Pantheon Report

Generated at 2017-08-21 01:32:23 (UTC).

Data path: China ppp0 (*remote*) →AWS Korea Ethernet (*local*).

Repeated the test of 15 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

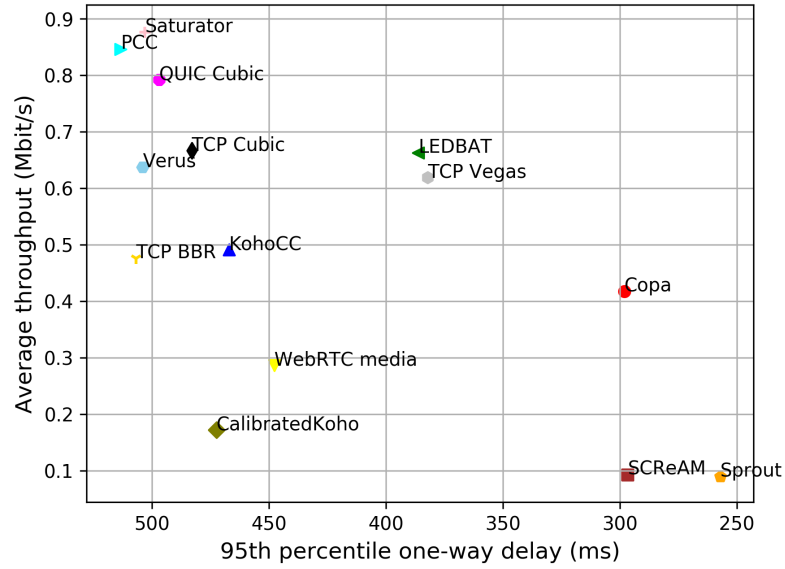Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

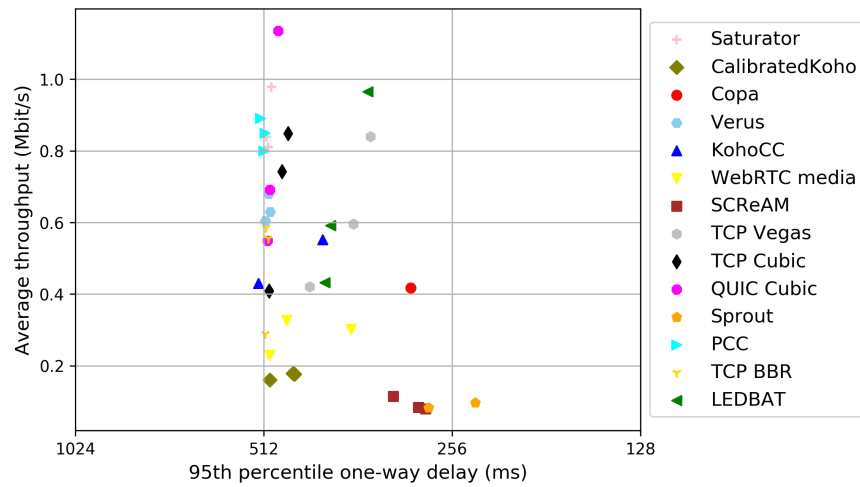NTP offsets were measured against `ntp.nict.jp` and have been applied to correct the timestamps in logs.

```
Git summary:
branch: master @ e43be7582298d552838afcf6382342bf187fbbd6
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/genericCC @ dae96123232f1bcb37725348fa2378691ce26725
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
 M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-stimuli @ fc73a85ca16c34366d1888dc8a0d0d88d4ebf2a7
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
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 China ppp0 to AWS Korea Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)

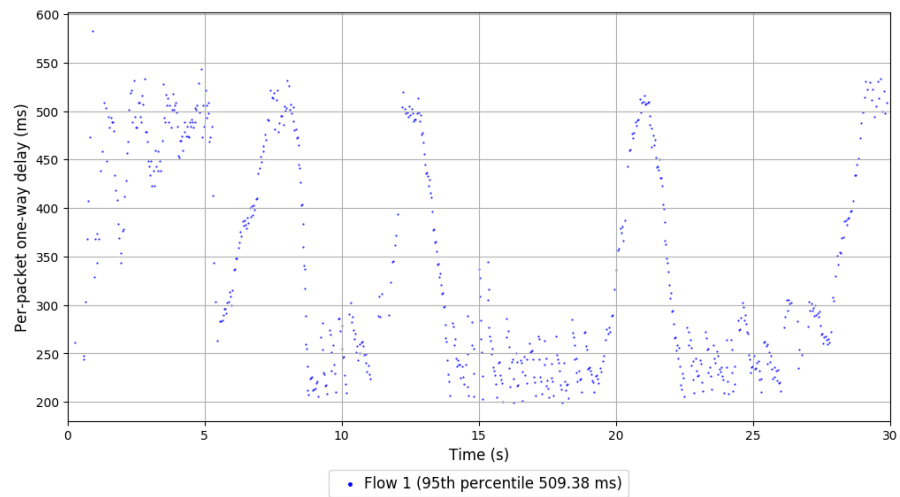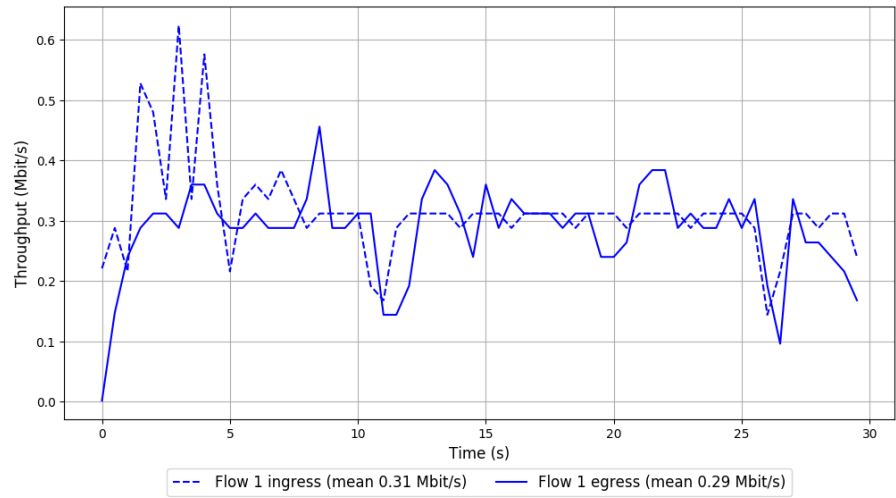test from China ppp0 to AWS Korea Ethernet, 3 runs of 30s each per scheme

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	0.48	506.93	15.51
CalibratedKoho	3	0.17	472.49	5.13
Copa	1	0.42	298.09	0.93
TCP Cubic	3	0.67	483.09	5.07
KohoCC	2	0.49	467.19	37.25
LEDBAT	3	0.66	386.16	1.99
PCC	3	0.85	513.40	89.04
QUIC Cubic	3	0.79	496.94	9.88
Saturator	3	0.88	503.11	50.22
SCReAM	3	0.09	296.75	1.60
Sprout	2	0.09	257.20	4.13
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	3	0.62	382.17	2.22
Verus	3	0.64	504.05	38.42
WebRTC media	3	0.29	447.79	7.22

```
Run 1: Statistics of TCP BBR

Start at: 2017-08-20 23:48:31
End at: 2017-08-20 23:49:01
Local clock offset: 2.288 ms
Remote clock offset: -0.731 ms


# Below is generated by plot.py at 2017-08-21 01:31:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 509.377 ms
Loss rate: 9.30%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 509.377 ms
Loss rate: 9.30%
```

Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2017-08-21 00:07:26
End at: 2017-08-21 00:07:56
Local clock offset: 1.921 ms
Remote clock offset: -0.648 ms


# Below is generated by plot.py at 2017-08-21 01:31:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 503.346 ms
Loss rate: 18.09%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 503.346 ms
Loss rate: 18.09%
```
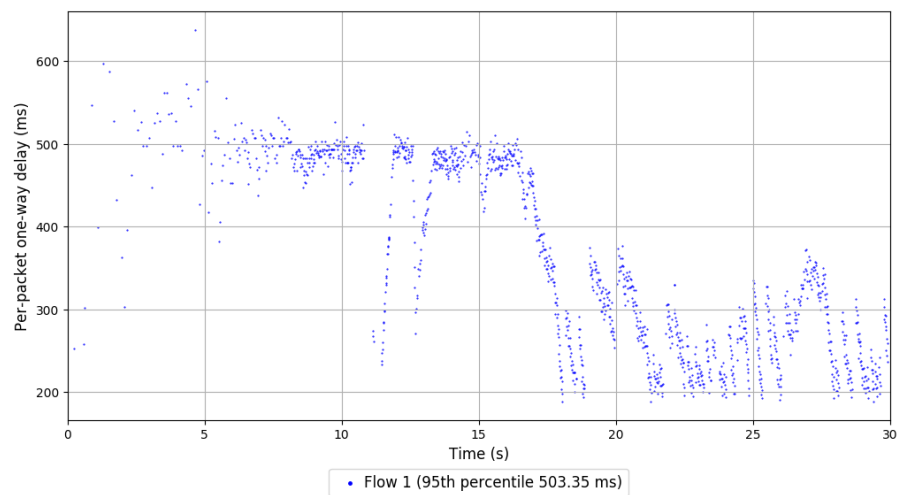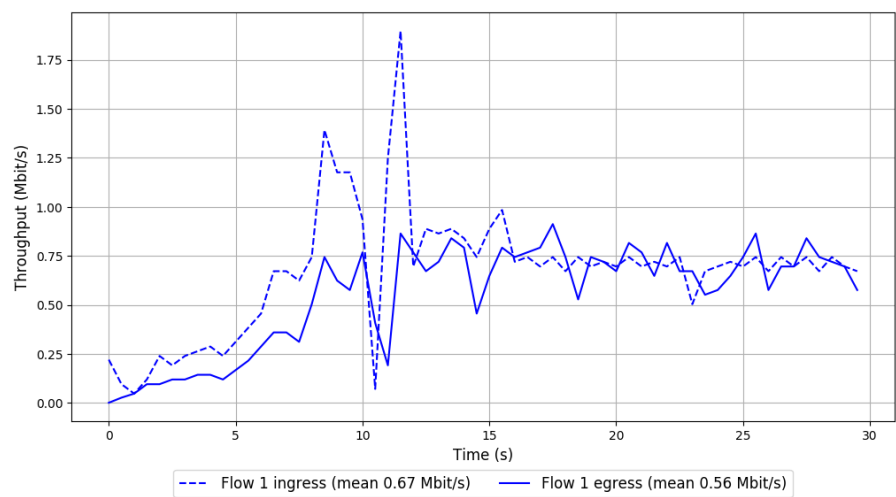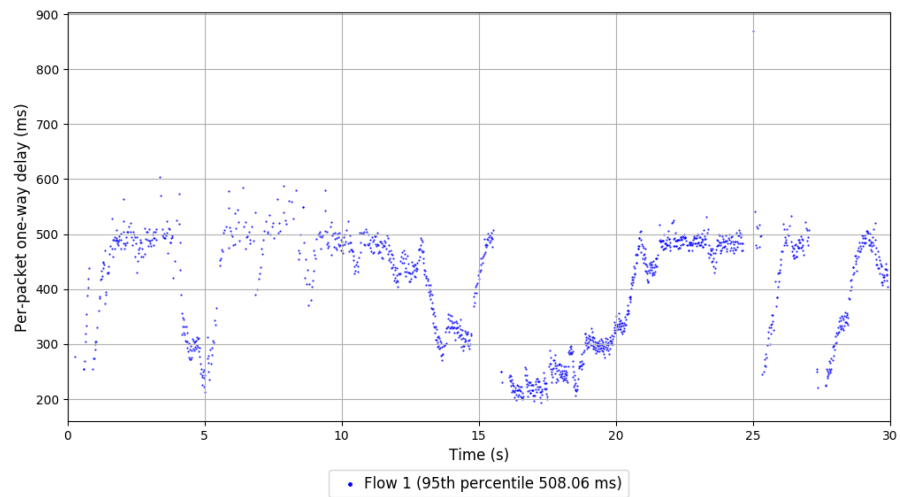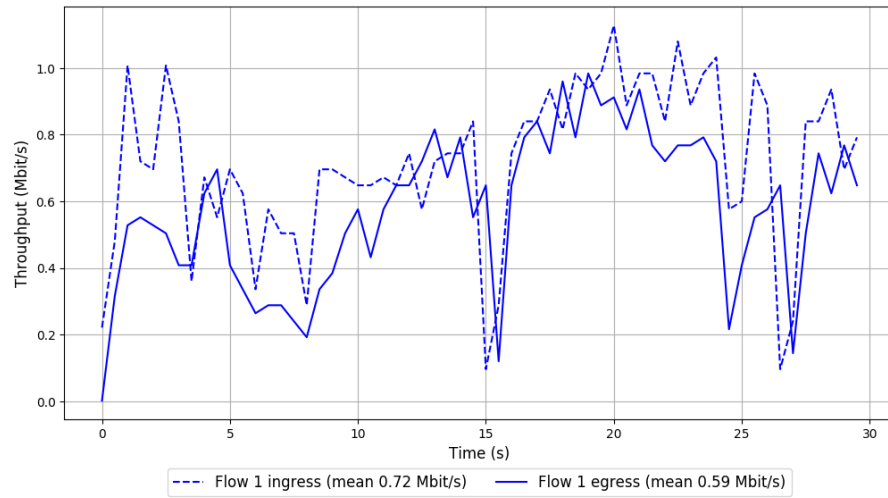
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 0.67 Mbit/s) ---- Flow 1 egress (mean 0.56 Mbit/s) ——

Flow 1 (95th percentile 503.35 ms)

```
Run 3: Statistics of TCP BBR

Start at: 2017-08-21 00:26:15
End at: 2017-08-21 00:26:45
Local clock offset: 1.982 ms
Remote clock offset: -0.516 ms


# Below is generated by plot.py at 2017-08-21 01:31:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 508.063 ms
Loss rate: 19.14%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 508.063 ms
Loss rate: 19.14%
```

Run 3: Report of TCP BBR — Data Link

```
Run 1: Statistics of CalibratedKoho

Start at: 2017-08-20 23:54:48
End at: 2017-08-20 23:55:18
Local clock offset: 2.129 ms
Remote clock offset: -0.68 ms

# Below is generated by plot.py at 2017-08-21 01:31:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 457.035 ms
Loss rate: 3.33%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 457.035 ms
Loss rate: 3.33%
```
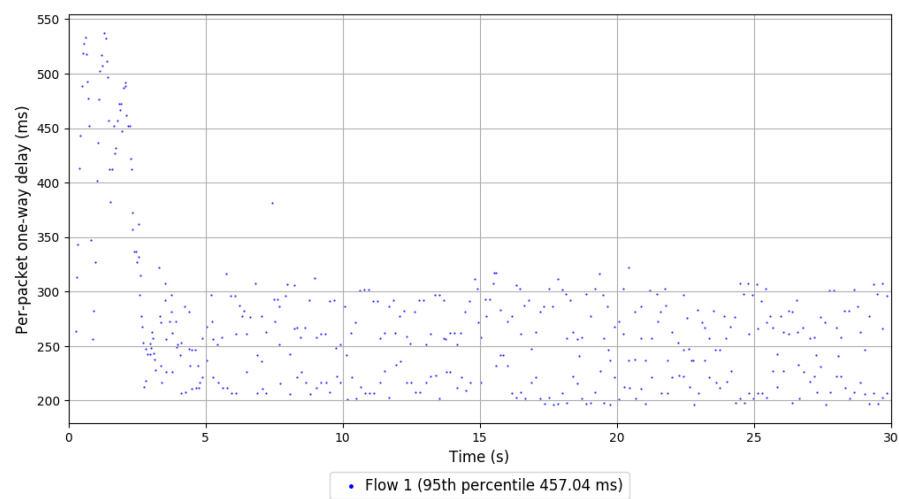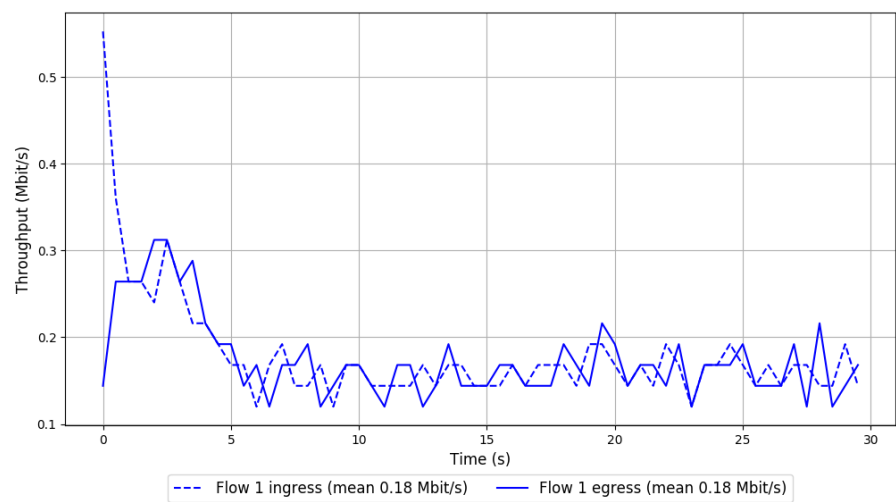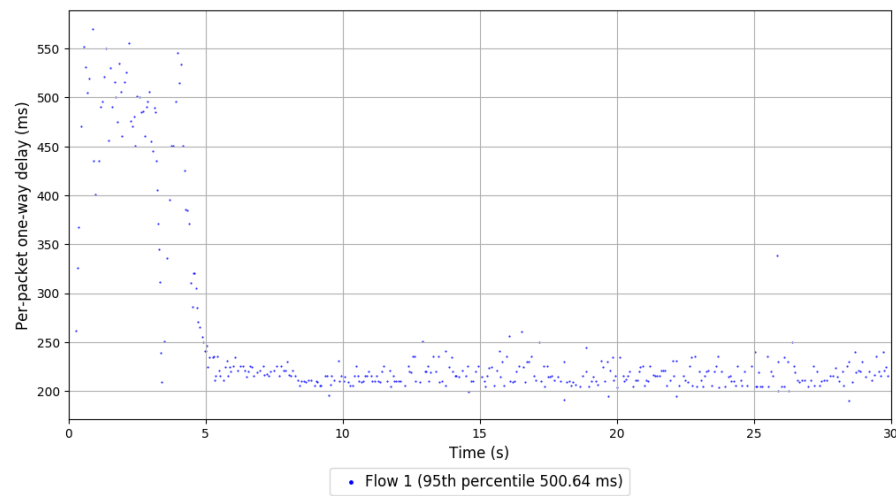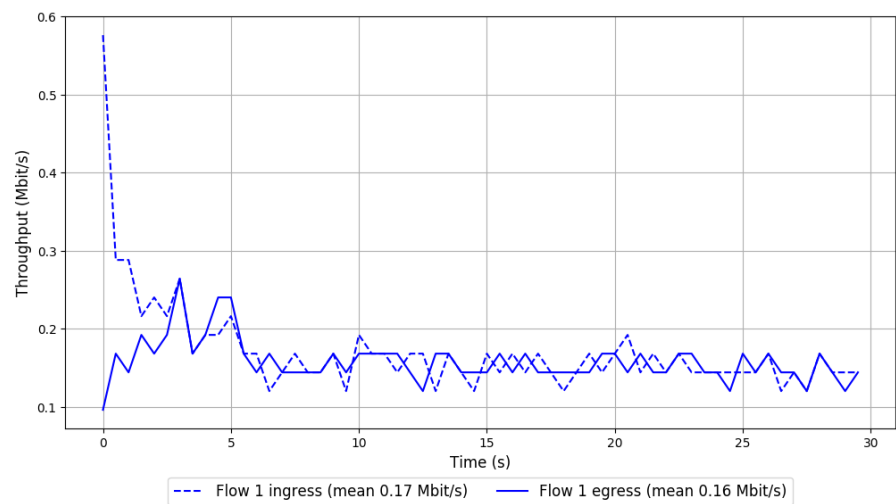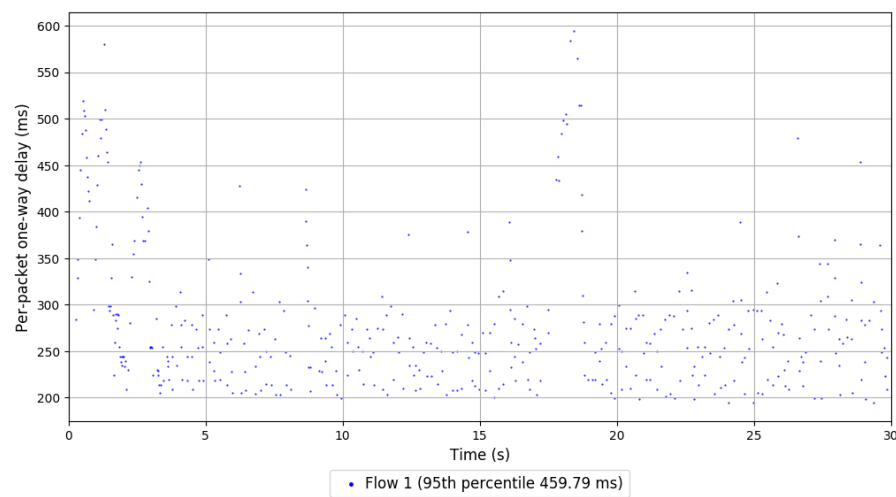
Run 1: Report of CalibratedKoho — Data Link

```
Run 2: Statistics of CalibratedKoho

Start at: 2017-08-21 00:13:42
End at: 2017-08-21 00:14:12
Local clock offset: 2.133 ms
Remote clock offset: -0.651 ms


# Below is generated by plot.py at 2017-08-21 01:31:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 500.640 ms
Loss rate: 7.71%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 500.640 ms
Loss rate: 7.71%
```

Run 2: Report of CalibratedKoho — Data Link

Flow 1 ingress (mean 0.17 Mbit/s) --- Flow 1 egress (mean 0.16 Mbit/s)
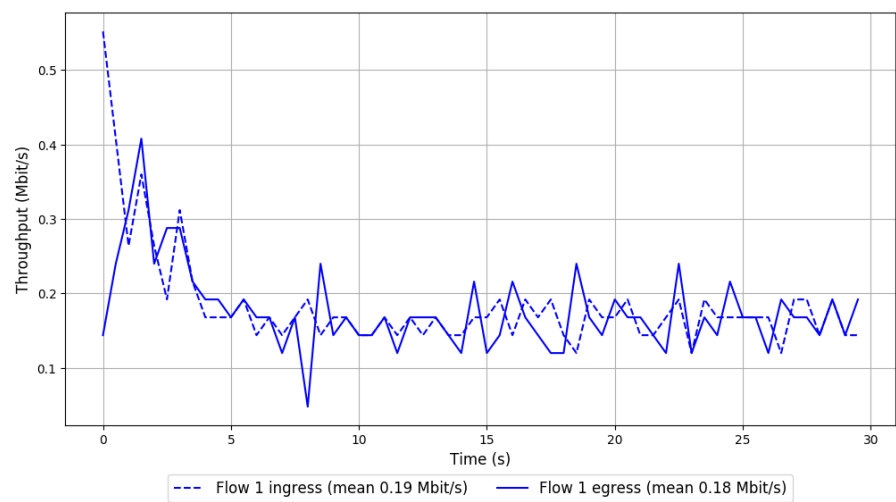

Flow 1 (95th percentile 500.64 ms)

```
Run 3: Statistics of CalibratedKoho

Start at: 2017-08-21 00:32:22
End at: 2017-08-21 00:32:52
Local clock offset: 1.767 ms
Remote clock offset: -0.516 ms


# Below is generated by plot.py at 2017-08-21 01:31:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 459.794 ms
Loss rate: 4.34%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 459.794 ms
Loss rate: 4.34%
```

Run 3: Report of CalibratedKoho — Data Link

```
Run 1: Statistics of Copa

Start at: 2017-08-20 23:45:57
End at: 2017-08-20 23:46:27
Local clock offset: 2.008 ms
Remote clock offset: -0.78 ms


# Below is generated by plot.py at 2017-08-21 01:31:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 298.092 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 298.092 ms
Loss rate: 0.93%
```
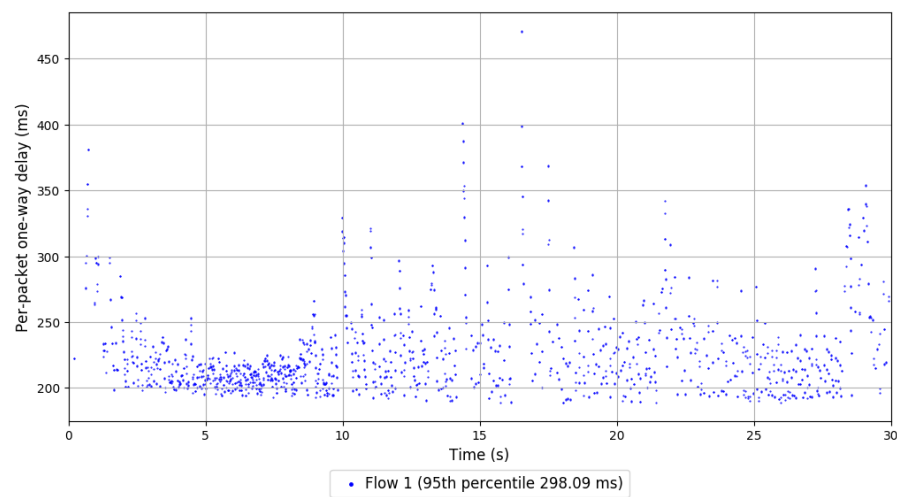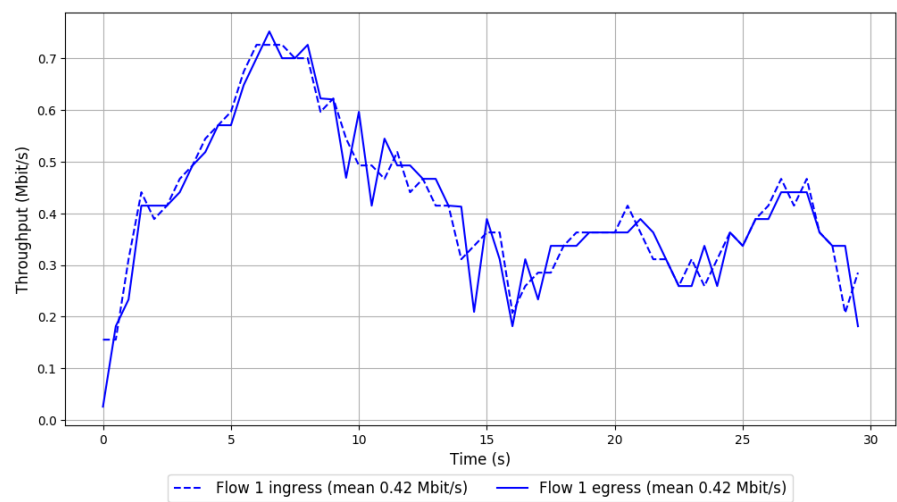
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 0.42 Mbit/s)   Flow 1 egress (mean 0.42 Mbit/s)

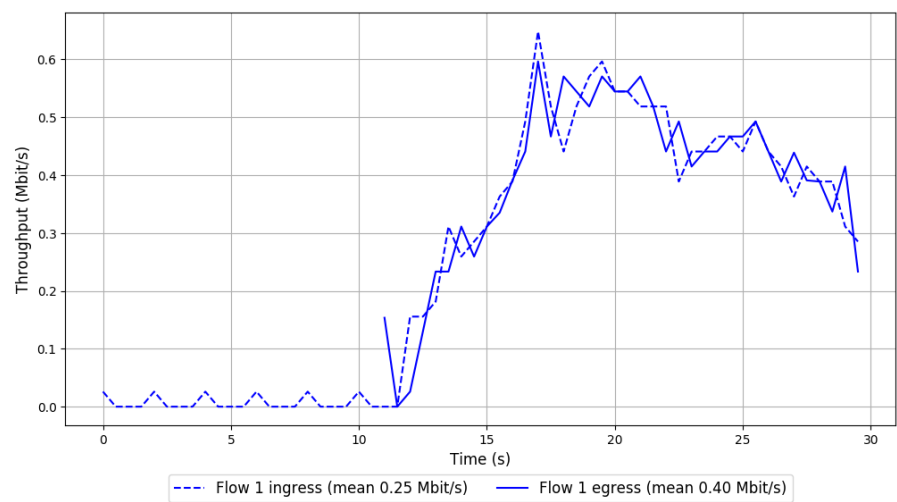Flow 1 (95th percentile 298.09 ms)

```
Run 2: Statistics of Copa

Start at: 2017-08-21 00:04:56
End at: 2017-08-21 00:05:26
Local clock offset: 2.233 ms
Remote clock offset: -0.58 ms
```
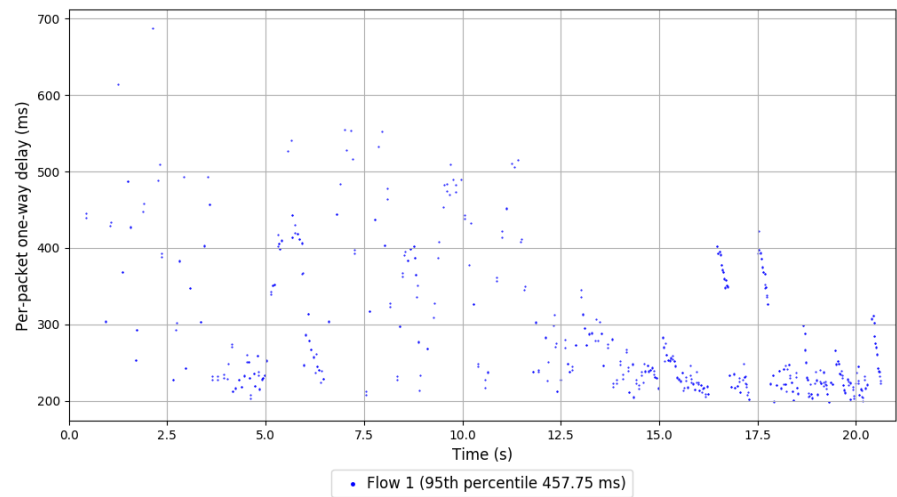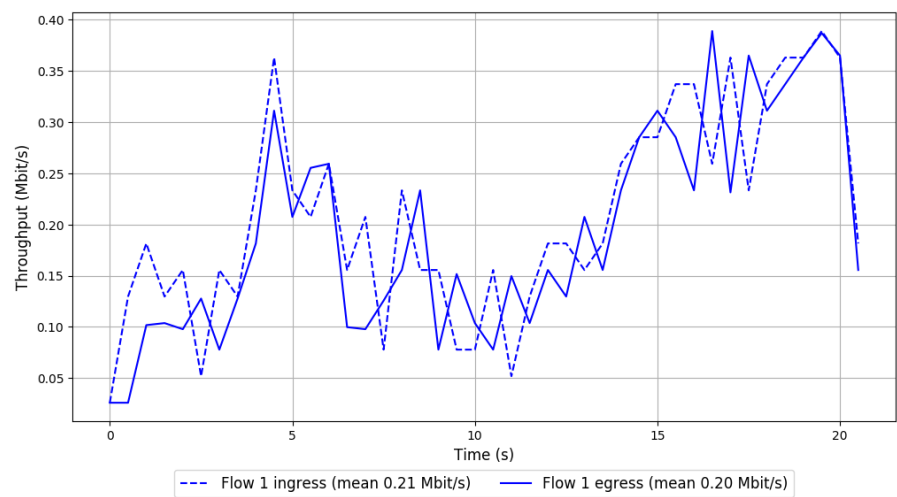
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 0.25 Mbit/s) --- Flow 1 egress (mean 0.40 Mbit/s)

Flow 1 (95th percentile 309.66 ms)

```
Run 3: Statistics of Copa

Start at: 2017-08-21 00:23:46
End at: 2017-08-21 00:24:16
Local clock offset: 1.862 ms
Remote clock offset: -0.553 ms
```
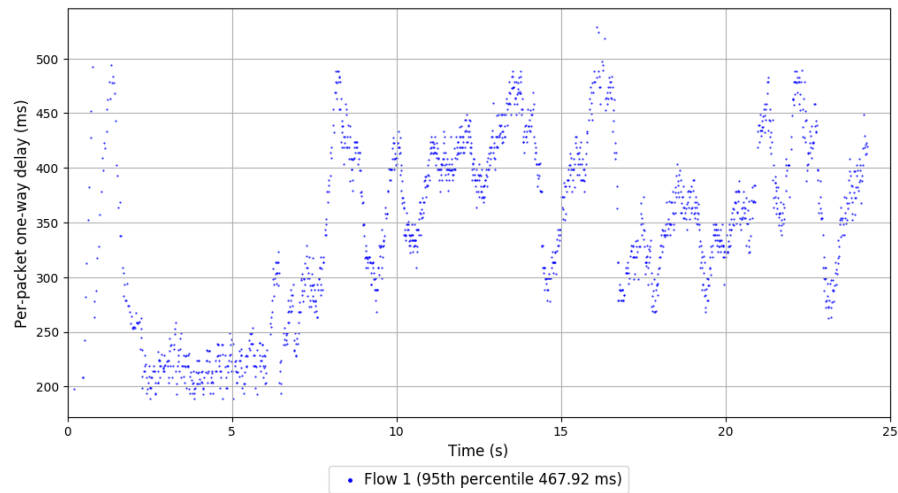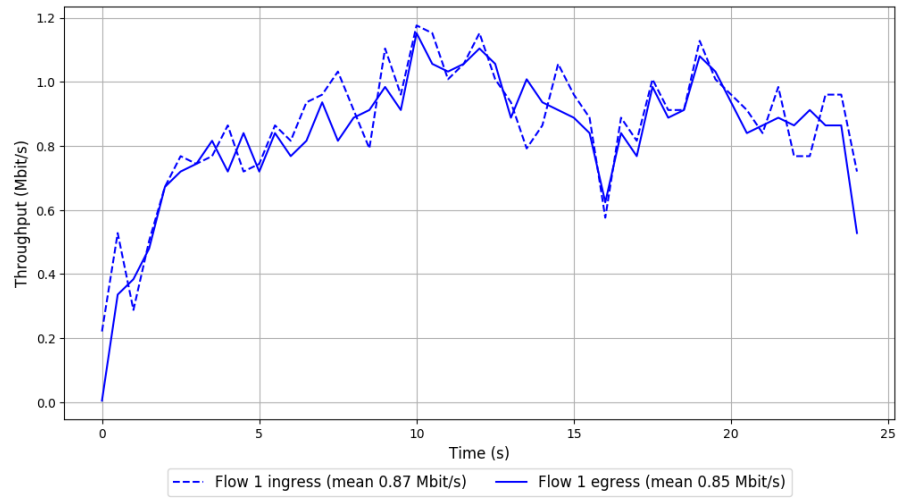
Run 3: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2017-08-20 23:47:14
End at: 2017-08-20 23:47:44
Local clock offset: 2.44 ms
Remote clock offset: -0.723 ms


# Below is generated by plot.py at 2017-08-21 01:32:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 467.920 ms
Loss rate: 3.40%
-- Flow 1:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 467.920 ms
Loss rate: 3.40%
```
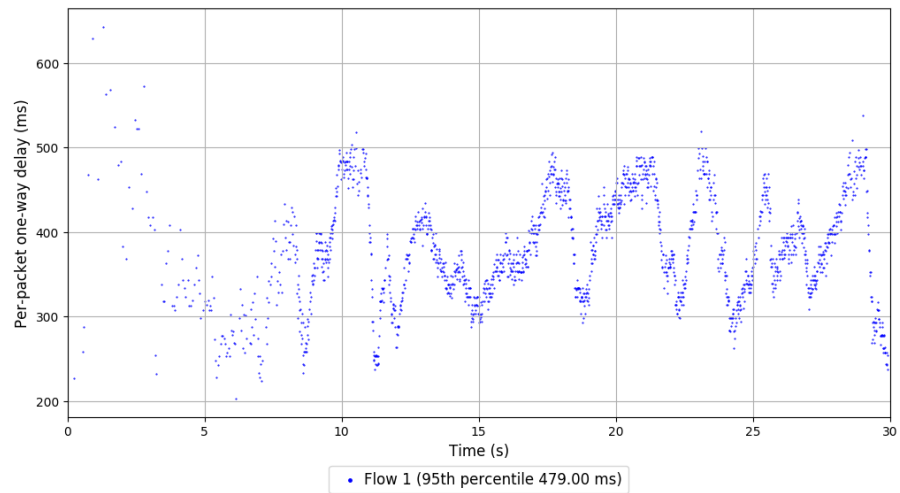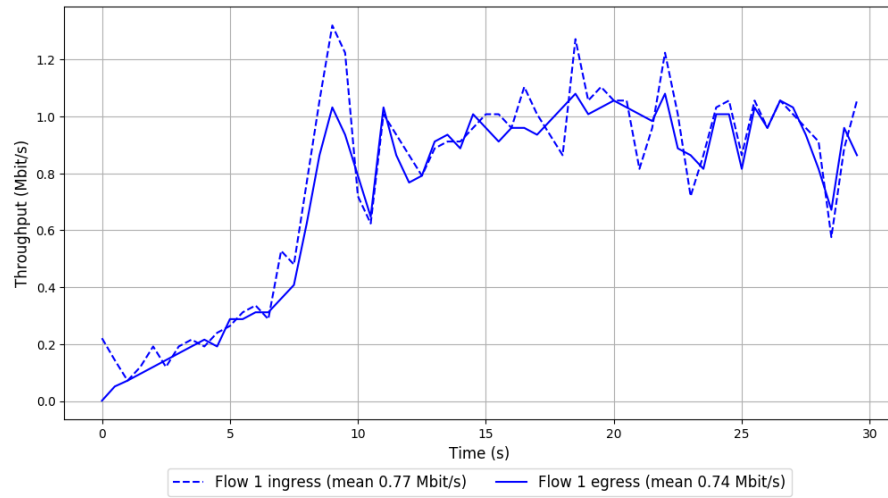
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2017-08-21 00:06:13
End at: 2017-08-21 00:06:43
Local clock offset: 2.291 ms
Remote clock offset: -0.664 ms


# Below is generated by plot.py at 2017-08-21 01:32:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 478.995 ms
Loss rate: 4.92%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 478.995 ms
Loss rate: 4.92%
```

Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 0.77 Mbit/s)   Flow 1 egress (mean 0.74 Mbit/s)

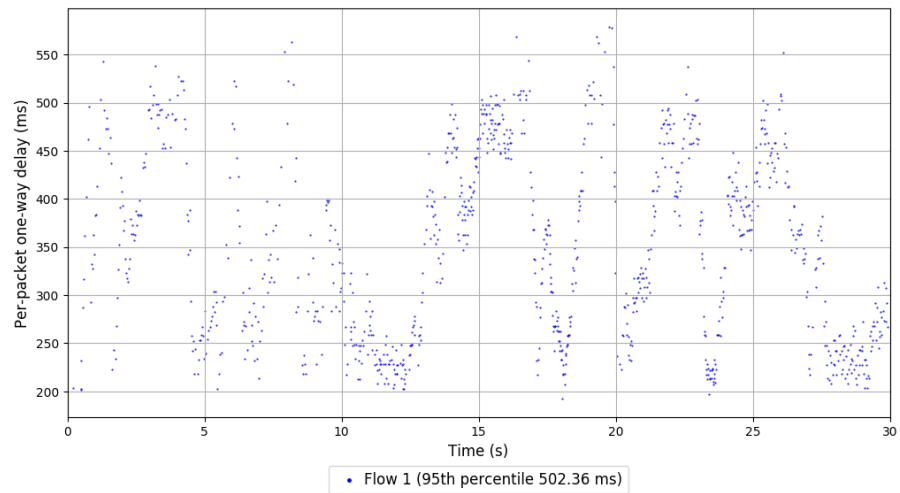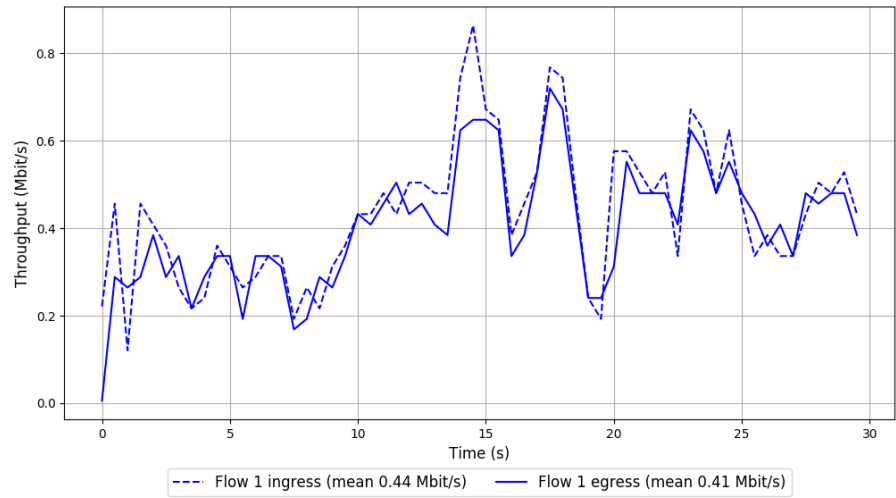Flow 1 (95th percentile 479.00 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2017-08-21 00:24:58
End at: 2017-08-21 00:25:28
Local clock offset: 1.838 ms
Remote clock offset: -0.467 ms


# Below is generated by plot.py at 2017-08-21 01:32:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 502.358 ms
Loss rate: 6.90%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 502.358 ms
Loss rate: 6.90%
```
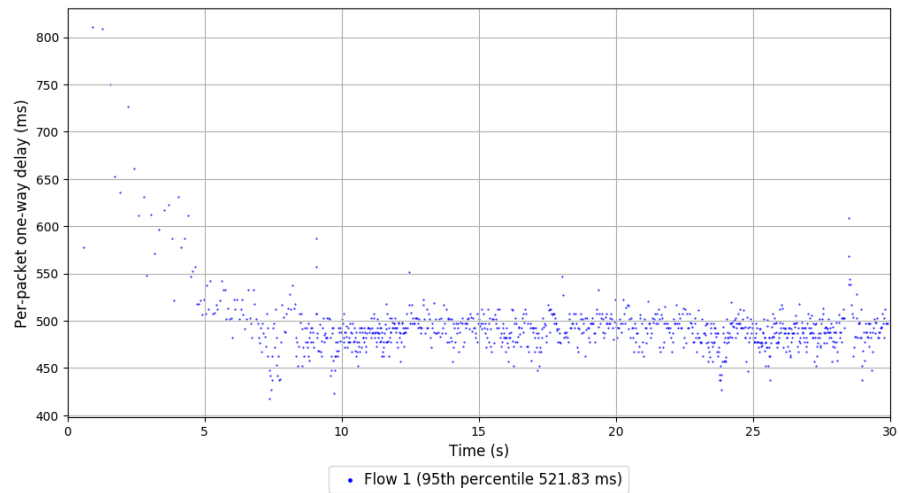
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 0.44 Mbit/s)   Flow 1 egress (mean 0.41 Mbit/s)

Flow 1 (95th percentile 502.36 ms)

```
Run 1: Statistics of KohoCC

Start at: 2017-08-20 23:49:44
End at: 2017-08-20 23:50:14
Local clock offset: 1.948 ms
Remote clock offset: -0.718 ms


# Below is generated by plot.py at 2017-08-21 01:32:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 521.833 ms
Loss rate: 71.86%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 521.833 ms
Loss rate: 71.86%
```
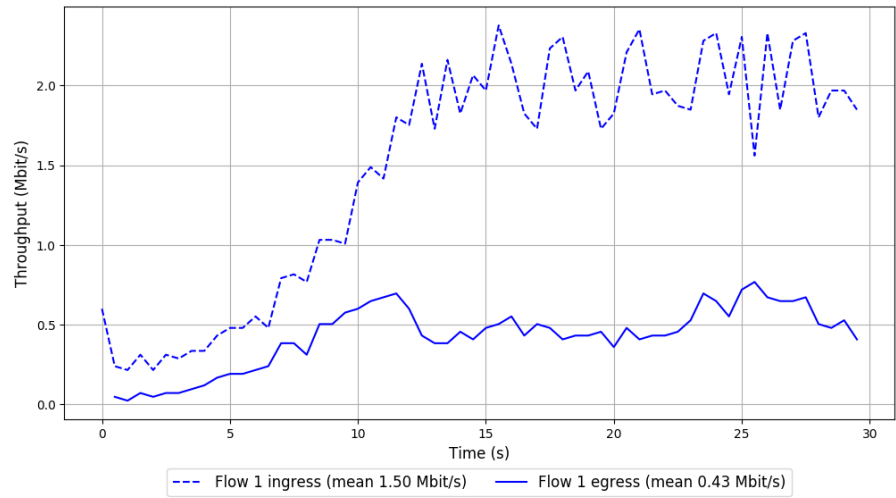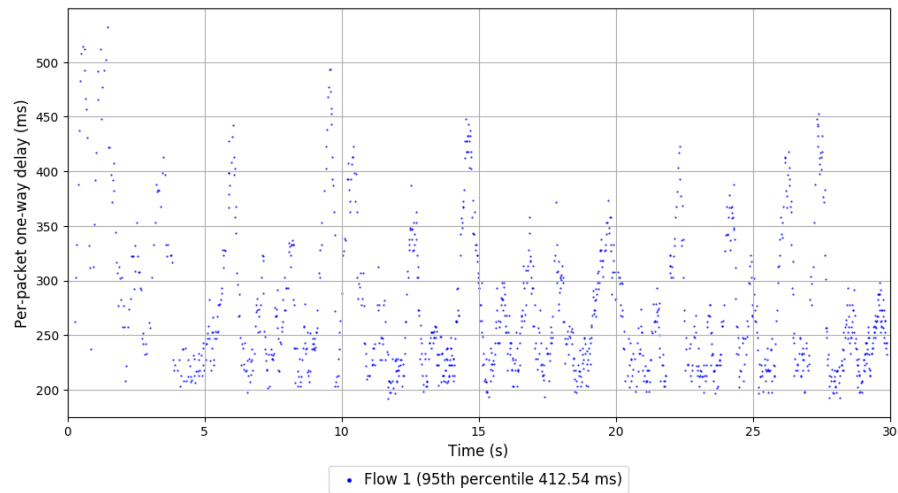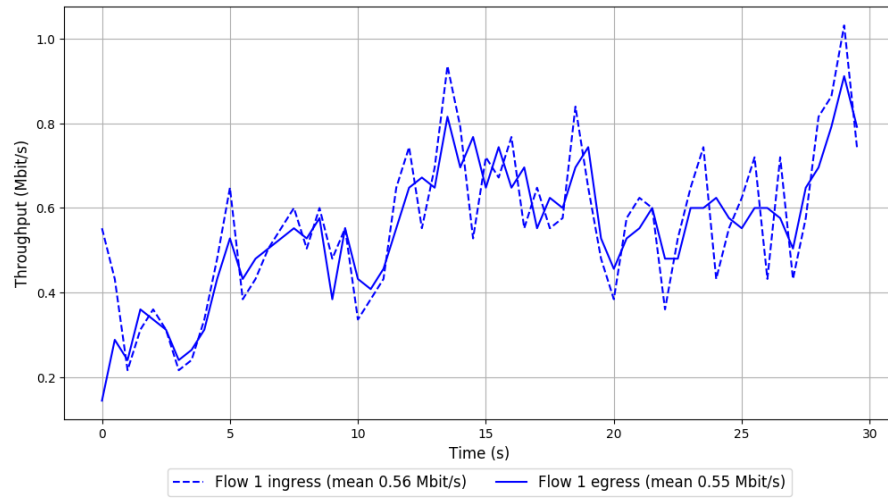
Run 1: Report of KohoCC — Data Link

```
Run 2: Statistics of KohoCC

Start at: 2017-08-21 00:08:43
End at: 2017-08-21 00:09:13
Local clock offset: 1.992 ms
Remote clock offset: -0.603 ms


# Below is generated by plot.py at 2017-08-21 01:32:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 412.539 ms
Loss rate: 2.64%
-- Flow 1:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 412.539 ms
Loss rate: 2.64%
```

Run 2: Report of KohoCC — Data Link

```
Run 3: Statistics of KohoCC

Start at: 2017-08-21 00:27:27
End at: 2017-08-21 00:27:57
Local clock offset: 2.172 ms
Remote clock offset: -0.52 ms
```
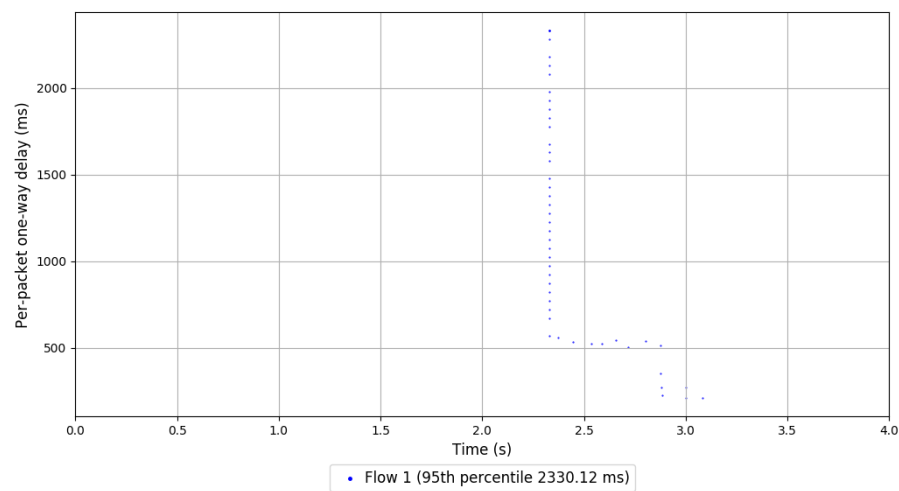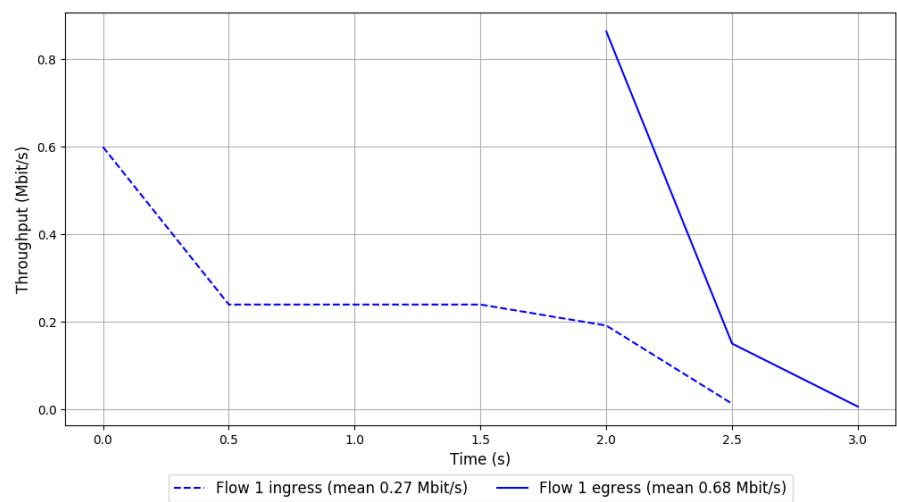
Run 3: Report of KohoCC — Data Link

Flow 1 ingress (mean 0.27 Mbit/s) --- Flow 1 egress (mean 0.68 Mbit/s)
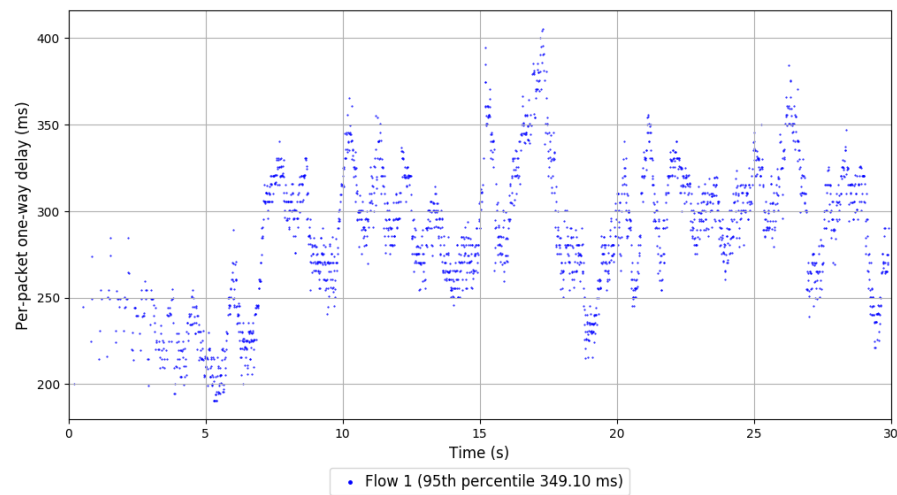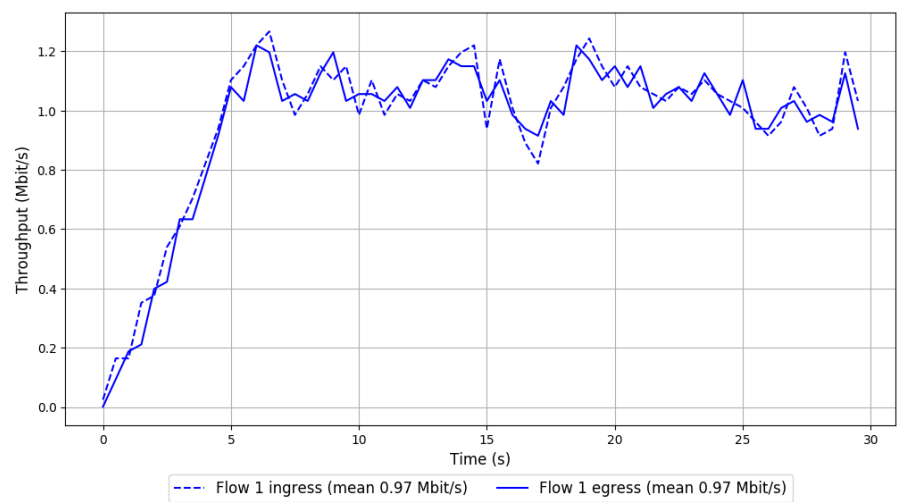

Flow 1 (95th percentile 2330.12 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2017-08-20 23:42:14
End at: 2017-08-20 23:42:44
Local clock offset: 1.934 ms
Remote clock offset: -0.795 ms

# Below is generated by plot.py at 2017-08-21 01:32:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 349.101 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 349.101 ms
Loss rate: 1.25%
```

Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 0.97 Mbit/s)   Flow 1 egress (mean 0.97 Mbit/s)

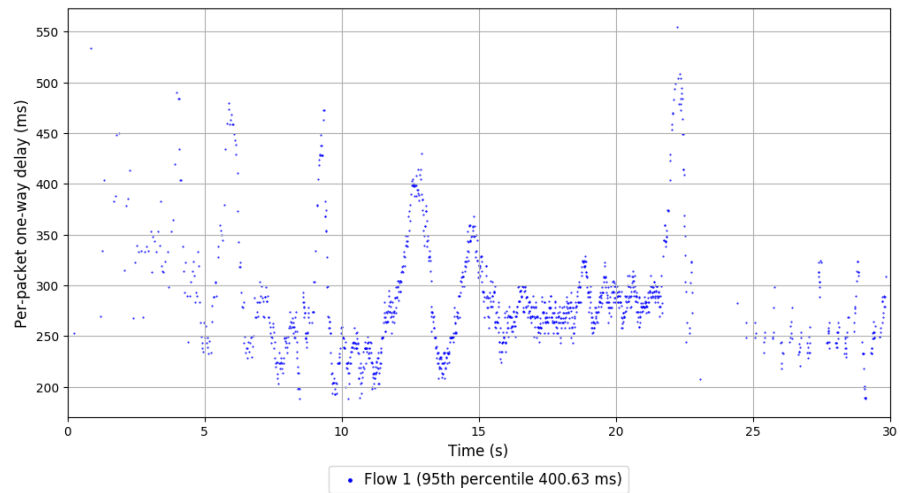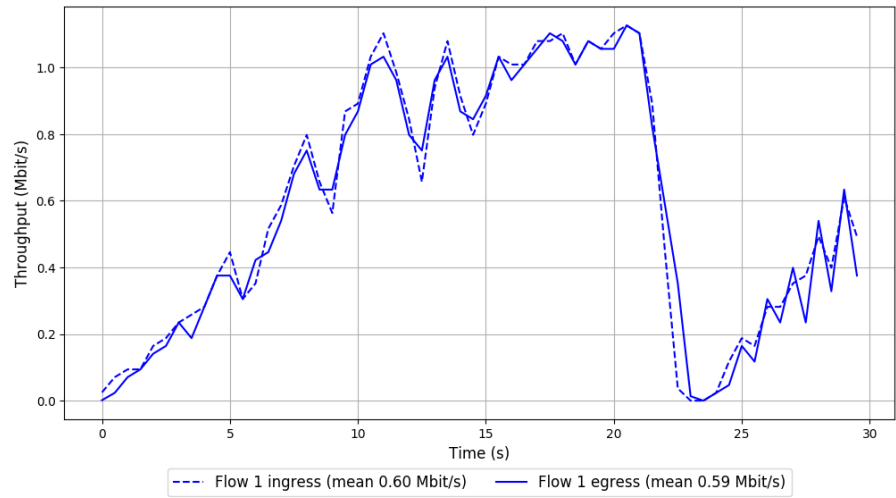Flow 1 (95th percentile 349.10 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2017-08-21 00:01:08
End at: 2017-08-21 00:01:38
Local clock offset: 1.936 ms
Remote clock offset: -0.689 ms


# Below is generated by plot.py at 2017-08-21 01:32:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 400.632 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 400.632 ms
Loss rate: 1.71%
```

Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 0.60 Mbit/s)   Flow 1 egress (mean 0.59 Mbit/s)

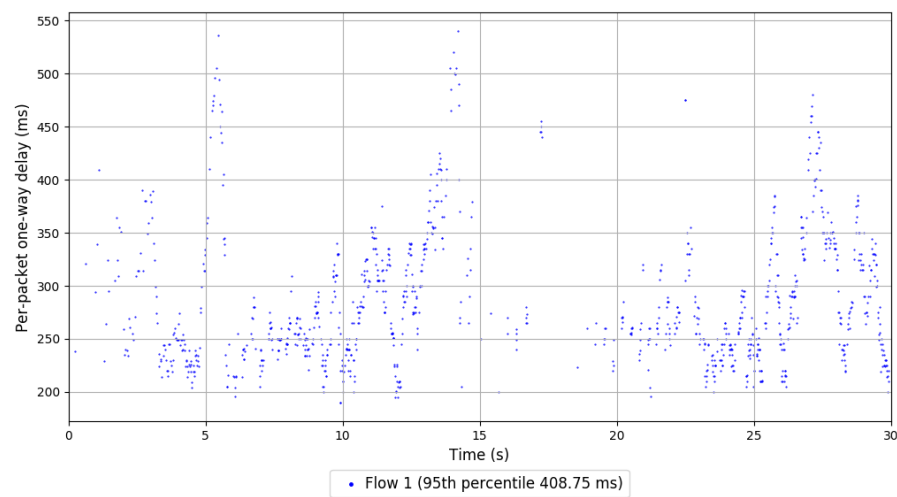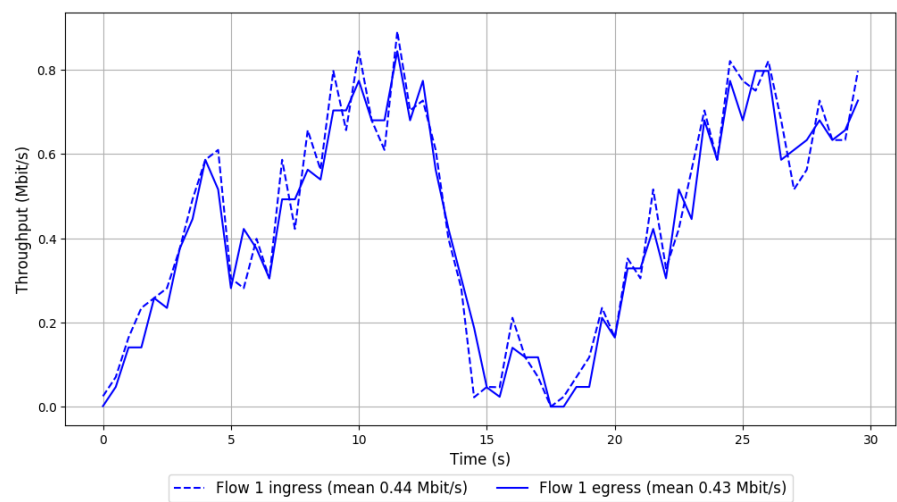Flow 1 (95th percentile 400.63 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2017-08-21 00:20:03
End at: 2017-08-21 00:20:33
Local clock offset: 2.161 ms
Remote clock offset: -0.587 ms


# Below is generated by plot.py at 2017-08-21 01:32:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 408.750 ms
Loss rate: 3.02%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 408.750 ms
Loss rate: 3.02%
```

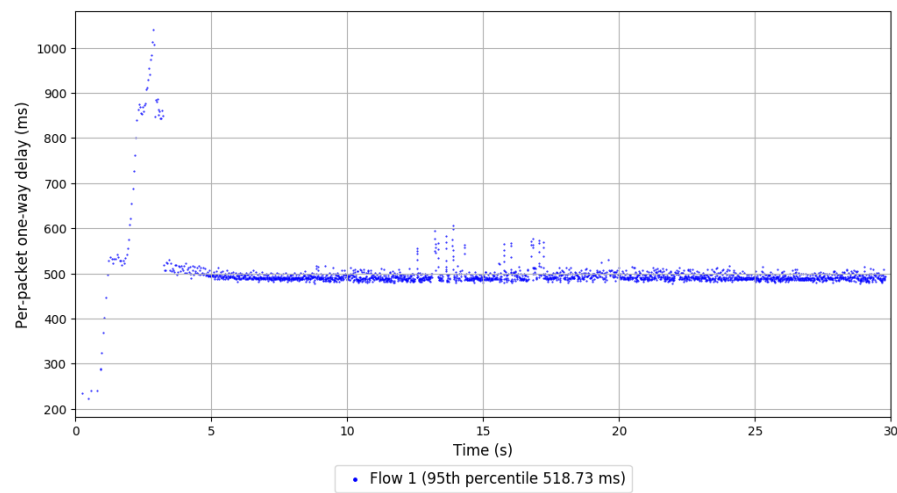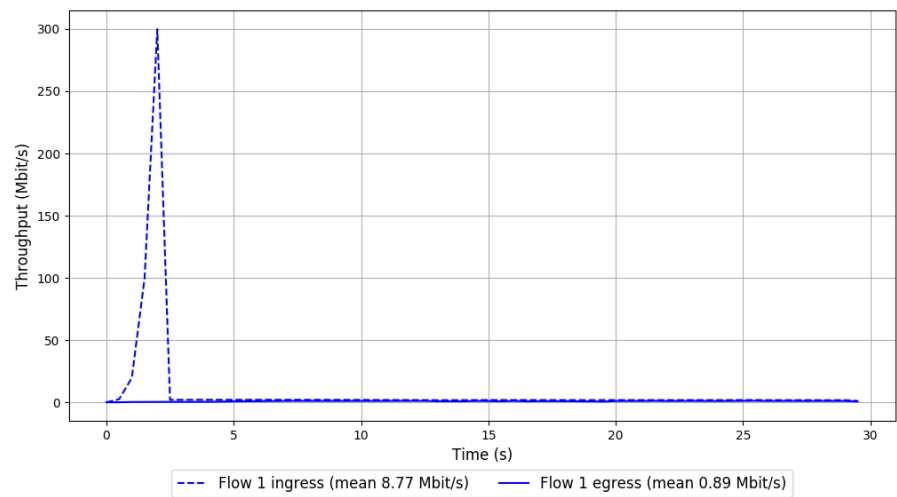Run 3: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC

Start at: 2017-08-20 23:43:26
End at: 2017-08-20 23:43:56
Local clock offset: 2.02 ms
Remote clock offset: -0.804 ms


# Below is generated by plot.py at 2017-08-21 01:32:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 518.734 ms
Loss rate: 89.94%
-- Flow 1:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 518.734 ms
Loss rate: 89.94%
```

Run 1: Report of PCC — Data Link

Flow 1 ingress (mean 8.77 Mbit/s) --- Flow 1 egress (mean 0.89 Mbit/s)

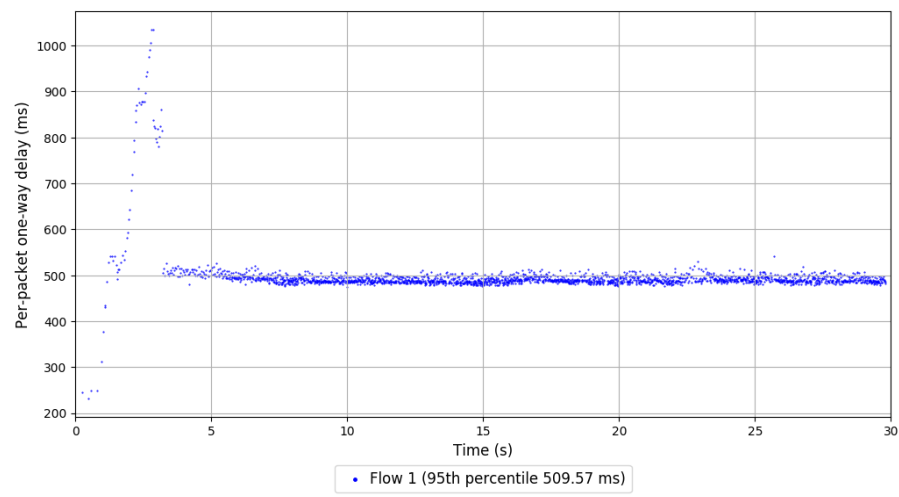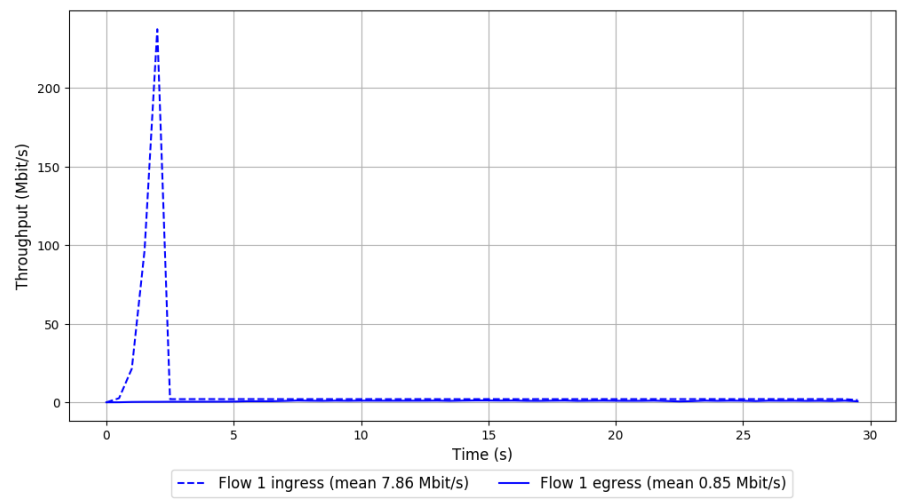Flow 1 (95th percentile 518.73 ms)

```
Run 2: Statistics of PCC

Start at: 2017-08-21 00:02:25
End at: 2017-08-21 00:02:55
Local clock offset: 2.044 ms
Remote clock offset: -0.682 ms


# Below is generated by plot.py at 2017-08-21 01:32:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 509.567 ms
Loss rate: 89.30%
-- Flow 1:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 509.567 ms
Loss rate: 89.30%
```

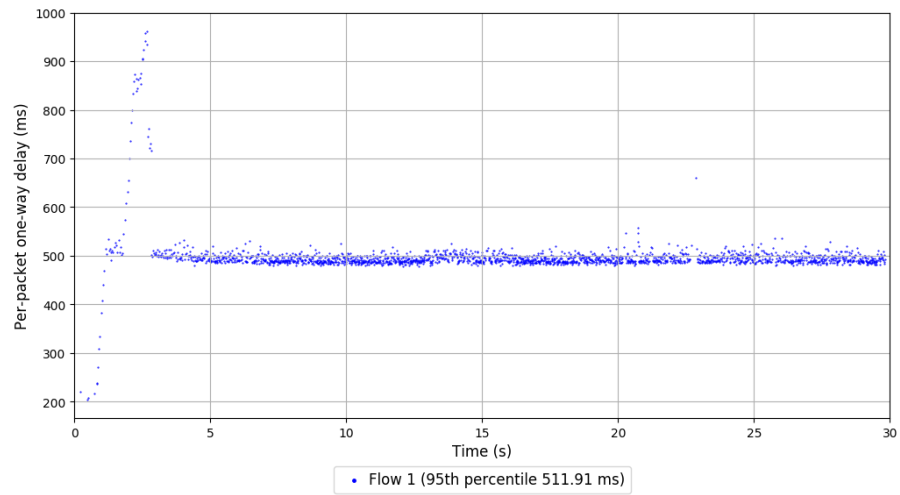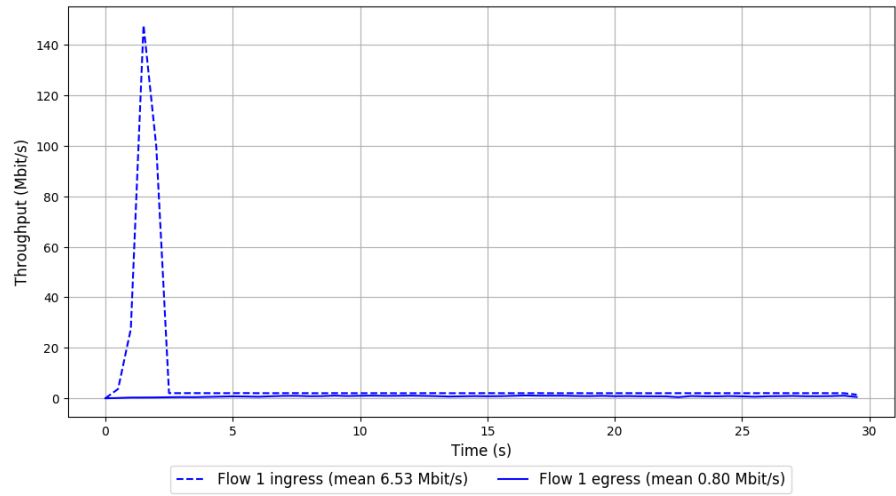Run 2: Report of PCC — Data Link

```
Run 3: Statistics of PCC

Start at: 2017-08-21 00:21:20
End at: 2017-08-21 00:21:50
Local clock offset: 2.12 ms
Remote clock offset: -0.498 ms


# Below is generated by plot.py at 2017-08-21 01:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 511.913 ms
Loss rate: 87.87%
-- Flow 1:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 511.913 ms
Loss rate: 87.87%
```

Run 3: Report of PCC — Data Link

Flow 1 ingress (mean 6.53 Mbit/s)   Flow 1 egress (mean 0.80 Mbit/s)

Flow 1 (95th percentile 511.91 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2017-08-20 23:40:56
End at: 2017-08-20 23:41:27
Local clock offset: 2.039 ms
Remote clock offset: -0.832 ms


# Below is generated by plot.py at 2017-08-21 01:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 485.617 ms
Loss rate: 5.40%
-- Flow 1:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 485.617 ms
Loss rate: 5.40%
```
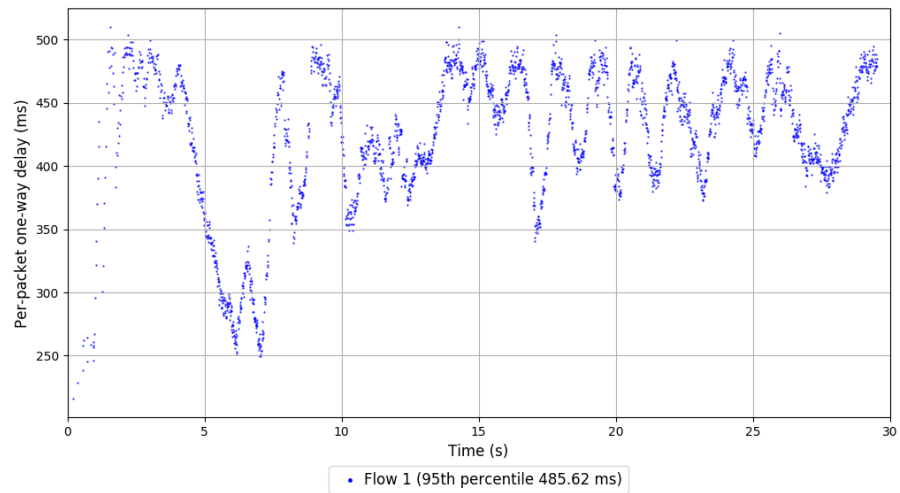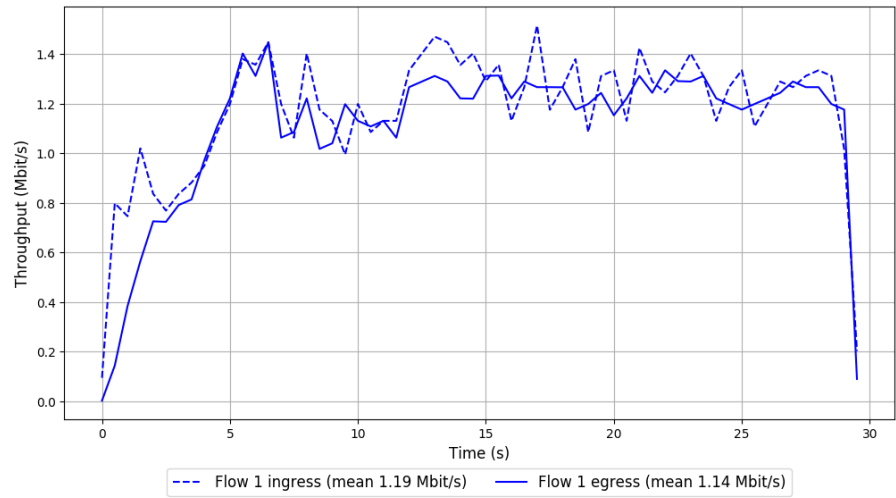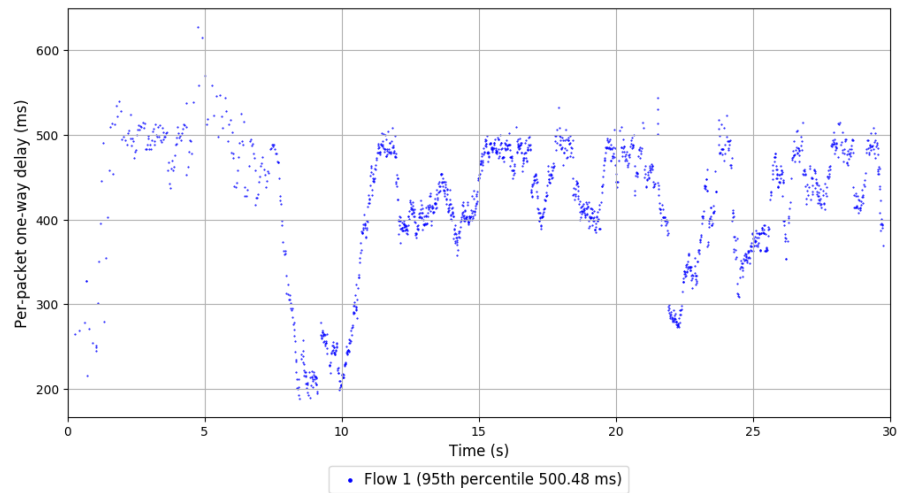
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 1.19 Mbit/s)   Flow 1 egress (mean 1.14 Mbit/s)

• Flow 1 (95th percentile 485.62 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2017-08-20 23:59:55
End at: 2017-08-21 00:00:25
Local clock offset: 1.939 ms
Remote clock offset: -0.66 ms


# Below is generated by plot.py at 2017-08-21 01:32:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.69 Mbit/s
95th percentile per-packet one-way delay: 500.481 ms
Loss rate: 11.40%
-- Flow 1:
Average throughput: 0.69 Mbit/s
95th percentile per-packet one-way delay: 500.481 ms
Loss rate: 11.40%
```
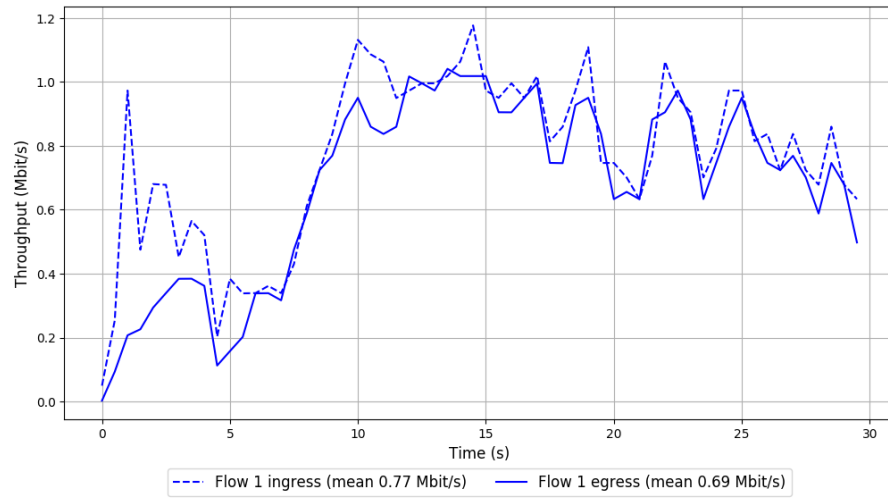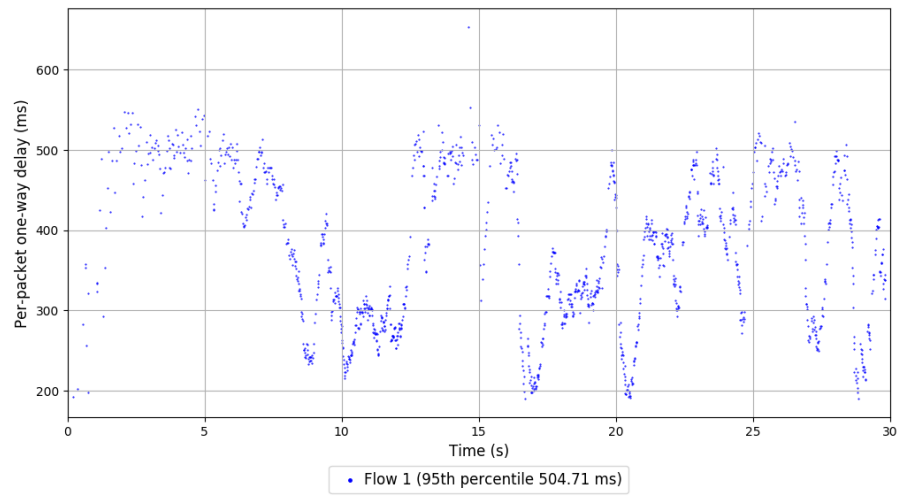
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.77 Mbit/s)   Flow 1 egress (mean 0.69 Mbit/s)

Flow 1 (95th percentile 500.48 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2017-08-21 00:18:46
End at: 2017-08-21 00:19:16
Local clock offset: 1.981 ms
Remote clock offset: -0.608 ms


# Below is generated by plot.py at 2017-08-21 01:32:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 504.709 ms
Loss rate: 12.84%
-- Flow 1:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 504.709 ms
Loss rate: 12.84%
```
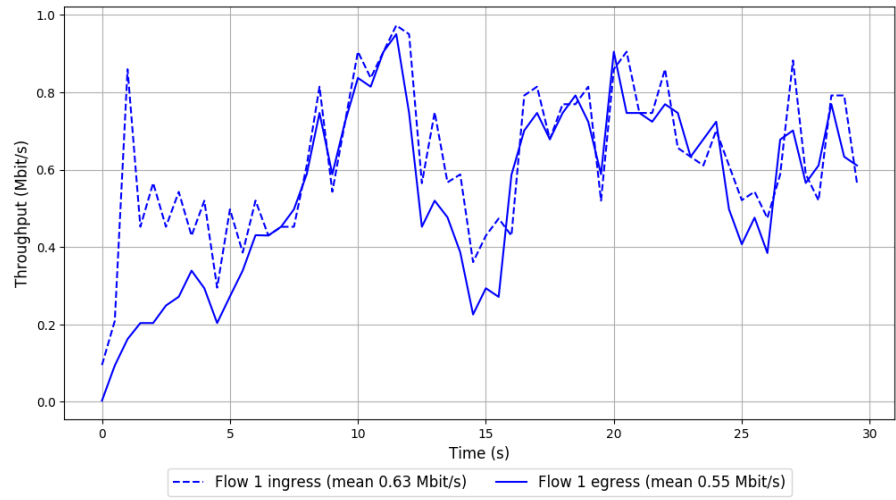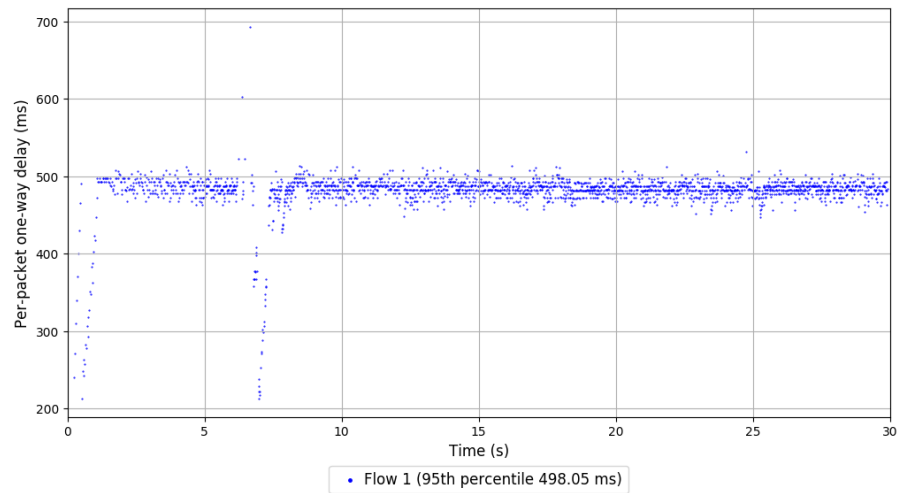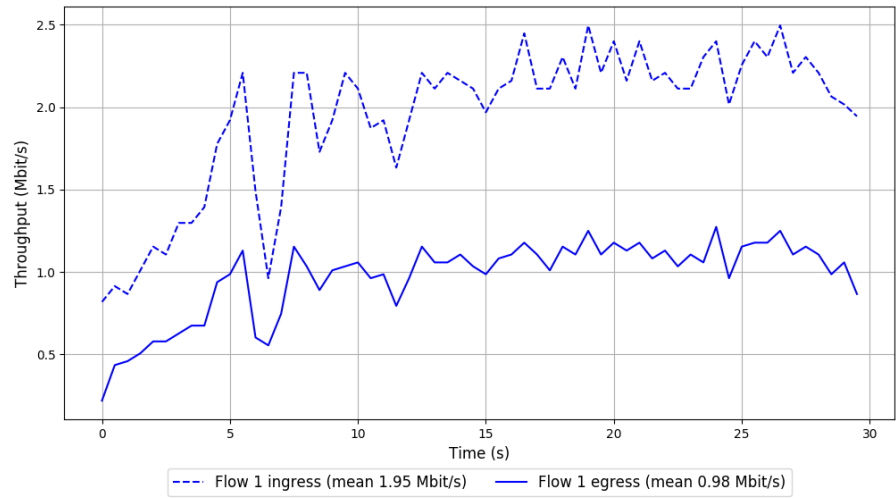
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.63 Mbit/s) --- Flow 1 egress (mean 0.55 Mbit/s)

Flow 1 (95th percentile 504.71 ms)

```
Run 1: Statistics of Saturator

Start at: 2017-08-20 23:52:18
End at: 2017-08-20 23:52:48
Local clock offset: 1.913 ms
Remote clock offset: -0.68 ms


# Below is generated by plot.py at 2017-08-21 01:32:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 498.049 ms
Loss rate: 50.15%
-- Flow 1:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 498.049 ms
Loss rate: 50.15%
```
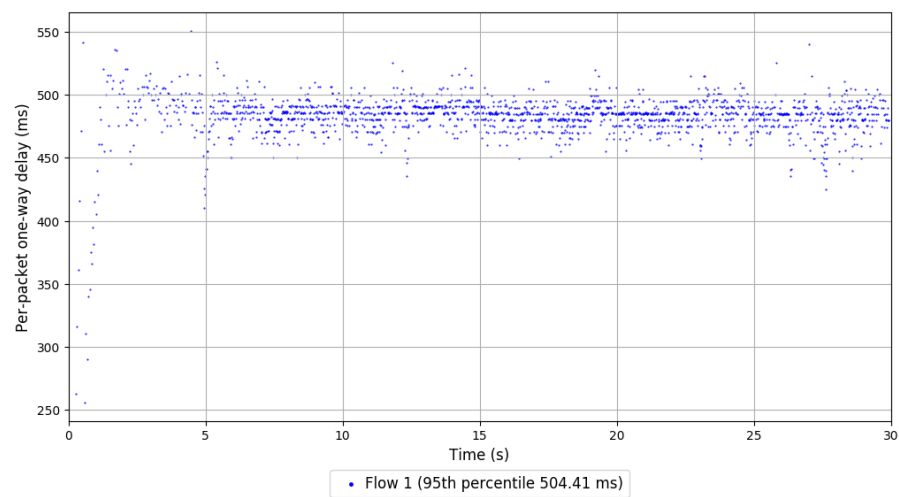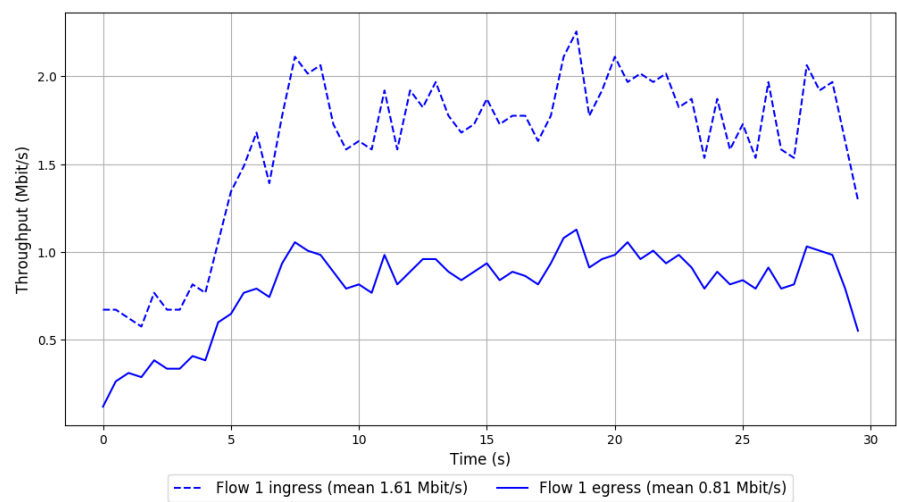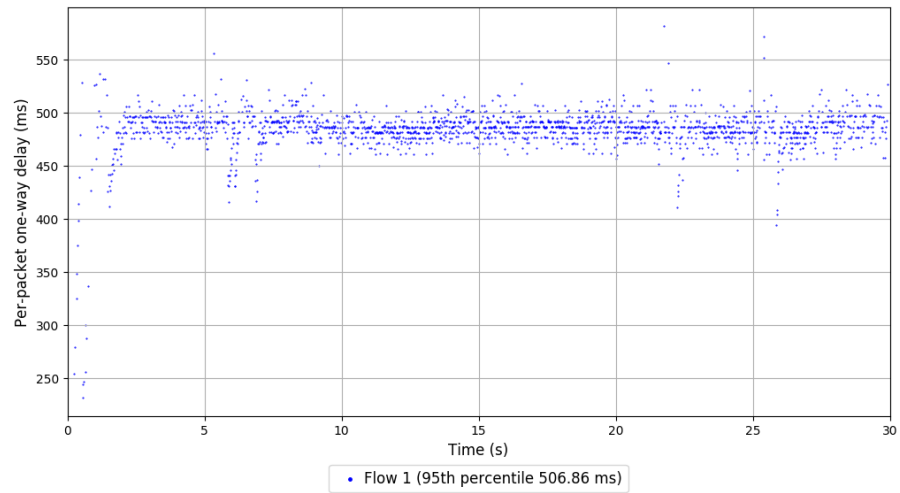
Run 1: Report of Saturator — Data Link

Flow 1 ingress (mean 1.95 Mbit/s)   Flow 1 egress (mean 0.98 Mbit/s)

Flow 1 (95th percentile 498.05 ms)

```
Run 2: Statistics of Saturator

Start at: 2017-08-21 00:11:12
End at: 2017-08-21 00:11:43
Local clock offset: 1.887 ms
Remote clock offset: -0.66 ms


# Below is generated by plot.py at 2017-08-21 01:32:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 504.409 ms
Loss rate: 50.30%
-- Flow 1:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 504.409 ms
Loss rate: 50.30%
```

Run 2: Report of Saturator — Data Link

Flow 1 ingress (mean 1.61 Mbit/s)   Flow 1 egress (mean 0.81 Mbit/s)
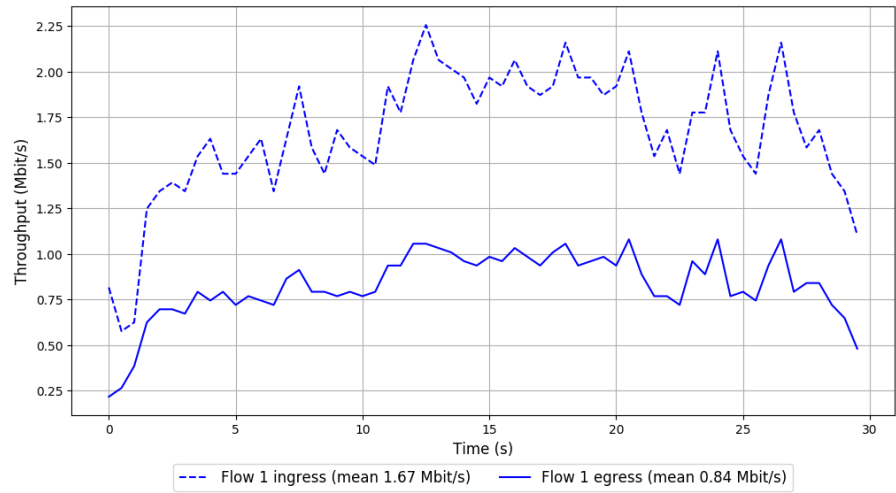

Flow 1 (95th percentile 504.41 ms)

```
Run 3: Statistics of Saturator

Start at: 2017-08-21 00:29:52
End at: 2017-08-21 00:30:22
Local clock offset: 2.224 ms
Remote clock offset: -0.532 ms


# Below is generated by plot.py at 2017-08-21 01:32:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 506.859 ms
Loss rate: 50.22%
-- Flow 1:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 506.859 ms
Loss rate: 50.22%
```

Run 3: Report of Saturator — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2017-08-20 23:56:04
End at: 2017-08-20 23:56:34
Local clock offset: 2.222 ms
Remote clock offset: -0.682 ms


# Below is generated by plot.py at 2017-08-21 01:32:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 289.957 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 289.957 ms
Loss rate: 1.31%
```
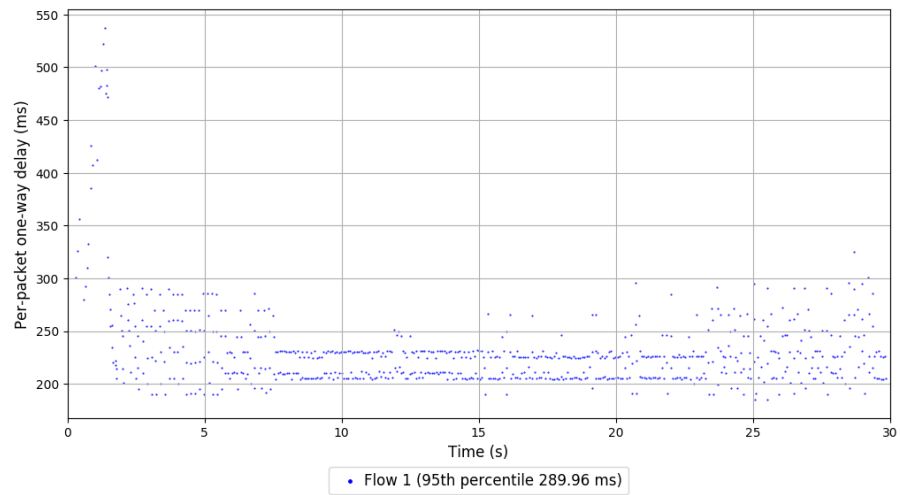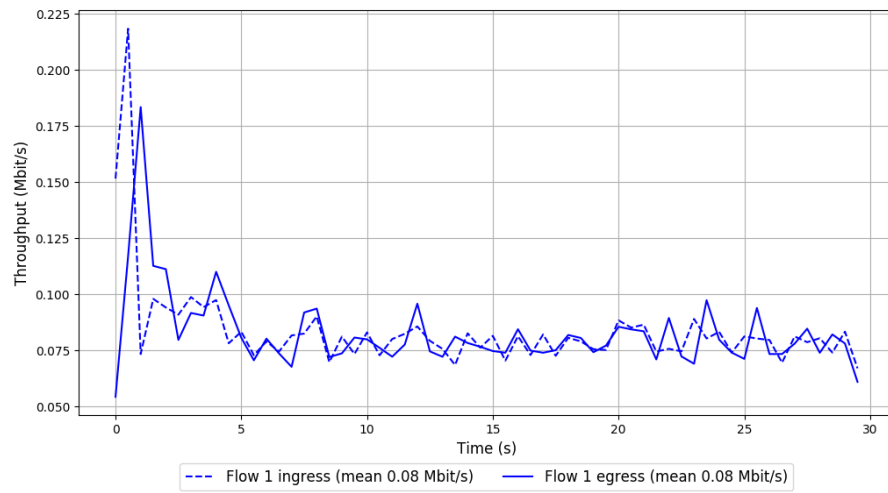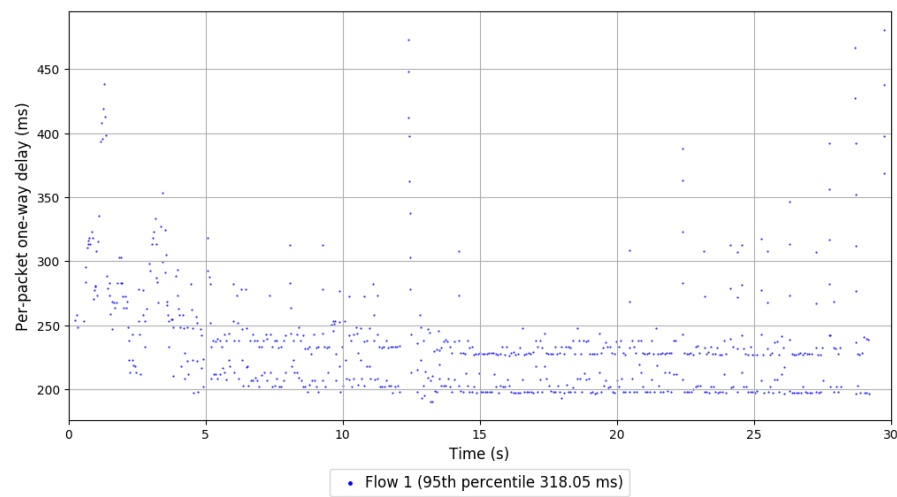
Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.08 Mbit/s) ---- Flow 1 egress (mean 0.08 Mbit/s) ——

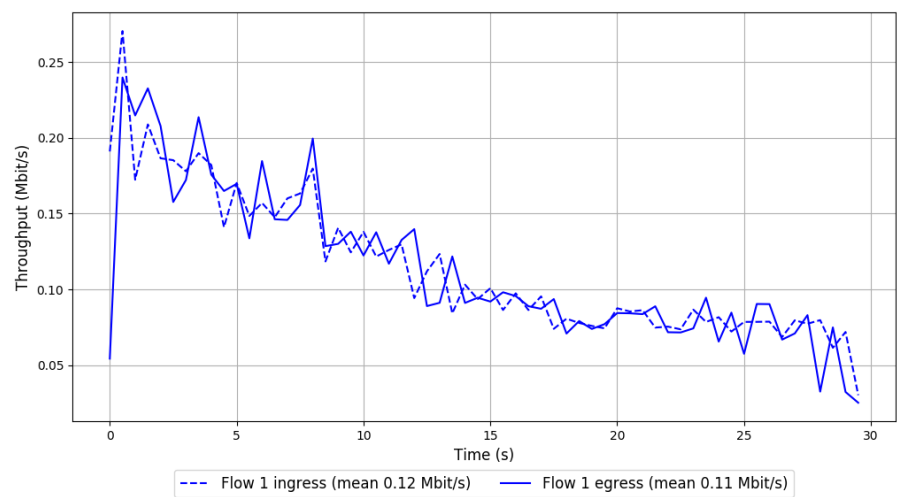Flow 1 (95th percentile 289.96 ms)

```
Run 2: Statistics of SCReAM

Start at: 2017-08-21 00:14:54
End at: 2017-08-21 00:15:24
Local clock offset: 2.131 ms
Remote clock offset: -0.649 ms


# Below is generated by plot.py at 2017-08-21 01:32:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 318.048 ms
Loss rate: 1.61%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 318.048 ms
Loss rate: 1.61%
```

Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2017-08-21 00:33:38
End at: 2017-08-21 00:34:08
Local clock offset: 1.828 ms
Remote clock offset: -0.53 ms


# Below is generated by plot.py at 2017-08-21 01:32:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 282.254 ms
Loss rate: 1.87%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 282.254 ms
Loss rate: 1.87%
```
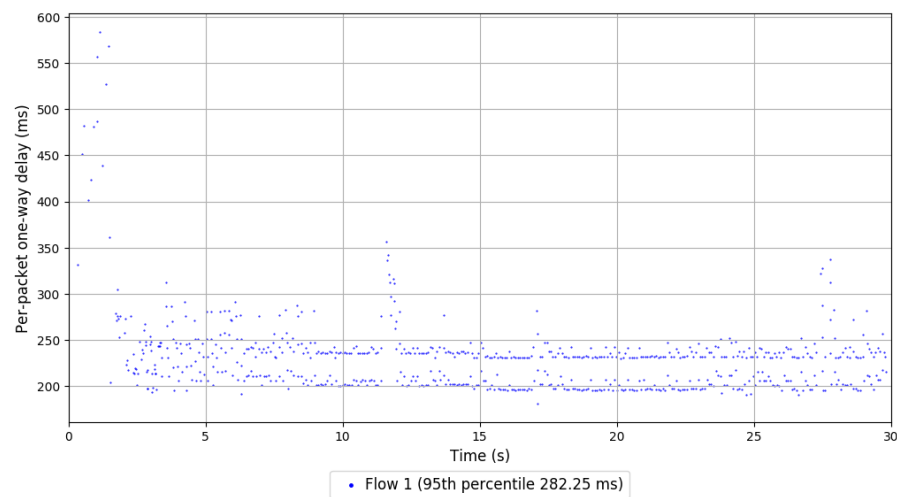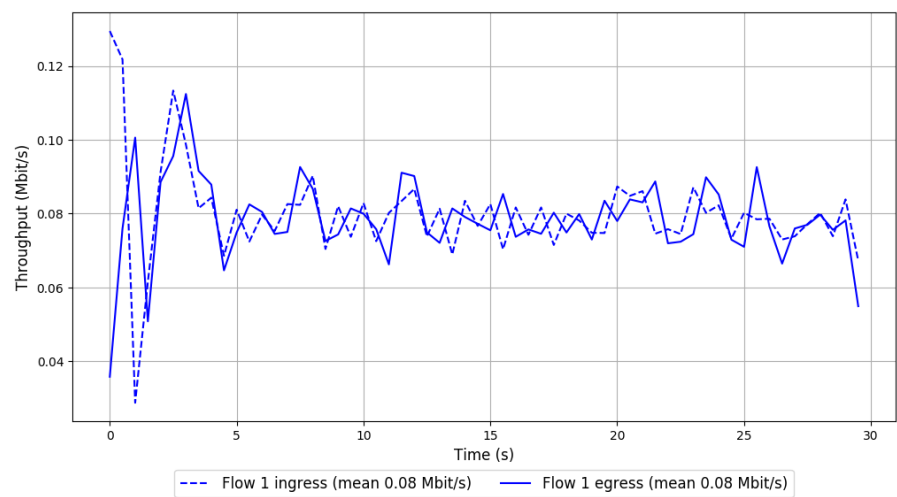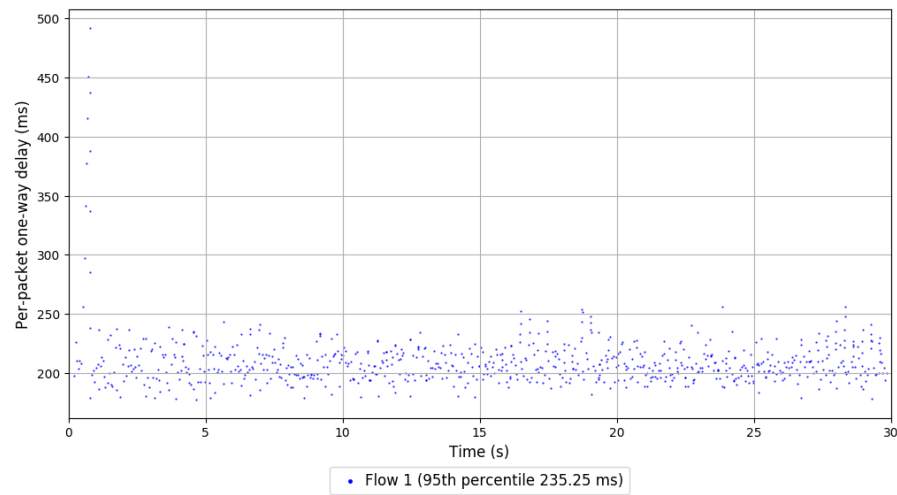
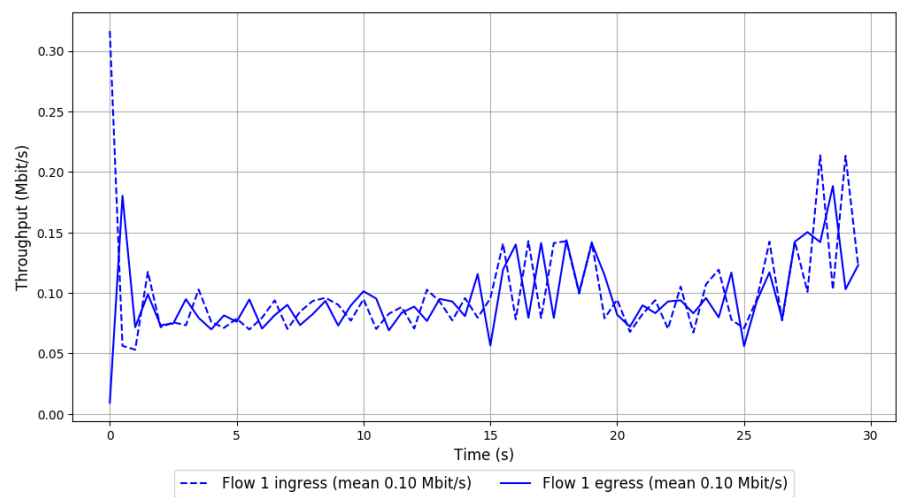Run 3: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2017-08-20 23:51:01
End at: 2017-08-20 23:51:31
Local clock offset: 1.938 ms
Remote clock offset: -0.686 ms


# Below is generated by plot.py at 2017-08-21 01:32:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 235.245 ms
Loss rate: 4.19%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 235.245 ms
Loss rate: 4.19%
```

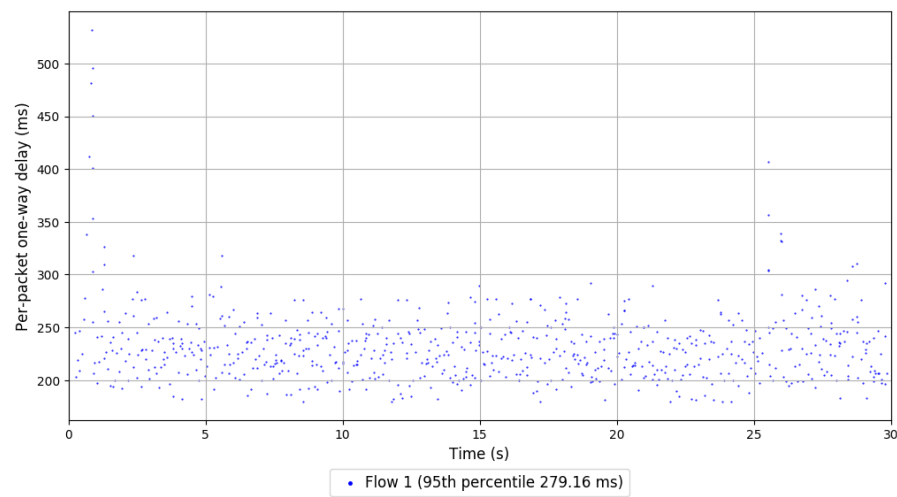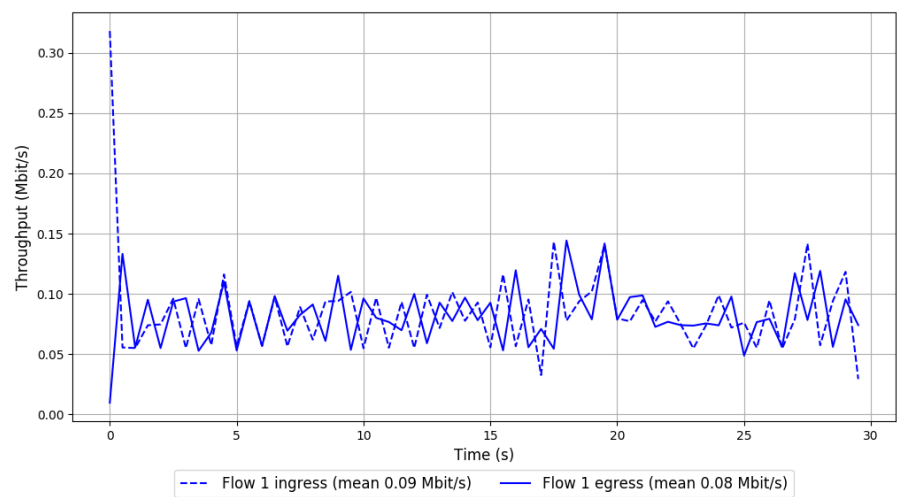Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2017-08-21 00:09:55
End at: 2017-08-21 00:10:25
Local clock offset: 2.035 ms
Remote clock offset: -0.644 ms


# Below is generated by plot.py at 2017-08-21 01:32:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 279.164 ms
Loss rate: 4.08%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 279.164 ms
Loss rate: 4.08%
```

Run 2: Report of Sprout — Data Link
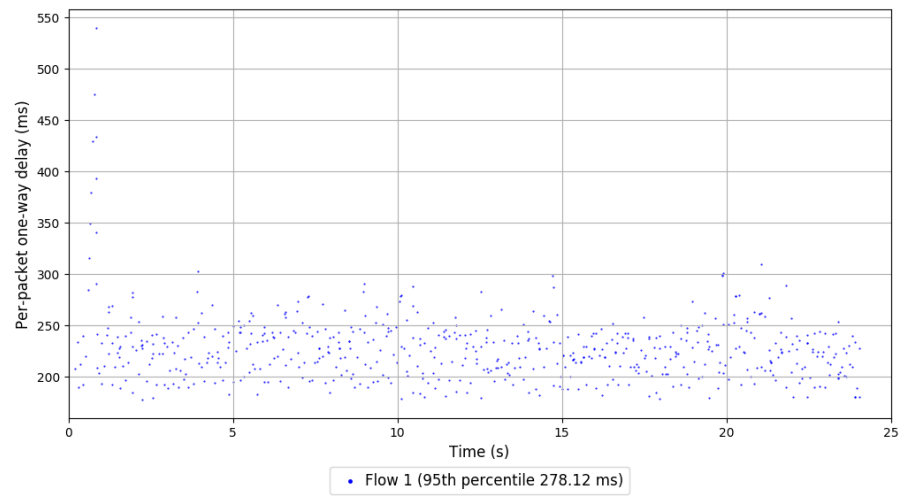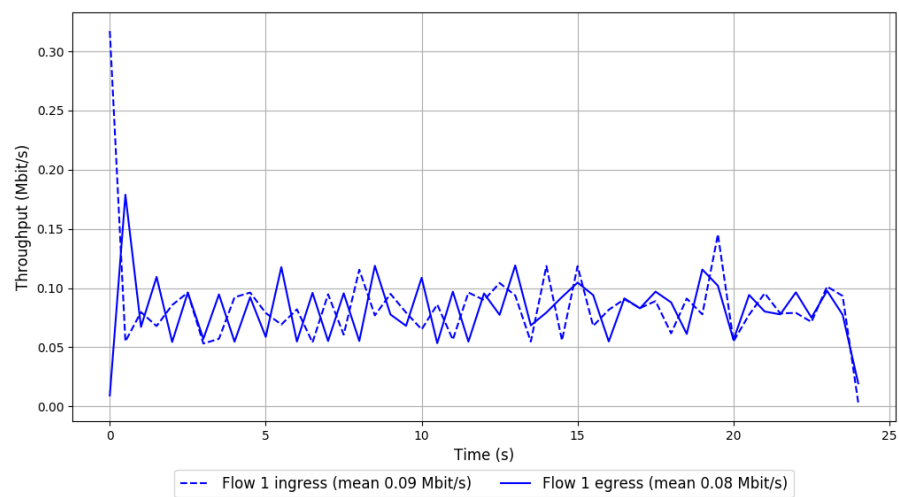
```
Run 3: Statistics of Sprout

Start at: 2017-08-21 00:28:40
End at: 2017-08-21 00:29:10
Local clock offset: 1.968 ms
Remote clock offset: -0.531 ms
```

Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 0.09 Mbit/s)   Flow 1 egress (mean 0.08 Mbit/s)

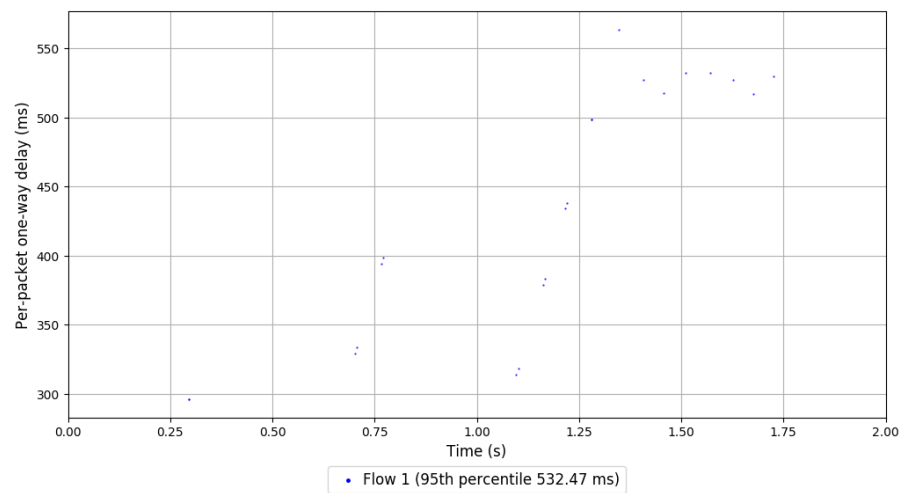Flow 1 (95th percentile 278.12 ms)
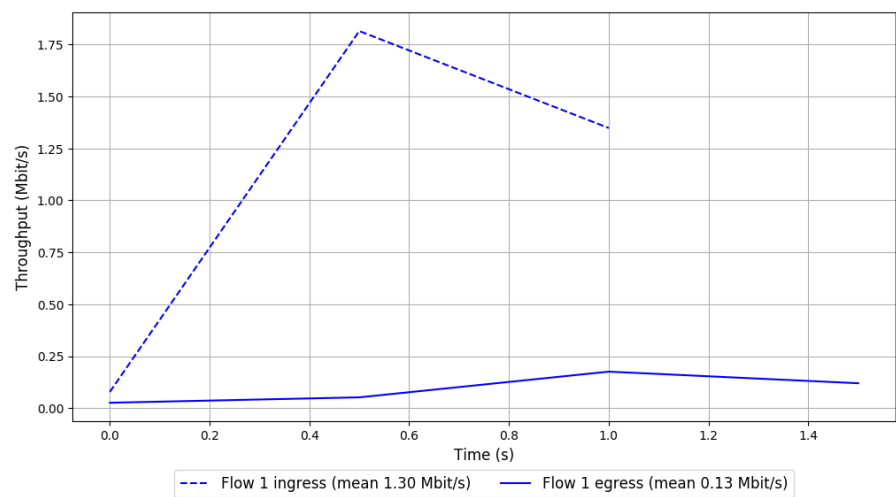
```
Run 1: Statistics of TaoVA-100x

Start at: 2017-08-20 23:44:45
End at: 2017-08-20 23:45:15
Local clock offset: 2.324 ms
Remote clock offset: -0.723 ms
```

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

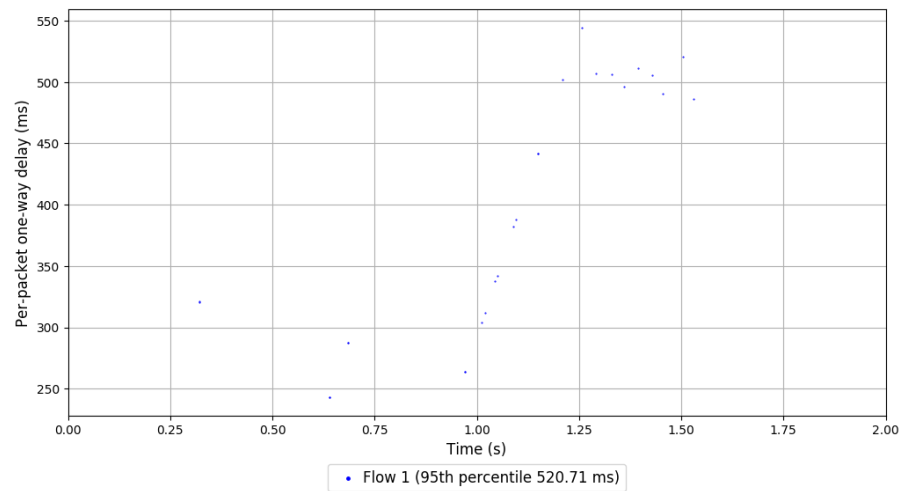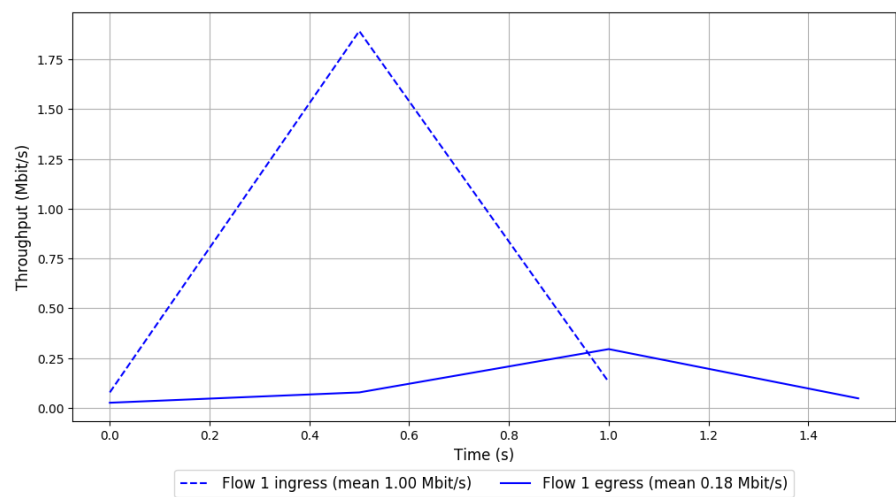```
Run 2: Statistics of TaoVA-100x

Start at: 2017-08-21 00:03:39
End at: 2017-08-21 00:04:09
Local clock offset: 2.302 ms
Remote clock offset: -0.64 ms
```

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

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

Start at: 2017-08-21 00:22:34
End at: 2017-08-21 00:23:04
Local clock offset: 2.051 ms
Remote clock offset: -0.569 ms
```
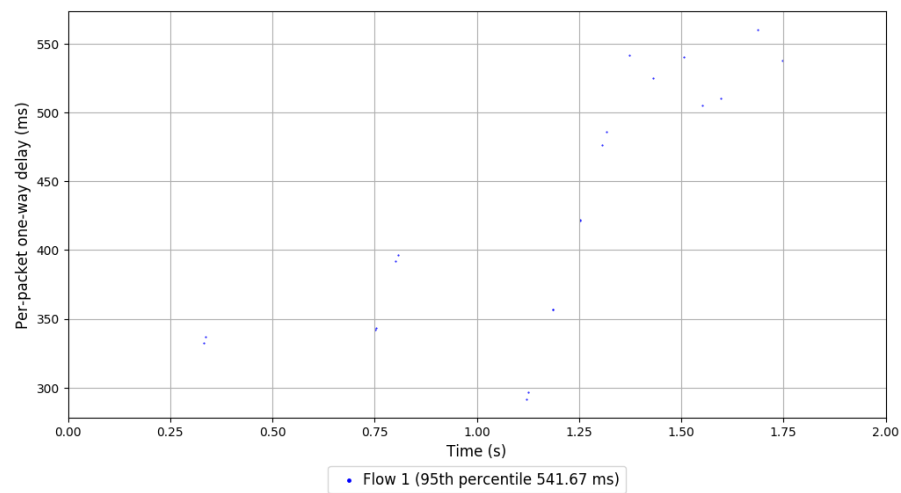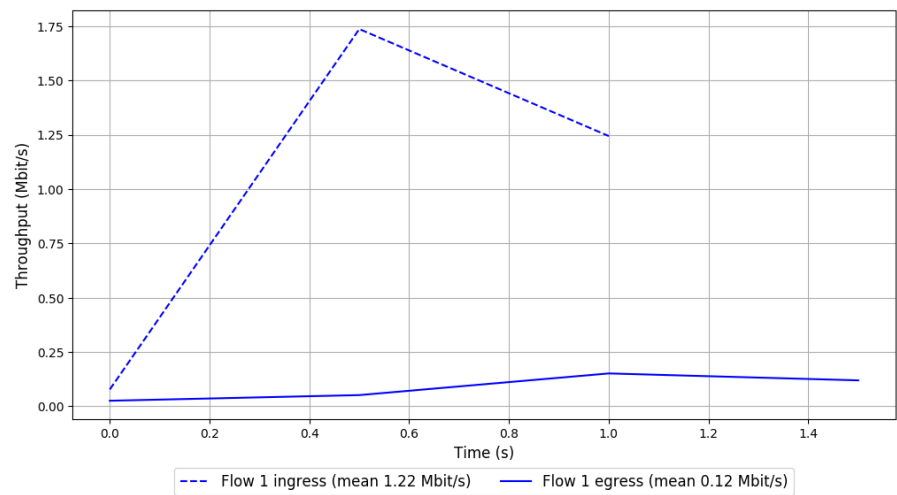
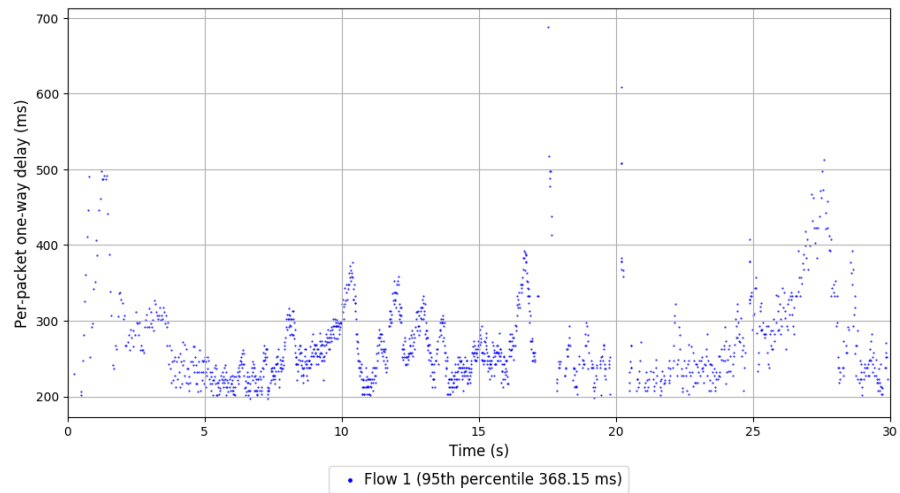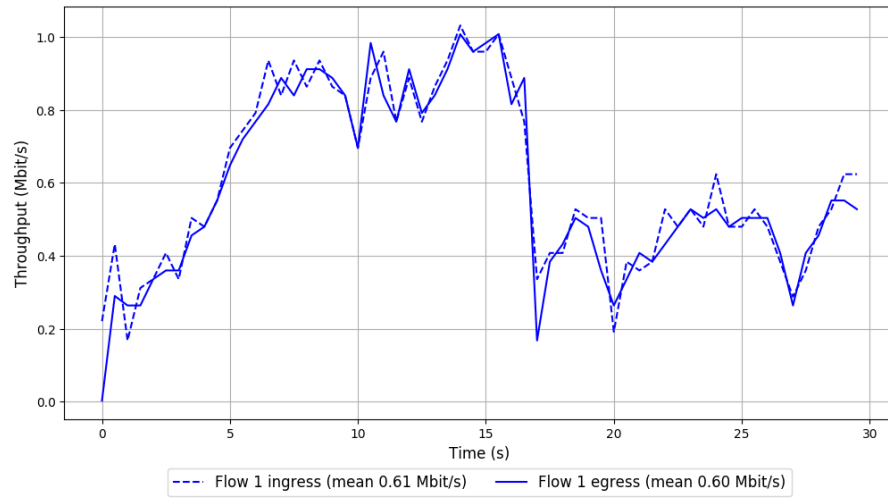# Run 3: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2017-08-20 23:53:35
End at: 2017-08-20 23:54:05
Local clock offset: 2.359 ms
Remote clock offset: -0.674 ms


# Below is generated by plot.py at 2017-08-21 01:32:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 368.150 ms
Loss rate: 3.09%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 368.150 ms
Loss rate: 3.09%
```

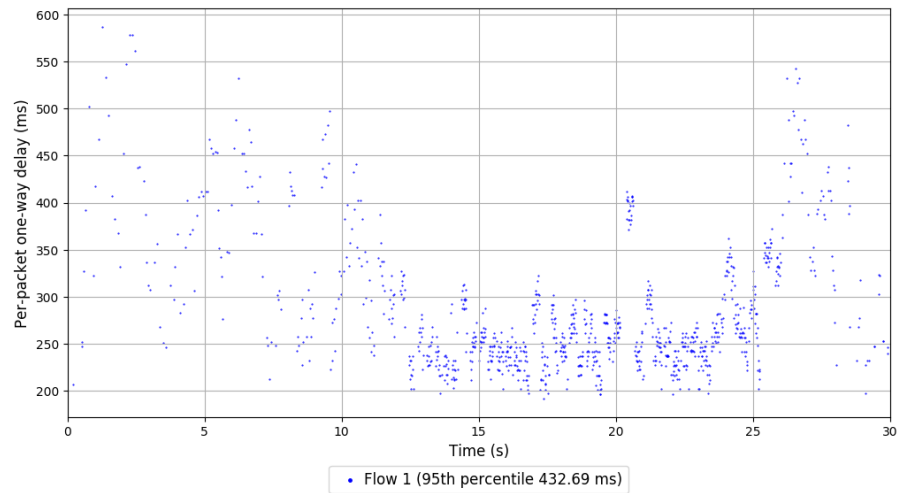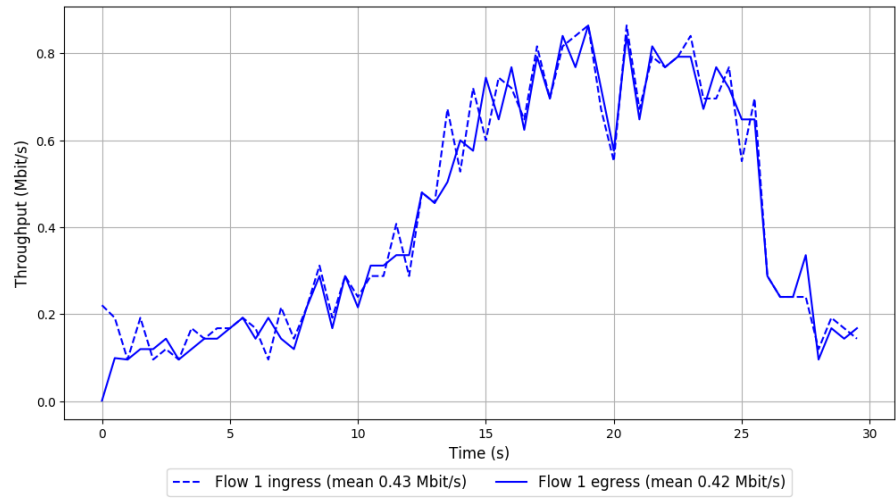Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2017-08-21 00:12:25
End at: 2017-08-21 00:12:55
Local clock offset: 2.88 ms
Remote clock offset: -0.585 ms


# Below is generated by plot.py at 2017-08-21 01:32:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 432.689 ms
Loss rate: 2.44%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 432.689 ms
Loss rate: 2.44%
```

Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 0.43 Mbit/s) --- Flow 1 egress (mean 0.42 Mbit/s)
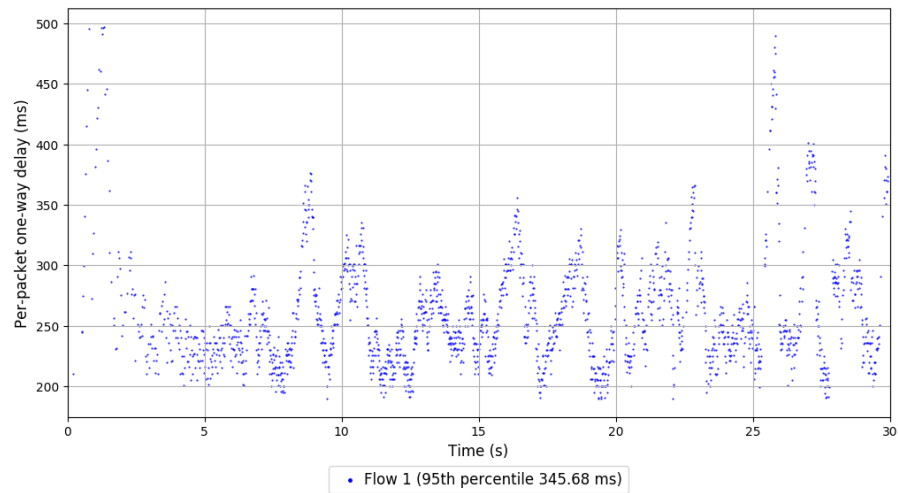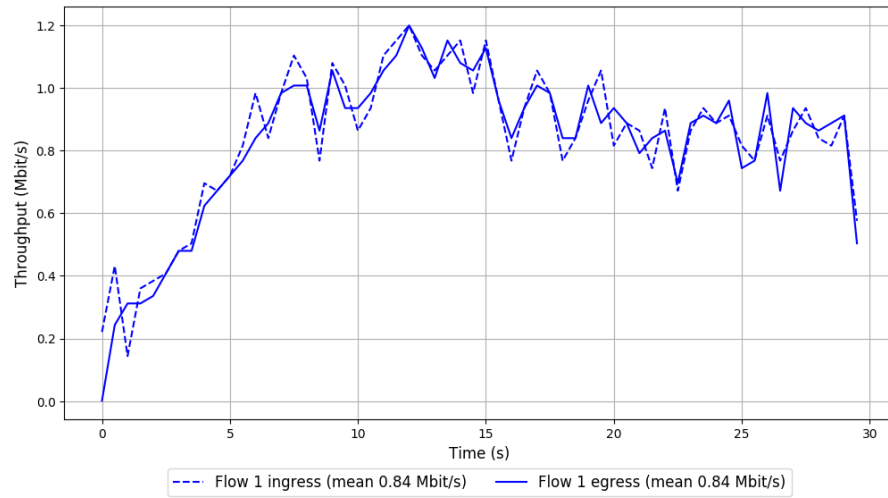

Flow 1 (95th percentile 432.69 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2017-08-21 00:31:04
End at: 2017-08-21 00:31:34
Local clock offset: 1.944 ms
Remote clock offset: -0.519 ms


# Below is generated by plot.py at 2017-08-21 01:32:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 345.683 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 0.84 Mbit/s
95th percentile per-packet one-way delay: 345.683 ms
Loss rate: 1.14%
```

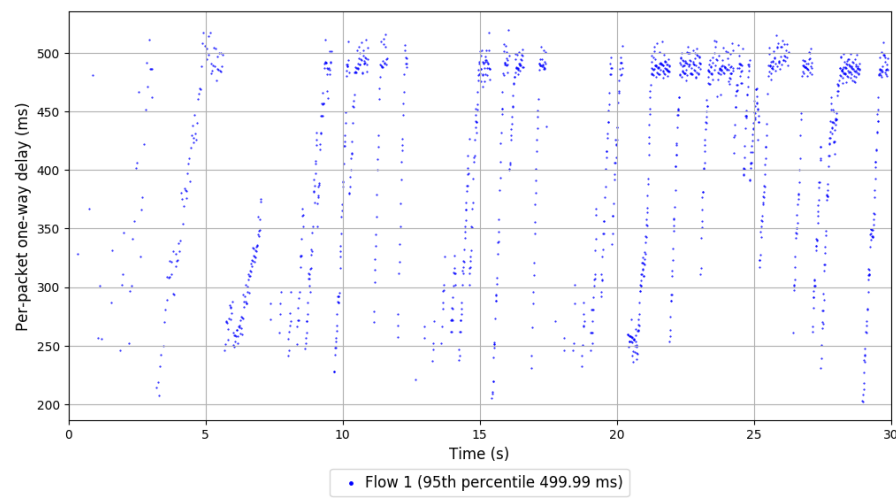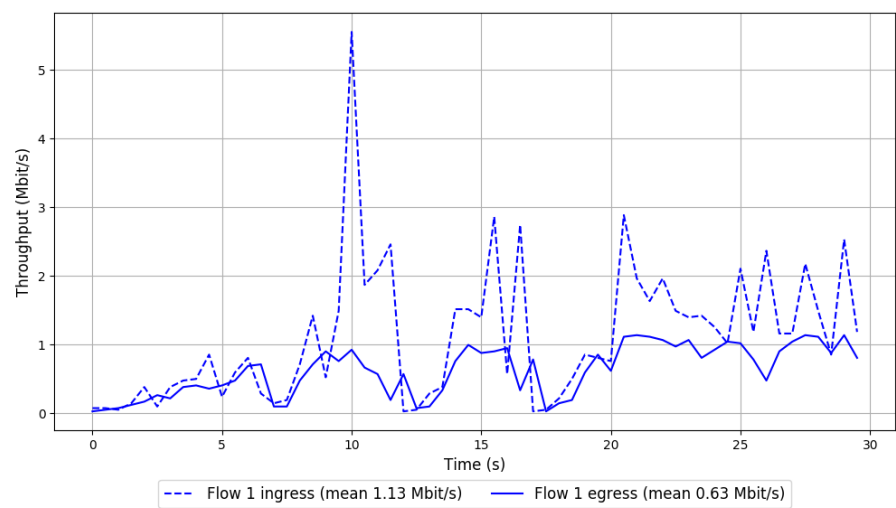Run 3: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2017-08-20 23:57:21
End at: 2017-08-20 23:57:51
Local clock offset: 1.891 ms
Remote clock offset: -0.707 ms

# Below is generated by plot.py at 2017-08-21 01:32:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 499.985 ms
Loss rate: 44.52%
-- Flow 1:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 499.985 ms
Loss rate: 44.52%
```

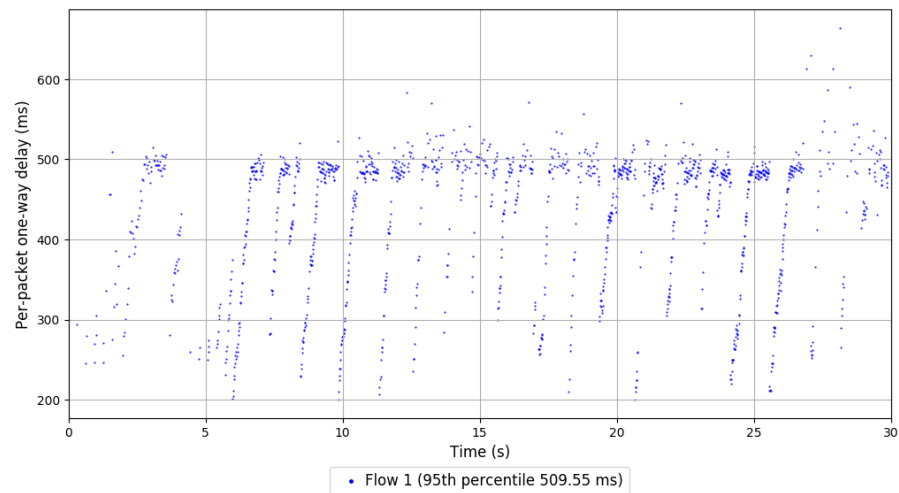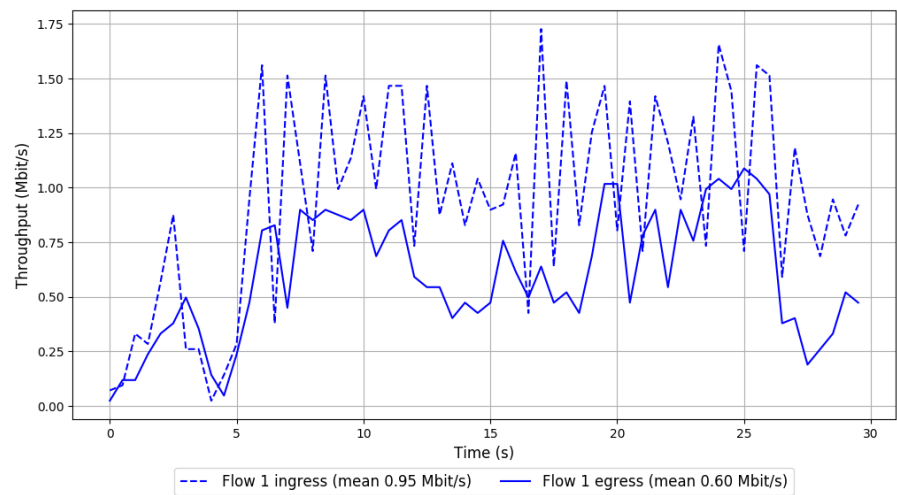Run 1: Report of Verus — Data Link

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```
Run 2: Statistics of Verus

Start at: 2017-08-21 00:16:12
End at: 2017-08-21 00:16:42
Local clock offset: 1.827 ms
Remote clock offset: -0.612 ms


# Below is generated by plot.py at 2017-08-21 01:32:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 509.545 ms
Loss rate: 36.85%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 509.545 ms
Loss rate: 36.85%
```
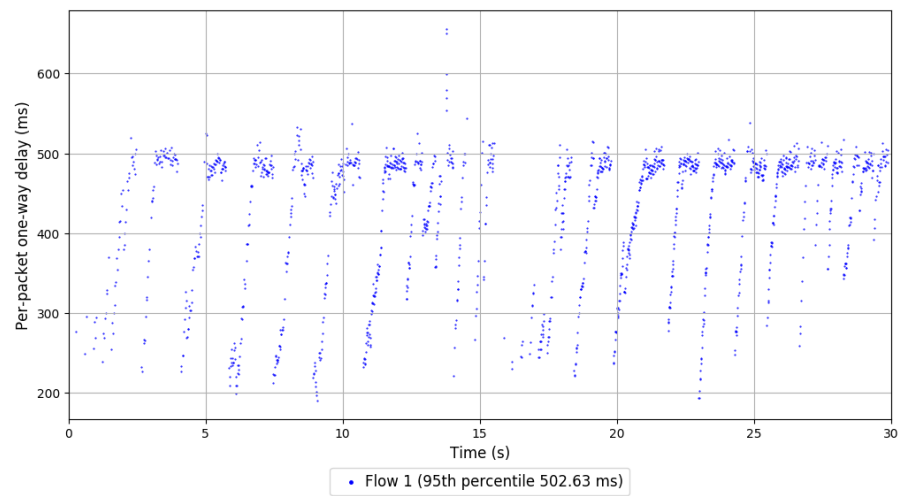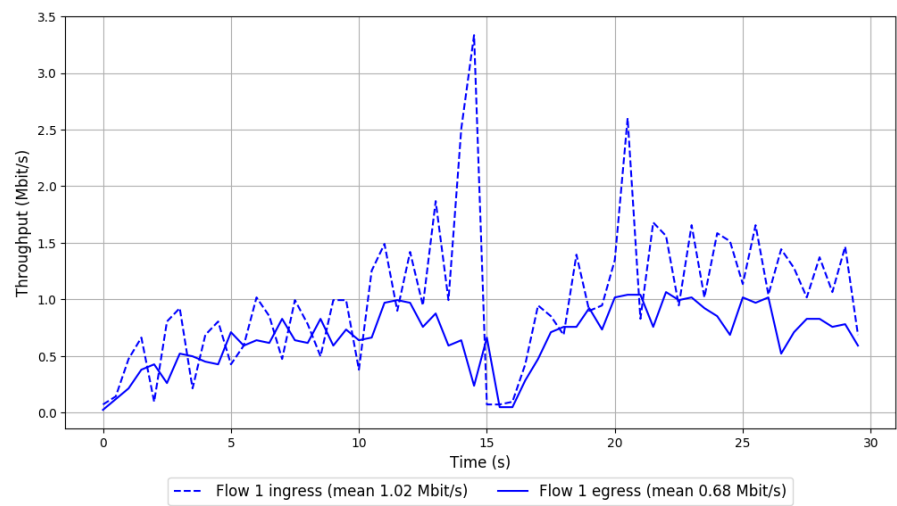
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2017-08-21 00:34:55
End at: 2017-08-21 00:35:26
Local clock offset: 2.316 ms
Remote clock offset: -0.489 ms


# Below is generated by plot.py at 2017-08-21 01:32:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 502.629 ms
Loss rate: 33.89%
-- Flow 1:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 502.629 ms
Loss rate: 33.89%
```

Run 3: Report of Verus — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2017-08-20 23:39:44
End at: 2017-08-20 23:40:14
Local clock offset: 2.032 ms
Remote clock offset: -0.849 ms


# Below is generated by plot.py at 2017-08-21 01:32:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 371.150 ms
Loss rate: 2.91%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 371.150 ms
Loss rate: 2.91%
```
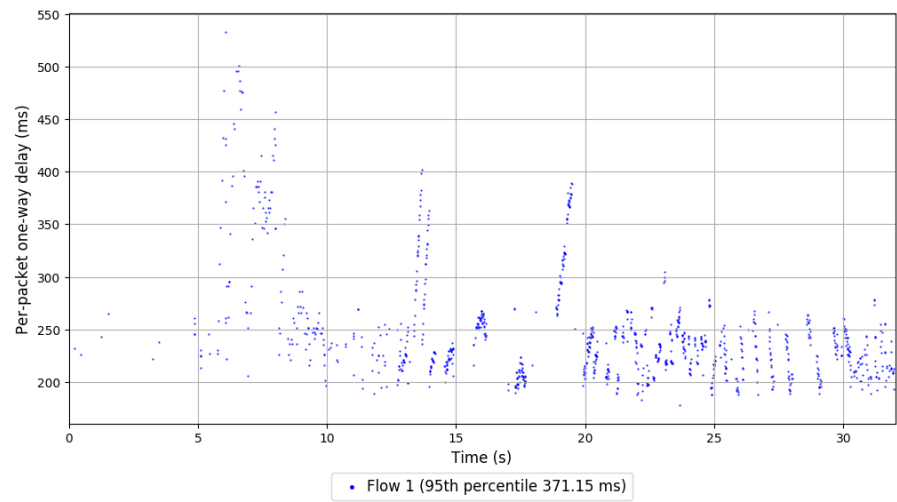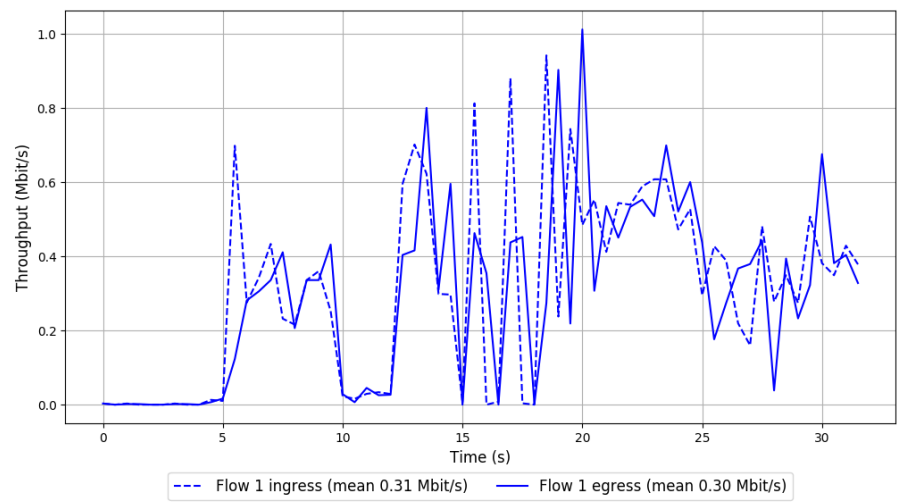
Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.31 Mbit/s)   Flow 1 egress (mean 0.30 Mbit/s)
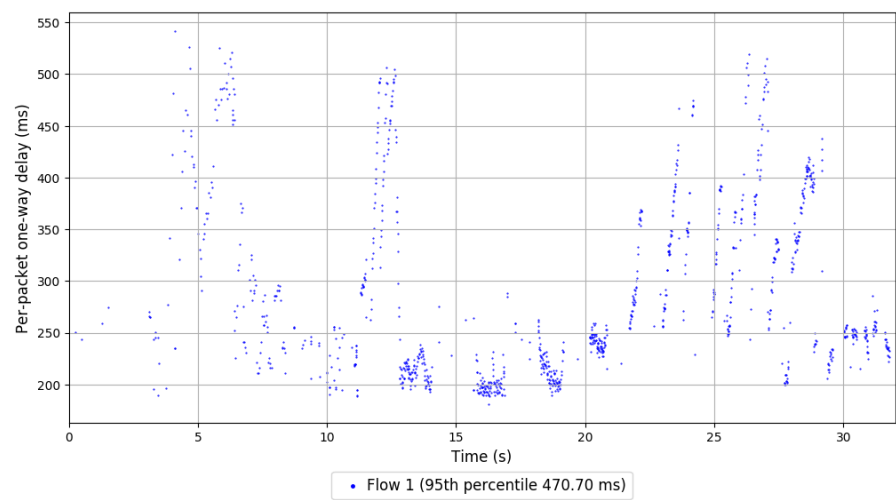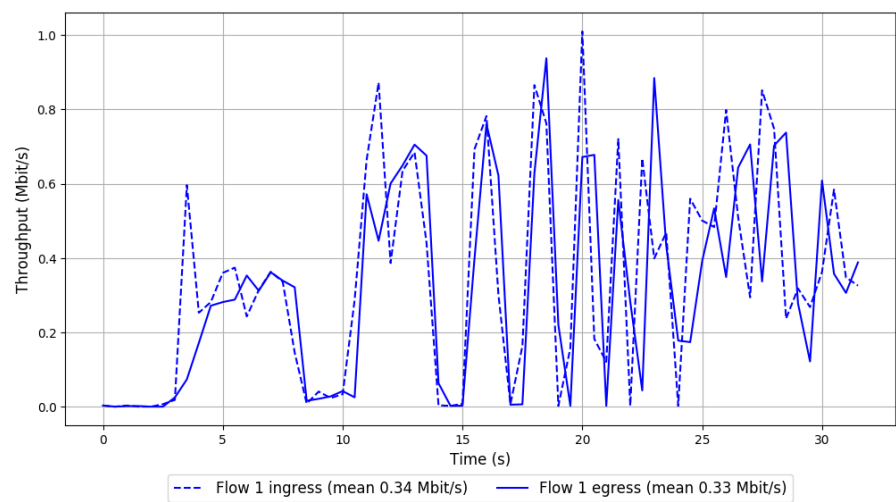

Flow 1 (95th percentile 371.15 ms)

```
Run 2: Statistics of WebRTC media

Start at: 2017-08-20 23:58:38
End at: 2017-08-20 23:59:08
Local clock offset: 1.917 ms
Remote clock offset: -0.648 ms


# Below is generated by plot.py at 2017-08-21 01:32:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 470.697 ms
Loss rate: 5.87%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 470.697 ms
Loss rate: 5.87%
```

Run 2: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.34 Mbit/s)   Flow 1 egress (mean 0.33 Mbit/s)

Flow 1 (95th percentile 470.70 ms)

```
Run 3: Statistics of WebRTC media

Start at: 2017-08-21 00:17:29
End at: 2017-08-21 00:17:59
Local clock offset: 2.098 ms
Remote clock offset: -0.641 ms


# Below is generated by plot.py at 2017-08-21 01:32:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 501.526 ms
Loss rate: 12.87%
-- Flow 1:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 501.526 ms
Loss rate: 12.87%
```

Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.26 Mbit/s)   Flow 1 egress (mean 0.23 Mbit/s)

Flow 1 (95th percentile 501.53 ms)