

Pantheon Summary (Generated at Sun, 11 Jun 2017 02:55:29 +0000 with
pantheon version e44e21ab50520045378f626dc5b5e21d0473d7b8)

Repeated the test of 15 congestion control schemes once.

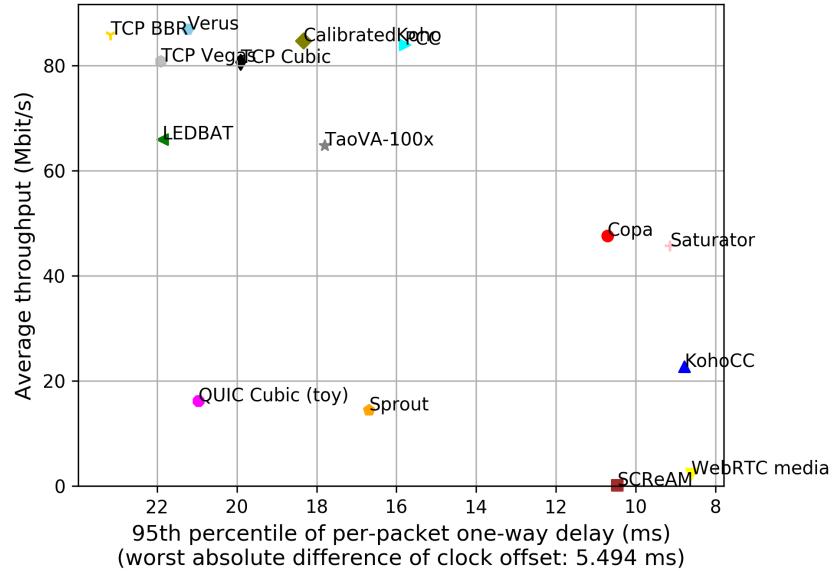
Each test lasted for 30 seconds running 1 flow.

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

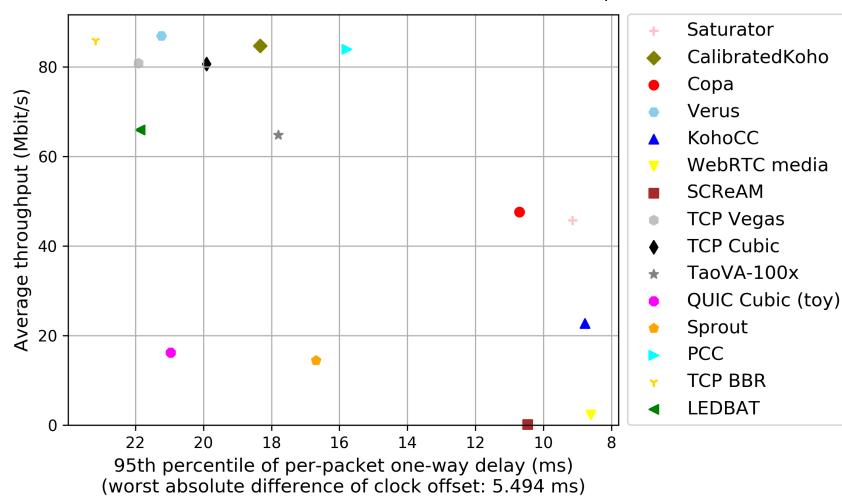
NTP offset measured against nets.org.sg.

```
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
```

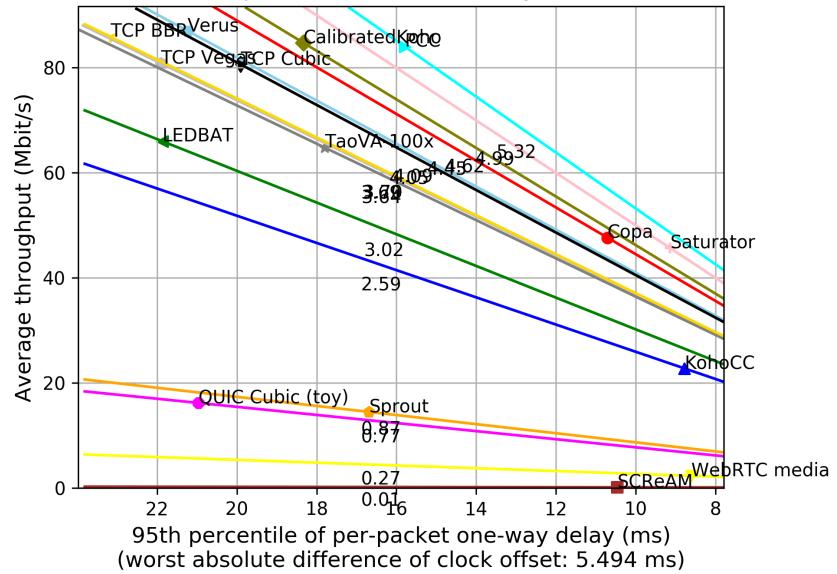
test from India Ethernet to AWS India 1 Ethernet, run 1 of 30s each per scheme
mean of all runs by scheme



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



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

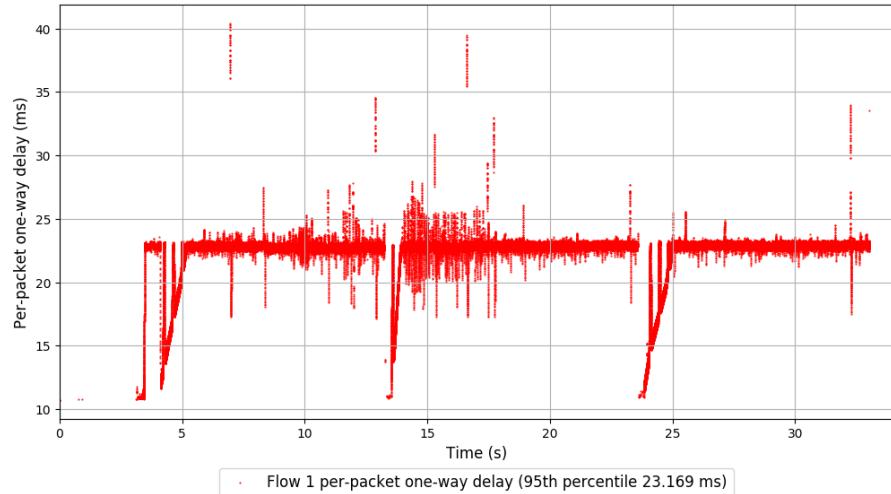
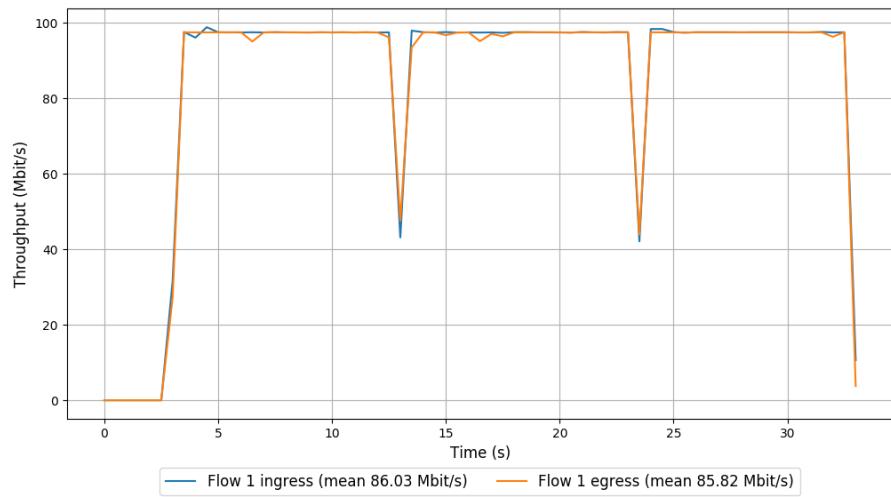


Run 1: Statistics of TCP BBR

```
Start at: Sun, 11 Jun 2017 02:46:07 +0000
End at: Sun, 11 Jun 2017 02:46:37 +0000
Local clock offset: 1.191 ms
Remote clock offset: -0.709 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:54:45 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.82 Mbit/s
95th percentile per-packet one-way delay: 23.169 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 85.82 Mbit/s
95th percentile per-packet one-way delay: 23.169 ms
Loss rate: 0.36%
```

Run 1: Report of TCP BBR — Data Link

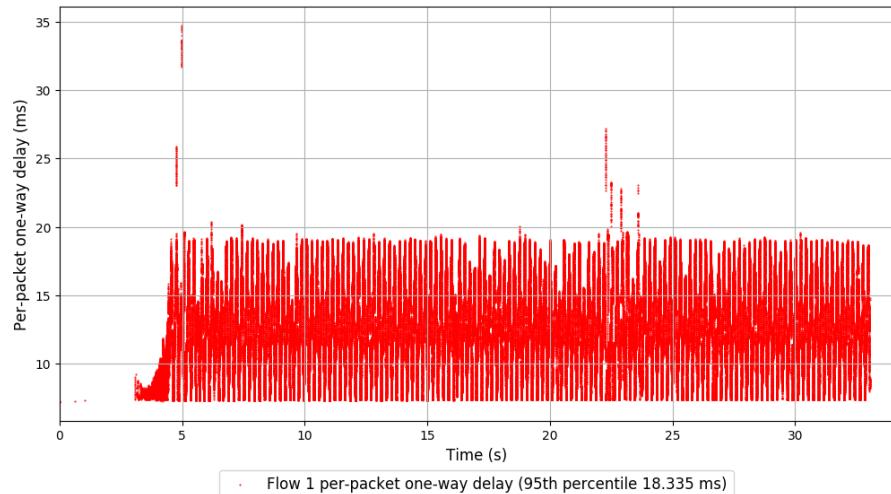
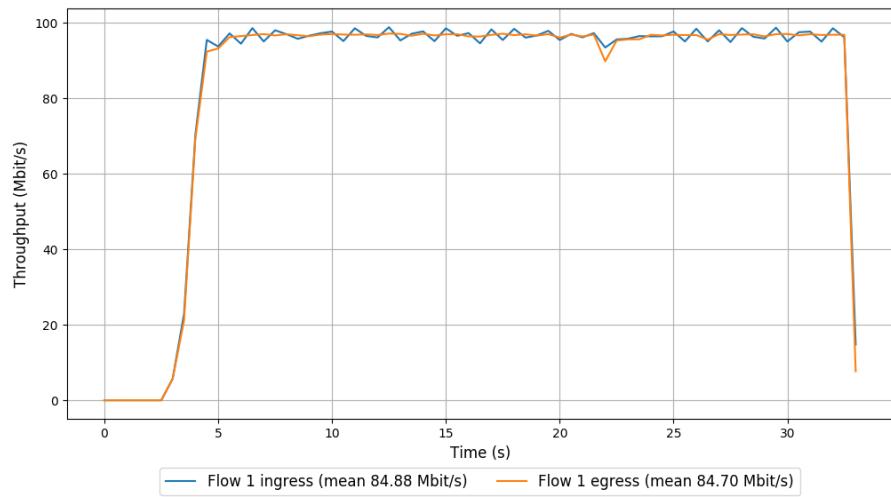


```
Run 1: Statistics of CalibratedKoho

Start at: Sun, 11 Jun 2017 02:31:16 +0000
End at: Sun, 11 Jun 2017 02:31:46 +0000
Local clock offset: 3.104 ms
Remote clock offset: -2.117 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:54:45 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.70 Mbit/s
95th percentile per-packet one-way delay: 18.335 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 84.70 Mbit/s
95th percentile per-packet one-way delay: 18.335 ms
Loss rate: 0.33%
```

Run 1: Report of CalibratedKoho — Data Link

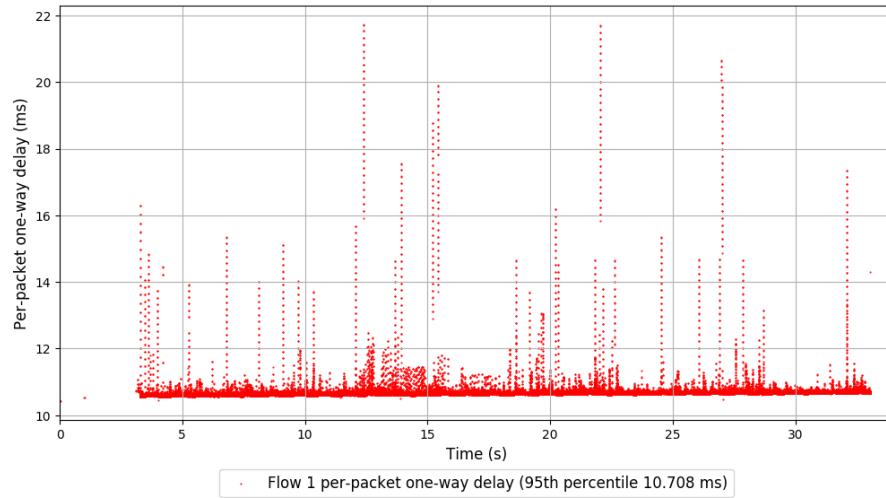
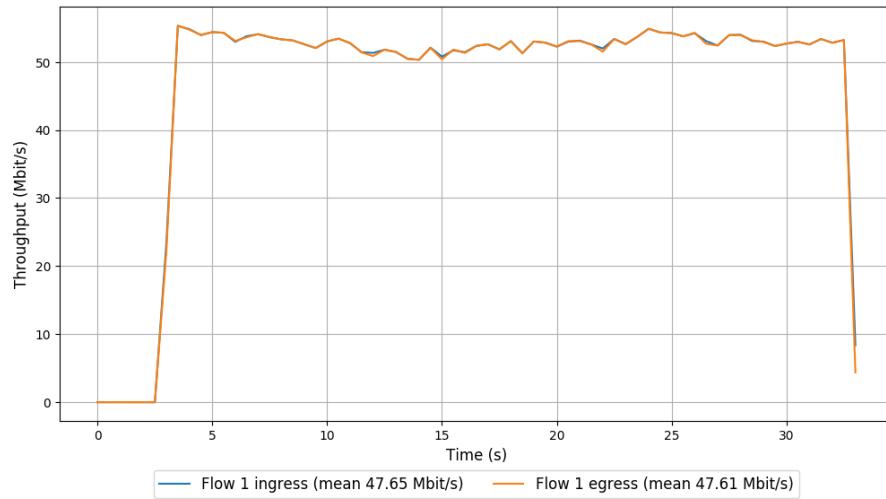


Run 1: Statistics of Copa

```
Start at: Sun, 11 Jun 2017 02:44:51 +0000
End at: Sun, 11 Jun 2017 02:45:21 +0000
Local clock offset: 0.261 ms
Remote clock offset: -1.237 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:54:54 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 47.61 Mbit/s
95th percentile per-packet one-way delay: 10.708 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 47.61 Mbit/s
95th percentile per-packet one-way delay: 10.708 ms
Loss rate: 0.22%
```

Run 1: Report of Copa — Data Link

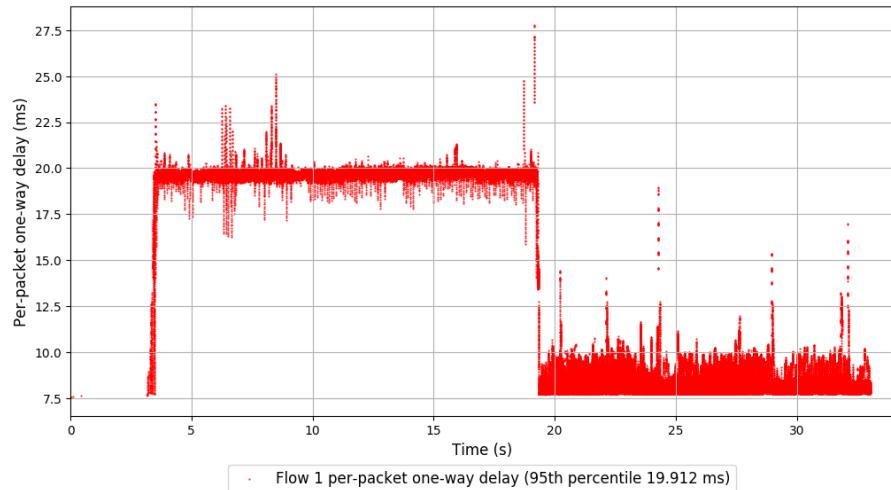
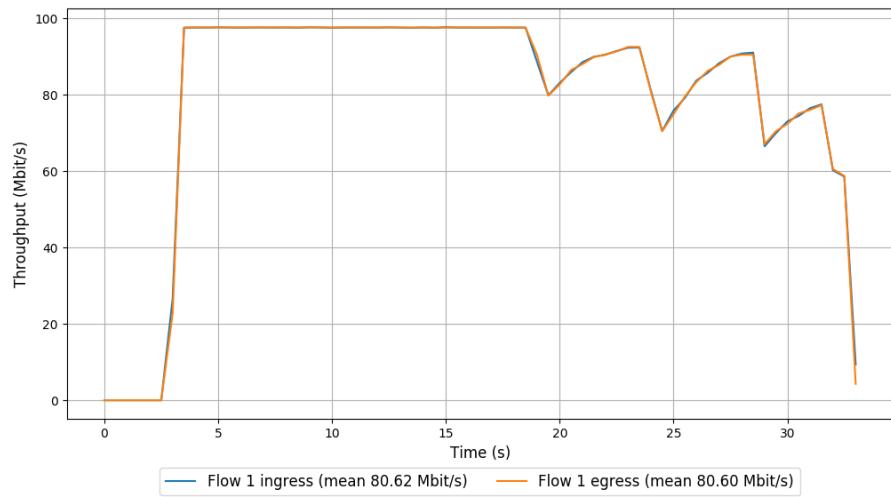


Run 1: Statistics of TCP Cubic

```
Start at: Sun, 11 Jun 2017 02:33:44 +0000
End at: Sun, 11 Jun 2017 02:34:14 +0000
Local clock offset: 2.41 ms
Remote clock offset: -2.083 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:54:54 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.60 Mbit/s
95th percentile per-packet one-way delay: 19.912 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 80.60 Mbit/s
95th percentile per-packet one-way delay: 19.912 ms
Loss rate: 0.16%
```

Run 1: Report of TCP Cubic — Data Link



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

```
Start at: Sun, 11 Jun 2017 02:36:16 +0000
```

```
End at: Sun, 11 Jun 2017 02:36:46 +0000
```

```
Local clock offset: 3.177 ms
```

```
Remote clock offset: -2.088 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 02:54:56 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 22.72 Mbit/s
```

```
95th percentile per-packet one-way delay: 8.776 ms
```

```
Loss rate: 0.20%
```

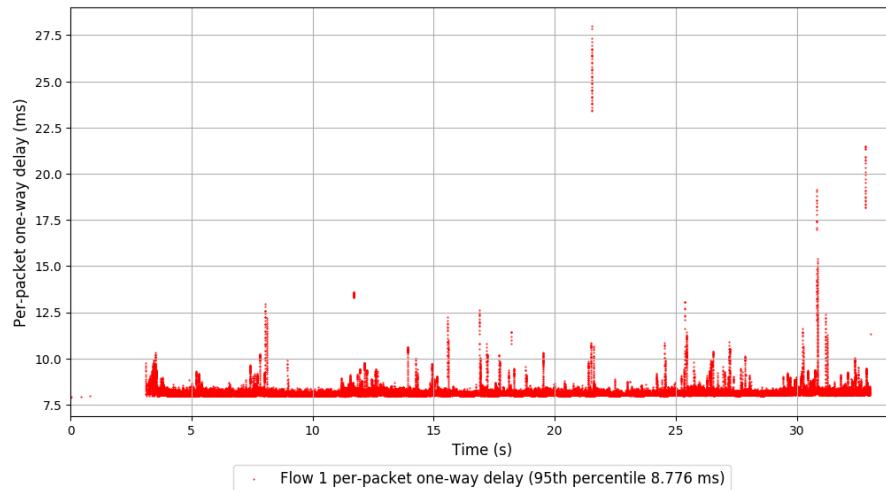
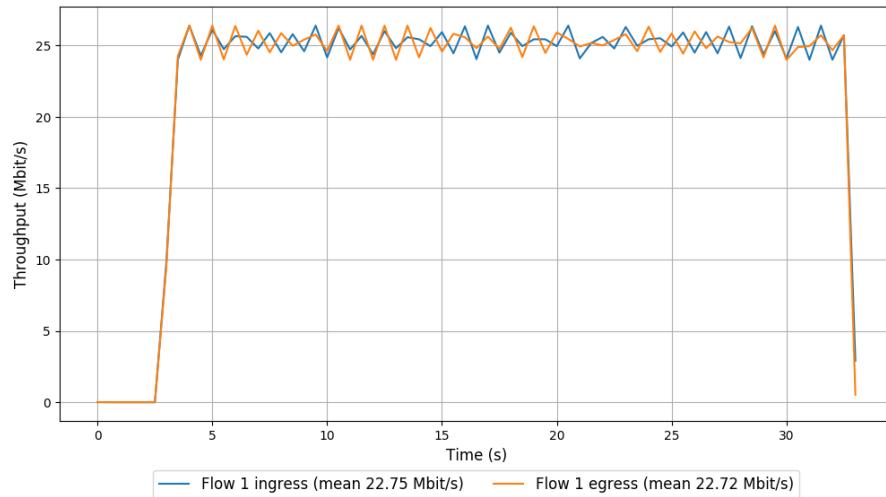
```
-- Flow 1:
```

```
Average throughput: 22.72 Mbit/s
```

```
95th percentile per-packet one-way delay: 8.776 ms
```

```
Loss rate: 0.20%
```

Run 1: Report of KohoCC — Data Link

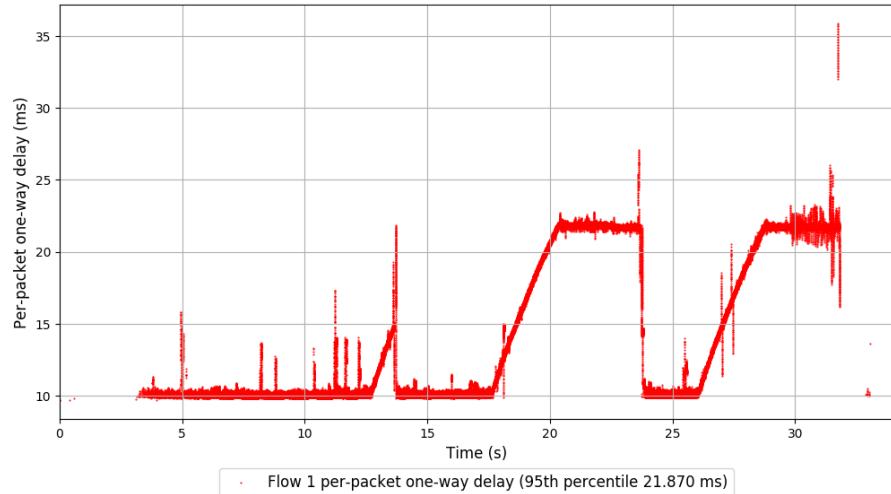
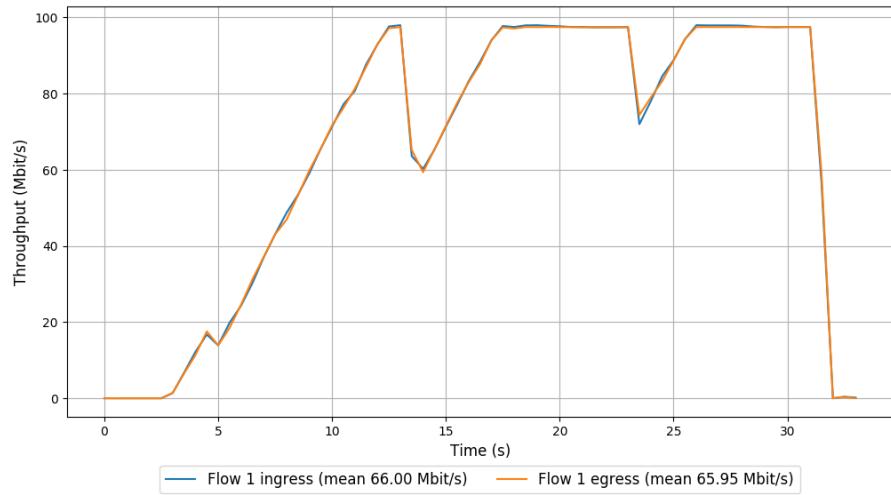


```
Run 1: Statistics of LEDBAT
```

```
Start at: Sun, 11 Jun 2017 02:41:10 +0000
End at: Sun, 11 Jun 2017 02:41:40 +0000
Local clock offset: 1.131 ms
Remote clock offset: -1.633 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:01 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.95 Mbit/s
95th percentile per-packet one-way delay: 21.870 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 65.95 Mbit/s
95th percentile per-packet one-way delay: 21.870 ms
Loss rate: 0.06%
```

Run 1: Report of LEDBAT — Data Link

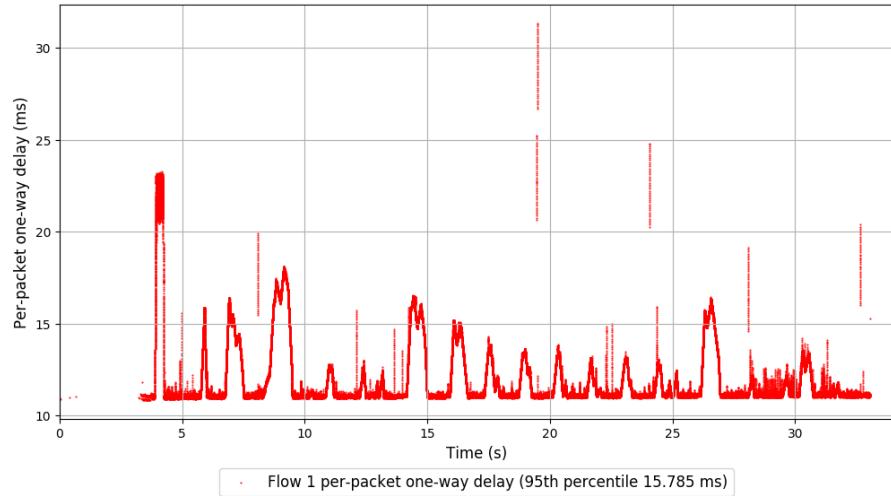
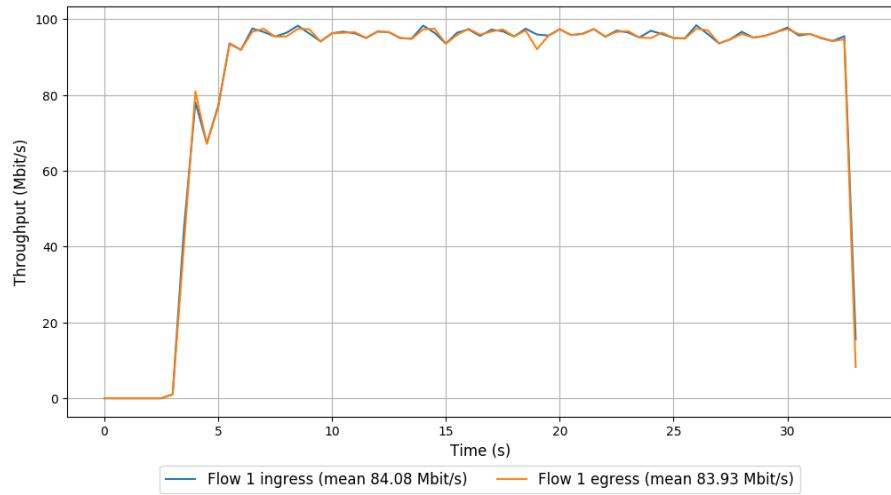


Run 1: Statistics of PCC

```
Start at: Sun, 11 Jun 2017 02:47:23 +0000
End at: Sun, 11 Jun 2017 02:47:53 +0000
Local clock offset: 3.492 ms
Remote clock offset: -0.006 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:06 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.93 Mbit/s
95th percentile per-packet one-way delay: 15.785 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 83.93 Mbit/s
95th percentile per-packet one-way delay: 15.785 ms
Loss rate: 0.32%
```

Run 1: Report of PCC — Data Link

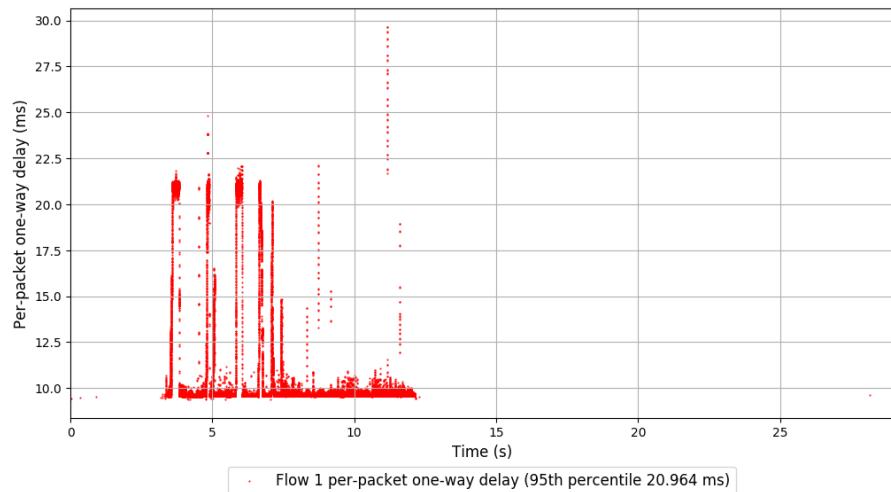
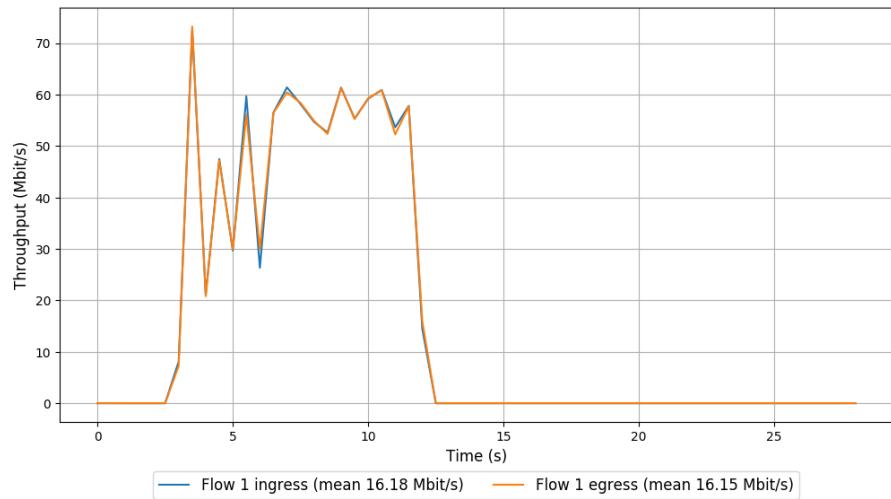


```
Run 1: Statistics of QUIC Cubic (toy)
```

```
Start at: Sun, 11 Jun 2017 02:39:59 +0000
End at: Sun, 11 Jun 2017 02:40:29 +0000
Local clock offset: 1.815 ms
Remote clock offset: -1.367 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:06 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 16.15 Mbit/s
95th percentile per-packet one-way delay: 20.964 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 16.15 Mbit/s
95th percentile per-packet one-way delay: 20.964 ms
Loss rate: 0.16%
```

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



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

```
Start at: Sun, 11 Jun 2017 02:38:45 +0000
```

```
End at: Sun, 11 Jun 2017 02:39:15 +0000
```

```
Local clock offset: 0.703 ms
```

```
Remote clock offset: -1.993 ms
```

```
# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:10 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 45.64 Mbit/s
```

```
95th percentile per-packet one-way delay: 9.137 ms
```

```
Loss rate: 0.22%
```

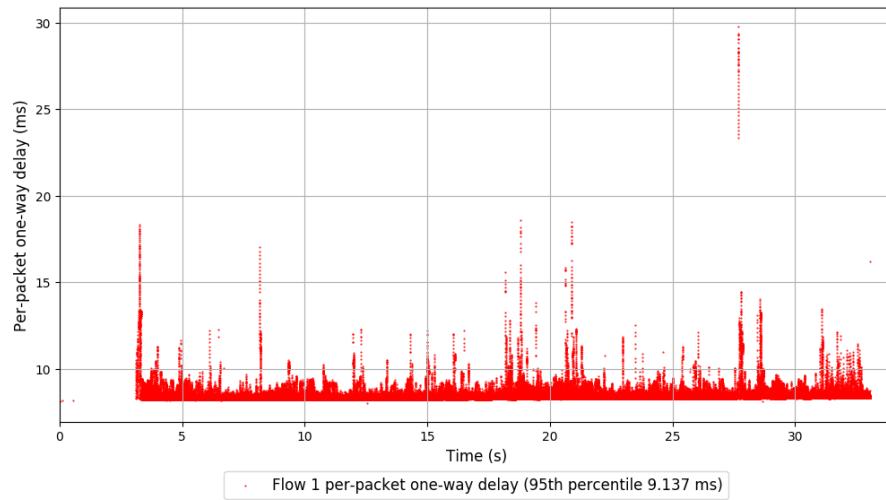
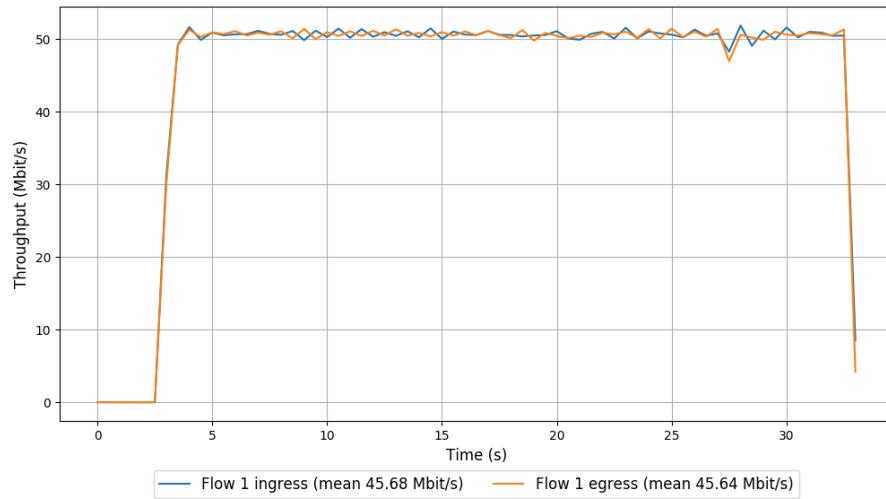
```
-- Flow 1:
```

```
Average throughput: 45.64 Mbit/s
```

```
95th percentile per-packet one-way delay: 9.137 ms
```

```
Loss rate: 0.22%
```

Run 1: Report of Saturator — Data Link

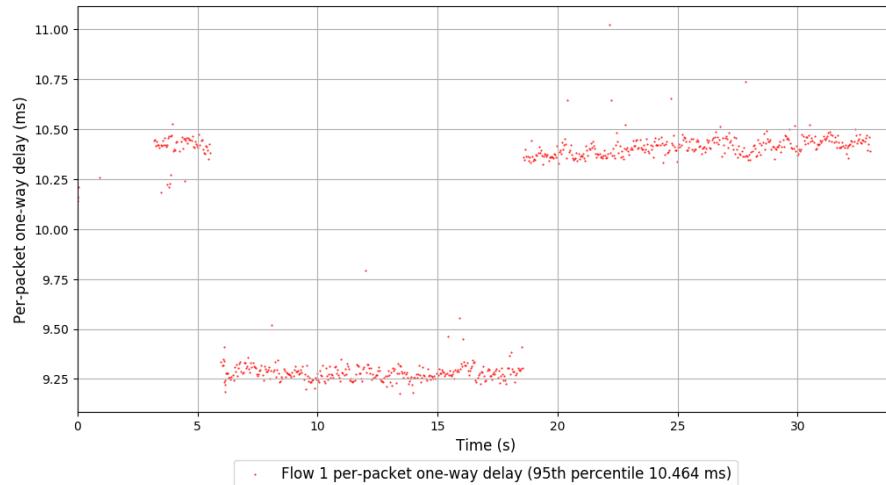
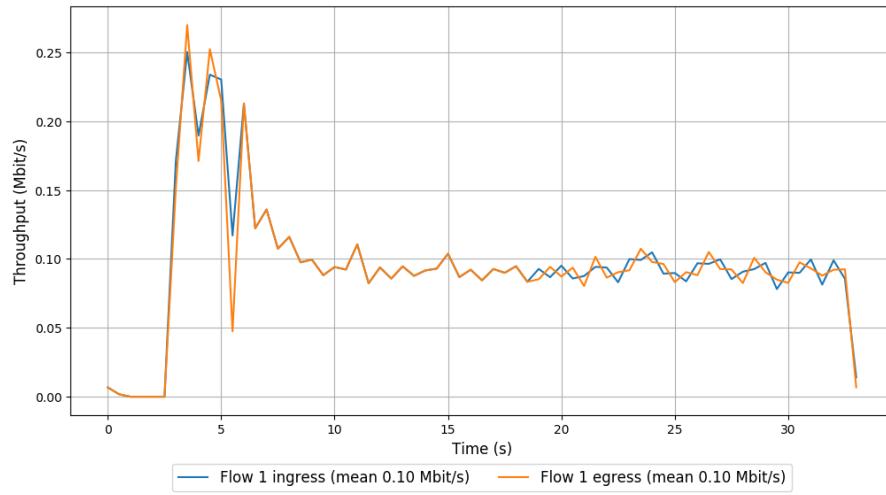


```
Run 1: Statistics of SCReAM
```

```
Start at: Sun, 11 Jun 2017 02:43:42 +0000
End at: Sun, 11 Jun 2017 02:44:12 +0000
Local clock offset: 3.924 ms
Remote clock offset: -1.29 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:10 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 10.464 ms
Loss rate: 1.44%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 10.464 ms
Loss rate: 1.44%
```

Run 1: Report of SCReAM — Data Link

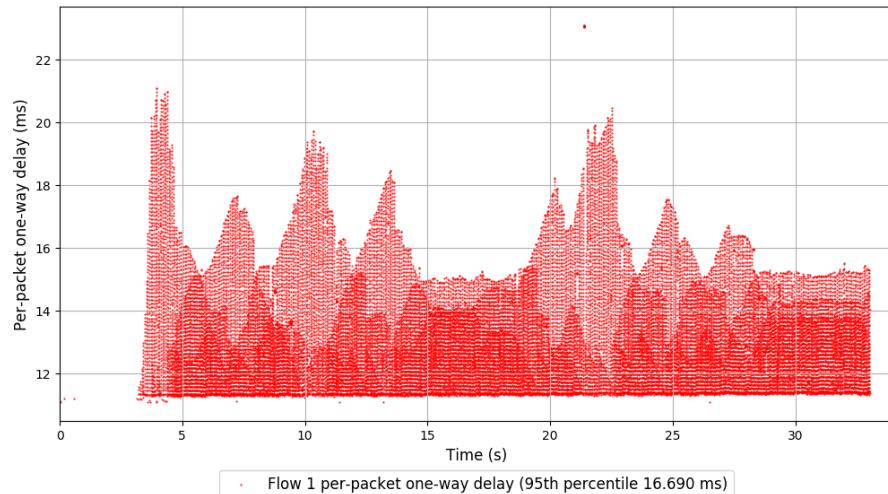
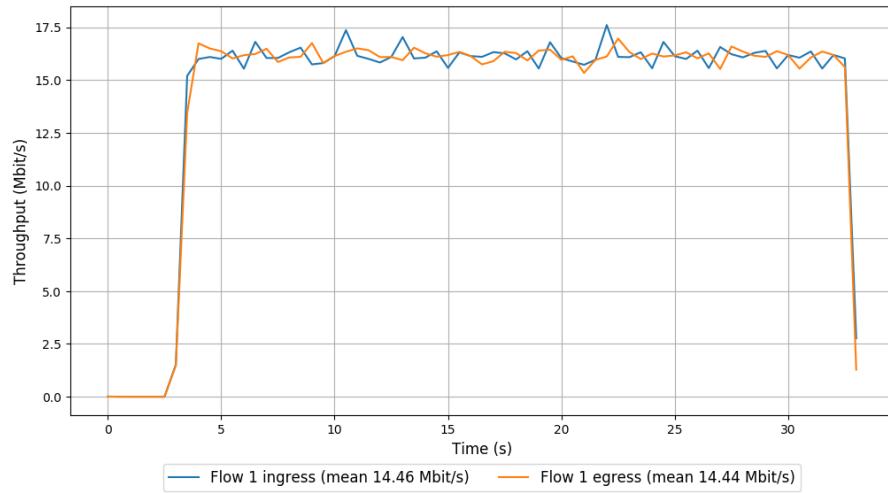


Run 1: Statistics of Sprout

```
Start at: Sun, 11 Jun 2017 02:48:37 +0000
End at: Sun, 11 Jun 2017 02:49:07 +0000
Local clock offset: 0.567 ms
Remote clock offset: -0.55 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:10 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.44 Mbit/s
95th percentile per-packet one-way delay: 16.690 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 14.44 Mbit/s
95th percentile per-packet one-way delay: 16.690 ms
Loss rate: 0.26%
```

Run 1: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: Sun, 11 Jun 2017 02:34:59 +0000

End at: Sun, 11 Jun 2017 02:35:29 +0000

Local clock offset: 1.151 ms

Remote clock offset: -2.289 ms

Below is generated by plot.py at Sun, 11 Jun 2017 02:55:23 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 64.75 Mbit/s

95th percentile per-packet one-way delay: 17.800 ms

Loss rate: 0.25%

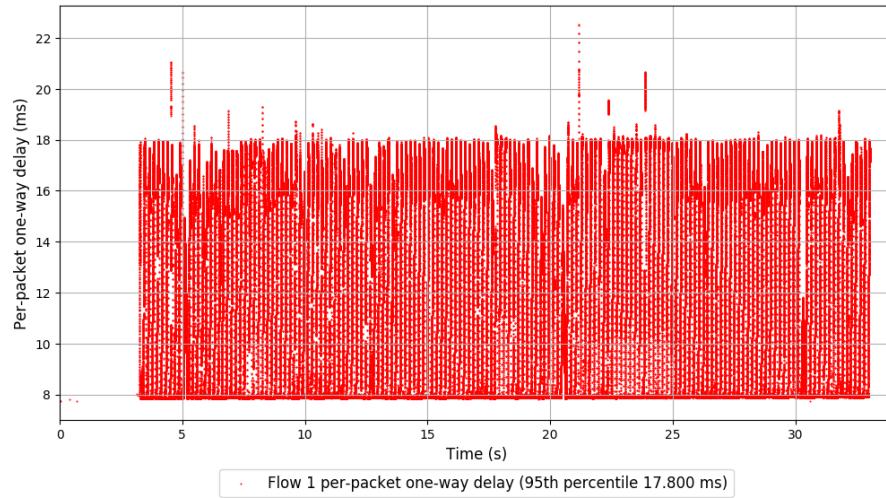
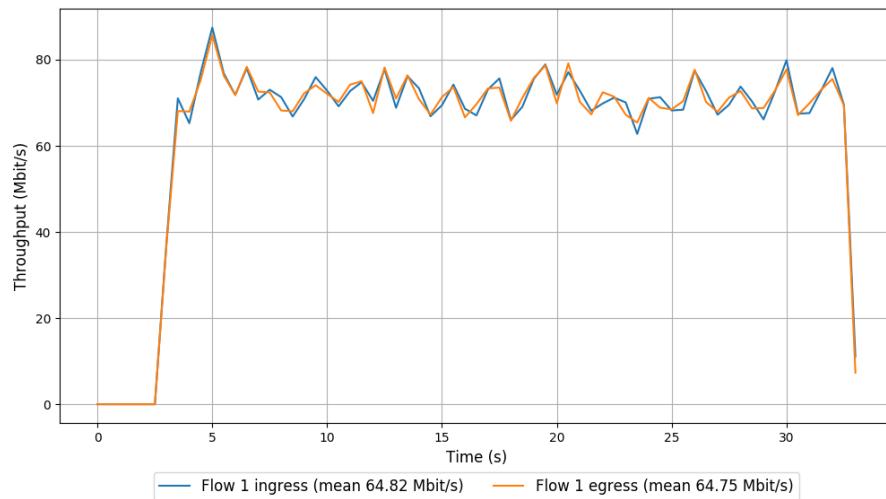
-- Flow 1:

Average throughput: 64.75 Mbit/s

95th percentile per-packet one-way delay: 17.800 ms

Loss rate: 0.25%

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

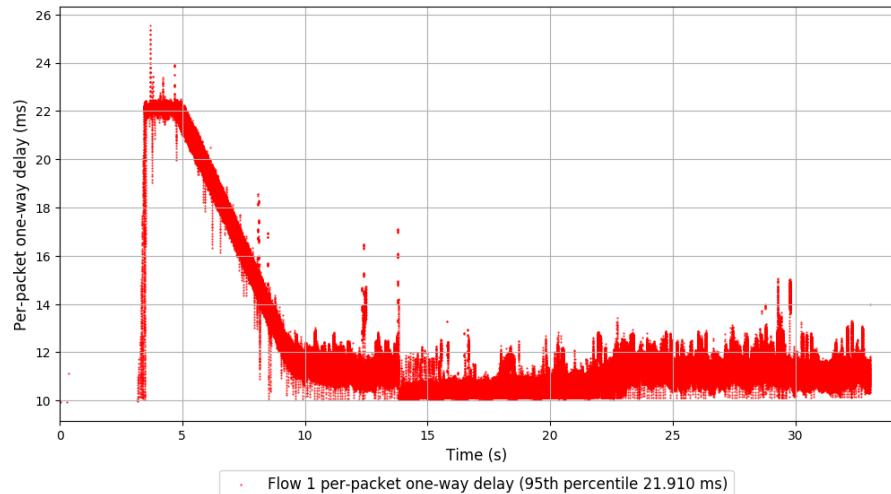
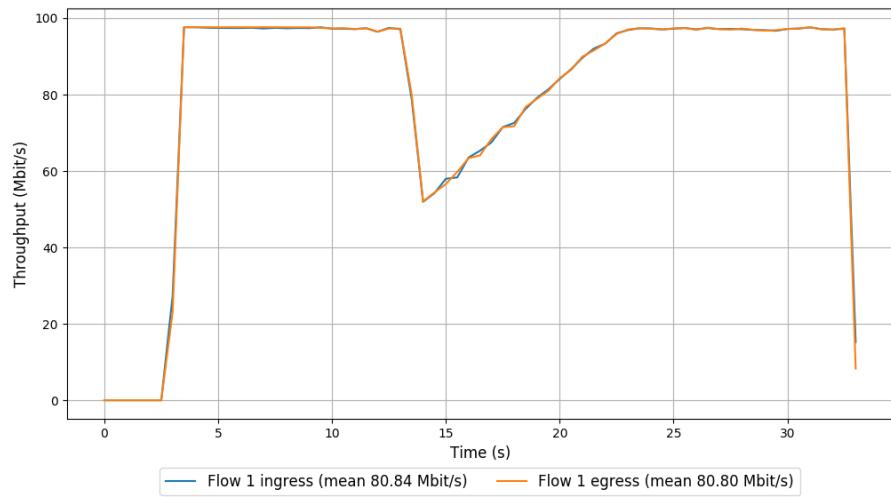


Run 1: Statistics of TCP Vegas

```
Start at: Sun, 11 Jun 2017 02:42:26 +0000
End at: Sun, 11 Jun 2017 02:42:56 +0000
Local clock offset: 1.919 ms
Remote clock offset: -0.237 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:23 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.80 Mbit/s
95th percentile per-packet one-way delay: 21.910 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 80.80 Mbit/s
95th percentile per-packet one-way delay: 21.910 ms
Loss rate: 0.17%
```

Run 1: Report of TCP Vegas — Data Link

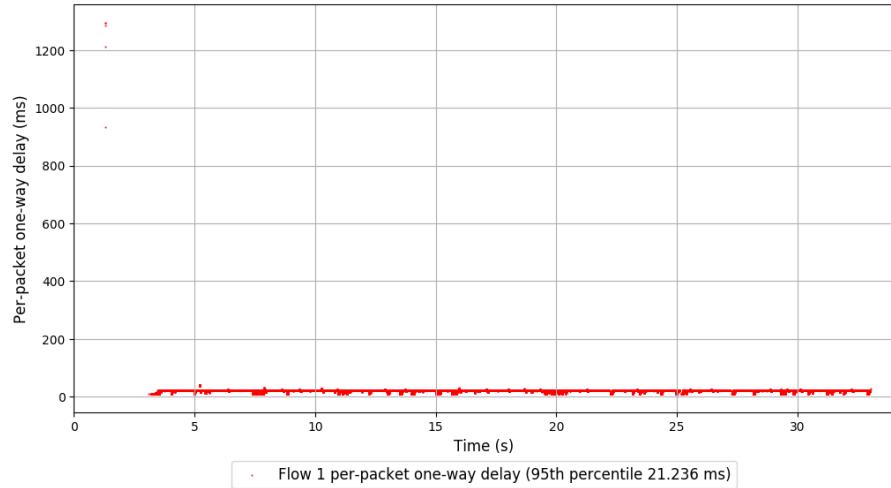
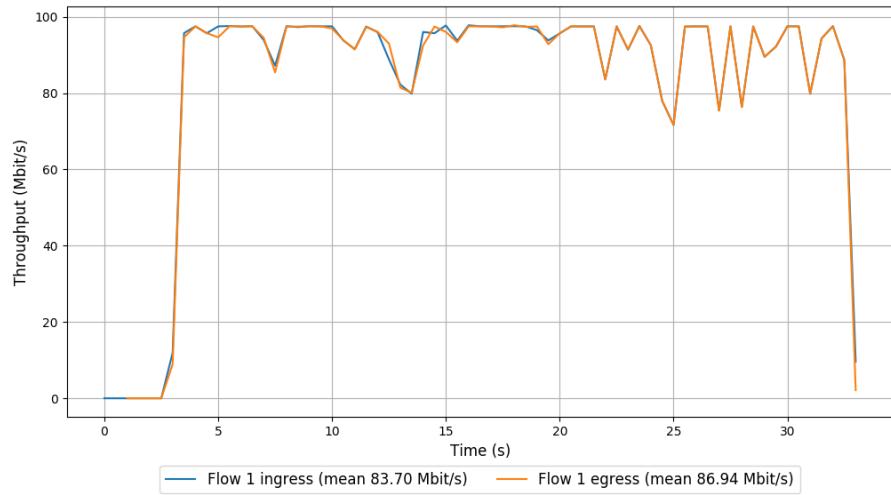


Run 1: Statistics of Verus

```
Start at: Sun, 11 Jun 2017 02:37:28 +0000
End at: Sun, 11 Jun 2017 02:37:58 +0000
Local clock offset: 3.279 ms
Remote clock offset: -2.215 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.94 Mbit/s
95th percentile per-packet one-way delay: 21.236 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 86.94 Mbit/s
95th percentile per-packet one-way delay: 21.236 ms
Loss rate: 0.31%
```

Run 1: Report of Verus — Data Link



```
Run 1: Statistics of WebRTC media

Start at: Sun, 11 Jun 2017 02:32:34 +0000
End at: Sun, 11 Jun 2017 02:33:04 +0000
Local clock offset: 2.212 ms
Remote clock offset: -2.388 ms

# Below is generated by plot.py at Sun, 11 Jun 2017 02:55:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 8.608 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 8.608 ms
Loss rate: 0.15%
```

Run 1: Report of WebRTC media — Data Link

