

**Pantheon Summary** (Generated at Wed, 05 Jul 2017 05:38:22 +0000 with  
pantheon version afeabcbf9f0bccb7f5555428c3b5bcceec857e76)

Repeated the test of 15 congestion control schemes once.

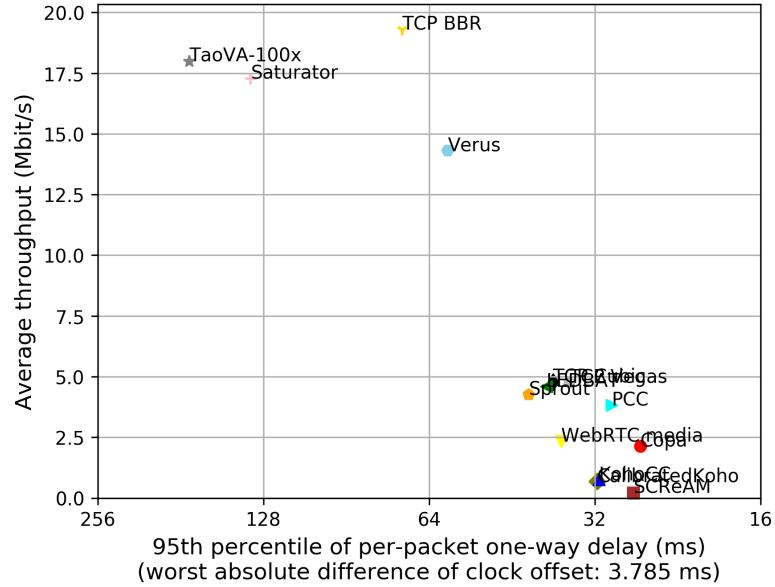
Each test lasted for 30 seconds running 1 flow.

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

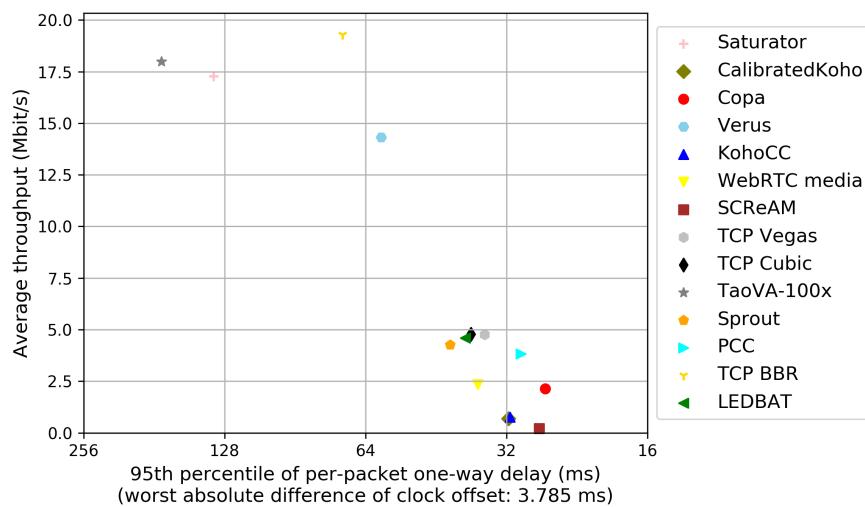
NTP offset measured against gps.ntp.br.

```
git branch: master @ afeabcbf9f0bccb7f5555428c3b5bcceec857e76
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
```

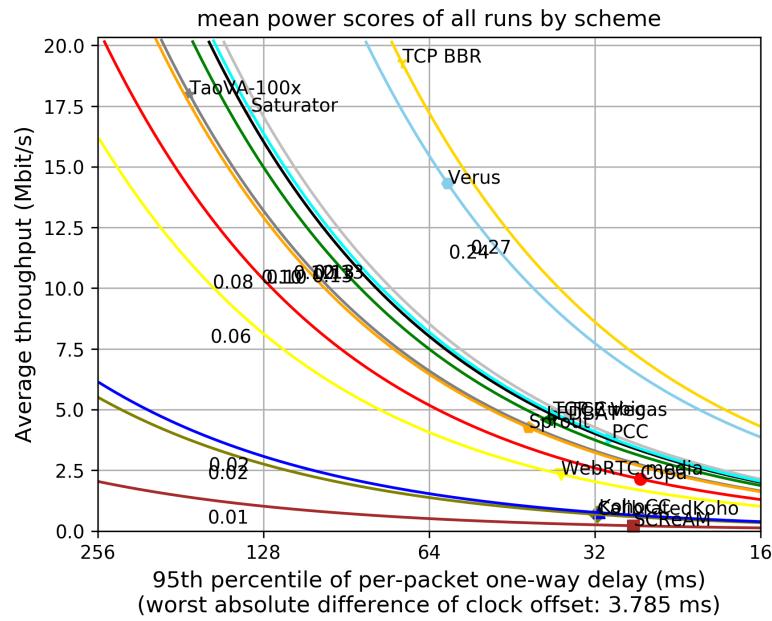
test from Brazil ppp0 to AWS Brazil 1 Ethernet, 1 run of 30s each per scheme  
(mean of all runs by scheme)



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

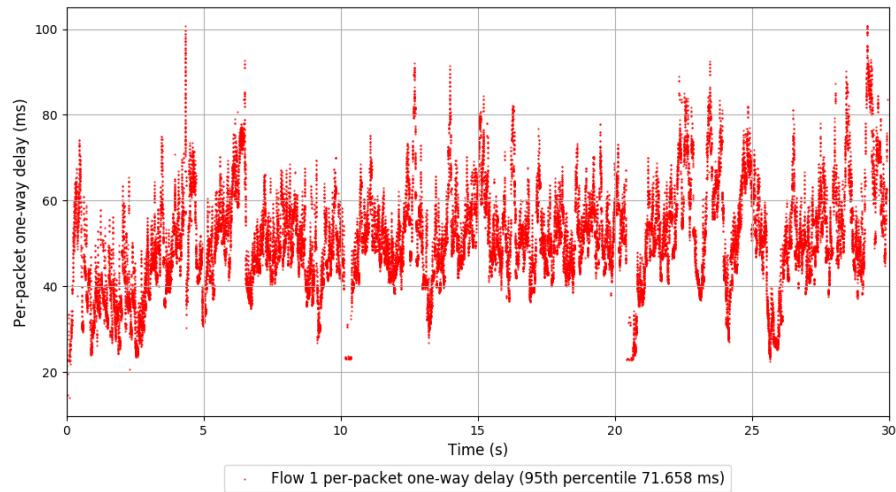
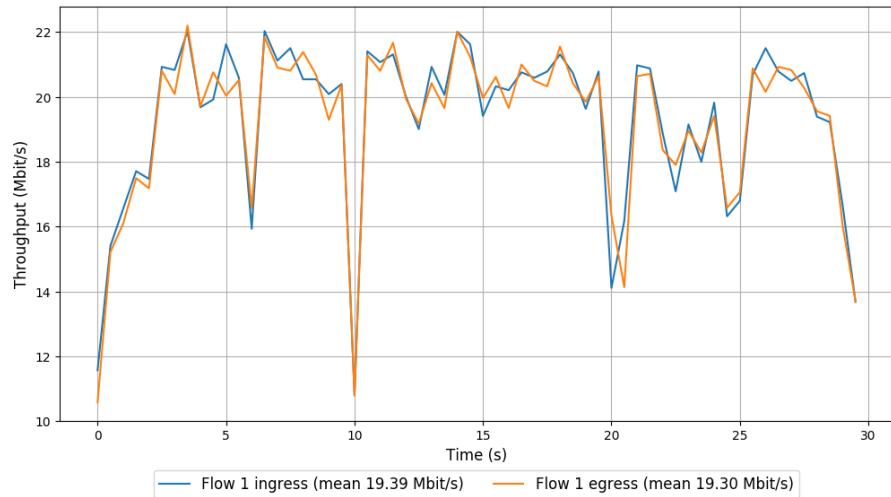


Run 1: Statistics of TCP BBR

```
Start at: Wed, 05 Jul 2017 05:24:39 +0000
End at: Wed, 05 Jul 2017 05:25:09 +0000
Local clock offset: -0.222 ms
Remote clock offset: 3.469 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:07 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 19.30 Mbit/s
95th percentile per-packet one-way delay: 71.658 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 19.30 Mbit/s
95th percentile per-packet one-way delay: 71.658 ms
Loss rate: 0.55%
```

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



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

```
Start at: Wed, 05 Jul 2017 05:34:18 +0000
```

```
End at: Wed, 05 Jul 2017 05:34:48 +0000
```

```
Local clock offset: -0.254 ms
```

```
Remote clock offset: 3.481 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:07 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 0.68 Mbit/s
```

```
95th percentile per-packet one-way delay: 31.682 ms
```

```
Loss rate: 0.35%
```

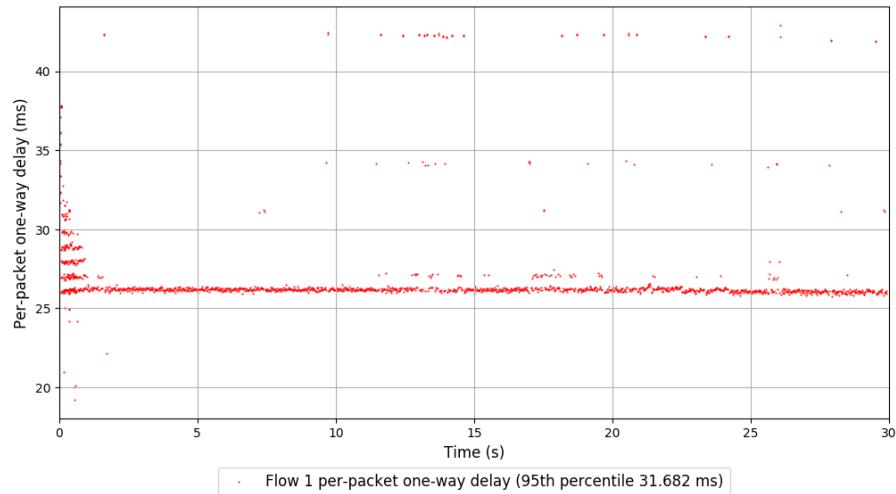
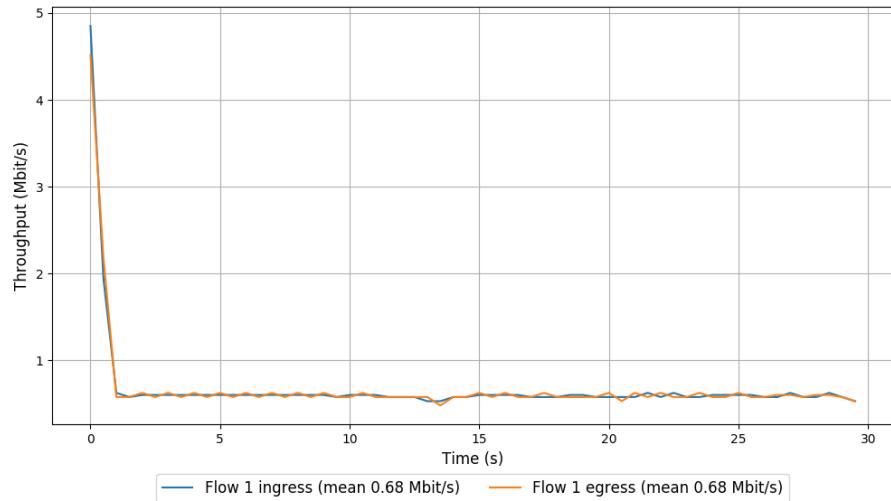
```
-- Flow 1:
```

```
Average throughput: 0.68 Mbit/s
```

```
95th percentile per-packet one-way delay: 31.682 ms
```

```
Loss rate: 0.35%
```

## Run 1: Report of CalibratedKoho — Data Link

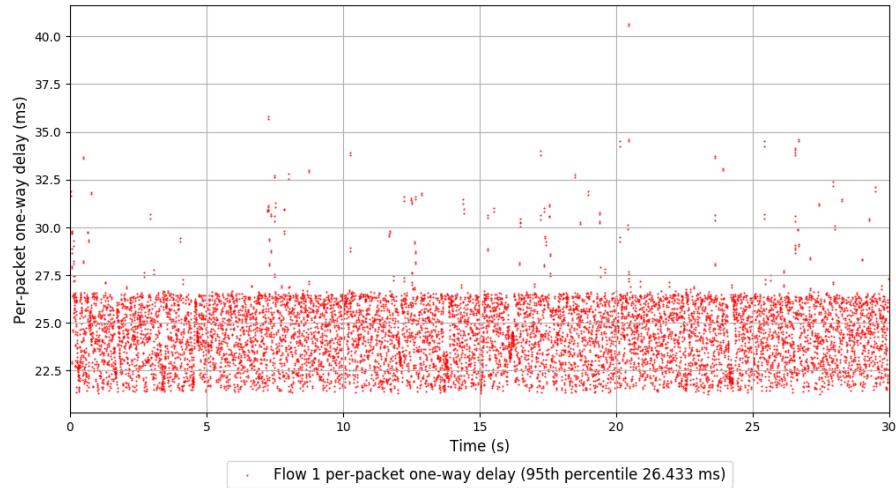
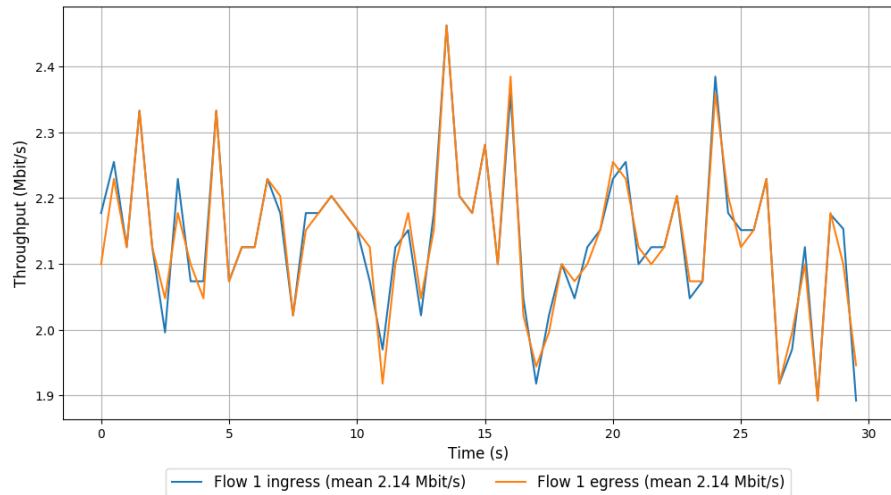


Run 1: Statistics of Copa

```
Start at: Wed, 05 Jul 2017 05:33:14 +0000
End at: Wed, 05 Jul 2017 05:33:44 +0000
Local clock offset: -0.301 ms
Remote clock offset: 3.483 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:07 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 26.433 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 26.433 ms
Loss rate: 0.08%
```

## Run 1: Report of Copa — Data Link



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

```
Start at: Wed, 05 Jul 2017 05:36:27 +0000
```

```
End at: Wed, 05 Jul 2017 05:36:57 +0000
```

```
Local clock offset: -0.226 ms
```

```
Remote clock offset: 3.484 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:07 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 4.78 Mbit/s
```

```
95th percentile per-packet one-way delay: 38.121 ms
```

```
Loss rate: 1.07%
```

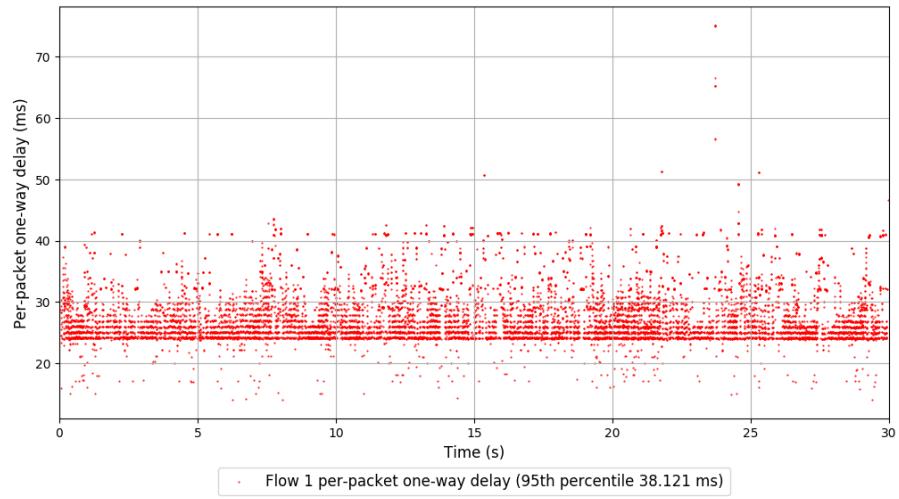
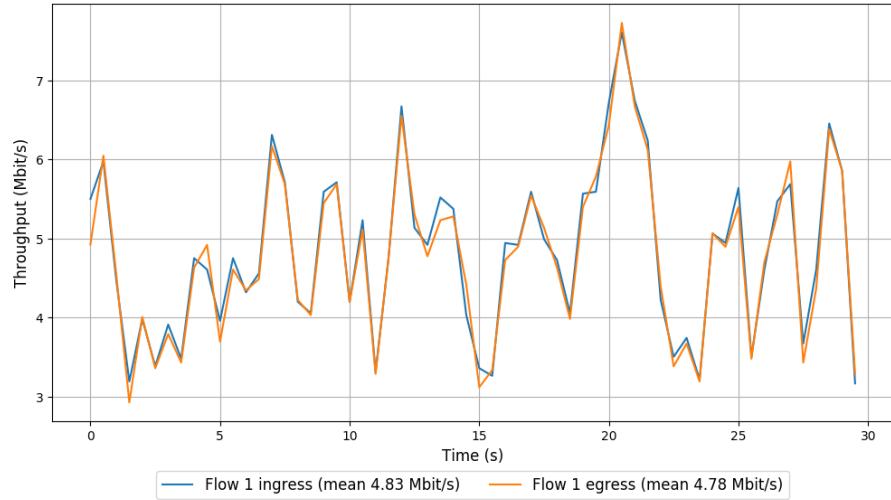
```
-- Flow 1:
```

```
Average throughput: 4.78 Mbit/s
```

```
95th percentile per-packet one-way delay: 38.121 ms
```

```
Loss rate: 1.07%
```

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



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

```
Start at: Wed, 05 Jul 2017 05:32:10 +0000
```

```
End at: Wed, 05 Jul 2017 05:32:40 +0000
```

```
Local clock offset: -0.266 ms
```

```
Remote clock offset: 3.429 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:08 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 0.76 Mbit/s
```

```
95th percentile per-packet one-way delay: 31.422 ms
```

```
Loss rate: 2.28%
```

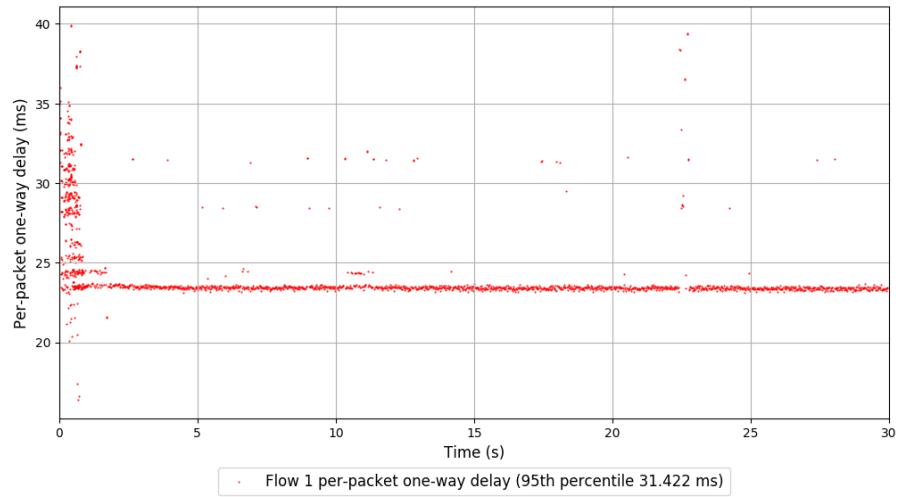
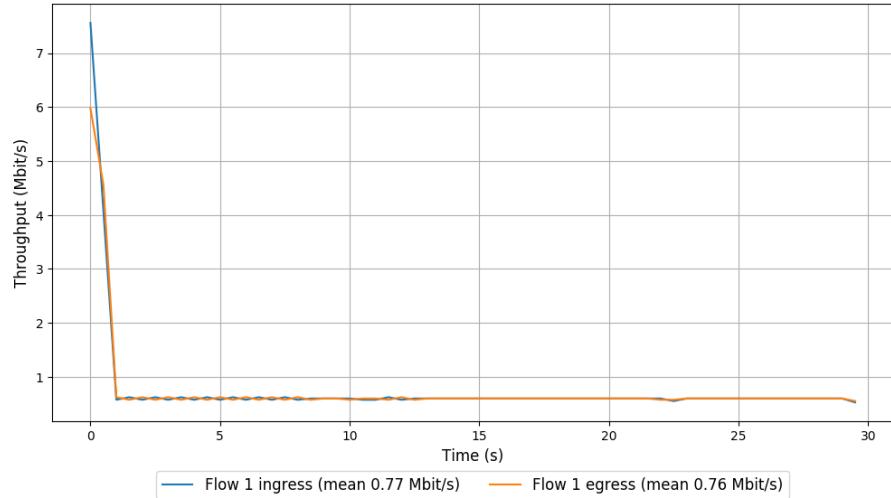
```
-- Flow 1:
```

```
Average throughput: 0.76 Mbit/s
```

```
95th percentile per-packet one-way delay: 31.422 ms
```

```
Loss rate: 2.28%
```

## Run 1: Report of KohoCC — Data Link

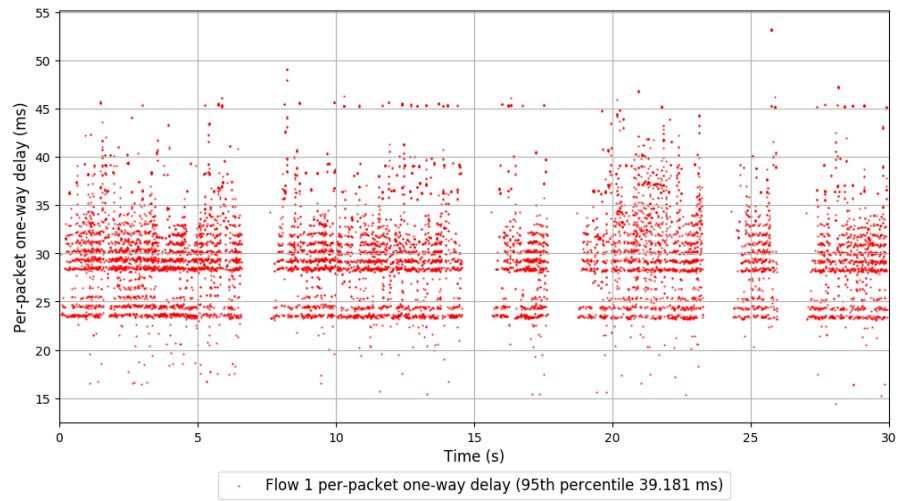
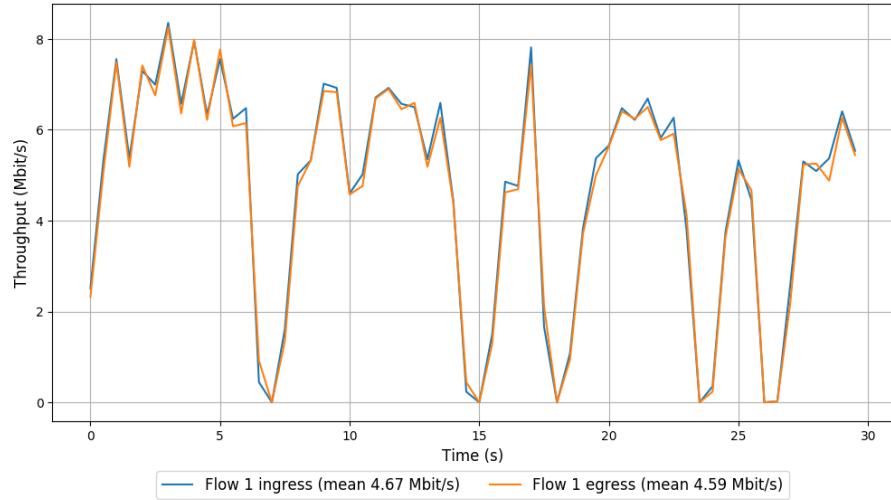


```
Run 1: Statistics of LEDBAT
```

```
Start at: Wed, 05 Jul 2017 05:25:43 +0000
End at: Wed, 05 Jul 2017 05:26:13 +0000
Local clock offset: -0.238 ms
Remote clock offset: 3.469 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:09 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 39.181 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 39.181 ms
Loss rate: 1.83%
```

## Run 1: Report of LEDBAT — Data Link



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

```
Start at: Wed, 05 Jul 2017 05:30:02 +0000
```

```
End at: Wed, 05 Jul 2017 05:30:32 +0000
```

```
Local clock offset: -0.222 ms
```

```
Remote clock offset: 3.498 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:10 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 3.82 Mbit/s
```

```
95th percentile per-packet one-way delay: 29.805 ms
```

```
Loss rate: 0.07%
```

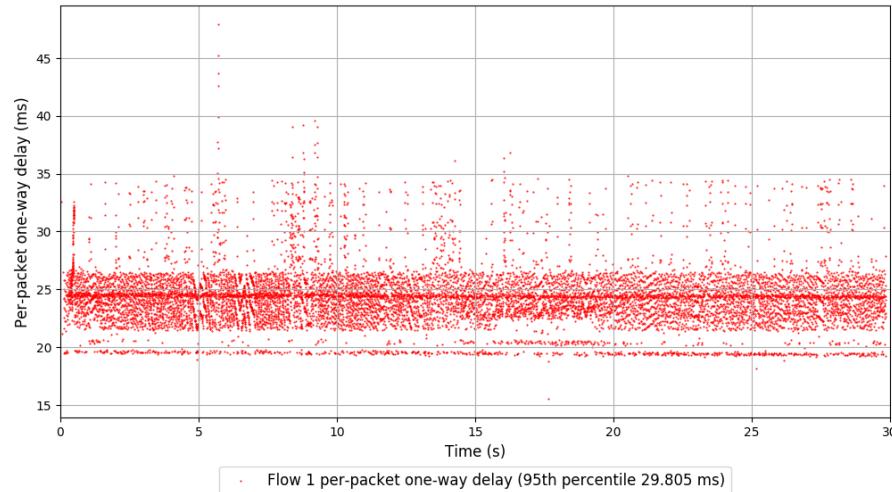
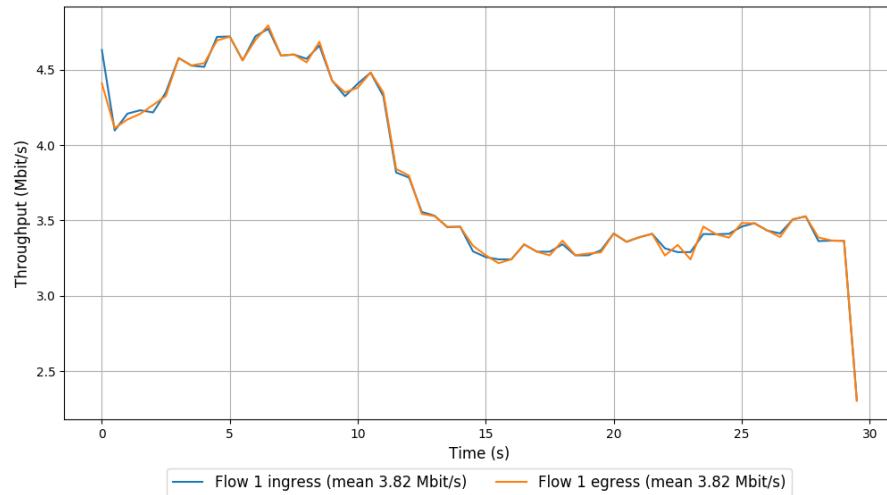
```
-- Flow 1:
```

```
Average throughput: 3.82 Mbit/s
```

```
95th percentile per-packet one-way delay: 29.805 ms
```

```
Loss rate: 0.07%
```

## Run 1: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: Wed, 05 Jul 2017 05:23:35 +0000

End at: Wed, 05 Jul 2017 05:24:05 +0000

Local clock offset: -0.301 ms

Remote clock offset: 3.466 ms

Run 1: Report of QUIC Cubic — Data Link

Figure is missing

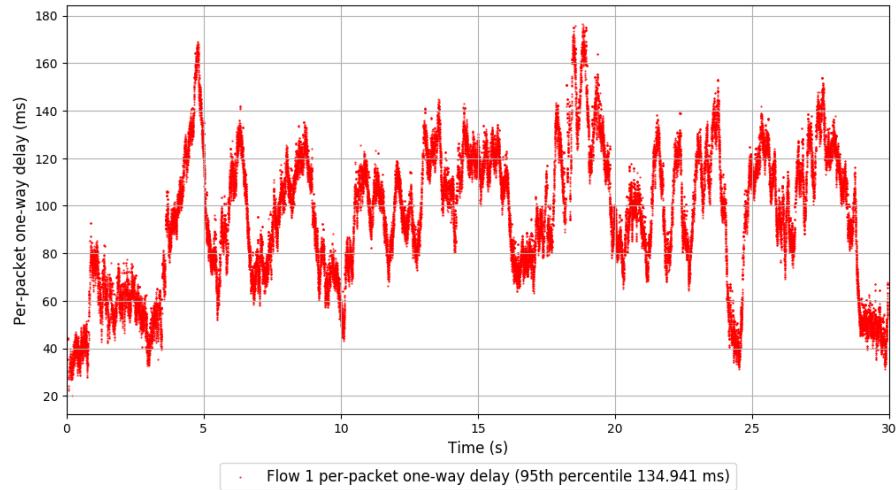
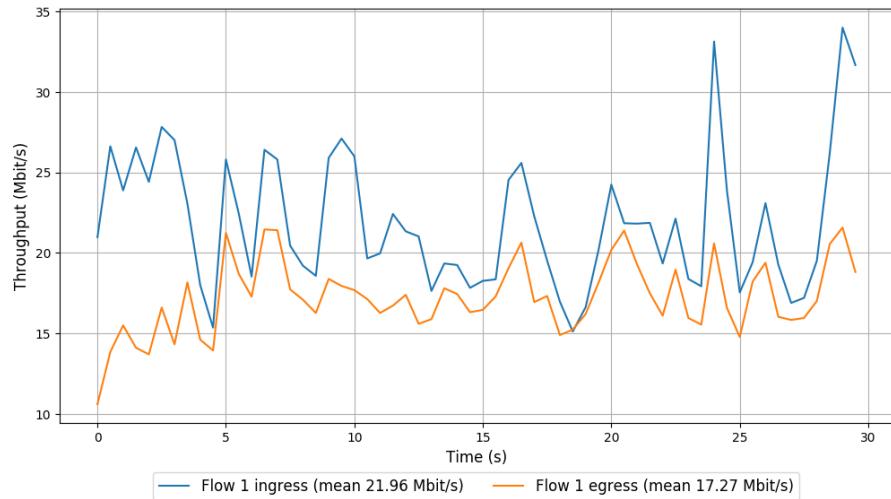
Figure is missing

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

```
Start at: Wed, 05 Jul 2017 05:26:48 +0000
End at: Wed, 05 Jul 2017 05:27:18 +0000
Local clock offset: -0.311 ms
Remote clock offset: 3.455 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:13 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 17.27 Mbit/s
95th percentile per-packet one-way delay: 134.941 ms
Loss rate: 21.39%
-- Flow 1:
Average throughput: 17.27 Mbit/s
95th percentile per-packet one-way delay: 134.941 ms
Loss rate: 21.39%
```

## Run 1: Report of Saturator — Data Link

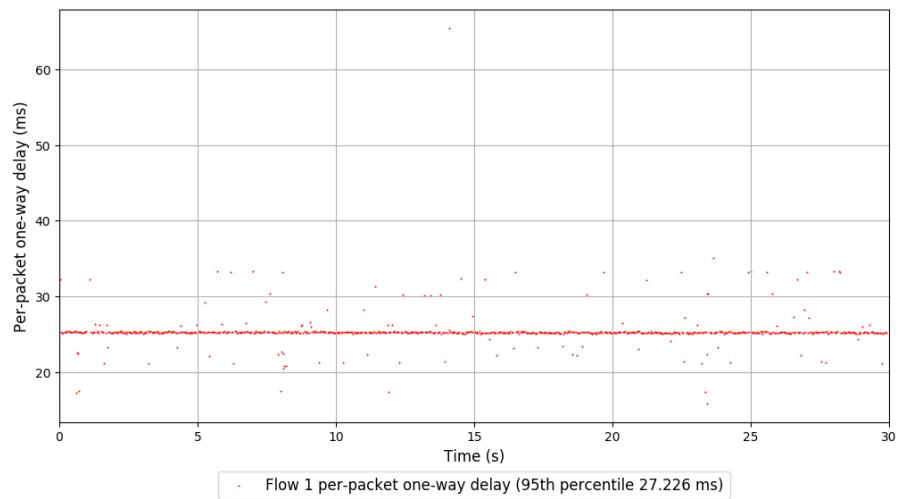
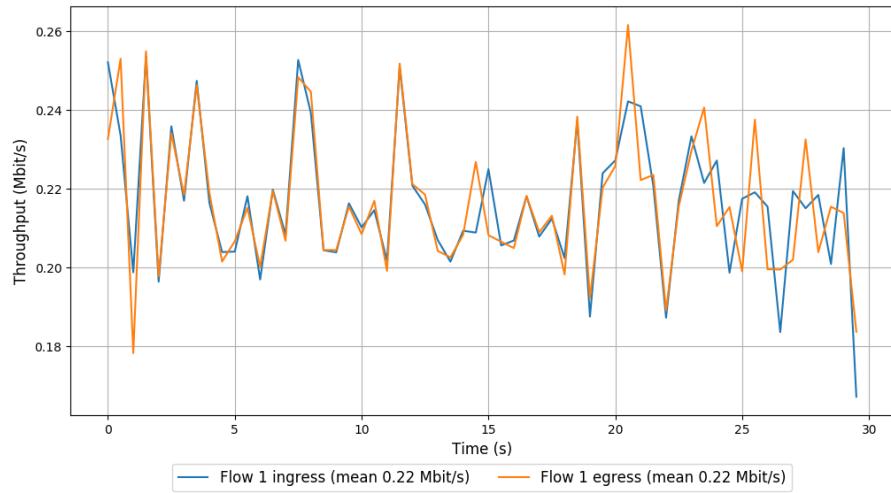


```
Run 1: Statistics of SCReAM
```

```
Start at: Wed, 05 Jul 2017 05:21:27 +0000
End at: Wed, 05 Jul 2017 05:21:57 +0000
Local clock offset: -0.326 ms
Remote clock offset: 3.459 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:13 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 27.226 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 27.226 ms
Loss rate: 0.00%
```

## Run 1: Report of SCReAM — Data Link

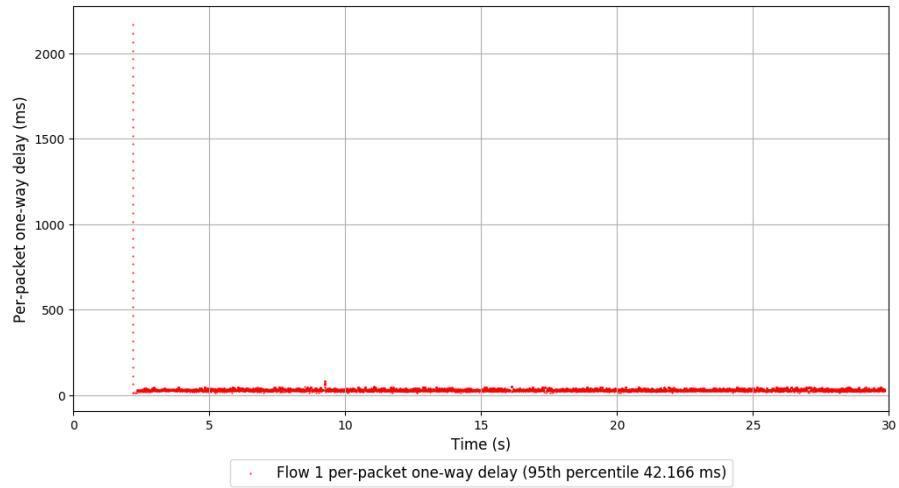
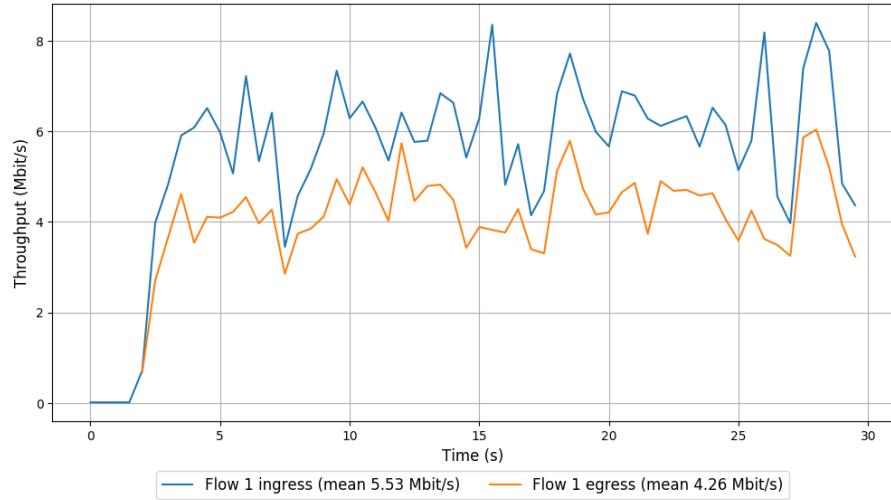


```
Run 1: Statistics of Sprout
```

```
Start at: Wed, 05 Jul 2017 05:27:52 +0000
End at: Wed, 05 Jul 2017 05:28:23 +0000
Local clock offset: -0.248 ms
Remote clock offset: 3.496 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:13 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.26 Mbit/s
95th percentile per-packet one-way delay: 42.166 ms
Loss rate: 28.60%
-- Flow 1:
Average throughput: 4.26 Mbit/s
95th percentile per-packet one-way delay: 42.166 ms
Loss rate: 28.60%
```

## Run 1: Report of Sprout — Data Link



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

```
Start at: Wed, 05 Jul 2017 05:28:57 +0000
```

```
End at: Wed, 05 Jul 2017 05:29:27 +0000
```

```
Local clock offset: -0.24 ms
```

```
Remote clock offset: 3.503 ms
```

```
# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:18 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 17.99 Mbit/s
```

```
95th percentile per-packet one-way delay: 174.422 ms
```

```
Loss rate: 1.55%
```

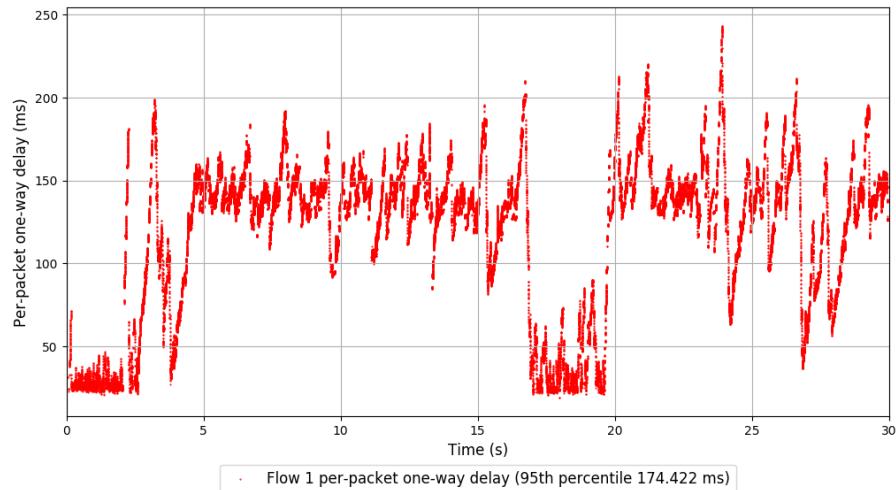
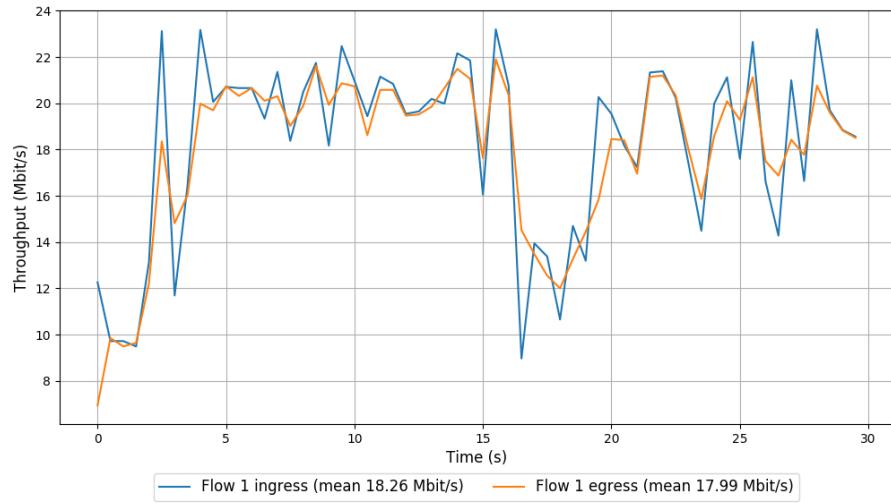
```
-- Flow 1:
```

```
Average throughput: 17.99 Mbit/s
```

```
95th percentile per-packet one-way delay: 174.422 ms
```

```
Loss rate: 1.55%
```

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

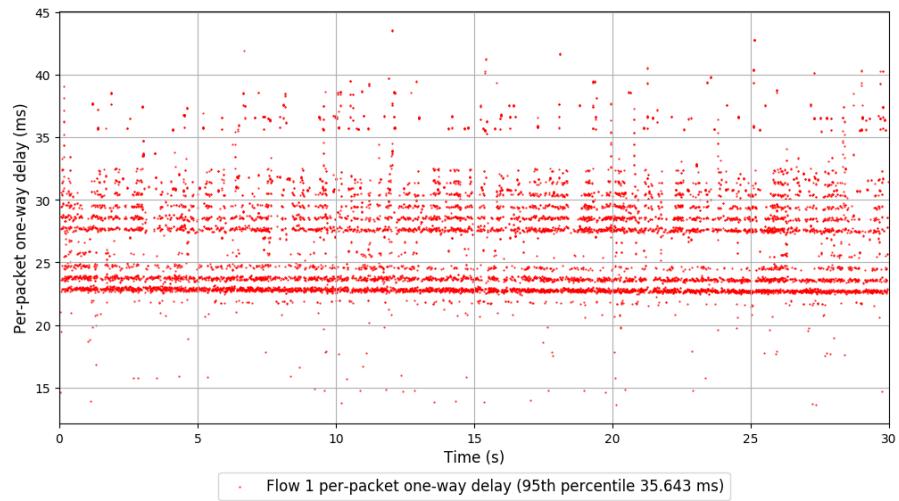
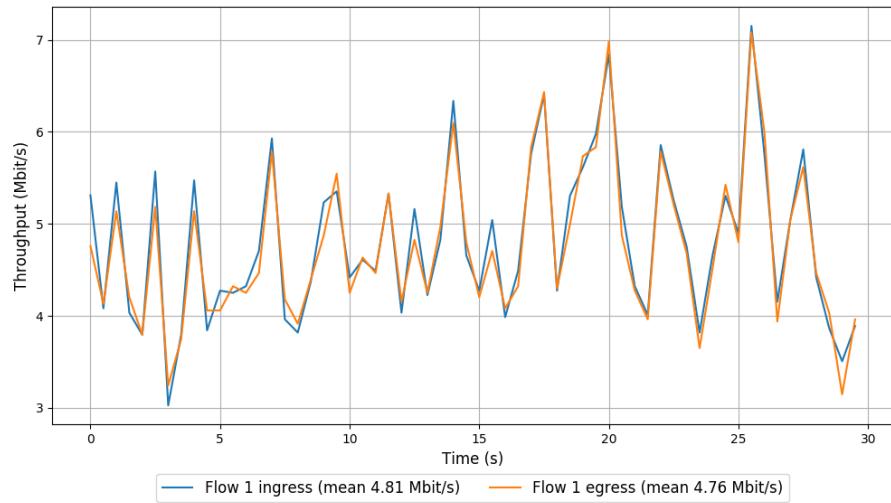


```
Run 1: Statistics of TCP Vegas
```

```
Start at: Wed, 05 Jul 2017 05:31:06 +0000
End at: Wed, 05 Jul 2017 05:31:36 +0000
Local clock offset: -0.308 ms
Remote clock offset: 3.42 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 35.643 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 35.643 ms
Loss rate: 1.21%
```

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

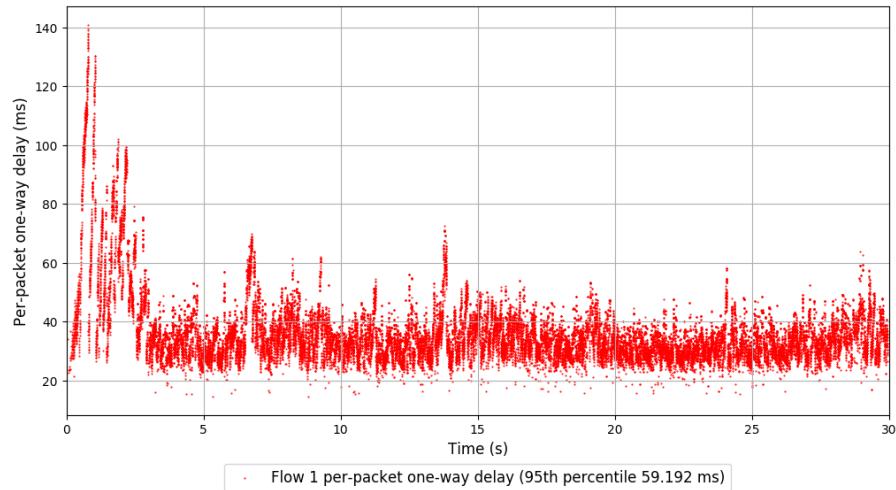
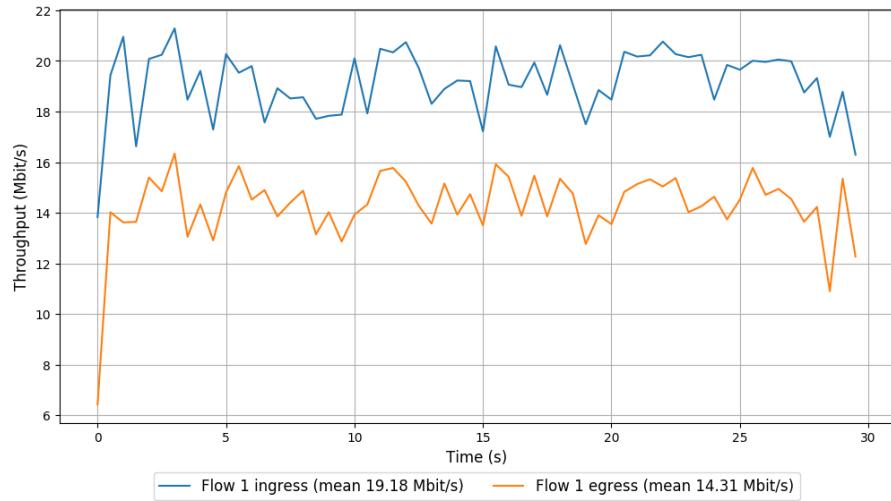


Run 1: Statistics of Verus

```
Start at: Wed, 05 Jul 2017 05:35:22 +0000
End at: Wed, 05 Jul 2017 05:35:52 +0000
Local clock offset: -0.254 ms
Remote clock offset: 3.468 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.31 Mbit/s
95th percentile per-packet one-way delay: 59.192 ms
Loss rate: 25.46%
-- Flow 1:
Average throughput: 14.31 Mbit/s
95th percentile per-packet one-way delay: 59.192 ms
Loss rate: 25.46%
```

## Run 1: Report of Verus — Data Link



```
Run 1: Statistics of WebRTC media

Start at: Wed, 05 Jul 2017 05:22:31 +0000
End at: Wed, 05 Jul 2017 05:23:01 +0000
Local clock offset: -0.198 ms
Remote clock offset: 3.481 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 05:38:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 36.858 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 36.858 ms
Loss rate: 0.30%
```

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

