

**Pantheon Summary** (Generated at Wed, 05 Jul 2017 06:38:03 +0000 with  
pantheon version 767a95bcc95d67bd77e69c0f8bc9320c1ad3146b)

Repeated the test of 15 congestion control schemes once.

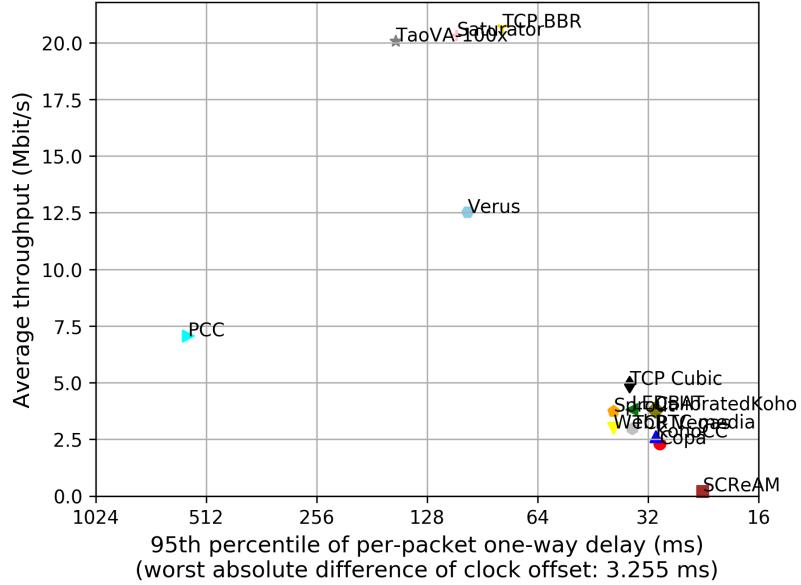
Each test lasted for 30 seconds running 1 flow.

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

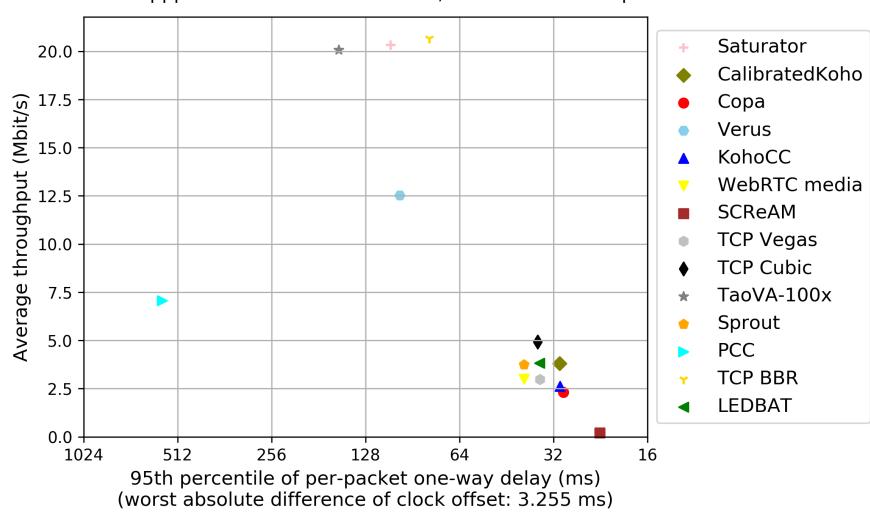
NTP offset measured against gps.ntp.br.

```
git branch: master @ 767a95bcc95d67bd77e69c0f8bc9320c1ad3146b
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 @ 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
```

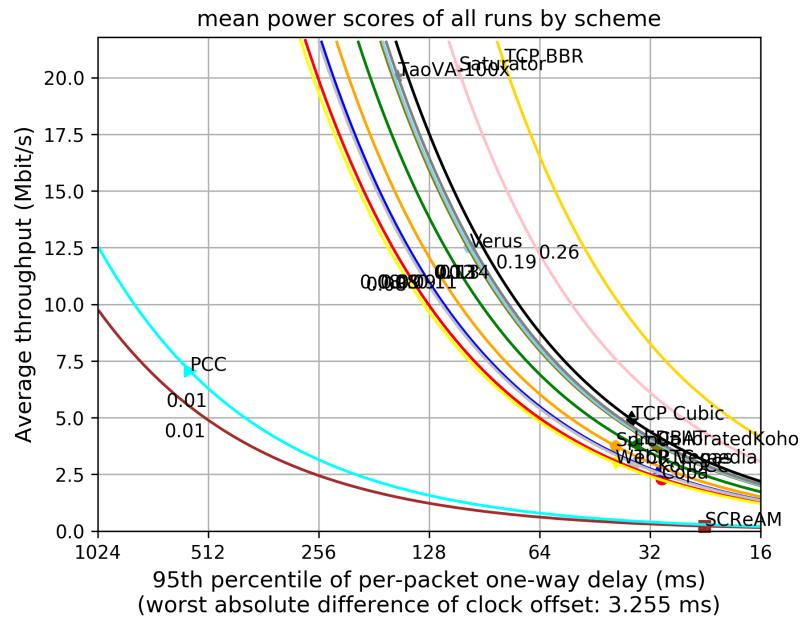
test from Brazil ppp0 to AWS Brazil 1 Ethernet, 1 run of 30s each per scheme  
(mean of all runs by scheme)



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



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

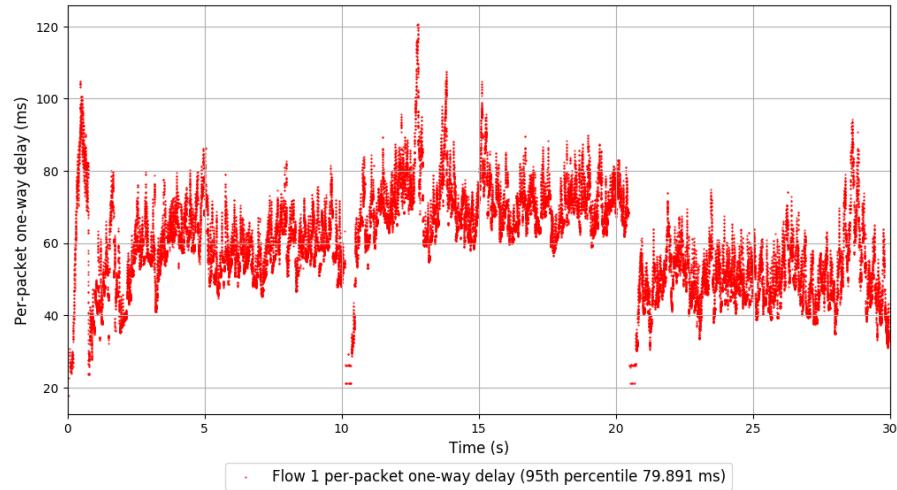
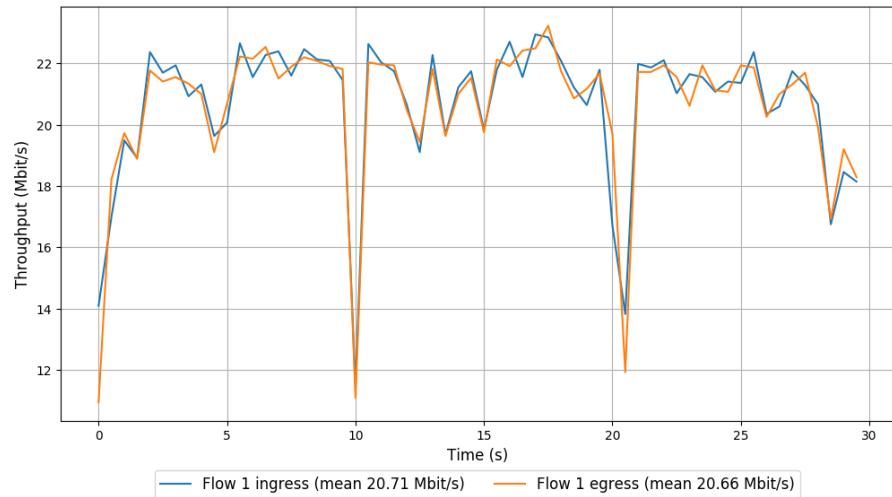


Run 1: Statistics of TCP BBR

```
Start at: Wed, 05 Jul 2017 06:26:21 +0000
End at: Wed, 05 Jul 2017 06:26:51 +0000
Local clock offset: -0.173 ms
Remote clock offset: 2.838 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:49 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.66 Mbit/s
95th percentile per-packet one-way delay: 79.891 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 20.66 Mbit/s
95th percentile per-packet one-way delay: 79.891 ms
Loss rate: 0.32%
```

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



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

```
Start at: Wed, 05 Jul 2017 06:27:26 +0000
```

```
End at: Wed, 05 Jul 2017 06:27:56 +0000
```

```
Local clock offset: -0.176 ms
```

```
Remote clock offset: 2.854 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:49 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 3.81 Mbit/s
```

```
95th percentile per-packet one-way delay: 30.564 ms
```

```
Loss rate: 0.12%
```

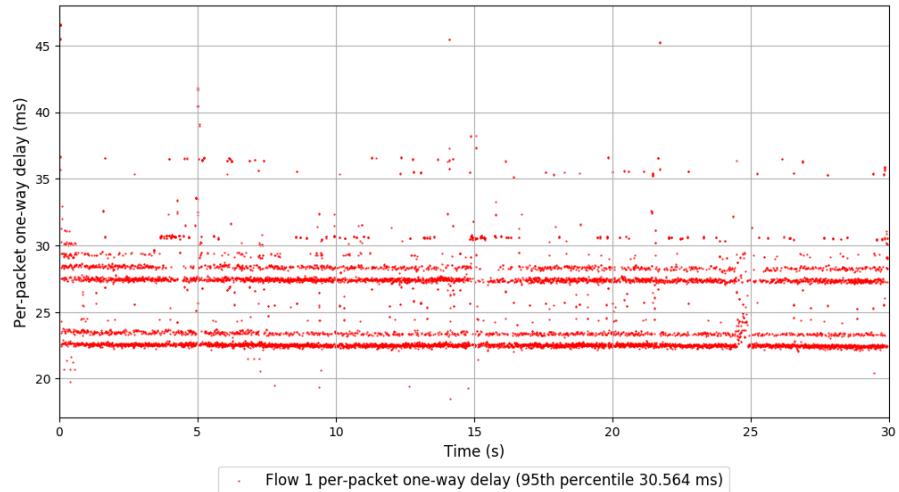
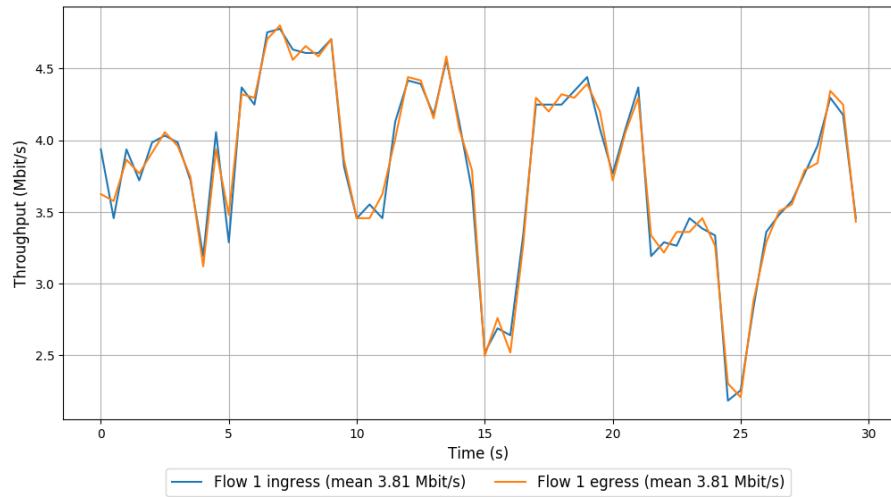
```
-- Flow 1:
```

```
Average throughput: 3.81 Mbit/s
```

```
95th percentile per-packet one-way delay: 30.564 ms
```

```
Loss rate: 0.12%
```

## Run 1: Report of CalibratedKoho — Data Link

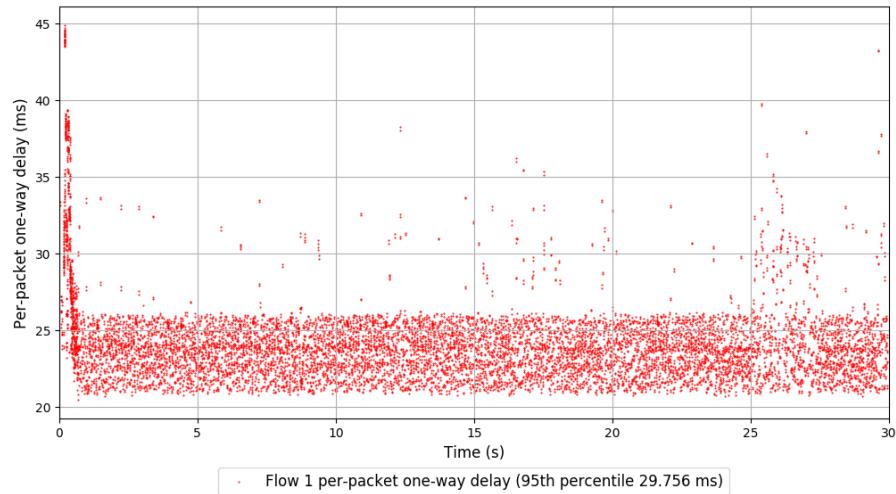
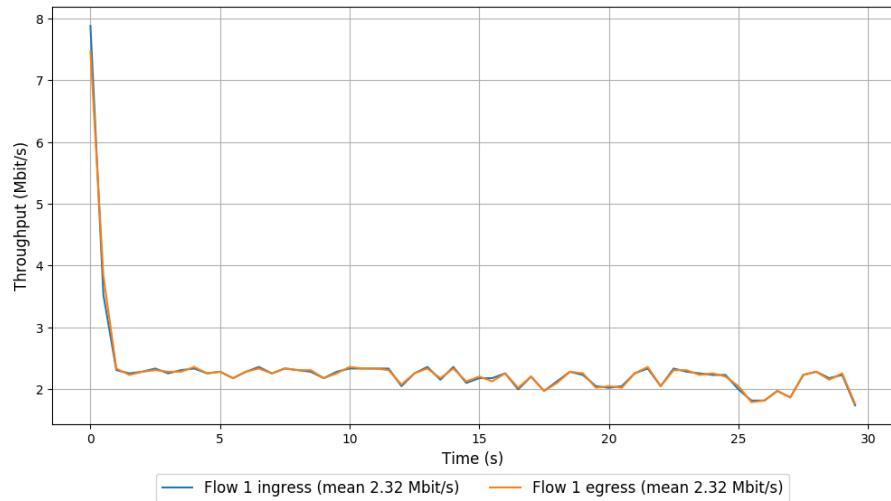


Run 1: Statistics of Copa

```
Start at: Wed, 05 Jul 2017 06:24:13 +0000
End at: Wed, 05 Jul 2017 06:24:43 +0000
Local clock offset: -0.243 ms
Remote clock offset: 2.962 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:49 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 29.756 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 29.756 ms
Loss rate: 0.06%
```

## Run 1: Report of Copa — Data Link



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

```
Start at: Wed, 05 Jul 2017 06:25:17 +0000
```

```
End at: Wed, 05 Jul 2017 06:25:47 +0000
```

```
Local clock offset: -0.212 ms
```

```
Remote clock offset: 2.909 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:49 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 4.93 Mbit/s
```

```
95th percentile per-packet one-way delay: 35.929 ms
```

```
Loss rate: 1.03%
```

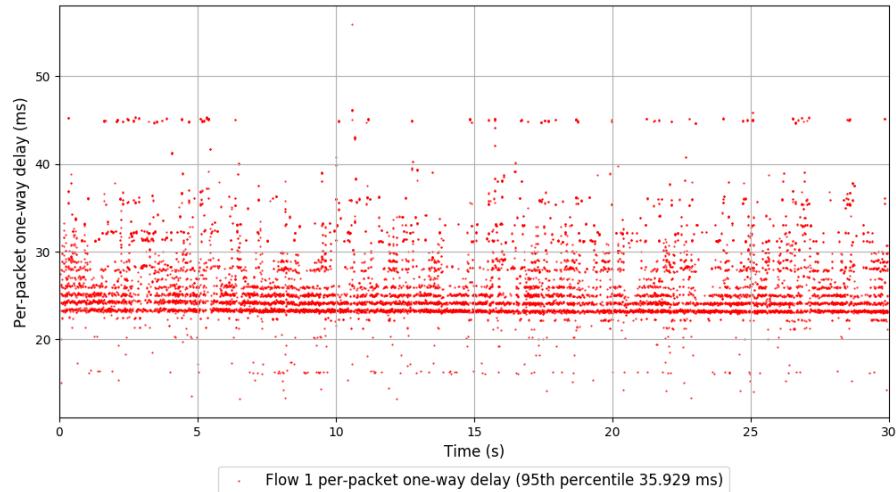
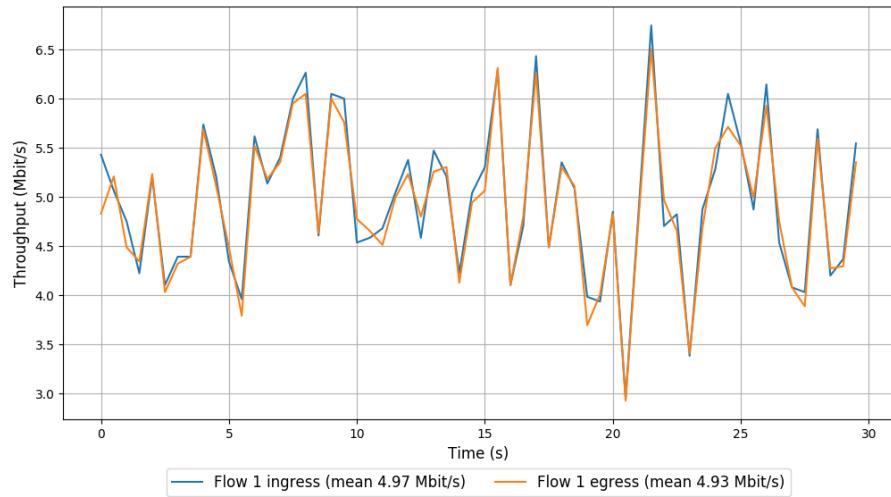
```
-- Flow 1:
```

```
Average throughput: 4.93 Mbit/s
```

```
95th percentile per-packet one-way delay: 35.929 ms
```

```
Loss rate: 1.03%
```

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



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

```
Start at: Wed, 05 Jul 2017 06:28:30 +0000
```

```
End at: Wed, 05 Jul 2017 06:29:00 +0000
```

```
Local clock offset: -0.2 ms
```

```
Remote clock offset: 2.821 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:49 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 2.62 Mbit/s
```

```
95th percentile per-packet one-way delay: 30.497 ms
```

```
Loss rate: 0.17%
```

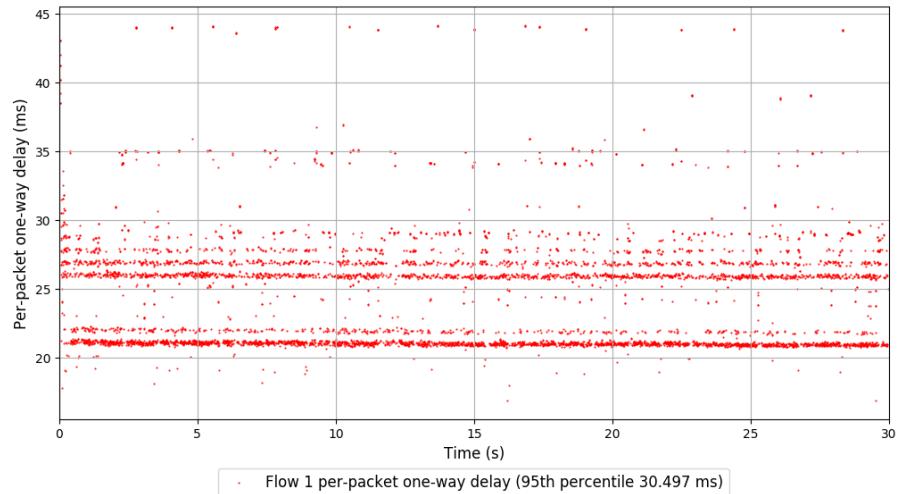
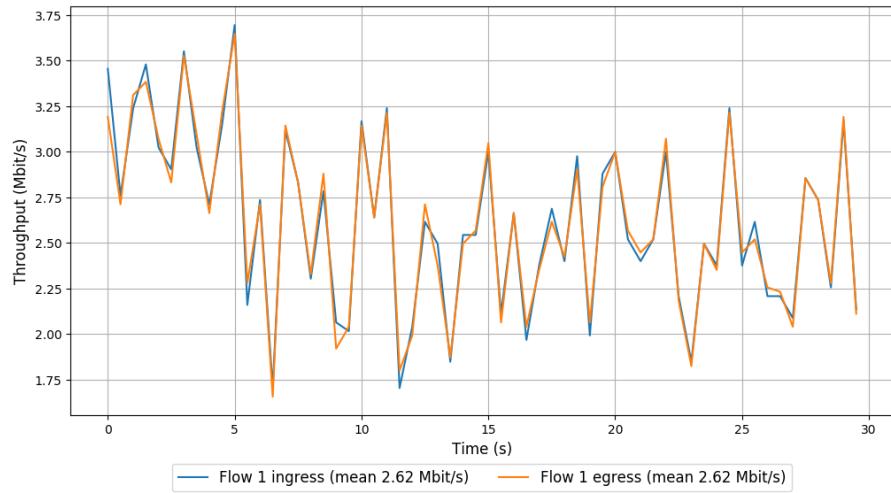
```
-- Flow 1:
```

```
Average throughput: 2.62 Mbit/s
```

```
95th percentile per-packet one-way delay: 30.497 ms
```

```
Loss rate: 0.17%
```

## Run 1: Report of KohoCC — Data Link

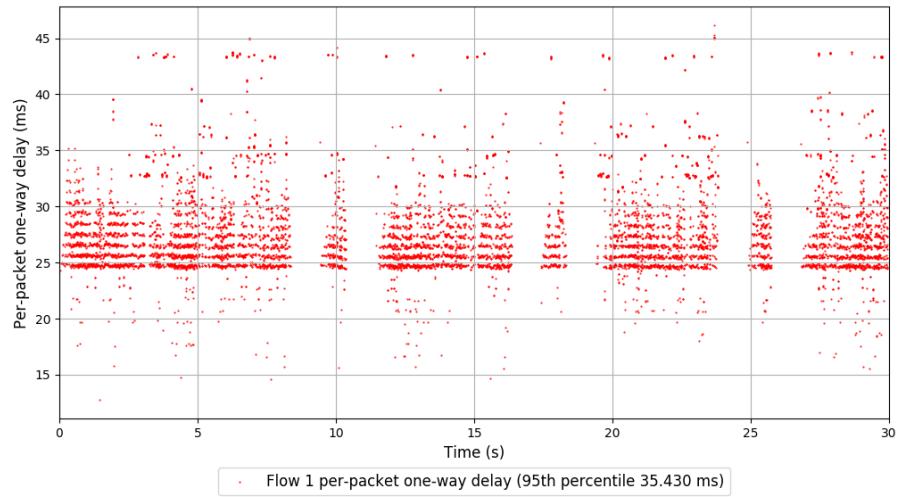
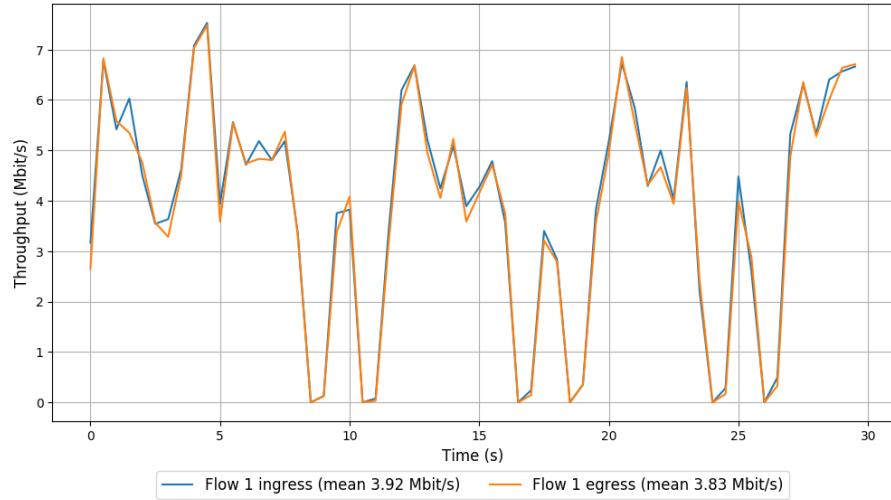


```
Run 1: Statistics of LEDBAT
```

```
Start at: Wed, 05 Jul 2017 06:29:34 +0000
End at: Wed, 05 Jul 2017 06:30:04 +0000
Local clock offset: -0.267 ms
Remote clock offset: 2.758 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:50 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.83 Mbit/s
95th percentile per-packet one-way delay: 35.430 ms
Loss rate: 2.41%
-- Flow 1:
Average throughput: 3.83 Mbit/s
95th percentile per-packet one-way delay: 35.430 ms
Loss rate: 2.41%
```

## Run 1: Report of LEDBAT — Data Link

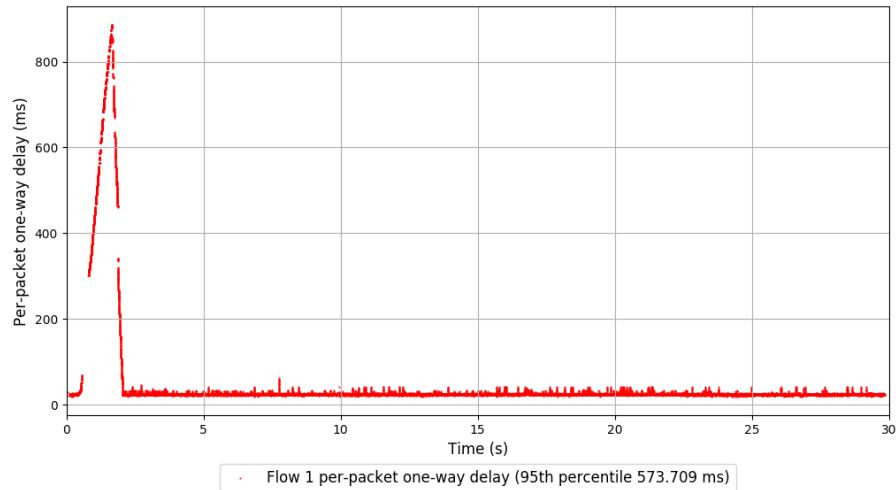
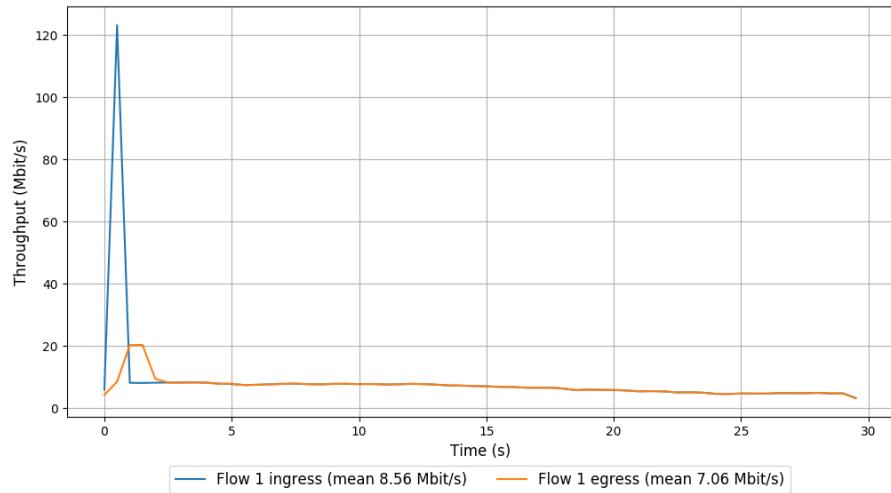


```
Run 1: Statistics of PCC
```

```
Start at: Wed, 05 Jul 2017 06:30:38 +0000
End at: Wed, 05 Jul 2017 06:31:08 +0000
Local clock offset: -0.189 ms
Remote clock offset: 2.728 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:51 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 573.709 ms
Loss rate: 17.71%
-- Flow 1:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 573.709 ms
Loss rate: 17.71%
```

## Run 1: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: Wed, 05 Jul 2017 06:36:01 +0000  
End at: Wed, 05 Jul 2017 06:36:31 +0000  
Local clock offset: -0.17 ms  
Remote clock offset: 2.613 ms

Run 1: Report of QUIC Cubic — Data Link

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

```
Start at: Wed, 05 Jul 2017 06:34:55 +0000
```

```
End at: Wed, 05 Jul 2017 06:35:25 +0000
```

```
Local clock offset: -0.241 ms
```

```
Remote clock offset: 2.637 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:54 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 20.33 Mbit/s
```

```
95th percentile per-packet one-way delay: 106.337 ms
```

```
Loss rate: 25.42%
```

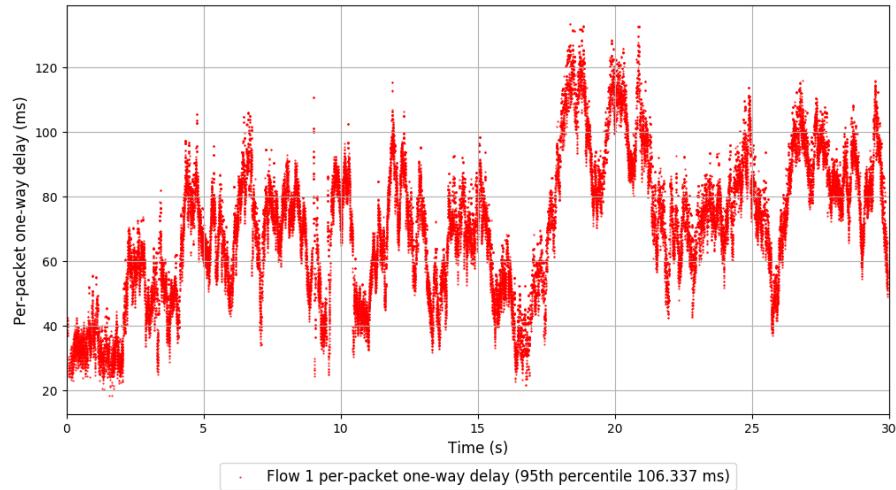
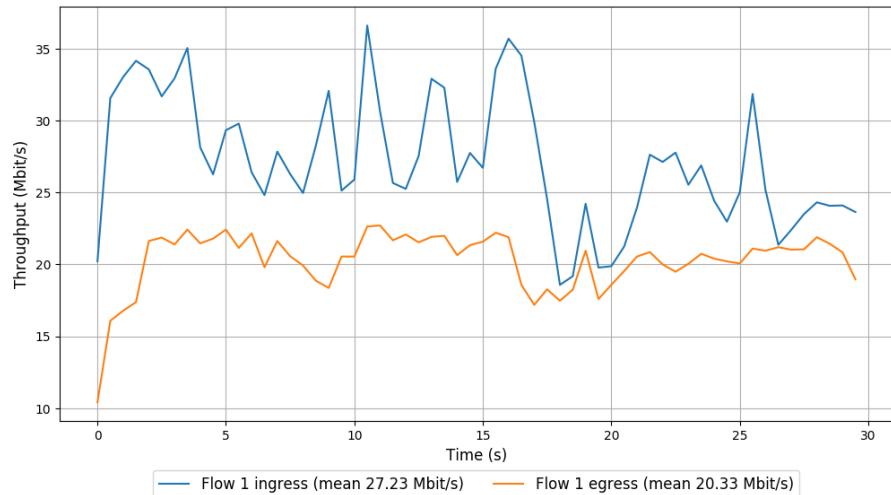
```
-- Flow 1:
```

```
Average throughput: 20.33 Mbit/s
```

```
95th percentile per-packet one-way delay: 106.337 ms
```

```
Loss rate: 25.42%
```

## Run 1: Report of Saturator — Data Link



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

```
Start at: Wed, 05 Jul 2017 06:31:42 +0000
```

```
End at: Wed, 05 Jul 2017 06:32:12 +0000
```

```
Local clock offset: -0.289 ms
```

```
Remote clock offset: 2.697 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:54 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 0.22 Mbit/s
```

```
95th percentile per-packet one-way delay: 22.724 ms
```

```
Loss rate: 0.00%
```

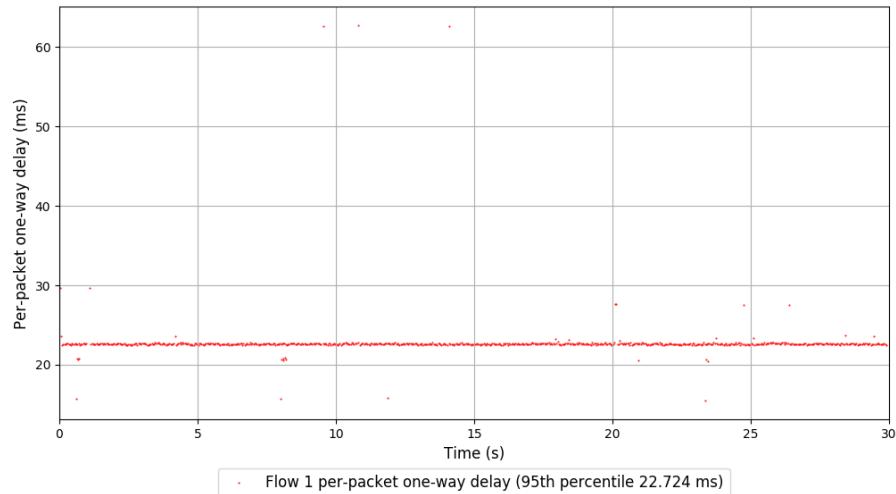
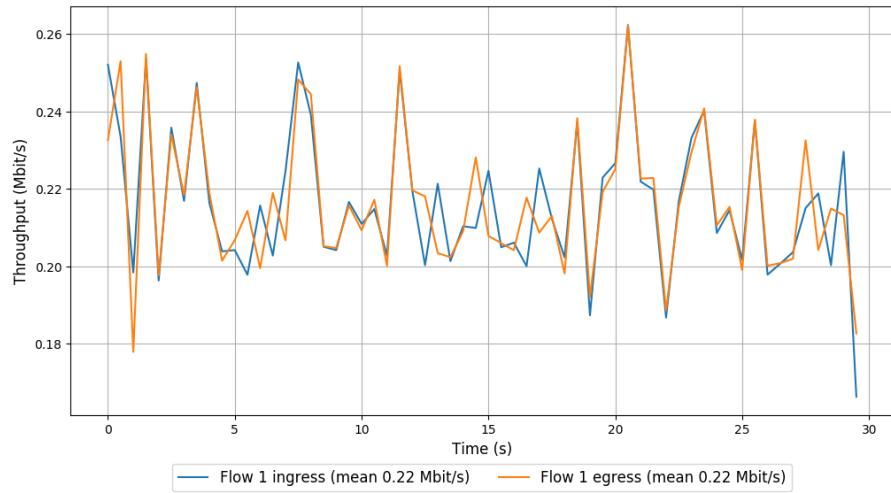
```
-- Flow 1:
```

```
Average throughput: 0.22 Mbit/s
```

```
95th percentile per-packet one-way delay: 22.724 ms
```

```
Loss rate: 0.00%
```

## Run 1: Report of SCReAM — Data Link

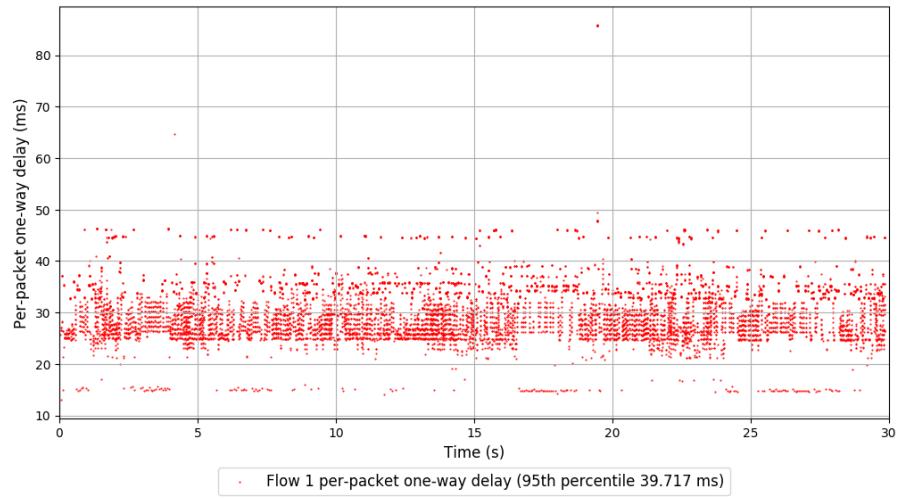
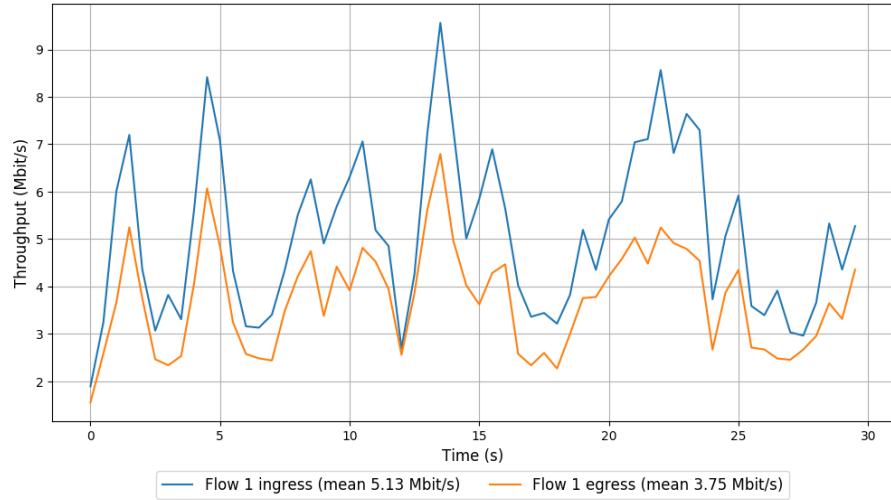


```
Run 1: Statistics of Sprout
```

```
Start at: Wed, 05 Jul 2017 06:22:03 +0000
End at: Wed, 05 Jul 2017 06:22:33 +0000
Local clock offset: -0.256 ms
Remote clock offset: 2.999 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:54 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.75 Mbit/s
95th percentile per-packet one-way delay: 39.717 ms
Loss rate: 26.86%
-- Flow 1:
Average throughput: 3.75 Mbit/s
95th percentile per-packet one-way delay: 39.717 ms
Loss rate: 26.86%
```

## Run 1: Report of Sprout — Data Link

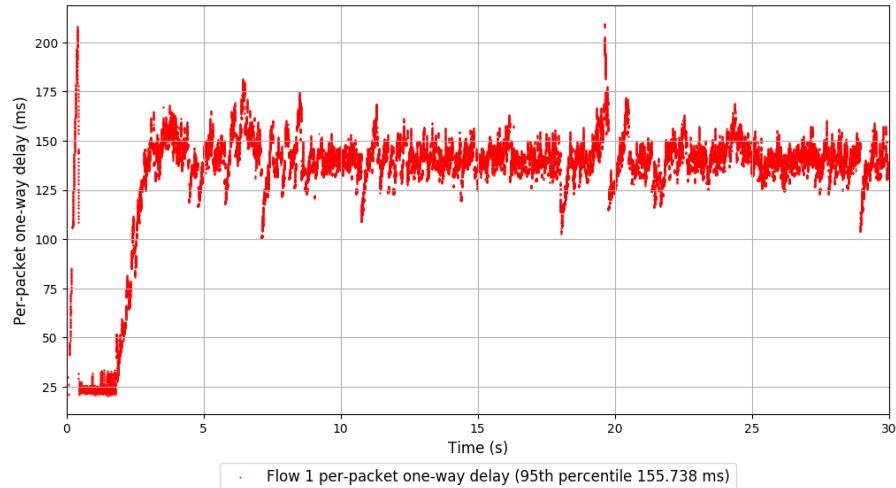
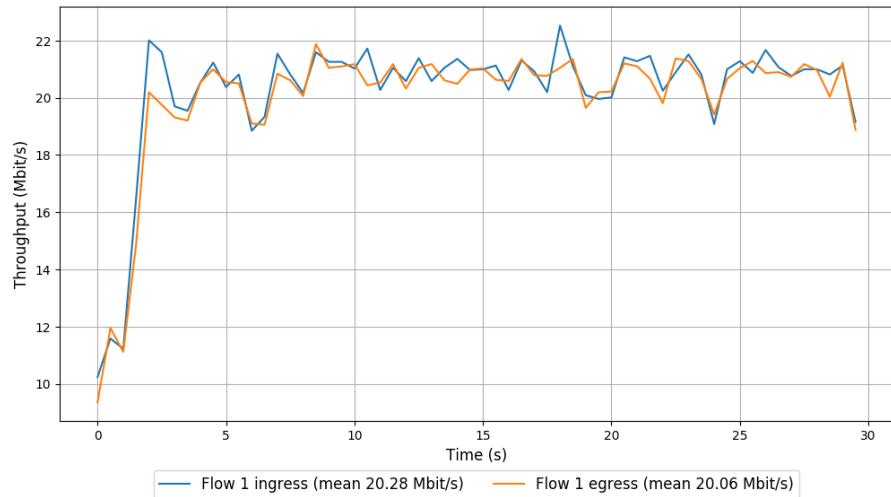


Run 1: Statistics of TaoVA-100x

```
Start at: Wed, 05 Jul 2017 06:23:07 +0000
End at: Wed, 05 Jul 2017 06:23:37 +0000
Local clock offset: -0.183 ms
Remote clock offset: 2.968 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:59 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.06 Mbit/s
95th percentile per-packet one-way delay: 155.738 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 20.06 Mbit/s
95th percentile per-packet one-way delay: 155.738 ms
Loss rate: 1.17%
```

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



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

```
Start at: Wed, 05 Jul 2017 06:20:59 +0000
```

```
End at: Wed, 05 Jul 2017 06:21:29 +0000
```

```
Local clock offset: -0.174 ms
```

```
Remote clock offset: 2.964 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:59 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 2.98 Mbit/s
```

```
95th percentile per-packet one-way delay: 35.301 ms
```

```
Loss rate: 0.38%
```

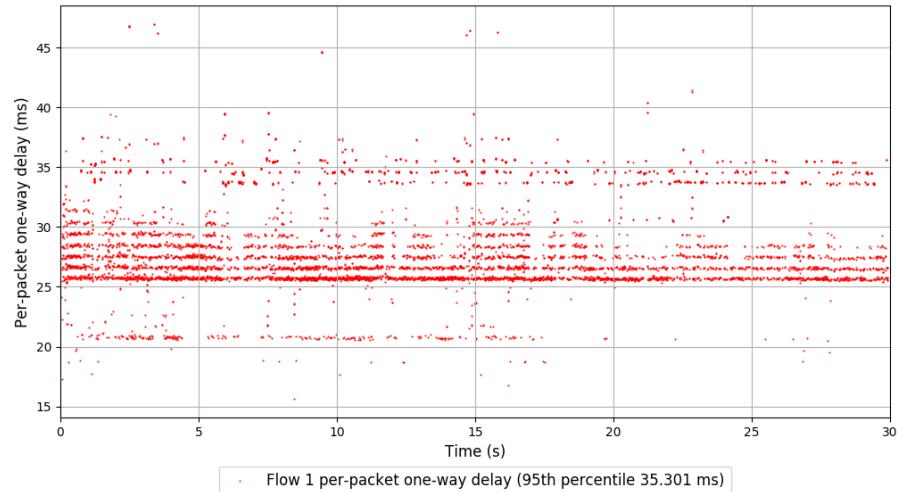
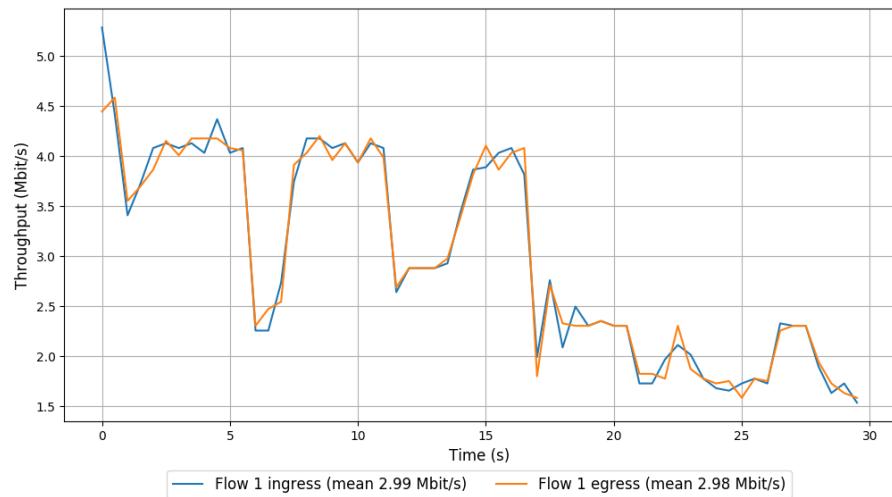
```
-- Flow 1:
```

```
Average throughput: 2.98 Mbit/s
```

```
95th percentile per-packet one-way delay: 35.301 ms
```

```
Loss rate: 0.38%
```

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

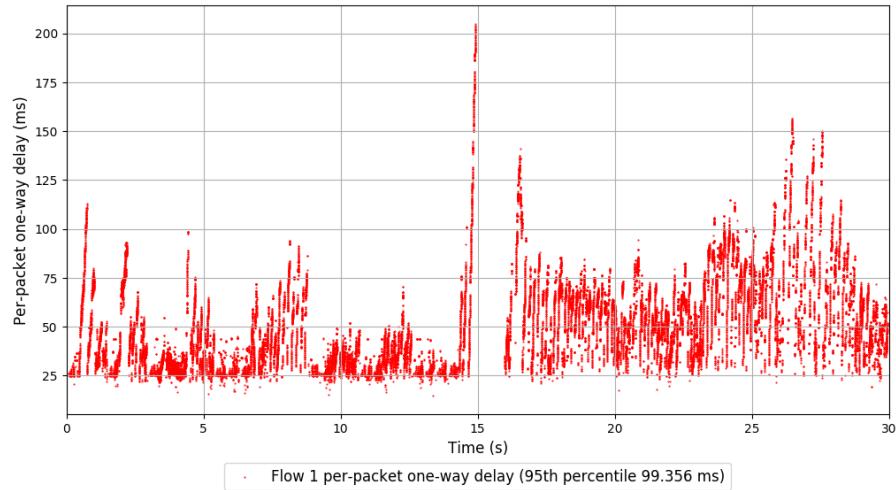
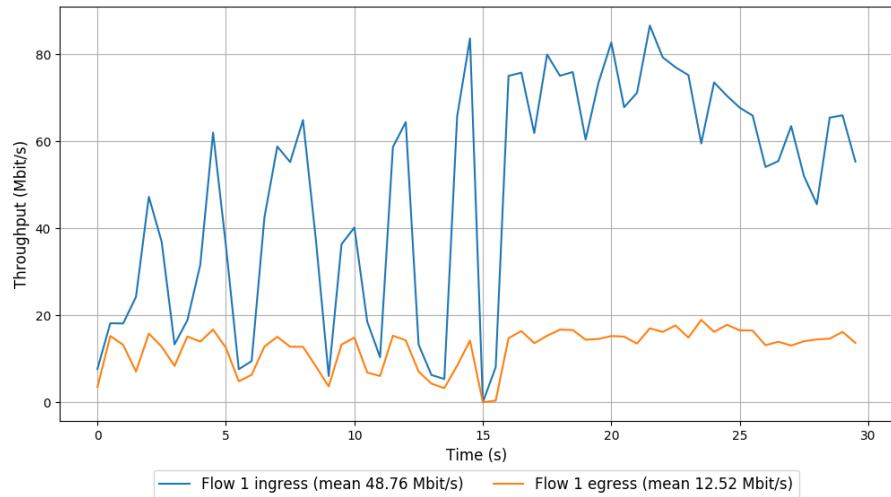


```
Run 1: Statistics of Verus
```

```
Start at: Wed, 05 Jul 2017 06:32:46 +0000
End at: Wed, 05 Jul 2017 06:33:16 +0000
Local clock offset: -0.167 ms
Remote clock offset: 2.68 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 06:37:59 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.52 Mbit/s
95th percentile per-packet one-way delay: 99.356 ms
Loss rate: 74.34%
-- Flow 1:
Average throughput: 12.52 Mbit/s
95th percentile per-packet one-way delay: 99.356 ms
Loss rate: 74.34%
```

## Run 1: Report of Verus — Data Link



```
Run 1: Statistics of WebRTC media

Start at: Wed, 05 Jul 2017 06:33:51 +0000
End at: Wed, 05 Jul 2017 06:34:21 +0000
Local clock offset: -0.189 ms
Remote clock offset: 2.652 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 06:38:00 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.01 Mbit/s
95th percentile per-packet one-way delay: 39.792 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 3.01 Mbit/s
95th percentile per-packet one-way delay: 39.792 ms
Loss rate: 0.38%
```

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

