

Pantheon Report

Generated at 2018-10-26 08:22:32 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

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

System info:

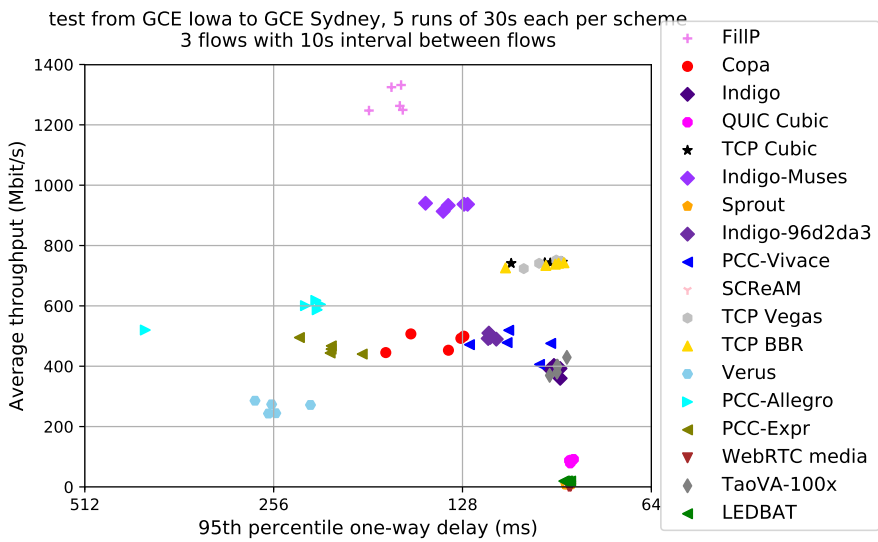
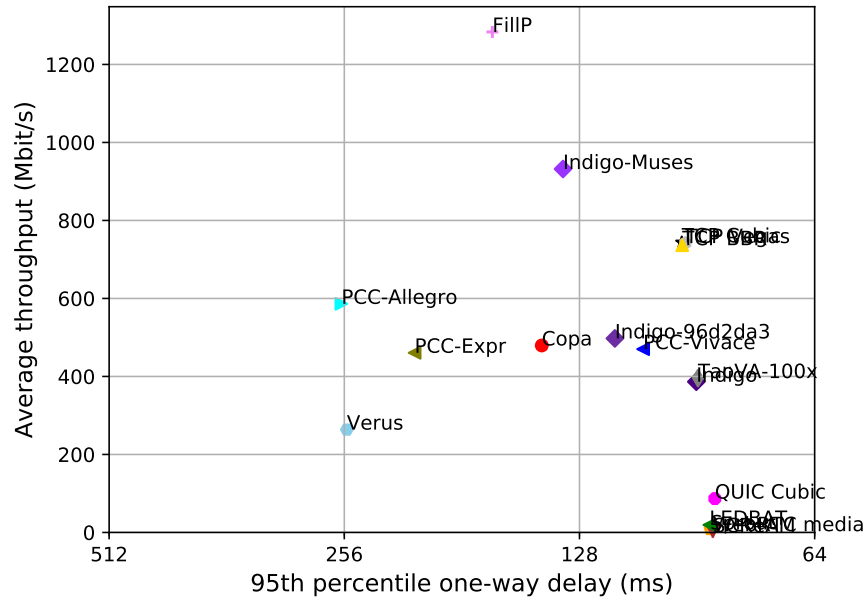
```
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

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



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	379.83	370.11	337.90	91.09	97.23	94.89	0.62	0.90	2.06
Copa	5	267.10	214.42	212.89	132.60	158.29	139.34	0.59	0.99	2.05
TCP Cubic	5	385.60	372.34	337.24	91.49	96.34	97.73	0.62	0.96	2.11
FillP	5	677.92	644.49	542.25	168.61	160.68	142.69	3.98	3.21	3.14
Indigo	5	204.72	194.28	162.31	90.40	91.61	89.95	0.59	0.93	2.10
Indigo-96d2da3	5	257.05	253.74	222.14	114.46	117.04	113.37	0.60	0.73	2.25
LEDBAT	5	12.51	8.30	4.03	87.41	86.96	86.72	1.15	1.74	3.51
Indigo-Muses	5	519.66	445.00	362.36	130.30	143.59	131.77	0.72	1.30	2.57
PCC-Allegro	5	330.23	270.30	236.98	254.65	233.22	232.61	7.60	5.43	5.97
PCC-Expr	5	269.44	213.56	152.06	213.50	173.35	149.09	5.59	2.32	2.54
QUIC Cubic	5	51.68	37.83	29.68	85.72	85.80	85.82	0.86	1.53	2.21
SCReAM	5	0.22	0.22	0.22	86.30	86.25	86.13	0.51	1.00	1.77
Sprout	5	4.14	3.88	3.21	87.03	87.01	87.03	0.73	0.69	2.71
TaoVA-100x	5	206.13	199.25	174.64	88.96	90.41	94.58	0.64	0.88	1.89
TCP Vegas	5	385.71	371.74	333.28	92.50	94.61	123.93	0.61	0.92	2.13
Verus	5	158.11	119.62	81.37	210.57	223.00	199.71	4.07	6.09	9.03
PCC-Vivace	5	296.71	191.36	142.50	122.86	103.71	103.59	0.84	1.01	2.57
WebRTC media	5	1.81	1.11	0.40	86.38	86.29	86.32	0.69	1.14	2.58

Run 1: Statistics of TCP BBR

Start at: 2018-10-26 03:32:54

End at: 2018-10-26 03:33:24

Local clock offset: 0.014 ms

Remote clock offset: 0.254 ms

Below is generated by plot.py at 2018-10-26 06:17:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 741.54 Mbit/s

95th percentile per-packet one-way delay: 89.970 ms

Loss rate: 0.81%

-- Flow 1:

Average throughput: 381.44 Mbit/s

95th percentile per-packet one-way delay: 88.836 ms

Loss rate: 0.62%

-- Flow 2:

Average throughput: 373.90 Mbit/s

95th percentile per-packet one-way delay: 97.459 ms

Loss rate: 0.65%

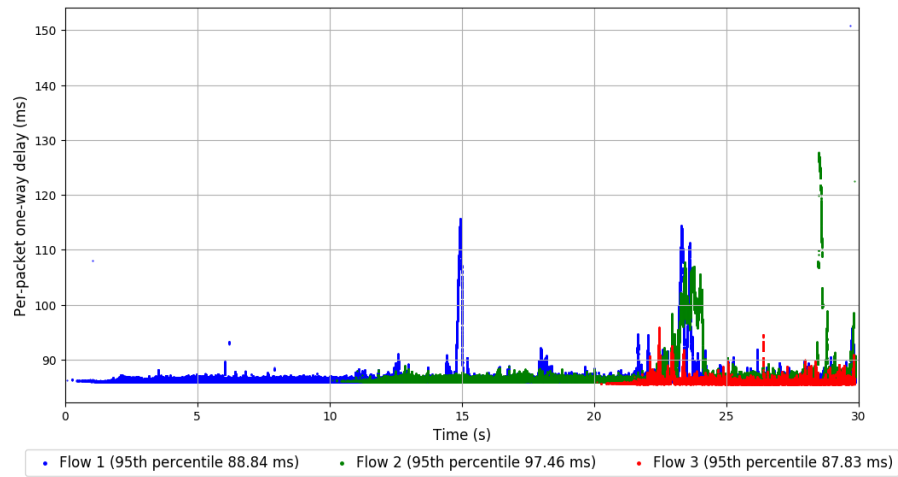
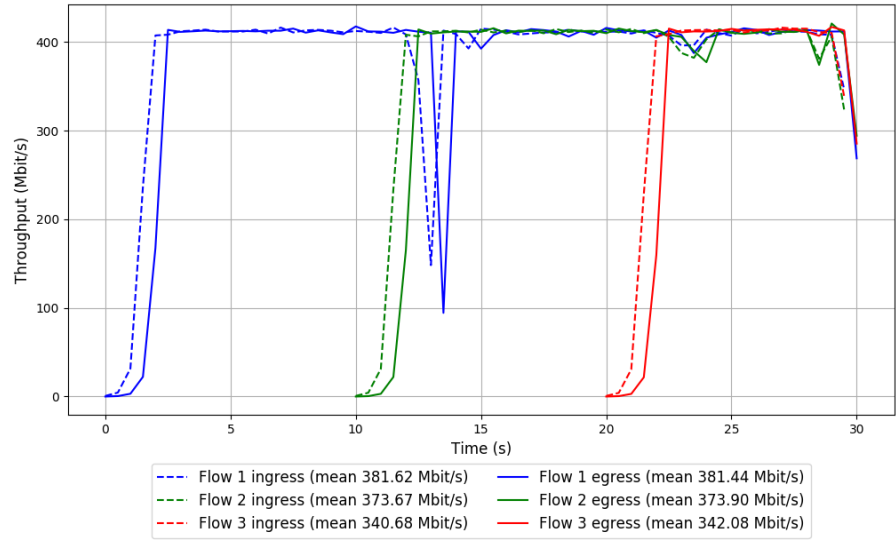
-- Flow 3:

Average throughput: 342.08 Mbit/s

95th percentile per-packet one-way delay: 87.833 ms

Loss rate: 1.84%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-10-26 04:04:18

End at: 2018-10-26 04:04:48

Local clock offset: 0.118 ms

Remote clock offset: 0.032 ms

Below is generated by plot.py at 2018-10-26 06:17:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 742.90 Mbit/s

95th percentile per-packet one-way delay: 88.206 ms

Loss rate: 0.95%

-- Flow 1:

Average throughput: 380.95 Mbit/s

95th percentile per-packet one-way delay: 88.031 ms

Loss rate: 0.62%

-- Flow 2:

Average throughput: 376.27 Mbit/s

95th percentile per-packet one-way delay: 88.151 ms

Loss rate: 0.95%

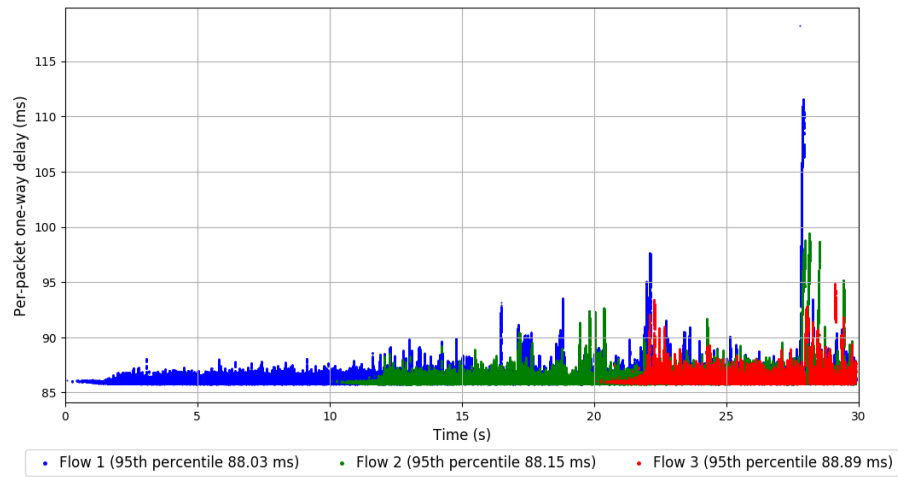
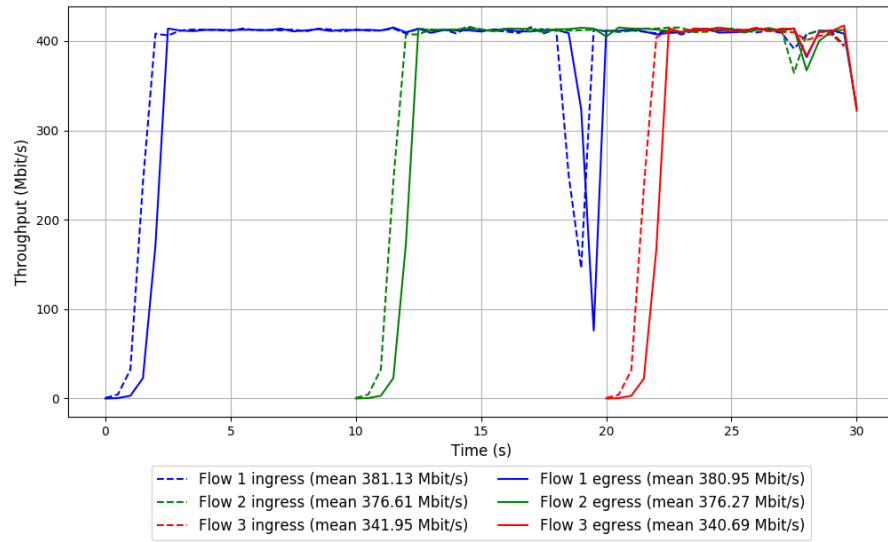
-- Flow 3:

Average throughput: 340.69 Mbit/s

95th percentile per-packet one-way delay: 88.887 ms

Loss rate: 2.09%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-10-26 04:35:43

End at: 2018-10-26 04:36:13

Local clock offset: 0.028 ms

Remote clock offset: 0.016 ms

Below is generated by plot.py at 2018-10-26 06:17:32

Datalink statistics

-- Total of 3 flows:

Average throughput: 738.25 Mbit/s

95th percentile per-packet one-way delay: 91.032 ms

Loss rate: 0.96%

-- Flow 1:

Average throughput: 380.44 Mbit/s

95th percentile per-packet one-way delay: 90.282 ms

Loss rate: 0.62%

-- Flow 2:

Average throughput: 370.73 Mbit/s

95th percentile per-packet one-way delay: 90.634 ms

Loss rate: 0.96%

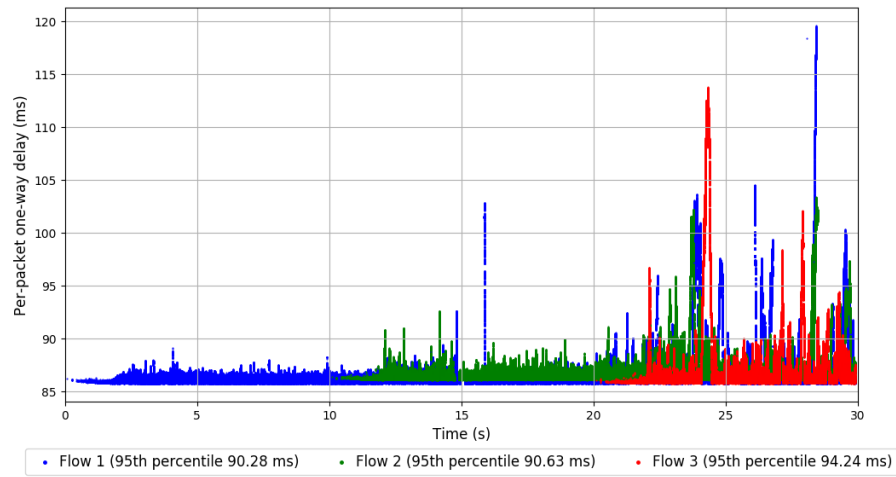
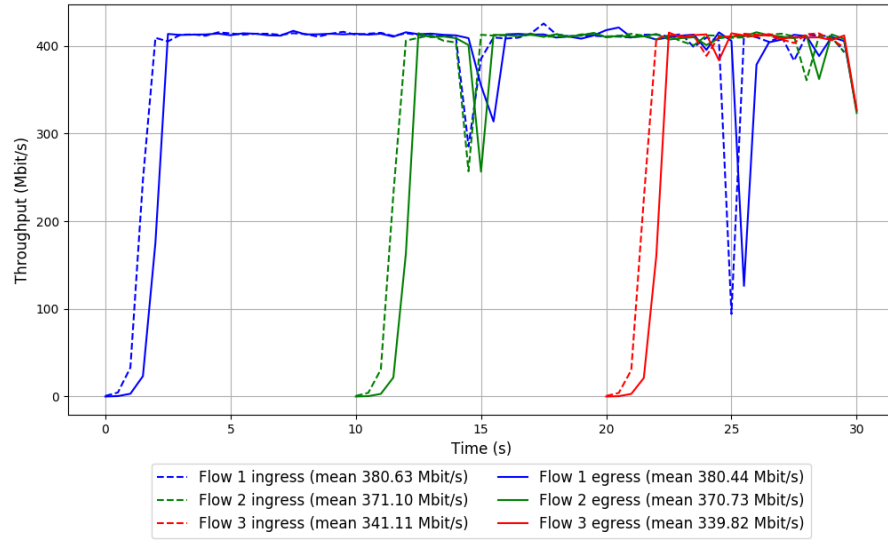
-- Flow 3:

Average throughput: 339.82 Mbit/s

95th percentile per-packet one-way delay: 94.240 ms

Loss rate: 2.09%

Run 3: Report of TCP BBR — Data Link

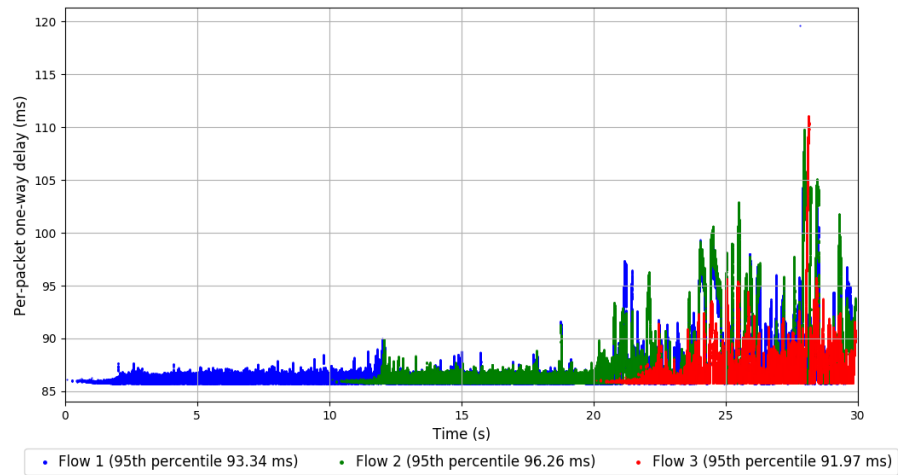
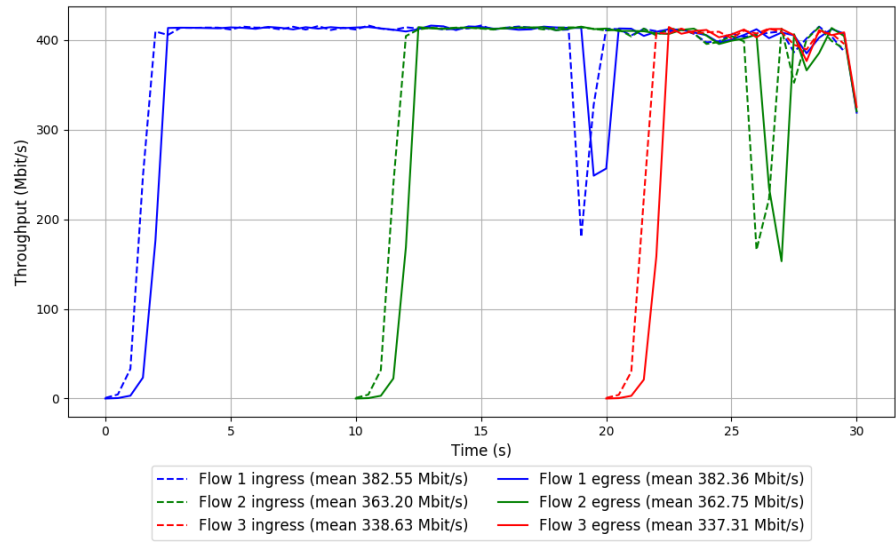


Run 4: Statistics of TCP BBR

Start at: 2018-10-26 05:06:55
End at: 2018-10-26 05:07:25
Local clock offset: -0.146 ms
Remote clock offset: -0.021 ms

Below is generated by plot.py at 2018-10-26 06:17:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 734.11 Mbit/s
95th percentile per-packet one-way delay: 94.268 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 382.36 Mbit/s
95th percentile per-packet one-way delay: 93.340 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 362.75 Mbit/s
95th percentile per-packet one-way delay: 96.260 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 337.31 Mbit/s
95th percentile per-packet one-way delay: 91.969 ms
Loss rate: 2.11%

Run 4: Report of TCP BBR — Data Link

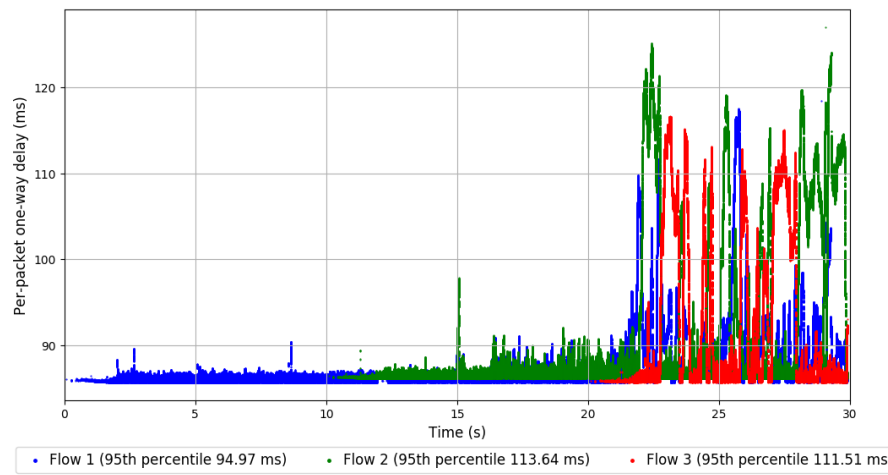
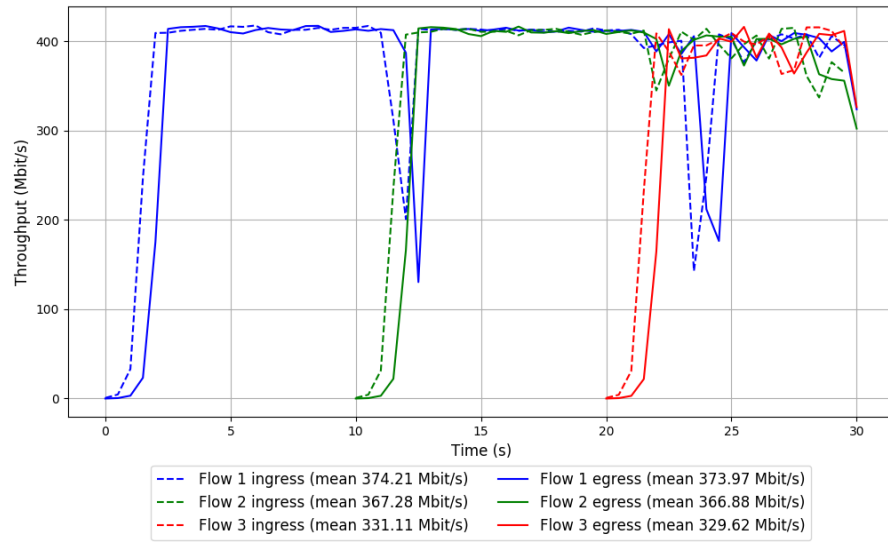


Run 5: Statistics of TCP BBR

Start at: 2018-10-26 05:38:13
End at: 2018-10-26 05:38:43
Local clock offset: -0.146 ms
Remote clock offset: -0.068 ms

Below is generated by plot.py at 2018-10-26 06:17:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 725.94 Mbit/s
95th percentile per-packet one-way delay: 109.308 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 373.97 Mbit/s
95th percentile per-packet one-way delay: 94.974 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 366.88 Mbit/s
95th percentile per-packet one-way delay: 113.639 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 329.62 Mbit/s
95th percentile per-packet one-way delay: 111.512 ms
Loss rate: 2.16%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-10-26 03:19:07

End at: 2018-10-26 03:19:37

Local clock offset: 0.742 ms

Remote clock offset: 0.268 ms

Below is generated by plot.py at 2018-10-26 06:21:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 507.08 Mbit/s

95th percentile per-packet one-way delay: 154.708 ms

Loss rate: 0.82%

-- Flow 1:

Average throughput: 276.20 Mbit/s

95th percentile per-packet one-way delay: 133.629 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 251.66 Mbit/s

95th percentile per-packet one-way delay: 171.122 ms

Loss rate: 0.92%

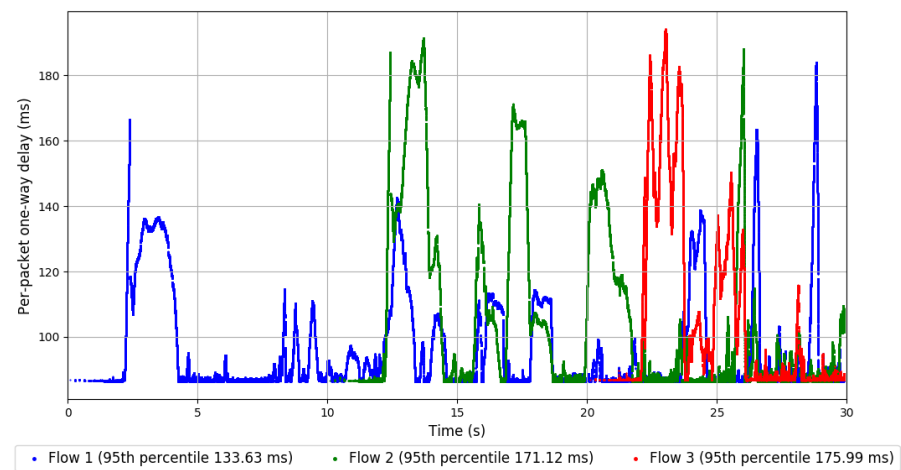
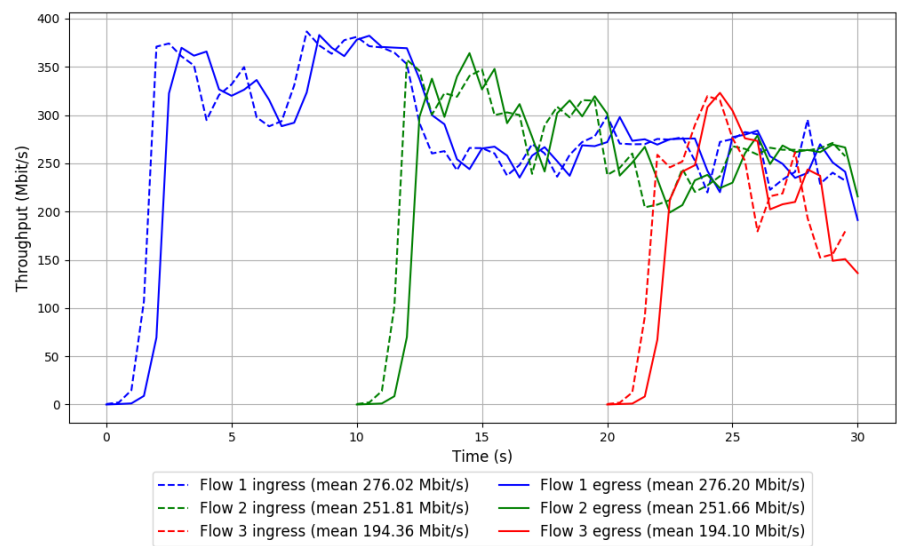
-- Flow 3:

Average throughput: 194.10 Mbit/s

95th percentile per-packet one-way delay: 175.993 ms

Loss rate: 1.86%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-10-26 03:50:30

End at: 2018-10-26 03:51:00

Local clock offset: 0.279 ms

Remote clock offset: 0.057 ms

Below is generated by plot.py at 2018-10-26 06:21:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 499.52 Mbit/s

95th percentile per-packet one-way delay: 127.367 ms

Loss rate: 0.96%

-- Flow 1:

Average throughput: 290.19 Mbit/s

95th percentile per-packet one-way delay: 122.314 ms

Loss rate: 0.59%

-- Flow 2:

Average throughput: 193.19 Mbit/s

95th percentile per-packet one-way delay: 104.492 ms

Loss rate: 0.96%

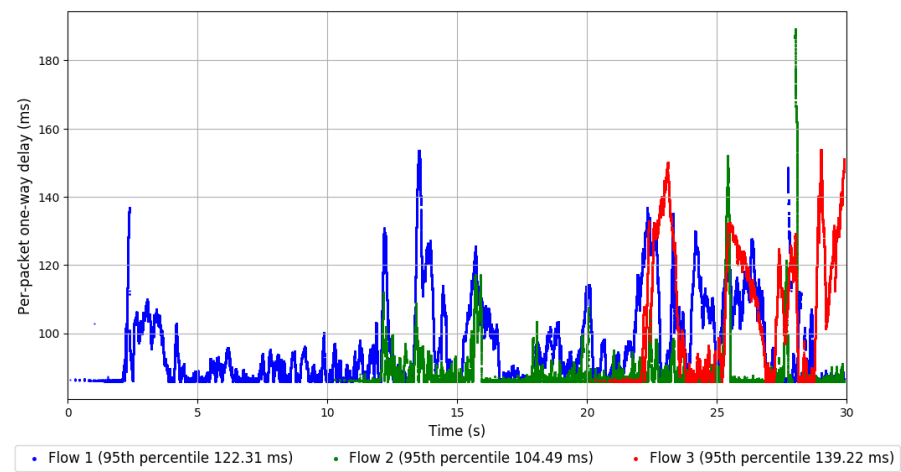
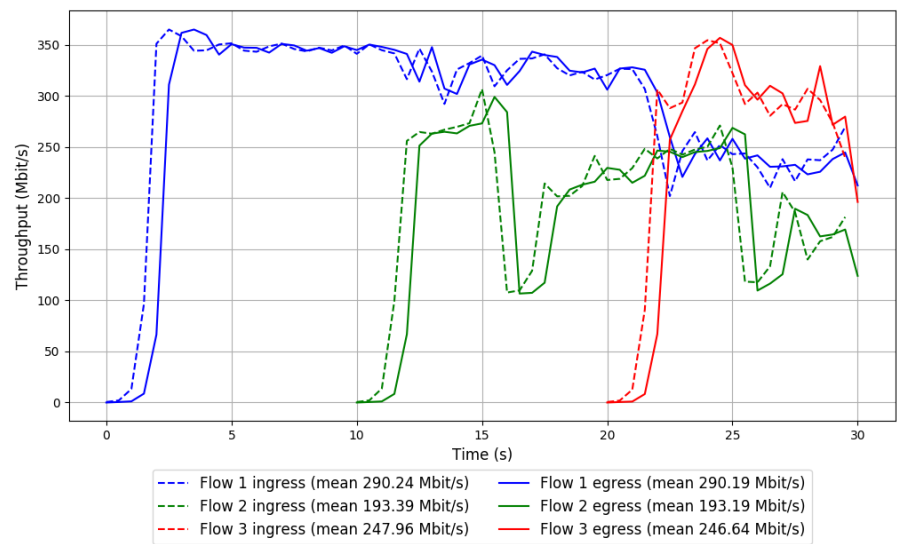
-- Flow 3:

Average throughput: 246.64 Mbit/s

95th percentile per-packet one-way delay: 139.221 ms

Loss rate: 2.25%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-10-26 04:22:04

End at: 2018-10-26 04:22:34

Local clock offset: -0.876 ms

Remote clock offset: -0.02 ms

Below is generated by plot.py at 2018-10-26 06:21:05

Datalink statistics

-- Total of 3 flows:

Average throughput: 452.95 Mbit/s

95th percentile per-packet one-way delay: 134.781 ms

Loss rate: 0.99%

-- Flow 1:

Average throughput: 243.24 Mbit/s

95th percentile per-packet one-way delay: 124.230 ms

Loss rate: 0.70%

-- Flow 2:

Average throughput: 217.92 Mbit/s

95th percentile per-packet one-way delay: 147.321 ms

Loss rate: 1.03%

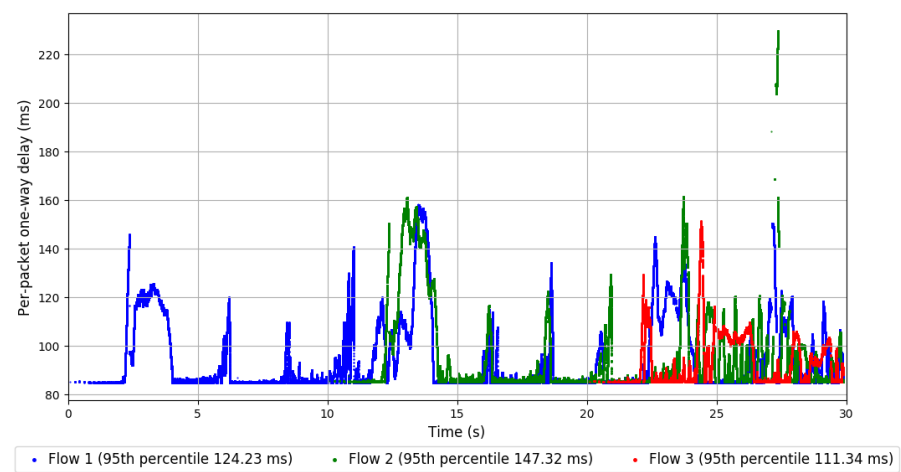
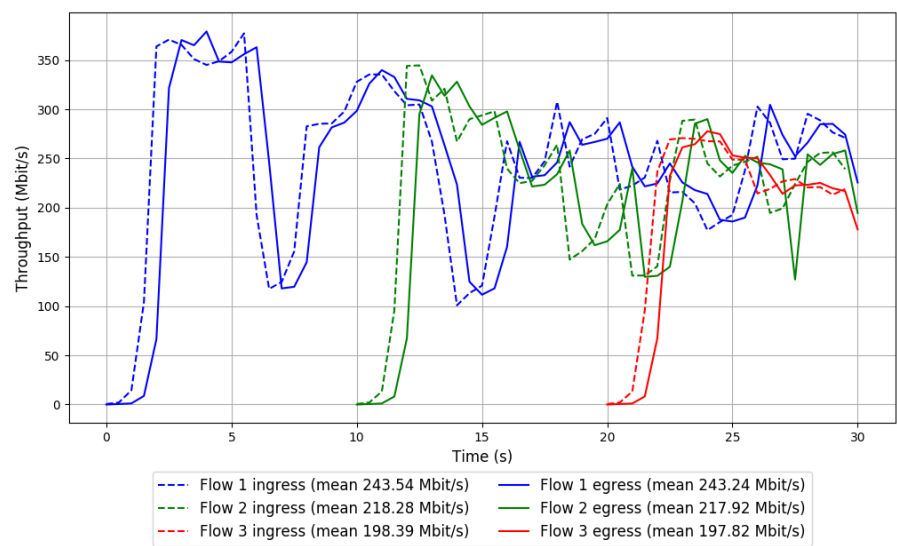
-- Flow 3:

Average throughput: 197.82 Mbit/s

95th percentile per-packet one-way delay: 111.337 ms

Loss rate: 2.01%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-10-26 04:53:14

End at: 2018-10-26 04:53:44

Local clock offset: -0.385 ms

Remote clock offset: -0.03 ms

Below is generated by plot.py at 2018-10-26 06:35:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 492.36 Mbit/s

95th percentile per-packet one-way delay: 128.773 ms

Loss rate: 0.92%

-- Flow 1:

Average throughput: 278.09 Mbit/s

95th percentile per-packet one-way delay: 125.545 ms

Loss rate: 0.57%

-- Flow 2:

Average throughput: 217.31 Mbit/s

95th percentile per-packet one-way delay: 154.517 ms

Loss rate: 0.99%

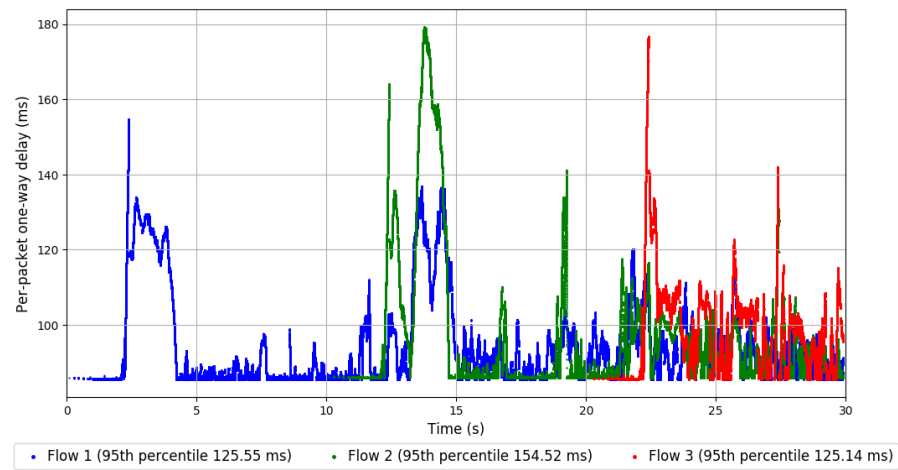
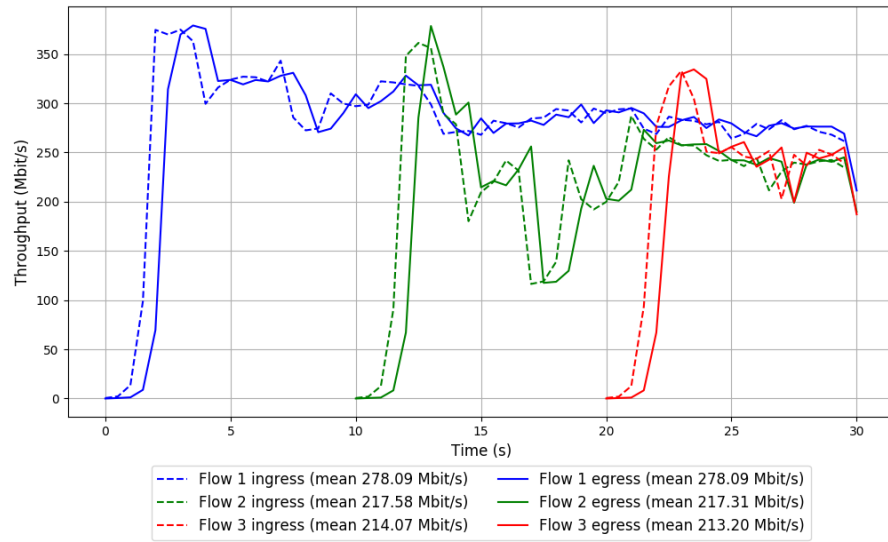
-- Flow 3:

Average throughput: 213.20 Mbit/s

95th percentile per-packet one-way delay: 125.145 ms

Loss rate: 2.13%

Run 4: Report of Copa — Data Link

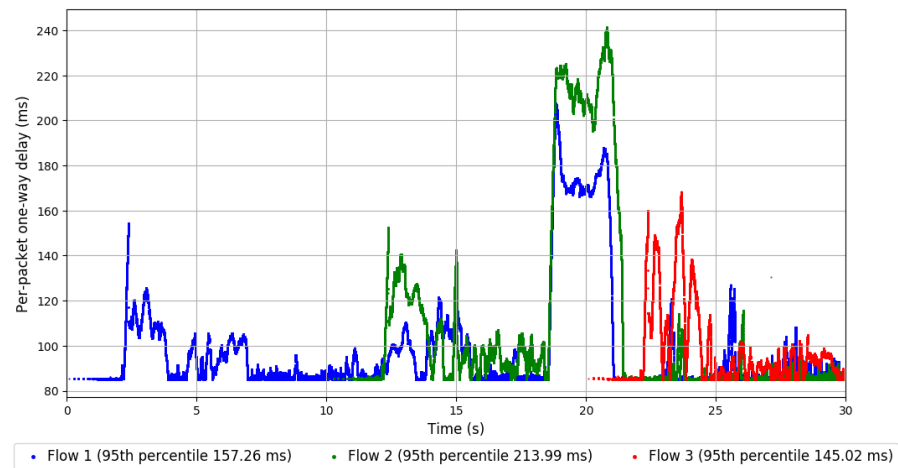
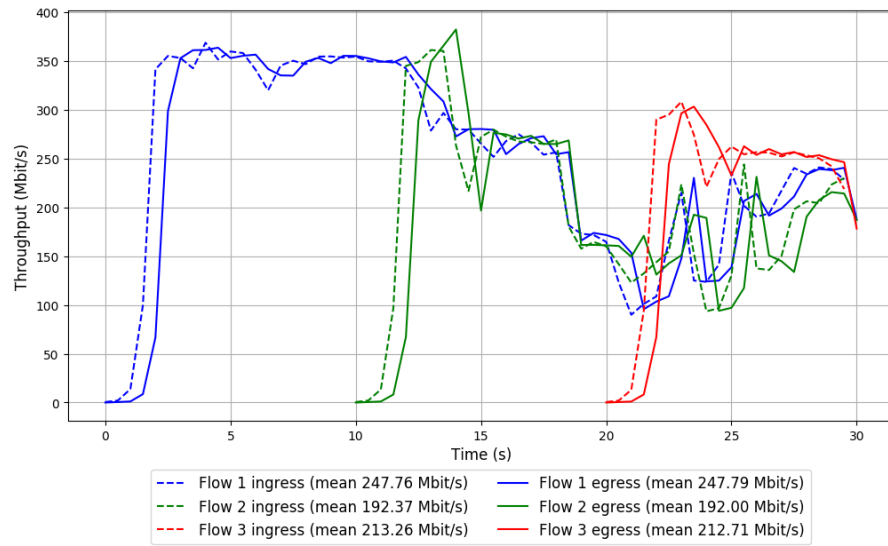


Run 5: Statistics of Copa

Start at: 2018-10-26 05:24:37
End at: 2018-10-26 05:25:07
Local clock offset: -0.707 ms
Remote clock offset: -0.068 ms

Below is generated by plot.py at 2018-10-26 06:35:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 445.17 Mbit/s
95th percentile per-packet one-way delay: 169.630 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 247.79 Mbit/s
95th percentile per-packet one-way delay: 157.258 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 192.00 Mbit/s
95th percentile per-packet one-way delay: 213.986 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 212.71 Mbit/s
95th percentile per-packet one-way delay: 145.023 ms
Loss rate: 1.98%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-10-26 03:17:13

End at: 2018-10-26 03:17:43

Local clock offset: 0.194 ms

Remote clock offset: 0.264 ms

Below is generated by plot.py at 2018-10-26 06:35:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 743.19 Mbit/s

95th percentile per-packet one-way delay: 94.628 ms

Loss rate: 0.95%

-- Flow 1:

Average throughput: 386.08 Mbit/s

95th percentile per-packet one-way delay: 92.138 ms

Loss rate: 0.61%

-- Flow 2:

Average throughput: 375.48 Mbit/s

95th percentile per-packet one-way delay: 94.751 ms

Loss rate: 0.95%

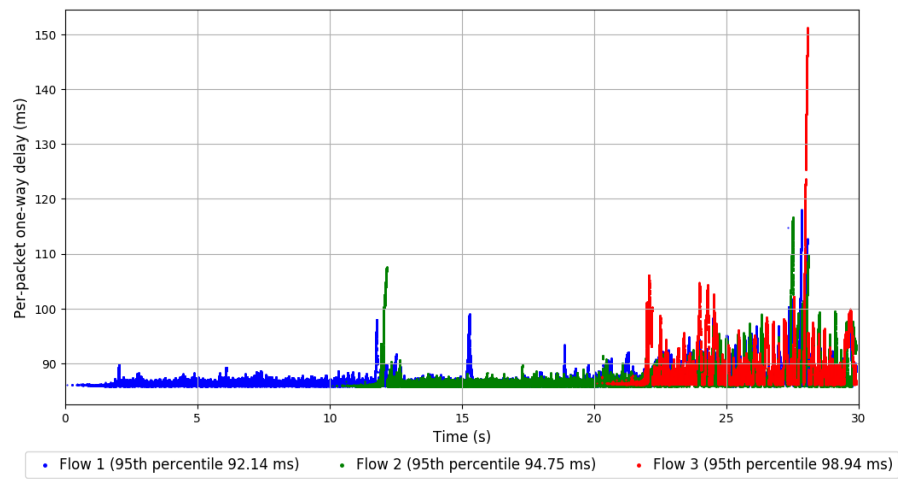
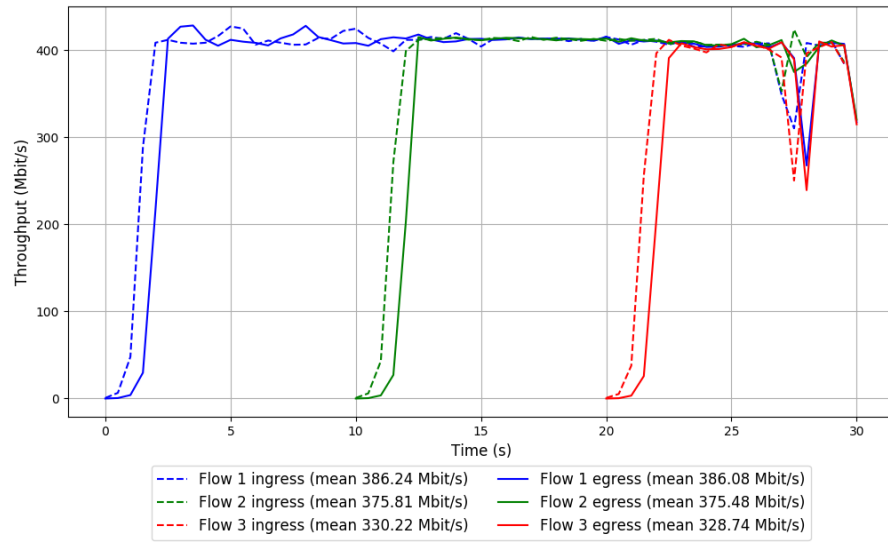
-- Flow 3:

Average throughput: 328.74 Mbit/s

95th percentile per-packet one-way delay: 98.942 ms

Loss rate: 2.17%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-10-26 03:48:36

End at: 2018-10-26 03:49:06

Local clock offset: 0.426 ms

Remote clock offset: 0.044 ms

Below is generated by plot.py at 2018-10-26 06:35:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 742.18 Mbit/s

95th percentile per-packet one-way delay: 92.720 ms

Loss rate: 0.96%

-- Flow 1:

Average throughput: 385.88 Mbit/s

95th percentile per-packet one-way delay: 90.392 ms

Loss rate: 0.62%

-- Flow 2:

Average throughput: 371.26 Mbit/s

95th percentile per-packet one-way delay: 94.771 ms

Loss rate: 0.96%

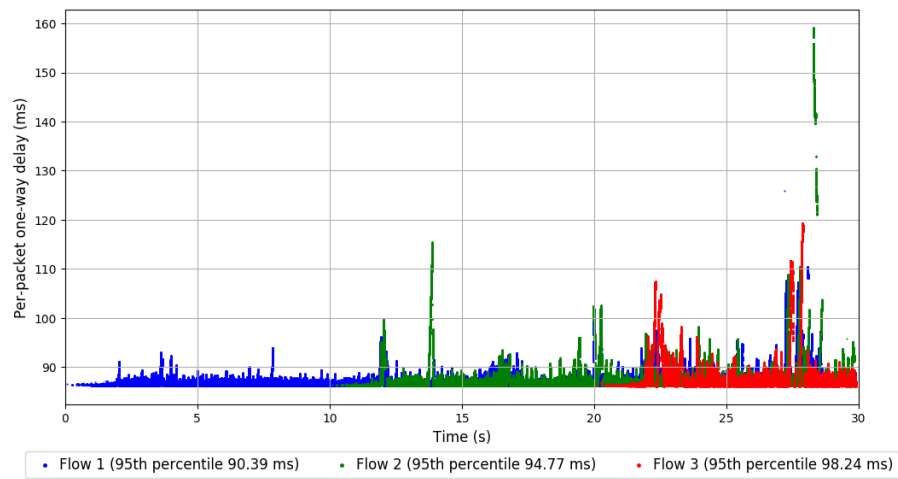
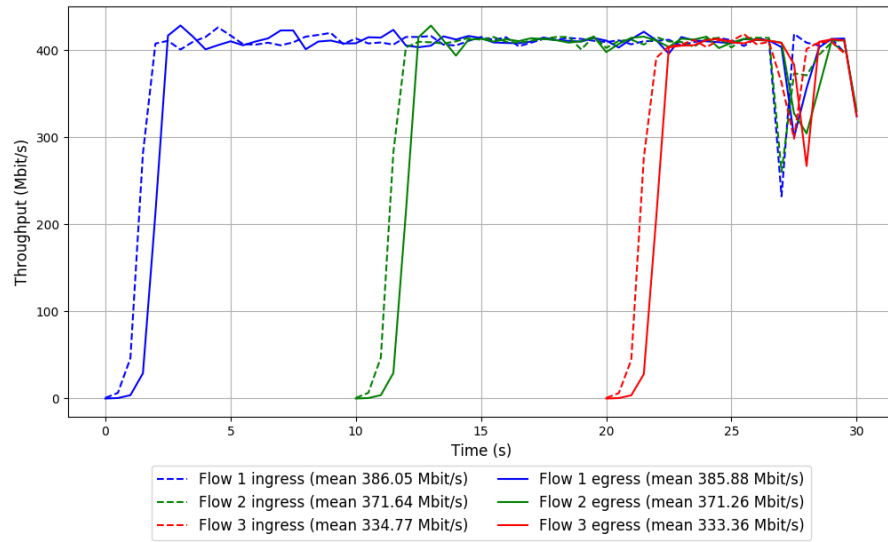
-- Flow 3:

Average throughput: 333.36 Mbit/s

95th percentile per-packet one-way delay: 98.237 ms

Loss rate: 2.14%

Run 2: Report of TCP Cubic — Data Link

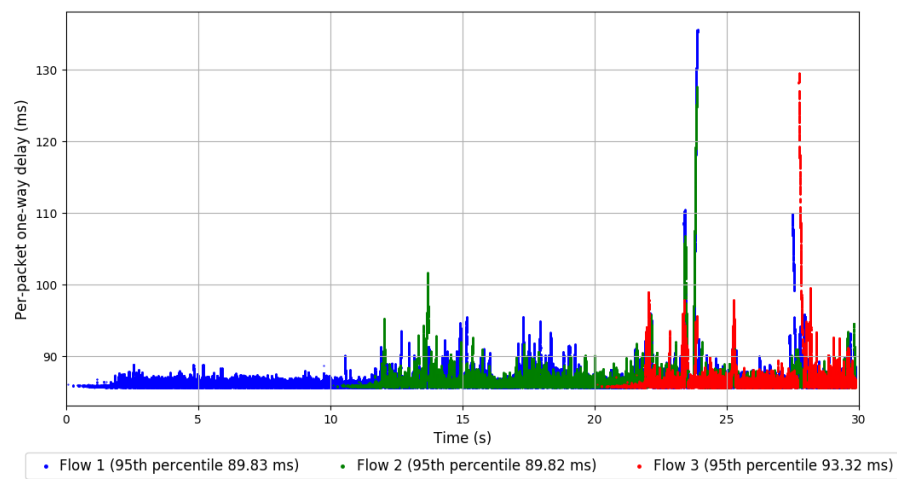
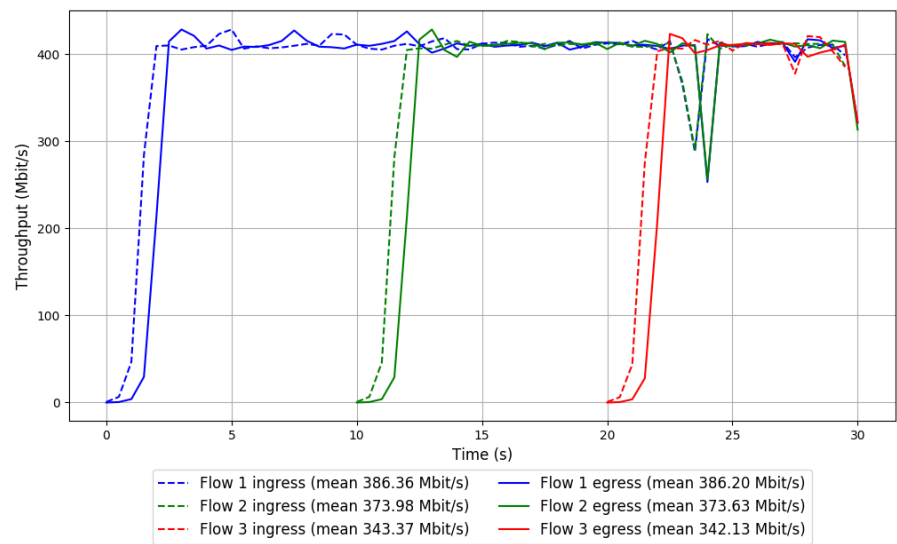


Run 3: Statistics of TCP Cubic

Start at: 2018-10-26 04:20:10
End at: 2018-10-26 04:20:40
Local clock offset: -0.431 ms
Remote clock offset: -0.013 ms

Below is generated by plot.py at 2018-10-26 06:35:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 746.85 Mbit/s
95th percentile per-packet one-way delay: 90.408 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 386.20 Mbit/s
95th percentile per-packet one-way delay: 89.833 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 373.63 Mbit/s
95th percentile per-packet one-way delay: 89.817 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 342.13 Mbit/s
95th percentile per-packet one-way delay: 93.317 ms
Loss rate: 2.08%

Run 3: Report of TCP Cubic — Data Link

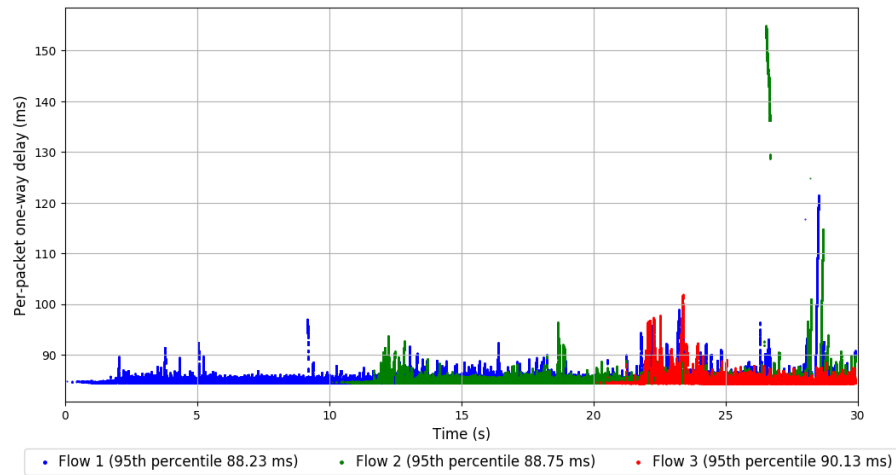
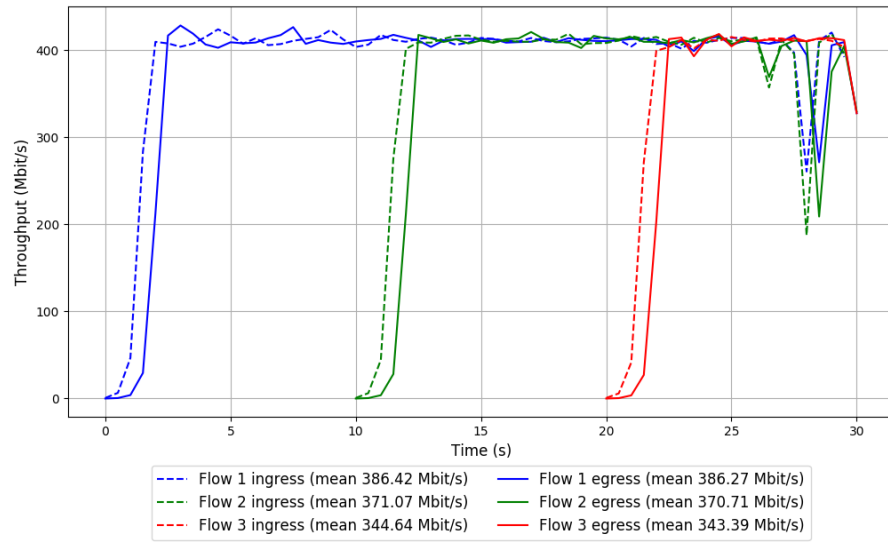


Run 4: Statistics of TCP Cubic

Start at: 2018-10-26 04:51:19
End at: 2018-10-26 04:51:49
Local clock offset: -1.45 ms
Remote clock offset: -0.006 ms

Below is generated by plot.py at 2018-10-26 06:35:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 745.31 Mbit/s
95th percentile per-packet one-way delay: 88.656 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 386.27 Mbit/s
95th percentile per-packet one-way delay: 88.228 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 370.71 Mbit/s
95th percentile per-packet one-way delay: 88.750 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 343.39 Mbit/s
95th percentile per-packet one-way delay: 90.134 ms
Loss rate: 2.07%

Run 4: Report of TCP Cubic — Data Link

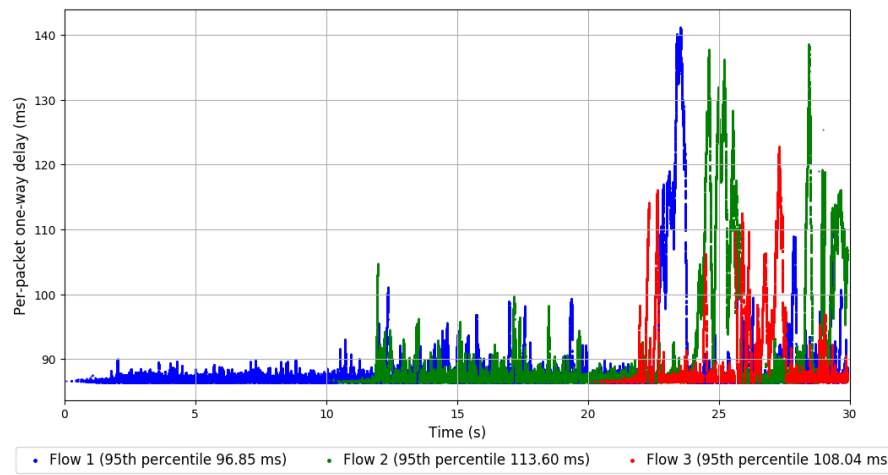
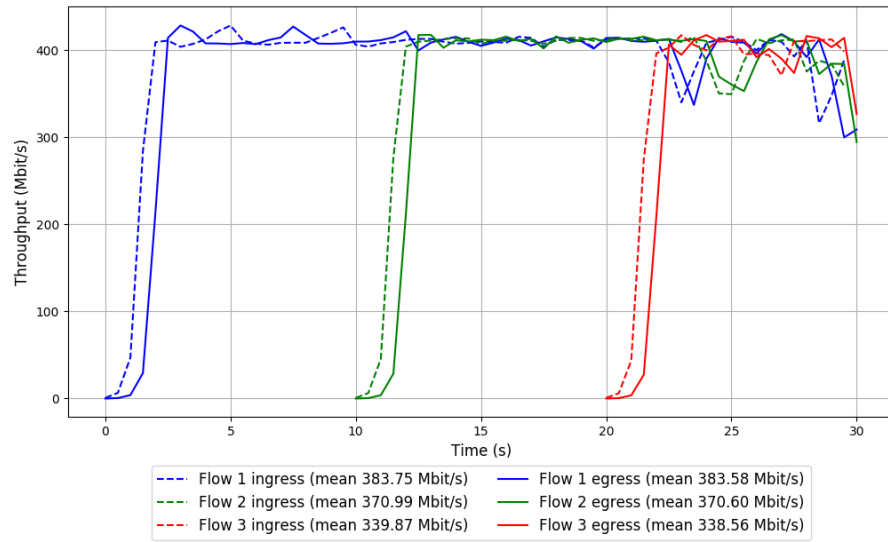


Run 5: Statistics of TCP Cubic

Start at: 2018-10-26 05:22:42
End at: 2018-10-26 05:23:12
Local clock offset: 0.605 ms
Remote clock offset: -0.037 ms

Below is generated by plot.py at 2018-10-26 06:35:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 740.97 Mbit/s
95th percentile per-packet one-way delay: 107.051 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 383.58 Mbit/s
95th percentile per-packet one-way delay: 96.847 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 370.60 Mbit/s
95th percentile per-packet one-way delay: 113.598 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 338.56 Mbit/s
95th percentile per-packet one-way delay: 108.043 ms
Loss rate: 2.10%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-10-26 03:24:31

End at: 2018-10-26 03:25:01

Local clock offset: 0.547 ms

Remote clock offset: 0.292 ms

Below is generated by plot.py at 2018-10-26 06:50:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 1247.40 Mbit/s

95th percentile per-packet one-way delay: 180.420 ms

Loss rate: 4.97%

-- Flow 1:

Average throughput: 645.10 Mbit/s

95th percentile per-packet one-way delay: 185.804 ms

Loss rate: 5.83%

-- Flow 2:

Average throughput: 625.85 Mbit/s

95th percentile per-packet one-way delay: 171.144 ms

Loss rate: 3.34%

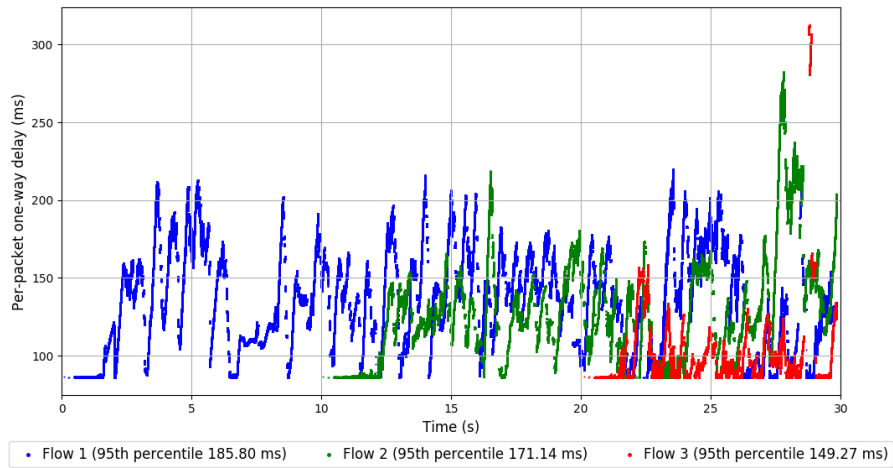
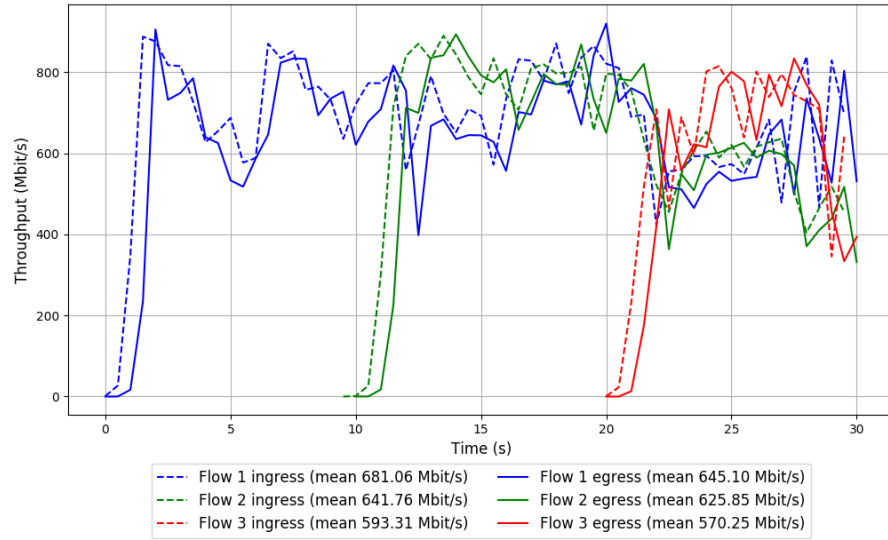
-- Flow 3:

Average throughput: 570.25 Mbit/s

95th percentile per-packet one-way delay: 149.266 ms

Loss rate: 5.53%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-10-26 03:55:51

End at: 2018-10-26 03:56:21

Local clock offset: 0.418 ms

Remote clock offset: 0.022 ms

Below is generated by plot.py at 2018-10-26 07:05:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 1332.00 Mbit/s

95th percentile per-packet one-way delay: 160.367 ms

Loss rate: 2.72%

-- Flow 1:

Average throughput: 705.21 Mbit/s

95th percentile per-packet one-way delay: 163.472 ms

Loss rate: 3.10%

-- Flow 2:

Average throughput: 686.27 Mbit/s

95th percentile per-packet one-way delay: 153.485 ms

Loss rate: 2.11%

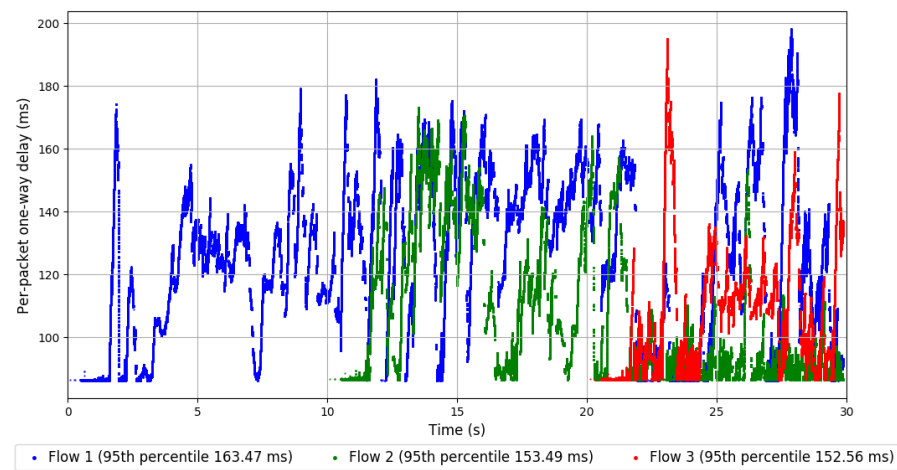
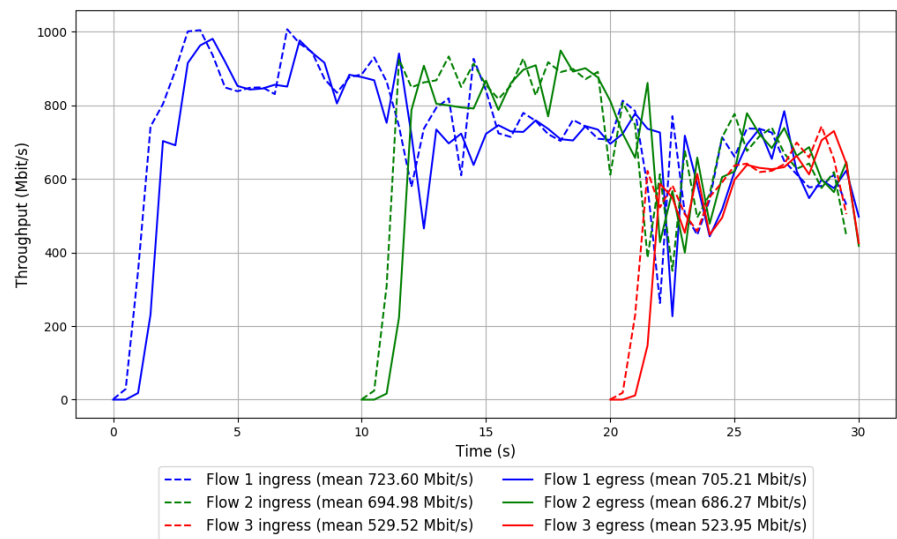
-- Flow 3:

Average throughput: 523.95 Mbit/s

95th percentile per-packet one-way delay: 152.563 ms

Loss rate: 2.77%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-10-26 04:27:17

End at: 2018-10-26 04:27:47

Local clock offset: 1.303 ms

Remote clock offset: 0.007 ms

Below is generated by plot.py at 2018-10-26 07:05:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 1324.86 Mbit/s

95th percentile per-packet one-way delay: 166.120 ms

Loss rate: 4.60%

-- Flow 1:

Average throughput: 713.49 Mbit/s

95th percentile per-packet one-way delay: 163.138 ms

Loss rate: 3.94%

-- Flow 2:

Average throughput: 642.69 Mbit/s

95th percentile per-packet one-way delay: 172.244 ms

Loss rate: 6.20%

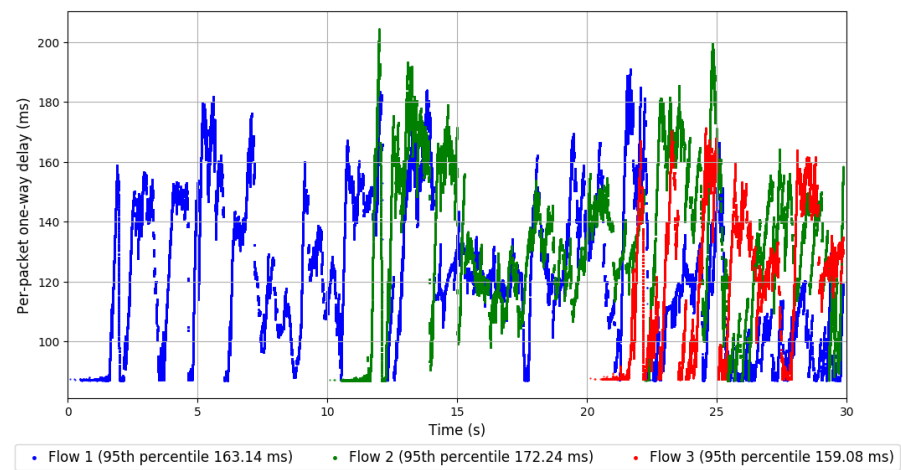
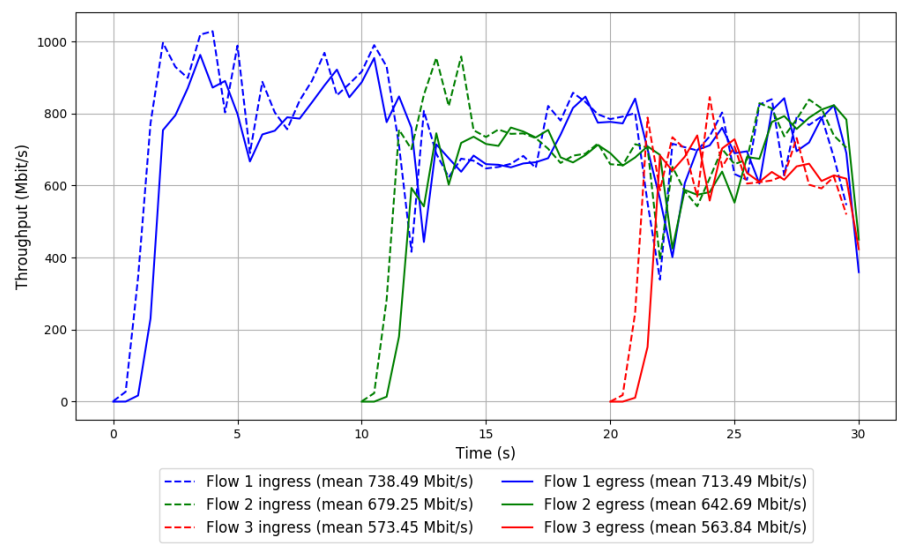
-- Flow 3:

Average throughput: 563.84 Mbit/s

95th percentile per-packet one-way delay: 159.083 ms

Loss rate: 3.39%

Run 3: Report of FillP — Data Link

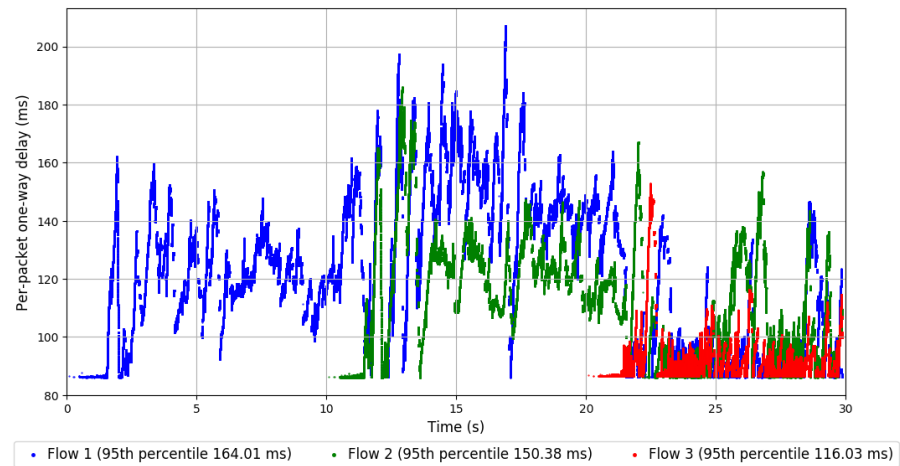
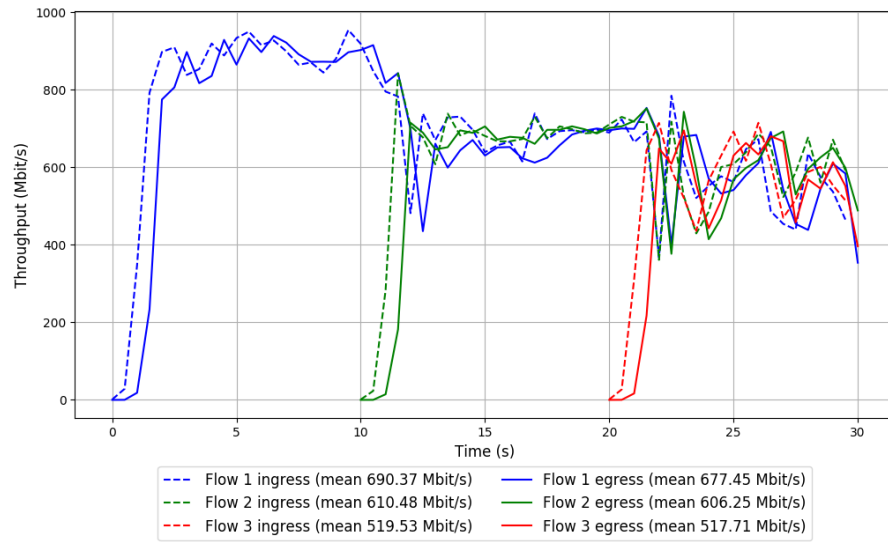


Run 4: Statistics of FillP

Start at: 2018-10-26 04:58:34
End at: 2018-10-26 04:59:04
Local clock offset: 0.182 ms
Remote clock offset: -0.034 ms

Below is generated by plot.py at 2018-10-26 07:05:50
Datalink statistics
-- Total of 3 flows:
Average throughput: 1249.54 Mbit/s
95th percentile per-packet one-way delay: 159.391 ms
Loss rate: 2.08%
-- Flow 1:
Average throughput: 677.45 Mbit/s
95th percentile per-packet one-way delay: 164.014 ms
Loss rate: 2.42%
-- Flow 2:
Average throughput: 606.25 Mbit/s
95th percentile per-packet one-way delay: 150.382 ms
Loss rate: 1.52%
-- Flow 3:
Average throughput: 517.71 Mbit/s
95th percentile per-packet one-way delay: 116.028 ms
Loss rate: 2.07%

Run 4: Report of FillP — Data Link

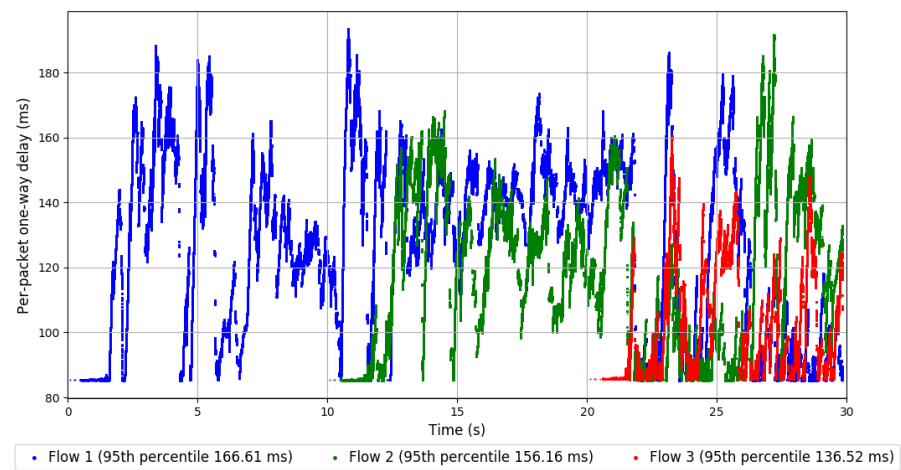
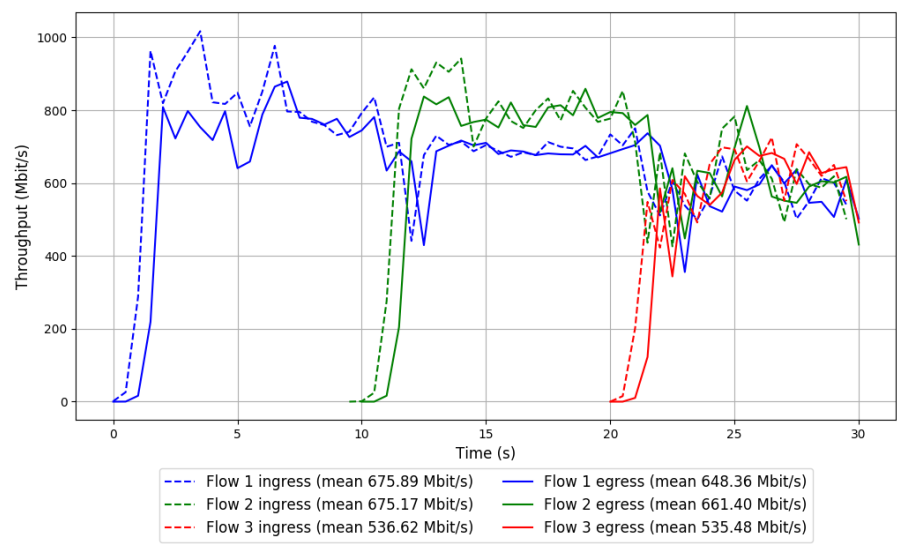


Run 5: Statistics of FillP

Start at: 2018-10-26 05:29:48
End at: 2018-10-26 05:30:18
Local clock offset: -0.726 ms
Remote clock offset: -0.067 ms

Below is generated by plot.py at 2018-10-26 07:05:50
Datalink statistics
-- Total of 3 flows:
Average throughput: 1262.82 Mbit/s
95th percentile per-packet one-way delay: 161.098 ms
Loss rate: 3.66%
-- Flow 1:
Average throughput: 648.36 Mbit/s
95th percentile per-packet one-way delay: 166.607 ms
Loss rate: 4.62%
-- Flow 2:
Average throughput: 661.40 Mbit/s
95th percentile per-packet one-way delay: 156.159 ms
Loss rate: 2.89%
-- Flow 3:
Average throughput: 535.48 Mbit/s
95th percentile per-packet one-way delay: 136.518 ms
Loss rate: 1.95%

Run 5: Report of FillP — Data Link

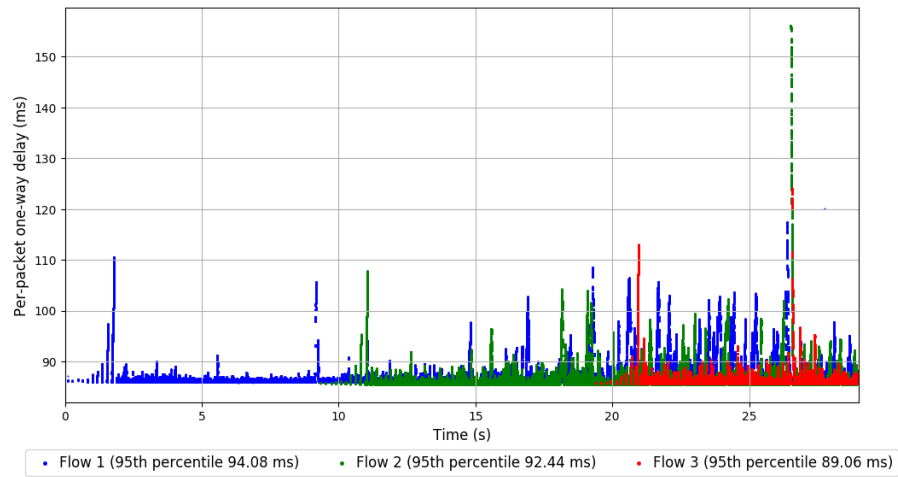
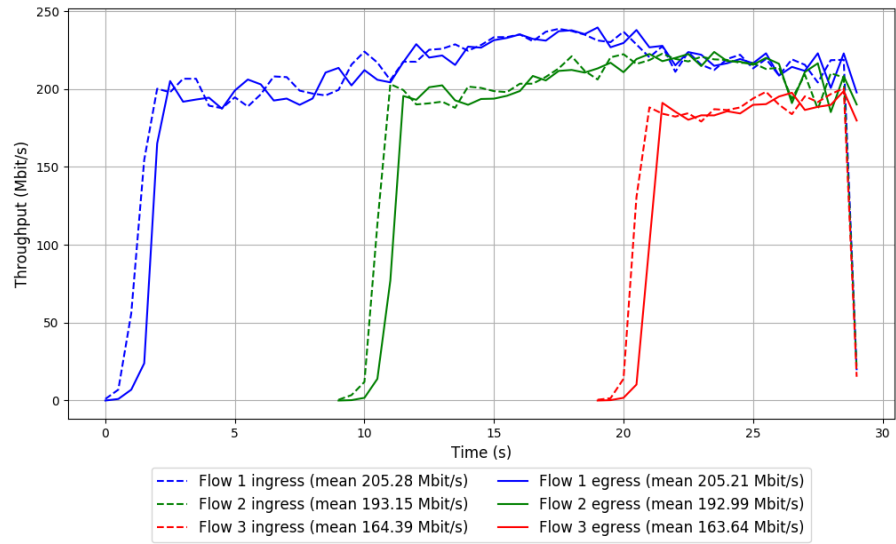



```
Run 1: Statistics of Indigo

Start at: 2018-10-26 03:36:37
End at: 2018-10-26 03:37:07
Local clock offset: -0.073 ms
Remote clock offset: 0.147 ms

# Below is generated by plot.py at 2018-10-26 07:05:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 390.39 Mbit/s
95th percentile per-packet one-way delay: 92.806 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 205.21 Mbit/s
95th percentile per-packet one-way delay: 94.076 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 192.99 Mbit/s
95th percentile per-packet one-way delay: 92.442 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 163.64 Mbit/s
95th percentile per-packet one-way delay: 89.055 ms
Loss rate: 2.18%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-10-26 04:08:05

End at: 2018-10-26 04:08:35

Local clock offset: 0.081 ms

Remote clock offset: 0.009 ms

Below is generated by plot.py at 2018-10-26 07:05:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 359.91 Mbit/s

95th percentile per-packet one-way delay: 89.427 ms

Loss rate: 0.88%

-- Flow 1:

Average throughput: 192.42 Mbit/s

95th percentile per-packet one-way delay: 88.959 ms

Loss rate: 0.56%

-- Flow 2:

Average throughput: 176.13 Mbit/s

95th percentile per-packet one-way delay: 89.883 ms

Loss rate: 0.92%

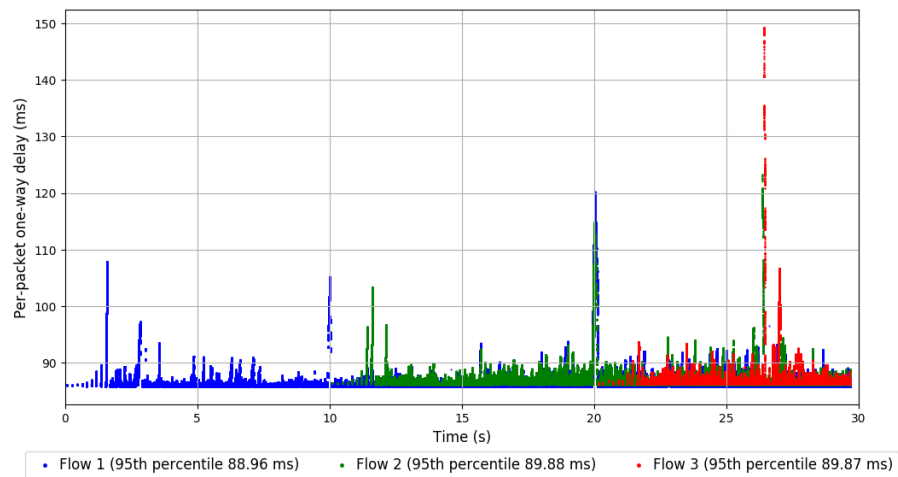
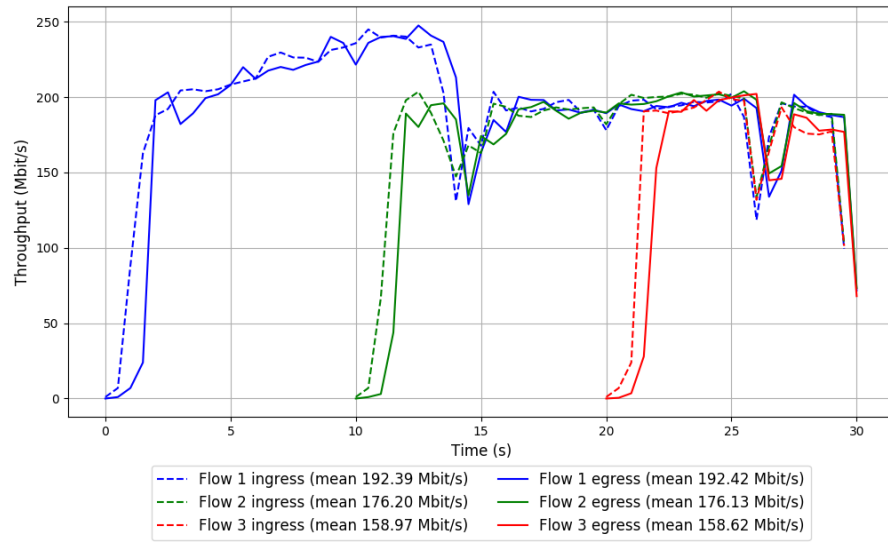
-- Flow 3:

Average throughput: 158.62 Mbit/s

95th percentile per-packet one-way delay: 89.870 ms

Loss rate: 1.98%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-10-26 04:39:22

End at: 2018-10-26 04:39:52

Local clock offset: -0.251 ms

Remote clock offset: 0.026 ms

Below is generated by plot.py at 2018-10-26 07:05:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 392.52 Mbit/s

95th percentile per-packet one-way delay: 89.478 ms

Loss rate: 0.89%

-- Flow 1:

Average throughput: 208.58 Mbit/s

95th percentile per-packet one-way delay: 88.449 ms

Loss rate: 0.60%

-- Flow 2:

Average throughput: 204.12 Mbit/s

95th percentile per-packet one-way delay: 92.098 ms

Loss rate: 0.91%

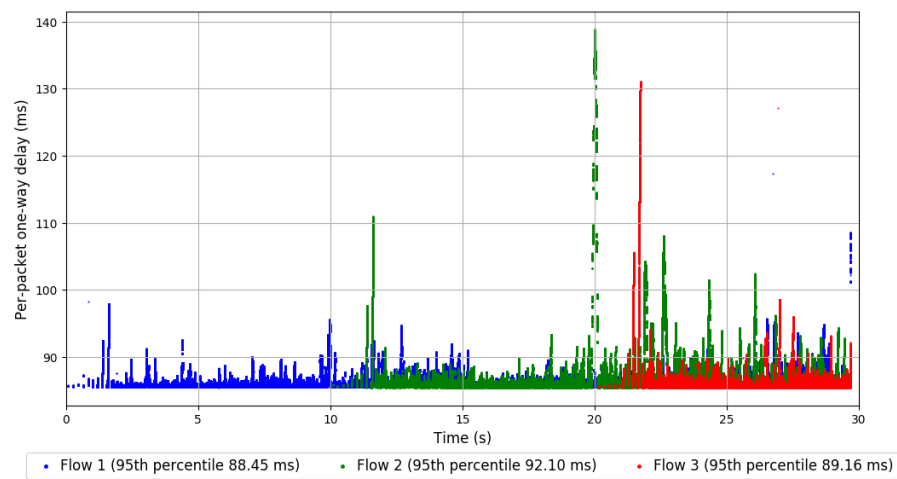
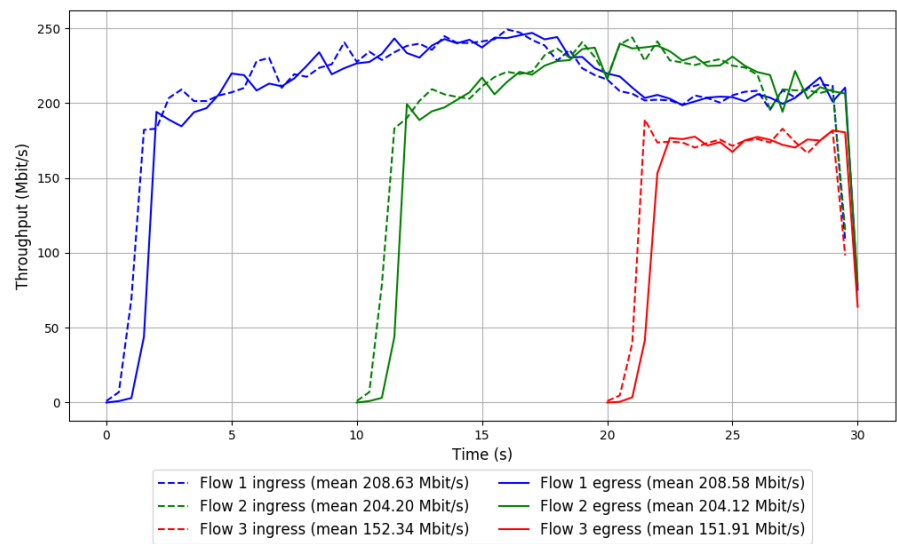
-- Flow 3:

Average throughput: 151.91 Mbit/s

95th percentile per-packet one-way delay: 89.164 ms

Loss rate: 2.06%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-10-26 05:10:38

End at: 2018-10-26 05:11:08

Local clock offset: -0.173 ms

Remote clock offset: 0.002 ms

Below is generated by plot.py at 2018-10-26 07:05:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 402.54 Mbit/s

95th percentile per-packet one-way delay: 91.499 ms

Loss rate: 0.93%

-- Flow 1:

Average throughput: 212.59 Mbit/s

95th percentile per-packet one-way delay: 91.565 ms

Loss rate: 0.58%

-- Flow 2:

Average throughput: 200.89 Mbit/s

95th percentile per-packet one-way delay: 92.103 ms

Loss rate: 0.97%

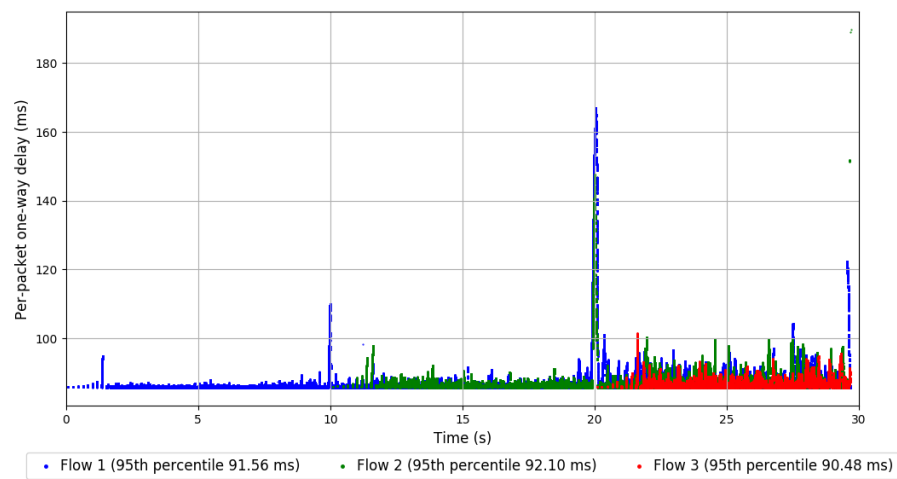
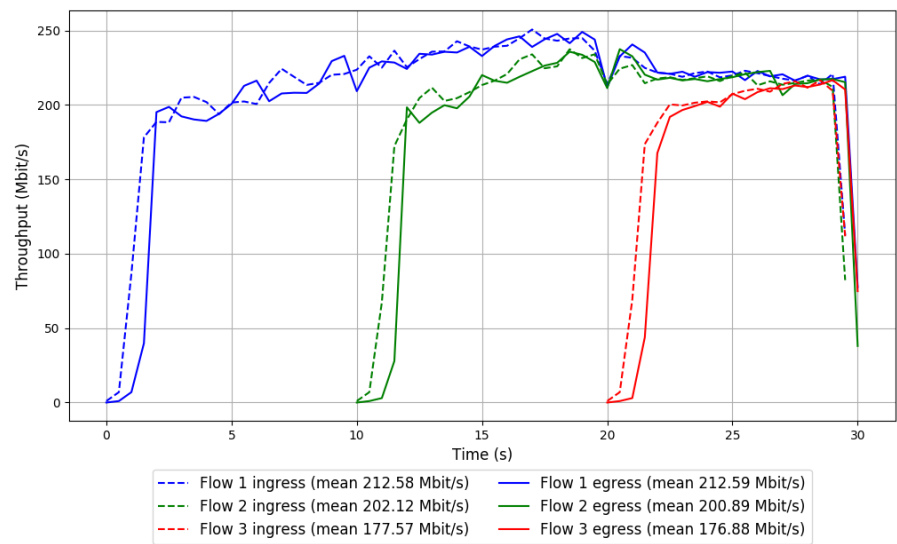
-- Flow 3:

Average throughput: 176.88 Mbit/s

95th percentile per-packet one-way delay: 90.481 ms

Loss rate: 2.12%

Run 4: Report of Indigo — Data Link

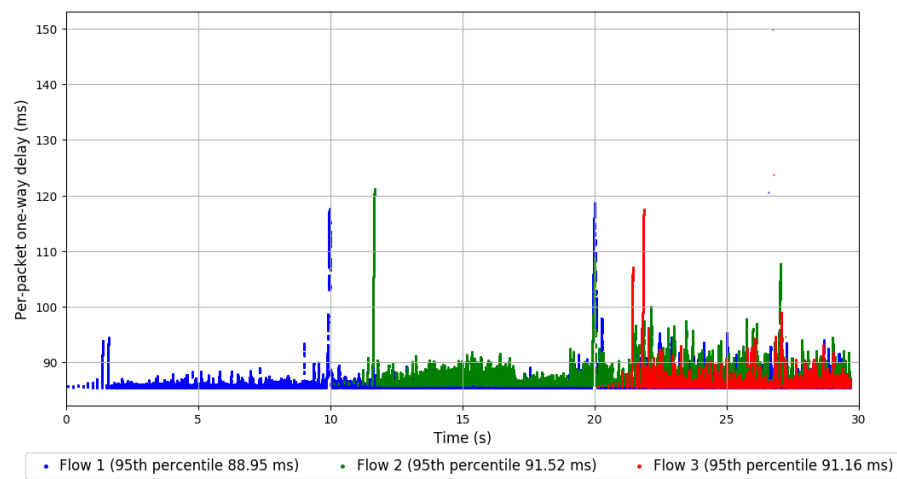
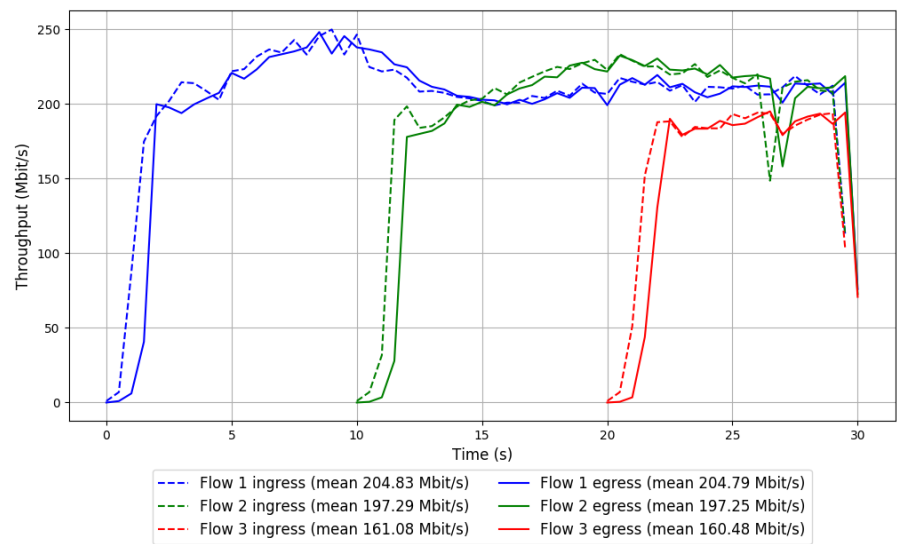


Run 5: Statistics of Indigo

Start at: 2018-10-26 05:41:56
End at: 2018-10-26 05:42:26
Local clock offset: -0.276 ms
Remote clock offset: -0.011 ms

Below is generated by plot.py at 2018-10-26 07:05:50
Datalink statistics
-- Total of 3 flows:
Average throughput: 386.93 Mbit/s
95th percentile per-packet one-way delay: 90.371 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 204.79 Mbit/s
95th percentile per-packet one-way delay: 88.946 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 197.25 Mbit/s
95th percentile per-packet one-way delay: 91.524 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 160.48 Mbit/s
95th percentile per-packet one-way delay: 91.161 ms
Loss rate: 2.14%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-26 03:29:58

End at: 2018-10-26 03:30:28

Local clock offset: 0.584 ms

Remote clock offset: 0.326 ms

Below is generated by plot.py at 2018-10-26 07:05:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 491.90 Mbit/s

95th percentile per-packet one-way delay: 116.495 ms

Loss rate: 0.99%

-- Flow 1:

Average throughput: 243.74 Mbit/s

95th percentile per-packet one-way delay: 114.128 ms

Loss rate: 0.62%

-- Flow 2:

Average throughput: 268.00 Mbit/s

95th percentile per-packet one-way delay: 120.833 ms

Loss rate: 0.95%

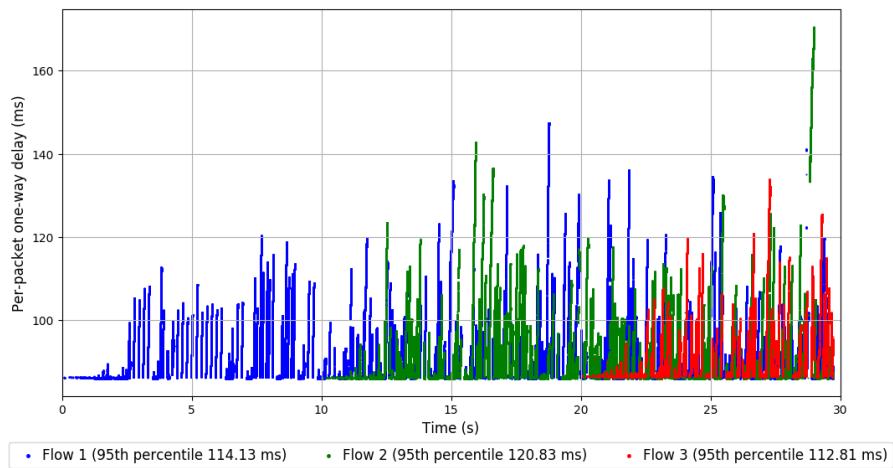
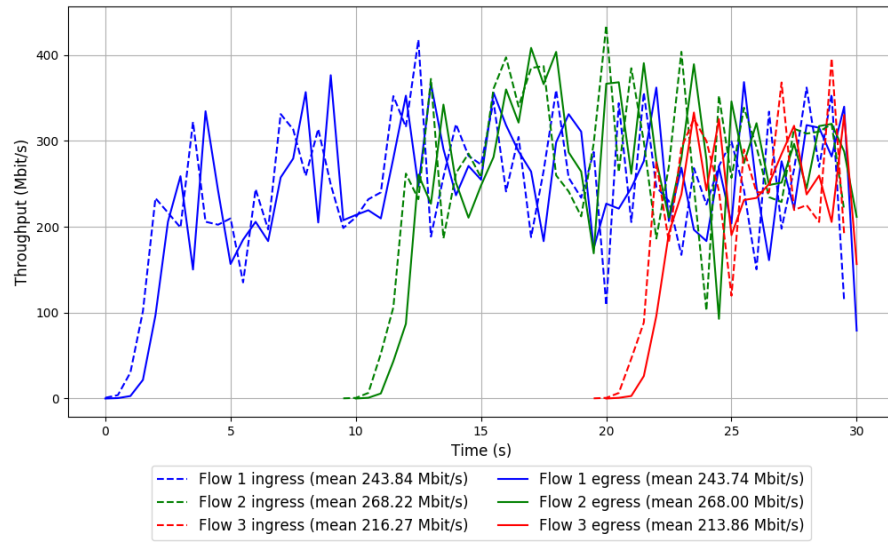
-- Flow 3:

Average throughput: 213.86 Mbit/s

95th percentile per-packet one-way delay: 112.812 ms

Loss rate: 2.37%

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



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-26 04:01:22

End at: 2018-10-26 04:01:52

Local clock offset: 0.02 ms

Remote clock offset: 0.012 ms

Below is generated by plot.py at 2018-10-26 07:05:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 500.56 Mbit/s

95th percentile per-packet one-way delay: 115.267 ms

Loss rate: 0.81%

-- Flow 1:

Average throughput: 262.15 Mbit/s

95th percentile per-packet one-way delay: 113.464 ms

Loss rate: 0.23%

-- Flow 2:

Average throughput: 241.26 Mbit/s

95th percentile per-packet one-way delay: 117.405 ms

Loss rate: 1.08%

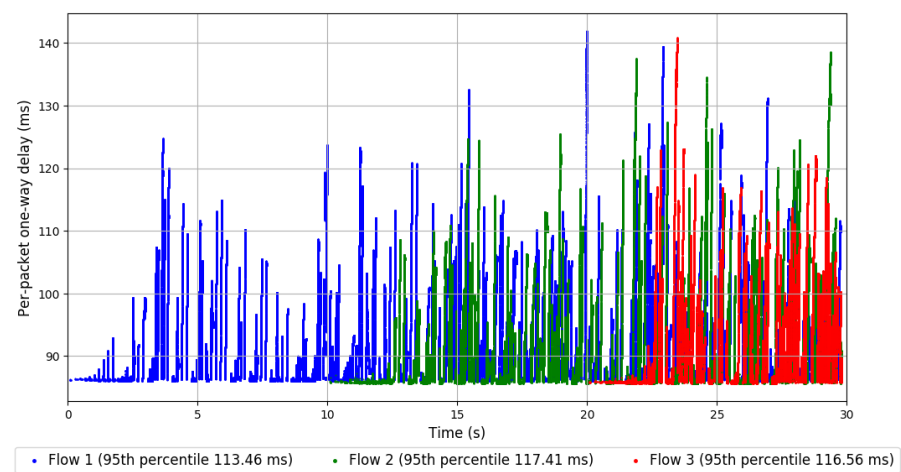
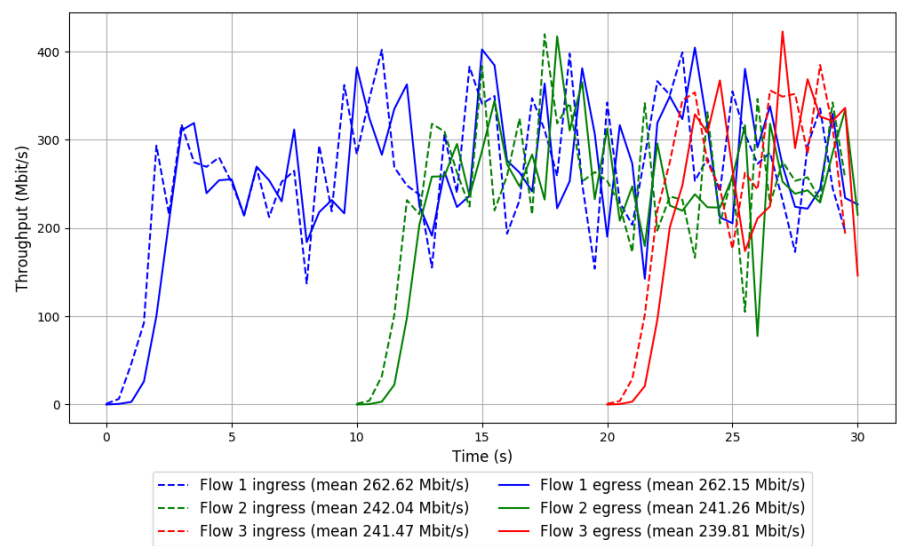
-- Flow 3:

Average throughput: 239.81 Mbit/s

95th percentile per-packet one-way delay: 116.558 ms

Loss rate: 2.18%

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

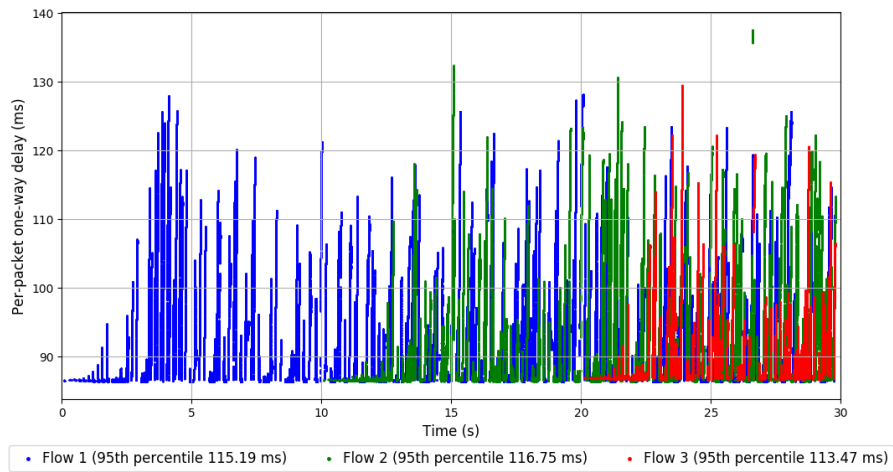
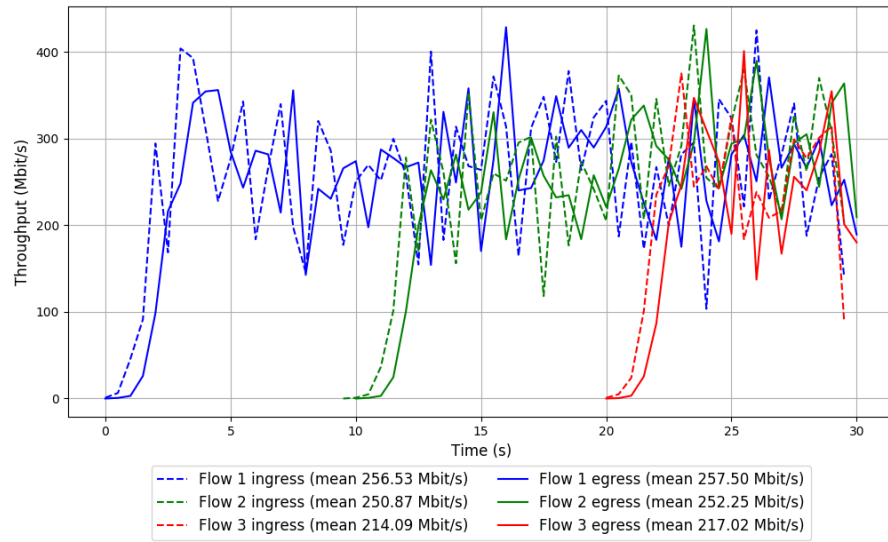


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-26 04:32:48
End at: 2018-10-26 04:33:18
Local clock offset: 0.594 ms
Remote clock offset: -0.002 ms

Below is generated by plot.py at 2018-10-26 07:11:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 495.52 Mbit/s
95th percentile per-packet one-way delay: 115.606 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 257.50 Mbit/s
95th percentile per-packet one-way delay: 115.194 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 252.25 Mbit/s
95th percentile per-packet one-way delay: 116.754 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 217.02 Mbit/s
95th percentile per-packet one-way delay: 113.470 ms
Loss rate: 0.50%

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

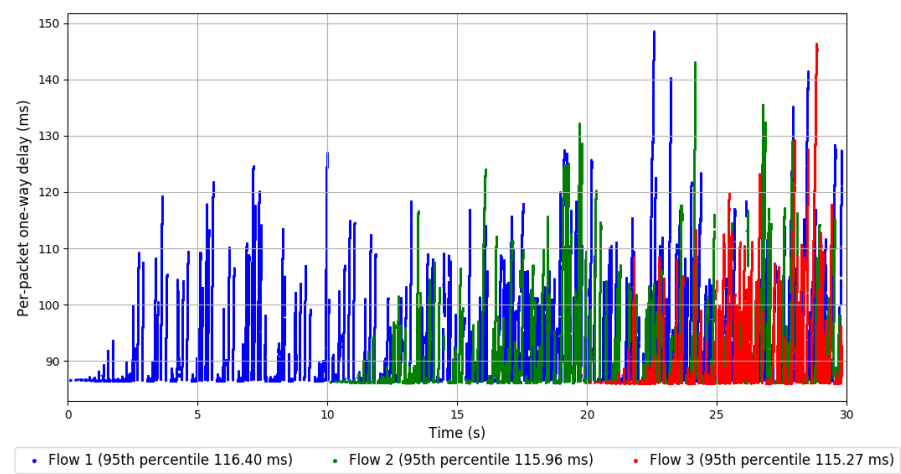
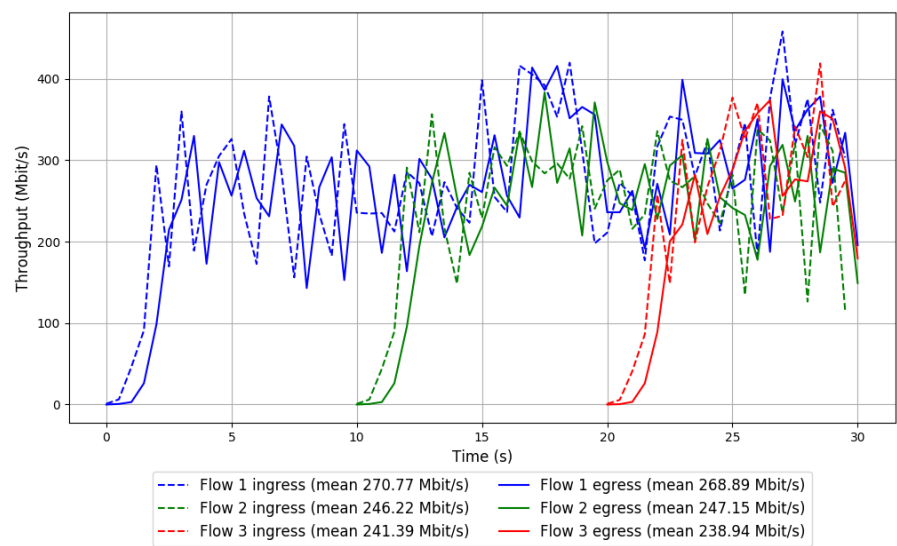


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-26 05:03:58
End at: 2018-10-26 05:04:28
Local clock offset: 0.07 ms
Remote clock offset: -0.035 ms

Below is generated by plot.py at 2018-10-26 07:12:50
Datalink statistics
-- Total of 3 flows:
Average throughput: 509.81 Mbit/s
95th percentile per-packet one-way delay: 116.201 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 268.89 Mbit/s
95th percentile per-packet one-way delay: 116.398 ms
Loss rate: 1.16%
-- Flow 2:
Average throughput: 247.15 Mbit/s
95th percentile per-packet one-way delay: 115.959 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 238.94 Mbit/s
95th percentile per-packet one-way delay: 115.271 ms
Loss rate: 2.68%

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

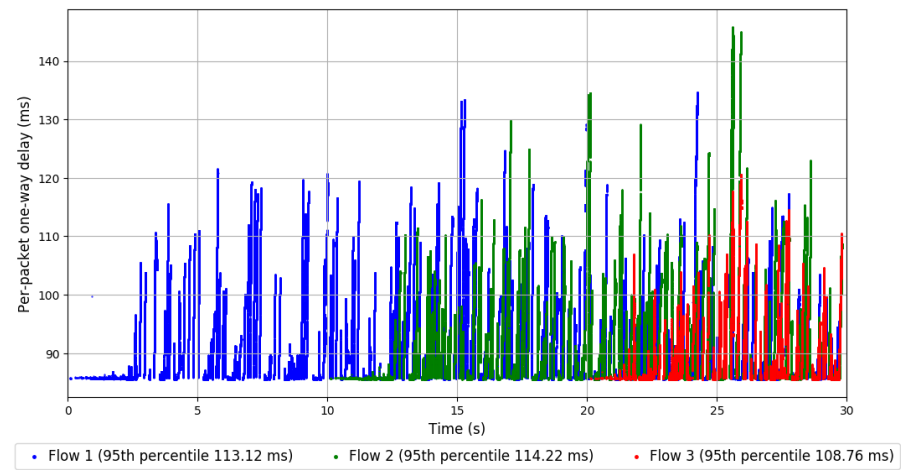
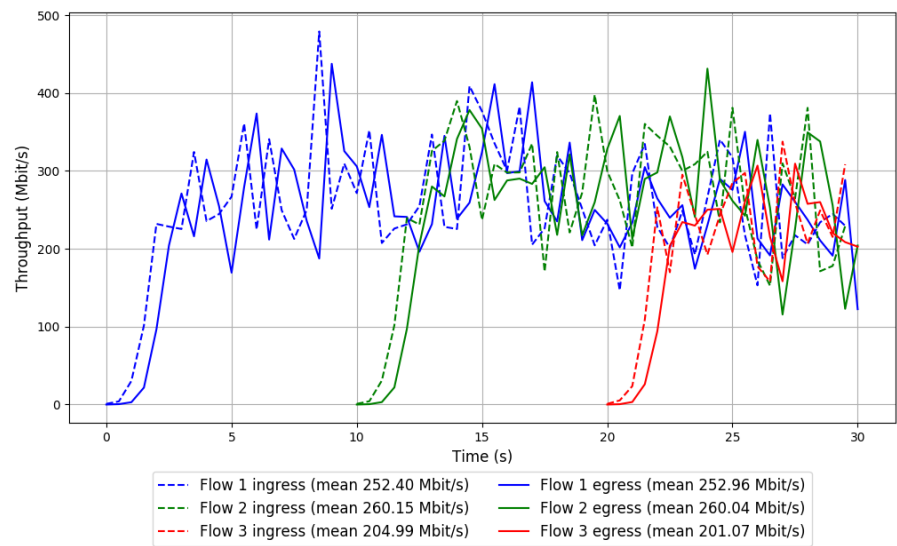


Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-26 05:35:17
End at: 2018-10-26 05:35:47
Local clock offset: -0.328 ms
Remote clock offset: -0.072 ms

Below is generated by plot.py at 2018-10-26 07:13:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 489.70 Mbit/s
95th percentile per-packet one-way delay: 113.059 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 252.96 Mbit/s
95th percentile per-packet one-way delay: 113.121 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 260.04 Mbit/s
95th percentile per-packet one-way delay: 114.225 ms
Loss rate: 0.77%
-- Flow 3:
Average throughput: 201.07 Mbit/s
95th percentile per-packet one-way delay: 108.762 ms
Loss rate: 3.51%

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

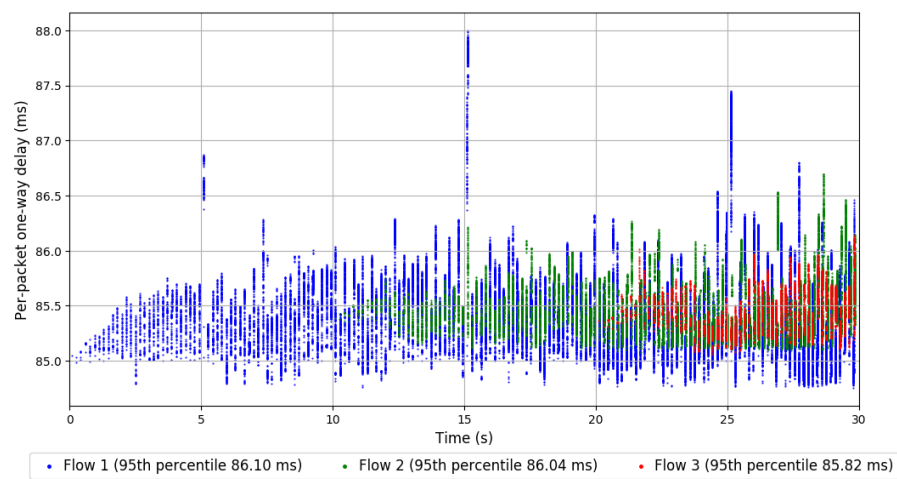
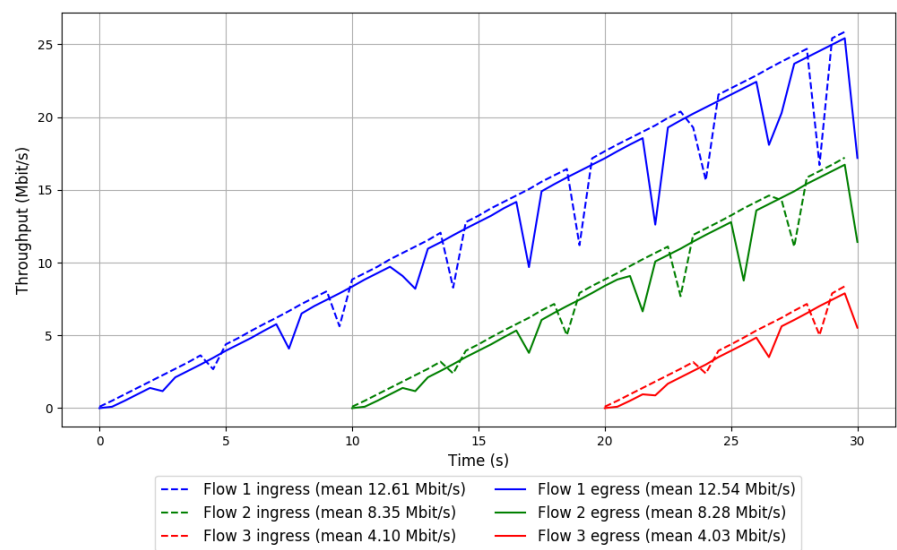


```
Run 1: Statistics of LEDBAT

Start at: 2018-10-26 03:15:56
End at: 2018-10-26 03:16:26
Local clock offset: -0.842 ms
Remote clock offset: 0.28 ms

# Below is generated by plot.py at 2018-10-26 07:13:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.32 Mbit/s
95th percentile per-packet one-way delay: 86.066 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.54 Mbit/s
95th percentile per-packet one-way delay: 86.103 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 86.040 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 85.823 ms
Loss rate: 3.52%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-10-26 03:47:19

End at: 2018-10-26 03:47:49

Local clock offset: -0.54 ms

Remote clock offset: 0.034 ms

Below is generated by plot.py at 2018-10-26 07:13:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.32 Mbit/s

95th percentile per-packet one-way delay: 86.916 ms

Loss rate: 1.48%

-- Flow 1:

Average throughput: 12.52 Mbit/s

95th percentile per-packet one-way delay: 87.090 ms

Loss rate: 1.15%

-- Flow 2:

Average throughput: 8.30 Mbit/s

95th percentile per-packet one-way delay: 86.313 ms

Loss rate: 1.74%

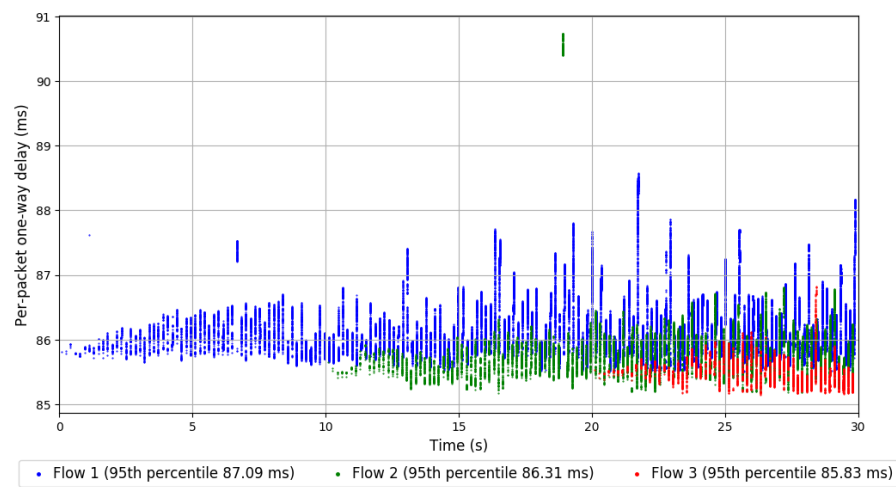
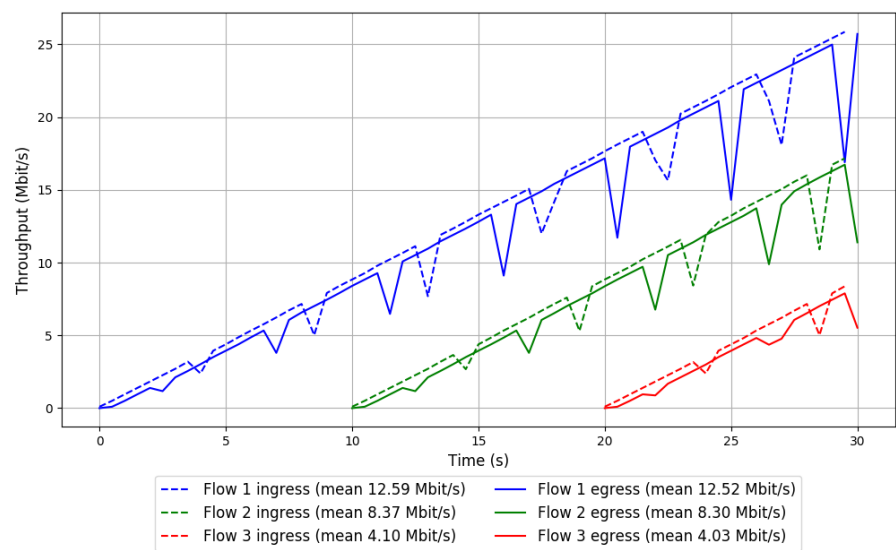
-- Flow 3:

Average throughput: 4.03 Mbit/s

95th percentile per-packet one-way delay: 85.830 ms

Loss rate: 3.52%

Run 2: Report of LEDBAT — Data Link

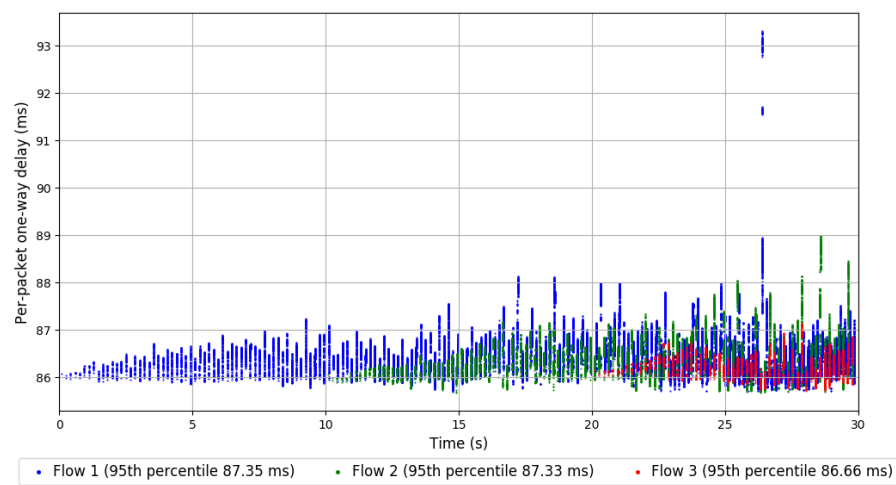
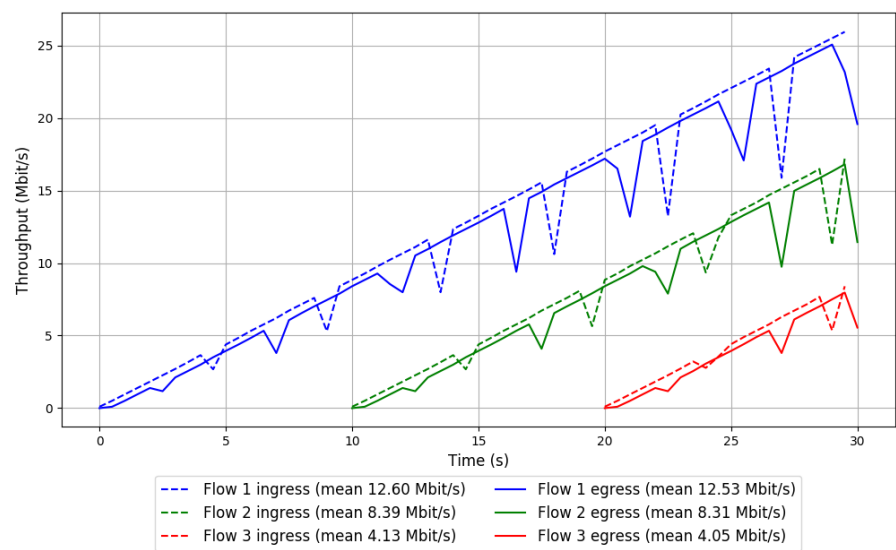


Run 3: Statistics of LEDBAT

Start at: 2018-10-26 04:18:53
End at: 2018-10-26 04:19:23
Local clock offset: -0.039 ms
Remote clock offset: -0.018 ms

Below is generated by plot.py at 2018-10-26 07:13:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.35 Mbit/s
95th percentile per-packet one-way delay: 87.306 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.53 Mbit/s
95th percentile per-packet one-way delay: 87.353 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.31 Mbit/s
95th percentile per-packet one-way delay: 87.332 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.05 Mbit/s
95th percentile per-packet one-way delay: 86.660 ms
Loss rate: 3.50%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-10-26 04:50:03

End at: 2018-10-26 04:50:33

Local clock offset: 0.236 ms

Remote clock offset: -0.02 ms

Below is generated by plot.py at 2018-10-26 07:13:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.33 Mbit/s

95th percentile per-packet one-way delay: 87.919 ms

Loss rate: 1.48%

-- Flow 1:

Average throughput: 12.51 Mbit/s

95th percentile per-packet one-way delay: 88.050 ms

Loss rate: 1.15%

-- Flow 2:

Average throughput: 8.30 Mbit/s

95th percentile per-packet one-way delay: 87.289 ms

Loss rate: 1.74%

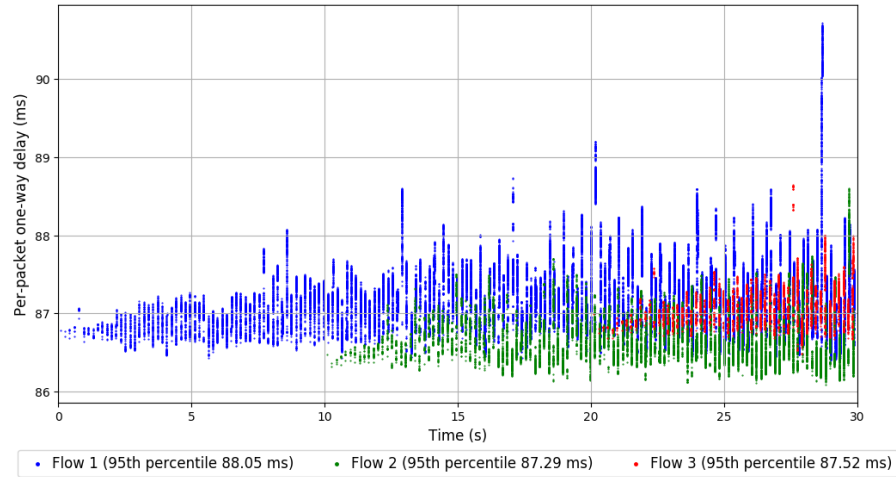
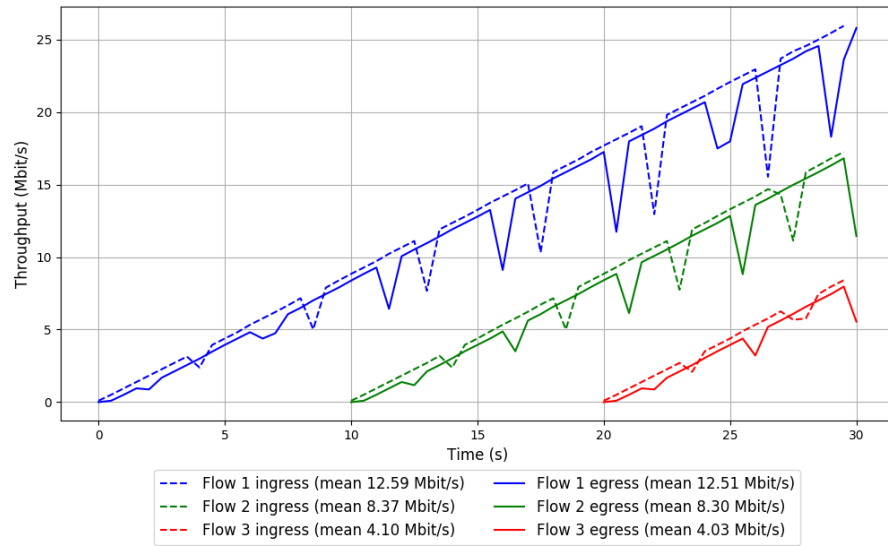
-- Flow 3:

Average throughput: 4.03 Mbit/s

95th percentile per-packet one-way delay: 87.521 ms

Loss rate: 3.51%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-10-26 05:21:26

End at: 2018-10-26 05:21:56

Local clock offset: 0.745 ms

Remote clock offset: -0.04 ms

Below is generated by plot.py at 2018-10-26 07:13:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.24 Mbit/s

95th percentile per-packet one-way delay: 88.272 ms

Loss rate: 1.49%

-- Flow 1:

Average throughput: 12.45 Mbit/s

95th percentile per-packet one-way delay: 88.430 ms

Loss rate: 1.16%

-- Flow 2:

Average throughput: 8.29 Mbit/s

95th percentile per-packet one-way delay: 87.844 ms

Loss rate: 1.74%

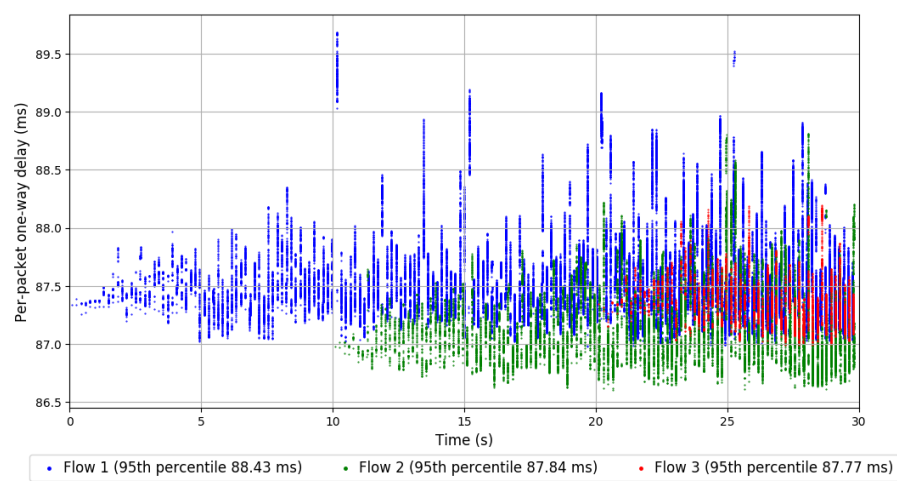
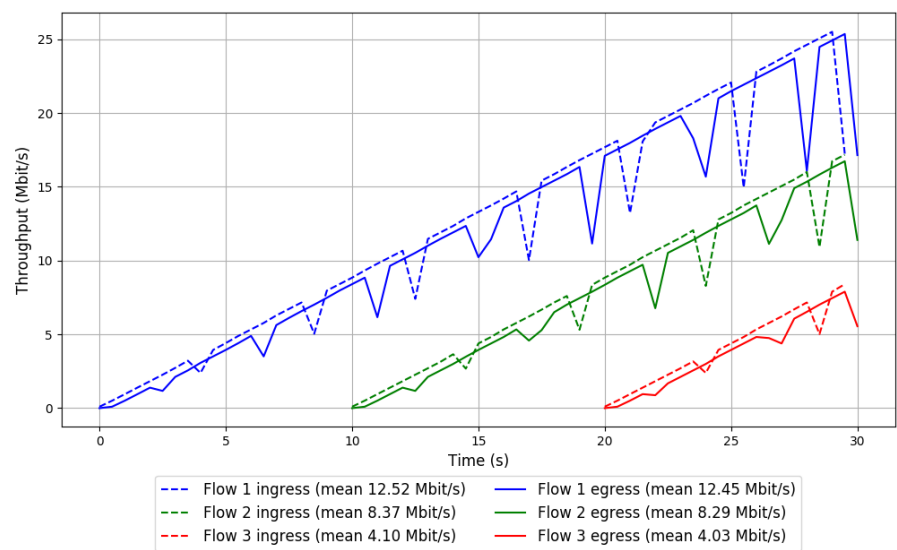
-- Flow 3:

Average throughput: 4.03 Mbit/s

95th percentile per-packet one-way delay: 87.774 ms

Loss rate: 3.52%

Run 5: Report of LEDBAT — Data Link

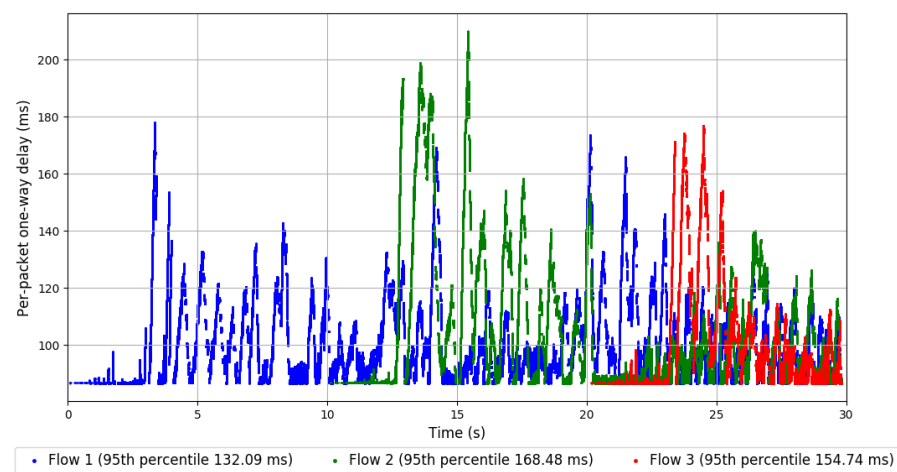
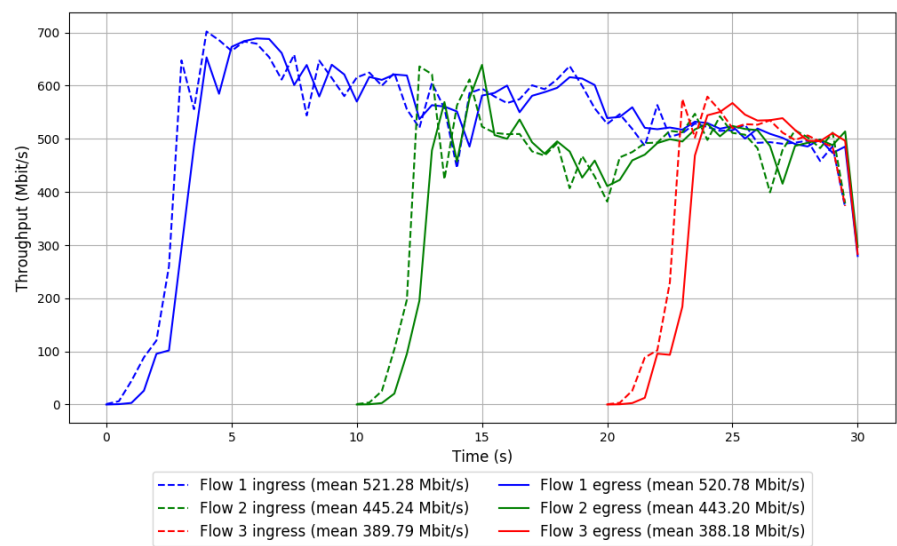


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-26 03:40:12
End at: 2018-10-26 03:40:42
Local clock offset: 0.981 ms
Remote clock offset: 0.082 ms

# Below is generated by plot.py at 2018-10-26 07:24:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 940.16 Mbit/s
95th percentile per-packet one-way delay: 146.600 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 520.78 Mbit/s
95th percentile per-packet one-way delay: 132.086 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 443.20 Mbit/s
95th percentile per-packet one-way delay: 168.480 ms
Loss rate: 1.32%
-- Flow 3:
Average throughput: 388.18 Mbit/s
95th percentile per-packet one-way delay: 154.738 ms
Loss rate: 2.15%
```

Run 1: Report of Indigo-Muses — Data Link

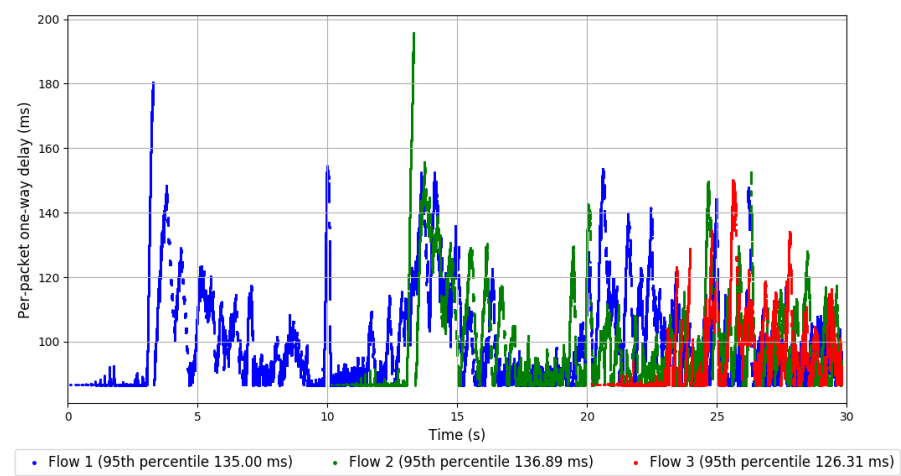
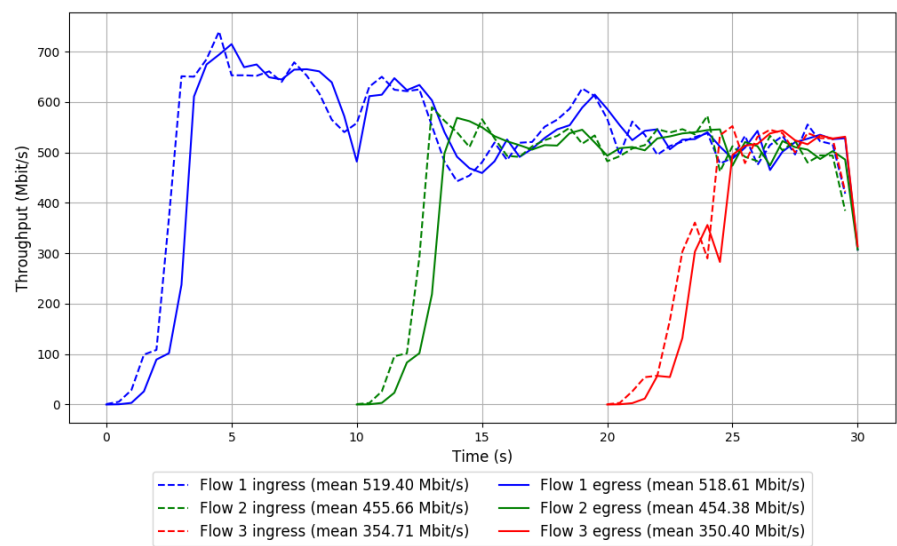


Run 2: Statistics of Indigo-Muses

Start at: 2018-10-26 04:11:44
End at: 2018-10-26 04:12:14
Local clock offset: 0.641 ms
Remote clock offset: -0.015 ms

Below is generated by plot.py at 2018-10-26 07:24:29
Datalink statistics
-- Total of 3 flows:
Average throughput: 932.81 Mbit/s
95th percentile per-packet one-way delay: 134.884 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 518.61 Mbit/s
95th percentile per-packet one-way delay: 135.003 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 454.38 Mbit/s
95th percentile per-packet one-way delay: 136.891 ms
Loss rate: 1.15%
-- Flow 3:
Average throughput: 350.40 Mbit/s
95th percentile per-packet one-way delay: 126.305 ms
Loss rate: 2.95%

Run 2: Report of Indigo-Muses — Data Link

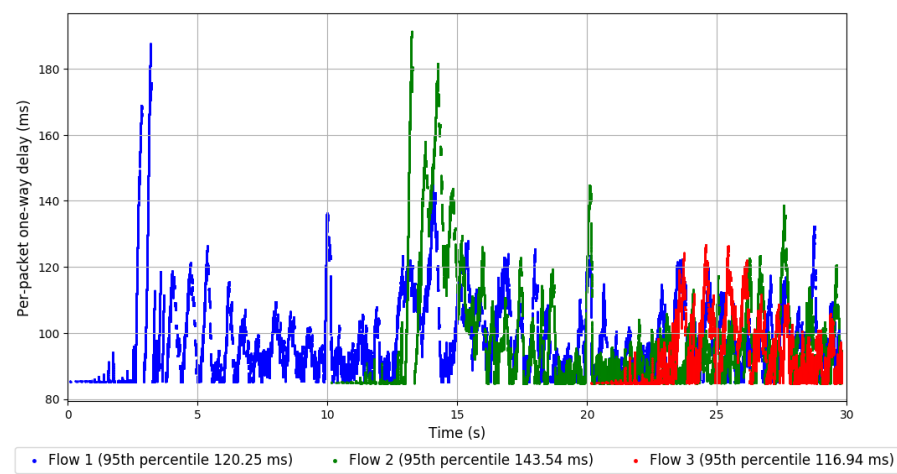
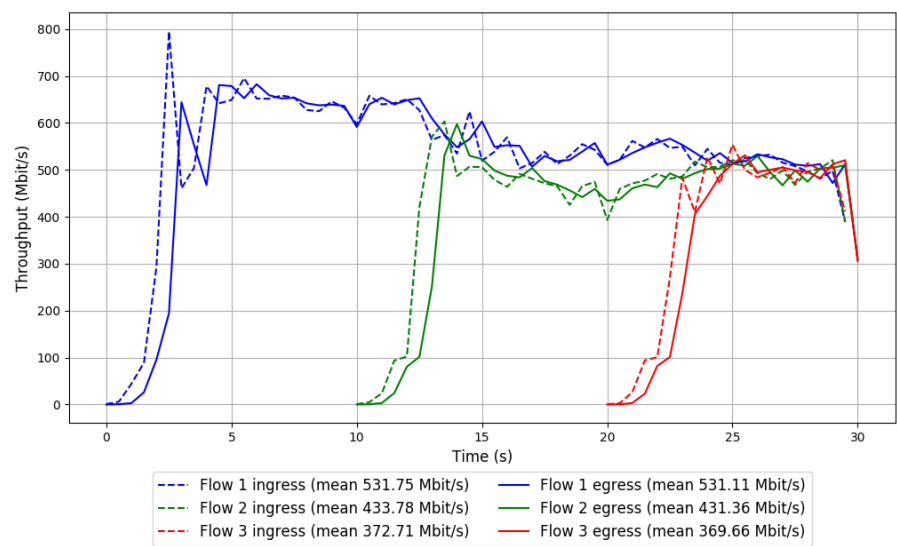


Run 3: Statistics of Indigo-Muses

Start at: 2018-10-26 04:42:58
End at: 2018-10-26 04:43:28
Local clock offset: -1.038 ms
Remote clock offset: -0.008 ms

Below is generated by plot.py at 2018-10-26 07:24:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 936.65 Mbit/s
95th percentile per-packet one-way delay: 125.637 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 531.11 Mbit/s
95th percentile per-packet one-way delay: 120.248 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 431.36 Mbit/s
95th percentile per-packet one-way delay: 143.538 ms
Loss rate: 1.43%
-- Flow 3:
Average throughput: 369.66 Mbit/s
95th percentile per-packet one-way delay: 116.945 ms
Loss rate: 2.55%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-10-26 05:14:17

End at: 2018-10-26 05:14:47

Local clock offset: -0.537 ms

Remote clock offset: 0.008 ms

Below is generated by plot.py at 2018-10-26 07:25:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 936.64 Mbit/s

95th percentile per-packet one-way delay: 127.305 ms

Loss rate: 0.98%

-- Flow 1:

Average throughput: 521.60 Mbit/s

95th percentile per-packet one-way delay: 125.926 ms

Loss rate: 0.65%

-- Flow 2:

Average throughput: 438.56 Mbit/s

95th percentile per-packet one-way delay: 126.781 ms

Loss rate: 1.00%

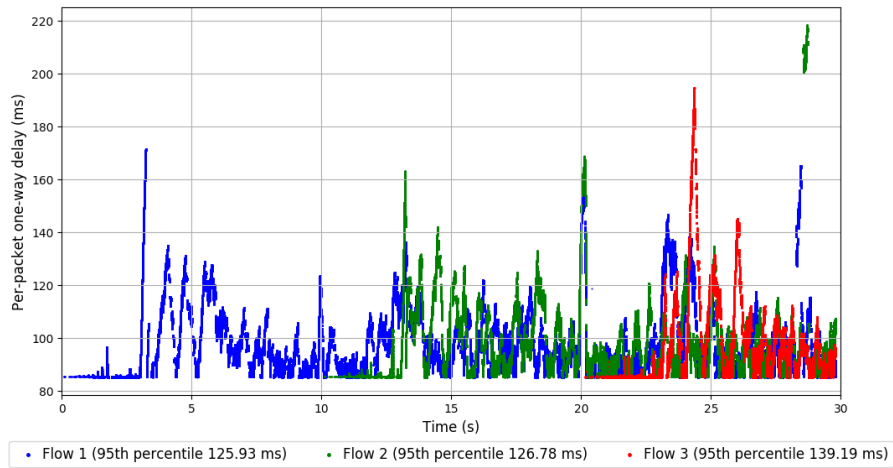
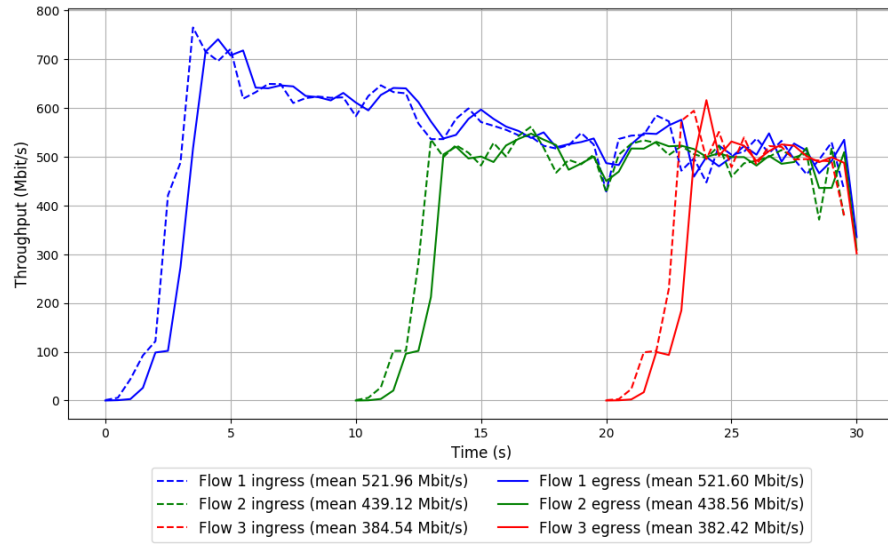
-- Flow 3:

Average throughput: 382.42 Mbit/s

95th percentile per-packet one-way delay: 139.193 ms

Loss rate: 2.31%

Run 4: Report of Indigo-Muses — Data Link

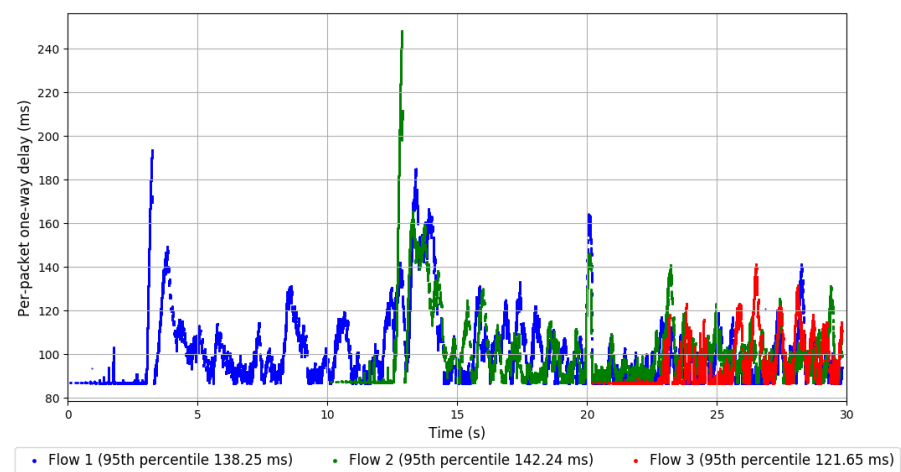
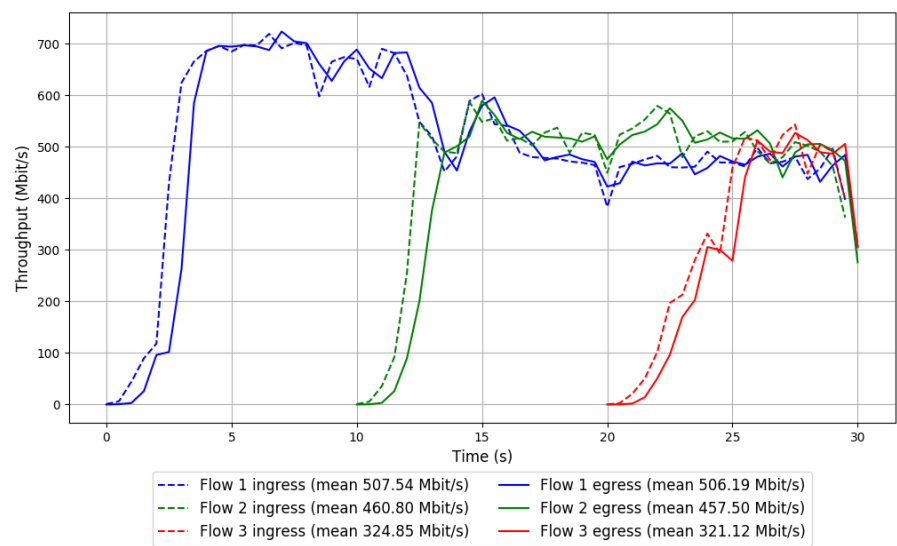


Run 5: Statistics of Indigo-Muses

Start at: 2018-10-26 05:45:33
End at: 2018-10-26 05:46:03
Local clock offset: 0.652 ms
Remote clock offset: -0.059 ms

Below is generated by plot.py at 2018-10-26 07:25:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 913.26 Mbit/s
95th percentile per-packet one-way delay: 137.418 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 506.19 Mbit/s
95th percentile per-packet one-way delay: 138.245 ms
Loss rate: 0.84%
-- Flow 2:
Average throughput: 457.50 Mbit/s
95th percentile per-packet one-way delay: 142.242 ms
Loss rate: 1.58%
-- Flow 3:
Average throughput: 321.12 Mbit/s
95th percentile per-packet one-way delay: 121.647 ms
Loss rate: 2.89%

Run 5: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-10-26 03:26:41

End at: 2018-10-26 03:27:11

Local clock offset: 0.972 ms

Remote clock offset: 0.311 ms

Below is generated by plot.py at 2018-10-26 07:35:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 587.13 Mbit/s

95th percentile per-packet one-way delay: 218.189 ms

Loss rate: 4.79%

-- Flow 1:

Average throughput: 339.66 Mbit/s

95th percentile per-packet one-way delay: 213.776 ms

Loss rate: 6.02%

-- Flow 2:

Average throughput: 249.18 Mbit/s

95th percentile per-packet one-way delay: 245.667 ms

Loss rate: 2.71%

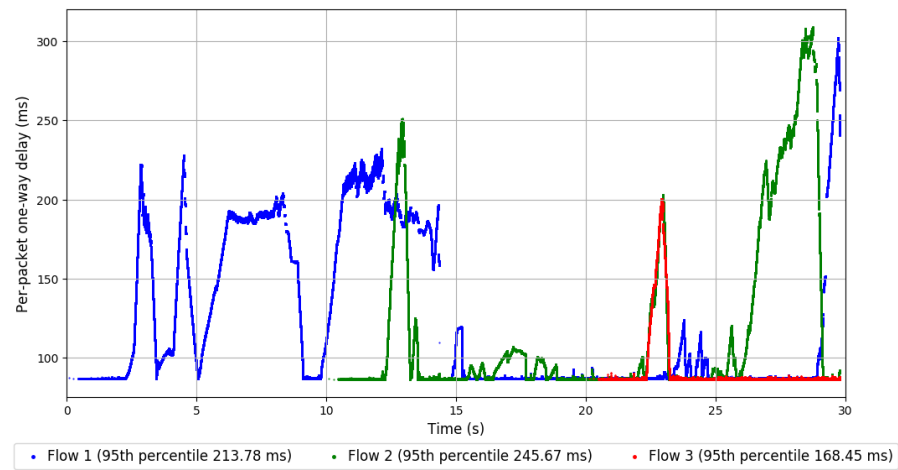
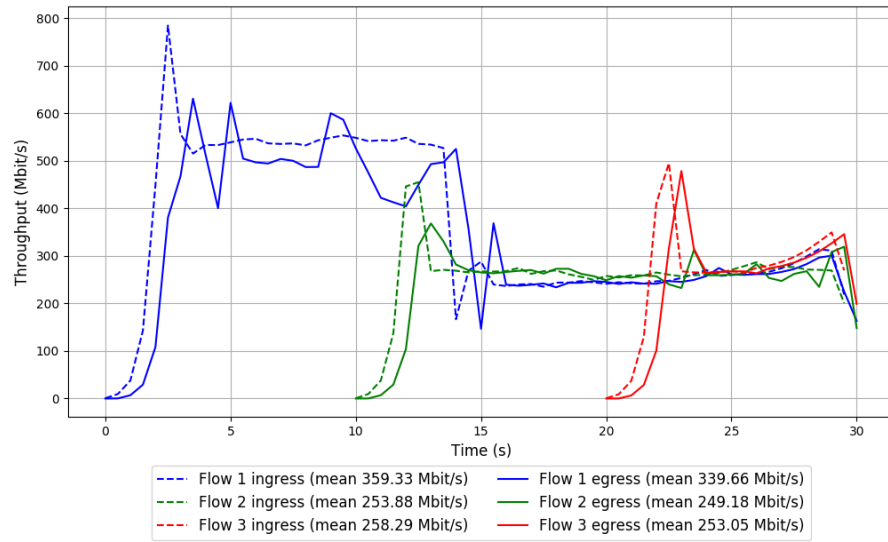
-- Flow 3:

Average throughput: 253.05 Mbit/s

95th percentile per-packet one-way delay: 168.447 ms

Loss rate: 3.75%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-10-26 03:58:04

End at: 2018-10-26 03:58:34

Local clock offset: 0.833 ms

Remote clock offset: 0.051 ms

Below is generated by plot.py at 2018-10-26 07:36:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 600.75 Mbit/s

95th percentile per-packet one-way delay: 227.788 ms

Loss rate: 7.60%

-- Flow 1:

Average throughput: 343.02 Mbit/s

95th percentile per-packet one-way delay: 233.328 ms

Loss rate: 10.87%

-- Flow 2:

Average throughput: 277.19 Mbit/s

95th percentile per-packet one-way delay: 128.366 ms

Loss rate: 1.96%

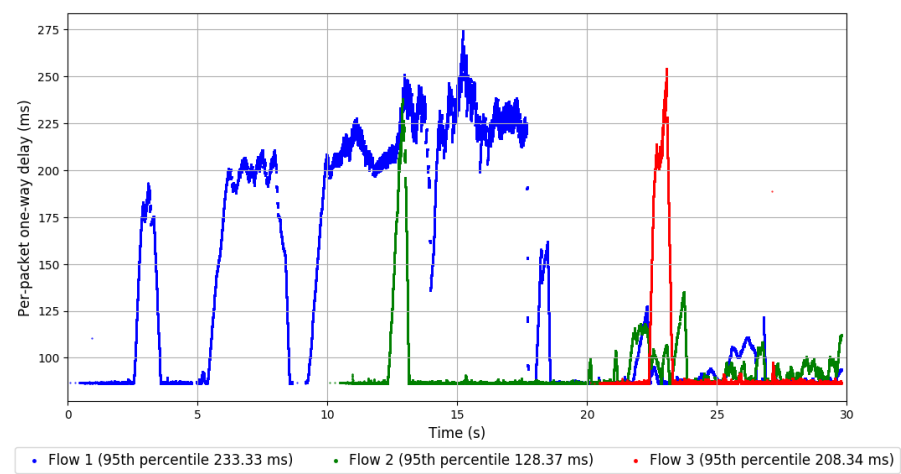
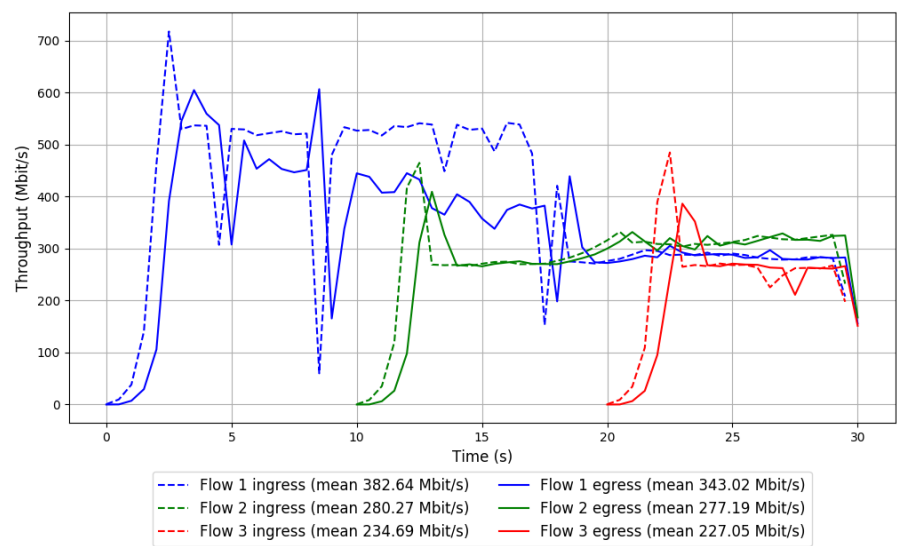
-- Flow 3:

Average throughput: 227.05 Mbit/s

95th percentile per-packet one-way delay: 208.341 ms

Loss rate: 4.96%

Run 2: Report of PCC-Allegro — Data Link

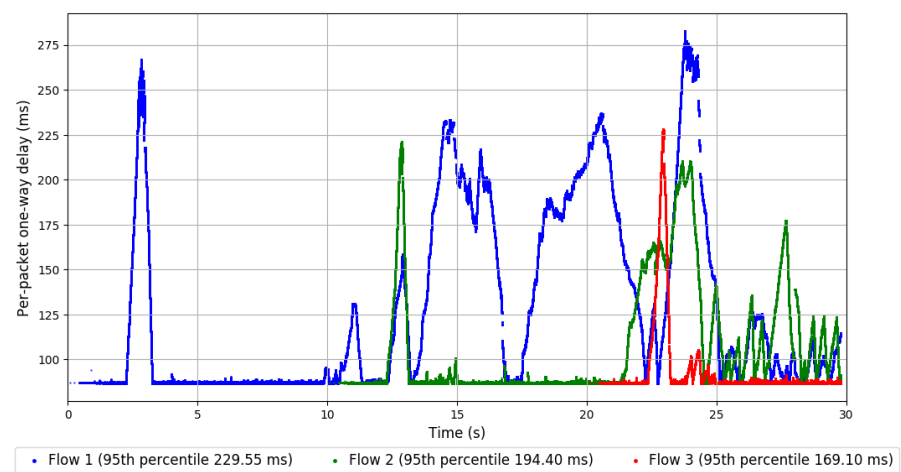
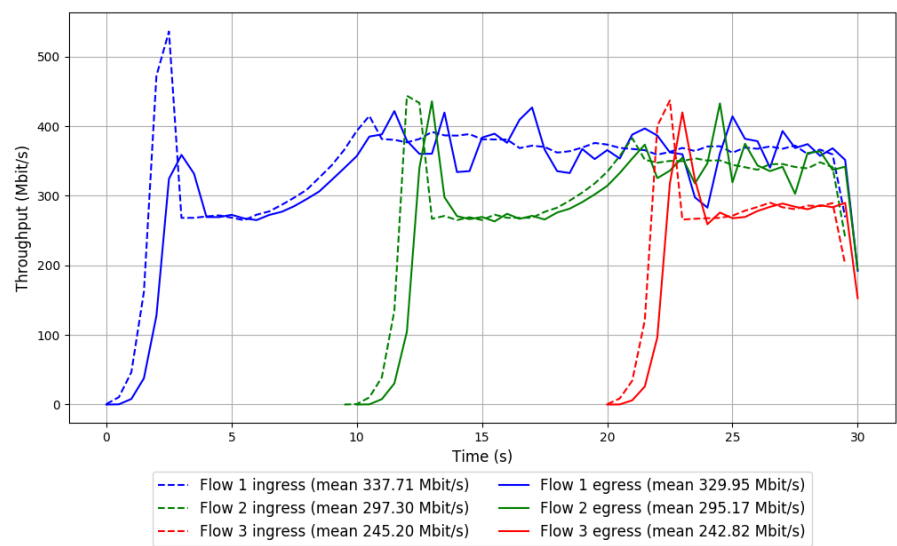


Run 3: Statistics of PCC-Allegro

Start at: 2018-10-26 04:29:30
End at: 2018-10-26 04:30:00
Local clock offset: 1.034 ms
Remote clock offset: -0.016 ms

Below is generated by plot.py at 2018-10-26 07:37:02
Datalink statistics
-- Total of 3 flows:
Average throughput: 604.65 Mbit/s
95th percentile per-packet one-way delay: 215.555 ms
Loss rate: 2.43%
-- Flow 1:
Average throughput: 329.95 Mbit/s
95th percentile per-packet one-way delay: 229.552 ms
Loss rate: 2.86%
-- Flow 2:
Average throughput: 295.17 Mbit/s
95th percentile per-packet one-way delay: 194.396 ms
Loss rate: 1.59%
-- Flow 3:
Average throughput: 242.82 Mbit/s
95th percentile per-packet one-way delay: 169.105 ms
Loss rate: 2.71%

Run 3: Report of PCC-Allegro — Data Link

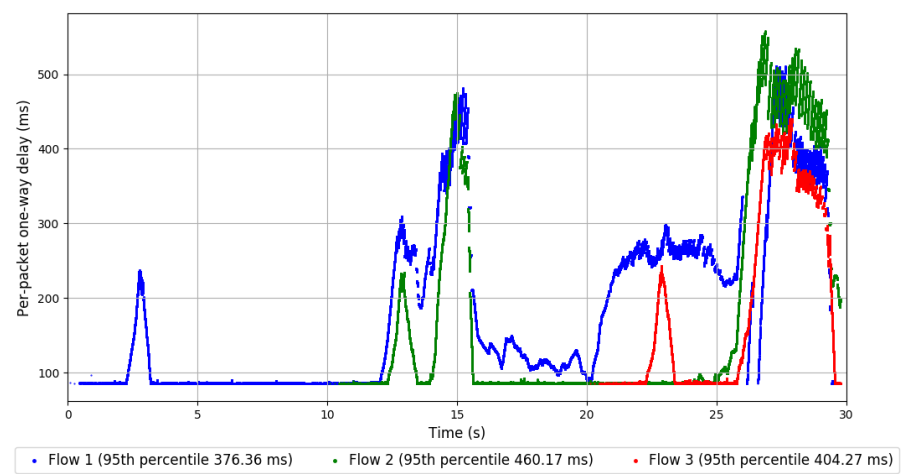
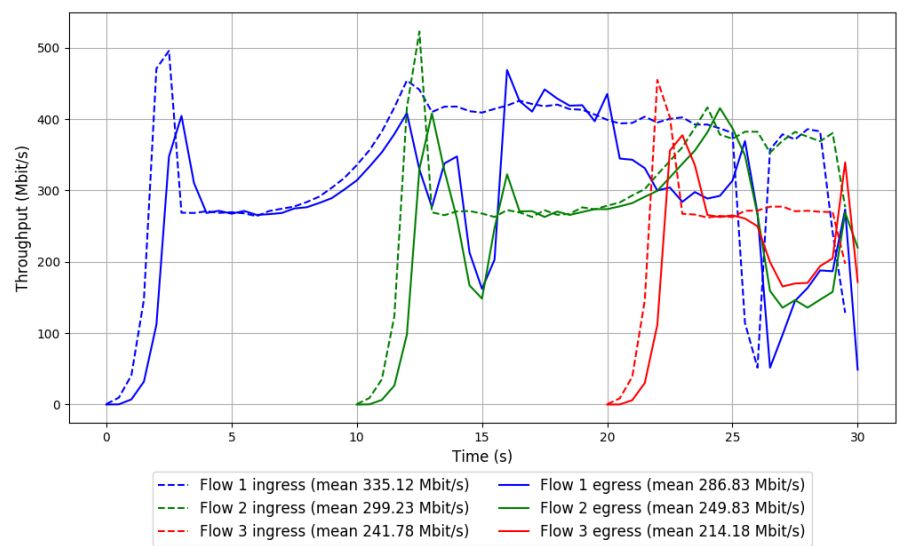


Run 4: Statistics of PCC-Allegro

Start at: 2018-10-26 05:00:43
End at: 2018-10-26 05:01:13
Local clock offset: -0.125 ms
Remote clock offset: -0.029 ms

Below is generated by plot.py at 2018-10-26 07:47:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 519.98 Mbit/s
95th percentile per-packet one-way delay: 410.038 ms
Loss rate: 15.74%
-- Flow 1:
Average throughput: 286.83 Mbit/s
95th percentile per-packet one-way delay: 376.356 ms
Loss rate: 15.51%
-- Flow 2:
Average throughput: 249.83 Mbit/s
95th percentile per-packet one-way delay: 460.174 ms
Loss rate: 17.23%
-- Flow 3:
Average throughput: 214.18 Mbit/s
95th percentile per-packet one-way delay: 404.275 ms
Loss rate: 12.97%

Run 4: Report of PCC-Allegro — Data Link

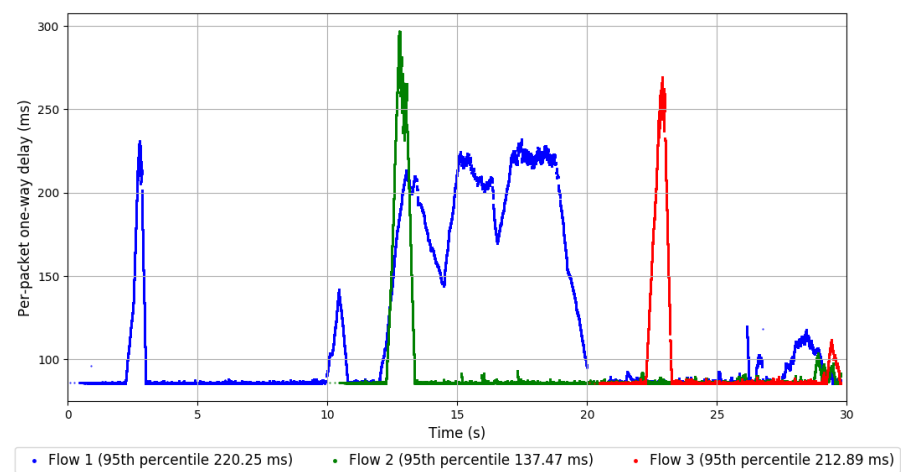
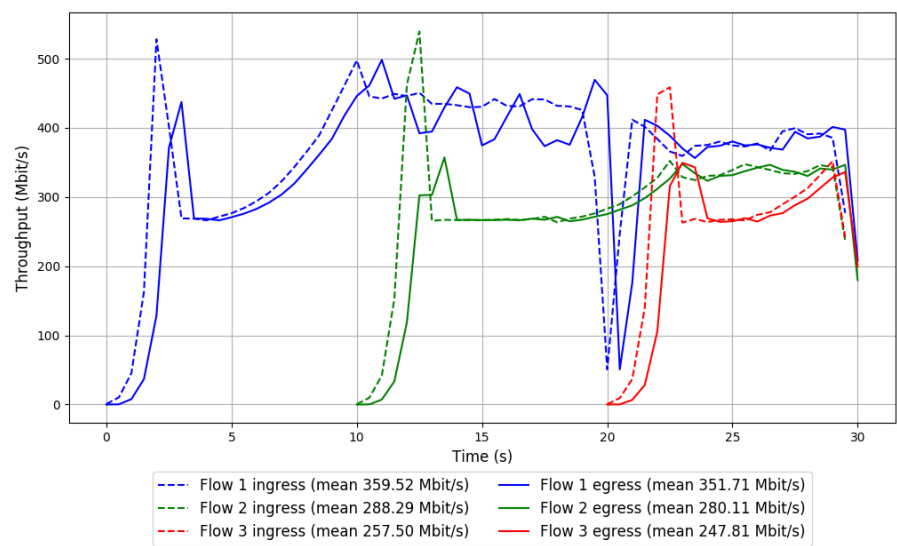


Run 5: Statistics of PCC-Allegro

Start at: 2018-10-26 05:32:00
End at: 2018-10-26 05:32:30
Local clock offset: -0.372 ms
Remote clock offset: -0.036 ms

Below is generated by plot.py at 2018-10-26 07:50:39
Datalink statistics
-- Total of 3 flows:
Average throughput: 618.09 Mbit/s
95th percentile per-packet one-way delay: 219.269 ms
Loss rate: 3.39%
-- Flow 1:
Average throughput: 351.71 Mbit/s
95th percentile per-packet one-way delay: 220.248 ms
Loss rate: 2.74%
-- Flow 2:
Average throughput: 280.11 Mbit/s
95th percentile per-packet one-way delay: 137.472 ms
Loss rate: 3.68%
-- Flow 3:
Average throughput: 247.81 Mbit/s
95th percentile per-packet one-way delay: 212.894 ms
Loss rate: 5.46%

Run 5: Report of PCC-Allegro — Data Link

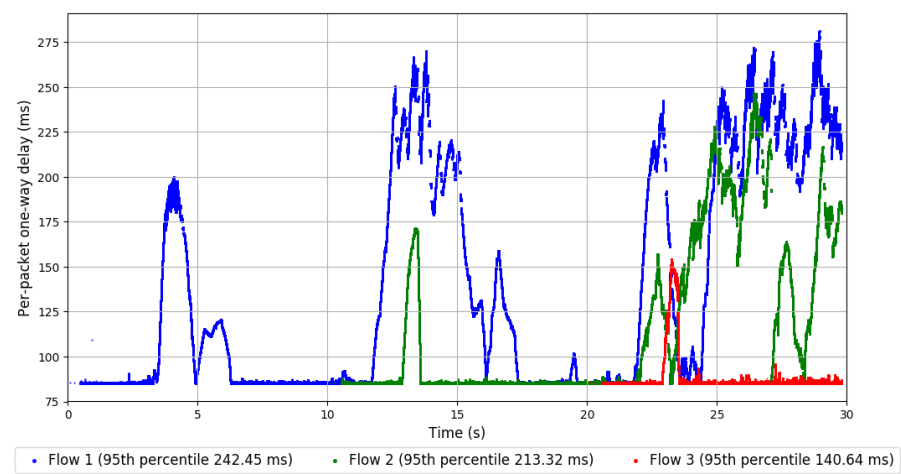
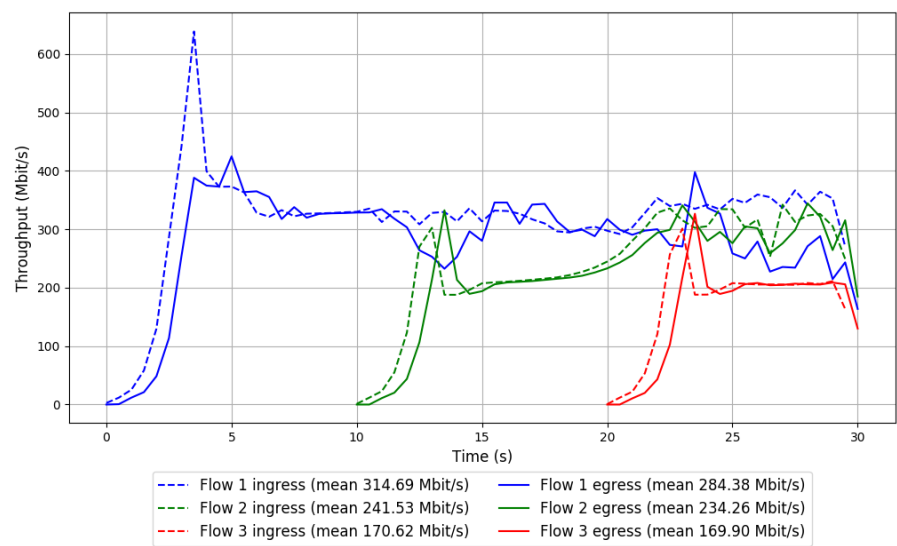


```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-26 03:21:12
End at: 2018-10-26 03:21:42
Local clock offset: -0.4 ms
Remote clock offset: 0.279 ms

# Below is generated by plot.py at 2018-10-26 07:50:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 495.04 Mbit/s
95th percentile per-packet one-way delay: 232.924 ms
Loss rate: 7.40%
-- Flow 1:
Average throughput: 284.38 Mbit/s
95th percentile per-packet one-way delay: 242.454 ms
Loss rate: 10.15%
-- Flow 2:
Average throughput: 234.26 Mbit/s
95th percentile per-packet one-way delay: 213.325 ms
Loss rate: 3.84%
-- Flow 3:
Average throughput: 169.90 Mbit/s
95th percentile per-packet one-way delay: 140.636 ms
Loss rate: 2.17%
```

Run 1: Report of PCC-Expr — Data Link

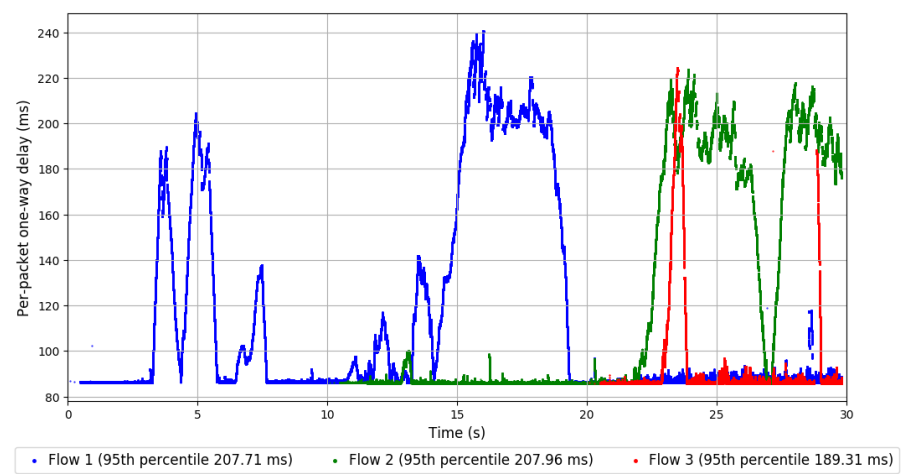
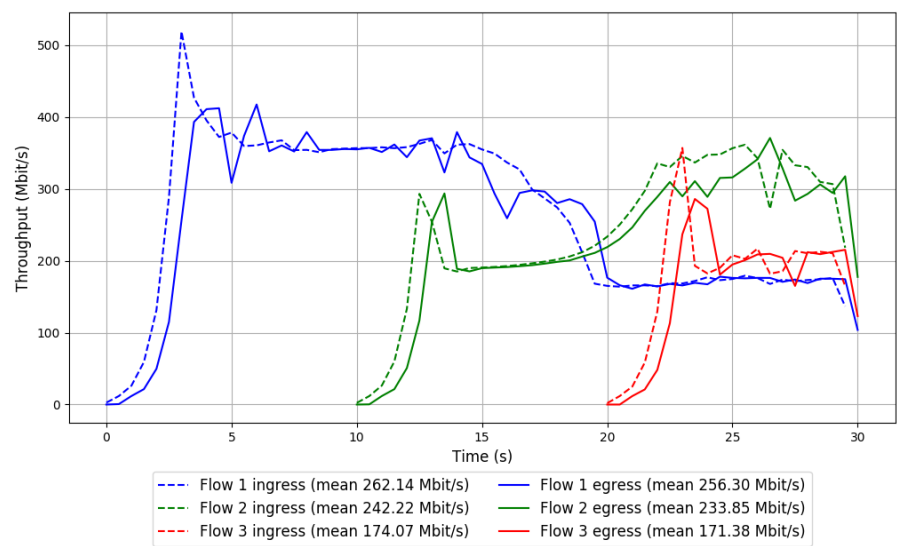


```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-26 03:52:34
End at: 2018-10-26 03:53:04
Local clock offset: 0.234 ms
Remote clock offset: 0.054 ms

# Below is generated by plot.py at 2018-10-26 07:50:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 467.31 Mbit/s
95th percentile per-packet one-way delay: 207.190 ms
Loss rate: 3.35%
-- Flow 1:
Average throughput: 256.30 Mbit/s
95th percentile per-packet one-way delay: 207.712 ms
Loss rate: 2.79%
-- Flow 2:
Average throughput: 233.85 Mbit/s
95th percentile per-packet one-way delay: 207.958 ms
Loss rate: 4.29%
-- Flow 3:
Average throughput: 171.38 Mbit/s
95th percentile per-packet one-way delay: 189.305 ms
Loss rate: 3.27%
```

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-10-26 04:24:05

End at: 2018-10-26 04:24:35

Local clock offset: 0.777 ms

Remote clock offset: 0.011 ms

Below is generated by plot.py at 2018-10-26 07:50:39

Datalink statistics

-- Total of 3 flows:

Average throughput: 443.84 Mbit/s

95th percentile per-packet one-way delay: 208.081 ms

Loss rate: 2.61%

-- Flow 1:

Average throughput: 248.80 Mbit/s

95th percentile per-packet one-way delay: 216.039 ms

Loss rate: 3.37%

-- Flow 2:

Average throughput: 212.98 Mbit/s

95th percentile per-packet one-way delay: 185.996 ms

Loss rate: 1.46%

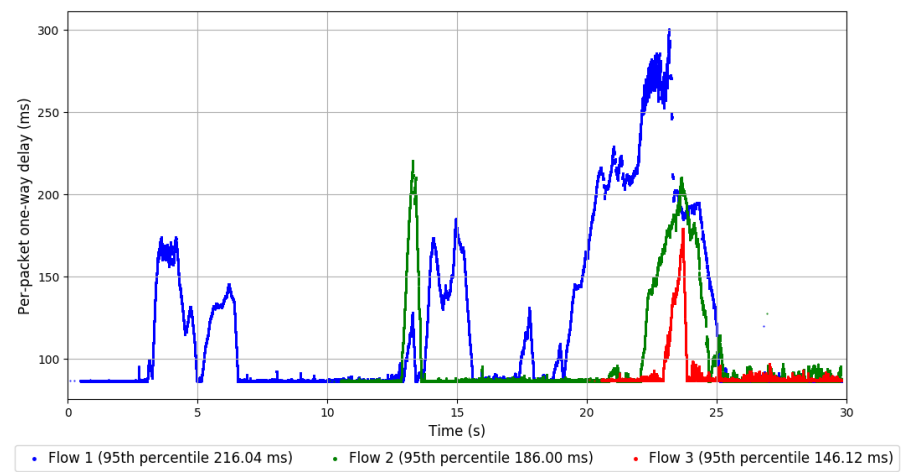
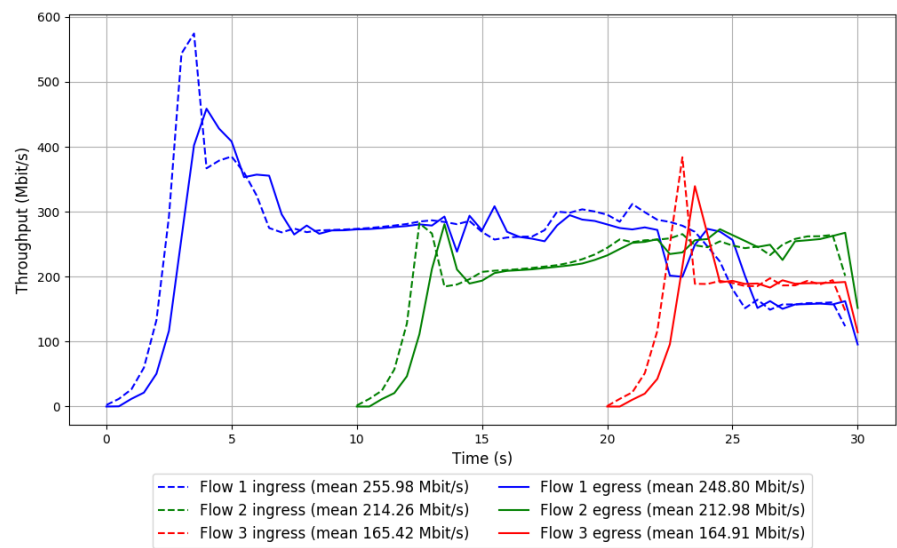
-- Flow 3:

Average throughput: 164.91 Mbit/s

95th percentile per-packet one-way delay: 146.121 ms

Loss rate: 2.05%

Run 3: Report of PCC-Expr — Data Link

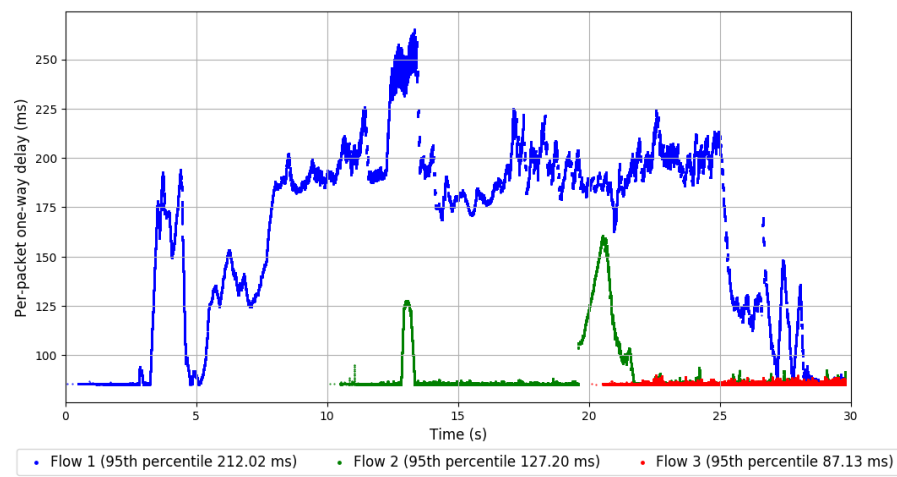
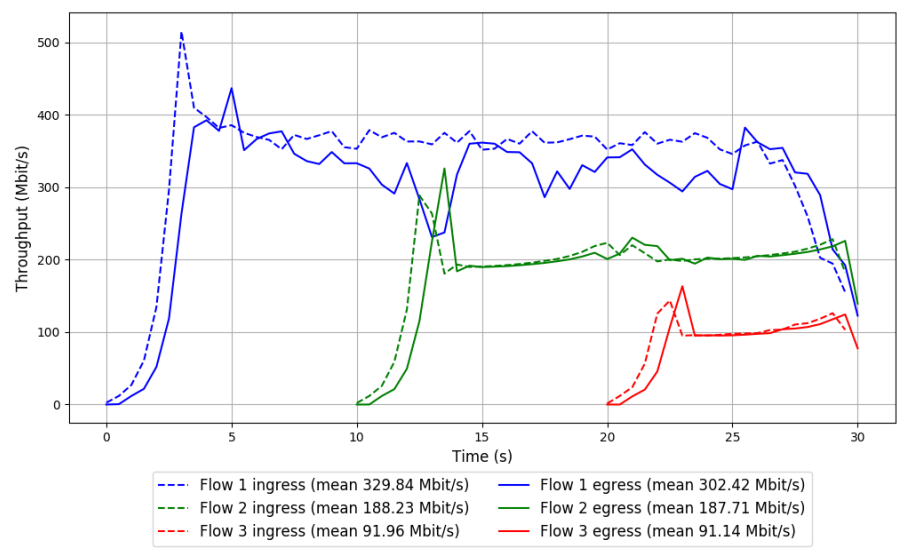


Run 4: Statistics of PCC-Expr

Start at: 2018-10-26 04:55:18
End at: 2018-10-26 04:55:48
Local clock offset: -0.56 ms
Remote clock offset: -0.026 ms

Below is generated by plot.py at 2018-10-26 07:53:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 456.61 Mbit/s
95th percentile per-packet one-way delay: 207.351 ms
Loss rate: 6.47%
-- Flow 1:
Average throughput: 302.42 Mbit/s
95th percentile per-packet one-way delay: 212.021 ms
Loss rate: 8.84%
-- Flow 2:
Average throughput: 187.71 Mbit/s
95th percentile per-packet one-way delay: 127.200 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 91.14 Mbit/s
95th percentile per-packet one-way delay: 87.130 ms
Loss rate: 2.65%

Run 4: Report of PCC-Expr — Data Link

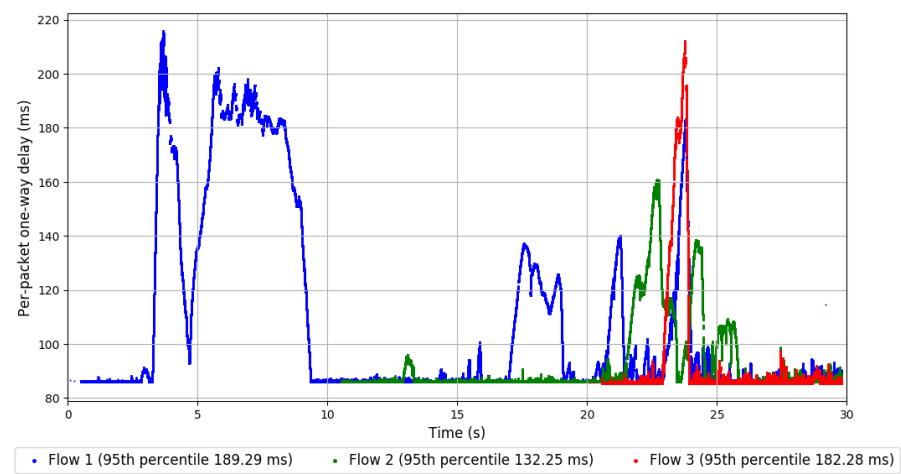
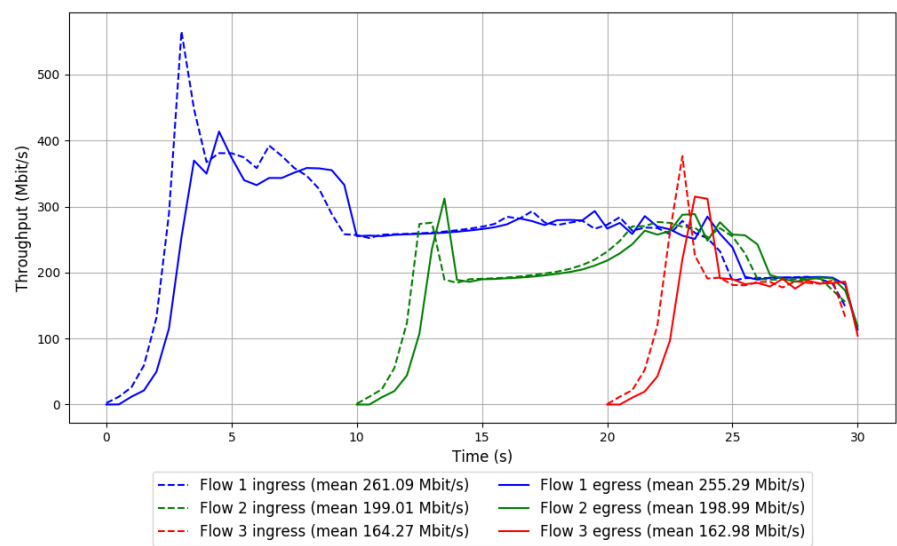


Run 5: Statistics of PCC-Expr

Start at: 2018-10-26 05:26:36
End at: 2018-10-26 05:27:06
Local clock offset: -0.311 ms
Remote clock offset: -0.053 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 440.30 Mbit/s
95th percentile per-packet one-way delay: 184.960 ms
Loss rate: 2.20%
-- Flow 1:
Average throughput: 255.29 Mbit/s
95th percentile per-packet one-way delay: 189.288 ms
Loss rate: 2.79%
-- Flow 2:
Average throughput: 198.99 Mbit/s
95th percentile per-packet one-way delay: 132.252 ms
Loss rate: 0.88%
-- Flow 3:
Average throughput: 162.98 Mbit/s
95th percentile per-packet one-way delay: 182.275 ms
Loss rate: 2.56%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-10-26 03:28:39

End at: 2018-10-26 03:29:09

Local clock offset: 0.444 ms

Remote clock offset: 0.29 ms

Below is generated by plot.py at 2018-10-26 07:54:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 87.42 Mbit/s

95th percentile per-packet one-way delay: 86.493 ms

Loss rate: 0.94%

-- Flow 1:

Average throughput: 50.60 Mbit/s

95th percentile per-packet one-way delay: 86.488 ms

Loss rate: 1.02%

-- Flow 2:

Average throughput: 32.08 Mbit/s

95th percentile per-packet one-way delay: 86.532 ms

Loss rate: 1.07%

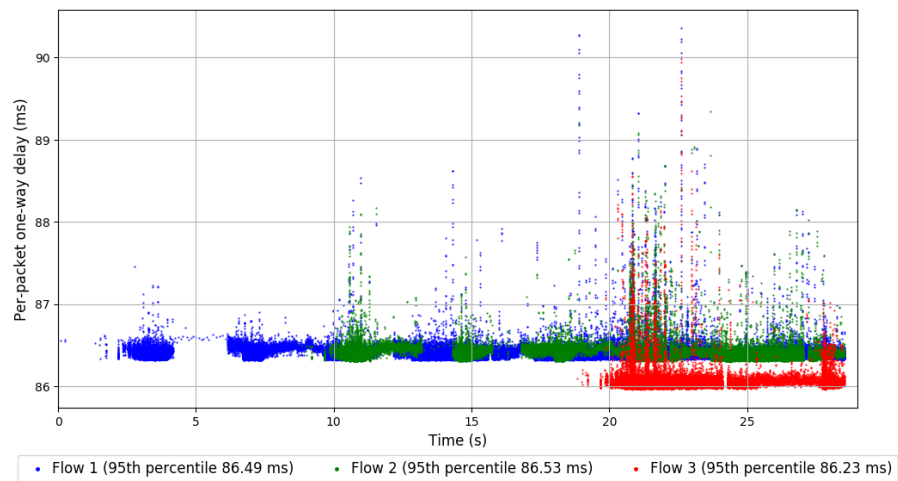
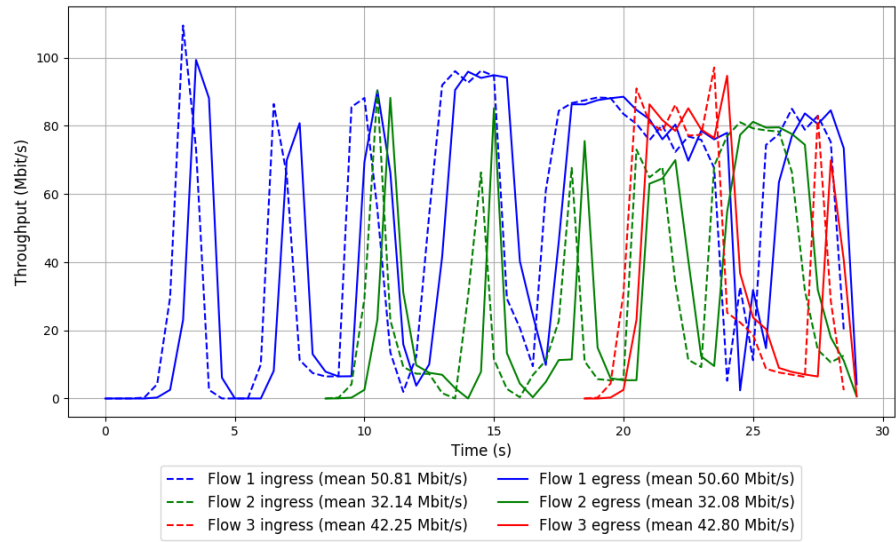
-- Flow 3:

Average throughput: 42.80 Mbit/s

95th percentile per-packet one-way delay: 86.232 ms

Loss rate: 0.45%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-10-26 04:00:03

End at: 2018-10-26 04:00:33

Local clock offset: -0.333 ms

Remote clock offset: 0.0 ms

Below is generated by plot.py at 2018-10-26 07:54:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 86.64 Mbit/s

95th percentile per-packet one-way delay: 85.725 ms

Loss rate: 0.94%

-- Flow 1:

Average throughput: 48.23 Mbit/s

95th percentile per-packet one-way delay: 85.538 ms

Loss rate: 0.81%

-- Flow 2:

Average throughput: 41.24 Mbit/s

95th percentile per-packet one-way delay: 85.571 ms

Loss rate: 1.48%

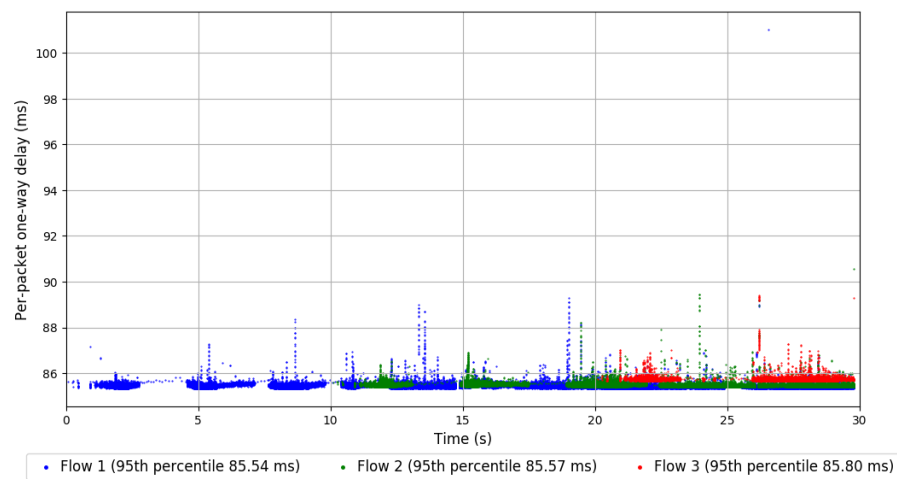
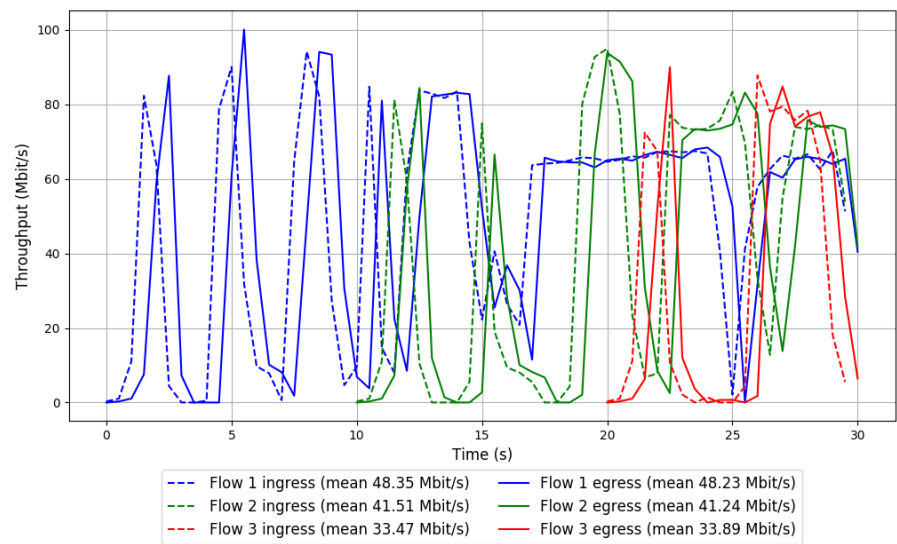
-- Flow 3:

Average throughput: 33.89 Mbit/s

95th percentile per-packet one-way delay: 85.797 ms

Loss rate: 0.17%

Run 2: Report of QUIC Cubic — Data Link

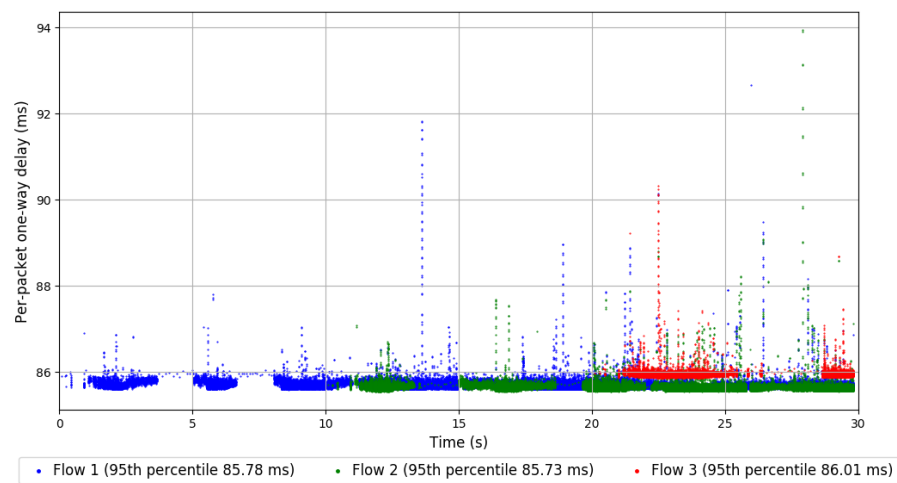
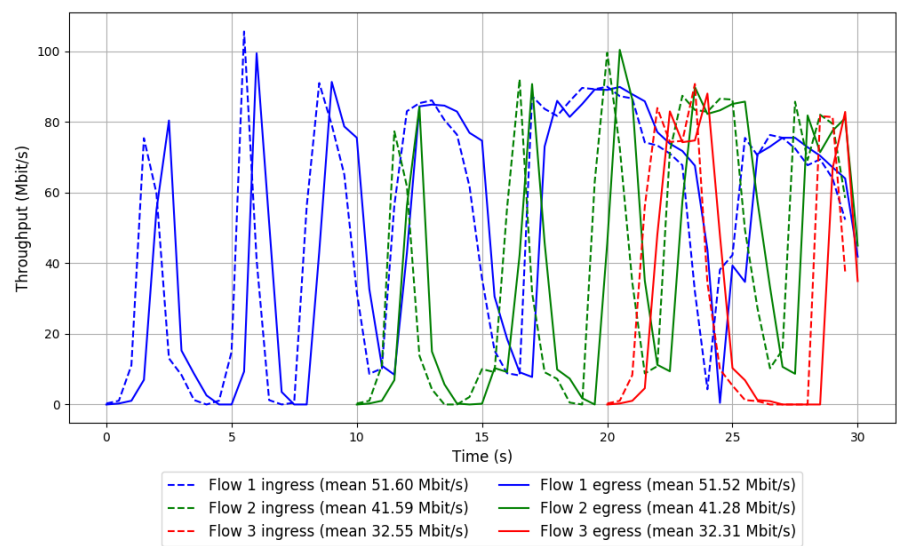


Run 3: Statistics of QUIC Cubic

Start at: 2018-10-26 04:31:28
End at: 2018-10-26 04:31:58
Local clock offset: -0.221 ms
Remote clock offset: -0.029 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 89.44 Mbit/s
95th percentile per-packet one-way delay: 85.935 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 51.52 Mbit/s
95th percentile per-packet one-way delay: 85.783 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 41.28 Mbit/s
95th percentile per-packet one-way delay: 85.729 ms
Loss rate: 1.60%
-- Flow 3:
Average throughput: 32.31 Mbit/s
95th percentile per-packet one-way delay: 86.009 ms
Loss rate: 2.48%

Run 3: Report of QUIC Cubic — Data Link

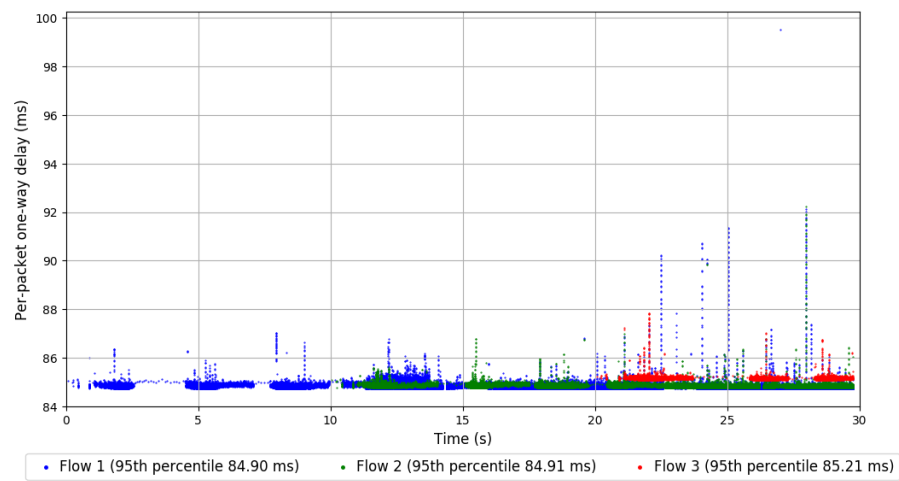
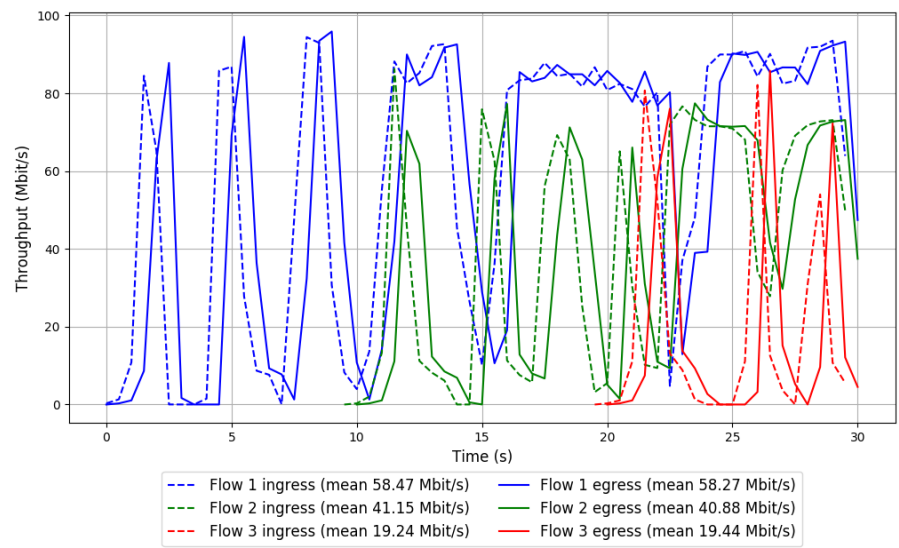


Run 4: Statistics of QUIC Cubic

Start at: 2018-10-26 05:02:38
End at: 2018-10-26 05:03:08
Local clock offset: -1.156 ms
Remote clock offset: -0.026 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.77 Mbit/s
95th percentile per-packet one-way delay: 85.118 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 58.27 Mbit/s
95th percentile per-packet one-way delay: 84.903 ms
Loss rate: 0.92%
-- Flow 2:
Average throughput: 40.88 Mbit/s
95th percentile per-packet one-way delay: 84.911 ms
Loss rate: 1.51%
-- Flow 3:
Average throughput: 19.44 Mbit/s
95th percentile per-packet one-way delay: 85.212 ms
Loss rate: 0.69%

Run 4: Report of QUIC Cubic — Data Link

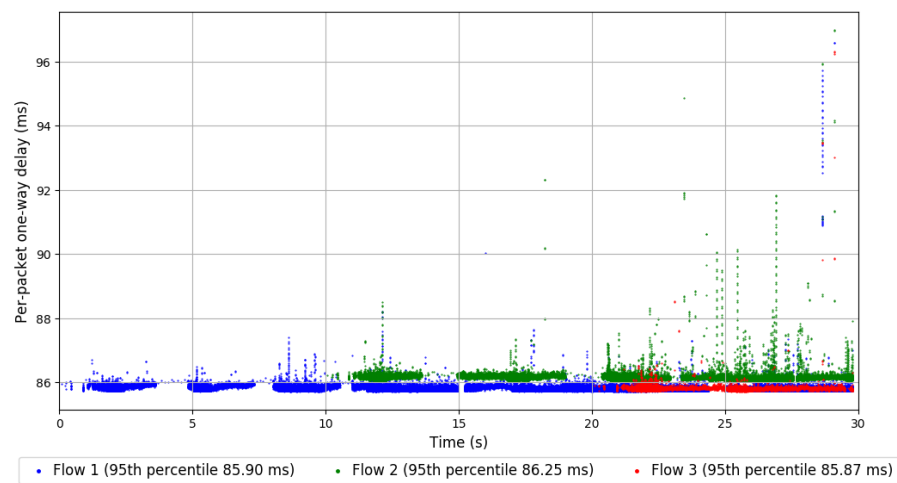
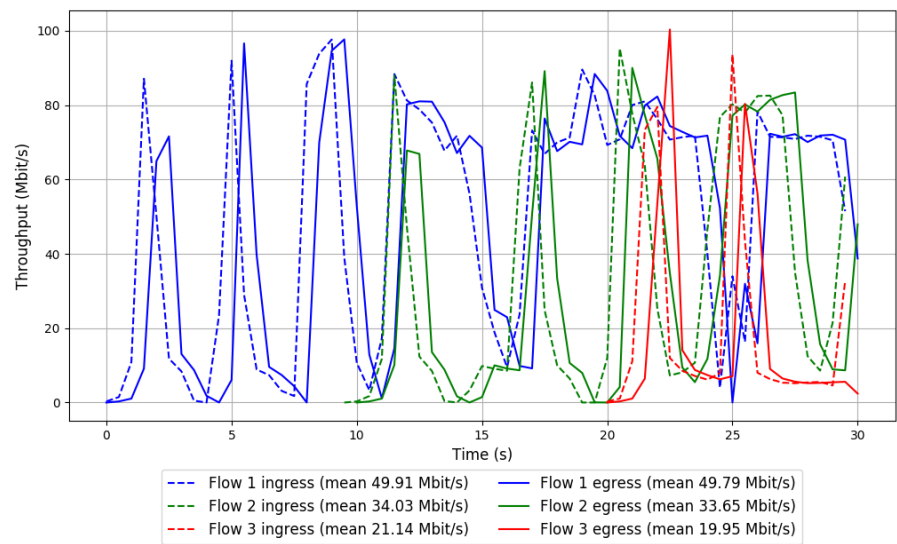


Run 5: Statistics of QUIC Cubic

Start at: 2018-10-26 05:33:58
End at: 2018-10-26 05:34:28
Local clock offset: -0.12 ms
Remote clock offset: -0.025 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 78.62 Mbit/s
95th percentile per-packet one-way delay: 86.187 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 49.79 Mbit/s
95th percentile per-packet one-way delay: 85.900 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 33.65 Mbit/s
95th percentile per-packet one-way delay: 86.255 ms
Loss rate: 1.99%
-- Flow 3:
Average throughput: 19.95 Mbit/s
95th percentile per-packet one-way delay: 85.871 ms
Loss rate: 7.28%

Run 5: Report of QUIC Cubic — Data Link

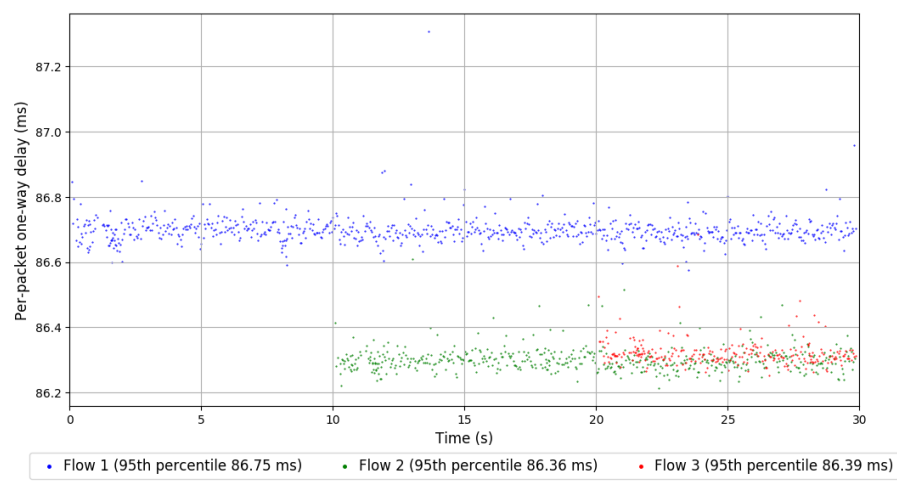
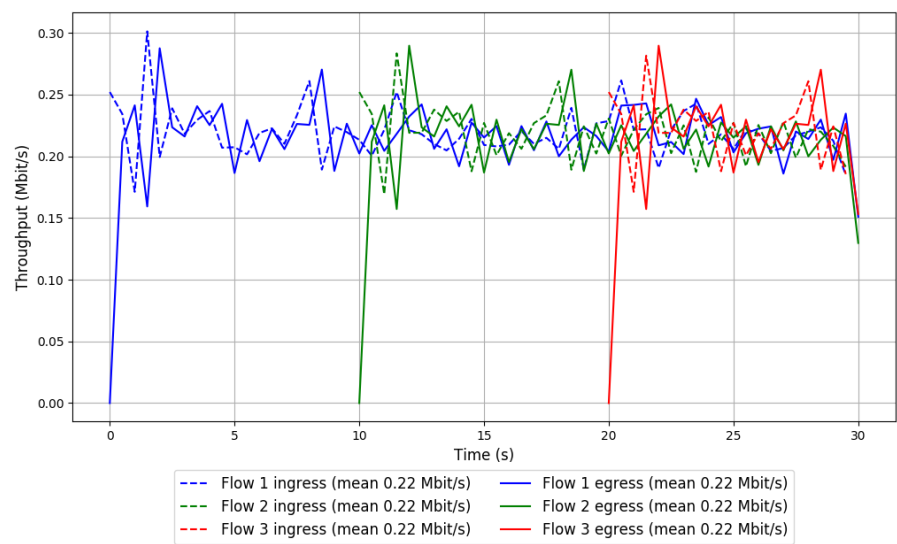


```
Run 1: Statistics of SReAM

Start at: 2018-10-26 03:42:16
End at: 2018-10-26 03:42:46
Local clock offset: 0.448 ms
Remote clock offset: 0.103 ms

# Below is generated by plot.py at 2018-10-26 07:54:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.731 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.750 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.355 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.391 ms
Loss rate: 1.46%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SReAM

Start at: 2018-10-26 04:13:48

End at: 2018-10-26 04:14:18

Local clock offset: 0.614 ms

Remote clock offset: 0.021 ms

Below is generated by plot.py at 2018-10-26 07:54:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 86.722 ms

Loss rate: 0.84%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.735 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.715 ms

Loss rate: 0.82%

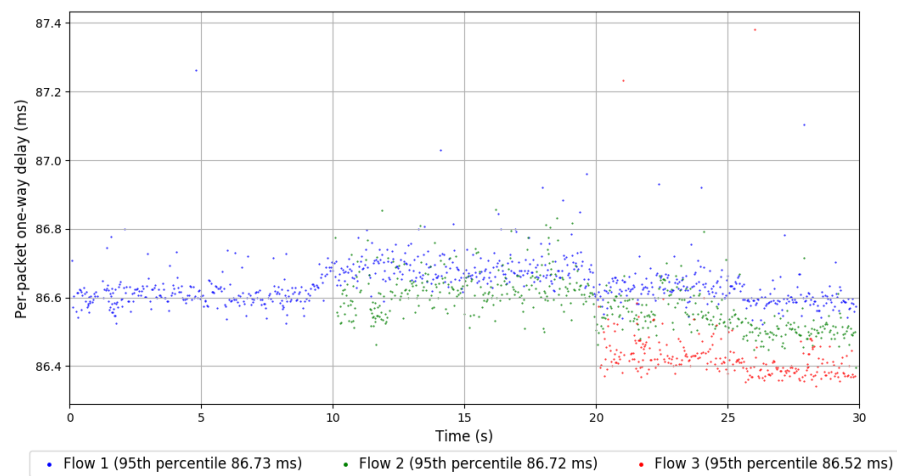
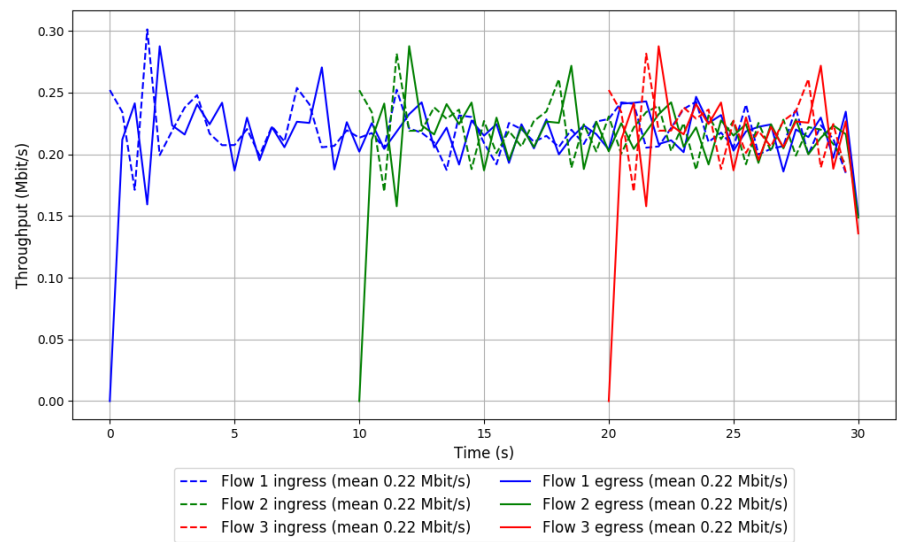
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.524 ms

Loss rate: 1.85%

Run 2: Report of SReAM — Data Link

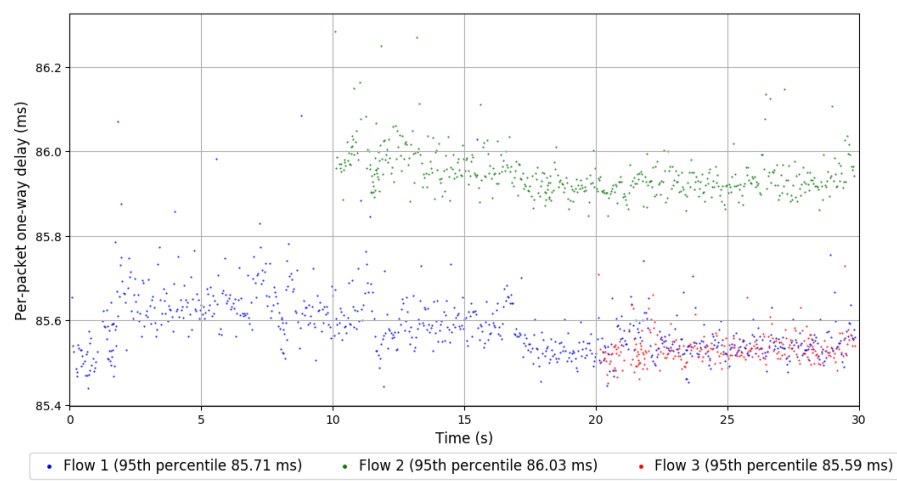
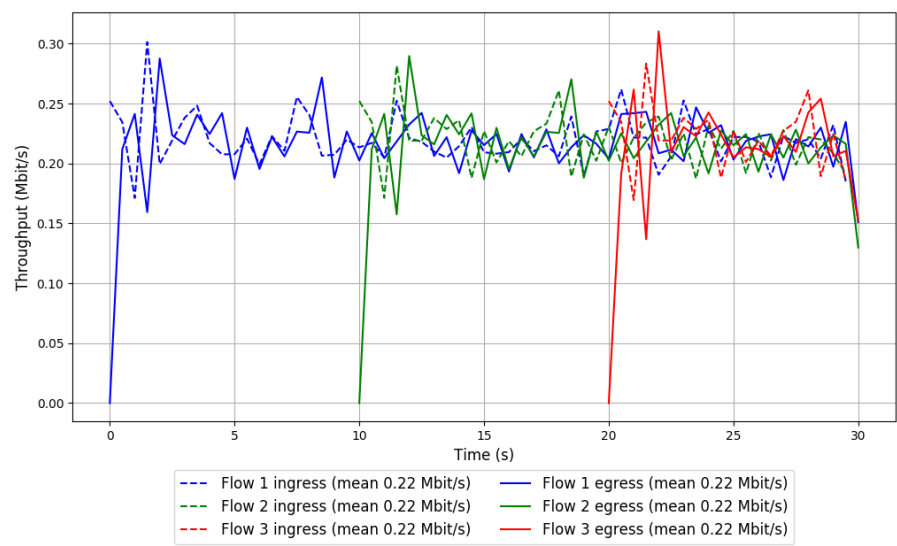


Run 3: Statistics of SReAM

Start at: 2018-10-26 04:45:03
End at: 2018-10-26 04:45:33
Local clock offset: -0.473 ms
Remote clock offset: -0.001 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 85.992 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.710 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.034 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.592 ms
Loss rate: 1.85%

Run 3: Report of SReAM — Data Link

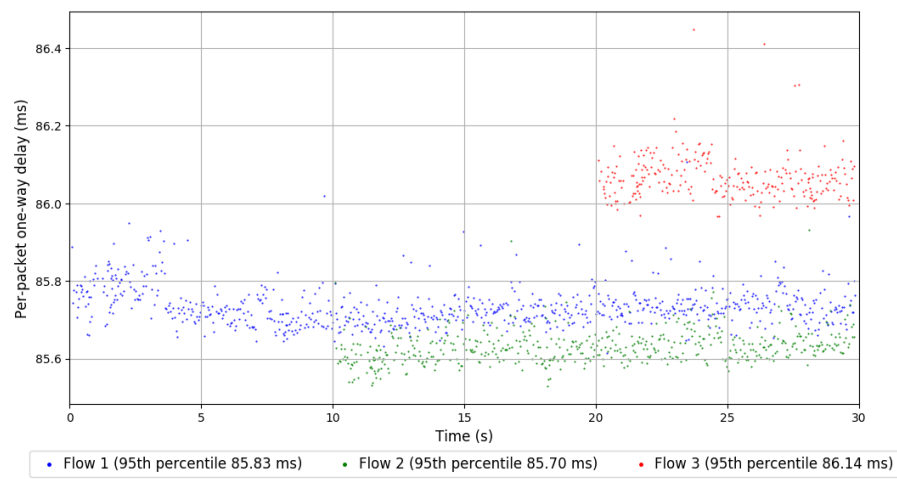
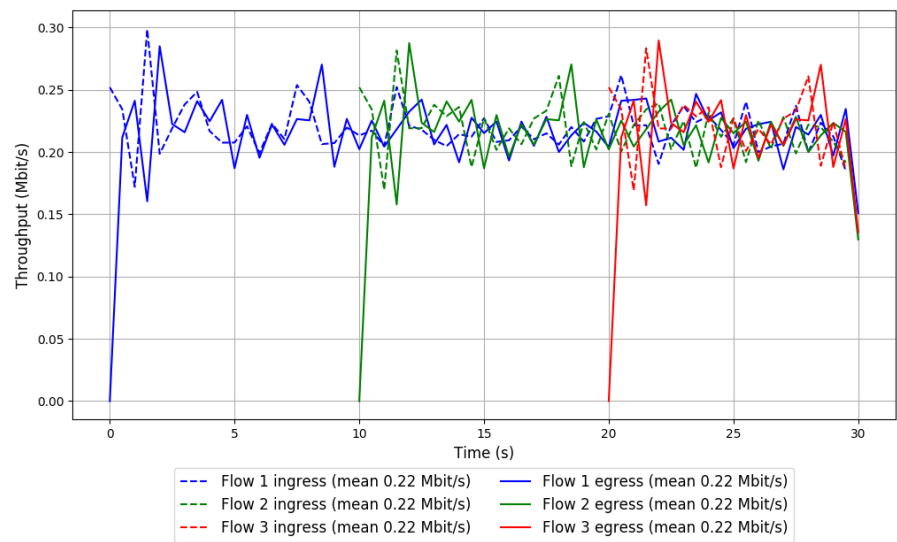


Run 4: Statistics of SReAM

Start at: 2018-10-26 05:16:22
End at: 2018-10-26 05:16:52
Local clock offset: -0.425 ms
Remote clock offset: -0.044 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.086 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.831 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.703 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.144 ms
Loss rate: 1.85%

Run 4: Report of SReAM — Data Link

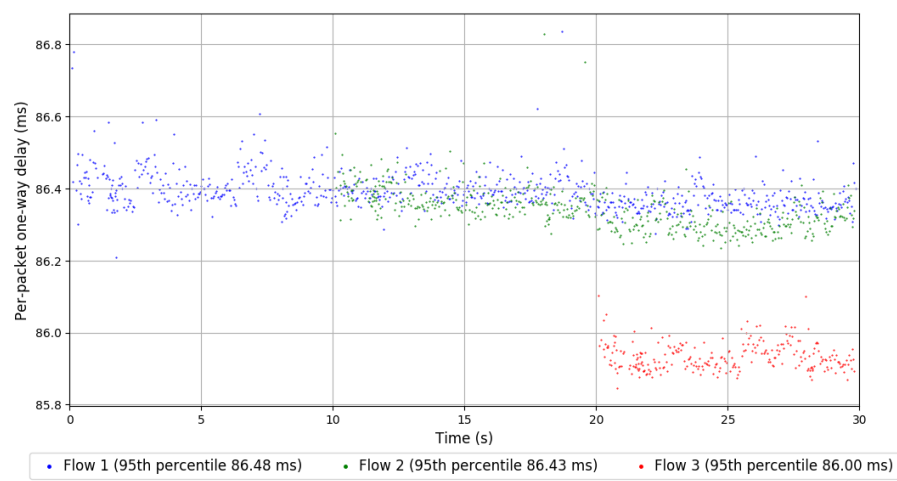
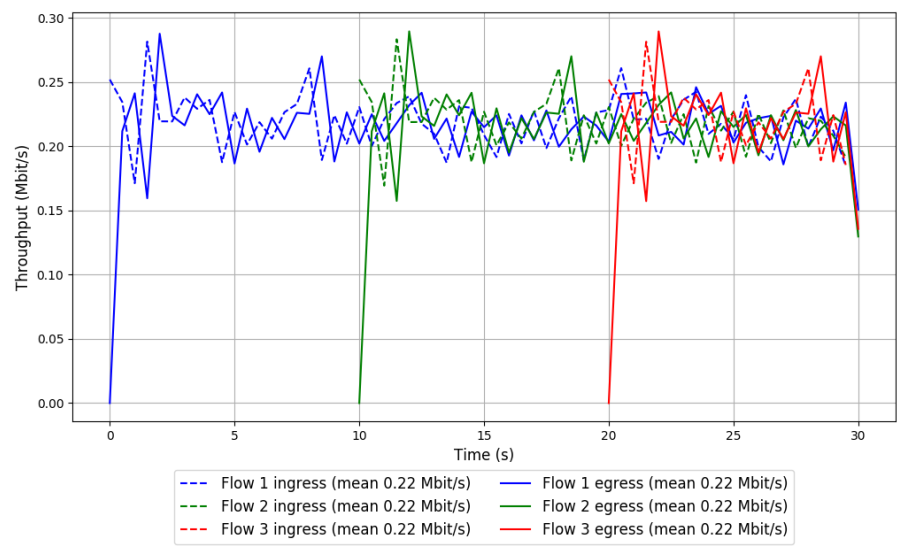


Run 5: Statistics of SReAM

Start at: 2018-10-26 05:47:37
End at: 2018-10-26 05:48:07
Local clock offset: -0.082 ms
Remote clock offset: -0.028 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.458 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.477 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.427 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.003 ms
Loss rate: 1.85%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-10-26 03:23:17

End at: 2018-10-26 03:23:47

Local clock offset: 0.406 ms

Remote clock offset: 0.27 ms

Below is generated by plot.py at 2018-10-26 07:54:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.39 Mbit/s

95th percentile per-packet one-way delay: 87.004 ms

Loss rate: 0.98%

-- Flow 1:

Average throughput: 4.23 Mbit/s

95th percentile per-packet one-way delay: 86.798 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 3.63 Mbit/s

95th percentile per-packet one-way delay: 87.155 ms

Loss rate: 1.36%

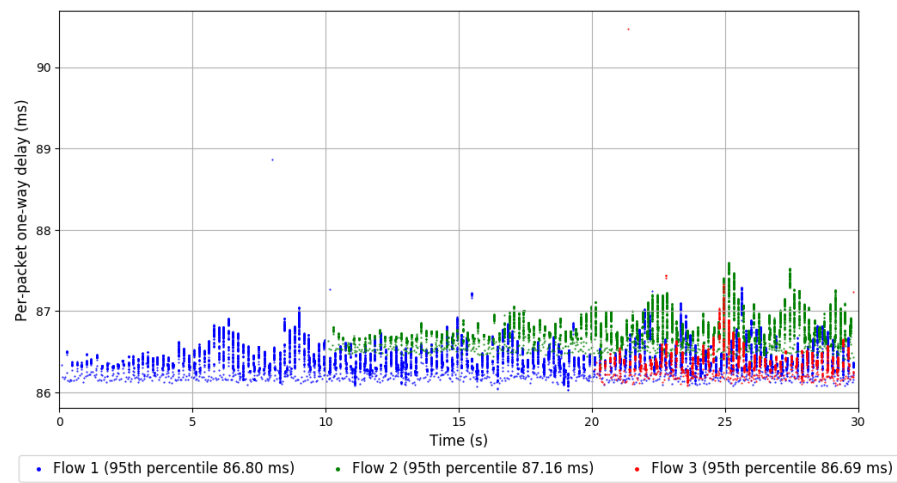
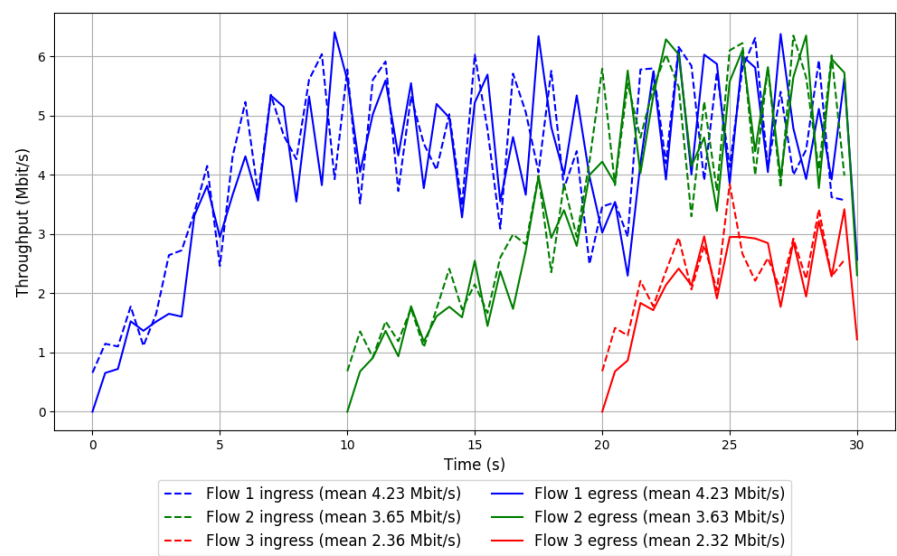
-- Flow 3:

Average throughput: 2.32 Mbit/s

95th percentile per-packet one-way delay: 86.692 ms

Loss rate: 2.90%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-10-26 03:54:36

End at: 2018-10-26 03:55:06

Local clock offset: 1.061 ms

Remote clock offset: 0.035 ms

Below is generated by plot.py at 2018-10-26 07:54:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 7.72 Mbit/s

95th percentile per-packet one-way delay: 87.655 ms

Loss rate: 1.08%

-- Flow 1:

Average throughput: 4.06 Mbit/s

95th percentile per-packet one-way delay: 87.700 ms

Loss rate: 0.76%

-- Flow 2:

Average throughput: 3.74 Mbit/s

95th percentile per-packet one-way delay: 87.562 ms

Loss rate: 1.18%

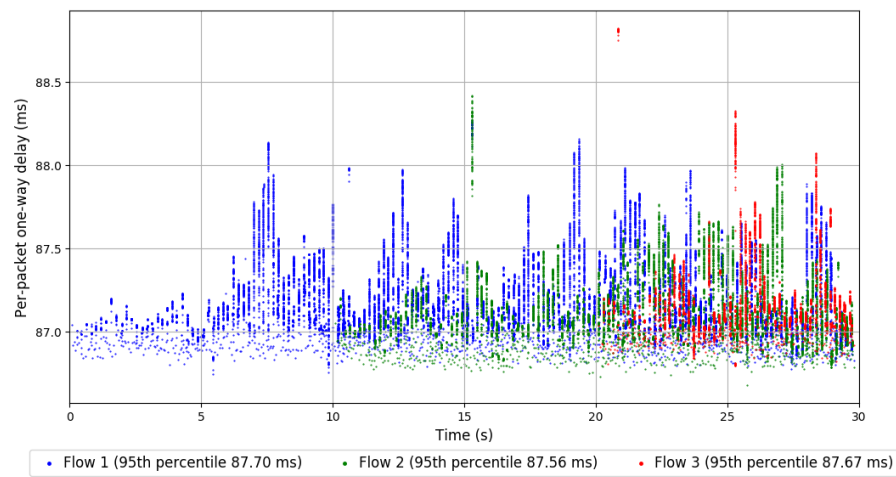
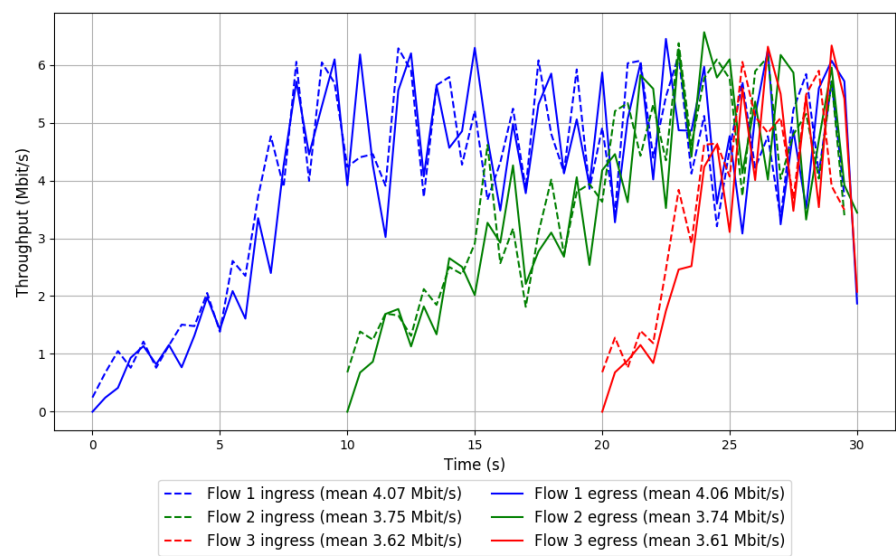
-- Flow 3:

Average throughput: 3.61 Mbit/s

95th percentile per-packet one-way delay: 87.670 ms

Loss rate: 1.99%

Run 2: Report of Sprout — Data Link

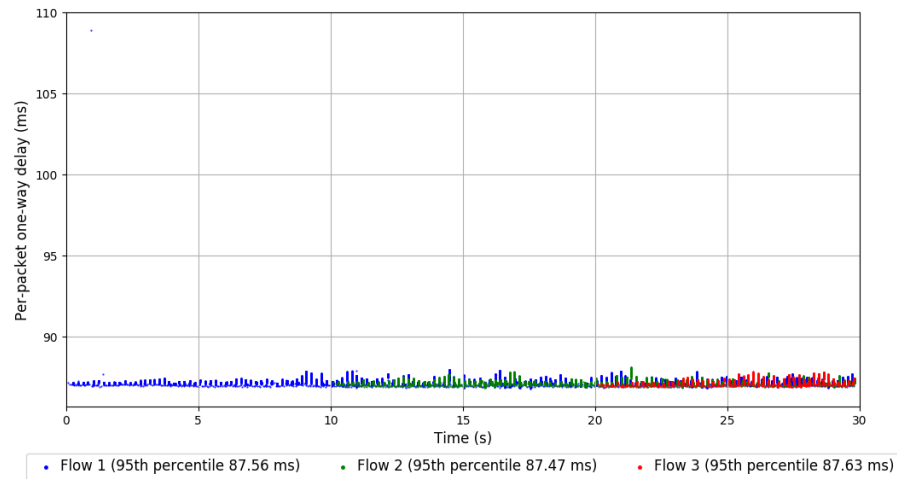
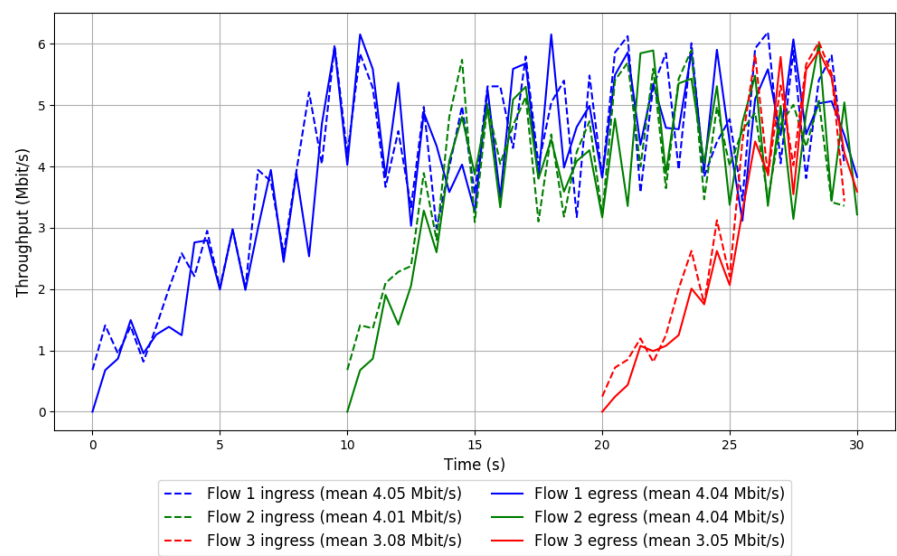


Run 3: Statistics of Sprout

Start at: 2018-10-26 04:26:02
End at: 2018-10-26 04:26:32
Local clock offset: 1.0 ms
Remote clock offset: -0.026 ms

```
# Below is generated by plot.py at 2018-10-26 07:54:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.71 Mbit/s
95th percentile per-packet one-way delay: 87.551 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 4.04 Mbit/s
95th percentile per-packet one-way delay: 87.562 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 4.04 Mbit/s
95th percentile per-packet one-way delay: 87.475 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 87.632 ms
Loss rate: 2.82%
```

Run 3: Report of Sprout — Data Link

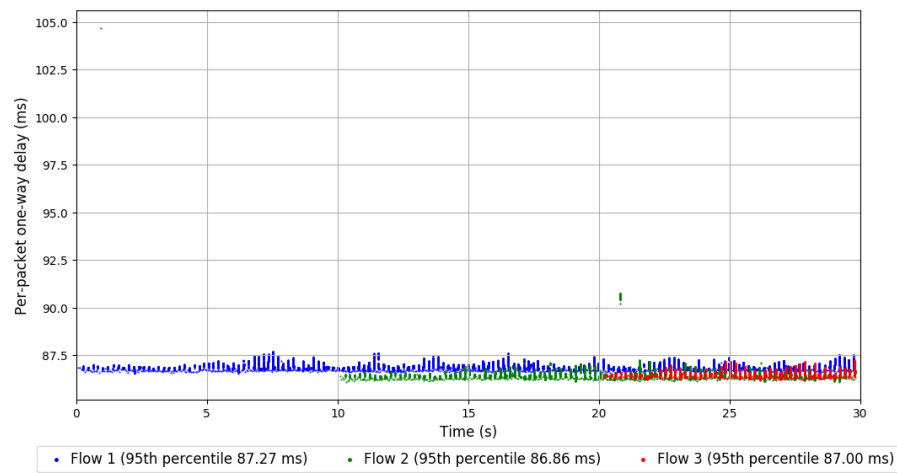
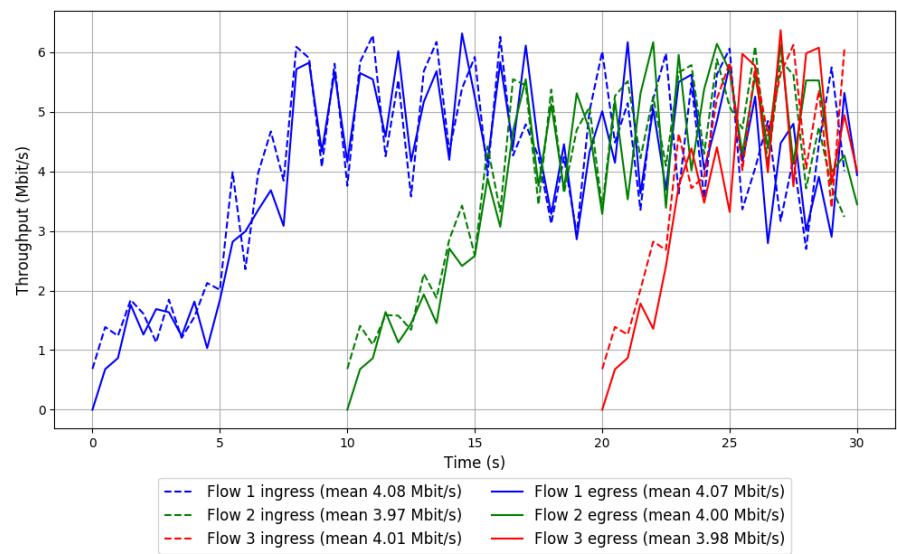


Run 4: Statistics of Sprout

Start at: 2018-10-26 04:57:20
End at: 2018-10-26 04:57:50
Local clock offset: 0.234 ms
Remote clock offset: -0.055 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 8.02 Mbit/s
95th percentile per-packet one-way delay: 87.178 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 87.268 ms
Loss rate: 0.84%
-- Flow 2:
Average throughput: 4.00 Mbit/s
95th percentile per-packet one-way delay: 86.860 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.98 Mbit/s
95th percentile per-packet one-way delay: 86.997 ms
Loss rate: 2.59%

Run 4: Report of Sprout — Data Link

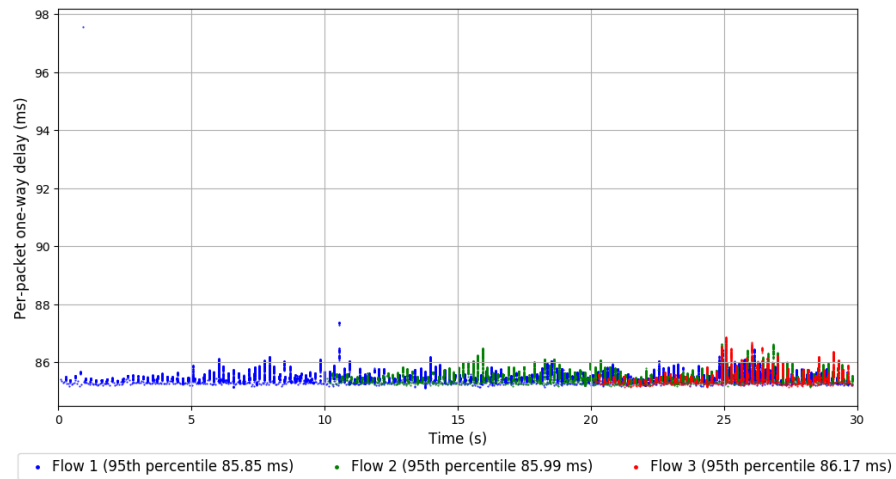
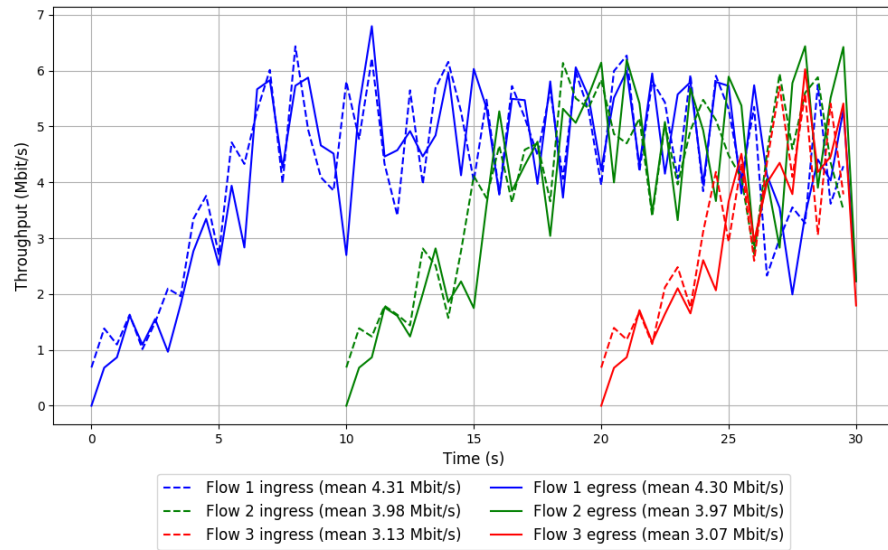


Run 5: Statistics of Sprout

Start at: 2018-10-26 05:28:33
End at: 2018-10-26 05:29:03
Local clock offset: -0.705 ms
Remote clock offset: -0.029 ms

Below is generated by plot.py at 2018-10-26 07:54:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 7.94 Mbit/s
95th percentile per-packet one-way delay: 85.942 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 4.30 Mbit/s
95th percentile per-packet one-way delay: 85.846 ms
Loss rate: 0.81%
-- Flow 2:
Average throughput: 3.97 Mbit/s
95th percentile per-packet one-way delay: 85.986 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 3.07 Mbit/s
95th percentile per-packet one-way delay: 86.174 ms
Loss rate: 3.24%

Run 5: Report of Sprout — Data Link

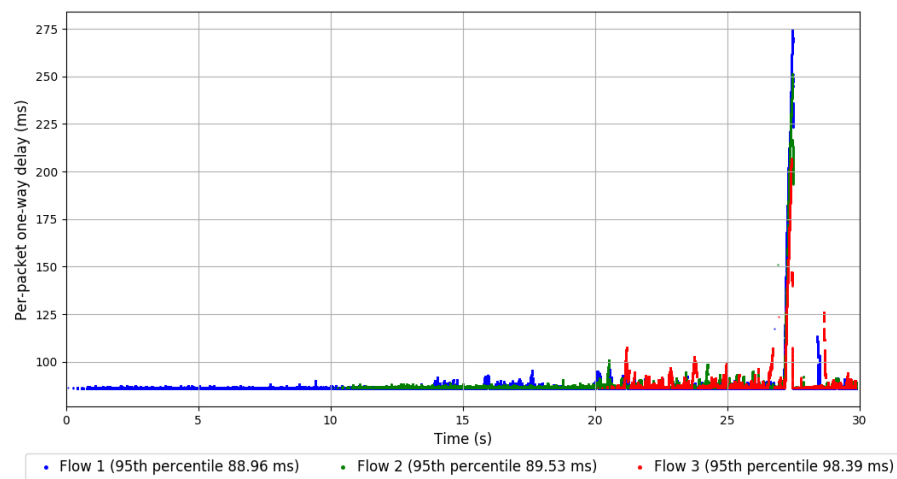
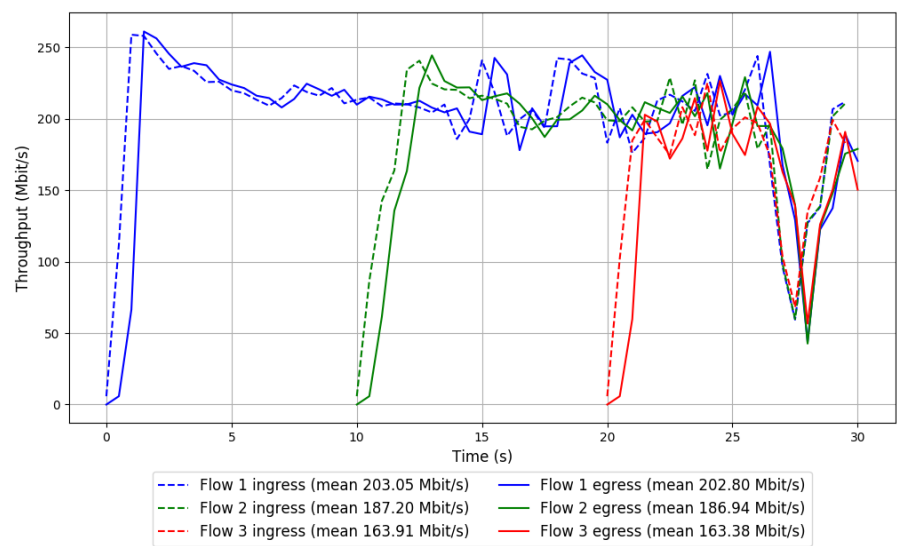


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-10-26 03:14:04
End at: 2018-10-26 03:14:34
Local clock offset: 0.274 ms
Remote clock offset: 0.303 ms

# Below is generated by plot.py at 2018-10-26 08:00:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 380.45 Mbit/s
95th percentile per-packet one-way delay: 90.466 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 202.80 Mbit/s
95th percentile per-packet one-way delay: 88.959 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 186.94 Mbit/s
95th percentile per-packet one-way delay: 89.533 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 163.38 Mbit/s
95th percentile per-packet one-way delay: 98.392 ms
Loss rate: 2.31%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-10-26 03:45:24

End at: 2018-10-26 03:45:54

Local clock offset: 0.818 ms

Remote clock offset: 0.056 ms

Below is generated by plot.py at 2018-10-26 08:01:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 399.06 Mbit/s

95th percentile per-packet one-way delay: 90.266 ms

Loss rate: 1.02%

-- Flow 1:

Average throughput: 207.35 Mbit/s

95th percentile per-packet one-way delay: 89.575 ms

Loss rate: 0.68%

-- Flow 2:

Average throughput: 199.32 Mbit/s

95th percentile per-packet one-way delay: 91.069 ms

Loss rate: 0.92%

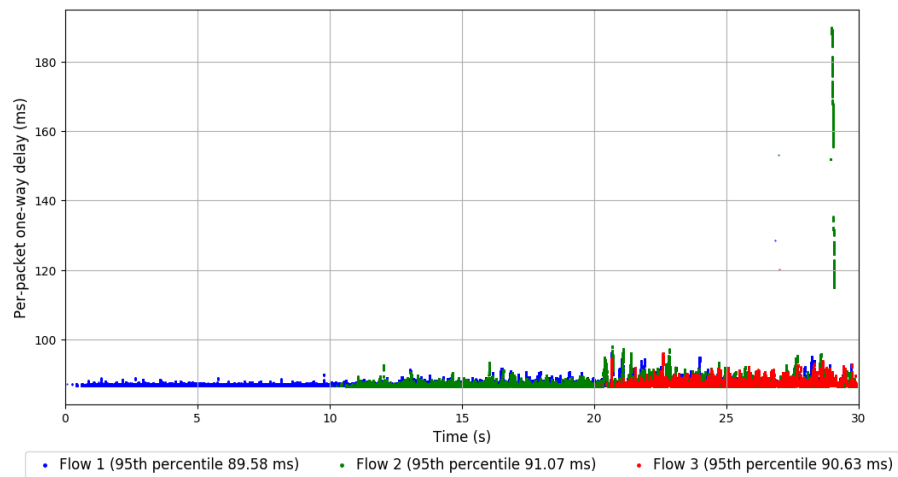
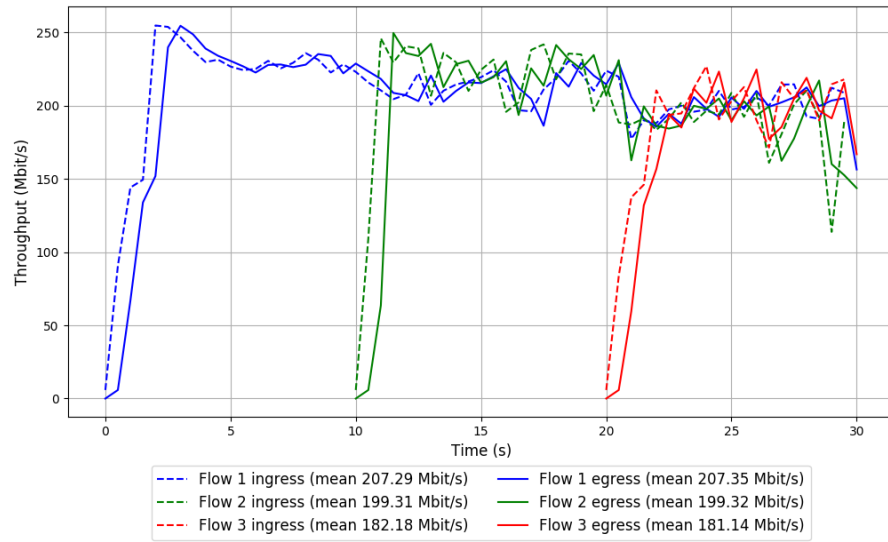
-- Flow 3:

Average throughput: 181.14 Mbit/s

95th percentile per-packet one-way delay: 90.634 ms

Loss rate: 2.40%

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

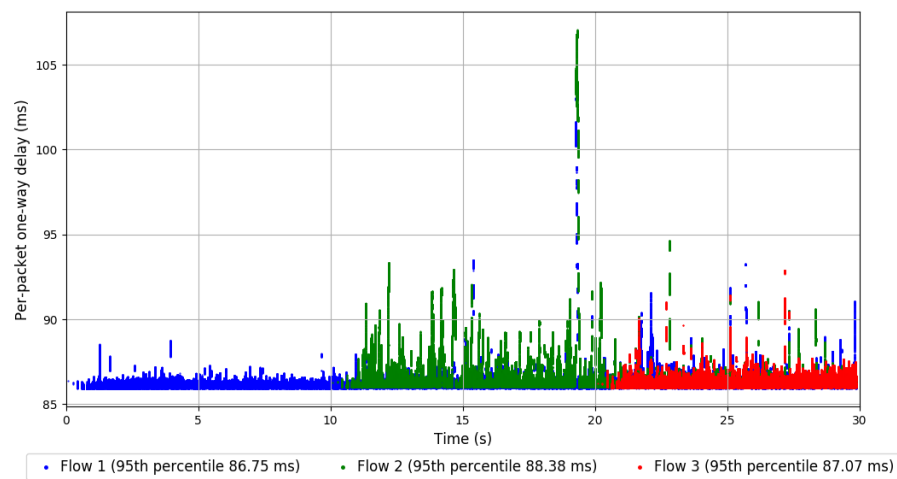
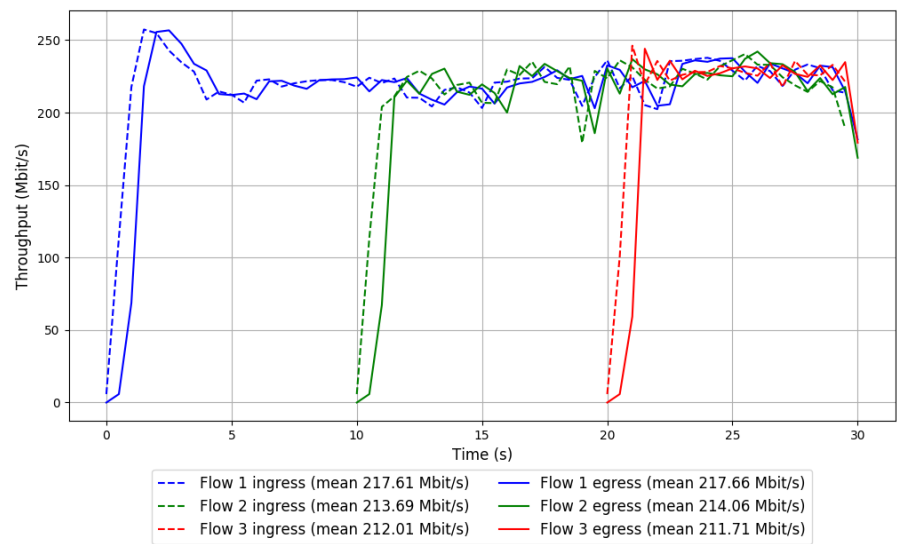


Run 3: Statistics of TaoVA-100x

Start at: 2018-10-26 04:16:55
End at: 2018-10-26 04:17:25
Local clock offset: 0.203 ms
Remote clock offset: -0.021 ms

Below is generated by plot.py at 2018-10-26 08:02:54
Datalink statistics
-- Total of 3 flows:
Average throughput: 429.37 Mbit/s
95th percentile per-packet one-way delay: 87.256 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 217.66 Mbit/s
95th percentile per-packet one-way delay: 86.748 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 214.06 Mbit/s
95th percentile per-packet one-way delay: 88.380 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 211.71 Mbit/s
95th percentile per-packet one-way delay: 87.067 ms
Loss rate: 1.89%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-10-26 04:48:11

End at: 2018-10-26 04:48:41

Local clock offset: -0.085 ms

Remote clock offset: -0.04 ms

Below is generated by plot.py at 2018-10-26 08:02:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 369.54 Mbit/s

95th percentile per-packet one-way delay: 92.960 ms

Loss rate: 0.93%

-- Flow 1:

Average throughput: 196.55 Mbit/s

95th percentile per-packet one-way delay: 89.910 ms

Loss rate: 0.71%

-- Flow 2:

Average throughput: 187.59 Mbit/s

95th percentile per-packet one-way delay: 91.945 ms

Loss rate: 0.86%

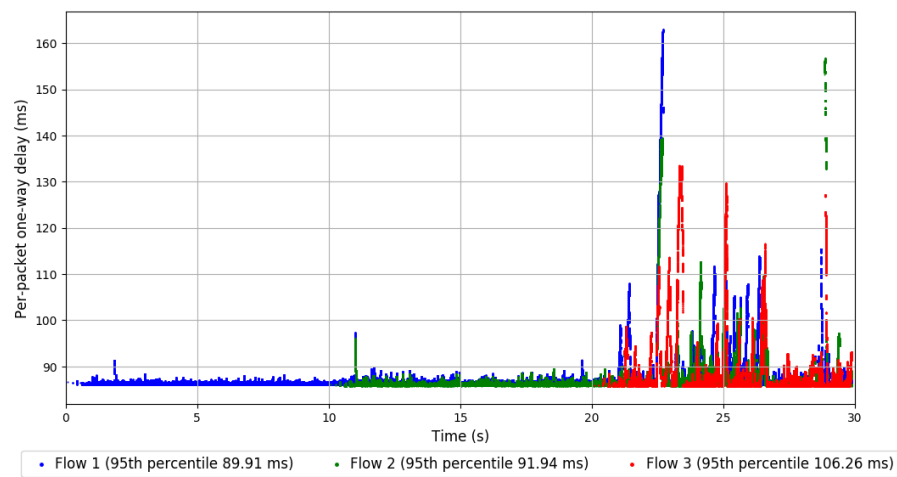
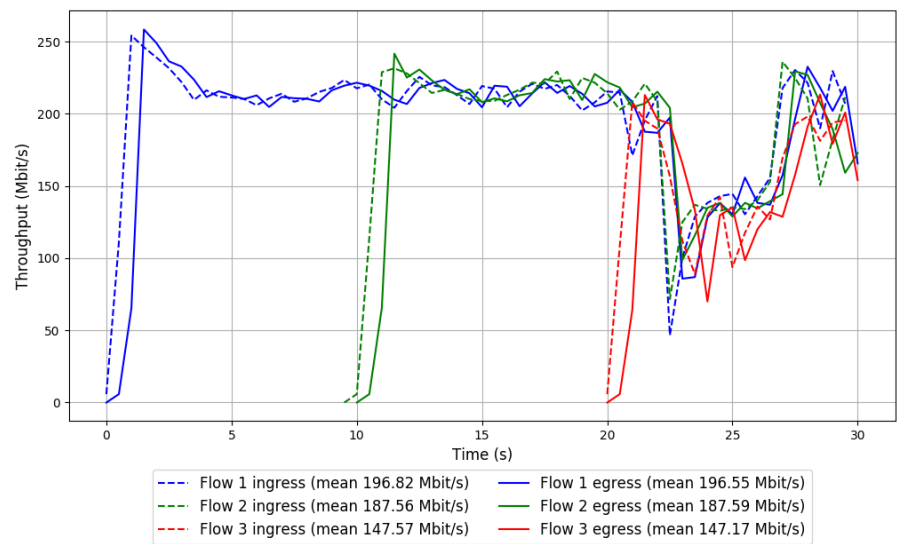
-- Flow 3:

Average throughput: 147.17 Mbit/s

95th percentile per-packet one-way delay: 106.263 ms

Loss rate: 2.05%

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

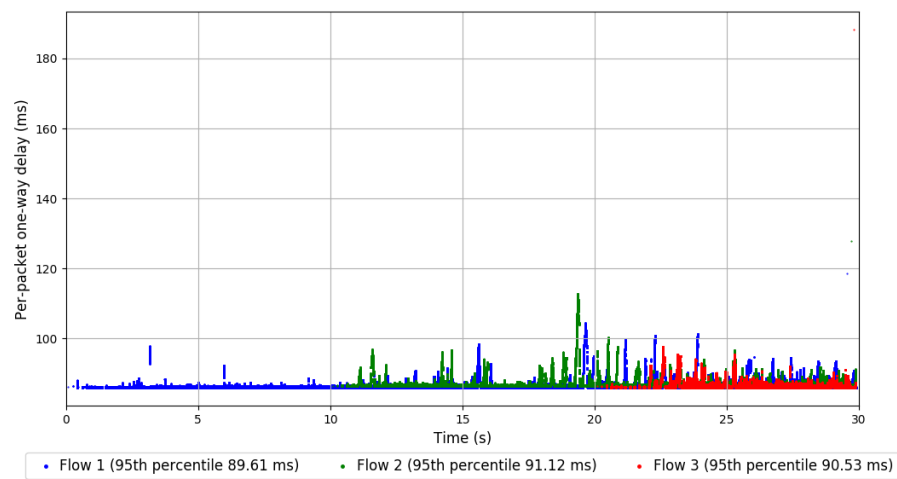
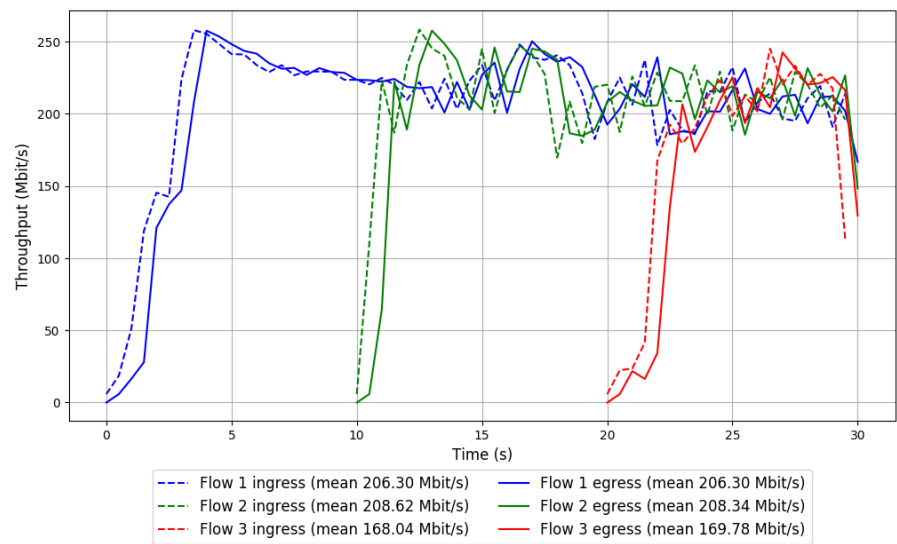


Run 5: Statistics of TaoVA-100x

Start at: 2018-10-26 05:19:31
End at: 2018-10-26 05:20:01
Local clock offset: 0.101 ms
Remote clock offset: -0.055 ms

Below is generated by plot.py at 2018-10-26 08:03:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 400.44 Mbit/s
95th percentile per-packet one-way delay: 90.447 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 206.30 Mbit/s
95th percentile per-packet one-way delay: 89.613 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 208.34 Mbit/s
95th percentile per-packet one-way delay: 91.117 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 169.78 Mbit/s
95th percentile per-packet one-way delay: 90.534 ms
Loss rate: 0.78%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-10-26 03:12:10

End at: 2018-10-26 03:12:40

Local clock offset: 0.345 ms

Remote clock offset: 0.292 ms

Below is generated by plot.py at 2018-10-26 08:07:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 740.97 Mbit/s

95th percentile per-packet one-way delay: 96.624 ms

Loss rate: 0.96%

-- Flow 1:

Average throughput: 386.34 Mbit/s

95th percentile per-packet one-way delay: 96.332 ms

Loss rate: 0.61%

-- Flow 2:

Average throughput: 370.23 Mbit/s

95th percentile per-packet one-way delay: 94.670 ms

Loss rate: 0.96%

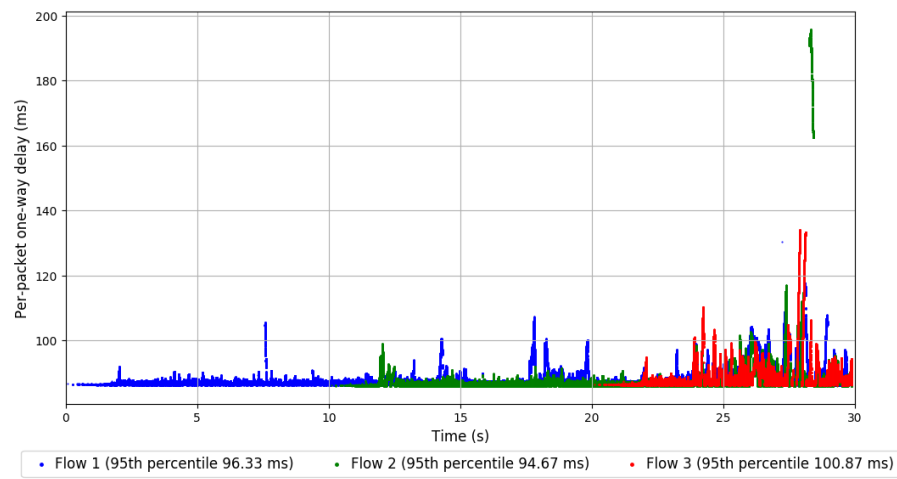
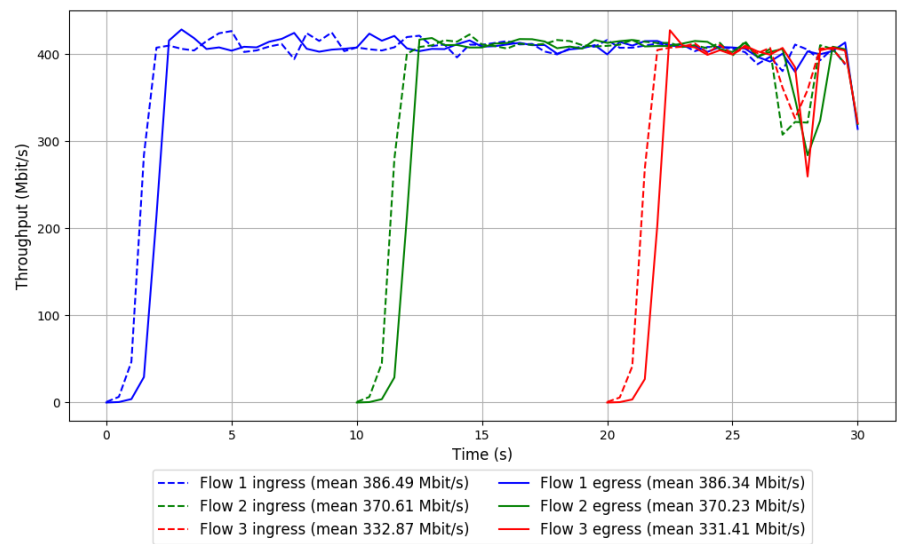
-- Flow 3:

Average throughput: 331.41 Mbit/s

95th percentile per-packet one-way delay: 100.869 ms

Loss rate: 2.15%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-10-26 03:43:30

End at: 2018-10-26 03:44:00

Local clock offset: -0.909 ms

Remote clock offset: 0.048 ms

Below is generated by plot.py at 2018-10-26 08:10:12

Datalink statistics

-- Total of 3 flows:

Average throughput: 745.62 Mbit/s

95th percentile per-packet one-way delay: 89.718 ms

Loss rate: 0.90%

-- Flow 1:

Average throughput: 386.67 Mbit/s

95th percentile per-packet one-way delay: 88.690 ms

Loss rate: 0.61%

-- Flow 2:

Average throughput: 370.23 Mbit/s

95th percentile per-packet one-way delay: 91.845 ms

Loss rate: 0.79%

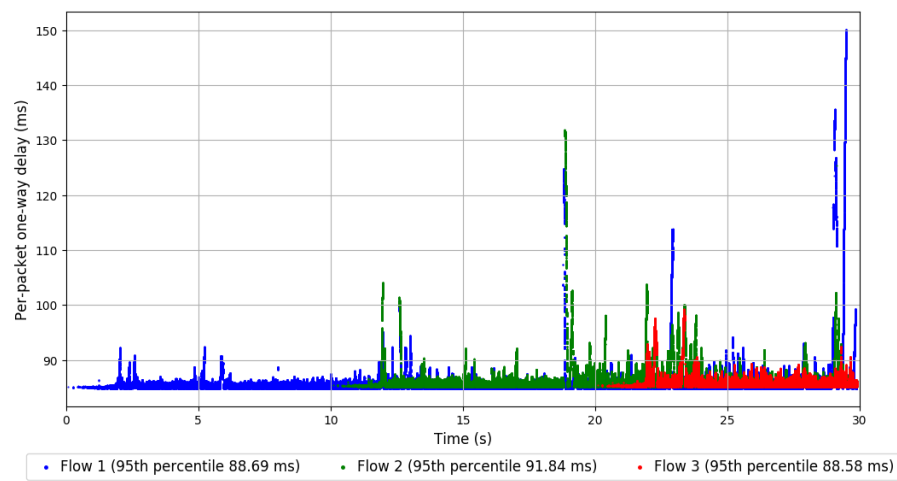
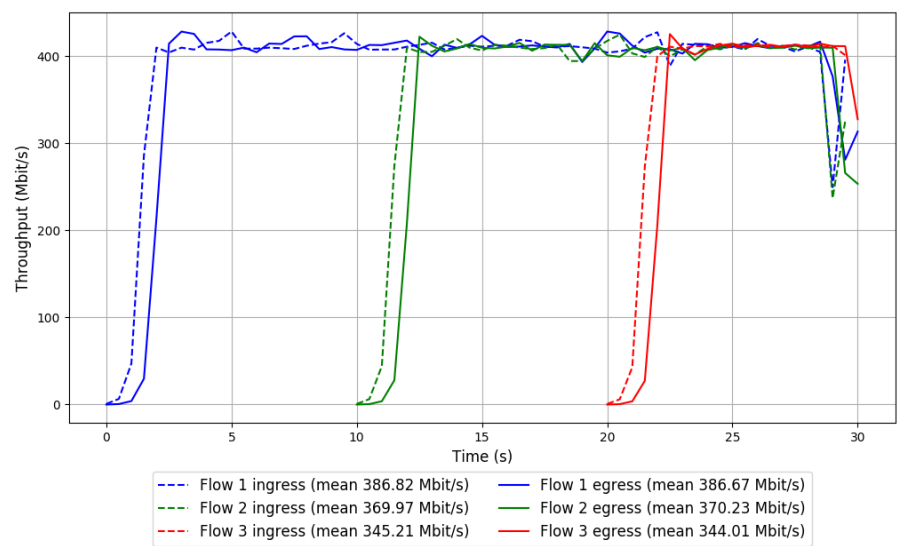
-- Flow 3:

Average throughput: 344.01 Mbit/s

95th percentile per-packet one-way delay: 88.580 ms

Loss rate: 2.07%

Run 2: Report of TCP Vegas — Data Link

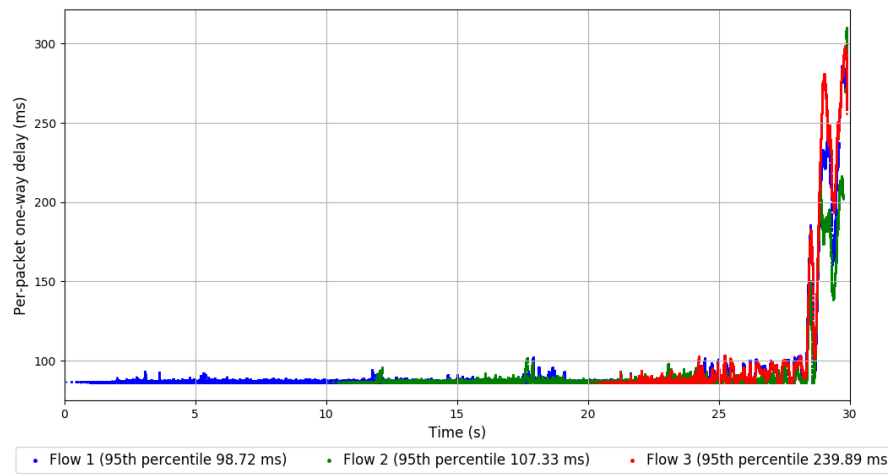
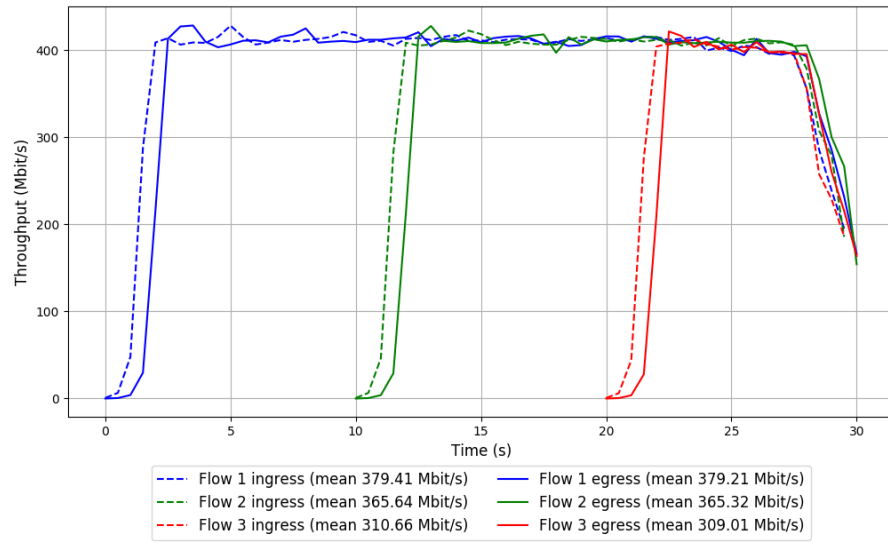


Run 3: Statistics of TCP Vegas

Start at: 2018-10-26 04:15:02
End at: 2018-10-26 04:15:32
Local clock offset: 0.365 ms
Remote clock offset: -0.002 ms

Below is generated by plot.py at 2018-10-26 08:10:29
Datalink statistics
-- Total of 3 flows:
Average throughput: 723.51 Mbit/s
95th percentile per-packet one-way delay: 102.226 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 379.21 Mbit/s
95th percentile per-packet one-way delay: 98.715 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 365.32 Mbit/s
95th percentile per-packet one-way delay: 107.330 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 309.01 Mbit/s
95th percentile per-packet one-way delay: 239.889 ms
Loss rate: 2.26%

Run 3: Report of TCP Vegas — Data Link

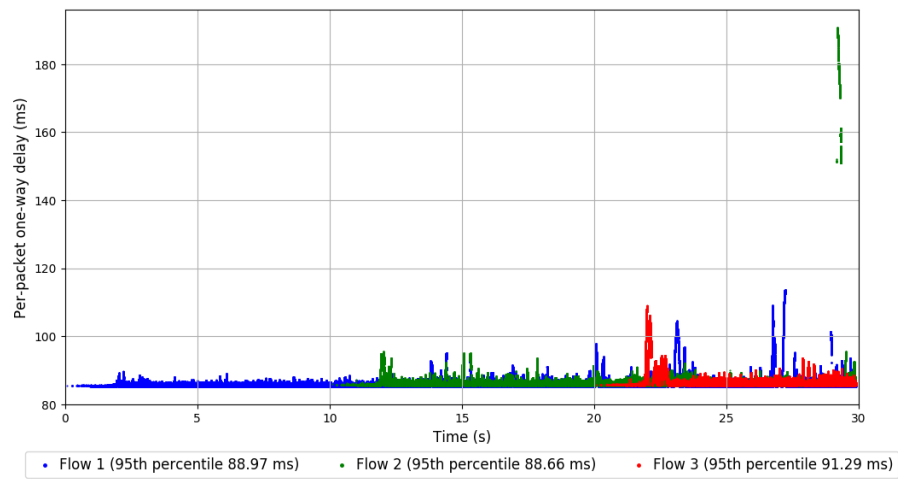
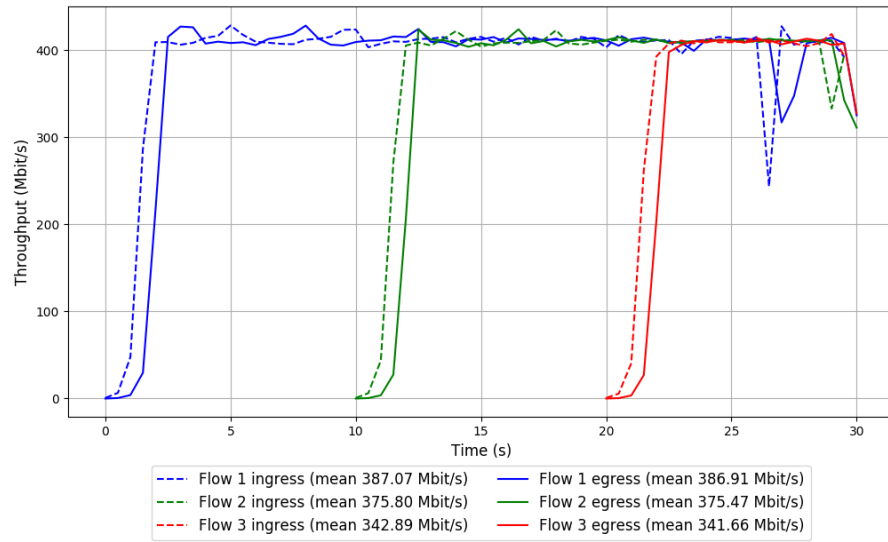


Run 4: Statistics of TCP Vegas

Start at: 2018-10-26 04:46:16
End at: 2018-10-26 04:46:46
Local clock offset: -0.635 ms
Remote clock offset: -0.038 ms

Below is generated by plot.py at 2018-10-26 08:16:41
Datalink statistics
-- Total of 3 flows:
Average throughput: 748.24 Mbit/s
95th percentile per-packet one-way delay: 89.148 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 386.91 Mbit/s
95th percentile per-packet one-way delay: 88.969 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 375.47 Mbit/s
95th percentile per-packet one-way delay: 88.658 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 341.66 Mbit/s
95th percentile per-packet one-way delay: 91.286 ms
Loss rate: 2.08%

Run 4: Report of TCP Vegas — Data Link

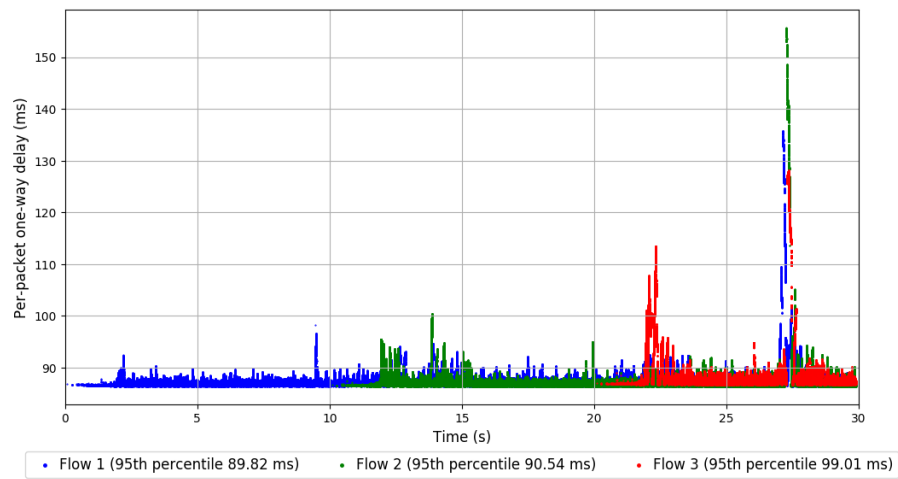
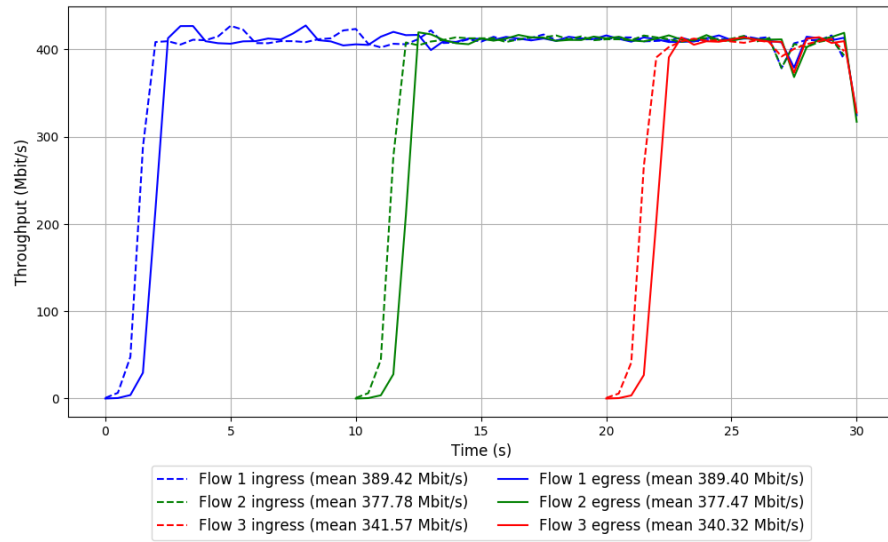


Run 5: Statistics of TCP Vegas

Start at: 2018-10-26 05:17:35
End at: 2018-10-26 05:18:05
Local clock offset: 0.514 ms
Remote clock offset: -0.039 ms

Below is generated by plot.py at 2018-10-26 08:16:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 751.82 Mbit/s
95th percentile per-packet one-way delay: 90.727 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 389.40 Mbit/s
95th percentile per-packet one-way delay: 89.818 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 377.47 Mbit/s
95th percentile per-packet one-way delay: 90.536 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 340.32 Mbit/s
95th percentile per-packet one-way delay: 99.006 ms
Loss rate: 2.08%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-10-26 03:38:31

End at: 2018-10-26 03:39:01

Local clock offset: -0.908 ms

Remote clock offset: 0.088 ms

Below is generated by plot.py at 2018-10-26 08:16:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 243.17 Mbit/s

95th percentile per-packet one-way delay: 260.932 ms

Loss rate: 5.06%

-- Flow 1:

Average throughput: 174.04 Mbit/s

95th percentile per-packet one-way delay: 170.222 ms

Loss rate: 0.65%

-- Flow 2:

Average throughput: 74.82 Mbit/s

95th percentile per-packet one-way delay: 262.964 ms

Loss rate: 9.83%

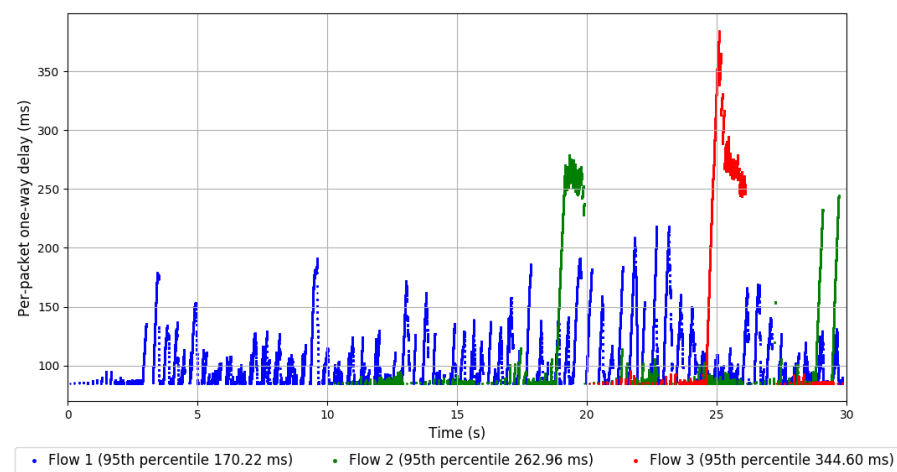
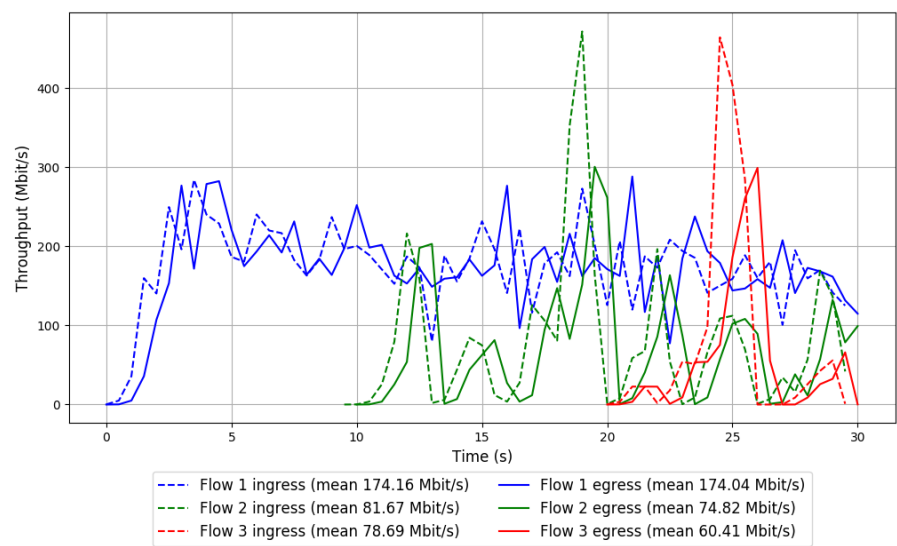
-- Flow 3:

Average throughput: 60.41 Mbit/s

95th percentile per-packet one-way delay: 344.602 ms

Loss rate: 24.56%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-10-26 04:09:57

End at: 2018-10-26 04:10:27

Local clock offset: 0.845 ms

Remote clock offset: 0.007 ms

Below is generated by plot.py at 2018-10-26 08:16:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 285.71 Mbit/s

95th percentile per-packet one-way delay: 274.135 ms

Loss rate: 11.38%

-- Flow 1:

Average throughput: 177.38 Mbit/s

95th percentile per-packet one-way delay: 278.862 ms

Loss rate: 15.46%

-- Flow 2:

Average throughput: 97.29 Mbit/s

95th percentile per-packet one-way delay: 124.362 ms

Loss rate: 1.14%

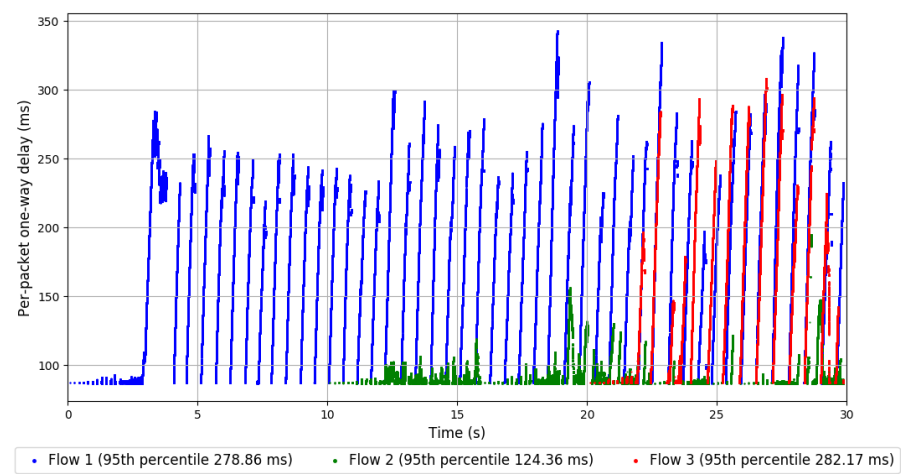
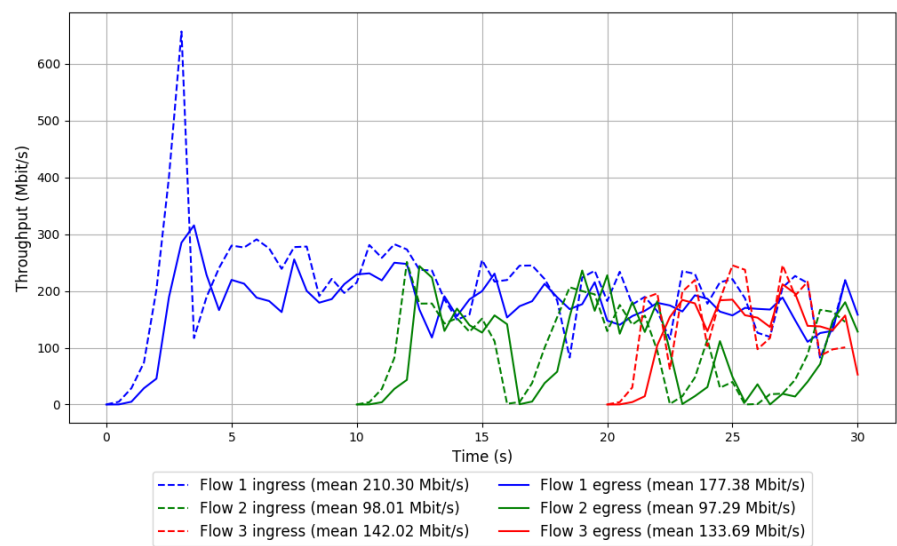
-- Flow 3:

Average throughput: 133.69 Mbit/s

95th percentile per-packet one-way delay: 282.174 ms

Loss rate: 7.48%

Run 2: Report of Verus — Data Link

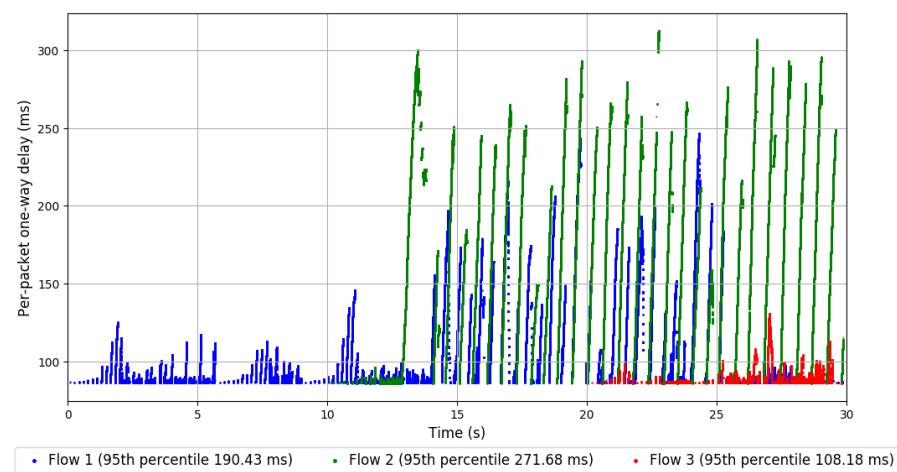
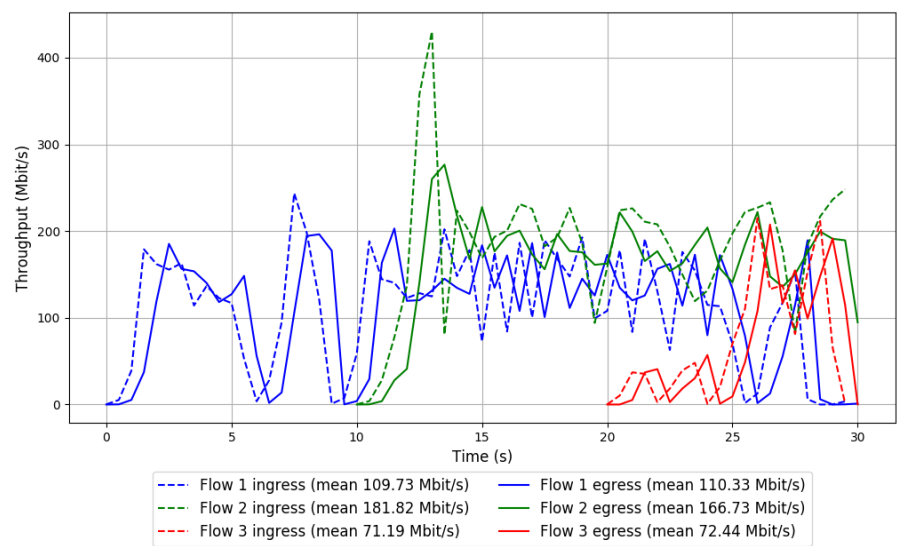


Run 3: Statistics of Verus

Start at: 2018-10-26 04:41:17
End at: 2018-10-26 04:41:47
Local clock offset: 0.378 ms
Remote clock offset: -0.004 ms

Below is generated by plot.py at 2018-10-26 08:16:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 244.28 Mbit/s
95th percentile per-packet one-way delay: 254.002 ms
Loss rate: 4.28%
-- Flow 1:
Average throughput: 110.33 Mbit/s
95th percentile per-packet one-way delay: 190.429 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 166.73 Mbit/s
95th percentile per-packet one-way delay: 271.680 ms
Loss rate: 8.94%
-- Flow 3:
Average throughput: 72.44 Mbit/s
95th percentile per-packet one-way delay: 108.183 ms
Loss rate: 0.05%

Run 3: Report of Verus — Data Link

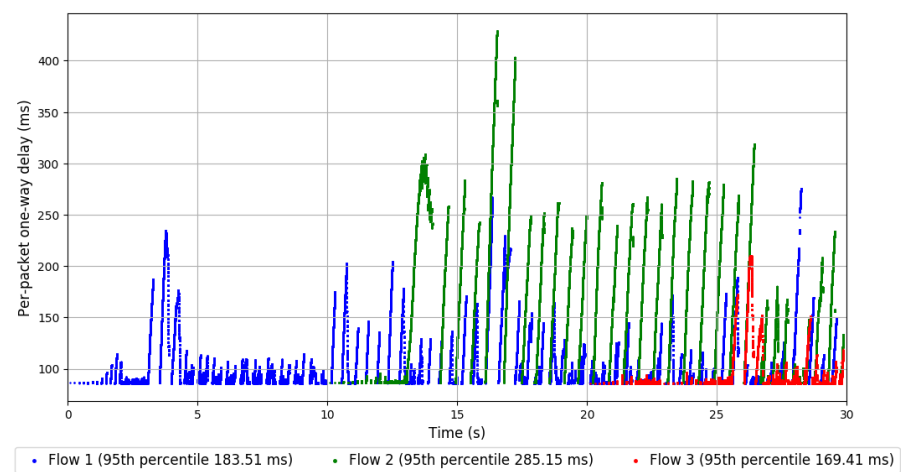
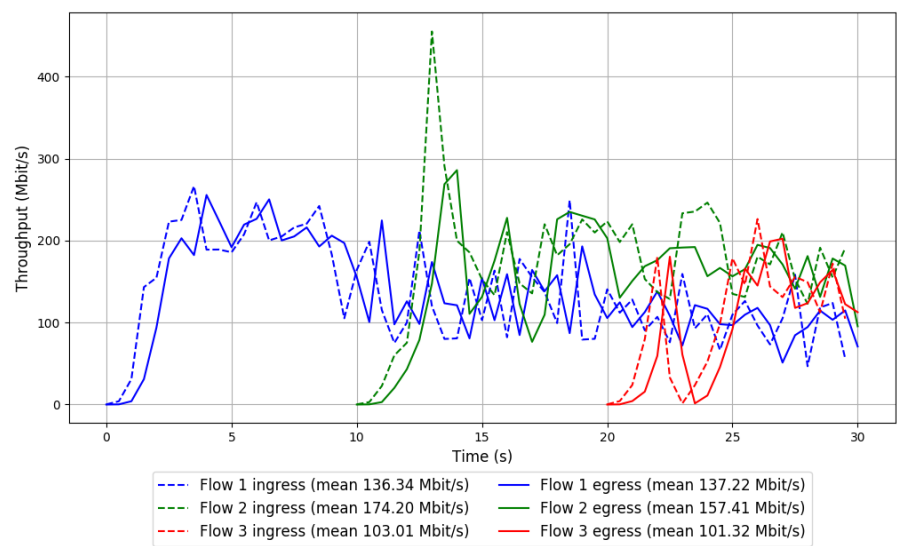


Run 4: Statistics of Verus

Start at: 2018-10-26 05:12:34
End at: 2018-10-26 05:13:04
Local clock offset: 0.022 ms
Remote clock offset: -0.025 ms

Below is generated by plot.py at 2018-10-26 08:19:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 273.69 Mbit/s
95th percentile per-packet one-way delay: 257.878 ms
Loss rate: 4.77%
-- Flow 1:
Average throughput: 137.22 Mbit/s
95th percentile per-packet one-way delay: 183.513 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 157.41 Mbit/s
95th percentile per-packet one-way delay: 285.155 ms
Loss rate: 10.25%
-- Flow 3:
Average throughput: 101.32 Mbit/s
95th percentile per-packet one-way delay: 169.415 ms
Loss rate: 2.18%

Run 4: Report of Verus — Data Link

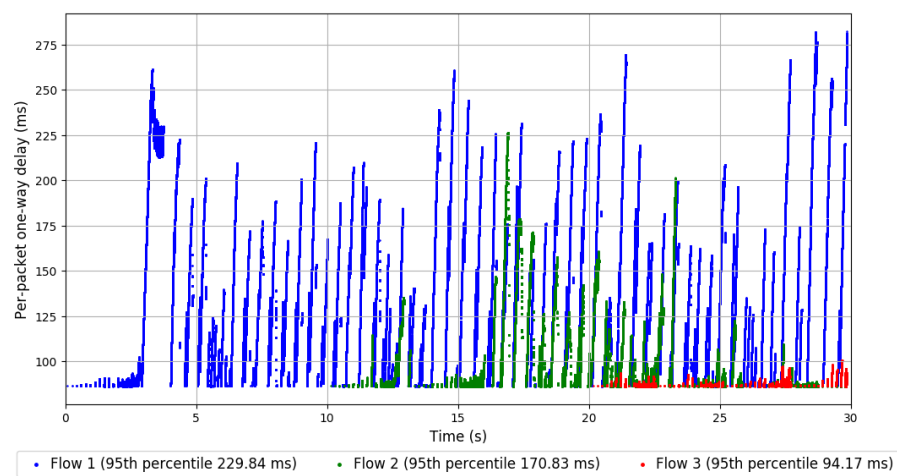
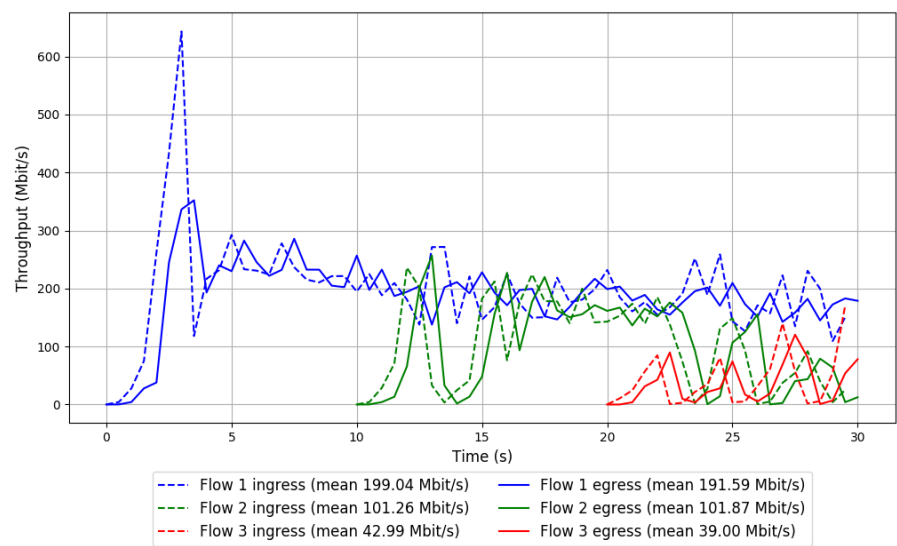


Run 5: Statistics of Verus

Start at: 2018-10-26 05:43:50
End at: 2018-10-26 05:44:20
Local clock offset: 0.432 ms
Remote clock offset: -0.053 ms

Below is generated by plot.py at 2018-10-26 08:21:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 271.63 Mbit/s
95th percentile per-packet one-way delay: 223.626 ms
Loss rate: 3.07%
-- Flow 1:
Average throughput: 191.59 Mbit/s
95th percentile per-packet one-way delay: 229.843 ms
Loss rate: 3.45%
-- Flow 2:
Average throughput: 101.87 Mbit/s
95th percentile per-packet one-way delay: 170.832 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 39.00 Mbit/s
95th percentile per-packet one-way delay: 94.169 ms
Loss rate: 10.87%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-10-26 03:34:48

End at: 2018-10-26 03:35:18

Local clock offset: 0.361 ms

Remote clock offset: 0.188 ms

Below is generated by plot.py at 2018-10-26 08:21:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 471.43 Mbit/s

95th percentile per-packet one-way delay: 124.771 ms

Loss rate: 0.91%

-- Flow 1:

Average throughput: 291.80 Mbit/s

95th percentile per-packet one-way delay: 138.399 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 199.30 Mbit/s

95th percentile per-packet one-way delay: 90.418 ms

Loss rate: 1.15%

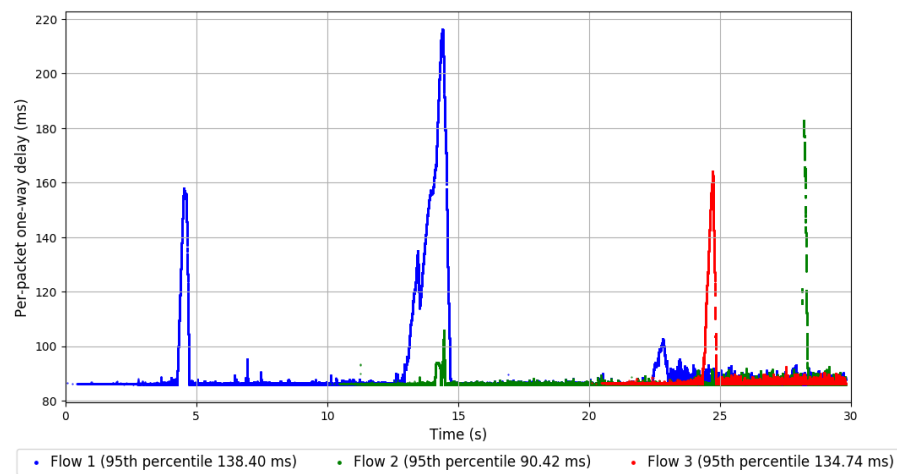
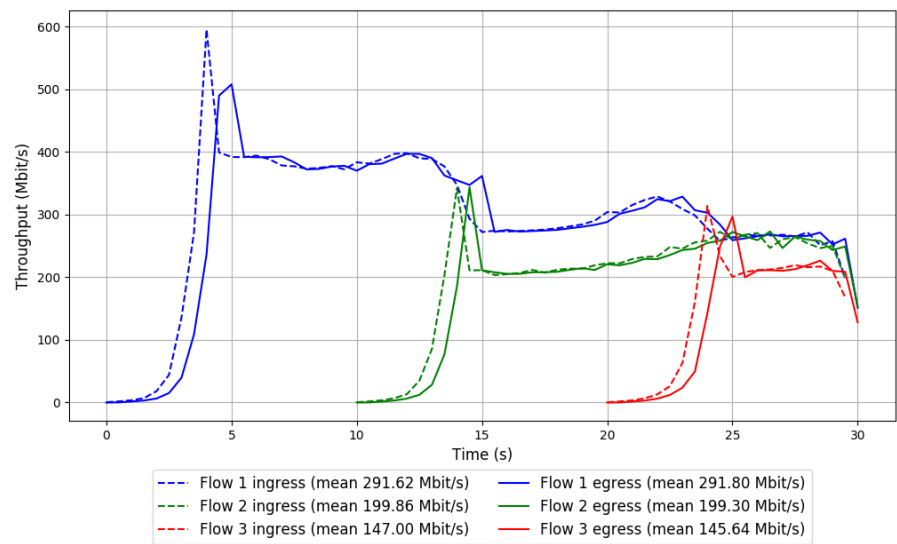
-- Flow 3:

Average throughput: 145.64 Mbit/s

95th percentile per-packet one-way delay: 134.744 ms

Loss rate: 2.67%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-10-26 04:06:12

End at: 2018-10-26 04:06:42

Local clock offset: -0.554 ms

Remote clock offset: 0.031 ms

Below is generated by plot.py at 2018-10-26 08:21:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 519.07 Mbit/s

95th percentile per-packet one-way delay: 108.040 ms

Loss rate: 1.78%

-- Flow 1:

Average throughput: 333.22 Mbit/s

95th percentile per-packet one-way delay: 156.549 ms

Loss rate: 1.92%

-- Flow 2:

Average throughput: 210.94 Mbit/s

95th percentile per-packet one-way delay: 88.056 ms

Loss rate: 1.16%

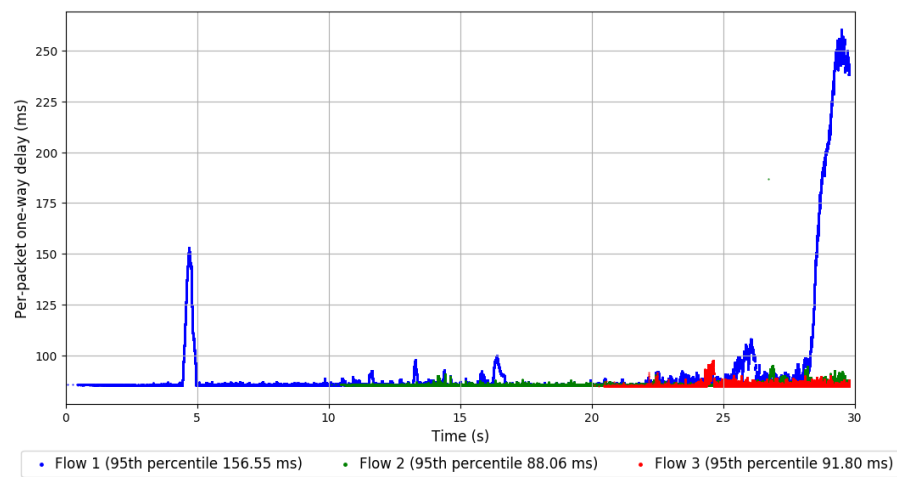
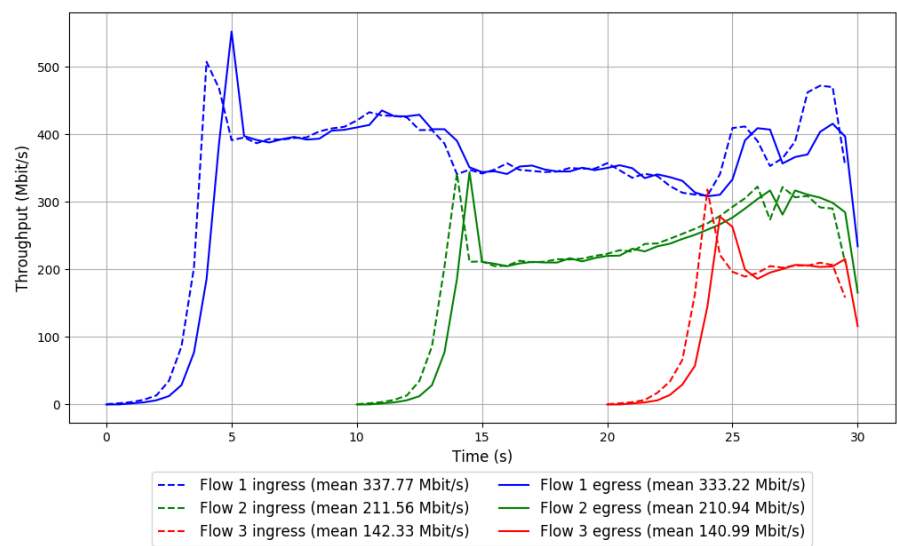
-- Flow 3:

Average throughput: 140.99 Mbit/s

95th percentile per-packet one-way delay: 91.801 ms

Loss rate: 2.67%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-10-26 04:37:37

End at: 2018-10-26 04:38:07

Local clock offset: 0.406 ms

Remote clock offset: 0.02 ms

Below is generated by plot.py at 2018-10-26 08:21:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 405.91 Mbit/s

95th percentile per-packet one-way delay: 96.483 ms

Loss rate: 0.87%

-- Flow 1:

Average throughput: 239.36 Mbit/s

95th percentile per-packet one-way delay: 116.074 ms

Loss rate: 0.50%

-- Flow 2:

Average throughput: 179.28 Mbit/s

95th percentile per-packet one-way delay: 87.018 ms

Loss rate: 0.92%

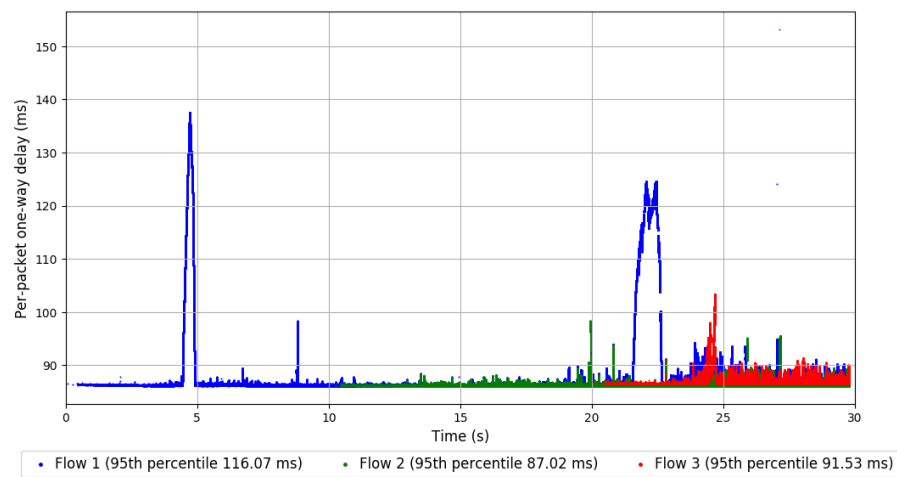
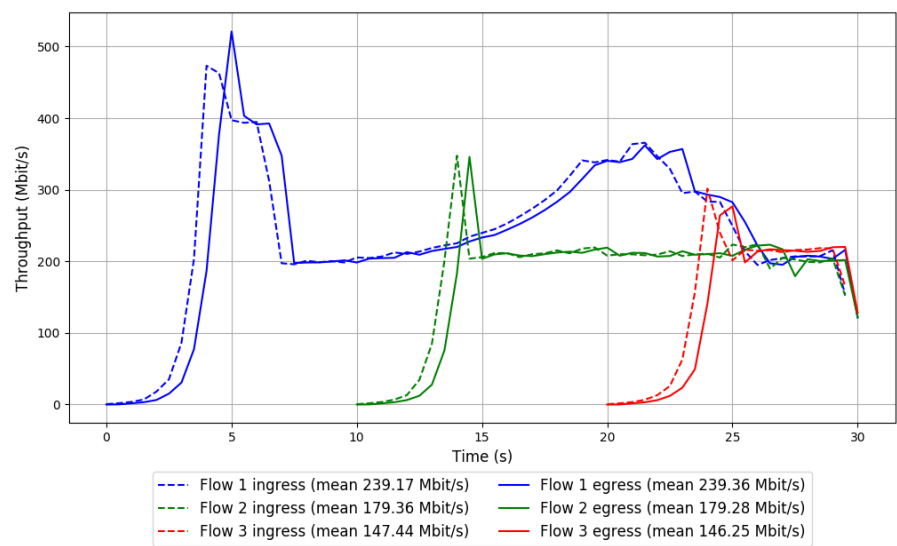
-- Flow 3:

Average throughput: 146.25 Mbit/s

95th percentile per-packet one-way delay: 91.533 ms

Loss rate: 2.55%

Run 3: Report of PCC-Vivace — Data Link

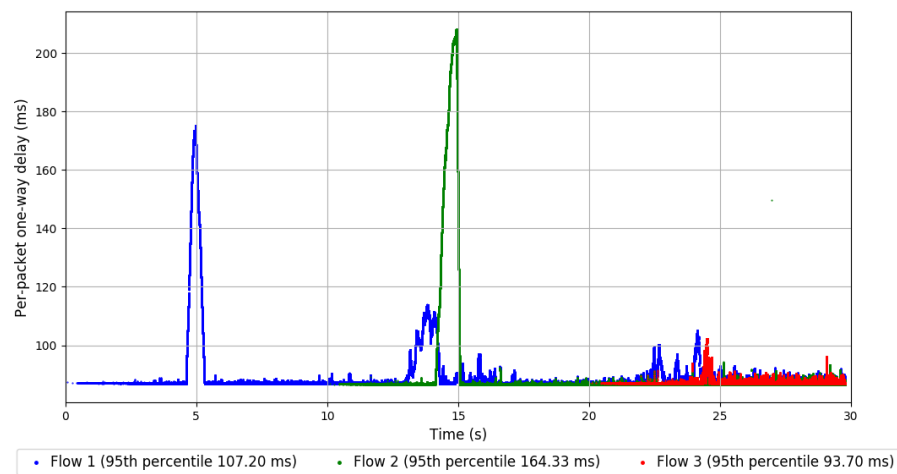
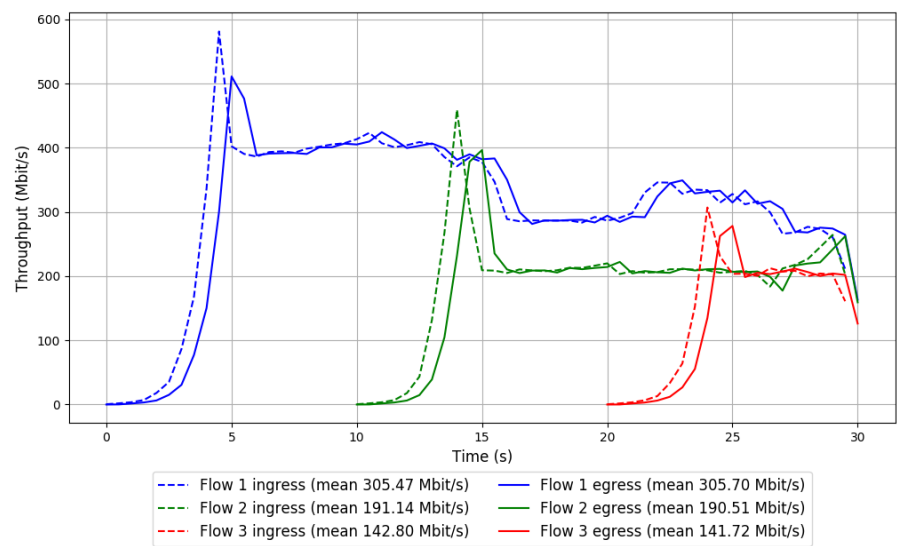


Run 4: Statistics of PCC-Vivace

Start at: 2018-10-26 05:08:48
End at: 2018-10-26 05:09:18
Local clock offset: 0.631 ms
Remote clock offset: -0.037 ms

Below is generated by plot.py at 2018-10-26 08:22:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 478.23 Mbit/s
95th percentile per-packet one-way delay: 108.681 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 305.70 Mbit/s
95th percentile per-packet one-way delay: 107.202 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 190.51 Mbit/s
95th percentile per-packet one-way delay: 164.328 ms
Loss rate: 1.20%
-- Flow 3:
Average throughput: 141.72 Mbit/s
95th percentile per-packet one-way delay: 93.703 ms
Loss rate: 2.53%

Run 4: Report of PCC-Vivace — Data Link

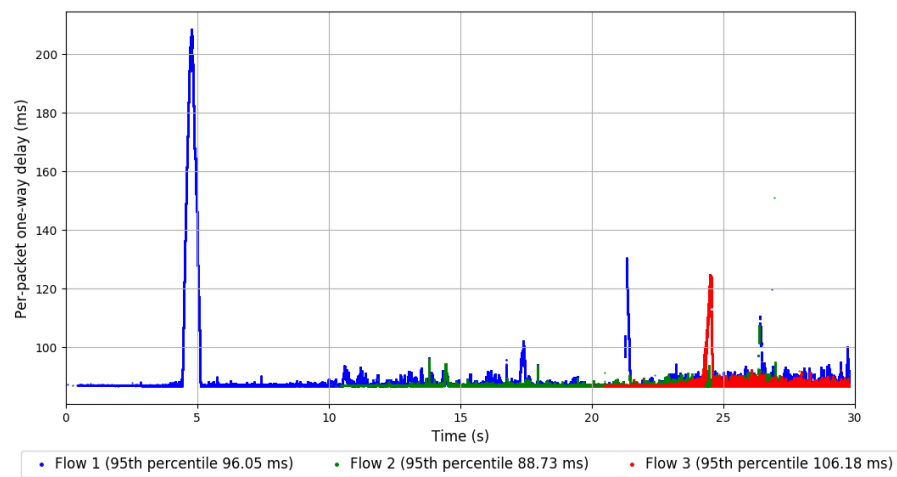
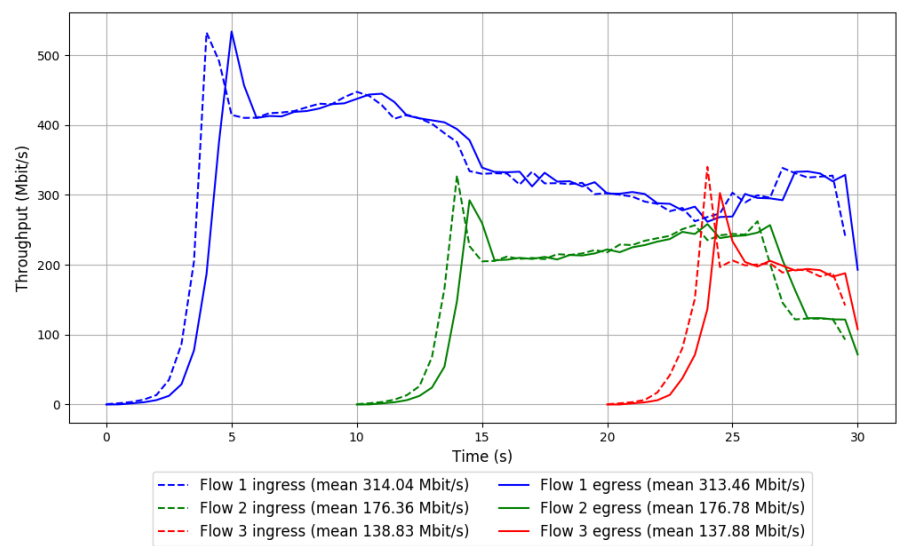


Run 5: Statistics of PCC-Vivace

Start at: 2018-10-26 05:40:06
End at: 2018-10-26 05:40:36
Local clock offset: 0.819 ms
Remote clock offset: -0.054 ms

Below is generated by plot.py at 2018-10-26 08:22:28
Datalink statistics
-- Total of 3 flows:
Average throughput: 475.58 Mbit/s
95th percentile per-packet one-way delay: 92.608 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 313.46 Mbit/s
95th percentile per-packet one-way delay: 96.054 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 176.78 Mbit/s
95th percentile per-packet one-way delay: 88.727 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 137.88 Mbit/s
95th percentile per-packet one-way delay: 106.178 ms
Loss rate: 2.42%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-10-26 03:31:40

End at: 2018-10-26 03:32:10

Local clock offset: -0.12 ms

Remote clock offset: 0.329 ms

Below is generated by plot.py at 2018-10-26 08:22:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.08 Mbit/s

95th percentile per-packet one-way delay: 86.041 ms

Loss rate: 1.15%

-- Flow 1:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 86.071 ms

Loss rate: 0.67%

-- Flow 2:

Average throughput: 1.14 Mbit/s

95th percentile per-packet one-way delay: 85.802 ms

Loss rate: 1.17%

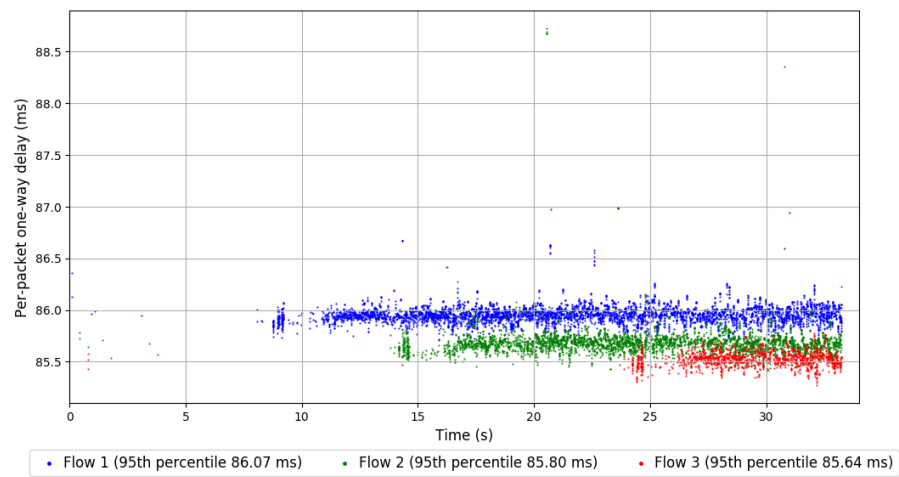
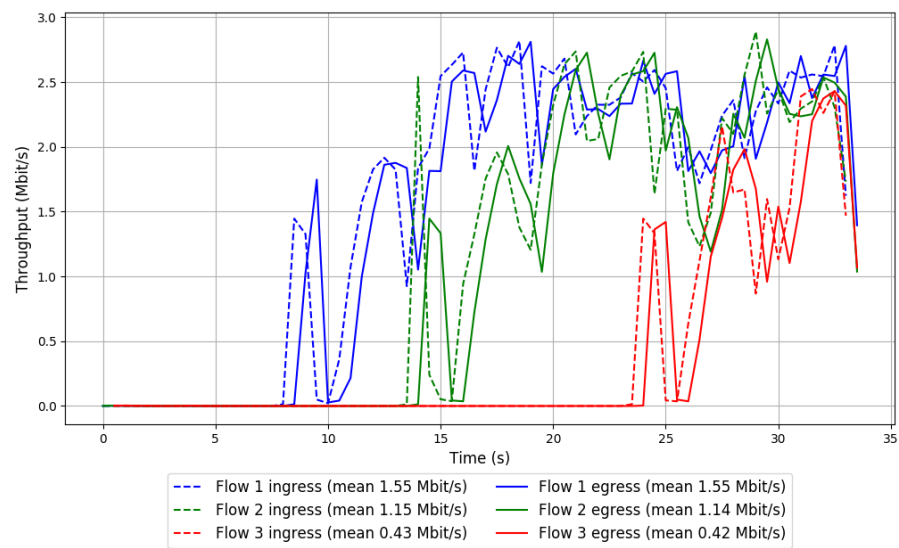
-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 85.642 ms

Loss rate: 2.88%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-10-26 04:03:04

End at: 2018-10-26 04:03:34

Local clock offset: 0.144 ms

Remote clock offset: 0.053 ms

Below is generated by plot.py at 2018-10-26 08:22:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.35 Mbit/s

95th percentile per-packet one-way delay: 86.148 ms

Loss rate: 1.09%

-- Flow 1:

Average throughput: 1.88 Mbit/s

95th percentile per-packet one-way delay: 86.077 ms

Loss rate: 0.56%

-- Flow 2:

Average throughput: 1.09 Mbit/s

95th percentile per-packet one-way delay: 86.182 ms

Loss rate: 1.34%

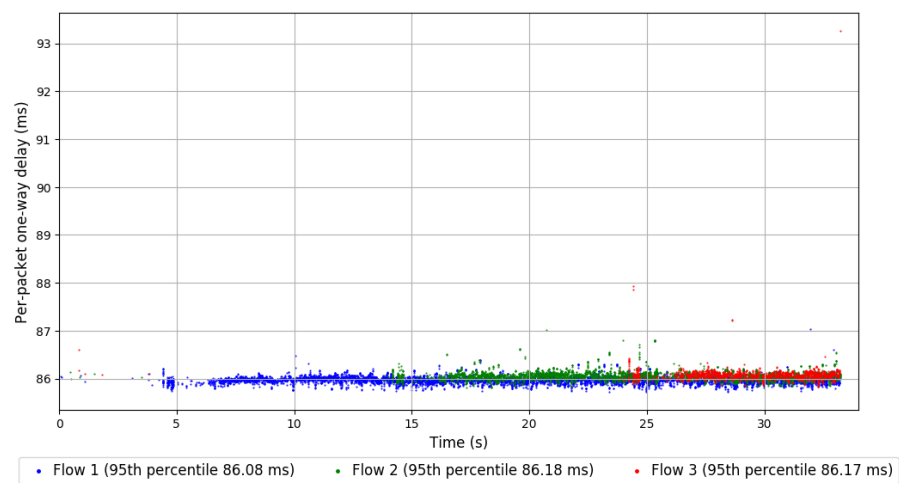
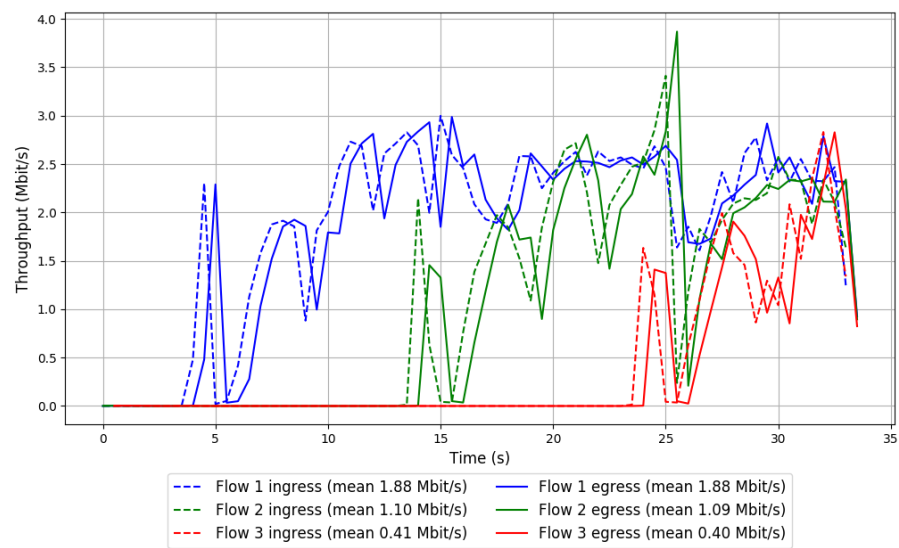
-- Flow 3:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 86.173 ms

Loss rate: 2.94%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-10-26 04:34:29

End at: 2018-10-26 04:34:59

Local clock offset: 0.218 ms

Remote clock offset: 0.027 ms

Below is generated by plot.py at 2018-10-26 08:22:28

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.32 Mbit/s

95th percentile per-packet one-way delay: 86.583 ms

Loss rate: 0.91%

-- Flow 1:

Average throughput: 1.88 Mbit/s

95th percentile per-packet one-way delay: 86.447 ms

Loss rate: 0.74%

-- Flow 2:

Average throughput: 1.09 Mbit/s

95th percentile per-packet one-way delay: 86.461 ms

Loss rate: 0.97%

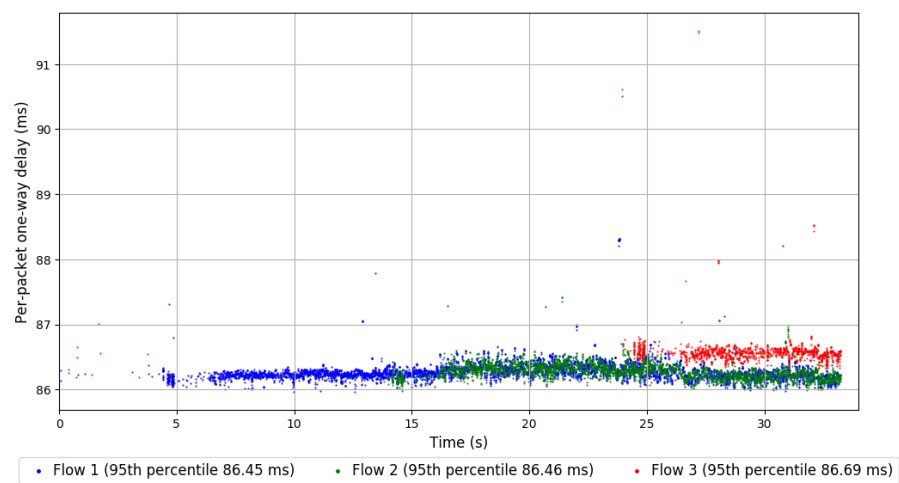
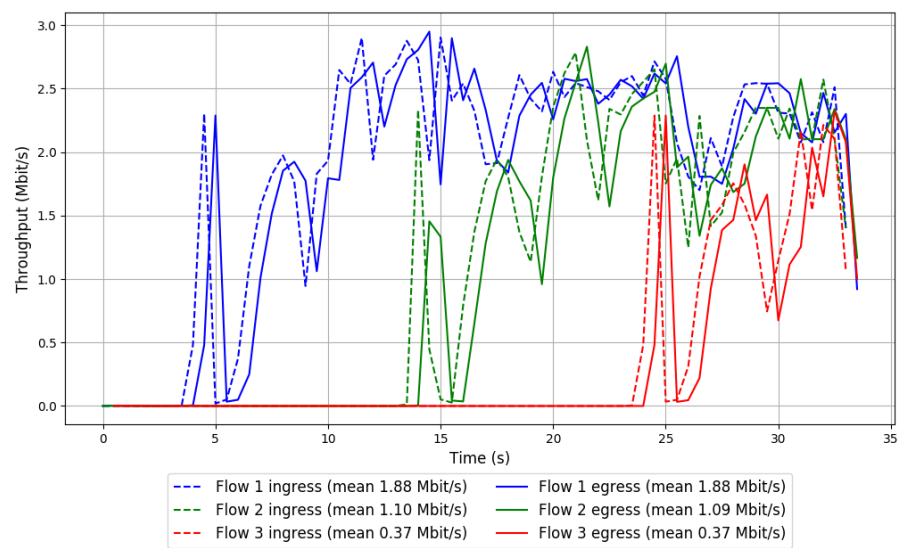
-- Flow 3:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 86.687 ms

Loss rate: 1.64%

Run 3: Report of WebRTC media — Data Link

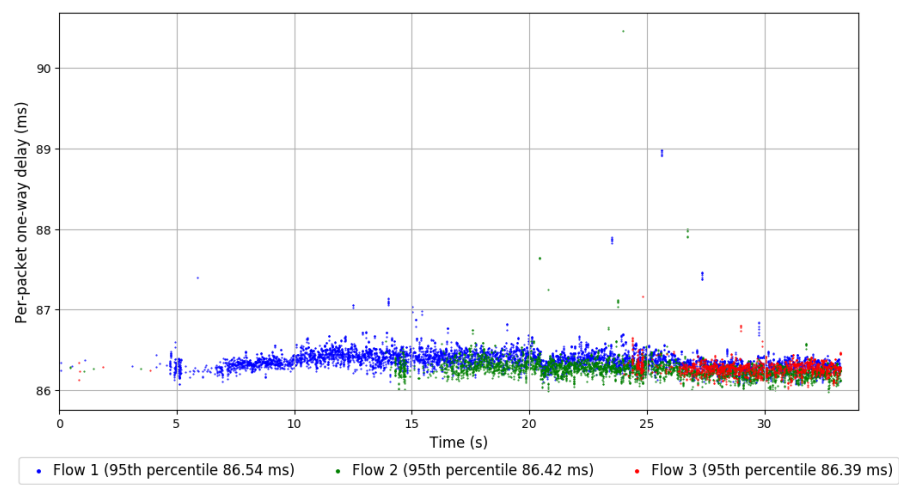
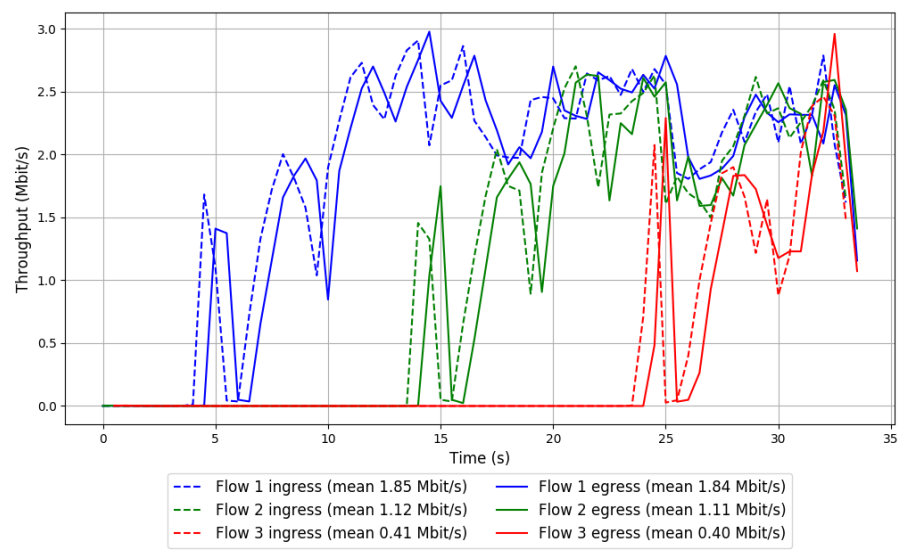


Run 4: Statistics of WebRTC media

Start at: 2018-10-26 05:05:41
End at: 2018-10-26 05:06:11
Local clock offset: 0.111 ms
Remote clock offset: -0.044 ms

Below is generated by plot.py at 2018-10-26 08:22:28
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.33 Mbit/s
95th percentile per-packet one-way delay: 86.512 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 86.541 ms
Loss rate: 0.75%
-- Flow 2:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 86.421 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 86.389 ms
Loss rate: 3.03%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-10-26 05:36:58
End at: 2018-10-26 05:37:28
Local clock offset: 0.51 ms
Remote clock offset: -0.012 ms

Below is generated by plot.py at 2018-10-26 08:22:28
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.37 Mbit/s
95th percentile per-packet one-way delay: 86.709 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 86.742 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 86.606 ms
Loss rate: 1.26%
-- Flow 3:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 86.687 ms
Loss rate: 2.41%

Run 5: Report of WebRTC media — Data Link

