

Pantheon Report

Generated at 2018-09-08 02:23:29 (UTC).

Data path: China on **eno1** (*remote*) → AWS Korea on **ens5** (*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 **ntp.nict.jp** and have been applied to correct the timestamps in logs.

System info:

```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912 536870912
```

Git summary:

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

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

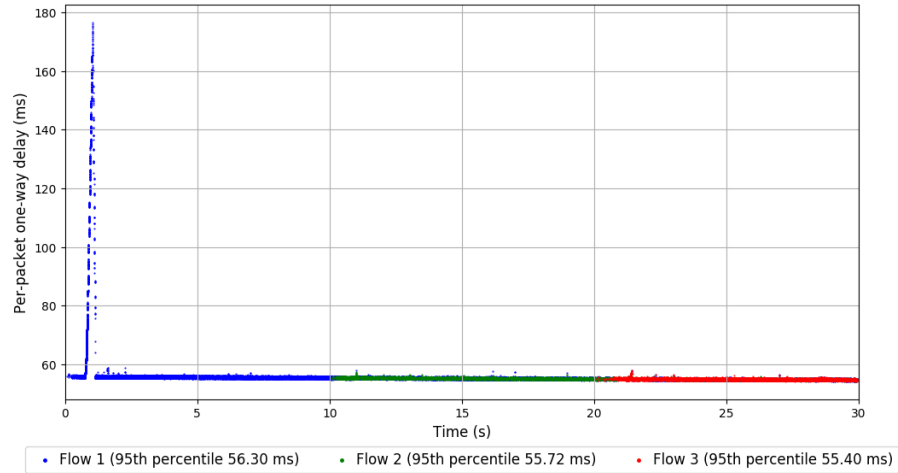
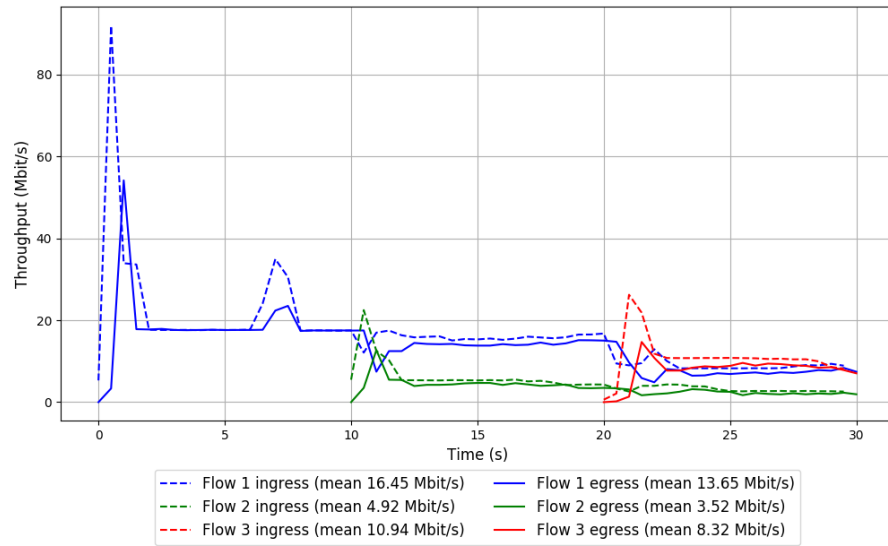

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	15.06	3.85	3.35	58.32	58.03	57.89	15.45	25.21	23.67
Copa	5	13.14	8.92	1.41	61.87	57.68	57.21	63.39	68.29	75.59
TCP Cubic	5	9.45	10.96	6.37	61.70	57.85	56.64	9.31	8.50	3.27
FillP	5	13.42	5.76	8.24	82.15	58.09	57.97	33.08	24.90	27.44
FillP-Sheep	5	12.53	7.94	6.33	123.68	60.67	58.61	31.14	33.44	34.94
Indigo	5	9.90	5.74	4.91	105.65	109.45	126.59	77.13	83.64	86.13
LEDBAT	5	10.12	6.72	6.07	57.37	57.66	57.26	1.21	2.46	2.76
Indigo-Muses	5	17.53	3.14	1.05	60.14	58.40	58.74	41.00	52.95	55.75
PCC-Allegro	5	13.08	6.29	2.56	61.27	57.03	56.95	43.51	12.72	19.90
PCC-Expr	5	8.39	9.09	6.16	66.50	60.15	56.18	65.32	44.35	30.38
QUIC Cubic	5	12.43	8.30	5.75	90.73	56.46	56.35	10.55	3.91	2.82
SCReAM	5	0.22	0.22	0.22	56.30	56.00	55.99	0.26	0.48	0.94
Sprout	5	8.76	8.33	7.02	61.61	61.77	62.18	2.39	3.50	8.35
TaoVA-100x	5	16.92	14.15	12.88	64.44	65.79	60.82	14.30	14.42	17.88
TCP Vegas	5	9.76	8.53	10.22	62.99	58.06	58.91	8.25	9.06	7.99
Verus	5	15.50	5.96	1.78	122.16	113.37	124.84	56.69	65.37	70.74
PCC-Vivace	5	14.96	5.49	2.81	58.05	56.59	56.46	6.81	5.33	7.58
WebRTC media	5	0.00	1.19	0.47	57.89	57.93	57.92	92.35	0.54	0.81

Run 1: Statistics of TCP BBR

Start at: 2018-09-08 00:41:28
End at: 2018-09-08 00:41:58
Local clock offset: 1.003 ms
Remote clock offset: 59.253 ms

Below is generated by plot.py at 2018-09-08 02:19:47
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.73 Mbit/s
95th percentile per-packet one-way delay: 56.152 ms
Loss rate: 20.04%
-- Flow 1:
Average throughput: 13.65 Mbit/s
95th percentile per-packet one-way delay: 56.302 ms
Loss rate: 17.27%
-- Flow 2:
Average throughput: 3.52 Mbit/s
95th percentile per-packet one-way delay: 55.722 ms
Loss rate: 28.79%
-- Flow 3:
Average throughput: 8.32 Mbit/s
95th percentile per-packet one-way delay: 55.395 ms
Loss rate: 24.66%

Run 1: Report of TCP BBR — Data Link

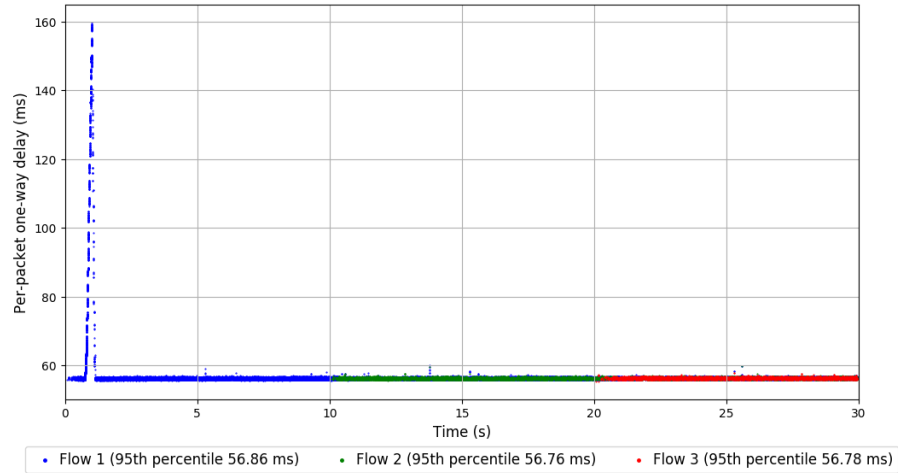
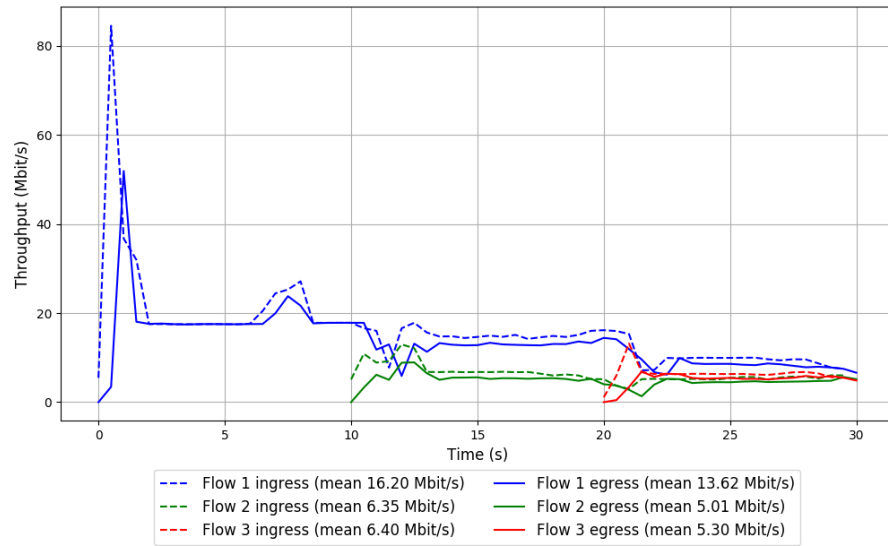


Run 2: Statistics of TCP BBR

Start at: 2018-09-08 01:03:40
End at: 2018-09-08 01:04:10
Local clock offset: 1.453 ms
Remote clock offset: 47.712 ms

Below is generated by plot.py at 2018-09-08 02:19:47
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.70 Mbit/s
95th percentile per-packet one-way delay: 56.815 ms
Loss rate: 17.31%
-- Flow 1:
Average throughput: 13.62 Mbit/s
95th percentile per-packet one-way delay: 56.860 ms
Loss rate: 16.16%
-- Flow 2:
Average throughput: 5.01 Mbit/s
95th percentile per-packet one-way delay: 56.764 ms
Loss rate: 21.42%
-- Flow 3:
Average throughput: 5.30 Mbit/s
95th percentile per-packet one-way delay: 56.785 ms
Loss rate: 17.86%

Run 2: Report of TCP BBR — Data Link

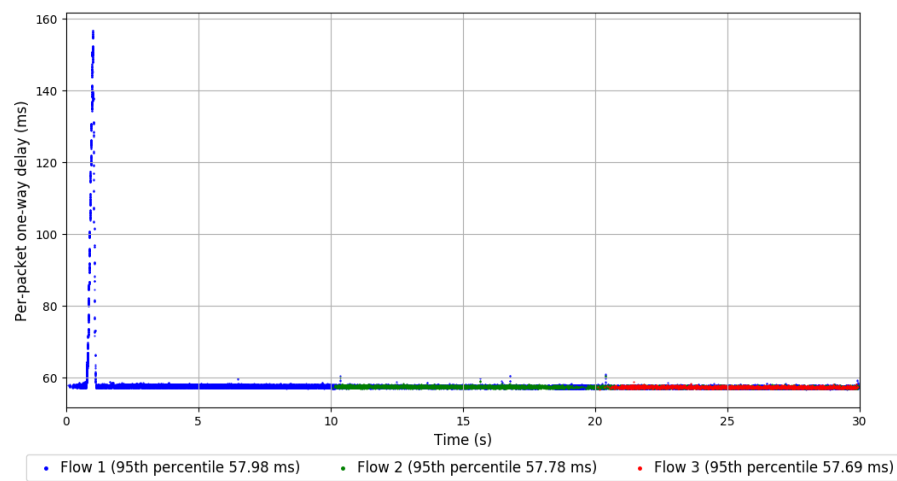
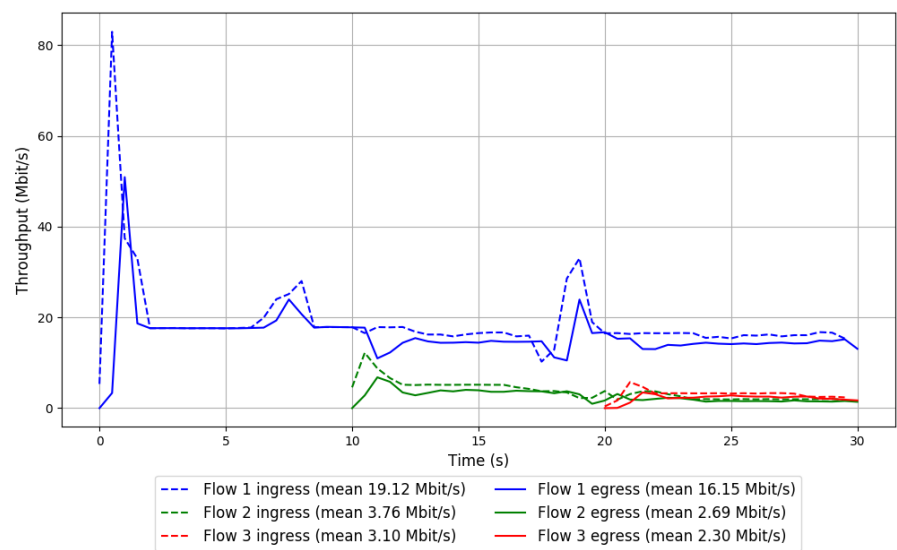


Run 3: Statistics of TCP BBR

Start at: 2018-09-08 01:26:09
End at: 2018-09-08 01:26:39
Local clock offset: 1.695 ms
Remote clock offset: 27.932 ms

Below is generated by plot.py at 2018-09-08 02:19:47
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.69 Mbit/s
95th percentile per-packet one-way delay: 57.953 ms
Loss rate: 17.72%
-- Flow 1:
Average throughput: 16.15 Mbit/s
95th percentile per-packet one-way delay: 57.985 ms
Loss rate: 15.80%
-- Flow 2:
Average throughput: 2.69 Mbit/s
95th percentile per-packet one-way delay: 57.784 ms
Loss rate: 28.82%
-- Flow 3:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 57.689 ms
Loss rate: 26.41%

Run 3: Report of TCP BBR — Data Link

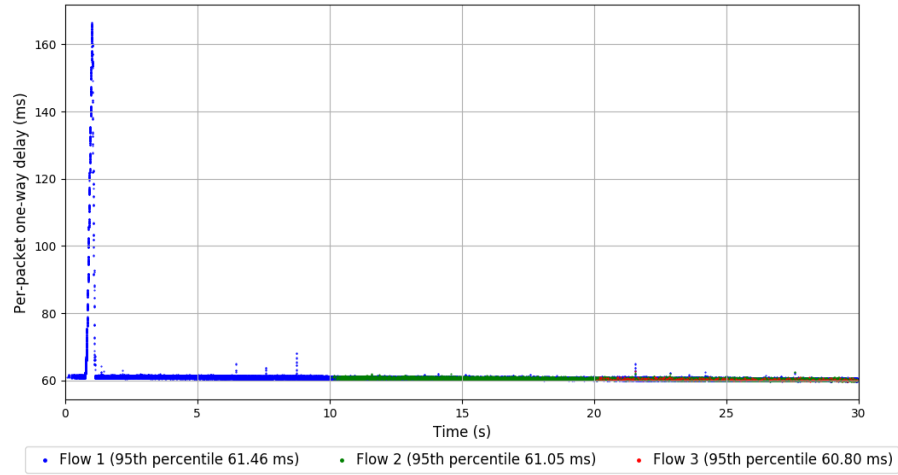
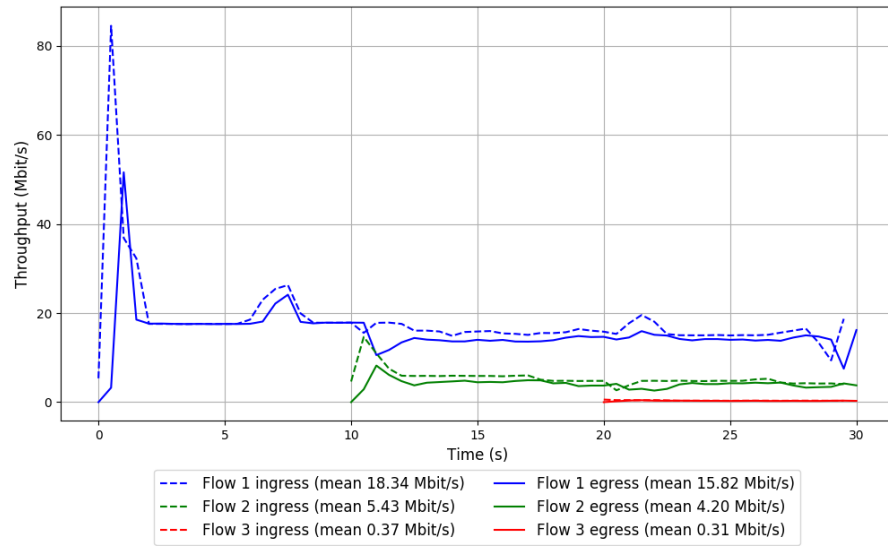


Run 4: Statistics of TCP BBR

Start at: 2018-09-08 01:48:38
End at: 2018-09-08 01:49:08
Local clock offset: 2.421 ms
Remote clock offset: 14.752 ms

Below is generated by plot.py at 2018-09-08 02:19:47
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.71 Mbit/s
95th percentile per-packet one-way delay: 61.413 ms
Loss rate: 15.50%
-- Flow 1:
Average throughput: 15.82 Mbit/s
95th percentile per-packet one-way delay: 61.459 ms
Loss rate: 14.00%
-- Flow 2:
Average throughput: 4.20 Mbit/s
95th percentile per-packet one-way delay: 61.049 ms
Loss rate: 23.01%
-- Flow 3:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 60.795 ms
Loss rate: 18.56%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-08 02:10:49

End at: 2018-09-08 02:11:19

Local clock offset: 4.43 ms

Remote clock offset: 0.016 ms

Below is generated by plot.py at 2018-09-08 02:19:47

Datalink statistics

-- Total of 3 flows:

Average throughput: 18.79 Mbit/s

95th percentile per-packet one-way delay: 58.979 ms

Loss rate: 15.69%

-- Flow 1:

Average throughput: 16.06 Mbit/s

95th percentile per-packet one-way delay: 59.006 ms

Loss rate: 14.00%

-- Flow 2:

Average throughput: 3.84 Mbit/s

95th percentile per-packet one-way delay: 58.850 ms

Loss rate: 23.99%

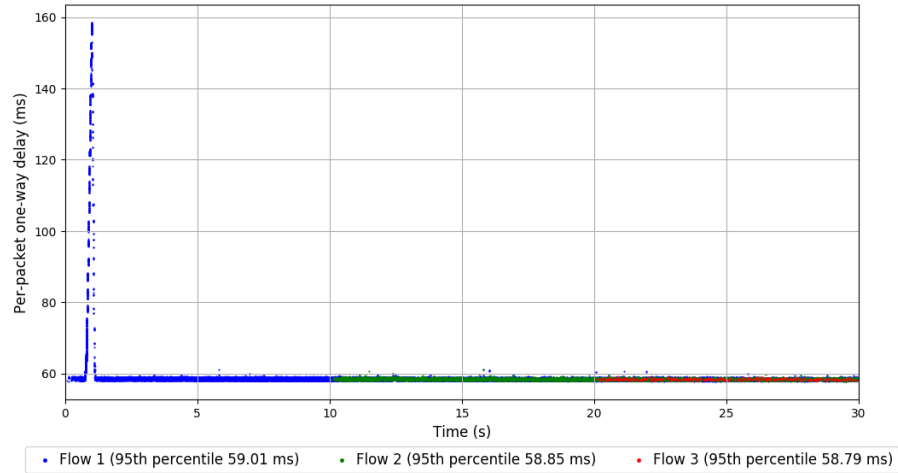
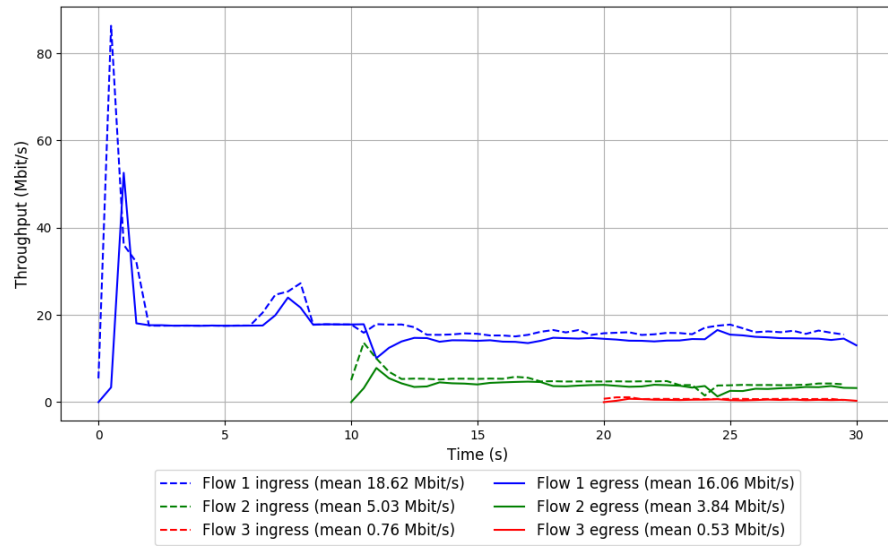
-- Flow 3:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 58.790 ms

Loss rate: 30.84%

Run 5: Report of TCP BBR — Data Link

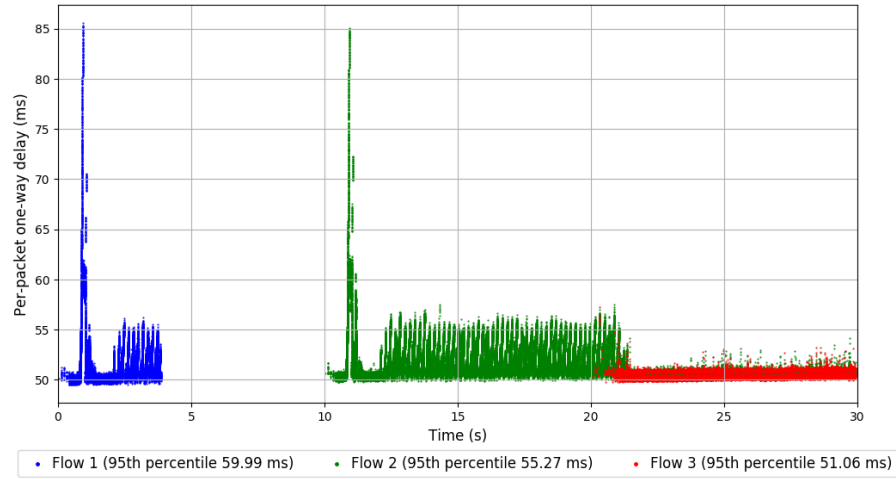
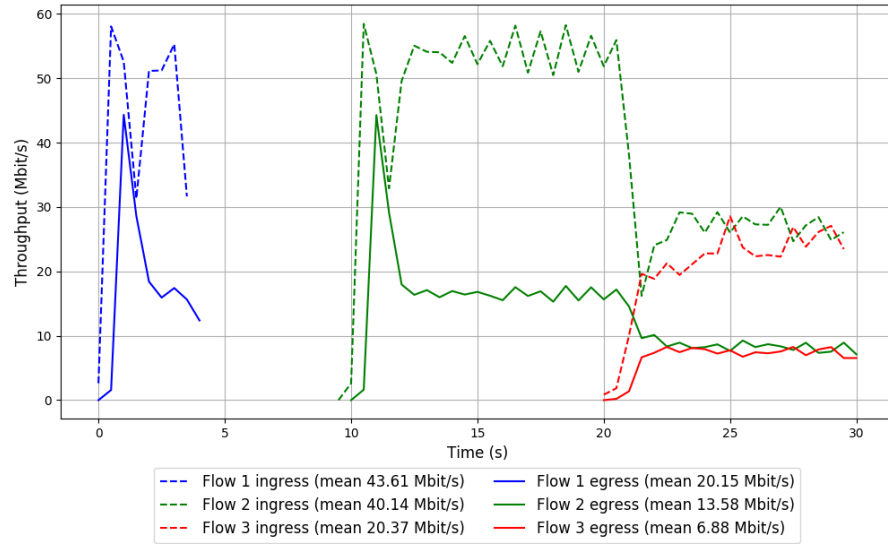


Run 1: Statistics of Copa

Start at: 2018-09-08 00:37:40
End at: 2018-09-08 00:38:10
Local clock offset: 1.376 ms
Remote clock offset: 72.028 ms

Below is generated by plot.py at 2018-09-08 02:20:12
Datalink statistics
-- Total of 3 flows:
Average throughput: 13.89 Mbit/s
95th percentile per-packet one-way delay: 55.278 ms
Loss rate: 64.56%
-- Flow 1:
Average throughput: 20.15 Mbit/s
95th percentile per-packet one-way delay: 59.991 ms
Loss rate: 53.80%
-- Flow 2:
Average throughput: 13.58 Mbit/s
95th percentile per-packet one-way delay: 55.272 ms
Loss rate: 66.31%
-- Flow 3:
Average throughput: 6.88 Mbit/s
95th percentile per-packet one-way delay: 51.062 ms
Loss rate: 66.52%

Run 1: Report of Copa — Data Link

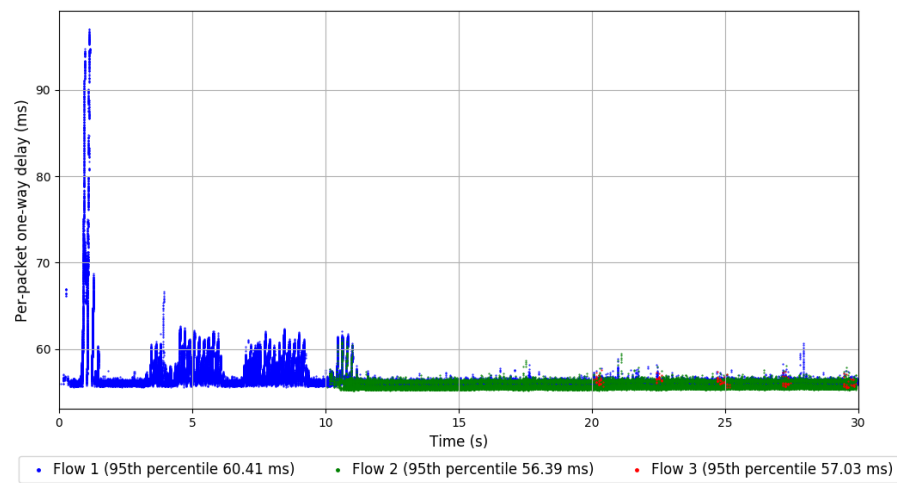
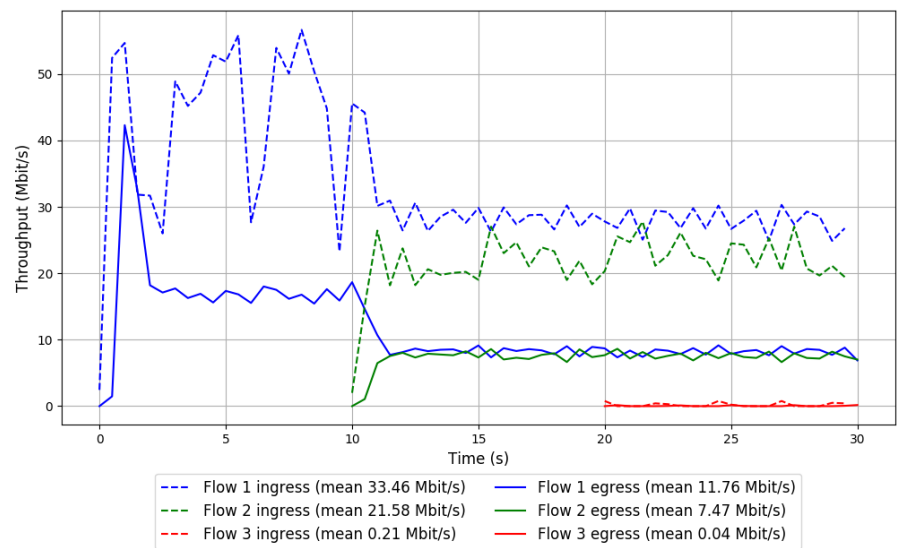


Run 2: Statistics of Copa

Start at: 2018-09-08 00:59:58
End at: 2018-09-08 01:00:28
Local clock offset: 1.376 ms
Remote clock offset: 46.414 ms

Below is generated by plot.py at 2018-09-08 02:20:20
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.73 Mbit/s
95th percentile per-packet one-way delay: 59.828 ms
Loss rate: 65.16%
-- Flow 1:
Average throughput: 11.76 Mbit/s
95th percentile per-packet one-way delay: 60.413 ms
Loss rate: 64.96%
-- Flow 2:
Average throughput: 7.47 Mbit/s
95th percentile per-packet one-way delay: 56.392 ms
Loss rate: 65.55%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 57.033 ms
Loss rate: 80.06%

Run 2: Report of Copa — Data Link

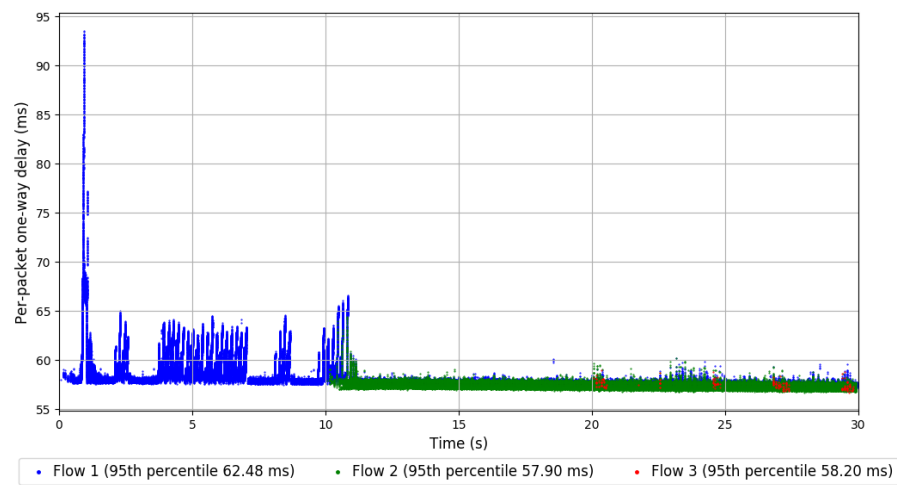
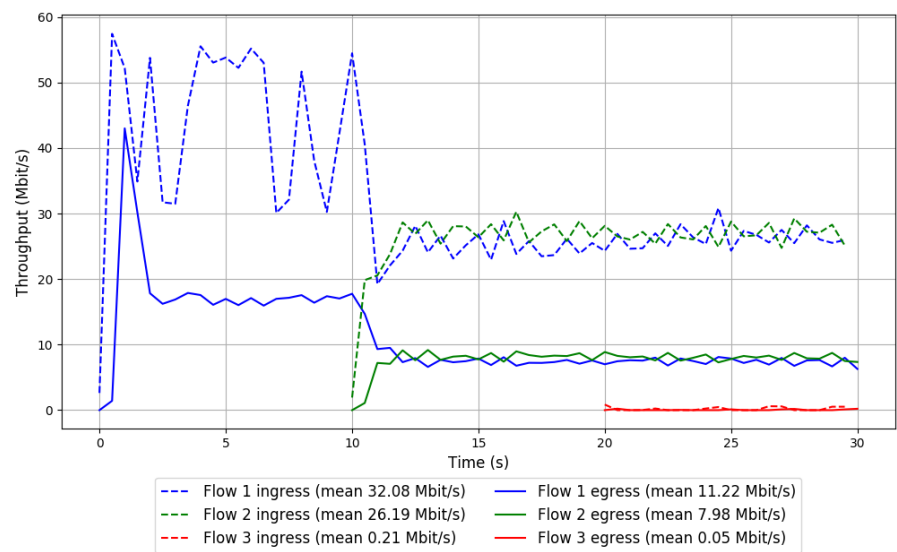


Run 3: Statistics of Copa

Start at: 2018-09-08 01:22:27
End at: 2018-09-08 01:22:57
Local clock offset: 1.621 ms
Remote clock offset: 30.451 ms

Below is generated by plot.py at 2018-09-08 02:20:22
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.54 Mbit/s
95th percentile per-packet one-way delay: 61.831 ms
Loss rate: 66.73%
-- Flow 1:
Average throughput: 11.22 Mbit/s
95th percentile per-packet one-way delay: 62.485 ms
Loss rate: 65.13%
-- Flow 2:
Average throughput: 7.98 Mbit/s
95th percentile per-packet one-way delay: 57.903 ms
Loss rate: 69.66%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 58.200 ms
Loss rate: 74.98%

Run 3: Report of Copa — Data Link

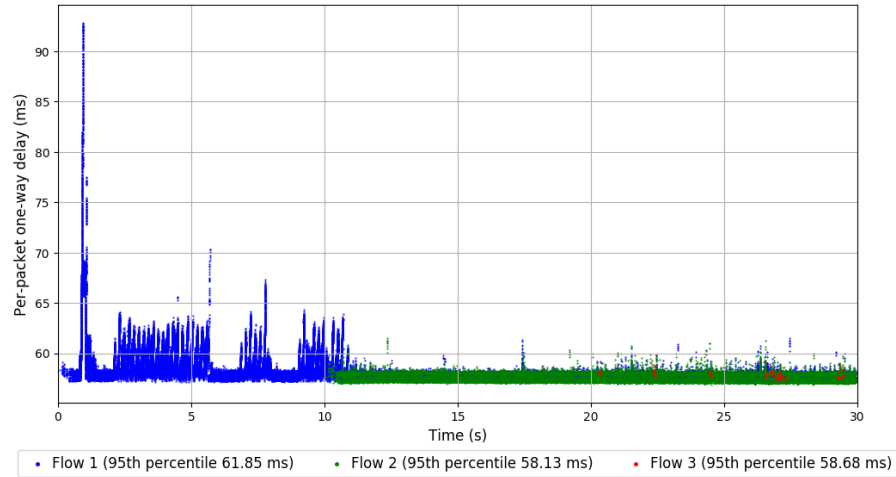
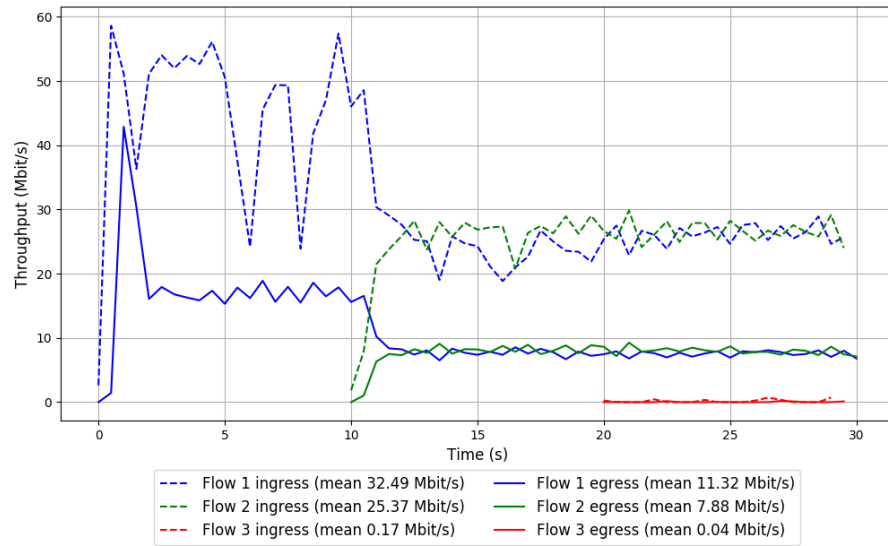


Run 4: Statistics of Copa

Start at: 2018-09-08 01:44:56
End at: 2018-09-08 01:45:26
Local clock offset: 1.793 ms
Remote clock offset: 21.236 ms

Below is generated by plot.py at 2018-09-08 02:20:41
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.57 Mbit/s
95th percentile per-packet one-way delay: 61.244 ms
Loss rate: 66.58%
-- Flow 1:
Average throughput: 11.32 Mbit/s
95th percentile per-packet one-way delay: 61.848 ms
Loss rate: 65.25%
-- Flow 2:
Average throughput: 7.88 Mbit/s
95th percentile per-packet one-way delay: 58.128 ms
Loss rate: 69.11%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 58.680 ms
Loss rate: 79.06%

Run 4: Report of Copa — Data Link

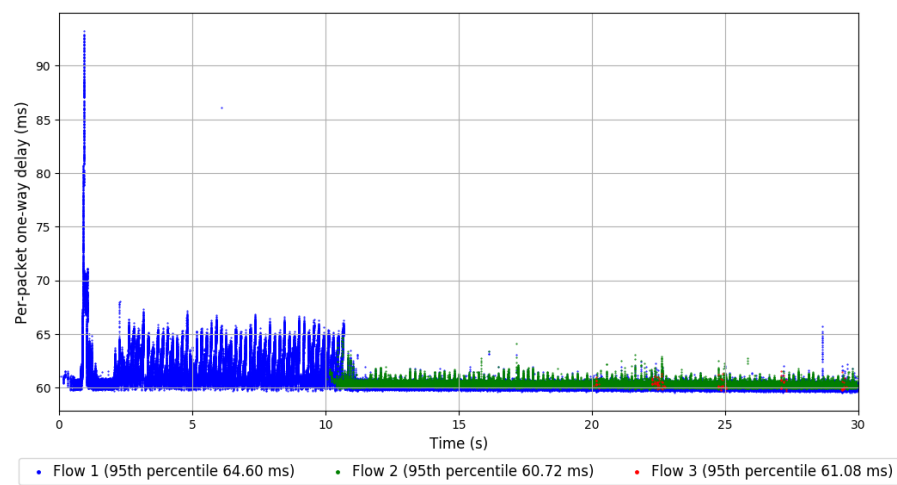
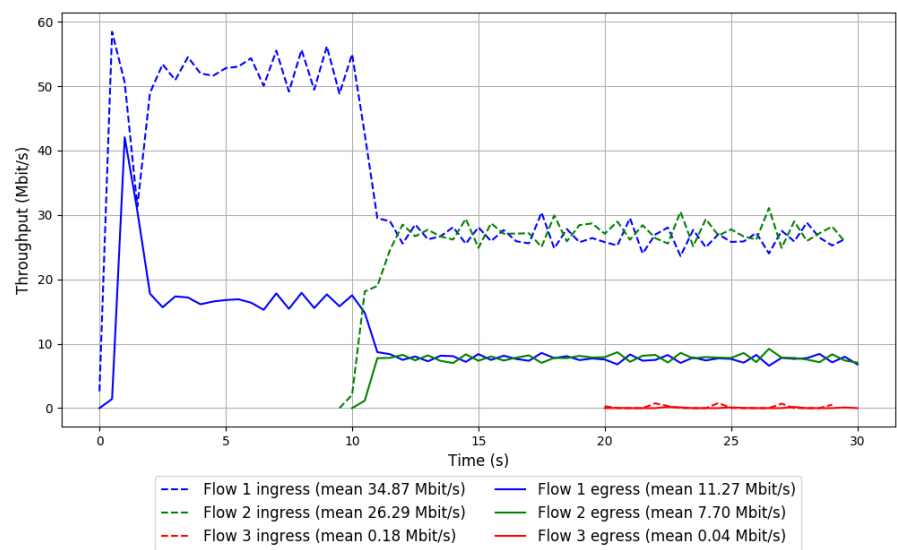


Run 5: Statistics of Copa

Start at: 2018-09-08 02:06:59
End at: 2018-09-08 02:07:29
Local clock offset: 4.055 ms
Remote clock offset: -0.932 ms

```
# Below is generated by plot.py at 2018-09-08 02:20:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.40 Mbit/s
95th percentile per-packet one-way delay: 64.131 ms
Loss rate: 68.81%
-- Flow 1:
Average throughput: 11.27 Mbit/s
95th percentile per-packet one-way delay: 64.600 ms
Loss rate: 67.79%
-- Flow 2:
Average throughput: 7.70 Mbit/s
95th percentile per-packet one-way delay: 60.724 ms
Loss rate: 70.83%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 61.077 ms
Loss rate: 77.35%
```

Run 5: Report of Copa — Data Link

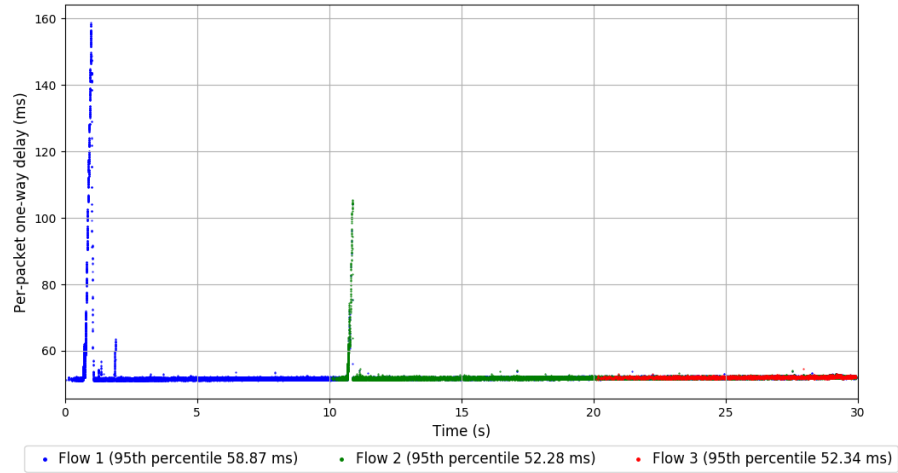
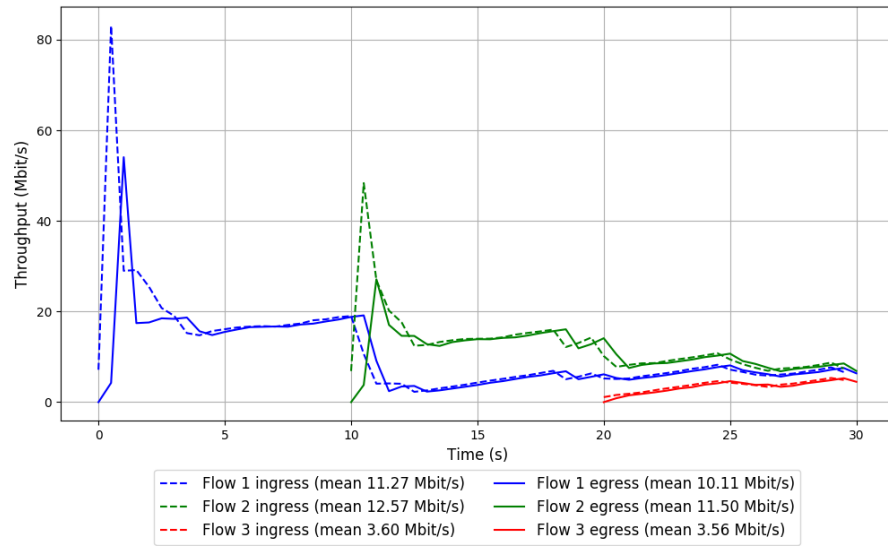


Run 1: Statistics of TCP Cubic

Start at: 2018-09-08 00:36:27
End at: 2018-09-08 00:36:57
Local clock offset: 1.333 ms
Remote clock offset: 69.642 ms

Below is generated by plot.py at 2018-09-08 02:20:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.93 Mbit/s
95th percentile per-packet one-way delay: 52.722 ms
Loss rate: 9.38%
-- Flow 1:
Average throughput: 10.11 Mbit/s
95th percentile per-packet one-way delay: 58.869 ms
Loss rate: 10.49%
-- Flow 2:
Average throughput: 11.50 Mbit/s
95th percentile per-packet one-way delay: 52.279 ms
Loss rate: 8.94%
-- Flow 3:
Average throughput: 3.56 Mbit/s
95th percentile per-packet one-way delay: 52.345 ms
Loss rate: 1.95%

Run 1: Report of TCP Cubic — Data Link

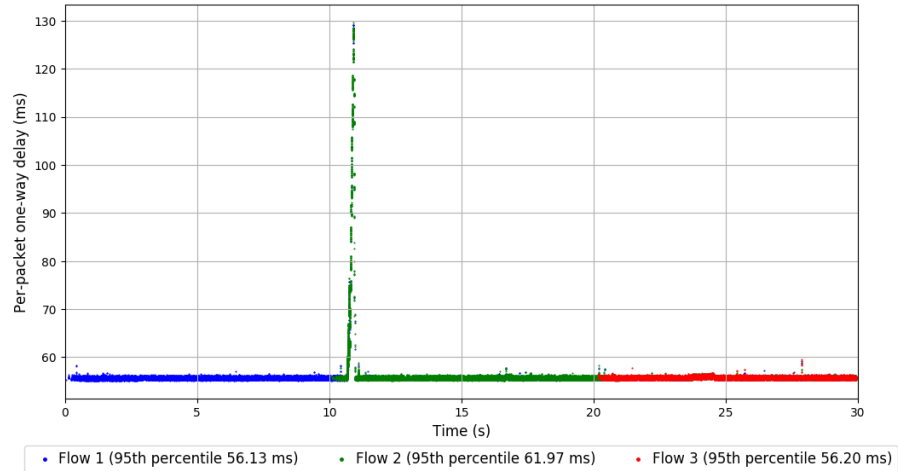
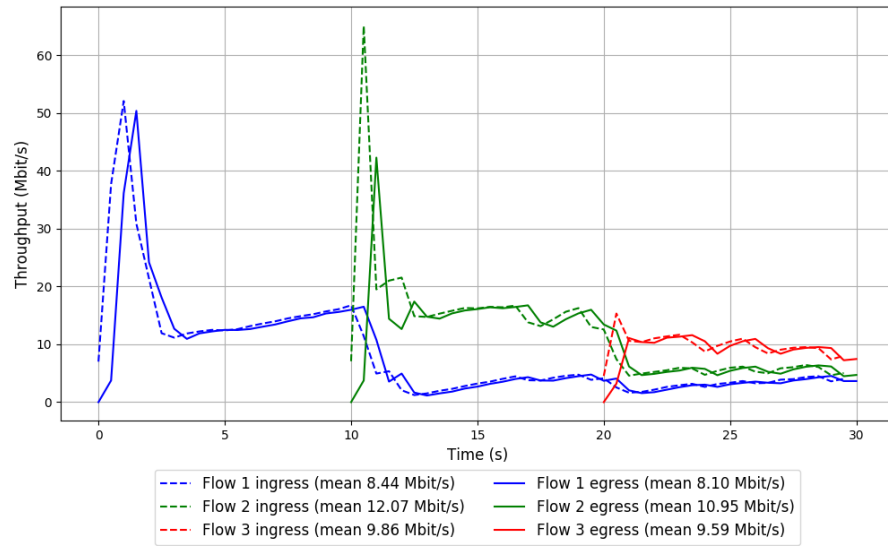


Run 2: Statistics of TCP Cubic

Start at: 2018-09-08 00:58:45
End at: 2018-09-08 00:59:15
Local clock offset: 1.533 ms
Remote clock offset: 47.062 ms

Below is generated by plot.py at 2018-09-08 02:20:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.54 Mbit/s
95th percentile per-packet one-way delay: 56.231 ms
Loss rate: 6.38%
-- Flow 1:
Average throughput: 8.10 Mbit/s
95th percentile per-packet one-way delay: 56.128 ms
Loss rate: 4.31%
-- Flow 2:
Average throughput: 10.95 Mbit/s
95th percentile per-packet one-way delay: 61.970 ms
Loss rate: 9.70%
-- Flow 3:
Average throughput: 9.59 Mbit/s
95th percentile per-packet one-way delay: 56.195 ms
Loss rate: 3.58%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-08 01:21:14

End at: 2018-09-08 01:21:44

Local clock offset: 1.597 ms

Remote clock offset: 29.69 ms

Below is generated by plot.py at 2018-09-08 02:20:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 18.91 Mbit/s

95th percentile per-packet one-way delay: 60.866 ms

Loss rate: 8.91%

-- Flow 1:

Average throughput: 9.19 Mbit/s

95th percentile per-packet one-way delay: 67.601 ms

Loss rate: 10.70%

-- Flow 2:

Average throughput: 11.21 Mbit/s

95th percentile per-packet one-way delay: 60.535 ms

Loss rate: 8.35%

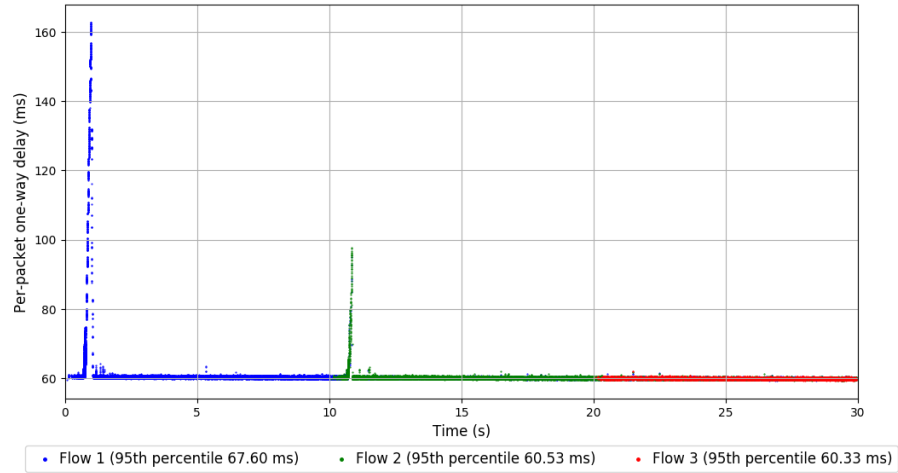
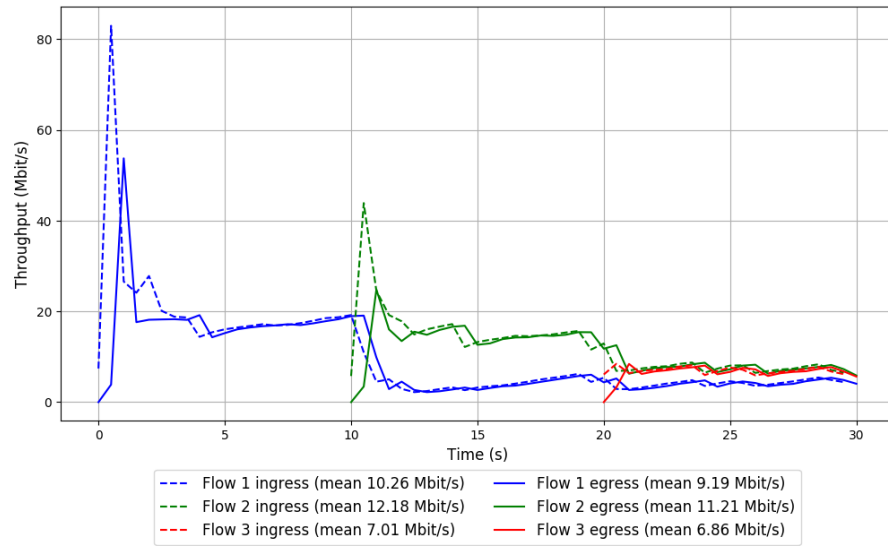
-- Flow 3:

Average throughput: 6.86 Mbit/s

95th percentile per-packet one-way delay: 60.330 ms

Loss rate: 2.95%

Run 3: Report of TCP Cubic — Data Link

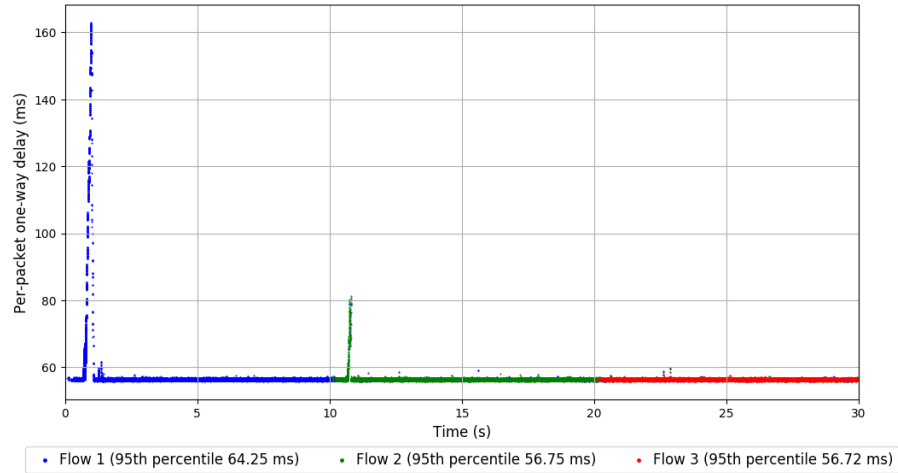
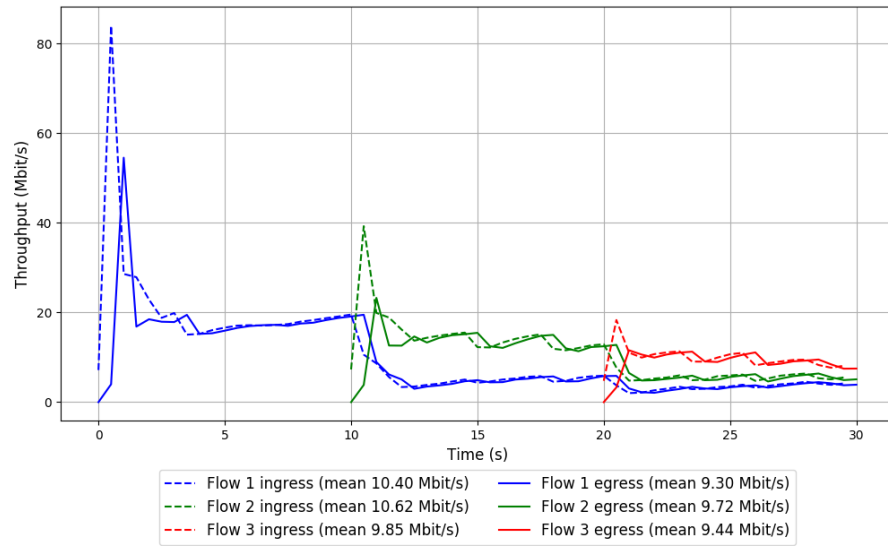


Run 4: Statistics of TCP Cubic

Start at: 2018-09-08 01:43:43
End at: 2018-09-08 01:44:13
Local clock offset: 1.683 ms
Remote clock offset: 23.354 ms

Below is generated by plot.py at 2018-09-08 02:20:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.88 Mbit/s
95th percentile per-packet one-way delay: 56.912 ms
Loss rate: 9.20%
-- Flow 1:
Average throughput: 9.30 Mbit/s
95th percentile per-packet one-way delay: 64.247 ms
Loss rate: 10.75%
-- Flow 2:
Average throughput: 9.72 Mbit/s
95th percentile per-packet one-way delay: 56.748 ms
Loss rate: 8.86%
-- Flow 3:
Average throughput: 9.44 Mbit/s
95th percentile per-packet one-way delay: 56.720 ms
Loss rate: 5.01%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-08 02:05:47

End at: 2018-09-08 02:06:17

Local clock offset: 4.148 ms

Remote clock offset: 3.12 ms

Below is generated by plot.py at 2018-09-08 02:20:42

Datalink statistics

-- Total of 3 flows:

Average throughput: 18.92 Mbit/s

95th percentile per-packet one-way delay: 57.994 ms

Loss rate: 8.57%

-- Flow 1:

Average throughput: 10.55 Mbit/s

95th percentile per-packet one-way delay: 61.655 ms

Loss rate: 10.28%

-- Flow 2:

Average throughput: 11.40 Mbit/s

95th percentile per-packet one-way delay: 57.740 ms

Loss rate: 6.66%

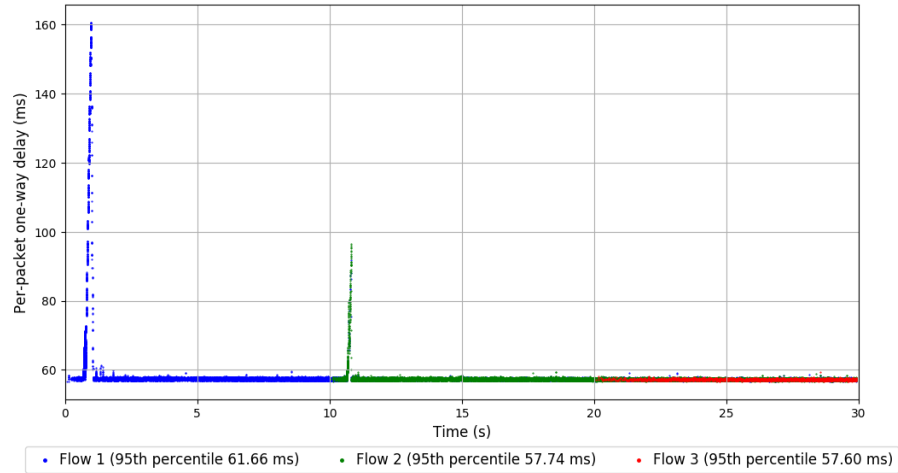
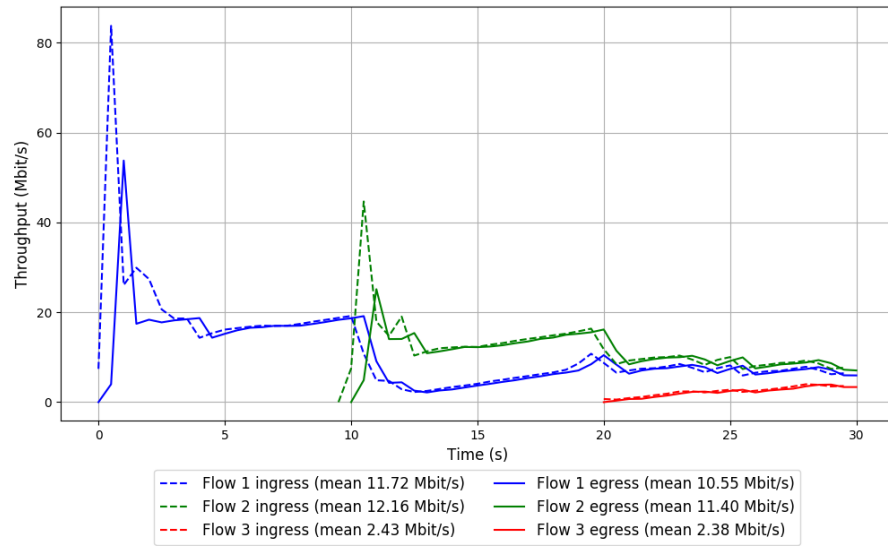
-- Flow 3:

Average throughput: 2.38 Mbit/s

95th percentile per-packet one-way delay: 57.598 ms

Loss rate: 2.84%

Run 5: Report of TCP Cubic — Data Link

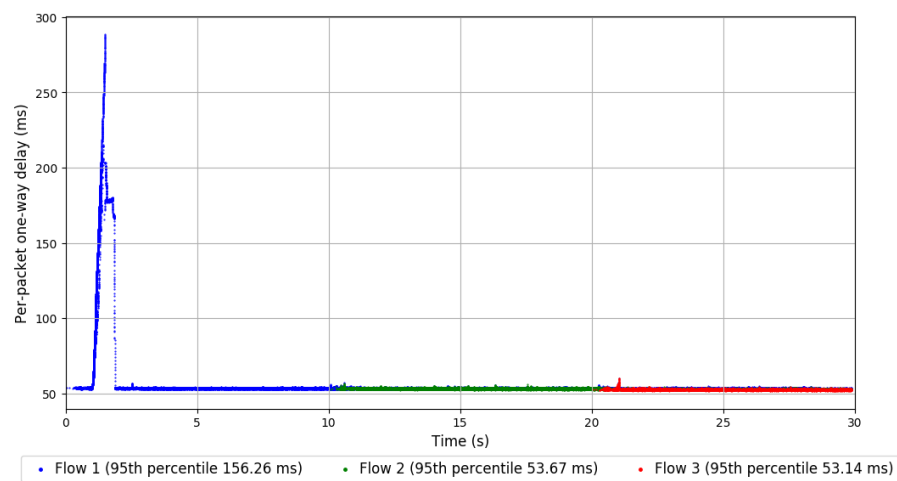
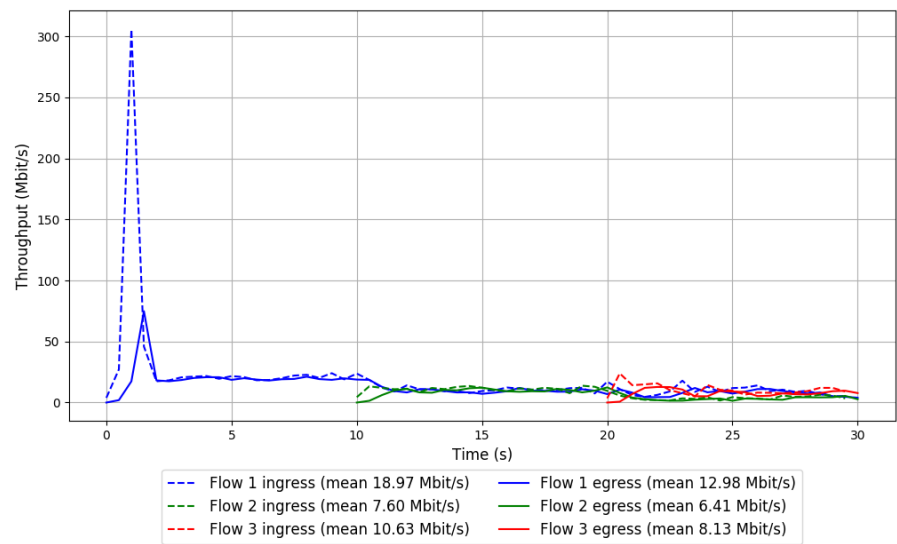


Run 1: Statistics of FillP

Start at: 2018-09-08 00:46:30
End at: 2018-09-08 00:47:00
Local clock offset: 1.008 ms
Remote clock offset: 53.295 ms

Below is generated by plot.py at 2018-09-08 02:20:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.91 Mbit/s
95th percentile per-packet one-way delay: 110.163 ms
Loss rate: 27.95%
-- Flow 1:
Average throughput: 12.98 Mbit/s
95th percentile per-packet one-way delay: 156.257 ms
Loss rate: 31.79%
-- Flow 2:
Average throughput: 6.41 Mbit/s
95th percentile per-packet one-way delay: 53.669 ms
Loss rate: 16.08%
-- Flow 3:
Average throughput: 8.13 Mbit/s
95th percentile per-packet one-way delay: 53.144 ms
Loss rate: 24.30%

Run 1: Report of FillP — Data Link

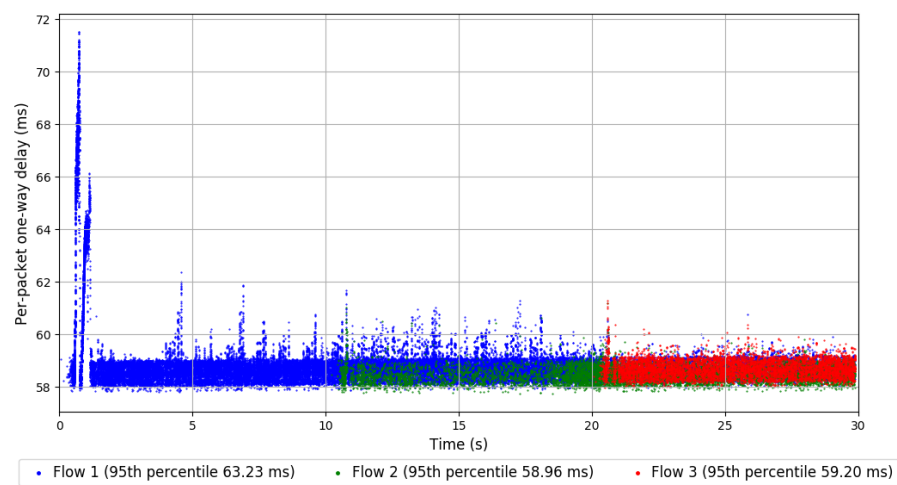
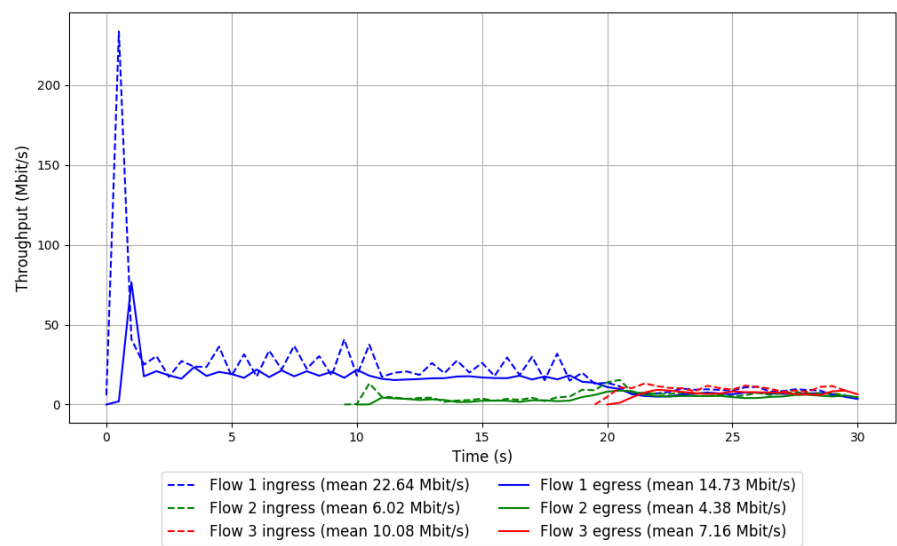


Run 2: Statistics of FillP

Start at: 2018-09-08 01:08:42
End at: 2018-09-08 01:09:12
Local clock offset: 1.179 ms
Remote clock offset: 46.965 ms

Below is generated by plot.py at 2018-09-08 02:20:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.98 Mbit/s
95th percentile per-packet one-way delay: 60.801 ms
Loss rate: 33.60%
-- Flow 1:
Average throughput: 14.73 Mbit/s
95th percentile per-packet one-way delay: 63.227 ms
Loss rate: 35.13%
-- Flow 2:
Average throughput: 4.38 Mbit/s
95th percentile per-packet one-way delay: 58.964 ms
Loss rate: 28.33%
-- Flow 3:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 59.197 ms
Loss rate: 29.58%

Run 2: Report of FillP — Data Link

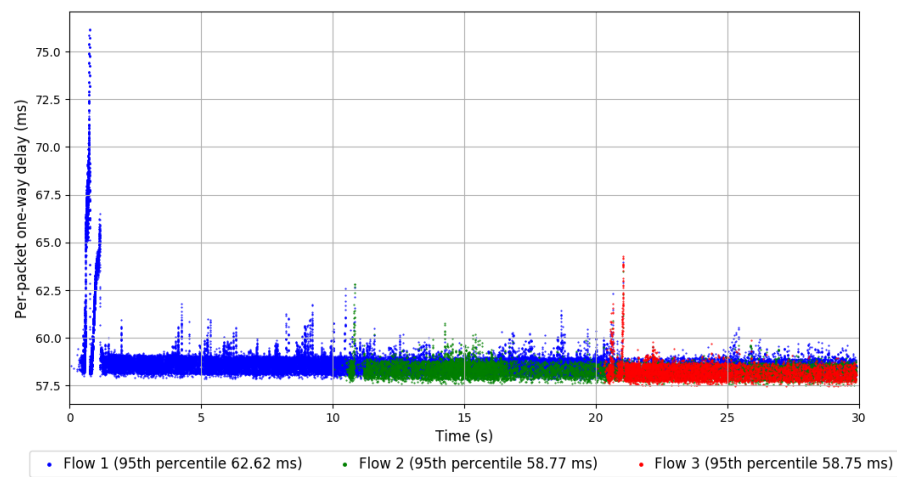
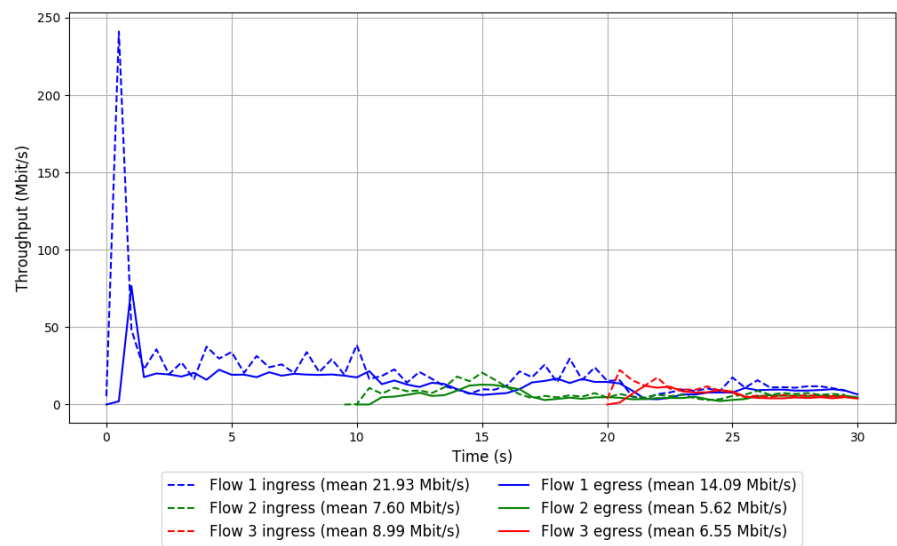


Run 3: Statistics of FillP

Start at: 2018-09-08 01:31:10
End at: 2018-09-08 01:31:40
Local clock offset: 1.631 ms
Remote clock offset: 24.096 ms

Below is generated by plot.py at 2018-09-08 02:20:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.98 Mbit/s
95th percentile per-packet one-way delay: 60.661 ms
Loss rate: 33.54%
-- Flow 1:
Average throughput: 14.09 Mbit/s
95th percentile per-packet one-way delay: 62.618 ms
Loss rate: 35.97%
-- Flow 2:
Average throughput: 5.62 Mbit/s
95th percentile per-packet one-way delay: 58.769 ms
Loss rate: 26.42%
-- Flow 3:
Average throughput: 6.55 Mbit/s
95th percentile per-packet one-way delay: 58.750 ms
Loss rate: 27.80%

Run 3: Report of FillP — Data Link

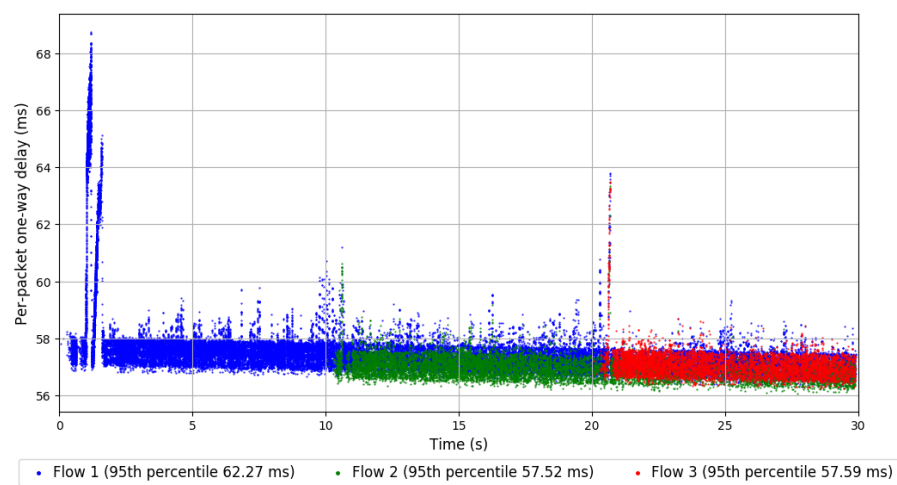
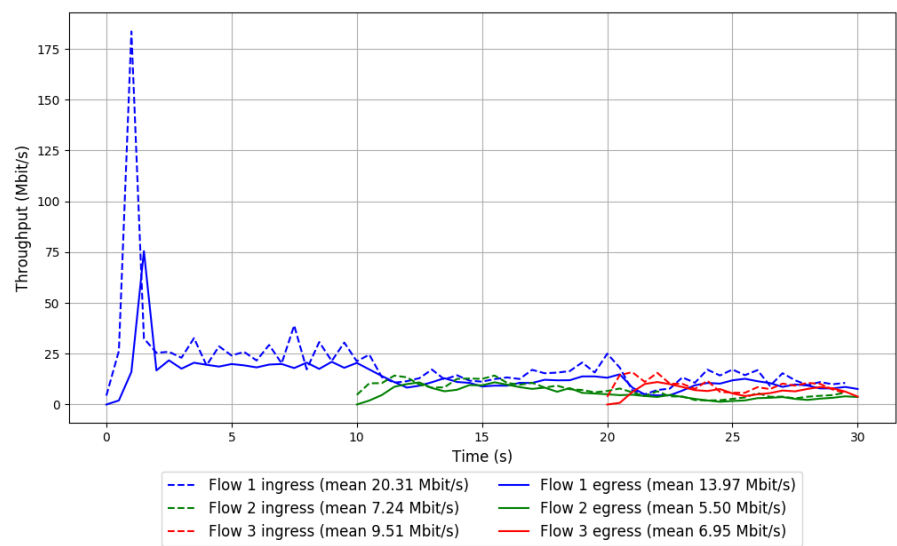


Run 4: Statistics of FillP

Start at: 2018-09-08 01:53:30
End at: 2018-09-08 01:54:00
Local clock offset: 3.206 ms
Remote clock offset: 11.566 ms

Below is generated by plot.py at 2018-09-08 02:20:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.91 Mbit/s
95th percentile per-packet one-way delay: 60.047 ms
Loss rate: 29.77%
-- Flow 1:
Average throughput: 13.97 Mbit/s
95th percentile per-packet one-way delay: 62.266 ms
Loss rate: 31.39%
-- Flow 2:
Average throughput: 5.50 Mbit/s
95th percentile per-packet one-way delay: 57.525 ms
Loss rate: 24.40%
-- Flow 3:
Average throughput: 6.95 Mbit/s
95th percentile per-packet one-way delay: 57.595 ms
Loss rate: 27.57%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-08 02:15:50

End at: 2018-09-08 02:16:20

Local clock offset: 4.742 ms

Remote clock offset: -4.42 ms

Below is generated by plot.py at 2018-09-08 02:20:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.98 Mbit/s

95th percentile per-packet one-way delay: 63.778 ms

Loss rate: 30.08%

-- Flow 1:

Average throughput: 11.31 Mbit/s

95th percentile per-packet one-way delay: 66.385 ms

Loss rate: 31.13%

-- Flow 2:

Average throughput: 6.91 Mbit/s

95th percentile per-packet one-way delay: 61.519 ms

Loss rate: 29.29%

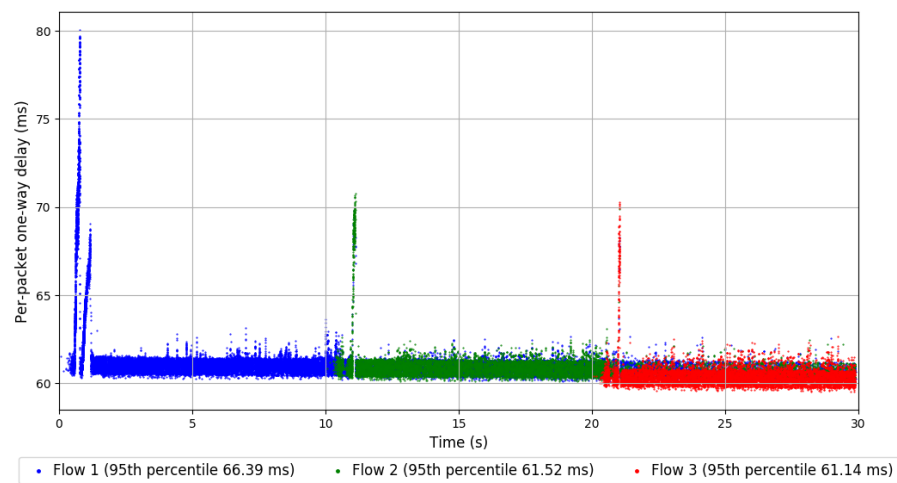
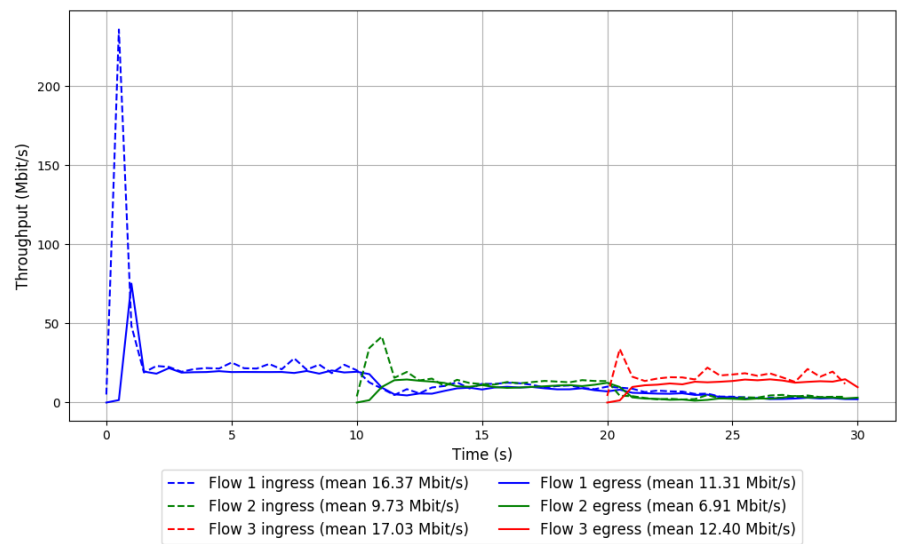
-- Flow 3:

Average throughput: 12.40 Mbit/s

95th percentile per-packet one-way delay: 61.142 ms

Loss rate: 27.95%

Run 5: Report of FillP — Data Link

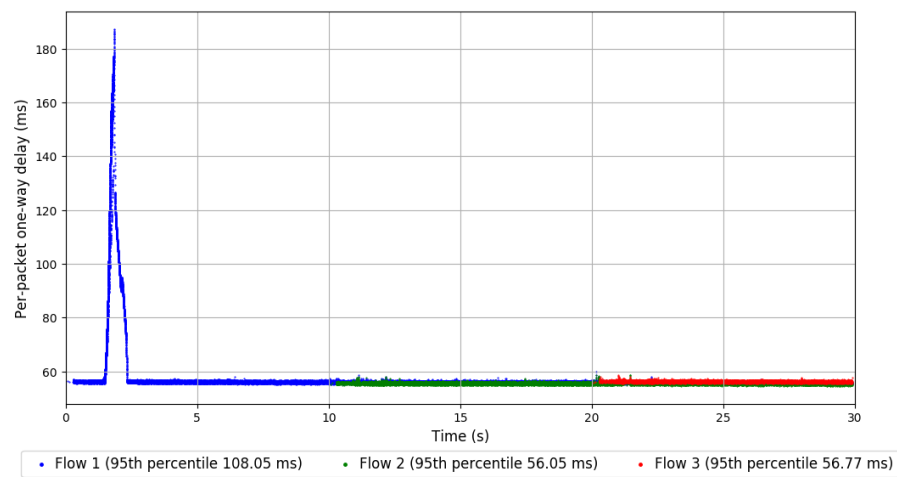
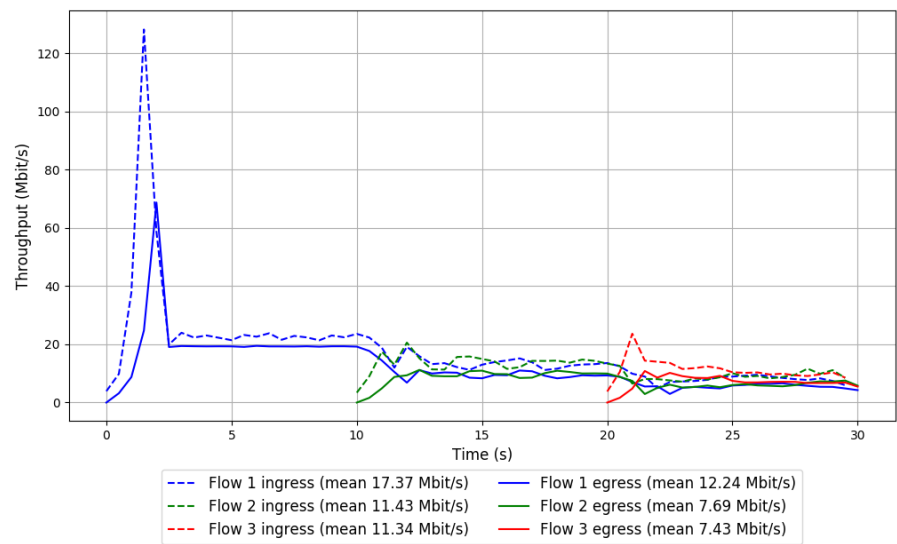


Run 1: Statistics of FillP-Sheep

Start at: 2018-09-08 00:48:55
End at: 2018-09-08 00:49:25
Local clock offset: 1.341 ms
Remote clock offset: 48.234 ms

Below is generated by plot.py at 2018-09-08 02:20:44
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.79 Mbit/s
95th percentile per-packet one-way delay: 81.418 ms
Loss rate: 31.31%
-- Flow 1:
Average throughput: 12.24 Mbit/s
95th percentile per-packet one-way delay: 108.049 ms
Loss rate: 29.74%
-- Flow 2:
Average throughput: 7.69 Mbit/s
95th percentile per-packet one-way delay: 56.047 ms
Loss rate: 33.04%
-- Flow 3:
Average throughput: 7.43 Mbit/s
95th percentile per-packet one-way delay: 56.775 ms
Loss rate: 35.05%

Run 1: Report of FillP-Sheep — Data Link

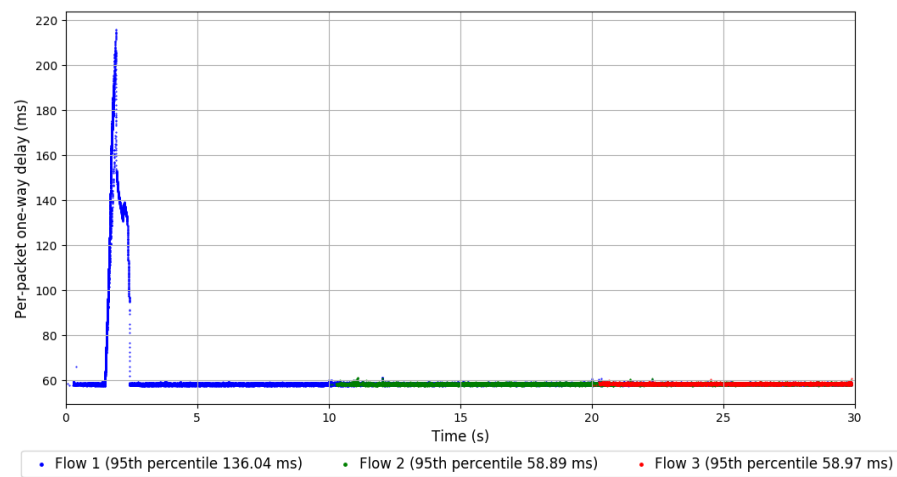
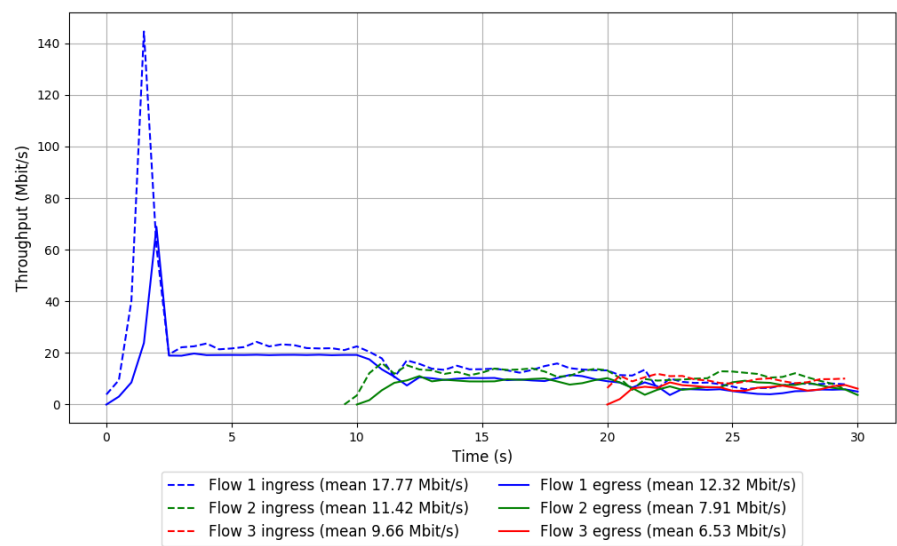


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-08 01:11:12
End at: 2018-09-08 01:11:42
Local clock offset: 1.383 ms
Remote clock offset: 48.723 ms

Below is generated by plot.py at 2018-09-08 02:20:46
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.72 Mbit/s
95th percentile per-packet one-way delay: 104.814 ms
Loss rate: 31.18%
-- Flow 1:
Average throughput: 12.32 Mbit/s
95th percentile per-packet one-way delay: 136.044 ms
Loss rate: 30.90%
-- Flow 2:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 58.889 ms
Loss rate: 31.06%
-- Flow 3:
Average throughput: 6.53 Mbit/s
95th percentile per-packet one-way delay: 58.966 ms
Loss rate: 33.01%

Run 2: Report of FillP-Sheep — Data Link

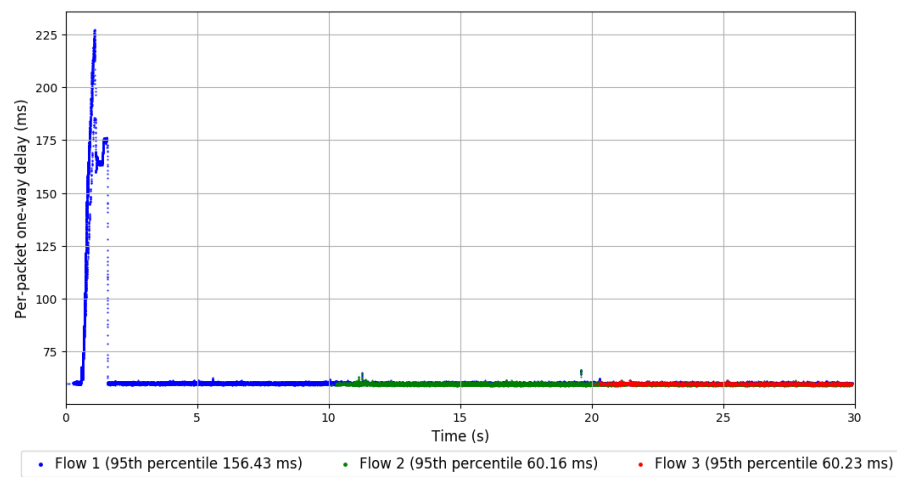
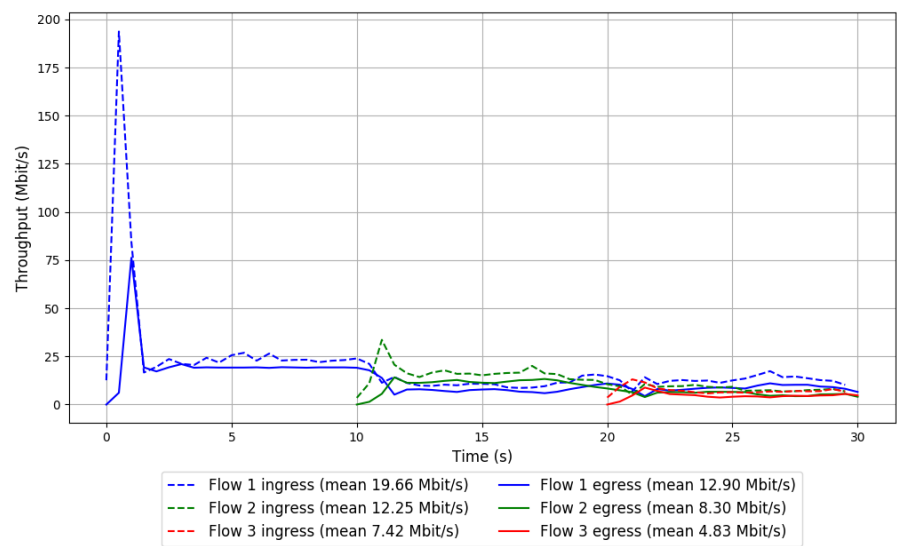


Run 3: Statistics of FillP-Sheep

Start at: 2018-09-08 01:33:36
End at: 2018-09-08 01:34:06
Local clock offset: 1.51 ms
Remote clock offset: 21.647 ms

Below is generated by plot.py at 2018-09-08 02:20:56
Datalink statistics
-- Total of 3 flows:
Average throughput: 20.00 Mbit/s
95th percentile per-packet one-way delay: 102.092 ms
Loss rate: 34.10%
-- Flow 1:
Average throughput: 12.90 Mbit/s
95th percentile per-packet one-way delay: 156.426 ms
Loss rate: 34.58%
-- Flow 2:
Average throughput: 8.30 Mbit/s
95th percentile per-packet one-way delay: 60.164 ms
Loss rate: 32.50%
-- Flow 3:
Average throughput: 4.83 Mbit/s
95th percentile per-packet one-way delay: 60.229 ms
Loss rate: 35.47%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-08 01:55:55

End at: 2018-09-08 01:56:25

Local clock offset: 3.606 ms

Remote clock offset: 6.697 ms

Below is generated by plot.py at 2018-09-08 02:20:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 20.06 Mbit/s

95th percentile per-packet one-way delay: 99.791 ms

Loss rate: 33.39%

-- Flow 1:

Average throughput: 12.91 Mbit/s

95th percentile per-packet one-way delay: 107.847 ms

Loss rate: 30.02%

-- Flow 2:

Average throughput: 7.62 Mbit/s

95th percentile per-packet one-way delay: 70.128 ms

Loss rate: 39.39%

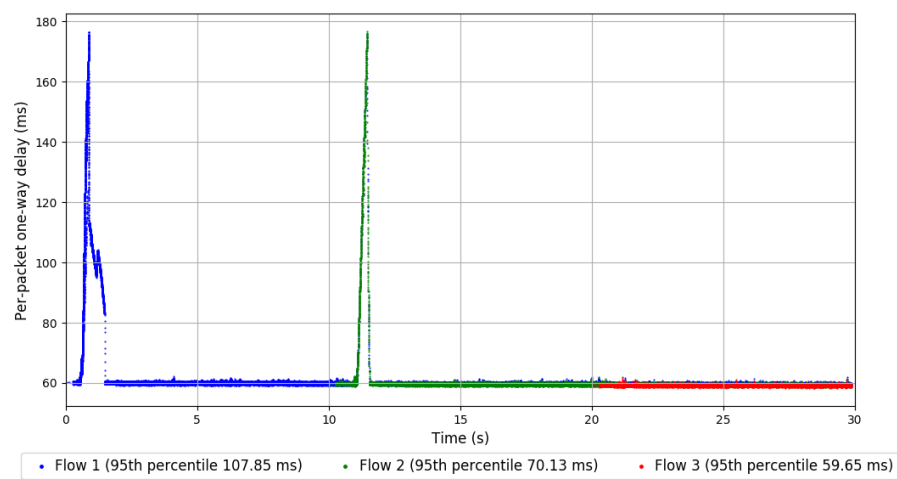
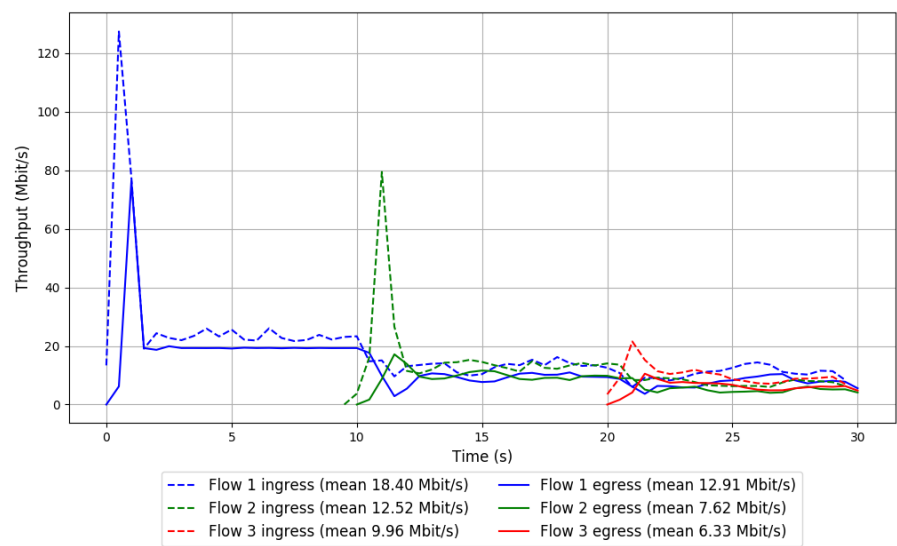
-- Flow 3:

Average throughput: 6.33 Mbit/s

95th percentile per-packet one-way delay: 59.647 ms

Loss rate: 37.02%

Run 4: Report of FillP-Sheep — Data Link

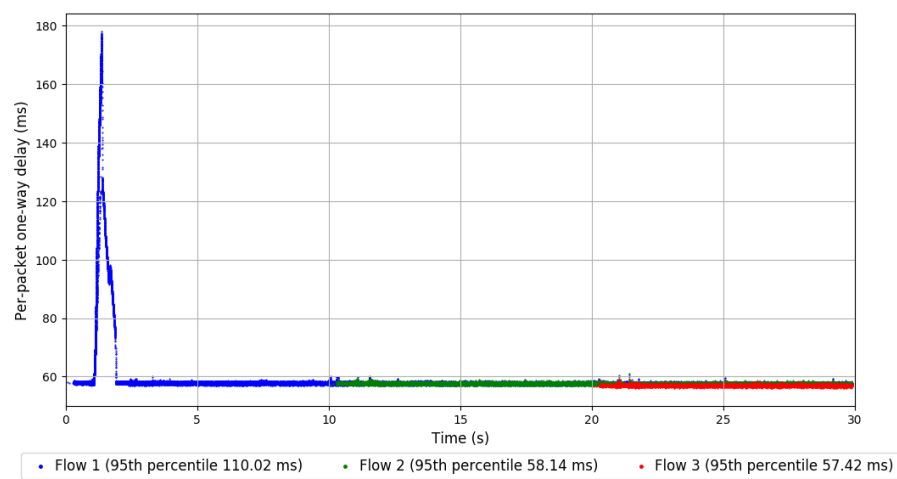
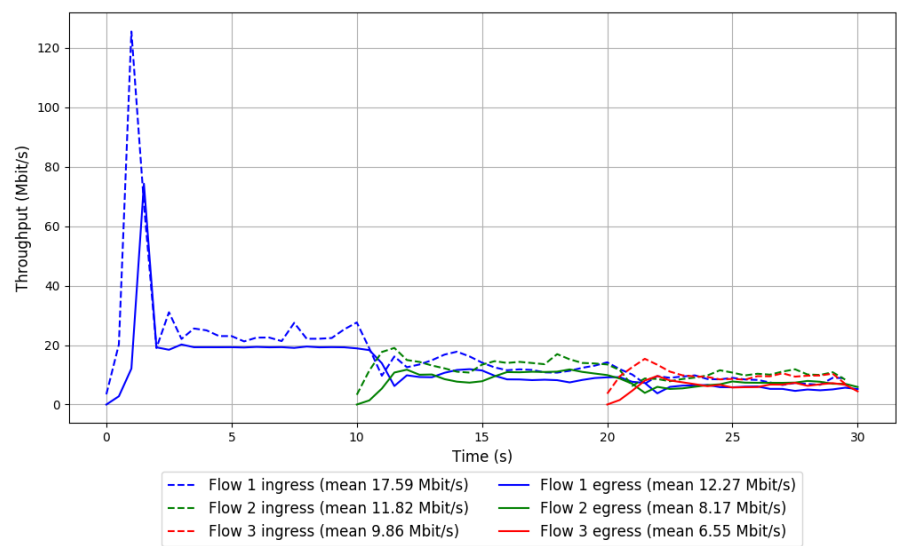


Run 5: Statistics of FillP-Sheep

Start at: 2018-09-08 02:18:16
End at: 2018-09-08 02:18:46
Local clock offset: 5.274 ms
Remote clock offset: -2.219 ms

Below is generated by plot.py at 2018-09-08 02:20:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.85 Mbit/s
95th percentile per-packet one-way delay: 81.677 ms
Loss rate: 31.09%
-- Flow 1:
Average throughput: 12.27 Mbit/s
95th percentile per-packet one-way delay: 110.018 ms
Loss rate: 30.47%
-- Flow 2:
Average throughput: 8.17 Mbit/s
95th percentile per-packet one-way delay: 58.137 ms
Loss rate: 31.19%
-- Flow 3:
Average throughput: 6.55 Mbit/s
95th percentile per-packet one-way delay: 57.416 ms
Loss rate: 34.15%

Run 5: Report of FillP-Sheep — Data Link

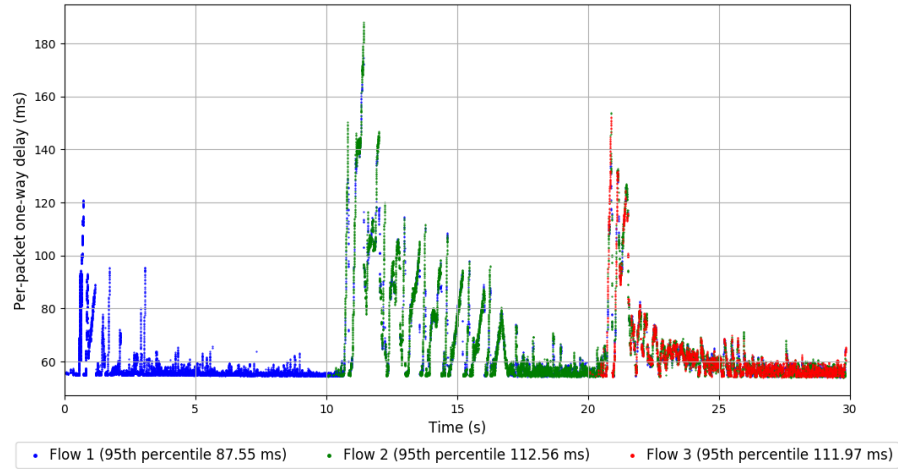
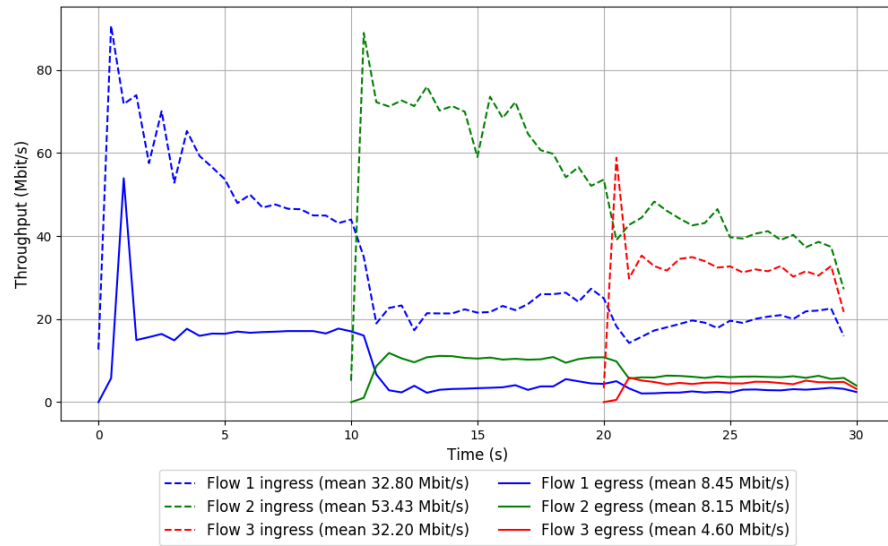


```
Run 1: Statistics of Indigo

Start at: 2018-09-08 00:42:42
End at: 2018-09-08 00:43:12
Local clock offset: 1.085 ms
Remote clock offset: 57.2 ms

# Below is generated by plot.py at 2018-09-08 02:21:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.37 Mbit/s
95th percentile per-packet one-way delay: 101.933 ms
Loss rate: 80.58%
-- Flow 1:
Average throughput: 8.45 Mbit/s
95th percentile per-packet one-way delay: 87.545 ms
Loss rate: 74.30%
-- Flow 2:
Average throughput: 8.15 Mbit/s
95th percentile per-packet one-way delay: 112.563 ms
Loss rate: 84.79%
-- Flow 3:
Average throughput: 4.60 Mbit/s
95th percentile per-packet one-way delay: 111.969 ms
Loss rate: 85.85%
```

Run 1: Report of Indigo — Data Link

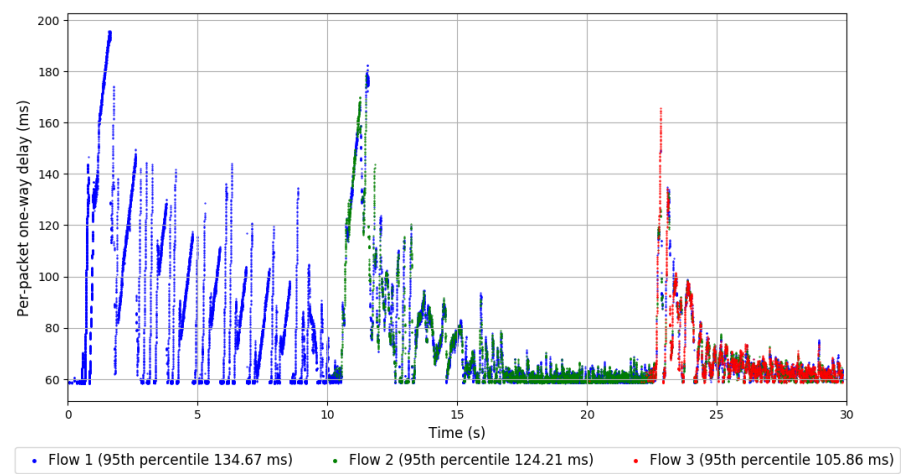
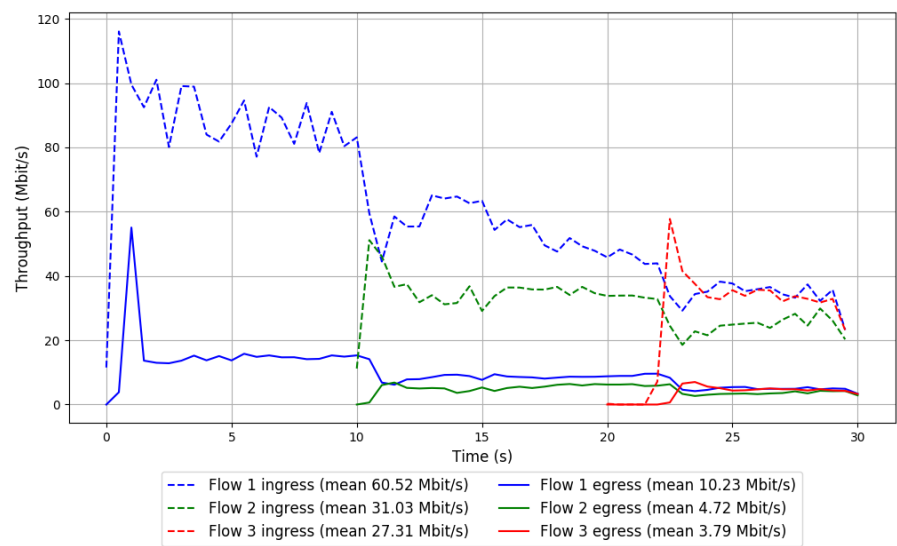


Run 2: Statistics of Indigo

Start at: 2018-09-08 01:04:53
End at: 2018-09-08 01:05:23
Local clock offset: 1.451 ms
Remote clock offset: 45.554 ms

Below is generated by plot.py at 2018-09-08 02:21:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 14.60 Mbit/s
95th percentile per-packet one-way delay: 132.468 ms
Loss rate: 83.84%
-- Flow 1:
Average throughput: 10.23 Mbit/s
95th percentile per-packet one-way delay: 134.671 ms
Loss rate: 83.15%
-- Flow 2:
Average throughput: 4.72 Mbit/s
95th percentile per-packet one-way delay: 124.209 ms
Loss rate: 84.85%
-- Flow 3:
Average throughput: 3.79 Mbit/s
95th percentile per-packet one-way delay: 105.863 ms
Loss rate: 86.23%

Run 2: Report of Indigo — Data Link

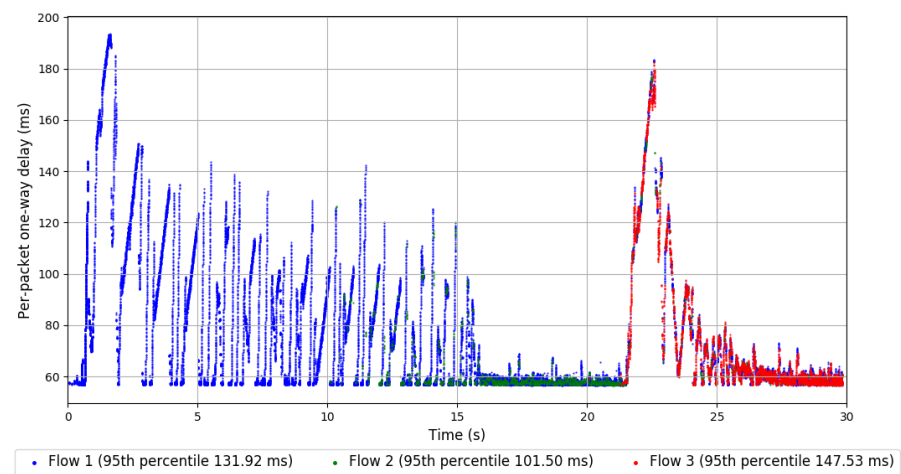
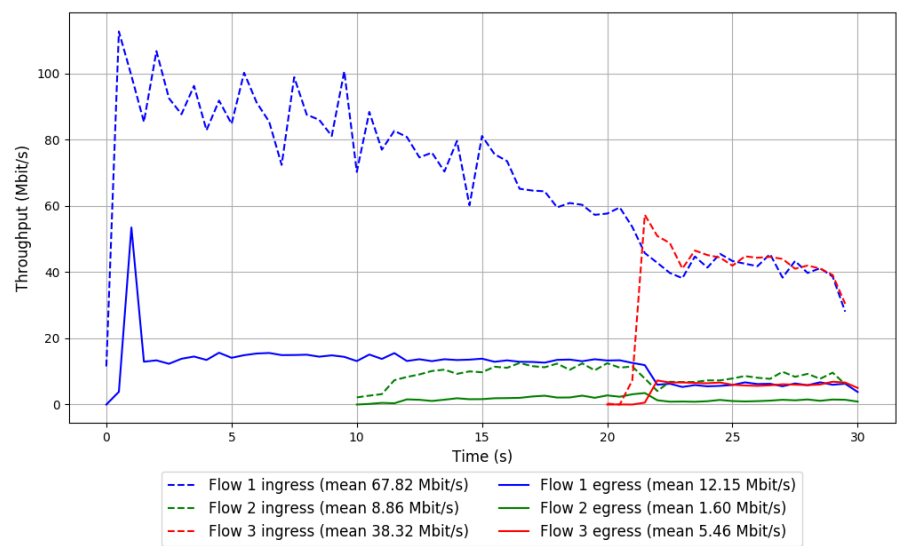


Run 3: Statistics of Indigo

Start at: 2018-09-08 01:27:22
End at: 2018-09-08 01:27:52
Local clock offset: 1.585 ms
Remote clock offset: 27.268 ms

Below is generated by plot.py at 2018-09-08 02:21:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 15.00 Mbit/s
95th percentile per-packet one-way delay: 132.267 ms
Loss rate: 82.67%
-- Flow 1:
Average throughput: 12.15 Mbit/s
95th percentile per-packet one-way delay: 131.919 ms
Loss rate: 82.12%
-- Flow 2:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 101.500 ms
Loss rate: 82.05%
-- Flow 3:
Average throughput: 5.46 Mbit/s
95th percentile per-packet one-way delay: 147.525 ms
Loss rate: 85.88%

Run 3: Report of Indigo — Data Link

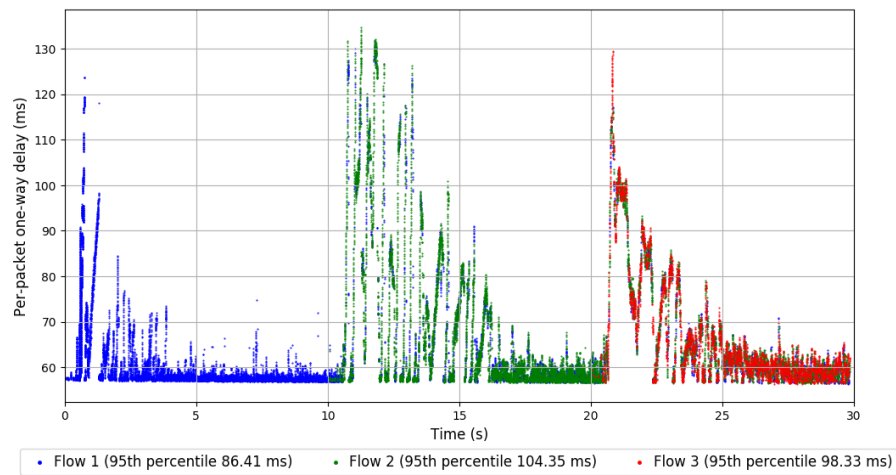
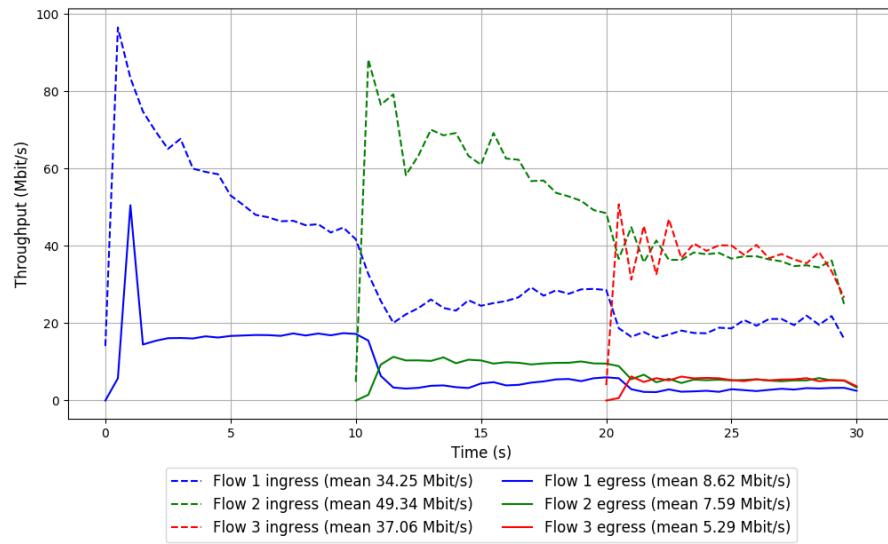


Run 4: Statistics of Indigo

Start at: 2018-09-08 01:49:51
End at: 2018-09-08 01:50:21
Local clock offset: 2.813 ms
Remote clock offset: 16.417 ms

Below is generated by plot.py at 2018-09-08 02:21:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 15.38 Mbit/s
95th percentile per-packet one-way delay: 96.795 ms
Loss rate: 80.66%
-- Flow 1:
Average throughput: 8.62 Mbit/s
95th percentile per-packet one-way delay: 86.408 ms
Loss rate: 74.92%
-- Flow 2:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 104.352 ms
Loss rate: 84.70%
-- Flow 3:
Average throughput: 5.29 Mbit/s
95th percentile per-packet one-way delay: 98.334 ms
Loss rate: 85.87%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-08 02:12:02

End at: 2018-09-08 02:12:32

Local clock offset: 4.529 ms

Remote clock offset: 0.238 ms

Below is generated by plot.py at 2018-09-08 02:21:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 16.23 Mbit/s

95th percentile per-packet one-way delay: 123.925 ms

Loss rate: 77.62%

-- Flow 1:

Average throughput: 10.06 Mbit/s

95th percentile per-packet one-way delay: 87.728 ms

Loss rate: 71.18%

-- Flow 2:

Average throughput: 6.62 Mbit/s

95th percentile per-packet one-way delay: 104.625 ms

Loss rate: 81.81%

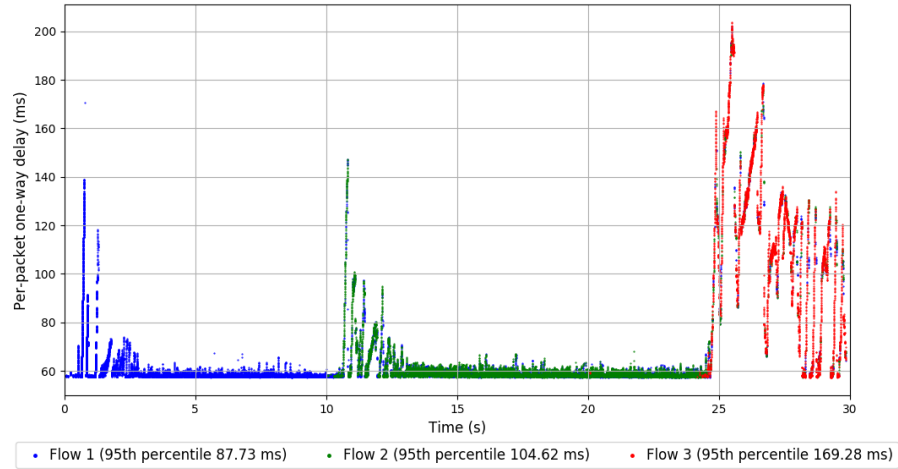
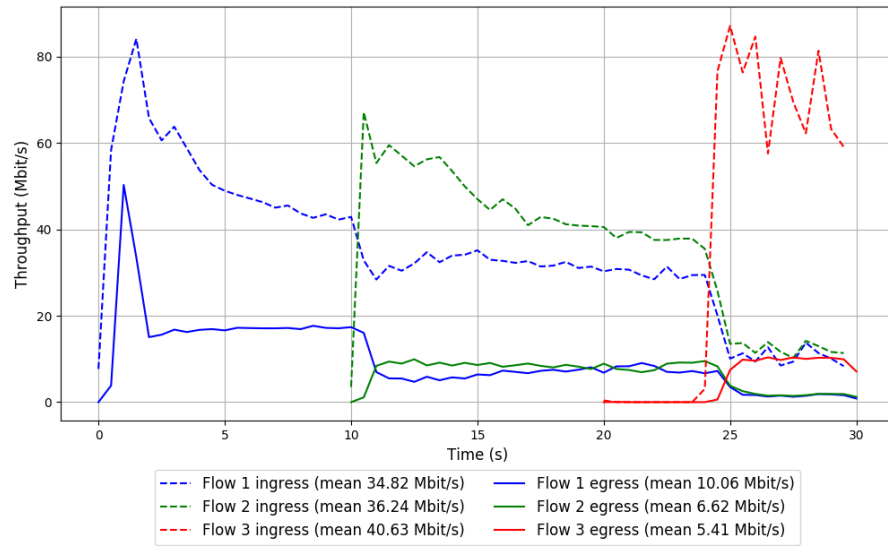
-- Flow 3:

Average throughput: 5.41 Mbit/s

95th percentile per-packet one-way delay: 169.281 ms

Loss rate: 86.82%

Run 5: Report of Indigo — Data Link

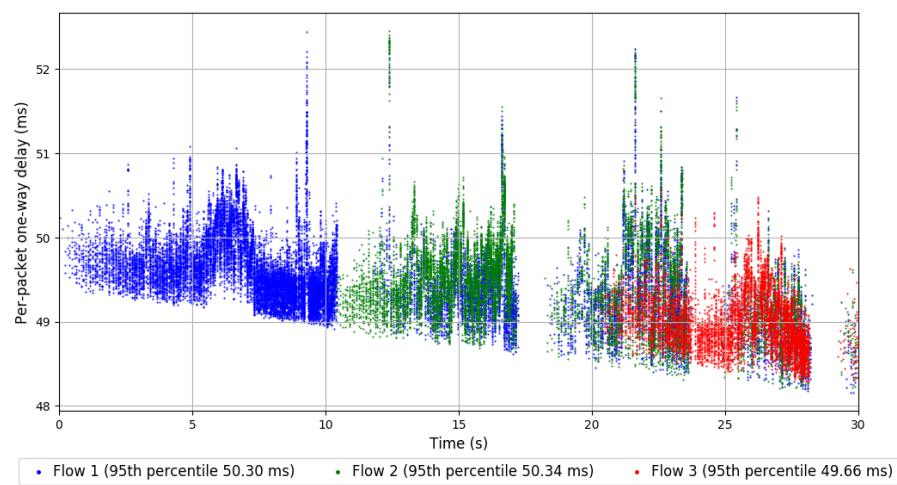
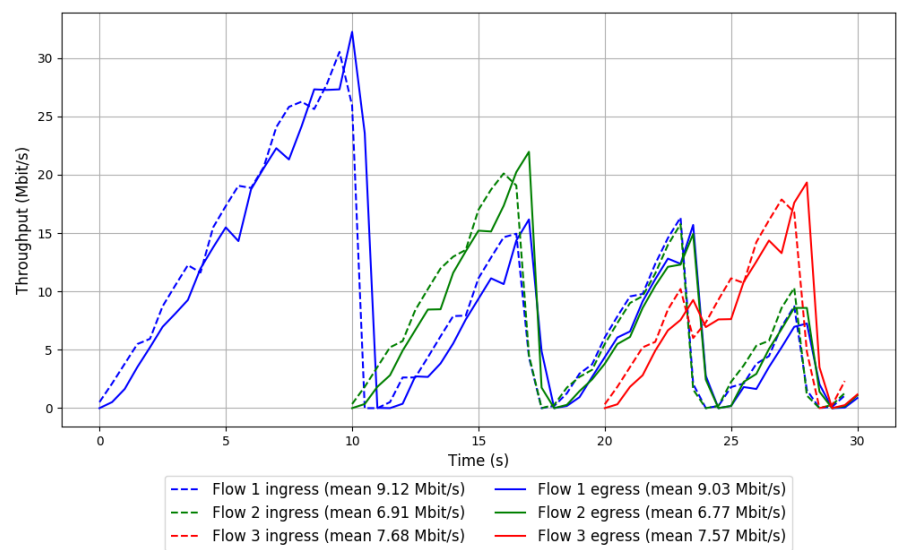


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-08 00:40:15
End at: 2018-09-08 00:40:45
Local clock offset: 1.141 ms
Remote clock offset: 68.705 ms

# Below is generated by plot.py at 2018-09-08 02:21:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.98 Mbit/s
95th percentile per-packet one-way delay: 50.262 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 9.03 Mbit/s
95th percentile per-packet one-way delay: 50.301 ms
Loss rate: 1.29%
-- Flow 2:
Average throughput: 6.77 Mbit/s
95th percentile per-packet one-way delay: 50.336 ms
Loss rate: 2.39%
-- Flow 3:
Average throughput: 7.57 Mbit/s
95th percentile per-packet one-way delay: 49.661 ms
Loss rate: 2.41%
```

Run 1: Report of LEDBAT — Data Link

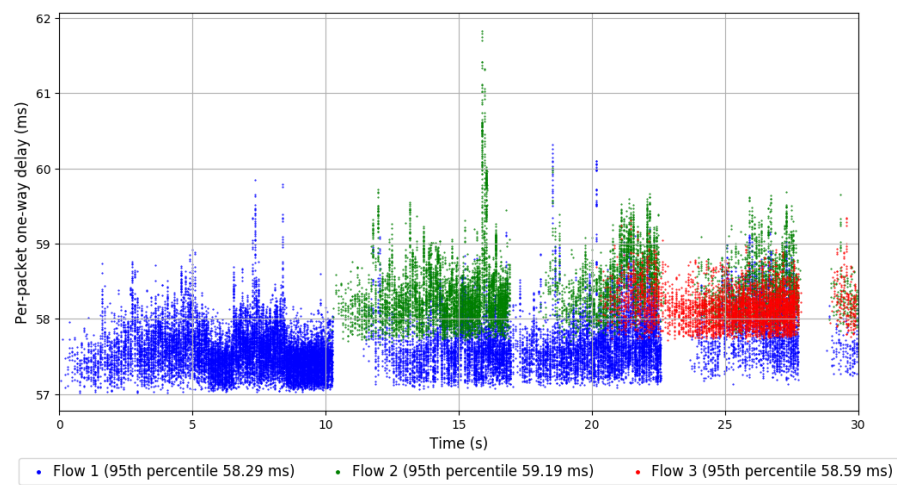
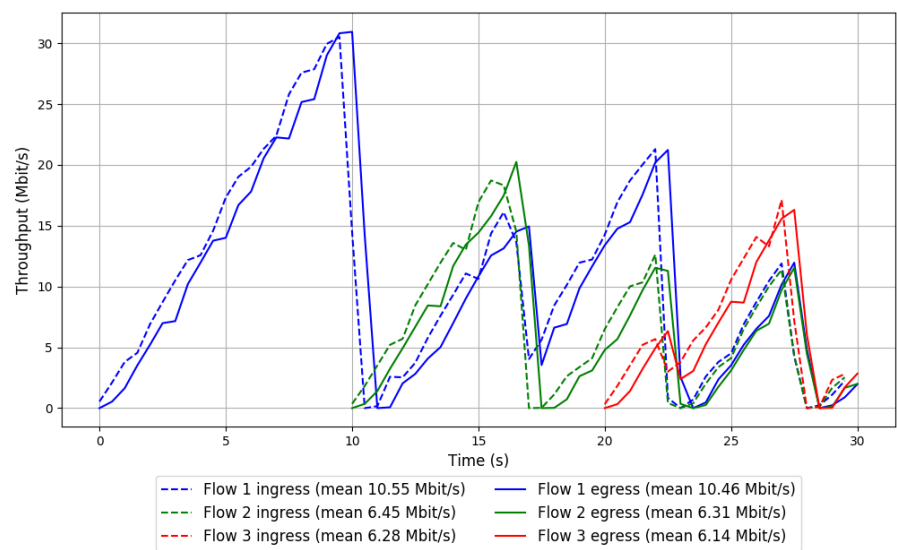


Run 2: Statistics of LEDBAT

Start at: 2018-09-08 01:02:27
End at: 2018-09-08 01:02:57
Local clock offset: 1.477 ms
Remote clock offset: 45.565 ms

Below is generated by plot.py at 2018-09-08 02:21:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.65 Mbit/s
95th percentile per-packet one-way delay: 58.764 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 10.46 Mbit/s
95th percentile per-packet one-way delay: 58.290 ms
Loss rate: 1.07%
-- Flow 2:
Average throughput: 6.31 Mbit/s
95th percentile per-packet one-way delay: 59.185 ms
Loss rate: 2.52%
-- Flow 3:
Average throughput: 6.14 Mbit/s
95th percentile per-packet one-way delay: 58.591 ms
Loss rate: 3.02%

Run 2: Report of LEDBAT — Data Link

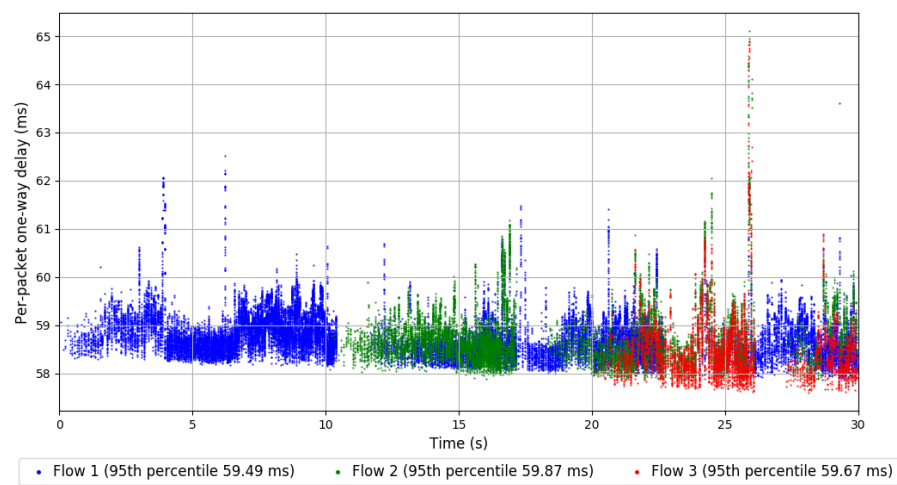
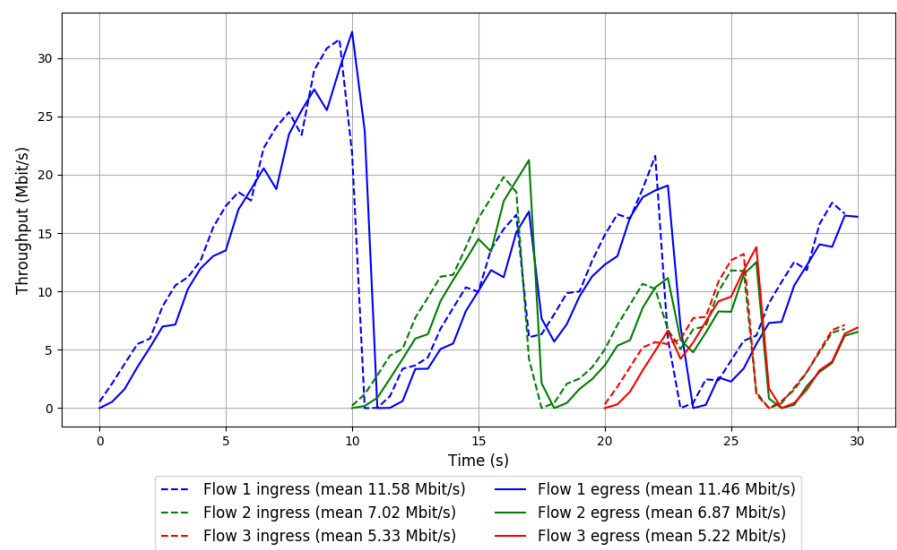


Run 3: Statistics of LEDBAT

Start at: 2018-09-08 01:24:56
End at: 2018-09-08 01:25:26
Local clock offset: 1.698 ms
Remote clock offset: 27.811 ms

Below is generated by plot.py at 2018-09-08 02:21:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 17.71 Mbit/s
95th percentile per-packet one-way delay: 59.569 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 11.46 Mbit/s
95th percentile per-packet one-way delay: 59.490 ms
Loss rate: 1.36%
-- Flow 2:
Average throughput: 6.87 Mbit/s
95th percentile per-packet one-way delay: 59.870 ms
Loss rate: 2.61%
-- Flow 3:
Average throughput: 5.22 Mbit/s
95th percentile per-packet one-way delay: 59.674 ms
Loss rate: 2.89%

Run 3: Report of LEDBAT — Data Link

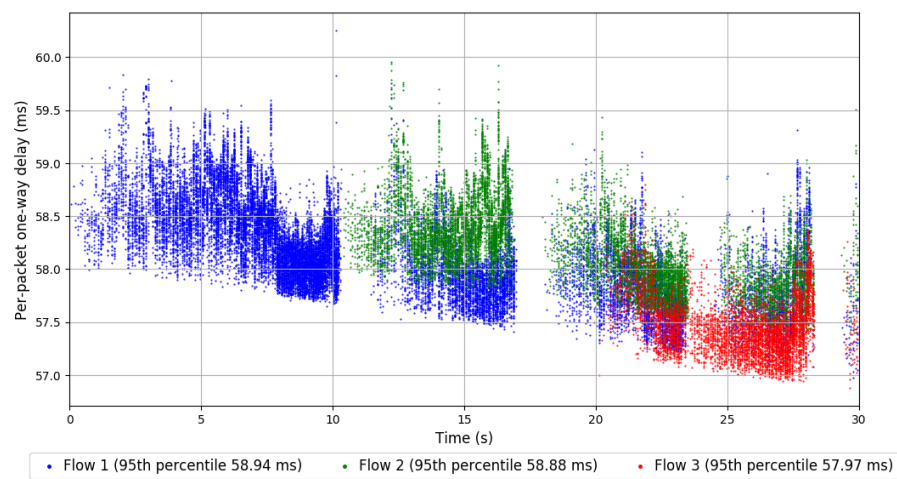
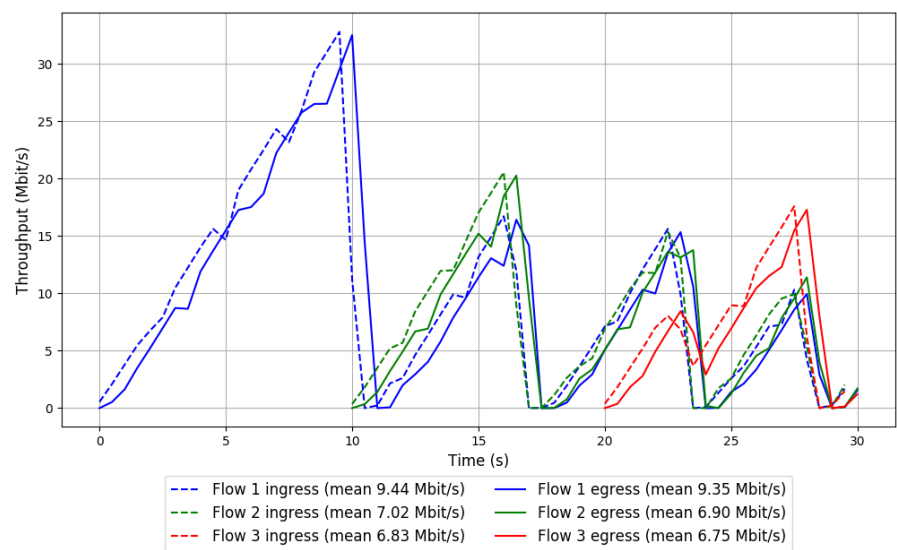


Run 4: Statistics of LEDBAT

Start at: 2018-09-08 01:47:25
End at: 2018-09-08 01:47:55
Local clock offset: 2.409 ms
Remote clock offset: 19.716 ms

Below is generated by plot.py at 2018-09-08 02:21:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.12 Mbit/s
95th percentile per-packet one-way delay: 58.895 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 9.35 Mbit/s
95th percentile per-packet one-way delay: 58.944 ms
Loss rate: 1.27%
-- Flow 2:
Average throughput: 6.90 Mbit/s
95th percentile per-packet one-way delay: 58.882 ms
Loss rate: 2.17%
-- Flow 3:
Average throughput: 6.75 Mbit/s
95th percentile per-packet one-way delay: 57.970 ms
Loss rate: 2.04%

Run 4: Report of LEDBAT — Data Link

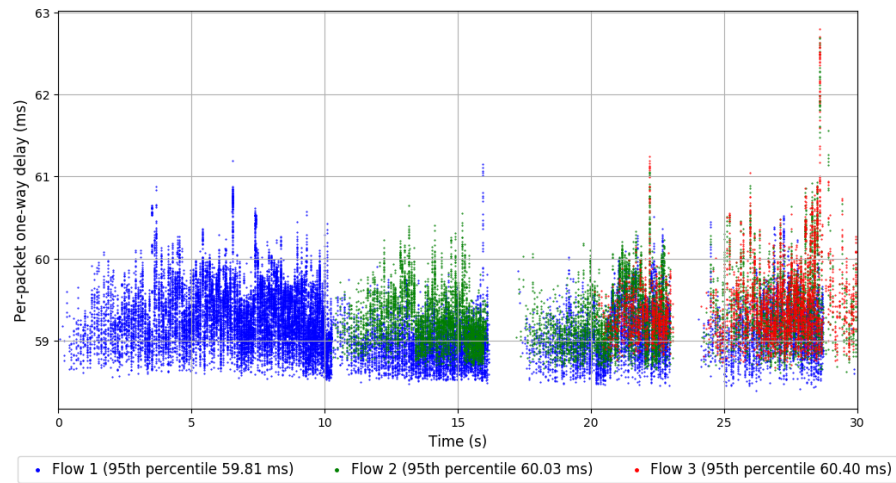
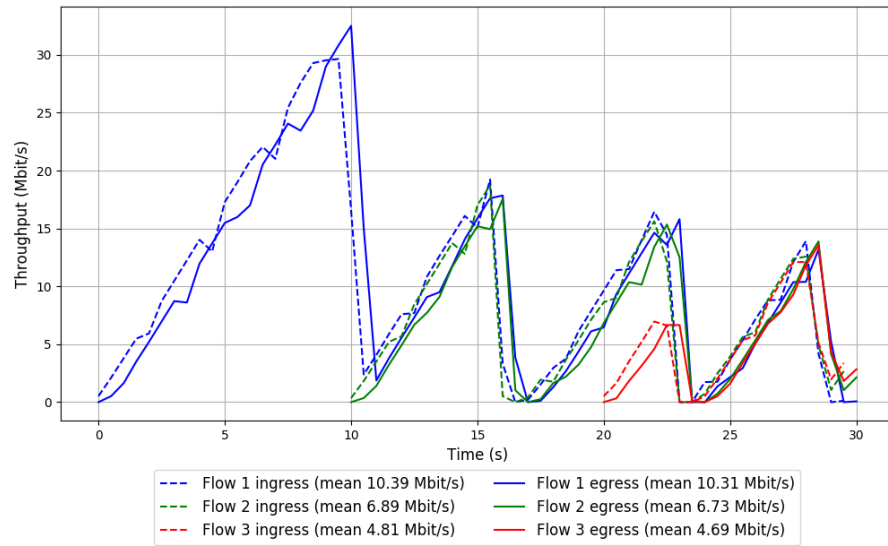


Run 5: Statistics of LEDBAT

Start at: 2018-09-08 02:09:36
End at: 2018-09-08 02:10:06
Local clock offset: 4.439 ms
Remote clock offset: -0.105 ms

Below is generated by plot.py at 2018-09-08 02:21:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.29 Mbit/s
95th percentile per-packet one-way delay: 59.935 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 10.31 Mbit/s
95th percentile per-packet one-way delay: 59.809 ms
Loss rate: 1.04%
-- Flow 2:
Average throughput: 6.73 Mbit/s
95th percentile per-packet one-way delay: 60.034 ms
Loss rate: 2.63%
-- Flow 3:
Average throughput: 4.69 Mbit/s
95th percentile per-packet one-way delay: 60.403 ms
Loss rate: 3.44%

Run 5: Report of LEDBAT — Data Link

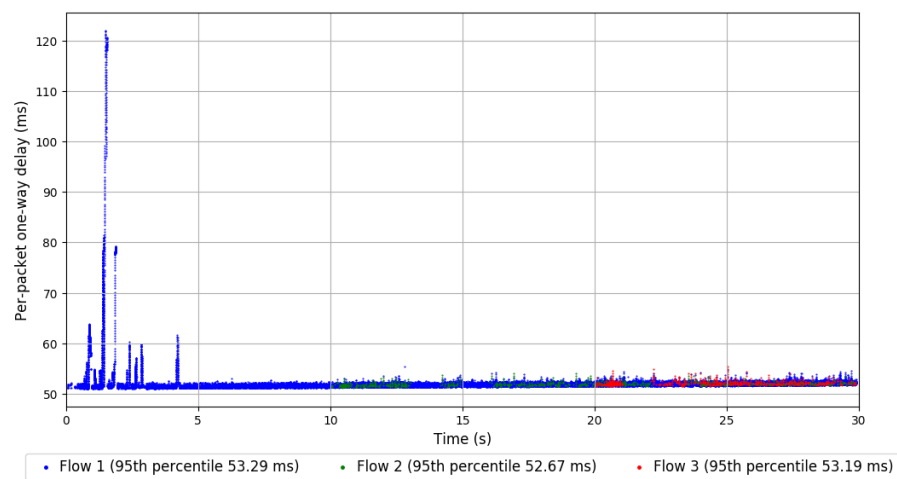
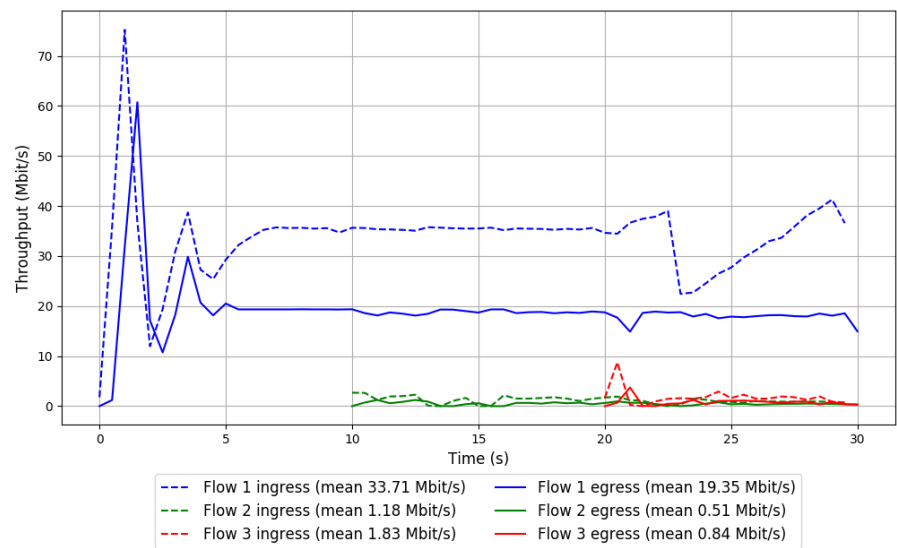


Run 1: Statistics of Indigo-Muses

Start at: 2018-09-08 00:32:47
End at: 2018-09-08 00:33:17
Local clock offset: 1.523 ms
Remote clock offset: 64.863 ms

Below is generated by plot.py at 2018-09-08 02:21:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.97 Mbit/s
95th percentile per-packet one-way delay: 53.246 ms
Loss rate: 43.28%
-- Flow 1:
Average throughput: 19.35 Mbit/s
95th percentile per-packet one-way delay: 53.290 ms
Loss rate: 42.76%
-- Flow 2:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 52.674 ms
Loss rate: 56.96%
-- Flow 3:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 53.191 ms
Loss rate: 54.46%

Run 1: Report of Indigo-Muses — Data Link

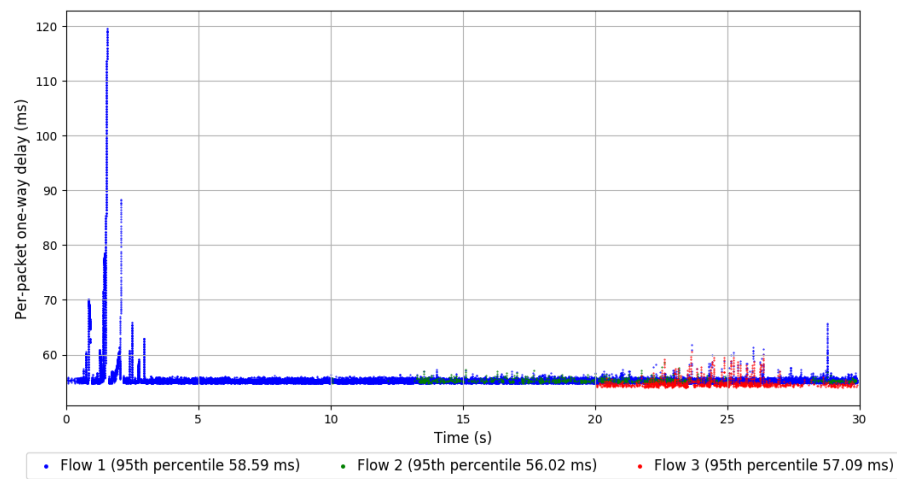
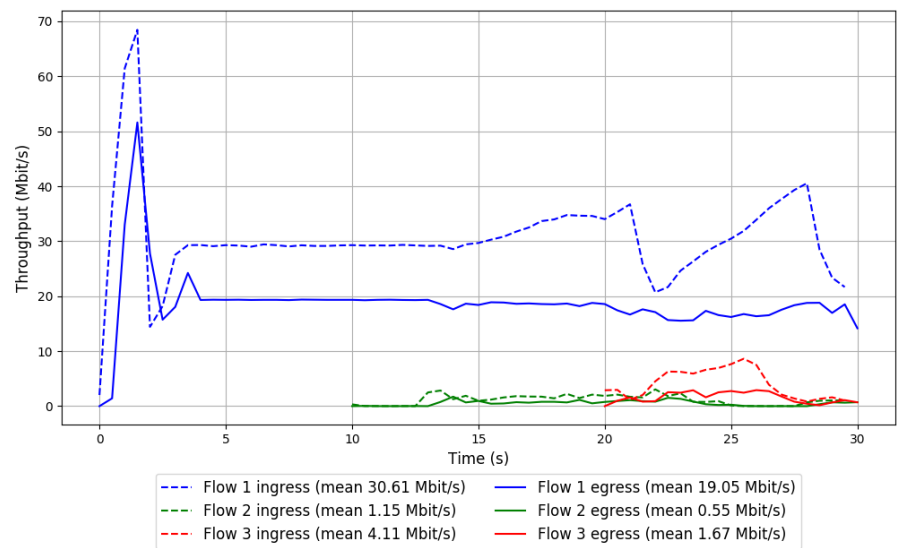


Run 2: Statistics of Indigo-Muses

Start at: 2018-09-08 00:55:04
End at: 2018-09-08 00:55:34
Local clock offset: 1.56 ms
Remote clock offset: 47.402 ms

Below is generated by plot.py at 2018-09-08 02:21:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.96 Mbit/s
95th percentile per-packet one-way delay: 58.304 ms
Loss rate: 39.20%
-- Flow 1:
Average throughput: 19.05 Mbit/s
95th percentile per-packet one-way delay: 58.595 ms
Loss rate: 37.95%
-- Flow 2:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 56.017 ms
Loss rate: 52.48%
-- Flow 3:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 57.095 ms
Loss rate: 59.82%

Run 2: Report of Indigo-Muses — Data Link

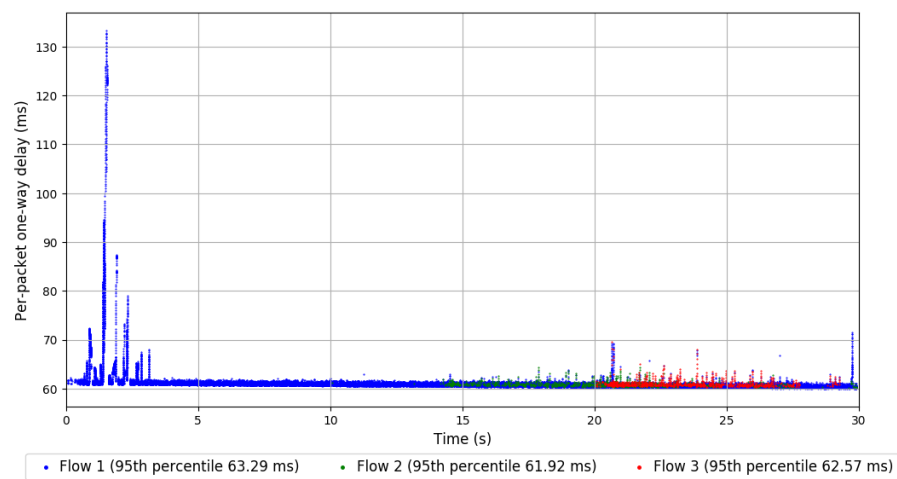
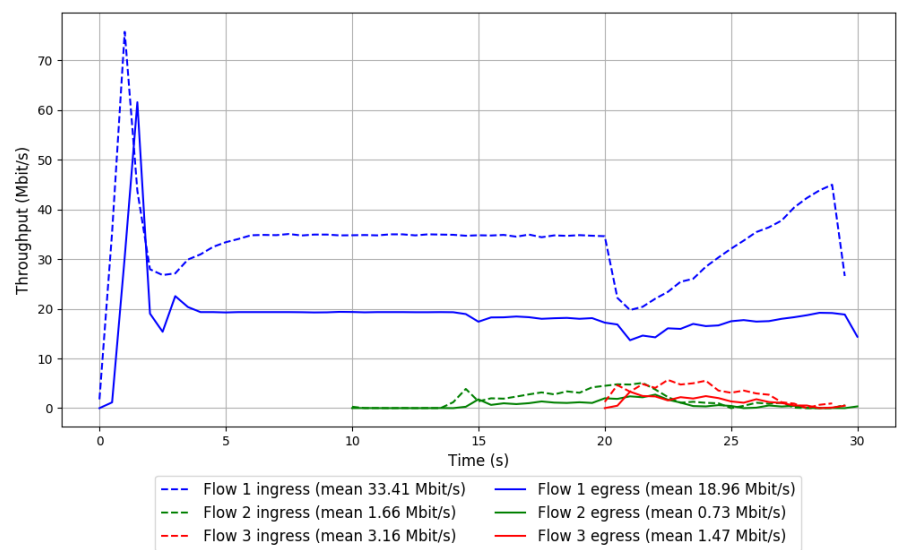


Run 3: Statistics of Indigo-Muses

Start at: 2018-09-08 01:17:25
End at: 2018-09-08 01:17:55
Local clock offset: 1.471 ms
Remote clock offset: 34.628 ms

Below is generated by plot.py at 2018-09-08 02:21:32
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.89 Mbit/s
95th percentile per-packet one-way delay: 63.137 ms
Loss rate: 44.13%
-- Flow 1:
Average throughput: 18.96 Mbit/s
95th percentile per-packet one-way delay: 63.288 ms
Loss rate: 43.43%
-- Flow 2:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 61.917 ms
Loss rate: 56.35%
-- Flow 3:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 62.572 ms
Loss rate: 54.05%

Run 3: Report of Indigo-Muses — Data Link

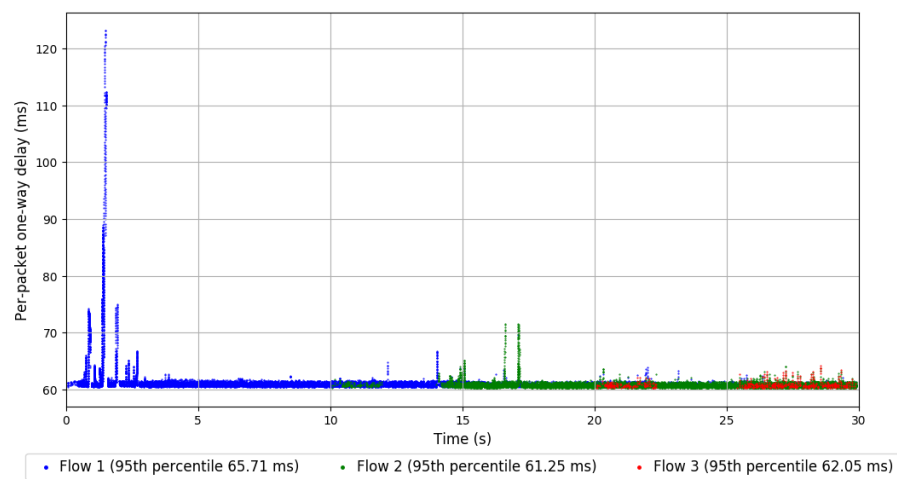
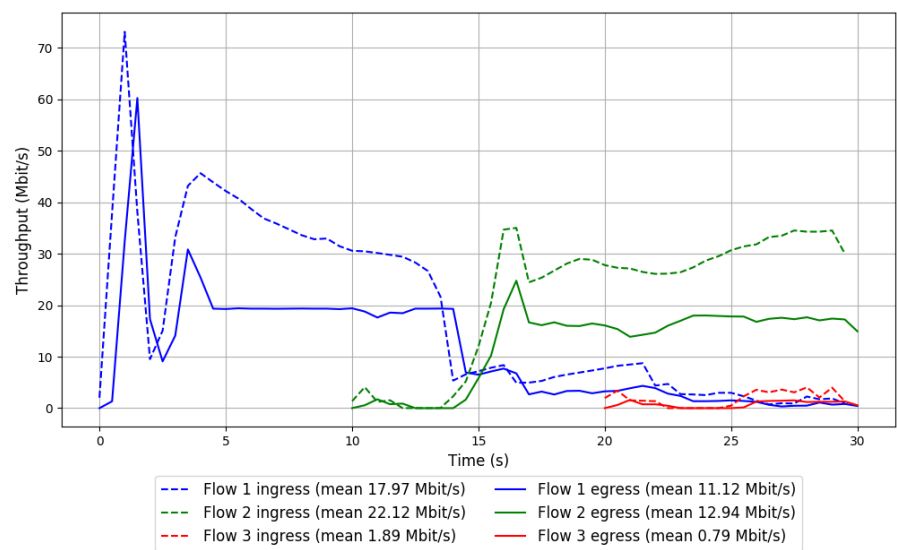


Run 4: Statistics of Indigo-Muses

Start at: 2018-09-08 01:39:55
End at: 2018-09-08 01:40:25
Local clock offset: 1.762 ms
Remote clock offset: 19.387 ms

Below is generated by plot.py at 2018-09-08 02:21:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.98 Mbit/s
95th percentile per-packet one-way delay: 62.182 ms
Loss rate: 40.19%
-- Flow 1:
Average throughput: 11.12 Mbit/s
95th percentile per-packet one-way delay: 65.708 ms
Loss rate: 38.28%
-- Flow 2:
Average throughput: 12.94 Mbit/s
95th percentile per-packet one-way delay: 61.247 ms
Loss rate: 41.75%
-- Flow 3:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 62.053 ms
Loss rate: 58.47%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-08 02:02:06

End at: 2018-09-08 02:02:36

Local clock offset: 3.723 ms

Remote clock offset: 3.906 ms

Below is generated by plot.py at 2018-09-08 02:21:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.97 Mbit/s

95th percentile per-packet one-way delay: 59.836 ms

Loss rate: 43.28%

-- Flow 1:

Average throughput: 19.18 Mbit/s

95th percentile per-packet one-way delay: 59.833 ms

Loss rate: 42.58%

-- Flow 2:

Average throughput: 0.96 Mbit/s

95th percentile per-packet one-way delay: 60.152 ms

Loss rate: 57.23%

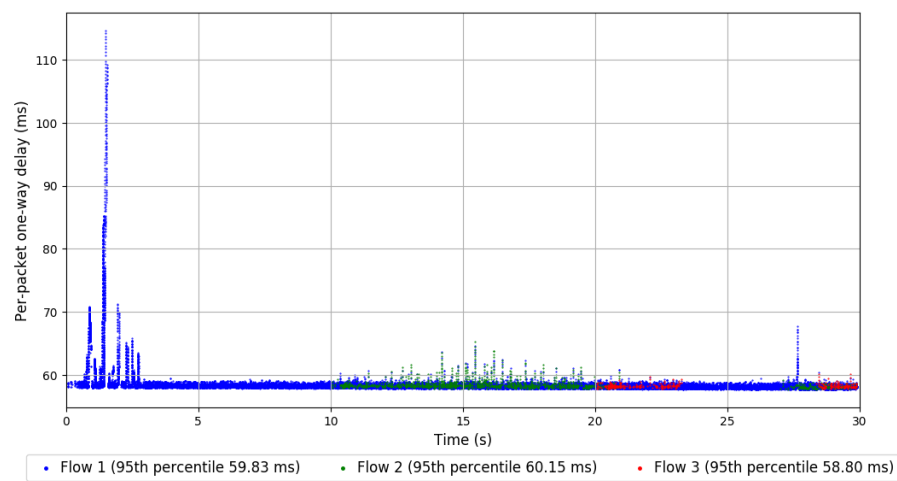
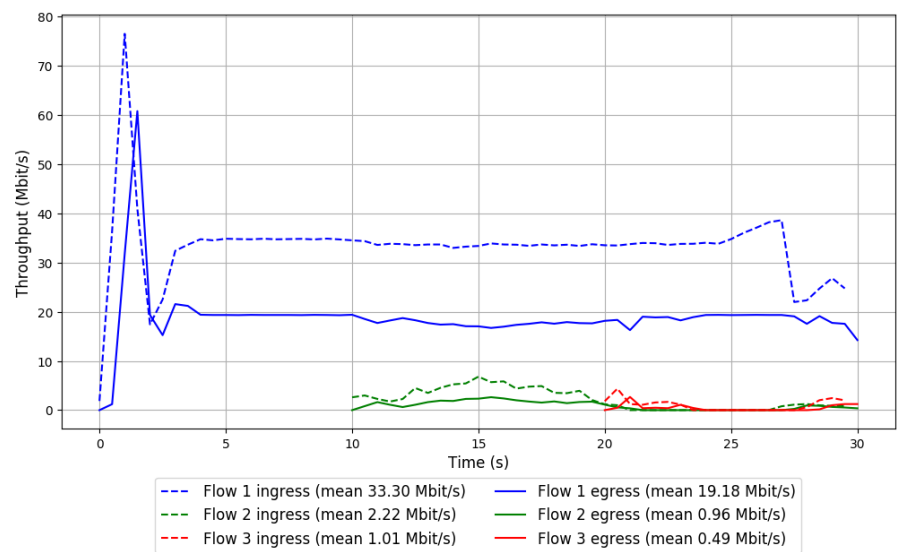
-- Flow 3:

Average throughput: 0.49 Mbit/s

95th percentile per-packet one-way delay: 58.805 ms

Loss rate: 51.97%

Run 5: Report of Indigo-Muses — Data Link

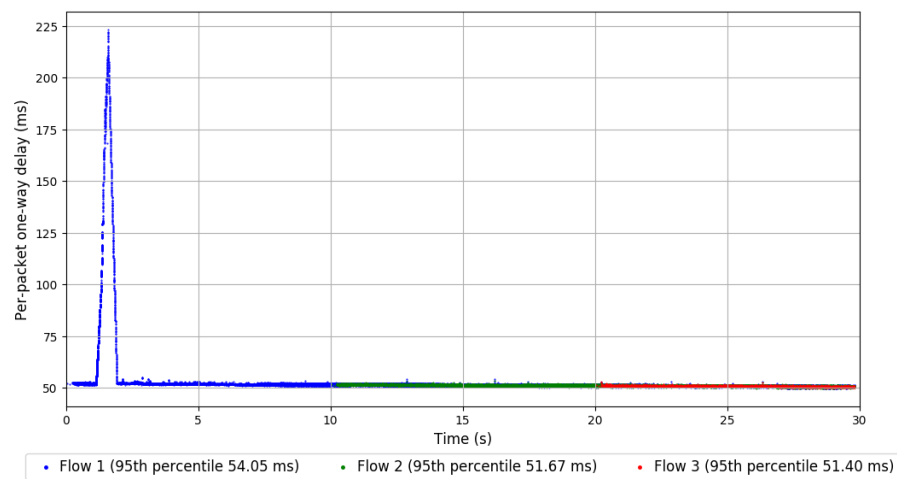
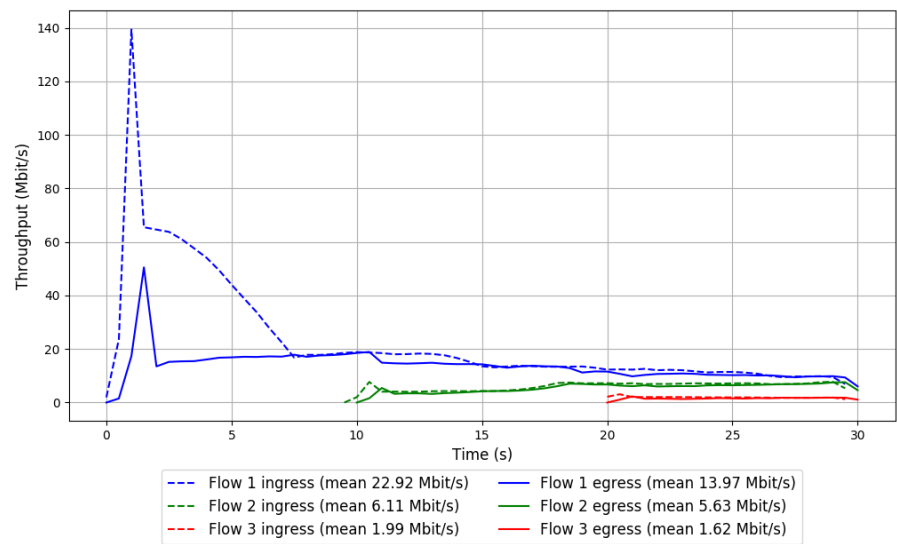



```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-08 00:39:02
End at: 2018-09-08 00:39:32
Local clock offset: 1.326 ms
Remote clock offset: 69.942 ms

# Below is generated by plot.py at 2018-09-08 02:21:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.24 Mbit/s
95th percentile per-packet one-way delay: 52.333 ms
Loss rate: 34.20%
-- Flow 1:
Average throughput: 13.97 Mbit/s
95th percentile per-packet one-way delay: 54.045 ms
Loss rate: 39.23%
-- Flow 2:
Average throughput: 5.63 Mbit/s
95th percentile per-packet one-way delay: 51.672 ms
Loss rate: 8.23%
-- Flow 3:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 51.401 ms
Loss rate: 19.18%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-08 01:01:14

End at: 2018-09-08 01:01:44

Local clock offset: 1.544 ms

Remote clock offset: 44.52 ms

Below is generated by plot.py at 2018-09-08 02:21:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 17.98 Mbit/s

95th percentile per-packet one-way delay: 59.290 ms

Loss rate: 39.45%

-- Flow 1:

Average throughput: 11.92 Mbit/s

95th percentile per-packet one-way delay: 65.466 ms

Loss rate: 45.13%

-- Flow 2:

Average throughput: 6.28 Mbit/s

95th percentile per-packet one-way delay: 59.216 ms

Loss rate: 21.42%

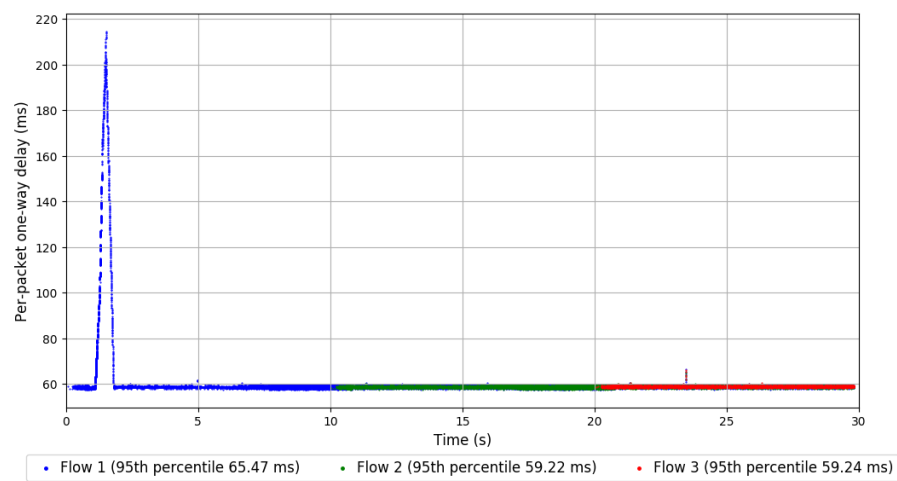
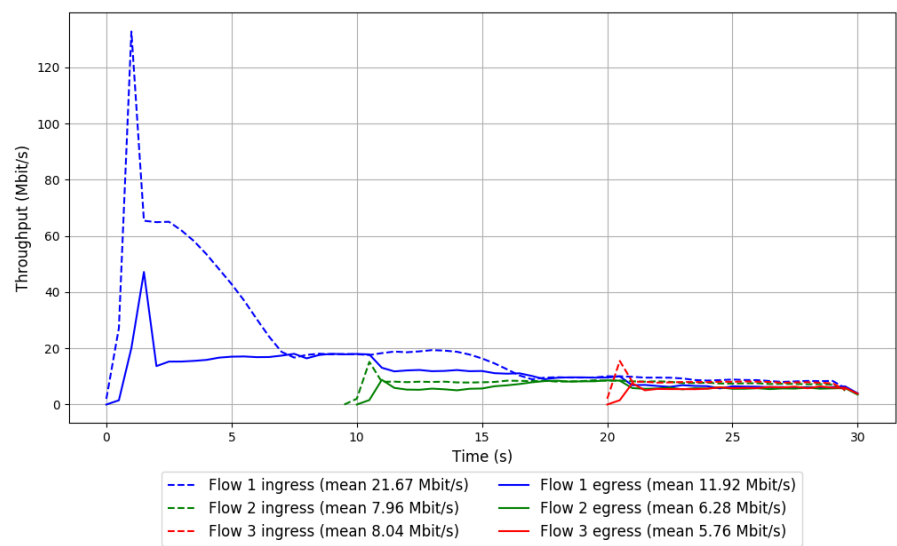
-- Flow 3:

Average throughput: 5.76 Mbit/s

95th percentile per-packet one-way delay: 59.242 ms

Loss rate: 29.02%

Run 2: Report of PCC-Allegro — Data Link

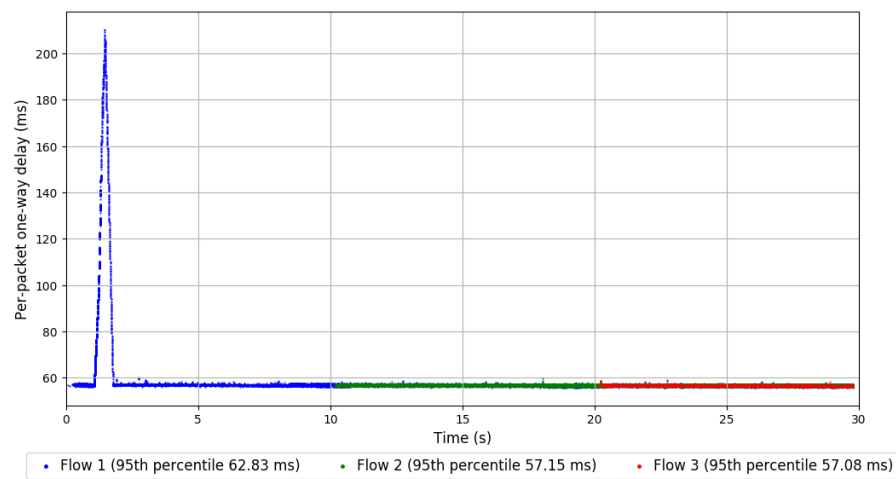
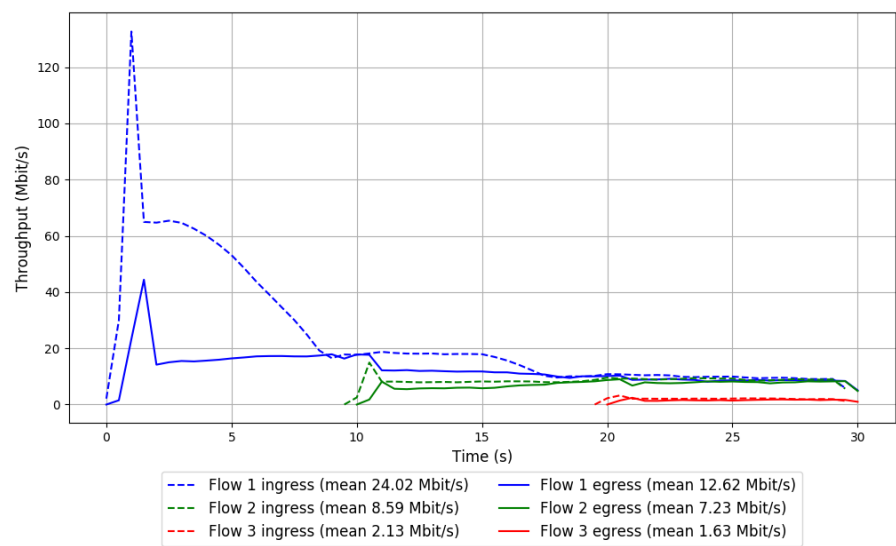


Run 3: Statistics of PCC-Allegro

Start at: 2018-09-08 01:23:42
End at: 2018-09-08 01:24:12
Local clock offset: 1.618 ms
Remote clock offset: 30.352 ms

Below is generated by plot.py at 2018-09-08 02:21:42
Datalink statistics
-- Total of 3 flows:
Average throughput: 17.96 Mbit/s
95th percentile per-packet one-way delay: 57.336 ms
Loss rate: 41.15%
-- Flow 1:
Average throughput: 12.62 Mbit/s
95th percentile per-packet one-way delay: 62.830 ms
Loss rate: 47.60%
-- Flow 2:
Average throughput: 7.23 Mbit/s
95th percentile per-packet one-way delay: 57.148 ms
Loss rate: 16.14%
-- Flow 3:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 57.076 ms
Loss rate: 24.15%

Run 3: Report of PCC-Allegro — Data Link

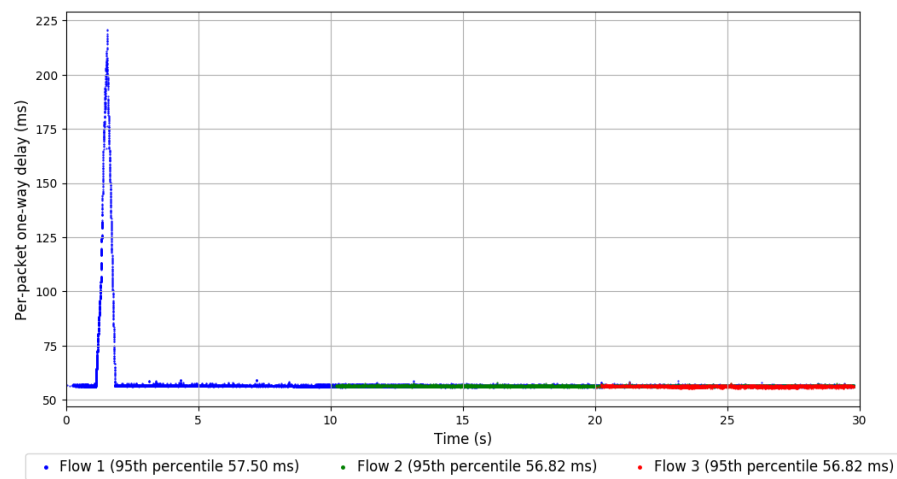
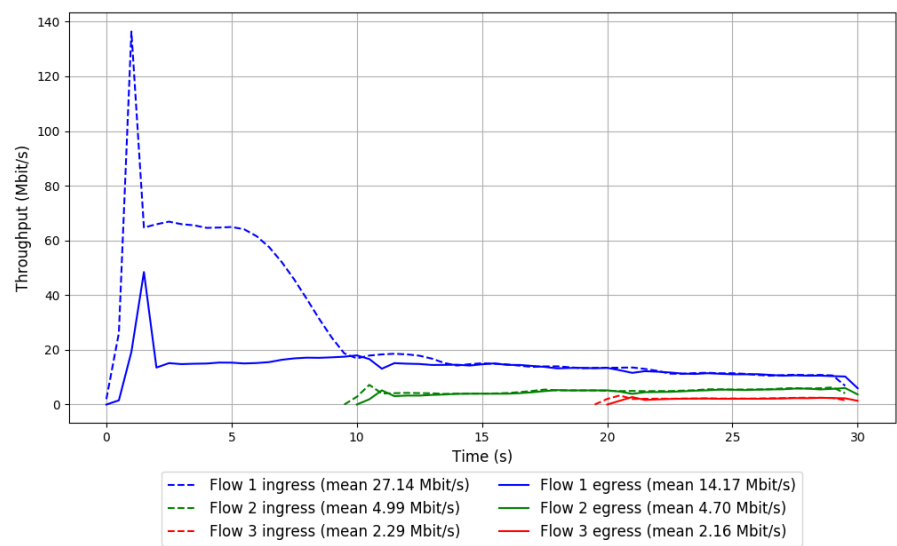


Run 4: Statistics of PCC-Allegro

Start at: 2018-09-08 01:46:12
End at: 2018-09-08 01:46:42
Local clock offset: 1.984 ms
Remote clock offset: 22.617 ms

Below is generated by plot.py at 2018-09-08 02:21:48
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.01 Mbit/s
95th percentile per-packet one-way delay: 57.006 ms
Loss rate: 42.48%
-- Flow 1:
Average throughput: 14.17 Mbit/s
95th percentile per-packet one-way delay: 57.499 ms
Loss rate: 47.93%
-- Flow 2:
Average throughput: 4.70 Mbit/s
95th percentile per-packet one-way delay: 56.822 ms
Loss rate: 6.06%
-- Flow 3:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 56.819 ms
Loss rate: 6.57%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-08 02:08:24

End at: 2018-09-08 02:08:54

Local clock offset: 4.26 ms

Remote clock offset: -0.64 ms

Below is generated by plot.py at 2018-09-08 02:21:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 18.33 Mbit/s

95th percentile per-packet one-way delay: 60.441 ms

Loss rate: 31.68%

-- Flow 1:

Average throughput: 12.72 Mbit/s

95th percentile per-packet one-way delay: 66.531 ms

Loss rate: 37.66%

-- Flow 2:

Average throughput: 7.63 Mbit/s

95th percentile per-packet one-way delay: 60.304 ms

Loss rate: 11.74%

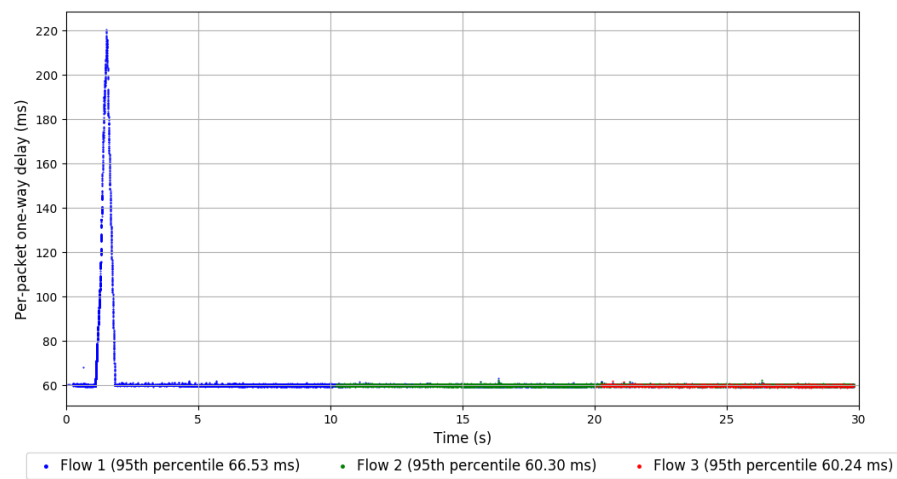
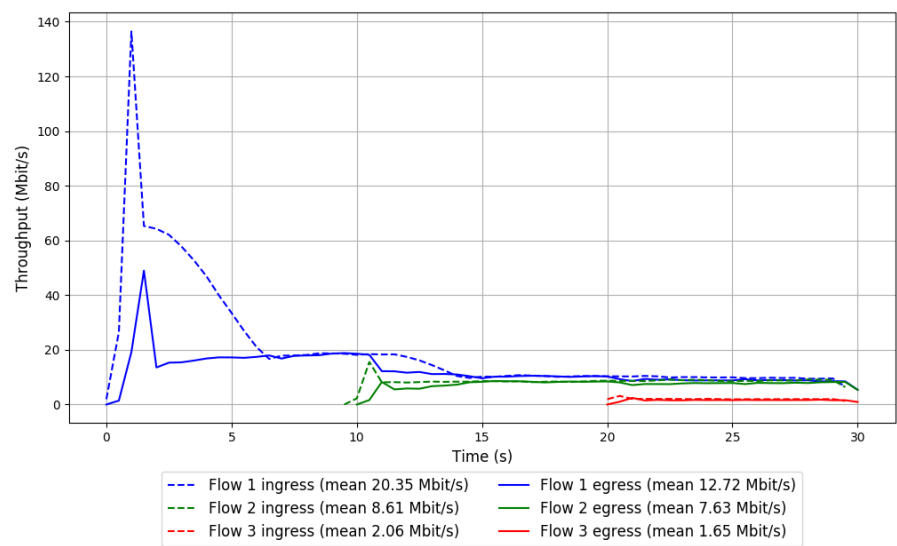
-- Flow 3:

Average throughput: 1.65 Mbit/s

95th percentile per-packet one-way delay: 60.236 ms

Loss rate: 20.58%

Run 5: Report of PCC-Allegro — Data Link

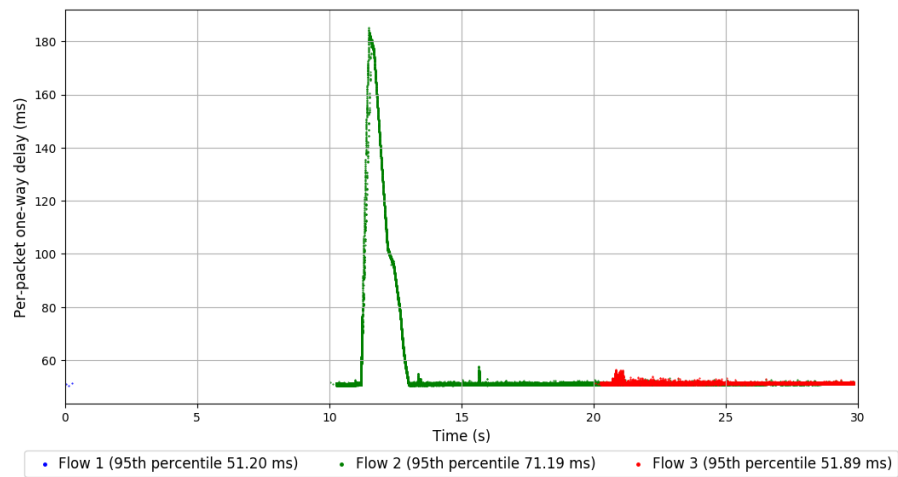
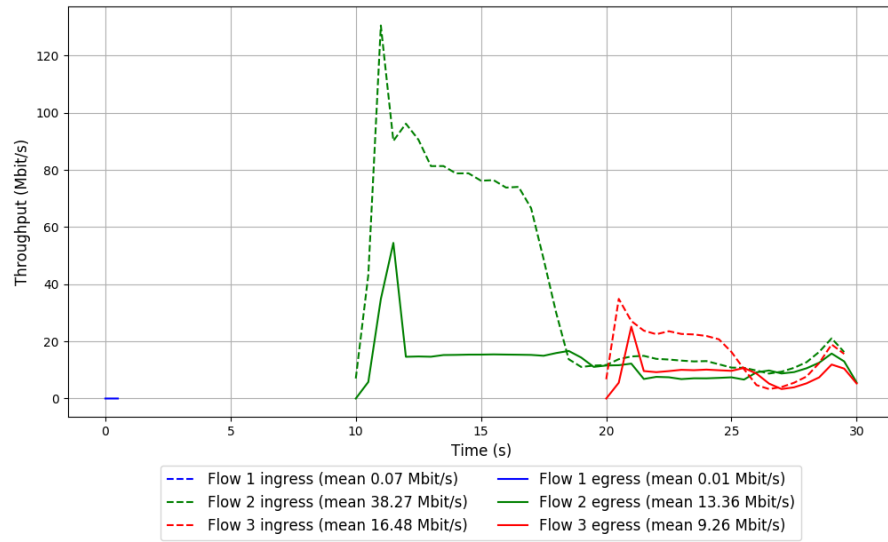


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-08 00:27:44
End at: 2018-09-08 00:28:14
Local clock offset: 2.188 ms
Remote clock offset: 58.319 ms

# Below is generated by plot.py at 2018-09-08 02:22:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.91 Mbit/s
95th percentile per-packet one-way delay: 59.253 ms
Loss rate: 61.55%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 51.204 ms
Loss rate: 80.95%
-- Flow 2:
Average throughput: 13.36 Mbit/s
95th percentile per-packet one-way delay: 71.185 ms
Loss rate: 65.24%
-- Flow 3:
Average throughput: 9.26 Mbit/s
95th percentile per-packet one-way delay: 51.892 ms
Loss rate: 44.29%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-08 00:50:09

End at: 2018-09-08 00:50:39

Local clock offset: 1.368 ms

Remote clock offset: 48.07 ms

Below is generated by plot.py at 2018-09-08 02:22:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 17.72 Mbit/s

95th percentile per-packet one-way delay: 57.961 ms

Loss rate: 52.17%

-- Flow 1:

Average throughput: 12.47 Mbit/s

95th percentile per-packet one-way delay: 64.559 ms

Loss rate: 56.81%

-- Flow 2:

Average throughput: 5.05 Mbit/s

95th percentile per-packet one-way delay: 55.498 ms

Loss rate: 40.85%

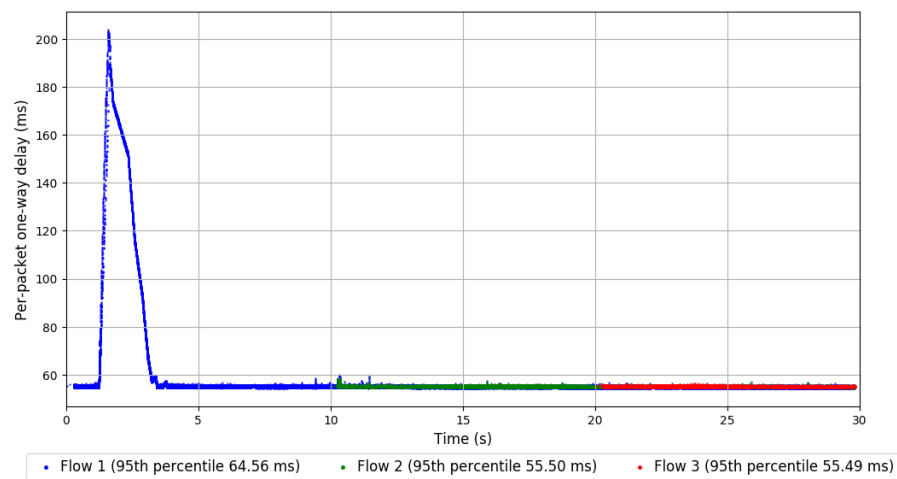
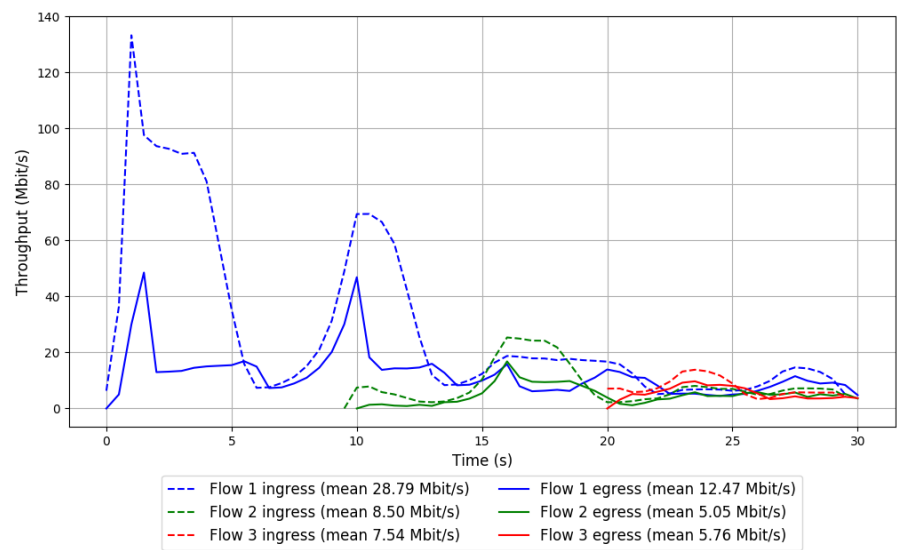
-- Flow 3:

Average throughput: 5.76 Mbit/s

95th percentile per-packet one-way delay: 55.492 ms

Loss rate: 24.23%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-08 01:12:27

End at: 2018-09-08 01:12:57

Local clock offset: 1.35 ms

Remote clock offset: 47.4 ms

Below is generated by plot.py at 2018-09-08 02:22:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 17.82 Mbit/s

95th percentile per-packet one-way delay: 61.337 ms

Loss rate: 49.38%

-- Flow 1:

Average throughput: 10.62 Mbit/s

95th percentile per-packet one-way delay: 74.659 ms

Loss rate: 58.22%

-- Flow 2:

Average throughput: 7.40 Mbit/s

95th percentile per-packet one-way delay: 60.061 ms

Loss rate: 28.94%

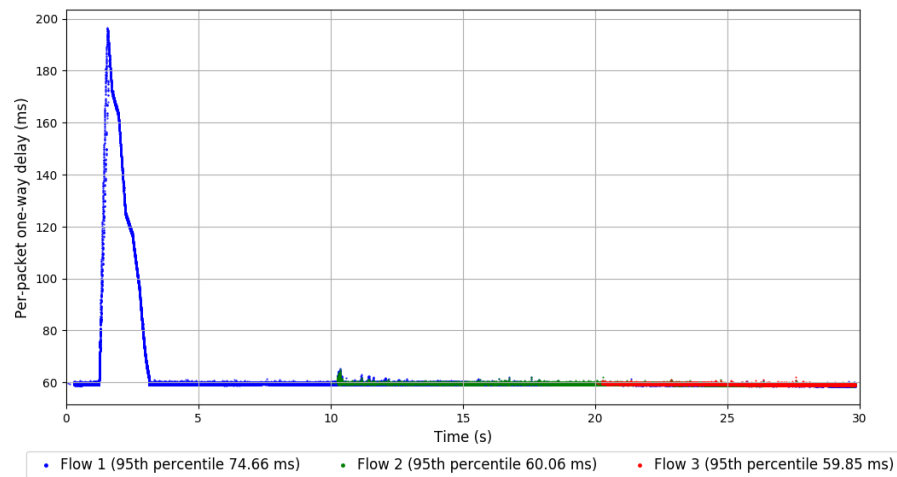
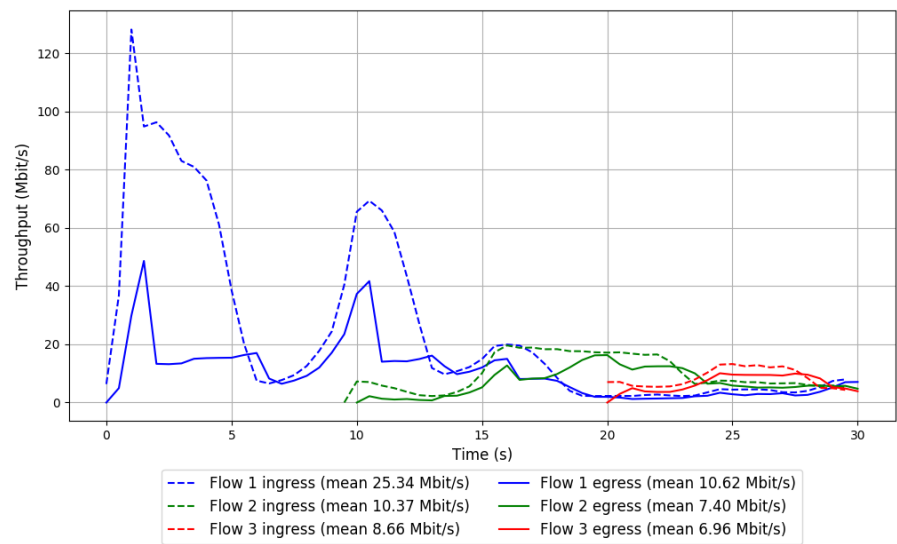
-- Flow 3:

Average throughput: 6.96 Mbit/s

95th percentile per-packet one-way delay: 59.853 ms

Loss rate: 20.28%

Run 3: Report of PCC-Expr — Data Link

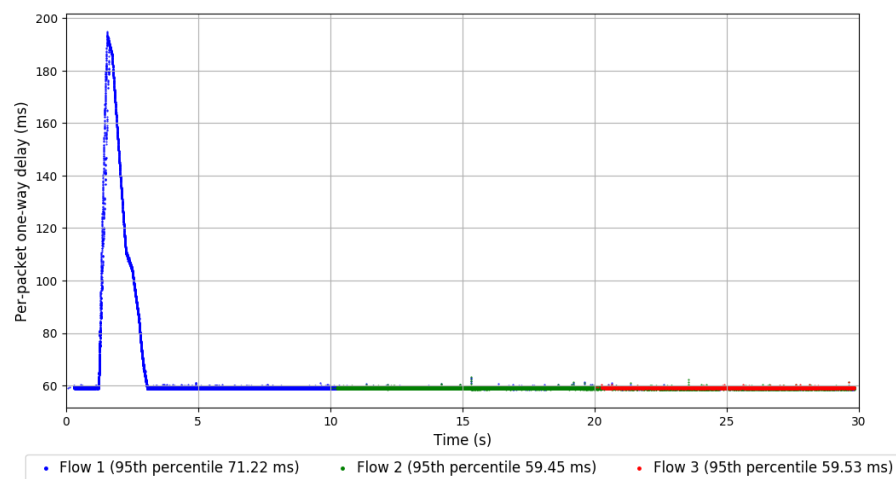
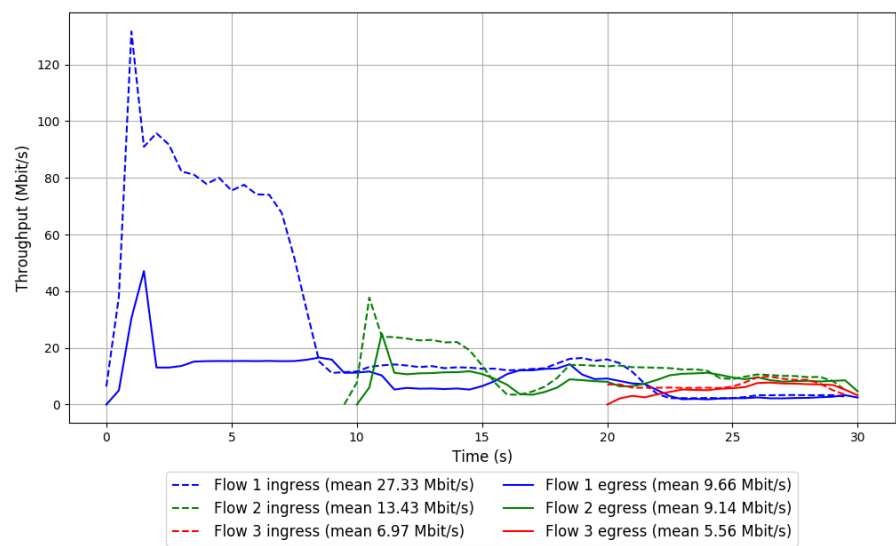


Run 4: Statistics of PCC-Expr

Start at: 2018-09-08 01:34:55
End at: 2018-09-08 01:35:25
Local clock offset: 1.796 ms
Remote clock offset: 21.856 ms

Below is generated by plot.py at 2018-09-08 02:22:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 17.56 Mbit/s
95th percentile per-packet one-way delay: 59.695 ms
Loss rate: 54.61%
-- Flow 1:
Average throughput: 9.66 Mbit/s
95th percentile per-packet one-way delay: 71.224 ms
Loss rate: 64.76%
-- Flow 2:
Average throughput: 9.14 Mbit/s
95th percentile per-packet one-way delay: 59.446 ms
Loss rate: 32.20%
-- Flow 3:
Average throughput: 5.56 Mbit/s
95th percentile per-packet one-way delay: 59.530 ms
Loss rate: 20.99%

Run 4: Report of PCC-Expr — Data Link

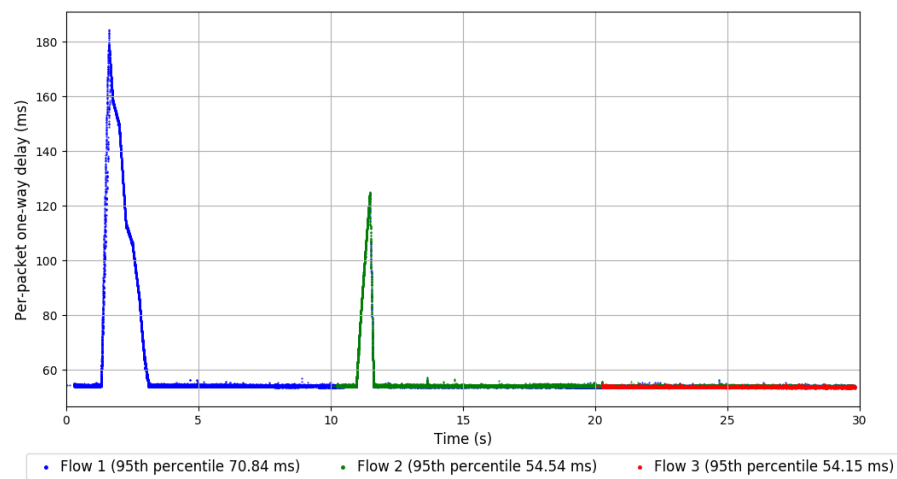
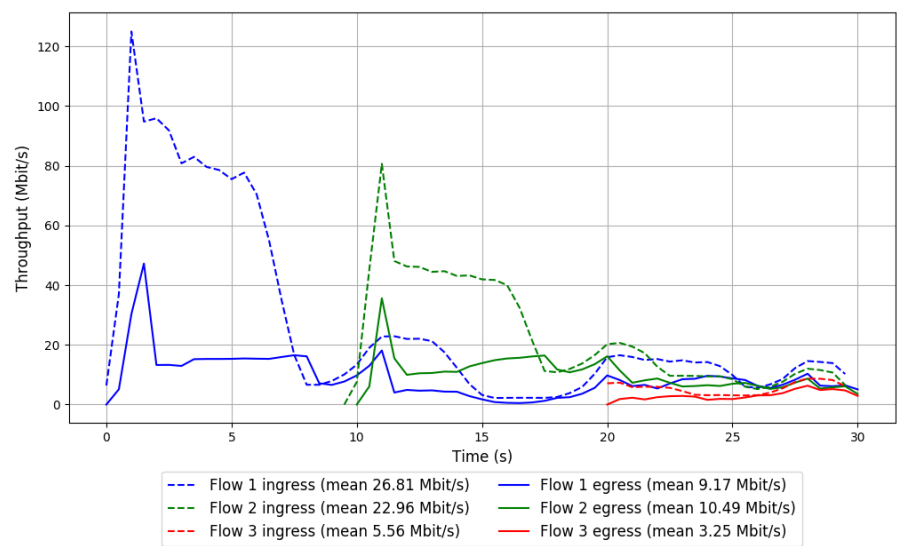


Run 5: Statistics of PCC-Expr

Start at: 2018-09-08 01:57:10
End at: 2018-09-08 01:57:40
Local clock offset: 3.807 ms
Remote clock offset: 11.381 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 17.21 Mbit/s
95th percentile per-packet one-way delay: 59.280 ms
Loss rate: 60.93%
-- Flow 1:
Average throughput: 9.17 Mbit/s
95th percentile per-packet one-way delay: 70.844 ms
Loss rate: 65.88%
-- Flow 2:
Average throughput: 10.49 Mbit/s
95th percentile per-packet one-way delay: 54.539 ms
Loss rate: 54.53%
-- Flow 3:
Average throughput: 3.25 Mbit/s
95th percentile per-packet one-way delay: 54.150 ms
Loss rate: 42.10%

Run 5: Report of PCC-Expr — Data Link

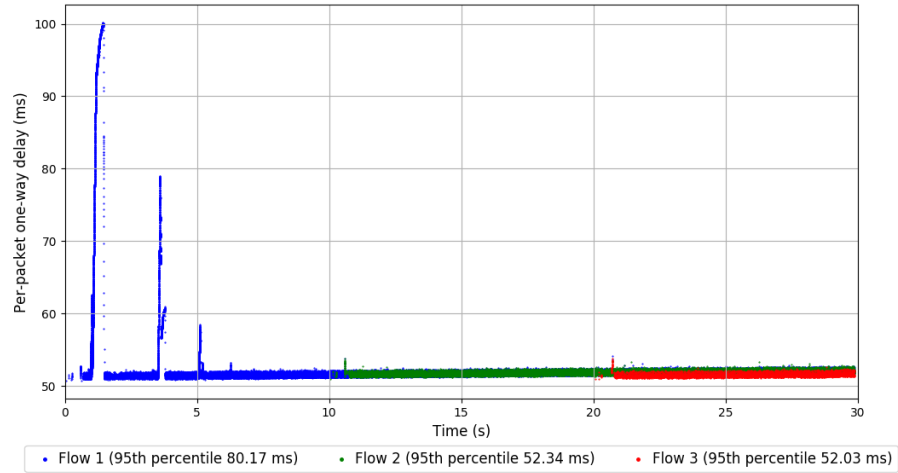
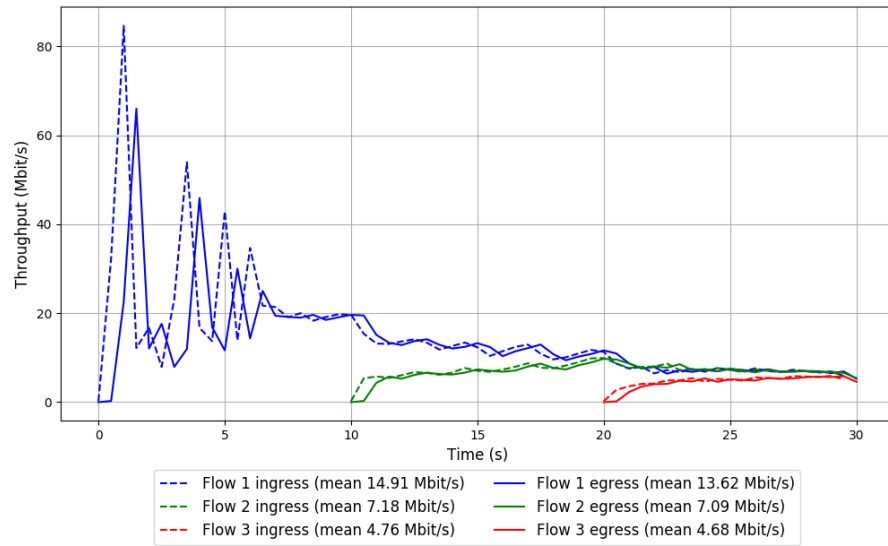


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-08 00:28:58
End at: 2018-09-08 00:29:28
Local clock offset: 2.191 ms
Remote clock offset: 59.782 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.87 Mbit/s
95th percentile per-packet one-way delay: 67.573 ms
Loss rate: 6.79%
-- Flow 1:
Average throughput: 13.62 Mbit/s
95th percentile per-packet one-way delay: 80.166 ms
Loss rate: 8.91%
-- Flow 2:
Average throughput: 7.09 Mbit/s
95th percentile per-packet one-way delay: 52.343 ms
Loss rate: 1.59%
-- Flow 3:
Average throughput: 4.68 Mbit/s
95th percentile per-packet one-way delay: 52.032 ms
Loss rate: 2.55%

Run 1: Report of QUIC Cubic — Data Link

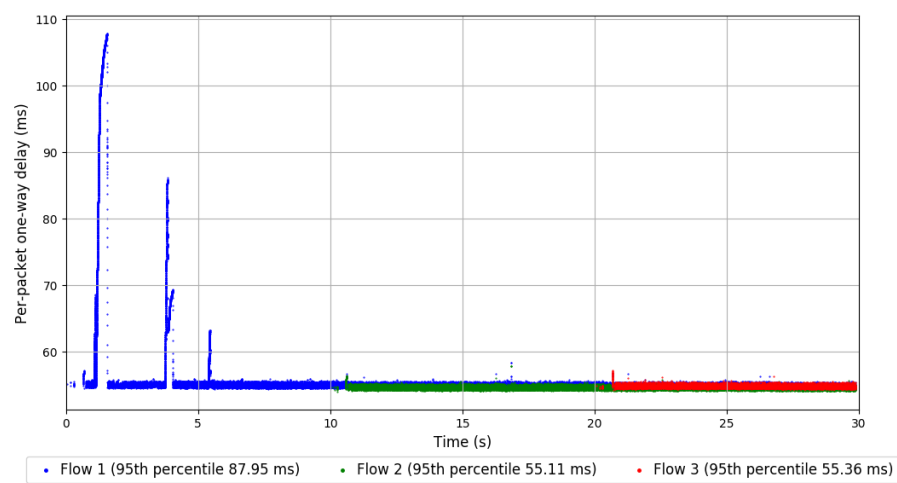
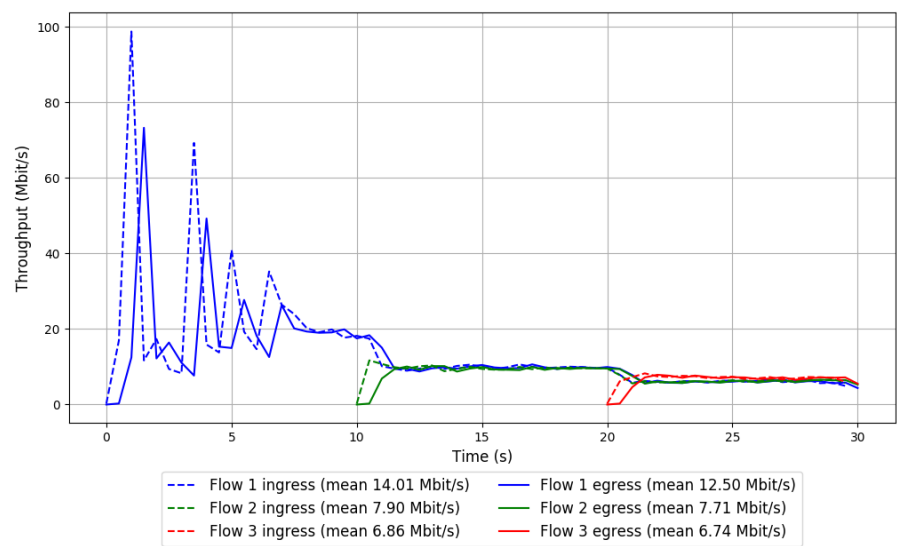


Run 2: Statistics of QUIC Cubic

Start at: 2018-09-08 00:51:24
End at: 2018-09-08 00:51:54
Local clock offset: 1.351 ms
Remote clock offset: 48.237 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.83 Mbit/s
95th percentile per-packet one-way delay: 72.140 ms
Loss rate: 8.19%
-- Flow 1:
Average throughput: 12.50 Mbit/s
95th percentile per-packet one-way delay: 87.953 ms
Loss rate: 11.08%
-- Flow 2:
Average throughput: 7.71 Mbit/s
95th percentile per-packet one-way delay: 55.106 ms
Loss rate: 2.94%
-- Flow 3:
Average throughput: 6.74 Mbit/s
95th percentile per-packet one-way delay: 55.360 ms
Loss rate: 2.55%

Run 2: Report of QUIC Cubic — Data Link

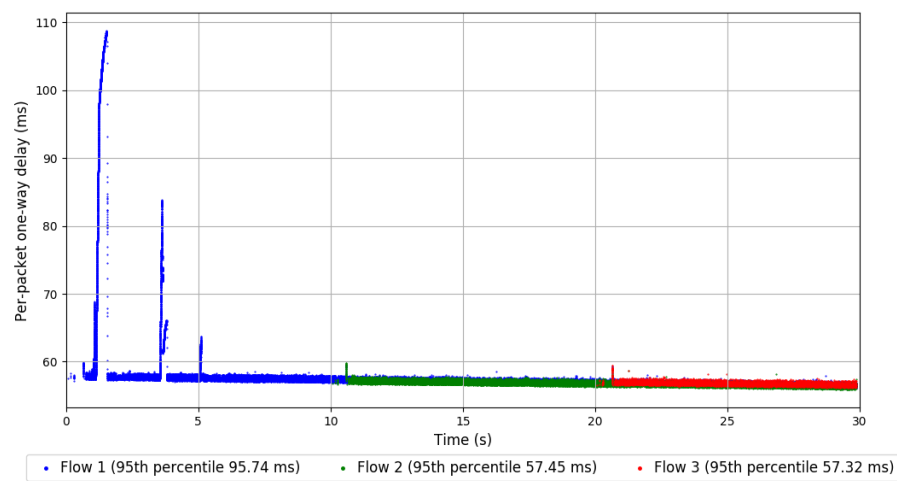
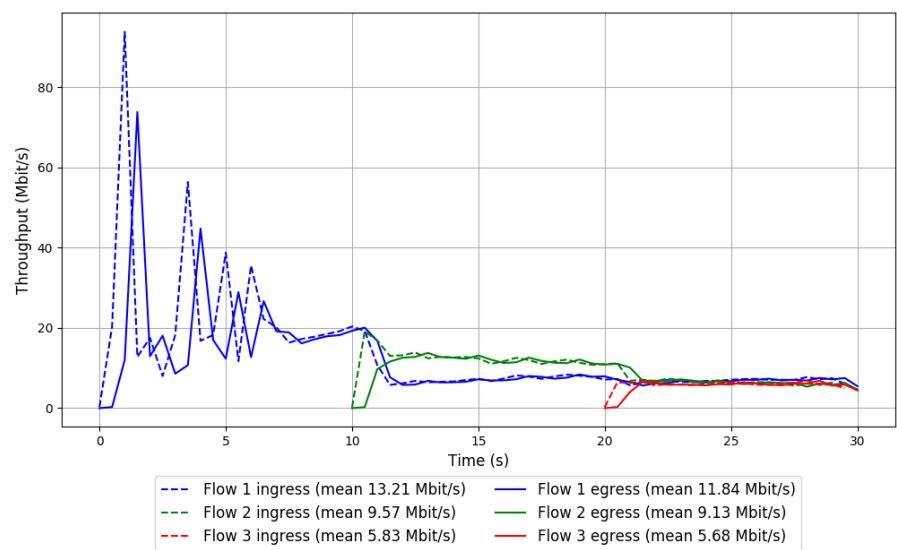


Run 3: Statistics of QUIC Cubic

Start at: 2018-09-08 01:13:44
End at: 2018-09-08 01:14:14
Local clock offset: 1.283 ms
Remote clock offset: 46.728 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.78 Mbit/s
95th percentile per-packet one-way delay: 72.987 ms
Loss rate: 8.32%
-- Flow 1:
Average throughput: 11.84 Mbit/s
95th percentile per-packet one-way delay: 95.741 ms
Loss rate: 10.67%
-- Flow 2:
Average throughput: 9.13 Mbit/s
95th percentile per-packet one-way delay: 57.446 ms
Loss rate: 4.93%
-- Flow 3:
Average throughput: 5.68 Mbit/s
95th percentile per-packet one-way delay: 57.322 ms
Loss rate: 3.47%

Run 3: Report of QUIC Cubic — Data Link

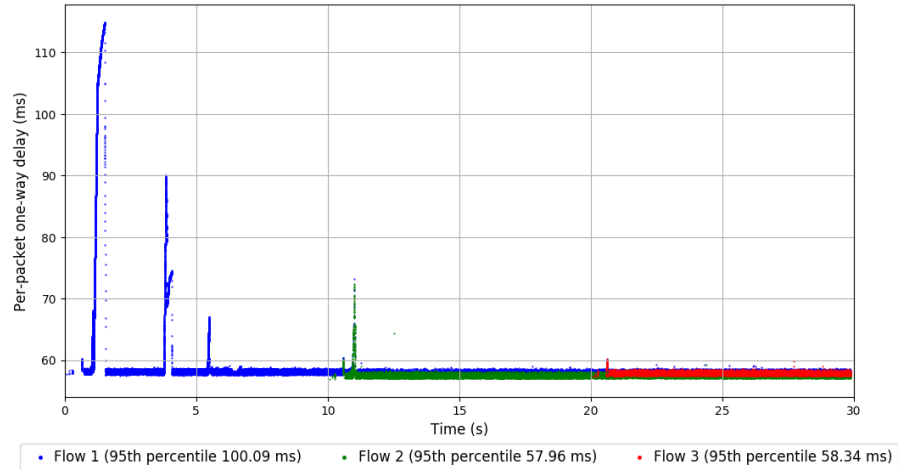
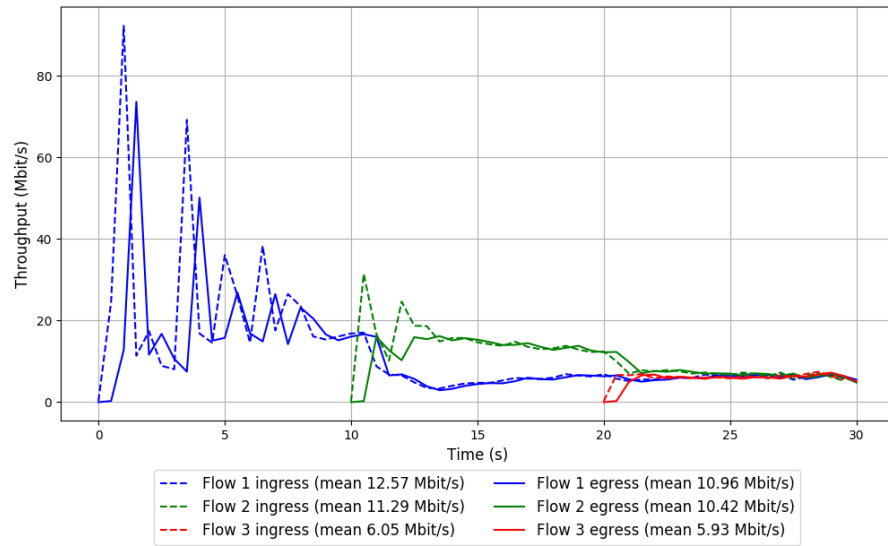


Run 4: Statistics of QUIC Cubic

Start at: 2018-09-08 01:36:13
End at: 2018-09-08 01:36:43
Local clock offset: 1.579 ms
Remote clock offset: 22.869 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.84 Mbit/s
95th percentile per-packet one-way delay: 75.610 ms
Loss rate: 10.42%
-- Flow 1:
Average throughput: 10.96 Mbit/s
95th percentile per-packet one-way delay: 100.086 ms
Loss rate: 13.01%
-- Flow 2:
Average throughput: 10.42 Mbit/s
95th percentile per-packet one-way delay: 57.964 ms
Loss rate: 8.13%
-- Flow 3:
Average throughput: 5.93 Mbit/s
95th percentile per-packet one-way delay: 58.340 ms
Loss rate: 2.74%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-08 01:58:26

End at: 2018-09-08 01:58:56

Local clock offset: 3.6 ms

Remote clock offset: 5.546 ms

Below is generated by plot.py at 2018-09-08 02:22:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.83 Mbit/s

95th percentile per-packet one-way delay: 74.021 ms

Loss rate: 6.91%

-- Flow 1:

Average throughput: 13.22 Mbit/s

95th percentile per-packet one-way delay: 89.723 ms

Loss rate: 9.10%

-- Flow 2:

Average throughput: 7.13 Mbit/s

95th percentile per-packet one-way delay: 59.438 ms

Loss rate: 1.98%

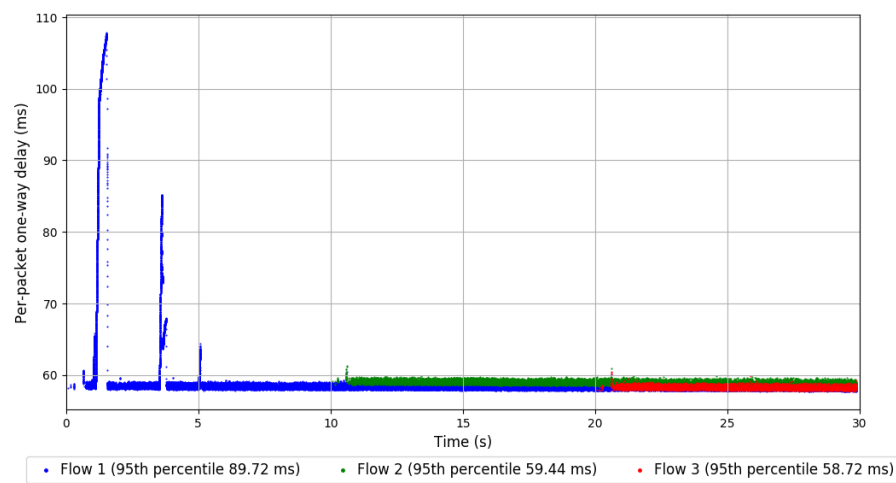
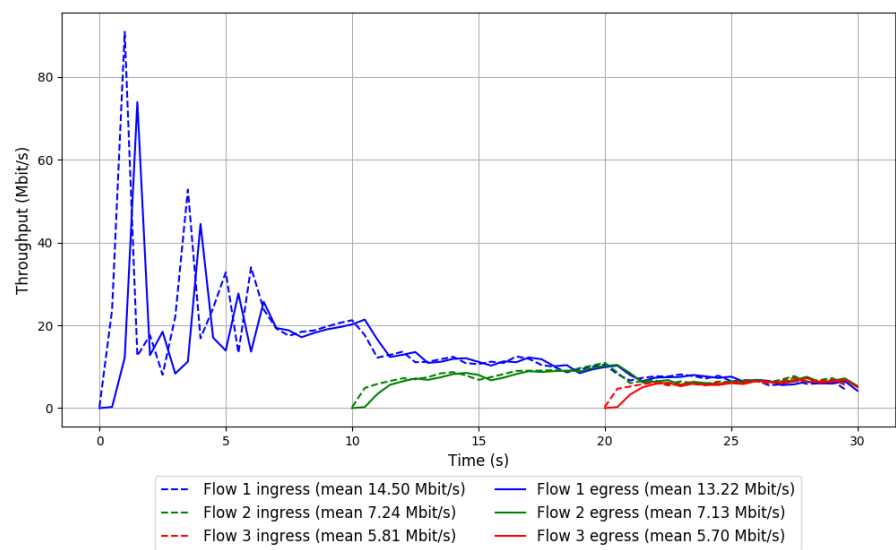
-- Flow 3:

Average throughput: 5.70 Mbit/s

95th percentile per-packet one-way delay: 58.718 ms

Loss rate: 2.77%

Run 5: Report of QUIC Cubic — Data Link

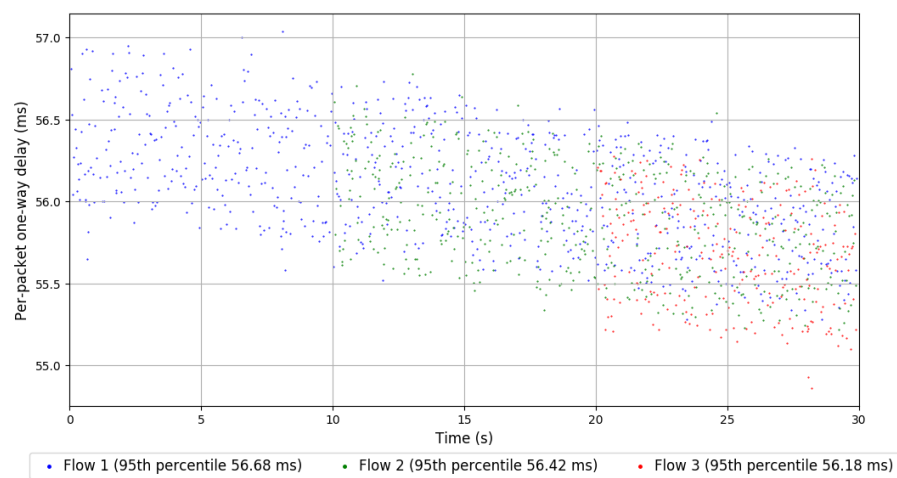
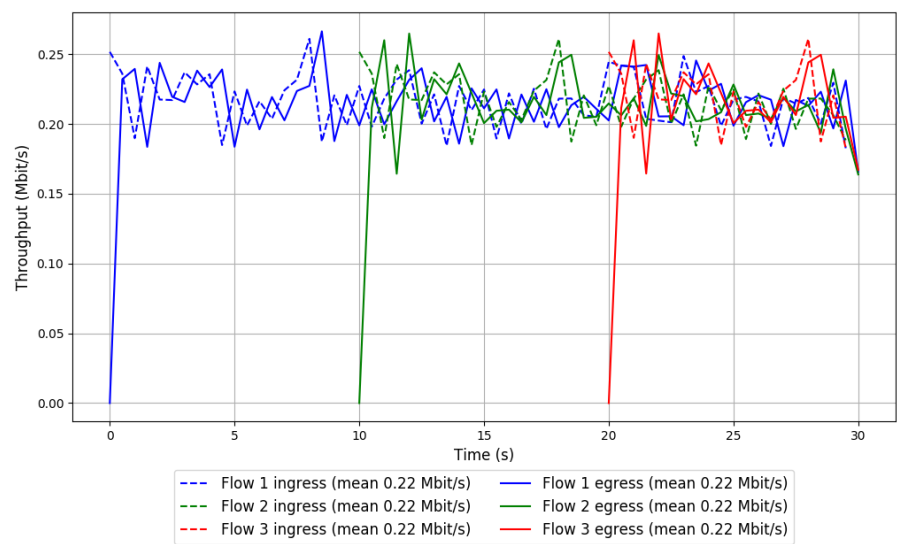


```
Run 1: Statistics of SReAM

Start at: 2018-09-08 00:45:19
End at: 2018-09-08 00:45:49
Local clock offset: 0.944 ms
Remote clock offset: 51.847 ms

# Below is generated by plot.py at 2018-09-08 02:22:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 56.586 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.681 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.416 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.178 ms
Loss rate: 1.08%
```

Run 1: Report of SCReAM — Data Link

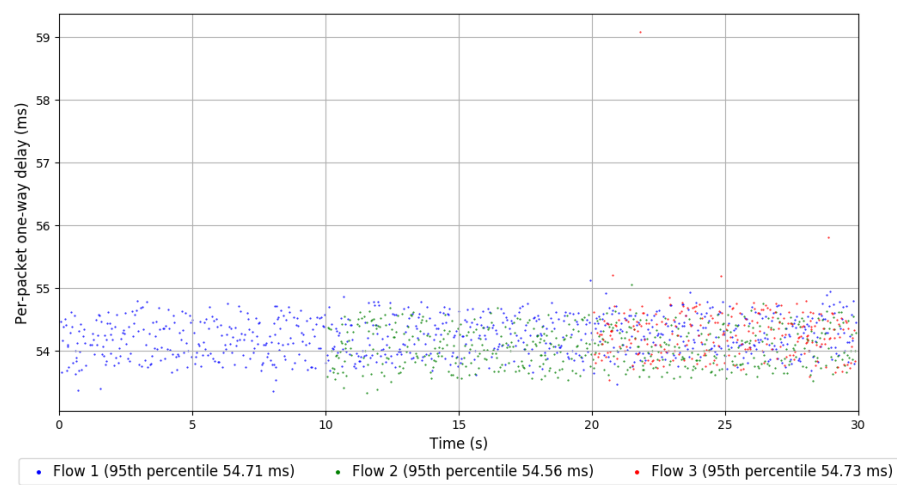
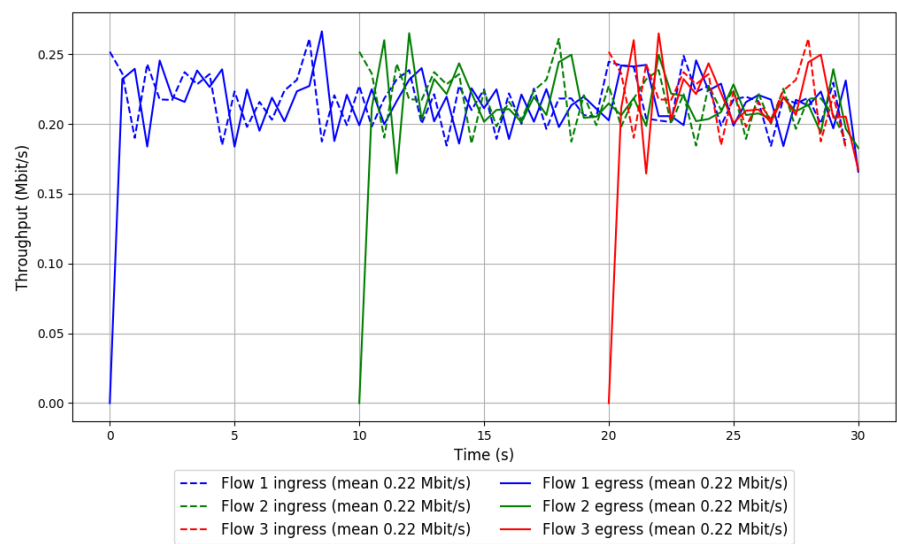


Run 2: Statistics of SReAM

Start at: 2018-09-08 01:07:31
End at: 2018-09-08 01:08:01
Local clock offset: 1.272 ms
Remote clock offset: 51.452 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 54.690 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 54.713 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 54.562 ms
Loss rate: 0.39%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 54.733 ms
Loss rate: 1.08%

Run 2: Report of SCReAM — Data Link

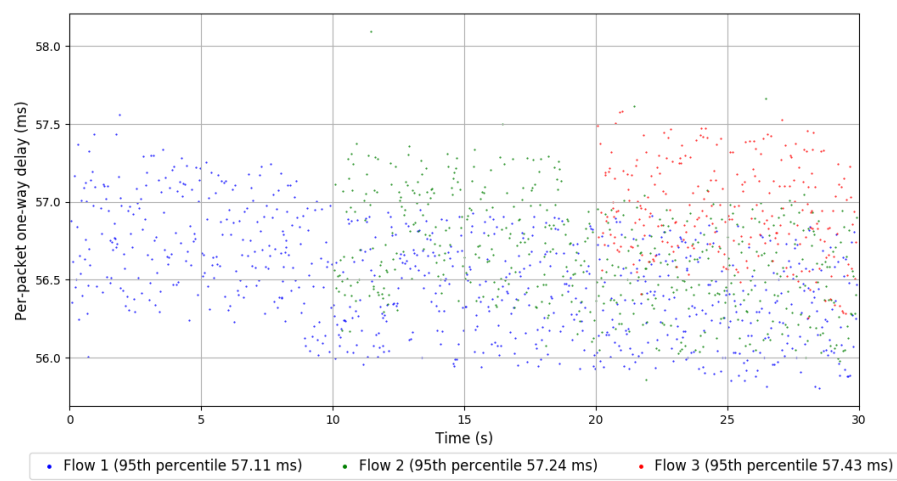
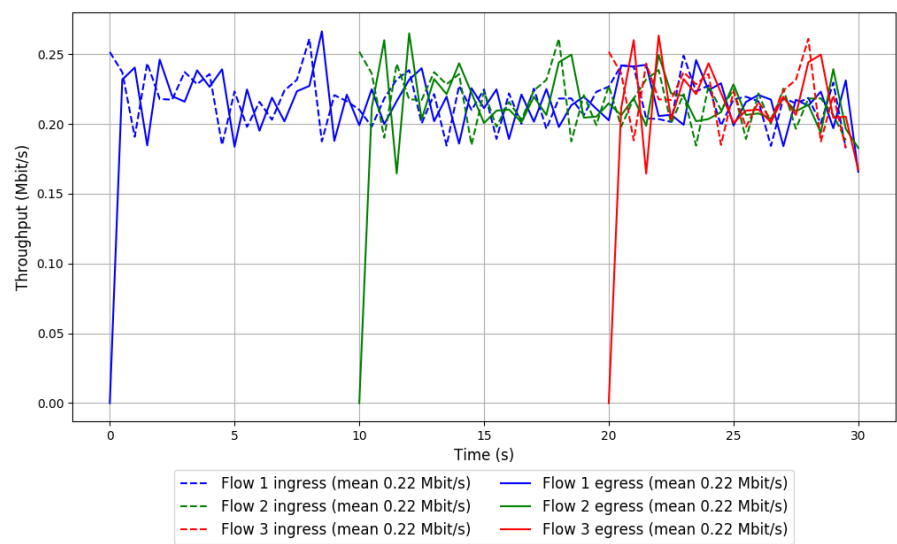


Run 3: Statistics of SReAM

Start at: 2018-09-08 01:29:59
End at: 2018-09-08 01:30:29
Local clock offset: 1.627 ms
Remote clock offset: 26.318 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 57.273 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.114 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.241 ms
Loss rate: 0.39%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.430 ms
Loss rate: 1.09%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-09-08 01:52:19

End at: 2018-09-08 01:52:49

Local clock offset: 2.862 ms

Remote clock offset: 13.37 ms

Below is generated by plot.py at 2018-09-08 02:22:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 57.474 ms

Loss rate: 0.38%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 57.662 ms

Loss rate: 0.26%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 56.639 ms

Loss rate: 0.39%

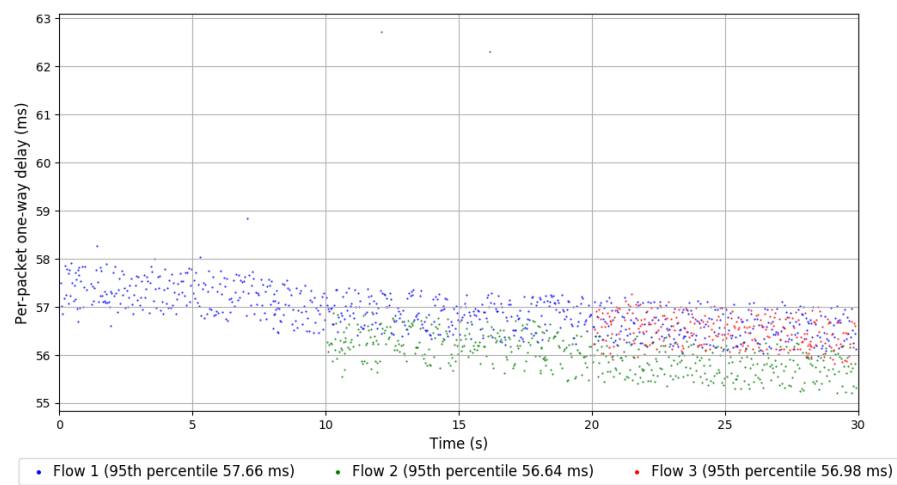
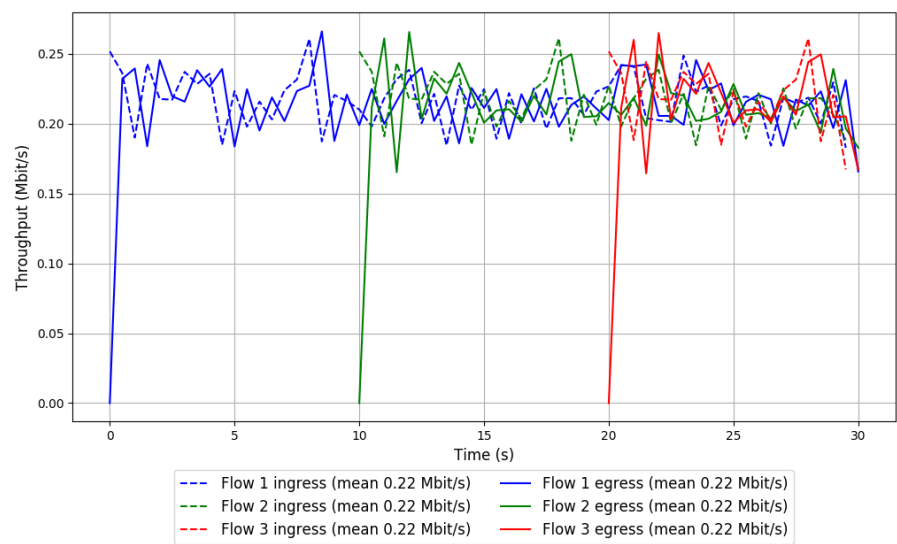
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 56.982 ms

Loss rate: 0.73%

Run 4: Report of SCReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-09-08 02:14:39

End at: 2018-09-08 02:15:09

Local clock offset: 4.359 ms

Remote clock offset: 2.014 ms

Below is generated by plot.py at 2018-09-08 02:22:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 55.203 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 55.315 ms

Loss rate: 0.25%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 55.118 ms

Loss rate: 0.61%

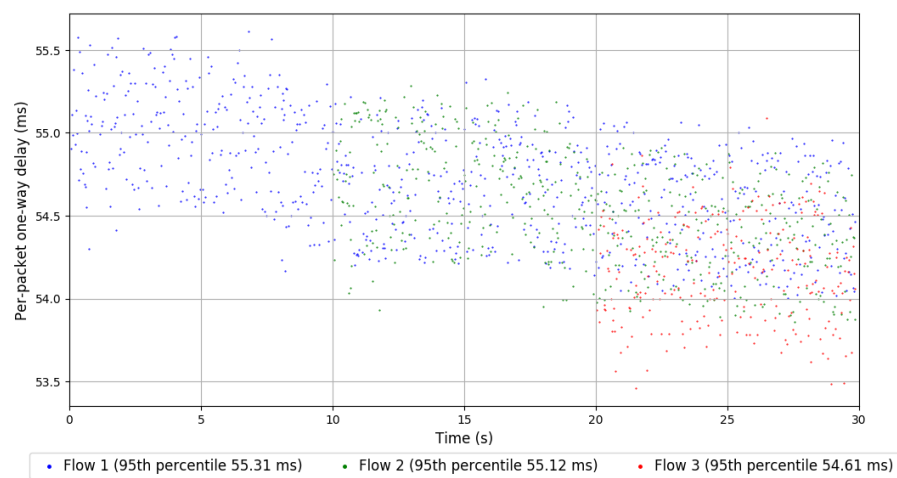
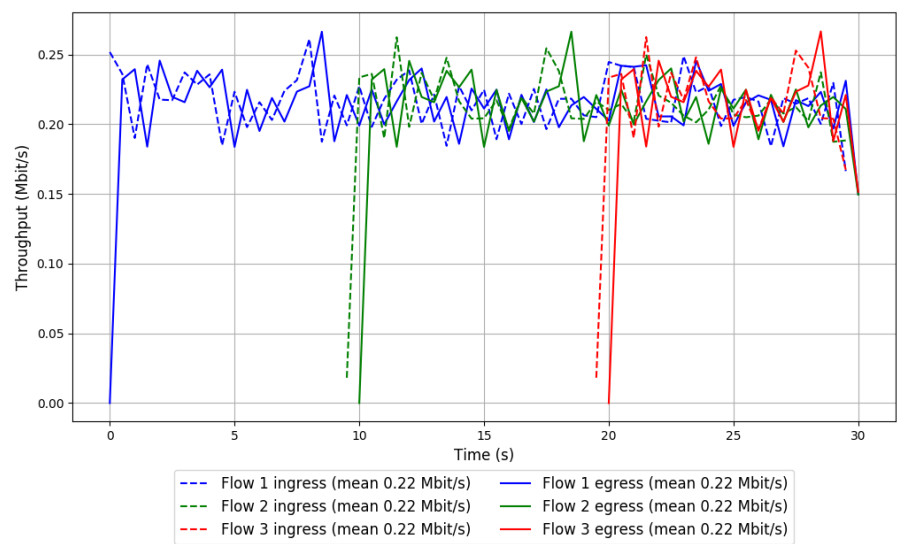
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 54.612 ms

Loss rate: 0.74%

Run 5: Report of SReAM — Data Link

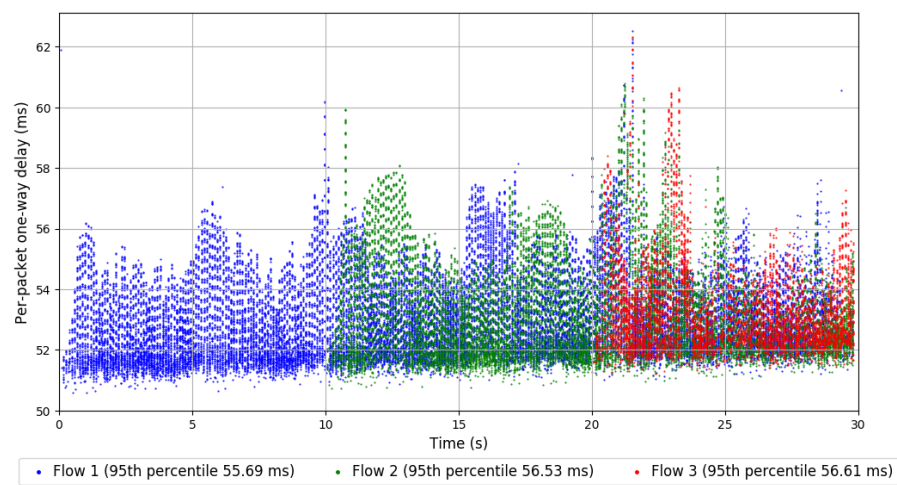
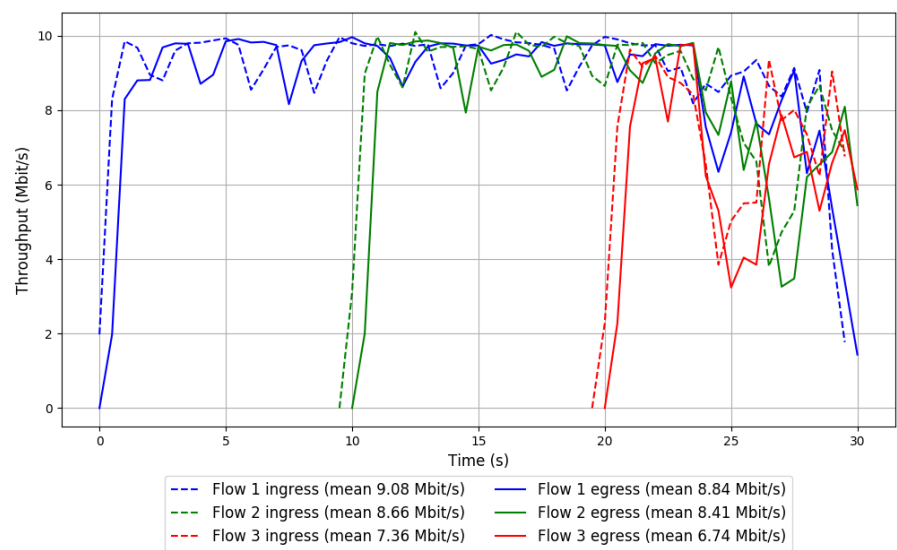


Run 1: Statistics of Sprout

Start at: 2018-09-08 00:30:11
End at: 2018-09-08 00:30:41
Local clock offset: 1.854 ms
Remote clock offset: 61.574 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.64 Mbit/s
95th percentile per-packet one-way delay: 56.093 ms
Loss rate: 3.96%
-- Flow 1:
Average throughput: 8.84 Mbit/s
95th percentile per-packet one-way delay: 55.686 ms
Loss rate: 2.96%
-- Flow 2:
Average throughput: 8.41 Mbit/s
95th percentile per-packet one-way delay: 56.530 ms
Loss rate: 3.31%
-- Flow 3:
Average throughput: 6.74 Mbit/s
95th percentile per-packet one-way delay: 56.614 ms
Loss rate: 9.24%

Run 1: Report of Sprout — Data Link

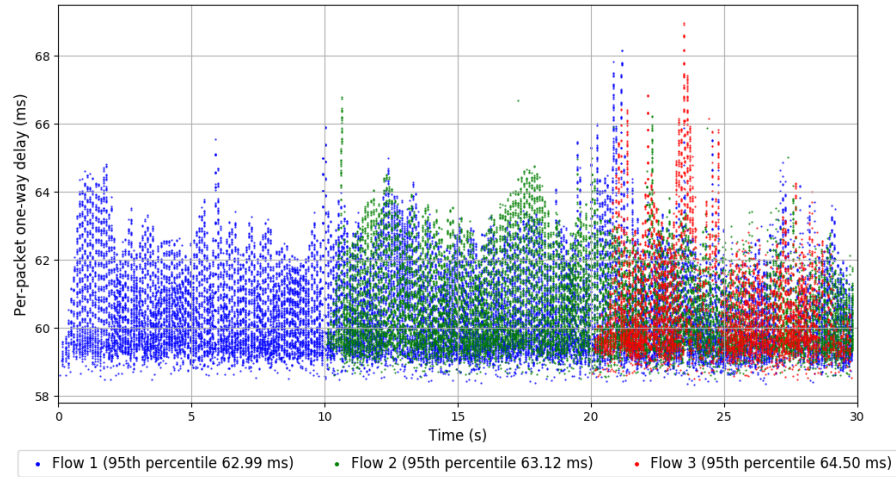
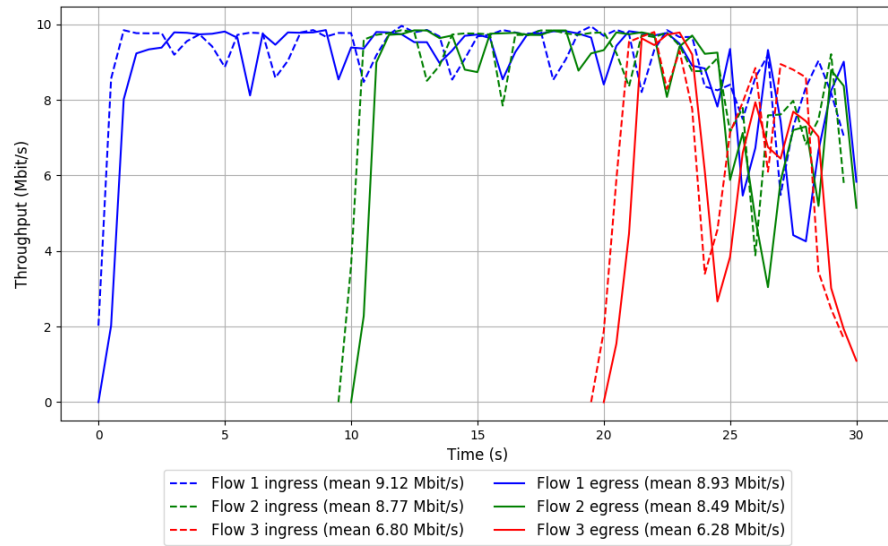


Run 2: Statistics of Sprout

Start at: 2018-09-08 00:52:37
End at: 2018-09-08 00:53:07
Local clock offset: 1.313 ms
Remote clock offset: 43.653 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.63 Mbit/s
95th percentile per-packet one-way delay: 63.165 ms
Loss rate: 3.62%
-- Flow 1:
Average throughput: 8.93 Mbit/s
95th percentile per-packet one-way delay: 62.993 ms
Loss rate: 2.40%
-- Flow 2:
Average throughput: 8.49 Mbit/s
95th percentile per-packet one-way delay: 63.125 ms
Loss rate: 3.56%
-- Flow 3:
Average throughput: 6.28 Mbit/s
95th percentile per-packet one-way delay: 64.499 ms
Loss rate: 8.73%

Run 2: Report of Sprout — Data Link

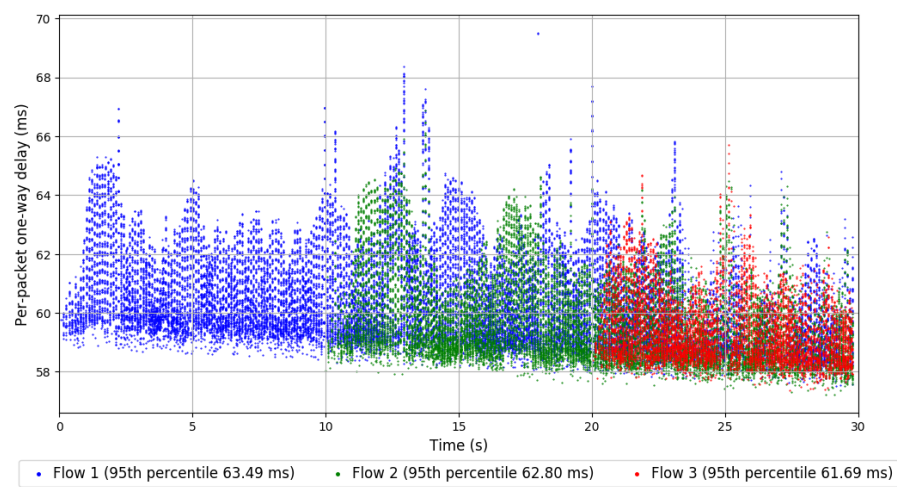
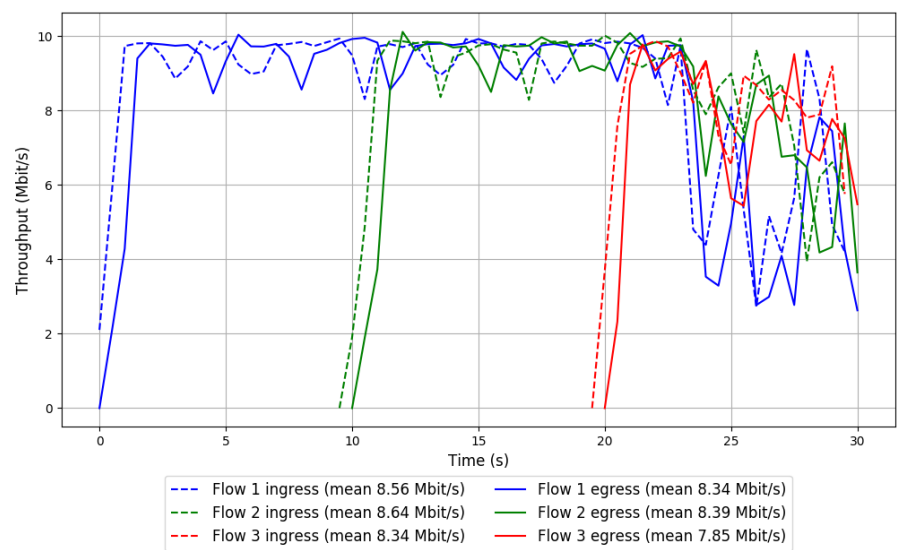


Run 3: Statistics of Sprout

Start at: 2018-09-08 01:14:57
End at: 2018-09-08 01:15:27
Local clock offset: 1.376 ms
Remote clock offset: 42.188 ms

Below is generated by plot.py at 2018-09-08 02:22:31
Datalink statistics
-- Total of 3 flows:
Average throughput: 16.49 Mbit/s
95th percentile per-packet one-way delay: 63.094 ms
Loss rate: 3.69%
-- Flow 1:
Average throughput: 8.34 Mbit/s
95th percentile per-packet one-way delay: 63.489 ms
Loss rate: 2.90%
-- Flow 2:
Average throughput: 8.39 Mbit/s
95th percentile per-packet one-way delay: 62.804 ms
Loss rate: 3.39%
-- Flow 3:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 61.688 ms
Loss rate: 6.78%

Run 3: Report of Sprout — Data Link

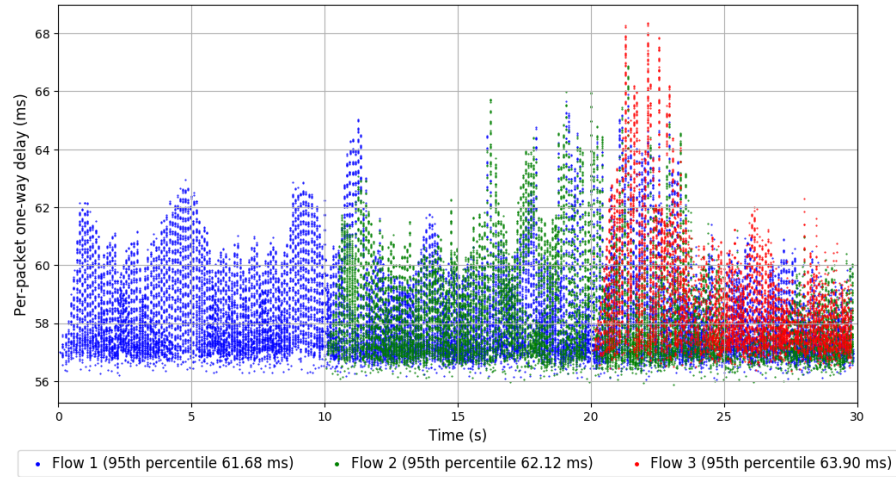
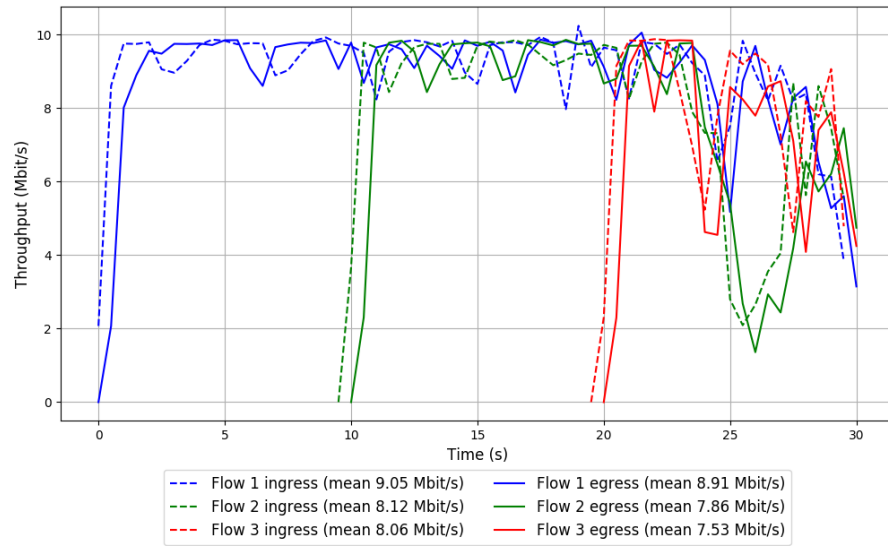


Run 4: Statistics of Sprout

Start at: 2018-09-08 01:37:27
End at: 2018-09-08 01:37:57
Local clock offset: 1.683 ms
Remote clock offset: 23.578 ms

```
# Below is generated by plot.py at 2018-09-08 02:22:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.60 Mbit/s
95th percentile per-packet one-way delay: 62.059 ms
Loss rate: 3.19%
-- Flow 1:
Average throughput: 8.91 Mbit/s
95th percentile per-packet one-way delay: 61.683 ms
Loss rate: 1.74%
-- Flow 2:
Average throughput: 7.86 Mbit/s
95th percentile per-packet one-way delay: 62.118 ms
Loss rate: 3.59%
-- Flow 3:
Average throughput: 7.53 Mbit/s
95th percentile per-packet one-way delay: 63.895 ms
Loss rate: 7.34%
```

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-08 01:59:39

End at: 2018-09-08 02:00:09

Local clock offset: 3.808 ms

Remote clock offset: 4.001 ms

Below is generated by plot.py at 2018-09-08 02:22:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 16.66 Mbit/s

95th percentile per-packet one-way delay: 64.236 ms

Loss rate: 3.60%

-- Flow 1:

Average throughput: 8.80 Mbit/s

95th percentile per-packet one-way delay: 64.217 ms

Loss rate: 1.94%

-- Flow 2:

Average throughput: 8.51 Mbit/s

95th percentile per-packet one-way delay: 64.276 ms

Loss rate: 3.63%

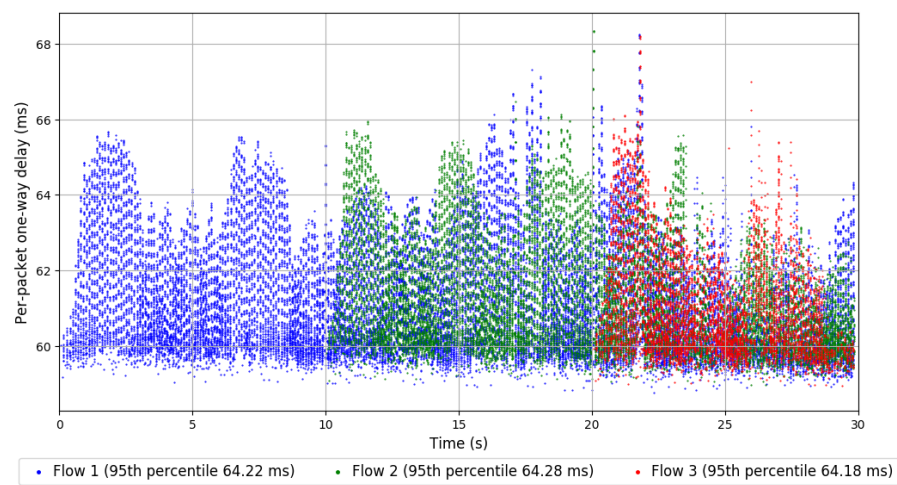
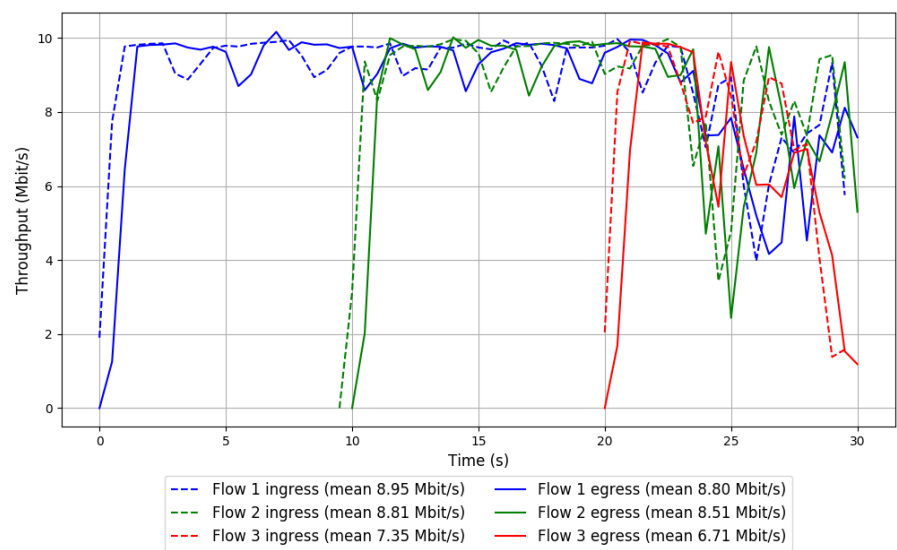
-- Flow 3:

Average throughput: 6.71 Mbit/s

95th percentile per-packet one-way delay: 64.184 ms

Loss rate: 9.65%

Run 5: Report of Sprout — Data Link

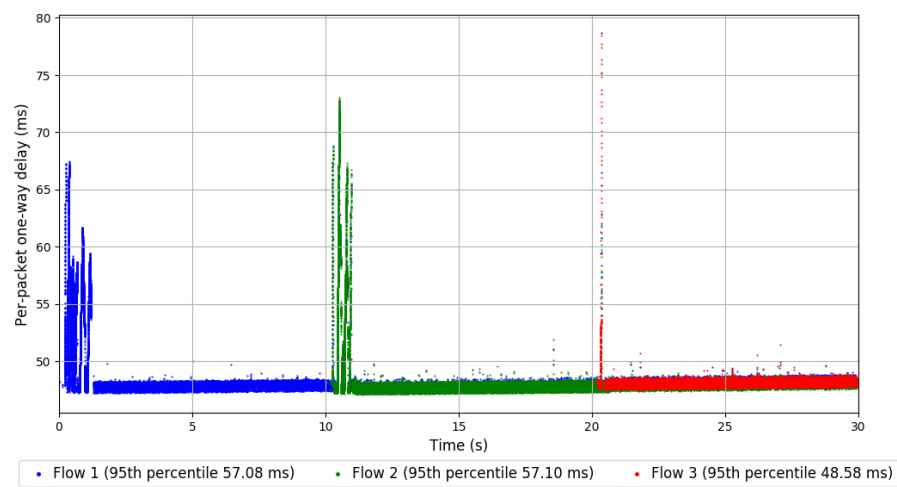
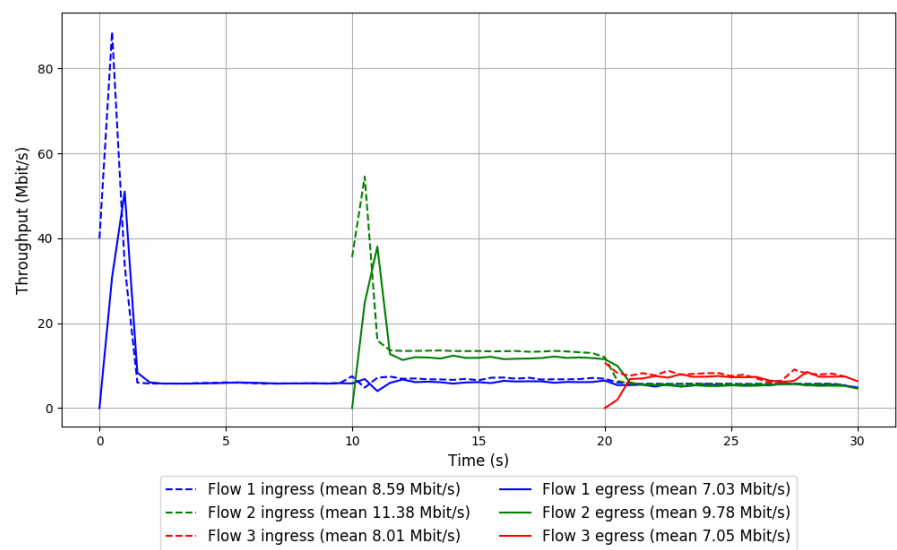


Run 1: Statistics of TaoVA-100x

Start at: 2018-09-08 00:35:13
End at: 2018-09-08 00:35:43
Local clock offset: 1.434 ms
Remote clock offset: 71.623 ms

Below is generated by plot.py at 2018-09-08 02:22:50
Datalink statistics
-- Total of 3 flows:
Average throughput: 15.85 Mbit/s
95th percentile per-packet one-way delay: 56.613 ms
Loss rate: 16.04%
-- Flow 1:
Average throughput: 7.03 Mbit/s
95th percentile per-packet one-way delay: 57.082 ms
Loss rate: 18.43%
-- Flow 2:
Average throughput: 9.78 Mbit/s
95th percentile per-packet one-way delay: 57.102 ms
Loss rate: 14.46%
-- Flow 3:
Average throughput: 7.05 Mbit/s
95th percentile per-packet one-way delay: 48.575 ms
Loss rate: 12.82%

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

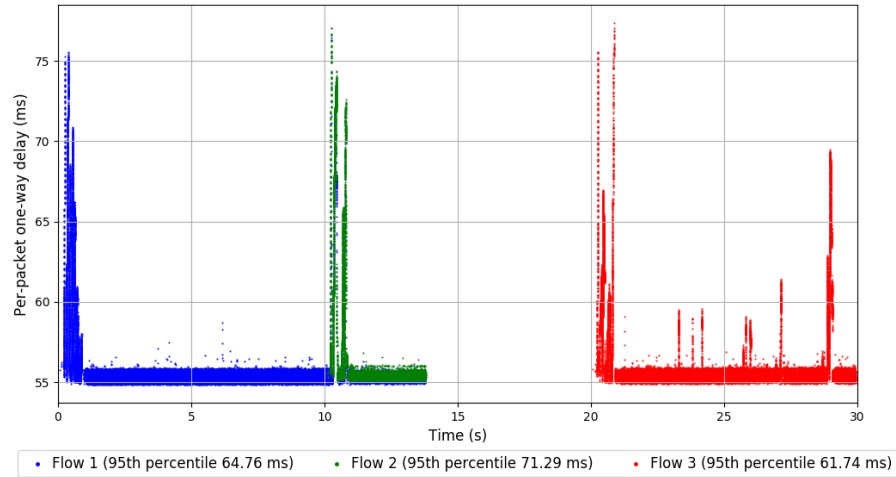
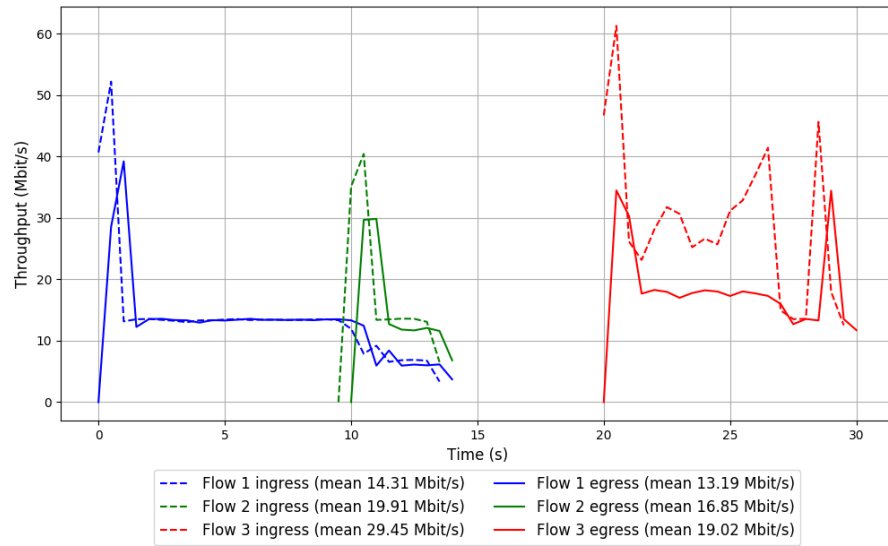


Run 2: Statistics of TaoVA-100x

Start at: 2018-09-08 00:57:31
End at: 2018-09-08 00:58:01
Local clock offset: 1.547 ms
Remote clock offset: 46.894 ms

Below is generated by plot.py at 2018-09-08 02:22:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 14.46 Mbit/s
95th percentile per-packet one-way delay: 64.916 ms
Loss rate: 23.43%
-- Flow 1:
Average throughput: 13.19 Mbit/s
95th percentile per-packet one-way delay: 64.761 ms
Loss rate: 7.81%
-- Flow 2:
Average throughput: 16.85 Mbit/s
95th percentile per-packet one-way delay: 71.286 ms
Loss rate: 15.37%
-- Flow 3:
Average throughput: 19.02 Mbit/s
95th percentile per-packet one-way delay: 61.744 ms
Loss rate: 35.96%

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

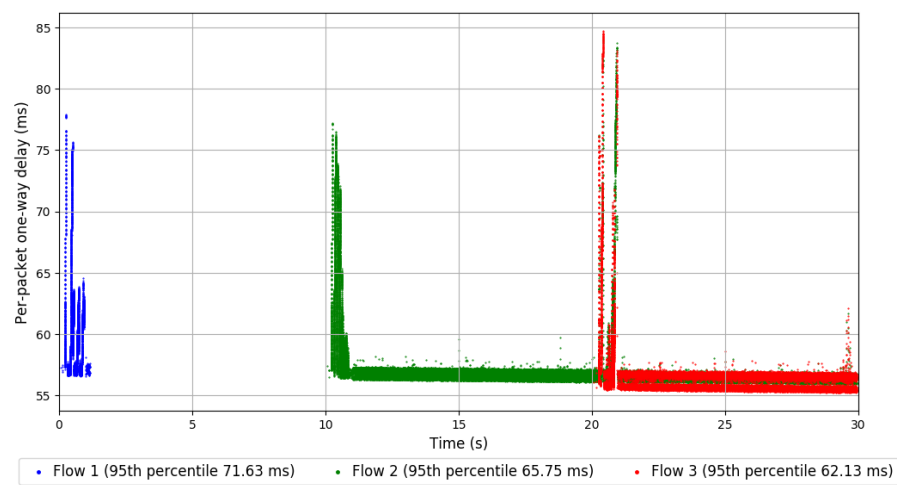
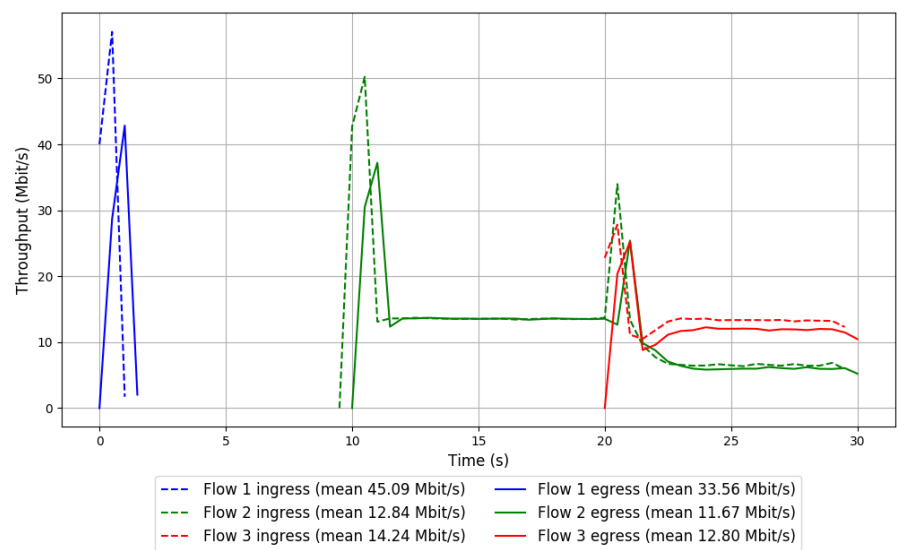


Run 3: Statistics of TaoVA-100x

Start at: 2018-09-08 01:20:00
End at: 2018-09-08 01:20:30
Local clock offset: 1.684 ms
Remote clock offset: 34.353 ms

Below is generated by plot.py at 2018-09-08 02:22:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 13.22 Mbit/s
95th percentile per-packet one-way delay: 65.862 ms
Loss rate: 11.67%
-- Flow 1:
Average throughput: 33.56 Mbit/s
95th percentile per-packet one-way delay: 71.629 ms
Loss rate: 25.54%
-- Flow 2:
Average throughput: 11.67 Mbit/s
95th percentile per-packet one-way delay: 65.746 ms
Loss rate: 9.47%
-- Flow 3:
Average throughput: 12.80 Mbit/s
95th percentile per-packet one-way delay: 62.127 ms
Loss rate: 10.82%

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

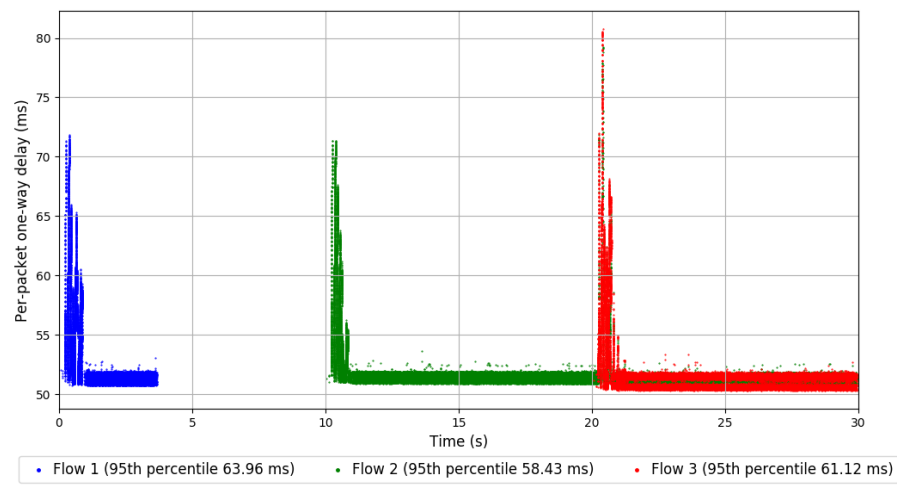
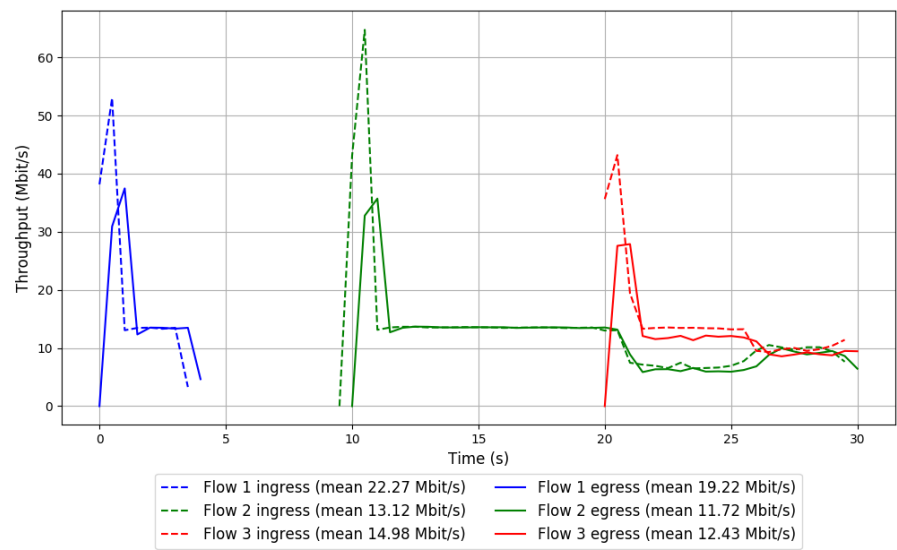


Run 4: Statistics of TaoVA-100x

Start at: 2018-09-08 01:42:22
End at: 2018-09-08 01:42:52
Local clock offset: 1.572 ms
Remote clock offset: 27.913 ms

Below is generated by plot.py at 2018-09-08 02:22:53
Datalink statistics
-- Total of 3 flows:
Average throughput: 14.23 Mbit/s
95th percentile per-packet one-way delay: 60.609 ms
Loss rate: 13.52%
-- Flow 1:
Average throughput: 19.22 Mbit/s
95th percentile per-packet one-way delay: 63.959 ms
Loss rate: 13.70%
-- Flow 2:
Average throughput: 11.72 Mbit/s
95th percentile per-packet one-way delay: 58.433 ms
Loss rate: 11.08%
-- Flow 3:
Average throughput: 12.43 Mbit/s
95th percentile per-packet one-way delay: 61.116 ms
Loss rate: 17.71%

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

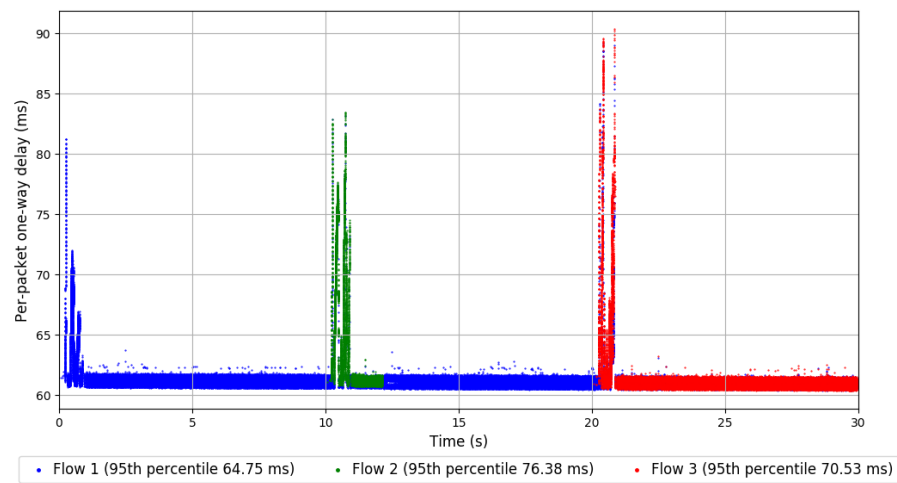
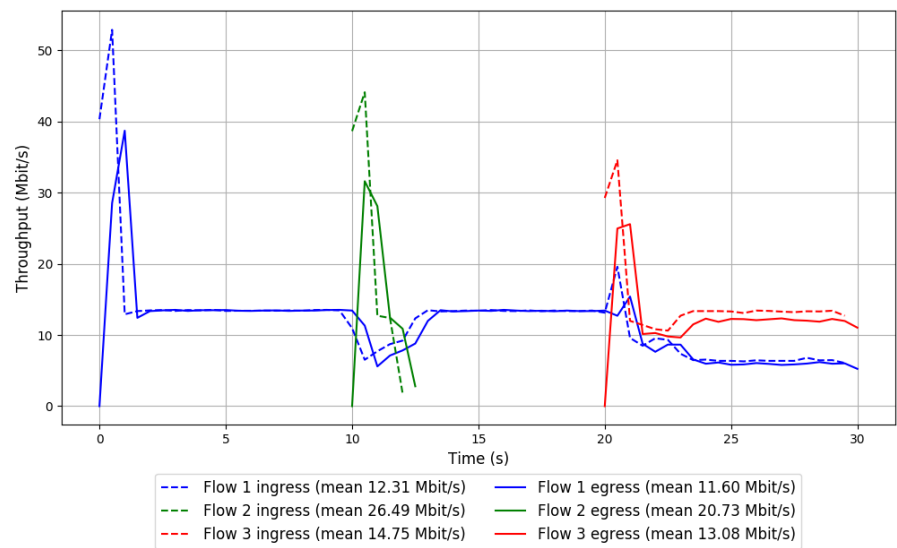


Run 5: Statistics of TaoVA-100x

Start at: 2018-09-08 02:04:33
End at: 2018-09-08 02:05:03
Local clock offset: 3.855 ms
Remote clock offset: -0.788 ms

Below is generated by plot.py at 2018-09-08 02:22:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 17.36 Mbit/s
95th percentile per-packet one-way delay: 68.761 ms
Loss rate: 9.09%
-- Flow 1:
Average throughput: 11.60 Mbit/s
95th percentile per-packet one-way delay: 64.750 ms
Loss rate: 6.02%
-- Flow 2:
Average throughput: 20.73 Mbit/s
95th percentile per-packet one-way delay: 76.382 ms
Loss rate: 21.72%
-- Flow 3:
Average throughput: 13.08 Mbit/s
95th percentile per-packet one-way delay: 70.525 ms
Loss rate: 12.09%

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

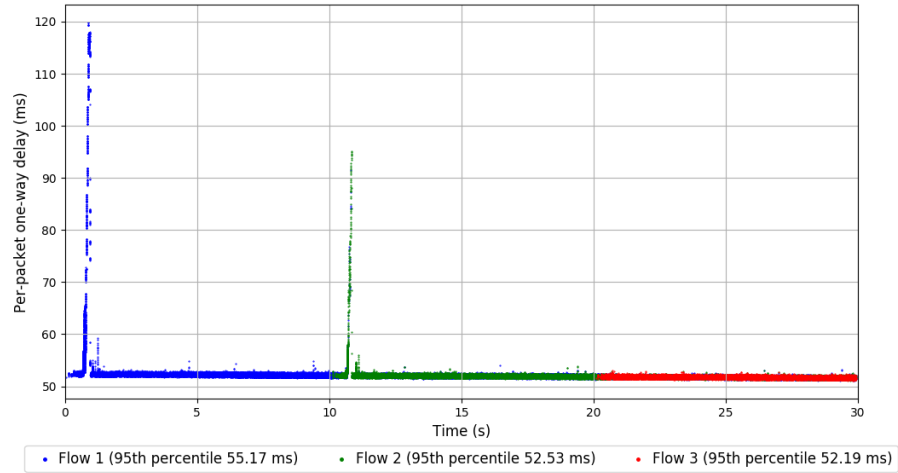
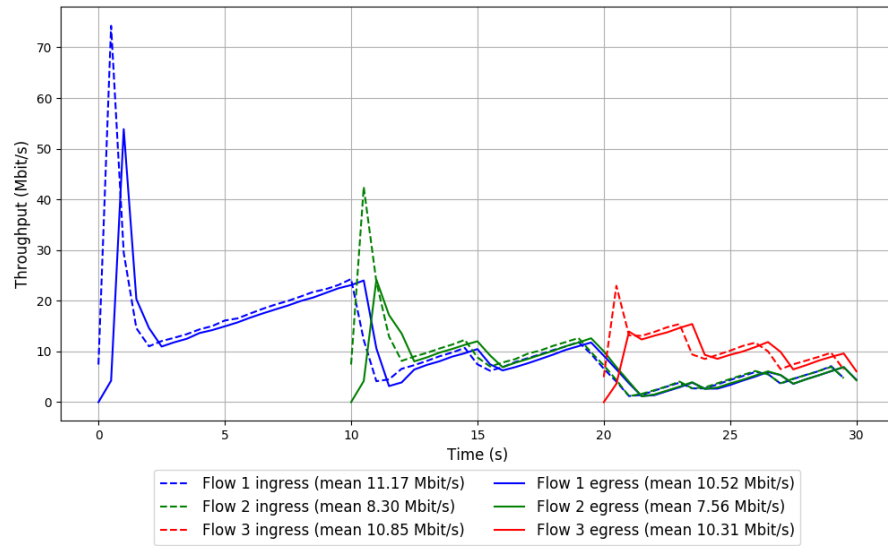


Run 1: Statistics of TCP Vegas

Start at: 2018-09-08 00:44:06
End at: 2018-09-08 00:44:36
Local clock offset: 0.718 ms
Remote clock offset: 57.344 ms

Below is generated by plot.py at 2018-09-08 02:22:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.95 Mbit/s
95th percentile per-packet one-way delay: 52.802 ms
Loss rate: 6.91%
-- Flow 1:
Average throughput: 10.52 Mbit/s
95th percentile per-packet one-way delay: 55.168 ms
Loss rate: 6.11%
-- Flow 2:
Average throughput: 7.56 Mbit/s
95th percentile per-packet one-way delay: 52.533 ms
Loss rate: 9.25%
-- Flow 3:
Average throughput: 10.31 Mbit/s
95th percentile per-packet one-way delay: 52.194 ms
Loss rate: 5.81%

Run 1: Report of TCP Vegas — Data Link

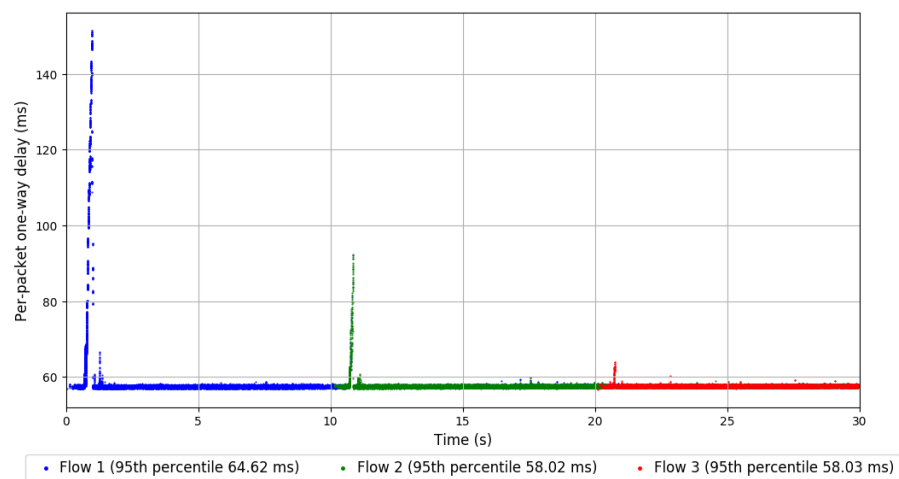
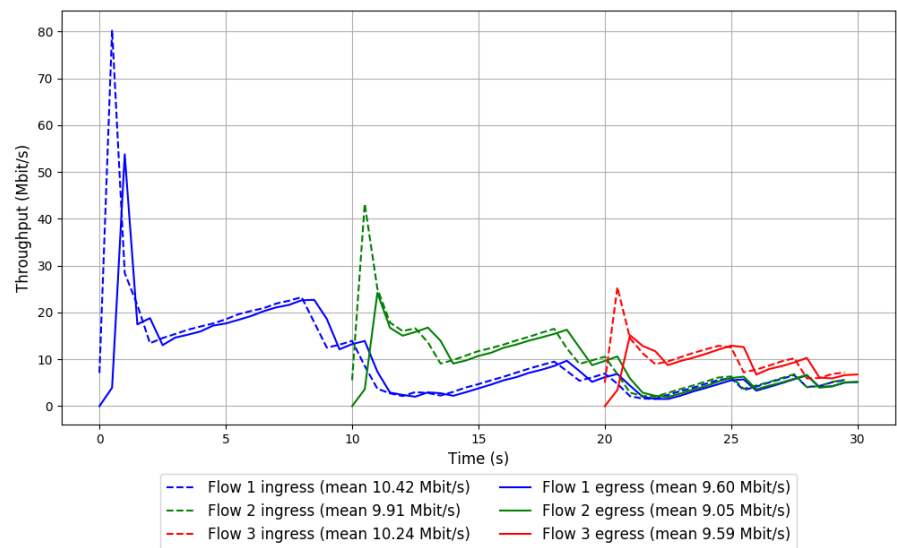


Run 2: Statistics of TCP Vegas

Start at: 2018-09-08 01:06:18
End at: 2018-09-08 01:06:48
Local clock offset: 1.414 ms
Remote clock offset: 47.396 ms

Below is generated by plot.py at 2018-09-08 02:22:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.78 Mbit/s
95th percentile per-packet one-way delay: 58.172 ms
Loss rate: 8.29%
-- Flow 1:
Average throughput: 9.60 Mbit/s
95th percentile per-packet one-way delay: 64.622 ms
Loss rate: 8.15%
-- Flow 2:
Average throughput: 9.05 Mbit/s
95th percentile per-packet one-way delay: 58.025 ms
Loss rate: 9.08%
-- Flow 3:
Average throughput: 9.59 Mbit/s
95th percentile per-packet one-way delay: 58.031 ms
Loss rate: 7.19%

Run 2: Report of TCP Vegas — Data Link

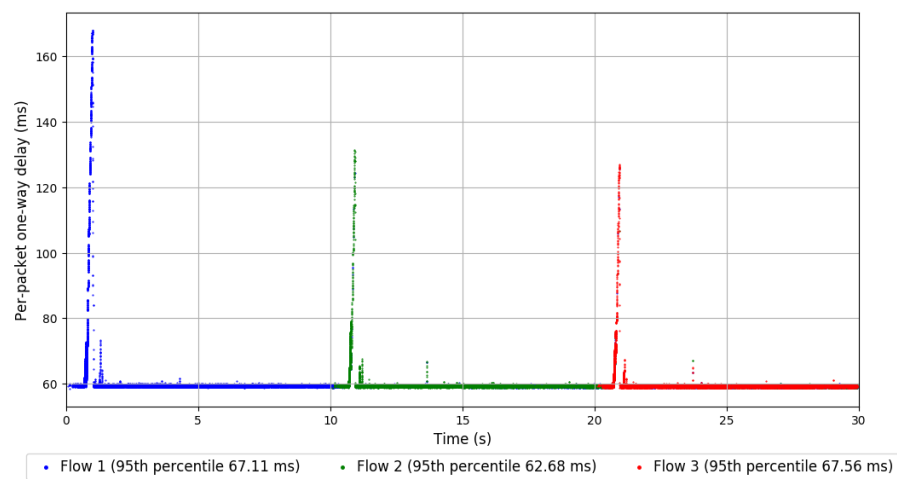
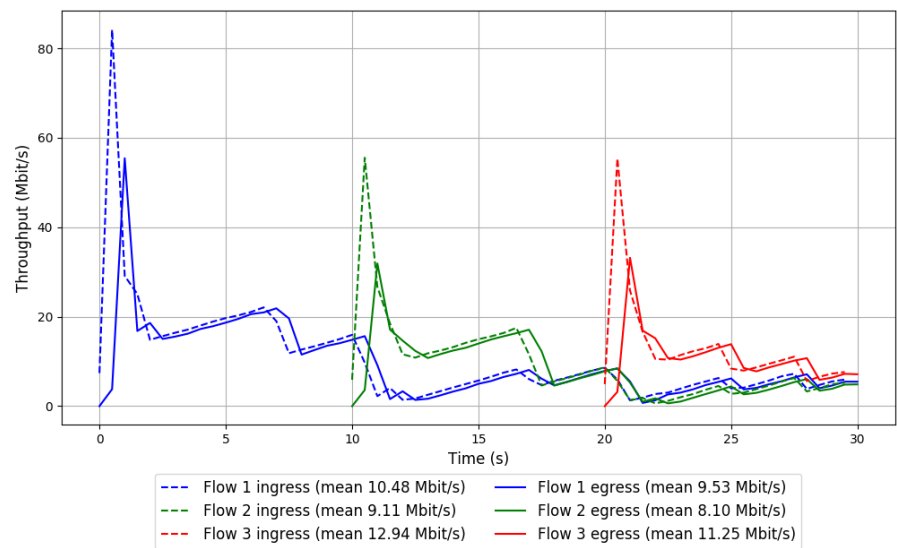


Run 3: Statistics of TCP Vegas

Start at: 2018-09-08 01:28:46
End at: 2018-09-08 01:29:16
Local clock offset: 1.506 ms
Remote clock offset: 24.195 ms

Below is generated by plot.py at 2018-09-08 02:22:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.62 Mbit/s
95th percentile per-packet one-way delay: 65.765 ms
Loss rate: 10.90%
-- Flow 1:
Average throughput: 9.53 Mbit/s
95th percentile per-packet one-way delay: 67.112 ms
Loss rate: 9.34%
-- Flow 2:
Average throughput: 8.10 Mbit/s
95th percentile per-packet one-way delay: 62.683 ms
Loss rate: 11.55%
-- Flow 3:
Average throughput: 11.25 Mbit/s
95th percentile per-packet one-way delay: 67.558 ms
Loss rate: 13.81%

Run 3: Report of TCP Vegas — Data Link

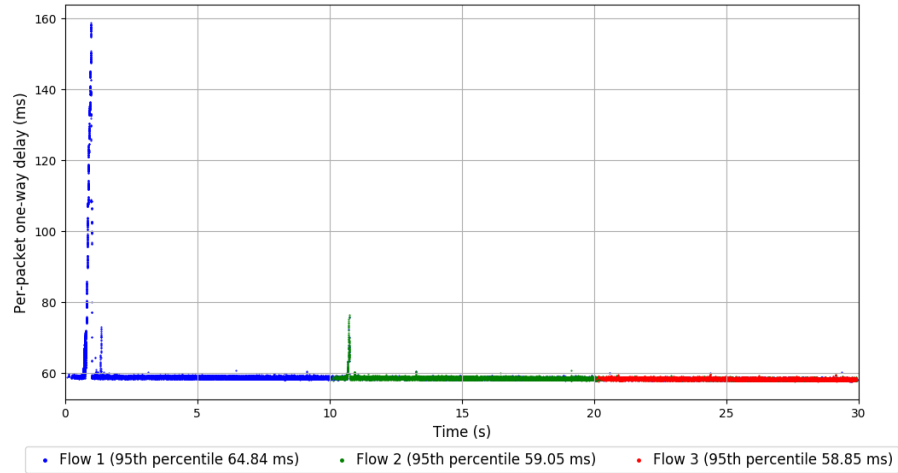
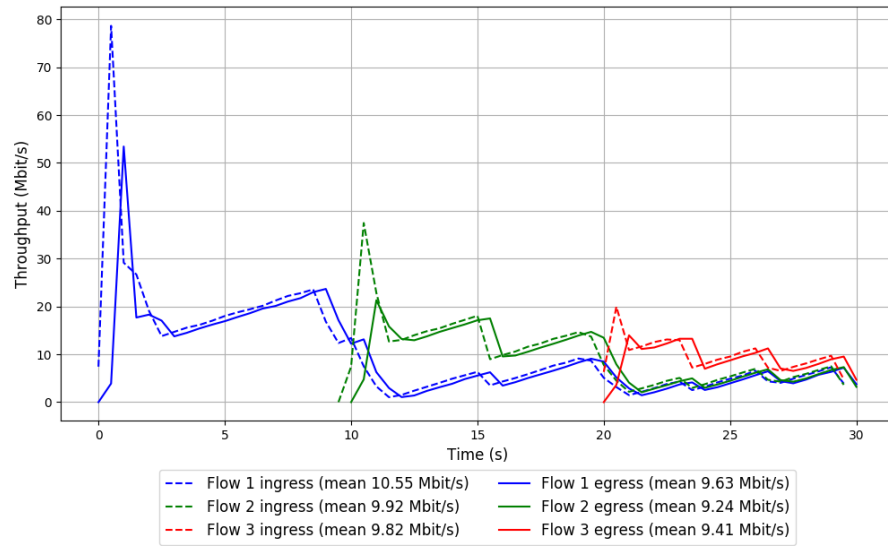


Run 4: Statistics of TCP Vegas

Start at: 2018-09-08 01:51:06
End at: 2018-09-08 01:51:36
Local clock offset: 2.843 ms
Remote clock offset: 13.056 ms

Below is generated by plot.py at 2018-09-08 02:23:01
Datalink statistics
-- Total of 3 flows:
Average throughput: 18.89 Mbit/s
95th percentile per-packet one-way delay: 59.354 ms
Loss rate: 7.78%
-- Flow 1:
Average throughput: 9.63 Mbit/s
95th percentile per-packet one-way delay: 64.838 ms
Loss rate: 8.95%
-- Flow 2:
Average throughput: 9.24 Mbit/s
95th percentile per-packet one-way delay: 59.055 ms
Loss rate: 7.24%
-- Flow 3:
Average throughput: 9.41 Mbit/s
95th percentile per-packet one-way delay: 58.851 ms
Loss rate: 5.09%

Run 4: Report of TCP Vegas — Data Link

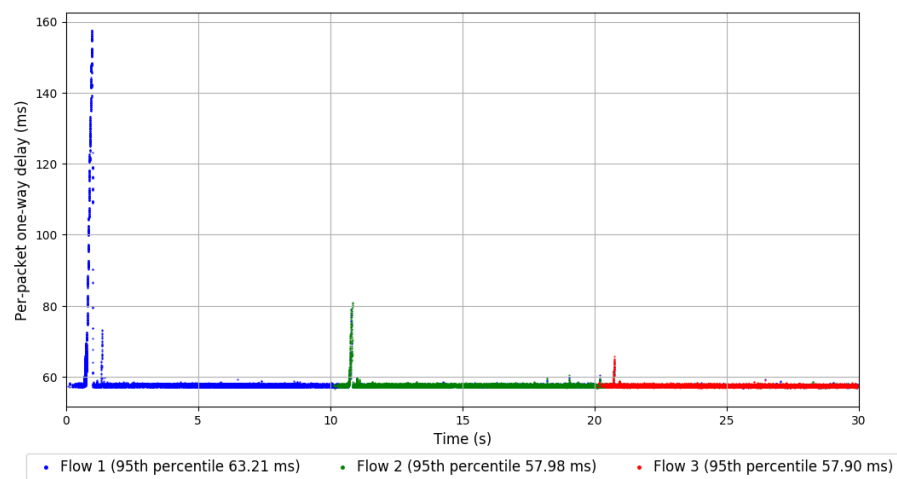
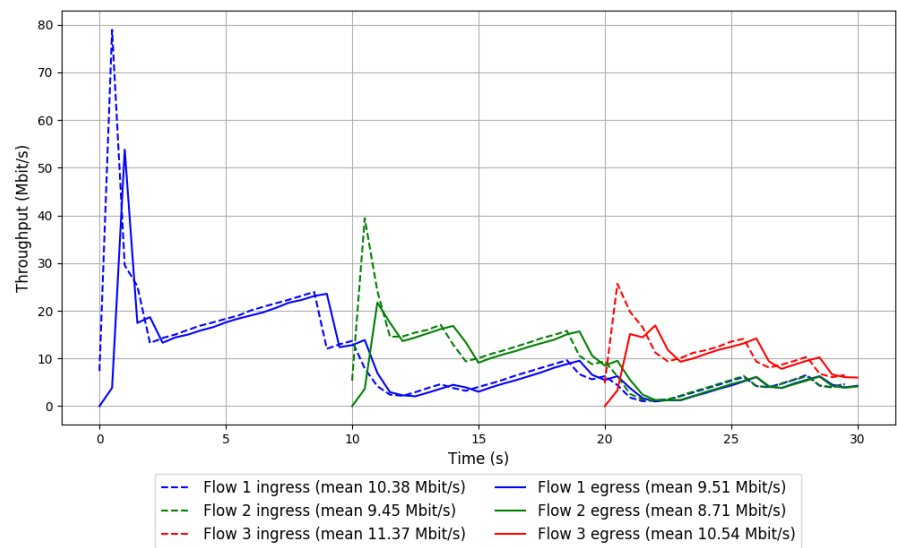


Run 5: Statistics of TCP Vegas

Start at: 2018-09-08 02:13:26
End at: 2018-09-08 02:13:56
Local clock offset: 4.3 ms
Remote clock offset: -0.249 ms

```
# Below is generated by plot.py at 2018-09-08 02:23:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.77 Mbit/s
95th percentile per-packet one-way delay: 58.133 ms
Loss rate: 8.42%
-- Flow 1:
Average throughput: 9.51 Mbit/s
95th percentile per-packet one-way delay: 63.210 ms
Loss rate: 8.70%
-- Flow 2:
Average throughput: 8.71 Mbit/s
95th percentile per-packet one-way delay: 57.982 ms
Loss rate: 8.18%
-- Flow 3:
Average throughput: 10.54 Mbit/s
95th percentile per-packet one-way delay: 57.903 ms
Loss rate: 8.06%
```

Run 5: Report of TCP Vegas — Data Link

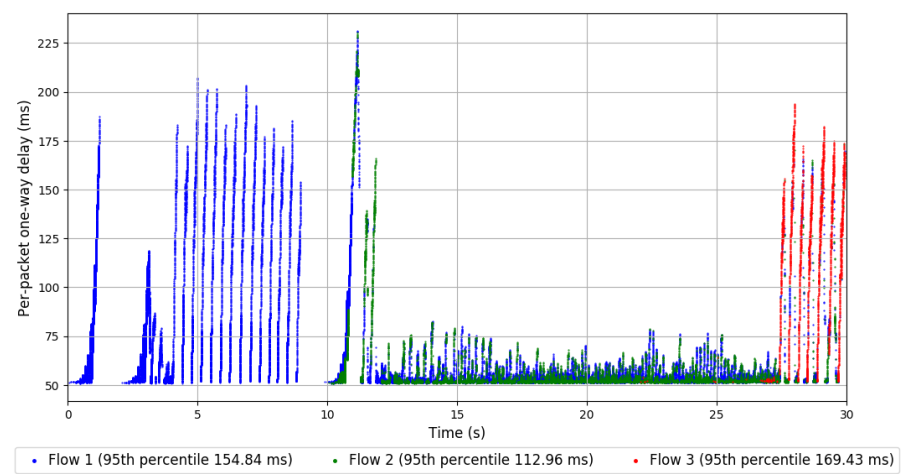
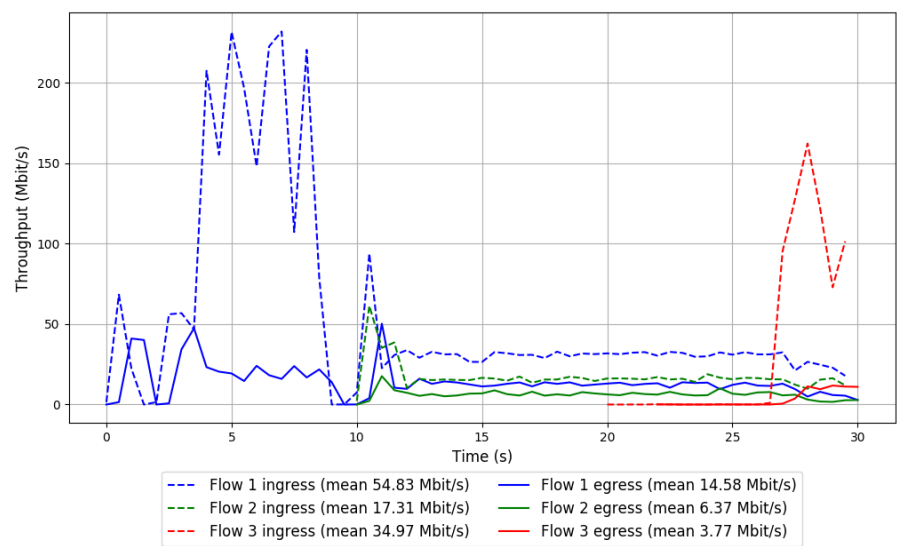


Run 1: Statistics of Verus

Start at: 2018-09-08 00:31:30
End at: 2018-09-08 00:32:00
Local clock offset: 1.798 ms
Remote clock offset: 63.145 ms

Below is generated by plot.py at 2018-09-08 02:23:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.81 Mbit/s
95th percentile per-packet one-way delay: 154.580 ms
Loss rate: 74.60%
-- Flow 1:
Average throughput: 14.58 Mbit/s
95th percentile per-packet one-way delay: 154.841 ms
Loss rate: 73.49%
-- Flow 2:
Average throughput: 6.37 Mbit/s
95th percentile per-packet one-way delay: 112.957 ms
Loss rate: 63.37%
-- Flow 3:
Average throughput: 3.77 Mbit/s
95th percentile per-packet one-way delay: 169.432 ms
Loss rate: 91.31%

Run 1: Report of Verus — Data Link

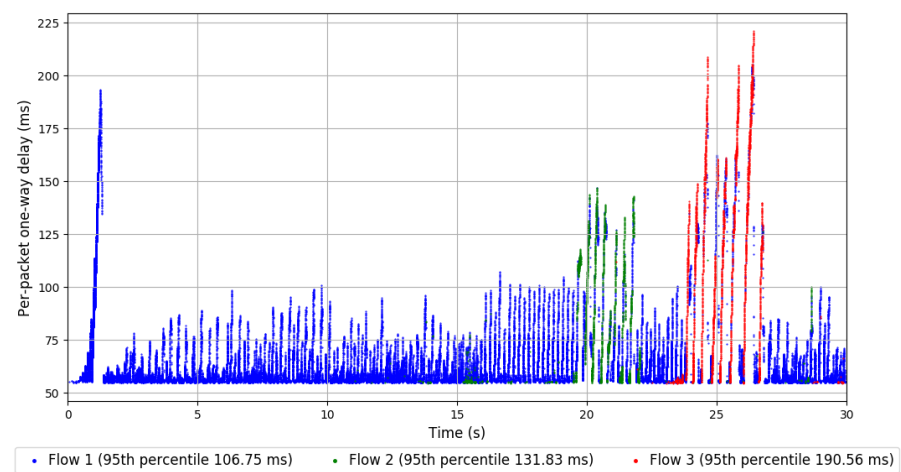
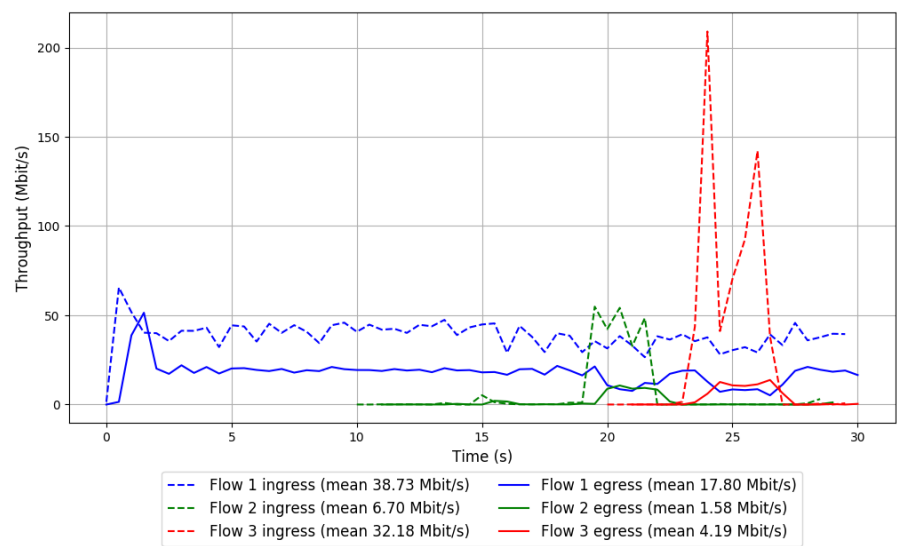


Run 2: Statistics of Verus

Start at: 2018-09-08 00:53:50
End at: 2018-09-08 00:54:20
Local clock offset: 1.619 ms
Remote clock offset: 47.749 ms

Below is generated by plot.py at 2018-09-08 02:23:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.96 Mbit/s
95th percentile per-packet one-way delay: 130.508 ms
Loss rate: 62.84%
-- Flow 1:
Average throughput: 17.80 Mbit/s
95th percentile per-packet one-way delay: 106.750 ms
Loss rate: 54.16%
-- Flow 2:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 131.830 ms
Loss rate: 77.68%
-- Flow 3:
Average throughput: 4.19 Mbit/s
95th percentile per-packet one-way delay: 190.561 ms
Loss rate: 88.55%

Run 2: Report of Verus — Data Link

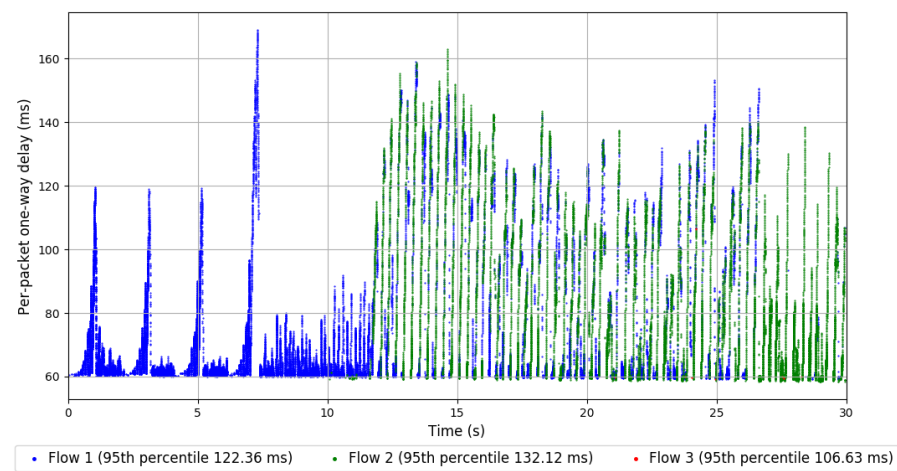
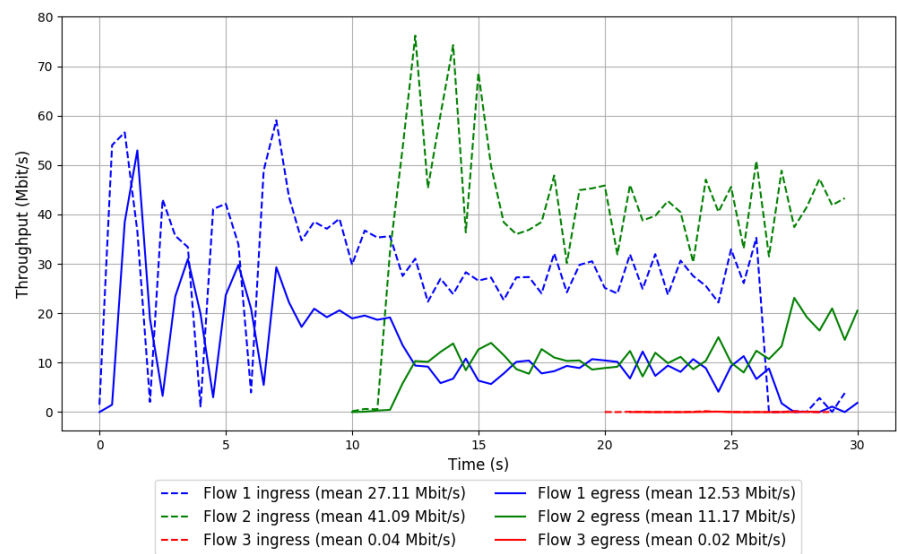


Run 3: Statistics of Verus

Start at: 2018-09-08 01:16:10
End at: 2018-09-08 01:16:40
Local clock offset: 1.464 ms
Remote clock offset: 38.185 ms

Below is generated by plot.py at 2018-09-08 02:23:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.96 Mbit/s
95th percentile per-packet one-way delay: 127.632 ms
Loss rate: 63.48%
-- Flow 1:
Average throughput: 12.53 Mbit/s
95th percentile per-packet one-way delay: 122.355 ms
Loss rate: 53.93%
-- Flow 2:
Average throughput: 11.17 Mbit/s
95th percentile per-packet one-way delay: 132.117 ms
Loss rate: 72.94%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 106.631 ms
Loss rate: 63.64%

Run 3: Report of Verus — Data Link

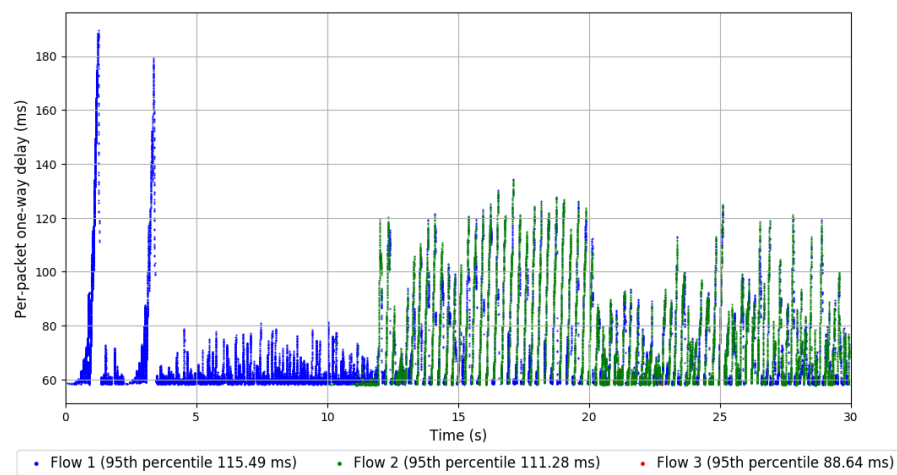
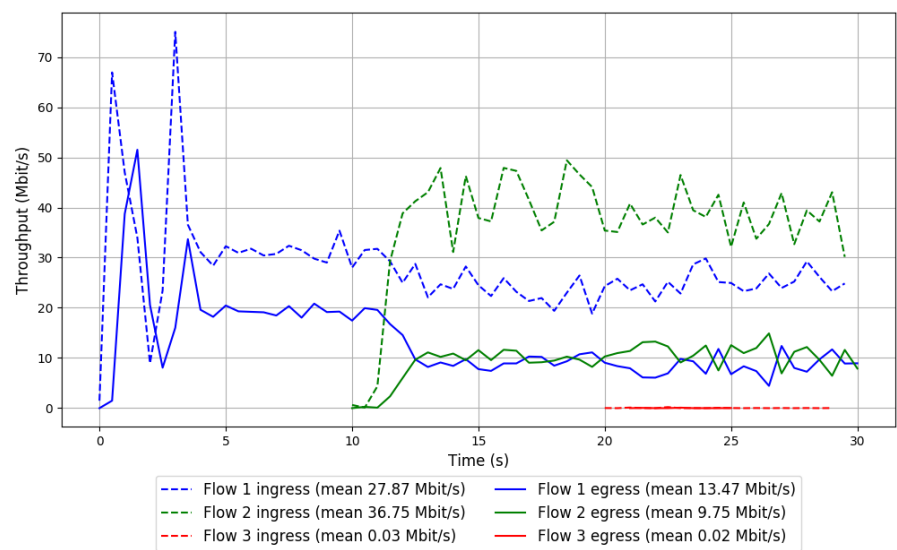


Run 4: Statistics of Verus

Start at: 2018-09-08 01:38:40
End at: 2018-09-08 01:39:10
Local clock offset: 1.712 ms
Remote clock offset: 21.849 ms

Below is generated by plot.py at 2018-09-08 02:23:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.96 Mbit/s
95th percentile per-packet one-way delay: 113.381 ms
Loss rate: 61.95%
-- Flow 1:
Average throughput: 13.47 Mbit/s
95th percentile per-packet one-way delay: 115.491 ms
Loss rate: 51.81%
-- Flow 2:
Average throughput: 9.75 Mbit/s
95th percentile per-packet one-way delay: 111.275 ms
Loss rate: 73.53%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 88.640 ms
Loss rate: 72.00%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-08 02:00:52

End at: 2018-09-08 02:01:22

Local clock offset: 3.862 ms

Remote clock offset: 4.819 ms

Below is generated by plot.py at 2018-09-08 02:23:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.96 Mbit/s

95th percentile per-packet one-way delay: 110.280 ms

Loss rate: 49.68%

-- Flow 1:

Average throughput: 19.13 Mbit/s

95th percentile per-packet one-way delay: 111.357 ms

Loss rate: 50.06%

-- Flow 2:

Average throughput: 0.94 Mbit/s

95th percentile per-packet one-way delay: 78.654 ms

Loss rate: 39.33%

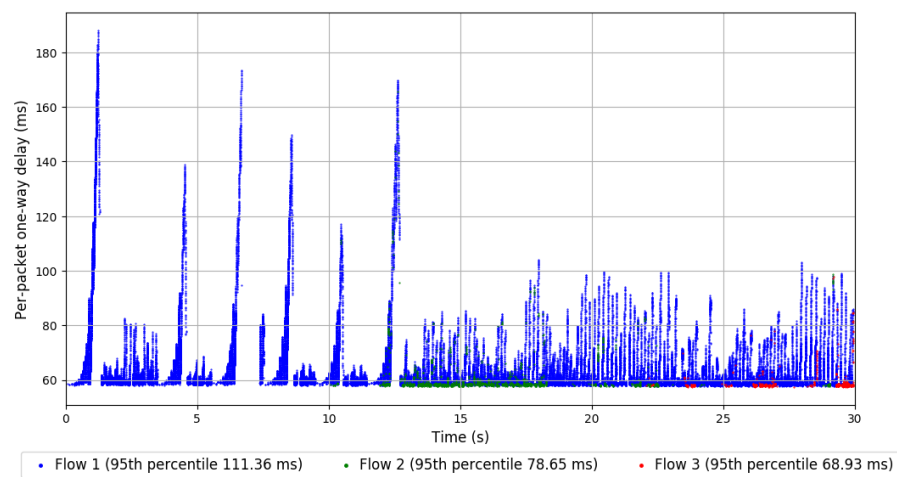
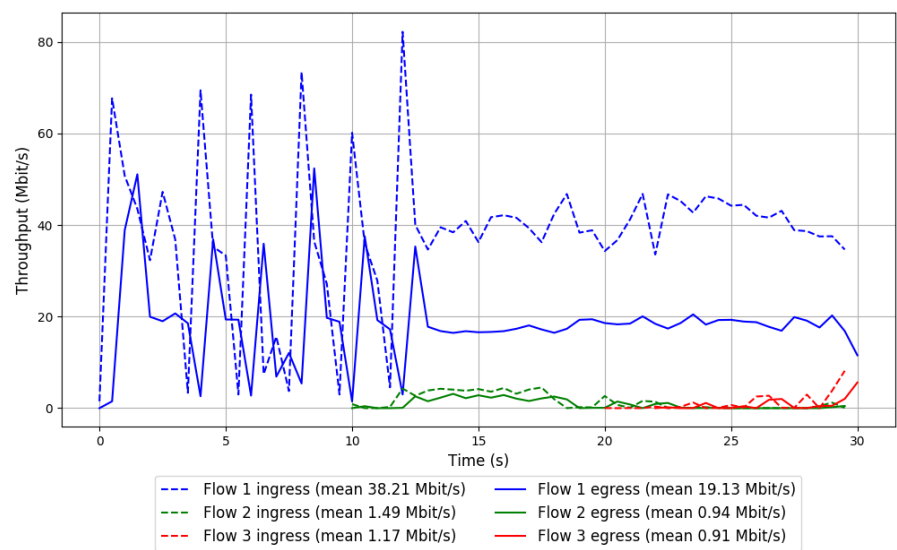
-- Flow 3:

Average throughput: 0.91 Mbit/s

95th percentile per-packet one-way delay: 68.927 ms

Loss rate: 38.20%

Run 5: Report of Verus — Data Link

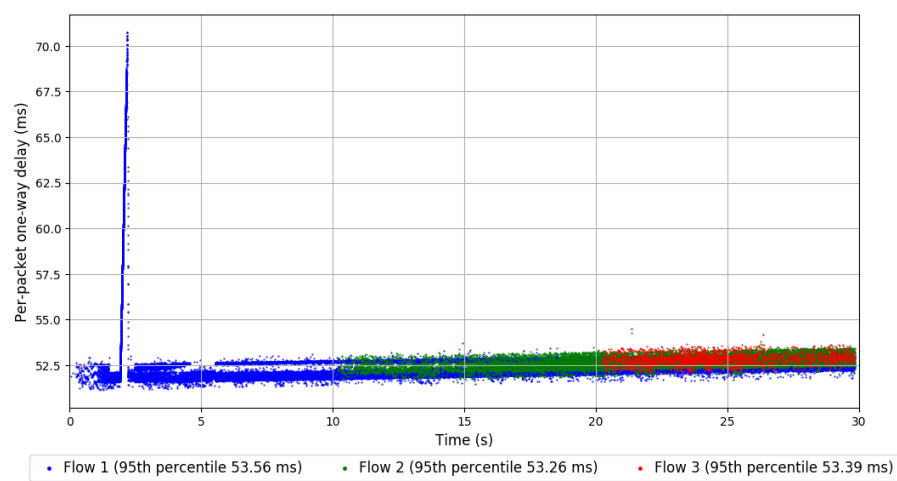
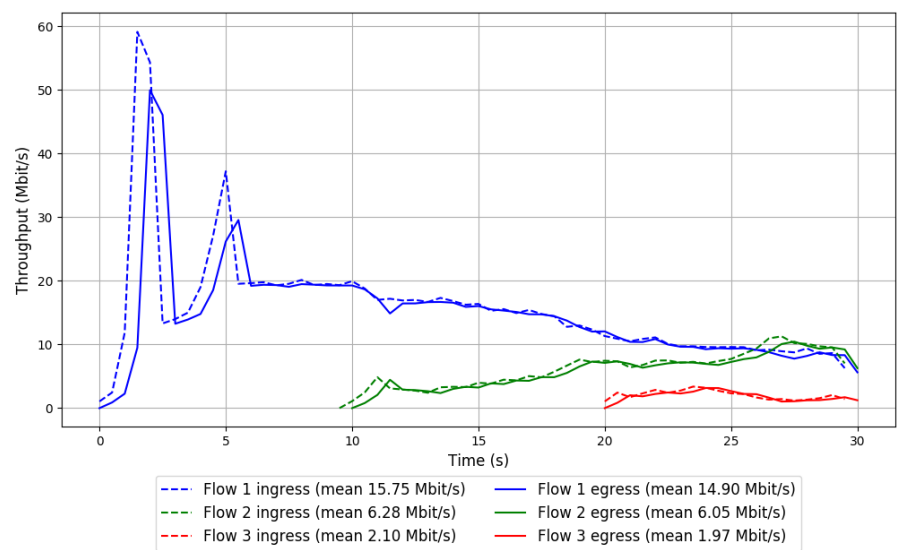


Run 1: Statistics of PCC-Vivace

Start at: 2018-09-08 00:34:00
End at: 2018-09-08 00:34:30
Local clock offset: 1.462 ms
Remote clock offset: 65.387 ms

Below is generated by plot.py at 2018-09-08 02:23:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.56 Mbit/s
95th percentile per-packet one-way delay: 53.286 ms
Loss rate: 5.43%
-- Flow 1:
Average throughput: 14.90 Mbit/s
95th percentile per-packet one-way delay: 53.558 ms
Loss rate: 5.68%
-- Flow 2:
Average throughput: 6.05 Mbit/s
95th percentile per-packet one-way delay: 53.259 ms
Loss rate: 4.17%
-- Flow 3:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 53.390 ms
Loss rate: 7.32%

Run 1: Report of PCC-Vivace — Data Link

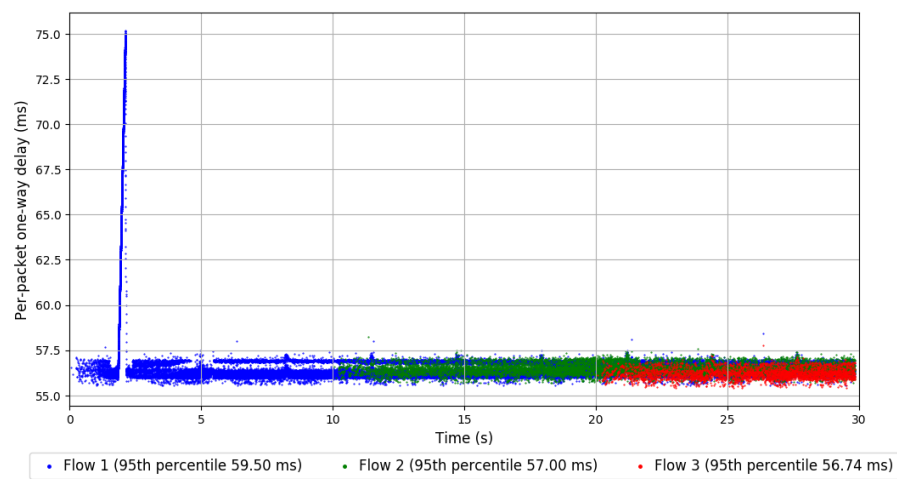
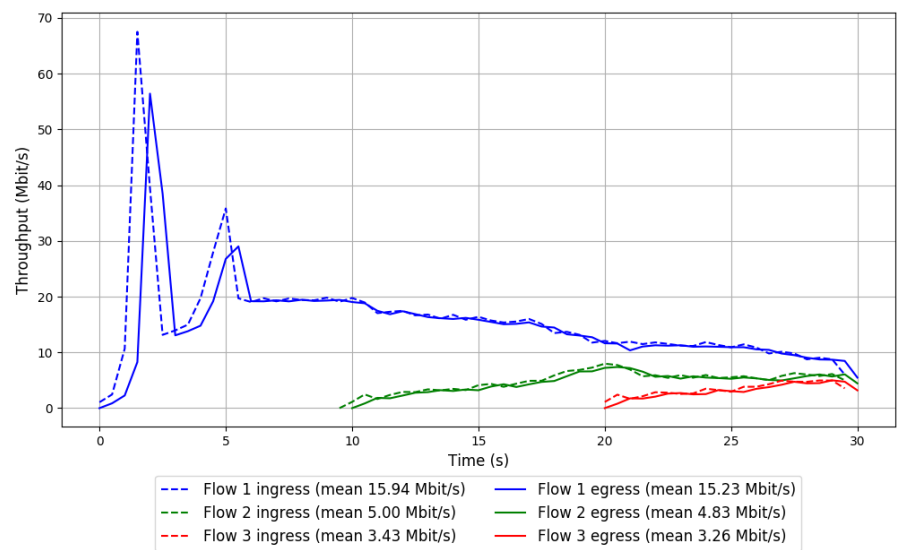


Run 2: Statistics of PCC-Vivace

Start at: 2018-09-08 00:56:17
End at: 2018-09-08 00:56:47
Local clock offset: 1.547 ms
Remote clock offset: 45.999 ms

Below is generated by plot.py at 2018-09-08 02:23:24
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.51 Mbit/s
95th percentile per-packet one-way delay: 57.094 ms
Loss rate: 4.62%
-- Flow 1:
Average throughput: 15.23 Mbit/s
95th percentile per-packet one-way delay: 59.497 ms
Loss rate: 4.69%
-- Flow 2:
Average throughput: 4.83 Mbit/s
95th percentile per-packet one-way delay: 57.001 ms
Loss rate: 3.93%
-- Flow 3:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 56.740 ms
Loss rate: 5.61%

Run 2: Report of PCC-Vivace — Data Link

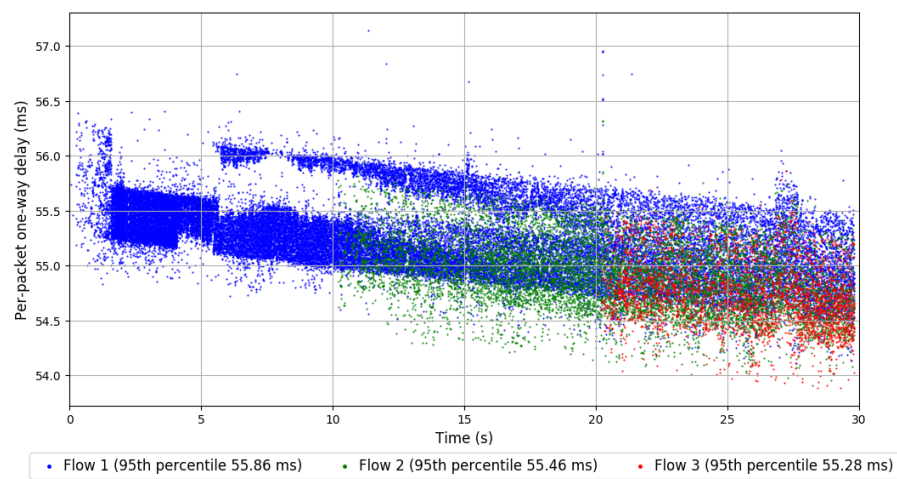
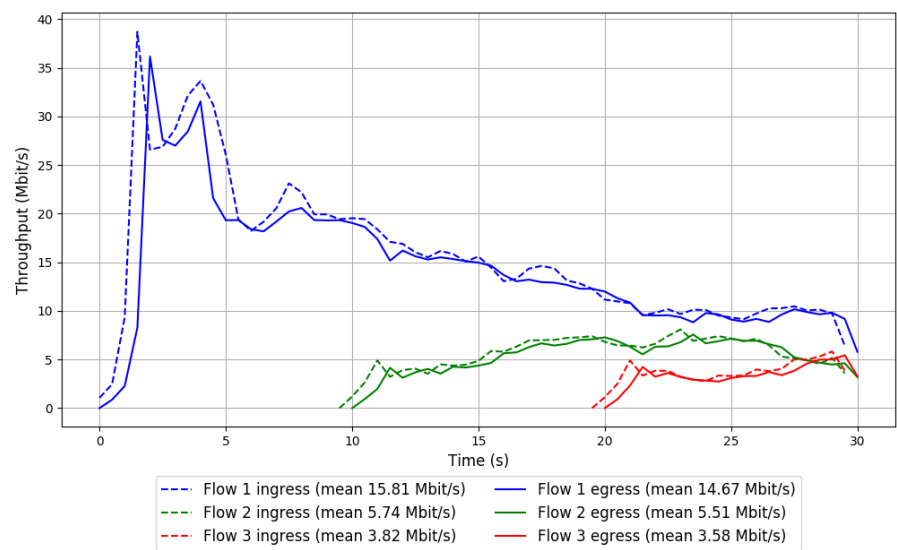


Run 3: Statistics of PCC-Vivace

Start at: 2018-09-08 01:18:46
End at: 2018-09-08 01:19:16
Local clock offset: 1.602 ms
Remote clock offset: 38.151 ms

Below is generated by plot.py at 2018-09-08 02:23:24
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.51 Mbit/s
95th percentile per-packet one-way delay: 55.797 ms
Loss rate: 6.93%
-- Flow 1:
Average throughput: 14.67 Mbit/s
95th percentile per-packet one-way delay: 55.864 ms
Loss rate: 7.49%
-- Flow 2:
Average throughput: 5.51 Mbit/s
95th percentile per-packet one-way delay: 55.457 ms
Loss rate: 4.55%
-- Flow 3:
Average throughput: 3.58 Mbit/s
95th percentile per-packet one-way delay: 55.277 ms
Loss rate: 7.14%

Run 3: Report of PCC-Vivace — Data Link

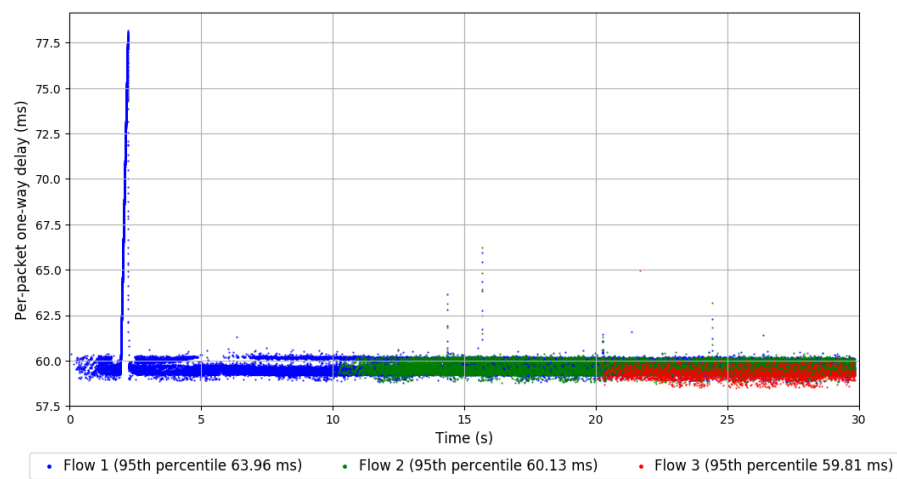
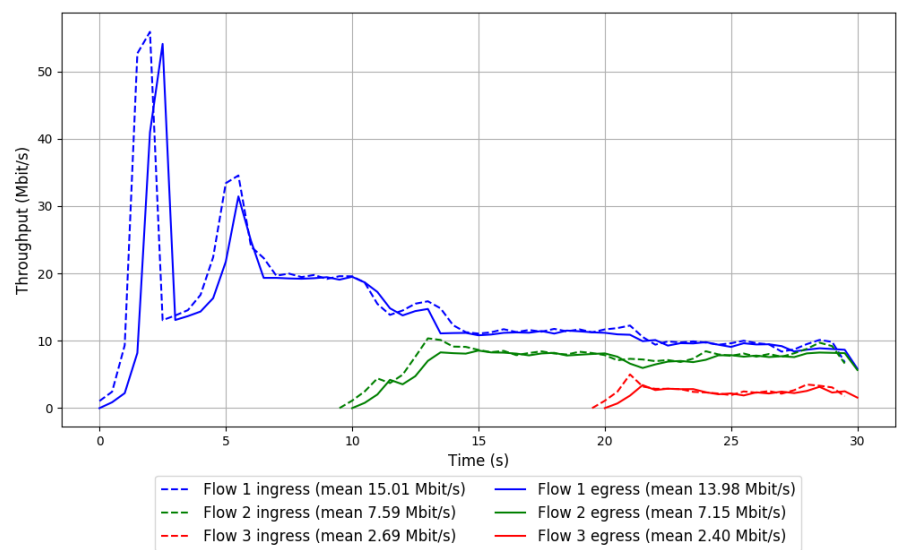


Run 4: Statistics of PCC-Vivace

Start at: 2018-09-08 01:41:08
End at: 2018-09-08 01:41:38
Local clock offset: 1.709 ms
Remote clock offset: 20.588 ms

Below is generated by plot.py at 2018-09-08 02:23:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 19.52 Mbit/s
95th percentile per-packet one-way delay: 60.250 ms
Loss rate: 7.10%
-- Flow 1:
Average throughput: 13.98 Mbit/s
95th percentile per-packet one-way delay: 63.956 ms
Loss rate: 7.18%
-- Flow 2:
Average throughput: 7.15 Mbit/s
95th percentile per-packet one-way delay: 60.126 ms
Loss rate: 6.12%
-- Flow 3:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 59.808 ms
Loss rate: 11.28%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-08 02:03:19

End at: 2018-09-08 02:03:49

Local clock offset: 3.911 ms

Remote clock offset: 4.546 ms

Below is generated by plot.py at 2018-09-08 02:23:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 19.53 Mbit/s

95th percentile per-packet one-way delay: 57.198 ms

Loss rate: 8.74%

-- Flow 1:

Average throughput: 16.00 Mbit/s

95th percentile per-packet one-way delay: 57.363 ms

Loss rate: 9.00%

-- Flow 2:

Average throughput: 3.91 Mbit/s

95th percentile per-packet one-way delay: 57.122 ms

Loss rate: 7.89%

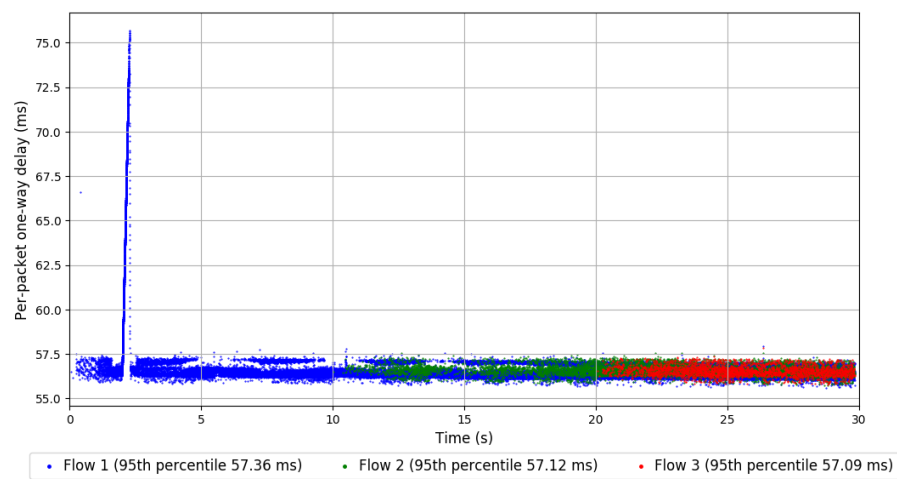
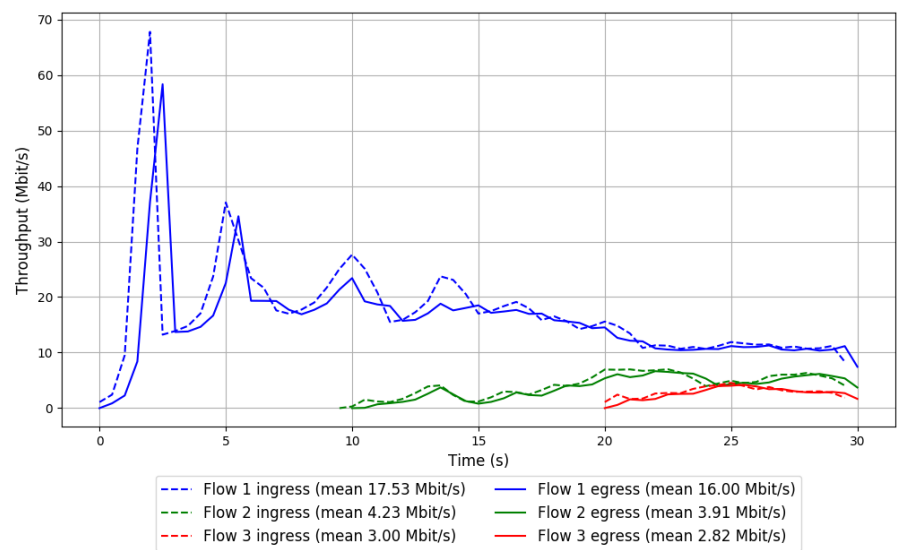
-- Flow 3:

Average throughput: 2.82 Mbit/s

95th percentile per-packet one-way delay: 57.085 ms

Loss rate: 6.55%

Run 5: Report of PCC-Vivace — Data Link

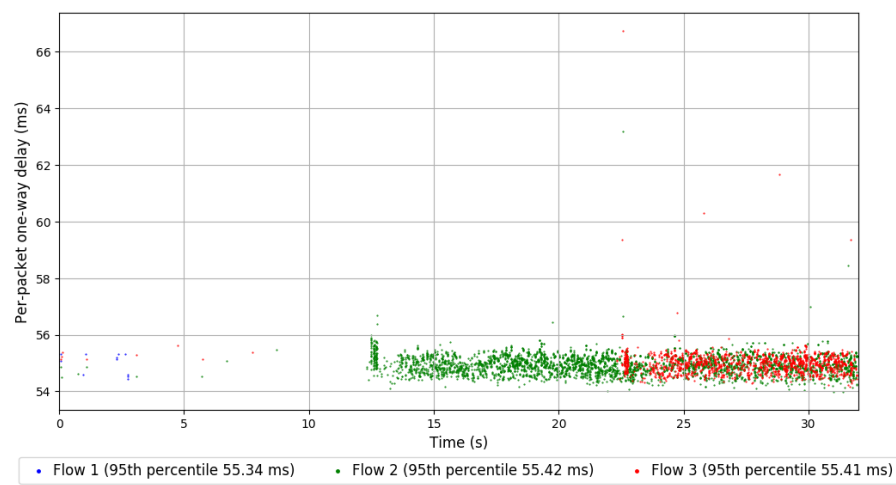
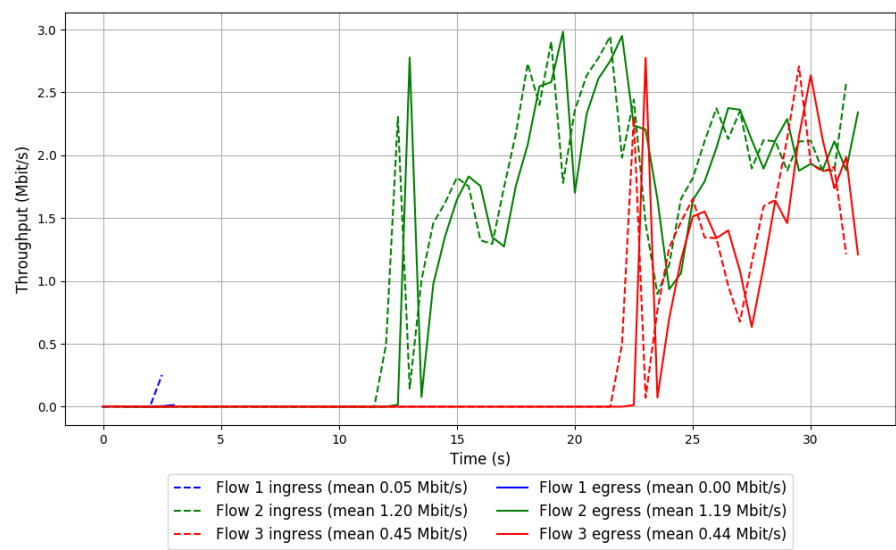


Run 1: Statistics of WebRTC media

Start at: 2018-09-08 00:47:44
End at: 2018-09-08 00:48:14
Local clock offset: 1.195 ms
Remote clock offset: 50.072 ms

Below is generated by plot.py at 2018-09-08 02:23:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 55.416 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 55.335 ms
Loss rate: 91.16%
-- Flow 2:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 55.417 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 55.413 ms
Loss rate: 0.66%

Run 1: Report of WebRTC media — Data Link

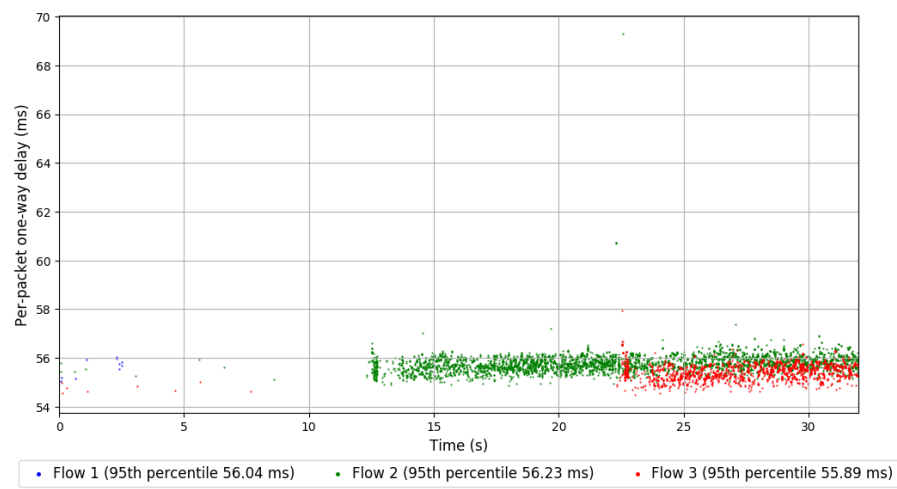
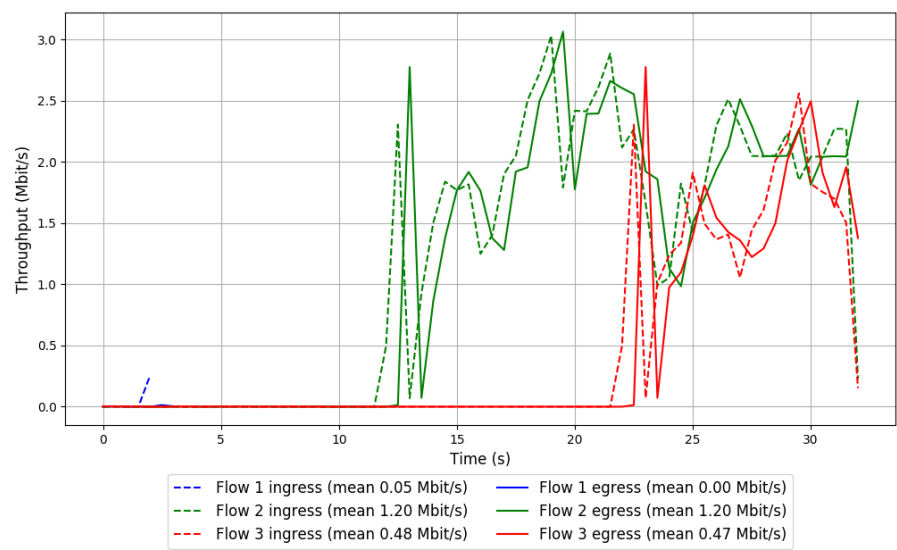


Run 2: Statistics of WebRTC media

Start at: 2018-09-08 01:10:01
End at: 2018-09-08 01:10:31
Local clock offset: 1.157 ms
Remote clock offset: 50.681 ms

Below is generated by plot.py at 2018-09-08 02:23:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 56.198 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 56.037 ms
Loss rate: 91.65%
-- Flow 2:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 56.230 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 55.894 ms
Loss rate: 0.92%

Run 2: Report of WebRTC media — Data Link

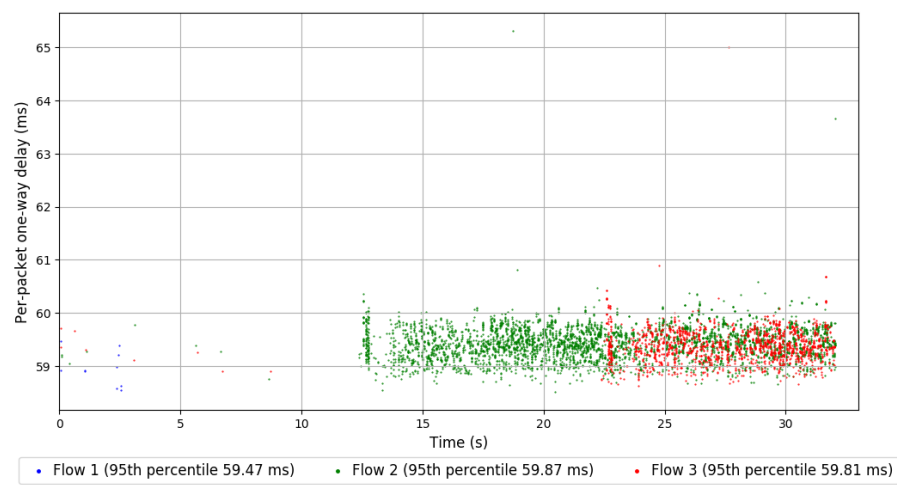
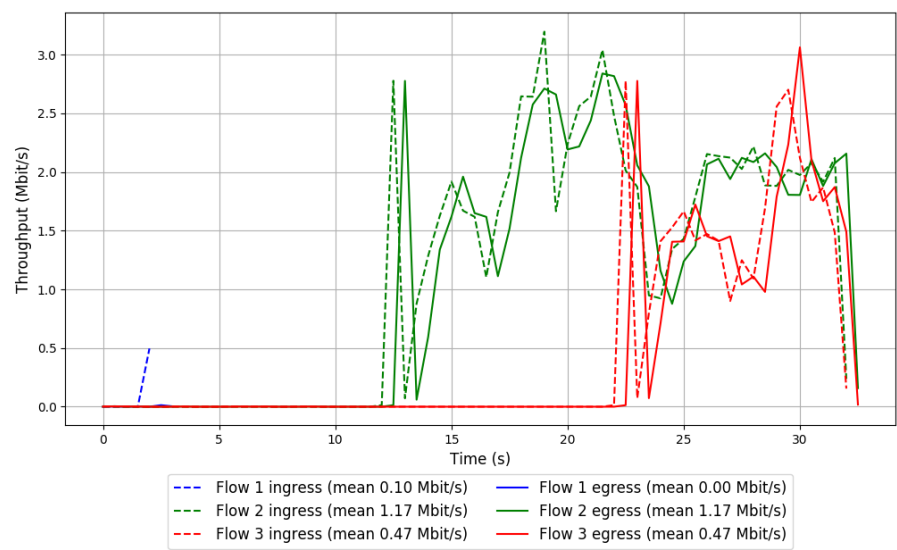


Run 3: Statistics of WebRTC media

Start at: 2018-09-08 01:32:25
End at: 2018-09-08 01:32:55
Local clock offset: 1.65 ms
Remote clock offset: 22.556 ms

Below is generated by plot.py at 2018-09-08 02:23:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 59.853 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 59.467 ms
Loss rate: 95.64%
-- Flow 2:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 59.869 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 59.815 ms
Loss rate: 0.88%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-08 01:54:44

End at: 2018-09-08 01:55:14

Local clock offset: 3.289 ms

Remote clock offset: 8.205 ms

Below is generated by plot.py at 2018-09-08 02:23:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 1.69 Mbit/s

95th percentile per-packet one-way delay: 59.845 ms

Loss rate: 0.77%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 59.859 ms

Loss rate: 91.65%

-- Flow 2:

Average throughput: 1.20 Mbit/s

95th percentile per-packet one-way delay: 59.510 ms

Loss rate: 0.45%

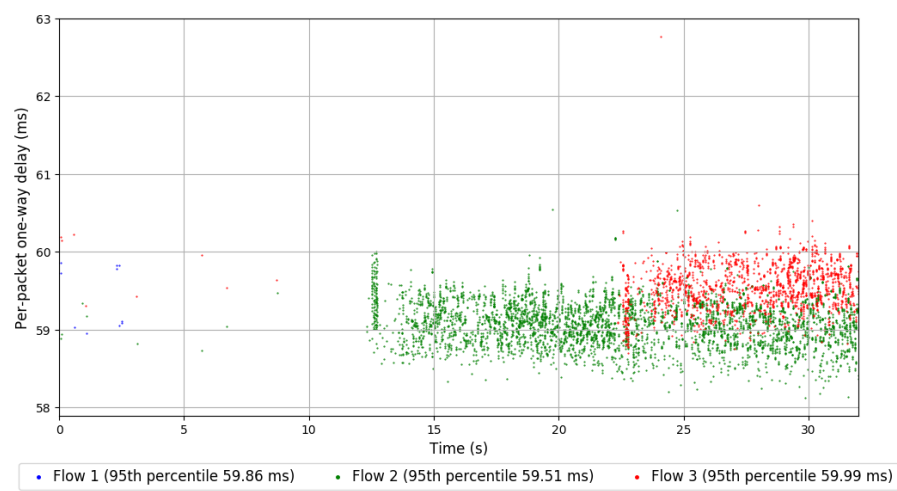
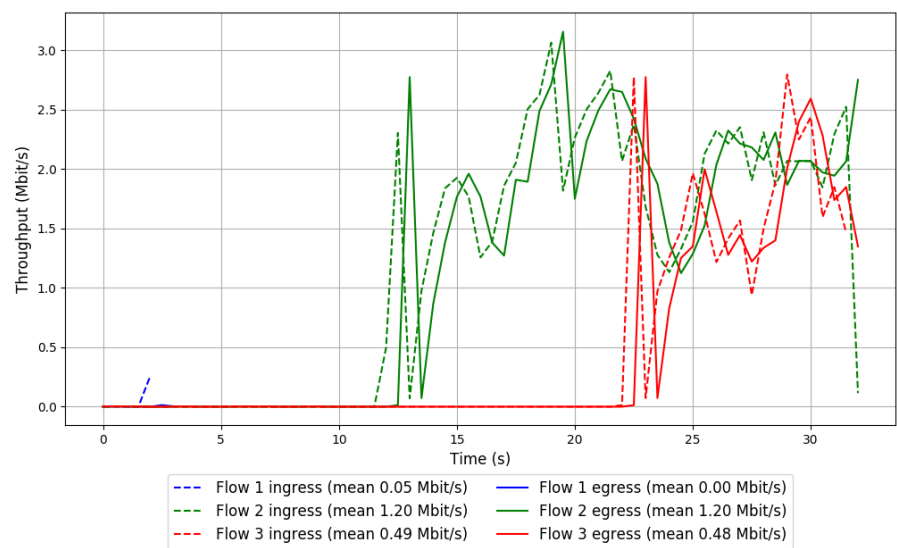
-- Flow 3:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 59.995 ms

Loss rate: 0.80%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-08 02:17:05
End at: 2018-09-08 02:17:35
Local clock offset: 5.058 ms
Remote clock offset: -2.205 ms

Below is generated by plot.py at 2018-09-08 02:23:27
Datalink statistics
-- Total of 3 flows:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 58.621 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 58.776 ms
Loss rate: 91.65%
-- Flow 2:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 58.636 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 58.470 ms
Loss rate: 0.80%

Run 5: Report of WebRTC media — Data Link

