

Pantheon Report

Generated at 2018-09-06 21:35:44 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

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

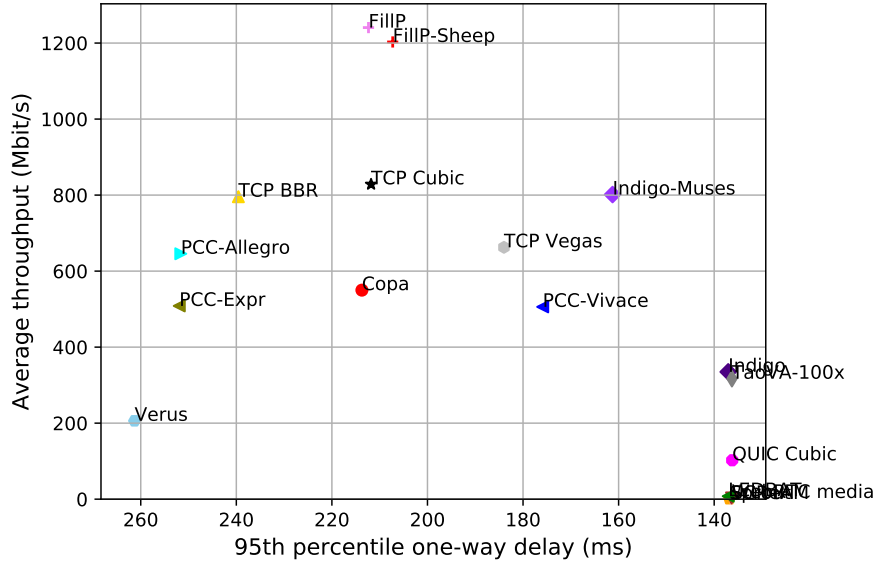
System info:

```
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 = 536870912 536870912 536870912
```

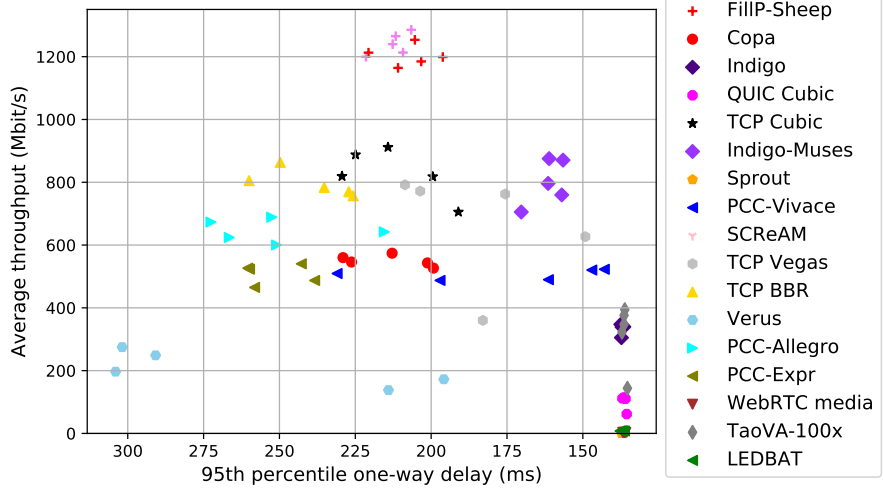
Git summary:

```
branch: muses @ f392ce15d580343f4432c3d7e068b3290f03eb4a
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ a28d20fb82a95a965a3da65fd1eb71b8994e9b84
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-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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



test from GCE Sydney to GCE London, 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 | 445.59 | 387.66 | 276.25 | 239.30 | 234.51 | 184.33 | 1.57 | 1.43 | 0.57 |
| Copa | 5 | 298.78 | 270.43 | 213.10 | 191.48 | 184.89 | 236.25 | 0.05 | 0.30 | 1.05 |
| TCP Cubic | 5 | 469.84 | 399.11 | 278.81 | 207.68 | 194.55 | 198.01 | 0.18 | 0.28 | 0.40 |
| FillP | 5 | 671.89 | 609.43 | 491.31 | 211.78 | 211.81 | 198.64 | 3.39 | 3.14 | 1.40 |
| FillP-Sheep | 5 | 667.86 | 581.14 | 445.76 | 206.76 | 207.95 | 181.64 | 3.07 | 2.19 | 0.71 |
| Indigo | 5 | 173.62 | 170.53 | 151.14 | 136.31 | 137.13 | 138.39 | 0.00 | 0.01 | 0.03 |
| LEDBAT | 5 | 5.07 | 3.36 | 1.63 | 136.75 | 136.89 | 136.21 | 0.00 | 0.00 | 0.00 |
| Indigo-Muses | 5 | 400.31 | 402.34 | 417.07 | 164.77 | 162.29 | 150.11 | 0.01 | 0.00 | 0.06 |
| PCC-Allegro | 5 | 357.31 | 320.69 | 228.75 | 237.27 | 226.63 | 247.72 | 4.45 | 2.51 | 1.86 |
| PCC-Expr | 5 | 295.70 | 246.10 | 148.73 | 250.82 | 217.53 | 197.56 | 4.12 | 4.40 | 0.41 |
| QUIC Cubic | 5 | 48.37 | 61.18 | 43.15 | 136.29 | 135.92 | 135.32 | 0.00 | 0.00 | 0.00 |
| SCReAM | 5 | 0.22 | 0.22 | 0.22 | 135.91 | 136.32 | 136.25 | 0.00 | 0.00 | 0.00 |
| Sprout | 5 | 0.16 | 0.17 | 0.23 | 136.43 | 136.53 | 136.66 | 0.00 | 0.00 | 0.00 |
| TaoVA-100x | 5 | 160.79 | 198.91 | 71.01 | 136.13 | 135.98 | 136.51 | 0.00 | 0.00 | 0.00 |
| TCP Vegas | 5 | 399.19 | 275.17 | 240.92 | 184.54 | 167.69 | 180.71 | 0.11 | 0.11 | 0.01 |
| Verus | 5 | 144.14 | 79.18 | 30.75 | 251.18 | 263.27 | 158.64 | 5.52 | 3.87 | 0.01 |
| PCC-Vivace | 5 | 311.36 | 228.56 | 128.82 | 173.31 | 171.45 | 152.77 | 0.49 | 0.06 | 0.01 |
| WebRTC media | 5 | 1.82 | 1.05 | 0.33 | 136.08 | 136.02 | 136.42 | 0.00 | 0.00 | 0.00 |

Run 1: Statistics of TCP BBR

Start at: 2018-09-06 16:46:55

End at: 2018-09-06 16:47:25

Local clock offset: -0.265 ms

Remote clock offset: 0.109 ms

Below is generated by plot.py at 2018-09-06 19:44:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 769.92 Mbit/s

95th percentile per-packet one-way delay: 227.150 ms

Loss rate: 0.61%

-- Flow 1:

Average throughput: 430.41 Mbit/s

95th percentile per-packet one-way delay: 221.535 ms

Loss rate: 0.17%

-- Flow 2:

Average throughput: 369.26 Mbit/s

95th percentile per-packet one-way delay: 236.778 ms

Loss rate: 1.40%

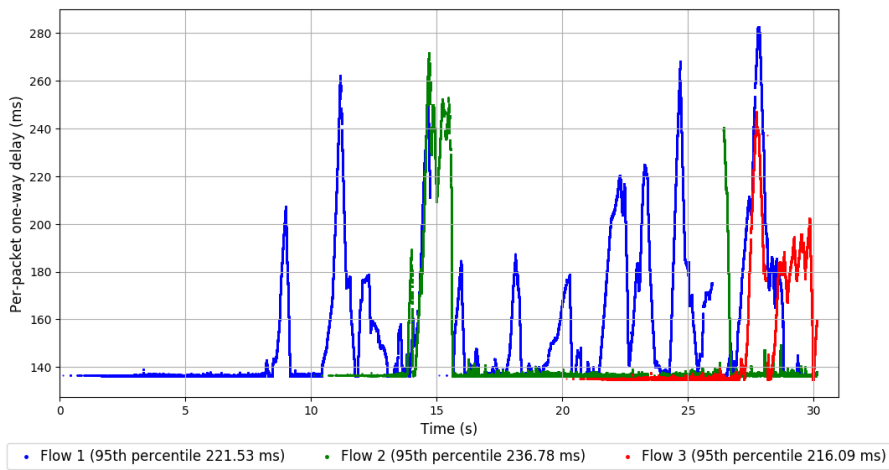
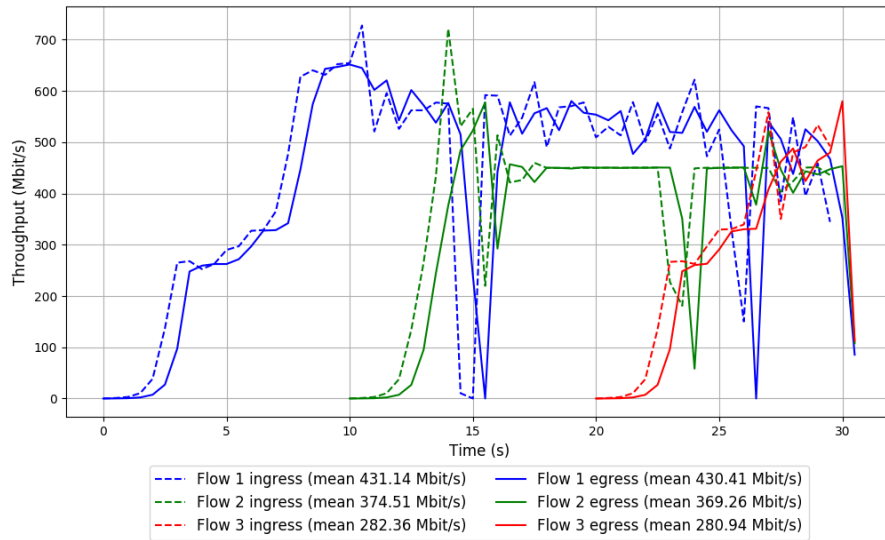
-- Flow 3:

Average throughput: 280.94 Mbit/s

95th percentile per-packet one-way delay: 216.087 ms

Loss rate: 0.50%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-06 17:20:42

End at: 2018-09-06 17:21:12

Local clock offset: -0.264 ms

Remote clock offset: 0.045 ms

Below is generated by plot.py at 2018-09-06 19:44:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 805.28 Mbit/s

95th percentile per-packet one-way delay: 260.003 ms

Loss rate: 2.87%

-- Flow 1:

Average throughput: 436.61 Mbit/s

95th percentile per-packet one-way delay: 263.510 ms

Loss rate: 3.62%

-- Flow 2:

Average throughput: 421.13 Mbit/s

95th percentile per-packet one-way delay: 256.950 ms

Loss rate: 2.35%

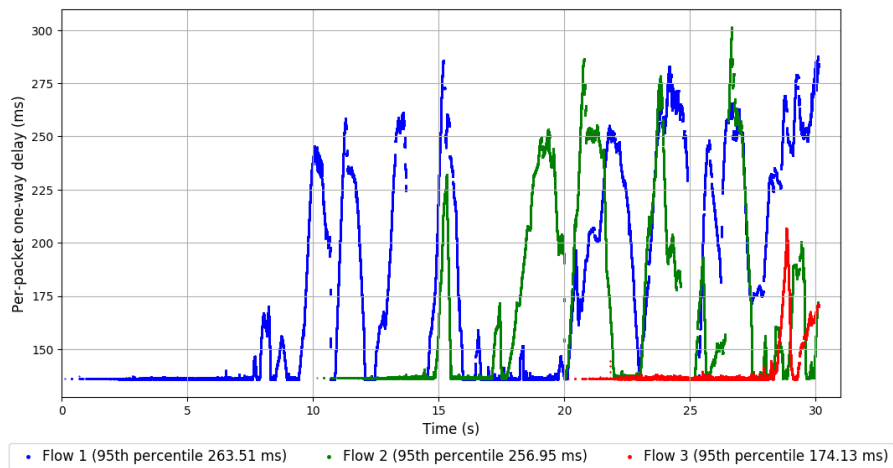
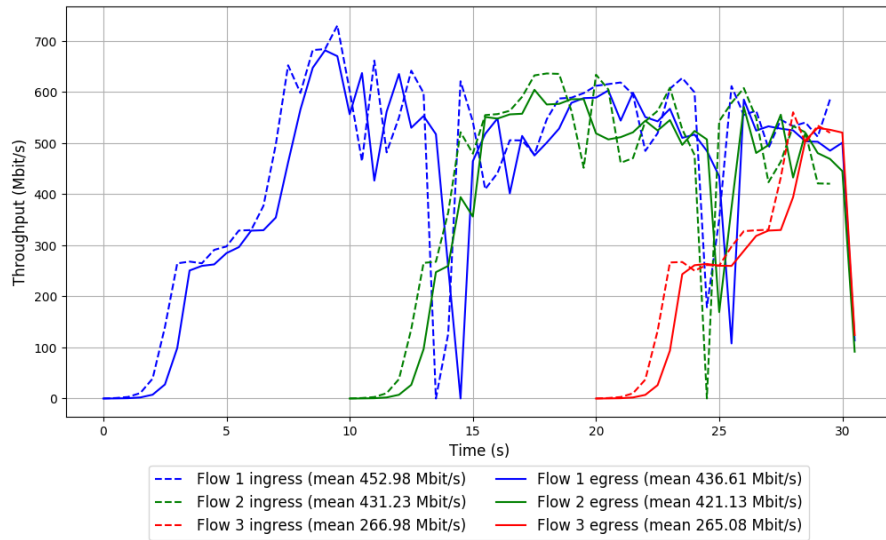
-- Flow 3:

Average throughput: 265.08 Mbit/s

95th percentile per-packet one-way delay: 174.131 ms

Loss rate: 0.71%

Run 2: Report of TCP BBR — Data Link

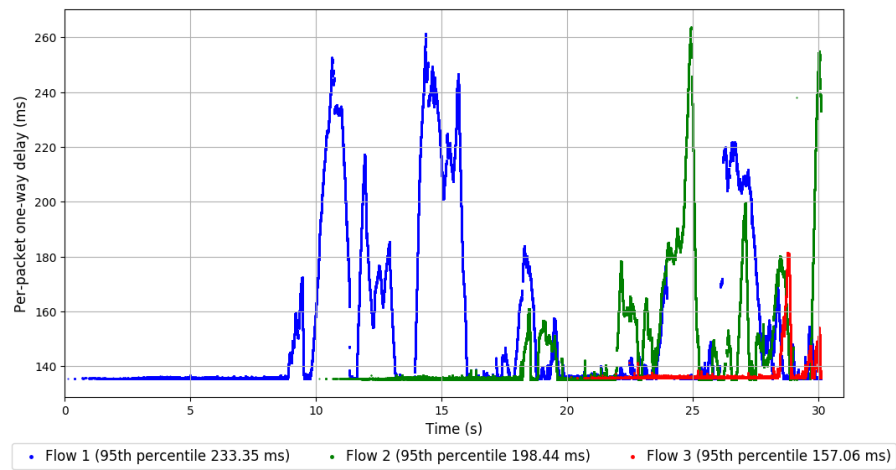
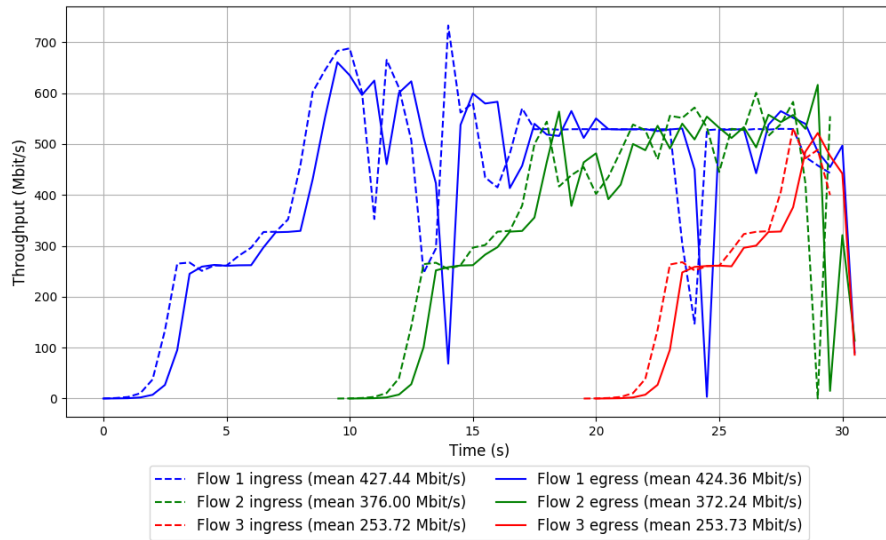


Run 3: Statistics of TCP BBR

Start at: 2018-09-06 17:54:49
End at: 2018-09-06 17:55:19
Local clock offset: -0.1 ms
Remote clock offset: -0.392 ms

```
# Below is generated by plot.py at 2018-09-06 19:44:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 756.96 Mbit/s
95th percentile per-packet one-way delay: 225.692 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 424.36 Mbit/s
95th percentile per-packet one-way delay: 233.349 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 372.24 Mbit/s
95th percentile per-packet one-way delay: 198.442 ms
Loss rate: 0.99%
-- Flow 3:
Average throughput: 253.73 Mbit/s
95th percentile per-packet one-way delay: 157.058 ms
Loss rate: 0.00%
```


Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-06 18:28:21

End at: 2018-09-06 18:28:51

Local clock offset: -0.211 ms

Remote clock offset: 0.065 ms

Below is generated by plot.py at 2018-09-06 19:45:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 863.29 Mbit/s

95th percentile per-packet one-way delay: 249.742 ms

Loss rate: 1.55%

-- Flow 1:

Average throughput: 510.48 Mbit/s

95th percentile per-packet one-way delay: 235.701 ms

Loss rate: 1.82%

-- Flow 2:

Average throughput: 381.55 Mbit/s

95th percentile per-packet one-way delay: 263.374 ms

Loss rate: 1.40%

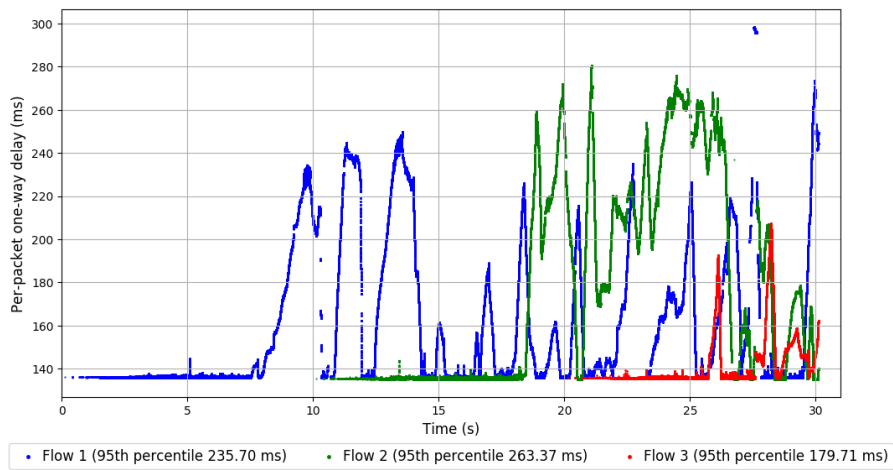
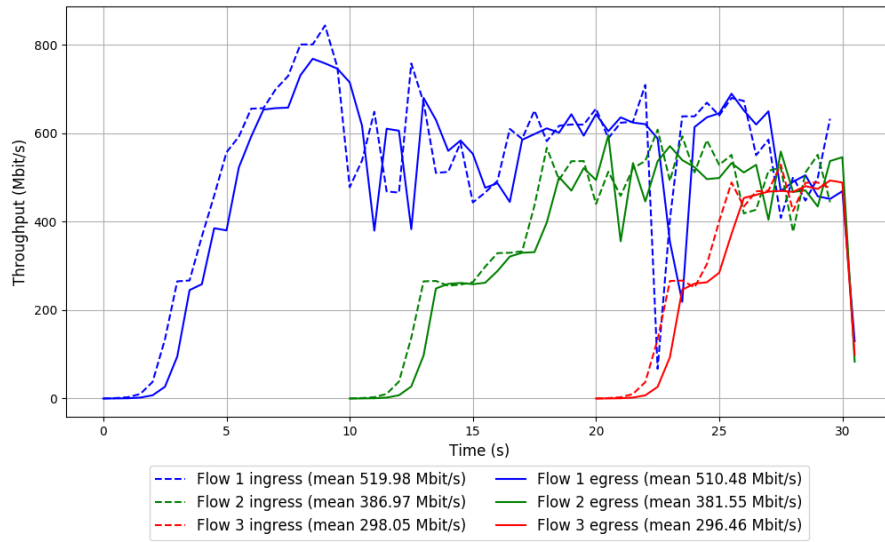
-- Flow 3:

Average throughput: 296.46 Mbit/s

95th percentile per-packet one-way delay: 179.706 ms

Loss rate: 0.53%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-06 19:01:51

End at: 2018-09-06 19:02:21

Local clock offset: -0.268 ms

Remote clock offset: 0.08 ms

Below is generated by plot.py at 2018-09-06 19:45:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 783.32 Mbit/s

95th percentile per-packet one-way delay: 235.241 ms

Loss rate: 1.30%

-- Flow 1:

Average throughput: 426.09 Mbit/s

95th percentile per-packet one-way delay: 242.390 ms

Loss rate: 1.54%

-- Flow 2:

Average throughput: 394.13 Mbit/s

95th percentile per-packet one-way delay: 216.992 ms

Loss rate: 0.99%

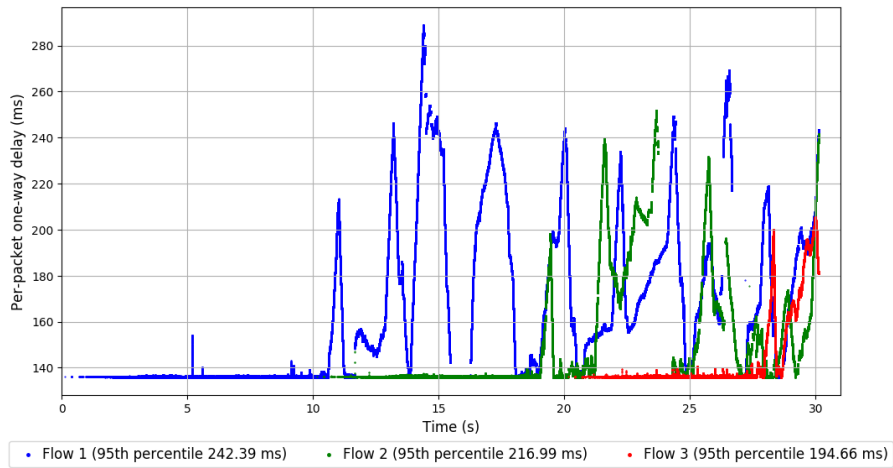
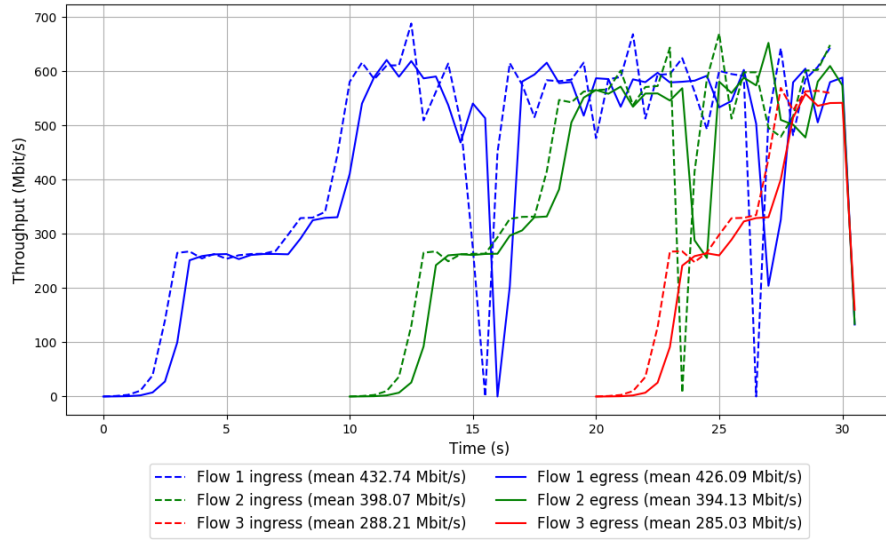
-- Flow 3:

Average throughput: 285.03 Mbit/s

95th percentile per-packet one-way delay: 194.665 ms

Loss rate: 1.10%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-09-06 16:42:40

End at: 2018-09-06 16:43:10

Local clock offset: -0.109 ms

Remote clock offset: 0.455 ms

Below is generated by plot.py at 2018-09-06 19:47:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 559.96 Mbit/s

95th percentile per-packet one-way delay: 229.045 ms

Loss rate: 0.60%

-- Flow 1:

Average throughput: 315.63 Mbit/s

95th percentile per-packet one-way delay: 221.864 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 259.70 Mbit/s

95th percentile per-packet one-way delay: 190.844 ms

Loss rate: 0.26%

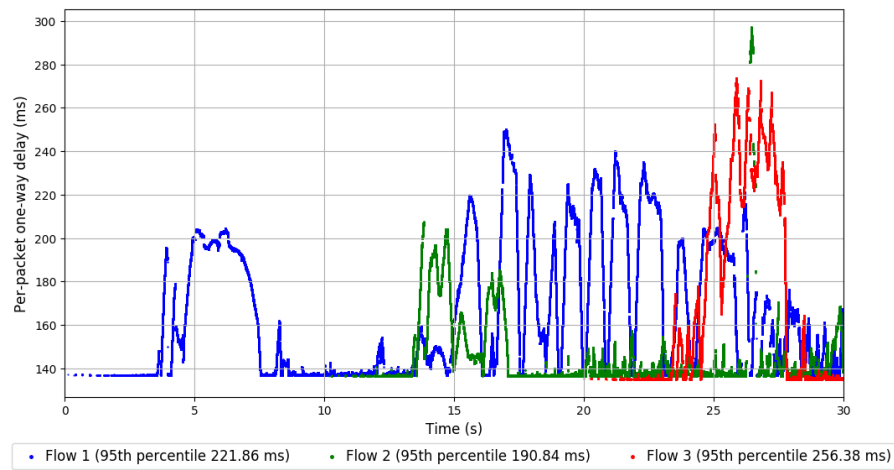
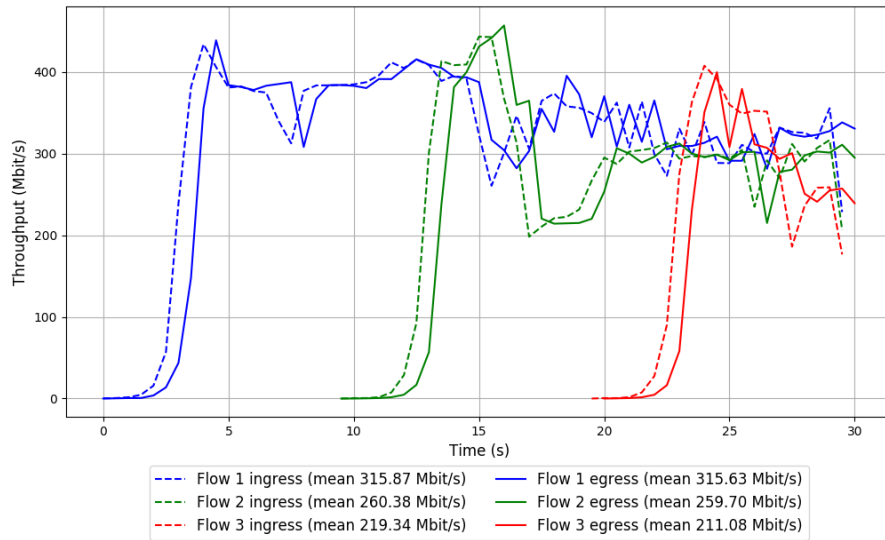
-- Flow 3:

Average throughput: 211.08 Mbit/s

95th percentile per-packet one-way delay: 256.375 ms

Loss rate: 3.77%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-06 17:16:28

End at: 2018-09-06 17:16:58

Local clock offset: -0.047 ms

Remote clock offset: 0.043 ms

Below is generated by plot.py at 2018-09-06 19:48:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 574.04 Mbit/s

95th percentile per-packet one-way delay: 212.866 ms

Loss rate: 0.20%

-- Flow 1:

Average throughput: 305.22 Mbit/s

95th percentile per-packet one-way delay: 181.140 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 289.24 Mbit/s

95th percentile per-packet one-way delay: 191.589 ms

Loss rate: 0.58%

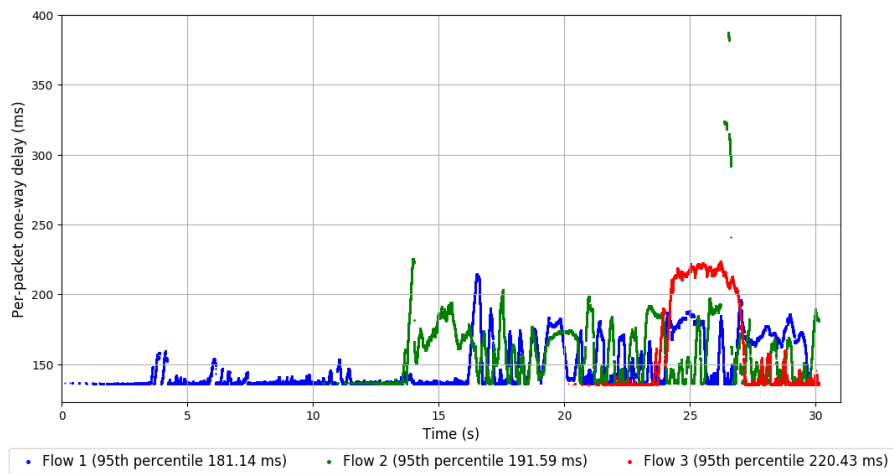
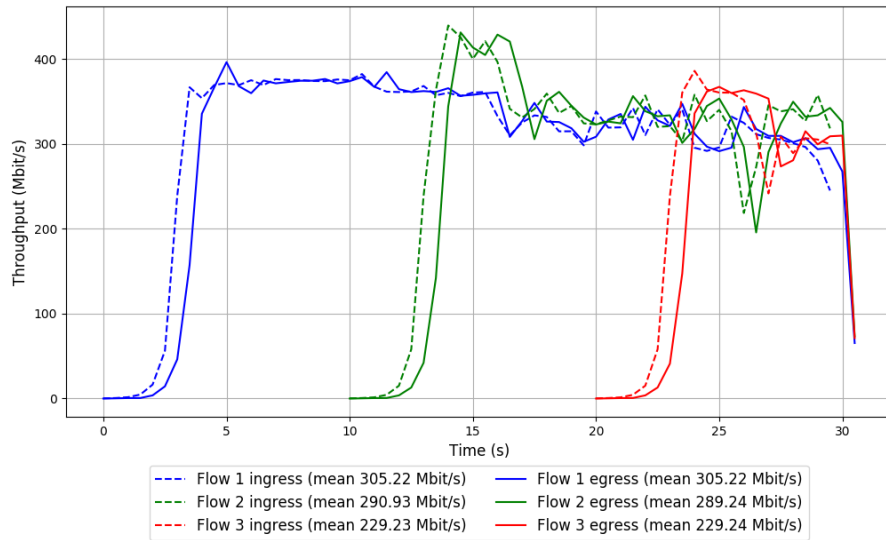
-- Flow 3:

Average throughput: 229.24 Mbit/s

95th percentile per-packet one-way delay: 220.432 ms

Loss rate: 0.00%

Run 2: Report of Copa — Data Link

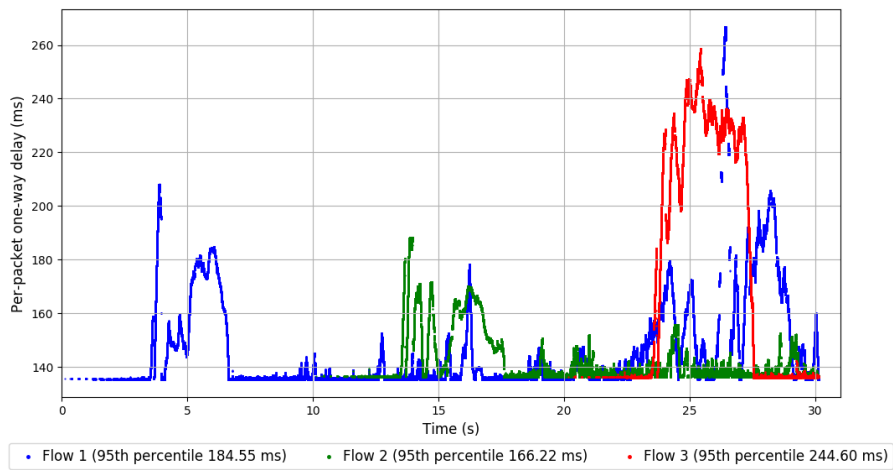
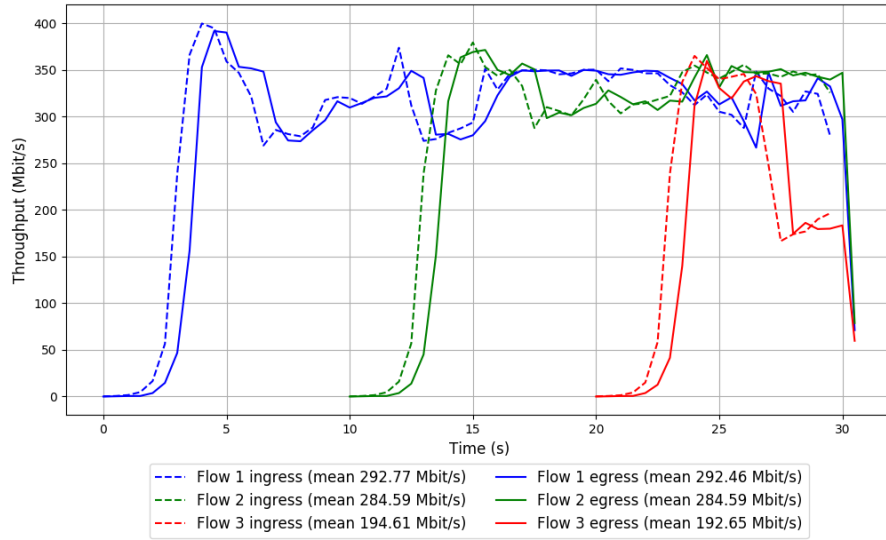


Run 3: Statistics of Copa

Start at: 2018-09-06 17:50:41
End at: 2018-09-06 17:51:11
Local clock offset: -0.366 ms
Remote clock offset: -0.359 ms

```
# Below is generated by plot.py at 2018-09-06 19:48:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 546.02 Mbit/s
95th percentile per-packet one-way delay: 226.231 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 292.46 Mbit/s
95th percentile per-packet one-way delay: 184.547 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 284.59 Mbit/s
95th percentile per-packet one-way delay: 166.220 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 192.65 Mbit/s
95th percentile per-packet one-way delay: 244.598 ms
Loss rate: 1.01%
```

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-06 18:24:08

End at: 2018-09-06 18:24:38

Local clock offset: -0.152 ms

Remote clock offset: 0.066 ms

Below is generated by plot.py at 2018-09-06 20:00:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 543.07 Mbit/s

95th percentile per-packet one-way delay: 201.208 ms

Loss rate: 0.24%

-- Flow 1:

Average throughput: 302.19 Mbit/s

95th percentile per-packet one-way delay: 183.458 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 253.96 Mbit/s

95th percentile per-packet one-way delay: 202.313 ms

Loss rate: 0.58%

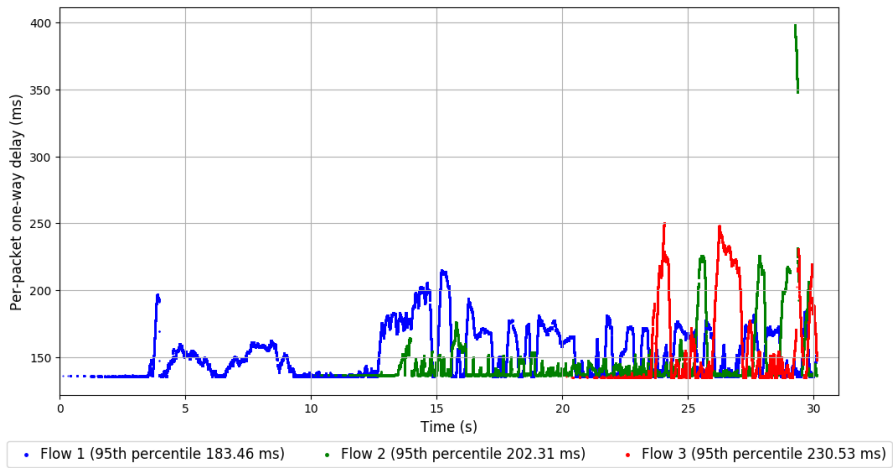
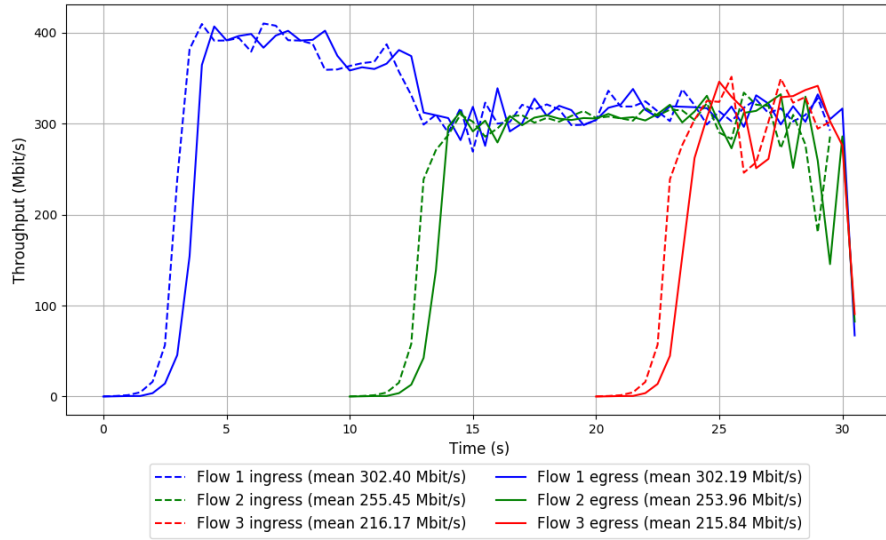
-- Flow 3:

Average throughput: 215.84 Mbit/s

95th percentile per-packet one-way delay: 230.526 ms

Loss rate: 0.14%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-06 18:57:41

End at: 2018-09-06 18:58:11

Local clock offset: -0.26 ms

Remote clock offset: 0.05 ms

Below is generated by plot.py at 2018-09-06 20:00:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 526.57 Mbit/s

95th percentile per-packet one-way delay: 199.252 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 278.39 Mbit/s

95th percentile per-packet one-way delay: 186.376 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 264.64 Mbit/s

95th percentile per-packet one-way delay: 173.476 ms

Loss rate: 0.09%

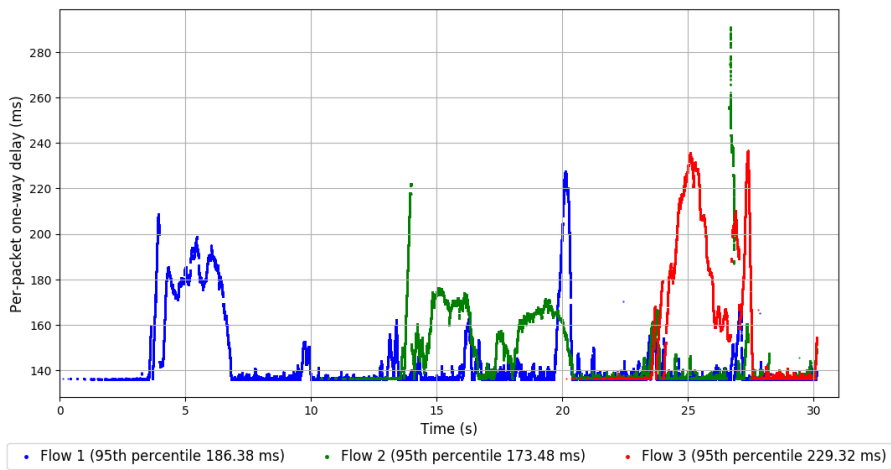
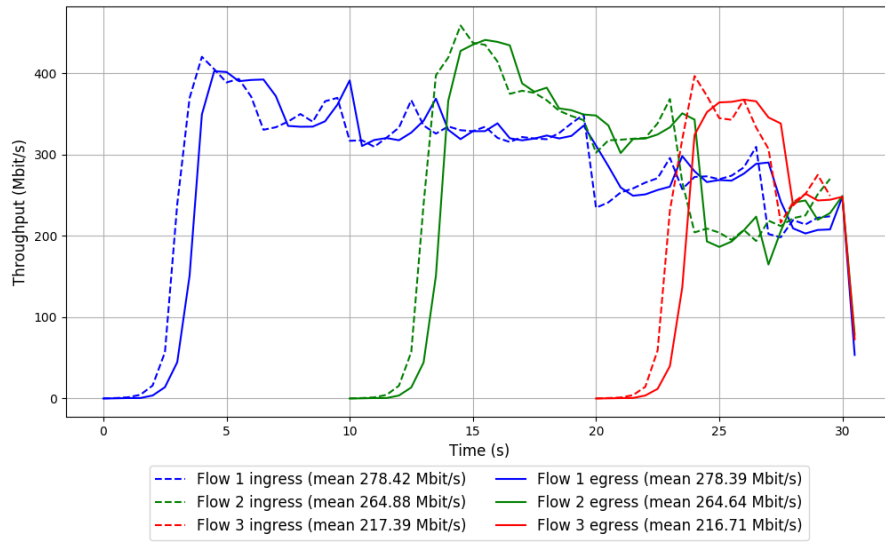
-- Flow 3:

Average throughput: 216.71 Mbit/s

95th percentile per-packet one-way delay: 229.318 ms

Loss rate: 0.31%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 16:35:27

End at: 2018-09-06 16:35:57

Local clock offset: -0.194 ms

Remote clock offset: 0.442 ms

Below is generated by plot.py at 2018-09-06 20:00:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 911.62 Mbit/s

95th percentile per-packet one-way delay: 214.224 ms

Loss rate: 0.24%

-- Flow 1:

Average throughput: 487.48 Mbit/s

95th percentile per-packet one-way delay: 201.998 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 469.22 Mbit/s

95th percentile per-packet one-way delay: 222.864 ms

Loss rate: 0.26%

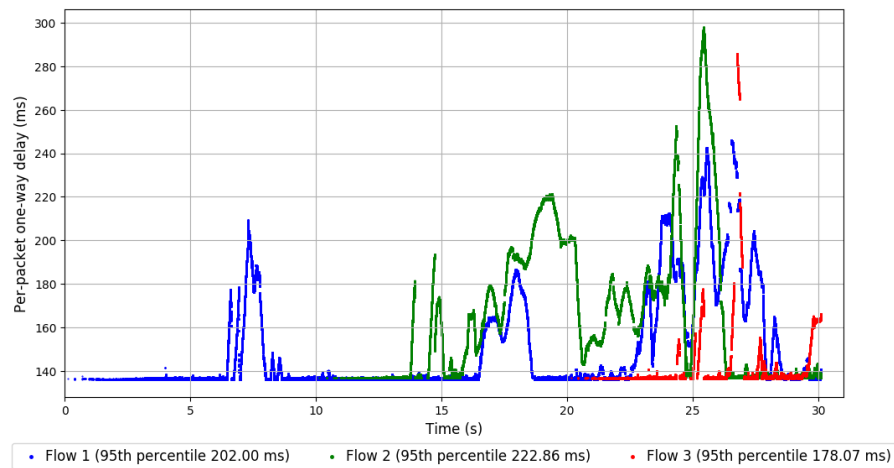
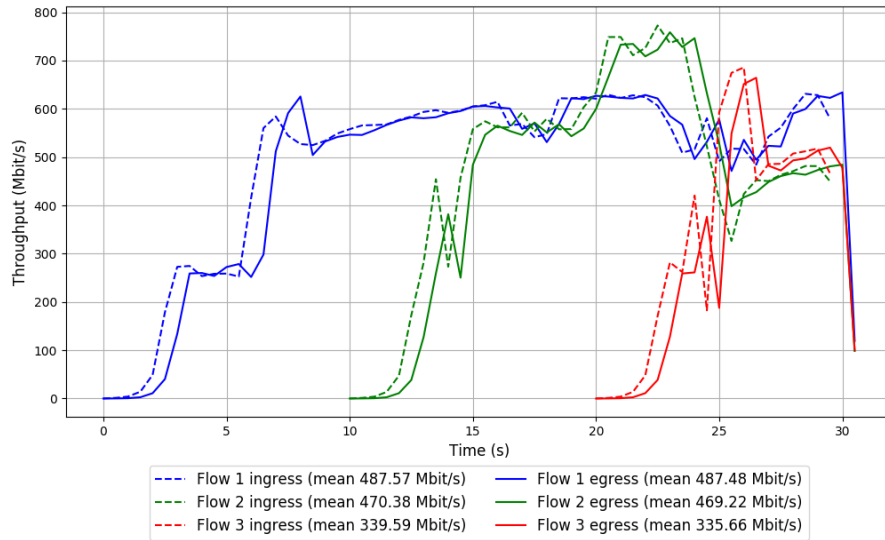
-- Flow 3:

Average throughput: 335.66 Mbit/s

95th percentile per-packet one-way delay: 178.074 ms

Loss rate: 1.17%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 17:09:21

End at: 2018-09-06 17:09:51

Local clock offset: -0.005 ms

Remote clock offset: 0.019 ms

Below is generated by plot.py at 2018-09-06 20:00:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 817.87 Mbit/s

95th percentile per-packet one-way delay: 199.479 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 482.77 Mbit/s

95th percentile per-packet one-way delay: 203.165 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 361.56 Mbit/s

95th percentile per-packet one-way delay: 143.485 ms

Loss rate: 0.01%

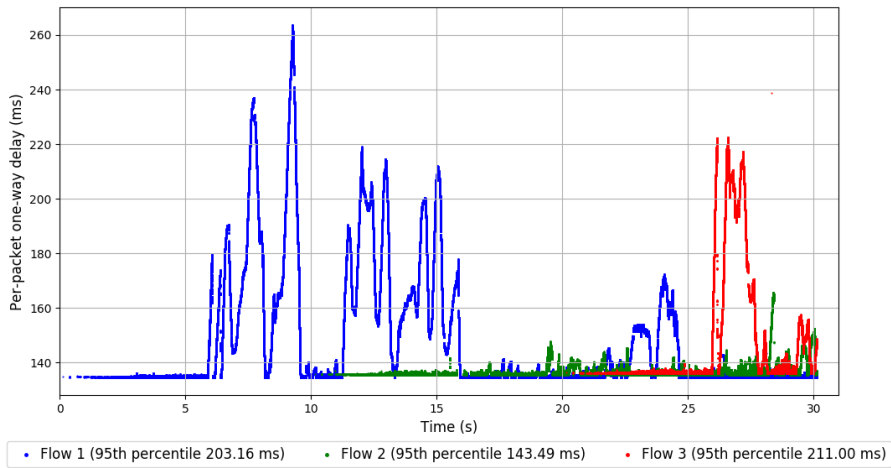
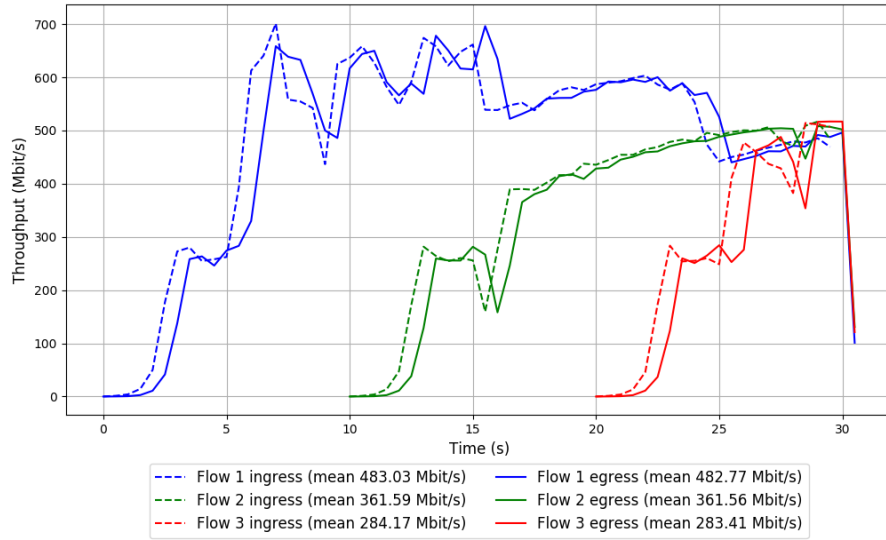
-- Flow 3:

Average throughput: 283.41 Mbit/s

95th percentile per-packet one-way delay: 211.005 ms

Loss rate: 0.27%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 17:43:27

End at: 2018-09-06 17:43:57

Local clock offset: -0.003 ms

Remote clock offset: 0.357 ms

Below is generated by plot.py at 2018-09-06 20:00:29

Datalink statistics

-- Total of 3 flows:

Average throughput: 887.67 Mbit/s

95th percentile per-packet one-way delay: 224.900 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 487.73 Mbit/s

95th percentile per-packet one-way delay: 231.733 ms

Loss rate: 0.28%

-- Flow 2:

Average throughput: 436.15 Mbit/s

95th percentile per-packet one-way delay: 171.670 ms

Loss rate: 0.29%

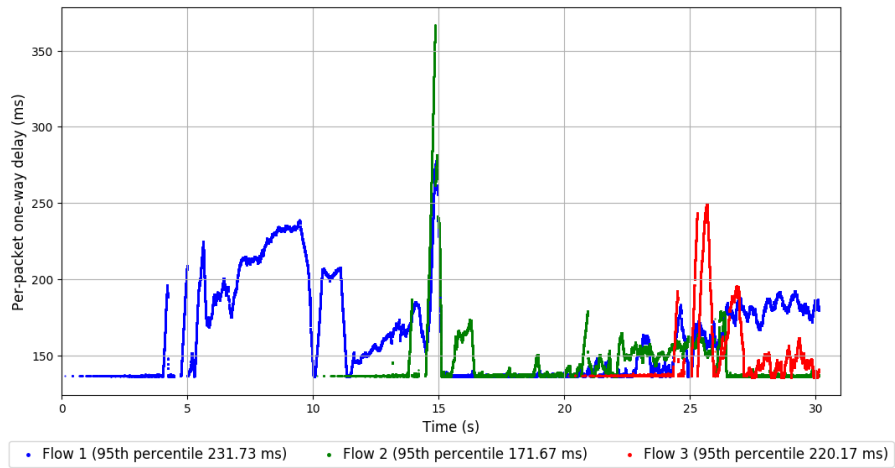
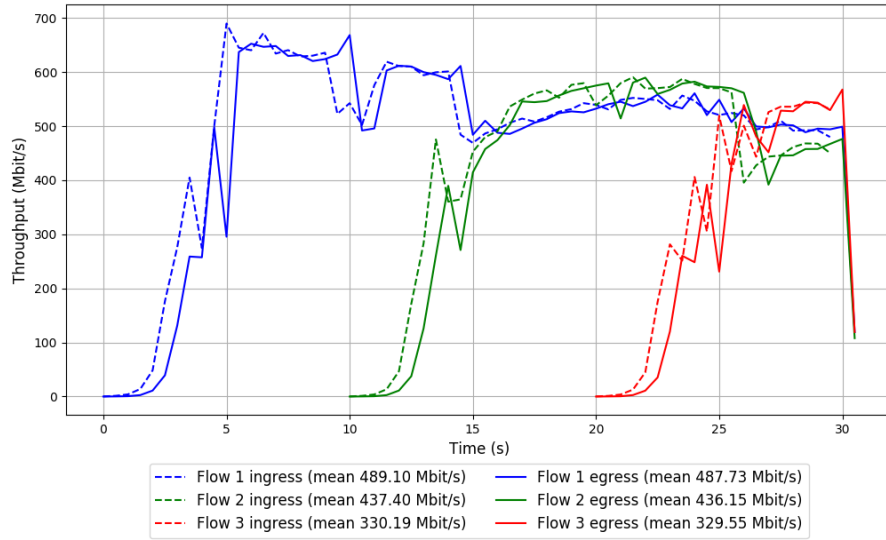
-- Flow 3:

Average throughput: 329.55 Mbit/s

95th percentile per-packet one-way delay: 220.172 ms

Loss rate: 0.20%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-06 18:17:06

End at: 2018-09-06 18:17:36

Local clock offset: -0.278 ms

Remote clock offset: 0.013 ms

Below is generated by plot.py at 2018-09-06 20:00:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 705.37 Mbit/s

95th percentile per-packet one-way delay: 191.019 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 392.84 Mbit/s

95th percentile per-packet one-way delay: 176.983 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 368.19 Mbit/s

95th percentile per-packet one-way delay: 203.614 ms

Loss rate: 0.00%

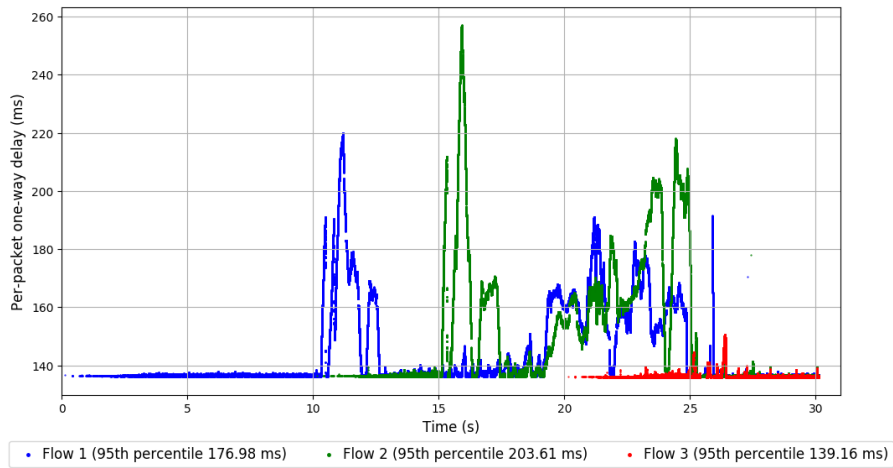
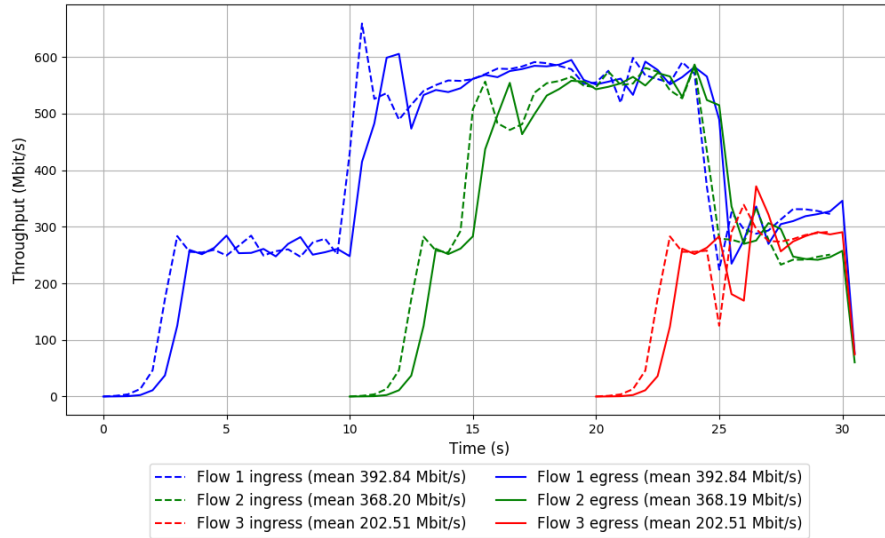
-- Flow 3:

Average throughput: 202.51 Mbit/s

95th percentile per-packet one-way delay: 139.165 ms

Loss rate: 0.00%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-06 18:50:32

End at: 2018-09-06 18:51:02

Local clock offset: -0.055 ms

Remote clock offset: 0.411 ms

Below is generated by plot.py at 2018-09-06 20:01:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 819.15 Mbit/s

95th percentile per-packet one-way delay: 229.385 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 498.38 Mbit/s

95th percentile per-packet one-way delay: 224.543 ms

Loss rate: 0.55%

-- Flow 2:

Average throughput: 360.43 Mbit/s

95th percentile per-packet one-way delay: 231.105 ms

Loss rate: 0.84%

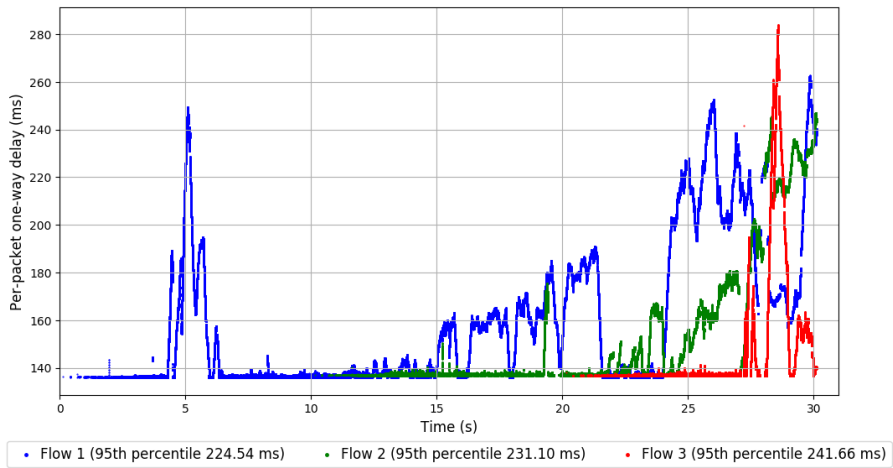
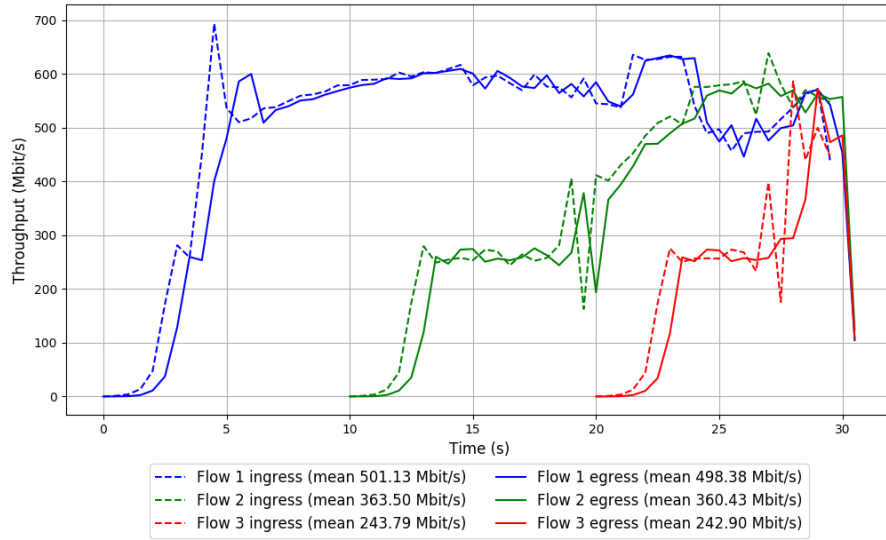
-- Flow 3:

Average throughput: 242.90 Mbit/s

95th percentile per-packet one-way delay: 241.656 ms

Loss rate: 0.38%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-09-06 16:49:04

End at: 2018-09-06 16:49:34

Local clock offset: -0.025 ms

Remote clock offset: 0.069 ms

Below is generated by plot.py at 2018-09-06 20:10:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 1213.12 Mbit/s

95th percentile per-packet one-way delay: 209.286 ms

Loss rate: 3.41%

-- Flow 1:

Average throughput: 637.60 Mbit/s

95th percentile per-packet one-way delay: 211.086 ms

Loss rate: 3.97%

-- Flow 2:

Average throughput: 614.35 Mbit/s

95th percentile per-packet one-way delay: 208.356 ms

Loss rate: 3.87%

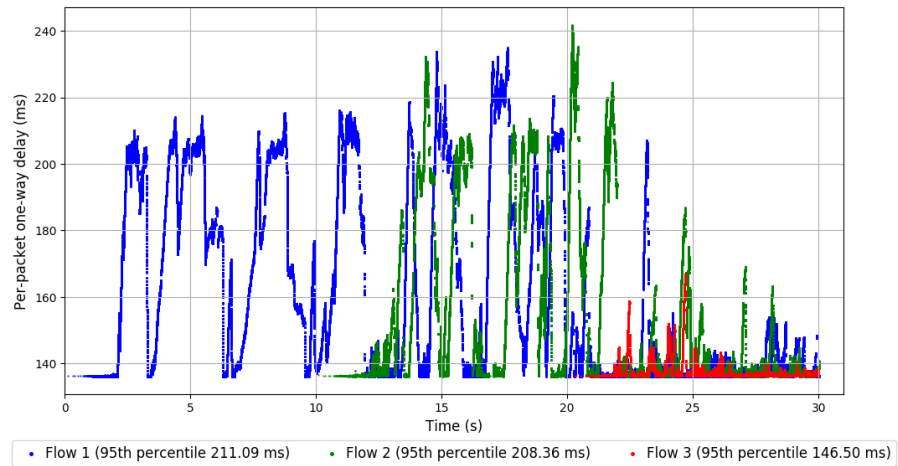
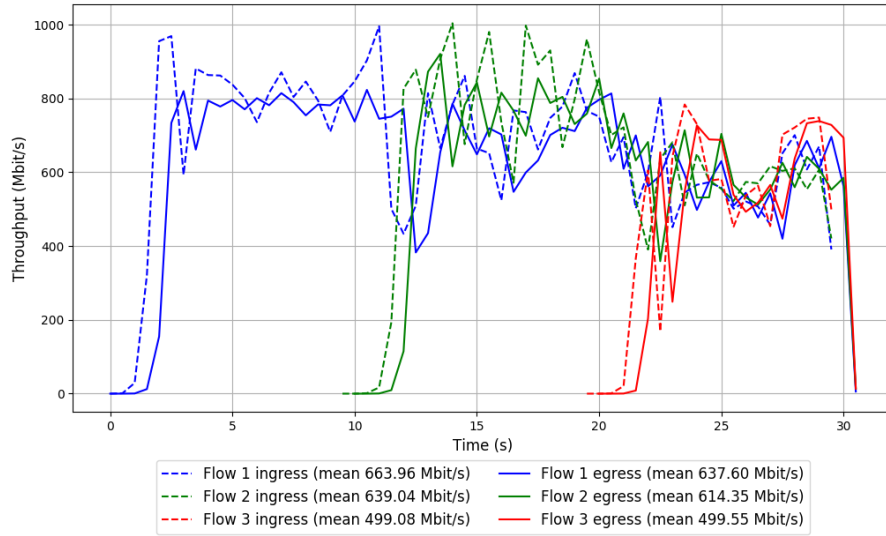
-- Flow 3:

Average throughput: 499.55 Mbit/s

95th percentile per-packet one-way delay: 146.499 ms

Loss rate: 0.00%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-06 17:22:56

End at: 2018-09-06 17:23:26

Local clock offset: -0.207 ms

Remote clock offset: 0.354 ms

Below is generated by plot.py at 2018-09-06 20:22:33

Datalink statistics

-- Total of 3 flows:

Average throughput: 1199.82 Mbit/s

95th percentile per-packet one-way delay: 221.494 ms

Loss rate: 3.66%

-- Flow 1:

Average throughput: 649.47 Mbit/s

95th percentile per-packet one-way delay: 218.935 ms

Loss rate: 3.57%

-- Flow 2:

Average throughput: 577.86 Mbit/s

95th percentile per-packet one-way delay: 231.315 ms

Loss rate: 5.23%

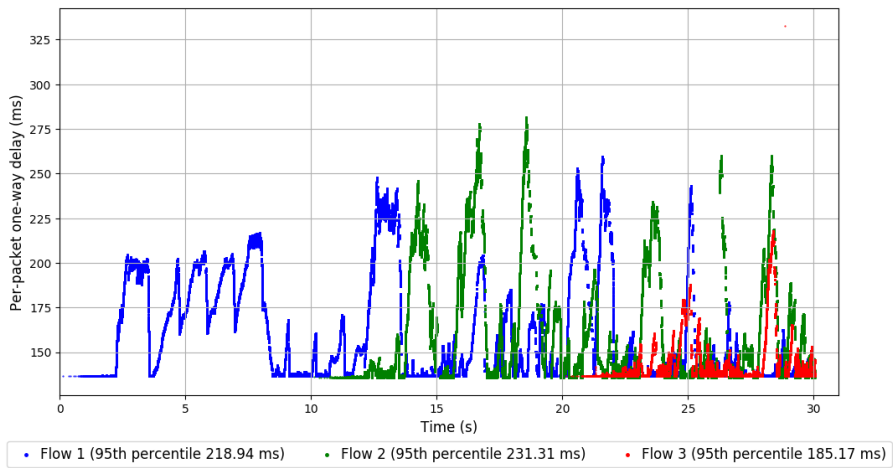
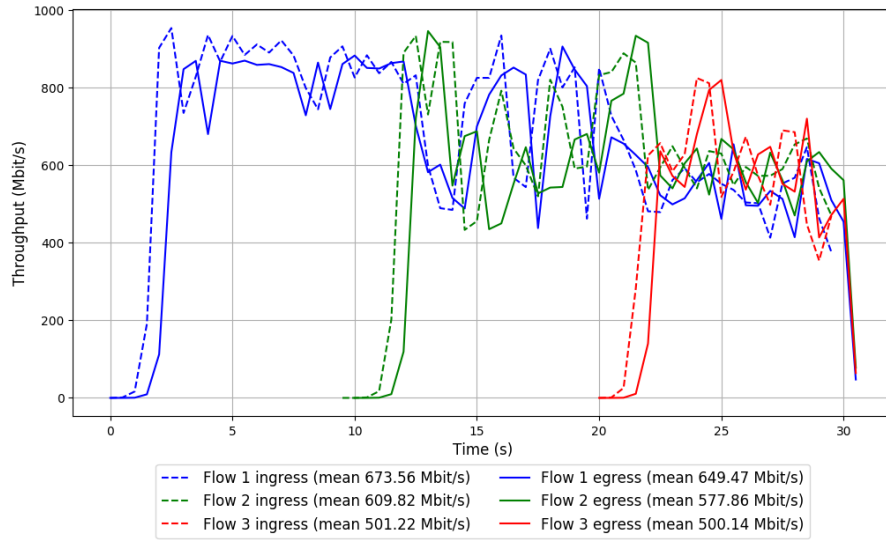
-- Flow 3:

Average throughput: 500.14 Mbit/s

95th percentile per-packet one-way delay: 185.173 ms

Loss rate: 0.21%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-06 17:56:57

End at: 2018-09-06 17:57:27

Local clock offset: -0.149 ms

Remote clock offset: 0.326 ms

Below is generated by plot.py at 2018-09-06 20:25:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 1285.59 Mbit/s

95th percentile per-packet one-way delay: 206.552 ms

Loss rate: 2.18%

-- Flow 1:

Average throughput: 709.23 Mbit/s

95th percentile per-packet one-way delay: 207.933 ms

Loss rate: 2.62%

-- Flow 2:

Average throughput: 612.04 Mbit/s

95th percentile per-packet one-way delay: 205.260 ms

Loss rate: 2.07%

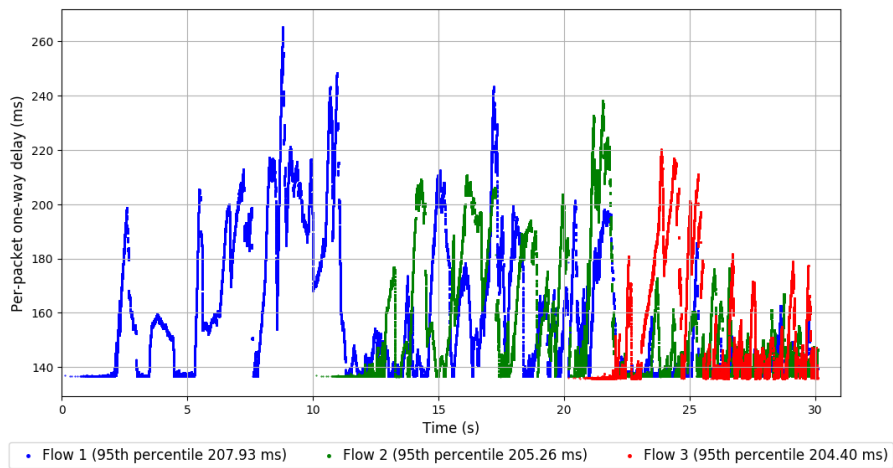
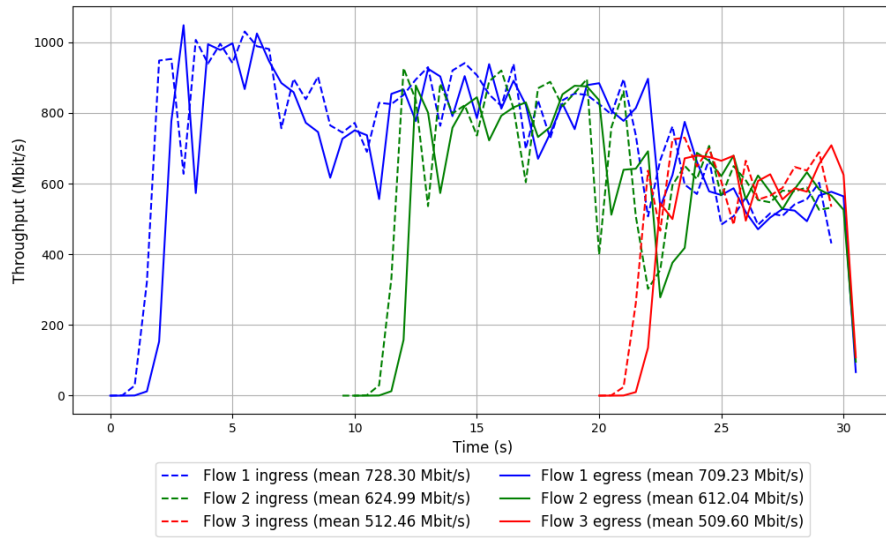
-- Flow 3:

Average throughput: 509.60 Mbit/s

95th percentile per-packet one-way delay: 204.396 ms

Loss rate: 0.56%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-06 18:30:35

End at: 2018-09-06 18:31:05

Local clock offset: -0.254 ms

Remote clock offset: 0.044 ms

Below is generated by plot.py at 2018-09-06 20:25:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 1239.88 Mbit/s

95th percentile per-packet one-way delay: 212.691 ms

Loss rate: 3.46%

-- Flow 1:

Average throughput: 668.45 Mbit/s

95th percentile per-packet one-way delay: 214.102 ms

Loss rate: 3.94%

-- Flow 2:

Average throughput: 635.74 Mbit/s

95th percentile per-packet one-way delay: 204.126 ms

Loss rate: 2.94%

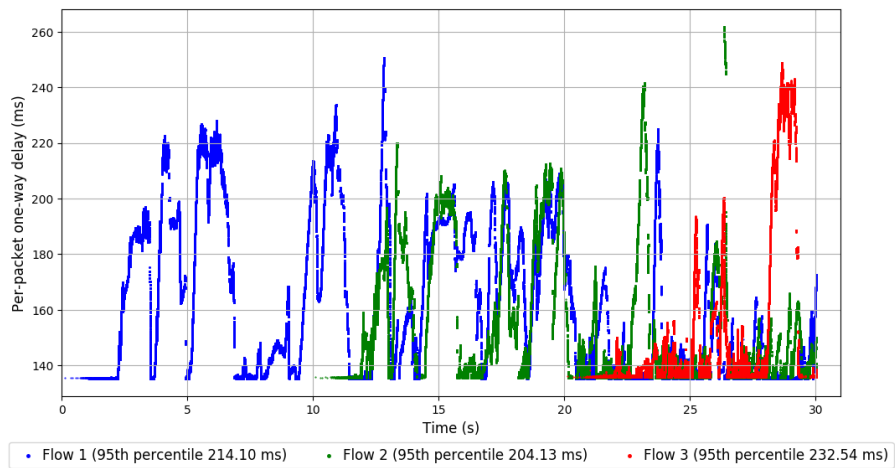
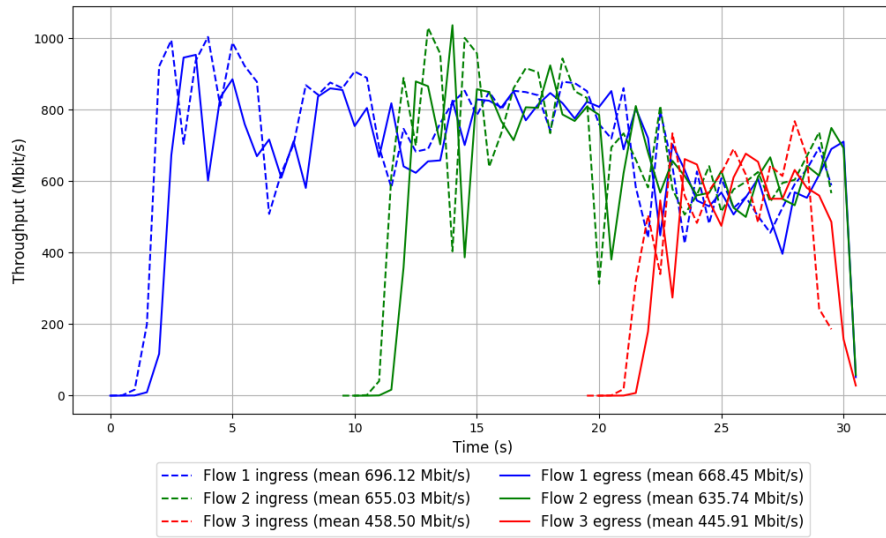
-- Flow 3:

Average throughput: 445.91 Mbit/s

95th percentile per-packet one-way delay: 232.536 ms

Loss rate: 2.74%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-06 19:03:57

End at: 2018-09-06 19:04:27

Local clock offset: -0.208 ms

Remote clock offset: 0.115 ms

Below is generated by plot.py at 2018-09-06 20:25:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 1265.21 Mbit/s

95th percentile per-packet one-way delay: 211.684 ms

Loss rate: 2.53%

-- Flow 1:

Average throughput: 694.71 Mbit/s

95th percentile per-packet one-way delay: 206.858 ms

Loss rate: 2.86%

-- Flow 2:

Average throughput: 607.14 Mbit/s

95th percentile per-packet one-way delay: 210.008 ms

Loss rate: 1.57%

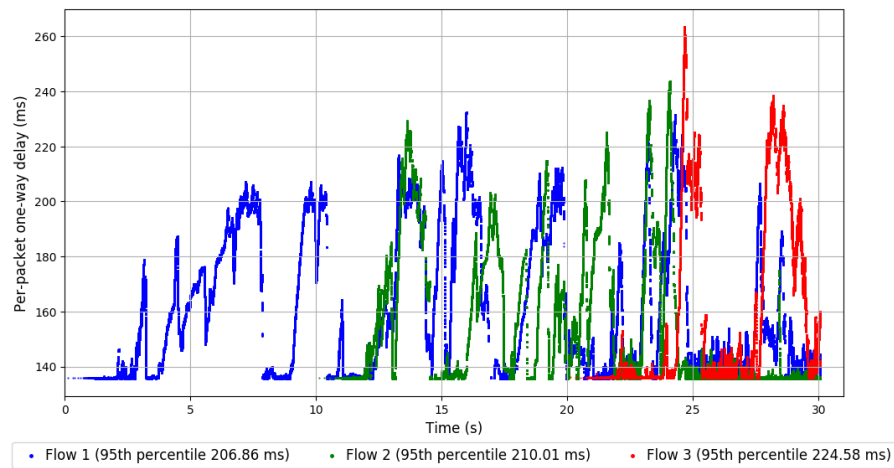
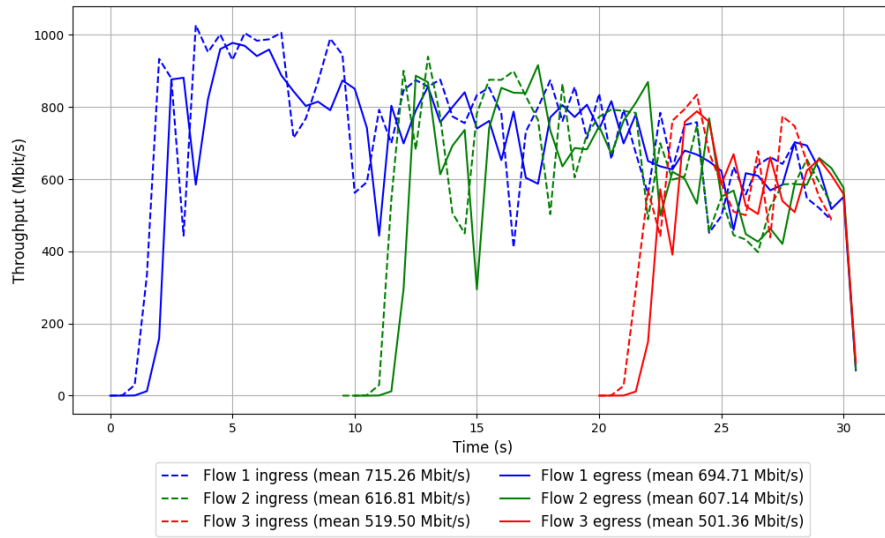
-- Flow 3:

Average throughput: 501.36 Mbit/s

95th percentile per-packet one-way delay: 224.583 ms

Loss rate: 3.48%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 16:40:21

End at: 2018-09-06 16:40:51

Local clock offset: -0.02 ms

Remote clock offset: 0.431 ms

Below is generated by plot.py at 2018-09-06 20:25:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 1253.67 Mbit/s

95th percentile per-packet one-way delay: 205.370 ms

Loss rate: 2.23%

-- Flow 1:

Average throughput: 703.48 Mbit/s

95th percentile per-packet one-way delay: 199.062 ms

Loss rate: 1.87%

-- Flow 2:

Average throughput: 597.88 Mbit/s

95th percentile per-packet one-way delay: 219.288 ms

Loss rate: 3.49%

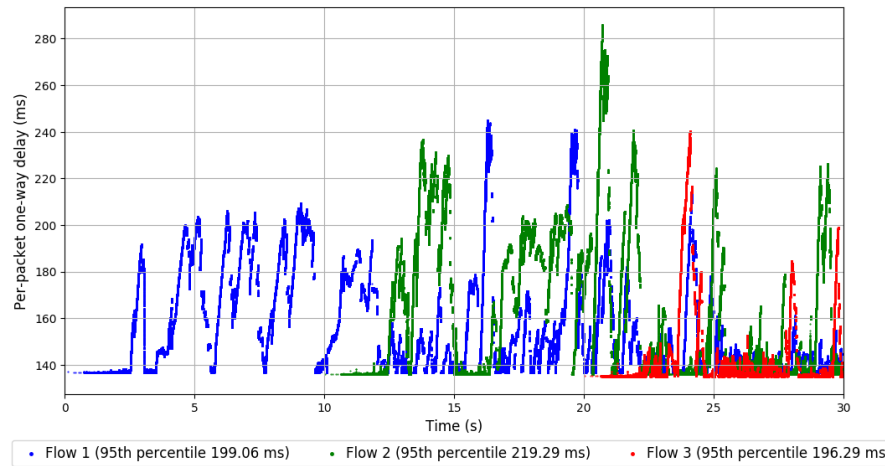
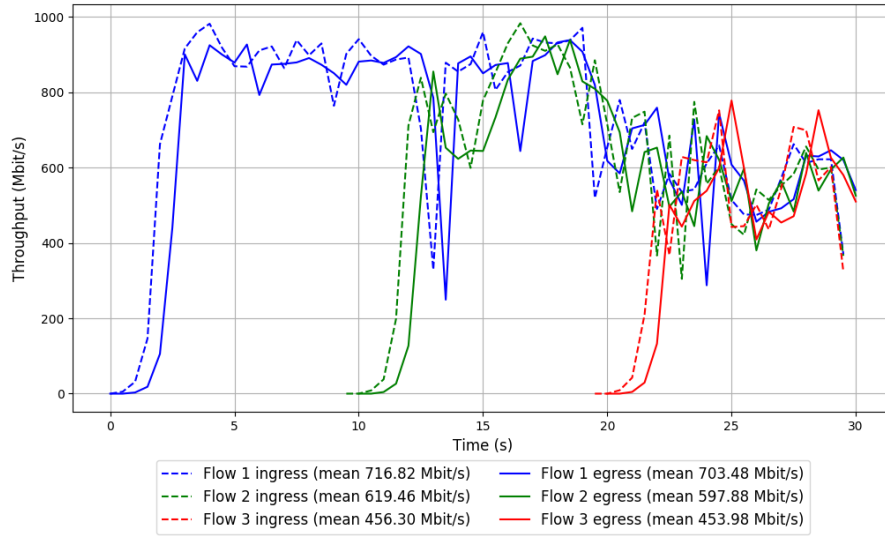
-- Flow 3:

Average throughput: 453.98 Mbit/s

95th percentile per-packet one-way delay: 196.292 ms

Loss rate: 0.51%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 17:14:12

End at: 2018-09-06 17:14:42

Local clock offset: -0.075 ms

Remote clock offset: 0.037 ms

Below is generated by plot.py at 2018-09-06 20:25:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 1164.34 Mbit/s

95th percentile per-packet one-way delay: 210.909 ms

Loss rate: 3.46%

-- Flow 1:

Average throughput: 609.35 Mbit/s

95th percentile per-packet one-way delay: 216.356 ms

Loss rate: 5.97%

-- Flow 2:

Average throughput: 620.44 Mbit/s

95th percentile per-packet one-way delay: 195.197 ms

Loss rate: 0.64%

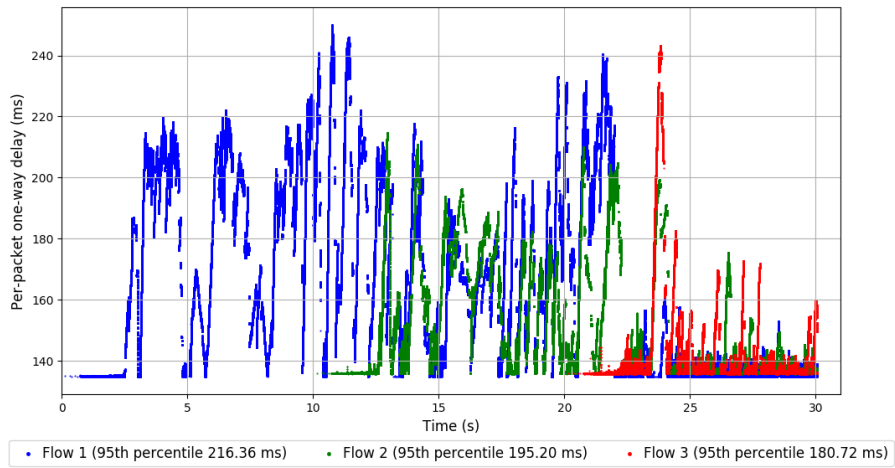
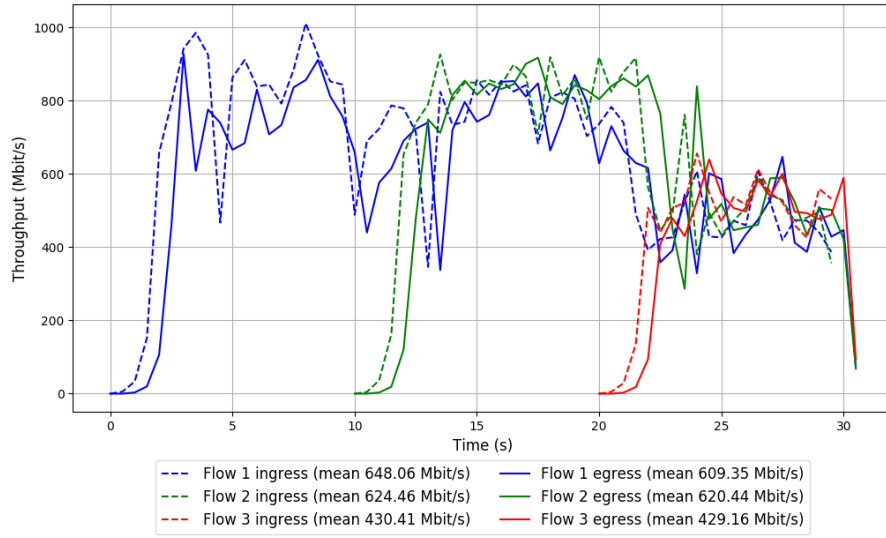
-- Flow 3:

Average throughput: 429.16 Mbit/s

95th percentile per-packet one-way delay: 180.723 ms

Loss rate: 0.29%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 17:48:24
End at: 2018-09-06 17:48:54
Local clock offset: -0.131 ms
Remote clock offset: -0.054 ms

Below is generated by plot.py at 2018-09-06 20:26:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 1198.92 Mbit/s
95th percentile per-packet one-way delay: 196.165 ms
Loss rate: 1.56%

-- Flow 1:

Average throughput: 676.83 Mbit/s
95th percentile per-packet one-way delay: 198.031 ms
Loss rate: 2.08%

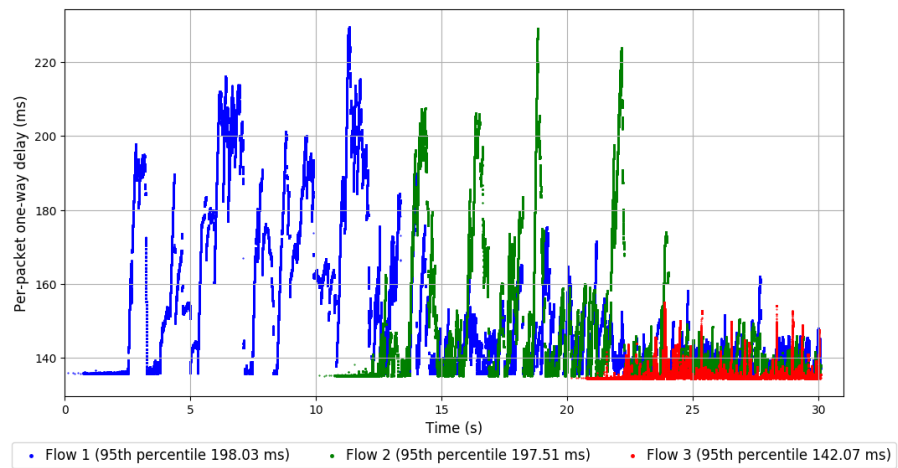
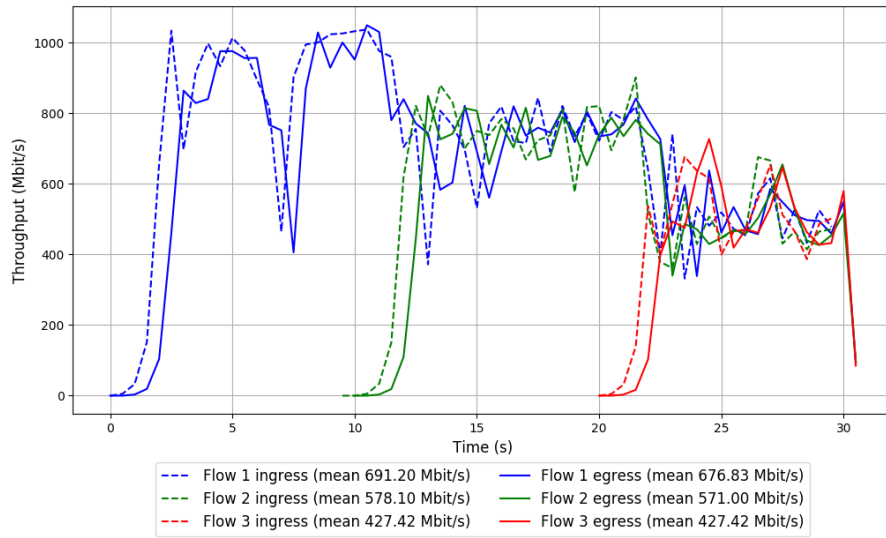
-- Flow 2:

Average throughput: 571.00 Mbit/s
95th percentile per-packet one-way delay: 197.513 ms
Loss rate: 1.22%

-- Flow 3:

Average throughput: 427.42 Mbit/s
95th percentile per-packet one-way delay: 142.066 ms
Loss rate: 0.00%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-06 18:21:52

End at: 2018-09-06 18:22:22

Local clock offset: -0.309 ms

Remote clock offset: 0.09 ms

Below is generated by plot.py at 2018-09-06 20:38:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 1184.85 Mbit/s

95th percentile per-packet one-way delay: 203.280 ms

Loss rate: 1.85%

-- Flow 1:

Average throughput: 653.76 Mbit/s

95th percentile per-packet one-way delay: 206.694 ms

Loss rate: 2.72%

-- Flow 2:

Average throughput: 560.99 Mbit/s

95th percentile per-packet one-way delay: 196.176 ms

Loss rate: 1.08%

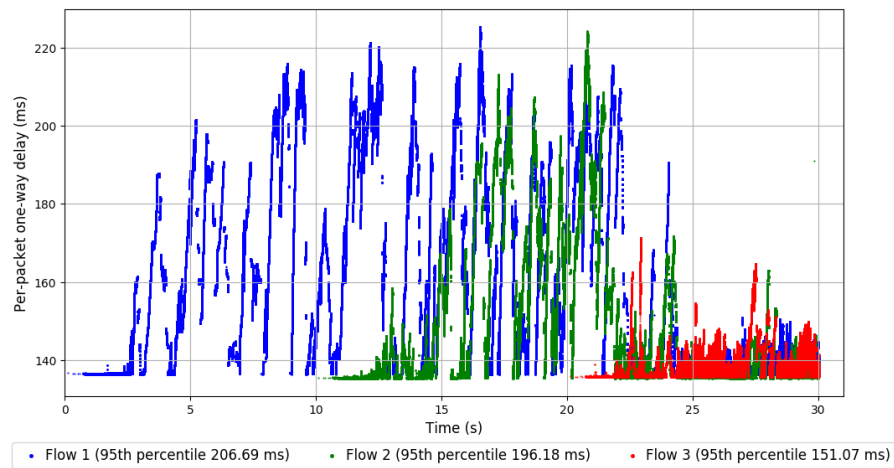
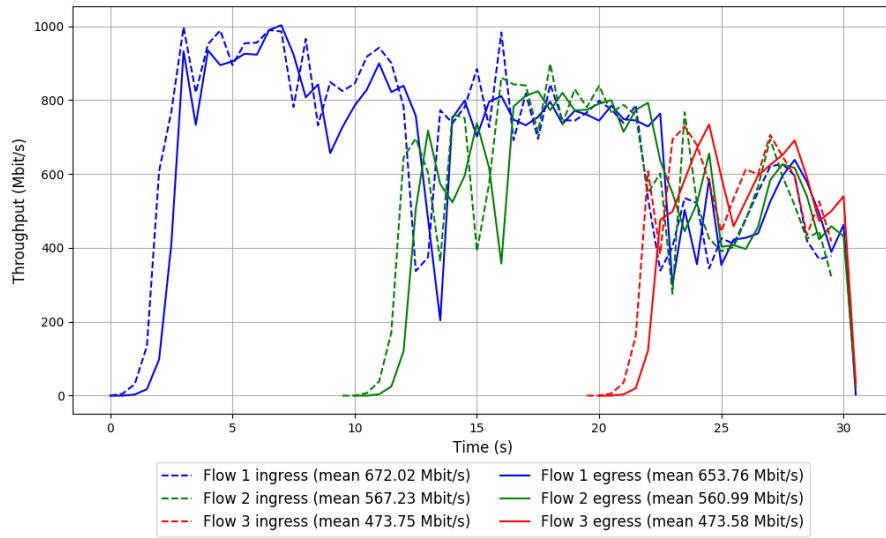
-- Flow 3:

Average throughput: 473.58 Mbit/s

95th percentile per-packet one-way delay: 151.066 ms

Loss rate: 0.03%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-06 18:55:23

End at: 2018-09-06 18:55:53

Local clock offset: -0.107 ms

Remote clock offset: -0.3 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 1212.82 Mbit/s

95th percentile per-packet one-way delay: 220.641 ms

Loss rate: 3.27%

-- Flow 1:

Average throughput: 695.88 Mbit/s

95th percentile per-packet one-way delay: 213.637 ms

Loss rate: 2.71%

-- Flow 2:

Average throughput: 555.41 Mbit/s

95th percentile per-packet one-way delay: 231.600 ms

Loss rate: 4.52%

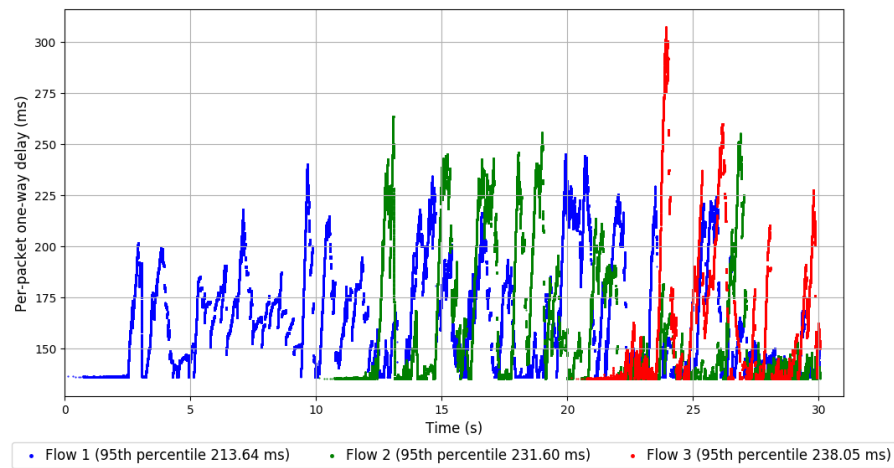
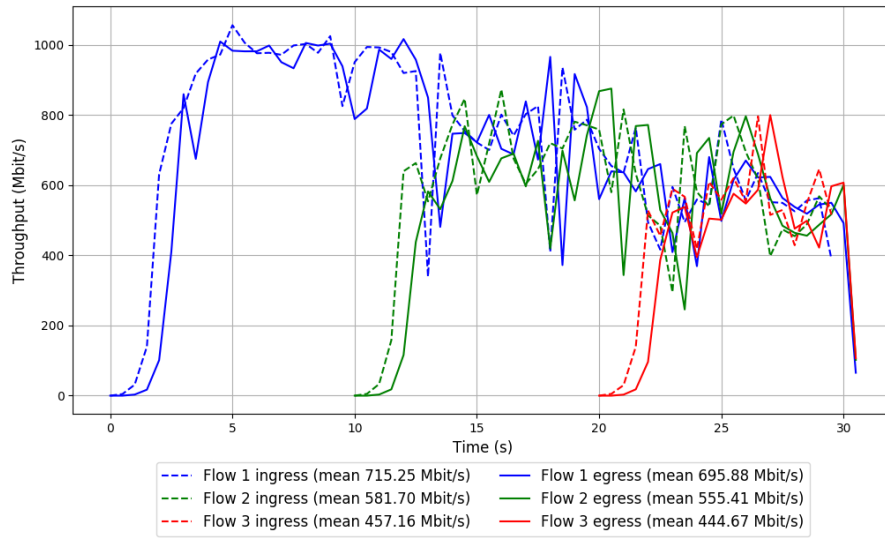
-- Flow 3:

Average throughput: 444.67 Mbit/s

95th percentile per-packet one-way delay: 238.050 ms

Loss rate: 2.74%

Run 5: Report of FillP-Sheep — Data Link



Run 1: Statistics of Indigo

Start at: 2018-09-06 16:44:58

End at: 2018-09-06 16:45:28

Local clock offset: -0.381 ms

Remote clock offset: 0.077 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 347.26 Mbit/s

95th percentile per-packet one-way delay: 137.485 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 183.24 Mbit/s

95th percentile per-packet one-way delay: 135.643 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 174.58 Mbit/s

95th percentile per-packet one-way delay: 137.495 ms

Loss rate: 0.05%

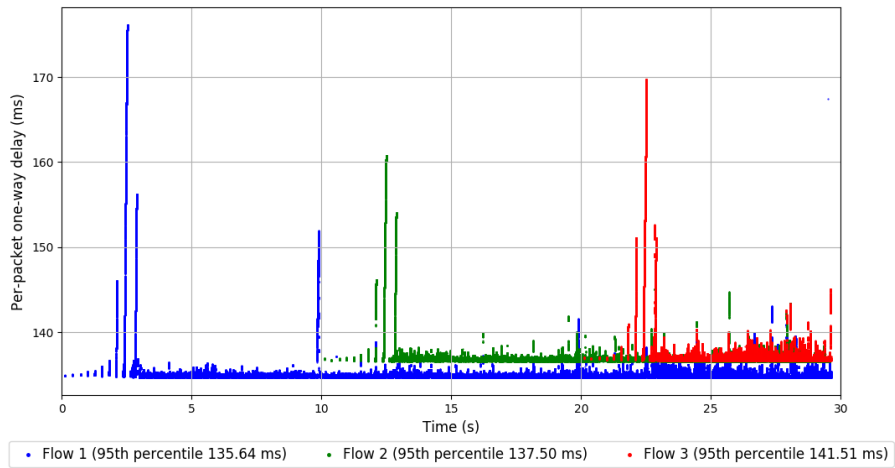
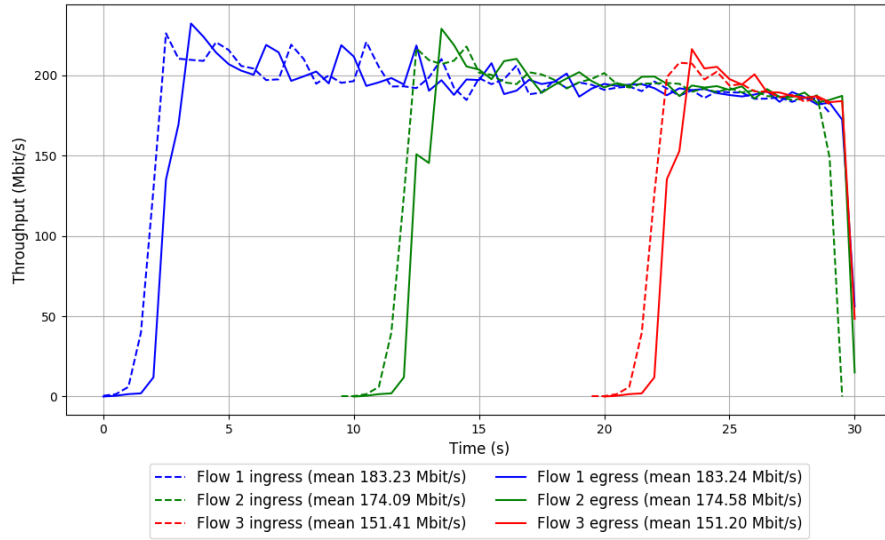
-- Flow 3:

Average throughput: 151.20 Mbit/s

95th percentile per-packet one-way delay: 141.508 ms

Loss rate: 0.15%

Run 1: Report of Indigo — Data Link

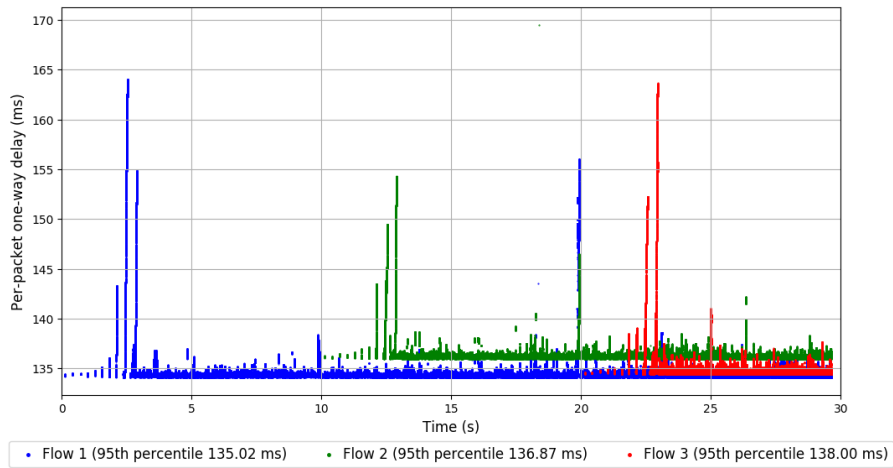
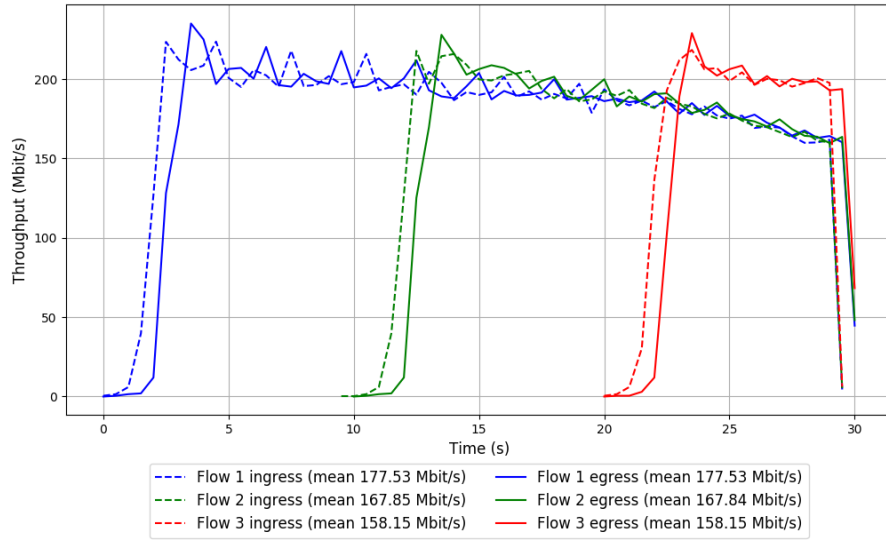


Run 2: Statistics of Indigo

Start at: 2018-09-06 17:18:46
End at: 2018-09-06 17:19:16
Local clock offset: -0.231 ms
Remote clock offset: -0.346 ms

```
# Below is generated by plot.py at 2018-09-06 20:48:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 339.45 Mbit/s
95th percentile per-packet one-way delay: 136.488 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 177.53 Mbit/s
95th percentile per-packet one-way delay: 135.019 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 167.84 Mbit/s
95th percentile per-packet one-way delay: 136.870 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 158.15 Mbit/s
95th percentile per-packet one-way delay: 138.002 ms
Loss rate: 0.00%
```


Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-06 17:52:56

End at: 2018-09-06 17:53:27

Local clock offset: -0.068 ms

Remote clock offset: 0.01 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 305.13 Mbit/s

95th percentile per-packet one-way delay: 137.284 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 145.99 Mbit/s

95th percentile per-packet one-way delay: 137.394 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 169.60 Mbit/s

95th percentile per-packet one-way delay: 137.039 ms

Loss rate: 0.00%

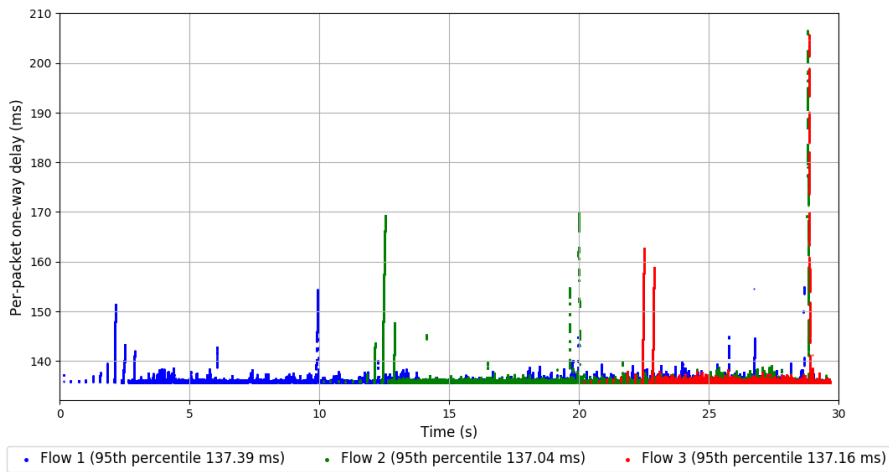
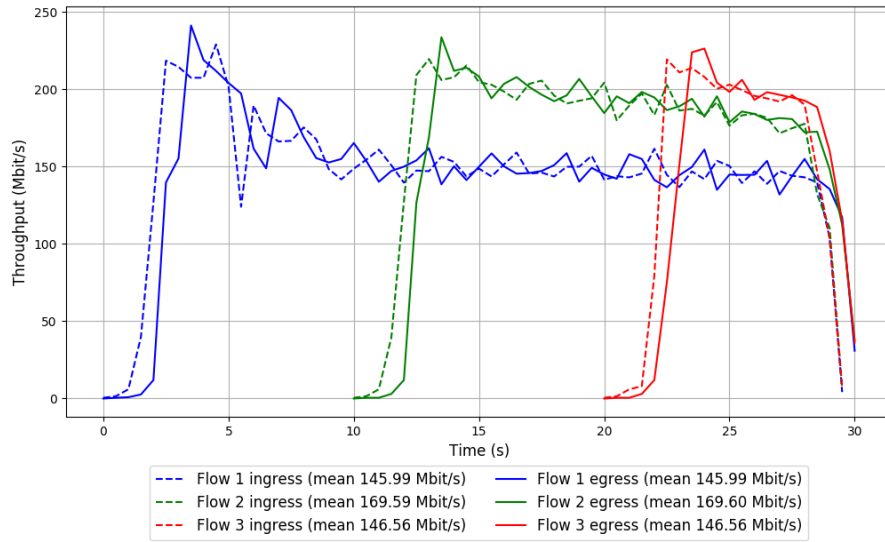
-- Flow 3:

Average throughput: 146.56 Mbit/s

95th percentile per-packet one-way delay: 137.163 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-06 18:26:25

End at: 2018-09-06 18:26:55

Local clock offset: -0.074 ms

Remote clock offset: 0.015 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 344.12 Mbit/s

95th percentile per-packet one-way delay: 136.986 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 181.93 Mbit/s

95th percentile per-packet one-way delay: 136.915 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 173.83 Mbit/s

95th percentile per-packet one-way delay: 137.059 ms

Loss rate: 0.00%

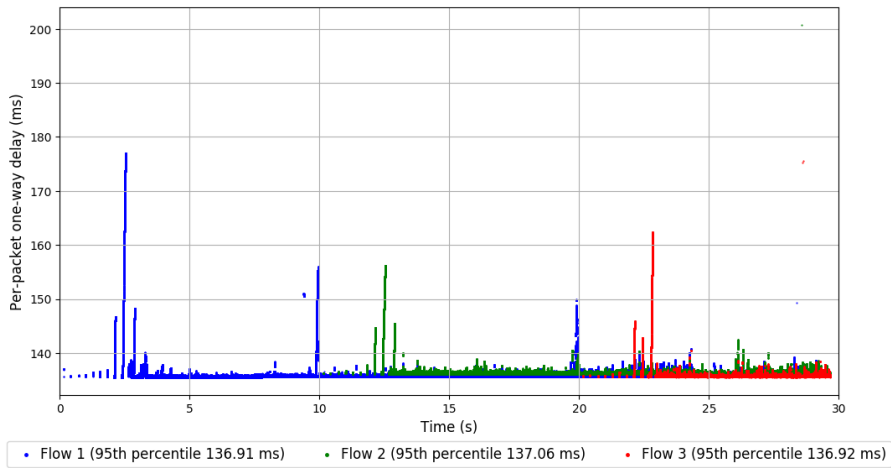
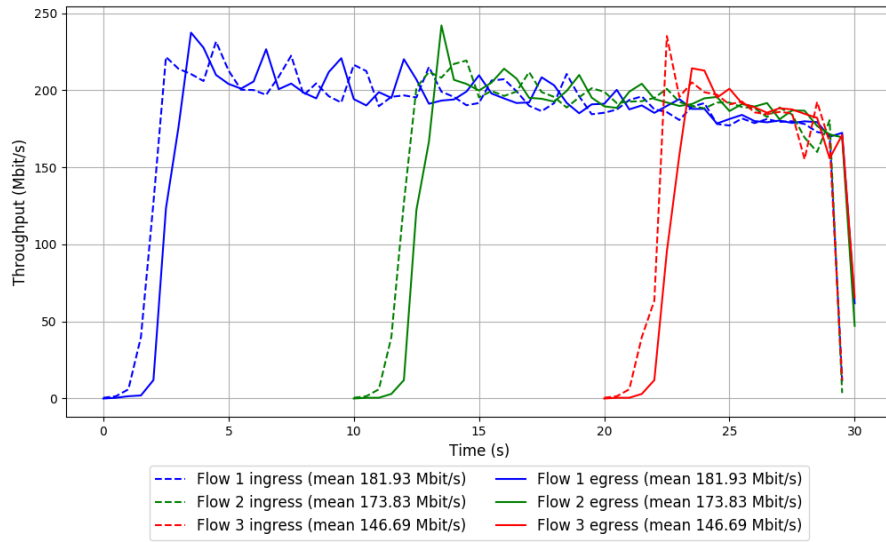
-- Flow 3:

Average throughput: 146.69 Mbit/s

95th percentile per-packet one-way delay: 136.919 ms

Loss rate: 0.00%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-06 18:59:55

End at: 2018-09-06 19:00:25

Local clock offset: -0.19 ms

Remote clock offset: 0.068 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 338.63 Mbit/s

95th percentile per-packet one-way delay: 137.062 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 179.43 Mbit/s

95th percentile per-packet one-way delay: 136.565 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 166.80 Mbit/s

95th percentile per-packet one-way delay: 137.184 ms

Loss rate: 0.00%

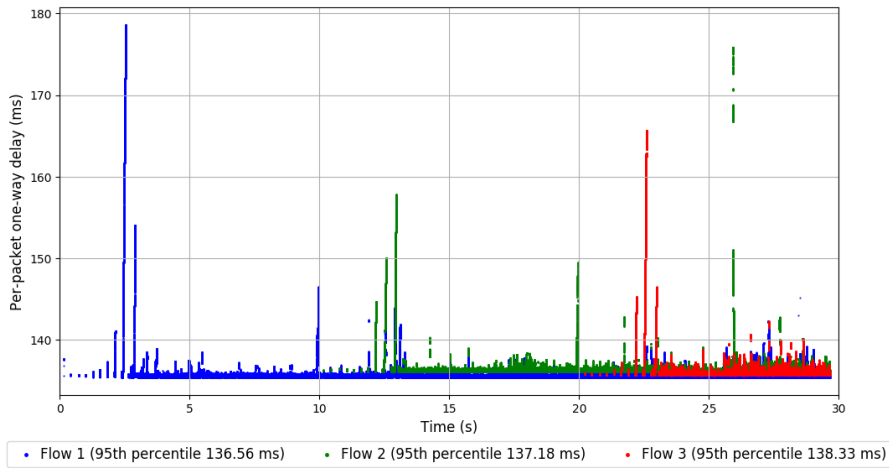
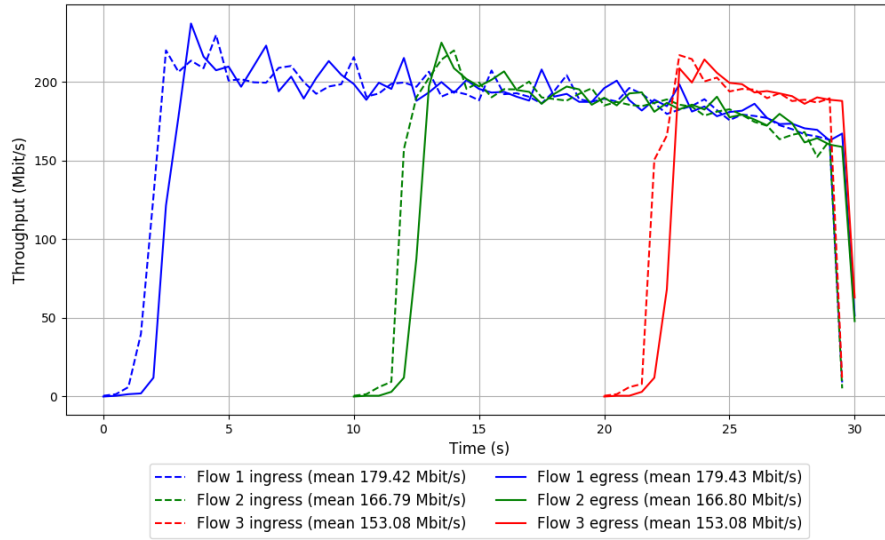
-- Flow 3:

Average throughput: 153.08 Mbit/s

95th percentile per-packet one-way delay: 138.334 ms

Loss rate: 0.00%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of LEDBAT

Start at: 2018-09-06 16:32:10

End at: 2018-09-06 16:32:40

Local clock offset: -0.324 ms

Remote clock offset: -0.25 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.86 Mbit/s

95th percentile per-packet one-way delay: 136.292 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 5.09 Mbit/s

95th percentile per-packet one-way delay: 135.944 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 3.35 Mbit/s

95th percentile per-packet one-way delay: 136.522 ms

Loss rate: 0.00%

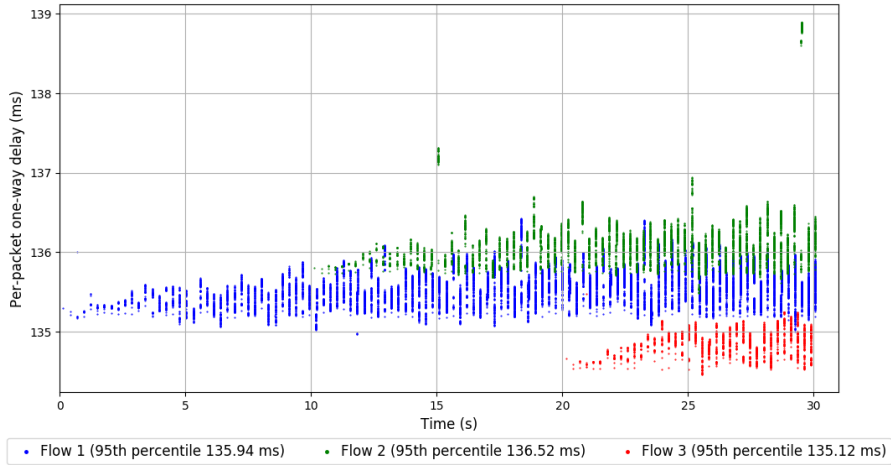
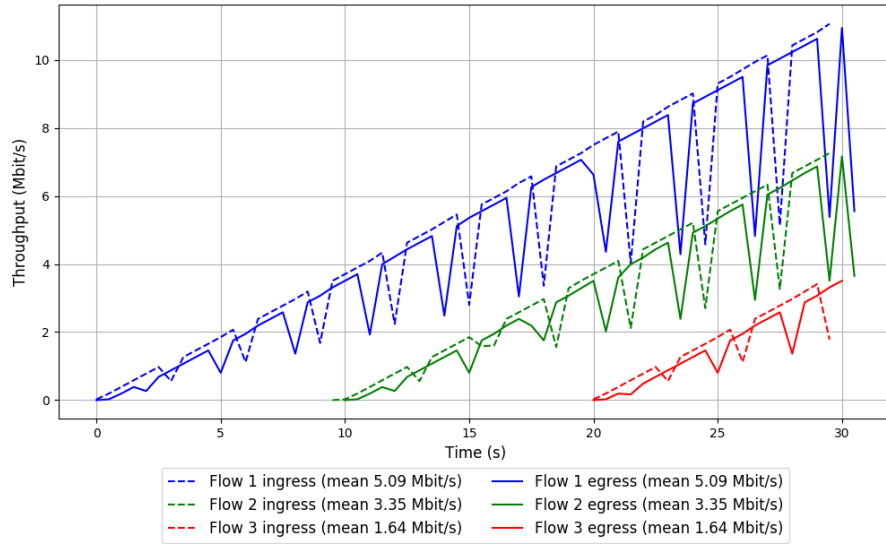
-- Flow 3:

Average throughput: 1.64 Mbit/s

95th percentile per-packet one-way delay: 135.117 ms

Loss rate: 0.00%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-06 17:06:00

End at: 2018-09-06 17:06:30

Local clock offset: -0.162 ms

Remote clock offset: 0.064 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.85 Mbit/s

95th percentile per-packet one-way delay: 136.909 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 5.10 Mbit/s

95th percentile per-packet one-way delay: 135.439 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 3.35 Mbit/s

95th percentile per-packet one-way delay: 137.058 ms

Loss rate: 0.00%

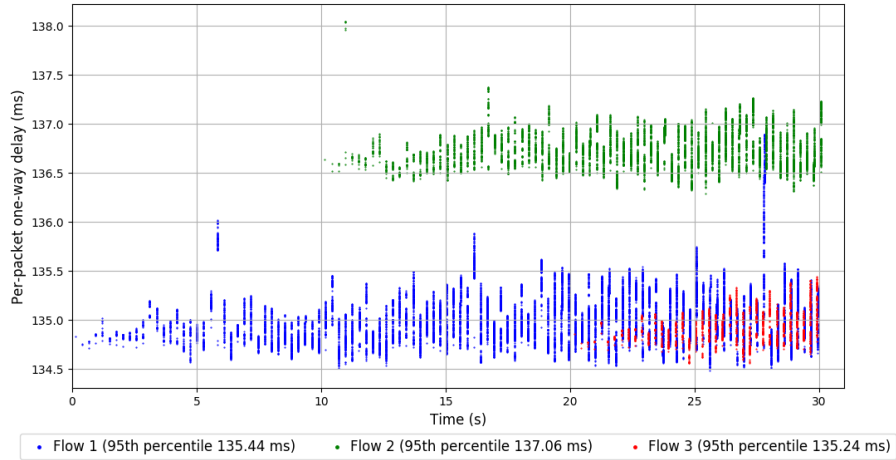
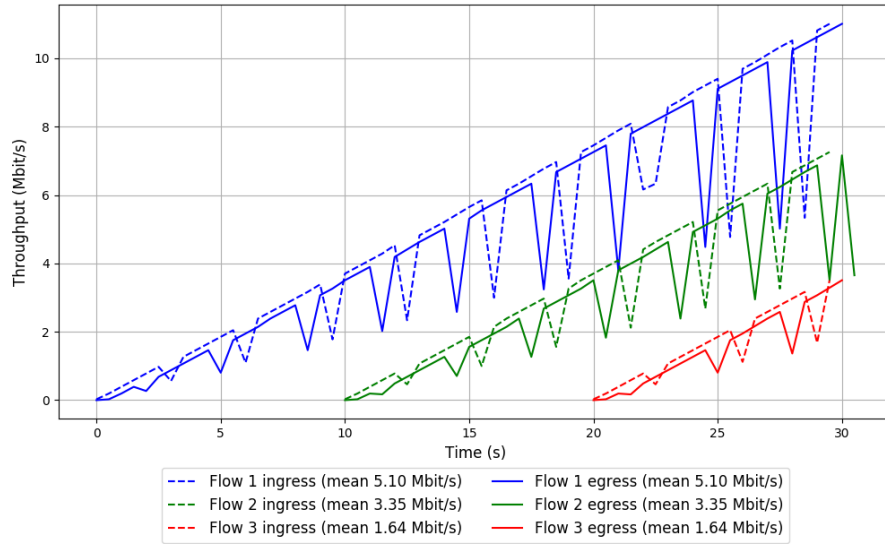
-- Flow 3:

Average throughput: 1.64 Mbit/s

95th percentile per-packet one-way delay: 135.240 ms

Loss rate: 0.00%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-06 17:40:07

End at: 2018-09-06 17:40:37

Local clock offset: -0.162 ms

Remote clock offset: 0.349 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.84 Mbit/s

95th percentile per-packet one-way delay: 137.765 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 5.08 Mbit/s

95th percentile per-packet one-way delay: 137.885 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 3.36 Mbit/s

95th percentile per-packet one-way delay: 137.570 ms

Loss rate: 0.00%

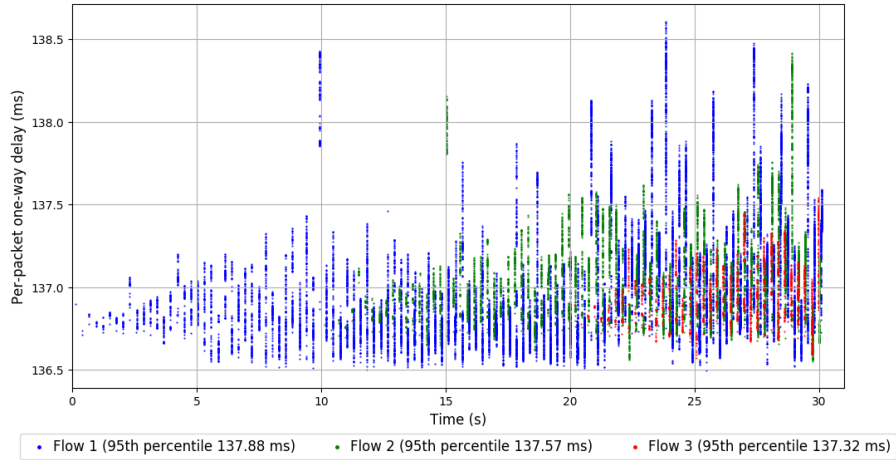
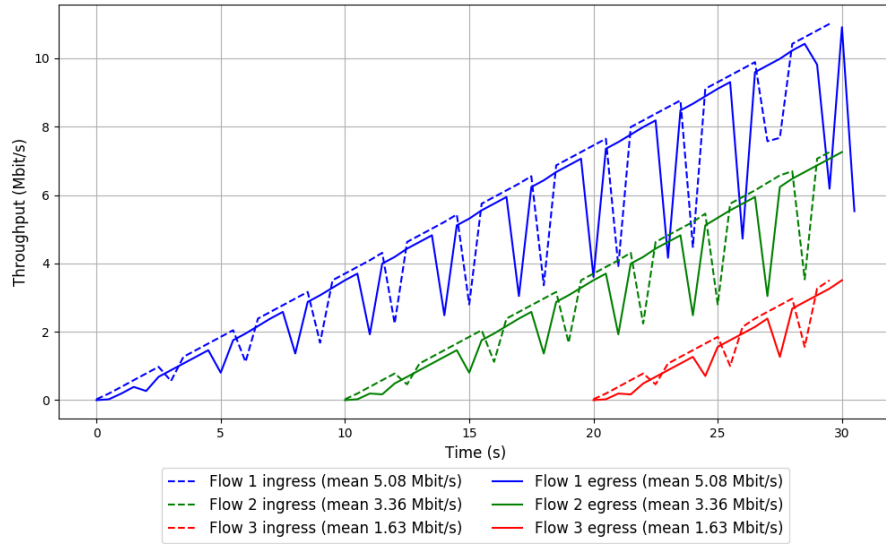
-- Flow 3:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 137.317 ms

Loss rate: 0.00%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-06 18:13:46

End at: 2018-09-06 18:14:16

Local clock offset: -0.184 ms

Remote clock offset: 0.385 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.84 Mbit/s

95th percentile per-packet one-way delay: 137.037 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 5.08 Mbit/s

95th percentile per-packet one-way delay: 137.100 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 3.37 Mbit/s

95th percentile per-packet one-way delay: 136.722 ms

Loss rate: 0.00%

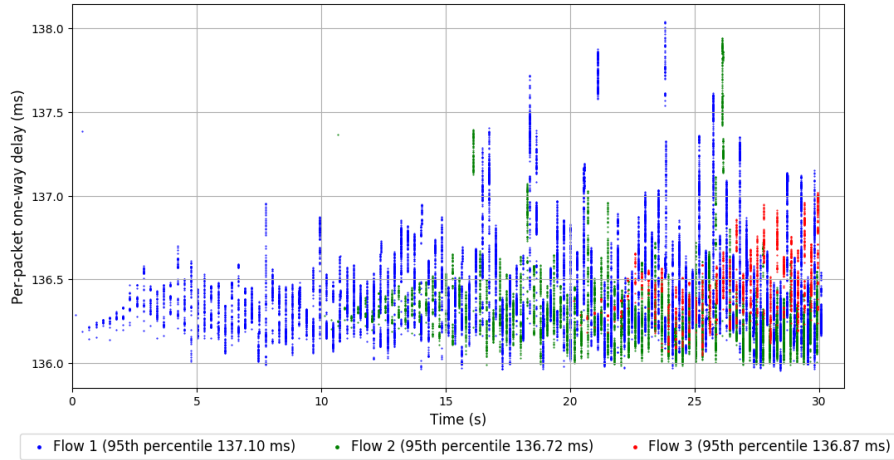
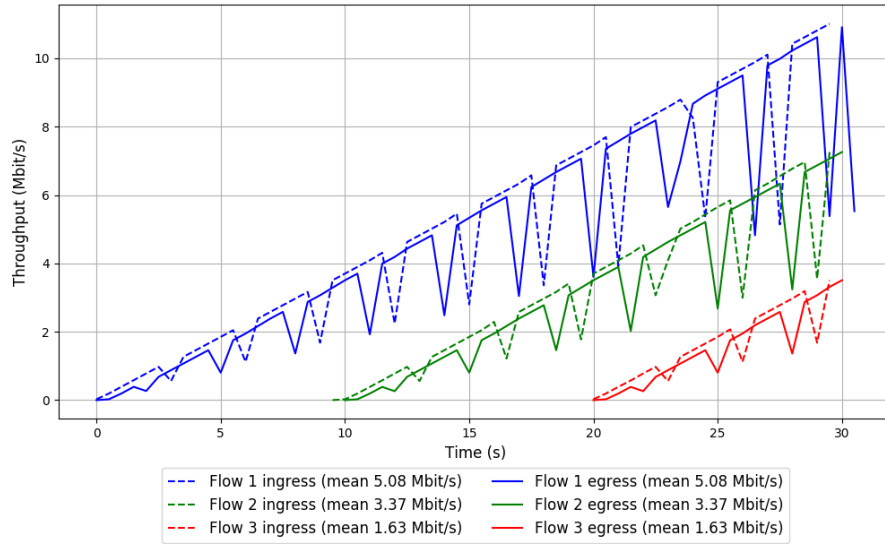
-- Flow 3:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 136.865 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-06 18:47:13

End at: 2018-09-06 18:47:43

Local clock offset: -0.201 ms

Remote clock offset: 0.062 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.77 Mbit/s

95th percentile per-packet one-way delay: 137.321 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 5.02 Mbit/s

95th percentile per-packet one-way delay: 137.381 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 3.35 Mbit/s

95th percentile per-packet one-way delay: 136.557 ms

Loss rate: 0.00%

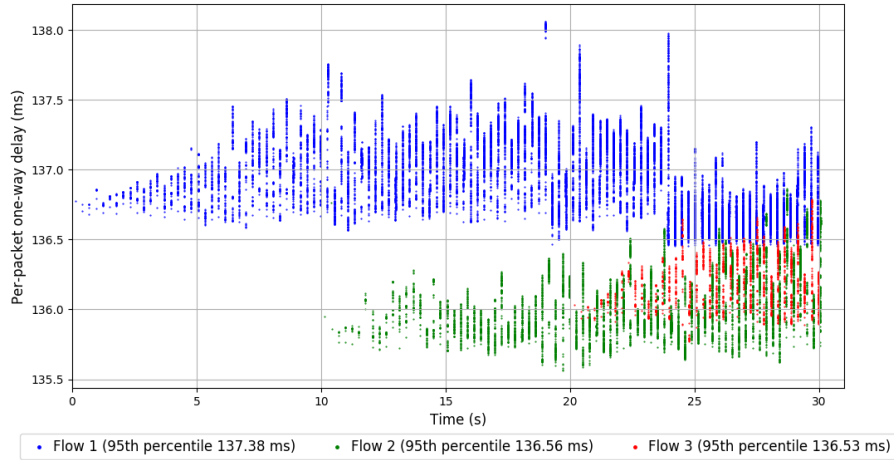
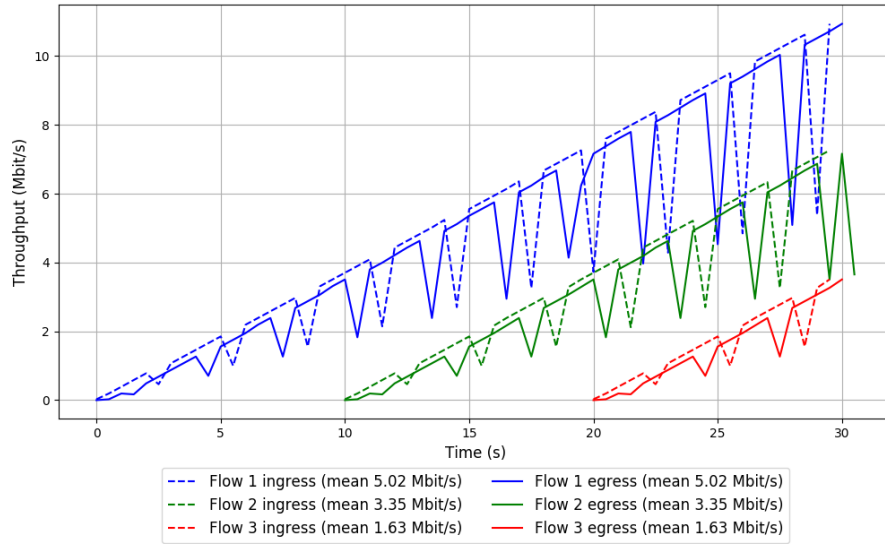
-- Flow 3:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 136.531 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 16:27:52

End at: 2018-09-06 16:28:22

Local clock offset: -0.32 ms

Remote clock offset: 0.148 ms

Below is generated by plot.py at 2018-09-06 20:48:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 759.67 Mbit/s

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

Loss rate: 0.04%

-- Flow 1:

Average throughput: 362.72 Mbit/s

95th percentile per-packet one-way delay: 158.009 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 386.33 Mbit/s

95th percentile per-packet one-way delay: 163.482 ms

Loss rate: 0.00%

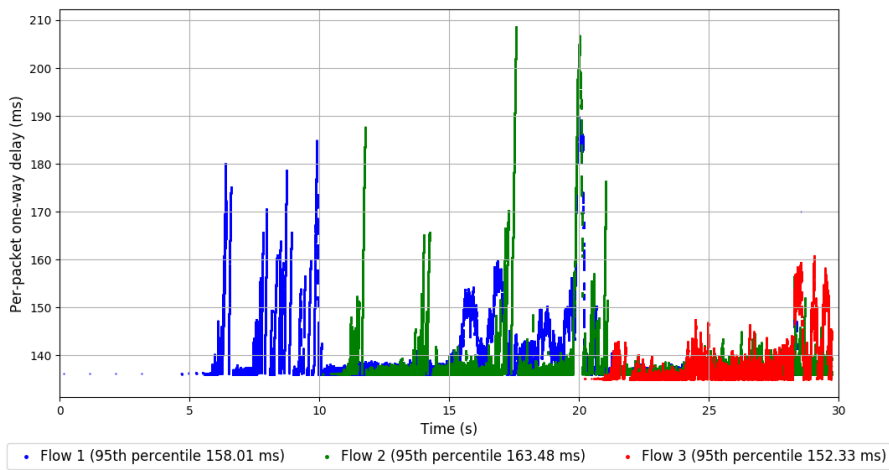
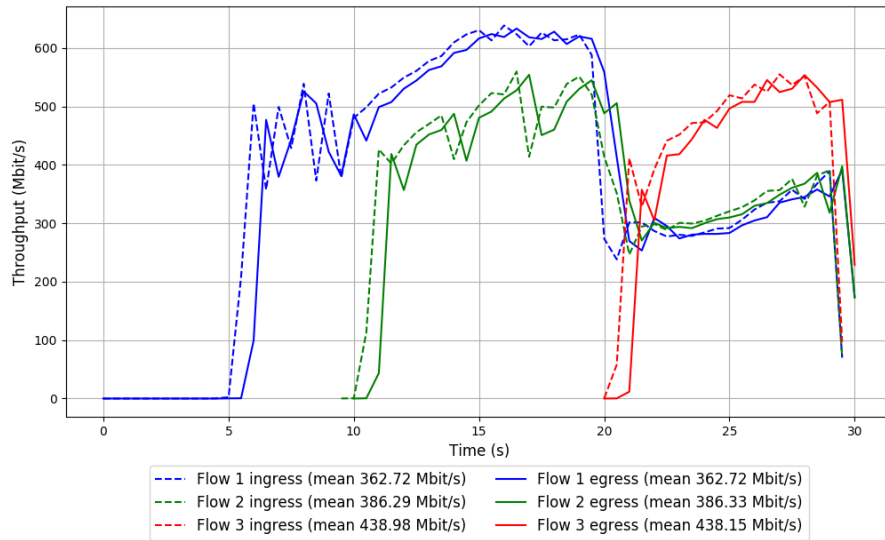
-- Flow 3:

Average throughput: 438.15 Mbit/s

95th percentile per-packet one-way delay: 152.327 ms

Loss rate: 0.18%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 17:01:41

End at: 2018-09-06 17:02:11

Local clock offset: -0.287 ms

Remote clock offset: 0.434 ms

Below is generated by plot.py at 2018-09-06 20:49:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 870.45 Mbit/s

95th percentile per-packet one-way delay: 156.527 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 446.81 Mbit/s

95th percentile per-packet one-way delay: 157.748 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 425.00 Mbit/s

95th percentile per-packet one-way delay: 159.262 ms

Loss rate: 0.00%

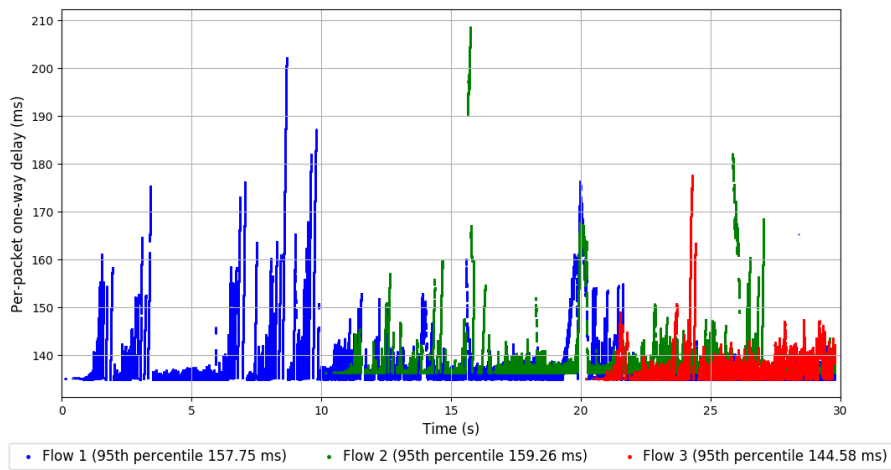
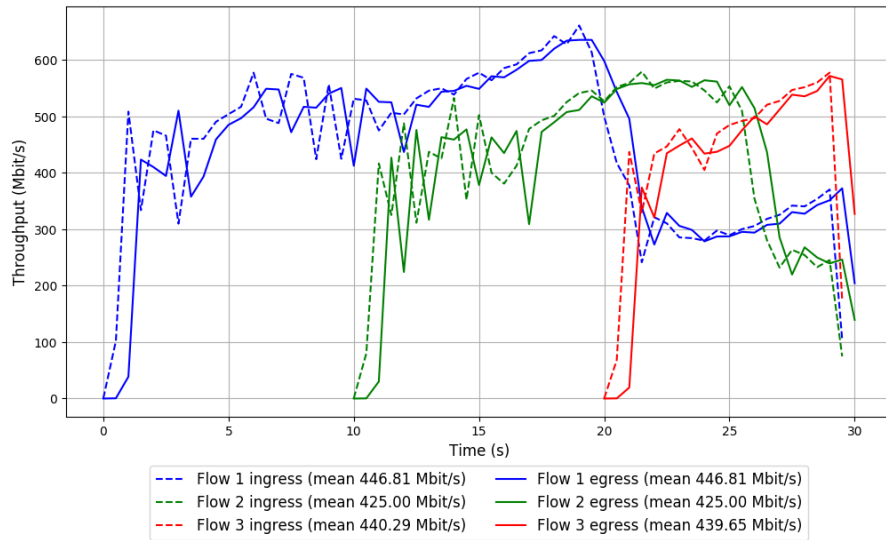
-- Flow 3:

Average throughput: 439.65 Mbit/s

95th percentile per-packet one-way delay: 144.583 ms

Loss rate: 0.13%

Run 2: Report of Indigo-Muses — Data Link

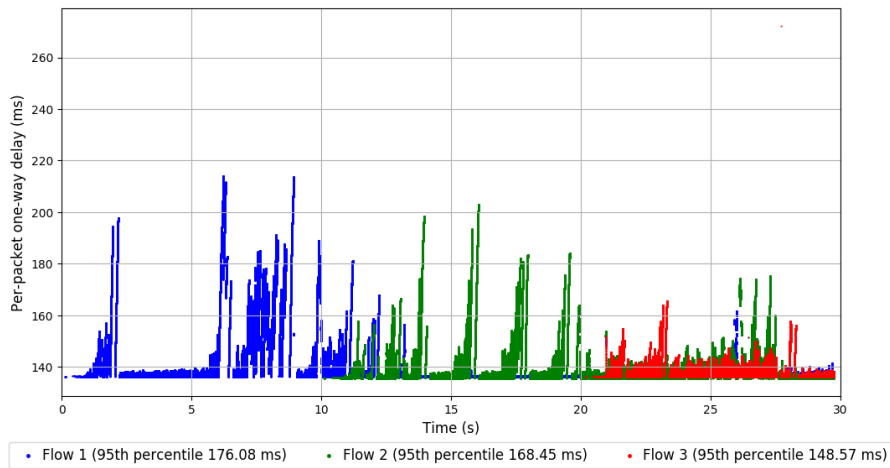
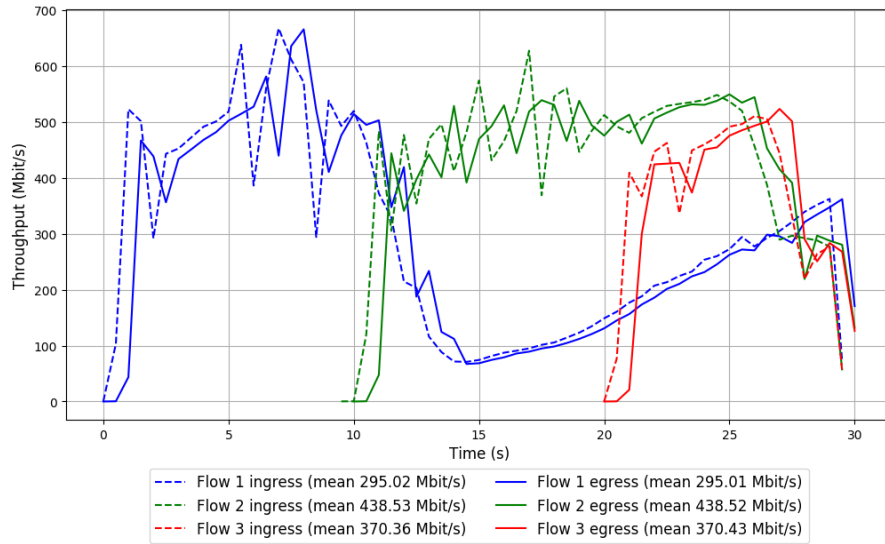


Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 17:35:49
End at: 2018-09-06 17:36:19
Local clock offset: -0.008 ms
Remote clock offset: -0.016 ms

```
# Below is generated by plot.py at 2018-09-06 20:49:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 705.30 Mbit/s
95th percentile per-packet one-way delay: 170.298 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 295.01 Mbit/s
95th percentile per-packet one-way delay: 176.076 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 438.52 Mbit/s
95th percentile per-packet one-way delay: 168.453 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 370.43 Mbit/s
95th percentile per-packet one-way delay: 148.566 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-06 18:09:31

End at: 2018-09-06 18:10:01

Local clock offset: -0.13 ms

Remote clock offset: 0.334 ms

Below is generated by plot.py at 2018-09-06 20:49:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 796.41 Mbit/s

95th percentile per-packet one-way delay: 161.442 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 421.60 Mbit/s

95th percentile per-packet one-way delay: 164.983 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 350.03 Mbit/s

95th percentile per-packet one-way delay: 163.936 ms

Loss rate: 0.00%

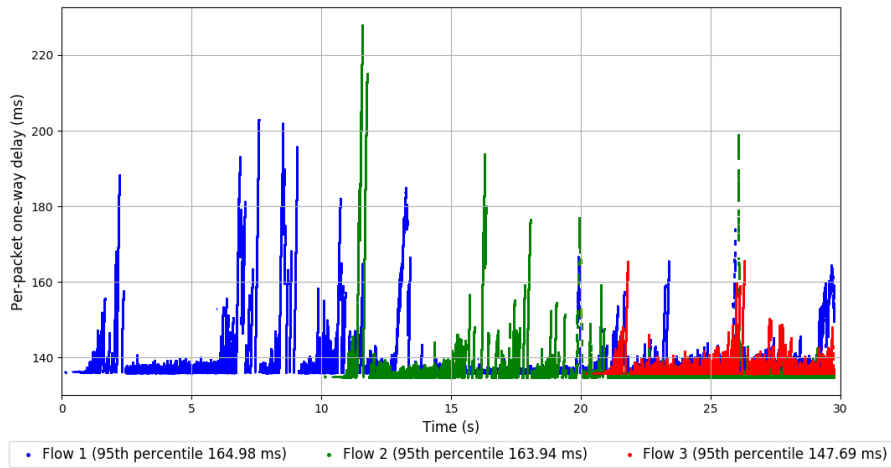
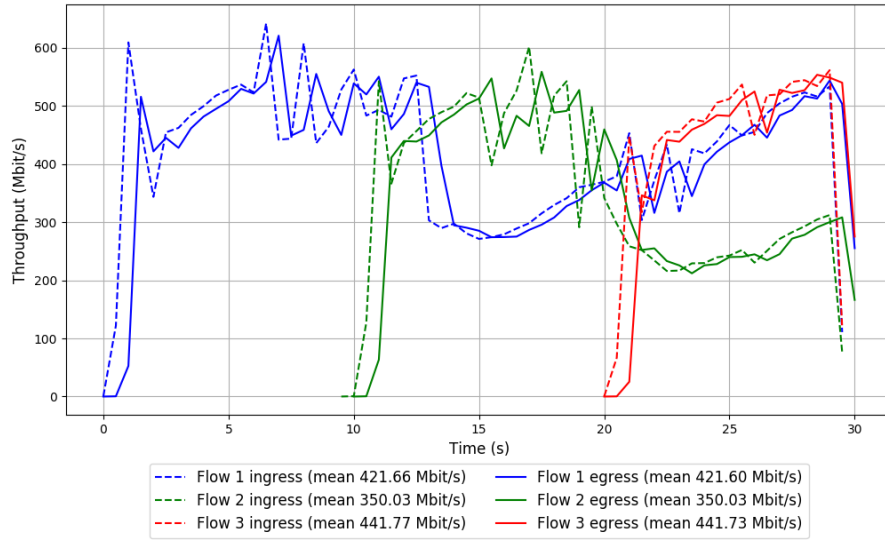
-- Flow 3:

Average throughput: 441.73 Mbit/s

95th percentile per-packet one-way delay: 147.692 ms

Loss rate: 0.00%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-06 18:42:49

End at: 2018-09-06 18:43:19

Local clock offset: -0.038 ms

Remote clock offset: 0.071 ms

Below is generated by plot.py at 2018-09-06 20:50:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 875.29 Mbit/s

95th percentile per-packet one-way delay: 161.111 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 475.39 Mbit/s

95th percentile per-packet one-way delay: 167.045 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 411.82 Mbit/s

95th percentile per-packet one-way delay: 156.304 ms

Loss rate: 0.00%

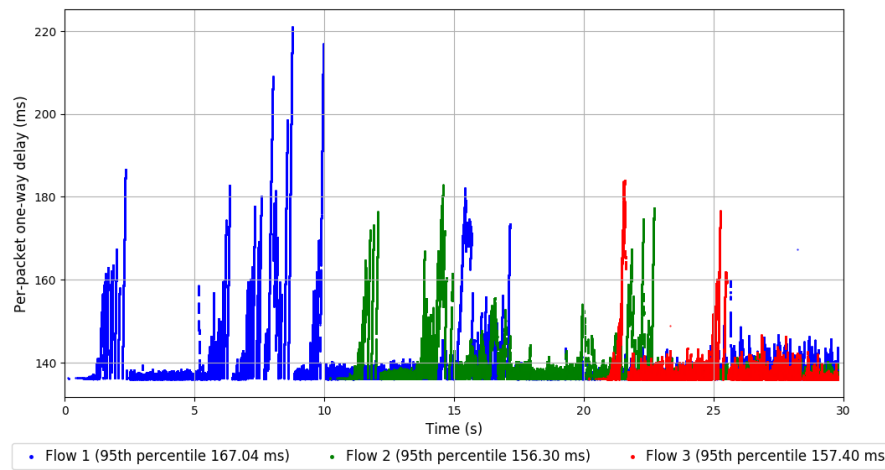
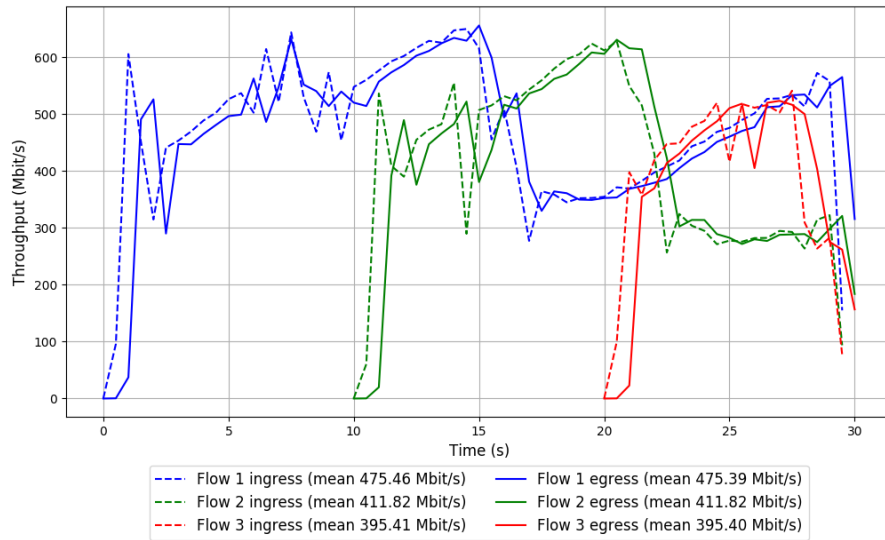
-- Flow 3:

Average throughput: 395.40 Mbit/s

95th percentile per-packet one-way delay: 157.399 ms

Loss rate: 0.00%

Run 5: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 16:53:19

End at: 2018-09-06 16:53:49

Local clock offset: -0.206 ms

Remote clock offset: 0.082 ms

Below is generated by plot.py at 2018-09-06 20:58:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 673.19 Mbit/s

95th percentile per-packet one-way delay: 272.589 ms

Loss rate: 5.31%

-- Flow 1:

Average throughput: 396.95 Mbit/s

95th percentile per-packet one-way delay: 280.705 ms

Loss rate: 8.39%

-- Flow 2:

Average throughput: 301.46 Mbit/s

95th percentile per-packet one-way delay: 193.056 ms

Loss rate: 0.35%

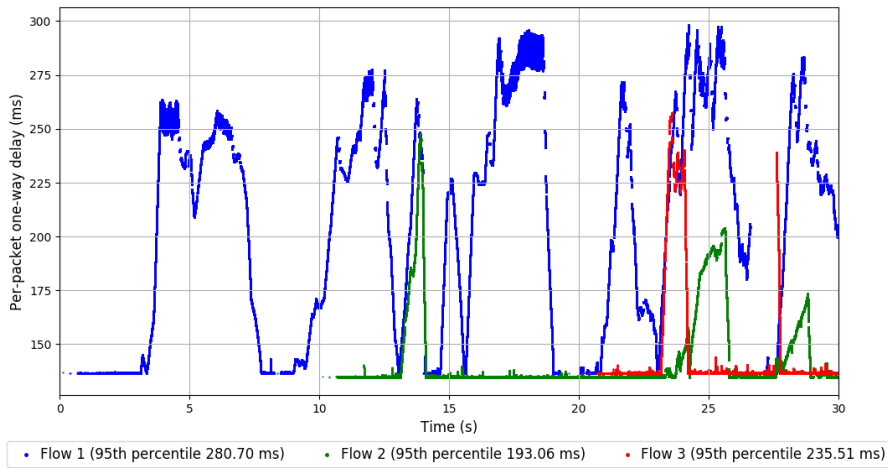
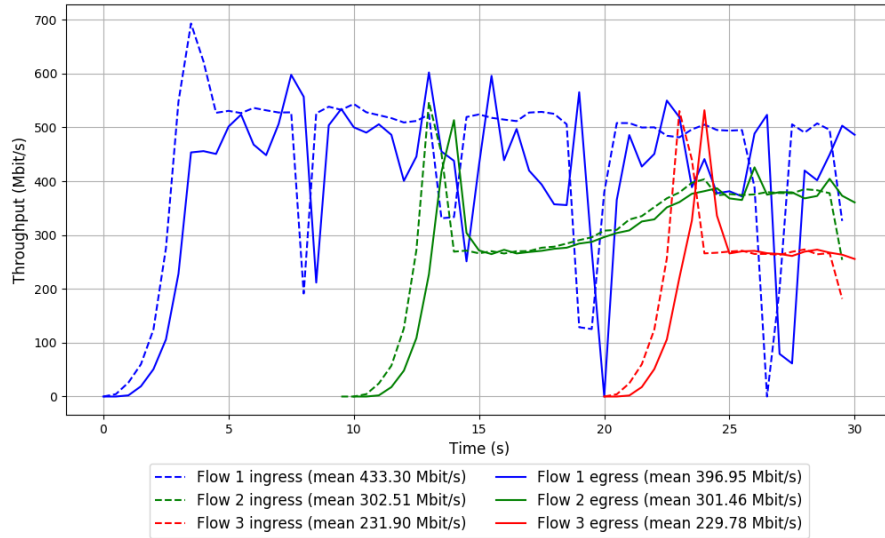
-- Flow 3:

Average throughput: 229.78 Mbit/s

95th percentile per-packet one-way delay: 235.508 ms

Loss rate: 0.93%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 17:27:18

End at: 2018-09-06 17:27:48

Local clock offset: -0.22 ms

Remote clock offset: 0.006 ms

Below is generated by plot.py at 2018-09-06 20:58:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 624.08 Mbit/s

95th percentile per-packet one-way delay: 266.527 ms

Loss rate: 4.54%

-- Flow 1:

Average throughput: 305.86 Mbit/s

95th percentile per-packet one-way delay: 189.753 ms

Loss rate: 1.33%

-- Flow 2:

Average throughput: 368.66 Mbit/s

95th percentile per-packet one-way delay: 279.947 ms

Loss rate: 8.98%

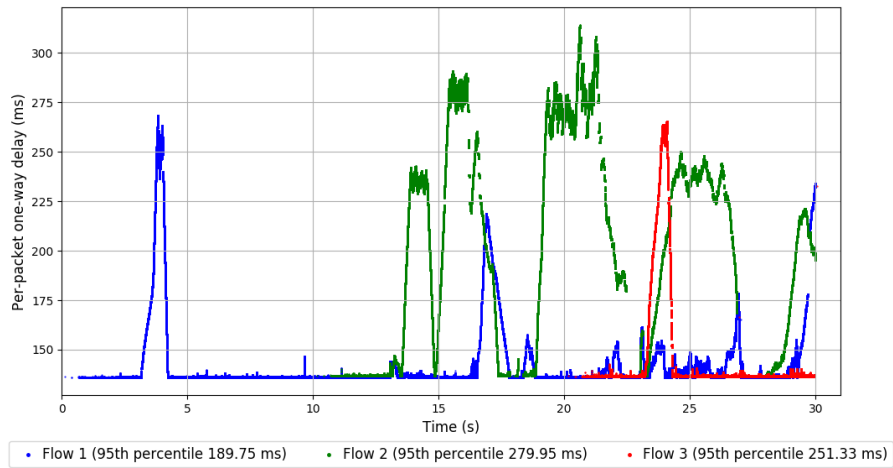
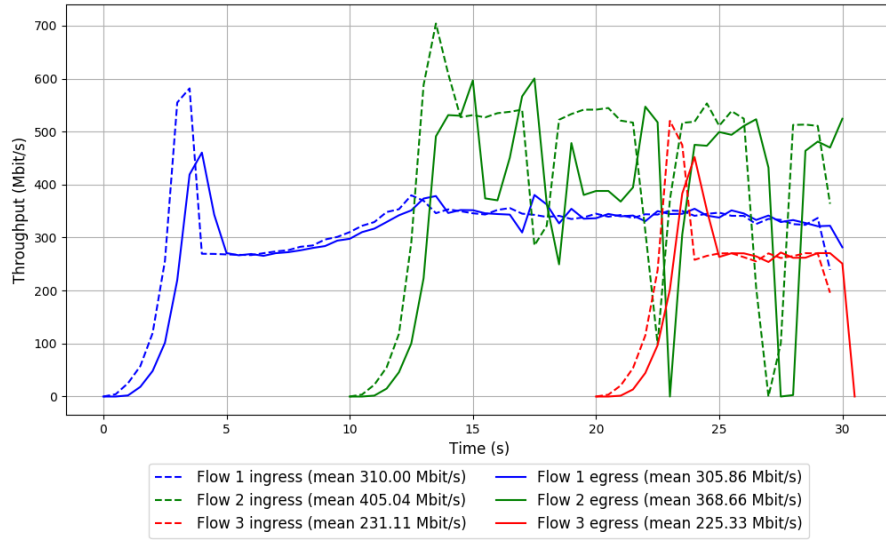
-- Flow 3:

Average throughput: 225.33 Mbit/s

95th percentile per-packet one-way delay: 251.332 ms

Loss rate: 1.89%

Run 2: Report of PCC-Allegro — Data Link

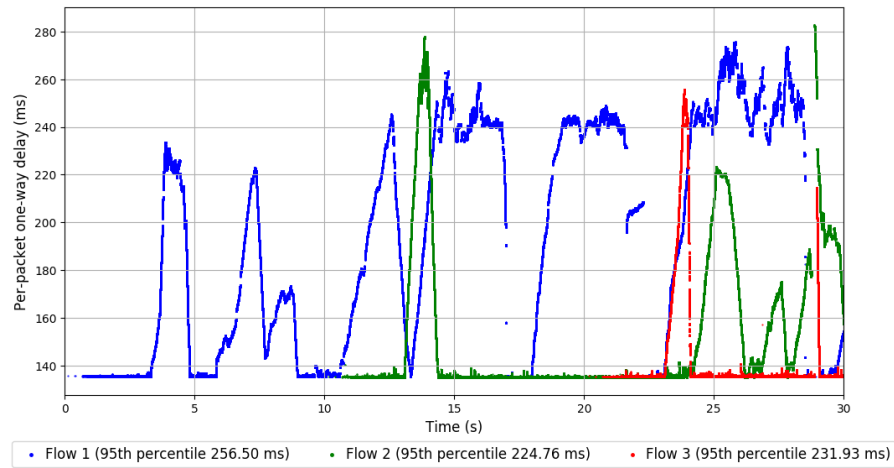
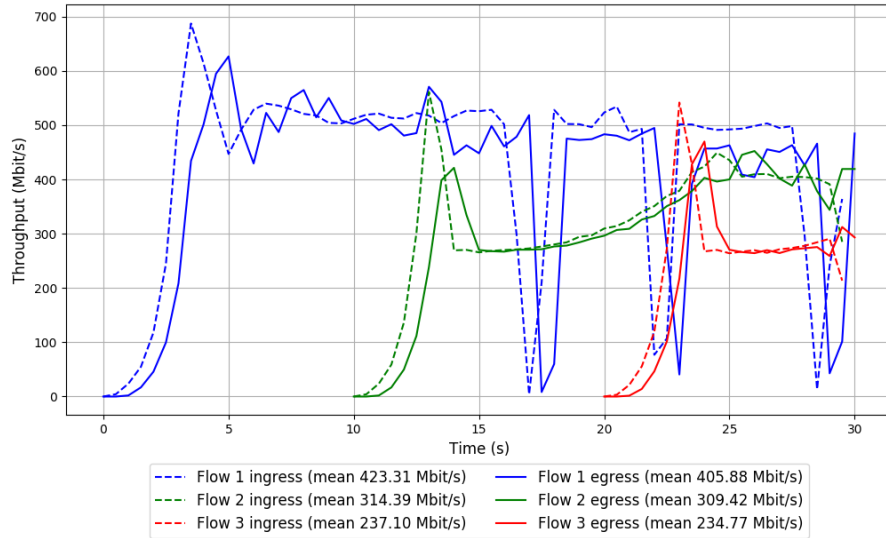


Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 18:01:22
End at: 2018-09-06 18:01:52
Local clock offset: -0.16 ms
Remote clock offset: -0.413 ms

```
# Below is generated by plot.py at 2018-09-06 21:03:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 688.76 Mbit/s
95th percentile per-packet one-way delay: 252.551 ms
Loss rate: 3.03%
-- Flow 1:
Average throughput: 405.88 Mbit/s
95th percentile per-packet one-way delay: 256.502 ms
Loss rate: 4.12%
-- Flow 2:
Average throughput: 309.42 Mbit/s
95th percentile per-packet one-way delay: 224.756 ms
Loss rate: 1.59%
-- Flow 3:
Average throughput: 234.77 Mbit/s
95th percentile per-packet one-way delay: 231.934 ms
Loss rate: 0.99%
```


Run 3: Report of PCC-Allegro — Data Link

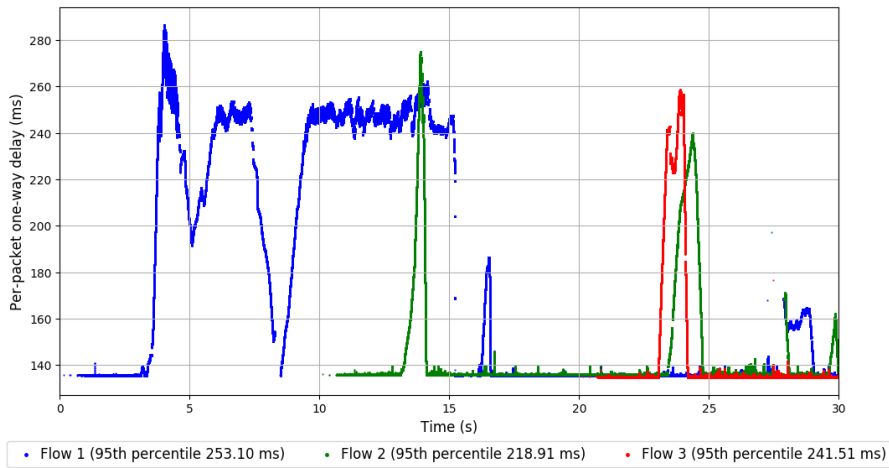
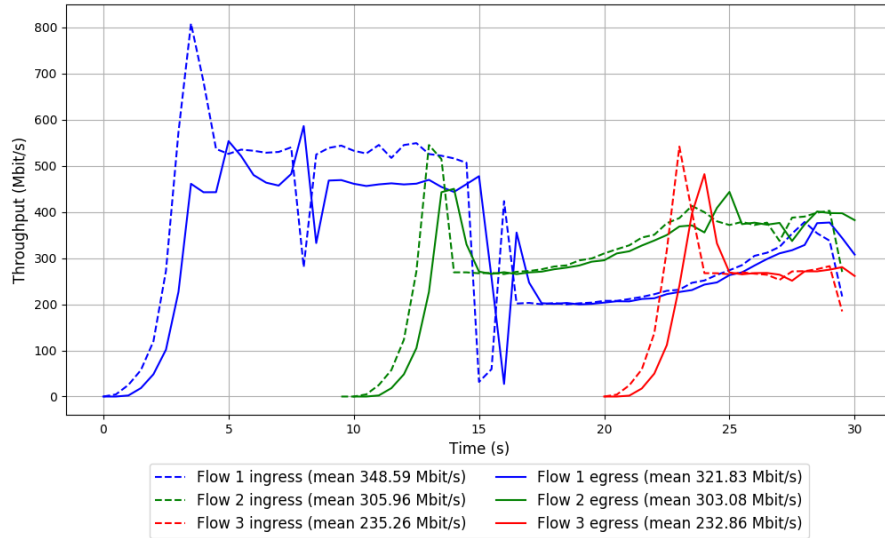


Run 4: Statistics of PCC-Allegro

Start at: 2018-09-06 18:34:35
End at: 2018-09-06 18:35:05
Local clock offset: -0.175 ms
Remote clock offset: -0.295 ms

```
# Below is generated by plot.py at 2018-09-06 21:07:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 600.24 Mbit/s
95th percentile per-packet one-way delay: 250.971 ms
Loss rate: 4.68%
-- Flow 1:
Average throughput: 321.83 Mbit/s
95th percentile per-packet one-way delay: 253.104 ms
Loss rate: 7.68%
-- Flow 2:
Average throughput: 303.08 Mbit/s
95th percentile per-packet one-way delay: 218.907 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 232.86 Mbit/s
95th percentile per-packet one-way delay: 241.514 ms
Loss rate: 1.03%
```

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-06 19:08:21

End at: 2018-09-06 19:08:51

Local clock offset: -0.073 ms

Remote clock offset: 0.103 ms

Below is generated by plot.py at 2018-09-06 21:11:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 642.04 Mbit/s

95th percentile per-packet one-way delay: 215.433 ms

Loss rate: 1.15%

-- Flow 1:

Average throughput: 356.05 Mbit/s

95th percentile per-packet one-way delay: 206.276 ms

Loss rate: 0.71%

-- Flow 2:

Average throughput: 320.84 Mbit/s

95th percentile per-packet one-way delay: 216.509 ms

Loss rate: 0.70%

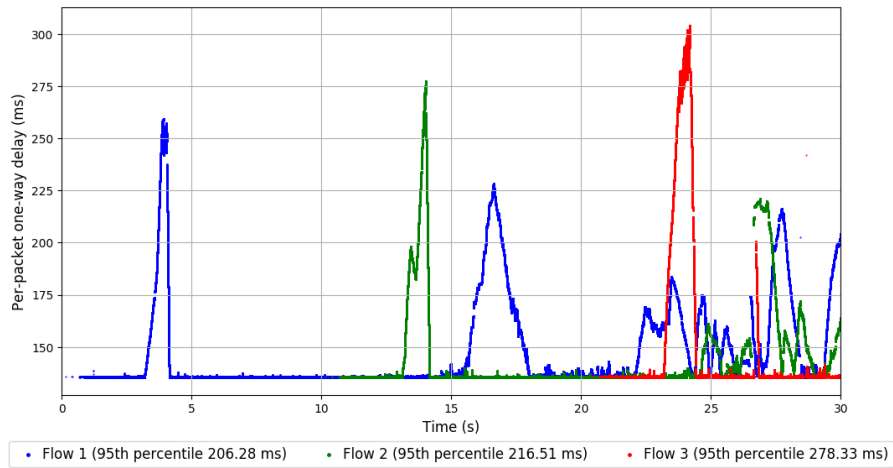
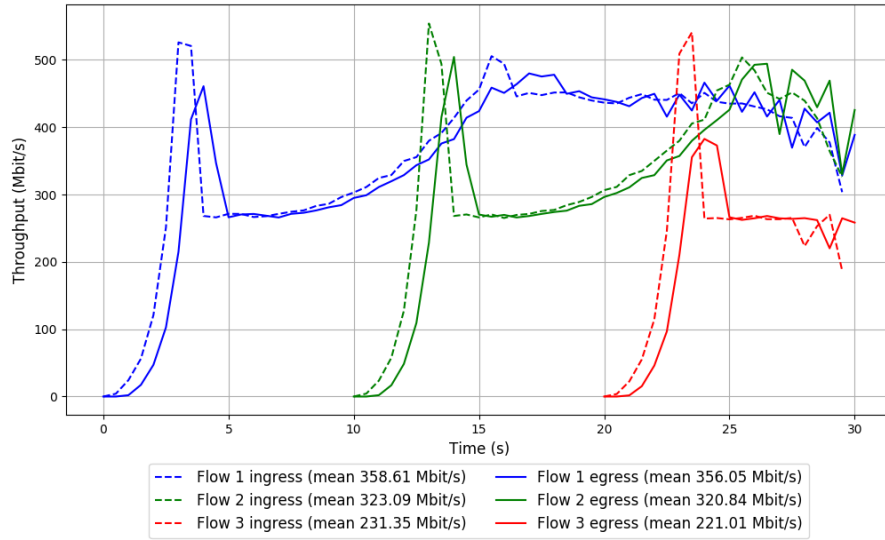
-- Flow 3:

Average throughput: 221.01 Mbit/s

95th percentile per-packet one-way delay: 278.333 ms

Loss rate: 4.47%

Run 5: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2018-09-06 16:29:55

End at: 2018-09-06 16:30:25

Local clock offset: -0.044 ms

Remote clock offset: -0.25 ms

Below is generated by plot.py at 2018-09-06 21:11:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 526.58 Mbit/s

95th percentile per-packet one-way delay: 260.440 ms

Loss rate: 4.65%

-- Flow 1:

Average throughput: 295.90 Mbit/s

95th percentile per-packet one-way delay: 262.197 ms

Loss rate: 5.69%

-- Flow 2:

Average throughput: 272.19 Mbit/s

95th percentile per-packet one-way delay: 257.621 ms

Loss rate: 3.93%

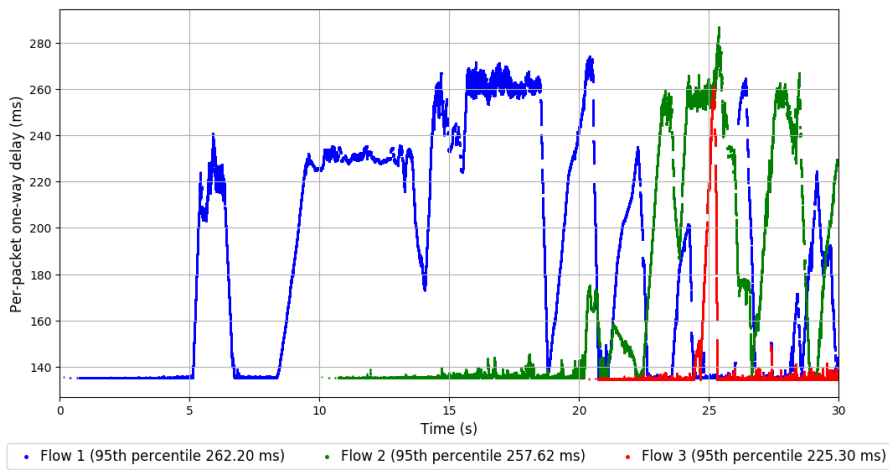
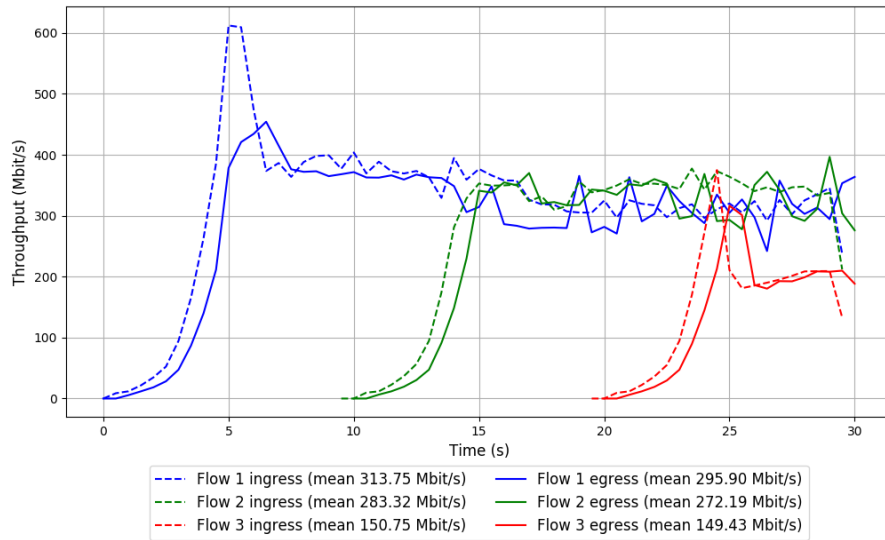
-- Flow 3:

Average throughput: 149.43 Mbit/s

95th percentile per-packet one-way delay: 225.298 ms

Loss rate: 0.87%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-06 17:03:51
End at: 2018-09-06 17:04:21
Local clock offset: -0.107 ms
Remote clock offset: -0.302 ms

Below is generated by plot.py at 2018-09-06 21:11:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 465.04 Mbit/s
95th percentile per-packet one-way delay: 258.200 ms
Loss rate: 5.24%

-- Flow 1:

Average throughput: 290.99 Mbit/s
95th percentile per-packet one-way delay: 262.081 ms
Loss rate: 8.01%

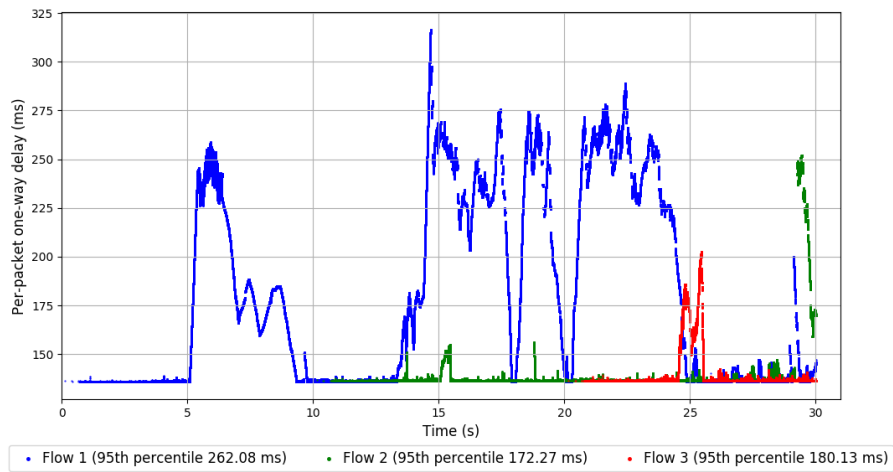
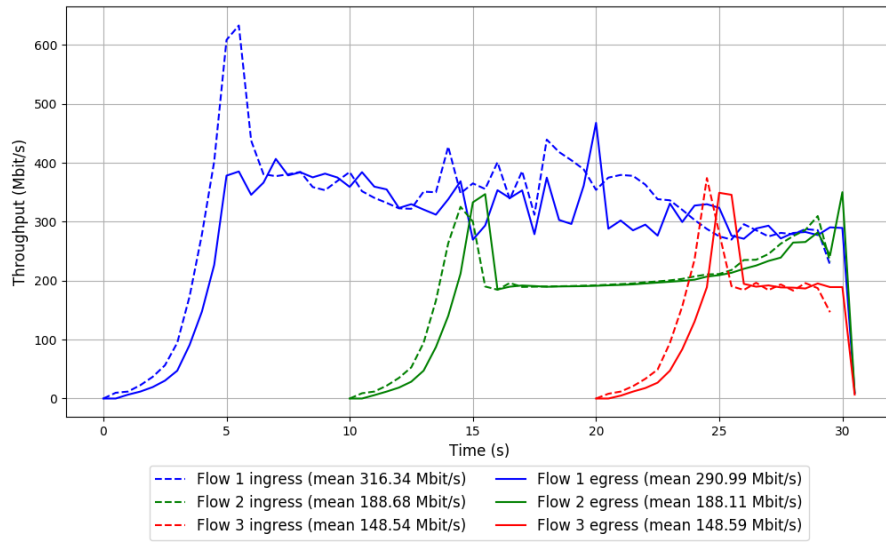
-- Flow 2:

Average throughput: 188.11 Mbit/s
95th percentile per-packet one-way delay: 172.271 ms
Loss rate: 0.30%

-- Flow 3:

Average throughput: 148.59 Mbit/s
95th percentile per-packet one-way delay: 180.131 ms
Loss rate: 0.01%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-06 17:37:49
End at: 2018-09-06 17:38:19
Local clock offset: -0.199 ms
Remote clock offset: -0.398 ms

Below is generated by plot.py at 2018-09-06 21:11:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 540.24 Mbit/s
95th percentile per-packet one-way delay: 242.805 ms
Loss rate: 5.13%

-- Flow 1:

Average throughput: 291.26 Mbit/s
95th percentile per-packet one-way delay: 229.882 ms
Loss rate: 1.27%

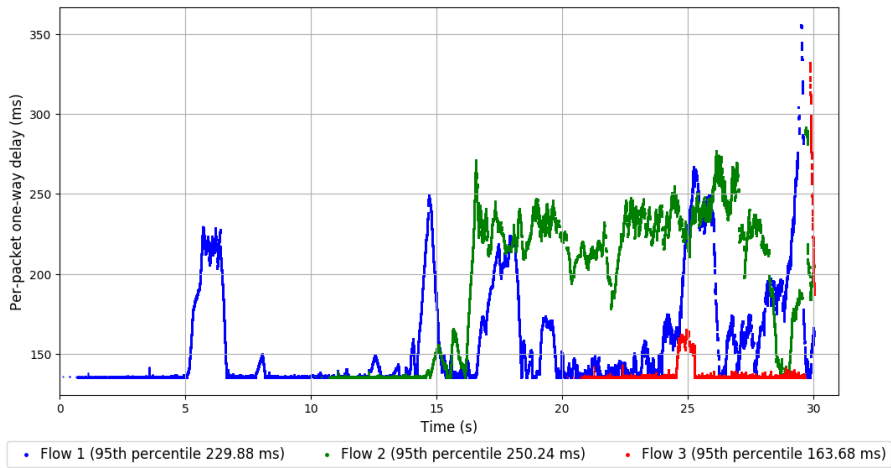
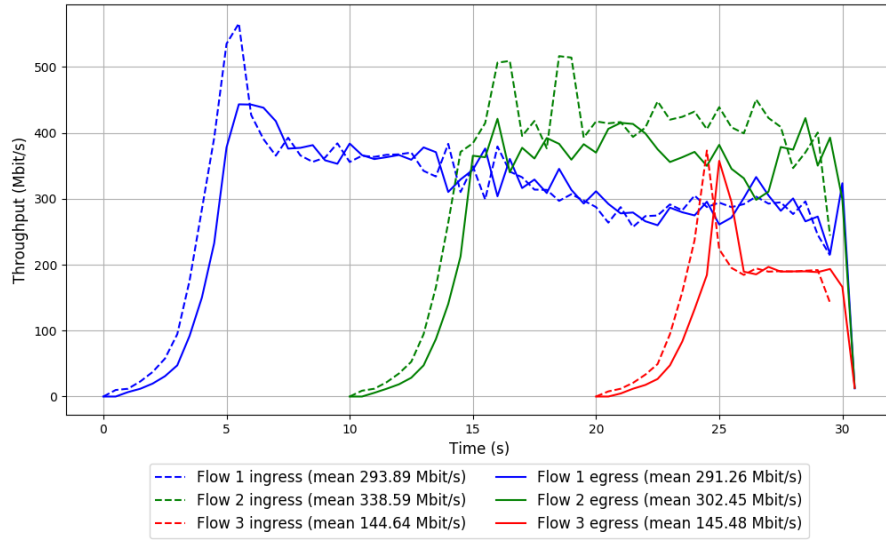
-- Flow 2:

Average throughput: 302.45 Mbit/s
95th percentile per-packet one-way delay: 250.241 ms
Loss rate: 11.15%

-- Flow 3:

Average throughput: 145.48 Mbit/s
95th percentile per-packet one-way delay: 163.683 ms
Loss rate: 0.51%

Run 3: Report of PCC-Expr — Data Link

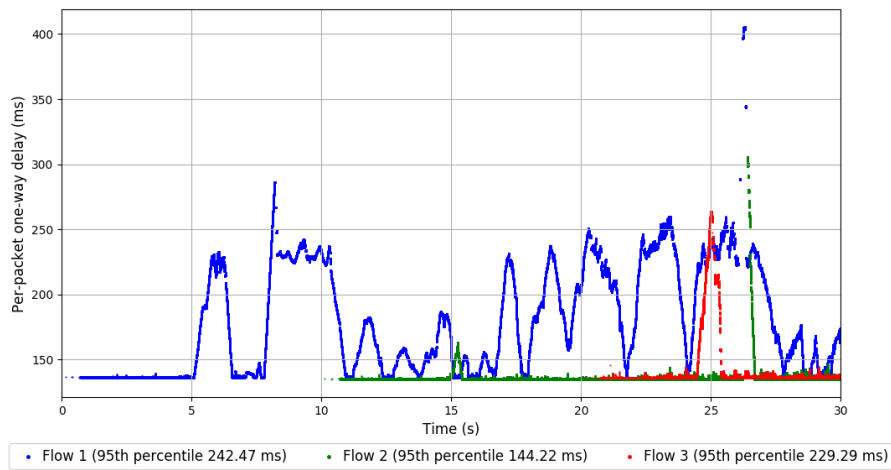
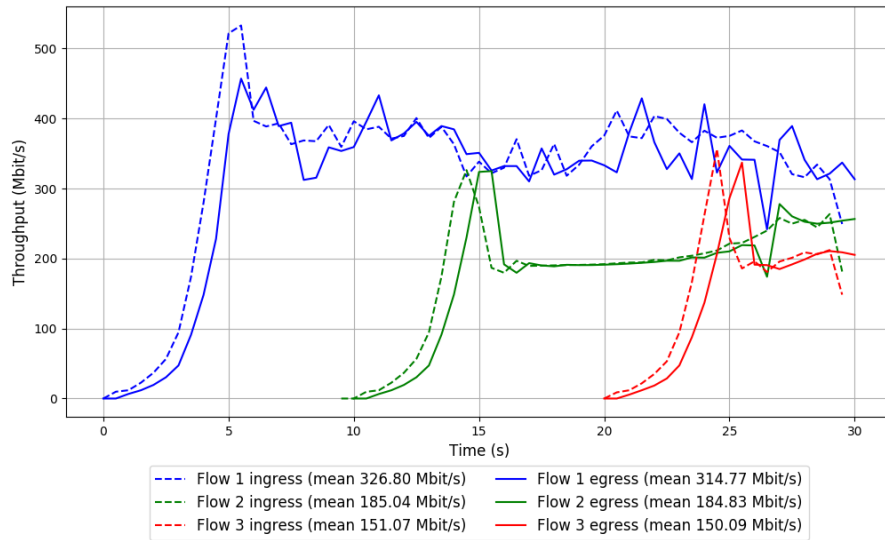


Run 4: Statistics of PCC-Expr

Start at: 2018-09-06 18:11:36
End at: 2018-09-06 18:12:06
Local clock offset: -0.122 ms
Remote clock offset: -0.002 ms

```
# Below is generated by plot.py at 2018-09-06 21:15:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 487.22 Mbit/s
95th percentile per-packet one-way delay: 238.404 ms
Loss rate: 2.50%
-- Flow 1:
Average throughput: 314.77 Mbit/s
95th percentile per-packet one-way delay: 242.473 ms
Loss rate: 3.68%
-- Flow 2:
Average throughput: 184.83 Mbit/s
95th percentile per-packet one-way delay: 144.217 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 150.09 Mbit/s
95th percentile per-packet one-way delay: 229.292 ms
Loss rate: 0.65%
```

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-06 18:44:58

End at: 2018-09-06 18:45:28

Local clock offset: -0.175 ms

Remote clock offset: 0.402 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 523.14 Mbit/s

95th percentile per-packet one-way delay: 259.869 ms

Loss rate: 3.44%

-- Flow 1:

Average throughput: 285.57 Mbit/s

95th percentile per-packet one-way delay: 257.449 ms

Loss rate: 1.93%

-- Flow 2:

Average throughput: 282.93 Mbit/s

95th percentile per-packet one-way delay: 263.325 ms

Loss rate: 6.48%

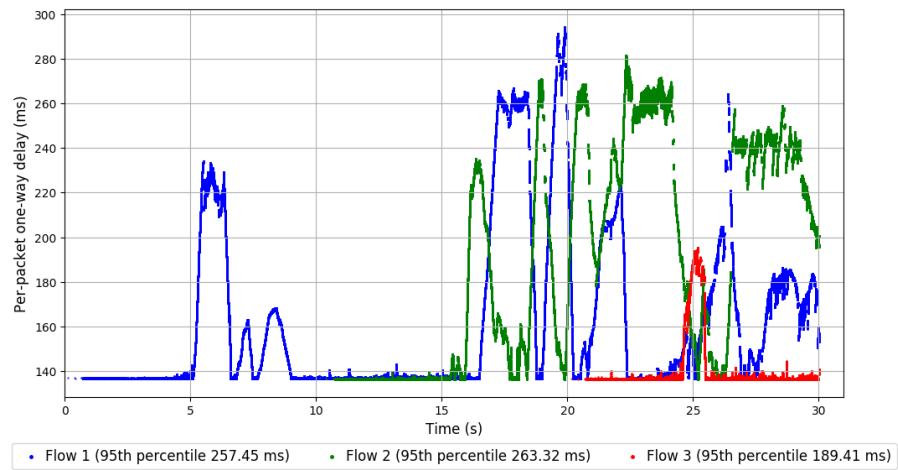
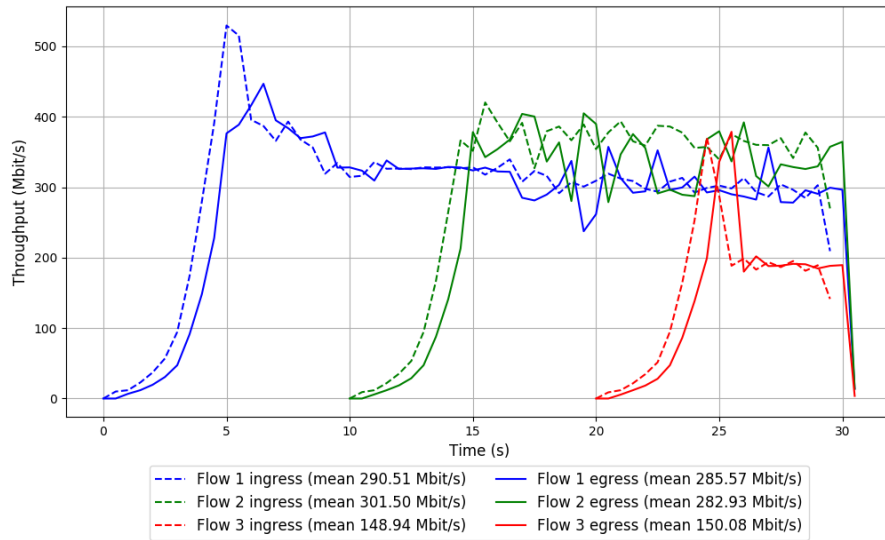
-- Flow 3:

Average throughput: 150.08 Mbit/s

95th percentile per-packet one-way delay: 189.414 ms

Loss rate: 0.00%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-06 16:37:41

End at: 2018-09-06 16:38:11

Local clock offset: -0.168 ms

Remote clock offset: -0.21 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 61.69 Mbit/s

95th percentile per-packet one-way delay: 135.545 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 137.043 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 61.59 Mbit/s

95th percentile per-packet one-way delay: 135.565 ms

Loss rate: 0.00%

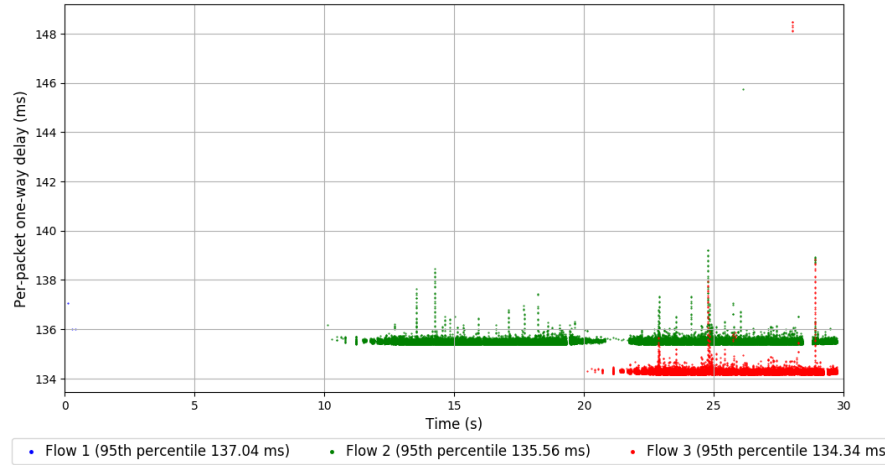
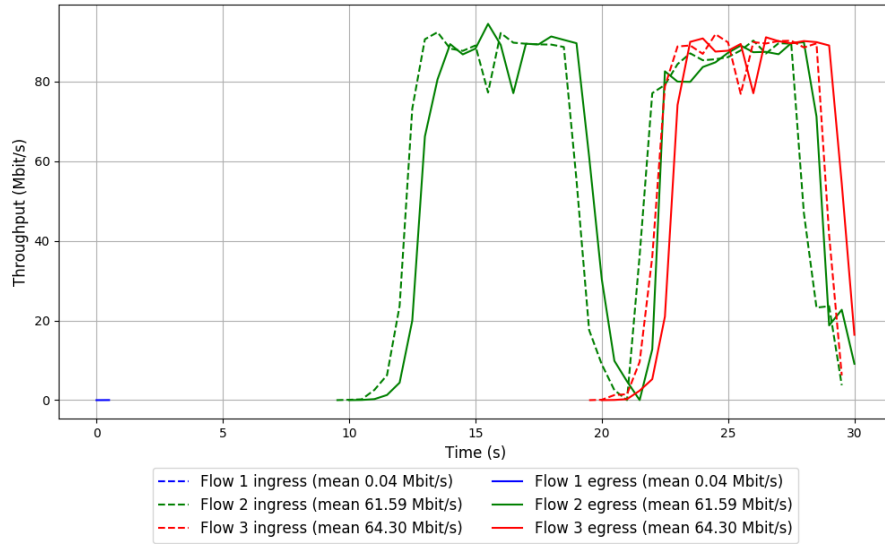
-- Flow 3:

Average throughput: 64.30 Mbit/s

95th percentile per-packet one-way delay: 134.335 ms

Loss rate: 0.00%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 17:11:30

End at: 2018-09-06 17:12:00

Local clock offset: -0.16 ms

Remote clock offset: 0.0 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 113.73 Mbit/s

95th percentile per-packet one-way delay: 136.236 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 61.87 Mbit/s

95th percentile per-packet one-way delay: 136.265 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 60.96 Mbit/s

95th percentile per-packet one-way delay: 135.871 ms

Loss rate: 0.00%

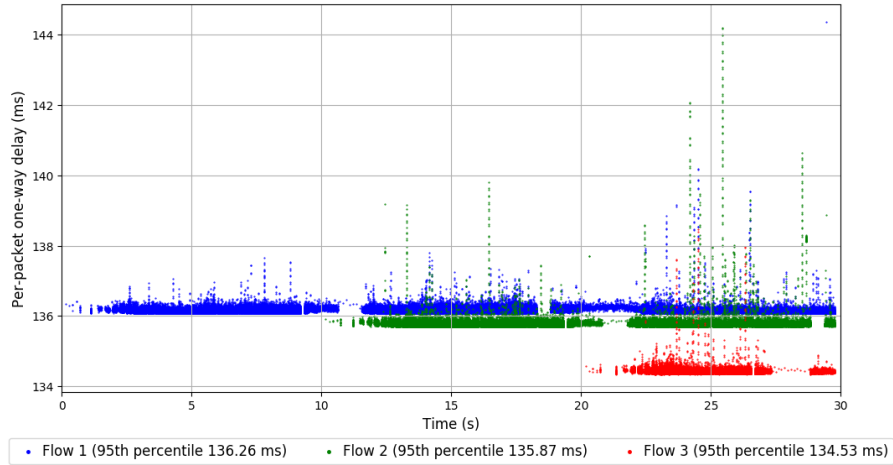
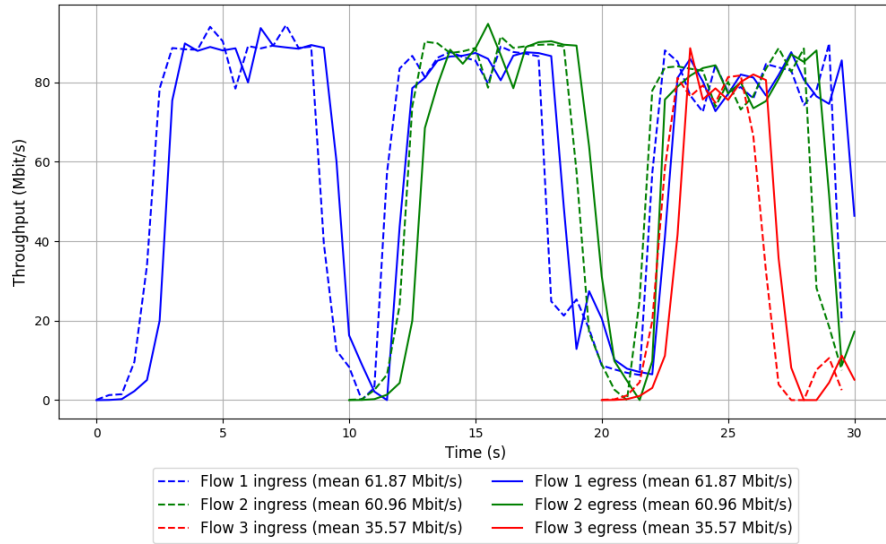
-- Flow 3:

Average throughput: 35.57 Mbit/s

95th percentile per-packet one-way delay: 134.530 ms

Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 17:45:41

End at: 2018-09-06 17:46:11

Local clock offset: -0.122 ms

Remote clock offset: 0.316 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 111.67 Mbit/s

95th percentile per-packet one-way delay: 136.960 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 59.88 Mbit/s

95th percentile per-packet one-way delay: 136.644 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 61.94 Mbit/s

95th percentile per-packet one-way delay: 136.999 ms

Loss rate: 0.00%

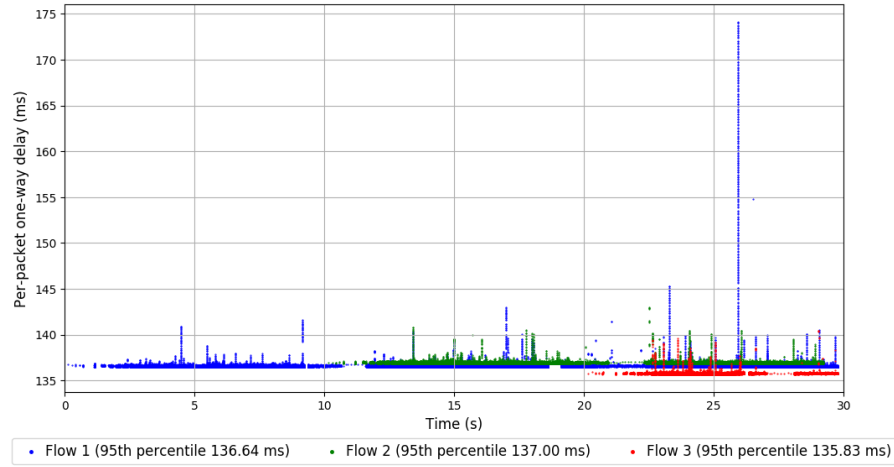
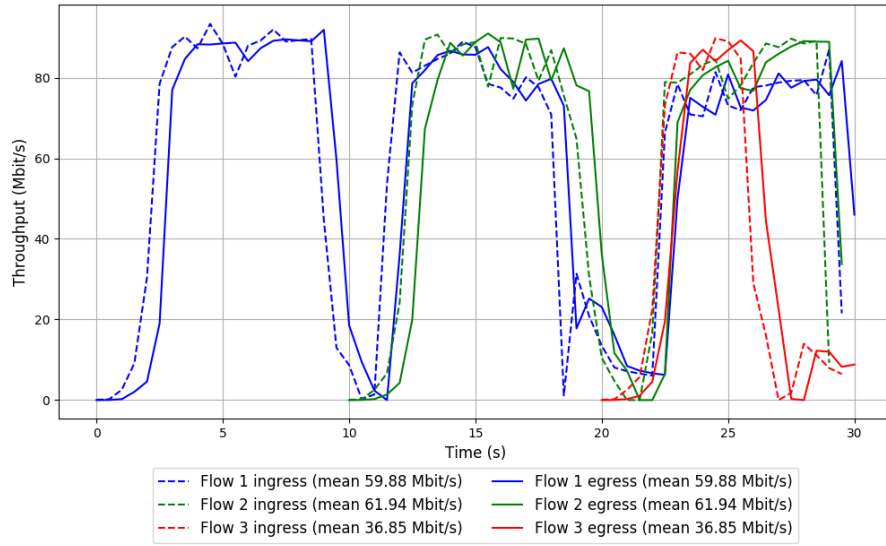
-- Flow 3:

Average throughput: 36.85 Mbit/s

95th percentile per-packet one-way delay: 135.831 ms

Loss rate: 0.00%

Run 3: Report of QUIC Cubic — Data Link

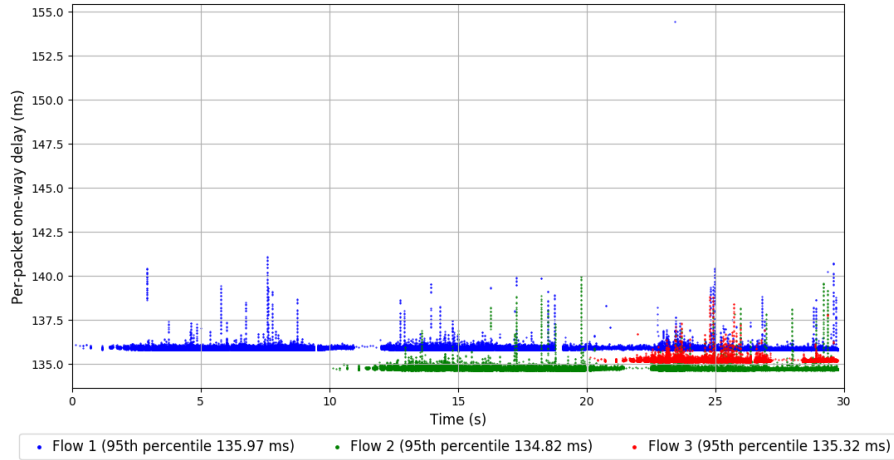
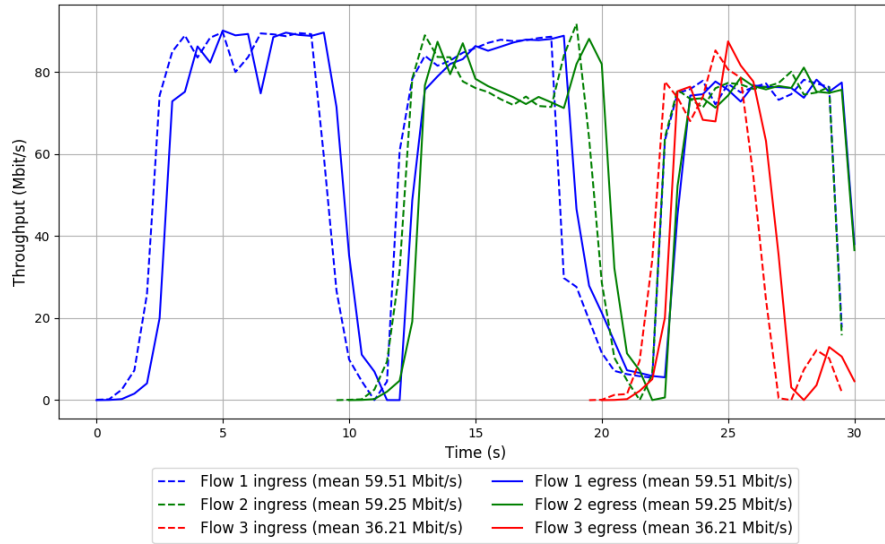


Run 4: Statistics of QUIC Cubic

Start at: 2018-09-06 18:19:09
End at: 2018-09-06 18:19:39
Local clock offset: -0.068 ms
Remote clock offset: -0.303 ms

```
# Below is generated by plot.py at 2018-09-06 21:17:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 110.52 Mbit/s
95th percentile per-packet one-way delay: 135.941 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 59.51 Mbit/s
95th percentile per-packet one-way delay: 135.969 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 59.25 Mbit/s
95th percentile per-packet one-way delay: 134.816 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 36.21 Mbit/s
95th percentile per-packet one-way delay: 135.324 ms
Loss rate: 0.00%
```

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-06 18:52:40

End at: 2018-09-06 18:53:10

Local clock offset: -0.146 ms

Remote clock offset: 0.058 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 114.34 Mbit/s

95th percentile per-packet one-way delay: 136.465 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 60.54 Mbit/s

95th percentile per-packet one-way delay: 135.516 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 62.15 Mbit/s

95th percentile per-packet one-way delay: 136.337 ms

Loss rate: 0.00%

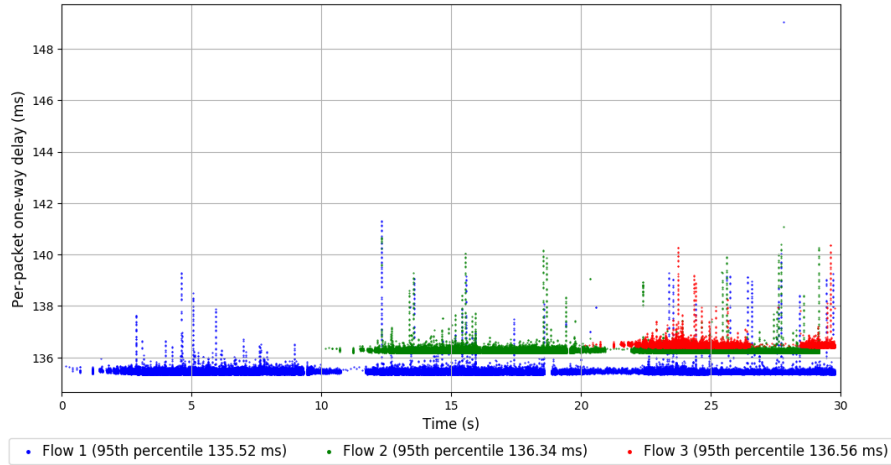
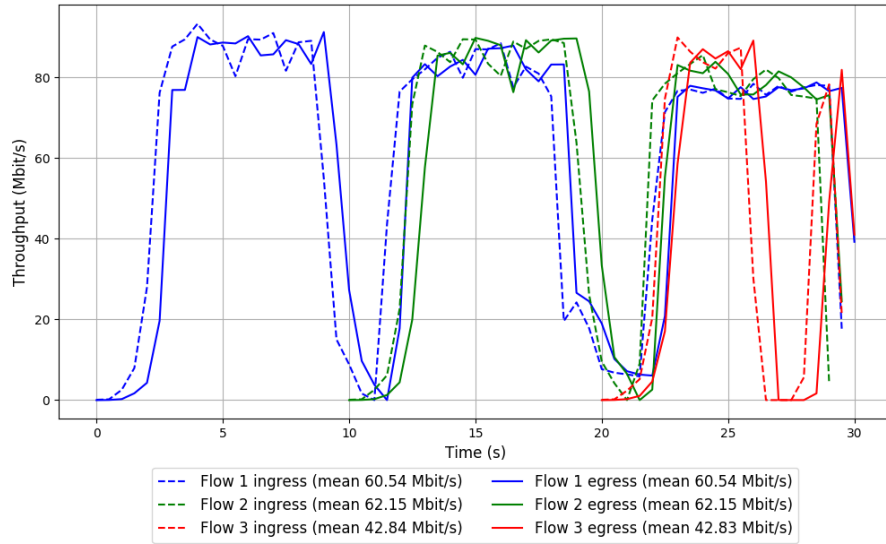
-- Flow 3:

Average throughput: 42.83 Mbit/s

95th percentile per-packet one-way delay: 136.565 ms

Loss rate: 0.00%

Run 5: Report of QUIC Cubic — Data Link



Run 1: Statistics of SCReAM

Start at: 2018-09-06 16:39:04

End at: 2018-09-06 16:39:34

Local clock offset: -0.109 ms

Remote clock offset: 0.109 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 136.003 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 135.023 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.016 ms

Loss rate: 0.00%

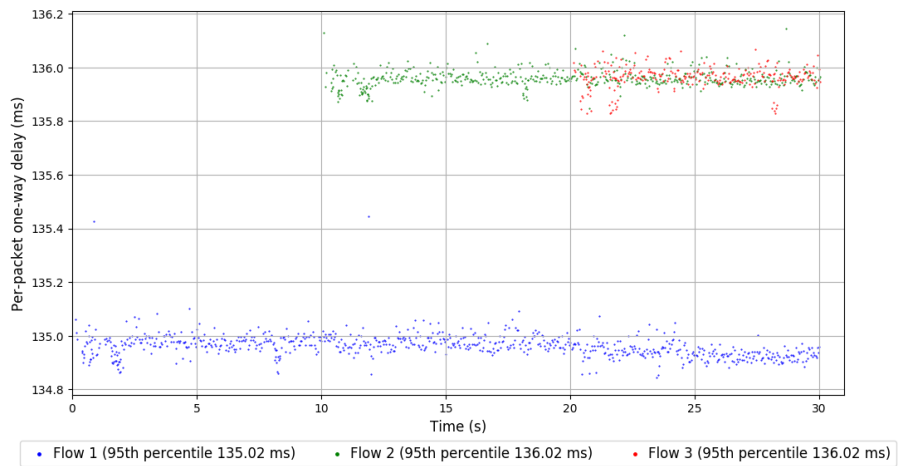
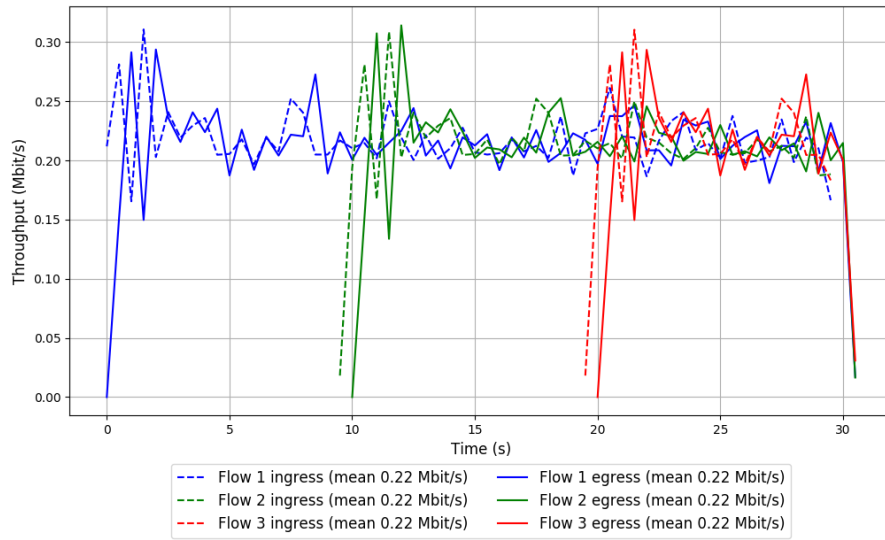
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.024 ms

Loss rate: 0.00%

Run 1: Report of SCReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-09-06 17:12:55

End at: 2018-09-06 17:13:25

Local clock offset: -0.32 ms

Remote clock offset: 0.067 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 136.697 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.620 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.719 ms

Loss rate: 0.00%

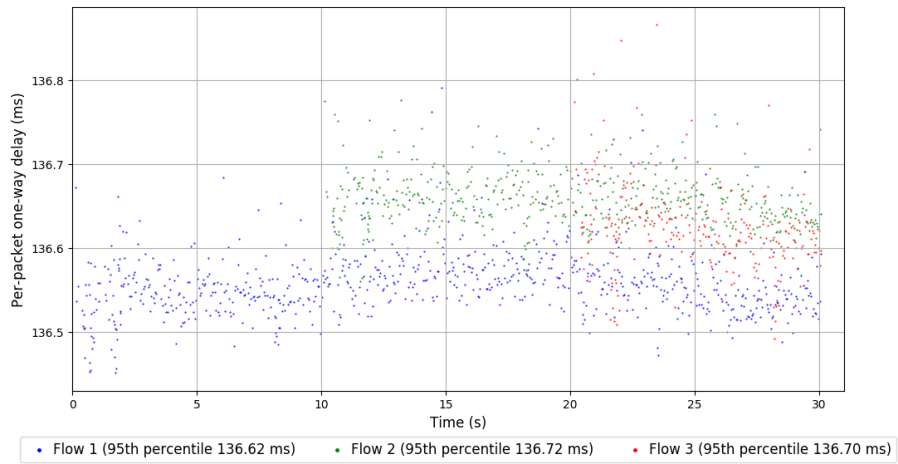
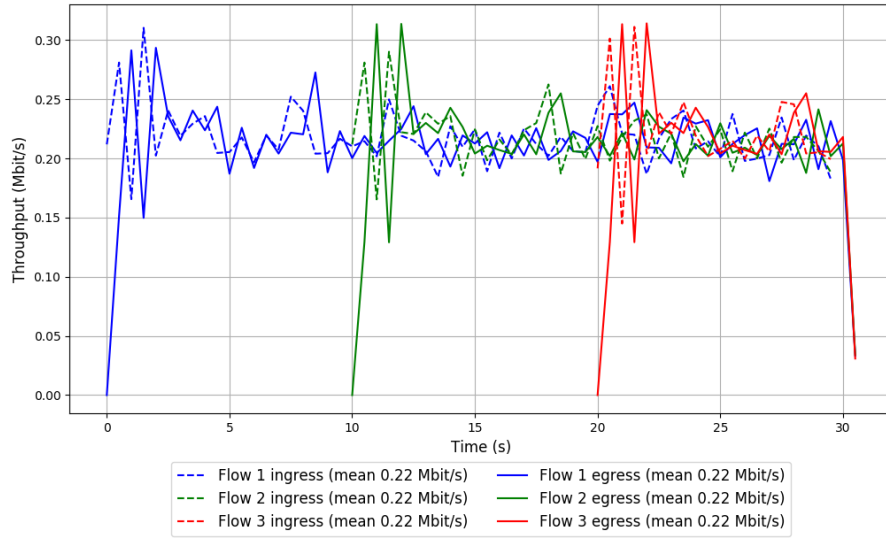
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.704 ms

Loss rate: 0.00%

Run 2: Report of SCReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-09-06 17:47:07

End at: 2018-09-06 17:47:37

Local clock offset: -0.116 ms

Remote clock offset: 0.015 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 136.464 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 135.127 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.509 ms

Loss rate: 0.00%

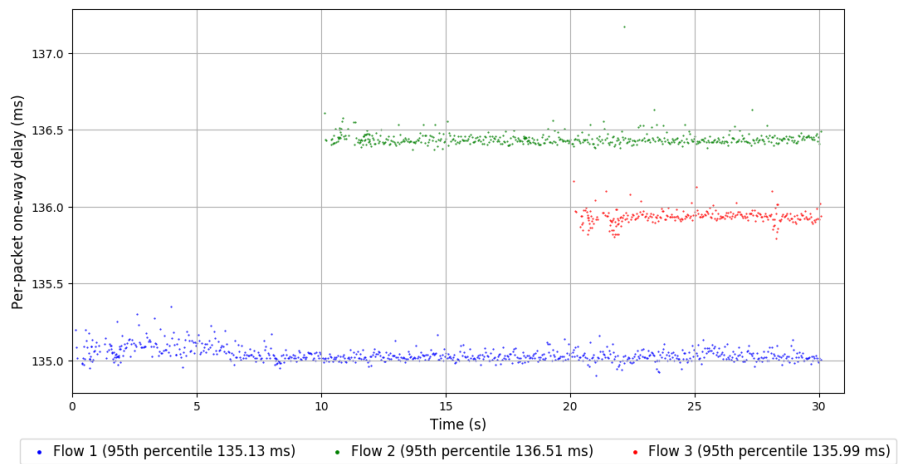
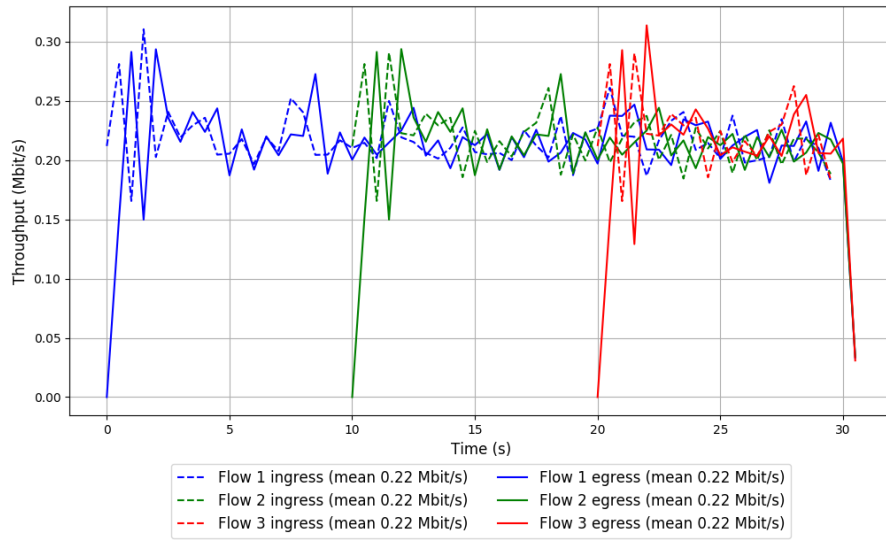
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 135.994 ms

Loss rate: 0.00%

Run 3: Report of SCReAM — Data Link



Run 4: Statistics of SCReAM

Start at: 2018-09-06 18:20:35

End at: 2018-09-06 18:21:05

Local clock offset: -0.238 ms

Remote clock offset: 0.38 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 136.904 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.927 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.149 ms

Loss rate: 0.00%

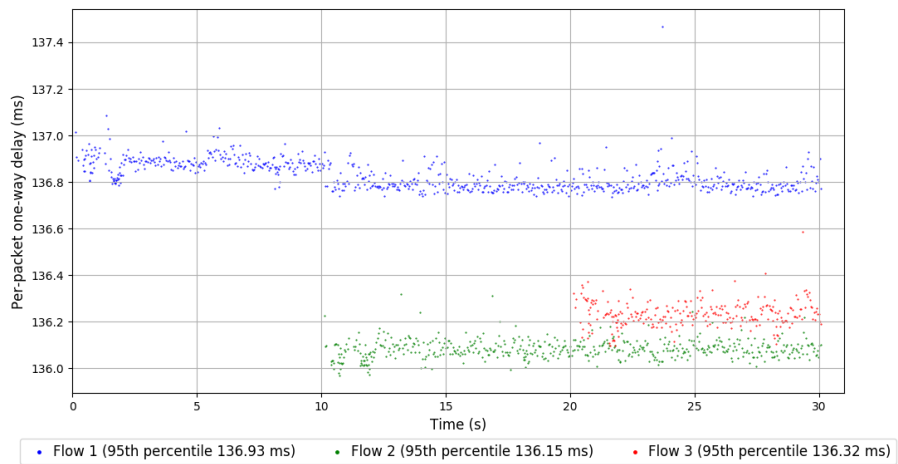
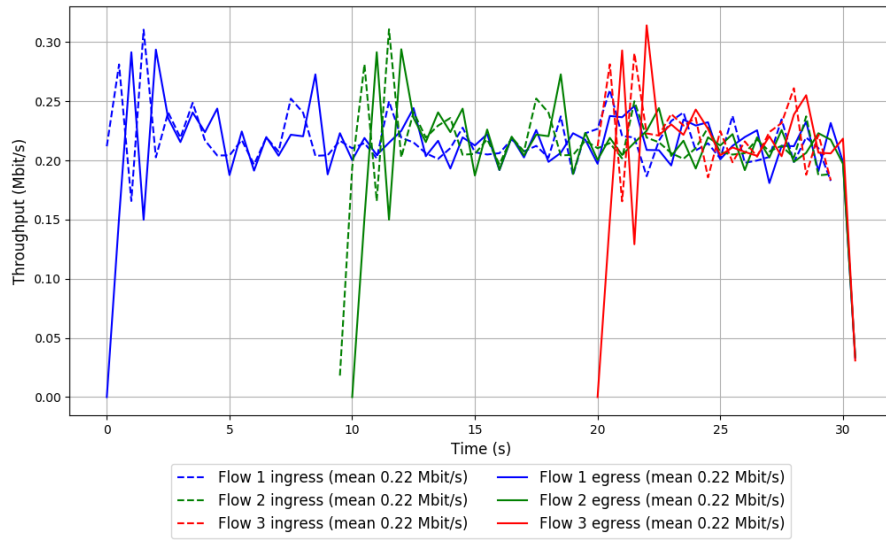
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.322 ms

Loss rate: 0.00%

Run 4: Report of SCReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-09-06 18:54:06

End at: 2018-09-06 18:54:36

Local clock offset: -0.256 ms

Remote clock offset: 0.061 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 136.174 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 135.875 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.193 ms

Loss rate: 0.00%

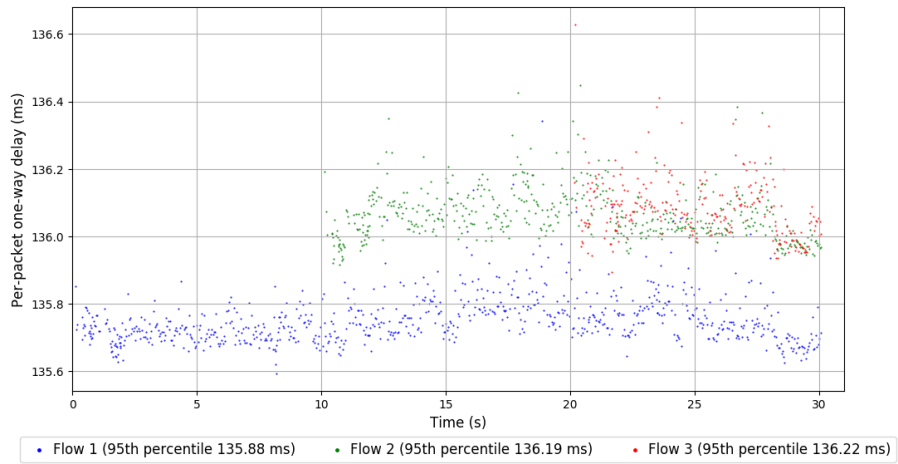
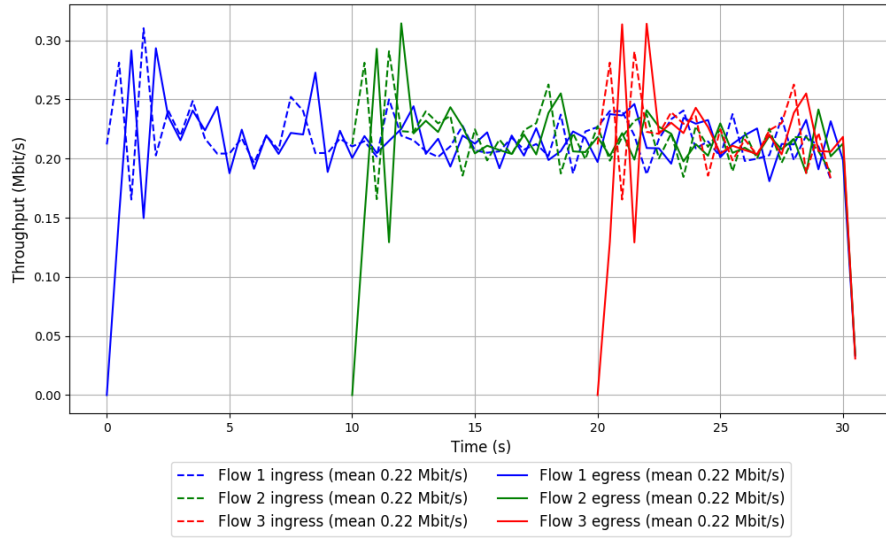
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.222 ms

Loss rate: 0.00%

Run 5: Report of SCReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-06 17:00:23

End at: 2018-09-06 17:00:53

Local clock offset: -0.235 ms

Remote clock offset: 0.437 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.35 Mbit/s

95th percentile per-packet one-way delay: 136.421 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 135.595 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 135.610 ms

Loss rate: 0.00%

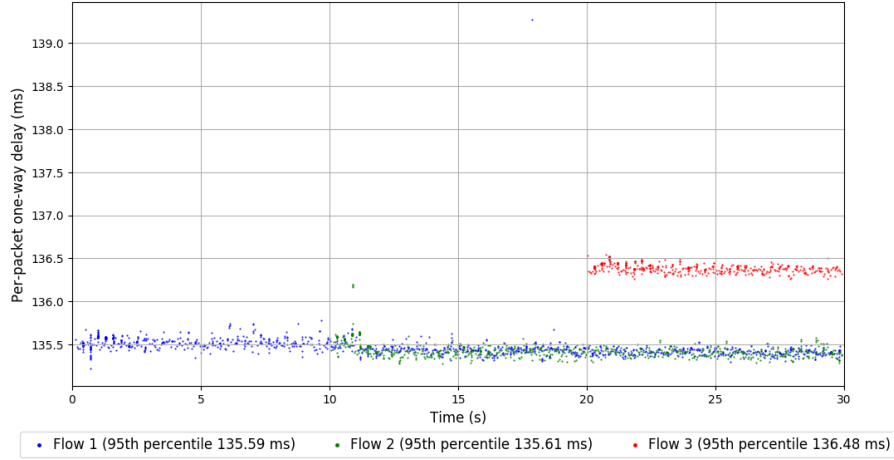
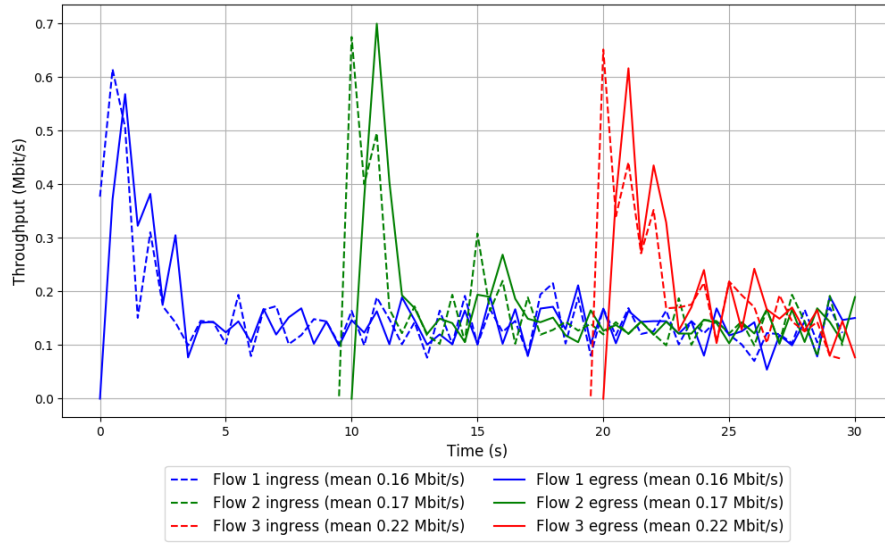
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 136.480 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-09-06 17:34:32

End at: 2018-09-06 17:35:02

Local clock offset: -0.352 ms

Remote clock offset: 0.352 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.34 Mbit/s

95th percentile per-packet one-way delay: 137.231 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 136.577 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 137.157 ms

Loss rate: 0.00%

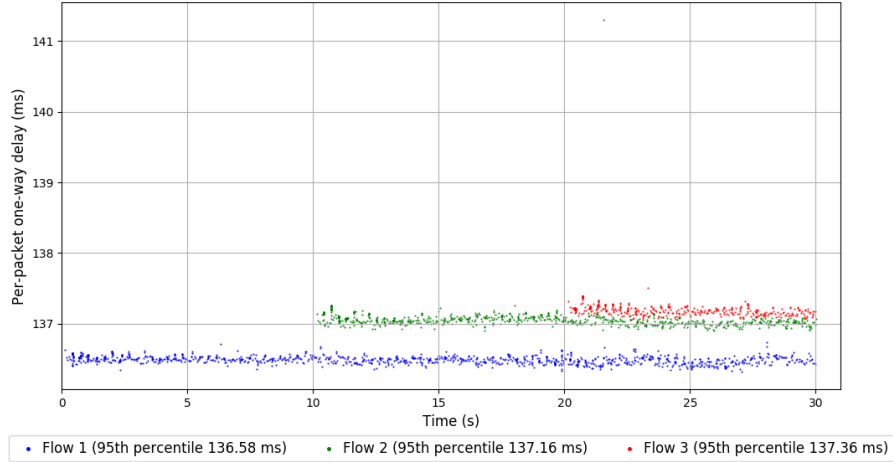
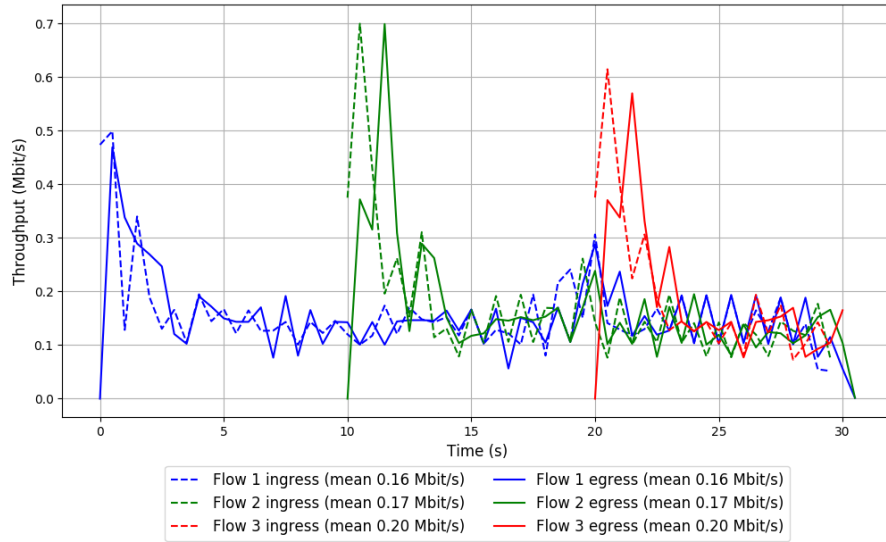
-- Flow 3:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 137.364 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-09-06 18:08:13

End at: 2018-09-06 18:08:43

Local clock offset: -0.173 ms

Remote clock offset: 0.326 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 136.792 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 136.825 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 136.334 ms

Loss rate: 0.00%

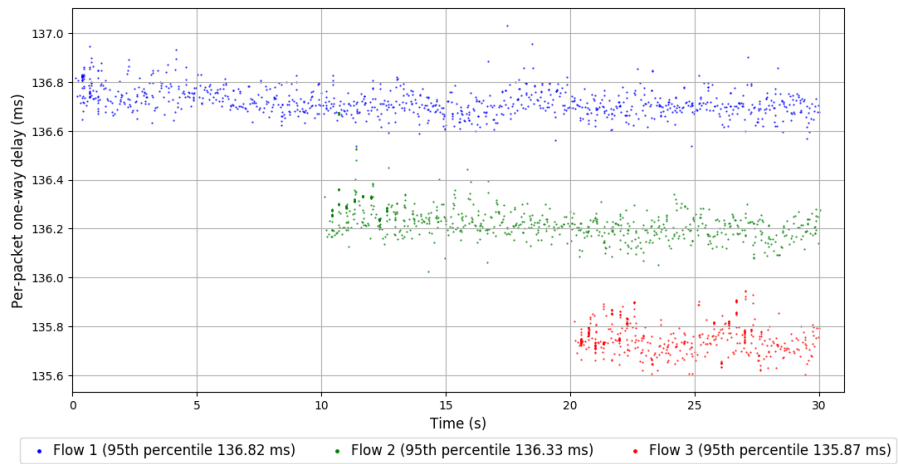
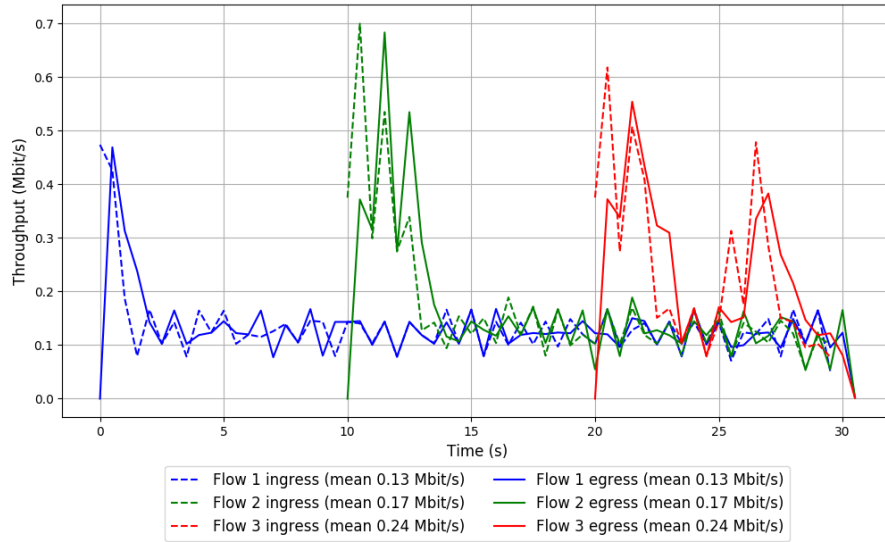
-- Flow 3:

Average throughput: 0.24 Mbit/s

95th percentile per-packet one-way delay: 135.872 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-06 18:41:32

End at: 2018-09-06 18:42:02

Local clock offset: -0.113 ms

Remote clock offset: 0.128 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.39 Mbit/s

95th percentile per-packet one-way delay: 136.746 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 136.756 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 136.564 ms

Loss rate: 0.00%

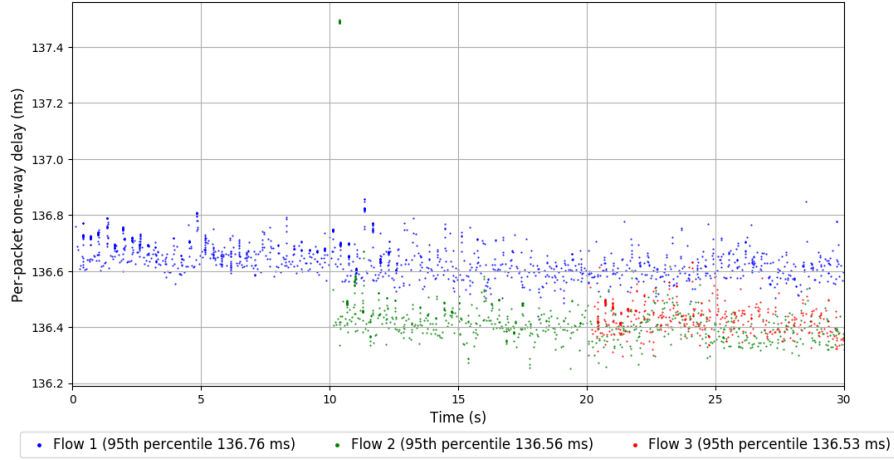
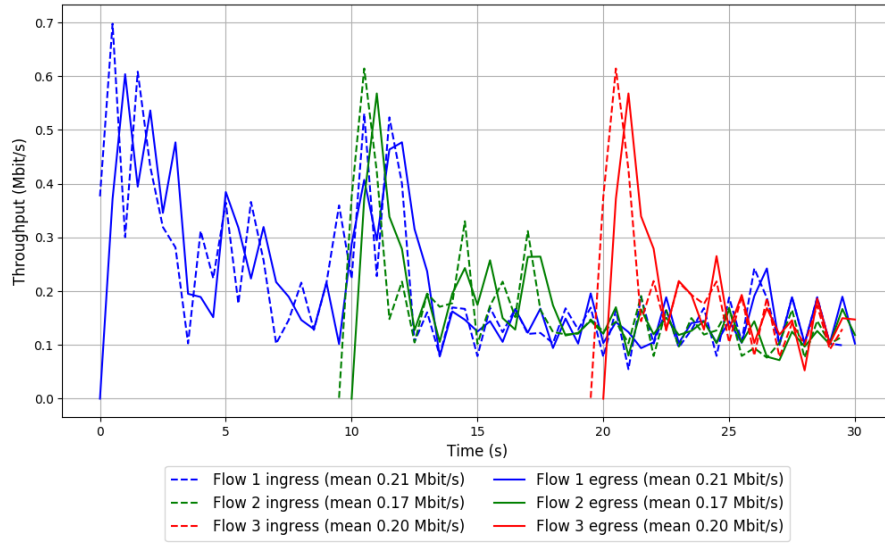
-- Flow 3:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 136.528 ms

Loss rate: 0.00%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-06 19:15:26

End at: 2018-09-06 19:15:56

Local clock offset: -0.276 ms

Remote clock offset: 0.416 ms

Below is generated by plot.py at 2018-09-06 21:17:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.35 Mbit/s

95th percentile per-packet one-way delay: 136.985 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 136.419 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 136.975 ms

Loss rate: 0.00%

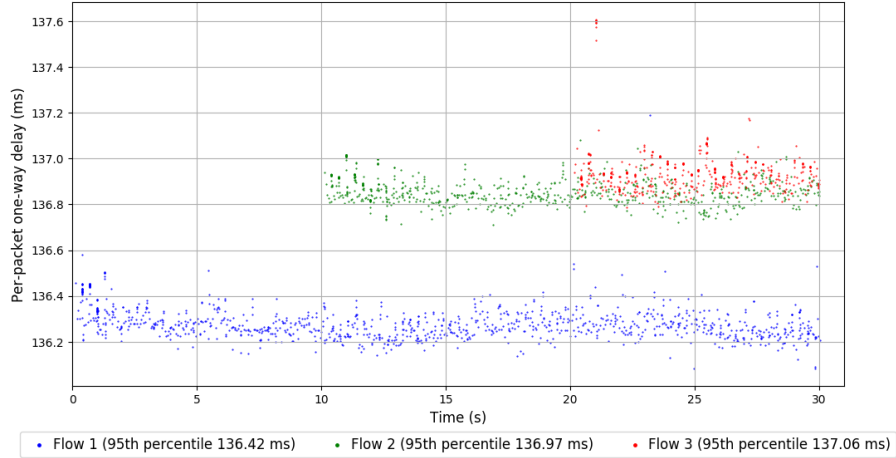
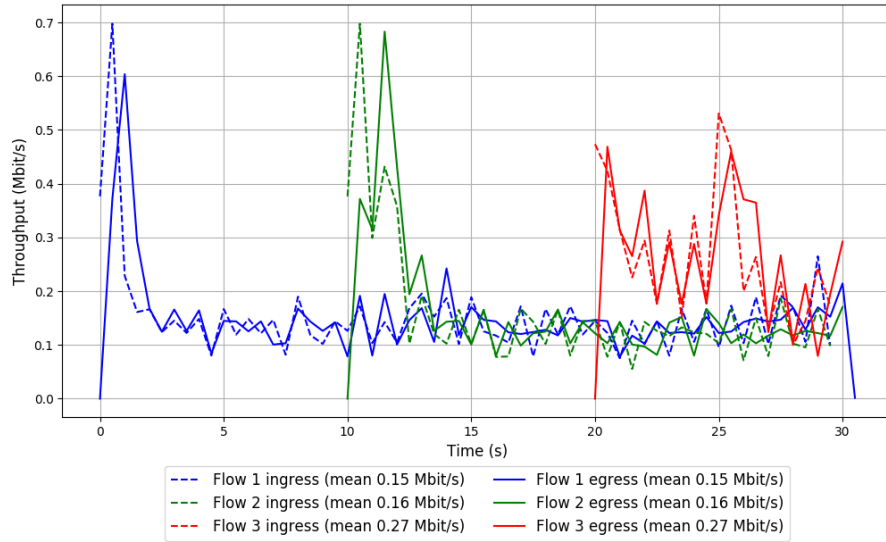
-- Flow 3:

Average throughput: 0.27 Mbit/s

95th percentile per-packet one-way delay: 137.055 ms

Loss rate: 0.00%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-06 16:56:48

End at: 2018-09-06 16:57:18

Local clock offset: -0.052 ms

Remote clock offset: 0.439 ms

Below is generated by plot.py at 2018-09-06 21:18:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 322.40 Mbit/s

95th percentile per-packet one-way delay: 137.095 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 186.87 Mbit/s

95th percentile per-packet one-way delay: 137.036 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 197.02 Mbit/s

95th percentile per-packet one-way delay: 137.217 ms

Loss rate: 0.01%

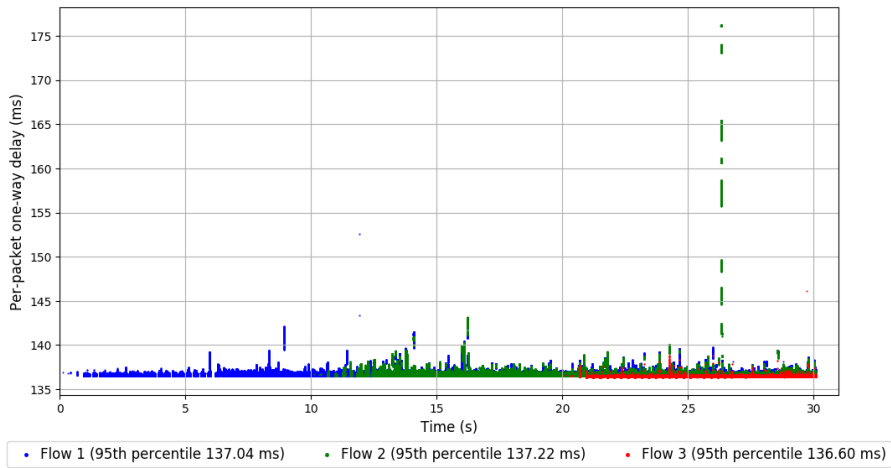
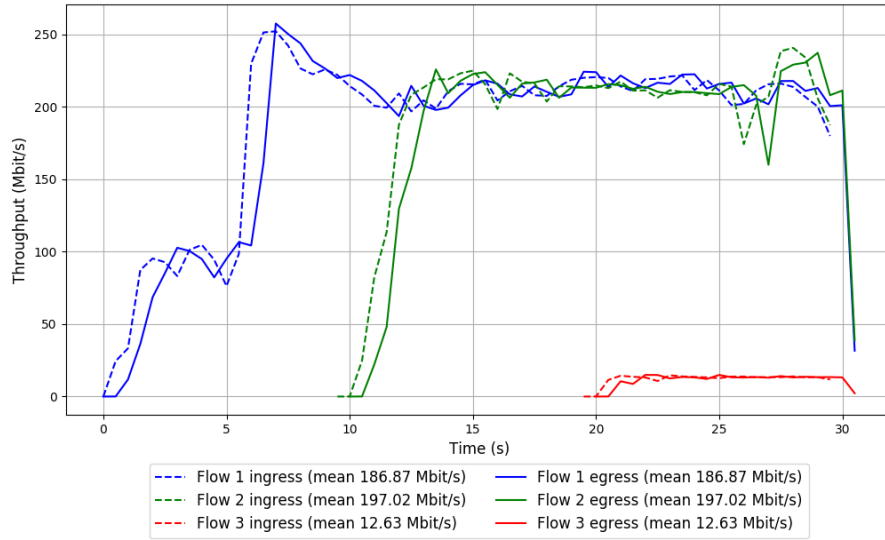
-- Flow 3:

Average throughput: 12.63 Mbit/s

95th percentile per-packet one-way delay: 136.603 ms

Loss rate: 0.01%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-06 17:30:45

End at: 2018-09-06 17:31:15

Local clock offset: -0.144 ms

Remote clock offset: 0.305 ms

Below is generated by plot.py at 2018-09-06 21:19:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 347.42 Mbit/s

95th percentile per-packet one-way delay: 136.425 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 206.48 Mbit/s

95th percentile per-packet one-way delay: 136.330 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 205.15 Mbit/s

95th percentile per-packet one-way delay: 136.415 ms

Loss rate: 0.00%

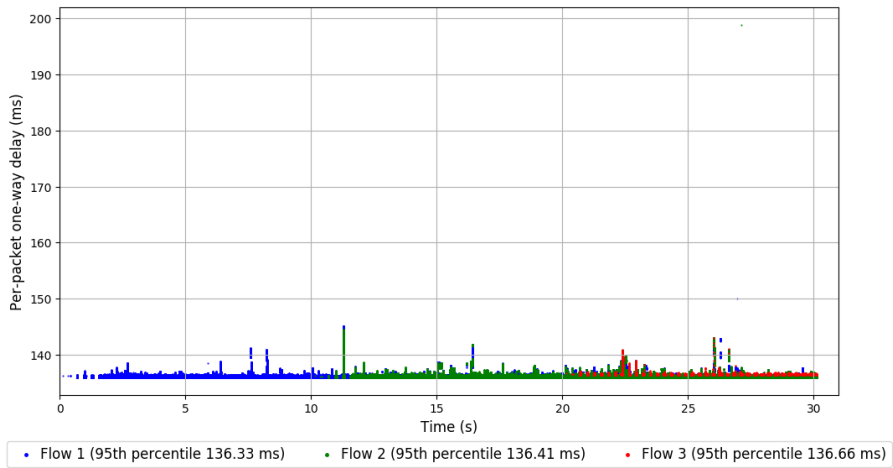
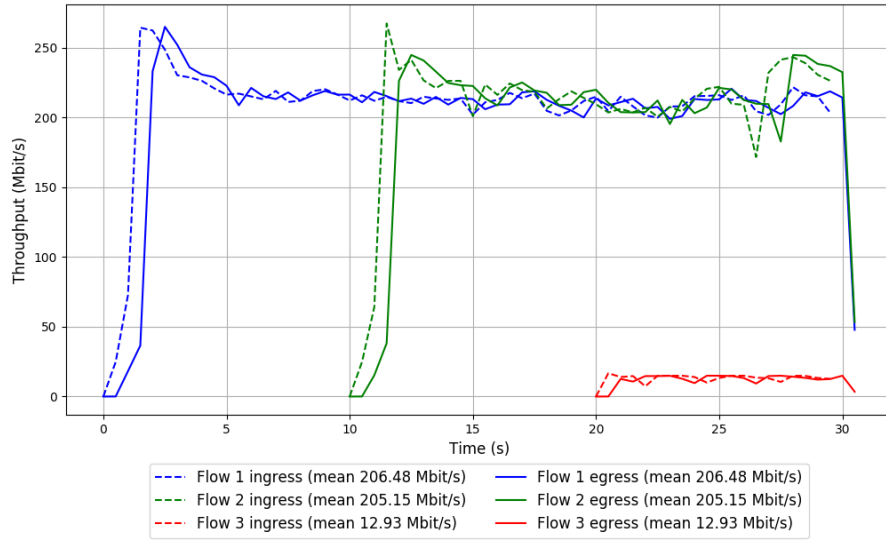
-- Flow 3:

Average throughput: 12.93 Mbit/s

95th percentile per-packet one-way delay: 136.657 ms

Loss rate: 0.00%

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

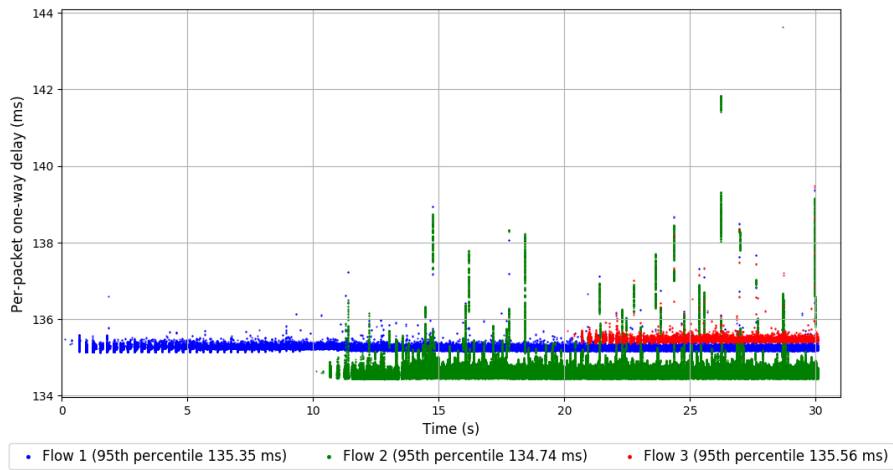
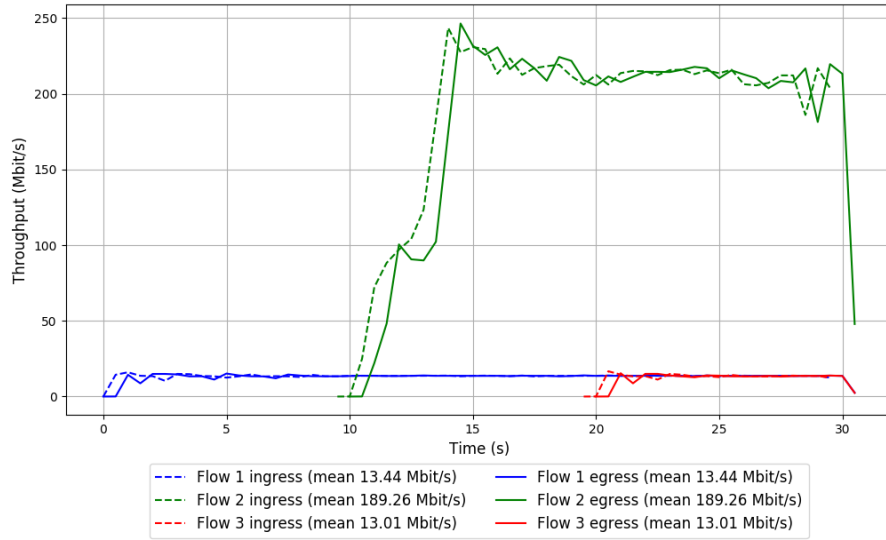


Run 3: Statistics of TaoVA-100x

Start at: 2018-09-06 18:04:52
End at: 2018-09-06 18:05:22
Local clock offset: -0.169 ms
Remote clock offset: -0.367 ms

```
# Below is generated by plot.py at 2018-09-06 21:19:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 143.91 Mbit/s
95th percentile per-packet one-way delay: 135.306 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.44 Mbit/s
95th percentile per-packet one-way delay: 135.347 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 189.26 Mbit/s
95th percentile per-packet one-way delay: 134.740 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 13.01 Mbit/s
95th percentile per-packet one-way delay: 135.558 ms
Loss rate: 0.00%
```

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-06 18:37:59

End at: 2018-09-06 18:38:29

Local clock offset: -0.071 ms

Remote clock offset: 0.089 ms

Below is generated by plot.py at 2018-09-06 21:21:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 376.15 Mbit/s

95th percentile per-packet one-way delay: 136.422 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 188.30 Mbit/s

95th percentile per-packet one-way delay: 136.180 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 195.65 Mbit/s

95th percentile per-packet one-way delay: 136.076 ms

Loss rate: 0.00%

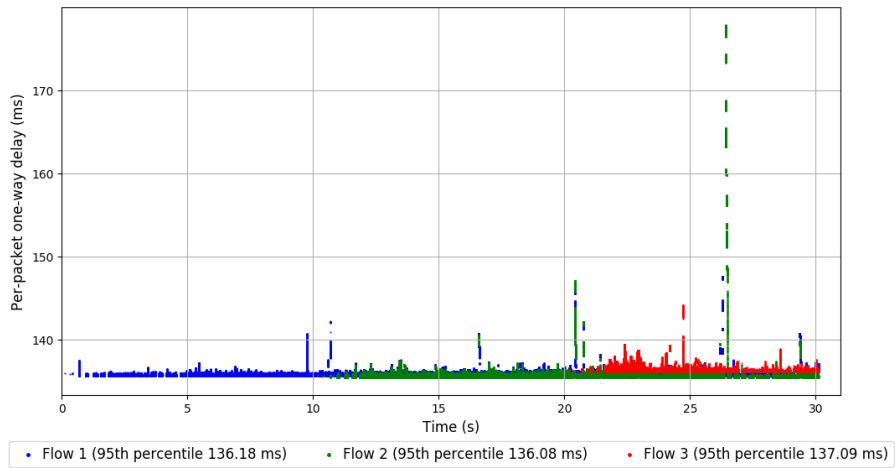
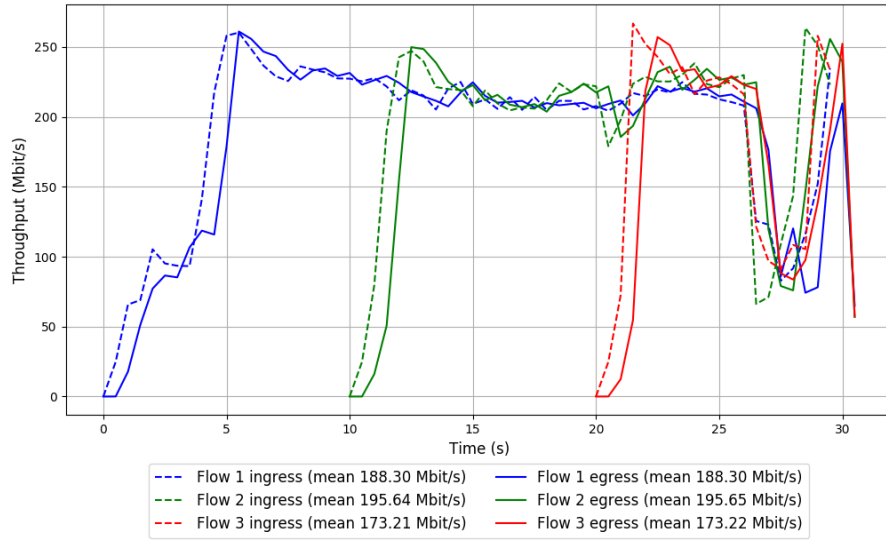
-- Flow 3:

Average throughput: 173.22 Mbit/s

95th percentile per-packet one-way delay: 137.091 ms

Loss rate: 0.00%

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

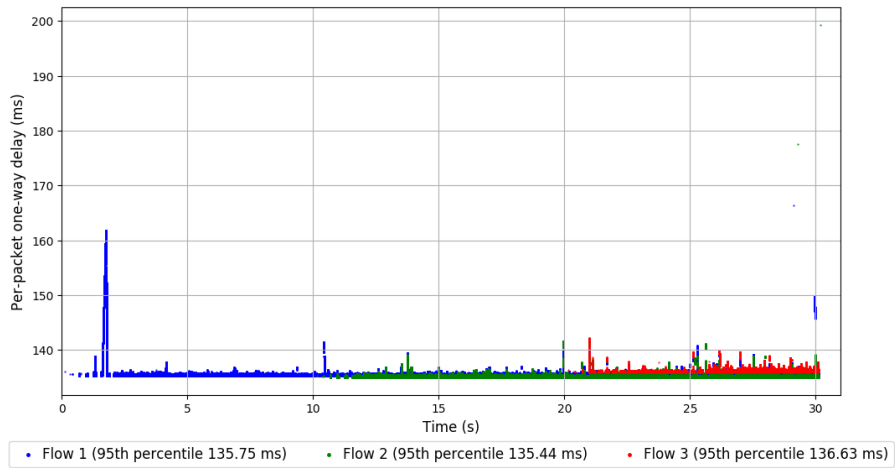
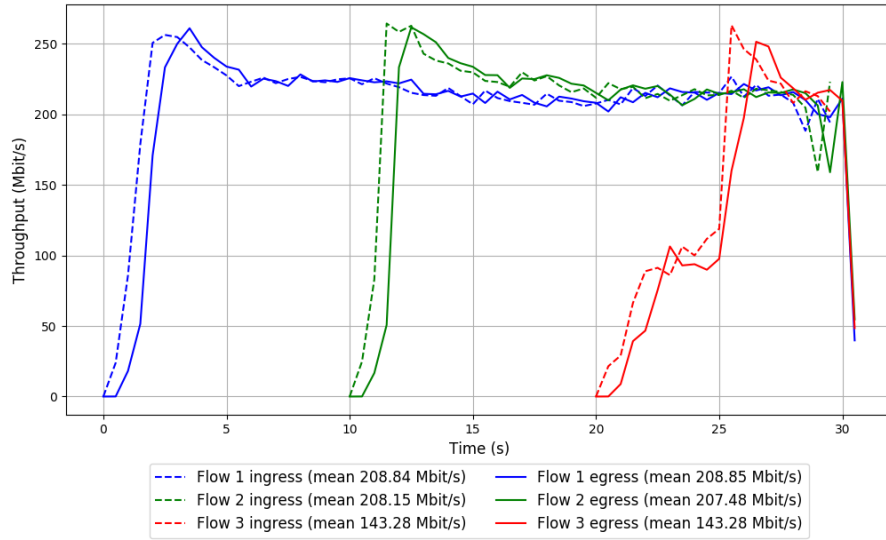


Run 5: Statistics of TaoVA-100x

Start at: 2018-09-06 19:11:47
End at: 2018-09-06 19:12:17
Local clock offset: -0.147 ms
Remote clock offset: -0.281 ms

```
# Below is generated by plot.py at 2018-09-06 21:22:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 394.23 Mbit/s
95th percentile per-packet one-way delay: 136.178 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 208.85 Mbit/s
95th percentile per-packet one-way delay: 135.753 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 207.48 Mbit/s
95th percentile per-packet one-way delay: 135.441 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 143.28 Mbit/s
95th percentile per-packet one-way delay: 136.627 ms
Loss rate: 0.00%
```

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 16:51:21
End at: 2018-09-06 16:51:51
Local clock offset: -0.009 ms
Remote clock offset: -0.273 ms

Below is generated by plot.py at 2018-09-06 21:22:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 626.72 Mbit/s
95th percentile per-packet one-way delay: 149.160 ms
Loss rate: 0.01%

-- Flow 1:

Average throughput: 287.42 Mbit/s
95th percentile per-packet one-way delay: 151.133 ms
Loss rate: 0.00%

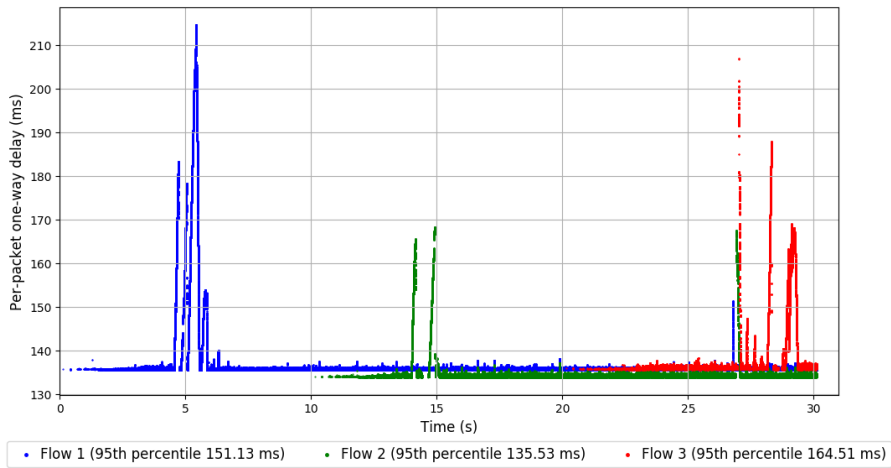
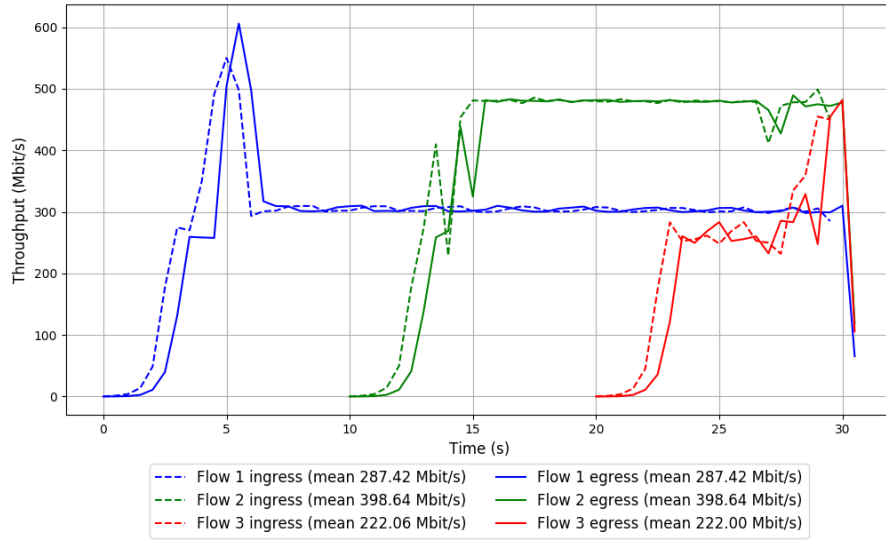
-- Flow 2:

Average throughput: 398.64 Mbit/s
95th percentile per-packet one-way delay: 135.532 ms
Loss rate: 0.00%

-- Flow 3:

Average throughput: 222.00 Mbit/s
95th percentile per-packet one-way delay: 164.508 ms
Loss rate: 0.03%

Run 1: Report of TCP Vegas — Data Link

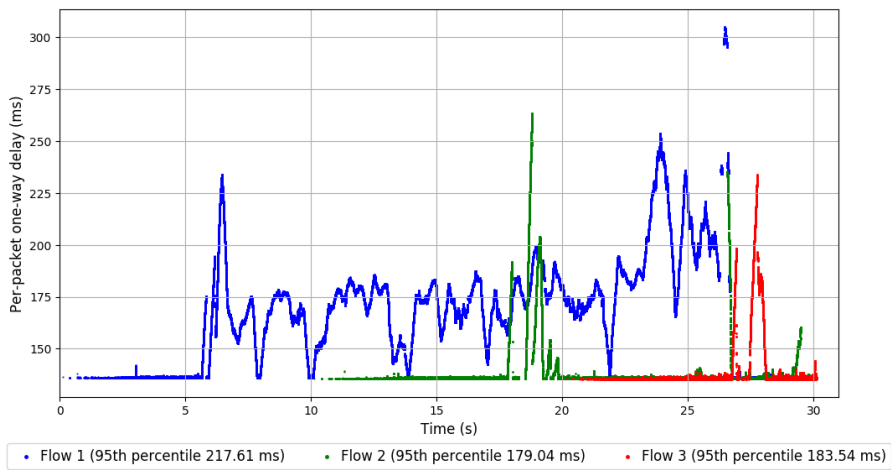
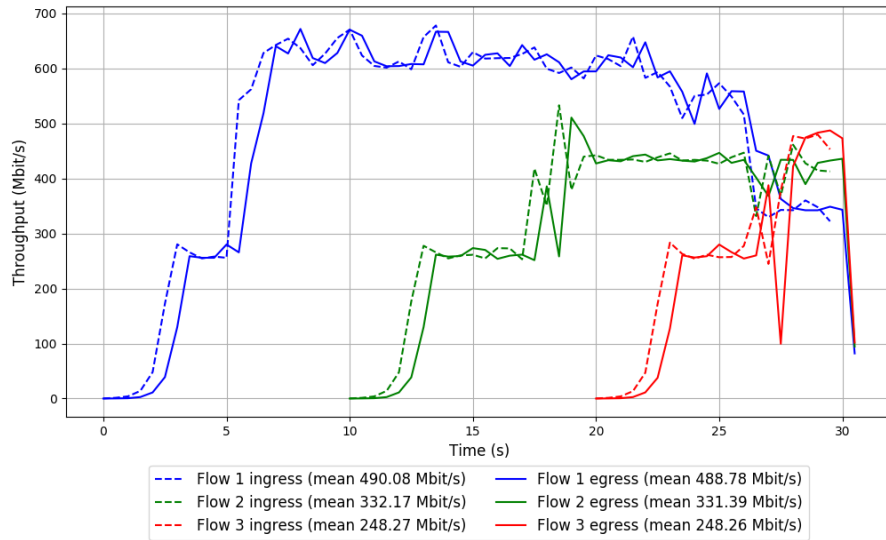


Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 17:25:12
End at: 2018-09-06 17:25:42
Local clock offset: -0.013 ms
Remote clock offset: -0.067 ms

```
# Below is generated by plot.py at 2018-09-06 21:28:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 792.01 Mbit/s
95th percentile per-packet one-way delay: 208.629 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 488.78 Mbit/s
95th percentile per-packet one-way delay: 217.607 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 331.39 Mbit/s
95th percentile per-packet one-way delay: 179.043 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 248.26 Mbit/s
95th percentile per-packet one-way delay: 183.543 ms
Loss rate: 0.00%
```

Run 2: Report of TCP Vegas — Data Link

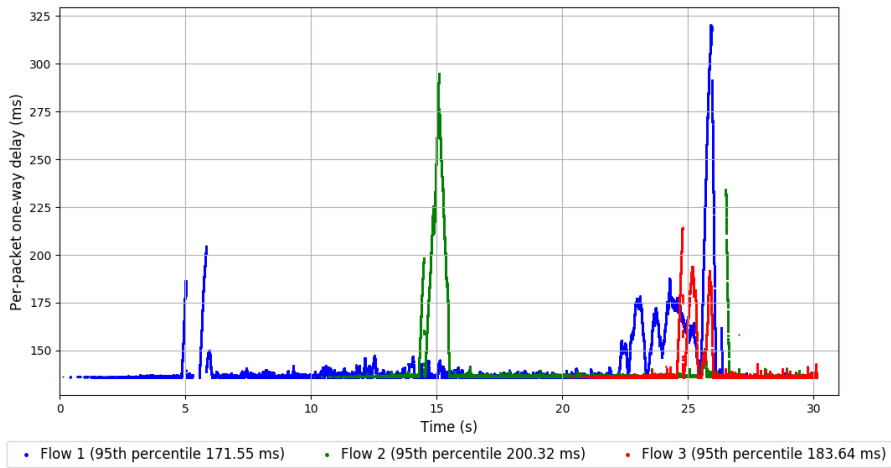
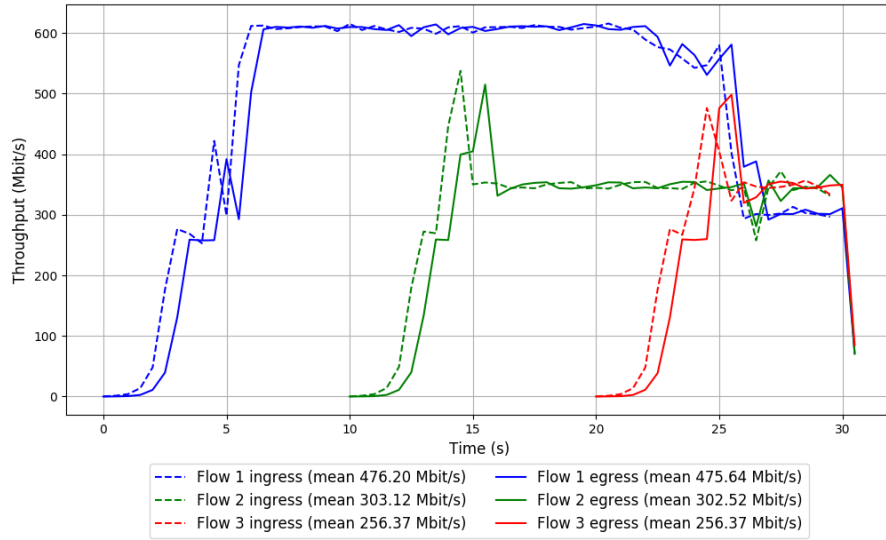


Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 17:59:17
End at: 2018-09-06 17:59:47
Local clock offset: -0.161 ms
Remote clock offset: -0.054 ms

```
# Below is generated by plot.py at 2018-09-06 21:30:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 762.49 Mbit/s
95th percentile per-packet one-way delay: 175.608 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 475.64 Mbit/s
95th percentile per-packet one-way delay: 171.546 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 302.52 Mbit/s
95th percentile per-packet one-way delay: 200.320 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 256.37 Mbit/s
95th percentile per-packet one-way delay: 183.640 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Vegas — Data Link

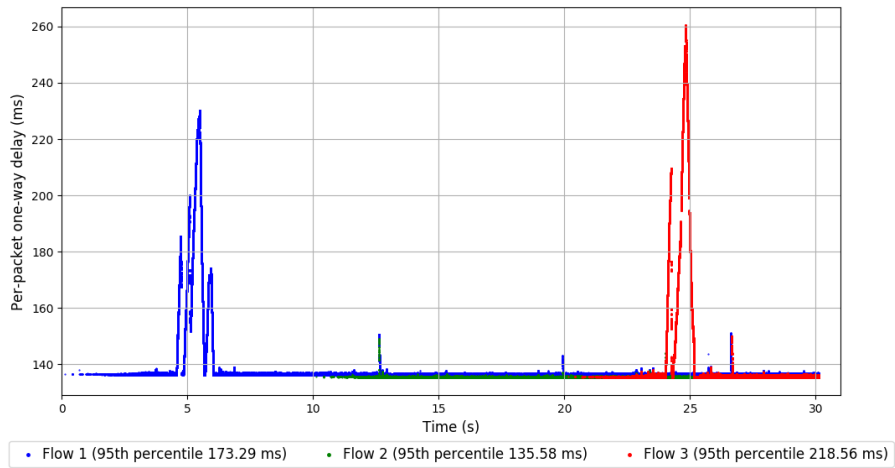
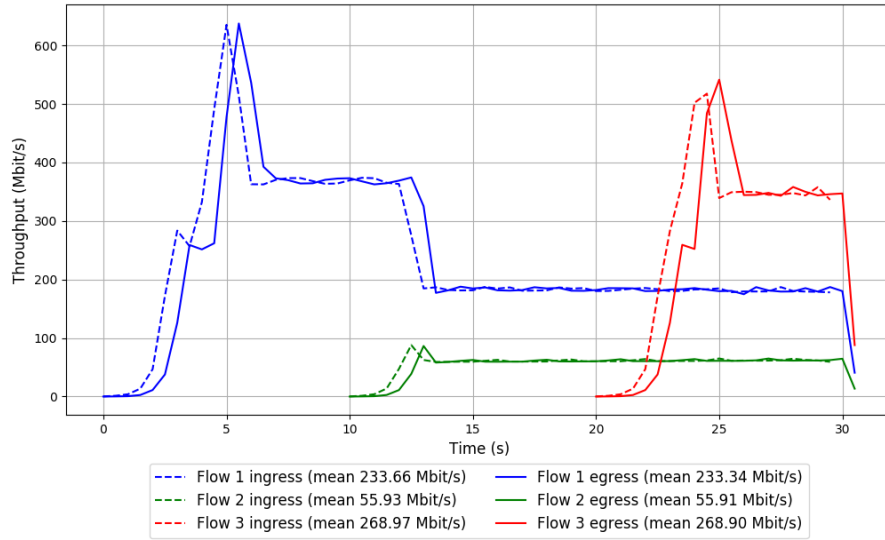


Run 4: Statistics of TCP Vegas

Start at: 2018-09-06 18:32:54
End at: 2018-09-06 18:33:24
Local clock offset: -0.249 ms
Remote clock offset: -0.278 ms

```
# Below is generated by plot.py at 2018-09-06 21:30:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 360.07 Mbit/s
95th percentile per-packet one-way delay: 182.961 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 233.34 Mbit/s
95th percentile per-packet one-way delay: 173.289 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 55.91 Mbit/s
95th percentile per-packet one-way delay: 135.577 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 268.90 Mbit/s
95th percentile per-packet one-way delay: 218.557 ms
Loss rate: 0.03%
```

Run 4: Report of TCP Vegas — Data Link

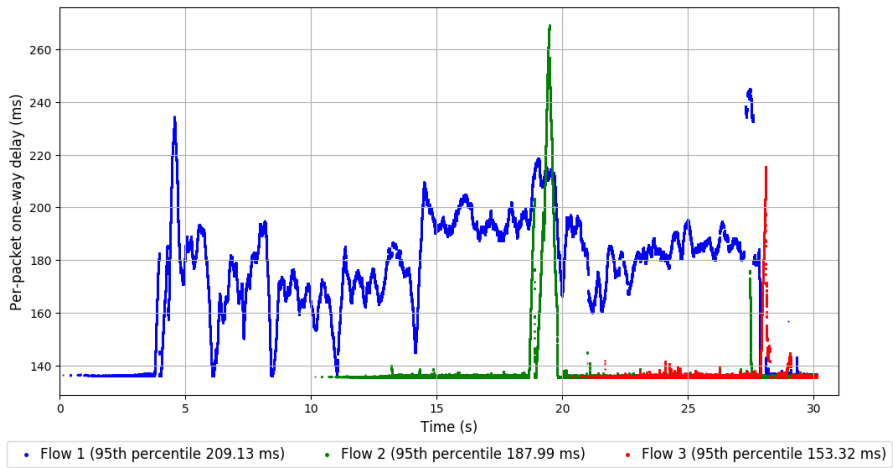
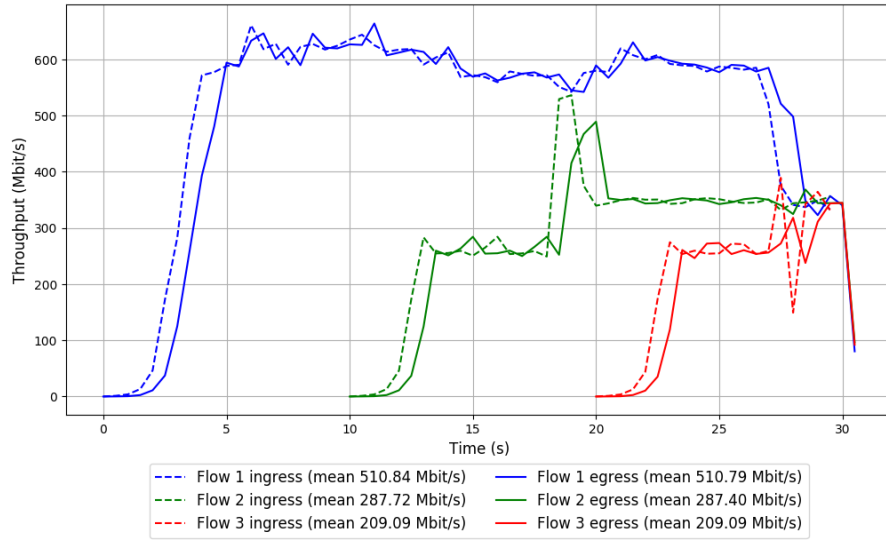


Run 5: Statistics of TCP Vegas

Start at: 2018-09-06 19:06:15
End at: 2018-09-06 19:06:45
Local clock offset: -0.361 ms
Remote clock offset: -0.301 ms

```
# Below is generated by plot.py at 2018-09-06 21:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 771.73 Mbit/s
95th percentile per-packet one-way delay: 203.609 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 510.79 Mbit/s
95th percentile per-packet one-way delay: 209.132 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 287.40 Mbit/s
95th percentile per-packet one-way delay: 187.987 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 209.09 Mbit/s
95th percentile per-packet one-way delay: 153.316 ms
Loss rate: 0.00%
```


Run 5: Report of TCP Vegas — Data Link

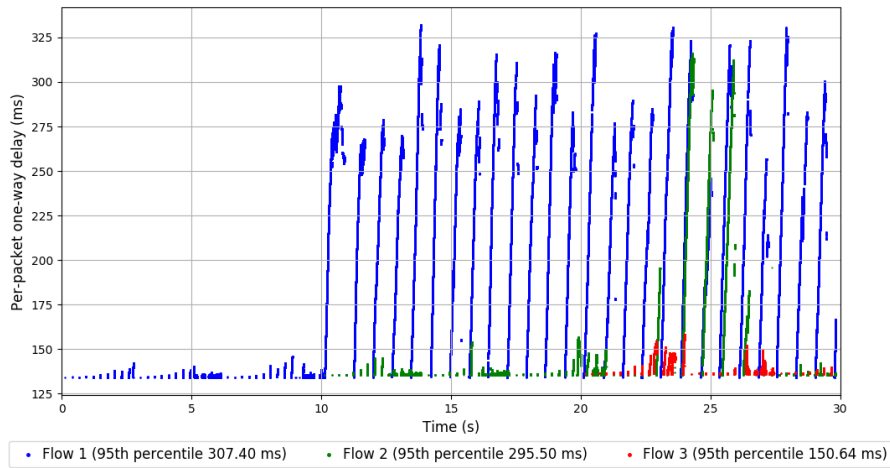
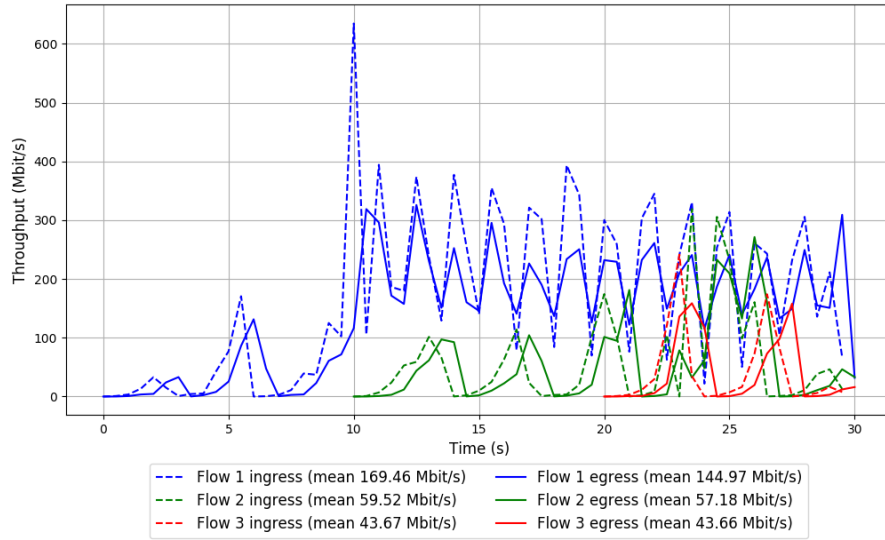


Run 1: Statistics of Verus

Start at: 2018-09-06 16:58:42
End at: 2018-09-06 16:59:12
Local clock offset: 0.024 ms
Remote clock offset: -0.259 ms

```
# Below is generated by plot.py at 2018-09-06 21:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 196.81 Mbit/s
95th percentile per-packet one-way delay: 303.997 ms
Loss rate: 11.68%
-- Flow 1:
Average throughput: 144.97 Mbit/s
95th percentile per-packet one-way delay: 307.398 ms
Loss rate: 14.45%
-- Flow 2:
Average throughput: 57.18 Mbit/s
95th percentile per-packet one-way delay: 295.498 ms
Loss rate: 3.93%
-- Flow 3:
Average throughput: 43.66 Mbit/s
95th percentile per-packet one-way delay: 150.643 ms
Loss rate: 0.00%
```

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-09-06 17:32:41

End at: 2018-09-06 17:33:11

Local clock offset: -0.115 ms

Remote clock offset: -0.35 ms

Below is generated by plot.py at 2018-09-06 21:32:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 274.94 Mbit/s

95th percentile per-packet one-way delay: 301.829 ms

Loss rate: 8.45%

-- Flow 1:

Average throughput: 198.38 Mbit/s

95th percentile per-packet one-way delay: 292.269 ms

Loss rate: 9.19%

-- Flow 2:

Average throughput: 106.46 Mbit/s

95th percentile per-packet one-way delay: 323.772 ms

Loss rate: 7.08%

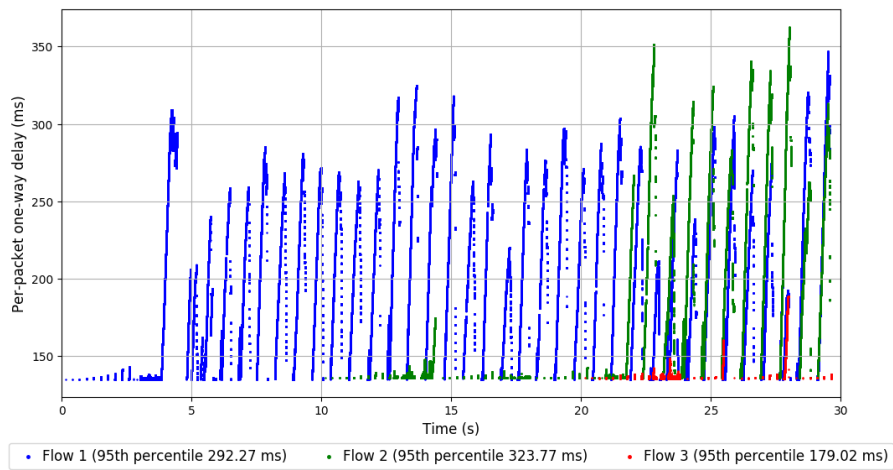
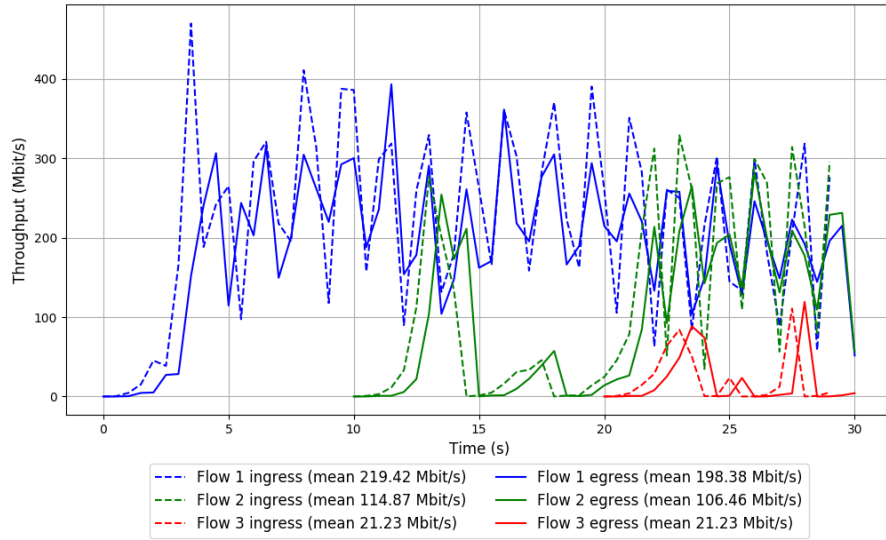
-- Flow 3:

Average throughput: 21.23 Mbit/s

95th percentile per-packet one-way delay: 179.023 ms

Loss rate: 0.00%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-06 18:06:26

End at: 2018-09-06 18:06:56

Local clock offset: -0.309 ms

Remote clock offset: 0.318 ms

Below is generated by plot.py at 2018-09-06 21:32:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 248.76 Mbit/s

95th percentile per-packet one-way delay: 290.820 ms

Loss rate: 2.72%

-- Flow 1:

Average throughput: 141.34 Mbit/s

95th percentile per-packet one-way delay: 245.340 ms

Loss rate: 0.12%

-- Flow 2:

Average throughput: 146.64 Mbit/s

95th percentile per-packet one-way delay: 303.684 ms

Loss rate: 6.52%

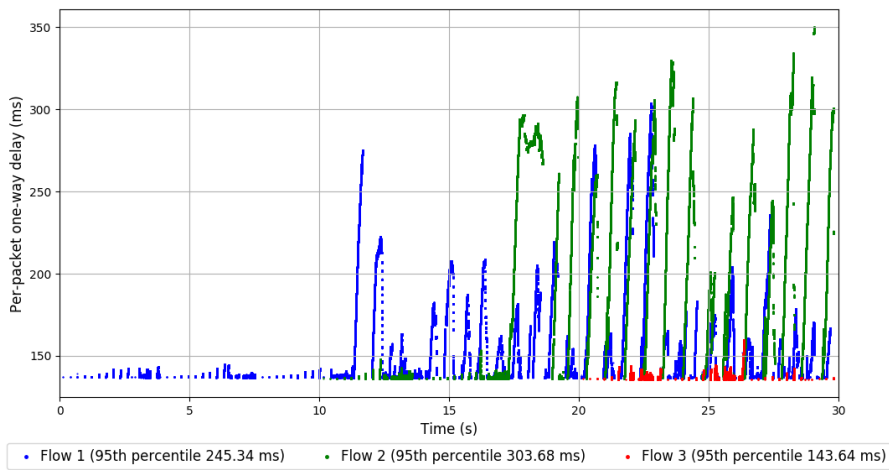
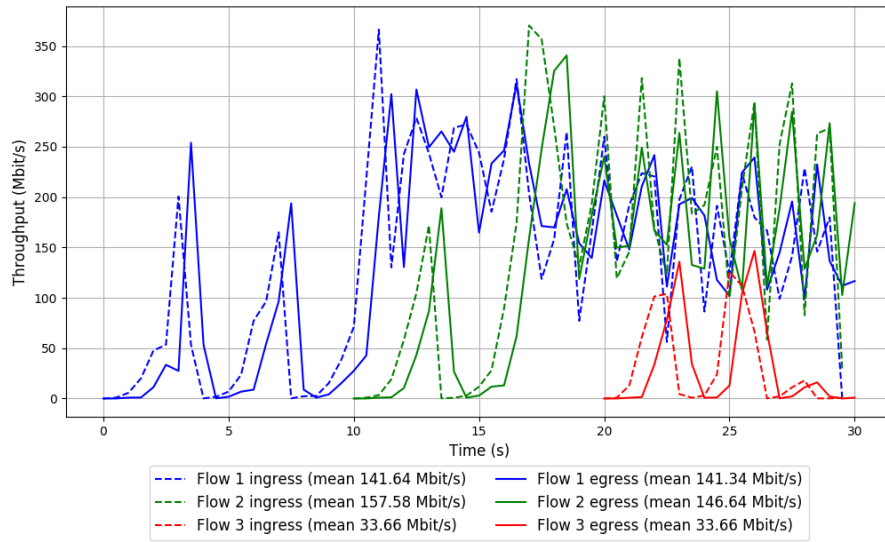
-- Flow 3:

Average throughput: 33.66 Mbit/s

95th percentile per-packet one-way delay: 143.641 ms

Loss rate: 0.00%

Run 3: Report of Verus — Data Link

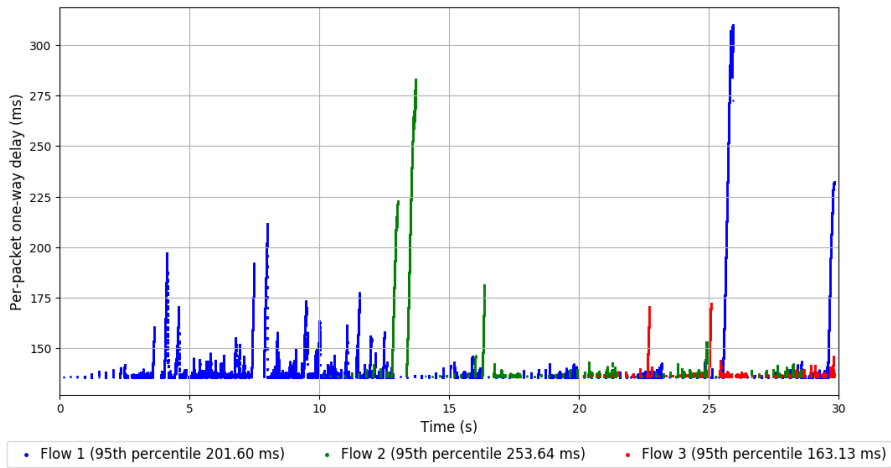
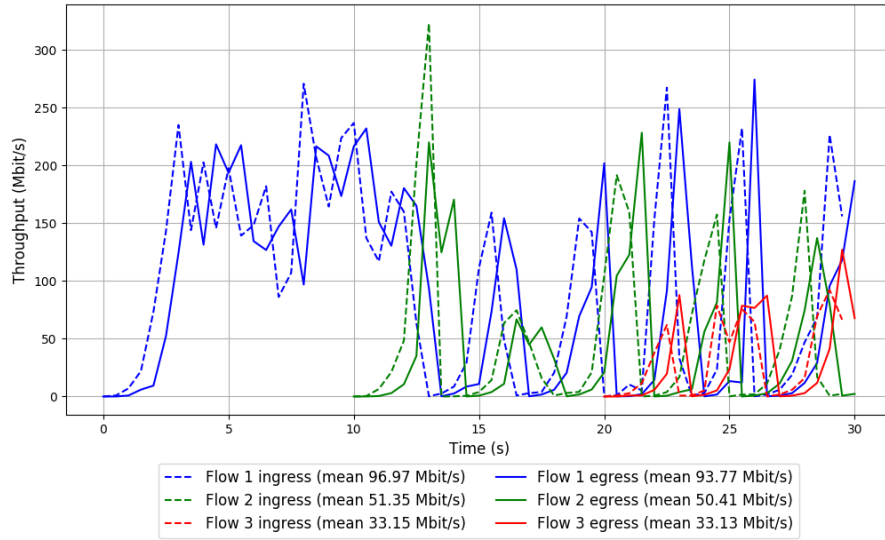


Run 4: Statistics of Verus

Start at: 2018-09-06 18:39:58
End at: 2018-09-06 18:40:28
Local clock offset: -0.315 ms
Remote clock offset: -0.266 ms

```
# Below is generated by plot.py at 2018-09-06 21:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 137.88 Mbit/s
95th percentile per-packet one-way delay: 214.057 ms
Loss rate: 2.71%
-- Flow 1:
Average throughput: 93.77 Mbit/s
95th percentile per-packet one-way delay: 201.605 ms
Loss rate: 3.31%
-- Flow 2:
Average throughput: 50.41 Mbit/s
95th percentile per-packet one-way delay: 253.640 ms
Loss rate: 1.83%
-- Flow 3:
Average throughput: 33.13 Mbit/s
95th percentile per-packet one-way delay: 163.129 ms
Loss rate: 0.07%
```


Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-06 19:13:48

End at: 2018-09-06 19:14:18

Local clock offset: -0.222 ms

Remote clock offset: 0.085 ms

Below is generated by plot.py at 2018-09-06 21:32:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 172.46 Mbit/s

95th percentile per-packet one-way delay: 195.817 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 142.25 Mbit/s

95th percentile per-packet one-way delay: 209.306 ms

Loss rate: 0.54%

-- Flow 2:

Average throughput: 35.22 Mbit/s

95th percentile per-packet one-way delay: 139.733 ms

Loss rate: 0.00%

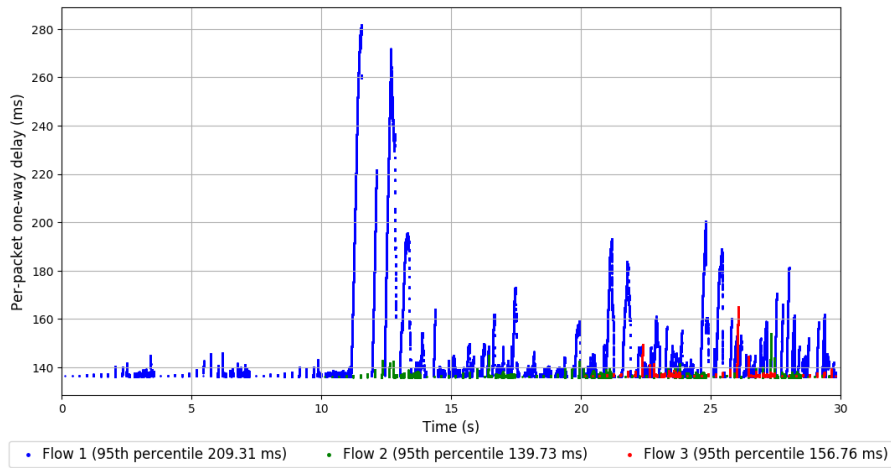
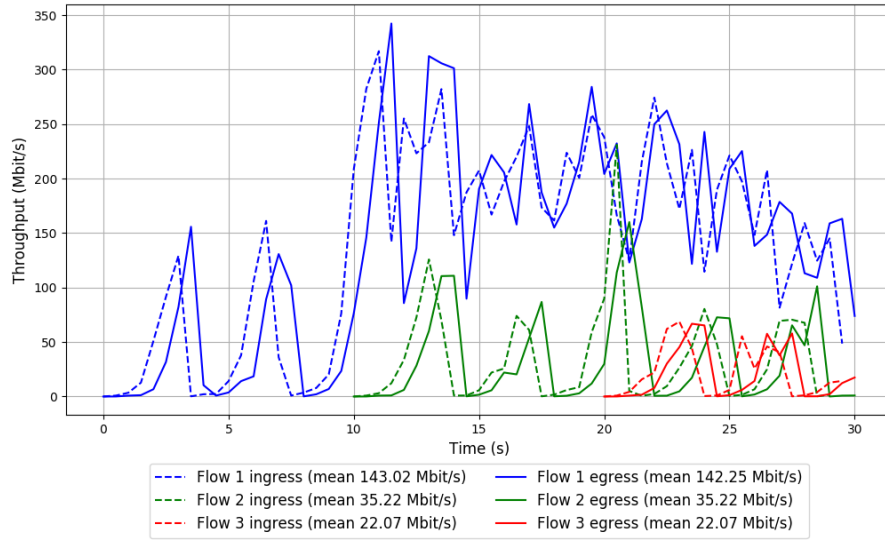
-- Flow 3:

Average throughput: 22.07 Mbit/s

95th percentile per-packet one-way delay: 156.756 ms

Loss rate: 0.00%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-06 16:33:29

End at: 2018-09-06 16:33:59

Local clock offset: -0.018 ms

Remote clock offset: 0.453 ms

Below is generated by plot.py at 2018-09-06 21:34:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 487.36 Mbit/s

95th percentile per-packet one-way delay: 197.081 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 319.51 Mbit/s

95th percentile per-packet one-way delay: 219.908 ms

Loss rate: 0.34%

-- Flow 2:

Average throughput: 194.08 Mbit/s

95th percentile per-packet one-way delay: 135.296 ms

Loss rate: 0.00%

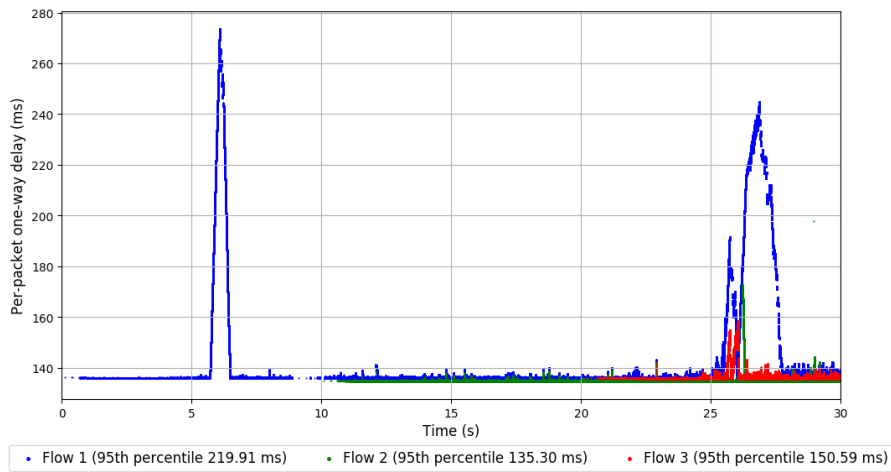
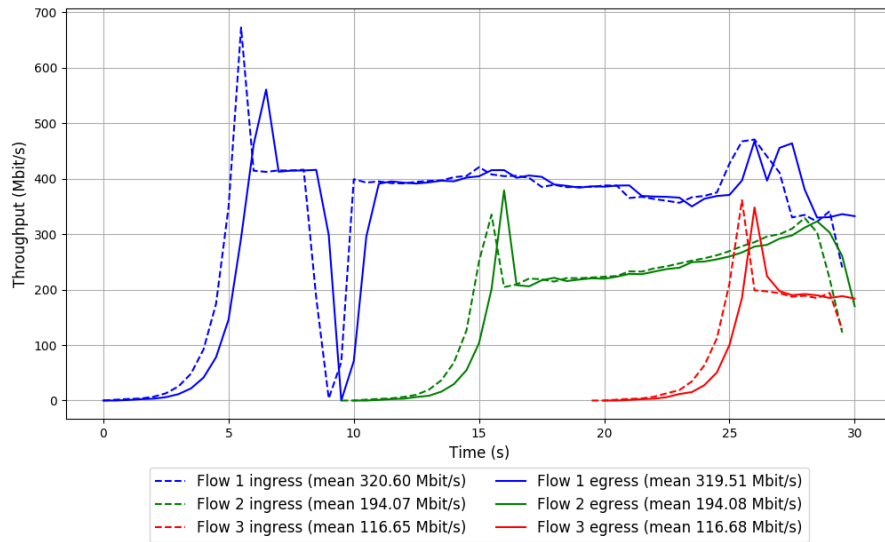
-- Flow 3:

Average throughput: 116.68 Mbit/s

95th percentile per-packet one-way delay: 150.588 ms

Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-06 17:07:19

End at: 2018-09-06 17:07:49

Local clock offset: 0.073 ms

Remote clock offset: 0.027 ms

Below is generated by plot.py at 2018-09-06 21:35:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 522.81 Mbit/s

95th percentile per-packet one-way delay: 142.935 ms

Loss rate: 0.23%

-- Flow 1:

Average throughput: 327.99 Mbit/s

95th percentile per-packet one-way delay: 148.836 ms

Loss rate: 0.37%

-- Flow 2:

Average throughput: 235.86 Mbit/s

95th percentile per-packet one-way delay: 136.260 ms

Loss rate: 0.00%

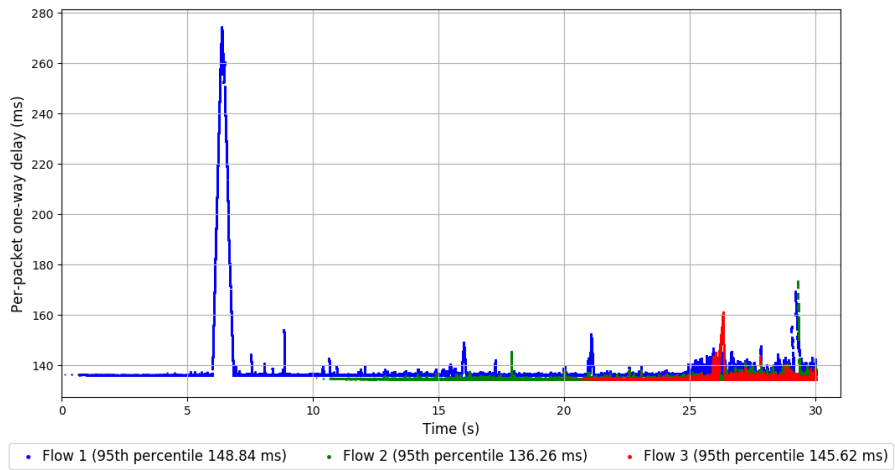
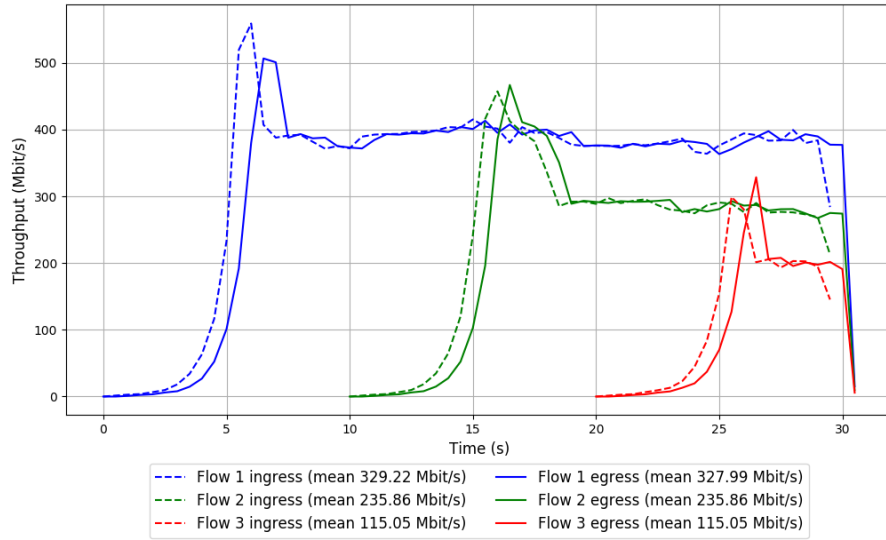
-- Flow 3:

Average throughput: 115.05 Mbit/s

95th percentile per-packet one-way delay: 145.615 ms

Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 17:41:26

End at: 2018-09-06 17:41:56

Local clock offset: -0.041 ms

Remote clock offset: -0.05 ms

Below is generated by plot.py at 2018-09-06 21:35:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 520.40 Mbit/s

95th percentile per-packet one-way delay: 147.054 ms

Loss rate: 0.14%

-- Flow 1:

Average throughput: 310.55 Mbit/s

95th percentile per-packet one-way delay: 150.549 ms

Loss rate: 0.23%

-- Flow 2:

Average throughput: 259.50 Mbit/s

95th percentile per-packet one-way delay: 147.892 ms

Loss rate: 0.00%

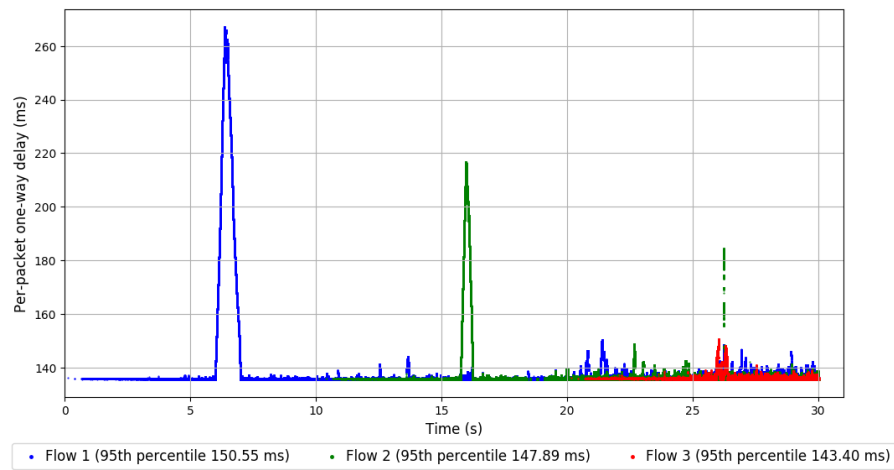
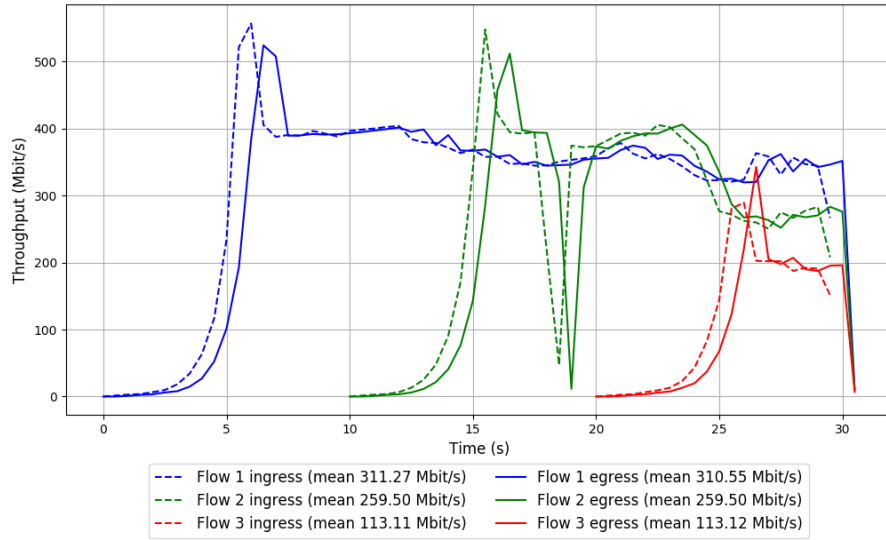
-- Flow 3:

Average throughput: 113.12 Mbit/s

95th percentile per-packet one-way delay: 143.404 ms

Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-06 18:15:06

End at: 2018-09-06 18:15:36

Local clock offset: -0.067 ms

Remote clock offset: -0.3 ms

Below is generated by plot.py at 2018-09-06 21:35:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 509.37 Mbit/s

95th percentile per-packet one-way delay: 231.006 ms

Loss rate: 0.57%

-- Flow 1:

Average throughput: 291.82 Mbit/s

95th percentile per-packet one-way delay: 183.155 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 265.59 Mbit/s

95th percentile per-packet one-way delay: 299.948 ms

Loss rate: 0.30%

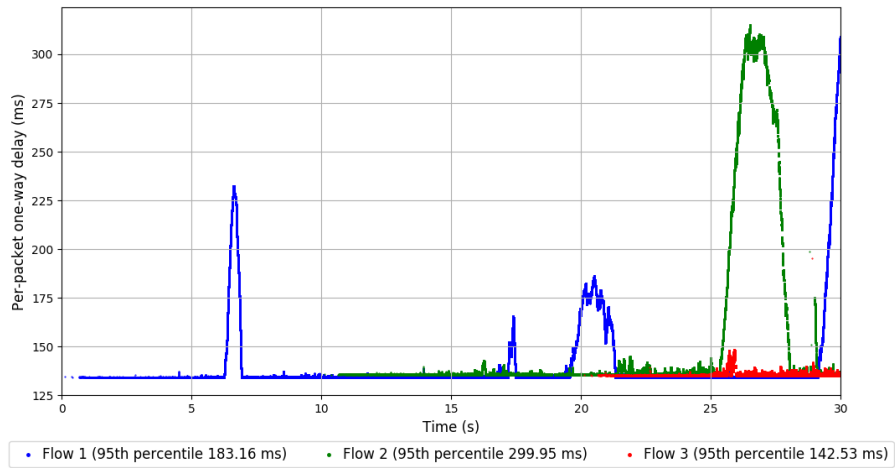
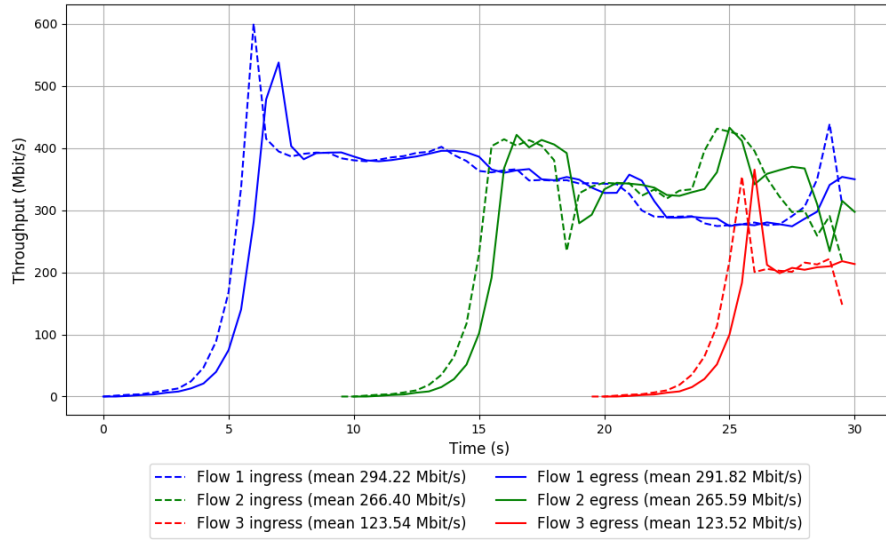
-- Flow 3:

Average throughput: 123.52 Mbit/s

95th percentile per-packet one-way delay: 142.534 ms

Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-06 18:48:32

End at: 2018-09-06 18:49:02

Local clock offset: -0.213 ms

Remote clock offset: 0.067 ms

Below is generated by plot.py at 2018-09-06 21:35:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 489.74 Mbit/s

95th percentile per-packet one-way delay: 161.362 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 306.92 Mbit/s

95th percentile per-packet one-way delay: 164.077 ms

Loss rate: 0.70%

-- Flow 2:

Average throughput: 187.77 Mbit/s

95th percentile per-packet one-way delay: 137.847 ms

Loss rate: 0.00%

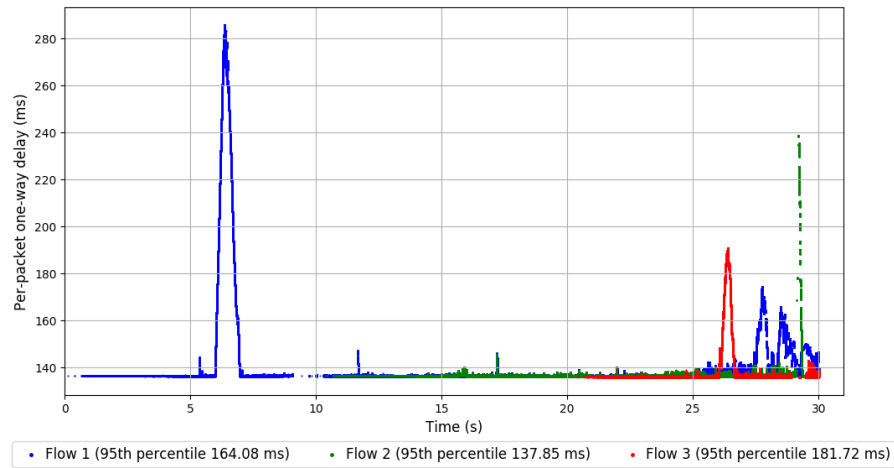
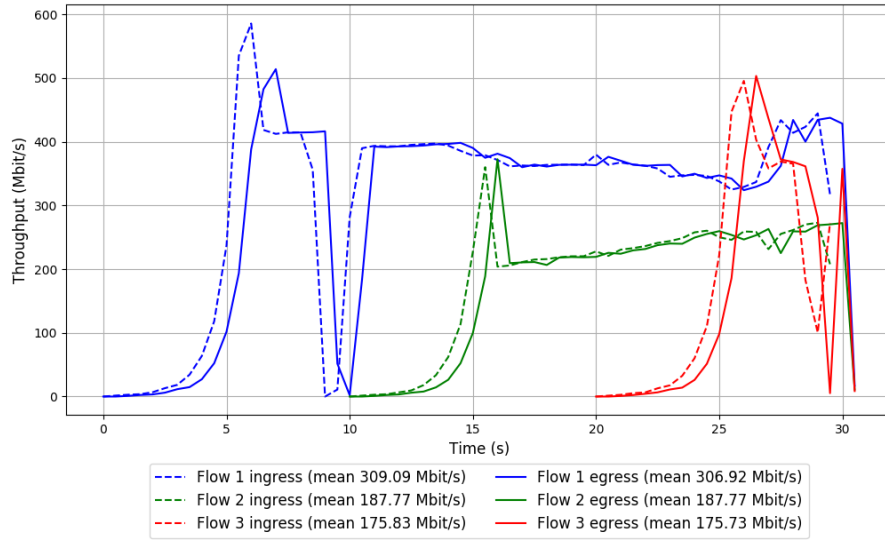
-- Flow 3:

Average throughput: 175.73 Mbit/s

95th percentile per-packet one-way delay: 181.719 ms

Loss rate: 0.05%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-09-06 16:55:30

End at: 2018-09-06 16:56:00

Local clock offset: -0.164 ms

Remote clock offset: 0.128 ms

Below is generated by plot.py at 2018-09-06 21:35:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.30 Mbit/s

95th percentile per-packet one-way delay: 136.834 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 136.851 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 136.703 ms

Loss rate: 0.00%

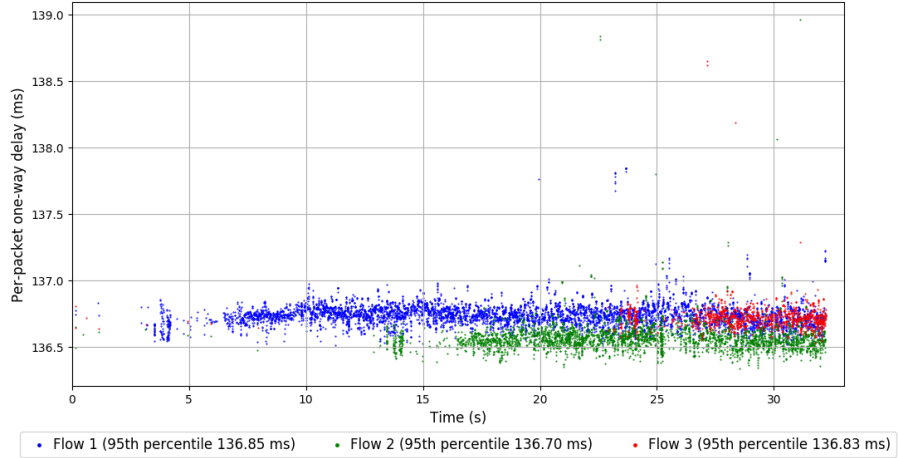
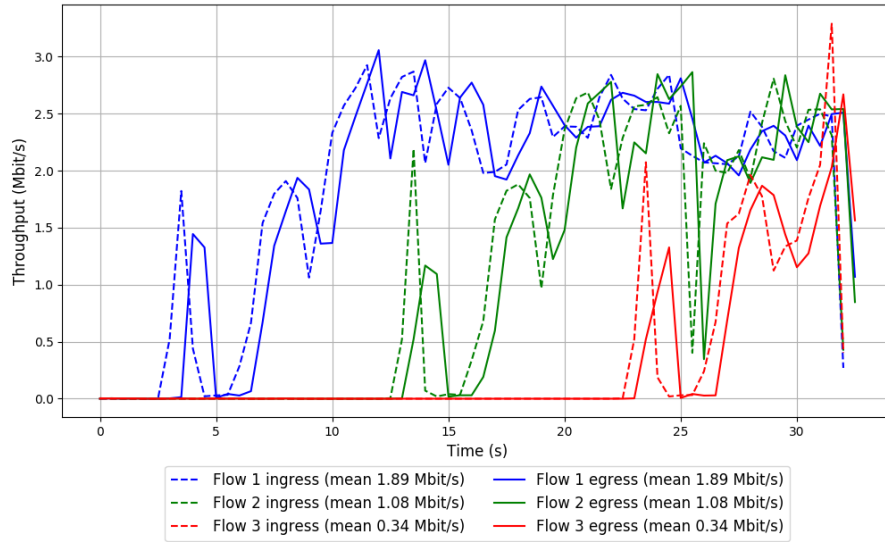
-- Flow 3:

Average throughput: 0.34 Mbit/s

95th percentile per-packet one-way delay: 136.830 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-06 17:29:27

End at: 2018-09-06 17:29:57

Local clock offset: -0.185 ms

Remote clock offset: 0.005 ms

Below is generated by plot.py at 2018-09-06 21:35:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.11 Mbit/s

95th percentile per-packet one-way delay: 136.688 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.78 Mbit/s

95th percentile per-packet one-way delay: 136.524 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 136.109 ms

Loss rate: 0.00%

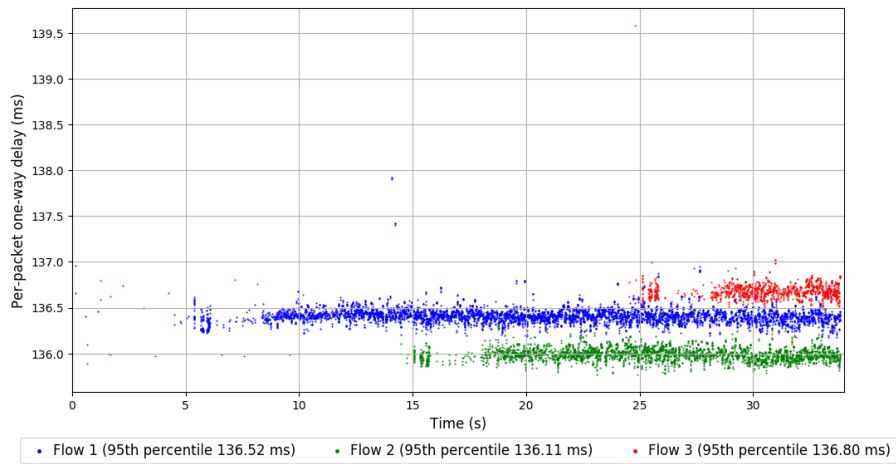
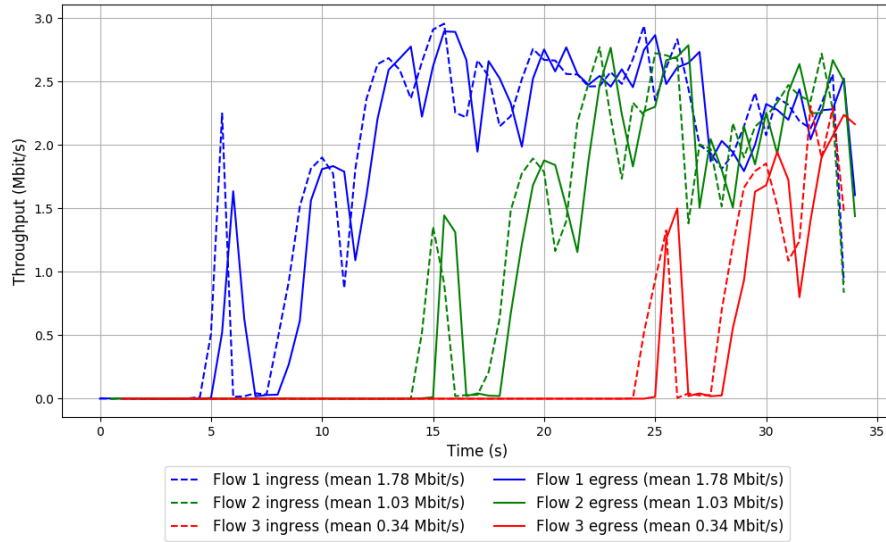
-- Flow 3:

Average throughput: 0.34 Mbit/s

95th percentile per-packet one-way delay: 136.802 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-06 18:03:33

End at: 2018-09-06 18:04:03

Local clock offset: -0.002 ms

Remote clock offset: -0.07 ms

Below is generated by plot.py at 2018-09-06 21:35:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.14 Mbit/s

95th percentile per-packet one-way delay: 135.845 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.81 Mbit/s

95th percentile per-packet one-way delay: 135.850 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.02 Mbit/s

95th percentile per-packet one-way delay: 135.278 ms

Loss rate: 0.00%

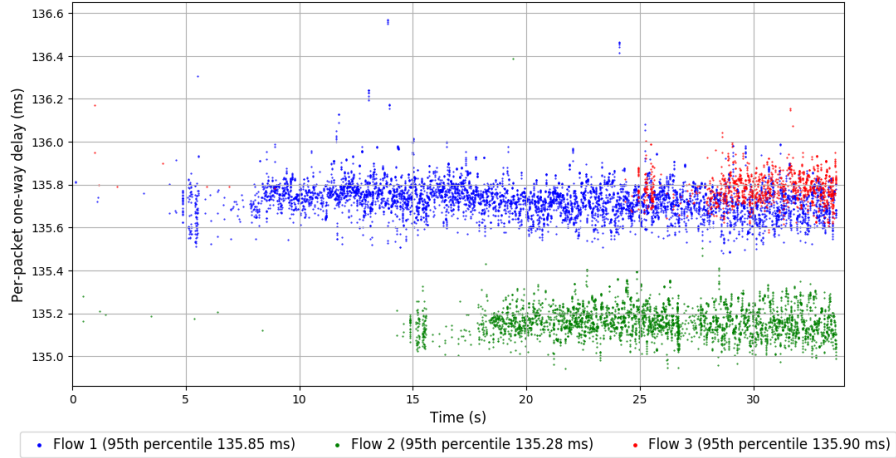
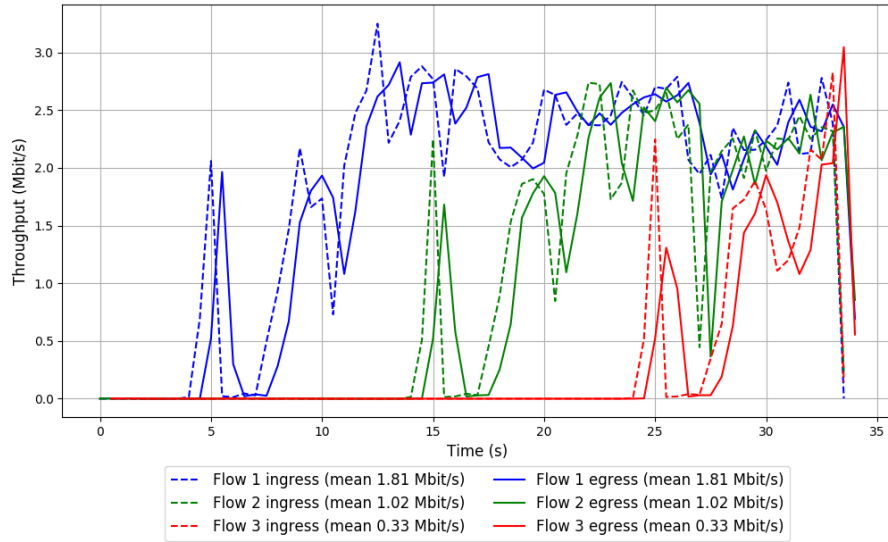
-- Flow 3:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 135.900 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-06 18:36:41

End at: 2018-09-06 18:37:11

Local clock offset: -0.166 ms

Remote clock offset: 0.039 ms

Below is generated by plot.py at 2018-09-06 21:35:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.21 Mbit/s

95th percentile per-packet one-way delay: 136.272 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.82 Mbit/s

95th percentile per-packet one-way delay: 135.428 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.07 Mbit/s

95th percentile per-packet one-way delay: 135.747 ms

Loss rate: 0.00%

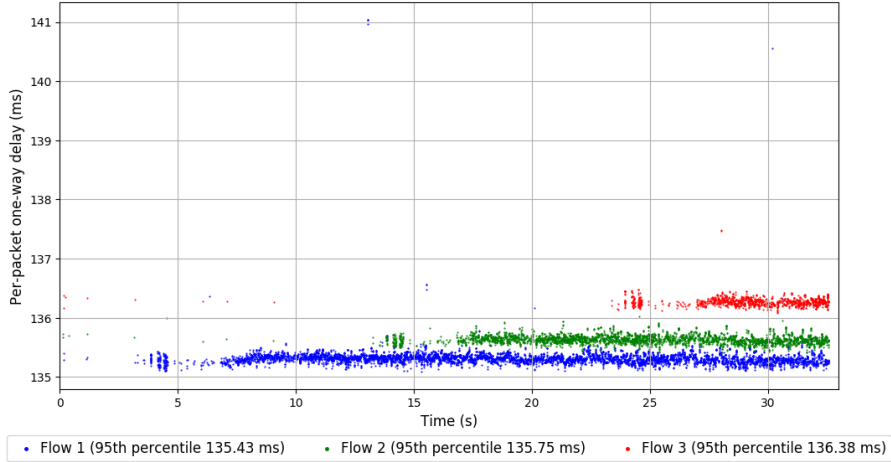
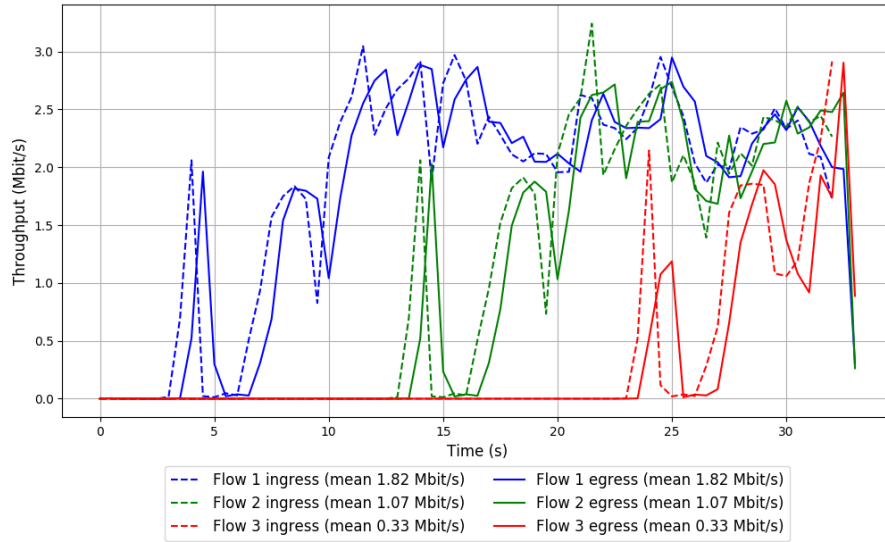
-- Flow 3:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 136.383 ms

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-06 19:10:29
End at: 2018-09-06 19:10:59
Local clock offset: -0.165 ms
Remote clock offset: -0.272 ms

```
# Below is generated by plot.py at 2018-09-06 21:35:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.11 Mbit/s
95th percentile per-packet one-way delay: 136.206 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.78 Mbit/s
95th percentile per-packet one-way delay: 135.745 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 136.262 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 136.204 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link

