

Pantheon Summary (Generated at Wed, 14 Jun 2017 18:01:17 +0000 with
pantheon version 0502c2c57571426cde66b34b88203c82b91e4e5c)

Repeated the test of 15 congestion control schemes once.

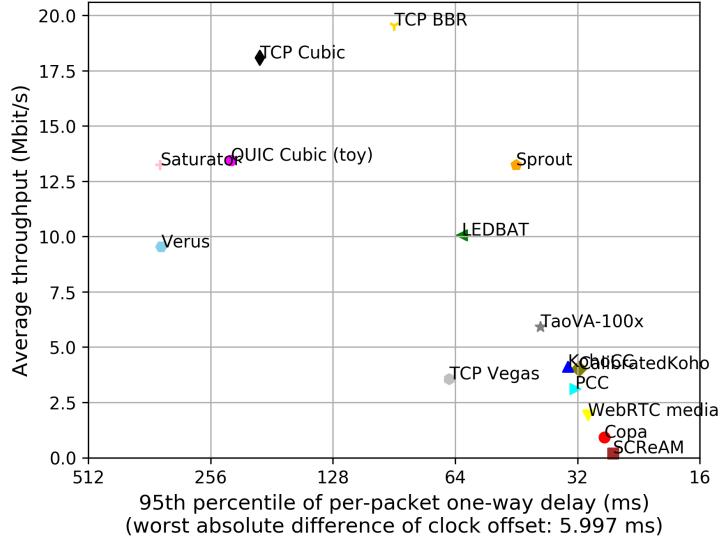
Each test lasted for 30 seconds running 1 flow.

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

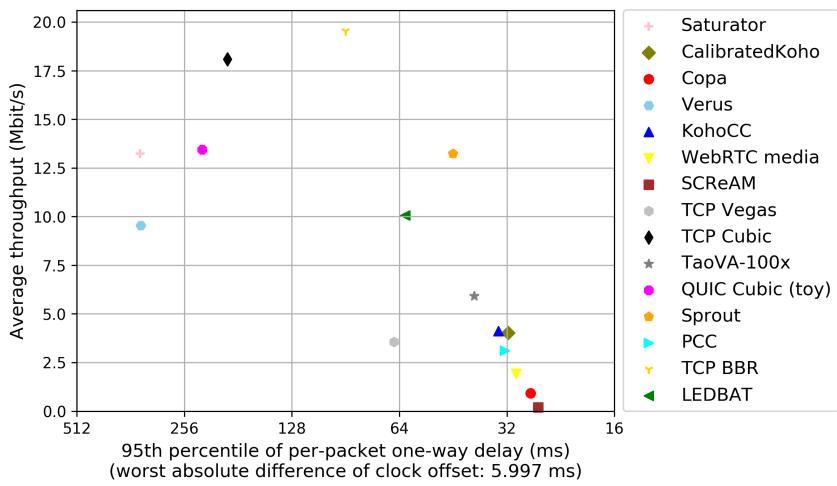
NTP offset measured against time.stanford.edu.

```
git branch: master @ 0502c2c57571426cde66b34b88203c82b91e4e5c
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 @ 4893799ab83a43fa2d3236507d168f461e1243ed
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 @ 6f2efef6e088d91066a9f023df375eee2665089ce
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
```

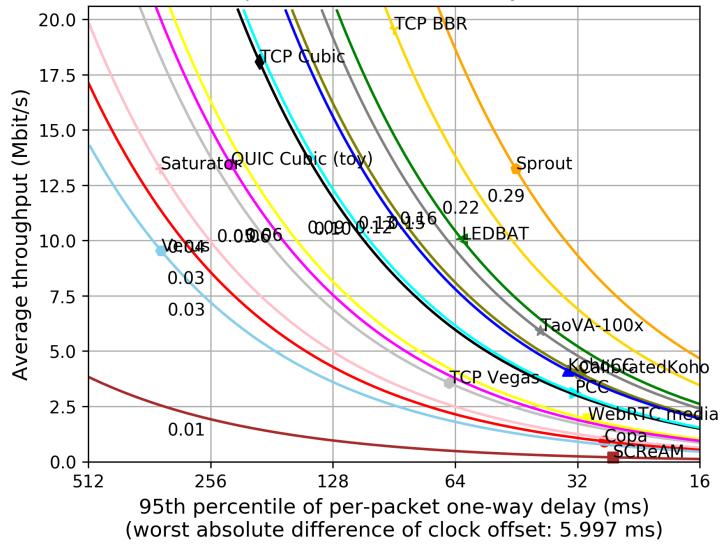
test from AWS California 1 Ethernet to Stanford ppp0, run 1 of 30s each per scheme
mean of all runs by scheme



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



test from AWS California 1 Ethernet to Stanford ppp0, run 1 of 30s each per scheme
mean power scores of all runs by scheme

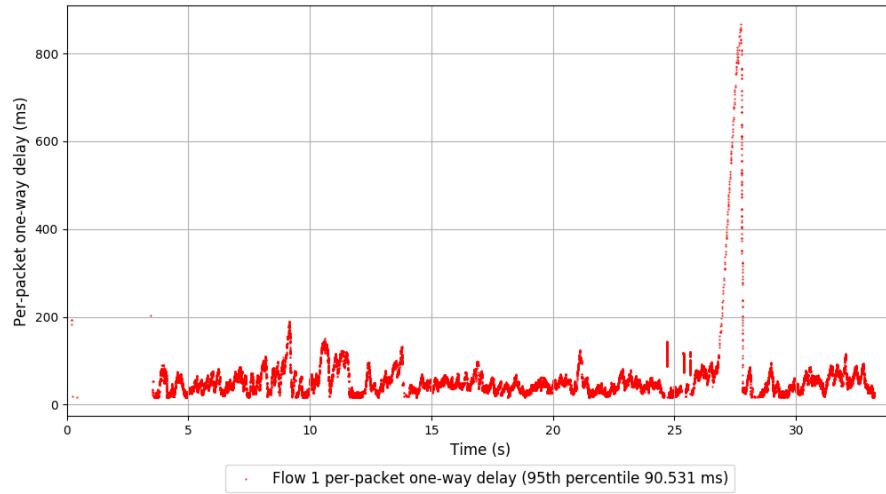
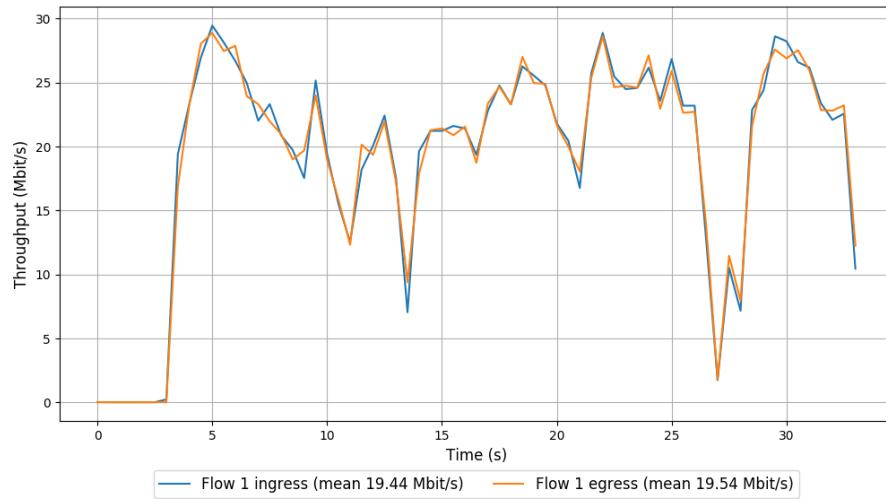


Run 1: Statistics of TCP BBR

```
Start at: Wed, 14 Jun 2017 17:25:57 +0000
End at: Wed, 14 Jun 2017 17:26:27 +0000
Local clock offset: 3.848 ms
Remote clock offset: -2.148 ms

# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:01 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 19.54 Mbit/s
95th percentile per-packet one-way delay: 90.531 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 19.54 Mbit/s
95th percentile per-packet one-way delay: 90.531 ms
Loss rate: 0.01%
```

Run 1: Report of TCP BBR — Data Link



```
Run 1: Statistics of CalibratedKoho
```

```
Start at: Wed, 14 Jun 2017 17:41:13 +0000
```

```
End at: Wed, 14 Jun 2017 17:41:43 +0000
```

```
Local clock offset: 3.15 ms
```

```
Remote clock offset: -2.058 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:01 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 4.02 Mbit/s
```

```
95th percentile per-packet one-way delay: 31.766 ms
```

```
Loss rate: 0.00%
```

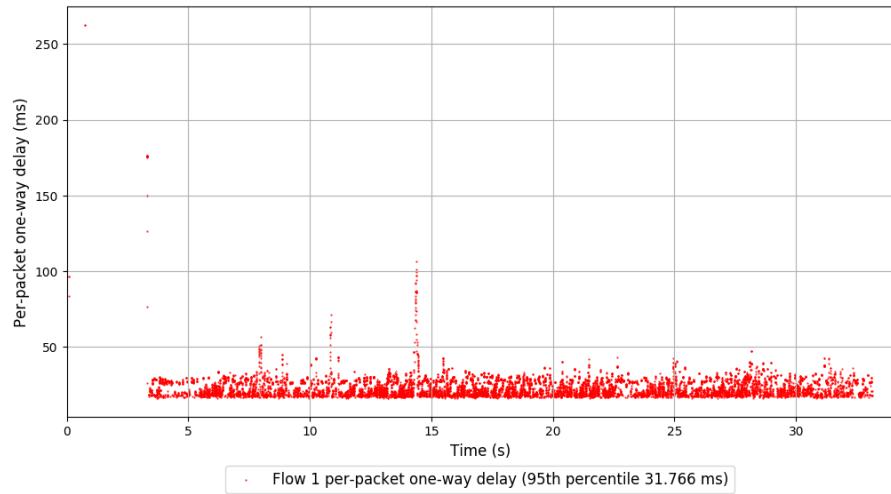
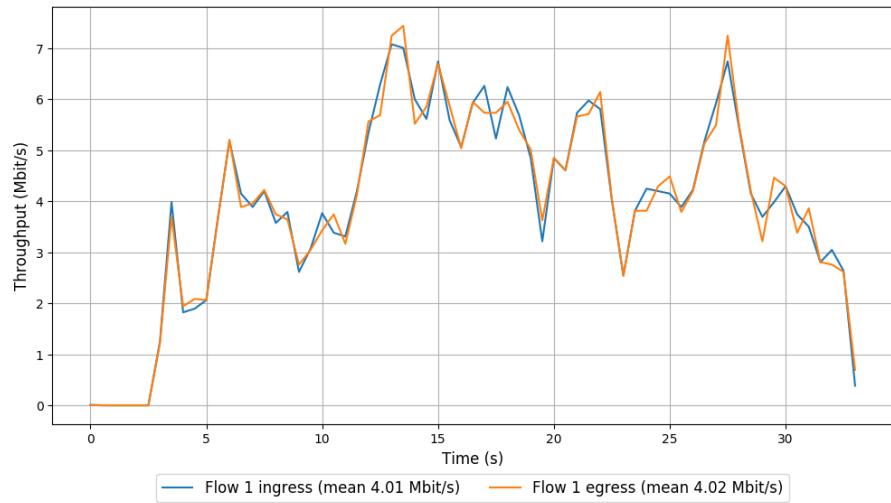
```
-- Flow 1:
```

```
Average throughput: 4.02 Mbit/s
```

```
95th percentile per-packet one-way delay: 31.766 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of CalibratedKoho — Data Link

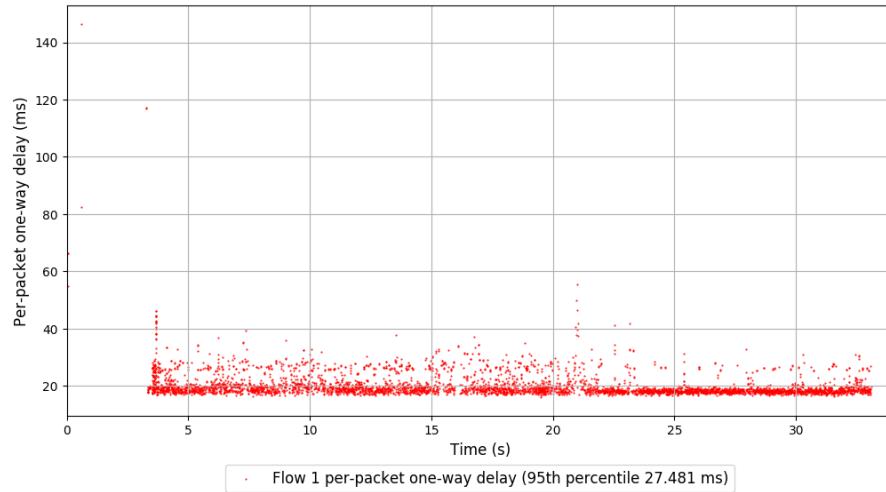
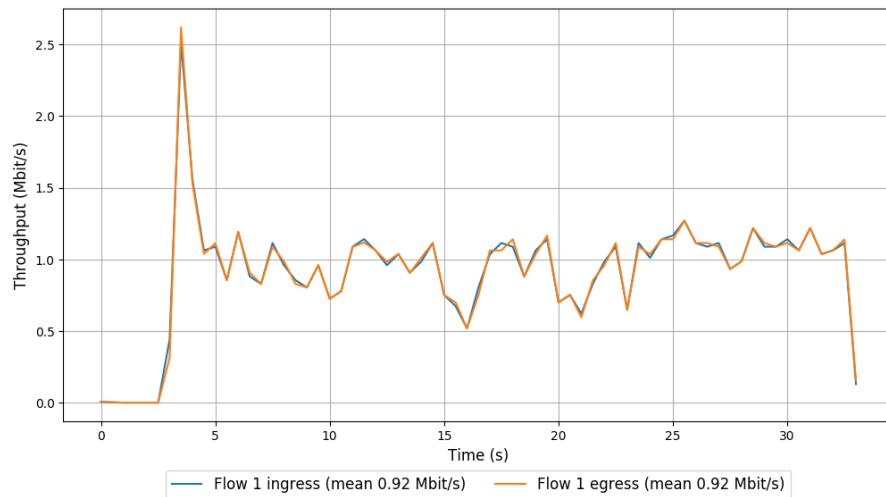


Run 1: Statistics of Copa

```
Start at: Wed, 14 Jun 2017 17:30:39 +0000
End at: Wed, 14 Jun 2017 17:31:09 +0000
Local clock offset: 3.675 ms
Remote clock offset: -2.137 ms

# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:01 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 27.481 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 27.481 ms
Loss rate: 0.00%
```

Run 1: Report of Copa — Data Link



```
Run 1: Statistics of TCP Cubic
```

```
Start at: Wed, 14 Jun 2017 17:40:02 +0000
```

```
End at: Wed, 14 Jun 2017 17:40:32 +0000
```

```
Local clock offset: 3.298 ms
```

```
Remote clock offset: -2.073 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:03 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 18.08 Mbit/s
```

```
95th percentile per-packet one-way delay: 194.095 ms
```

```
Loss rate: 0.36%
```

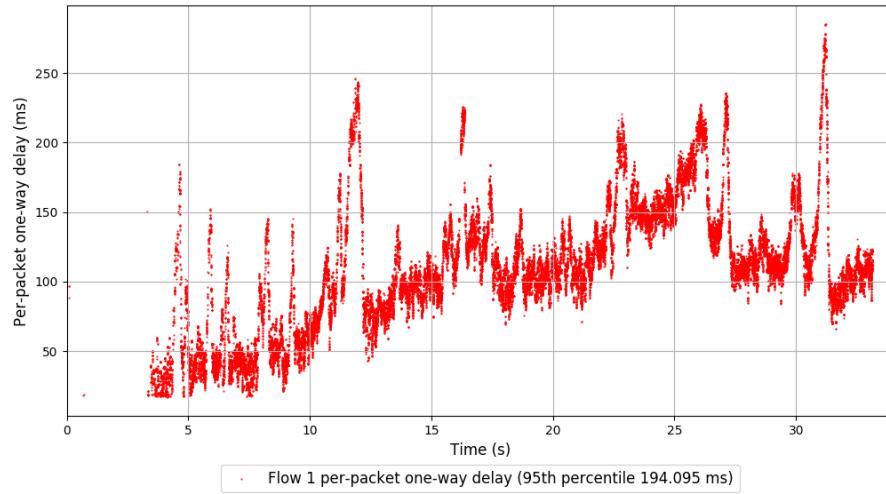
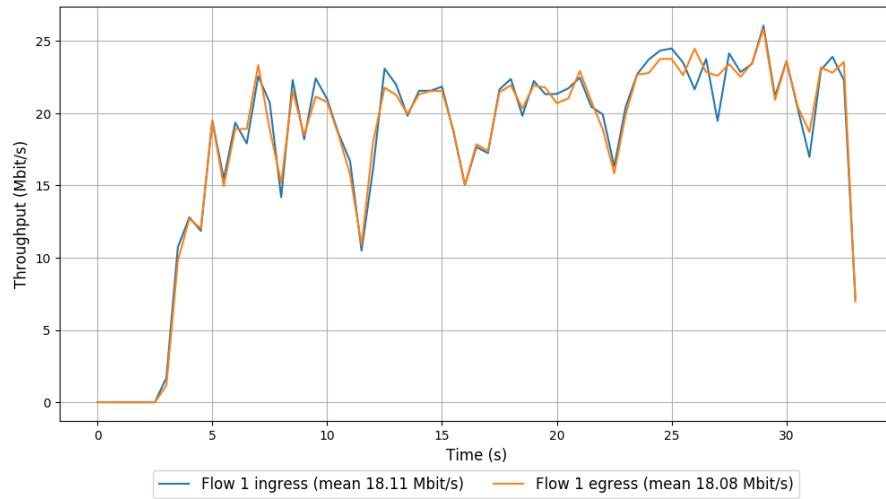
```
-- Flow 1:
```

```
Average throughput: 18.08 Mbit/s
```

```
95th percentile per-packet one-way delay: 194.095 ms
```

```
Loss rate: 0.36%
```

Run 1: Report of TCP Cubic — Data Link



```
Run 1: Statistics of KohoCC
```

```
Start at: Wed, 14 Jun 2017 17:31:49 +0000
```

```
End at: Wed, 14 Jun 2017 17:32:19 +0000
```

```
Local clock offset: 3.648 ms
```

```
Remote clock offset: -2.019 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:03 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 4.12 Mbit/s
```

```
95th percentile per-packet one-way delay: 33.786 ms
```

```
Loss rate: 0.00%
```

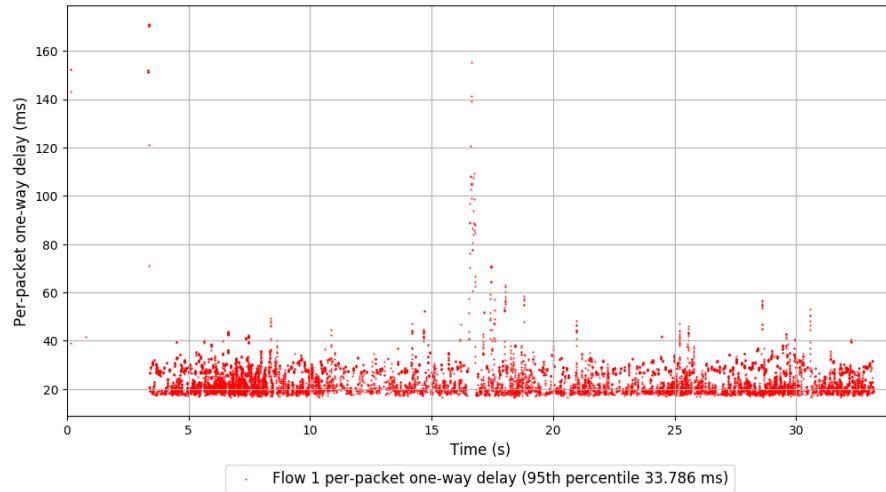
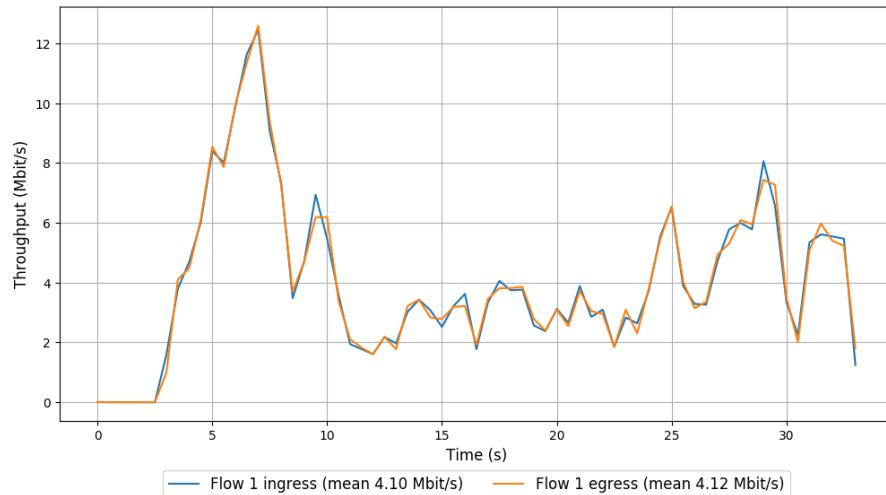
```
-- Flow 1:
```

```
Average throughput: 4.12 Mbit/s
```

```
95th percentile per-packet one-way delay: 33.786 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of KohoCC — Data Link

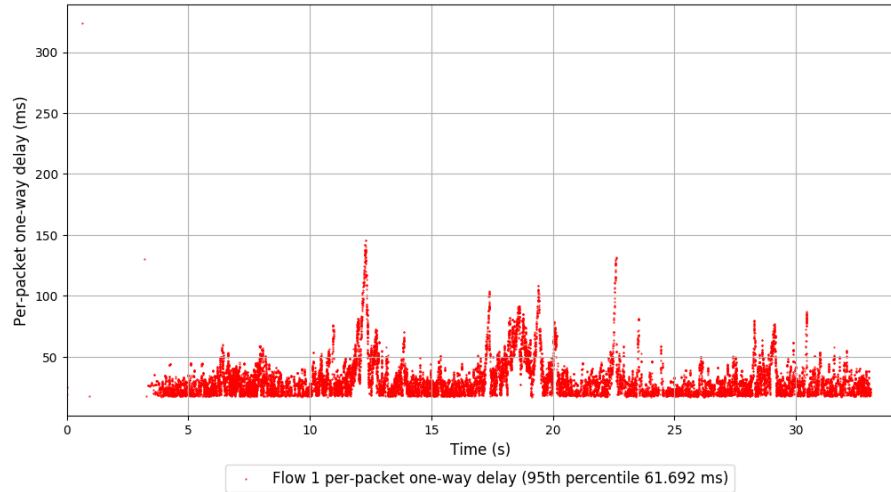
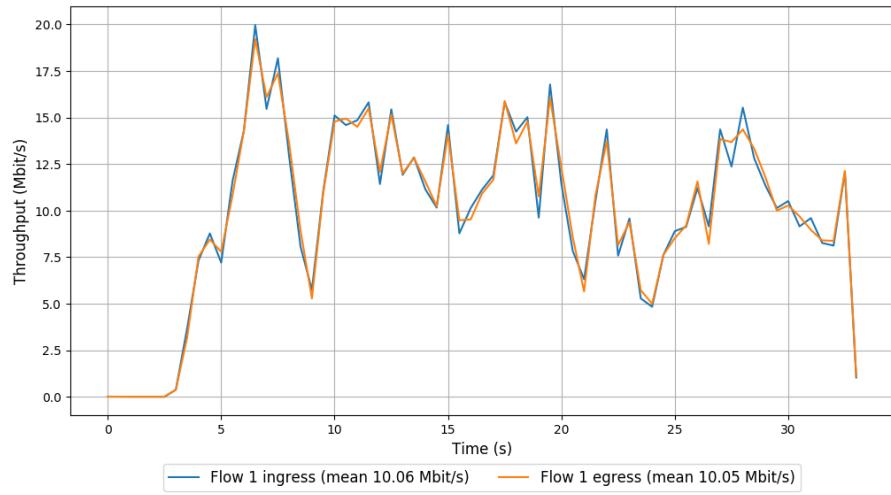


```
Run 1: Statistics of LEDBAT
```

```
Start at: Wed, 14 Jun 2017 17:27:08 +0000
End at: Wed, 14 Jun 2017 17:27:38 +0000
Local clock offset: 3.883 ms
Remote clock offset: -2.084 ms

# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.05 Mbit/s
95th percentile per-packet one-way delay: 61.692 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 10.05 Mbit/s
95th percentile per-packet one-way delay: 61.692 ms
Loss rate: 0.05%
```

Run 1: Report of LEDBAT — Data Link



```
Run 1: Statistics of PCC
```

```
Start at: Wed, 14 Jun 2017 17:29:29 +0000
```

```
End at: Wed, 14 Jun 2017 17:29:59 +0000
```

```
Local clock offset: 3.841 ms
```

```
Remote clock offset: -2.131 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:05 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 3.12 Mbit/s
```

```
95th percentile per-packet one-way delay: 32.421 ms
```

```
Loss rate: 0.00%
```

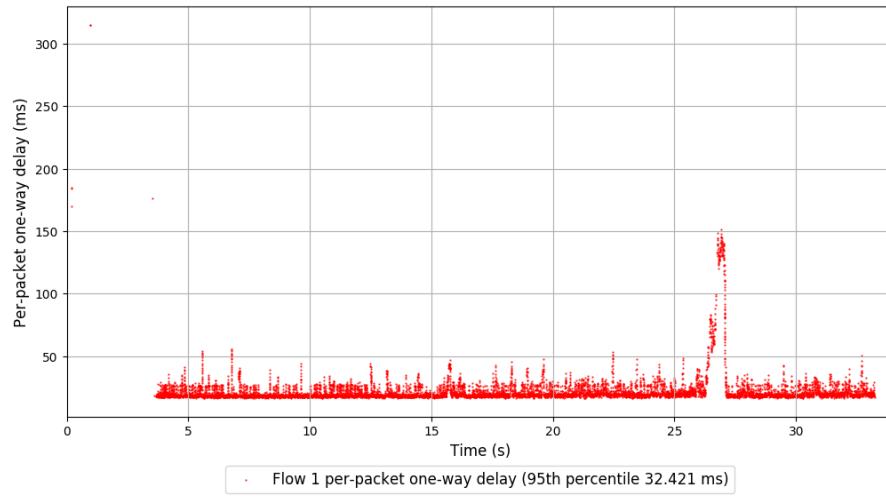
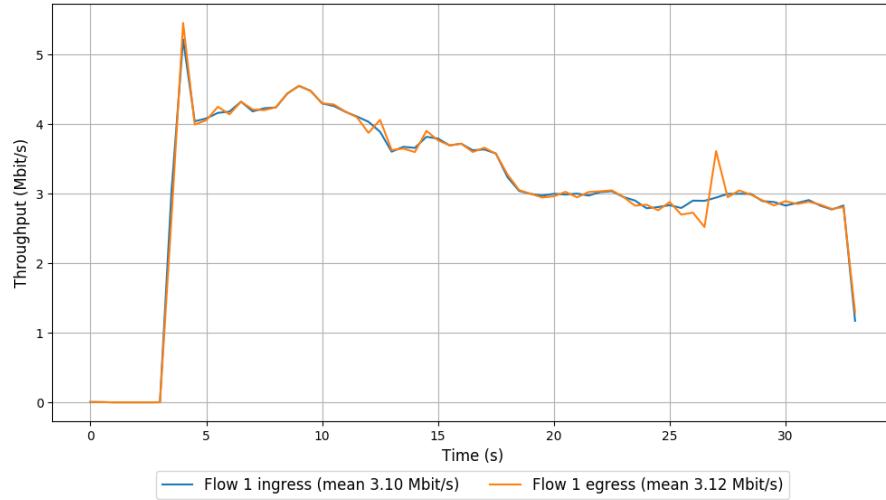
```
-- Flow 1:
```

```
Average throughput: 3.12 Mbit/s
```

```
95th percentile per-packet one-way delay: 32.421 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of PCC — Data Link



```
Run 1: Statistics of QUIC Cubic (toy)
```

```
Start at: Wed, 14 Jun 2017 17:35:20 +0000
```

```
End at: Wed, 14 Jun 2017 17:35:50 +0000
```

```
Local clock offset: 3.546 ms
```

```
Remote clock offset: -2.125 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:08 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 13.43 Mbit/s
```

```
95th percentile per-packet one-way delay: 228.180 ms
```

```
Loss rate: 0.03%
```

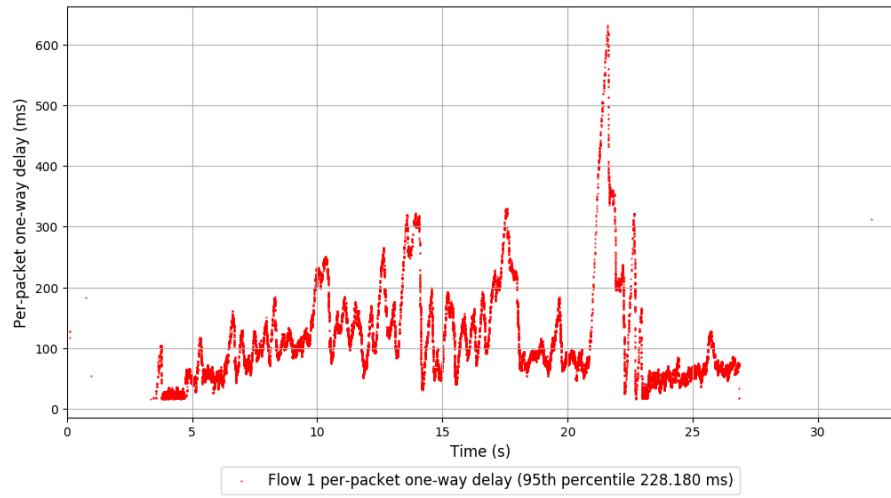
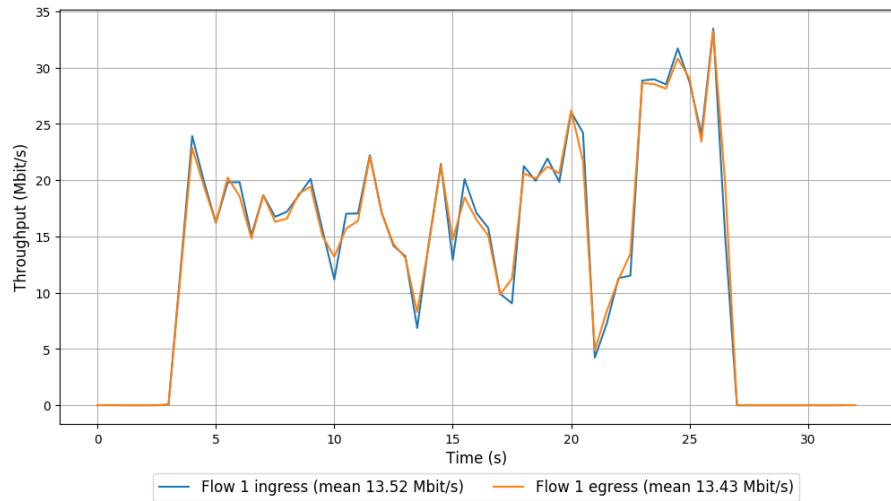
```
-- Flow 1:
```

```
Average throughput: 13.43 Mbit/s
```

```
95th percentile per-packet one-way delay: 228.180 ms
```

```
Loss rate: 0.03%
```

Run 1: Report of QUIC Cubic (toy) — Data Link



```
Run 1: Statistics of Saturator
```

```
Start at: Wed, 14 Jun 2017 17:36:31 +0000
```

```
End at: Wed, 14 Jun 2017 17:37:01 +0000
```

```
Local clock offset: 3.622 ms
```

```
Remote clock offset: -2.111 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:08 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 13.23 Mbit/s
```

```
95th percentile per-packet one-way delay: 340.535 ms
```

```
Loss rate: 0.31%
```

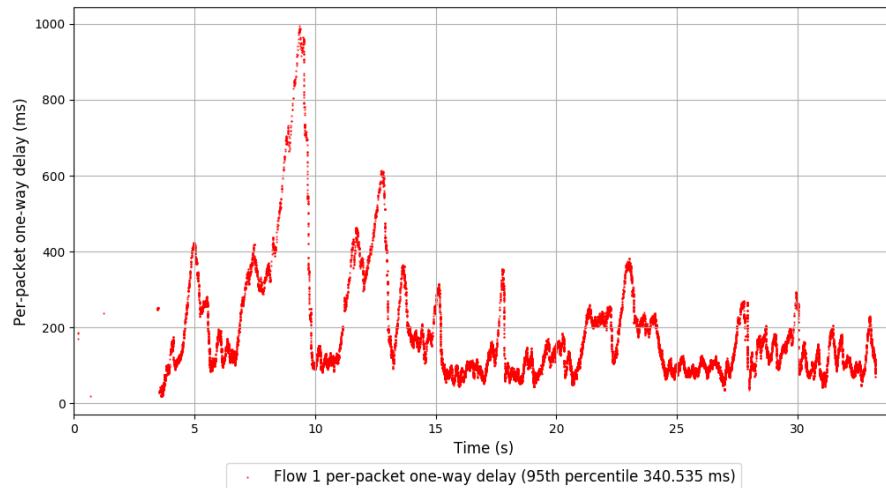
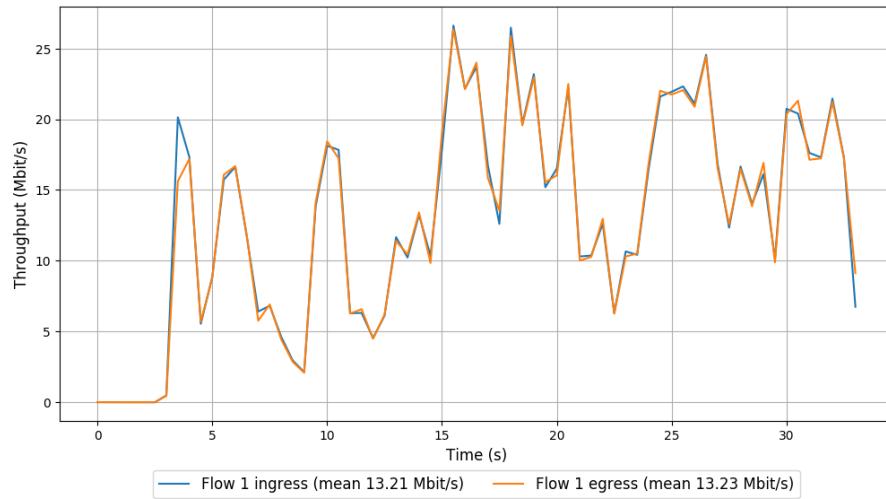
```
-- Flow 1:
```

```
Average throughput: 13.23 Mbit/s
```

```
95th percentile per-packet one-way delay: 340.535 ms
```

```
Loss rate: 0.31%
```

Run 1: Report of Saturator — Data Link



```
Run 1: Statistics of SCReAM
```

```
Start at: Wed, 14 Jun 2017 17:37:42 +0000
```

```
End at: Wed, 14 Jun 2017 17:38:12 +0000
```

```
Local clock offset: 3.591 ms
```

```
Remote clock offset: -2.106 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:09 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 0.20 Mbit/s
```

```
95th percentile per-packet one-way delay: 26.190 ms
```

```
Loss rate: 0.00%
```

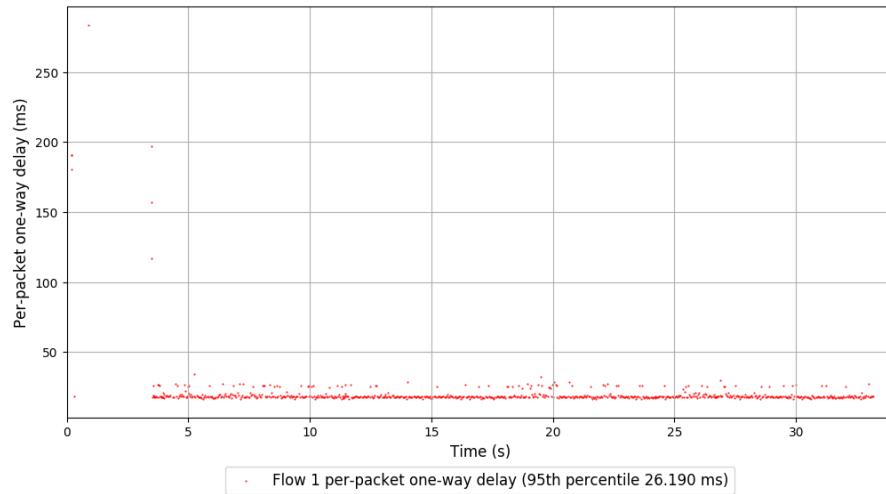
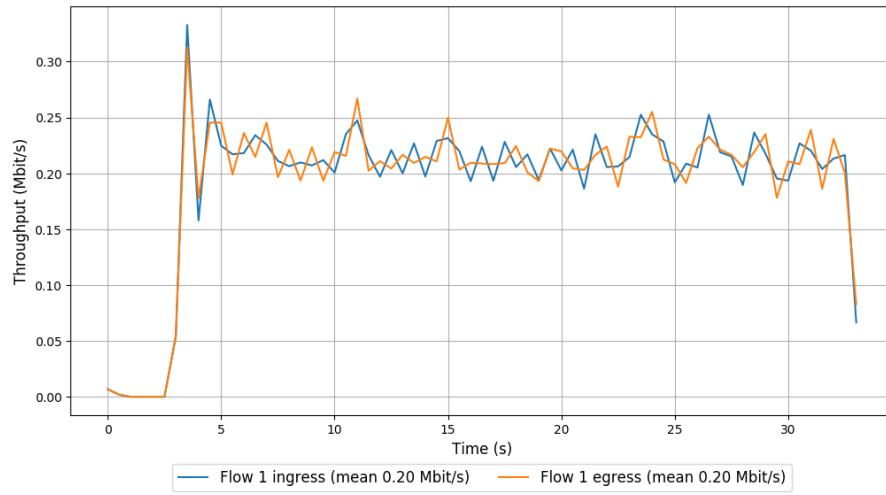
```
-- Flow 1:
```

```
Average throughput: 0.20 Mbit/s
```

```
95th percentile per-packet one-way delay: 26.190 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

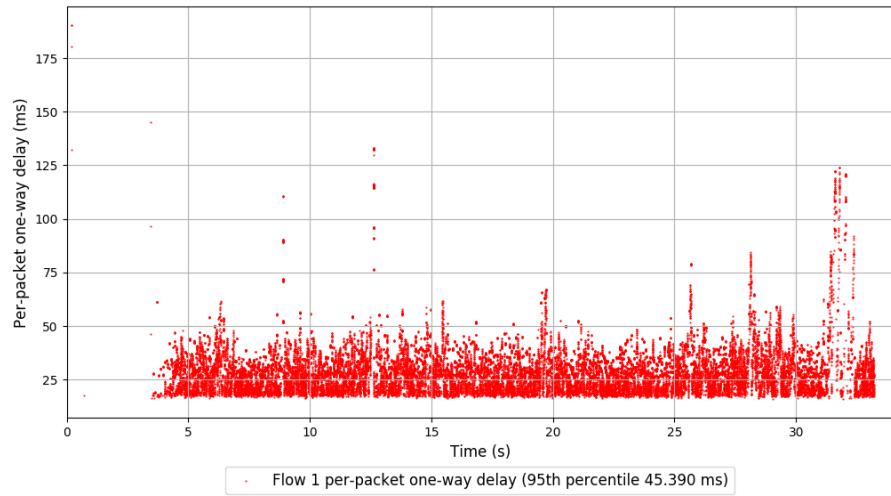
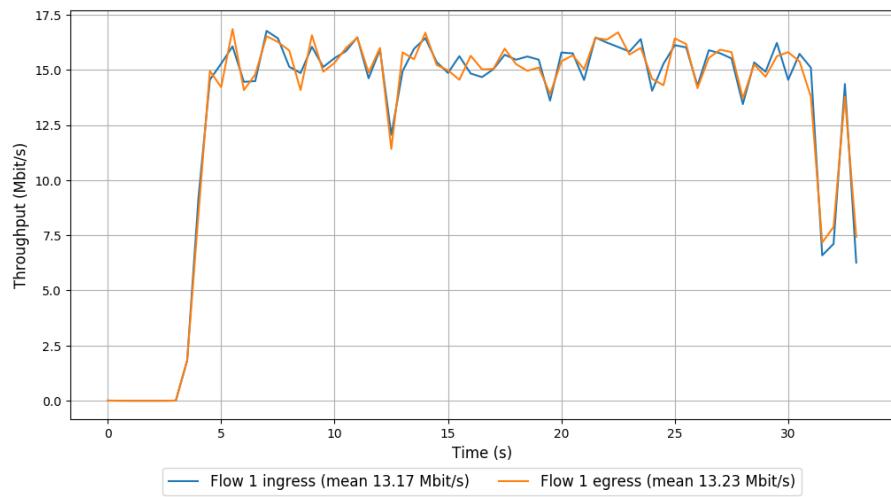


```
Run 1: Statistics of Sprout
```

```
Start at: Wed, 14 Jun 2017 17:42:23 +0000
End at: Wed, 14 Jun 2017 17:42:53 +0000
Local clock offset: 2.982 ms
Remote clock offset: -2.015 ms

# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:11 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.23 Mbit/s
95th percentile per-packet one-way delay: 45.390 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.23 Mbit/s
95th percentile per-packet one-way delay: 45.390 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link



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

```
Start at: Wed, 14 Jun 2017 17:34:10 +0000
```

```
End at: Wed, 14 Jun 2017 17:34:40 +0000
```

```
Local clock offset: 3.576 ms
```

```
Remote clock offset: -2.13 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:11 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 5.91 Mbit/s
```

```
95th percentile per-packet one-way delay: 39.477 ms
```

```
Loss rate: 0.00%
```

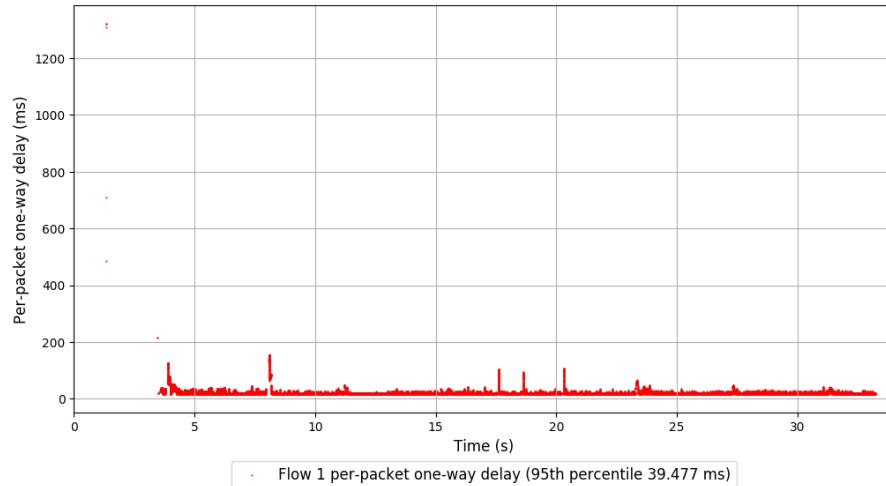
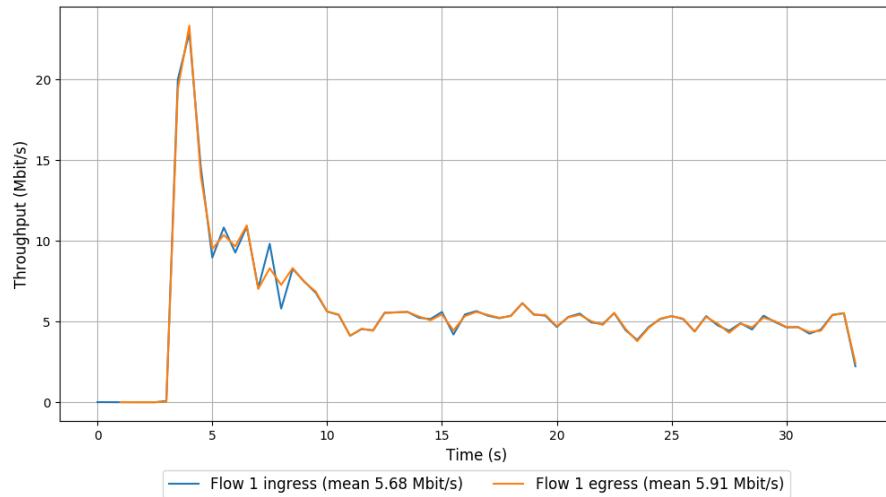
```
-- Flow 1:
```

```
Average throughput: 5.91 Mbit/s
```

```
95th percentile per-packet one-way delay: 39.477 ms
```

```
Loss rate: 0.00%
```

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



```
Run 1: Statistics of TCP Vegas
```

```
Start at: Wed, 14 Jun 2017 17:28:19 +0000
```

```
End at: Wed, 14 Jun 2017 17:28:49 +0000
```

```
Local clock offset: 3.862 ms
```

```
Remote clock offset: -2.135 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:12 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 3.56 Mbit/s
```

```
95th percentile per-packet one-way delay: 66.223 ms
```

```
Loss rate: 0.00%
```

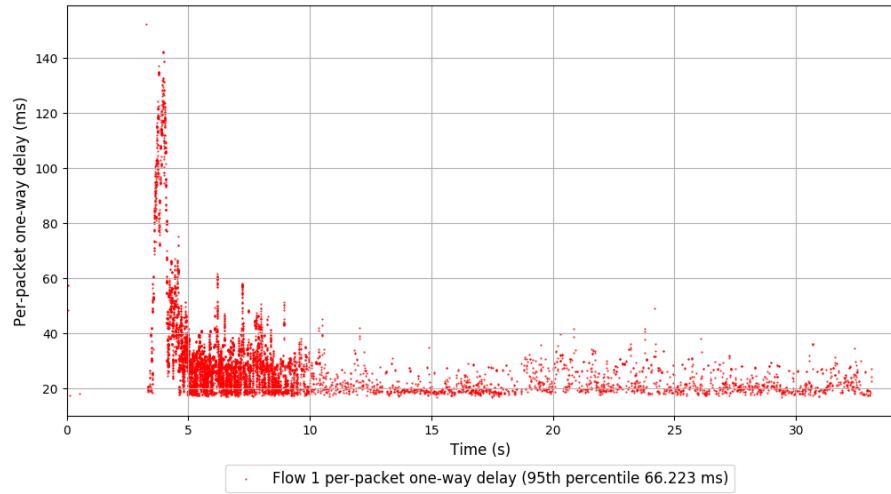
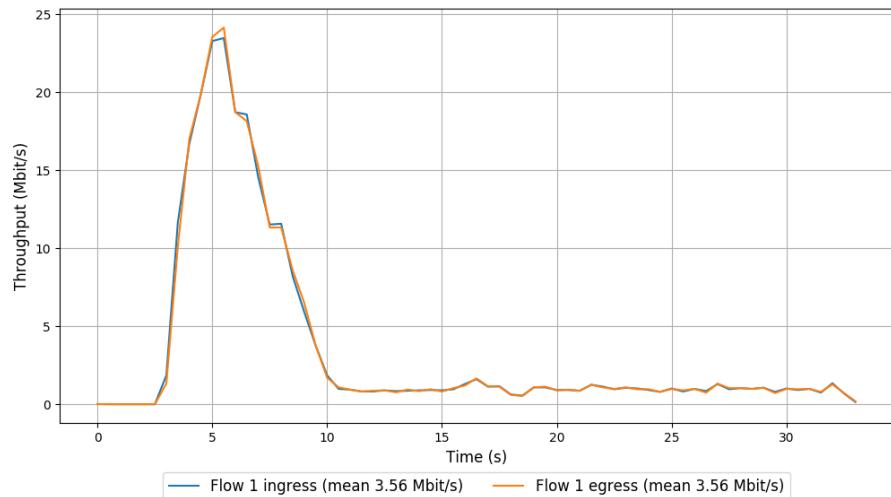
```
-- Flow 1:
```

```
Average throughput: 3.56 Mbit/s
```

```
95th percentile per-packet one-way delay: 66.223 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of TCP Vegas — Data Link



```
Run 1: Statistics of Verus
```

```
Start at: Wed, 14 Jun 2017 17:33:00 +0000
```

```
End at: Wed, 14 Jun 2017 17:33:30 +0000
```

```
Local clock offset: 3.712 ms
```

```
Remote clock offset: -2.123 ms
```

```
# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:14 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 9.54 Mbit/s
```

```
95th percentile per-packet one-way delay: 339.014 ms
```

```
Loss rate: 0.98%
```

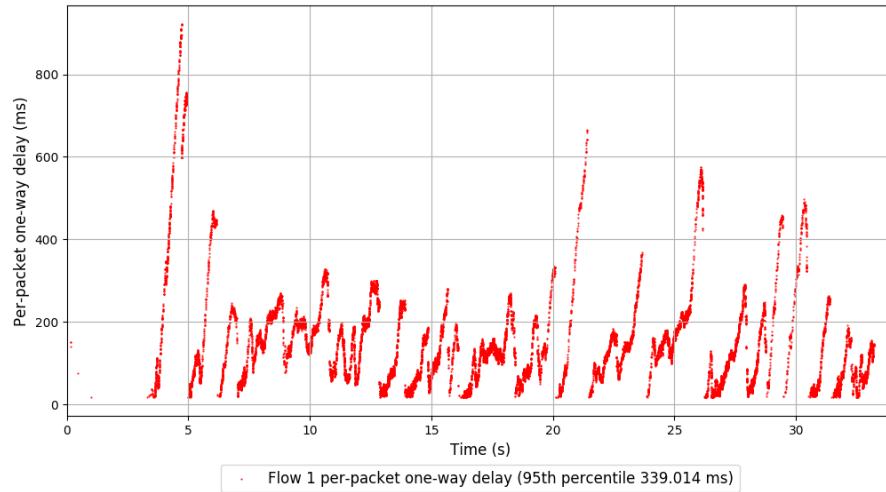
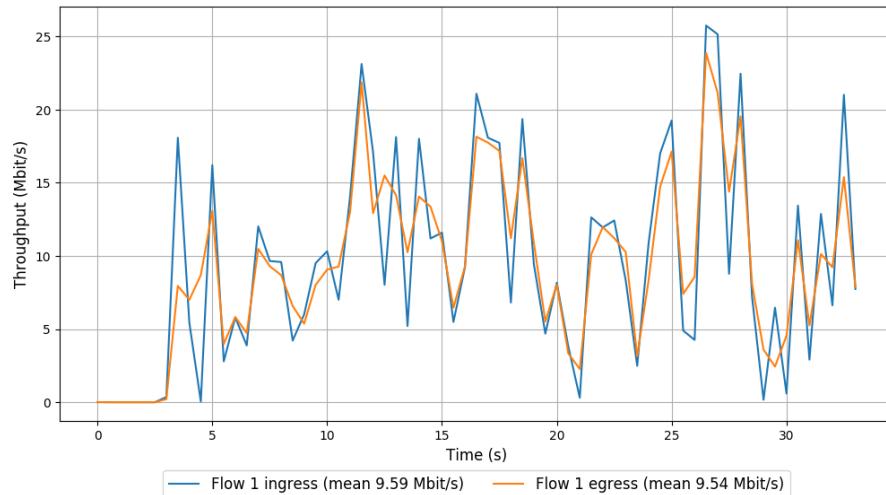
```
-- Flow 1:
```

```
Average throughput: 9.54 Mbit/s
```

```
95th percentile per-packet one-way delay: 339.014 ms
```

```
Loss rate: 0.98%
```

Run 1: Report of Verus — Data Link



```
Run 1: Statistics of WebRTC media

Start at: Wed, 14 Jun 2017 17:38:52 +0000
End at: Wed, 14 Jun 2017 17:39:22 +0000
Local clock offset: 3.37 ms
Remote clock offset: -2.087 ms

# Below is generated by plot.py at Wed, 14 Jun 2017 18:01:14 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 30.191 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 30.191 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

