

Pantheon Report

Generated at 2018-09-07 17:55:16 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

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

System info:

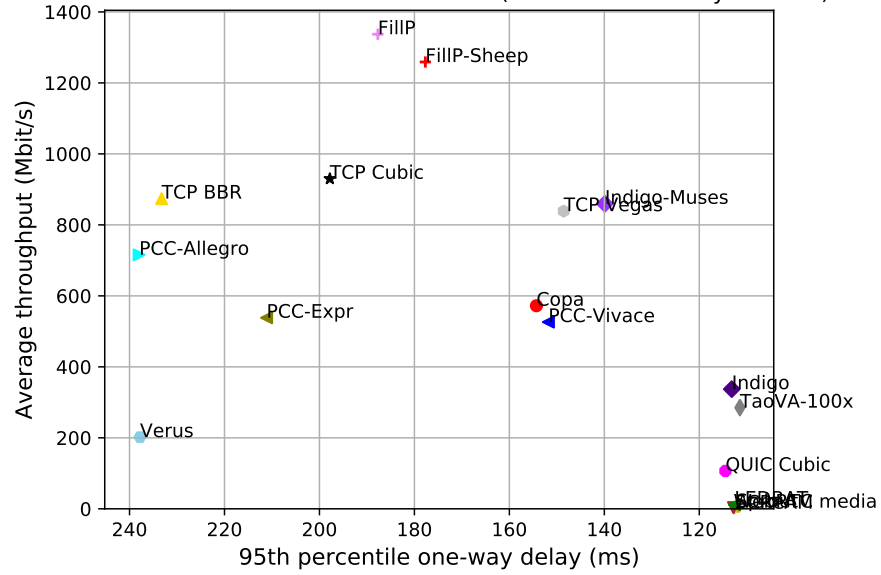
```
Linux 4.15.0-1018-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 190986 254651 381972
```

Git summary:

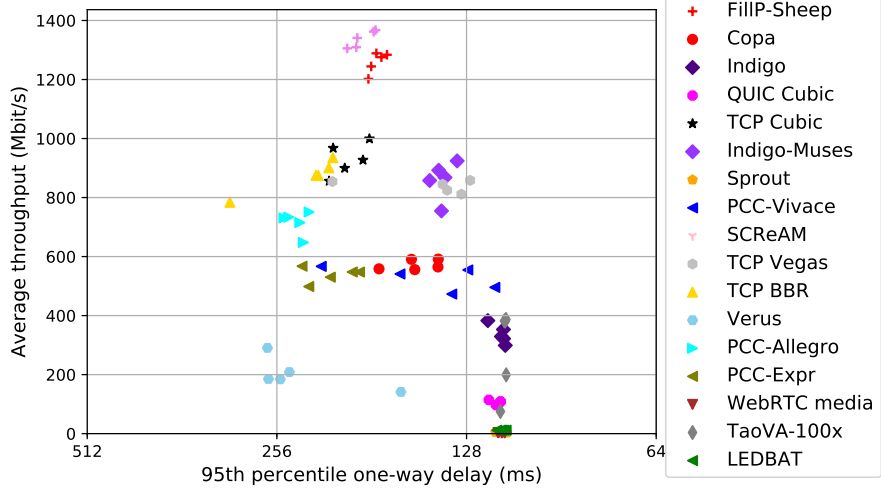
```
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
```

```
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from GCE London to GCE Tokyo, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)



test from GCE London to GCE Tokyo, 5 runs of 30s each per scheme
3 flows with 10s interval between flows



| scheme | # runs | mean avg tput (Mbit/s) | | | mean 95th-%ile delay (ms) | | | mean loss rate (%) | | |
|--------------|--------|------------------------|--------|--------|---------------------------|--------|--------|--------------------|--------|--------|
| | | flow 1 | flow 2 | flow 3 | flow 1 | flow 2 | flow 3 | flow 1 | flow 2 | flow 3 |
| TCP BBR | 5 | 478.64 | 435.65 | 324.90 | 232.85 | 230.07 | 161.76 | 2.89 | 3.89 | 4.50 |
| Copa | 5 | 310.46 | 286.54 | 219.07 | 149.15 | 148.20 | 173.75 | 0.77 | 1.26 | 3.13 |
| TCP Cubic | 5 | 515.11 | 468.86 | 316.27 | 187.03 | 202.93 | 167.78 | 0.94 | 1.62 | 4.18 |
| FillP | 5 | 728.73 | 644.30 | 554.31 | 186.95 | 187.80 | 177.63 | 5.03 | 5.07 | 4.17 |
| FillP-Sheep | 5 | 696.98 | 611.62 | 479.45 | 175.29 | 180.46 | 134.50 | 2.54 | 3.98 | 2.83 |
| Indigo | 5 | 179.98 | 160.39 | 155.15 | 111.70 | 113.79 | 112.64 | 0.75 | 1.22 | 2.57 |
| LEDBAT | 5 | 7.53 | 4.95 | 2.40 | 111.75 | 112.44 | 113.17 | 1.48 | 2.25 | 4.52 |
| Indigo-Muses | 5 | 508.19 | 421.08 | 224.63 | 139.30 | 143.29 | 130.00 | 0.80 | 1.47 | 4.39 |
| PCC-Allegro | 5 | 408.76 | 334.00 | 266.52 | 240.80 | 194.45 | 200.68 | 7.12 | 4.95 | 3.86 |
| PCC-Expr | 5 | 298.01 | 269.30 | 190.43 | 216.81 | 171.69 | 195.12 | 3.20 | 2.22 | 4.10 |
| QUIC Cubic | 5 | 56.71 | 50.07 | 50.42 | 111.88 | 114.15 | 112.63 | 1.02 | 1.91 | 2.10 |
| SCReAM | 5 | 0.17 | 0.22 | 0.22 | 112.45 | 111.29 | 110.69 | 0.73 | 1.24 | 2.21 |
| Sprout | 5 | 2.38 | 2.03 | 1.96 | 112.12 | 111.11 | 111.60 | 1.02 | 1.19 | 3.02 |
| TaoVA-100x | 5 | 125.81 | 153.90 | 174.61 | 110.92 | 111.20 | 111.28 | 0.77 | 1.38 | 2.82 |
| TCP Vegas | 5 | 493.38 | 366.61 | 311.41 | 147.57 | 127.87 | 150.56 | 0.64 | 1.20 | 3.26 |
| Verus | 5 | 93.85 | 134.96 | 58.47 | 192.69 | 214.24 | 175.37 | 3.73 | 3.63 | 5.42 |
| PCC-Vivace | 5 | 322.68 | 245.18 | 126.68 | 128.12 | 165.02 | 145.66 | 0.75 | 1.50 | 4.65 |
| WebRTC media | 5 | 1.77 | 1.10 | 0.39 | 112.23 | 112.14 | 112.32 | 0.88 | 1.43 | 4.32 |

Run 1: Statistics of TCP BBR

Start at: 2018-09-07 12:36:49

End at: 2018-09-07 12:37:19

Local clock offset: -1.156 ms

Remote clock offset: 0.023 ms

Below is generated by plot.py at 2018-09-07 15:51:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 875.34 Mbit/s

95th percentile per-packet one-way delay: 221.871 ms

Loss rate: 3.50%

-- Flow 1:

Average throughput: 488.82 Mbit/s

95th percentile per-packet one-way delay: 198.199 ms

Loss rate: 1.62%

-- Flow 2:

Average throughput: 413.91 Mbit/s

95th percentile per-packet one-way delay: 249.891 ms

Loss rate: 5.49%

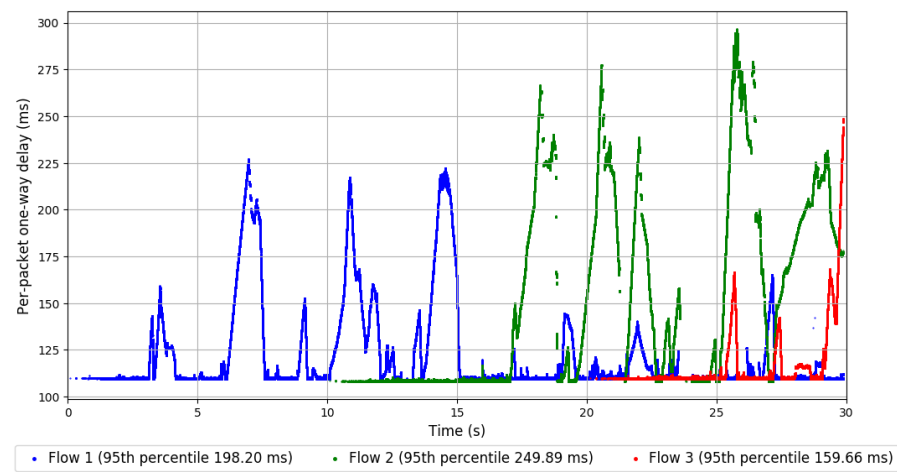
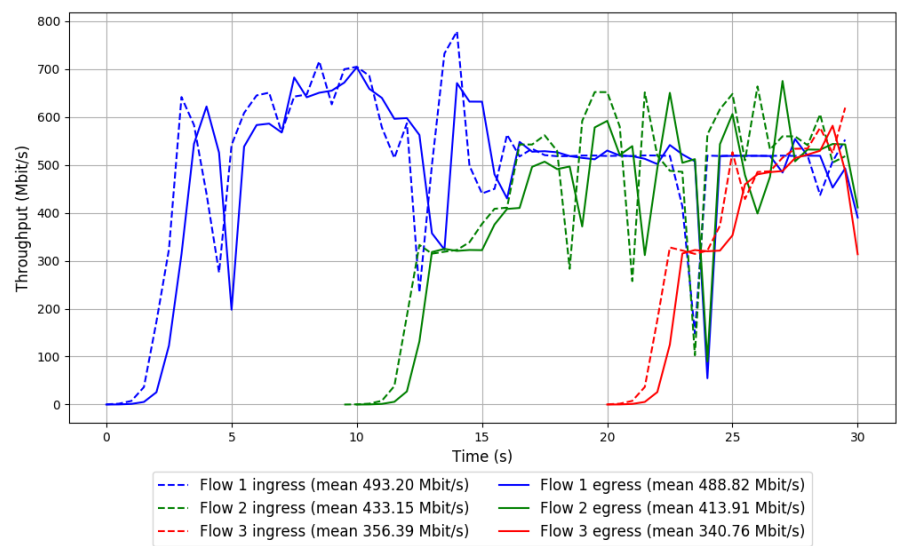
-- Flow 3:

Average throughput: 340.76 Mbit/s

95th percentile per-packet one-way delay: 159.662 ms

Loss rate: 6.50%

Run 1: Report of TCP BBR — Data Link

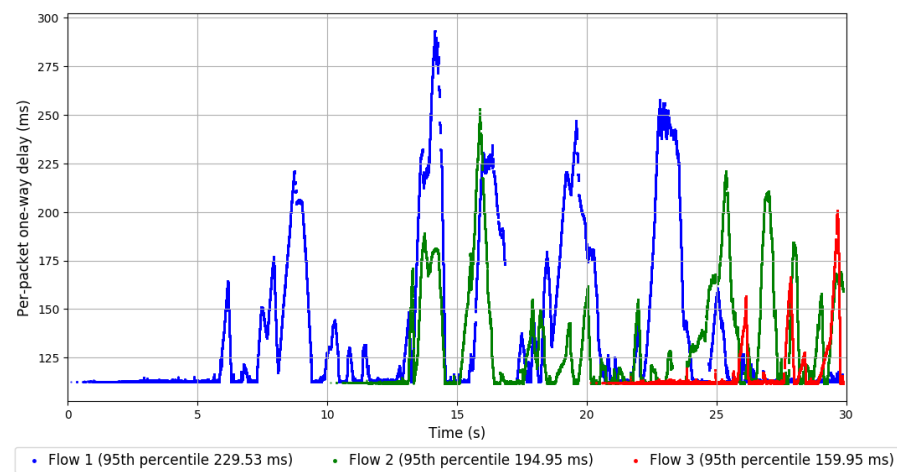
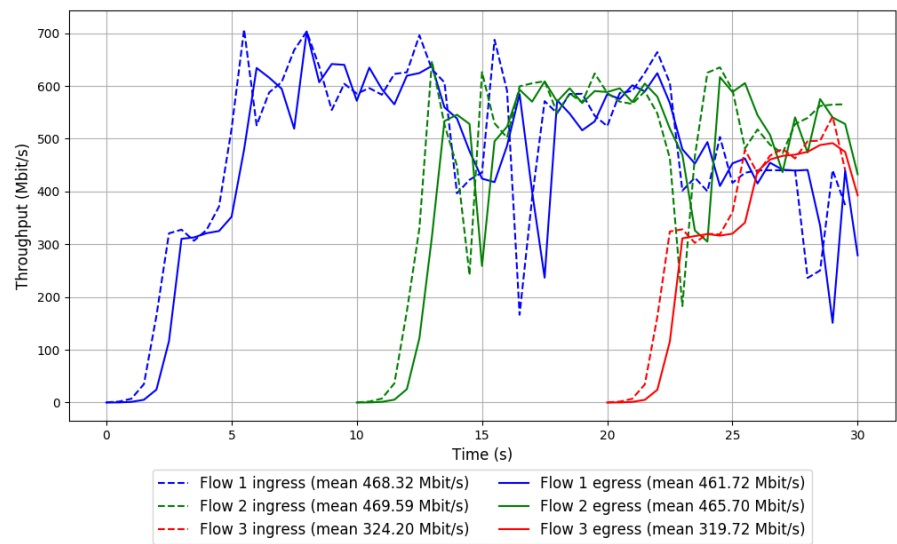


Run 2: Statistics of TCP BBR

Start at: 2018-09-07 13:09:58
End at: 2018-09-07 13:10:28
Local clock offset: 0.144 ms
Remote clock offset: -0.371 ms

Below is generated by plot.py at 2018-09-07 15:51:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 874.67 Mbit/s
95th percentile per-packet one-way delay: 220.066 ms
Loss rate: 2.33%
-- Flow 1:
Average throughput: 461.72 Mbit/s
95th percentile per-packet one-way delay: 229.528 ms
Loss rate: 2.30%
-- Flow 2:
Average throughput: 465.70 Mbit/s
95th percentile per-packet one-way delay: 194.951 ms
Loss rate: 1.93%
-- Flow 3:
Average throughput: 319.72 Mbit/s
95th percentile per-packet one-way delay: 159.951 ms
Loss rate: 3.58%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-07 13:43:38

End at: 2018-09-07 13:44:08

Local clock offset: 0.066 ms

Remote clock offset: 0.312 ms

Below is generated by plot.py at 2018-09-07 15:52:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 900.92 Mbit/s

95th percentile per-packet one-way delay: 211.691 ms

Loss rate: 1.90%

-- Flow 1:

Average throughput: 523.12 Mbit/s

95th percentile per-packet one-way delay: 214.171 ms

Loss rate: 1.82%

-- Flow 2:

Average throughput: 420.85 Mbit/s

95th percentile per-packet one-way delay: 206.615 ms

Loss rate: 1.60%

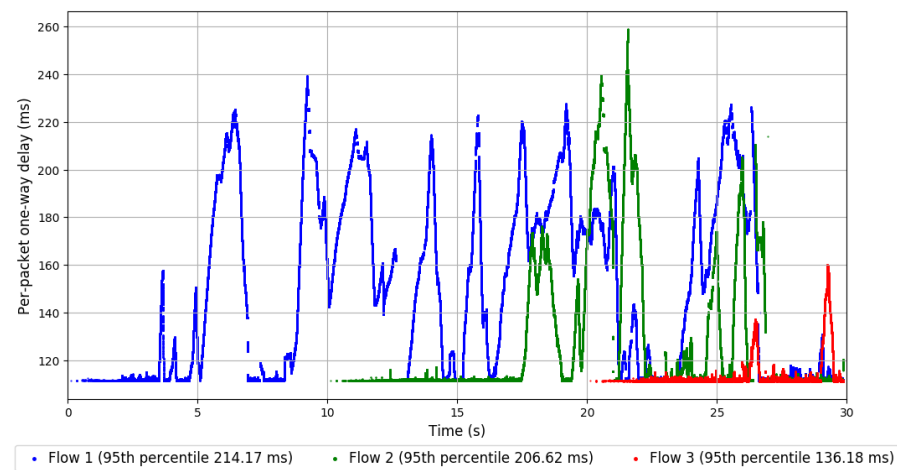
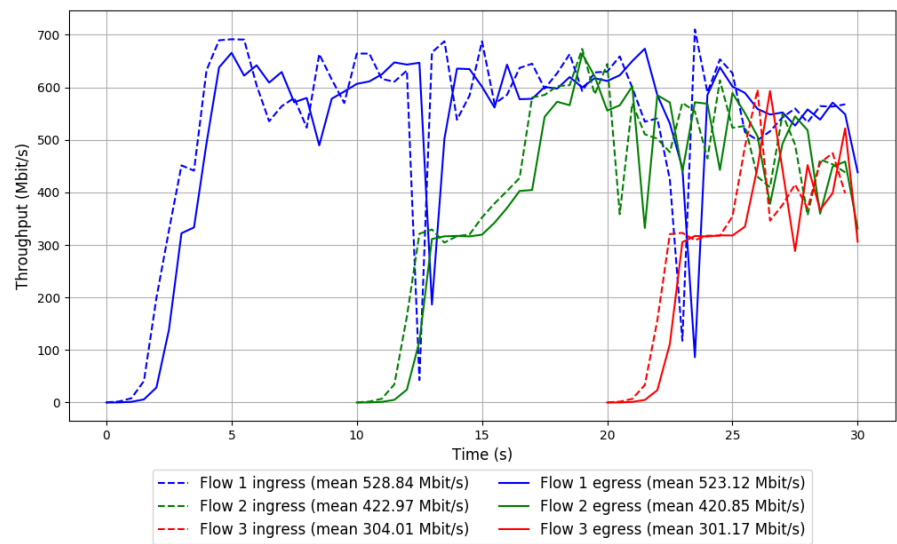
-- Flow 3:

Average throughput: 301.17 Mbit/s

95th percentile per-packet one-way delay: 136.179 ms

Loss rate: 3.16%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-07 14:16:33

End at: 2018-09-07 14:17:03

Local clock offset: -0.469 ms

Remote clock offset: 0.279 ms

Below is generated by plot.py at 2018-09-07 15:52:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 783.97 Mbit/s

95th percentile per-packet one-way delay: 303.983 ms

Loss rate: 7.17%

-- Flow 1:

Average throughput: 405.29 Mbit/s

95th percentile per-packet one-way delay: 308.870 ms

Loss rate: 6.62%

-- Flow 2:

Average throughput: 428.76 Mbit/s

95th percentile per-packet one-way delay: 306.206 ms

Loss rate: 8.80%

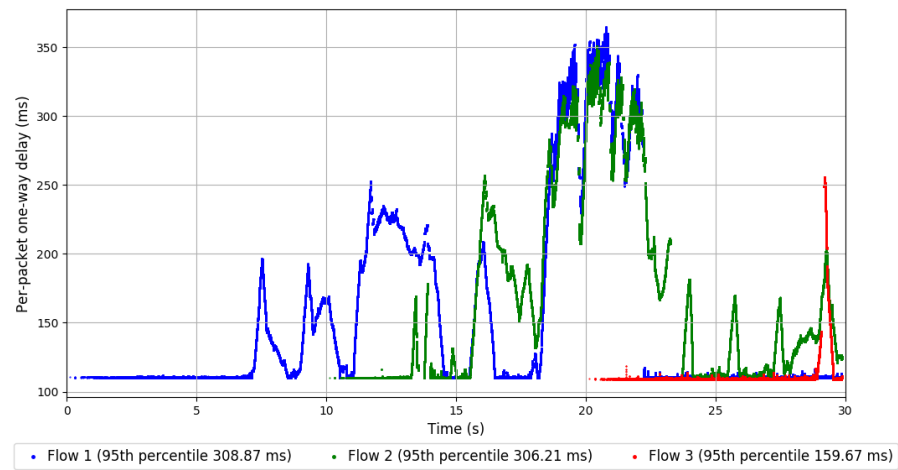
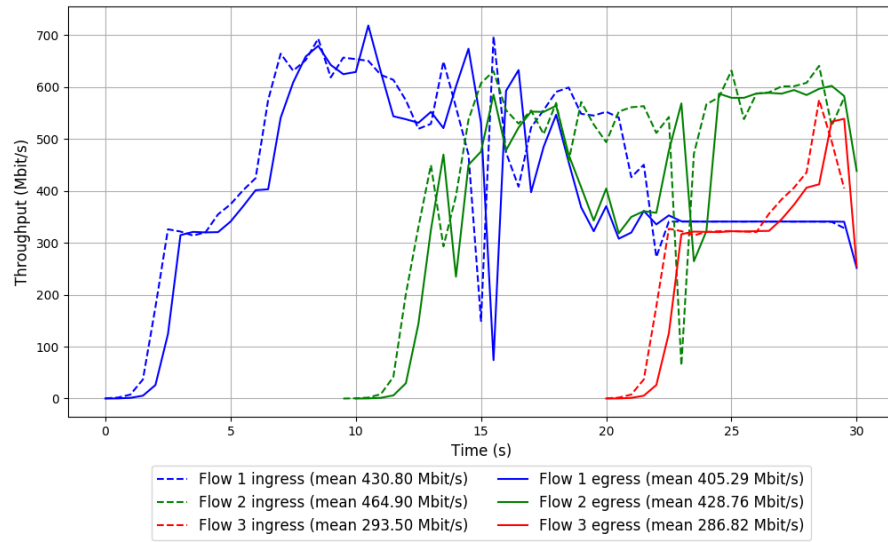
-- Flow 3:

Average throughput: 286.82 Mbit/s

95th percentile per-packet one-way delay: 159.666 ms

Loss rate: 4.45%

Run 4: Report of TCP BBR — Data Link

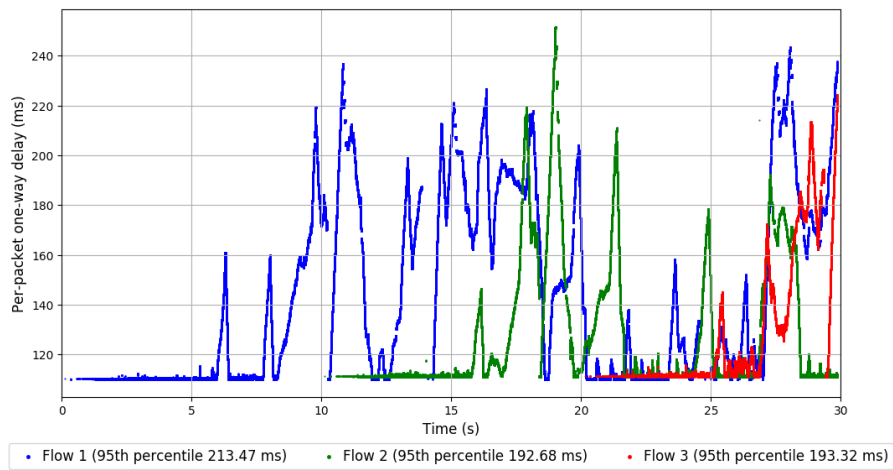
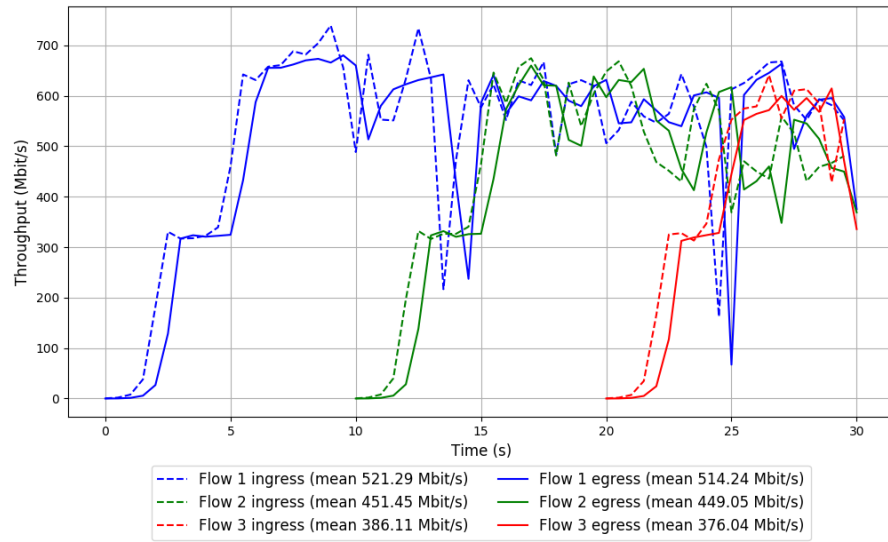


Run 5: Statistics of TCP BBR

Start at: 2018-09-07 14:50:03
End at: 2018-09-07 14:50:33
Local clock offset: -0.054 ms
Remote clock offset: -0.383 ms

Below is generated by plot.py at 2018-09-07 15:53:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 935.24 Mbit/s
95th percentile per-packet one-way delay: 208.606 ms
Loss rate: 2.31%
-- Flow 1:
Average throughput: 514.24 Mbit/s
95th percentile per-packet one-way delay: 213.472 ms
Loss rate: 2.08%
-- Flow 2:
Average throughput: 449.05 Mbit/s
95th percentile per-packet one-way delay: 192.678 ms
Loss rate: 1.65%
-- Flow 3:
Average throughput: 376.04 Mbit/s
95th percentile per-packet one-way delay: 193.323 ms
Loss rate: 4.80%

Run 5: Report of TCP BBR — Data Link

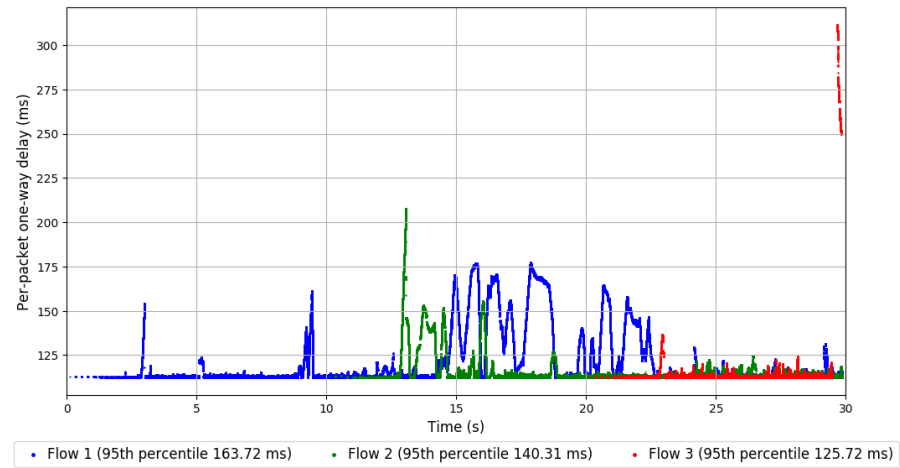
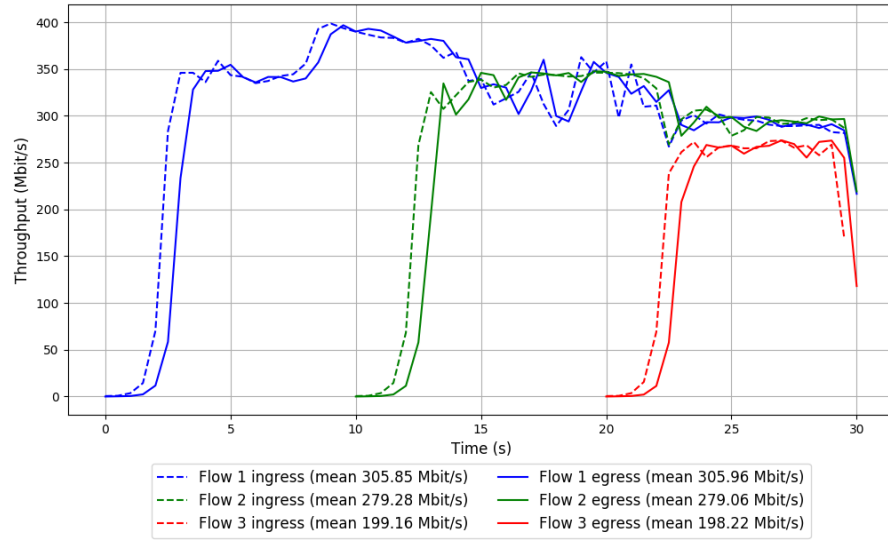


Run 1: Statistics of Copa

Start at: 2018-09-07 12:51:51
End at: 2018-09-07 12:52:21
Local clock offset: 0.326 ms
Remote clock offset: -0.046 ms

Below is generated by plot.py at 2018-09-07 15:54:37
Datalink statistics
-- Total of 3 flows:
Average throughput: 555.71 Mbit/s
95th percentile per-packet one-way delay: 154.661 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 305.96 Mbit/s
95th percentile per-packet one-way delay: 163.716 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 279.06 Mbit/s
95th percentile per-packet one-way delay: 140.312 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 198.22 Mbit/s
95th percentile per-packet one-way delay: 125.717 ms
Loss rate: 3.02%

Run 1: Report of Copa — Data Link

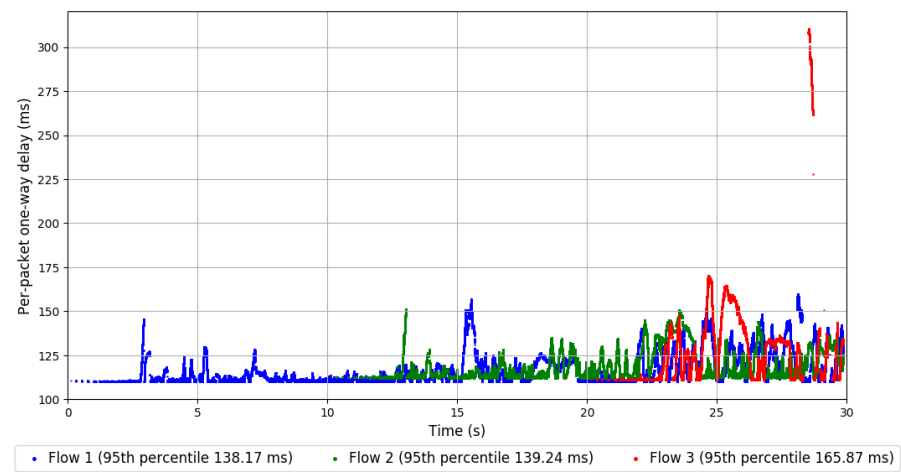
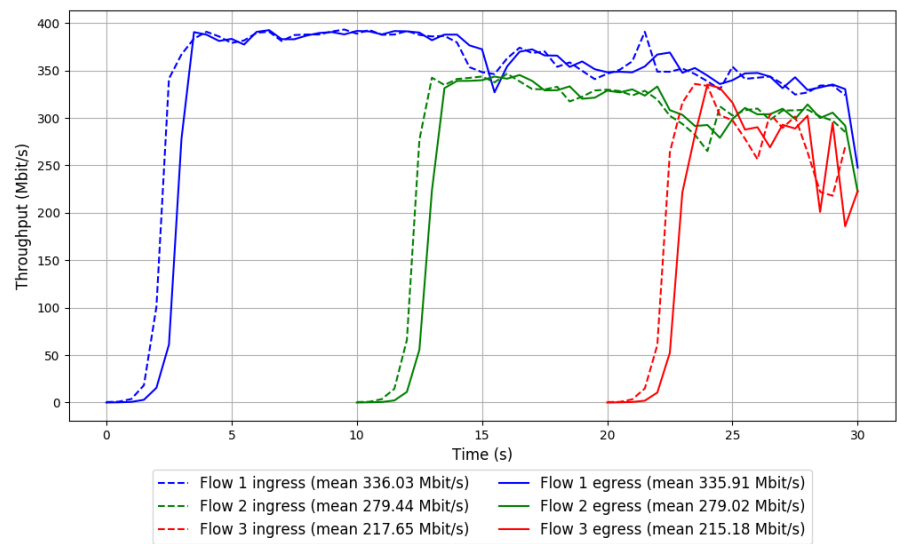


Run 2: Statistics of Copa

Start at: 2018-09-07 13:25:22
End at: 2018-09-07 13:25:52
Local clock offset: -0.714 ms
Remote clock offset: -0.363 ms

Below is generated by plot.py at 2018-09-07 15:55:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 591.42 Mbit/s
95th percentile per-packet one-way delay: 141.935 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 335.91 Mbit/s
95th percentile per-packet one-way delay: 138.174 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 279.02 Mbit/s
95th percentile per-packet one-way delay: 139.244 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 215.18 Mbit/s
95th percentile per-packet one-way delay: 165.873 ms
Loss rate: 3.35%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-07 13:58:41

End at: 2018-09-07 13:59:11

Local clock offset: 0.177 ms

Remote clock offset: 0.283 ms

Below is generated by plot.py at 2018-09-07 15:55:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 558.44 Mbit/s

95th percentile per-packet one-way delay: 176.266 ms

Loss rate: 1.31%

-- Flow 1:

Average throughput: 296.75 Mbit/s

95th percentile per-packet one-way delay: 162.810 ms

Loss rate: 0.88%

-- Flow 2:

Average throughput: 283.96 Mbit/s

95th percentile per-packet one-way delay: 178.845 ms

Loss rate: 1.33%

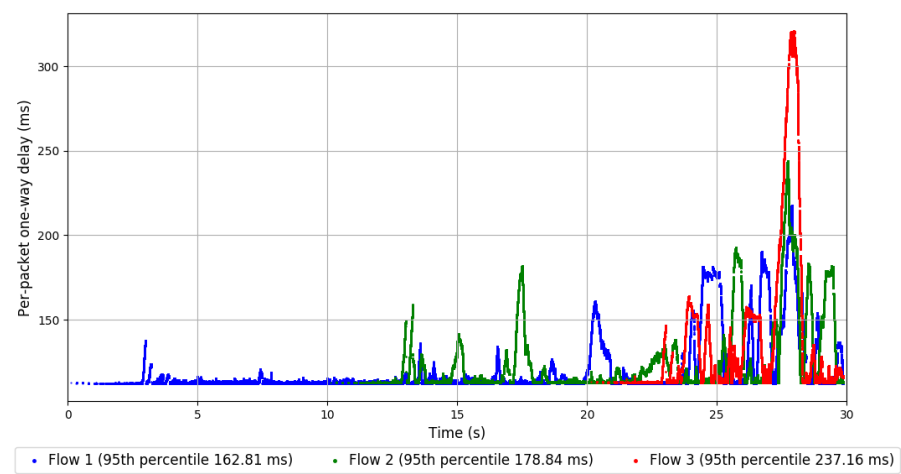
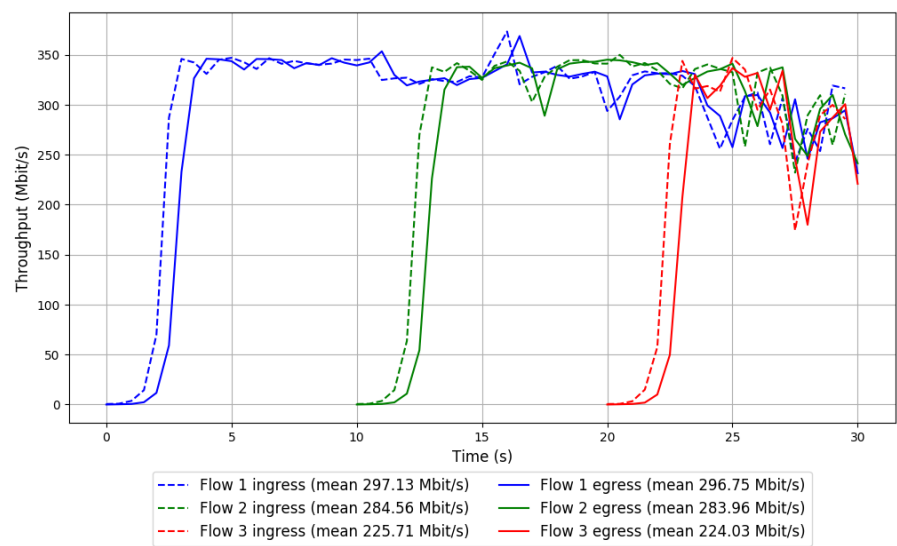
-- Flow 3:

Average throughput: 224.03 Mbit/s

95th percentile per-packet one-way delay: 237.155 ms

Loss rate: 2.98%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-07 14:31:56

End at: 2018-09-07 14:32:26

Local clock offset: -0.27 ms

Remote clock offset: 0.265 ms

Below is generated by plot.py at 2018-09-07 16:09:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 590.64 Mbit/s

95th percentile per-packet one-way delay: 156.559 ms

Loss rate: 1.22%

-- Flow 1:

Average throughput: 317.19 Mbit/s

95th percentile per-packet one-way delay: 157.131 ms

Loss rate: 0.67%

-- Flow 2:

Average throughput: 288.41 Mbit/s

95th percentile per-packet one-way delay: 140.691 ms

Loss rate: 1.28%

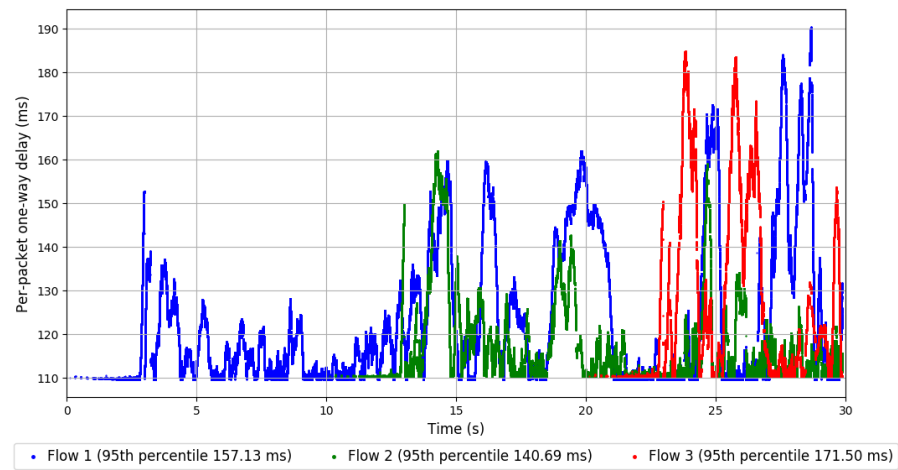
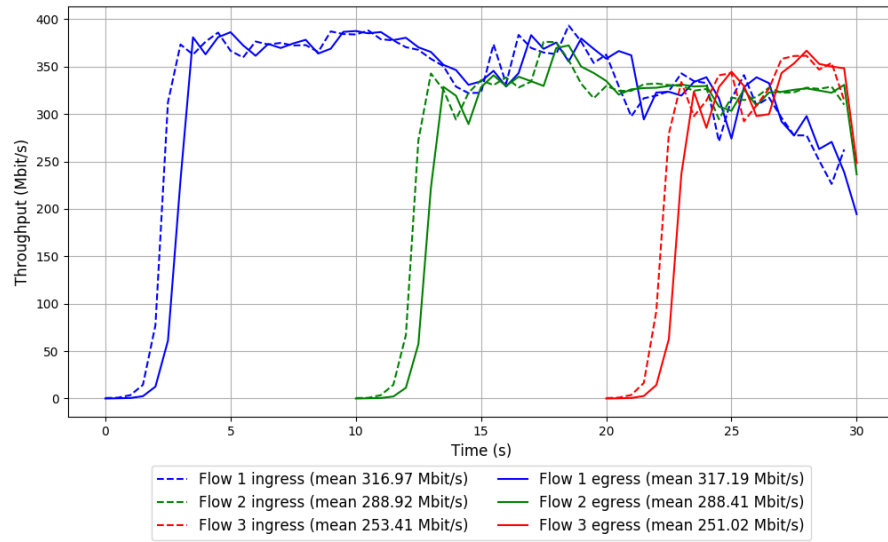
-- Flow 3:

Average throughput: 251.02 Mbit/s

95th percentile per-packet one-way delay: 171.499 ms

Loss rate: 3.11%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-07 15:05:39

End at: 2018-09-07 15:06:09

Local clock offset: -0.22 ms

Remote clock offset: 0.331 ms

Below is generated by plot.py at 2018-09-07 16:10:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 564.79 Mbit/s

95th percentile per-packet one-way delay: 142.088 ms

Loss rate: 1.27%

-- Flow 1:

Average throughput: 296.50 Mbit/s

95th percentile per-packet one-way delay: 123.934 ms

Loss rate: 0.83%

-- Flow 2:

Average throughput: 302.26 Mbit/s

95th percentile per-packet one-way delay: 141.912 ms

Loss rate: 1.24%

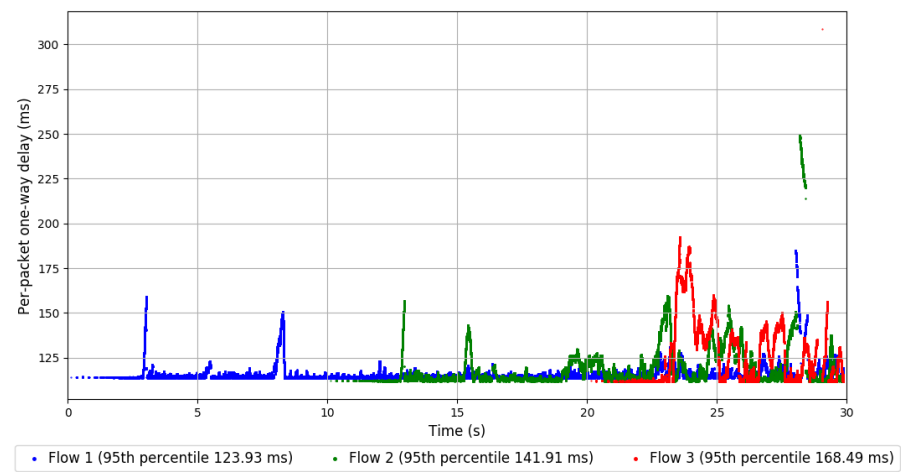
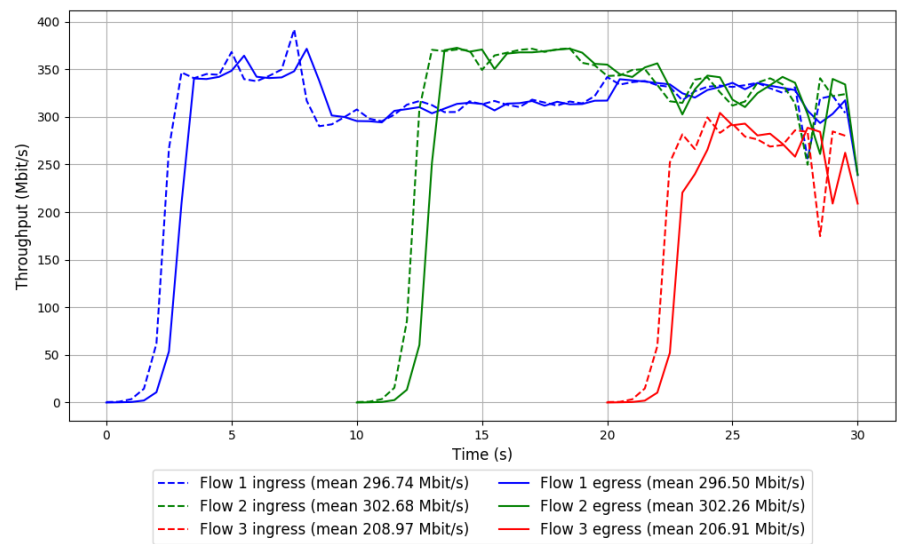
-- Flow 3:

Average throughput: 206.91 Mbit/s

95th percentile per-packet one-way delay: 168.494 ms

Loss rate: 3.20%

Run 5: Report of Copa — Data Link

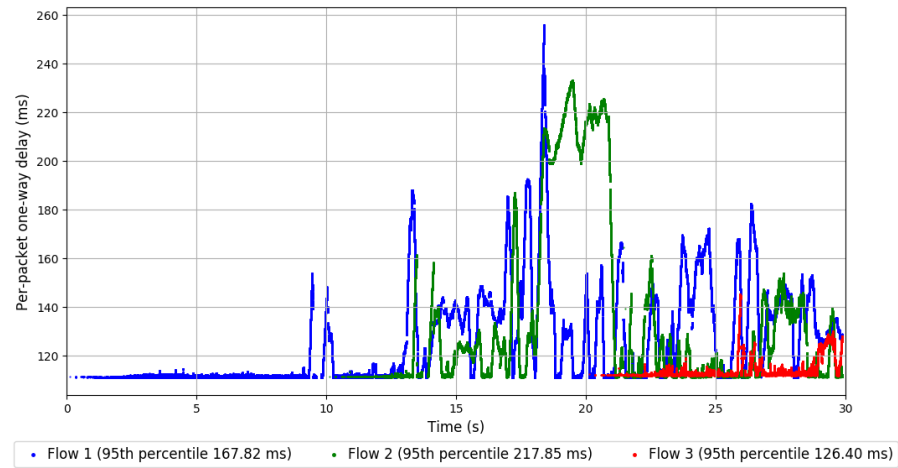
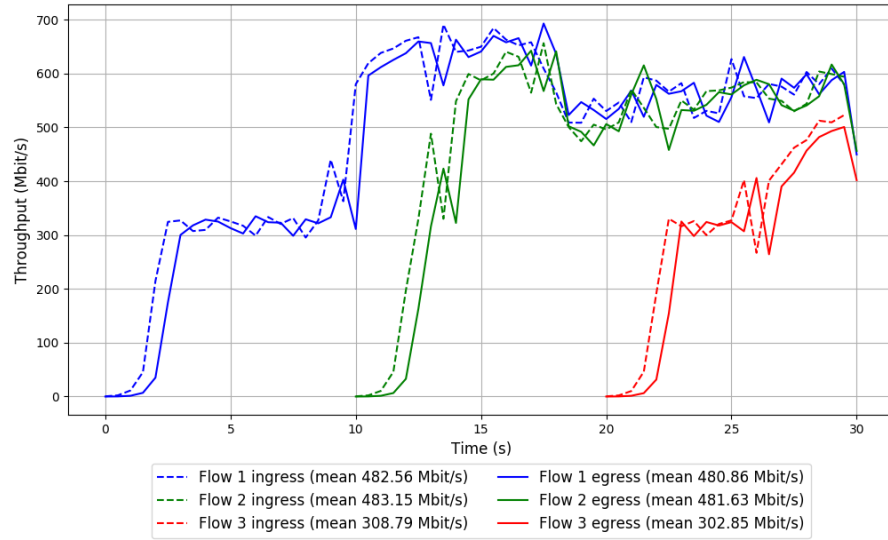


Run 1: Statistics of TCP Cubic

Start at: 2018-09-07 13:03:09
End at: 2018-09-07 13:03:39
Local clock offset: -0.123 ms
Remote clock offset: -0.005 ms

Below is generated by plot.py at 2018-09-07 16:10:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 899.64 Mbit/s
95th percentile per-packet one-way delay: 199.791 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 480.86 Mbit/s
95th percentile per-packet one-way delay: 167.824 ms
Loss rate: 1.09%
-- Flow 2:
Average throughput: 481.63 Mbit/s
95th percentile per-packet one-way delay: 217.853 ms
Loss rate: 1.43%
-- Flow 3:
Average throughput: 302.85 Mbit/s
95th percentile per-packet one-way delay: 126.397 ms
Loss rate: 4.13%

Run 1: Report of TCP Cubic — Data Link

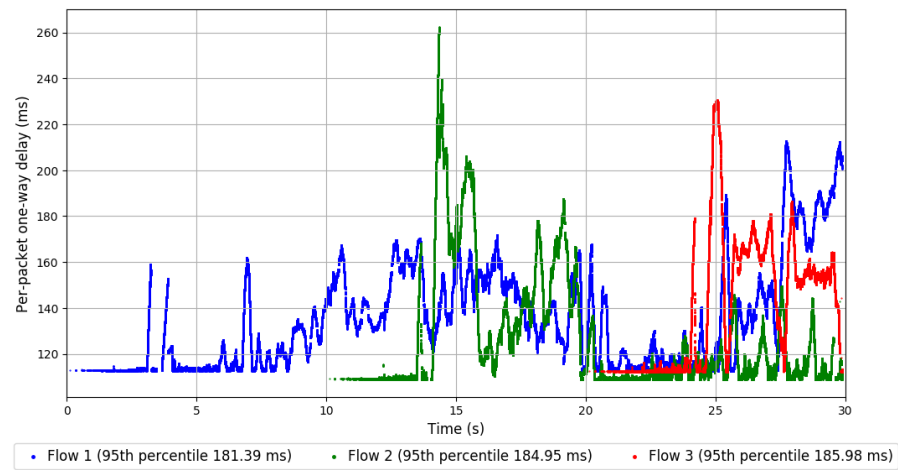
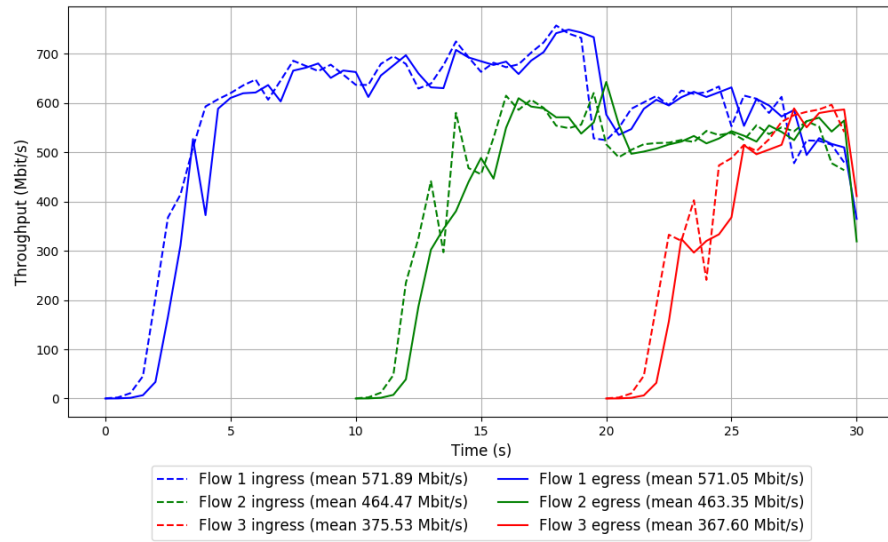


Run 2: Statistics of TCP Cubic

Start at: 2018-09-07 13:36:51
End at: 2018-09-07 13:37:21
Local clock offset: -0.042 ms
Remote clock offset: -0.048 ms

Below is generated by plot.py at 2018-09-07 16:10:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 999.11 Mbit/s
95th percentile per-packet one-way delay: 182.530 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 571.05 Mbit/s
95th percentile per-packet one-way delay: 181.388 ms
Loss rate: 0.89%
-- Flow 2:
Average throughput: 463.35 Mbit/s
95th percentile per-packet one-way delay: 184.952 ms
Loss rate: 1.34%
-- Flow 3:
Average throughput: 367.60 Mbit/s
95th percentile per-packet one-way delay: 185.981 ms
Loss rate: 4.31%

Run 2: Report of TCP Cubic — Data Link

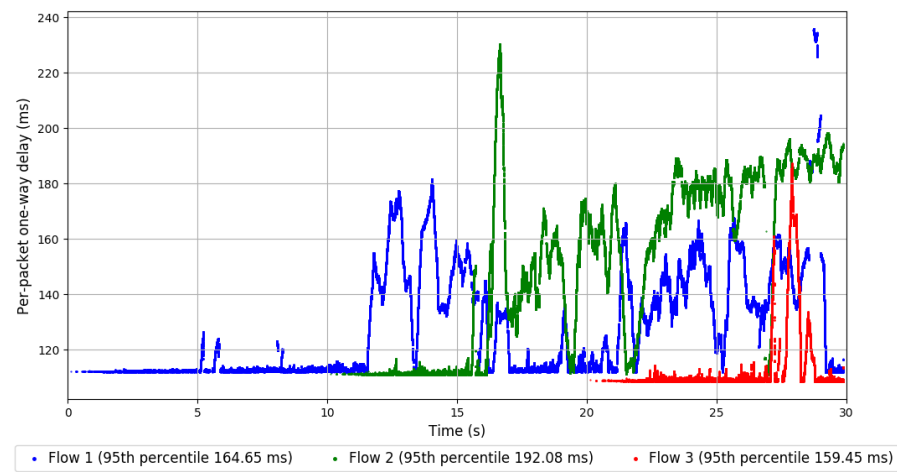
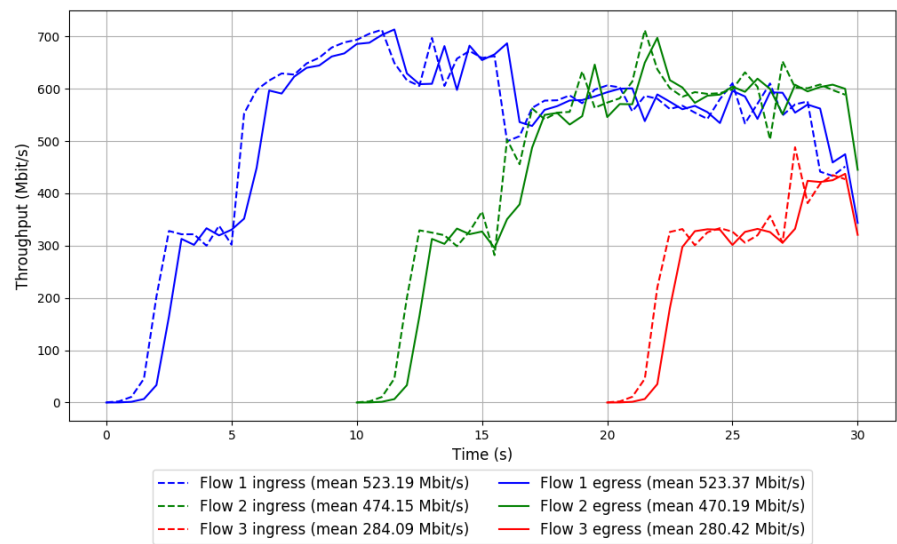


Run 3: Statistics of TCP Cubic

Start at: 2018-09-07 14:09:50
End at: 2018-09-07 14:10:20
Local clock offset: -0.865 ms
Remote clock offset: -0.079 ms

Below is generated by plot.py at 2018-09-07 16:10:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 927.16 Mbit/s
95th percentile per-packet one-way delay: 186.888 ms
Loss rate: 1.41%
-- Flow 1:
Average throughput: 523.37 Mbit/s
95th percentile per-packet one-way delay: 164.650 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 470.19 Mbit/s
95th percentile per-packet one-way delay: 192.082 ms
Loss rate: 1.94%
-- Flow 3:
Average throughput: 280.42 Mbit/s
95th percentile per-packet one-way delay: 159.448 ms
Loss rate: 3.49%

Run 3: Report of TCP Cubic — Data Link

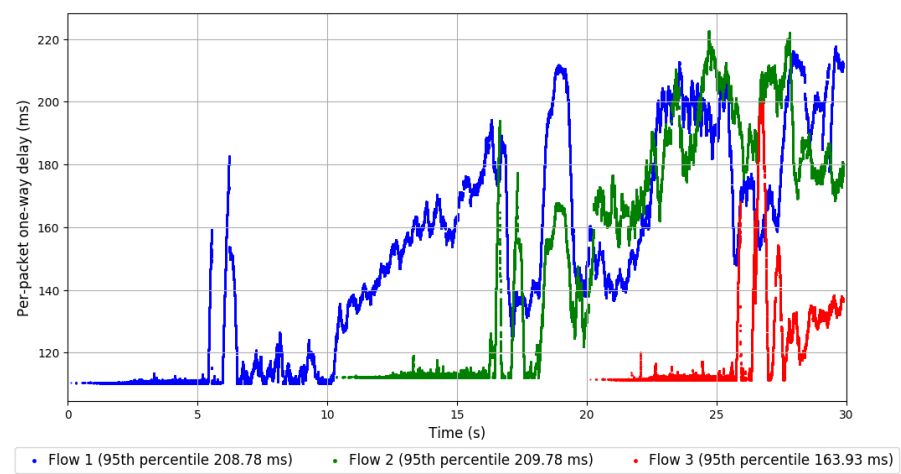
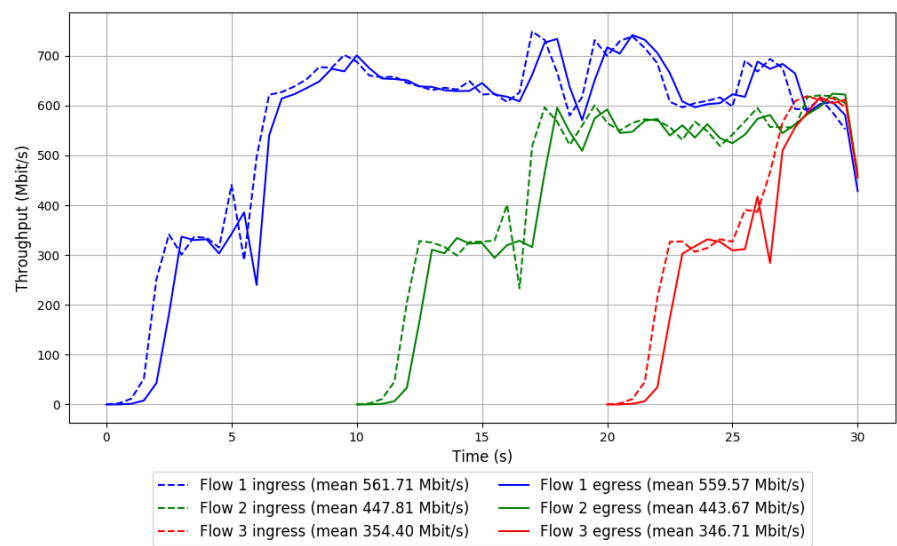


Run 4: Statistics of TCP Cubic

Start at: 2018-09-07 14:43:12
End at: 2018-09-07 14:43:42
Local clock offset: -0.177 ms
Remote clock offset: -0.059 ms

Below is generated by plot.py at 2018-09-07 16:11:18
Datalink statistics
-- Total of 3 flows:
Average throughput: 967.54 Mbit/s
95th percentile per-packet one-way delay: 208.410 ms
Loss rate: 1.78%
-- Flow 1:
Average throughput: 559.57 Mbit/s
95th percentile per-packet one-way delay: 208.778 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 443.67 Mbit/s
95th percentile per-packet one-way delay: 209.785 ms
Loss rate: 2.03%
-- Flow 3:
Average throughput: 346.71 Mbit/s
95th percentile per-packet one-way delay: 163.925 ms
Loss rate: 4.35%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-07 15:16:49

End at: 2018-09-07 15:17:19

Local clock offset: -0.354 ms

Remote clock offset: 0.331 ms

Below is generated by plot.py at 2018-09-07 16:11:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 855.79 Mbit/s

95th percentile per-packet one-way delay: 211.450 ms

Loss rate: 1.49%

-- Flow 1:

Average throughput: 440.69 Mbit/s

95th percentile per-packet one-way delay: 212.488 ms

Loss rate: 0.90%

-- Flow 2:

Average throughput: 485.46 Mbit/s

95th percentile per-packet one-way delay: 209.989 ms

Loss rate: 1.35%

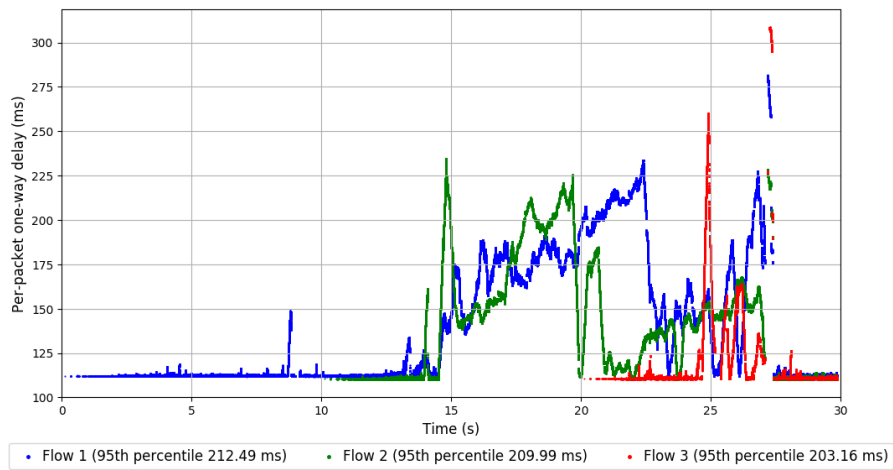
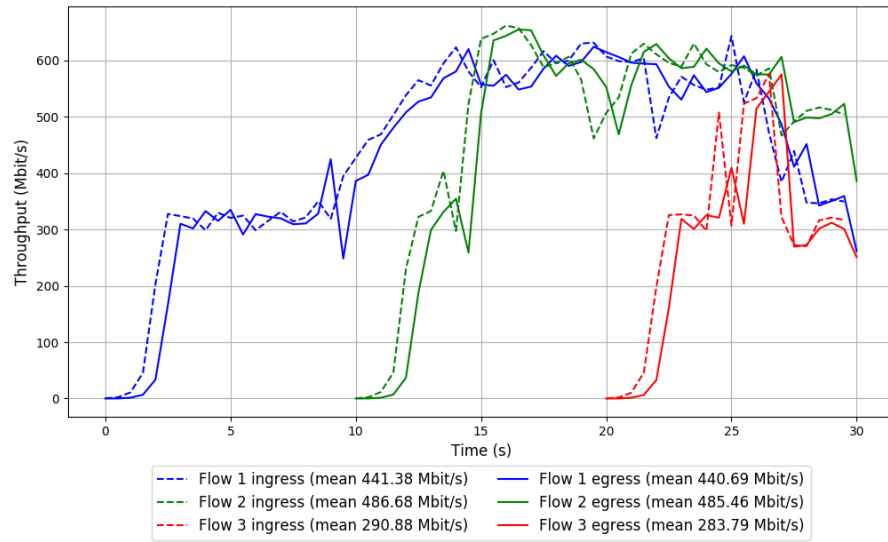
-- Flow 3:

Average throughput: 283.79 Mbit/s

95th percentile per-packet one-way delay: 203.160 ms

Loss rate: 4.62%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-09-07 12:39:01

End at: 2018-09-07 12:39:31

Local clock offset: 0.354 ms

Remote clock offset: 0.343 ms

Below is generated by plot.py at 2018-09-07 16:21:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 1305.53 Mbit/s

95th percentile per-packet one-way delay: 197.933 ms

Loss rate: 7.77%

-- Flow 1:

Average throughput: 681.33 Mbit/s

95th percentile per-packet one-way delay: 199.047 ms

Loss rate: 9.02%

-- Flow 2:

Average throughput: 668.70 Mbit/s

95th percentile per-packet one-way delay: 198.703 ms

Loss rate: 7.14%

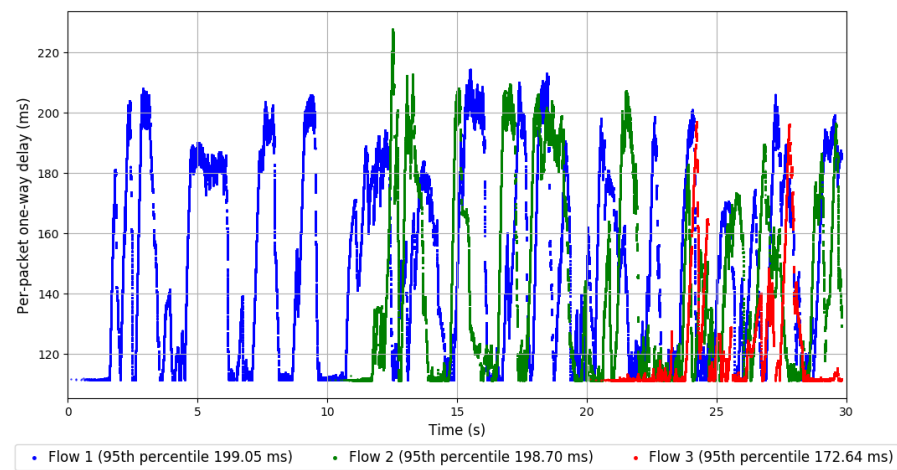
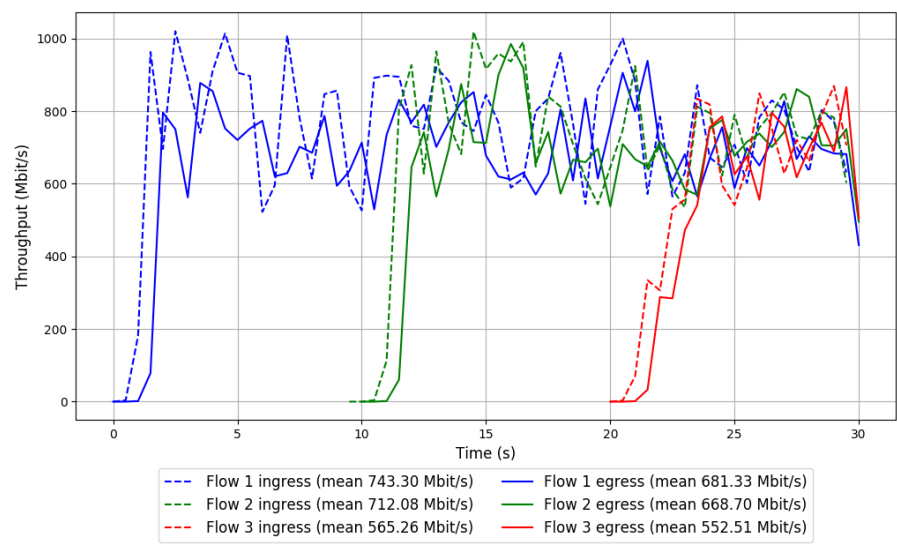
-- Flow 3:

Average throughput: 552.51 Mbit/s

95th percentile per-packet one-way delay: 172.639 ms

Loss rate: 4.44%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-07 13:12:09

End at: 2018-09-07 13:12:39

Local clock offset: 1.155 ms

Remote clock offset: 0.386 ms

Below is generated by plot.py at 2018-09-07 16:35:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 1309.43 Mbit/s

95th percentile per-packet one-way delay: 191.518 ms

Loss rate: 5.61%

-- Flow 1:

Average throughput: 720.42 Mbit/s

95th percentile per-packet one-way delay: 186.582 ms

Loss rate: 4.86%

-- Flow 2:

Average throughput: 612.64 Mbit/s

95th percentile per-packet one-way delay: 201.073 ms

Loss rate: 7.42%

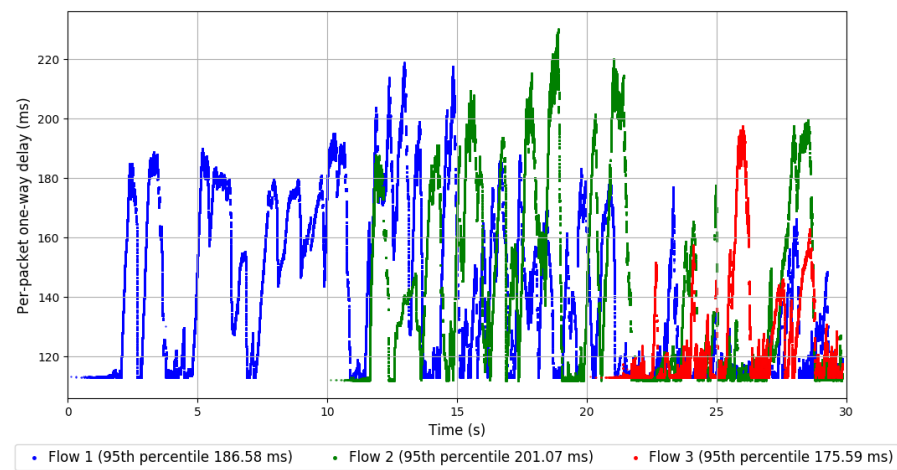
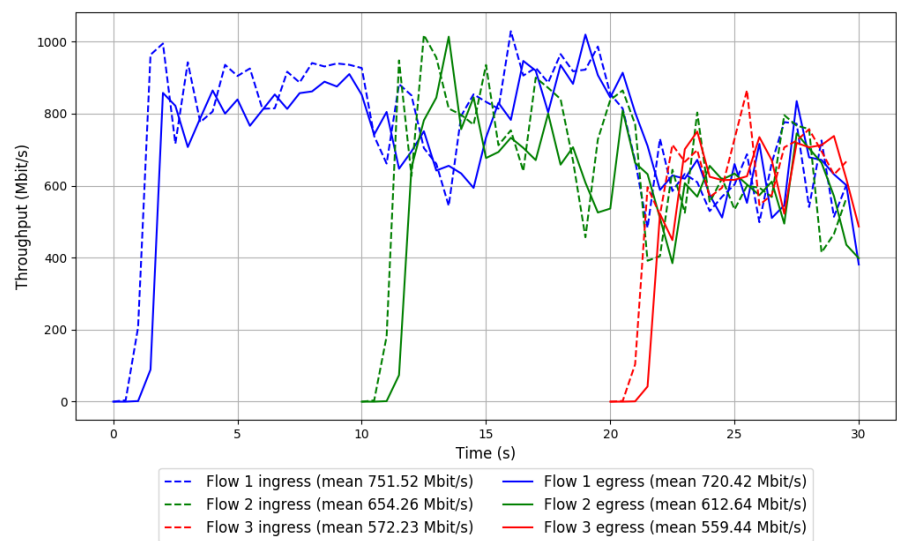
-- Flow 3:

Average throughput: 559.44 Mbit/s

95th percentile per-packet one-way delay: 175.587 ms

Loss rate: 4.44%

Run 2: Report of FillP — Data Link

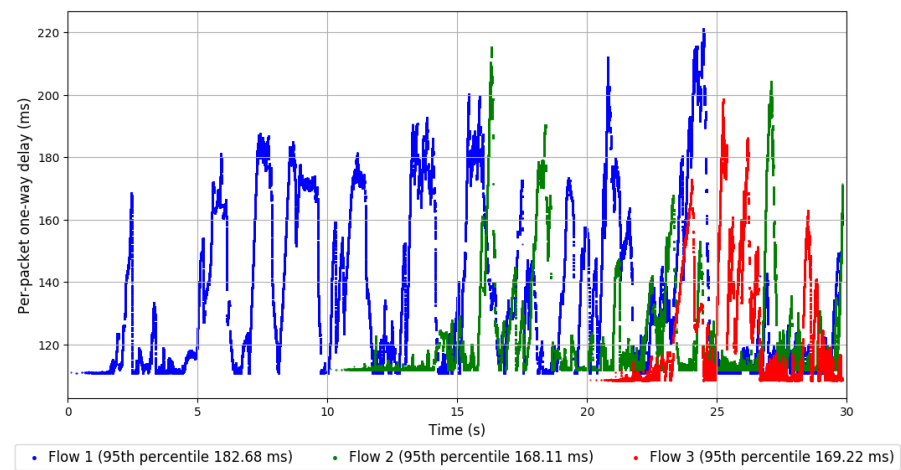
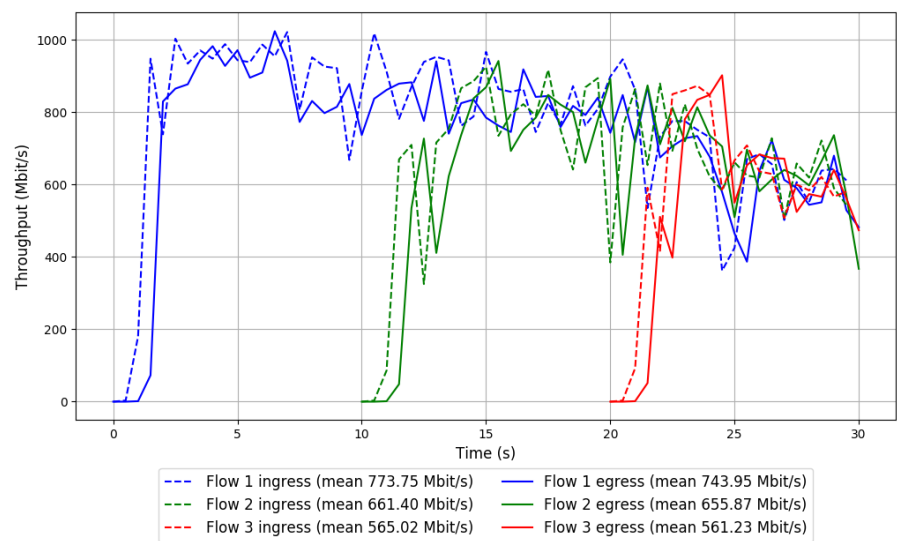


Run 3: Statistics of FillP

Start at: 2018-09-07 13:45:54
End at: 2018-09-07 13:46:24
Local clock offset: -0.743 ms
Remote clock offset: -0.007 ms

Below is generated by plot.py at 2018-09-07 16:37:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 1362.24 Mbit/s
95th percentile per-packet one-way delay: 179.737 ms
Loss rate: 3.52%
-- Flow 1:
Average throughput: 743.95 Mbit/s
95th percentile per-packet one-way delay: 182.679 ms
Loss rate: 4.56%
-- Flow 2:
Average throughput: 655.87 Mbit/s
95th percentile per-packet one-way delay: 168.107 ms
Loss rate: 1.96%
-- Flow 3:
Average throughput: 561.23 Mbit/s
95th percentile per-packet one-way delay: 169.220 ms
Loss rate: 2.88%

Run 3: Report of FillP — Data Link

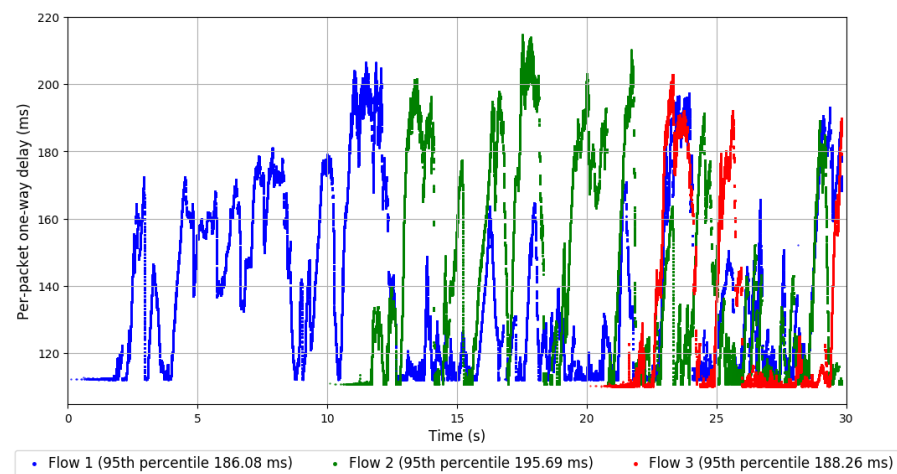
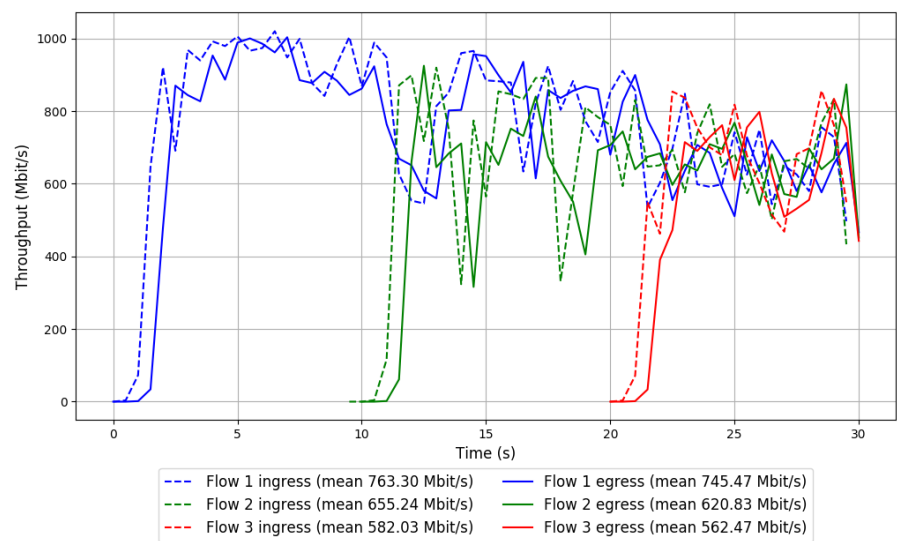


Run 4: Statistics of FillP

Start at: 2018-09-07 14:18:40
End at: 2018-09-07 14:19:10
Local clock offset: -0.479 ms
Remote clock offset: -0.443 ms

Below is generated by plot.py at 2018-09-07 16:37:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 1340.85 Mbit/s
95th percentile per-packet one-way delay: 190.821 ms
Loss rate: 4.42%
-- Flow 1:
Average throughput: 745.47 Mbit/s
95th percentile per-packet one-way delay: 186.079 ms
Loss rate: 3.04%
-- Flow 2:
Average throughput: 620.83 Mbit/s
95th percentile per-packet one-way delay: 195.689 ms
Loss rate: 6.32%
-- Flow 3:
Average throughput: 562.47 Mbit/s
95th percentile per-packet one-way delay: 188.264 ms
Loss rate: 5.54%

Run 4: Report of FillP — Data Link

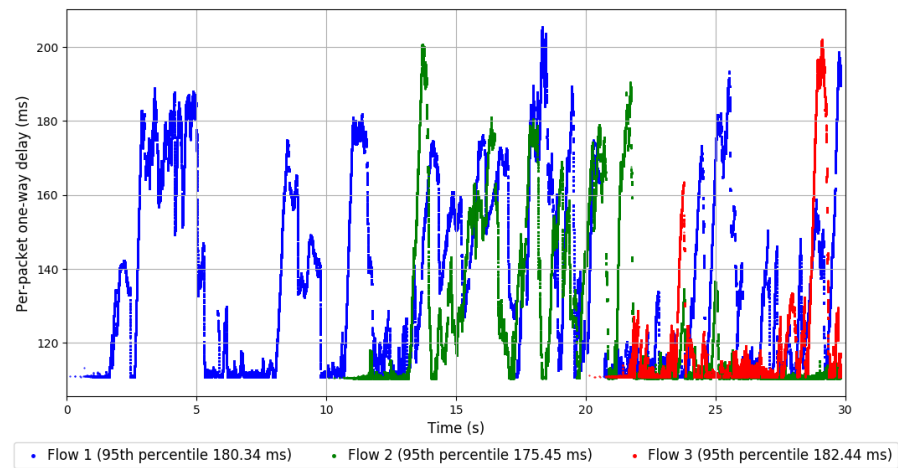
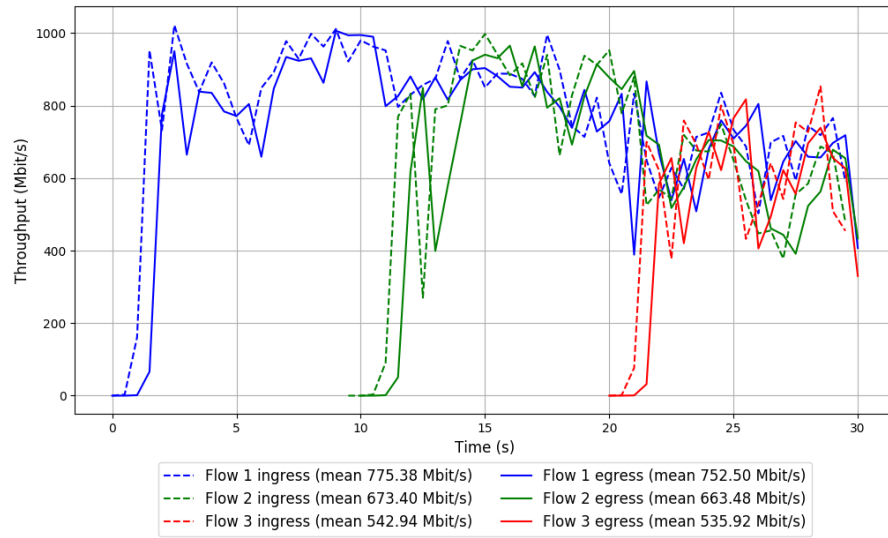


Run 5: Statistics of FillP

Start at: 2018-09-07 14:52:19
End at: 2018-09-07 14:52:49
Local clock offset: -0.325 ms
Remote clock offset: -0.107 ms

Below is generated by plot.py at 2018-09-07 16:37:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 1367.68 Mbit/s
95th percentile per-packet one-way delay: 178.478 ms
Loss rate: 3.29%
-- Flow 1:
Average throughput: 752.50 Mbit/s
95th percentile per-packet one-way delay: 180.339 ms
Loss rate: 3.68%
-- Flow 2:
Average throughput: 663.48 Mbit/s
95th percentile per-packet one-way delay: 175.446 ms
Loss rate: 2.52%
-- Flow 3:
Average throughput: 535.92 Mbit/s
95th percentile per-packet one-way delay: 182.435 ms
Loss rate: 3.53%

Run 5: Report of FillP — Data Link

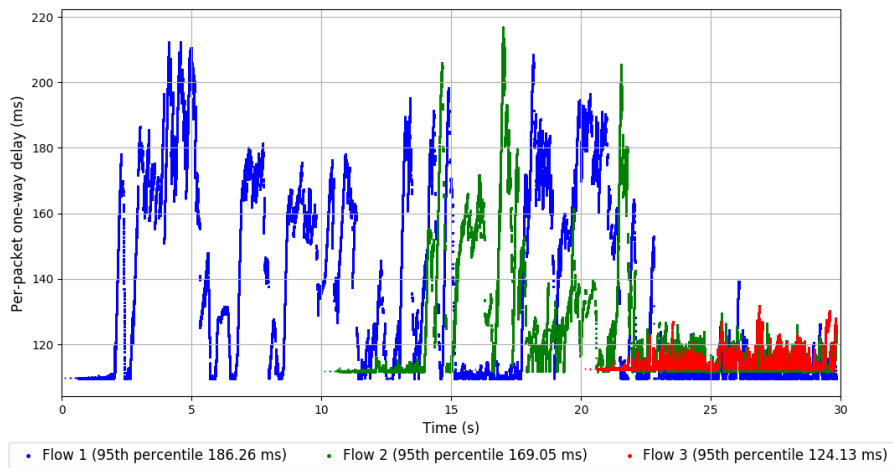
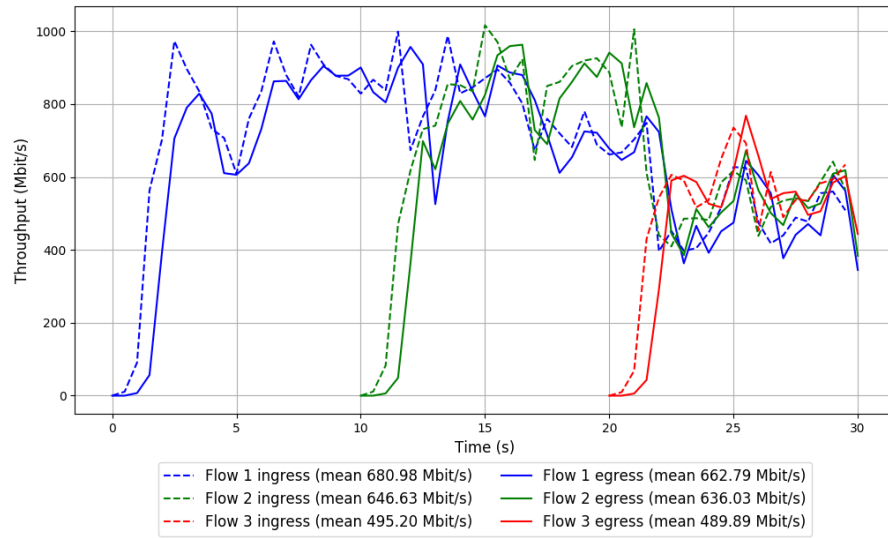


Run 1: Statistics of FillP-Sheep

Start at: 2018-09-07 12:49:38
End at: 2018-09-07 12:50:08
Local clock offset: -0.127 ms
Remote clock offset: -0.396 ms

Below is generated by plot.py at 2018-09-07 16:37:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 1244.35 Mbit/s
95th percentile per-packet one-way delay: 181.376 ms
Loss rate: 3.15%
-- Flow 1:
Average throughput: 662.79 Mbit/s
95th percentile per-packet one-way delay: 186.261 ms
Loss rate: 3.38%
-- Flow 2:
Average throughput: 636.03 Mbit/s
95th percentile per-packet one-way delay: 169.050 ms
Loss rate: 2.73%
-- Flow 3:
Average throughput: 489.89 Mbit/s
95th percentile per-packet one-way delay: 124.129 ms
Loss rate: 3.29%

Run 1: Report of FillP-Sheep — Data Link

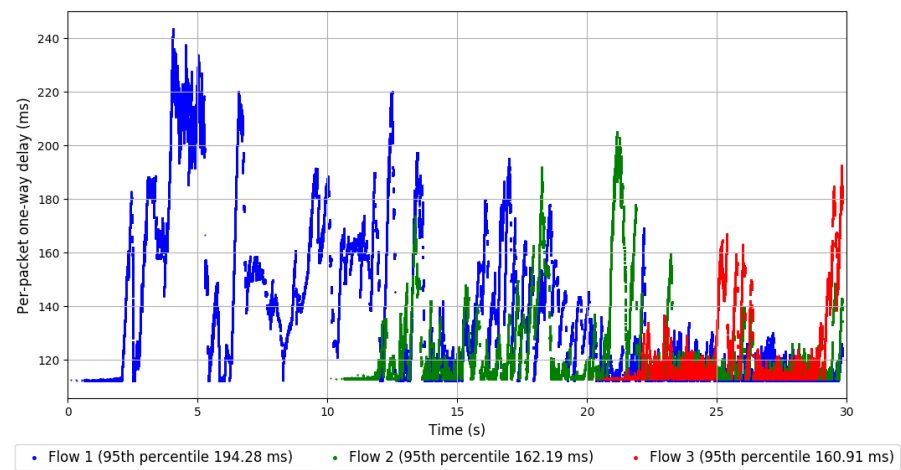
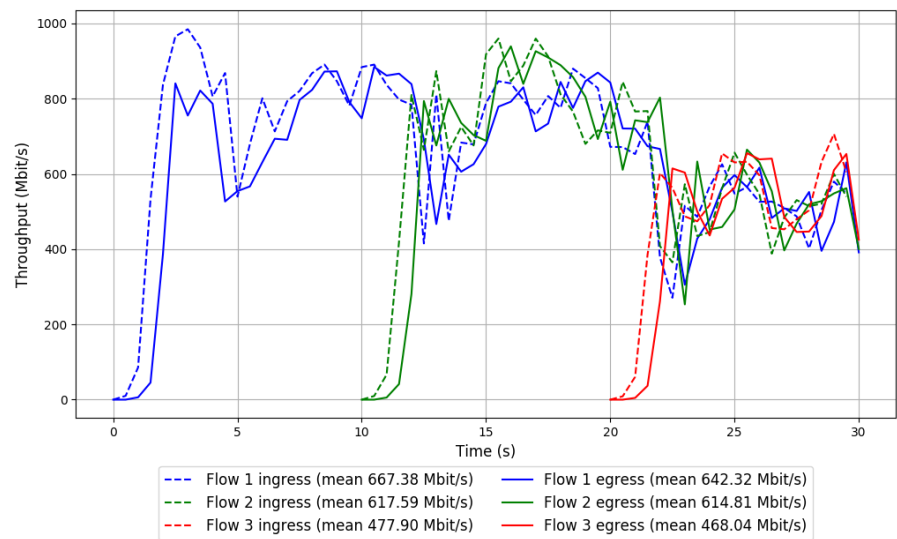


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-07 13:23:09
End at: 2018-09-07 13:23:39
Local clock offset: 1.147 ms
Remote clock offset: -0.367 ms

Below is generated by plot.py at 2018-09-07 16:37:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 1202.10 Mbit/s
95th percentile per-packet one-way delay: 183.213 ms
Loss rate: 3.48%
-- Flow 1:
Average throughput: 642.32 Mbit/s
95th percentile per-packet one-way delay: 194.284 ms
Loss rate: 4.47%
-- Flow 2:
Average throughput: 614.81 Mbit/s
95th percentile per-packet one-way delay: 162.192 ms
Loss rate: 1.57%
-- Flow 3:
Average throughput: 468.04 Mbit/s
95th percentile per-packet one-way delay: 160.914 ms
Loss rate: 4.28%

Run 2: Report of FillP-Sheep — Data Link

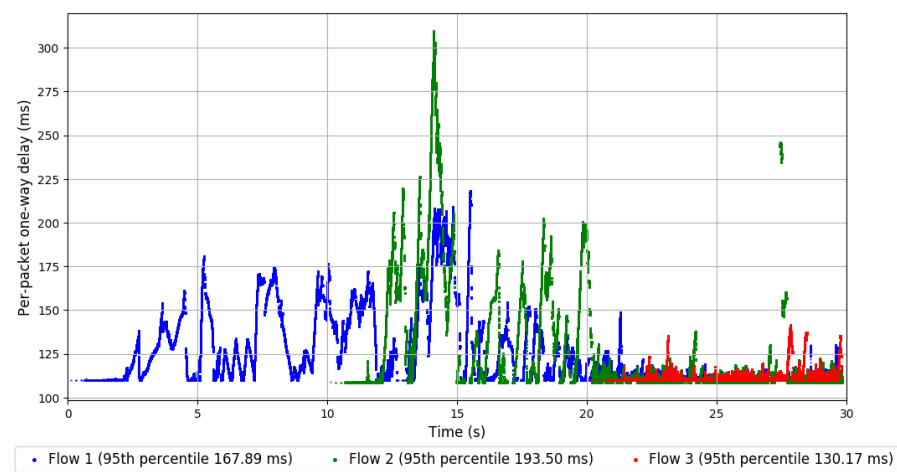
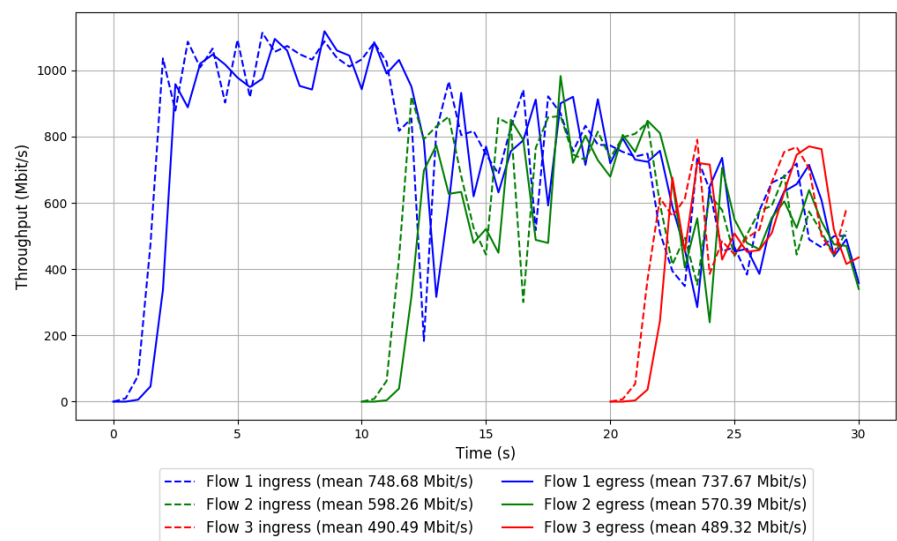


Run 3: Statistics of FillP-Sheep

Start at: 2018-09-07 13:56:25
End at: 2018-09-07 13:56:55
Local clock offset: -1.241 ms
Remote clock offset: -0.066 ms

Below is generated by plot.py at 2018-09-07 16:38:20
Datalink statistics
-- Total of 3 flows:
Average throughput: 1275.70 Mbit/s
95th percentile per-packet one-way delay: 174.727 ms
Loss rate: 3.33%
-- Flow 1:
Average throughput: 737.67 Mbit/s
95th percentile per-packet one-way delay: 167.886 ms
Loss rate: 2.21%
-- Flow 2:
Average throughput: 570.39 Mbit/s
95th percentile per-packet one-way delay: 193.504 ms
Loss rate: 5.71%
-- Flow 3:
Average throughput: 489.32 Mbit/s
95th percentile per-packet one-way delay: 130.170 ms
Loss rate: 2.70%

Run 3: Report of FillP-Sheep — Data Link

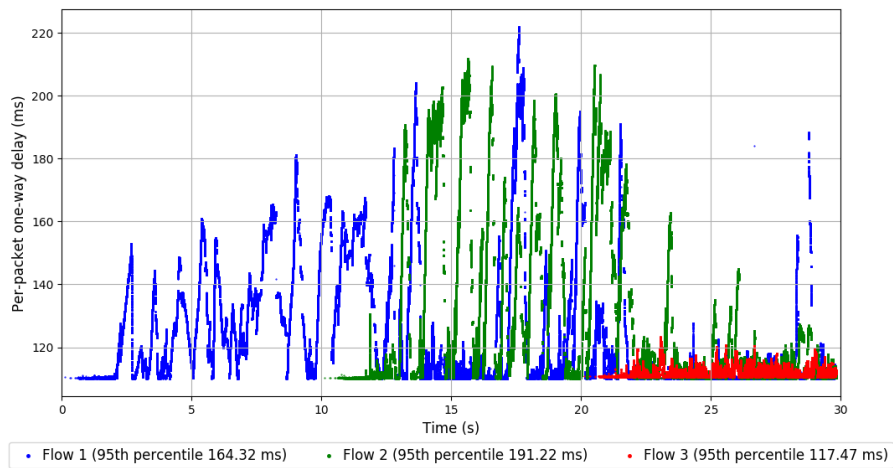
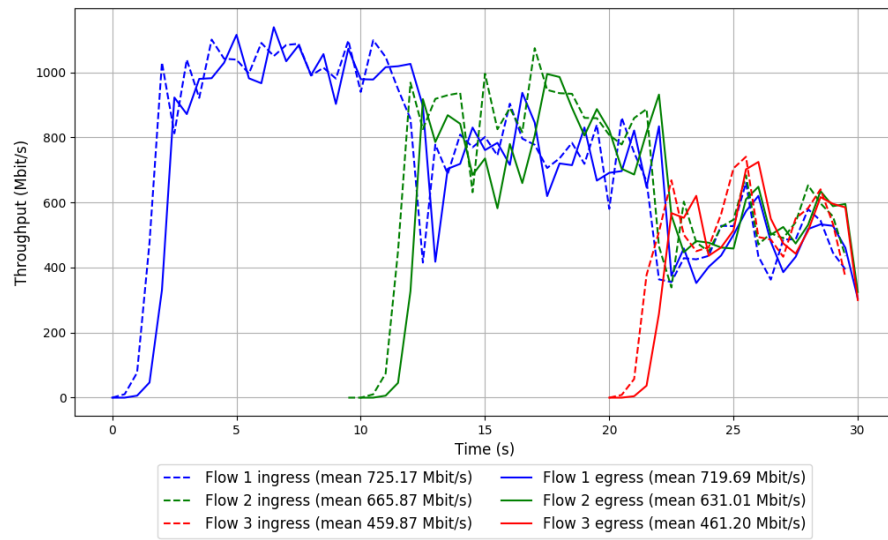


Run 4: Statistics of FillP-Sheep

Start at: 2018-09-07 14:29:41
End at: 2018-09-07 14:30:11
Local clock offset: -0.153 ms
Remote clock offset: -0.057 ms

Below is generated by plot.py at 2018-09-07 16:52:36
Datalink statistics
-- Total of 3 flows:
Average throughput: 1288.70 Mbit/s
95th percentile per-packet one-way delay: 177.976 ms
Loss rate: 3.19%
-- Flow 1:
Average throughput: 719.69 Mbit/s
95th percentile per-packet one-way delay: 164.325 ms
Loss rate: 1.55%
-- Flow 2:
Average throughput: 631.01 Mbit/s
95th percentile per-packet one-way delay: 191.218 ms
Loss rate: 6.29%
-- Flow 3:
Average throughput: 461.20 Mbit/s
95th percentile per-packet one-way delay: 117.469 ms
Loss rate: 1.98%

Run 4: Report of FillP-Sheep — Data Link

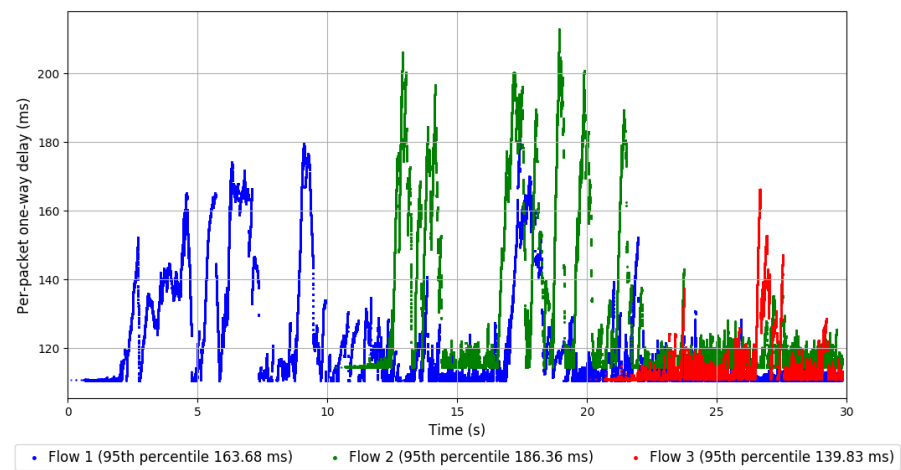
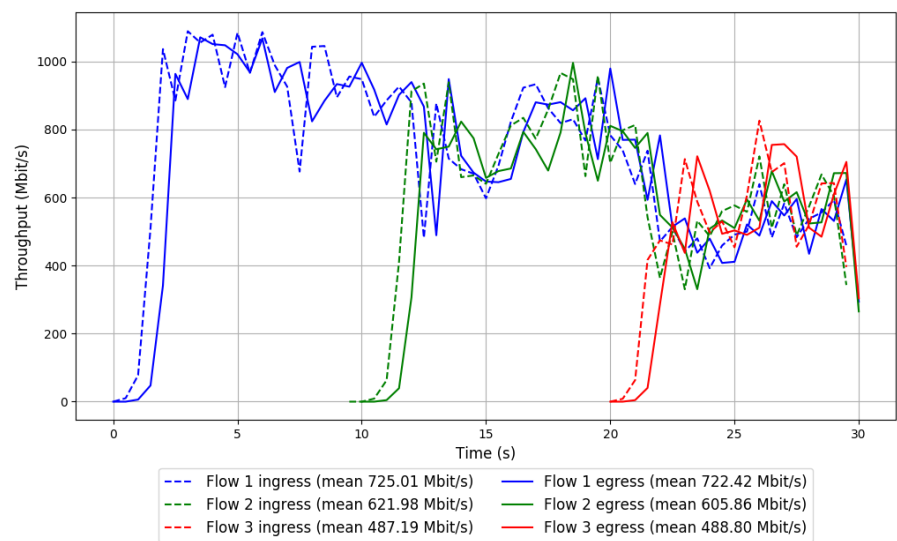


Run 5: Statistics of FillP-Sheep

Start at: 2018-09-07 15:03:24
End at: 2018-09-07 15:03:54
Local clock offset: -0.136 ms
Remote clock offset: -0.006 ms

```
# Below is generated by plot.py at 2018-09-07 17:03:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1283.89 Mbit/s
95th percentile per-packet one-way delay: 171.188 ms
Loss rate: 2.01%
-- Flow 1:
Average throughput: 722.42 Mbit/s
95th percentile per-packet one-way delay: 163.678 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 605.86 Mbit/s
95th percentile per-packet one-way delay: 186.359 ms
Loss rate: 3.62%
-- Flow 3:
Average throughput: 488.80 Mbit/s
95th percentile per-packet one-way delay: 139.829 ms
Loss rate: 1.92%
```

Run 5: Report of FillP-Sheep — Data Link



Run 1: Statistics of Indigo

Start at: 2018-09-07 13:01:14

End at: 2018-09-07 13:01:44

Local clock offset: 0.01 ms

Remote clock offset: -0.35 ms

Below is generated by plot.py at 2018-09-07 17:03:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 382.96 Mbit/s

95th percentile per-packet one-way delay: 118.418 ms

Loss rate: 1.16%

-- Flow 1:

Average throughput: 219.56 Mbit/s

95th percentile per-packet one-way delay: 113.225 ms

Loss rate: 0.67%

-- Flow 2:

Average throughput: 145.75 Mbit/s

95th percentile per-packet one-way delay: 119.305 ms

Loss rate: 1.29%

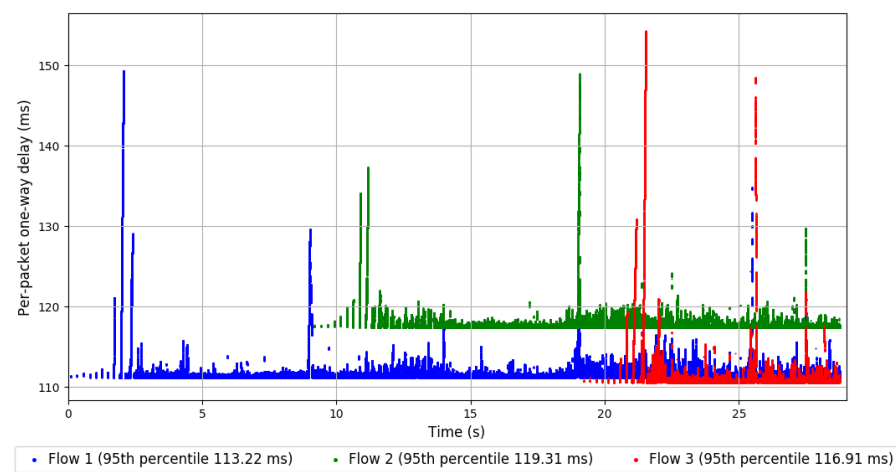
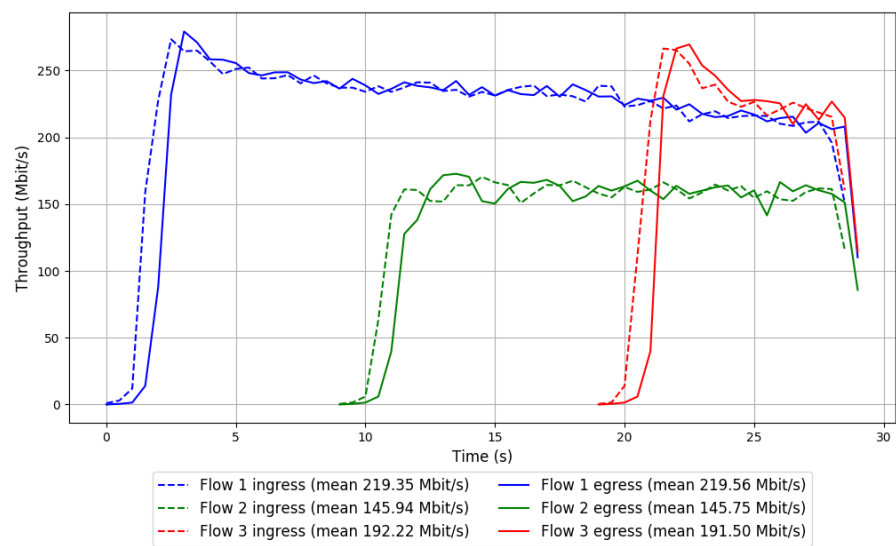
-- Flow 3:

Average throughput: 191.50 Mbit/s

95th percentile per-packet one-way delay: 116.907 ms

Loss rate: 2.59%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-07 13:35:00

End at: 2018-09-07 13:35:30

Local clock offset: -0.135 ms

Remote clock offset: 0.02 ms

Below is generated by plot.py at 2018-09-07 17:03:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 329.26 Mbit/s

95th percentile per-packet one-way delay: 112.671 ms

Loss rate: 1.21%

-- Flow 1:

Average throughput: 149.39 Mbit/s

95th percentile per-packet one-way delay: 112.630 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 205.00 Mbit/s

95th percentile per-packet one-way delay: 113.100 ms

Loss rate: 1.13%

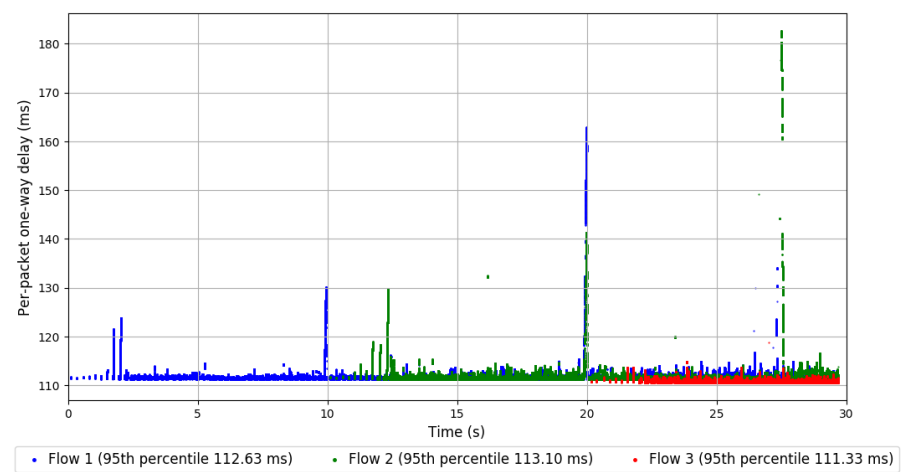
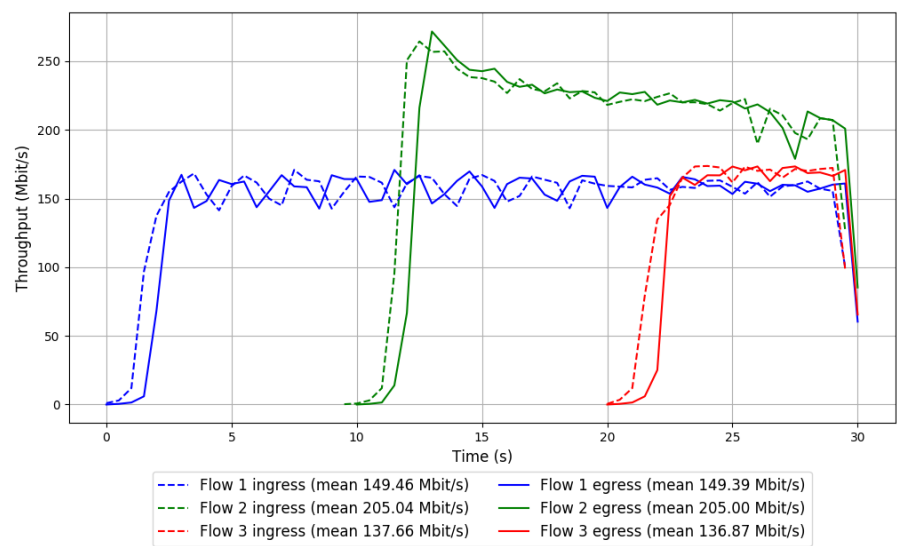
-- Flow 3:

Average throughput: 136.87 Mbit/s

95th percentile per-packet one-way delay: 111.326 ms

Loss rate: 2.83%

Run 2: Report of Indigo — Data Link

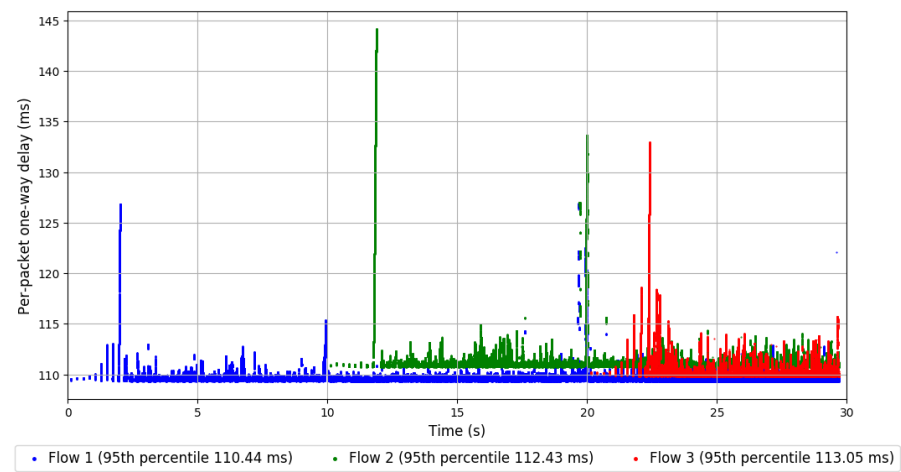
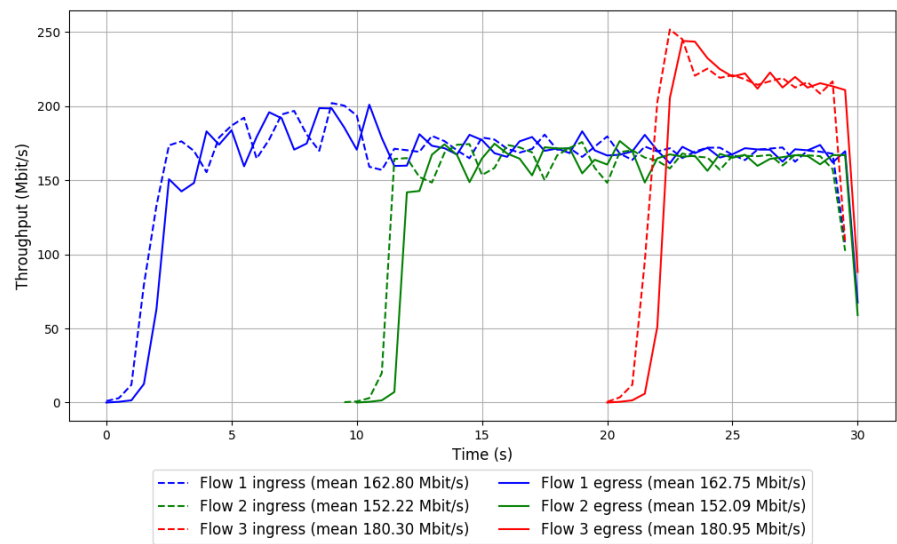


Run 3: Statistics of Indigo

Start at: 2018-09-07 14:08:00
End at: 2018-09-07 14:08:30
Local clock offset: -1.552 ms
Remote clock offset: -0.079 ms

Below is generated by plot.py at 2018-09-07 17:03:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 321.85 Mbit/s
95th percentile per-packet one-way delay: 111.781 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 162.75 Mbit/s
95th percentile per-packet one-way delay: 110.438 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 152.09 Mbit/s
95th percentile per-packet one-way delay: 112.426 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 180.95 Mbit/s
95th percentile per-packet one-way delay: 113.051 ms
Loss rate: 1.94%

Run 3: Report of Indigo — Data Link

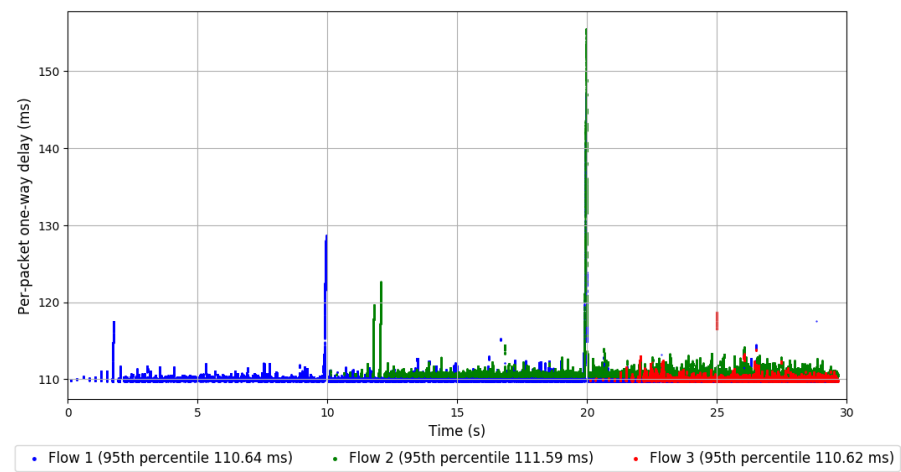
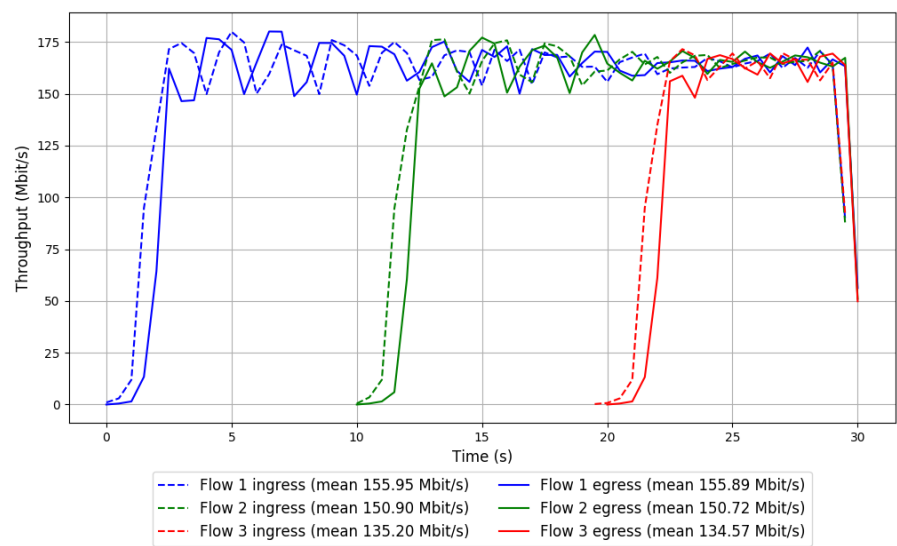


Run 4: Statistics of Indigo

Start at: 2018-09-07 14:41:23
End at: 2018-09-07 14:41:53
Local clock offset: -0.832 ms
Remote clock offset: -0.403 ms

Below is generated by plot.py at 2018-09-07 17:03:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 298.99 Mbit/s
95th percentile per-packet one-way delay: 111.100 ms
Loss rate: 1.22%
-- Flow 1:
Average throughput: 155.89 Mbit/s
95th percentile per-packet one-way delay: 110.643 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 150.72 Mbit/s
95th percentile per-packet one-way delay: 111.595 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 134.57 Mbit/s
95th percentile per-packet one-way delay: 110.616 ms
Loss rate: 2.73%

Run 4: Report of Indigo — Data Link

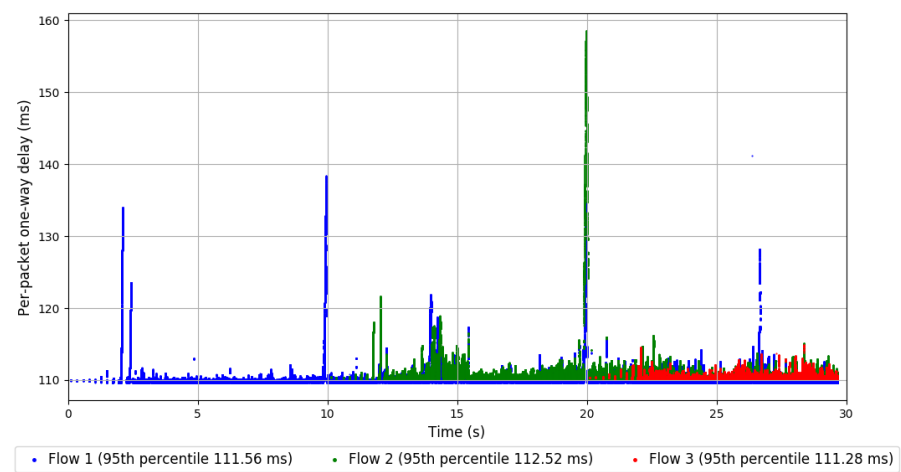
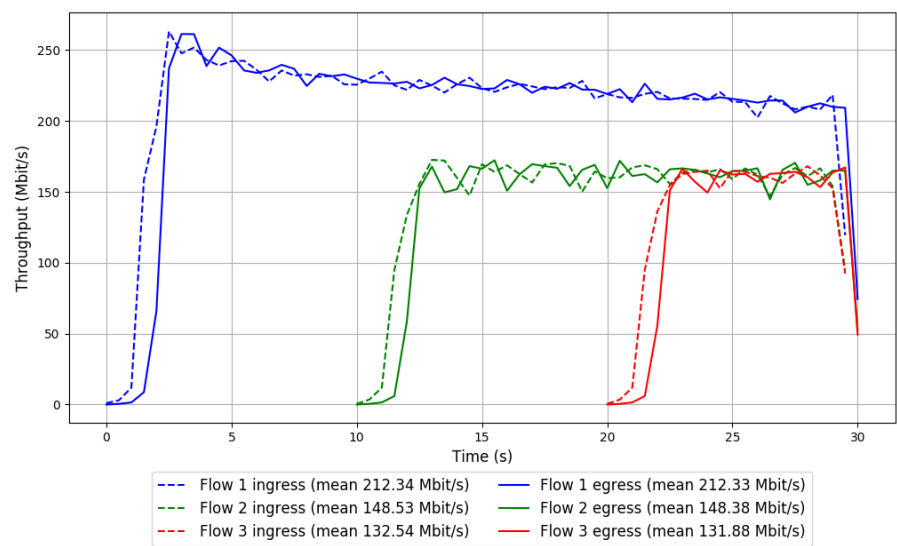


Run 5: Statistics of Indigo

Start at: 2018-09-07 15:14:55
End at: 2018-09-07 15:15:25
Local clock offset: -0.788 ms
Remote clock offset: -0.003 ms

Below is generated by plot.py at 2018-09-07 17:03:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 353.01 Mbit/s
95th percentile per-packet one-way delay: 111.847 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 212.33 Mbit/s
95th percentile per-packet one-way delay: 111.555 ms
Loss rate: 0.75%
-- Flow 2:
Average throughput: 148.38 Mbit/s
95th percentile per-packet one-way delay: 112.520 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 131.88 Mbit/s
95th percentile per-packet one-way delay: 111.282 ms
Loss rate: 2.76%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of LEDBAT

Start at: 2018-09-07 13:06:41

End at: 2018-09-07 13:07:11

Local clock offset: -0.74 ms

Remote clock offset: 0.376 ms

Below is generated by plot.py at 2018-09-07 17:03:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 11.55 Mbit/s

95th percentile per-packet one-way delay: 111.864 ms

Loss rate: 1.88%

-- Flow 1:

Average throughput: 7.51 Mbit/s

95th percentile per-packet one-way delay: 109.773 ms

Loss rate: 1.43%

-- Flow 2:

Average throughput: 4.93 Mbit/s

95th percentile per-packet one-way delay: 112.158 ms

Loss rate: 2.25%

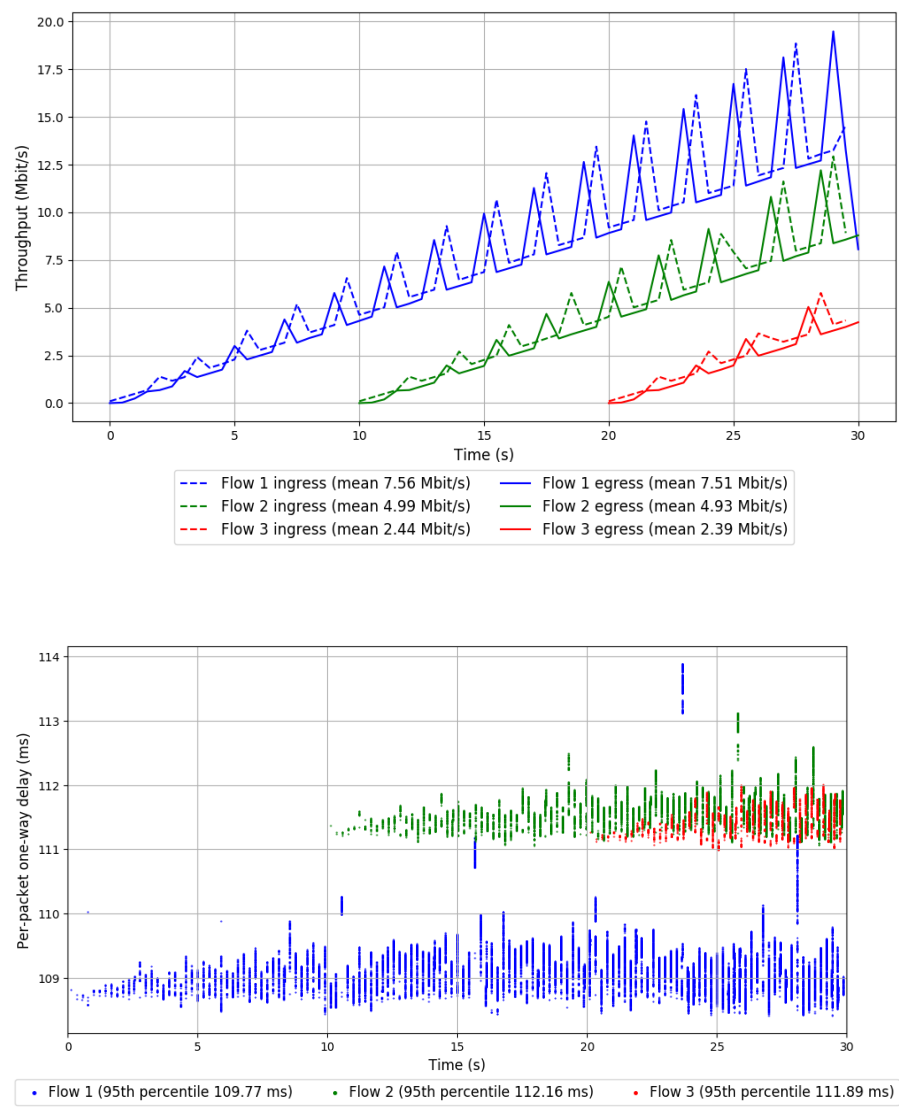
-- Flow 3:

Average throughput: 2.39 Mbit/s

95th percentile per-packet one-way delay: 111.886 ms

Loss rate: 4.56%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-07 13:40:27

End at: 2018-09-07 13:40:57

Local clock offset: 1.171 ms

Remote clock offset: -0.04 ms

Below is generated by plot.py at 2018-09-07 17:03:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 11.49 Mbit/s

95th percentile per-packet one-way delay: 114.615 ms

Loss rate: 1.92%

-- Flow 1:

Average throughput: 7.50 Mbit/s

95th percentile per-packet one-way delay: 113.319 ms

Loss rate: 1.49%

-- Flow 2:

Average throughput: 4.85 Mbit/s

95th percentile per-packet one-way delay: 115.009 ms

Loss rate: 2.27%

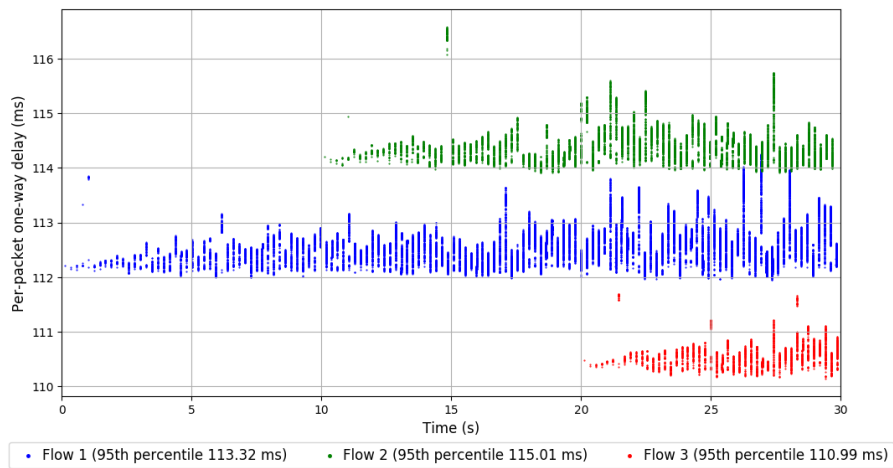
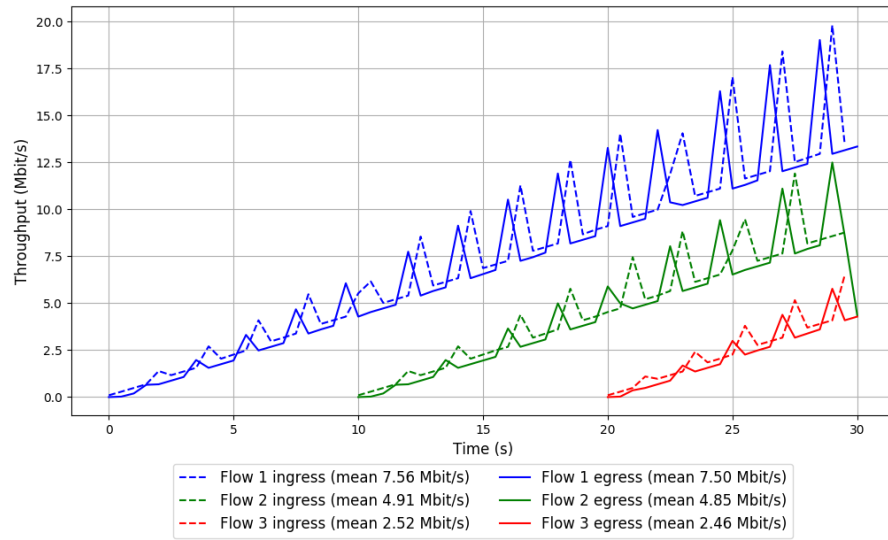
-- Flow 3:

Average throughput: 2.46 Mbit/s

95th percentile per-packet one-way delay: 110.989 ms

Loss rate: 4.42%

Run 2: Report of LEDBAT — Data Link

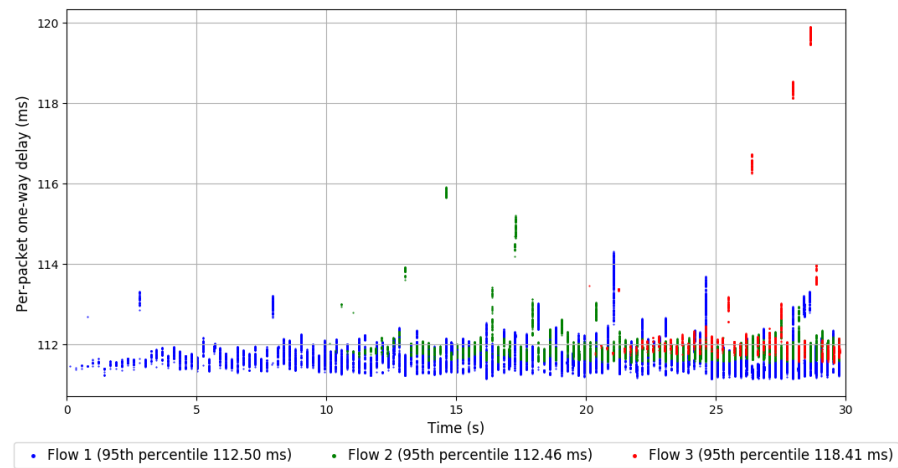
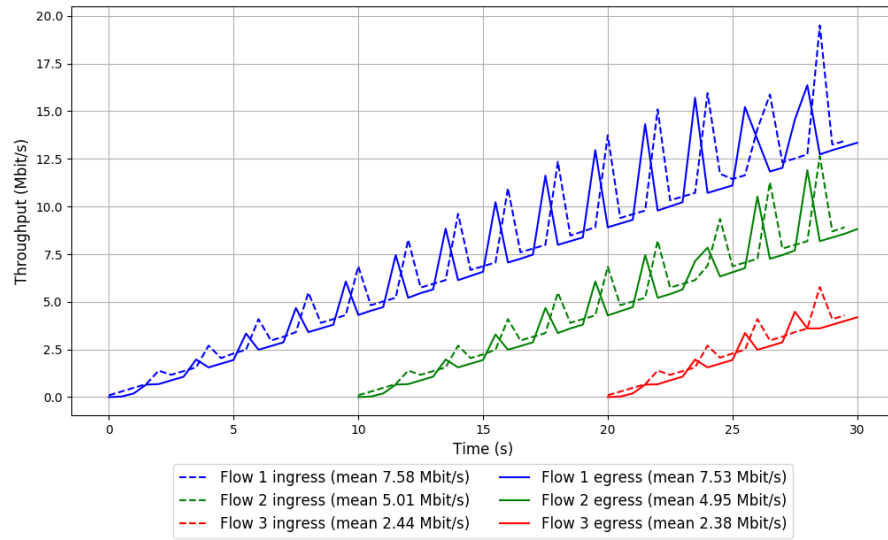


Run 3: Statistics of LEDBAT

Start at: 2018-09-07 14:13:22
End at: 2018-09-07 14:13:52
Local clock offset: 0.181 ms
Remote clock offset: -0.059 ms

Below is generated by plot.py at 2018-09-07 17:03:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 11.57 Mbit/s
95th percentile per-packet one-way delay: 112.645 ms
Loss rate: 1.92%
-- Flow 1:
Average throughput: 7.53 Mbit/s
95th percentile per-packet one-way delay: 112.500 ms
Loss rate: 1.49%
-- Flow 2:
Average throughput: 4.95 Mbit/s
95th percentile per-packet one-way delay: 112.464 ms
Loss rate: 2.26%
-- Flow 3:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 118.413 ms
Loss rate: 4.52%

Run 3: Report of LEDBAT — Data Link

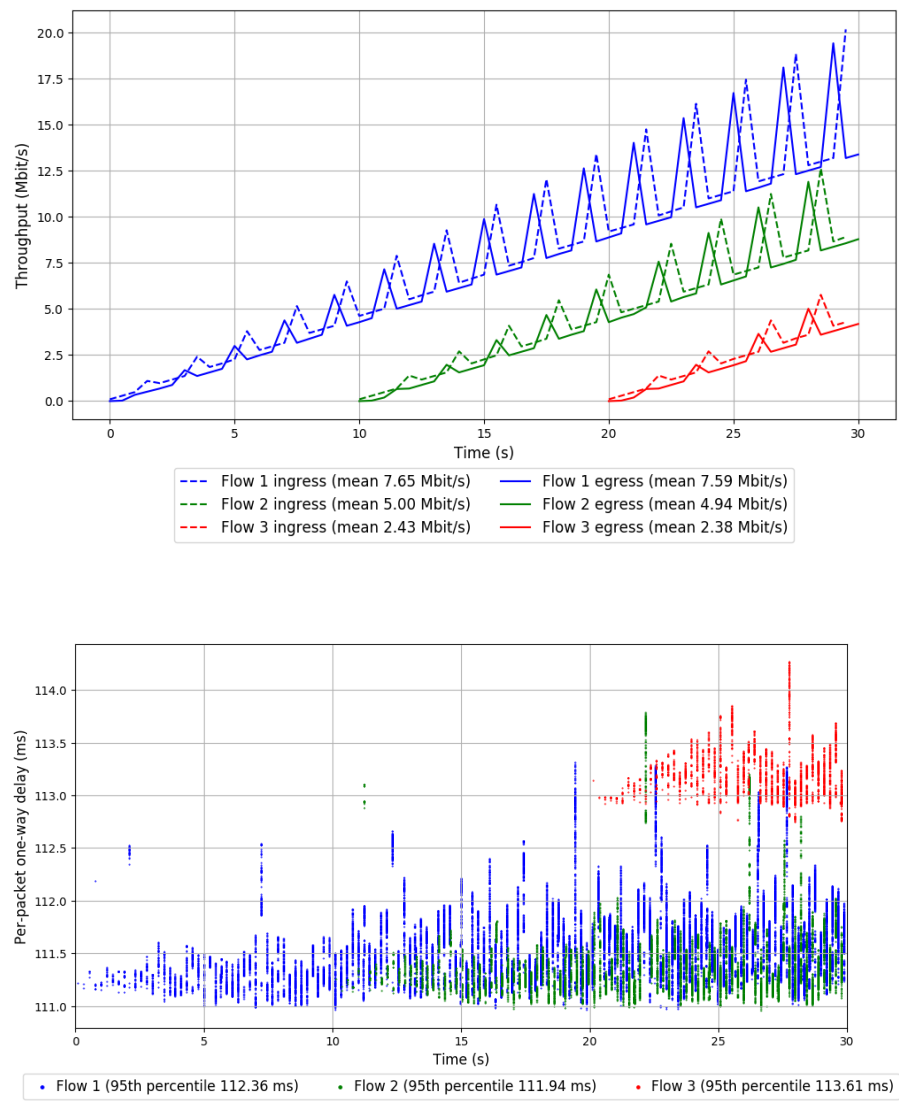


Run 4: Statistics of LEDBAT

Start at: 2018-09-07 14:46:46
End at: 2018-09-07 14:47:16
Local clock offset: 0.106 ms
Remote clock offset: -0.062 ms

Below is generated by plot.py at 2018-09-07 17:03:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 11.63 Mbit/s
95th percentile per-packet one-way delay: 113.106 ms
Loss rate: 1.91%
-- Flow 1:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 112.359 ms
Loss rate: 1.48%
-- Flow 2:
Average throughput: 4.94 Mbit/s
95th percentile per-packet one-way delay: 111.938 ms
Loss rate: 2.25%
-- Flow 3:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 113.605 ms
Loss rate: 4.52%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-07 15:20:17

End at: 2018-09-07 15:20:47

Local clock offset: -0.745 ms

Remote clock offset: -0.03 ms

Below is generated by plot.py at 2018-09-07 17:03:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 11.64 Mbit/s

95th percentile per-packet one-way delay: 110.781 ms

Loss rate: 1.91%

-- Flow 1:

Average throughput: 7.52 Mbit/s

95th percentile per-packet one-way delay: 110.781 ms

Loss rate: 1.49%

-- Flow 2:

Average throughput: 5.06 Mbit/s

95th percentile per-packet one-way delay: 110.611 ms

Loss rate: 2.23%

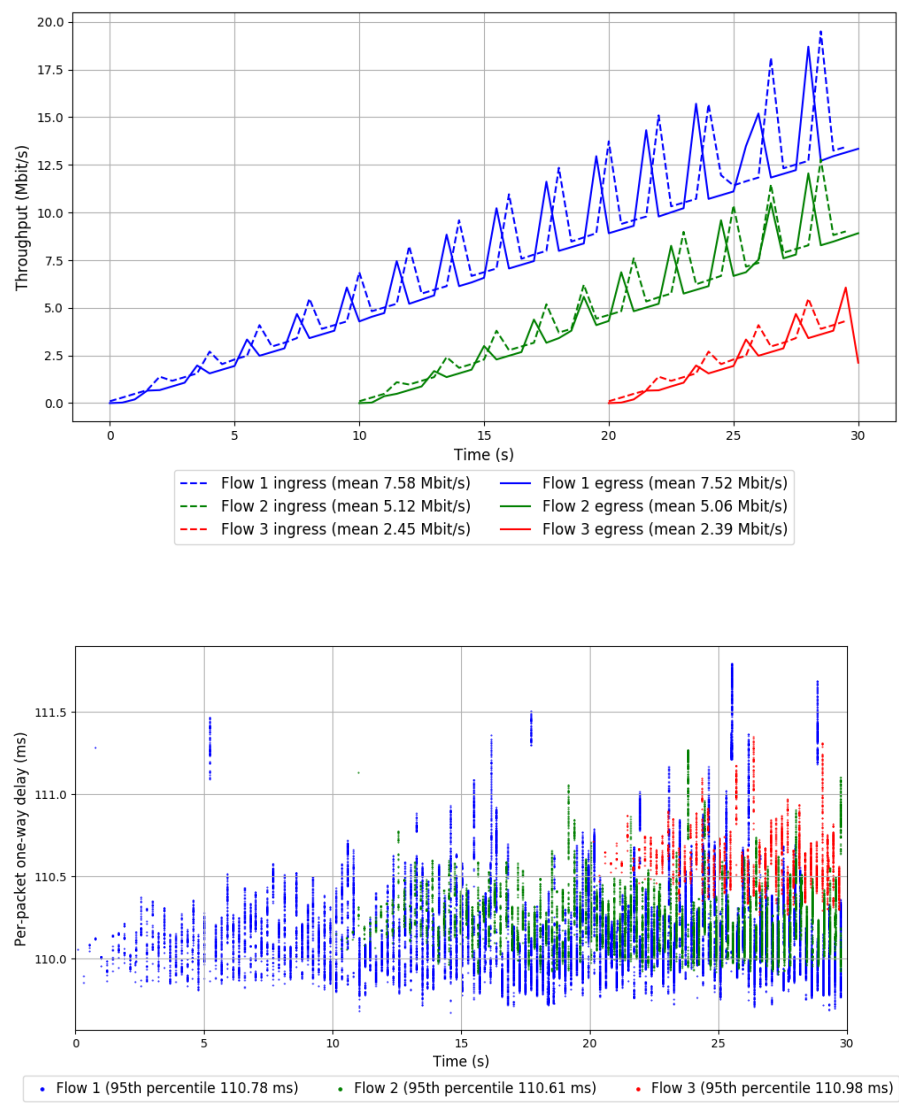
-- Flow 3:

Average throughput: 2.39 Mbit/s

95th percentile per-packet one-way delay: 110.976 ms

Loss rate: 4.57%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-07 12:54:05

End at: 2018-09-07 12:54:35

Local clock offset: -0.578 ms

Remote clock offset: 0.014 ms

Below is generated by plot.py at 2018-09-07 17:03:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 857.80 Mbit/s

95th percentile per-packet one-way delay: 146.478 ms

Loss rate: 1.43%

-- Flow 1:

Average throughput: 513.30 Mbit/s

95th percentile per-packet one-way delay: 151.248 ms

Loss rate: 0.88%

-- Flow 2:

Average throughput: 411.48 Mbit/s

95th percentile per-packet one-way delay: 143.589 ms

Loss rate: 1.50%

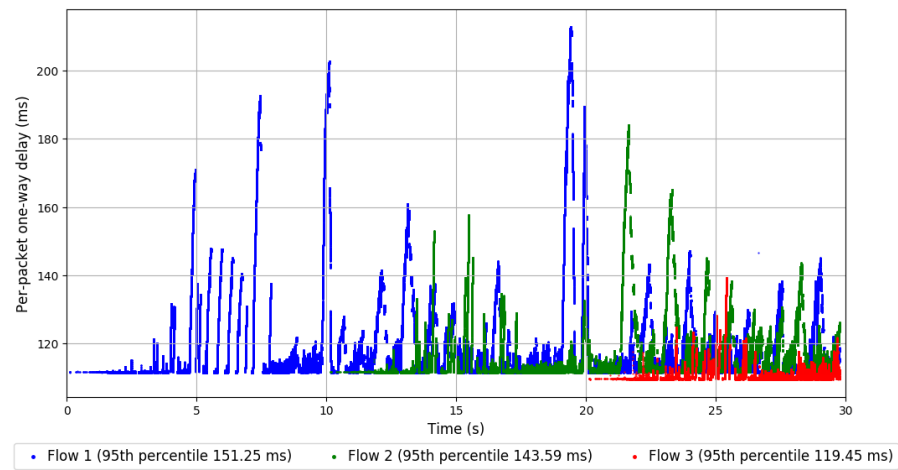
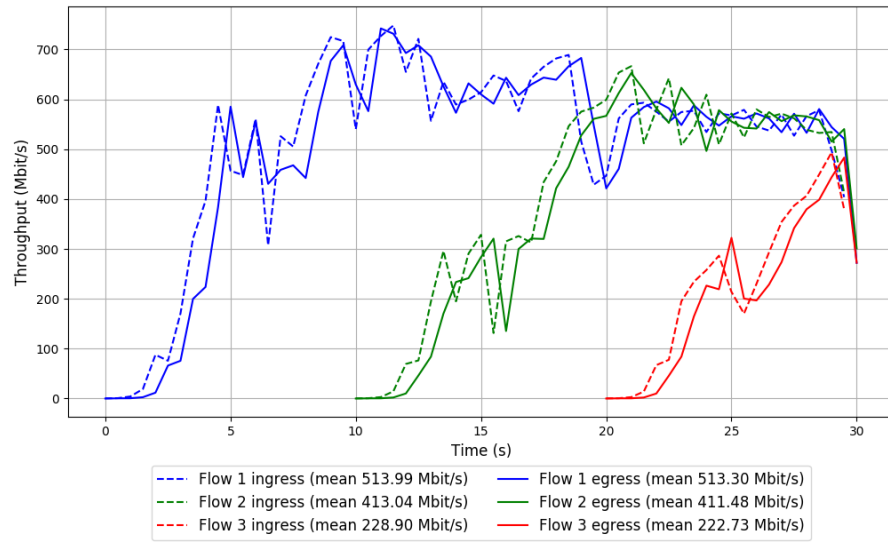
-- Flow 3:

Average throughput: 222.73 Mbit/s

95th percentile per-packet one-way delay: 119.451 ms

Loss rate: 4.87%

Run 1: Report of Indigo-Muses — Data Link

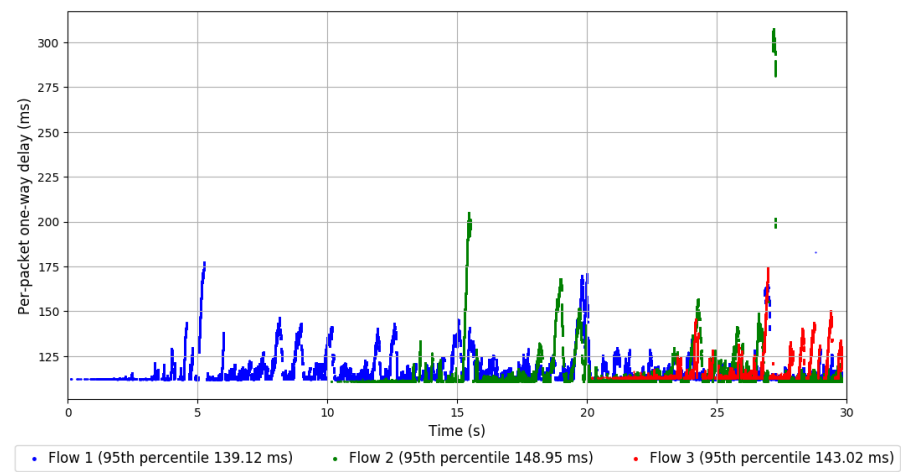
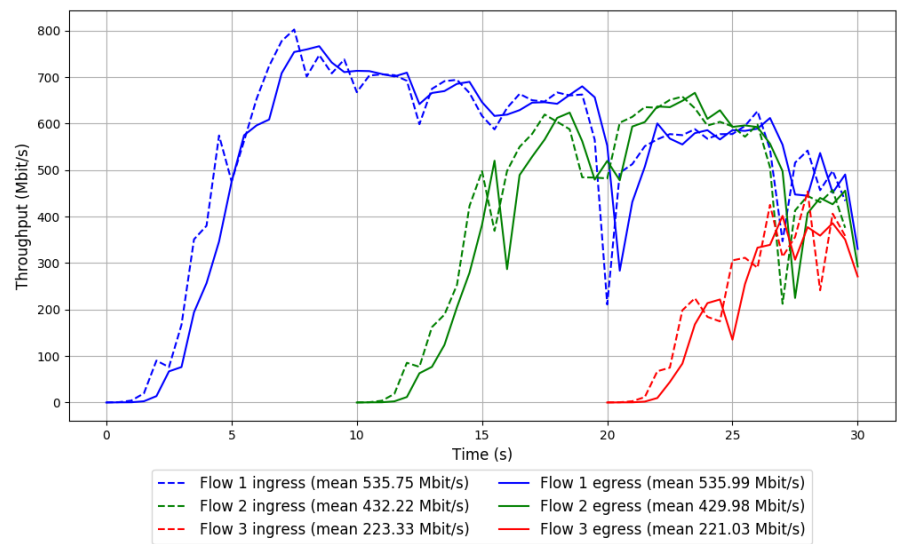


Run 2: Statistics of Indigo-Muses

Start at: 2018-09-07 13:27:39
End at: 2018-09-07 13:28:09
Local clock offset: 0.028 ms
Remote clock offset: -0.374 ms

Below is generated by plot.py at 2018-09-07 17:03:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 892.46 Mbit/s
95th percentile per-packet one-way delay: 141.717 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 535.99 Mbit/s
95th percentile per-packet one-way delay: 139.125 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 429.98 Mbit/s
95th percentile per-packet one-way delay: 148.948 ms
Loss rate: 1.63%
-- Flow 3:
Average throughput: 221.03 Mbit/s
95th percentile per-packet one-way delay: 143.020 ms
Loss rate: 3.25%

Run 2: Report of Indigo-Muses — Data Link

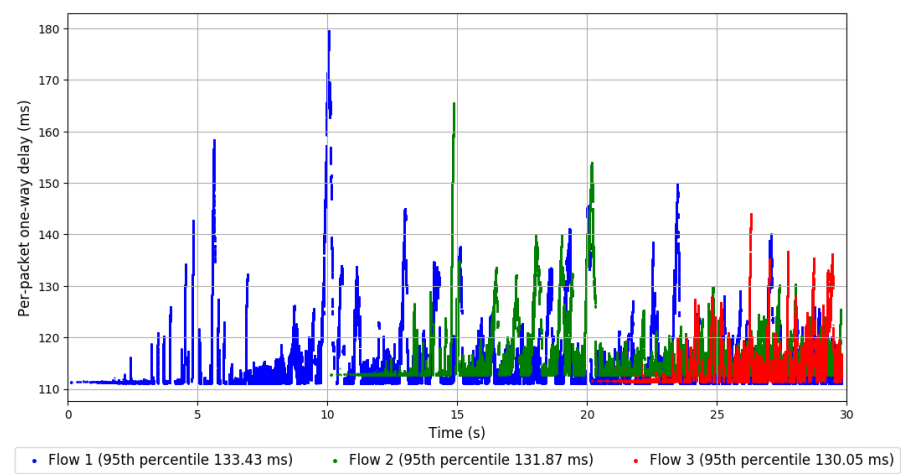
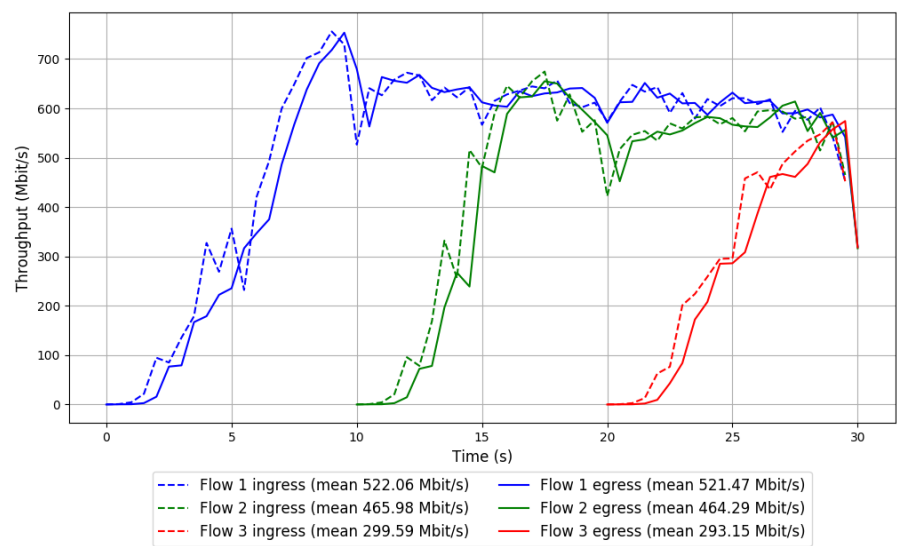


Run 3: Statistics of Indigo-Muses

Start at: 2018-09-07 14:00:54
End at: 2018-09-07 14:01:24
Local clock offset: 0.484 ms
Remote clock offset: -0.077 ms

Below is generated by plot.py at 2018-09-07 17:04:00
Datalink statistics
-- Total of 3 flows:
Average throughput: 924.24 Mbit/s
95th percentile per-packet one-way delay: 132.477 ms
Loss rate: 1.44%
-- Flow 1:
Average throughput: 521.47 Mbit/s
95th percentile per-packet one-way delay: 133.425 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 464.29 Mbit/s
95th percentile per-packet one-way delay: 131.867 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 293.15 Mbit/s
95th percentile per-packet one-way delay: 130.049 ms
Loss rate: 4.37%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-07 14:34:15

End at: 2018-09-07 14:34:45

Local clock offset: 1.296 ms

Remote clock offset: 0.319 ms

Below is generated by plot.py at 2018-09-07 17:04:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 868.09 Mbit/s

95th percentile per-packet one-way delay: 138.488 ms

Loss rate: 1.36%

-- Flow 1:

Average throughput: 523.15 Mbit/s

95th percentile per-packet one-way delay: 134.526 ms

Loss rate: 0.83%

-- Flow 2:

Average throughput: 418.66 Mbit/s

95th percentile per-packet one-way delay: 145.239 ms

Loss rate: 1.34%

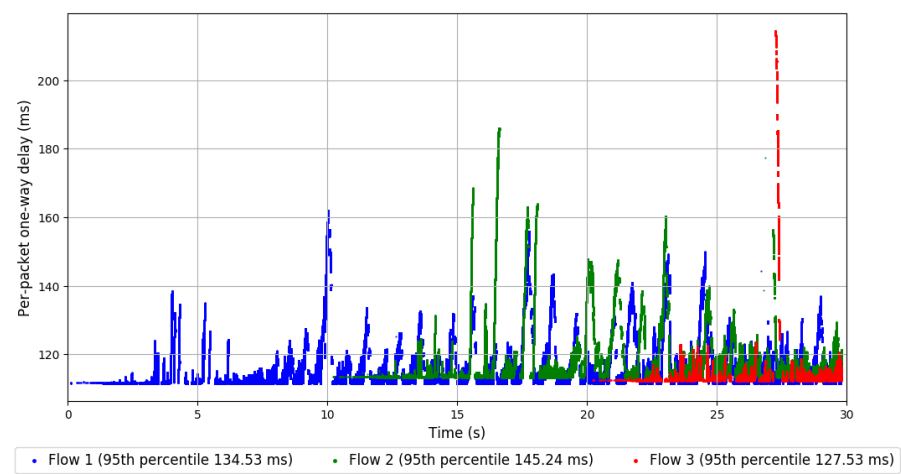
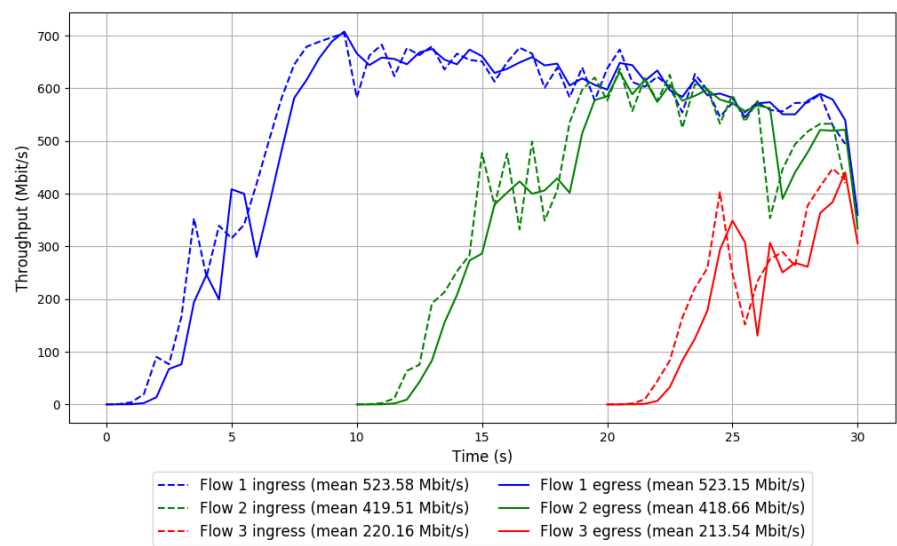
-- Flow 3:

Average throughput: 213.54 Mbit/s

95th percentile per-packet one-way delay: 127.527 ms

Loss rate: 5.23%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-07 15:07:54

End at: 2018-09-07 15:08:24

Local clock offset: 0.368 ms

Remote clock offset: 0.373 ms

Below is generated by plot.py at 2018-09-07 17:04:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 754.79 Mbit/s

95th percentile per-packet one-way delay: 140.281 ms

Loss rate: 1.20%

-- Flow 1:

Average throughput: 447.03 Mbit/s

95th percentile per-packet one-way delay: 138.190 ms

Loss rate: 0.72%

-- Flow 2:

Average throughput: 381.00 Mbit/s

95th percentile per-packet one-way delay: 146.788 ms

Loss rate: 1.37%

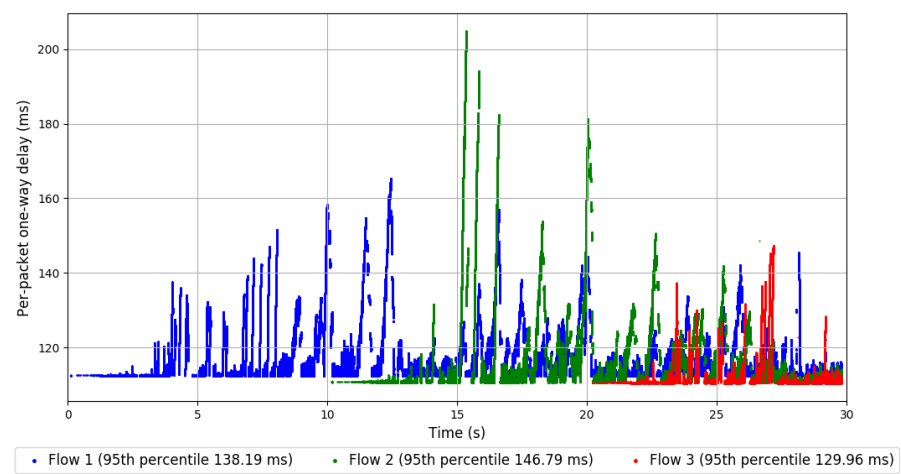
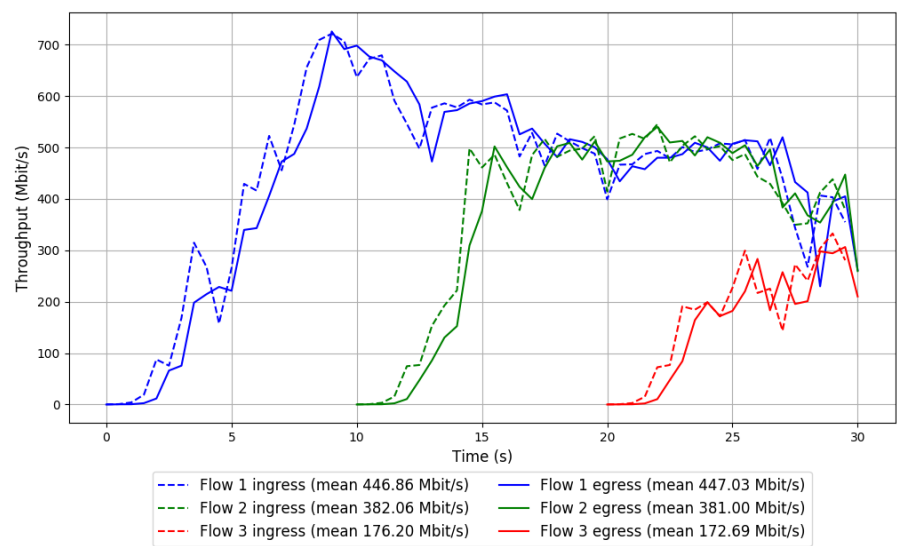
-- Flow 3:

Average throughput: 172.69 Mbit/s

95th percentile per-packet one-way delay: 129.959 ms

Loss rate: 4.21%

Run 5: Report of Indigo-Muses — Data Link

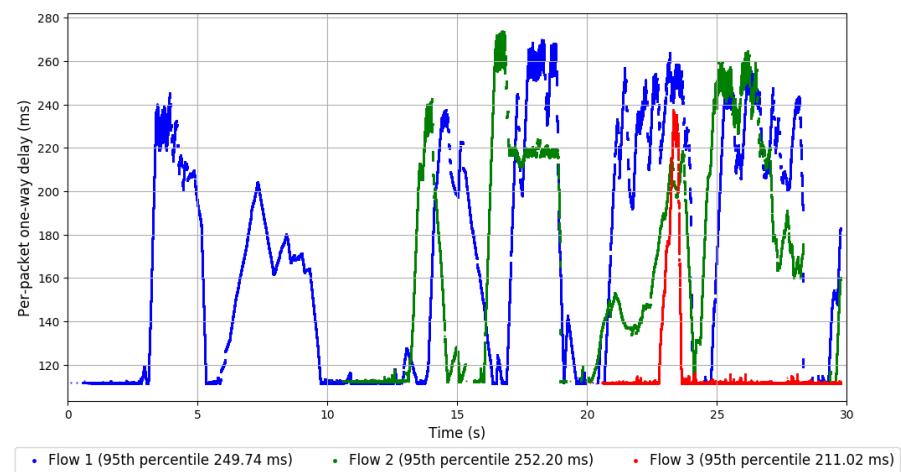
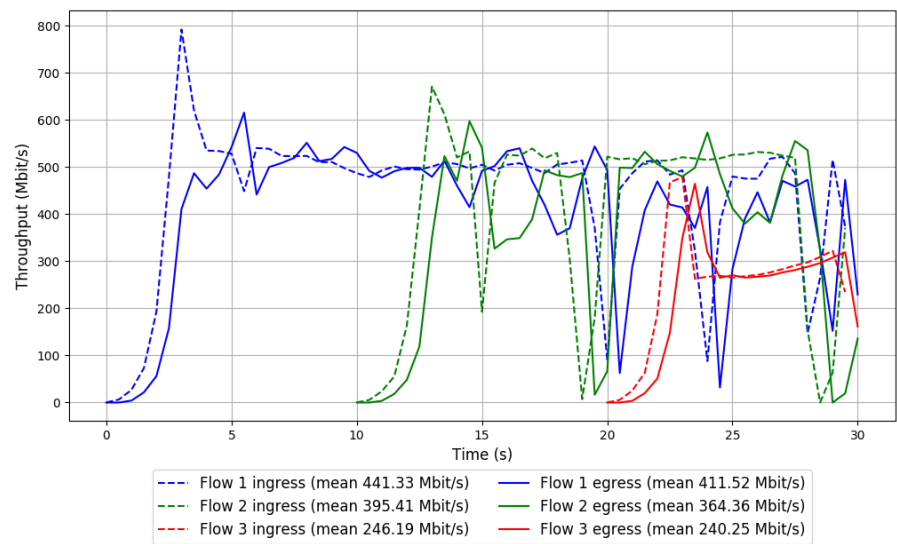



```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-07 12:59:03
End at: 2018-09-07 12:59:33
Local clock offset: 0.013 ms
Remote clock offset: -0.362 ms

# Below is generated by plot.py at 2018-09-07 17:13:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 730.79 Mbit/s
95th percentile per-packet one-way delay: 249.424 ms
Loss rate: 7.64%
-- Flow 1:
Average throughput: 411.52 Mbit/s
95th percentile per-packet one-way delay: 249.742 ms
Loss rate: 7.45%
-- Flow 2:
Average throughput: 364.36 Mbit/s
95th percentile per-packet one-way delay: 252.197 ms
Loss rate: 8.89%
-- Flow 3:
Average throughput: 240.25 Mbit/s
95th percentile per-packet one-way delay: 211.016 ms
Loss rate: 4.61%
```

Run 1: Report of PCC-Allegro — Data Link

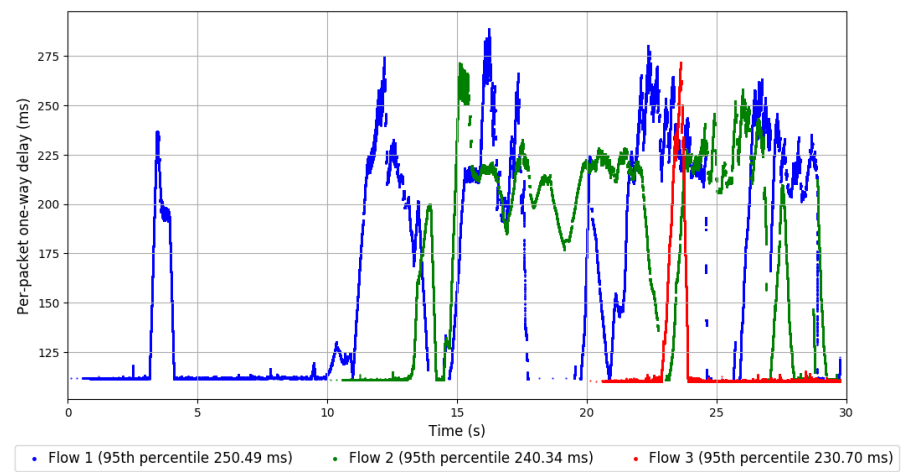
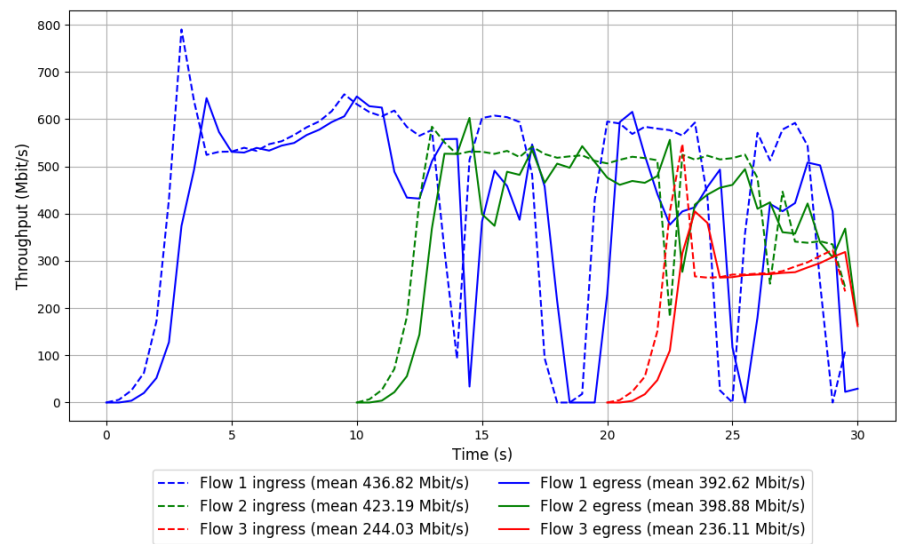


Run 2: Statistics of PCC-Allegro

Start at: 2018-09-07 13:32:48
End at: 2018-09-07 13:33:18
Local clock offset: -0.252 ms
Remote clock offset: -0.313 ms

Below is generated by plot.py at 2018-09-07 17:19:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 733.42 Mbit/s
95th percentile per-packet one-way delay: 245.095 ms
Loss rate: 8.85%
-- Flow 1:
Average throughput: 392.62 Mbit/s
95th percentile per-packet one-way delay: 250.491 ms
Loss rate: 10.79%
-- Flow 2:
Average throughput: 398.88 Mbit/s
95th percentile per-packet one-way delay: 240.335 ms
Loss rate: 6.82%
-- Flow 3:
Average throughput: 236.11 Mbit/s
95th percentile per-packet one-way delay: 230.699 ms
Loss rate: 5.42%

Run 2: Report of PCC-Allegro — Data Link

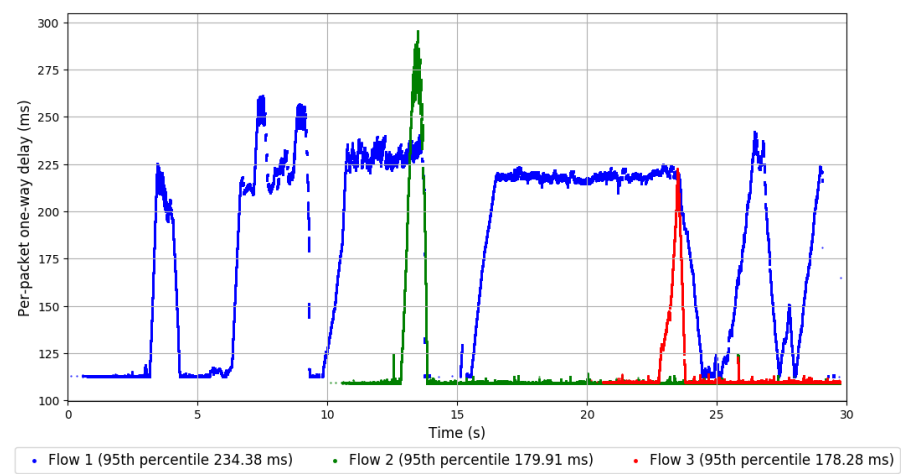
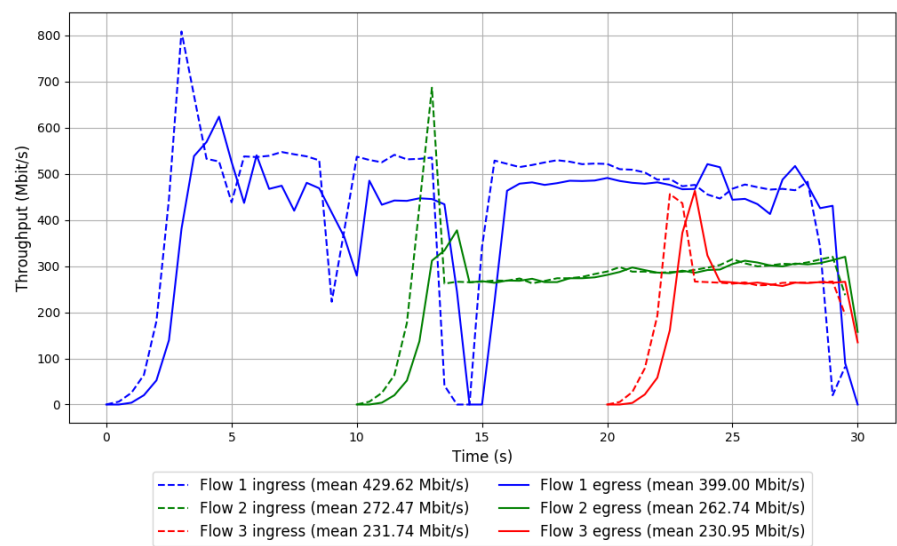


Run 3: Statistics of PCC-Allegro

Start at: 2018-09-07 14:05:55
End at: 2018-09-07 14:06:25
Local clock offset: -0.173 ms
Remote clock offset: -0.051 ms

Below is generated by plot.py at 2018-09-07 17:19:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 647.79 Mbit/s
95th percentile per-packet one-way delay: 232.414 ms
Loss rate: 6.05%
-- Flow 1:
Average throughput: 399.00 Mbit/s
95th percentile per-packet one-way delay: 234.377 ms
Loss rate: 7.25%
-- Flow 2:
Average throughput: 262.74 Mbit/s
95th percentile per-packet one-way delay: 179.909 ms
Loss rate: 4.68%
-- Flow 3:
Average throughput: 230.95 Mbit/s
95th percentile per-packet one-way delay: 178.282 ms
Loss rate: 2.62%

Run 3: Report of PCC-Allegro — Data Link

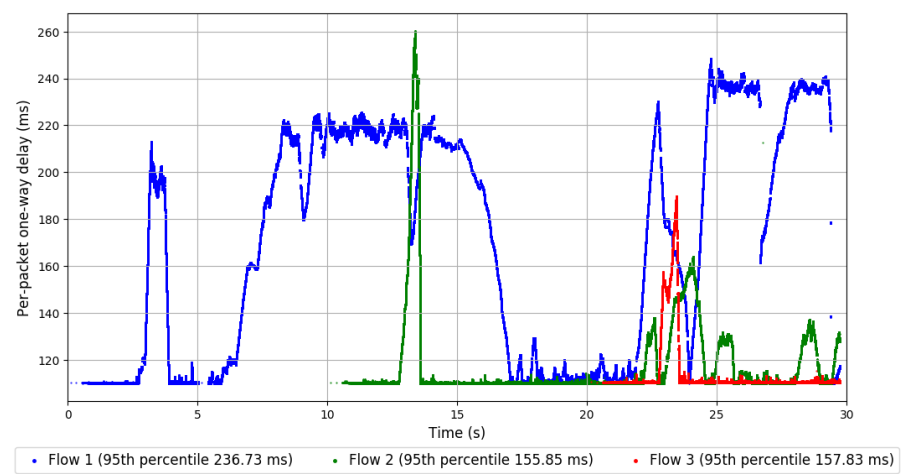
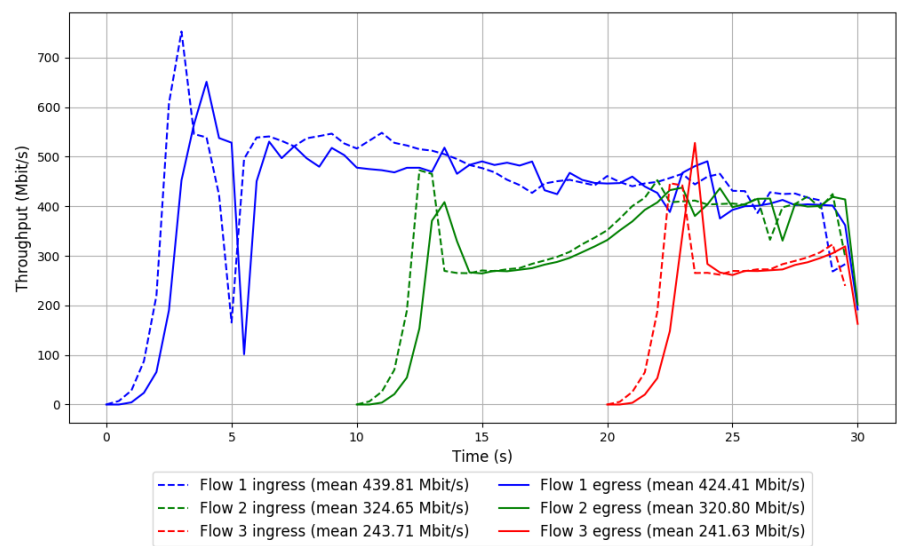


Run 4: Statistics of PCC-Allegro

Start at: 2018-09-07 14:39:13
End at: 2018-09-07 14:39:43
Local clock offset: -0.245 ms
Remote clock offset: -0.083 ms

Below is generated by plot.py at 2018-09-07 17:26:38
Datalink statistics
-- Total of 3 flows:
Average throughput: 715.11 Mbit/s
95th percentile per-packet one-way delay: 235.411 ms
Loss rate: 3.53%
-- Flow 1:
Average throughput: 424.41 Mbit/s
95th percentile per-packet one-way delay: 236.732 ms
Loss rate: 4.22%
-- Flow 2:
Average throughput: 320.80 Mbit/s
95th percentile per-packet one-way delay: 155.846 ms
Loss rate: 2.29%
-- Flow 3:
Average throughput: 241.63 Mbit/s
95th percentile per-packet one-way delay: 157.833 ms
Loss rate: 3.12%

Run 4: Report of PCC-Allegro — Data Link

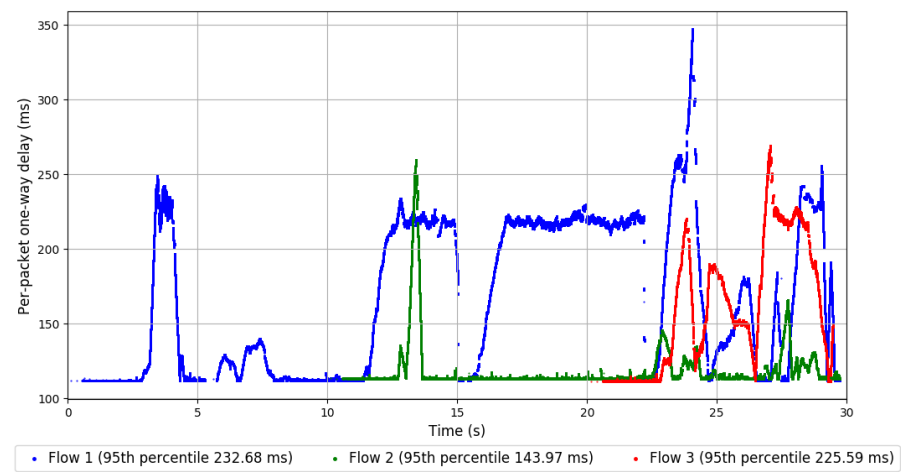
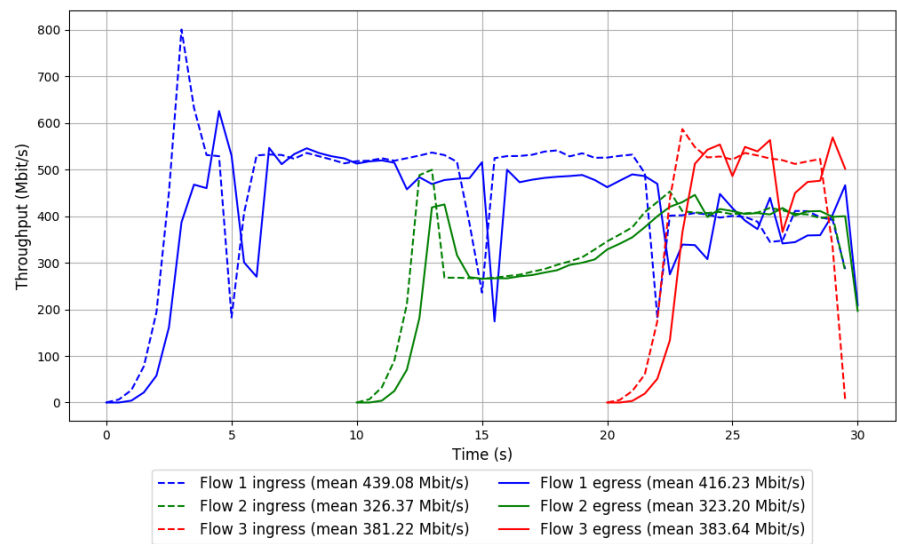


Run 5: Statistics of PCC-Allegro

Start at: 2018-09-07 15:12:41
End at: 2018-09-07 15:13:11
Local clock offset: 0.918 ms
Remote clock offset: -0.005 ms

Below is generated by plot.py at 2018-09-07 17:29:30
Datalink statistics
-- Total of 3 flows:
Average throughput: 750.92 Mbit/s
95th percentile per-packet one-way delay: 227.533 ms
Loss rate: 4.47%
-- Flow 1:
Average throughput: 416.23 Mbit/s
95th percentile per-packet one-way delay: 232.679 ms
Loss rate: 5.91%
-- Flow 2:
Average throughput: 323.20 Mbit/s
95th percentile per-packet one-way delay: 143.967 ms
Loss rate: 2.09%
-- Flow 3:
Average throughput: 383.64 Mbit/s
95th percentile per-packet one-way delay: 225.591 ms
Loss rate: 3.51%

Run 5: Report of PCC-Allegro — Data Link

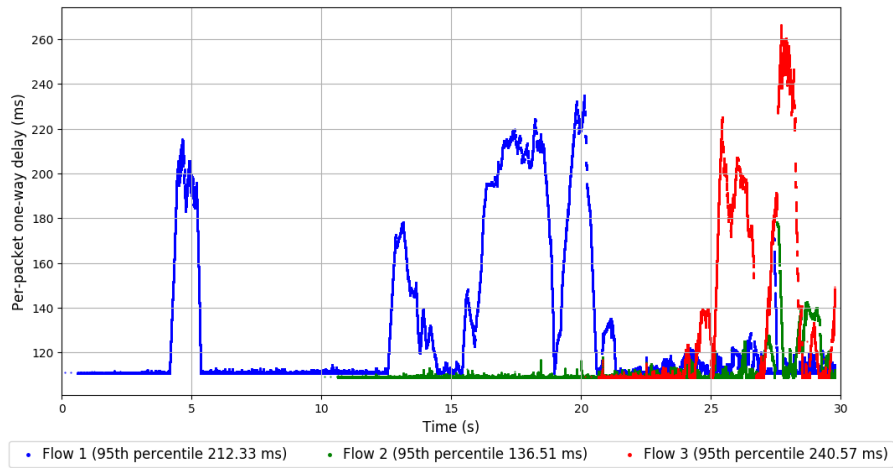
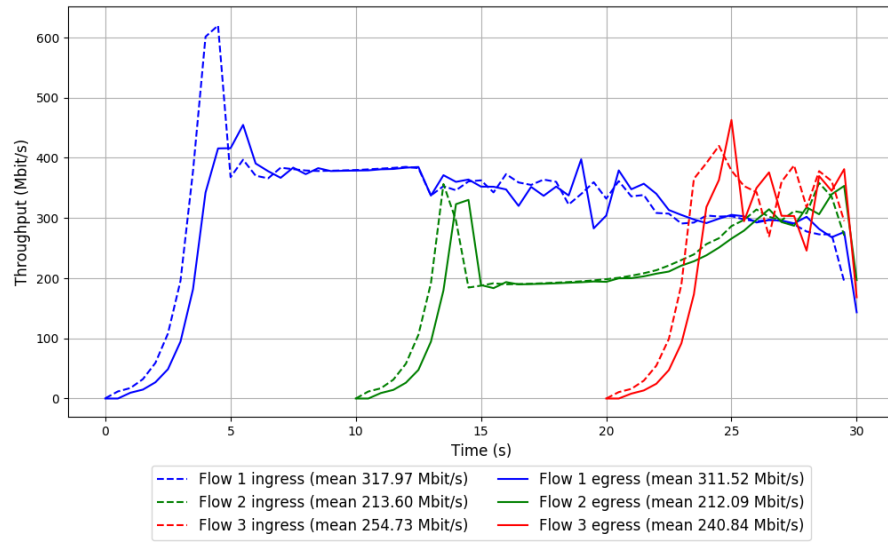


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-07 12:44:09
End at: 2018-09-07 12:44:39
Local clock offset: -0.358 ms
Remote clock offset: 0.012 ms

# Below is generated by plot.py at 2018-09-07 17:29:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 530.25 Mbit/s
95th percentile per-packet one-way delay: 210.608 ms
Loss rate: 3.25%
-- Flow 1:
Average throughput: 311.52 Mbit/s
95th percentile per-packet one-way delay: 212.334 ms
Loss rate: 2.75%
-- Flow 2:
Average throughput: 212.09 Mbit/s
95th percentile per-packet one-way delay: 136.514 ms
Loss rate: 1.80%
-- Flow 3:
Average throughput: 240.84 Mbit/s
95th percentile per-packet one-way delay: 240.574 ms
Loss rate: 7.58%
```

Run 1: Report of PCC-Expr — Data Link

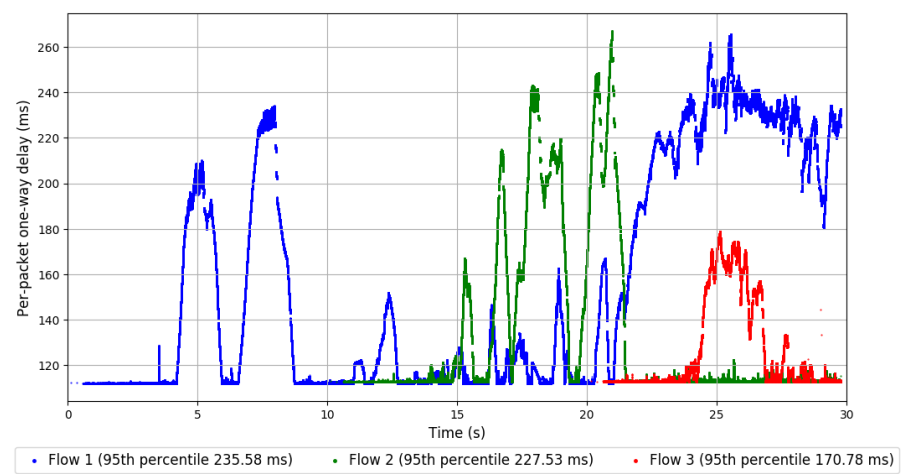
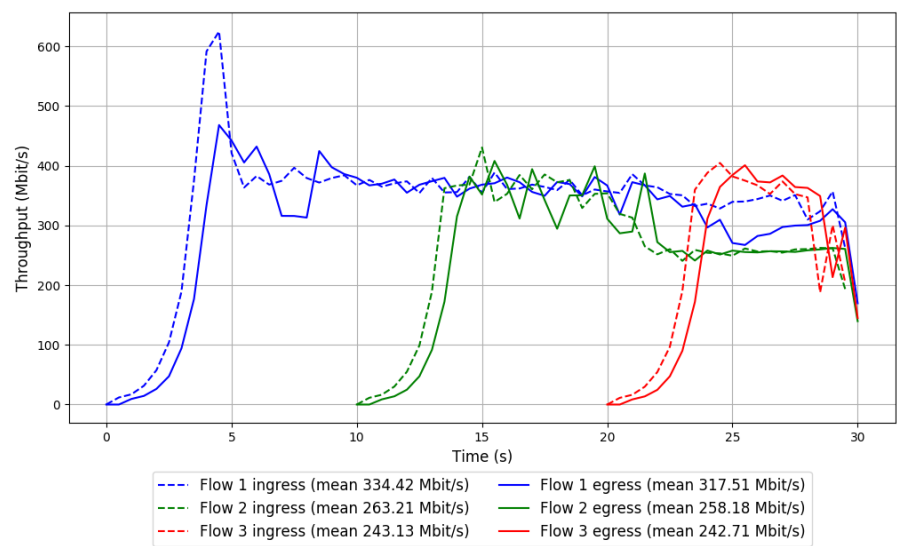


Run 2: Statistics of PCC-Expr

Start at: 2018-09-07 13:17:37
End at: 2018-09-07 13:18:07
Local clock offset: 0.174 ms
Remote clock offset: -0.368 ms

Below is generated by plot.py at 2018-09-07 17:29:30
Datalink statistics
-- Total of 3 flows:
Average throughput: 567.37 Mbit/s
95th percentile per-packet one-way delay: 233.557 ms
Loss rate: 4.50%
-- Flow 1:
Average throughput: 317.51 Mbit/s
95th percentile per-packet one-way delay: 235.582 ms
Loss rate: 5.77%
-- Flow 2:
Average throughput: 258.18 Mbit/s
95th percentile per-packet one-way delay: 227.534 ms
Loss rate: 3.01%
-- Flow 3:
Average throughput: 242.71 Mbit/s
95th percentile per-packet one-way delay: 170.782 ms
Loss rate: 2.45%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-07 13:50:51

End at: 2018-09-07 13:51:21

Local clock offset: 0.064 ms

Remote clock offset: 0.293 ms

Below is generated by plot.py at 2018-09-07 17:29:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 547.59 Mbit/s

95th percentile per-packet one-way delay: 189.305 ms

Loss rate: 2.19%

-- Flow 1:

Average throughput: 313.22 Mbit/s

95th percentile per-packet one-way delay: 200.305 ms

Loss rate: 2.27%

-- Flow 2:

Average throughput: 278.71 Mbit/s

95th percentile per-packet one-way delay: 155.515 ms

Loss rate: 1.87%

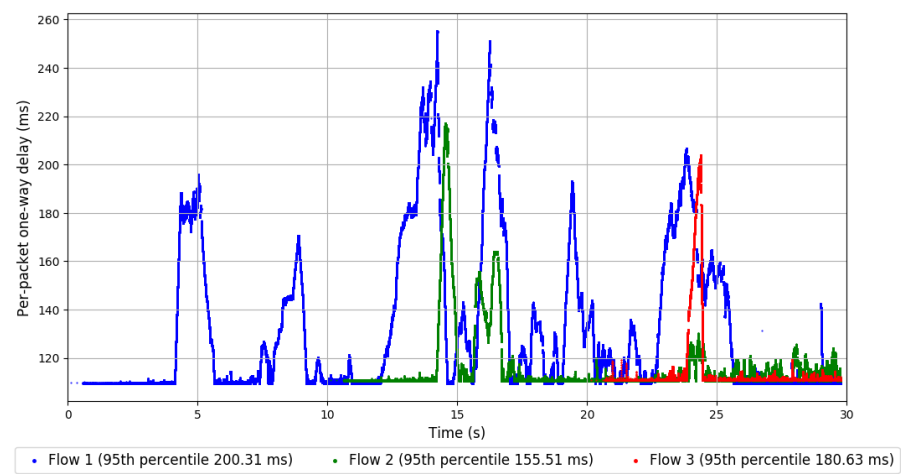
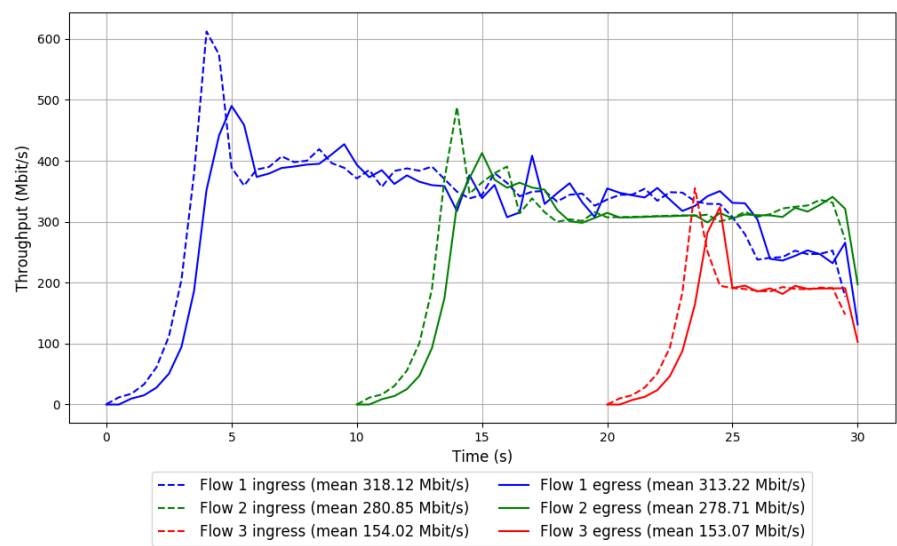
-- Flow 3:

Average throughput: 153.07 Mbit/s

95th percentile per-packet one-way delay: 180.633 ms

Loss rate: 2.86%

Run 3: Report of PCC-Expr — Data Link

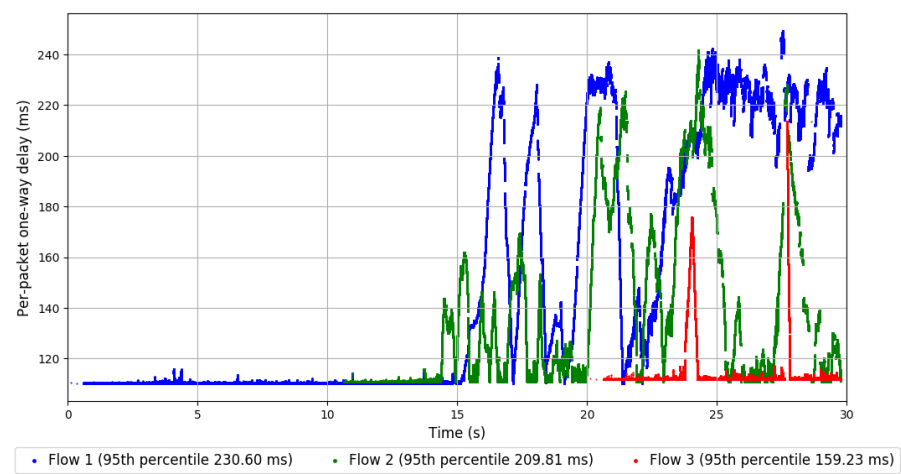
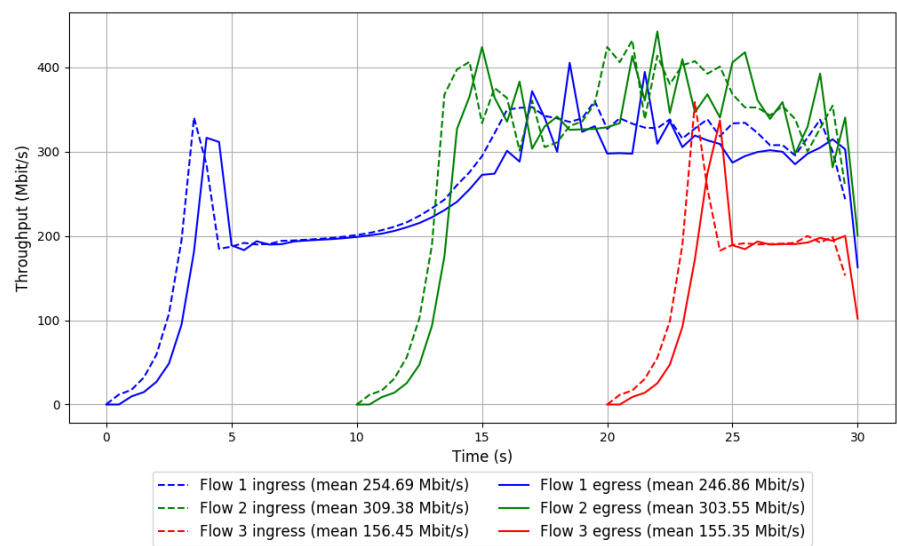


Run 4: Statistics of PCC-Expr

Start at: 2018-09-07 14:24:10
End at: 2018-09-07 14:24:40
Local clock offset: -0.817 ms
Remote clock offset: -0.078 ms

Below is generated by plot.py at 2018-09-07 17:32:51
Datalink statistics
-- Total of 3 flows:
Average throughput: 498.46 Mbit/s
95th percentile per-packet one-way delay: 227.857 ms
Loss rate: 3.39%
-- Flow 1:
Average throughput: 246.86 Mbit/s
95th percentile per-packet one-way delay: 230.600 ms
Loss rate: 3.80%
-- Flow 2:
Average throughput: 303.55 Mbit/s
95th percentile per-packet one-way delay: 209.808 ms
Loss rate: 2.99%
-- Flow 3:
Average throughput: 155.35 Mbit/s
95th percentile per-packet one-way delay: 159.231 ms
Loss rate: 3.01%

Run 4: Report of PCC-Expr — Data Link

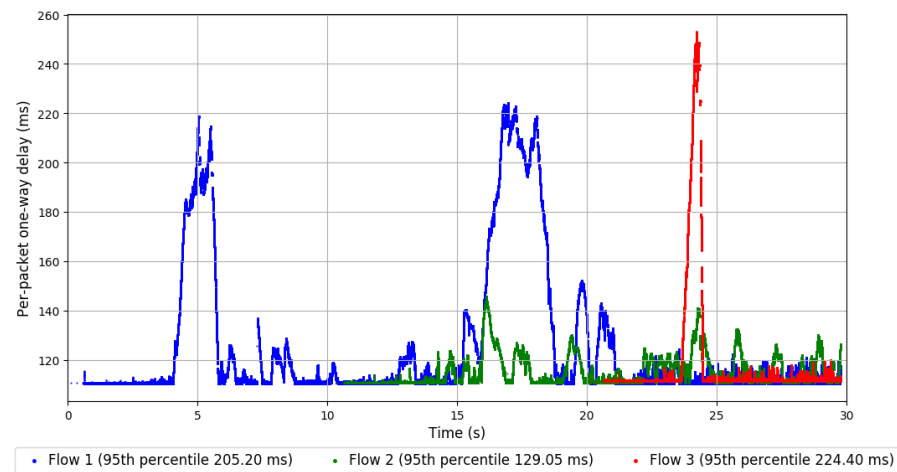
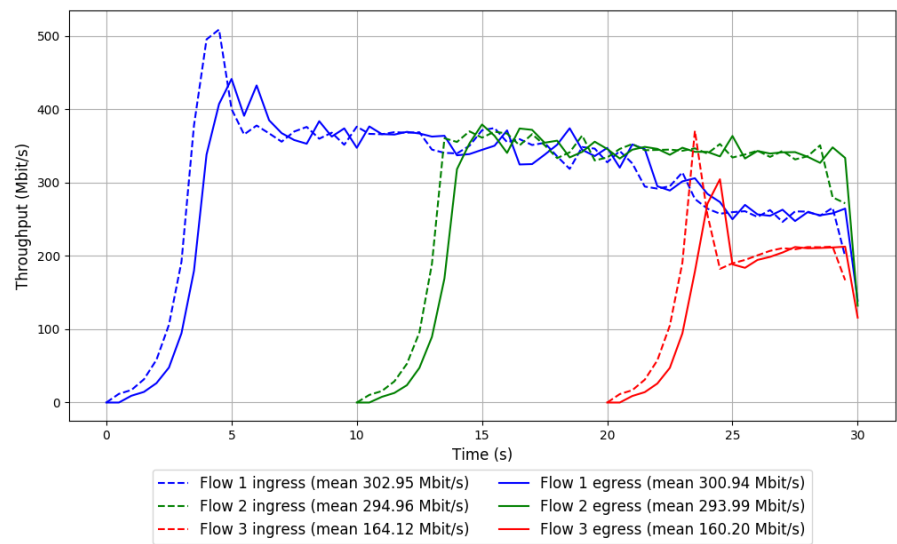


Run 5: Statistics of PCC-Expr

Start at: 2018-09-07 14:57:50
End at: 2018-09-07 14:58:20
Local clock offset: -0.136 ms
Remote clock offset: -0.057 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 547.78 Mbit/s
95th percentile per-packet one-way delay: 194.376 ms
Loss rate: 1.74%
-- Flow 1:
Average throughput: 300.94 Mbit/s
95th percentile per-packet one-way delay: 205.204 ms
Loss rate: 1.41%
-- Flow 2:
Average throughput: 293.99 Mbit/s
95th percentile per-packet one-way delay: 129.054 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 160.20 Mbit/s
95th percentile per-packet one-way delay: 224.403 ms
Loss rate: 4.60%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-07 13:05:18

End at: 2018-09-07 13:05:48

Local clock offset: 0.964 ms

Remote clock offset: 0.002 ms

Below is generated by plot.py at 2018-09-07 17:37:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 114.53 Mbit/s

95th percentile per-packet one-way delay: 118.005 ms

Loss rate: 1.26%

-- Flow 1:

Average throughput: 62.57 Mbit/s

95th percentile per-packet one-way delay: 112.353 ms

Loss rate: 0.97%

-- Flow 2:

Average throughput: 58.73 Mbit/s

95th percentile per-packet one-way delay: 118.057 ms

Loss rate: 1.78%

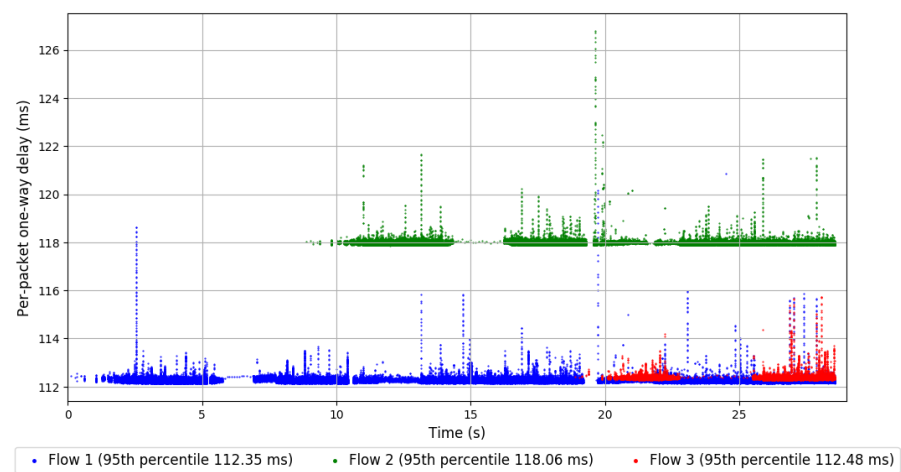
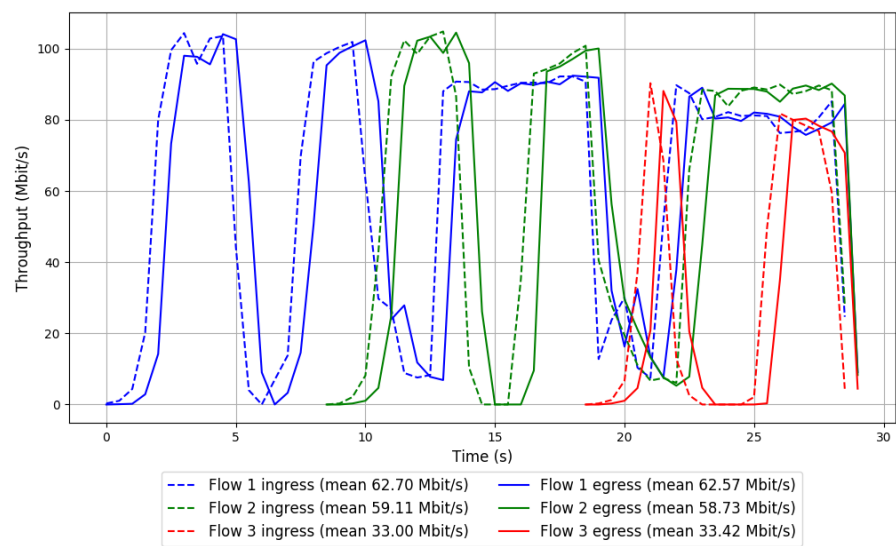
-- Flow 3:

Average throughput: 33.42 Mbit/s

95th percentile per-packet one-way delay: 112.479 ms

Loss rate: 1.02%

Run 1: Report of QUIC Cubic — Data Link

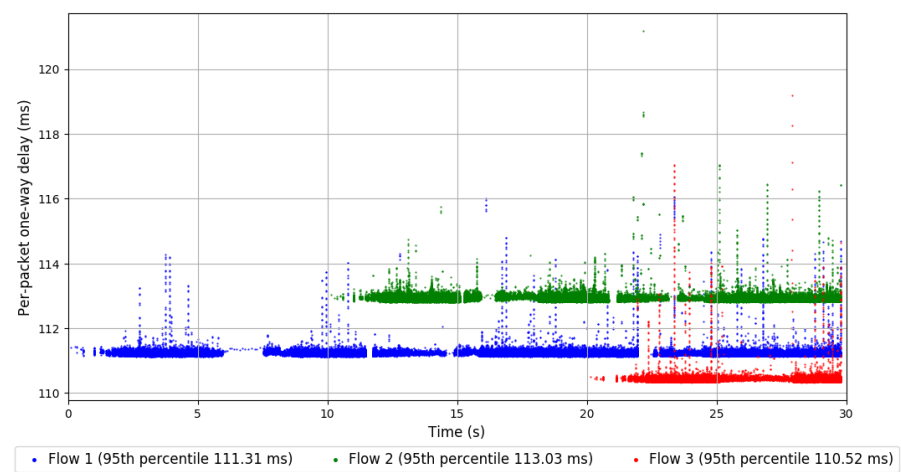
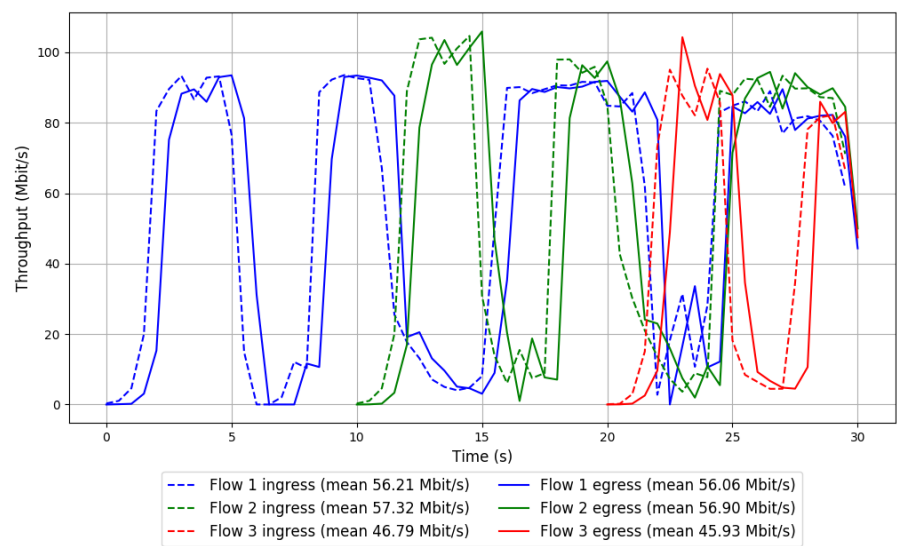


Run 2: Statistics of QUIC Cubic

Start at: 2018-09-07 13:39:04
End at: 2018-09-07 13:39:34
Local clock offset: 1.052 ms
Remote clock offset: -0.399 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 108.66 Mbit/s
95th percentile per-packet one-way delay: 112.969 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 56.06 Mbit/s
95th percentile per-packet one-way delay: 111.310 ms
Loss rate: 1.01%
-- Flow 2:
Average throughput: 56.90 Mbit/s
95th percentile per-packet one-way delay: 113.031 ms
Loss rate: 1.84%
-- Flow 3:
Average throughput: 45.93 Mbit/s
95th percentile per-packet one-way delay: 110.516 ms
Loss rate: 3.99%

Run 2: Report of QUIC Cubic — Data Link

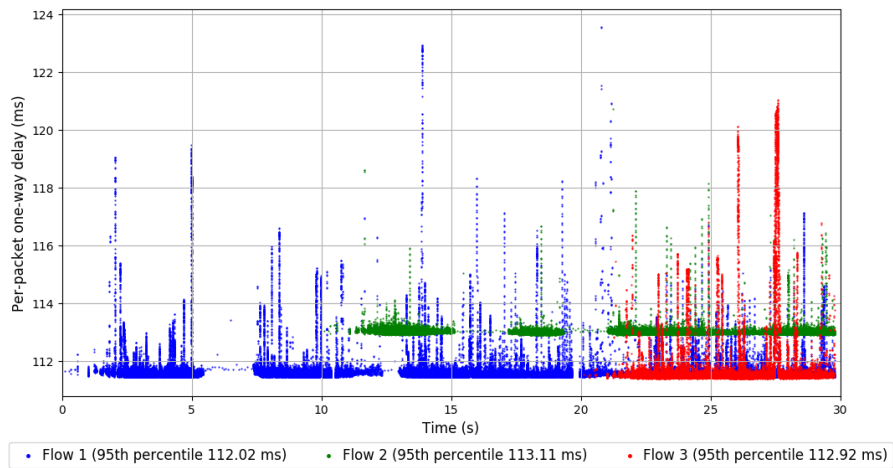
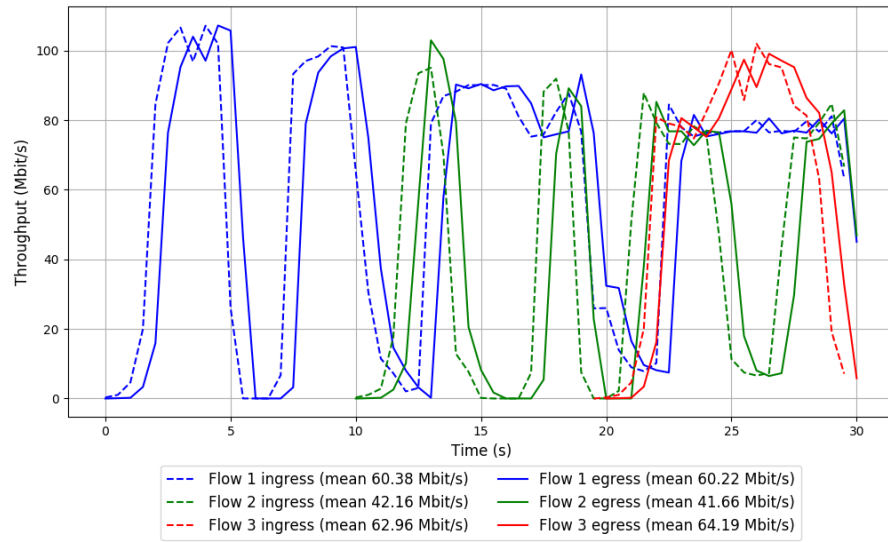


Run 3: Statistics of QUIC Cubic

Start at: 2018-09-07 14:12:00
End at: 2018-09-07 14:12:30
Local clock offset: 0.065 ms
Remote clock offset: -0.073 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 108.75 Mbit/s
95th percentile per-packet one-way delay: 113.058 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 60.22 Mbit/s
95th percentile per-packet one-way delay: 112.016 ms
Loss rate: 1.01%
-- Flow 2:
Average throughput: 41.66 Mbit/s
95th percentile per-packet one-way delay: 113.107 ms
Loss rate: 2.30%
-- Flow 3:
Average throughput: 64.19 Mbit/s
95th percentile per-packet one-way delay: 112.921 ms
Loss rate: 0.31%

Run 3: Report of QUIC Cubic — Data Link

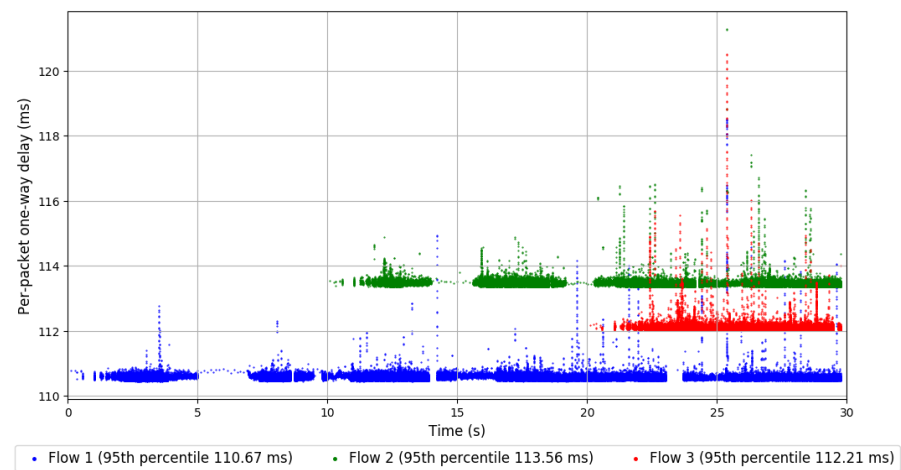
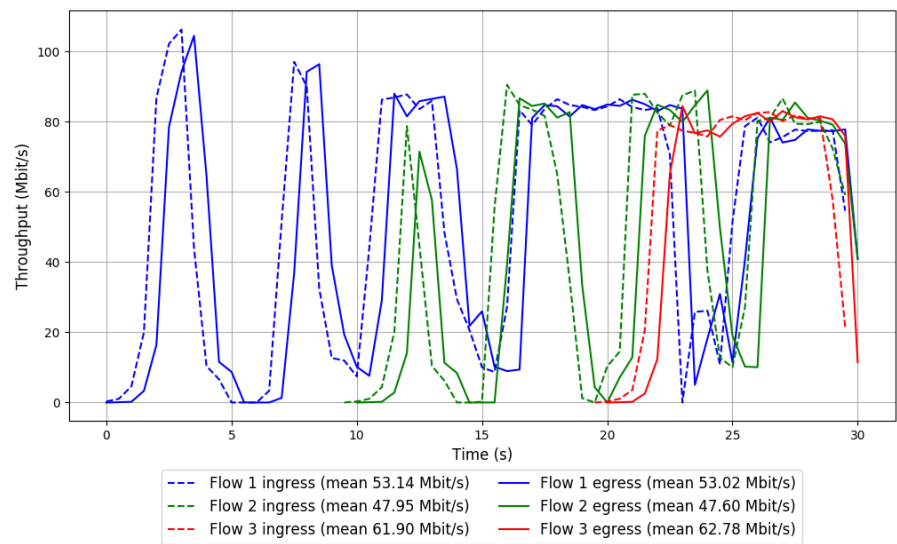


Run 4: Statistics of QUIC Cubic

Start at: 2018-09-07 14:45:24
End at: 2018-09-07 14:45:54
Local clock offset: 0.422 ms
Remote clock offset: -0.401 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 105.06 Mbit/s
95th percentile per-packet one-way delay: 113.500 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 53.02 Mbit/s
95th percentile per-packet one-way delay: 110.671 ms
Loss rate: 0.96%
-- Flow 2:
Average throughput: 47.60 Mbit/s
95th percentile per-packet one-way delay: 113.563 ms
Loss rate: 1.83%
-- Flow 3:
Average throughput: 62.78 Mbit/s
95th percentile per-packet one-way delay: 112.212 ms
Loss rate: 0.82%

Run 4: Report of QUIC Cubic — Data Link

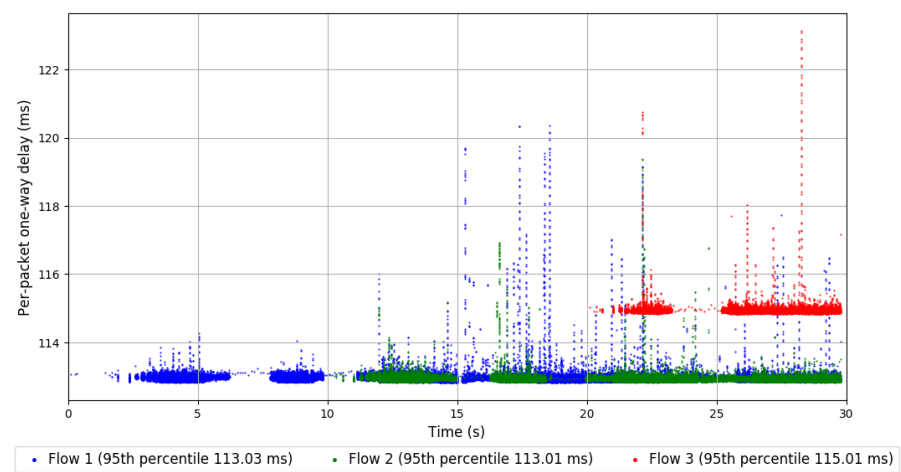
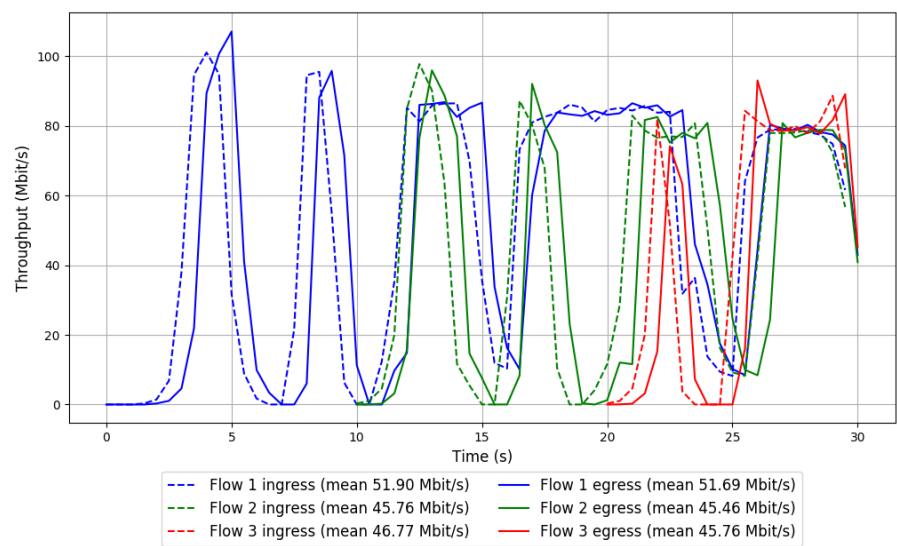


Run 5: Statistics of QUIC Cubic

Start at: 2018-09-07 15:18:55
End at: 2018-09-07 15:19:25
Local clock offset: 0.512 ms
Remote clock offset: -0.004 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.69 Mbit/s
95th percentile per-packet one-way delay: 114.923 ms
Loss rate: 1.86%
-- Flow 1:
Average throughput: 51.69 Mbit/s
95th percentile per-packet one-way delay: 113.032 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 45.46 Mbit/s
95th percentile per-packet one-way delay: 113.010 ms
Loss rate: 1.79%
-- Flow 3:
Average throughput: 45.76 Mbit/s
95th percentile per-packet one-way delay: 115.006 ms
Loss rate: 4.38%

Run 5: Report of QUIC Cubic — Data Link

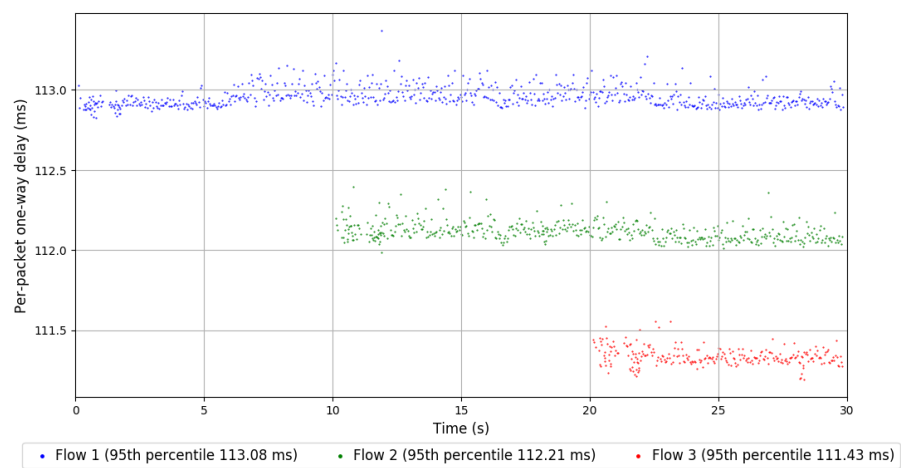
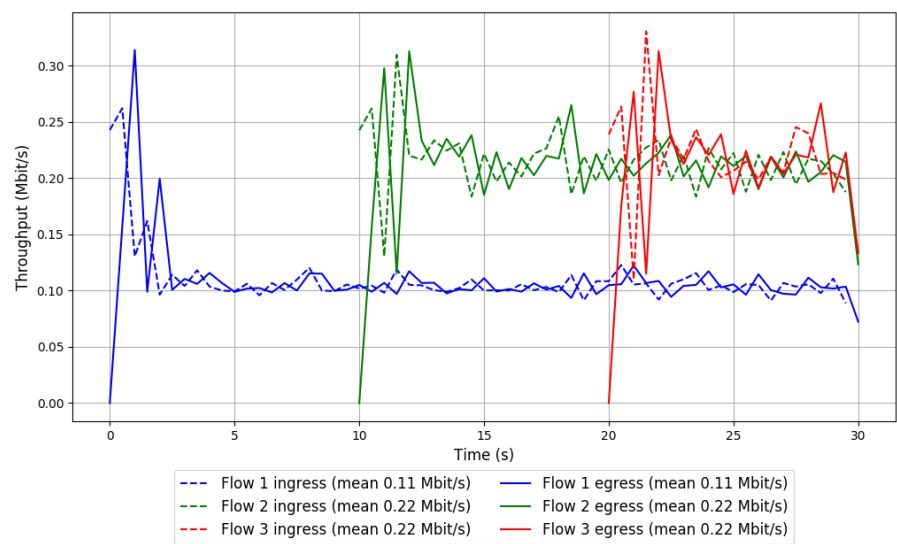


```
Run 1: Statistics of SCReAM

Start at: 2018-09-07 12:42:55
End at: 2018-09-07 12:43:25
Local clock offset: 0.648 ms
Remote clock offset: -0.018 ms

# Below is generated by plot.py at 2018-09-07 17:37:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 113.042 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 113.078 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.214 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.432 ms
Loss rate: 2.21%
```

Run 1: Report of SReAM — Data Link

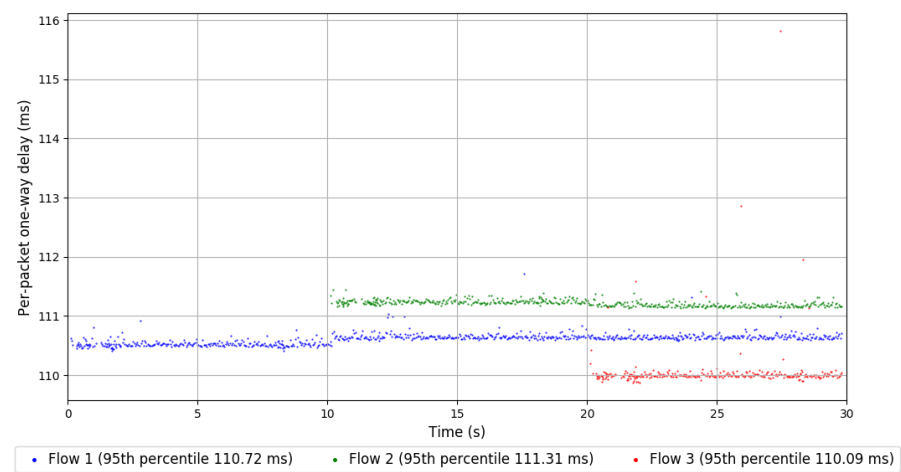
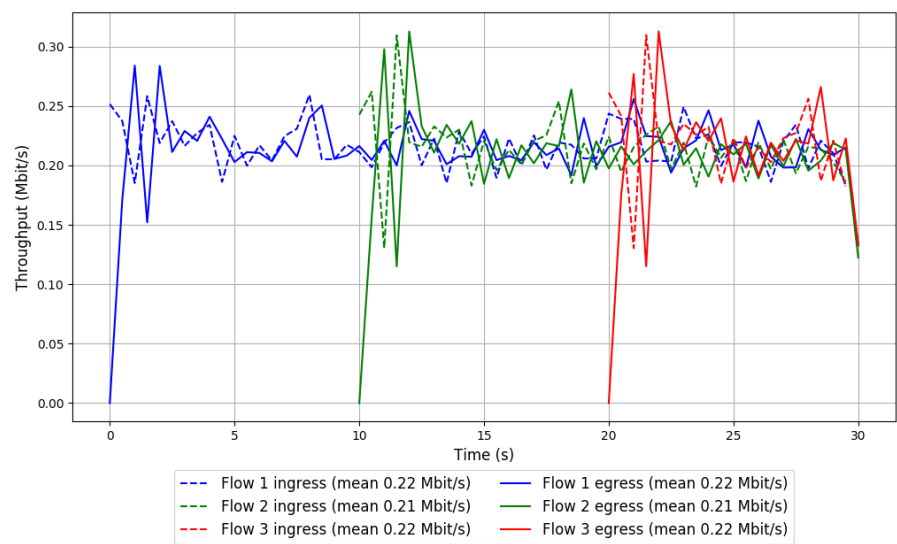


Run 2: Statistics of SReAM

Start at: 2018-09-07 13:16:22
End at: 2018-09-07 13:16:52
Local clock offset: -0.721 ms
Remote clock offset: 0.345 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 111.270 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.723 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 111.312 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.092 ms
Loss rate: 2.21%

Run 2: Report of SReAM — Data Link

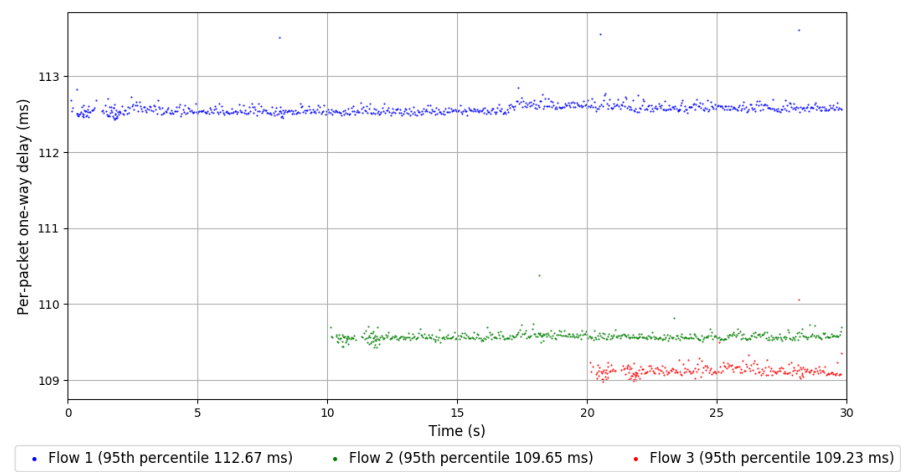
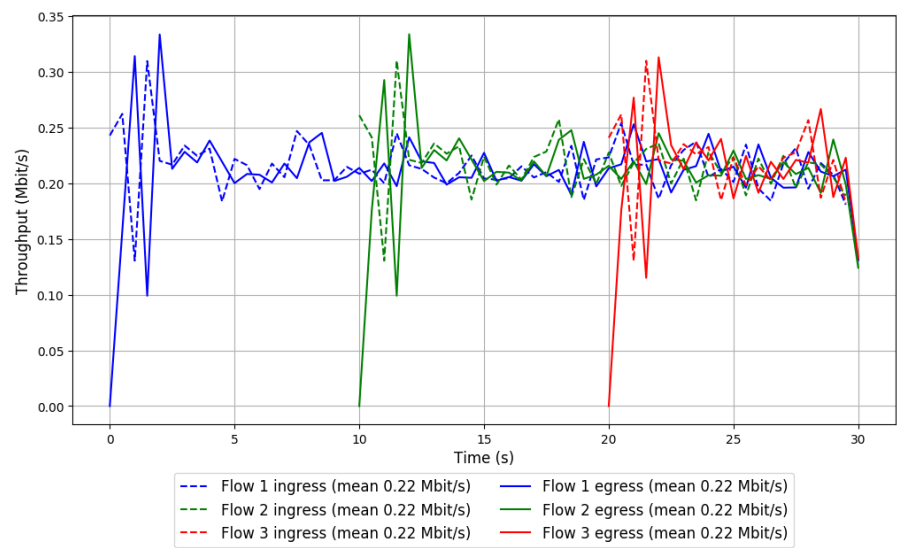


Run 3: Statistics of SReAM

Start at: 2018-09-07 13:49:37
End at: 2018-09-07 13:50:07
Local clock offset: -0.026 ms
Remote clock offset: 0.32 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 112.632 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.667 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.647 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.232 ms
Loss rate: 2.21%

Run 3: Report of SReAM — Data Link

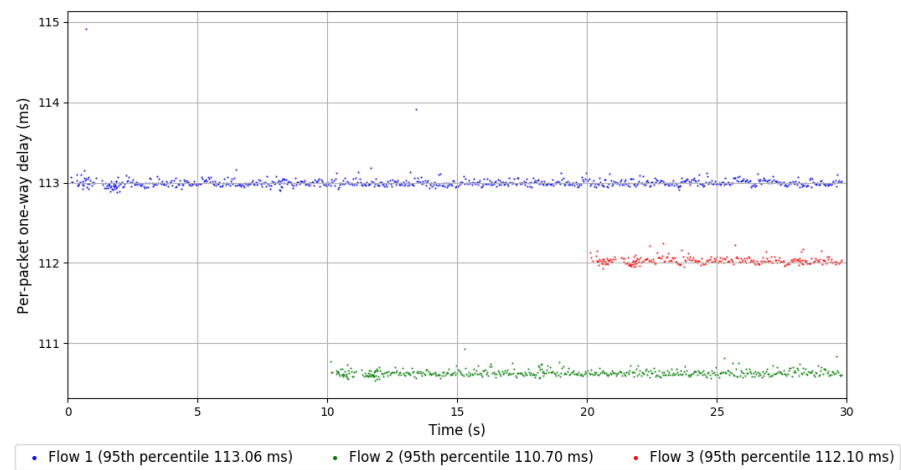
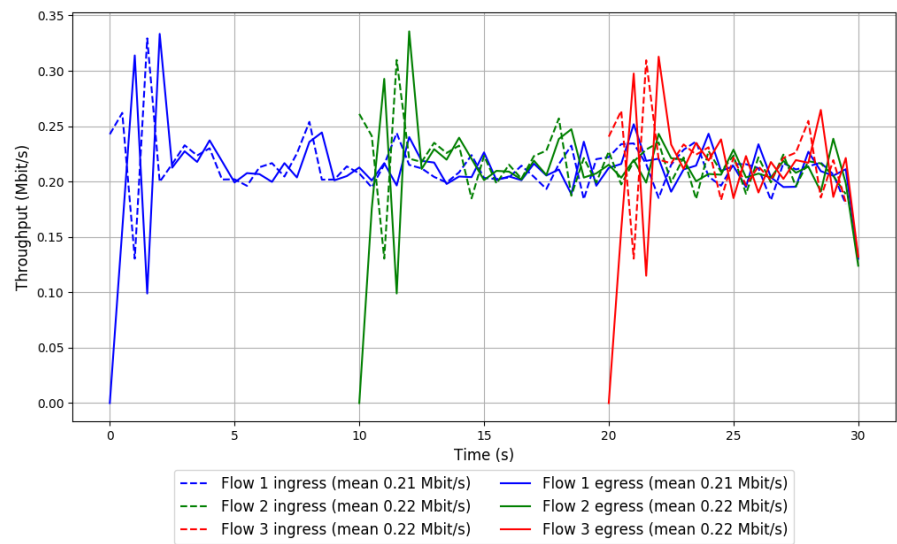


Run 4: Statistics of SReAM

Start at: 2018-09-07 14:22:55
End at: 2018-09-07 14:23:25
Local clock offset: -0.2 ms
Remote clock offset: -0.421 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 113.049 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 113.064 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.704 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.096 ms
Loss rate: 2.21%

Run 4: Report of SReAM — Data Link

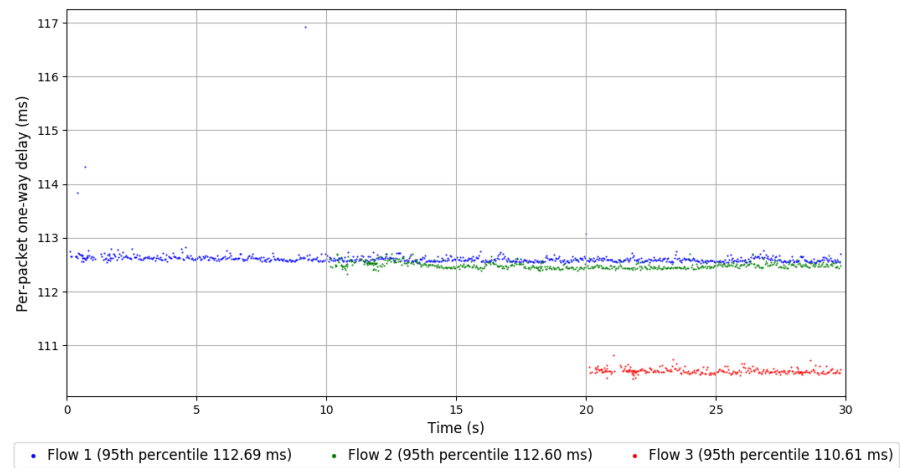
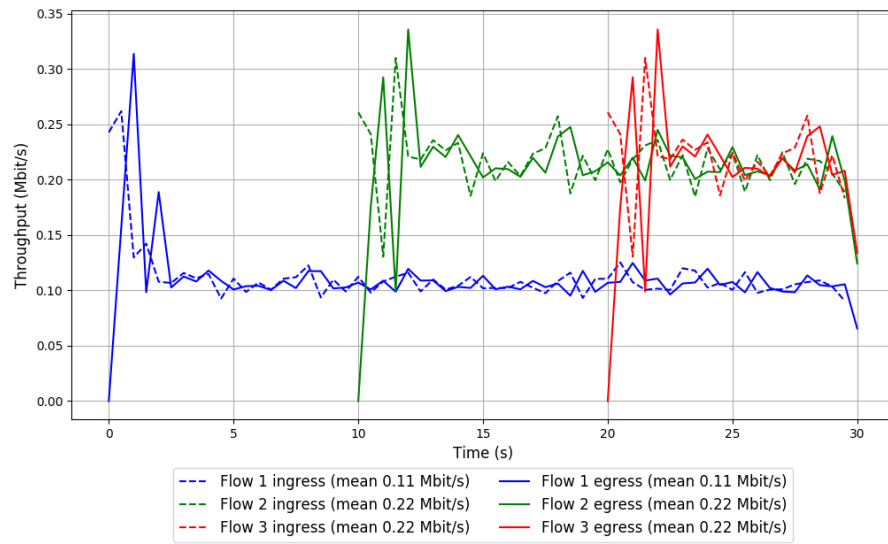


Run 5: Statistics of SReAM

Start at: 2018-09-07 14:56:35
End at: 2018-09-07 14:57:05
Local clock offset: -0.12 ms
Remote clock offset: -0.046 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 112.671 ms
Loss rate: 1.29%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 112.694 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.597 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.608 ms
Loss rate: 2.22%

Run 5: Report of SReAM — Data Link

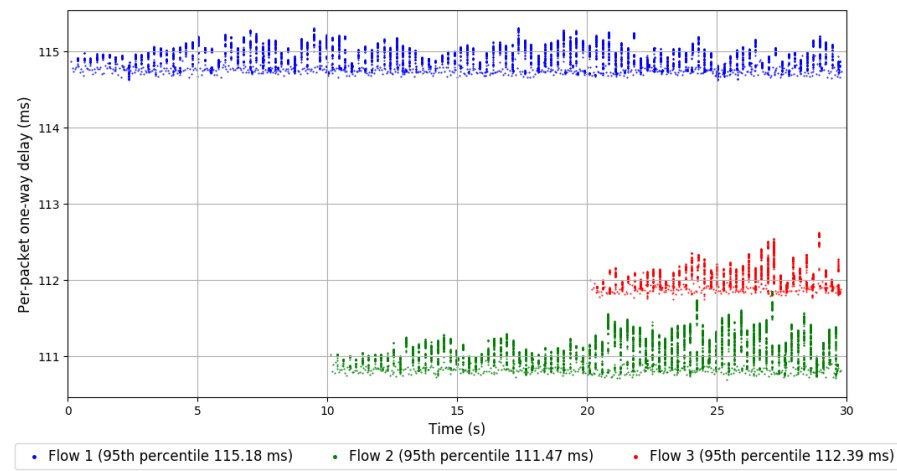
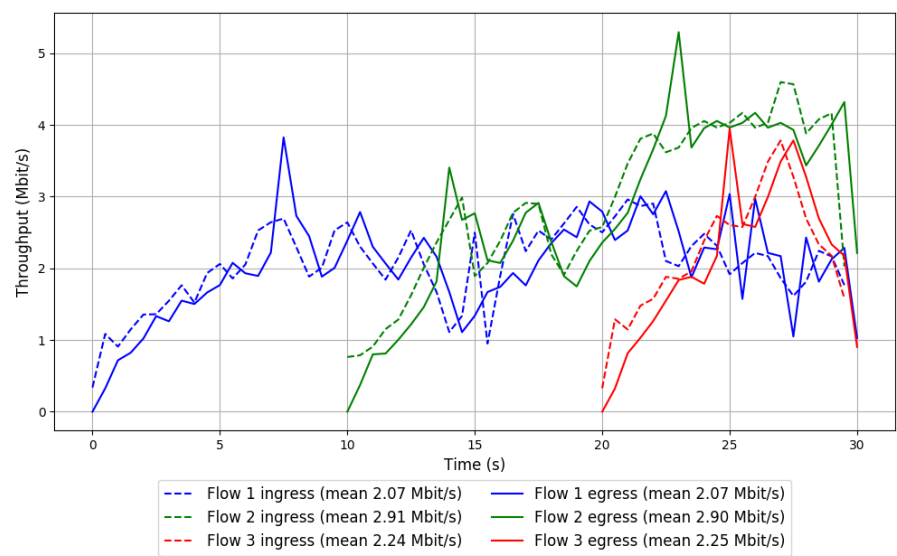


Run 1: Statistics of Sprout

Start at: 2018-09-07 12:46:19
End at: 2018-09-07 12:46:49
Local clock offset: 0.511 ms
Remote clock offset: -0.016 ms

Below is generated by plot.py at 2018-09-07 17:37:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 4.73 Mbit/s
95th percentile per-packet one-way delay: 115.124 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 115.179 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 2.90 Mbit/s
95th percentile per-packet one-way delay: 111.465 ms
Loss rate: 1.47%
-- Flow 3:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 112.387 ms
Loss rate: 1.55%

Run 1: Report of Sprout — Data Link

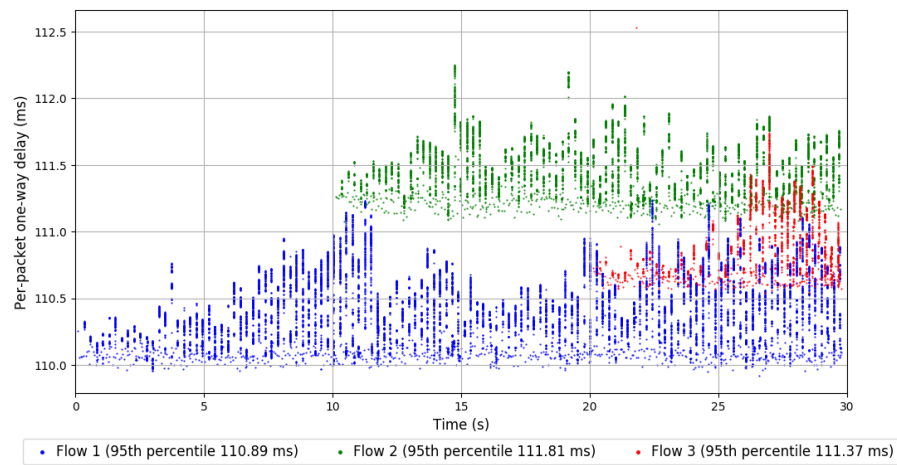
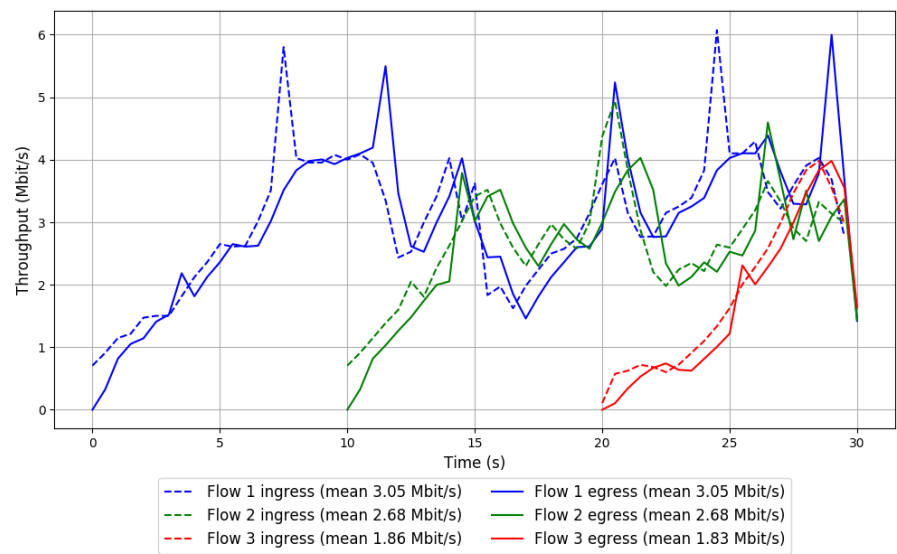


Run 2: Statistics of Sprout

Start at: 2018-09-07 13:19:50
End at: 2018-09-07 13:20:20
Local clock offset: -0.068 ms
Remote clock offset: -0.342 ms

```
# Below is generated by plot.py at 2018-09-07 17:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.41 Mbit/s
95th percentile per-packet one-way delay: 111.678 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 110.887 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 2.68 Mbit/s
95th percentile per-packet one-way delay: 111.814 ms
Loss rate: 1.46%
-- Flow 3:
Average throughput: 1.83 Mbit/s
95th percentile per-packet one-way delay: 111.367 ms
Loss rate: 3.68%
```

Run 2: Report of Sprout — Data Link

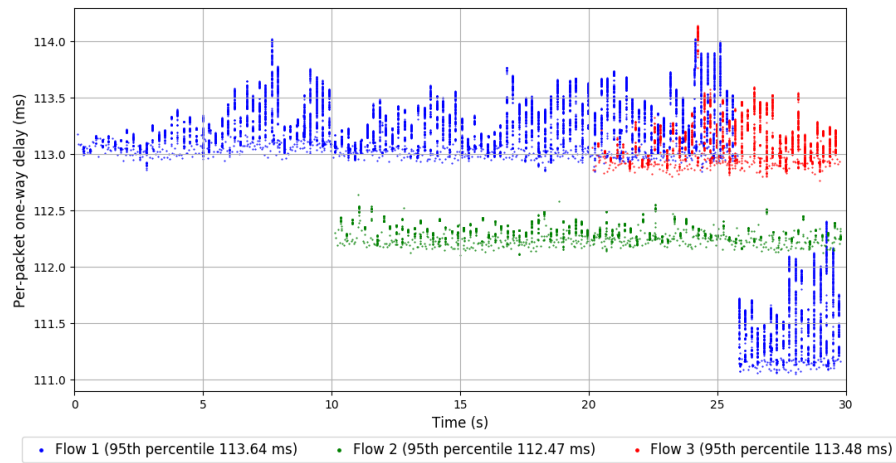
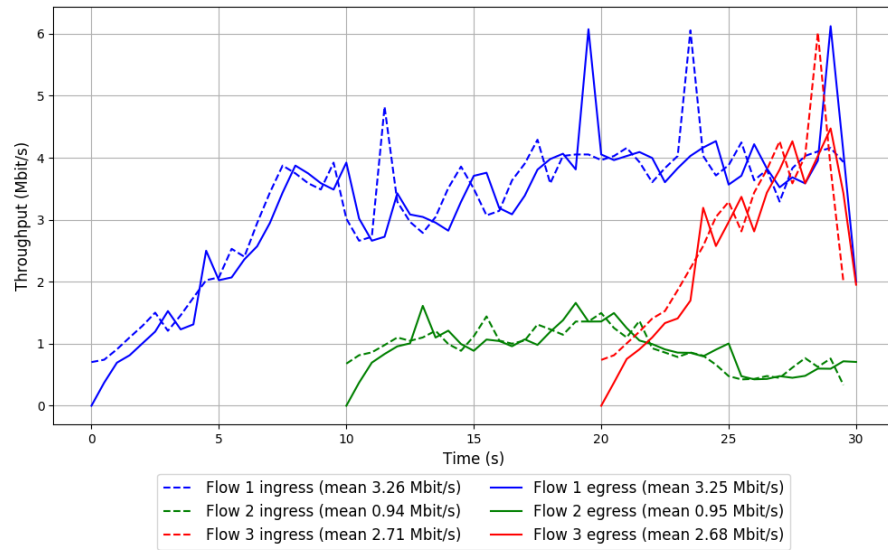


Run 3: Statistics of Sprout

Start at: 2018-09-07 13:53:03
End at: 2018-09-07 13:53:33
Local clock offset: 1.092 ms
Remote clock offset: -0.069 ms

```
# Below is generated by plot.py at 2018-09-07 17:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.74 Mbit/s
95th percentile per-packet one-way delay: 113.604 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 3.25 Mbit/s
95th percentile per-packet one-way delay: 113.641 ms
Loss rate: 1.03%
-- Flow 2:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 112.468 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 2.68 Mbit/s
95th percentile per-packet one-way delay: 113.478 ms
Loss rate: 3.74%
```

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-07 14:26:19

End at: 2018-09-07 14:26:49

Local clock offset: -0.8 ms

Remote clock offset: 0.265 ms

Below is generated by plot.py at 2018-09-07 17:37:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.46 Mbit/s

95th percentile per-packet one-way delay: 110.445 ms

Loss rate: 2.18%

-- Flow 1:

Average throughput: 0.65 Mbit/s

95th percentile per-packet one-way delay: 110.307 ms

Loss rate: 1.65%

-- Flow 2:

Average throughput: 3.04 Mbit/s

95th percentile per-packet one-way delay: 110.066 ms

Loss rate: 1.69%

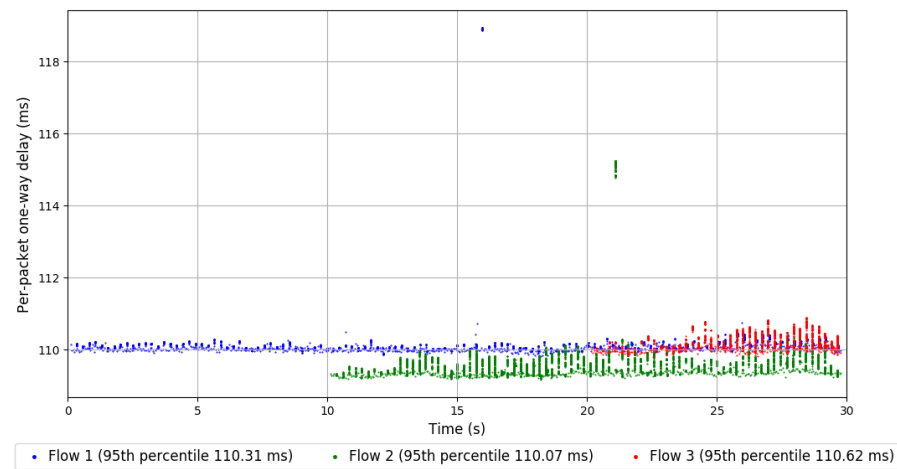
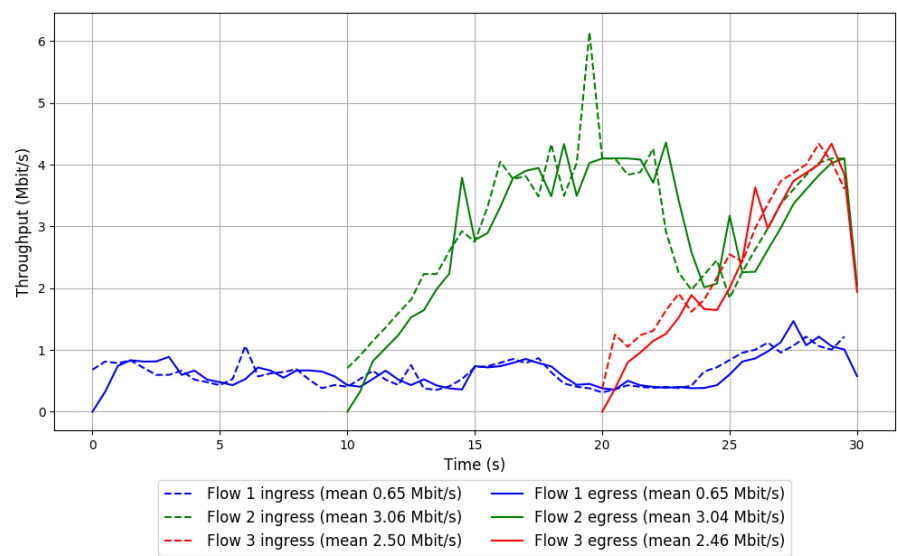
-- Flow 3:

Average throughput: 2.46 Mbit/s

95th percentile per-packet one-way delay: 110.621 ms

Loss rate: 3.81%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-07 15:00:02

End at: 2018-09-07 15:00:32

Local clock offset: -1.51 ms

Remote clock offset: -0.36 ms

Below is generated by plot.py at 2018-09-07 17:37:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.43 Mbit/s

95th percentile per-packet one-way delay: 110.522 ms

Loss rate: 1.18%

-- Flow 1:

Average throughput: 2.86 Mbit/s

95th percentile per-packet one-way delay: 110.600 ms

Loss rate: 1.08%

-- Flow 2:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 109.740 ms

Loss rate: 1.32%

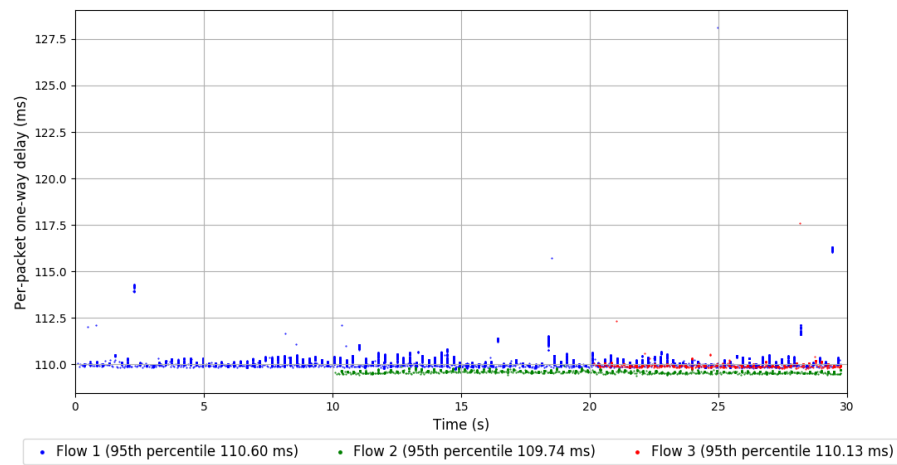
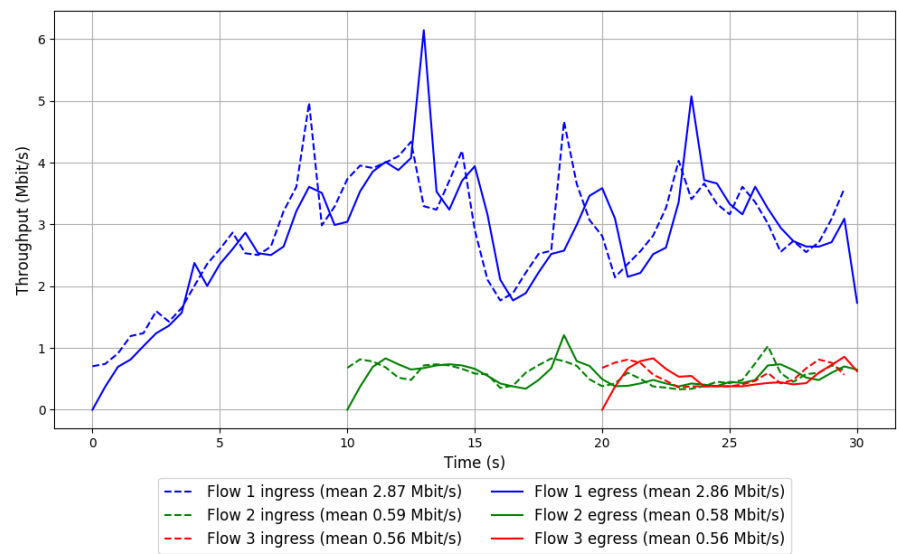
-- Flow 3:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 110.126 ms

Loss rate: 2.34%

Run 5: Report of Sprout — Data Link

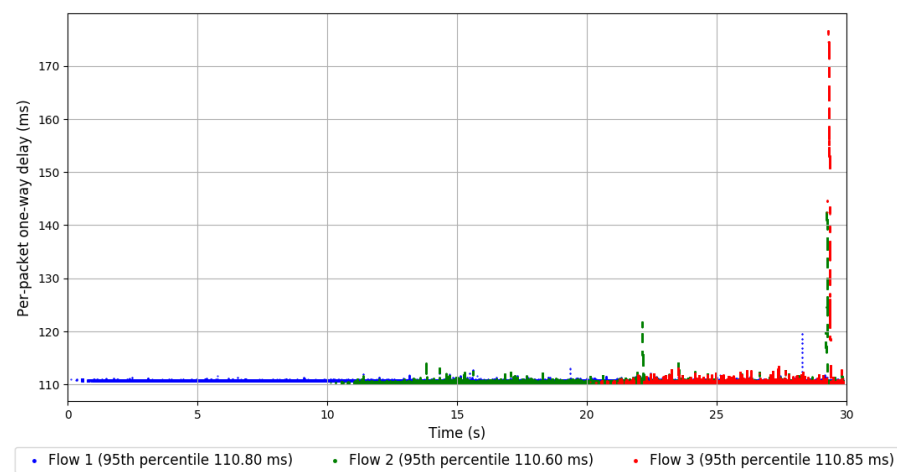
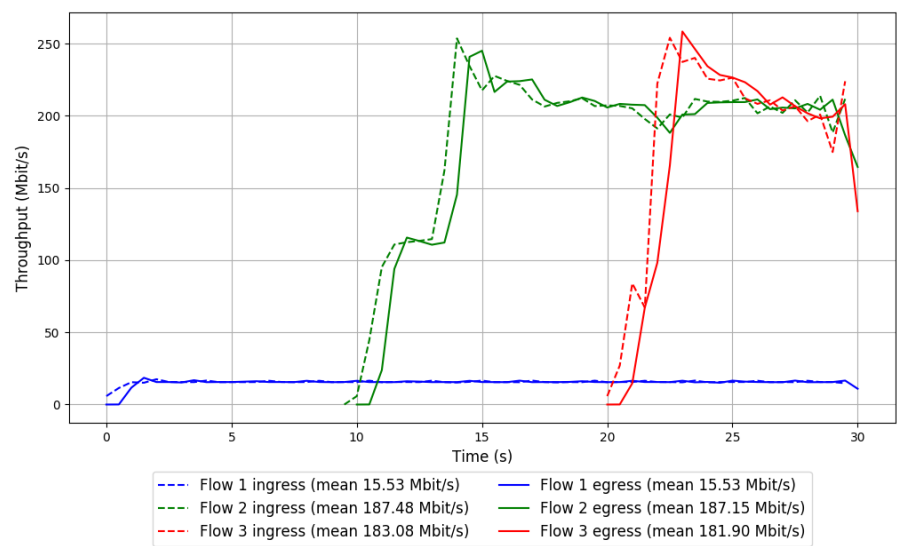


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-09-07 12:41:18
End at: 2018-09-07 12:41:48
Local clock offset: -0.161 ms
Remote clock offset: 0.373 ms

# Below is generated by plot.py at 2018-09-07 17:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 199.40 Mbit/s
95th percentile per-packet one-way delay: 110.739 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 15.53 Mbit/s
95th percentile per-packet one-way delay: 110.796 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 187.15 Mbit/s
95th percentile per-packet one-way delay: 110.598 ms
Loss rate: 1.28%
-- Flow 3:
Average throughput: 181.90 Mbit/s
95th percentile per-packet one-way delay: 110.848 ms
Loss rate: 2.84%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-07 13:14:26

End at: 2018-09-07 13:14:56

Local clock offset: -0.717 ms

Remote clock offset: 0.346 ms

Below is generated by plot.py at 2018-09-07 17:37:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 382.04 Mbit/s

95th percentile per-packet one-way delay: 111.445 ms

Loss rate: 1.36%

-- Flow 1:

Average throughput: 197.05 Mbit/s

95th percentile per-packet one-way delay: 110.606 ms

Loss rate: 0.72%

-- Flow 2:

Average throughput: 188.40 Mbit/s

95th percentile per-packet one-way delay: 111.668 ms

Loss rate: 1.77%

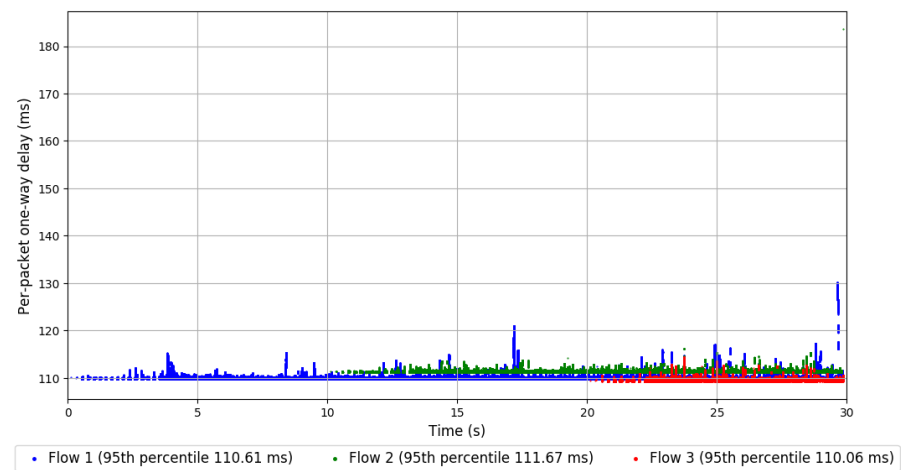
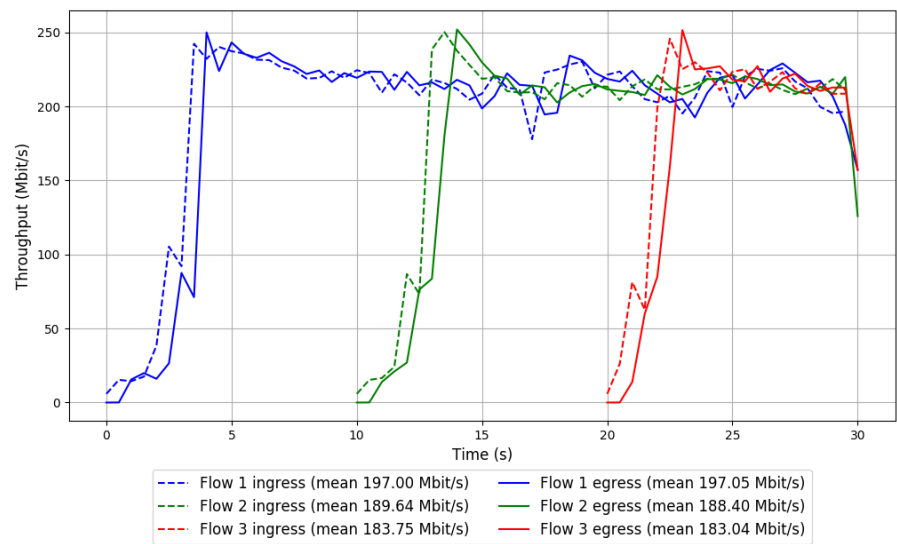
-- Flow 3:

Average throughput: 183.04 Mbit/s

95th percentile per-packet one-way delay: 110.065 ms

Loss rate: 2.60%

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

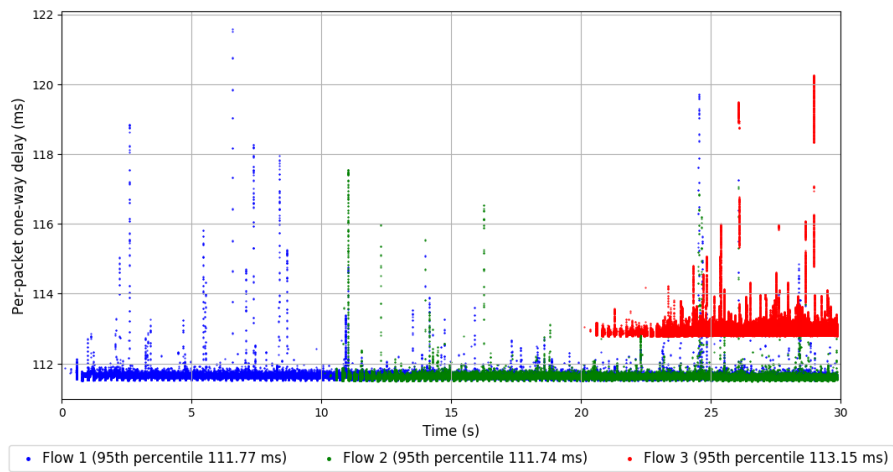
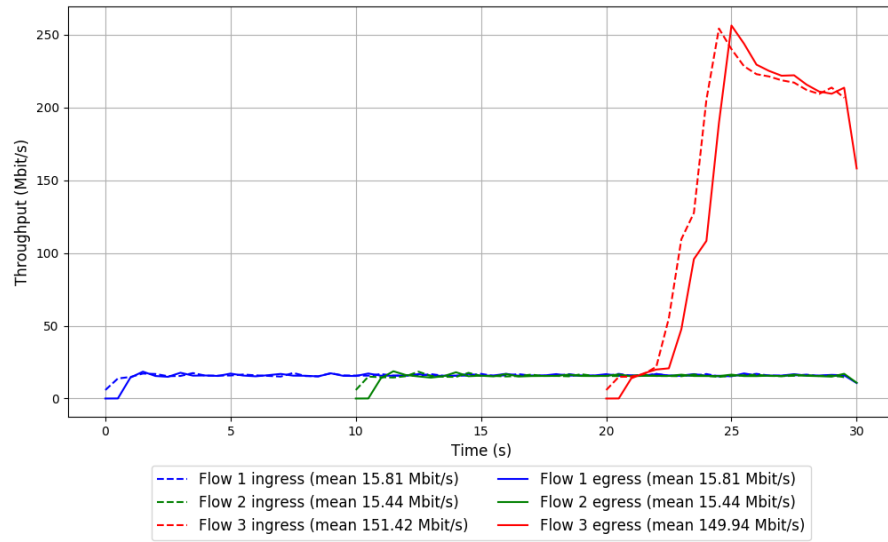


Run 3: Statistics of TaoVA-100x

Start at: 2018-09-07 13:48:13
End at: 2018-09-07 13:48:43
Local clock offset: -0.231 ms
Remote clock offset: -0.434 ms

Below is generated by plot.py at 2018-09-07 17:37:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 75.12 Mbit/s
95th percentile per-packet one-way delay: 113.097 ms
Loss rate: 2.42%
-- Flow 1:
Average throughput: 15.81 Mbit/s
95th percentile per-packet one-way delay: 111.771 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 15.44 Mbit/s
95th percentile per-packet one-way delay: 111.738 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 149.94 Mbit/s
95th percentile per-packet one-way delay: 113.151 ms
Loss rate: 3.21%

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

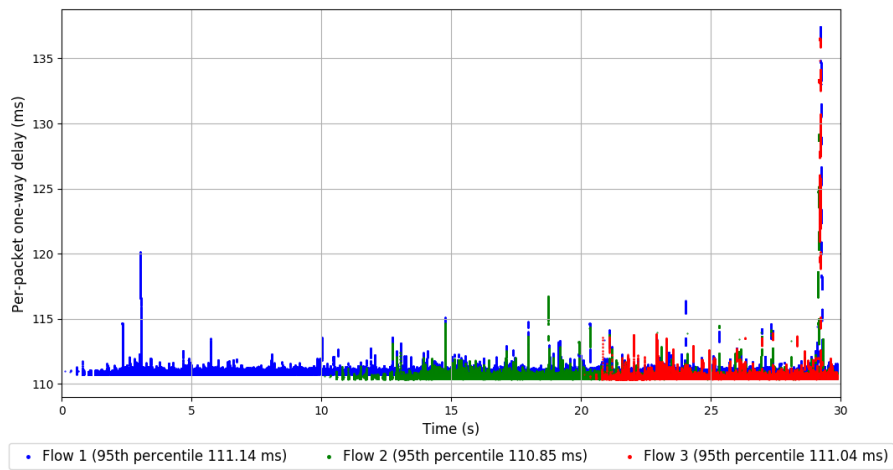
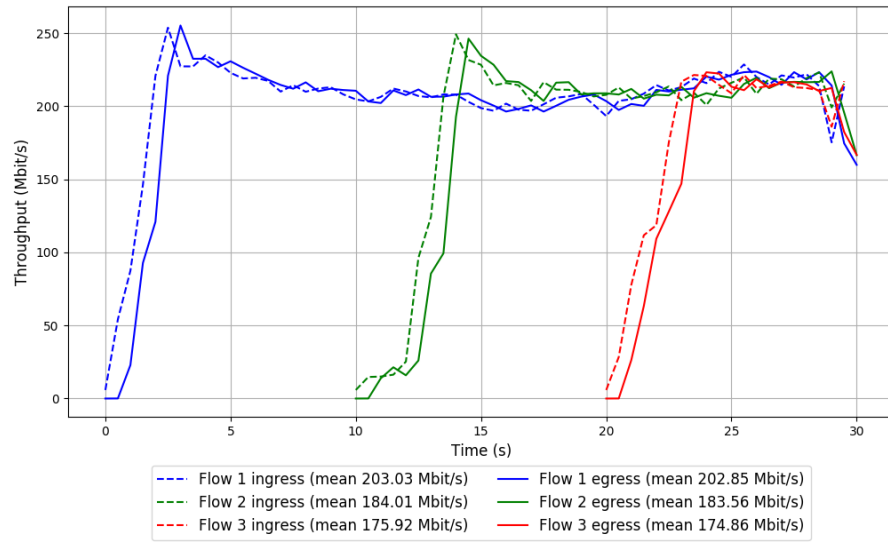


Run 4: Statistics of TaoVA-100x

Start at: 2018-09-07 14:20:58
End at: 2018-09-07 14:21:28
Local clock offset: -0.388 ms
Remote clock offset: -0.449 ms

Below is generated by plot.py at 2018-09-07 17:38:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 381.90 Mbit/s
95th percentile per-packet one-way delay: 111.095 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 202.85 Mbit/s
95th percentile per-packet one-way delay: 111.142 ms
Loss rate: 0.83%
-- Flow 2:
Average throughput: 183.56 Mbit/s
95th percentile per-packet one-way delay: 110.853 ms
Loss rate: 1.37%
-- Flow 3:
Average throughput: 174.86 Mbit/s
95th percentile per-packet one-way delay: 111.044 ms
Loss rate: 2.83%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-07 14:54:38

End at: 2018-09-07 14:55:08

Local clock offset: -0.179 ms

Remote clock offset: 0.316 ms

Below is generated by plot.py at 2018-09-07 17:39:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 387.21 Mbit/s

95th percentile per-packet one-way delay: 110.838 ms

Loss rate: 1.28%

-- Flow 1:

Average throughput: 197.81 Mbit/s

95th percentile per-packet one-way delay: 110.305 ms

Loss rate: 0.81%

-- Flow 2:

Average throughput: 194.96 Mbit/s

95th percentile per-packet one-way delay: 111.159 ms

Loss rate: 1.35%

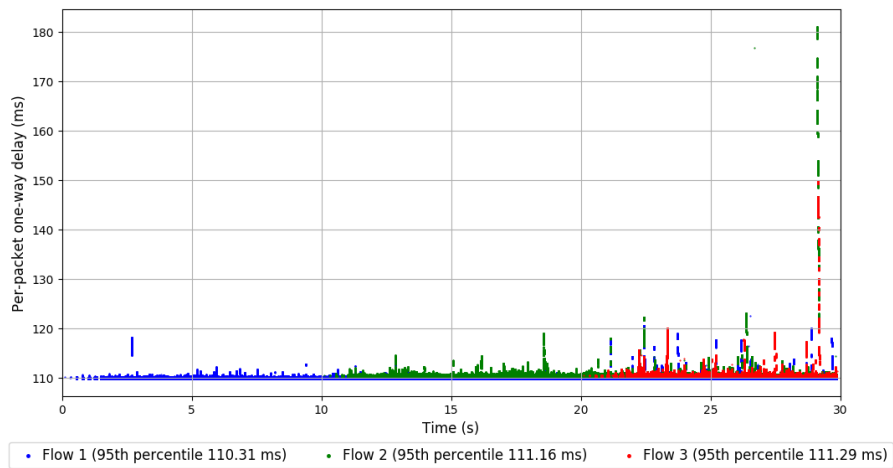
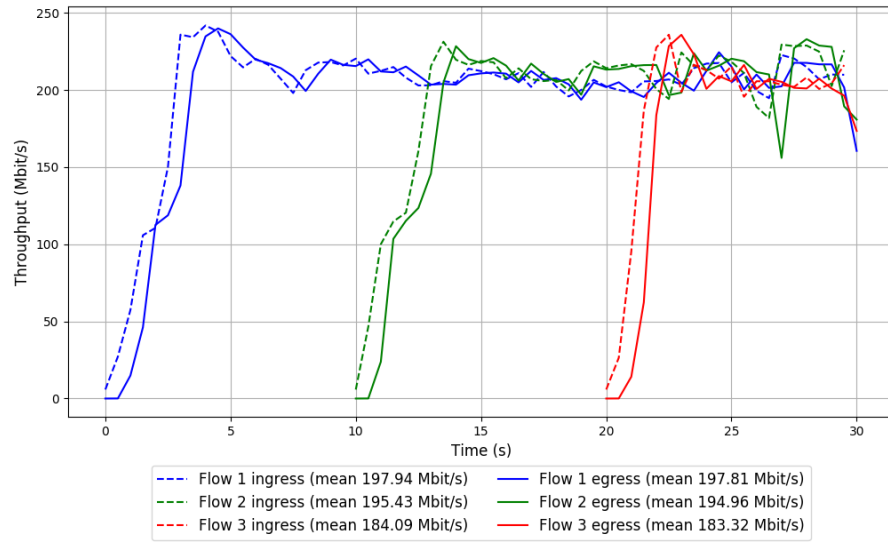
-- Flow 3:

Average throughput: 183.32 Mbit/s

95th percentile per-packet one-way delay: 111.290 ms

Loss rate: 2.64%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-07 12:47:35

End at: 2018-09-07 12:48:05

Local clock offset: 0.47 ms

Remote clock offset: -0.02 ms

Below is generated by plot.py at 2018-09-07 17:43:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 824.78 Mbit/s

95th percentile per-packet one-way delay: 137.380 ms

Loss rate: 1.02%

-- Flow 1:

Average throughput: 483.13 Mbit/s

95th percentile per-packet one-way delay: 131.119 ms

Loss rate: 0.81%

-- Flow 2:

Average throughput: 361.35 Mbit/s

95th percentile per-packet one-way delay: 119.124 ms

Loss rate: 0.65%

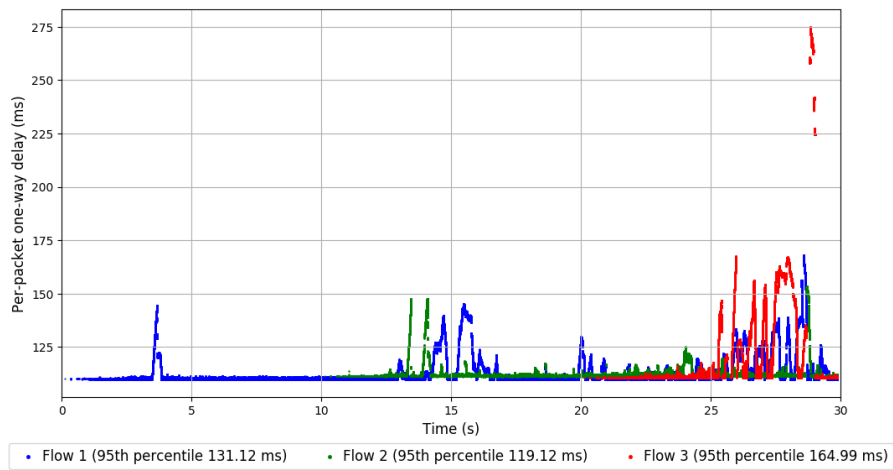
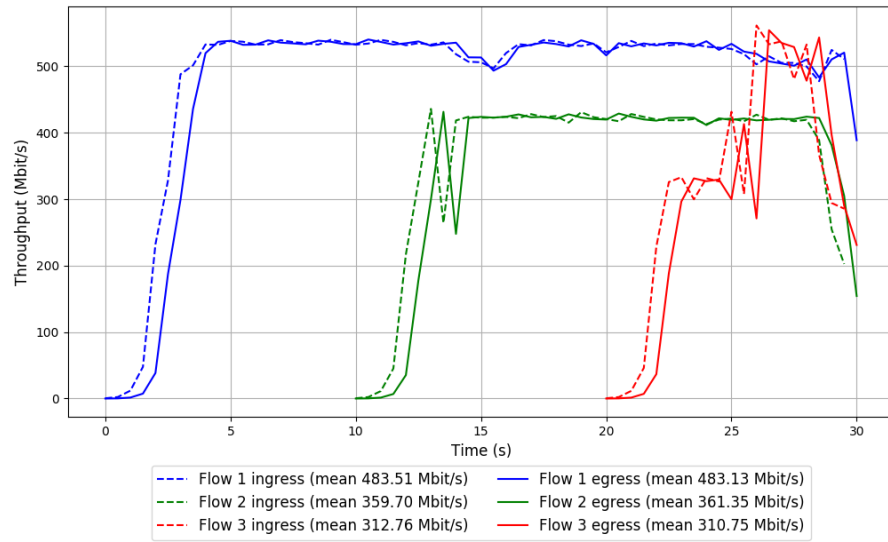
-- Flow 3:

Average throughput: 310.75 Mbit/s

95th percentile per-packet one-way delay: 164.993 ms

Loss rate: 2.84%

Run 1: Report of TCP Vegas — Data Link

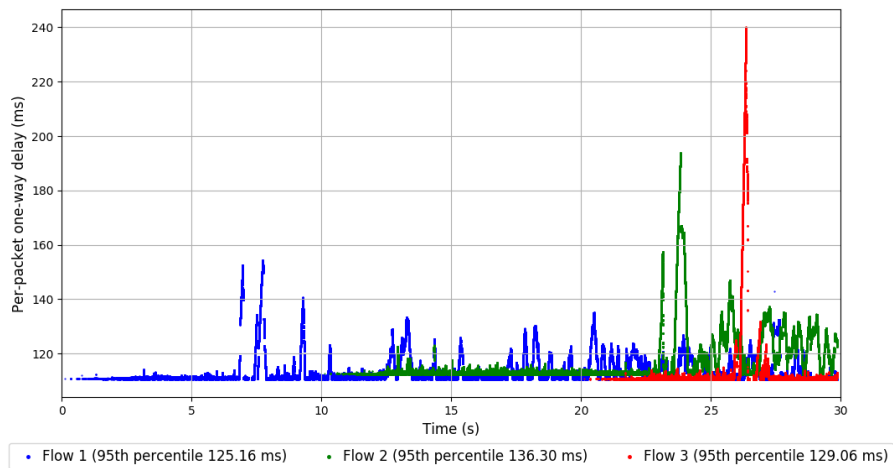
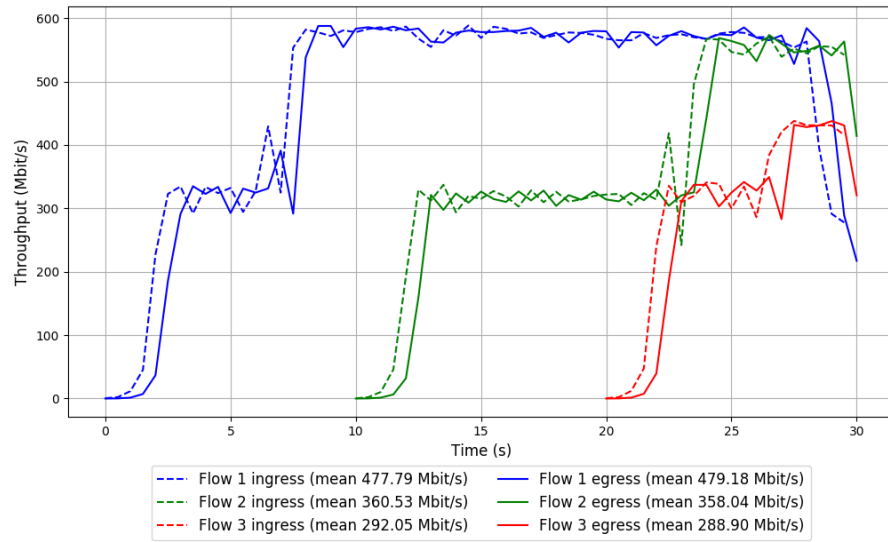


Run 2: Statistics of TCP Vegas

Start at: 2018-09-07 13:21:07
End at: 2018-09-07 13:21:37
Local clock offset: -0.179 ms
Remote clock offset: -0.011 ms

Below is generated by plot.py at 2018-09-07 17:44:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 811.36 Mbit/s
95th percentile per-packet one-way delay: 130.432 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 479.18 Mbit/s
95th percentile per-packet one-way delay: 125.157 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 358.04 Mbit/s
95th percentile per-packet one-way delay: 136.300 ms
Loss rate: 1.80%
-- Flow 3:
Average throughput: 288.90 Mbit/s
95th percentile per-packet one-way delay: 129.062 ms
Loss rate: 3.24%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-09-07 13:54:19

End at: 2018-09-07 13:54:49

Local clock offset: -1.07 ms

Remote clock offset: 0.29 ms

Below is generated by plot.py at 2018-09-07 17:47:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 858.16 Mbit/s

95th percentile per-packet one-way delay: 126.327 ms

Loss rate: 1.18%

-- Flow 1:

Average throughput: 492.73 Mbit/s

95th percentile per-packet one-way delay: 124.540 ms

Loss rate: 0.87%

-- Flow 2:

Average throughput: 379.16 Mbit/s

95th percentile per-packet one-way delay: 126.287 ms

Loss rate: 0.78%

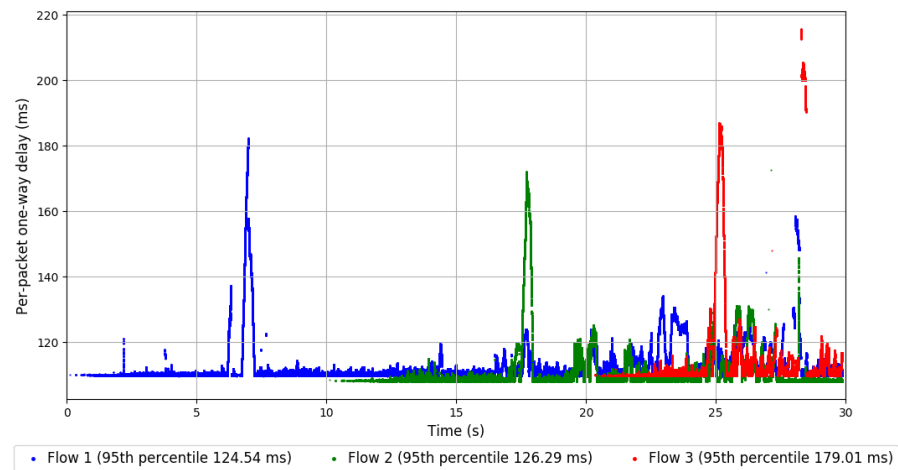
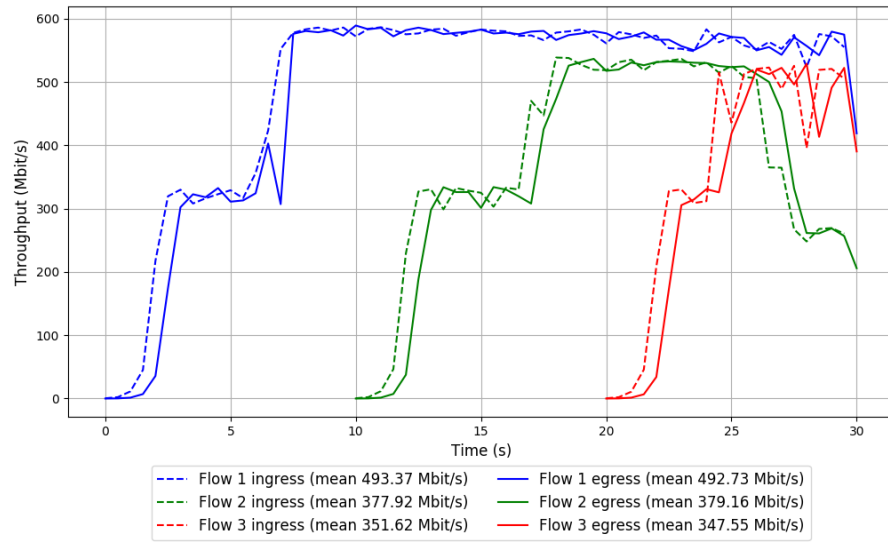
-- Flow 3:

Average throughput: 347.55 Mbit/s

95th percentile per-packet one-way delay: 179.011 ms

Loss rate: 3.36%

Run 3: Report of TCP Vegas — Data Link

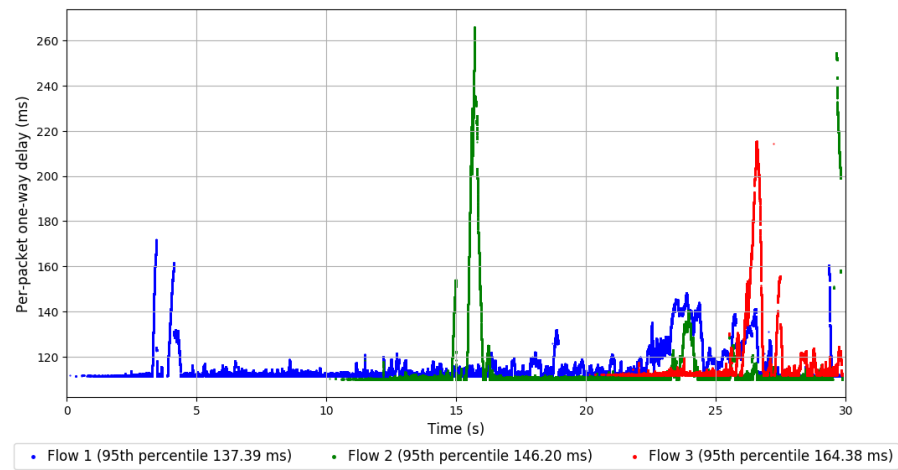
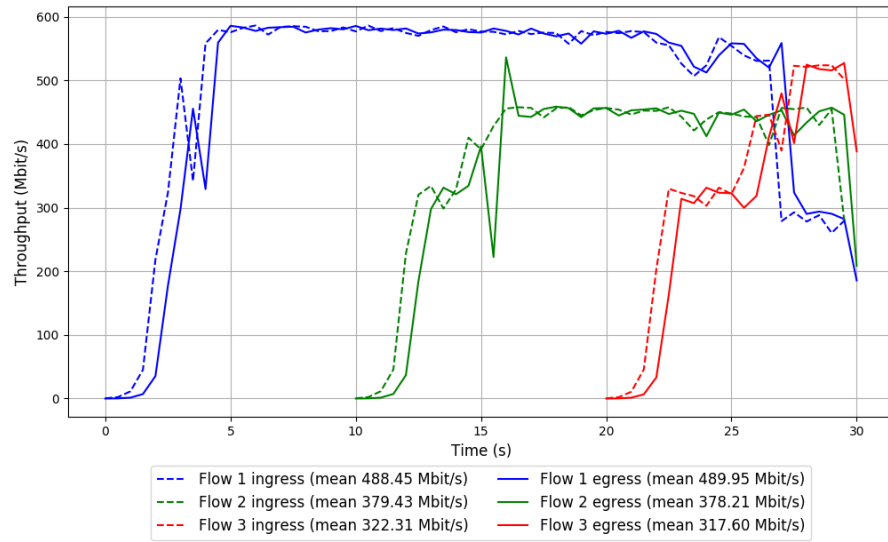


Run 4: Statistics of TCP Vegas

Start at: 2018-09-07 14:27:35
End at: 2018-09-07 14:28:05
Local clock offset: -0.27 ms
Remote clock offset: -0.074 ms

Below is generated by plot.py at 2018-09-07 17:49:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 844.98 Mbit/s
95th percentile per-packet one-way delay: 139.692 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 489.95 Mbit/s
95th percentile per-packet one-way delay: 137.391 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 378.21 Mbit/s
95th percentile per-packet one-way delay: 146.204 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 317.60 Mbit/s
95th percentile per-packet one-way delay: 164.378 ms
Loss rate: 3.66%

Run 4: Report of TCP Vegas — Data Link

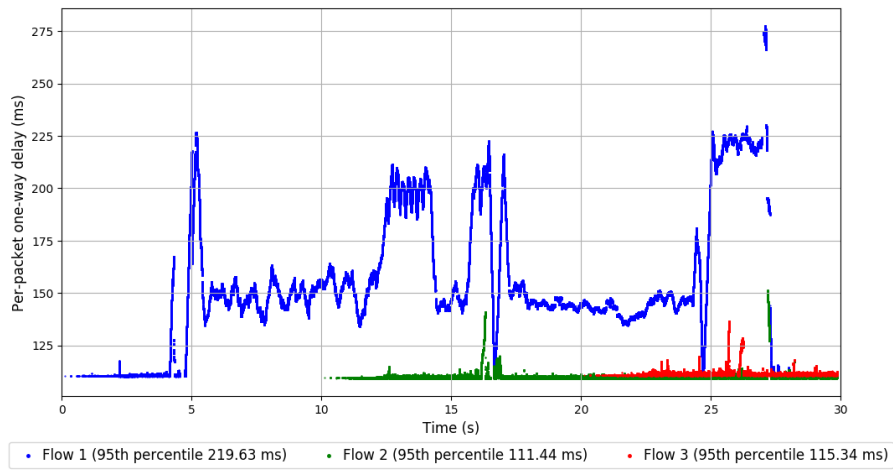
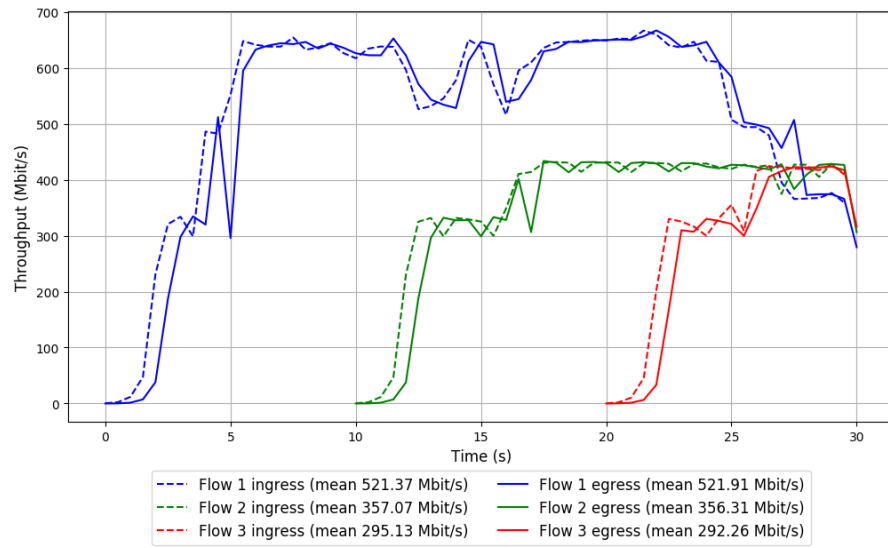


Run 5: Statistics of TCP Vegas

Start at: 2018-09-07 15:01:18
End at: 2018-09-07 15:01:48
Local clock offset: -0.345 ms
Remote clock offset: -0.021 ms

```
# Below is generated by plot.py at 2018-09-07 17:52:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 854.12 Mbit/s
95th percentile per-packet one-way delay: 208.997 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 521.91 Mbit/s
95th percentile per-packet one-way delay: 219.635 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 356.31 Mbit/s
95th percentile per-packet one-way delay: 111.445 ms
Loss rate: 1.31%
-- Flow 3:
Average throughput: 292.26 Mbit/s
95th percentile per-packet one-way delay: 115.338 ms
Loss rate: 3.20%
```

Run 5: Report of TCP Vegas — Data Link

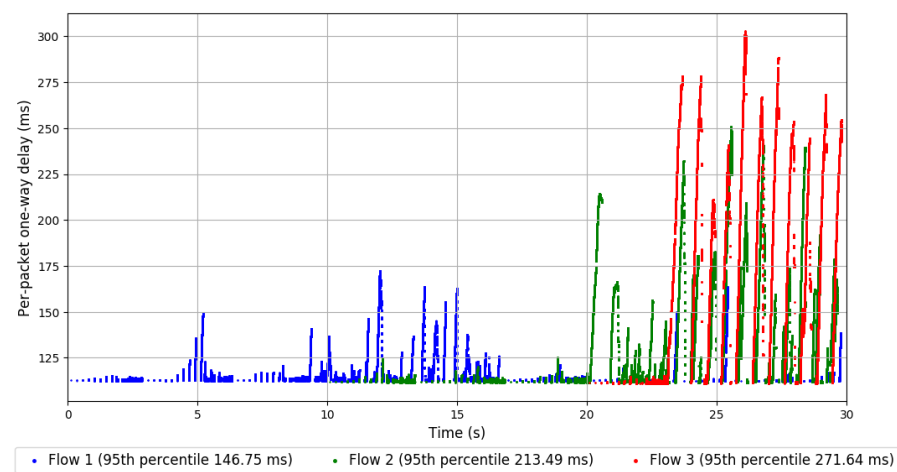
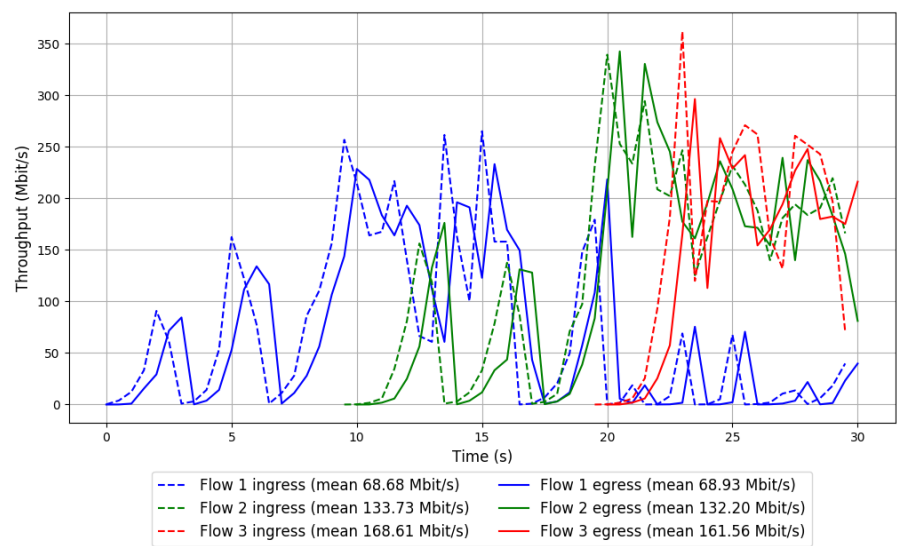


Run 1: Statistics of Verus

Start at: 2018-09-07 12:57:24
End at: 2018-09-07 12:57:54
Local clock offset: 0.006 ms
Remote clock offset: -0.384 ms

Below is generated by plot.py at 2018-09-07 17:52:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 208.70 Mbit/s
95th percentile per-packet one-way delay: 244.591 ms
Loss rate: 2.40%
-- Flow 1:
Average throughput: 68.93 Mbit/s
95th percentile per-packet one-way delay: 146.752 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 132.20 Mbit/s
95th percentile per-packet one-way delay: 213.487 ms
Loss rate: 3.11%
-- Flow 3:
Average throughput: 161.56 Mbit/s
95th percentile per-packet one-way delay: 271.643 ms
Loss rate: 4.22%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-09-07 13:31:00

End at: 2018-09-07 13:31:30

Local clock offset: 0.539 ms

Remote clock offset: 0.027 ms

Below is generated by plot.py at 2018-09-07 17:52:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 290.54 Mbit/s

95th percentile per-packet one-way delay: 264.978 ms

Loss rate: 8.30%

-- Flow 1:

Average throughput: 179.51 Mbit/s

95th percentile per-packet one-way delay: 271.462 ms

Loss rate: 10.09%

-- Flow 2:

Average throughput: 155.03 Mbit/s

95th percentile per-packet one-way delay: 254.024 ms

Loss rate: 5.62%

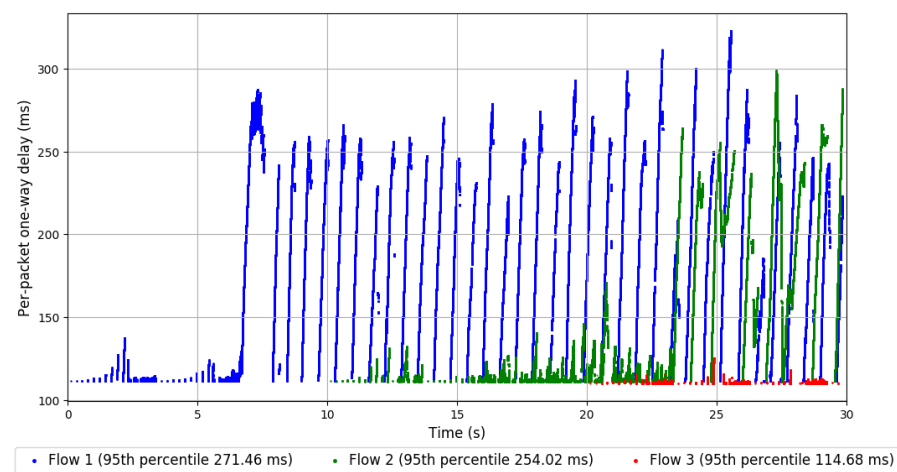
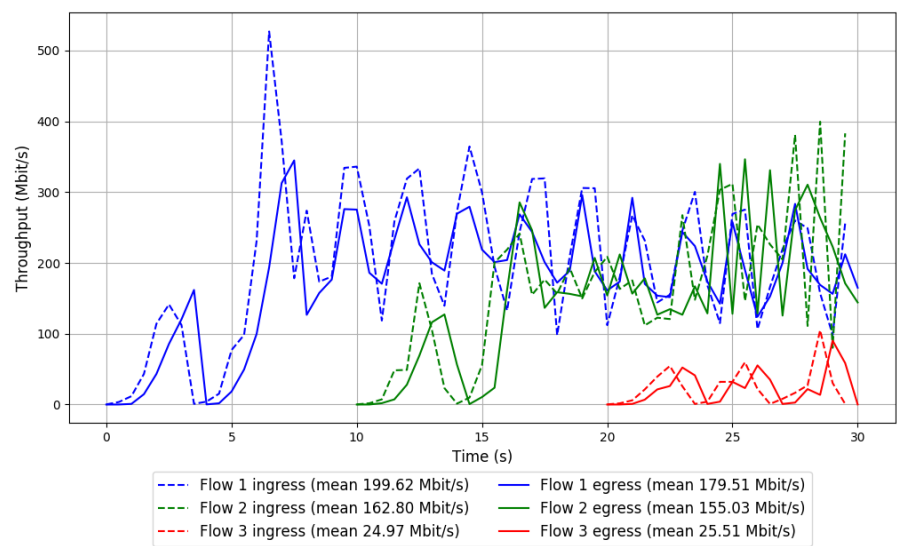
-- Flow 3:

Average throughput: 25.51 Mbit/s

95th percentile per-packet one-way delay: 114.681 ms

Loss rate: 0.15%

Run 2: Report of Verus — Data Link

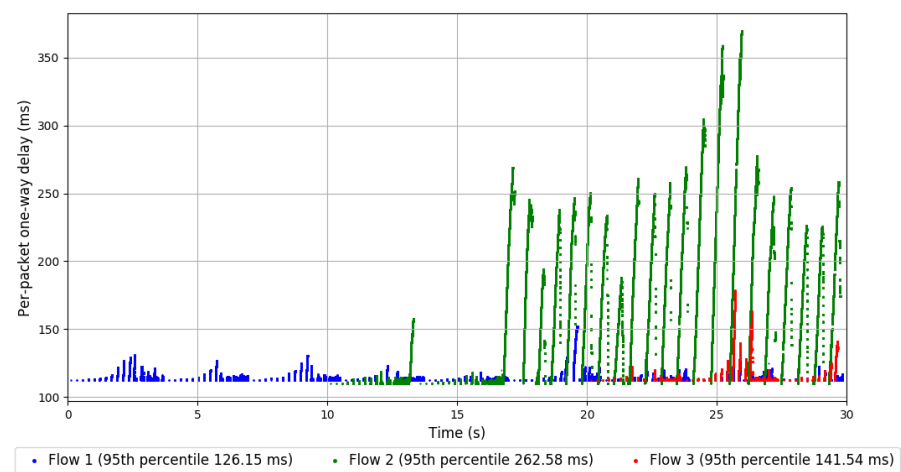
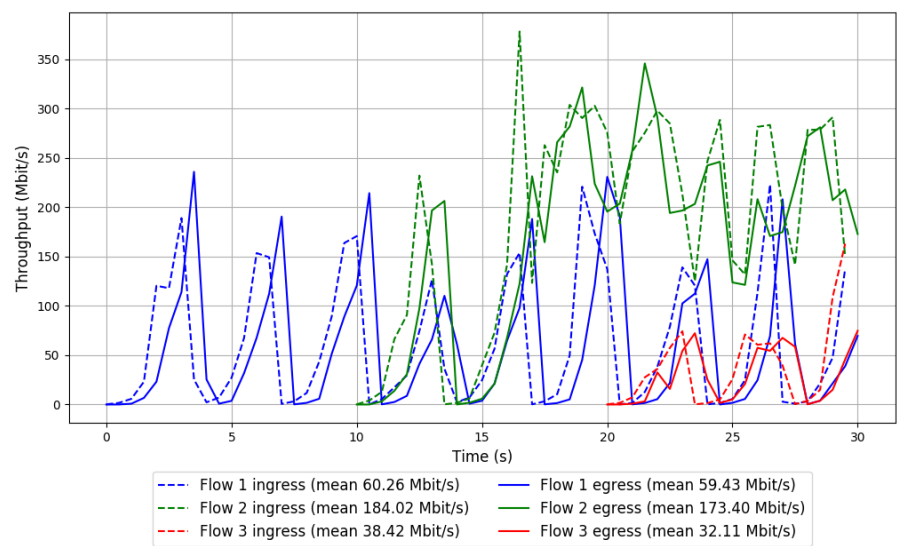


Run 3: Statistics of Verus

Start at: 2018-09-07 14:04:18
End at: 2018-09-07 14:04:48
Local clock offset: -0.308 ms
Remote clock offset: -0.083 ms

Below is generated by plot.py at 2018-09-07 17:52:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 184.17 Mbit/s
95th percentile per-packet one-way delay: 252.806 ms
Loss rate: 6.49%
-- Flow 1:
Average throughput: 59.43 Mbit/s
95th percentile per-packet one-way delay: 126.150 ms
Loss rate: 2.12%
-- Flow 2:
Average throughput: 173.40 Mbit/s
95th percentile per-packet one-way delay: 262.584 ms
Loss rate: 7.25%
-- Flow 3:
Average throughput: 32.11 Mbit/s
95th percentile per-packet one-way delay: 141.540 ms
Loss rate: 19.88%

Run 3: Report of Verus — Data Link

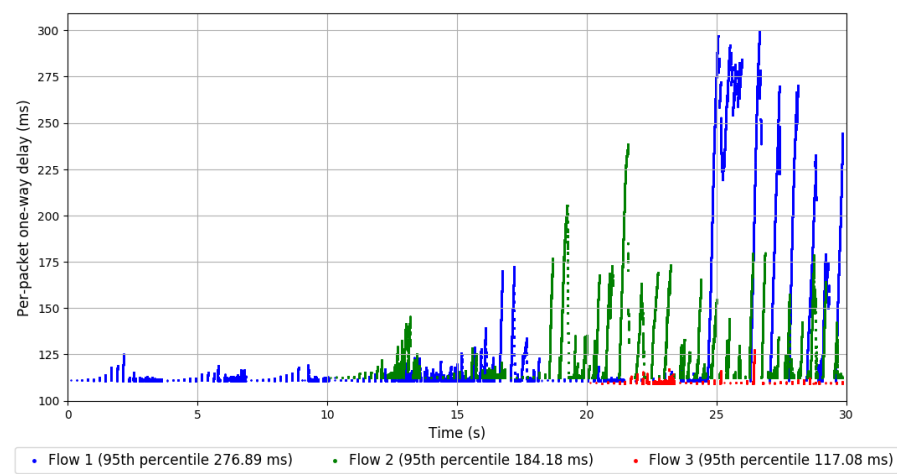
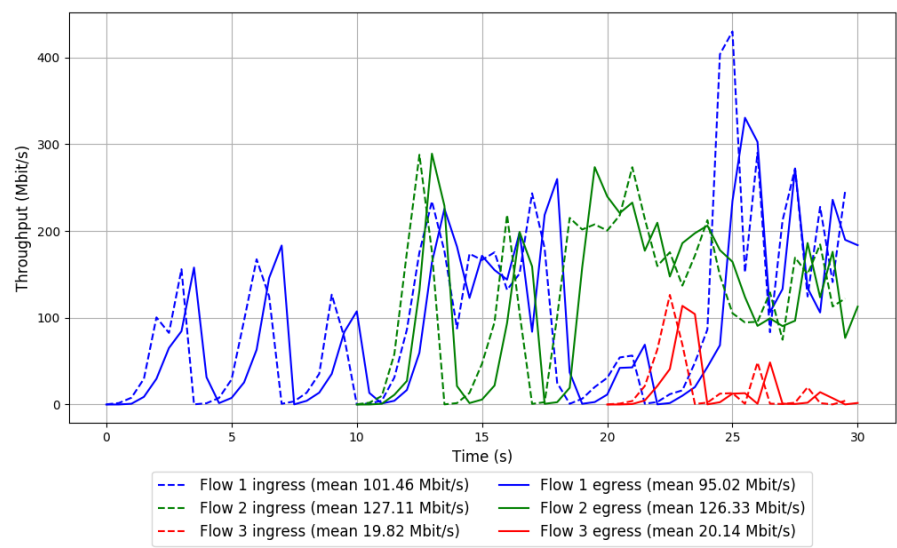


Run 4: Statistics of Verus

Start at: 2018-09-07 14:37:36
End at: 2018-09-07 14:38:06
Local clock offset: -0.281 ms
Remote clock offset: -0.077 ms

Below is generated by plot.py at 2018-09-07 17:52:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 185.37 Mbit/s
95th percentile per-packet one-way delay: 263.958 ms
Loss rate: 4.07%
-- Flow 1:
Average throughput: 95.02 Mbit/s
95th percentile per-packet one-way delay: 276.890 ms
Loss rate: 6.26%
-- Flow 2:
Average throughput: 126.33 Mbit/s
95th percentile per-packet one-way delay: 184.175 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 20.14 Mbit/s
95th percentile per-packet one-way delay: 117.078 ms
Loss rate: 0.64%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-07 15:11:09

End at: 2018-09-07 15:11:39

Local clock offset: -0.615 ms

Remote clock offset: 0.336 ms

Below is generated by plot.py at 2018-09-07 17:52:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 141.30 Mbit/s

95th percentile per-packet one-way delay: 162.687 ms

Loss rate: 0.54%

-- Flow 1:

Average throughput: 66.36 Mbit/s

95th percentile per-packet one-way delay: 142.194 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 87.86 Mbit/s

95th percentile per-packet one-way delay: 156.950 ms

Loss rate: 0.44%

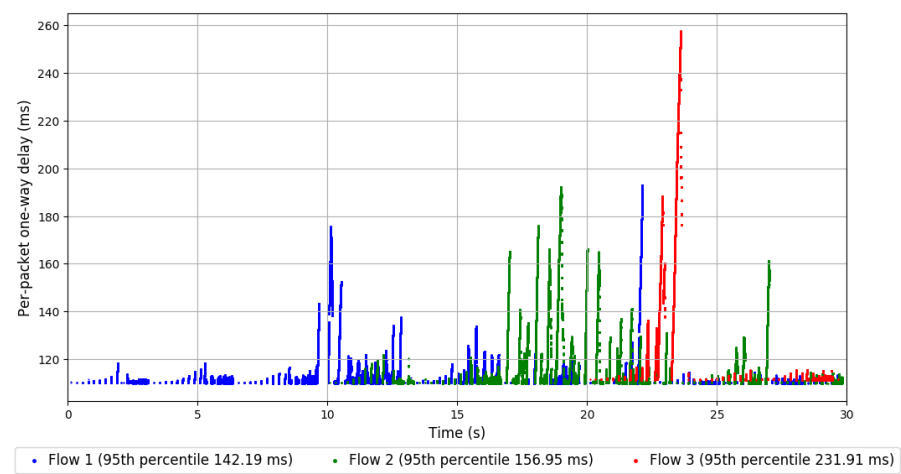
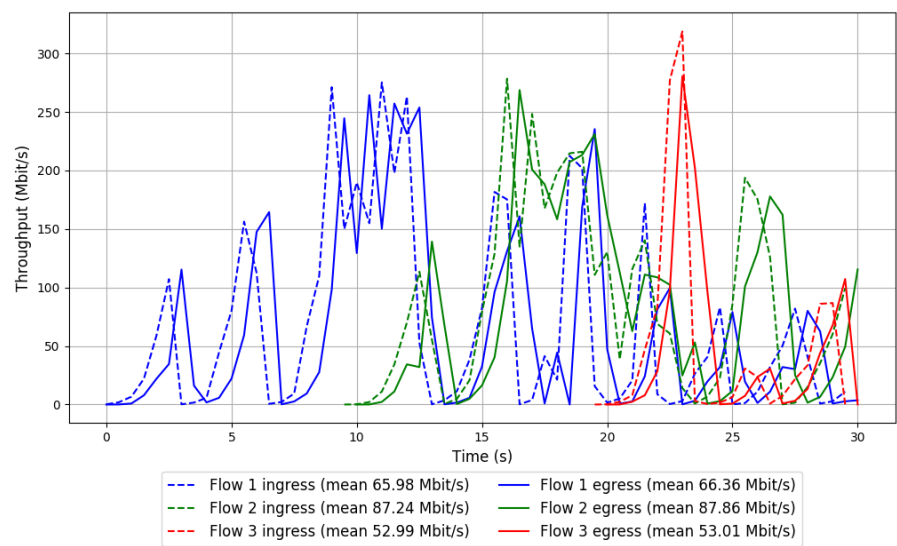
-- Flow 3:

Average throughput: 53.01 Mbit/s

95th percentile per-packet one-way delay: 231.913 ms

Loss rate: 2.22%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-07 12:34:52

End at: 2018-09-07 12:35:22

Local clock offset: 0.163 ms

Remote clock offset: 0.007 ms

Below is generated by plot.py at 2018-09-07 17:54:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 540.98 Mbit/s

95th percentile per-packet one-way delay: 163.260 ms

Loss rate: 1.26%

-- Flow 1:

Average throughput: 322.47 Mbit/s

95th percentile per-packet one-way delay: 151.113 ms

Loss rate: 0.90%

-- Flow 2:

Average throughput: 269.75 Mbit/s

95th percentile per-packet one-way delay: 228.214 ms

Loss rate: 1.41%

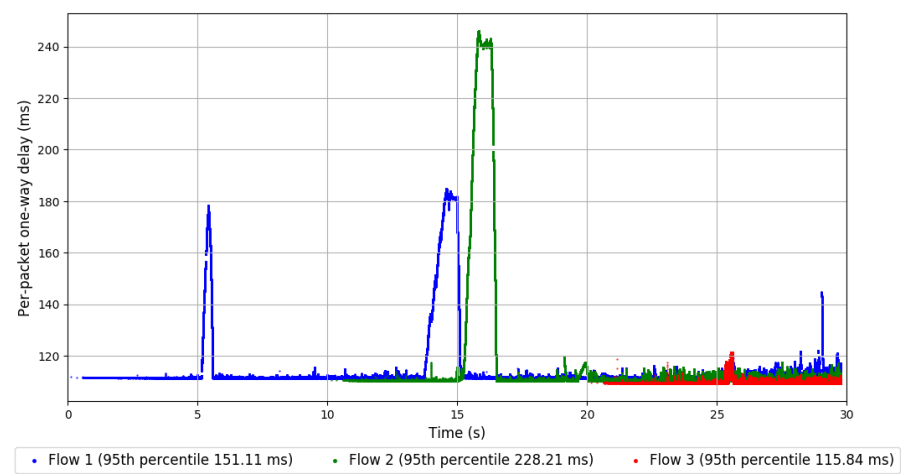
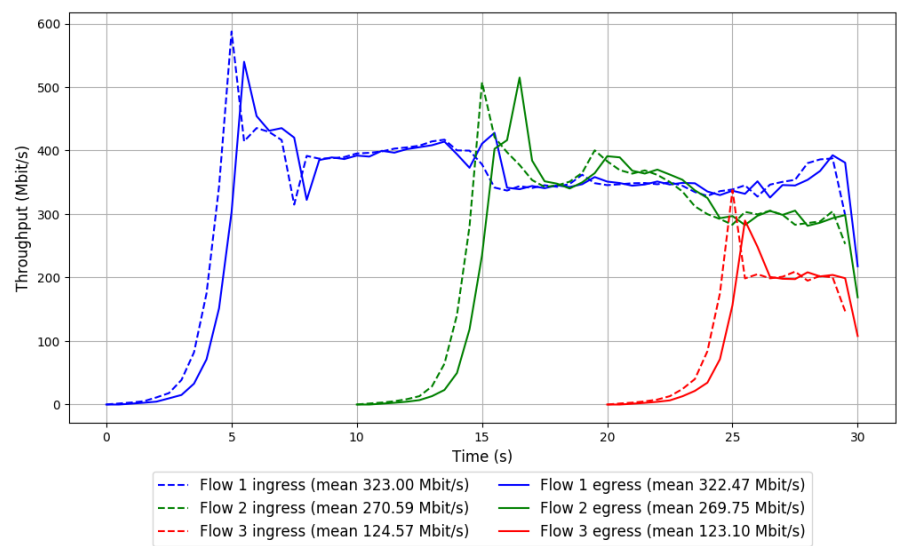
-- Flow 3:

Average throughput: 123.10 Mbit/s

95th percentile per-packet one-way delay: 115.838 ms

Loss rate: 3.38%

Run 1: Report of PCC-Vivace — Data Link

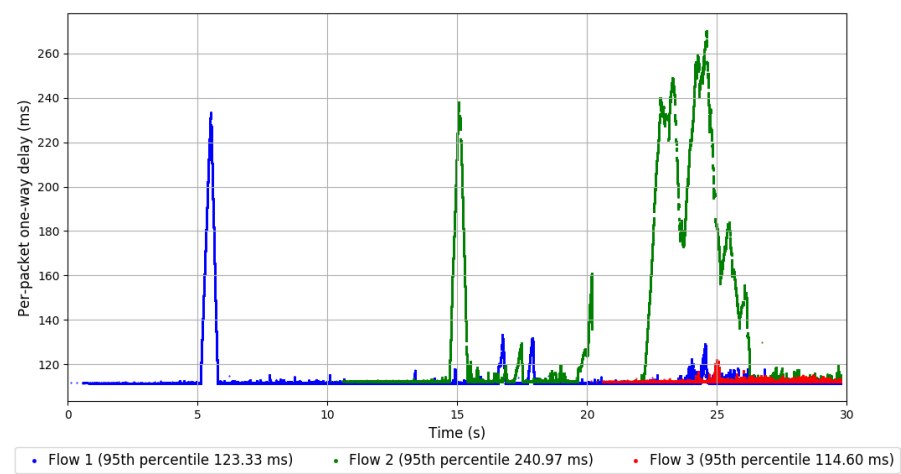
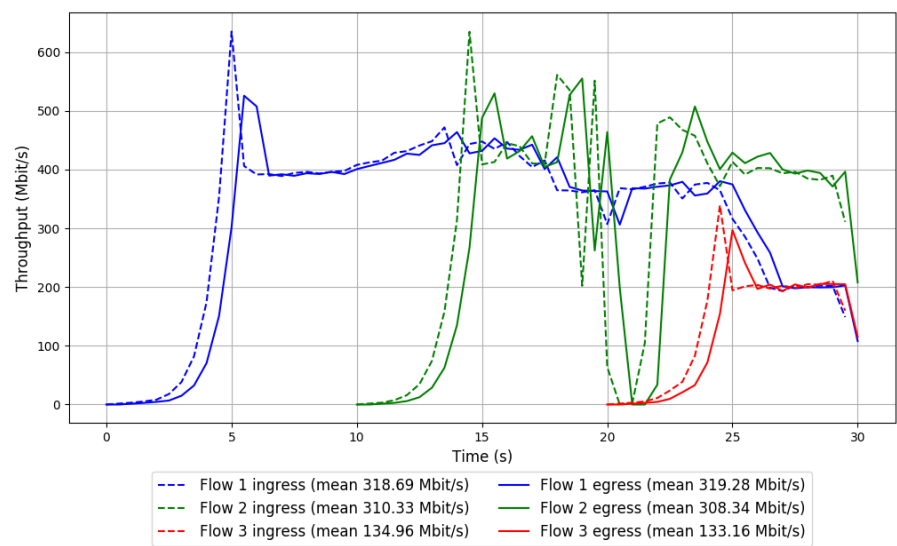


Run 2: Statistics of PCC-Vivace

Start at: 2018-09-07 13:07:58
End at: 2018-09-07 13:08:28
Local clock offset: 0.089 ms
Remote clock offset: -0.006 ms

Below is generated by plot.py at 2018-09-07 17:54:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 566.82 Mbit/s
95th percentile per-packet one-way delay: 217.715 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 319.28 Mbit/s
95th percentile per-packet one-way delay: 123.328 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 308.34 Mbit/s
95th percentile per-packet one-way delay: 240.975 ms
Loss rate: 1.76%
-- Flow 3:
Average throughput: 133.16 Mbit/s
95th percentile per-packet one-way delay: 114.602 ms
Loss rate: 3.58%

Run 2: Report of PCC-Vivace — Data Link

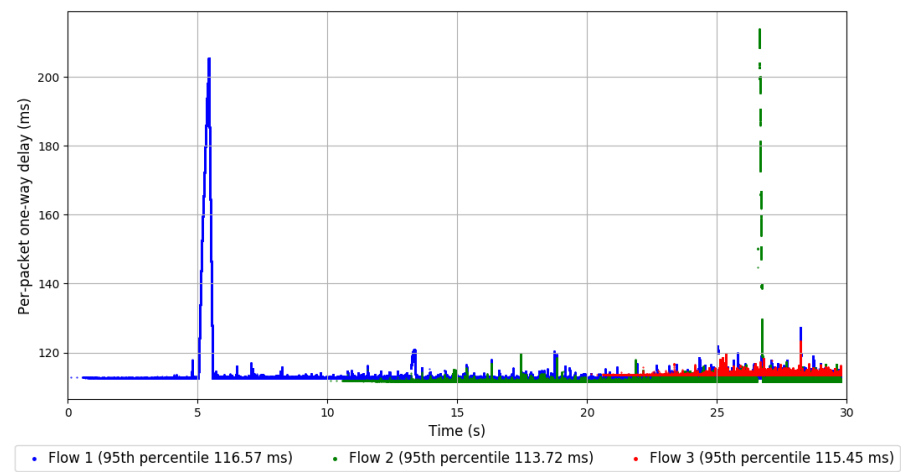
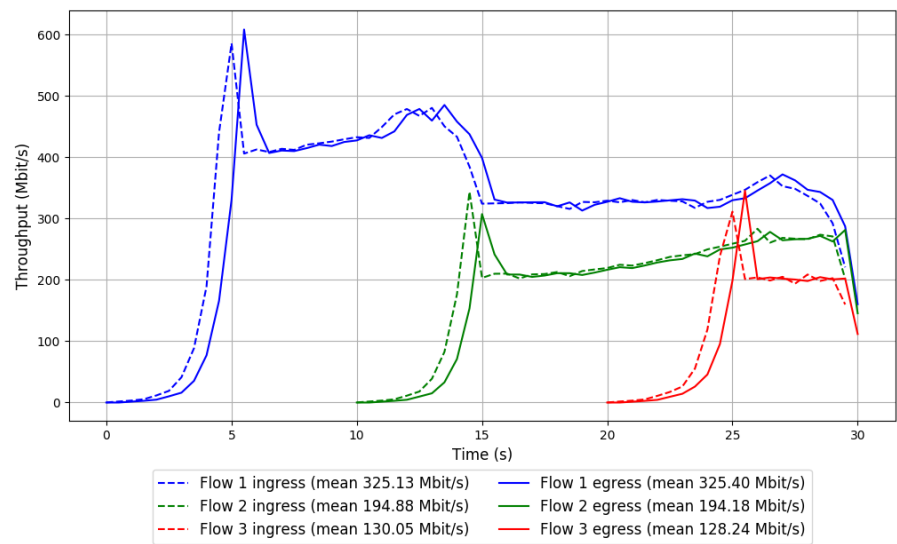


Run 3: Statistics of PCC-Vivace

Start at: 2018-09-07 13:41:44
End at: 2018-09-07 13:42:14
Local clock offset: 0.519 ms
Remote clock offset: -0.382 ms

Below is generated by plot.py at 2018-09-07 17:54:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 495.68 Mbit/s
95th percentile per-packet one-way delay: 115.434 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 325.40 Mbit/s
95th percentile per-packet one-way delay: 116.573 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 194.18 Mbit/s
95th percentile per-packet one-way delay: 113.719 ms
Loss rate: 1.47%
-- Flow 3:
Average throughput: 128.24 Mbit/s
95th percentile per-packet one-way delay: 115.446 ms
Loss rate: 3.64%

Run 3: Report of PCC-Vivace — Data Link

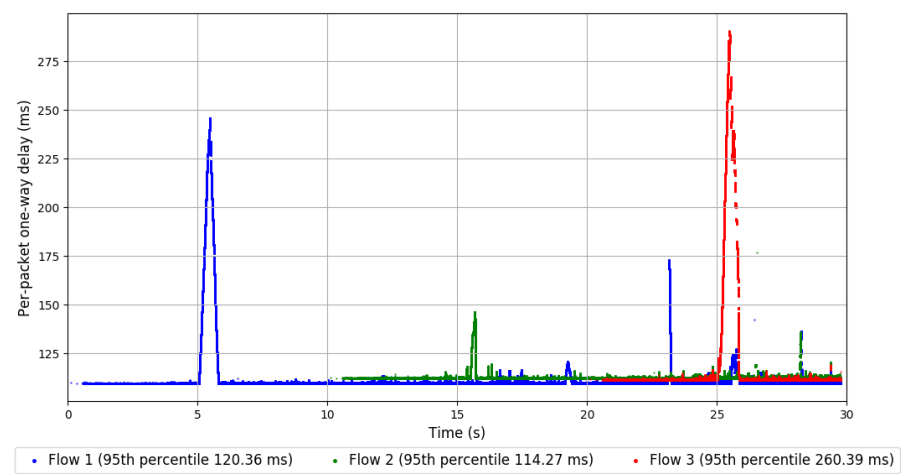
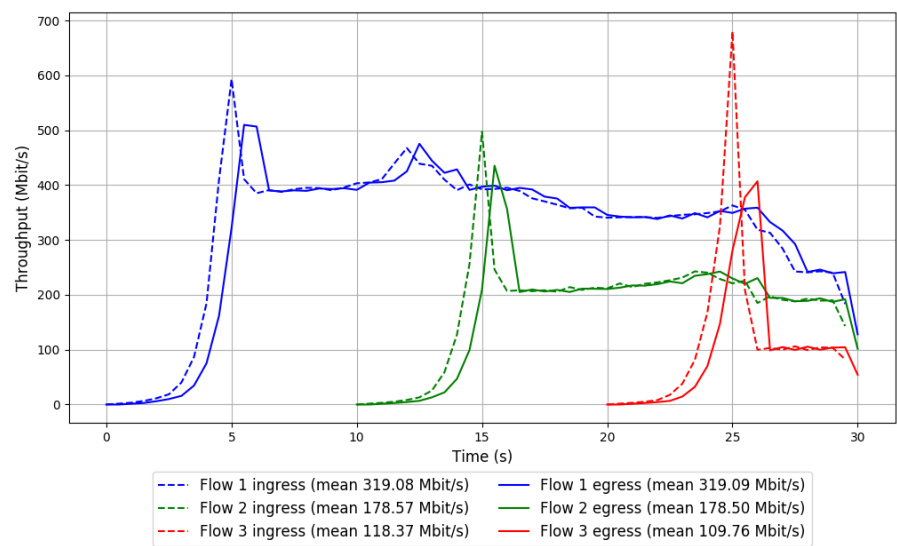


Run 4: Statistics of PCC-Vivace

Start at: 2018-09-07 14:14:39
End at: 2018-09-07 14:15:09
Local clock offset: -0.316 ms
Remote clock offset: -0.077 ms

Below is generated by plot.py at 2018-09-07 17:55:03
Datalink statistics
-- Total of 3 flows:
Average throughput: 472.96 Mbit/s
95th percentile per-packet one-way delay: 135.118 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 319.09 Mbit/s
95th percentile per-packet one-way delay: 120.355 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 178.50 Mbit/s
95th percentile per-packet one-way delay: 114.269 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 109.76 Mbit/s
95th percentile per-packet one-way delay: 260.391 ms
Loss rate: 9.36%

Run 4: Report of PCC-Vivace — Data Link

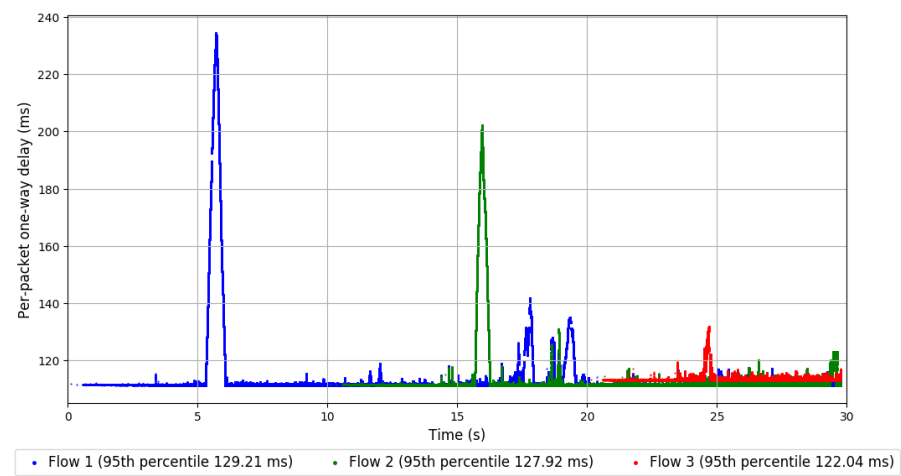
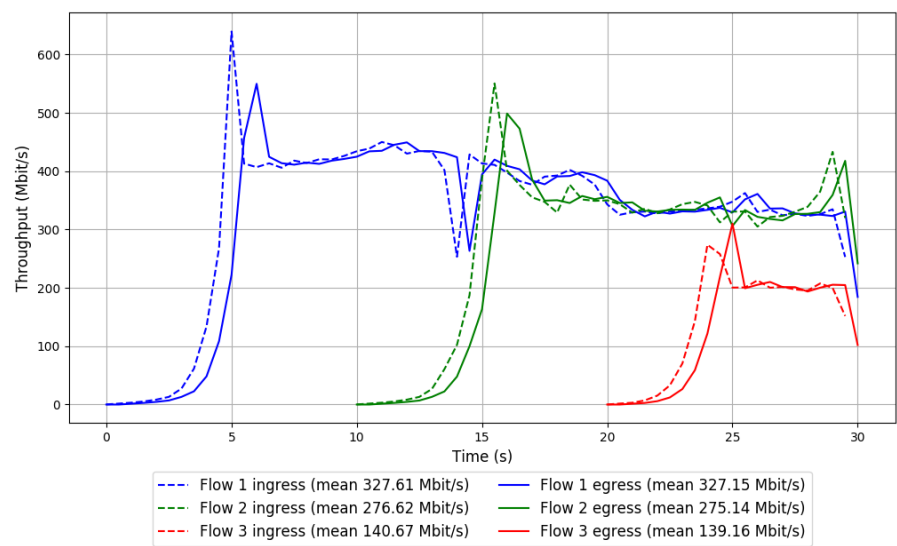


Run 5: Statistics of PCC-Vivace

Start at: 2018-09-07 14:48:04
End at: 2018-09-07 14:48:34
Local clock offset: 0.113 ms
Remote clock offset: -0.416 ms

Below is generated by plot.py at 2018-09-07 17:55:12
Datalink statistics
-- Total of 3 flows:
Average throughput: 554.66 Mbit/s
95th percentile per-packet one-way delay: 127.420 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 327.15 Mbit/s
95th percentile per-packet one-way delay: 129.213 ms
Loss rate: 0.88%
-- Flow 2:
Average throughput: 275.14 Mbit/s
95th percentile per-packet one-way delay: 127.918 ms
Loss rate: 1.66%
-- Flow 3:
Average throughput: 139.16 Mbit/s
95th percentile per-packet one-way delay: 122.042 ms
Loss rate: 3.31%

Run 5: Report of PCC-Vivace — Data Link

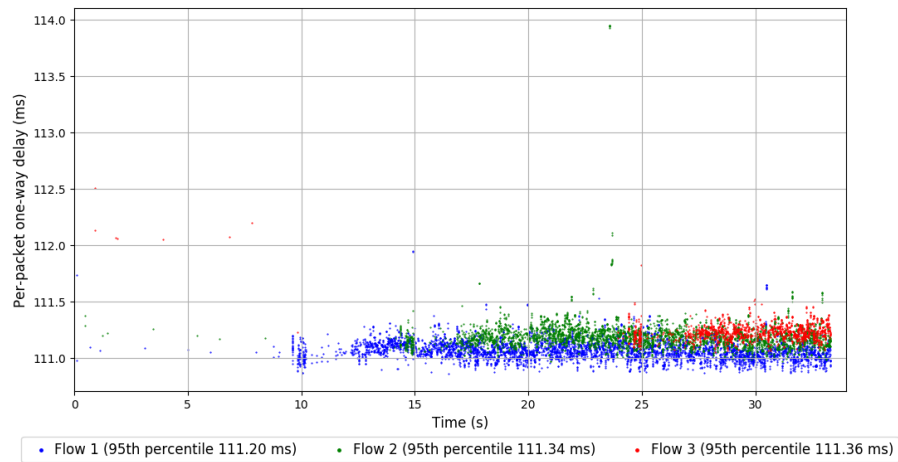
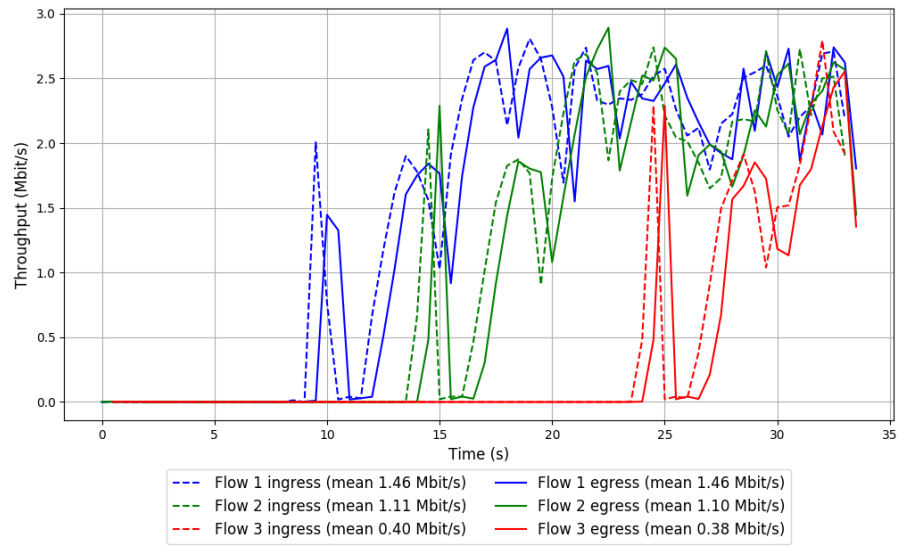


Run 1: Statistics of WebRTC media

Start at: 2018-09-07 12:56:08
End at: 2018-09-07 12:56:38
Local clock offset: -0.661 ms
Remote clock offset: -0.363 ms

Below is generated by plot.py at 2018-09-07 17:55:12
Datalink statistics
-- Total of 3 flows:
Average throughput: 2.92 Mbit/s
95th percentile per-packet one-way delay: 111.304 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 111.204 ms
Loss rate: 1.09%
-- Flow 2:
Average throughput: 1.10 Mbit/s
95th percentile per-packet one-way delay: 111.336 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 111.361 ms
Loss rate: 4.10%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-07 13:29:44

End at: 2018-09-07 13:30:14

Local clock offset: -0.261 ms

Remote clock offset: 0.38 ms

Below is generated by plot.py at 2018-09-07 17:55:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.30 Mbit/s

95th percentile per-packet one-way delay: 112.506 ms

Loss rate: 1.58%

-- Flow 1:

Average throughput: 1.86 Mbit/s

95th percentile per-packet one-way delay: 110.771 ms

Loss rate: 0.92%

-- Flow 2:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 112.563 ms

Loss rate: 1.46%

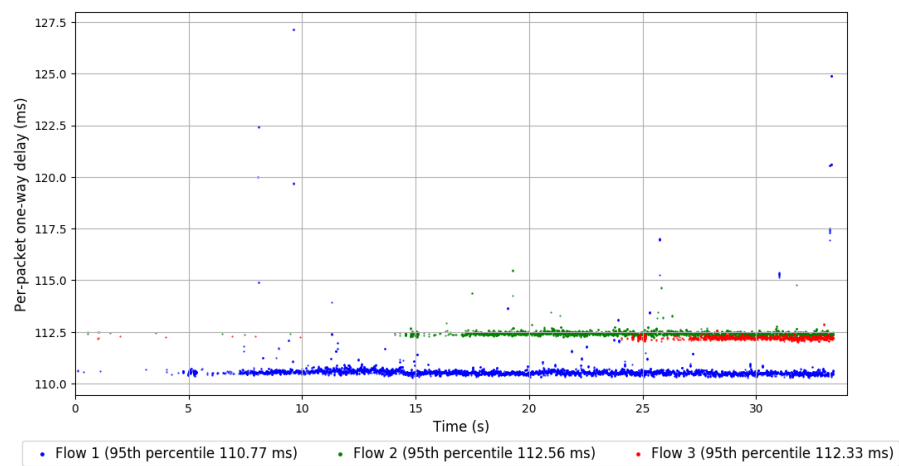
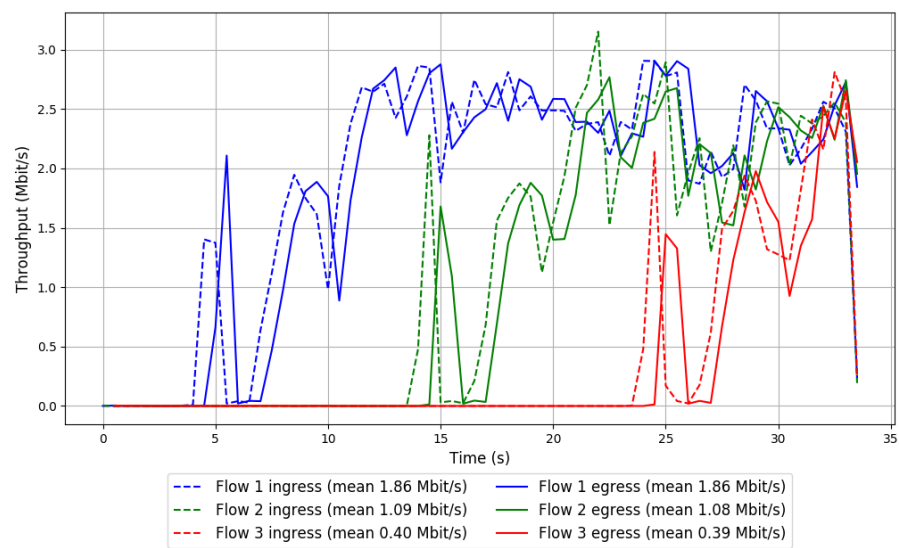
-- Flow 3:

Average throughput: 0.39 Mbit/s

95th percentile per-packet one-way delay: 112.331 ms

Loss rate: 5.05%

Run 2: Report of WebRTC media — Data Link

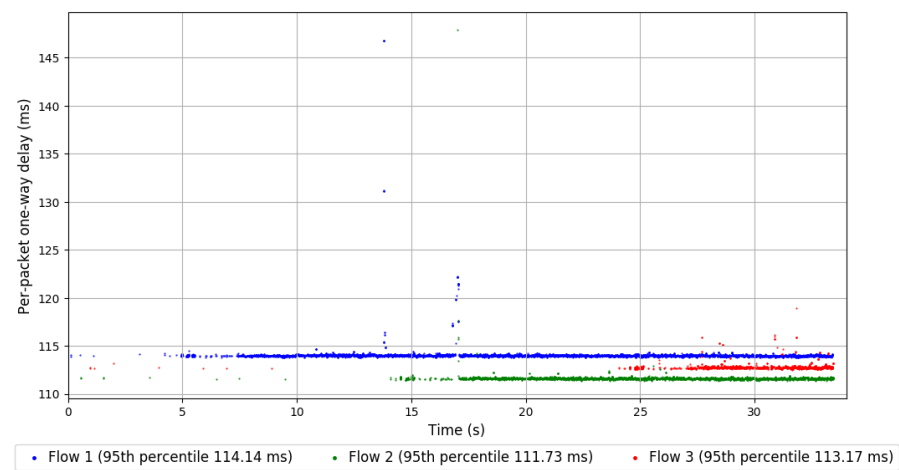
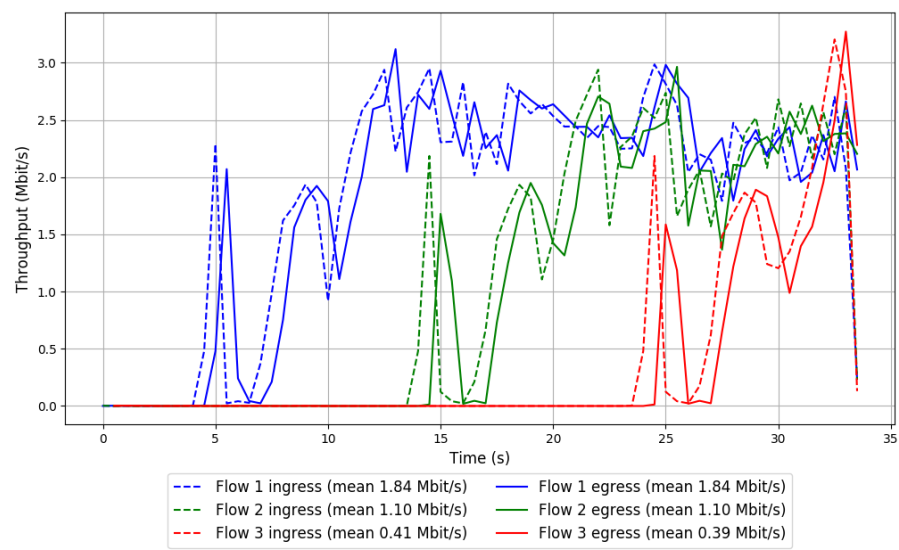


Run 3: Statistics of WebRTC media

Start at: 2018-09-07 14:03:02
End at: 2018-09-07 14:03:32
Local clock offset: 1.077 ms
Remote clock offset: -0.092 ms

Below is generated by plot.py at 2018-09-07 17:55:12
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 114.103 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 114.138 ms
Loss rate: 0.75%
-- Flow 2:
Average throughput: 1.10 Mbit/s
95th percentile per-packet one-way delay: 111.728 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 113.175 ms
Loss rate: 4.42%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-07 14:36:20

End at: 2018-09-07 14:36:50

Local clock offset: 0.577 ms

Remote clock offset: -0.09 ms

Below is generated by plot.py at 2018-09-07 17:55:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.29 Mbit/s

95th percentile per-packet one-way delay: 112.244 ms

Loss rate: 1.43%

-- Flow 1:

Average throughput: 1.84 Mbit/s

95th percentile per-packet one-way delay: 111.215 ms

Loss rate: 0.81%

-- Flow 2:

Average throughput: 1.09 Mbit/s

95th percentile per-packet one-way delay: 111.206 ms

Loss rate: 1.58%

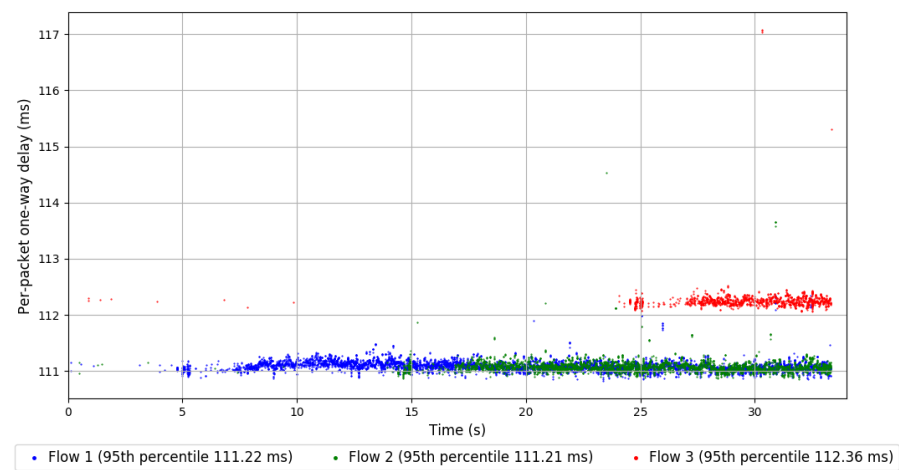
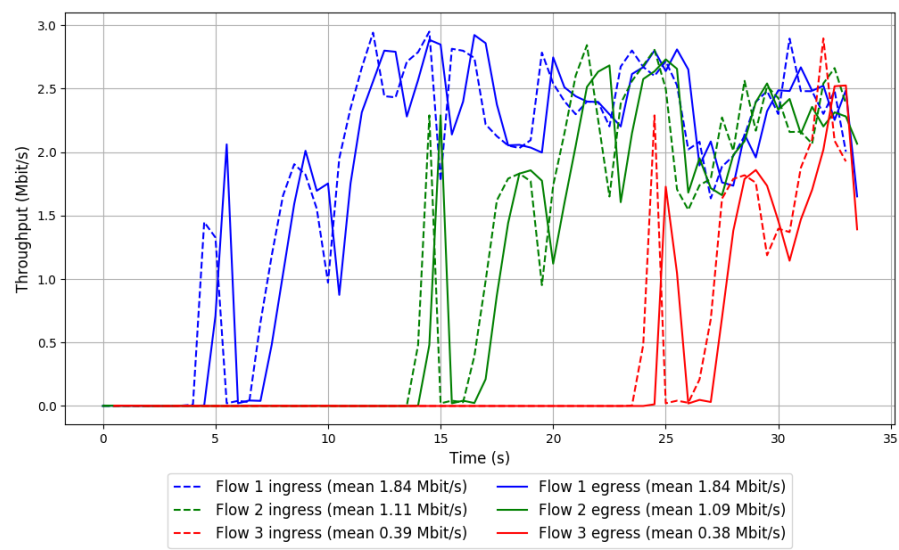
-- Flow 3:

Average throughput: 0.38 Mbit/s

95th percentile per-packet one-way delay: 112.365 ms

Loss rate: 3.99%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-07 15:09:53

End at: 2018-09-07 15:10:23

Local clock offset: 1.123 ms

Remote clock offset: 0.001 ms

Below is generated by plot.py at 2018-09-07 17:55:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.32 Mbit/s

95th percentile per-packet one-way delay: 113.811 ms

Loss rate: 1.40%

-- Flow 1:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 113.802 ms

Loss rate: 0.82%

-- Flow 2:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 113.843 ms

Loss rate: 1.43%

-- Flow 3:

Average throughput: 0.39 Mbit/s

95th percentile per-packet one-way delay: 112.359 ms

Loss rate: 4.04%

Run 5: Report of WebRTC media — Data Link

