Pantheon Report

Generated at 2017-08-11 15:44:54 (UTC).

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

Repeated the test of 15 congestion control schemes 10 times.

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

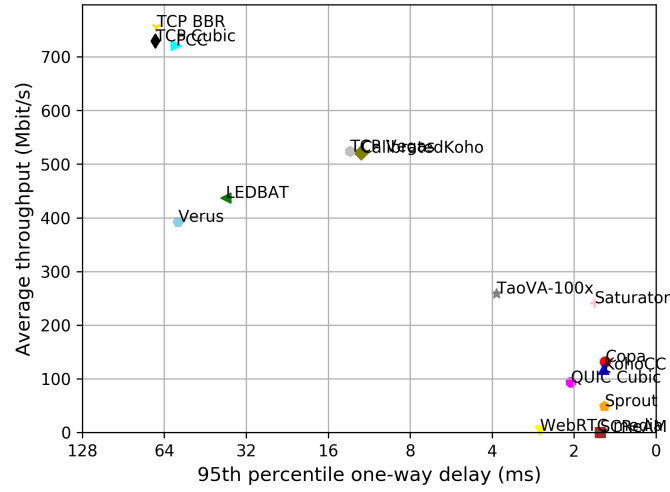Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

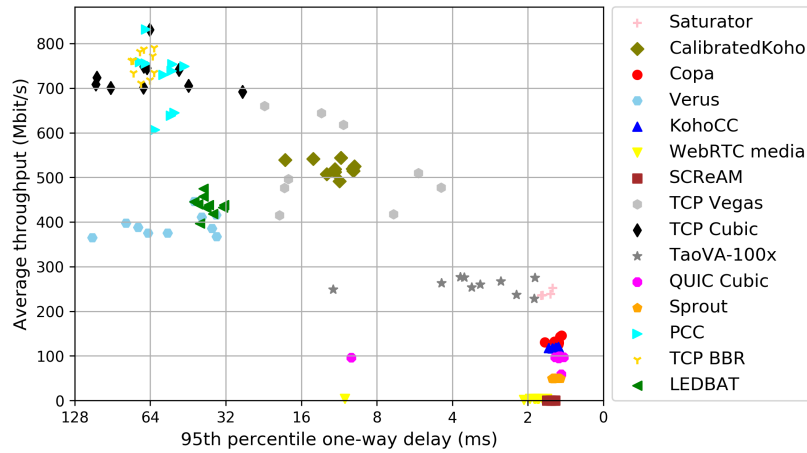NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

```
Git summary:
branch: master @ e43be7582298d552838afcf6382342bf187fbbd6
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/genericCC @ dae96123232f1bcb37725348fa2378691ce26725
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
 M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-stimuli @ fc73a85ca16c34366d1888dc8a0d0d88d4ebf2a7
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
 M scripts/merge-tunnel-logs
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/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

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

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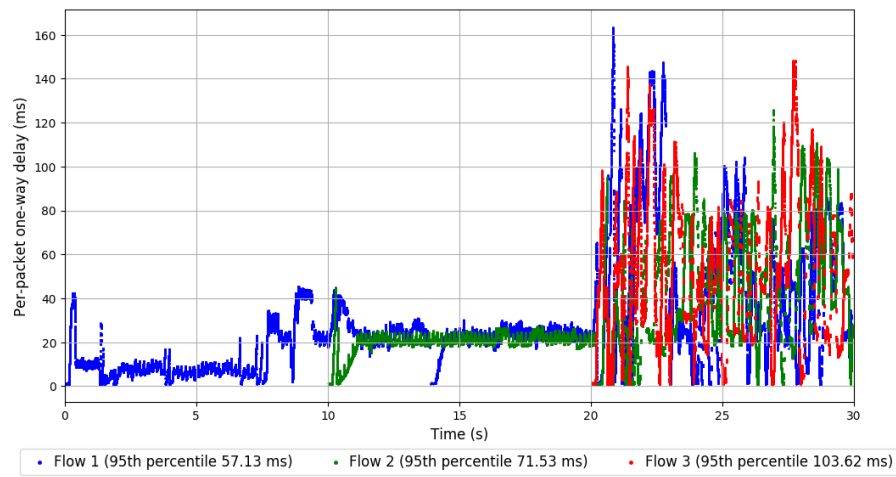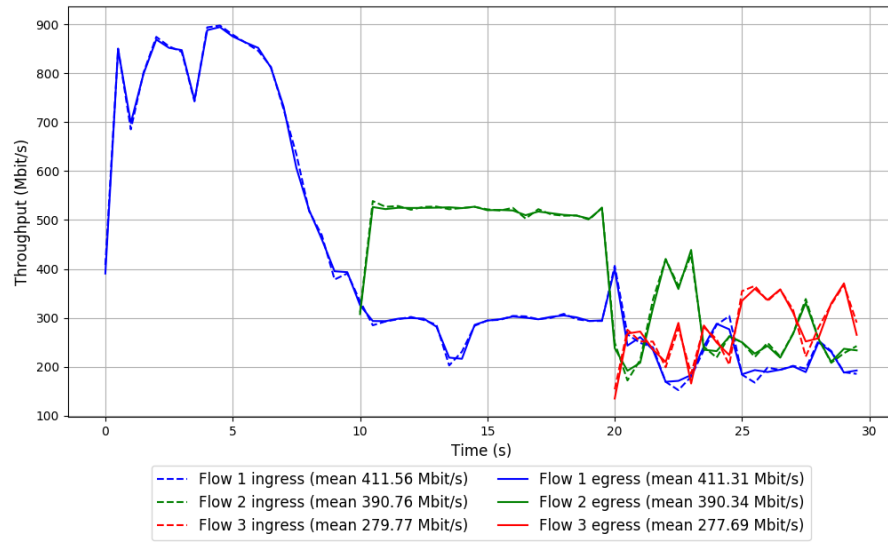### 3 flows with 10s interval between flows

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	10	458.85	307.44	278.10	53.27	72.61	88.79	0.26	0.50	0.79
CalibratedKoho	10	331.80	206.34	157.87	11.12	13.01	15.60	0.06	0.11	0.30
Copa	10	69.31	63.35	60.96	2.26	2.75	1.22	0.05	0.08	0.21
TCP Cubic	10	419.67	336.34	260.28	47.73	64.30	82.59	0.10	0.22	0.53
KohoCC	10	59.06	58.95	59.07	1.27	1.29	1.26	0.07	0.10	0.20
LEDBAT	10	255.68	200.80	145.63	31.03	44.08	39.73	0.11	0.22	0.52
PCC	10	539.07	215.59	117.56	63.19	17.54	8.12	4.68	0.78	0.56
QUIC Cubic	10	51.95	44.36	37.06	2.07	2.07	2.06	0.05	0.10	0.19
Saturator	4	118.75	121.66	118.63	1.54	1.45	1.42	0.07	0.10	0.20
SCReAM	10	0.22	0.22	0.22	1.38	1.35	1.33	0.00	0.00	0.14
Sprout	10	24.89	24.55	24.50	1.26	1.28	1.28	0.07	0.10	0.31
TaoVA-100x	10	148.39	118.13	95.43	3.50	4.40	3.68	0.03	0.07	0.20
TCP Vegas	9	247.47	280.82	270.04	9.26	9.74	16.05	0.05	0.09	0.21
Verus	10	240.17	160.57	141.02	48.25	53.48	42.04	0.94	2.92	0.23
WebRTC media	10	2.11	1.35	0.45	2.59	2.81	2.78	0.10	0.12	0.32

```
Run 1: Statistics of TCP BBR

Start at: 2017-08-11 05:53:59
End at: 2017-08-11 05:54:29
Local clock offset: 0.37 ms
Remote clock offset: -1.533 ms

# Below is generated by plot.py at 2017-08-11 14:47:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 762.84 Mbit/s
95th percentile per-packet one-way delay: 75.043 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 411.31 Mbit/s
95th percentile per-packet one-way delay: 57.132 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 390.34 Mbit/s
95th percentile per-packet one-way delay: 71.528 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 277.69 Mbit/s
95th percentile per-packet one-way delay: 103.624 ms
Loss rate: 0.79%
```

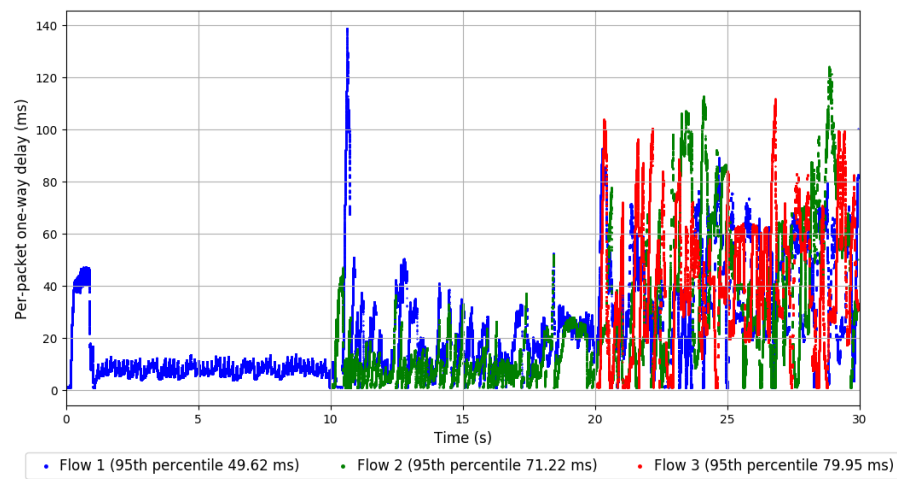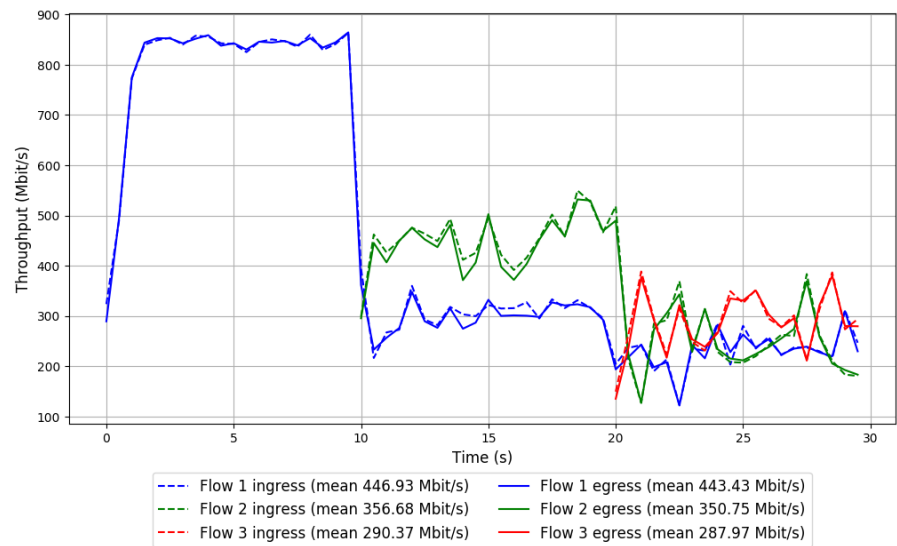Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2017-08-11 06:16:15
End at: 2017-08-11 06:16:45
Local clock offset: 0.369 ms
Remote clock offset: -1.252 ms


# Below is generated by plot.py at 2017-08-11 14:47:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 772.21 Mbit/s
95th percentile per-packet one-way delay: 62.606 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 443.43 Mbit/s
95th percentile per-packet one-way delay: 49.620 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 350.75 Mbit/s
95th percentile per-packet one-way delay: 71.218 ms
Loss rate: 1.71%
-- Flow 3:
Average throughput: 287.97 Mbit/s
95th percentile per-packet one-way delay: 79.953 ms
Loss rate: 1.07%
```

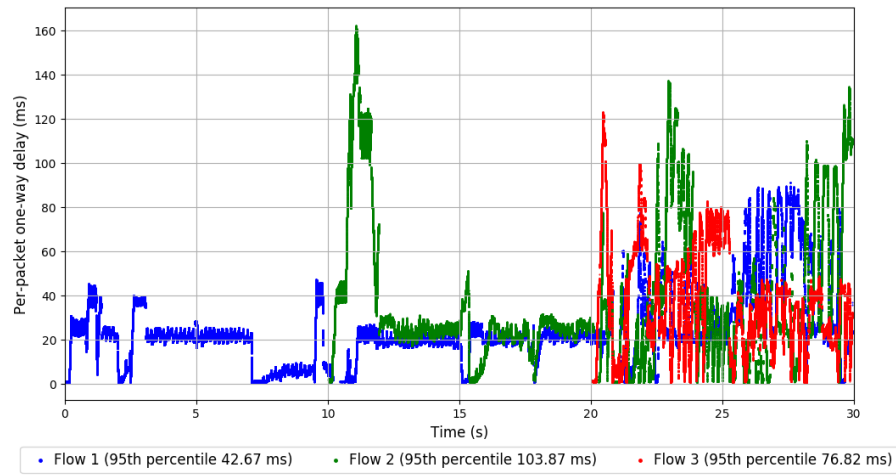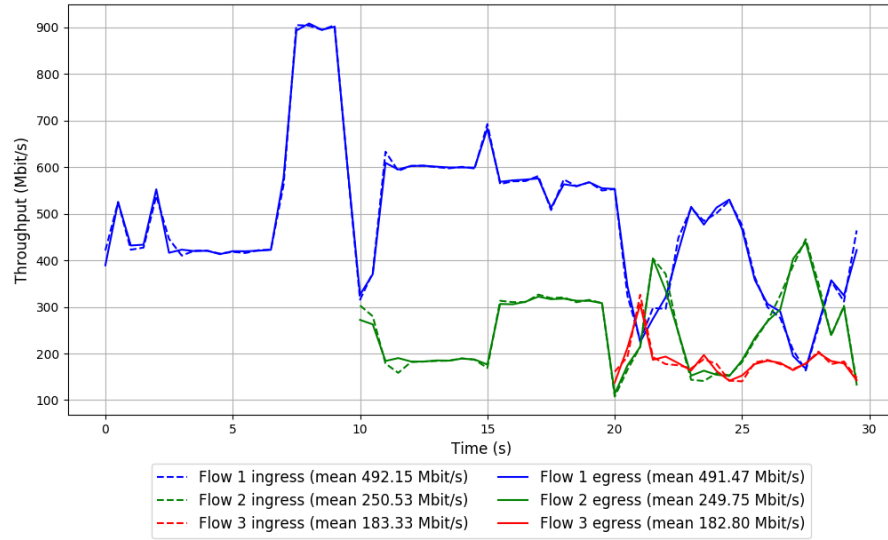Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2017-08-11 06:38:44
End at: 2017-08-11 06:39:14
Local clock offset: 0.263 ms
Remote clock offset: -0.918 ms


# Below is generated by plot.py at 2017-08-11 14:49:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 718.10 Mbit/s
95th percentile per-packet one-way delay: 64.339 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 491.47 Mbit/s
95th percentile per-packet one-way delay: 42.671 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 249.75 Mbit/s
95th percentile per-packet one-way delay: 103.873 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 182.80 Mbit/s
95th percentile per-packet one-way delay: 76.823 ms
Loss rate: 0.48%
```

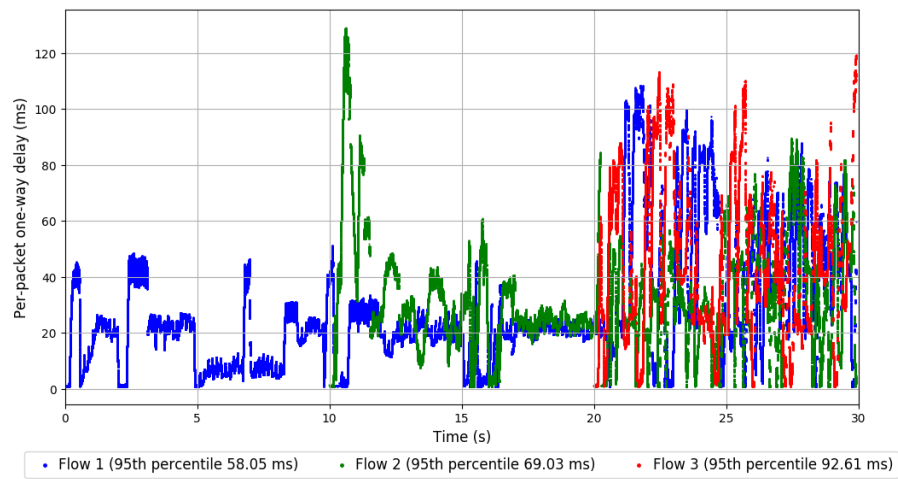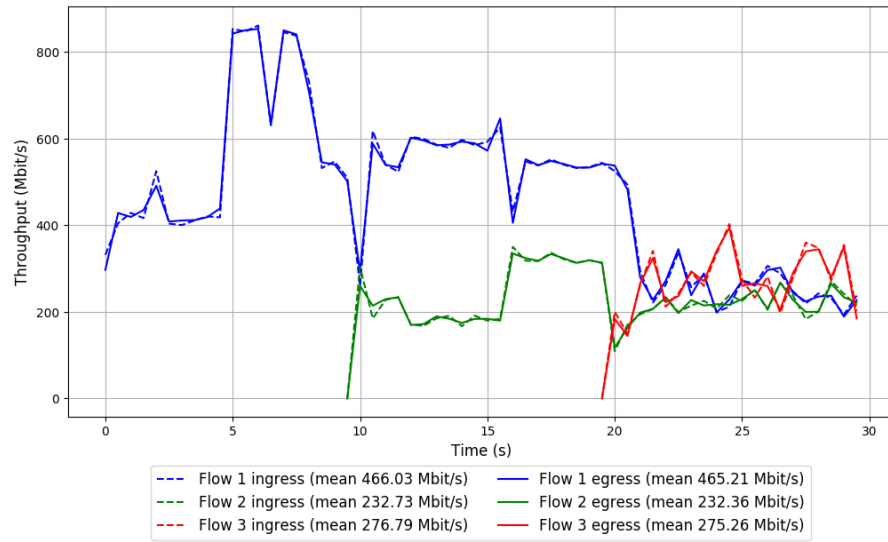Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2017-08-11 07:01:13
End at: 2017-08-11 07:01:43
Local clock offset: 0.313 ms
Remote clock offset: -0.542 ms


# Below is generated by plot.py at 2017-08-11 14:49:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 711.06 Mbit/s
95th percentile per-packet one-way delay: 69.777 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 465.21 Mbit/s
95th percentile per-packet one-way delay: 58.048 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 232.36 Mbit/s
95th percentile per-packet one-way delay: 69.031 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 275.26 Mbit/s
95th percentile per-packet one-way delay: 92.611 ms
Loss rate: 0.76%
```

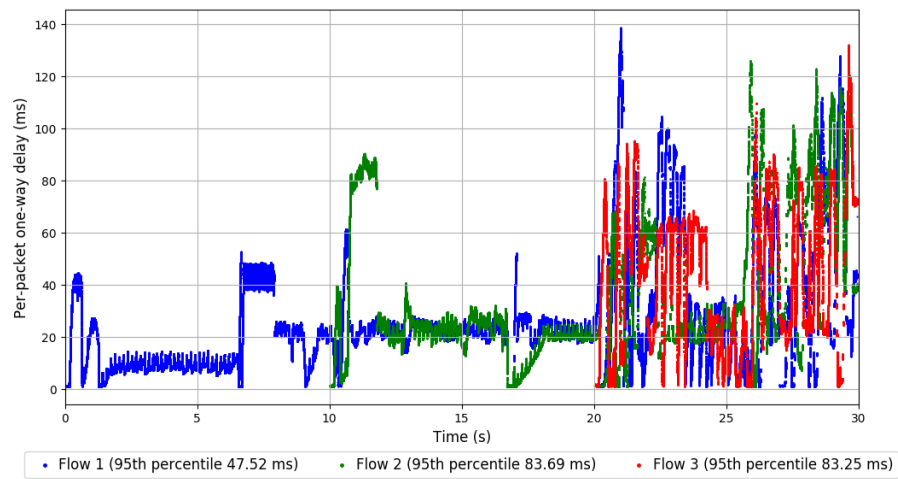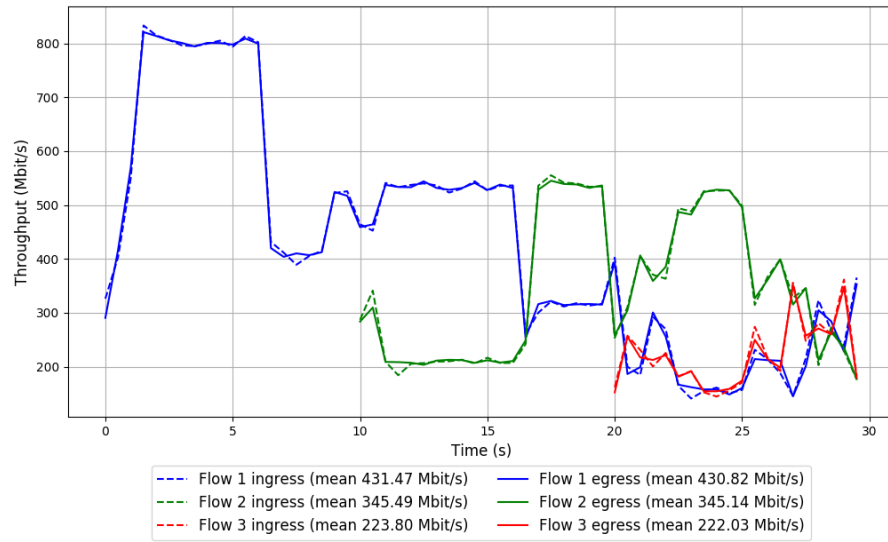Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2017-08-11 07:23:19
End at: 2017-08-11 07:23:49
Local clock offset: 0.409 ms
Remote clock offset: -0.266 ms


# Below is generated by plot.py at 2017-08-11 14:50:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 733.94 Mbit/s
95th percentile per-packet one-way delay: 74.745 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 430.82 Mbit/s
95th percentile per-packet one-way delay: 47.520 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 345.14 Mbit/s
95th percentile per-packet one-way delay: 83.690 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 222.03 Mbit/s
95th percentile per-packet one-way delay: 83.254 ms
Loss rate: 0.98%
```

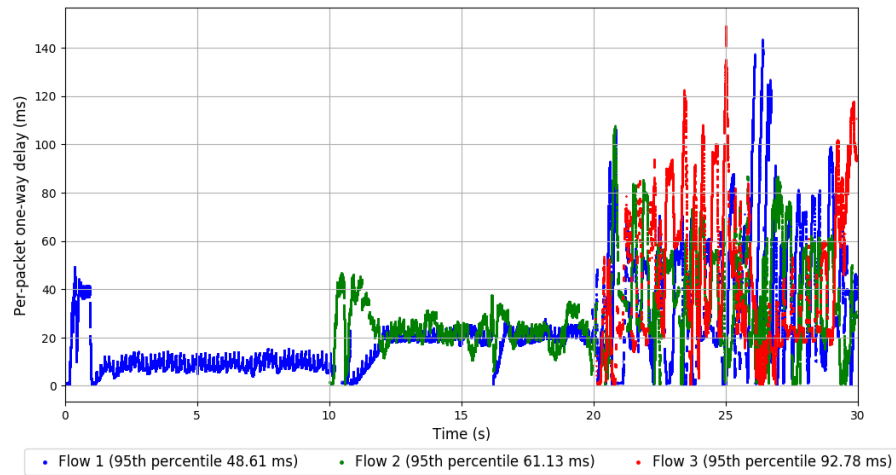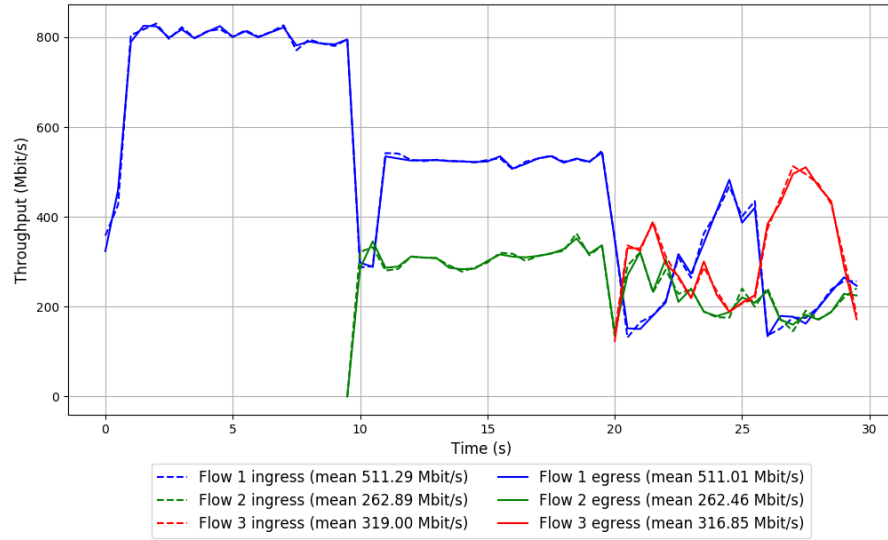Run 5: Report of TCP BBR — Data Link

```
Run 6: Statistics of TCP BBR

Start at: 2017-08-11 07:45:41
End at: 2017-08-11 07:46:11
Local clock offset: 0.331 ms
Remote clock offset: -0.086 ms


# Below is generated by plot.py at 2017-08-11 14:51:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 790.50 Mbit/s
95th percentile per-packet one-way delay: 61.899 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 511.01 Mbit/s
95th percentile per-packet one-way delay: 48.613 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 262.46 Mbit/s
95th percentile per-packet one-way delay: 61.131 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 316.85 Mbit/s
95th percentile per-packet one-way delay: 92.783 ms
Loss rate: 0.81%
```

Run 6: Report of TCP BBR — Data Link

```
Run 7: Statistics of TCP BBR

Start at: 2017-08-11 08:07:55
End at: 2017-08-11 08:08:25
Local clock offset: 0.304 ms
Remote clock offset: -0.06 ms


# Below is generated by plot.py at 2017-08-11 14:52:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 761.92 Mbit/s
95th percentile per-packet one-way delay: 76.073 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 489.20 Mbit/s
95th percentile per-packet one-way delay: 58.248 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 270.47 Mbit/s
95th percentile per-packet one-way delay: 77.580 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 280.28 Mbit/s
95th percentile per-packet one-way delay: 103.157 ms
Loss rate: 0.76%
```
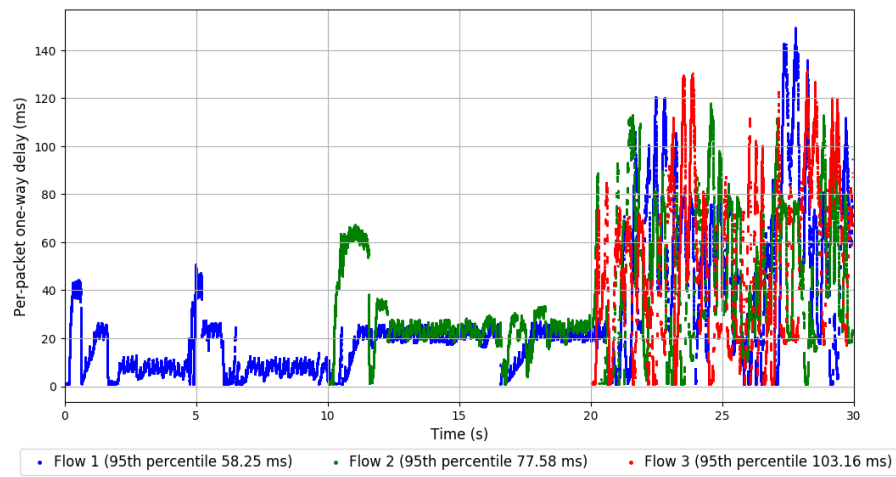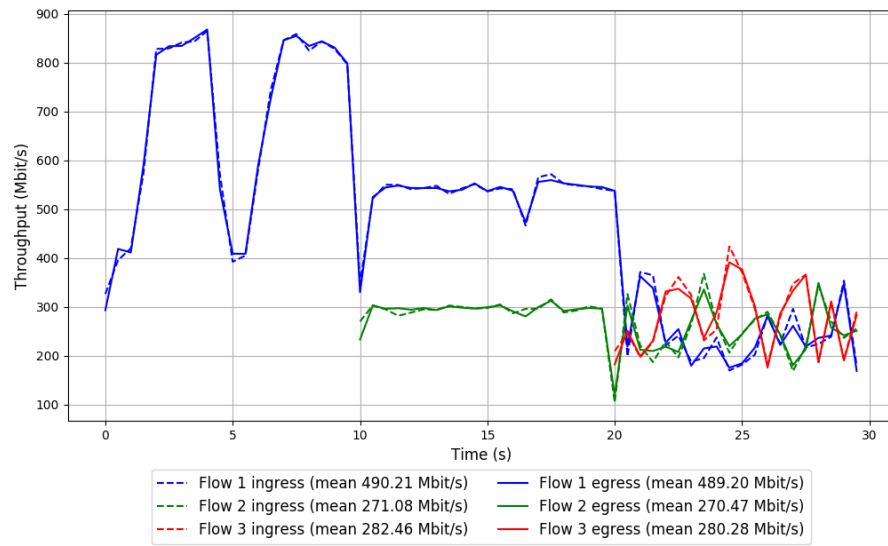
Run 7: Report of TCP BBR — Data Link

```
Run 8: Statistics of TCP BBR

Start at: 2017-08-11 08:30:14
End at: 2017-08-11 08:30:44
Local clock offset: 0.237 ms
Remote clock offset: -0.22 ms

# Below is generated by plot.py at 2017-08-11 14:52:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 787.16 Mbit/s
95th percentile per-packet one-way delay: 67.876 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 432.79 Mbit/s
95th percentile per-packet one-way delay: 63.079 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 381.21 Mbit/s
95th percentile per-packet one-way delay: 61.671 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 305.63 Mbit/s
95th percentile per-packet one-way delay: 82.103 ms
Loss rate: 0.72%
```
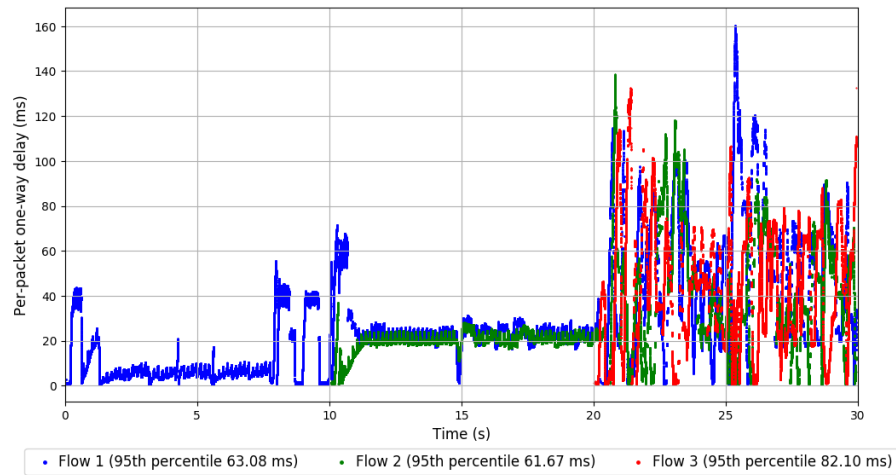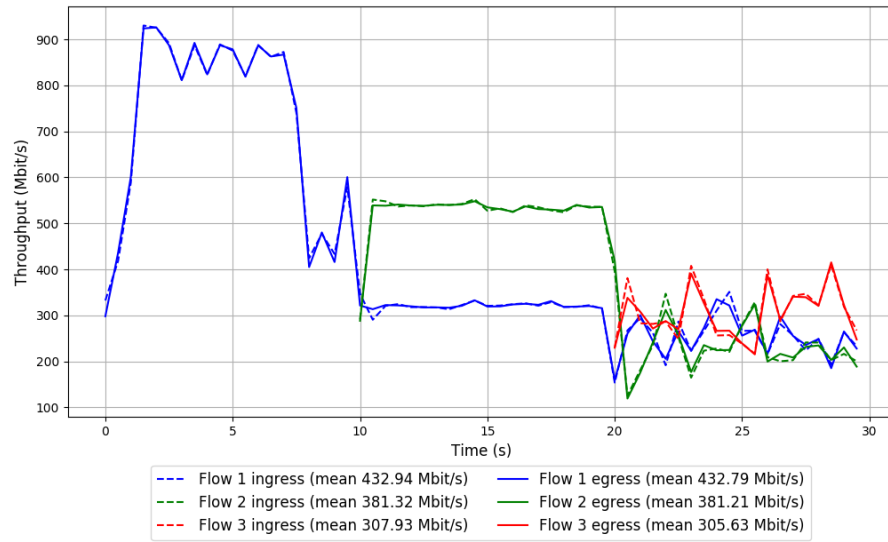
Run 8: Report of TCP BBR — Data Link

Flow 1 ingress (mean 432.94 Mbit/s) ---- Flow 1 egress (mean 432.79 Mbit/s) ———
Flow 2 ingress (mean 381.32 Mbit/s) ---- Flow 2 egress (mean 381.21 Mbit/s) ———
Flow 3 ingress (mean 307.93 Mbit/s) ---- Flow 3 egress (mean 305.63 Mbit/s) ———

Flow 1 (95th percentile 63.08 ms)   Flow 2 (95th percentile 61.67 ms)   Flow 3 (95th percentile 82.10 ms)
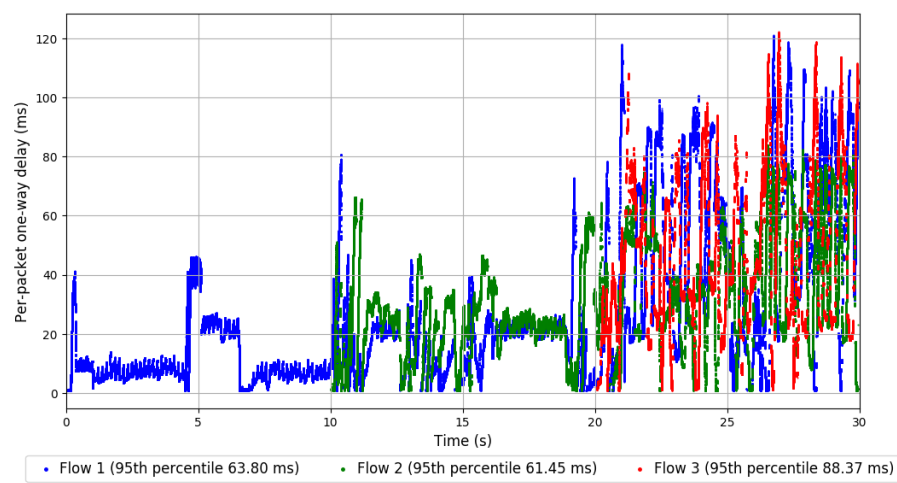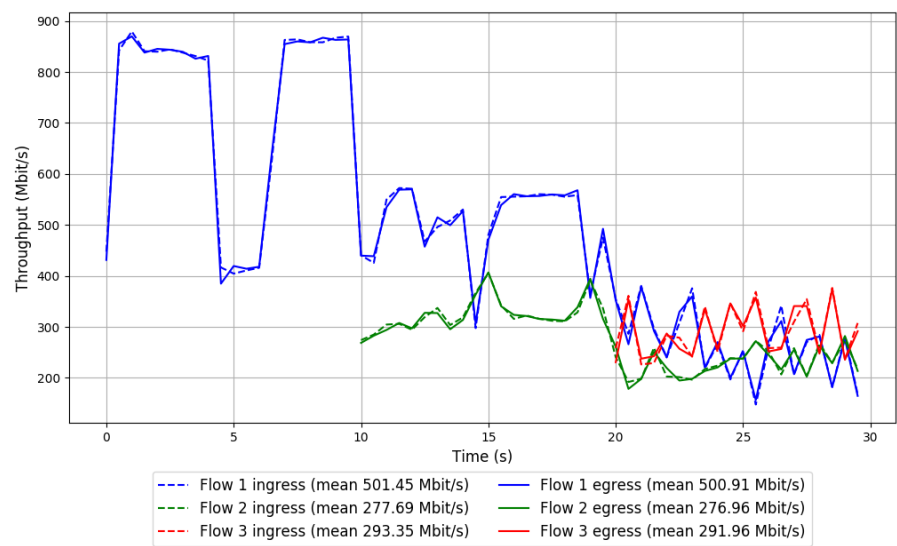
```
Run 9: Statistics of TCP BBR

Start at: 2017-08-11 08:52:30
End at: 2017-08-11 08:53:00
Local clock offset: 0.23 ms
Remote clock offset: -0.307 ms


# Below is generated by plot.py at 2017-08-11 14:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 781.71 Mbit/s
95th percentile per-packet one-way delay: 70.420 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 500.91 Mbit/s
95th percentile per-packet one-way delay: 63.805 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 276.96 Mbit/s
95th percentile per-packet one-way delay: 61.450 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 291.96 Mbit/s
95th percentile per-packet one-way delay: 88.372 ms
Loss rate: 0.68%
```

Run 9: Report of TCP BBR — Data Link

Flow 1 ingress (mean 501.45 Mbit/s) — Flow 1 egress (mean 500.91 Mbit/s)
Flow 2 ingress (mean 277.69 Mbit/s) — Flow 2 egress (mean 276.96 Mbit/s)
Flow 3 ingress (mean 293.35 Mbit/s) — Flow 3 egress (mean 291.96 Mbit/s)

Flow 1 (95th percentile 63.80 ms) • Flow 2 (95th percentile 61.45 ms) • Flow 3 (95th percentile 88.37 ms)

```
Run 10: Statistics of TCP BBR

Start at: 2017-08-11 09:14:47
End at: 2017-08-11 09:15:17
Local clock offset: 0.343 ms
Remote clock offset: -0.51 ms

# Below is generated by plot.py at 2017-08-11 14:54:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 734.52 Mbit/s
95th percentile per-packet one-way delay: 61.818 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 412.31 Mbit/s
95th percentile per-packet one-way delay: 43.947 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 315.01 Mbit/s
95th percentile per-packet one-way delay: 64.955 ms
Loss rate: 1.15%
-- Flow 3:
Average throughput: 340.50 Mbit/s
95th percentile per-packet one-way delay: 85.189 ms
Loss rate: 0.83%
```
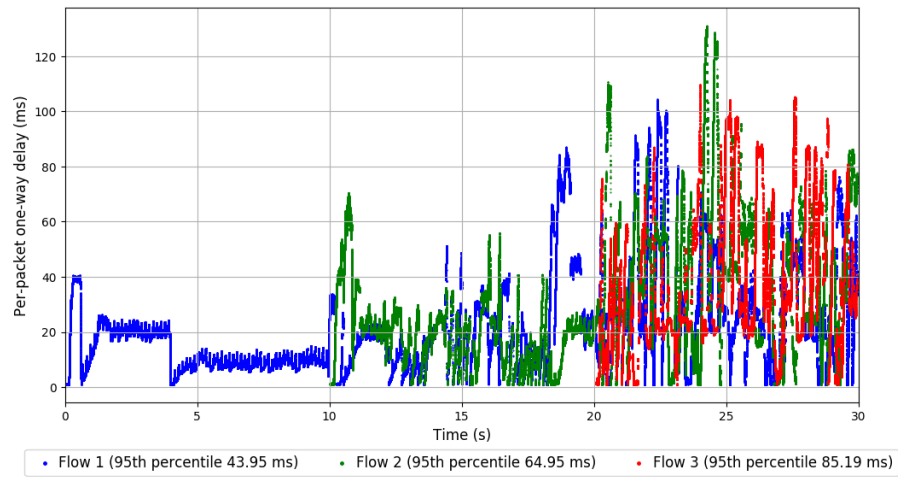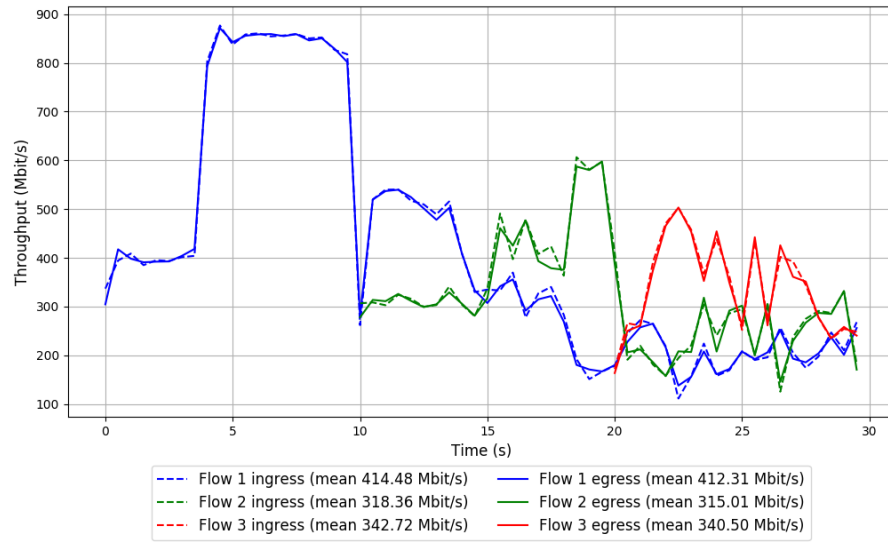
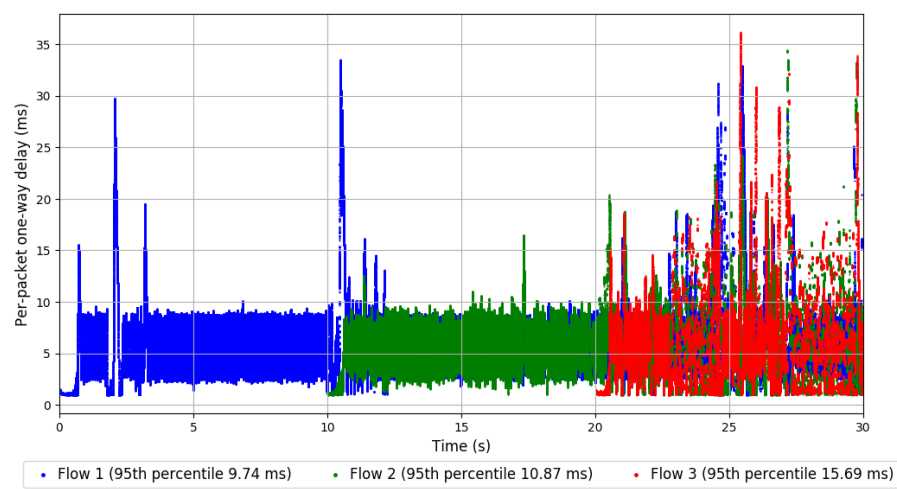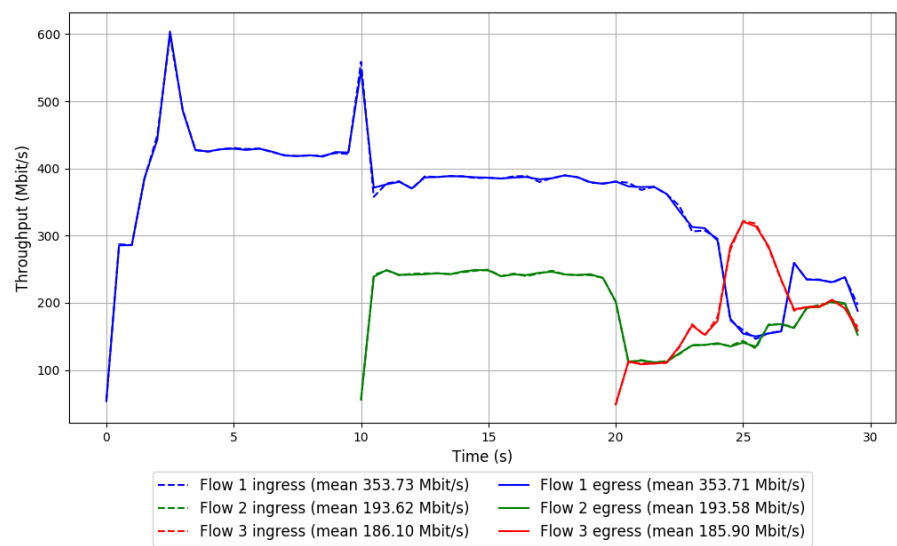Run 10: Report of TCP BBR — Data Link

```
Run 1: Statistics of CalibratedKoho

Start at: 2017-08-11 05:33:19
End at: 2017-08-11 05:33:49
Local clock offset: 0.278 ms
Remote clock offset: -1.973 ms

# Below is generated by plot.py at 2017-08-11 14:55:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 544.13 Mbit/s
95th percentile per-packet one-way delay: 11.135 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 353.71 Mbit/s
95th percentile per-packet one-way delay: 9.745 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 193.58 Mbit/s
95th percentile per-packet one-way delay: 10.866 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 185.90 Mbit/s
95th percentile per-packet one-way delay: 15.685 ms
Loss rate: 0.23%
```

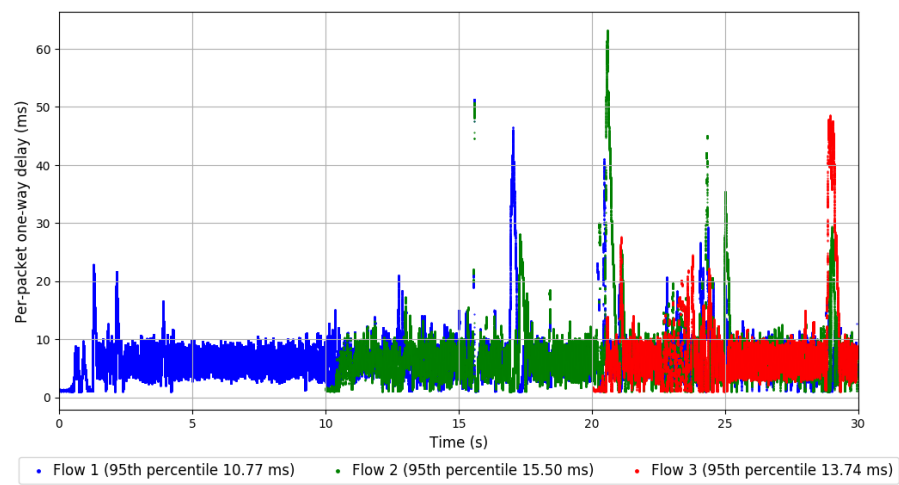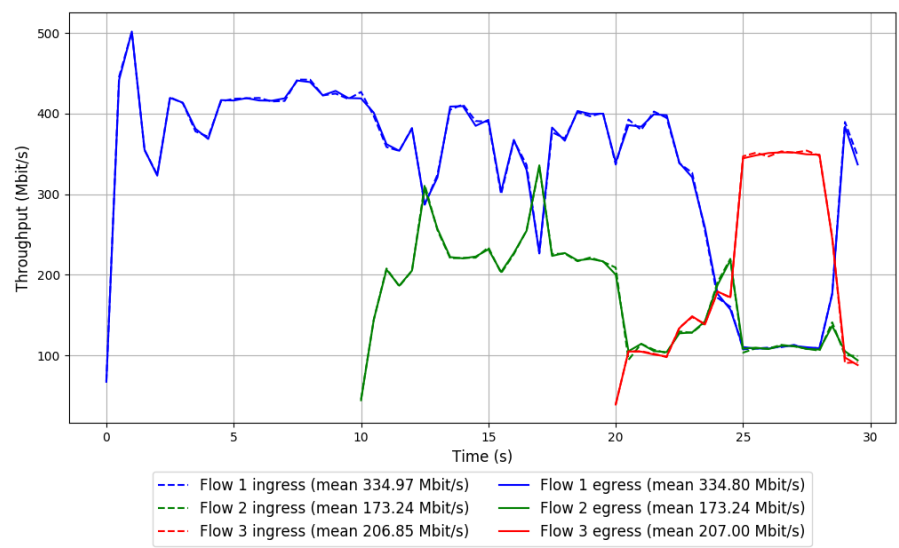Run 1: Report of CalibratedKoho — Data Link

```
Run 2: Statistics of CalibratedKoho

Start at: 2017-08-11 05:55:48
End at: 2017-08-11 05:56:18
Local clock offset: 0.385 ms
Remote clock offset: -1.489 ms

# Below is generated by plot.py at 2017-08-11 14:55:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 518.50 Mbit/s
95th percentile per-packet one-way delay: 11.753 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 334.80 Mbit/s
95th percentile per-packet one-way delay: 10.765 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 173.24 Mbit/s
95th percentile per-packet one-way delay: 15.498 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 207.00 Mbit/s
95th percentile per-packet one-way delay: 13.740 ms
Loss rate: 0.12%
```

Run 2: Report of CalibratedKoho — Data Link

```
Run 3: Statistics of CalibratedKoho

Start at: 2017-08-11 06:18:11
End at: 2017-08-11 06:18:41
Local clock offset: 8.499 ms
Remote clock offset: -1.24 ms

# Below is generated by plot.py at 2017-08-11 14:56:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 539.50 Mbit/s
95th percentile per-packet one-way delay: 18.584 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 280.20 Mbit/s
95th percentile per-packet one-way delay: 18.328 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 296.21 Mbit/s
95th percentile per-packet one-way delay: 18.360 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 187.80 Mbit/s
95th percentile per-packet one-way delay: 20.716 ms
Loss rate: 0.29%
```
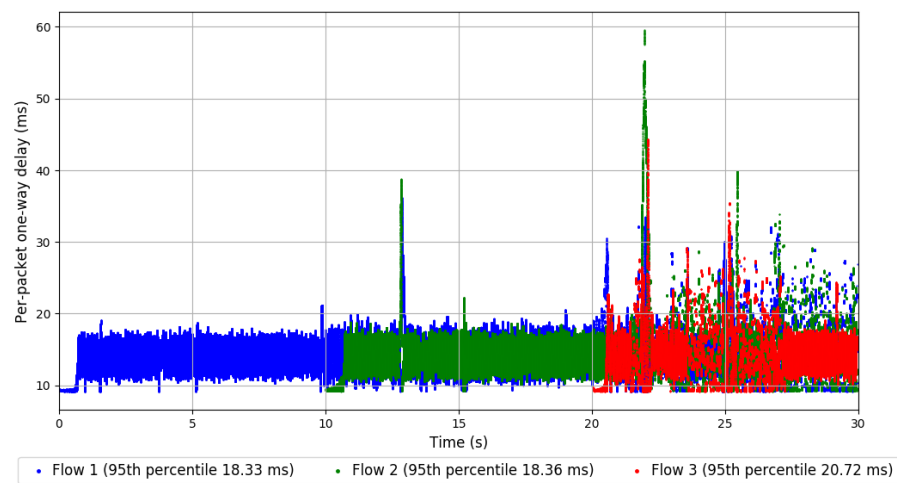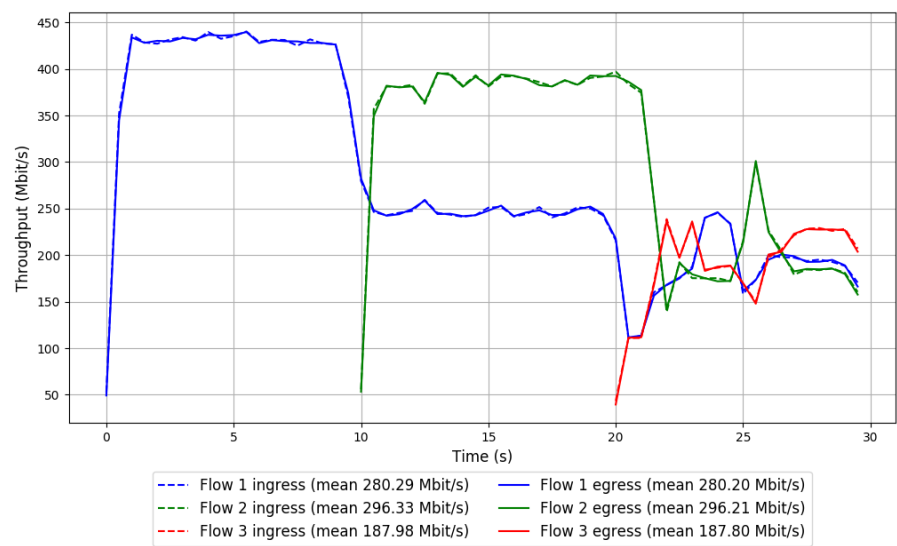
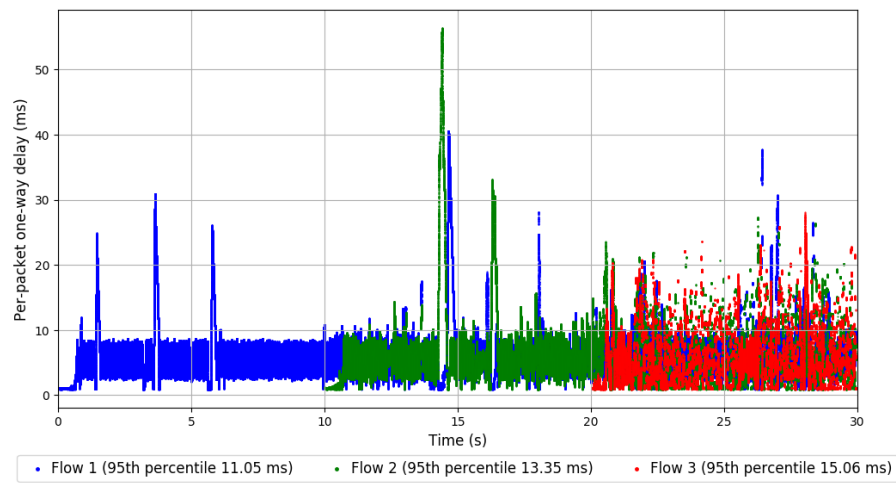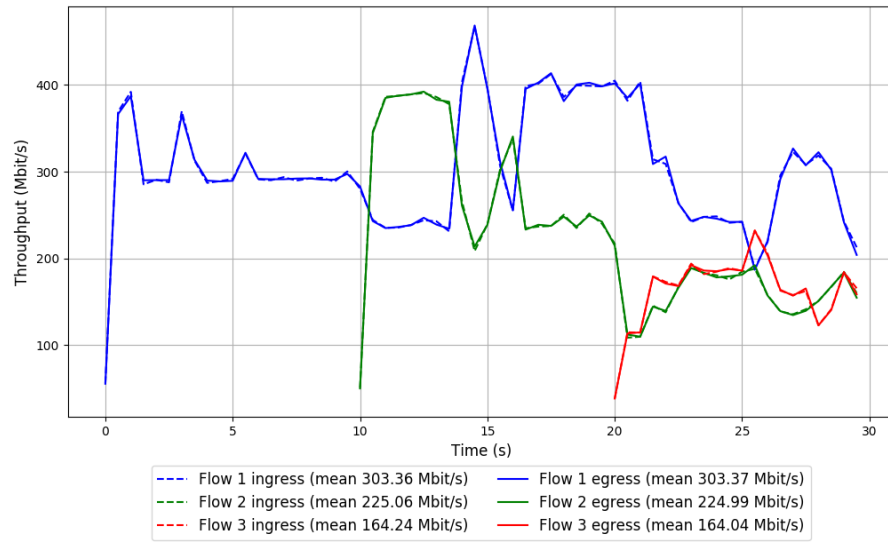Run 3: Report of CalibratedKoho — Data Link

```
Run 4: Statistics of CalibratedKoho

Start at: 2017-08-11 06:40:30
End at: 2017-08-11 06:41:00
Local clock offset: 0.281 ms
Remote clock offset: -0.835 ms

# Below is generated by plot.py at 2017-08-11 14:56:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 507.25 Mbit/s
95th percentile per-packet one-way delay: 12.676 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 303.37 Mbit/s
95th percentile per-packet one-way delay: 11.052 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 224.99 Mbit/s
95th percentile per-packet one-way delay: 13.354 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 164.04 Mbit/s
95th percentile per-packet one-way delay: 15.057 ms
Loss rate: 0.25%
```

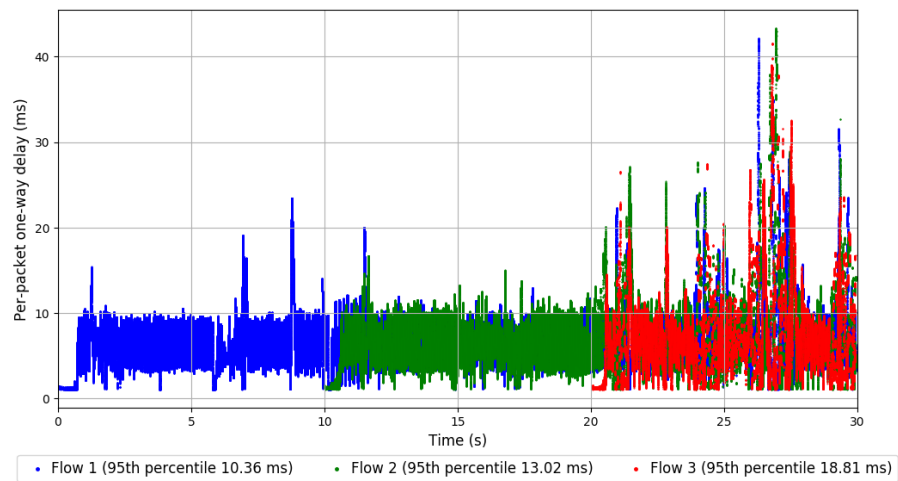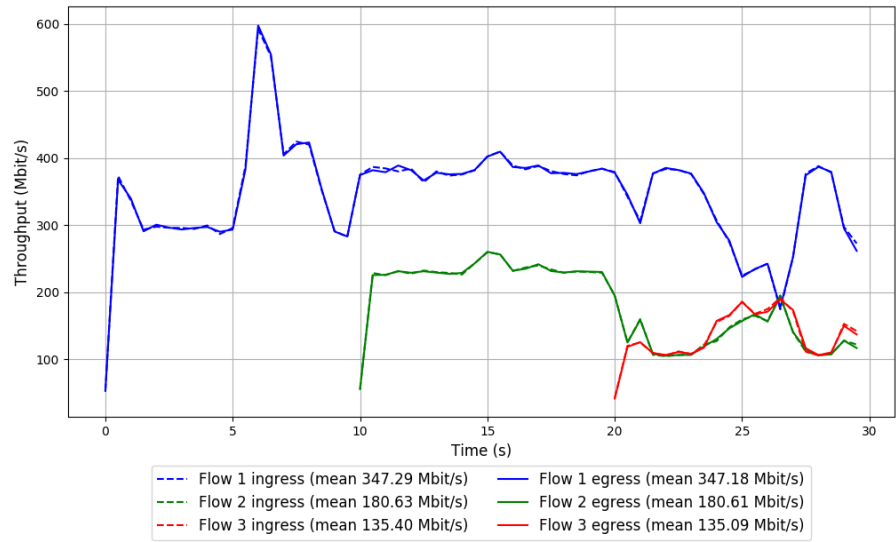Run 4: Report of CalibratedKoho — Data Link

```
Run 5: Statistics of CalibratedKoho

Start at: 2017-08-11 07:02:59
End at: 2017-08-11 07:03:29
Local clock offset: 0.404 ms
Remote clock offset: -0.613 ms


# Below is generated by plot.py at 2017-08-11 14:57:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 511.99 Mbit/s
95th percentile per-packet one-way delay: 11.762 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 347.18 Mbit/s
95th percentile per-packet one-way delay: 10.363 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 180.61 Mbit/s
95th percentile per-packet one-way delay: 13.015 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 135.09 Mbit/s
95th percentile per-packet one-way delay: 18.810 ms
Loss rate: 0.31%
```

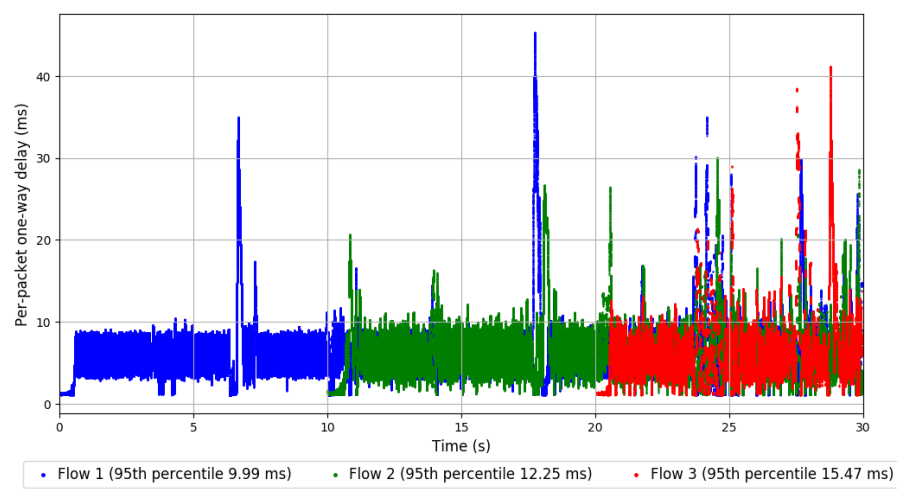Run 5: Report of CalibratedKoho — Data Link

```
Run 6: Statistics of CalibratedKoho

Start at: 2017-08-11 07:25:06
End at: 2017-08-11 07:25:36
Local clock offset: 0.446 ms
Remote clock offset: -0.218 ms


# Below is generated by plot.py at 2017-08-11 14:58:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 491.48 Mbit/s
95th percentile per-packet one-way delay: 11.273 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 297.63 Mbit/s
95th percentile per-packet one-way delay: 9.986 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 201.00 Mbit/s
95th percentile per-packet one-way delay: 12.250 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 181.86 Mbit/s
95th percentile per-packet one-way delay: 15.468 ms
Loss rate: 0.31%
```
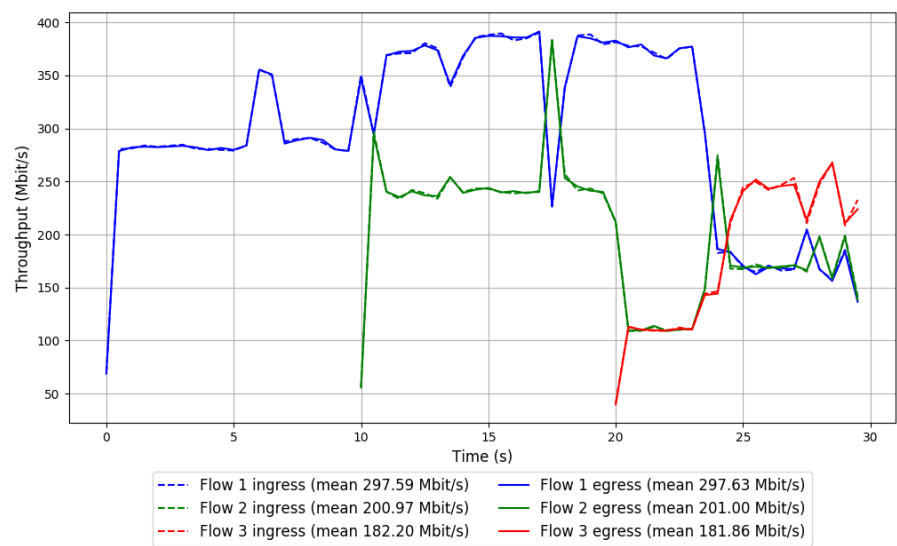
Run 6: Report of CalibratedKoho — Data Link

```
Run 7: Statistics of CalibratedKoho

Start at: 2017-08-11 07:47:31
End at: 2017-08-11 07:48:01
Local clock offset: 0.324 ms
Remote clock offset: -0.118 ms

# Below is generated by plot.py at 2017-08-11 14:59:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 514.62 Mbit/s
95th percentile per-packet one-way delay: 9.930 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 353.23 Mbit/s
95th percentile per-packet one-way delay: 9.464 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 183.02 Mbit/s
95th percentile per-packet one-way delay: 10.278 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 119.13 Mbit/s
95th percentile per-packet one-way delay: 12.016 ms
Loss rate: 0.58%
```
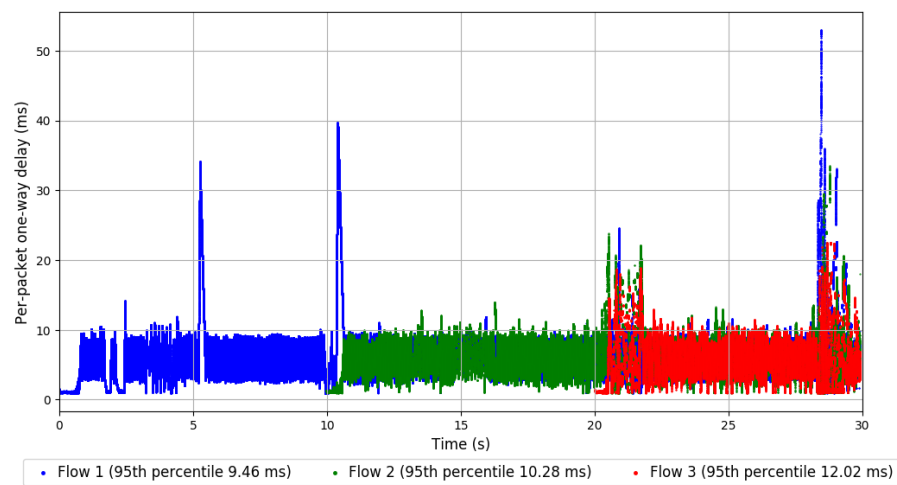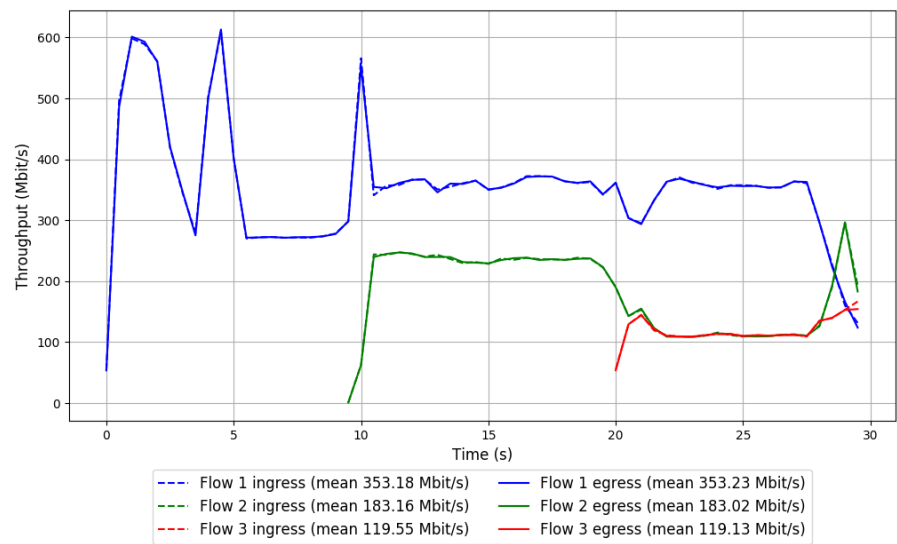
Run 7: Report of CalibratedKoho — Data Link

```
Run 8: Statistics of CalibratedKoho

Start at: 2017-08-11 08:09:43
End at: 2017-08-11 08:10:13
Local clock offset: 0.306 ms
Remote clock offset: -0.038 ms


# Below is generated by plot.py at 2017-08-11 14:59:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 541.66 Mbit/s
95th percentile per-packet one-way delay: 14.346 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 321.88 Mbit/s
95th percentile per-packet one-way delay: 12.903 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 254.00 Mbit/s
95th percentile per-packet one-way delay: 15.129 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 153.61 Mbit/s
95th percentile per-packet one-way delay: 16.171 ms
Loss rate: 0.17%
```
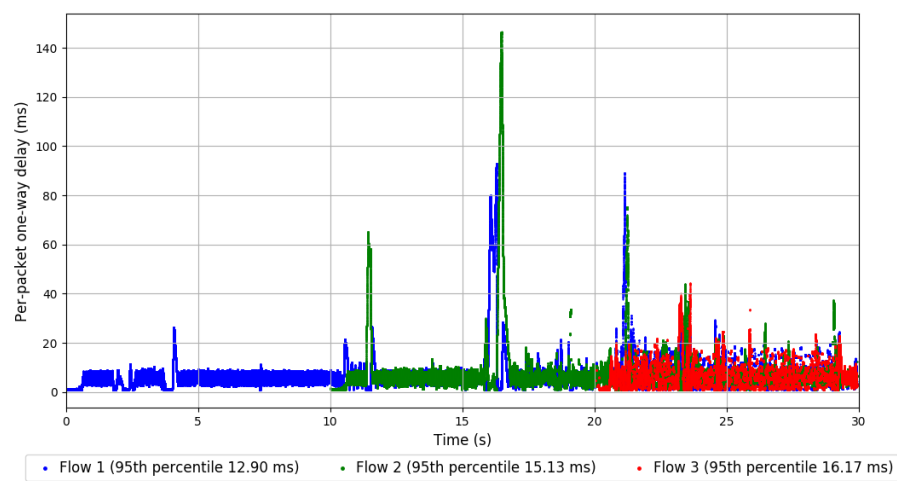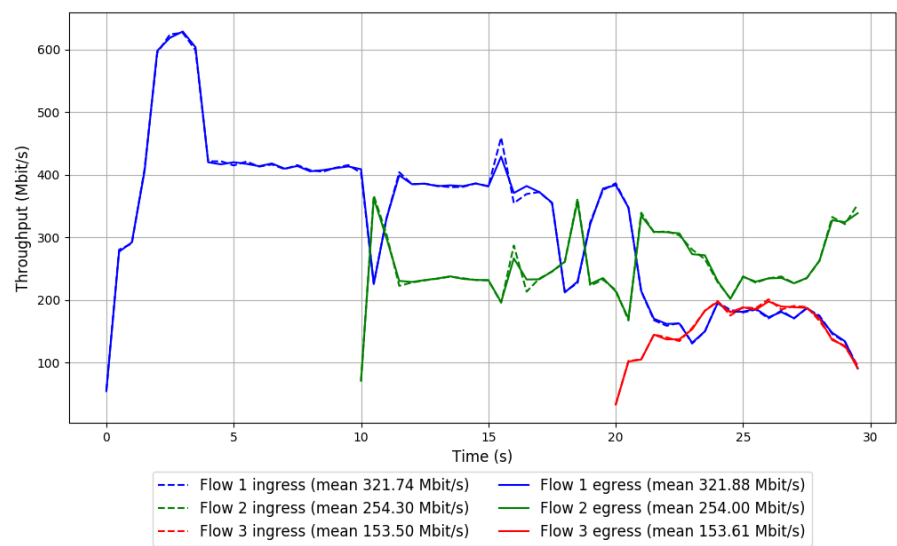
Run 8: Report of CalibratedKoho — Data Link

```
Run 9: Statistics of CalibratedKoho

Start at: 2017-08-11 08:32:03
End at: 2017-08-11 08:32:33
Local clock offset: 0.328 ms
Remote clock offset: -0.224 ms


# Below is generated by plot.py at 2017-08-11 15:00:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 519.25 Mbit/s
95th percentile per-packet one-way delay: 10.008 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 363.04 Mbit/s
95th percentile per-packet one-way delay: 9.448 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 176.40 Mbit/s
95th percentile per-packet one-way delay: 10.914 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 117.42 Mbit/s
95th percentile per-packet one-way delay: 12.818 ms
Loss rate: 0.22%
```
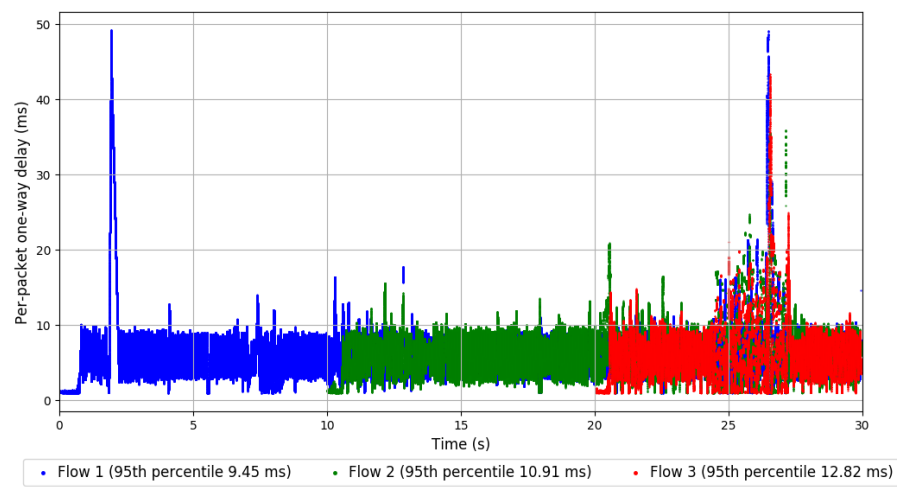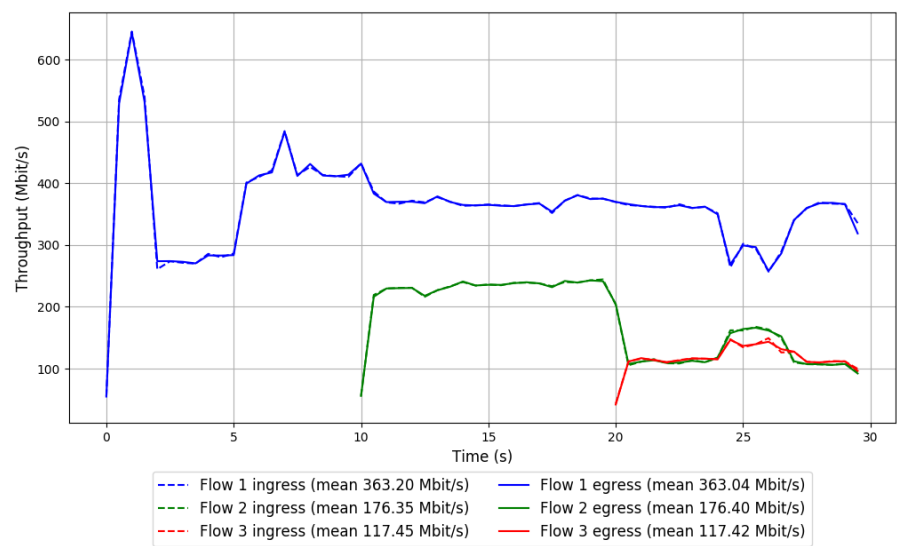
Run 9: Report of CalibratedKoho — Data Link

```
Run 10: Statistics of CalibratedKoho

Start at: 2017-08-11 08:54:19
End at: 2017-08-11 08:54:49
Local clock offset: 0.327 ms
Remote clock offset: -0.331 ms


# Below is generated by plot.py at 2017-08-11 15:00:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 524.88 Mbit/s
95th percentile per-packet one-way delay: 9.819 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 362.94 Mbit/s
95th percentile per-packet one-way delay: 9.131 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 180.31 Mbit/s
95th percentile per-packet one-way delay: 10.425 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 126.86 Mbit/s
95th percentile per-packet one-way delay: 15.492 ms
Loss rate: 0.47%
```
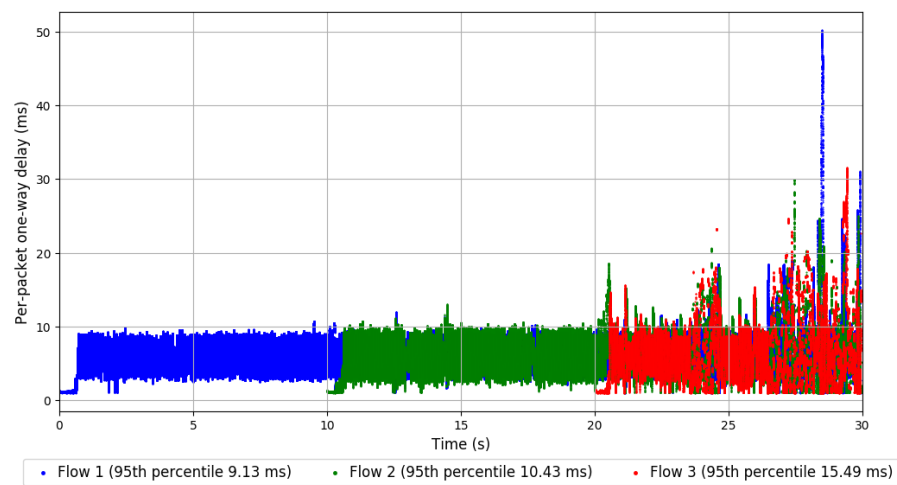
Run 10: Report of CalibratedKoho — Data Link

- - - Flow 1 ingress (mean 362.89 Mbit/s) —— Flow 1 egress (mean 362.94 Mbit/s)
- - - Flow 2 ingress (mean 180.38 Mbit/s) —— Flow 2 egress (mean 180.31 Mbit/s)
- - - Flow 3 ingress (mean 127.30 Mbit/s) —— Flow 3 egress (mean 126.86 Mbit/s)

• Flow 1 (95th percentile 9.13 ms)   • Flow 2 (95th percentile 10.43 ms)   • Flow 3 (95th percentile 15.49 ms)

```
Run 1: Statistics of Copa

Start at: 2017-08-11 05:44:58
End at: 2017-08-11 05:45:28
Local clock offset: 0.328 ms
Remote clock offset: -1.631 ms

# Below is generated by plot.py at 2017-08-11 15:00:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 145.38 Mbit/s
95th percentile per-packet one-way delay: 1.114 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 76.61 Mbit/s
95th percentile per-packet one-way delay: 1.095 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 67.35 Mbit/s
95th percentile per-packet one-way delay: 1.140 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 72.36 Mbit/s
95th percentile per-packet one-way delay: 1.113 ms
Loss rate: 0.18%
```
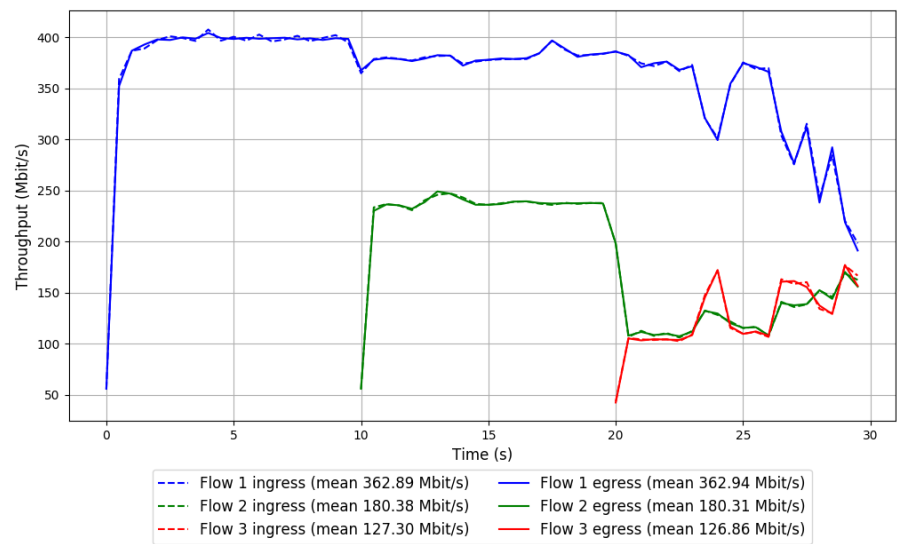
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 76.62 Mbit/s) --- Flow 1 egress (mean 76.61 Mbit/s)
Flow 2 ingress (mean 67.37 Mbit/s) --- Flow 2 egress (mean 67.35 Mbit/s)
Flow 3 ingress (mean 72.35 Mbit/s) --- Flow 3 egress (mean 72.36 Mbit/s)

Flow 1 (95th percentile 1.09 ms) • Flow 2 (95th percentile 1.14 ms) • Flow 3 (95th percentile 1.11 ms)
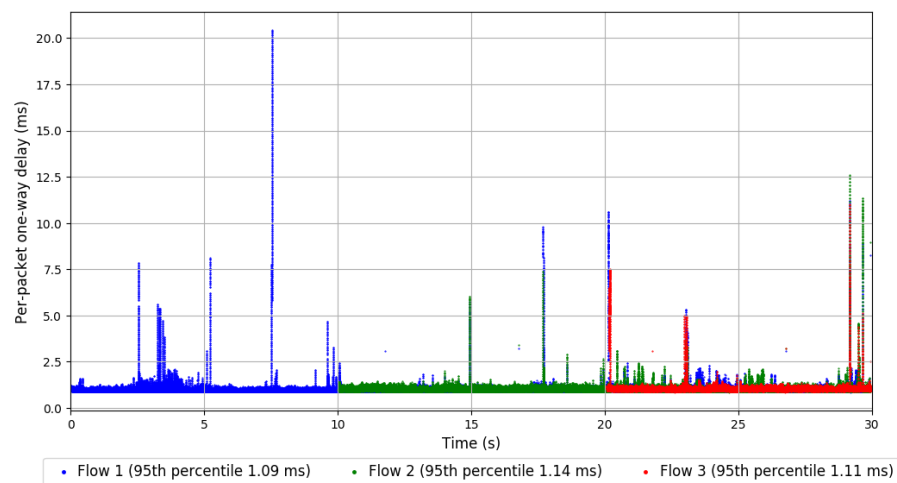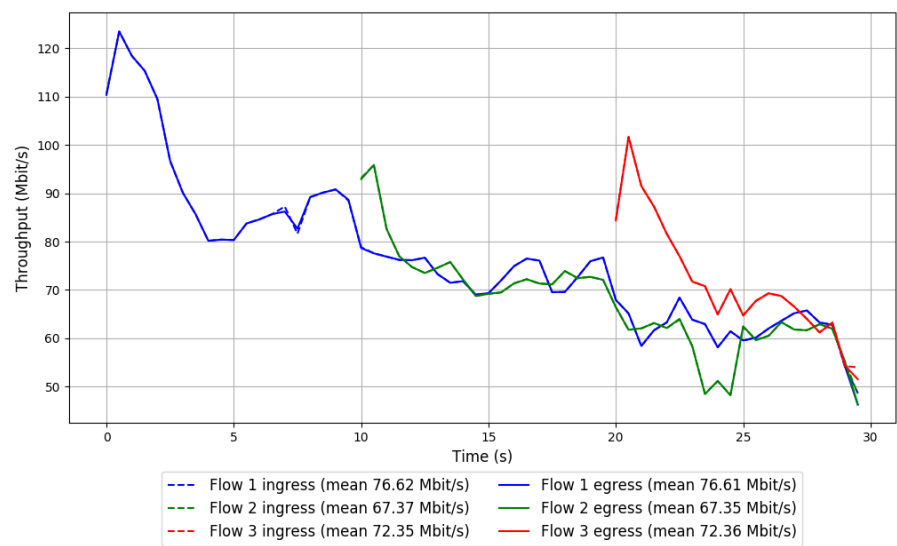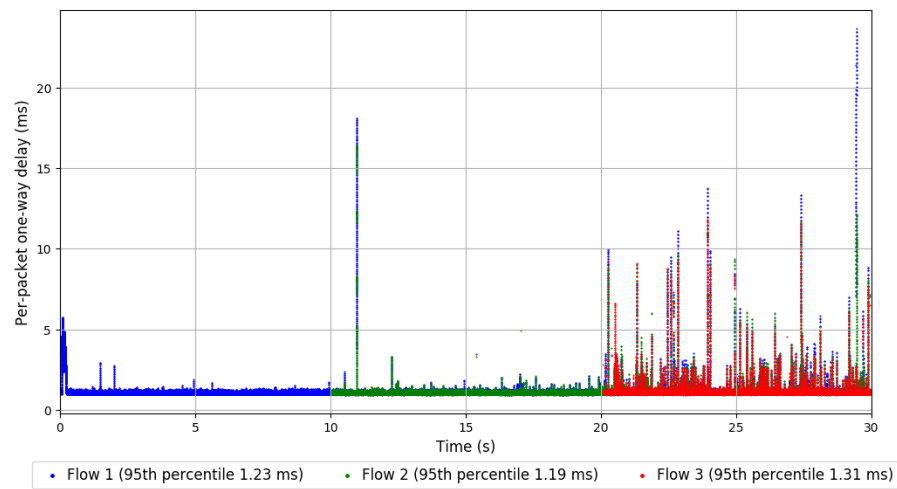
45

```
Run 2: Statistics of Copa

Start at: 2017-08-11 06:07:19
End at: 2017-08-11 06:07:49
Local clock offset: 0.326 ms
Remote clock offset: -1.205 ms


# Below is generated by plot.py at 2017-08-11 15:00:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 126.71 Mbit/s
95th percentile per-packet one-way delay: 1.225 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 68.15 Mbit/s
95th percentile per-packet one-way delay: 1.233 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 63.23 Mbit/s
95th percentile per-packet one-way delay: 1.191 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 49.80 Mbit/s
95th percentile per-packet one-way delay: 1.310 ms
Loss rate: 0.23%
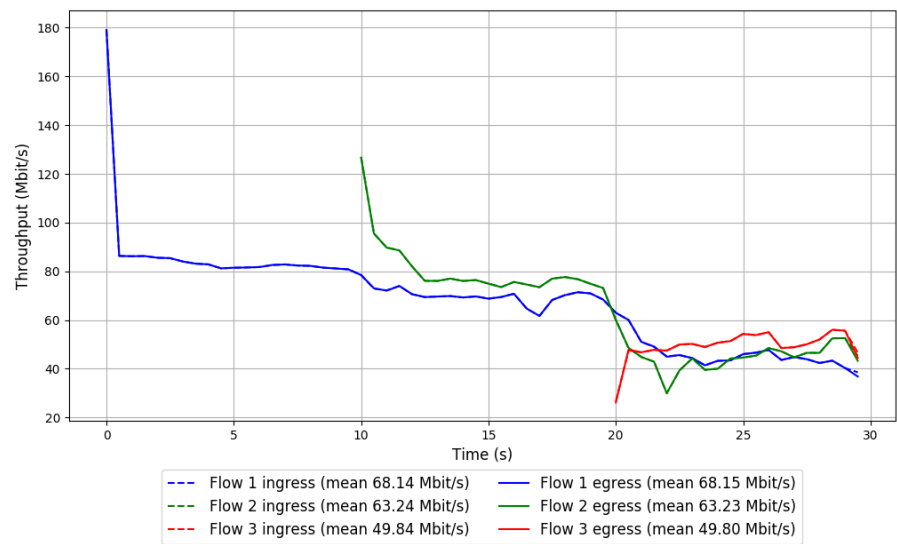```

Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2017-08-11 06:29:51
End at: 2017-08-11 06:30:21
Local clock offset: 0.315 ms
Remote clock offset: -1.088 ms

Below is generated by plot.py at 2017-08-11 15:01:25
Datalink statistics
-- Total of 3 flows:
Average throughput: 130.23 Mbit/s
95th percentile per-packet one-way delay: 1.555 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 70.82 Mbit/s
95th percentile per-packet one-way delay: 11.966 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 62.76 Mbit/s
95th percentile per-packet one-way delay: 1.292 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 53.42 Mbit/s
95th percentile per-packet one-way delay: 1.323 ms
Loss rate: 0.21%
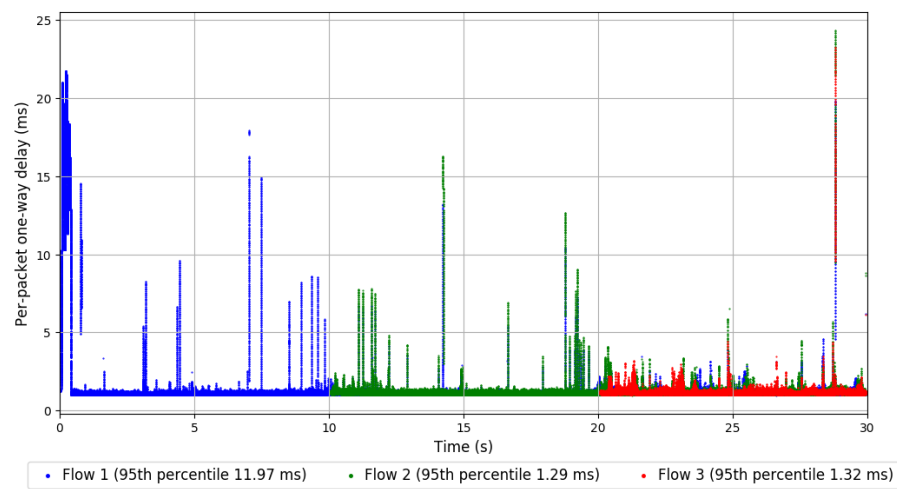```

Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2017-08-11 06:52:07
End at: 2017-08-11 06:52:37
Local clock offset: 0.311 ms
Remote clock offset: -0.691 ms


# Below is generated by plot.py at 2017-08-11 15:01:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 142.96 Mbit/s
95th percentile per-packet one-way delay: 1.150 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 74.19 Mbit/s
95th percentile per-packet one-way delay: 1.146 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 69.13 Mbit/s
95th percentile per-packet one-way delay: 1.152 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 68.73 Mbit/s
95th percentile per-packet one-way delay: 1.159 ms
Loss rate: 0.19%
```
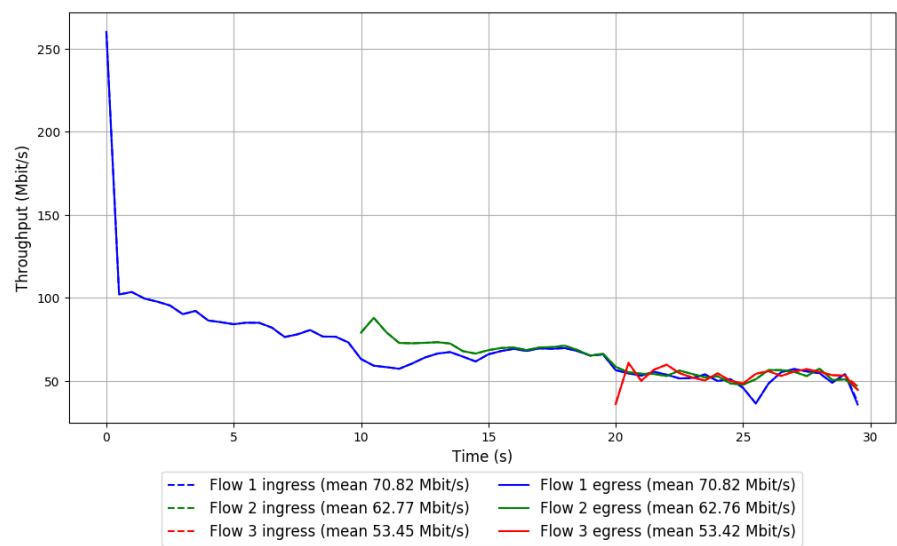
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2017-08-11 07:14:23
End at: 2017-08-11 07:14:53
Local clock offset: 0.332 ms
Remote clock offset: -0.509 ms

# Below is generated by plot.py at 2017-08-11 15:01:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 125.36 Mbit/s
95th percentile per-packet one-way delay: 1.194 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 67.18 Mbit/s
95th percentile per-packet one-way delay: 1.167 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 57.49 Mbit/s
95th percentile per-packet one-way delay: 1.231 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 60.31 Mbit/s
95th percentile per-packet one-way delay: 1.192 ms
Loss rate: 0.22%
```
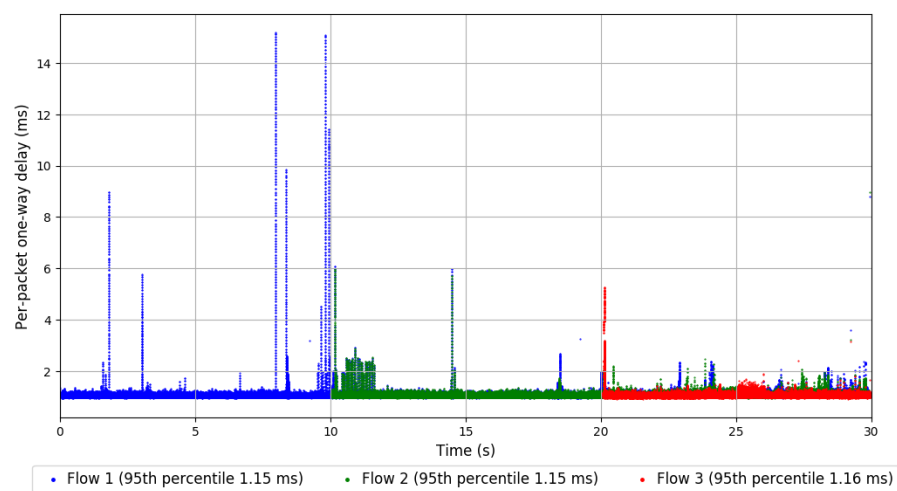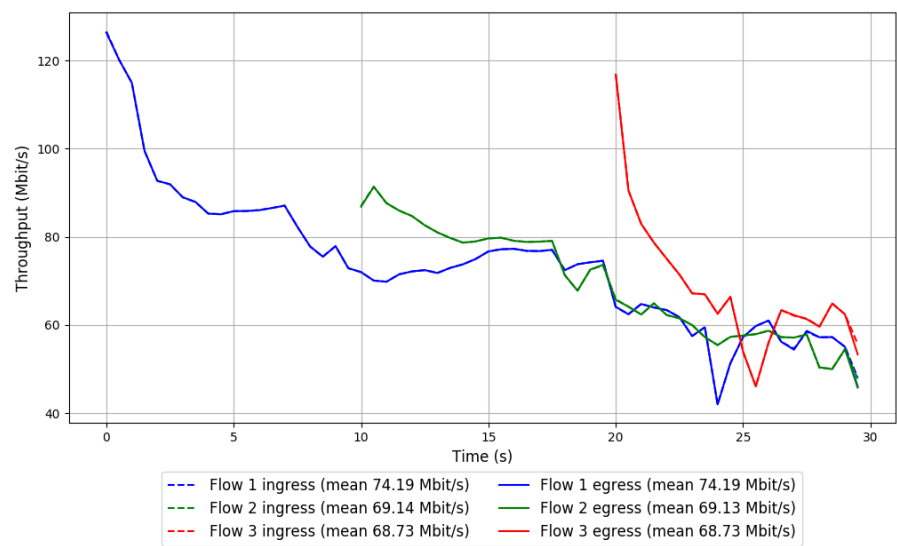
Run 5: Report of Copa — Data Link

```
Run 6: Statistics of Copa

Start at: 2017-08-11 07:36:43
End at: 2017-08-11 07:37:13
Local clock offset: 0.308 ms
Remote clock offset: -0.086 ms


# Below is generated by plot.py at 2017-08-11 15:02:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 131.92 Mbit/s
95th percentile per-packet one-way delay: 1.297 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 68.38 Mbit/s
95th percentile per-packet one-way delay: 1.172 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 62.64 Mbit/s
95th percentile per-packet one-way delay: 16.594 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 65.92 Mbit/s
95th percentile per-packet one-way delay: 1.177 ms
Loss rate: 0.20%
```
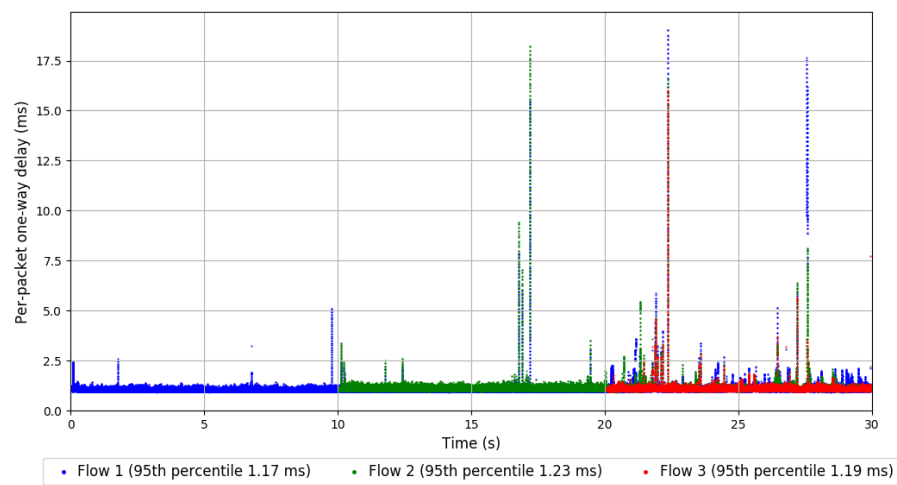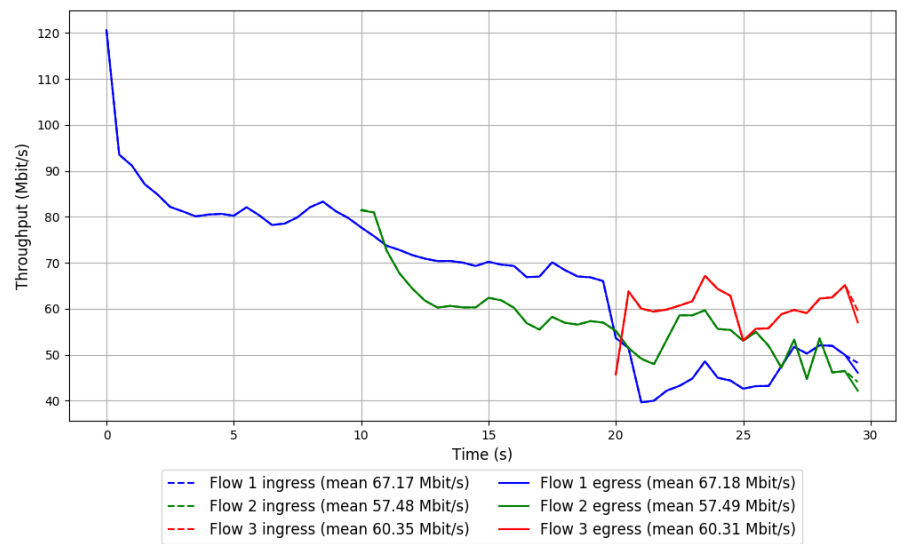
Run 6: Report of Copa — Data Link

Flow 1 ingress (mean 68.38 Mbit/s) --- Flow 1 egress (mean 68.38 Mbit/s)
Flow 2 ingress (mean 62.64 Mbit/s) --- Flow 2 egress (mean 62.64 Mbit/s)
Flow 3 ingress (mean 65.94 Mbit/s) --- Flow 3 egress (mean 65.92 Mbit/s)

Flow 1 (95th percentile 1.17 ms)   Flow 2 (95th percentile 16.59 ms)   Flow 3 (95th percentile 1.18 ms)

55

```
Run 7: Statistics of Copa

Start at: 2017-08-11 07:58:56
End at: 2017-08-11 07:59:26
Local clock offset: 0.329 ms
Remote clock offset: -0.093 ms

# Below is generated by plot.py at 2017-08-11 15:02:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 127.17 Mbit/s
95th percentile per-packet one-way delay: 1.223 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 70.52 Mbit/s
95th percentile per-packet one-way delay: 1.202 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 55.64 Mbit/s
95th percentile per-packet one-way delay: 1.275 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 59.35 Mbit/s
95th percentile per-packet one-way delay: 1.191 ms
Loss rate: 0.22%
```
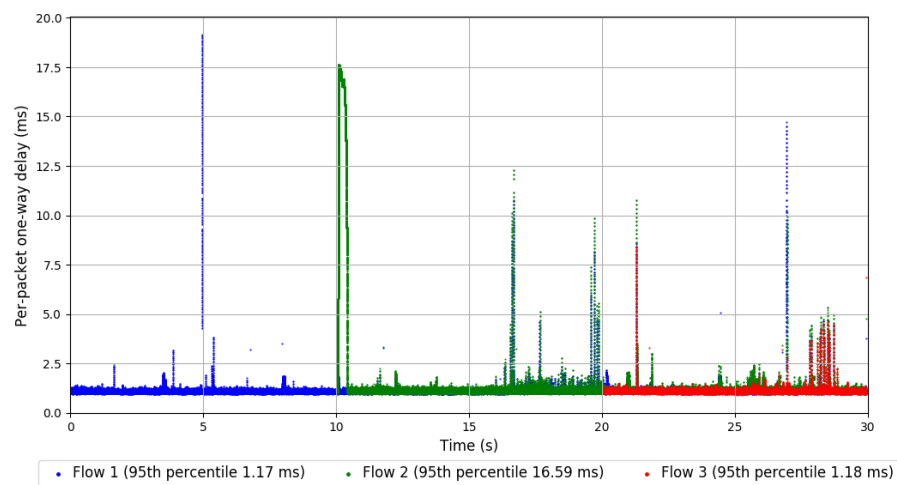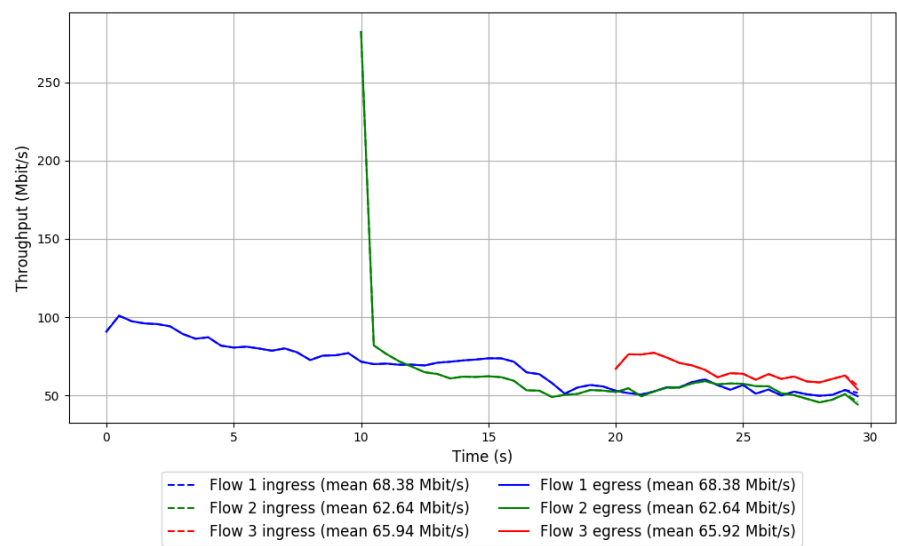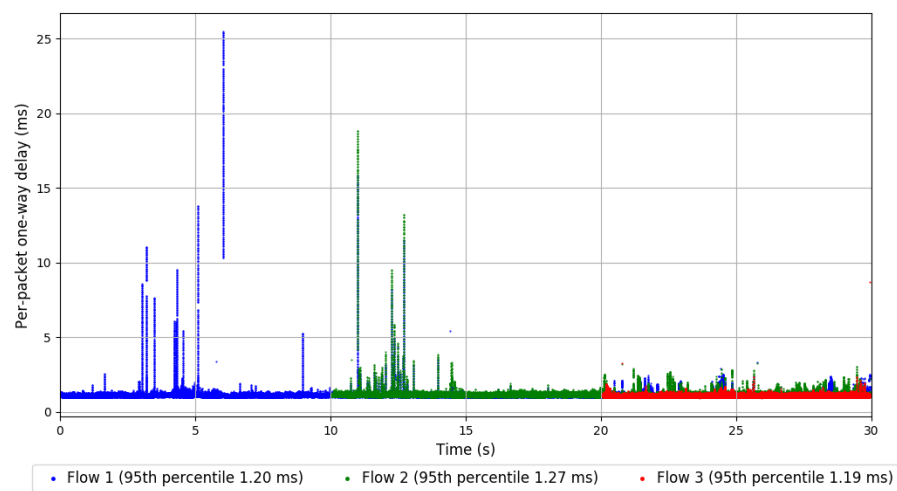
Run 7: Report of Copa — Data Link

- - - Flow 1 ingress (mean 70.49 Mbit/s) ——— Flow 1 egress (mean 70.52 Mbit/s)
- - - Flow 2 ingress (mean 55.61 Mbit/s) ——— Flow 2 egress (mean 55.64 Mbit/s)
- - - Flow 3 ingress (mean 59.40 Mbit/s) ——— Flow 3 egress (mean 59.35 Mbit/s)

• Flow 1 (95th percentile 1.20 ms)   • Flow 2 (95th percentile 1.27 ms)   • Flow 3 (95th percentile 1.19 ms)

```
Run 8: Statistics of Copa

Start at: 2017-08-11 08:21:22
End at: 2017-08-11 08:21:52
Local clock offset: 0.235 ms
Remote clock offset: -0.15 ms

# Below is generated by plot.py at 2017-08-11 15:02:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 128.84 Mbit/s
95th percentile per-packet one-way delay: 1.184 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 67.05 Mbit/s
95th percentile per-packet one-way delay: 1.189 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 63.67 Mbit/s
95th percentile per-packet one-way delay: 1.182 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 58.69 Mbit/s
95th percentile per-packet one-way delay: 1.174 ms
Loss rate: 0.21%
```
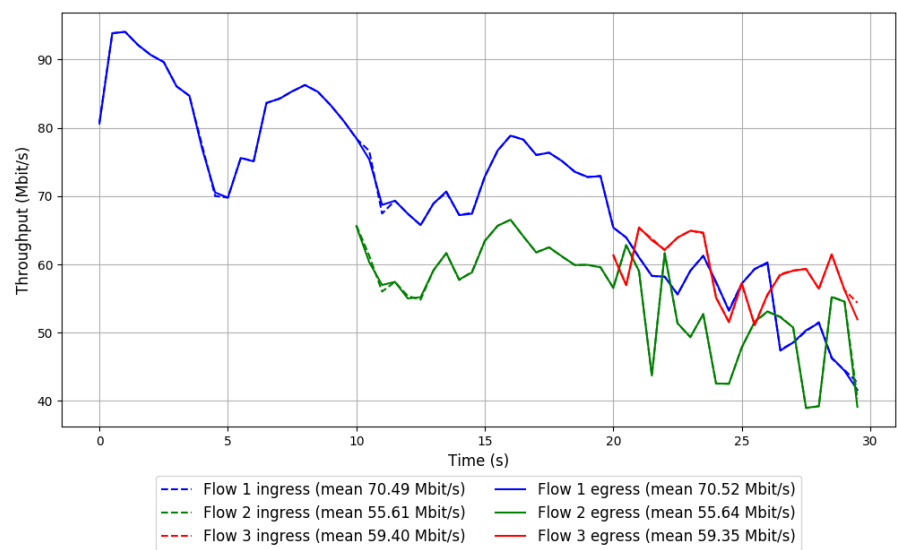
Run 8: Report of Copa — Data Link

Flow 1 ingress (mean 67.06 Mbit/s) --- Flow 1 egress (mean 67.05 Mbit/s)
Flow 2 ingress (mean 63.67 Mbit/s) --- Flow 2 egress (mean 63.67 Mbit/s)
Flow 3 ingress (mean 58.73 Mbit/s) --- Flow 3 egress (mean 58.69 Mbit/s)

Flow 1 (95th percentile 1.19 ms)   Flow 2 (95th percentile 1.18 ms)   Flow 3 (95th percentile 1.17 ms)

```
Run 9: Statistics of Copa

Start at: 2017-08-11 08:43:31
End at: 2017-08-11 08:44:01
Local clock offset: 0.319 ms
Remote clock offset: -0.378 ms


# Below is generated by plot.py at 2017-08-11 15:02:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 127.55 Mbit/s
95th percentile per-packet one-way delay: 1.257 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 65.29 Mbit/s
95th percentile per-packet one-way delay: 1.244 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 66.86 Mbit/s
95th percentile per-packet one-way delay: 1.248 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 53.69 Mbit/s
95th percentile per-packet one-way delay: 1.342 ms
Loss rate: 0.20%
```
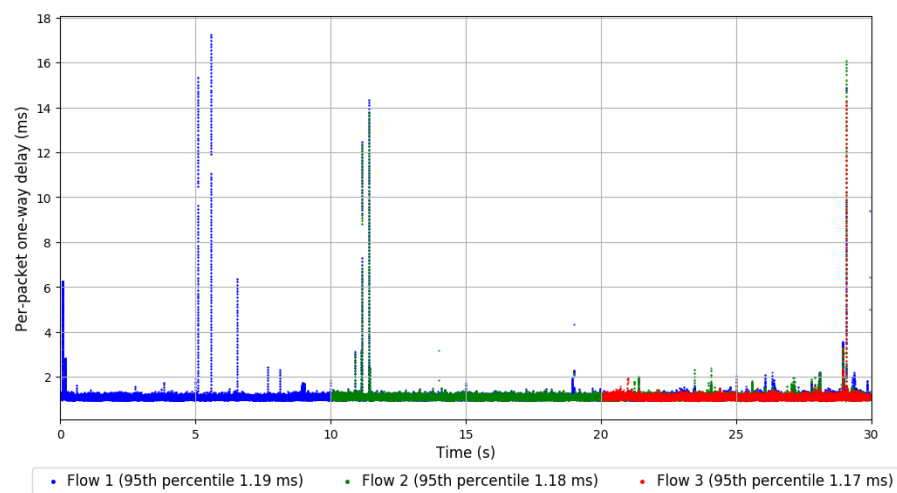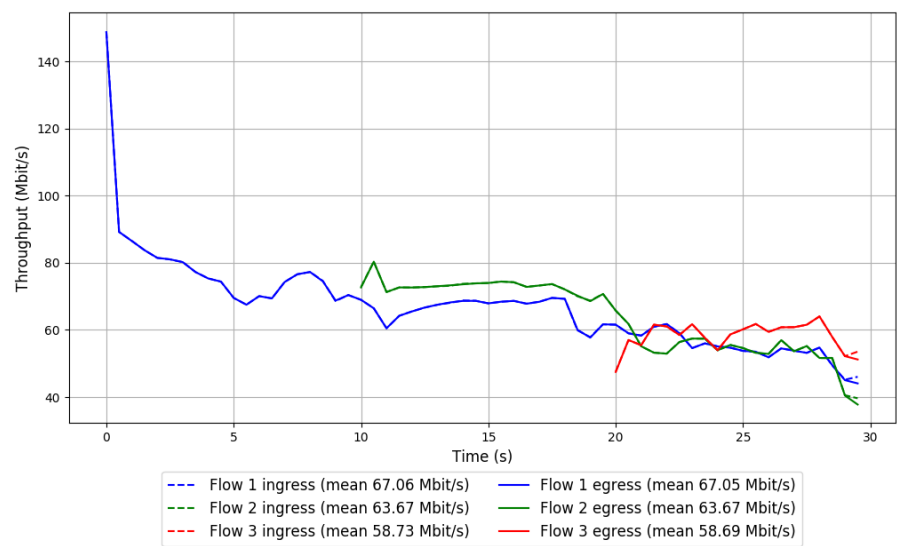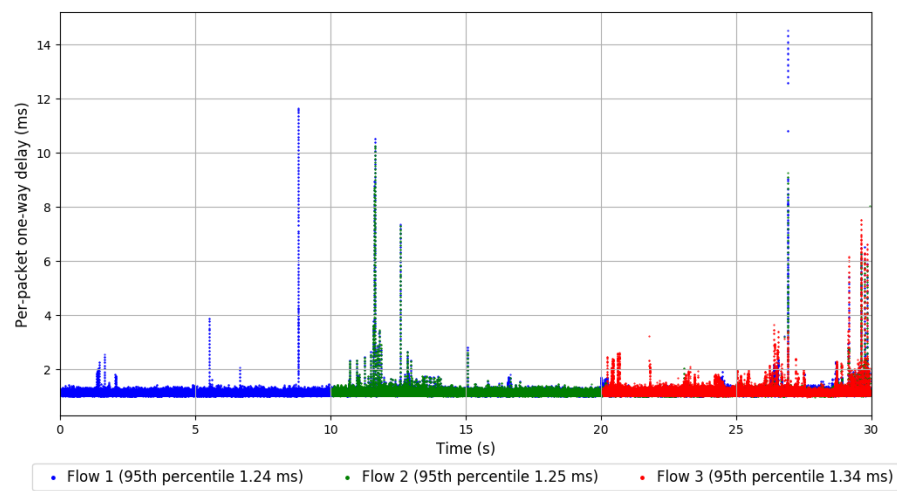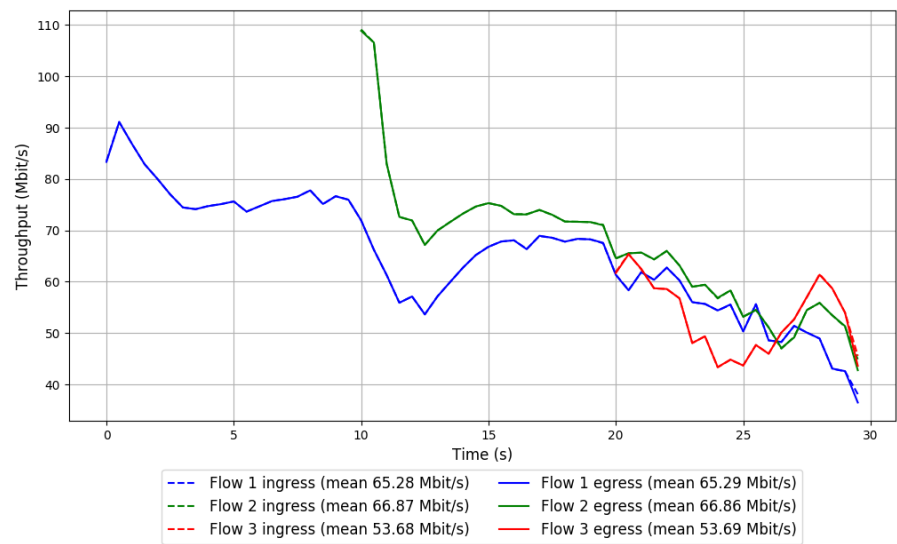
Run 9: Report of Copa — Data Link

```
Run 10: Statistics of Copa

Start at: 2017-08-11 09:05:57
End at: 2017-08-11 09:06:27
Local clock offset: 0.266 ms
Remote clock offset: -0.324 ms


# Below is generated by plot.py at 2017-08-11 15:03:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 130.19 Mbit/s
95th percentile per-packet one-way delay: 1.186 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 64.87 Mbit/s
95th percentile per-packet one-way delay: 1.197 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 64.71 Mbit/s
95th percentile per-packet one-way delay: 1.168 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 67.34 Mbit/s
95th percentile per-packet one-way delay: 1.182 ms
Loss rate: 0.19%
```
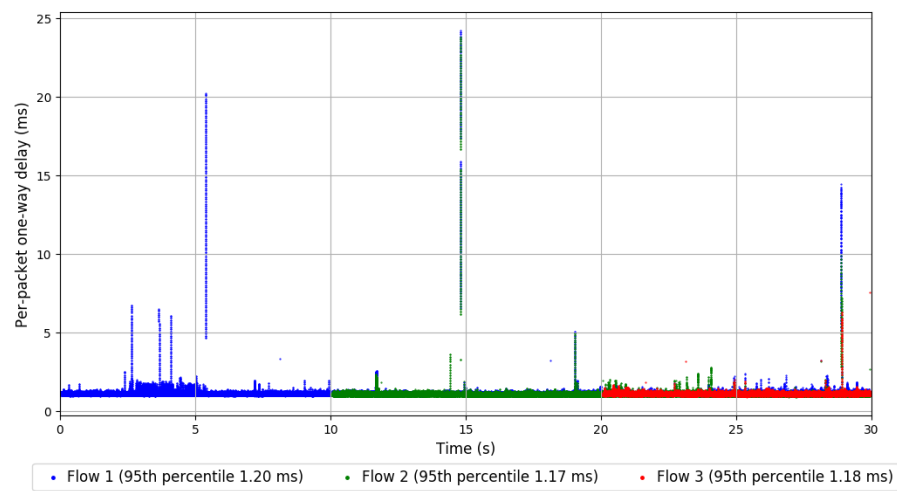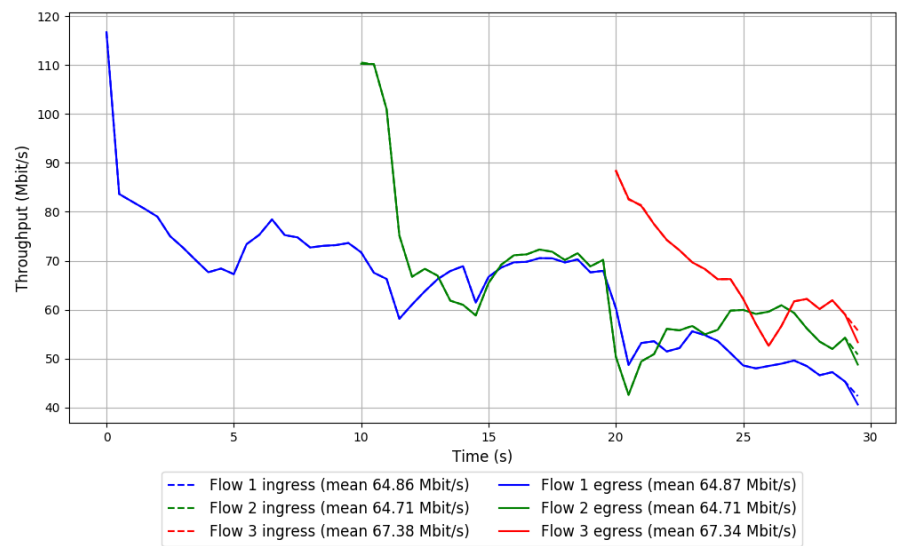
Run 10: Report of Copa — Data Link

63

```
Run 1: Statistics of TCP Cubic

Start at: 2017-08-11 05:52:12
End at: 2017-08-11 05:52:42
Local clock offset: 0.446 ms
Remote clock offset: -1.532 ms


# Below is generated by plot.py at 2017-08-11 15:04:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 724.01 Mbit/s
95th percentile per-packet one-way delay: 104.508 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 424.01 Mbit/s
95th percentile per-packet one-way delay: 44.401 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 314.55 Mbit/s
95th percentile per-packet one-way delay: 121.256 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 273.72 Mbit/s
95th percentile per-packet one-way delay: 116.851 ms
Loss rate: 0.51%
```

Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 424.11 Mbit/s) Flow 1 egress (mean 424.01 Mbit/s)
Flow 2 ingress (mean 315.84 Mbit/s) Flow 2 egress (mean 314.55 Mbit/s)
Flow 3 ingress (mean 275.15 Mbit/s) Flow 3 egress (mean 273.72 Mbit/s)

Flow 1 (95th percentile 44.40 ms) Flow 2 (95th percentile 121.26 ms) Flow 3 (95th percentile 116.85 ms)
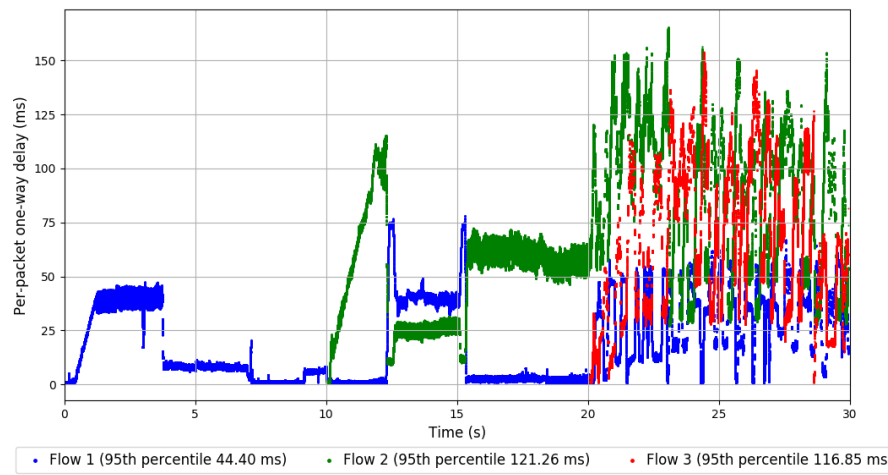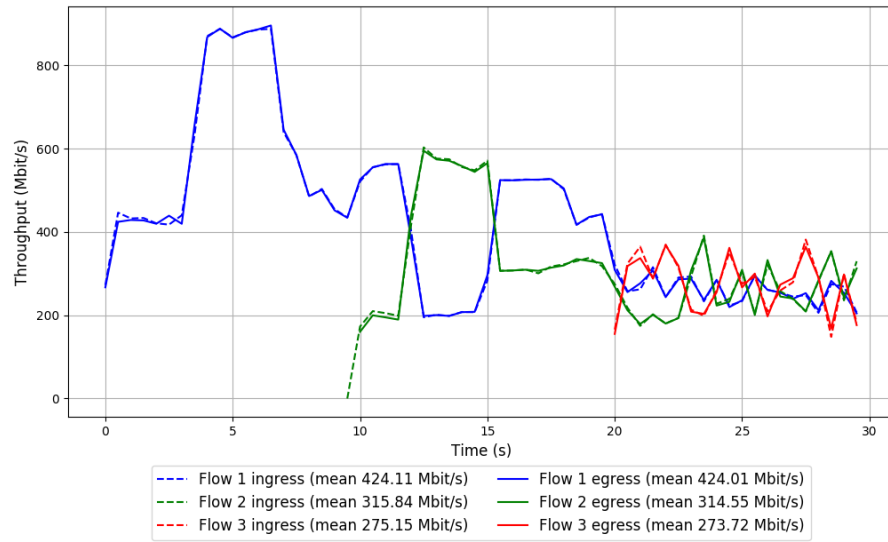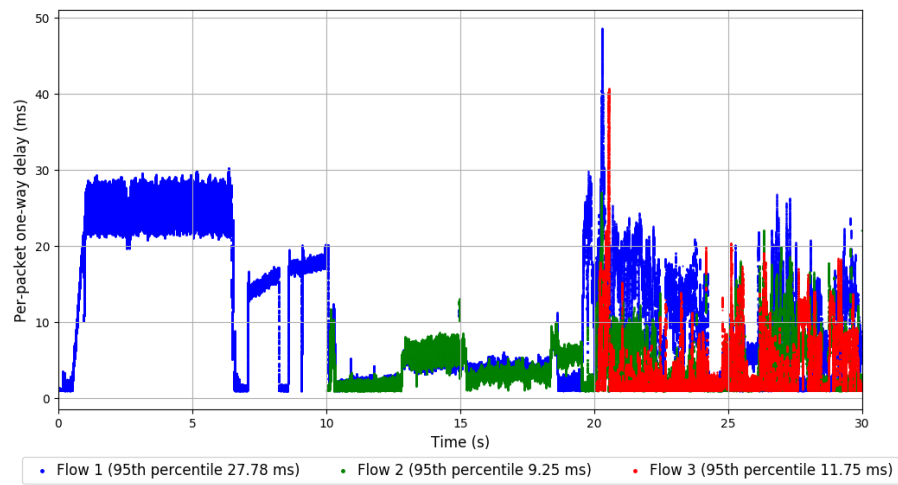
```
Run 2: Statistics of TCP Cubic

Start at: 2017-08-11 06:14:30
End at: 2017-08-11 06:15:00
Local clock offset: 0.381 ms
Remote clock offset: -1.185 ms


# Below is generated by plot.py at 2017-08-11 15:04:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 692.17 Mbit/s
95th percentile per-packet one-way delay: 27.487 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 431.09 Mbit/s
95th percentile per-packet one-way delay: 27.781 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 255.98 Mbit/s
95th percentile per-packet one-way delay: 9.253 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 275.04 Mbit/s
95th percentile per-packet one-way delay: 11.748 ms
Loss rate: 0.26%
```
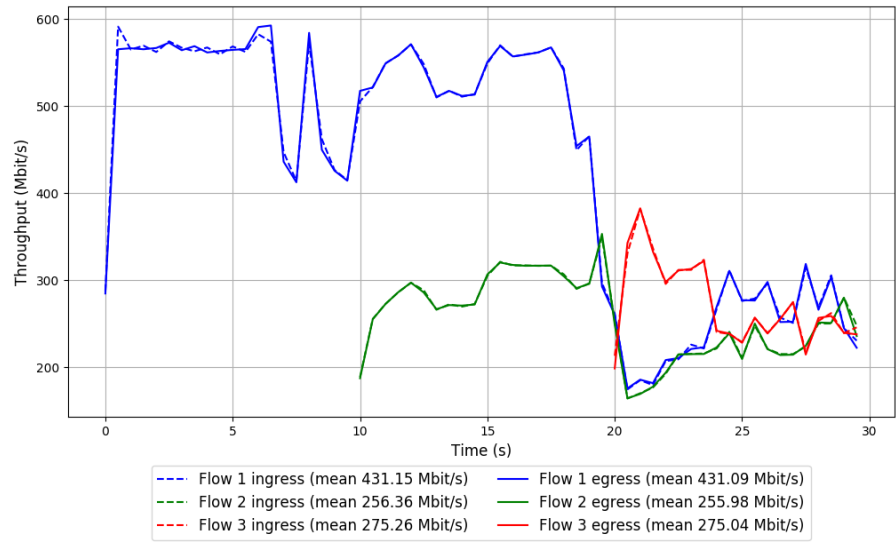
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 431.15 Mbit/s) --- Flow 1 egress (mean 431.09 Mbit/s)
Flow 2 ingress (mean 256.36 Mbit/s) --- Flow 2 egress (mean 255.98 Mbit/s)
Flow 3 ingress (mean 275.26 Mbit/s) --- Flow 3 egress (mean 275.04 Mbit/s)

Flow 1 (95th percentile 27.78 ms)   Flow 2 (95th percentile 9.25 ms)   Flow 3 (95th percentile 11.75 ms)
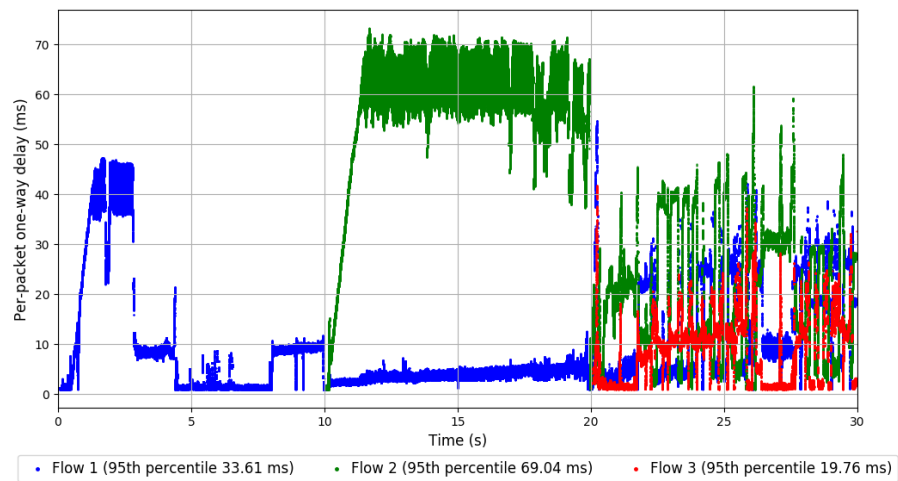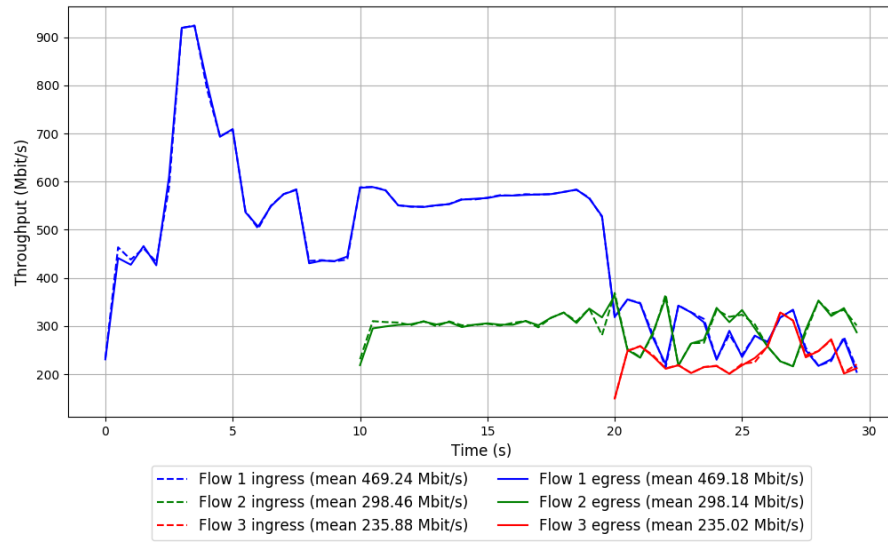
```
Run 3: Statistics of TCP Cubic

Start at: 2017-08-11 06:36:56
End at: 2017-08-11 06:37:26
Local clock offset: 0.254 ms
Remote clock offset: -0.939 ms


# Below is generated by plot.py at 2017-08-11 15:06:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 744.96 Mbit/s
95th percentile per-packet one-way delay: 65.940 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 469.18 Mbit/s
95th percentile per-packet one-way delay: 33.613 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 298.14 Mbit/s
95th percentile per-packet one-way delay: 69.039 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 235.02 Mbit/s
95th percentile per-packet one-way delay: 19.759 ms
Loss rate: 0.29%
```

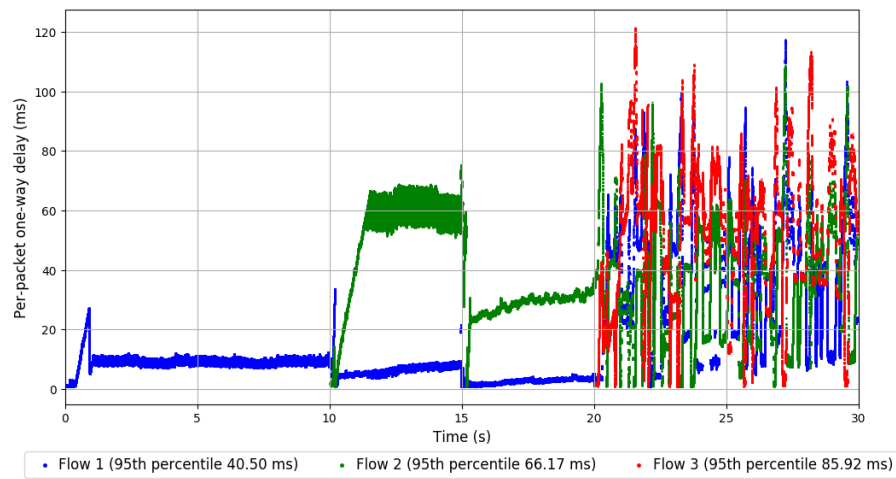Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2017-08-11 06:59:22
End at: 2017-08-11 06:59:52
Local clock offset: 0.316 ms
Remote clock offset: -0.579 ms


# Below is generated by plot.py at 2017-08-11 15:06:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 830.95 Mbit/s
95th percentile per-packet one-way delay: 64.389 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 551.69 Mbit/s
95th percentile per-packet one-way delay: 40.496 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 300.60 Mbit/s
95th percentile per-packet one-way delay: 66.168 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 239.58 Mbit/s
95th percentile per-packet one-way delay: 85.915 ms
Loss rate: 0.62%
```
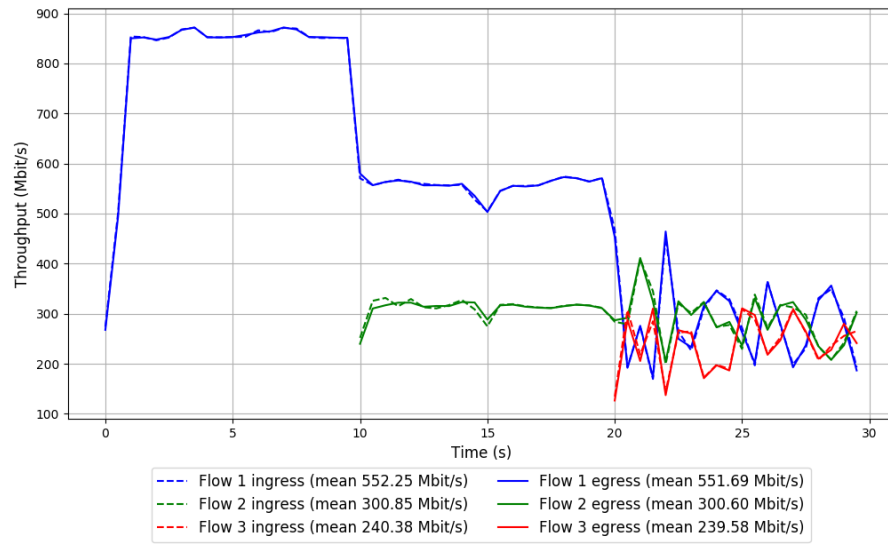
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 552.25 Mbit/s) Flow 1 egress (mean 551.69 Mbit/s)
Flow 2 ingress (mean 300.85 Mbit/s) Flow 2 egress (mean 300.60 Mbit/s)
Flow 3 ingress (mean 240.38 Mbit/s) Flow 3 egress (mean 239.58 Mbit/s)

Flow 1 (95th percentile 40.50 ms)   Flow 2 (95th percentile 66.17 ms)   Flow 3 (95th percentile 85.92 ms)
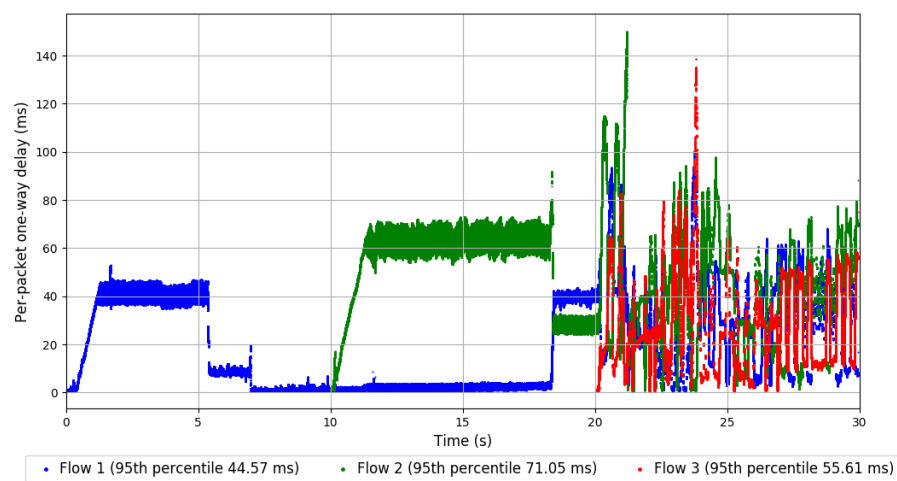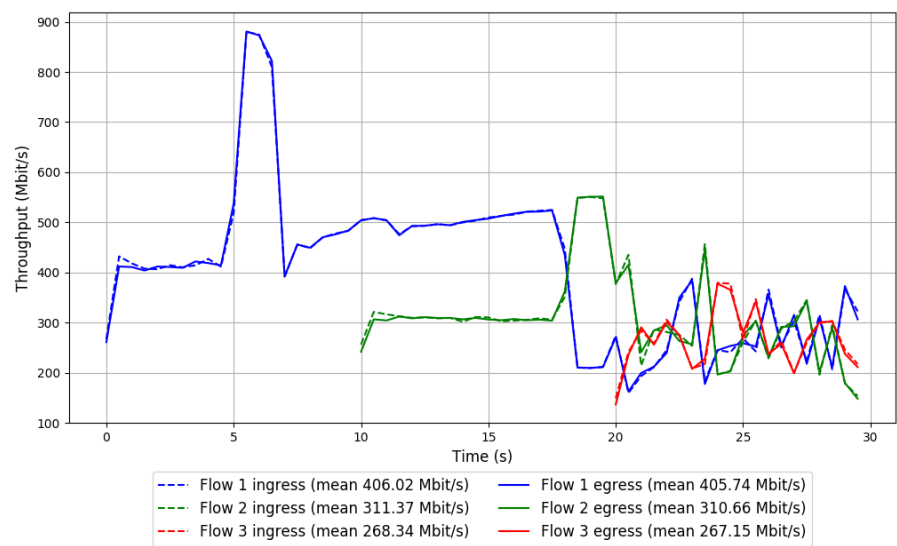
71

```
Run 5: Statistics of TCP Cubic

Start at: 2017-08-11 07:21:34
End at: 2017-08-11 07:22:04
Local clock offset: 0.353 ms
Remote clock offset: -0.213 ms


# Below is generated by plot.py at 2017-08-11 15:07:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 701.11 Mbit/s
95th percentile per-packet one-way delay: 68.135 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 405.74 Mbit/s
95th percentile per-packet one-way delay: 44.573 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 310.66 Mbit/s
95th percentile per-packet one-way delay: 71.048 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 267.15 Mbit/s
95th percentile per-packet one-way delay: 55.609 ms
Loss rate: 0.46%
```

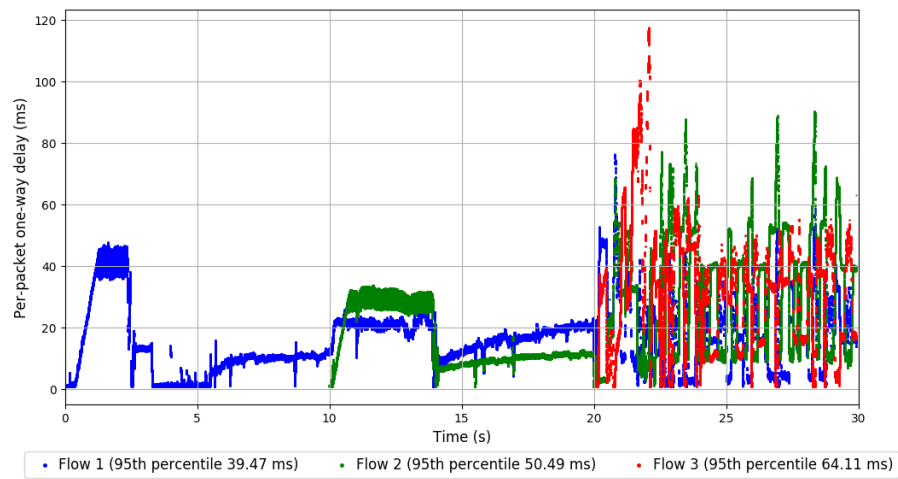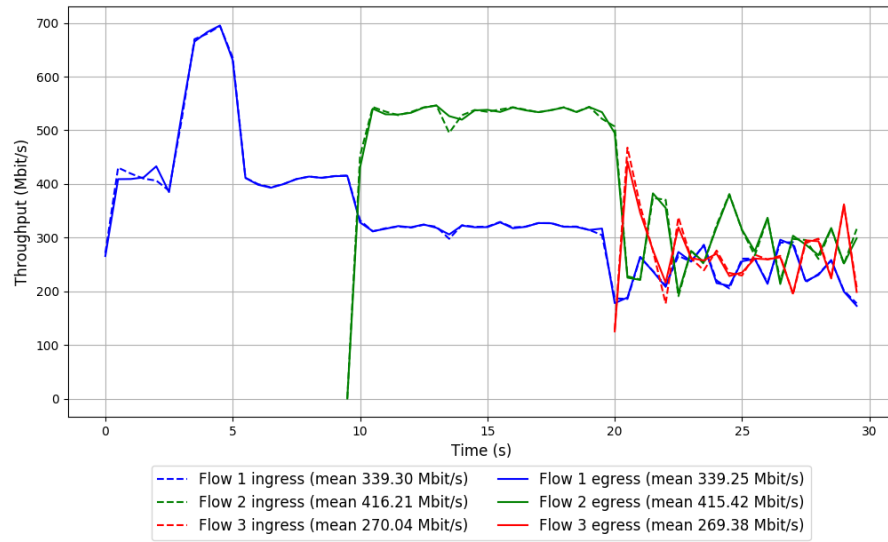Run 5: Report of TCP Cubic — Data Link

```
Run 6: Statistics of TCP Cubic

Start at: 2017-08-11 07:43:56
End at: 2017-08-11 07:44:26
Local clock offset: 0.313 ms
Remote clock offset: -0.051 ms


# Below is generated by plot.py at 2017-08-11 15:08:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 705.07 Mbit/s
95th percentile per-packet one-way delay: 45.037 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 339.25 Mbit/s
95th percentile per-packet one-way delay: 39.473 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 415.42 Mbit/s
95th percentile per-packet one-way delay: 50.489 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 269.38 Mbit/s
95th percentile per-packet one-way delay: 64.111 ms
Loss rate: 0.45%
```

Run 6: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 339.30 Mbit/s) --- Flow 1 egress (mean 339.25 Mbit/s)
Flow 2 ingress (mean 416.21 Mbit/s) --- Flow 2 egress (mean 415.42 Mbit/s)
Flow 3 ingress (mean 270.04 Mbit/s) --- Flow 3 egress (mean 269.38 Mbit/s)

Flow 1 (95th percentile 39.47 ms)   Flow 2 (95th percentile 50.49 ms)   Flow 3 (95th percentile 64.11 ms)
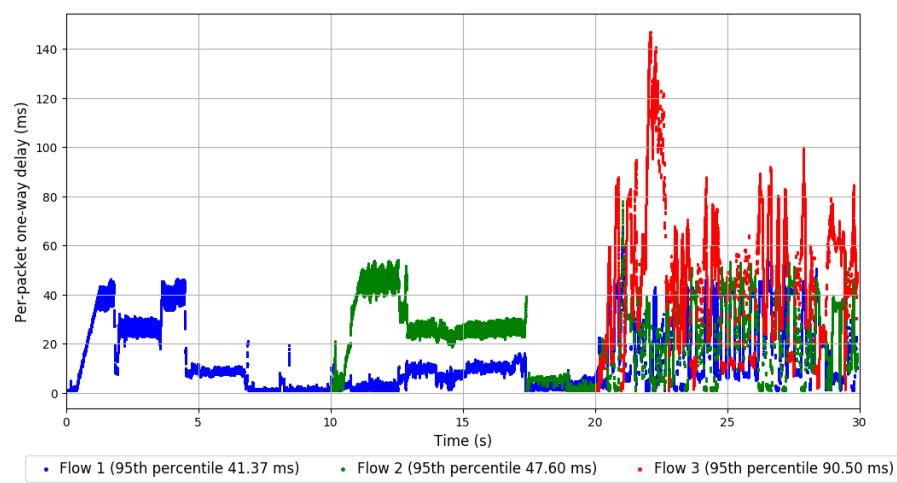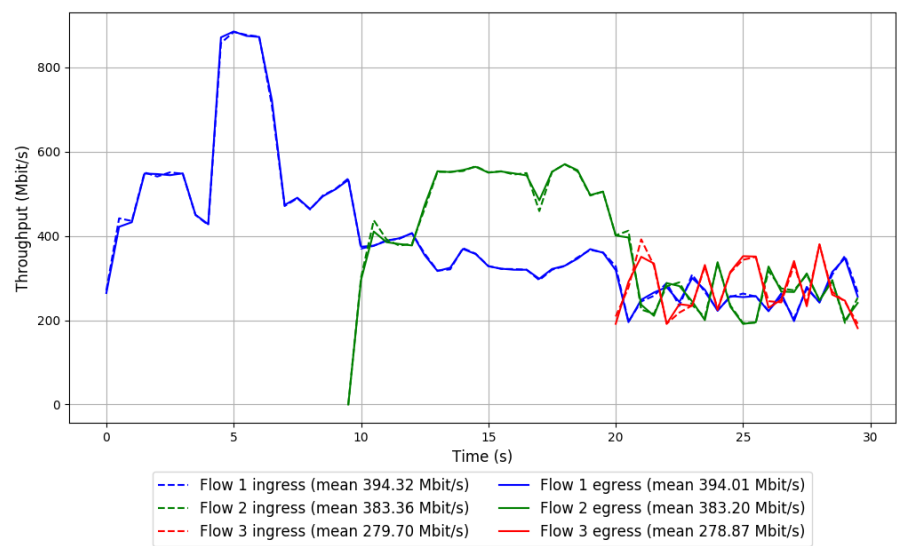
75

```
Run 7: Statistics of TCP Cubic

Start at: 2017-08-11 08:06:08
End at: 2017-08-11 08:06:38
Local clock offset: 0.396 ms
Remote clock offset: -0.052 ms


# Below is generated by plot.py at 2017-08-11 15:09:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 741.52 Mbit/s
95th percentile per-packet one-way delay: 49.198 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 394.01 Mbit/s
95th percentile per-packet one-way delay: 41.371 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 383.20 Mbit/s
95th percentile per-packet one-way delay: 47.599 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 278.87 Mbit/s
95th percentile per-packet one-way delay: 90.501 ms
Loss rate: 0.57%
```

Run 7: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 394.32 Mbit/s)   Flow 1 egress (mean 394.01 Mbit/s)
Flow 2 ingress (mean 383.36 Mbit/s)   Flow 2 egress (mean 383.20 Mbit/s)
Flow 3 ingress (mean 279.70 Mbit/s)   Flow 3 egress (mean 278.87 Mbit/s)

Flow 1 (95th percentile 41.37 ms)   Flow 2 (95th percentile 47.60 ms)   Flow 3 (95th percentile 90.50 ms)
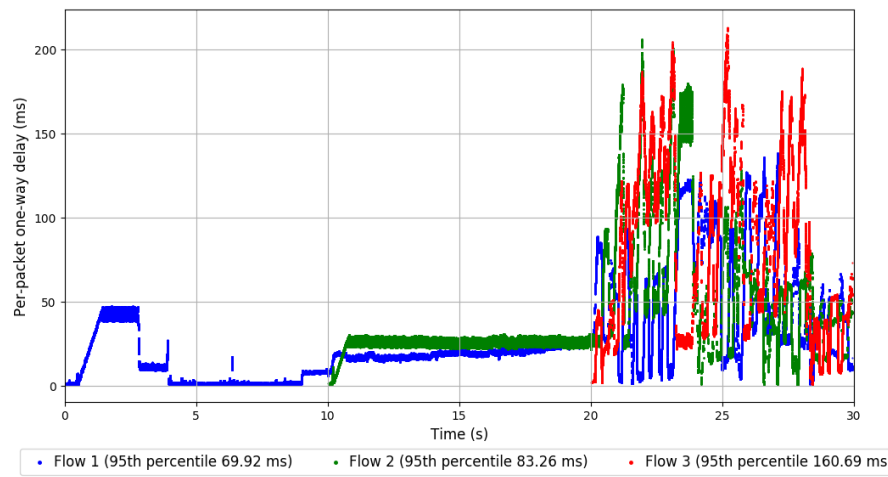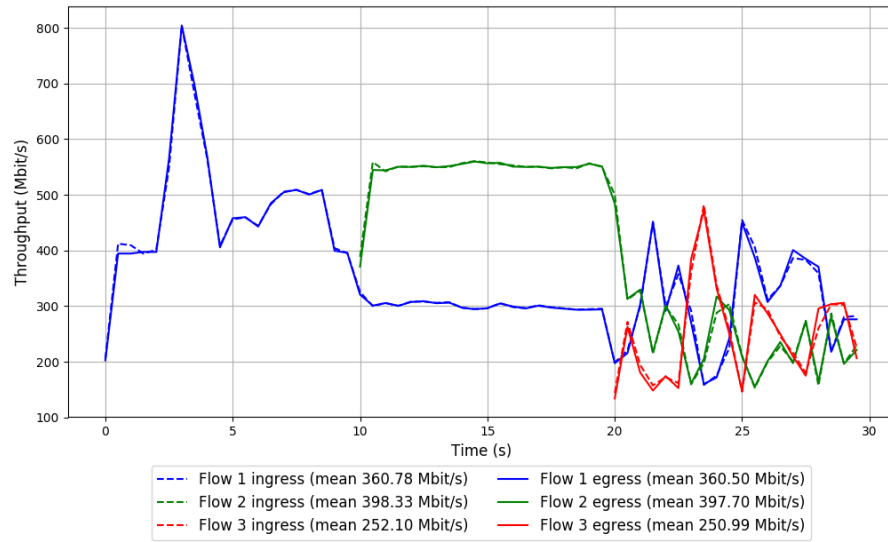
```
Run 8: Statistics of TCP Cubic

Start at: 2017-08-11 08:28:28
End at: 2017-08-11 08:28:58
Local clock offset: 0.32 ms
Remote clock offset: -0.116 ms


# Below is generated by plot.py at 2017-08-11 15:09:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 708.33 Mbit/s
95th percentile per-packet one-way delay: 105.567 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 360.50 Mbit/s
95th percentile per-packet one-way delay: 69.925 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 397.70 Mbit/s
95th percentile per-packet one-way delay: 83.258 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 250.99 Mbit/s
95th percentile per-packet one-way delay: 160.685 ms
Loss rate: 0.57%
```

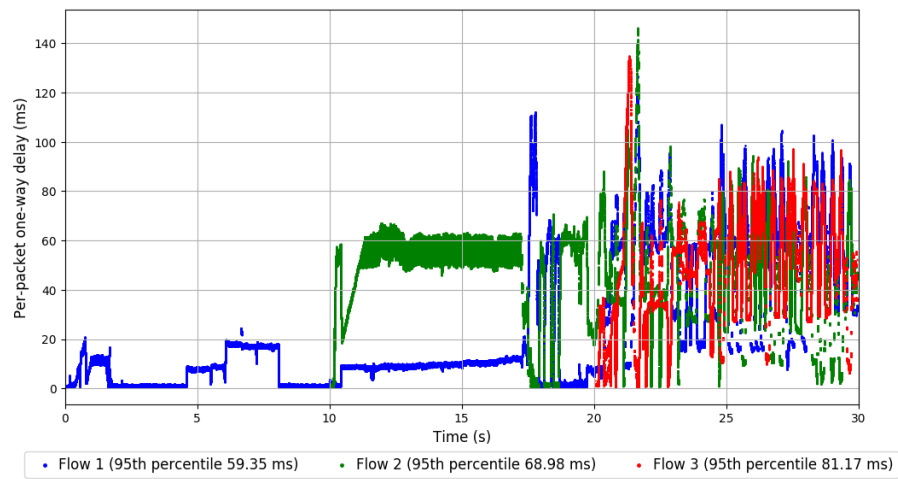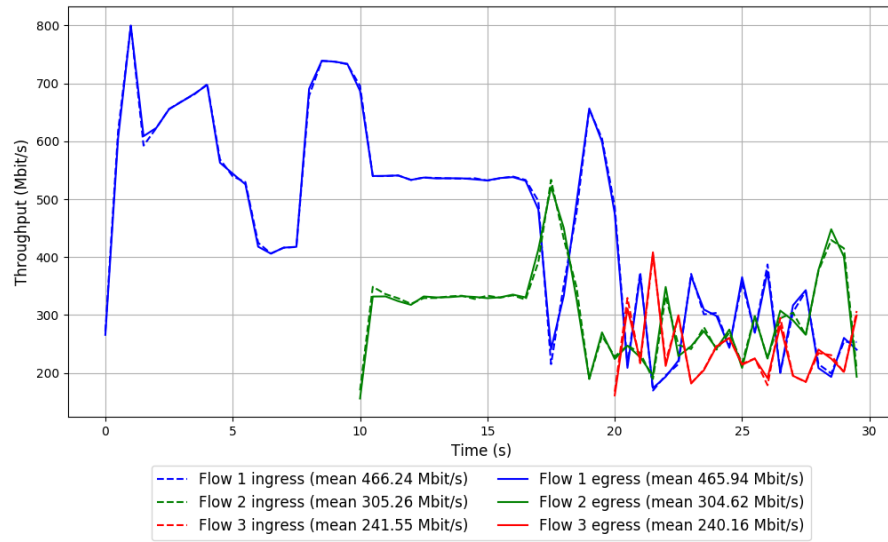Run 8: Report of TCP Cubic — Data Link

```
Run 9: Statistics of TCP Cubic

Start at: 2017-08-11 08:50:42
End at: 2017-08-11 08:51:12
Local clock offset: 0.219 ms
Remote clock offset: -0.247 ms


# Below is generated by plot.py at 2017-08-11 15:10:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 747.94 Mbit/s
95th percentile per-packet one-way delay: 67.881 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 465.94 Mbit/s
95th percentile per-packet one-way delay: 59.350 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 304.62 Mbit/s
95th percentile per-packet one-way delay: 68.984 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 240.16 Mbit/s
95th percentile per-packet one-way delay: 81.171 ms
Loss rate: 0.64%
```

Run 9: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 466.24 Mbit/s) — — — Flow 1 egress (mean 465.94 Mbit/s)
Flow 2 ingress (mean 305.26 Mbit/s) — — — Flow 2 egress (mean 304.62 Mbit/s)
Flow 3 ingress (mean 241.55 Mbit/s) — — — Flow 3 egress (mean 240.16 Mbit/s)

Flow 1 (95th percentile 59.35 ms)   Flow 2 (95th percentile 68.98 ms)   Flow 3 (95th percentile 81.17 ms)
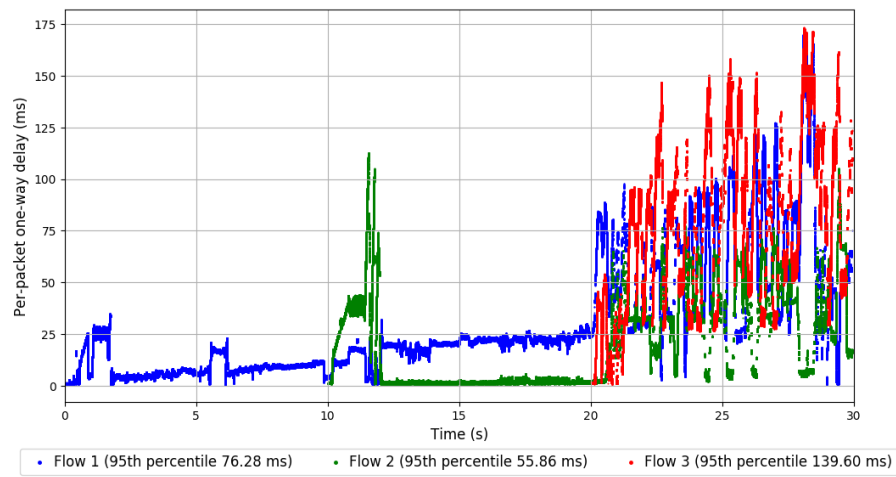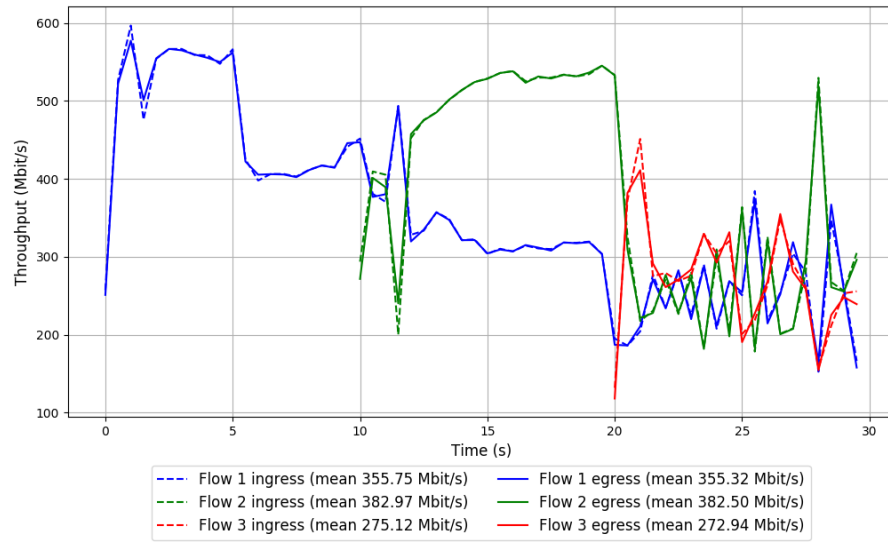
```
Run 10: Statistics of TCP Cubic

Start at: 2017-08-11 09:13:02
End at: 2017-08-11 09:13:32
Local clock offset: 0.249 ms
Remote clock offset: -0.373 ms


# Below is generated by plot.py at 2017-08-11 15:11:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 700.34 Mbit/s
95th percentile per-packet one-way delay: 92.136 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 355.32 Mbit/s
95th percentile per-packet one-way delay: 76.278 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 382.50 Mbit/s
95th percentile per-packet one-way delay: 55.857 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 272.94 Mbit/s
95th percentile per-packet one-way delay: 139.598 ms
Loss rate: 0.93%
```

Run 10: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 355.75 Mbit/s) ---- Flow 1 egress (mean 355.32 Mbit/s)
Flow 2 ingress (mean 382.97 Mbit/s) ---- Flow 2 egress (mean 382.50 Mbit/s)
Flow 3 ingress (mean 275.12 Mbit/s) ---- Flow 3 egress (mean 272.94 Mbit/s)

Flow 1 (95th percentile 76.28 ms)   Flow 2 (95th percentile 55.86 ms)   Flow 3 (95th percentile 139.60 ms)
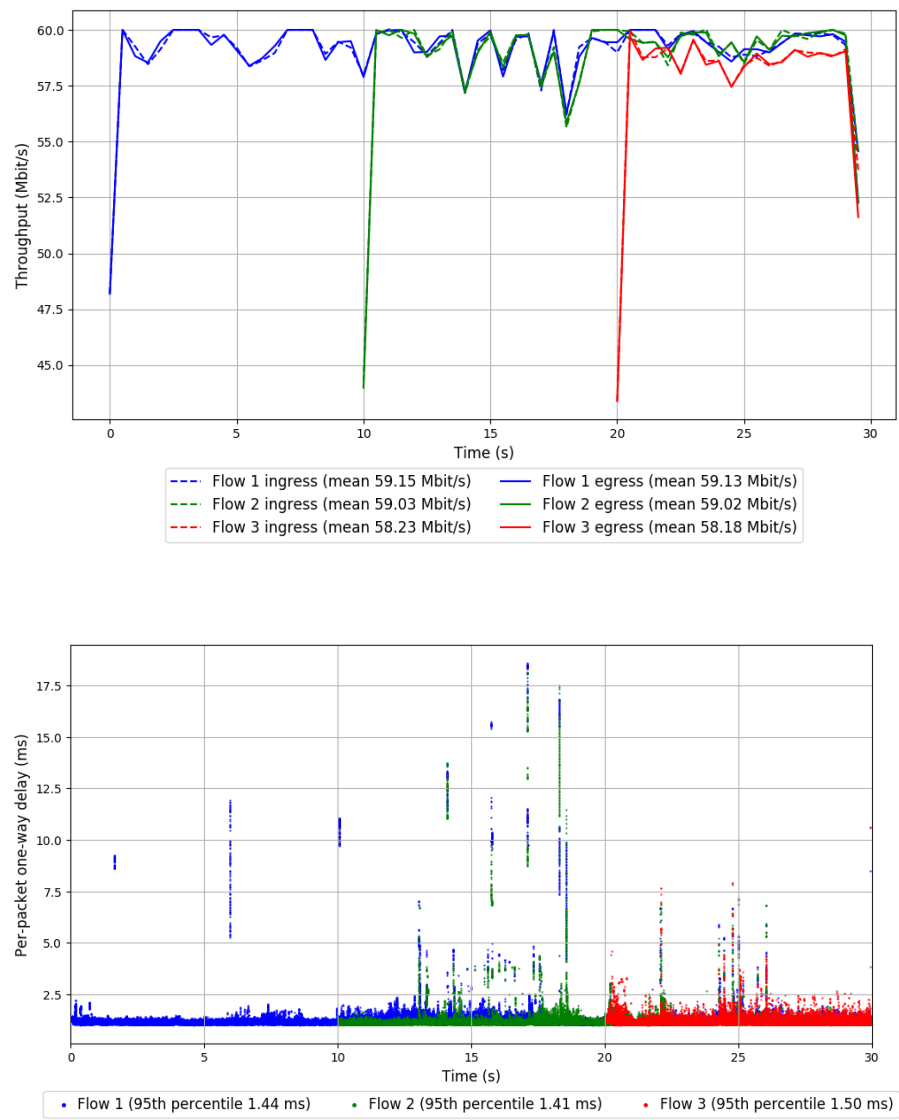
83

```
Run 1: Statistics of KohoCC

Start at: 2017-08-11 05:50:54
End at: 2017-08-11 05:51:24
Local clock offset: 0.483 ms
Remote clock offset: -1.478 ms


# Below is generated by plot.py at 2017-08-11 15:11:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 117.60 Mbit/s
95th percentile per-packet one-way delay: 1.446 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 59.13 Mbit/s
95th percentile per-packet one-way delay: 1.444 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 59.02 Mbit/s
95th percentile per-packet one-way delay: 1.407 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 58.18 Mbit/s
95th percentile per-packet one-way delay: 1.504 ms
Loss rate: 0.20%
```
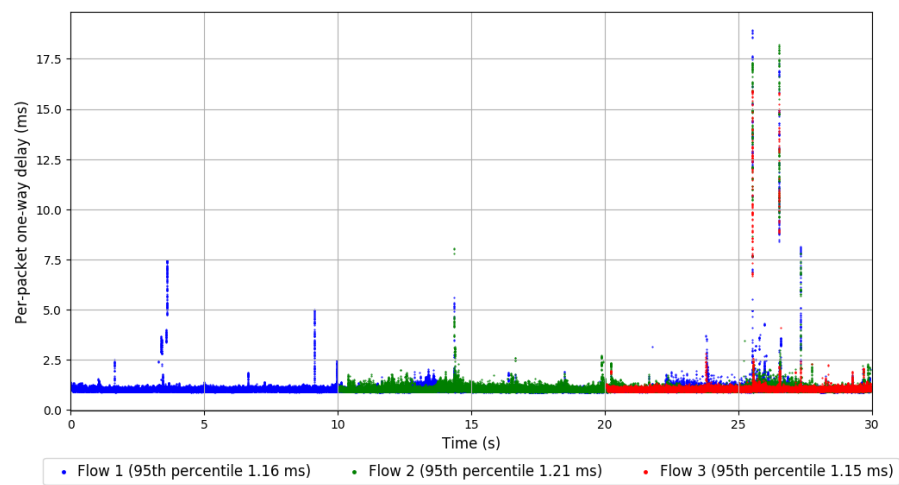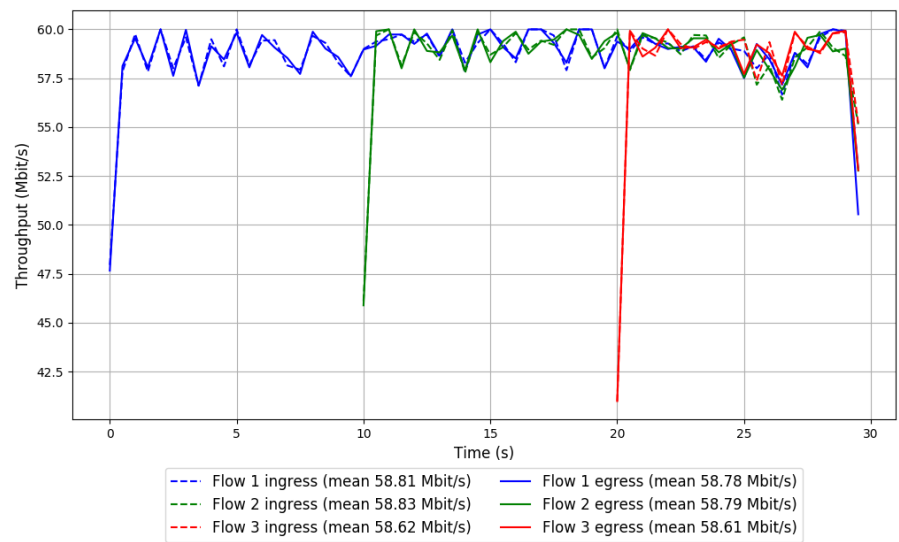
Run 1: Report of KohoCC — Data Link

```
Run 2: Statistics of KohoCC

Start at: 2017-08-11 06:13:11
End at: 2017-08-11 06:13:41
Local clock offset: 0.266 ms
Remote clock offset: -1.226 ms


# Below is generated by plot.py at 2017-08-11 15:11:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 117.25 Mbit/s
95th percentile per-packet one-way delay: 1.172 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 58.78 Mbit/s
95th percentile per-packet one-way delay: 1.156 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 58.79 Mbit/s
95th percentile per-packet one-way delay: 1.210 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 58.61 Mbit/s
95th percentile per-packet one-way delay: 1.148 ms
Loss rate: 0.21%
```
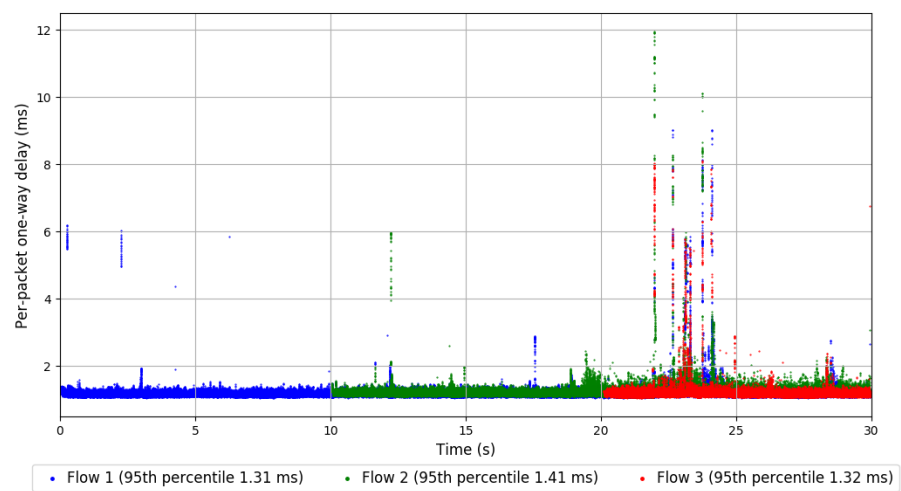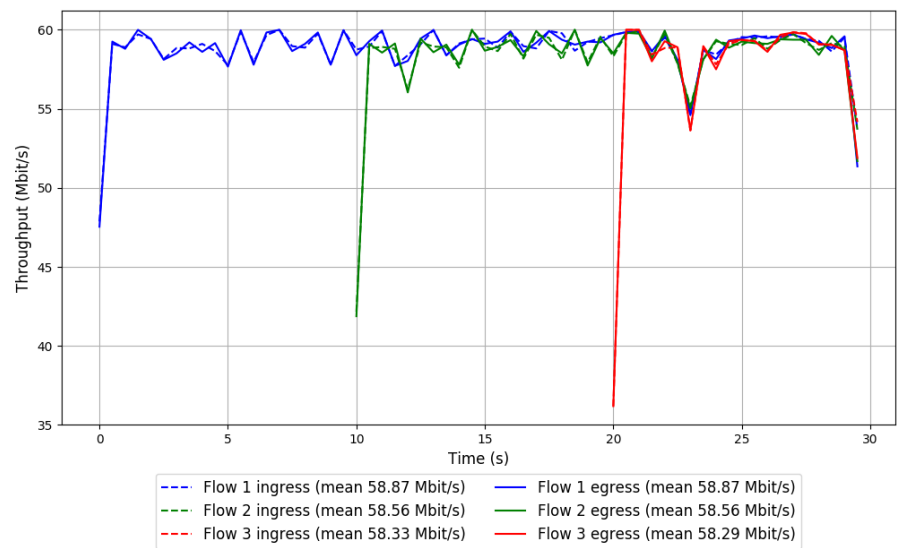
Run 2: Report of KohoCC — Data Link

```
Run 3: Statistics of KohoCC

Start at: 2017-08-11 06:35:38
End at: 2017-08-11 06:36:08
Local clock offset: 0.36 ms
Remote clock offset: -1.005 ms

# Below is generated by plot.py at 2017-08-11 15:11:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 116.92 Mbit/s
95th percentile per-packet one-way delay: 1.344 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 58.87 Mbit/s
95th percentile per-packet one-way delay: 1.307 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 58.56 Mbit/s
95th percentile per-packet one-way delay: 1.405 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 58.29 Mbit/s
95th percentile per-packet one-way delay: 1.321 ms
Loss rate: 0.21%
```

Run 3: Report of KohoCC — Data Link

- - - - Flow 1 ingress (mean 58.87 Mbit/s)   ——— Flow 1 egress (mean 58.87 Mbit/s)
- - - - Flow 2 ingress (mean 58.56 Mbit/s)   ——— Flow 2 egress (mean 58.56 Mbit/s)
- - - - Flow 3 ingress (mean 58.33 Mbit/s)   ——— Flow 3 egress (mean 58.29 Mbit/s)

• Flow 1 (95th percentile 1.31 ms)   • Flow 2 (95th percentile 1.41 ms)   • Flow 3 (95th percentile 1.32 ms)
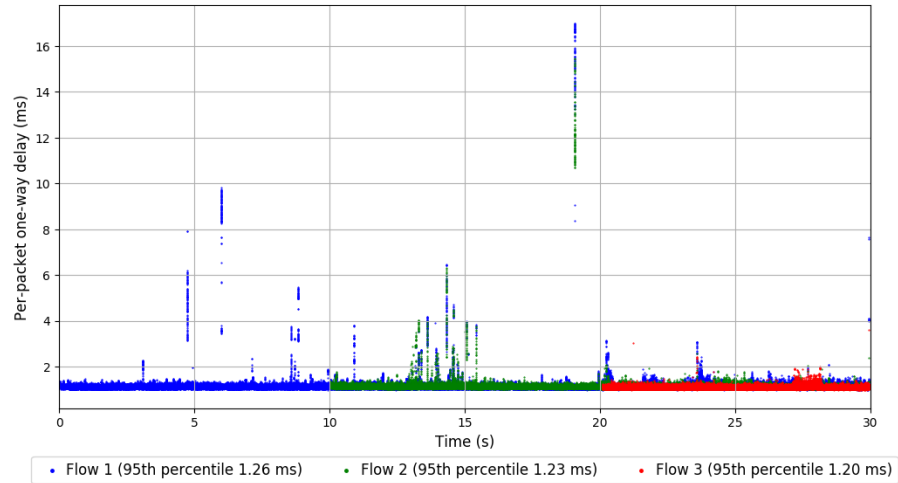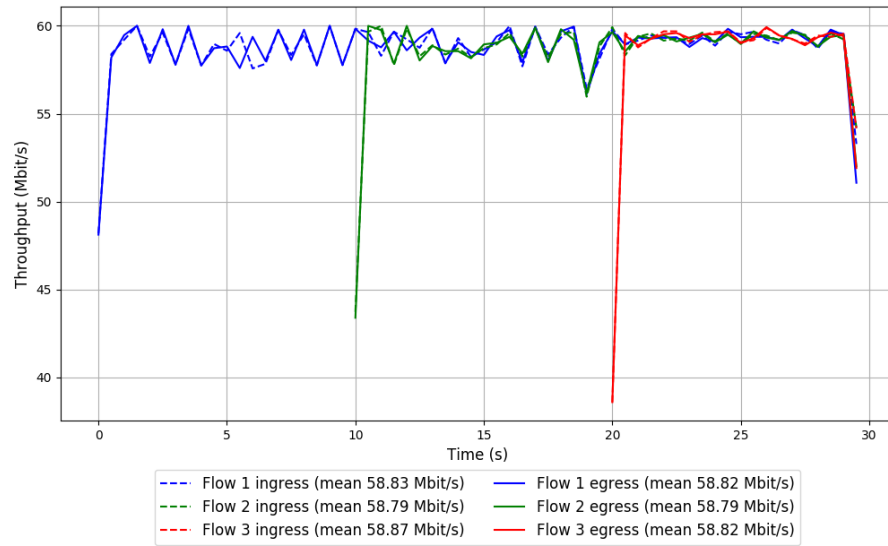
89

```
Run 4: Statistics of KohoCC

Start at: 2017-08-11 06:58:03
End at: 2017-08-11 06:58:33
Local clock offset: 0.383 ms
Remote clock offset: -0.575 ms

# Below is generated by plot.py at 2017-08-11 15:11:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 117.26 Mbit/s
95th percentile per-packet one-way delay: 1.243 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 58.82 Mbit/s
95th percentile per-packet one-way delay: 1.262 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 58.79 Mbit/s
95th percentile per-packet one-way delay: 1.230 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 58.82 Mbit/s
95th percentile per-packet one-way delay: 1.204 ms
Loss rate: 0.20%
```
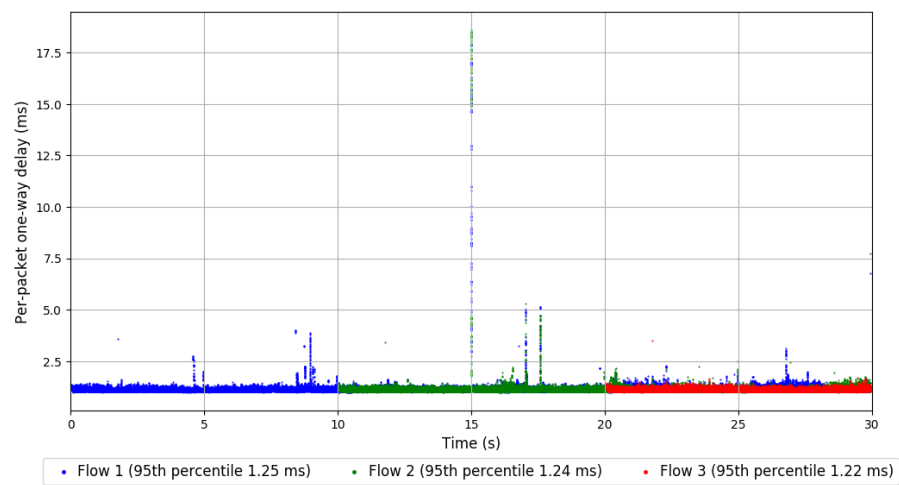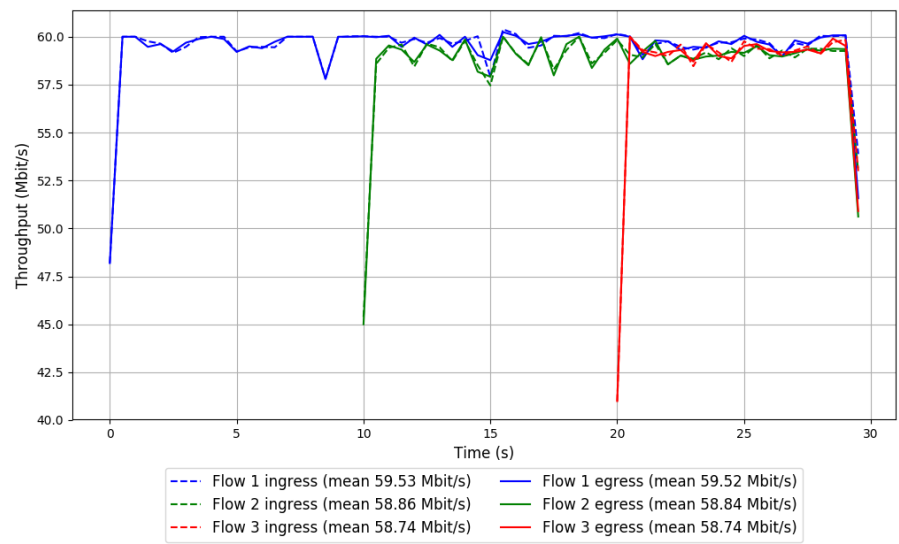
Run 4: Report of KohoCC — Data Link

- - - Flow 1 ingress (mean 58.83 Mbit/s) ——— Flow 1 egress (mean 58.82 Mbit/s)
- - - Flow 2 ingress (mean 58.79 Mbit/s) ——— Flow 2 egress (mean 58.79 Mbit/s)
- - - Flow 3 ingress (mean 58.87 Mbit/s) ——— Flow 3 egress (mean 58.82 Mbit/s)

- Flow 1 (95th percentile 1.26 ms)   • Flow 2 (95th percentile 1.23 ms)   • Flow 3 (95th percentile 1.20 ms)

```
Run 5: Statistics of KohoCC

Start at: 2017-08-11 07:20:16
End at: 2017-08-11 07:20:46
Local clock offset: 0.354 ms
Remote clock offset: -0.334 ms


# Below is generated by plot.py at 2017-08-11 15:11:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 118.02 Mbit/s
95th percentile per-packet one-way delay: 1.240 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 59.52 Mbit/s
95th percentile per-packet one-way delay: 1.250 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 58.84 Mbit/s
95th percentile per-packet one-way delay: 1.235 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 58.74 Mbit/s
95th percentile per-packet one-way delay: 1.223 ms
Loss rate: 0.21%
```
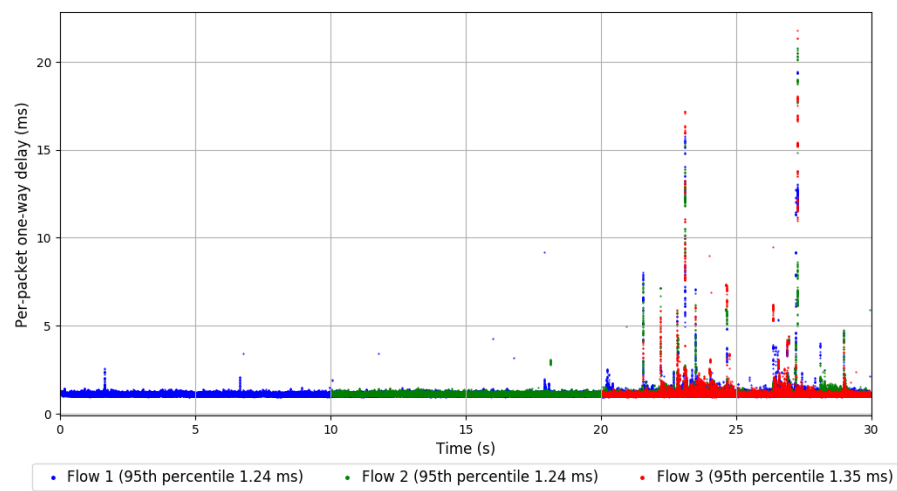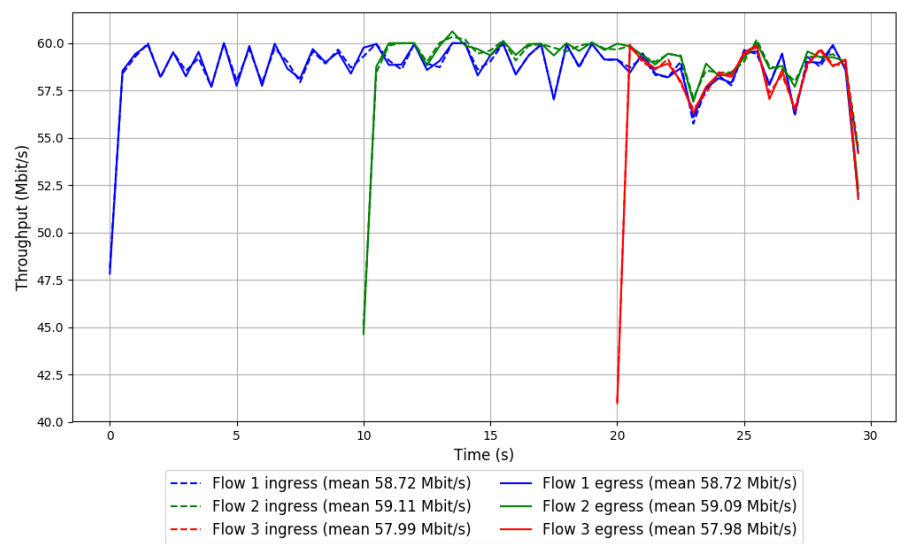
Run 5: Report of KohoCC — Data Link

Flow 1 ingress (mean 59.53 Mbit/s) — — — Flow 1 egress (mean 59.52 Mbit/s)
Flow 2 ingress (mean 58.86 Mbit/s) — — — Flow 2 egress (mean 58.84 Mbit/s)
Flow 3 ingress (mean 58.74 Mbit/s) — — — Flow 3 egress (mean 58.74 Mbit/s)

• Flow 1 (95th percentile 1.25 ms)   • Flow 2 (95th percentile 1.24 ms)   • Flow 3 (95th percentile 1.22 ms)

```
Run 6: Statistics of KohoCC

Start at: 2017-08-11 07:42:38
End at: 2017-08-11 07:43:08
Local clock offset: 0.317 ms
Remote clock offset: -0.123 ms


# Below is generated by plot.py at 2017-08-11 15:12:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 117.13 Mbit/s
95th percentile per-packet one-way delay: 1.252 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 58.72 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 59.09 Mbit/s
95th percentile per-packet one-way delay: 1.243 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 57.98 Mbit/s
95th percentile per-packet one-way delay: 1.355 ms
Loss rate: 0.21%
```
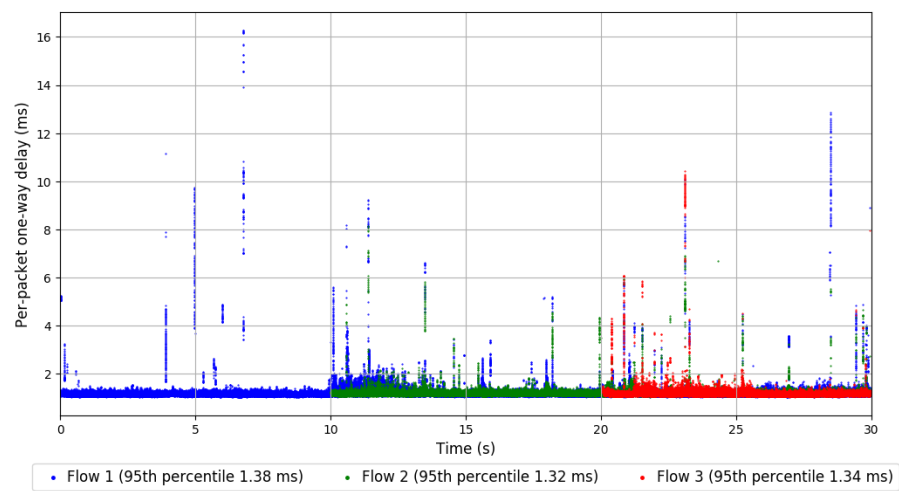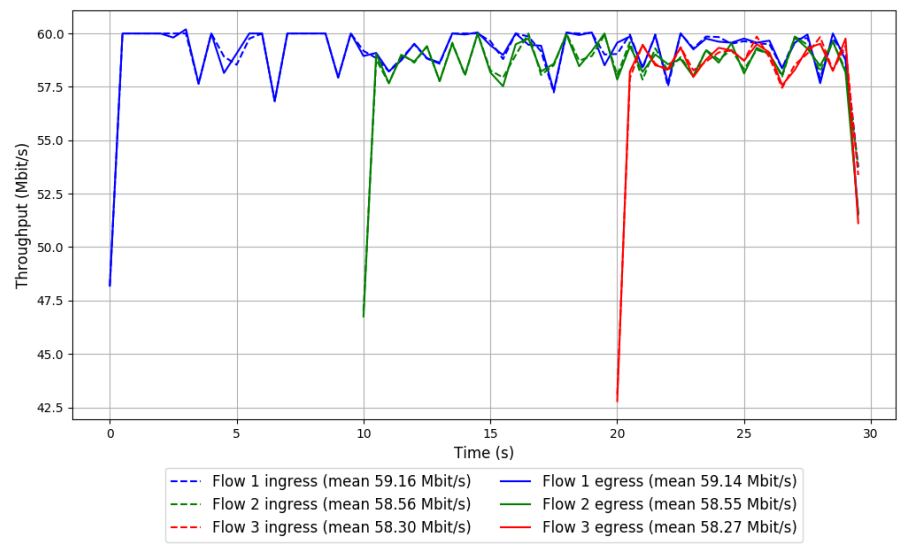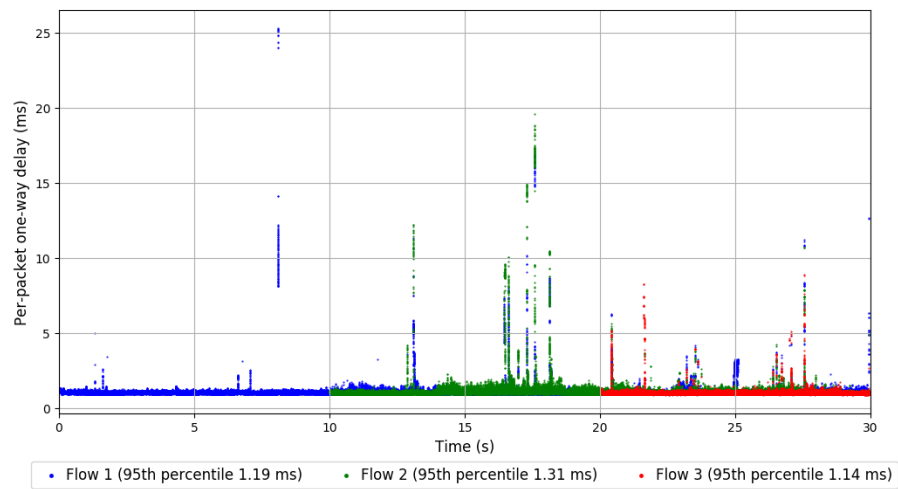
Run 6: Report of KohoCC — Data Link

Flow 1 ingress (mean 58.72 Mbit/s) --- Flow 1 egress (mean 58.72 Mbit/s)
Flow 2 ingress (mean 59.11 Mbit/s) --- Flow 2 egress (mean 59.09 Mbit/s)
Flow 3 ingress (mean 57.99 Mbit/s) --- Flow 3 egress (mean 57.98 Mbit/s)

Flow 1 (95th percentile 1.24 ms)   Flow 2 (95th percentile 1.24 ms)   Flow 3 (95th percentile 1.35 ms)

95

```
Run 7: Statistics of KohoCC

Start at: 2017-08-11 08:04:49
End at: 2017-08-11 08:05:19
Local clock offset: 0.405 ms
Remote clock offset: -0.045 ms

# Below is generated by plot.py at 2017-08-11 15:12:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 117.37 Mbit/s
95th percentile per-packet one-way delay: 1.352 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 59.14 Mbit/s
95th percentile per-packet one-way delay: 1.384 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 58.55 Mbit/s
95th percentile per-packet one-way delay: 1.324 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 58.27 Mbit/s
95th percentile per-packet one-way delay: 1.343 ms
Loss rate: 0.20%
```
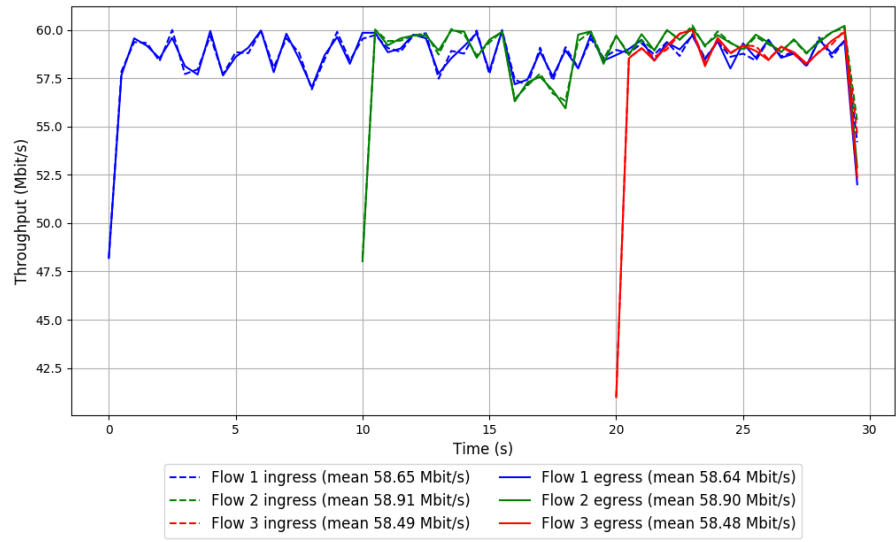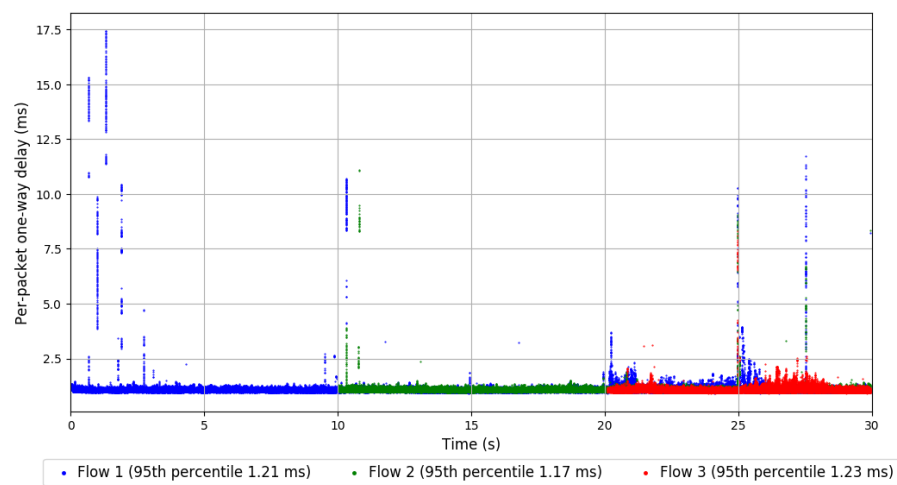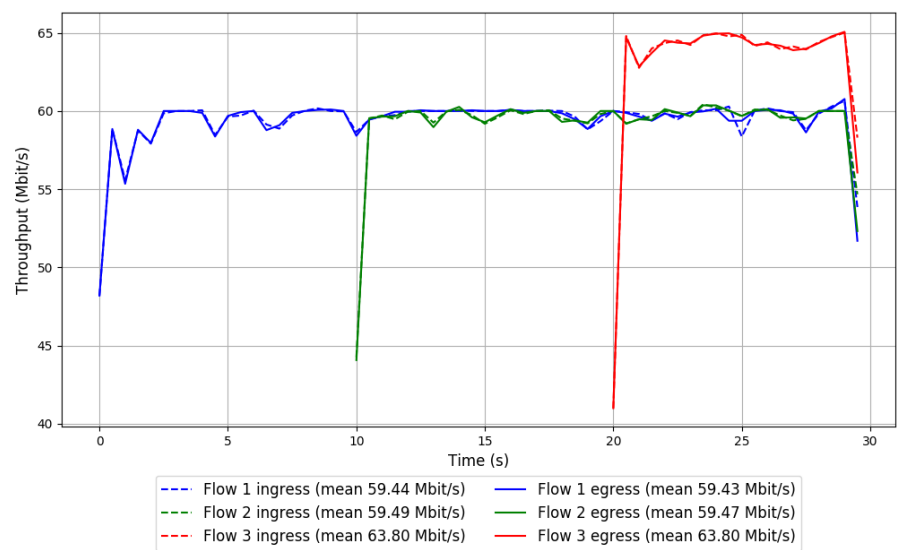
Run 7: Report of KohoCC — Data Link

Flow 1 ingress (mean 59.16 Mbit/s) --- Flow 1 egress (mean 59.14 Mbit/s)
Flow 2 ingress (mean 58.56 Mbit/s) --- Flow 2 egress (mean 58.55 Mbit/s)
Flow 3 ingress (mean 58.30 Mbit/s) --- Flow 3 egress (mean 58.27 Mbit/s)

• Flow 1 (95th percentile 1.38 ms)   • Flow 2 (95th percentile 1.32 ms)   • Flow 3 (95th percentile 1.34 ms)

```
Run 8: Statistics of KohoCC

Start at: 2017-08-11 08:27:09
End at: 2017-08-11 08:27:39
Local clock offset: 0.208 ms
Remote clock offset: -0.132 ms


# Below is generated by plot.py at 2017-08-11 15:12:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 117.13 Mbit/s
95th percentile per-packet one-way delay: 1.225 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 58.64 Mbit/s
95th percentile per-packet one-way delay: 1.194 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 58.90 Mbit/s
95th percentile per-packet one-way delay: 1.310 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 58.48 Mbit/s
95th percentile per-packet one-way delay: 1.140 ms
Loss rate: 0.21%
```
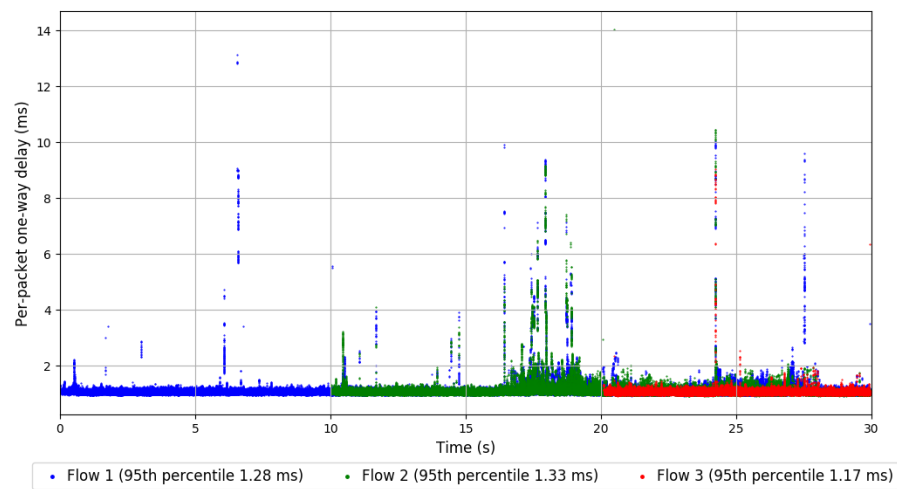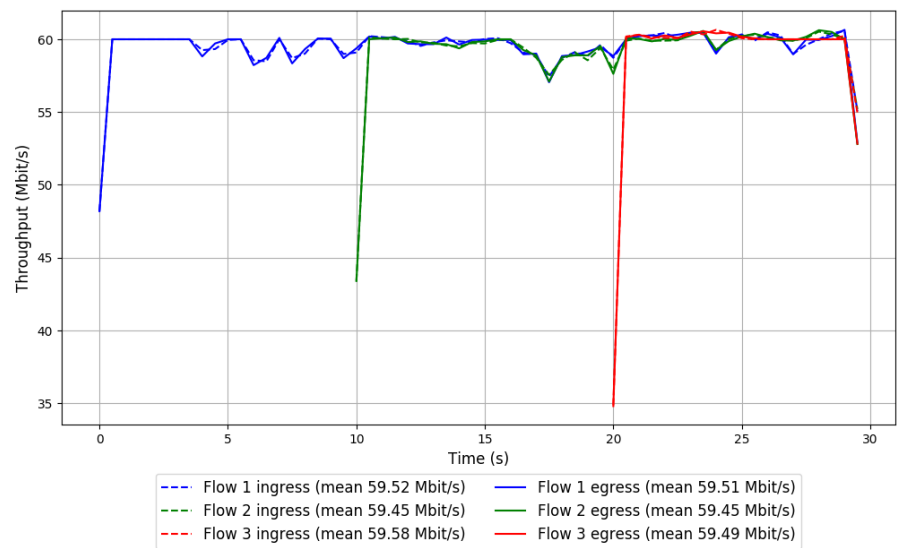
Run 8: Report of KohoCC — Data Link

- Flow 1 ingress (mean 58.65 Mbit/s)
- Flow 1 egress (mean 58.64 Mbit/s)
- Flow 2 ingress (mean 58.91 Mbit/s)
- Flow 2 egress (mean 58.90 Mbit/s)
- Flow 3 ingress (mean 58.49 Mbit/s)
- Flow 3 egress (mean 58.48 Mbit/s)

- Flow 1 (95th percentile 1.19 ms)
- Flow 2 (95th percentile 1.31 ms)
- Flow 3 (95th percentile 1.14 ms)

99

```
Run 9: Statistics of KohoCC

Start at: 2017-08-11 08:49:23
End at: 2017-08-11 08:49:53
Local clock offset: 0.244 ms
Remote clock offset: -0.331 ms


# Below is generated by plot.py at 2017-08-11 15:12:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 119.95 Mbit/s
95th percentile per-packet one-way delay: 1.197 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 59.43 Mbit/s
95th percentile per-packet one-way delay: 1.205 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 59.47 Mbit/s
95th percentile per-packet one-way delay: 1.174 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 63.80 Mbit/s
95th percentile per-packet one-way delay: 1.228 ms
Loss rate: 0.19%
```
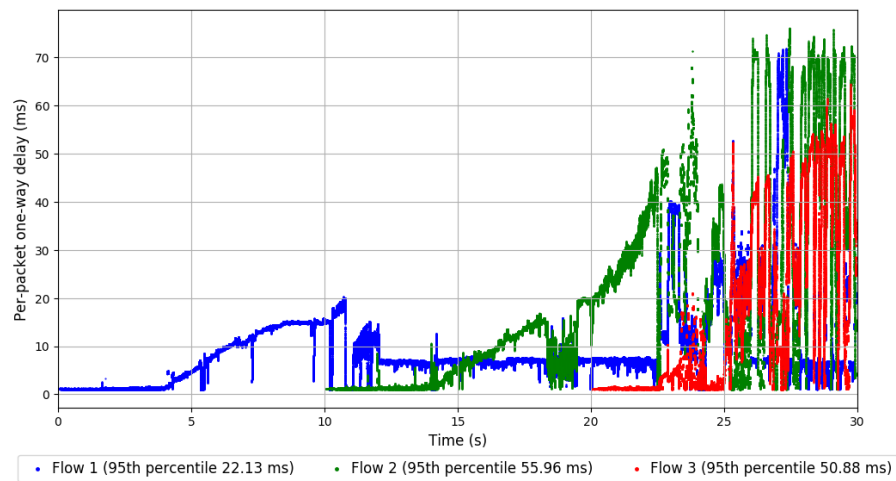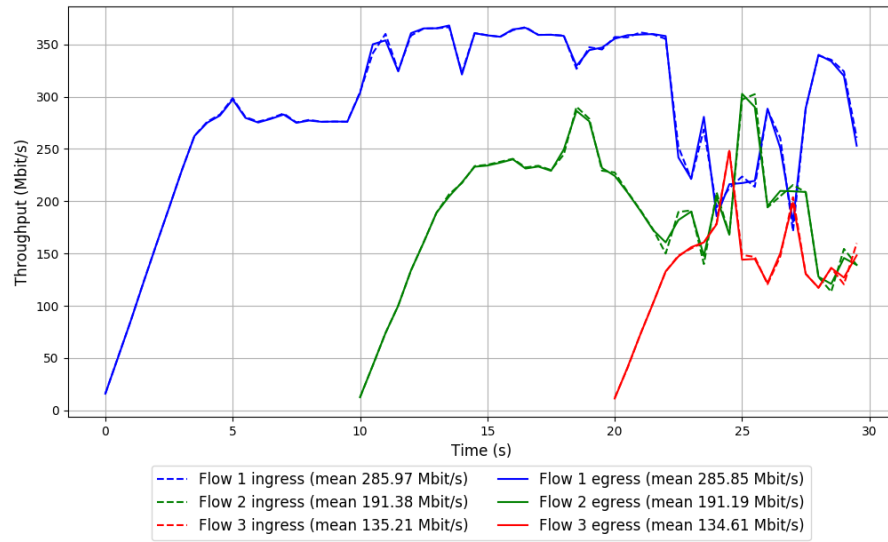
Run 9: Report of KohoCC — Data Link

Flow 1 ingress (mean 59.44 Mbit/s)   Flow 1 egress (mean 59.43 Mbit/s)
Flow 2 ingress (mean 59.49 Mbit/s)   Flow 2 egress (mean 59.47 Mbit/s)
Flow 3 ingress (mean 63.80 Mbit/s)   Flow 3 egress (mean 63.80 Mbit/s)

Flow 1 (95th percentile 1.21 ms)   Flow 2 (95th percentile 1.17 ms)   Flow 3 (95th percentile 1.23 ms)
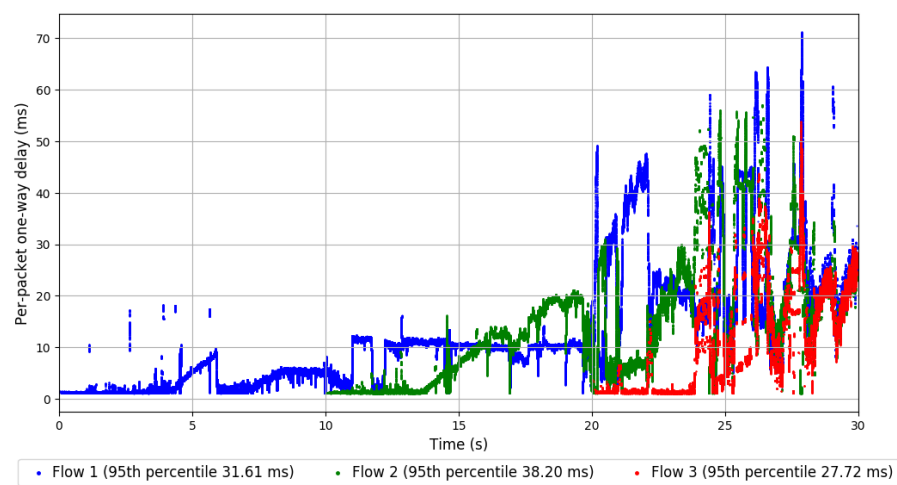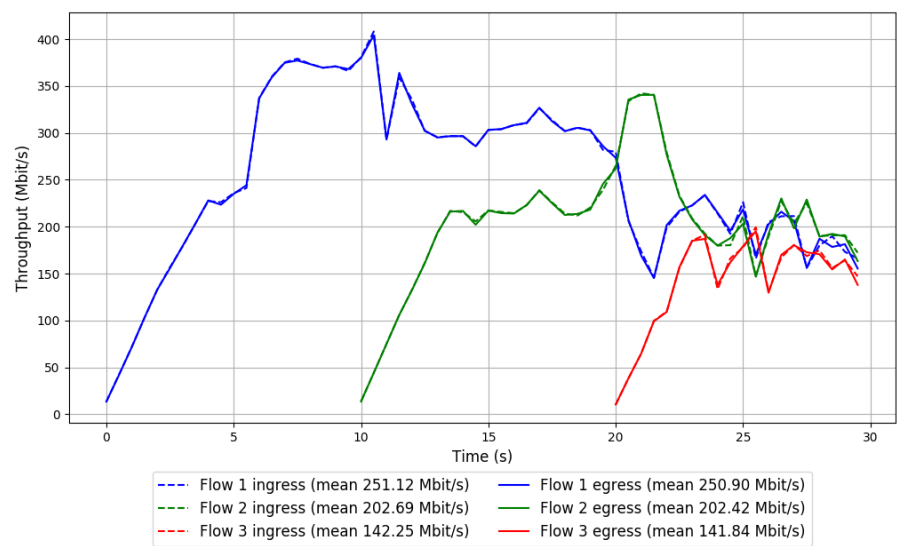
```
Run 10: Statistics of KohoCC

Start at: 2017-08-11 09:11:43
End at: 2017-08-11 09:12:13
Local clock offset: 0.243 ms
Remote clock offset: -0.476 ms

# Below is generated by plot.py at 2017-08-11 15:12:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 118.55 Mbit/s
95th percentile per-packet one-way delay: 1.272 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 59.51 Mbit/s
95th percentile per-packet one-way delay: 1.280 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 59.45 Mbit/s
95th percentile per-packet one-way delay: 1.331 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 59.49 Mbit/s
95th percentile per-packet one-way delay: 1.168 ms
Loss rate: 0.20%
```

Run 10: Report of KohoCC — Data Link

Flow 1 ingress (mean 59.52 Mbit/s) — Flow 1 egress (mean 59.51 Mbit/s)
Flow 2 ingress (mean 59.45 Mbit/s) — Flow 2 egress (mean 59.45 Mbit/s)
Flow 3 ingress (mean 59.58 Mbit/s) — Flow 3 egress (mean 59.49 Mbit/s)

Flow 1 (95th percentile 1.28 ms)   Flow 2 (95th percentile 1.33 ms)   Flow 3 (95th percentile 1.17 ms)
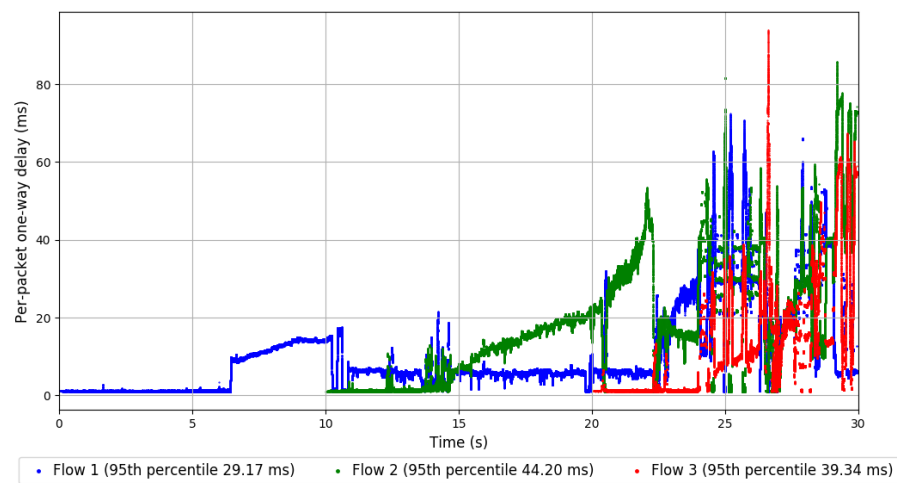
```
Run 1: Statistics of LEDBAT

Start at: 2017-08-11 05:46:22
End at: 2017-08-11 05:46:52
Local clock offset: 0.41 ms
Remote clock offset: -1.635 ms


# Below is generated by plot.py at 2017-08-11 15:13:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 457.46 Mbit/s
95th percentile per-packet one-way delay: 39.362 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 285.85 Mbit/s
95th percentile per-packet one-way delay: 22.128 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 191.19 Mbit/s
95th percentile per-packet one-way delay: 55.960 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 134.61 Mbit/s
95th percentile per-packet one-way delay: 50.880 ms
Loss rate: 0.54%
```
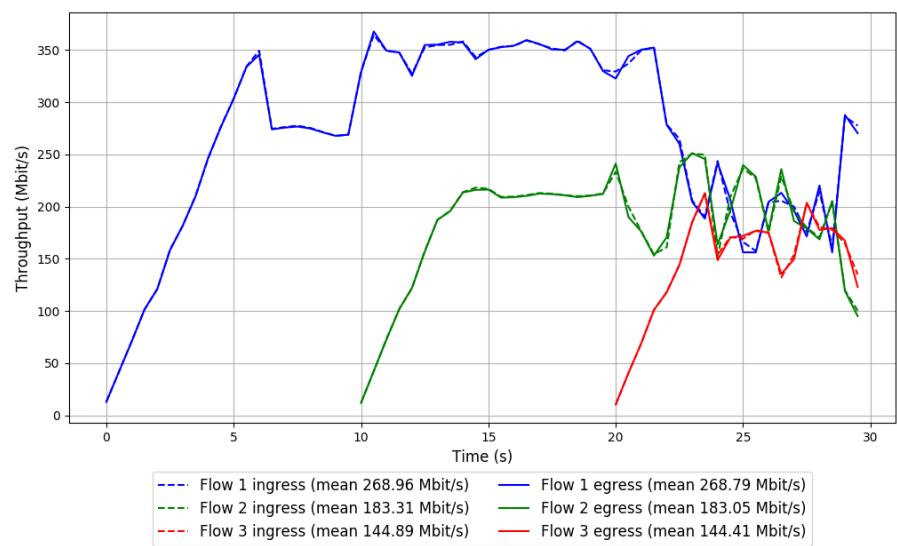
Run 1: Report of LEDBAT — Data Link

- - - - Flow 1 ingress (mean 285.97 Mbit/s) ——— Flow 1 egress (mean 285.85 Mbit/s)
- - - - Flow 2 ingress (mean 191.38 Mbit/s) ——— Flow 2 egress (mean 191.19 Mbit/s)
- - - - Flow 3 ingress (mean 135.21 Mbit/s) ——— Flow 3 egress (mean 134.61 Mbit/s)

• Flow 1 (95th percentile 22.13 ms)   • Flow 2 (95th percentile 55.96 ms)   • Flow 3 (95th percentile 50.88 ms)
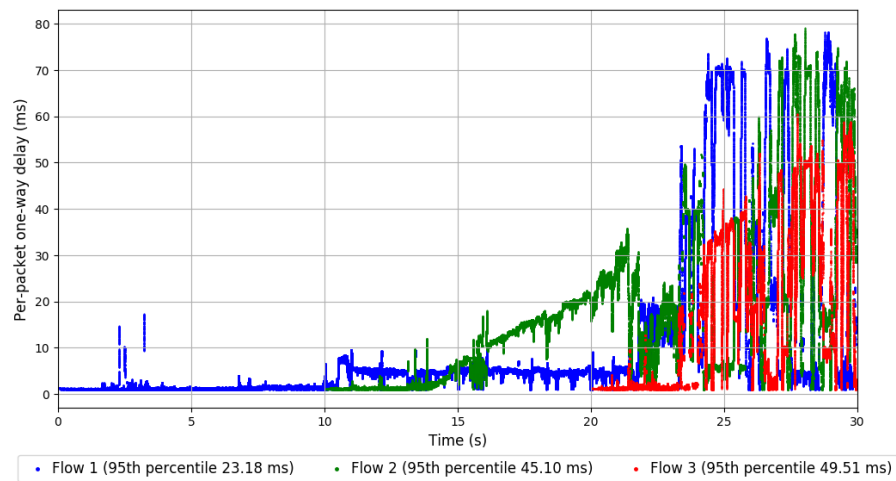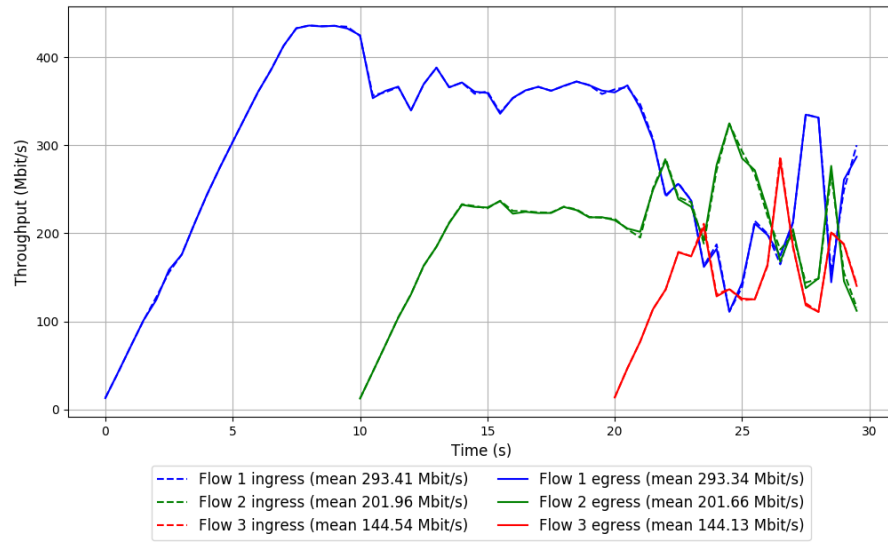
```
Run 2: Statistics of LEDBAT

Start at: 2017-08-11 06:08:41
End at: 2017-08-11 06:09:11
Local clock offset: 0.437 ms
Remote clock offset: -1.198 ms


# Below is generated by plot.py at 2017-08-11 15:13:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 432.53 Mbit/s
95th percentile per-packet one-way delay: 32.831 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 250.90 Mbit/s
95th percentile per-packet one-way delay: 31.615 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 202.42 Mbit/s
95th percentile per-packet one-way delay: 38.197 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 141.84 Mbit/s
95th percentile per-packet one-way delay: 27.722 ms
Loss rate: 0.55%
```
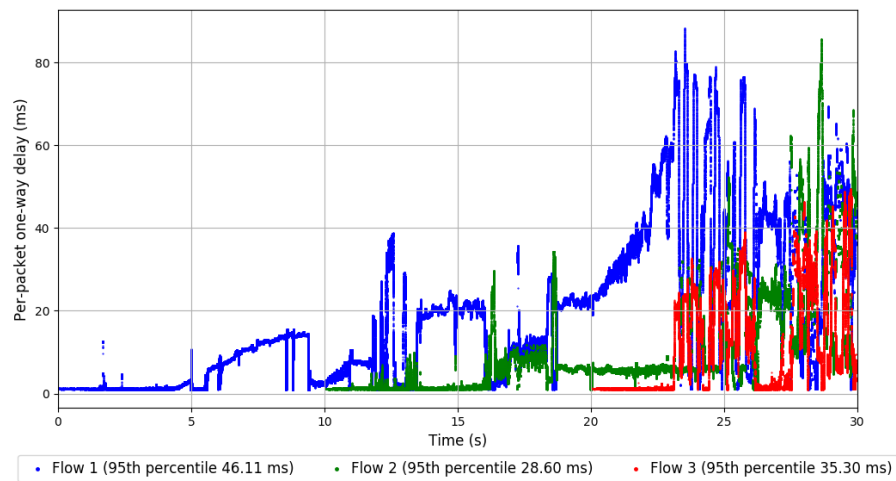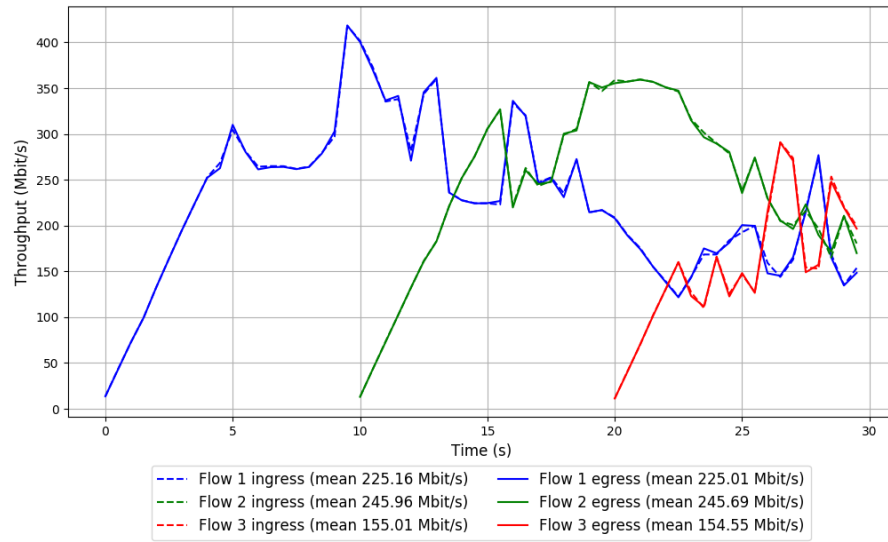
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2017-08-11 06:31:14
End at: 2017-08-11 06:31:44
Local clock offset: 0.305 ms
Remote clock offset: -1.053 ms

# Below is generated by plot.py at 2017-08-11 15:14:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 438.33 Mbit/s
95th percentile per-packet one-way delay: 37.455 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 268.79 Mbit/s
95th percentile per-packet one-way delay: 29.173 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 183.05 Mbit/s
95th percentile per-packet one-way delay: 44.195 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 144.41 Mbit/s
95th percentile per-packet one-way delay: 39.343 ms
Loss rate: 0.54%
```
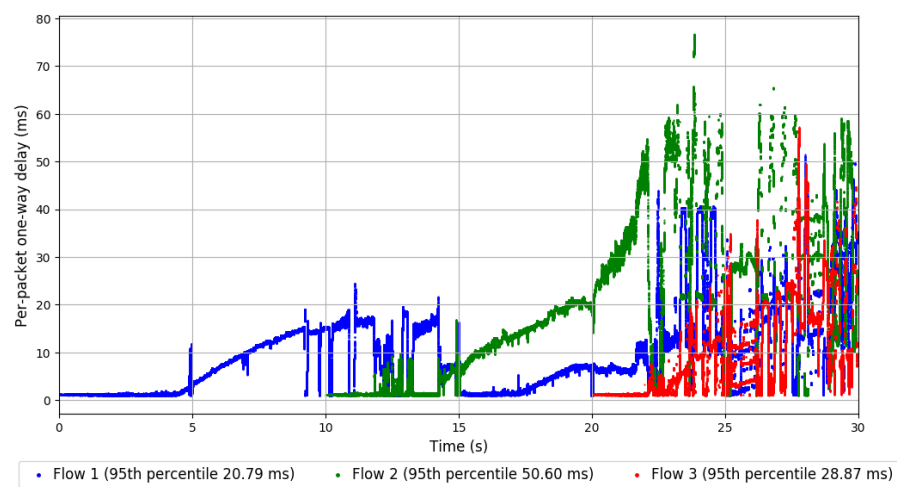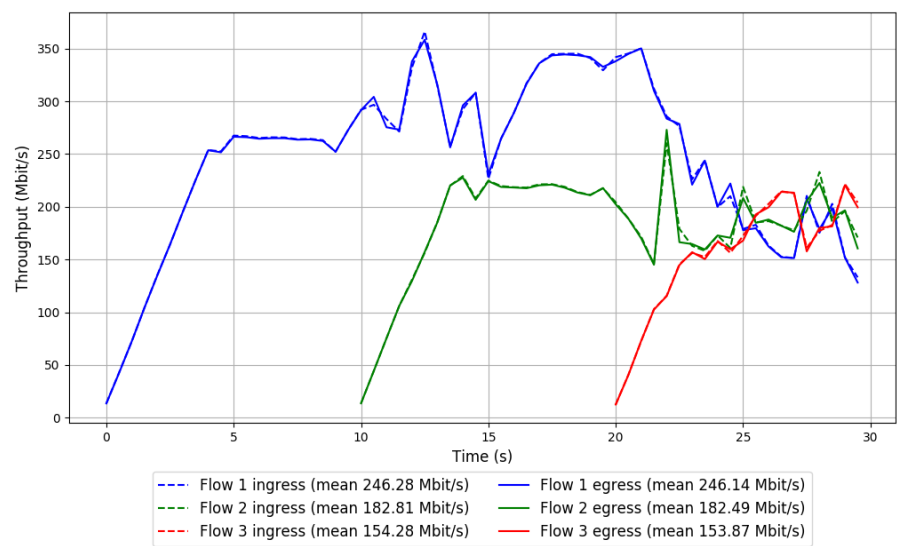
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 268.96 Mbit/s)   Flow 1 egress (mean 268.79 Mbit/s)
Flow 2 ingress (mean 183.31 Mbit/s)   Flow 2 egress (mean 183.05 Mbit/s)
Flow 3 ingress (mean 144.89 Mbit/s)   Flow 3 egress (mean 144.41 Mbit/s)

Flow 1 (95th percentile 29.17 ms)   Flow 2 (95th percentile 44.20 ms)   Flow 3 (95th percentile 39.34 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2017-08-11 06:53:31
End at: 2017-08-11 06:54:01
Local clock offset: 0.4 ms
Remote clock offset: -0.594 ms


# Below is generated by plot.py at 2017-08-11 15:14:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 475.06 Mbit/s
95th percentile per-packet one-way delay: 39.280 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 293.34 Mbit/s
95th percentile per-packet one-way delay: 23.184 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 201.66 Mbit/s
95th percentile per-packet one-way delay: 45.103 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 144.13 Mbit/s
95th percentile per-packet one-way delay: 49.514 ms
Loss rate: 0.47%
```
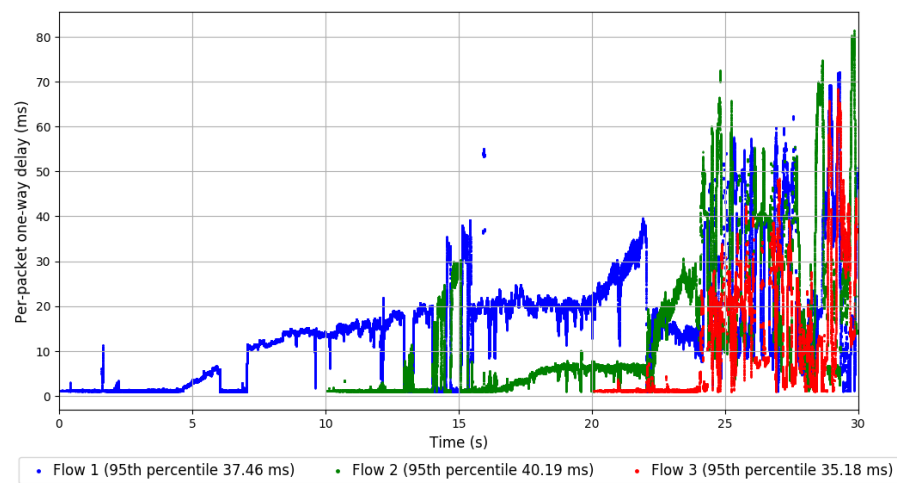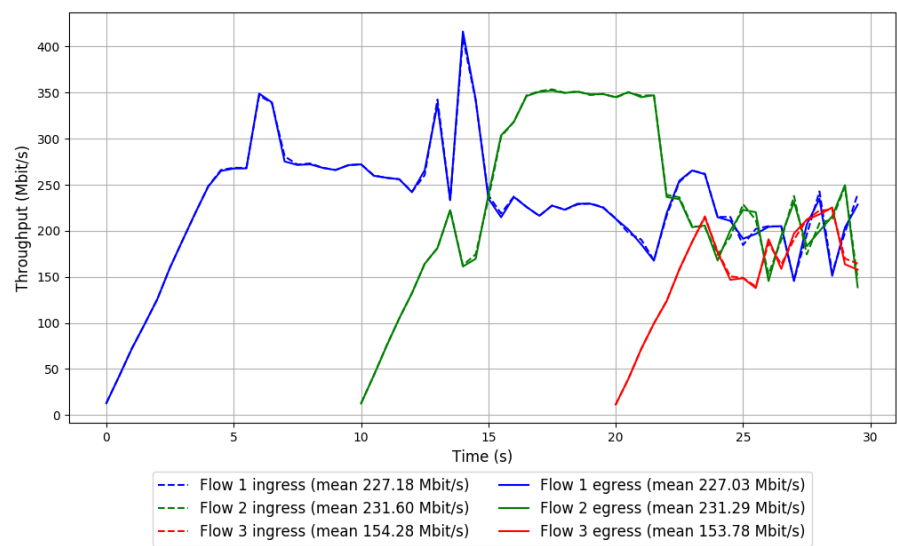
Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 293.41 Mbit/s) --- Flow 1 egress (mean 293.34 Mbit/s)
Flow 2 ingress (mean 201.96 Mbit/s) --- Flow 2 egress (mean 201.66 Mbit/s)
Flow 3 ingress (mean 144.54 Mbit/s) --- Flow 3 egress (mean 144.13 Mbit/s)

Flow 1 (95th percentile 23.18 ms) • Flow 2 (95th percentile 45.10 ms) • Flow 3 (95th percentile 49.51 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2017-08-11 07:15:45
End at: 2017-08-11 07:16:15
Local clock offset: 0.349 ms
Remote clock offset: -0.492 ms


# Below is generated by plot.py at 2017-08-11 15:15:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 439.53 Mbit/s
95th percentile per-packet one-way delay: 41.273 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 225.01 Mbit/s
95th percentile per-packet one-way delay: 46.112 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 245.69 Mbit/s
95th percentile per-packet one-way delay: 28.603 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 154.55 Mbit/s
95th percentile per-packet one-way delay: 35.298 ms
Loss rate: 0.46%
```
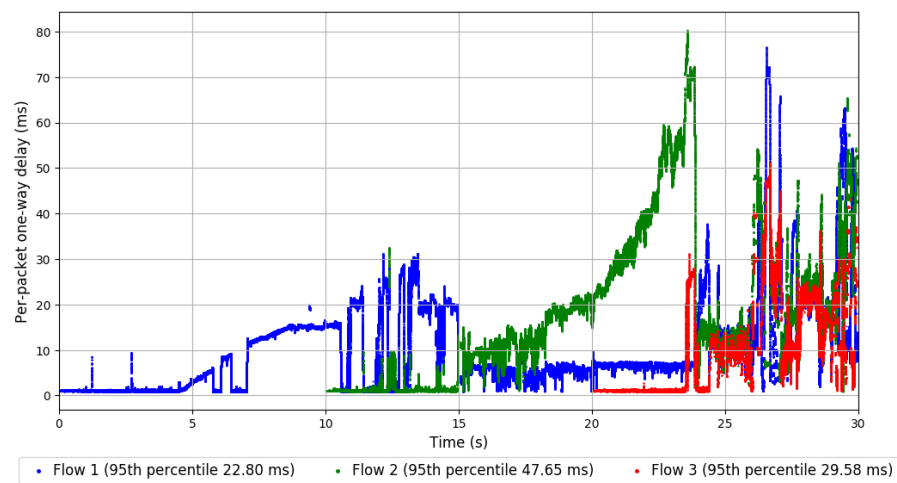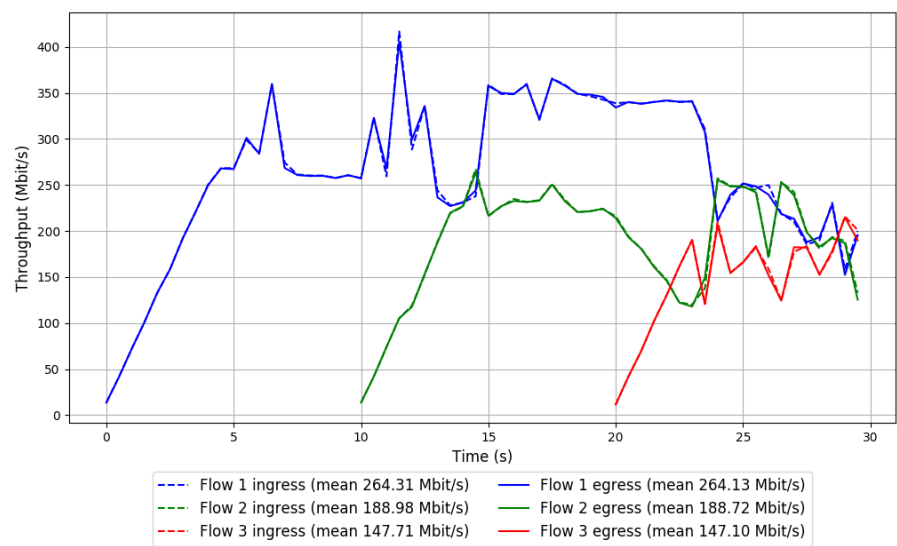
Run 5: Report of LEDBAT — Data Link

```
Run 6: Statistics of LEDBAT

Start at: 2017-08-11 07:38:06
End at: 2017-08-11 07:38:36
Local clock offset: 0.414 ms
Remote clock offset: -0.002 ms

# Below is generated by plot.py at 2017-08-11 15:15:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 418.53 Mbit/s
95th percentile per-packet one-way delay: 35.962 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 246.14 Mbit/s
95th percentile per-packet one-way delay: 20.792 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 182.49 Mbit/s
95th percentile per-packet one-way delay: 50.602 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 153.87 Mbit/s
95th percentile per-packet one-way delay: 28.868 ms
Loss rate: 0.45%
```
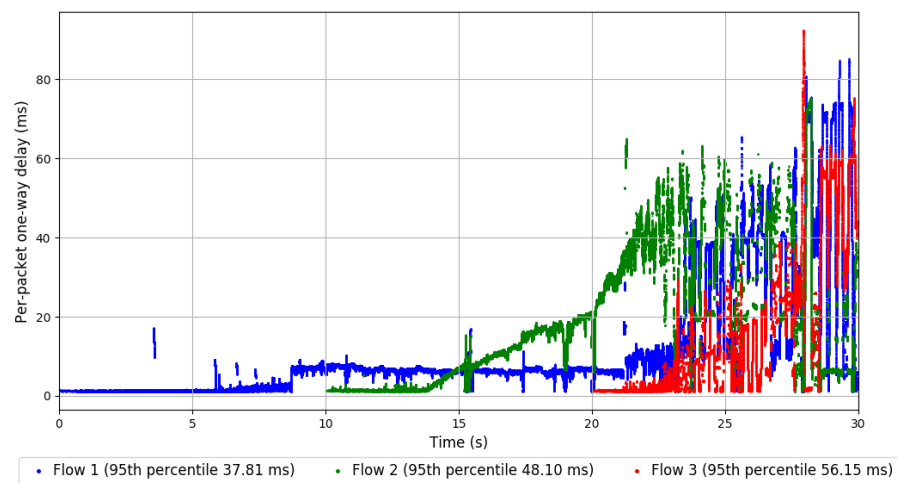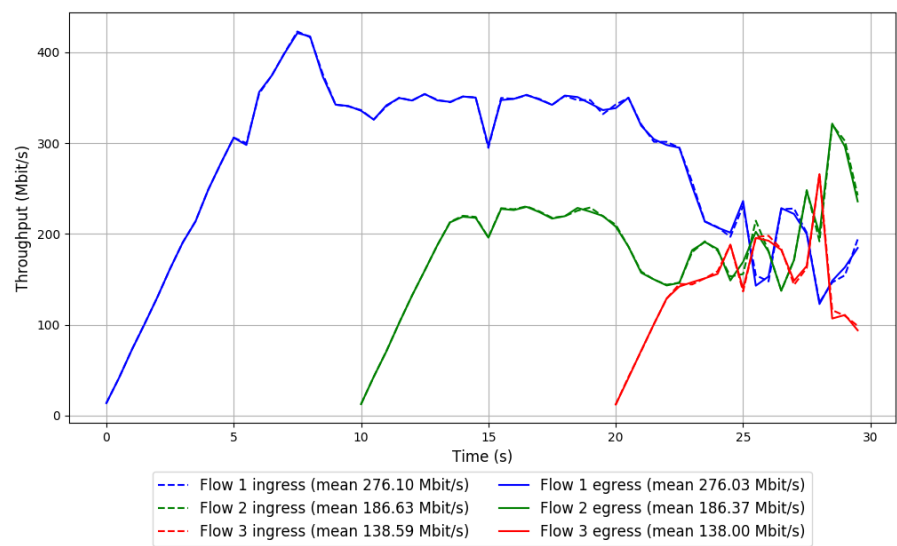
Run 6: Report of LEDBAT — Data Link

Flow 1 ingress (mean 246.28 Mbit/s) --- Flow 1 egress (mean 246.14 Mbit/s)
Flow 2 ingress (mean 182.81 Mbit/s) --- Flow 2 egress (mean 182.49 Mbit/s)
Flow 3 ingress (mean 154.28 Mbit/s) --- Flow 3 egress (mean 153.87 Mbit/s)

Flow 1 (95th percentile 20.79 ms) • Flow 2 (95th percentile 50.60 ms) • Flow 3 (95th percentile 28.87 ms)

```
Run 7: Statistics of LEDBAT

Start at: 2017-08-11 08:00:19
End at: 2017-08-11 08:00:49
Local clock offset: 0.319 ms
Remote clock offset: -0.073 ms


# Below is generated by plot.py at 2017-08-11 15:16:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 431.63 Mbit/s
95th percentile per-packet one-way delay: 38.261 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 227.03 Mbit/s
95th percentile per-packet one-way delay: 37.459 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 231.29 Mbit/s
95th percentile per-packet one-way delay: 40.193 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 153.78 Mbit/s
95th percentile per-packet one-way delay: 35.180 ms
Loss rate: 0.53%
```
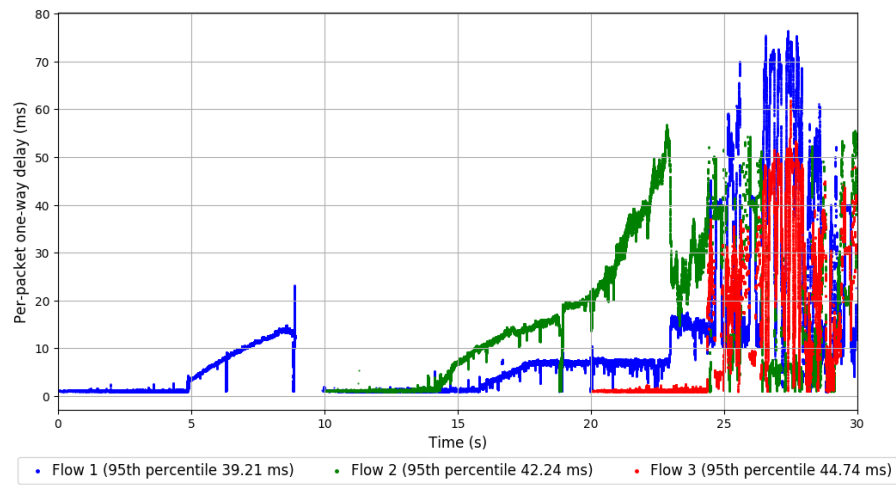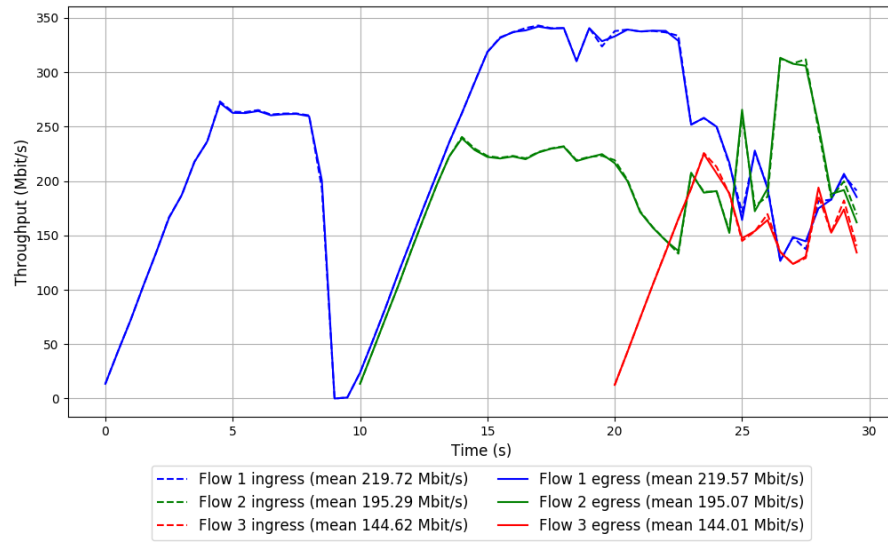
Run 7: Report of LEDBAT — Data Link

Flow 1 ingress (mean 227.18 Mbit/s)   Flow 1 egress (mean 227.03 Mbit/s)
Flow 2 ingress (mean 231.60 Mbit/s)   Flow 2 egress (mean 231.29 Mbit/s)
Flow 3 ingress (mean 154.28 Mbit/s)   Flow 3 egress (mean 153.78 Mbit/s)

Flow 1 (95th percentile 37.46 ms)   Flow 2 (95th percentile 40.19 ms)   Flow 3 (95th percentile 35.18 ms)

```
Run 8: Statistics of LEDBAT

Start at: 2017-08-11 08:22:44
End at: 2017-08-11 08:23:14
Local clock offset: 0.232 ms
Remote clock offset: -0.084 ms

# Below is generated by plot.py at 2017-08-11 15:16:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 438.35 Mbit/s
95th percentile per-packet one-way delay: 32.550 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 264.13 Mbit/s
95th percentile per-packet one-way delay: 22.799 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 188.72 Mbit/s
95th percentile per-packet one-way delay: 47.654 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 147.10 Mbit/s
95th percentile per-packet one-way delay: 29.578 ms
Loss rate: 0.54%
```
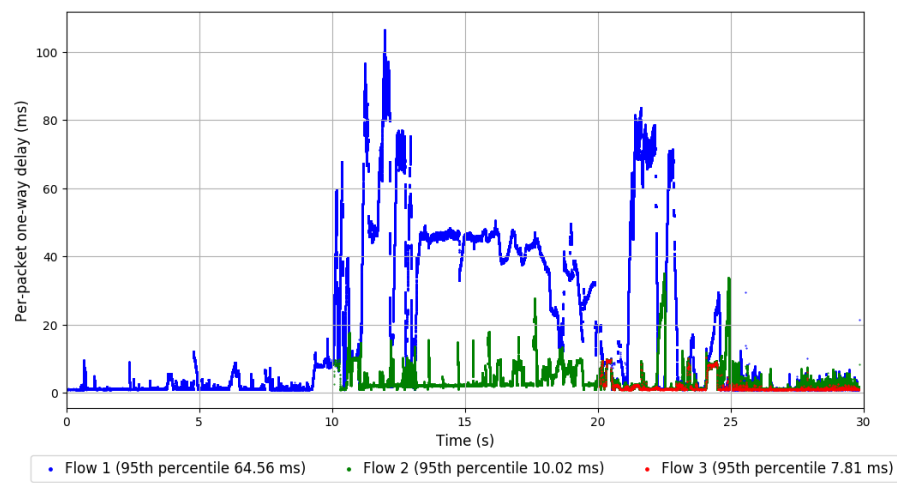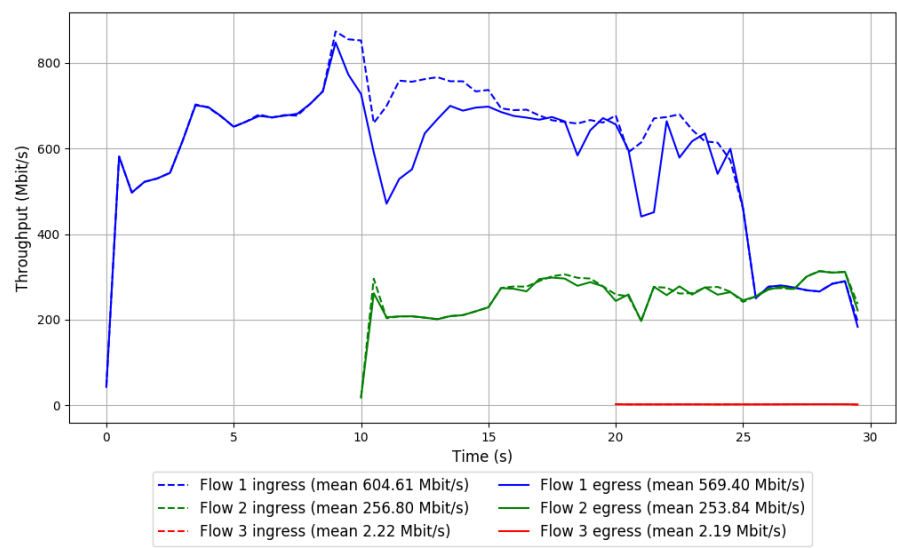
Run 8: Report of LEDBAT — Data Link
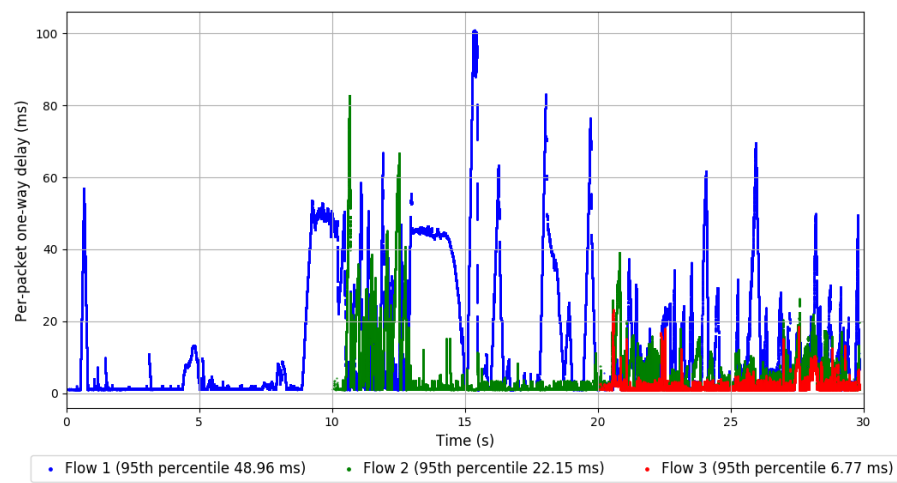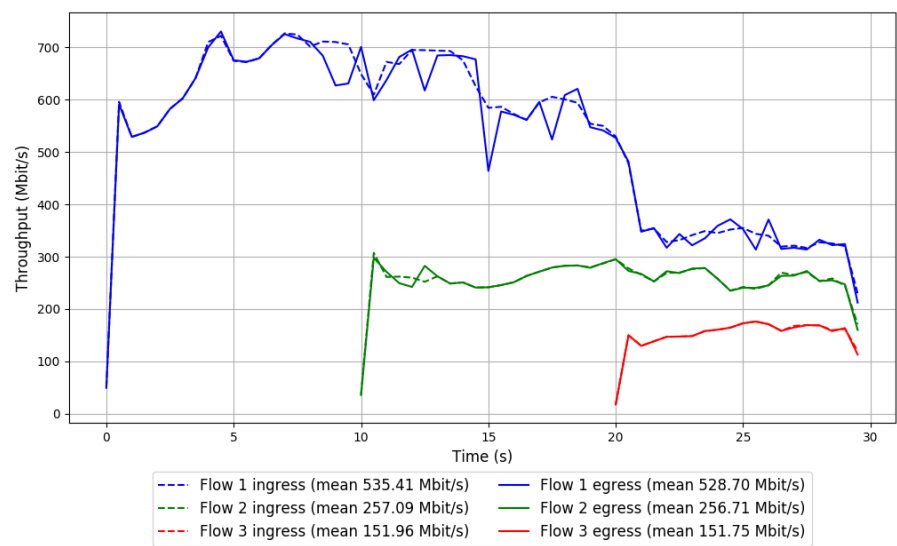
```
Run 9: Statistics of LEDBAT

Start at: 2017-08-11 08:44:54
End at: 2017-08-11 08:45:24
Local clock offset: 0.323 ms
Remote clock offset: -0.38 ms

# Below is generated by plot.py at 2017-08-11 15:17:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 445.71 Mbit/s
95th percentile per-packet one-way delay: 42.806 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 276.03 Mbit/s
95th percentile per-packet one-way delay: 37.806 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 186.37 Mbit/s
95th percentile per-packet one-way delay: 48.103 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 138.00 Mbit/s
95th percentile per-packet one-way delay: 56.145 ms
Loss rate: 0.54%
```

Run 9: Report of LEDBAT — Data Link

- - - Flow 1 ingress (mean 276.10 Mbit/s)   —— Flow 1 egress (mean 276.03 Mbit/s)
- - - Flow 2 ingress (mean 186.63 Mbit/s)   —— Flow 2 egress (mean 186.37 Mbit/s)
- - - Flow 3 ingress (mean 138.59 Mbit/s)   —— Flow 3 egress (mean 138.00 Mbit/s)

- Flow 1 (95th percentile 37.81 ms)   • Flow 2 (95th percentile 48.10 ms)   • Flow 3 (95th percentile 56.15 ms)
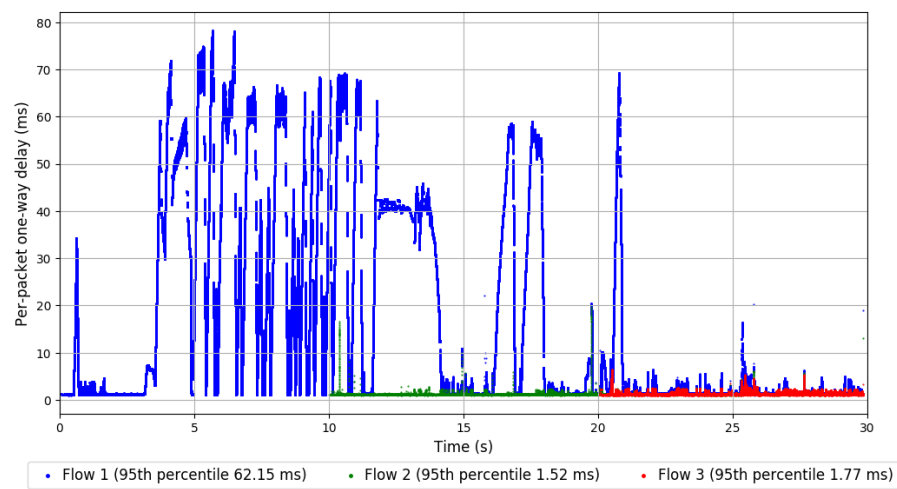
```
Run 10: Statistics of LEDBAT

Start at: 2017-08-11 09:07:20
End at: 2017-08-11 09:07:50
Local clock offset: 0.276 ms
Remote clock offset: -0.361 ms


# Below is generated by plot.py at 2017-08-11 15:17:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 397.09 Mbit/s
95th percentile per-packet one-way delay: 40.566 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 219.57 Mbit/s
95th percentile per-packet one-way delay: 39.206 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 195.07 Mbit/s
95th percentile per-packet one-way delay: 42.239 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 144.01 Mbit/s
95th percentile per-packet one-way delay: 44.741 ms
Loss rate: 0.54%
```

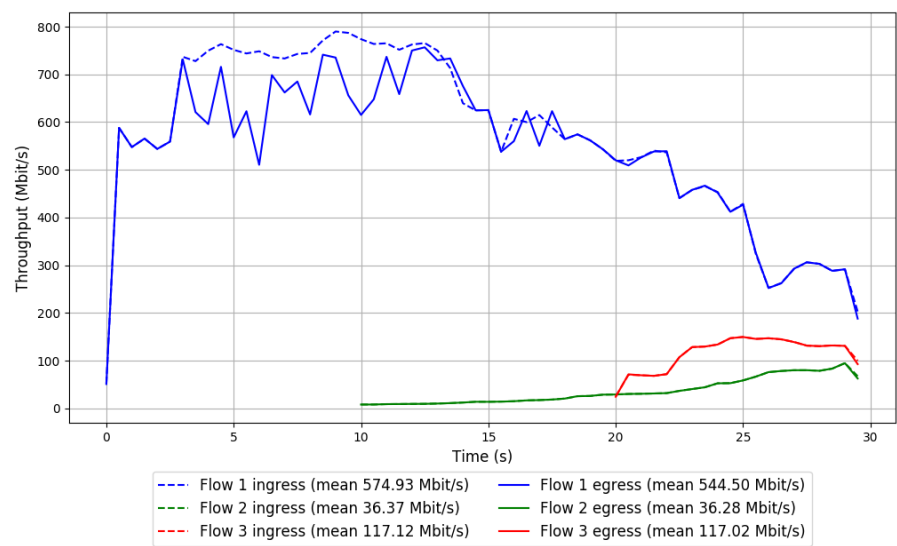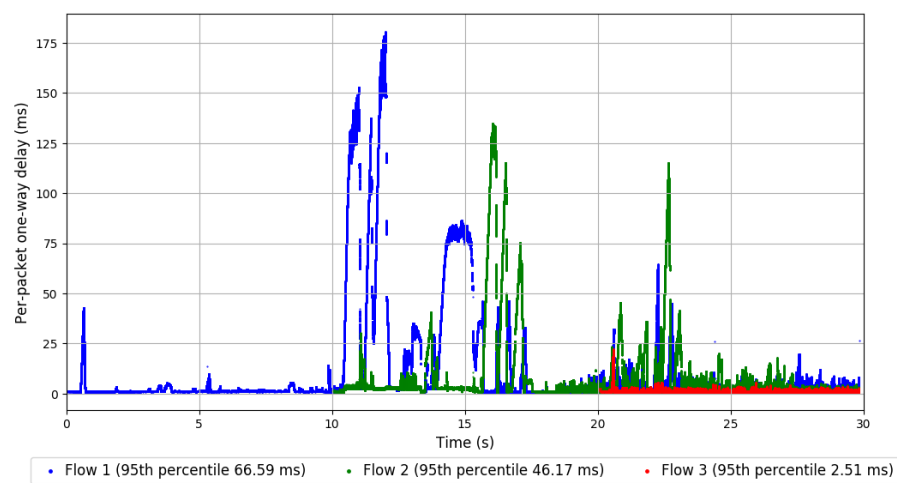Run 10: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC

Start at: 2017-08-11 05:49:15
End at: 2017-08-11 05:49:45
Local clock offset: 0.37 ms
Remote clock offset: -1.517 ms


# Below is generated by plot.py at 2017-08-11 15:18:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 738.68 Mbit/s
95th percentile per-packet one-way delay: 52.663 ms
Loss rate: 4.83%
-- Flow 1:
Average throughput: 569.40 Mbit/s
95th percentile per-packet one-way delay: 64.555 ms
Loss rate: 5.84%
-- Flow 2:
Average throughput: 253.84 Mbit/s
95th percentile per-packet one-way delay: 10.022 ms
Loss rate: 1.28%
-- Flow 3:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 7.808 ms
Loss rate: 1.67%
```
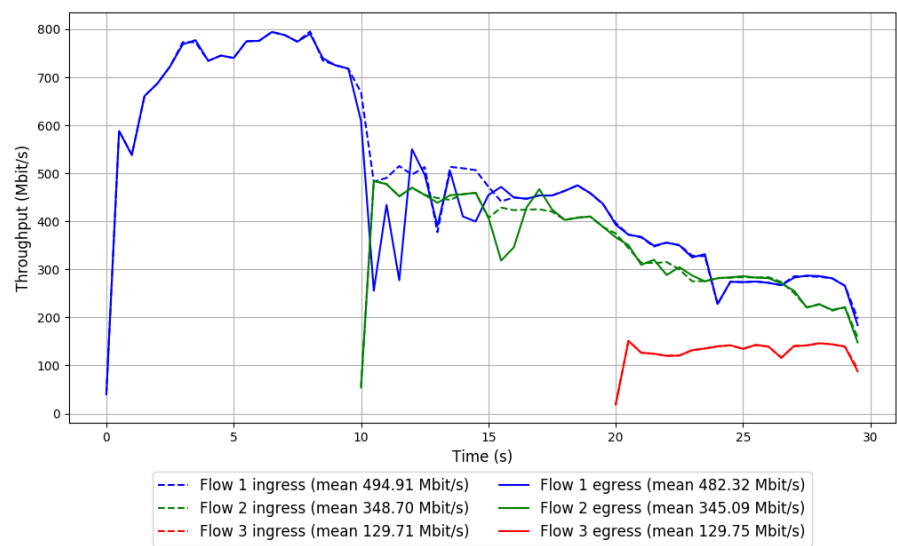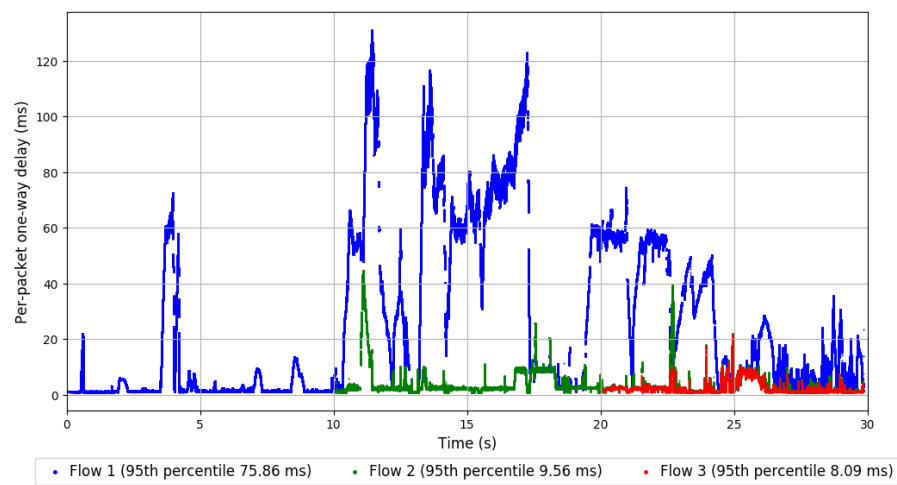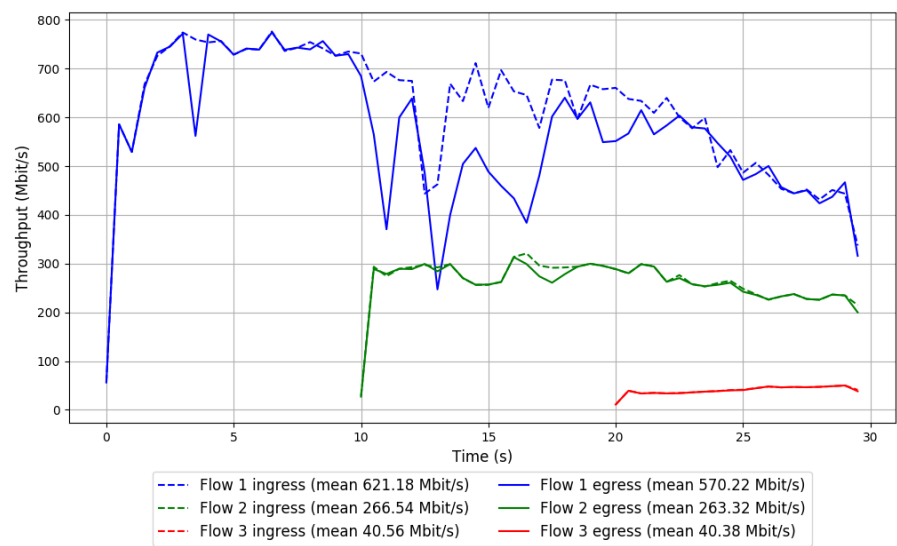
Run 1: Report of PCC — Data Link

- - - Flow 1 ingress (mean 604.61 Mbit/s) —— Flow 1 egress (mean 569.40 Mbit/s)
- - - Flow 2 ingress (mean 256.80 Mbit/s) —— Flow 2 egress (mean 253.84 Mbit/s)
- - - Flow 3 ingress (mean 2.22 Mbit/s) —— Flow 3 egress (mean 2.19 Mbit/s)

• Flow 1 (95th percentile 64.56 ms)   • Flow 2 (95th percentile 10.02 ms)   • Flow 3 (95th percentile 7.81 ms)

125

```
Run 2: Statistics of PCC

Start at: 2017-08-11 06:11:33
End at: 2017-08-11 06:12:03
Local clock offset: 0.324 ms
Remote clock offset: -1.213 ms


# Below is generated by plot.py at 2017-08-11 15:19:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 748.91 Mbit/s
95th percentile per-packet one-way delay: 46.945 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 528.70 Mbit/s
95th percentile per-packet one-way delay: 48.961 ms
Loss rate: 1.32%
-- Flow 2:
Average throughput: 256.71 Mbit/s
95th percentile per-packet one-way delay: 22.154 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 151.75 Mbit/s
95th percentile per-packet one-way delay: 6.766 ms
Loss rate: 0.35%
```
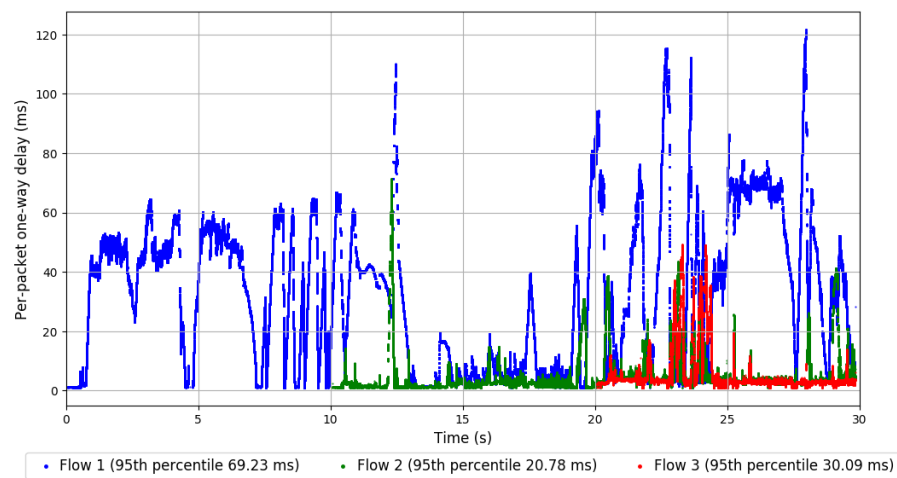
Run 2: Report of PCC — Data Link

Flow 1 ingress (mean 535.41 Mbit/s) ---- Flow 1 egress (mean 528.70 Mbit/s) ——
Flow 2 ingress (mean 257.09 Mbit/s) ---- Flow 2 egress (mean 256.71 Mbit/s) ——
Flow 3 ingress (mean 151.96 Mbit/s) ---- Flow 3 egress (mean 151.75 Mbit/s) ——

Flow 1 (95th percentile 48.96 ms)   Flow 2 (95th percentile 22.15 ms)   Flow 3 (95th percentile 6.77 ms)
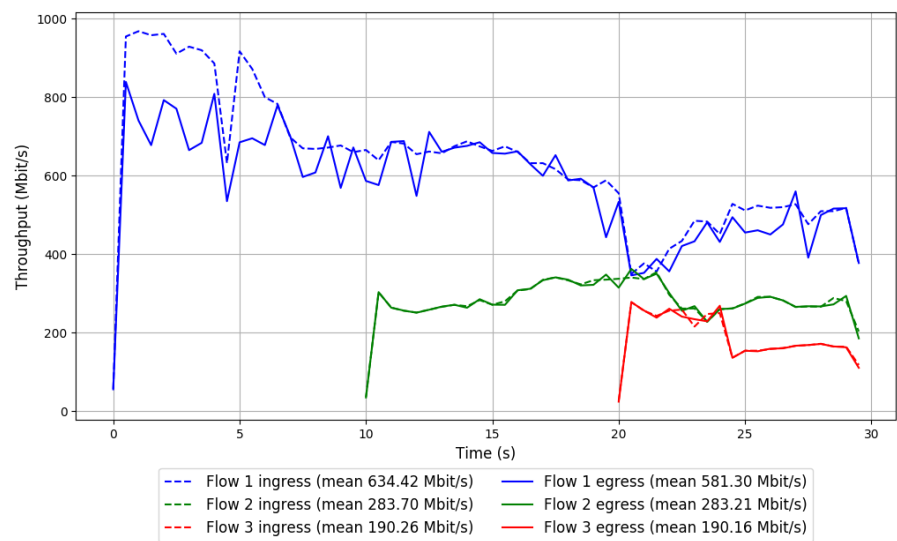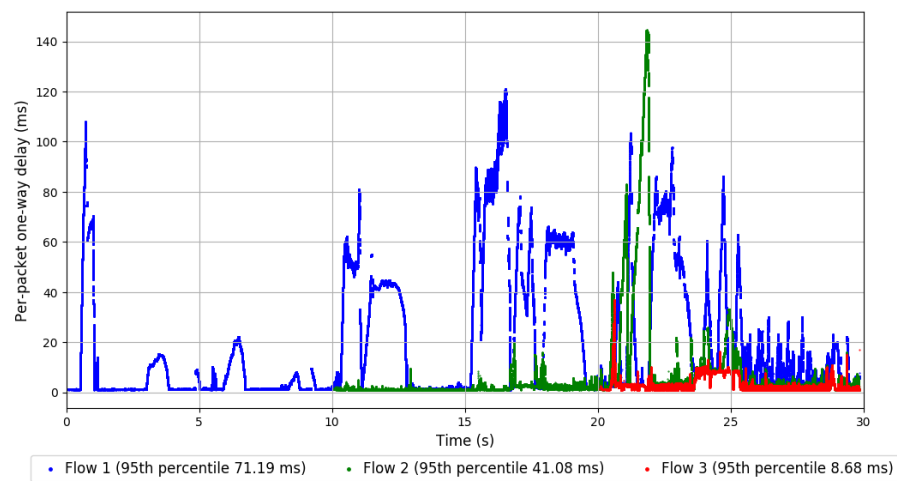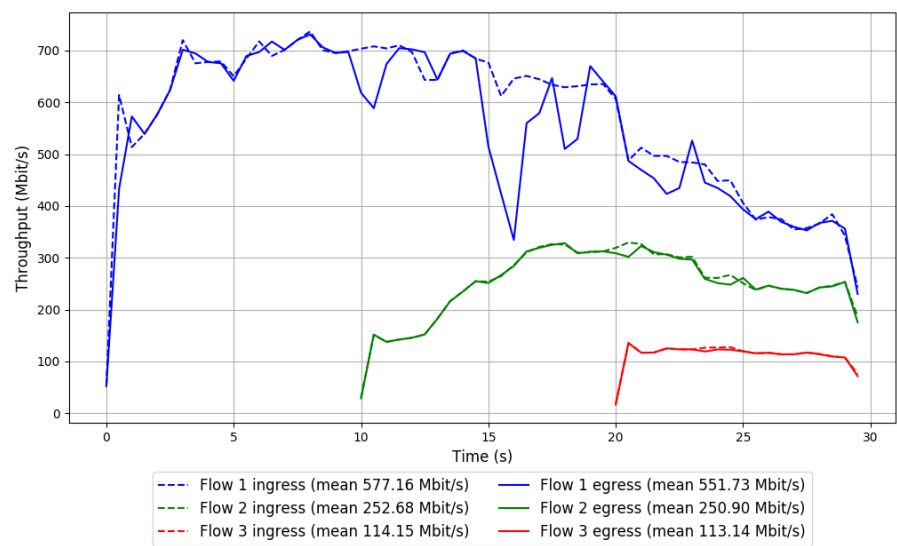
```
Run 3: Statistics of PCC

Start at: 2017-08-11 06:34:05
End at: 2017-08-11 06:34:35
Local clock offset: 0.374 ms
Remote clock offset: -0.983 ms

# Below is generated by plot.py at 2017-08-11 15:20:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 607.08 Mbit/s
95th percentile per-packet one-way delay: 61.472 ms
Loss rate: 4.83%
-- Flow 1:
Average throughput: 544.50 Mbit/s
95th percentile per-packet one-way delay: 62.146 ms
Loss rate: 5.32%
-- Flow 2:
Average throughput: 36.28 Mbit/s
95th percentile per-packet one-way delay: 1.523 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 117.02 Mbit/s
95th percentile per-packet one-way delay: 1.775 ms
Loss rate: 0.33%
```

Run 3: Report of PCC — Data Link

- - - - Flow 1 ingress (mean 574.93 Mbit/s) ——— Flow 1 egress (mean 544.50 Mbit/s)
- - - - Flow 2 ingress (mean 36.37 Mbit/s) ——— Flow 2 egress (mean 36.28 Mbit/s)
- - - - Flow 3 ingress (mean 117.12 Mbit/s) ——— Flow 3 egress (mean 117.02 Mbit/s)

• Flow 1 (95th percentile 62.15 ms)   • Flow 2 (95th percentile 1.52 ms)   • Flow 3 (95th percentile 1.77 ms)
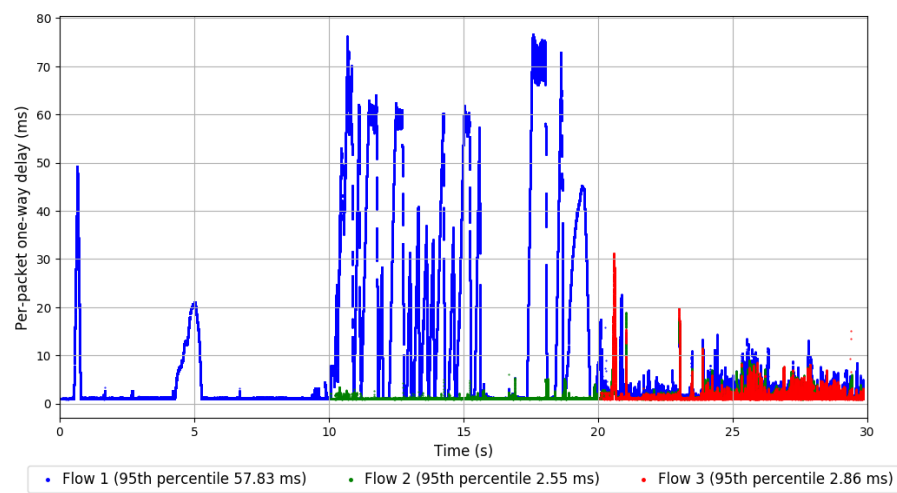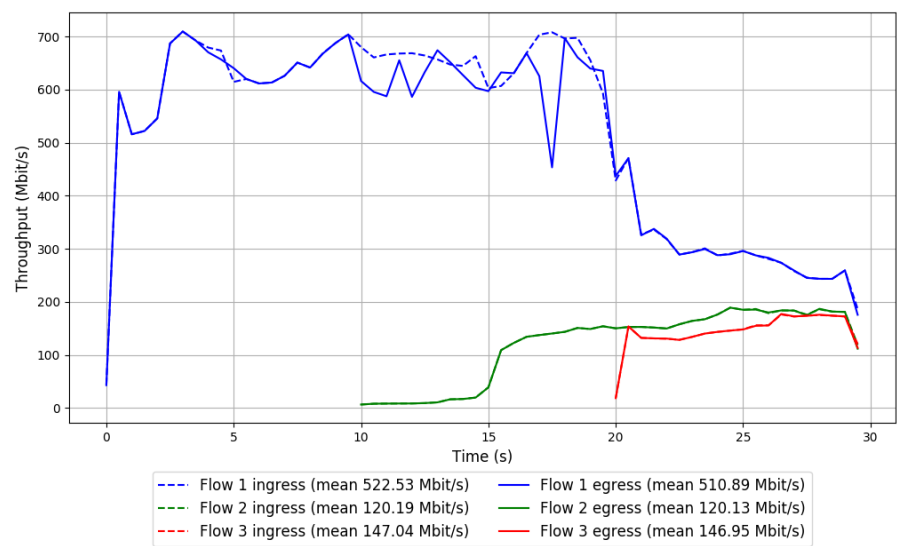
```
Run 4: Statistics of PCC

Start at: 2017-08-11 06:56:25
End at: 2017-08-11 06:56:55
Local clock offset: 0.3 ms
Remote clock offset: -0.646 ms


# Below is generated by plot.py at 2017-08-11 15:20:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 754.10 Mbit/s
95th percentile per-packet one-way delay: 52.345 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 482.32 Mbit/s
95th percentile per-packet one-way delay: 66.595 ms
Loss rate: 2.54%
-- Flow 2:
Average throughput: 345.09 Mbit/s
95th percentile per-packet one-way delay: 46.169 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 129.75 Mbit/s
95th percentile per-packet one-way delay: 2.508 ms
Loss rate: 0.23%
```

Run 4: Report of PCC — Data Link

Flow 1 ingress (mean 494.91 Mbit/s) --- Flow 1 egress (mean 482.32 Mbit/s)
Flow 2 ingress (mean 348.70 Mbit/s) --- Flow 2 egress (mean 345.09 Mbit/s)
Flow 3 ingress (mean 129.71 Mbit/s) --- Flow 3 egress (mean 129.75 Mbit/s)

Flow 1 (95th percentile 66.59 ms)   Flow 2 (95th percentile 46.17 ms)   Flow 3 (95th percentile 2.51 ms)

```
Run 5: Statistics of PCC

Start at: 2017-08-11 07:18:37
End at: 2017-08-11 07:19:07
Local clock offset: 0.353 ms
Remote clock offset: -0.371 ms


# Below is generated by plot.py at 2017-08-11 15:21:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 758.29 Mbit/s
95th percentile per-packet one-way delay: 70.528 ms
Loss rate: 6.58%
-- Flow 1:
Average throughput: 570.22 Mbit/s
95th percentile per-packet one-way delay: 75.862 ms
Loss rate: 8.22%
-- Flow 2:
Average throughput: 263.32 Mbit/s
95th percentile per-packet one-way delay: 9.562 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 40.38 Mbit/s
95th percentile per-packet one-way delay: 8.090 ms
Loss rate: 0.65%
```
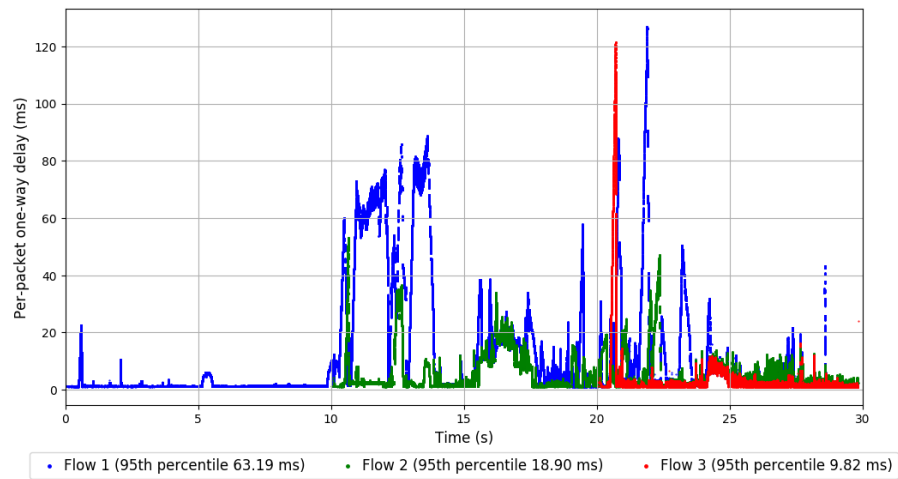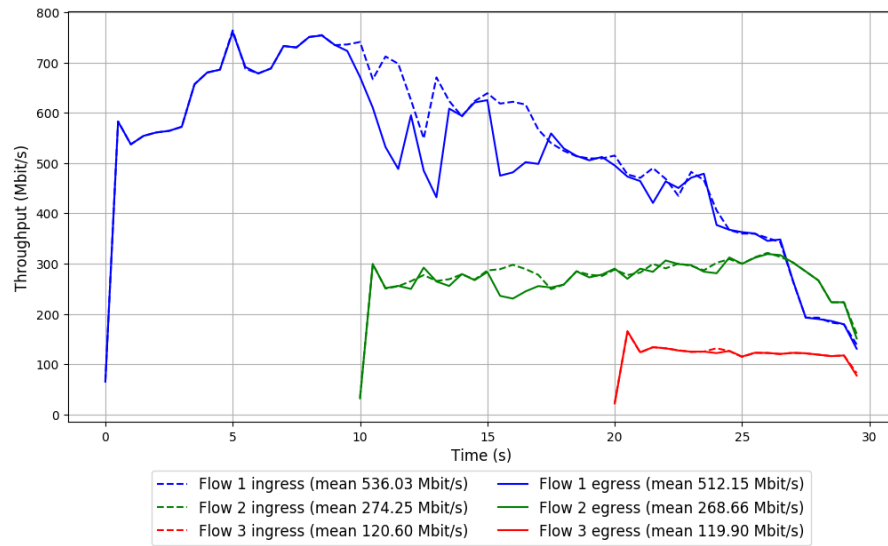
Run 5: Report of PCC — Data Link

```
Run 6: Statistics of PCC

Start at: 2017-08-11 07:40:56
End at: 2017-08-11 07:41:26
Local clock offset: 0.402 ms
Remote clock offset: -0.076 ms


# Below is generated by plot.py at 2017-08-11 15:22:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 831.79 Mbit/s
95th percentile per-packet one-way delay: 66.654 ms
Loss rate: 6.09%
-- Flow 1:
Average throughput: 581.30 Mbit/s
95th percentile per-packet one-way delay: 69.233 ms
Loss rate: 8.39%
-- Flow 2:
Average throughput: 283.21 Mbit/s
95th percentile per-packet one-way delay: 20.779 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 190.16 Mbit/s
95th percentile per-packet one-way delay: 30.085 ms
Loss rate: 0.29%
```
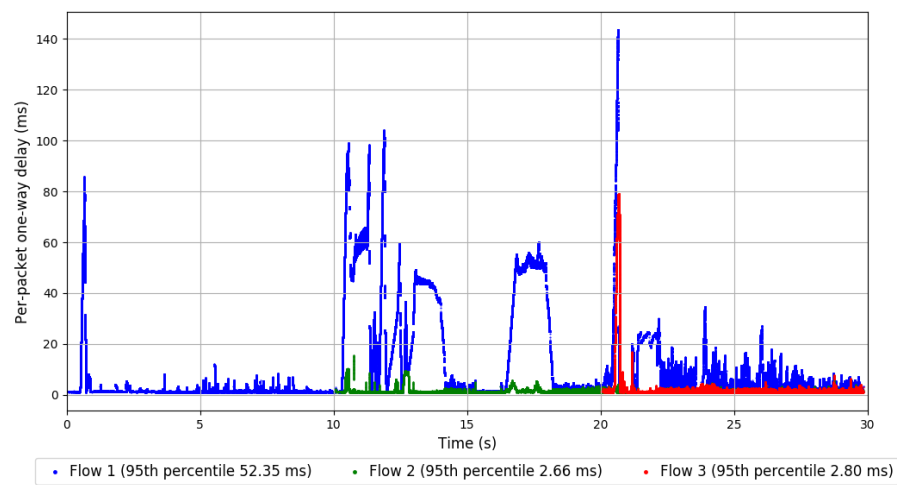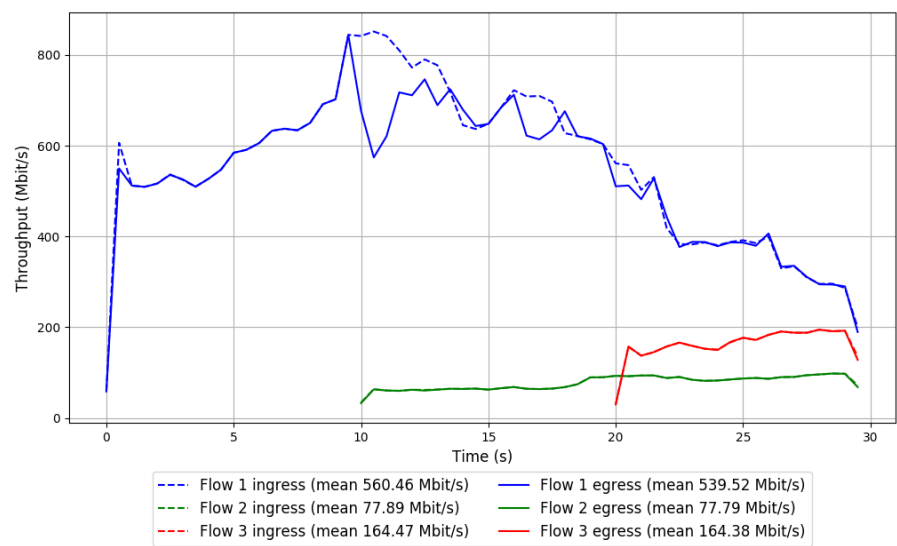
Run 6: Report of PCC — Data Link

135

```
Run 7: Statistics of PCC

Start at: 2017-08-11 08:03:10
End at: 2017-08-11 08:03:40
Local clock offset: 0.351 ms
Remote clock offset: -0.068 ms


# Below is generated by plot.py at 2017-08-11 15:23:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 755.15 Mbit/s
95th percentile per-packet one-way delay: 66.839 ms
Loss rate: 3.54%
-- Flow 1:
Average throughput: 551.73 Mbit/s
95th percentile per-packet one-way delay: 71.187 ms
Loss rate: 4.50%
-- Flow 2:
Average throughput: 250.90 Mbit/s
95th percentile per-packet one-way delay: 41.079 ms
Loss rate: 0.80%
-- Flow 3:
Average throughput: 113.14 Mbit/s
95th percentile per-packet one-way delay: 8.682 ms
Loss rate: 0.95%
```

Run 7: Report of PCC — Data Link

```
Run 8: Statistics of PCC

Start at: 2017-08-11 08:25:35
End at: 2017-08-11 08:26:05
Local clock offset: 0.234 ms
Remote clock offset: -0.106 ms

# Below is generated by plot.py at 2017-08-11 15:24:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 638.97 Mbit/s
95th percentile per-packet one-way delay: 53.132 ms
Loss rate: 1.88%
-- Flow 1:
Average throughput: 510.89 Mbit/s
95th percentile per-packet one-way delay: 57.825 ms
Loss rate: 2.29%
-- Flow 2:
Average throughput: 120.13 Mbit/s
95th percentile per-packet one-way delay: 2.550 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 146.95 Mbit/s
95th percentile per-packet one-way delay: 2.858 ms
Loss rate: 0.27%
```
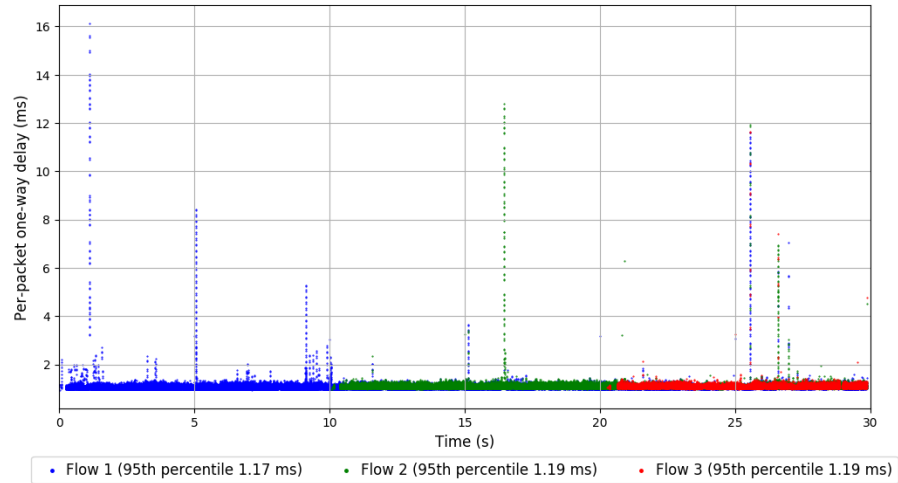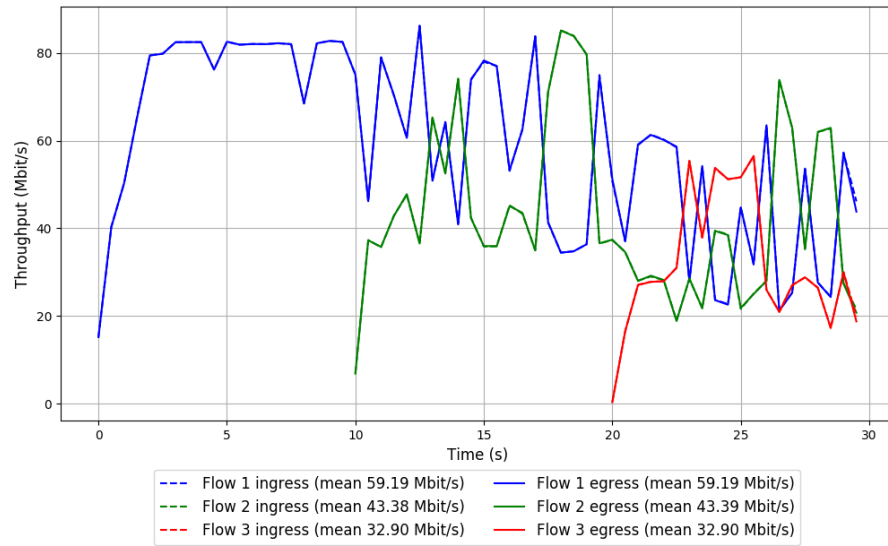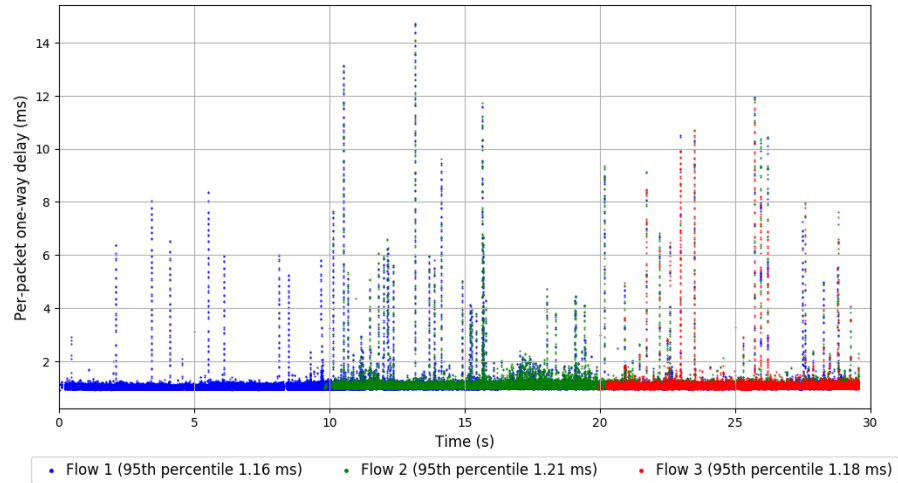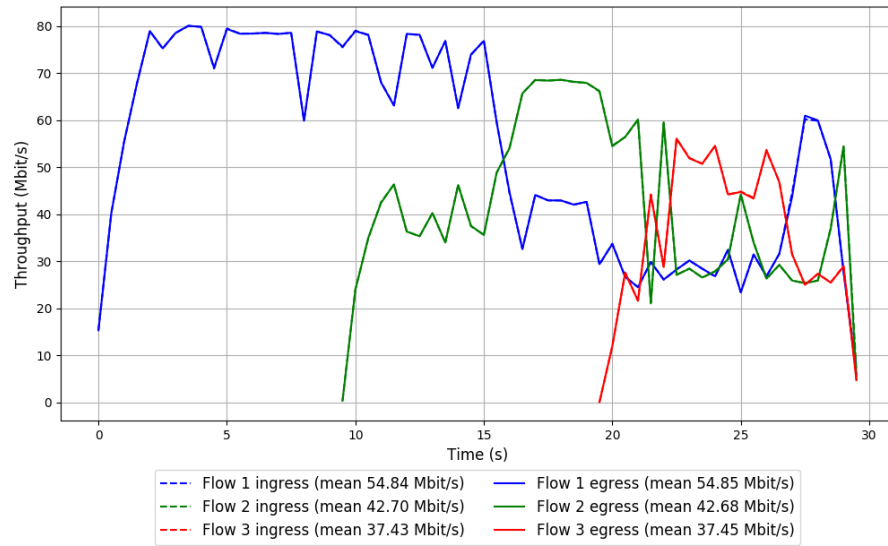
Run 8: Report of PCC — Data Link

```
Run 9: Statistics of PCC

Start at: 2017-08-11 08:47:46
End at: 2017-08-11 08:48:16
Local clock offset: 0.315 ms
Remote clock offset: -0.36 ms

# Below is generated by plot.py at 2017-08-11 15:25:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 729.66 Mbit/s
95th percentile per-packet one-way delay: 56.799 ms
Loss rate: 3.76%
-- Flow 1:
Average throughput: 512.15 Mbit/s
95th percentile per-packet one-way delay: 63.185 ms
Loss rate: 4.55%
-- Flow 2:
Average throughput: 268.66 Mbit/s
95th percentile per-packet one-way delay: 18.904 ms
Loss rate: 2.14%
-- Flow 3:
Average throughput: 119.90 Mbit/s
95th percentile per-packet one-way delay: 9.820 ms
Loss rate: 0.57%
```
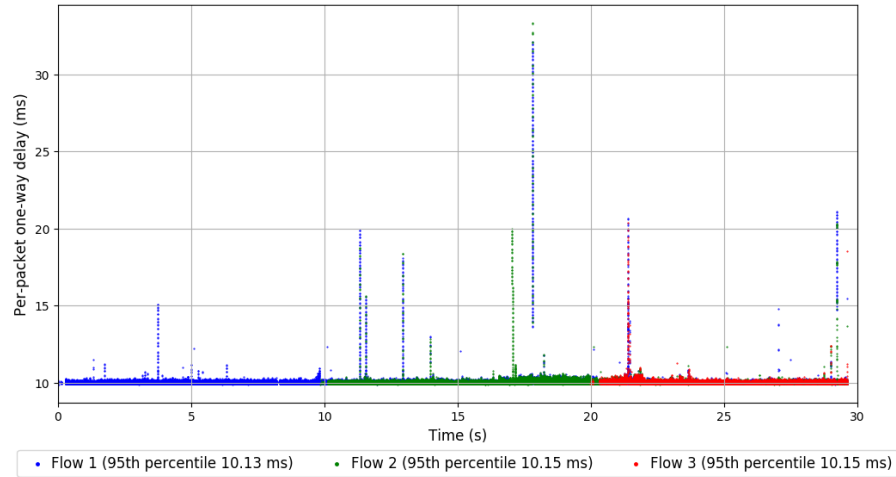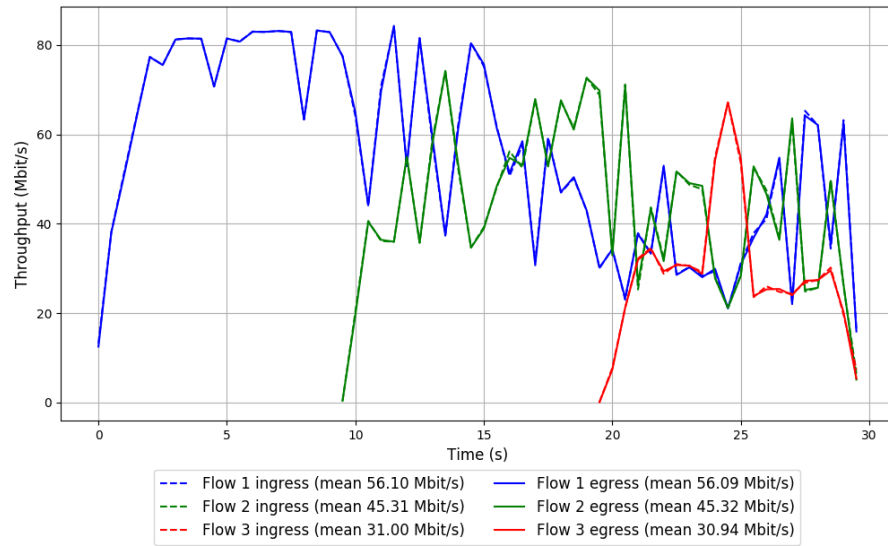
Run 9: Report of PCC — Data Link

Flow 1 ingress (mean 536.03 Mbit/s) --- Flow 1 egress (mean 512.15 Mbit/s)
Flow 2 ingress (mean 274.25 Mbit/s) --- Flow 2 egress (mean 268.66 Mbit/s)
Flow 3 ingress (mean 120.60 Mbit/s) --- Flow 3 egress (mean 119.90 Mbit/s)

Flow 1 (95th percentile 63.19 ms) • Flow 2 (95th percentile 18.90 ms) • Flow 3 (95th percentile 9.82 ms)

```
Run 10: Statistics of PCC

Start at: 2017-08-11 09:10:09
End at: 2017-08-11 09:10:39
Local clock offset: 0.332 ms
Remote clock offset: -0.375 ms

# Below is generated by plot.py at 2017-08-11 15:25:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 645.30 Mbit/s
95th percentile per-packet one-way delay: 51.309 ms
Loss rate: 3.23%
-- Flow 1:
Average throughput: 539.52 Mbit/s
95th percentile per-packet one-way delay: 52.352 ms
Loss rate: 3.80%
-- Flow 2:
Average throughput: 77.79 Mbit/s
95th percentile per-packet one-way delay: 2.661 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 164.38 Mbit/s
95th percentile per-packet one-way delay: 2.803 ms
Loss rate: 0.25%
```
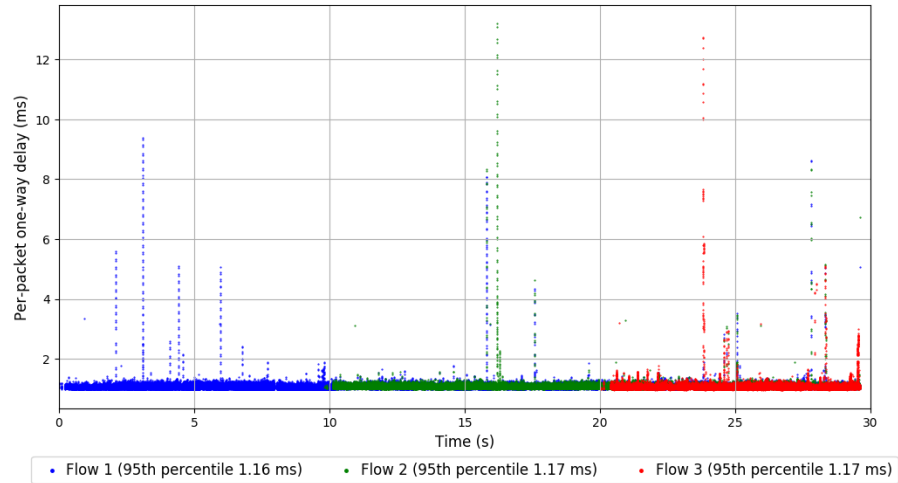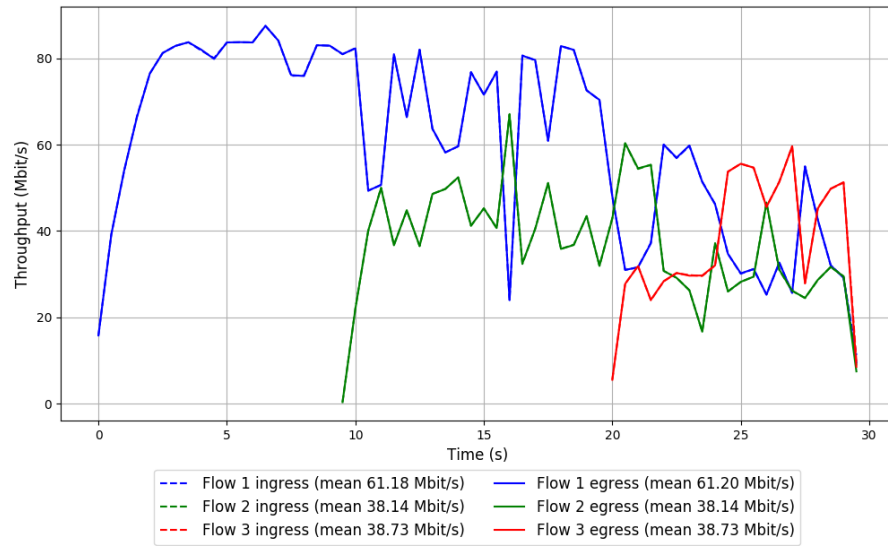
Run 10: Report of PCC — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2017-08-11 05:38:15
End at: 2017-08-11 05:38:45
Local clock offset: 0.319 ms
Remote clock offset: -1.9 ms


# Below is generated by plot.py at 2017-08-11 15:25:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 98.52 Mbit/s
95th percentile per-packet one-way delay: 1.180 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 59.19 Mbit/s
95th percentile per-packet one-way delay: 1.168 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 43.39 Mbit/s
95th percentile per-packet one-way delay: 1.194 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 32.90 Mbit/s
95th percentile per-packet one-way delay: 1.192 ms
Loss rate: 0.20%
```

Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2017-08-11 06:00:44
End at: 2017-08-11 06:01:14
Local clock offset: 0.36 ms
Remote clock offset: -1.358 ms


# Below is generated by plot.py at 2017-08-11 15:25:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.63 Mbit/s
95th percentile per-packet one-way delay: 1.184 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 54.85 Mbit/s
95th percentile per-packet one-way delay: 1.163 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 42.68 Mbit/s
95th percentile per-packet one-way delay: 1.214 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 37.45 Mbit/s
95th percentile per-packet one-way delay: 1.183 ms
Loss rate: 0.12%
```
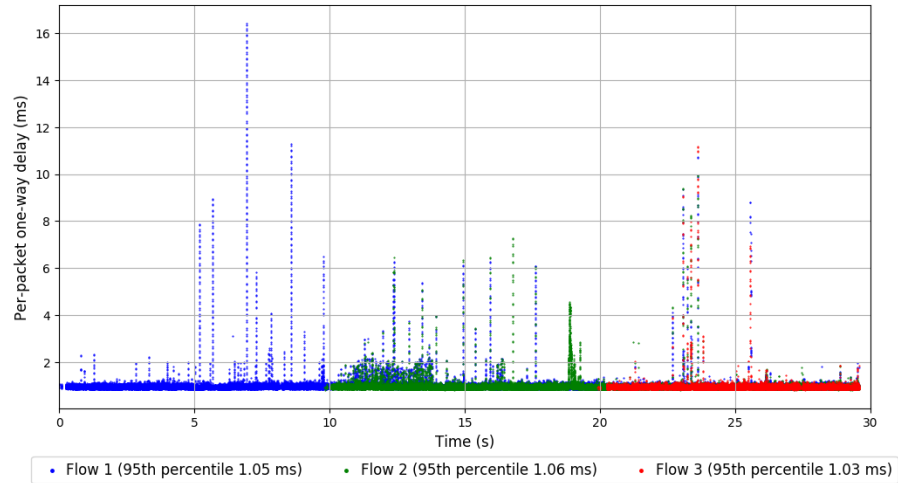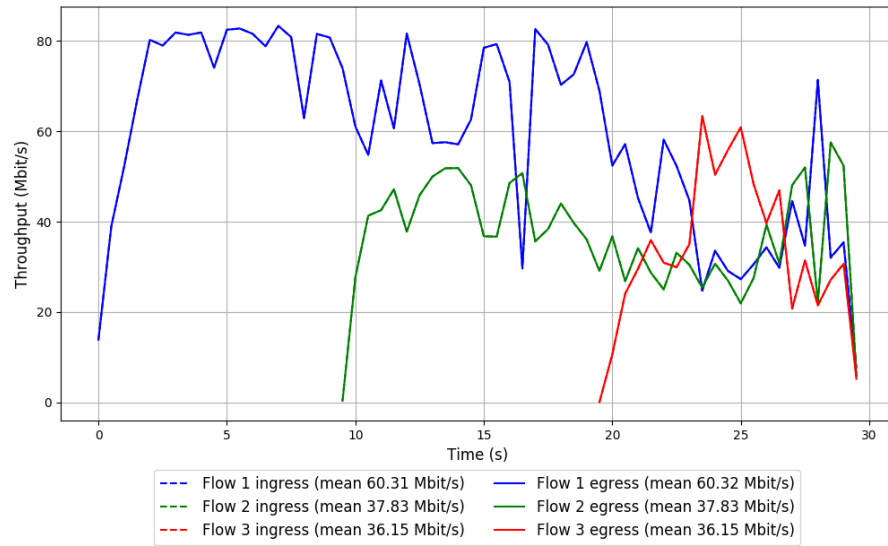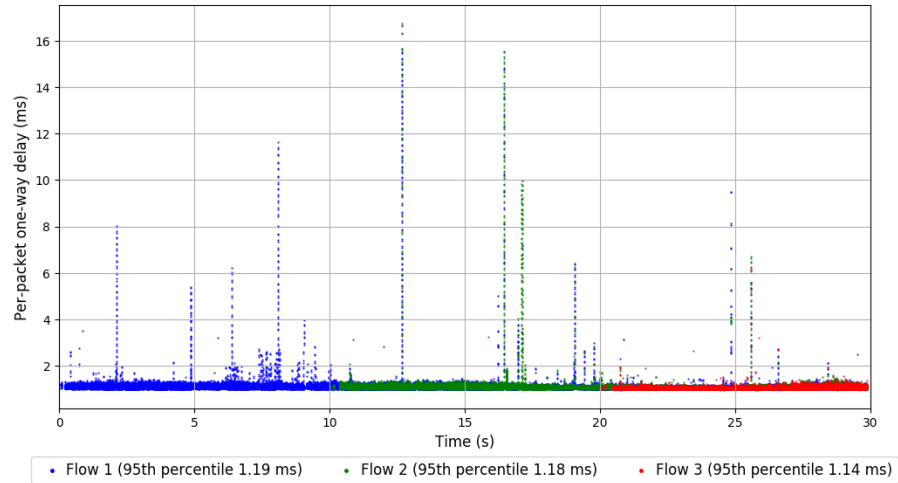
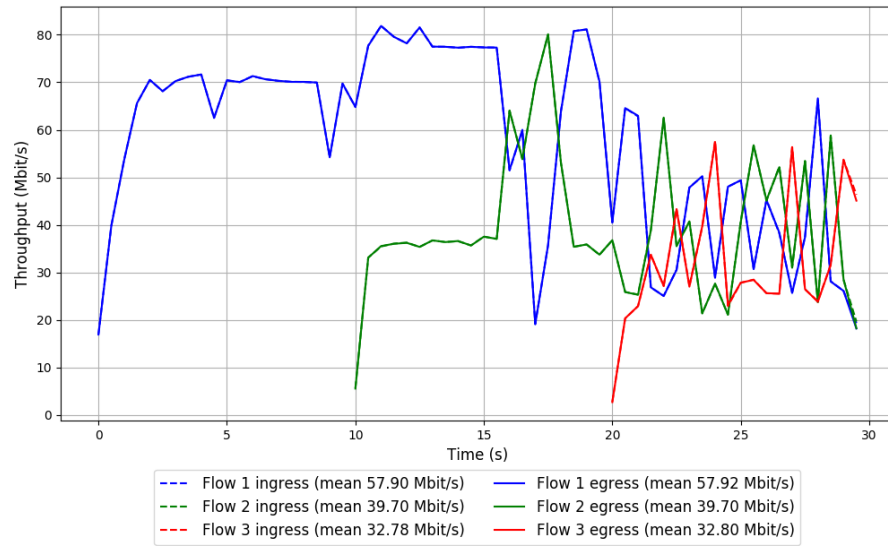Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2017-08-11 06:23:10
End at: 2017-08-11 06:23:40
Local clock offset: 9.269 ms
Remote clock offset: -1.141 ms


# Below is generated by plot.py at 2017-08-11 15:25:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.47 Mbit/s
95th percentile per-packet one-way delay: 10.137 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 56.09 Mbit/s
95th percentile per-packet one-way delay: 10.129 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 45.32 Mbit/s
95th percentile per-packet one-way delay: 10.147 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 30.94 Mbit/s
95th percentile per-packet one-way delay: 10.149 ms
Loss rate: 0.40%
```

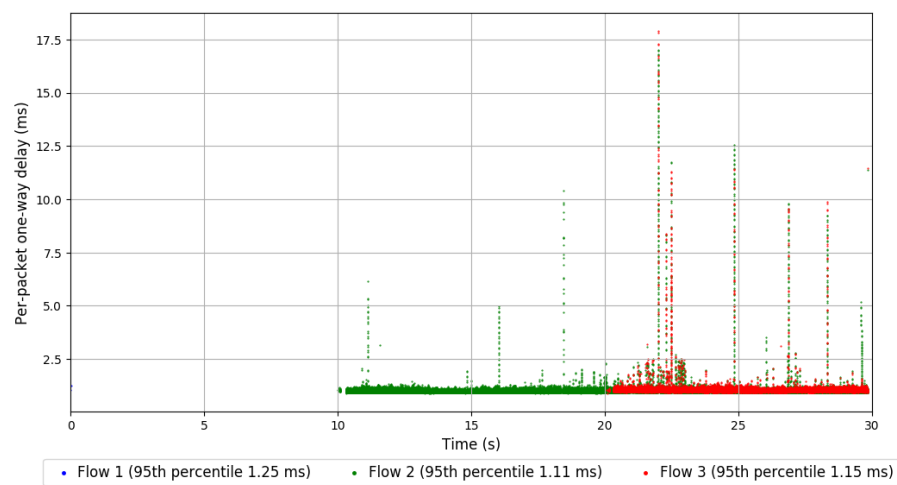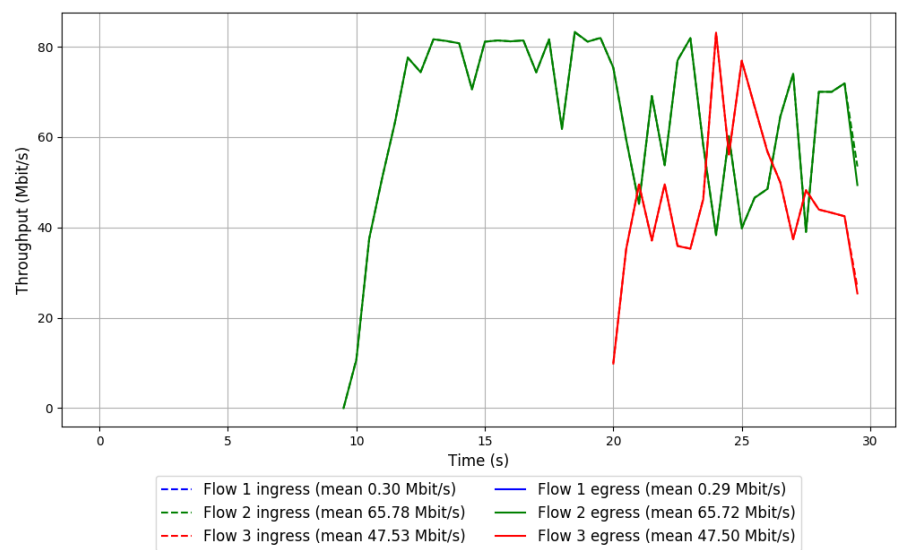Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2017-08-11 06:45:28
End at: 2017-08-11 06:45:58
Local clock offset: 0.351 ms
Remote clock offset: -0.803 ms


# Below is generated by plot.py at 2017-08-11 15:26:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.21 Mbit/s
95th percentile per-packet one-way delay: 1.161 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 61.20 Mbit/s
95th percentile per-packet one-way delay: 1.157 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 38.14 Mbit/s
95th percentile per-packet one-way delay: 1.166 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 38.73 Mbit/s
95th percentile per-packet one-way delay: 1.171 ms
Loss rate: 0.18%
```

Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2017-08-11 07:07:49
End at: 2017-08-11 07:08:19
Local clock offset: 0.31 ms
Remote clock offset: -0.514 ms


# Below is generated by plot.py at 2017-08-11 15:26:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.42 Mbit/s
95th percentile per-packet one-way delay: 1.052 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 60.32 Mbit/s
95th percentile per-packet one-way delay: 1.055 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 37.83 Mbit/s
95th percentile per-packet one-way delay: 1.057 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 36.15 Mbit/s
95th percentile per-packet one-way delay: 1.033 ms
Loss rate: 0.20%
```
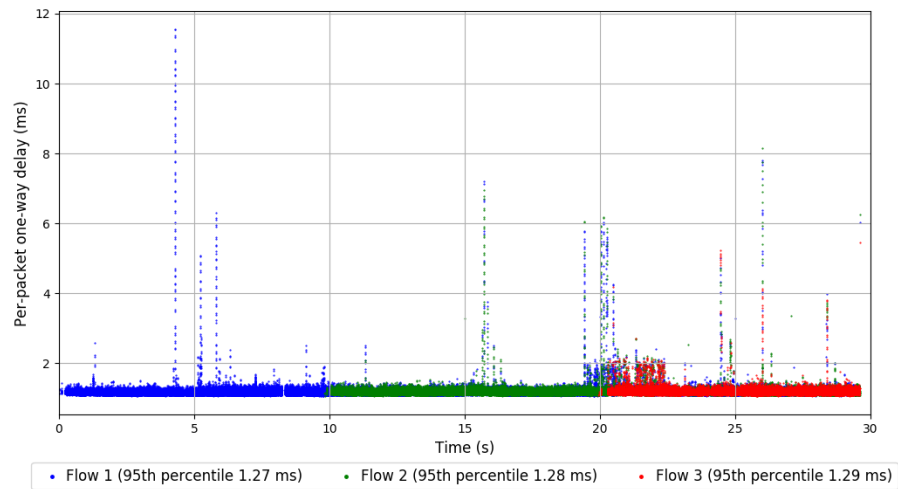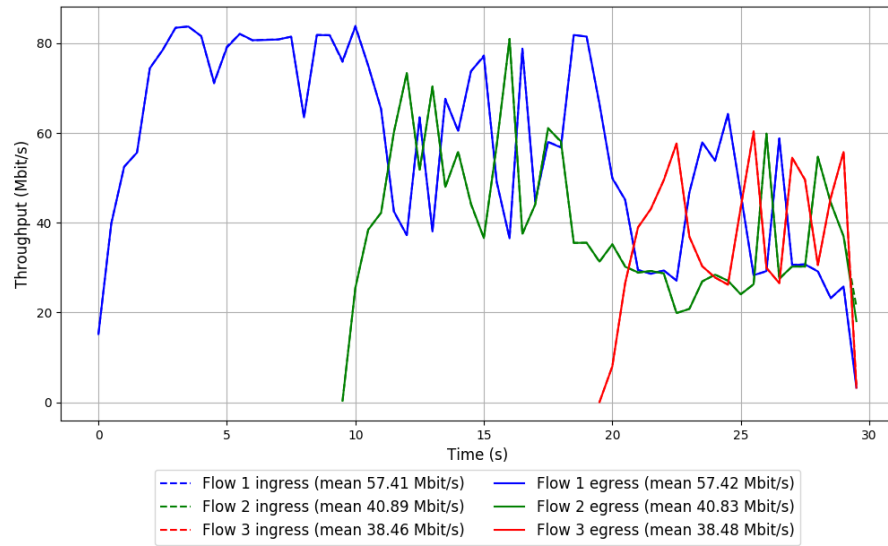
Run 5: Report of QUIC Cubic — Data Link

```
Run 6: Statistics of QUIC Cubic

Start at: 2017-08-11 07:30:03
End at: 2017-08-11 07:30:33
Local clock offset: 0.415 ms
Remote clock offset: -0.017 ms

# Below is generated by plot.py at 2017-08-11 15:26:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.98 Mbit/s
95th percentile per-packet one-way delay: 1.183 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 57.92 Mbit/s
95th percentile per-packet one-way delay: 1.190 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 39.70 Mbit/s
95th percentile per-packet one-way delay: 1.178 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 32.80 Mbit/s
95th percentile per-packet one-way delay: 1.140 ms
Loss rate: 0.21%
```
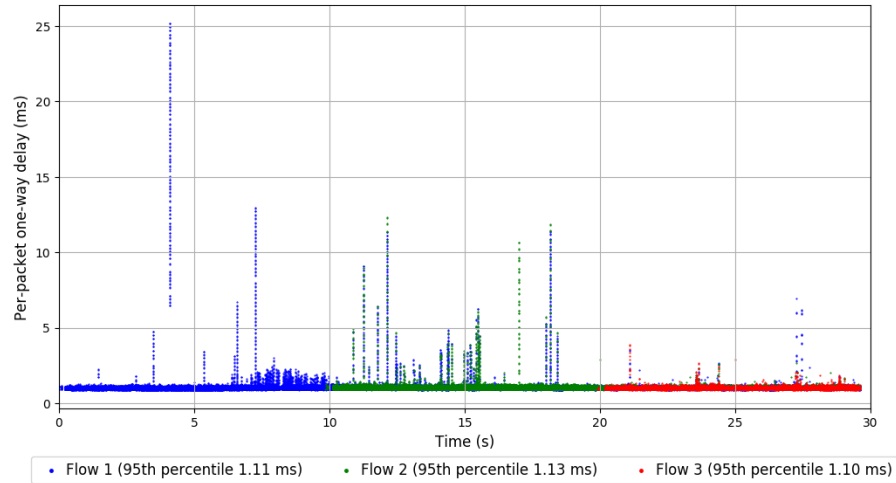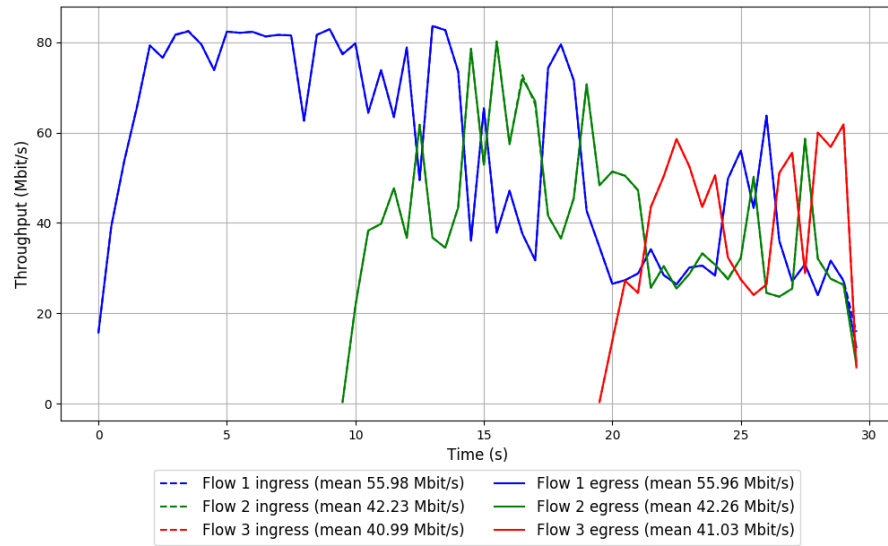
Run 6: Report of QUIC Cubic — Data Link

```
Run 7: Statistics of QUIC Cubic

Start at: 2017-08-11 07:52:18
End at: 2017-08-11 07:52:48
Local clock offset: 0.32 ms
Remote clock offset: -0.094 ms


# Below is generated by plot.py at 2017-08-11 15:26:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 59.29 Mbit/s
95th percentile per-packet one-way delay: 1.121 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 1.254 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 65.72 Mbit/s
95th percentile per-packet one-way delay: 1.108 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 47.50 Mbit/s
95th percentile per-packet one-way delay: 1.146 ms
Loss rate: 0.15%
```
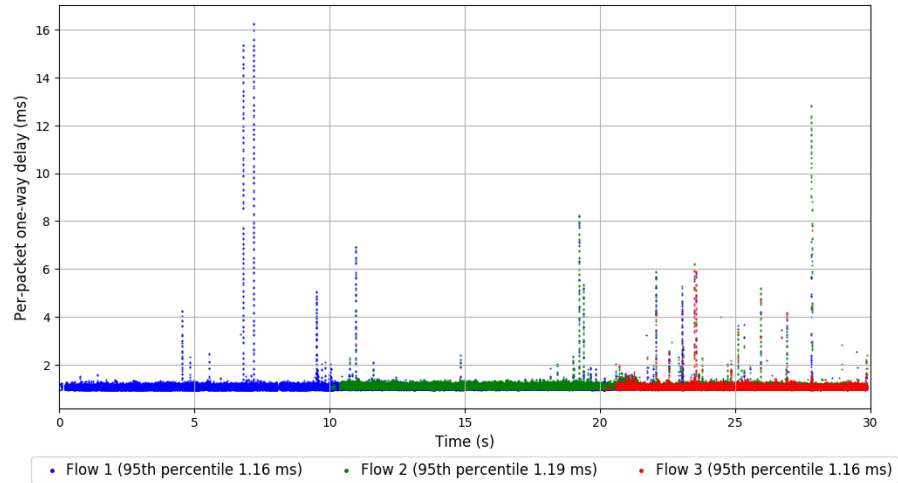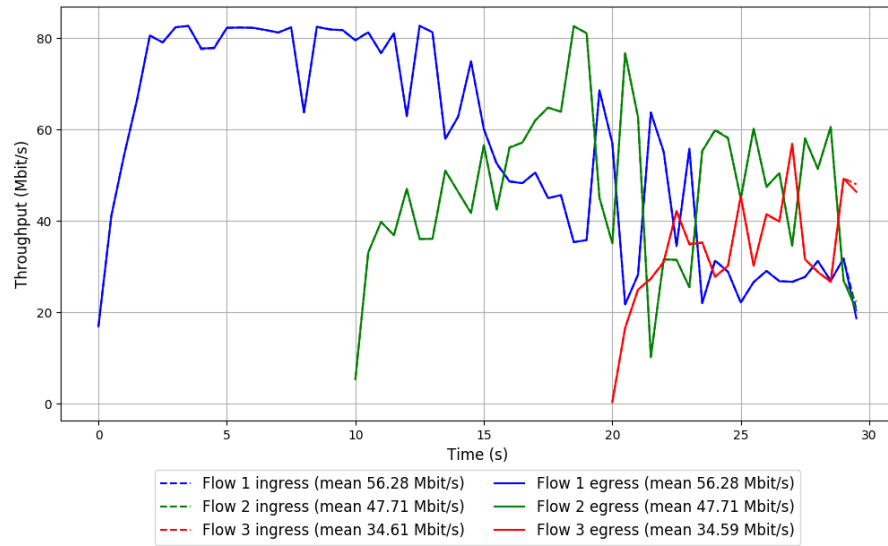
Run 7: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.30 Mbit/s) — — — Flow 1 egress (mean 0.29 Mbit/s)
Flow 2 ingress (mean 65.78 Mbit/s) — — — Flow 2 egress (mean 65.72 Mbit/s)
Flow 3 ingress (mean 47.53 Mbit/s) — — — Flow 3 egress (mean 47.50 Mbit/s)

Flow 1 (95th percentile 1.25 ms) • Flow 2 (95th percentile 1.11 ms) • Flow 3 (95th percentile 1.15 ms)

```
Run 8: Statistics of QUIC Cubic

Start at: 2017-08-11 08:14:40
End at: 2017-08-11 08:15:10
Local clock offset: 0.345 ms
Remote clock offset: -0.139 ms


# Below is generated by plot.py at 2017-08-11 15:26:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.29 Mbit/s
95th percentile per-packet one-way delay: 1.278 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 57.42 Mbit/s
95th percentile per-packet one-way delay: 1.272 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.83 Mbit/s
95th percentile per-packet one-way delay: 1.279 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 38.48 Mbit/s
95th percentile per-packet one-way delay: 1.295 ms
Loss rate: 0.09%
```
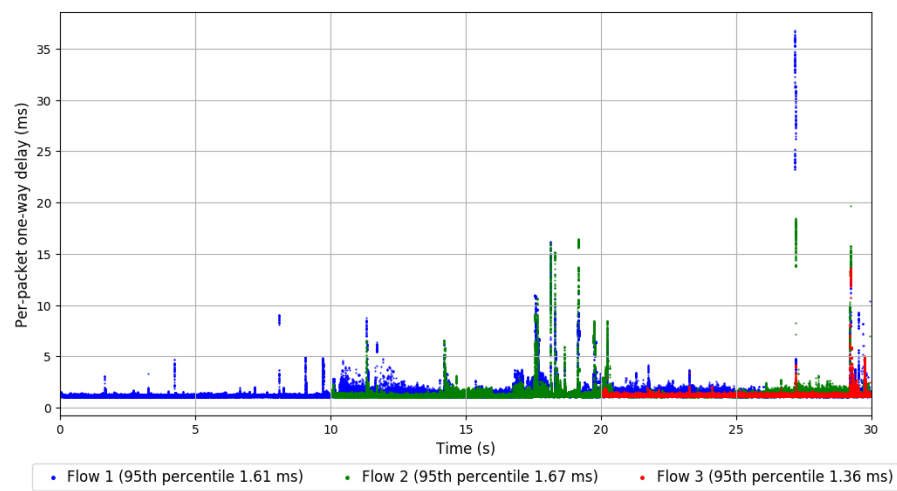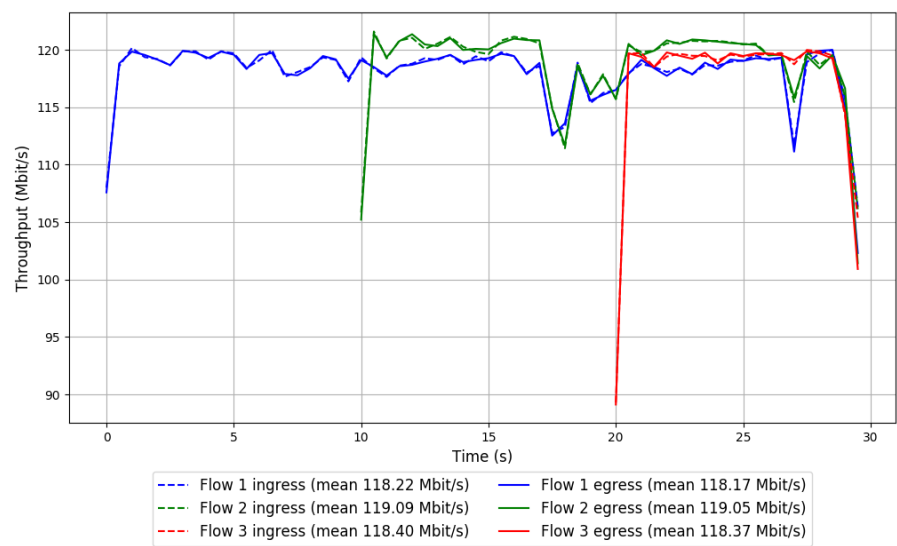
Run 8: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 57.41 Mbit/s)   —— Flow 1 egress (mean 57.42 Mbit/s)
- - - Flow 2 ingress (mean 40.89 Mbit/s)   —— Flow 2 egress (mean 40.83 Mbit/s)
- - - Flow 3 ingress (mean 38.46 Mbit/s)   —— Flow 3 egress (mean 38.48 Mbit/s)

• Flow 1 (95th percentile 1.27 ms)   • Flow 2 (95th percentile 1.28 ms)   • Flow 3 (95th percentile 1.29 ms)

```
Run 9: Statistics of QUIC Cubic

Start at: 2017-08-11 08:36:53
End at: 2017-08-11 08:37:23
Local clock offset: 0.252 ms
Remote clock offset: -0.345 ms


# Below is generated by plot.py at 2017-08-11 15:26:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.65 Mbit/s
95th percentile per-packet one-way delay: 1.118 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 55.96 Mbit/s
95th percentile per-packet one-way delay: 1.114 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 42.26 Mbit/s
95th percentile per-packet one-way delay: 1.131 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 41.03 Mbit/s
95th percentile per-packet one-way delay: 1.100 ms
Loss rate: 0.09%
```

Run 9: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 55.98 Mbit/s) --- Flow 1 egress (mean 55.96 Mbit/s)
Flow 2 ingress (mean 42.23 Mbit/s) --- Flow 2 egress (mean 42.26 Mbit/s)
Flow 3 ingress (mean 40.99 Mbit/s) --- Flow 3 egress (mean 41.03 Mbit/s)

Flow 1 (95th percentile 1.11 ms) • Flow 2 (95th percentile 1.13 ms) • Flow 3 (95th percentile 1.10 ms)

161

```
Run 10: Statistics of QUIC Cubic

Start at: 2017-08-11 08:59:23
End at: 2017-08-11 08:59:53
Local clock offset: 0.312 ms
Remote clock offset: -0.271 ms


# Below is generated by plot.py at 2017-08-11 15:26:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.07 Mbit/s
95th percentile per-packet one-way delay: 1.169 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 56.28 Mbit/s
95th percentile per-packet one-way delay: 1.156 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 47.71 Mbit/s
95th percentile per-packet one-way delay: 1.189 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 34.59 Mbit/s
95th percentile per-packet one-way delay: 1.160 ms
Loss rate: 0.26%
```

Run 10: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 56.28 Mbit/s) --- Flow 1 egress (mean 56.28 Mbit/s)
Flow 2 ingress (mean 47.71 Mbit/s) --- Flow 2 egress (mean 47.71 Mbit/s)
Flow 3 ingress (mean 34.61 Mbit/s) --- Flow 3 egress (mean 34.59 Mbit/s)

Flow 1 (95th percentile 1.16 ms) Flow 2 (95th percentile 1.19 ms) Flow 3 (95th percentile 1.16 ms)

163

```
Run 1: Statistics of Saturator

Start at: 2017-08-11 05:42:21
End at: 2017-08-11 05:42:51
Local clock offset: 0.421 ms
Remote clock offset: -1.779 ms


# Below is generated by plot.py at 2017-08-11 15:27:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 236.38 Mbit/s
95th percentile per-packet one-way delay: 1.607 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 118.17 Mbit/s
95th percentile per-packet one-way delay: 1.612 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 119.05 Mbit/s
95th percentile per-packet one-way delay: 1.666 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 118.37 Mbit/s
95th percentile per-packet one-way delay: 1.356 ms
Loss rate: 0.20%
```
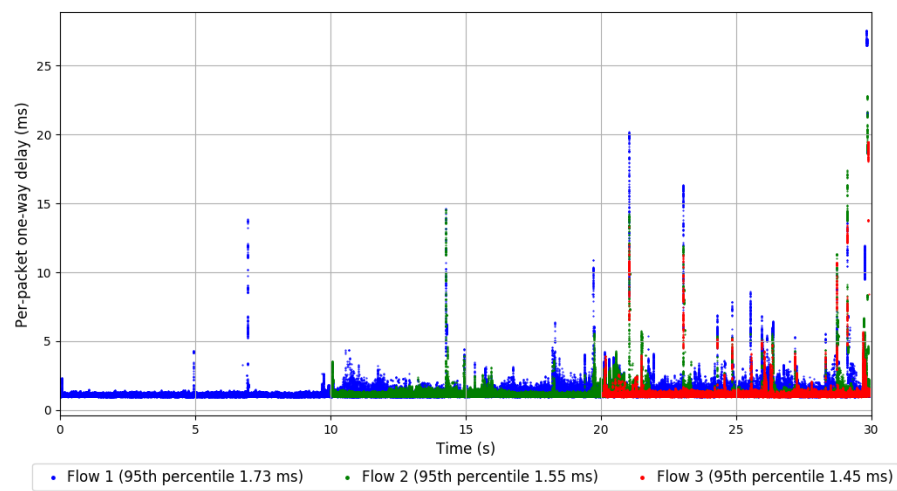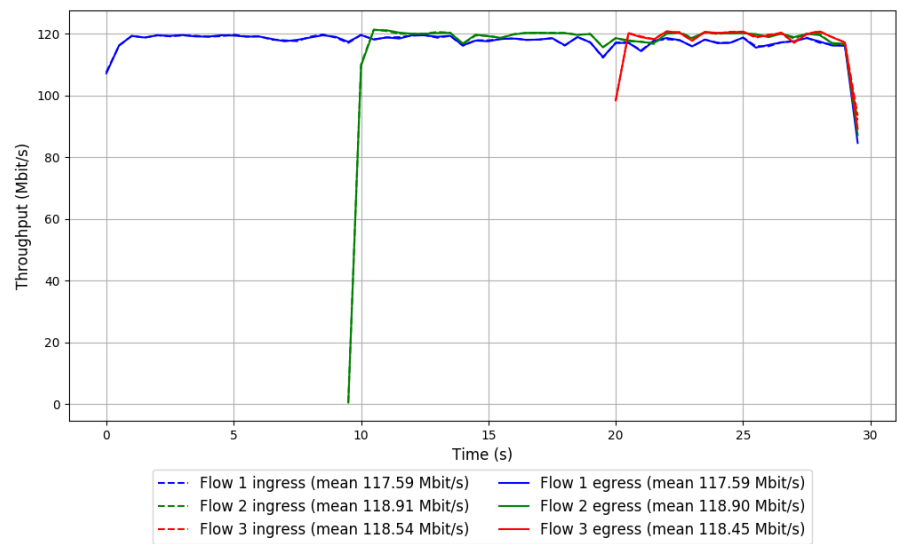
Run 1: Report of Saturator — Data Link
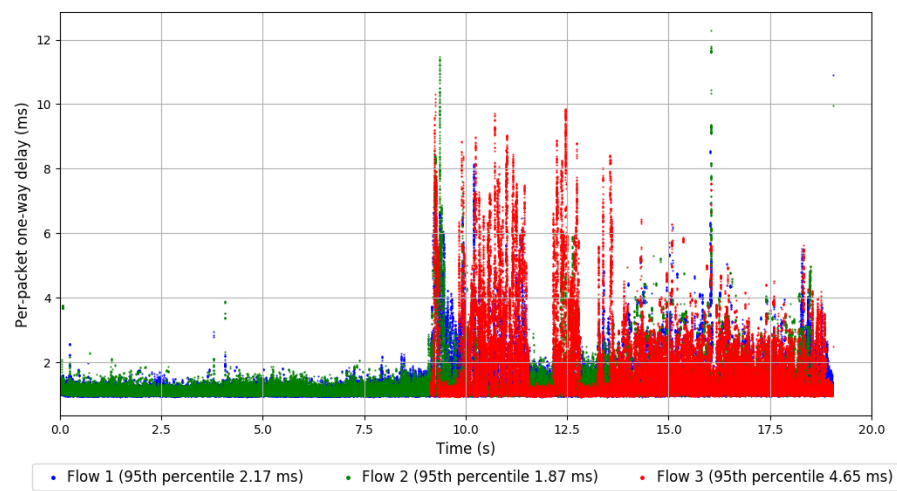
```
Run 2: Statistics of Saturator

Start at: 2017-08-11 06:04:46
End at: 2017-08-11 06:05:16
Local clock offset: 0.326 ms
Remote clock offset: -1.211 ms
```

Run 2: Report of Saturator — Data Link

```
Run 3: Statistics of Saturator

Start at: 2017-08-11 06:27:14
End at: 2017-08-11 06:27:44
Local clock offset: 0.204 ms
Remote clock offset: -1.127 ms


# Below is generated by plot.py at 2017-08-11 15:27:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 238.61 Mbit/s
95th percentile per-packet one-way delay: 1.403 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 119.55 Mbit/s
95th percentile per-packet one-way delay: 1.523 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 120.01 Mbit/s
95th percentile per-packet one-way delay: 1.311 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 118.54 Mbit/s
95th percentile per-packet one-way delay: 1.224 ms
Loss rate: 0.20%
```

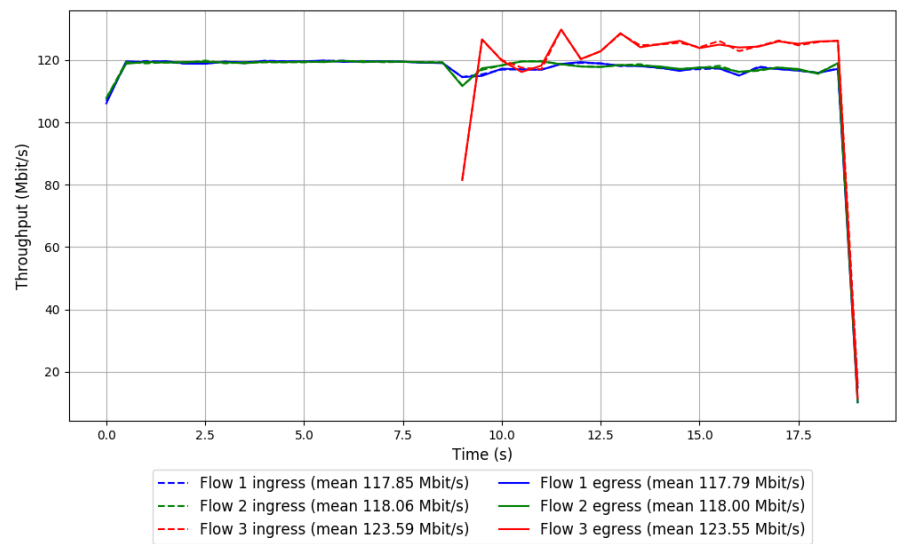Run 3: Report of Saturator — Data Link

```
Run 4: Statistics of Saturator

Start at: 2017-08-11 06:49:32
End at: 2017-08-11 06:50:02
Local clock offset: 0.374 ms
Remote clock offset: -0.704 ms
```
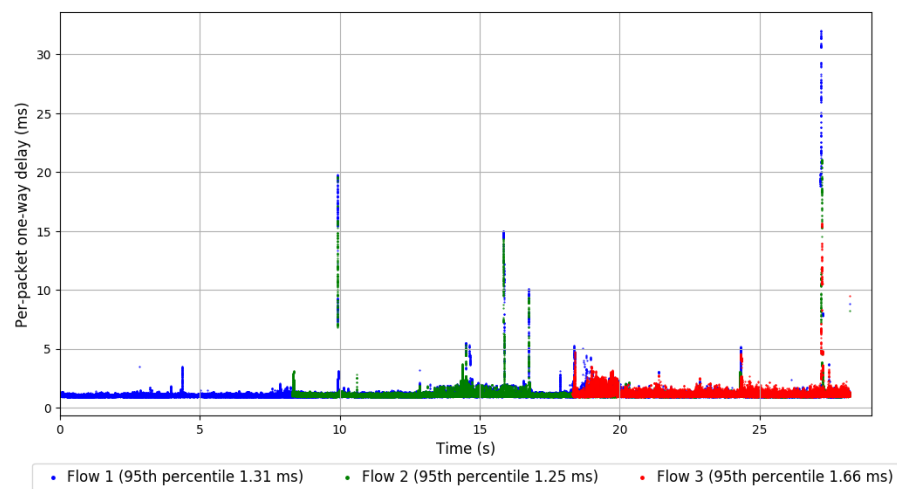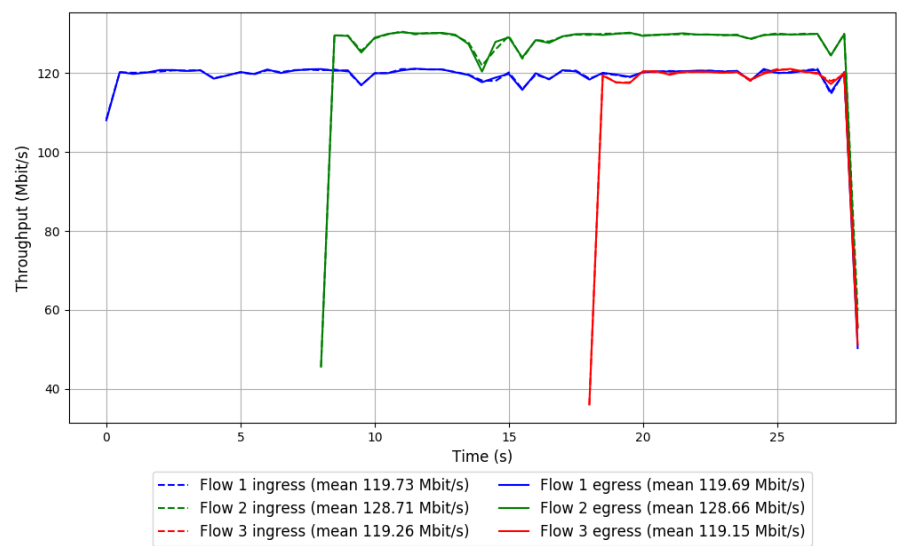
Run 4: Report of Saturator — Data Link

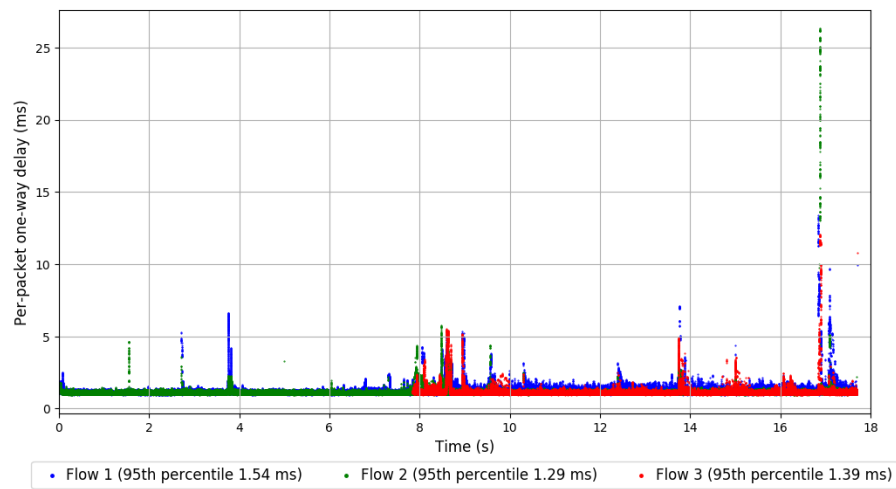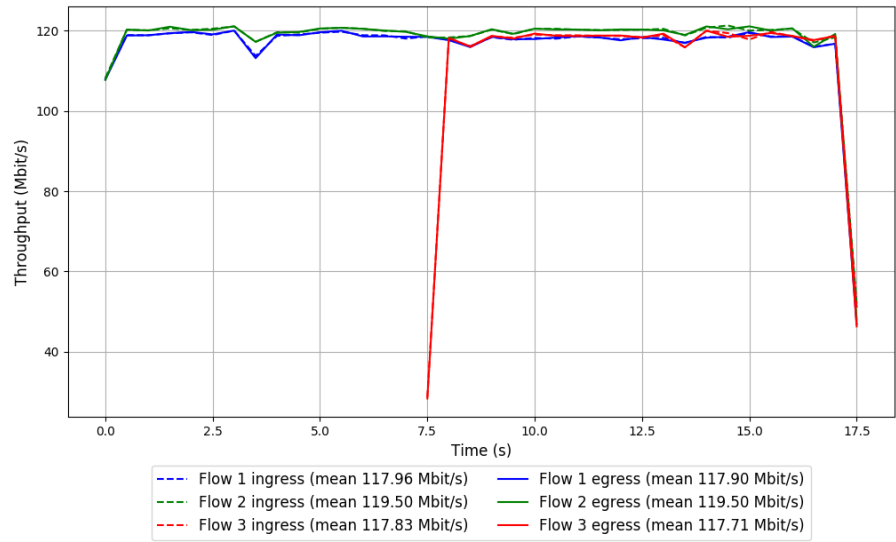```
Run 5: Statistics of Saturator

Start at: 2017-08-11 07:11:52
End at: 2017-08-11 07:12:22
Local clock offset: 0.334 ms
Remote clock offset: -0.569 ms
```

# Run 5: Report of Saturator — Data Link



Flow 1 ingress (mean 116.95 Mbit/s)    Flow 1 egress (mean 116.97 Mbit/s)
Flow 2 ingress (mean 117.95 Mbit/s)    Flow 2 egress (mean 117.89 Mbit/s)
Flow 3 ingress (mean 119.24 Mbit/s)    Flow 3 egress (mean 119.14 Mbit/s)



Flow 1 (95th percentile 2.27 ms)    Flow 2 (95th percentile 1.57 ms)    Flow 3 (95th percentile 1.36 ms)
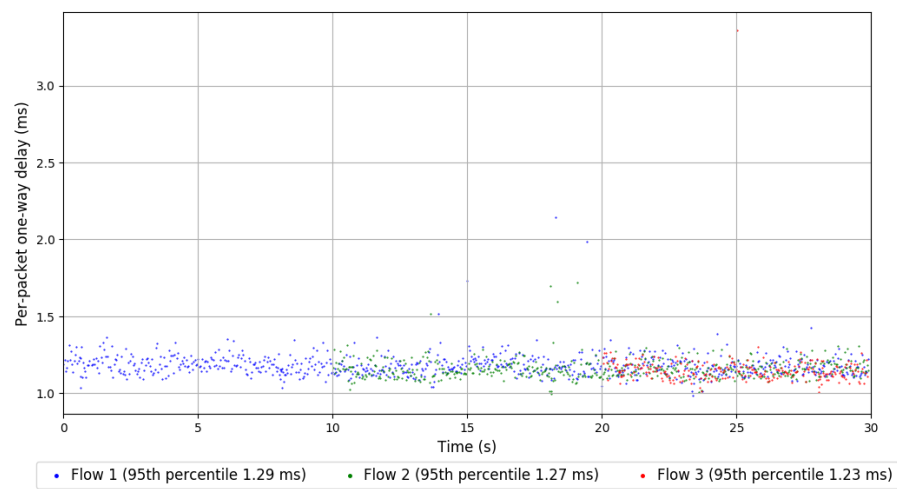
```
Run 6: Statistics of Saturator

Start at: 2017-08-11 07:34:06
End at: 2017-08-11 07:34:36
Local clock offset: 0.308 ms
Remote clock offset: -0.057 ms

Below is generated by plot.py at 2017-08-11 15:28:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 235.76 Mbit/s
95th percentile per-packet one-way delay: 1.641 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 117.59 Mbit/s
95th percentile per-packet one-way delay: 1.731 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 118.90 Mbit/s
95th percentile per-packet one-way delay: 1.554 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 118.45 Mbit/s
95th percentile per-packet one-way delay: 1.448 ms
Loss rate: 0.20%
```

## Run 6: Report of Saturator — Data Link



Flow 1 ingress (mean 117.59 Mbit/s)    Flow 1 egress (mean 117.59 Mbit/s)
Flow 2 ingress (mean 118.91 Mbit/s)    Flow 2 egress (mean 118.90 Mbit/s)
Flow 3 ingress (mean 118.54 Mbit/s)    Flow 3 egress (mean 118.45 Mbit/s)



Flow 1 (95th percentile 1.73 ms)    Flow 2 (95th percentile 1.55 ms)    Flow 3 (95th percentile 1.45 ms)

175

```
Run 7: Statistics of Saturator

Start at: 2017-08-11 07:56:22
End at: 2017-08-11 07:56:52
Local clock offset: 0.303 ms
Remote clock offset: -0.101 ms
```
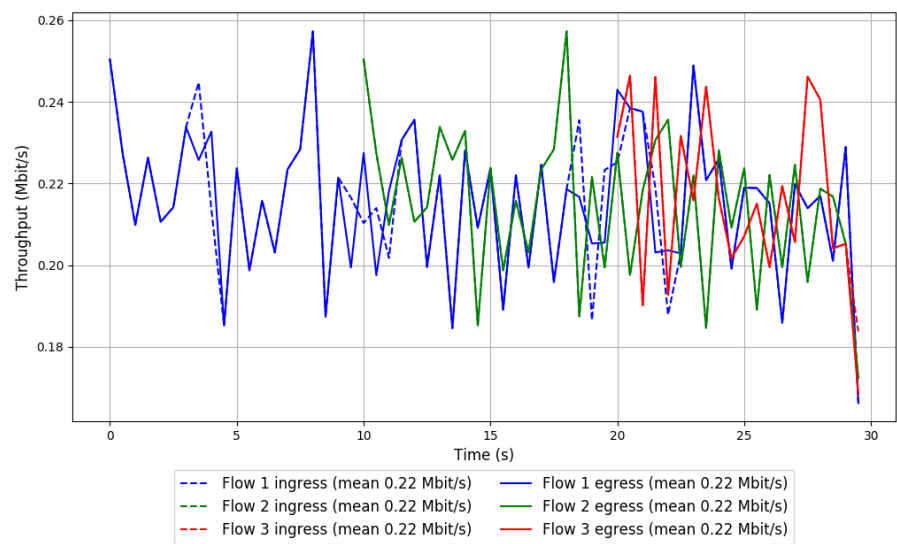
# Run 7: Report of Saturator — Data Link



- Flow 1 ingress (mean 117.85 Mbit/s)
- Flow 1 egress (mean 117.79 Mbit/s)
- Flow 2 ingress (mean 118.06 Mbit/s)
- Flow 2 egress (mean 118.00 Mbit/s)
- Flow 3 ingress (mean 123.59 Mbit/s)
- Flow 3 egress (mean 123.55 Mbit/s)



- Flow 1 (95th percentile 2.17 ms)
- Flow 2 (95th percentile 1.87 ms)
- Flow 3 (95th percentile 4.65 ms)

177

```
Run 8: Statistics of Saturator

Start at: 2017-08-11 08:18:45
End at: 2017-08-11 08:19:15
Local clock offset: 0.239 ms
Remote clock offset: -0.083 ms

Below is generated by plot.py at 2017-08-11 15:28:33
Datalink statistics
-- Total of 3 flows:
Average throughput: 252.43 Mbit/s
95th percentile per-packet one-way delay: 1.348 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 119.69 Mbit/s
95th percentile per-packet one-way delay: 1.311 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 128.66 Mbit/s
95th percentile per-packet one-way delay: 1.254 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 119.15 Mbit/s
95th percentile per-packet one-way delay: 1.662 ms
Loss rate: 0.20%
```
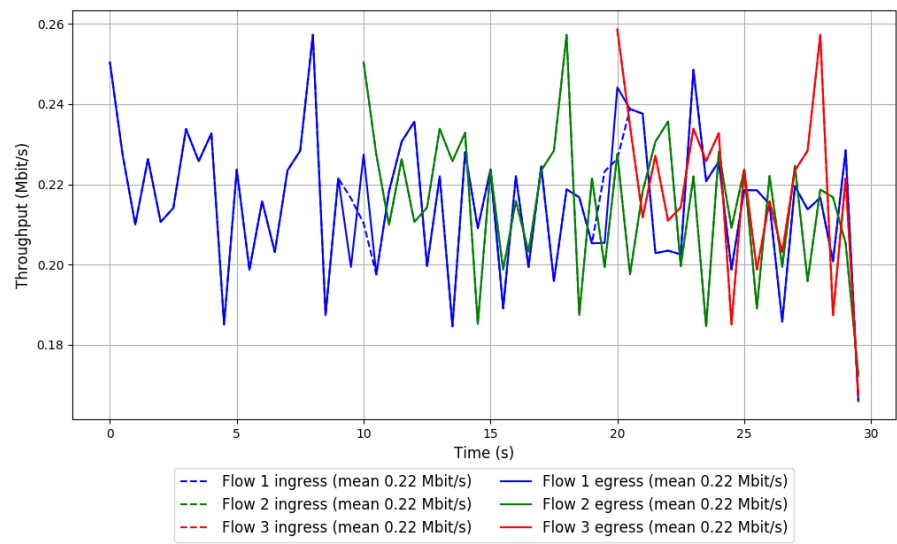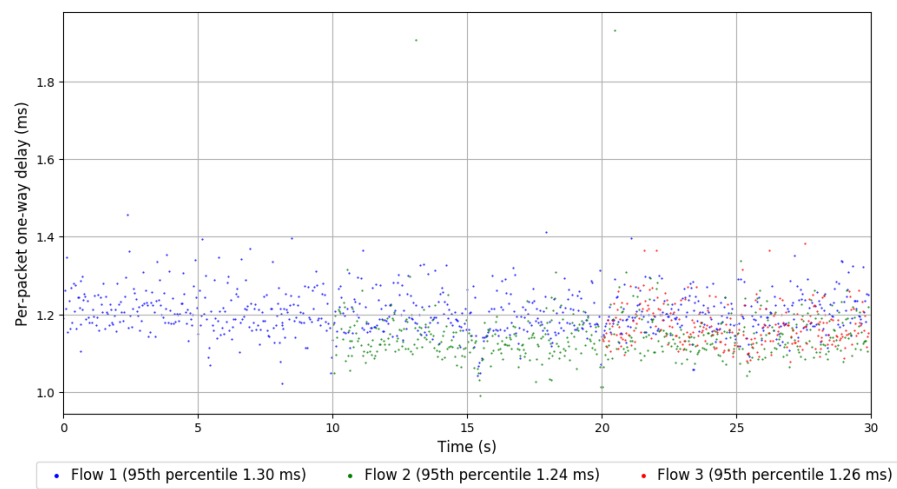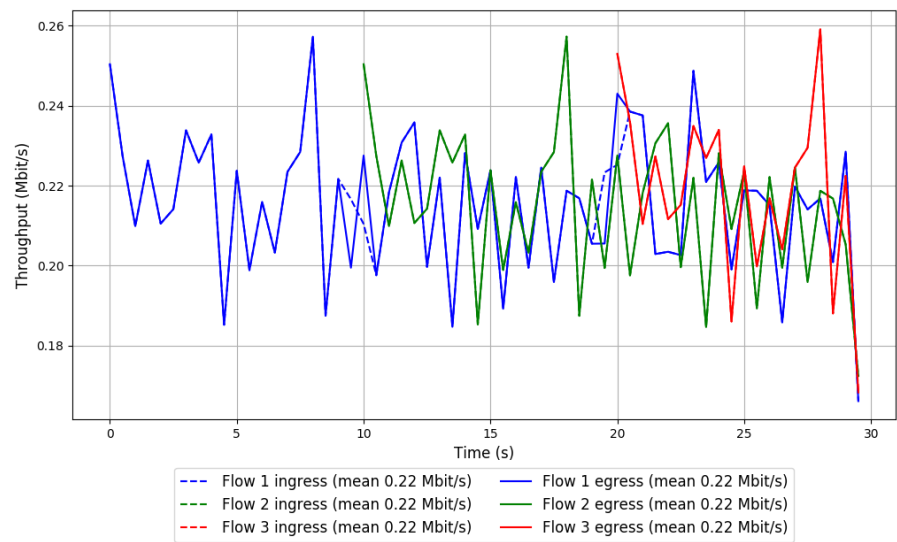
## Run 8: Report of Saturator — Data Link





179

```
Run 9: Statistics of Saturator

Start at: 2017-08-11 08:40:58
End at: 2017-08-11 08:41:28
Local clock offset: 0.245 ms
Remote clock offset: -0.385 ms
```

Run 9: Report of Saturator — Data Link

Flow 1 ingress (mean 117.96 Mbit/s) — Flow 1 egress (mean 117.90 Mbit/s)
Flow 2 ingress (mean 119.50 Mbit/s) — Flow 2 egress (mean 119.50 Mbit/s)
Flow 3 ingress (mean 117.83 Mbit/s) — Flow 3 egress (mean 117.71 Mbit/s)

Flow 1 (95th percentile 1.54 ms)   Flow 2 (95th percentile 1.29 ms)   Flow 3 (95th percentile 1.39 ms)

```
Run 10: Statistics of Saturator

Start at: 2017-08-11 09:03:26
End at: 2017-08-11 09:03:56
Local clock offset: 0.352 ms
Remote clock offset: -0.263 ms
```

Run 10: Report of Saturator — Data Link

- - - Flow 1 ingress (mean 118.16 Mbit/s) —— Flow 1 egress (mean 118.14 Mbit/s)
- - - Flow 2 ingress (mean 118.50 Mbit/s) —— Flow 2 egress (mean 118.43 Mbit/s)
- - - Flow 3 ingress (mean 117.86 Mbit/s) —— Flow 3 egress (mean 117.75 Mbit/s)

- Flow 1 (95th percentile 1.45 ms)   • Flow 2 (95th percentile 1.91 ms)   • Flow 3 (95th percentile 1.61 ms)

183

```
Run 1: Statistics of SCReAM

Start at: 2017-08-11 05:43:47
End at: 2017-08-11 05:44:17
Local clock offset: 0.309 ms
Remote clock offset: -1.721 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.275 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.287 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.266 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.233 ms
Loss rate: 0.35%
```
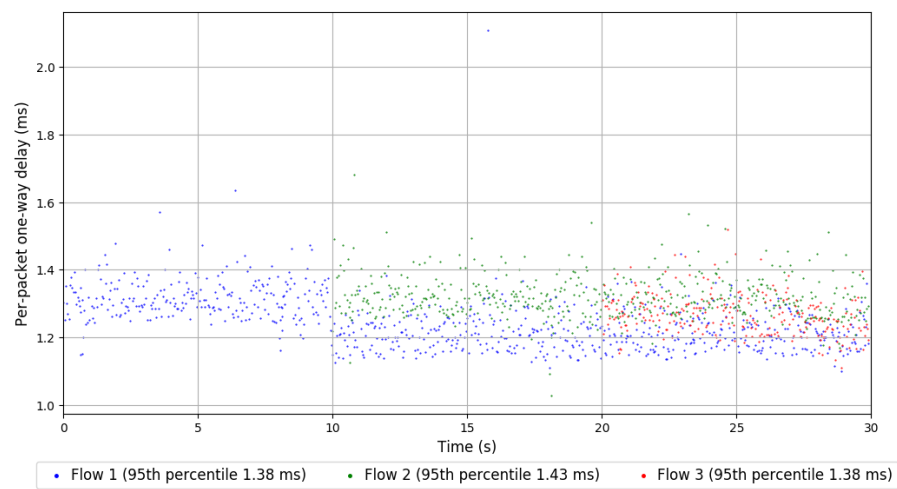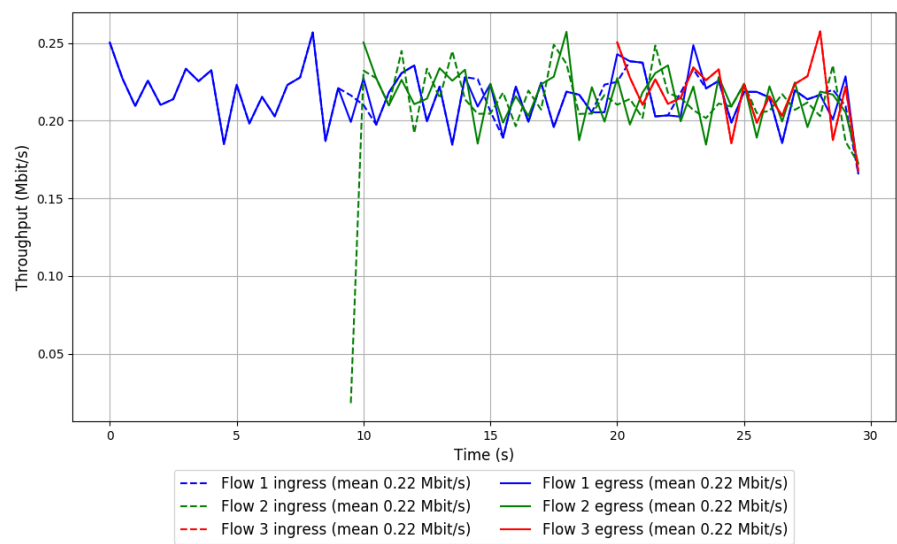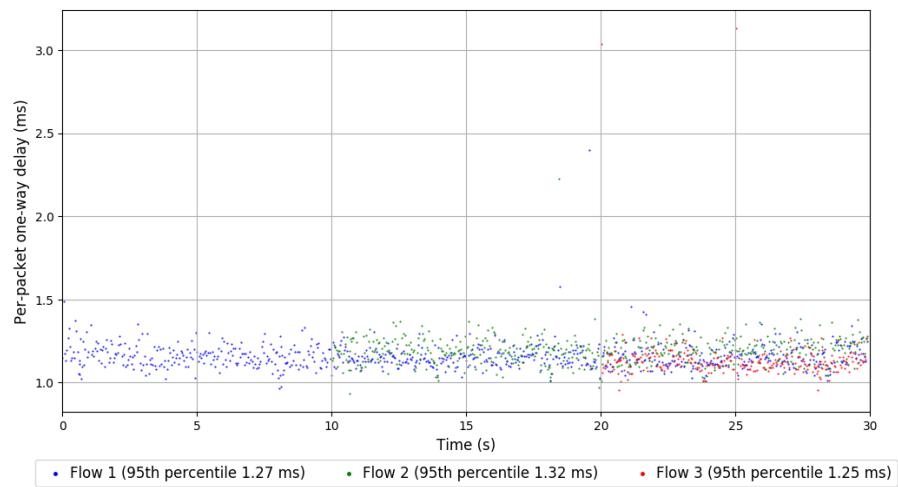
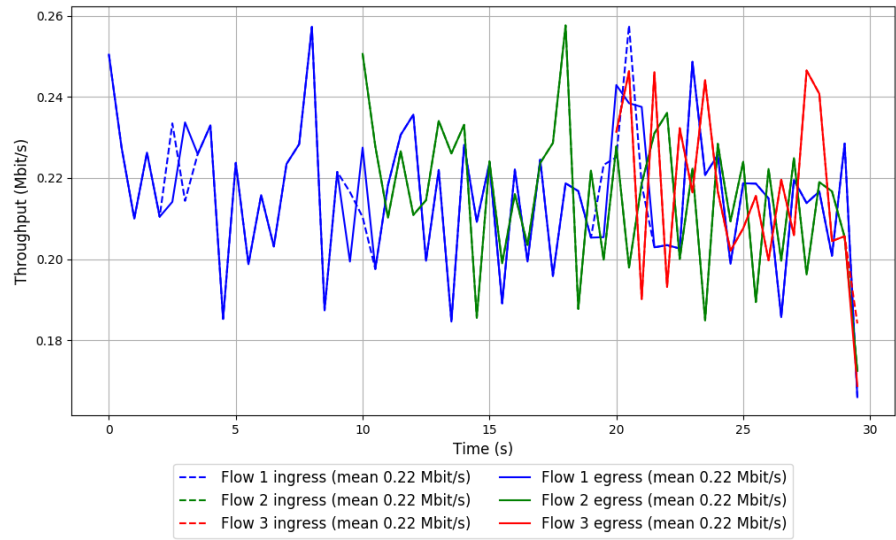# Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2017-08-11 06:06:08
End at: 2017-08-11 06:06:38
Local clock offset: 0.406 ms
Remote clock offset: -1.237 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.491 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.517 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.416 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.423 ms
Loss rate: 0.00%
```
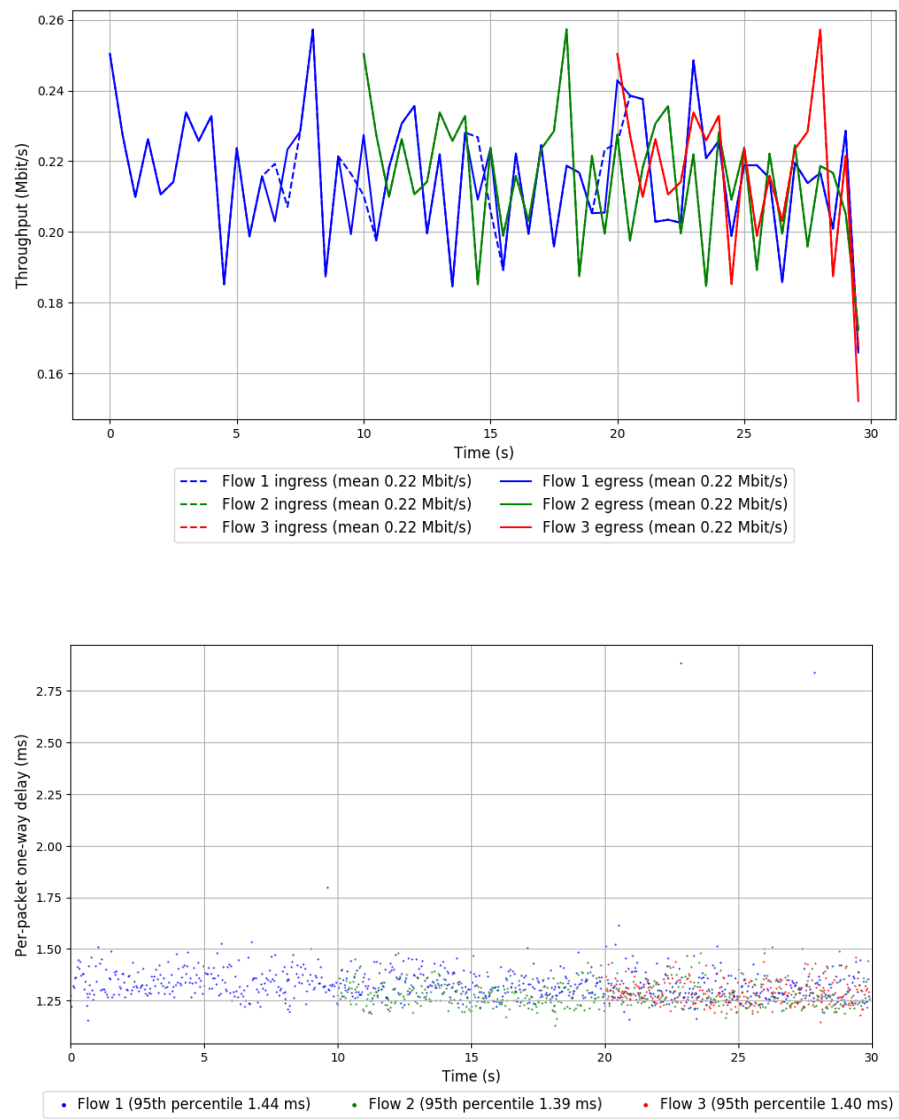
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2017-08-11 06:28:40
End at: 2017-08-11 06:29:10
Local clock offset: 0.317 ms
Remote clock offset: -1.046 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.283 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.299 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.238 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.260 ms
Loss rate: 0.00%
```
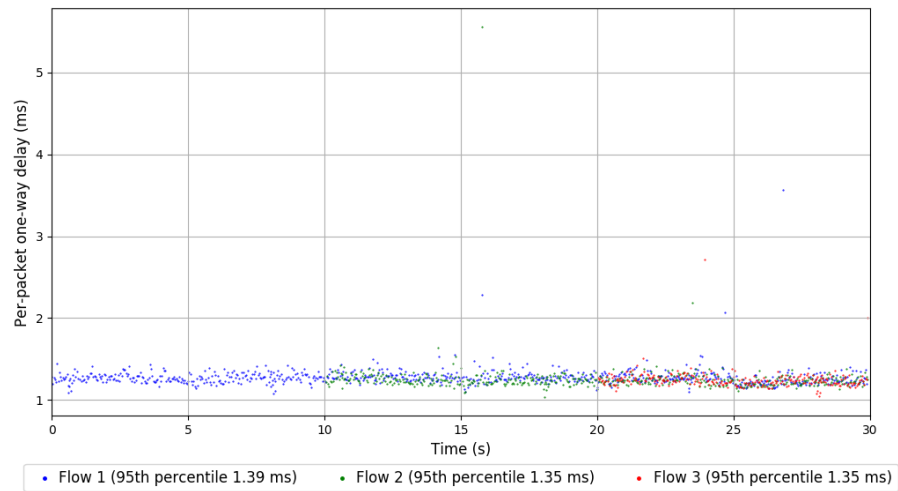
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2017-08-11 06:50:57
End at: 2017-08-11 06:51:27
Local clock offset: 0.36 ms
Remote clock offset: -0.727 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.401 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.376 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.432 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.378 ms
Loss rate: 0.00%
```
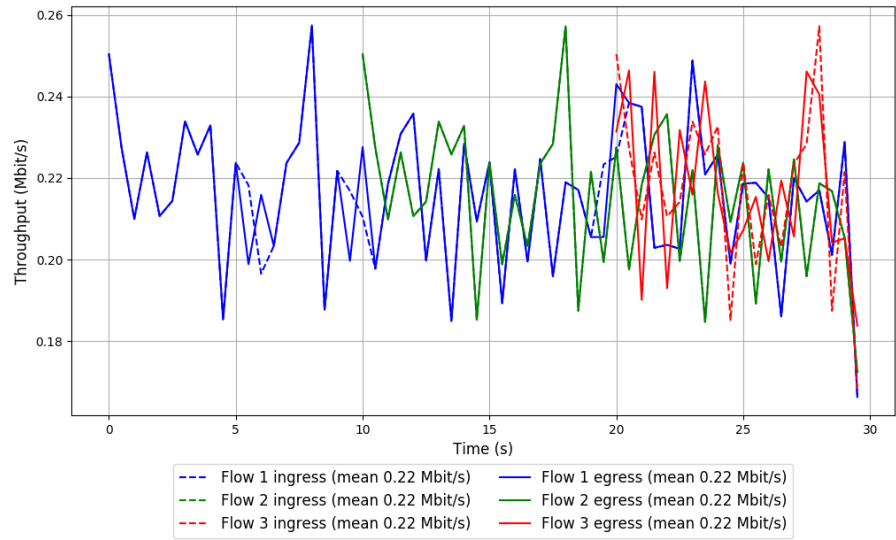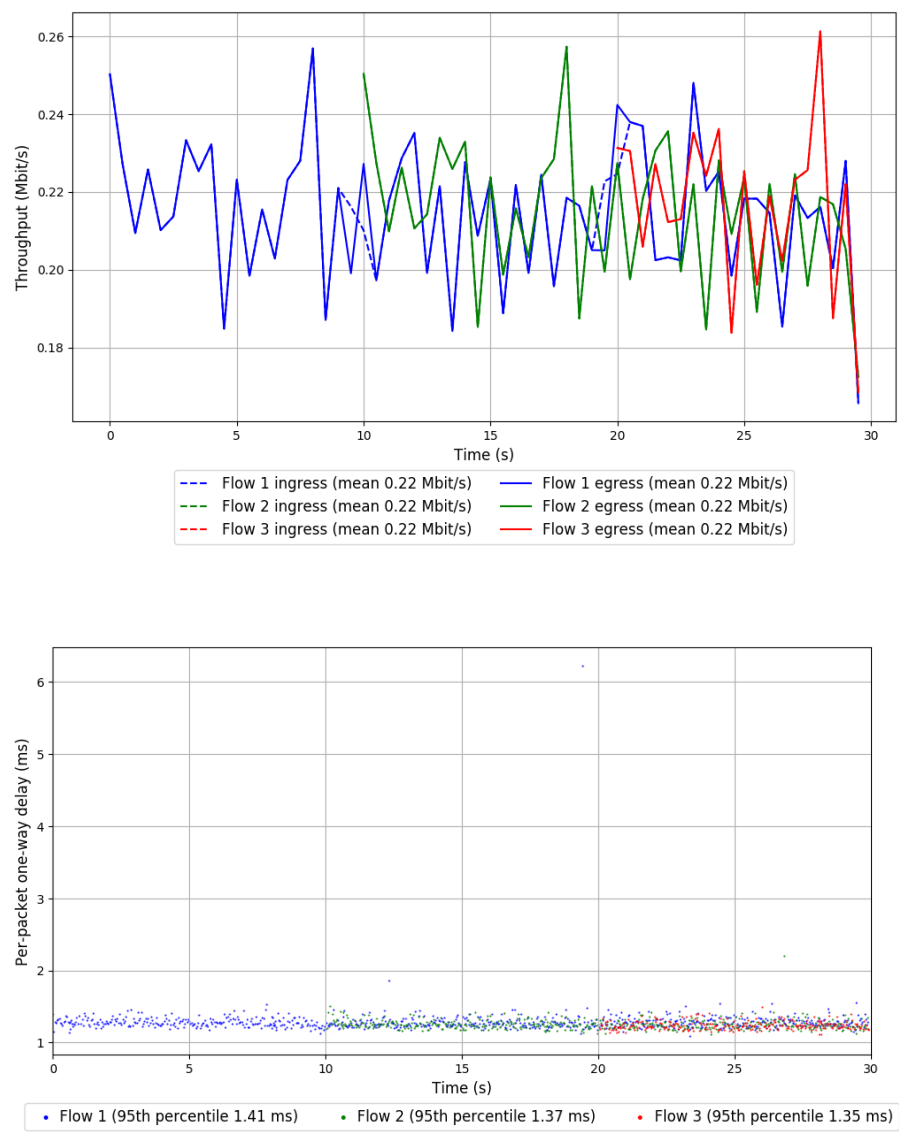
Run 4: Report of SCReAM — Data Link

191

```
Run 5: Statistics of SCReAM

Start at: 2017-08-11 07:13:12
End at: 2017-08-11 07:13:42
Local clock offset: 0.346 ms
Remote clock offset: -0.471 ms

# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.287 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.272 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.319 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.254 ms
Loss rate: 0.35%
```
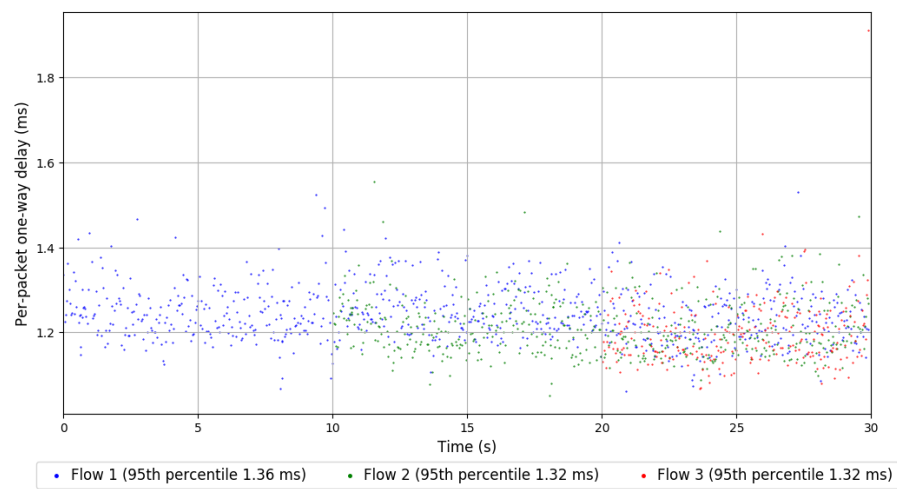
Run 5: Report of SCReAM — Data Link

```
Run 6: Statistics of SCReAM

Start at: 2017-08-11 07:35:32
End at: 2017-08-11 07:36:02
Local clock offset: 0.411 ms
Remote clock offset: -0.086 ms

# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.427 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.443 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.391 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.395 ms
Loss rate: 0.35%
```
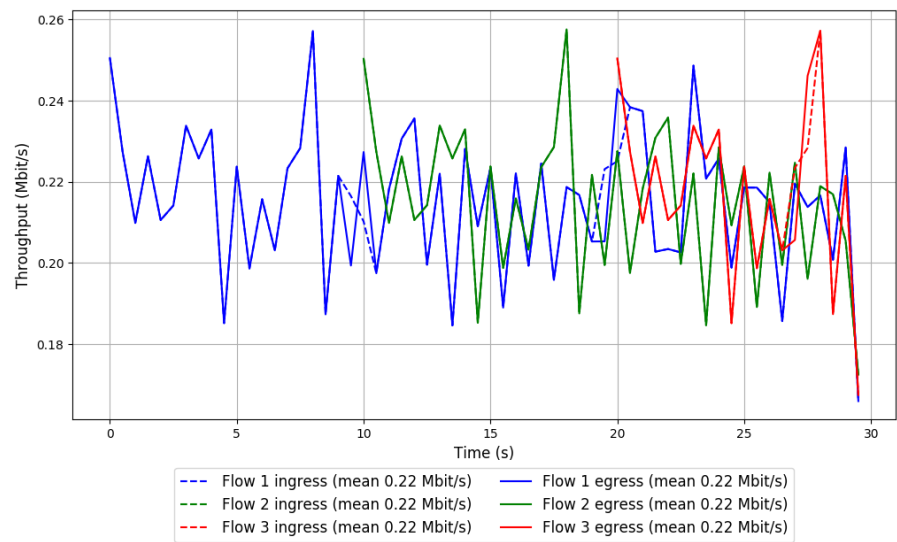
Run 6: Report of SCReAM — Data Link

```
Run 7: Statistics of SCReAM

Start at: 2017-08-11 07:57:46
End at: 2017-08-11 07:58:16
Local clock offset: 0.41 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.375 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.388 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.352 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.353 ms
Loss rate: 0.00%
```
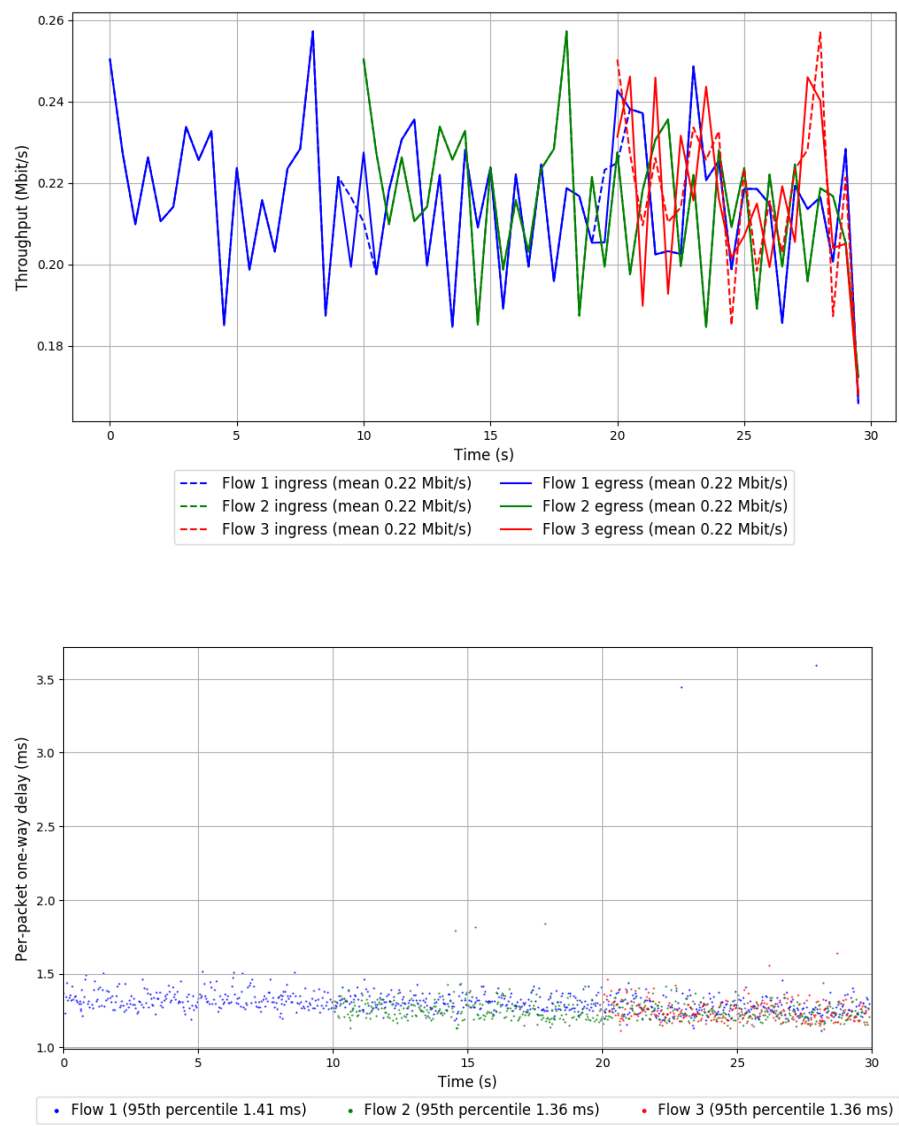
Run 7: Report of SCReAM — Data Link

```
Run 8: Statistics of SCReAM

Start at: 2017-08-11 08:20:11
End at: 2017-08-11 08:20:41
Local clock offset: 0.329 ms
Remote clock offset: -0.095 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.390 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.405 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.374 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.353 ms
Loss rate: 0.00%
```
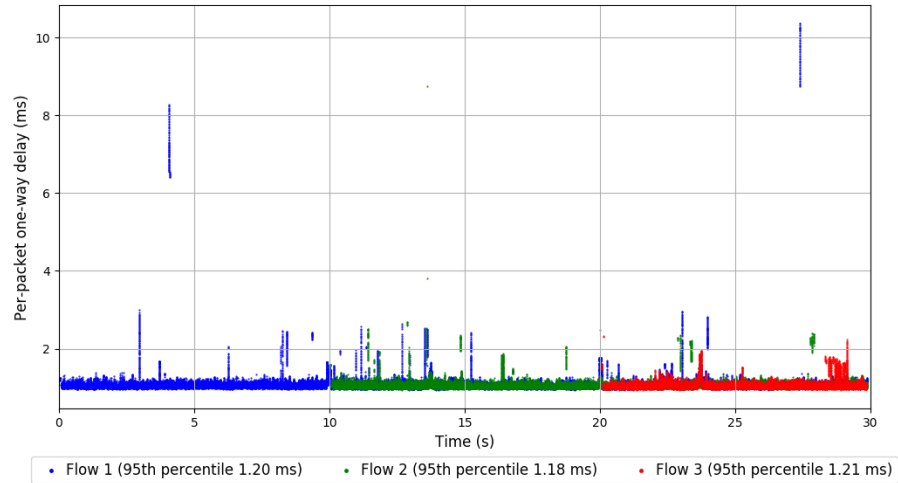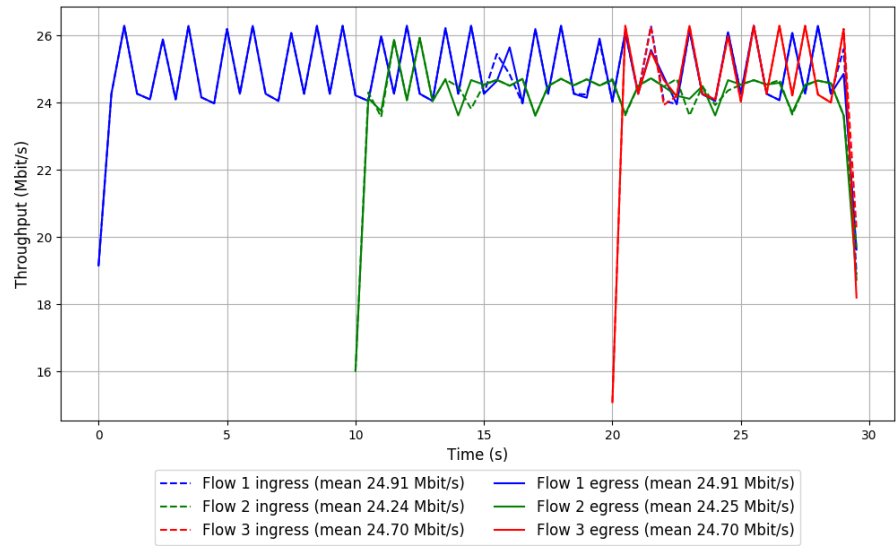
Run 8: Report of SCReAM — Data Link

```
Run 9: Statistics of SCReAM

Start at: 2017-08-11 08:42:20
End at: 2017-08-11 08:42:50
Local clock offset: 0.301 ms
Remote clock offset: -0.336 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.345 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.360 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.320 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.317 ms
Loss rate: 0.00%
```
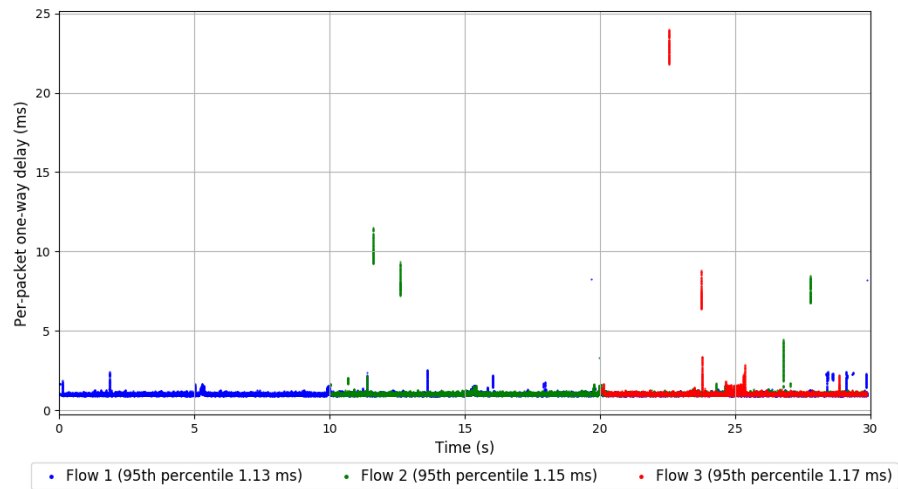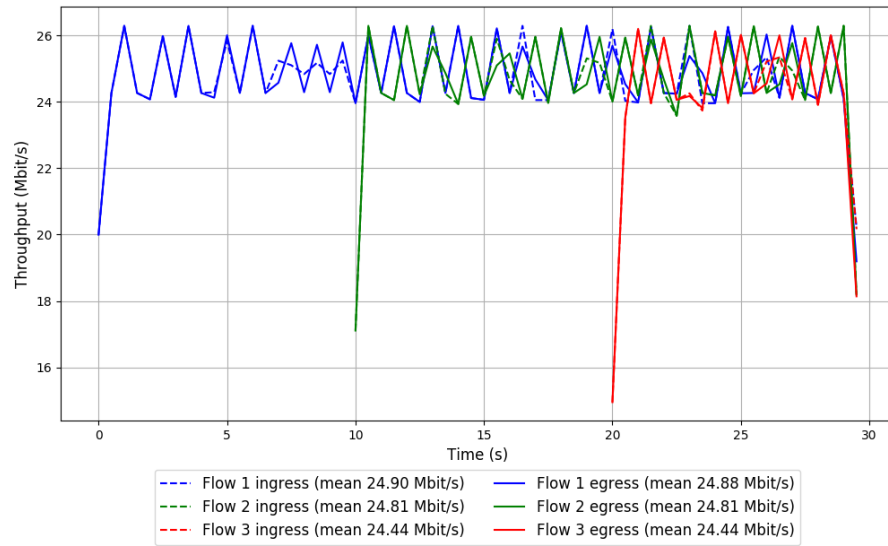
Run 9: Report of SCReAM — Data Link

```
Run 10: Statistics of SCReAM

Start at: 2017-08-11 09:04:47
End at: 2017-08-11 09:05:17
Local clock offset: 0.336 ms
Remote clock offset: -0.298 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.395 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.412 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.365 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.362 ms
Loss rate: 0.35%
```
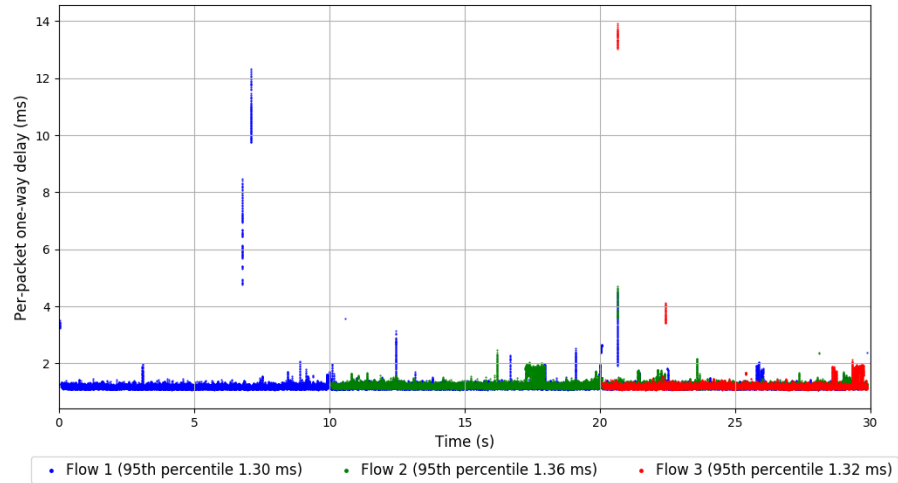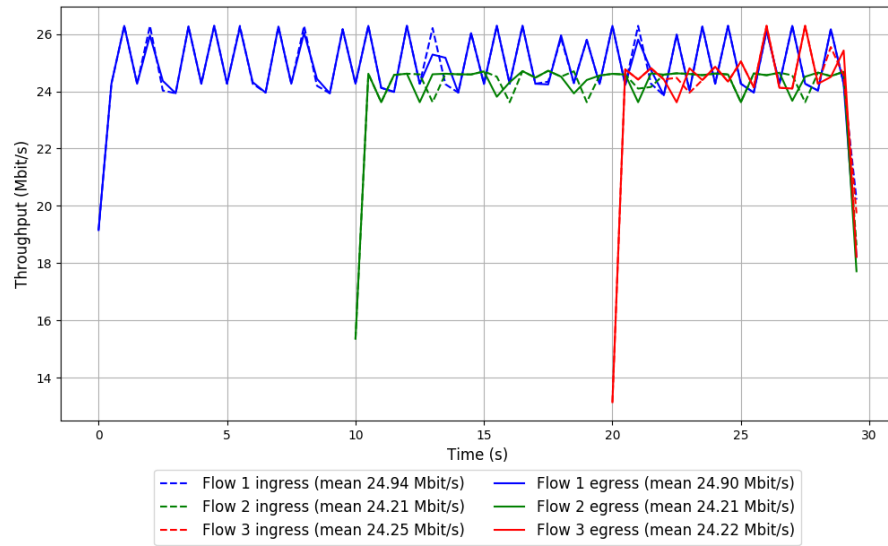
Run 10: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2017-08-11 05:48:02
End at: 2017-08-11 05:48:32
Local clock offset: 0.345 ms
Remote clock offset: -1.601 ms


# Below is generated by plot.py at 2017-08-11 15:28:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.14 Mbit/s
95th percentile per-packet one-way delay: 1.191 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 24.91 Mbit/s
95th percentile per-packet one-way delay: 1.197 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.25 Mbit/s
95th percentile per-packet one-way delay: 1.175 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 24.70 Mbit/s
95th percentile per-packet one-way delay: 1.207 ms
Loss rate: 0.42%
```
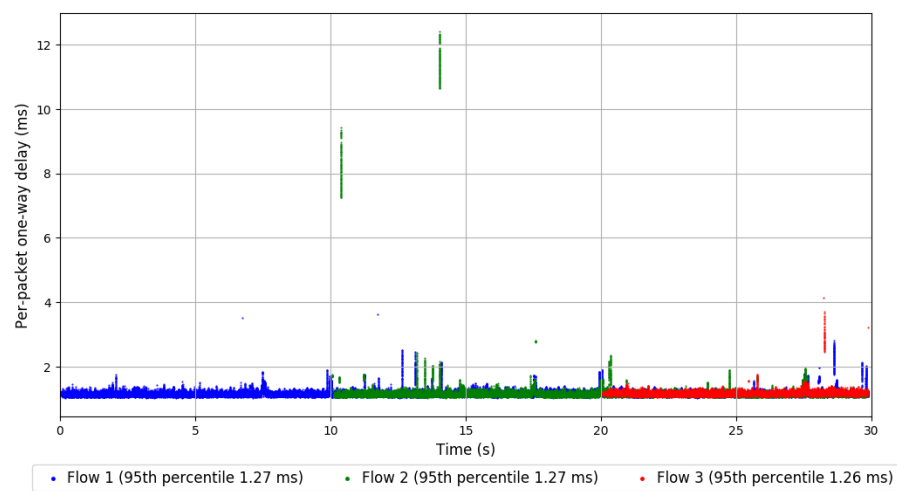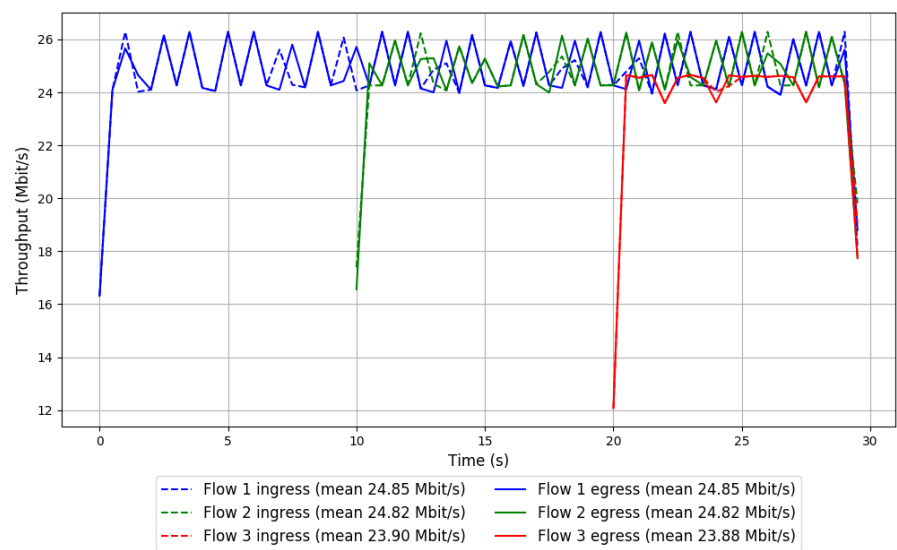
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2017-08-11 06:10:21
End at: 2017-08-11 06:10:51
Local clock offset: 0.322 ms
Remote clock offset: -1.155 ms


# Below is generated by plot.py at 2017-08-11 15:28:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.39 Mbit/s
95th percentile per-packet one-way delay: 1.141 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 24.88 Mbit/s
95th percentile per-packet one-way delay: 1.130 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 24.81 Mbit/s
95th percentile per-packet one-way delay: 1.147 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.44 Mbit/s
95th percentile per-packet one-way delay: 1.166 ms
Loss rate: 0.42%
```

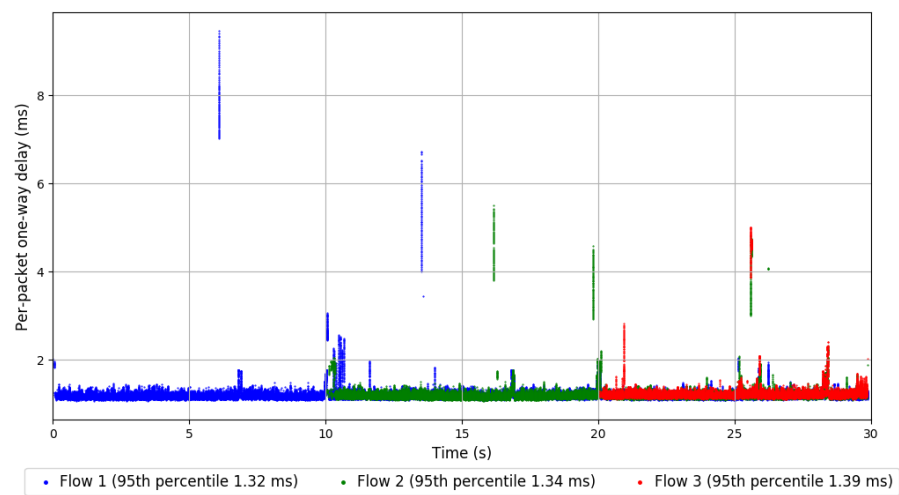# Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2017-08-11 06:32:53
End at: 2017-08-11 06:33:23
Local clock offset: 0.377 ms
Remote clock offset: -1.042 ms


# Below is generated by plot.py at 2017-08-11 15:29:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.96 Mbit/s
95th percentile per-packet one-way delay: 1.322 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 24.90 Mbit/s
95th percentile per-packet one-way delay: 1.297 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 24.21 Mbit/s
95th percentile per-packet one-way delay: 1.362 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 24.22 Mbit/s
95th percentile per-packet one-way delay: 1.316 ms
Loss rate: 0.35%
```
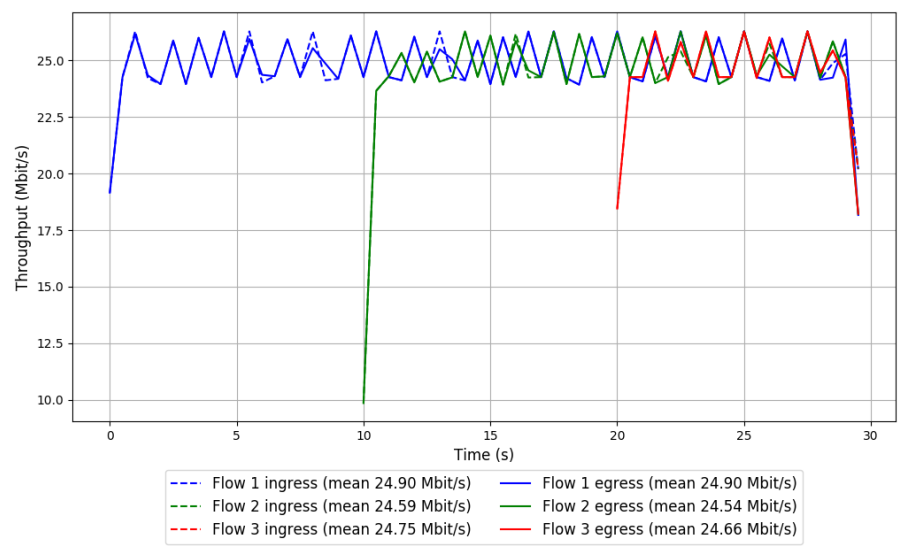
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2017-08-11 06:55:13
End at: 2017-08-11 06:55:43
Local clock offset: 0.37 ms
Remote clock offset: -0.647 ms


# Below is generated by plot.py at 2017-08-11 15:29:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.16 Mbit/s
95th percentile per-packet one-way delay: 1.270 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 24.85 Mbit/s
95th percentile per-packet one-way delay: 1.274 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.82 Mbit/s
95th percentile per-packet one-way delay: 1.267 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 23.88 Mbit/s
95th percentile per-packet one-way delay: 1.264 ms
Loss rate: 0.28%
```
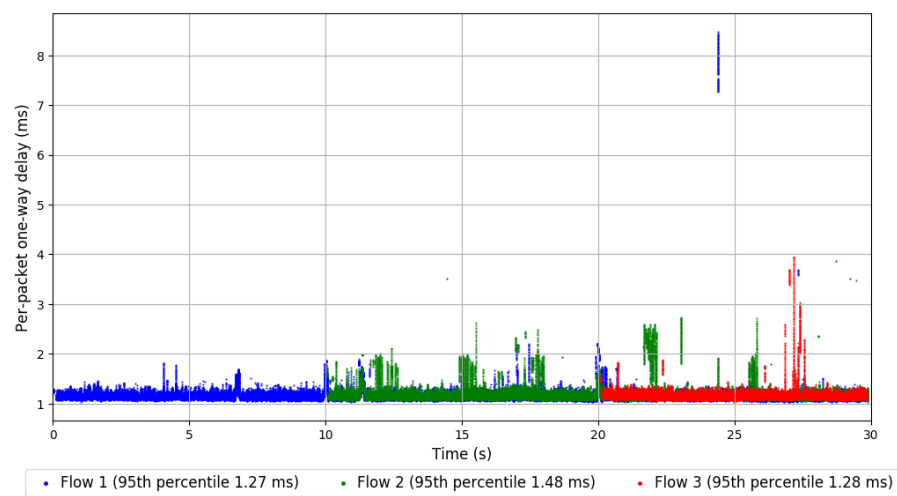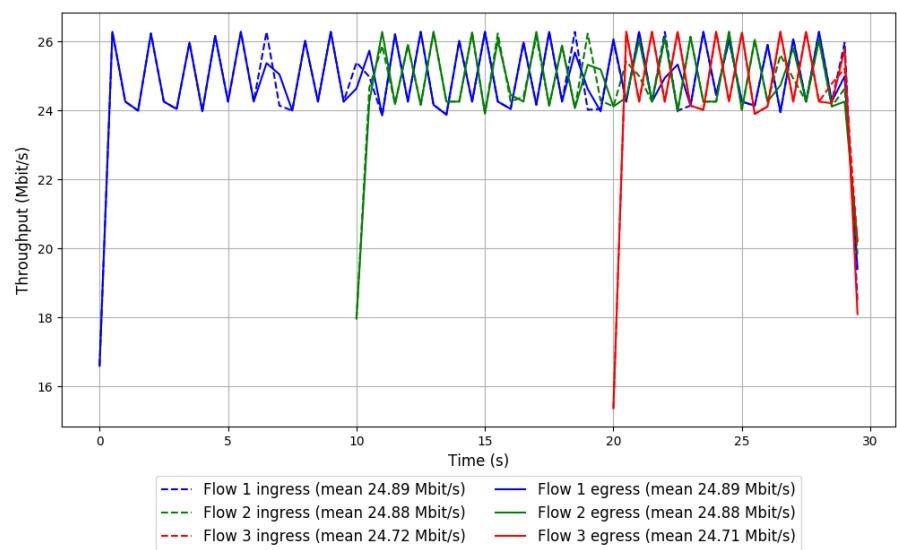
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2017-08-11 07:17:24
End at: 2017-08-11 07:17:54
Local clock offset: 0.446 ms
Remote clock offset: -0.425 ms


# Below is generated by plot.py at 2017-08-11 15:29:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.32 Mbit/s
95th percentile per-packet one-way delay: 1.335 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 24.90 Mbit/s
95th percentile per-packet one-way delay: 1.317 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 24.54 Mbit/s
95th percentile per-packet one-way delay: 1.339 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 24.66 Mbit/s
95th percentile per-packet one-way delay: 1.387 ms
Loss rate: 0.41%
```
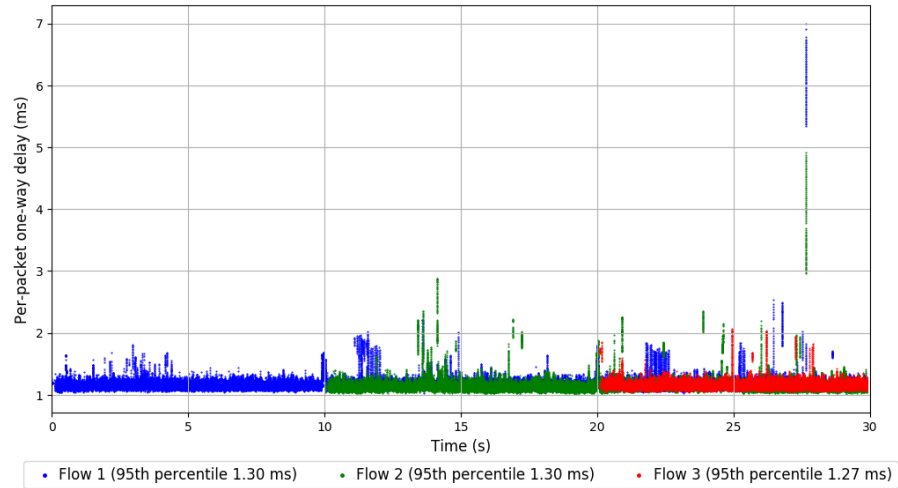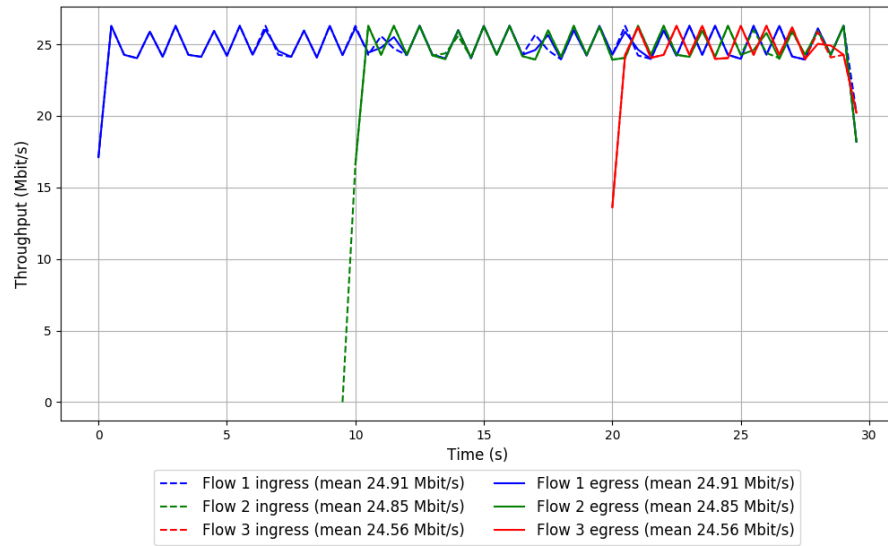
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 24.90 Mbit/s)   Flow 1 egress (mean 24.90 Mbit/s)
Flow 2 ingress (mean 24.59 Mbit/s)   Flow 2 egress (mean 24.54 Mbit/s)
Flow 3 ingress (mean 24.75 Mbit/s)   Flow 3 egress (mean 24.66 Mbit/s)

Flow 1 (95th percentile 1.32 ms)   Flow 2 (95th percentile 1.34 ms)   Flow 3 (95th percentile 1.39 ms)

```
Run 6: Statistics of Sprout

Start at: 2017-08-11 07:39:44
End at: 2017-08-11 07:40:14
Local clock offset: 0.405 ms
Remote clock offset: -0.09 ms

# Below is generated by plot.py at 2017-08-11 15:29:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.54 Mbit/s
95th percentile per-packet one-way delay: 1.308 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 24.89 Mbit/s
95th percentile per-packet one-way delay: 1.275 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.88 Mbit/s
95th percentile per-packet one-way delay: 1.478 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.71 Mbit/s
95th percentile per-packet one-way delay: 1.284 ms
Loss rate: 0.42%
```
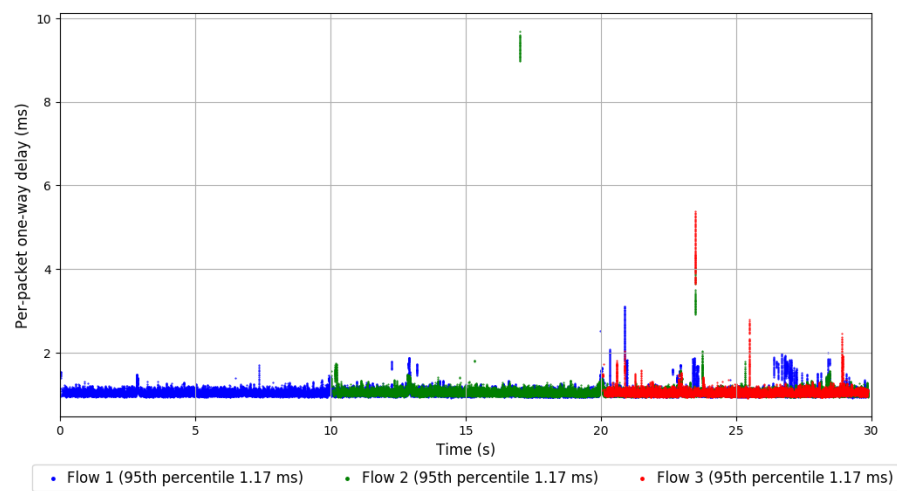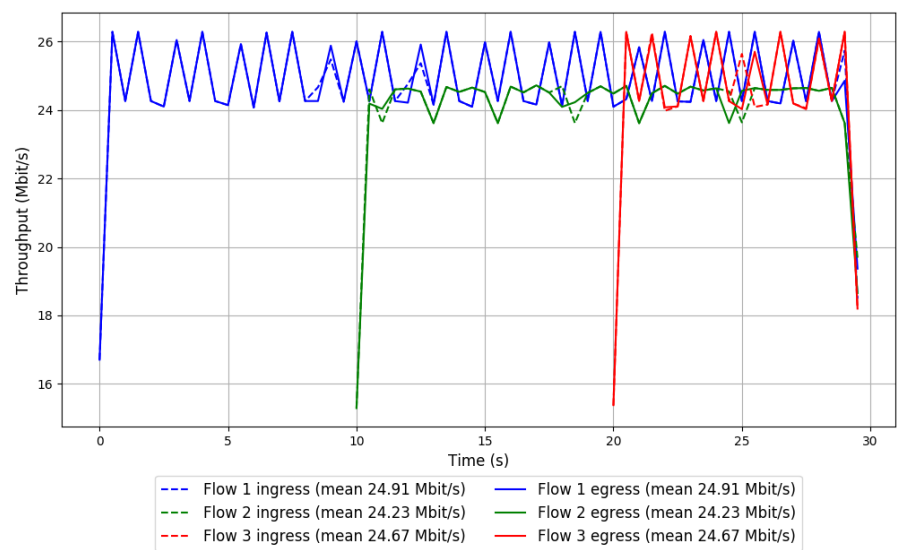
Run 6: Report of Sprout — Data Link

```
Run 7: Statistics of Sprout

Start at: 2017-08-11 08:01:58
End at: 2017-08-11 08:02:28
Local clock offset: 0.386 ms
Remote clock offset: -0.061 ms


# Below is generated by plot.py at 2017-08-11 15:29:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.51 Mbit/s
95th percentile per-packet one-way delay: 1.291 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 24.91 Mbit/s
95th percentile per-packet one-way delay: 1.296 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 24.85 Mbit/s
95th percentile per-packet one-way delay: 1.298 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.56 Mbit/s
95th percentile per-packet one-way delay: 1.267 ms
Loss rate: 0.00%
```
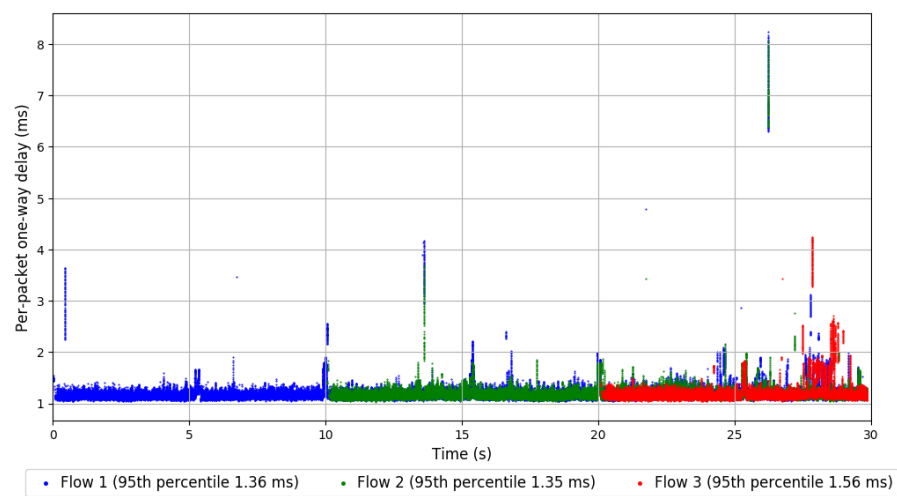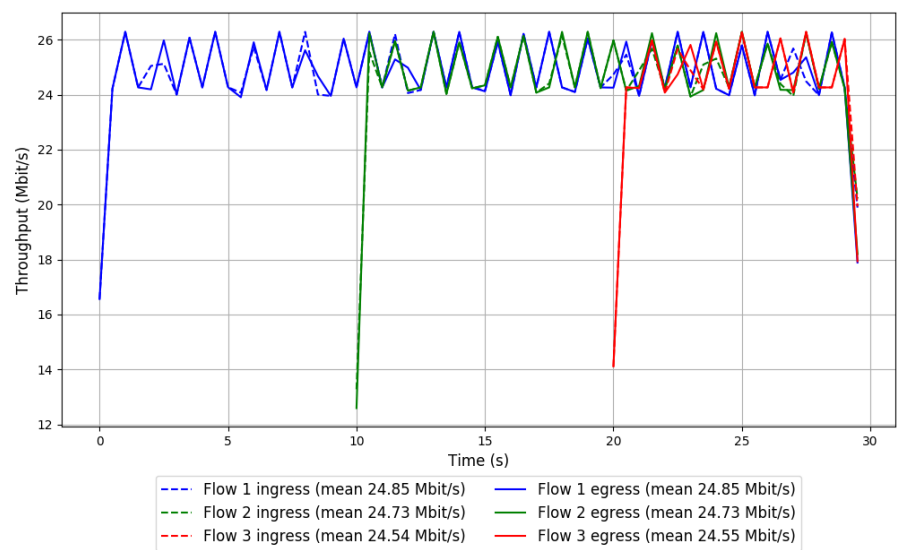
Run 7: Report of Sprout — Data Link

217

```
Run 8: Statistics of Sprout

Start at: 2017-08-11 08:24:23
End at: 2017-08-11 08:24:53
Local clock offset: 0.216 ms
Remote clock offset: -0.141 ms


# Below is generated by plot.py at 2017-08-11 15:29:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.12 Mbit/s
95th percentile per-packet one-way delay: 1.171 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 24.91 Mbit/s
95th percentile per-packet one-way delay: 1.172 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.23 Mbit/s
95th percentile per-packet one-way delay: 1.170 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 24.67 Mbit/s
95th percentile per-packet one-way delay: 1.170 ms
Loss rate: 0.00%
```
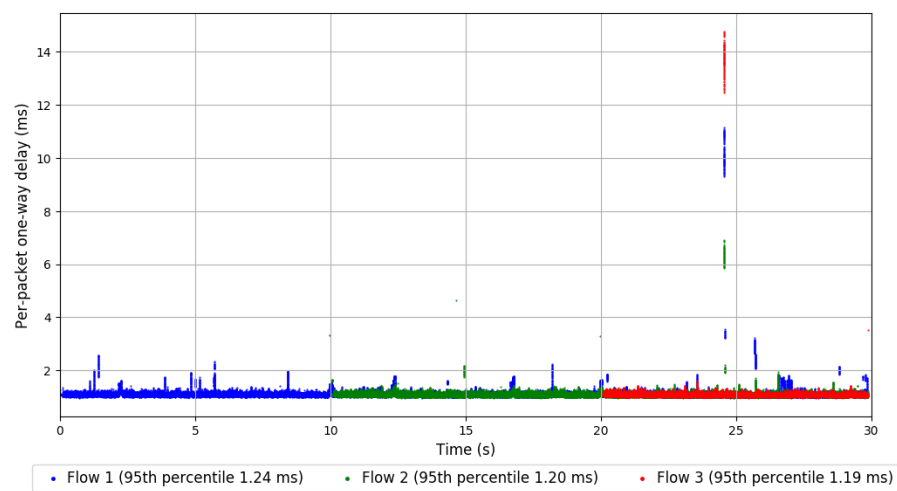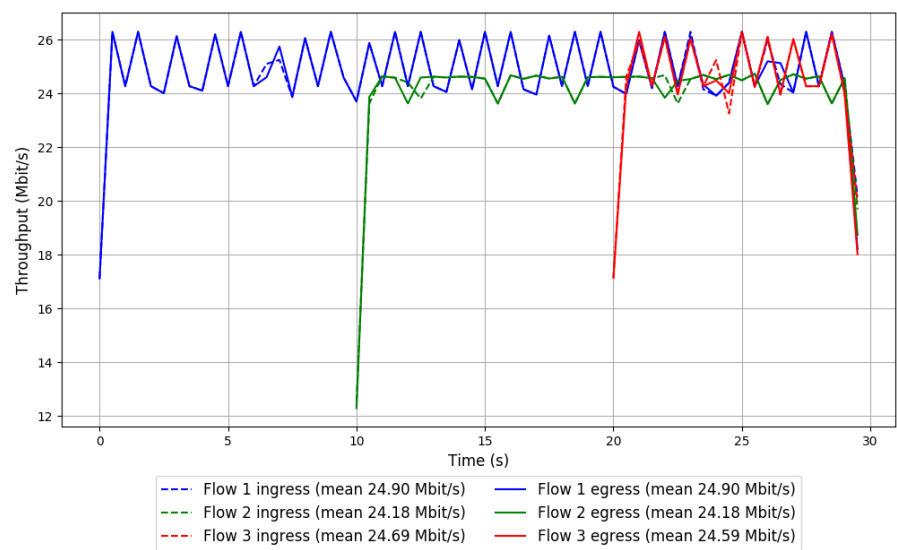
Run 8: Report of Sprout — Data Link

```
Run 9: Statistics of Sprout

Start at: 2017-08-11 08:46:33
End at: 2017-08-11 08:47:03
Local clock offset: 0.338 ms
Remote clock offset: -0.356 ms


# Below is generated by plot.py at 2017-08-11 15:29:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.35 Mbit/s
95th percentile per-packet one-way delay: 1.367 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 24.85 Mbit/s
95th percentile per-packet one-way delay: 1.358 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 24.73 Mbit/s
95th percentile per-packet one-way delay: 1.351 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 24.55 Mbit/s
95th percentile per-packet one-way delay: 1.557 ms
Loss rate: 0.41%
```
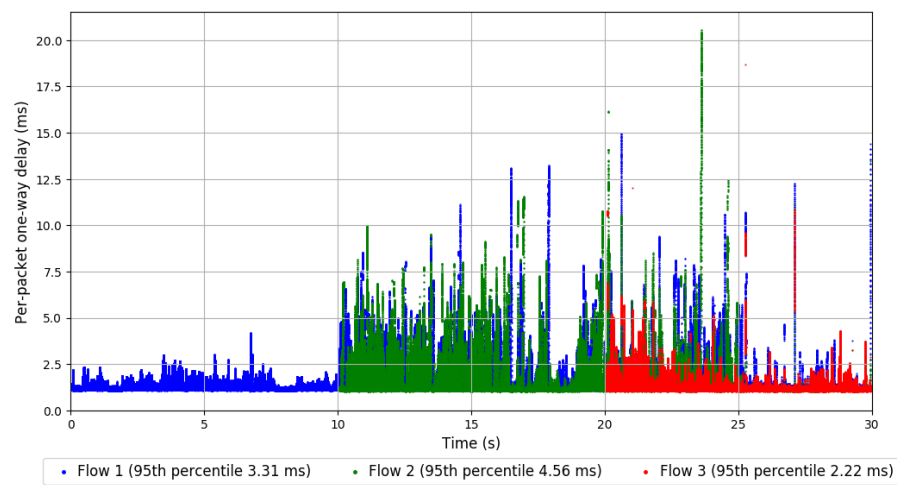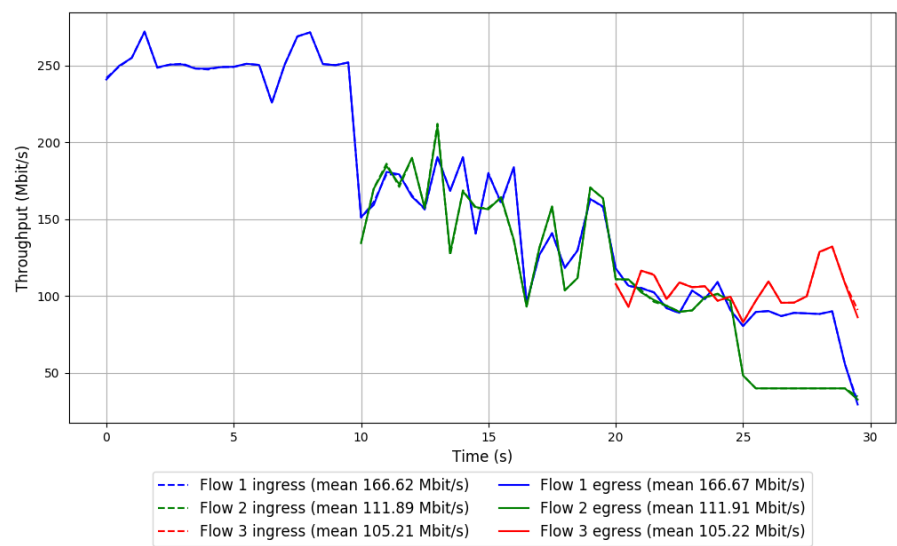
Run 9: Report of Sprout — Data Link

```
Run 10: Statistics of Sprout

Start at: 2017-08-11 09:08:57
End at: 2017-08-11 09:09:27
Local clock offset: 0.276 ms
Remote clock offset: -0.395 ms

# Below is generated by plot.py at 2017-08-11 15:29:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.04 Mbit/s
95th percentile per-packet one-way delay: 1.216 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 24.90 Mbit/s
95th percentile per-packet one-way delay: 1.237 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 24.18 Mbit/s
95th percentile per-packet one-way delay: 1.200 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 24.59 Mbit/s
95th percentile per-packet one-way delay: 1.190 ms
Loss rate: 0.40%
```
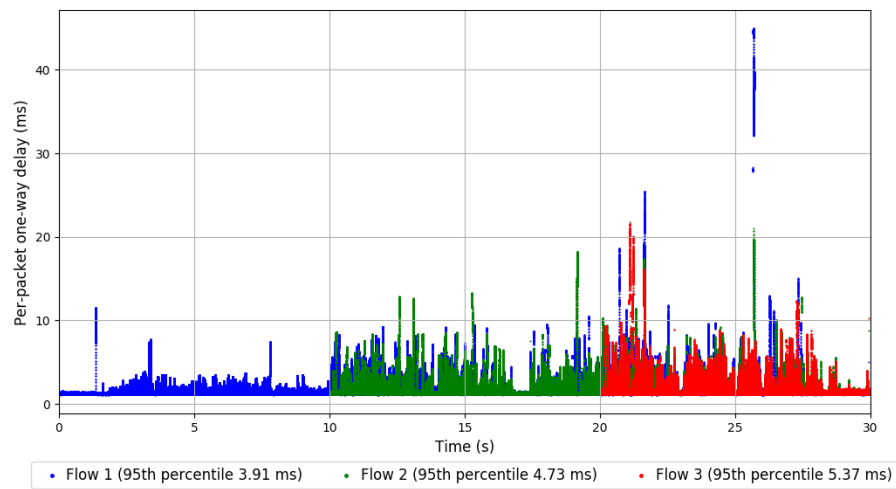
Run 10: Report of Sprout — Data Link

Flow 1 ingress (mean 24.90 Mbit/s) --- Flow 1 egress (mean 24.90 Mbit/s)
Flow 2 ingress (mean 24.18 Mbit/s) --- Flow 2 egress (mean 24.18 Mbit/s)
Flow 3 ingress (mean 24.69 Mbit/s) --- Flow 3 egress (mean 24.59 Mbit/s)

• Flow 1 (95th percentile 1.24 ms)   • Flow 2 (95th percentile 1.20 ms)   • Flow 3 (95th percentile 1.19 ms)
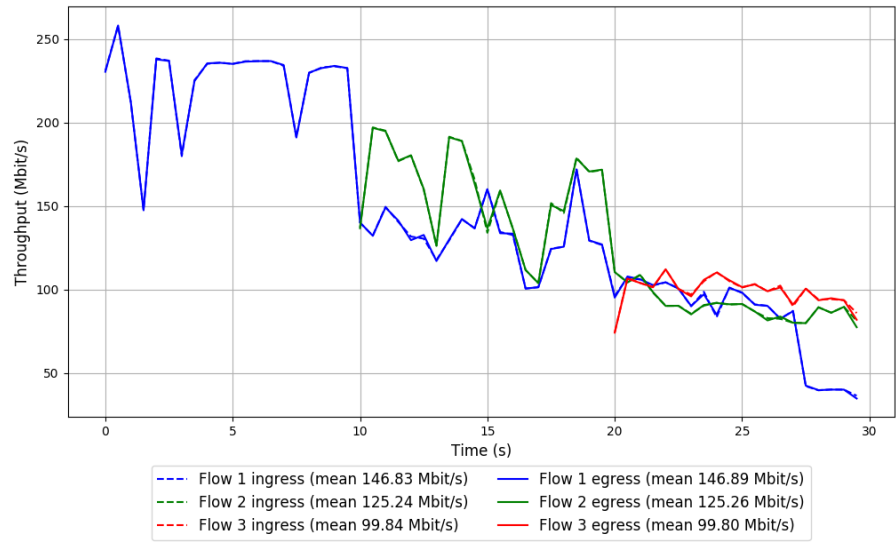
223

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

Start at: 2017-08-11 05:36:39
End at: 2017-08-11 05:37:09
Local clock offset: 0.39 ms
Remote clock offset: -1.919 ms


# Below is generated by plot.py at 2017-08-11 15:30:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 275.93 Mbit/s
95th percentile per-packet one-way delay: 3.586 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 166.67 Mbit/s
95th percentile per-packet one-way delay: 3.305 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 111.91 Mbit/s
95th percentile per-packet one-way delay: 4.564 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 105.22 Mbit/s
95th percentile per-packet one-way delay: 2.216 ms
Loss rate: 0.24%
```
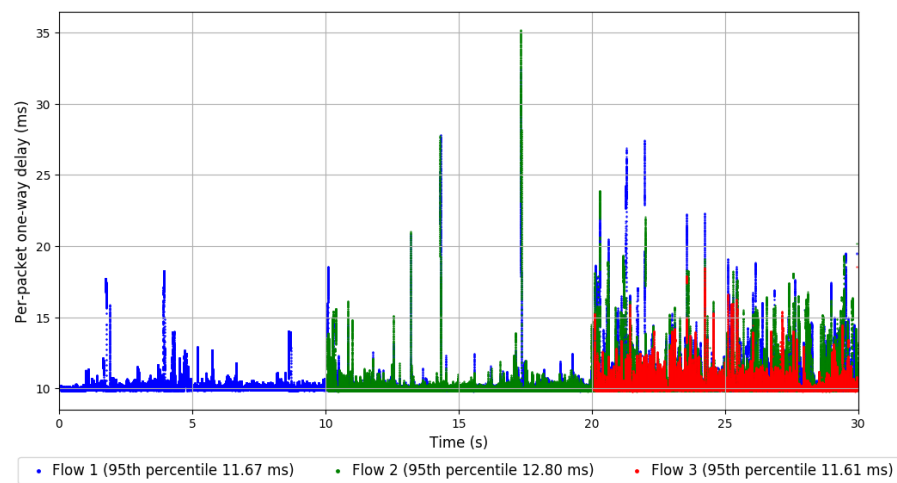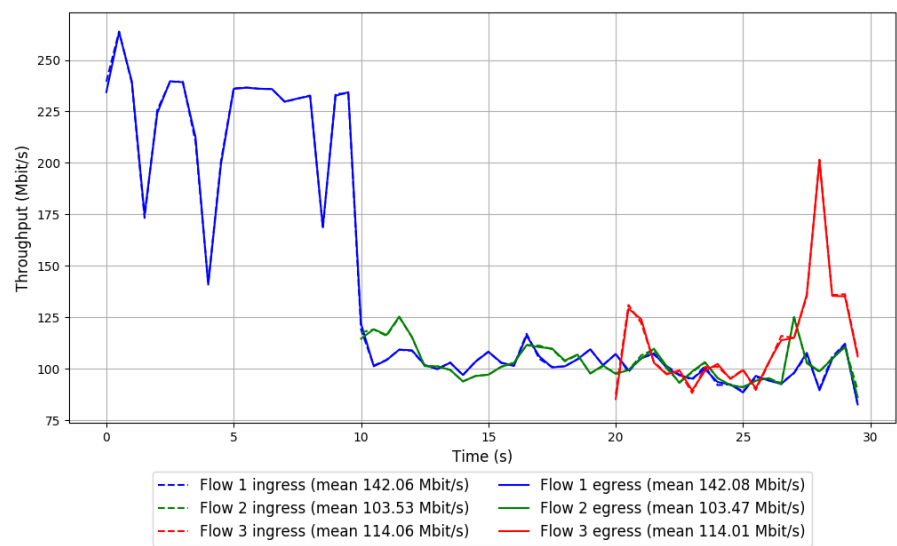
Run 1: Report of TaoVA-100x — Data Link

```
Run 2: Statistics of TaoVA-100x

Start at: 2017-08-11 05:59:08
End at: 2017-08-11 05:59:38
Local clock offset: 0.474 ms
Remote clock offset: -1.425 ms


# Below is generated by plot.py at 2017-08-11 15:30:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 263.19 Mbit/s
95th percentile per-packet one-way delay: 4.429 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 146.89 Mbit/s
95th percentile per-packet one-way delay: 3.914 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 125.26 Mbit/s
95th percentile per-packet one-way delay: 4.734 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 99.80 Mbit/s
95th percentile per-packet one-way delay: 5.374 ms
Loss rate: 0.22%
```
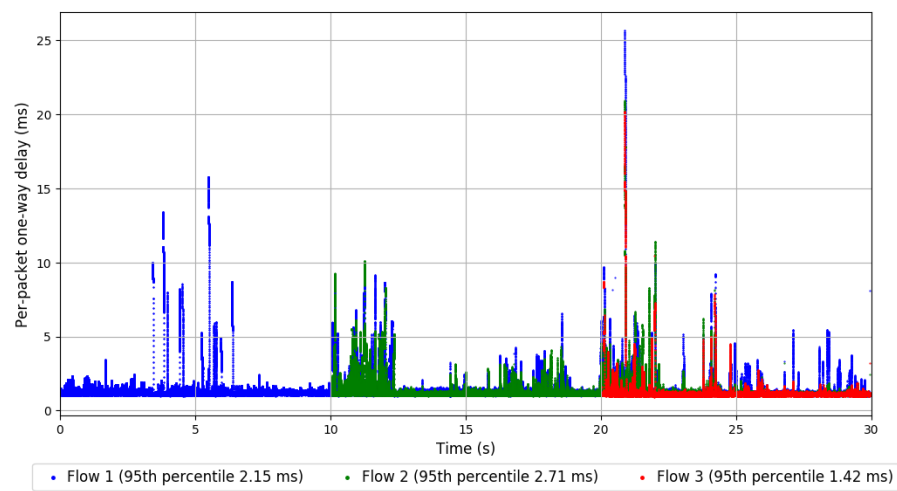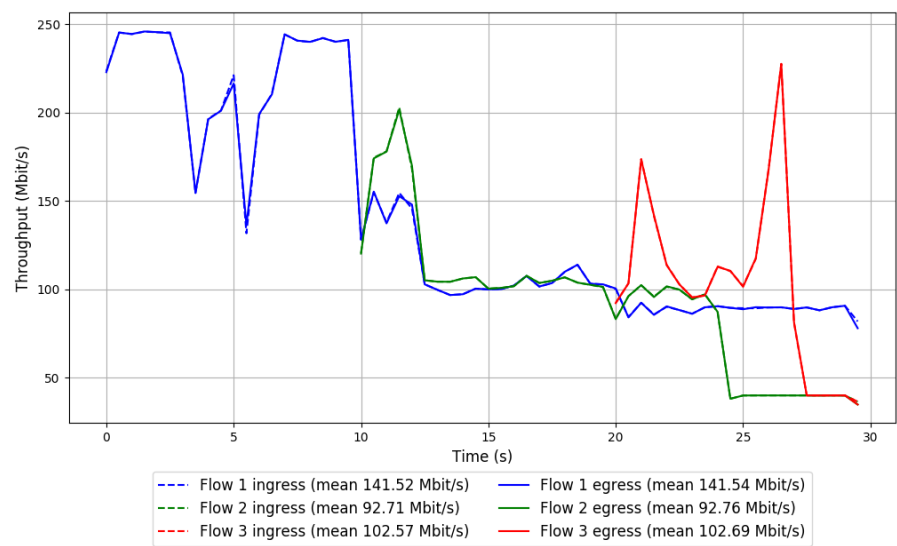
Run 2: Report of TaoVA-100x — Data Link

- - - - Flow 1 ingress (mean 146.83 Mbit/s) ——— Flow 1 egress (mean 146.89 Mbit/s)
- - - - Flow 2 ingress (mean 125.24 Mbit/s) ——— Flow 2 egress (mean 125.26 Mbit/s)
- - - - Flow 3 ingress (mean 99.84 Mbit/s) ——— Flow 3 egress (mean 99.80 Mbit/s)

• Flow 1 (95th percentile 3.91 ms)   • Flow 2 (95th percentile 4.73 ms)   • Flow 3 (95th percentile 5.37 ms)
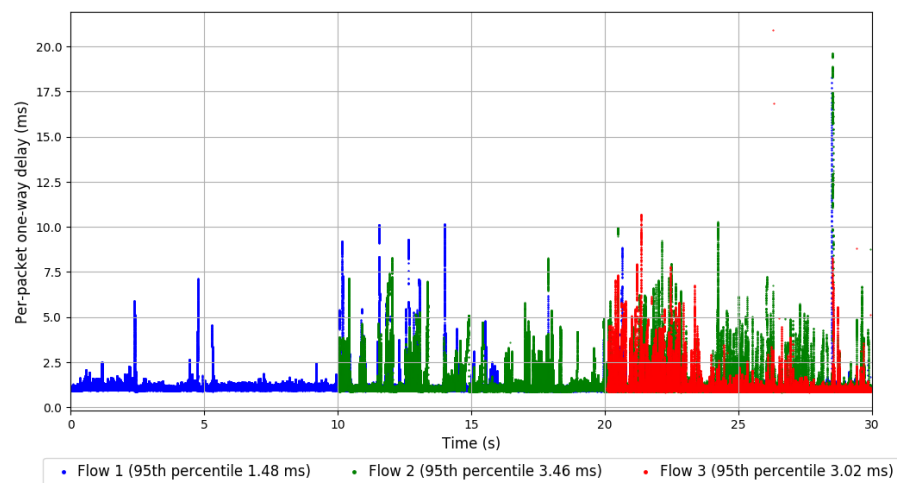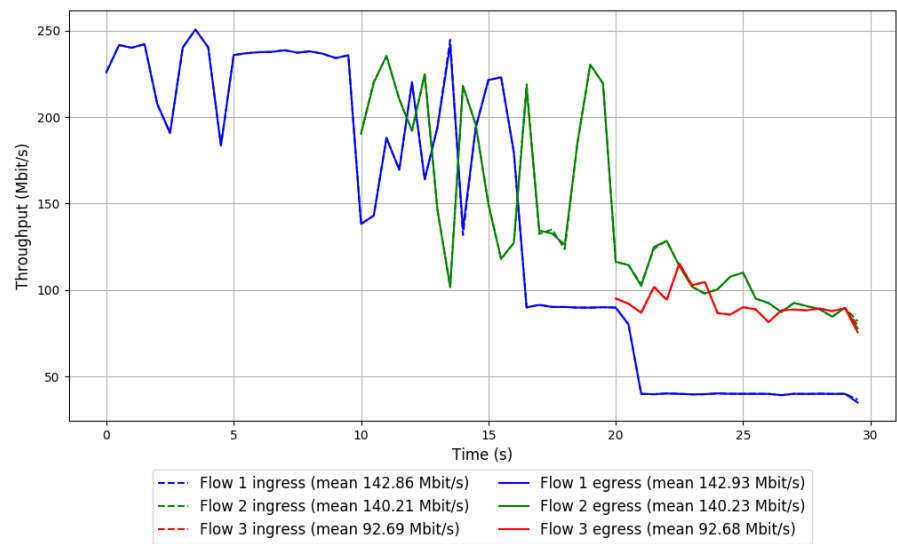
227

```
Run 3: Statistics of TaoVA-100x

Start at: 2017-08-11 06:21:37
End at: 2017-08-11 06:22:07
Local clock offset: 9.218 ms
Remote clock offset: -1.142 ms

# Below is generated by plot.py at 2017-08-11 15:31:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 248.64 Mbit/s
95th percentile per-packet one-way delay: 11.943 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 142.08 Mbit/s
95th percentile per-packet one-way delay: 11.671 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 103.47 Mbit/s
95th percentile per-packet one-way delay: 12.798 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 114.01 Mbit/s
95th percentile per-packet one-way delay: 11.613 ms
Loss rate: 0.22%
```

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

- --- Flow 1 ingress (mean 142.06 Mbit/s) — Flow 1 egress (mean 142.08 Mbit/s)
- --- Flow 2 ingress (mean 103.53 Mbit/s) — Flow 2 egress (mean 103.47 Mbit/s)
- --- Flow 3 ingress (mean 114.06 Mbit/s) — Flow 3 egress (mean 114.01 Mbit/s)

- Flow 1 (95th percentile 11.67 ms) • Flow 2 (95th percentile 12.80 ms) • Flow 3 (95th percentile 11.61 ms)

```
Run 4: Statistics of TaoVA-100x

Start at: 2017-08-11 06:43:56
End at: 2017-08-11 06:44:26
Local clock offset: 0.303 ms
Remote clock offset: -0.888 ms


# Below is generated by plot.py at 2017-08-11 15:31:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 237.18 Mbit/s
95th percentile per-packet one-way delay: 2.226 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 141.54 Mbit/s
95th percentile per-packet one-way delay: 2.153 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 92.76 Mbit/s
95th percentile per-packet one-way delay: 2.710 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 102.69 Mbit/s
95th percentile per-packet one-way delay: 1.421 ms
Loss rate: 0.08%
```
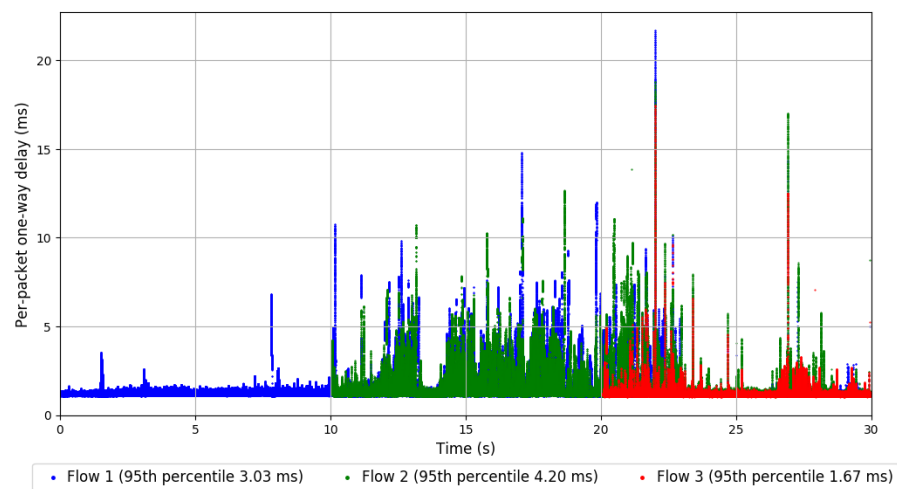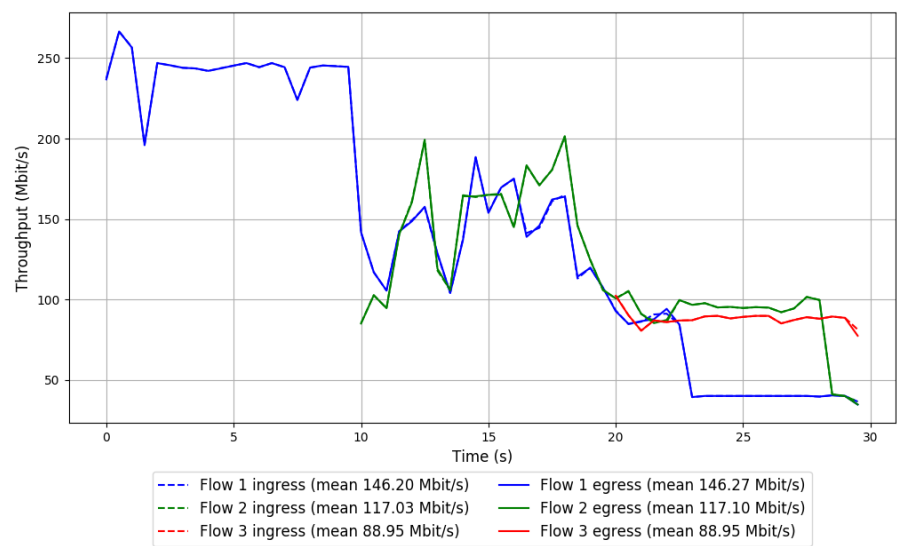
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 141.52 Mbit/s)   Flow 1 egress (mean 141.54 Mbit/s)
Flow 2 ingress (mean 92.71 Mbit/s)   Flow 2 egress (mean 92.76 Mbit/s)
Flow 3 ingress (mean 102.57 Mbit/s)   Flow 3 egress (mean 102.69 Mbit/s)

Flow 1 (95th percentile 2.15 ms)   Flow 2 (95th percentile 2.71 ms)   Flow 3 (95th percentile 1.42 ms)
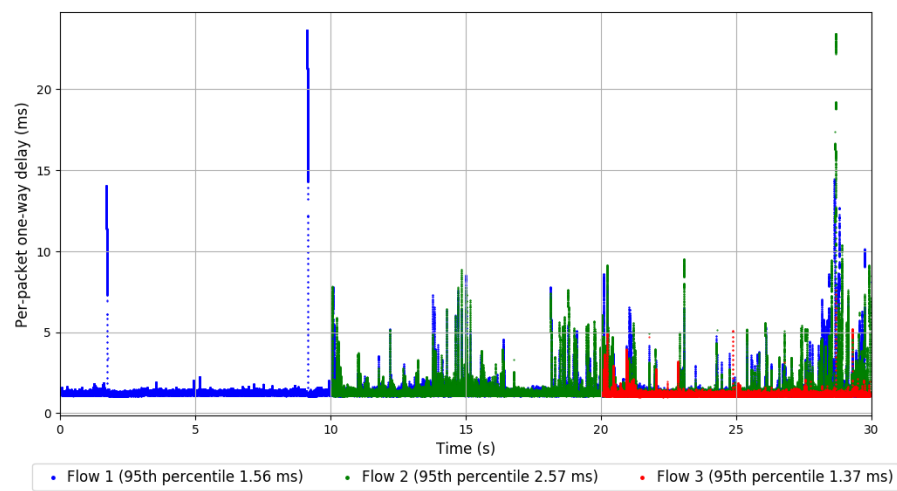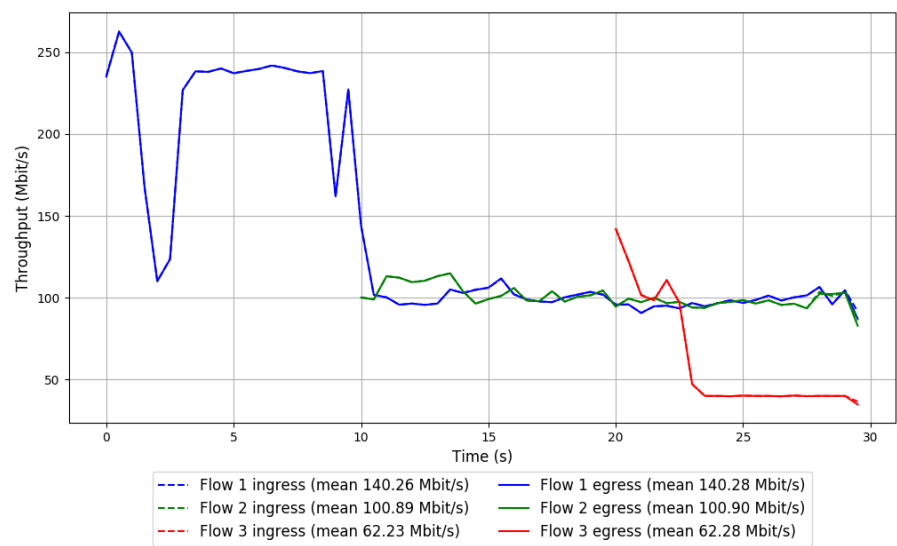
231

```
Run 5: Statistics of TaoVA-100x

Start at: 2017-08-11 07:06:14
End at: 2017-08-11 07:06:44
Local clock offset: 0.302 ms
Remote clock offset: -0.549 ms


# Below is generated by plot.py at 2017-08-11 15:32:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 266.90 Mbit/s
95th percentile per-packet one-way delay: 2.569 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 142.93 Mbit/s
95th percentile per-packet one-way delay: 1.475 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 140.23 Mbit/s
95th percentile per-packet one-way delay: 3.456 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 92.68 Mbit/s
95th percentile per-packet one-way delay: 3.020 ms
Loss rate: 0.24%
```

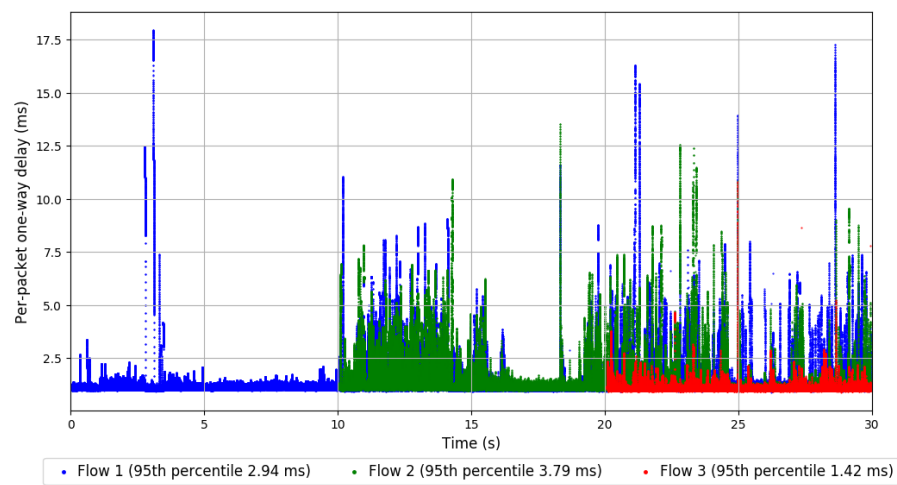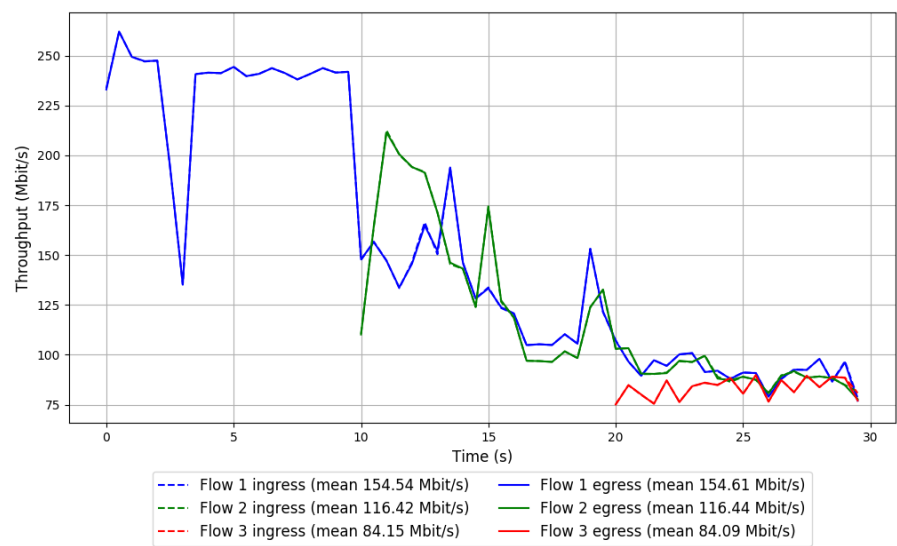# Run 5: Report of TaoVA-100x — Data Link

```
Run 6: Statistics of TaoVA-100x

Start at: 2017-08-11 07:28:30
End at: 2017-08-11 07:29:00
Local clock offset: 0.387 ms
Remote clock offset: -0.142 ms


# Below is generated by plot.py at 2017-08-11 15:32:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 253.54 Mbit/s
95th percentile per-packet one-way delay: 3.348 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 146.27 Mbit/s
95th percentile per-packet one-way delay: 3.028 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 117.10 Mbit/s
95th percentile per-packet one-way delay: 4.198 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 88.95 Mbit/s
95th percentile per-packet one-way delay: 1.669 ms
Loss rate: 0.23%
```
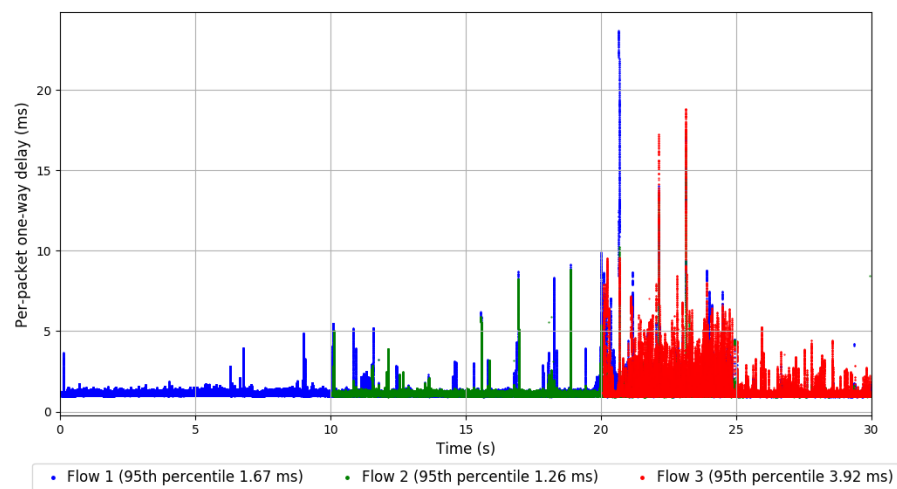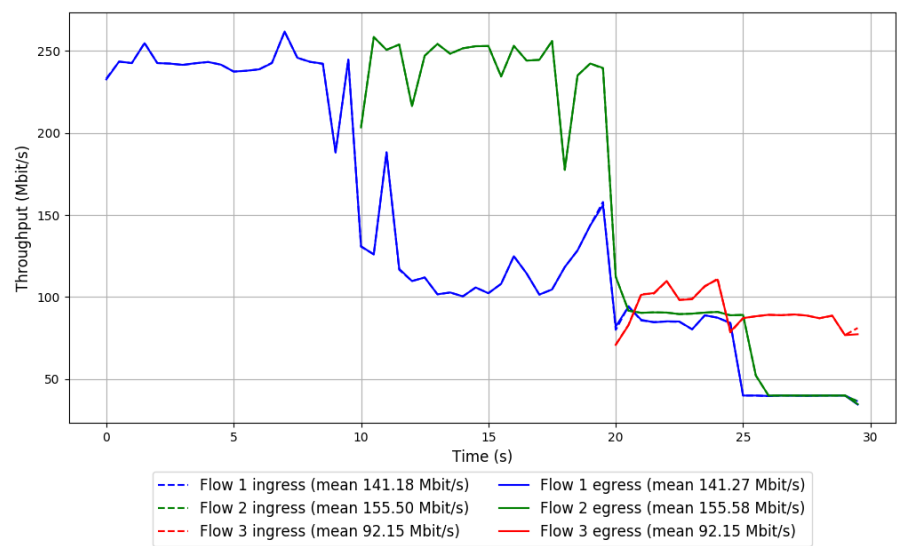
Run 6: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 146.20 Mbit/s) ---- Flow 1 egress (mean 146.27 Mbit/s) ——
Flow 2 ingress (mean 117.03 Mbit/s) ---- Flow 2 egress (mean 117.10 Mbit/s) ——
Flow 3 ingress (mean 88.95 Mbit/s) ---- Flow 3 egress (mean 88.95 Mbit/s) ——

• Flow 1 (95th percentile 3.03 ms) • Flow 2 (95th percentile 4.20 ms) • Flow 3 (95th percentile 1.67 ms)

```
Run 7: Statistics of TaoVA-100x

Start at: 2017-08-11 07:50:47
End at: 2017-08-11 07:51:17
Local clock offset: 0.398 ms
Remote clock offset: -0.149 ms

# Below is generated by plot.py at 2017-08-11 15:33:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 228.01 Mbit/s
95th percentile per-packet one-way delay: 1.831 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 140.28 Mbit/s
95th percentile per-packet one-way delay: 1.564 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 100.90 Mbit/s
95th percentile per-packet one-way delay: 2.570 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 62.28 Mbit/s
95th percentile per-packet one-way delay: 1.368 ms
Loss rate: 0.16%
```
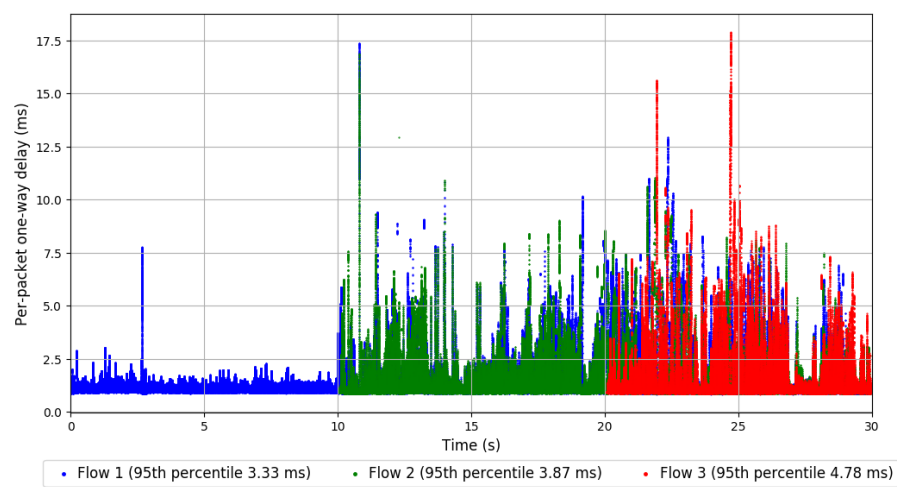
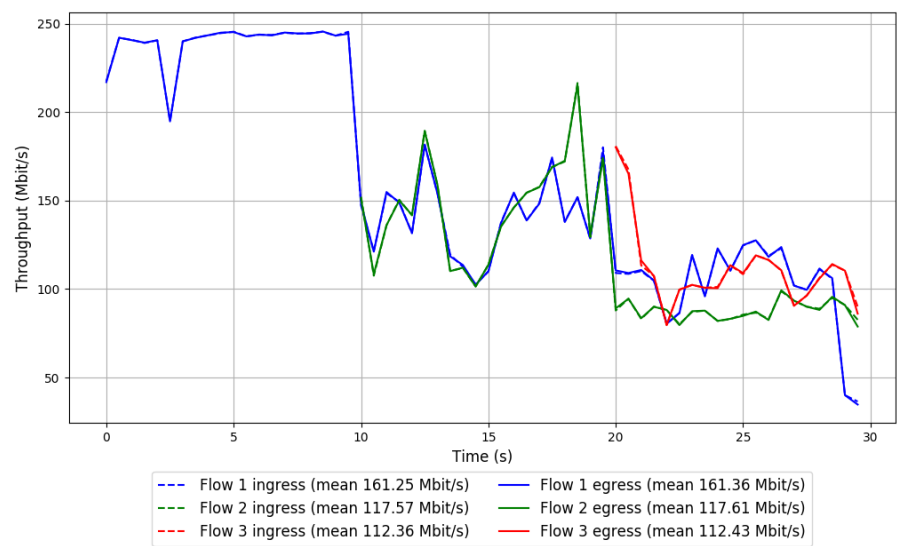Run 7: Report of TaoVA-100x — Data Link

```
Run 8: Statistics of TaoVA-100x

Start at: 2017-08-11 08:13:05
End at: 2017-08-11 08:13:35
Local clock offset: 0.355 ms
Remote clock offset: -0.034 ms


# Below is generated by plot.py at 2017-08-11 15:33:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 259.83 Mbit/s
95th percentile per-packet one-way delay: 3.101 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 154.61 Mbit/s
95th percentile per-packet one-way delay: 2.939 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 116.44 Mbit/s
95th percentile per-packet one-way delay: 3.792 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 84.09 Mbit/s
95th percentile per-packet one-way delay: 1.418 ms
Loss rate: 0.25%
```

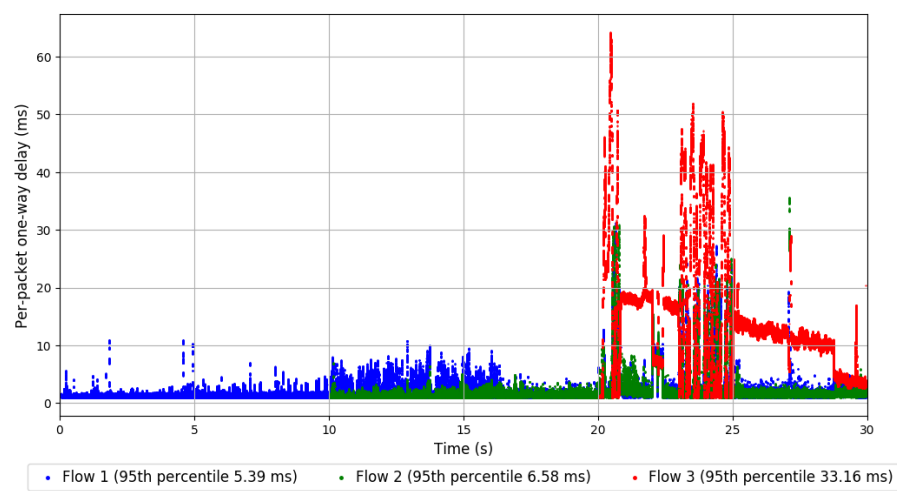Run 8: Report of TaoVA-100x — Data Link

```
Run 9: Statistics of TaoVA-100x

Start at: 2017-08-11 08:35:17
End at: 2017-08-11 08:35:47
Local clock offset: 0.242 ms
Remote clock offset: -0.366 ms


# Below is generated by plot.py at 2017-08-11 15:34:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 275.13 Mbit/s
95th percentile per-packet one-way delay: 1.818 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 141.27 Mbit/s
95th percentile per-packet one-way delay: 1.667 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 155.58 Mbit/s
95th percentile per-packet one-way delay: 1.257 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 92.15 Mbit/s
95th percentile per-packet one-way delay: 3.918 ms
Loss rate: 0.21%
```
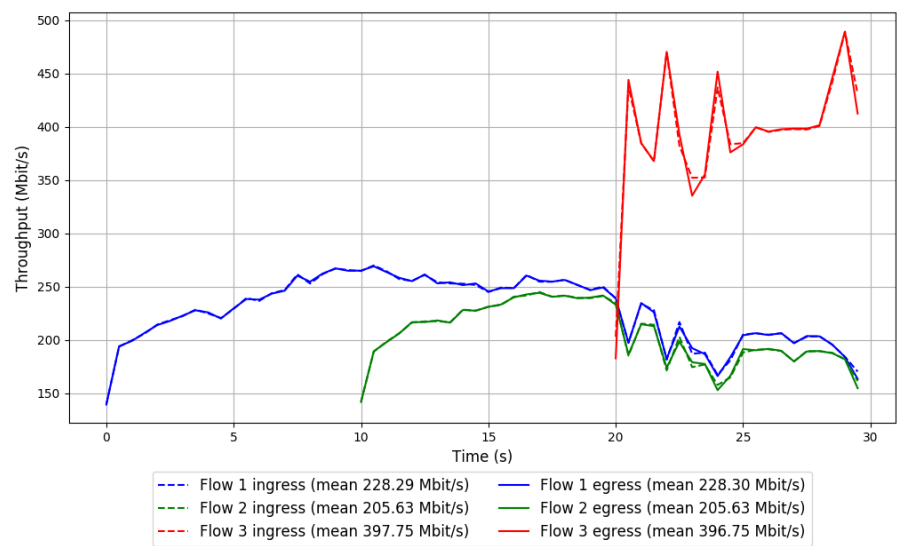
Run 9: Report of TaoVA-100x — Data Link

```
Run 10: Statistics of TaoVA-100x

Start at: 2017-08-11 08:57:46
End at: 2017-08-11 08:58:16
Local clock offset: 0.239 ms
Remote clock offset: -0.252 ms

# Below is generated by plot.py at 2017-08-11 15:34:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 276.72 Mbit/s
95th percentile per-packet one-way delay: 3.721 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 161.36 Mbit/s
95th percentile per-packet one-way delay: 3.327 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 117.61 Mbit/s
95th percentile per-packet one-way delay: 3.873 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 112.43 Mbit/s
95th percentile per-packet one-way delay: 4.782 ms
Loss rate: 0.19%
```

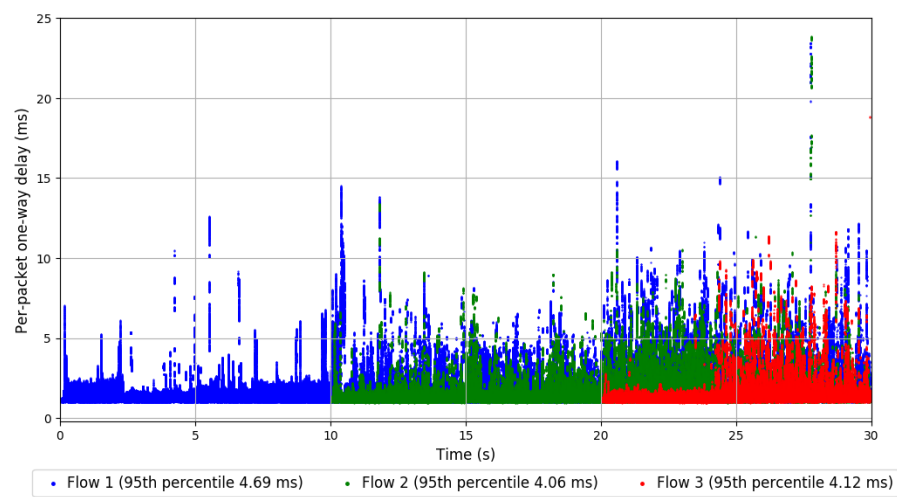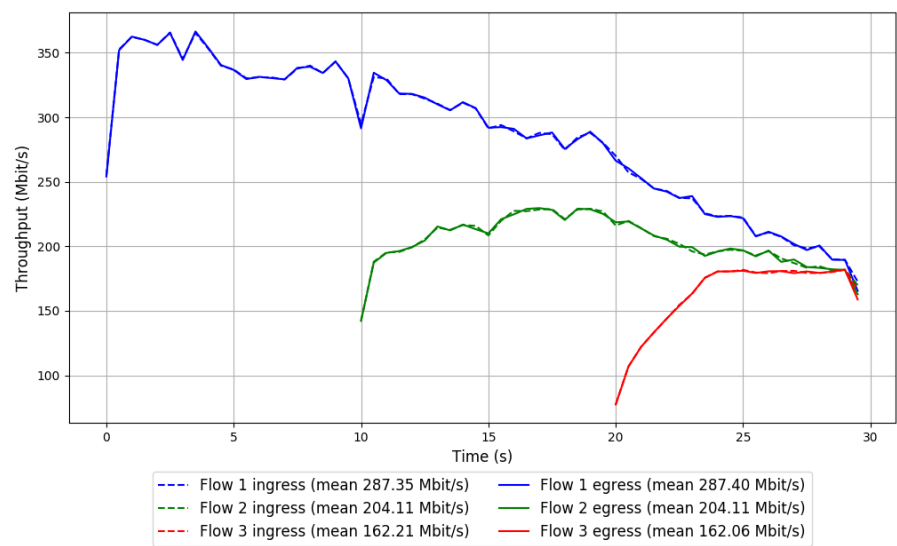Run 10: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2017-08-11 05:35:04
End at: 2017-08-11 05:35:34
Local clock offset: 0.306 ms
Remote clock offset: -1.932 ms


# Below is generated by plot.py at 2017-08-11 15:35:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 496.62 Mbit/s
95th percentile per-packet one-way delay: 18.043 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 228.30 Mbit/s
95th percentile per-packet one-way delay: 5.386 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 205.63 Mbit/s
95th percentile per-packet one-way delay: 6.584 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 396.75 Mbit/s
95th percentile per-packet one-way delay: 33.165 ms
Loss rate: 0.28%
```
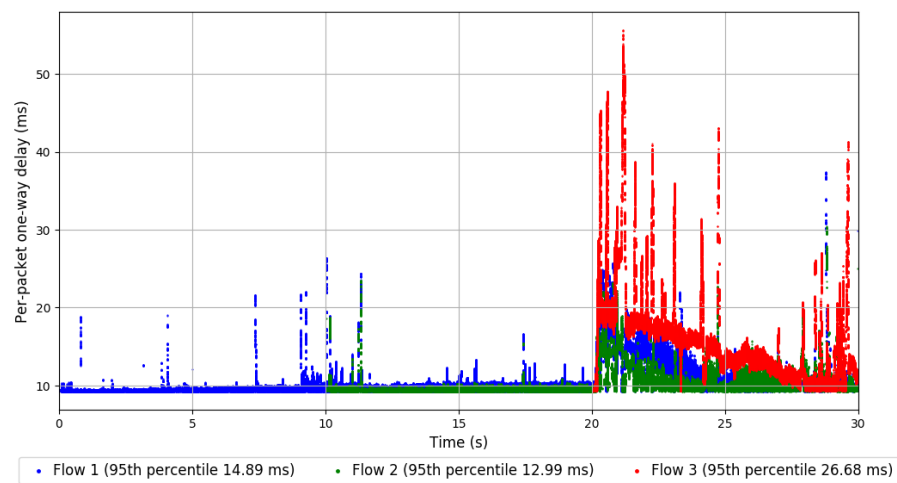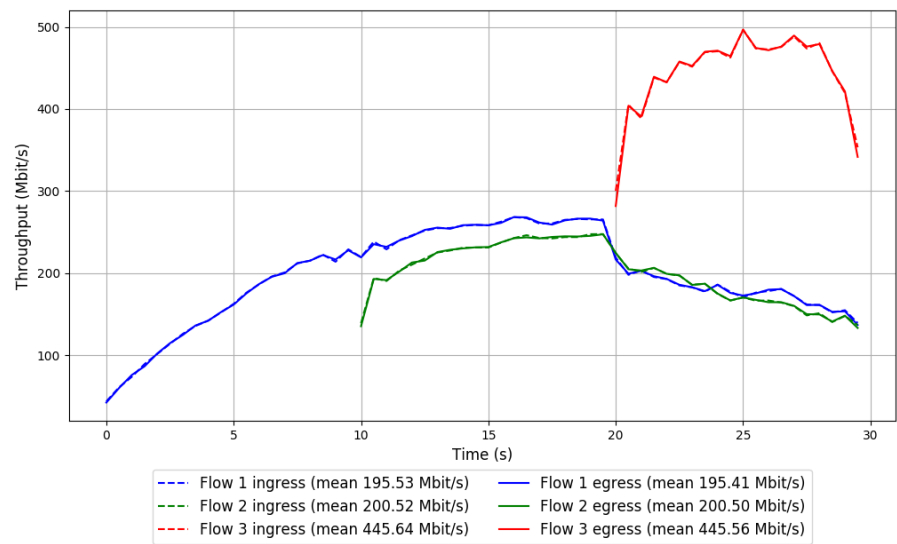
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2017-08-11 05:57:34
End at: 2017-08-11 05:58:04
Local clock offset: 0.347 ms
Remote clock offset: -1.476 ms


# Below is generated by plot.py at 2017-08-11 15:35:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 476.80 Mbit/s
95th percentile per-packet one-way delay: 4.439 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 287.40 Mbit/s
95th percentile per-packet one-way delay: 4.688 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 204.11 Mbit/s
95th percentile per-packet one-way delay: 4.060 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 162.06 Mbit/s
95th percentile per-packet one-way delay: 4.115 ms
Loss rate: 0.25%
```
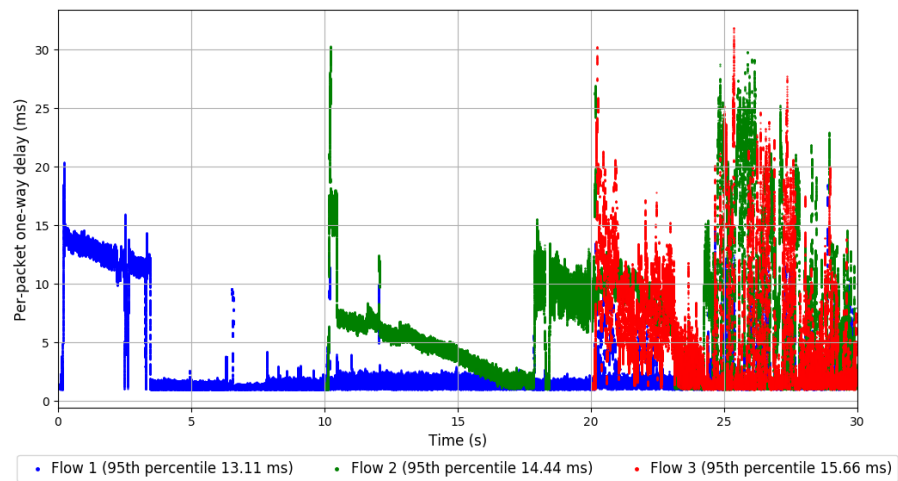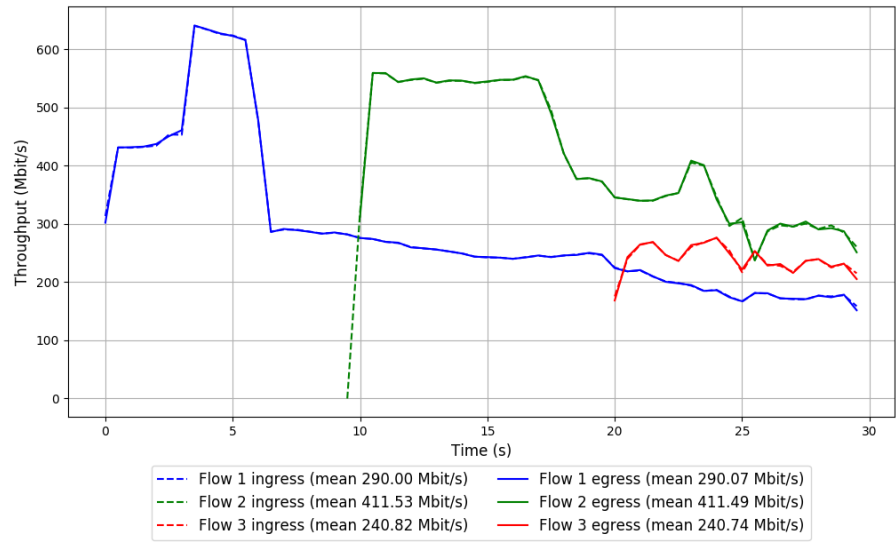
Run 2: Report of TCP Vegas — Data Link

- - - Flow 1 ingress (mean 287.35 Mbit/s) ——— Flow 1 egress (mean 287.40 Mbit/s)
- - - Flow 2 ingress (mean 204.11 Mbit/s) ——— Flow 2 egress (mean 204.11 Mbit/s)
- - - Flow 3 ingress (mean 162.21 Mbit/s) ——— Flow 3 egress (mean 162.06 Mbit/s)

• Flow 1 (95th percentile 4.69 ms)   • Flow 2 (95th percentile 4.06 ms)   • Flow 3 (95th percentile 4.12 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2017-08-11 06:20:02
End at: 2017-08-11 06:20:32
Local clock offset: 8.515 ms
Remote clock offset: -1.268 ms


# Below is generated by plot.py at 2017-08-11 15:36:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 476.31 Mbit/s
95th percentile per-packet one-way delay: 18.686 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 195.41 Mbit/s
95th percentile per-packet one-way delay: 14.890 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 200.50 Mbit/s
95th percentile per-packet one-way delay: 12.988 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 445.56 Mbit/s
95th percentile per-packet one-way delay: 26.685 ms
Loss rate: 0.22%
```
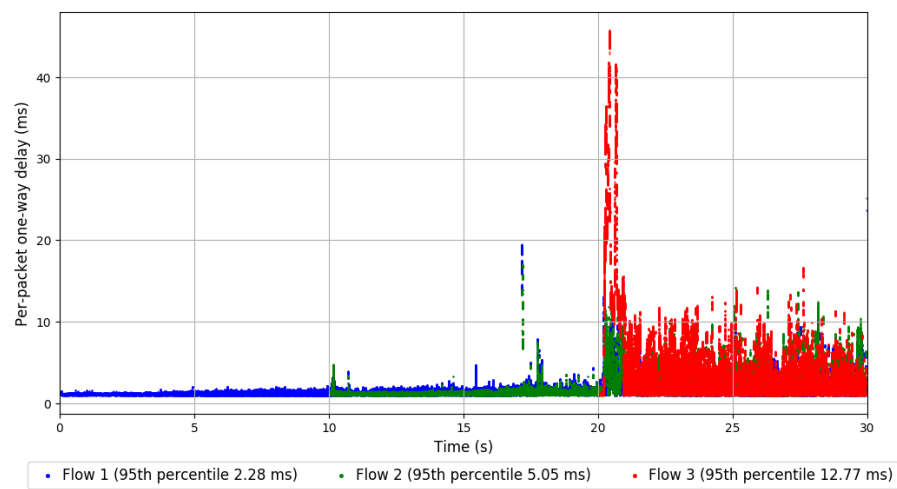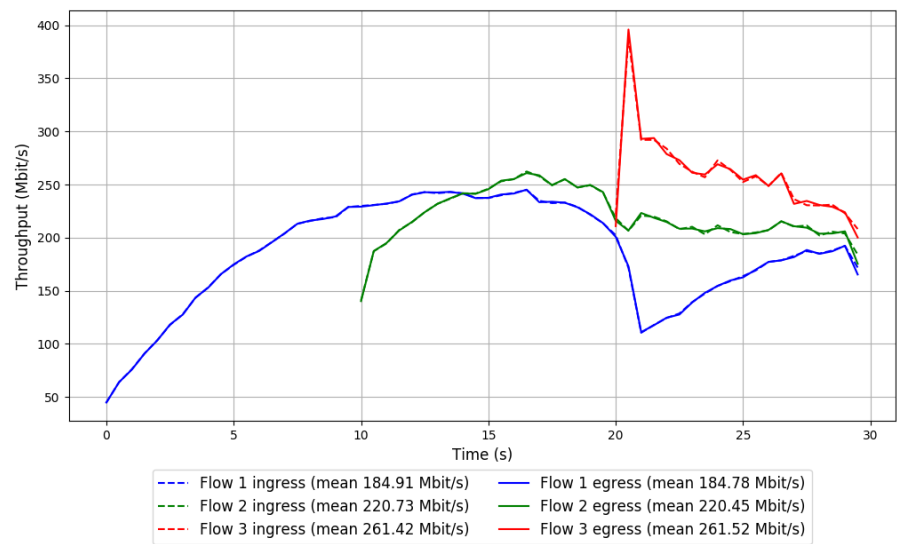
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 195.53 Mbit/s) --- Flow 1 egress (mean 195.41 Mbit/s)
Flow 2 ingress (mean 200.52 Mbit/s) --- Flow 2 egress (mean 200.50 Mbit/s)
Flow 3 ingress (mean 445.64 Mbit/s) --- Flow 3 egress (mean 445.56 Mbit/s)

Flow 1 (95th percentile 14.89 ms)   Flow 2 (95th percentile 12.99 ms)   Flow 3 (95th percentile 26.68 ms)

249

```
Run 4: Statistics of TCP Vegas

Start at: 2017-08-11 06:42:14
End at: 2017-08-11 06:42:44
Local clock offset: 0.372 ms
Remote clock offset: -0.833 ms


# Below is generated by plot.py at 2017-08-11 15:37:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 643.87 Mbit/s
95th percentile per-packet one-way delay: 13.328 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 290.07 Mbit/s
95th percentile per-packet one-way delay: 13.111 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 411.49 Mbit/s
95th percentile per-packet one-way delay: 14.443 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 240.74 Mbit/s
95th percentile per-packet one-way delay: 15.659 ms
Loss rate: 0.21%
```
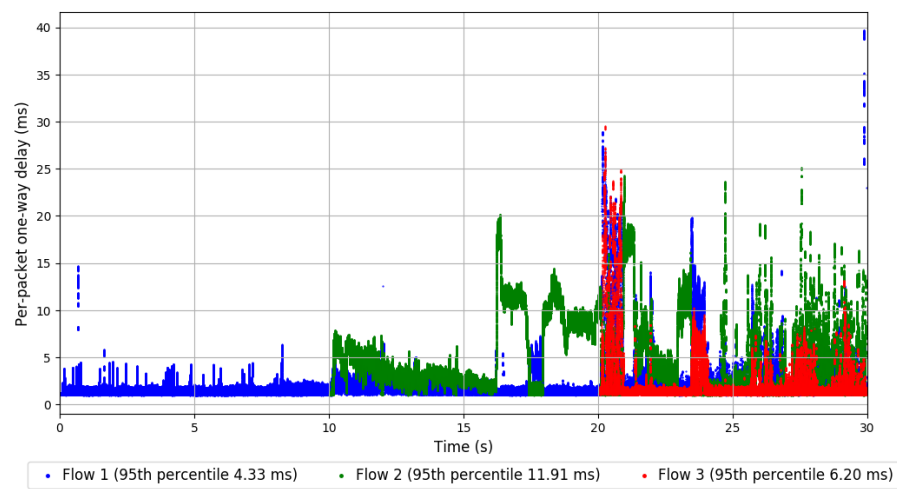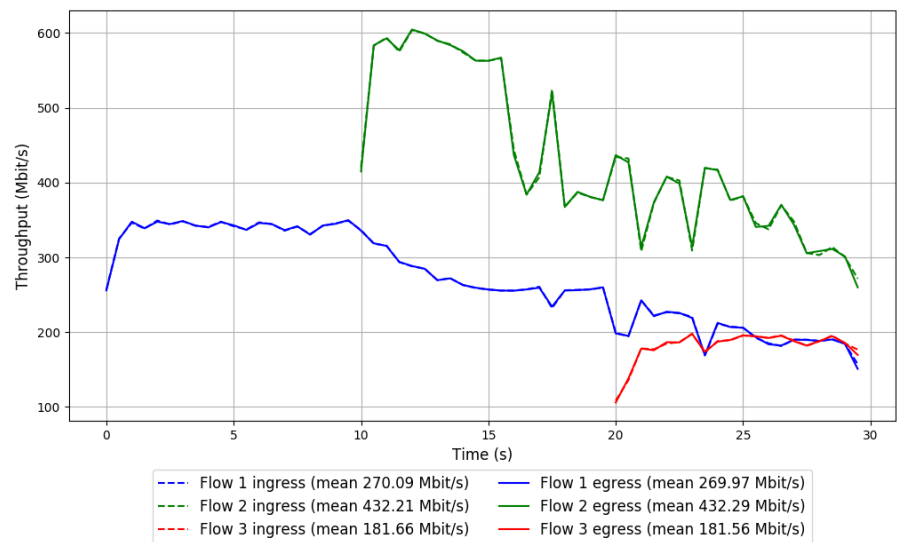
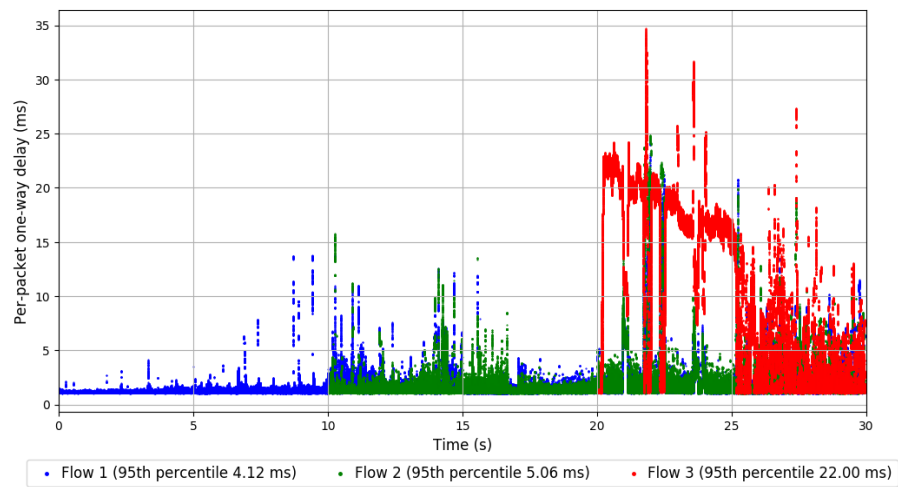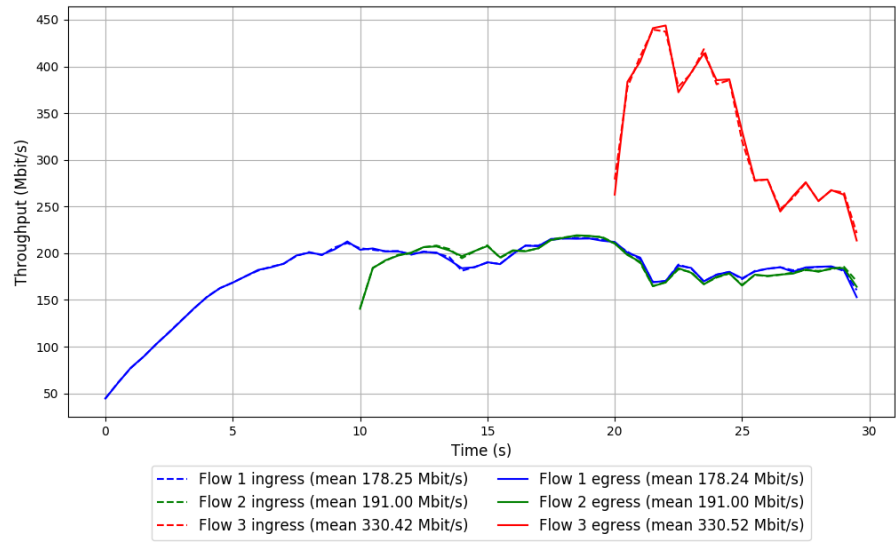Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2017-08-11 07:04:43
End at: 2017-08-11 07:05:13
Local clock offset: 0.301 ms
Remote clock offset: -0.621 ms


# Below is generated by plot.py at 2017-08-11 15:37:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 417.90 Mbit/s
95th percentile per-packet one-way delay: 6.861 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 184.78 Mbit/s
95th percentile per-packet one-way delay: 2.281 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 220.45 Mbit/s
95th percentile per-packet one-way delay: 5.050 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 261.52 Mbit/s
95th percentile per-packet one-way delay: 12.769 ms
Loss rate: 0.19%
```

Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 184.91 Mbit/s) --- Flow 1 egress (mean 184.78 Mbit/s)
Flow 2 ingress (mean 220.73 Mbit/s) --- Flow 2 egress (mean 220.45 Mbit/s)
Flow 3 ingress (mean 261.42 Mbit/s) --- Flow 3 egress (mean 261.52 Mbit/s)

Flow 1 (95th percentile 2.28 ms) • Flow 2 (95th percentile 5.05 ms) • Flow 3 (95th percentile 12.77 ms)

```
Run 6: Statistics of TCP Vegas

Start at: 2017-08-11 07:26:49
End at: 2017-08-11 07:27:19
Local clock offset: 0.308 ms
Remote clock offset: -0.178 ms


# Below is generated by plot.py at 2017-08-11 15:38:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 617.70 Mbit/s
95th percentile per-packet one-way delay: 10.875 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 269.97 Mbit/s
95th percentile per-packet one-way delay: 4.327 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 432.29 Mbit/s
95th percentile per-packet one-way delay: 11.912 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 181.56 Mbit/s
95th percentile per-packet one-way delay: 6.198 ms
Loss rate: 0.23%
```
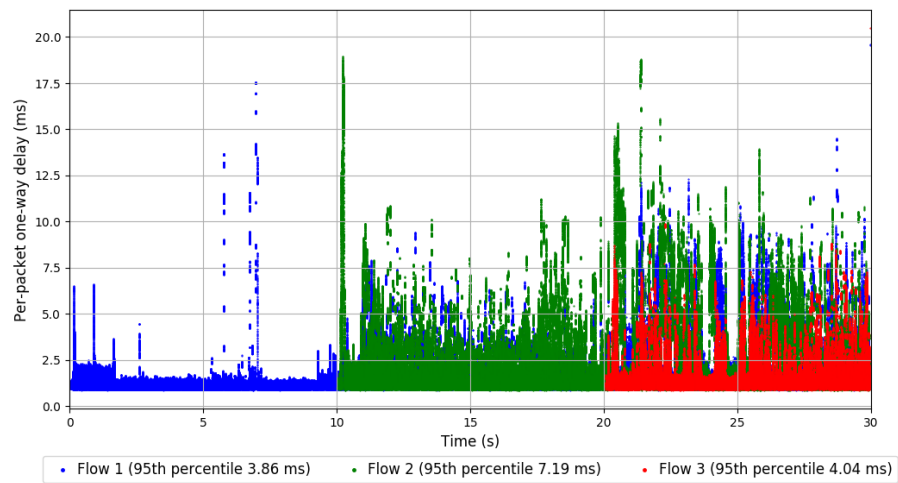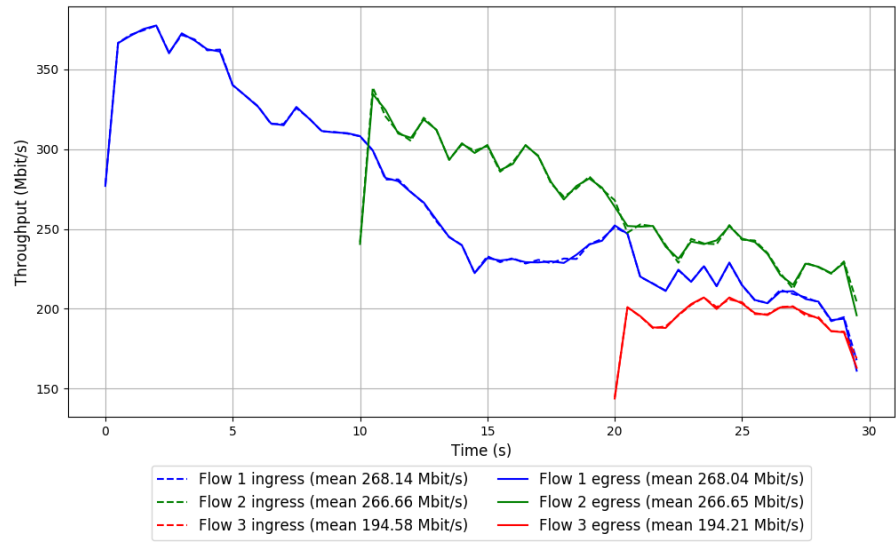
Run 6: Report of TCP Vegas — Data Link
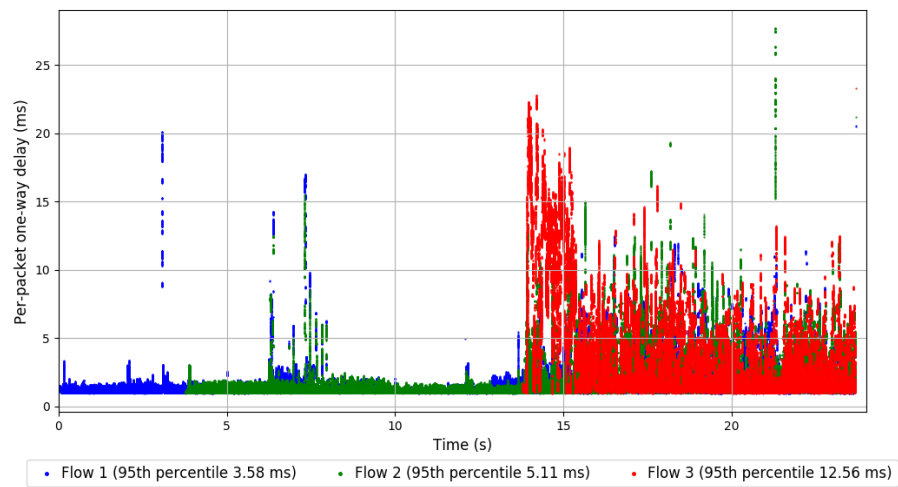
```
Run 7: Statistics of TCP Vegas

Start at: 2017-08-11 07:49:16
End at: 2017-08-11 07:49:46
Local clock offset: 0.404 ms
Remote clock offset: -0.135 ms


# Below is generated by plot.py at 2017-08-11 15:38:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 414.91 Mbit/s
95th percentile per-packet one-way delay: 19.563 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 178.24 Mbit/s
95th percentile per-packet one-way delay: 4.123 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 191.00 Mbit/s
95th percentile per-packet one-way delay: 5.058 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 330.52 Mbit/s
95th percentile per-packet one-way delay: 22.001 ms
Loss rate: 0.17%
```

Run 7: Report of TCP Vegas — Data Link
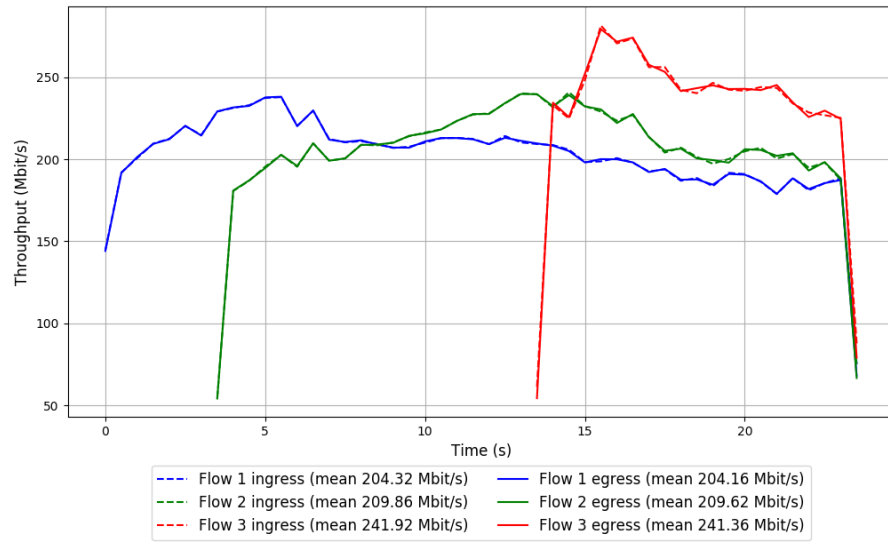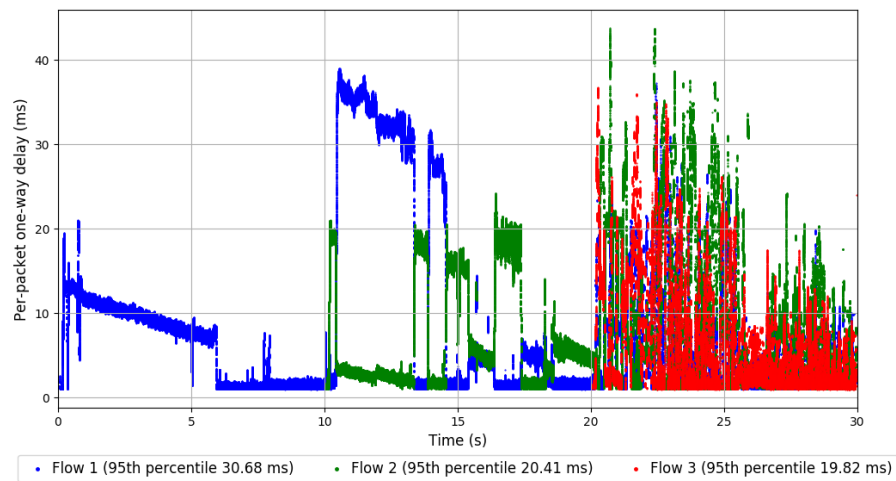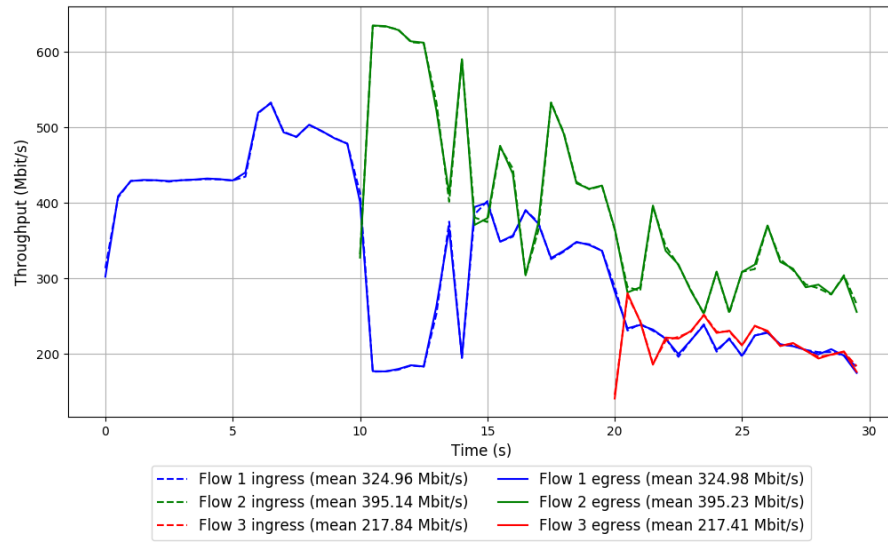
```
Run 8: Statistics of TCP Vegas

Start at: 2017-08-11 08:11:29
End at: 2017-08-11 08:11:59
Local clock offset: 0.288 ms
Remote clock offset: -0.001 ms


# Below is generated by plot.py at 2017-08-11 15:39:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 509.72 Mbit/s
95th percentile per-packet one-way delay: 5.474 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 268.04 Mbit/s
95th percentile per-packet one-way delay: 3.860 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 266.65 Mbit/s
95th percentile per-packet one-way delay: 7.193 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 194.21 Mbit/s
95th percentile per-packet one-way delay: 4.042 ms
Loss rate: 0.18%
```
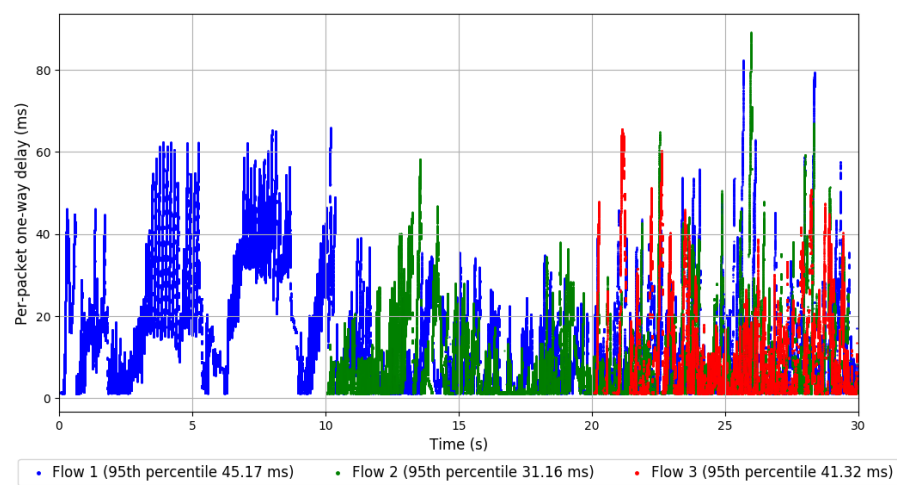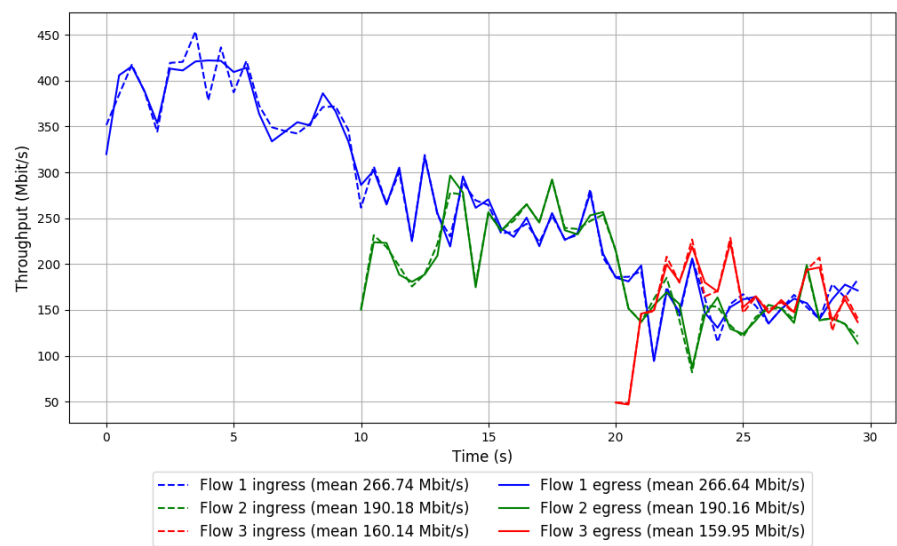
Run 8: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 268.14 Mbit/s) --- Flow 1 egress (mean 268.04 Mbit/s)
Flow 2 ingress (mean 266.66 Mbit/s) --- Flow 2 egress (mean 266.65 Mbit/s)
Flow 3 ingress (mean 194.58 Mbit/s) --- Flow 3 egress (mean 194.21 Mbit/s)

Flow 1 (95th percentile 3.86 ms)   Flow 2 (95th percentile 7.19 ms)   Flow 3 (95th percentile 4.04 ms)

Run 9: Statistics of TCP Vegas

Start at: 2017-08-11 08:33:48
End at: 2017-08-11 08:34:18
Local clock offset: 0.308 ms
Remote clock offset: -0.275 ms

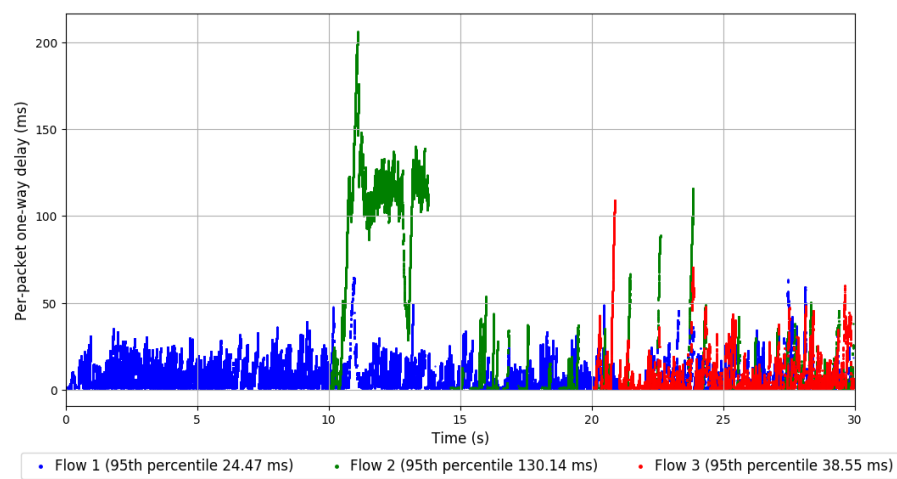Run 9: Report of TCP Vegas — Data Link

```
Run 10: Statistics of TCP Vegas

Start at: 2017-08-11 08:56:04
End at: 2017-08-11 08:56:34
Local clock offset: 0.31 ms
Remote clock offset: -0.294 ms


# Below is generated by plot.py at 2017-08-11 15:40:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 659.83 Mbit/s
95th percentile per-packet one-way delay: 22.436 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 324.98 Mbit/s
95th percentile per-packet one-way delay: 30.678 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 395.23 Mbit/s
95th percentile per-packet one-way delay: 20.409 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 217.41 Mbit/s
95th percentile per-packet one-way delay: 19.824 ms
Loss rate: 0.20%
```

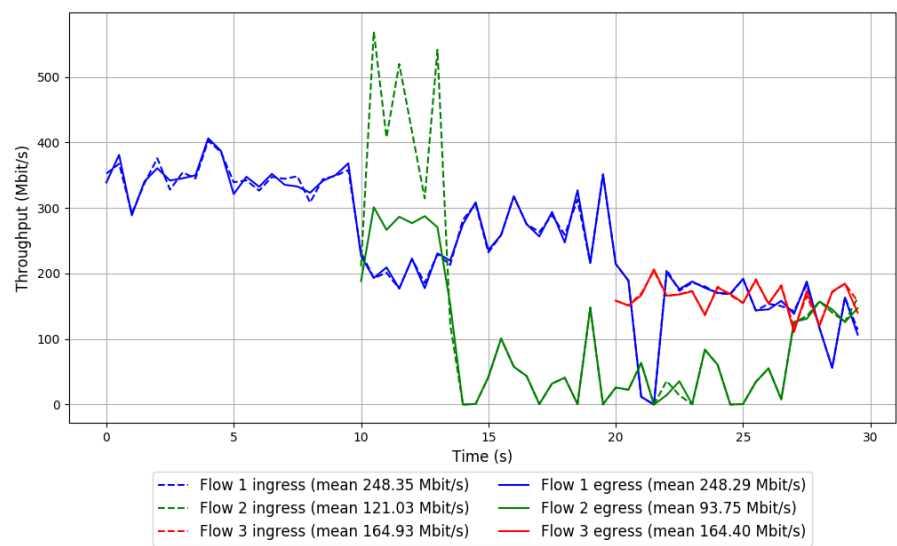Run 10: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2017-08-11 05:40:41
End at: 2017-08-11 05:41:11
Local clock offset: 0.425 ms
Remote clock offset: -1.836 ms


# Below is generated by plot.py at 2017-08-11 15:40:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 445.95 Mbit/s
95th percentile per-packet one-way delay: 42.724 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 266.64 Mbit/s
95th percentile per-packet one-way delay: 45.174 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 190.16 Mbit/s
95th percentile per-packet one-way delay: 31.162 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 159.95 Mbit/s
95th percentile per-packet one-way delay: 41.318 ms
Loss rate: 0.31%
```

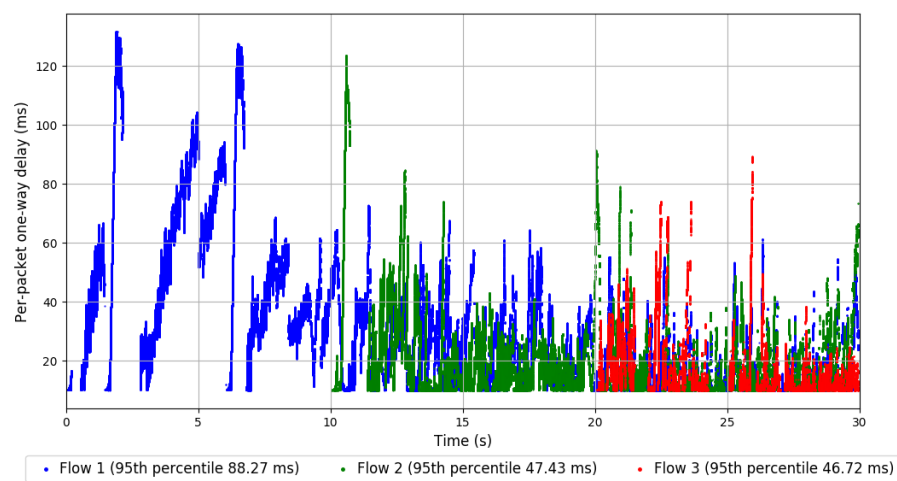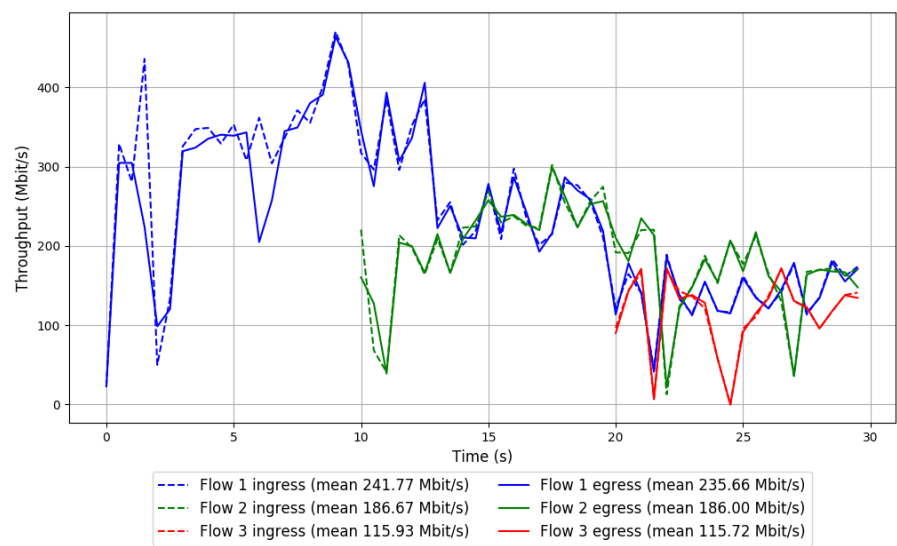## Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2017-08-11 06:03:10
End at: 2017-08-11 06:03:40
Local clock offset: 0.453 ms
Remote clock offset: -1.263 ms


# Below is generated by plot.py at 2017-08-11 15:41:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 364.99 Mbit/s
95th percentile per-packet one-way delay: 108.900 ms
Loss rate: 4.85%
-- Flow 1:
Average throughput: 248.29 Mbit/s
95th percentile per-packet one-way delay: 24.467 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 93.75 Mbit/s
95th percentile per-packet one-way delay: 130.137 ms
Loss rate: 22.57%
-- Flow 3:
Average throughput: 164.40 Mbit/s
95th percentile per-packet one-way delay: 38.549 ms
Loss rate: 0.53%
```
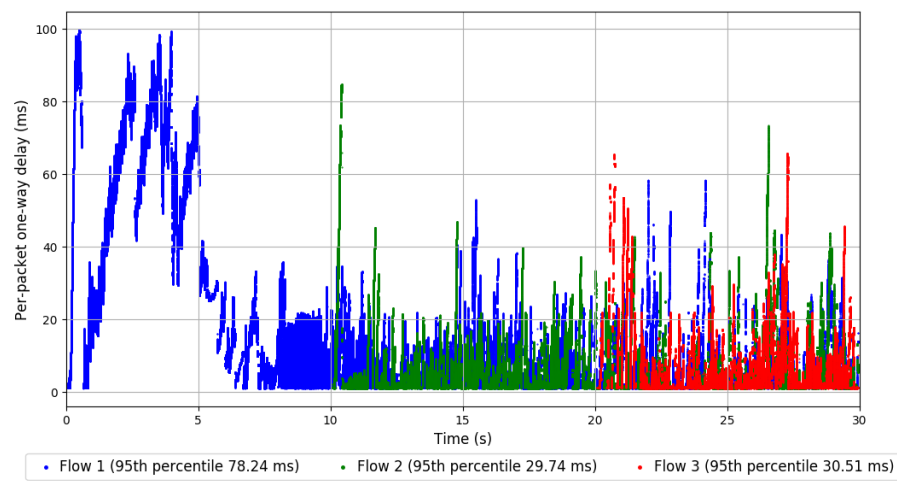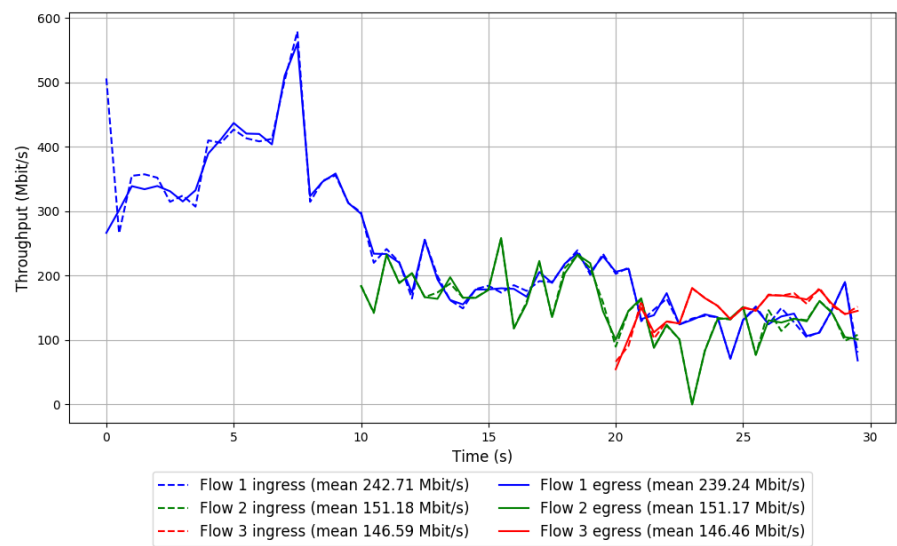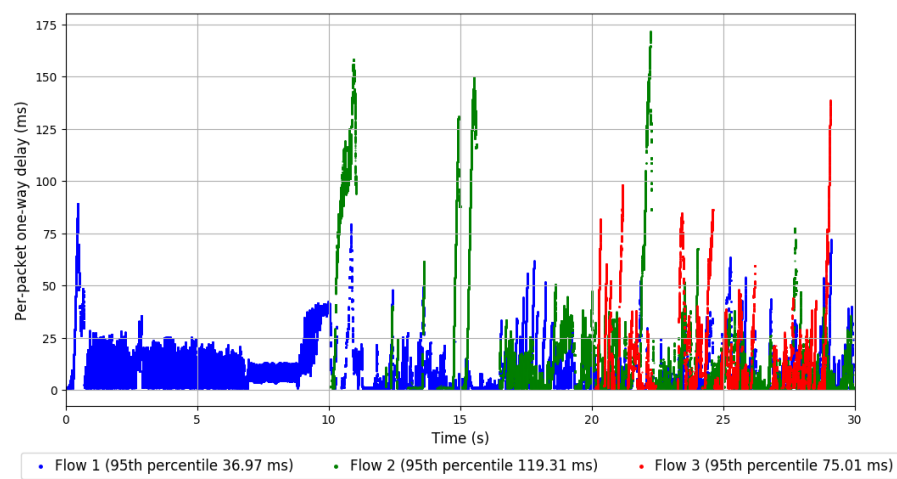
Run 2: Report of Verus — Data Link

267

```
Run 3: Statistics of Verus

Start at: 2017-08-11 06:25:37
End at: 2017-08-11 06:26:07
Local clock offset: 9.206 ms
Remote clock offset: -1.164 ms


# Below is generated by plot.py at 2017-08-11 15:41:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 397.65 Mbit/s
95th percentile per-packet one-way delay: 80.132 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 235.66 Mbit/s
95th percentile per-packet one-way delay: 88.267 ms
Loss rate: 2.59%
-- Flow 2:
Average throughput: 186.00 Mbit/s
95th percentile per-packet one-way delay: 47.429 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 115.72 Mbit/s
95th percentile per-packet one-way delay: 46.718 ms
Loss rate: 0.37%
```

Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2017-08-11 06:47:55
End at: 2017-08-11 06:48:25
Local clock offset: 0.3 ms
Remote clock offset: -0.813 ms


# Below is generated by plot.py at 2017-08-11 15:42:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 387.94 Mbit/s
95th percentile per-packet one-way delay: 71.672 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 239.24 Mbit/s
95th percentile per-packet one-way delay: 78.241 ms
Loss rate: 1.50%
-- Flow 2:
Average throughput: 151.17 Mbit/s
95th percentile per-packet one-way delay: 29.739 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 146.46 Mbit/s
95th percentile per-packet one-way delay: 30.509 ms
Loss rate: 0.23%
```
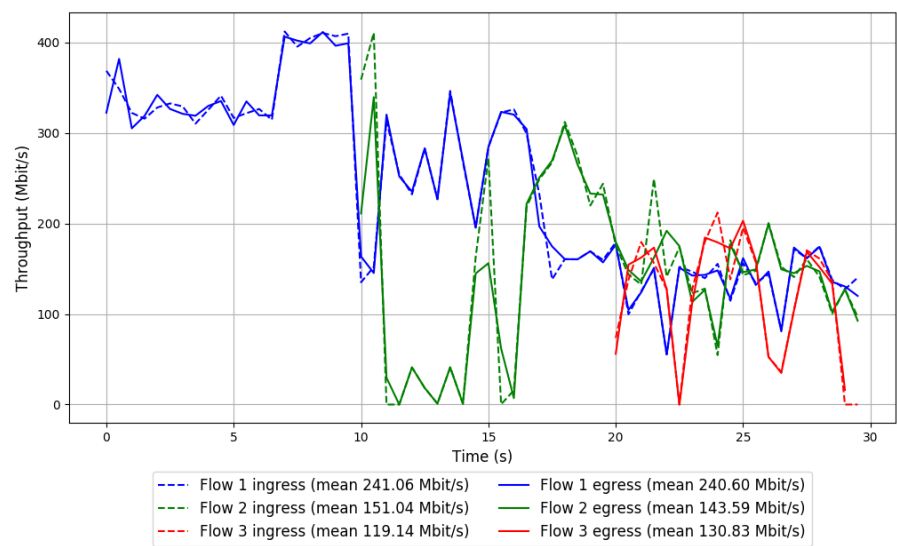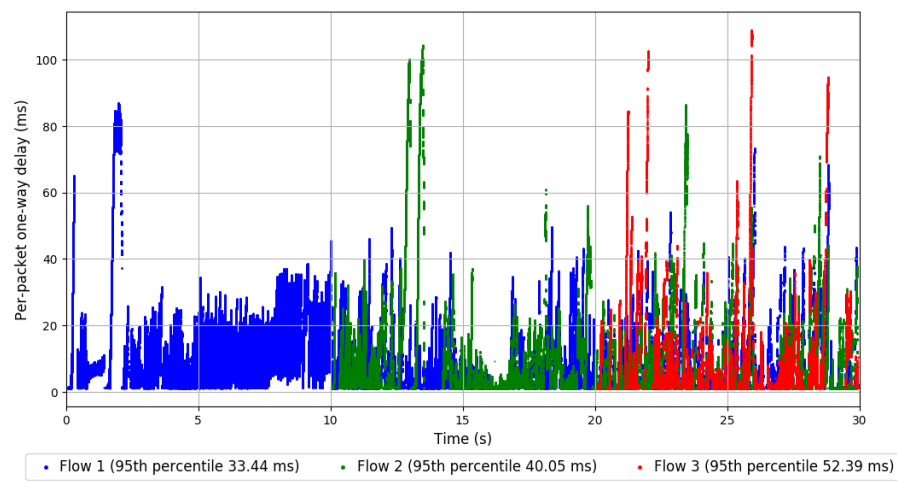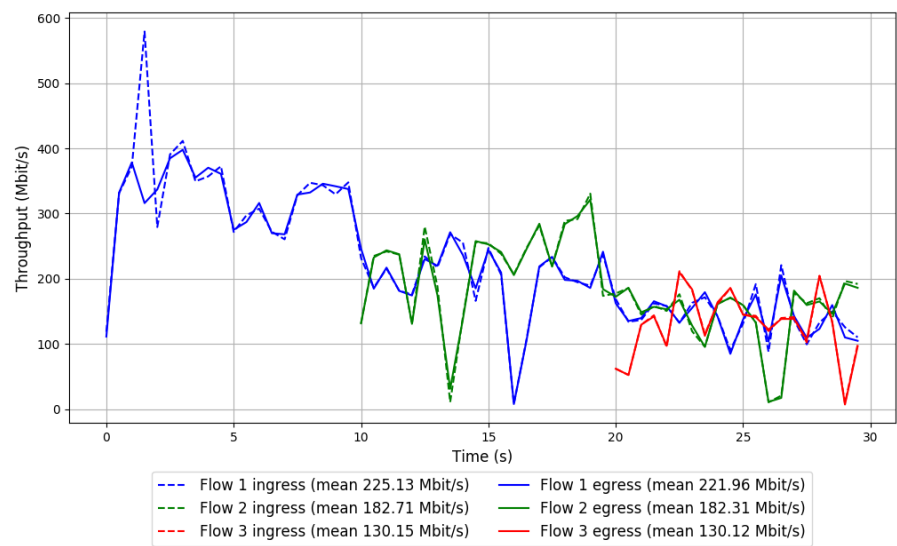
Run 4: Report of Verus — Data Link

Flow 1 ingress (mean 242.71 Mbit/s)   Flow 1 egress (mean 239.24 Mbit/s)
Flow 2 ingress (mean 151.18 Mbit/s)   Flow 2 egress (mean 151.17 Mbit/s)
Flow 3 ingress (mean 146.59 Mbit/s)   Flow 3 egress (mean 146.46 Mbit/s)

Flow 1 (95th percentile 78.24 ms)   Flow 2 (95th percentile 29.74 ms)   Flow 3 (95th percentile 30.51 ms)

```
Run 5: Statistics of Verus

Start at: 2017-08-11 07:10:16
End at: 2017-08-11 07:10:46
Local clock offset: 0.419 ms
Remote clock offset: -0.547 ms


# Below is generated by plot.py at 2017-08-11 15:42:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 375.21 Mbit/s
95th percentile per-packet one-way delay: 65.322 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 240.60 Mbit/s
95th percentile per-packet one-way delay: 36.974 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 143.59 Mbit/s
95th percentile per-packet one-way delay: 119.312 ms
Loss rate: 5.01%
-- Flow 3:
Average throughput: 130.83 Mbit/s
95th percentile per-packet one-way delay: 75.009 ms
Loss rate: 0.04%
```
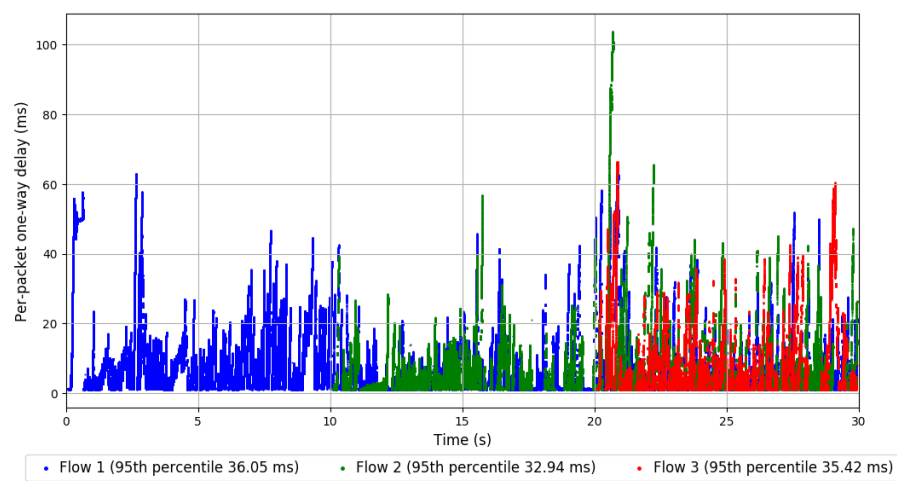
Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 241.06 Mbit/s) --- Flow 1 egress (mean 240.60 Mbit/s) ---
Flow 2 ingress (mean 151.04 Mbit/s) --- Flow 2 egress (mean 143.59 Mbit/s) ---
Flow 3 ingress (mean 119.14 Mbit/s) --- Flow 3 egress (mean 130.83 Mbit/s) ---

Flow 1 (95th percentile 36.97 ms) • Flow 2 (95th percentile 119.31 ms) • Flow 3 (95th percentile 75.01 ms)

273

```
Run 6: Statistics of Verus

Start at: 2017-08-11 07:32:30
End at: 2017-08-11 07:33:00
Local clock offset: 0.409 ms
Remote clock offset: -0.026 ms


# Below is generated by plot.py at 2017-08-11 15:43:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 385.74 Mbit/s
95th percentile per-packet one-way delay: 36.332 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 221.96 Mbit/s
95th percentile per-packet one-way delay: 33.439 ms
Loss rate: 1.68%
-- Flow 2:
Average throughput: 182.31 Mbit/s
95th percentile per-packet one-way delay: 40.047 ms
Loss rate: 0.32%
-- Flow 3:
Average throughput: 130.12 Mbit/s
95th percentile per-packet one-way delay: 52.393 ms
Loss rate: 0.17%
```
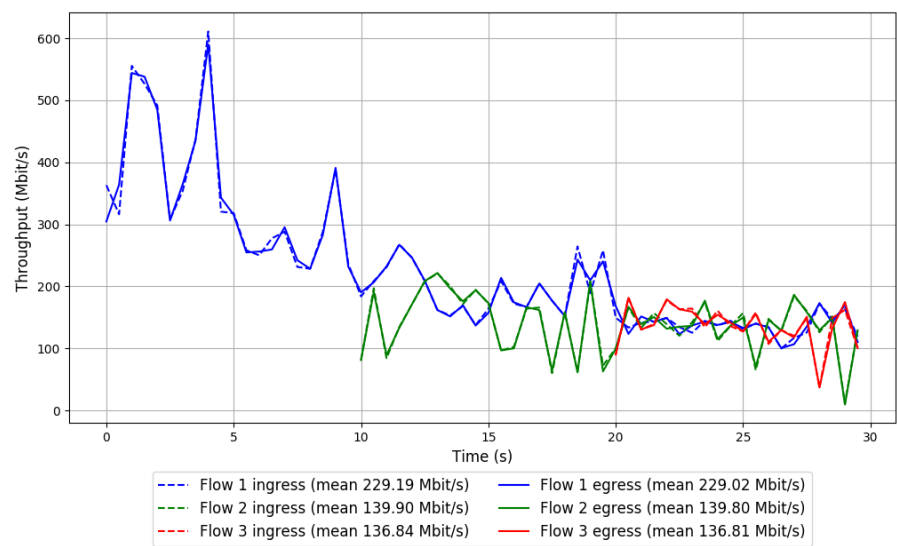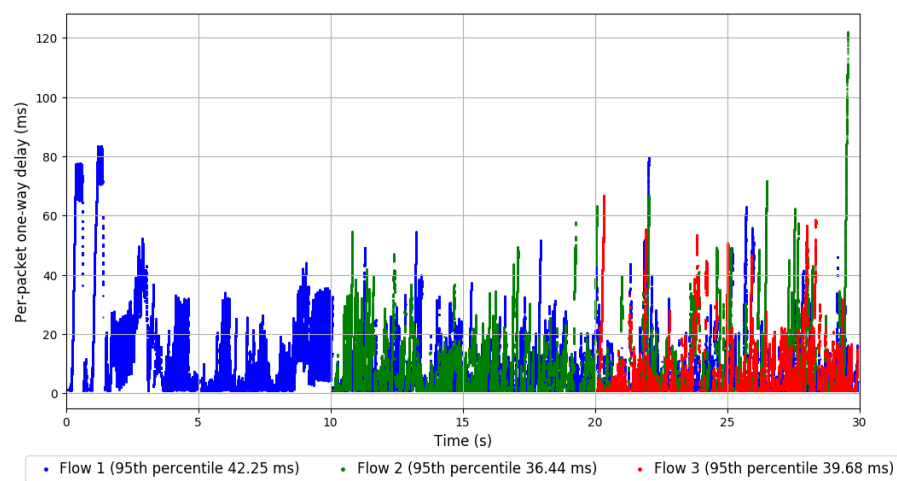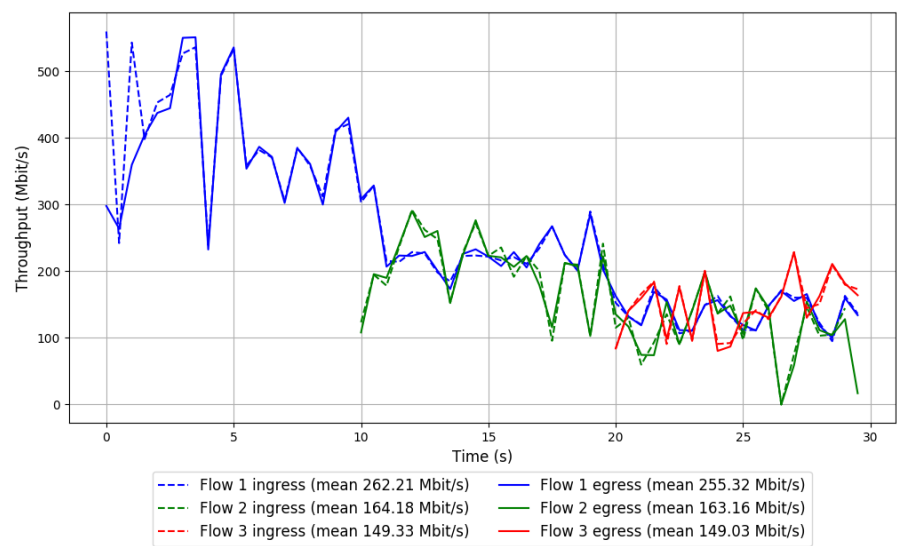
Run 6: Report of Verus — Data Link

```
Run 7: Statistics of Verus

Start at: 2017-08-11 07:54:47
End at: 2017-08-11 07:55:17
Local clock offset: 0.406 ms
Remote clock offset: -0.09 ms

# Below is generated by plot.py at 2017-08-11 15:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 367.19 Mbit/s
95th percentile per-packet one-way delay: 34.875 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 229.02 Mbit/s
95th percentile per-packet one-way delay: 36.054 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 139.80 Mbit/s
95th percentile per-packet one-way delay: 32.942 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 136.81 Mbit/s
95th percentile per-packet one-way delay: 35.422 ms
Loss rate: 0.13%
```
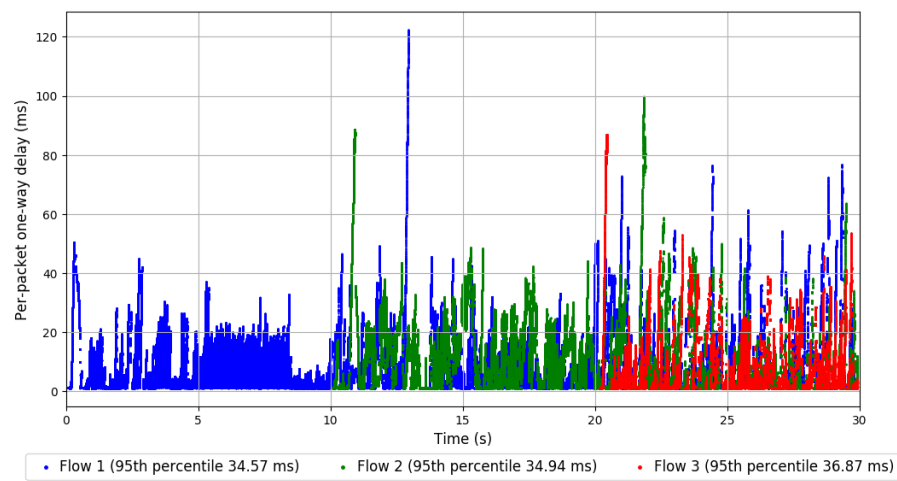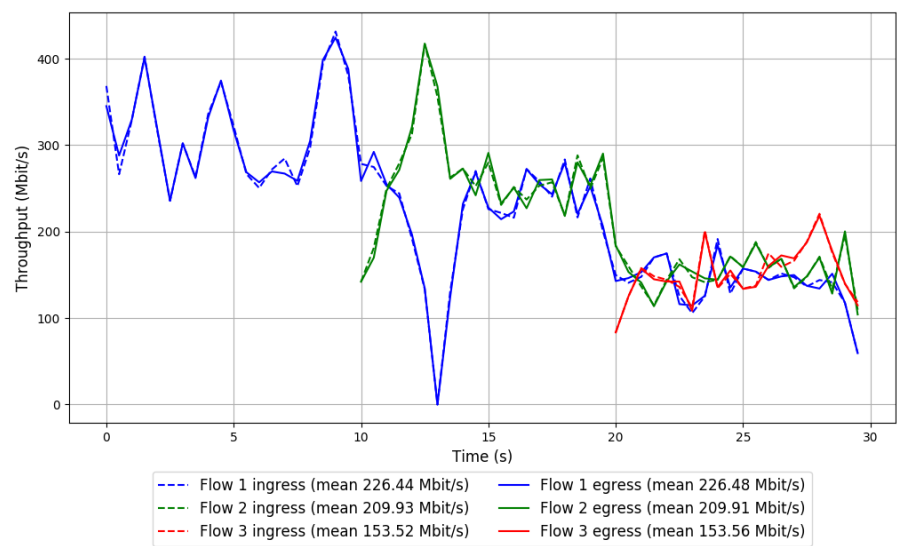
Run 7: Report of Verus — Data Link

```
Run 8: Statistics of Verus

Start at: 2017-08-11 08:17:07
End at: 2017-08-11 08:17:37
Local clock offset: 0.308 ms
Remote clock offset: -0.131 ms

# Below is generated by plot.py at 2017-08-11 15:44:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 410.94 Mbit/s
95th percentile per-packet one-way delay: 39.977 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 255.32 Mbit/s
95th percentile per-packet one-way delay: 42.251 ms
Loss rate: 2.68%
-- Flow 2:
Average throughput: 163.16 Mbit/s
95th percentile per-packet one-way delay: 36.436 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 149.03 Mbit/s
95th percentile per-packet one-way delay: 39.679 ms
Loss rate: 0.32%
```
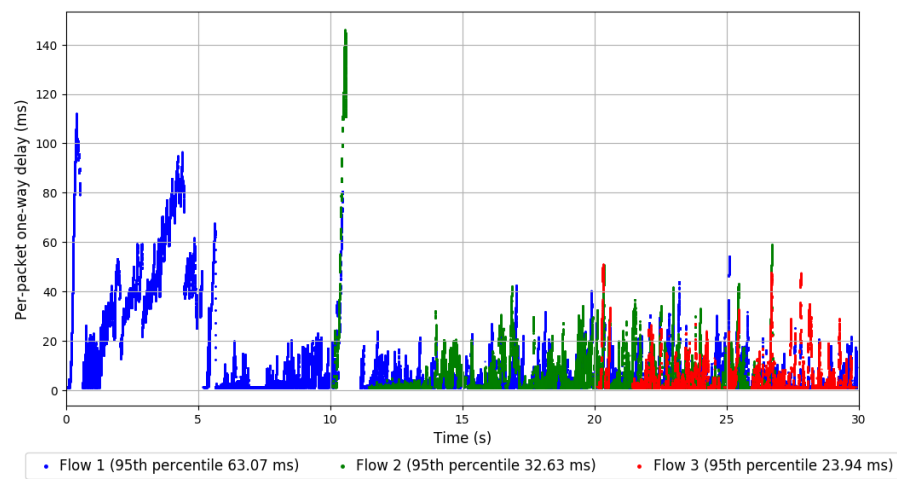
Run 8: Report of Verus — Data Link

```
Run 9: Statistics of Verus

Start at: 2017-08-11 08:39:19
End at: 2017-08-11 08:39:49
Local clock offset: 0.339 ms
Remote clock offset: -0.312 ms


# Below is generated by plot.py at 2017-08-11 15:44:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 416.15 Mbit/s
95th percentile per-packet one-way delay: 34.999 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 226.48 Mbit/s
95th percentile per-packet one-way delay: 34.573 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 209.91 Mbit/s
95th percentile per-packet one-way delay: 34.938 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 153.56 Mbit/s
95th percentile per-packet one-way delay: 36.873 ms
Loss rate: 0.15%
```

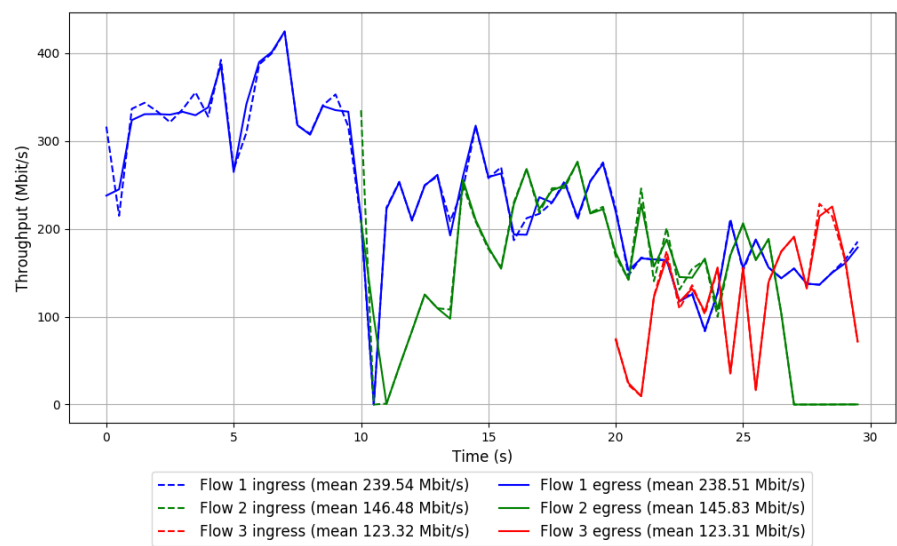Run 9: Report of Verus — Data Link

```
Run 10: Statistics of Verus

Start at: 2017-08-11 09:01:50
End at: 2017-08-11 09:02:20
Local clock offset: 0.242 ms
Remote clock offset: -0.306 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 375.65 Mbit/s
95th percentile per-packet one-way delay: 54.723 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 238.51 Mbit/s
95th percentile per-packet one-way delay: 63.070 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 145.83 Mbit/s
95th percentile per-packet one-way delay: 32.632 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 123.31 Mbit/s
95th percentile per-packet one-way delay: 23.938 ms
Loss rate: 0.01%
```

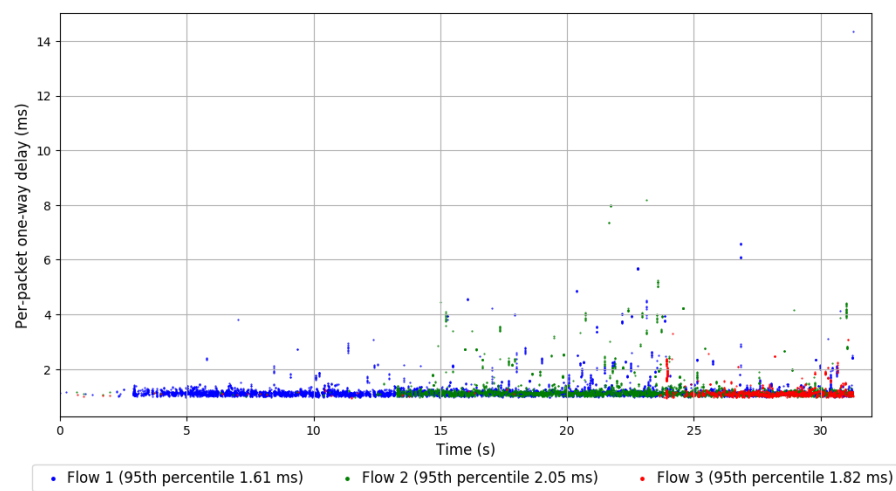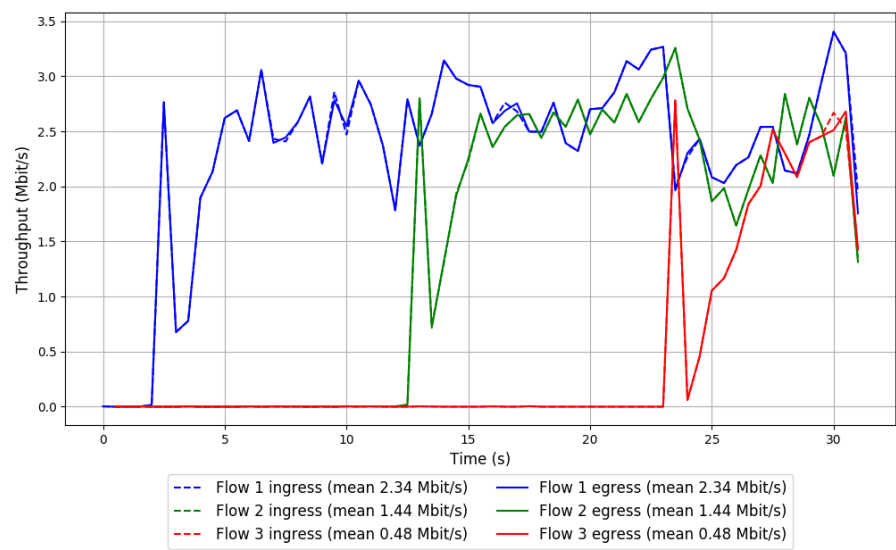## Run 10: Report of Verus — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2017-08-11 05:39:30
End at: 2017-08-11 05:40:00
Local clock offset: 0.315 ms
Remote clock offset: -1.872 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.21 Mbit/s
95th percentile per-packet one-way delay: 1.806 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 1.613 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 2.054 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 1.820 ms
Loss rate: 0.00%
```

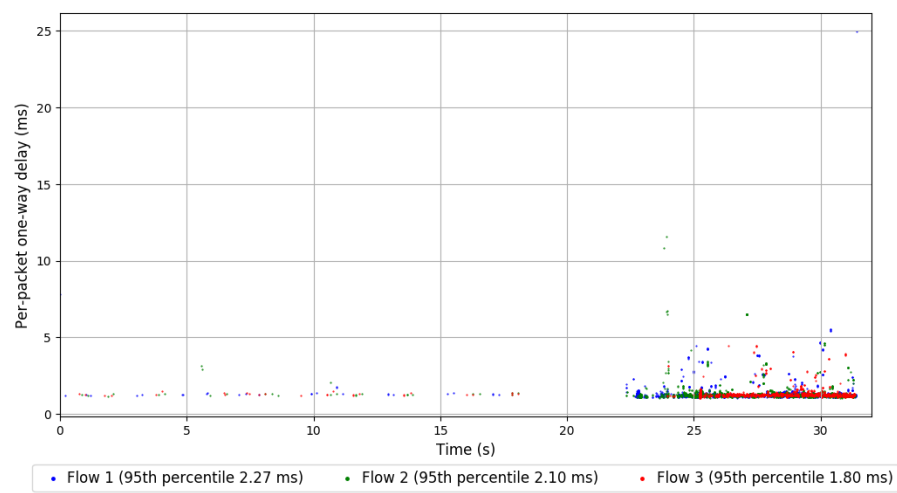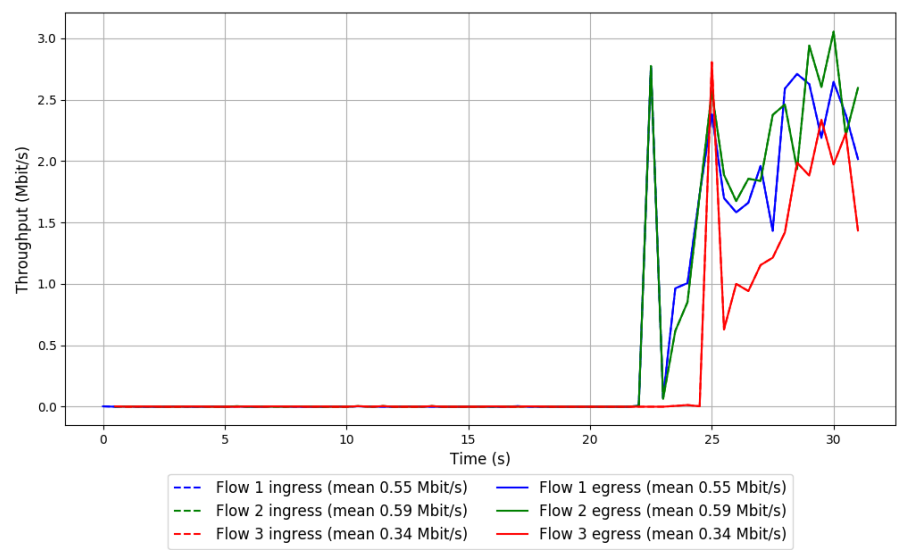Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2017-08-11 06:01:59
End at: 2017-08-11 06:02:29
Local clock offset: 0.435 ms
Remote clock offset: -1.357 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 2.073 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 2.266 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 2.101 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 1.797 ms
Loss rate: 0.00%
```

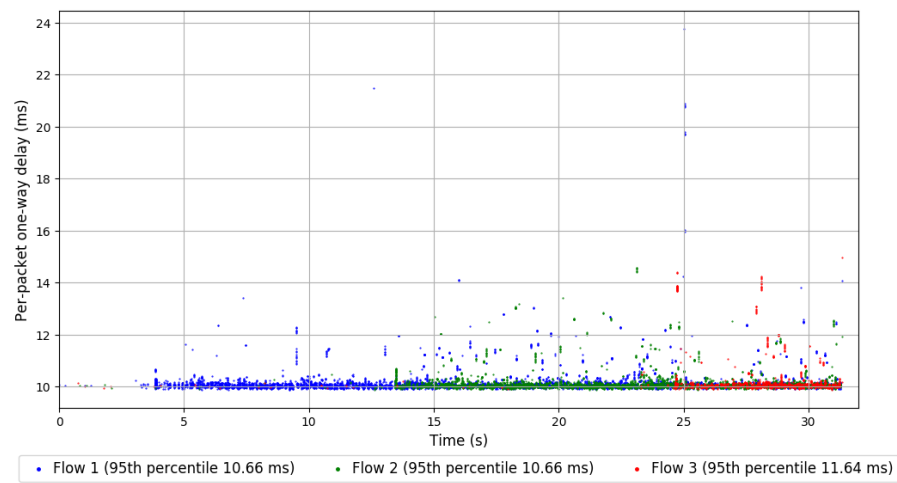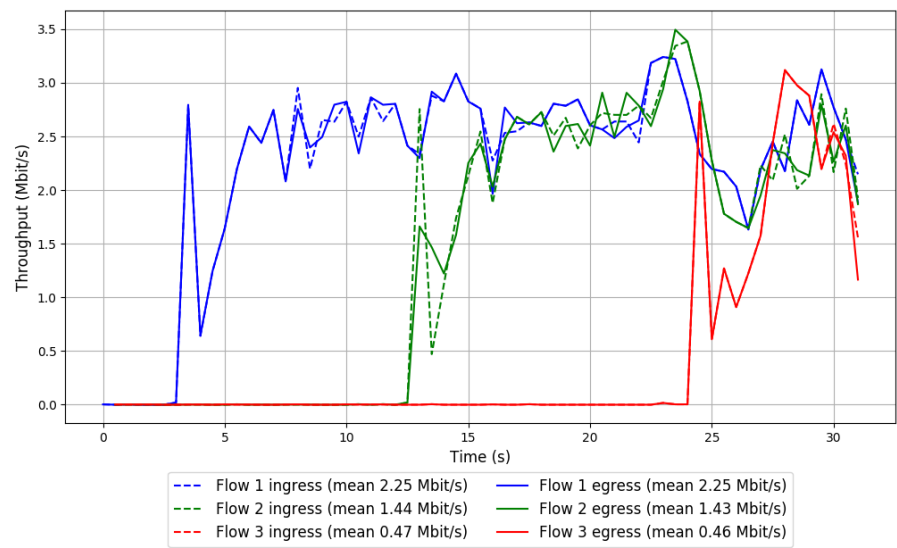Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2017-08-11 06:24:26
End at: 2017-08-11 06:24:56
Local clock offset: 9.213 ms
Remote clock offset: -1.164 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.09 Mbit/s
95th percentile per-packet one-way delay: 10.744 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 10.660 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 10.656 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 11.638 ms
Loss rate: 1.37%
```

Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2017-08-11 06:46:44
End at: 2017-08-11 06:47:14
Local clock offset: 0.26 ms
Remote clock offset: -0.74 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 1.493 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 1.373 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 1.827 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 1.918 ms
Loss rate: 0.50%
```
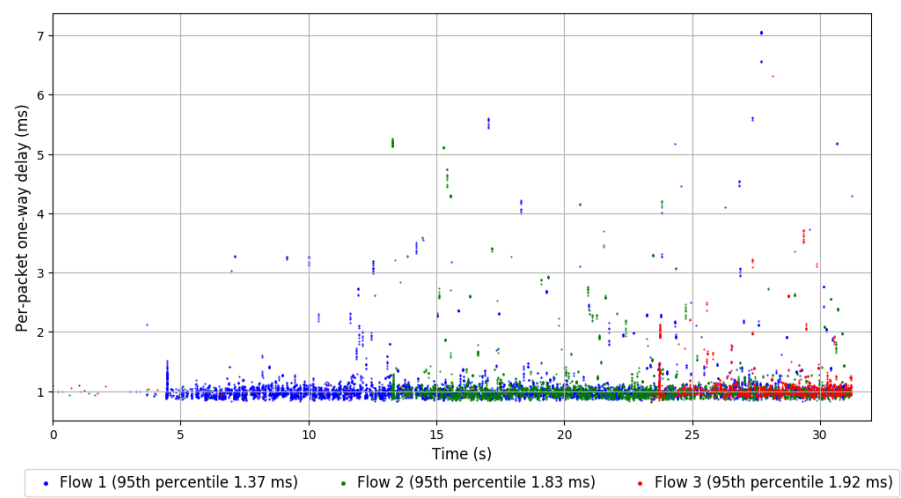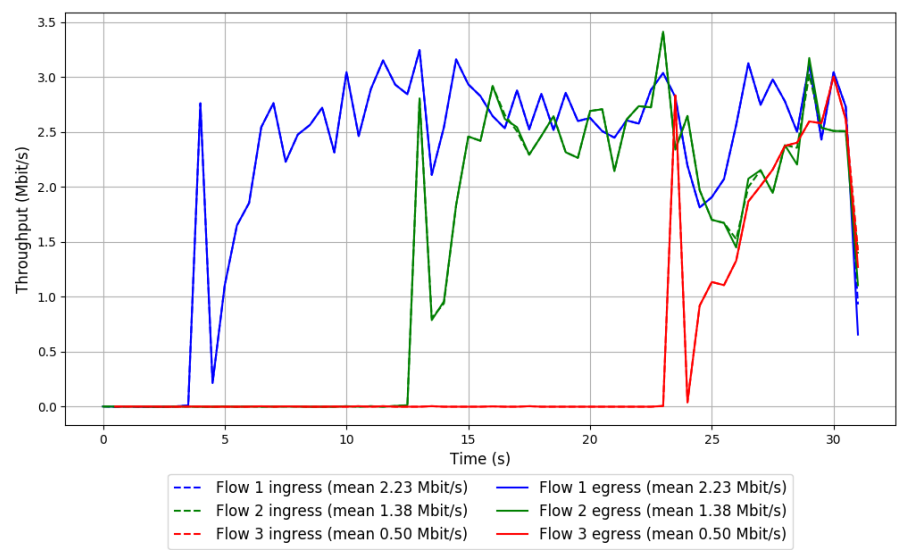
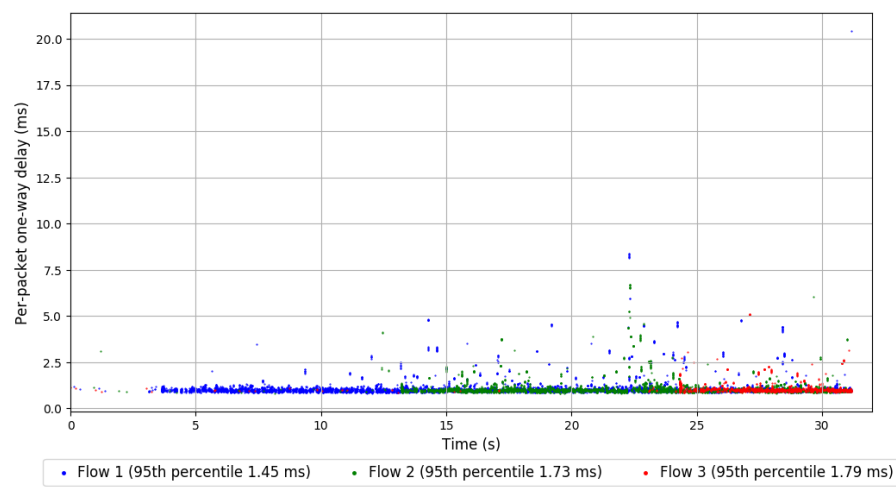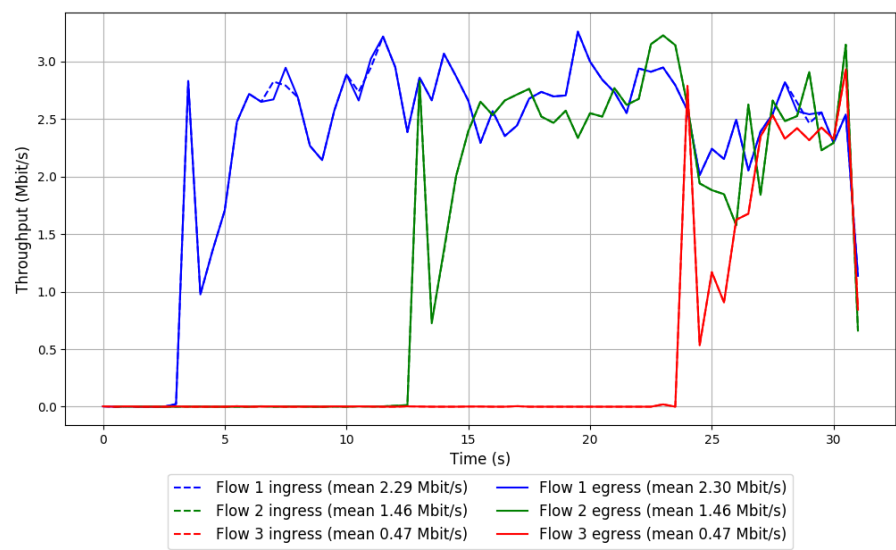Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2017-08-11 07:09:05
End at: 2017-08-11 07:09:35
Local clock offset: 0.293 ms
Remote clock offset: -0.532 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.17 Mbit/s
95th percentile per-packet one-way delay: 1.614 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 1.447 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 1.729 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 1.788 ms
Loss rate: 0.00%
```

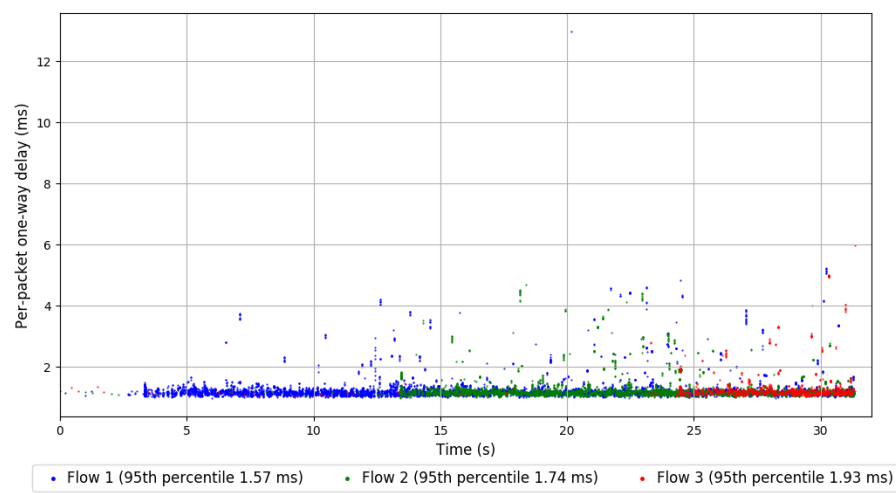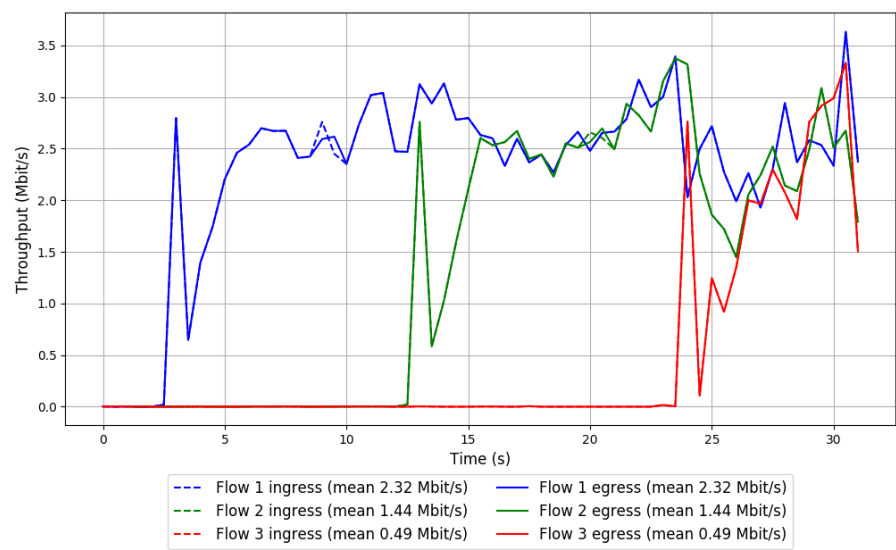Run 5: Report of WebRTC media — Data Link

```
Run 6: Statistics of WebRTC media

Start at: 2017-08-11 07:31:19
End at: 2017-08-11 07:31:49
Local clock offset: 0.431 ms
Remote clock offset: -0.009 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.19 Mbit/s
95th percentile per-packet one-way delay: 1.713 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 1.575 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 1.735 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 1.925 ms
Loss rate: 0.00%
```

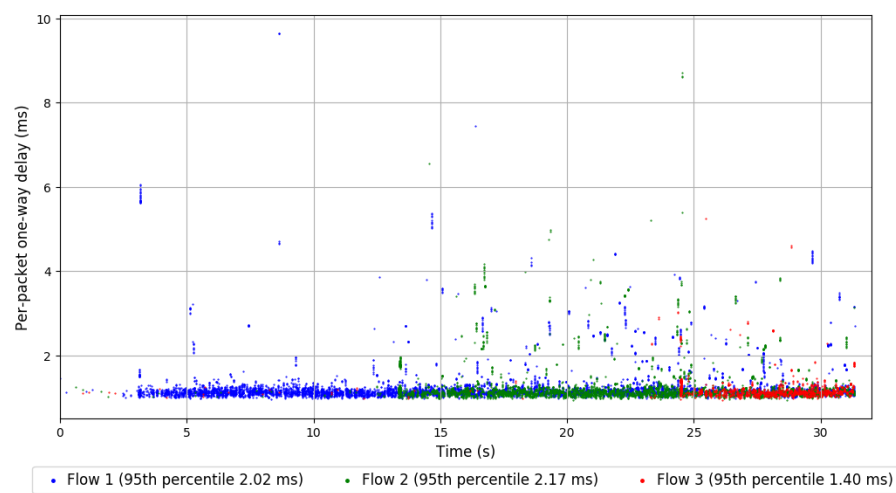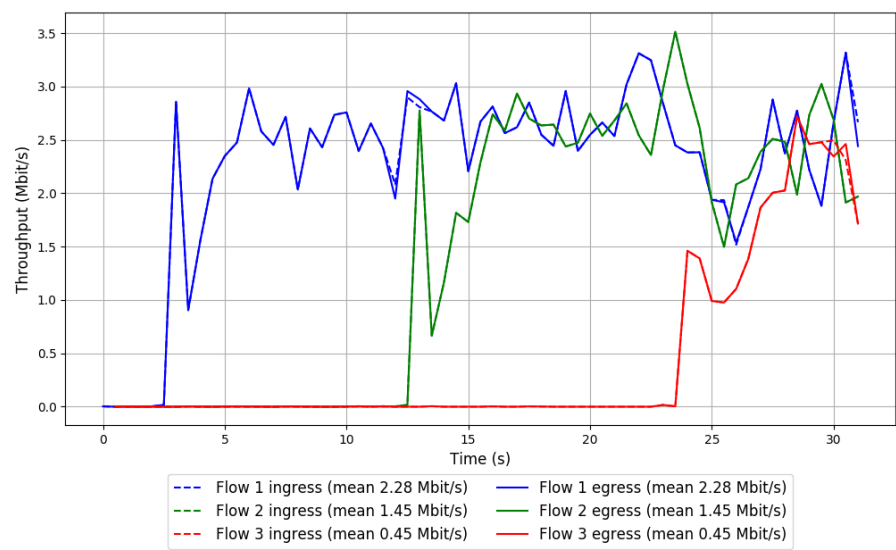Run 6: Report of WebRTC media — Data Link

```
Run 7: Statistics of WebRTC media

Start at: 2017-08-11 07:53:32
End at: 2017-08-11 07:54:02
Local clock offset: 0.392 ms
Remote clock offset: -0.073 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.13 Mbit/s
95th percentile per-packet one-way delay: 1.949 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 2.018 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 2.165 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 1.398 ms
Loss rate: 0.00%
```

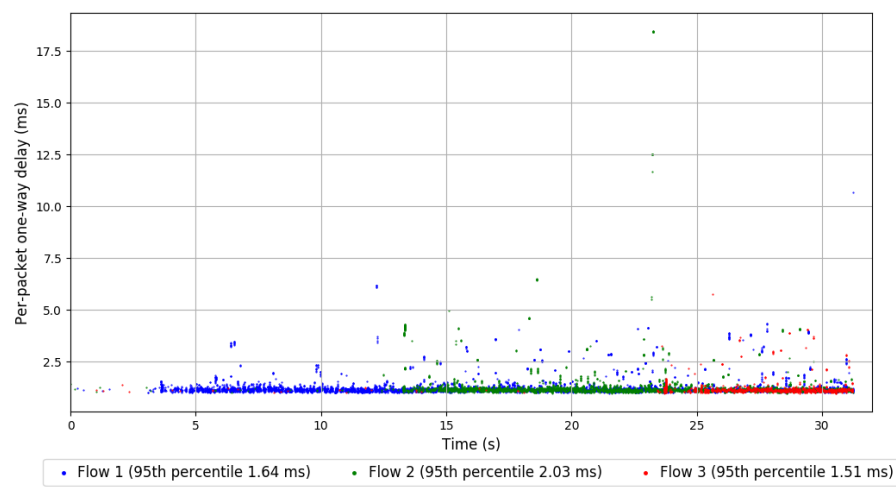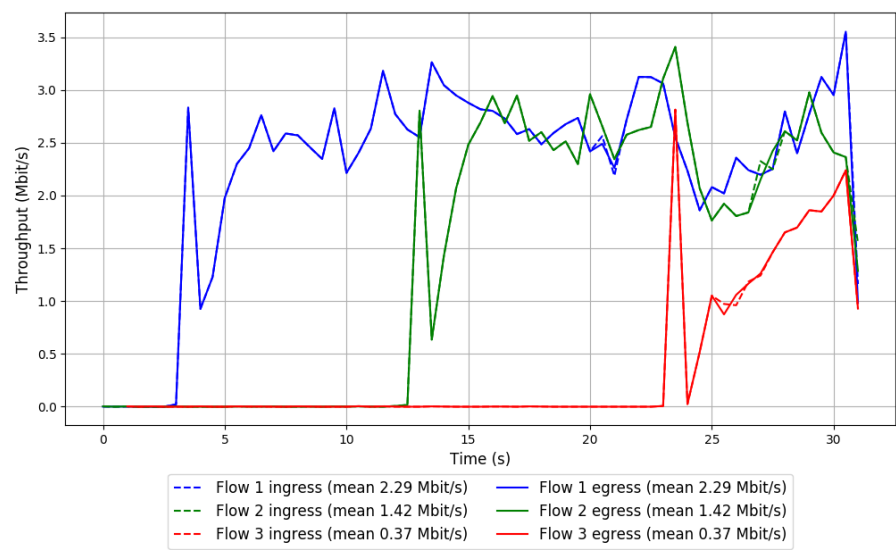Run 7: Report of WebRTC media — Data Link

```
Run 8: Statistics of WebRTC media

Start at: 2017-08-11 08:15:56
End at: 2017-08-11 08:16:26
Local clock offset: 0.252 ms
Remote clock offset: -0.146 ms

# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.05 Mbit/s
95th percentile per-packet one-way delay: 1.759 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 1.637 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 2.031 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 1.515 ms
Loss rate: 0.00%
```

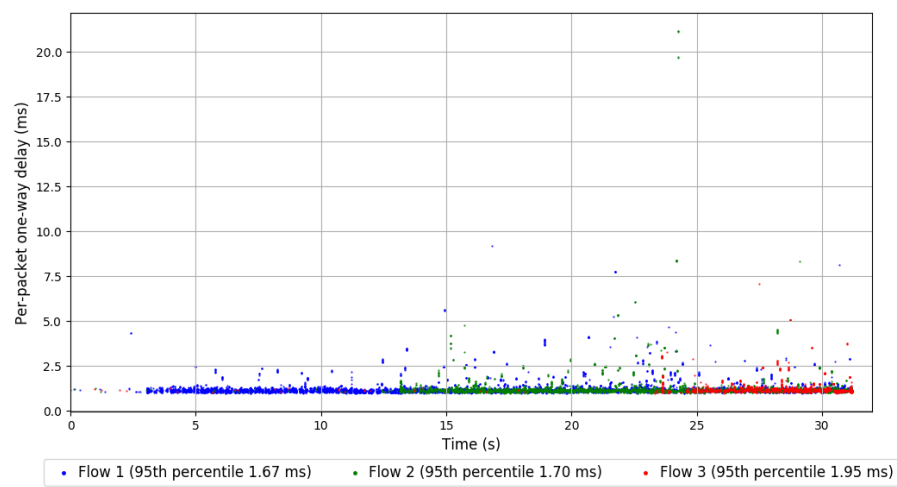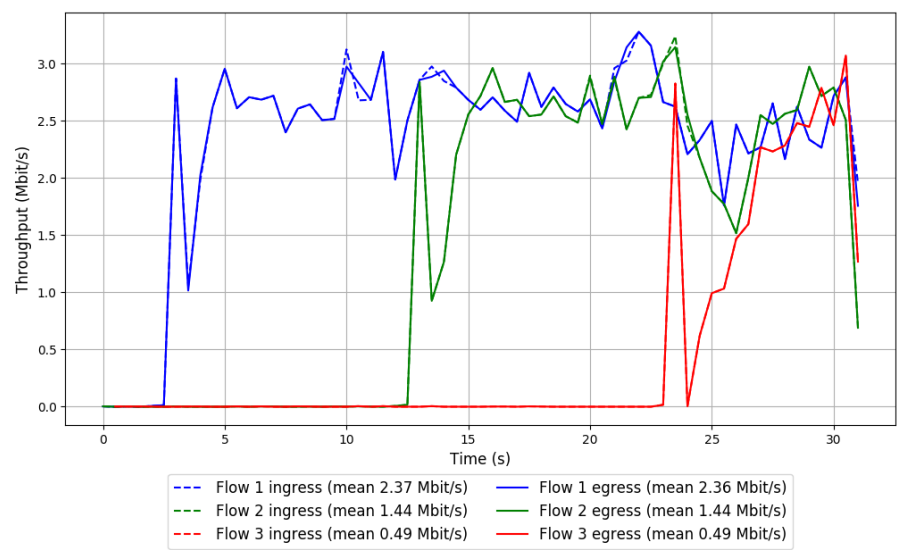Run 8: Report of WebRTC media — Data Link

```
Run 9: Statistics of WebRTC media

Start at: 2017-08-11 08:38:08
End at: 2017-08-11 08:38:38
Local clock offset: 0.259 ms
Remote clock offset: -0.415 ms

# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.27 Mbit/s
95th percentile per-packet one-way delay: 1.732 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 1.673 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 1.699 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 1.945 ms
Loss rate: 0.00%
```

Run 9: Report of WebRTC media — Data Link

```
Run 10: Statistics of WebRTC media

Start at: 2017-08-11 09:00:40
End at: 2017-08-11 09:01:10
Local clock offset: 0.355 ms
Remote clock offset: -0.335 ms


# Below is generated by plot.py at 2017-08-11 15:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 1.833 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 2.22 Mbit/s
95th percentile per-packet one-way delay: 1.638 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 2.112 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 2.041 ms
Loss rate: 1.37%
```

Run 10: Report of WebRTC media — Data Link

Flow 1 ingress (mean 2.21 Mbit/s)   Flow 1 egress (mean 2.22 Mbit/s)
Flow 2 ingress (mean 1.43 Mbit/s)   Flow 2 egress (mean 1.43 Mbit/s)
Flow 3 ingress (mean 0.47 Mbit/s)   Flow 3 egress (mean 0.47 Mbit/s)

Flow 1 (95th percentile 1.64 ms)   Flow 2 (95th percentile 2.11 ms)   Flow 3 (95th percentile 2.04 ms)