

Pantheon Summary (Generated at Sun, 11 Jun 2017 01:12:39 +0000 with
pantheon version e44e21ab50520045378f626dc5b5e21d0473d7b8)

Repeated the test of 15 congestion control schemes once.

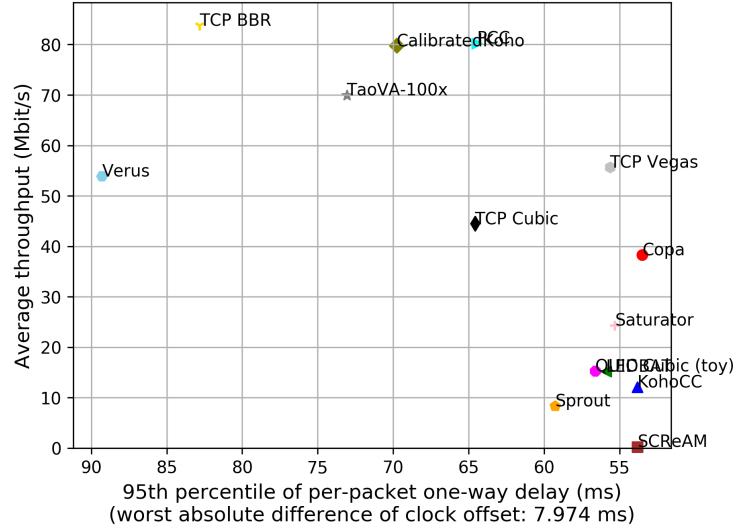
Each test lasted for 30 seconds running 1 flow.

Data path **from** AWS California 2 Ethernet **to** Mexico Ethernet.

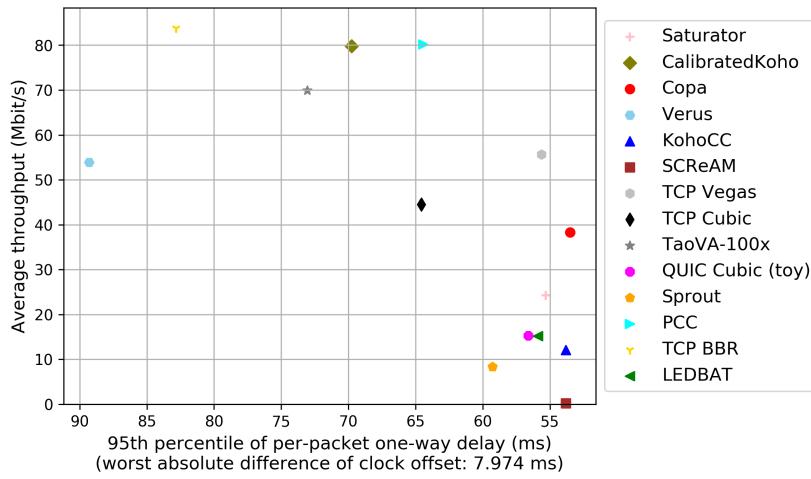
NTP offset measured against time.stanford.edu.

```
git branch: master @ e44e21ab50520045378f626dc5b5e21d0473d7b8
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
```

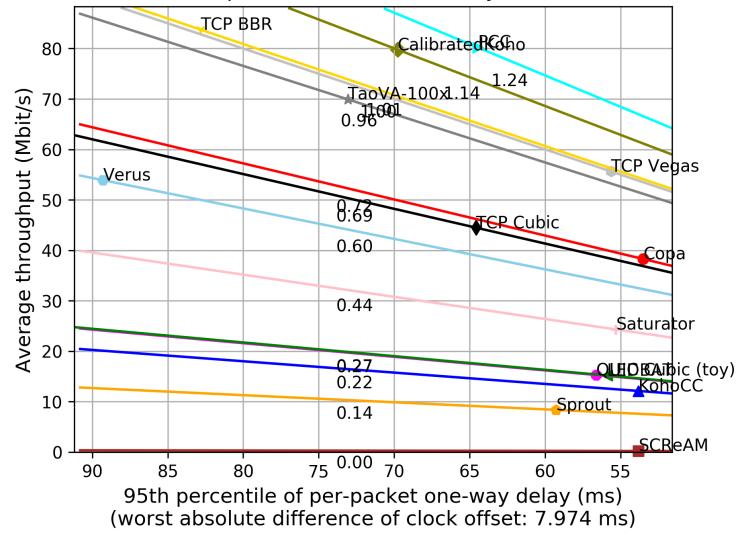
test from AWS California 2 Ethernet to Mexico Ethernet, run 1 of 30s each per scheme
mean of all runs by scheme



test from AWS California 2 Ethernet to Mexico Ethernet, run 1 of 30s each per scheme



test from AWS California 2 Ethernet to Mexico Ethernet, run 1 of 30s each per scheme
 mean power scores of all runs by scheme

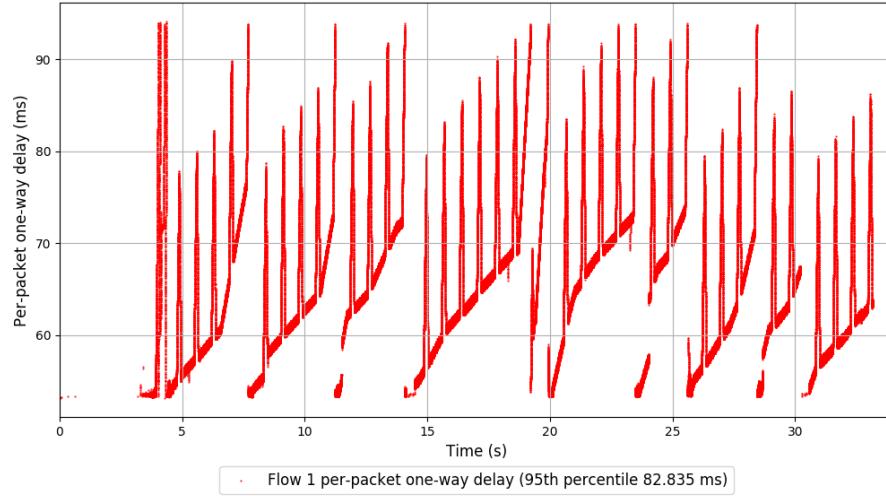
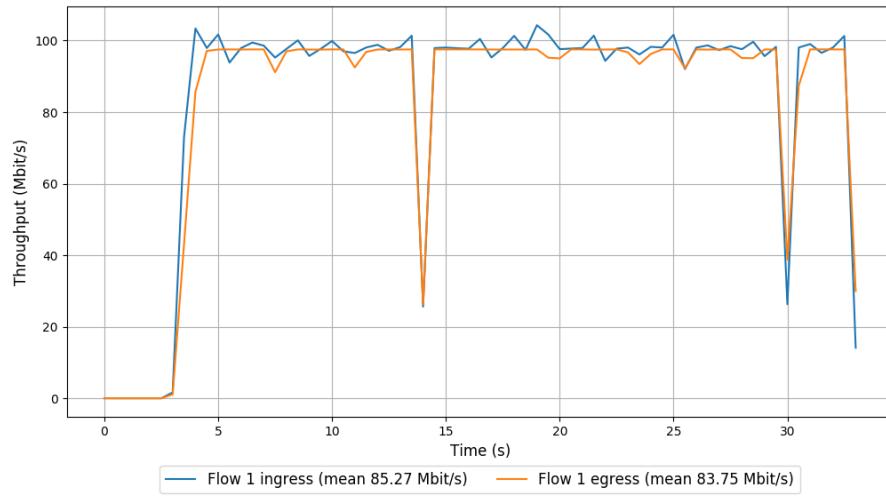


Run 1: Statistics of TCP BBR

```
Start at: Sun, 11 Jun 2017 00:32:18 +0000
End at: Sun, 11 Jun 2017 00:32:48 +0000
Local clock offset: 1.823 ms
Remote clock offset: -3.225 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:11:52 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.75 Mbit/s
95th percentile per-packet one-way delay: 82.835 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 83.75 Mbit/s
95th percentile per-packet one-way delay: 82.835 ms
Loss rate: 1.77%
```

Run 1: Report of TCP BBR — Data Link



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

```
Start at: Sun, 11 Jun 2017 00:40:45 +0000
```

```
End at: Sun, 11 Jun 2017 00:41:15 +0000
```

```
Local clock offset: 2.748 ms
```

```
Remote clock offset: -5.176 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:11:52 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 79.78 Mbit/s
```

```
95th percentile per-packet one-way delay: 69.775 ms
```

```
Loss rate: 0.04%
```

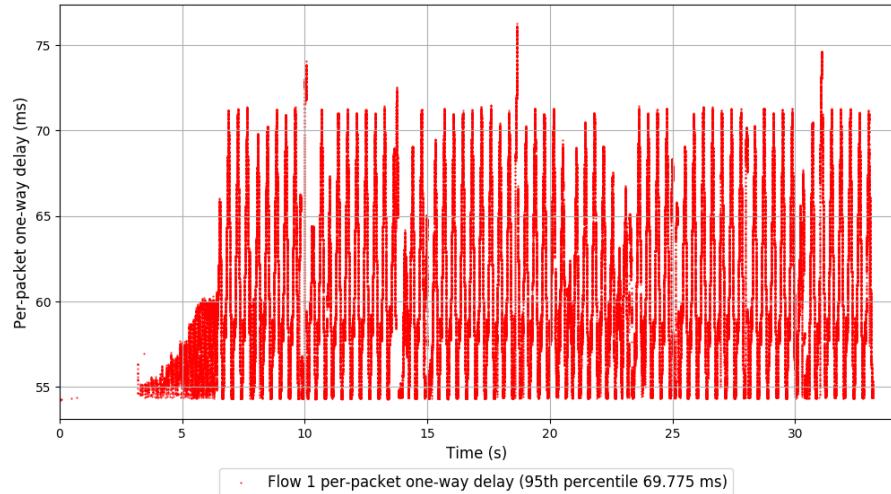
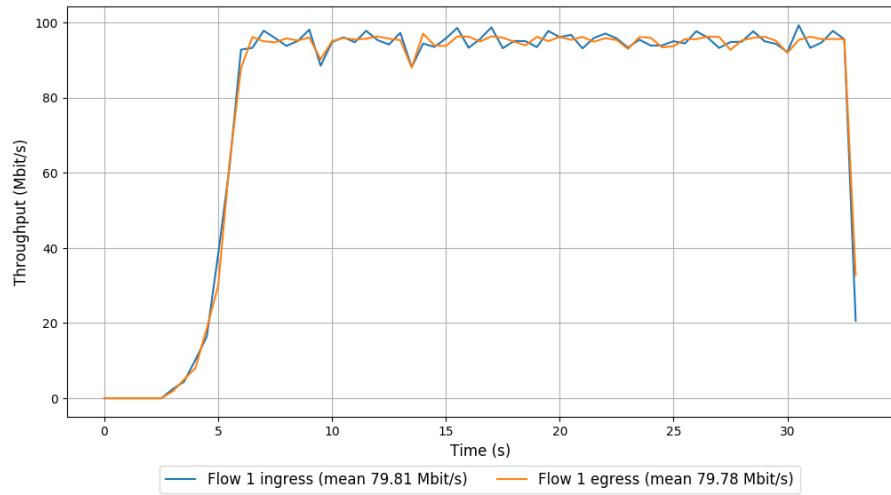
```
-- Flow 1:
```

```
Average throughput: 79.78 Mbit/s
```

```
95th percentile per-packet one-way delay: 69.775 ms
```

```
Loss rate: 0.04%
```

Run 1: Report of CalibratedKoho — Data Link

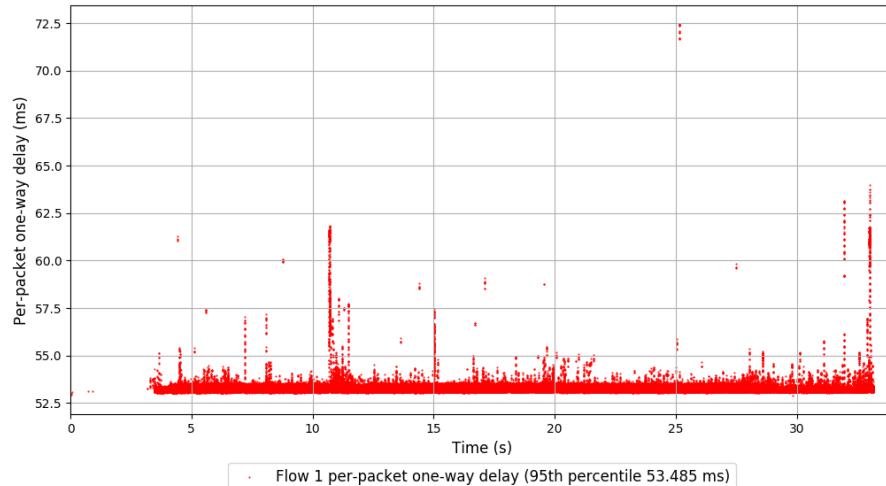
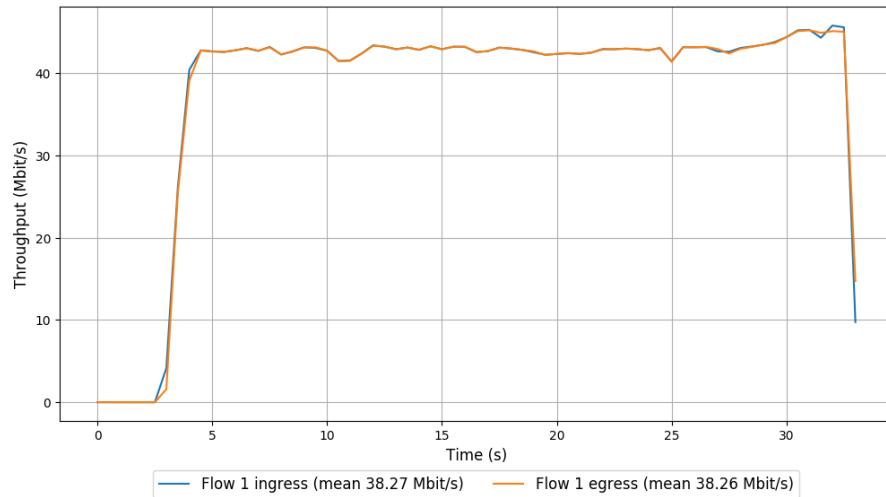


Run 1: Statistics of Copa

```
Start at: Sun, 11 Jun 2017 00:26:36 +0000
End at: Sun, 11 Jun 2017 00:27:06 +0000
Local clock offset: 1.508 ms
Remote clock offset: -2.726 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:03 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 38.26 Mbit/s
95th percentile per-packet one-way delay: 53.485 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 38.26 Mbit/s
95th percentile per-packet one-way delay: 53.485 ms
Loss rate: 0.02%
```

Run 1: Report of Copa — Data Link

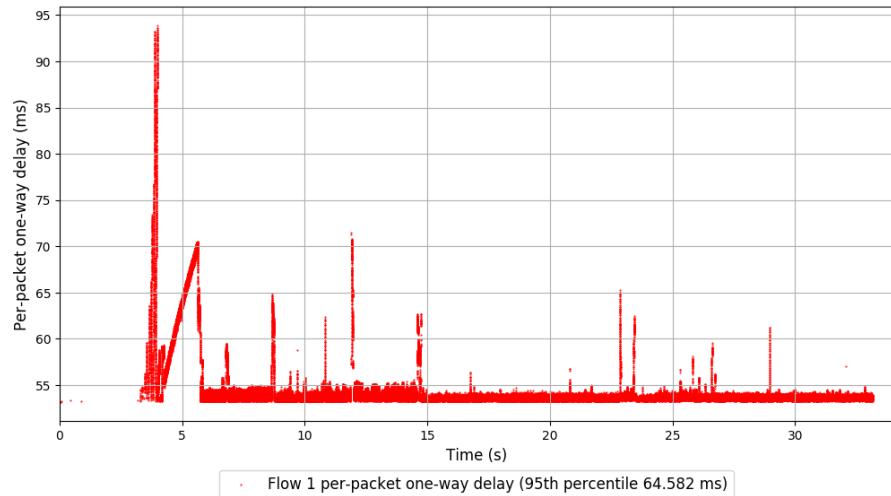
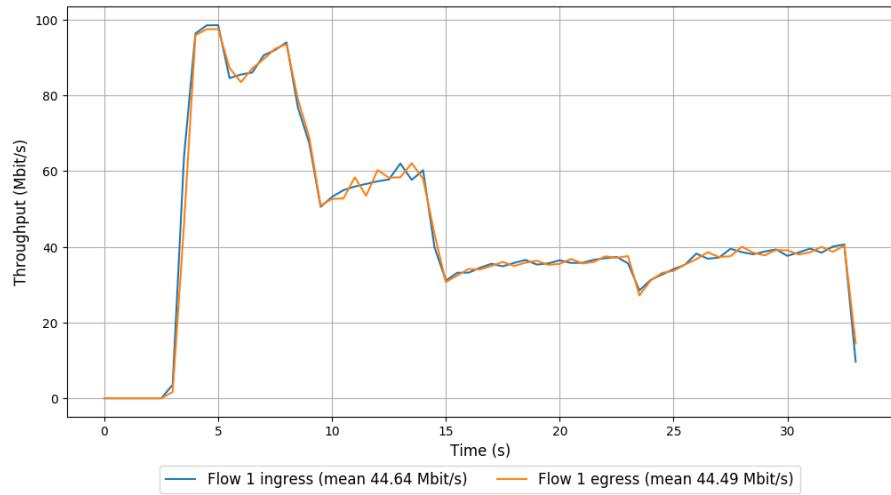


Run 1: Statistics of TCP Cubic

```
Start at: Sun, 11 Jun 2017 00:30:53 +0000
End at: Sun, 11 Jun 2017 00:31:23 +0000
Local clock offset: 1.761 ms
Remote clock offset: -2.66 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:03 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 44.49 Mbit/s
95th percentile per-packet one-way delay: 64.582 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 44.49 Mbit/s
95th percentile per-packet one-way delay: 64.582 ms
Loss rate: 0.43%
```

Run 1: Report of TCP Cubic — Data Link



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

```
Start at: Sun, 11 Jun 2017 00:29:30 +0000
```

```
End at: Sun, 11 Jun 2017 00:30:00 +0000
```

```
Local clock offset: 1.599 ms
```

```
Remote clock offset: -4.883 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:03 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 12.10 Mbit/s
```

```
95th percentile per-packet one-way delay: 53.828 ms
```

```
Loss rate: 0.04%
```

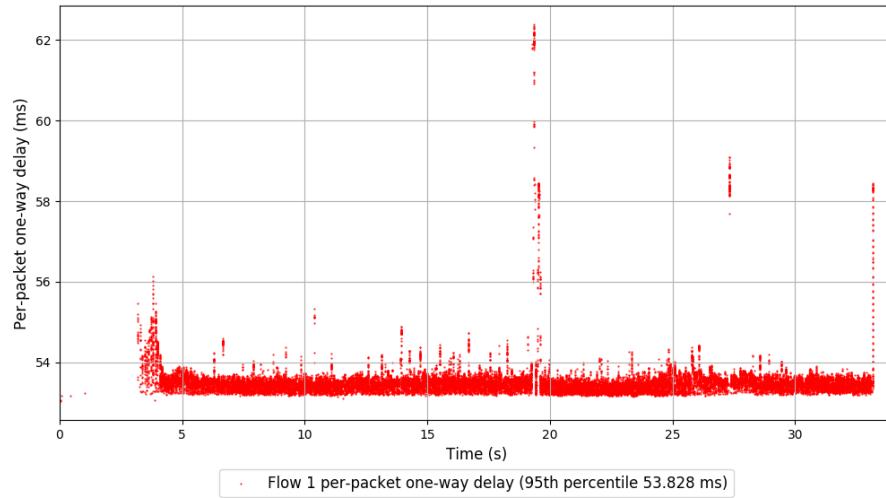
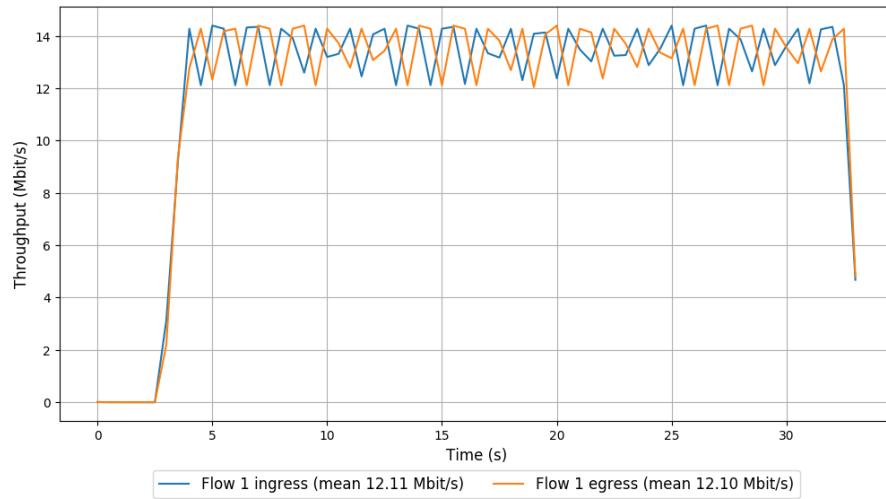
```
-- Flow 1:
```

```
Average throughput: 12.10 Mbit/s
```

```
95th percentile per-packet one-way delay: 53.828 ms
```

```
Loss rate: 0.04%
```

Run 1: Report of KohoCC — Data Link

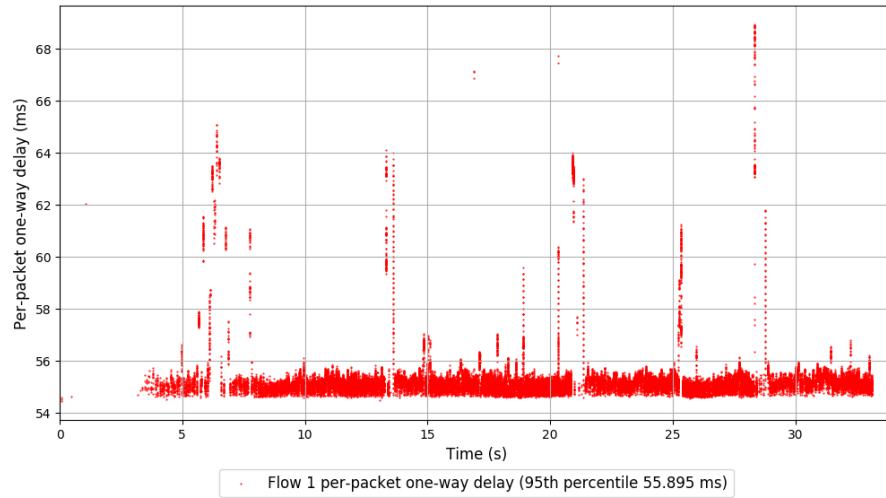
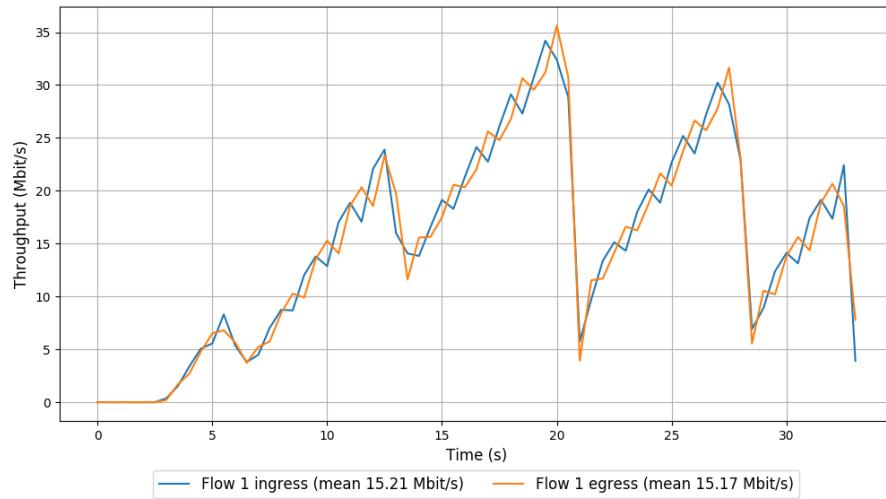


```
Run 1: Statistics of LEDBAT
```

```
Start at: Sun, 11 Jun 2017 00:45:05 +0000
End at: Sun, 11 Jun 2017 00:45:35 +0000
Local clock offset: 3.189 ms
Remote clock offset: -4.785 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.17 Mbit/s
95th percentile per-packet one-way delay: 55.895 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 15.17 Mbit/s
95th percentile per-packet one-way delay: 55.895 ms
Loss rate: 0.28%
```

Run 1: Report of LEDBAT — Data Link



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

```
Start at: Sun, 11 Jun 2017 00:25:10 +0000
```

```
End at: Sun, 11 Jun 2017 00:25:40 +0000
```

```
Local clock offset: 1.556 ms
```

```
Remote clock offset: -2.349 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:17 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 80.19 Mbit/s
```

```
95th percentile per-packet one-way delay: 64.440 ms
```

```
Loss rate: 0.82%
```

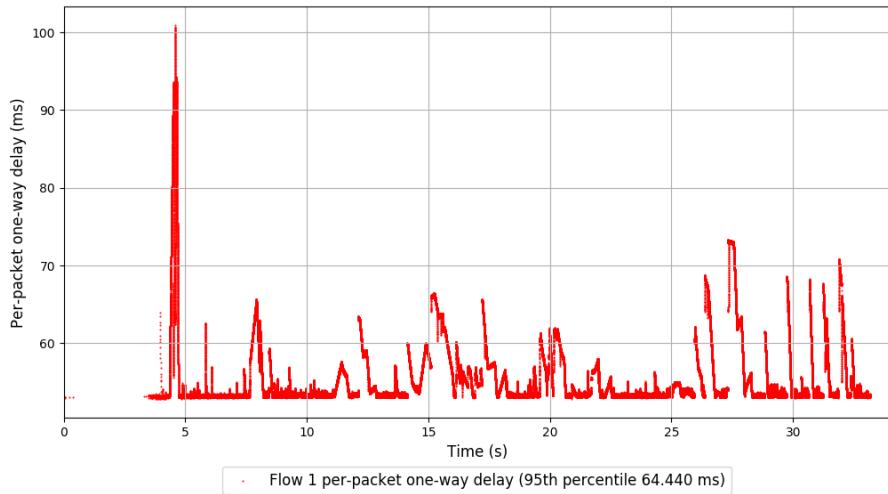
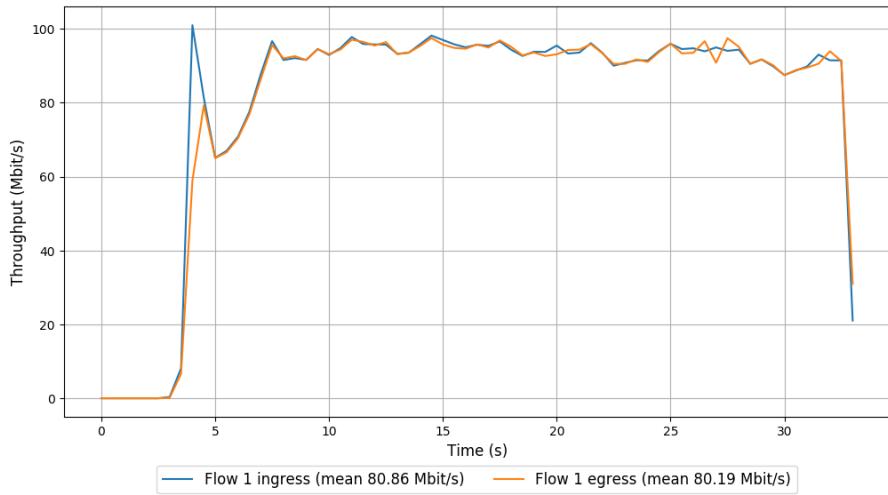
```
-- Flow 1:
```

```
Average throughput: 80.19 Mbit/s
```

```
95th percentile per-packet one-way delay: 64.440 ms
```

```
Loss rate: 0.82%
```

Run 1: Report of PCC — Data Link



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

```
Start at: Sun, 11 Jun 2017 00:39:22 +0000
```

```
End at: Sun, 11 Jun 2017 00:39:52 +0000
```

```
Local clock offset: 2.612 ms
```

```
Remote clock offset: -4.884 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:17 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 15.26 Mbit/s
```

```
95th percentile per-packet one-way delay: 56.603 ms
```

```
Loss rate: 0.12%
```

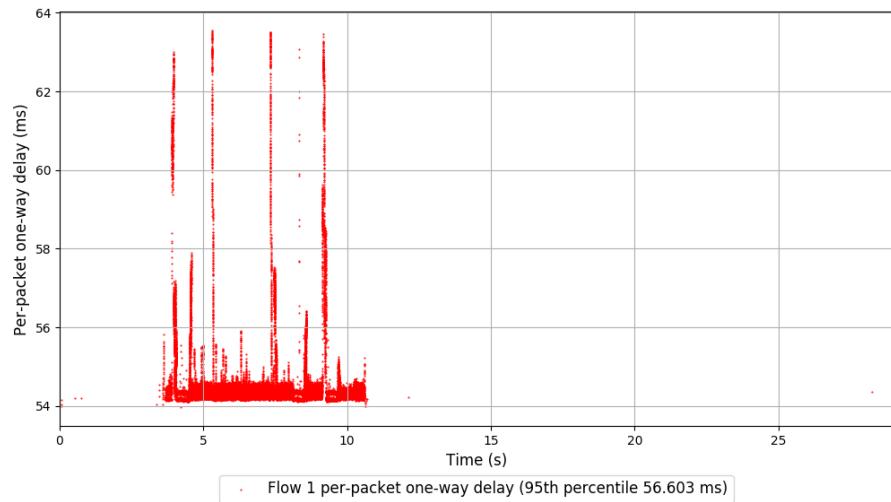
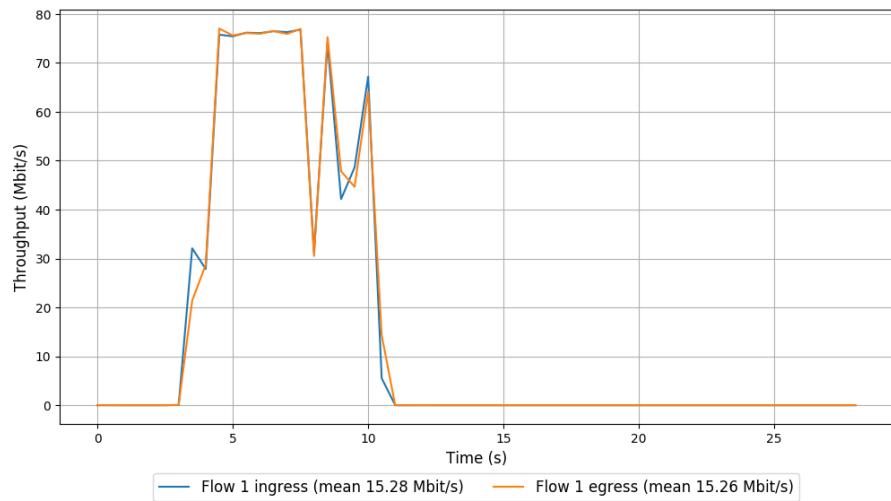
```
-- Flow 1:
```

```
Average throughput: 15.26 Mbit/s
```

```
95th percentile per-packet one-way delay: 56.603 ms
```

```
Loss rate: 0.12%
```

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



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

```
Start at: Sun, 11 Jun 2017 00:37:57 +0000
```

```
End at: Sun, 11 Jun 2017 00:38:27 +0000
```

```
Local clock offset: 2.454 ms
```

```
Remote clock offset: -4.838 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:17 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 24.30 Mbit/s
```

```
95th percentile per-packet one-way delay: 55.300 ms
```

```
Loss rate: 0.00%
```

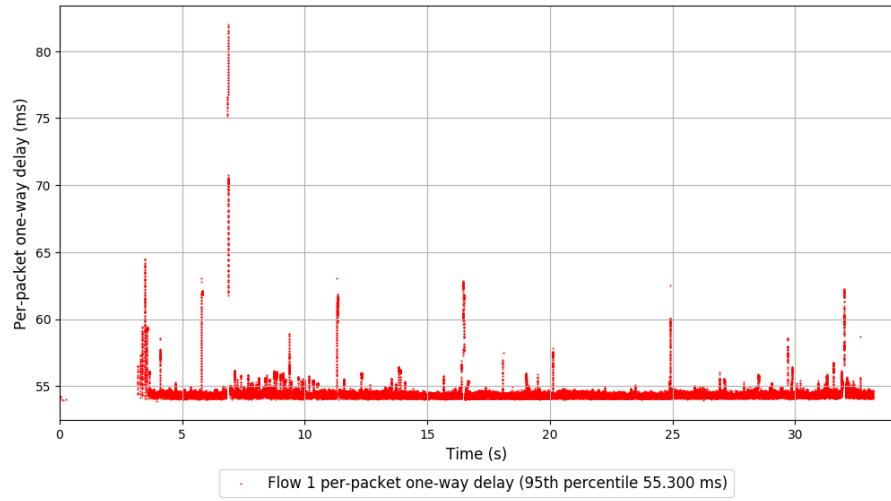
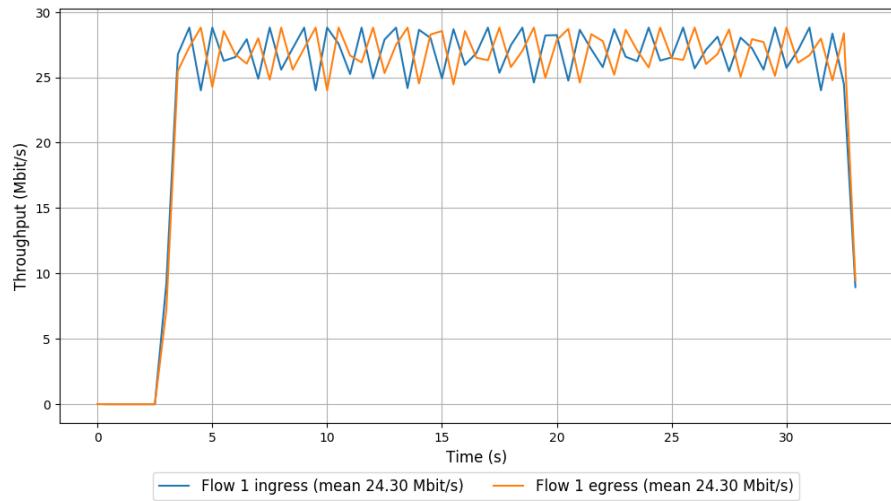
```
-- Flow 1:
```

```
Average throughput: 24.30 Mbit/s
```

```
95th percentile per-packet one-way delay: 55.300 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of Saturator — Data Link

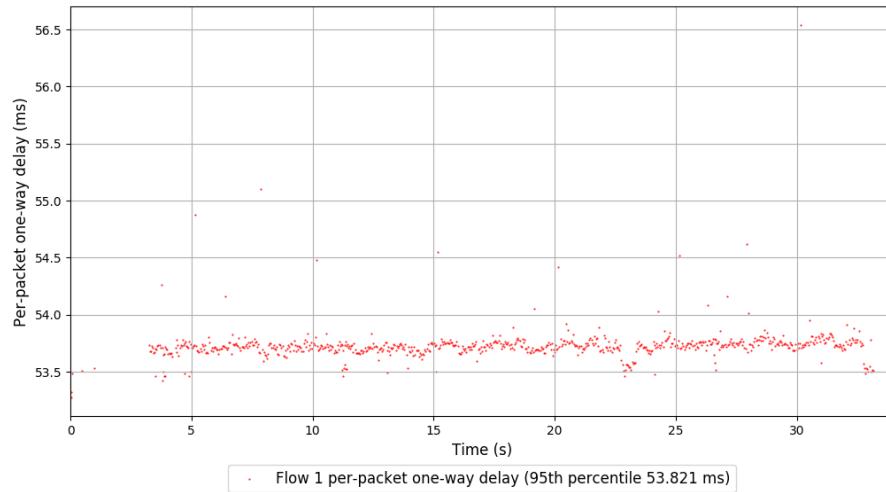
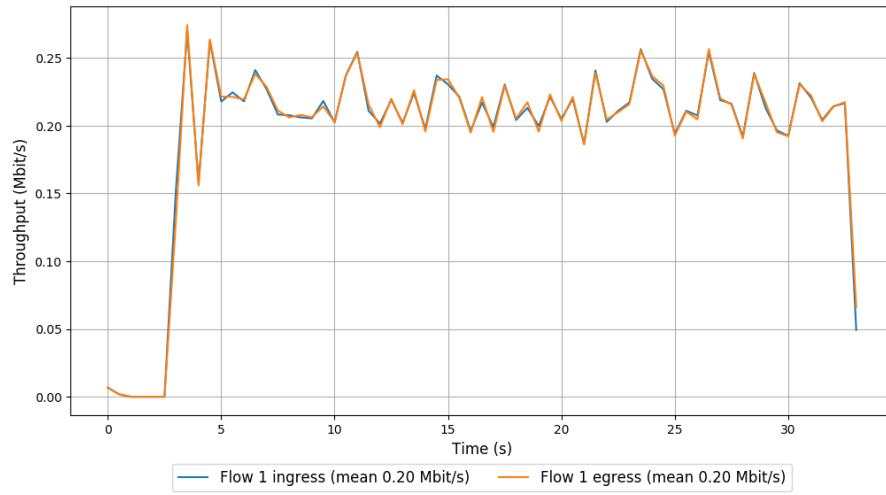


```
Run 1: Statistics of SCReAM
```

```
Start at: Sun, 11 Jun 2017 00:33:47 +0000
End at: Sun, 11 Jun 2017 00:34:17 +0000
Local clock offset: 1.864 ms
Remote clock offset: -2.806 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:17 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 53.821 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 53.821 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

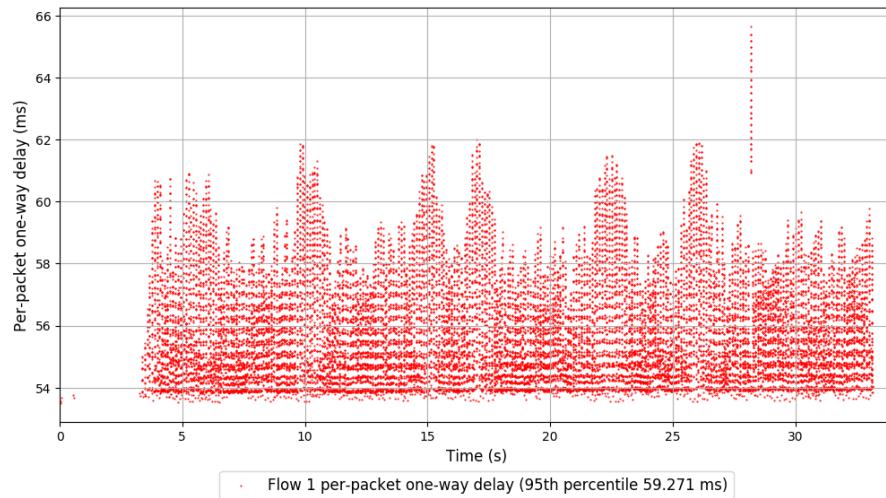
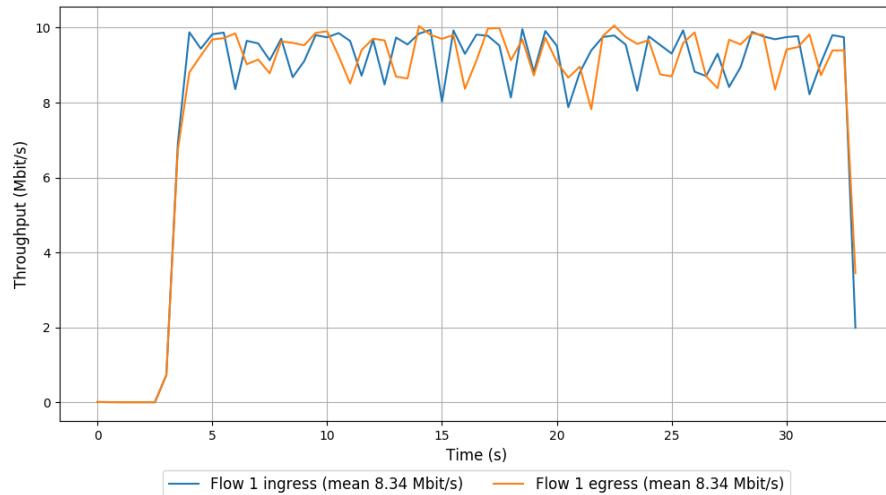


Run 1: Statistics of Sprout

```
Start at: Sun, 11 Jun 2017 00:35:09 +0000
End at: Sun, 11 Jun 2017 00:35:39 +0000
Local clock offset: 2.094 ms
Remote clock offset: -2.736 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:17 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.34 Mbit/s
95th percentile per-packet one-way delay: 59.271 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.34 Mbit/s
95th percentile per-packet one-way delay: 59.271 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link



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

```
Start at: Sun, 11 Jun 2017 00:43:35 +0000
```

```
End at: Sun, 11 Jun 2017 00:44:05 +0000
```

```
Local clock offset: 2.971 ms
```

```
Remote clock offset: -2.335 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:35 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 69.92 Mbit/s
```

```
95th percentile per-packet one-way delay: 73.074 ms
```

```
Loss rate: 0.04%
```

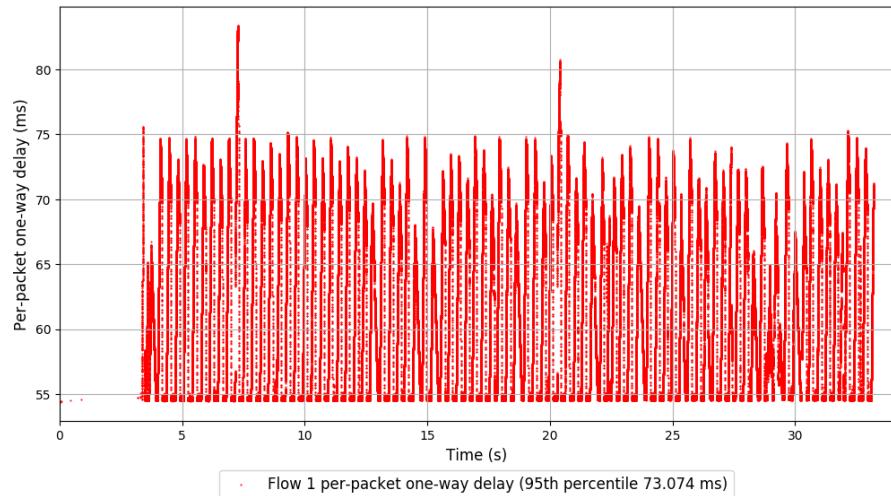
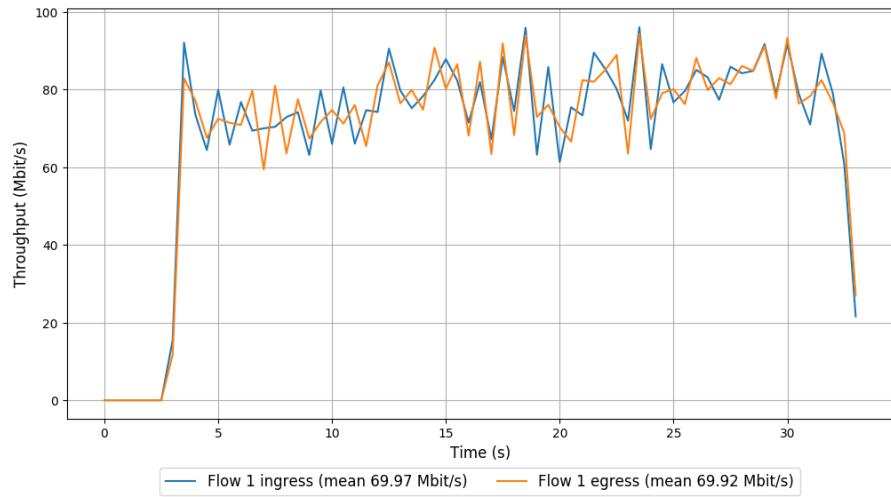
```
-- Flow 1:
```

```
Average throughput: 69.92 Mbit/s
```

```
95th percentile per-packet one-way delay: 73.074 ms
```

```
Loss rate: 0.04%
```

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

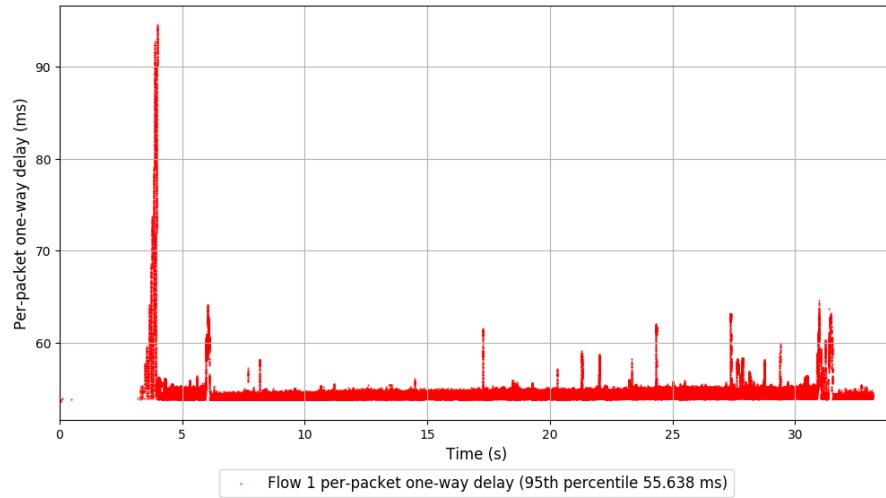
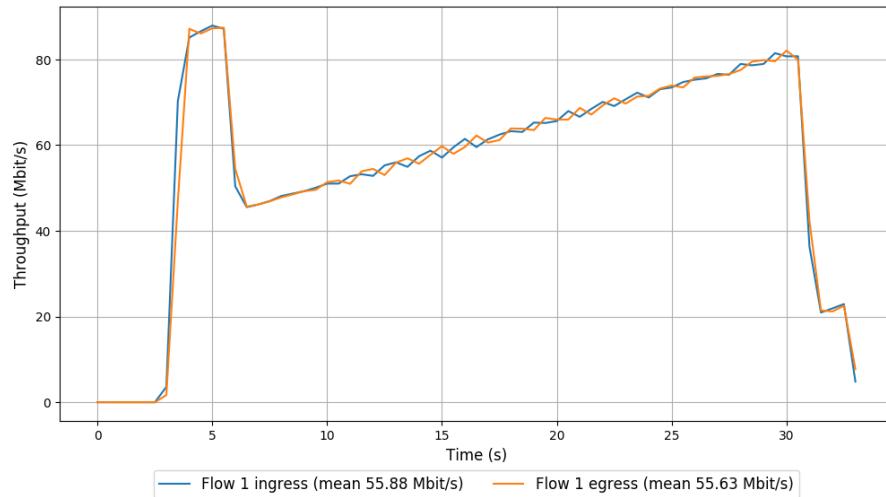


Run 1: Statistics of TCP Vegas

```
Start at: Sun, 11 Jun 2017 00:36:32 +0000
End at: Sun, 11 Jun 2017 00:37:02 +0000
Local clock offset: 2.358 ms
Remote clock offset: -2.638 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:35 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.63 Mbit/s
95th percentile per-packet one-way delay: 55.638 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 55.63 Mbit/s
95th percentile per-packet one-way delay: 55.638 ms
Loss rate: 0.43%
```

Run 1: Report of TCP Vegas — Data Link

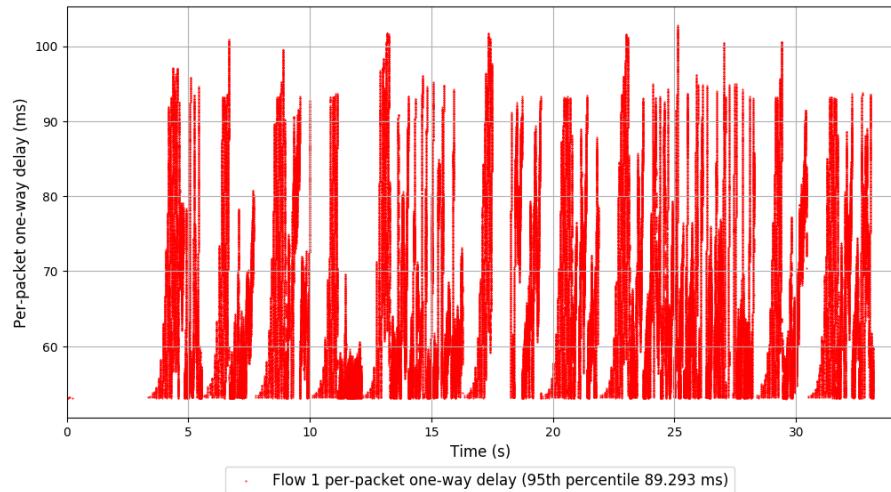
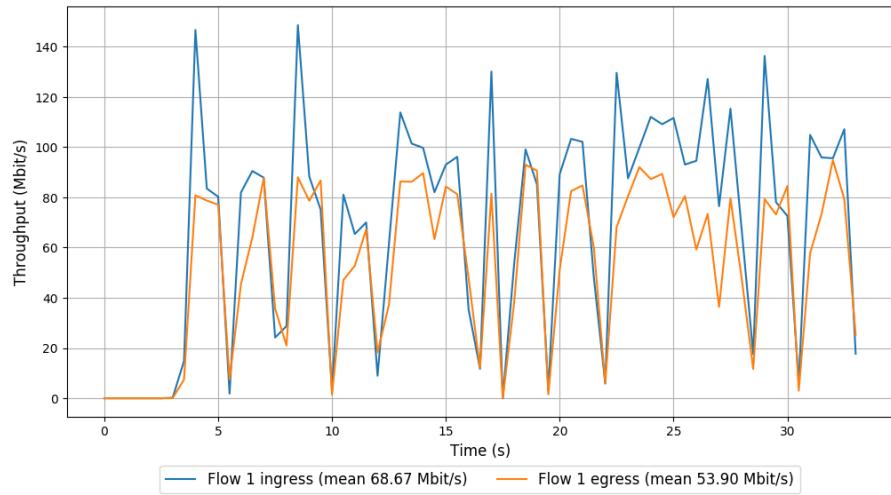


```
Run 1: Statistics of Verus
```

```
Start at: Sun, 11 Jun 2017 00:28:02 +0000
End at: Sun, 11 Jun 2017 00:28:32 +0000
Local clock offset: 1.635 ms
Remote clock offset: -2.383 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:12:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 53.90 Mbit/s
95th percentile per-packet one-way delay: 89.293 ms
Loss rate: 21.52%
-- Flow 1:
Average throughput: 53.90 Mbit/s
95th percentile per-packet one-way delay: 89.293 ms
Loss rate: 21.52%
```

Run 1: Report of Verus — Data Link



Run 1: Statistics of WebRTC media

Start at: Sun, 11 Jun 2017 00:42:13 +0000

End at: Sun, 11 Jun 2017 00:42:43 +0000

Local clock offset: 2.954 ms

Remote clock offset: -2.785 ms

Run 1: Report of WebRTC media — Data Link

