

Pantheon Report

Generated at 2018-04-17 01:19:50 (UTC).

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

Repeated the test of 16 congestion control schemes 3 times.

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

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

Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

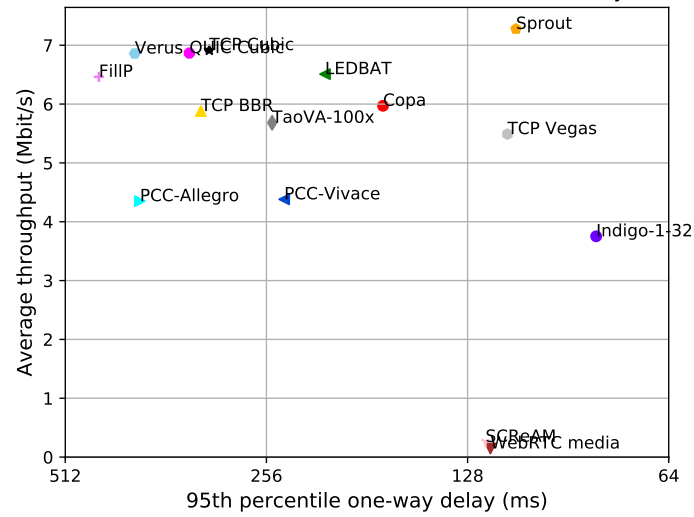
NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

Git summary:

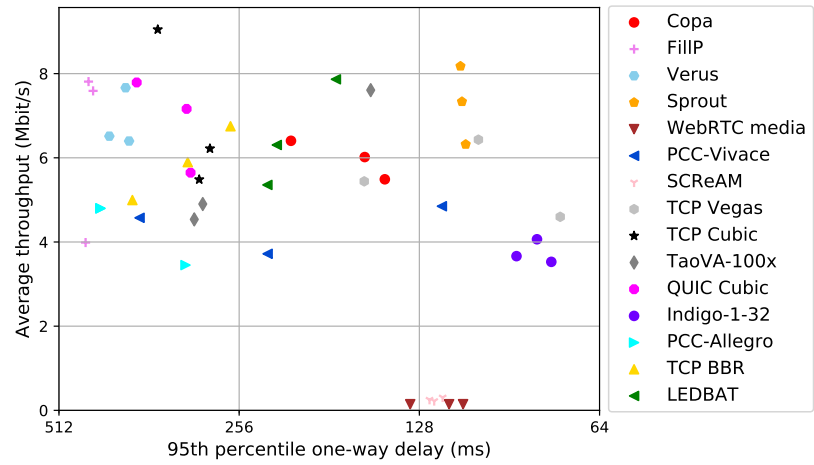
```
branch: master @ b3d6e7098641364fd3a292656a51aa81e316d0b4
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
M datagrump/sender.cc
third_party/fillp @ 11f8c46a2bf1dc797253db7e8ca04076272b2a44
third_party/genericCC @ d223989828276fa83a807da6e0341dc0c7b89aec
third_party/indigo @ a9b2060d39e4da2e8987e893e3eca2a6c7cd0ab9
third_party/indigo-1-layer-128-unit @ 3ae9e4ef4230db7484501f82ce8b377695f2f66d
third_party/indigo-1-layer-32-unit @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-1-layer-32-unit-no-calib @ 1f3a7f75b41135ed5b540c0fd3505939528e2a5f
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaaeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 7a4ba531e75b4a6f66f5c4580192120401784ce3
```

third_party/webrtc @ f271183af822eee5d0031620f4bebf38aedc5581

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



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

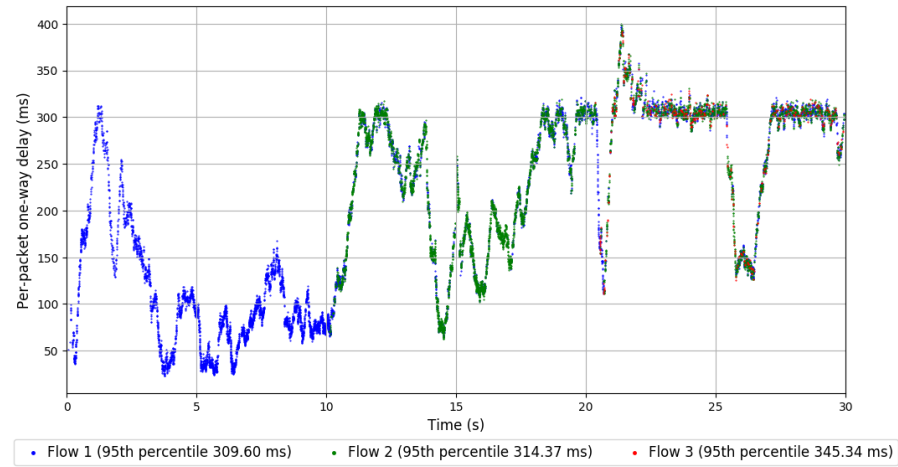
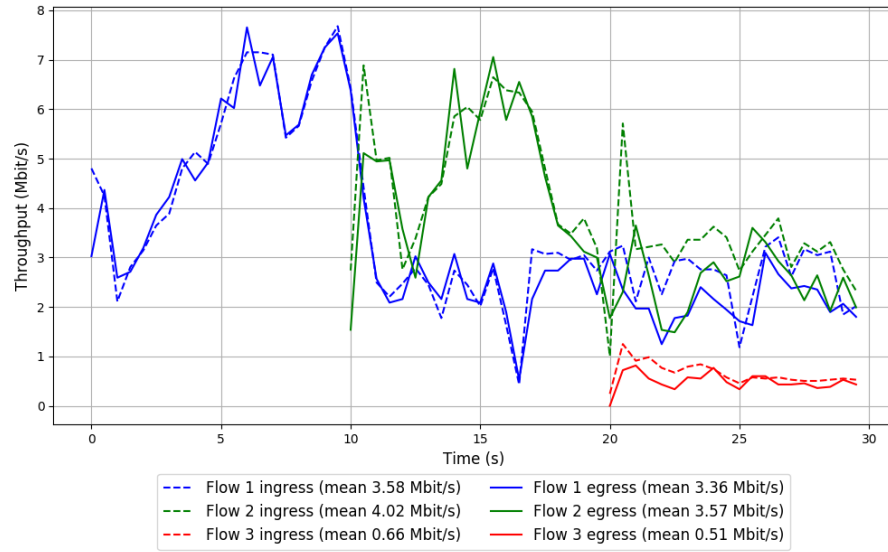


Run 1: Statistics of TCP BBR

Start at: 2018-04-16 23:08:19
End at: 2018-04-16 23:08:49
Local clock offset: 1.103 ms
Remote clock offset: -5.583 ms

Below is generated by plot.py at 2018-04-17 01:18:54
Datalink statistics
-- Total of 3 flows:
Average throughput: 5.90 Mbit/s
95th percentile per-packet one-way delay: 311.990 ms
Loss rate: 9.10%
-- Flow 1:
Average throughput: 3.36 Mbit/s
95th percentile per-packet one-way delay: 309.597 ms
Loss rate: 6.43%
-- Flow 2:
Average throughput: 3.57 Mbit/s
95th percentile per-packet one-way delay: 314.372 ms
Loss rate: 11.37%
-- Flow 3:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 345.341 ms
Loss rate: 25.14%

Run 1: Report of TCP BBR — Data Link

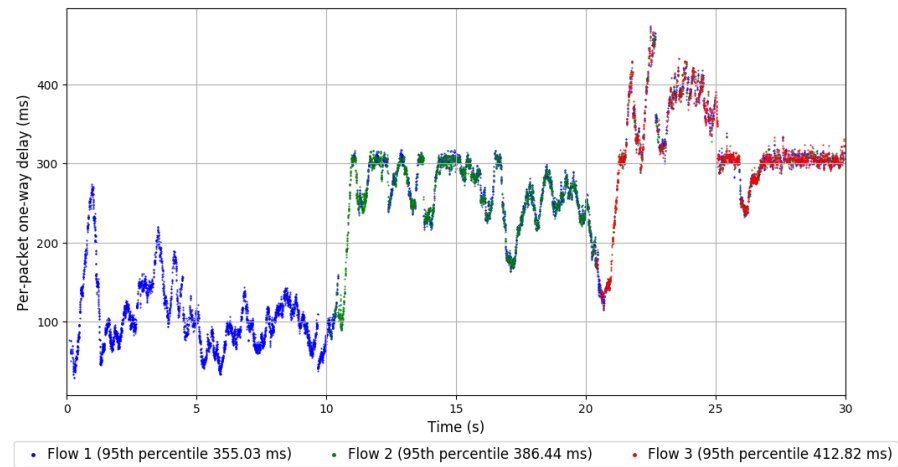
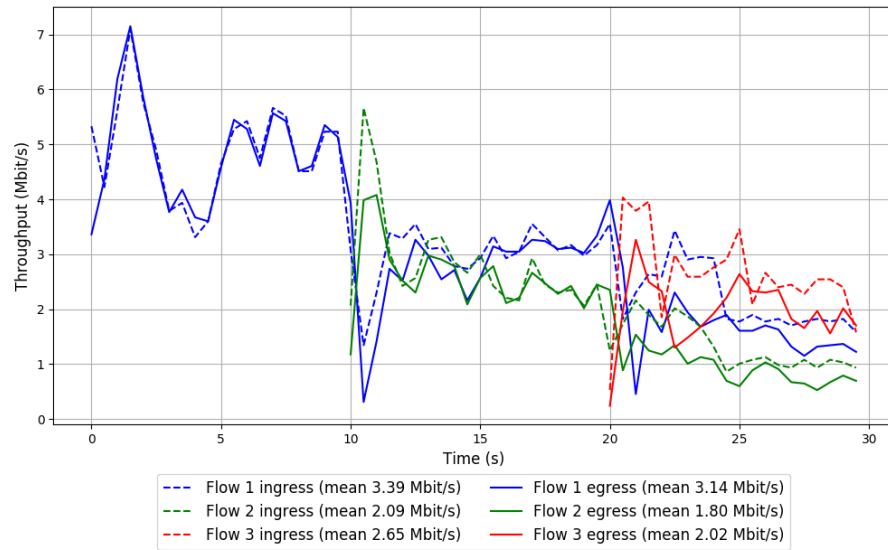


Run 2: Statistics of TCP BBR

Start at: 2018-04-16 23:30:44
End at: 2018-04-16 23:31:14
Local clock offset: 0.974 ms
Remote clock offset: -4.744 ms

Below is generated by plot.py at 2018-04-17 01:18:54
Datalink statistics
-- Total of 3 flows:
Average throughput: 5.00 Mbit/s
95th percentile per-packet one-way delay: 386.002 ms
Loss rate: 12.03%
-- Flow 1:
Average throughput: 3.14 Mbit/s
95th percentile per-packet one-way delay: 355.034 ms
Loss rate: 7.72%
-- Flow 2:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 386.440 ms
Loss rate: 14.28%
-- Flow 3:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 412.820 ms
Loss rate: 25.13%

Run 2: Report of TCP BBR — Data Link

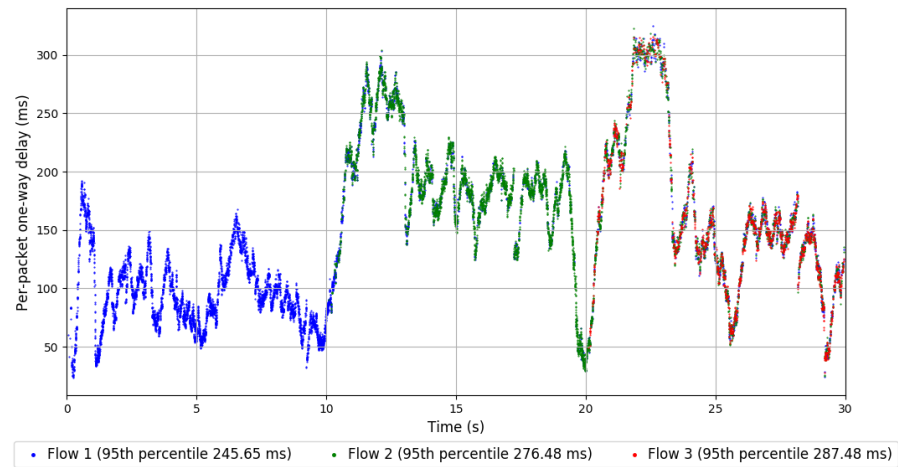
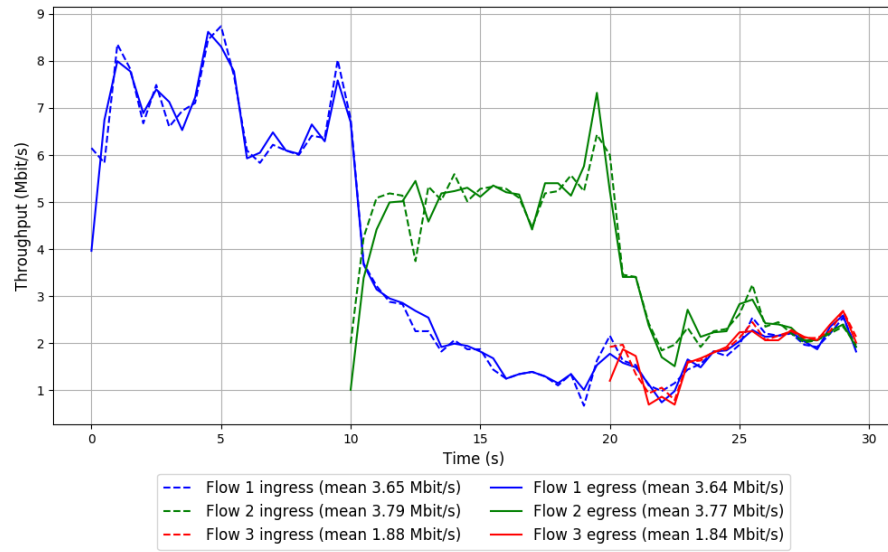


Run 3: Statistics of TCP BBR

Start at: 2018-04-16 23:53:09
End at: 2018-04-16 23:53:39
Local clock offset: 0.927 ms
Remote clock offset: -4.279 ms

Below is generated by plot.py at 2018-04-17 01:18:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.75 Mbit/s
95th percentile per-packet one-way delay: 264.680 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 3.64 Mbit/s
95th percentile per-packet one-way delay: 245.646 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 3.77 Mbit/s
95th percentile per-packet one-way delay: 276.480 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 287.483 ms
Loss rate: 2.83%

Run 3: Report of TCP BBR — Data Link

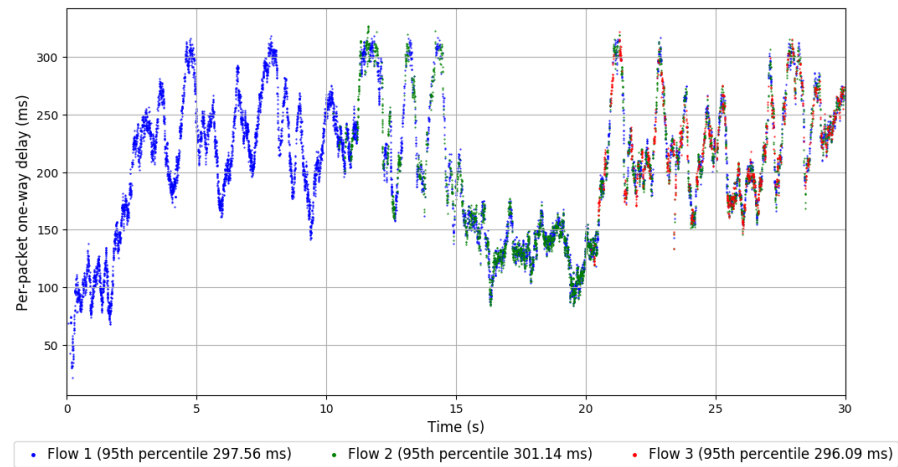
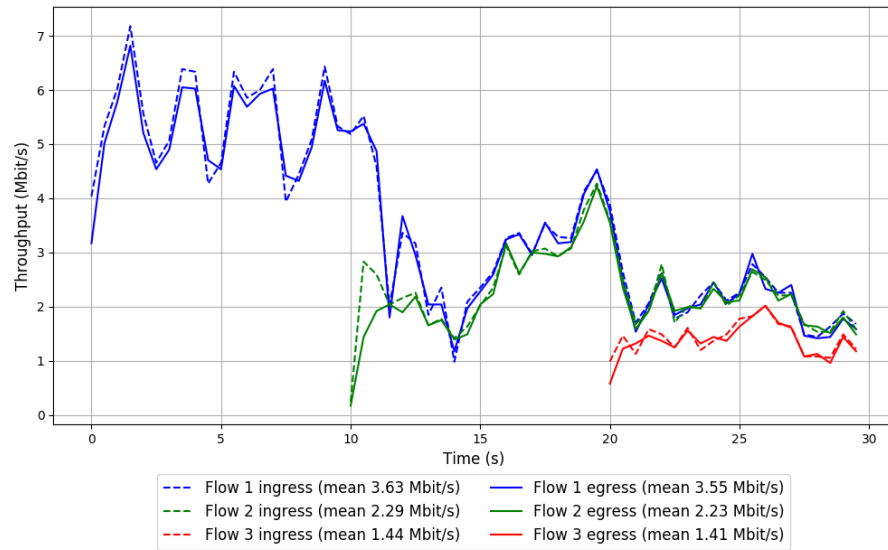


Run 1: Statistics of TCP Cubic

Start at: 2018-04-16 23:07:00
End at: 2018-04-16 23:07:30
Local clock offset: 1.103 ms
Remote clock offset: -5.596 ms

Below is generated by plot.py at 2018-04-17 01:18:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 5.48 Mbit/s
95th percentile per-packet one-way delay: 298.508 ms
Loss rate: 2.86%
-- Flow 1:
Average throughput: 3.55 Mbit/s
95th percentile per-packet one-way delay: 297.560 ms
Loss rate: 2.34%
-- Flow 2:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 301.141 ms
Loss rate: 3.93%
-- Flow 3:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 296.090 ms
Loss rate: 3.38%

Run 1: Report of TCP Cubic — Data Link

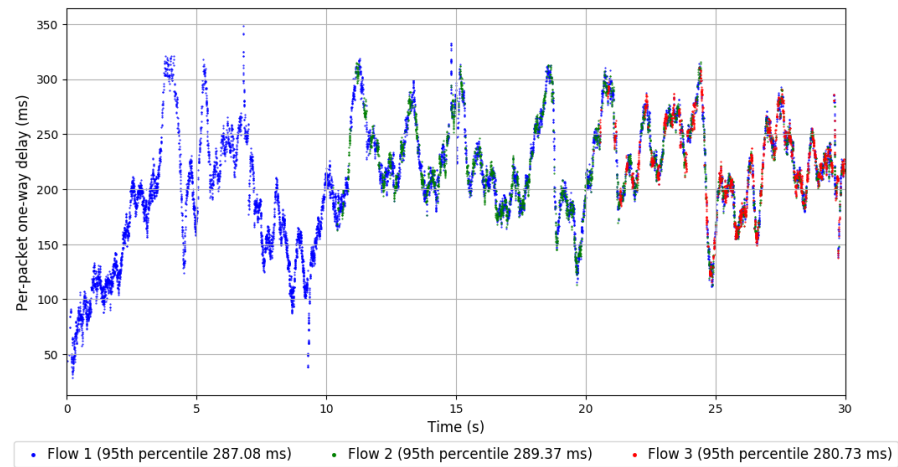
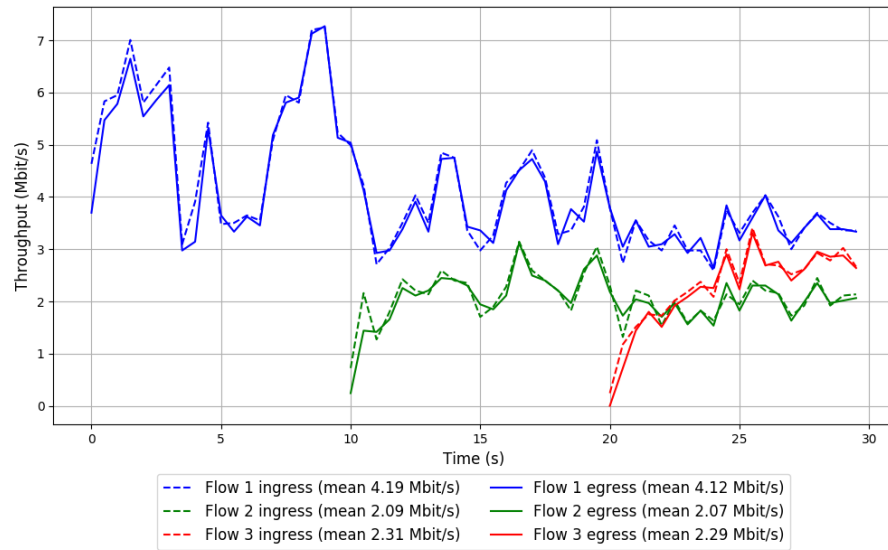


Run 2: Statistics of TCP Cubic

Start at: 2018-04-16 23:29:25
End at: 2018-04-16 23:29:55
Local clock offset: 0.956 ms
Remote clock offset: -4.744 ms

Below is generated by plot.py at 2018-04-17 01:18:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.22 Mbit/s
95th percentile per-packet one-way delay: 286.461 ms
Loss rate: 2.12%
-- Flow 1:
Average throughput: 4.12 Mbit/s
95th percentile per-packet one-way delay: 287.081 ms
Loss rate: 1.90%
-- Flow 2:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 289.369 ms
Loss rate: 2.16%
-- Flow 3:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 280.728 ms
Loss rate: 3.30%

Run 2: Report of TCP Cubic — Data Link

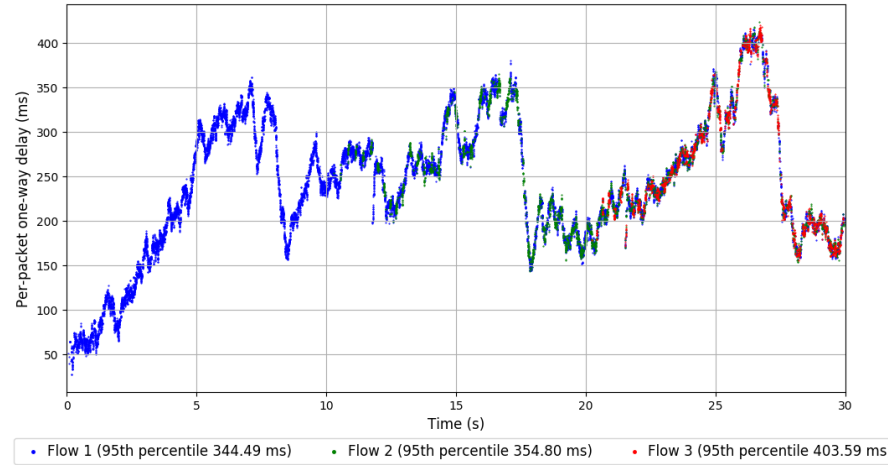
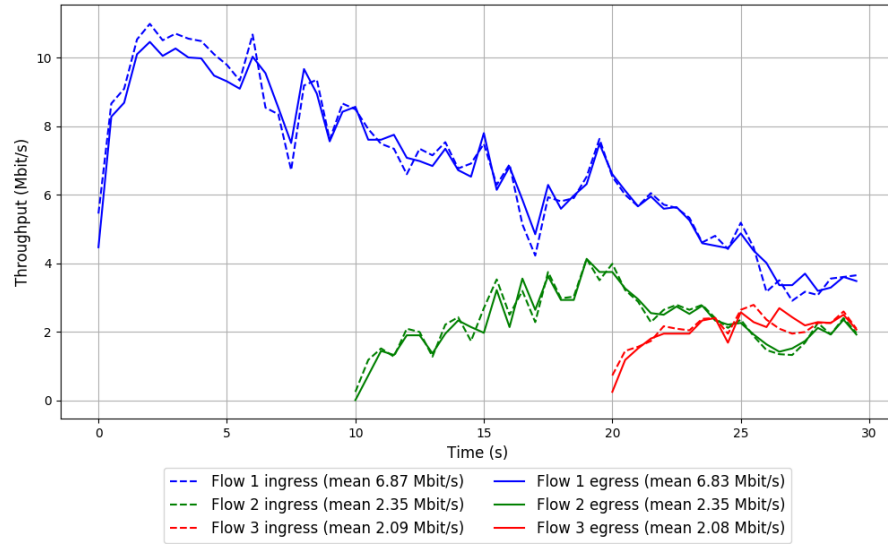


Run 3: Statistics of TCP Cubic

Start at: 2018-04-16 23:51:50
End at: 2018-04-16 23:52:20
Local clock offset: 0.905 ms
Remote clock offset: -4.216 ms

Below is generated by plot.py at 2018-04-17 01:18:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 9.05 Mbit/s
95th percentile per-packet one-way delay: 350.145 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 6.83 Mbit/s
95th percentile per-packet one-way delay: 344.492 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 354.797 ms
Loss rate: 1.64%
-- Flow 3:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 403.589 ms
Loss rate: 2.66%

Run 3: Report of TCP Cubic — Data Link

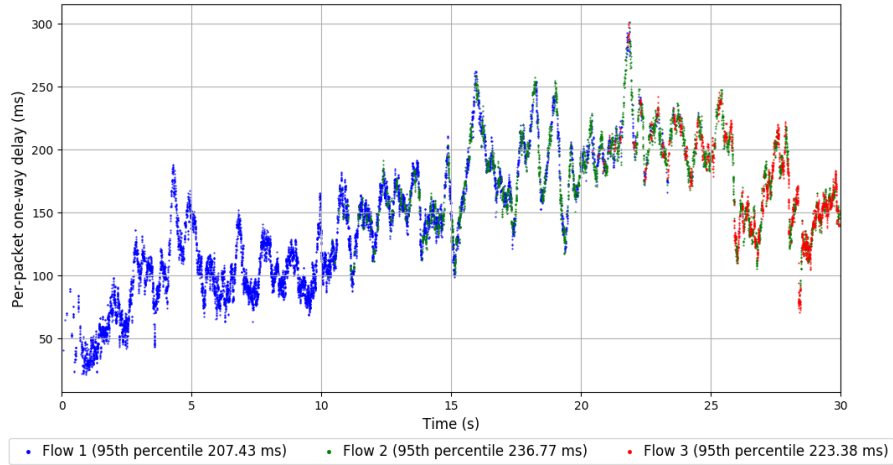
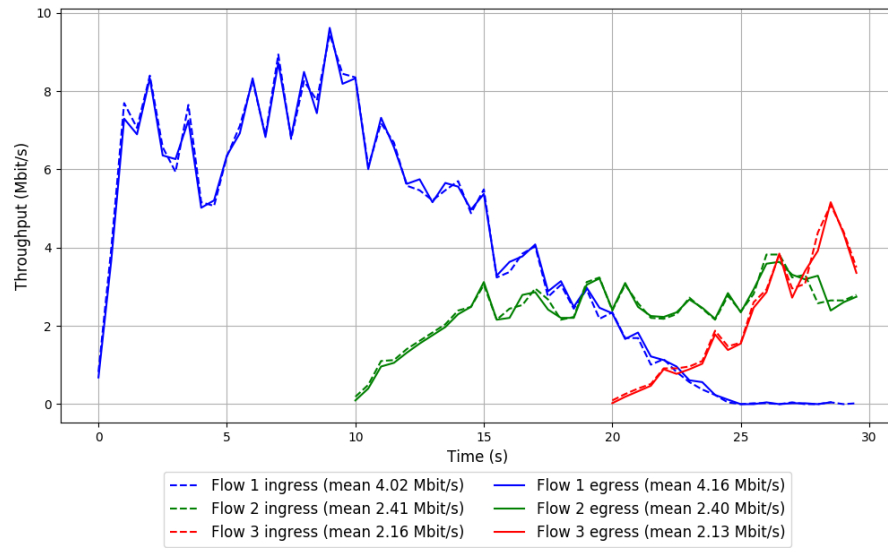


Run 1: Statistics of LEDBAT

Start at: 2018-04-16 23:13:35
End at: 2018-04-16 23:14:05
Local clock offset: 0.97 ms
Remote clock offset: -5.507 ms

Below is generated by plot.py at 2018-04-17 01:18:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.31 Mbit/s
95th percentile per-packet one-way delay: 221.517 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 4.16 Mbit/s
95th percentile per-packet one-way delay: 207.430 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 236.774 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 223.377 ms
Loss rate: 3.39%

Run 1: Report of LEDBAT — Data Link

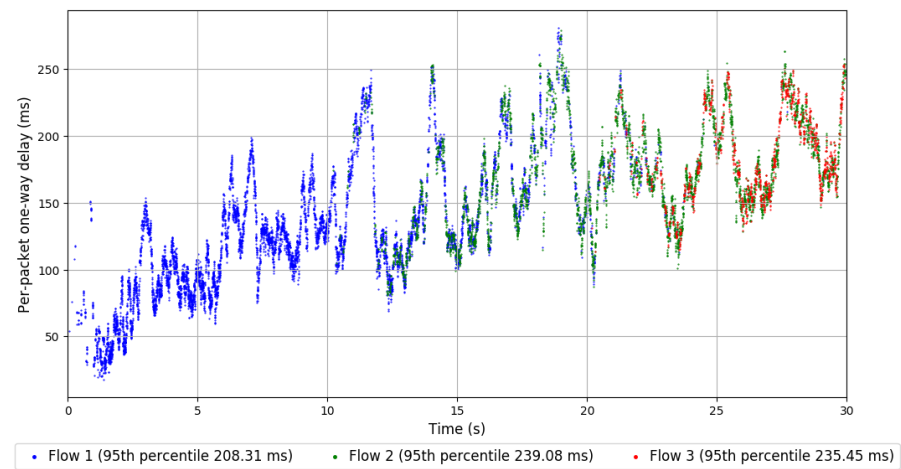
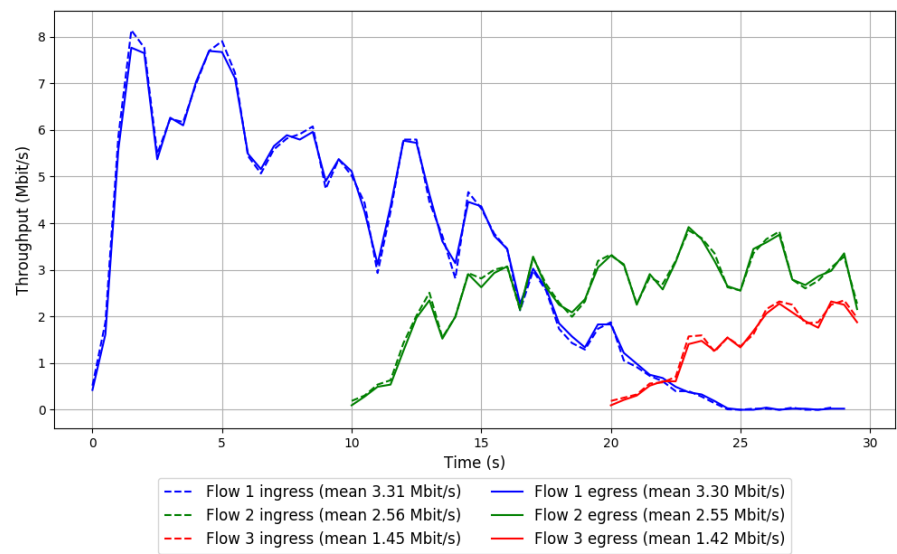


Run 2: Statistics of LEDBAT

Start at: 2018-04-16 23:36:01
End at: 2018-04-16 23:36:31
Local clock offset: 0.976 ms
Remote clock offset: -4.624 ms

Below is generated by plot.py at 2018-04-17 01:18:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 5.36 Mbit/s
95th percentile per-packet one-way delay: 229.678 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 208.307 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.55 Mbit/s
95th percentile per-packet one-way delay: 239.082 ms
Loss rate: 1.17%
-- Flow 3:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 235.451 ms
Loss rate: 3.45%

Run 2: Report of LEDBAT — Data Link

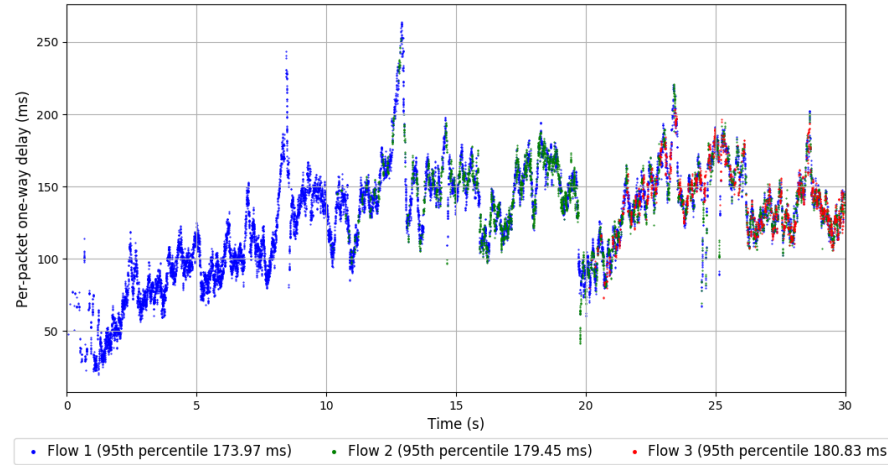
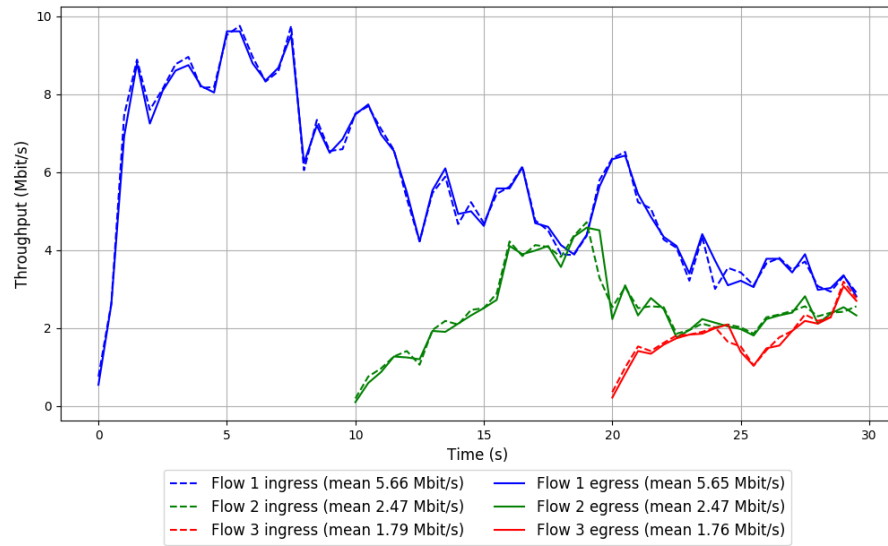


Run 3: Statistics of LEDBAT

Start at: 2018-04-16 23:58:27
End at: 2018-04-16 23:58:57
Local clock offset: 0.789 ms
Remote clock offset: -4.744 ms

Below is generated by plot.py at 2018-04-17 01:19:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.87 Mbit/s
95th percentile per-packet one-way delay: 176.465 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 5.65 Mbit/s
95th percentile per-packet one-way delay: 173.966 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 2.47 Mbit/s
95th percentile per-packet one-way delay: 179.446 ms
Loss rate: 0.83%
-- Flow 3:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 180.828 ms
Loss rate: 2.71%

Run 3: Report of LEDBAT — Data Link

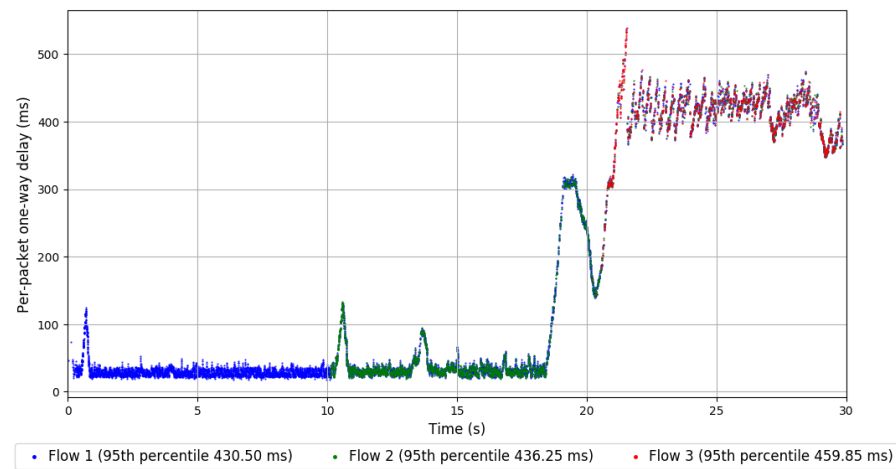
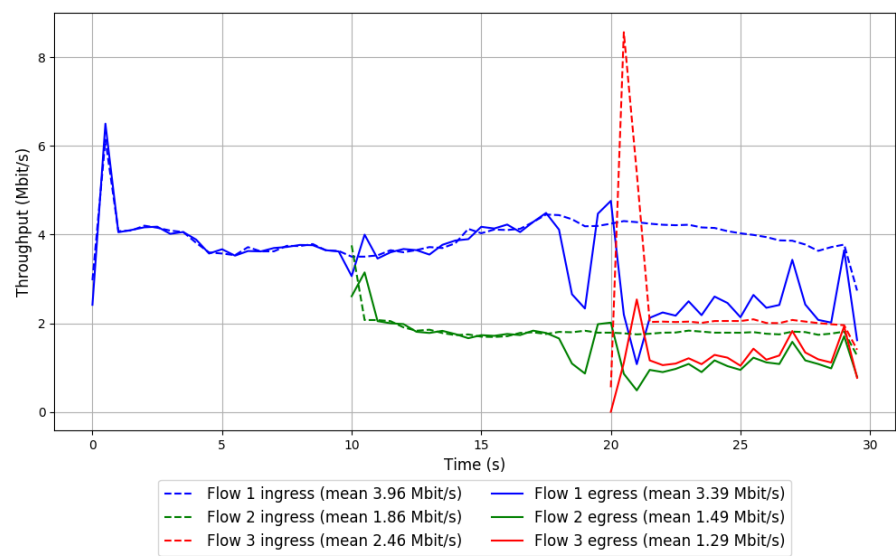


Run 1: Statistics of PCC-Allegro

Start at: 2018-04-16 23:17:33
End at: 2018-04-16 23:18:03
Local clock offset: 0.953 ms
Remote clock offset: -5.396 ms

Below is generated by plot.py at 2018-04-17 01:19:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 4.80 Mbit/s
95th percentile per-packet one-way delay: 436.495 ms
Loss rate: 20.25%
-- Flow 1:
Average throughput: 3.39 Mbit/s
95th percentile per-packet one-way delay: 430.503 ms
Loss rate: 14.47%
-- Flow 2:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 436.249 ms
Loss rate: 20.14%
-- Flow 3:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 459.850 ms
Loss rate: 48.63%

Run 1: Report of PCC-Allegro — Data Link

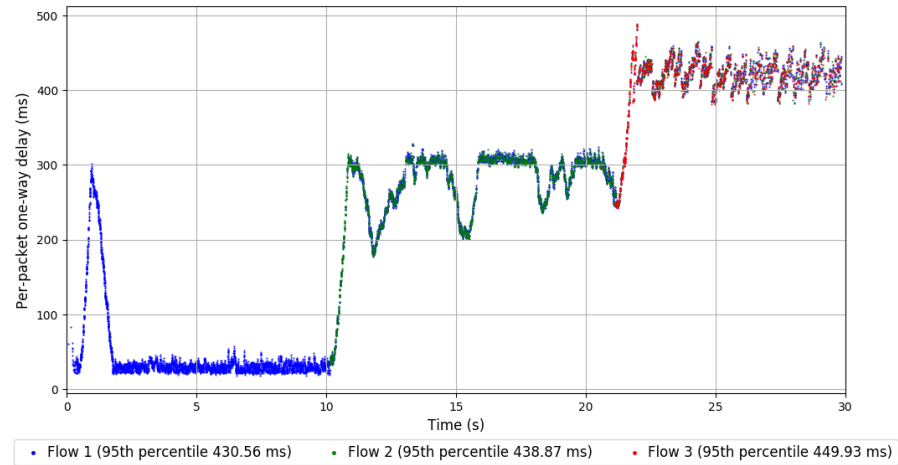
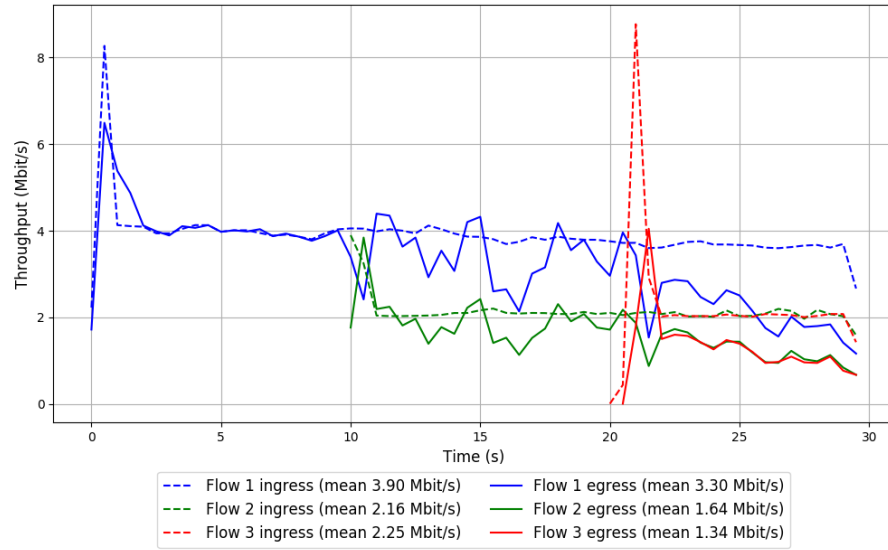


Run 2: Statistics of PCC-Allegro

Start at: 2018-04-16 23:39:58
End at: 2018-04-16 23:40:28
Local clock offset: 1.119 ms
Remote clock offset: -4.453 ms

Below is generated by plot.py at 2018-04-17 01:19:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 4.80 Mbit/s
95th percentile per-packet one-way delay: 436.629 ms
Loss rate: 21.21%
-- Flow 1:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 430.561 ms
Loss rate: 15.69%
-- Flow 2:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 438.869 ms
Loss rate: 24.43%
-- Flow 3:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 449.929 ms
Loss rate: 44.08%

Run 2: Report of PCC-Allegro — Data Link

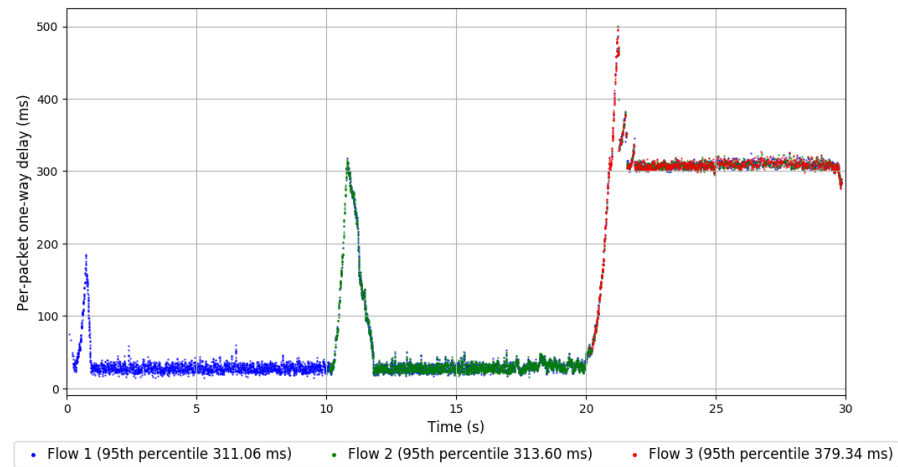
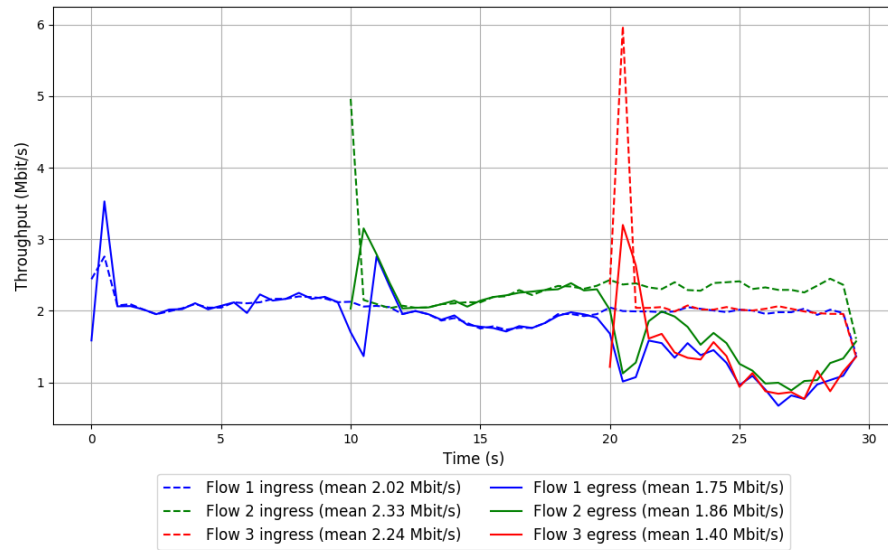


Run 3: Statistics of PCC-Allegro

Start at: 2018-04-17 00:02:24
End at: 2018-04-17 00:02:54
Local clock offset: 0.9 ms
Remote clock offset: -4.807 ms

Below is generated by plot.py at 2018-04-17 01:19:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.45 Mbit/s
95th percentile per-packet one-way delay: 314.656 ms
Loss rate: 20.09%
-- Flow 1:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 311.055 ms
Loss rate: 13.29%
-- Flow 2:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 313.602 ms
Loss rate: 20.47%
-- Flow 3:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 379.343 ms
Loss rate: 37.92%

Run 3: Report of PCC-Allegro — Data Link

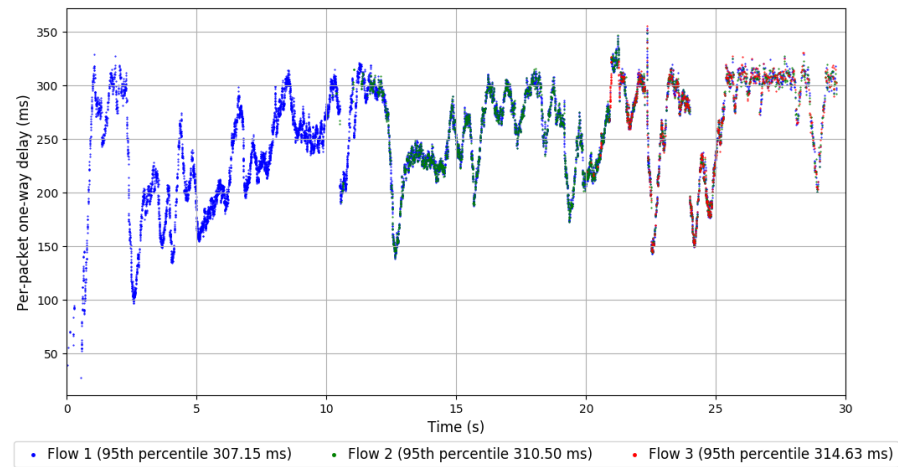
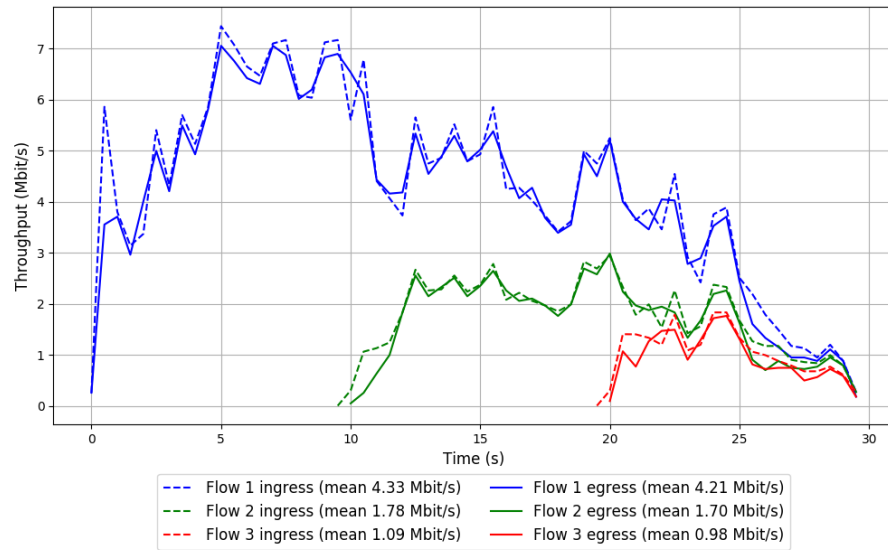


Run 1: Statistics of QUIC Cubic

Start at: 2018-04-16 23:25:28
End at: 2018-04-16 23:25:58
Local clock offset: 0.914 ms
Remote clock offset: -4.962 ms

Below is generated by plot.py at 2018-04-17 01:19:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 5.65 Mbit/s
95th percentile per-packet one-way delay: 308.626 ms
Loss rate: 4.23%
-- Flow 1:
Average throughput: 4.21 Mbit/s
95th percentile per-packet one-way delay: 307.152 ms
Loss rate: 2.99%
-- Flow 2:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 310.495 ms
Loss rate: 6.15%
-- Flow 3:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 314.633 ms
Loss rate: 12.65%

Run 1: Report of QUIC Cubic — Data Link

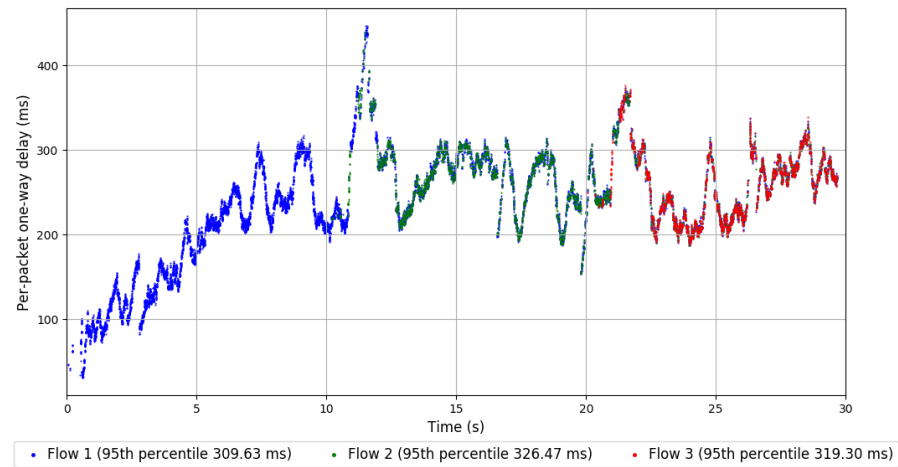
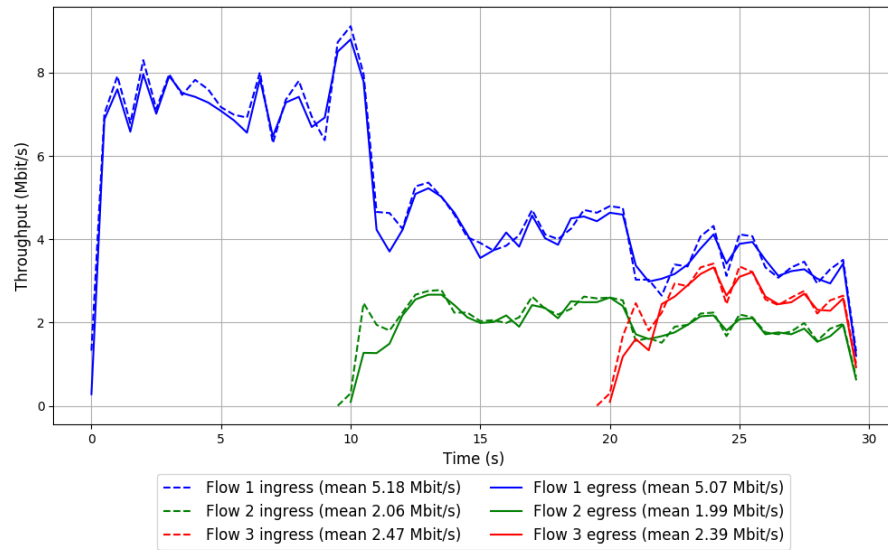


Run 2: Statistics of QUIC Cubic

Start at: 2018-04-16 23:47:53
End at: 2018-04-16 23:48:23
Local clock offset: 0.981 ms
Remote clock offset: -4.238 ms

Below is generated by plot.py at 2018-04-17 01:19:10
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 313.340 ms
Loss rate: 3.23%
-- Flow 1:
Average throughput: 5.07 Mbit/s
95th percentile per-packet one-way delay: 309.634 ms
Loss rate: 2.45%
-- Flow 2:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 326.473 ms
Loss rate: 4.62%
-- Flow 3:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 319.302 ms
Loss rate: 5.79%

Run 2: Report of QUIC Cubic — Data Link

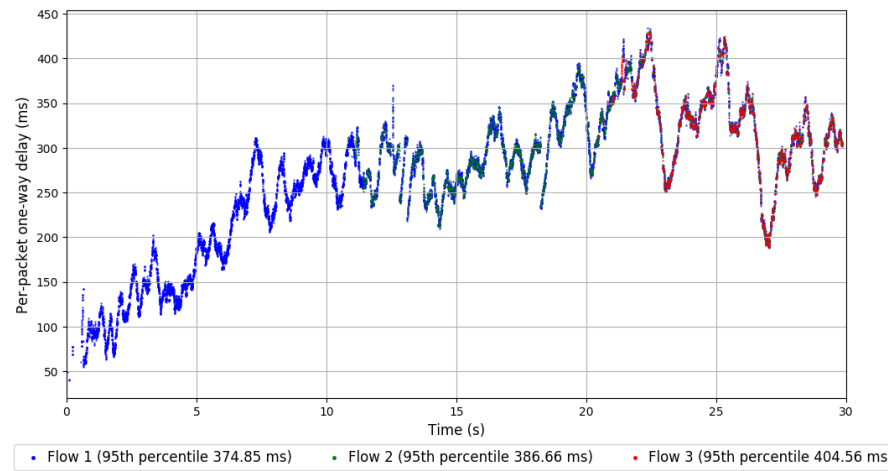
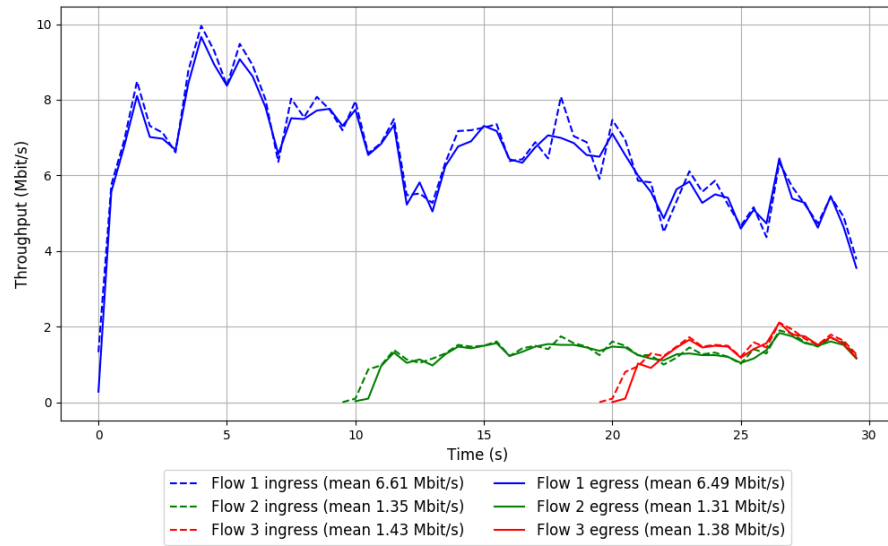


Run 3: Statistics of QUIC Cubic

Start at: 2018-04-17 00:10:19
End at: 2018-04-17 00:10:49
Local clock offset: 0.933 ms
Remote clock offset: -4.949 ms

Below is generated by plot.py at 2018-04-17 01:19:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.79 Mbit/s
95th percentile per-packet one-way delay: 379.671 ms
Loss rate: 2.56%
-- Flow 1:
Average throughput: 6.49 Mbit/s
95th percentile per-packet one-way delay: 374.854 ms
Loss rate: 2.09%
-- Flow 2:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 386.658 ms
Loss rate: 4.19%
-- Flow 3:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 404.557 ms
Loss rate: 6.03%

Run 3: Report of QUIC Cubic — Data Link

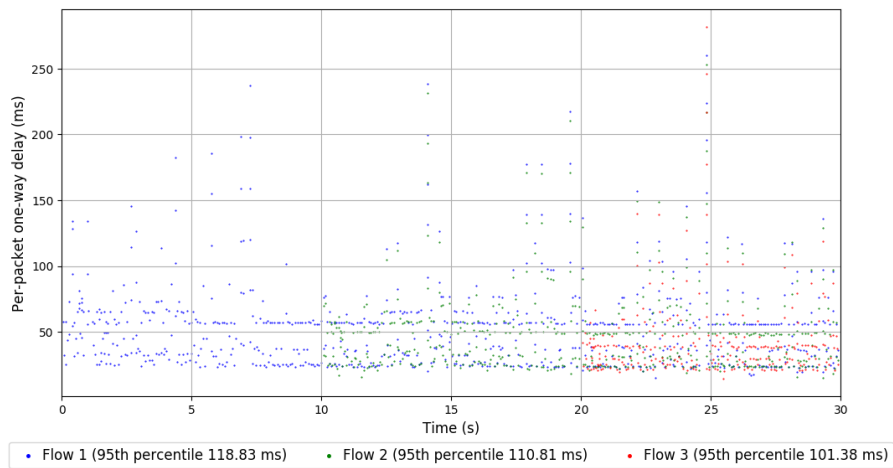
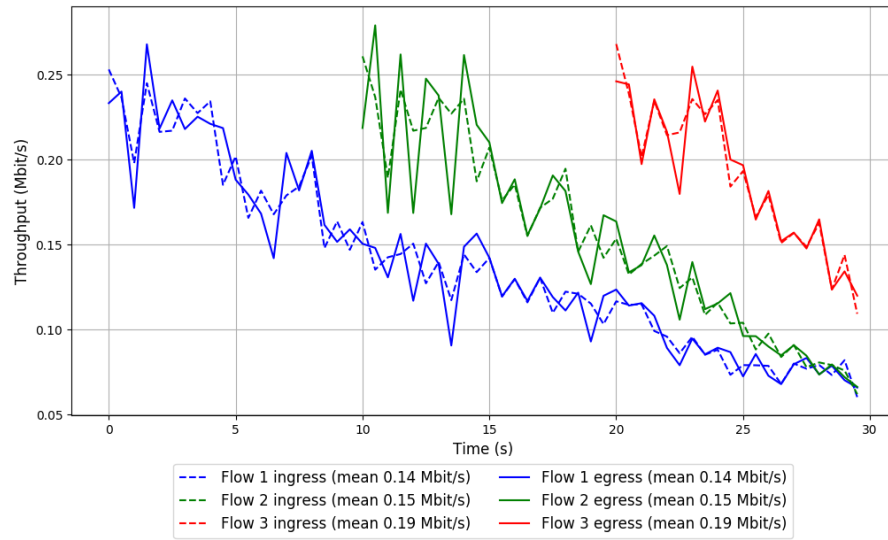


Run 1: Statistics of SCReAM

Start at: 2018-04-16 23:05:41
End at: 2018-04-16 23:06:11
Local clock offset: 1.024 ms
Remote clock offset: -5.499 ms

Below is generated by plot.py at 2018-04-17 01:19:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 117.023 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 118.832 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 110.810 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 101.375 ms
Loss rate: 0.27%

Run 1: Report of SReAM — Data Link

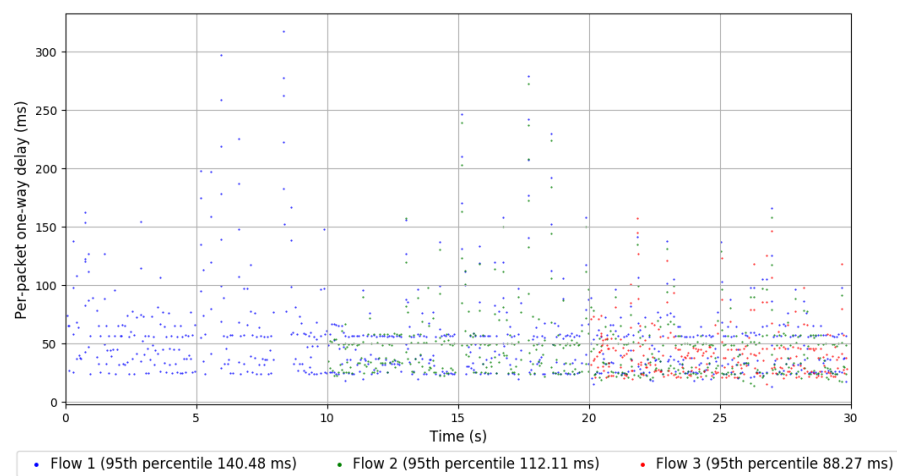
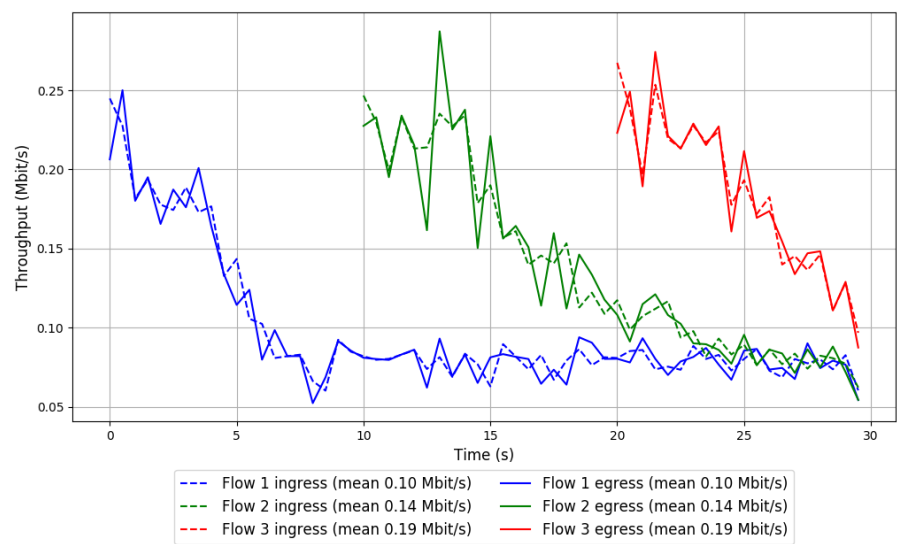


Run 2: Statistics of SCReAM

Start at: 2018-04-16 23:28:06
End at: 2018-04-16 23:28:36
Local clock offset: 0.865 ms
Remote clock offset: -4.874 ms

Below is generated by plot.py at 2018-04-17 01:19:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 123.088 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 140.476 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 112.110 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 88.266 ms
Loss rate: 0.51%

Run 2: Report of SReAM — Data Link

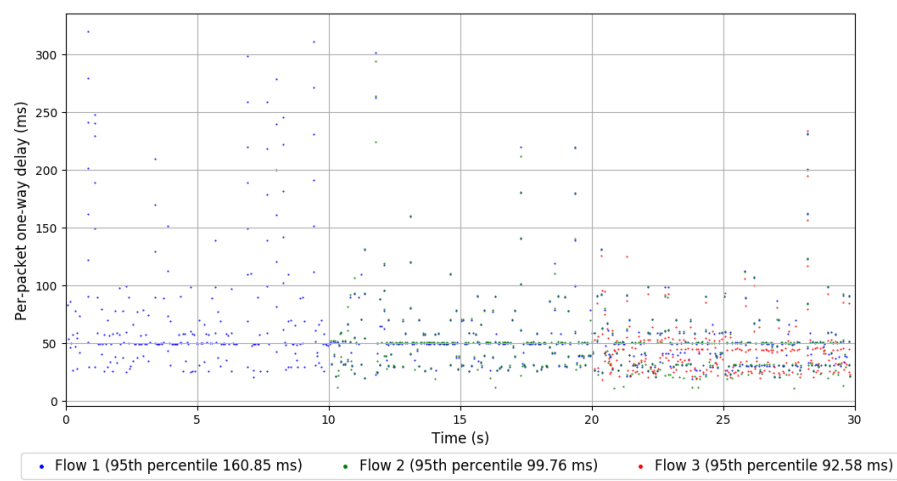
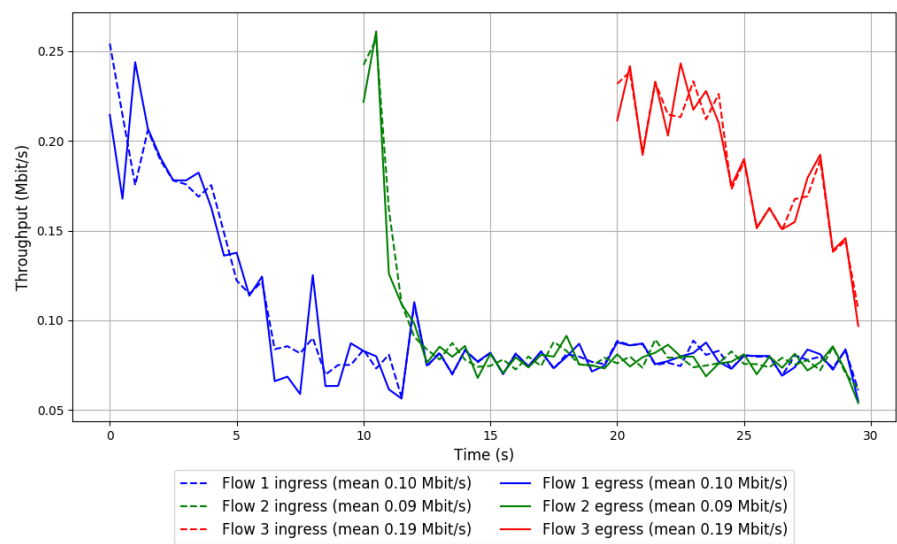


Run 3: Statistics of SCReAM

Start at: 2018-04-16 23:50:31
End at: 2018-04-16 23:51:01
Local clock offset: 0.922 ms
Remote clock offset: -4.158 ms

Below is generated by plot.py at 2018-04-17 01:19:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 120.902 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 160.851 ms
Loss rate: 0.93%
-- Flow 2:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 99.764 ms
Loss rate: 1.47%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 92.580 ms
Loss rate: 0.52%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-04-16 23:04:22

End at: 2018-04-16 23:04:52

Local clock offset: 1.041 ms

Remote clock offset: -5.59 ms

Below is generated by plot.py at 2018-04-17 01:19:11

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 114.161 ms

Loss rate: 0.13%

-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 89.865 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 108.495 ms

Loss rate: 0.23%

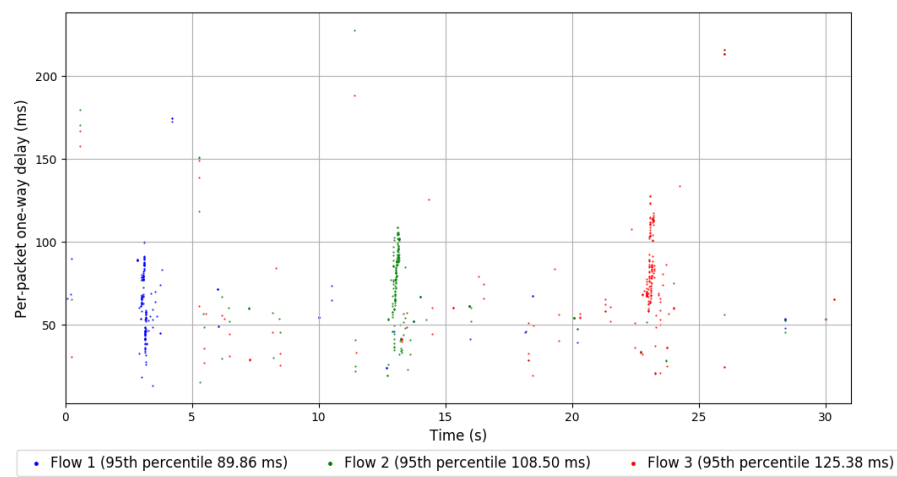
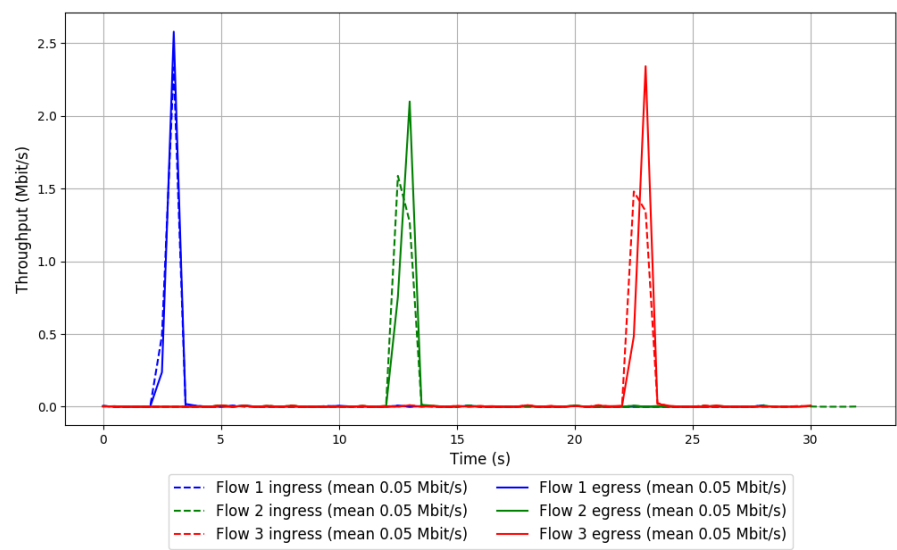
-- Flow 3:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 125.382 ms

Loss rate: 0.18%

Run 1: Report of WebRTC media — Data Link

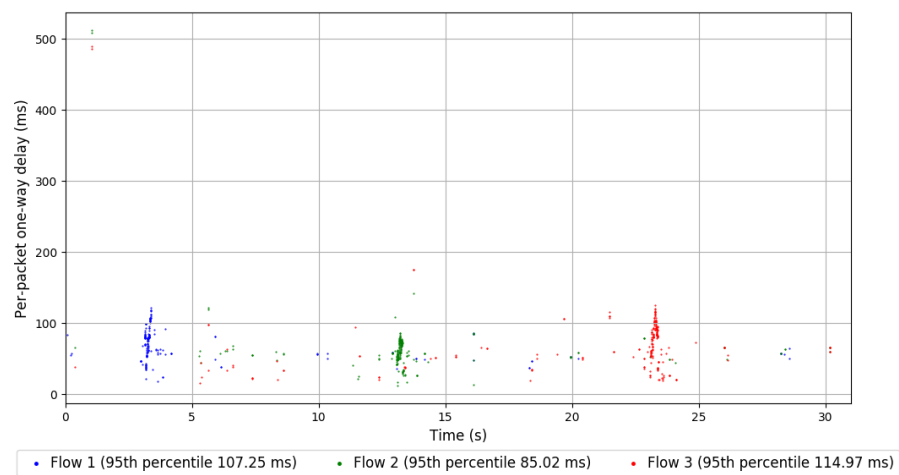
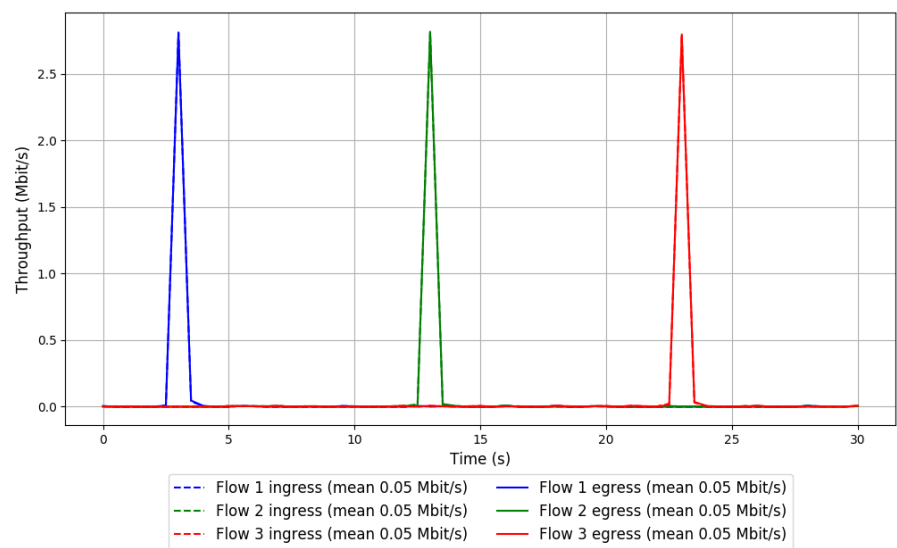


Run 2: Statistics of WebRTC media

Start at: 2018-04-16 23:26:48
End at: 2018-04-16 23:27:18
Local clock offset: 0.873 ms
Remote clock offset: -4.882 ms

Below is generated by plot.py at 2018-04-17 01:19:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 108.181 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 107.254 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.019 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 114.970 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

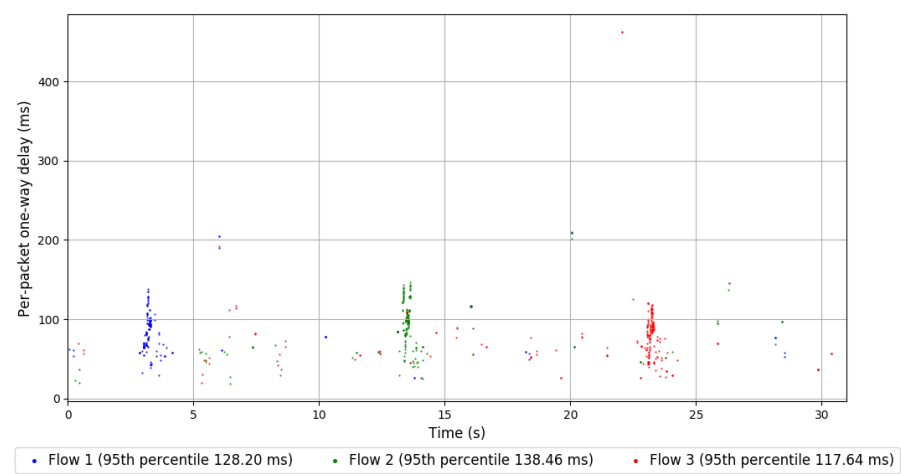
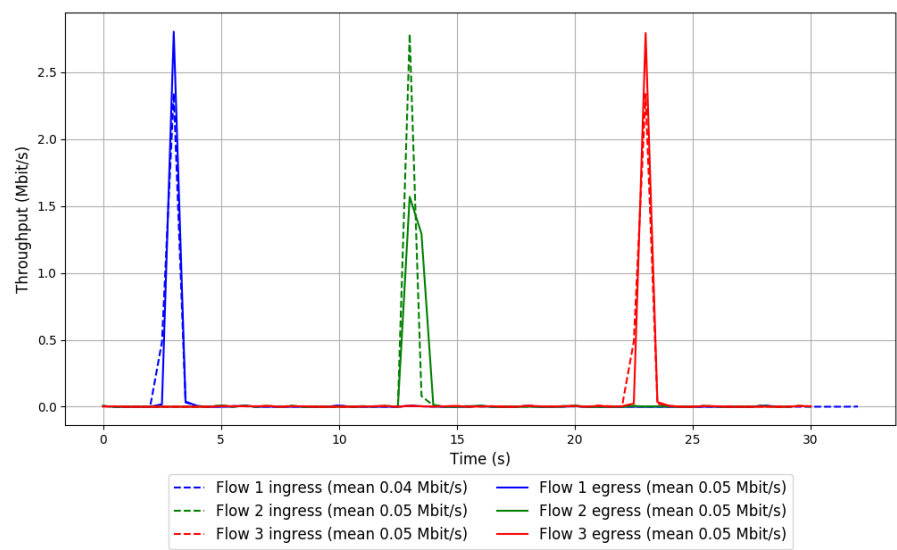


Run 3: Statistics of WebRTC media

Start at: 2018-04-16 23:49:12
End at: 2018-04-16 23:49:42
Local clock offset: 0.942 ms
Remote clock offset: -4.206 ms

Below is generated by plot.py at 2018-04-17 01:19:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 132.574 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 128.198 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 138.457 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.635 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

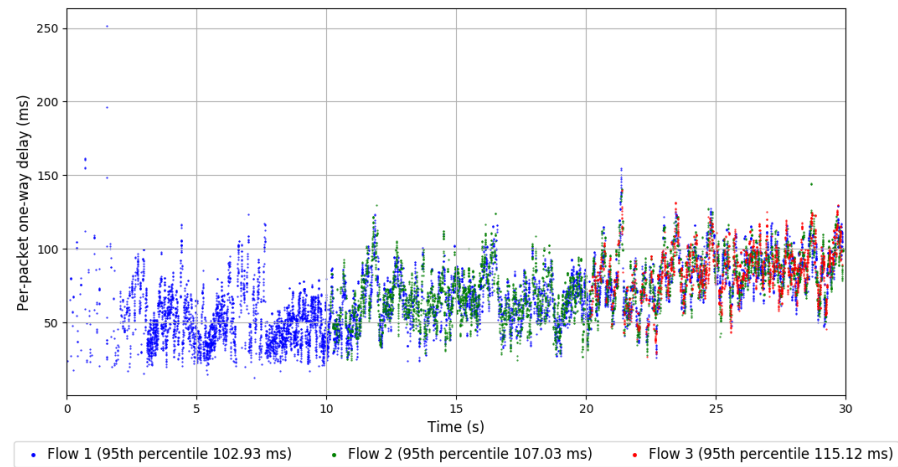
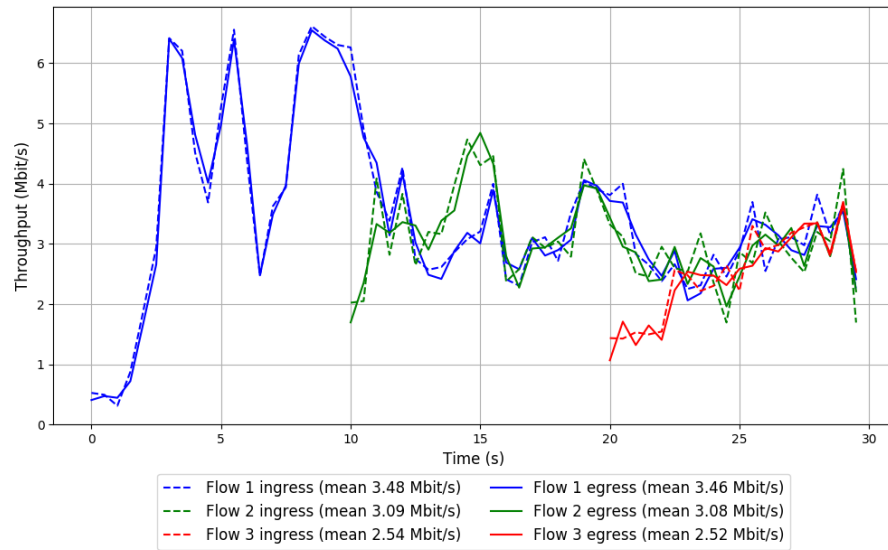


Run 1: Statistics of Sprout

Start at: 2018-04-16 23:24:09
End at: 2018-04-16 23:24:39
Local clock offset: 0.864 ms
Remote clock offset: -5.041 ms

Below is generated by plot.py at 2018-04-17 01:19:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.32 Mbit/s
95th percentile per-packet one-way delay: 107.103 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 3.46 Mbit/s
95th percentile per-packet one-way delay: 102.934 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 3.08 Mbit/s
95th percentile per-packet one-way delay: 107.028 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 115.117 ms
Loss rate: 1.59%

Run 1: Report of Sprout — Data Link

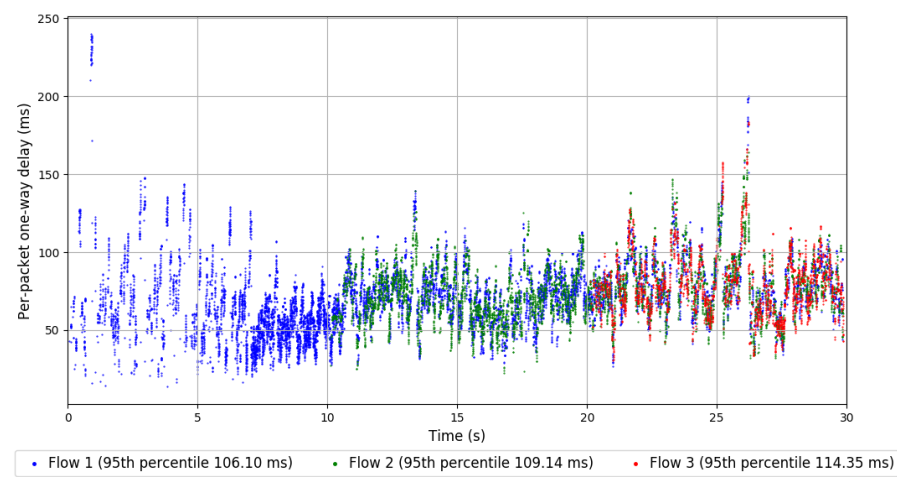
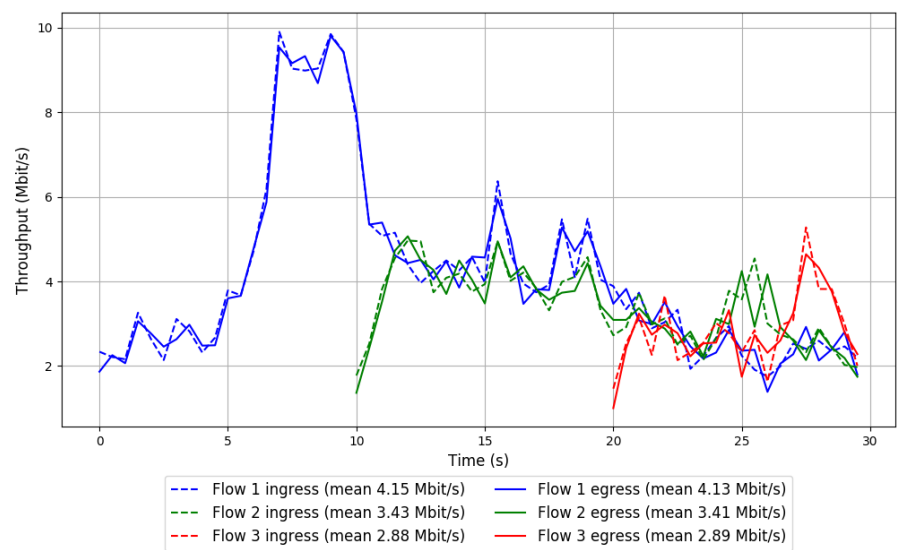


Run 2: Statistics of Sprout

Start at: 2018-04-16 23:46:34
End at: 2018-04-16 23:47:04
Local clock offset: 0.917 ms
Remote clock offset: -4.196 ms

Below is generated by plot.py at 2018-04-17 01:19:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.34 Mbit/s
95th percentile per-packet one-way delay: 108.655 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 4.13 Mbit/s
95th percentile per-packet one-way delay: 106.104 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 3.41 Mbit/s
95th percentile per-packet one-way delay: 109.142 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 2.89 Mbit/s
95th percentile per-packet one-way delay: 114.347 ms
Loss rate: 0.69%

Run 2: Report of Sprout — Data Link

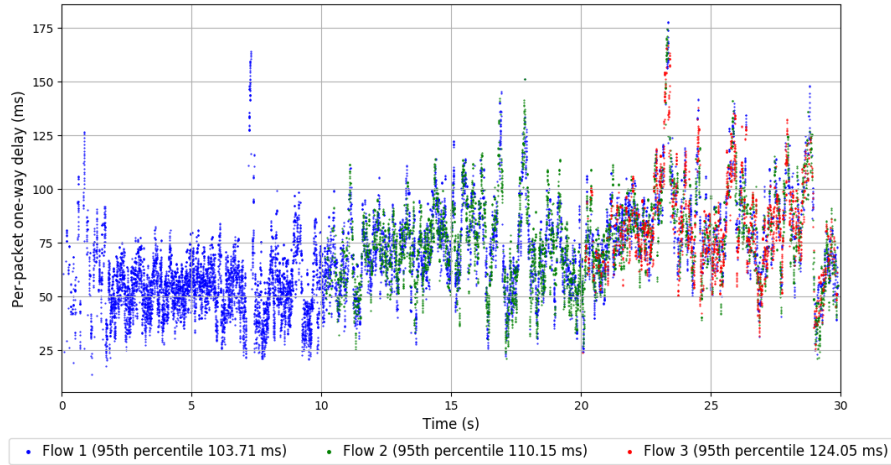
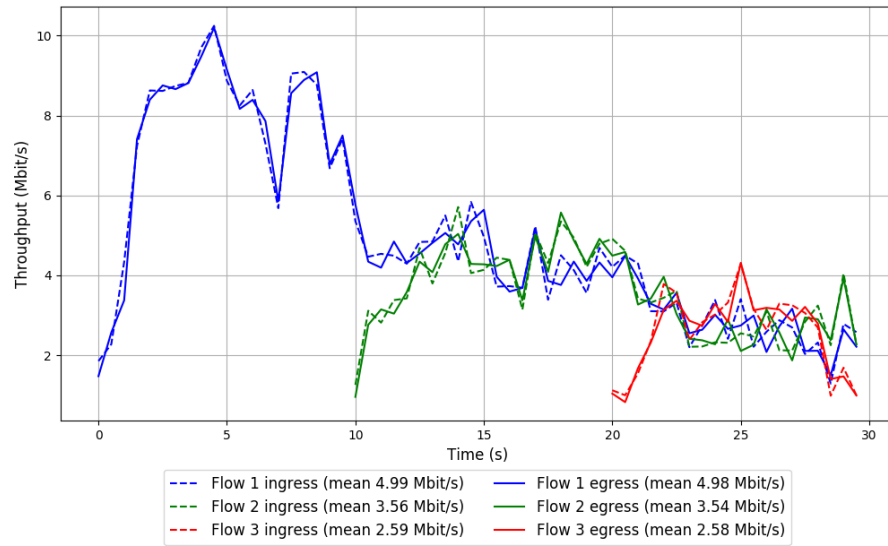


Run 3: Statistics of Sprout

Start at: 2018-04-17 00:08:59
End at: 2018-04-17 00:09:29
Local clock offset: 0.898 ms
Remote clock offset: -4.931 ms

```
# Below is generated by plot.py at 2018-04-17 01:19:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.18 Mbit/s
95th percentile per-packet one-way delay: 109.279 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 4.98 Mbit/s
95th percentile per-packet one-way delay: 103.709 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 110.153 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 2.58 Mbit/s
95th percentile per-packet one-way delay: 124.048 ms
Loss rate: 0.75%
```

Run 3: Report of Sprout — Data Link

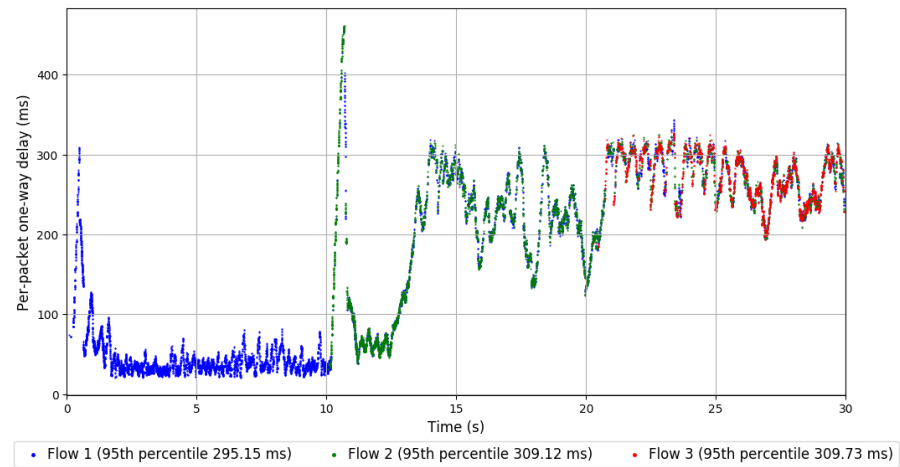
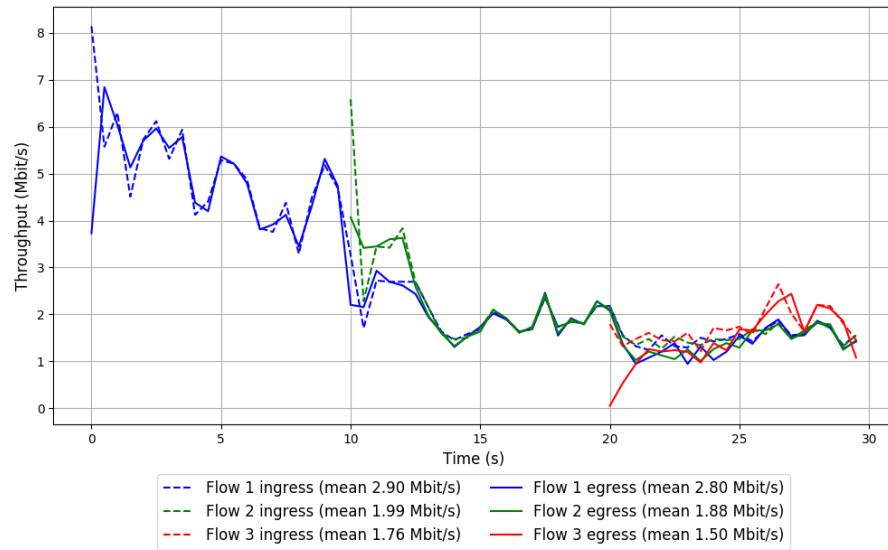


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-04-16 23:12:16
End at: 2018-04-16 23:12:46
Local clock offset: 0.994 ms
Remote clock offset: -5.523 ms

# Below is generated by plot.py at 2018-04-17 01:19:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.54 Mbit/s
95th percentile per-packet one-way delay: 304.244 ms
Loss rate: 5.74%
-- Flow 1:
Average throughput: 2.80 Mbit/s
95th percentile per-packet one-way delay: 295.151 ms
Loss rate: 3.70%
-- Flow 2:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 309.119 ms
Loss rate: 5.57%
-- Flow 3:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 309.728 ms
Loss rate: 16.31%
```

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

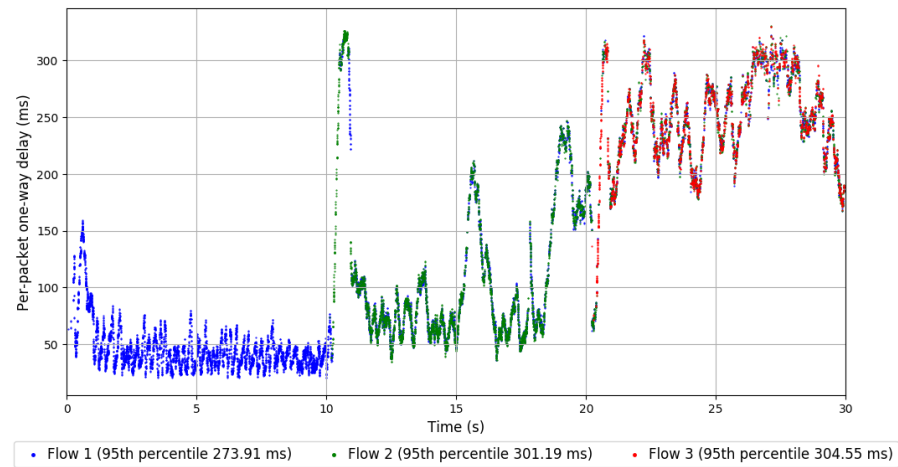
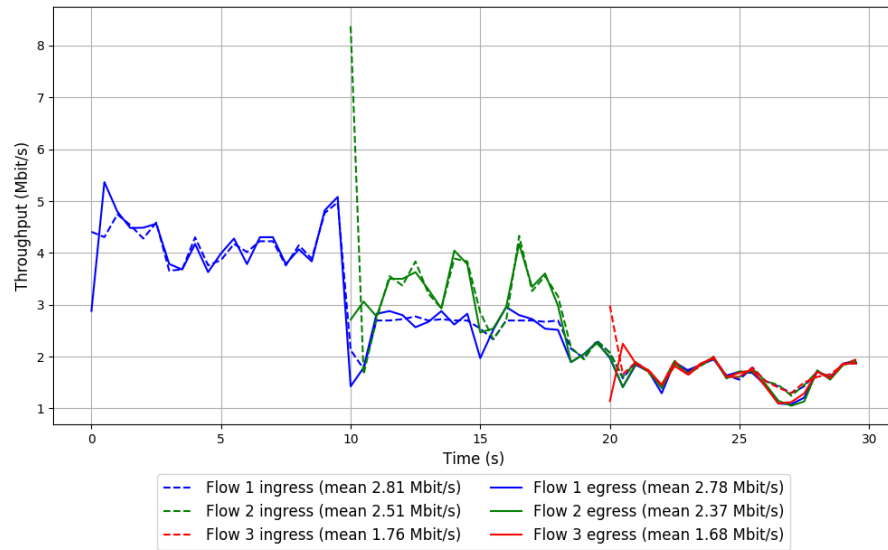


Run 2: Statistics of TaoVA-100x

Start at: 2018-04-16 23:34:42
End at: 2018-04-16 23:35:12
Local clock offset: 0.928 ms
Remote clock offset: -4.665 ms

Below is generated by plot.py at 2018-04-17 01:19:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 294.468 ms
Loss rate: 3.41%
-- Flow 1:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 273.911 ms
Loss rate: 1.41%
-- Flow 2:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 301.193 ms
Loss rate: 5.83%
-- Flow 3:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 304.545 ms
Loss rate: 6.12%

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

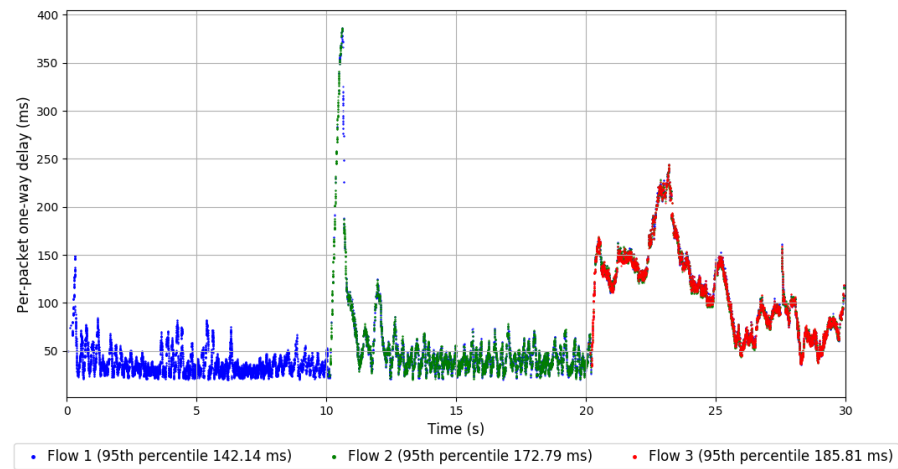
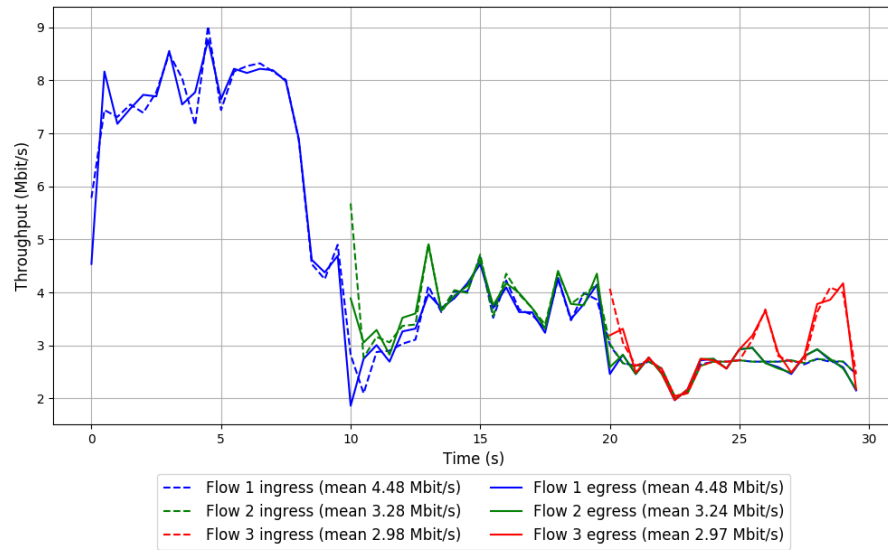


Run 3: Statistics of TaoVA-100x

Start at: 2018-04-16 23:57:07
End at: 2018-04-16 23:57:37
Local clock offset: 0.809 ms
Remote clock offset: -4.626 ms

Below is generated by plot.py at 2018-04-17 01:19:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.61 Mbit/s
95th percentile per-packet one-way delay: 154.344 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 4.48 Mbit/s
95th percentile per-packet one-way delay: 142.143 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 3.24 Mbit/s
95th percentile per-packet one-way delay: 172.788 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 2.97 Mbit/s
95th percentile per-packet one-way delay: 185.806 ms
Loss rate: 1.23%

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

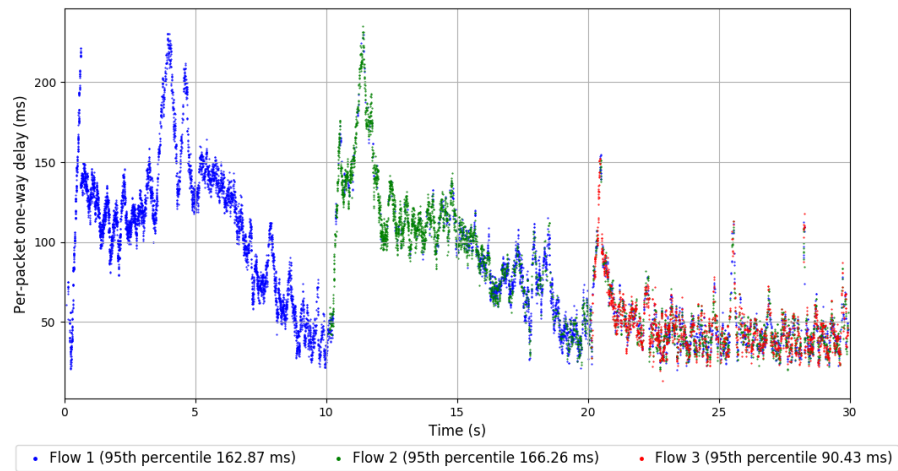
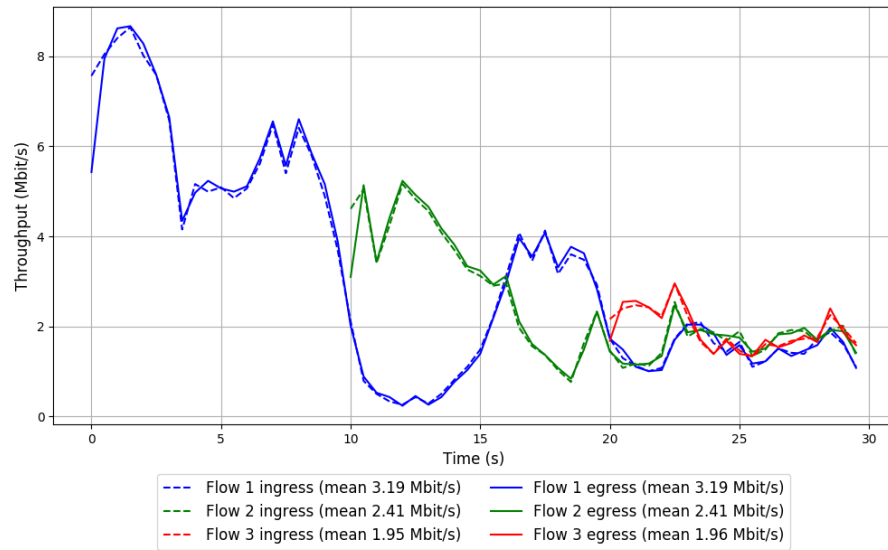


Run 1: Statistics of TCP Vegas

Start at: 2018-04-16 23:10:57
End at: 2018-04-16 23:11:27
Local clock offset: 1.015 ms
Remote clock offset: -5.523 ms

Below is generated by plot.py at 2018-04-17 01:19:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 5.44 Mbit/s
95th percentile per-packet one-way delay: 158.232 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 3.19 Mbit/s
95th percentile per-packet one-way delay: 162.866 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 166.261 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 90.426 ms
Loss rate: 0.50%

Run 1: Report of TCP Vegas — Data Link

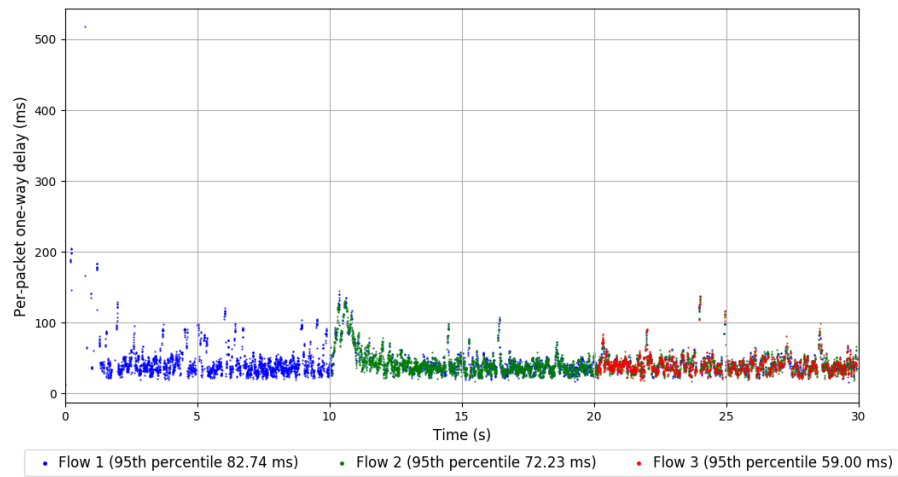
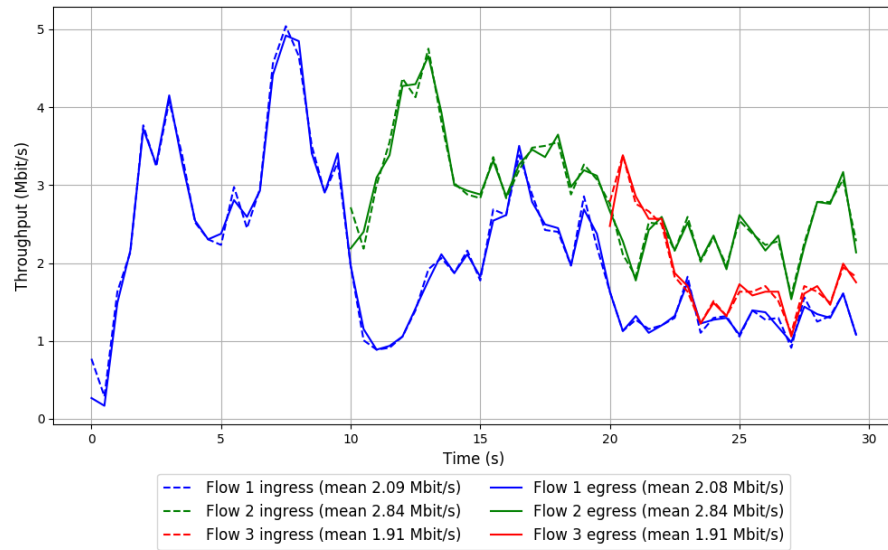


Run 2: Statistics of TCP Vegas

Start at: 2018-04-16 23:33:23
End at: 2018-04-16 23:33:53
Local clock offset: 0.908 ms
Remote clock offset: -4.704 ms

Below is generated by plot.py at 2018-04-17 01:19:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 4.60 Mbit/s
95th percentile per-packet one-way delay: 74.457 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 82.737 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 2.84 Mbit/s
95th percentile per-packet one-way delay: 72.228 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 1.91 Mbit/s
95th percentile per-packet one-way delay: 59.001 ms
Loss rate: 0.44%

Run 2: Report of TCP Vegas — Data Link

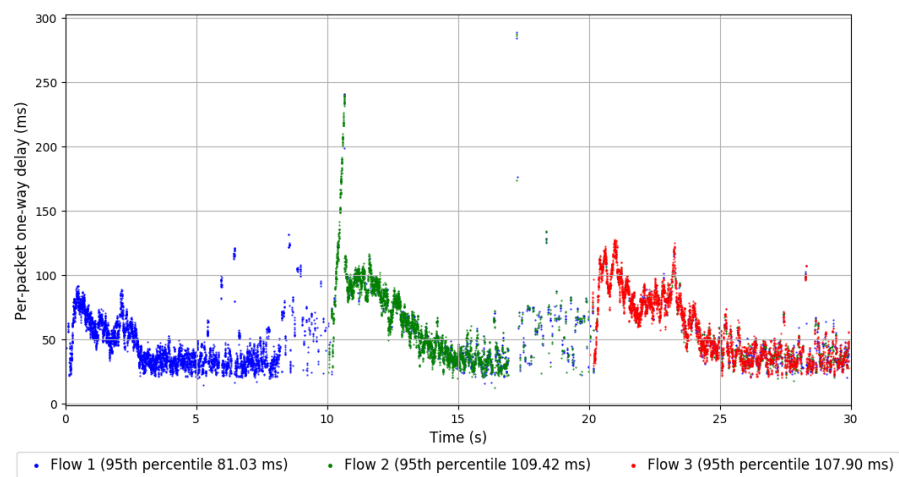
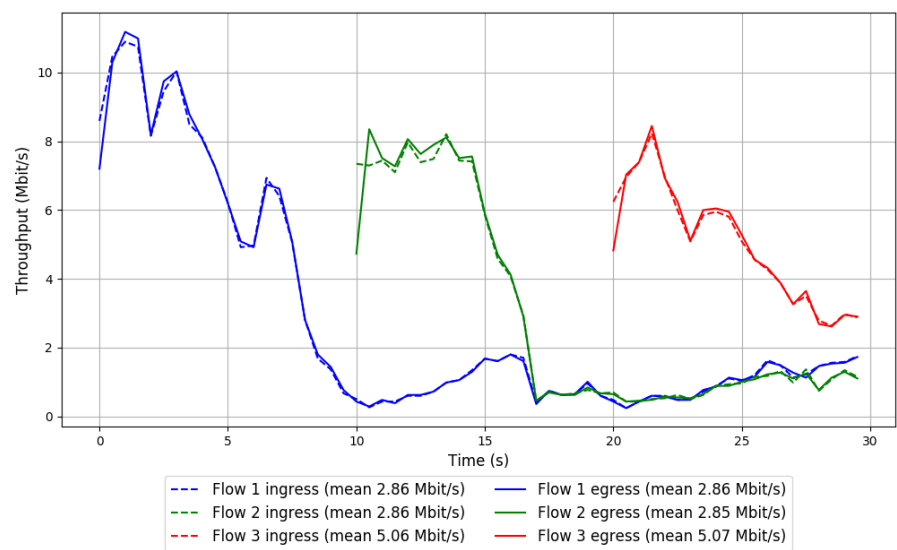


Run 3: Statistics of TCP Vegas

Start at: 2018-04-16 23:55:48
End at: 2018-04-16 23:56:18
Local clock offset: 0.817 ms
Remote clock offset: -4.624 ms

Below is generated by plot.py at 2018-04-17 01:19:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.43 Mbit/s
95th percentile per-packet one-way delay: 101.988 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 81.034 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 2.85 Mbit/s
95th percentile per-packet one-way delay: 109.421 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 5.07 Mbit/s
95th percentile per-packet one-way delay: 107.903 ms
Loss rate: 0.26%

Run 3: Report of TCP Vegas — Data Link

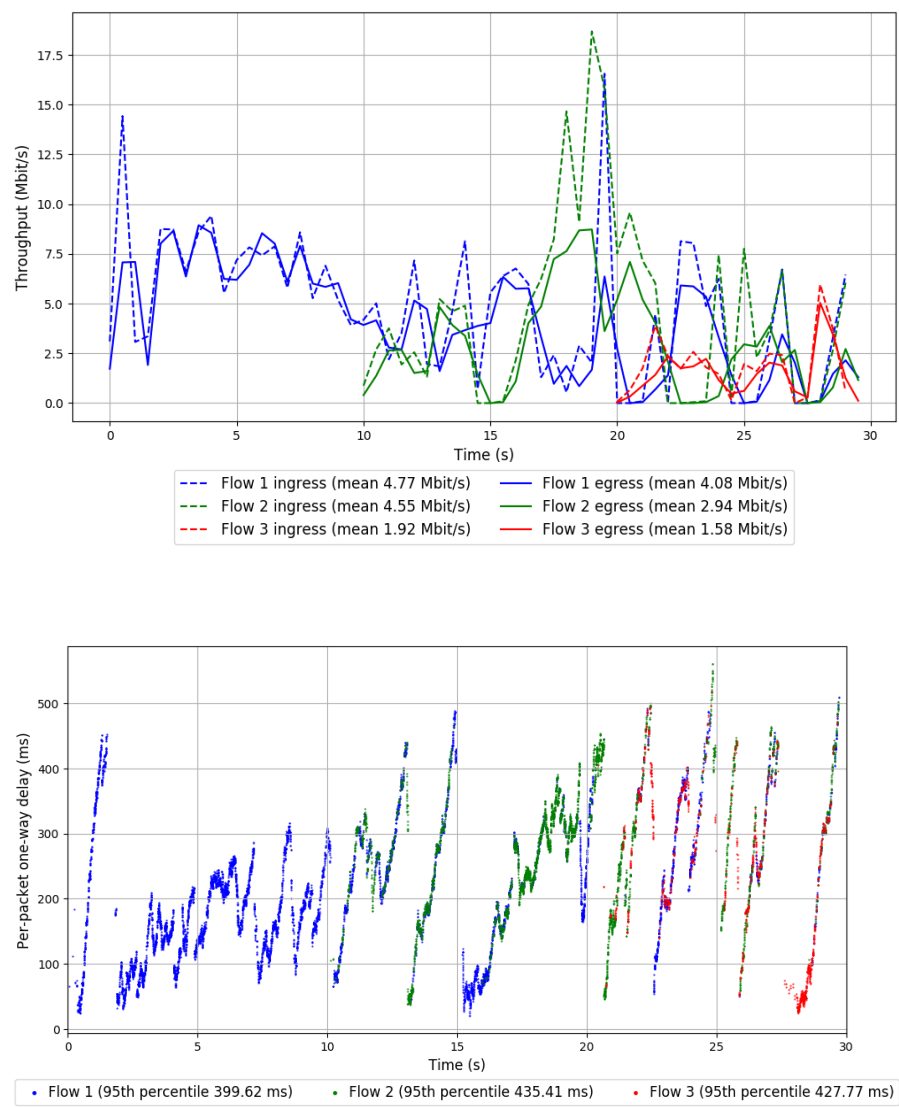


Run 1: Statistics of Verus

Start at: 2018-04-16 23:14:55
End at: 2018-04-16 23:15:25
Local clock offset: 0.945 ms
Remote clock offset: -5.413 ms

Below is generated by plot.py at 2018-04-17 01:19:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.51 Mbit/s
95th percentile per-packet one-way delay: 421.787 ms
Loss rate: 21.19%
-- Flow 1:
Average throughput: 4.08 Mbit/s
95th percentile per-packet one-way delay: 399.624 ms
Loss rate: 13.37%
-- Flow 2:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 435.406 ms
Loss rate: 34.33%
-- Flow 3:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 427.772 ms
Loss rate: 17.73%

Run 1: Report of Verus — Data Link

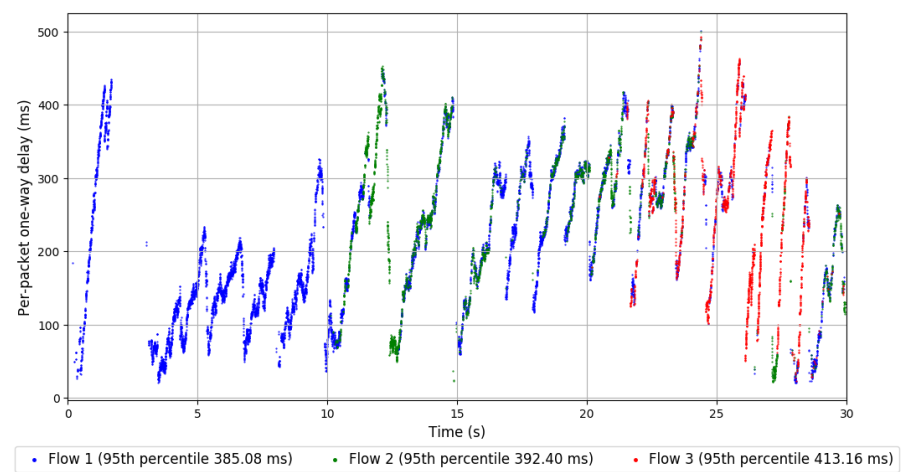
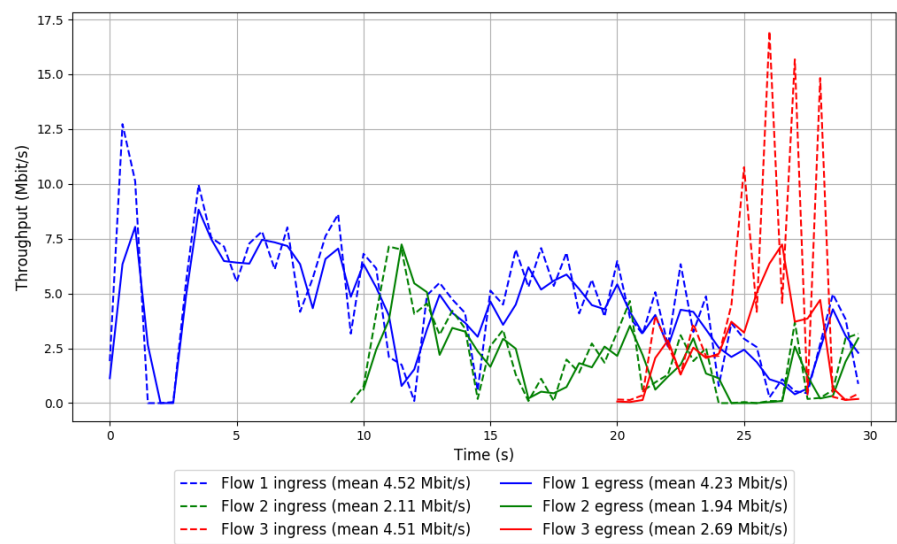


Run 2: Statistics of Verus

Start at: 2018-04-16 23:37:20
End at: 2018-04-16 23:37:50
Local clock offset: 1.039 ms
Remote clock offset: -4.494 ms

Below is generated by plot.py at 2018-04-17 01:19:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.40 Mbit/s
95th percentile per-packet one-way delay: 390.952 ms
Loss rate: 14.30%
-- Flow 1:
Average throughput: 4.23 Mbit/s
95th percentile per-packet one-way delay: 385.080 ms
Loss rate: 7.17%
-- Flow 2:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 392.405 ms
Loss rate: 8.53%
-- Flow 3:
Average throughput: 2.69 Mbit/s
95th percentile per-packet one-way delay: 413.158 ms
Loss rate: 41.43%

Run 2: Report of Verus — Data Link

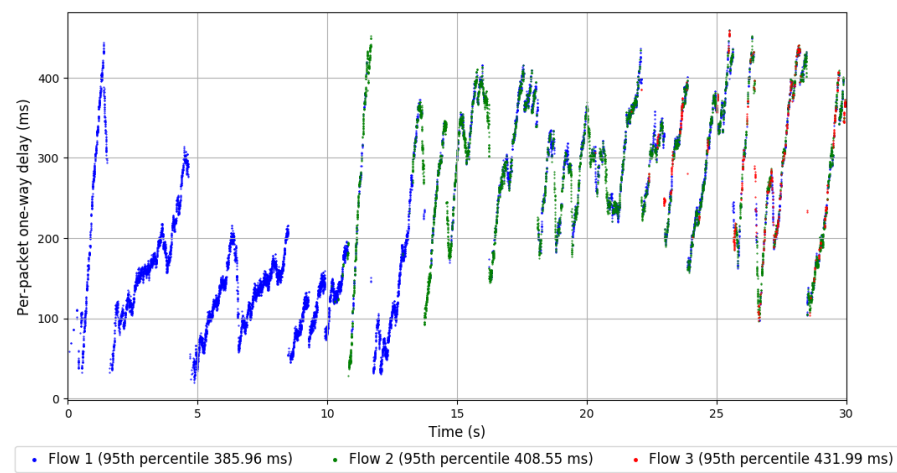
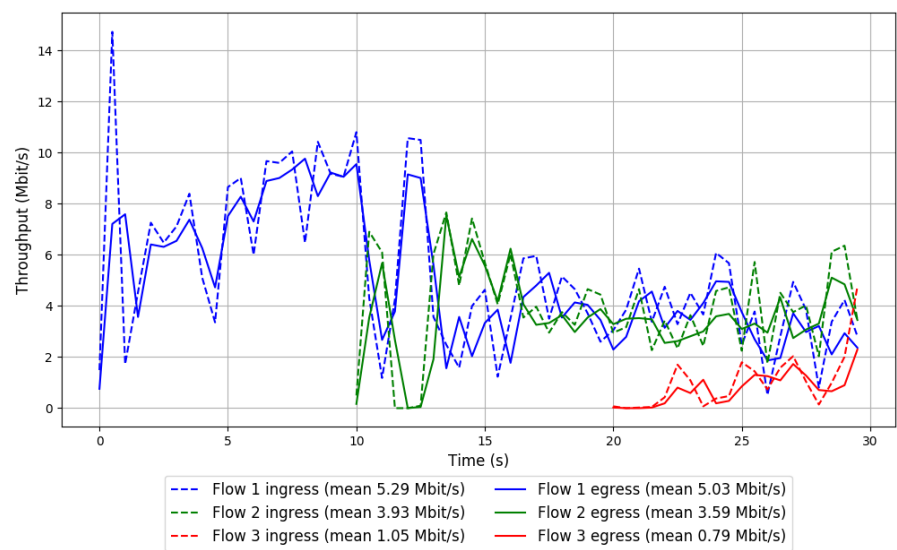


Run 3: Statistics of Verus

Start at: 2018-04-16 23:59:46
End at: 2018-04-17 00:00:16
Local clock offset: 0.868 ms
Remote clock offset: -4.754 ms

Below is generated by plot.py at 2018-04-17 01:19:33
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.66 Mbit/s
95th percentile per-packet one-way delay: 396.204 ms
Loss rate: 6.99%
-- Flow 1:
Average throughput: 5.03 Mbit/s
95th percentile per-packet one-way delay: 385.960 ms
Loss rate: 4.79%
-- Flow 2:
Average throughput: 3.59 Mbit/s
95th percentile per-packet one-way delay: 408.553 ms
Loss rate: 8.83%
-- Flow 3:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 431.992 ms
Loss rate: 26.59%

Run 3: Report of Verus — Data Link

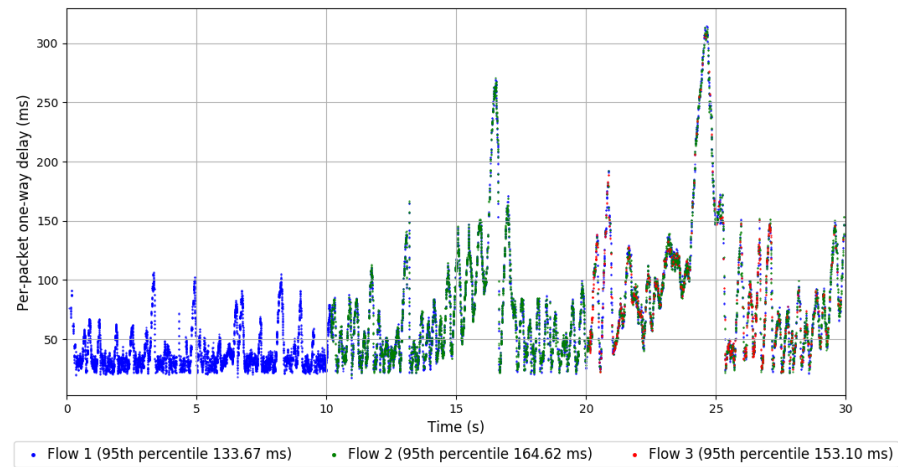
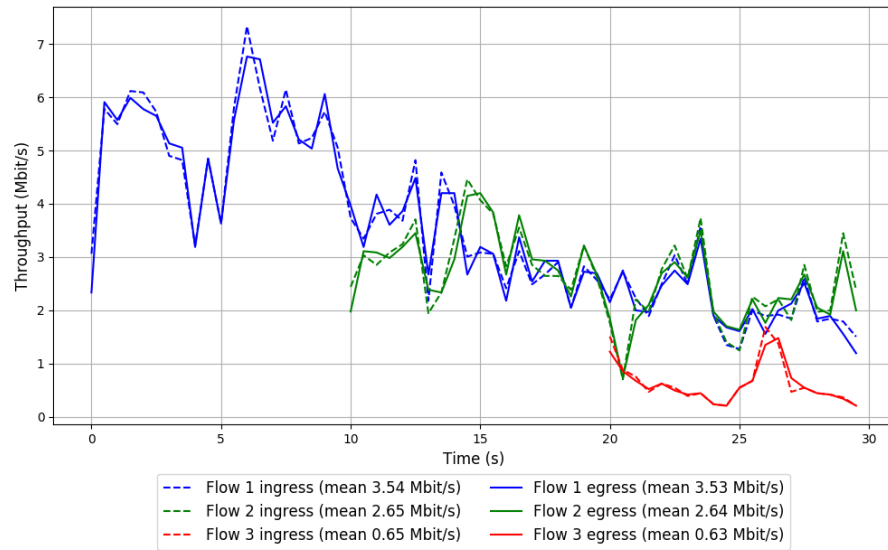


Run 1: Statistics of Copa

Start at: 2018-04-16 23:20:12
End at: 2018-04-16 23:20:42
Local clock offset: 0.918 ms
Remote clock offset: -5.118 ms

Below is generated by plot.py at 2018-04-17 01:19:37
Datalink statistics
-- Total of 3 flows:
Average throughput: 5.49 Mbit/s
95th percentile per-packet one-way delay: 146.189 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 3.53 Mbit/s
95th percentile per-packet one-way delay: 133.667 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 2.64 Mbit/s
95th percentile per-packet one-way delay: 164.615 ms
Loss rate: 1.02%
-- Flow 3:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 153.099 ms
Loss rate: 2.86%

Run 1: Report of Copa — Data Link

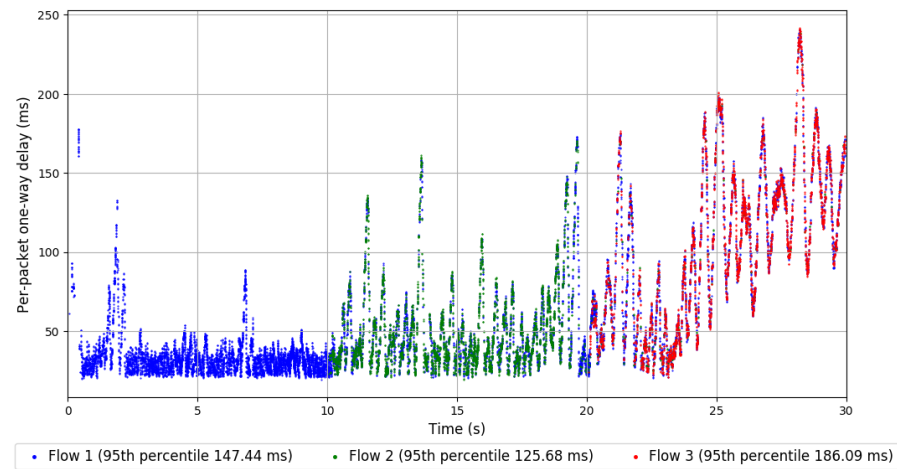
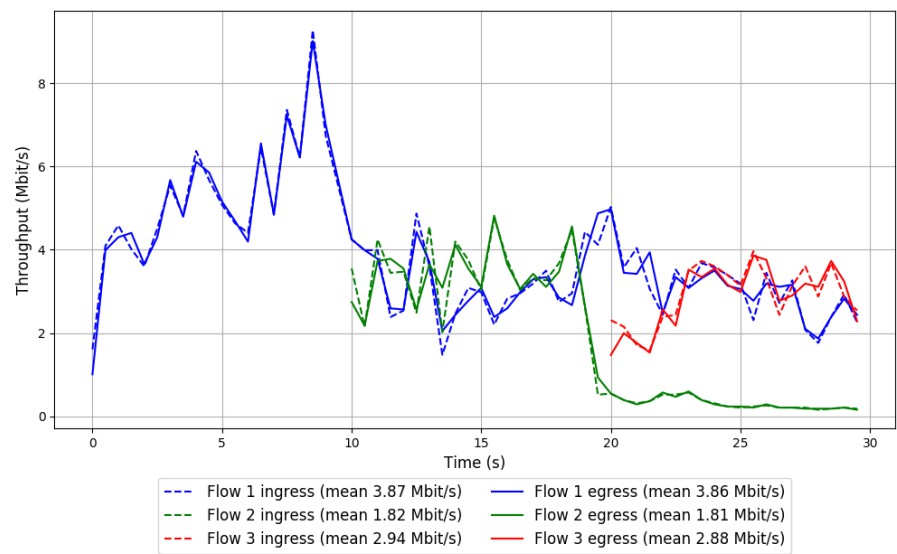


Run 2: Statistics of Copa

Start at: 2018-04-16 23:42:37
End at: 2018-04-16 23:43:07
Local clock offset: 1.117 ms
Remote clock offset: -4.412 ms

Below is generated by plot.py at 2018-04-17 01:19:40
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.02 Mbit/s
95th percentile per-packet one-way delay: 157.947 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 3.86 Mbit/s
95th percentile per-packet one-way delay: 147.443 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 125.678 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 2.88 Mbit/s
95th percentile per-packet one-way delay: 186.085 ms
Loss rate: 2.50%

Run 2: Report of Copa — Data Link

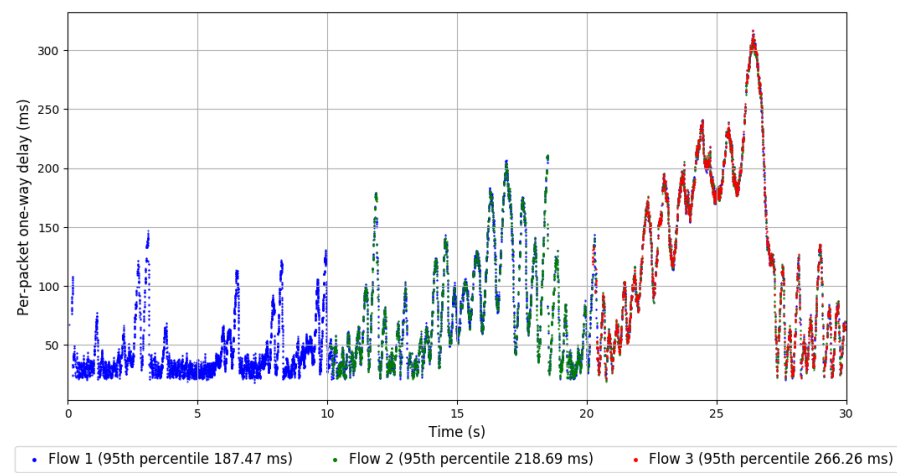
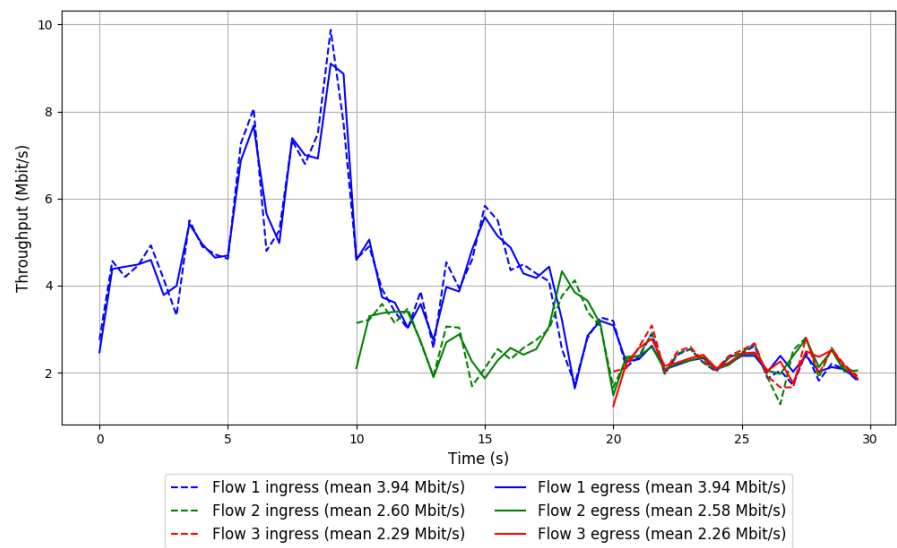


Run 3: Statistics of Copa

Start at: 2018-04-17 00:05:02
End at: 2018-04-17 00:05:32
Local clock offset: 0.909 ms
Remote clock offset: -4.905 ms

Below is generated by plot.py at 2018-04-17 01:19:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 6.40 Mbit/s
95th percentile per-packet one-way delay: 209.744 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 3.94 Mbit/s
95th percentile per-packet one-way delay: 187.469 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 2.58 Mbit/s
95th percentile per-packet one-way delay: 218.689 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 266.258 ms
Loss rate: 1.94%

Run 3: Report of Copa — Data Link

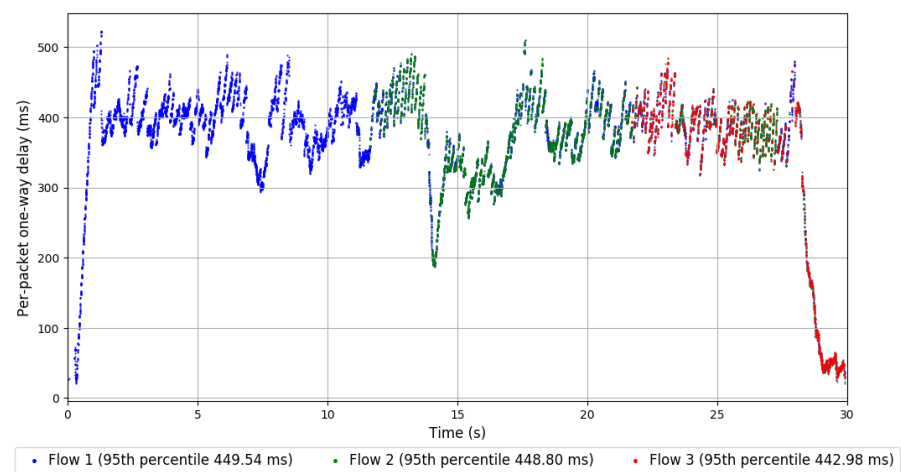
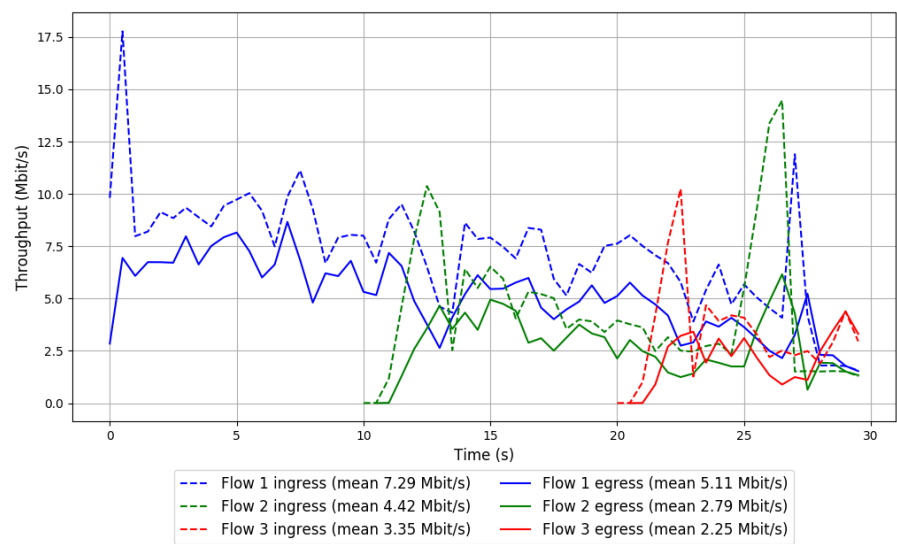


Run 1: Statistics of FillP

Start at: 2018-04-16 23:21:31
End at: 2018-04-16 23:22:01
Local clock offset: 0.854 ms
Remote clock offset: -5.146 ms

Below is generated by plot.py at 2018-04-17 01:19:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 449.009 ms
Loss rate: 33.16%
-- Flow 1:
Average throughput: 5.11 Mbit/s
95th percentile per-packet one-way delay: 449.541 ms
Loss rate: 30.02%
-- Flow 2:
Average throughput: 2.79 Mbit/s
95th percentile per-packet one-way delay: 448.796 ms
Loss rate: 39.09%
-- Flow 3:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 442.984 ms
Loss rate: 38.07%

Run 1: Report of FillP — Data Link

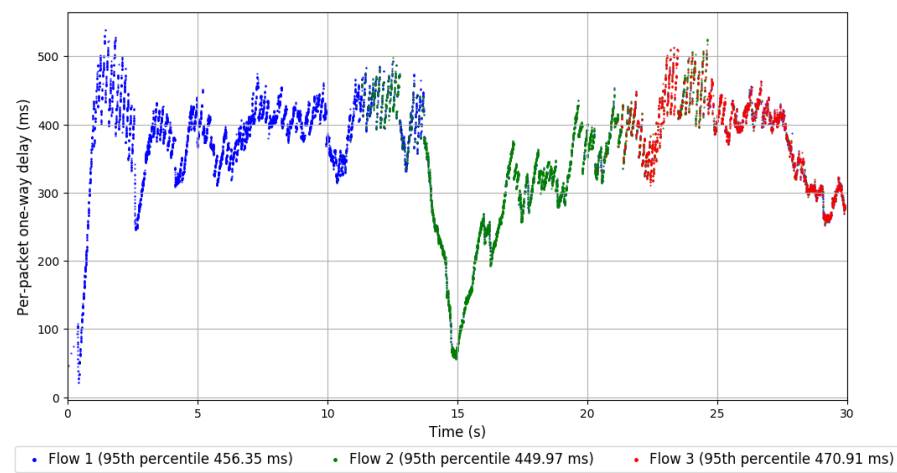
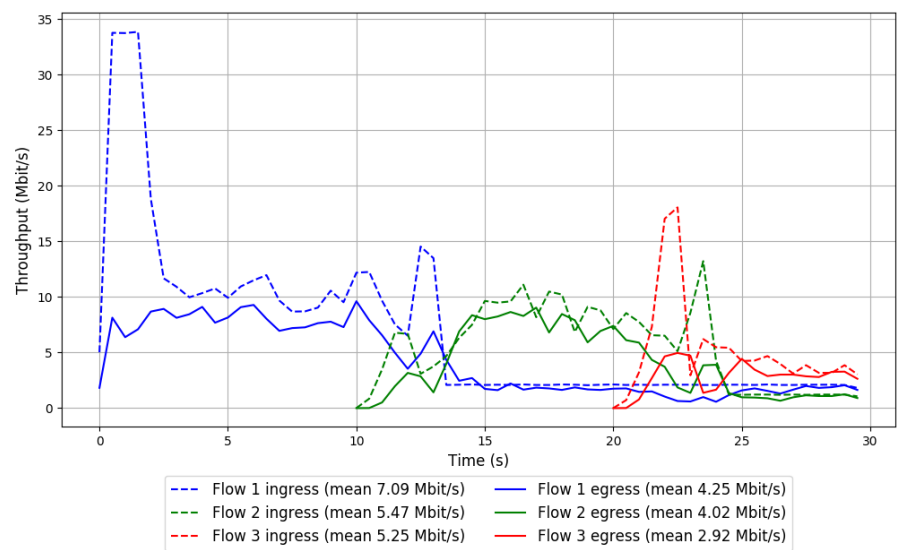


Run 2: Statistics of FillP

Start at: 2018-04-16 23:43:56
End at: 2018-04-16 23:44:26
Local clock offset: 1.06 ms
Remote clock offset: -4.298 ms

Below is generated by plot.py at 2018-04-17 01:19:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 456.963 ms
Loss rate: 37.45%
-- Flow 1:
Average throughput: 4.25 Mbit/s
95th percentile per-packet one-way delay: 456.349 ms
Loss rate: 40.28%
-- Flow 2:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 449.970 ms
Loss rate: 27.70%
-- Flow 3:
Average throughput: 2.92 Mbit/s
95th percentile per-packet one-way delay: 470.911 ms
Loss rate: 46.33%

Run 2: Report of FillP — Data Link

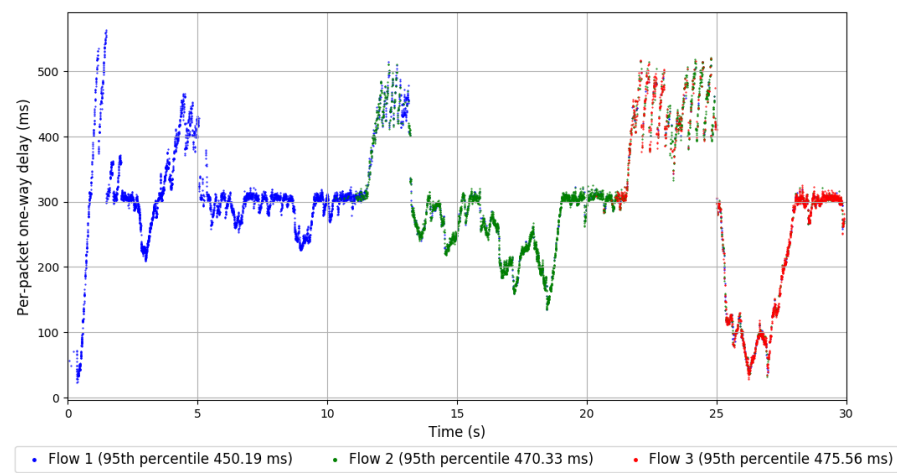
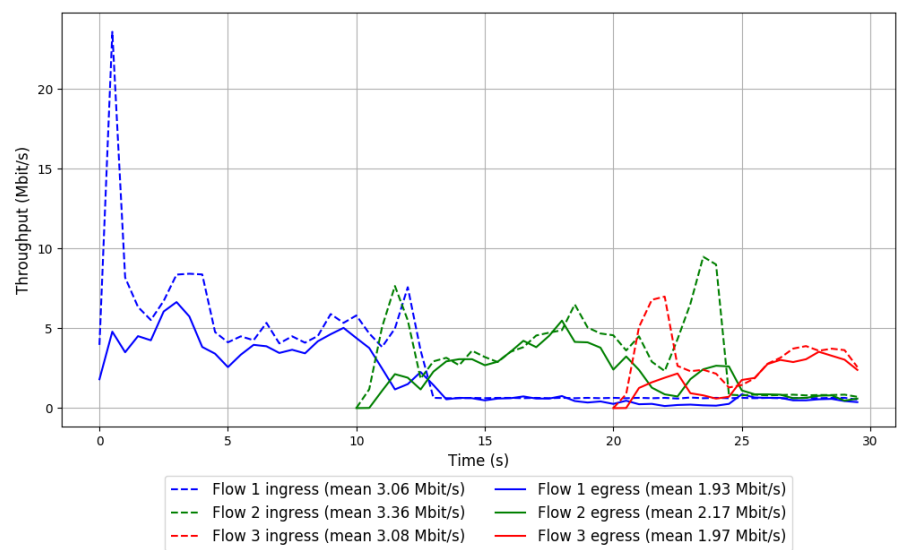


Run 3: Statistics of FillP

Start at: 2018-04-17 00:06:21
End at: 2018-04-17 00:06:51
Local clock offset: 0.814 ms
Remote clock offset: -4.823 ms

Below is generated by plot.py at 2018-04-17 01:19:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.99 Mbit/s
95th percentile per-packet one-way delay: 462.169 ms
Loss rate: 36.95%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 450.191 ms
Loss rate: 36.90%
-- Flow 2:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 470.329 ms
Loss rate: 36.44%
-- Flow 3:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 475.557 ms
Loss rate: 38.21%

Run 3: Report of FillP — Data Link

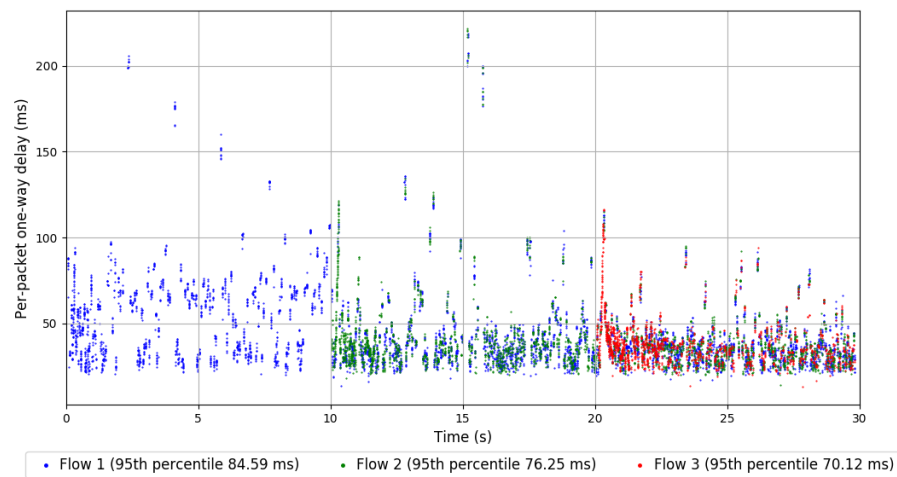
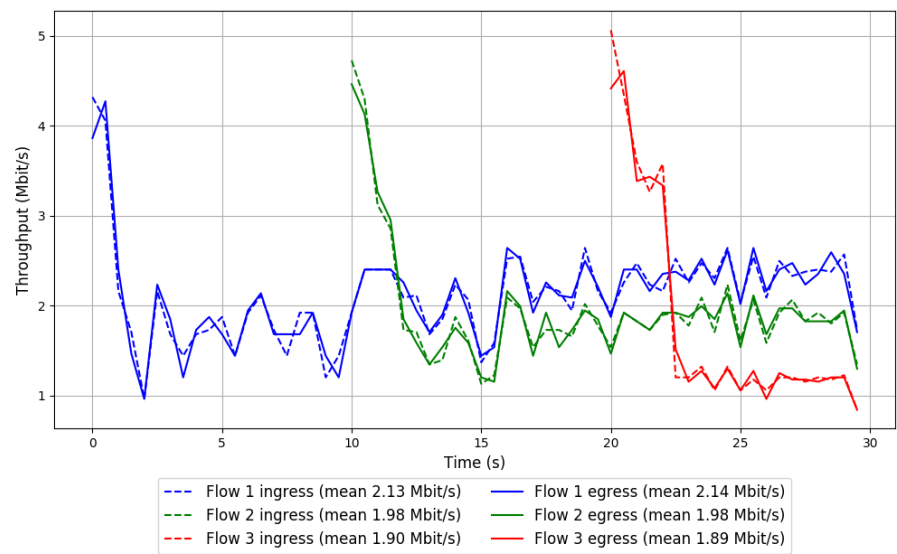


```
Run 1: Statistics of Indigo-1-32

Start at: 2018-04-16 23:18:52
End at: 2018-04-16 23:19:22
Local clock offset: 0.938 ms
Remote clock offset: -5.288 ms

# Below is generated by plot.py at 2018-04-17 01:19:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.06 Mbit/s
95th percentile per-packet one-way delay: 81.414 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 84.594 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 76.252 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 70.121 ms
Loss rate: 1.23%
```

Run 1: Report of Indigo-1-32 — Data Link

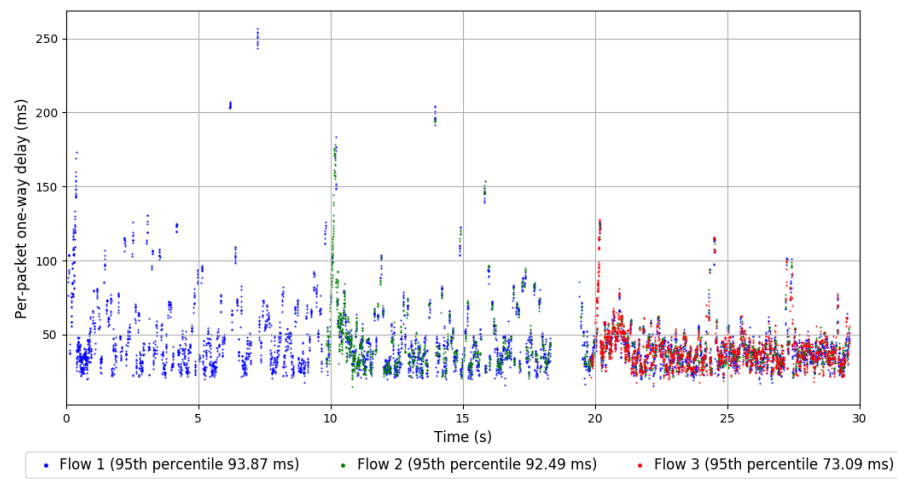
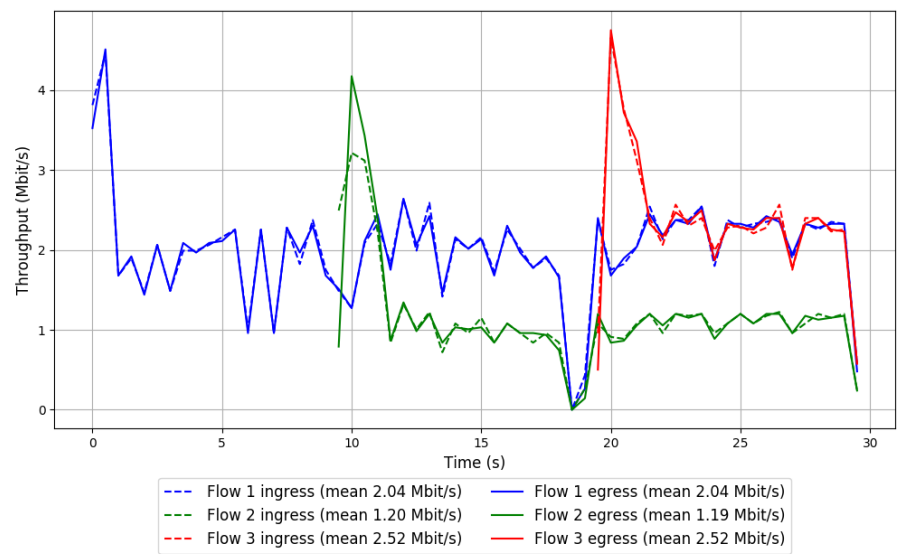


Run 2: Statistics of Indigo-1-32

Start at: 2018-04-16 23:41:18
End at: 2018-04-16 23:41:48
Local clock offset: 1.104 ms
Remote clock offset: -4.458 ms

Below is generated by plot.py at 2018-04-17 01:19:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 88.095 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 93.869 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 92.491 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 73.087 ms
Loss rate: 0.48%

Run 2: Report of Indigo-1-32 — Data Link

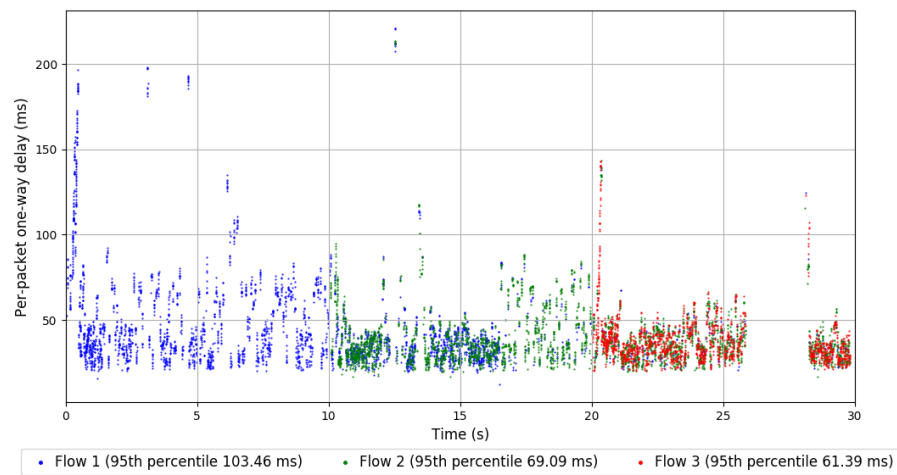
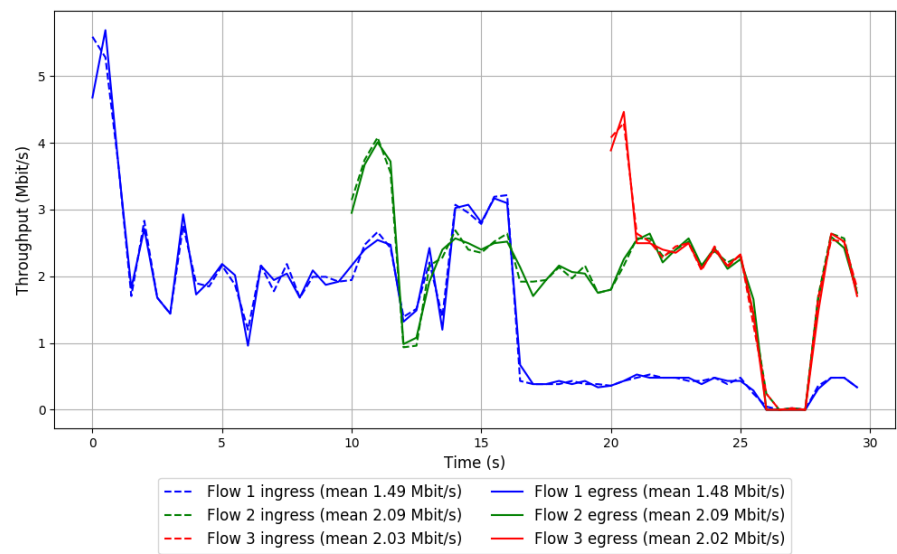


Run 3: Statistics of Indigo-1-32

Start at: 2018-04-17 00:03:43
End at: 2018-04-17 00:04:13
Local clock offset: 0.882 ms
Remote clock offset: -4.882 ms

Below is generated by plot.py at 2018-04-17 01:19:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.53 Mbit/s
95th percentile per-packet one-way delay: 77.054 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 1.48 Mbit/s
95th percentile per-packet one-way delay: 103.457 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 2.09 Mbit/s
95th percentile per-packet one-way delay: 69.095 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 61.389 ms
Loss rate: 1.26%

Run 3: Report of Indigo-1-32 — Data Link

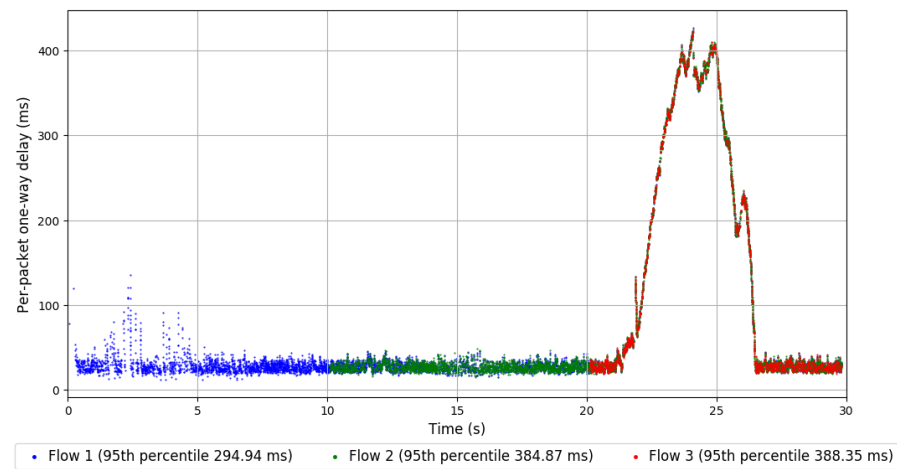
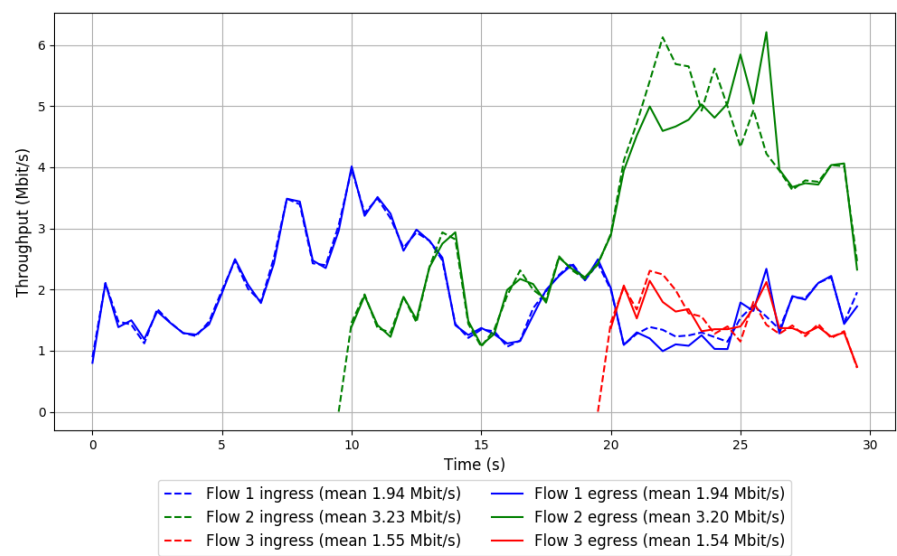


Run 1: Statistics of PCC-Vivace

Start at: 2018-04-16 23:09:38
End at: 2018-04-16 23:10:08
Local clock offset: 0.965 ms
Remote clock offset: -5.558 ms

Below is generated by plot.py at 2018-04-17 01:19:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 4.57 Mbit/s
95th percentile per-packet one-way delay: 375.576 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 294.939 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 3.20 Mbit/s
95th percentile per-packet one-way delay: 384.873 ms
Loss rate: 1.17%
-- Flow 3:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 388.351 ms
Loss rate: 1.33%

Run 1: Report of PCC-Vivace — Data Link

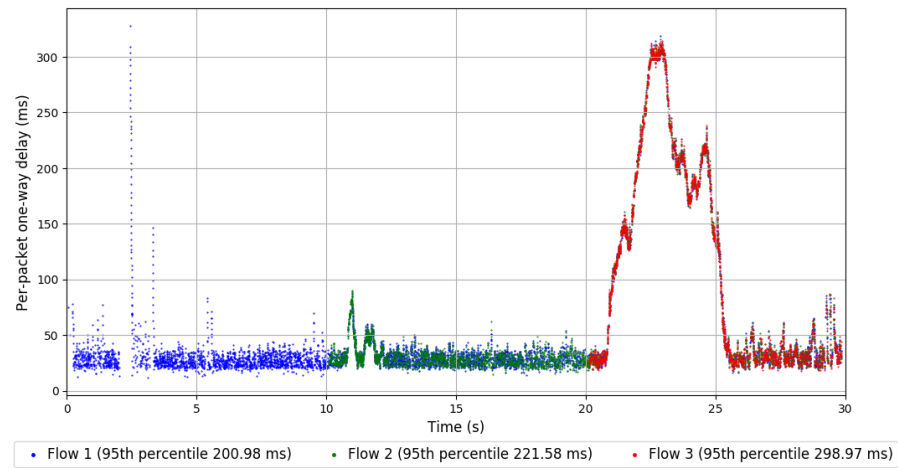
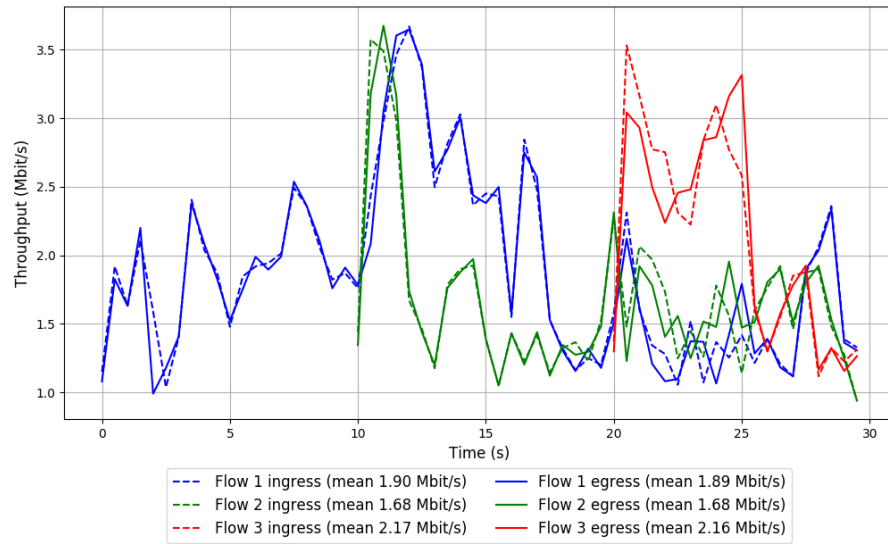


Run 2: Statistics of PCC-Vivace

Start at: 2018-04-16 23:32:03
End at: 2018-04-16 23:32:33
Local clock offset: 0.995 ms
Remote clock offset: -4.755 ms

Below is generated by plot.py at 2018-04-17 01:19:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.72 Mbit/s
95th percentile per-packet one-way delay: 229.492 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 200.984 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 221.581 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 298.974 ms
Loss rate: 0.81%

Run 2: Report of PCC-Vivace — Data Link

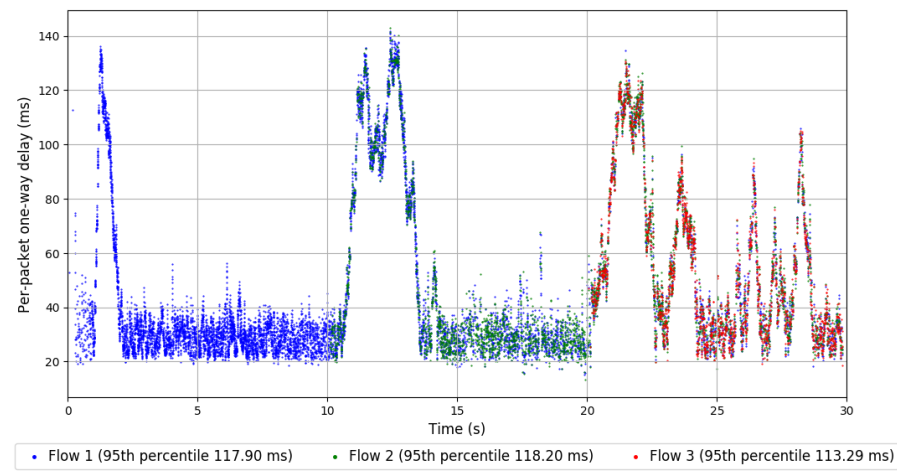
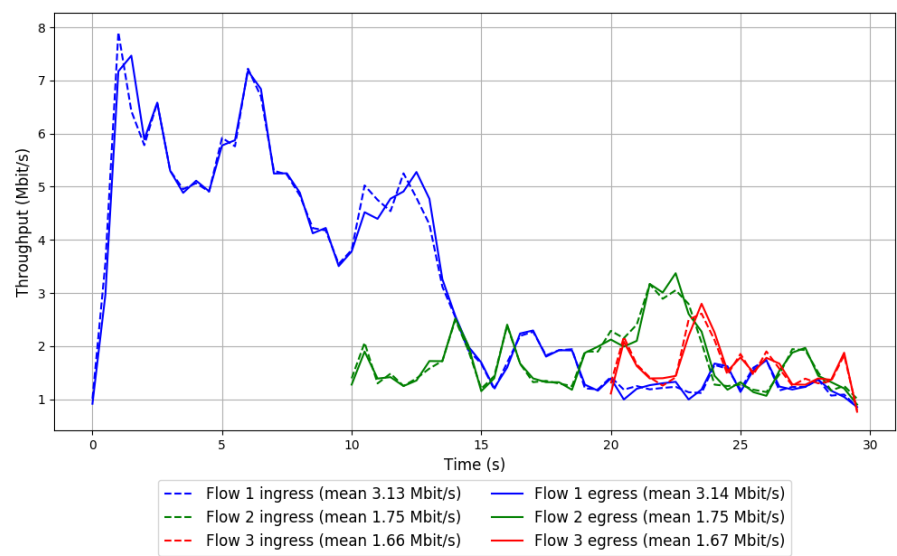


Run 3: Statistics of PCC-Vivace

Start at: 2018-04-16 23:54:28
End at: 2018-04-16 23:54:58
Local clock offset: 0.916 ms
Remote clock offset: -4.503 ms

Below is generated by plot.py at 2018-04-17 01:19:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 4.85 Mbit/s
95th percentile per-packet one-way delay: 117.387 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 3.14 Mbit/s
95th percentile per-packet one-way delay: 117.901 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 118.203 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 113.287 ms
Loss rate: 0.22%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2018-04-16 23:16:14

End at: 2018-04-16 23:16:44

Local clock offset: 0.872 ms

Remote clock offset: -5.443 ms

Run 1: Report of PCC-Expr — Data Link

Figure is missing

Figure is missing

Run 2: Statistics of PCC-Expr

Start at: 2018-04-16 23:38:40

End at: 2018-04-16 23:39:10

Local clock offset: 1.025 ms

Remote clock offset: -4.473 ms

Run 2: Report of PCC-Expr — Data Link

Figure is missing

Figure is missing

Run 3: Statistics of PCC-Expr

Start at: 2018-04-17 00:01:05

End at: 2018-04-17 00:01:35

Local clock offset: 0.898 ms

Remote clock offset: -4.847 ms

Run 3: Report of PCC-Expr — Data Link

Figure is missing

Figure is missing