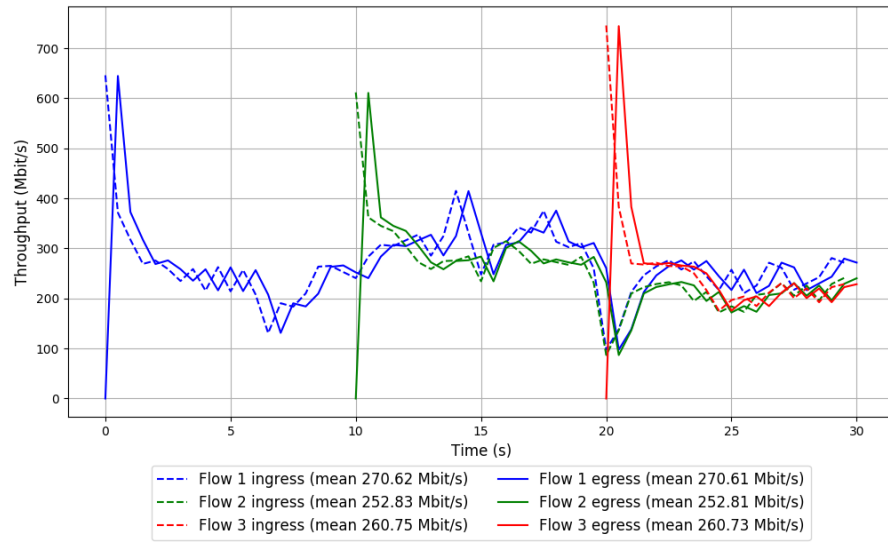
-- Flow 3:

Average throughput: 260.73 Mbit/s

95th percentile per-packet one-way delay: 2.203 ms

Loss rate: 0.02%

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





Run 3: Statistics of TCP Vegas

Start at: 2018-10-02 17:54:34

End at: 2018-10-02 17:55:04

Local clock offset: 5.69 ms

Remote clock offset: 4.106 ms

# Below is generated by plot.py at 2018-10-02 19:50:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 498.38 Mbit/s

95th percentile per-packet one-way delay: 1.298 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 239.67 Mbit/s

95th percentile per-packet one-way delay: 1.285 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 253.68 Mbit/s

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

Loss rate: 0.01%

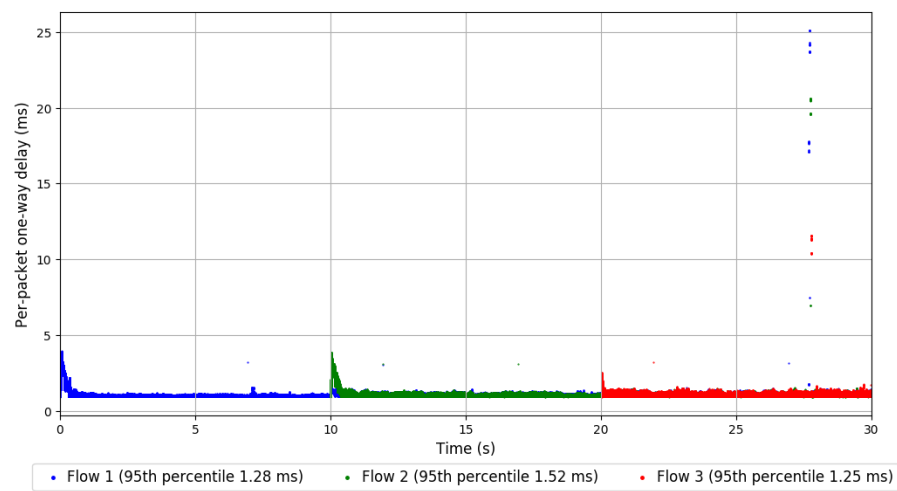
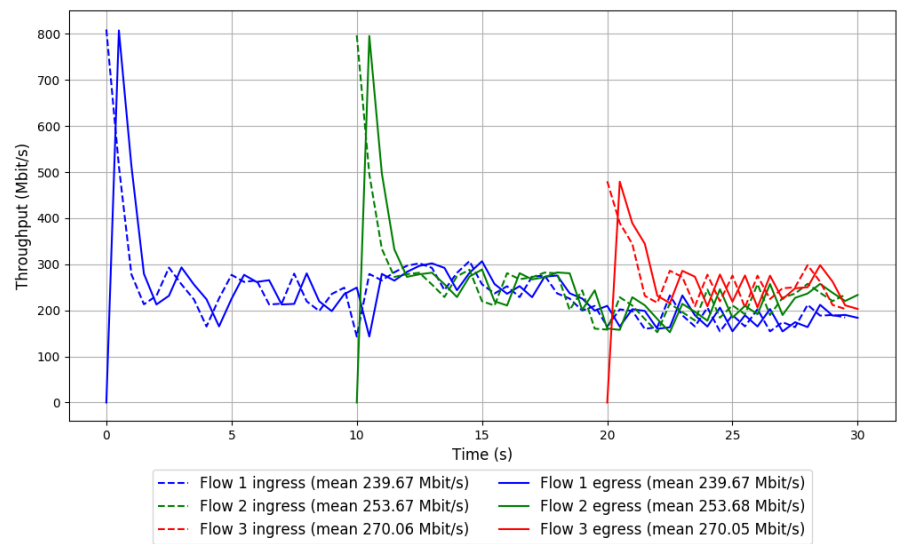
-- Flow 3:

Average throughput: 270.05 Mbit/s

95th percentile per-packet one-way delay: 1.254 ms

Loss rate: 0.02%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-10-02 18:22:14

End at: 2018-10-02 18:22:44

Local clock offset: 7.145 ms

Remote clock offset: 0.174 ms

# Below is generated by plot.py at 2018-10-02 19:51:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 479.17 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 222.21 Mbit/s

95th percentile per-packet one-way delay: 1.123 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 253.38 Mbit/s

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

Loss rate: 0.01%

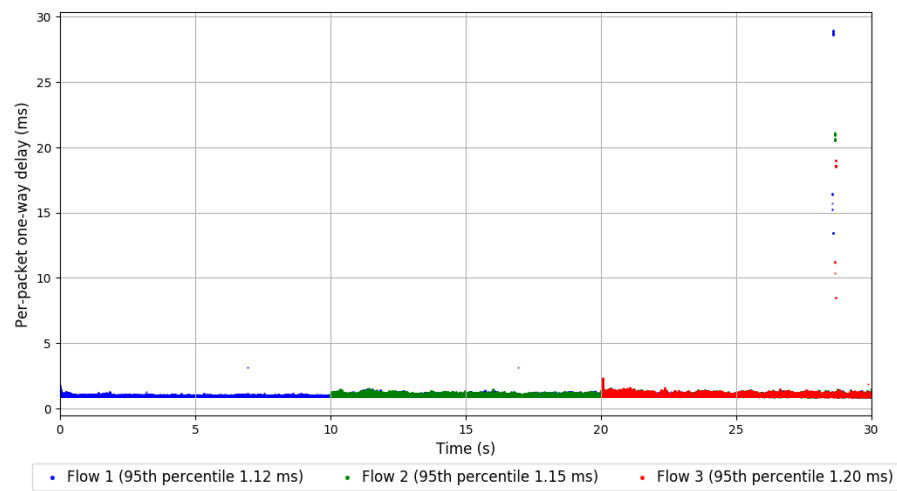
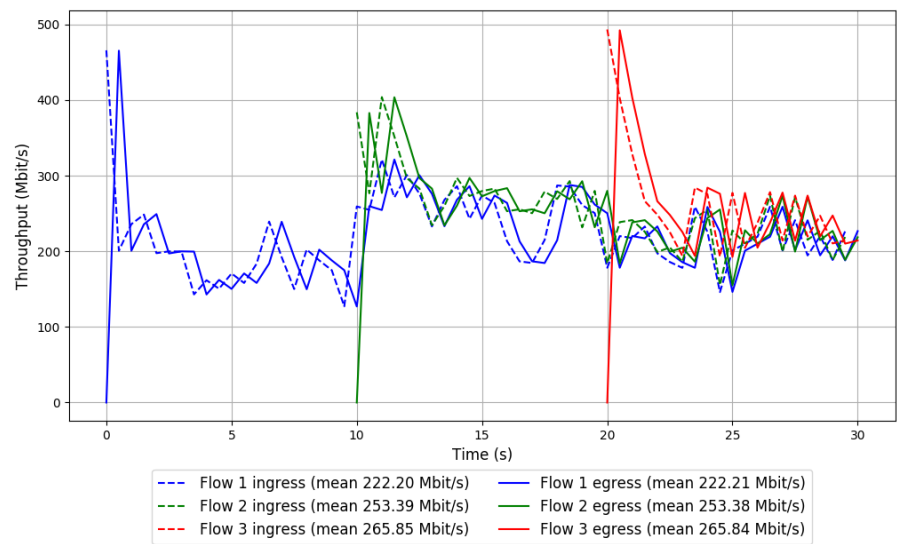
-- Flow 3:

Average throughput: 265.84 Mbit/s

95th percentile per-packet one-way delay: 1.199 ms

Loss rate: 0.01%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-10-02 18:49:50

End at: 2018-10-02 18:50:20

Local clock offset: 8.276 ms

Remote clock offset: 0.198 ms

# Below is generated by plot.py at 2018-10-02 19:51:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 454.26 Mbit/s

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

Loss rate: 0.01%

-- Flow 1:

Average throughput: 219.82 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 228.22 Mbit/s

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

Loss rate: 0.01%

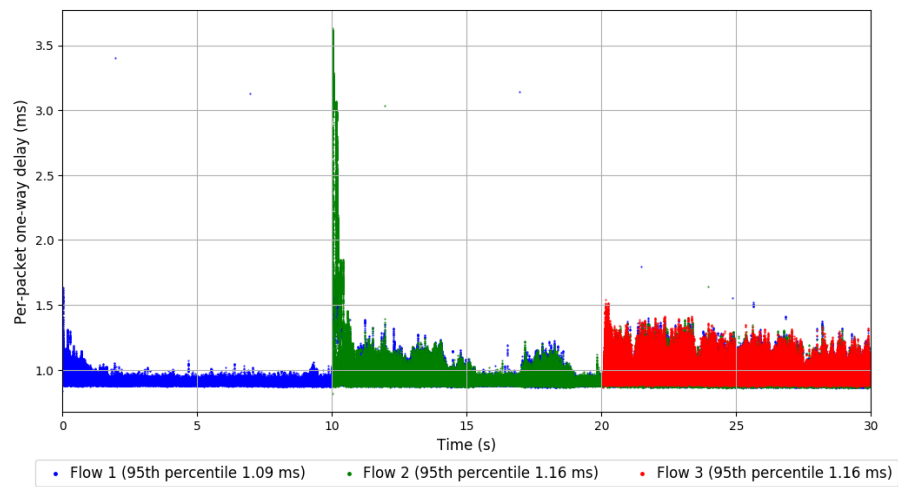
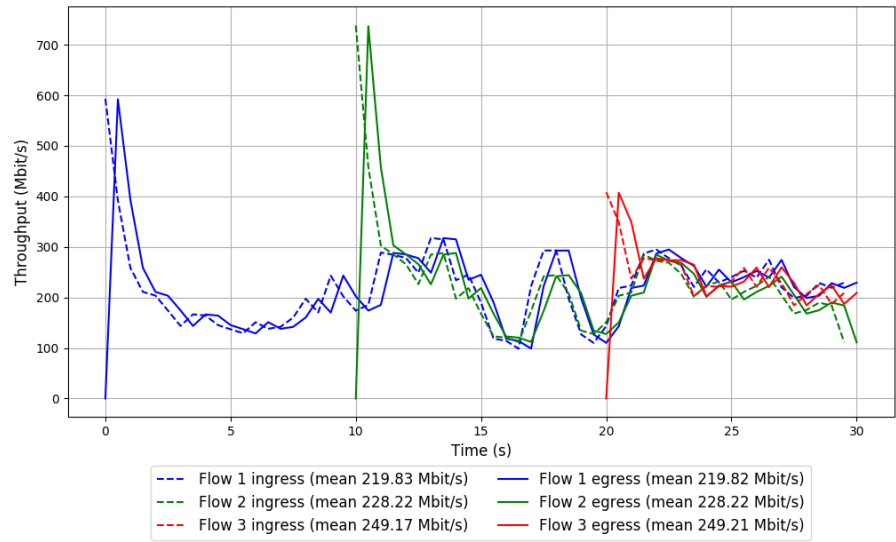
-- Flow 3:

Average throughput: 249.21 Mbit/s

95th percentile per-packet one-way delay: 1.159 ms

Loss rate: 0.01%

# Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-10-02 16:37:04

End at: 2018-10-02 16:37:34

Local clock offset: 3.739 ms

Remote clock offset: 2.926 ms

# Below is generated by plot.py at 2018-10-02 19:51:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 279.60 Mbit/s

95th percentile per-packet one-way delay: 2.511 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 185.42 Mbit/s

95th percentile per-packet one-way delay: 2.619 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 101.27 Mbit/s

95th percentile per-packet one-way delay: 1.934 ms

Loss rate: 0.00%

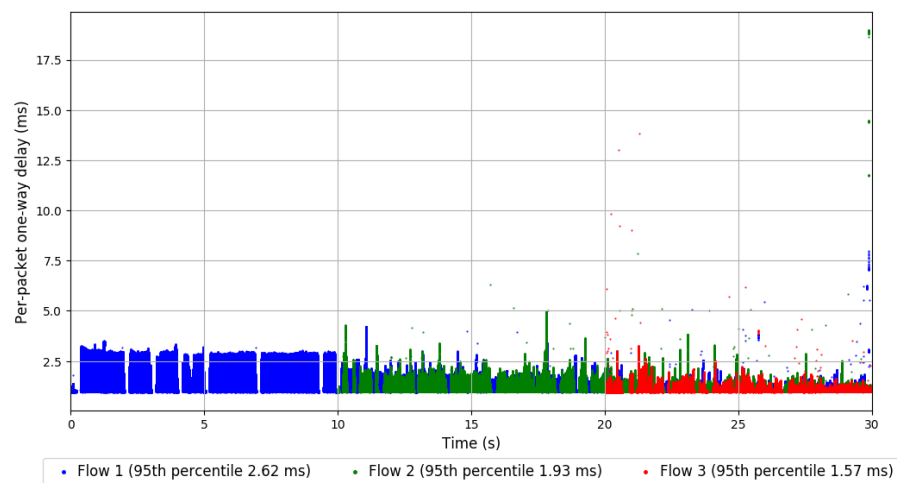
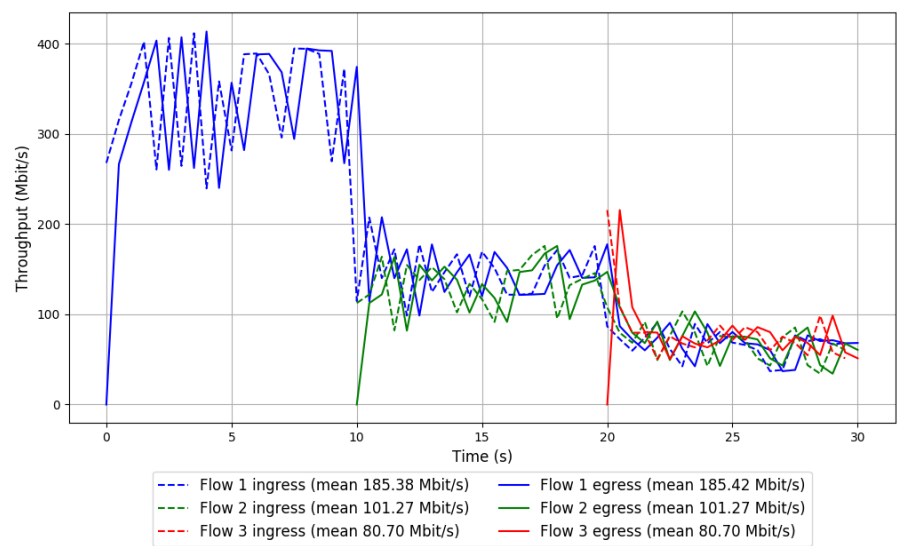
-- Flow 3:

Average throughput: 80.70 Mbit/s

95th percentile per-packet one-way delay: 1.568 ms

Loss rate: 0.00%

Run 1: Report of Verus — Data Link





Run 2: Statistics of Verus

Start at: 2018-10-02 17:04:55

End at: 2018-10-02 17:05:25

Local clock offset: 4.07 ms

Remote clock offset: 0.588 ms

# Below is generated by plot.py at 2018-10-02 19:51:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 260.41 Mbit/s

95th percentile per-packet one-way delay: 2.297 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 161.40 Mbit/s

95th percentile per-packet one-way delay: 2.477 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 110.59 Mbit/s

95th percentile per-packet one-way delay: 1.364 ms

Loss rate: 0.01%

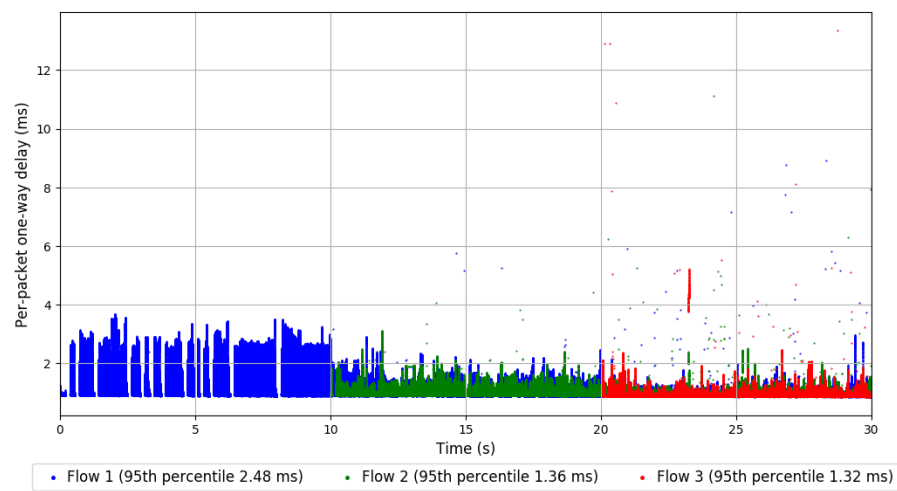
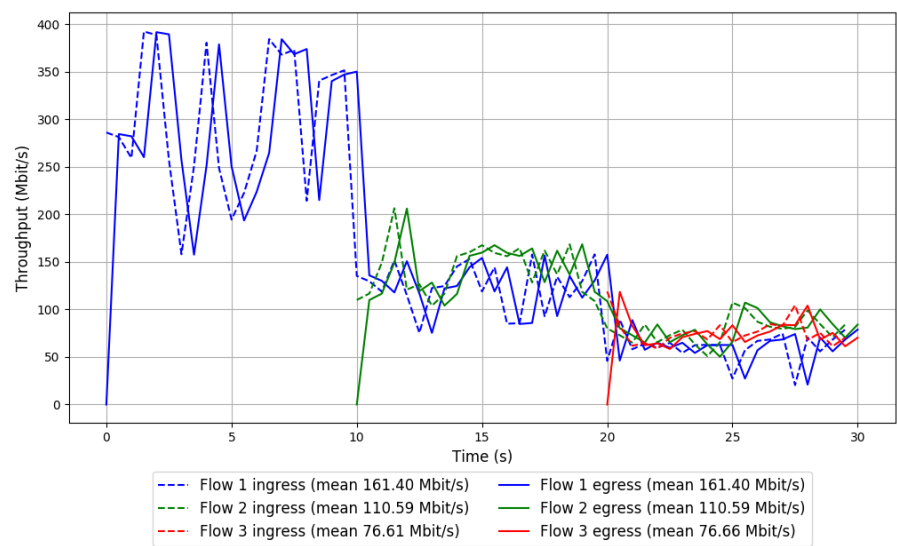
-- Flow 3:

Average throughput: 76.66 Mbit/s

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

Loss rate: 0.00%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-10-02 17:32:44

End at: 2018-10-02 17:33:14

Local clock offset: 4.513 ms

Remote clock offset: 1.976 ms

# Below is generated by plot.py at 2018-10-02 19:51:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 286.51 Mbit/s

95th percentile per-packet one-way delay: 2.452 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 189.66 Mbit/s

95th percentile per-packet one-way delay: 2.573 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 107.05 Mbit/s

95th percentile per-packet one-way delay: 1.624 ms

Loss rate: 0.01%

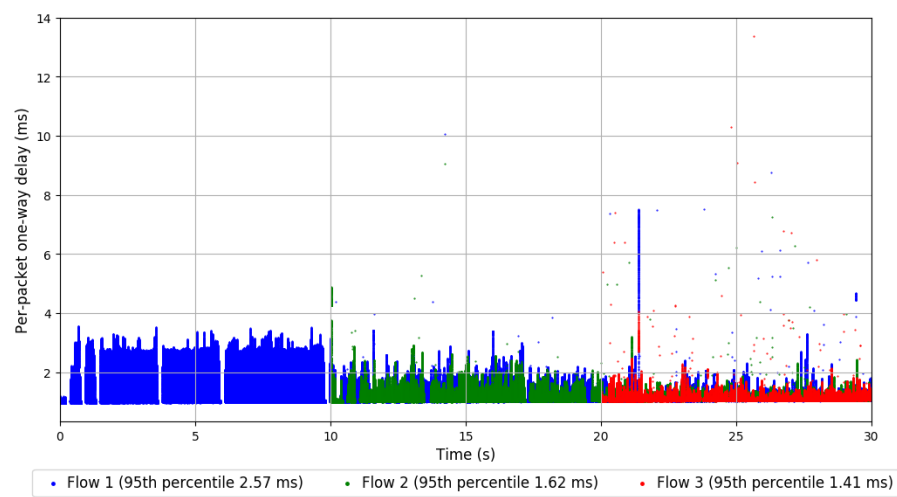
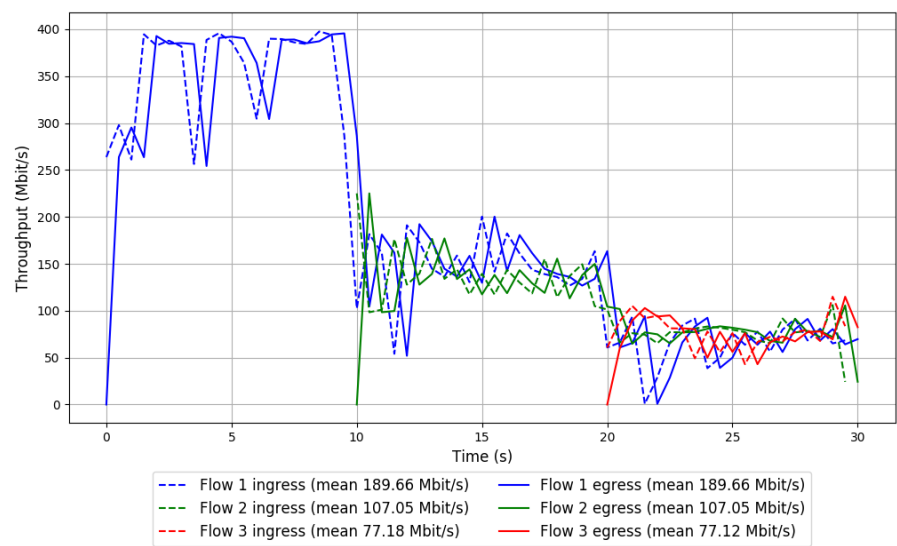
-- Flow 3:

Average throughput: 77.12 Mbit/s

95th percentile per-packet one-way delay: 1.412 ms

Loss rate: 0.07%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-10-02 18:00:39

End at: 2018-10-02 18:01:09

Local clock offset: 6.087 ms

Remote clock offset: 3.566 ms

# Below is generated by plot.py at 2018-10-02 19:52:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 270.05 Mbit/s

95th percentile per-packet one-way delay: 2.376 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 176.39 Mbit/s

95th percentile per-packet one-way delay: 2.570 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 112.01 Mbit/s

95th percentile per-packet one-way delay: 1.328 ms

Loss rate: 0.02%

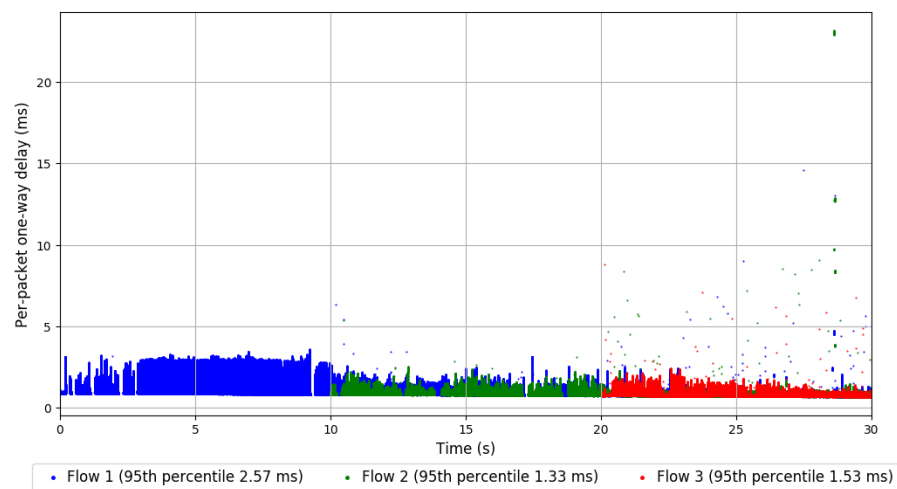
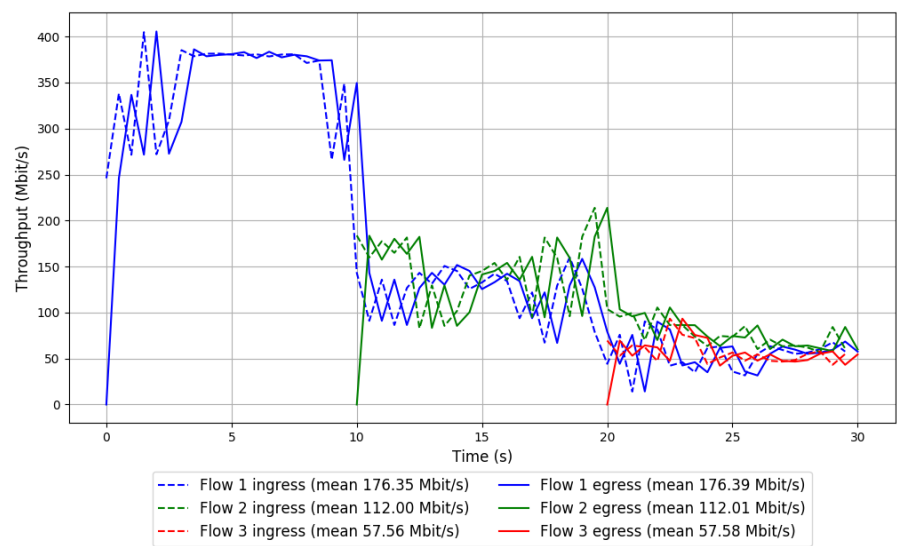
-- Flow 3:

Average throughput: 57.58 Mbit/s

95th percentile per-packet one-way delay: 1.530 ms

Loss rate: 0.04%

Run 4: Report of Verus — Data Link

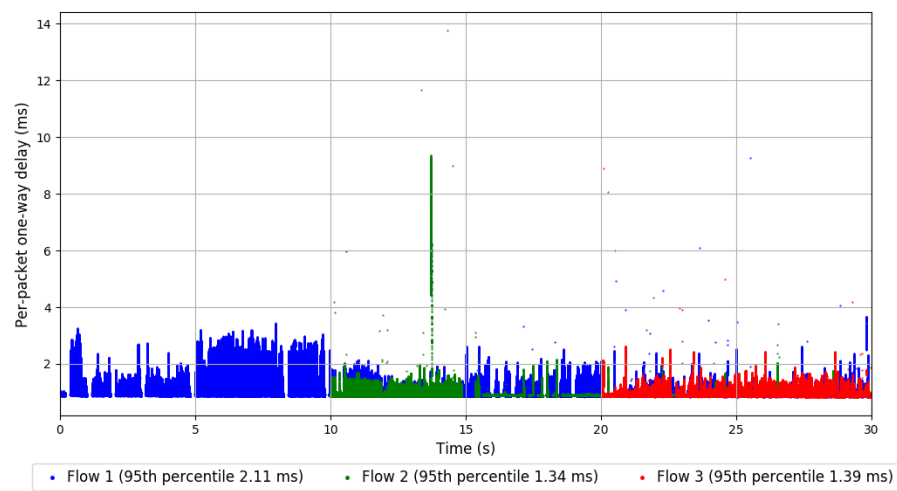
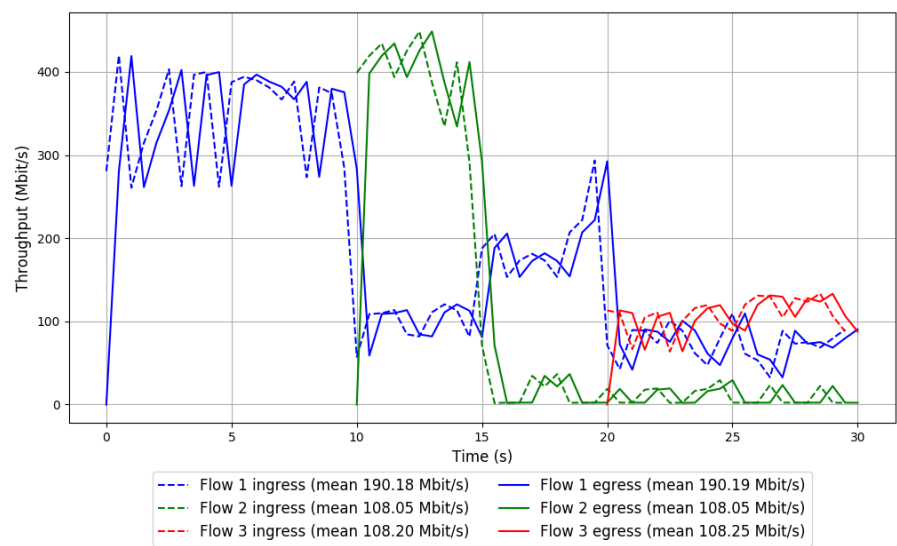


Run 5: Statistics of Verus

Start at: 2018-10-02 18:28:18  
End at: 2018-10-02 18:28:48  
Local clock offset: 7.408 ms  
Remote clock offset: -0.009 ms

# Below is generated by plot.py at 2018-10-02 19:52:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 297.87 Mbit/s  
95th percentile per-packet one-way delay: 1.921 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 190.19 Mbit/s  
95th percentile per-packet one-way delay: 2.110 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 108.05 Mbit/s  
95th percentile per-packet one-way delay: 1.336 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 108.25 Mbit/s  
95th percentile per-packet one-way delay: 1.390 ms  
Loss rate: 0.02%

Run 5: Report of Verus — Data Link





Run 1: Statistics of PCC-Vivace

Start at: 2018-10-02 16:52:40

End at: 2018-10-02 16:53:10

Local clock offset: 3.923 ms

Remote clock offset: 2.655 ms

# Below is generated by plot.py at 2018-10-02 19:52:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 232.15 Mbit/s

95th percentile per-packet one-way delay: 0.880 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 156.10 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 82.00 Mbit/s

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

Loss rate: 0.01%

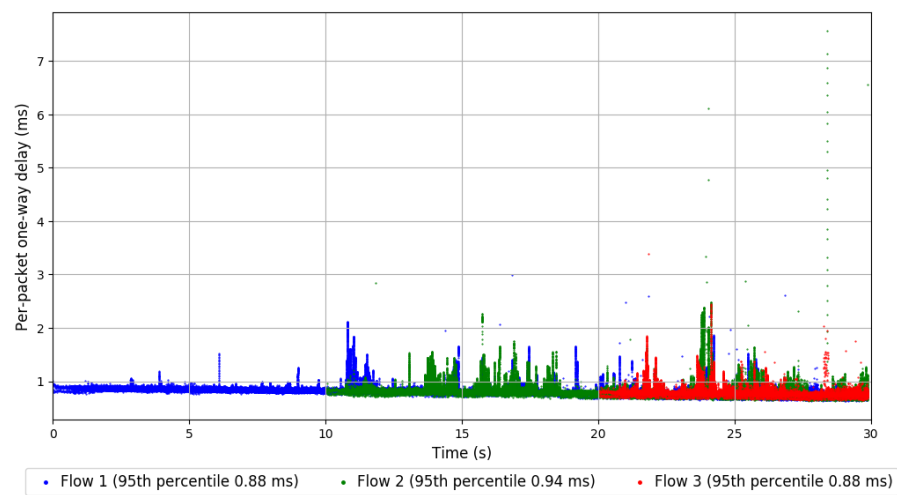
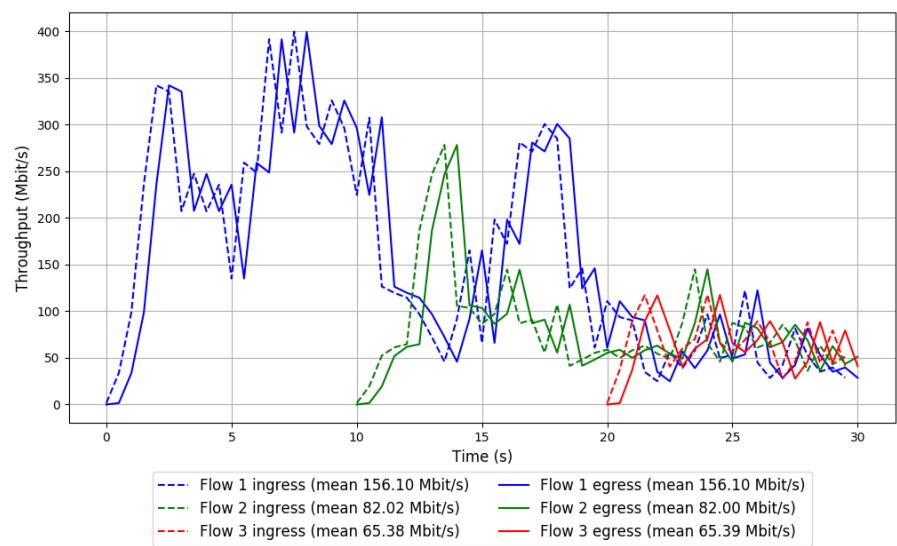
-- Flow 3:

Average throughput: 65.39 Mbit/s

95th percentile per-packet one-way delay: 0.876 ms

Loss rate: 0.02%

Run 1: Report of PCC-Vivace — Data Link

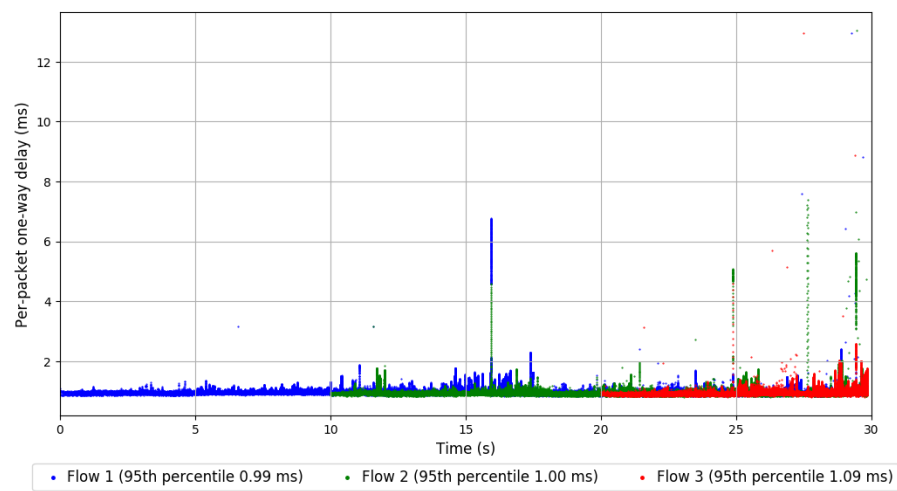
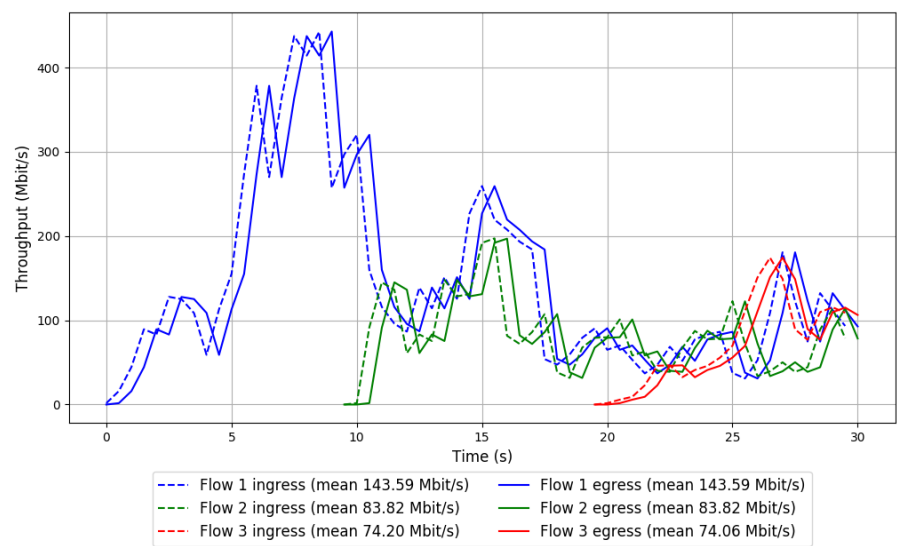


Run 2: Statistics of PCC-Vivace

Start at: 2018-10-02 17:20:26  
End at: 2018-10-02 17:20:56  
Local clock offset: 4.287 ms  
Remote clock offset: -0.132 ms

# Below is generated by plot.py at 2018-10-02 19:52:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 223.81 Mbit/s  
95th percentile per-packet one-way delay: 1.004 ms  
Loss rate: 0.03%  
-- Flow 1:  
Average throughput: 143.59 Mbit/s  
95th percentile per-packet one-way delay: 0.994 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 83.82 Mbit/s  
95th percentile per-packet one-way delay: 1.000 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 74.06 Mbit/s  
95th percentile per-packet one-way delay: 1.094 ms  
Loss rate: 0.21%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-10-02 17:48:19

End at: 2018-10-02 17:48:49

Local clock offset: 5.007 ms

Remote clock offset: 3.716 ms

# Below is generated by plot.py at 2018-10-02 19:52:50

# Datalink statistics

-- Total of 3 flows:

Average throughput: 237.73 Mbit/s

95th percentile per-packet one-way delay: 0.942 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 151.08 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 83.74 Mbit/s

95th percentile per-packet one-way delay: 1.051 ms

Loss rate: 0.01%

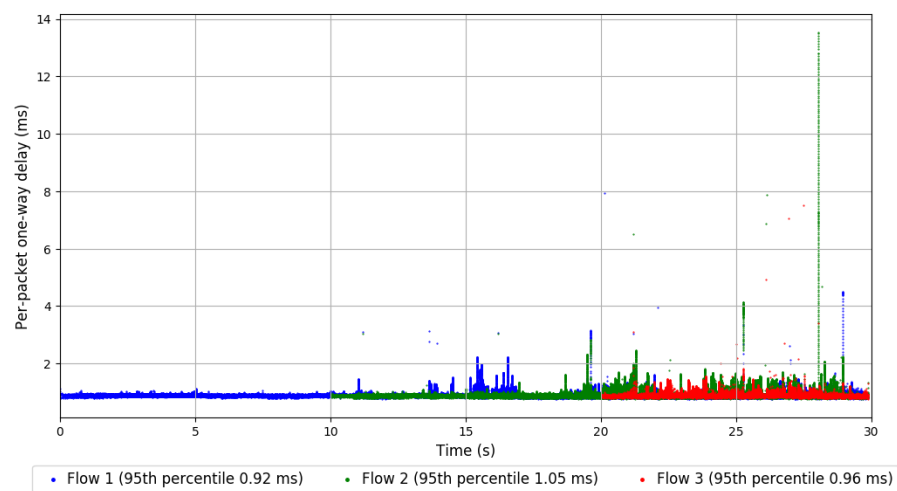
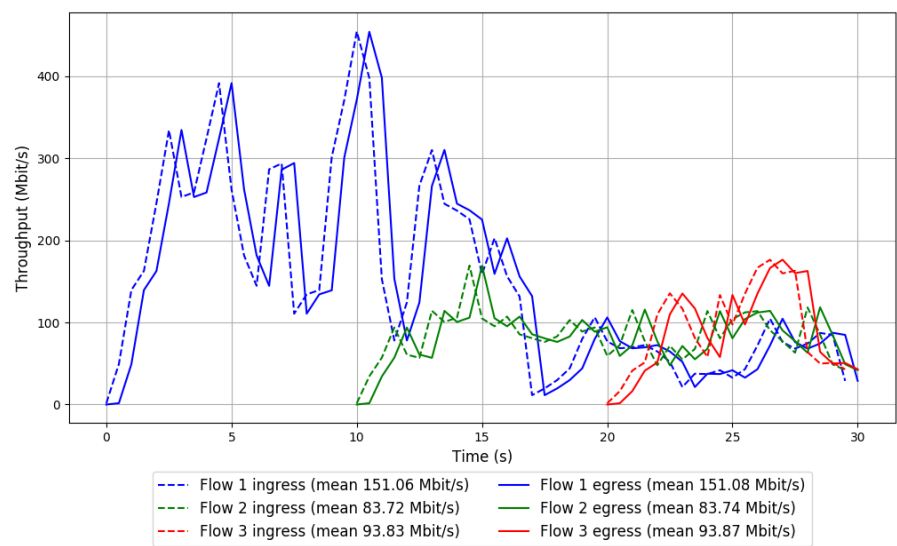
-- Flow 3:

Average throughput: 93.87 Mbit/s

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

Loss rate: 0.01%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-10-02 18:16:01

End at: 2018-10-02 18:16:31

Local clock offset: 6.743 ms

Remote clock offset: 0.57 ms

# Below is generated by plot.py at 2018-10-02 19:52:50

# Datalink statistics

-- Total of 3 flows:

Average throughput: 170.17 Mbit/s

95th percentile per-packet one-way delay: 0.884 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 103.19 Mbit/s

95th percentile per-packet one-way delay: 0.874 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 79.79 Mbit/s

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

Loss rate: 0.00%

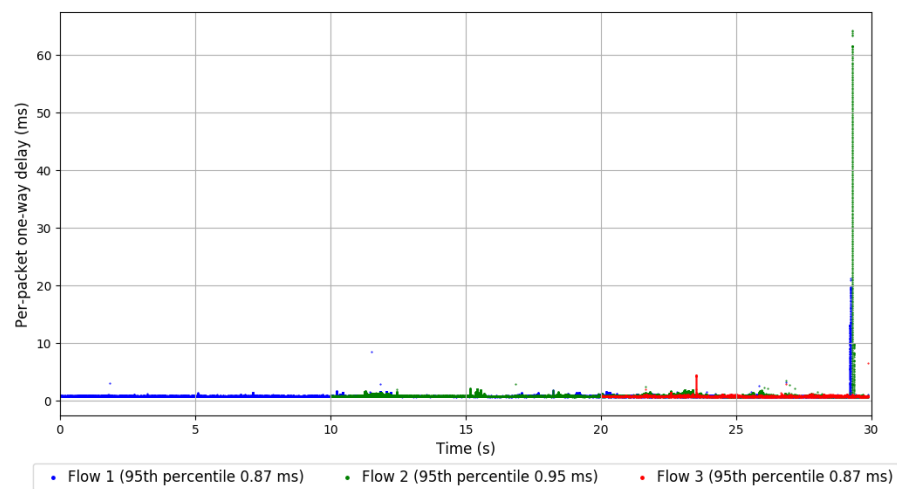
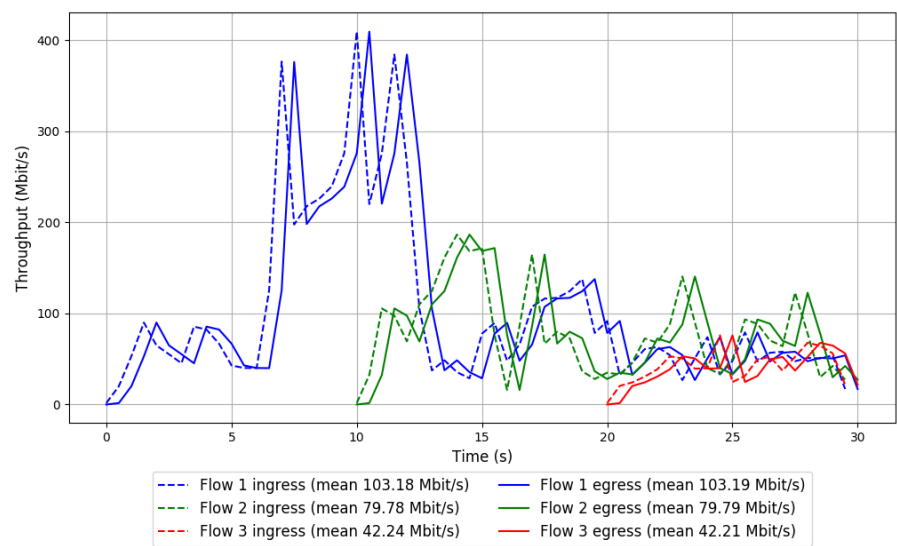
-- Flow 3:

Average throughput: 42.21 Mbit/s

95th percentile per-packet one-way delay: 0.866 ms

Loss rate: 0.01%

Run 4: Report of PCC-Vivace — Data Link





Run 5: Statistics of PCC-Vivace

Start at: 2018-10-02 18:43:39

End at: 2018-10-02 18:44:09

Local clock offset: 8.035 ms

Remote clock offset: 0.122 ms

# Below is generated by plot.py at 2018-10-02 19:52:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 217.79 Mbit/s

95th percentile per-packet one-way delay: 0.948 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 137.97 Mbit/s

95th percentile per-packet one-way delay: 0.937 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 92.46 Mbit/s

95th percentile per-packet one-way delay: 0.967 ms

Loss rate: 0.00%

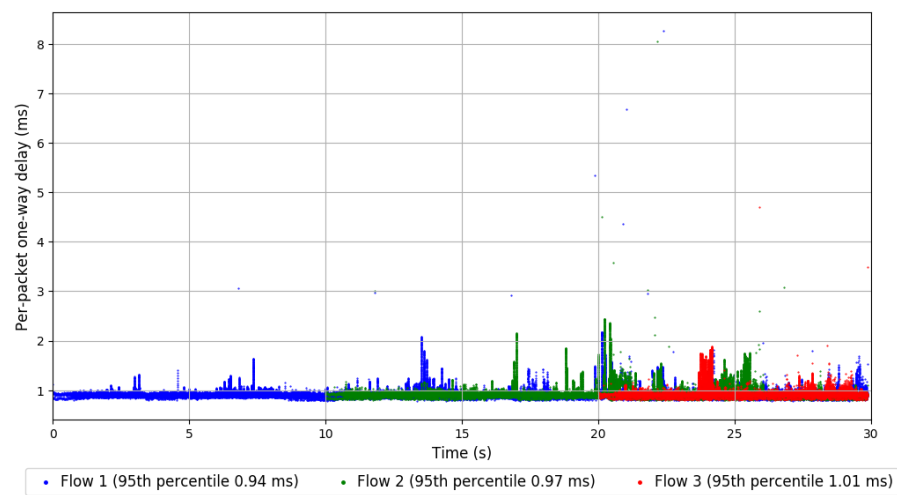
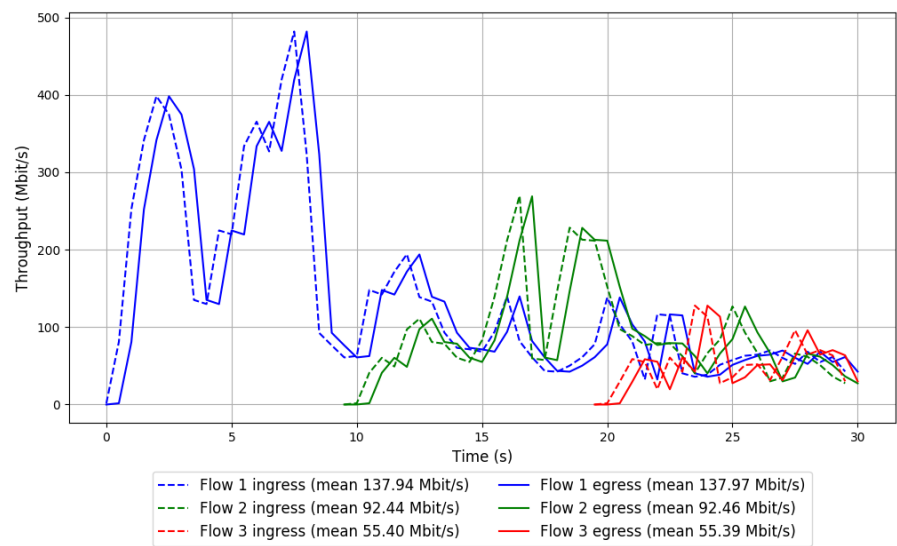
-- Flow 3:

Average throughput: 55.39 Mbit/s

95th percentile per-packet one-way delay: 1.015 ms

Loss rate: 0.01%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-10-02 16:51:21

End at: 2018-10-02 16:51:51

Local clock offset: 3.906 ms

Remote clock offset: 3.104 ms

# Below is generated by plot.py at 2018-10-02 19:52:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.03 Mbit/s

95th percentile per-packet one-way delay: 0.885 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 0.898 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.03 Mbit/s

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

Loss rate: 0.00%

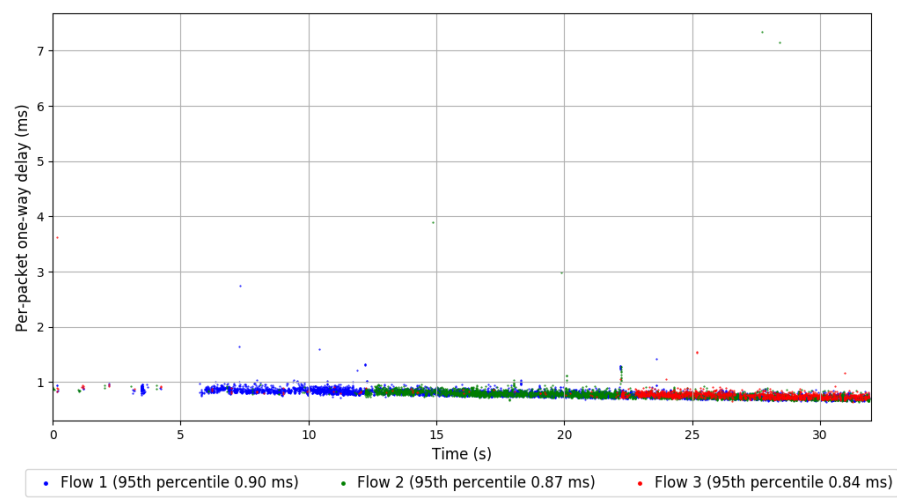
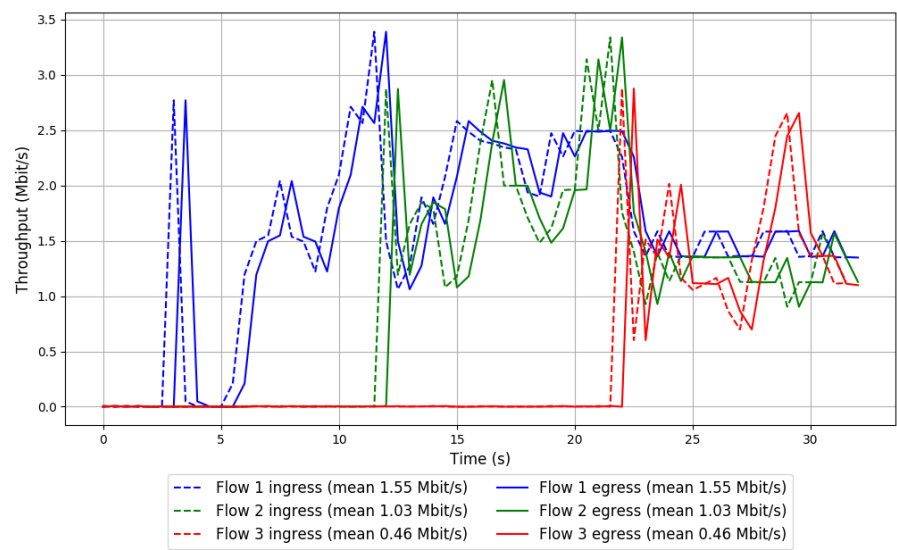
-- Flow 3:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 0.838 ms

Loss rate: 0.07%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-10-02 17:19:07

End at: 2018-10-02 17:19:37

Local clock offset: 4.256 ms

Remote clock offset: -0.11 ms

# Below is generated by plot.py at 2018-10-02 19:52:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.91 Mbit/s

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

Loss rate: 0.07%

-- Flow 1:

Average throughput: 1.47 Mbit/s

95th percentile per-packet one-way delay: 1.035 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 1.01 Mbit/s

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

Loss rate: 0.00%

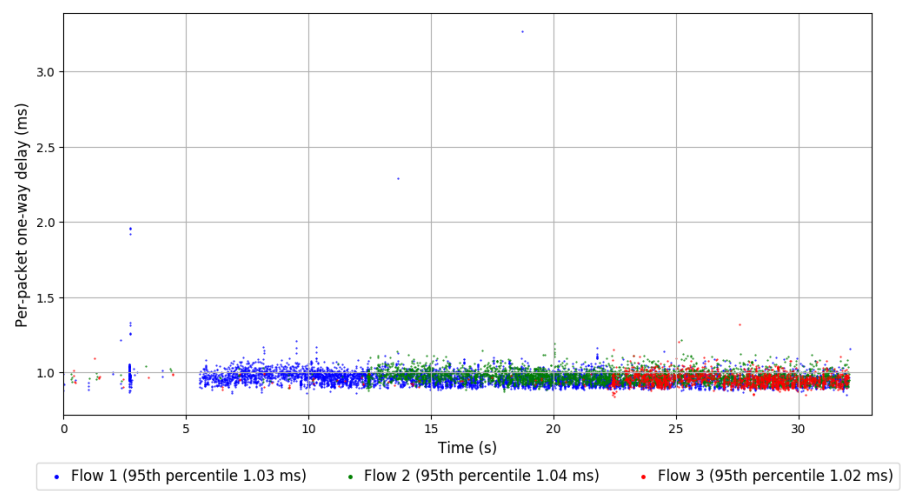
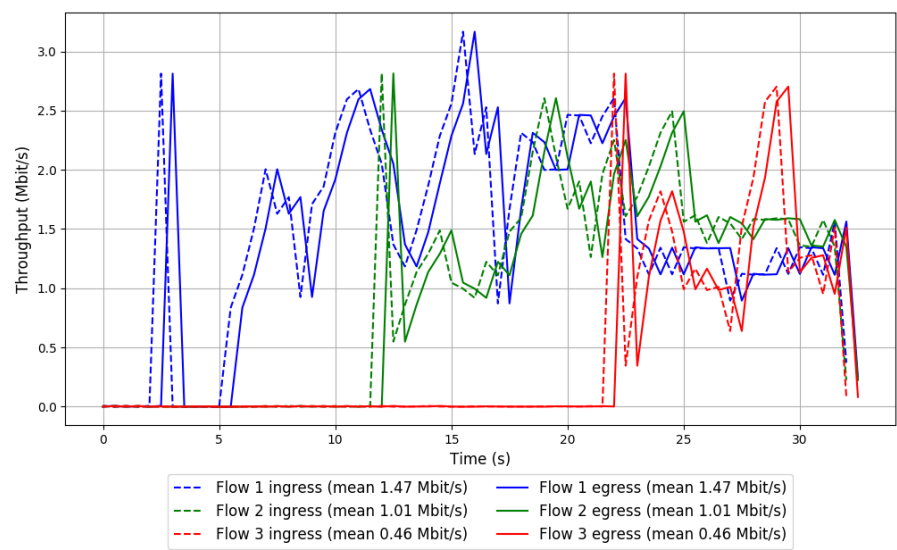
-- Flow 3:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 1.023 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-10-02 17:47:00

End at: 2018-10-02 17:47:30

Local clock offset: 4.822 ms

Remote clock offset: 3.619 ms

# Below is generated by plot.py at 2018-10-02 19:52:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.85 Mbit/s

95th percentile per-packet one-way delay: 0.978 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 1.43 Mbit/s

95th percentile per-packet one-way delay: 0.984 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 0.97 Mbit/s

95th percentile per-packet one-way delay: 0.975 ms

Loss rate: 0.00%

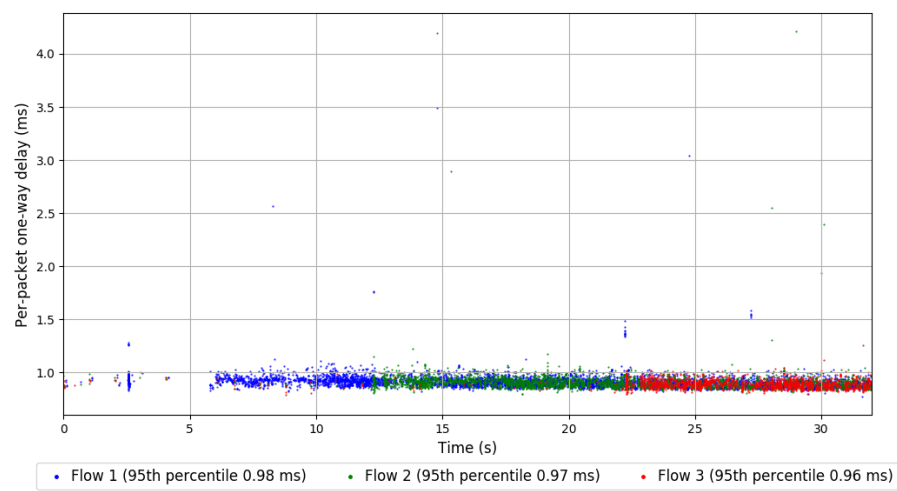
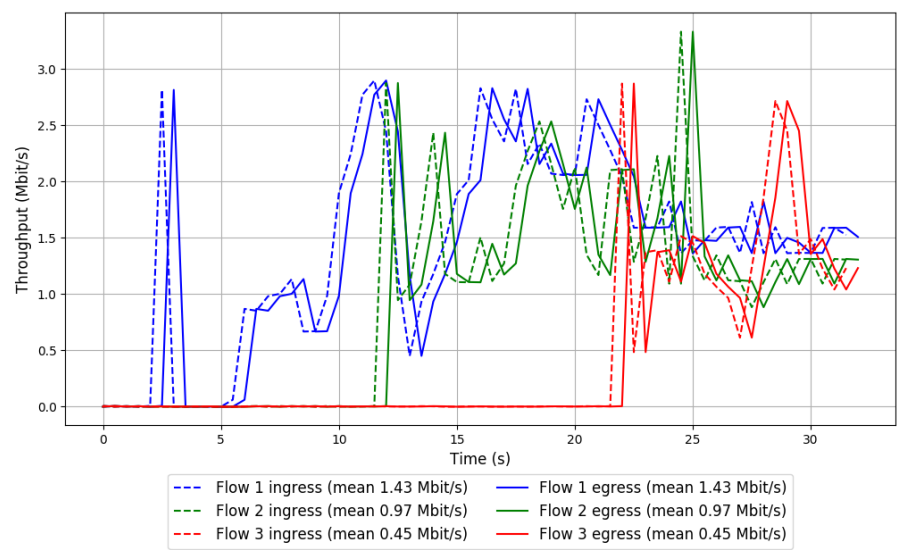
-- Flow 3:

Average throughput: 0.45 Mbit/s

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

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link





Run 4: Statistics of WebRTC media

Start at: 2018-10-02 18:14:42

End at: 2018-10-02 18:15:12

Local clock offset: 6.694 ms

Remote clock offset: 0.646 ms

# Below is generated by plot.py at 2018-10-02 19:52:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.98 Mbit/s

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

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.46 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.07 Mbit/s

95th percentile per-packet one-way delay: 0.972 ms

Loss rate: 0.00%

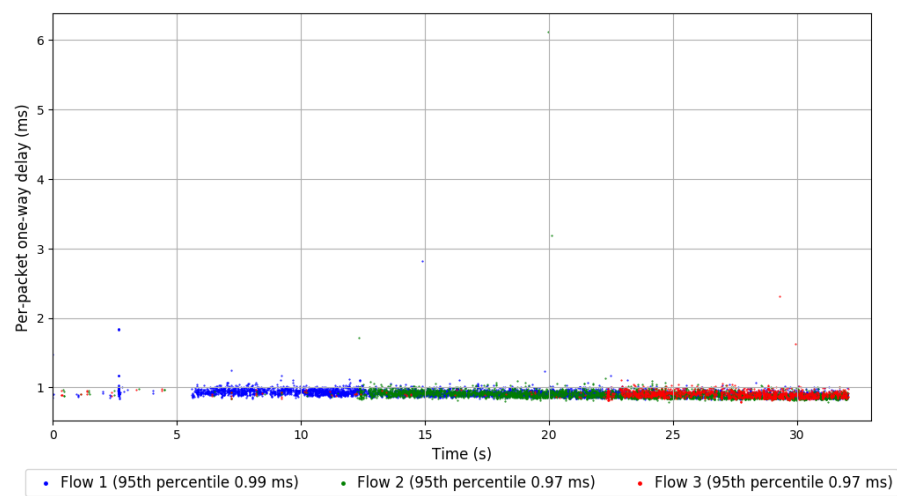
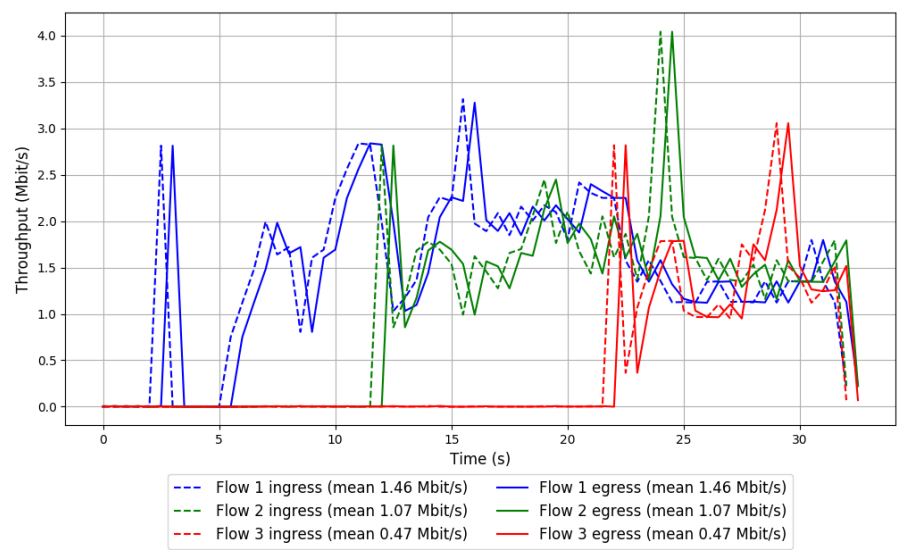
-- Flow 3:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 0.974 ms

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-10-02 18:42:20

End at: 2018-10-02 18:42:50

Local clock offset: 7.983 ms

Remote clock offset: 0.045 ms

# Below is generated by plot.py at 2018-10-02 19:52:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.20 Mbit/s

95th percentile per-packet one-way delay: 1.040 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.80 Mbit/s

95th percentile per-packet one-way delay: 1.030 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.98 Mbit/s

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

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.45 Mbit/s

95th percentile per-packet one-way delay: 1.061 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

