

## Pantheon Report

Generated at 2018-07-17 16:05:51 (UTC).

Data path: AWS India 1 Ethernet (*local*) → India ppp0 ppp0 (*remote*).

Repeated the test of 17 congestion control schemes 3 times.

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

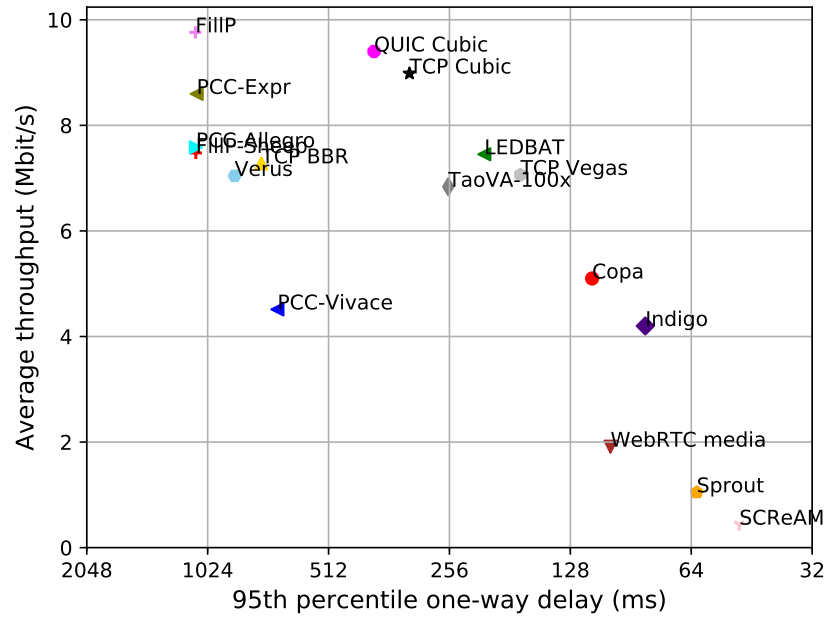
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.

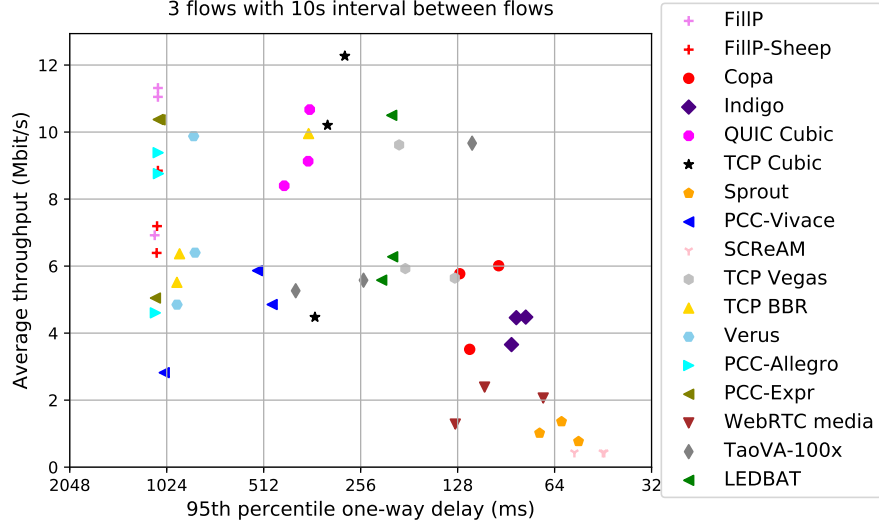
Git summary:

```
branch: master @ f7befc2d8410f41949e0ad8143a9aab40bab7edb
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
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
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webRTC @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS India 1 to India ppp0, 3 runs of 30s each per scheme  
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from AWS India 1 to India ppp0, 3 runs of 30s each per scheme  
 3 flows with 10s interval between flows



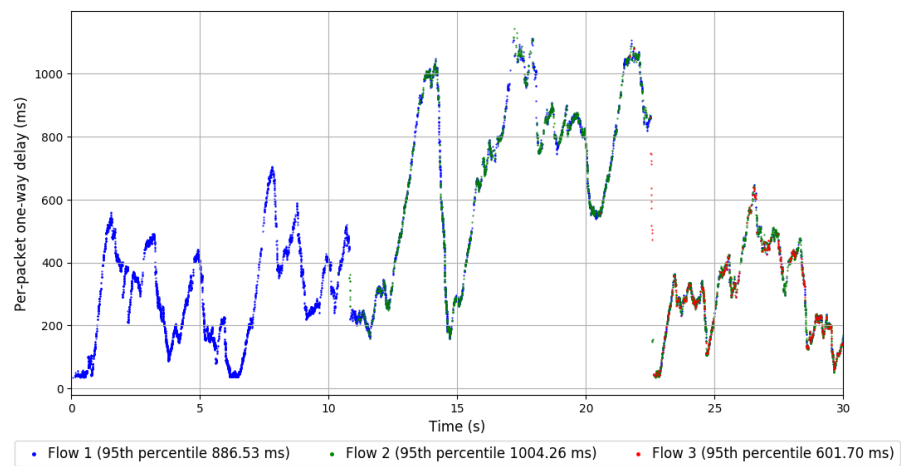
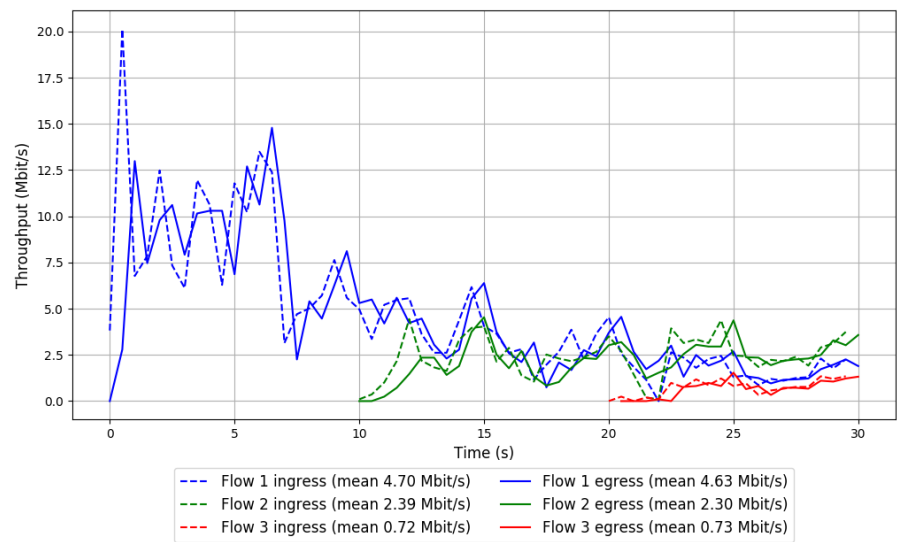
| scheme       | # runs | mean avg tput (Mbit/s) |        |        | mean 95th-%ile delay (ms) |         |         | mean loss rate (%) |        |        |
|--------------|--------|------------------------|--------|--------|---------------------------|---------|---------|--------------------|--------|--------|
|              |        | flow 1                 | flow 2 | flow 3 | flow 1                    | flow 2  | flow 3  | flow 1             | flow 2 | flow 3 |
| TCP BBR      | 3      | 5.04                   | 2.45   | 1.94   | 719.78                    | 804.57  | 477.78  | 1.30               | 4.49   | 3.22   |
| Copa         | 3      | 2.77                   | 2.46   | 2.08   | 107.83                    | 114.78  | 131.10  | 0.14               | 0.17   | 0.30   |
| TCP Cubic    | 3      | 6.30                   | 3.16   | 1.79   | 305.42                    | 327.79  | 383.87  | 0.35               | 0.87   | 2.84   |
| FillP        | 3      | 7.88                   | 2.47   | 1.15   | 1101.03                   | 1091.87 | 1091.61 | 60.17              | 38.40  | 44.29  |
| FillP-Sheep  | 3      | 4.10                   | 3.42   | 3.71   | 1075.90                   | 1103.21 | 1101.76 | 19.63              | 47.02  | 58.71  |
| Indigo       | 3      | 2.05                   | 2.16   | 2.20   | 78.12                     | 82.42   | 94.20   | 0.09               | 0.04   | 0.37   |
| LEDBAT       | 3      | 5.34                   | 2.52   | 1.33   | 196.29                    | 227.26  | 257.46  | 0.20               | 0.69   | 1.84   |
| PCC-Allegro  | 3      | 5.29                   | 2.52   | 2.23   | 1081.66                   | 1099.16 | 1193.01 | 28.04              | 48.71  | 81.27  |
| PCC-Expr     | 3      | 5.88                   | 3.33   | 1.85   | 1085.45                   | 1095.68 | 1096.73 | 35.08              | 50.97  | 65.67  |
| QUIC Cubic   | 3      | 6.91                   | 2.85   | 1.90   | 367.63                    | 442.14  | 518.10  | 0.61               | 1.91   | 3.95   |
| SCReAM       | 3      | 0.22                   | 0.22   | 0.22   | 51.77                     | 48.55   | 48.83   | 0.04               | 0.19   | 0.35   |
| Sprout       | 3      | 0.53                   | 0.53   | 0.50   | 62.32                     | 56.19   | 57.98   | 0.00               | 0.18   | 0.21   |
| TaoVA-100x   | 3      | 3.68                   | 3.44   | 2.62   | 223.42                    | 265.45  | 294.79  | 0.26               | 0.47   | 1.39   |
| TCP Vegas    | 3      | 3.28                   | 3.51   | 4.39   | 126.11                    | 170.61  | 151.74  | 0.07               | 0.18   | 0.58   |
| Verus        | 3      | 4.99                   | 2.35   | 1.74   | 784.83                    | 922.84  | 1049.97 | 1.27               | 4.75   | 7.67   |
| PCC-Vivace   | 3      | 2.14                   | 2.59   | 1.97   | 594.69                    | 718.91  | 779.61  | 1.67               | 3.05   | 9.97   |
| WebRTC media | 3      | 1.17                   | 0.53   | 0.22   | 89.28                     | 121.45  | 156.08  | 0.07               | 0.07   | 1.00   |

Run 1: Statistics of TCP BBR

Start at: 2018-07-17 15:18:08  
End at: 2018-07-17 15:18:38  
Local clock offset: -4.096 ms  
Remote clock offset: -16.153 ms

# Below is generated by plot.py at 2018-07-17 16:04:45  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.37 Mbit/s  
95th percentile per-packet one-way delay: 934.181 ms  
Loss rate: 2.66%  
-- Flow 1:  
Average throughput: 4.63 Mbit/s  
95th percentile per-packet one-way delay: 886.533 ms  
Loss rate: 1.58%  
-- Flow 2:  
Average throughput: 2.30 Mbit/s  
95th percentile per-packet one-way delay: 1004.260 ms  
Loss rate: 5.55%  
-- Flow 3:  
Average throughput: 0.73 Mbit/s  
95th percentile per-packet one-way delay: 601.703 ms  
Loss rate: 4.70%

Run 1: Report of TCP BBR — Data Link

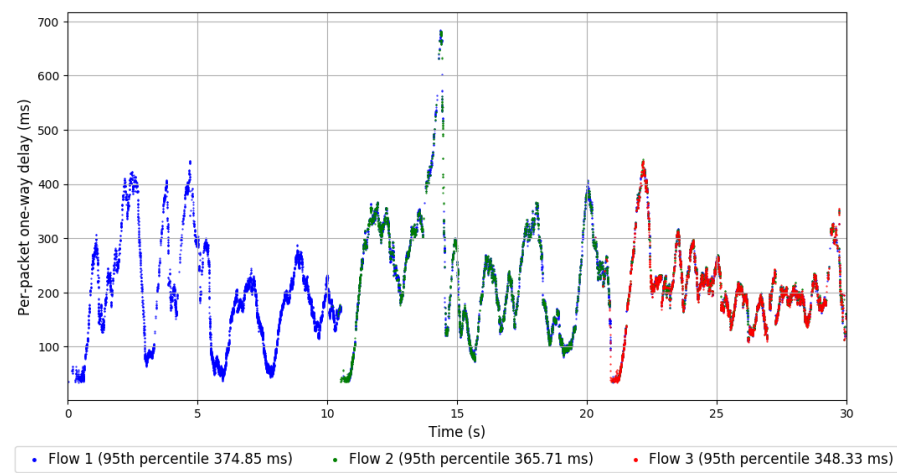
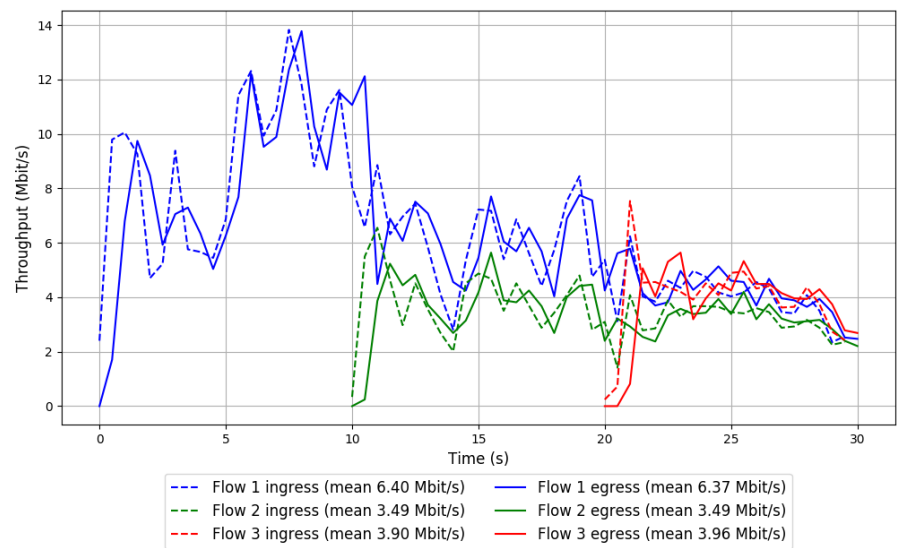


Run 2: Statistics of TCP BBR

Start at: 2018-07-17 15:37:03  
End at: 2018-07-17 15:37:33  
Local clock offset: -6.665 ms  
Remote clock offset: -10.894 ms

# Below is generated by plot.py at 2018-07-17 16:04:50  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 9.96 Mbit/s  
95th percentile per-packet one-way delay: 371.430 ms  
Loss rate: 0.70%  
-- Flow 1:  
Average throughput: 6.37 Mbit/s  
95th percentile per-packet one-way delay: 374.847 ms  
Loss rate: 0.46%  
-- Flow 2:  
Average throughput: 3.49 Mbit/s  
95th percentile per-packet one-way delay: 365.712 ms  
Loss rate: 0.91%  
-- Flow 3:  
Average throughput: 3.96 Mbit/s  
95th percentile per-packet one-way delay: 348.334 ms  
Loss rate: 1.48%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-07-17 15:55:54

End at: 2018-07-17 15:56:24

Local clock offset: -9.148 ms

Remote clock offset: -7.43 ms

# Below is generated by plot.py at 2018-07-17 16:04:50

# Datalink statistics

-- Total of 3 flows:

Average throughput: 5.52 Mbit/s

95th percentile per-packet one-way delay: 952.146 ms

Loss rate: 2.98%

-- Flow 1:

Average throughput: 4.12 Mbit/s

95th percentile per-packet one-way delay: 897.962 ms

Loss rate: 1.86%

-- Flow 2:

Average throughput: 1.57 Mbit/s

95th percentile per-packet one-way delay: 1043.753 ms

Loss rate: 7.01%

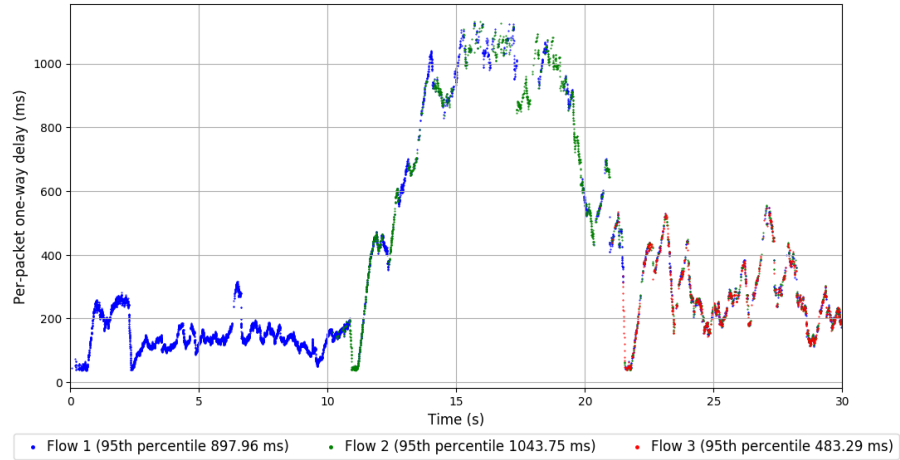
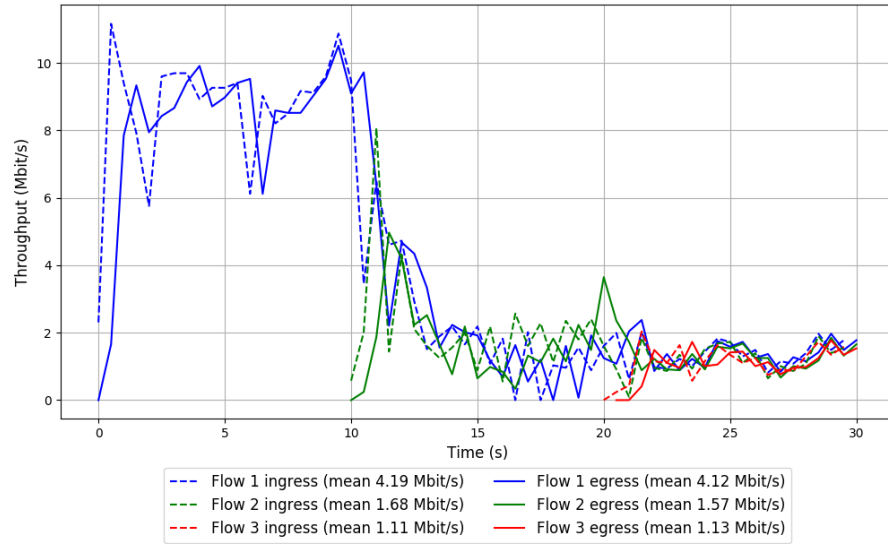
-- Flow 3:

Average throughput: 1.13 Mbit/s

95th percentile per-packet one-way delay: 483.292 ms

Loss rate: 3.47%

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

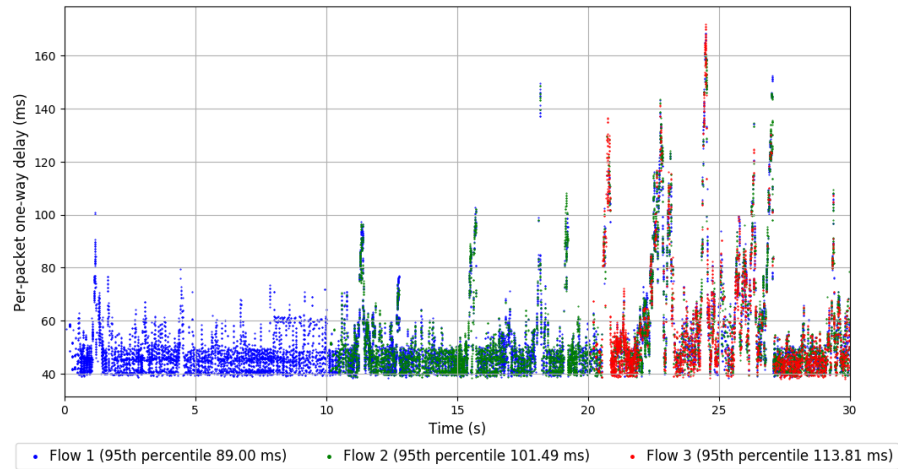
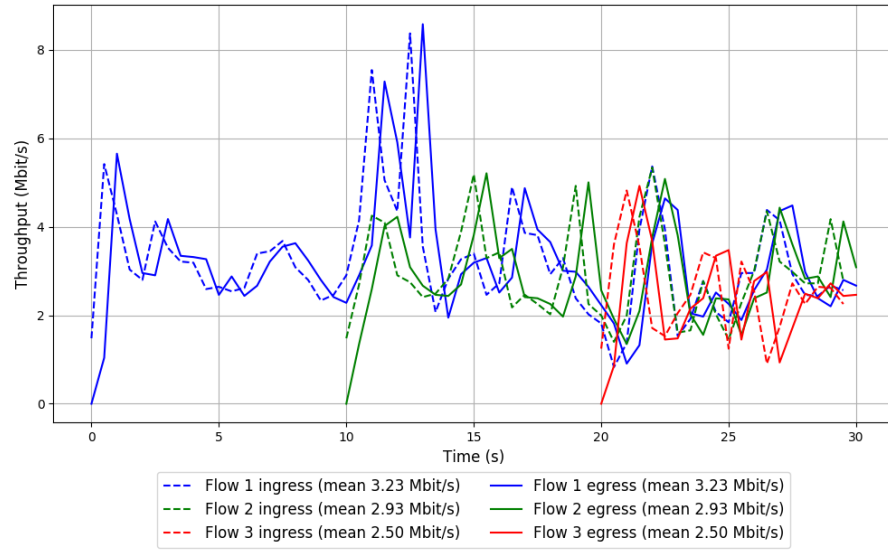


Run 1: Statistics of Copa

Start at: 2018-07-17 15:08:10  
End at: 2018-07-17 15:08:40  
Local clock offset: -5.045 ms  
Remote clock offset: -14.848 ms

# Below is generated by plot.py at 2018-07-17 16:04:52  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.01 Mbit/s  
95th percentile per-packet one-way delay: 95.457 ms  
Loss rate: 0.14%  
-- Flow 1:  
Average throughput: 3.23 Mbit/s  
95th percentile per-packet one-way delay: 89.005 ms  
Loss rate: 0.09%  
-- Flow 2:  
Average throughput: 2.93 Mbit/s  
95th percentile per-packet one-way delay: 101.486 ms  
Loss rate: 0.18%  
-- Flow 3:  
Average throughput: 2.50 Mbit/s  
95th percentile per-packet one-way delay: 113.805 ms  
Loss rate: 0.21%

## Run 1: Report of Copa — Data Link

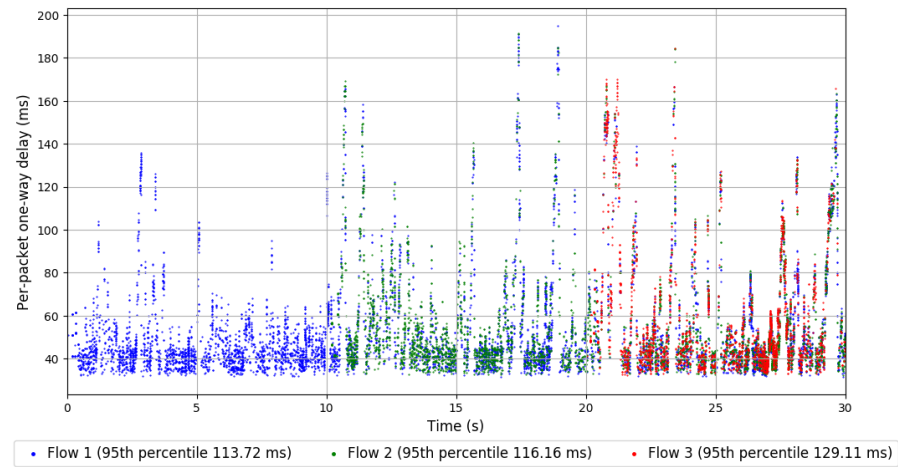
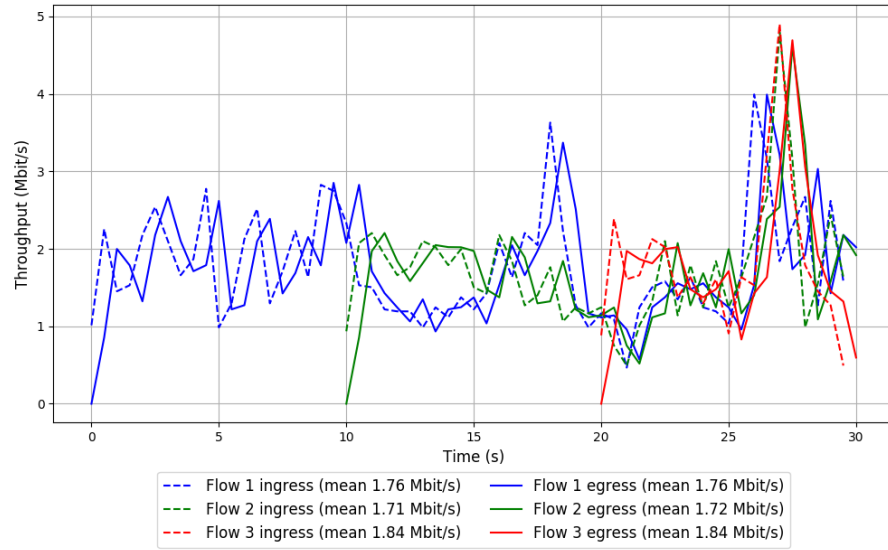


Run 2: Statistics of Copa

Start at: 2018-07-17 15:27:06  
End at: 2018-07-17 15:27:36  
Local clock offset: -2.328 ms  
Remote clock offset: -14.945 ms

# Below is generated by plot.py at 2018-07-17 16:04:52  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.52 Mbit/s  
95th percentile per-packet one-way delay: 117.437 ms  
Loss rate: 0.12%  
-- Flow 1:  
Average throughput: 1.76 Mbit/s  
95th percentile per-packet one-way delay: 113.718 ms  
Loss rate: 0.12%  
-- Flow 2:  
Average throughput: 1.72 Mbit/s  
95th percentile per-packet one-way delay: 116.161 ms  
Loss rate: 0.11%  
-- Flow 3:  
Average throughput: 1.84 Mbit/s  
95th percentile per-packet one-way delay: 129.107 ms  
Loss rate: 0.14%

## Run 2: Report of Copa — Data Link

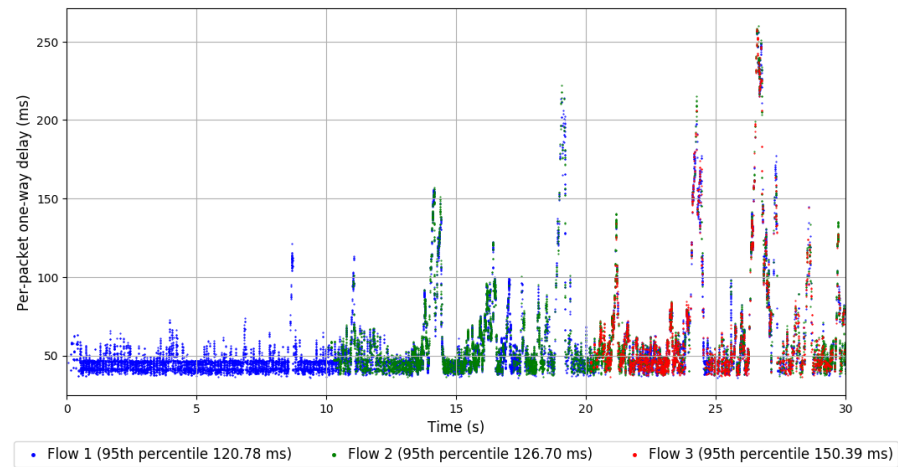
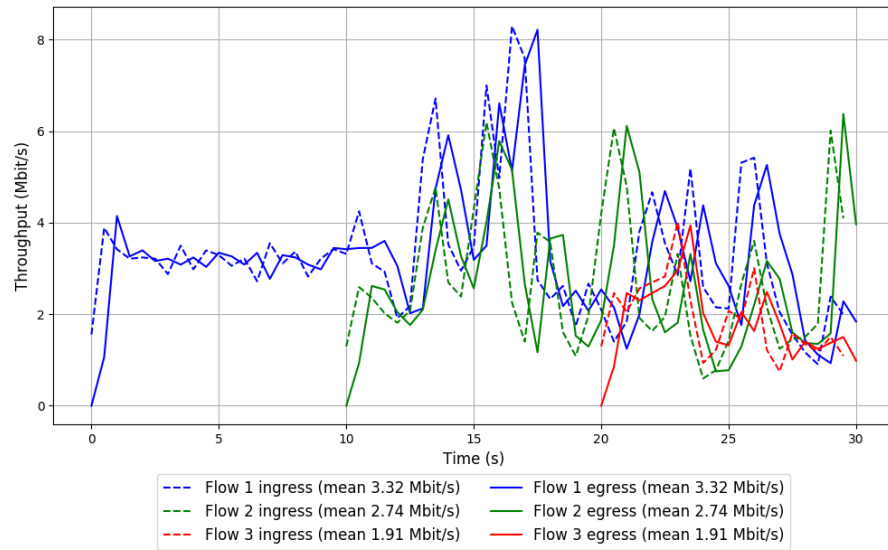


Run 3: Statistics of Copa

Start at: 2018-07-17 15:45:55  
End at: 2018-07-17 15:46:25  
Local clock offset: -11.094 ms  
Remote clock offset: -9.302 ms

# Below is generated by plot.py at 2018-07-17 16:04:52  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.77 Mbit/s  
95th percentile per-packet one-way delay: 126.106 ms  
Loss rate: 0.26%  
-- Flow 1:  
Average throughput: 3.32 Mbit/s  
95th percentile per-packet one-way delay: 120.779 ms  
Loss rate: 0.22%  
-- Flow 2:  
Average throughput: 2.74 Mbit/s  
95th percentile per-packet one-way delay: 126.704 ms  
Loss rate: 0.23%  
-- Flow 3:  
Average throughput: 1.91 Mbit/s  
95th percentile per-packet one-way delay: 150.388 ms  
Loss rate: 0.55%

### Run 3: Report of Copa — Data Link

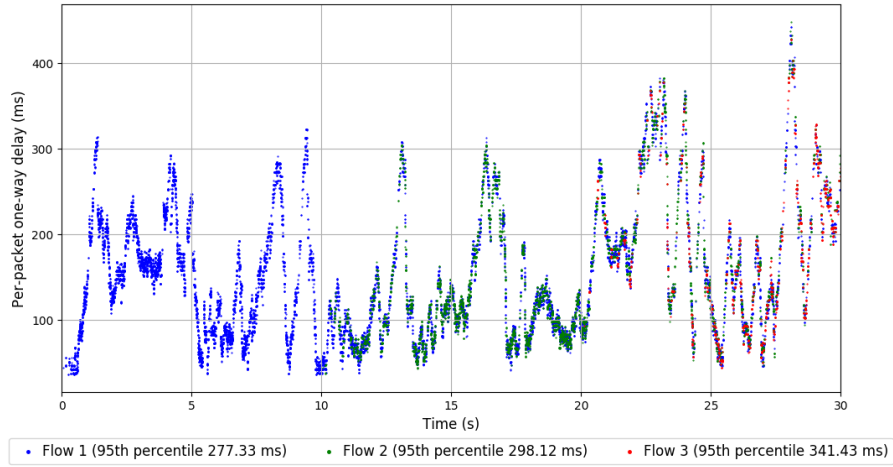
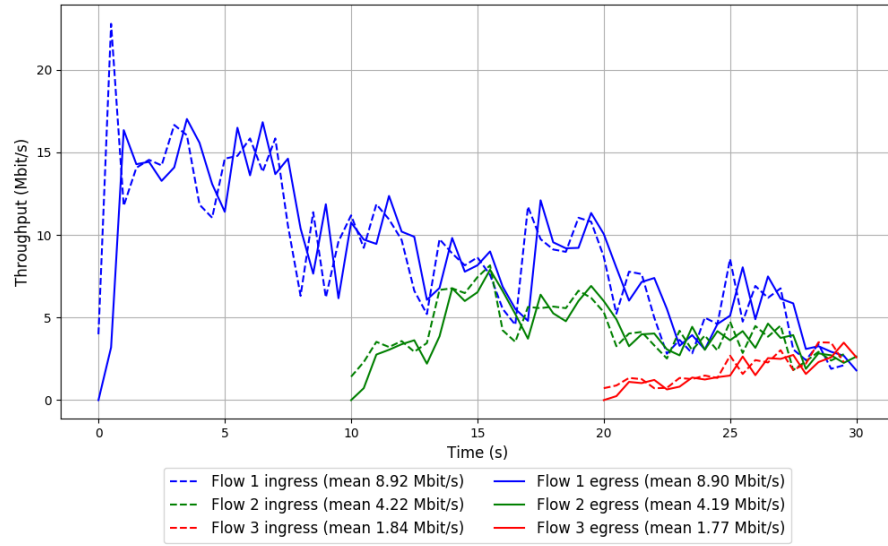


Run 1: Statistics of TCP Cubic

Start at: 2018-07-17 15:25:58  
End at: 2018-07-17 15:26:28  
Local clock offset: -2.472 ms  
Remote clock offset: -14.981 ms

# Below is generated by plot.py at 2018-07-17 16:04:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 12.27 Mbit/s  
95th percentile per-packet one-way delay: 286.680 ms  
Loss rate: 0.59%  
-- Flow 1:  
Average throughput: 8.90 Mbit/s  
95th percentile per-packet one-way delay: 277.335 ms  
Loss rate: 0.27%  
-- Flow 2:  
Average throughput: 4.19 Mbit/s  
95th percentile per-packet one-way delay: 298.118 ms  
Loss rate: 0.88%  
-- Flow 3:  
Average throughput: 1.77 Mbit/s  
95th percentile per-packet one-way delay: 341.430 ms  
Loss rate: 3.88%

# Run 1: Report of TCP Cubic — Data Link

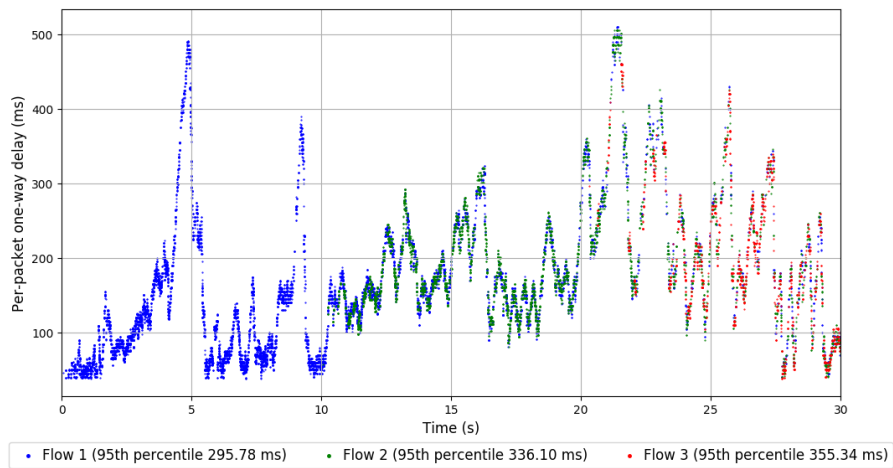
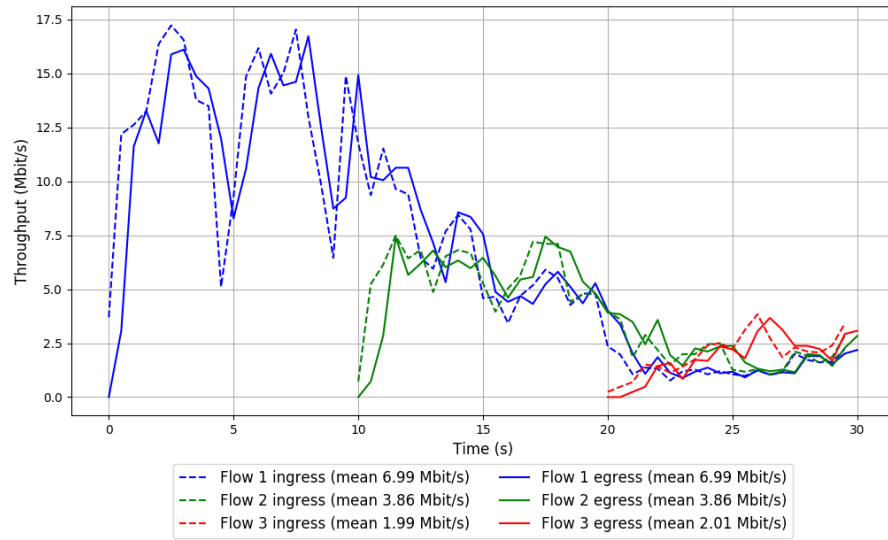


Run 2: Statistics of TCP Cubic

Start at: 2018-07-17 15:44:49  
End at: 2018-07-17 15:45:19  
Local clock offset: -10.155 ms  
Remote clock offset: -10.047 ms

# Below is generated by plot.py at 2018-07-17 16:04:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.20 Mbit/s  
95th percentile per-packet one-way delay: 324.321 ms  
Loss rate: 0.28%  
-- Flow 1:  
Average throughput: 6.99 Mbit/s  
95th percentile per-packet one-way delay: 295.782 ms  
Loss rate: 0.11%  
-- Flow 2:  
Average throughput: 3.86 Mbit/s  
95th percentile per-packet one-way delay: 336.104 ms  
Loss rate: 0.34%  
-- Flow 3:  
Average throughput: 2.01 Mbit/s  
95th percentile per-packet one-way delay: 355.341 ms  
Loss rate: 1.88%

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

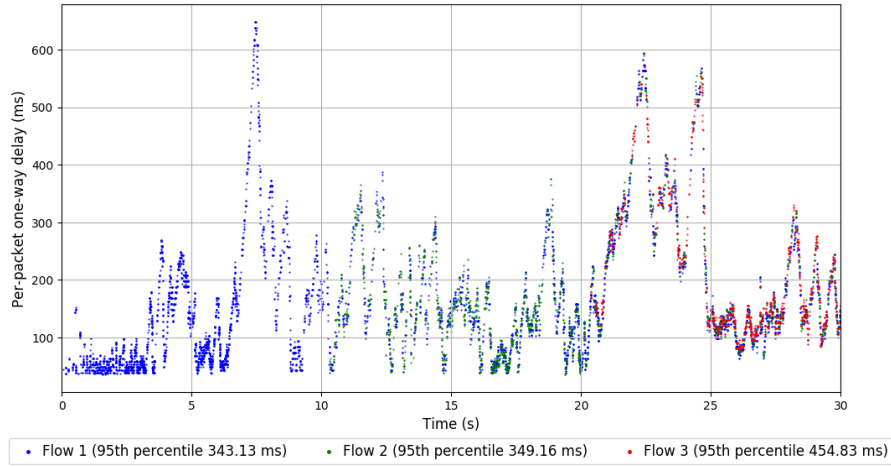
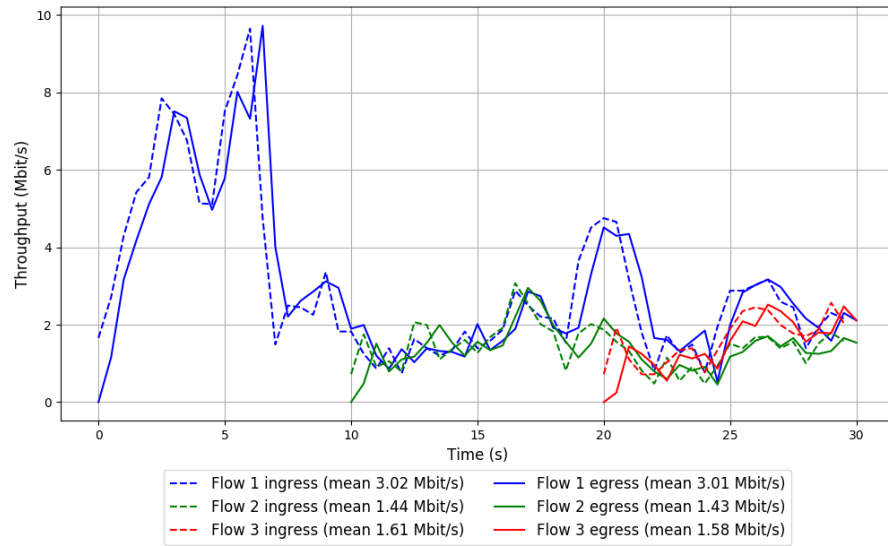


Run 3: Statistics of TCP Cubic

Start at: 2018-07-17 16:03:58  
End at: 2018-07-17 16:04:28  
Local clock offset: -1.589 ms  
Remote clock offset: -8.735 ms

# Below is generated by plot.py at 2018-07-17 16:04:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.48 Mbit/s  
95th percentile per-packet one-way delay: 354.926 ms  
Loss rate: 1.06%  
-- Flow 1:  
Average throughput: 3.01 Mbit/s  
95th percentile per-packet one-way delay: 343.135 ms  
Loss rate: 0.66%  
-- Flow 2:  
Average throughput: 1.43 Mbit/s  
95th percentile per-packet one-way delay: 349.157 ms  
Loss rate: 1.38%  
-- Flow 3:  
Average throughput: 1.58 Mbit/s  
95th percentile per-packet one-way delay: 454.830 ms  
Loss rate: 2.77%

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

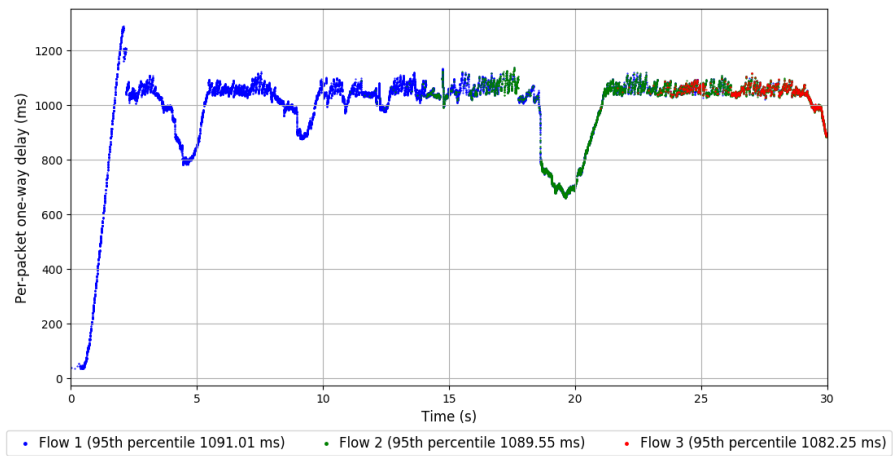
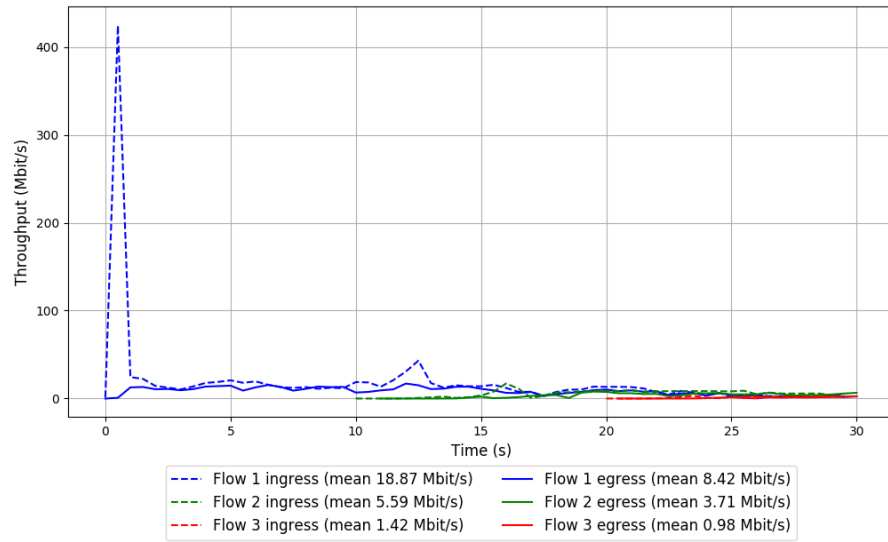


Run 1: Statistics of FillP

Start at: 2018-07-17 15:20:23  
End at: 2018-07-17 15:20:53  
Local clock offset: -4.968 ms  
Remote clock offset: -16.136 ms

# Below is generated by plot.py at 2018-07-17 16:05:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 11.05 Mbit/s  
95th percentile per-packet one-way delay: 1090.409 ms  
Loss rate: 52.12%  
-- Flow 1:  
Average throughput: 8.42 Mbit/s  
95th percentile per-packet one-way delay: 1091.013 ms  
Loss rate: 55.44%  
-- Flow 2:  
Average throughput: 3.71 Mbit/s  
95th percentile per-packet one-way delay: 1089.545 ms  
Loss rate: 37.07%  
-- Flow 3:  
Average throughput: 0.98 Mbit/s  
95th percentile per-packet one-way delay: 1082.254 ms  
Loss rate: 37.93%

# Run 1: Report of FillP — Data Link

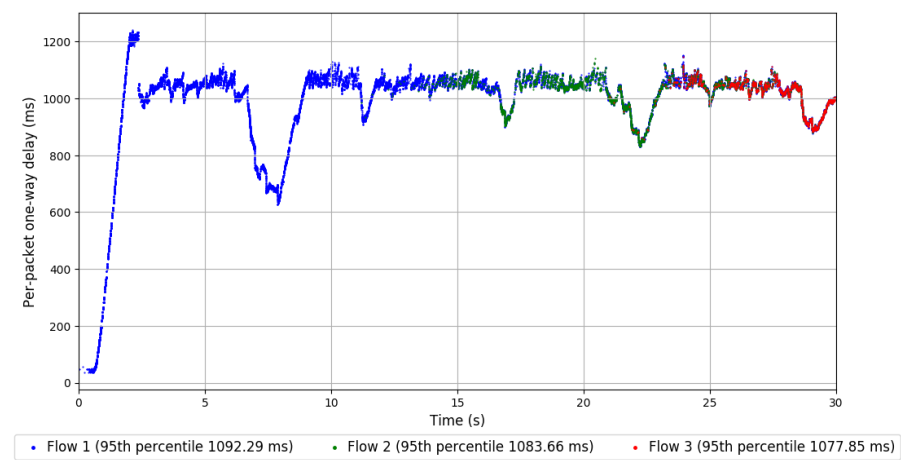
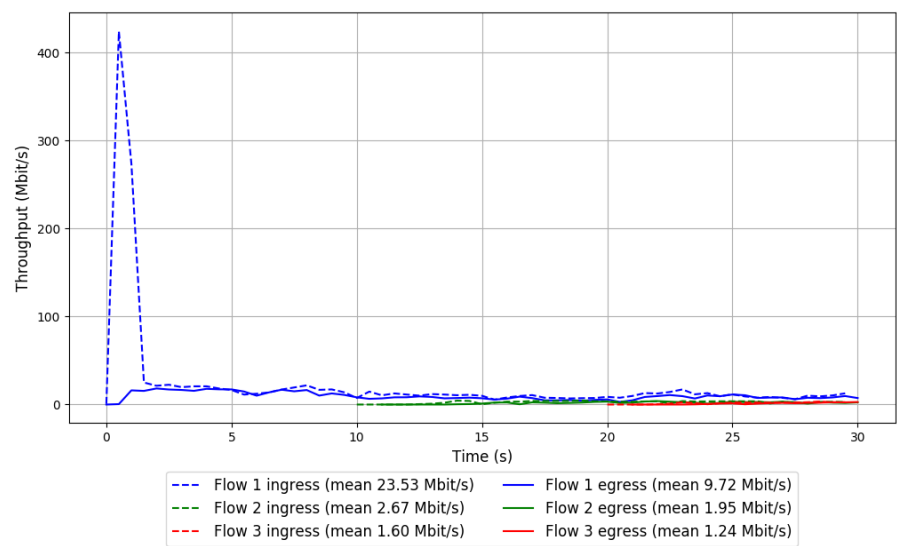


Run 2: Statistics of FillP

Start at: 2018-07-17 15:39:17  
End at: 2018-07-17 15:39:47  
Local clock offset: -6.91 ms  
Remote clock offset: -9.653 ms

# Below is generated by plot.py at 2018-07-17 16:05:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 11.32 Mbit/s  
95th percentile per-packet one-way delay: 1090.226 ms  
Loss rate: 56.26%  
-- Flow 1:  
Average throughput: 9.72 Mbit/s  
95th percentile per-packet one-way delay: 1092.287 ms  
Loss rate: 58.75%  
-- Flow 2:  
Average throughput: 1.95 Mbit/s  
95th percentile per-packet one-way delay: 1083.656 ms  
Loss rate: 31.08%  
-- Flow 3:  
Average throughput: 1.24 Mbit/s  
95th percentile per-packet one-way delay: 1077.850 ms  
Loss rate: 30.20%

Run 2: Report of FillP — Data Link

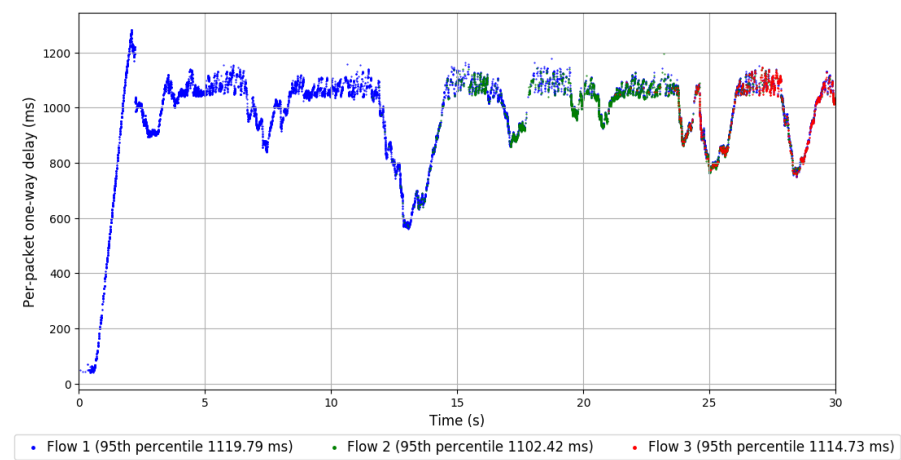
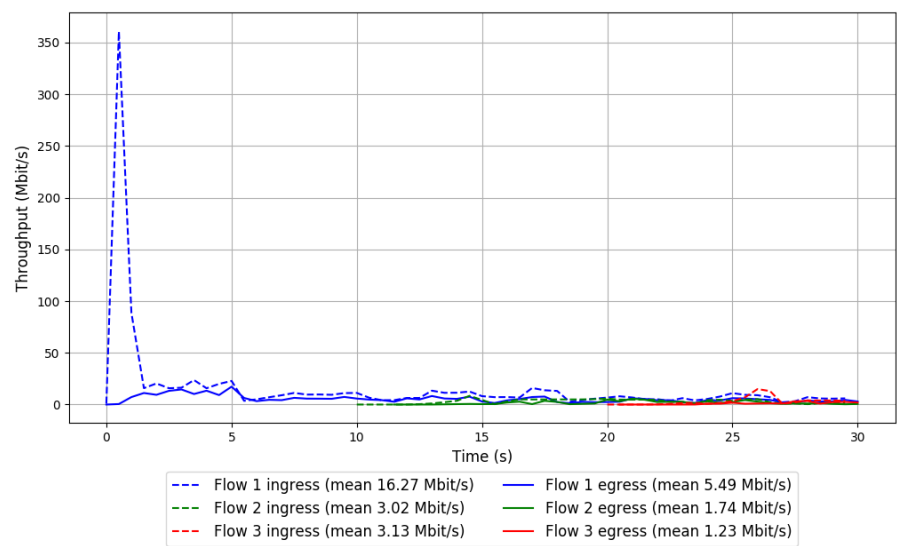


Run 3: Statistics of FillP

Start at: 2018-07-17 15:58:07  
End at: 2018-07-17 15:58:37  
Local clock offset: -7.09 ms  
Remote clock offset: -6.963 ms

# Below is generated by plot.py at 2018-07-17 16:05:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.92 Mbit/s  
95th percentile per-packet one-way delay: 1115.835 ms  
Loss rate: 64.23%  
-- Flow 1:  
Average throughput: 5.49 Mbit/s  
95th percentile per-packet one-way delay: 1119.794 ms  
Loss rate: 66.32%  
-- Flow 2:  
Average throughput: 1.74 Mbit/s  
95th percentile per-packet one-way delay: 1102.422 ms  
Loss rate: 47.06%  
-- Flow 3:  
Average throughput: 1.23 Mbit/s  
95th percentile per-packet one-way delay: 1114.731 ms  
Loss rate: 64.74%

Run 3: Report of FillP — Data Link

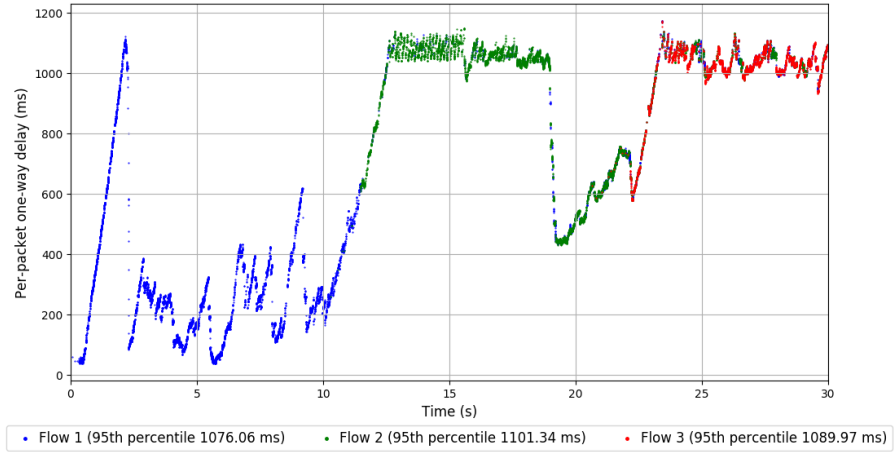
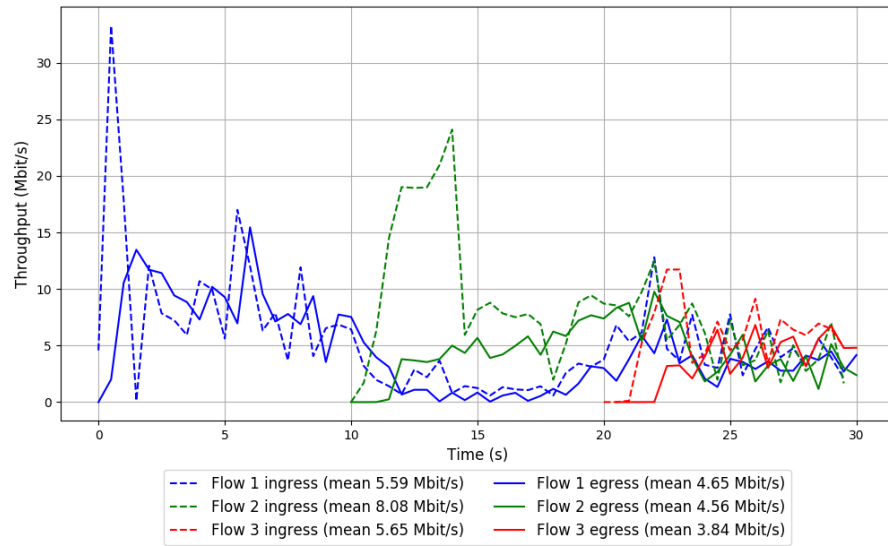


Run 1: Statistics of FillP-Sheep

Start at: 2018-07-17 15:14:49  
End at: 2018-07-17 15:15:19  
Local clock offset: -5.307 ms  
Remote clock offset: -15.045 ms

# Below is generated by plot.py at 2018-07-17 16:05:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 8.85 Mbit/s  
95th percentile per-packet one-way delay: 1090.443 ms  
Loss rate: 31.17%  
-- Flow 1:  
Average throughput: 4.65 Mbit/s  
95th percentile per-packet one-way delay: 1076.064 ms  
Loss rate: 17.00%  
-- Flow 2:  
Average throughput: 4.56 Mbit/s  
95th percentile per-packet one-way delay: 1101.335 ms  
Loss rate: 44.15%  
-- Flow 3:  
Average throughput: 3.84 Mbit/s  
95th percentile per-packet one-way delay: 1089.975 ms  
Loss rate: 36.28%

# Run 1: Report of FillP-Sheep — Data Link

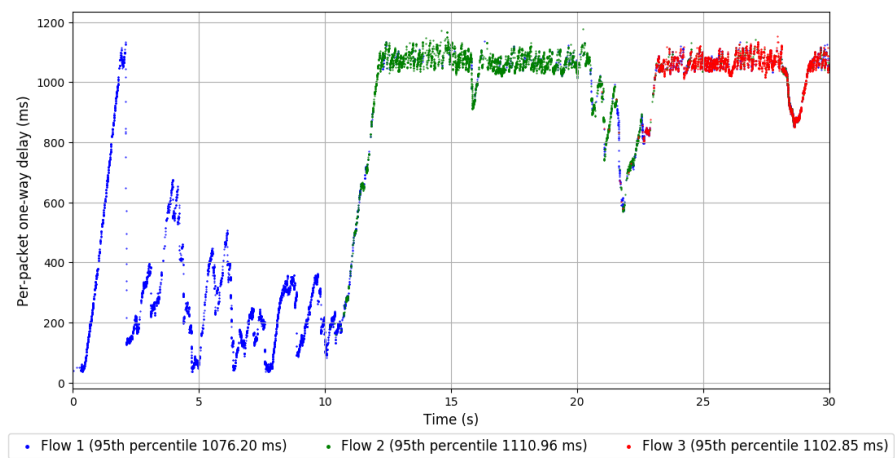
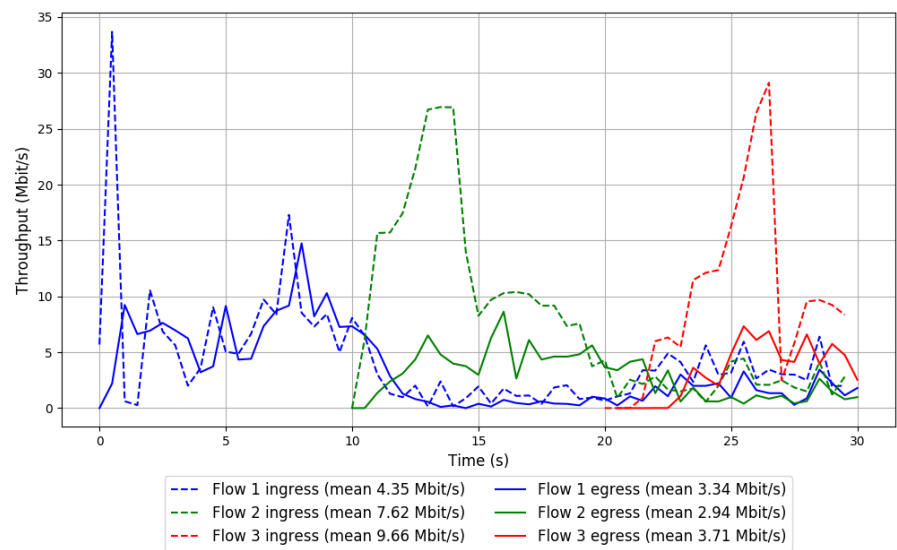


Run 2: Statistics of FillP-Sheep

Start at: 2018-07-17 15:33:43  
End at: 2018-07-17 15:34:13  
Local clock offset: -7.757 ms  
Remote clock offset: -12.419 ms

# Below is generated by plot.py at 2018-07-17 16:05:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.39 Mbit/s  
95th percentile per-packet one-way delay: 1100.267 ms  
Loss rate: 49.44%  
-- Flow 1:  
Average throughput: 3.34 Mbit/s  
95th percentile per-packet one-way delay: 1076.198 ms  
Loss rate: 23.45%  
-- Flow 2:  
Average throughput: 2.94 Mbit/s  
95th percentile per-packet one-way delay: 1110.964 ms  
Loss rate: 61.72%  
-- Flow 3:  
Average throughput: 3.71 Mbit/s  
95th percentile per-packet one-way delay: 1102.853 ms  
Loss rate: 65.30%

Run 2: Report of FillP-Sheep — Data Link

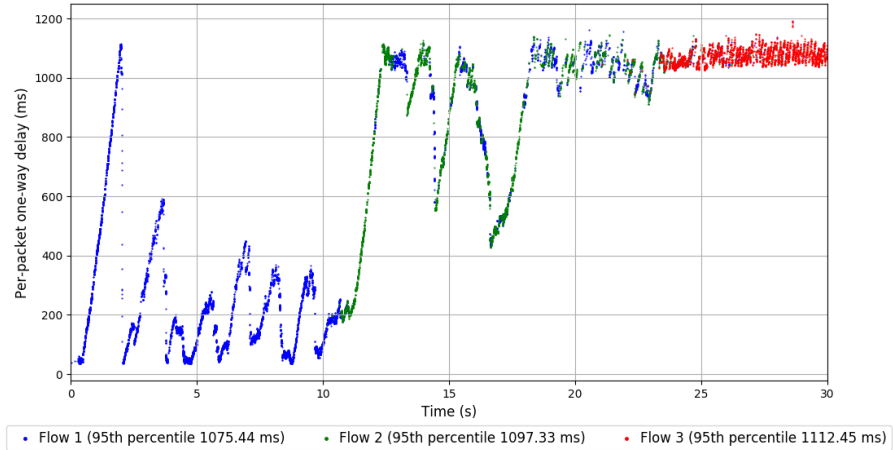
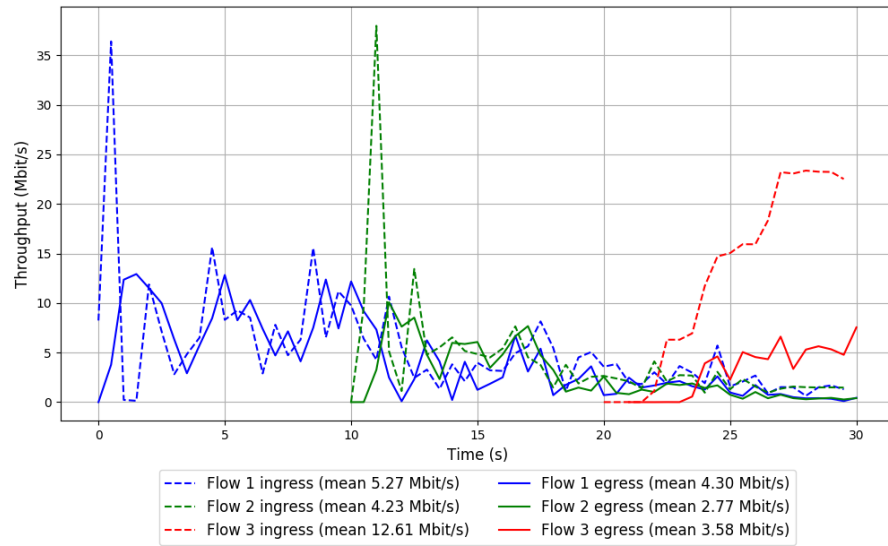


Run 3: Statistics of FillP-Sheep

Start at: 2018-07-17 15:52:34  
End at: 2018-07-17 15:53:04  
Local clock offset: -9.405 ms  
Remote clock offset: -9.133 ms

# Below is generated by plot.py at 2018-07-17 16:05:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 7.19 Mbit/s  
95th percentile per-packet one-way delay: 1097.278 ms  
Loss rate: 41.44%  
-- Flow 1:  
Average throughput: 4.30 Mbit/s  
95th percentile per-packet one-way delay: 1075.445 ms  
Loss rate: 18.45%  
-- Flow 2:  
Average throughput: 2.77 Mbit/s  
95th percentile per-packet one-way delay: 1097.334 ms  
Loss rate: 35.18%  
-- Flow 3:  
Average throughput: 3.58 Mbit/s  
95th percentile per-packet one-way delay: 1112.454 ms  
Loss rate: 74.55%

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

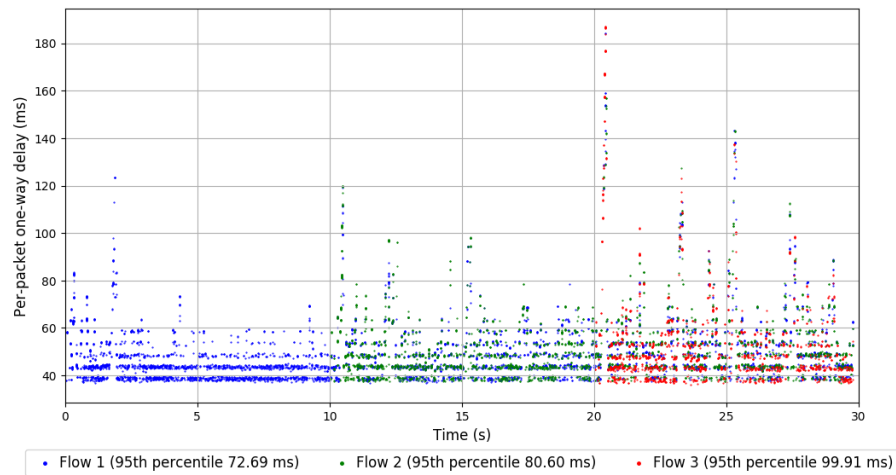
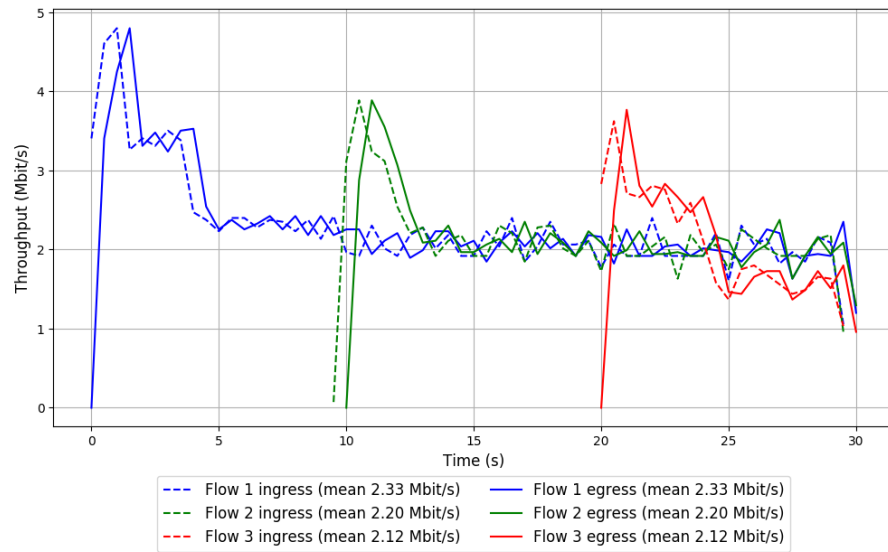


```
Run 1: Statistics of Indigo

Start at: 2018-07-17 15:10:24
End at: 2018-07-17 15:10:54
Local clock offset: -1.952 ms
Remote clock offset: -15.122 ms

# Below is generated by plot.py at 2018-07-17 16:05:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.48 Mbit/s
95th percentile per-packet one-way delay: 78.663 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.33 Mbit/s
95th percentile per-packet one-way delay: 72.695 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 2.20 Mbit/s
95th percentile per-packet one-way delay: 80.597 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 99.905 ms
Loss rate: 0.29%
```

## Run 1: Report of Indigo — Data Link

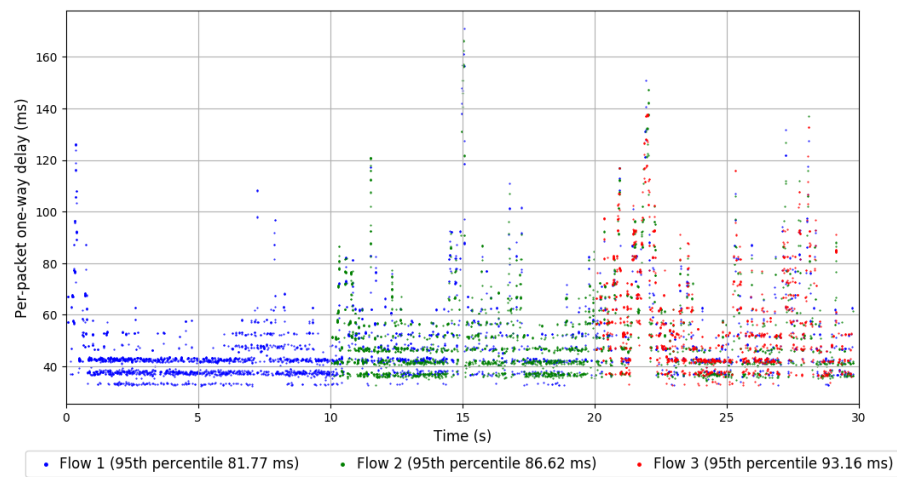
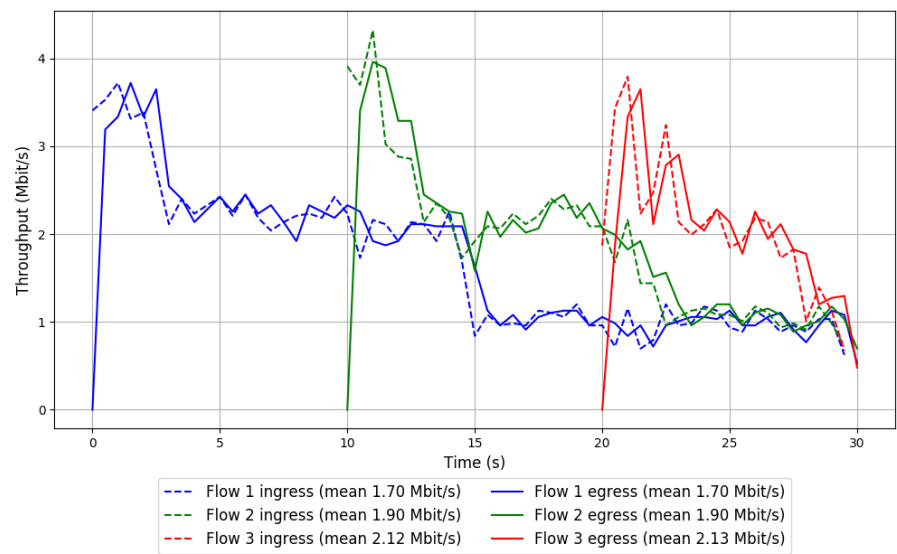


Run 2: Statistics of Indigo

Start at: 2018-07-17 15:29:19  
End at: 2018-07-17 15:29:49  
Local clock offset: -3.347 ms  
Remote clock offset: -13.644 ms

# Below is generated by plot.py at 2018-07-17 16:05:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.66 Mbit/s  
95th percentile per-packet one-way delay: 87.088 ms  
Loss rate: 0.15%  
-- Flow 1:  
Average throughput: 1.70 Mbit/s  
95th percentile per-packet one-way delay: 81.769 ms  
Loss rate: 0.12%  
-- Flow 2:  
Average throughput: 1.90 Mbit/s  
95th percentile per-packet one-way delay: 86.625 ms  
Loss rate: 0.03%  
-- Flow 3:  
Average throughput: 2.13 Mbit/s  
95th percentile per-packet one-way delay: 93.155 ms  
Loss rate: 0.46%

Run 2: Report of Indigo — Data Link

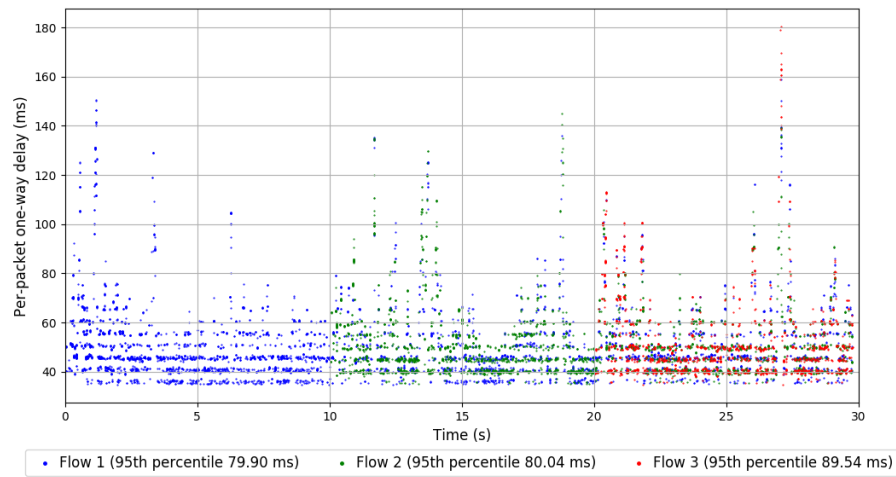
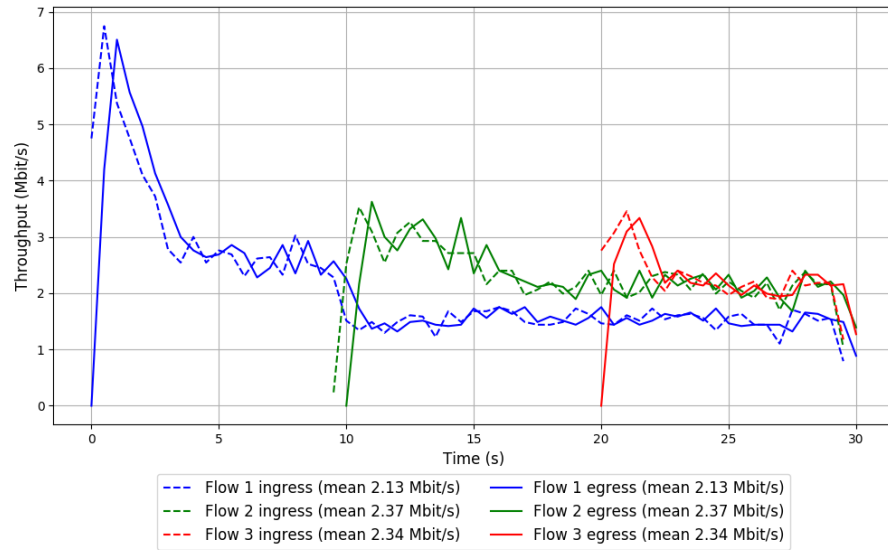


Run 3: Statistics of Indigo

Start at: 2018-07-17 15:48:10  
End at: 2018-07-17 15:48:40  
Local clock offset: -9.516 ms  
Remote clock offset: -9.111 ms

# Below is generated by plot.py at 2018-07-17 16:05:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.46 Mbit/s  
95th percentile per-packet one-way delay: 84.144 ms  
Loss rate: 0.14%  
-- Flow 1:  
Average throughput: 2.13 Mbit/s  
95th percentile per-packet one-way delay: 79.897 ms  
Loss rate: 0.11%  
-- Flow 2:  
Average throughput: 2.37 Mbit/s  
95th percentile per-packet one-way delay: 80.042 ms  
Loss rate: 0.08%  
-- Flow 3:  
Average throughput: 2.34 Mbit/s  
95th percentile per-packet one-way delay: 89.538 ms  
Loss rate: 0.37%

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

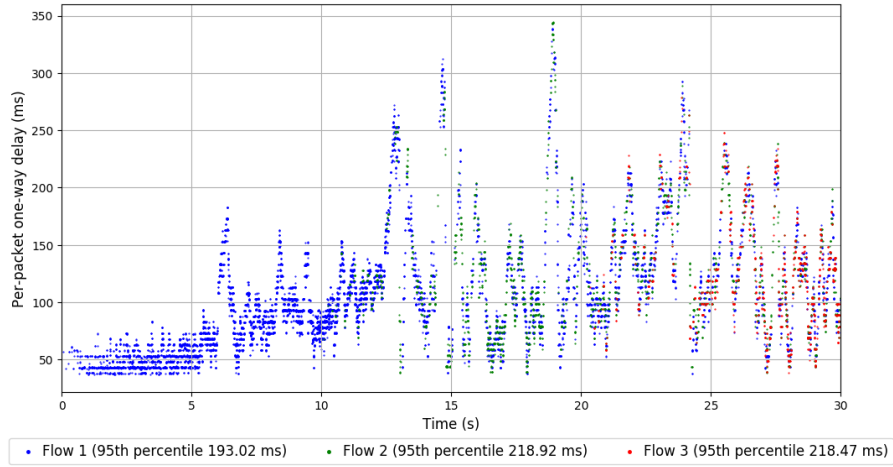
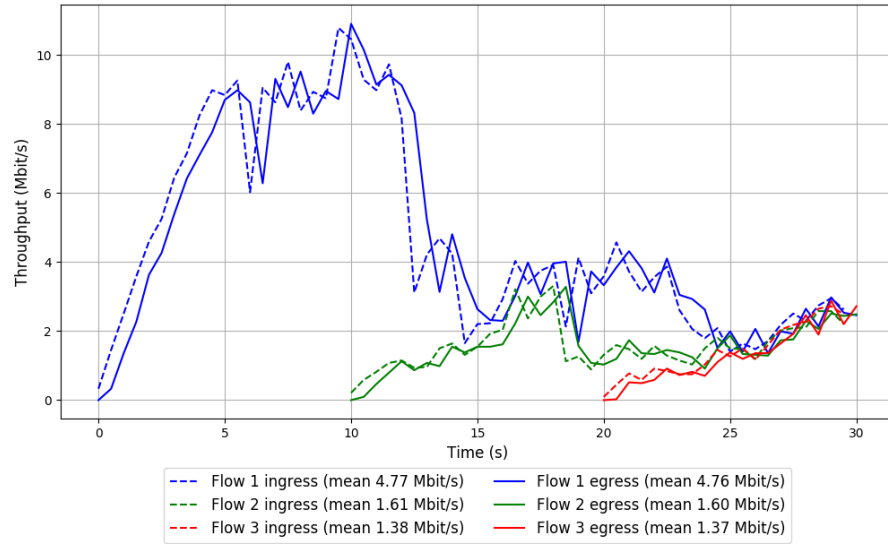


Run 1: Statistics of LEDBAT

Start at: 2018-07-17 15:22:37  
End at: 2018-07-17 15:23:07  
Local clock offset: -3.621 ms  
Remote clock offset: -15.323 ms

# Below is generated by plot.py at 2018-07-17 16:05:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.28 Mbit/s  
95th percentile per-packet one-way delay: 203.643 ms  
Loss rate: 0.51%  
-- Flow 1:  
Average throughput: 4.76 Mbit/s  
95th percentile per-packet one-way delay: 193.023 ms  
Loss rate: 0.29%  
-- Flow 2:  
Average throughput: 1.60 Mbit/s  
95th percentile per-packet one-way delay: 218.920 ms  
Loss rate: 0.77%  
-- Flow 3:  
Average throughput: 1.37 Mbit/s  
95th percentile per-packet one-way delay: 218.466 ms  
Loss rate: 2.21%

## Run 1: Report of LEDBAT — Data Link

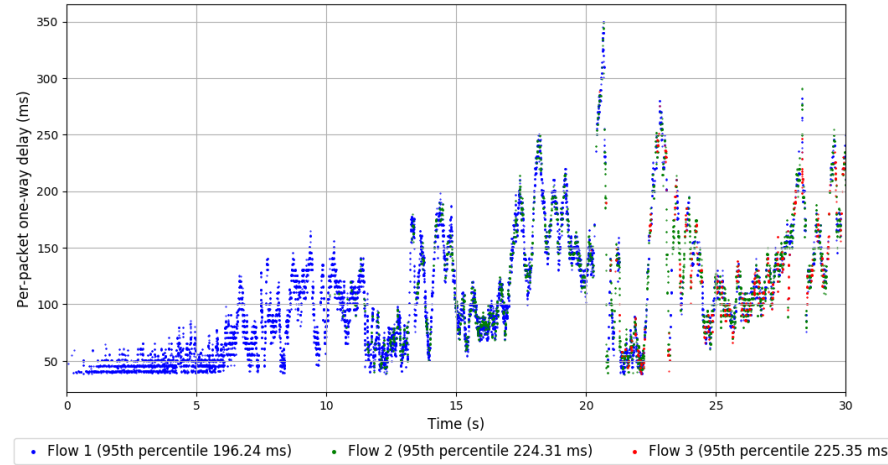
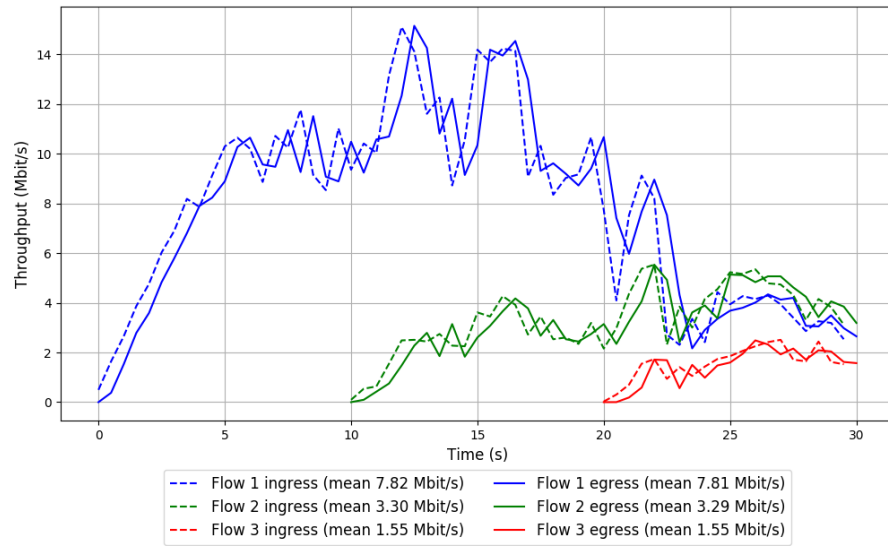


Run 2: Statistics of LEDBAT

Start at: 2018-07-17 15:41:29  
End at: 2018-07-17 15:41:59  
Local clock offset: -9.788 ms  
Remote clock offset: -10.035 ms

# Below is generated by plot.py at 2018-07-17 16:05:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.50 Mbit/s  
95th percentile per-packet one-way delay: 205.001 ms  
Loss rate: 0.45%  
-- Flow 1:  
Average throughput: 7.81 Mbit/s  
95th percentile per-packet one-way delay: 196.235 ms  
Loss rate: 0.22%  
-- Flow 2:  
Average throughput: 3.29 Mbit/s  
95th percentile per-packet one-way delay: 224.309 ms  
Loss rate: 0.84%  
-- Flow 3:  
Average throughput: 1.55 Mbit/s  
95th percentile per-packet one-way delay: 225.347 ms  
Loss rate: 2.43%

## Run 2: Report of LEDBAT — Data Link

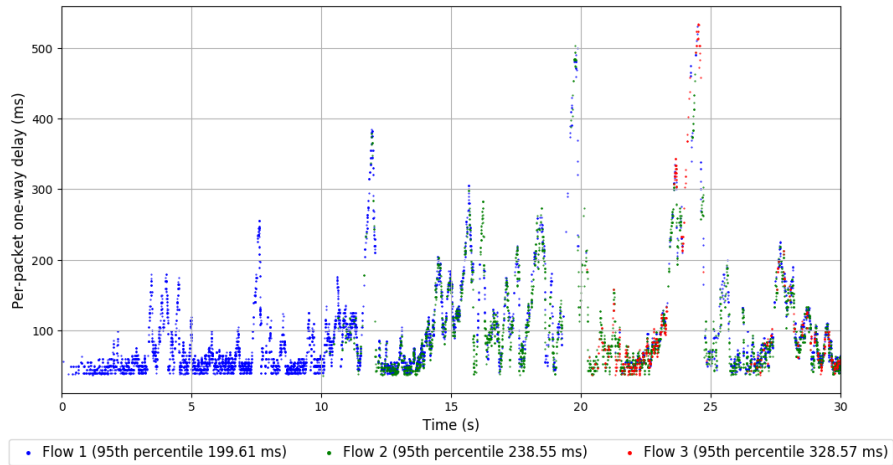
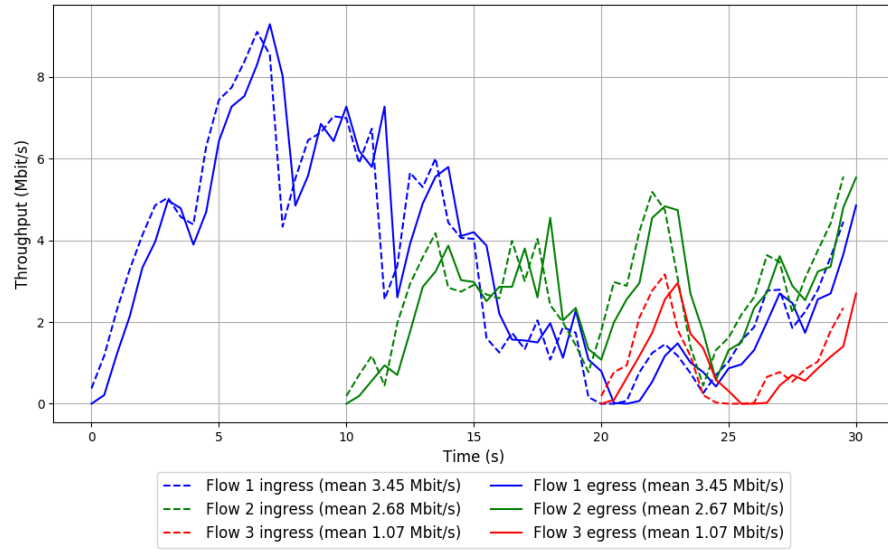


Run 3: Statistics of LEDBAT

Start at: 2018-07-17 16:00:38  
End at: 2018-07-17 16:01:08  
Local clock offset: -5.1 ms  
Remote clock offset: -8.672 ms

# Below is generated by plot.py at 2018-07-17 16:05:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.58 Mbit/s  
95th percentile per-packet one-way delay: 220.268 ms  
Loss rate: 0.27%  
-- Flow 1:  
Average throughput: 3.45 Mbit/s  
95th percentile per-packet one-way delay: 199.611 ms  
Loss rate: 0.10%  
-- Flow 2:  
Average throughput: 2.67 Mbit/s  
95th percentile per-packet one-way delay: 238.552 ms  
Loss rate: 0.46%  
-- Flow 3:  
Average throughput: 1.07 Mbit/s  
95th percentile per-packet one-way delay: 328.567 ms  
Loss rate: 0.89%

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

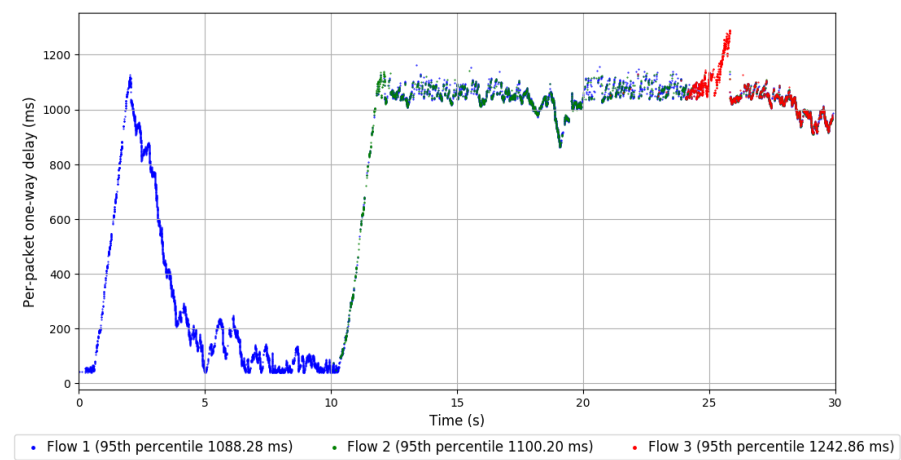
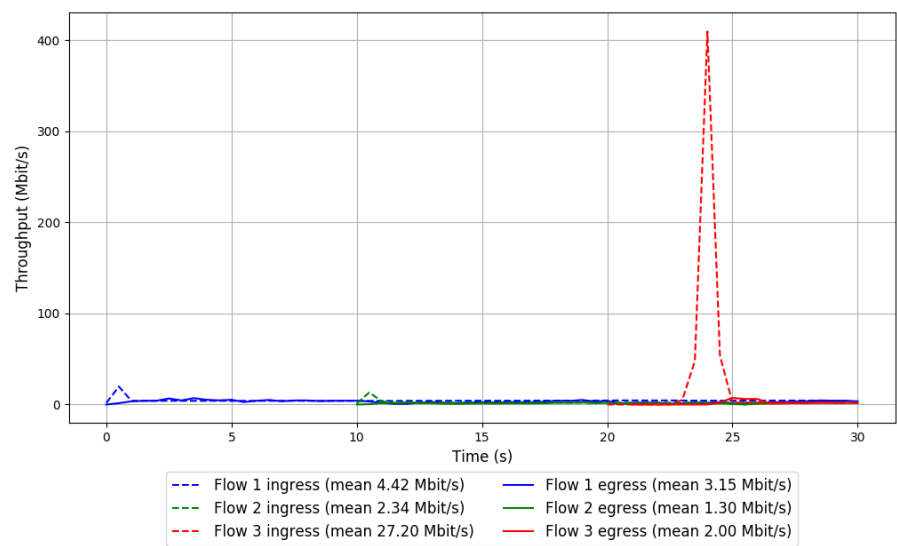


Run 1: Statistics of PCC-Allegro

Start at: 2018-07-17 15:17:02  
End at: 2018-07-17 15:17:32  
Local clock offset: -6.001 ms  
Remote clock offset: -14.601 ms

# Below is generated by plot.py at 2018-07-17 16:05:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.60 Mbit/s  
95th percentile per-packet one-way delay: 1110.656 ms  
Loss rate: 69.23%  
-- Flow 1:  
Average throughput: 3.15 Mbit/s  
95th percentile per-packet one-way delay: 1088.277 ms  
Loss rate: 28.81%  
-- Flow 2:  
Average throughput: 1.30 Mbit/s  
95th percentile per-packet one-way delay: 1100.200 ms  
Loss rate: 44.78%  
-- Flow 3:  
Average throughput: 2.00 Mbit/s  
95th percentile per-packet one-way delay: 1242.864 ms  
Loss rate: 93.41%

Run 1: Report of PCC-Allegro — Data Link

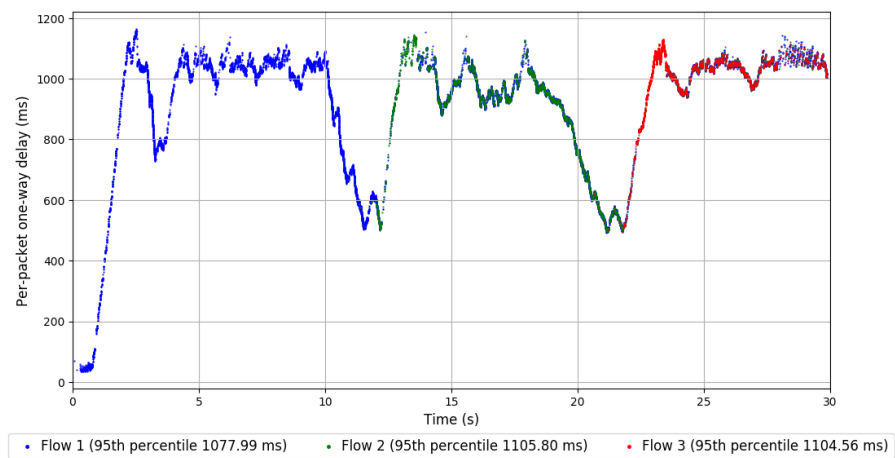
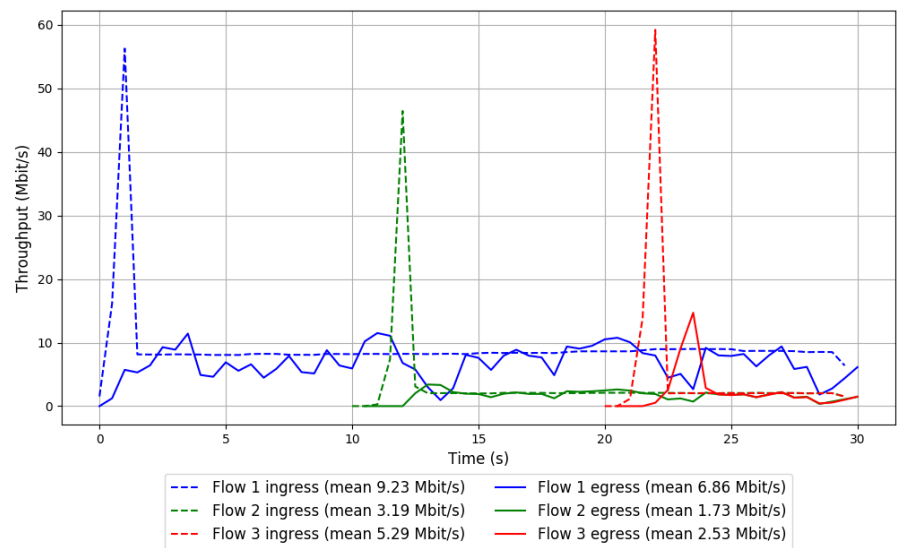


Run 2: Statistics of PCC-Allegro

Start at: 2018-07-17 15:35:56  
End at: 2018-07-17 15:36:26  
Local clock offset: -6.736 ms  
Remote clock offset: -11.455 ms

# Below is generated by plot.py at 2018-07-17 16:05:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 8.76 Mbit/s  
95th percentile per-packet one-way delay: 1086.833 ms  
Loss rate: 33.24%  
-- Flow 1:  
Average throughput: 6.86 Mbit/s  
95th percentile per-packet one-way delay: 1077.994 ms  
Loss rate: 25.79%  
-- Flow 2:  
Average throughput: 1.73 Mbit/s  
95th percentile per-packet one-way delay: 1105.804 ms  
Loss rate: 47.63%  
-- Flow 3:  
Average throughput: 2.53 Mbit/s  
95th percentile per-packet one-way delay: 1104.558 ms  
Loss rate: 55.10%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-07-17 15:54:47

End at: 2018-07-17 15:55:17

Local clock offset: -8.004 ms

Remote clock offset: -8.95 ms

# Below is generated by plot.py at 2018-07-17 16:05:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 9.38 Mbit/s

95th percentile per-packet one-way delay: 1088.667 ms

Loss rate: 65.34%

-- Flow 1:

Average throughput: 5.85 Mbit/s

95th percentile per-packet one-way delay: 1078.706 ms

Loss rate: 29.52%

-- Flow 2:

Average throughput: 4.52 Mbit/s

95th percentile per-packet one-way delay: 1091.472 ms

Loss rate: 53.73%

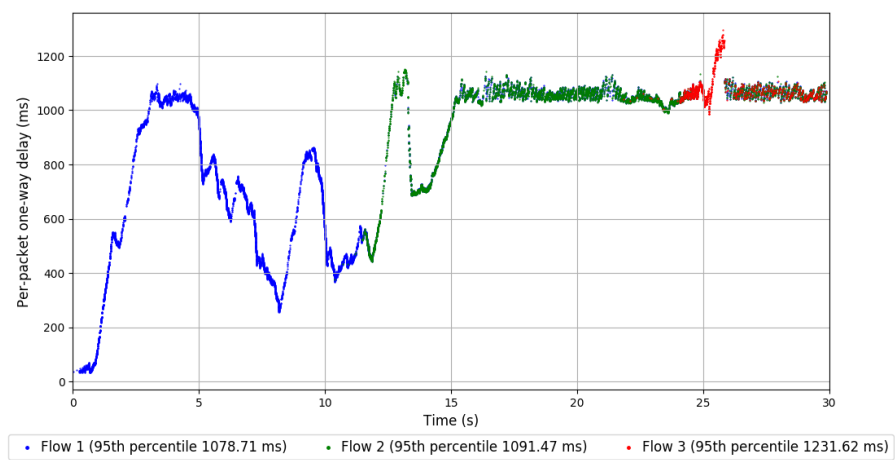
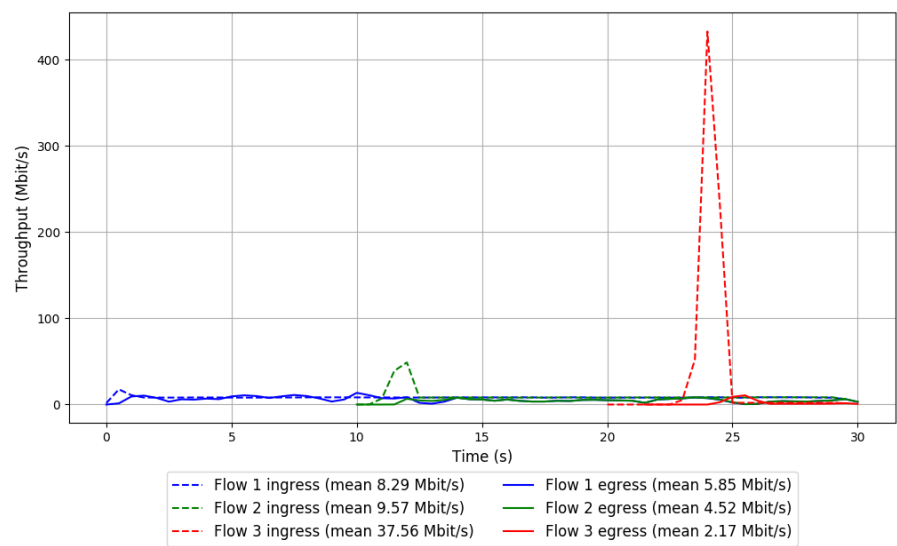
-- Flow 3:

Average throughput: 2.17 Mbit/s

95th percentile per-packet one-way delay: 1231.621 ms

Loss rate: 95.29%

Run 3: Report of PCC-Allegro — Data Link

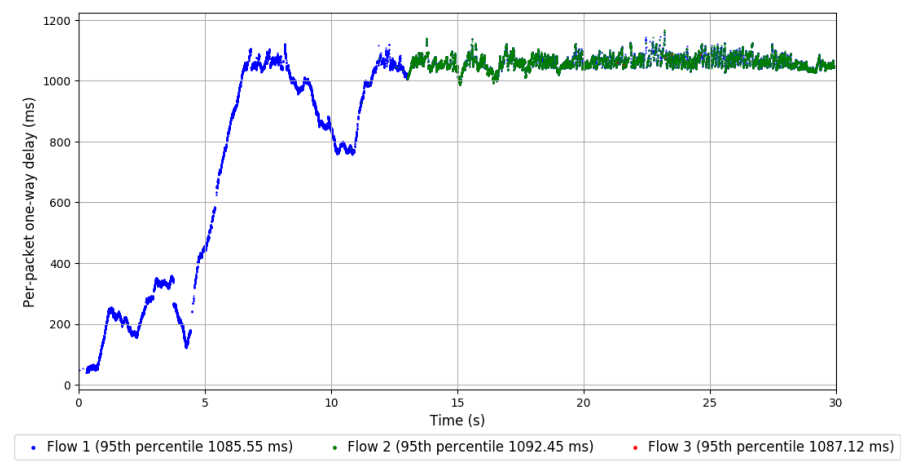
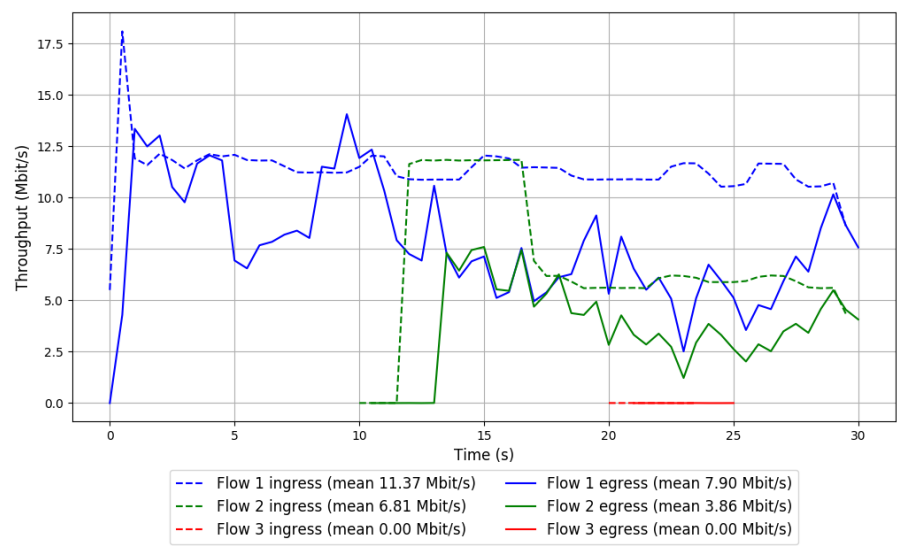


```
Run 1: Statistics of PCC-Expr

Start at: 2018-07-17 15:23:43
End at: 2018-07-17 15:24:13
Local clock offset: -4.435 ms
Remote clock offset: -14.719 ms

# Below is generated by plot.py at 2018-07-17 16:05:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.37 Mbit/s
95th percentile per-packet one-way delay: 1088.112 ms
Loss rate: 34.84%
-- Flow 1:
Average throughput: 7.90 Mbit/s
95th percentile per-packet one-way delay: 1085.552 ms
Loss rate: 30.57%
-- Flow 2:
Average throughput: 3.86 Mbit/s
95th percentile per-packet one-way delay: 1092.449 ms
Loss rate: 45.55%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1087.120 ms
Loss rate: 63.30%
```

Run 1: Report of PCC-Expr — Data Link

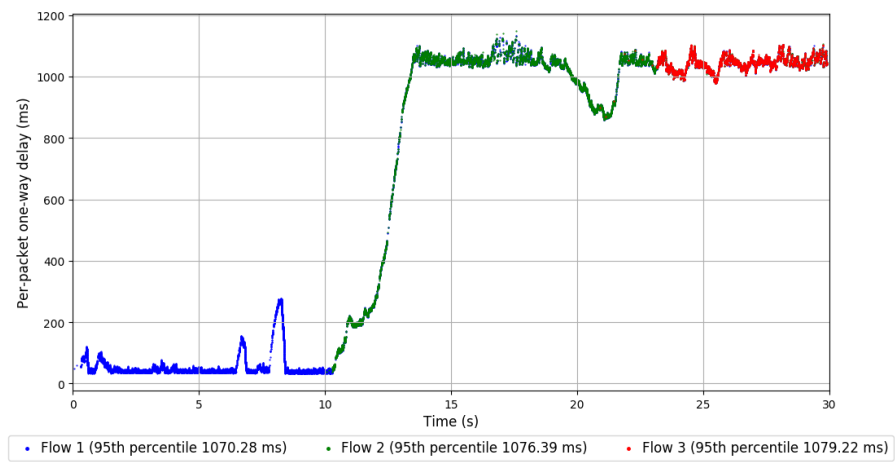
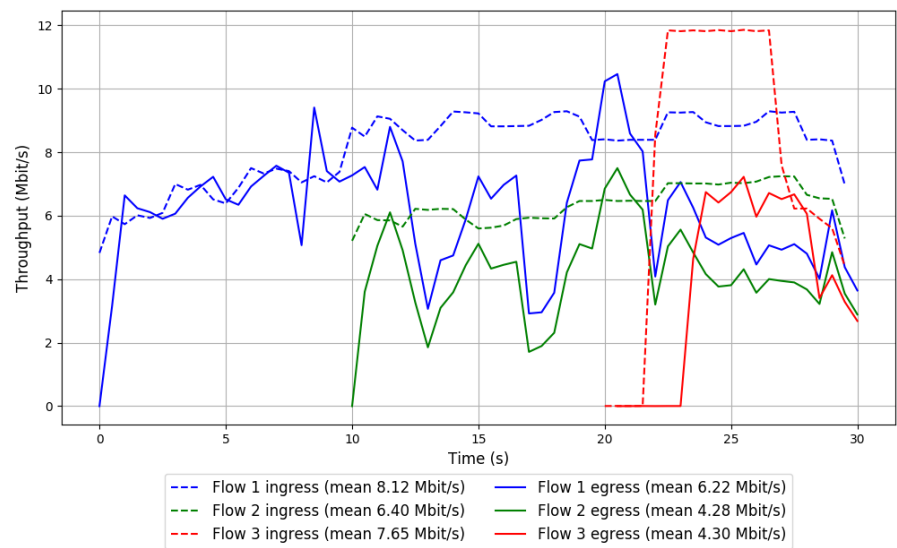


Run 2: Statistics of PCC-Expr

Start at: 2018-07-17 15:42:35  
End at: 2018-07-17 15:43:05  
Local clock offset: -6.406 ms  
Remote clock offset: -8.895 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.36 Mbit/s  
95th percentile per-packet one-way delay: 1074.021 ms  
Loss rate: 30.53%  
-- Flow 1:  
Average throughput: 6.22 Mbit/s  
95th percentile per-packet one-way delay: 1070.277 ms  
Loss rate: 23.46%  
-- Flow 2:  
Average throughput: 4.28 Mbit/s  
95th percentile per-packet one-way delay: 1076.386 ms  
Loss rate: 33.14%  
-- Flow 3:  
Average throughput: 4.30 Mbit/s  
95th percentile per-packet one-way delay: 1079.219 ms  
Loss rate: 48.86%

Run 2: Report of PCC-Expr — Data Link

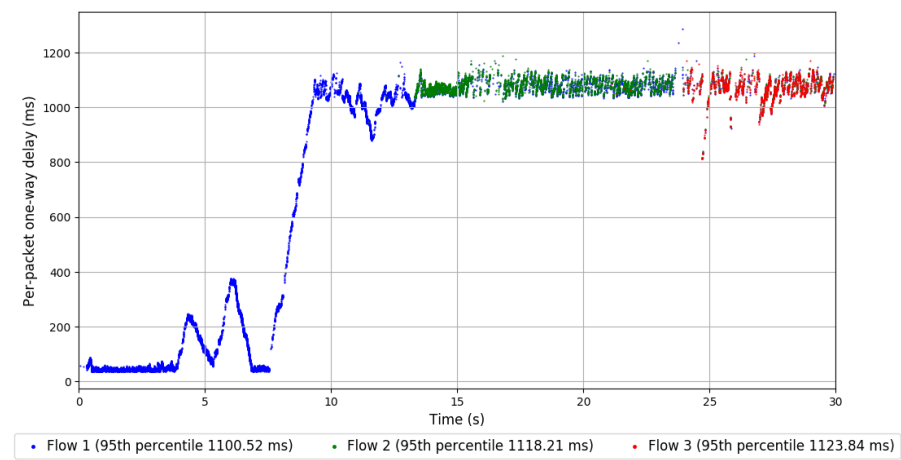
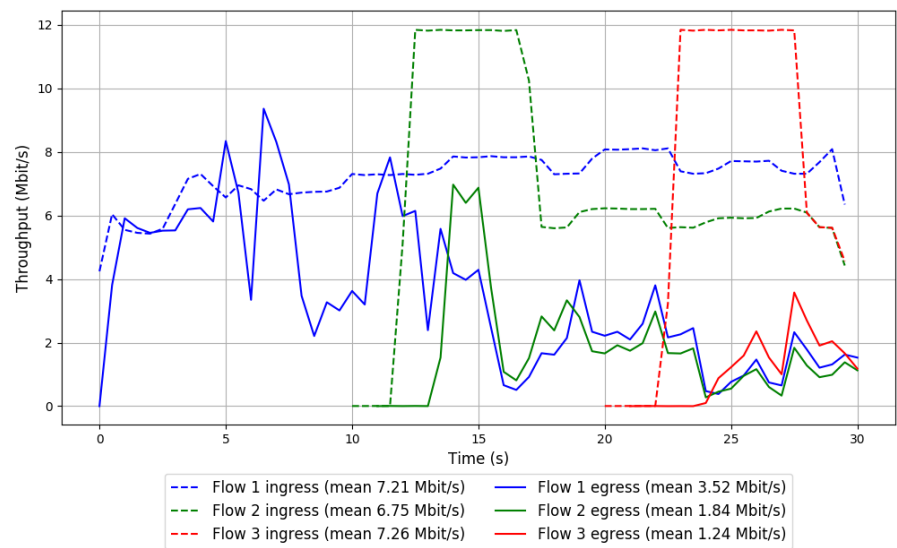


Run 3: Statistics of PCC-Expr

Start at: 2018-07-17 16:01:45  
End at: 2018-07-17 16:02:15  
Local clock offset: -3.437 ms  
Remote clock offset: -7.332 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.05 Mbit/s  
95th percentile per-packet one-way delay: 1110.150 ms  
Loss rate: 64.26%  
-- Flow 1:  
Average throughput: 3.52 Mbit/s  
95th percentile per-packet one-way delay: 1100.520 ms  
Loss rate: 51.21%  
-- Flow 2:  
Average throughput: 1.84 Mbit/s  
95th percentile per-packet one-way delay: 1118.213 ms  
Loss rate: 74.22%  
-- Flow 3:  
Average throughput: 1.24 Mbit/s  
95th percentile per-packet one-way delay: 1123.844 ms  
Loss rate: 84.84%

Run 3: Report of PCC-Expr — Data Link

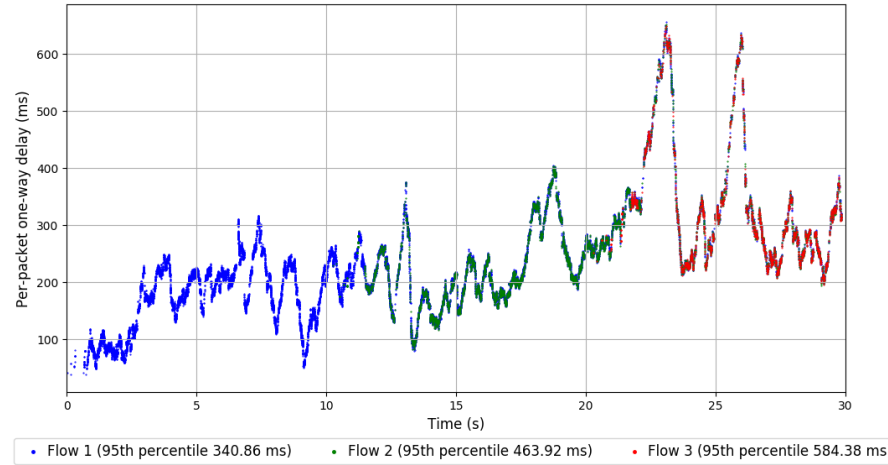
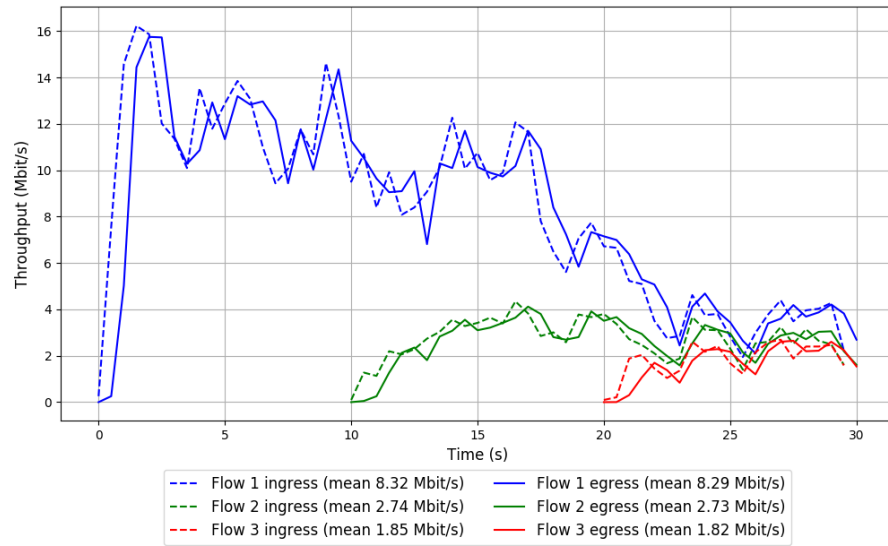


Run 1: Statistics of QUIC Cubic

Start at: 2018-07-17 15:09:16  
End at: 2018-07-17 15:09:46  
Local clock offset: -2.466 ms  
Remote clock offset: -14.977 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.67 Mbit/s  
95th percentile per-packet one-way delay: 368.520 ms  
Loss rate: 0.86%  
-- Flow 1:  
Average throughput: 8.29 Mbit/s  
95th percentile per-packet one-way delay: 340.863 ms  
Loss rate: 0.49%  
-- Flow 2:  
Average throughput: 2.73 Mbit/s  
95th percentile per-packet one-way delay: 463.924 ms  
Loss rate: 1.50%  
-- Flow 3:  
Average throughput: 1.82 Mbit/s  
95th percentile per-packet one-way delay: 584.380 ms  
Loss rate: 3.99%

# Run 1: Report of QUIC Cubic — Data Link

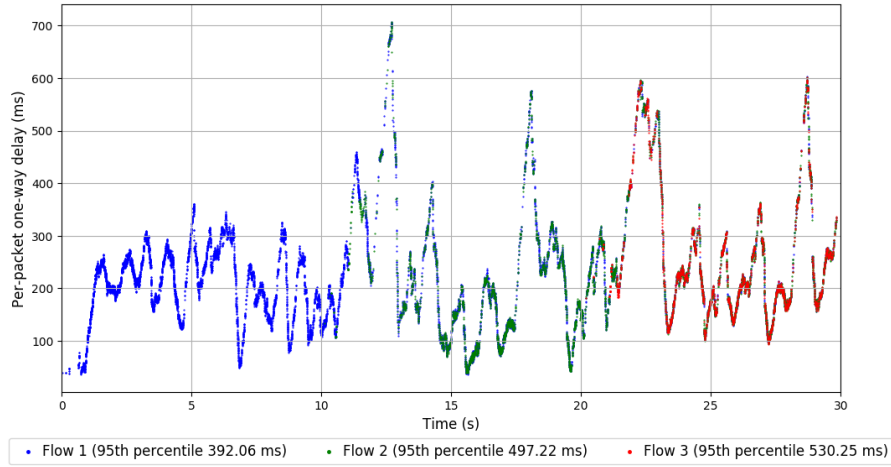
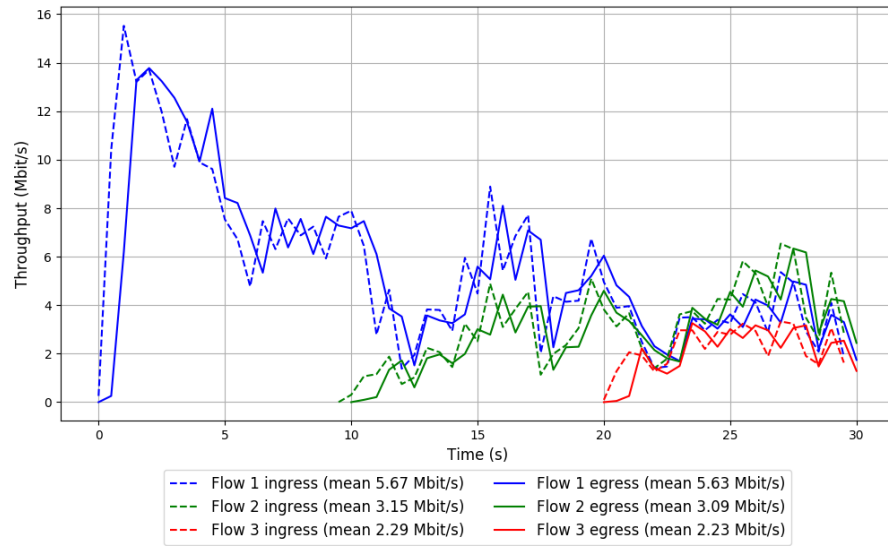


Run 2: Statistics of QUIC Cubic

Start at: 2018-07-17 15:28:13  
End at: 2018-07-17 15:28:43  
Local clock offset: -5.483 ms  
Remote clock offset: -14.151 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 8.40 Mbit/s  
95th percentile per-packet one-way delay: 442.155 ms  
Loss rate: 1.44%  
-- Flow 1:  
Average throughput: 5.63 Mbit/s  
95th percentile per-packet one-way delay: 392.055 ms  
Loss rate: 0.75%  
-- Flow 2:  
Average throughput: 3.09 Mbit/s  
95th percentile per-packet one-way delay: 497.219 ms  
Loss rate: 2.44%  
-- Flow 3:  
Average throughput: 2.23 Mbit/s  
95th percentile per-packet one-way delay: 530.253 ms  
Loss rate: 3.89%

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

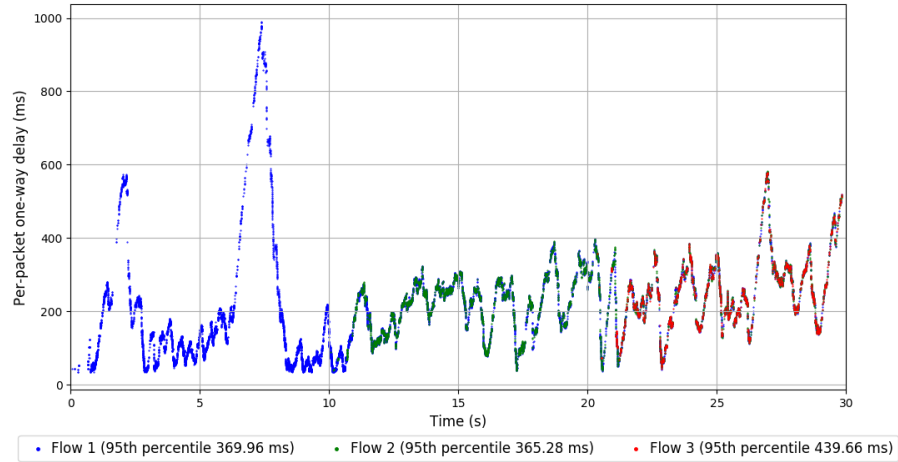
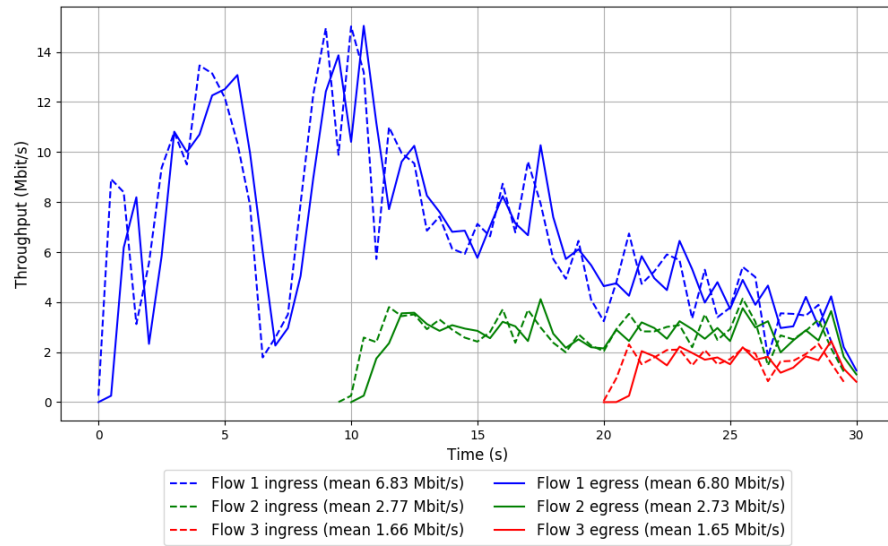


Run 3: Statistics of QUIC Cubic

Start at: 2018-07-17 15:47:02  
End at: 2018-07-17 15:47:32  
Local clock offset: -7.844 ms  
Remote clock offset: -9.339 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 9.13 Mbit/s  
95th percentile per-packet one-way delay: 372.666 ms  
Loss rate: 1.03%  
-- Flow 1:  
Average throughput: 6.80 Mbit/s  
95th percentile per-packet one-way delay: 369.958 ms  
Loss rate: 0.59%  
-- Flow 2:  
Average throughput: 2.73 Mbit/s  
95th percentile per-packet one-way delay: 365.278 ms  
Loss rate: 1.79%  
-- Flow 3:  
Average throughput: 1.65 Mbit/s  
95th percentile per-packet one-way delay: 439.660 ms  
Loss rate: 3.98%

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

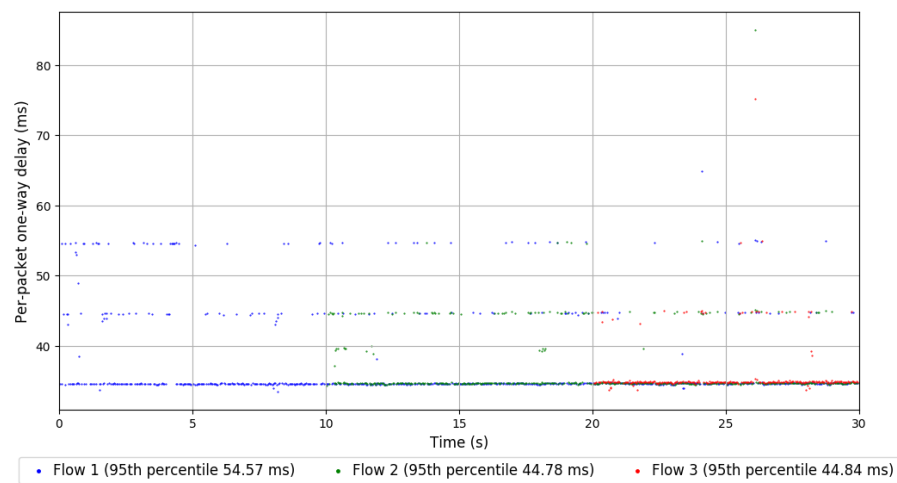
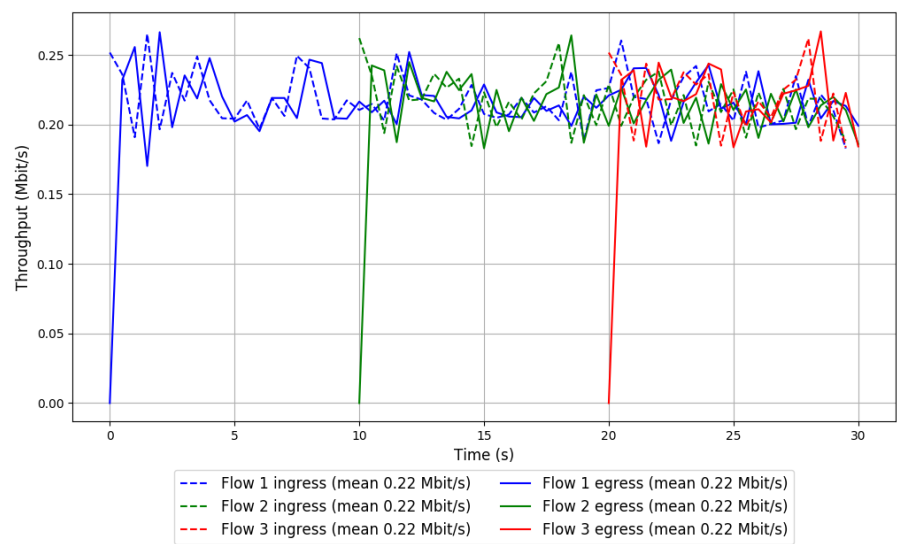


Run 1: Statistics of SReAM

Start at: 2018-07-17 15:15:57  
End at: 2018-07-17 15:16:27  
Local clock offset: -2.521 ms  
Remote clock offset: -16.17 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 44.874 ms  
Loss rate: 0.12%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 54.572 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 44.780 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 44.835 ms  
Loss rate: 0.35%

Run 1: Report of SReAM — Data Link

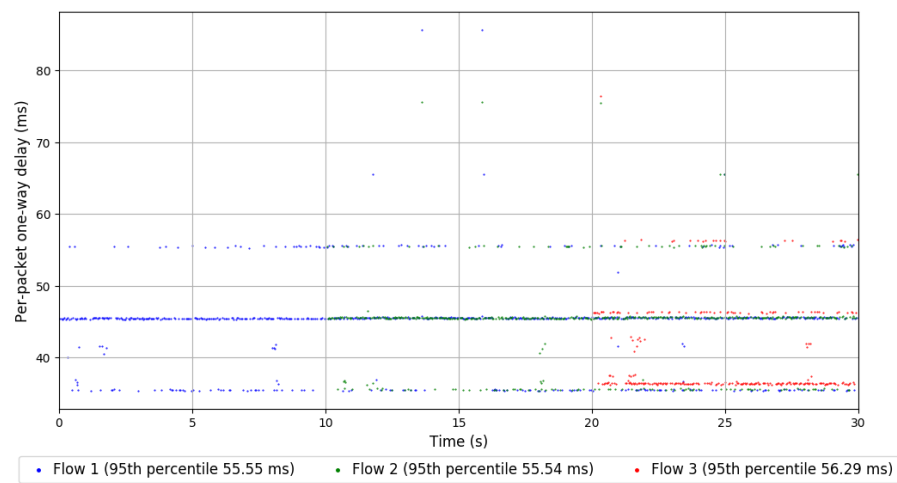
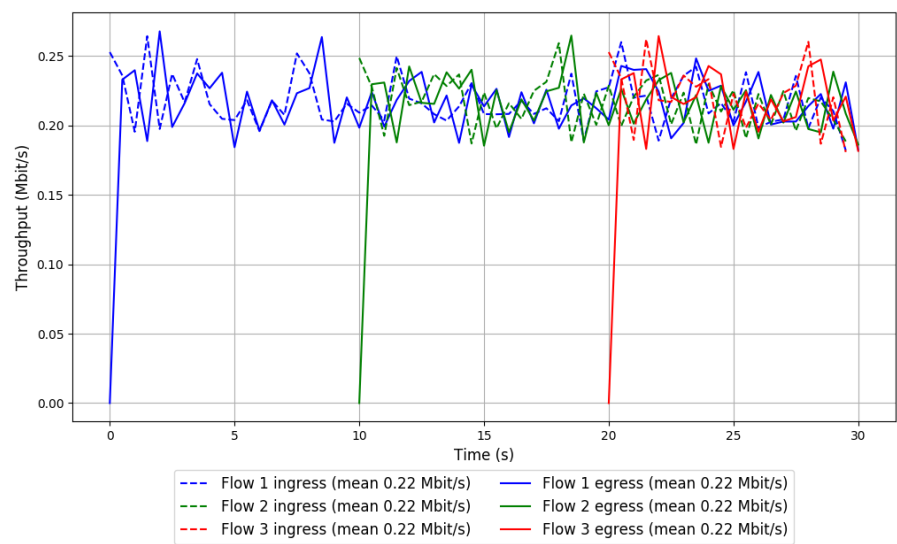


Run 2: Statistics of SReAM

Start at: 2018-07-17 15:34:50  
End at: 2018-07-17 15:35:20  
Local clock offset: -8.045 ms  
Remote clock offset: -11.767 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 55.555 ms  
Loss rate: 0.18%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 55.552 ms  
Loss rate: 0.12%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 55.536 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 56.289 ms  
Loss rate: 0.35%

Run 2: Report of SReAM — Data Link

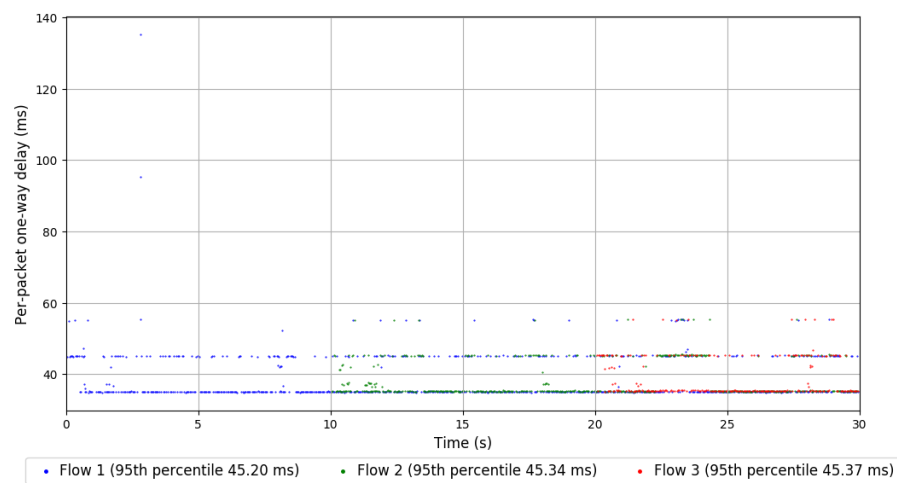
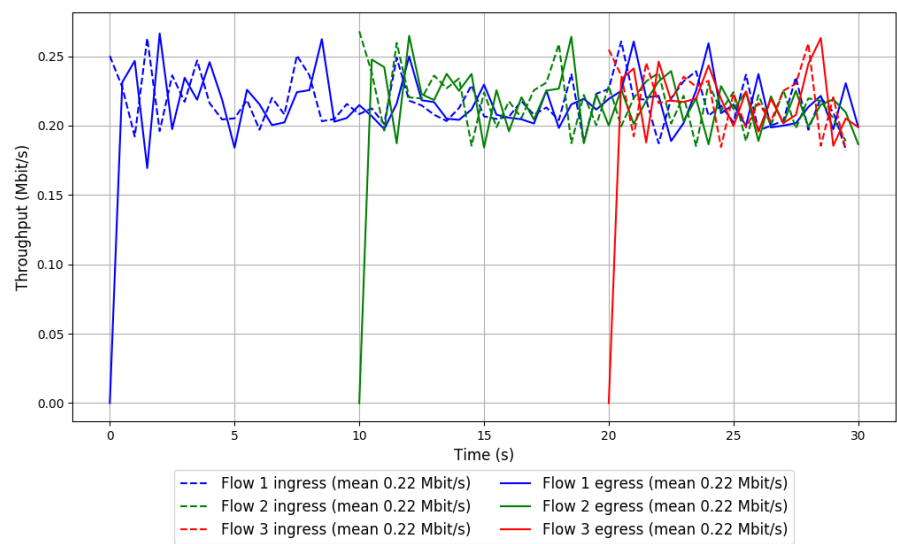


Run 3: Statistics of SCReAM

Start at: 2018-07-17 15:53:41  
End at: 2018-07-17 15:54:11  
Local clock offset: -9.032 ms  
Remote clock offset: -7.91 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 45.333 ms  
Loss rate: 0.12%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 45.200 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 45.338 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 45.374 ms  
Loss rate: 0.35%

Run 3: Report of SReAM — Data Link

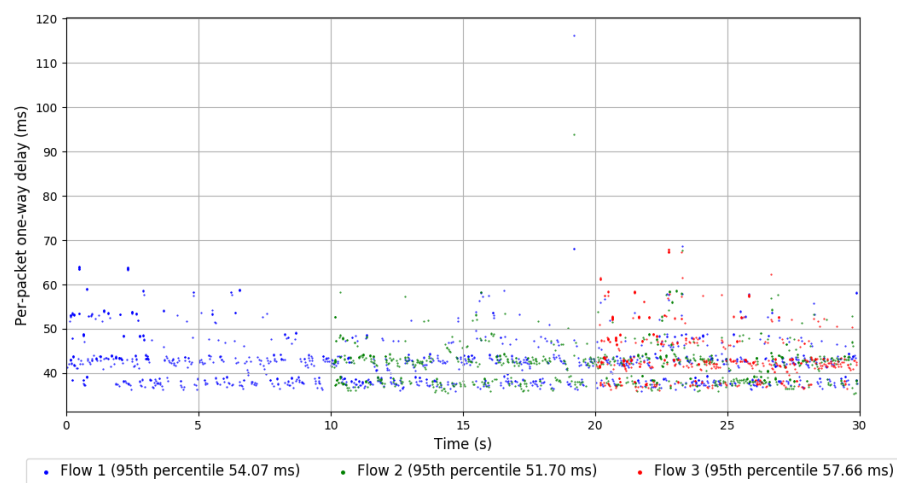
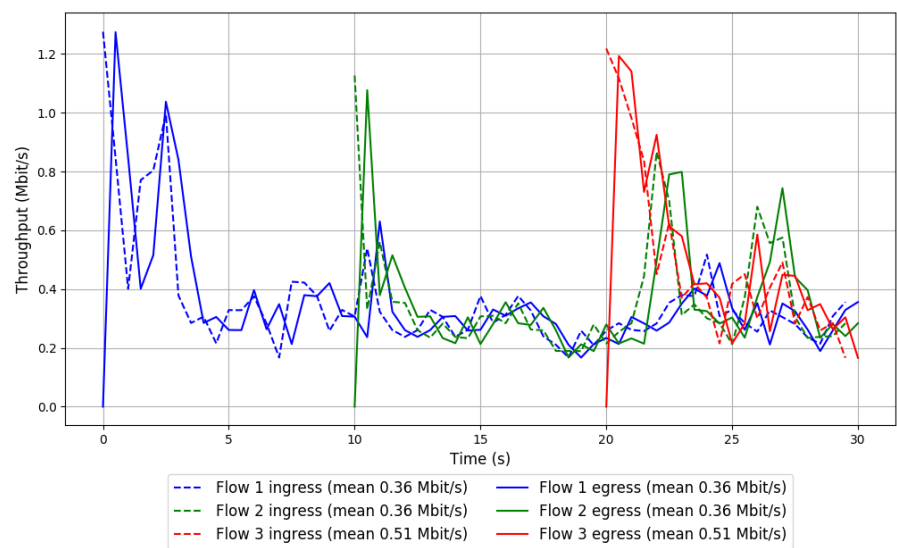


Run 1: Statistics of Sprout

Start at: 2018-07-17 15:21:31  
End at: 2018-07-17 15:22:01  
Local clock offset: -3.727 ms  
Remote clock offset: -14.707 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.77 Mbit/s  
95th percentile per-packet one-way delay: 53.938 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 0.36 Mbit/s  
95th percentile per-packet one-way delay: 54.074 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.36 Mbit/s  
95th percentile per-packet one-way delay: 51.700 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 0.51 Mbit/s  
95th percentile per-packet one-way delay: 57.655 ms  
Loss rate: 0.02%

Run 1: Report of Sprout — Data Link

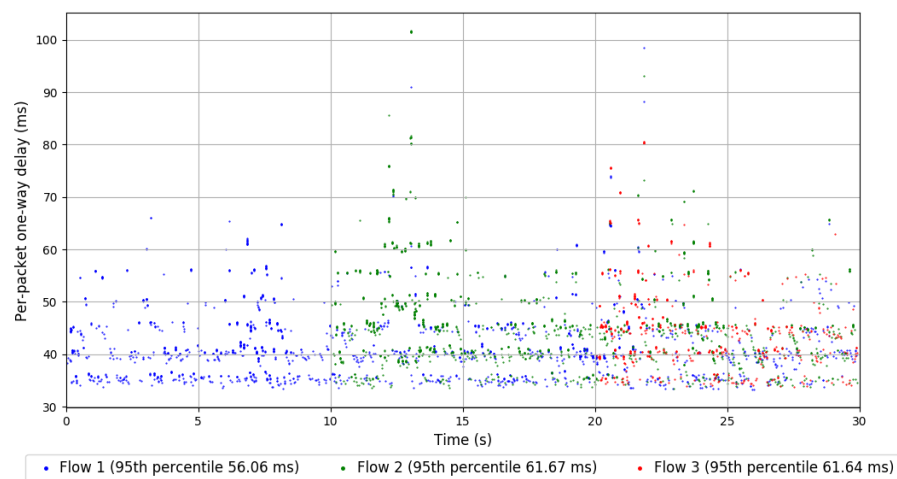
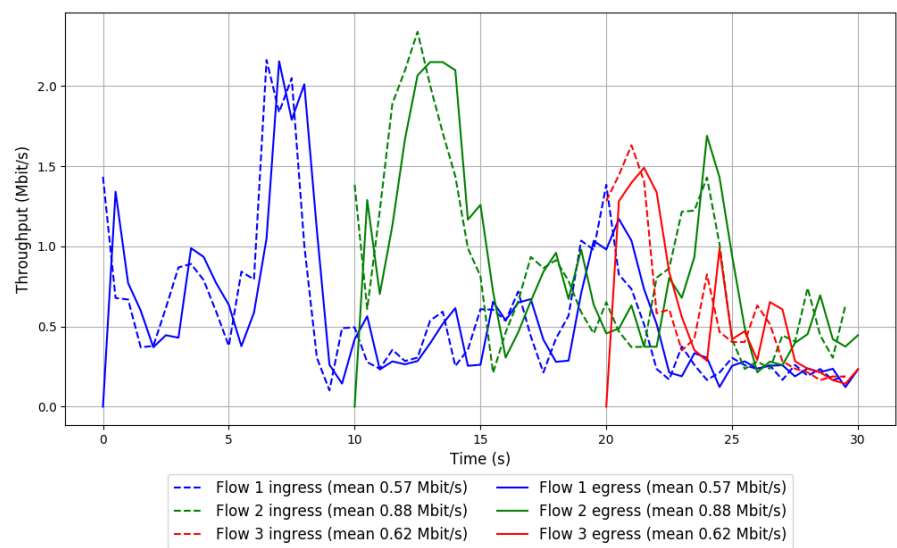


Run 2: Statistics of Sprout

Start at: 2018-07-17 15:40:23  
End at: 2018-07-17 15:40:53  
Local clock offset: -6.32 ms  
Remote clock offset: -10.013 ms

# Below is generated by plot.py at 2018-07-17 16:05:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.36 Mbit/s  
95th percentile per-packet one-way delay: 60.905 ms  
Loss rate: 0.23%  
-- Flow 1:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 56.063 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.88 Mbit/s  
95th percentile per-packet one-way delay: 61.672 ms  
Loss rate: 0.53%  
-- Flow 3:  
Average throughput: 0.62 Mbit/s  
95th percentile per-packet one-way delay: 61.638 ms  
Loss rate: 0.01%

Run 2: Report of Sprout — Data Link

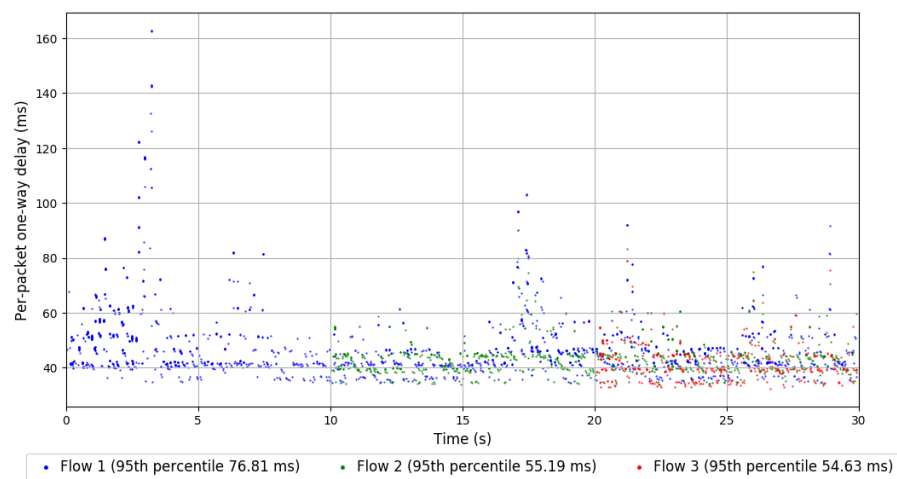
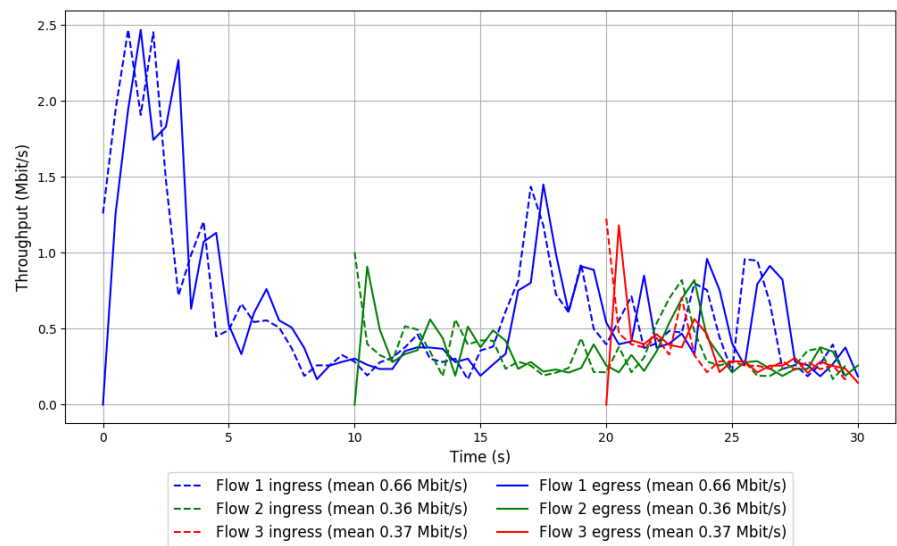


### Run 3: Statistics of Sprout

Start at: 2018-07-17 15:59:33  
End at: 2018-07-17 16:00:03  
Local clock offset: -4.089 ms  
Remote clock offset: -8.7 ms

```
# Below is generated by plot.py at 2018-07-17 16:05:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 71.245 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 76.810 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 55.186 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 54.633 ms
Loss rate: 0.59%
```

Run 3: Report of Sprout — Data Link

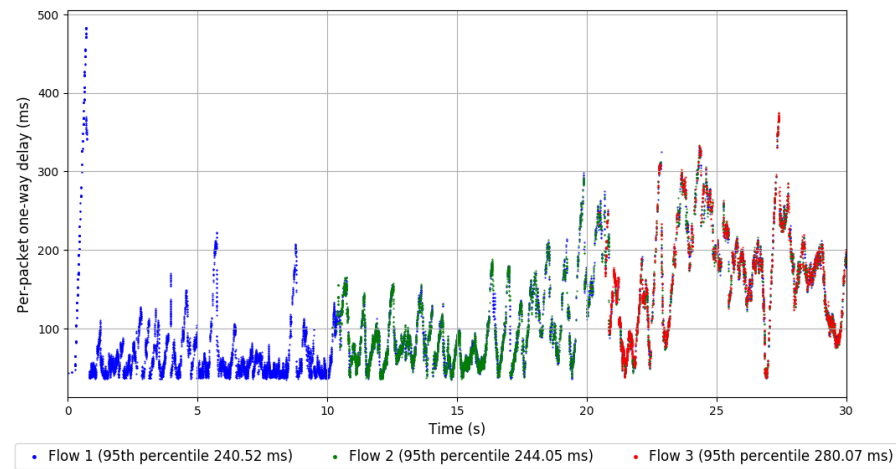
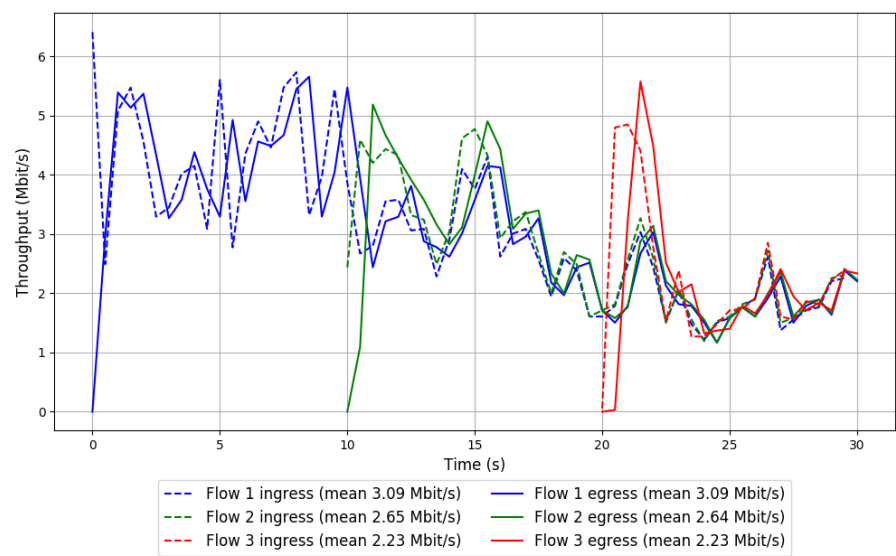


Run 1: Statistics of TaoVA-100x

Start at: 2018-07-17 15:24:51  
End at: 2018-07-17 15:25:21  
Local clock offset: -3.559 ms  
Remote clock offset: -15.282 ms

# Below is generated by plot.py at 2018-07-17 16:05:37  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.58 Mbit/s  
95th percentile per-packet one-way delay: 250.831 ms  
Loss rate: 0.50%  
-- Flow 1:  
Average throughput: 3.09 Mbit/s  
95th percentile per-packet one-way delay: 240.518 ms  
Loss rate: 0.26%  
-- Flow 2:  
Average throughput: 2.64 Mbit/s  
95th percentile per-packet one-way delay: 244.053 ms  
Loss rate: 0.52%  
-- Flow 3:  
Average throughput: 2.23 Mbit/s  
95th percentile per-packet one-way delay: 280.066 ms  
Loss rate: 1.45%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-07-17 15:43:42

End at: 2018-07-17 15:44:12

Local clock offset: -7.187 ms

Remote clock offset: -9.36 ms

# Below is generated by plot.py at 2018-07-17 16:05:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 9.67 Mbit/s

95th percentile per-packet one-way delay: 115.395 ms

Loss rate: 0.24%

-- Flow 1:

Average throughput: 5.02 Mbit/s

95th percentile per-packet one-way delay: 97.705 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 4.94 Mbit/s

95th percentile per-packet one-way delay: 121.836 ms

Loss rate: 0.26%

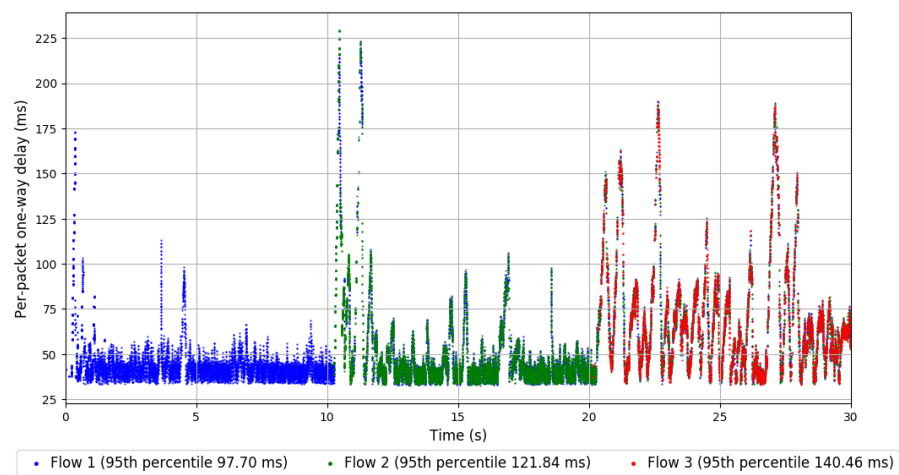
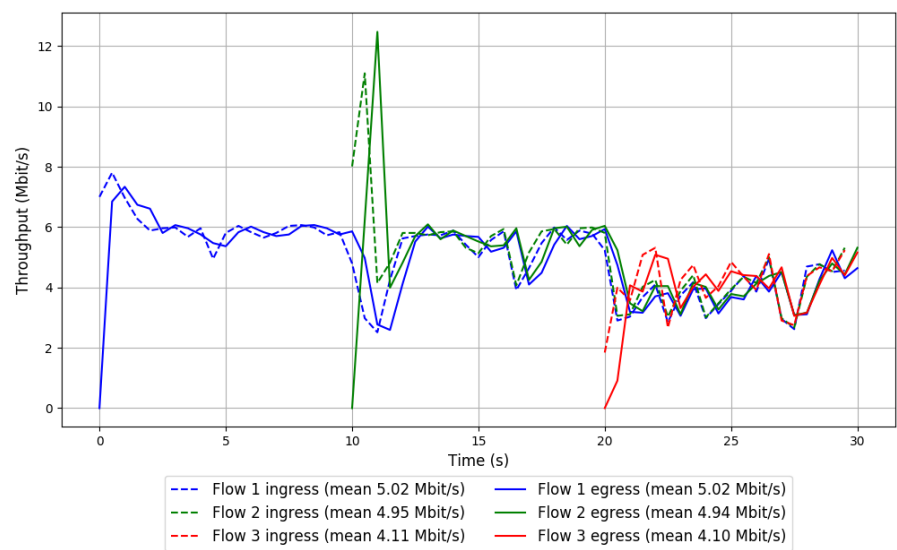
-- Flow 3:

Average throughput: 4.10 Mbit/s

95th percentile per-packet one-way delay: 140.464 ms

Loss rate: 0.63%

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

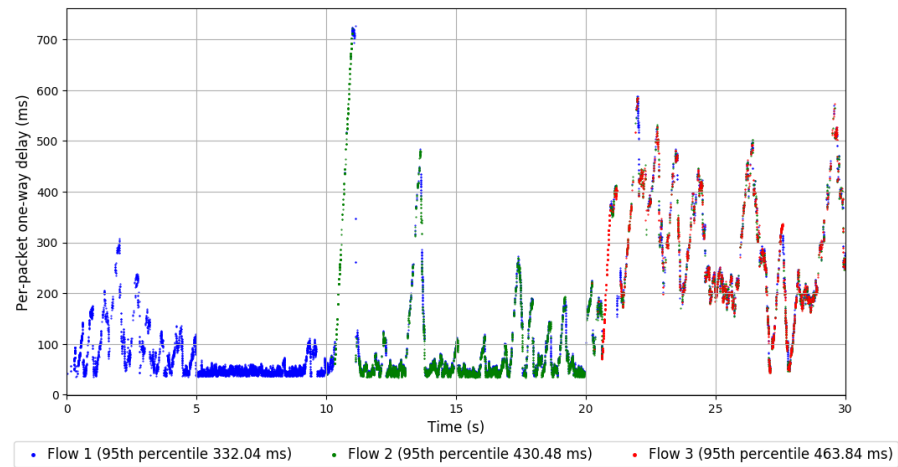
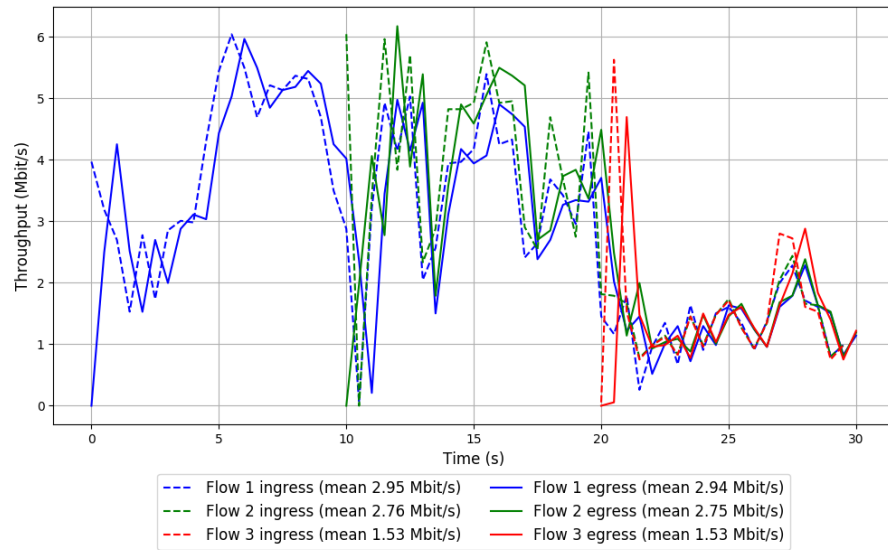


Run 3: Statistics of TaoVA-100x

Start at: 2018-07-17 16:02:52  
End at: 2018-07-17 16:03:22  
Local clock offset: -2.671 ms  
Remote clock offset: -8.887 ms

# Below is generated by plot.py at 2018-07-17 16:05:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.26 Mbit/s  
95th percentile per-packet one-way delay: 407.293 ms  
Loss rate: 0.64%  
-- Flow 1:  
Average throughput: 2.94 Mbit/s  
95th percentile per-packet one-way delay: 332.042 ms  
Loss rate: 0.41%  
-- Flow 2:  
Average throughput: 2.75 Mbit/s  
95th percentile per-packet one-way delay: 430.476 ms  
Loss rate: 0.62%  
-- Flow 3:  
Average throughput: 1.53 Mbit/s  
95th percentile per-packet one-way delay: 463.840 ms  
Loss rate: 2.08%

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

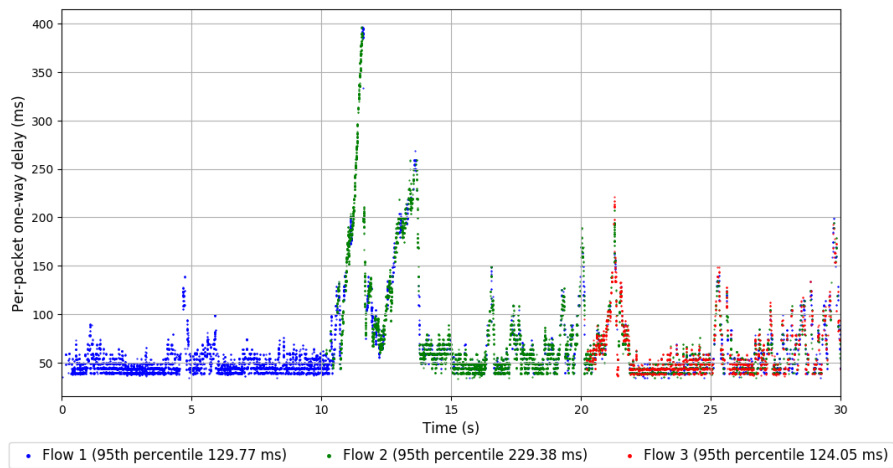
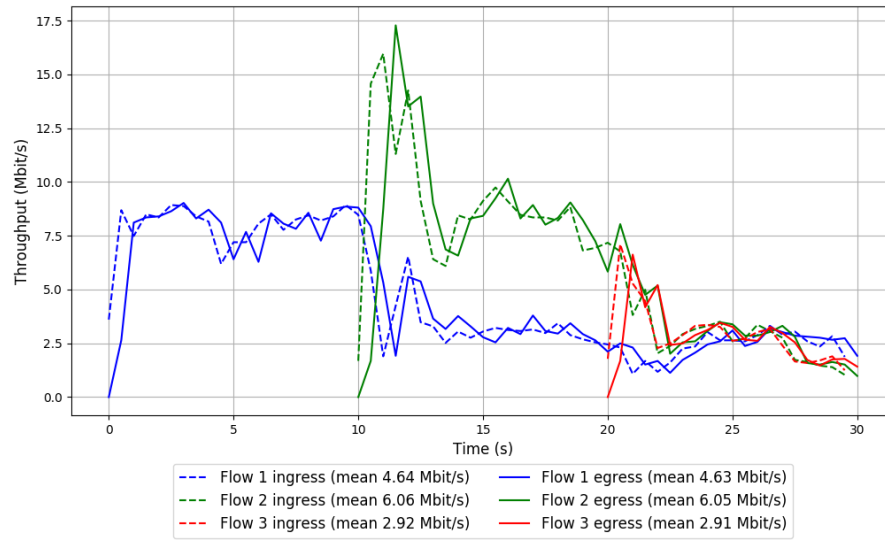


Run 1: Statistics of TCP Vegas

Start at: 2018-07-17 15:11:30  
End at: 2018-07-17 15:12:00  
Local clock offset: -2.515 ms  
Remote clock offset: -15.851 ms

# Below is generated by plot.py at 2018-07-17 16:05:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 9.62 Mbit/s  
95th percentile per-packet one-way delay: 194.449 ms  
Loss rate: 0.32%  
-- Flow 1:  
Average throughput: 4.63 Mbit/s  
95th percentile per-packet one-way delay: 129.767 ms  
Loss rate: 0.09%  
-- Flow 2:  
Average throughput: 6.05 Mbit/s  
95th percentile per-packet one-way delay: 229.383 ms  
Loss rate: 0.38%  
-- Flow 3:  
Average throughput: 2.91 Mbit/s  
95th percentile per-packet one-way delay: 124.045 ms  
Loss rate: 1.20%

# Run 1: Report of TCP Vegas — Data Link

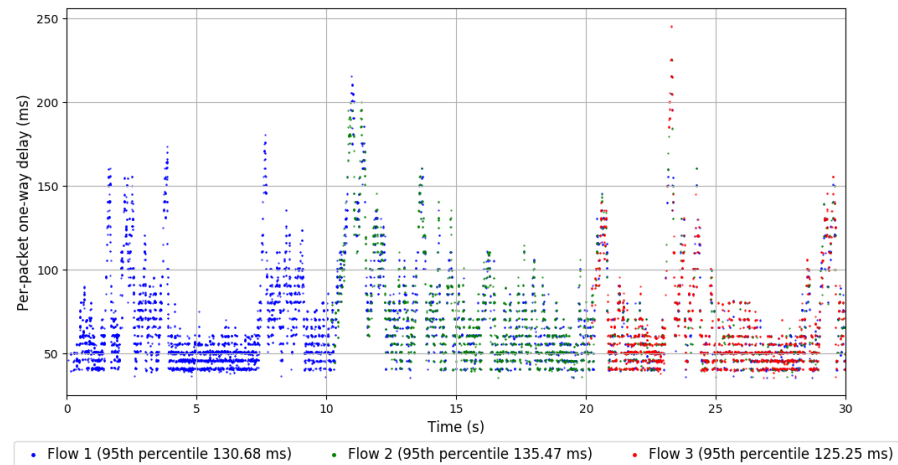
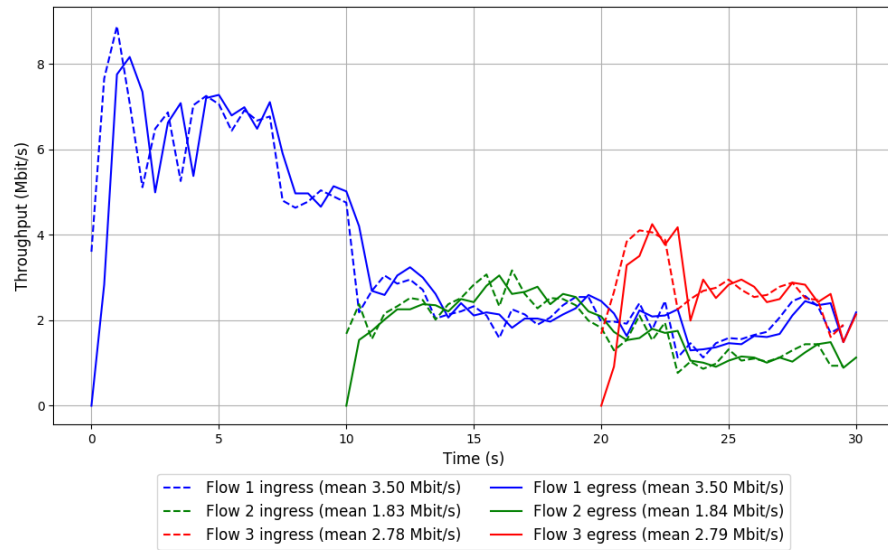


Run 2: Statistics of TCP Vegas

Start at: 2018-07-17 15:30:25  
End at: 2018-07-17 15:30:55  
Local clock offset: -6.532 ms  
Remote clock offset: -13.005 ms

# Below is generated by plot.py at 2018-07-17 16:05:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.64 Mbit/s  
95th percentile per-packet one-way delay: 130.613 ms  
Loss rate: 0.13%  
-- Flow 1:  
Average throughput: 3.50 Mbit/s  
95th percentile per-packet one-way delay: 130.682 ms  
Loss rate: 0.11%  
-- Flow 2:  
Average throughput: 1.84 Mbit/s  
95th percentile per-packet one-way delay: 135.471 ms  
Loss rate: 0.07%  
-- Flow 3:  
Average throughput: 2.79 Mbit/s  
95th percentile per-packet one-way delay: 125.245 ms  
Loss rate: 0.30%

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

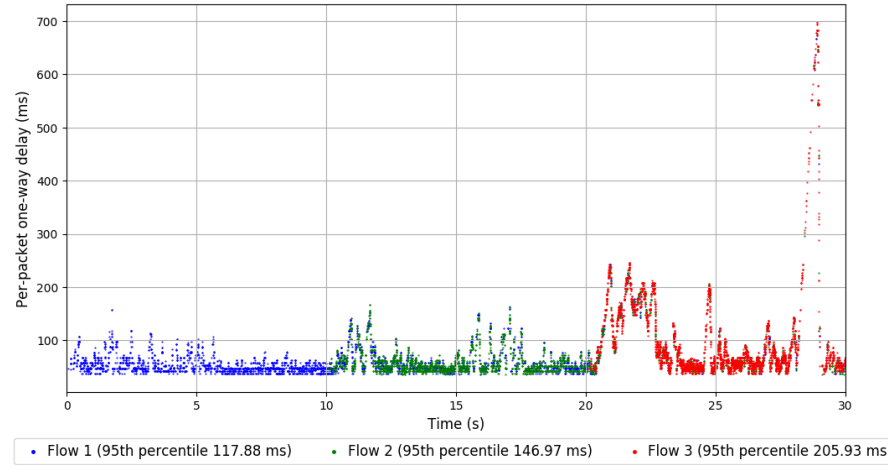
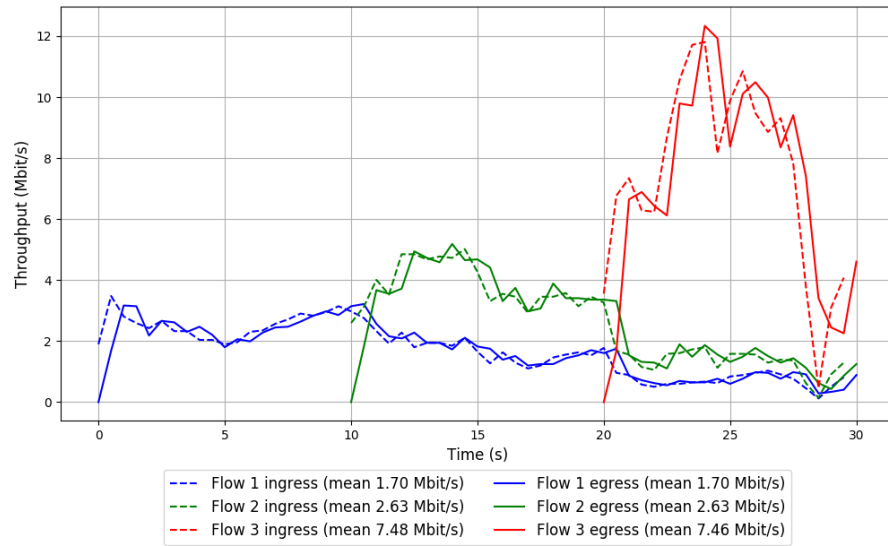


Run 3: Statistics of TCP Vegas

Start at: 2018-07-17 15:49:16  
End at: 2018-07-17 15:49:46  
Local clock offset: -13.144 ms  
Remote clock offset: -11.476 ms

# Below is generated by plot.py at 2018-07-17 16:05:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.93 Mbit/s  
95th percentile per-packet one-way delay: 186.065 ms  
Loss rate: 0.14%  
-- Flow 1:  
Average throughput: 1.70 Mbit/s  
95th percentile per-packet one-way delay: 117.882 ms  
Loss rate: 0.02%  
-- Flow 2:  
Average throughput: 2.63 Mbit/s  
95th percentile per-packet one-way delay: 146.968 ms  
Loss rate: 0.09%  
-- Flow 3:  
Average throughput: 7.46 Mbit/s  
95th percentile per-packet one-way delay: 205.928 ms  
Loss rate: 0.24%

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

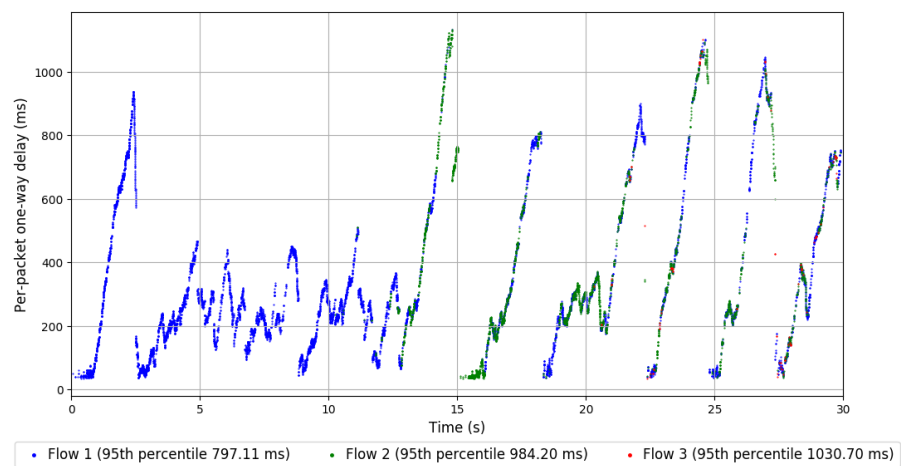
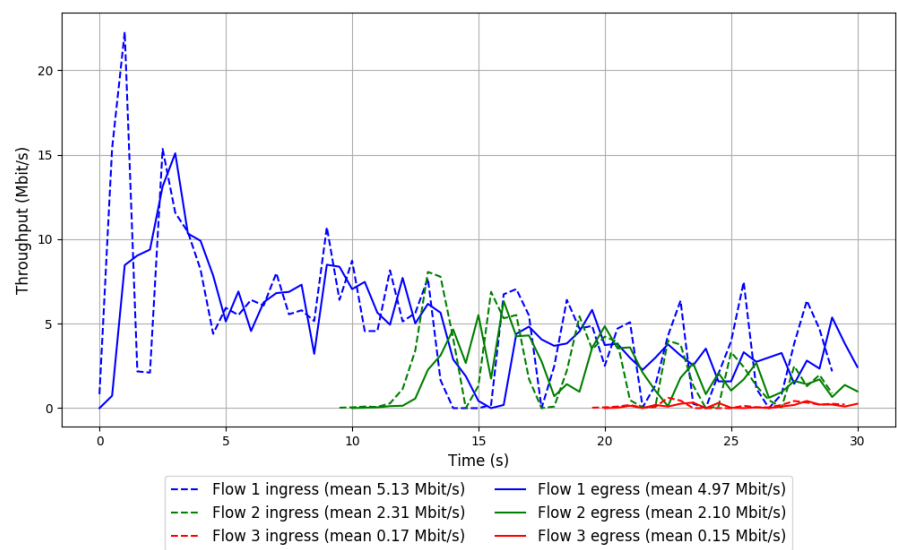


Run 1: Statistics of Verus

Start at: 2018-07-17 15:19:16  
End at: 2018-07-17 15:19:46  
Local clock offset: -2.29 ms  
Remote clock offset: -15.052 ms

# Below is generated by plot.py at 2018-07-17 16:05:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.40 Mbit/s  
95th percentile per-packet one-way delay: 836.196 ms  
Loss rate: 2.54%  
-- Flow 1:  
Average throughput: 4.97 Mbit/s  
95th percentile per-packet one-way delay: 797.113 ms  
Loss rate: 0.95%  
-- Flow 2:  
Average throughput: 2.10 Mbit/s  
95th percentile per-packet one-way delay: 984.202 ms  
Loss rate: 7.45%  
-- Flow 3:  
Average throughput: 0.15 Mbit/s  
95th percentile per-packet one-way delay: 1030.699 ms  
Loss rate: 13.99%

Run 1: Report of Verus — Data Link

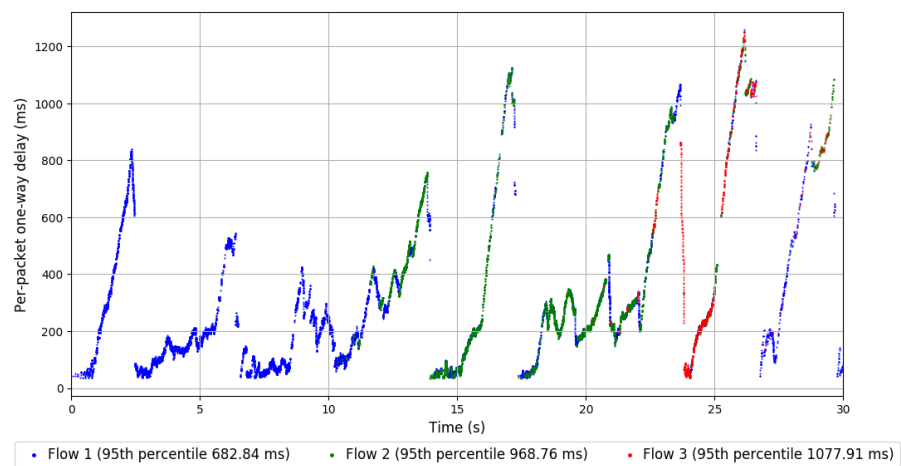
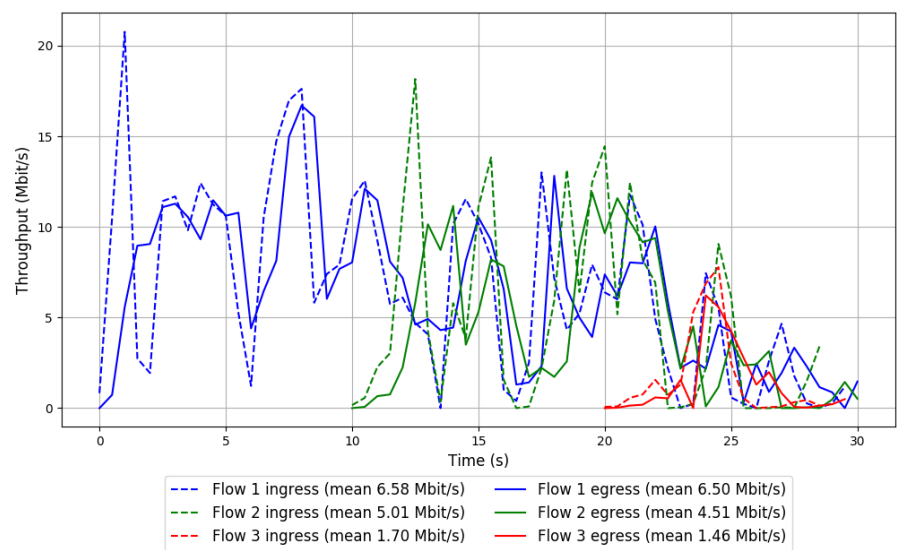


Run 2: Statistics of Verus

Start at: 2018-07-17 15:38:09  
End at: 2018-07-17 15:38:39  
Local clock offset: -7.692 ms  
Remote clock offset: -10.882 ms

# Below is generated by plot.py at 2018-07-17 16:05:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 9.88 Mbit/s  
95th percentile per-packet one-way delay: 844.648 ms  
Loss rate: 2.81%  
-- Flow 1:  
Average throughput: 6.50 Mbit/s  
95th percentile per-packet one-way delay: 682.841 ms  
Loss rate: 1.11%  
-- Flow 2:  
Average throughput: 4.51 Mbit/s  
95th percentile per-packet one-way delay: 968.760 ms  
Loss rate: 5.68%  
-- Flow 3:  
Average throughput: 1.46 Mbit/s  
95th percentile per-packet one-way delay: 1077.915 ms  
Loss rate: 7.55%

Run 2: Report of Verus — Data Link

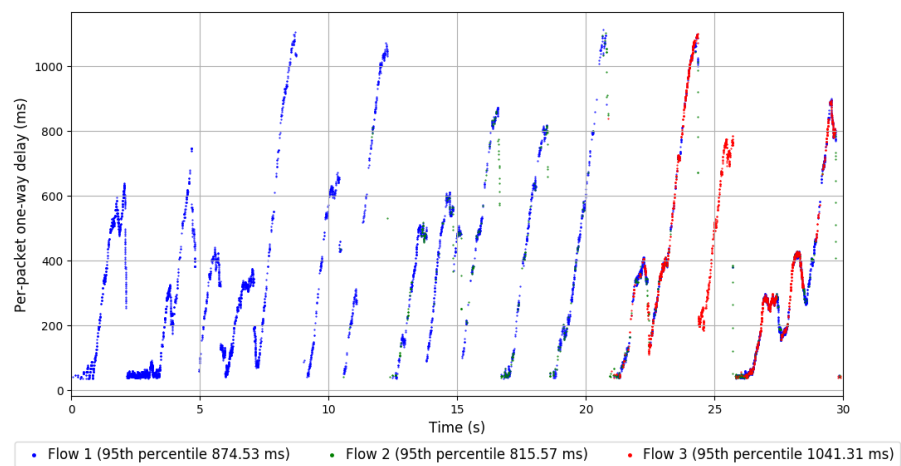
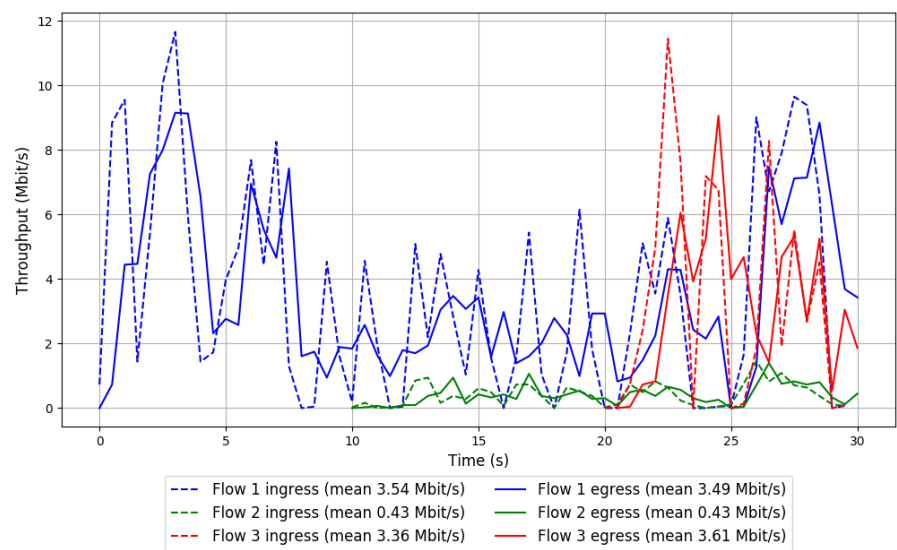


Run 3: Statistics of Verus

Start at: 2018-07-17 15:57:01  
End at: 2018-07-17 15:57:31  
Local clock offset: -6.775 ms  
Remote clock offset: -8.266 ms

# Below is generated by plot.py at 2018-07-17 16:05:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.85 Mbit/s  
95th percentile per-packet one-way delay: 951.226 ms  
Loss rate: 1.65%  
-- Flow 1:  
Average throughput: 3.49 Mbit/s  
95th percentile per-packet one-way delay: 874.533 ms  
Loss rate: 1.75%  
-- Flow 2:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 815.565 ms  
Loss rate: 1.12%  
-- Flow 3:  
Average throughput: 3.61 Mbit/s  
95th percentile per-packet one-way delay: 1041.308 ms  
Loss rate: 1.46%

Run 3: Report of Verus — Data Link

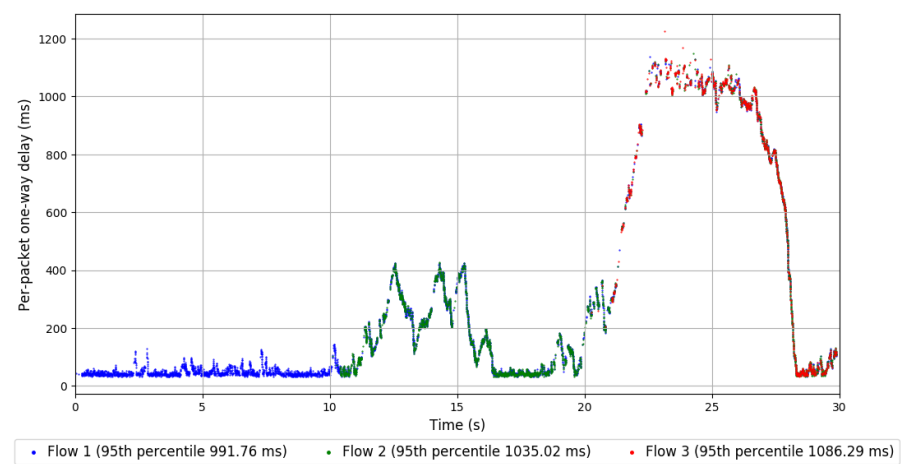
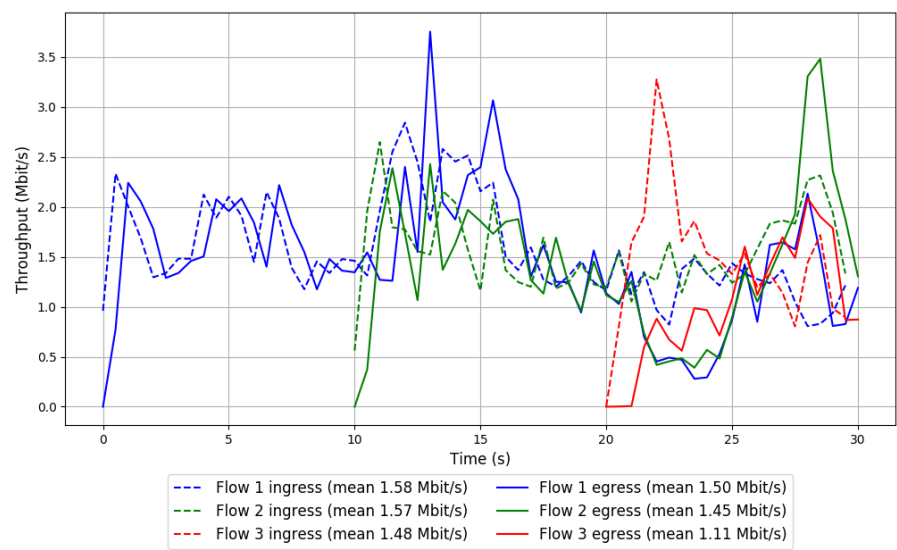


Run 1: Statistics of PCC-Vivace

Start at: 2018-07-17 15:12:37  
End at: 2018-07-17 15:13:07  
Local clock offset: -0.58 ms  
Remote clock offset: -15.342 ms

# Below is generated by plot.py at 2018-07-17 16:05:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.82 Mbit/s  
95th percentile per-packet one-way delay: 1042.707 ms  
Loss rate: 9.36%  
-- Flow 1:  
Average throughput: 1.50 Mbit/s  
95th percentile per-packet one-way delay: 991.764 ms  
Loss rate: 4.61%  
-- Flow 2:  
Average throughput: 1.45 Mbit/s  
95th percentile per-packet one-way delay: 1035.022 ms  
Loss rate: 8.27%  
-- Flow 3:  
Average throughput: 1.11 Mbit/s  
95th percentile per-packet one-way delay: 1086.291 ms  
Loss rate: 27.04%

Run 1: Report of PCC-Vivace — Data Link

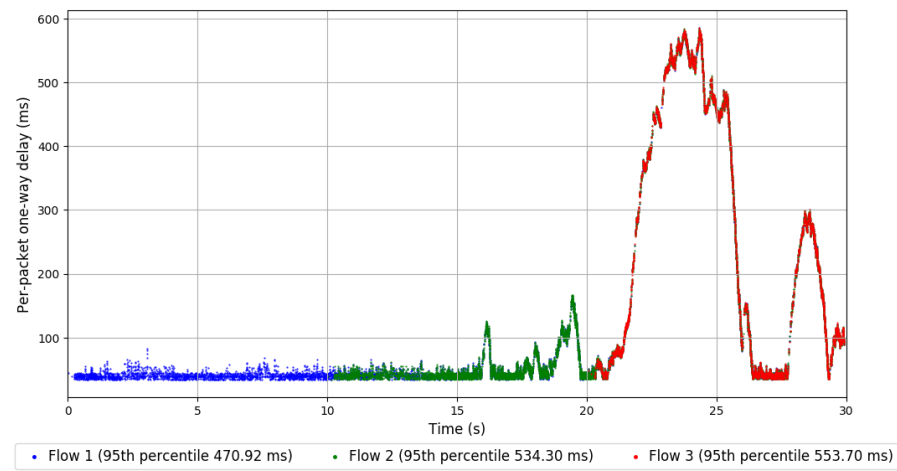
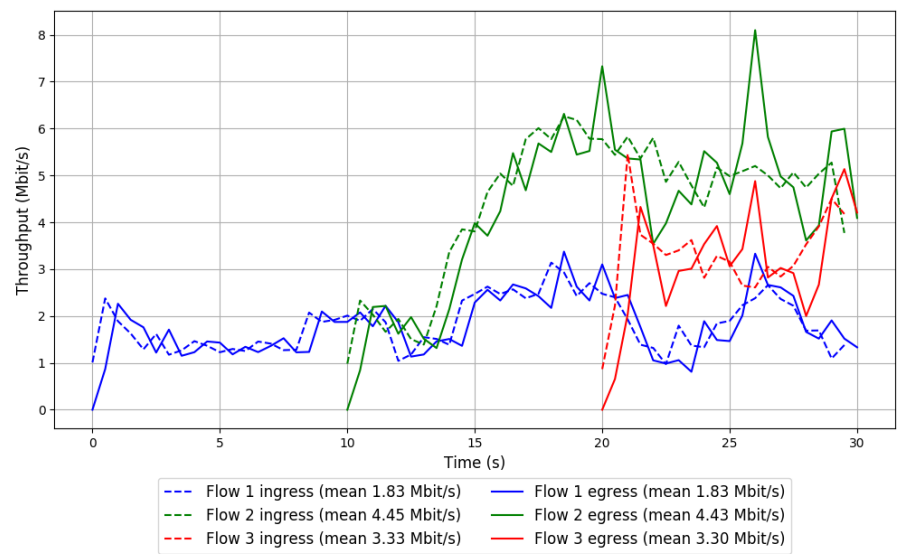


Run 2: Statistics of PCC-Vivace

Start at: 2018-07-17 15:31:31  
End at: 2018-07-17 15:32:01  
Local clock offset: -6.658 ms  
Remote clock offset: -13.371 ms

# Below is generated by plot.py at 2018-07-17 16:05:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.86 Mbit/s  
95th percentile per-packet one-way delay: 534.919 ms  
Loss rate: 0.59%  
-- Flow 1:  
Average throughput: 1.83 Mbit/s  
95th percentile per-packet one-way delay: 470.917 ms  
Loss rate: 0.30%  
-- Flow 2:  
Average throughput: 4.43 Mbit/s  
95th percentile per-packet one-way delay: 534.298 ms  
Loss rate: 0.47%  
-- Flow 3:  
Average throughput: 3.30 Mbit/s  
95th percentile per-packet one-way delay: 553.701 ms  
Loss rate: 1.40%

Run 2: Report of PCC-Vivace — Data Link

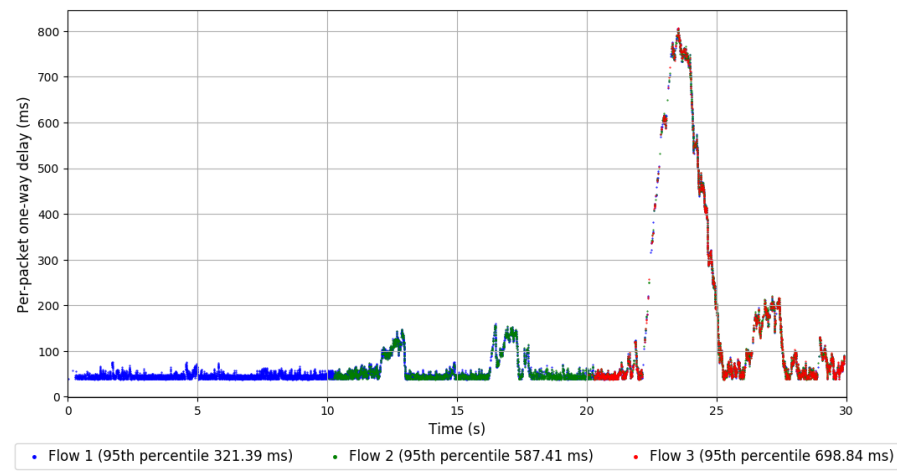
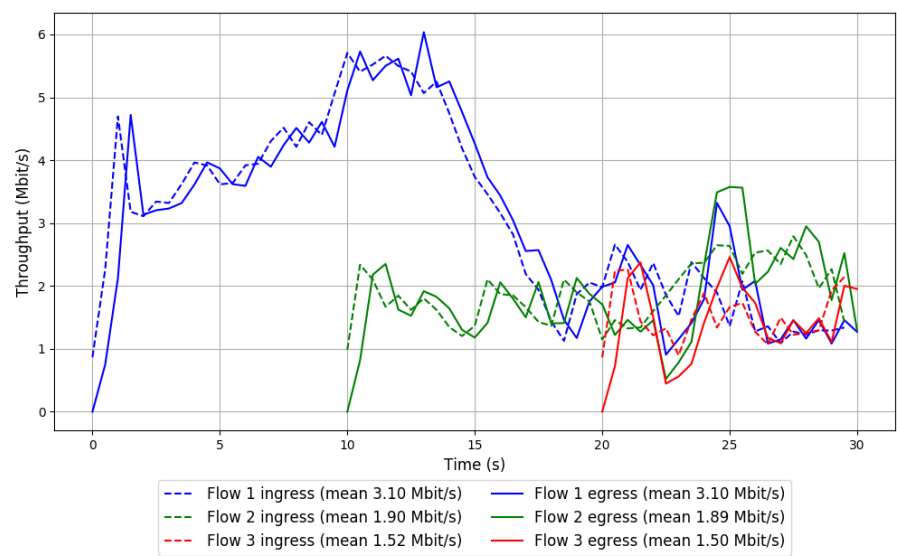


Run 3: Statistics of PCC-Vivace

Start at: 2018-07-17 15:50:22  
End at: 2018-07-17 15:50:52  
Local clock offset: -13.173 ms  
Remote clock offset: -9.658 ms

# Below is generated by plot.py at 2018-07-17 16:05:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.85 Mbit/s  
95th percentile per-packet one-way delay: 482.044 ms  
Loss rate: 0.33%  
-- Flow 1:  
Average throughput: 3.10 Mbit/s  
95th percentile per-packet one-way delay: 321.393 ms  
Loss rate: 0.11%  
-- Flow 2:  
Average throughput: 1.89 Mbit/s  
95th percentile per-packet one-way delay: 587.406 ms  
Loss rate: 0.40%  
-- Flow 3:  
Average throughput: 1.50 Mbit/s  
95th percentile per-packet one-way delay: 698.842 ms  
Loss rate: 1.47%

Run 3: Report of PCC-Vivace — Data Link

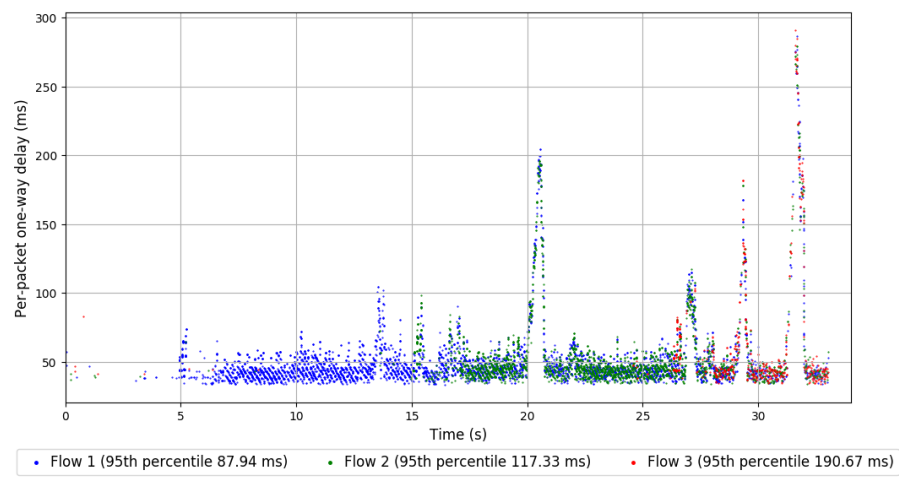
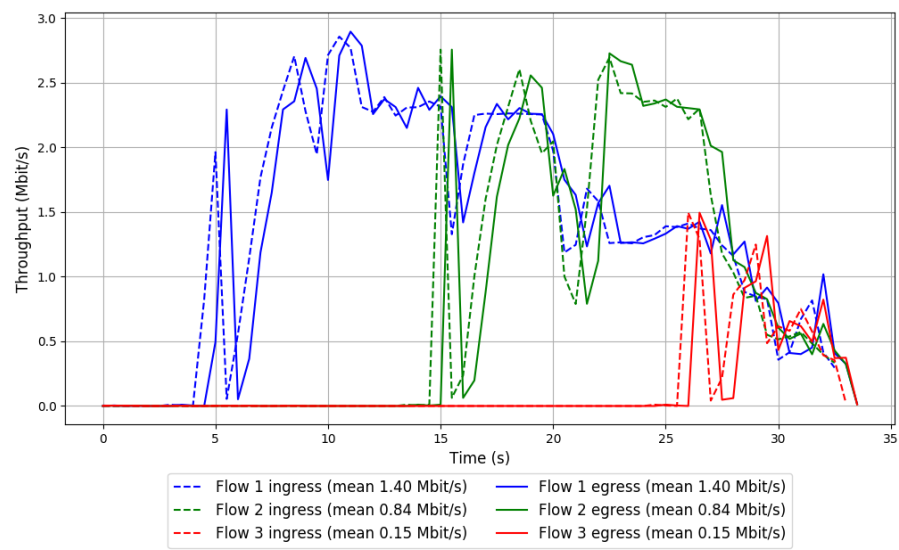


Run 1: Statistics of WebRTC media

Start at: 2018-07-17 15:13:42  
End at: 2018-07-17 15:14:12  
Local clock offset: -1.576 ms  
Remote clock offset: -15.151 ms

# Below is generated by plot.py at 2018-07-17 16:05:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.39 Mbit/s  
95th percentile per-packet one-way delay: 105.564 ms  
Loss rate: 0.04%  
-- Flow 1:  
Average throughput: 1.40 Mbit/s  
95th percentile per-packet one-way delay: 87.938 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 0.84 Mbit/s  
95th percentile per-packet one-way delay: 117.327 ms  
Loss rate: 0.02%  
-- Flow 3:  
Average throughput: 0.15 Mbit/s  
95th percentile per-packet one-way delay: 190.673 ms  
Loss rate: 0.41%

Run 1: Report of WebRTC media — Data Link

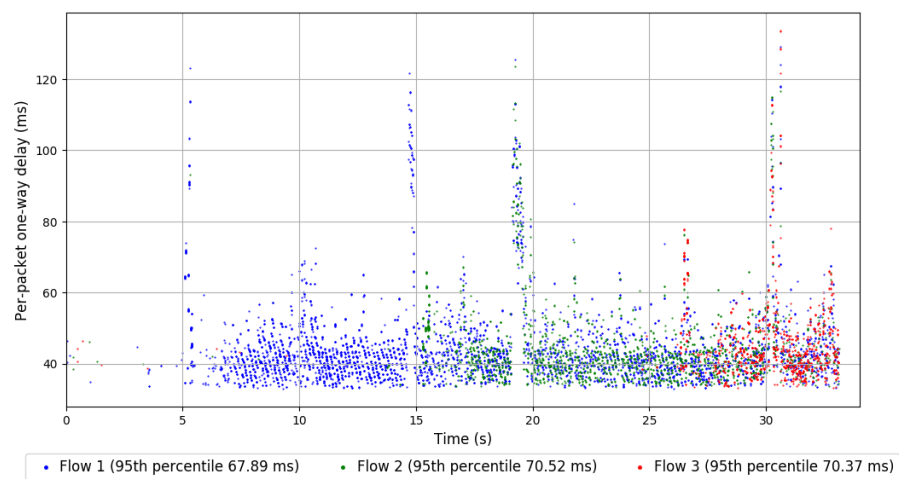
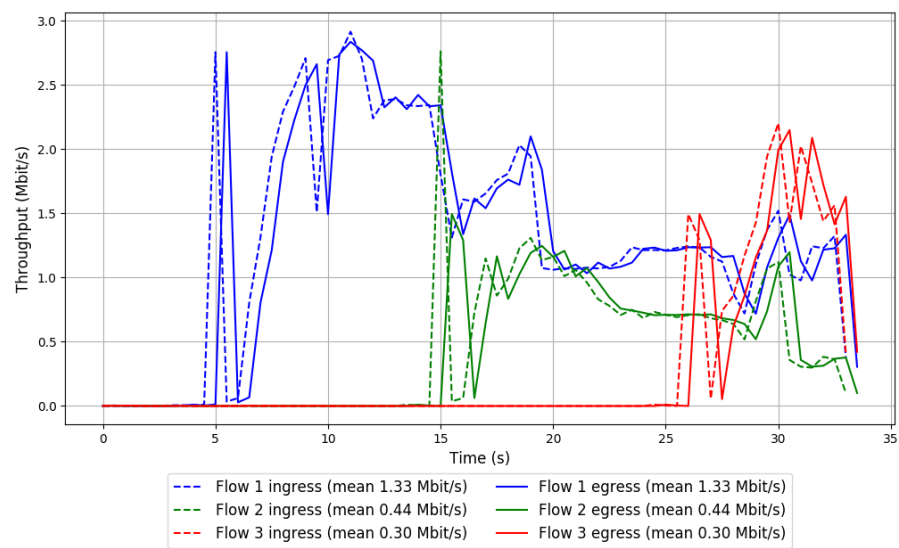


Run 2: Statistics of WebRTC media

Start at: 2018-07-17 15:32:37  
End at: 2018-07-17 15:33:07  
Local clock offset: -5.956 ms  
Remote clock offset: -13.067 ms

# Below is generated by plot.py at 2018-07-17 16:05:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.06 Mbit/s  
95th percentile per-packet one-way delay: 69.421 ms  
Loss rate: 0.18%  
-- Flow 1:  
Average throughput: 1.33 Mbit/s  
95th percentile per-packet one-way delay: 67.894 ms  
Loss rate: 0.17%  
-- Flow 2:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 70.516 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 0.30 Mbit/s  
95th percentile per-packet one-way delay: 70.371 ms  
Loss rate: 0.41%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-07-17 15:51:29  
End at: 2018-07-17 15:51:59  
Local clock offset: -10.09 ms  
Remote clock offset: -8.555 ms

# Below is generated by plot.py at 2018-07-17 16:05:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.29 Mbit/s  
95th percentile per-packet one-way delay: 130.156 ms  
Loss rate: 0.39%  
-- Flow 1:  
Average throughput: 0.78 Mbit/s  
95th percentile per-packet one-way delay: 112.001 ms  
Loss rate: 0.02%  
-- Flow 2:  
Average throughput: 0.30 Mbit/s  
95th percentile per-packet one-way delay: 176.504 ms  
Loss rate: 0.14%  
-- Flow 3:  
Average throughput: 0.20 Mbit/s  
95th percentile per-packet one-way delay: 207.193 ms  
Loss rate: 2.18%

Run 3: Report of WebRTC media — Data Link

