

**Pantheon Summary** (Generated at Sun, 11 Jun 2017 01:08:13 +0000 with  
pantheon version e44e21ab50520045378f626dc5b5e21d0473d7b8)

Repeated the test of 15 congestion control schemes once.

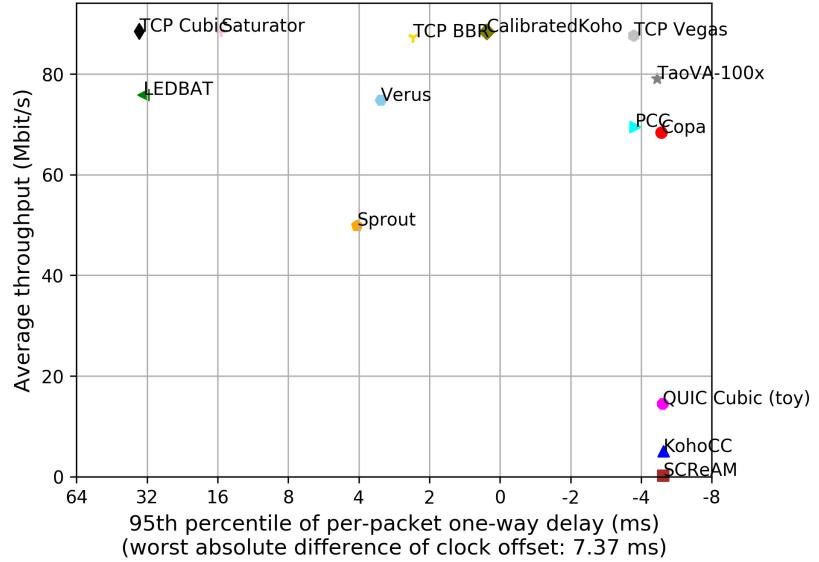
Each test lasted for 30 seconds running 1 flow.

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

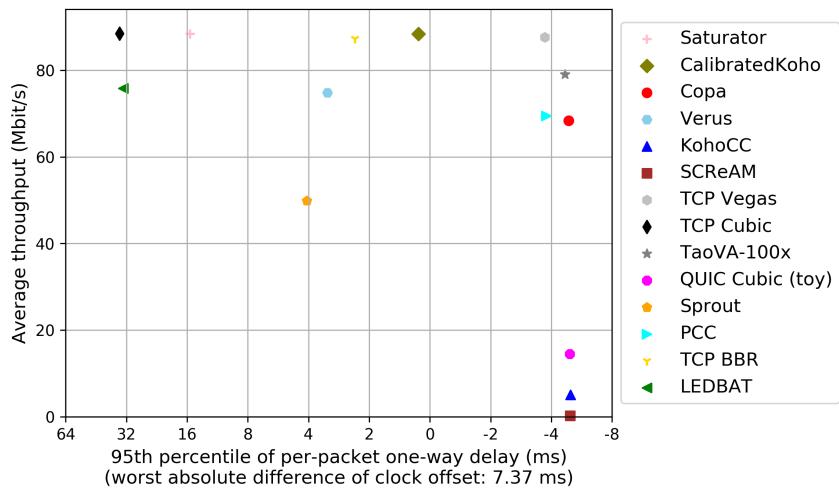
NTP offset measured against gps.ntp.br.

```
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
```

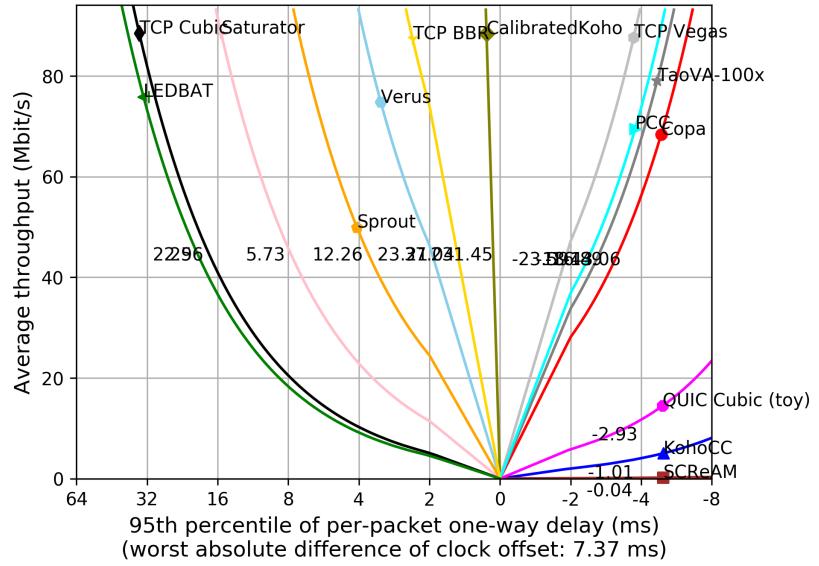
test from AWS Brazil 1 Ethernet to Brazil Ethernet, run 1 of 30s each per scheme  
mean of all runs by scheme



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



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

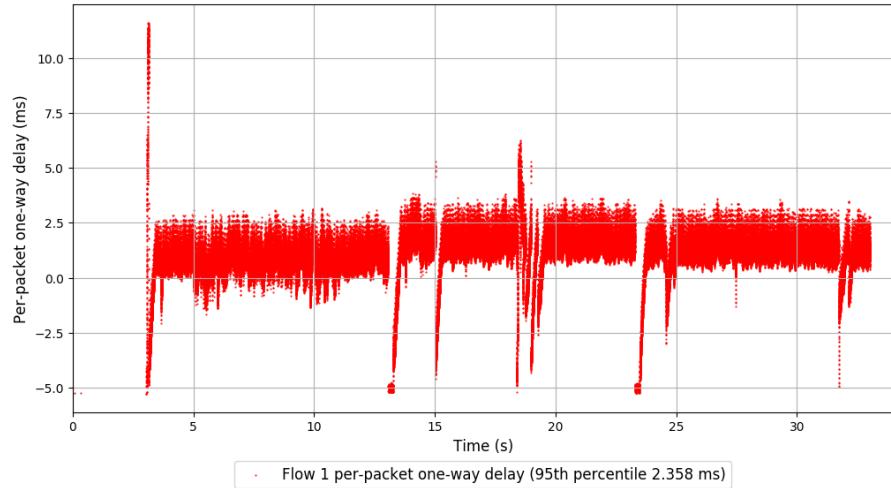
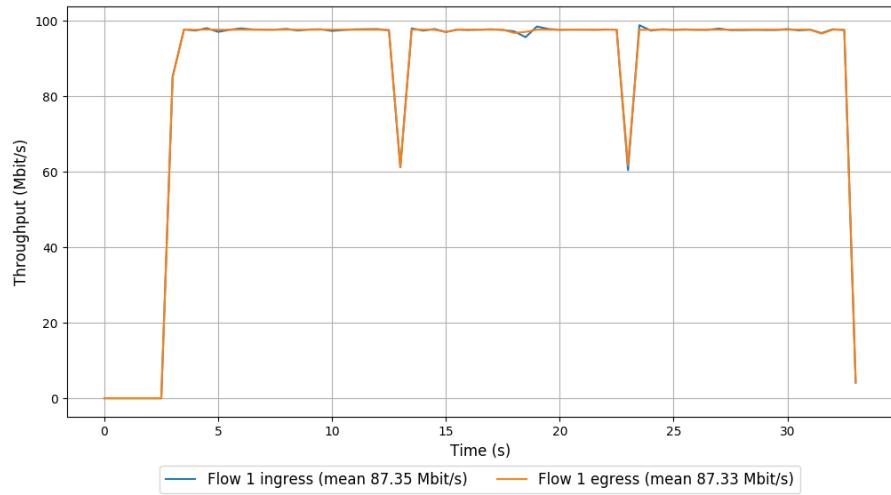


Run 1: Statistics of TCP BBR

```
Start at: Sun, 11 Jun 2017 00:24:59 +0000
End at: Sun, 11 Jun 2017 00:25:29 +0000
Local clock offset: -7.213 ms
Remote clock offset: 0.083 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:09 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.33 Mbit/s
95th percentile per-packet one-way delay: 2.358 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 87.33 Mbit/s
95th percentile per-packet one-way delay: 2.358 ms
Loss rate: 0.00%
```

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



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

```
Start at: Sun, 11 Jun 2017 00:26:13 +0000
```

```
End at: Sun, 11 Jun 2017 00:26:43 +0000
```

```
Local clock offset: -7.231 ms
```

```
Remote clock offset: 0.066 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:09 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 88.41 Mbit/s
```

```
95th percentile per-packet one-way delay: 0.382 ms
```

```
Loss rate: 0.00%
```

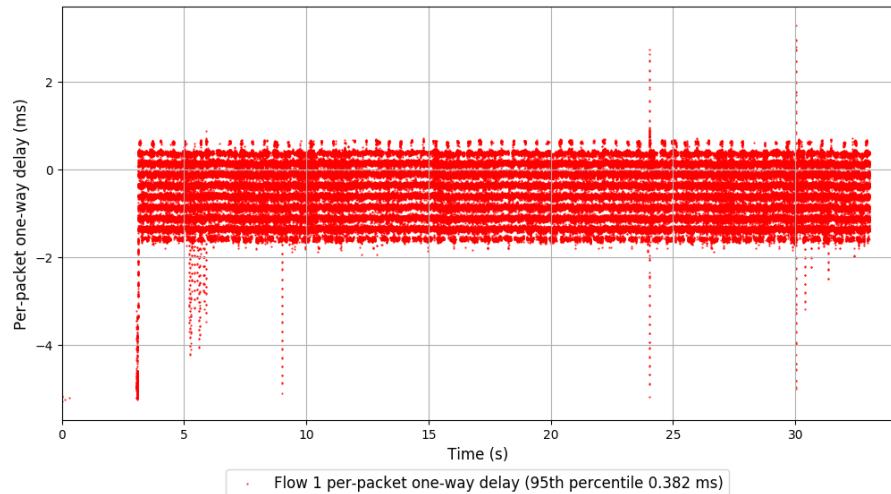
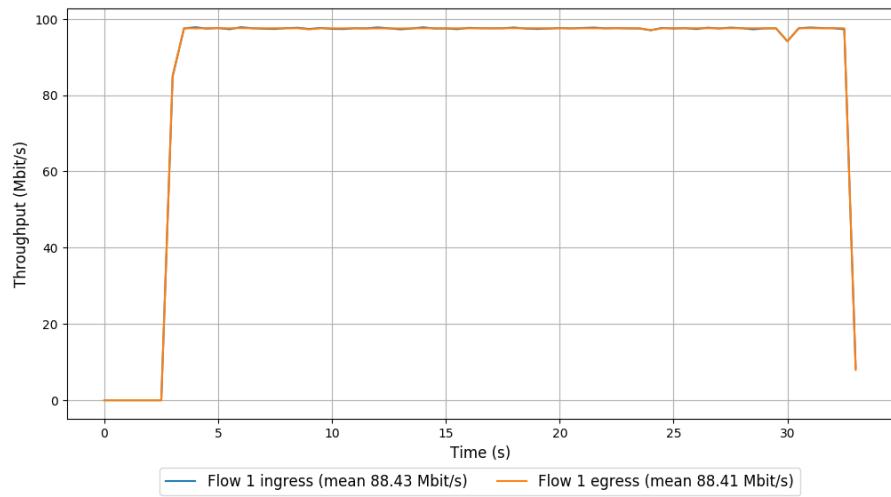
```
-- Flow 1:
```

```
Average throughput: 88.41 Mbit/s
```

```
95th percentile per-packet one-way delay: 0.382 ms
```

```
Loss rate: 0.00%
```

## Run 1: Report of CalibratedKoho — Data Link

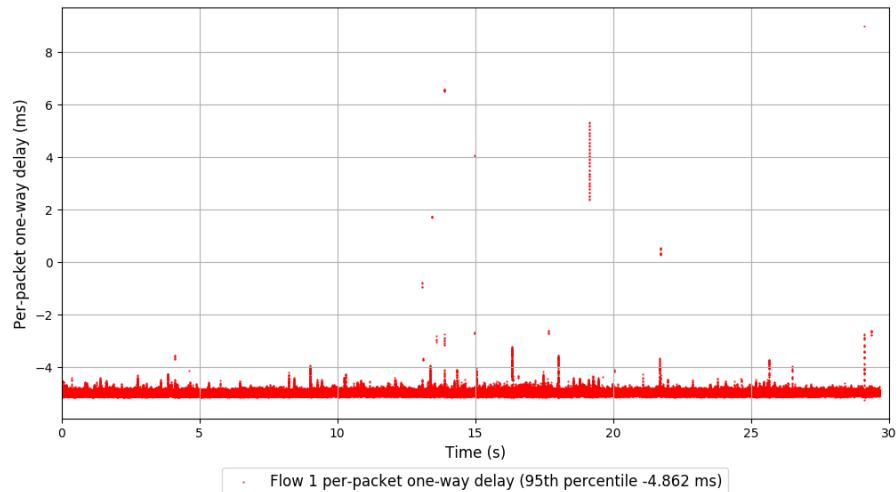
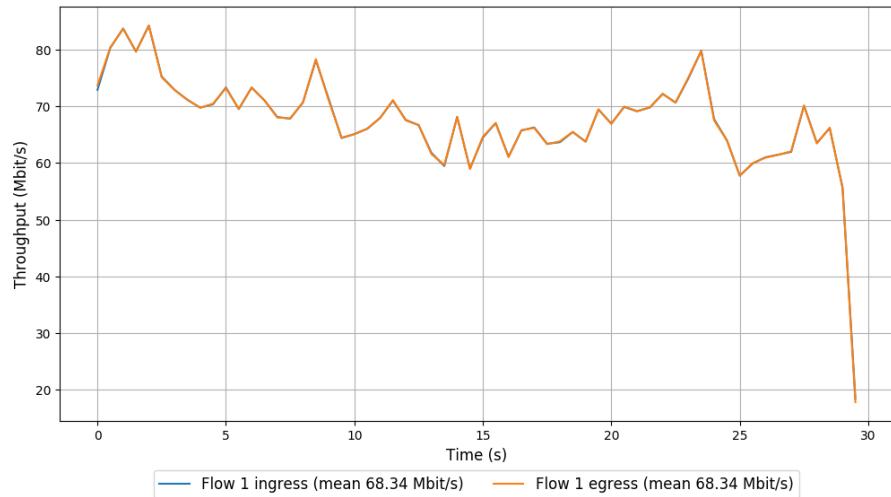


Run 1: Statistics of Copa

```
Start at: Sun, 11 Jun 2017 00:39:20 +0000
End at: Sun, 11 Jun 2017 00:39:50 +0000
Local clock offset: -7.132 ms
Remote clock offset: 0.065 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 68.34 Mbit/s
95th percentile per-packet one-way delay: -4.862 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 68.34 Mbit/s
95th percentile per-packet one-way delay: -4.862 ms
Loss rate: 0.00%
```

## Run 1: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: Sun, 11 Jun 2017 00:33:22 +0000

End at: Sun, 11 Jun 2017 00:33:52 +0000

Local clock offset: -7.267 ms

Remote clock offset: 0.074 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:25 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 88.48 Mbit/s

95th percentile per-packet one-way delay: 34.536 ms

Loss rate: 0.84%

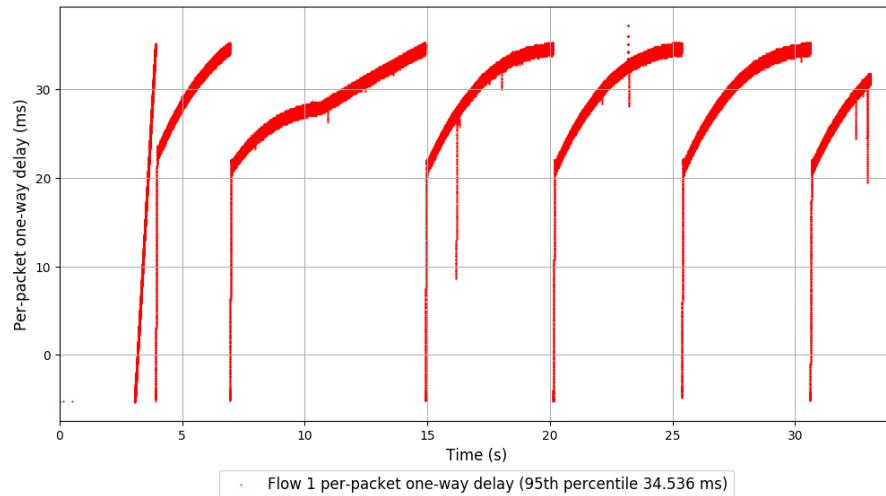
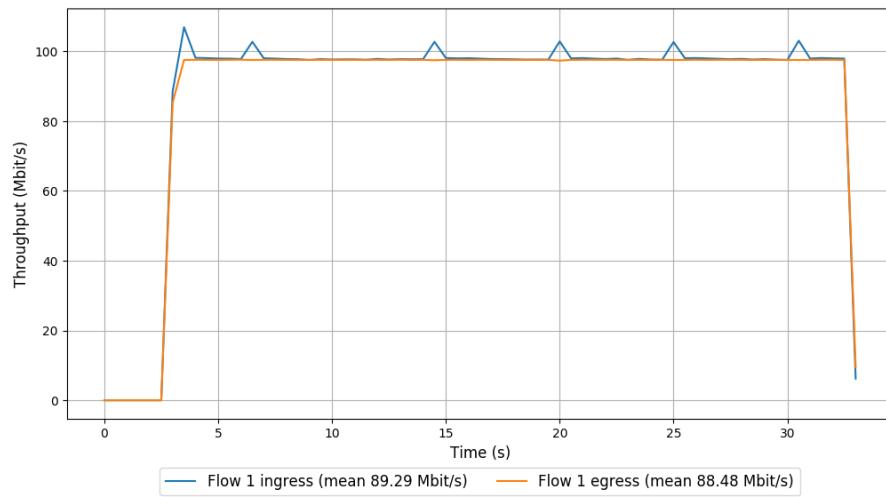
-- Flow 1:

Average throughput: 88.48 Mbit/s

95th percentile per-packet one-way delay: 34.536 ms

Loss rate: 0.84%

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



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

```
Start at: Sun, 11 Jun 2017 00:28:37 +0000
```

```
End at: Sun, 11 Jun 2017 00:29:07 +0000
```

```
Local clock offset: -7.209 ms
```

```
Remote clock offset: 0.035 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:25 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 5.02 Mbit/s
```

```
95th percentile per-packet one-way delay: -4.965 ms
```

```
Loss rate: 0.00%
```

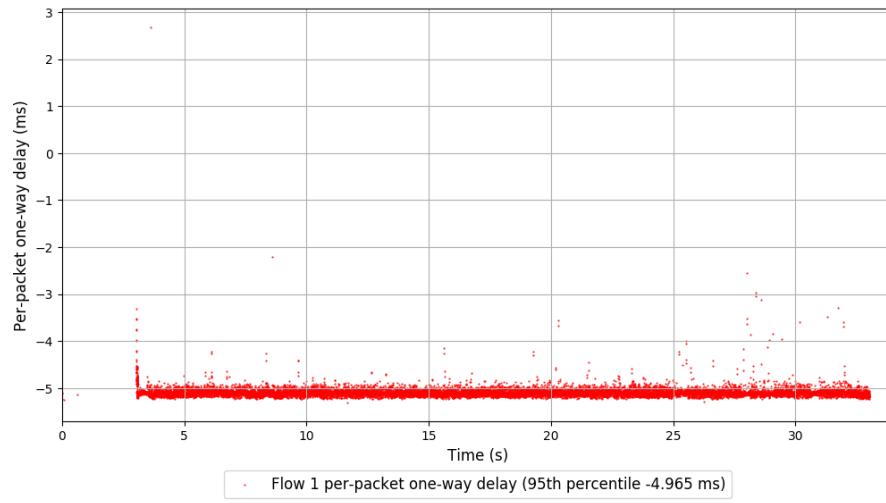
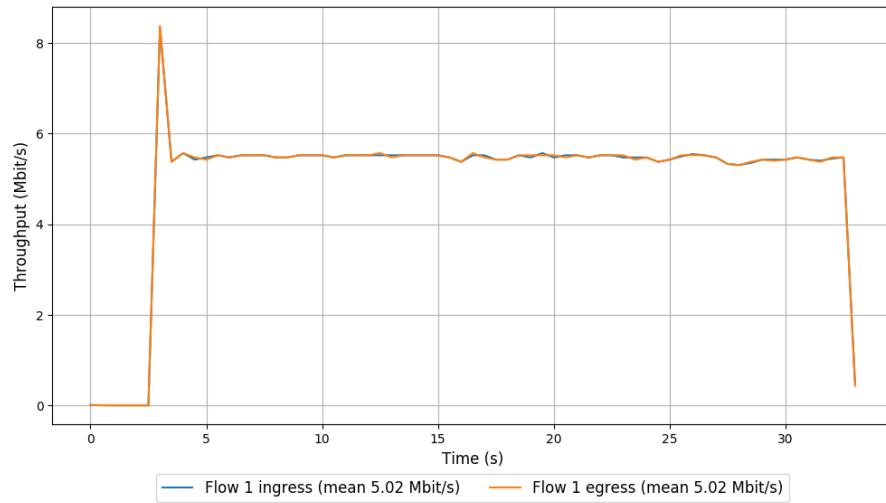
```
-- Flow 1:
```

```
Average throughput: 5.02 Mbit/s
```

```
95th percentile per-packet one-way delay: -4.965 ms
```

```
Loss rate: 0.00%
```

## Run 1: Report of KohoCC — Data Link

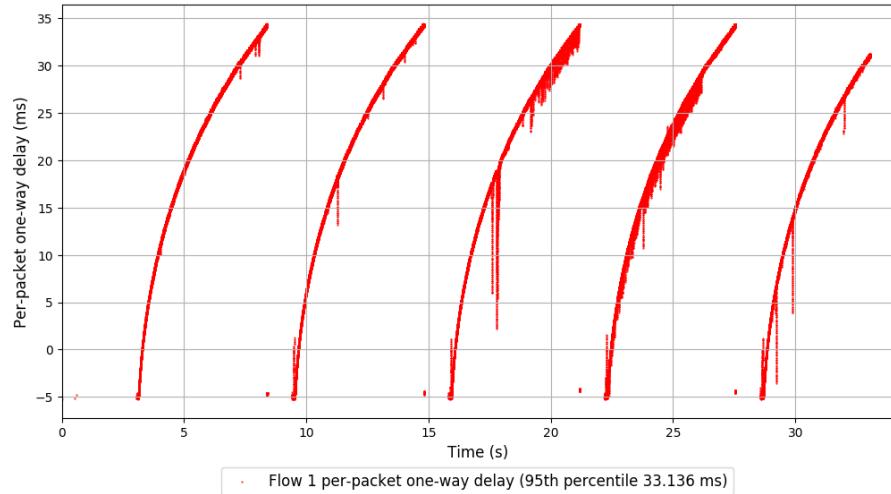
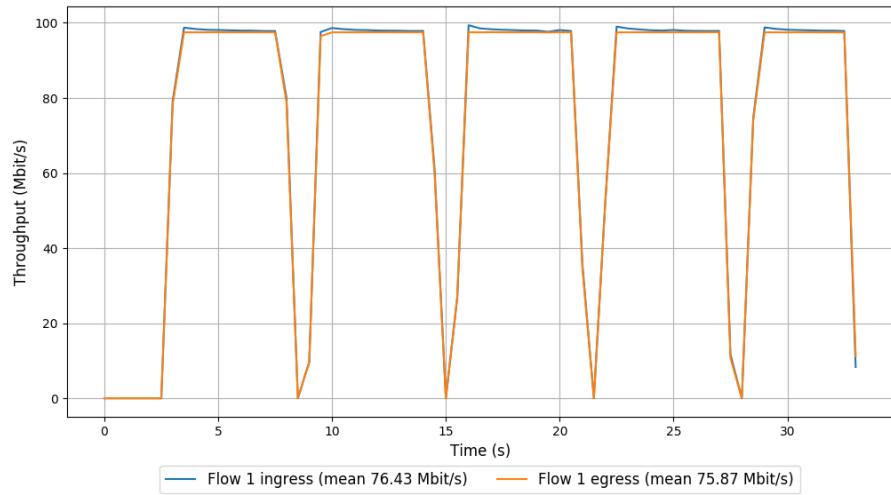


```
Run 1: Statistics of LEDBAT
```

```
Start at: Sun, 11 Jun 2017 00:29:45 +0000
End at: Sun, 11 Jun 2017 00:30:15 +0000
Local clock offset: -7.294 ms
Remote clock offset: 0.076 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 75.87 Mbit/s
95th percentile per-packet one-way delay: 33.136 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 75.87 Mbit/s
95th percentile per-packet one-way delay: 33.136 ms
Loss rate: 0.66%
```

## Run 1: Report of LEDBAT — Data Link

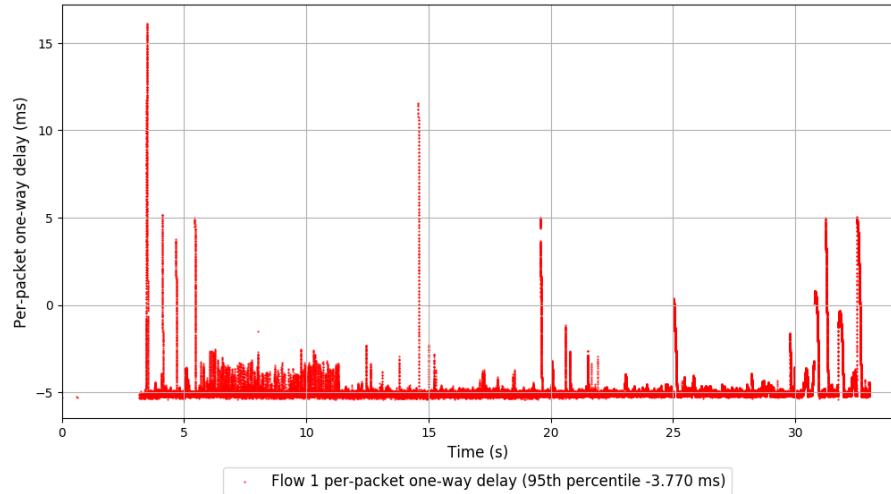
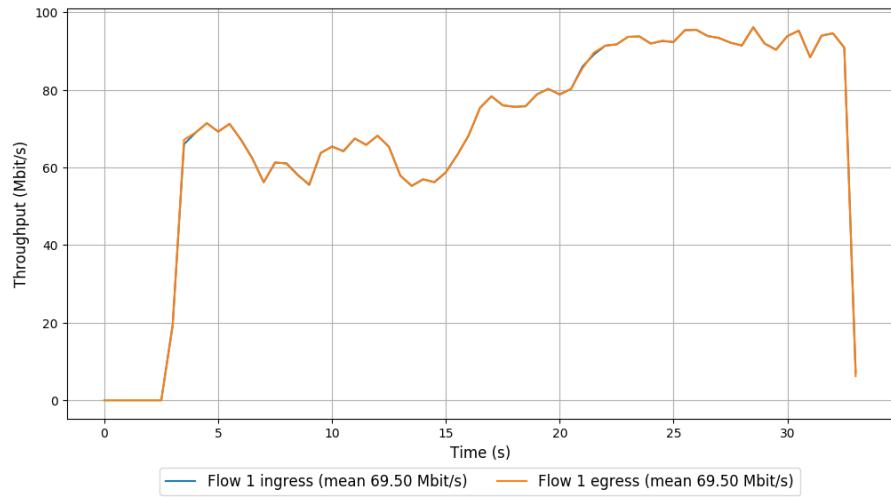


Run 1: Statistics of PCC

```
Start at: Sun, 11 Jun 2017 00:30:58 +0000
End at: Sun, 11 Jun 2017 00:31:28 +0000
Local clock offset: -7.24 ms
Remote clock offset: 0.014 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 69.50 Mbit/s
95th percentile per-packet one-way delay: -3.770 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 69.50 Mbit/s
95th percentile per-packet one-way delay: -3.770 ms
Loss rate: 0.00%
```

## Run 1: Report of PCC — Data Link



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

```
Start at: Sun, 11 Jun 2017 00:35:41 +0000
```

```
End at: Sun, 11 Jun 2017 00:36:11 +0000
```

```
Local clock offset: -7.256 ms
```

```
Remote clock offset: 0.085 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:38 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 14.46 Mbit/s
```

```
95th percentile per-packet one-way delay: -4.938 ms
```

```
Loss rate: 0.00%
```

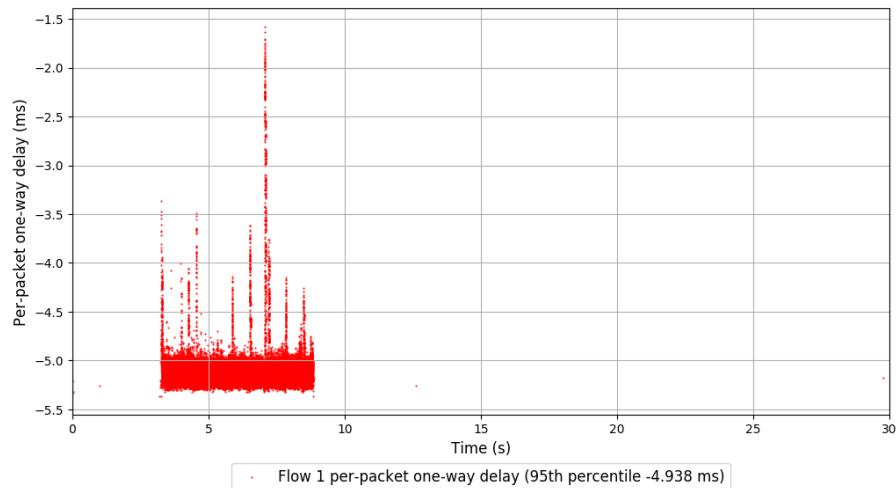
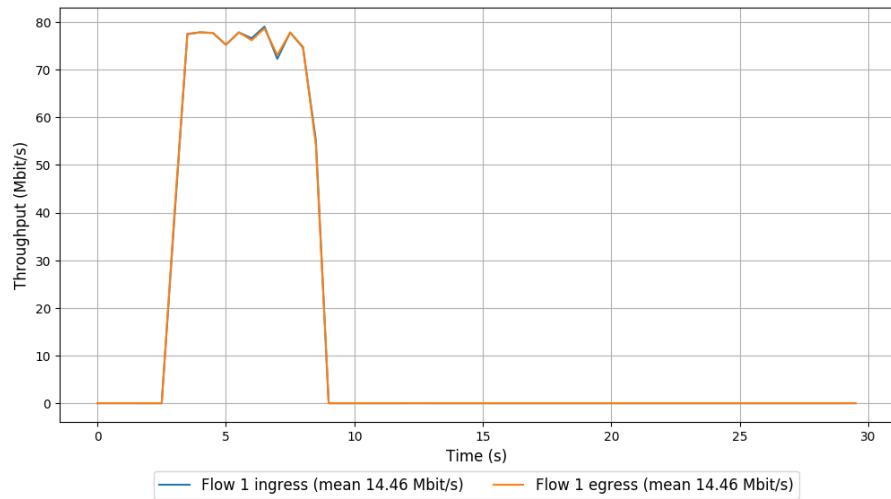
```
-- Flow 1:
```

```
Average throughput: 14.46 Mbit/s
```

```
95th percentile per-packet one-way delay: -4.938 ms
```

```
Loss rate: 0.00%
```

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



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

```
Start at: Sun, 11 Jun 2017 00:38:05 +0000
```

```
End at: Sun, 11 Jun 2017 00:38:35 +0000
```

```
Local clock offset: -7.179 ms
```

```
Remote clock offset: 0.121 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:49 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 88.45 Mbit/s
```

```
95th percentile per-packet one-way delay: 15.449 ms
```

```
Loss rate: 0.02%
```

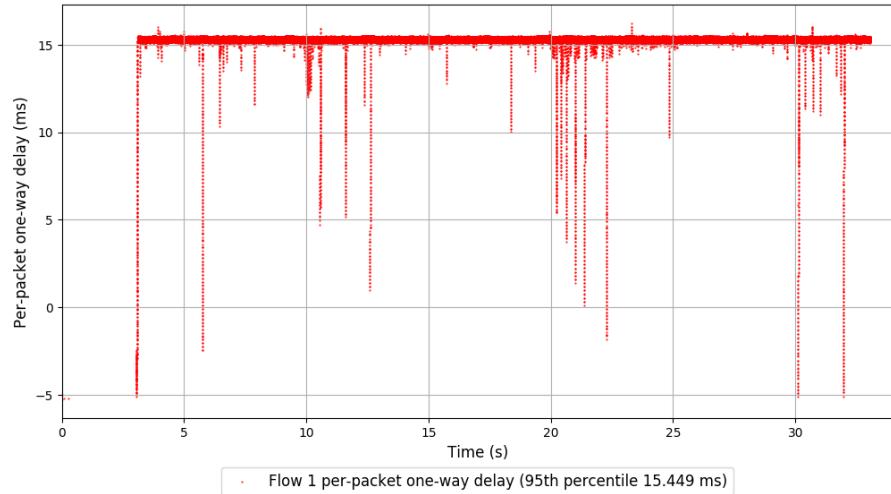
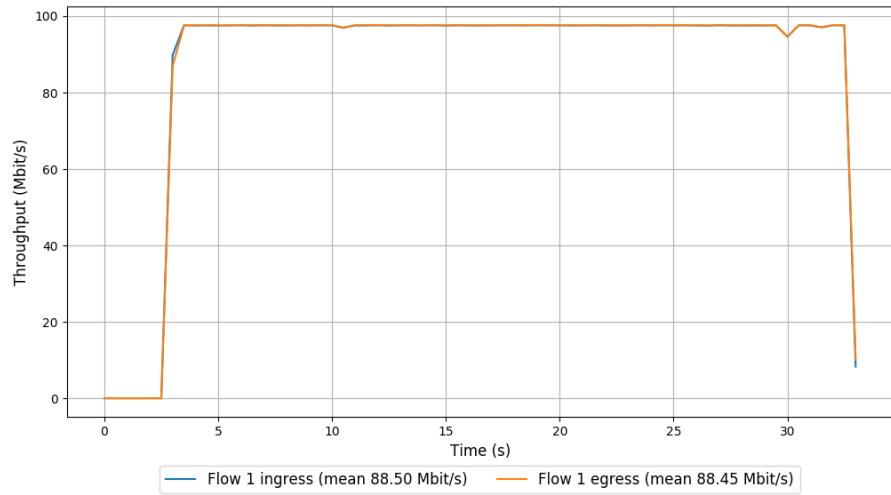
```
-- Flow 1:
```

```
Average throughput: 88.45 Mbit/s
```

```
95th percentile per-packet one-way delay: 15.449 ms
```

```
Loss rate: 0.02%
```

### Run 1: Report of Saturator — Data Link



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

```
Start at: Sun, 11 Jun 2017 00:41:48 +0000
```

```
End at: Sun, 11 Jun 2017 00:42:18 +0000
```

```
Local clock offset: -7.104 ms
```

```
Remote clock offset: 0.127 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:49 +0000
```

```
# Datalink statistics
```

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

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

```
95th percentile per-packet one-way delay: -4.960 ms
```

```
Loss rate: 0.00%
```

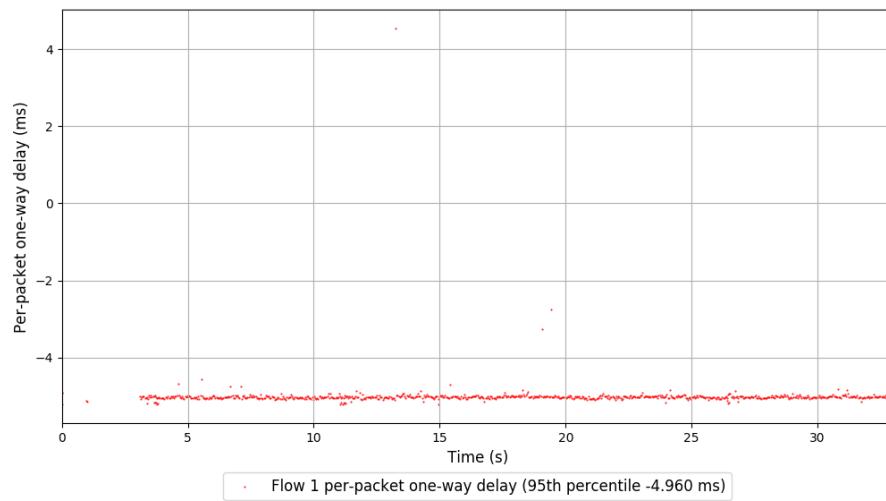
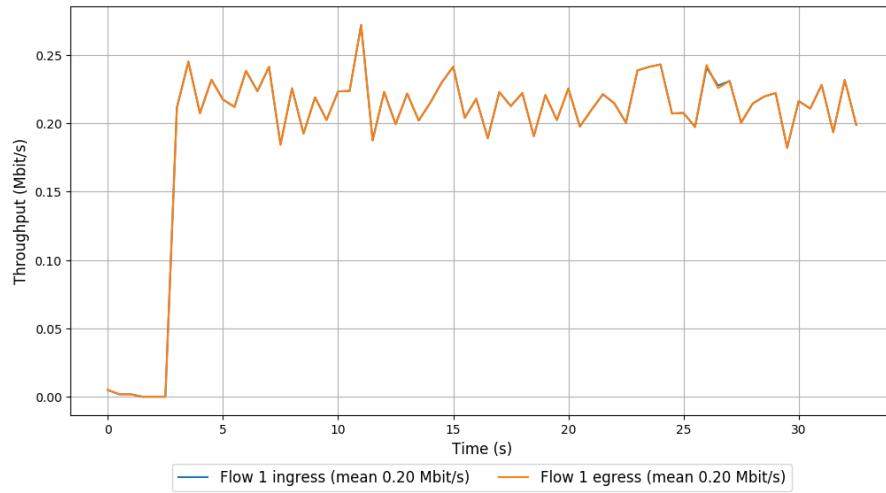
```
-- Flow 1:
```

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

```
95th percentile per-packet one-way delay: -4.960 ms
```

```
Loss rate: 0.00%
```

## Run 1: Report of SCReAM — Data Link

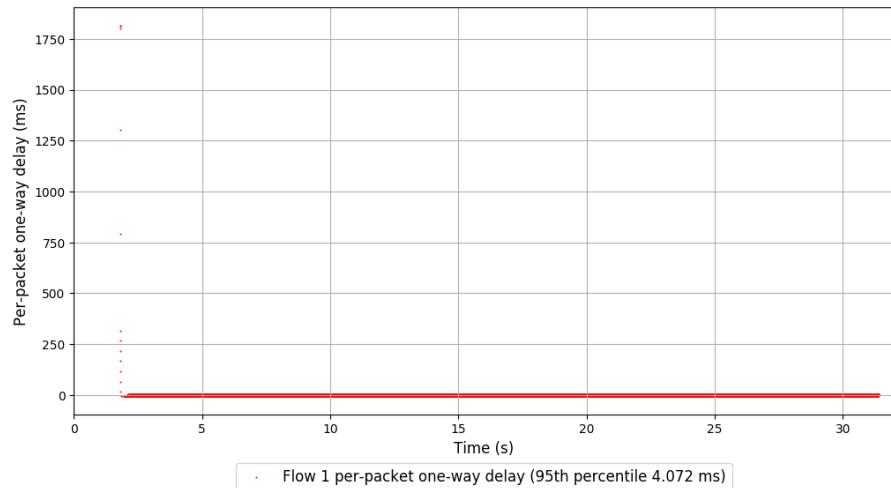
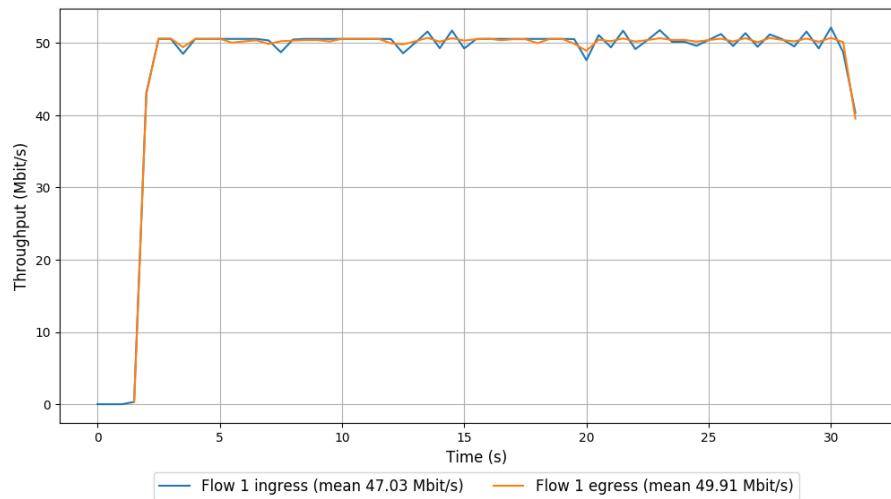


Run 1: Statistics of Sprout

```
Start at: Sun, 11 Jun 2017 00:27:27 +0000
End at: Sun, 11 Jun 2017 00:27:57 +0000
Local clock offset: -7.222 ms
Remote clock offset: 0.091 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:07:49 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 49.91 Mbit/s
95th percentile per-packet one-way delay: 4.072 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 49.91 Mbit/s
95th percentile per-packet one-way delay: 4.072 ms
Loss rate: 0.00%
```

## Run 1: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: Sun, 11 Jun 2017 00:36:49 +0000

End at: Sun, 11 Jun 2017 00:37:20 +0000

Local clock offset: -7.217 ms

Remote clock offset: 0.045 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:08:06 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 79.03 Mbit/s

95th percentile per-packet one-way delay: -4.680 ms

Loss rate: 0.00%

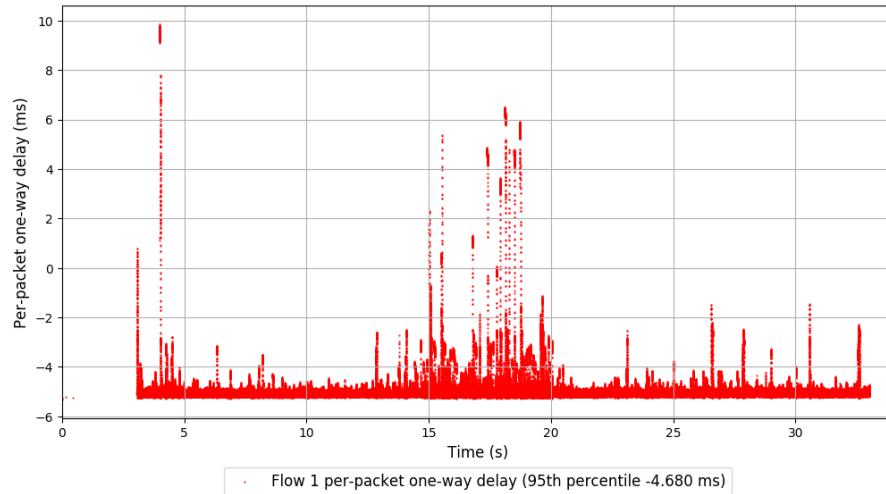
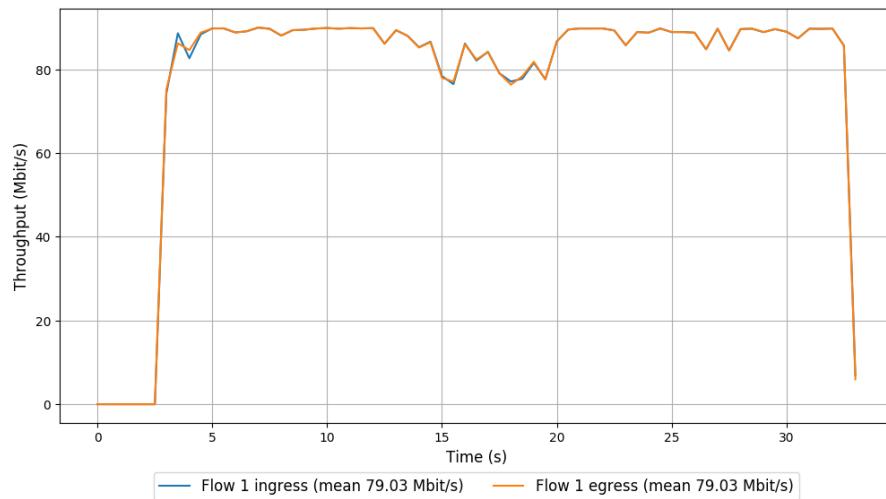
-- Flow 1:

Average throughput: 79.03 Mbit/s

95th percentile per-packet one-way delay: -4.680 ms

Loss rate: 0.00%

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

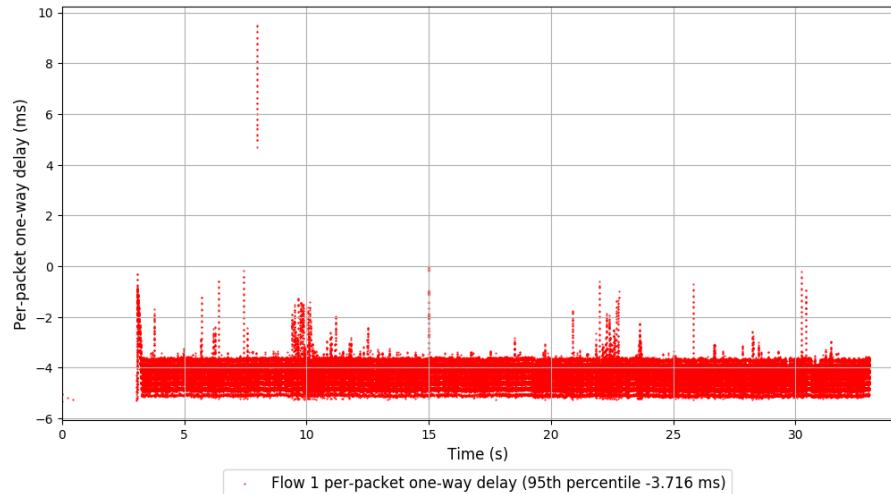
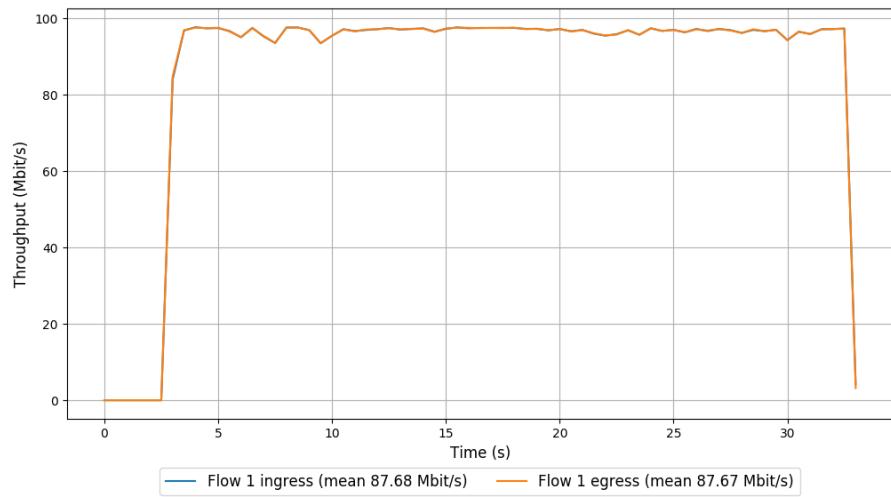


Run 1: Statistics of TCP Vegas

```
Start at: Sun, 11 Jun 2017 00:32:09 +0000
End at: Sun, 11 Jun 2017 00:32:39 +0000
Local clock offset: -7.221 ms
Remote clock offset: 0.092 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:08:06 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.67 Mbit/s
95th percentile per-packet one-way delay: -3.716 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 87.67 Mbit/s
95th percentile per-packet one-way delay: -3.716 ms
Loss rate: 0.00%
```

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

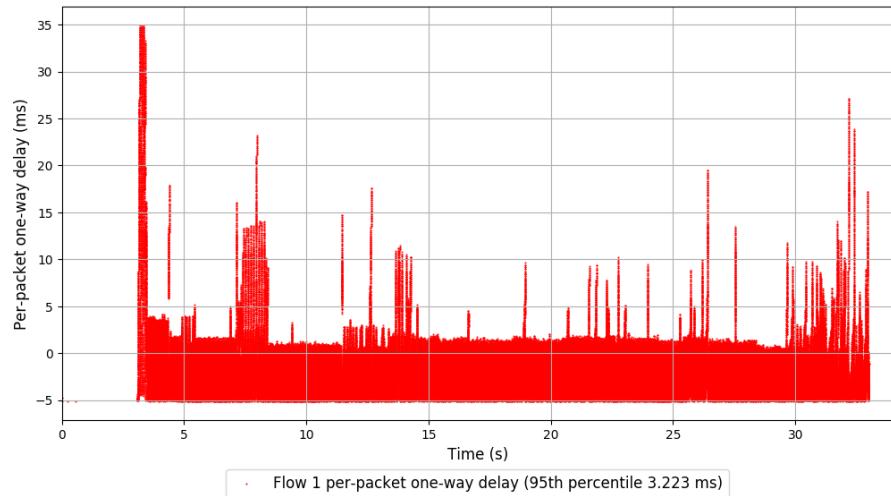
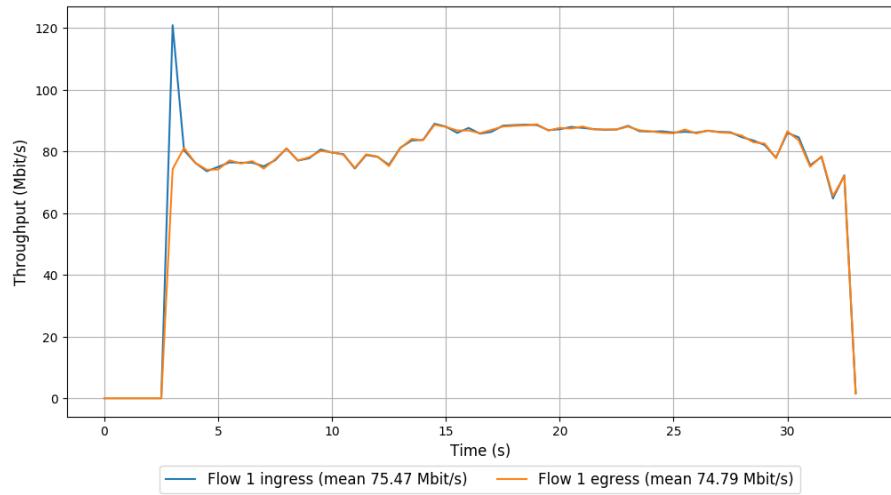


```
Run 1: Statistics of Verus
```

```
Start at: Sun, 11 Jun 2017 00:40:34 +0000
End at: Sun, 11 Jun 2017 00:41:04 +0000
Local clock offset: -7.109 ms
Remote clock offset: 0.059 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 01:08:09 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 74.79 Mbit/s
95th percentile per-packet one-way delay: 3.223 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 74.79 Mbit/s
95th percentile per-packet one-way delay: 3.223 ms
Loss rate: 0.93%
```

## Run 1: Report of Verus — Data Link



Run 1: Statistics of WebRTC media

Start at: Sun, 11 Jun 2017 00:34:35 +0000  
End at: Sun, 11 Jun 2017 00:35:05 +0000  
Local clock offset: -7.257 ms  
Remote clock offset: 0.105 ms

Run 1: Report of WebRTC media — Data Link

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Figure is missing