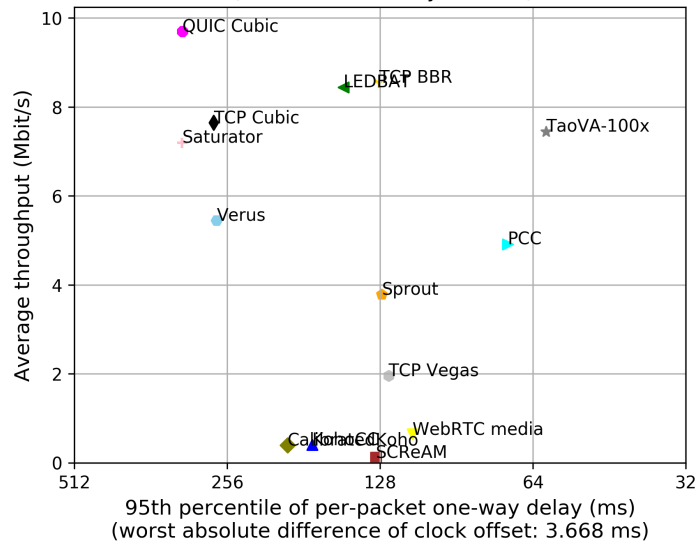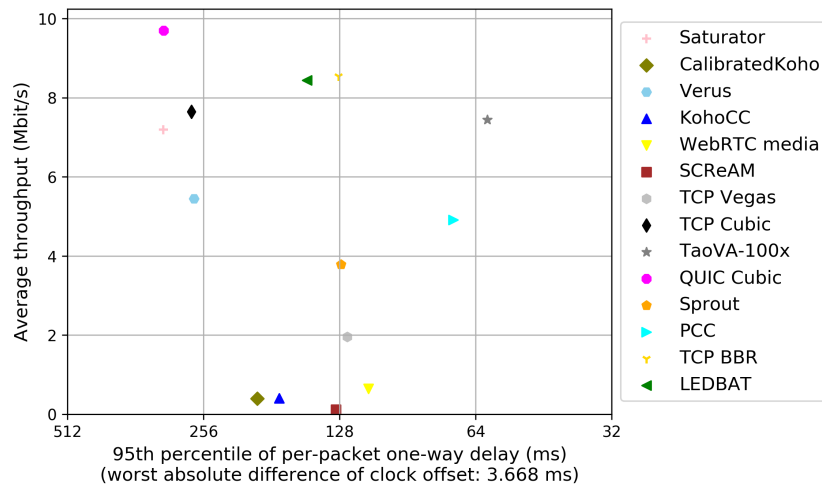**Pantheon Summary** (Generated at Wed, 05 Jul 2017 23:54:39 +0000 with pantheon version `767a95bcc95d67bd77e69c0f8bc9320c1ad3146b`)

Repeated the test of 15 congestion control schemes once.

Each test lasted for 30 seconds running 1 flow.

Data path **from** Stanford ppp0 **to** AWS California 1 Ethernet.

NTP offset measured against time.stanford.edu.

```
git branch: master @ 767a95bcc95d67bd77e69c0f8bc9320c1ad3146b
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 @ c792f8e8e0704b1646a0e024766675d8e9a835f1
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```
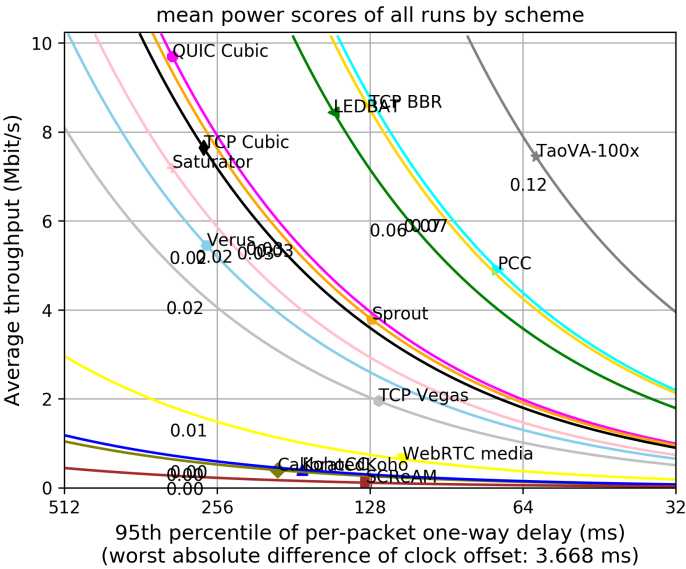
test from Stanford ppp0 to AWS California 1 Ethernet, 1 run of 30s each per scheme
(mean of all runs by scheme)

test from Stanford ppp0 to AWS California 1 Ethernet, 1 run of 30s each per scheme

test from Stanford ppp0 to AWS California 1 Ethernet, 1 run of 30s each per scheme

mean power scores of all runs by scheme

```
Run 1: Statistics of TCP BBR

Start at: Wed, 05 Jul 2017 23:47:10 +0000
End at: Wed, 05 Jul 2017 23:47:40 +0000
Local clock offset: 0.722 ms
Remote clock offset: -2.868 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.54 Mbit/s
95th percentile per-packet one-way delay: 128.702 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 8.54 Mbit/s
95th percentile per-packet one-way delay: 128.702 ms
Loss rate: 0.30%
```
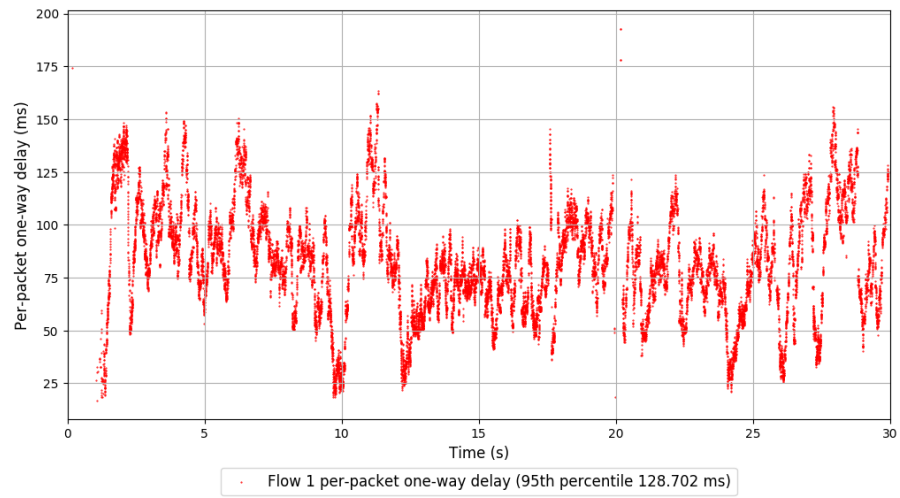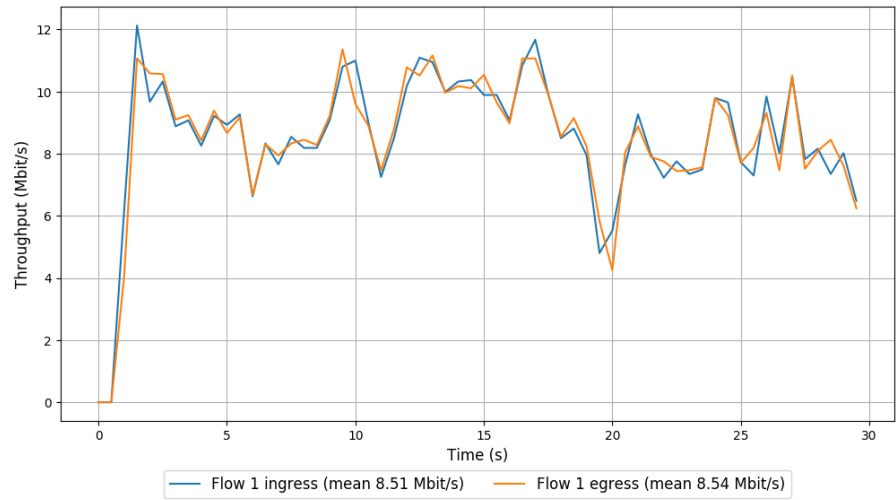
Run 1: Report of TCP BBR — Data Link

```
Run 1: Statistics of CalibratedKoho

Start at: Wed, 05 Jul 2017 23:37:50 +0000
End at: Wed, 05 Jul 2017 23:38:20 +0000
Local clock offset: 0.67 ms
Remote clock offset: -2.978 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 194.769 ms
Loss rate: 4.91%
-- Flow 1:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 194.769 ms
Loss rate: 4.91%
```
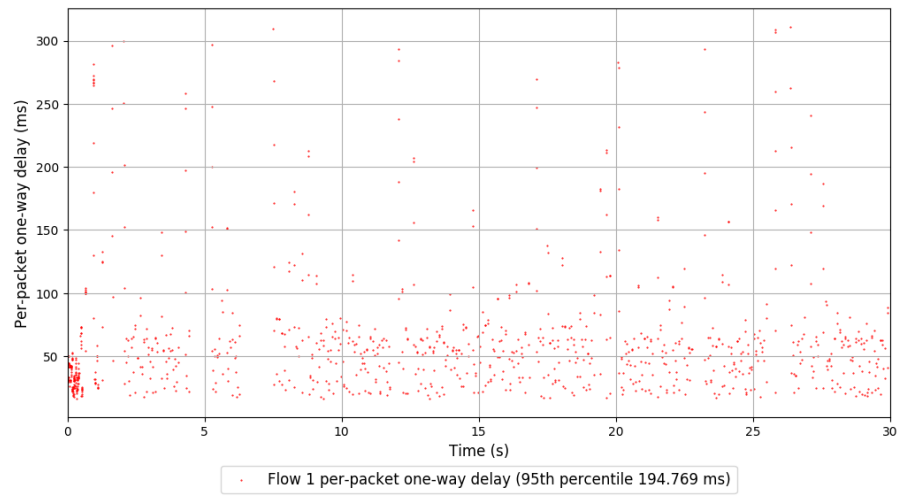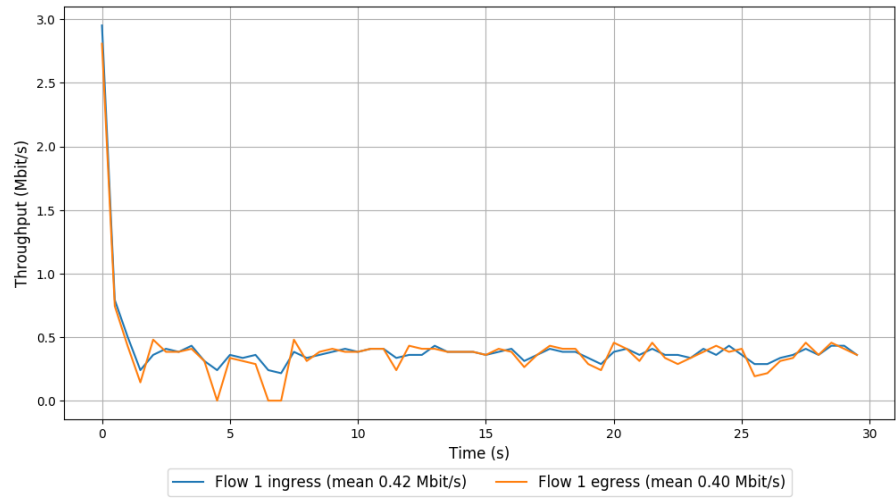
Run 1: Report of CalibratedKoho — Data Link

Flow 1 ingress (mean 0.42 Mbit/s)   Flow 1 egress (mean 0.40 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 194.769 ms)
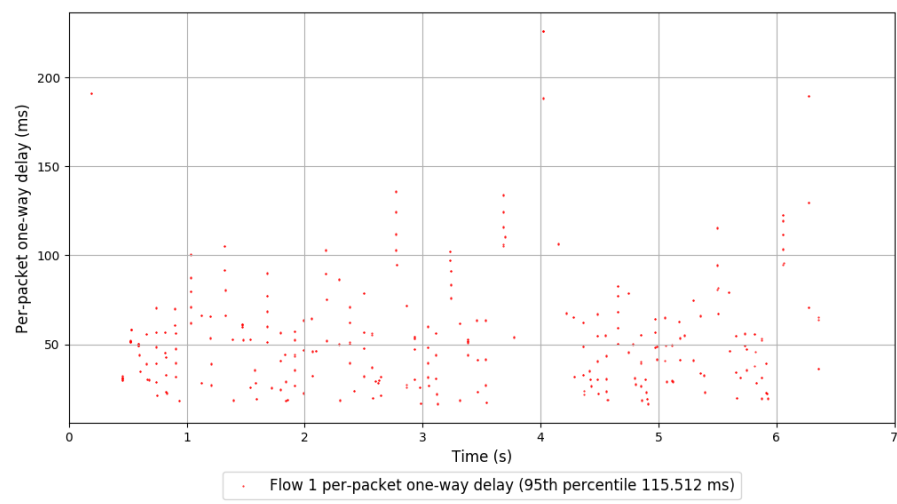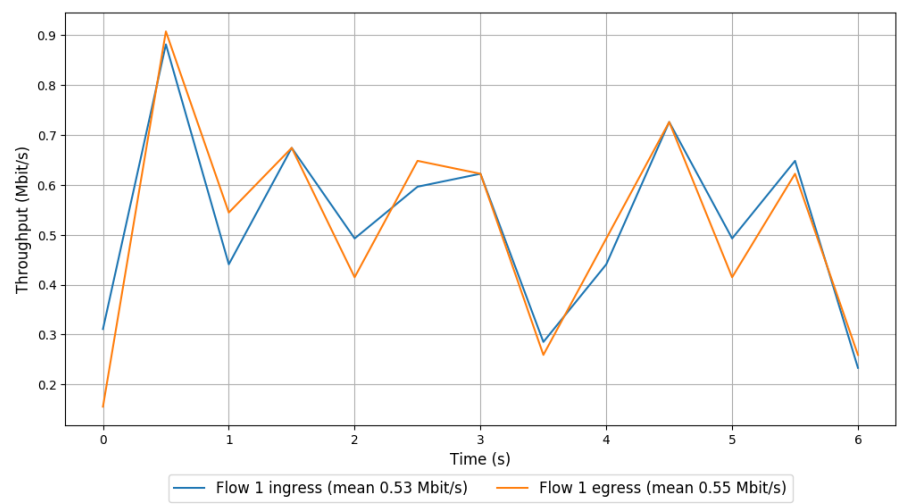
```
Run 1: Statistics of Copa

Start at: Wed, 05 Jul 2017 23:44:50 +0000
End at: Wed, 05 Jul 2017 23:45:20 +0000
Local clock offset: 0.584 ms
Remote clock offset: -2.885 ms
```

Run 1: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: Wed, 05 Jul 2017 23:39:00 +0000
End at: Wed, 05 Jul 2017 23:39:30 +0000
Local clock offset: 0.586 ms
Remote clock offset: -2.975 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:27 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.64 Mbit/s
95th percentile per-packet one-way delay: 272.401 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 7.64 Mbit/s
95th percentile per-packet one-way delay: 272.401 ms
Loss rate: 1.13%
```
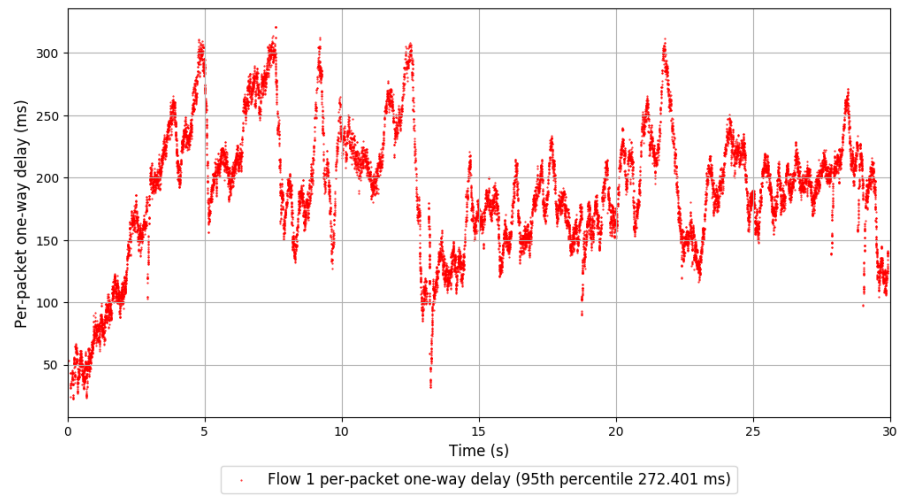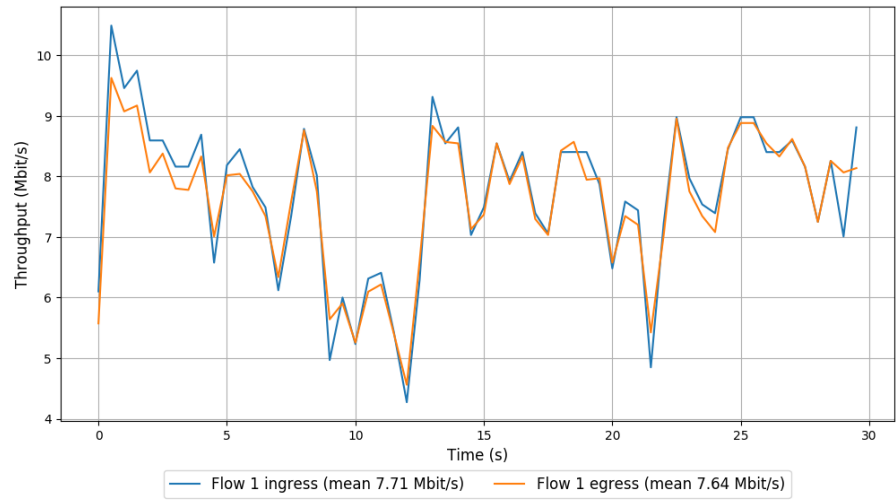
Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 7.71 Mbit/s)   Flow 1 egress (mean 7.64 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 272.401 ms)

```
Run 1: Statistics of KohoCC

Start at: Wed, 05 Jul 2017 23:45:59 +0000
End at: Wed, 05 Jul 2017 23:46:29 +0000
Local clock offset: 0.573 ms
Remote clock offset: -2.913 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:27 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 174.278 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 174.278 ms
Loss rate: 1.77%
```
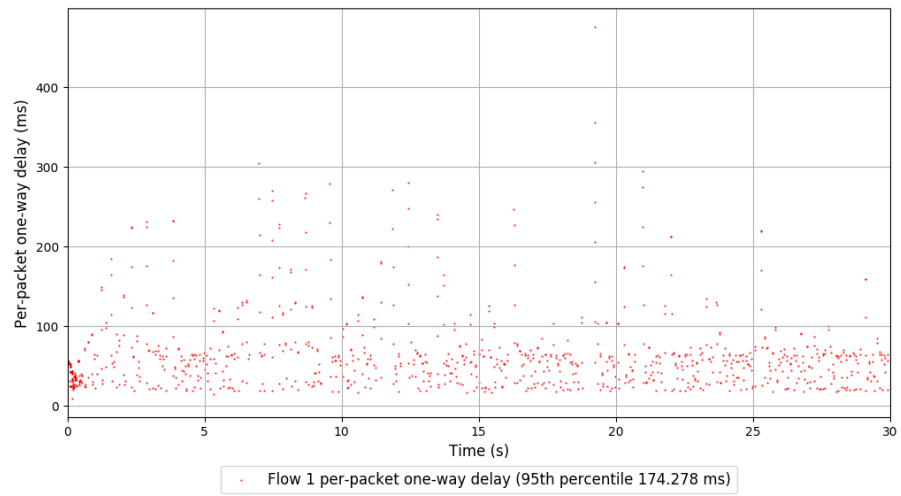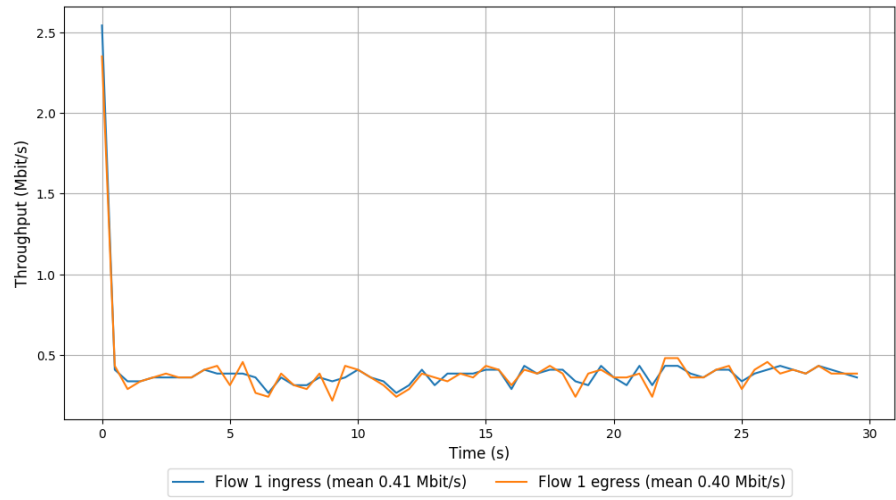
Run 1: Report of KohoCC — Data Link

Flow 1 ingress (mean 0.41 Mbit/s)   Flow 1 egress (mean 0.40 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 174.278 ms)

```
Run 1: Statistics of LEDBAT

Start at: Wed, 05 Jul 2017 23:52:59 +0000
End at: Wed, 05 Jul 2017 23:53:29 +0000
Local clock offset: 0.702 ms
Remote clock offset: -2.656 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:28 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.45 Mbit/s
95th percentile per-packet one-way delay: 151.078 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 8.45 Mbit/s
95th percentile per-packet one-way delay: 151.078 ms
Loss rate: 0.48%
```
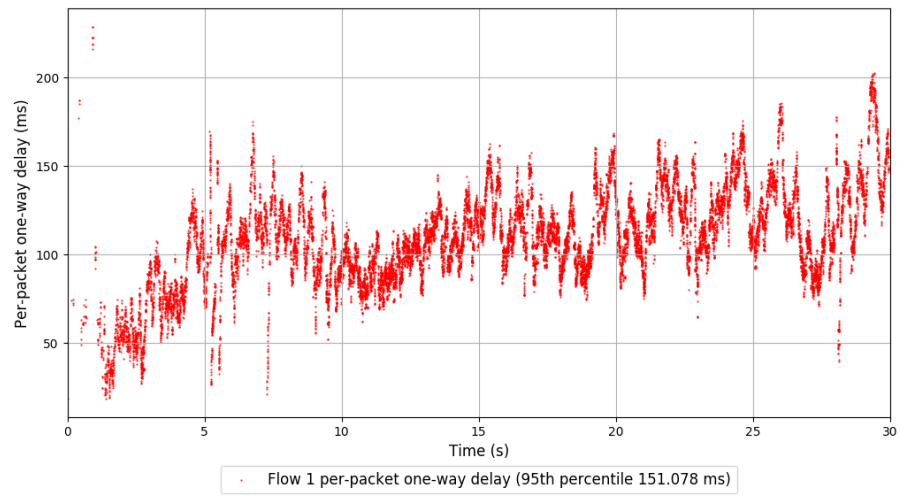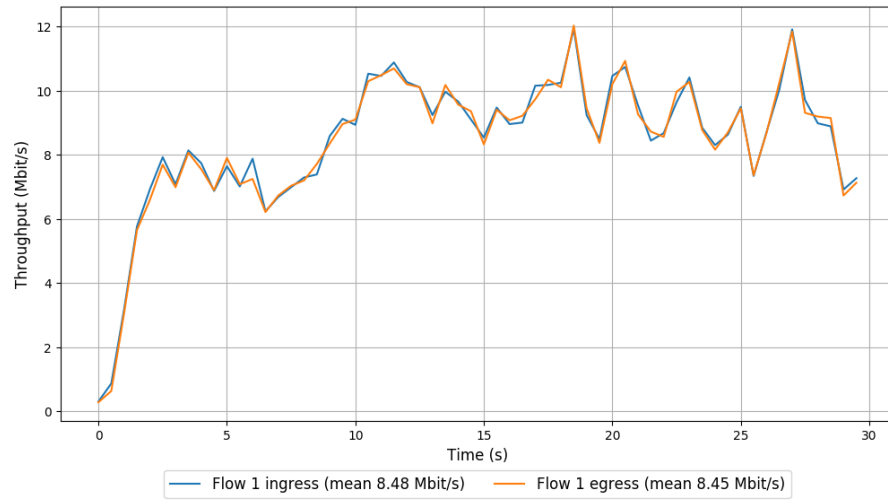
Run 1: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC

Start at: Wed, 05 Jul 2017 23:42:30 +0000
End at: Wed, 05 Jul 2017 23:43:00 +0000
Local clock offset: 0.681 ms
Remote clock offset: -2.987 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:29 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.91 Mbit/s
95th percentile per-packet one-way delay: 71.783 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 4.91 Mbit/s
95th percentile per-packet one-way delay: 71.783 ms
Loss rate: 0.16%
```
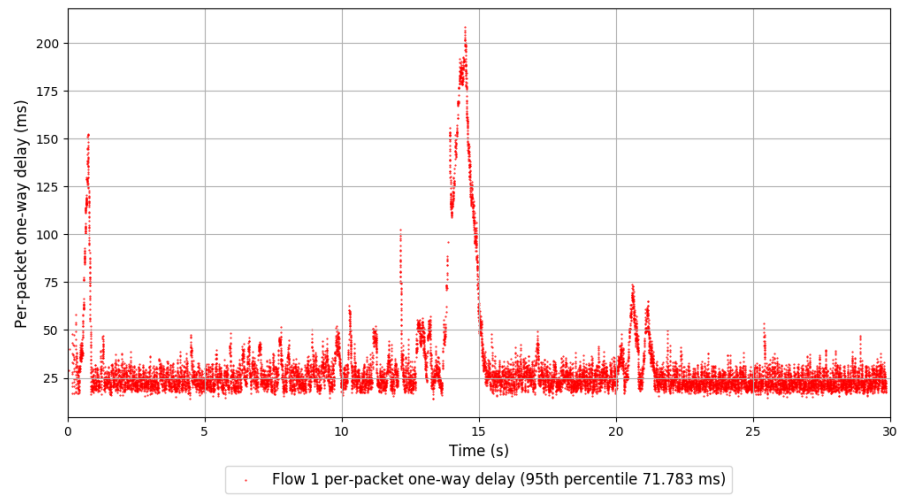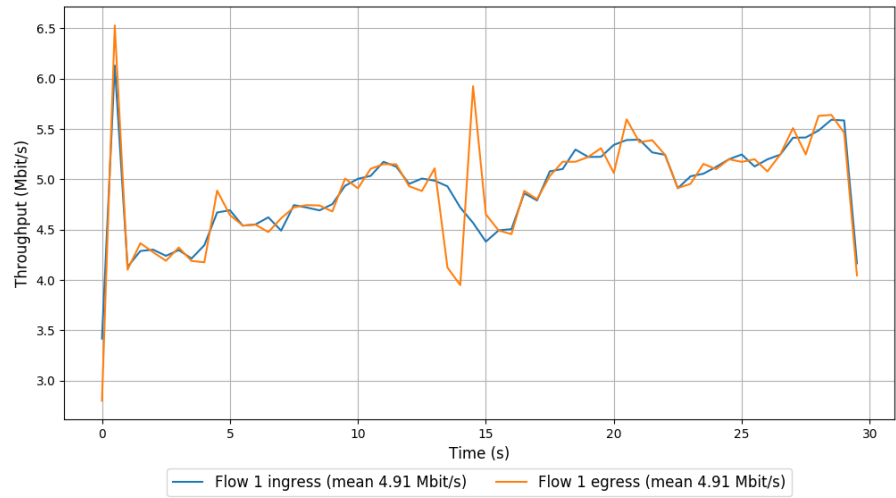
Run 1: Report of PCC — Data Link

Flow 1 ingress (mean 4.91 Mbit/s) —— Flow 1 egress (mean 4.91 Mbit/s)

· Flow 1 per-packet one-way delay (95th percentile 71.783 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: Wed, 05 Jul 2017 23:36:40 +0000
End at: Wed, 05 Jul 2017 23:37:10 +0000
Local clock offset: 0.593 ms
Remote clock offset: -2.983 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.70 Mbit/s
95th percentile per-packet one-way delay: 313.622 ms
Loss rate: 2.39%
-- Flow 1:
Average throughput: 9.70 Mbit/s
95th percentile per-packet one-way delay: 313.622 ms
Loss rate: 2.39%
```
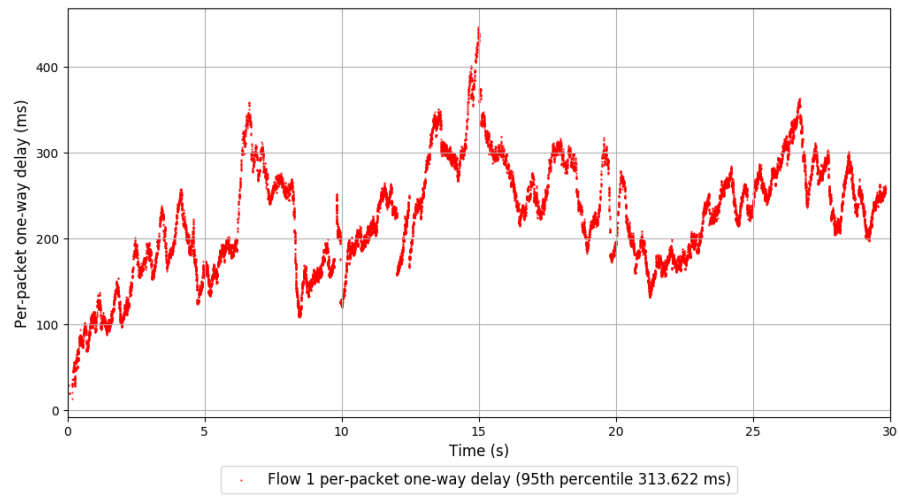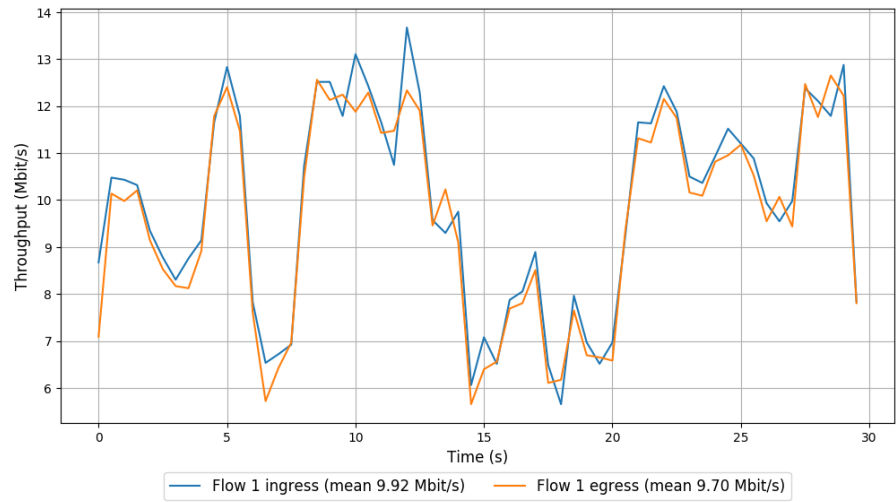
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 9.92 Mbit/s) — Flow 1 egress (mean 9.70 Mbit/s)

· Flow 1 per-packet one-way delay (95th percentile 313.622 ms)

```
Run 1: Statistics of Saturator

Start at: Wed, 05 Jul 2017 23:48:20 +0000
End at: Wed, 05 Jul 2017 23:48:50 +0000
Local clock offset: 0.605 ms
Remote clock offset: -2.942 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.19 Mbit/s
95th percentile per-packet one-way delay: 314.348 ms
Loss rate: 8.89%
-- Flow 1:
Average throughput: 7.19 Mbit/s
95th percentile per-packet one-way delay: 314.348 ms
Loss rate: 8.89%
```
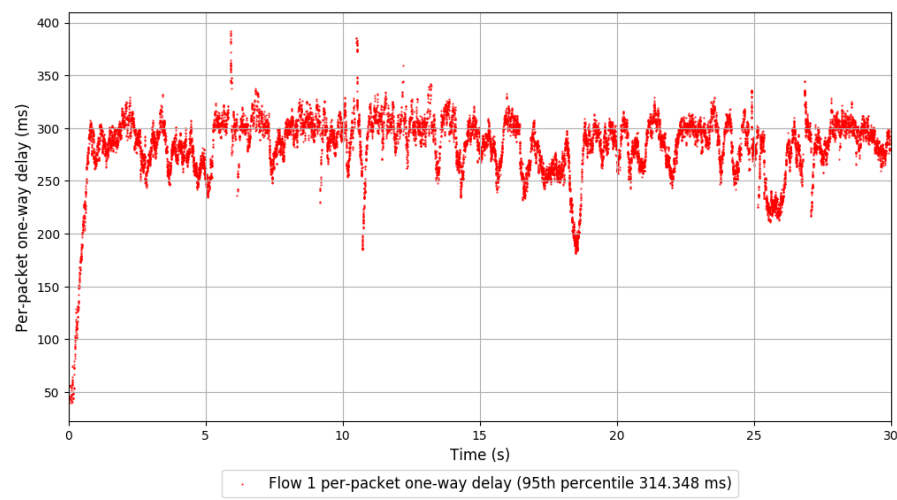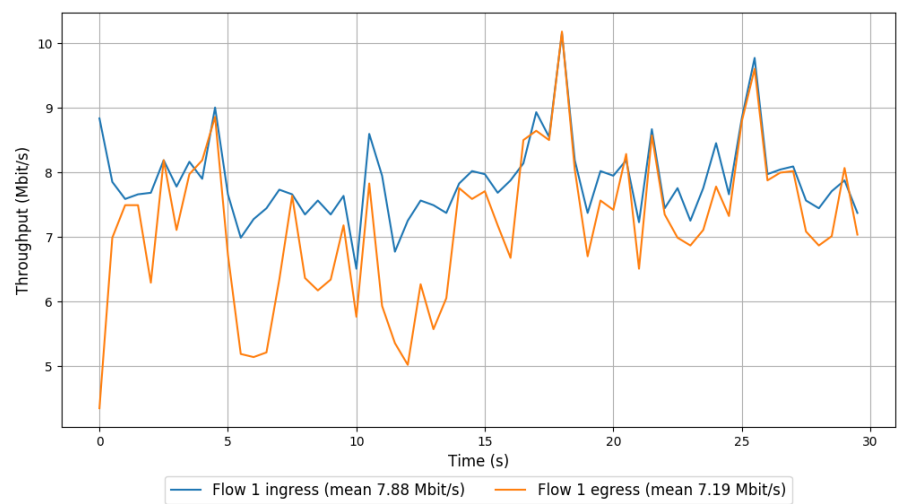
Run 1: Report of Saturator — Data Link

Flow 1 ingress (mean 7.88 Mbit/s) —— Flow 1 egress (mean 7.19 Mbit/s)

· Flow 1 per-packet one-way delay (95th percentile 314.348 ms)

```
Run 1: Statistics of SCReAM

Start at: Wed, 05 Jul 2017 23:51:49 +0000
End at: Wed, 05 Jul 2017 23:52:19 +0000
Local clock offset: 0.701 ms
Remote clock offset: -2.681 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 130.574 ms
Loss rate: 2.03%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 130.574 ms
Loss rate: 2.03%
```
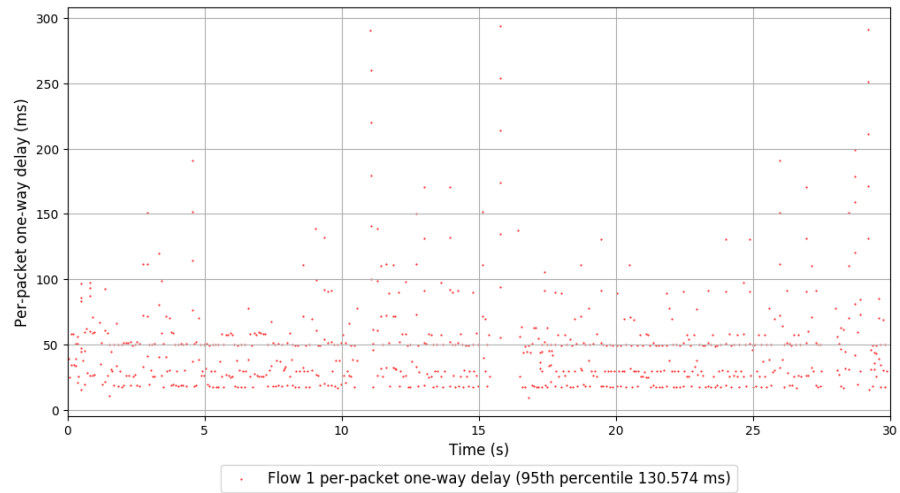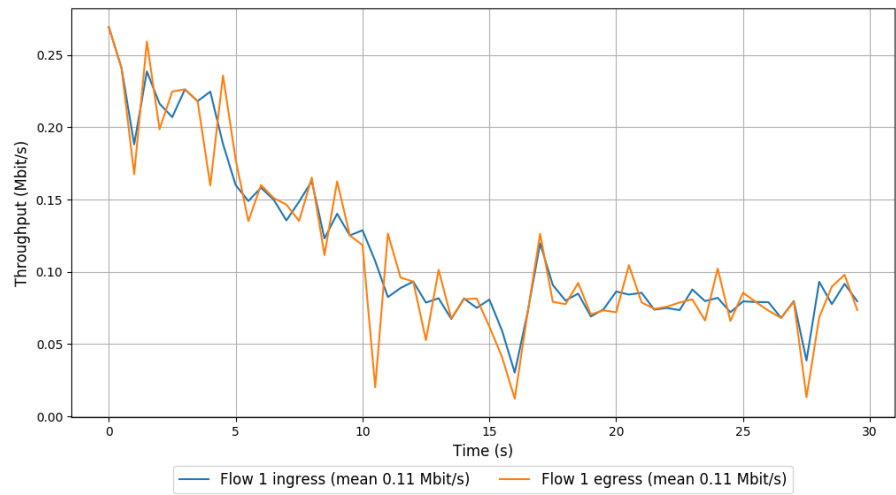
Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.11 Mbit/s)   Flow 1 egress (mean 0.11 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 130.574 ms)

```
Run 1: Statistics of Sprout

Start at: Wed, 05 Jul 2017 23:49:30 +0000
End at: Wed, 05 Jul 2017 23:50:00 +0000
Local clock offset: 0.719 ms
Remote clock offset: -2.813 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:32 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.78 Mbit/s
95th percentile per-packet one-way delay: 127.081 ms
Loss rate: 1.49%
-- Flow 1:
Average throughput: 3.78 Mbit/s
95th percentile per-packet one-way delay: 127.081 ms
Loss rate: 1.49%
```
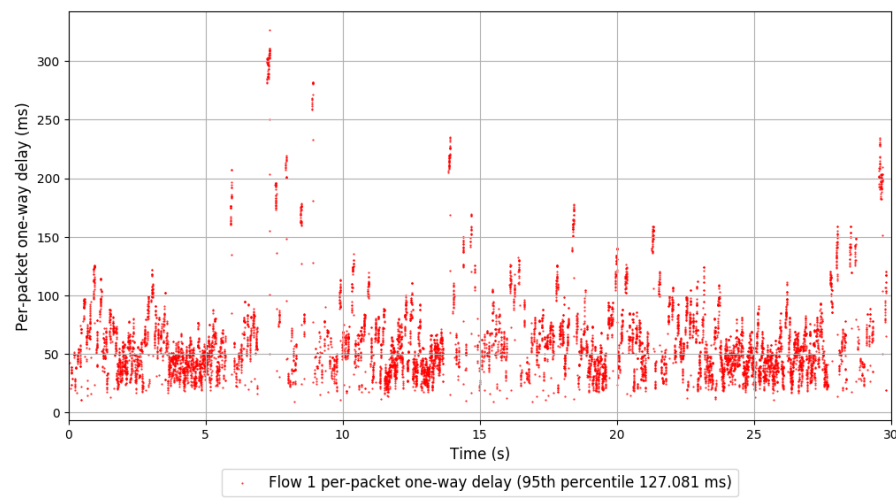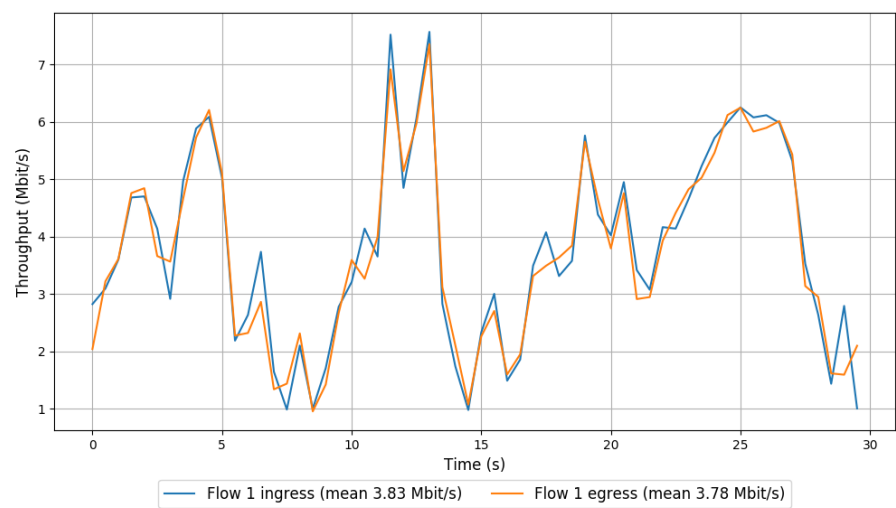
Run 1: Report of Sprout — Data Link

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

Start at: Wed, 05 Jul 2017 23:43:40 +0000
End at: Wed, 05 Jul 2017 23:44:10 +0000
Local clock offset: 0.689 ms
Remote clock offset: -2.858 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:34 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.45 Mbit/s
95th percentile per-packet one-way delay: 60.354 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 7.45 Mbit/s
95th percentile per-packet one-way delay: 60.354 ms
Loss rate: 0.87%
```
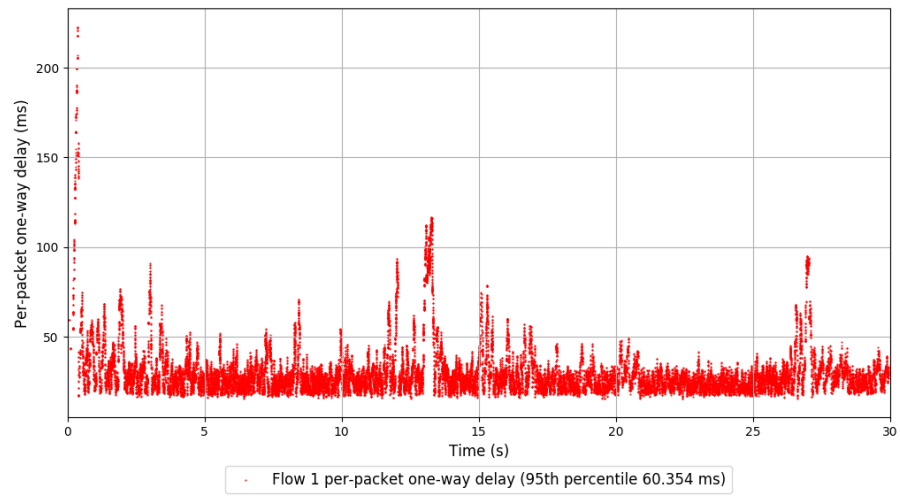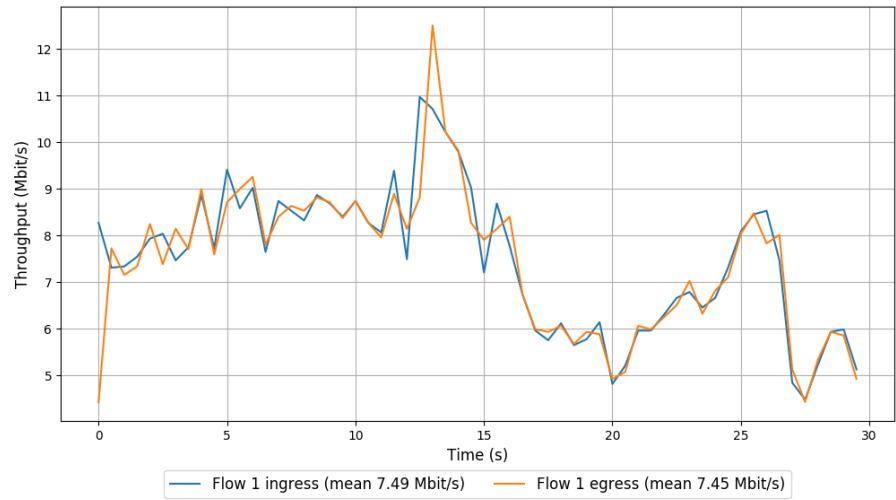
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 7.49 Mbit/s)   Flow 1 egress (mean 7.45 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 60.354 ms)

```
Run 1: Statistics of TCP Vegas

Start at: Wed, 05 Jul 2017 23:41:20 +0000
End at: Wed, 05 Jul 2017 23:41:50 +0000
Local clock offset: 0.674 ms
Remote clock offset: -2.922 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:34 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 123.228 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 123.228 ms
Loss rate: 0.19%
```
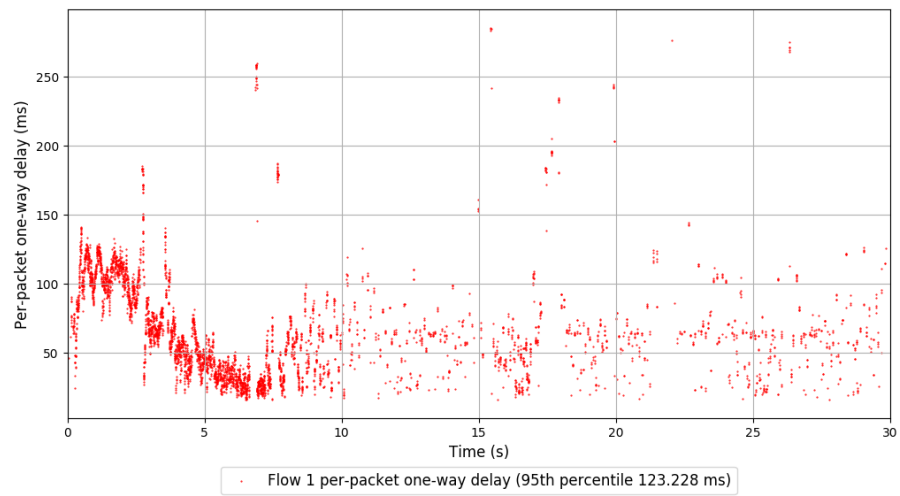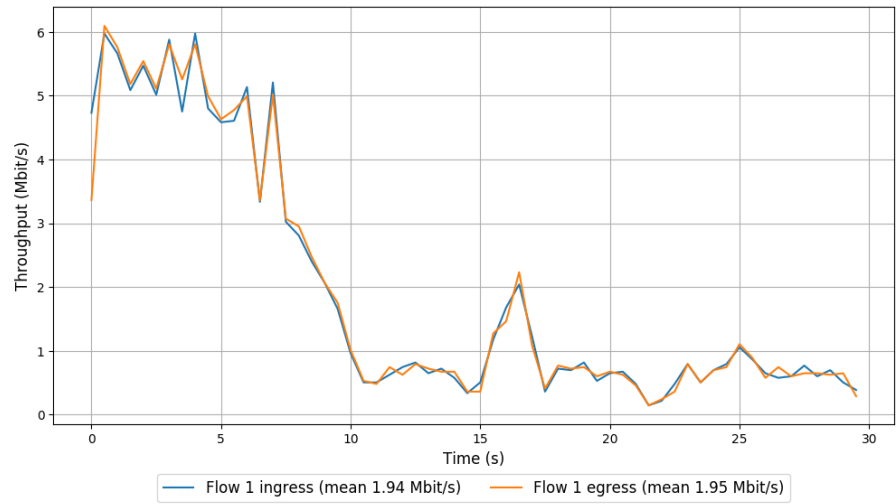
Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 1.94 Mbit/s) —— Flow 1 egress (mean 1.95 Mbit/s)

· Flow 1 per-packet one-way delay (95th percentile 123.228 ms)

```
Run 1: Statistics of Verus

Start at: Wed, 05 Jul 2017 23:40:10 +0000
End at: Wed, 05 Jul 2017 23:40:40 +0000
Local clock offset: 0.595 ms
Remote clock offset: -2.812 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.45 Mbit/s
95th percentile per-packet one-way delay: 268.695 ms
Loss rate: 3.07%
-- Flow 1:
Average throughput: 5.45 Mbit/s
95th percentile per-packet one-way delay: 268.695 ms
Loss rate: 3.07%
```
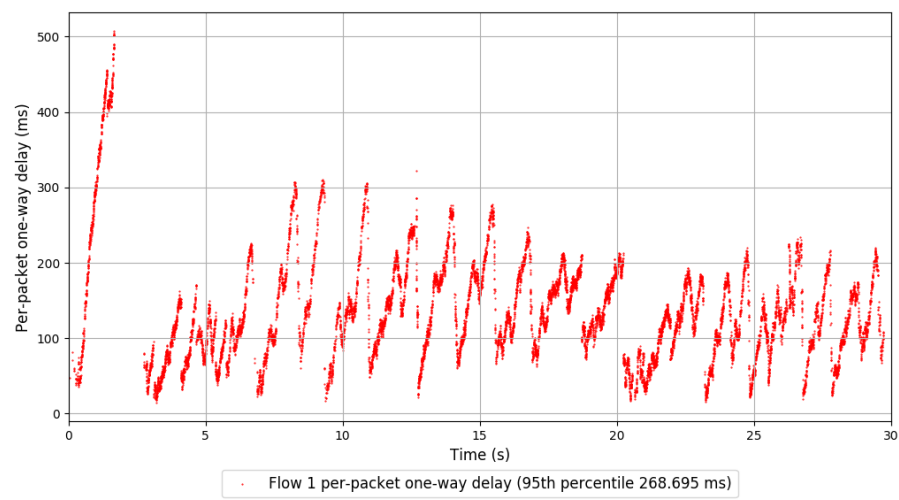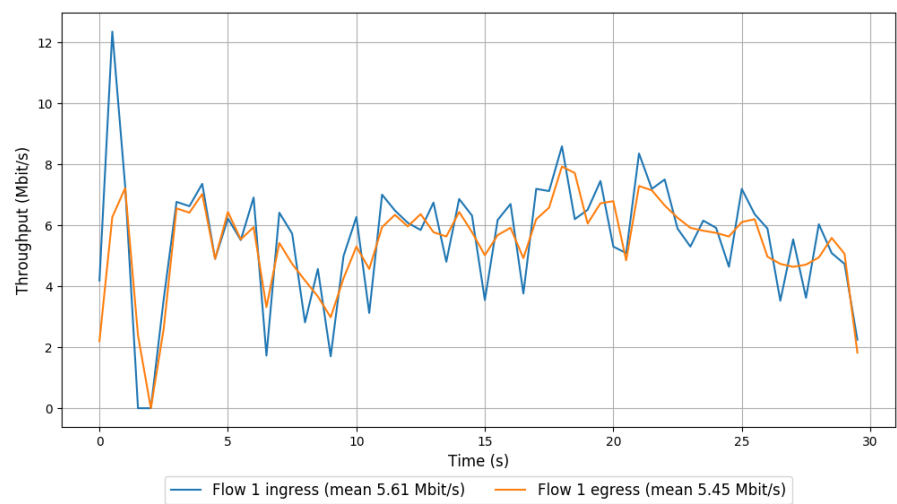
Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 5.61 Mbit/s)   Flow 1 egress (mean 5.45 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 268.695 ms)

```
Run 1: Statistics of WebRTC media

Start at: Wed, 05 Jul 2017 23:50:40 +0000
End at: Wed, 05 Jul 2017 23:51:10 +0000
Local clock offset: 0.625 ms
Remote clock offset: -2.797 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 110.464 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 110.464 ms
Loss rate: 1.43%
```

Run 1: Report of WebRTC media — Data Link