

**Pantheon Summary** (Generated at Tue, 13 Jun 2017 06:57:14 +0000 with  
pantheon version a78272c2fc2acc3dce256a4fe0c8be153bc74953)

Repeated the test of 15 congestion control schemes once.

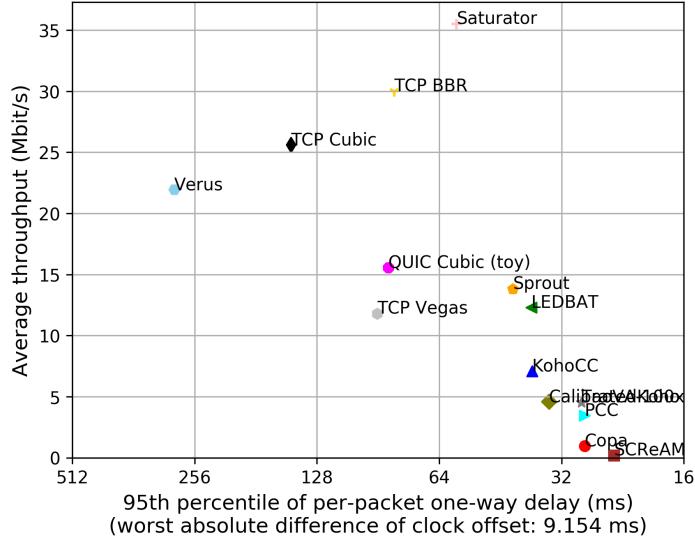
Each test lasted for 30 seconds running 1 flow.

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

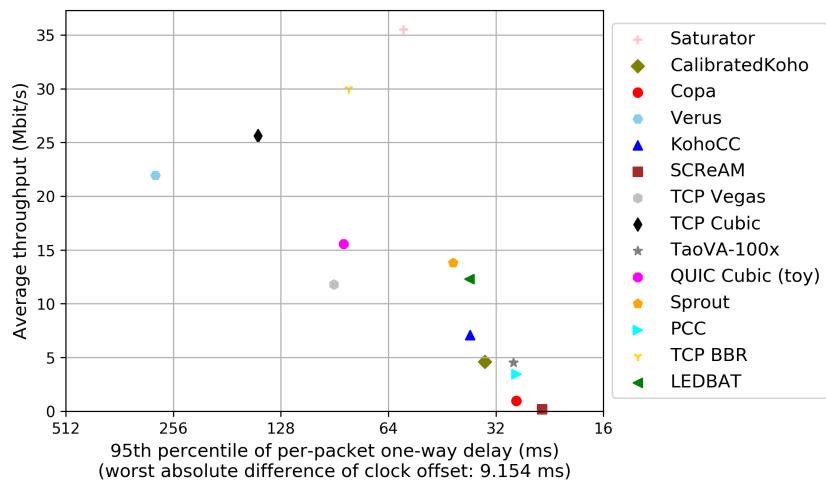
NTP offset measured against time.stanford.edu.

```
git branch: master @ a78272c2fc2acc3dce256a4fe0c8be153bc74953
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
```

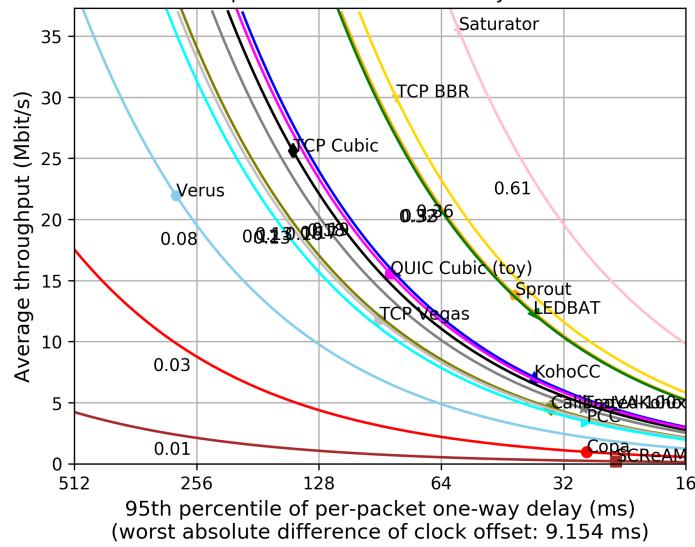
test from AWS California 1 Ethernet to Stanford ppp0, run 1 of 30s each per scheme  
mean of all runs by scheme



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

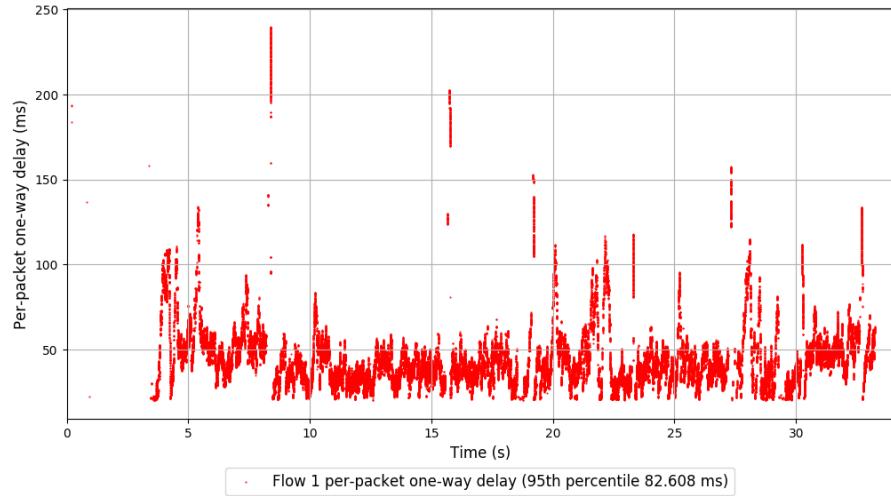
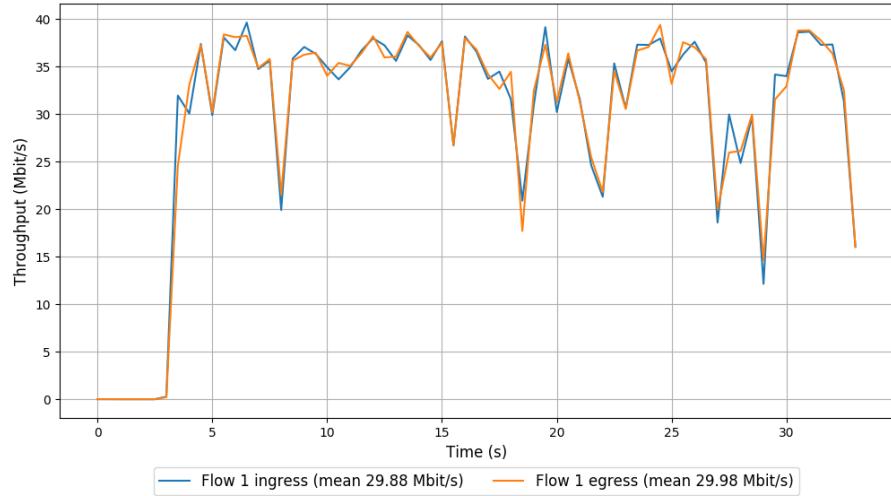


Run 1: Statistics of TCP BBR

```
Start at: Tue, 13 Jun 2017 06:32:44 +0000
End at: Tue, 13 Jun 2017 06:33:14 +0000
Local clock offset: 5.296 ms
Remote clock offset: -3.644 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:56:56 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 29.98 Mbit/s
95th percentile per-packet one-way delay: 82.608 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 29.98 Mbit/s
95th percentile per-packet one-way delay: 82.608 ms
Loss rate: 0.16%
```

## Run 1: Report of TCP BBR — Data Link

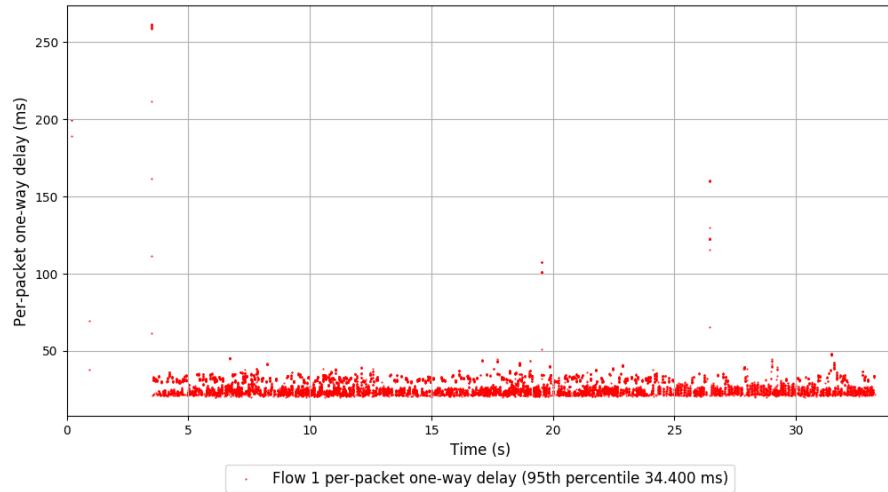
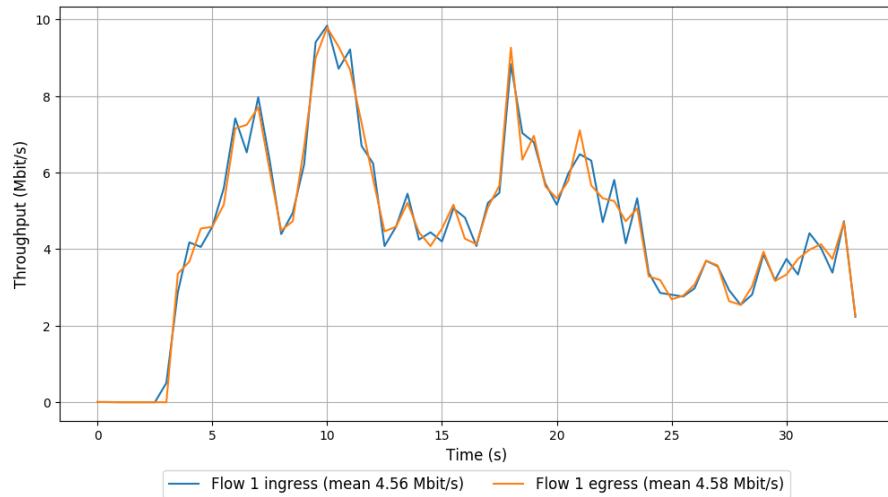


```
Run 1: Statistics of CalibratedKoho

Start at: Tue, 13 Jun 2017 06:22:38 +0000
End at: Tue, 13 Jun 2017 06:23:08 +0000
Local clock offset: 5.527 ms
Remote clock offset: -3.525 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:56:56 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.58 Mbit/s
95th percentile per-packet one-way delay: 34.400 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 4.58 Mbit/s
95th percentile per-packet one-way delay: 34.400 ms
Loss rate: 0.01%
```

## Run 1: Report of CalibratedKoho — Data Link

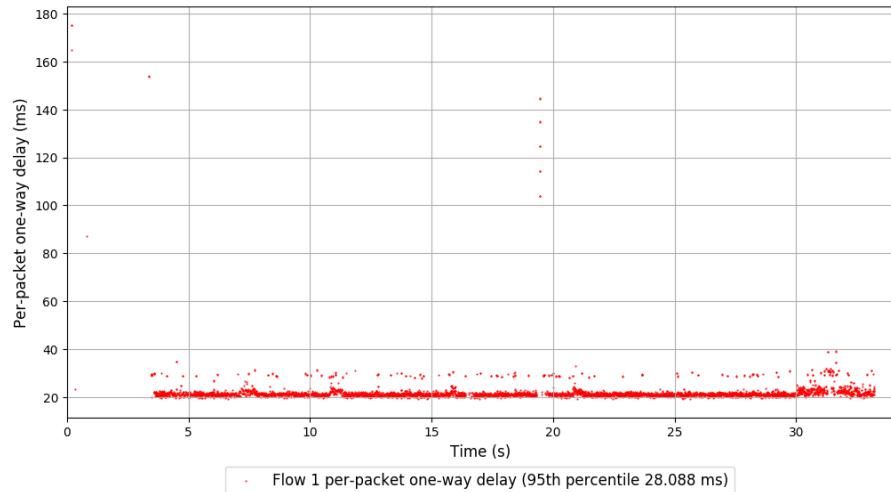
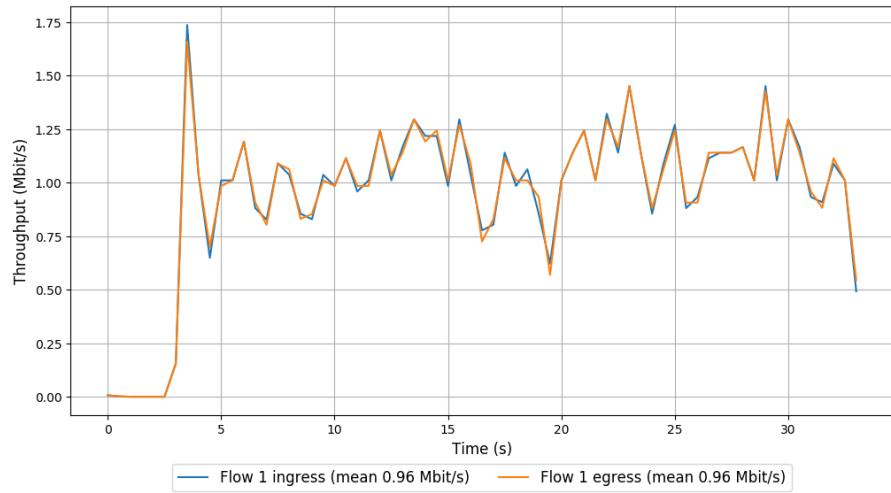


Run 1: Statistics of Copa

```
Start at: Tue, 13 Jun 2017 06:20:08 +0000
End at: Tue, 13 Jun 2017 06:20:38 +0000
Local clock offset: 5.409 ms
Remote clock offset: -3.405 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:56:56 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 28.088 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 28.088 ms
Loss rate: 0.00%
```

## Run 1: Report of Copa — Data Link

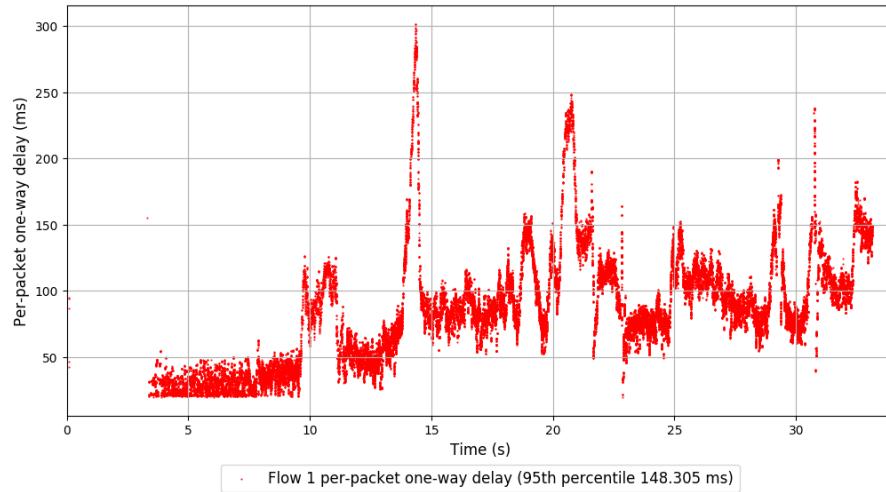
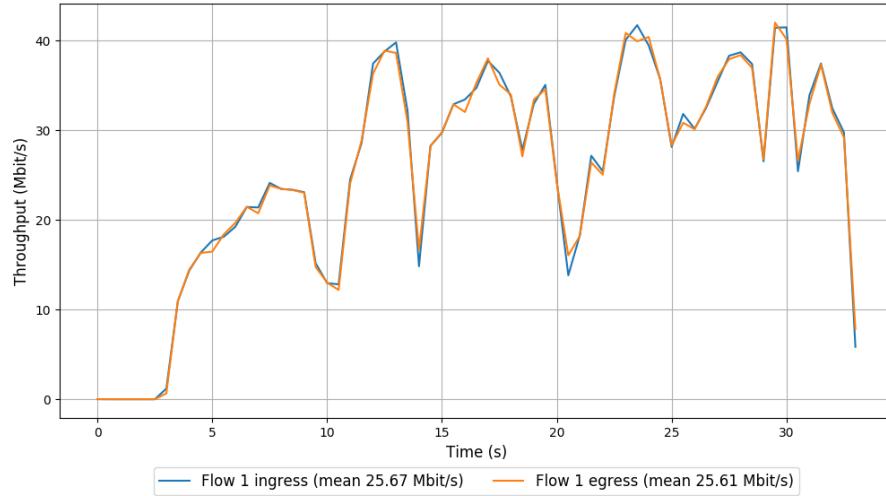


Run 1: Statistics of TCP Cubic

```
Start at: Tue, 13 Jun 2017 06:36:33 +0000
End at: Tue, 13 Jun 2017 06:37:03 +0000
Local clock offset: 5.151 ms
Remote clock offset: -3.692 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:56:56 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.61 Mbit/s
95th percentile per-packet one-way delay: 148.305 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 25.61 Mbit/s
95th percentile per-packet one-way delay: 148.305 ms
Loss rate: 0.41%
```

## Run 1: Report of TCP Cubic — Data Link



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

```
Start at: Tue, 13 Jun 2017 06:25:09 +0000
```

```
End at: Tue, 13 Jun 2017 06:25:39 +0000
```

```
Local clock offset: 5.613 ms
```

```
Remote clock offset: -3.541 ms
```

```
# Below is generated by plot.py at Tue, 13 Jun 2017 06:56:58 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 7.08 Mbit/s
```

```
95th percentile per-packet one-way delay: 37.823 ms
```

```
Loss rate: 0.00%
```

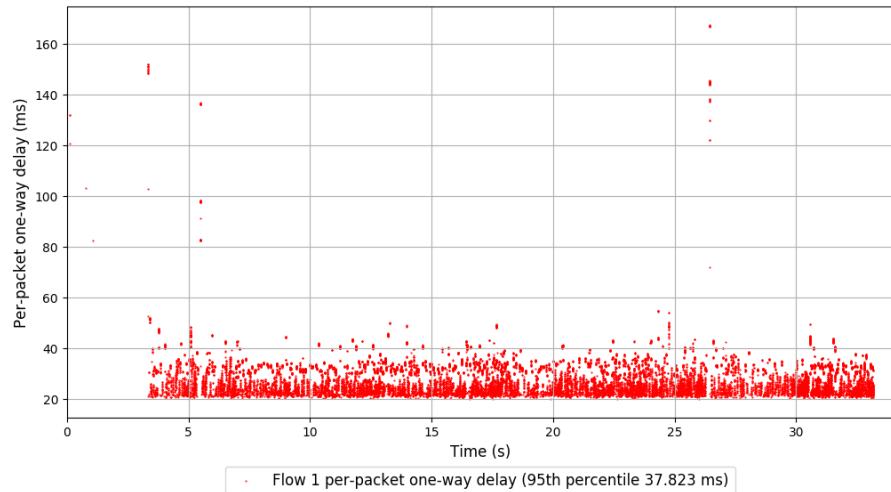
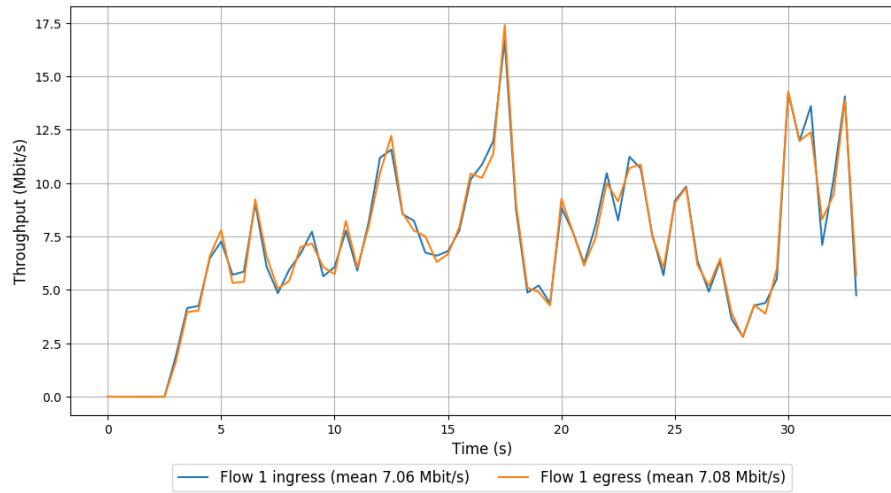
```
-- Flow 1:
```

```
Average throughput: 7.08 Mbit/s
```

```
95th percentile per-packet one-way delay: 37.823 ms
```

```
Loss rate: 0.00%
```

## Run 1: Report of KohoCC — Data Link

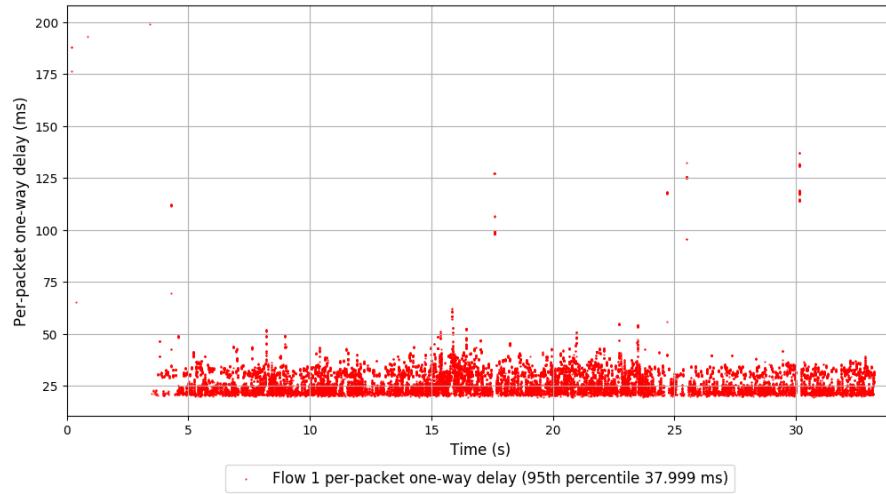
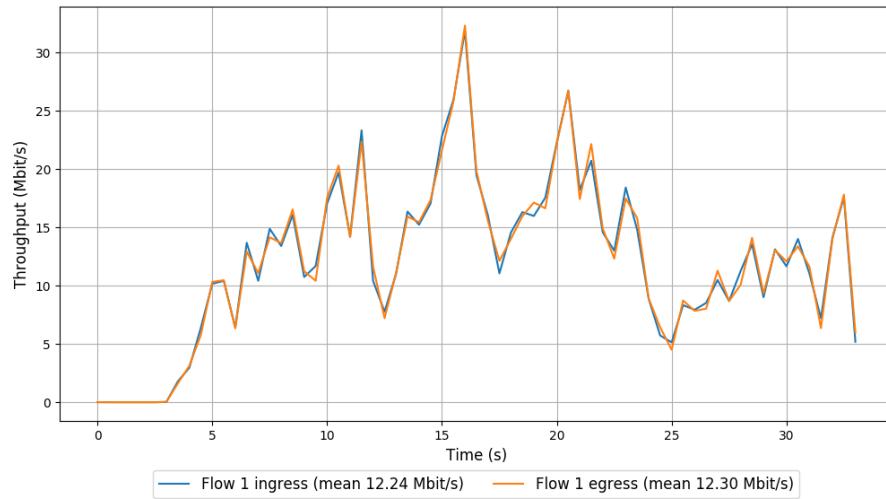


```
Run 1: Statistics of LEDBAT
```

```
Start at: Tue, 13 Jun 2017 06:18:52 +0000
End at: Tue, 13 Jun 2017 06:19:22 +0000
Local clock offset: 5.255 ms
Remote clock offset: -3.451 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:00 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.30 Mbit/s
95th percentile per-packet one-way delay: 37.999 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.30 Mbit/s
95th percentile per-packet one-way delay: 37.999 ms
Loss rate: 0.00%
```

## Run 1: Report of LEDBAT — Data Link

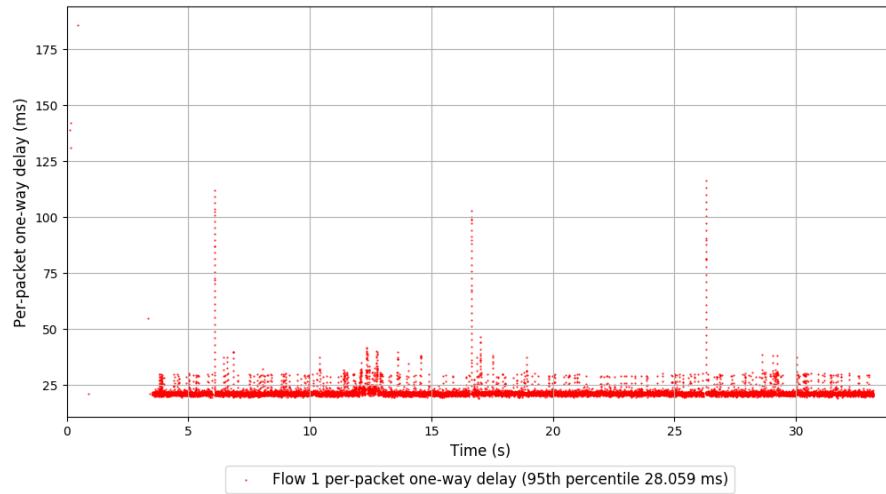
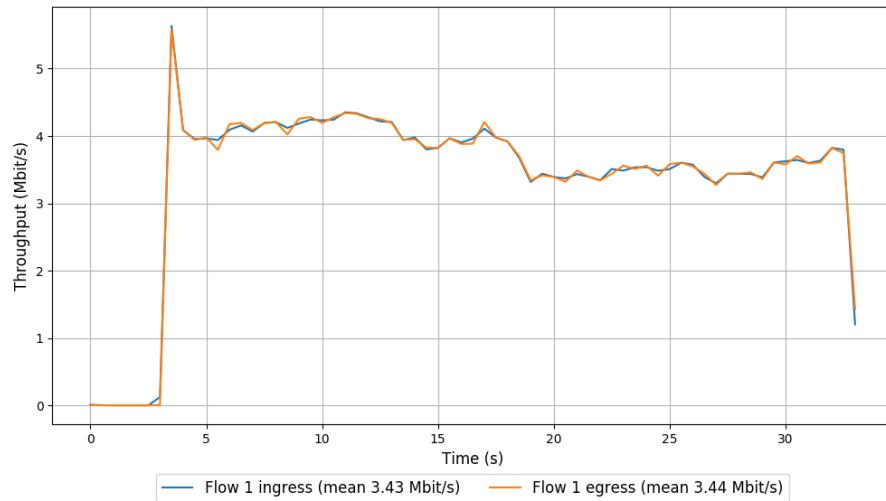


Run 1: Statistics of PCC

```
Start at: Tue, 13 Jun 2017 06:21:23 +0000
End at: Tue, 13 Jun 2017 06:21:53 +0000
Local clock offset: 5.486 ms
Remote clock offset: -3.494 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:00 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.44 Mbit/s
95th percentile per-packet one-way delay: 28.059 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.44 Mbit/s
95th percentile per-packet one-way delay: 28.059 ms
Loss rate: 0.00%
```

## Run 1: Report of PCC — Data Link



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

```
Start at: Tue, 13 Jun 2017 06:26:25 +0000
```

```
End at: Tue, 13 Jun 2017 06:26:55 +0000
```

```
Local clock offset: 5.54 ms
```

```
Remote clock offset: -3.585 ms
```

```
# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:02 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 15.56 Mbit/s
```

```
95th percentile per-packet one-way delay: 85.361 ms
```

```
Loss rate: 0.00%
```

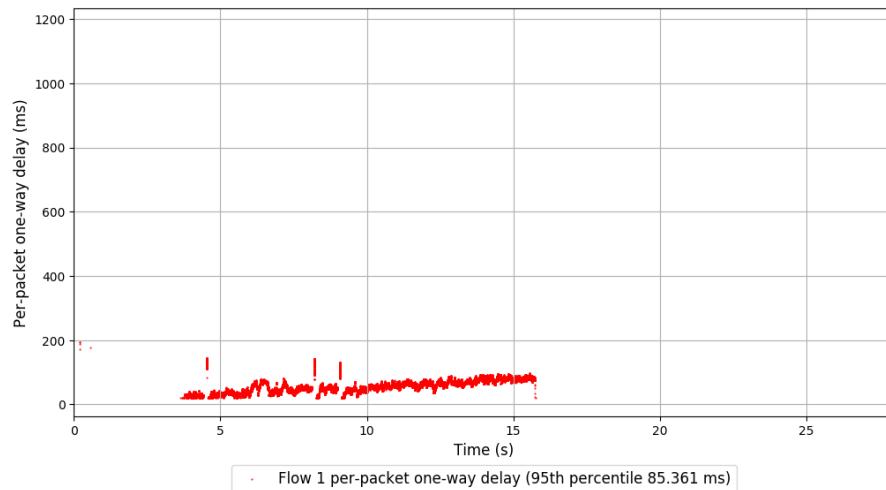
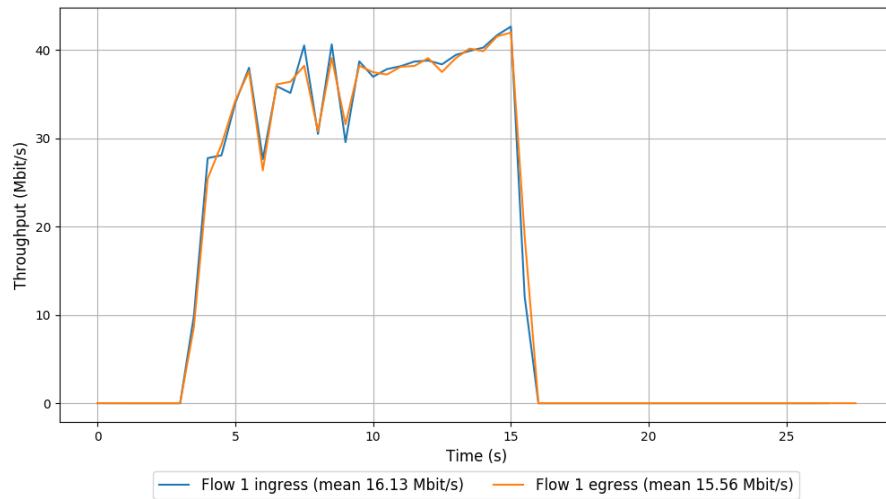
```
-- Flow 1:
```

```
Average throughput: 15.56 Mbit/s
```

```
95th percentile per-packet one-way delay: 85.361 ms
```

```
Loss rate: 0.00%
```

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



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

```
Start at: Tue, 13 Jun 2017 06:27:40 +0000
```

```
End at: Tue, 13 Jun 2017 06:28:10 +0000
```

```
Local clock offset: 5.578 ms
```

```
Remote clock offset: -3.497 ms
```

```
# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:07 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 35.51 Mbit/s
```

```
95th percentile per-packet one-way delay: 57.977 ms
```

```
Loss rate: 0.03%
```

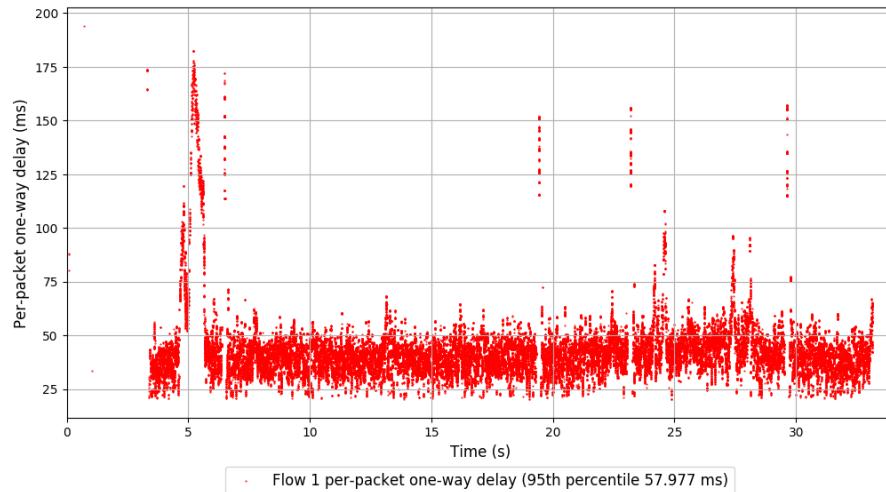
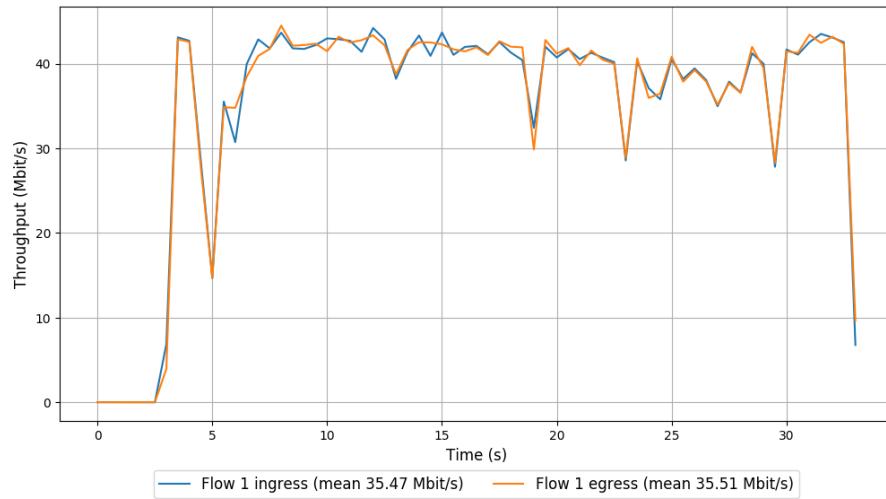
```
-- Flow 1:
```

```
Average throughput: 35.51 Mbit/s
```

```
95th percentile per-packet one-way delay: 57.977 ms
```

```
Loss rate: 0.03%
```

## Run 1: Report of Saturator — Data Link



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

```
Start at: Tue, 13 Jun 2017 06:35:18 +0000
```

```
End at: Tue, 13 Jun 2017 06:35:48 +0000
```

```
Local clock offset: 5.321 ms
```

```
Remote clock offset: -3.688 ms
```

```
# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:07 +0000
```

```
# Datalink statistics
```

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

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

```
95th percentile per-packet one-way delay: 23.778 ms
```

```
Loss rate: 0.00%
```

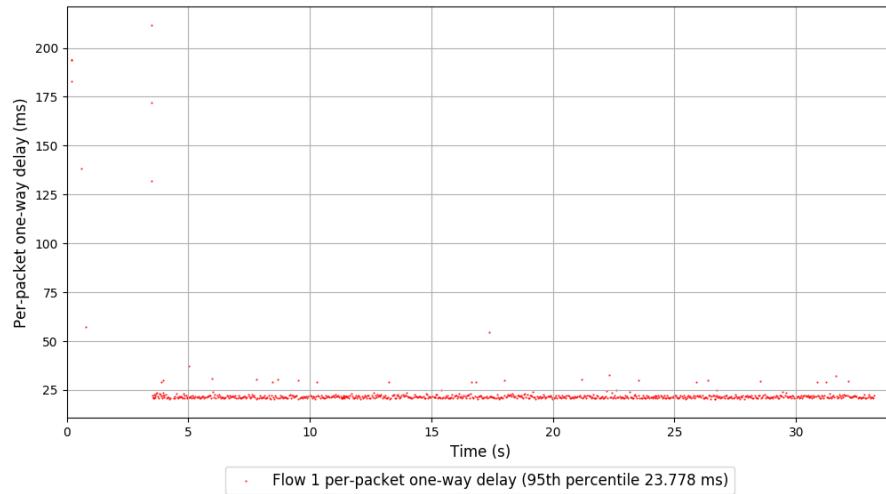
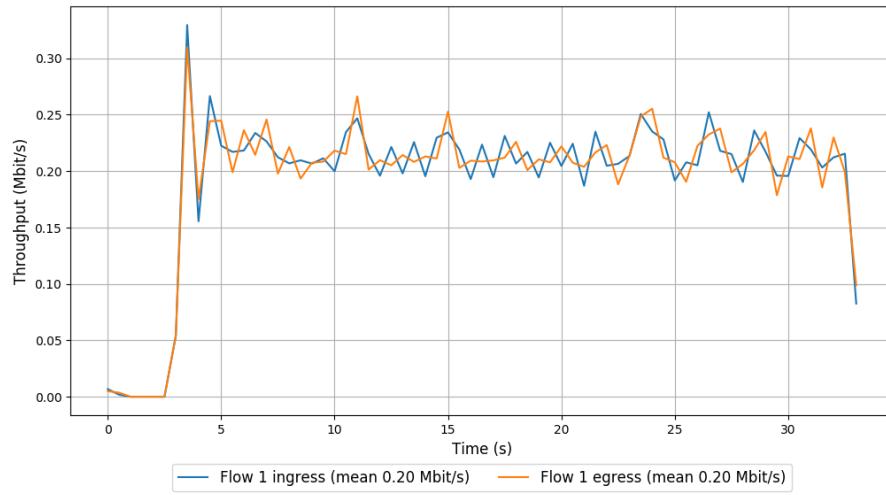
```
-- Flow 1:
```

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

```
95th percentile per-packet one-way delay: 23.778 ms
```

```
Loss rate: 0.00%
```

## Run 1: Report of SCReAM — Data Link

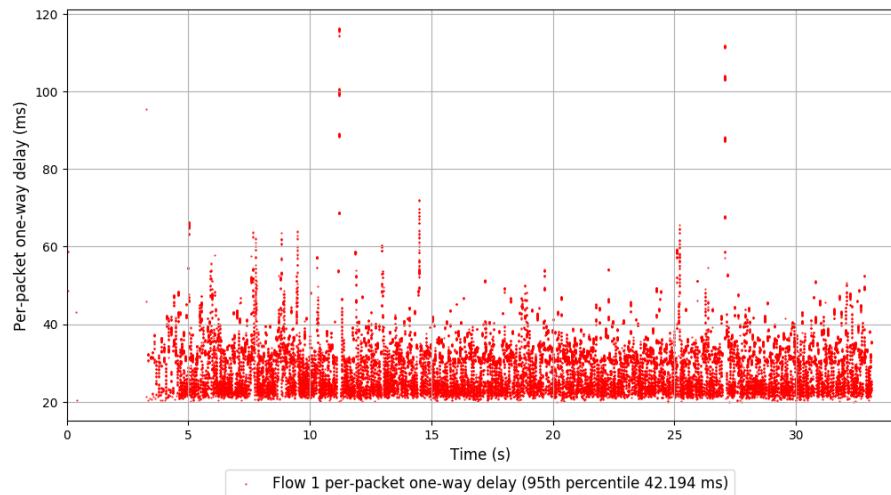
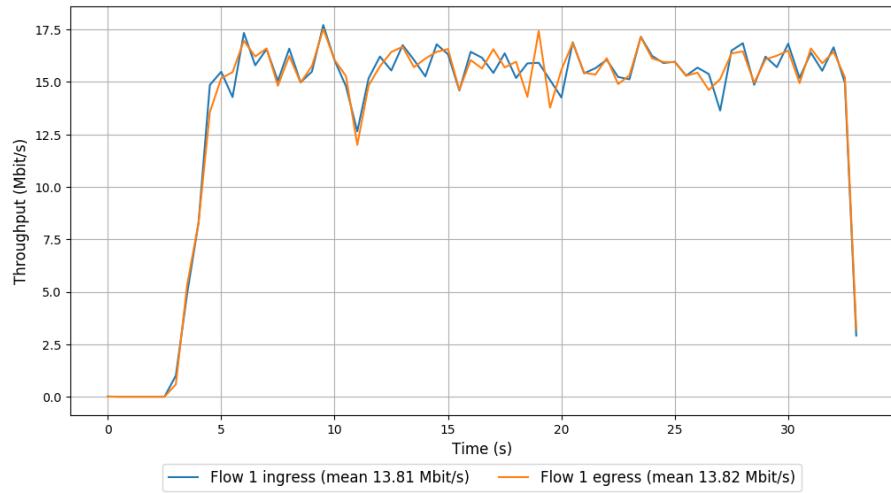


```
Run 1: Statistics of Sprout
```

```
Start at: Tue, 13 Jun 2017 06:31:28 +0000
End at: Tue, 13 Jun 2017 06:31:58 +0000
Local clock offset: 5.368 ms
Remote clock offset: -3.628 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:07 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.82 Mbit/s
95th percentile per-packet one-way delay: 42.194 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.82 Mbit/s
95th percentile per-packet one-way delay: 42.194 ms
Loss rate: 0.00%
```

## Run 1: Report of Sprout — Data Link

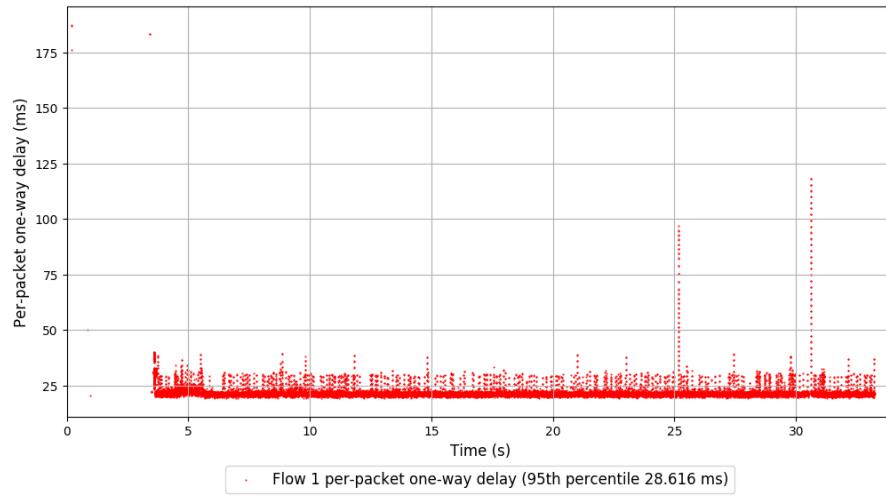
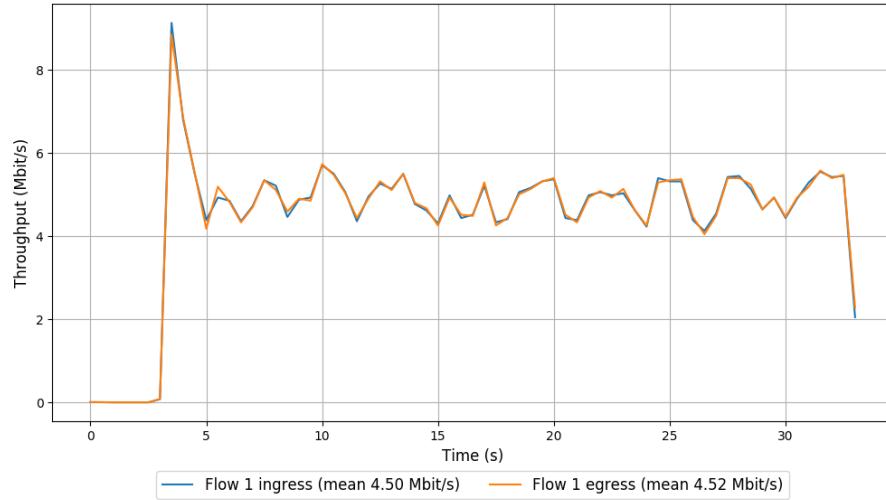


Run 1: Statistics of TaoVA-100x

```
Start at: Tue, 13 Jun 2017 06:30:13 +0000
End at: Tue, 13 Jun 2017 06:30:43 +0000
Local clock offset: 5.492 ms
Remote clock offset: -3.626 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:07 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.52 Mbit/s
95th percentile per-packet one-way delay: 28.616 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.52 Mbit/s
95th percentile per-packet one-way delay: 28.616 ms
Loss rate: 0.00%
```

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

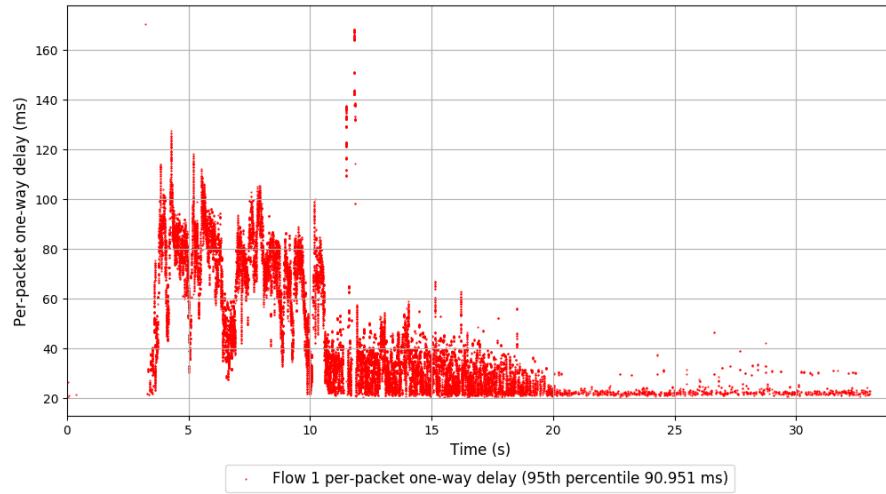
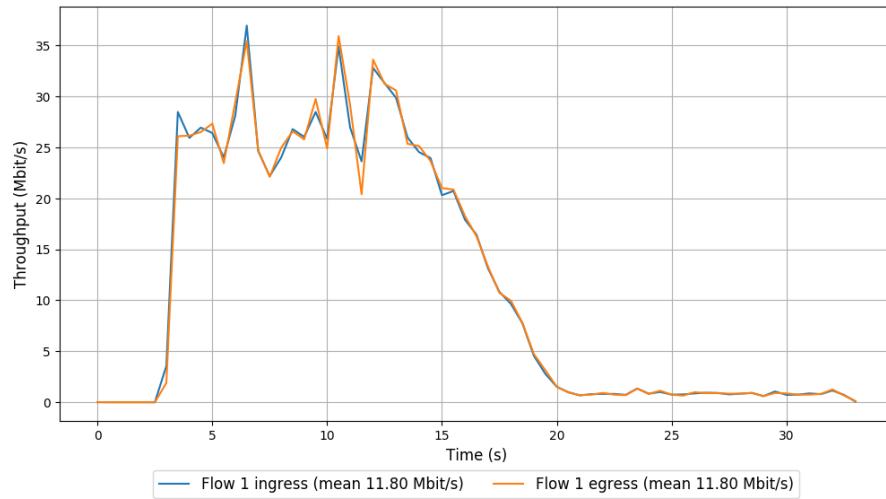


Run 1: Statistics of TCP Vegas

```
Start at: Tue, 13 Jun 2017 06:23:54 +0000
End at: Tue, 13 Jun 2017 06:24:24 +0000
Local clock offset: 5.581 ms
Remote clock offset: -3.543 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:09 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.80 Mbit/s
95th percentile per-packet one-way delay: 90.951 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.80 Mbit/s
95th percentile per-packet one-way delay: 90.951 ms
Loss rate: 0.00%
```

## Run 1: Report of TCP Vegas — Data Link

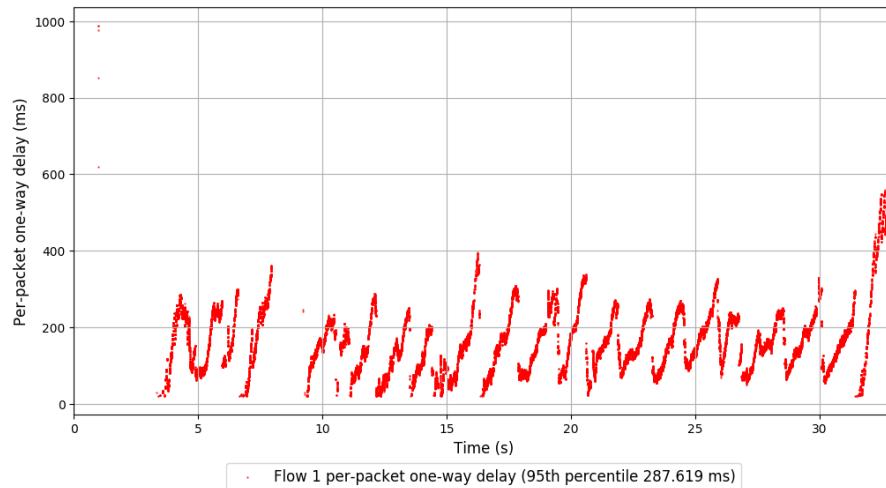
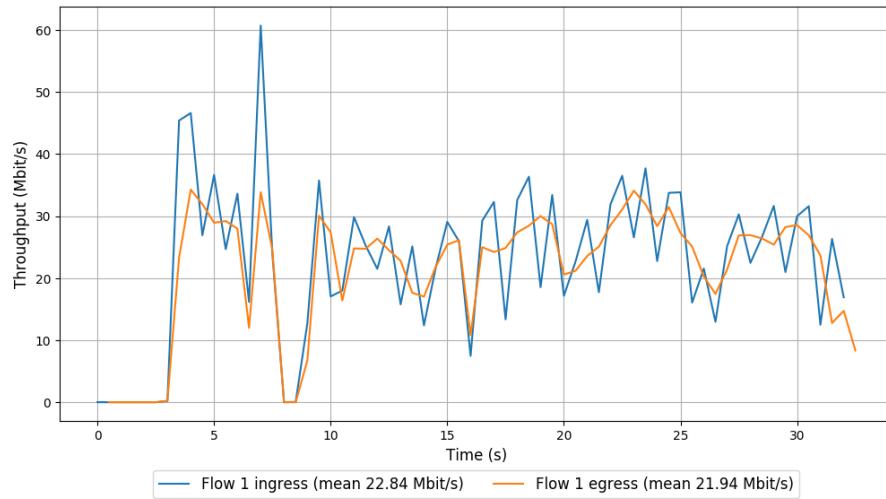


Run 1: Statistics of Verus

```
Start at: Tue, 13 Jun 2017 06:34:02 +0000
End at: Tue, 13 Jun 2017 06:34:32 +0000
Local clock offset: 5.293 ms
Remote clock offset: -3.662 ms

# Below is generated by plot.py at Tue, 13 Jun 2017 06:57:11 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 21.94 Mbit/s
95th percentile per-packet one-way delay: 287.619 ms
Loss rate: 5.29%
-- Flow 1:
Average throughput: 21.94 Mbit/s
95th percentile per-packet one-way delay: 287.619 ms
Loss rate: 5.29%
```

## Run 1: Report of Verus — Data Link



Run 1: Statistics of WebRTC media

Start at: Tue, 13 Jun 2017 06:28:58 +0000  
End at: Tue, 13 Jun 2017 06:29:28 +0000  
Local clock offset: 5.555 ms  
Remote clock offset: -3.553 ms

### Run 1: Report of WebRTC media — Data Link

