Pantheon Report

Generated at 2017-08-12 06:26:14 (UTC).

Data path: GCE London Ethernet (*local*) →GCE Tokyo Ethernet (*remote*).

Repeated the test of 15 congestion control schemes 10 times.

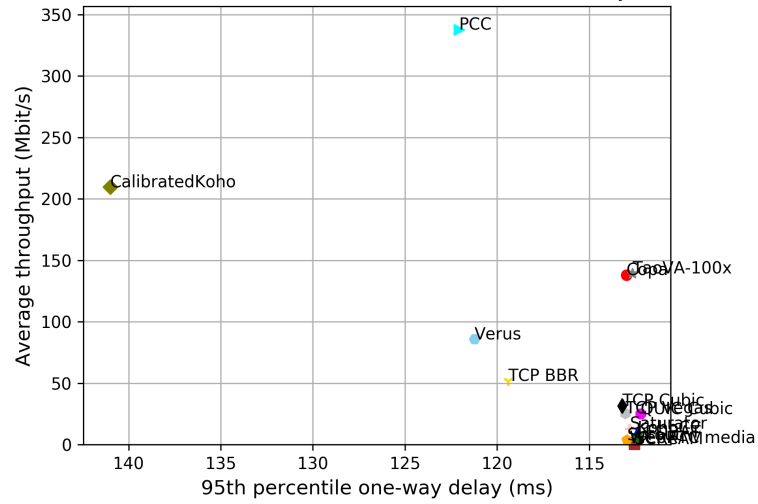Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

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

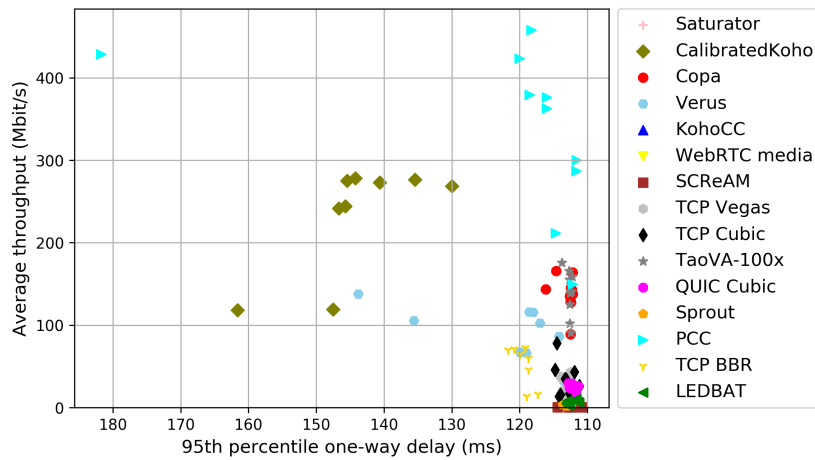Tested BBR with qdisc of Fair Queuing (`fq`), and other schemes with the default Linux qdisc (`pfifo_fast`).

```
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
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 GCE London Ethernet to GCE Tokyo Ethernet, 10 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from GCE London Ethernet to GCE Tokyo Ethernet, 10 runs of 30s each per scheme
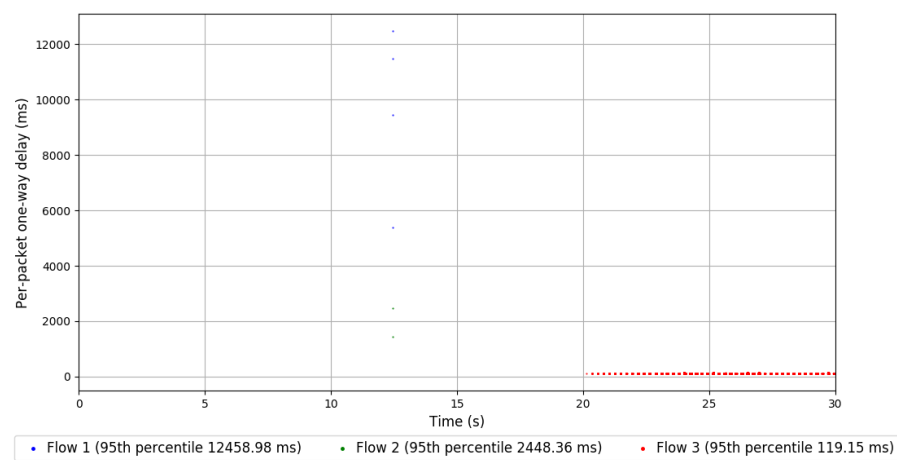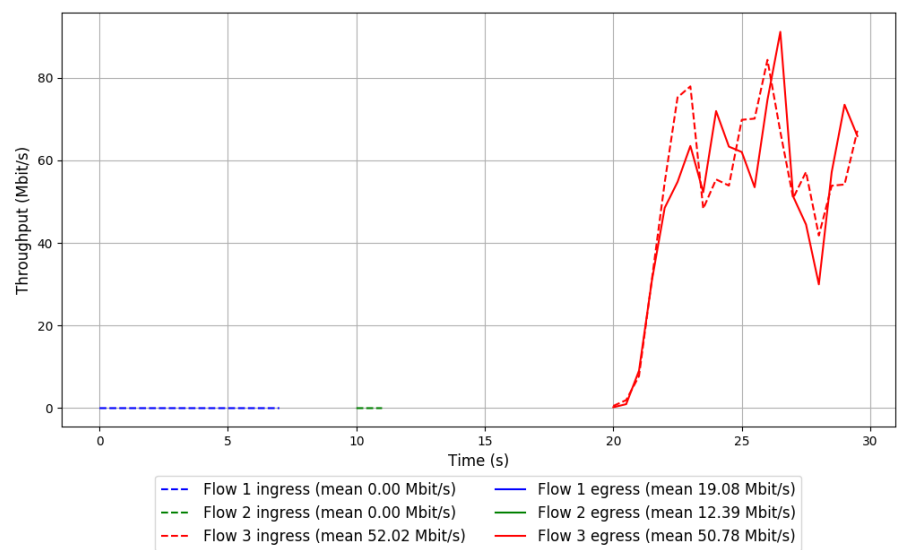3 flows with 10s interval between flows

2

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	8	22.63	26.84	27.00	189.44	117.40	117.28	17.51	17.94	13.12
CalibratedKoho	10	146.85	90.71	7.45	133.13	132.78	113.99	20.84	19.33	50.35
Copa	10	94.54	66.85	27.20	114.03	112.31	112.11	0.18	0.09	0.00
TCP Cubic	10	12.65	18.62	19.98	112.36	112.76	113.47	2.03	2.14	3.88
KohoCC	10	4.71	5.06	4.74	112.32	112.27	112.46	8.56	0.80	1.11
LEDBAT	10	3.31	2.88	1.77	112.42	112.45	112.35	0.57	0.51	0.78
PCC	10	247.48	84.14	105.91	123.90	112.85	113.80	9.33	19.13	10.19
QUIC Cubic	10	0.05	22.84	31.03	111.93	111.64	111.57	0.00	0.00	0.00
Saturator	8	7.51	7.55	8.01	112.75	112.84	112.71	19.76	20.93	13.40
SCReAM	10	0.21	0.20	0.22	111.66	112.19	111.42	0.00	0.00	0.00
Sprout	10	2.07	1.72	1.57	112.88	112.76	112.49	1.16	1.46	1.81
TaoVA-100x	9	121.74	60.37	59.56	112.37	112.32	112.64	6.04	3.84	1.01
TCP Vegas	9	12.33	15.28	9.07	112.79	113.01	112.82	1.04	1.16	3.65
Verus	10	54.16	40.04	16.90	121.83	119.07	115.10	32.42	22.09	41.90
WebRTC media	10	0.19	1.27	0.22	112.58	111.93	112.90	0.00	0.00	0.00

3

```
Run 1: Statistics of TCP BBR

Start at: 2017-08-12 02:59:53
End at: 2017-08-12 03:00:23
```

Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 0.00 Mbit/s) --- Flow 1 egress (mean 19.08 Mbit/s)
Flow 2 ingress (mean 0.00 Mbit/s) --- Flow 2 egress (mean 12.39 Mbit/s)
Flow 3 ingress (mean 52.02 Mbit/s) --- Flow 3 egress (mean 50.78 Mbit/s)

Flow 1 (95th percentile 12458.98 ms) • Flow 2 (95th percentile 2448.36 ms) • Flow 3 (95th percentile 119.15 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2017-08-12 03:12:59
End at: 2017-08-12 03:13:29


# Below is generated by plot.py at 2017-08-12 06:03:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.33 Mbit/s
95th percentile per-packet one-way delay: 117.315 ms
Loss rate: 13.90%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 696.152 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.92 Mbit/s
95th percentile per-packet one-way delay: 111.905 ms
Loss rate: 45.08%
-- Flow 3:
Average throughput: 40.45 Mbit/s
95th percentile per-packet one-way delay: 117.608 ms
Loss rate: 3.31%
```
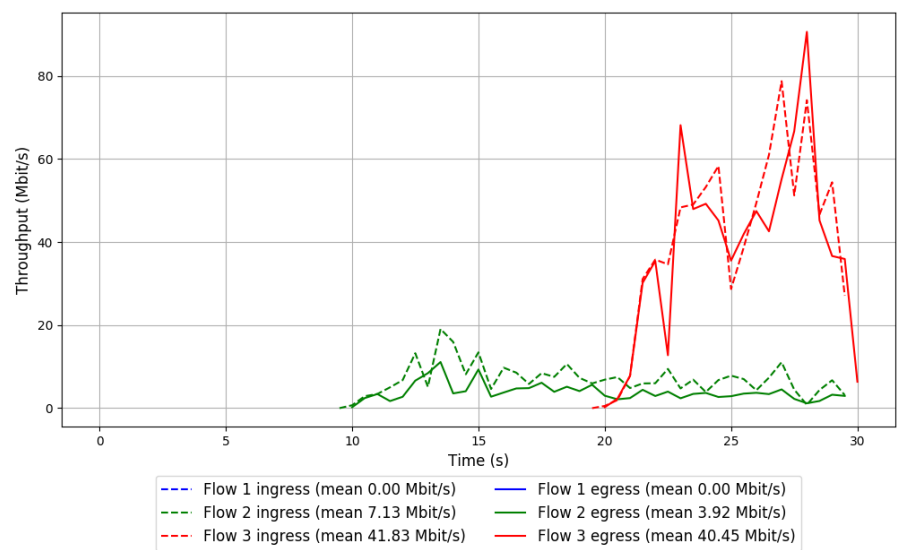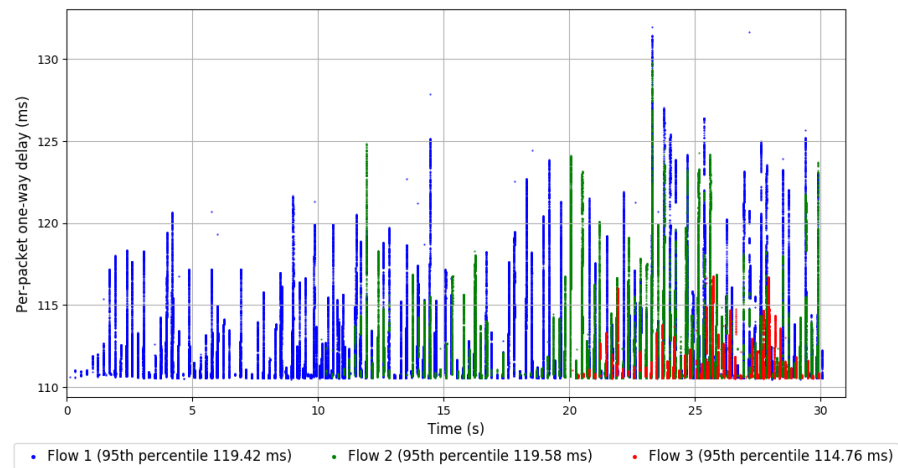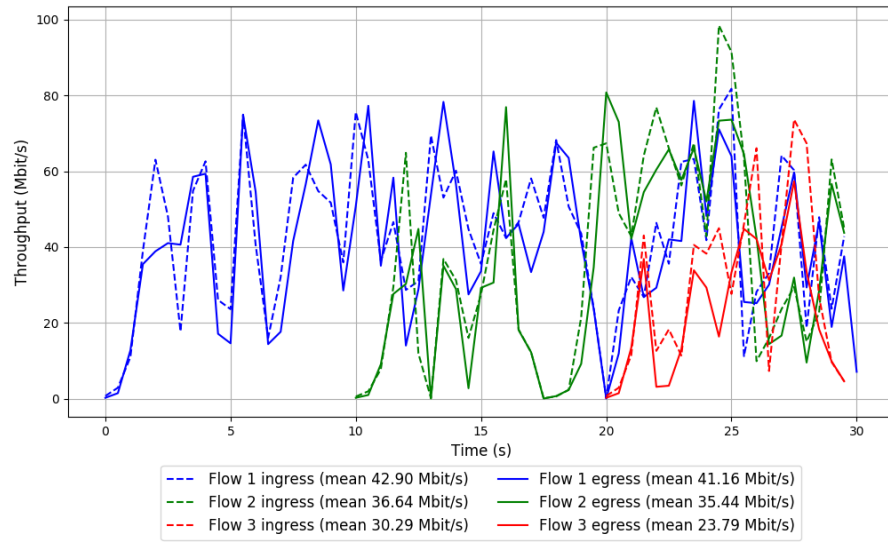
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 0.00 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 7.13 Mbit/s) --- Flow 2 egress (mean 3.92 Mbit/s)
Flow 3 ingress (mean 41.83 Mbit/s) --- Flow 3 egress (mean 40.45 Mbit/s)

Flow 1 (95th percentile 696.15 ms)   Flow 2 (95th percentile 111.91 ms)   Flow 3 (95th percentile 117.61 ms)

7

```
Run 3: Statistics of TCP BBR

Start at: 2017-08-12 03:26:11
End at: 2017-08-12 03:26:41


# Below is generated by plot.py at 2017-08-12 06:03:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.34 Mbit/s
95th percentile per-packet one-way delay: 119.149 ms
Loss rate: 6.33%
-- Flow 1:
Average throughput: 41.16 Mbit/s
95th percentile per-packet one-way delay: 119.420 ms
Loss rate: 4.05%
-- Flow 2:
Average throughput: 35.44 Mbit/s
95th percentile per-packet one-way delay: 119.576 ms
Loss rate: 4.20%
-- Flow 3:
Average throughput: 23.79 Mbit/s
95th percentile per-packet one-way delay: 114.756 ms
Loss rate: 21.44%
```
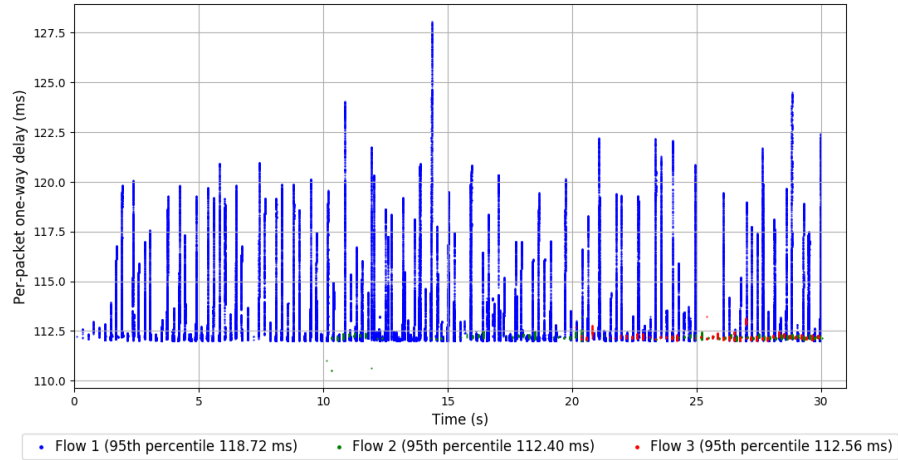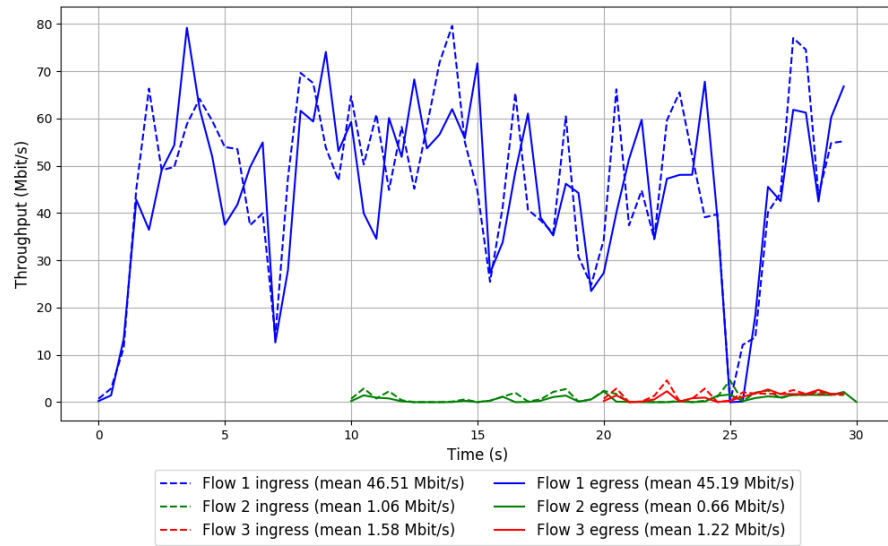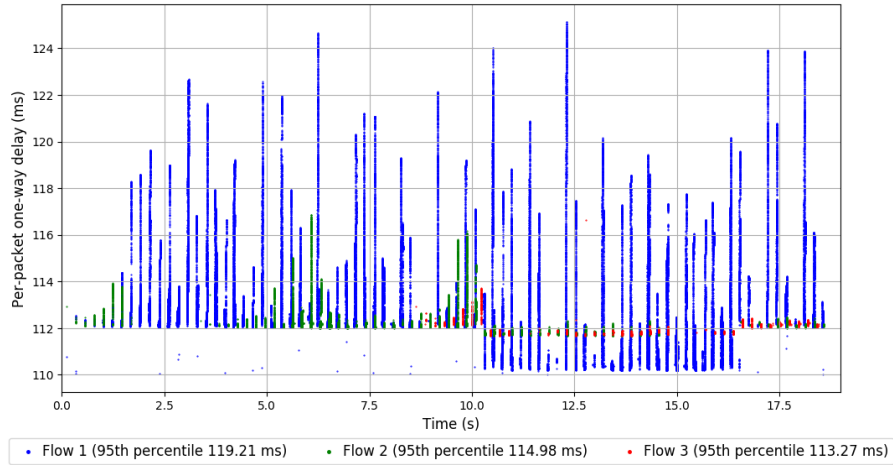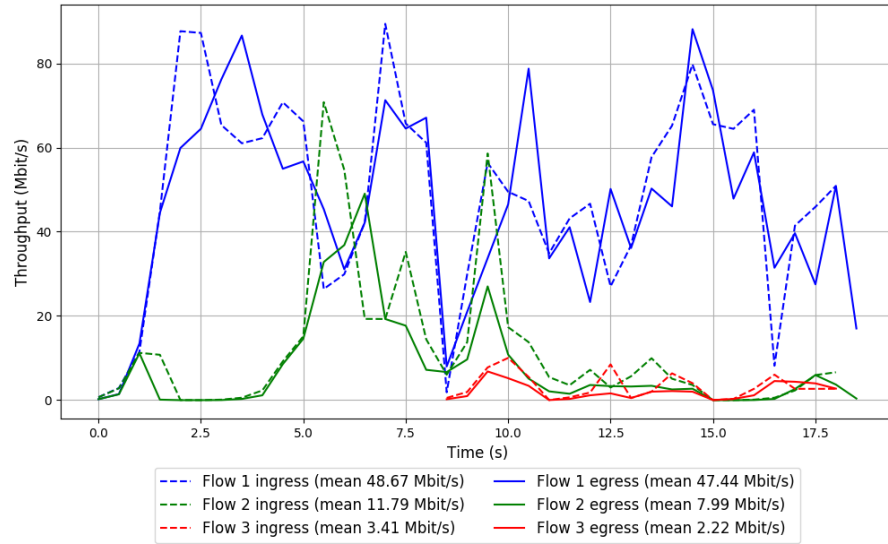
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 42.90 Mbit/s)   Flow 1 egress (mean 41.16 Mbit/s)
Flow 2 ingress (mean 36.64 Mbit/s)   Flow 2 egress (mean 35.44 Mbit/s)
Flow 3 ingress (mean 30.29 Mbit/s)   Flow 3 egress (mean 23.79 Mbit/s)

Flow 1 (95th percentile 119.42 ms)   Flow 2 (95th percentile 119.58 ms)   Flow 3 (95th percentile 114.76 ms)

9

```
Run 4: Statistics of TCP BBR

Start at: 2017-08-12 03:39:18
End at: 2017-08-12 03:39:48


# Below is generated by plot.py at 2017-08-12 06:03:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.95 Mbit/s
95th percentile per-packet one-way delay: 118.687 ms
Loss rate: 3.55%
-- Flow 1:
Average throughput: 45.19 Mbit/s
95th percentile per-packet one-way delay: 118.716 ms
Loss rate: 2.82%
-- Flow 2:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 112.398 ms
Loss rate: 38.11%
-- Flow 3:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 112.556 ms
Loss rate: 22.49%
```
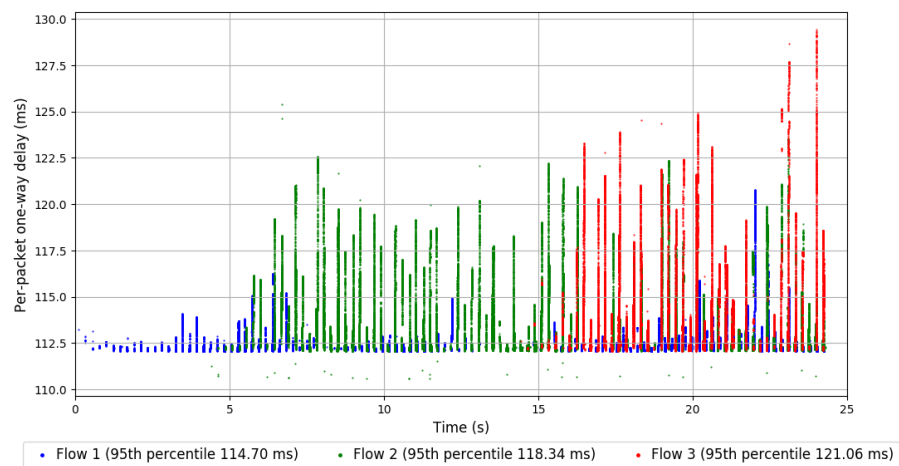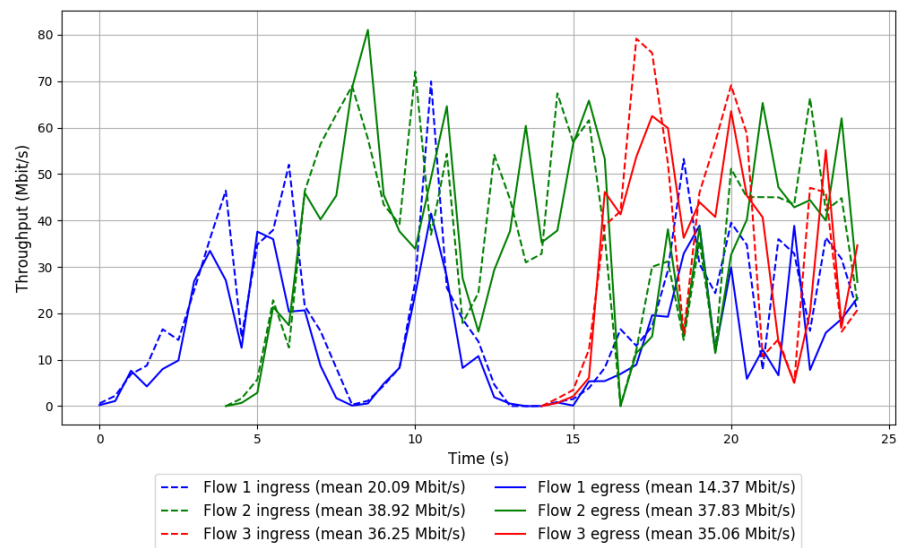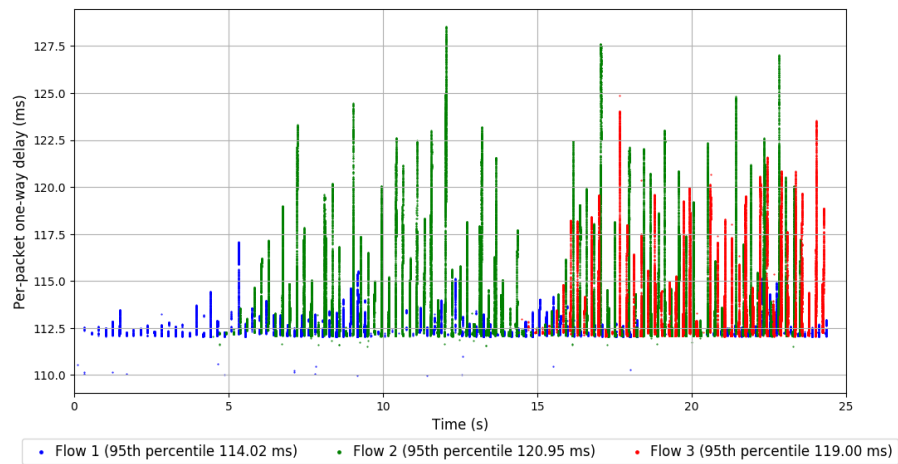
Run 4: Report of TCP BBR — Data Link

Run 5: Statistics of TCP BBR

Start at: 2017-08-12 03:51:48
End at: 2017-08-12 03:52:18

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 48.67 Mbit/s)   Flow 1 egress (mean 47.44 Mbit/s)
Flow 2 ingress (mean 11.79 Mbit/s)   Flow 2 egress (mean 7.99 Mbit/s)
Flow 3 ingress (mean 3.41 Mbit/s)   Flow 3 egress (mean 2.22 Mbit/s)

Flow 1 (95th percentile 119.21 ms)   Flow 2 (95th percentile 114.98 ms)   Flow 3 (95th percentile 113.27 ms)

13

```
Run 6: Statistics of TCP BBR

Start at: 2017-08-12 04:05:08
End at: 2017-08-12 04:05:38


# Below is generated by plot.py at 2017-08-12 06:04:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 59.68 Mbit/s
95th percentile per-packet one-way delay: 118.678 ms
Loss rate: 10.63%
-- Flow 1:
Average throughput: 14.37 Mbit/s
95th percentile per-packet one-way delay: 114.702 ms
Loss rate: 28.51%
-- Flow 2:
Average throughput: 37.83 Mbit/s
95th percentile per-packet one-way delay: 118.345 ms
Loss rate: 2.82%
-- Flow 3:
Average throughput: 35.06 Mbit/s
95th percentile per-packet one-way delay: 121.057 ms
Loss rate: 3.25%
```
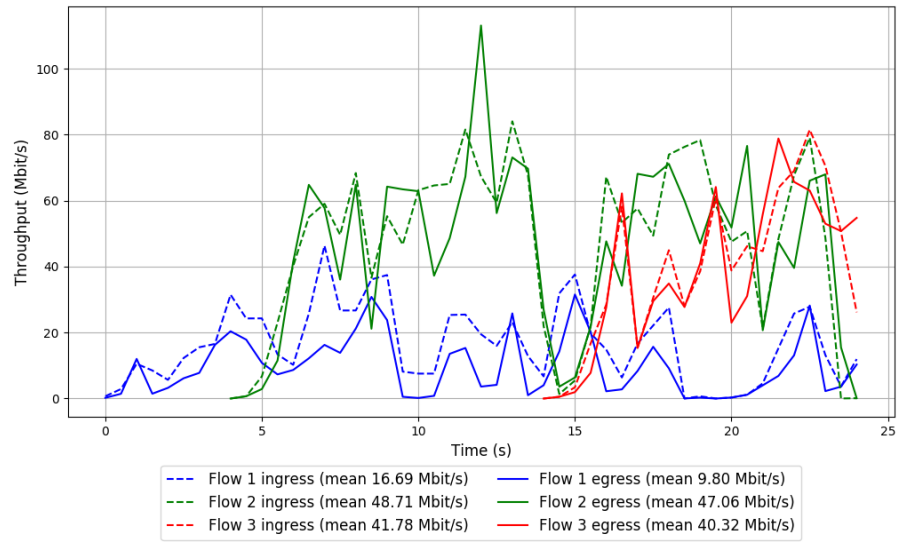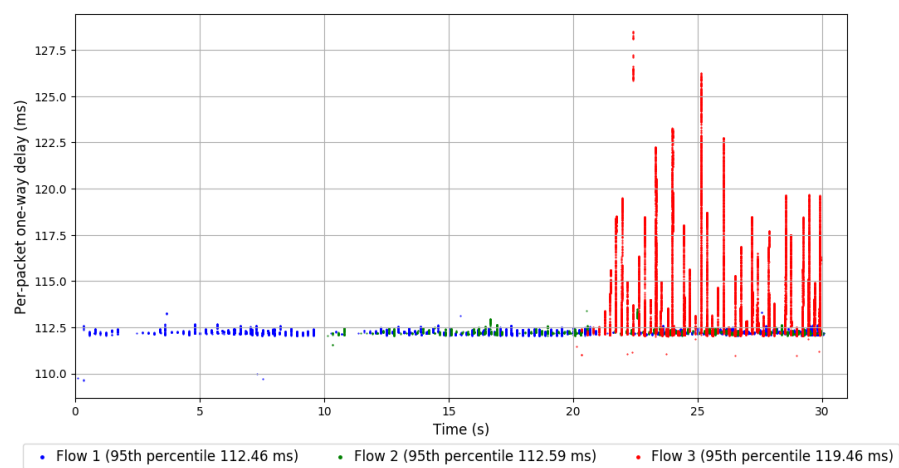
Run 6: Report of TCP BBR — Data Link

15

```
Run 7: Statistics of TCP BBR

Start at: 2017-08-12 04:18:06
End at: 2017-08-12 04:18:36


# Below is generated by plot.py at 2017-08-12 06:04:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 64.41 Mbit/s
95th percentile per-packet one-way delay: 119.907 ms
Loss rate: 12.03%
-- Flow 1:
Average throughput: 9.80 Mbit/s
95th percentile per-packet one-way delay: 114.016 ms
Loss rate: 41.27%
-- Flow 2:
Average throughput: 47.06 Mbit/s
95th percentile per-packet one-way delay: 120.946 ms
Loss rate: 3.38%
-- Flow 3:
Average throughput: 40.32 Mbit/s
95th percentile per-packet one-way delay: 118.998 ms
Loss rate: 3.45%
```
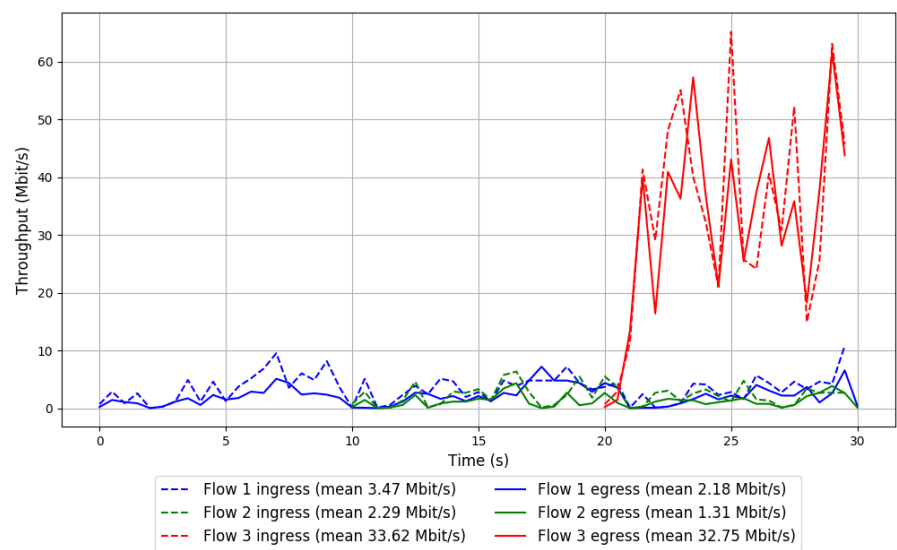
Run 7: Report of TCP BBR — Data Link

```
Run 8: Statistics of TCP BBR

Start at: 2017-08-12 04:31:08
End at: 2017-08-12 04:31:38

# Below is generated by plot.py at 2017-08-12 06:04:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.76 Mbit/s
95th percentile per-packet one-way delay: 118.941 ms
Loss rate: 14.90%
-- Flow 1:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 112.464 ms
Loss rate: 37.09%
-- Flow 2:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 112.591 ms
Loss rate: 43.07%
-- Flow 3:
Average throughput: 32.75 Mbit/s
95th percentile per-packet one-way delay: 119.461 ms
Loss rate: 4.18%
```
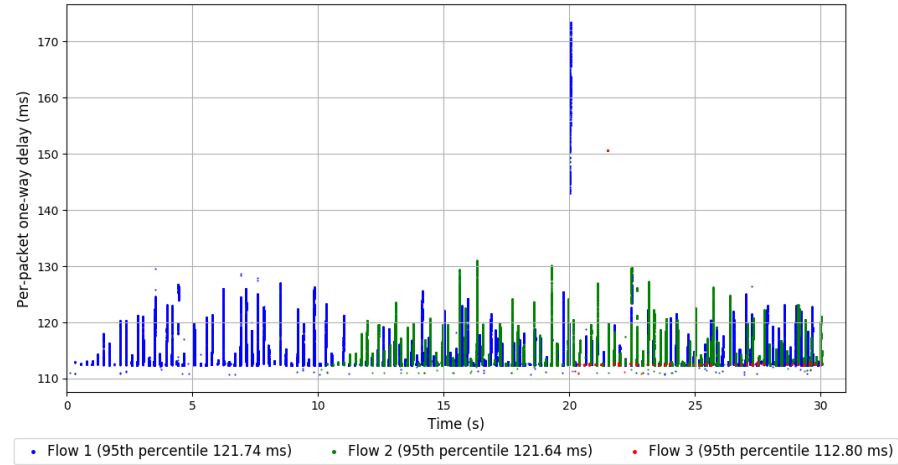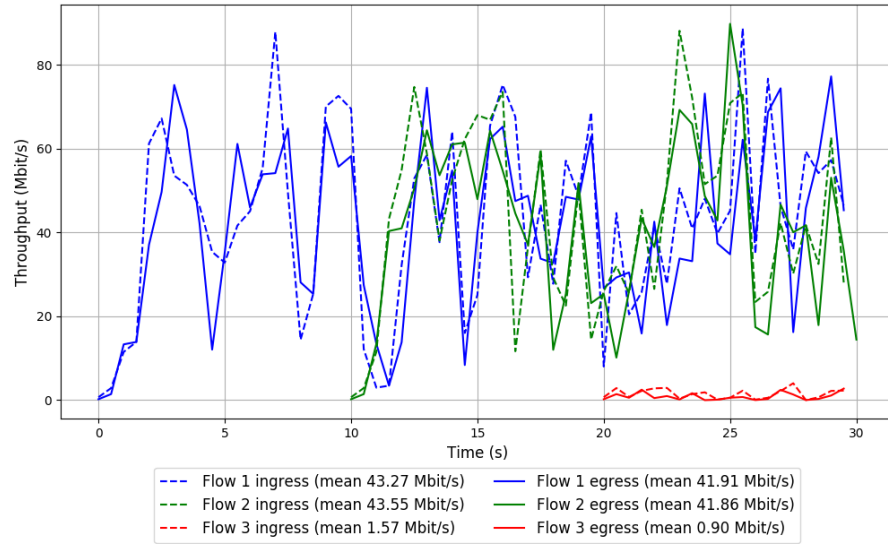
Run 8: Report of TCP BBR — Data Link

19

```
Run 9: Statistics of TCP BBR

Start at: 2017-08-12 04:44:20
End at: 2017-08-12 04:44:50

# Below is generated by plot.py at 2017-08-12 06:04:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 69.86 Mbit/s
95th percentile per-packet one-way delay: 121.692 ms
Loss rate: 4.06%
-- Flow 1:
Average throughput: 41.91 Mbit/s
95th percentile per-packet one-way delay: 121.736 ms
Loss rate: 3.73%
-- Flow 2:
Average throughput: 41.86 Mbit/s
95th percentile per-packet one-way delay: 121.643 ms
Loss rate: 3.86%
-- Flow 3:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 112.797 ms
Loss rate: 42.75%
```
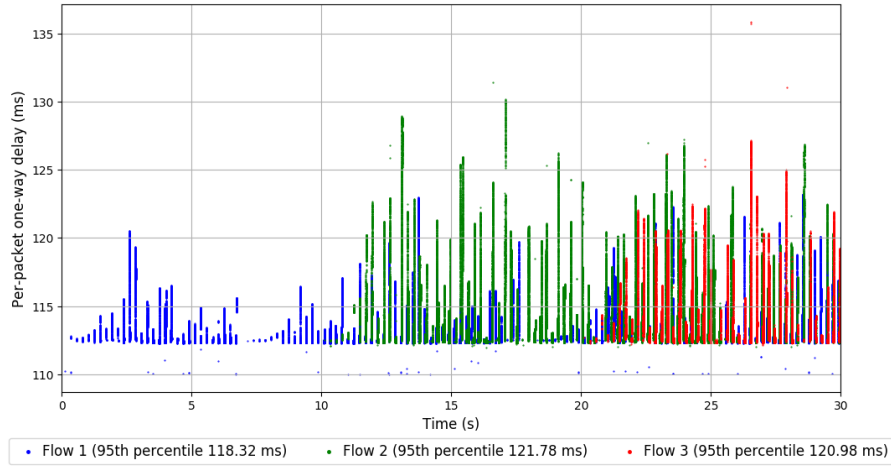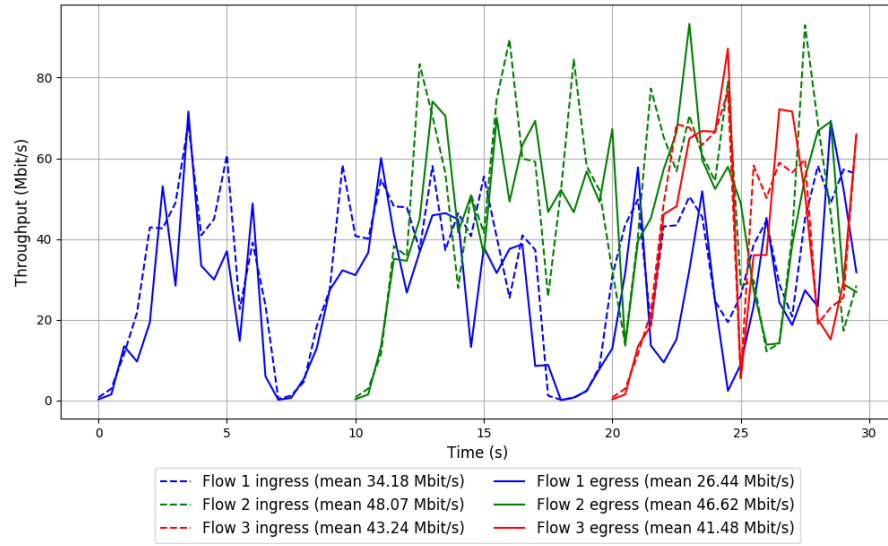
Run 9: Report of TCP BBR — Data Link

```
Run 10: Statistics of TCP BBR

Start at: 2017-08-12 04:57:19
End at: 2017-08-12 04:57:49

# Below is generated by plot.py at 2017-08-12 06:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.02 Mbit/s
95th percentile per-packet one-way delay: 120.821 ms
Loss rate: 11.54%
-- Flow 1:
Average throughput: 26.44 Mbit/s
95th percentile per-packet one-way delay: 118.324 ms
Loss rate: 22.64%
-- Flow 2:
Average throughput: 46.62 Mbit/s
95th percentile per-packet one-way delay: 121.779 ms
Loss rate: 3.01%
-- Flow 3:
Average throughput: 41.48 Mbit/s
95th percentile per-packet one-way delay: 120.982 ms
Loss rate: 4.06%
```
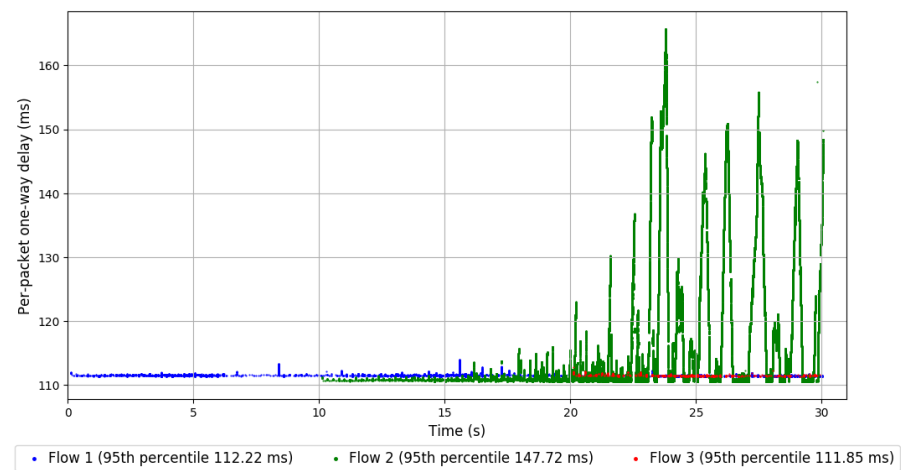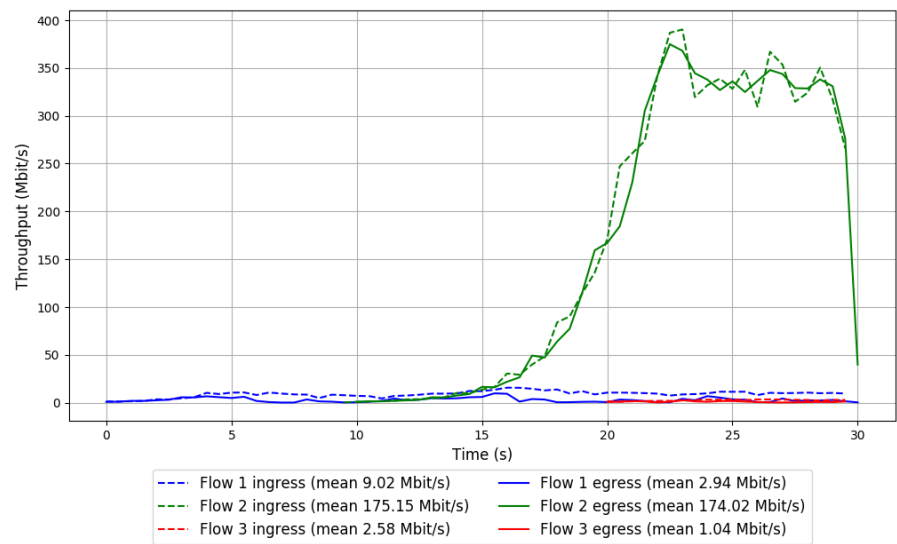
Run 10: Report of TCP BBR — Data Link

23

```
Run 1: Statistics of CalibratedKoho

Start at: 2017-08-12 02:53:26
End at: 2017-08-12 02:53:56

# Below is generated by plot.py at 2017-08-12 06:04:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 119.23 Mbit/s
95th percentile per-packet one-way delay: 147.535 ms
Loss rate: 5.75%
-- Flow 1:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 112.216 ms
Loss rate: 67.41%
-- Flow 2:
Average throughput: 174.02 Mbit/s
95th percentile per-packet one-way delay: 147.715 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 111.848 ms
Loss rate: 59.85%
```
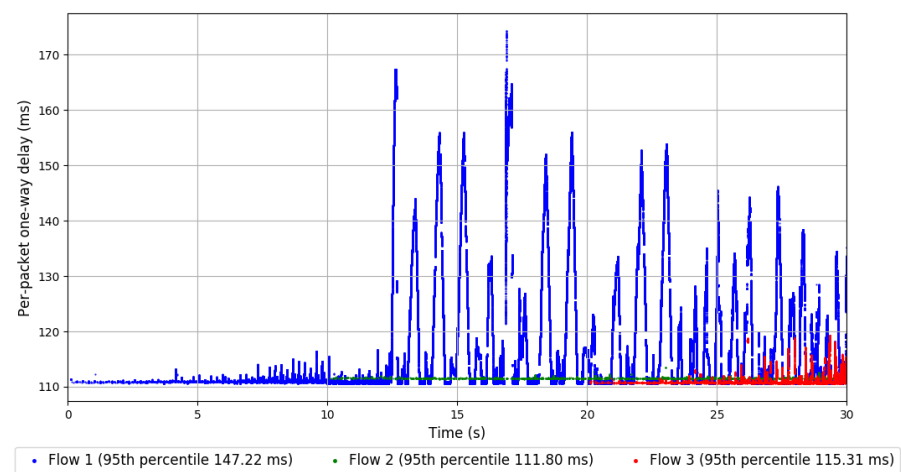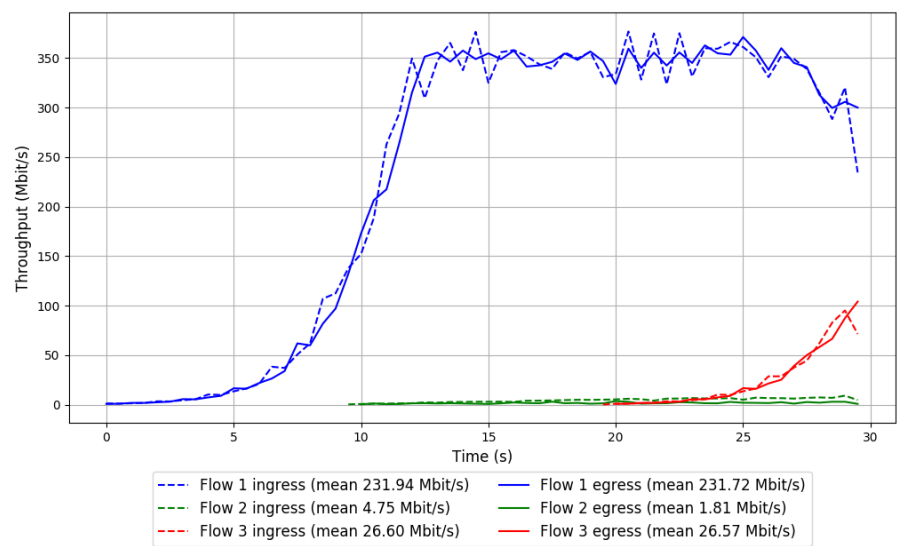
Run 1: Report of CalibratedKoho — Data Link

Flow 1 ingress (mean 9.02 Mbit/s)   Flow 1 egress (mean 2.94 Mbit/s)
Flow 2 ingress (mean 175.15 Mbit/s)   Flow 2 egress (mean 174.02 Mbit/s)
Flow 3 ingress (mean 2.58 Mbit/s)   Flow 3 egress (mean 1.04 Mbit/s)

Flow 1 (95th percentile 112.22 ms)   Flow 2 (95th percentile 147.72 ms)   Flow 3 (95th percentile 111.85 ms)

25

```
Run 2: Statistics of CalibratedKoho

Start at: 2017-08-12 03:06:23
End at: 2017-08-12 03:06:53


# Below is generated by plot.py at 2017-08-12 06:05:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 241.70 Mbit/s
95th percentile per-packet one-way delay: 146.664 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 231.72 Mbit/s
95th percentile per-packet one-way delay: 147.219 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 111.802 ms
Loss rate: 62.03%
-- Flow 3:
Average throughput: 26.57 Mbit/s
95th percentile per-packet one-way delay: 115.313 ms
Loss rate: 0.10%
```
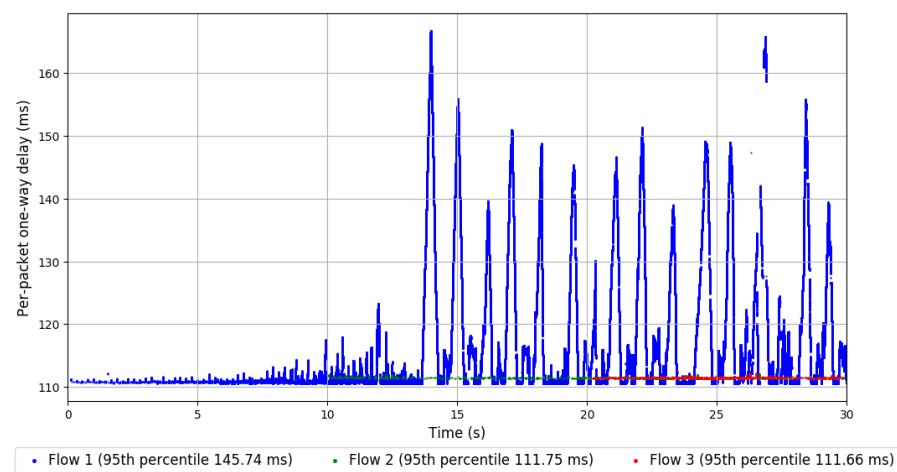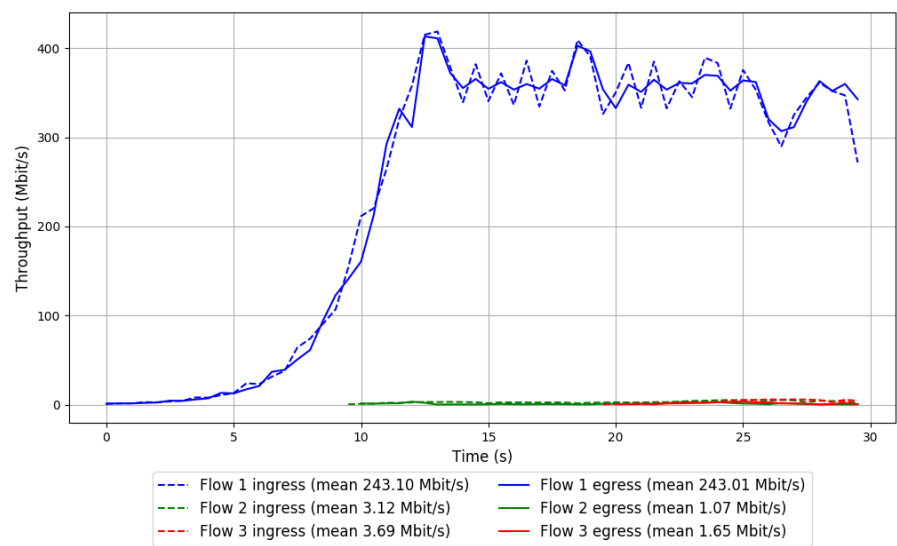
Run 2: Report of CalibratedKoho — Data Link

```
Run 3: Statistics of CalibratedKoho

Start at: 2017-08-12 03:19:34
End at: 2017-08-12 03:20:04


# Below is generated by plot.py at 2017-08-12 06:05:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 244.25 Mbit/s
95th percentile per-packet one-way delay: 145.702 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 243.01 Mbit/s
95th percentile per-packet one-way delay: 145.735 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 111.746 ms
Loss rate: 65.80%
-- Flow 3:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 111.660 ms
Loss rate: 56.06%
```
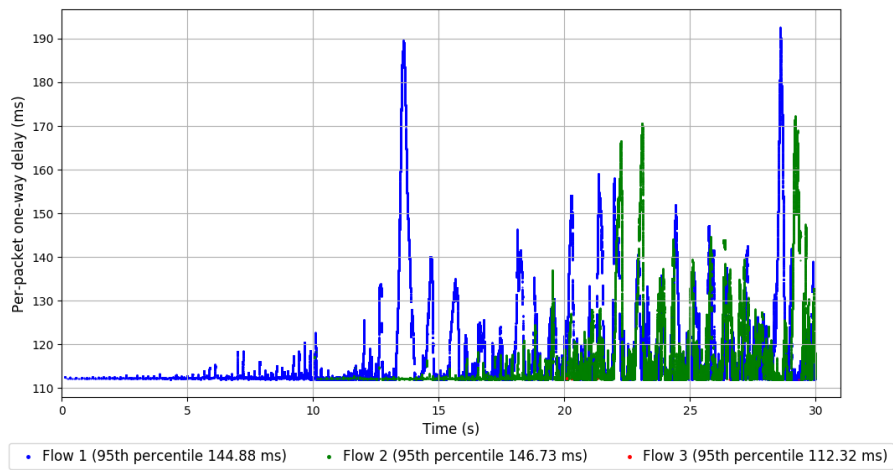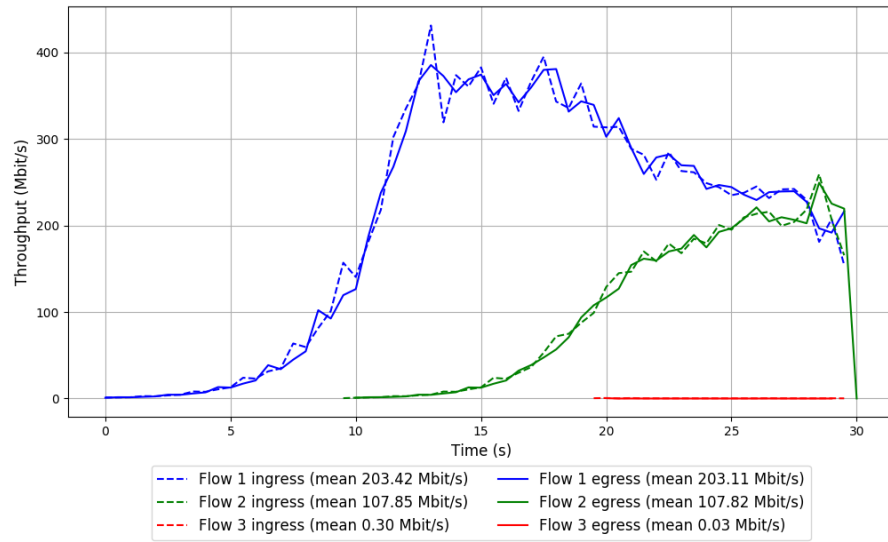
Run 3: Report of CalibratedKoho — Data Link

```
Run 4: Statistics of CalibratedKoho

Start at: 2017-08-12 03:32:50
End at: 2017-08-12 03:33:20


# Below is generated by plot.py at 2017-08-12 06:06:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 275.00 Mbit/s
95th percentile per-packet one-way delay: 145.458 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 203.11 Mbit/s
95th percentile per-packet one-way delay: 144.883 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 107.82 Mbit/s
95th percentile per-packet one-way delay: 146.732 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 112.321 ms
Loss rate: 91.87%
```
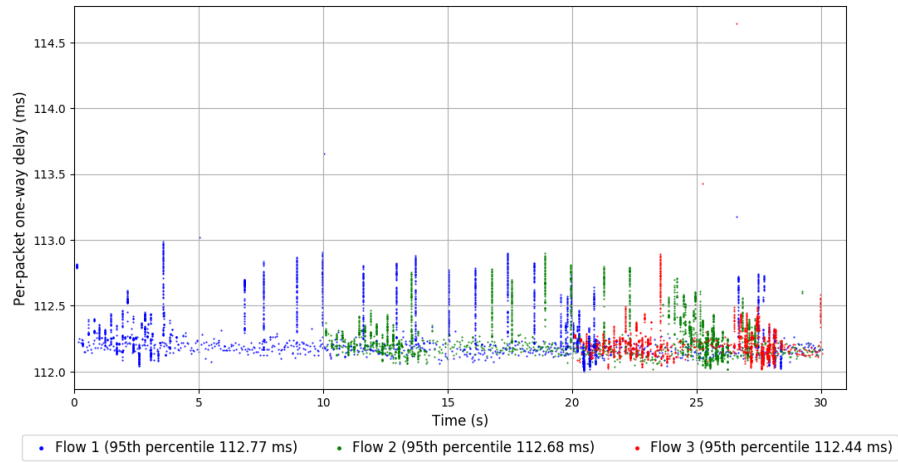
Run 4: Report of CalibratedKoho — Data Link

```
Run 5: Statistics of CalibratedKoho

Start at: 2017-08-12 03:45:44
End at: 2017-08-12 03:46:14


# Below is generated by plot.py at 2017-08-12 06:06:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.79 Mbit/s
95th percentile per-packet one-way delay: 112.716 ms
Loss rate: 64.25%
-- Flow 1:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 112.771 ms
Loss rate: 68.28%
-- Flow 2:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 112.677 ms
Loss rate: 64.04%
-- Flow 3:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 112.444 ms
Loss rate: 53.88%
```
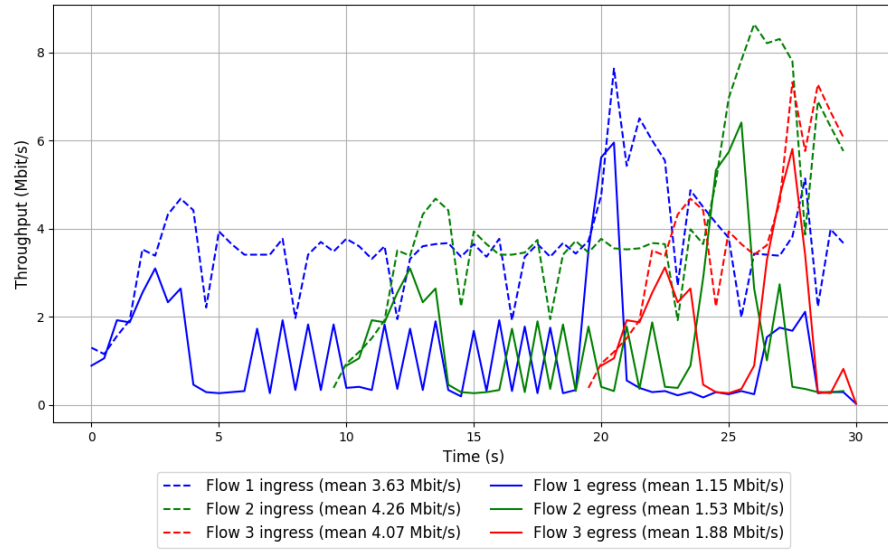
Run 5: Report of CalibratedKoho — Data Link

```
Run 6: Statistics of CalibratedKoho

Start at: 2017-08-12 03:58:23
End at: 2017-08-12 03:58:53


# Below is generated by plot.py at 2017-08-12 06:06:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 276.40 Mbit/s
95th percentile per-packet one-way delay: 135.436 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 191.67 Mbit/s
95th percentile per-packet one-way delay: 137.016 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 114.66 Mbit/s
95th percentile per-packet one-way delay: 130.931 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 24.77 Mbit/s
95th percentile per-packet one-way delay: 118.290 ms
Loss rate: 0.00%
```
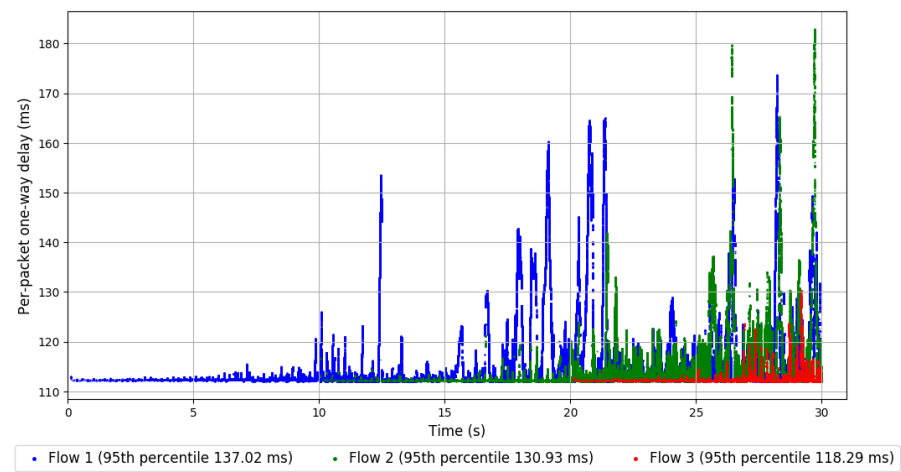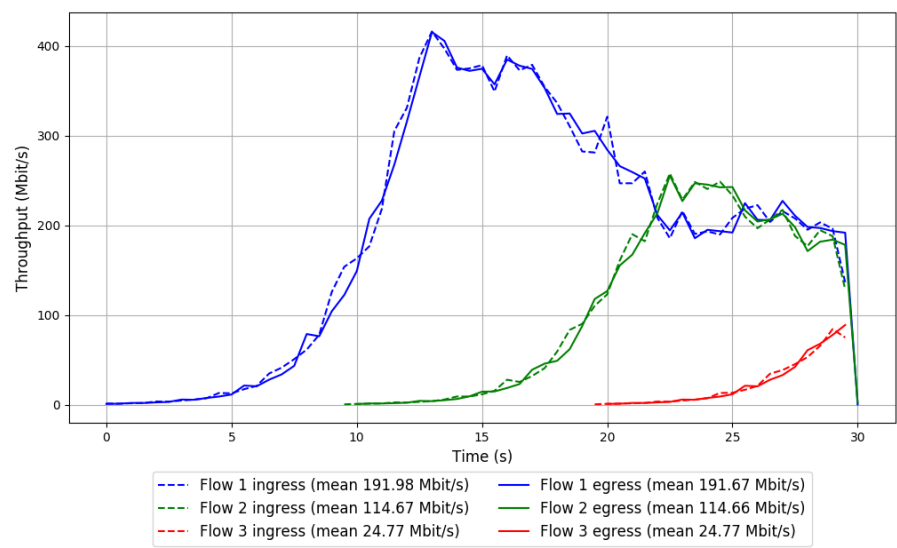
Run 6: Report of CalibratedKoho — Data Link

```
Run 7: Statistics of CalibratedKoho

Start at: 2017-08-12 04:11:44
End at: 2017-08-12 04:12:14


# Below is generated by plot.py at 2017-08-12 06:07:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 268.78 Mbit/s
95th percentile per-packet one-way delay: 129.986 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 185.38 Mbit/s
95th percentile per-packet one-way delay: 129.242 ms
Loss rate: 1.86%
-- Flow 2:
Average throughput: 116.36 Mbit/s
95th percentile per-packet one-way delay: 132.517 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 17.80 Mbit/s
95th percentile per-packet one-way delay: 119.463 ms
Loss rate: 6.34%
```
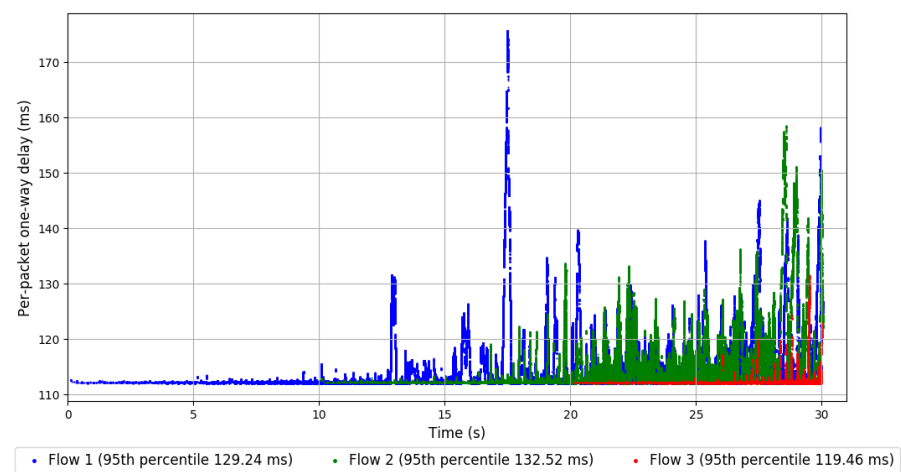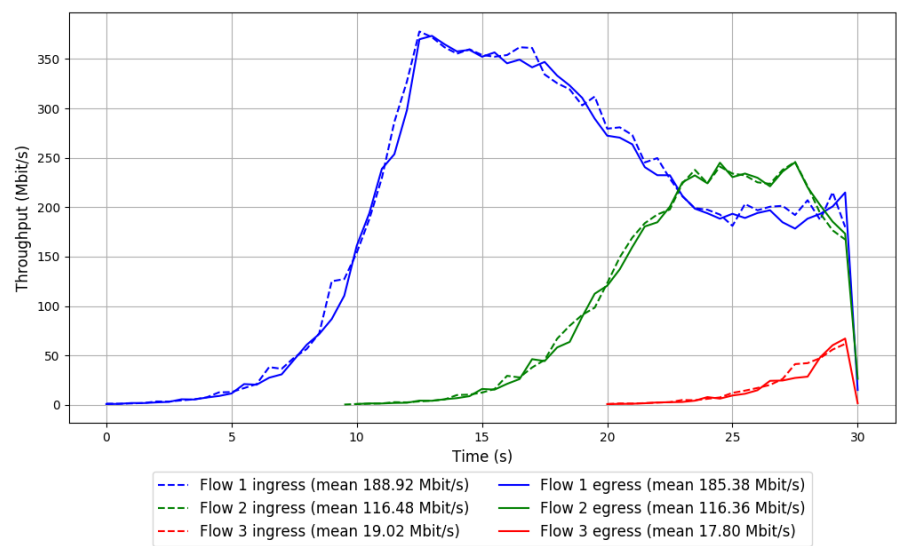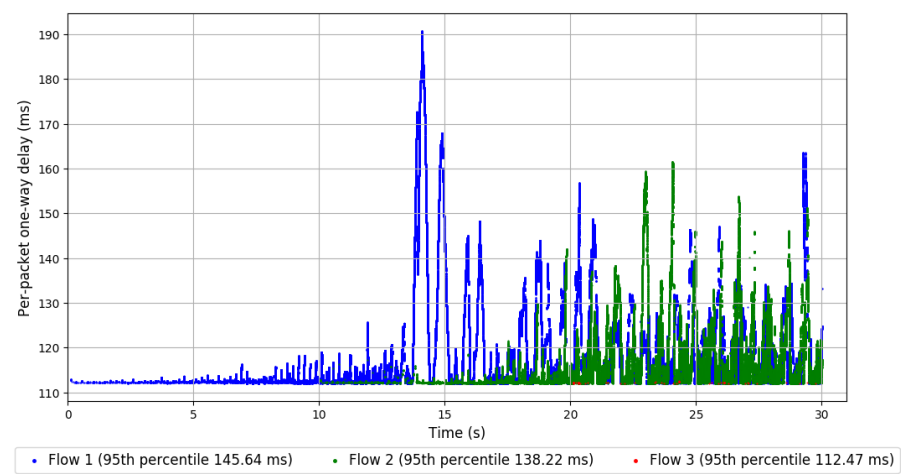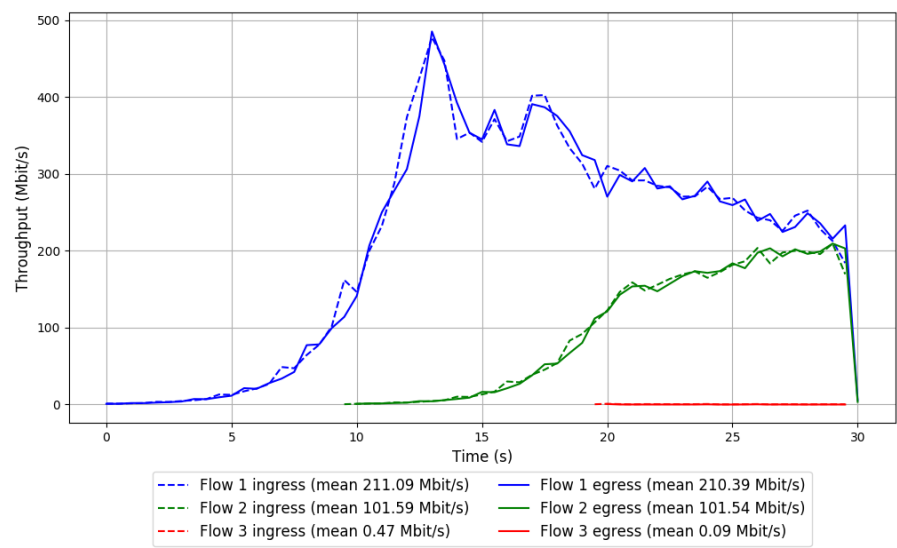
Run 7: Report of CalibratedKoho — Data Link

- - - Flow 1 ingress (mean 188.92 Mbit/s) —— Flow 1 egress (mean 185.38 Mbit/s)
- - - Flow 2 ingress (mean 116.48 Mbit/s) —— Flow 2 egress (mean 116.36 Mbit/s)
- - - Flow 3 ingress (mean 19.02 Mbit/s) —— Flow 3 egress (mean 17.80 Mbit/s)

• Flow 1 (95th percentile 129.24 ms)　　• Flow 2 (95th percentile 132.52 ms)　　• Flow 3 (95th percentile 119.46 ms)

```
Run 8: Statistics of CalibratedKoho

Start at: 2017-08-12 04:24:34
End at: 2017-08-12 04:25:04


# Below is generated by plot.py at 2017-08-12 06:07:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 278.16 Mbit/s
95th percentile per-packet one-way delay: 144.248 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 210.39 Mbit/s
95th percentile per-packet one-way delay: 145.643 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 101.54 Mbit/s
95th percentile per-packet one-way delay: 138.217 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 112.465 ms
Loss rate: 81.87%
```
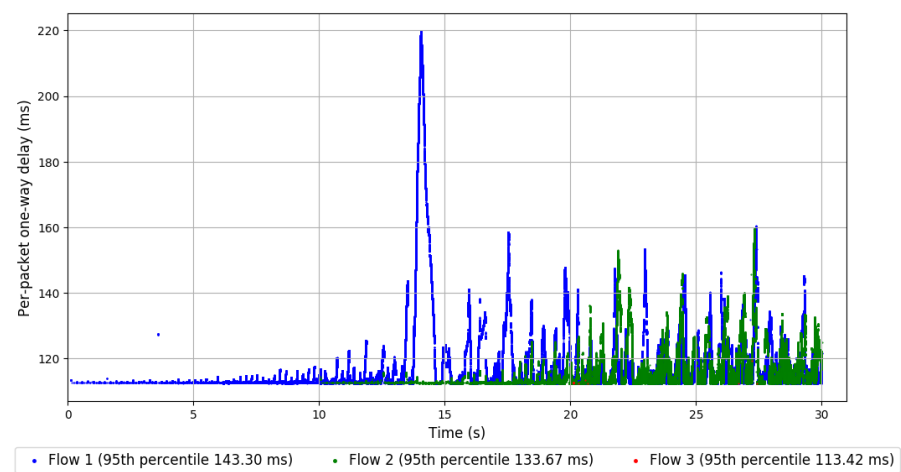
Run 8: Report of CalibratedKoho — Data Link

```
Run 9: Statistics of CalibratedKoho

Start at: 2017-08-12 04:37:38
End at: 2017-08-12 04:38:08


# Below is generated by plot.py at 2017-08-12 06:07:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 273.22 Mbit/s
95th percentile per-packet one-way delay: 140.613 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 198.25 Mbit/s
95th percentile per-packet one-way delay: 143.302 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 112.32 Mbit/s
95th percentile per-packet one-way delay: 133.668 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 113.417 ms
Loss rate: 93.12%
```
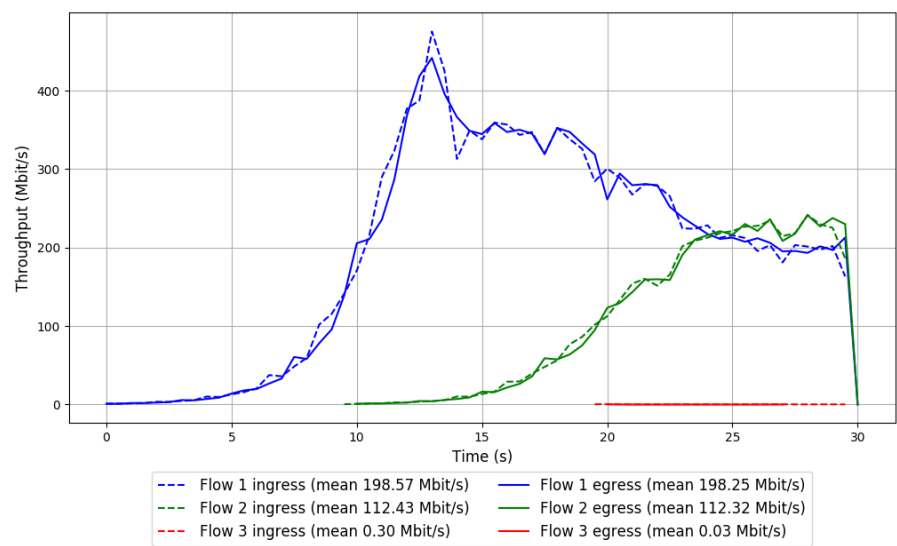
Run 9: Report of CalibratedKoho — Data Link

41

```
Run 10: Statistics of CalibratedKoho

Start at: 2017-08-12 04:50:48
End at: 2017-08-12 04:51:18


# Below is generated by plot.py at 2017-08-12 06:07:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 118.28 Mbit/s
95th percentile per-packet one-way delay: 161.629 ms
Loss rate: 2.45%
-- Flow 1:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 113.230 ms
Loss rate: 69.93%
-- Flow 2:
Average throughput: 175.94 Mbit/s
95th percentile per-packet one-way delay: 161.766 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 112.722 ms
Loss rate: 60.43%
```
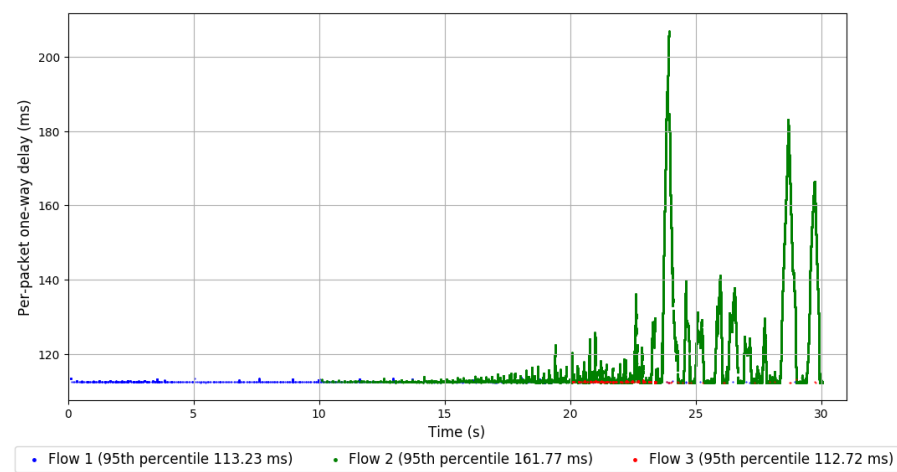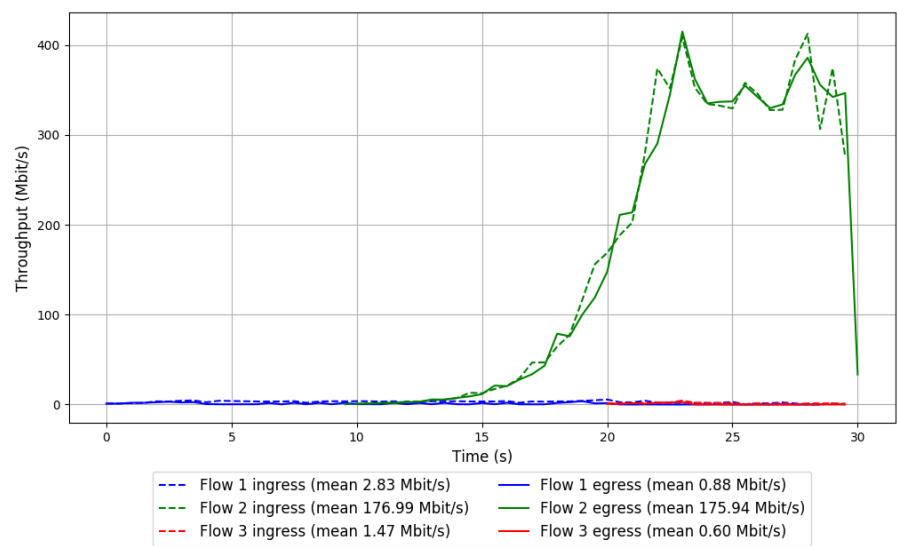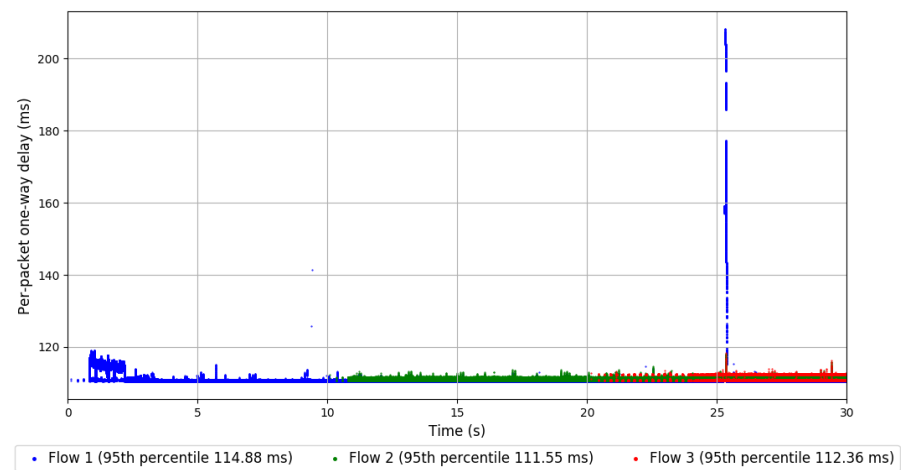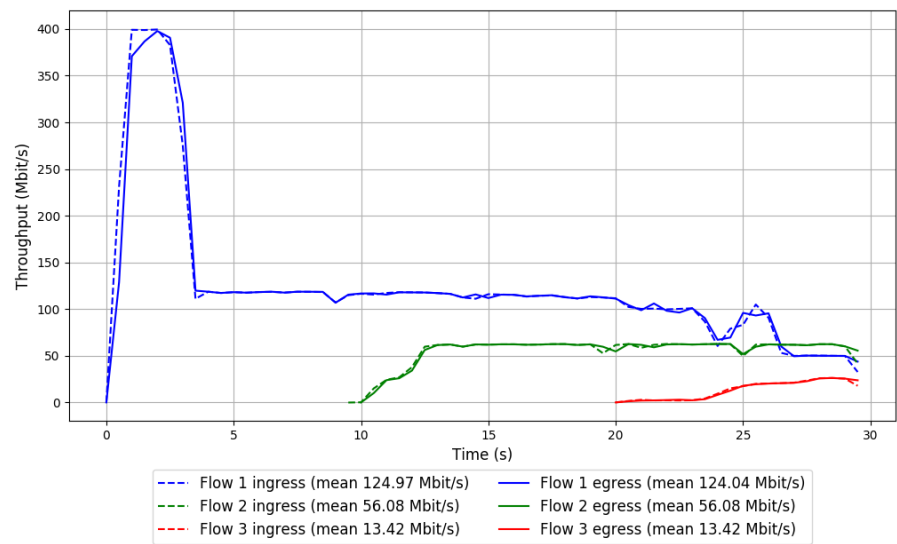
Run 10: Report of CalibratedKoho — Data Link

Flow 1 ingress (mean 2.83 Mbit/s) --- Flow 1 egress (mean 0.88 Mbit/s)
Flow 2 ingress (mean 176.99 Mbit/s) --- Flow 2 egress (mean 175.94 Mbit/s)
Flow 3 ingress (mean 1.47 Mbit/s) --- Flow 3 egress (mean 0.60 Mbit/s)

Flow 1 (95th percentile 113.23 ms)   Flow 2 (95th percentile 161.77 ms)   Flow 3 (95th percentile 112.72 ms)

43

```
Run 1: Statistics of Copa

Start at: 2017-08-12 02:55:08
End at: 2017-08-12 02:55:38

# Below is generated by plot.py at 2017-08-12 06:08:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 165.79 Mbit/s
95th percentile per-packet one-way delay: 114.635 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 124.04 Mbit/s
95th percentile per-packet one-way delay: 114.876 ms
Loss rate: 0.75%
-- Flow 2:
Average throughput: 56.08 Mbit/s
95th percentile per-packet one-way delay: 111.550 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 13.42 Mbit/s
95th percentile per-packet one-way delay: 112.361 ms
Loss rate: 0.00%
```
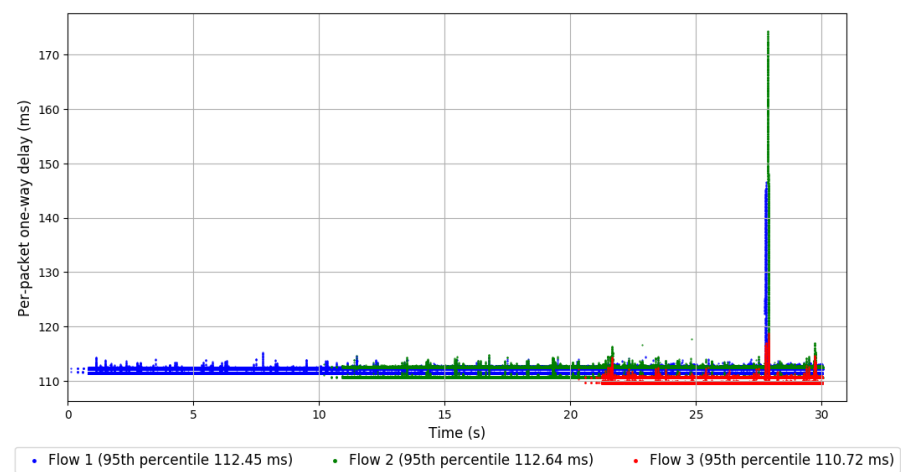
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2017-08-12 03:08:16
End at: 2017-08-12 03:08:46


# Below is generated by plot.py at 2017-08-12 06:08:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 135.36 Mbit/s
95th percentile per-packet one-way delay: 112.597 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 71.52 Mbit/s
95th percentile per-packet one-way delay: 112.452 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 71.10 Mbit/s
95th percentile per-packet one-way delay: 112.638 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 51.46 Mbit/s
95th percentile per-packet one-way delay: 110.720 ms
Loss rate: 0.00%
```
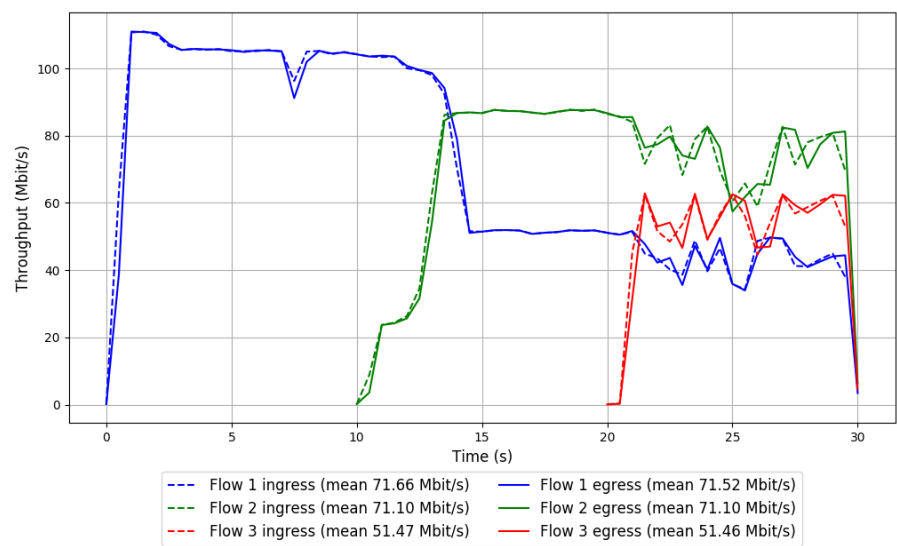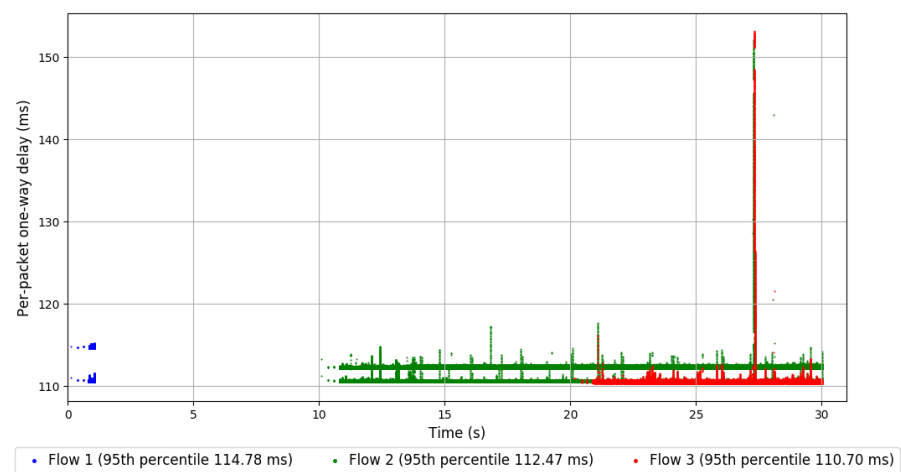
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 71.66 Mbit/s) --- Flow 1 egress (mean 71.52 Mbit/s)
Flow 2 ingress (mean 71.10 Mbit/s) --- Flow 2 egress (mean 71.10 Mbit/s)
Flow 3 ingress (mean 51.47 Mbit/s) --- Flow 3 egress (mean 51.46 Mbit/s)

Flow 1 (95th percentile 112.45 ms)   Flow 2 (95th percentile 112.64 ms)   Flow 3 (95th percentile 110.72 ms)

47

```
Run 3: Statistics of Copa

Start at: 2017-08-12 03:21:27
End at: 2017-08-12 03:21:57


# Below is generated by plot.py at 2017-08-12 06:09:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.01 Mbit/s
95th percentile per-packet one-way delay: 112.489 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 101.76 Mbit/s
95th percentile per-packet one-way delay: 114.781 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 95.44 Mbit/s
95th percentile per-packet one-way delay: 112.467 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 67.18 Mbit/s
95th percentile per-packet one-way delay: 110.699 ms
Loss rate: 0.00%
```
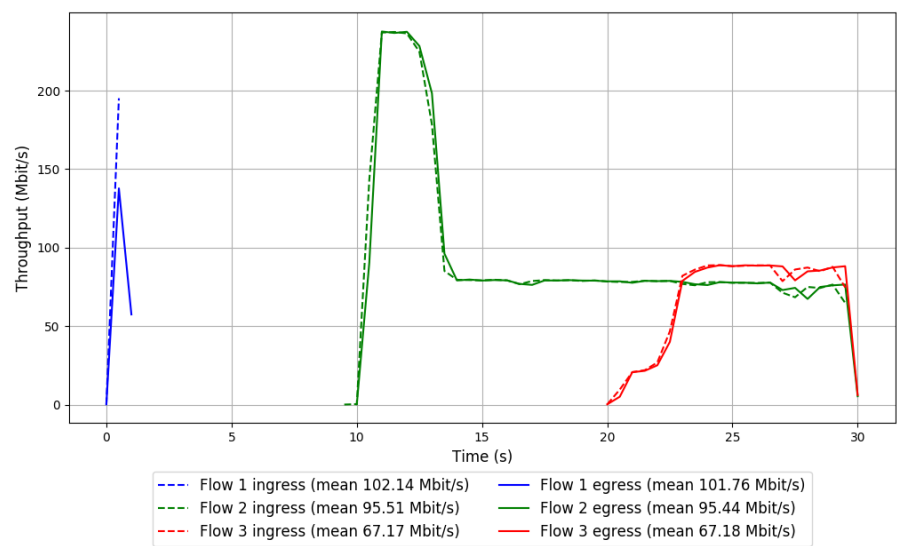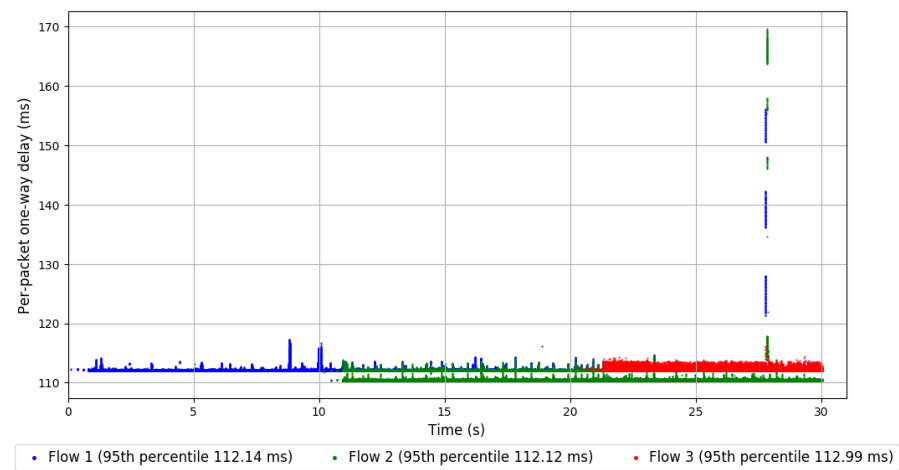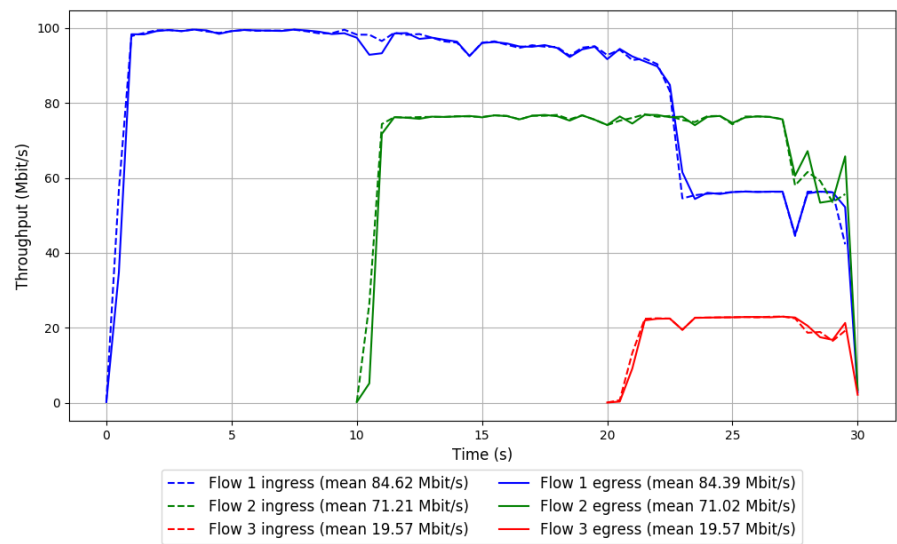
Run 3: Report of Copa — Data Link

- Flow 1 ingress (mean 102.14 Mbit/s)
- Flow 1 egress (mean 101.76 Mbit/s)
- Flow 2 ingress (mean 95.51 Mbit/s)
- Flow 2 egress (mean 95.44 Mbit/s)
- Flow 3 ingress (mean 67.17 Mbit/s)
- Flow 3 egress (mean 67.18 Mbit/s)

- Flow 1 (95th percentile 114.78 ms)
- Flow 2 (95th percentile 112.47 ms)
- Flow 3 (95th percentile 110.70 ms)

```
Run 4: Statistics of Copa

Start at: 2017-08-12 03:34:45
End at: 2017-08-12 03:35:15


# Below is generated by plot.py at 2017-08-12 06:09:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 137.74 Mbit/s
95th percentile per-packet one-way delay: 112.162 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 84.39 Mbit/s
95th percentile per-packet one-way delay: 112.138 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 71.02 Mbit/s
95th percentile per-packet one-way delay: 112.118 ms
Loss rate: 0.32%
-- Flow 3:
Average throughput: 19.57 Mbit/s
95th percentile per-packet one-way delay: 112.988 ms
Loss rate: 0.00%
```
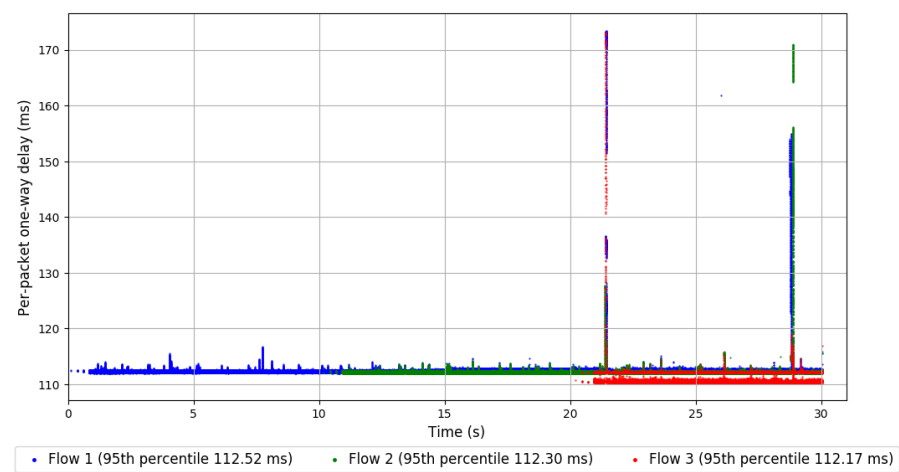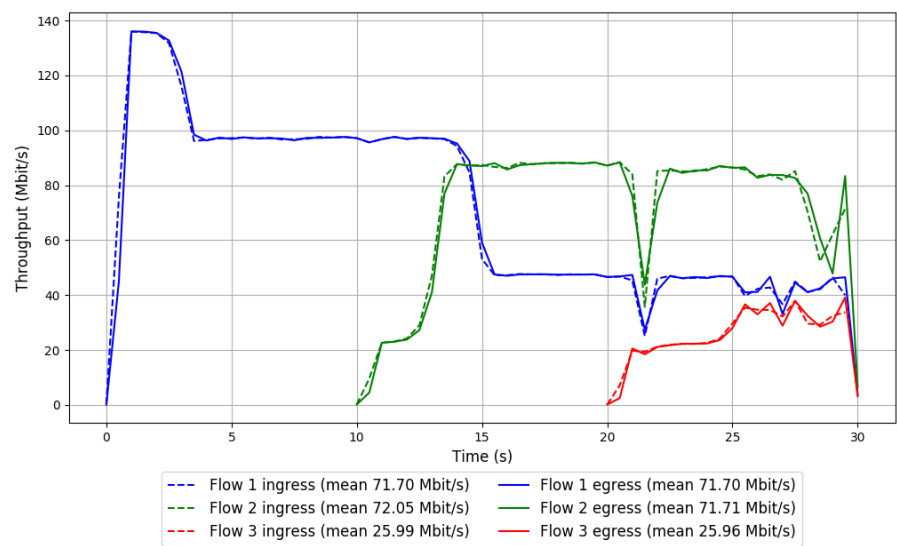
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2017-08-12 03:47:17
End at: 2017-08-12 03:47:47


# Below is generated by plot.py at 2017-08-12 06:09:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 127.81 Mbit/s
95th percentile per-packet one-way delay: 112.453 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 71.70 Mbit/s
95th percentile per-packet one-way delay: 112.522 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 71.71 Mbit/s
95th percentile per-packet one-way delay: 112.303 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 25.96 Mbit/s
95th percentile per-packet one-way delay: 112.168 ms
Loss rate: 0.03%
```
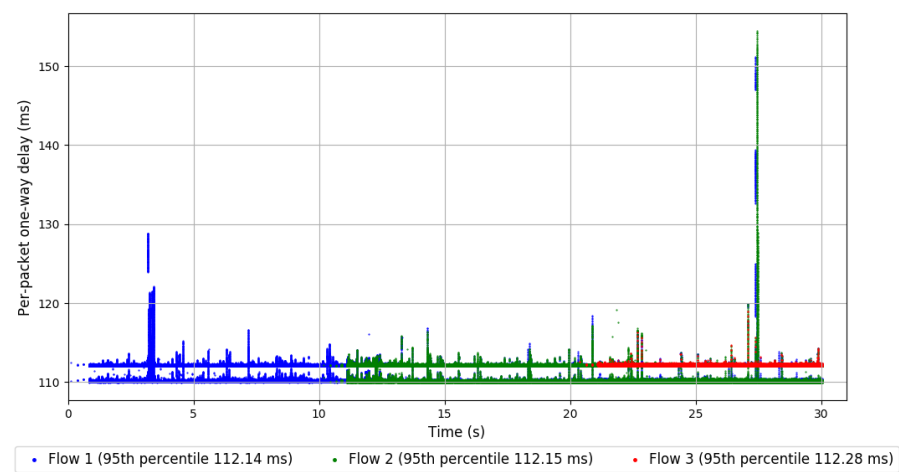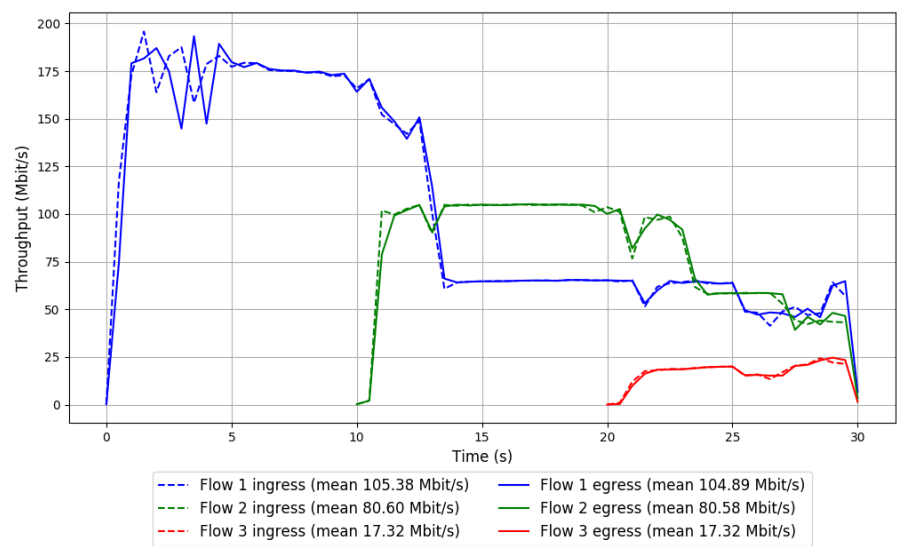
Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 71.70 Mbit/s) — Flow 1 egress (mean 71.70 Mbit/s)
Flow 2 ingress (mean 72.05 Mbit/s) — Flow 2 egress (mean 71.71 Mbit/s)
Flow 3 ingress (mean 25.99 Mbit/s) — Flow 3 egress (mean 25.96 Mbit/s)

Flow 1 (95th percentile 112.52 ms) · Flow 2 (95th percentile 112.30 ms) · Flow 3 (95th percentile 112.17 ms)

53

```
Run 6: Statistics of Copa

Start at: 2017-08-12 04:00:20
End at: 2017-08-12 04:00:50


# Below is generated by plot.py at 2017-08-12 06:10:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 163.98 Mbit/s
95th percentile per-packet one-way delay: 112.162 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 104.89 Mbit/s
95th percentile per-packet one-way delay: 112.136 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 80.58 Mbit/s
95th percentile per-packet one-way delay: 112.150 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 17.32 Mbit/s
95th percentile per-packet one-way delay: 112.281 ms
Loss rate: 0.00%
```
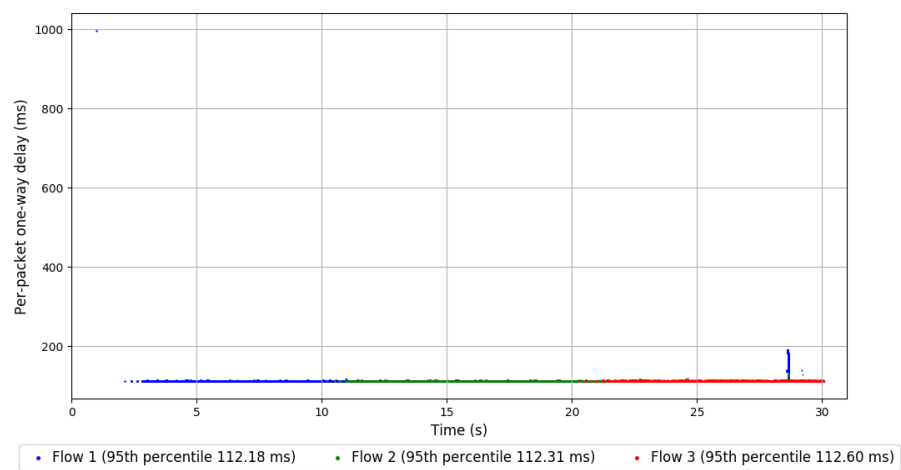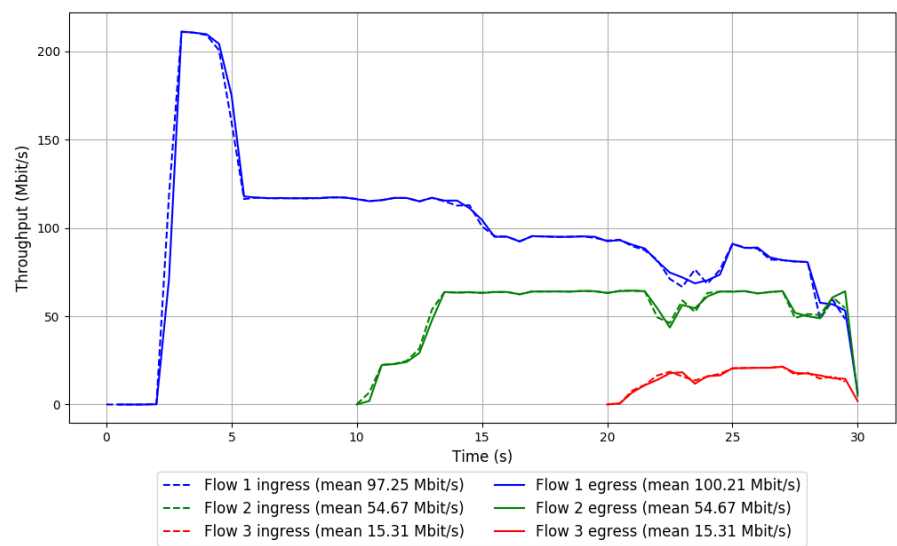
Run 6: Report of Copa — Data Link

```
Run 7: Statistics of Copa

Start at: 2017-08-12 04:13:39
End at: 2017-08-12 04:14:09


# Below is generated by plot.py at 2017-08-12 06:10:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 142.65 Mbit/s
95th percentile per-packet one-way delay: 112.288 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 100.21 Mbit/s
95th percentile per-packet one-way delay: 112.180 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 54.67 Mbit/s
95th percentile per-packet one-way delay: 112.312 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 15.31 Mbit/s
95th percentile per-packet one-way delay: 112.599 ms
Loss rate: 0.00%
```
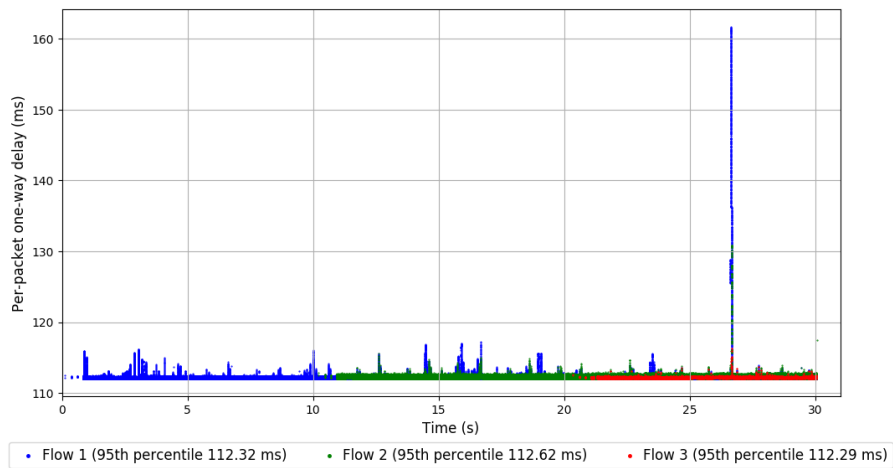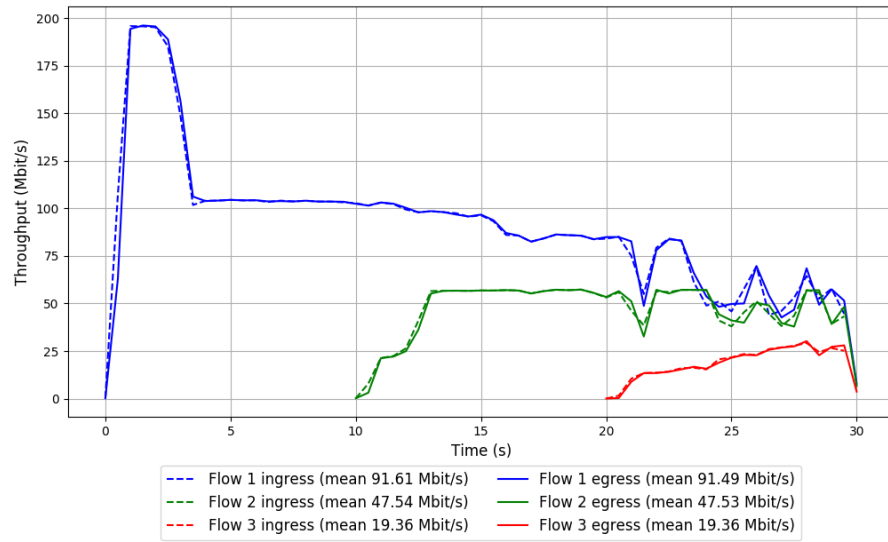
Run 7: Report of Copa — Data Link

Flow 1 ingress (mean 97.25 Mbit/s) --- Flow 1 egress (mean 100.21 Mbit/s)
Flow 2 ingress (mean 54.67 Mbit/s) --- Flow 2 egress (mean 54.67 Mbit/s)
Flow 3 ingress (mean 15.31 Mbit/s) --- Flow 3 egress (mean 15.31 Mbit/s)

Flow 1 (95th percentile 112.18 ms)   Flow 2 (95th percentile 112.31 ms)   Flow 3 (95th percentile 112.60 ms)

57

```
Run 8: Statistics of Copa

Start at: 2017-08-12 04:26:30
End at: 2017-08-12 04:27:00


# Below is generated by plot.py at 2017-08-12 06:11:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 129.23 Mbit/s
95th percentile per-packet one-way delay: 112.507 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 91.49 Mbit/s
95th percentile per-packet one-way delay: 112.322 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 47.53 Mbit/s
95th percentile per-packet one-way delay: 112.616 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 19.36 Mbit/s
95th percentile per-packet one-way delay: 112.292 ms
Loss rate: 0.00%
```
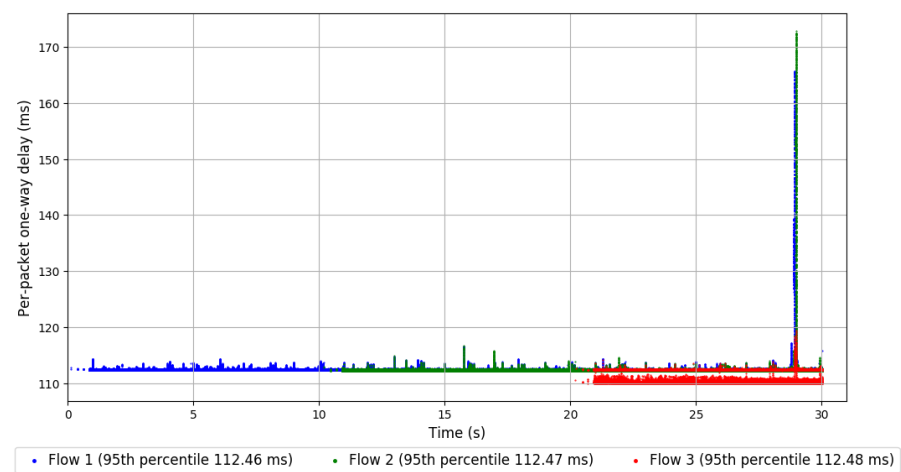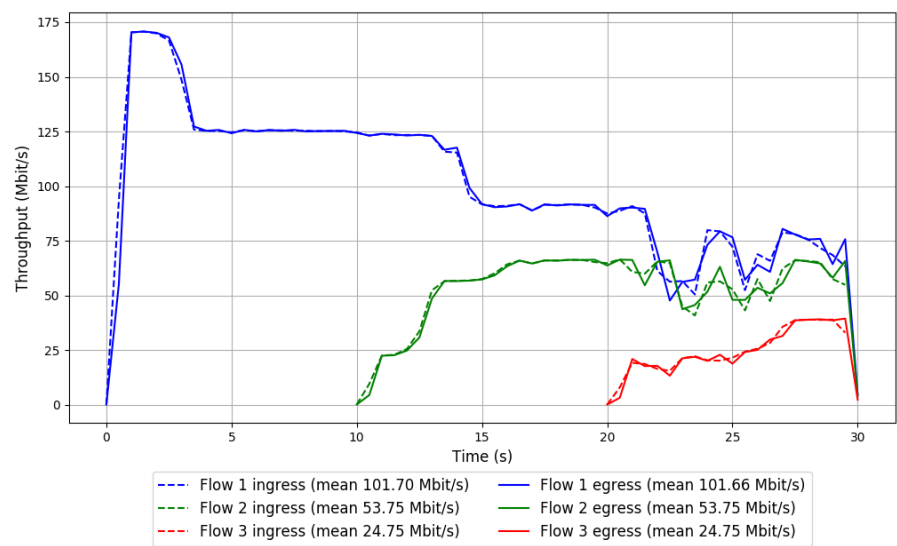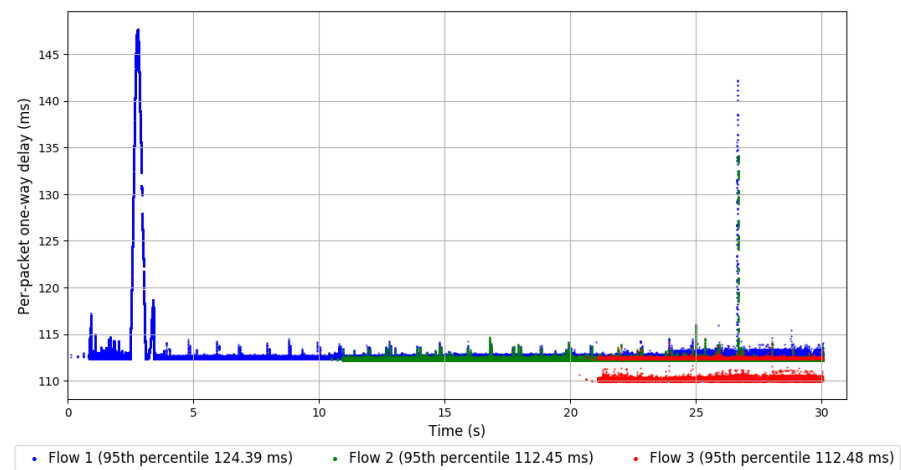
Run 8: Report of Copa — Data Link

- - - Flow 1 ingress (mean 91.61 Mbit/s) —— Flow 1 egress (mean 91.49 Mbit/s)
- - - Flow 2 ingress (mean 47.54 Mbit/s) —— Flow 2 egress (mean 47.53 Mbit/s)
- - - Flow 3 ingress (mean 19.36 Mbit/s) —— Flow 3 egress (mean 19.36 Mbit/s)

• Flow 1 (95th percentile 112.32 ms)   • Flow 2 (95th percentile 112.62 ms)   • Flow 3 (95th percentile 112.29 ms)

```
Run 9: Statistics of Copa

Start at: 2017-08-12 04:39:34
End at: 2017-08-12 04:40:04


# Below is generated by plot.py at 2017-08-12 06:11:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 145.44 Mbit/s
95th percentile per-packet one-way delay: 112.466 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 101.66 Mbit/s
95th percentile per-packet one-way delay: 112.462 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 53.75 Mbit/s
95th percentile per-packet one-way delay: 112.473 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.75 Mbit/s
95th percentile per-packet one-way delay: 112.476 ms
Loss rate: 0.00%
```
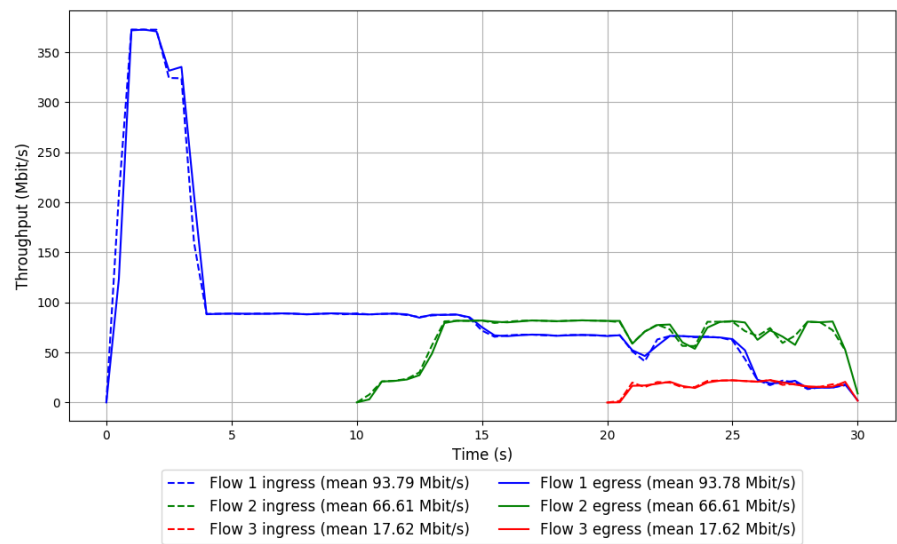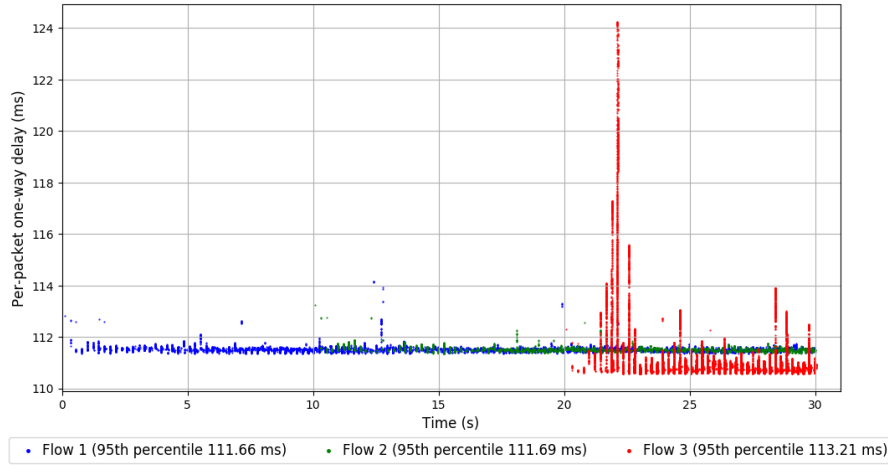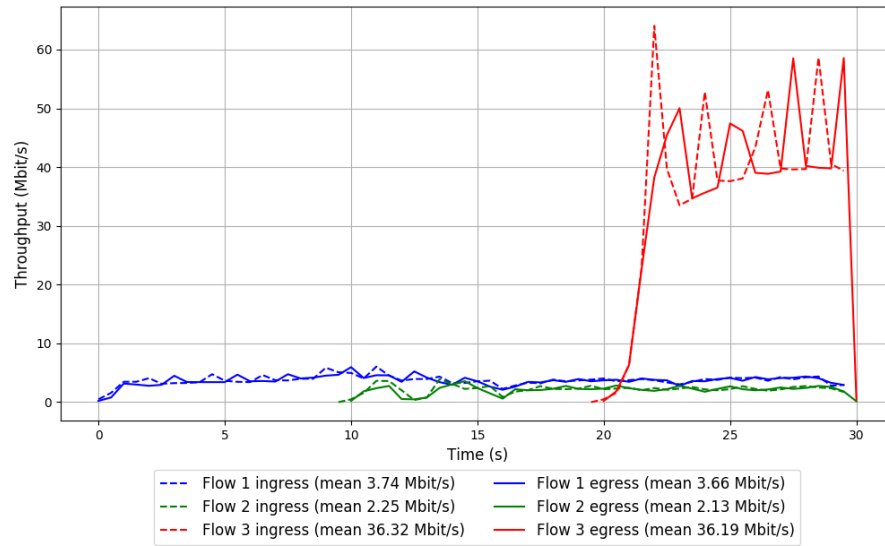
Run 9: Report of Copa — Data Link

```
Run 10: Statistics of Copa

Start at: 2017-08-12 04:52:30
End at: 2017-08-12 04:53:00


# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 143.64 Mbit/s
95th percentile per-packet one-way delay: 116.131 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 93.78 Mbit/s
95th percentile per-packet one-way delay: 124.392 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 66.61 Mbit/s
95th percentile per-packet one-way delay: 112.454 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 17.62 Mbit/s
95th percentile per-packet one-way delay: 112.476 ms
Loss rate: 0.00%
```

Run 10: Report of Copa — Data Link

Flow 1 ingress (mean 93.79 Mbit/s)   Flow 1 egress (mean 93.78 Mbit/s)
Flow 2 ingress (mean 66.61 Mbit/s)   Flow 2 egress (mean 66.61 Mbit/s)
Flow 3 ingress (mean 17.62 Mbit/s)   Flow 3 egress (mean 17.62 Mbit/s)

Flow 1 (95th percentile 124.39 ms)   Flow 2 (95th percentile 112.45 ms)   Flow 3 (95th percentile 112.48 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2017-08-12 02:52:38
End at: 2017-08-12 02:53:08

# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 17.10 Mbit/s
95th percentile per-packet one-way delay: 112.638 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 111.659 ms
Loss rate: 1.98%
-- Flow 2:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 111.695 ms
Loss rate: 5.51%
-- Flow 3:
Average throughput: 36.19 Mbit/s
95th percentile per-packet one-way delay: 113.210 ms
Loss rate: 0.52%
```
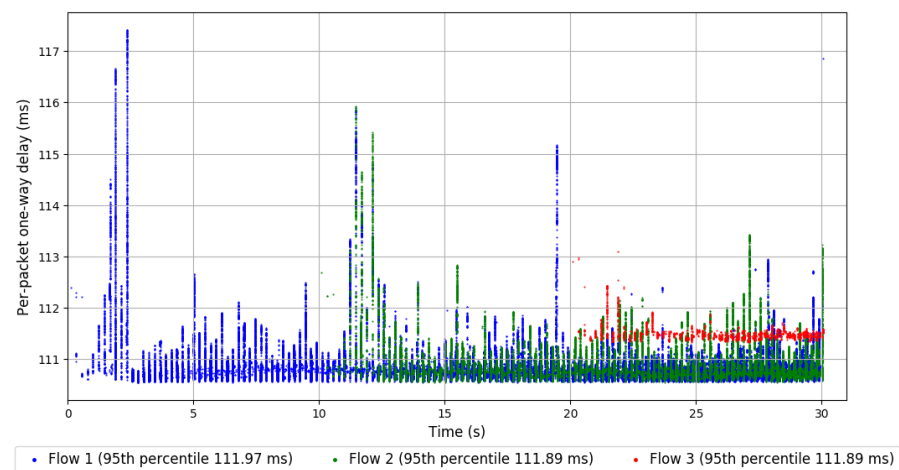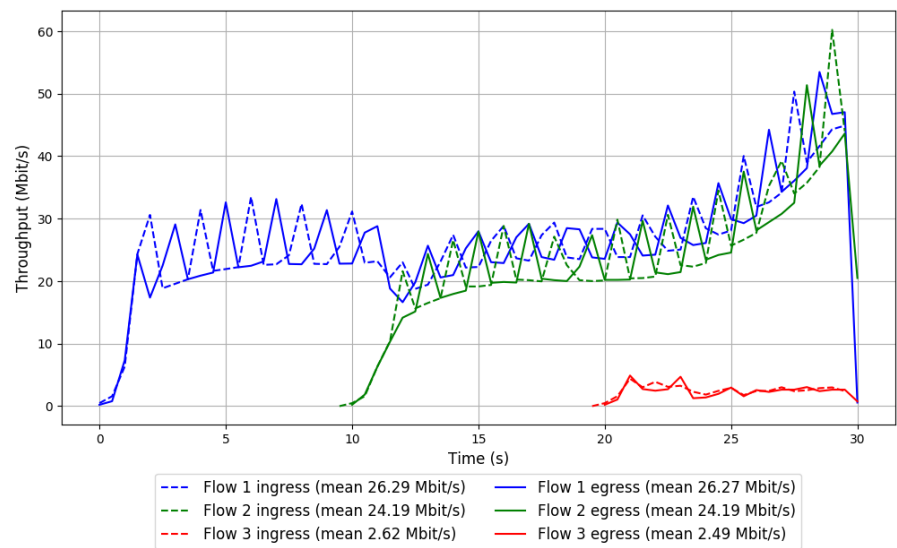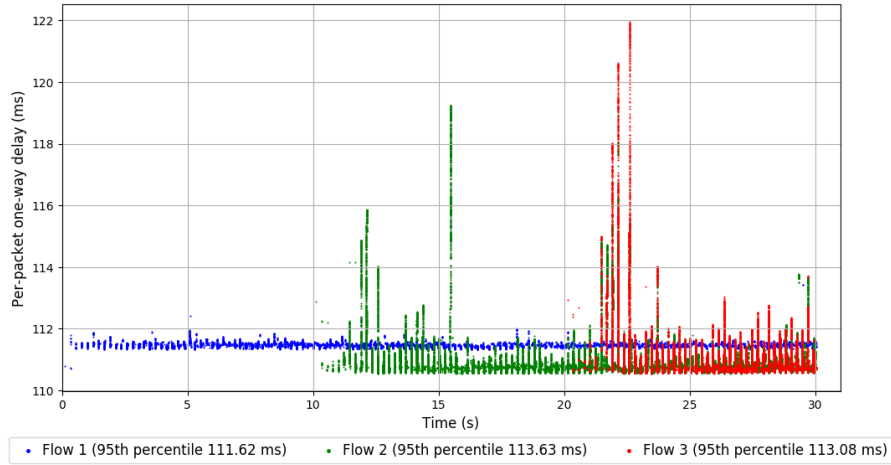
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2017-08-12 03:05:34
End at: 2017-08-12 03:06:04


# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.19 Mbit/s
95th percentile per-packet one-way delay: 111.923 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 26.27 Mbit/s
95th percentile per-packet one-way delay: 111.972 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 24.19 Mbit/s
95th percentile per-packet one-way delay: 111.891 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 111.892 ms
Loss rate: 4.92%
```
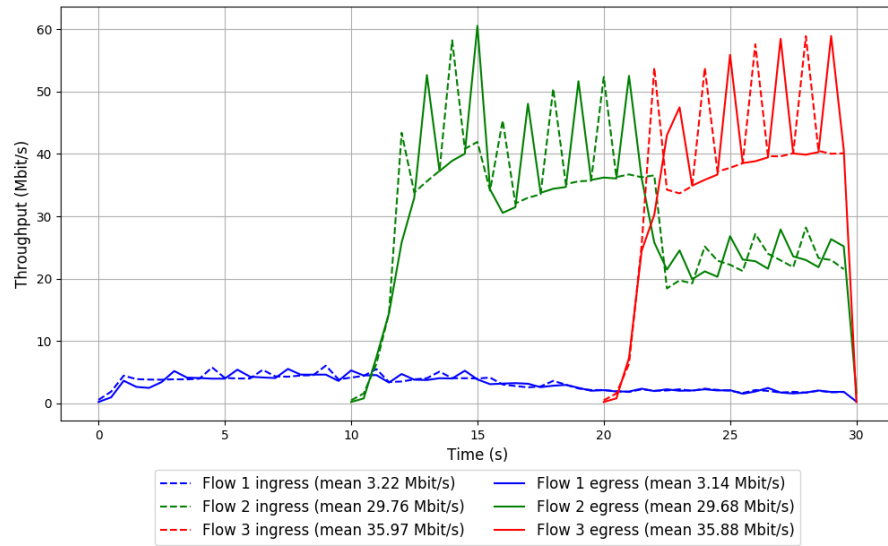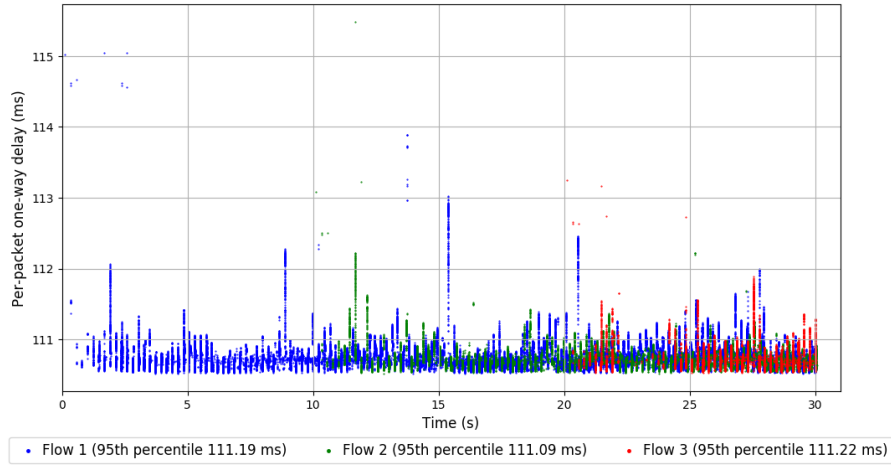
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2017-08-12 03:18:45
End at: 2017-08-12 03:19:15


# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 34.78 Mbit/s
95th percentile per-packet one-way delay: 113.273 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 3.14 Mbit/s
95th percentile per-packet one-way delay: 111.625 ms
Loss rate: 2.52%
-- Flow 2:
Average throughput: 29.68 Mbit/s
95th percentile per-packet one-way delay: 113.634 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 35.88 Mbit/s
95th percentile per-packet one-way delay: 113.077 ms
Loss rate: 0.28%
```
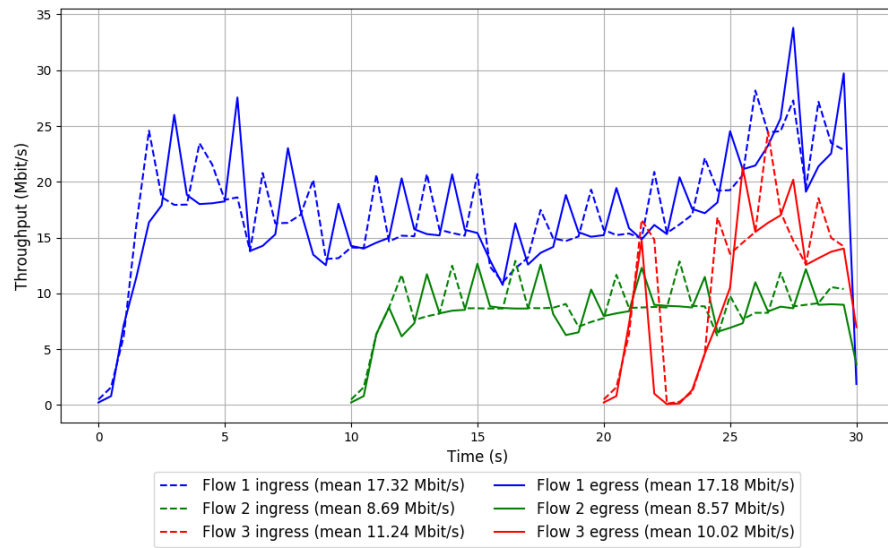
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2017-08-12 03:32:01
End at: 2017-08-12 03:32:31

# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 26.20 Mbit/s
95th percentile per-packet one-way delay: 111.166 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 17.18 Mbit/s
95th percentile per-packet one-way delay: 111.189 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 111.092 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 10.02 Mbit/s
95th percentile per-packet one-way delay: 111.215 ms
Loss rate: 10.89%
```
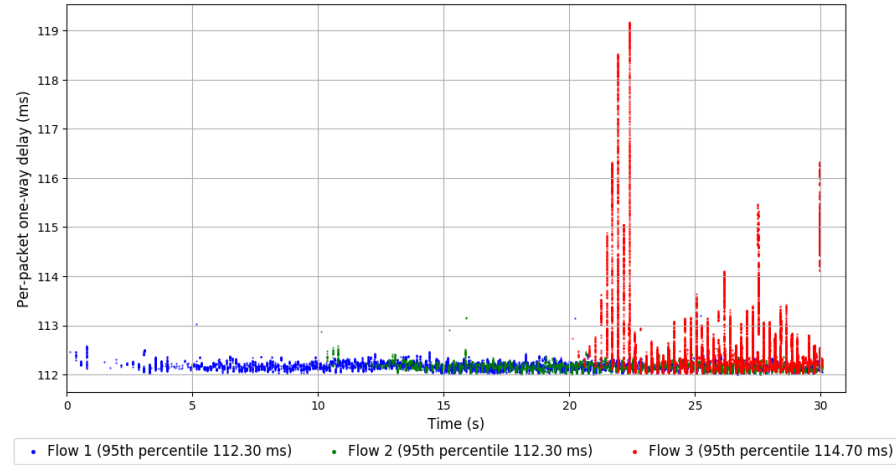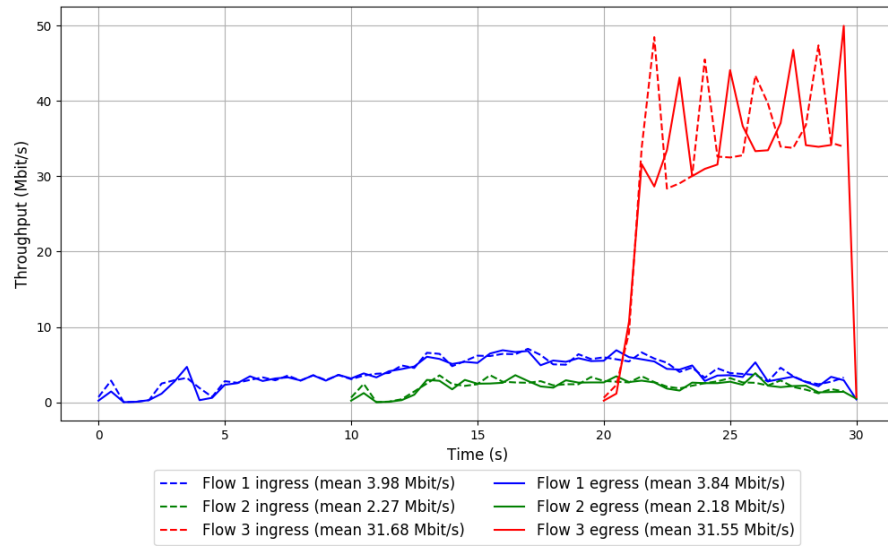
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2017-08-12 03:44:57
End at: 2017-08-12 03:45:27


# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.74 Mbit/s
95th percentile per-packet one-way delay: 113.976 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 3.84 Mbit/s
95th percentile per-packet one-way delay: 112.301 ms
Loss rate: 3.62%
-- Flow 2:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 112.300 ms
Loss rate: 3.74%
-- Flow 3:
Average throughput: 31.55 Mbit/s
95th percentile per-packet one-way delay: 114.700 ms
Loss rate: 0.44%
```
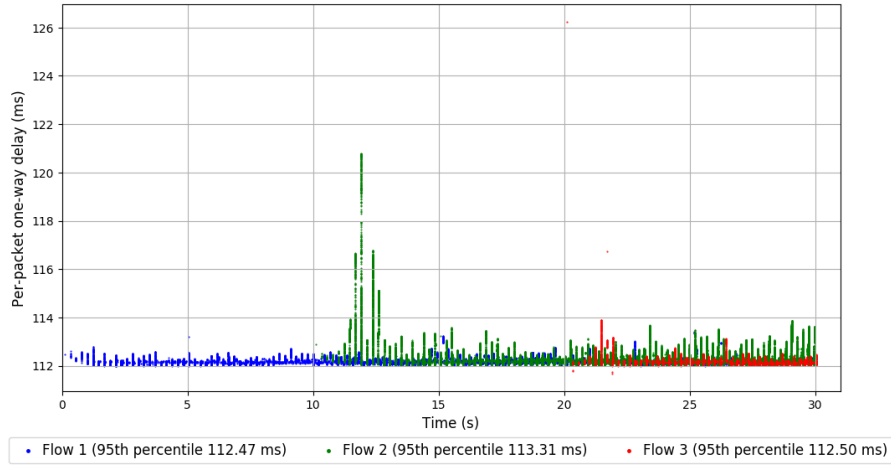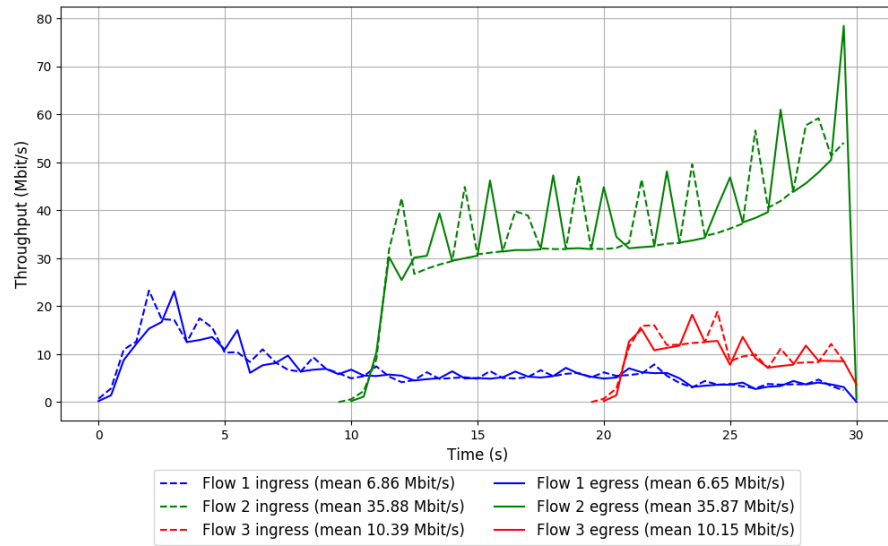
Run 5: Report of TCP Cubic — Data Link

```
Run 6: Statistics of TCP Cubic

Start at: 2017-08-12 03:57:34
End at: 2017-08-12 03:58:04


# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 33.90 Mbit/s
95th percentile per-packet one-way delay: 113.122 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 6.65 Mbit/s
95th percentile per-packet one-way delay: 112.466 ms
Loss rate: 3.15%
-- Flow 2:
Average throughput: 35.87 Mbit/s
95th percentile per-packet one-way delay: 113.310 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 10.15 Mbit/s
95th percentile per-packet one-way delay: 112.496 ms
Loss rate: 2.37%
```
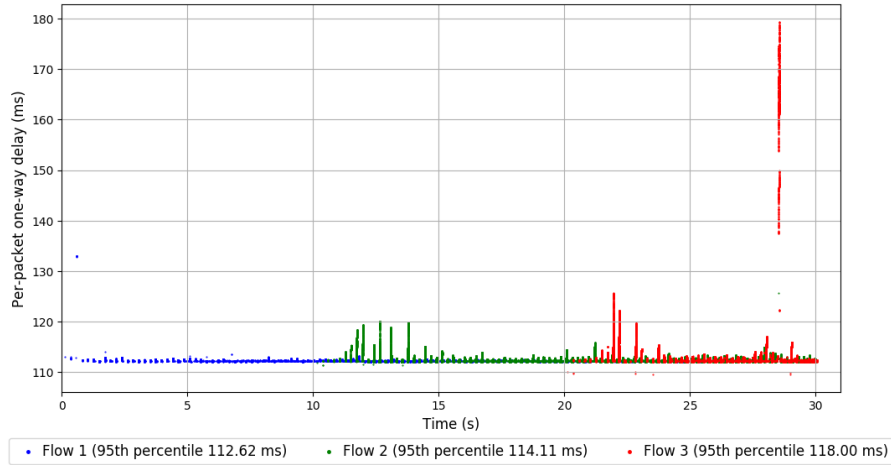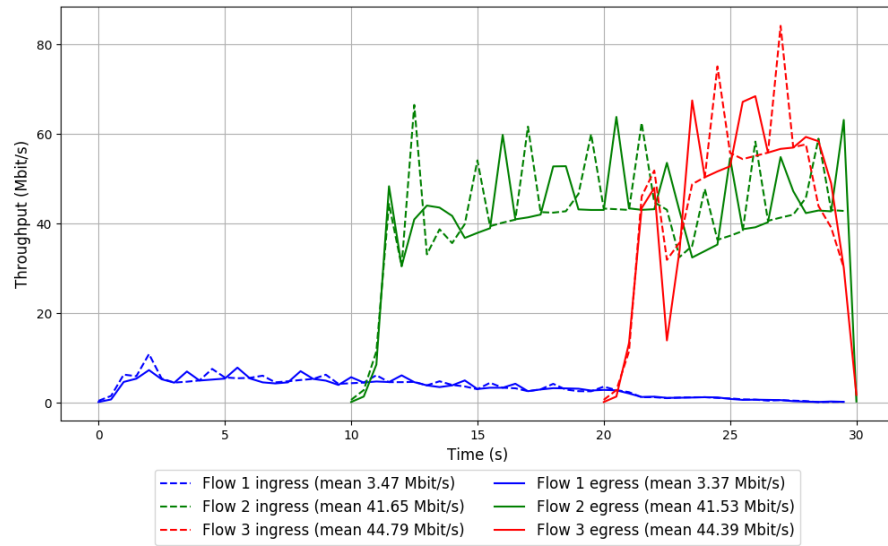
Run 6: Report of TCP Cubic — Data Link

```
Run 7: Statistics of TCP Cubic

Start at: 2017-08-12 04:10:55
End at: 2017-08-12 04:11:25


# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.65 Mbit/s
95th percentile per-packet one-way delay: 114.771 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 3.37 Mbit/s
95th percentile per-packet one-way delay: 112.619 ms
Loss rate: 3.05%
-- Flow 2:
Average throughput: 41.53 Mbit/s
95th percentile per-packet one-way delay: 114.114 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 44.39 Mbit/s
95th percentile per-packet one-way delay: 118.001 ms
Loss rate: 0.87%
```
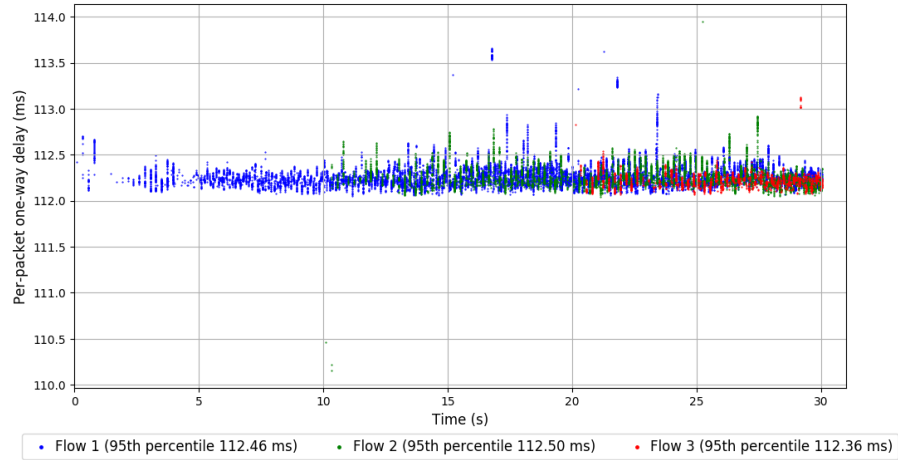
Run 7: Report of TCP Cubic — Data Link

```
Run 8: Statistics of TCP Cubic

Start at: 2017-08-12 04:23:47
End at: 2017-08-12 04:24:17


# Below is generated by plot.py at 2017-08-12 06:12:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.10 Mbit/s
95th percentile per-packet one-way delay: 112.477 ms
Loss rate: 2.89%
-- Flow 1:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 112.463 ms
Loss rate: 2.04%
-- Flow 2:
Average throughput: 3.36 Mbit/s
95th percentile per-packet one-way delay: 112.505 ms
Loss rate: 3.70%
-- Flow 3:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 112.360 ms
Loss rate: 6.35%
```
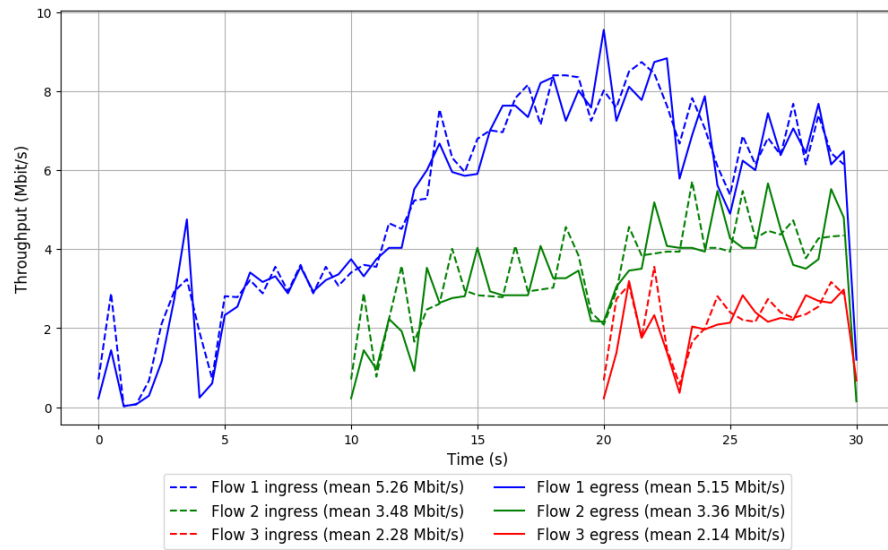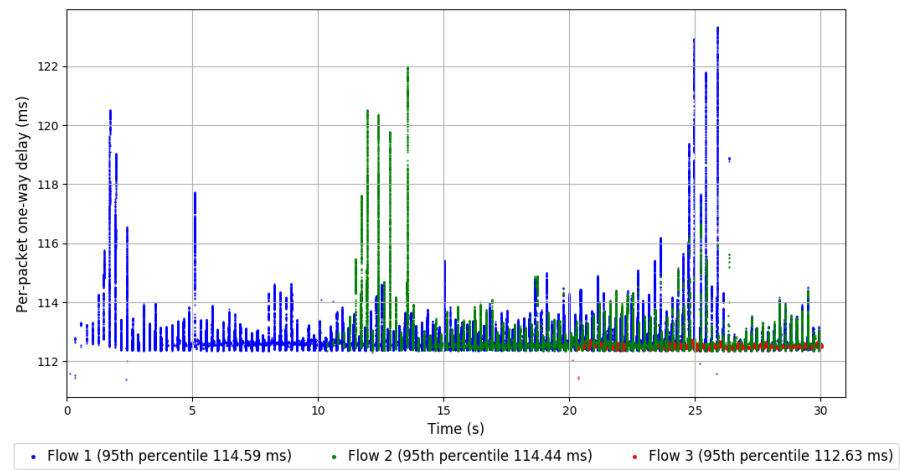
Run 8: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 5.26 Mbit/s)   Flow 1 egress (mean 5.15 Mbit/s)
Flow 2 ingress (mean 3.48 Mbit/s)   Flow 2 egress (mean 3.36 Mbit/s)
Flow 3 ingress (mean 2.28 Mbit/s)   Flow 3 egress (mean 2.14 Mbit/s)

Flow 1 (95th percentile 112.46 ms)   Flow 2 (95th percentile 112.50 ms)   Flow 3 (95th percentile 112.36 ms)

```
Run 9: Statistics of TCP Cubic

Start at: 2017-08-12 04:36:47
End at: 2017-08-12 04:37:17


# Below is generated by plot.py at 2017-08-12 06:12:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.10 Mbit/s
95th percentile per-packet one-way delay: 114.533 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 53.23 Mbit/s
95th percentile per-packet one-way delay: 114.589 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 36.85 Mbit/s
95th percentile per-packet one-way delay: 114.445 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 112.634 ms
Loss rate: 12.02%
```
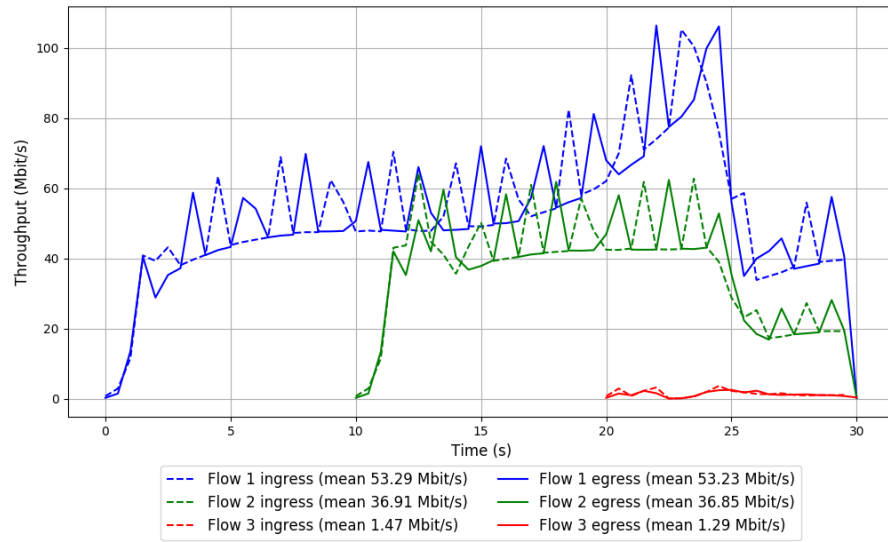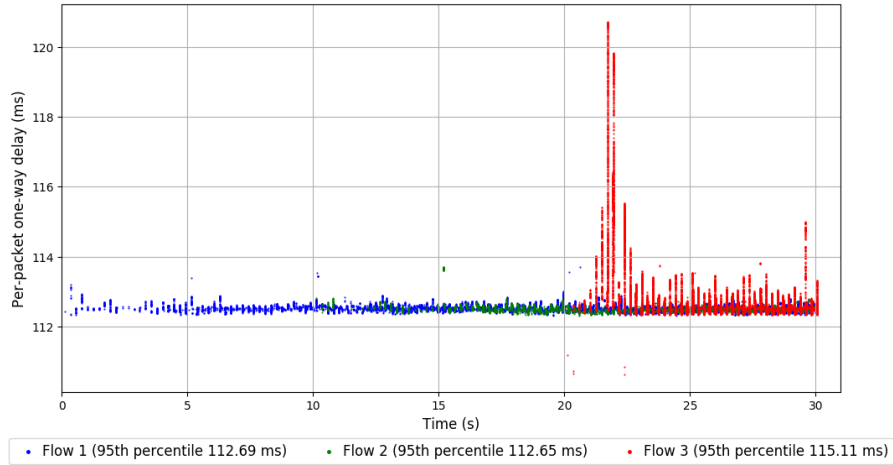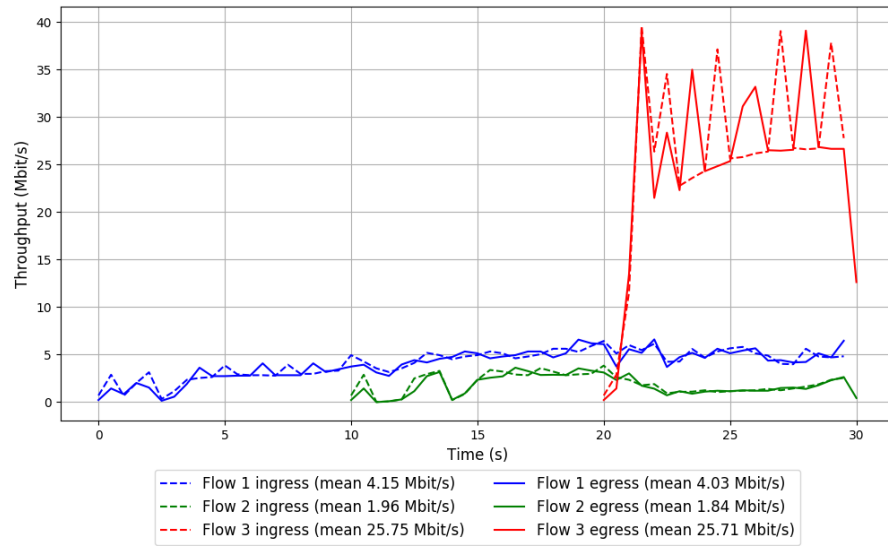
Run 9: Report of TCP Cubic — Data Link

- Flow 1 ingress (mean 53.29 Mbit/s)
- Flow 1 egress (mean 53.23 Mbit/s)
- Flow 2 ingress (mean 36.91 Mbit/s)
- Flow 2 egress (mean 36.85 Mbit/s)
- Flow 3 ingress (mean 1.47 Mbit/s)
- Flow 3 egress (mean 1.29 Mbit/s)

- Flow 1 (95th percentile 114.59 ms)
- Flow 2 (95th percentile 114.44 ms)
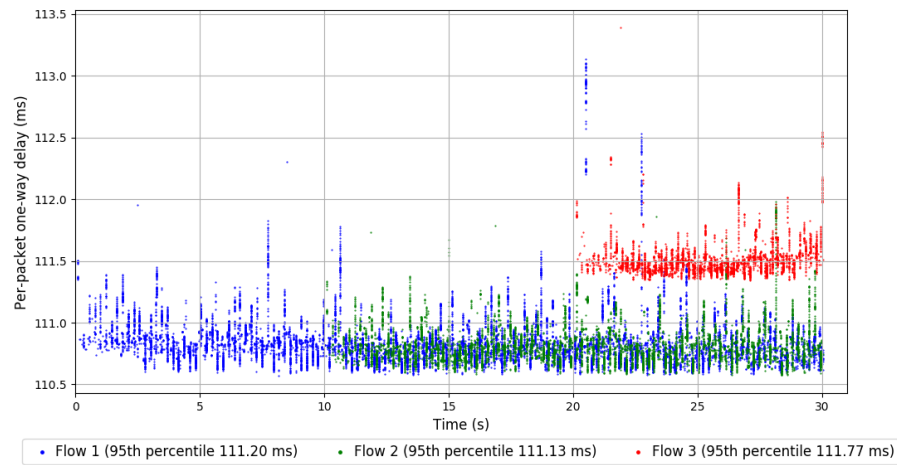- Flow 3 (95th percentile 112.63 ms)

```
Run 10: Statistics of TCP Cubic

Start at: 2017-08-12 04:50:00
End at: 2017-08-12 04:50:30

# Below is generated by plot.py at 2017-08-12 06:12:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.78 Mbit/s
95th percentile per-packet one-way delay: 114.197 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 112.695 ms
Loss rate: 2.94%
-- Flow 2:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 112.652 ms
Loss rate: 6.03%
-- Flow 3:
Average throughput: 25.71 Mbit/s
95th percentile per-packet one-way delay: 115.106 ms
Loss rate: 0.14%
```

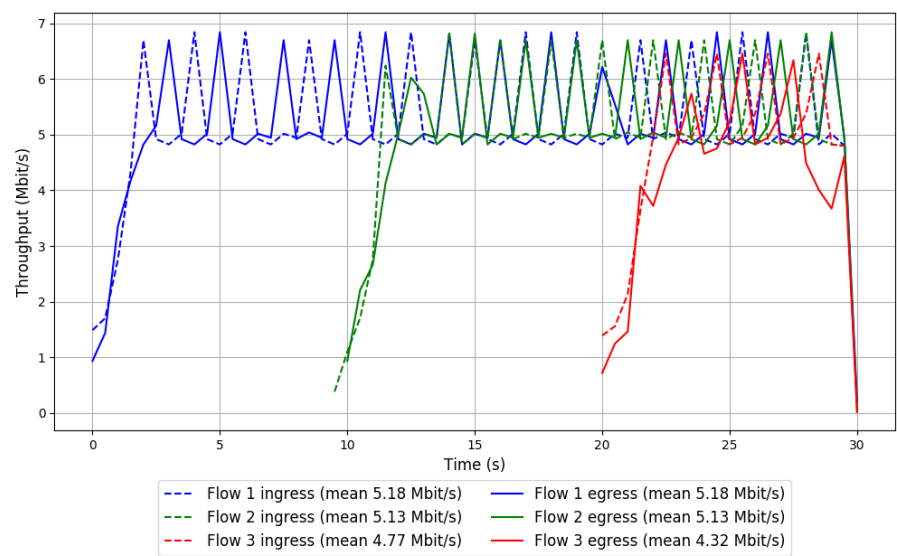Run 10: Report of TCP Cubic — Data Link

```
Run 1: Statistics of KohoCC

Start at: 2017-08-12 03:00:41
End at: 2017-08-12 03:01:11


# Below is generated by plot.py at 2017-08-12 06:12:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.02 Mbit/s
95th percentile per-packet one-way delay: 111.535 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 5.18 Mbit/s
95th percentile per-packet one-way delay: 111.200 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.13 Mbit/s
95th percentile per-packet one-way delay: 111.133 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.32 Mbit/s
95th percentile per-packet one-way delay: 111.773 ms
Loss rate: 9.34%
```
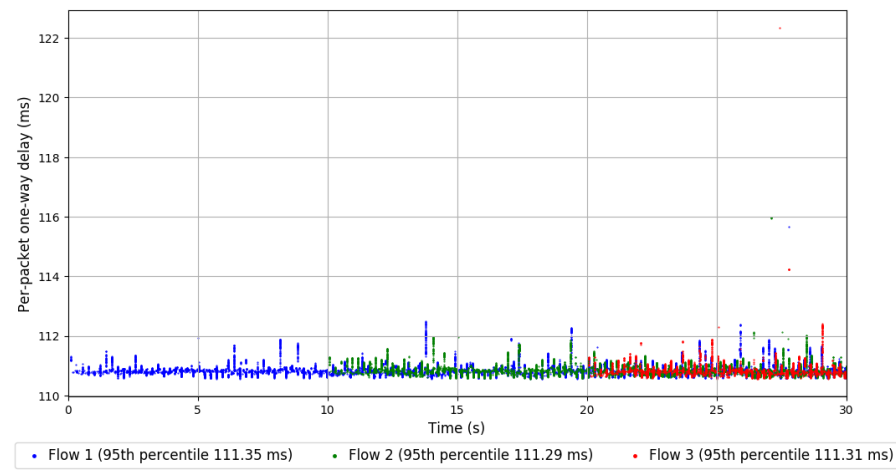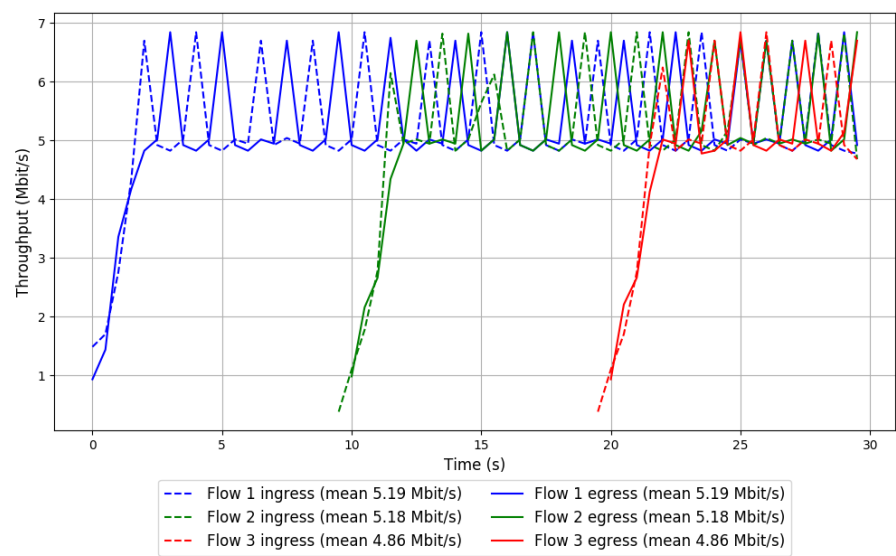
Run 1: Report of KohoCC — Data Link

```
Run 2: Statistics of KohoCC

Start at: 2017-08-12 03:13:47
End at: 2017-08-12 03:14:17

# Below is generated by plot.py at 2017-08-12 06:12:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.25 Mbit/s
95th percentile per-packet one-way delay: 111.319 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 5.19 Mbit/s
95th percentile per-packet one-way delay: 111.349 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.18 Mbit/s
95th percentile per-packet one-way delay: 111.289 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.86 Mbit/s
95th percentile per-packet one-way delay: 111.306 ms
Loss rate: 0.15%
```
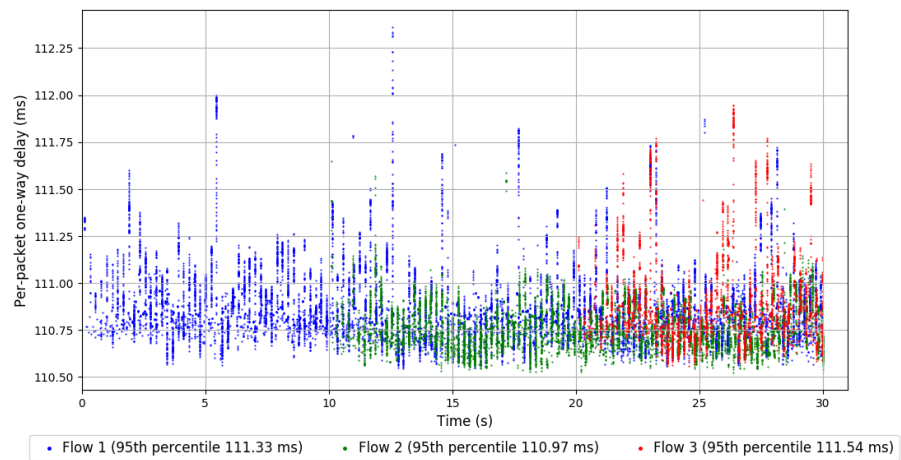
Run 2: Report of KohoCC — Data Link

```
Run 3: Statistics of KohoCC

Start at: 2017-08-12 03:27:03
End at: 2017-08-12 03:27:33


# Below is generated by plot.py at 2017-08-12 06:12:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.23 Mbit/s
95th percentile per-packet one-way delay: 111.251 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 5.22 Mbit/s
95th percentile per-packet one-way delay: 111.326 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.12 Mbit/s
95th percentile per-packet one-way delay: 110.973 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 4.82 Mbit/s
95th percentile per-packet one-way delay: 111.537 ms
Loss rate: 0.60%
```
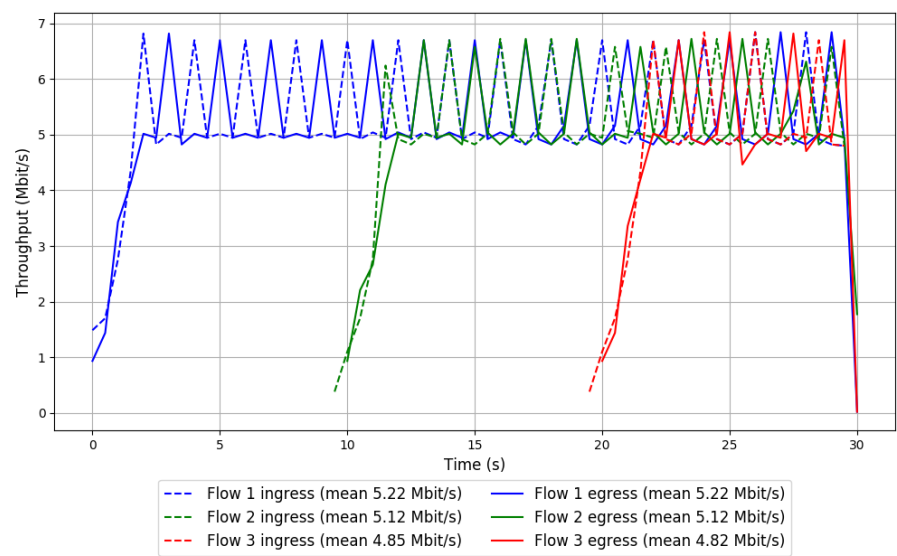
Run 3: Report of KohoCC — Data Link

```
Run 4: Statistics of KohoCC

Start at: 2017-08-12 03:40:08
End at: 2017-08-12 03:40:38

# Below is generated by plot.py at 2017-08-12 06:12:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.14 Mbit/s
95th percentile per-packet one-way delay: 112.758 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 112.729 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.12 Mbit/s
95th percentile per-packet one-way delay: 112.828 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.75 Mbit/s
95th percentile per-packet one-way delay: 112.729 ms
Loss rate: 0.00%
```
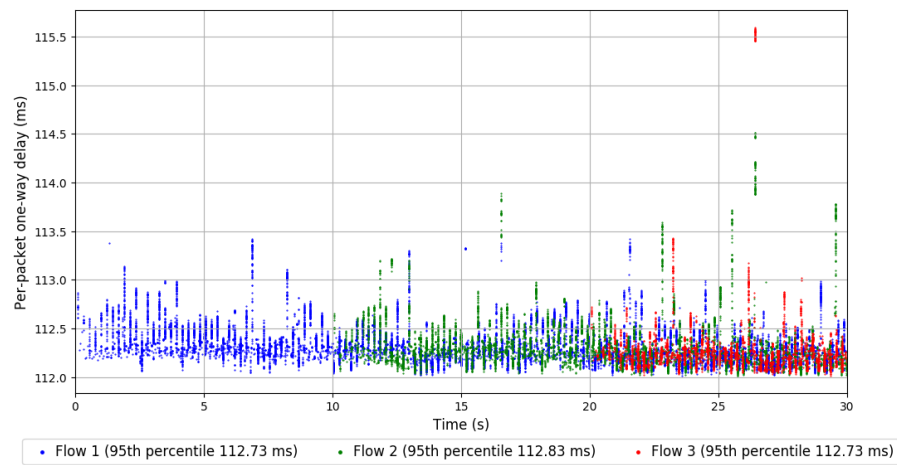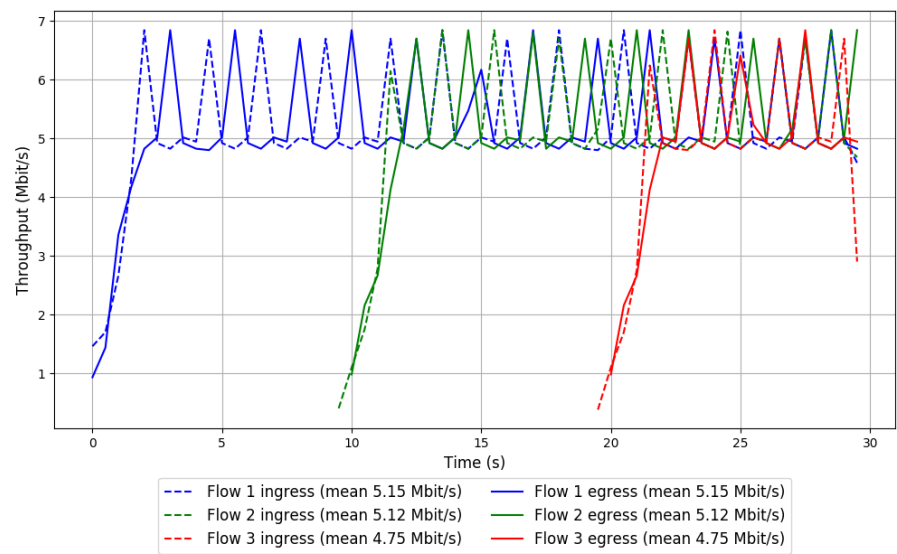
Run 4: Report of KohoCC — Data Link

```
Run 5: Statistics of KohoCC

Start at: 2017-08-12 03:52:37
End at: 2017-08-12 03:53:07


# Below is generated by plot.py at 2017-08-12 06:12:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.15 Mbit/s
95th percentile per-packet one-way delay: 112.588 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 112.407 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.10 Mbit/s
95th percentile per-packet one-way delay: 112.611 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 4.85 Mbit/s
95th percentile per-packet one-way delay: 112.884 ms
Loss rate: 0.00%
```
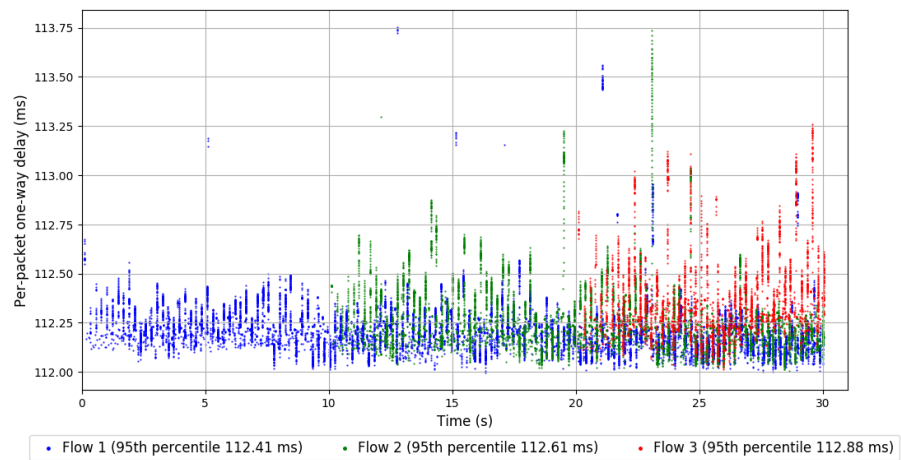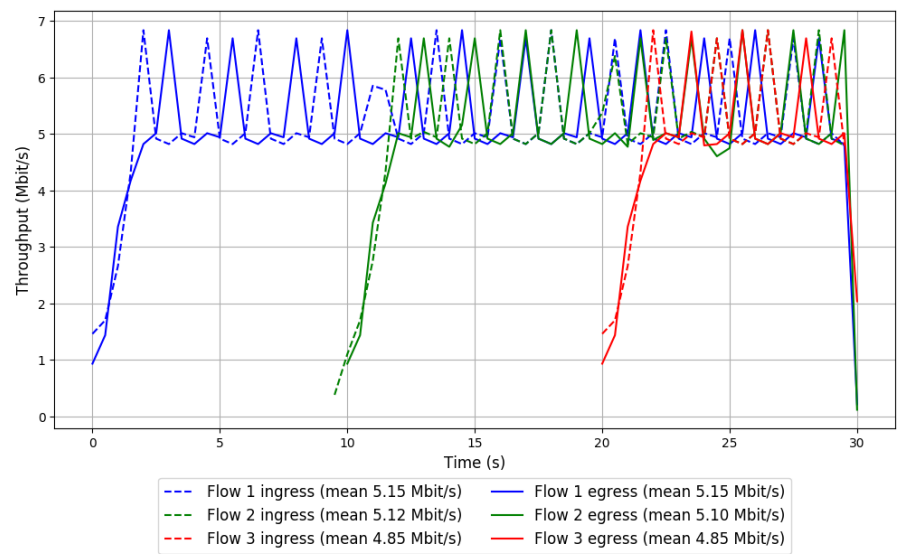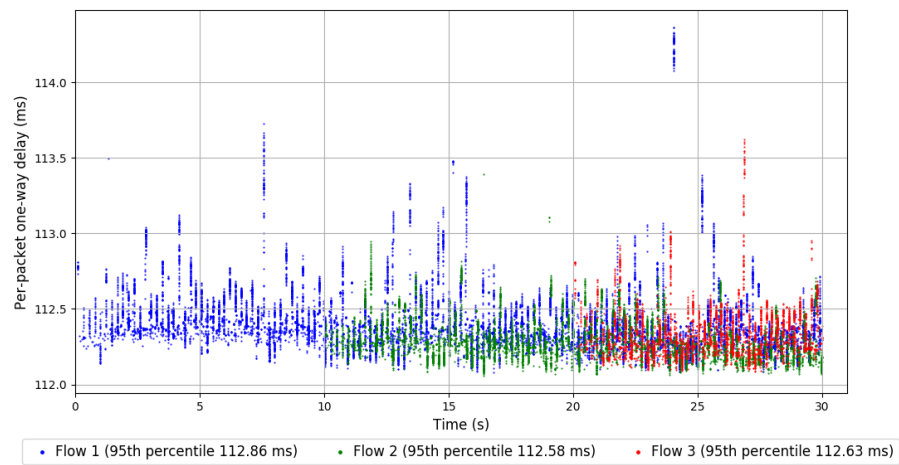
Run 5: Report of KohoCC — Data Link

Flow 1 ingress (mean 5.15 Mbit/s) ---- Flow 1 egress (mean 5.15 Mbit/s)
Flow 2 ingress (mean 5.12 Mbit/s) ---- Flow 2 egress (mean 5.10 Mbit/s)
Flow 3 ingress (mean 4.85 Mbit/s) ---- Flow 3 egress (mean 4.85 Mbit/s)

Flow 1 (95th percentile 112.41 ms) Flow 2 (95th percentile 112.61 ms) Flow 3 (95th percentile 112.88 ms)

```
Run 6: Statistics of KohoCC

Start at: 2017-08-12 04:05:59
End at: 2017-08-12 04:06:29

# Below is generated by plot.py at 2017-08-12 06:12:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.10 Mbit/s
95th percentile per-packet one-way delay: 112.719 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 5.14 Mbit/s
95th percentile per-packet one-way delay: 112.861 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.06 Mbit/s
95th percentile per-packet one-way delay: 112.575 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 4.75 Mbit/s
95th percentile per-packet one-way delay: 112.633 ms
Loss rate: 0.03%
```
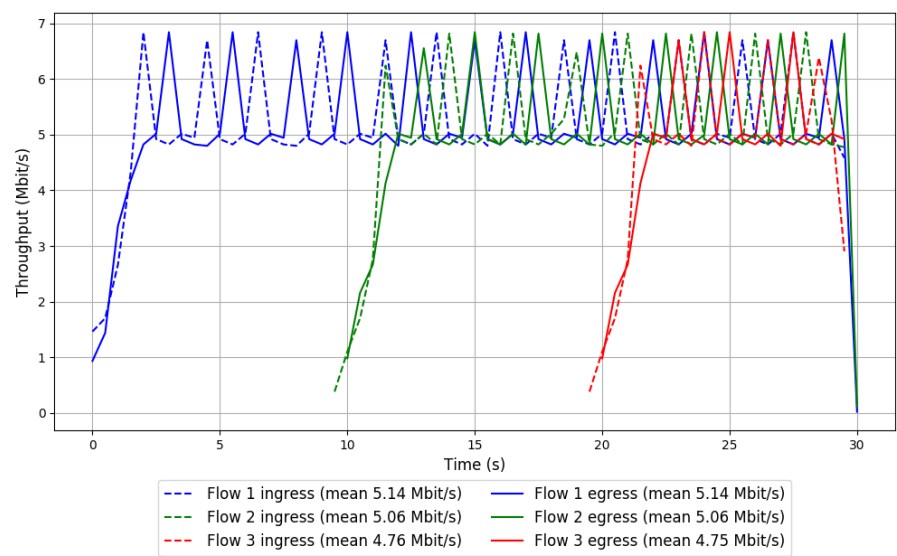
Run 6: Report of KohoCC — Data Link

```
Run 7: Statistics of KohoCC

Start at: 2017-08-12 04:18:57
End at: 2017-08-12 04:19:27


# Below is generated by plot.py at 2017-08-12 06:12:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.08 Mbit/s
95th percentile per-packet one-way delay: 112.806 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 5.14 Mbit/s
95th percentile per-packet one-way delay: 112.809 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 5.07 Mbit/s
95th percentile per-packet one-way delay: 112.797 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.74 Mbit/s
95th percentile per-packet one-way delay: 112.884 ms
Loss rate: 0.08%
```
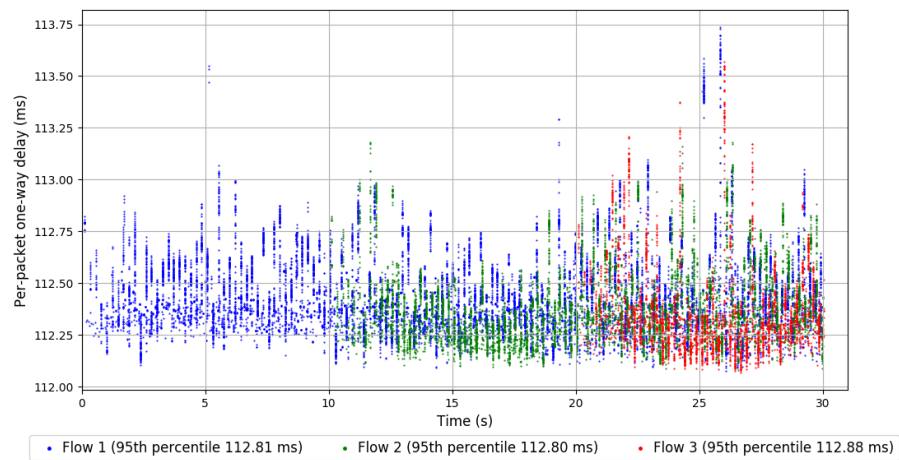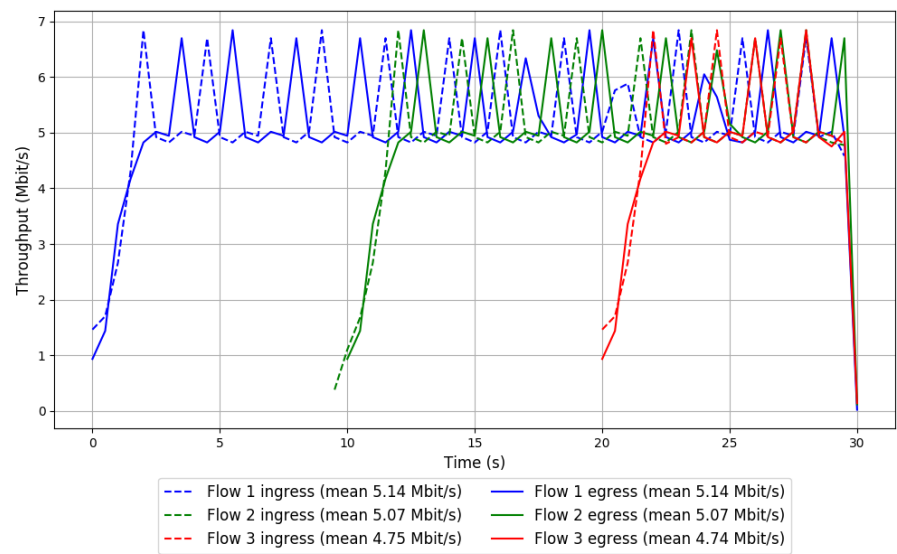
Run 7: Report of KohoCC — Data Link

```
Run 8: Statistics of KohoCC

Start at: 2017-08-12 04:31:56
End at: 2017-08-12 04:32:26


# Below is generated by plot.py at 2017-08-12 06:12:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.61 Mbit/s
95th percentile per-packet one-way delay: 112.807 ms
Loss rate: 39.94%
-- Flow 1:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 112.464 ms
Loss rate: 85.61%
-- Flow 2:
Average throughput: 5.07 Mbit/s
95th percentile per-packet one-way delay: 112.811 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.87 Mbit/s
95th percentile per-packet one-way delay: 112.896 ms
Loss rate: 0.00%
```
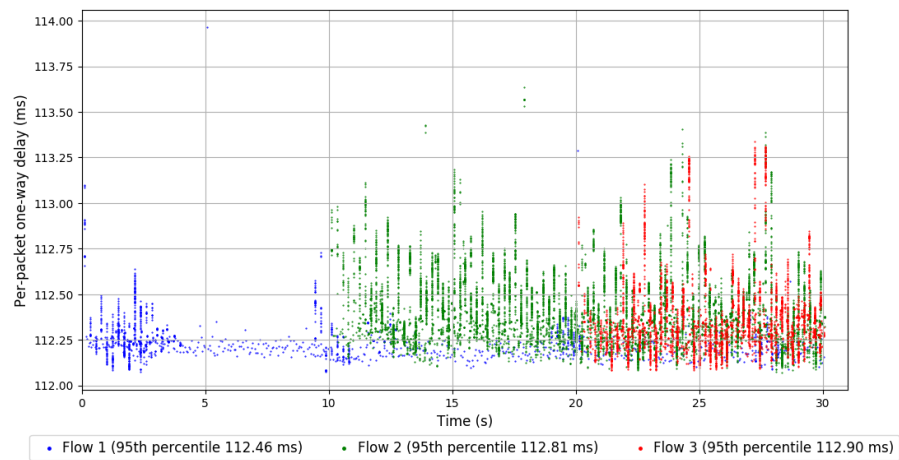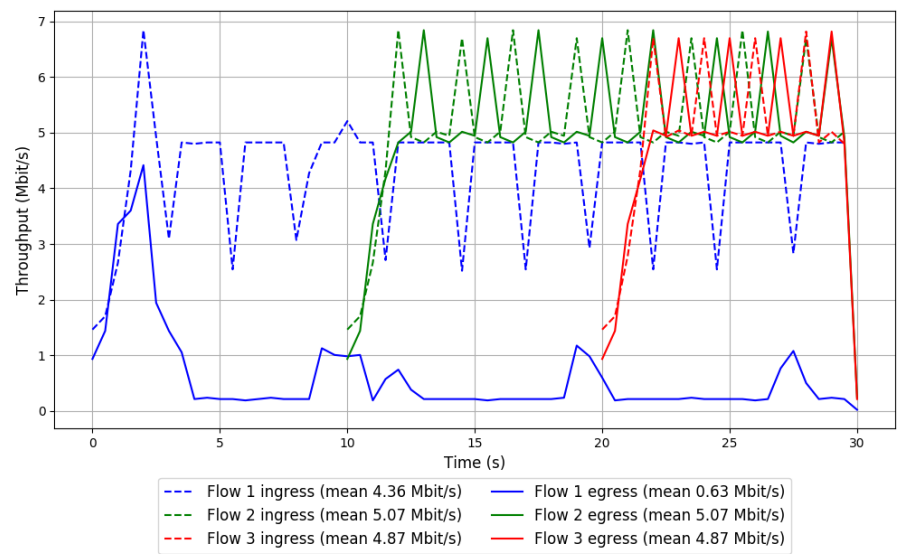
Run 8: Report of KohoCC — Data Link

```
Run 9: Statistics of KohoCC

Start at: 2017-08-12 04:45:12
End at: 2017-08-12 04:45:42

# Below is generated by plot.py at 2017-08-12 06:12:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.77 Mbit/s
95th percentile per-packet one-way delay: 112.964 ms
Loss rate: 2.48%
-- Flow 1:
Average throughput: 5.14 Mbit/s
95th percentile per-packet one-way delay: 112.999 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 112.736 ms
Loss rate: 7.52%
-- Flow 3:
Average throughput: 4.75 Mbit/s
95th percentile per-packet one-way delay: 113.127 ms
Loss rate: 0.00%
```
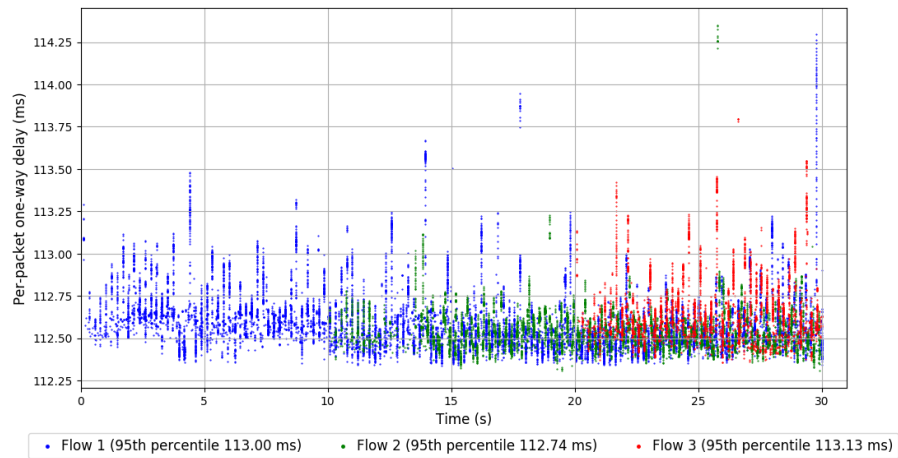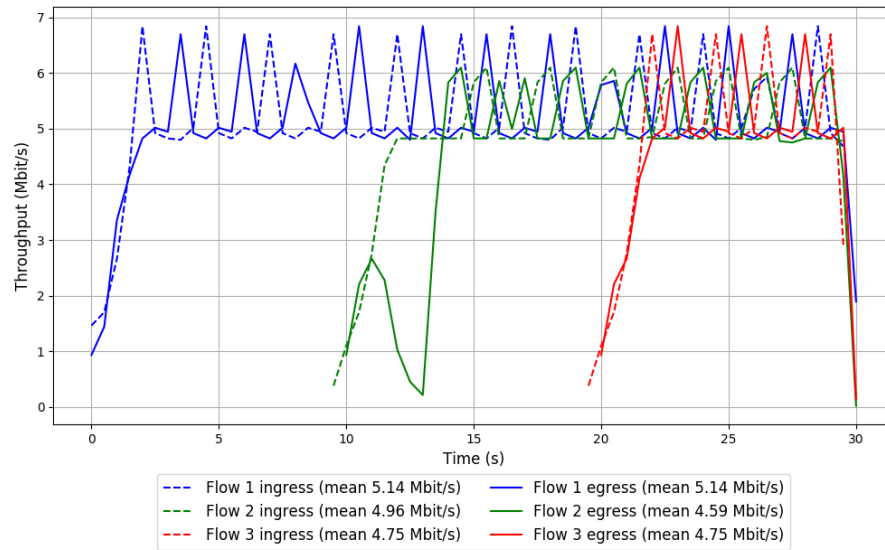
Run 9: Report of KohoCC — Data Link

```
Run 10: Statistics of KohoCC

Start at: 2017-08-12 04:58:11
End at: 2017-08-12 04:58:41

# Below is generated by plot.py at 2017-08-12 06:12:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.11 Mbit/s
95th percentile per-packet one-way delay: 112.999 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 5.14 Mbit/s
95th percentile per-packet one-way delay: 113.063 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 5.12 Mbit/s
95th percentile per-packet one-way delay: 112.964 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.70 Mbit/s
95th percentile per-packet one-way delay: 112.841 ms
Loss rate: 0.89%
```
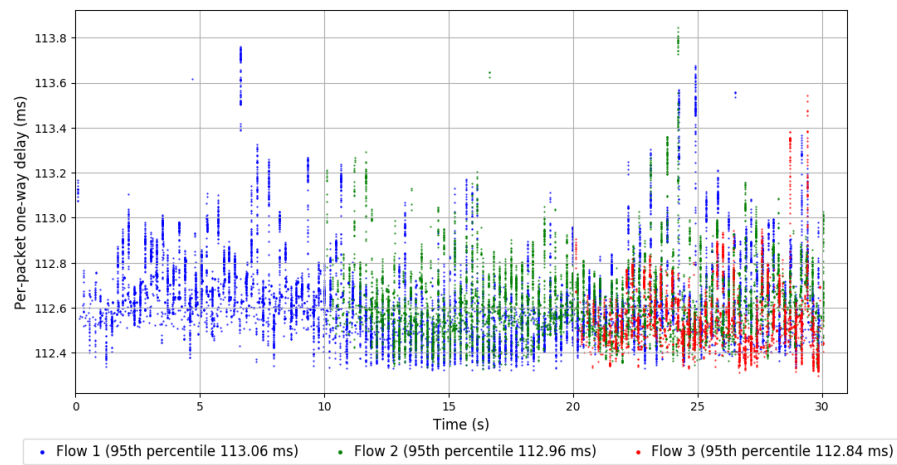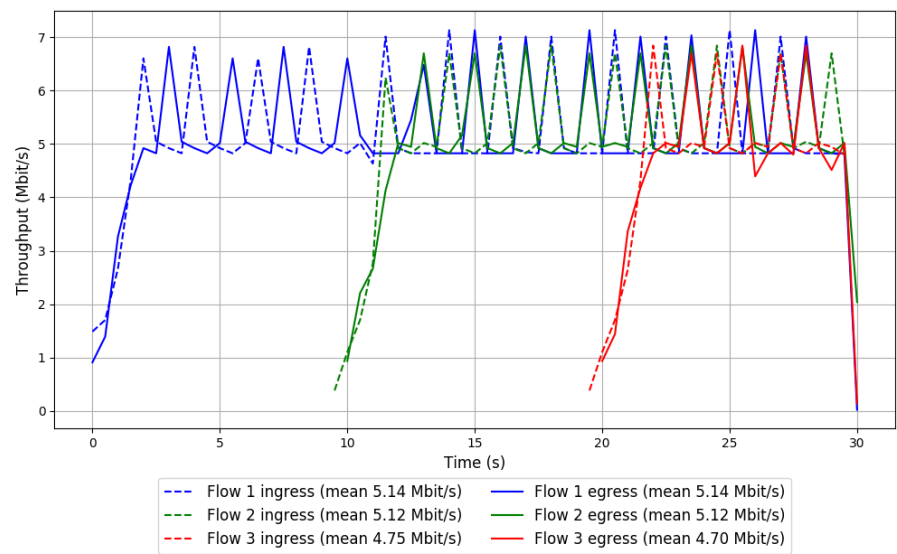
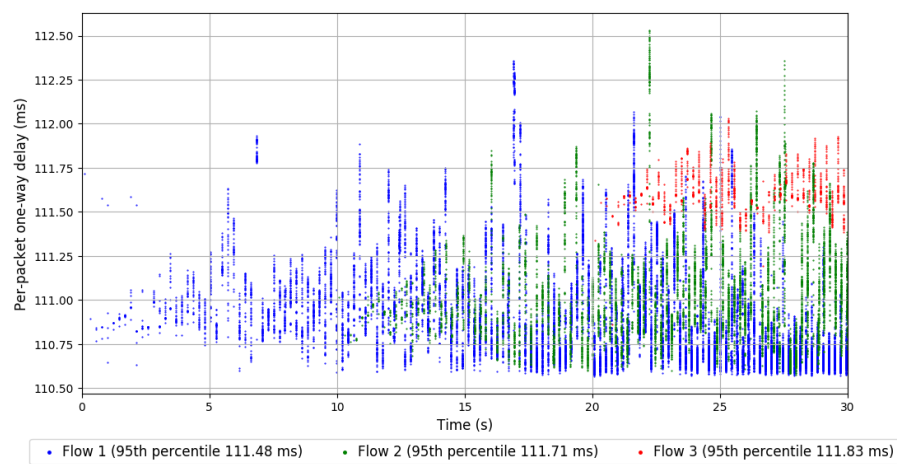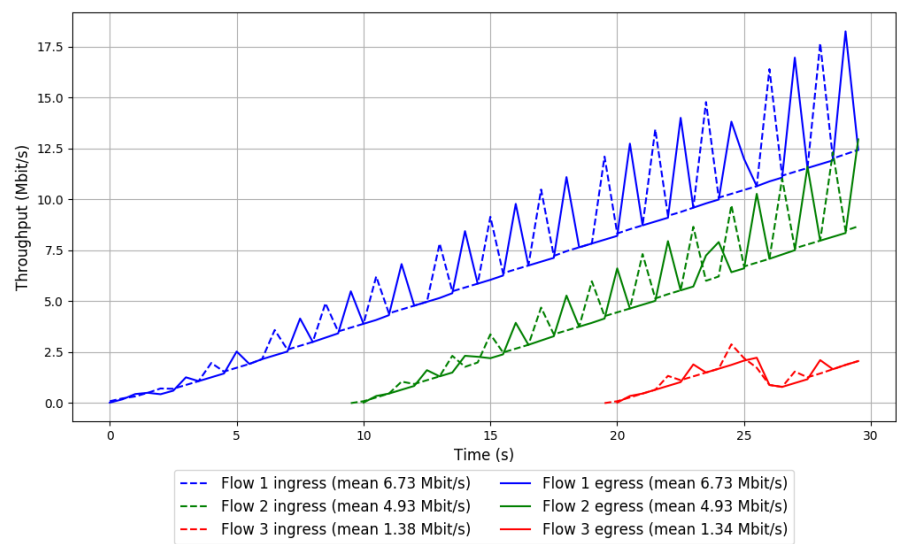# Run 10: Report of KohoCC — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2017-08-12 02:59:05
End at: 2017-08-12 02:59:35

# Below is generated by plot.py at 2017-08-12 06:13:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.45 Mbit/s
95th percentile per-packet one-way delay: 111.662 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 6.73 Mbit/s
95th percentile per-packet one-way delay: 111.483 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.93 Mbit/s
95th percentile per-packet one-way delay: 111.710 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 111.835 ms
Loss rate: 2.36%
```
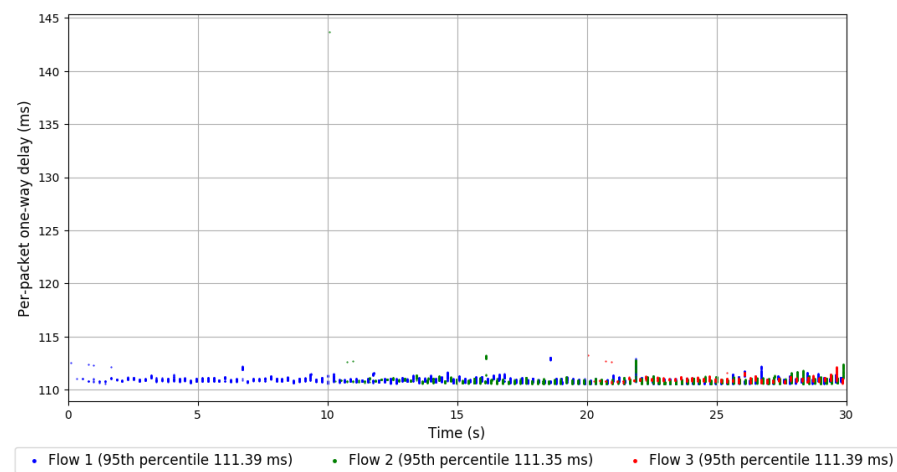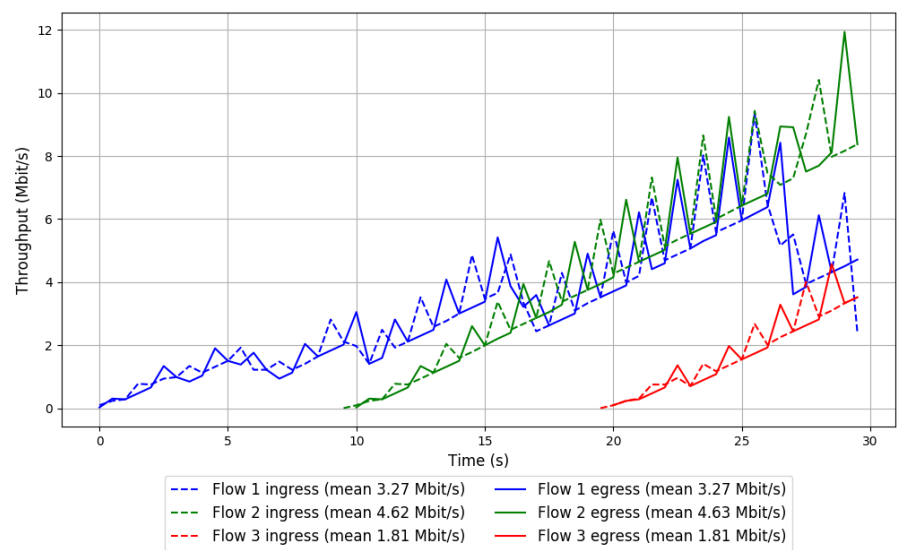
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2017-08-12 03:12:12
End at: 2017-08-12 03:12:42

# Below is generated by plot.py at 2017-08-12 06:13:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.93 Mbit/s
95th percentile per-packet one-way delay: 111.380 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.27 Mbit/s
95th percentile per-packet one-way delay: 111.390 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.63 Mbit/s
95th percentile per-packet one-way delay: 111.353 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 111.394 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2017-08-12 03:25:24
End at: 2017-08-12 03:25:54


# Below is generated by plot.py at 2017-08-12 06:13:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.72 Mbit/s
95th percentile per-packet one-way delay: 111.198 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 2.97 Mbit/s
95th percentile per-packet one-way delay: 111.323 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.34 Mbit/s
95th percentile per-packet one-way delay: 111.053 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 111.185 ms
Loss rate: 0.37%
```
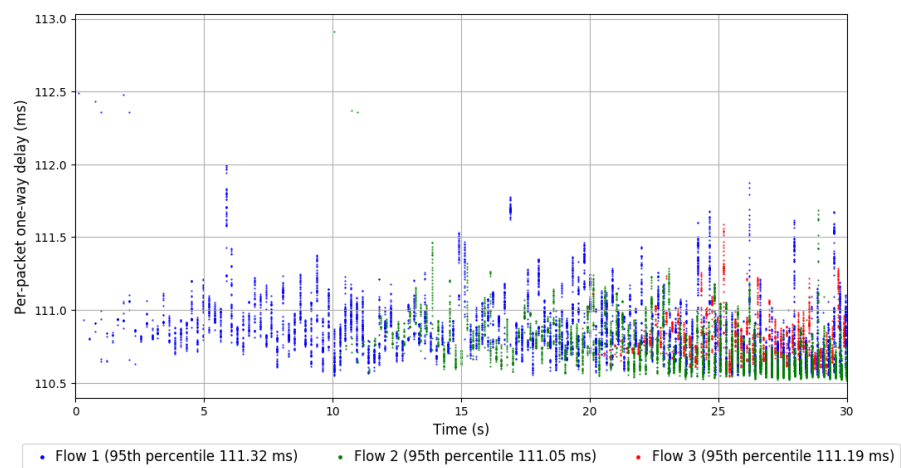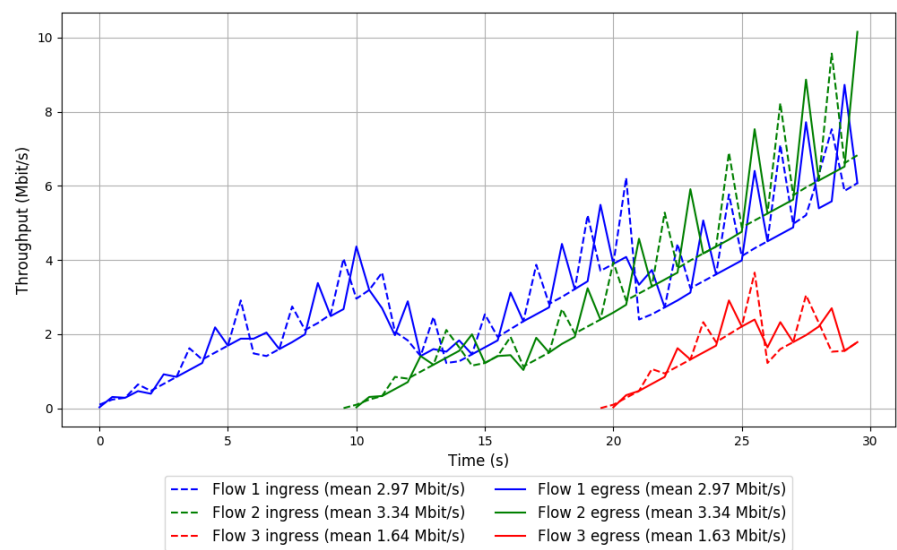
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 2.97 Mbit/s)   Flow 1 egress (mean 2.97 Mbit/s)
Flow 2 ingress (mean 3.34 Mbit/s)   Flow 2 egress (mean 3.34 Mbit/s)
Flow 3 ingress (mean 1.64 Mbit/s)   Flow 3 egress (mean 1.63 Mbit/s)

Flow 1 (95th percentile 111.32 ms)   Flow 2 (95th percentile 111.05 ms)   Flow 3 (95th percentile 111.19 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2017-08-12 03:38:30
End at: 2017-08-12 03:39:00

# Below is generated by plot.py at 2017-08-12 06:13:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.47 Mbit/s
95th percentile per-packet one-way delay: 112.723 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.02 Mbit/s
95th percentile per-packet one-way delay: 112.750 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.88 Mbit/s
95th percentile per-packet one-way delay: 112.728 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 112.657 ms
Loss rate: 0.00%
```
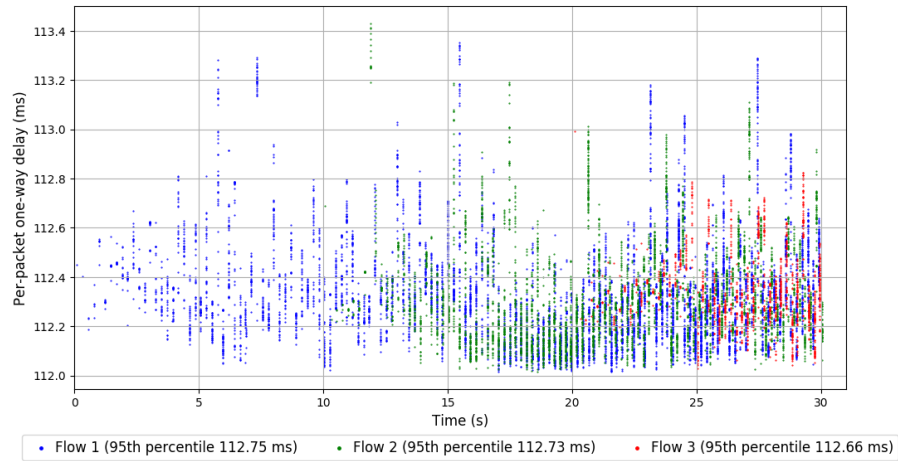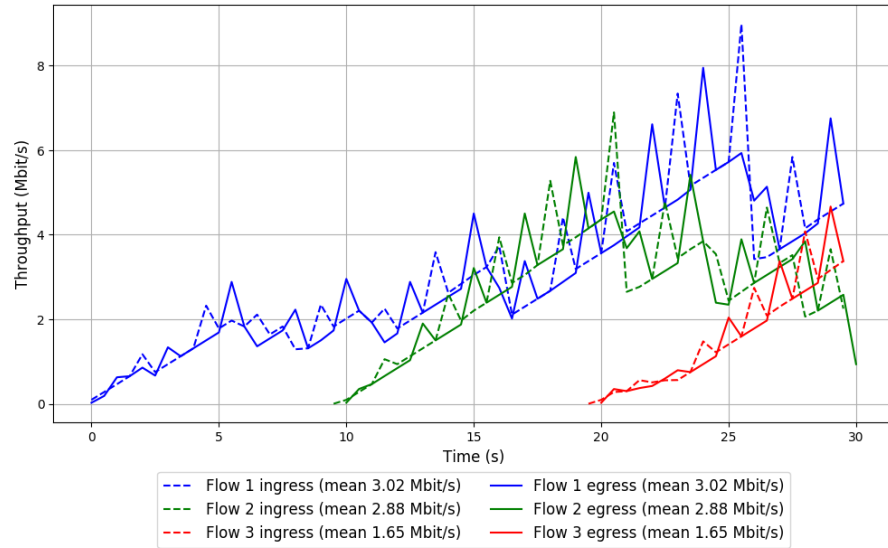
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2017-08-12 03:51:00
End at: 2017-08-12 03:51:30


# Below is generated by plot.py at 2017-08-12 06:13:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.25 Mbit/s
95th percentile per-packet one-way delay: 112.951 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 6.05 Mbit/s
95th percentile per-packet one-way delay: 113.012 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 112.615 ms
Loss rate: 1.69%
-- Flow 3:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 112.533 ms
Loss rate: 0.00%
```
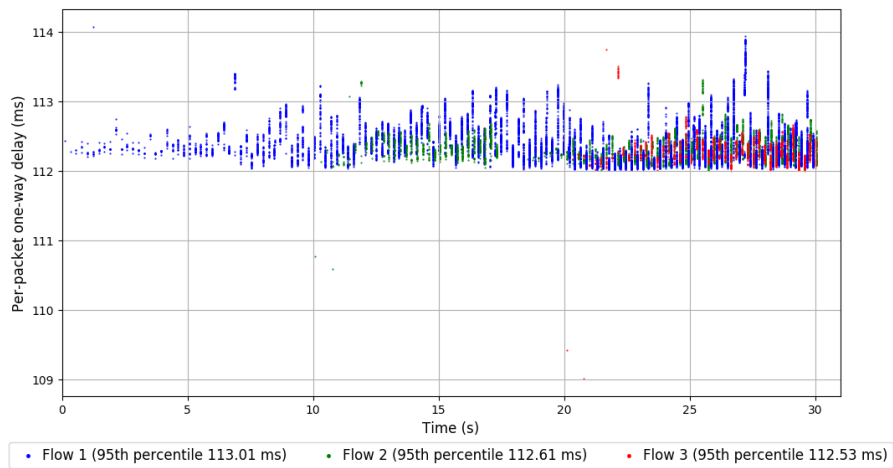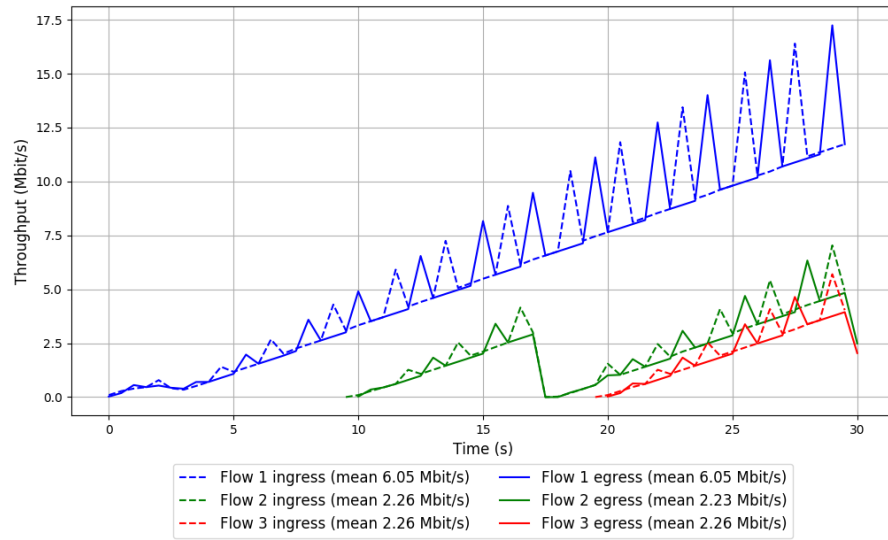
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 6.05 Mbit/s) --- Flow 1 egress (mean 6.05 Mbit/s)
Flow 2 ingress (mean 2.26 Mbit/s) --- Flow 2 egress (mean 2.23 Mbit/s)
Flow 3 ingress (mean 2.26 Mbit/s) --- Flow 3 egress (mean 2.26 Mbit/s)

Flow 1 (95th percentile 113.01 ms) • Flow 2 (95th percentile 112.61 ms) • Flow 3 (95th percentile 112.53 ms)

```
Run 6: Statistics of LEDBAT

Start at: 2017-08-12 04:04:21
End at: 2017-08-12 04:04:51


# Below is generated by plot.py at 2017-08-12 06:13:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.85 Mbit/s
95th percentile per-packet one-way delay: 112.582 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 2.95 Mbit/s
95th percentile per-packet one-way delay: 112.560 ms
Loss rate: 1.05%
-- Flow 2:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 112.661 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.21 Mbit/s
95th percentile per-packet one-way delay: 112.623 ms
Loss rate: 0.00%
```
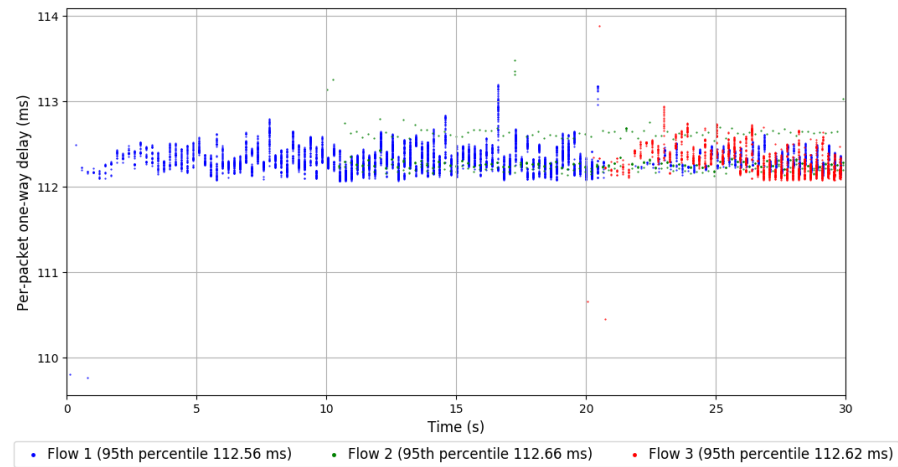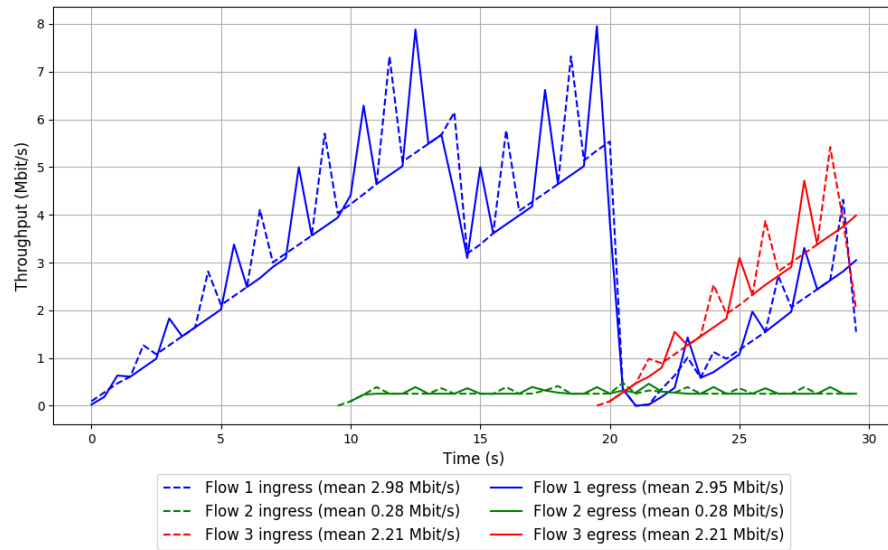
Run 6: Report of LEDBAT — Data Link

```
Run 7: Statistics of LEDBAT

Start at: 2017-08-12 04:17:19
End at: 2017-08-12 04:17:49

# Below is generated by plot.py at 2017-08-12 06:13:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.07 Mbit/s
95th percentile per-packet one-way delay: 112.947 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 112.852 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.49 Mbit/s
95th percentile per-packet one-way delay: 113.150 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 112.955 ms
Loss rate: 0.00%
```
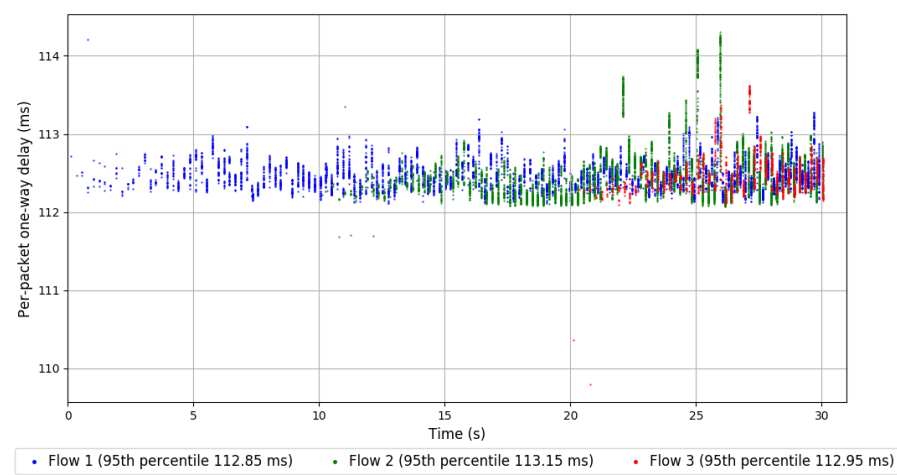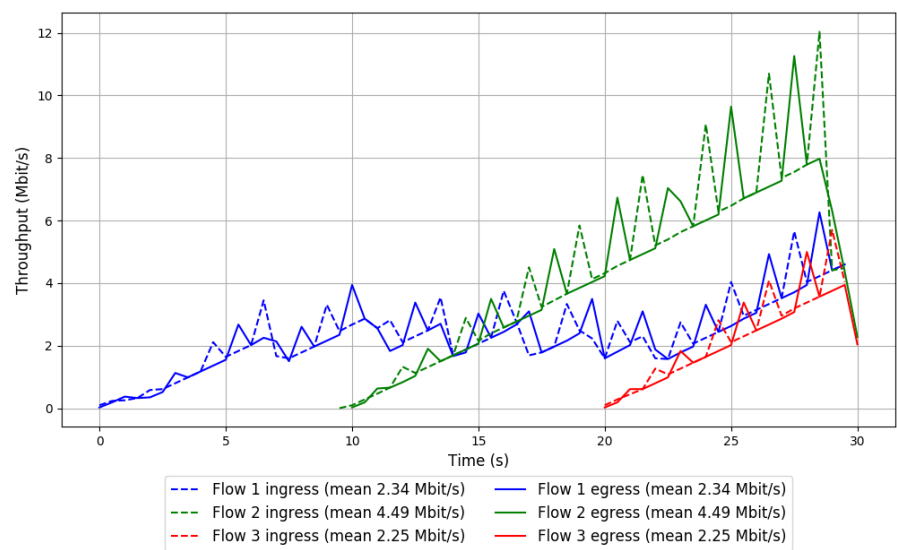
Run 7: Report of LEDBAT — Data Link

```
Run 8: Statistics of LEDBAT

Start at: 2017-08-12 04:30:21
End at: 2017-08-12 04:30:51

# Below is generated by plot.py at 2017-08-12 06:13:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.45 Mbit/s
95th percentile per-packet one-way delay: 112.985 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 112.936 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 113.061 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 112.494 ms
Loss rate: 5.06%
```
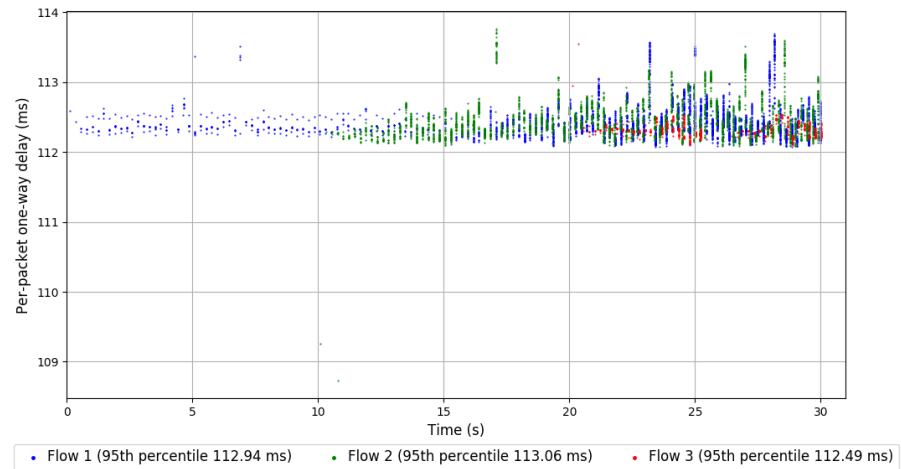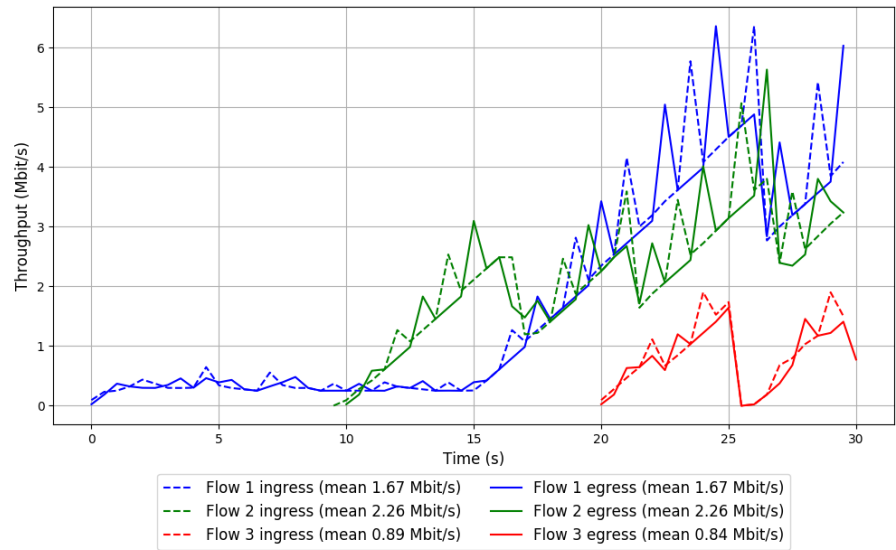
Run 8: Report of LEDBAT — Data Link

Flow 1 ingress (mean 1.67 Mbit/s) --- Flow 1 egress (mean 1.67 Mbit/s)
Flow 2 ingress (mean 2.26 Mbit/s) --- Flow 2 egress (mean 2.26 Mbit/s)
Flow 3 ingress (mean 0.89 Mbit/s) --- Flow 3 egress (mean 0.84 Mbit/s)

Flow 1 (95th percentile 112.94 ms)   Flow 2 (95th percentile 113.06 ms)   Flow 3 (95th percentile 112.49 ms)

119

```
Run 9: Statistics of LEDBAT

Start at: 2017-08-12 04:43:33
End at: 2017-08-12 04:44:03

# Below is generated by plot.py at 2017-08-12 06:13:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.51 Mbit/s
95th percentile per-packet one-way delay: 112.867 ms
Loss rate: 3.03%
-- Flow 1:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 112.807 ms
Loss rate: 4.69%
-- Flow 2:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 113.023 ms
Loss rate: 3.39%
-- Flow 3:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 112.829 ms
Loss rate: 0.00%
```
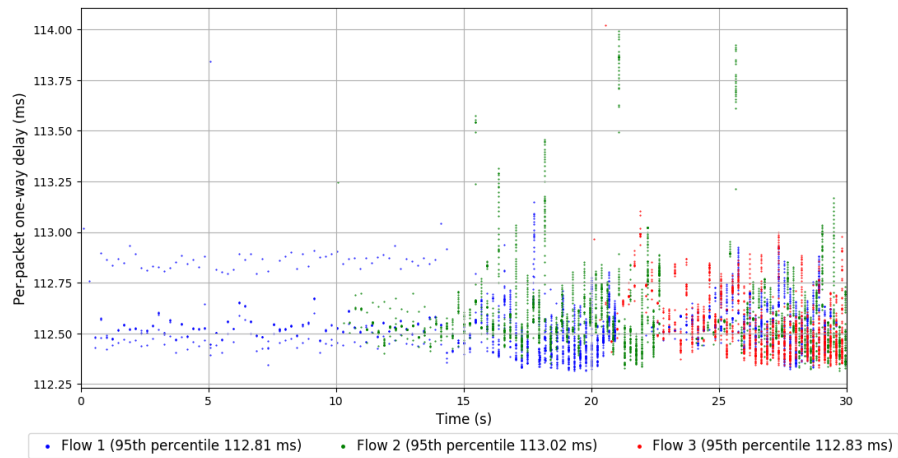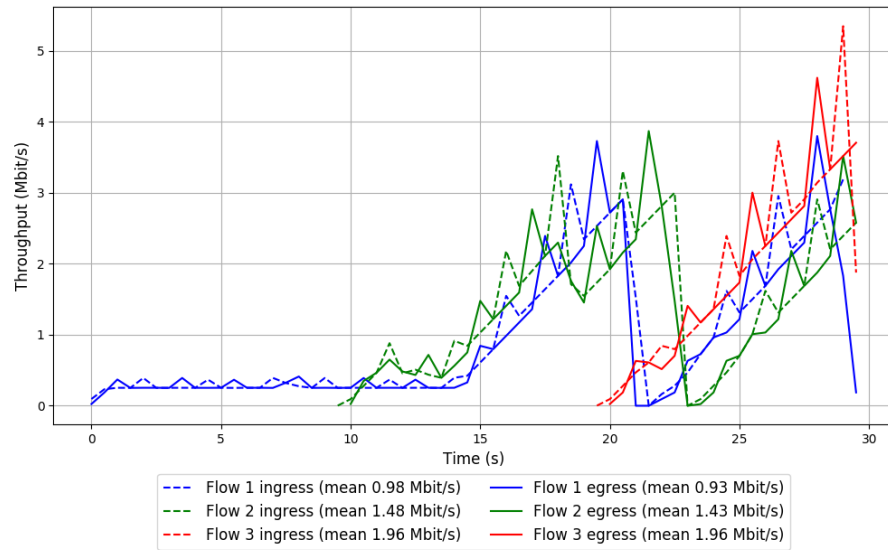
Run 9: Report of LEDBAT — Data Link

```
Run 10: Statistics of LEDBAT

Start at: 2017-08-12 04:56:32
End at: 2017-08-12 04:57:02

# Below is generated by plot.py at 2017-08-12 06:13:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.24 Mbit/s
95th percentile per-packet one-way delay: 113.095 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.15 Mbit/s
95th percentile per-packet one-way delay: 113.091 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 113.116 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.78 Mbit/s
95th percentile per-packet one-way delay: 112.995 ms
Loss rate: 0.00%
```
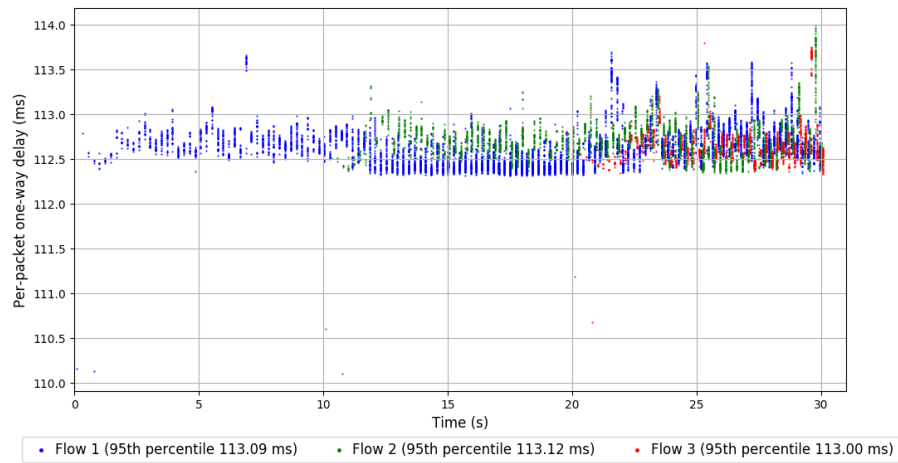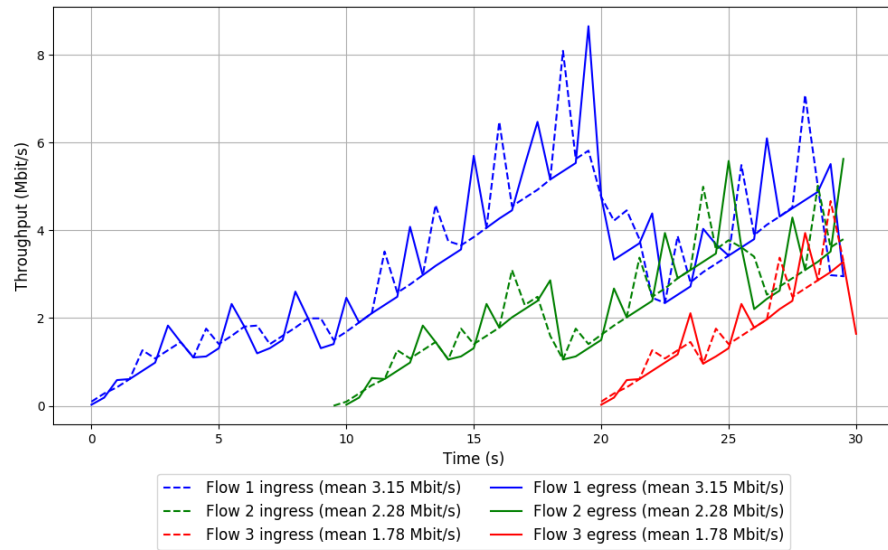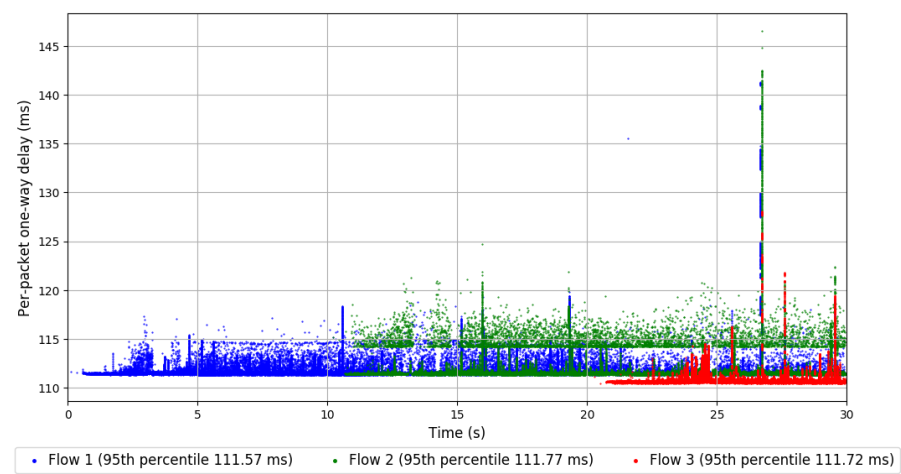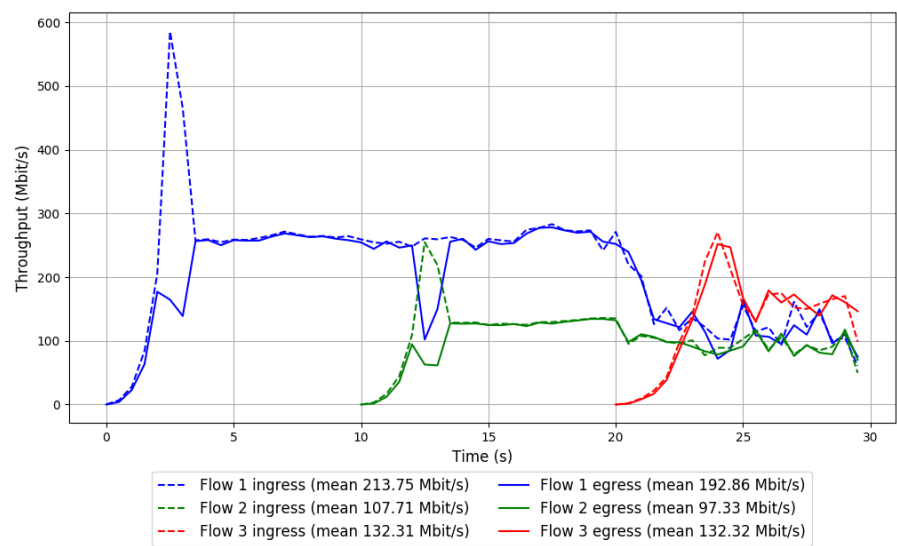
Run 10: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC

Start at: 2017-08-12 02:57:00
End at: 2017-08-12 02:57:30

# Below is generated by plot.py at 2017-08-12 06:14:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 300.02 Mbit/s
95th percentile per-packet one-way delay: 111.606 ms
Loss rate: 8.47%
-- Flow 1:
Average throughput: 192.86 Mbit/s
95th percentile per-packet one-way delay: 111.574 ms
Loss rate: 9.77%
-- Flow 2:
Average throughput: 97.33 Mbit/s
95th percentile per-packet one-way delay: 111.765 ms
Loss rate: 9.65%
-- Flow 3:
Average throughput: 132.32 Mbit/s
95th percentile per-packet one-way delay: 111.724 ms
Loss rate: 0.00%
```

Run 1: Report of PCC — Data Link

Flow 1 ingress (mean 213.75 Mbit/s)   Flow 1 egress (mean 192.86 Mbit/s)
Flow 2 ingress (mean 107.71 Mbit/s)   Flow 2 egress (mean 97.33 Mbit/s)
Flow 3 ingress (mean 132.31 Mbit/s)   Flow 3 egress (mean 132.32 Mbit/s)

Flow 1 (95th percentile 111.57 ms)   Flow 2 (95th percentile 111.77 ms)   Flow 3 (95th percentile 111.72 ms)
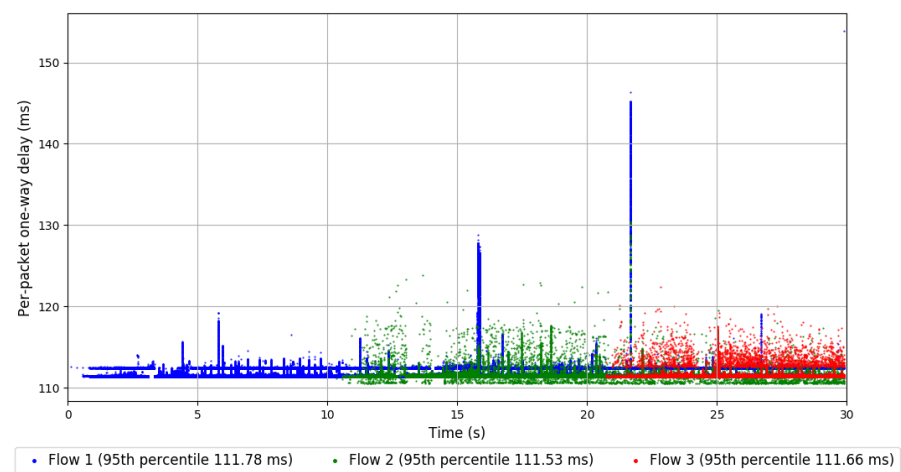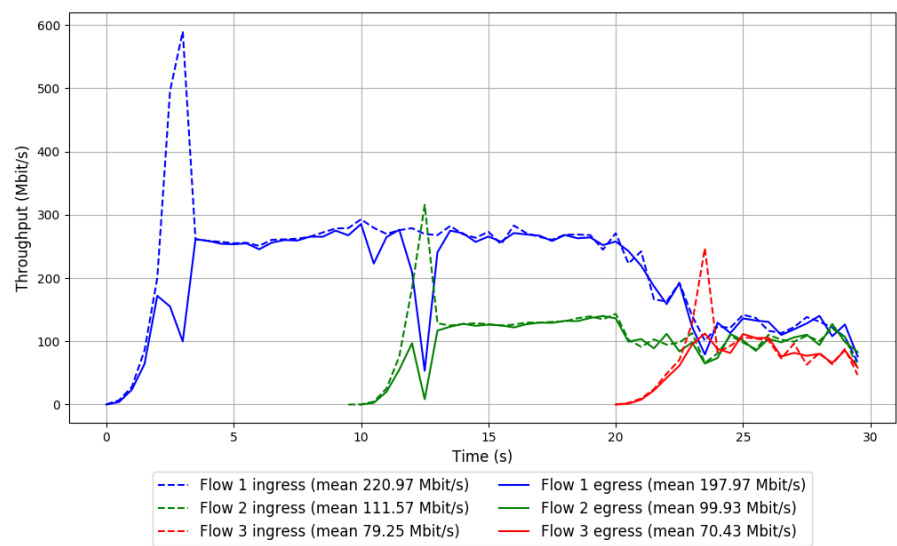
```
Run 2: Statistics of PCC

Start at: 2017-08-12 03:10:05
End at: 2017-08-12 03:10:35


# Below is generated by plot.py at 2017-08-12 06:14:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 287.15 Mbit/s
95th percentile per-packet one-way delay: 111.662 ms
Loss rate: 10.49%
-- Flow 1:
Average throughput: 197.97 Mbit/s
95th percentile per-packet one-way delay: 111.780 ms
Loss rate: 10.41%
-- Flow 2:
Average throughput: 99.93 Mbit/s
95th percentile per-packet one-way delay: 111.528 ms
Loss rate: 10.44%
-- Flow 3:
Average throughput: 70.43 Mbit/s
95th percentile per-packet one-way delay: 111.663 ms
Loss rate: 11.25%
```

Run 2: Report of PCC — Data Link

```
Run 3: Statistics of PCC

Start at: 2017-08-12 03:23:09
End at: 2017-08-12 03:23:39

# Below is generated by plot.py at 2017-08-12 06:15:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 457.85 Mbit/s
95th percentile per-packet one-way delay: 118.276 ms
Loss rate: 2.10%
-- Flow 1:
Average throughput: 299.77 Mbit/s
95th percentile per-packet one-way delay: 121.905 ms
Loss rate: 1.90%
-- Flow 2:
Average throughput: 174.53 Mbit/s
95th percentile per-packet one-way delay: 112.823 ms
Loss rate: 3.37%
-- Flow 3:
Average throughput: 131.56 Mbit/s
95th percentile per-packet one-way delay: 112.744 ms
Loss rate: 0.00%
```
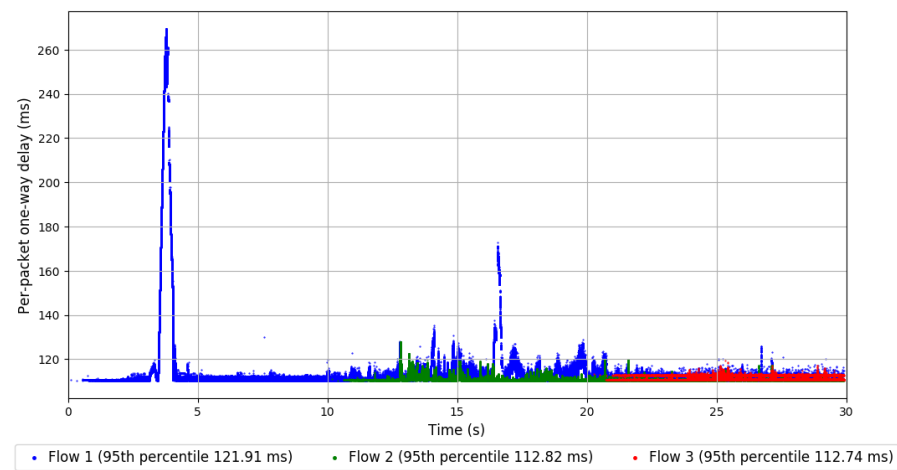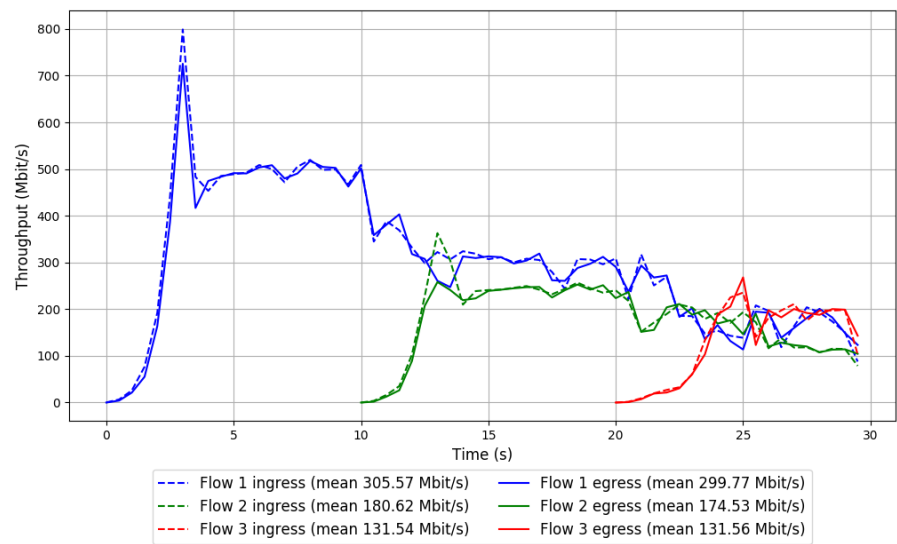
Run 3: Report of PCC — Data Link

Flow 1 ingress (mean 305.57 Mbit/s) — Flow 1 egress (mean 299.77 Mbit/s)
Flow 2 ingress (mean 180.62 Mbit/s) — Flow 2 egress (mean 174.53 Mbit/s)
Flow 3 ingress (mean 131.54 Mbit/s) — Flow 3 egress (mean 131.56 Mbit/s)

Flow 1 (95th percentile 121.91 ms) — Flow 2 (95th percentile 112.82 ms) — Flow 3 (95th percentile 112.74 ms)

```
Run 4: Statistics of PCC

Start at: 2017-08-12 03:36:34
End at: 2017-08-12 03:37:04

# Below is generated by plot.py at 2017-08-12 06:15:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 211.34 Mbit/s
95th percentile per-packet one-way delay: 114.672 ms
Loss rate: 22.71%
-- Flow 1:
Average throughput: 57.39 Mbit/s
95th percentile per-packet one-way delay: 112.121 ms
Loss rate: 51.62%
-- Flow 2:
Average throughput: 232.18 Mbit/s
95th percentile per-packet one-way delay: 115.325 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 112.484 ms
Loss rate: 77.11%
```
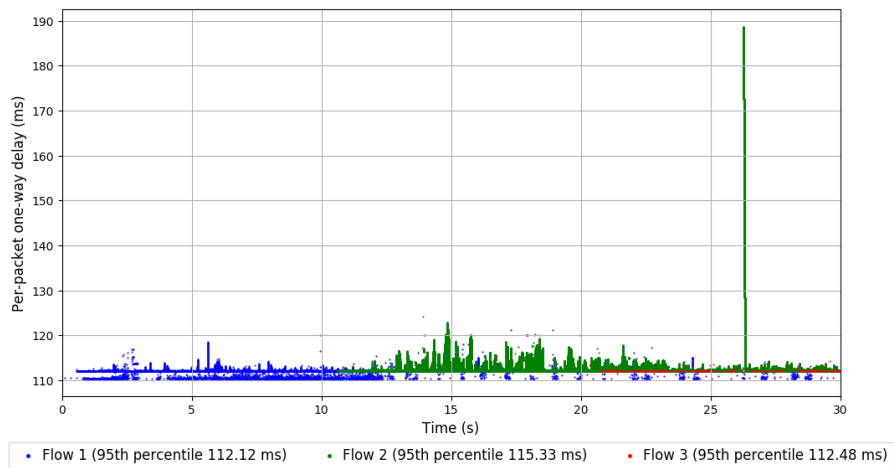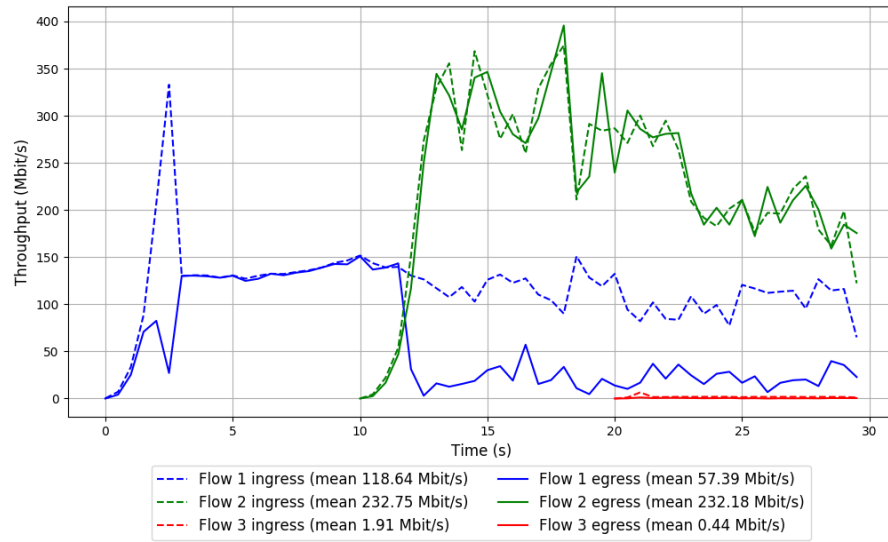
Run 4: Report of PCC — Data Link

Flow 1 ingress (mean 118.64 Mbit/s) — Flow 1 egress (mean 57.39 Mbit/s)
Flow 2 ingress (mean 232.75 Mbit/s) — Flow 2 egress (mean 232.18 Mbit/s)
Flow 3 ingress (mean 1.91 Mbit/s) — Flow 3 egress (mean 0.44 Mbit/s)

Flow 1 (95th percentile 112.12 ms)   Flow 2 (95th percentile 115.33 ms)   Flow 3 (95th percentile 112.48 ms)

131

```
Run 5: Statistics of PCC

Start at: 2017-08-12 03:49:06
End at: 2017-08-12 03:49:36

# Below is generated by plot.py at 2017-08-12 06:15:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 149.43 Mbit/s
95th percentile per-packet one-way delay: 112.182 ms
Loss rate: 11.33%
-- Flow 1:
Average throughput: 105.23 Mbit/s
95th percentile per-packet one-way delay: 112.171 ms
Loss rate: 10.97%
-- Flow 2:
Average throughput: 54.39 Mbit/s
95th percentile per-packet one-way delay: 112.263 ms
Loss rate: 12.71%
-- Flow 3:
Average throughput: 24.93 Mbit/s
95th percentile per-packet one-way delay: 112.155 ms
Loss rate: 9.82%
```
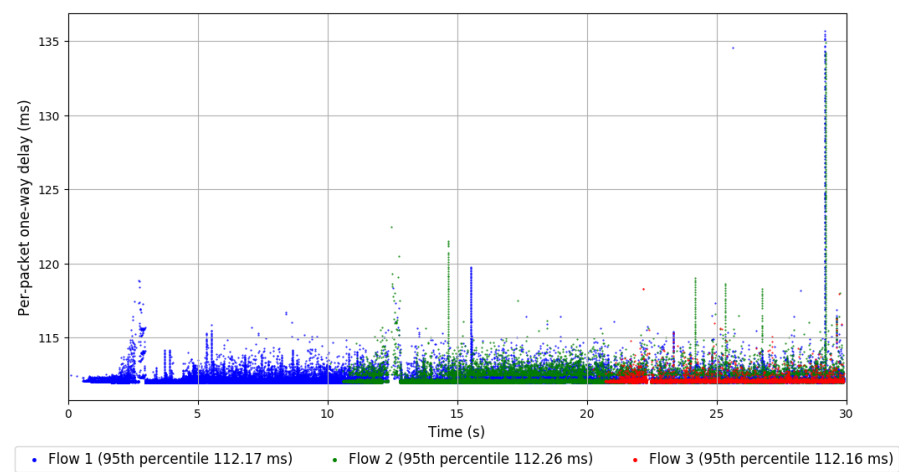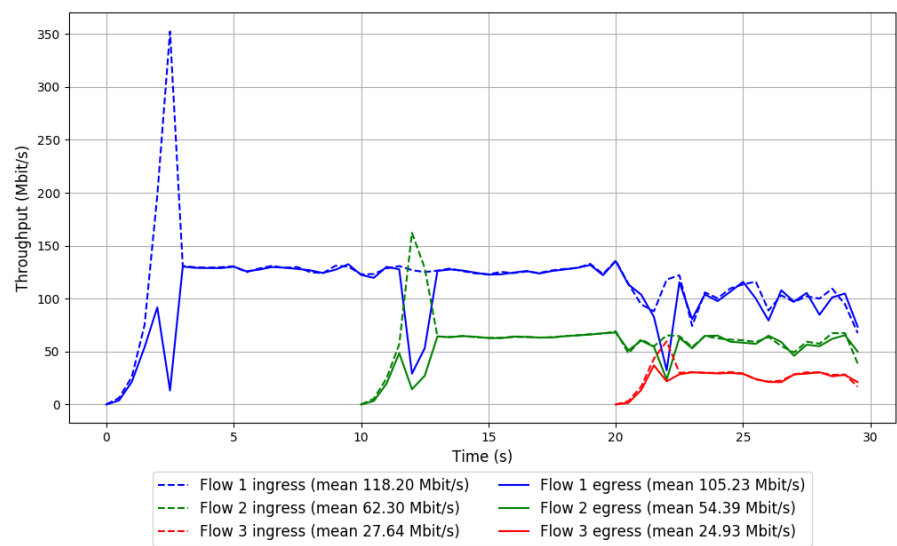
Run 5: Report of PCC — Data Link

Flow 1 ingress (mean 118.20 Mbit/s)   Flow 1 egress (mean 105.23 Mbit/s)
Flow 2 ingress (mean 62.30 Mbit/s)   Flow 2 egress (mean 54.39 Mbit/s)
Flow 3 ingress (mean 27.64 Mbit/s)   Flow 3 egress (mean 24.93 Mbit/s)

Flow 1 (95th percentile 112.17 ms)   Flow 2 (95th percentile 112.26 ms)   Flow 3 (95th percentile 112.16 ms)

```
Run 6: Statistics of PCC

Start at: 2017-08-12 04:02:12
End at: 2017-08-12 04:02:43


# Below is generated by plot.py at 2017-08-12 06:16:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 379.35 Mbit/s
95th percentile per-packet one-way delay: 118.527 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 321.95 Mbit/s
95th percentile per-packet one-way delay: 123.280 ms
Loss rate: 1.52%
-- Flow 2:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 112.455 ms
Loss rate: 21.01%
-- Flow 3:
Average throughput: 173.45 Mbit/s
95th percentile per-packet one-way delay: 114.840 ms
Loss rate: 0.00%
```
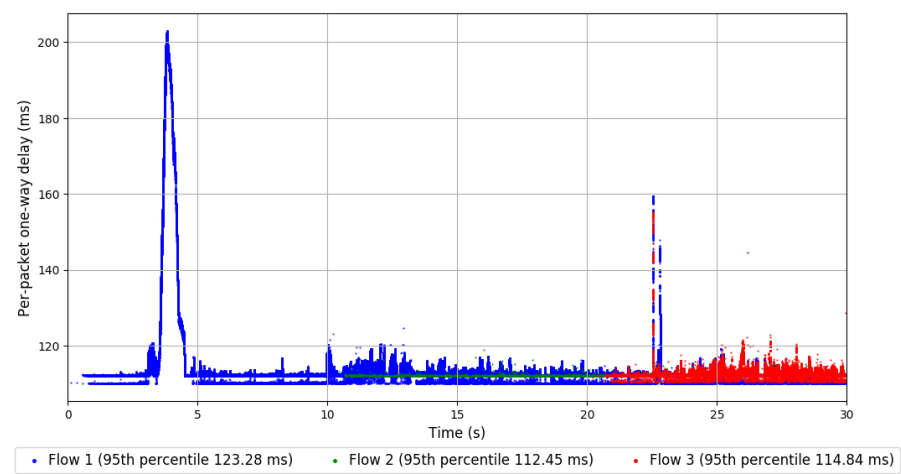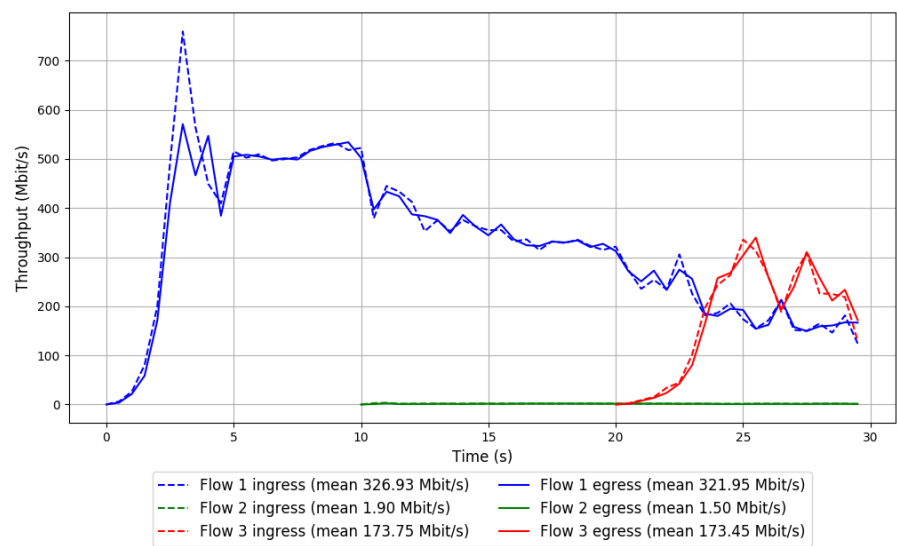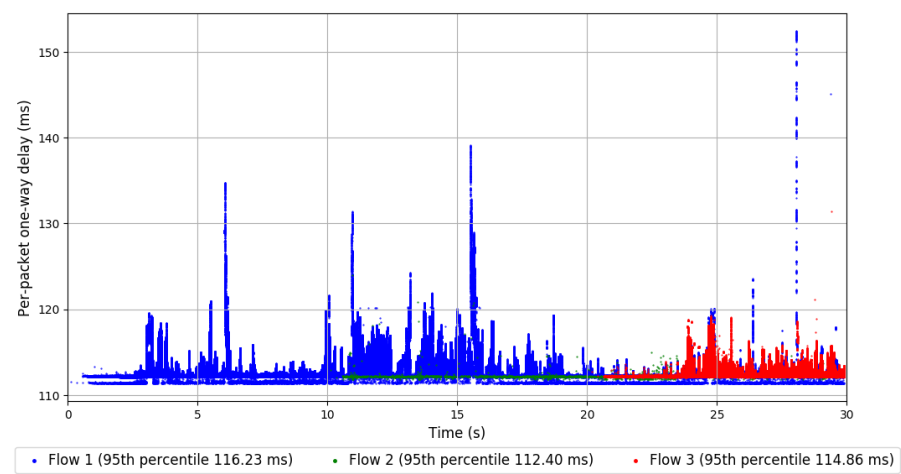
Run 6: Report of PCC — Data Link

Flow 1 ingress (mean 326.93 Mbit/s) --- Flow 1 egress (mean 321.95 Mbit/s) ---
Flow 2 ingress (mean 1.90 Mbit/s) --- Flow 2 egress (mean 1.50 Mbit/s) ---
Flow 3 ingress (mean 173.75 Mbit/s) --- Flow 3 egress (mean 173.45 Mbit/s)

Flow 1 (95th percentile 123.28 ms) • Flow 2 (95th percentile 112.45 ms) • Flow 3 (95th percentile 114.84 ms)

```
Run 7: Statistics of PCC

Start at: 2017-08-12 04:15:27
End at: 2017-08-12 04:15:57


# Below is generated by plot.py at 2017-08-12 06:16:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 376.22 Mbit/s
95th percentile per-packet one-way delay: 115.989 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 317.59 Mbit/s
95th percentile per-packet one-way delay: 116.226 ms
Loss rate: 1.77%
-- Flow 2:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 112.401 ms
Loss rate: 21.20%
-- Flow 3:
Average throughput: 177.00 Mbit/s
95th percentile per-packet one-way delay: 114.859 ms
Loss rate: 0.44%
```
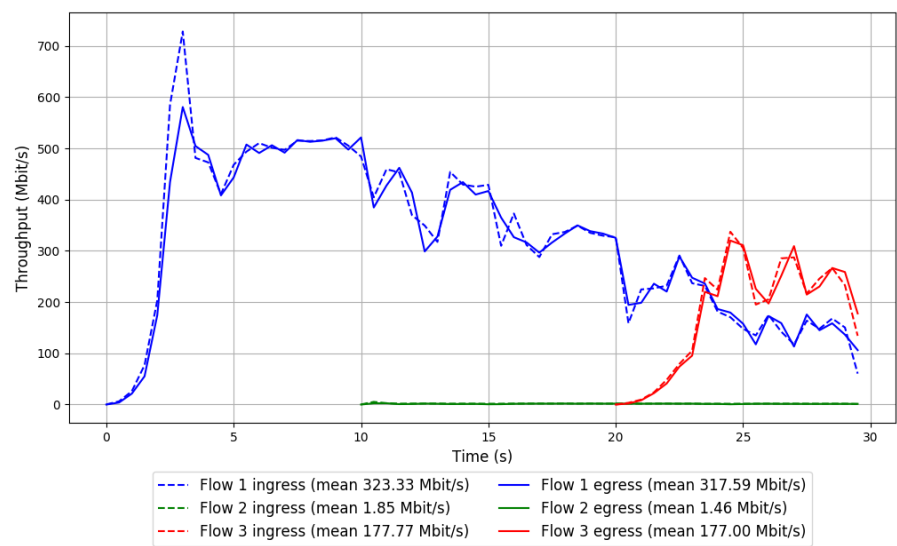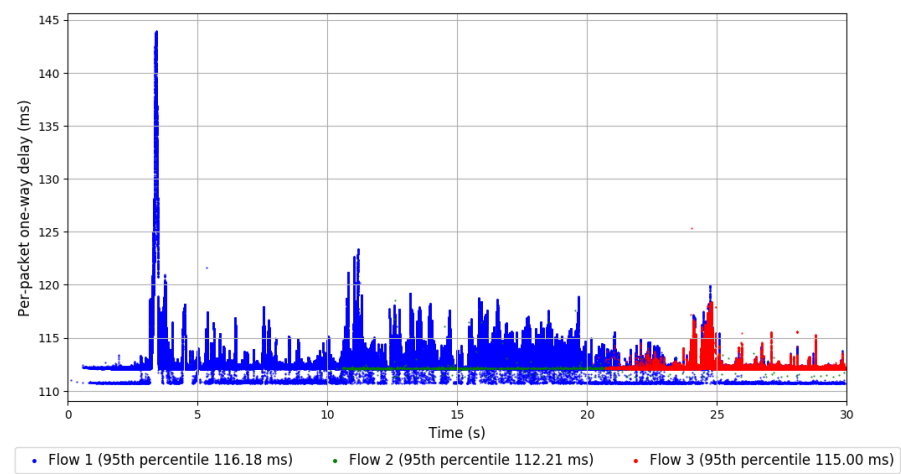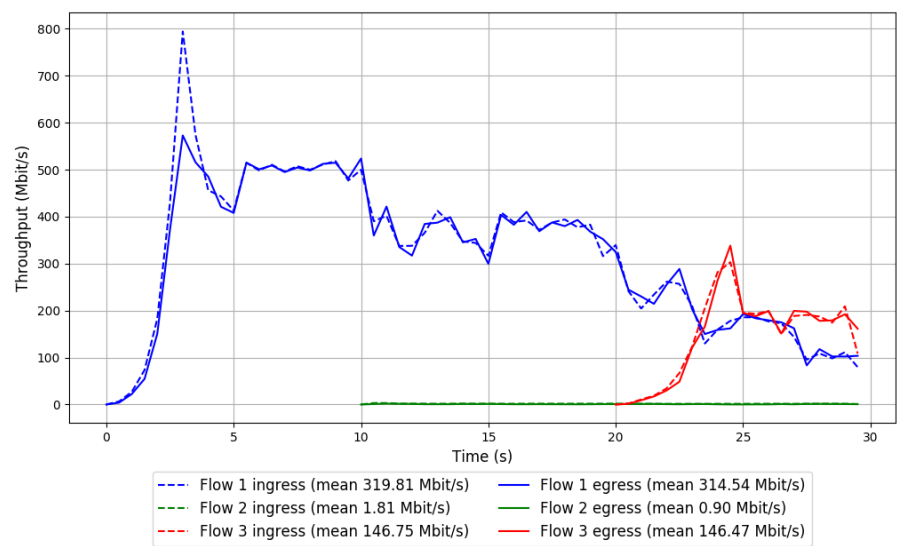
Run 7: Report of PCC — Data Link

Flow 1 ingress (mean 323.33 Mbit/s) — Flow 1 egress (mean 317.59 Mbit/s)
Flow 2 ingress (mean 1.85 Mbit/s) — Flow 2 egress (mean 1.46 Mbit/s)
Flow 3 ingress (mean 177.77 Mbit/s) — Flow 3 egress (mean 177.00 Mbit/s)

Flow 1 (95th percentile 116.23 ms) • Flow 2 (95th percentile 112.40 ms) • Flow 3 (95th percentile 114.86 ms)

```
Run 8: Statistics of PCC

Start at: 2017-08-12 04:28:18
End at: 2017-08-12 04:28:48

# Below is generated by plot.py at 2017-08-12 06:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 362.74 Mbit/s
95th percentile per-packet one-way delay: 116.018 ms
Loss rate: 1.66%
-- Flow 1:
Average throughput: 314.54 Mbit/s
95th percentile per-packet one-way delay: 116.177 ms
Loss rate: 1.69%
-- Flow 2:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 112.208 ms
Loss rate: 50.53%
-- Flow 3:
Average throughput: 146.47 Mbit/s
95th percentile per-packet one-way delay: 114.995 ms
Loss rate: 0.19%
```
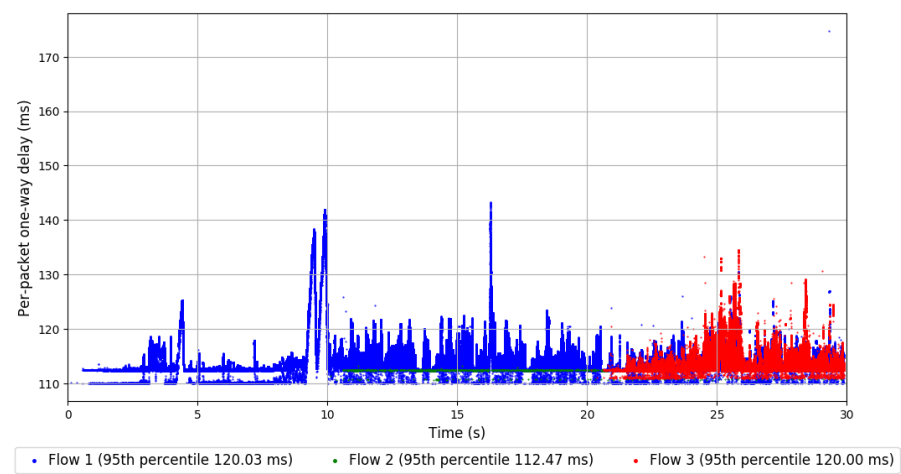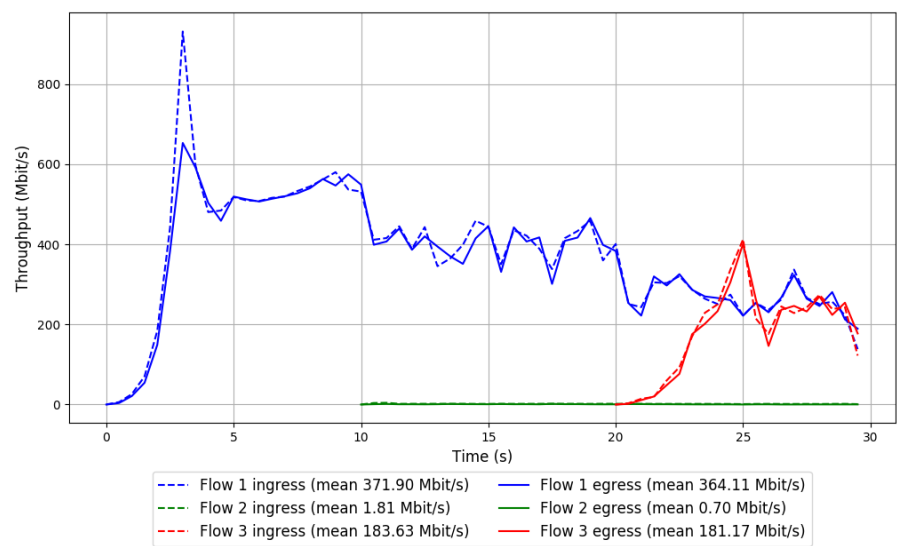
Run 8: Report of PCC — Data Link

Flow 1 ingress (mean 319.81 Mbit/s) ——— Flow 1 egress (mean 314.54 Mbit/s)
Flow 2 ingress (mean 1.81 Mbit/s) ——— Flow 2 egress (mean 0.90 Mbit/s)
Flow 3 ingress (mean 146.75 Mbit/s) ——— Flow 3 egress (mean 146.47 Mbit/s)

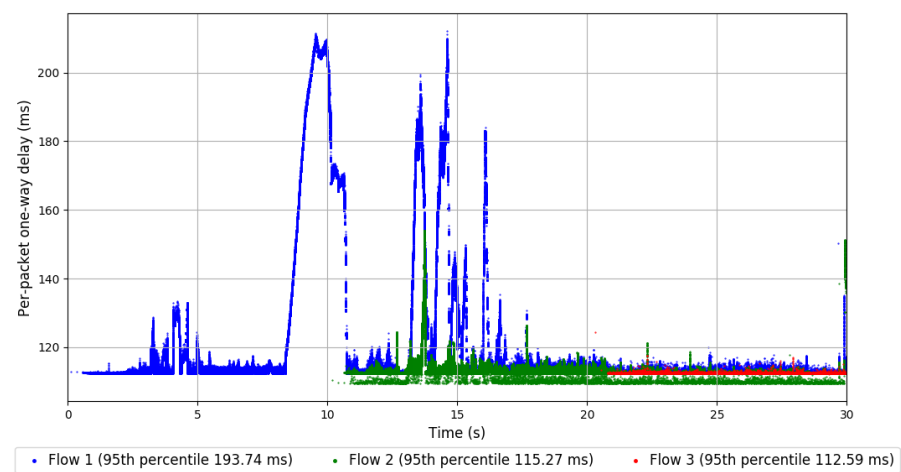Flow 1 (95th percentile 116.18 ms)   Flow 2 (95th percentile 112.21 ms)   Flow 3 (95th percentile 115.00 ms)

```
Run 9: Statistics of PCC

Start at: 2017-08-12 04:41:23
End at: 2017-08-12 04:41:53


# Below is generated by plot.py at 2017-08-12 06:18:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 423.64 Mbit/s
95th percentile per-packet one-way delay: 120.011 ms
Loss rate: 2.15%
-- Flow 1:
Average throughput: 364.11 Mbit/s
95th percentile per-packet one-way delay: 120.025 ms
Loss rate: 2.09%
-- Flow 2:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 112.473 ms
Loss rate: 61.15%
-- Flow 3:
Average throughput: 181.17 Mbit/s
95th percentile per-packet one-way delay: 119.996 ms
Loss rate: 1.34%
```
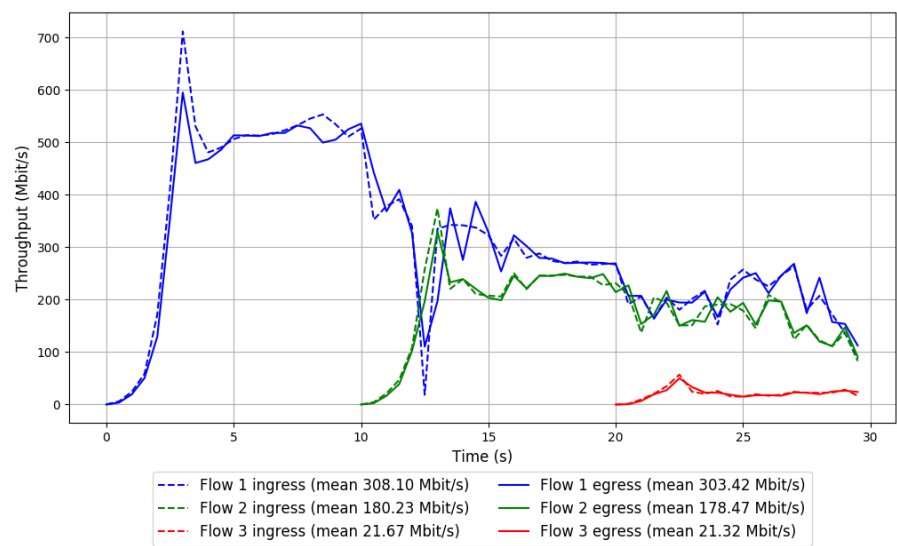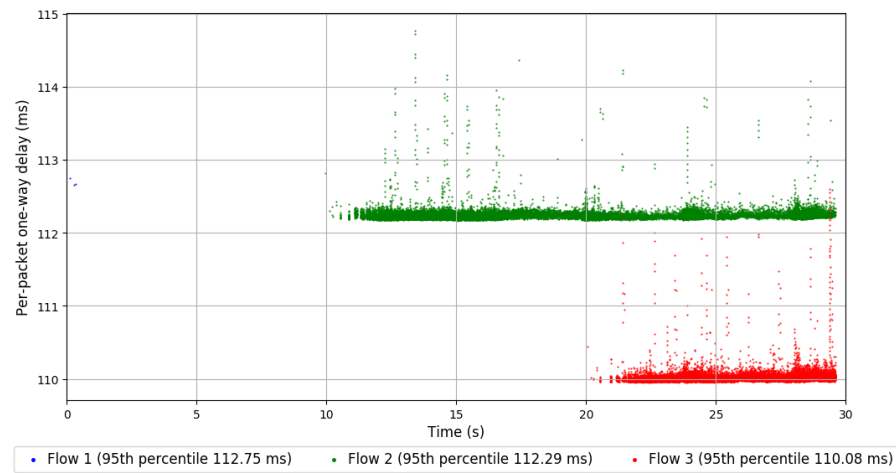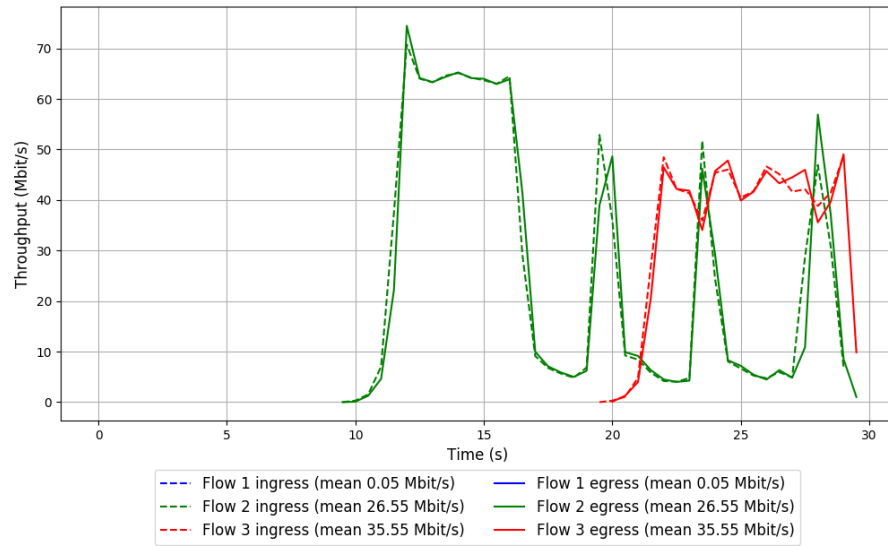
Run 9: Report of PCC — Data Link

Flow 1 ingress (mean 371.90 Mbit/s) --- Flow 1 egress (mean 364.11 Mbit/s)
Flow 2 ingress (mean 1.81 Mbit/s) --- Flow 2 egress (mean 0.70 Mbit/s)
Flow 3 ingress (mean 183.63 Mbit/s) --- Flow 3 egress (mean 181.17 Mbit/s)

Flow 1 (95th percentile 120.03 ms)   Flow 2 (95th percentile 112.47 ms)   Flow 3 (95th percentile 120.00 ms)

141

```
Run 10: Statistics of PCC

Start at: 2017-08-12 04:54:19
End at: 2017-08-12 04:54:49

# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 428.55 Mbit/s
95th percentile per-packet one-way delay: 181.722 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 303.42 Mbit/s
95th percentile per-packet one-way delay: 193.743 ms
Loss rate: 1.52%
-- Flow 2:
Average throughput: 178.47 Mbit/s
95th percentile per-packet one-way delay: 115.272 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 21.32 Mbit/s
95th percentile per-packet one-way delay: 112.589 ms
Loss rate: 1.73%
```

Run 10: Report of PCC — Data Link

Flow 1 ingress (mean 308.10 Mbit/s) — — — Flow 1 egress (mean 303.42 Mbit/s)
Flow 2 ingress (mean 180.23 Mbit/s) — — — Flow 2 egress (mean 178.47 Mbit/s)
Flow 3 ingress (mean 21.67 Mbit/s) — — — Flow 3 egress (mean 21.32 Mbit/s)

Flow 1 (95th percentile 193.74 ms)   Flow 2 (95th percentile 115.27 ms)   Flow 3 (95th percentile 112.59 ms)

143

```
Run 1: Statistics of QUIC Cubic

Start at: 2017-08-12 03:01:29
End at: 2017-08-12 03:01:59

# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 29.20 Mbit/s
95th percentile per-packet one-way delay: 112.276 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.752 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 26.55 Mbit/s
95th percentile per-packet one-way delay: 112.293 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 35.55 Mbit/s
95th percentile per-packet one-way delay: 110.076 ms
Loss rate: 0.00%
```
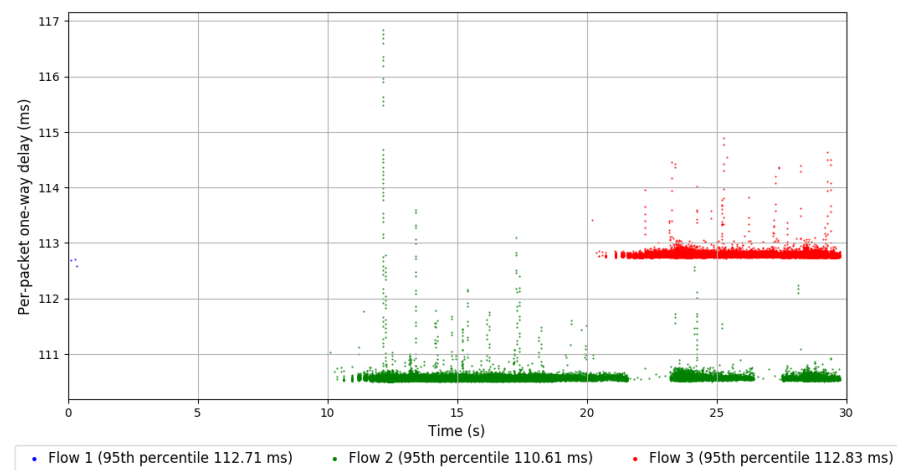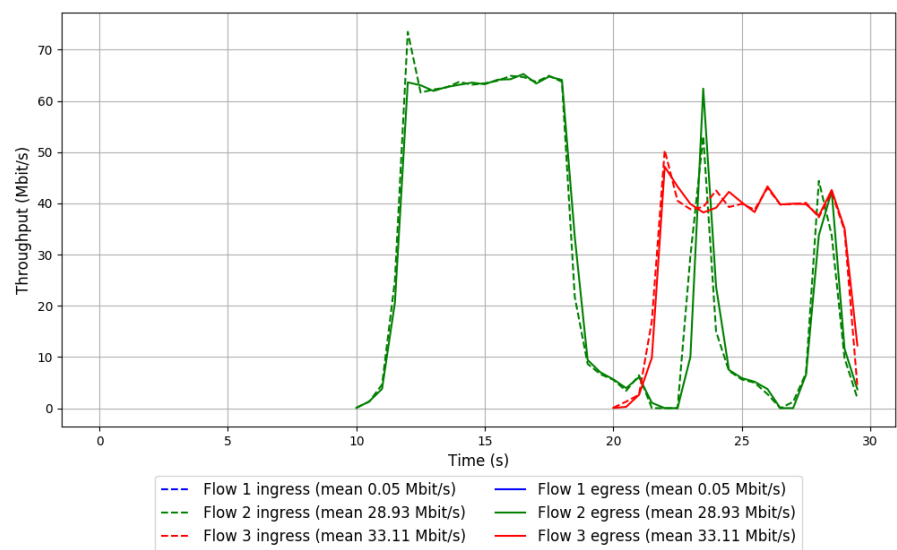
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2017-08-12 03:14:34
End at: 2017-08-12 03:15:04


# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 29.81 Mbit/s
95th percentile per-packet one-way delay: 112.806 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.709 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 28.93 Mbit/s
95th percentile per-packet one-way delay: 110.612 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.11 Mbit/s
95th percentile per-packet one-way delay: 112.833 ms
Loss rate: 0.00%
```
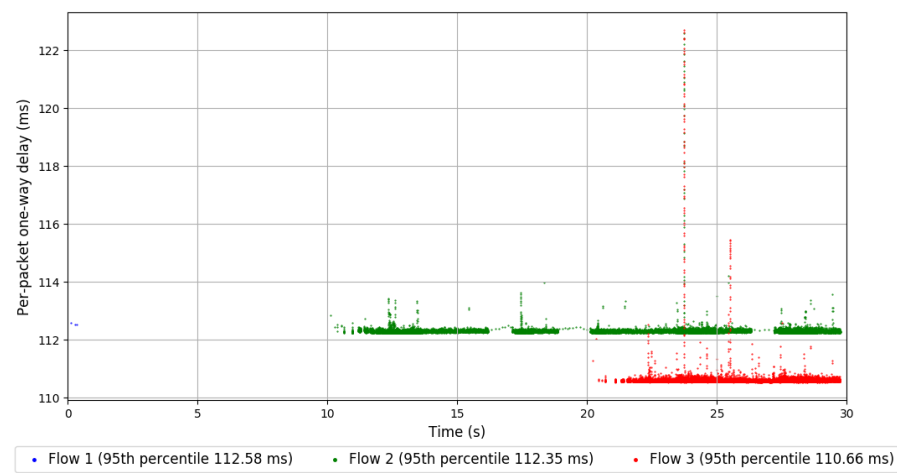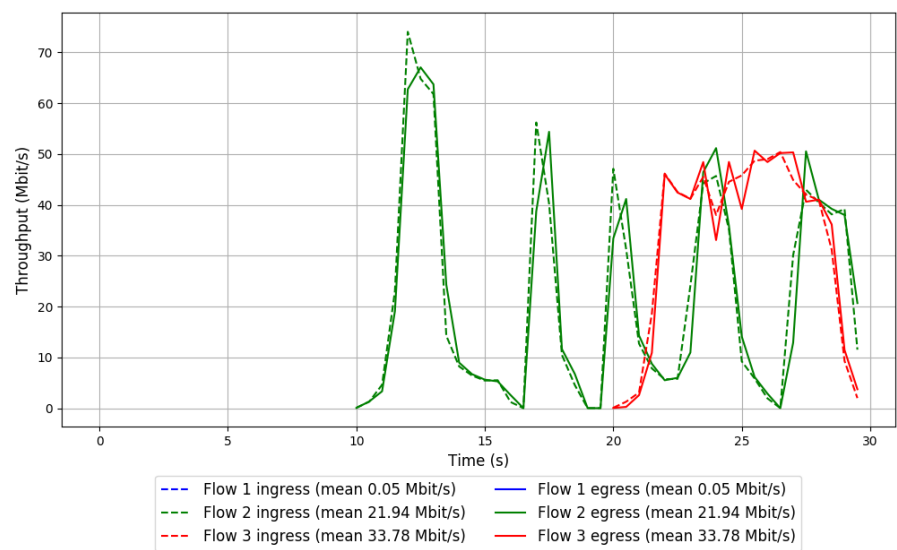
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.05 Mbit/s) --- Flow 1 egress (mean 0.05 Mbit/s)
Flow 2 ingress (mean 28.93 Mbit/s) --- Flow 2 egress (mean 28.93 Mbit/s)
Flow 3 ingress (mean 33.11 Mbit/s) --- Flow 3 egress (mean 33.11 Mbit/s)

Flow 1 (95th percentile 112.71 ms) • Flow 2 (95th percentile 110.61 ms) • Flow 3 (95th percentile 112.83 ms)

147

```
Run 3: Statistics of QUIC Cubic

Start at: 2017-08-12 03:27:51
End at: 2017-08-12 03:28:21


# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 25.41 Mbit/s
95th percentile per-packet one-way delay: 112.333 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.576 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.94 Mbit/s
95th percentile per-packet one-way delay: 112.351 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.78 Mbit/s
95th percentile per-packet one-way delay: 110.663 ms
Loss rate: 0.00%
```
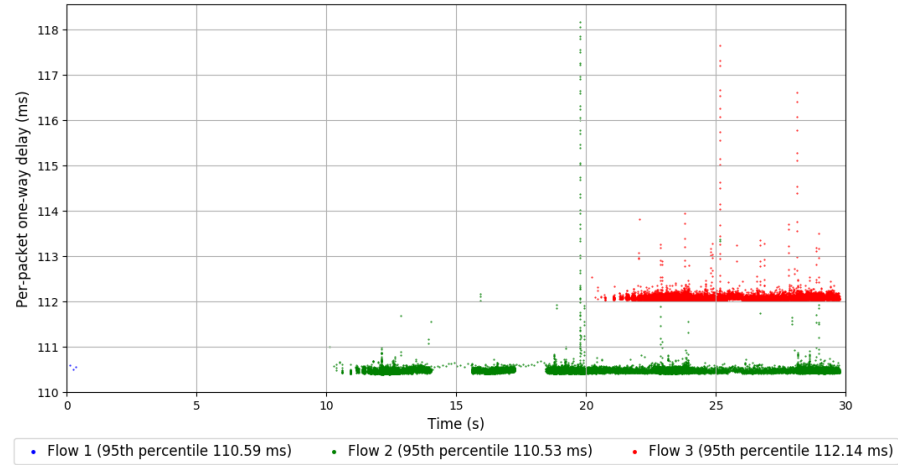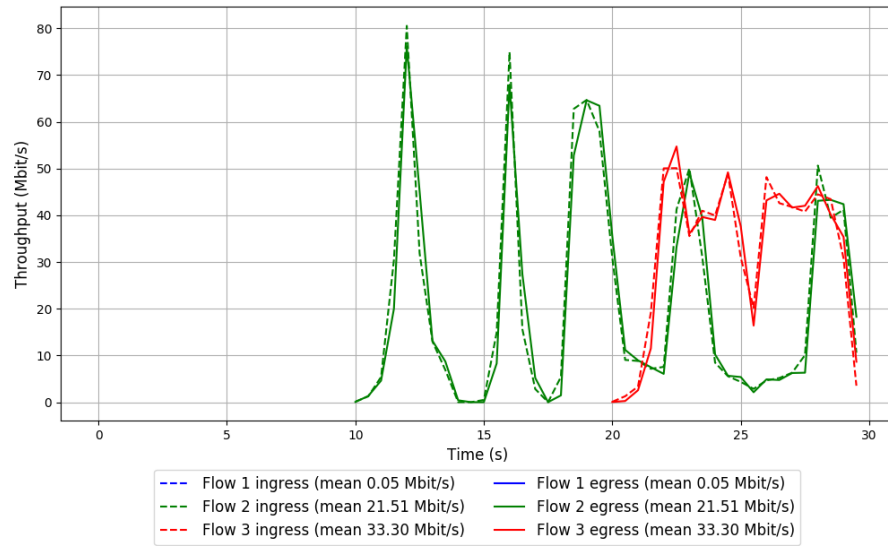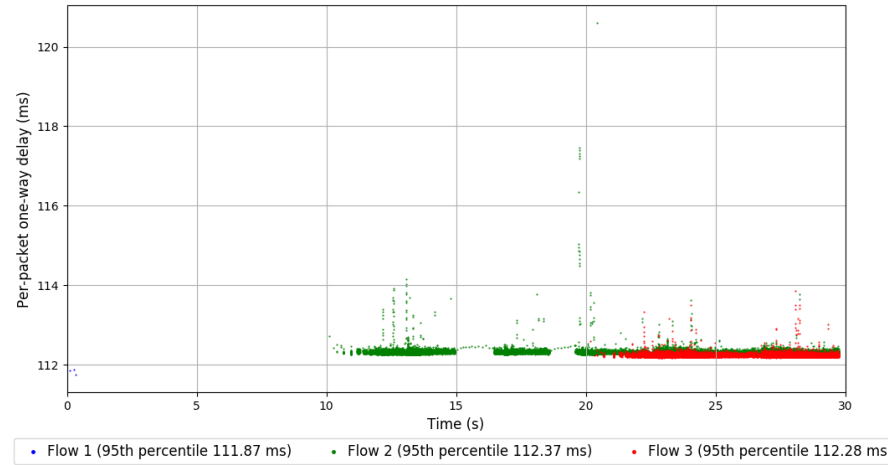
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2017-08-12 03:40:55
End at: 2017-08-12 03:41:25


# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 24.97 Mbit/s
95th percentile per-packet one-way delay: 112.107 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 110.591 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.51 Mbit/s
95th percentile per-packet one-way delay: 110.529 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.30 Mbit/s
95th percentile per-packet one-way delay: 112.139 ms
Loss rate: 0.00%
```
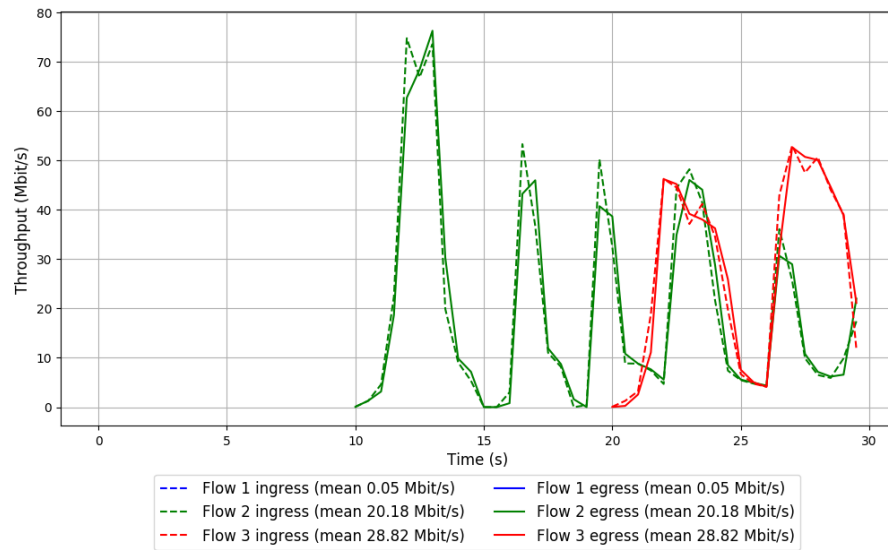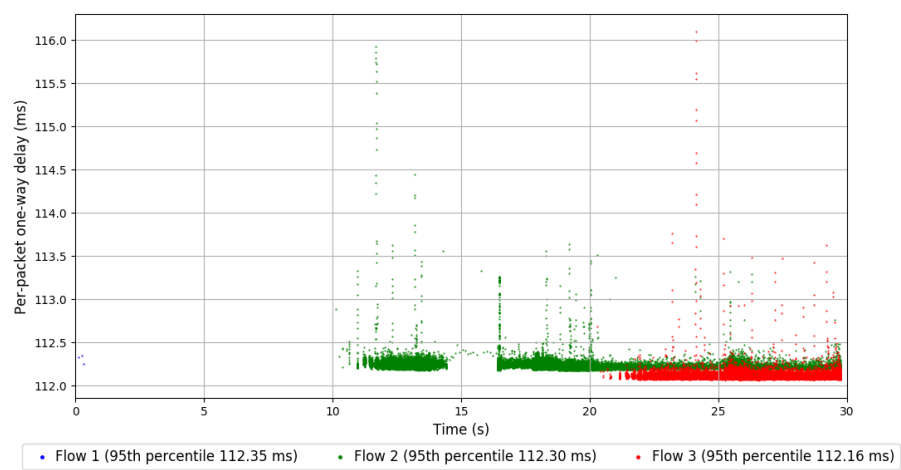
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.05 Mbit/s) — Flow 1 egress (mean 0.05 Mbit/s)
Flow 2 ingress (mean 21.51 Mbit/s) — Flow 2 egress (mean 21.51 Mbit/s)
Flow 3 ingress (mean 33.30 Mbit/s) — Flow 3 egress (mean 33.30 Mbit/s)

Flow 1 (95th percentile 110.59 ms) • Flow 2 (95th percentile 110.53 ms) • Flow 3 (95th percentile 112.14 ms)

151

```
Run 5: Statistics of QUIC Cubic

Start at: 2017-08-12 03:53:24
End at: 2017-08-12 03:53:54


# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 22.66 Mbit/s
95th percentile per-packet one-way delay: 112.354 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 111.873 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 20.18 Mbit/s
95th percentile per-packet one-way delay: 112.369 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 28.82 Mbit/s
95th percentile per-packet one-way delay: 112.282 ms
Loss rate: 0.00%
```
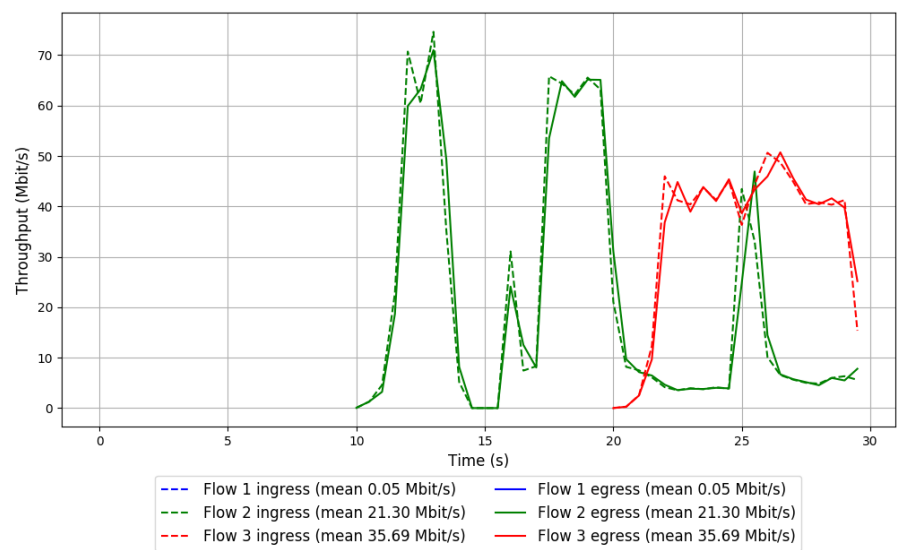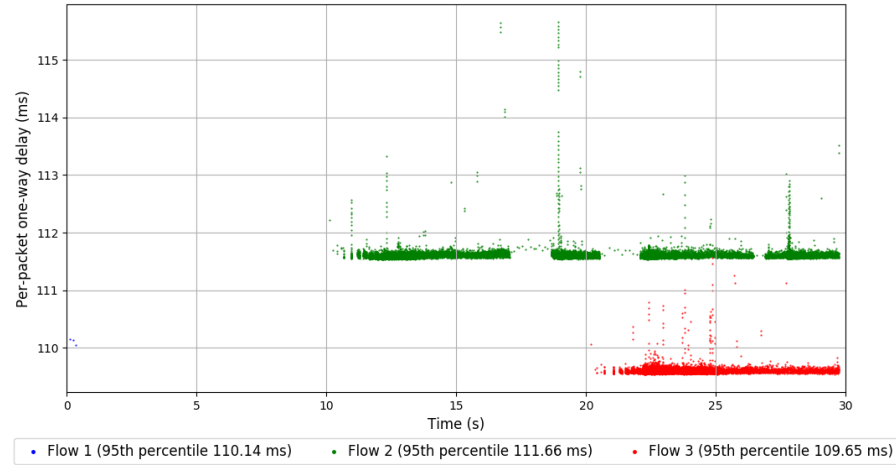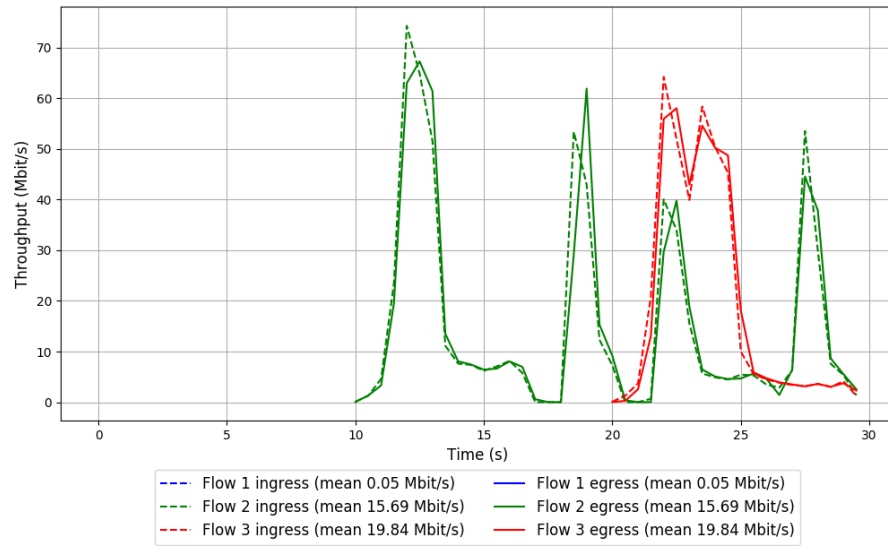
Run 5: Report of QUIC Cubic — Data Link

```
Run 6: Statistics of QUIC Cubic

Start at: 2017-08-12 04:06:46
End at: 2017-08-12 04:07:16


# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 25.51 Mbit/s
95th percentile per-packet one-way delay: 112.282 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.347 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.30 Mbit/s
95th percentile per-packet one-way delay: 112.300 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 35.69 Mbit/s
95th percentile per-packet one-way delay: 112.159 ms
Loss rate: 0.00%
```

Run 6: Report of QUIC Cubic — Data Link

155

```
Run 7: Statistics of QUIC Cubic

Start at: 2017-08-12 04:19:45
End at: 2017-08-12 04:20:15


# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.78 Mbit/s
95th percentile per-packet one-way delay: 111.647 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 110.144 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 15.69 Mbit/s
95th percentile per-packet one-way delay: 111.664 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 19.84 Mbit/s
95th percentile per-packet one-way delay: 109.650 ms
Loss rate: 0.00%
```
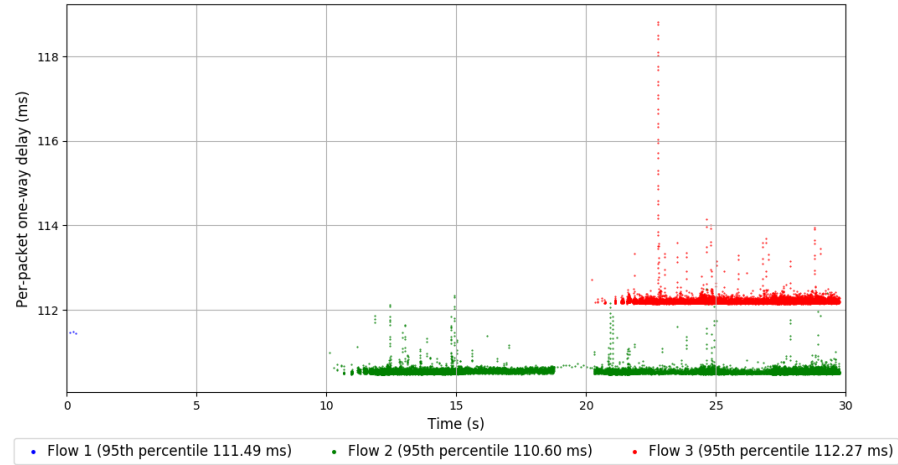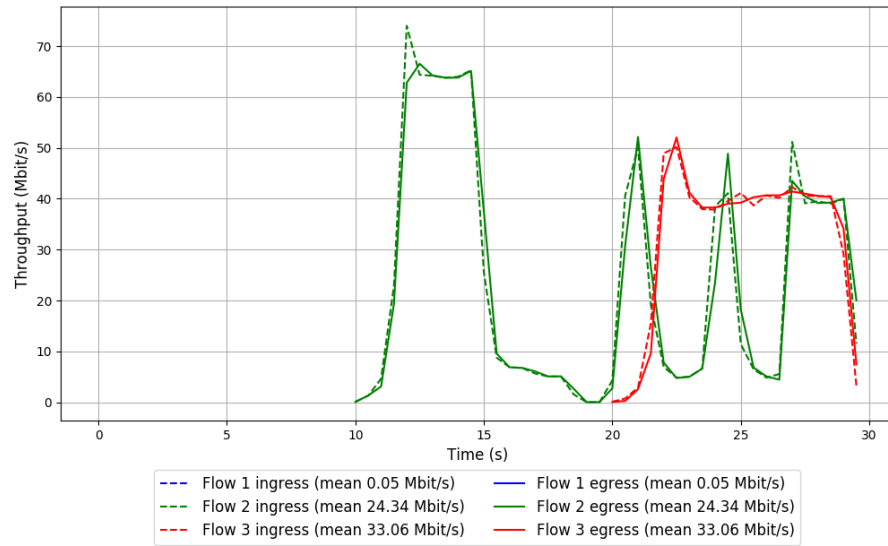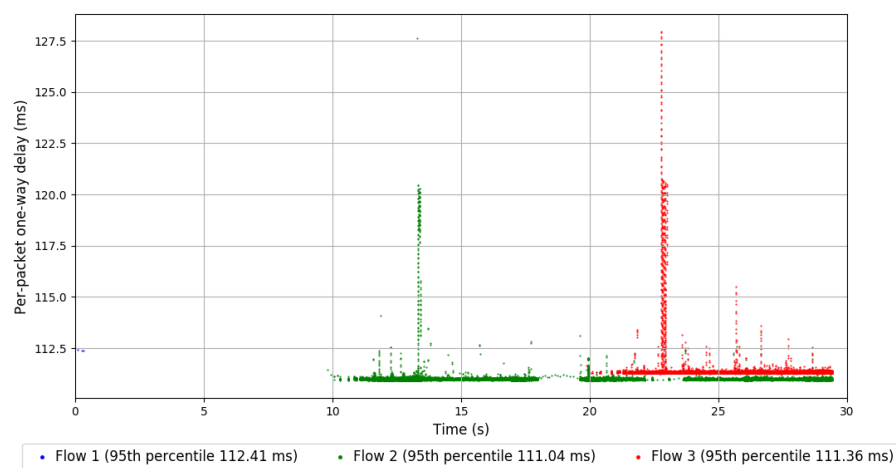
Run 7: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.05 Mbit/s)   Flow 1 egress (mean 0.05 Mbit/s)
Flow 2 ingress (mean 15.69 Mbit/s)   Flow 2 egress (mean 15.69 Mbit/s)
Flow 3 ingress (mean 19.84 Mbit/s)   Flow 3 egress (mean 19.84 Mbit/s)

Flow 1 (95th percentile 110.14 ms)   Flow 2 (95th percentile 111.66 ms)   Flow 3 (95th percentile 109.65 ms)

```
Run 8: Statistics of QUIC Cubic

Start at: 2017-08-12 04:32:42
End at: 2017-08-12 04:33:12


# Below is generated by plot.py at 2017-08-12 06:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 26.77 Mbit/s
95th percentile per-packet one-way delay: 112.227 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 111.493 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.34 Mbit/s
95th percentile per-packet one-way delay: 110.602 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.06 Mbit/s
95th percentile per-packet one-way delay: 112.265 ms
Loss rate: 0.00%
```
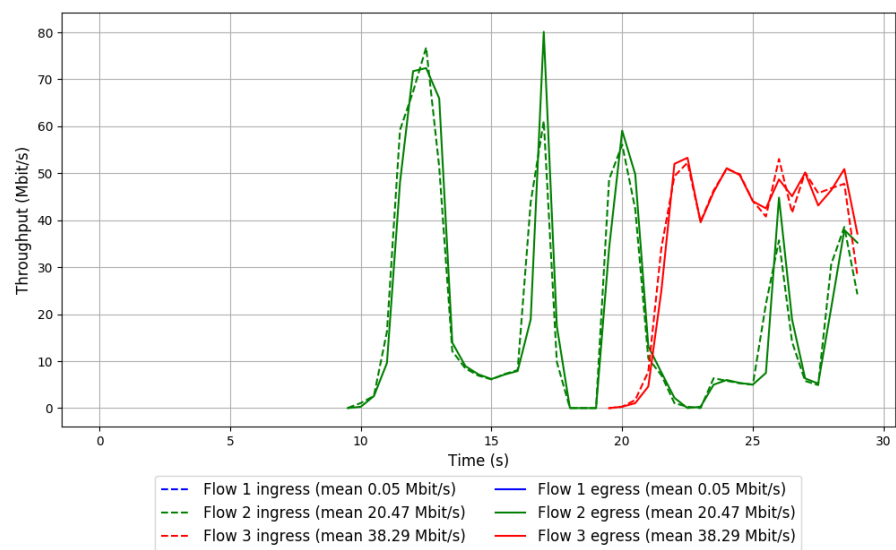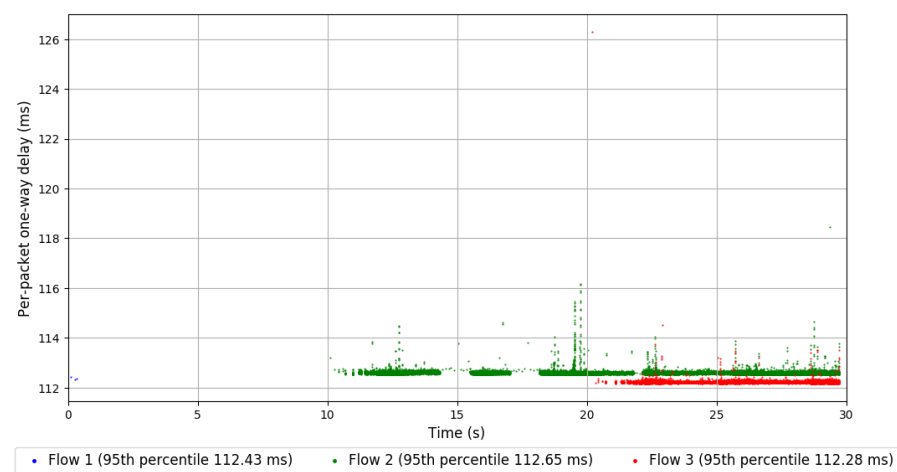
Run 8: Report of QUIC Cubic — Data Link

159

```
Run 9: Statistics of QUIC Cubic

Start at: 2017-08-12 04:45:59
End at: 2017-08-12 04:46:29


# Below is generated by plot.py at 2017-08-12 06:19:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 26.17 Mbit/s
95th percentile per-packet one-way delay: 111.342 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.414 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 20.47 Mbit/s
95th percentile per-packet one-way delay: 111.040 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 38.29 Mbit/s
95th percentile per-packet one-way delay: 111.365 ms
Loss rate: 0.00%
```
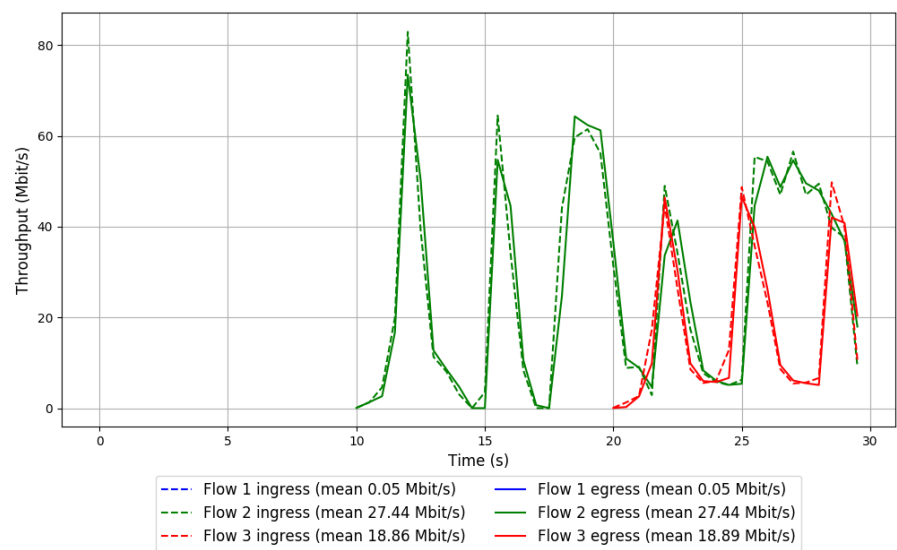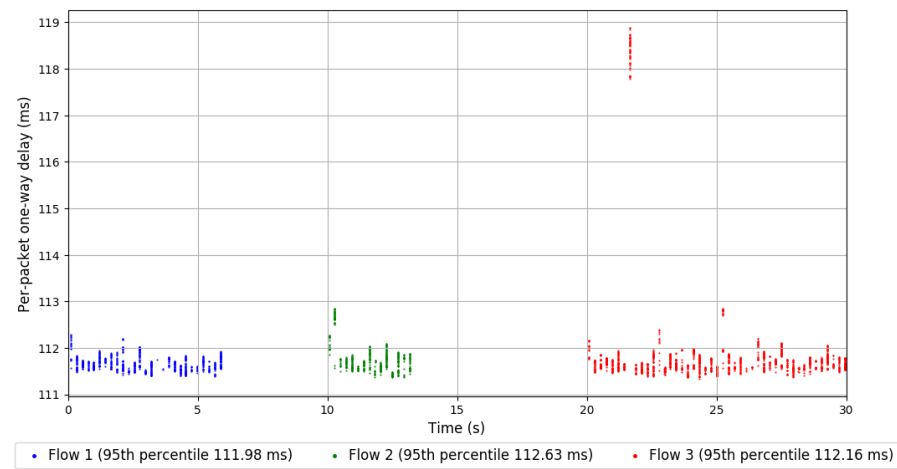
Run 9: Report of QUIC Cubic — Data Link

```
Run 10: Statistics of QUIC Cubic

Start at: 2017-08-12 04:58:59
End at: 2017-08-12 04:59:29


# Below is generated by plot.py at 2017-08-12 06:19:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 24.24 Mbit/s
95th percentile per-packet one-way delay: 112.637 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.432 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 27.44 Mbit/s
95th percentile per-packet one-way delay: 112.646 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.89 Mbit/s
95th percentile per-packet one-way delay: 112.278 ms
Loss rate: 0.00%
```
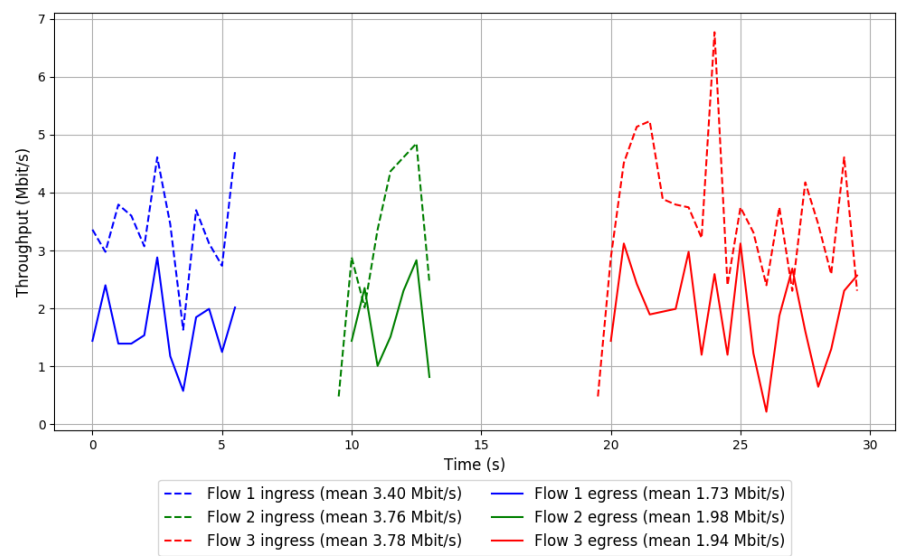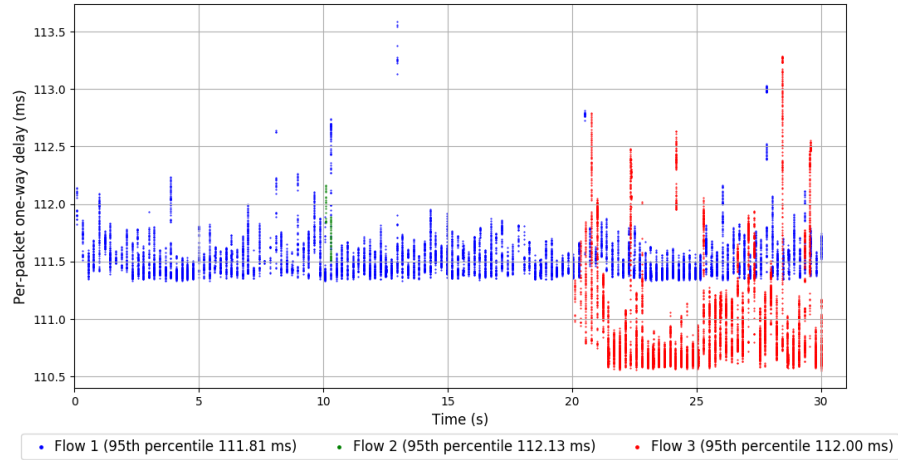
Run 10: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.05 Mbit/s) --- Flow 1 egress (mean 0.05 Mbit/s)
Flow 2 ingress (mean 27.44 Mbit/s) --- Flow 2 egress (mean 27.44 Mbit/s)
Flow 3 ingress (mean 18.86 Mbit/s) --- Flow 3 egress (mean 18.89 Mbit/s)

Flow 1 (95th percentile 112.43 ms)   Flow 2 (95th percentile 112.65 ms)   Flow 3 (95th percentile 112.28 ms)

163

```
Run 1: Statistics of Saturator

Start at: 2017-08-12 03:03:06
End at: 2017-08-12 03:03:36

# Below is generated by plot.py at 2017-08-12 06:19:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 112.108 ms
Loss rate: 49.81%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 111.979 ms
Loss rate: 51.18%
-- Flow 2:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 112.634 ms
Loss rate: 50.96%
-- Flow 3:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 112.163 ms
Loss rate: 48.68%
```
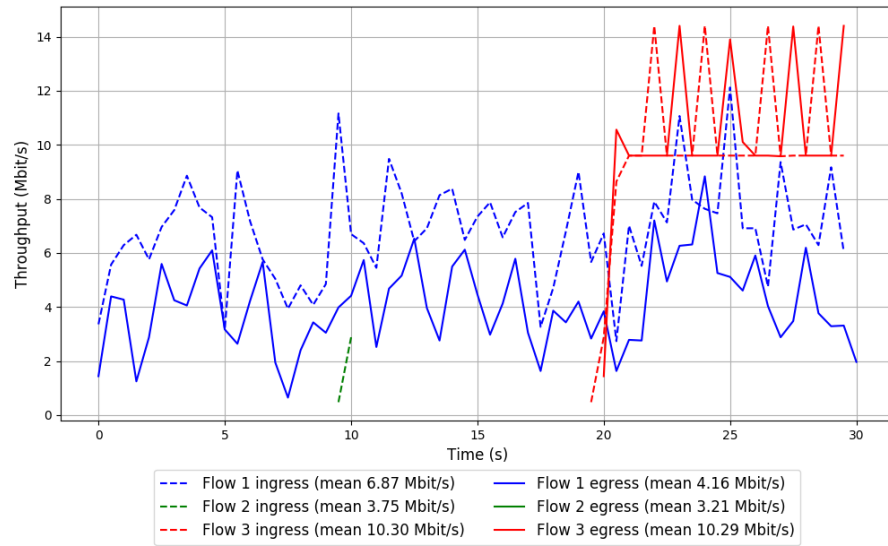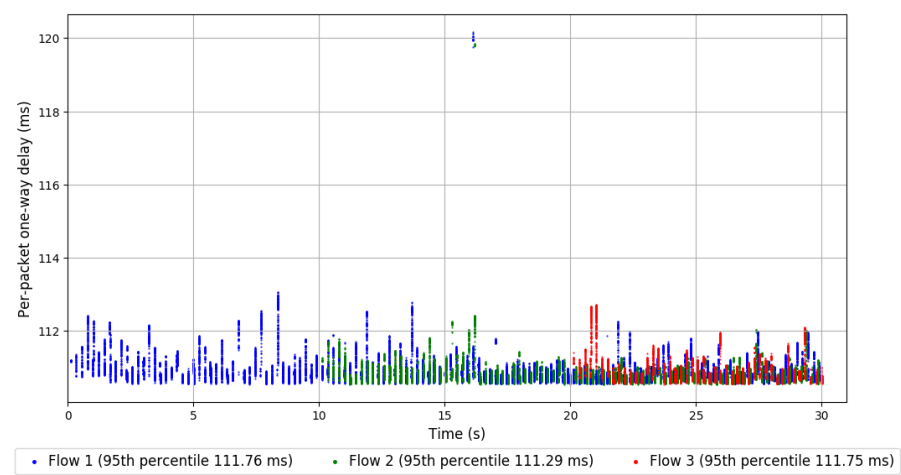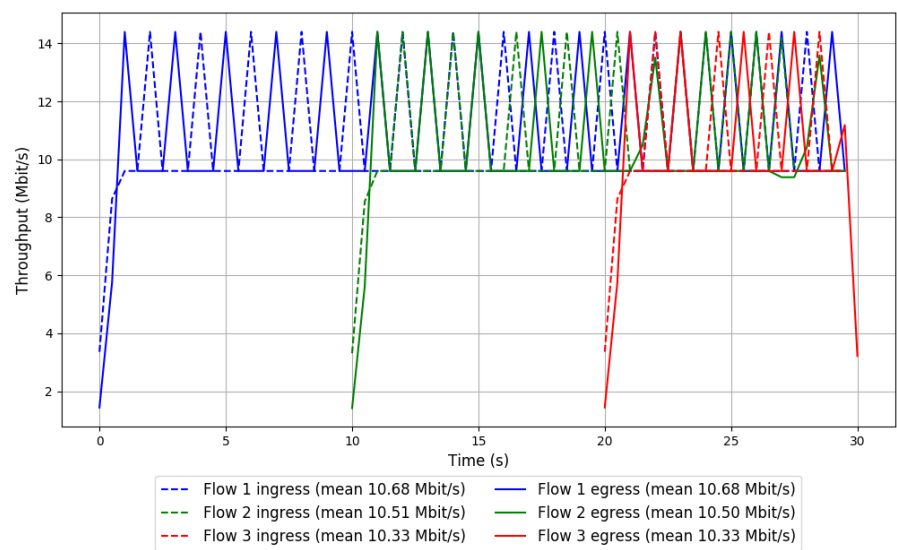
Run 1: Report of Saturator — Data Link

```
Run 2: Statistics of Saturator

Start at: 2017-08-12 03:16:11
End at: 2017-08-12 03:16:41


# Below is generated by plot.py at 2017-08-12 06:19:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.60 Mbit/s
95th percentile per-packet one-way delay: 111.893 ms
Loss rate: 26.50%
-- Flow 1:
Average throughput: 4.16 Mbit/s
95th percentile per-packet one-way delay: 111.812 ms
Loss rate: 39.41%
-- Flow 2:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 112.126 ms
Loss rate: 57.14%
-- Flow 3:
Average throughput: 10.29 Mbit/s
95th percentile per-packet one-way delay: 111.997 ms
Loss rate: 0.01%
```
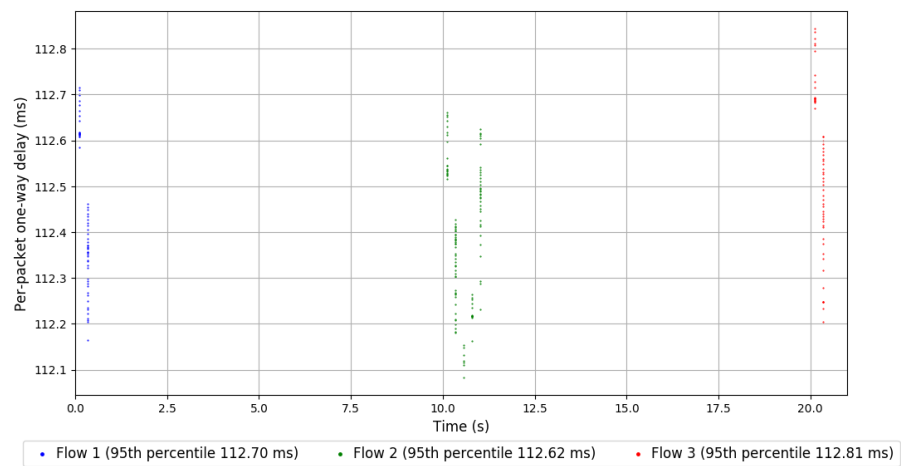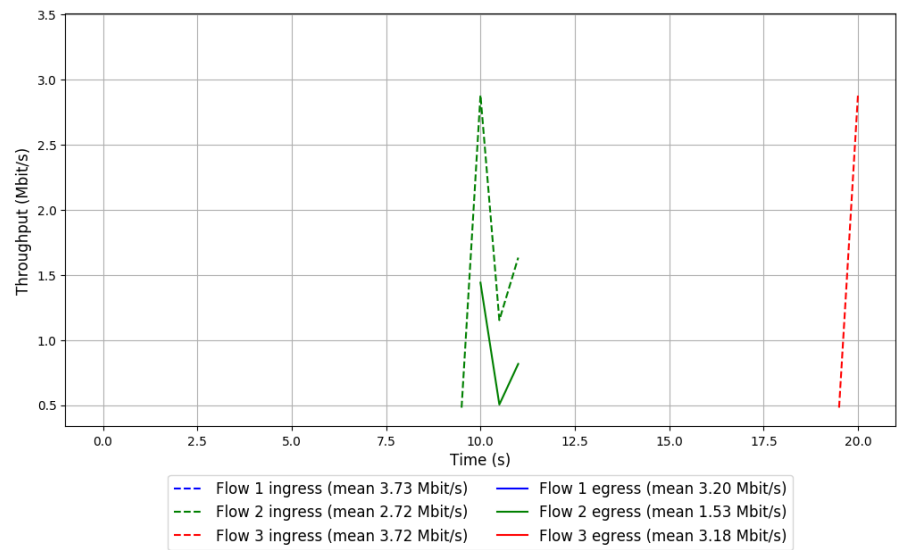
Run 2: Report of Saturator — Data Link

```
Run 3: Statistics of Saturator

Start at: 2017-08-12 03:29:28
End at: 2017-08-12 03:29:58

# Below is generated by plot.py at 2017-08-12 06:19:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.98 Mbit/s
95th percentile per-packet one-way delay: 111.660 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 10.68 Mbit/s
95th percentile per-packet one-way delay: 111.756 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 10.50 Mbit/s
95th percentile per-packet one-way delay: 111.294 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 10.33 Mbit/s
95th percentile per-packet one-way delay: 111.752 ms
Loss rate: 0.00%
```
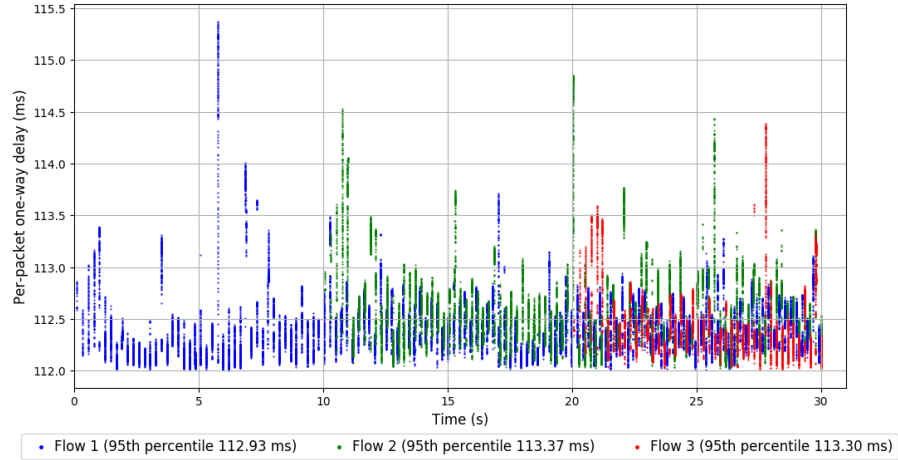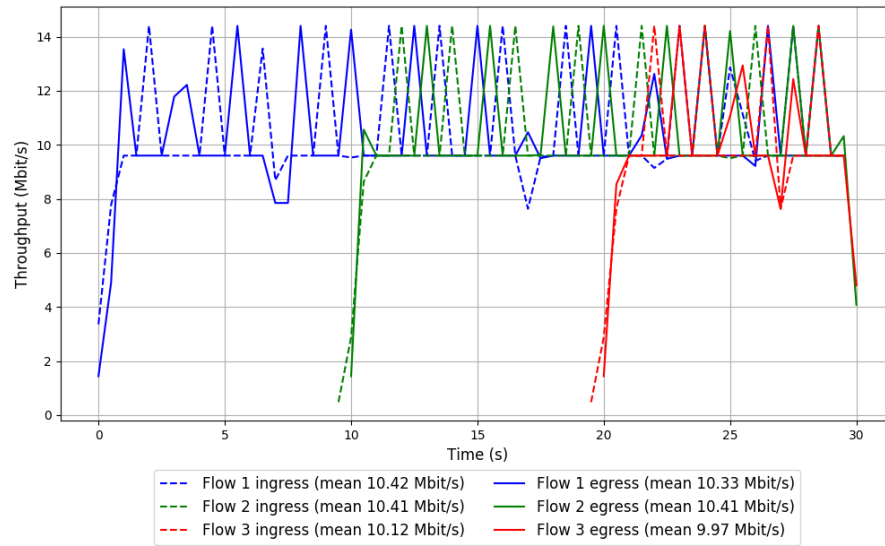
Run 3: Report of Saturator — Data Link

169

```
Run 4: Statistics of Saturator

Start at: 2017-08-12 03:42:32
End at: 2017-08-12 03:43:02
```

Run 4: Report of Saturator — Data Link

Flow 1 ingress (mean 3.73 Mbit/s) — Flow 1 egress (mean 3.20 Mbit/s)
Flow 2 ingress (mean 2.72 Mbit/s) — Flow 2 egress (mean 1.53 Mbit/s)
Flow 3 ingress (mean 3.72 Mbit/s) — Flow 3 egress (mean 3.18 Mbit/s)

Flow 1 (95th percentile 112.70 ms) • Flow 2 (95th percentile 112.62 ms) • Flow 3 (95th percentile 112.81 ms)

```
Run 5: Statistics of Saturator

Start at: 2017-08-12 03:55:00
End at: 2017-08-12 03:55:30

# Below is generated by plot.py at 2017-08-12 06:19:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.54 Mbit/s
95th percentile per-packet one-way delay: 113.180 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 10.33 Mbit/s
95th percentile per-packet one-way delay: 112.932 ms
Loss rate: 0.88%
-- Flow 2:
Average throughput: 10.41 Mbit/s
95th percentile per-packet one-way delay: 113.367 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 9.97 Mbit/s
95th percentile per-packet one-way delay: 113.304 ms
Loss rate: 1.48%
```
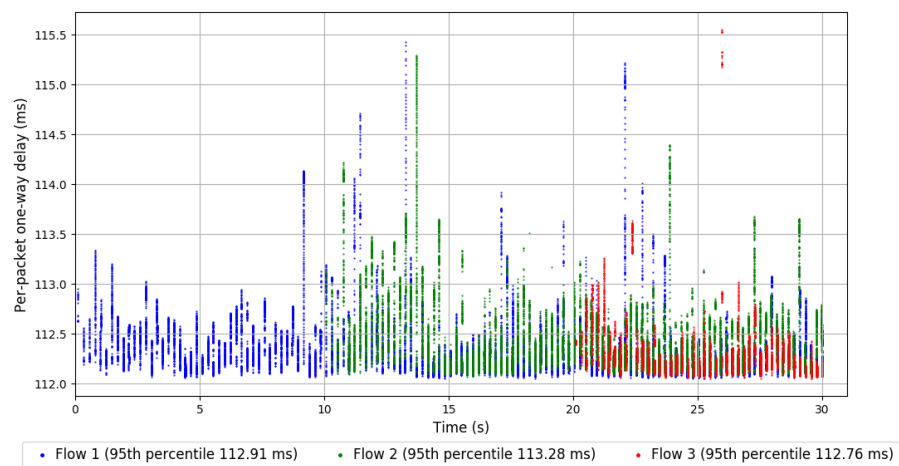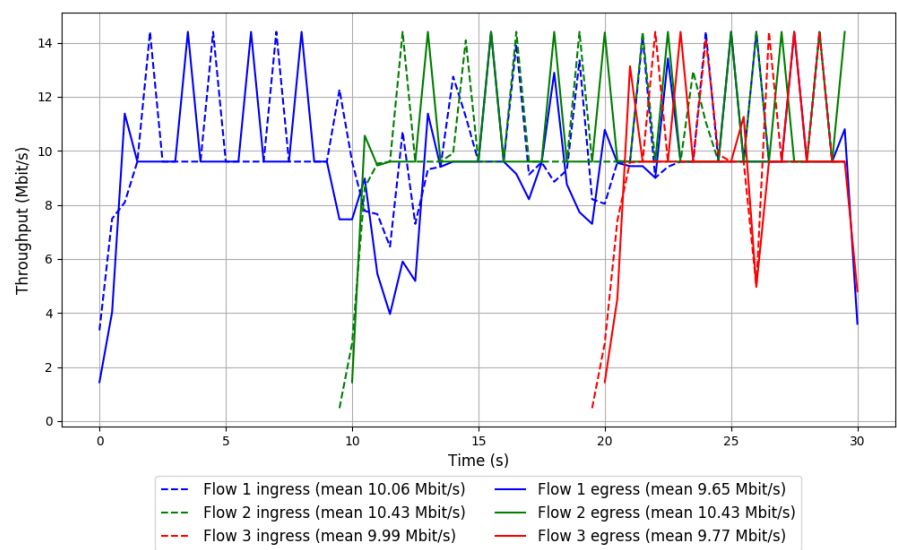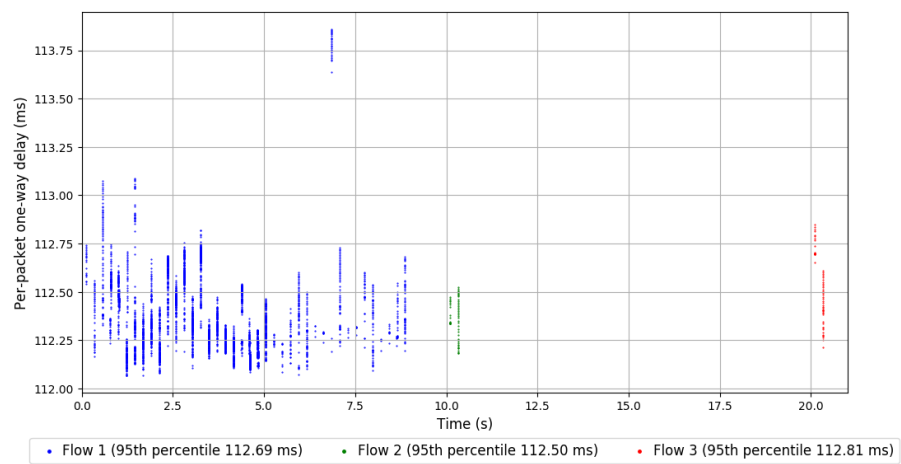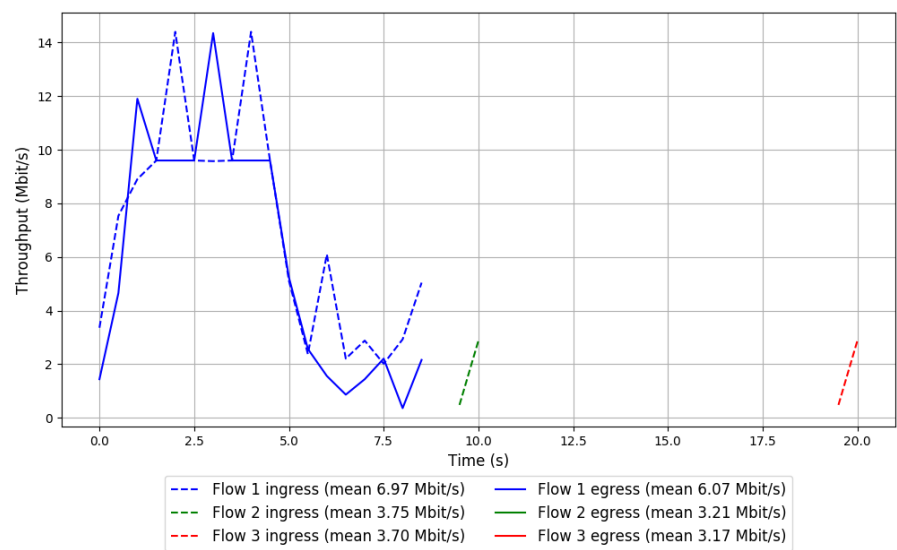
Run 5: Report of Saturator — Data Link

- - - Flow 1 ingress (mean 10.42 Mbit/s)   —— Flow 1 egress (mean 10.33 Mbit/s)
- - - Flow 2 ingress (mean 10.41 Mbit/s)   —— Flow 2 egress (mean 10.41 Mbit/s)
- - - Flow 3 ingress (mean 10.12 Mbit/s)   —— Flow 3 egress (mean 9.97 Mbit/s)

• Flow 1 (95th percentile 112.93 ms)   • Flow 2 (95th percentile 113.37 ms)   • Flow 3 (95th percentile 113.30 ms)

173

```
Run 6: Statistics of Saturator

Start at: 2017-08-12 04:08:22
End at: 2017-08-12 04:08:52


# Below is generated by plot.py at 2017-08-12 06:19:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.83 Mbit/s
95th percentile per-packet one-way delay: 113.035 ms
Loss rate: 2.38%
-- Flow 1:
Average throughput: 9.65 Mbit/s
95th percentile per-packet one-way delay: 112.910 ms
Loss rate: 4.06%
-- Flow 2:
Average throughput: 10.43 Mbit/s
95th percentile per-packet one-way delay: 113.282 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 9.77 Mbit/s
95th percentile per-packet one-way delay: 112.761 ms
Loss rate: 2.22%
```
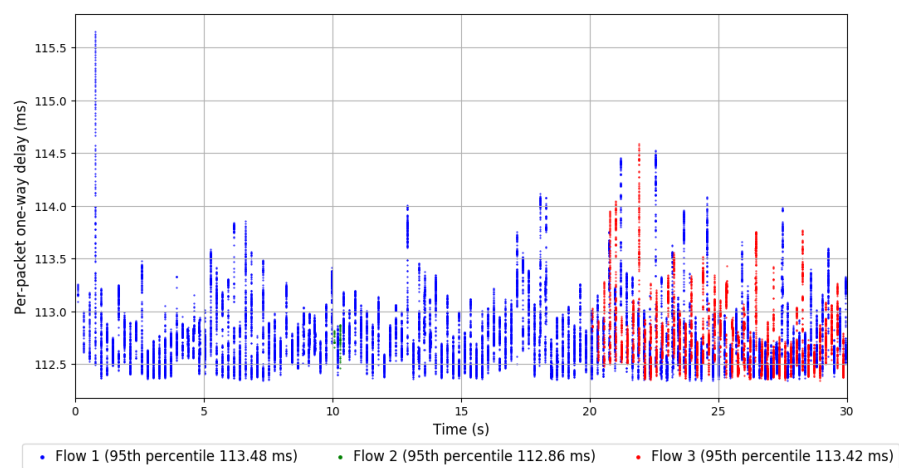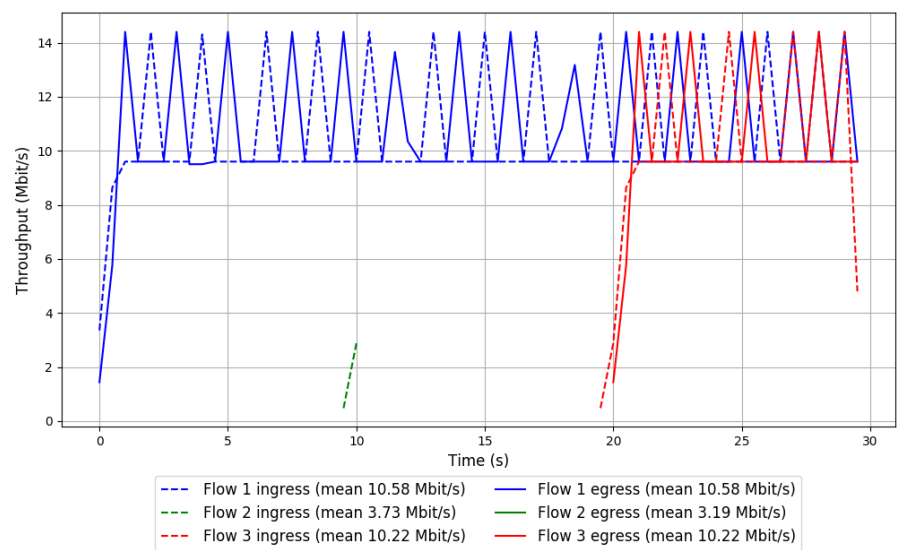
Run 6: Report of Saturator — Data Link

```
Run 7: Statistics of Saturator

Start at: 2017-08-12 04:21:20
End at: 2017-08-12 04:21:50
```

Run 7: Report of Saturator — Data Link

Flow 1 ingress (mean 6.97 Mbit/s) --- Flow 1 egress (mean 6.07 Mbit/s)
Flow 2 ingress (mean 3.75 Mbit/s) --- Flow 2 egress (mean 3.21 Mbit/s)
Flow 3 ingress (mean 3.70 Mbit/s) --- Flow 3 egress (mean 3.17 Mbit/s)

Flow 1 (95th percentile 112.69 ms)   Flow 2 (95th percentile 112.50 ms)   Flow 3 (95th percentile 112.81 ms)

177

```
Run 8: Statistics of Saturator

Start at: 2017-08-12 04:34:19
End at: 2017-08-12 04:34:49


# Below is generated by plot.py at 2017-08-12 06:19:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.94 Mbit/s
95th percentile per-packet one-way delay: 113.466 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 10.58 Mbit/s
95th percentile per-packet one-way delay: 113.477 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 3.19 Mbit/s
95th percentile per-packet one-way delay: 112.865 ms
Loss rate: 57.14%
-- Flow 3:
Average throughput: 10.22 Mbit/s
95th percentile per-packet one-way delay: 113.424 ms
Loss rate: 0.00%
```
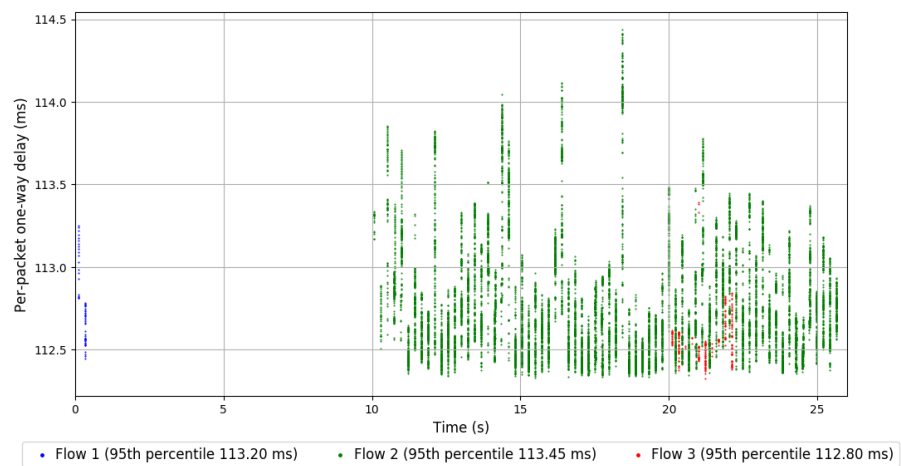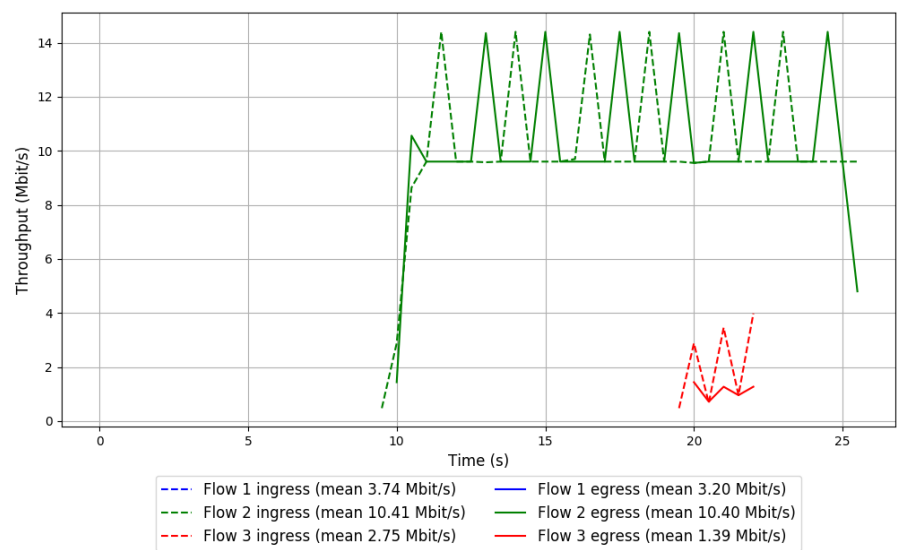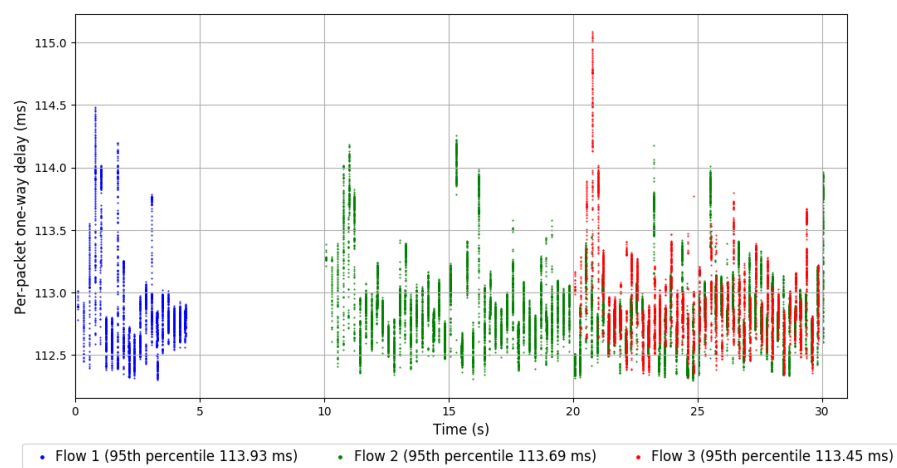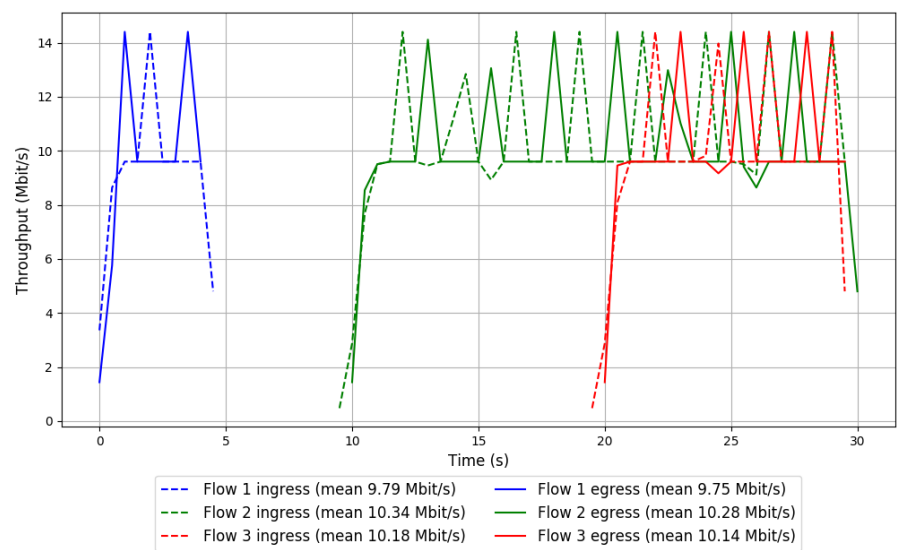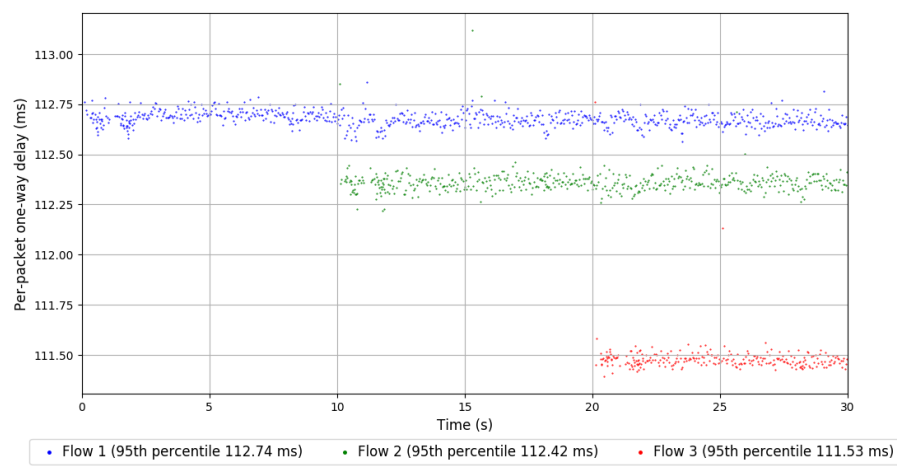
Run 8: Report of Saturator — Data Link

- - - - Flow 1 ingress (mean 10.58 Mbit/s)   ——— Flow 1 egress (mean 10.58 Mbit/s)
- - - - Flow 2 ingress (mean 3.73 Mbit/s)   ——— Flow 2 egress (mean 3.19 Mbit/s)
- - - - Flow 3 ingress (mean 10.22 Mbit/s)   ——— Flow 3 egress (mean 10.22 Mbit/s)

- Flow 1 (95th percentile 113.48 ms)   • Flow 2 (95th percentile 112.86 ms)   • Flow 3 (95th percentile 113.42 ms)

179

```
Run 9: Statistics of Saturator

Start at: 2017-08-12 04:47:35
End at: 2017-08-12 04:48:05


# Below is generated by plot.py at 2017-08-12 06:19:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.48 Mbit/s
95th percentile per-packet one-way delay: 113.442 ms
Loss rate: 3.94%
-- Flow 1:
Average throughput: 3.20 Mbit/s
95th percentile per-packet one-way delay: 113.198 ms
Loss rate: 57.14%
-- Flow 2:
Average throughput: 10.40 Mbit/s
95th percentile per-packet one-way delay: 113.455 ms
Loss rate: 1.48%
-- Flow 3:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 112.799 ms
Loss rate: 54.44%
```
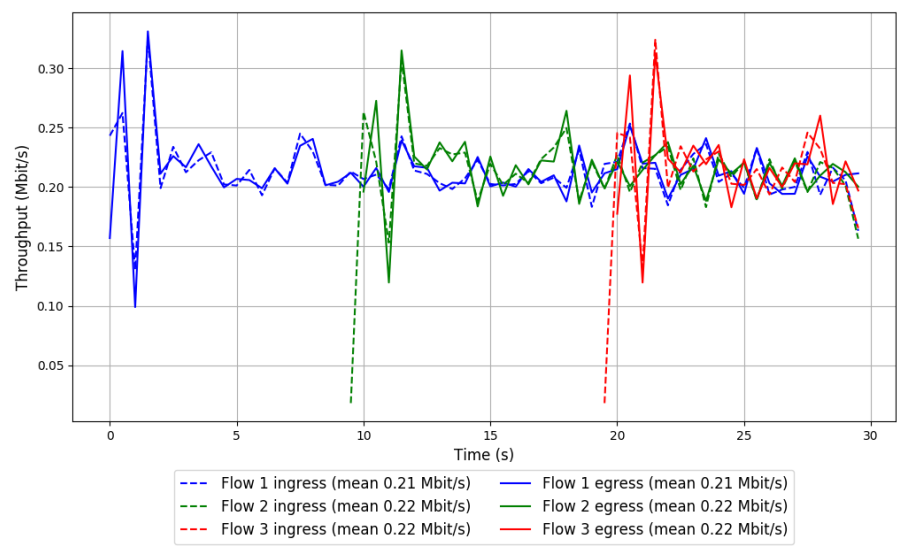
Run 9: Report of Saturator — Data Link

Flow 1 ingress (mean 3.74 Mbit/s) ----   Flow 1 egress (mean 3.20 Mbit/s) ——
Flow 2 ingress (mean 10.41 Mbit/s) ----   Flow 2 egress (mean 10.40 Mbit/s) ——
Flow 3 ingress (mean 2.75 Mbit/s) ----   Flow 3 egress (mean 1.39 Mbit/s) ——

• Flow 1 (95th percentile 113.20 ms)   • Flow 2 (95th percentile 113.45 ms)   • Flow 3 (95th percentile 112.80 ms)
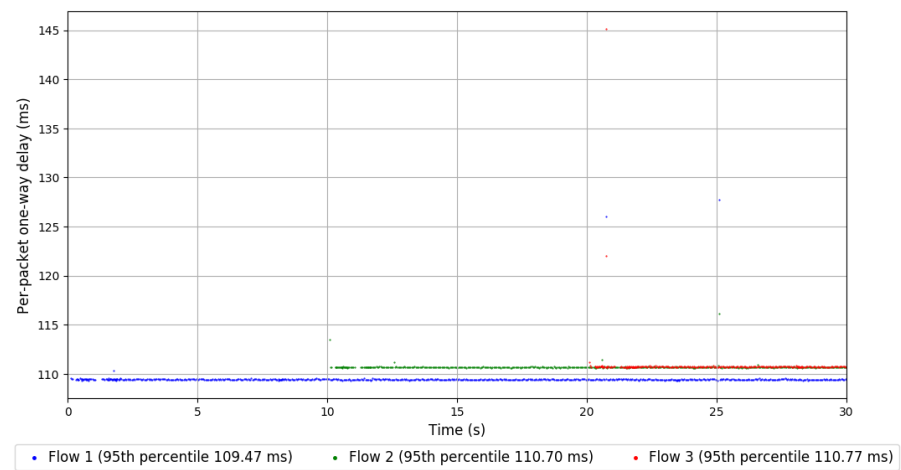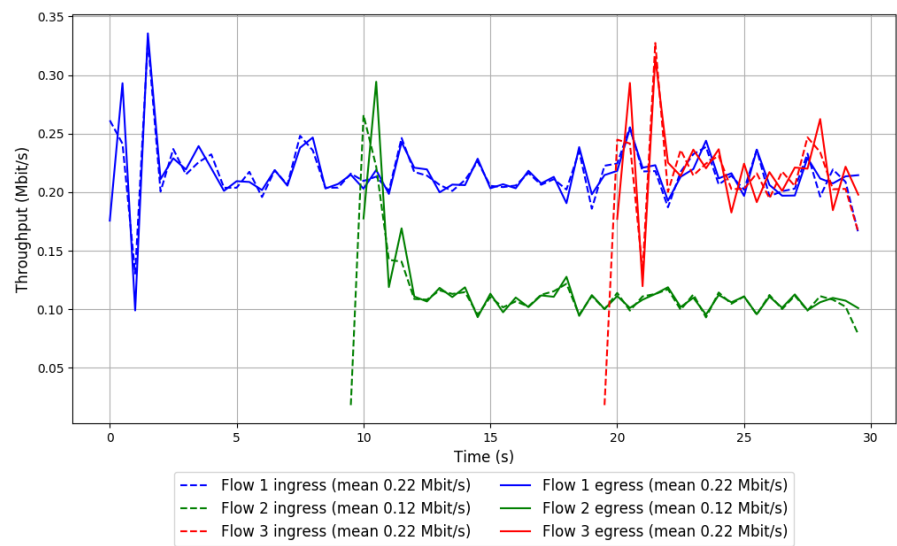
```
Run 10: Statistics of Saturator

Start at: 2017-08-12 05:00:35
End at: 2017-08-12 05:01:05


# Below is generated by plot.py at 2017-08-12 06:19:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.57 Mbit/s
95th percentile per-packet one-way delay: 113.687 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 9.75 Mbit/s
95th percentile per-packet one-way delay: 113.929 ms
Loss rate: 5.41%
-- Flow 2:
Average throughput: 10.28 Mbit/s
95th percentile per-packet one-way delay: 113.693 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 10.14 Mbit/s
95th percentile per-packet one-way delay: 113.451 ms
Loss rate: 0.39%
```

Run 10: Report of Saturator — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2017-08-12 02:56:14
End at: 2017-08-12 02:56:44

# Below is generated by plot.py at 2017-08-12 06:19:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 112.723 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.739 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.422 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.527 ms
Loss rate: 0.00%
```
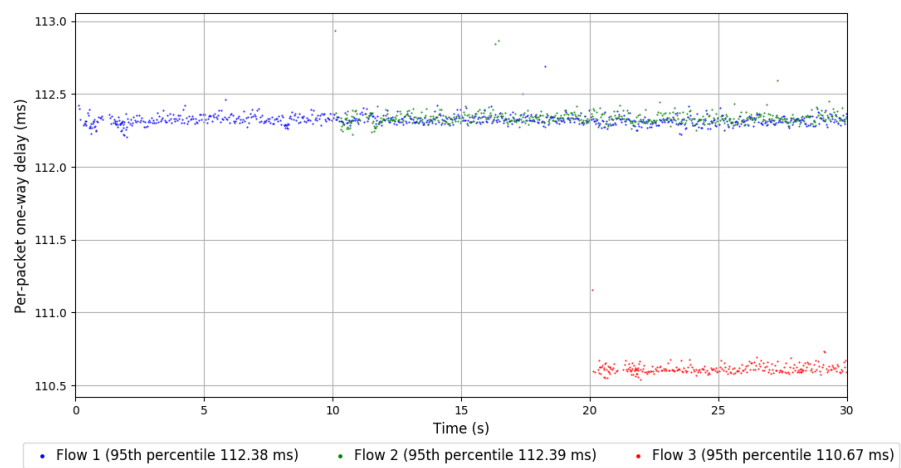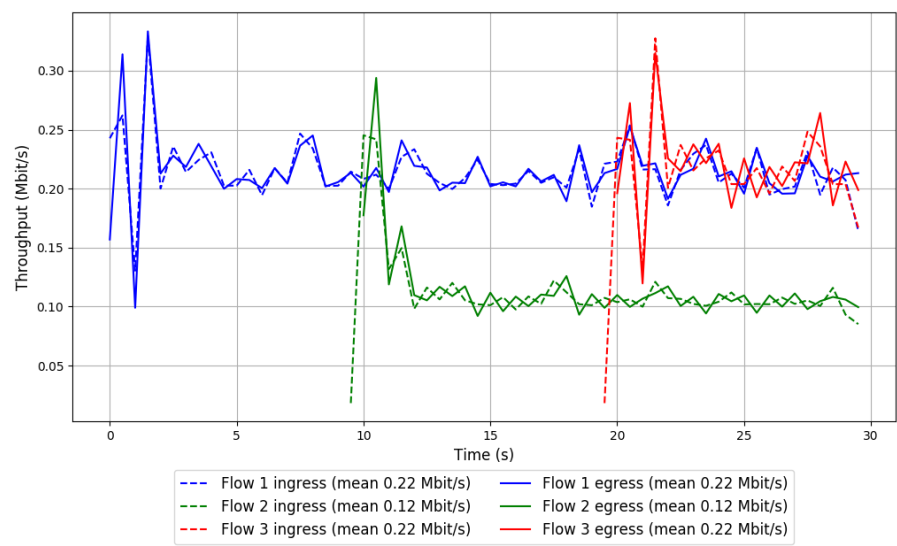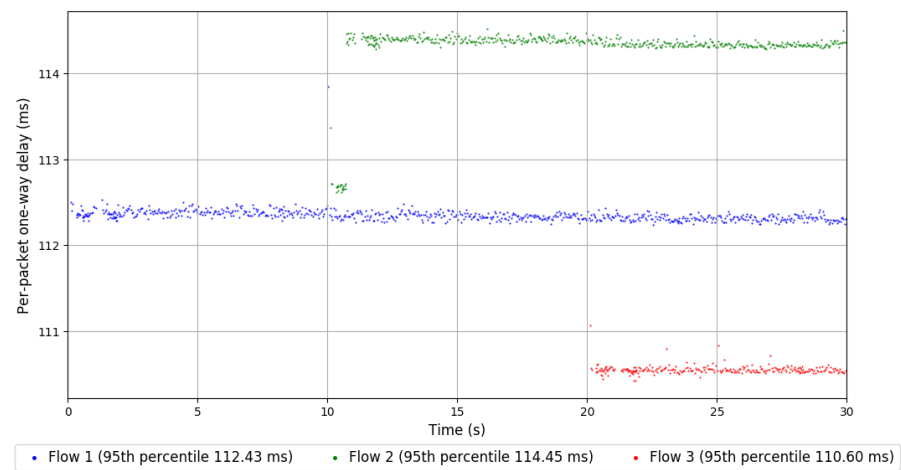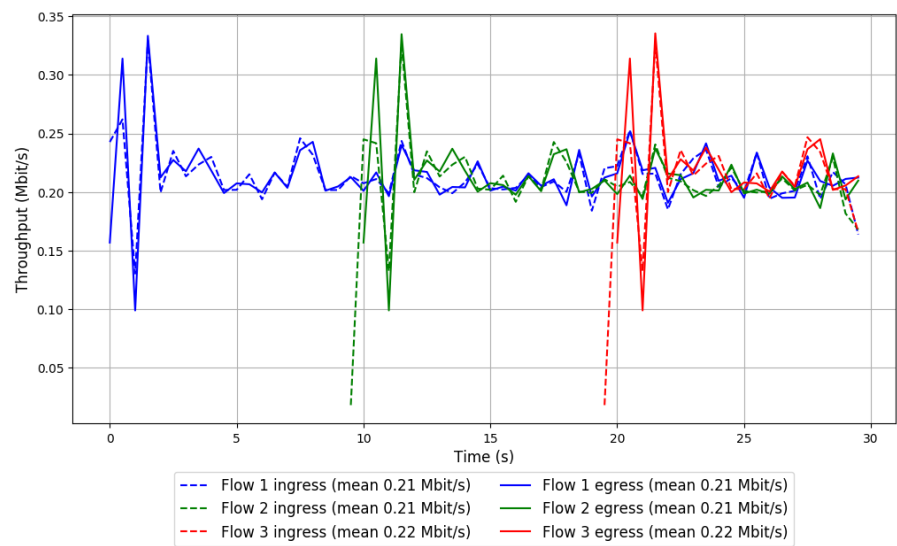
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2017-08-12 03:09:19
End at: 2017-08-12 03:09:49


# Below is generated by plot.py at 2017-08-12 06:19:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 110.728 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.470 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 110.702 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.766 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2017-08-12 03:22:23
End at: 2017-08-12 03:22:53


# Below is generated by plot.py at 2017-08-12 06:19:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 112.383 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.376 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 112.393 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.668 ms
Loss rate: 0.00%
```
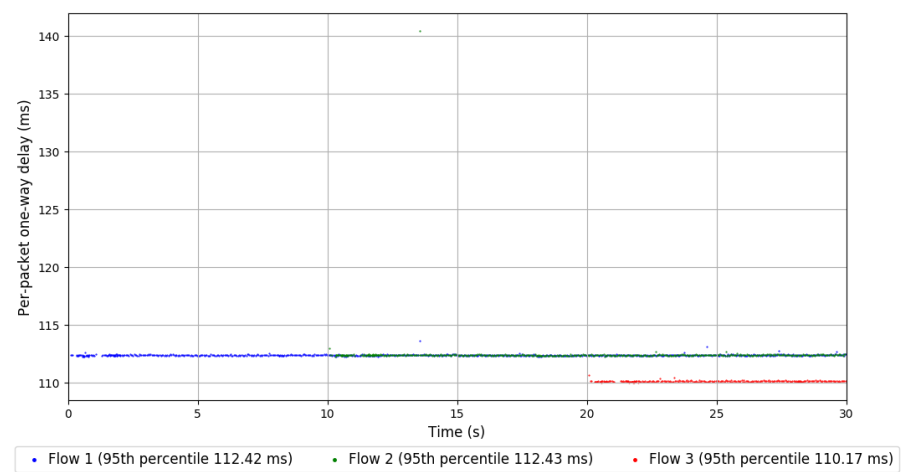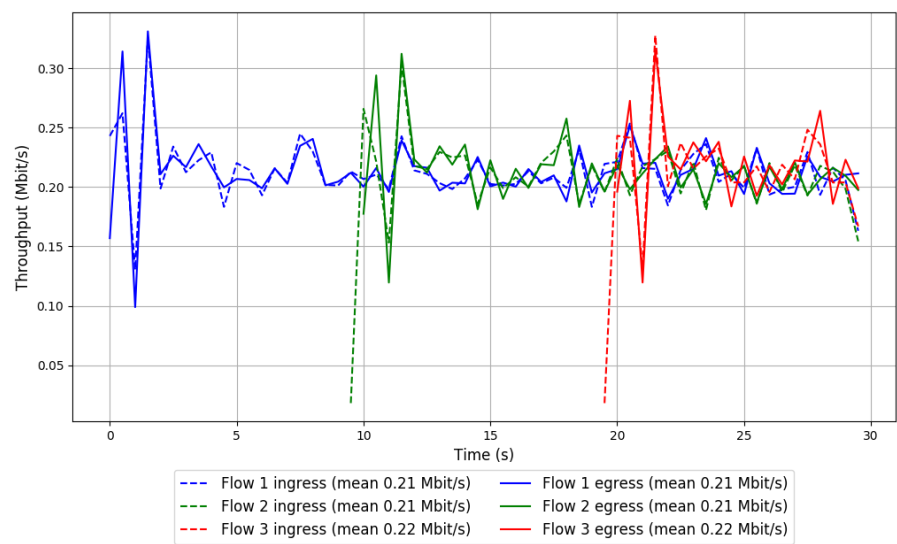
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2017-08-12 03:35:48
End at: 2017-08-12 03:36:18


# Below is generated by plot.py at 2017-08-12 06:19:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 114.416 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.433 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 114.448 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.604 ms
Loss rate: 0.00%
```
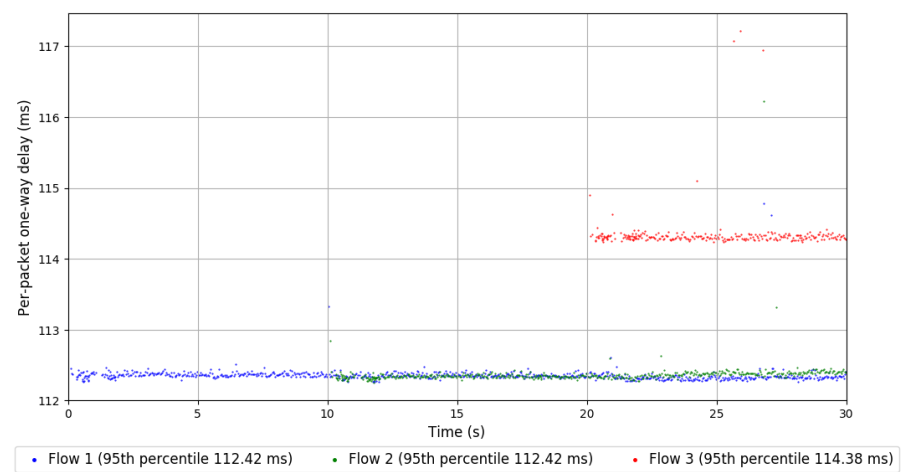
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2017-08-12 03:48:20
End at: 2017-08-12 03:48:50

# Below is generated by plot.py at 2017-08-12 06:19:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 112.418 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.419 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.429 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.165 ms
Loss rate: 0.00%
```
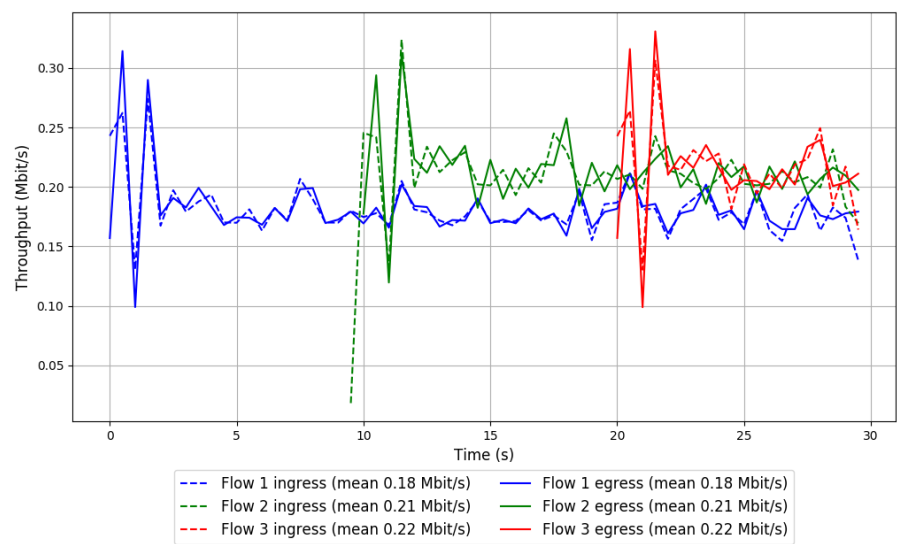
Run 5: Report of SCReAM — Data Link

```
Run 6: Statistics of SCReAM

Start at: 2017-08-12 04:01:26
End at: 2017-08-12 04:01:56

# Below is generated by plot.py at 2017-08-12 06:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 114.328 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 112.418 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.421 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 114.381 ms
Loss rate: 0.00%
```
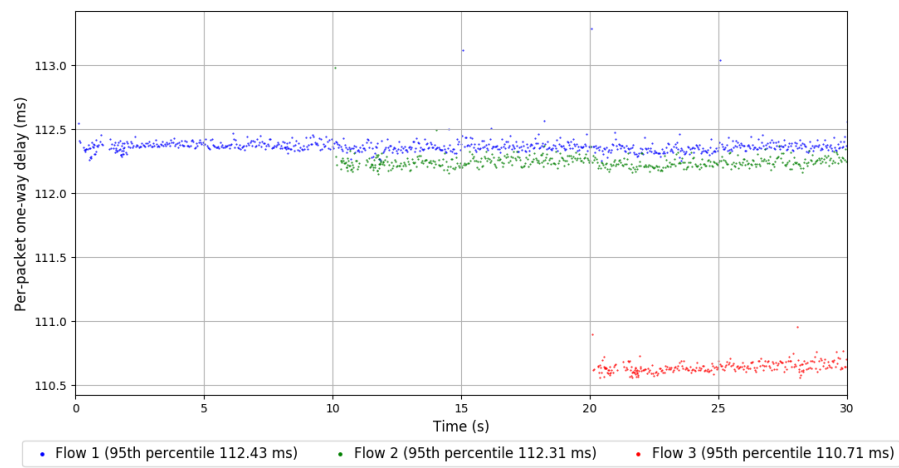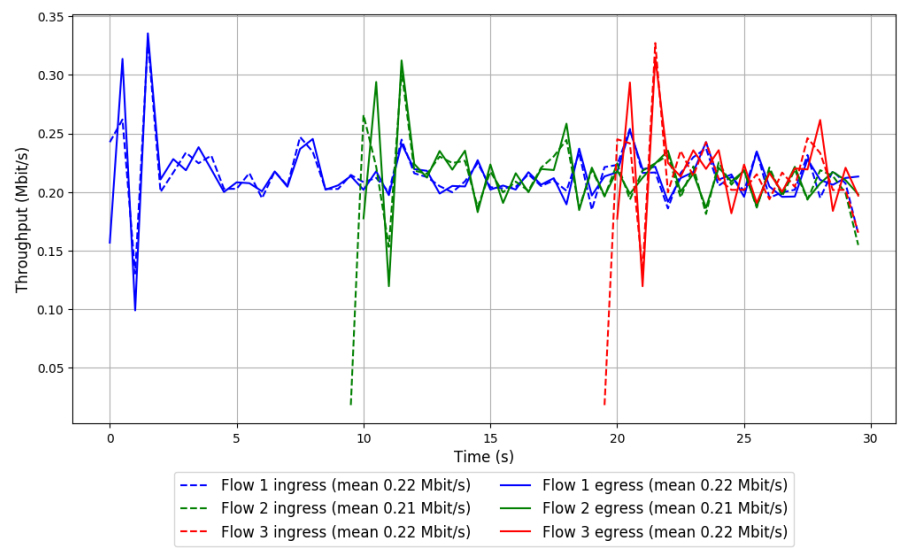
Run 6: Report of SCReAM — Data Link

195

```
Run 7: Statistics of SCReAM

Start at: 2017-08-12 04:14:42
End at: 2017-08-12 04:15:12


# Below is generated by plot.py at 2017-08-12 06:19:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 112.411 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.429 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.312 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.709 ms
Loss rate: 0.00%
```
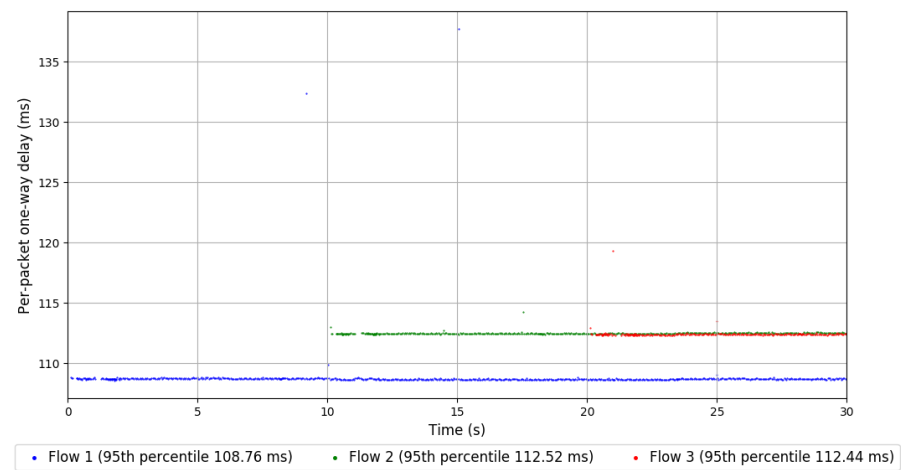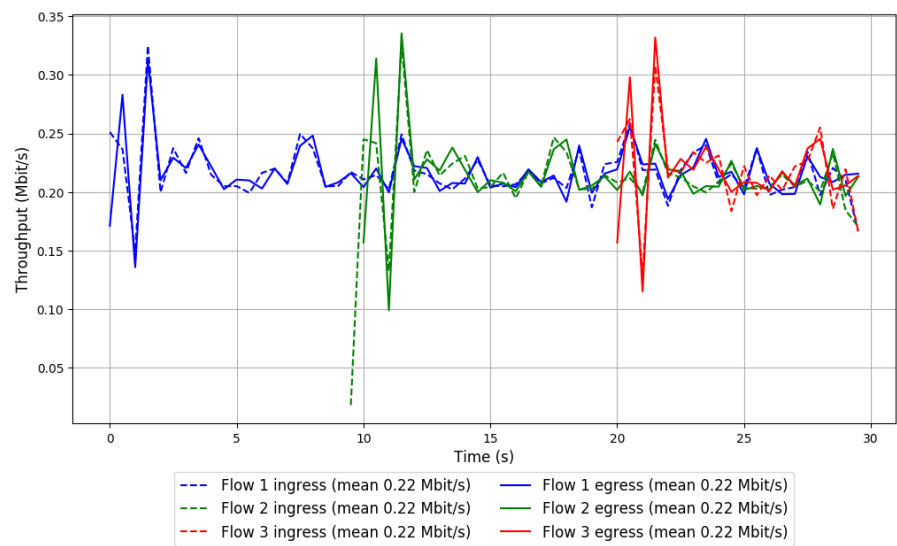
Run 7: Report of SCReAM — Data Link

197

```
Run 8: Statistics of SCReAM

Start at: 2017-08-12 04:27:32
End at: 2017-08-12 04:28:02

# Below is generated by plot.py at 2017-08-12 06:19:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 112.495 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.763 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.524 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.443 ms
Loss rate: 0.00%
```
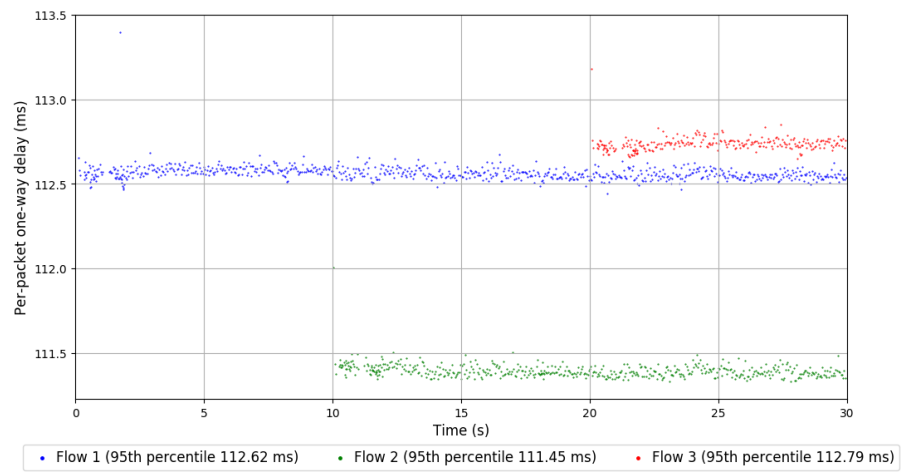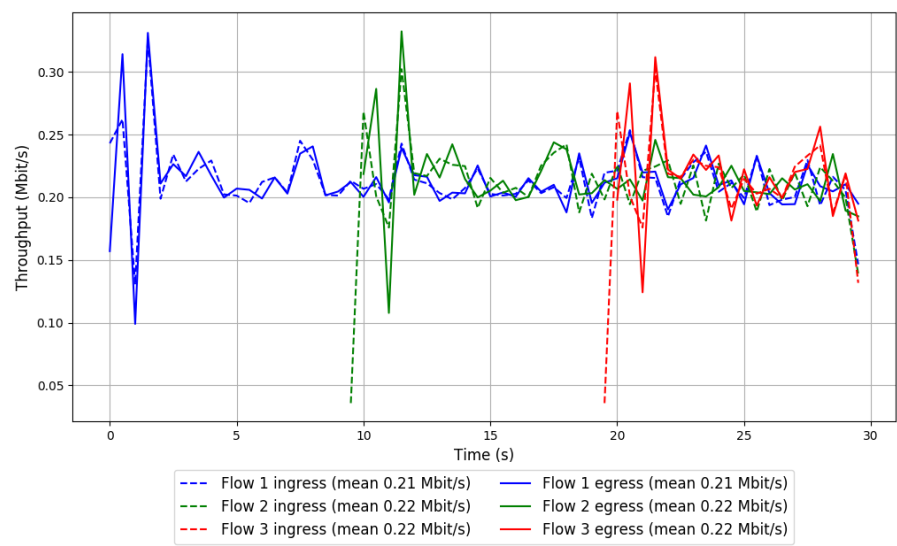
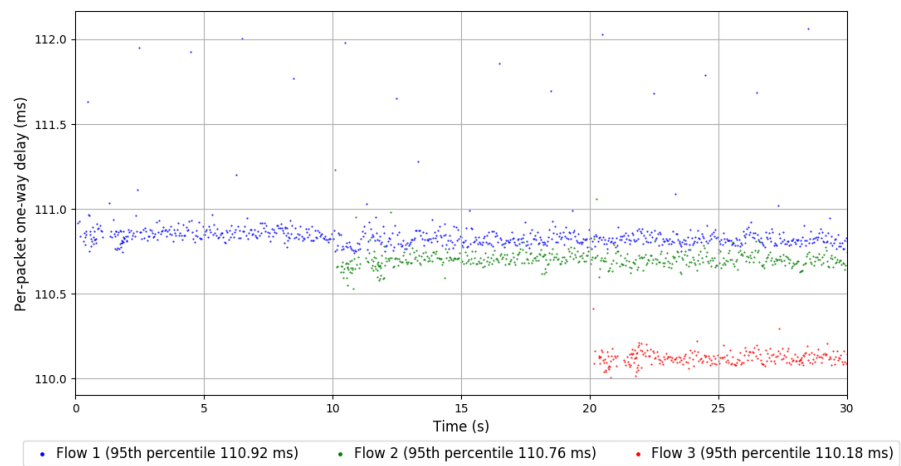# Run 8: Report of SCReAM — Data Link

199

```
Run 9: Statistics of SCReAM

Start at: 2017-08-12 04:40:37
End at: 2017-08-12 04:41:07


# Below is generated by plot.py at 2017-08-12 06:19:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 112.752 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.619 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.454 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.794 ms
Loss rate: 0.00%
```

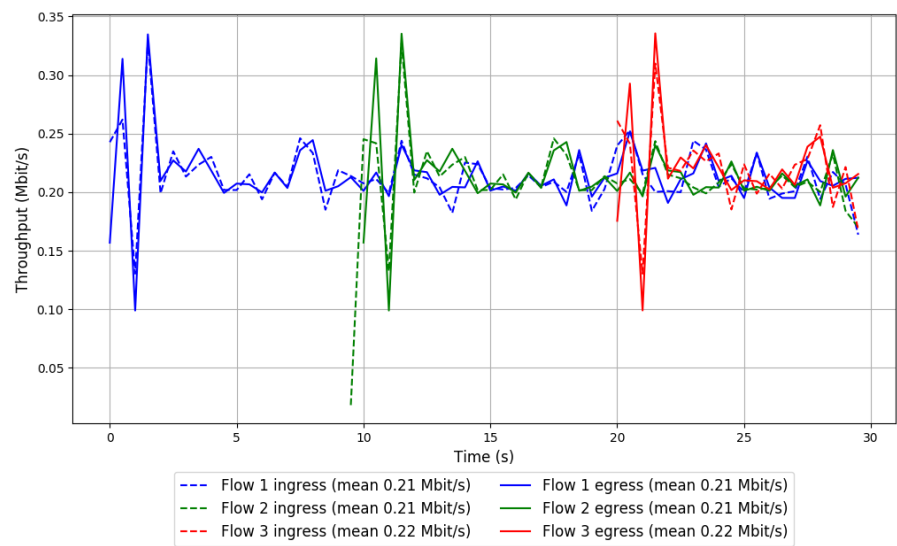# Run 9: Report of SCReAM — Data Link

201

```
Run 10: Statistics of SCReAM

Start at: 2017-08-12 04:53:33
End at: 2017-08-12 04:54:03


# Below is generated by plot.py at 2017-08-12 06:19:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 110.893 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 110.922 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 110.759 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.180 ms
Loss rate: 0.00%
```

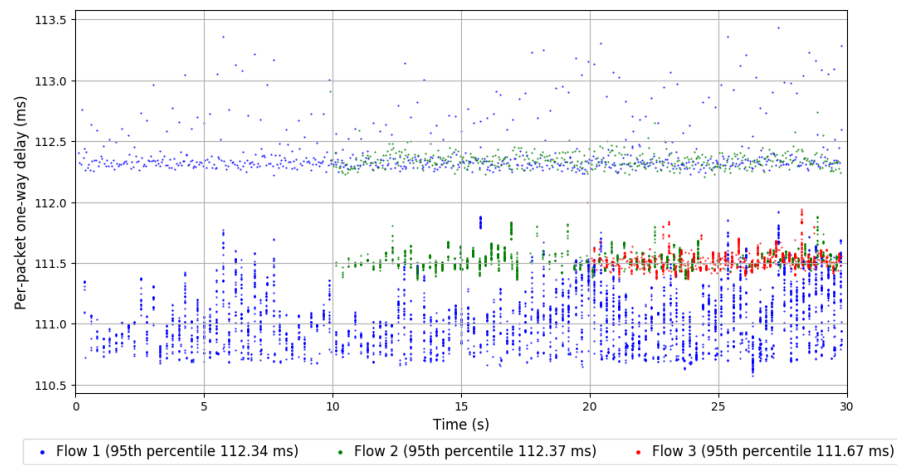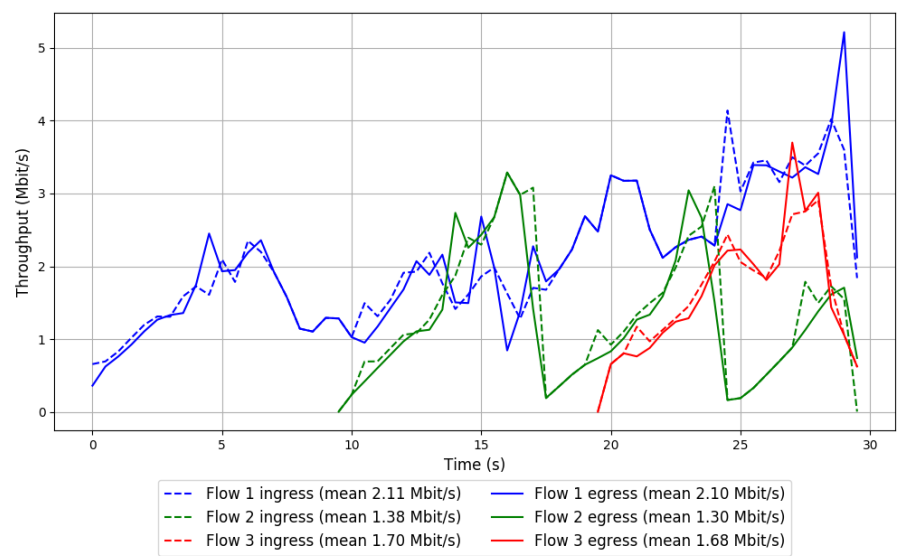## Run 10: Report of SCReAM — Data Link

203

```
Run 1: Statistics of Sprout

Start at: 2017-08-12 03:02:19
End at: 2017-08-12 03:02:49


# Below is generated by plot.py at 2017-08-12 06:19:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.53 Mbit/s
95th percentile per-packet one-way delay: 112.342 ms
Loss rate: 1.81%
-- Flow 1:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 112.342 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 112.369 ms
Loss rate: 5.93%
-- Flow 3:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 111.671 ms
Loss rate: 0.99%
```
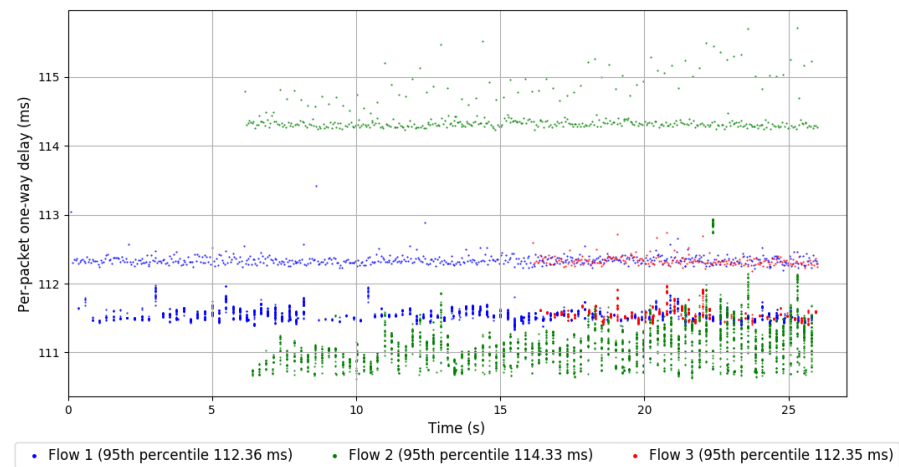
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2017-08-12 03:15:24
End at: 2017-08-12 03:15:54


# Below is generated by plot.py at 2017-08-12 06:19:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 112.926 ms
Loss rate: 2.02%
-- Flow 1:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 112.362 ms
Loss rate: 3.13%
-- Flow 2:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 114.328 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 112.350 ms
Loss rate: 5.72%
```
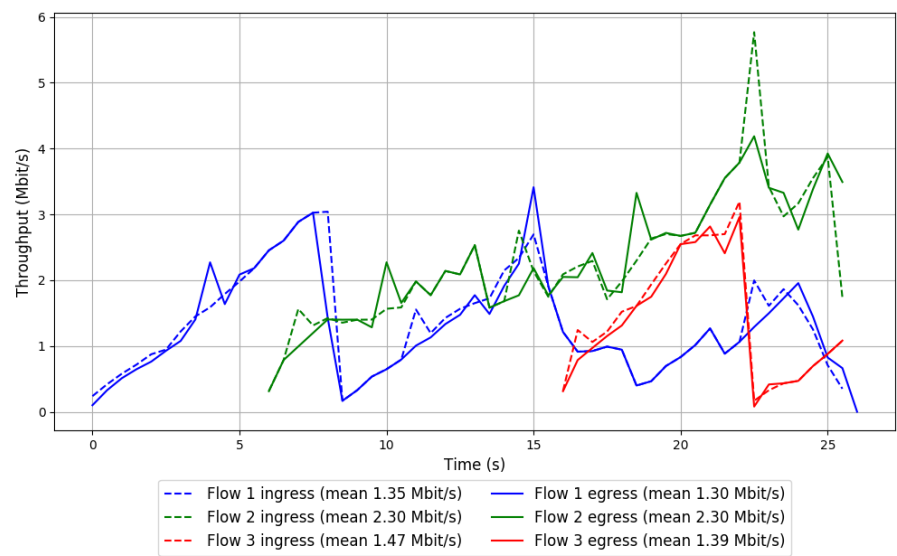
Run 2: Report of Sprout — Data Link

207

```
Run 3: Statistics of Sprout

Start at: 2017-08-12 03:28:41
End at: 2017-08-12 03:29:11


# Below is generated by plot.py at 2017-08-12 06:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.24 Mbit/s
95th percentile per-packet one-way delay: 112.556 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 1.91 Mbit/s
95th percentile per-packet one-way delay: 112.627 ms
Loss rate: 1.12%
-- Flow 2:
Average throughput: 2.61 Mbit/s
95th percentile per-packet one-way delay: 111.542 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 110.975 ms
Loss rate: 0.00%
```
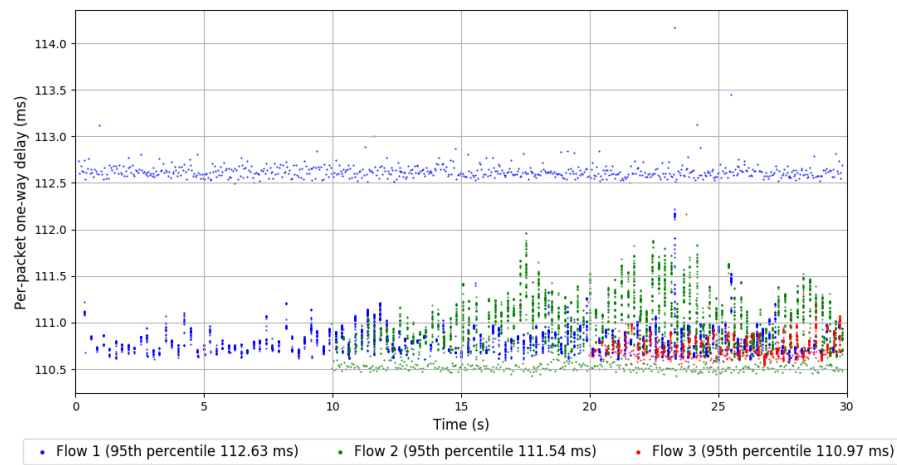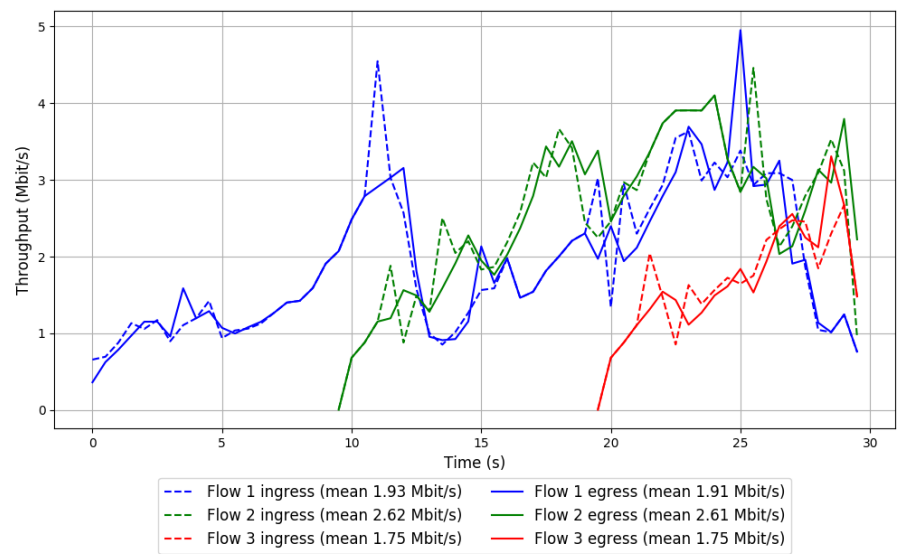
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2017-08-12 03:41:45
End at: 2017-08-12 03:42:15


# Below is generated by plot.py at 2017-08-12 06:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 113.104 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 113.069 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.80 Mbit/s
95th percentile per-packet one-way delay: 113.163 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 112.398 ms
Loss rate: 8.68%
```
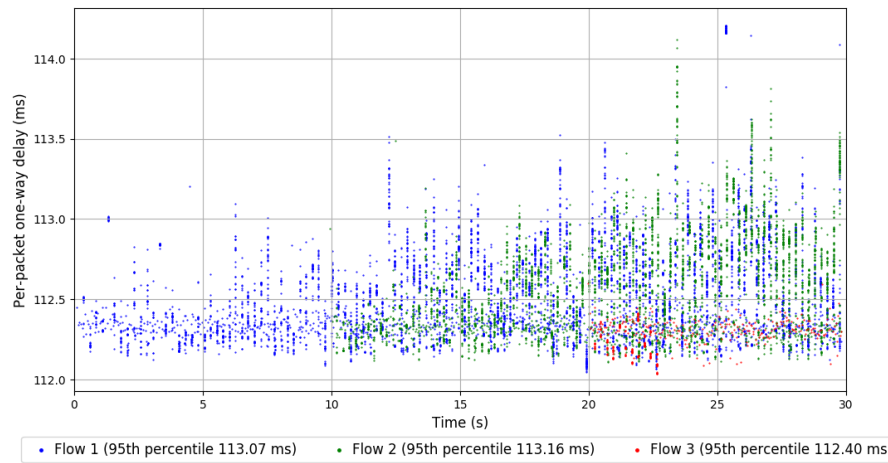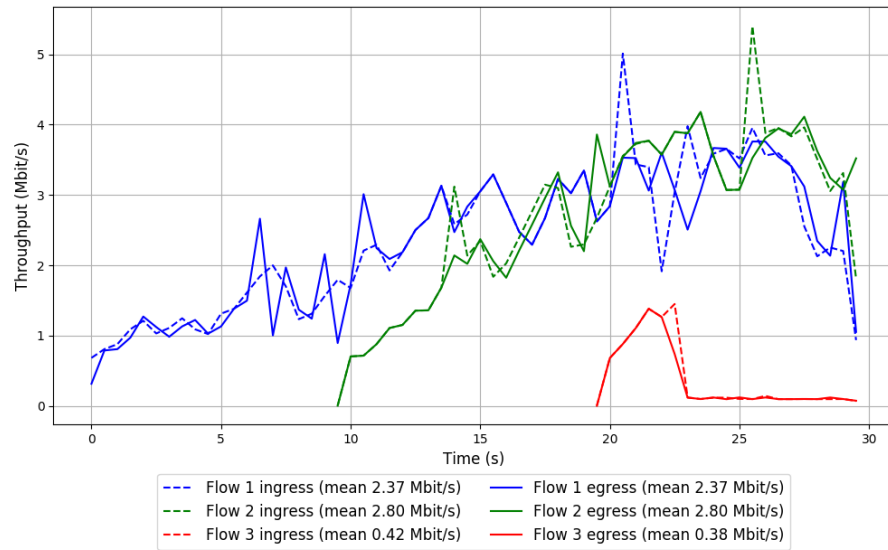
Run 4: Report of Sprout — Data Link

211

```
Run 5: Statistics of Sprout

Start at: 2017-08-12 03:54:14
End at: 2017-08-12 03:54:44

# Below is generated by plot.py at 2017-08-12 06:19:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 113.075 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 113.192 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 112.563 ms
Loss rate: 1.34%
-- Flow 3:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 112.525 ms
Loss rate: 0.00%
```
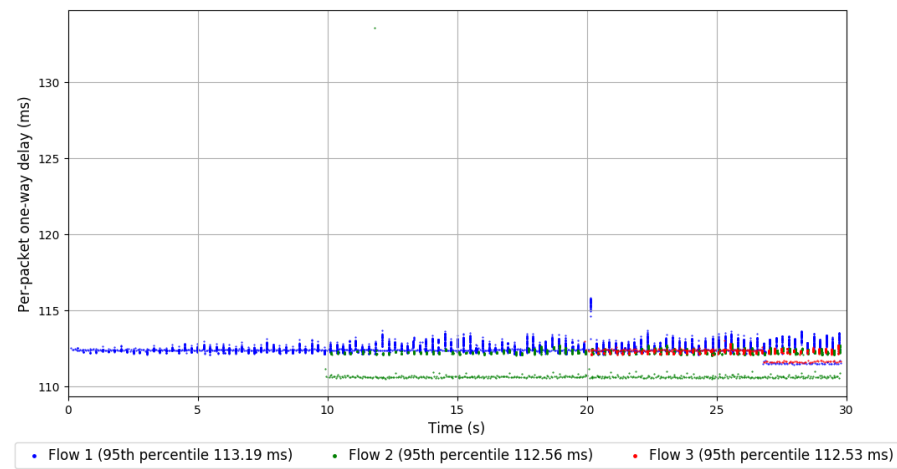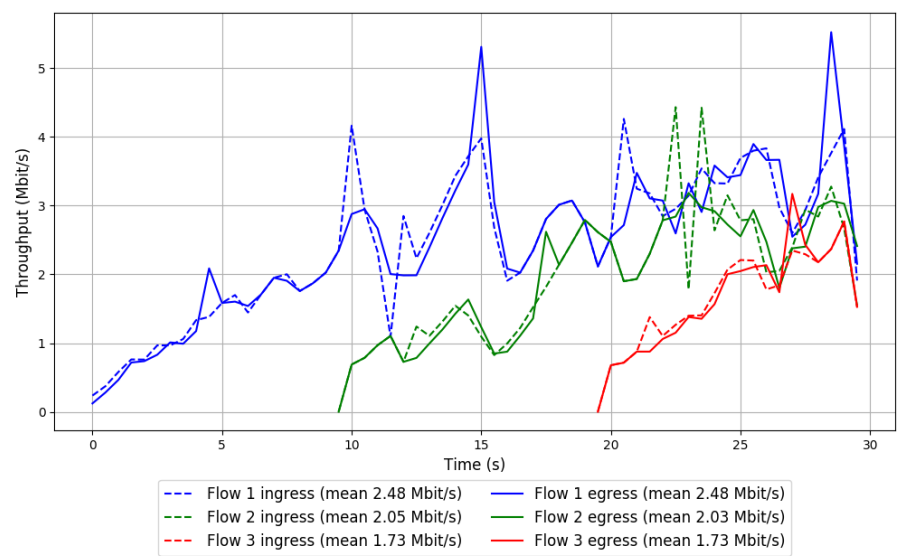
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 2.48 Mbit/s)   Flow 1 egress (mean 2.48 Mbit/s)
Flow 2 ingress (mean 2.05 Mbit/s)   Flow 2 egress (mean 2.03 Mbit/s)
Flow 3 ingress (mean 1.73 Mbit/s)   Flow 3 egress (mean 1.73 Mbit/s)

Flow 1 (95th percentile 113.19 ms)   Flow 2 (95th percentile 112.56 ms)   Flow 3 (95th percentile 112.53 ms)

213

```
Run 6: Statistics of Sprout

Start at: 2017-08-12 04:07:36
End at: 2017-08-12 04:08:06


# Below is generated by plot.py at 2017-08-12 06:19:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.65 Mbit/s
95th percentile per-packet one-way delay: 113.184 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 2.91 Mbit/s
95th percentile per-packet one-way delay: 113.266 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 112.480 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 112.897 ms
Loss rate: 0.00%
```
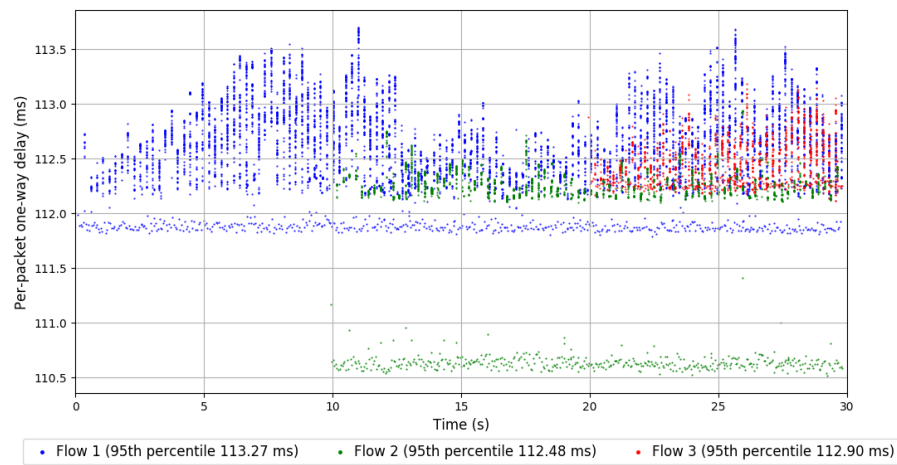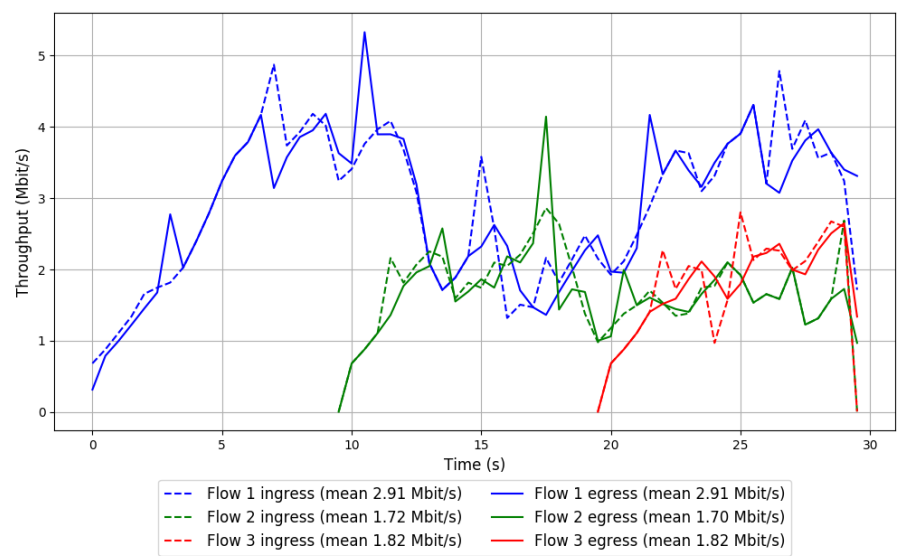
Run 6: Report of Sprout — Data Link

```
Run 7: Statistics of Sprout

Start at: 2017-08-12 04:20:34
End at: 2017-08-12 04:21:04

# Below is generated by plot.py at 2017-08-12 06:19:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.68 Mbit/s
95th percentile per-packet one-way delay: 112.632 ms
Loss rate: 1.64%
-- Flow 1:
Average throughput: 2.09 Mbit/s
95th percentile per-packet one-way delay: 112.521 ms
Loss rate: 2.04%
-- Flow 2:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 112.748 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 112.539 ms
Loss rate: 2.67%
```
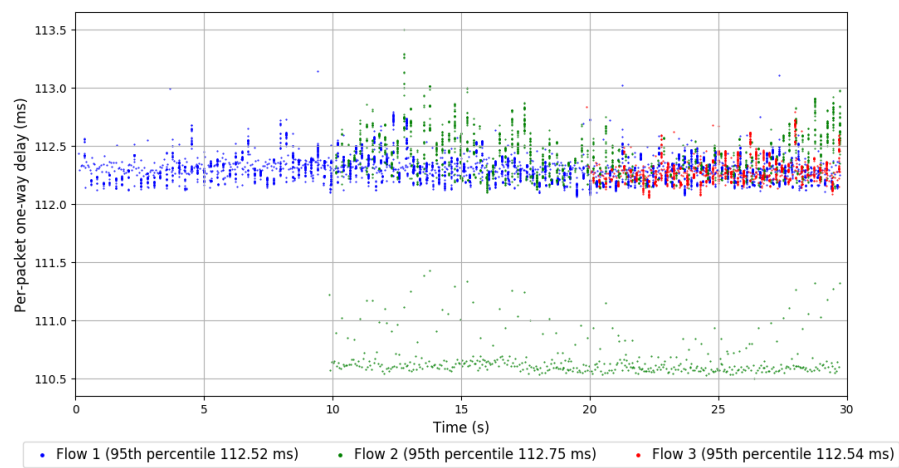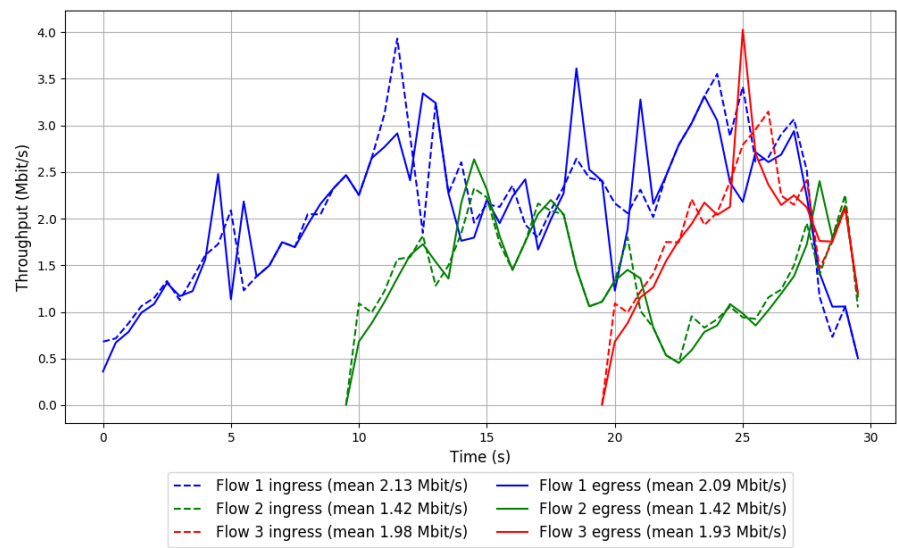
Run 7: Report of Sprout — Data Link

Run 8: Statistics of Sprout

Start at: 2017-08-12 04:33:33
End at: 2017-08-12 04:34:03

Below is generated by plot.py at 2017-08-12 06:19:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.46 Mbit/s
95th percentile per-packet one-way delay: 113.635 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 2.93 Mbit/s
95th percentile per-packet one-way delay: 113.671 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 112.465 ms
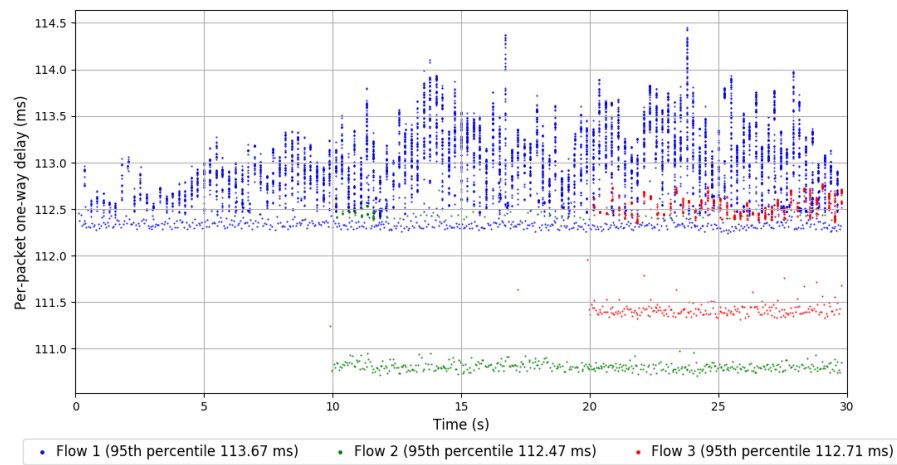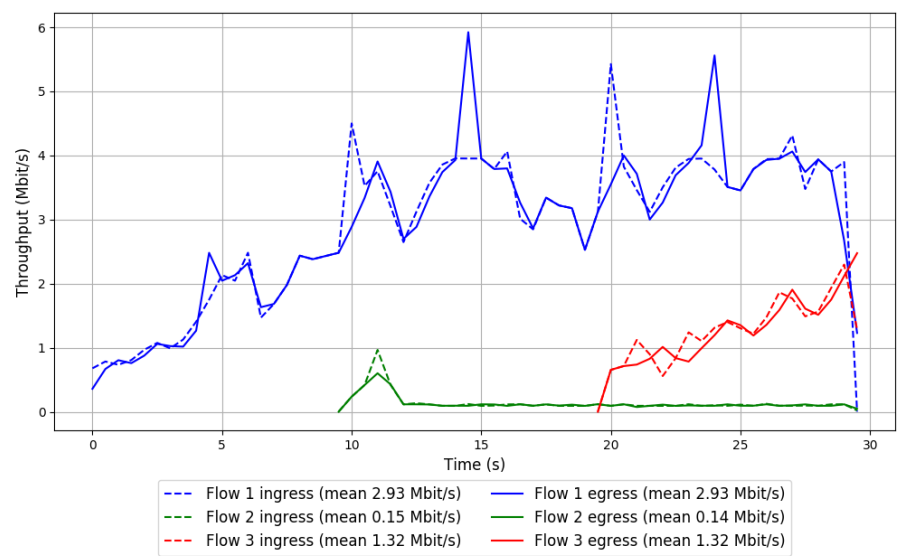Loss rate: 6.14%
-- Flow 3:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 112.713 ms
Loss rate: 0.00%

Run 8: Report of Sprout — Data Link

219

```
Run 9: Statistics of Sprout

Start at: 2017-08-12 04:46:49
End at: 2017-08-12 04:47:19


# Below is generated by plot.py at 2017-08-12 06:19:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 113.129 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 112.812 ms
Loss rate: 5.00%
-- Flow 2:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 112.993 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 113.373 ms
Loss rate: 0.00%
```
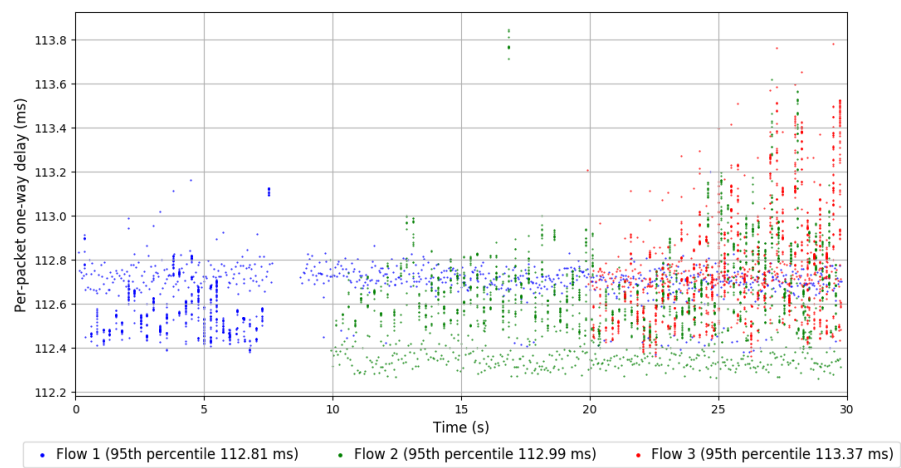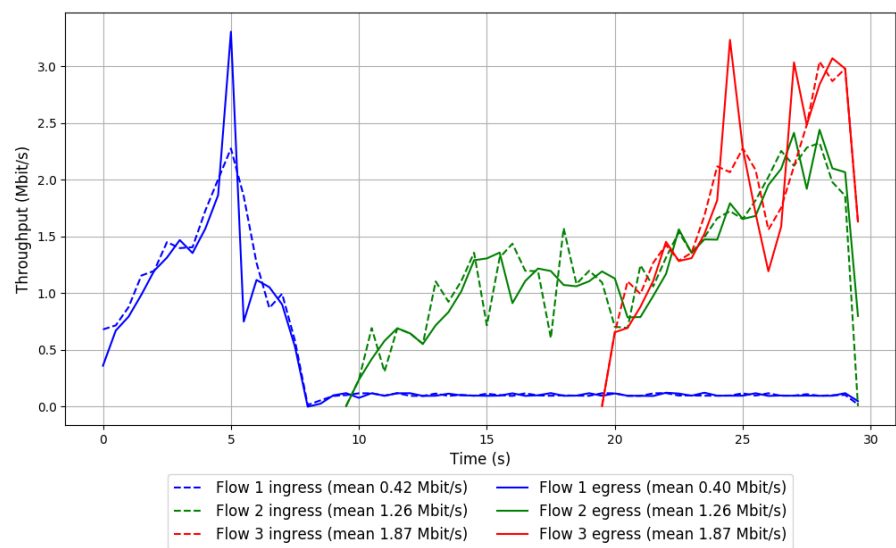
Run 9: Report of Sprout — Data Link

221

```
Run 10: Statistics of Sprout

Start at: 2017-08-12 04:59:49
End at: 2017-08-12 05:00:19


# Below is generated by plot.py at 2017-08-12 06:20:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.92 Mbit/s
95th percentile per-packet one-way delay: 113.048 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.21 Mbit/s
95th percentile per-packet one-way delay: 112.889 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.63 Mbit/s
95th percentile per-packet one-way delay: 112.945 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 113.442 ms
Loss rate: 0.00%
```
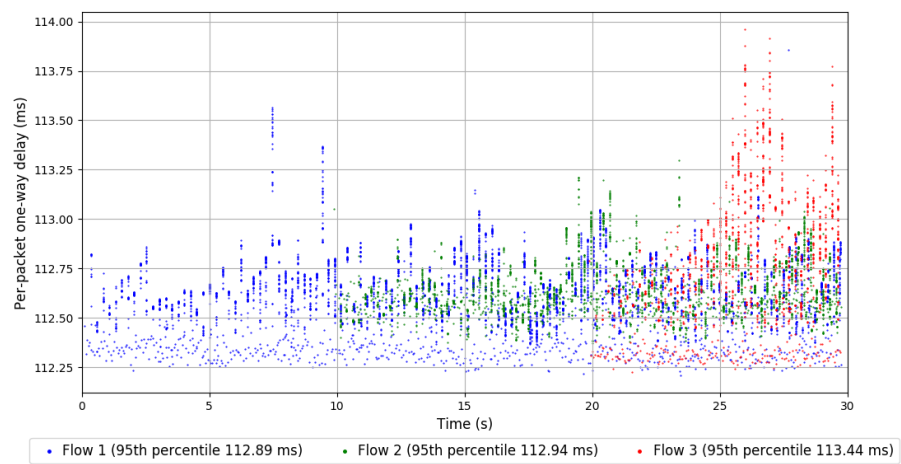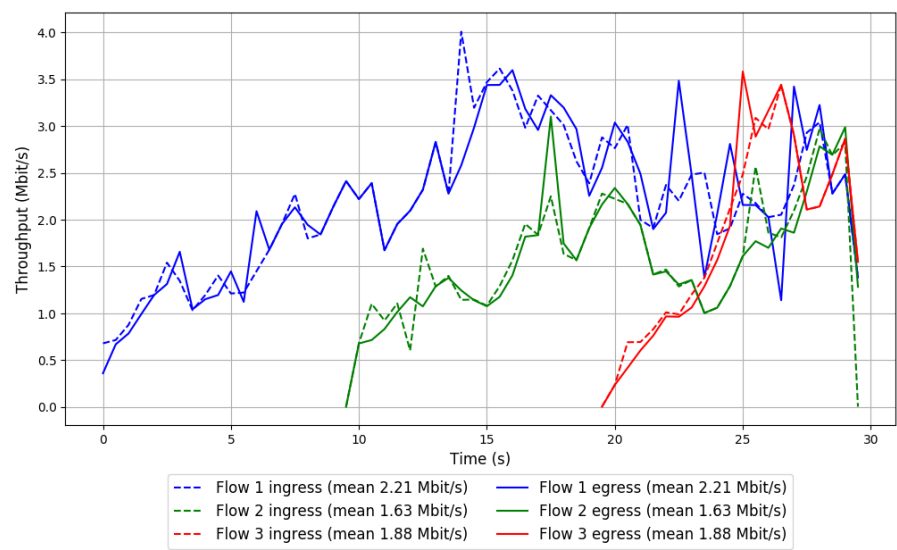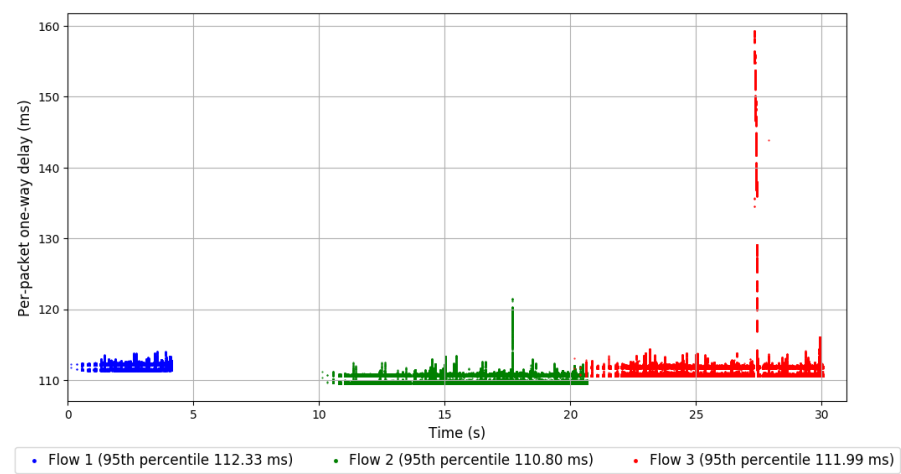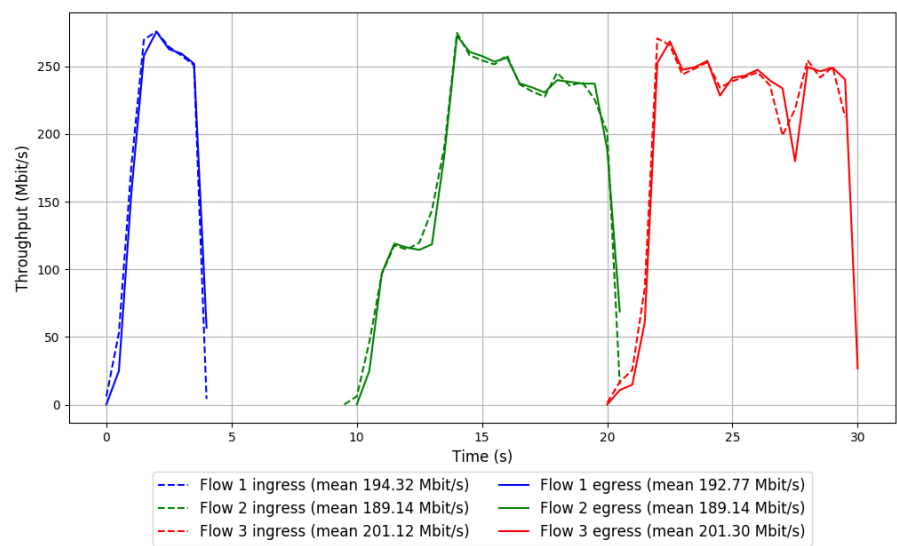
Run 10: Report of Sprout — Data Link

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

Start at: 2017-08-12 02:58:01
End at: 2017-08-12 02:58:31


# Below is generated by plot.py at 2017-08-12 06:20:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 159.00 Mbit/s
95th percentile per-packet one-way delay: 112.213 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 192.77 Mbit/s
95th percentile per-packet one-way delay: 112.329 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 189.14 Mbit/s
95th percentile per-packet one-way delay: 110.796 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 201.30 Mbit/s
95th percentile per-packet one-way delay: 111.989 ms
Loss rate: 0.00%
```

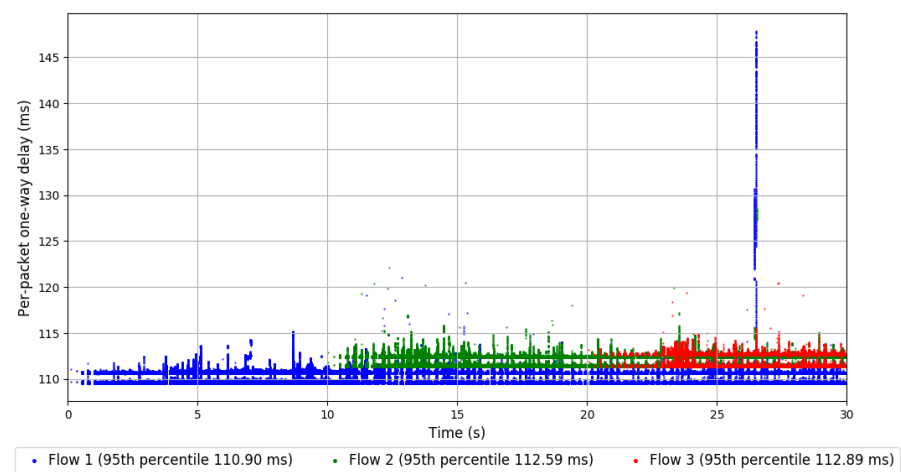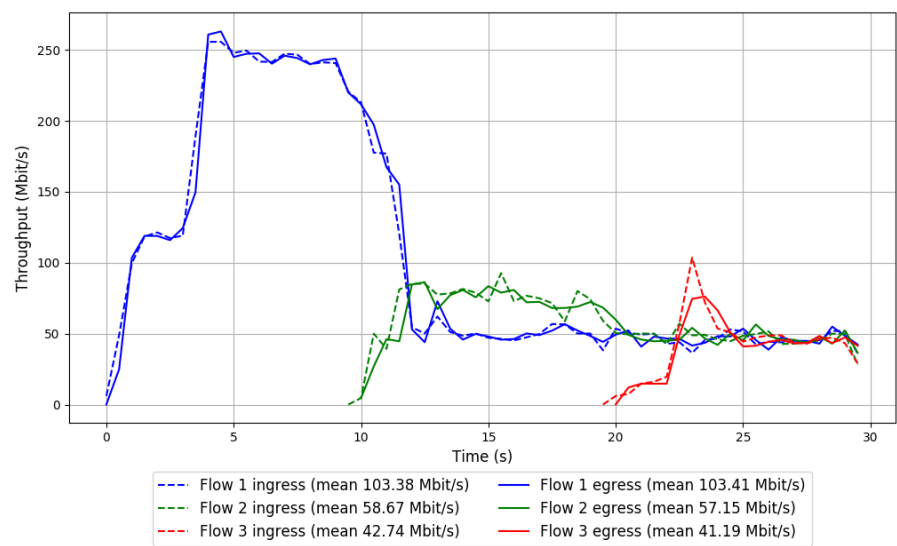# Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2017-08-12 03:11:07
End at: 2017-08-12 03:11:37

# Below is generated by plot.py at 2017-08-12 06:20:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 155.18 Mbit/s
95th percentile per-packet one-way delay: 112.645 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 103.41 Mbit/s
95th percentile per-packet one-way delay: 110.900 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 57.15 Mbit/s
95th percentile per-packet one-way delay: 112.589 ms
Loss rate: 2.60%
-- Flow 3:
Average throughput: 41.19 Mbit/s
95th percentile per-packet one-way delay: 112.887 ms
Loss rate: 3.62%
```

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

Flow 1 ingress (mean 103.38 Mbit/s)   Flow 1 egress (mean 103.41 Mbit/s)
Flow 2 ingress (mean 58.67 Mbit/s)   Flow 2 egress (mean 57.15 Mbit/s)
Flow 3 ingress (mean 42.74 Mbit/s)   Flow 3 egress (mean 41.19 Mbit/s)

Flow 1 (95th percentile 110.90 ms)   Flow 2 (95th percentile 112.59 ms)   Flow 3 (95th percentile 112.89 ms)

227

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

Start at: 2017-08-12 03:24:17
End at: 2017-08-12 03:24:47

# Below is generated by plot.py at 2017-08-12 06:21:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 165.56 Mbit/s
95th percentile per-packet one-way delay: 112.702 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 120.34 Mbit/s
95th percentile per-packet one-way delay: 111.435 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 45.89 Mbit/s
95th percentile per-packet one-way delay: 112.808 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 44.85 Mbit/s
95th percentile per-packet one-way delay: 112.568 ms
Loss rate: 0.16%
```
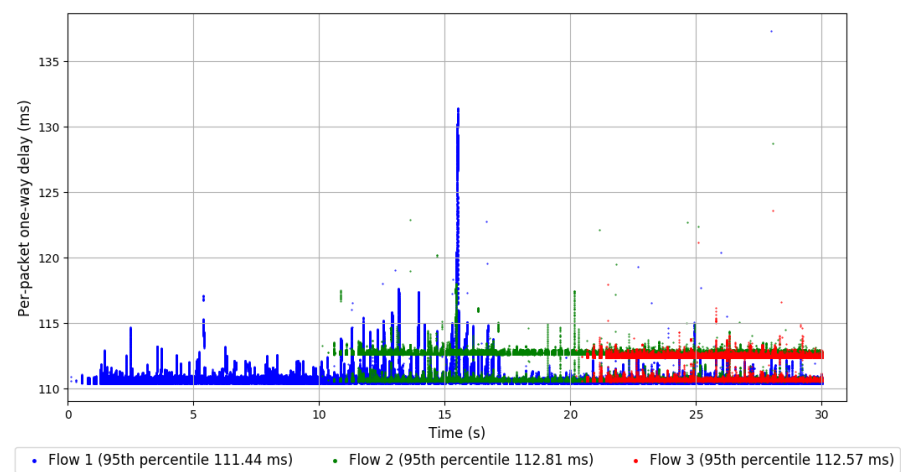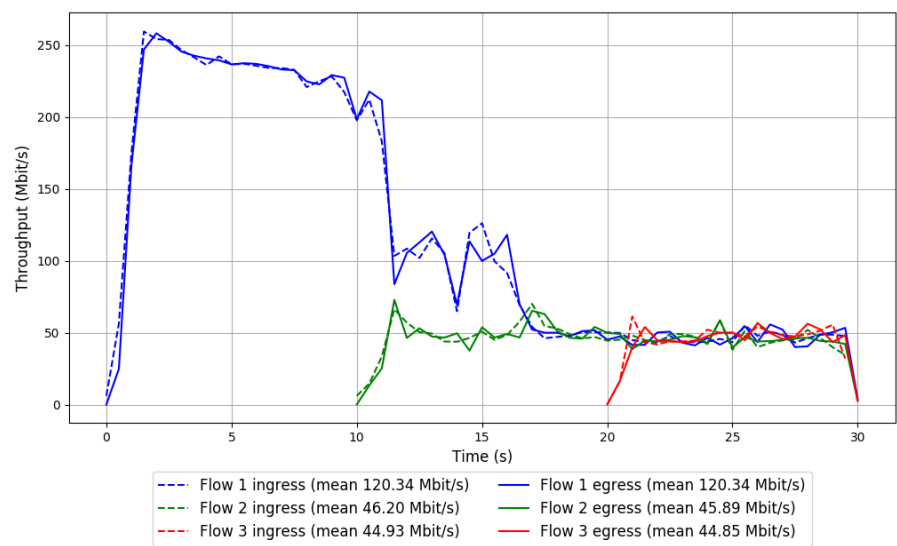
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 120.34 Mbit/s) --- Flow 1 egress (mean 120.34 Mbit/s)
Flow 2 ingress (mean 46.20 Mbit/s) --- Flow 2 egress (mean 45.89 Mbit/s)
Flow 3 ingress (mean 44.93 Mbit/s) --- Flow 3 egress (mean 44.85 Mbit/s)

Flow 1 (95th percentile 111.44 ms) • Flow 2 (95th percentile 112.81 ms) • Flow 3 (95th percentile 112.57 ms)

229

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

Start at: 2017-08-12 03:37:32
End at: 2017-08-12 03:38:02

# Below is generated by plot.py at 2017-08-12 06:21:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.97 Mbit/s
95th percentile per-packet one-way delay: 112.444 ms
Loss rate: 17.50%
-- Flow 1:
Average throughput: 57.31 Mbit/s
95th percentile per-packet one-way delay: 112.445 ms
Loss rate: 25.18%
-- Flow 2:
Average throughput: 48.08 Mbit/s
95th percentile per-packet one-way delay: 112.446 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 112.174 ms
Loss rate: 0.00%
```
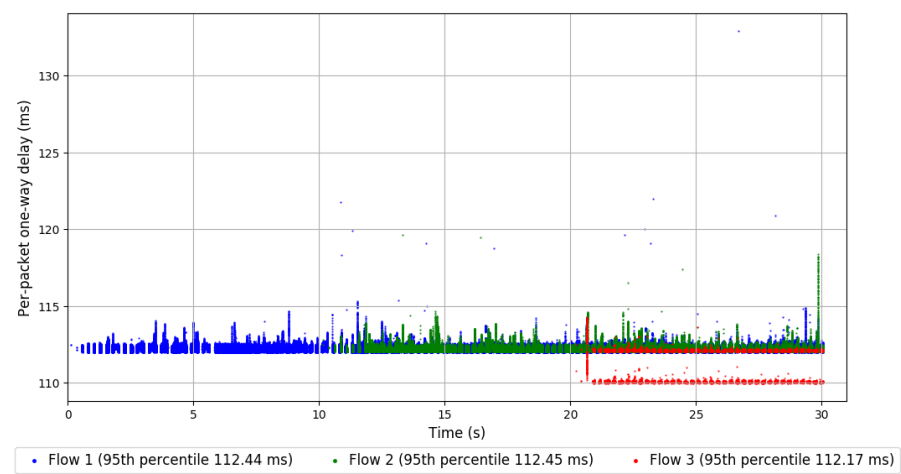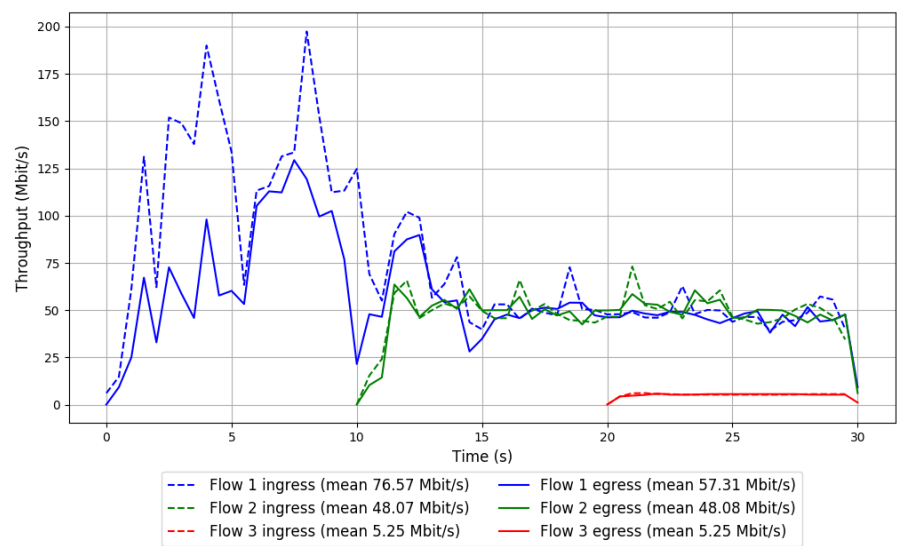
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 76.57 Mbit/s) --- Flow 1 egress (mean 57.31 Mbit/s)
Flow 2 ingress (mean 48.07 Mbit/s) --- Flow 2 egress (mean 48.08 Mbit/s)
Flow 3 ingress (mean 5.25 Mbit/s) --- Flow 3 egress (mean 5.25 Mbit/s)

Flow 1 (95th percentile 112.44 ms)   Flow 2 (95th percentile 112.45 ms)   Flow 3 (95th percentile 112.17 ms)
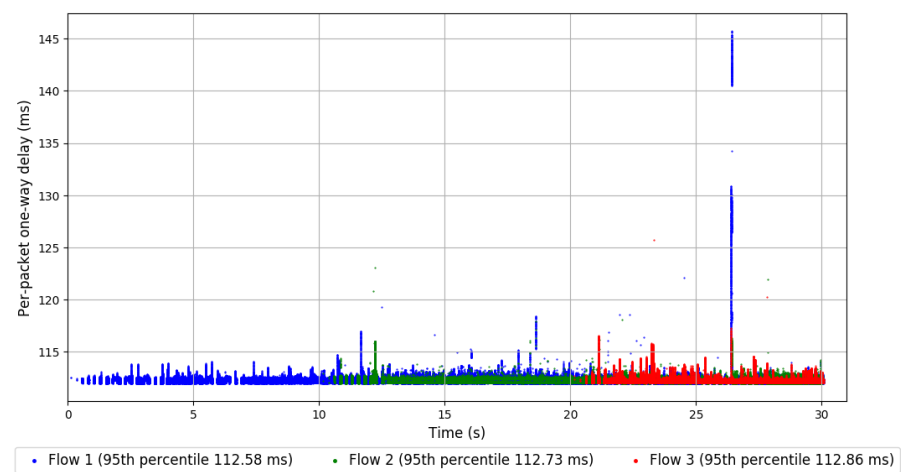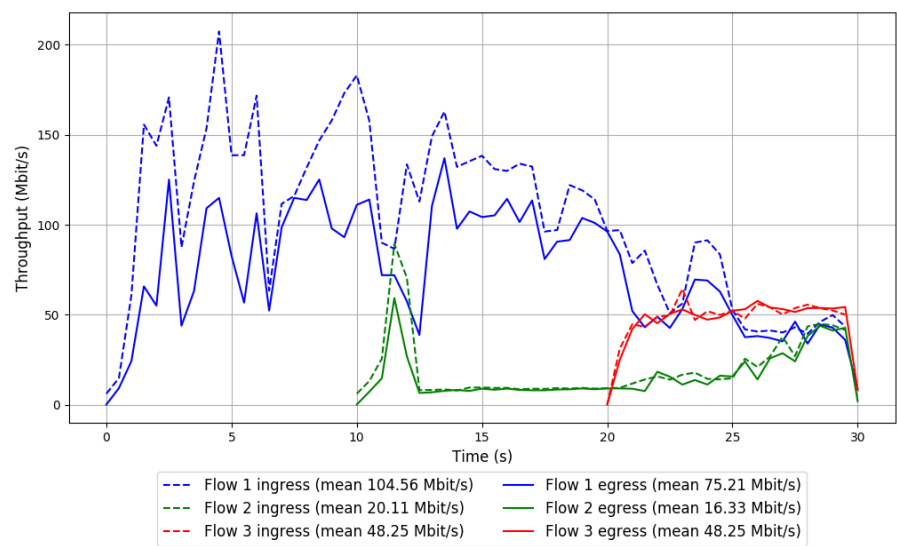
231

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

Start at: 2017-08-12 03:50:00
End at: 2017-08-12 03:50:30

# Below is generated by plot.py at 2017-08-12 06:22:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 102.02 Mbit/s
95th percentile per-packet one-way delay: 112.625 ms
Loss rate: 23.80%
-- Flow 1:
Average throughput: 75.21 Mbit/s
95th percentile per-packet one-way delay: 112.584 ms
Loss rate: 28.07%
-- Flow 2:
Average throughput: 16.33 Mbit/s
95th percentile per-packet one-way delay: 112.732 ms
Loss rate: 18.82%
-- Flow 3:
Average throughput: 48.25 Mbit/s
95th percentile per-packet one-way delay: 112.861 ms
Loss rate: 0.00%
```
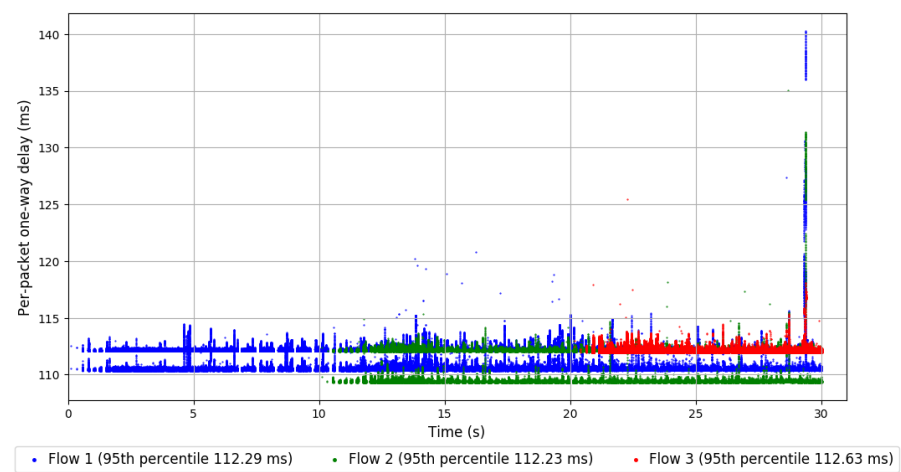
Run 5: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 104.56 Mbit/s) —— Flow 1 egress (mean 75.21 Mbit/s)
- - - Flow 2 ingress (mean 20.11 Mbit/s) —— Flow 2 egress (mean 16.33 Mbit/s)
- - - Flow 3 ingress (mean 48.25 Mbit/s) —— Flow 3 egress (mean 48.25 Mbit/s)

- Flow 1 (95th percentile 112.58 ms)   • Flow 2 (95th percentile 112.73 ms)   • Flow 3 (95th percentile 112.86 ms)

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

Start at: 2017-08-12 04:03:18
End at: 2017-08-12 04:03:48

# Below is generated by plot.py at 2017-08-12 06:22:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 140.81 Mbit/s
95th percentile per-packet one-way delay: 112.316 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 91.43 Mbit/s
95th percentile per-packet one-way delay: 112.294 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.00 Mbit/s
95th percentile per-packet one-way delay: 112.235 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 48.90 Mbit/s
95th percentile per-packet one-way delay: 112.632 ms
Loss rate: 0.00%
```
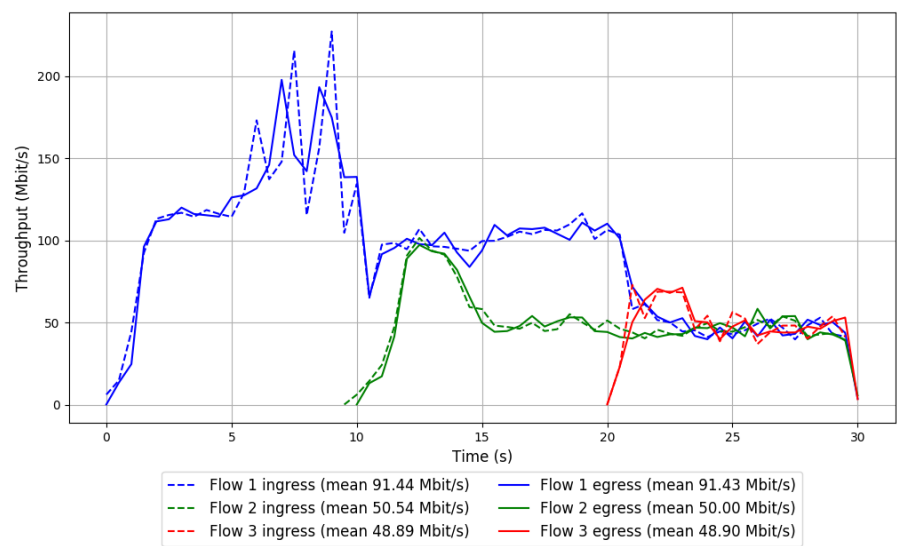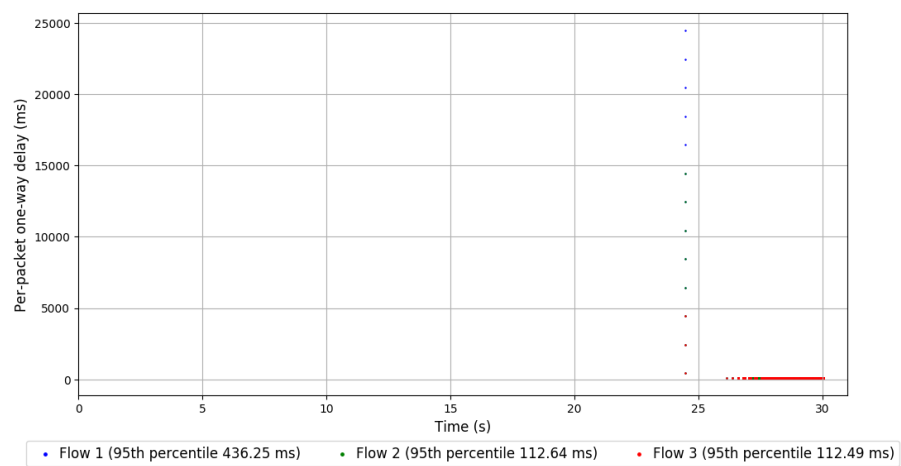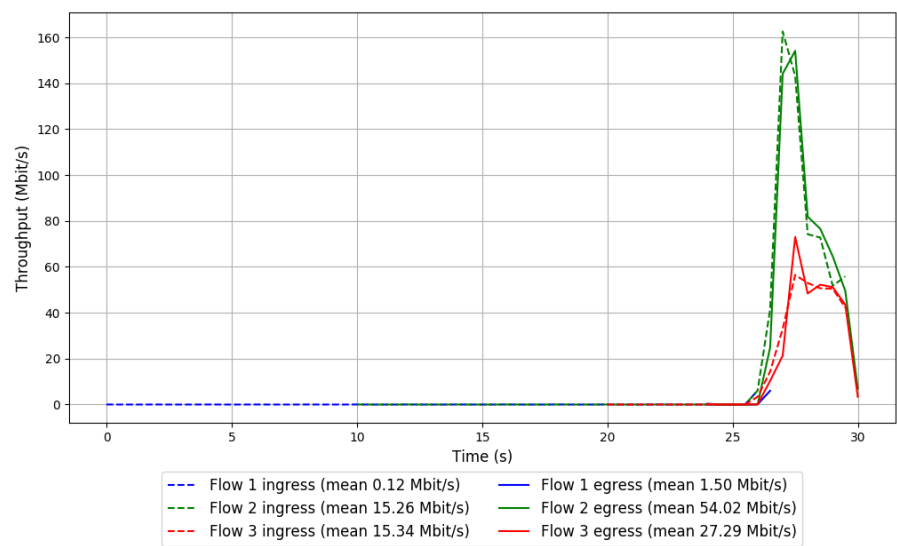
Run 6: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 91.44 Mbit/s) --- Flow 1 egress (mean 91.43 Mbit/s)
Flow 2 ingress (mean 50.54 Mbit/s) --- Flow 2 egress (mean 50.00 Mbit/s)
Flow 3 ingress (mean 48.89 Mbit/s) --- Flow 3 egress (mean 48.90 Mbit/s)

Flow 1 (95th percentile 112.29 ms) • Flow 2 (95th percentile 112.23 ms) • Flow 3 (95th percentile 112.63 ms)

Run 7: Statistics of TaoVA-100x

Start at: 2017-08-12 04:16:31
End at: 2017-08-12 04:17:01

Run 7: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.12 Mbit/s)
Flow 2 ingress (mean 15.26 Mbit/s)
Flow 3 ingress (mean 15.34 Mbit/s)
Flow 1 egress (mean 1.50 Mbit/s)
Flow 2 egress (mean 54.02 Mbit/s)
Flow 3 egress (mean 27.29 Mbit/s)

Flow 1 (95th percentile 436.25 ms)
Flow 2 (95th percentile 112.64 ms)
Flow 3 (95th percentile 112.49 ms)

237

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

Start at: 2017-08-12 04:29:20
End at: 2017-08-12 04:29:50

# Below is generated by plot.py at 2017-08-12 06:23:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 125.34 Mbit/s
95th percentile per-packet one-way delay: 112.611 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 209.54 Mbit/s
95th percentile per-packet one-way delay: 112.856 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 45.96 Mbit/s
95th percentile per-packet one-way delay: 112.206 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 53.13 Mbit/s
95th percentile per-packet one-way delay: 112.612 ms
Loss rate: 0.00%
```
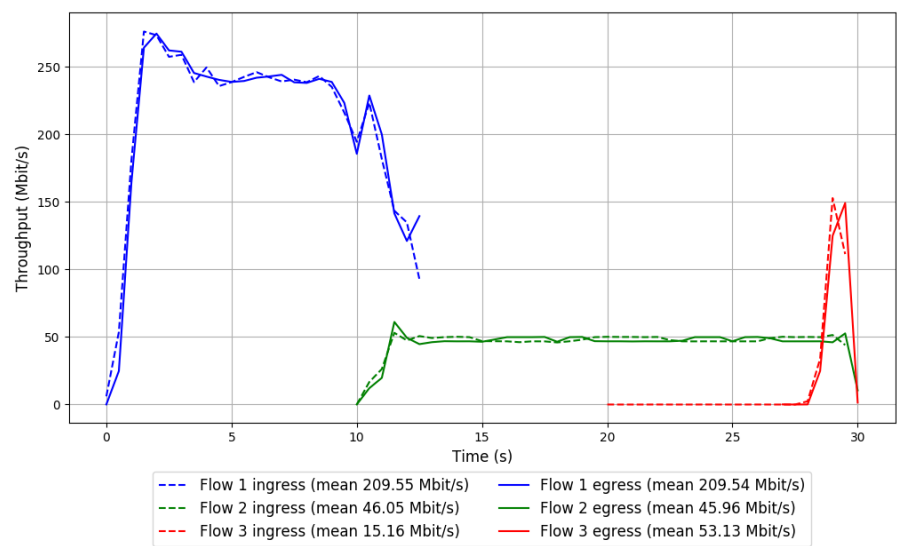
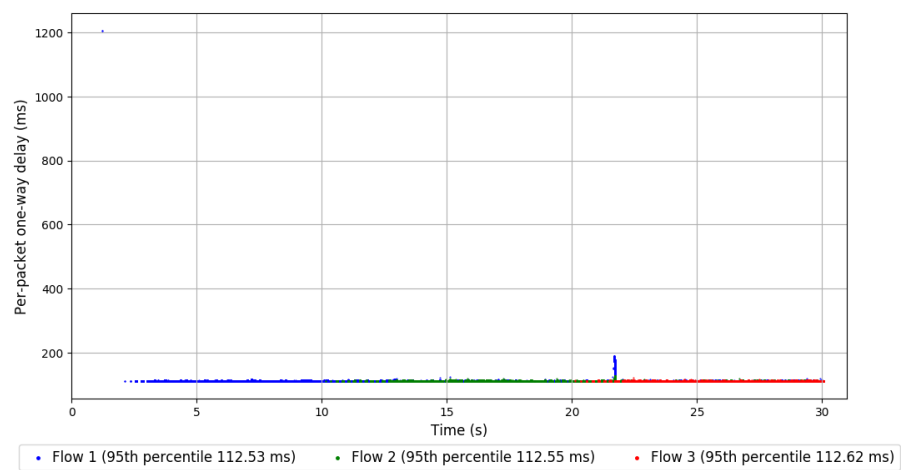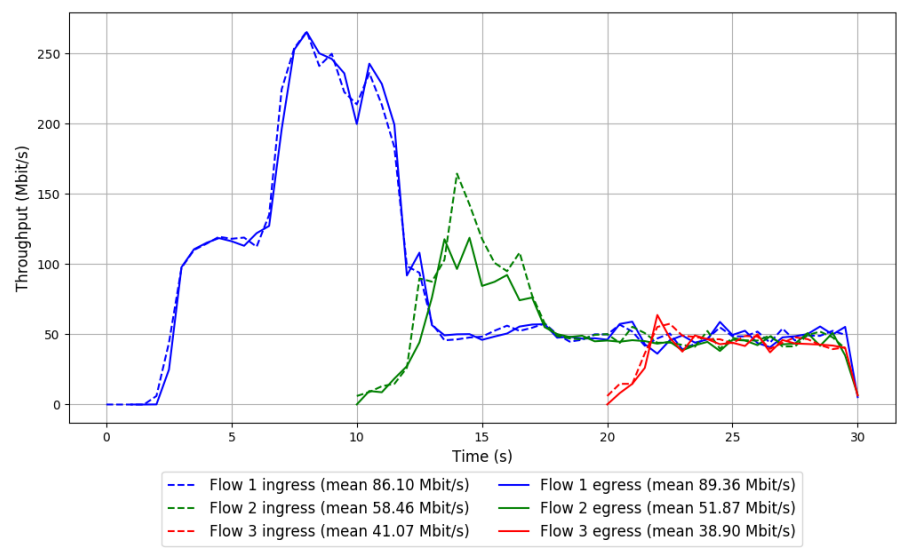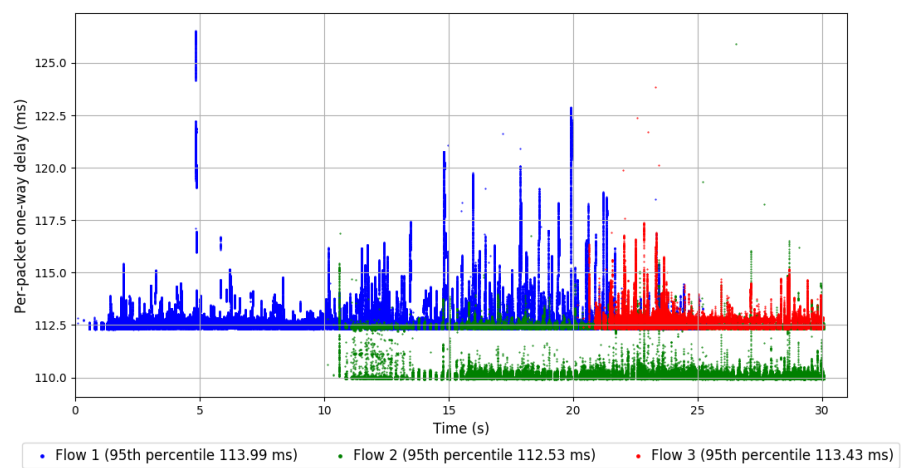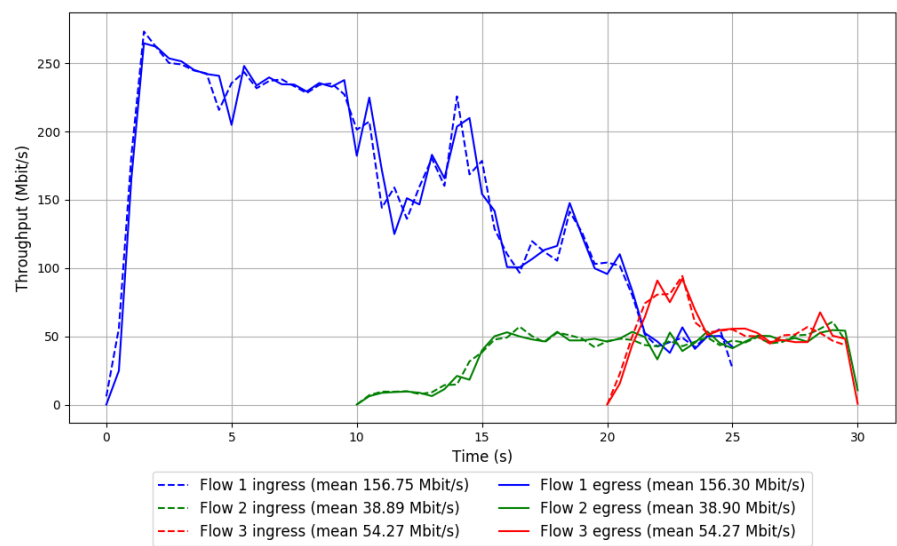# Run 8: Report of TaoVA-100x — Data Link

- - - - Flow 1 ingress (mean 209.55 Mbit/s)   —— Flow 1 egress (mean 209.54 Mbit/s)
- - - - Flow 2 ingress (mean 46.05 Mbit/s)   —— Flow 2 egress (mean 45.96 Mbit/s)
- - - - Flow 3 ingress (mean 15.16 Mbit/s)   —— Flow 3 egress (mean 53.13 Mbit/s)

- Flow 1 (95th percentile 112.86 ms)   • Flow 2 (95th percentile 112.21 ms)   • Flow 3 (95th percentile 112.61 ms)

239

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

Start at: 2017-08-12 04:42:30
End at: 2017-08-12 04:43:00

# Below is generated by plot.py at 2017-08-12 06:23:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 138.54 Mbit/s
95th percentile per-packet one-way delay: 112.559 ms
Loss rate: 3.68%
-- Flow 1:
Average throughput: 89.36 Mbit/s
95th percentile per-packet one-way delay: 112.531 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 51.87 Mbit/s
95th percentile per-packet one-way delay: 112.548 ms
Loss rate: 11.28%
-- Flow 3:
Average throughput: 38.90 Mbit/s
95th percentile per-packet one-way delay: 112.625 ms
Loss rate: 5.27%
```

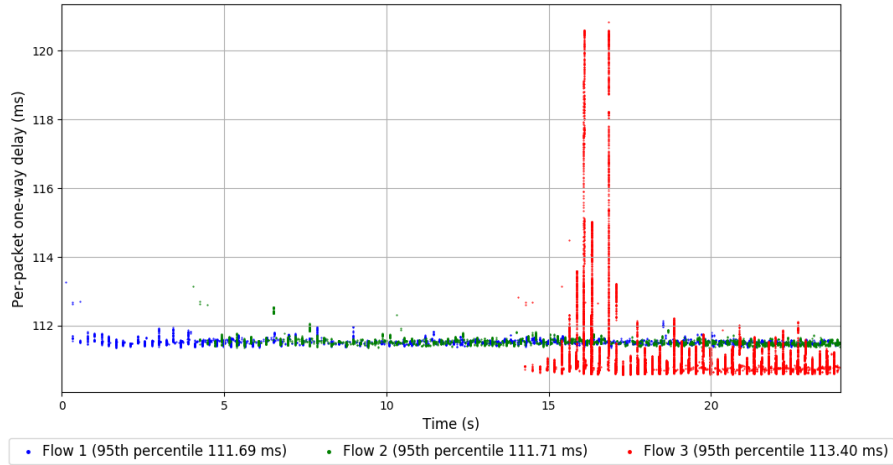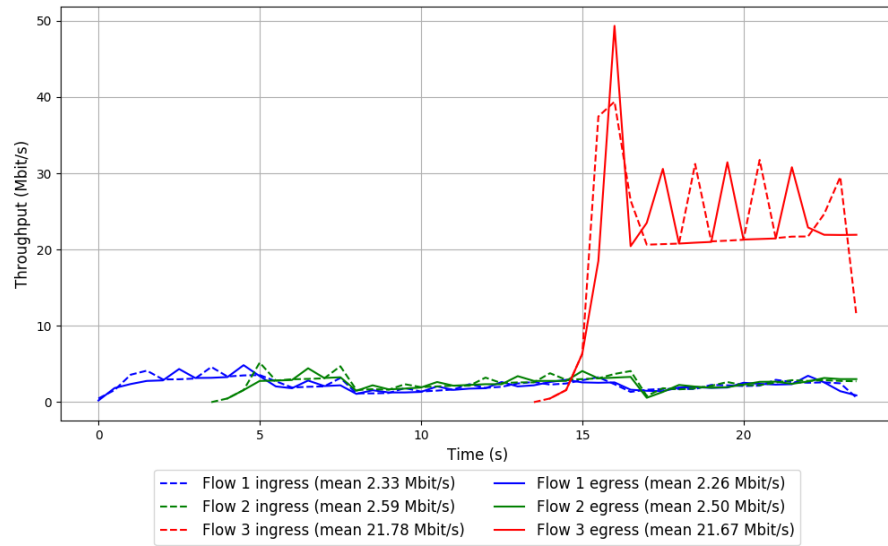# Run 9: Report of TaoVA-100x — Data Link

- - - - Flow 1 ingress (mean 86.10 Mbit/s)   —— Flow 1 egress (mean 89.36 Mbit/s)
- - - - Flow 2 ingress (mean 58.46 Mbit/s)   —— Flow 2 egress (mean 51.87 Mbit/s)
- - - - Flow 3 ingress (mean 41.07 Mbit/s)   —— Flow 3 egress (mean 38.90 Mbit/s)

• Flow 1 (95th percentile 112.53 ms)   • Flow 2 (95th percentile 112.55 ms)   • Flow 3 (95th percentile 112.62 ms)

241

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

Start at: 2017-08-12 04:55:26
End at: 2017-08-12 04:55:56

# Below is generated by plot.py at 2017-08-12 06:24:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 175.85 Mbit/s
95th percentile per-packet one-way delay: 113.768 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 156.30 Mbit/s
95th percentile per-packet one-way delay: 113.993 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 38.90 Mbit/s
95th percentile per-packet one-way delay: 112.533 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 54.27 Mbit/s
95th percentile per-packet one-way delay: 113.434 ms
Loss rate: 0.00%
```
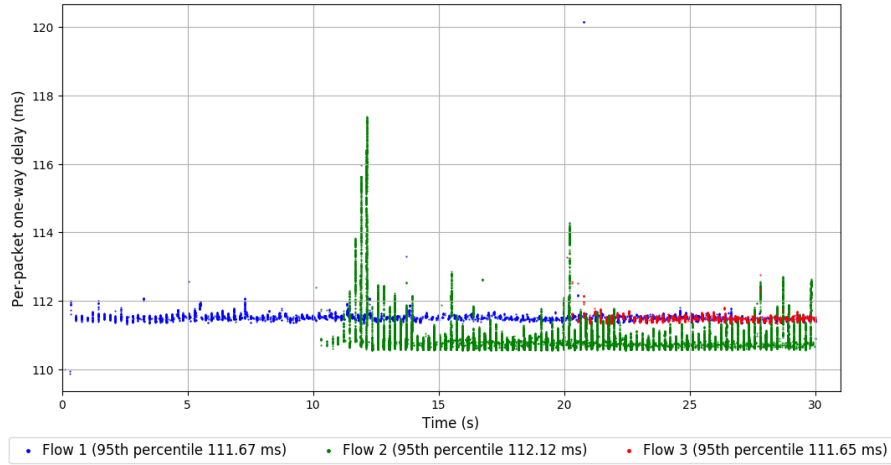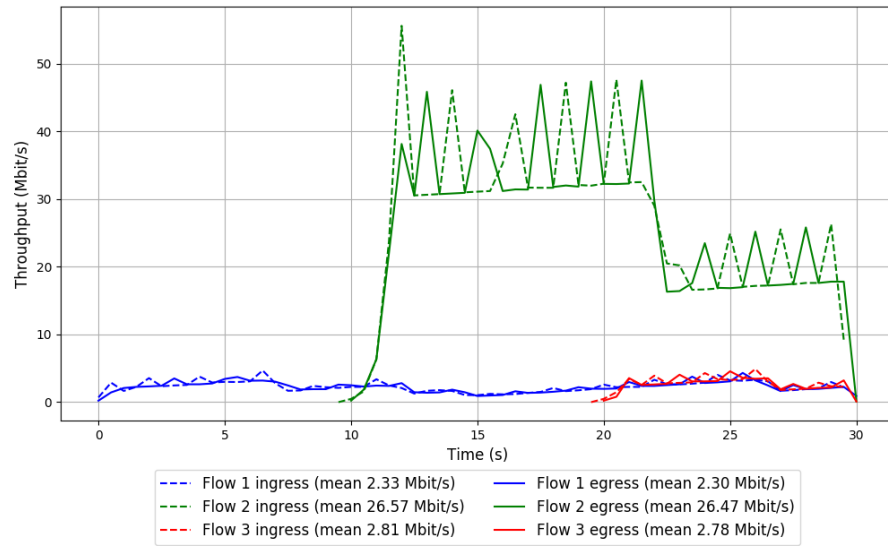
Run 10: Report of TaoVA-100x — Data Link

243

Run 1: Statistics of TCP Vegas

Start at: 2017-08-12 02:51:51
End at: 2017-08-12 02:52:21

Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2017-08-12 03:04:46
End at: 2017-08-12 03:05:16

# Below is generated by plot.py at 2017-08-12 06:24:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.84 Mbit/s
95th percentile per-packet one-way delay: 111.983 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 111.673 ms
Loss rate: 1.51%
-- Flow 2:
Average throughput: 26.47 Mbit/s
95th percentile per-packet one-way delay: 112.119 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 111.649 ms
Loss rate: 1.55%
```
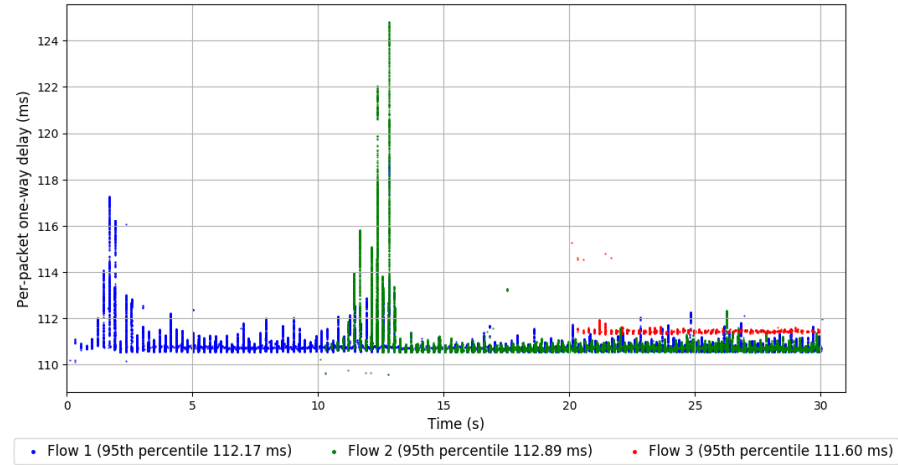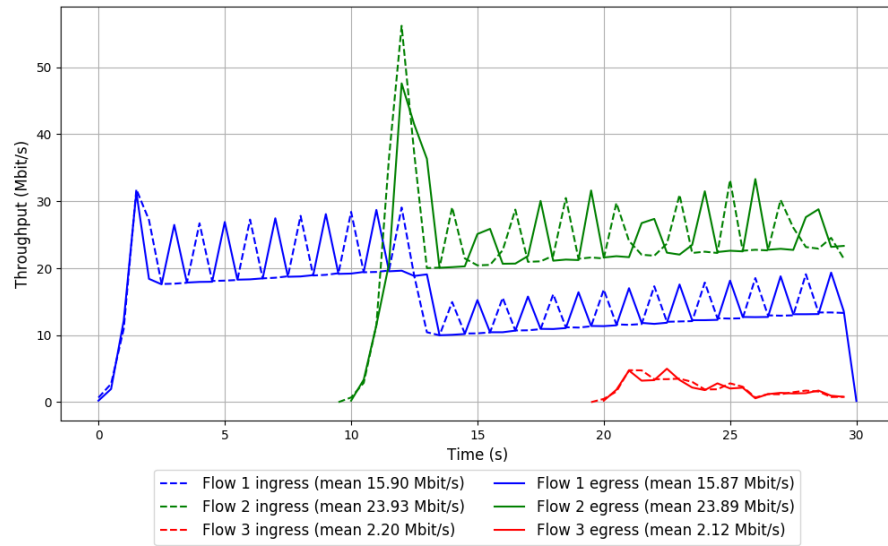
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2017-08-12 03:17:57
End at: 2017-08-12 03:18:27

# Below is generated by plot.py at 2017-08-12 06:24:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 32.47 Mbit/s
95th percentile per-packet one-way delay: 112.444 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 15.87 Mbit/s
95th percentile per-packet one-way delay: 112.167 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 23.89 Mbit/s
95th percentile per-packet one-way delay: 112.889 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 111.602 ms
Loss rate: 3.38%
```
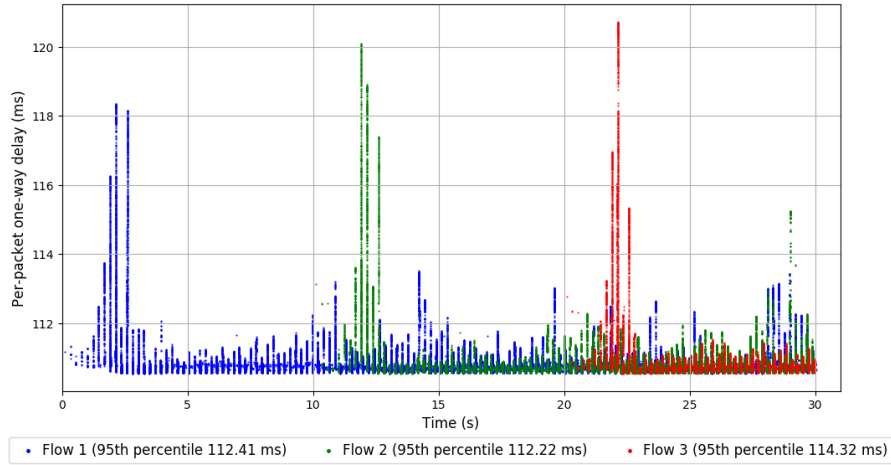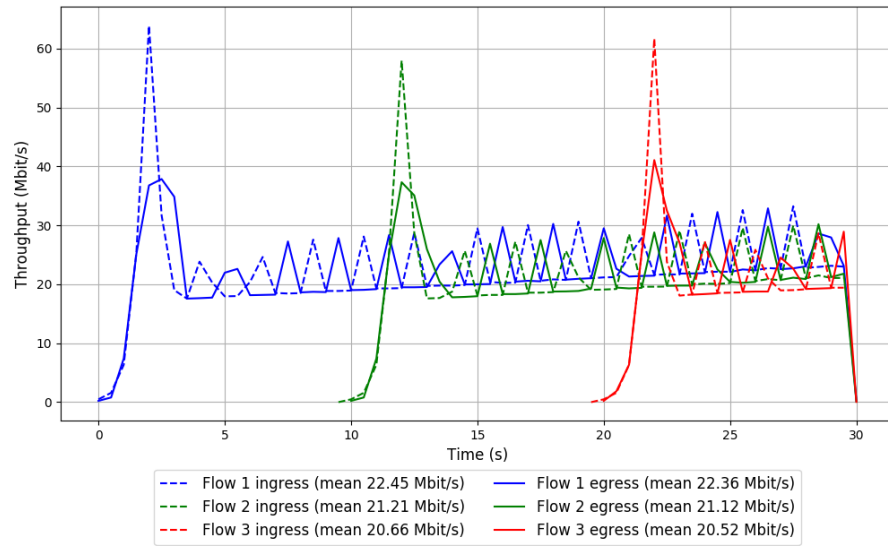
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 15.90 Mbit/s) — Flow 1 egress (mean 15.87 Mbit/s)
Flow 2 ingress (mean 23.93 Mbit/s) — Flow 2 egress (mean 23.89 Mbit/s)
Flow 3 ingress (mean 2.20 Mbit/s) — Flow 3 egress (mean 2.12 Mbit/s)

Flow 1 (95th percentile 112.17 ms) — Flow 2 (95th percentile 112.89 ms) — Flow 3 (95th percentile 111.60 ms)

249

```
Run 4: Statistics of TCP Vegas

Start at: 2017-08-12 03:31:12
End at: 2017-08-12 03:31:42

# Below is generated by plot.py at 2017-08-12 06:24:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.22 Mbit/s
95th percentile per-packet one-way delay: 112.496 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 22.36 Mbit/s
95th percentile per-packet one-way delay: 112.414 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 21.12 Mbit/s
95th percentile per-packet one-way delay: 112.221 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 20.52 Mbit/s
95th percentile per-packet one-way delay: 114.316 ms
Loss rate: 0.71%
```
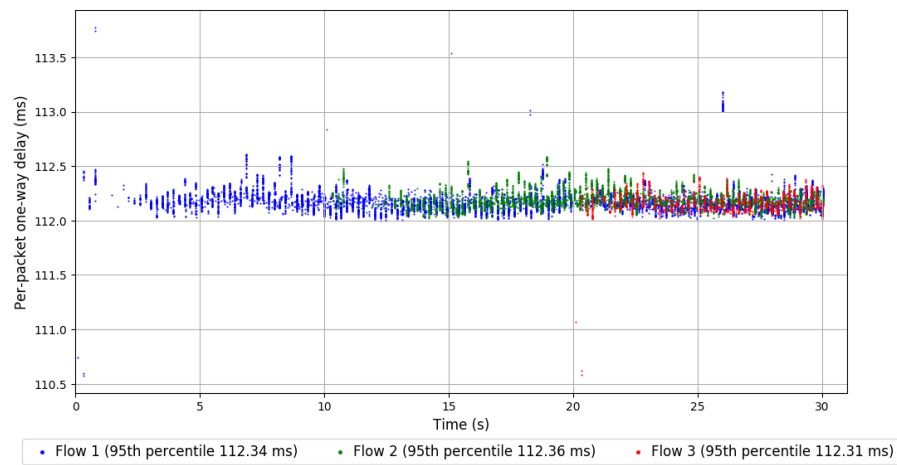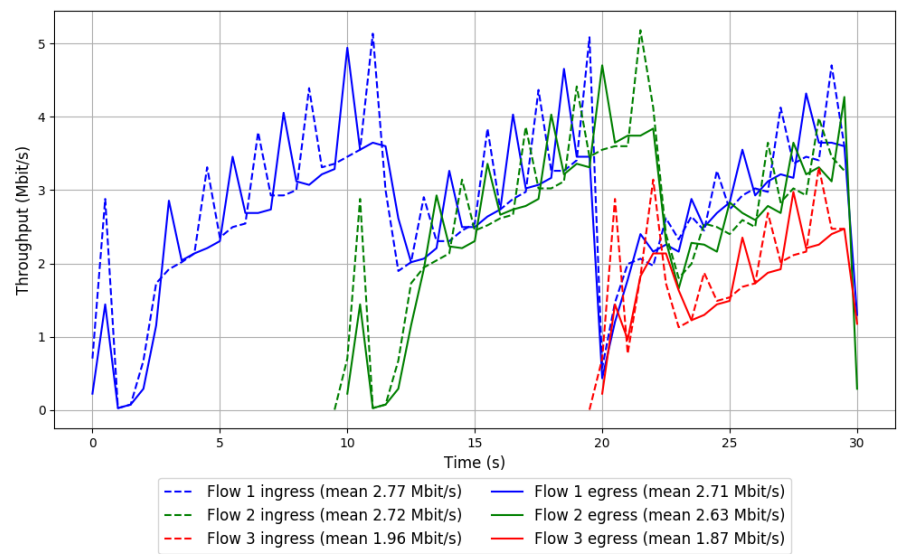
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2017-08-12 03:44:10
End at: 2017-08-12 03:44:40

# Below is generated by plot.py at 2017-08-12 06:24:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.08 Mbit/s
95th percentile per-packet one-way delay: 112.346 ms
Loss rate: 2.85%
-- Flow 1:
Average throughput: 2.71 Mbit/s
95th percentile per-packet one-way delay: 112.339 ms
Loss rate: 2.20%
-- Flow 2:
Average throughput: 2.63 Mbit/s
95th percentile per-packet one-way delay: 112.365 ms
Loss rate: 3.23%
-- Flow 3:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 112.305 ms
Loss rate: 4.56%
```
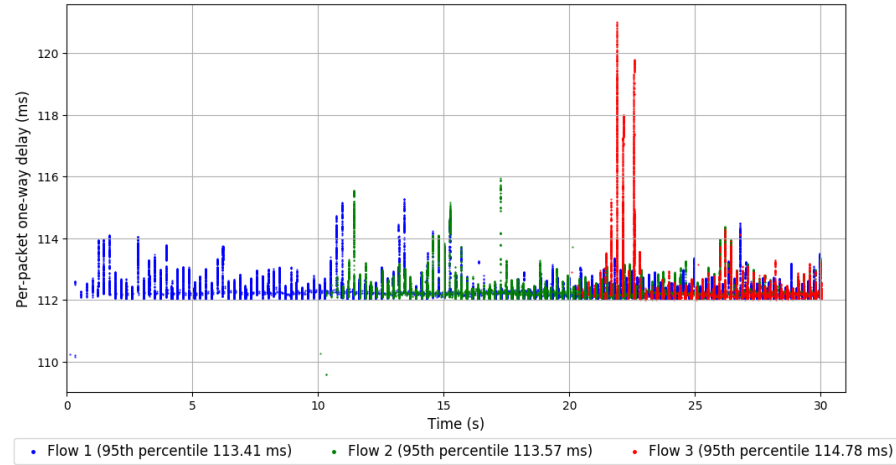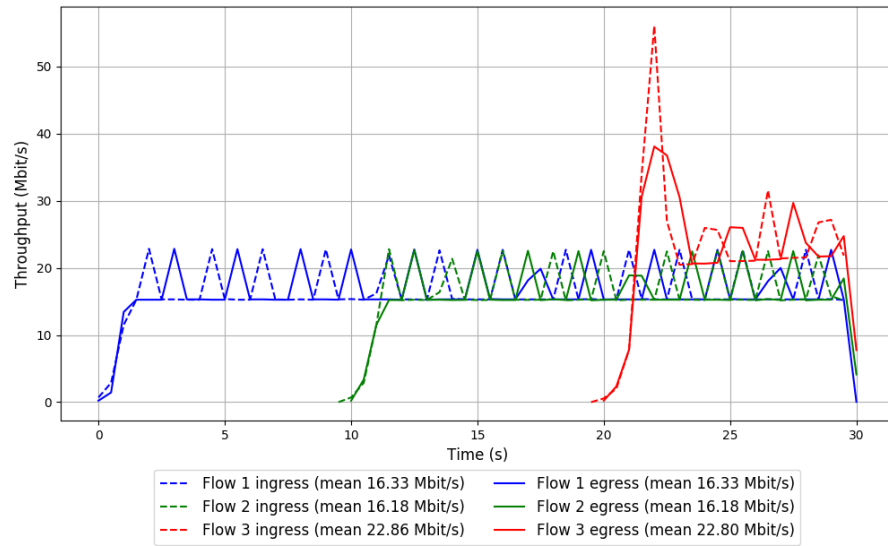
Run 5: Report of TCP Vegas — Data Link

```
Run 6: Statistics of TCP Vegas

Start at: 2017-08-12 03:56:45
End at: 2017-08-12 03:57:15


# Below is generated by plot.py at 2017-08-12 06:24:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 34.67 Mbit/s
95th percentile per-packet one-way delay: 113.653 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 16.33 Mbit/s
95th percentile per-packet one-way delay: 113.405 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 16.18 Mbit/s
95th percentile per-packet one-way delay: 113.570 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 22.80 Mbit/s
95th percentile per-packet one-way delay: 114.775 ms
Loss rate: 0.27%
```
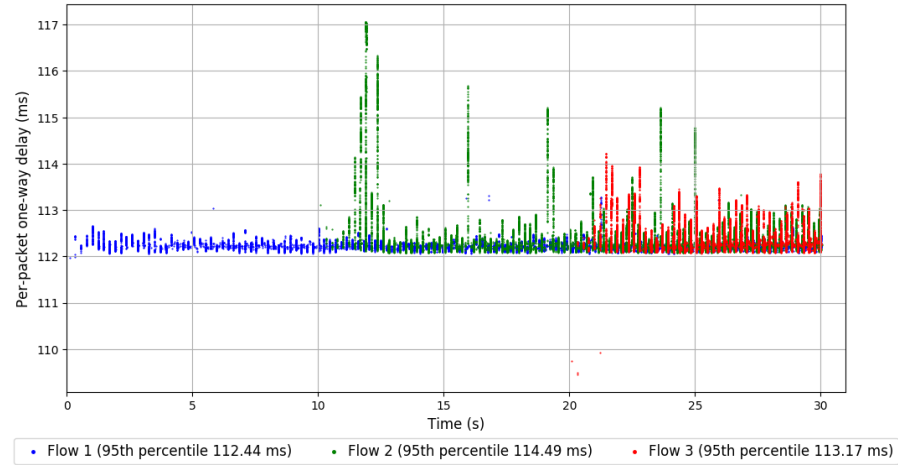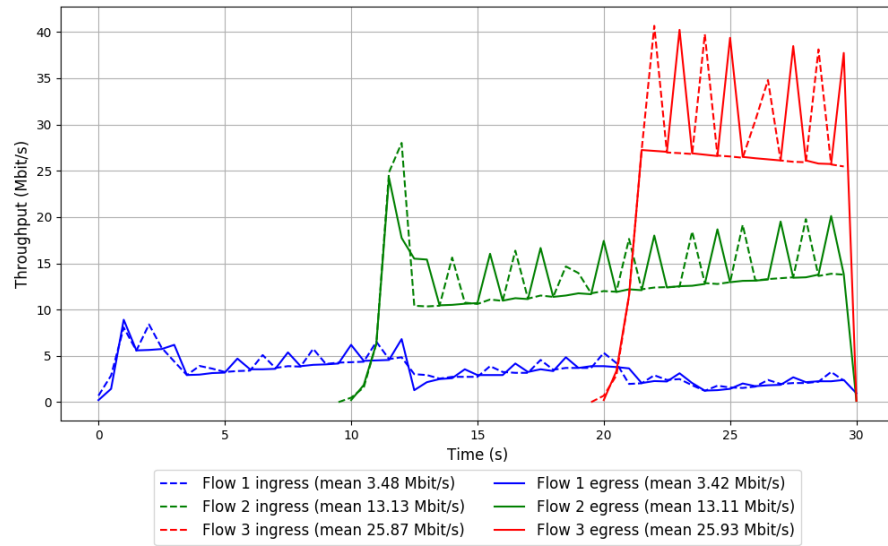
Run 6: Report of TCP Vegas — Data Link

```
Run 7: Statistics of TCP Vegas

Start at: 2017-08-12 04:10:07
End at: 2017-08-12 04:10:37


# Below is generated by plot.py at 2017-08-12 06:24:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.76 Mbit/s
95th percentile per-packet one-way delay: 113.340 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 3.42 Mbit/s
95th percentile per-packet one-way delay: 112.441 ms
Loss rate: 1.93%
-- Flow 2:
Average throughput: 13.11 Mbit/s
95th percentile per-packet one-way delay: 114.486 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 25.93 Mbit/s
95th percentile per-packet one-way delay: 113.173 ms
Loss rate: 0.00%
```
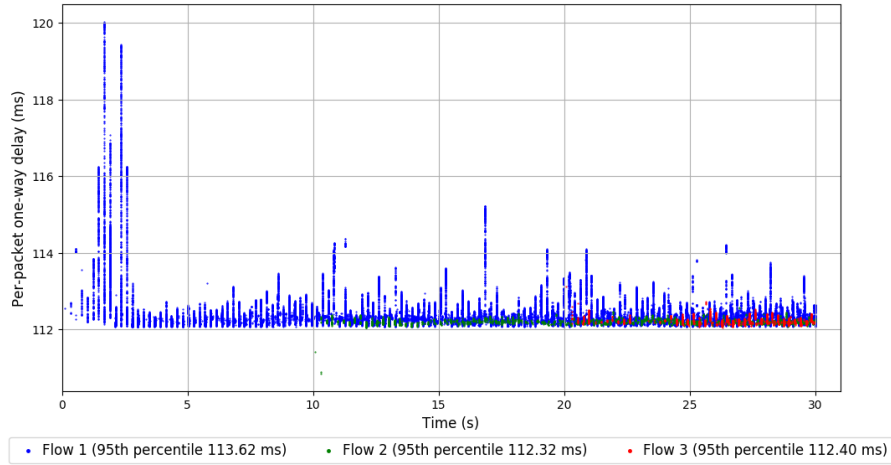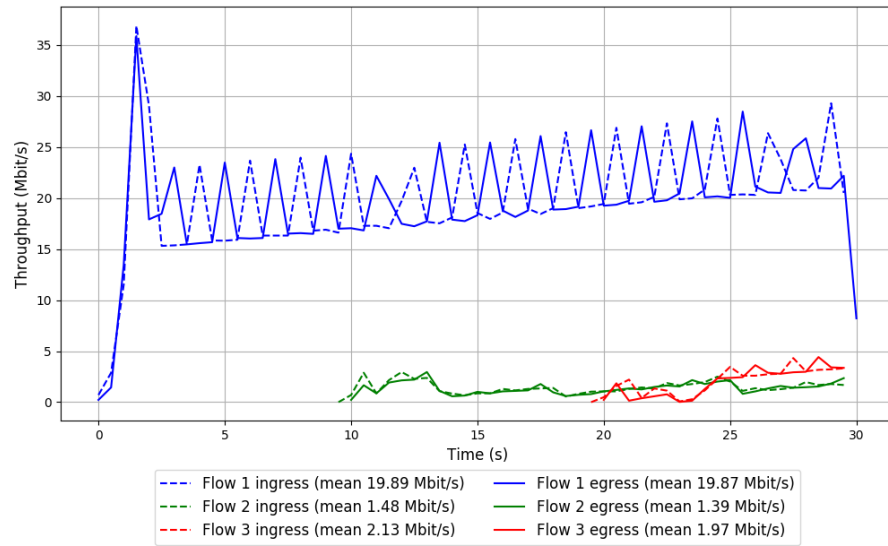
Run 7: Report of TCP Vegas — Data Link

257

```
Run 8: Statistics of TCP Vegas

Start at: 2017-08-12 04:22:59
End at: 2017-08-12 04:23:29


# Below is generated by plot.py at 2017-08-12 06:24:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 21.44 Mbit/s
95th percentile per-packet one-way delay: 113.533 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 19.87 Mbit/s
95th percentile per-packet one-way delay: 113.624 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 112.317 ms
Loss rate: 5.92%
-- Flow 3:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 112.398 ms
Loss rate: 7.63%
```
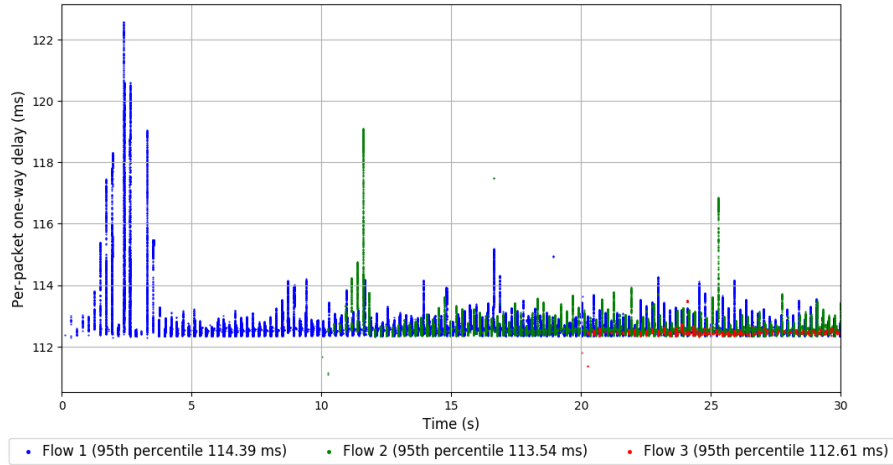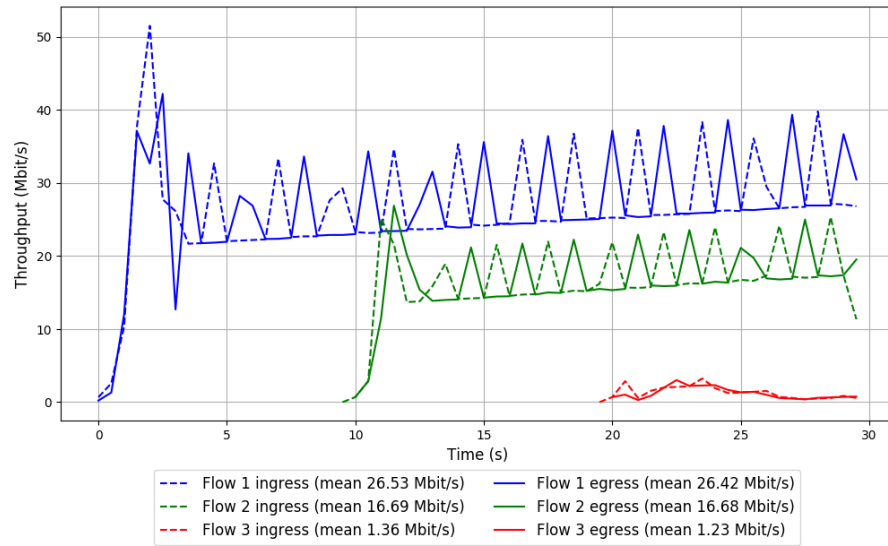
Run 8: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 19.89 Mbit/s) --- Flow 1 egress (mean 19.87 Mbit/s)
Flow 2 ingress (mean 1.48 Mbit/s) --- Flow 2 egress (mean 1.39 Mbit/s)
Flow 3 ingress (mean 2.13 Mbit/s) --- Flow 3 egress (mean 1.97 Mbit/s)

Flow 1 (95th percentile 113.62 ms) • Flow 2 (95th percentile 112.32 ms) • Flow 3 (95th percentile 112.40 ms)

259

```
Run 9: Statistics of TCP Vegas

Start at: 2017-08-12 04:35:58
End at: 2017-08-12 04:36:28


# Below is generated by plot.py at 2017-08-12 06:24:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 37.96 Mbit/s
95th percentile per-packet one-way delay: 113.994 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 26.42 Mbit/s
95th percentile per-packet one-way delay: 114.385 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 16.68 Mbit/s
95th percentile per-packet one-way delay: 113.543 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 112.611 ms
Loss rate: 9.46%
```
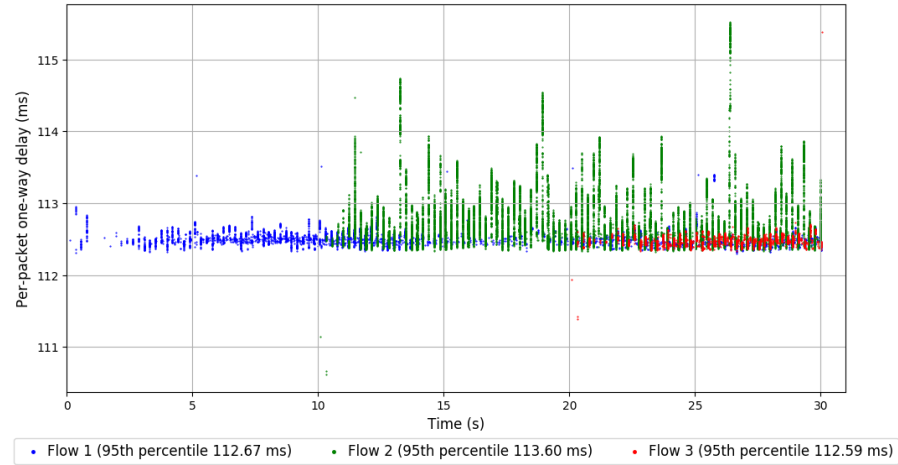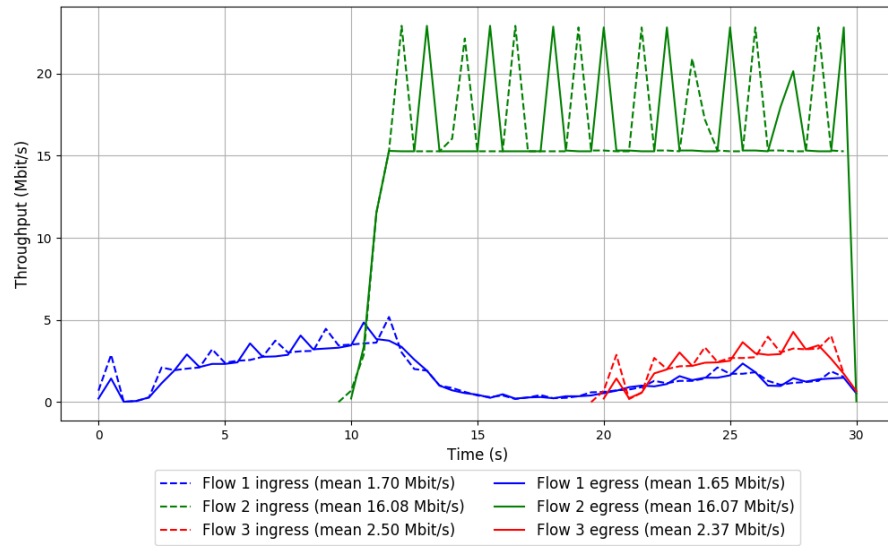
Run 9: Report of TCP Vegas — Data Link

- - - Flow 1 ingress (mean 26.53 Mbit/s) —— Flow 1 egress (mean 26.42 Mbit/s)
- - - Flow 2 ingress (mean 16.69 Mbit/s) —— Flow 2 egress (mean 16.68 Mbit/s)
- - - Flow 3 ingress (mean 1.36 Mbit/s) —— Flow 3 egress (mean 1.23 Mbit/s)

• Flow 1 (95th percentile 114.39 ms)   • Flow 2 (95th percentile 113.54 ms)   • Flow 3 (95th percentile 112.61 ms)

```
Run 10: Statistics of TCP Vegas

Start at: 2017-08-12 04:49:13
End at: 2017-08-12 04:49:43


# Below is generated by plot.py at 2017-08-12 06:24:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.14 Mbit/s
95th percentile per-packet one-way delay: 113.531 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 112.671 ms
Loss rate: 2.69%
-- Flow 2:
Average throughput: 16.07 Mbit/s
95th percentile per-packet one-way delay: 113.598 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 112.592 ms
Loss rate: 5.30%
```
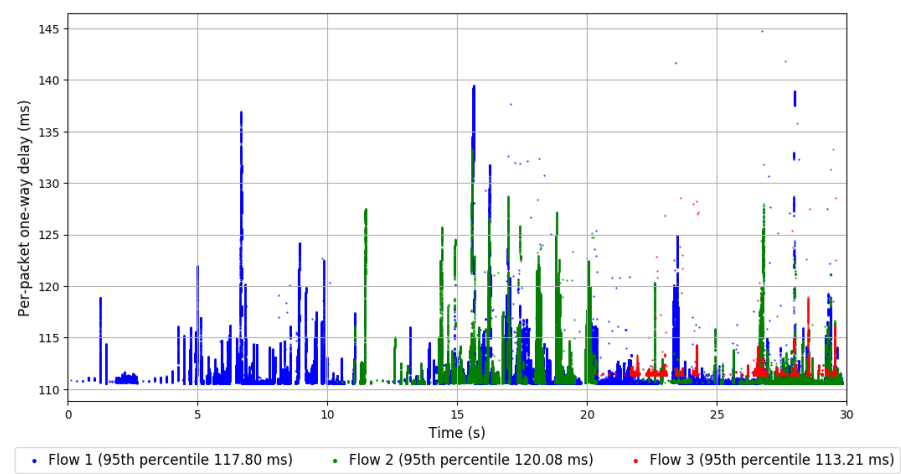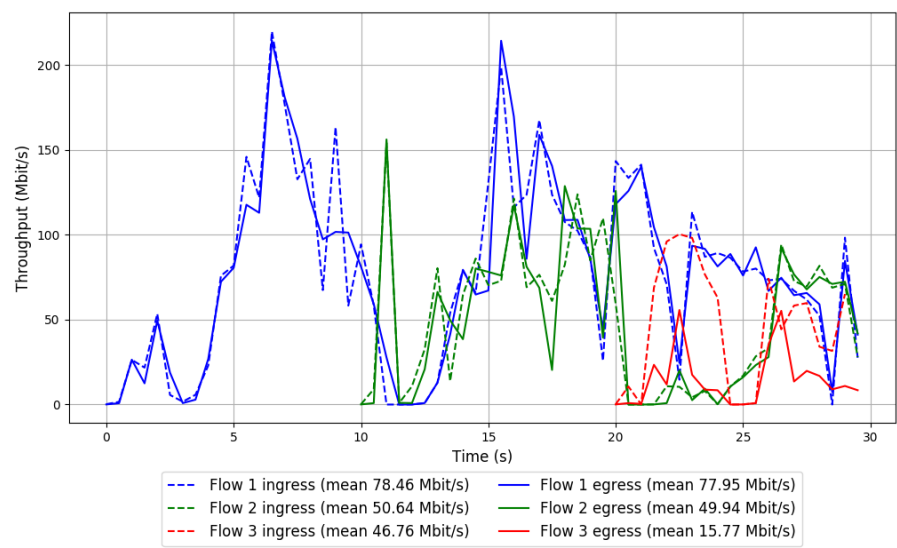
Run 10: Report of TCP Vegas — Data Link

263

```
Run 1: Statistics of Verus

Start at: 2017-08-12 02:50:54
End at: 2017-08-12 02:51:24


# Below is generated by plot.py at 2017-08-12 06:24:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 116.03 Mbit/s
95th percentile per-packet one-way delay: 118.572 ms
Loss rate: 8.56%
-- Flow 1:
Average throughput: 77.95 Mbit/s
95th percentile per-packet one-way delay: 117.801 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 49.94 Mbit/s
95th percentile per-packet one-way delay: 120.075 ms
Loss rate: 1.39%
-- Flow 3:
Average throughput: 15.77 Mbit/s
95th percentile per-packet one-way delay: 113.214 ms
Loss rate: 66.33%
```
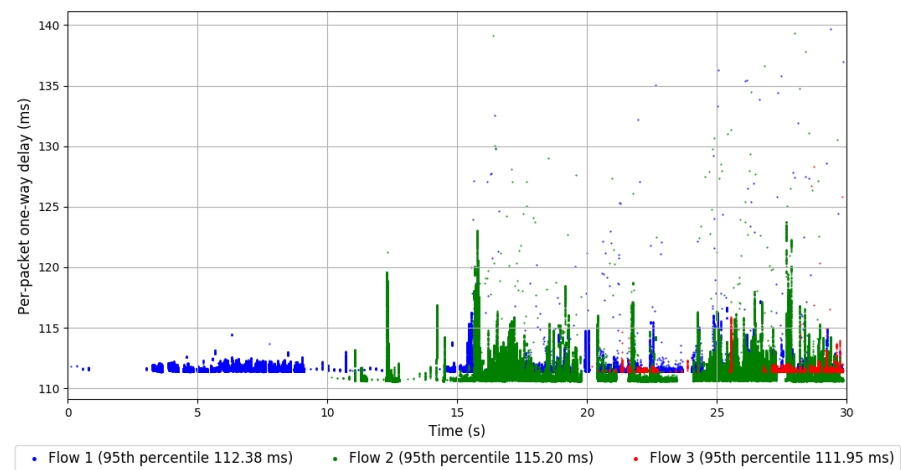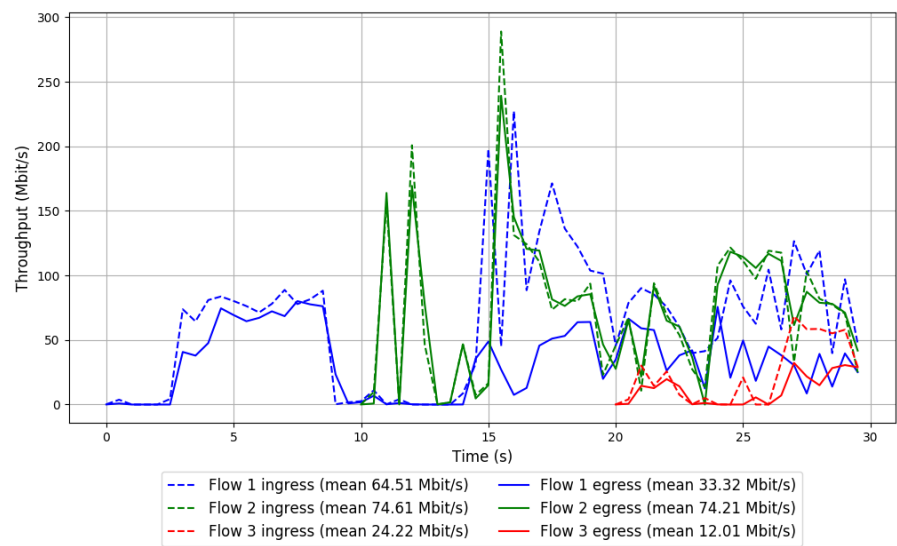
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2017-08-12 03:03:52
End at: 2017-08-12 03:04:22


# Below is generated by plot.py at 2017-08-12 06:24:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.40 Mbit/s
95th percentile per-packet one-way delay: 114.169 ms
Loss rate: 29.08%
-- Flow 1:
Average throughput: 33.32 Mbit/s
95th percentile per-packet one-way delay: 112.378 ms
Loss rate: 48.35%
-- Flow 2:
Average throughput: 74.21 Mbit/s
95th percentile per-packet one-way delay: 115.197 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 12.01 Mbit/s
95th percentile per-packet one-way delay: 111.952 ms
Loss rate: 50.42%
```
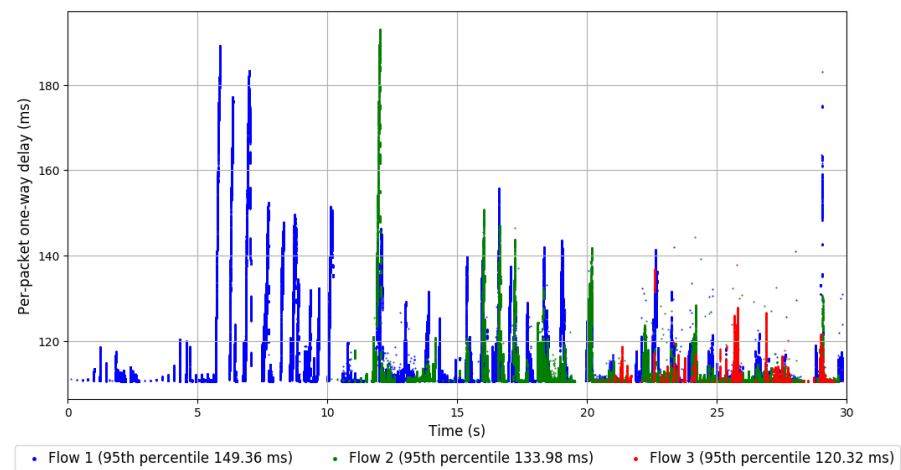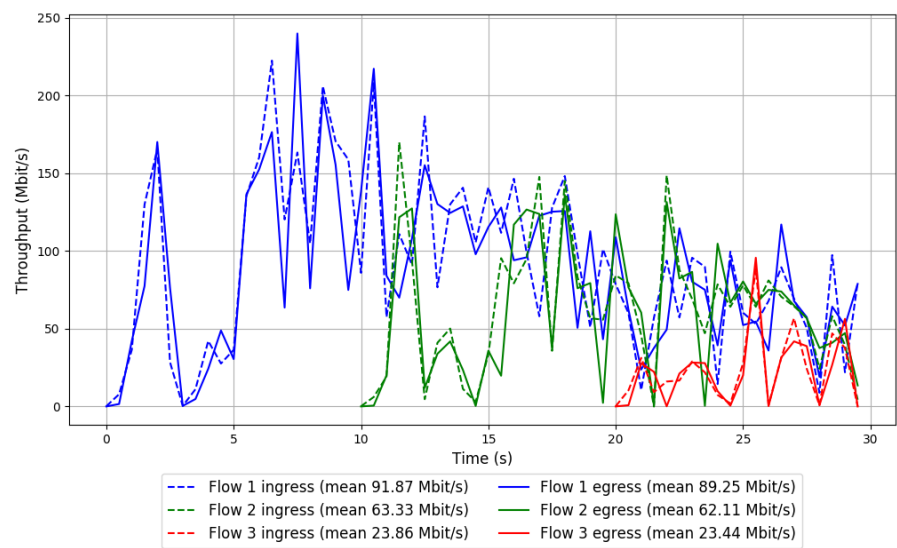
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2017-08-12 03:16:58
End at: 2017-08-12 03:17:28


# Below is generated by plot.py at 2017-08-12 06:25:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 137.67 Mbit/s
95th percentile per-packet one-way delay: 143.785 ms
Loss rate: 2.51%
-- Flow 1:
Average throughput: 89.25 Mbit/s
95th percentile per-packet one-way delay: 149.361 ms
Loss rate: 2.85%
-- Flow 2:
Average throughput: 62.11 Mbit/s
95th percentile per-packet one-way delay: 133.977 ms
Loss rate: 1.92%
-- Flow 3:
Average throughput: 23.44 Mbit/s
95th percentile per-packet one-way delay: 120.322 ms
Loss rate: 1.73%
```
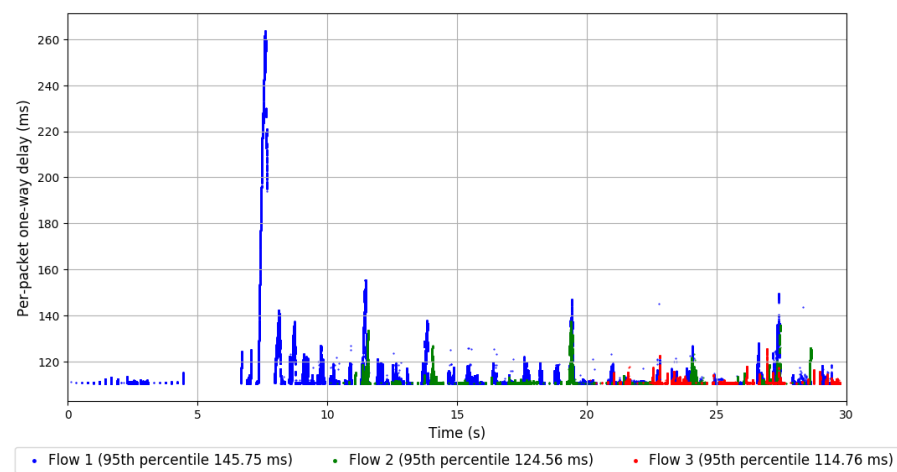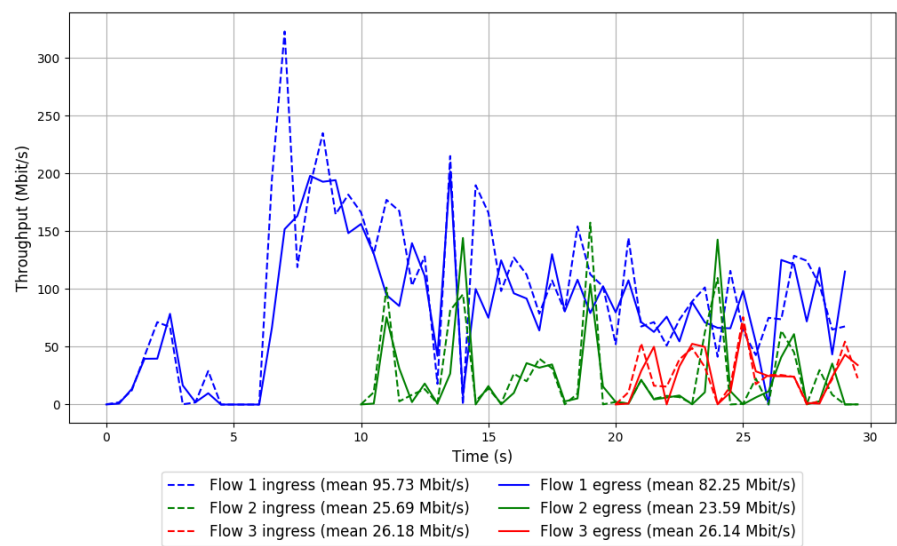
Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 91.87 Mbit/s)   Flow 1 egress (mean 89.25 Mbit/s)
Flow 2 ingress (mean 63.33 Mbit/s)   Flow 2 egress (mean 62.11 Mbit/s)
Flow 3 ingress (mean 23.86 Mbit/s)   Flow 3 egress (mean 23.44 Mbit/s)

Flow 1 (95th percentile 149.36 ms)   Flow 2 (95th percentile 133.98 ms)   Flow 3 (95th percentile 120.32 ms)

```
Run 4: Statistics of Verus

Start at: 2017-08-12 03:30:16
End at: 2017-08-12 03:30:46


# Below is generated by plot.py at 2017-08-12 06:25:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 105.58 Mbit/s
95th percentile per-packet one-way delay: 135.621 ms
Loss rate: 12.27%
-- Flow 1:
Average throughput: 82.25 Mbit/s
95th percentile per-packet one-way delay: 145.746 ms
Loss rate: 14.08%
-- Flow 2:
Average throughput: 23.59 Mbit/s
95th percentile per-packet one-way delay: 124.555 ms
Loss rate: 8.15%
-- Flow 3:
Average throughput: 26.14 Mbit/s
95th percentile per-packet one-way delay: 114.764 ms
Loss rate: 0.18%
```
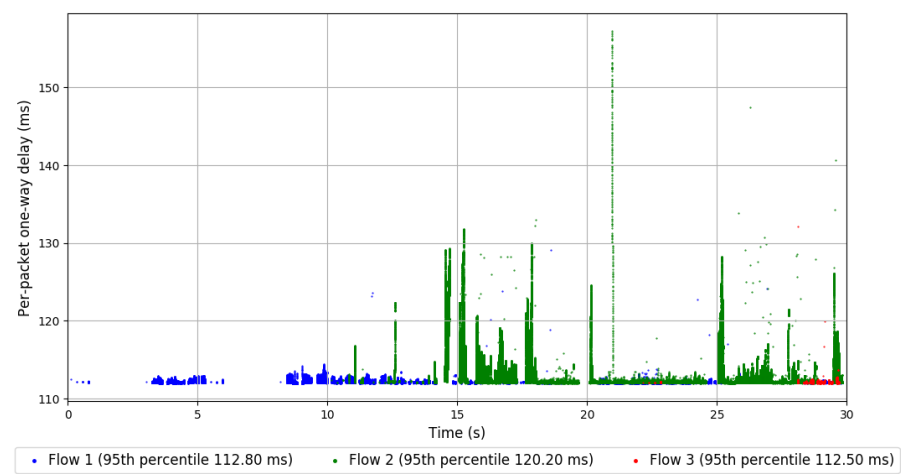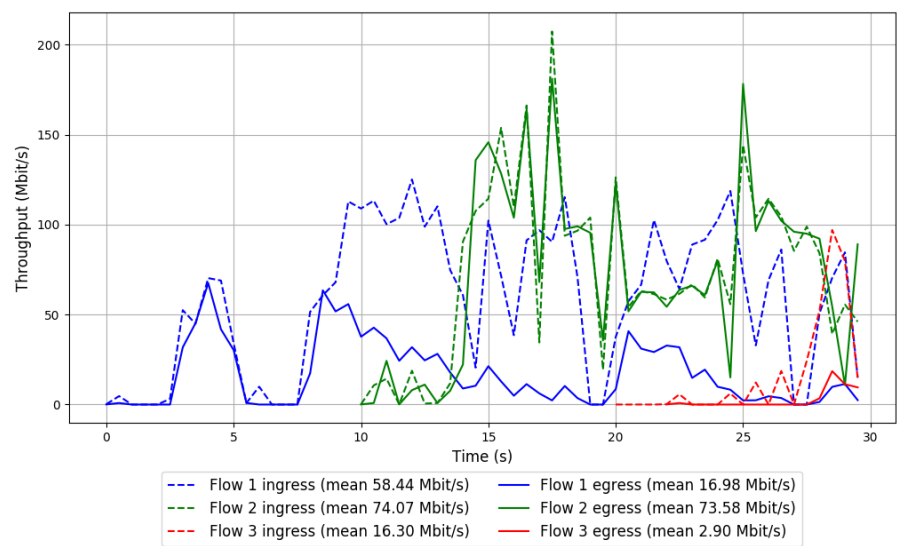
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2017-08-12 03:43:18
End at: 2017-08-12 03:43:48


# Below is generated by plot.py at 2017-08-12 06:25:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.41 Mbit/s
95th percentile per-packet one-way delay: 118.990 ms
Loss rate: 41.05%
-- Flow 1:
Average throughput: 16.98 Mbit/s
95th percentile per-packet one-way delay: 112.796 ms
Loss rate: 70.94%
-- Flow 2:
Average throughput: 73.58 Mbit/s
95th percentile per-packet one-way delay: 120.200 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 2.90 Mbit/s
95th percentile per-packet one-way delay: 112.495 ms
Loss rate: 85.93%
```
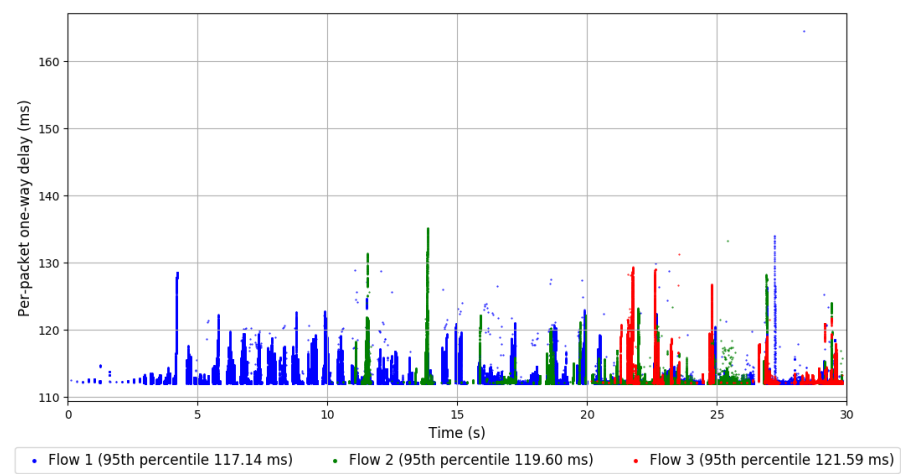
Run 5: Report of Verus — Data Link

```
Run 6: Statistics of Verus

Start at: 2017-08-12 03:55:48
End at: 2017-08-12 03:56:18


# Below is generated by plot.py at 2017-08-12 06:25:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 115.81 Mbit/s
95th percentile per-packet one-way delay: 117.983 ms
Loss rate: 22.77%
-- Flow 1:
Average throughput: 83.71 Mbit/s
95th percentile per-packet one-way delay: 117.138 ms
Loss rate: 28.84%
-- Flow 2:
Average throughput: 33.90 Mbit/s
95th percentile per-packet one-way delay: 119.597 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 29.71 Mbit/s
95th percentile per-packet one-way delay: 121.592 ms
Loss rate: 0.52%
```
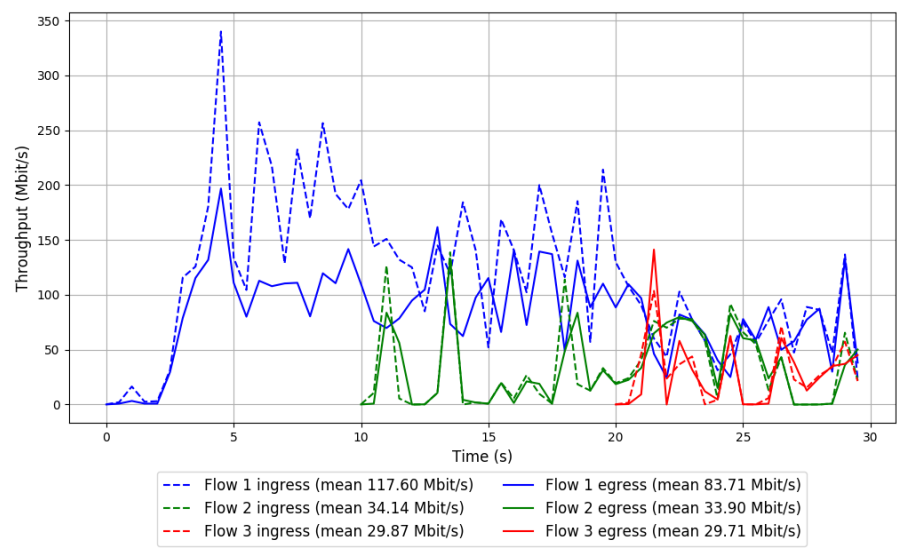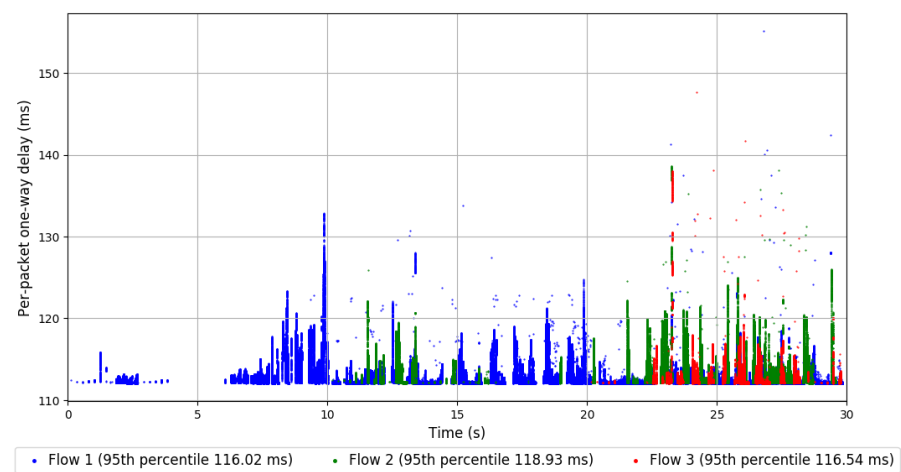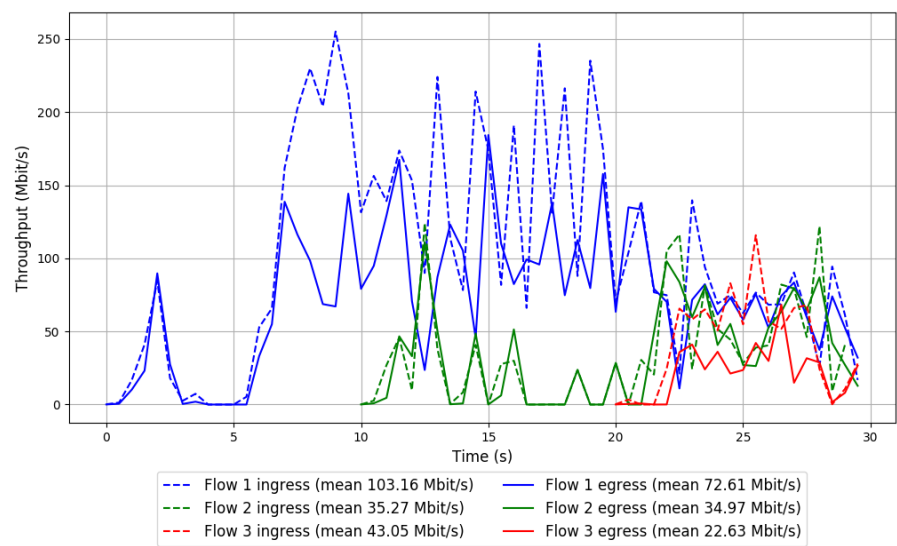
Run 6: Report of Verus — Data Link

Flow 1 ingress (mean 117.60 Mbit/s) — — — Flow 1 egress (mean 83.71 Mbit/s)
Flow 2 ingress (mean 34.14 Mbit/s) — — — Flow 2 egress (mean 33.90 Mbit/s)
Flow 3 ingress (mean 29.87 Mbit/s) — — — Flow 3 egress (mean 29.71 Mbit/s)

Flow 1 (95th percentile 117.14 ms) Flow 2 (95th percentile 119.60 ms) Flow 3 (95th percentile 121.59 ms)

275

```
Run 7: Statistics of Verus

Start at: 2017-08-12 04:09:11
End at: 2017-08-12 04:09:41


# Below is generated by plot.py at 2017-08-12 06:25:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 102.74 Mbit/s
95th percentile per-packet one-way delay: 116.992 ms
Loss rate: 26.67%
-- Flow 1:
Average throughput: 72.61 Mbit/s
95th percentile per-packet one-way delay: 116.020 ms
Loss rate: 29.62%
-- Flow 2:
Average throughput: 34.97 Mbit/s
95th percentile per-packet one-way delay: 118.932 ms
Loss rate: 0.87%
-- Flow 3:
Average throughput: 22.63 Mbit/s
95th percentile per-packet one-way delay: 116.537 ms
Loss rate: 47.44%
```
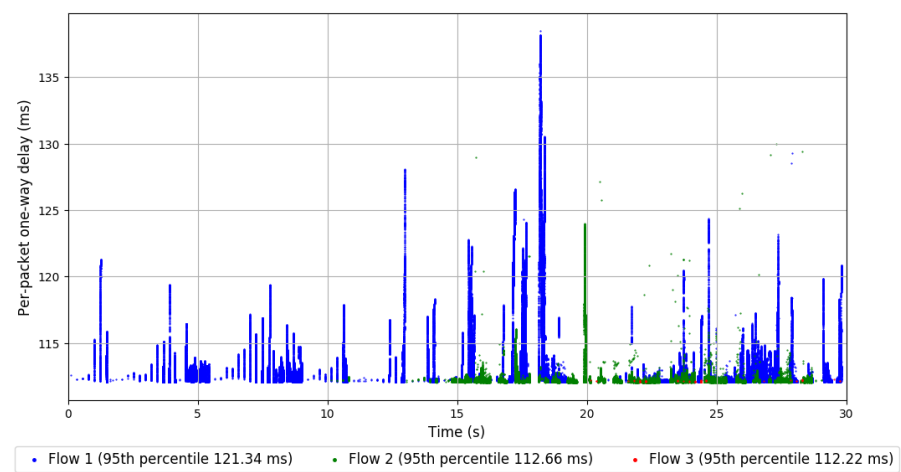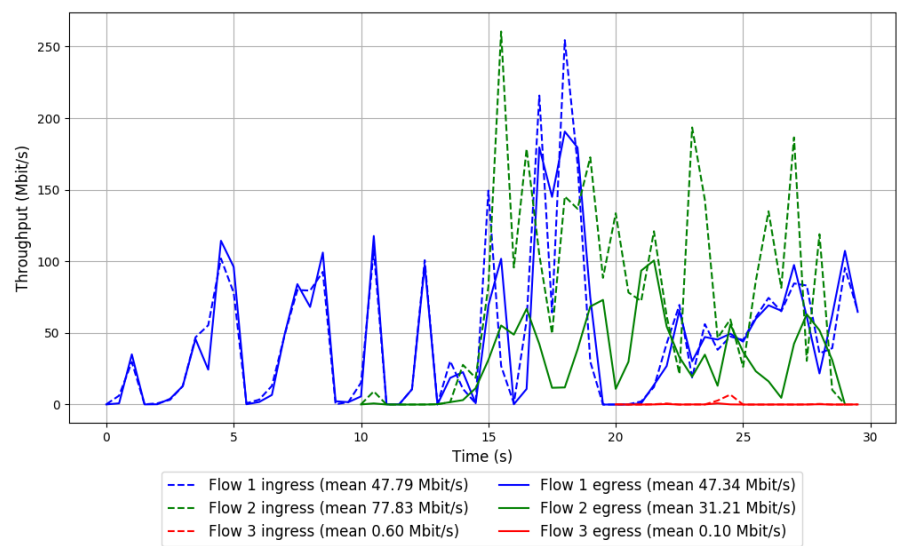
Run 7: Report of Verus — Data Link

```
Run 8: Statistics of Verus

Start at: 2017-08-12 04:22:07
End at: 2017-08-12 04:22:37


# Below is generated by plot.py at 2017-08-12 06:25:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.24 Mbit/s
95th percentile per-packet one-way delay: 119.975 ms
Loss rate: 31.47%
-- Flow 1:
Average throughput: 47.34 Mbit/s
95th percentile per-packet one-way delay: 121.340 ms
Loss rate: 0.93%
-- Flow 2:
Average throughput: 31.21 Mbit/s
95th percentile per-packet one-way delay: 112.660 ms
Loss rate: 60.37%
-- Flow 3:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 112.225 ms
Loss rate: 83.88%
```
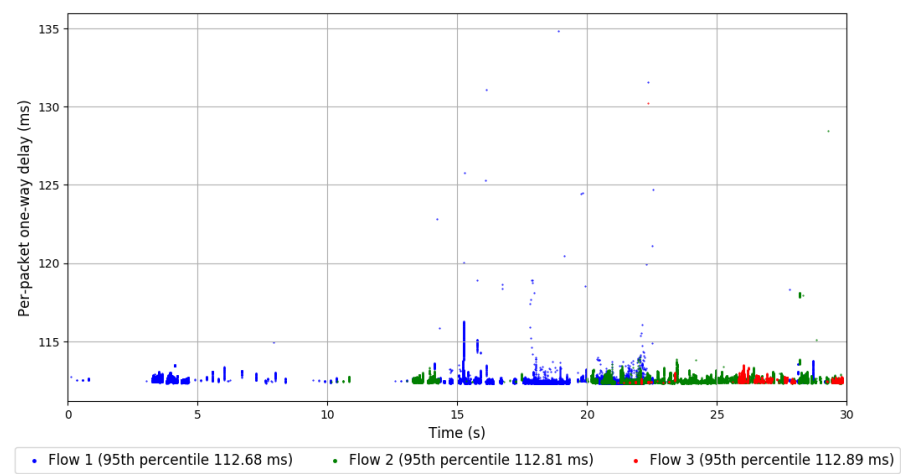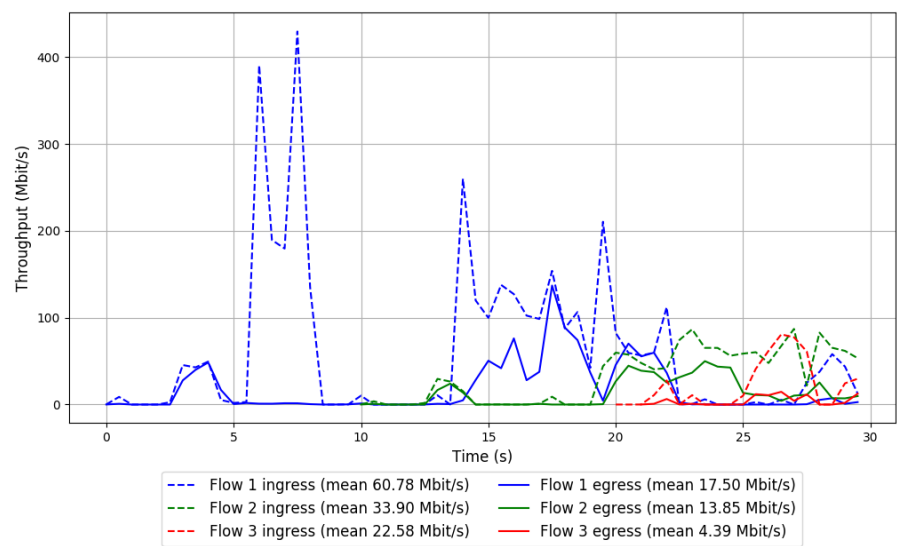
Run 8: Report of Verus — Data Link

- Flow 1 ingress (mean 47.79 Mbit/s)
- Flow 1 egress (mean 47.34 Mbit/s)
- Flow 2 ingress (mean 77.83 Mbit/s)
- Flow 2 egress (mean 31.21 Mbit/s)
- Flow 3 ingress (mean 0.60 Mbit/s)
- Flow 3 egress (mean 0.10 Mbit/s)

- Flow 1 (95th percentile 121.34 ms)
- Flow 2 (95th percentile 112.66 ms)
- Flow 3 (95th percentile 112.22 ms)

279

```
Run 9: Statistics of Verus

Start at: 2017-08-12 04:35:07
End at: 2017-08-12 04:35:37


# Below is generated by plot.py at 2017-08-12 06:25:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 27.93 Mbit/s
95th percentile per-packet one-way delay: 112.752 ms
Loss rate: 69.14%
-- Flow 1:
Average throughput: 17.50 Mbit/s
95th percentile per-packet one-way delay: 112.684 ms
Loss rate: 71.20%
-- Flow 2:
Average throughput: 13.85 Mbit/s
95th percentile per-packet one-way delay: 112.813 ms
Loss rate: 59.16%
-- Flow 3:
Average throughput: 4.39 Mbit/s
95th percentile per-packet one-way delay: 112.887 ms
Loss rate: 82.58%
```
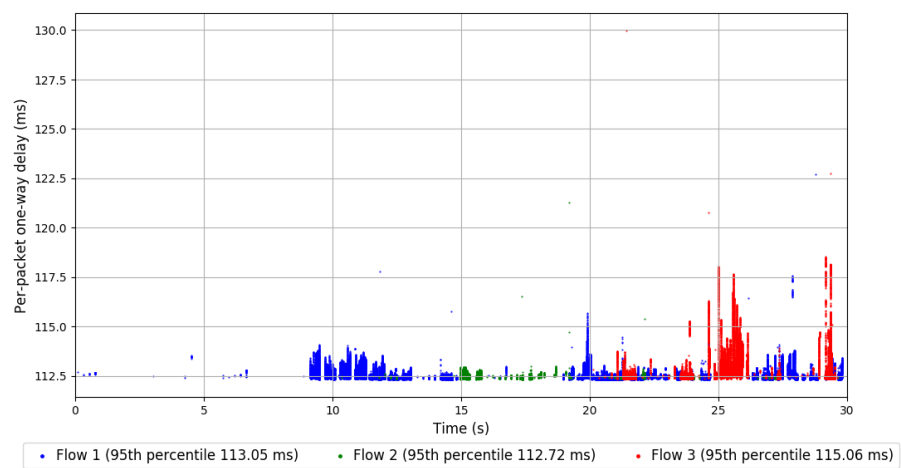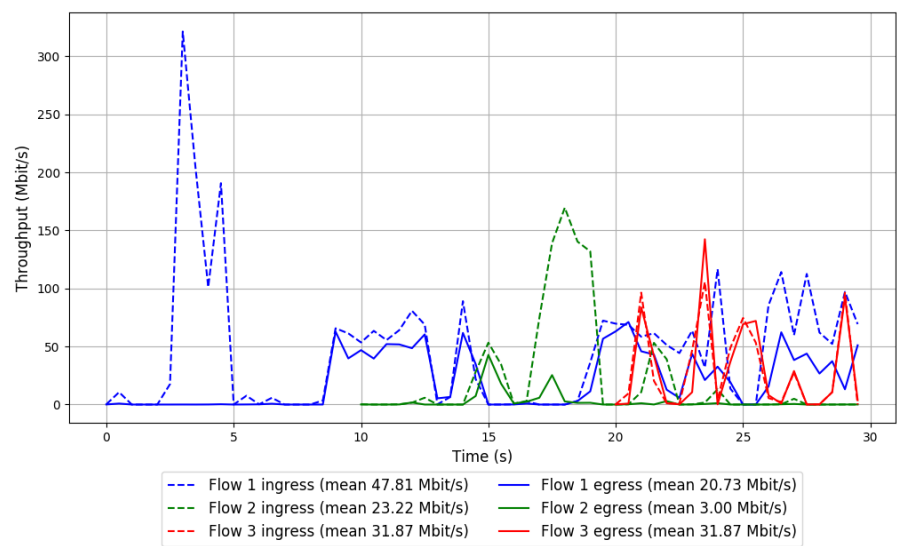
Run 9: Report of Verus — Data Link

```
Run 10: Statistics of Verus

Start at: 2017-08-12 04:48:22
End at: 2017-08-12 04:48:52


# Below is generated by plot.py at 2017-08-12 06:26:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 32.86 Mbit/s
95th percentile per-packet one-way delay: 113.539 ms
Loss rate: 55.13%
-- Flow 1:
Average throughput: 20.73 Mbit/s
95th percentile per-packet one-way delay: 113.054 ms
Loss rate: 56.66%
-- Flow 2:
Average throughput: 3.00 Mbit/s
95th percentile per-packet one-way delay: 112.725 ms
Loss rate: 87.08%
-- Flow 3:
Average throughput: 31.87 Mbit/s
95th percentile per-packet one-way delay: 115.062 ms
Loss rate: 0.02%
```

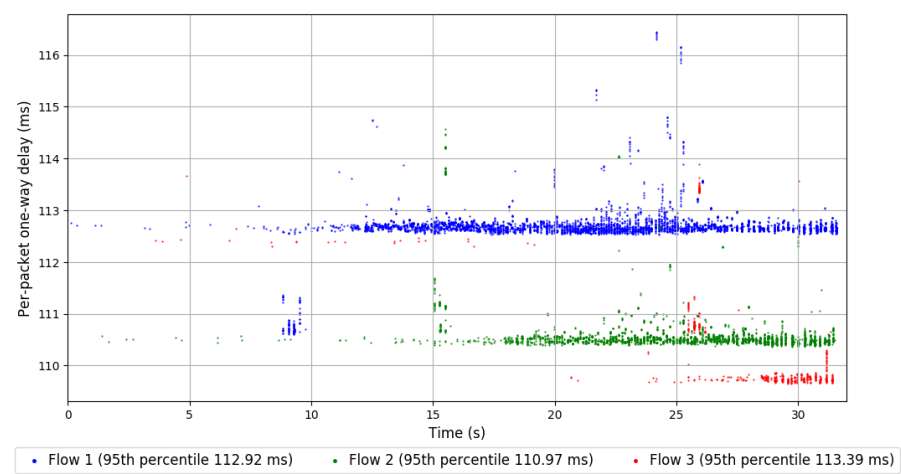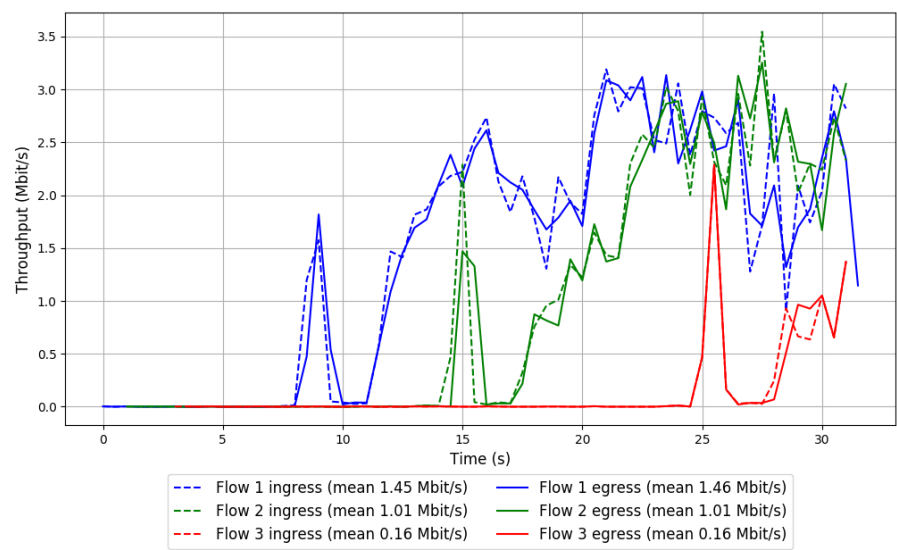## Run 10: Report of Verus — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2017-08-12 02:54:22
End at: 2017-08-12 02:54:52


# Below is generated by plot.py at 2017-08-12 06:26:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.56 Mbit/s
95th percentile per-packet one-way delay: 112.832 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 112.920 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 110.965 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 113.385 ms
Loss rate: 0.00%
```

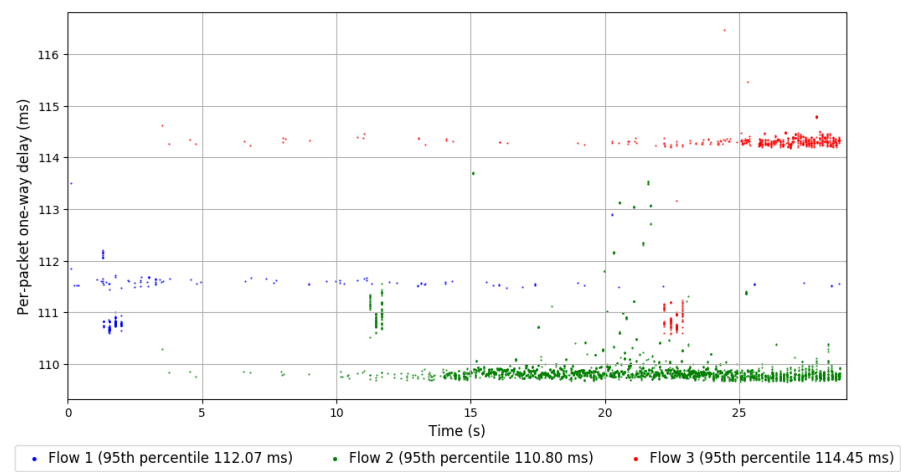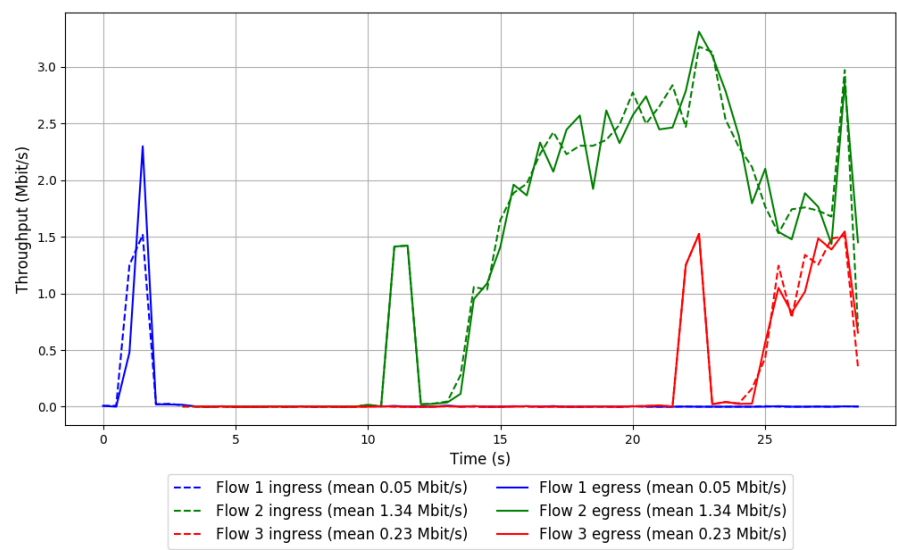Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.45 Mbit/s) — Flow 1 egress (mean 1.46 Mbit/s)
Flow 2 ingress (mean 1.01 Mbit/s) — Flow 2 egress (mean 1.01 Mbit/s)
Flow 3 ingress (mean 0.16 Mbit/s) — Flow 3 egress (mean 0.16 Mbit/s)

Flow 1 (95th percentile 112.92 ms)   Flow 2 (95th percentile 110.97 ms)   Flow 3 (95th percentile 113.39 ms)

```
Run 2: Statistics of WebRTC media

Start at: 2017-08-12 03:07:30
End at: 2017-08-12 03:08:00


# Below is generated by plot.py at 2017-08-12 06:26:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 114.323 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.066 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 110.802 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 114.455 ms
Loss rate: 0.00%
```
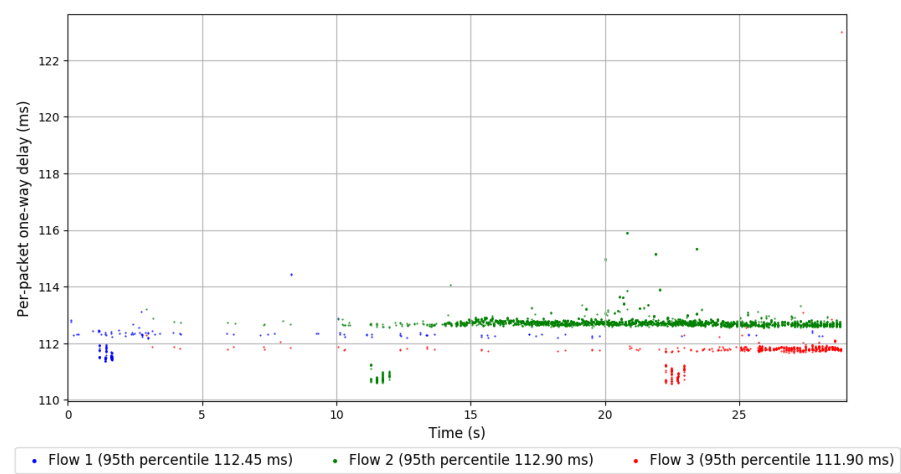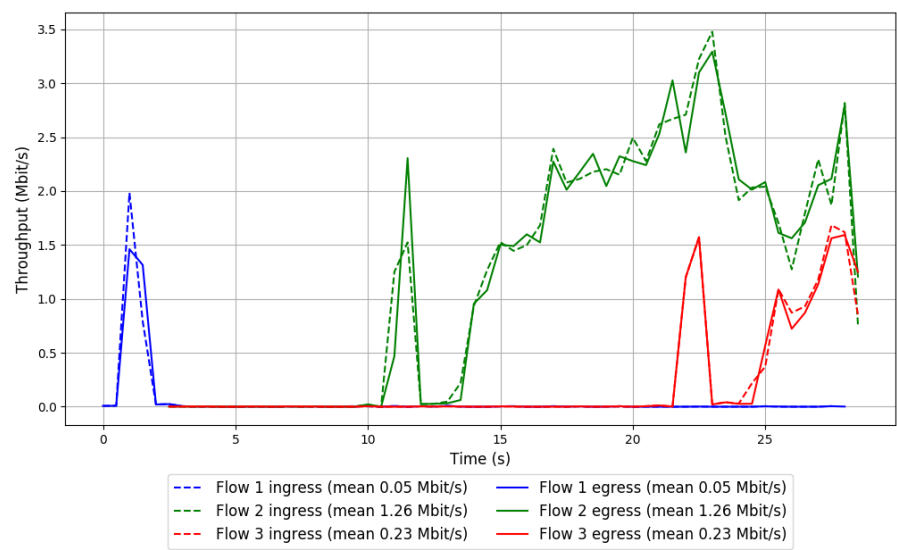
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2017-08-12 03:20:40
End at: 2017-08-12 03:21:10


# Below is generated by plot.py at 2017-08-12 06:26:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 112.872 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.451 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 112.898 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 111.900 ms
Loss rate: 0.00%
```
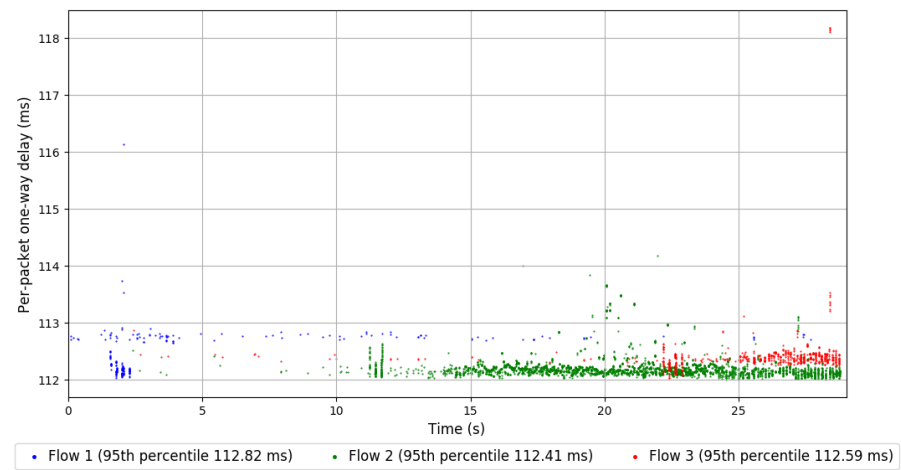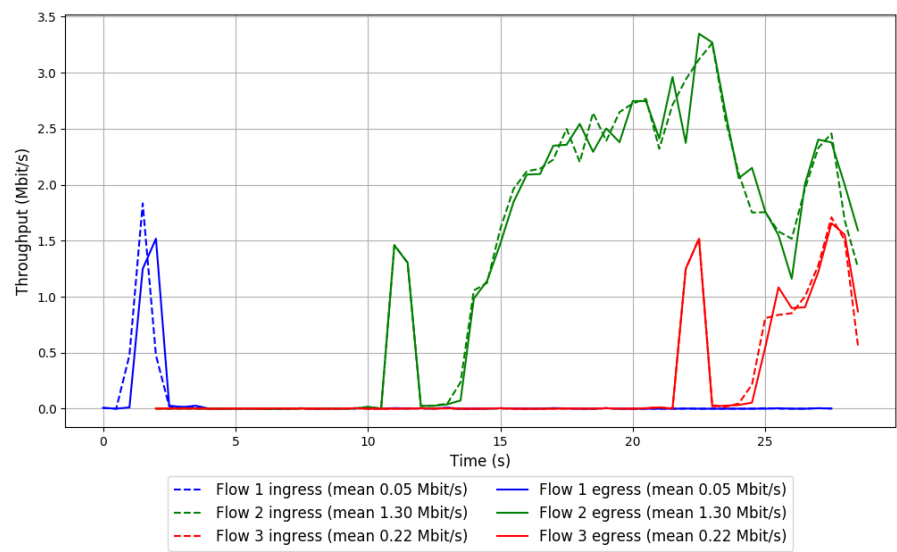
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2017-08-12 03:33:59
End at: 2017-08-12 03:34:29


# Below is generated by plot.py at 2017-08-12 06:26:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 112.654 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.819 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 112.412 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.592 ms
Loss rate: 0.00%
```
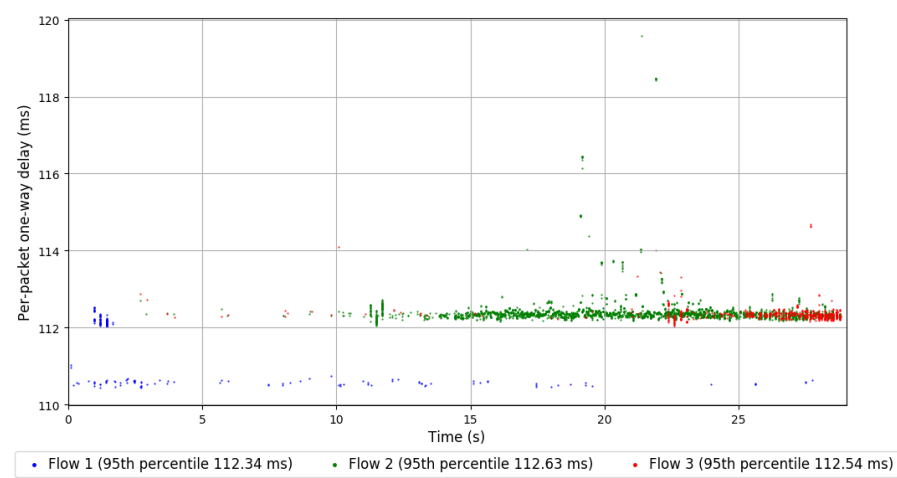
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2017-08-12 03:46:31
End at: 2017-08-12 03:47:01


# Below is generated by plot.py at 2017-08-12 06:26:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 112.600 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.345 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 112.630 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 112.539 ms
Loss rate: 0.00%
```
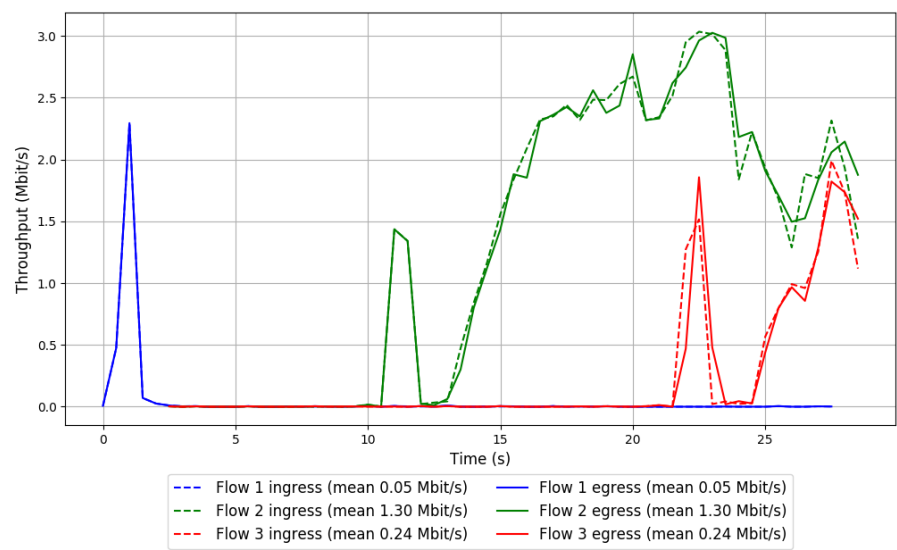
Run 5: Report of WebRTC media — Data Link

```
Run 6: Statistics of WebRTC media

Start at: 2017-08-12 03:59:34
End at: 2017-08-12 04:00:04

# Below is generated by plot.py at 2017-08-12 06:26:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 112.642 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.467 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 112.680 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 112.628 ms
Loss rate: 0.00%
```
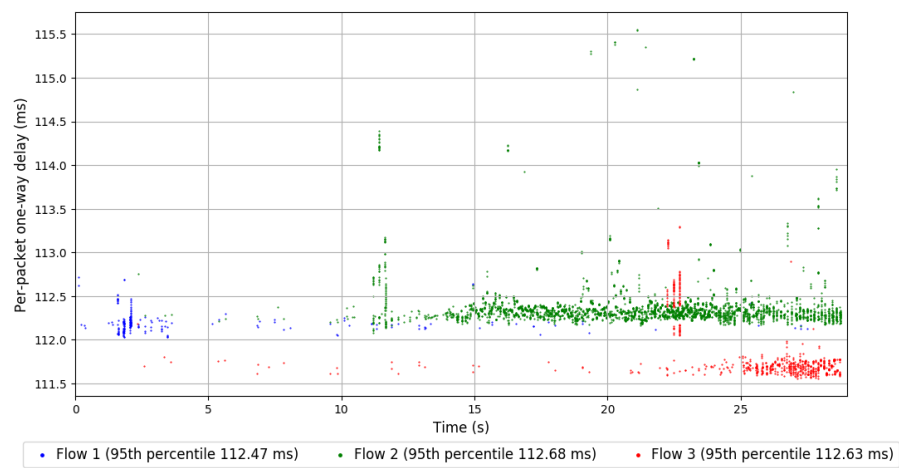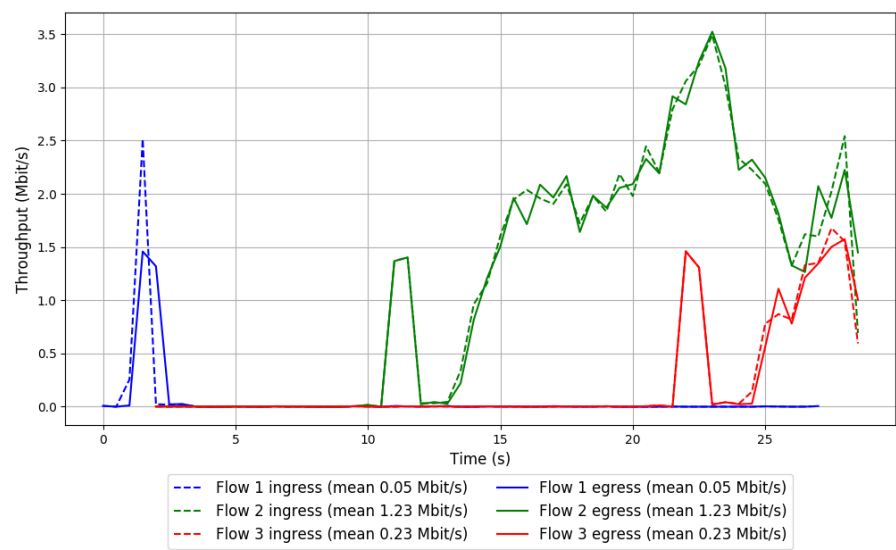
Run 6: Report of WebRTC media — Data Link

```
Run 7: Statistics of WebRTC media

Start at: 2017-08-12 04:12:53
End at: 2017-08-12 04:13:23


# Below is generated by plot.py at 2017-08-12 06:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 112.578 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.576 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 112.561 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 112.602 ms
Loss rate: 0.00%
```
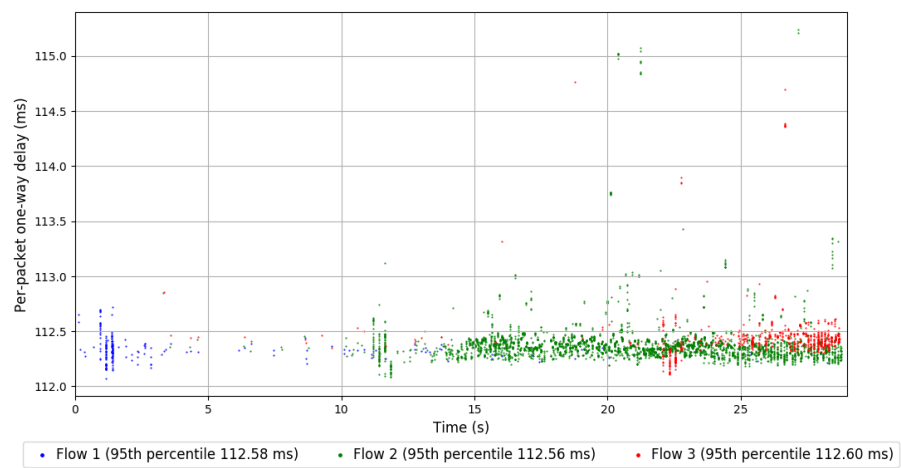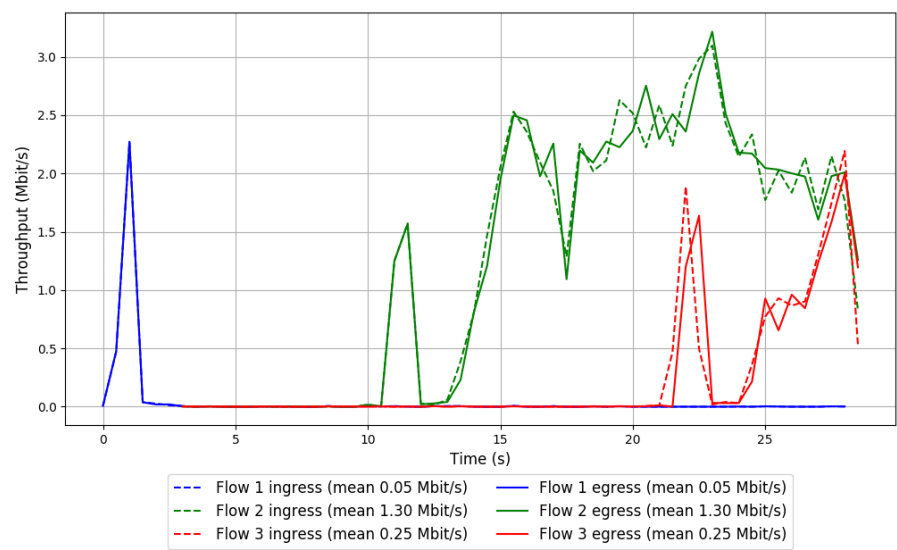
Run 7: Report of WebRTC media — Data Link

```
Run 8: Statistics of WebRTC media

Start at: 2017-08-12 04:25:44
End at: 2017-08-12 04:26:14


# Below is generated by plot.py at 2017-08-12 06:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 112.234 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.434 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 111.714 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 112.621 ms
Loss rate: 0.00%
```
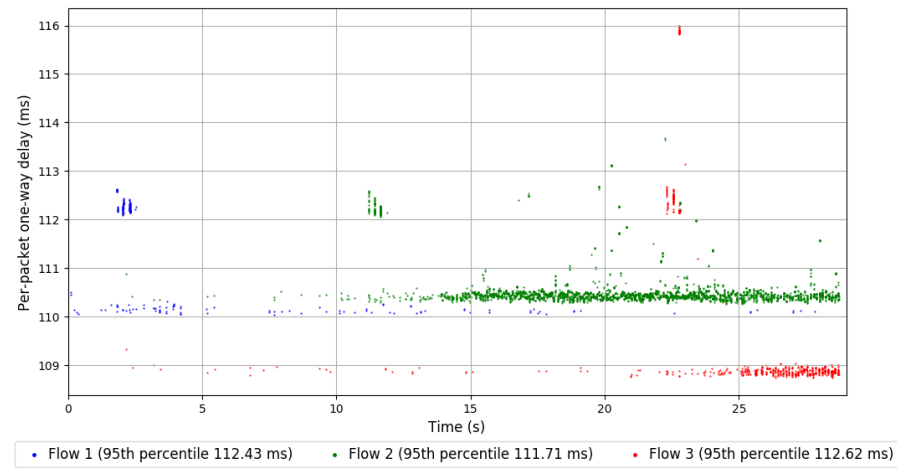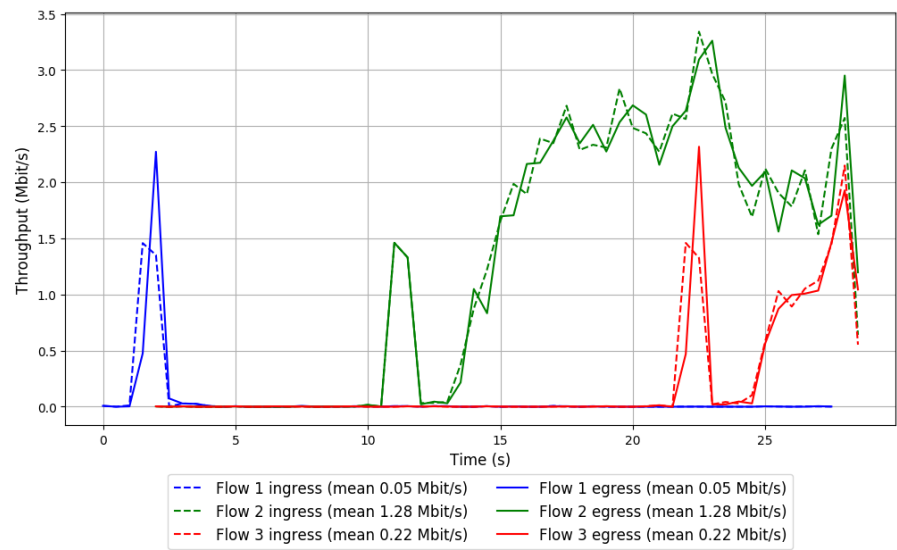
Run 8: Report of WebRTC media — Data Link

```
Run 9: Statistics of WebRTC media

Start at: 2017-08-12 04:38:47
End at: 2017-08-12 04:39:17


# Below is generated by plot.py at 2017-08-12 06:26:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 112.674 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.875 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 109.990 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 113.332 ms
Loss rate: 0.00%
```
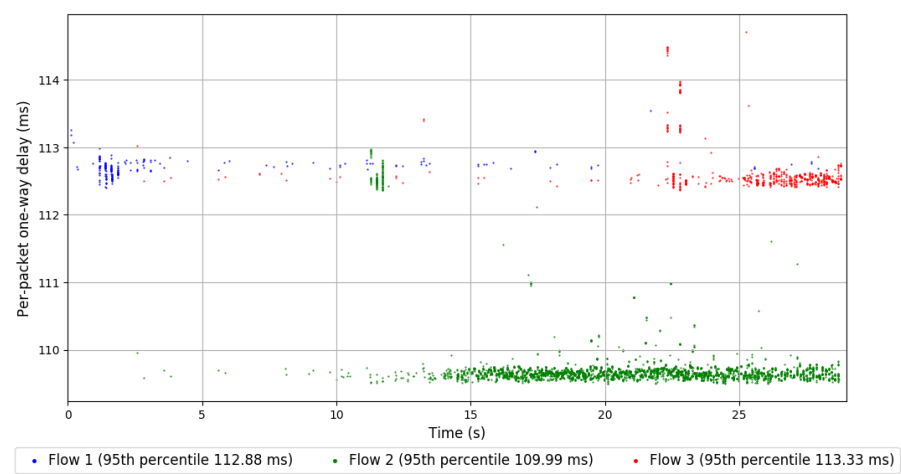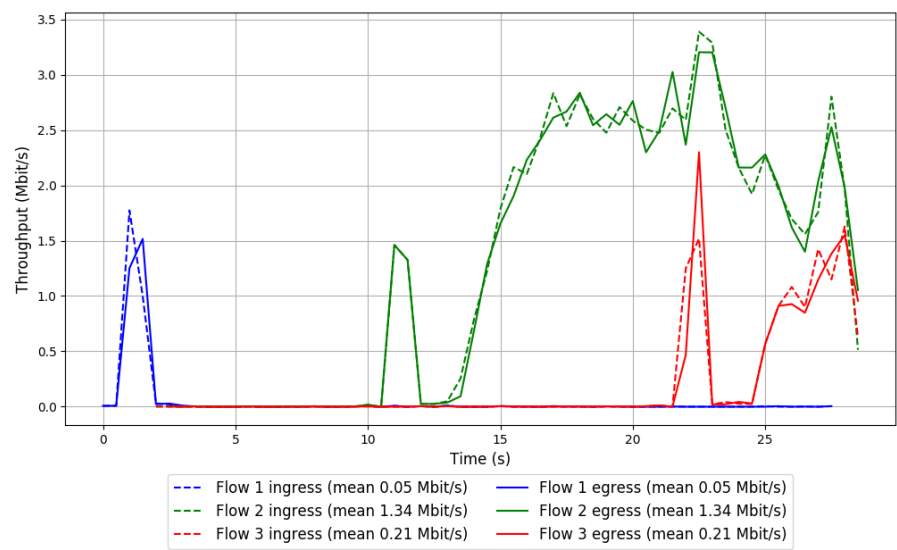
Run 9: Report of WebRTC media — Data Link

```
Run 10: Statistics of WebRTC media

Start at: 2017-08-12 04:51:43
End at: 2017-08-12 04:52:13


# Below is generated by plot.py at 2017-08-12 06:26:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 112.737 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 112.861 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 112.646 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 112.984 ms
Loss rate: 0.00%
```

Run 10: Report of WebRTC media — Data Link