Pantheon Summary (Generated at Wed, 05 Jul 2017 05:37:58 +0000 with pantheon version `afeabcbf9f0bccb7f5555428c3b5bcceec857e76`)

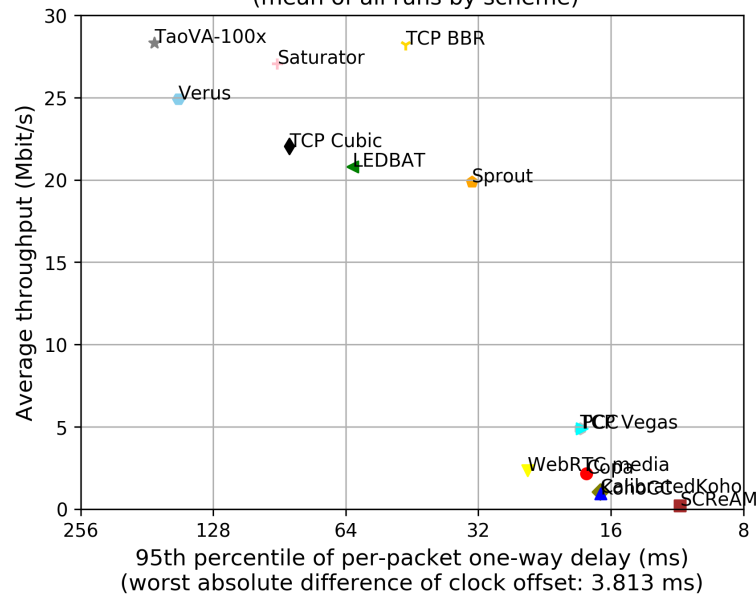Repeated the test of 15 congestion control schemes once.

Each test lasted for 30 seconds running 1 flow.

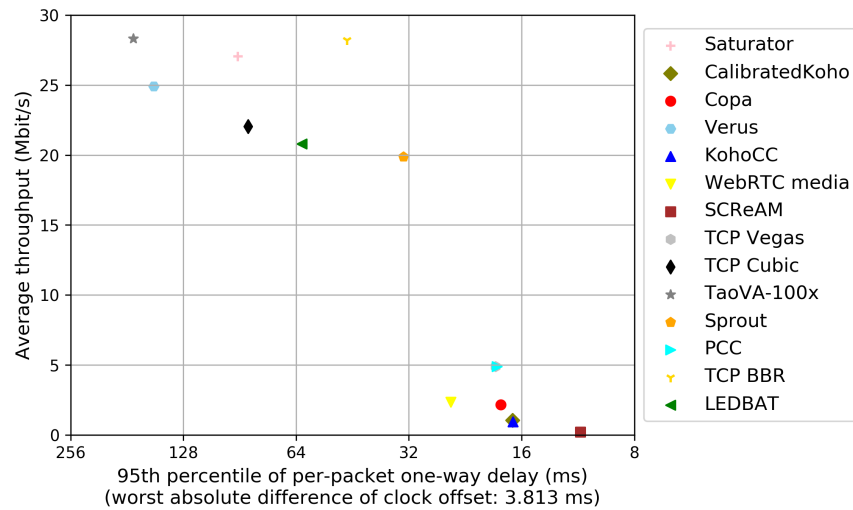Data path **from** AWS Brazil 1 Ethernet **to** Brazil ppp0.

NTP offset measured against gps.ntp.br.

```
git branch: master @ afeabcbf9f0bccb7f5555428c3b5bcceec857e76
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
```
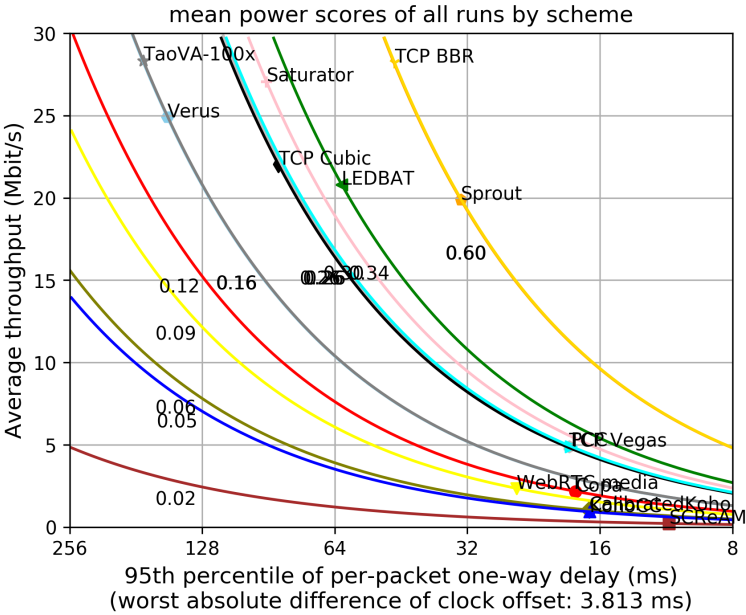
1

test from AWS Brazil 1 Ethernet to Brazil ppp0, 1 run of 30s each per scheme
(mean of all runs by scheme)

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

test from AWS Brazil 1 Ethernet to Brazil ppp0, 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 05:18:12 +0000
End at: Wed, 05 Jul 2017 05:18:42 +0000
Local clock offset: -0.214 ms
Remote clock offset: 3.47 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.22 Mbit/s
95th percentile per-packet one-way delay: 46.824 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 28.22 Mbit/s
95th percentile per-packet one-way delay: 46.824 ms
Loss rate: 0.58%
```
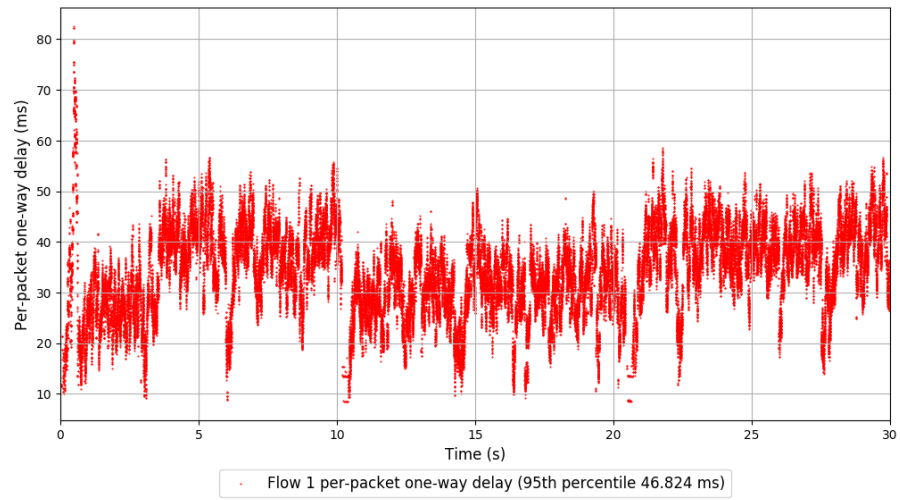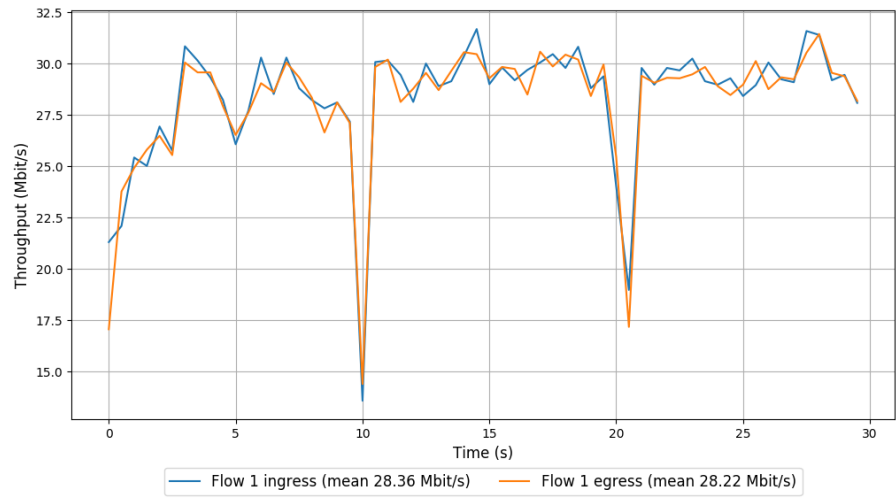
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 28.36 Mbit/s) —— Flow 1 egress (mean 28.22 Mbit/s)

· Flow 1 per-packet one-way delay (95th percentile 46.824 ms)

```
Run 1: Statistics of CalibratedKoho

Start at: Wed, 05 Jul 2017 05:09:35 +0000
End at: Wed, 05 Jul 2017 05:10:05 +0000
Local clock offset: -0.236 ms
Remote clock offset: 3.577 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 16.916 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 16.916 ms
Loss rate: 0.04%
```
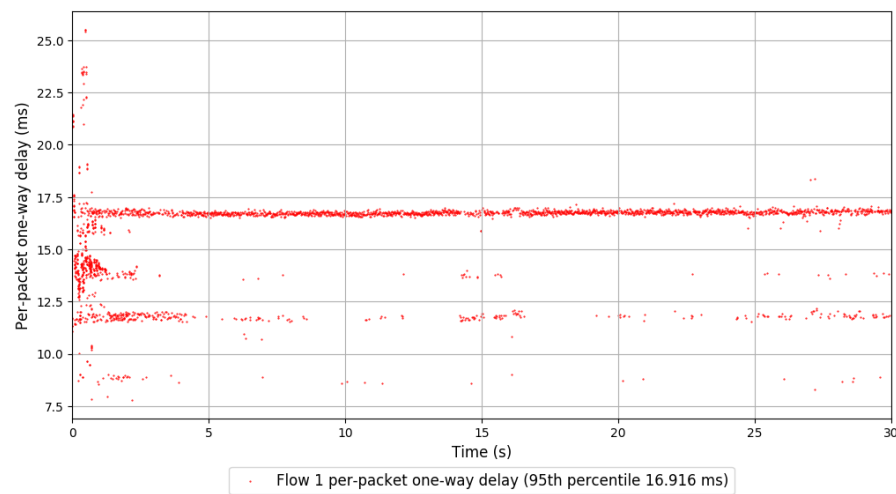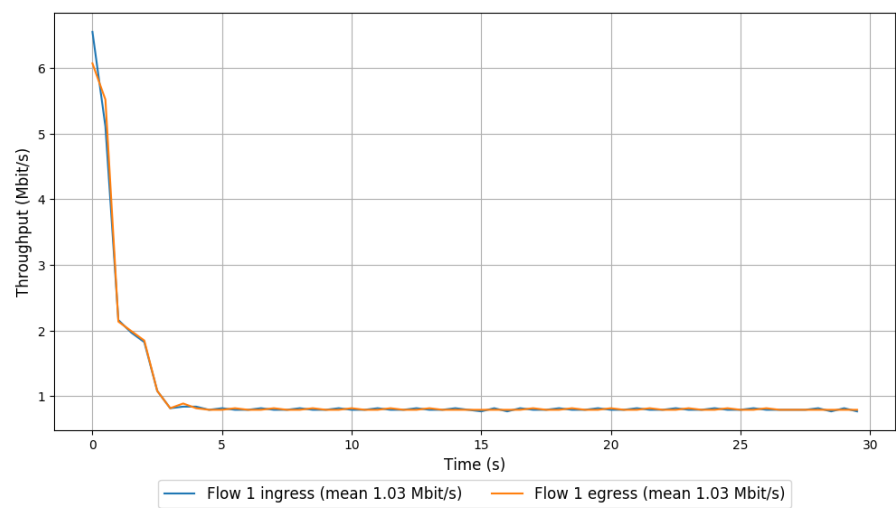
Run 1: Report of CalibratedKoho — Data Link

```
Run 1: Statistics of Copa

Start at: Wed, 05 Jul 2017 05:06:21 +0000
End at: Wed, 05 Jul 2017 05:06:51 +0000
Local clock offset: -0.233 ms
Remote clock offset: 3.529 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 18.170 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 18.170 ms
Loss rate: 0.04%
```
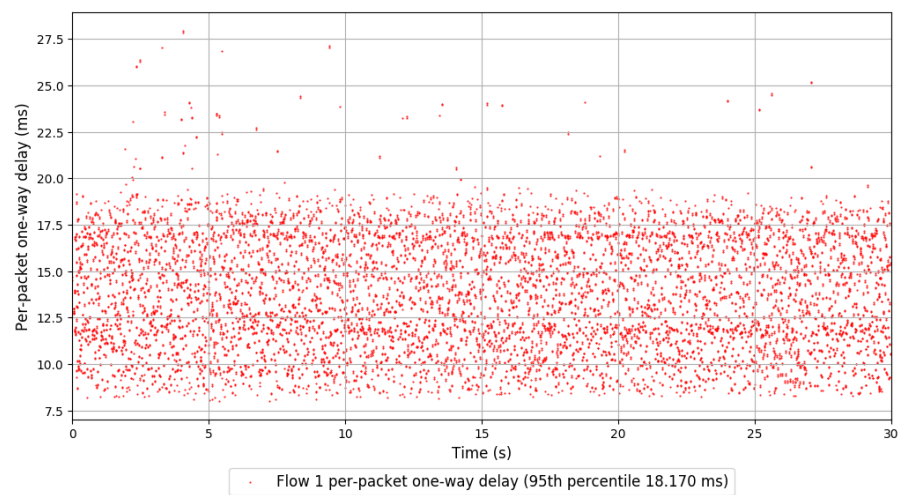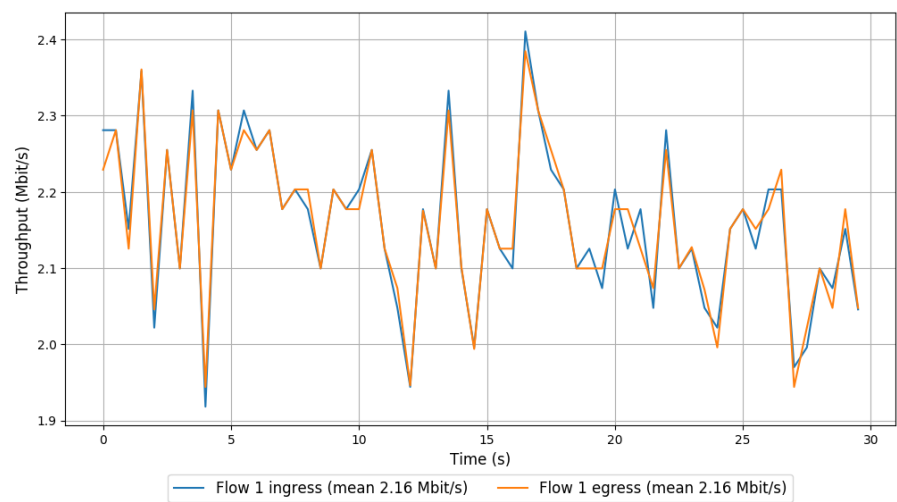
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 2.16 Mbit/s)   Flow 1 egress (mean 2.16 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 18.170 ms)

```
Run 1: Statistics of TCP Cubic

Start at: Wed, 05 Jul 2017 05:05:16 +0000
End at: Wed, 05 Jul 2017 05:05:46 +0000
Local clock offset: -0.15 ms
Remote clock offset: 3.444 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:39 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.03 Mbit/s
95th percentile per-packet one-way delay: 85.938 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 22.03 Mbit/s
95th percentile per-packet one-way delay: 85.938 ms
Loss rate: 0.38%
```
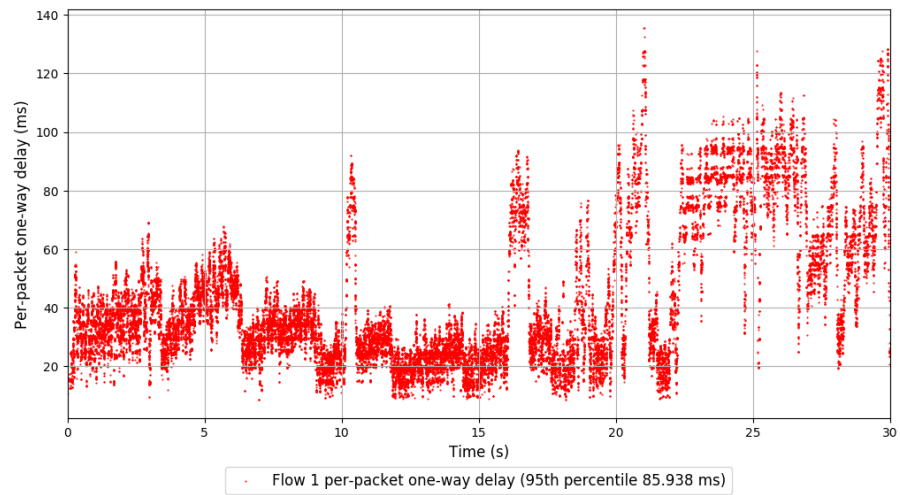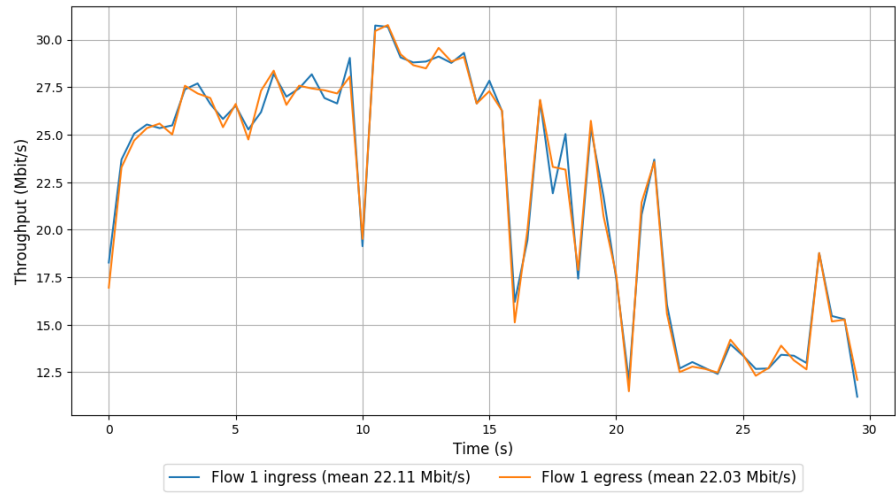
Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 22.11 Mbit/s) — Flow 1 egress (mean 22.03 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 85.938 ms)

```
Run 1: Statistics of KohoCC

Start at: Wed, 05 Jul 2017 05:12:51 +0000
End at: Wed, 05 Jul 2017 05:13:21 +0000
Local clock offset: -0.169 ms
Remote clock offset: 3.522 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:39 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 16.880 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 16.880 ms
Loss rate: 0.04%
```
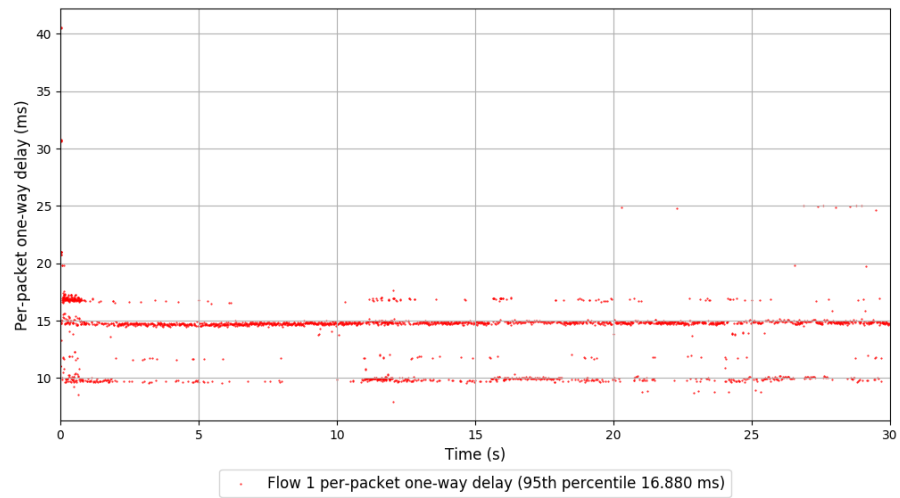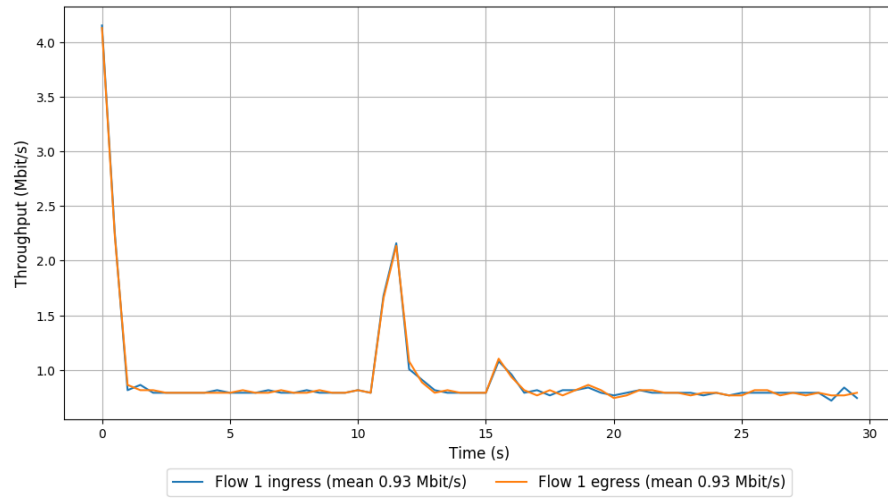
Run 1: Report of KohoCC — Data Link

Flow 1 ingress (mean 0.93 Mbit/s)   Flow 1 egress (mean 0.93 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 16.880 ms)

```
Run 1: Statistics of LEDBAT

Start at: Wed, 05 Jul 2017 05:14:59 +0000
End at: Wed, 05 Jul 2017 05:15:29 +0000
Local clock offset: -0.259 ms
Remote clock offset: 3.519 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:43 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.82 Mbit/s
95th percentile per-packet one-way delay: 61.719 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 20.82 Mbit/s
95th percentile per-packet one-way delay: 61.719 ms
Loss rate: 0.49%
```
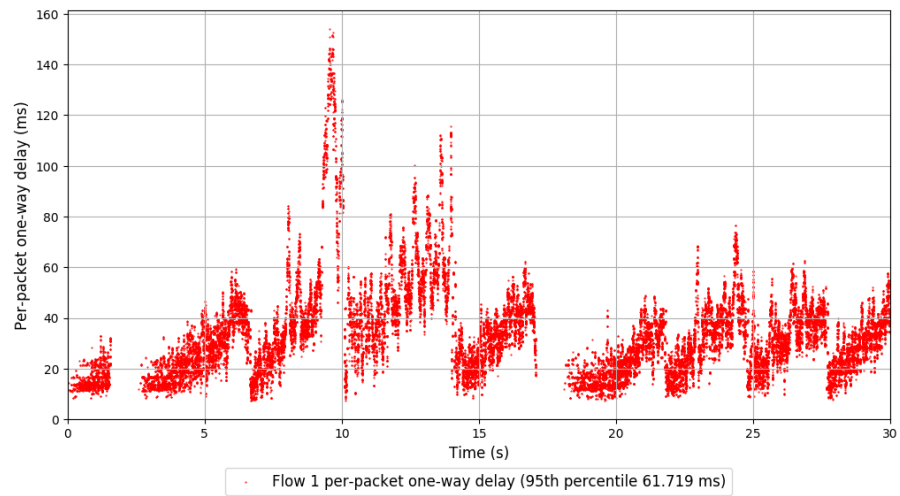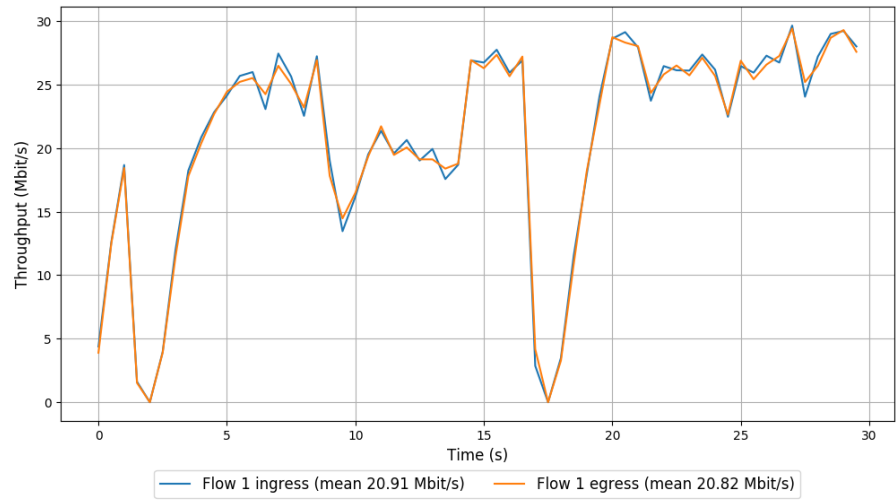
Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 20.91 Mbit/s)   Flow 1 egress (mean 20.82 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 61.719 ms)

```
Run 1: Statistics of PCC

Start at: Wed, 05 Jul 2017 05:20:22 +0000
End at: Wed, 05 Jul 2017 05:20:52 +0000
Local clock offset: -0.274 ms
Remote clock offset: 3.386 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:43 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 18.610 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 18.610 ms
Loss rate: 0.07%
```
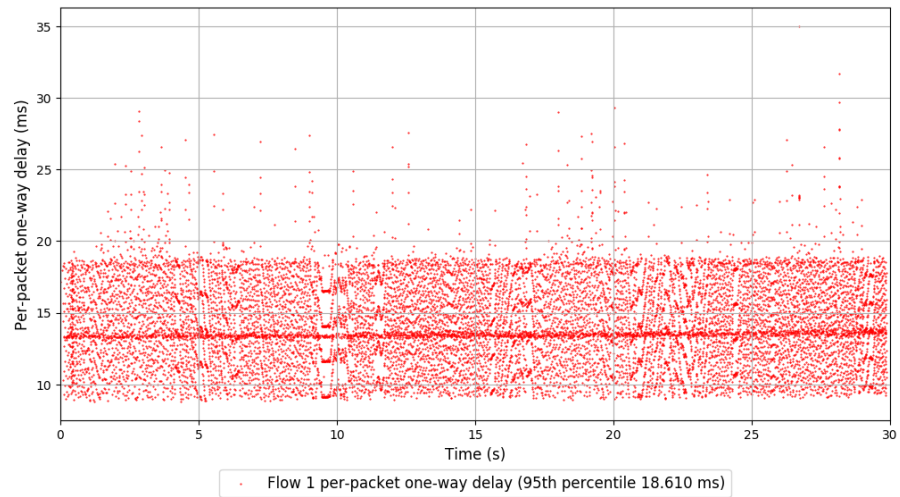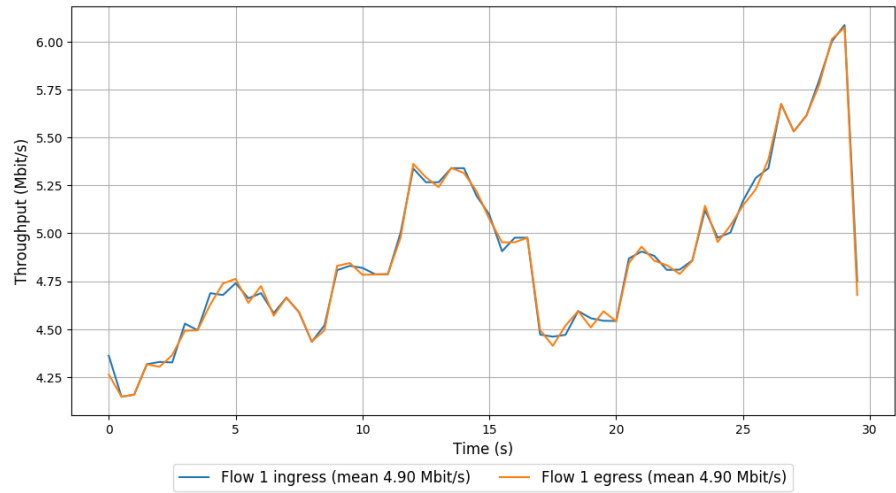
Run 1: Report of PCC — Data Link

Flow 1 ingress (mean 4.90 Mbit/s)   Flow 1 egress (mean 4.90 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 18.610 ms)
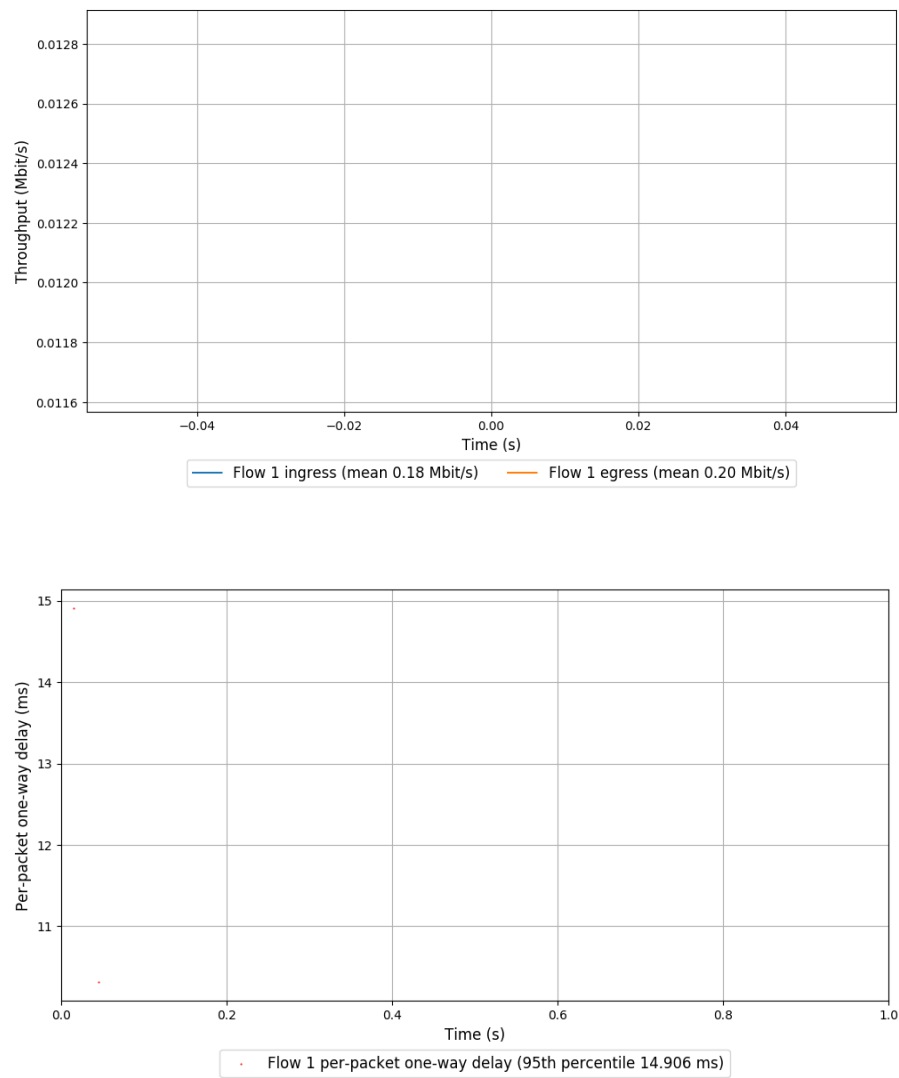
Run 1: Statistics of QUIC Cubic

Start at: Wed, 05 Jul 2017 05:16:04 +0000
End at: Wed, 05 Jul 2017 05:16:34 +0000
Local clock offset: -0.189 ms
Remote clock offset: 3.447 ms

Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.18 Mbit/s)   Flow 1 egress (mean 0.20 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 14.906 ms)

```
Run 1: Statistics of Saturator

Start at: Wed, 05 Jul 2017 05:08:29 +0000
End at: Wed, 05 Jul 2017 05:08:59 +0000
Local clock offset: -0.205 ms
Remote clock offset: 3.566 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.07 Mbit/s
95th percentile per-packet one-way delay: 91.473 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 27.07 Mbit/s
95th percentile per-packet one-way delay: 91.473 ms
Loss rate: 0.51%
```
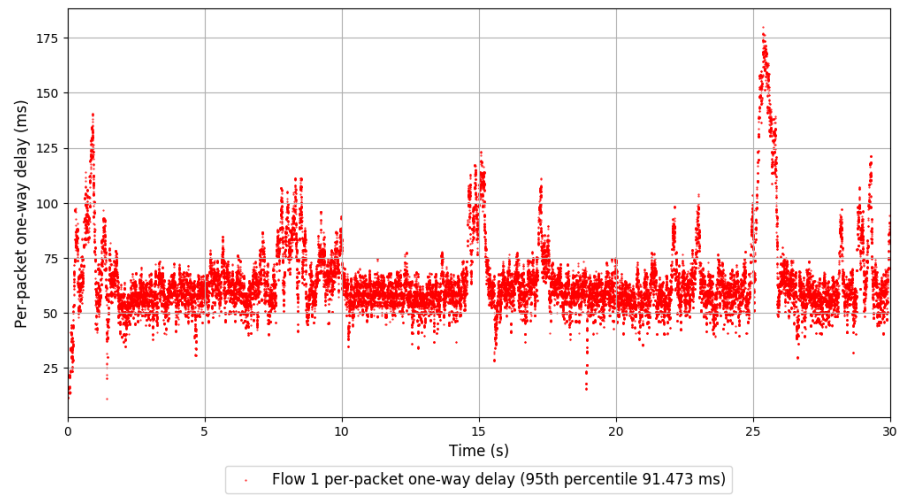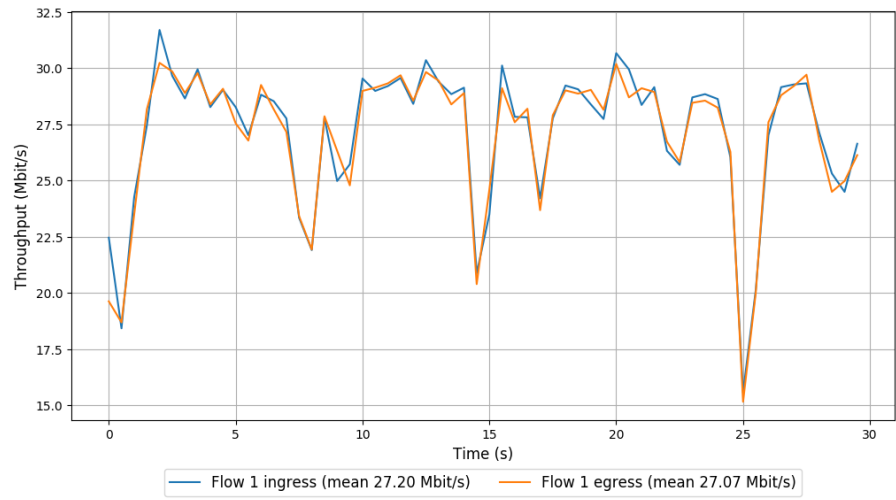
Run 1: Report of Saturator — Data Link

Flow 1 ingress (mean 27.20 Mbit/s) — Flow 1 egress (mean 27.07 Mbit/s)

· Flow 1 per-packet one-way delay (95th percentile 91.473 ms)

```
Run 1: Statistics of SCReAM

Start at: Wed, 05 Jul 2017 05:17:08 +0000
End at: Wed, 05 Jul 2017 05:17:38 +0000
Local clock offset: -0.26 ms
Remote clock offset: 3.41 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 11.153 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 11.153 ms
Loss rate: 0.00%
```
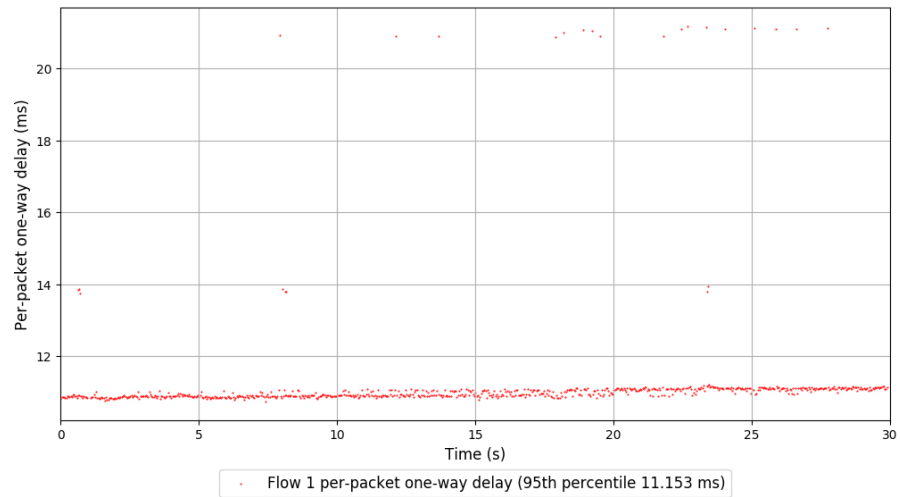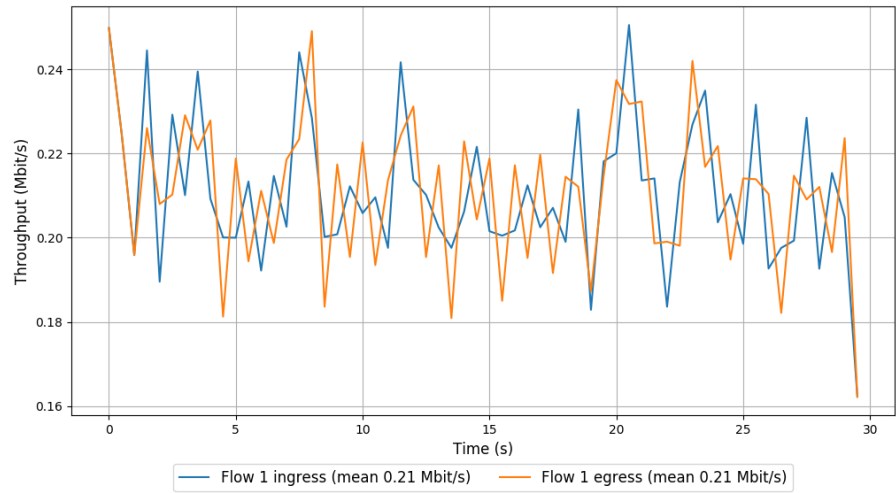
Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.21 Mbit/s) —— Flow 1 egress (mean 0.21 Mbit/s)

· Flow 1 per-packet one-way delay (95th percentile 11.153 ms)

```
Run 1: Statistics of Sprout

Start at: Wed, 05 Jul 2017 05:13:55 +0000
End at: Wed, 05 Jul 2017 05:14:25 +0000
Local clock offset: -0.244 ms
Remote clock offset: 3.529 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:48 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 19.89 Mbit/s
95th percentile per-packet one-way delay: 33.111 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 19.89 Mbit/s
95th percentile per-packet one-way delay: 33.111 ms
Loss rate: 0.39%
```
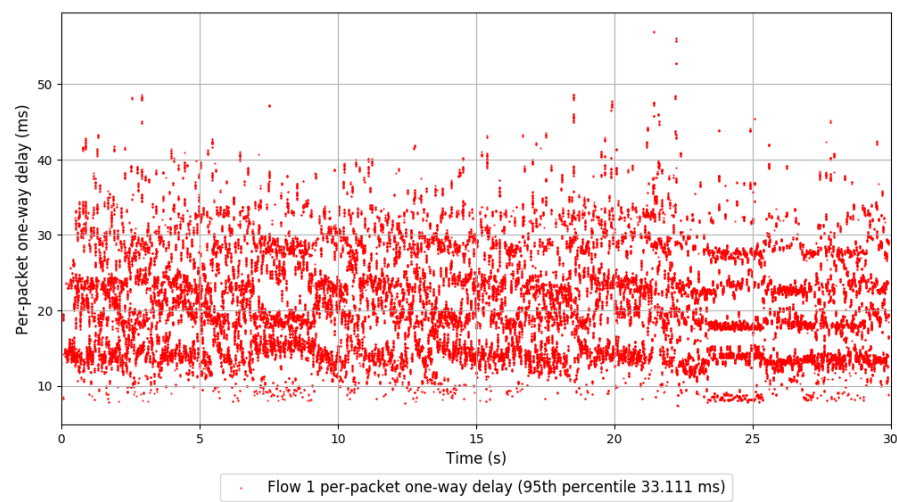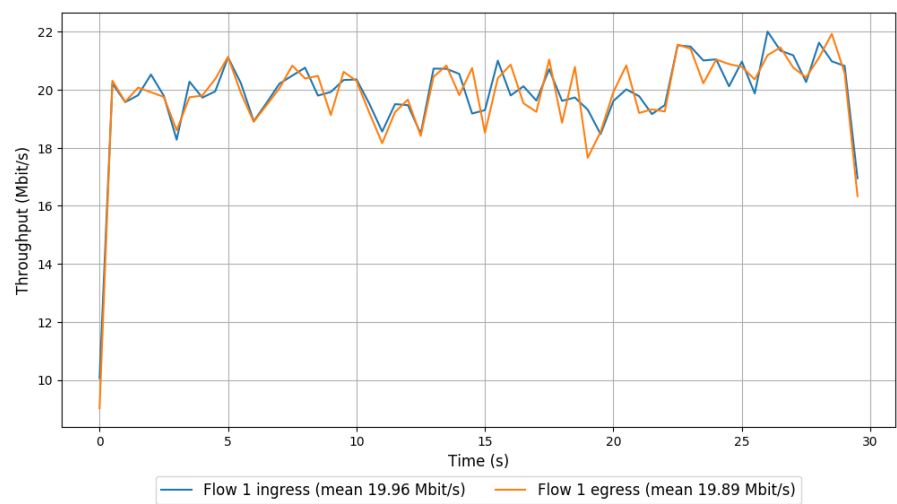
Run 1: Report of Sprout — Data Link

Flow 1 ingress (mean 19.96 Mbit/s) ⸺ Flow 1 egress (mean 19.89 Mbit/s)

· Flow 1 per-packet one-way delay (95th percentile 33.111 ms)

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

Start at: Wed, 05 Jul 2017 05:10:39 +0000
End at: Wed, 05 Jul 2017 05:11:09 +0000
Local clock offset: -0.181 ms
Remote clock offset: 3.598 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:54 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.34 Mbit/s
95th percentile per-packet one-way delay: 174.239 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 28.34 Mbit/s
95th percentile per-packet one-way delay: 174.239 ms
Loss rate: 0.77%
```
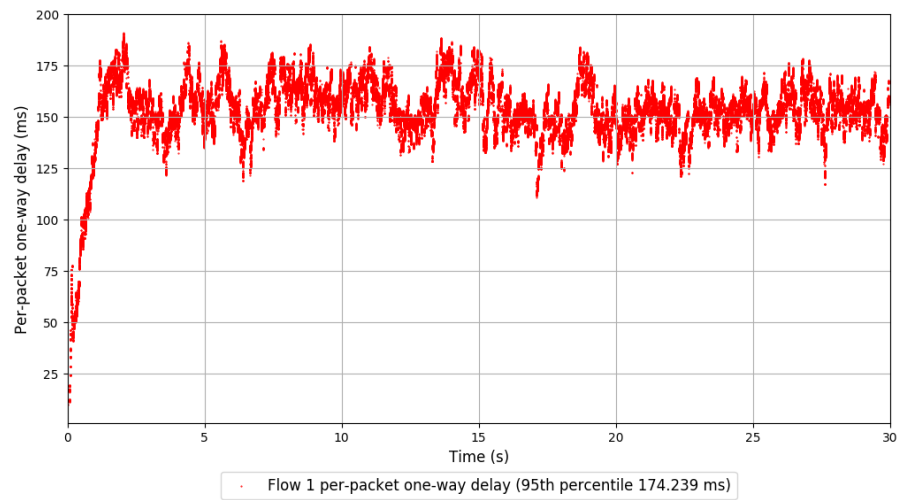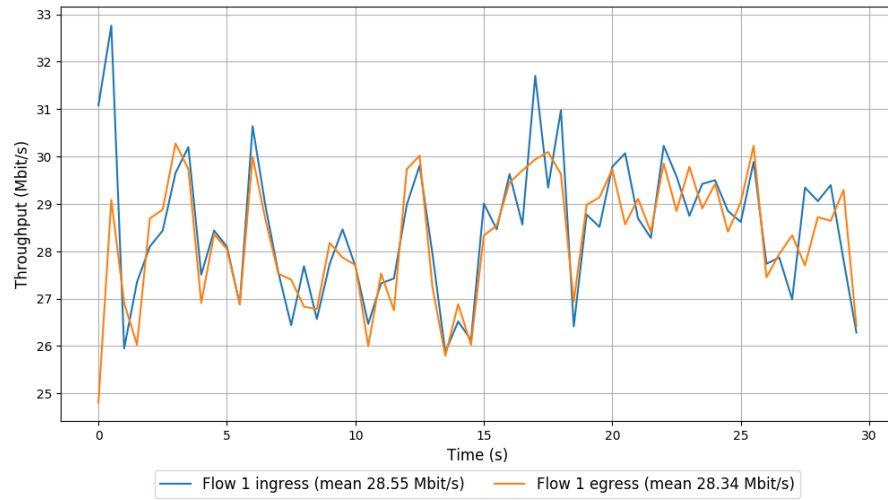
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 28.55 Mbit/s)   Flow 1 egress (mean 28.34 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 174.239 ms)

```
Run 1: Statistics of TCP Vegas

Start at: Wed, 05 Jul 2017 05:19:18 +0000
End at: Wed, 05 Jul 2017 05:19:48 +0000
Local clock offset: -0.209 ms
Remote clock offset: 3.49 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:54 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 18.808 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 18.808 ms
Loss rate: 0.07%
```
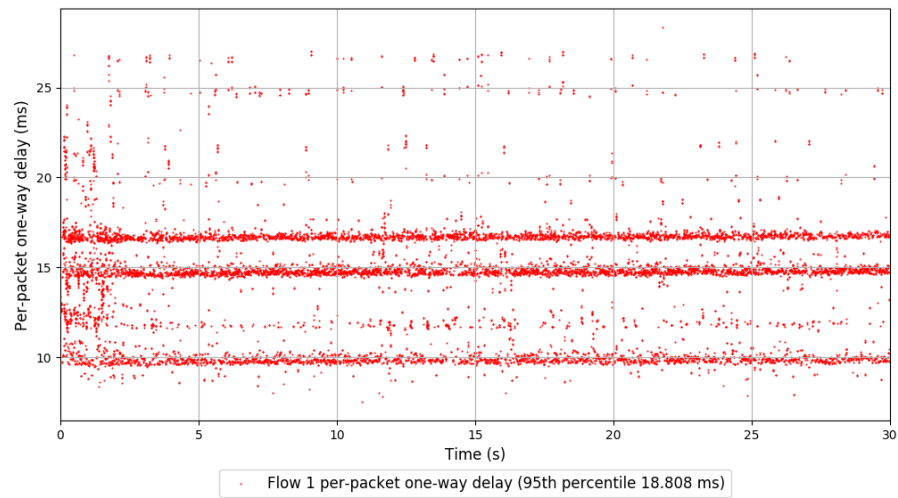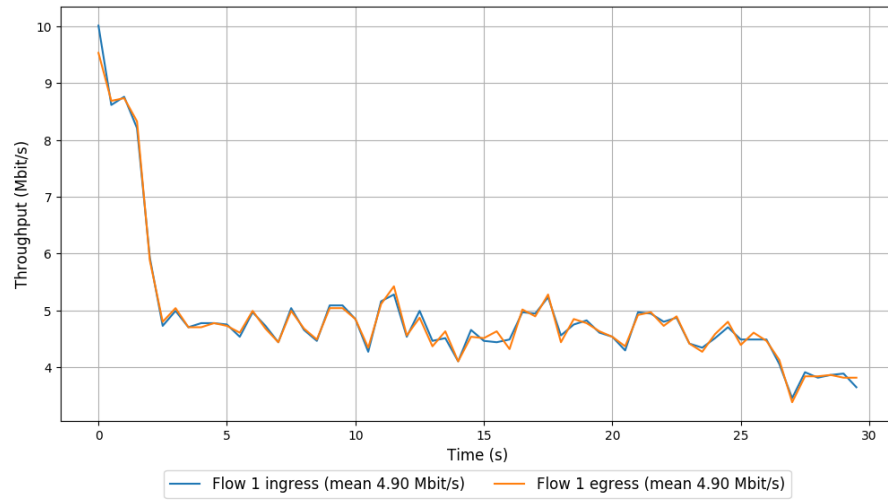
Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 4.90 Mbit/s) —— Flow 1 egress (mean 4.90 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 18.808 ms)

```
Run 1: Statistics of Verus

Start at: Wed, 05 Jul 2017 05:11:45 +0000
End at: Wed, 05 Jul 2017 05:12:15 +0000
Local clock offset: -0.176 ms
Remote clock offset: 3.561 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:54 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 24.92 Mbit/s
95th percentile per-packet one-way delay: 153.642 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 24.92 Mbit/s
95th percentile per-packet one-way delay: 153.642 ms
Loss rate: 0.75%
```
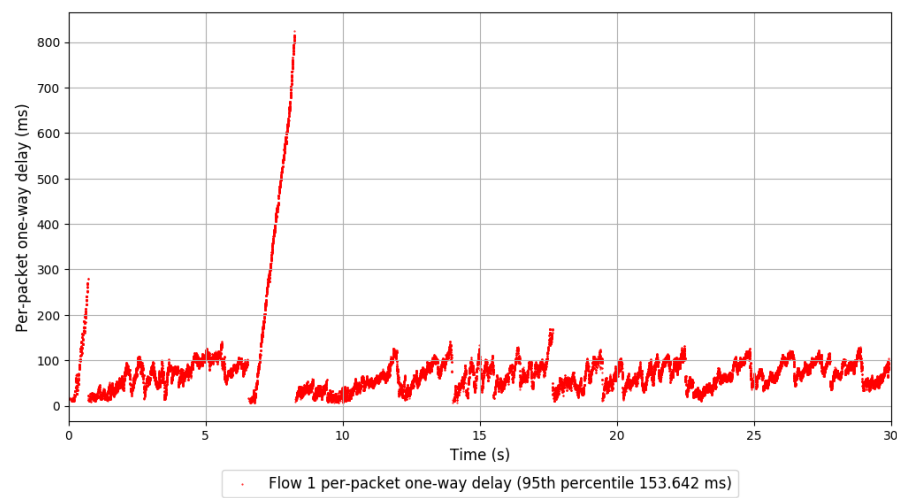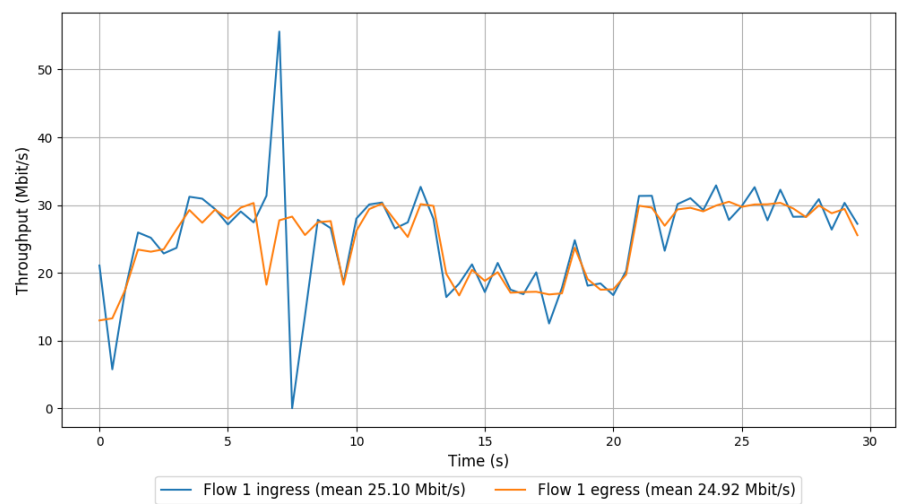
Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 25.10 Mbit/s)   Flow 1 egress (mean 24.92 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 153.642 ms)

```
Run 1: Statistics of WebRTC media

Start at: Wed, 05 Jul 2017 05:07:25 +0000
End at: Wed, 05 Jul 2017 05:07:55 +0000
Local clock offset: -0.158 ms
Remote clock offset: 3.516 ms


# Below is generated by plot.py at Wed, 05 Jul 2017 05:37:54 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 24.743 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 24.743 ms
Loss rate: 0.01%
```

Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 2.35 Mbit/s)   Flow 1 egress (mean 2.35 Mbit/s)

Flow 1 per-packet one-way delay (95th percentile 24.743 ms)