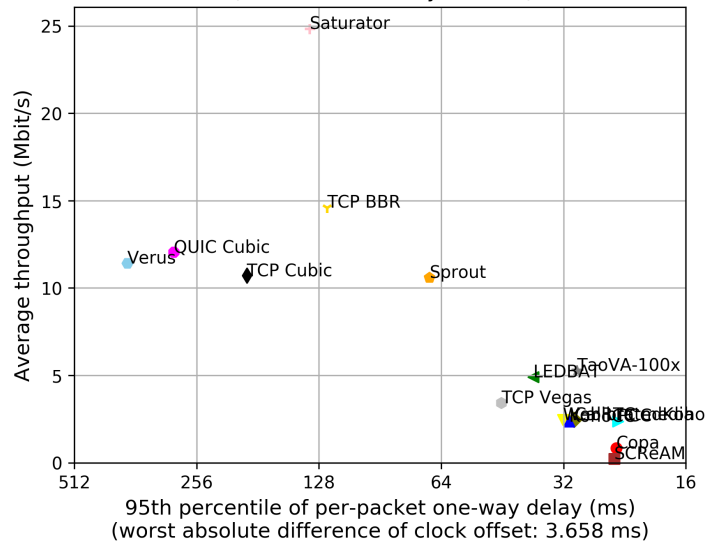


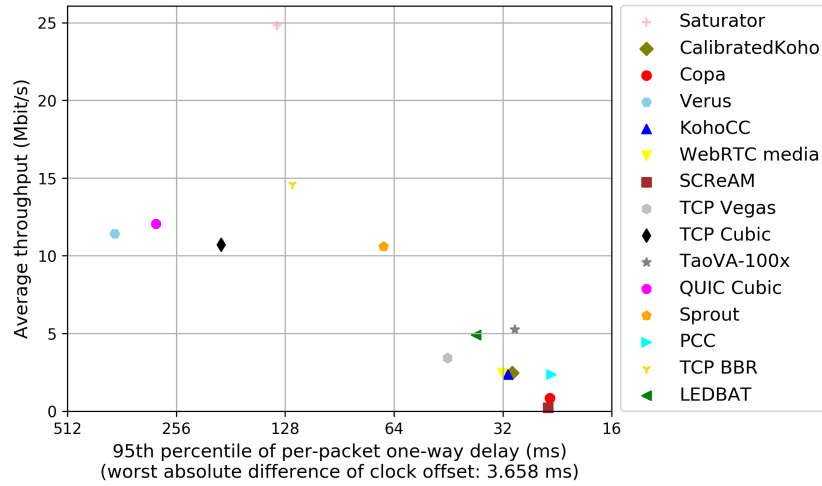
**Pantheon Summary** (Generated at Wed, 05 Jul 2017 23:54:17 +0000 with pantheon version 767a95bcc95d67bd77e69c0f8bc9320c1ad3146b)  
Repeated the test of 15 congestion control schemes once.  
Each test lasted for 30 seconds running 1 flow.  
Data path **from** AWS California 1 Ethernet **to** Stanford ppp0.  
NTP offset measured against time.stanford.edu.

```
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 @ f1a14bffe749737437f61b1eaeab30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  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
```

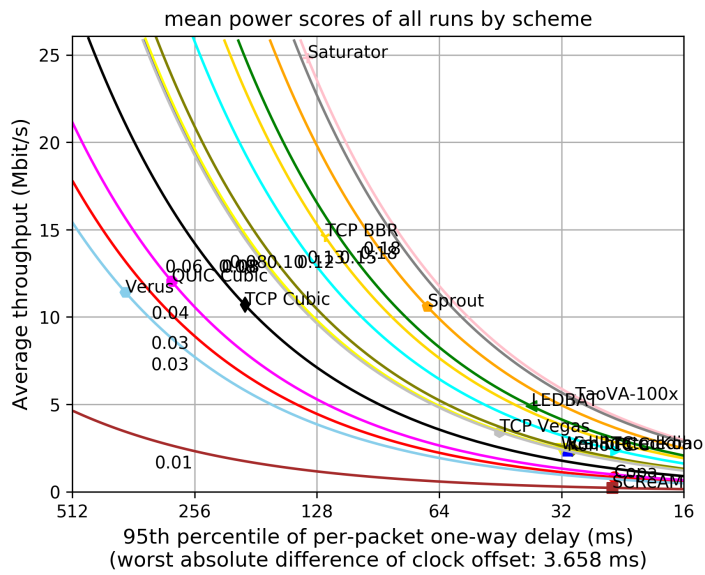
test from AWS California 1 Ethernet to Stanford ppp0, 1 run of 30s each per scheme  
(mean of all runs by scheme)



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



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



Run 1: Statistics of TCP BBR

Start at: Wed, 05 Jul 2017 23:35:29 +0000

End at: Wed, 05 Jul 2017 23:35:59 +0000

Local clock offset: 0.641 ms

Remote clock offset: -2.963 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:02 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 14.61 Mbit/s

95th percentile per-packet one-way delay: 122.306 ms

Loss rate: 0.21%

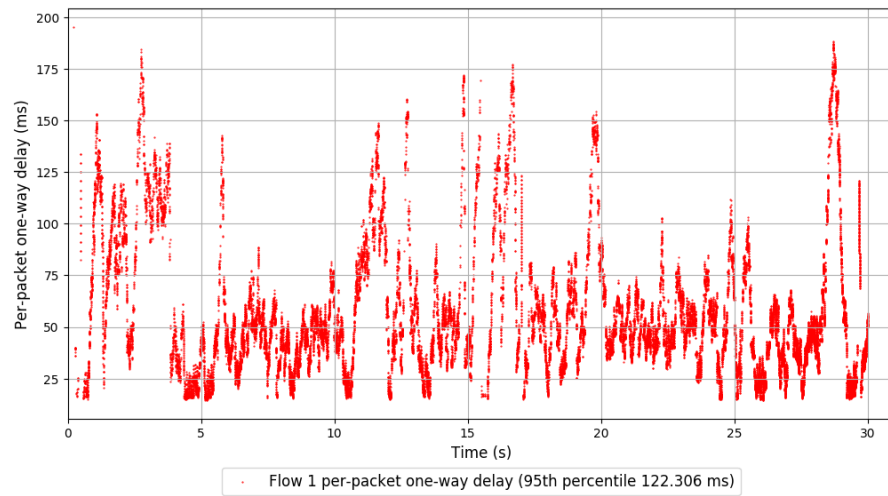
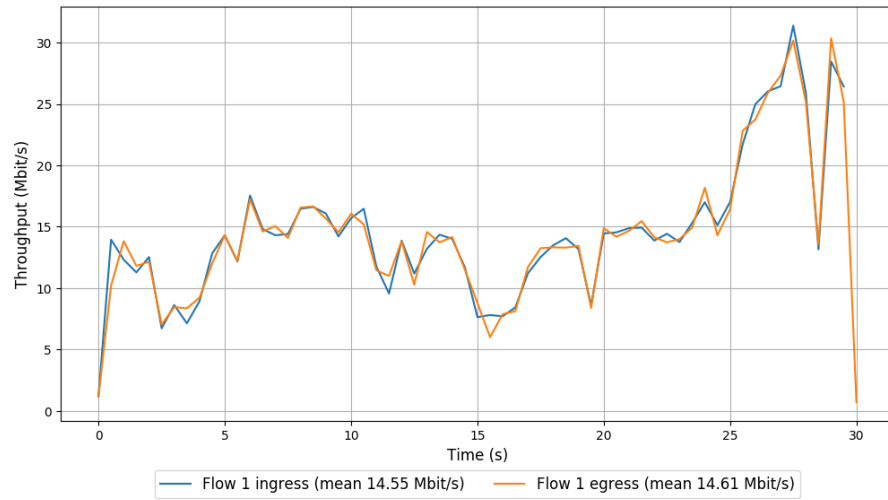
-- Flow 1:

Average throughput: 14.61 Mbit/s

95th percentile per-packet one-way delay: 122.306 ms

Loss rate: 0.21%

# Run 1: Report of TCP BBR — Data Link



Run 1: Statistics of CalibratedKoho

Start at: Wed, 05 Jul 2017 23:29:38 +0000

End at: Wed, 05 Jul 2017 23:30:08 +0000

Local clock offset: 0.568 ms

Remote clock offset: -2.958 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:02 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.46 Mbit/s

95th percentile per-packet one-way delay: 30.148 ms

Loss rate: 0.00%

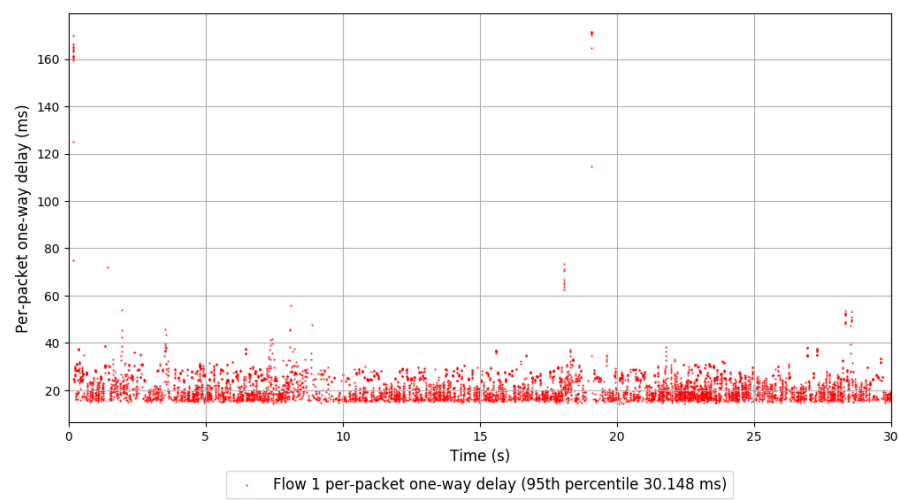
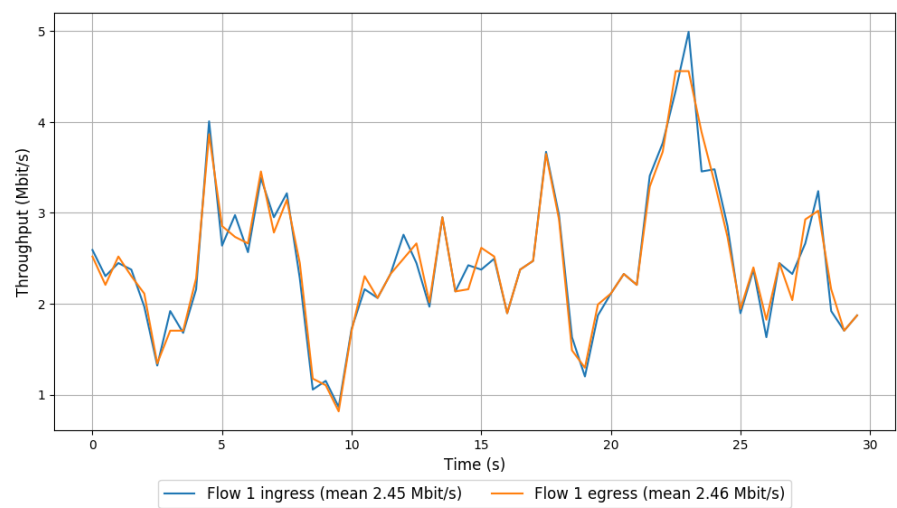
-- Flow 1:

Average throughput: 2.46 Mbit/s

95th percentile per-packet one-way delay: 30.148 ms

Loss rate: 0.00%

Run 1: Report of CalibratedKoho — Data Link



Run 1: Statistics of Copa

Start at: Wed, 05 Jul 2017 23:24:57 +0000

End at: Wed, 05 Jul 2017 23:25:27 +0000

Local clock offset: 0.532 ms

Remote clock offset: -2.928 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:02 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.83 Mbit/s

95th percentile per-packet one-way delay: 23.756 ms

Loss rate: 0.00%

-- Flow 1:

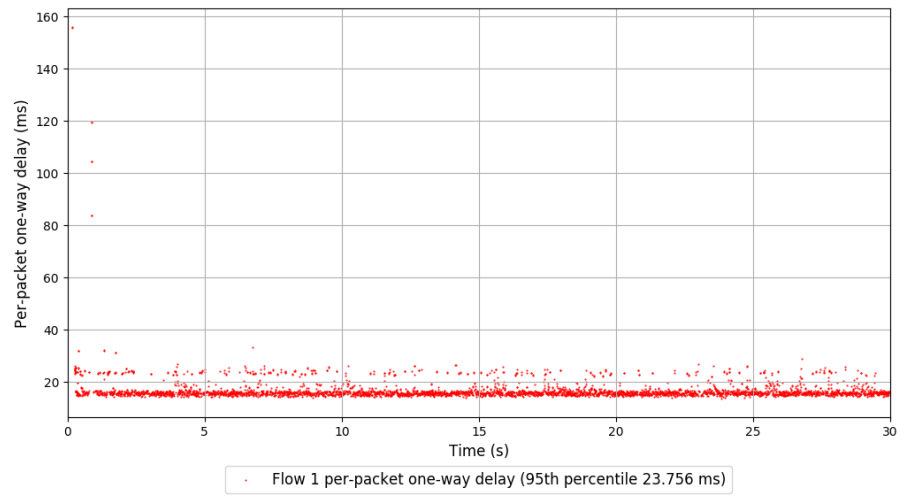
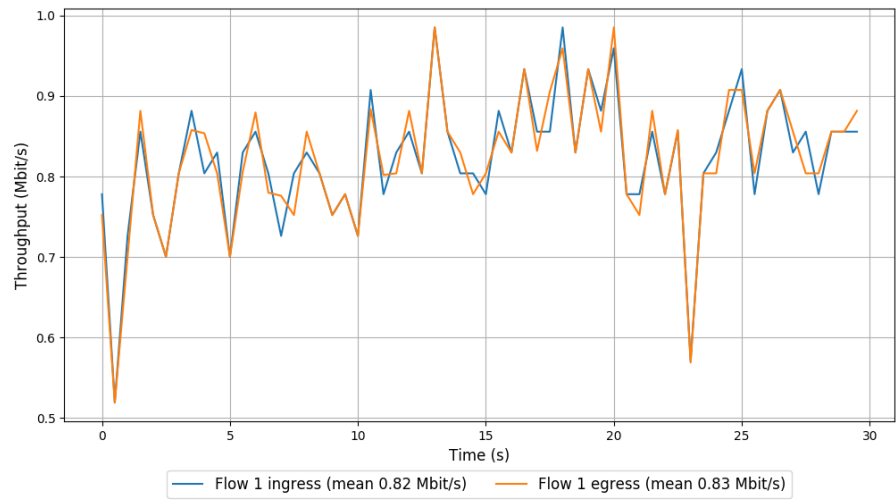
Average throughput: 0.83 Mbit/s

95th percentile per-packet one-way delay: 23.756 ms

Loss rate: 0.00%



### Run 1: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: Wed, 05 Jul 2017 23:30:48 +0000

End at: Wed, 05 Jul 2017 23:31:18 +0000

Local clock offset: 0.543 ms

Remote clock offset: -2.93 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:03 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 10.71 Mbit/s

95th percentile per-packet one-way delay: 192.812 ms

Loss rate: 0.36%

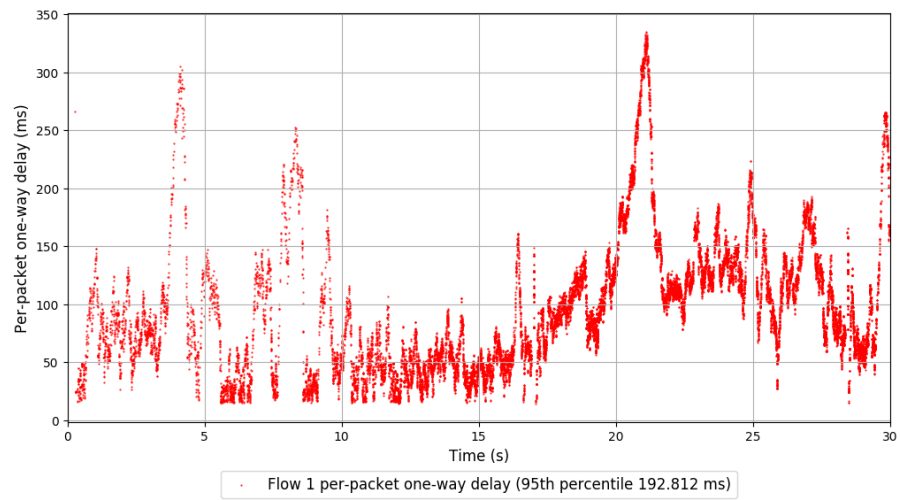
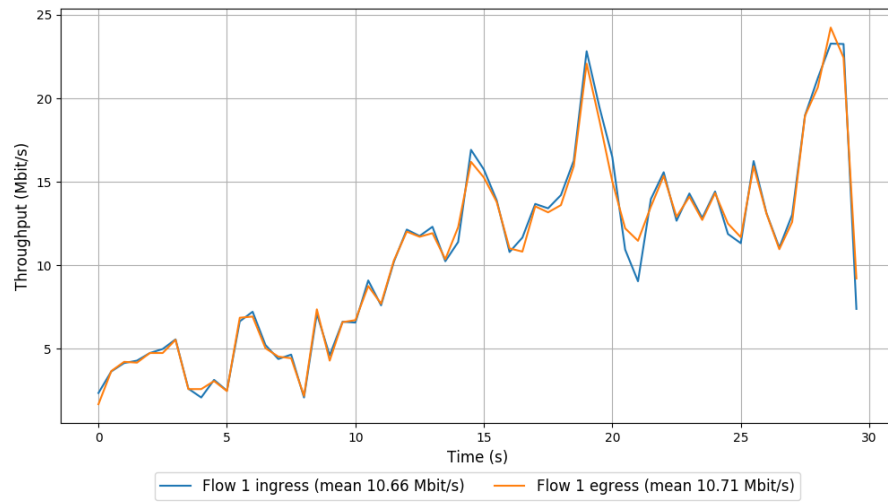
-- Flow 1:

Average throughput: 10.71 Mbit/s

95th percentile per-packet one-way delay: 192.812 ms

Loss rate: 0.36%

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



Run 1: Statistics of KohoCC

Start at: Wed, 05 Jul 2017 23:22:37 +0000

End at: Wed, 05 Jul 2017 23:23:07 +0000

Local clock offset: 0.648 ms

Remote clock offset: -2.805 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:03 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.37 Mbit/s

95th percentile per-packet one-way delay: 31.054 ms

Loss rate: 0.00%

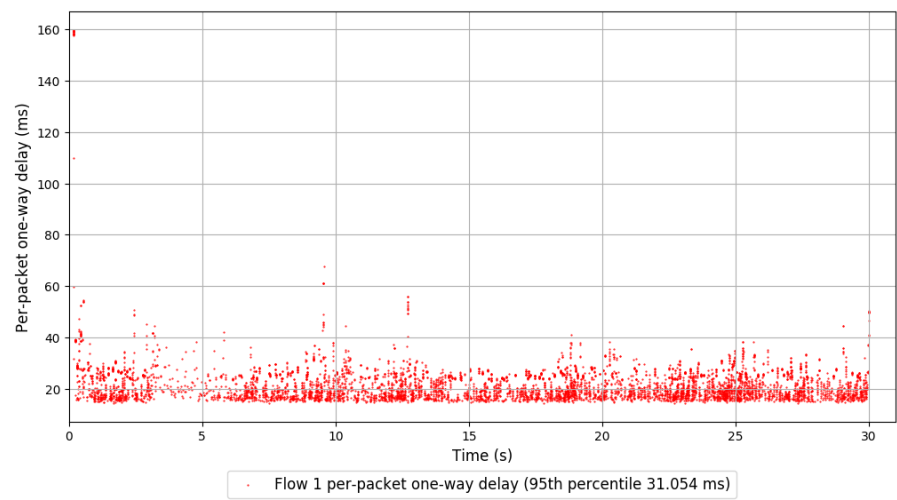
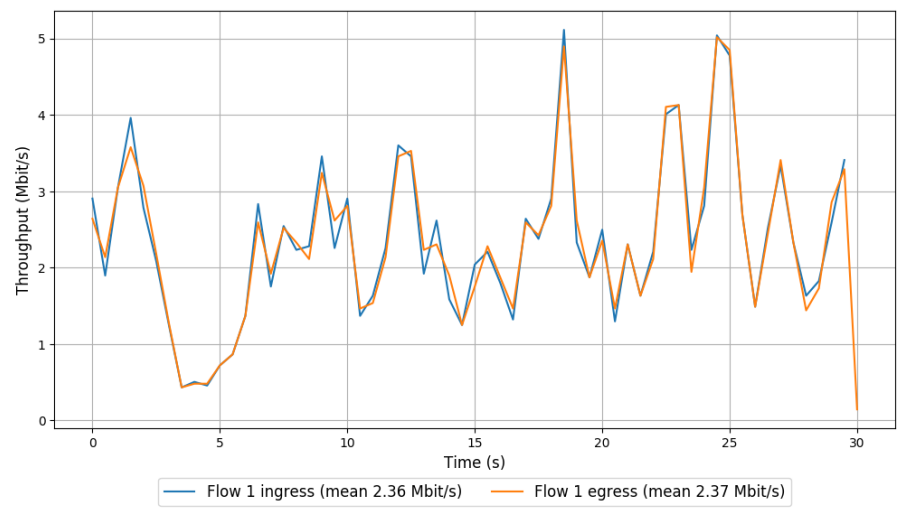
-- Flow 1:

Average throughput: 2.37 Mbit/s

95th percentile per-packet one-way delay: 31.054 ms

Loss rate: 0.00%

Run 1: Report of KohoCC — Data Link



Run 1: Statistics of LEDBAT

Start at: Wed, 05 Jul 2017 23:19:07 +0000

End at: Wed, 05 Jul 2017 23:19:37 +0000

Local clock offset: 0.504 ms

Remote clock offset: -3.018 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:04 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 4.91 Mbit/s

95th percentile per-packet one-way delay: 37.998 ms

Loss rate: 0.01%

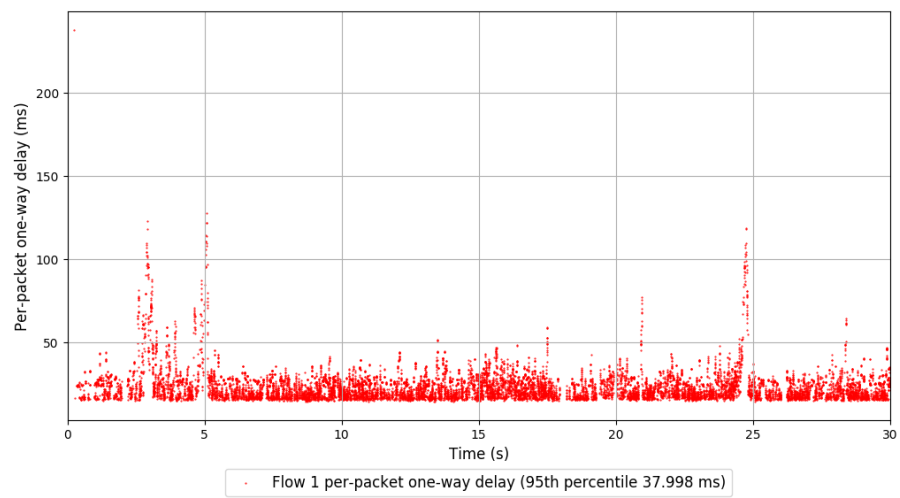
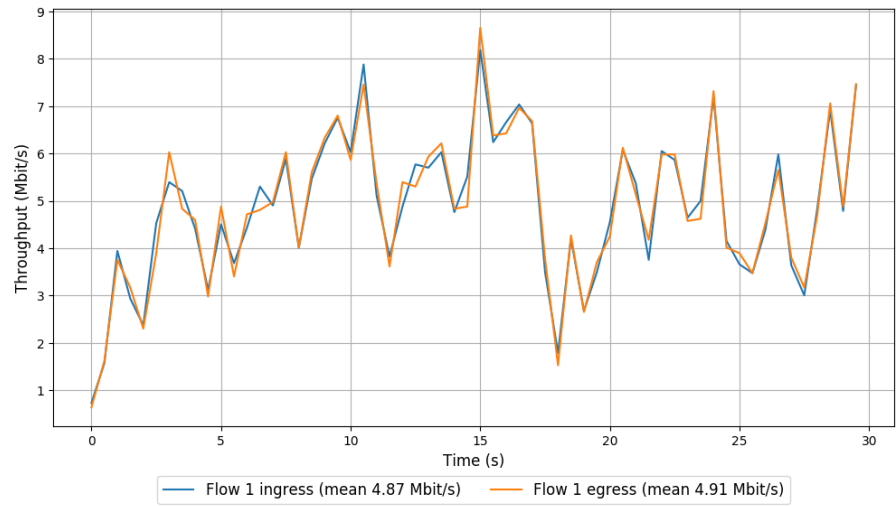
-- Flow 1:

Average throughput: 4.91 Mbit/s

95th percentile per-packet one-way delay: 37.998 ms

Loss rate: 0.01%

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



Run 1: Statistics of PCC

Start at: Wed, 05 Jul 2017 23:26:06 +0000

End at: Wed, 05 Jul 2017 23:26:36 +0000

Local clock offset: 0.569 ms

Remote clock offset: -2.947 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:05 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.37 Mbit/s

95th percentile per-packet one-way delay: 23.512 ms

Loss rate: 0.00%

-- Flow 1:

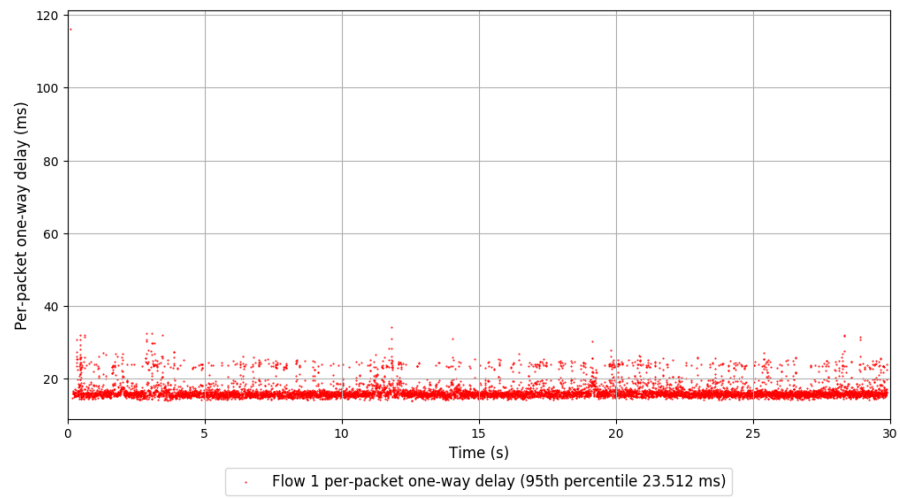
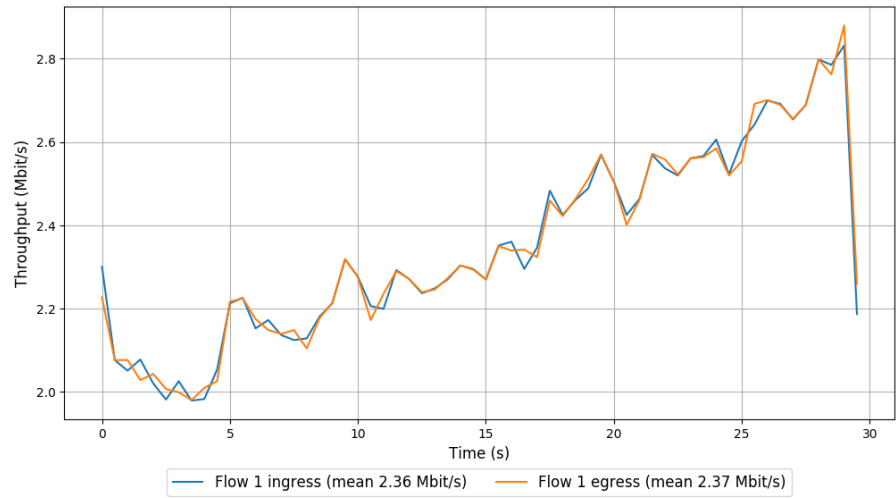
Average throughput: 2.37 Mbit/s

95th percentile per-packet one-way delay: 23.512 ms

Loss rate: 0.00%



## Run 1: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: Wed, 05 Jul 2017 23:33:08 +0000

End at: Wed, 05 Jul 2017 23:33:38 +0000

Local clock offset: 0.67 ms

Remote clock offset: -2.894 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:07 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 12.04 Mbit/s

95th percentile per-packet one-way delay: 291.696 ms

Loss rate: 0.47%

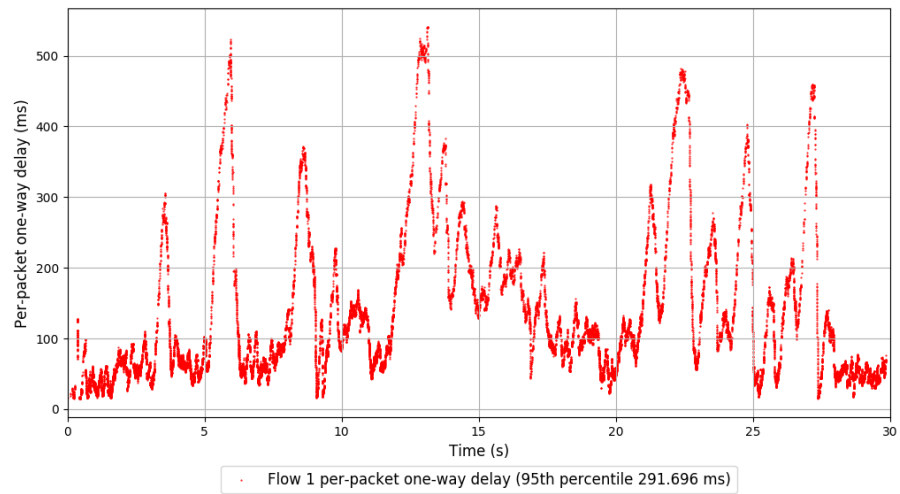
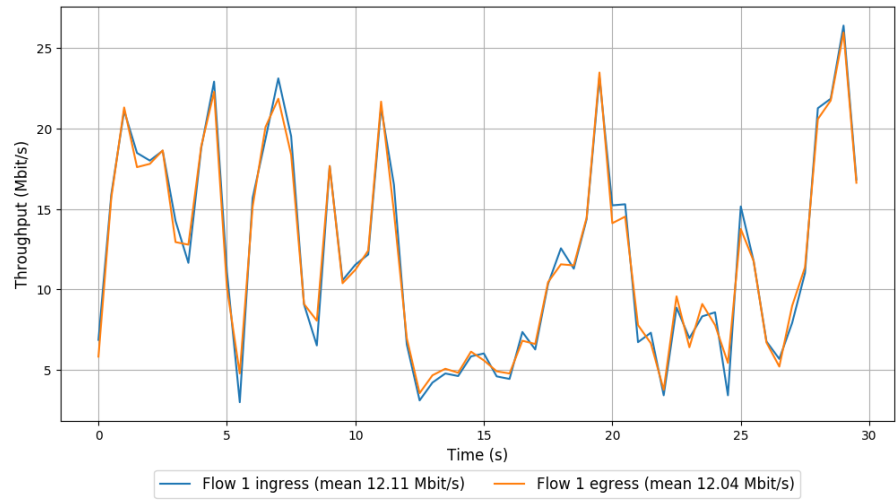
-- Flow 1:

Average throughput: 12.04 Mbit/s

95th percentile per-packet one-way delay: 291.696 ms

Loss rate: 0.47%

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



Run 1: Statistics of Saturator

Start at: Wed, 05 Jul 2017 23:27:17 +0000

End at: Wed, 05 Jul 2017 23:27:47 +0000

Local clock offset: 0.549 ms

Remote clock offset: -2.969 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:10 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 24.83 Mbit/s

95th percentile per-packet one-way delay: 134.949 ms

Loss rate: 0.38%

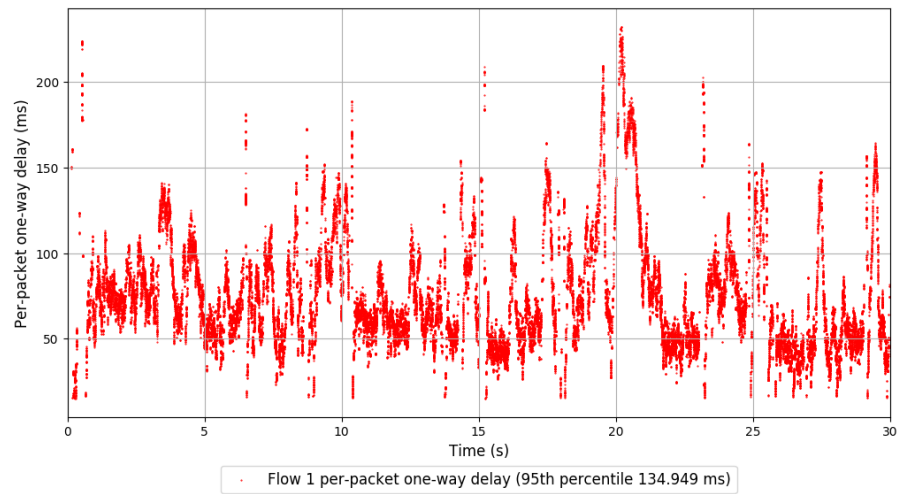
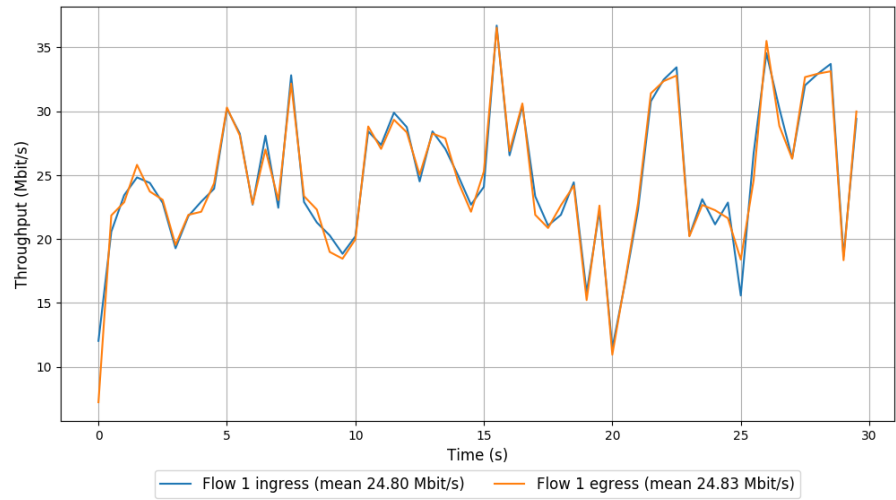
-- Flow 1:

Average throughput: 24.83 Mbit/s

95th percentile per-packet one-way delay: 134.949 ms

Loss rate: 0.38%

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



Run 1: Statistics of SCReAM

Start at: Wed, 05 Jul 2017 23:20:17 +0000

End at: Wed, 05 Jul 2017 23:20:47 +0000

Local clock offset: 0.604 ms

Remote clock offset: -2.908 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:10 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 24.023 ms

Loss rate: 0.00%

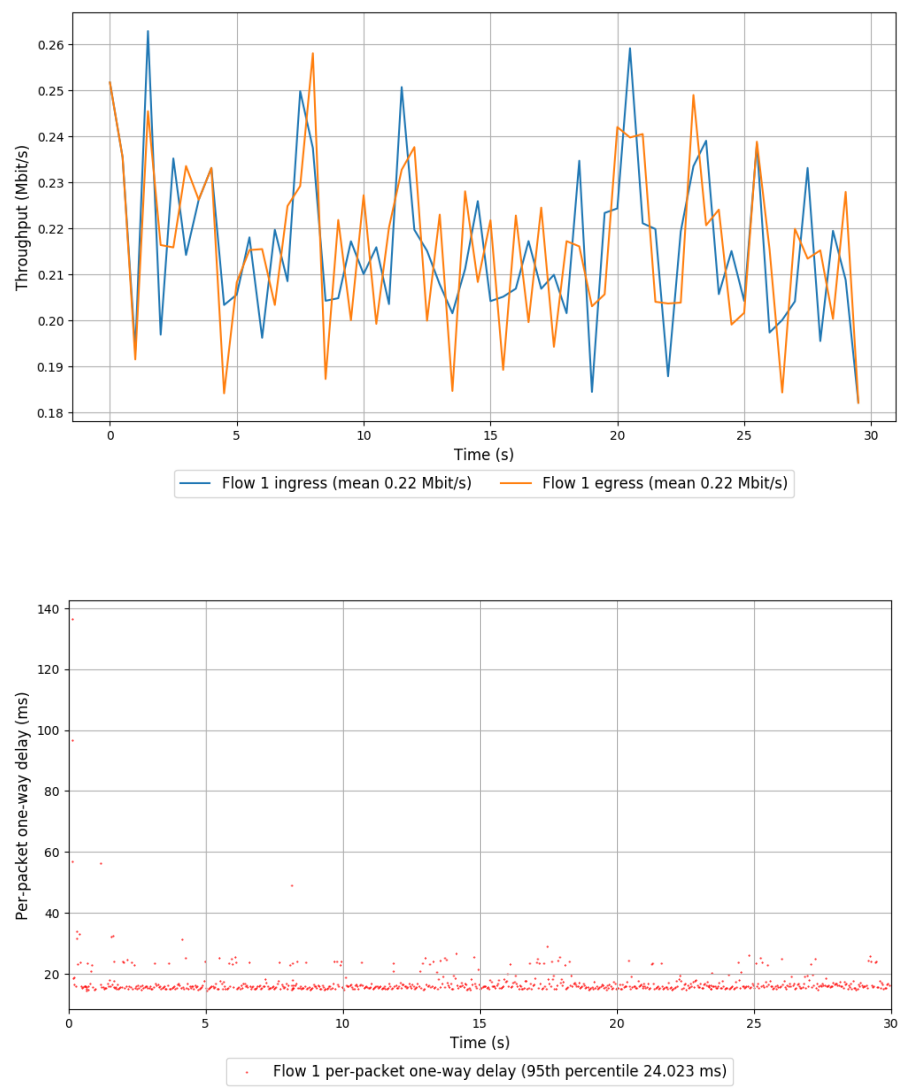
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 24.023 ms

Loss rate: 0.00%

Run 1: Report of SCRaM — Data Link



Run 1: Statistics of Sprout

Start at: Wed, 05 Jul 2017 23:31:58 +0000

End at: Wed, 05 Jul 2017 23:32:28 +0000

Local clock offset: 0.612 ms

Remote clock offset: -2.984 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:10 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 10.60 Mbit/s

95th percentile per-packet one-way delay: 68.497 ms

Loss rate: 0.02%

-- Flow 1:

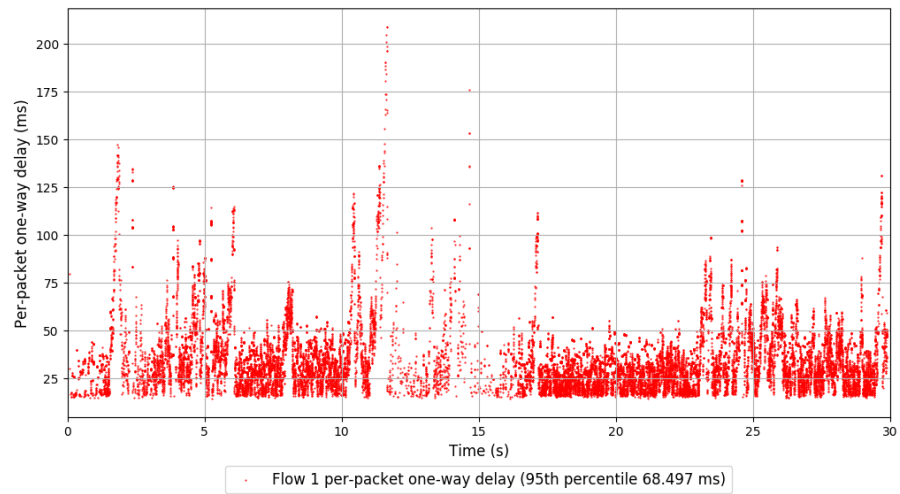
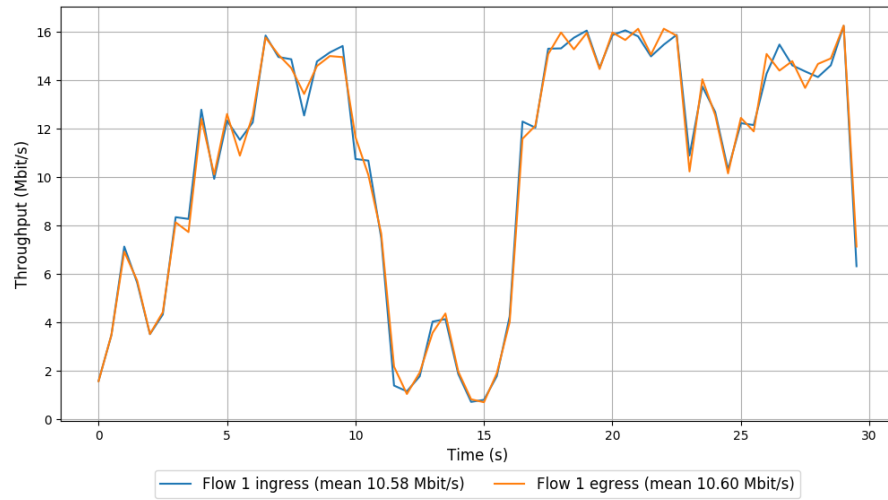
Average throughput: 10.60 Mbit/s

95th percentile per-packet one-way delay: 68.497 ms

Loss rate: 0.02%



## Run 1: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: Wed, 05 Jul 2017 23:21:27 +0000

End at: Wed, 05 Jul 2017 23:21:57 +0000

Local clock offset: 0.636 ms

Remote clock offset: -2.893 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:12 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 5.26 Mbit/s

95th percentile per-packet one-way delay: 29.677 ms

Loss rate: 0.00%

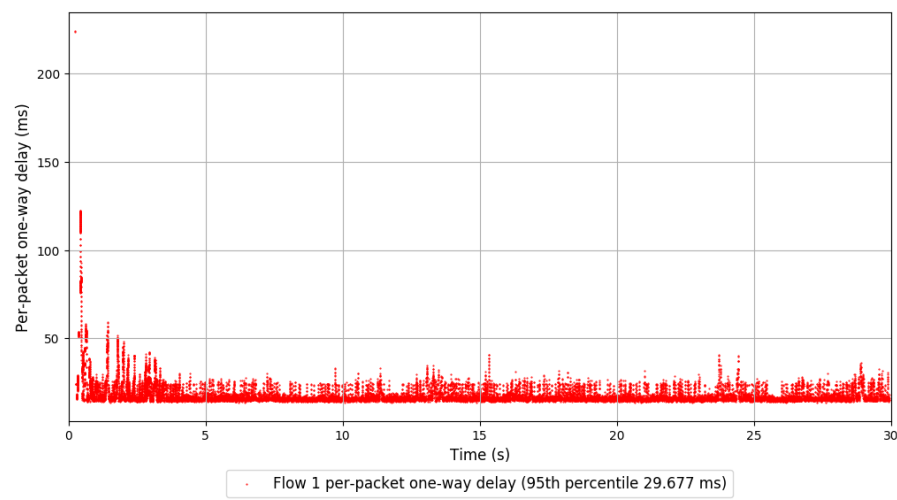
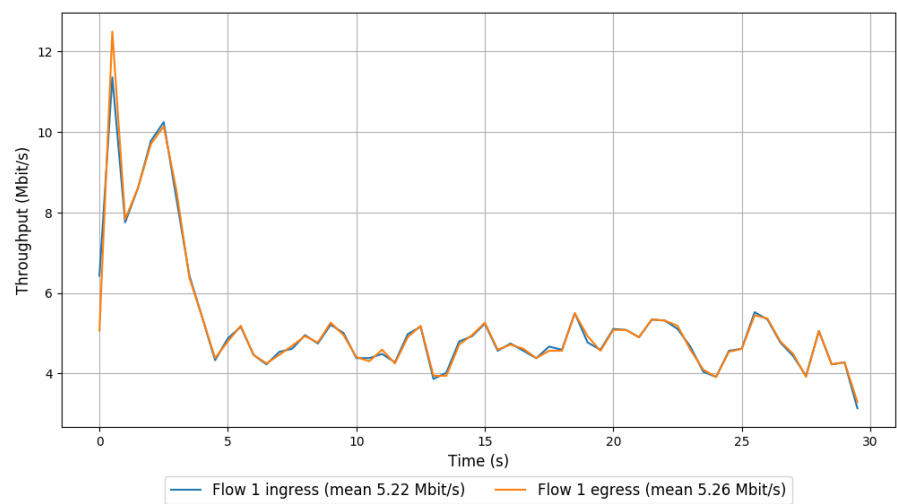
-- Flow 1:

Average throughput: 5.26 Mbit/s

95th percentile per-packet one-way delay: 29.677 ms

Loss rate: 0.00%

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



Run 1: Statistics of TCP Vegas

Start at: Wed, 05 Jul 2017 23:23:46 +0000

End at: Wed, 05 Jul 2017 23:24:16 +0000

Local clock offset: 0.628 ms

Remote clock offset: -2.837 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:12 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 3.42 Mbit/s

95th percentile per-packet one-way delay: 45.504 ms

Loss rate: 0.00%

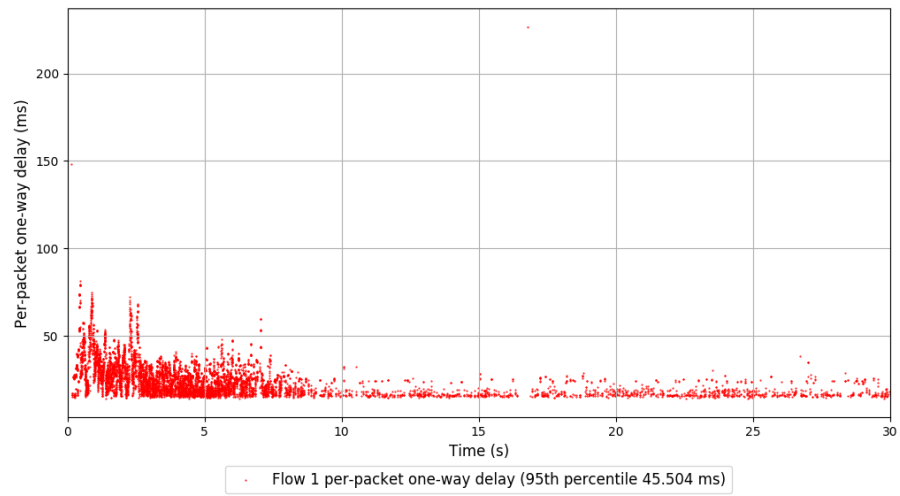
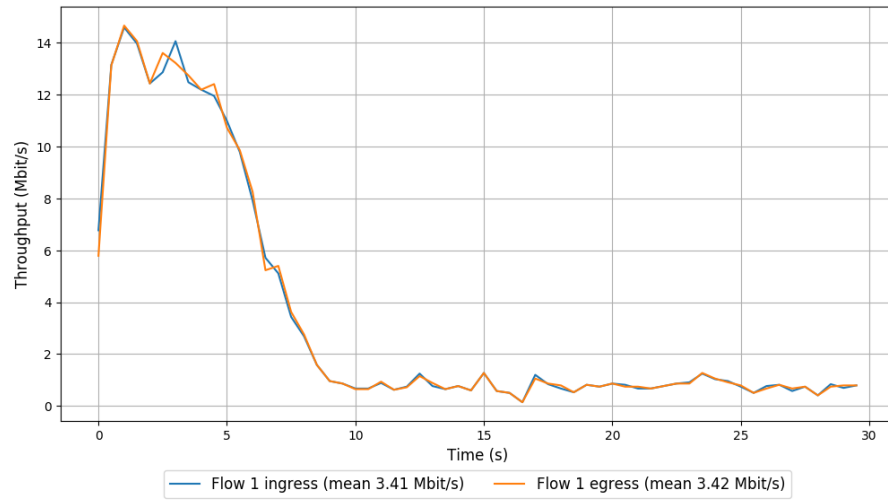
-- Flow 1:

Average throughput: 3.42 Mbit/s

95th percentile per-packet one-way delay: 45.504 ms

Loss rate: 0.00%

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



Run 1: Statistics of Verus

Start at: Wed, 05 Jul 2017 23:28:28 +0000

End at: Wed, 05 Jul 2017 23:28:58 +0000

Local clock offset: 0.555 ms

Remote clock offset: -2.961 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:14 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 11.43 Mbit/s

95th percentile per-packet one-way delay: 379.461 ms

Loss rate: 0.67%

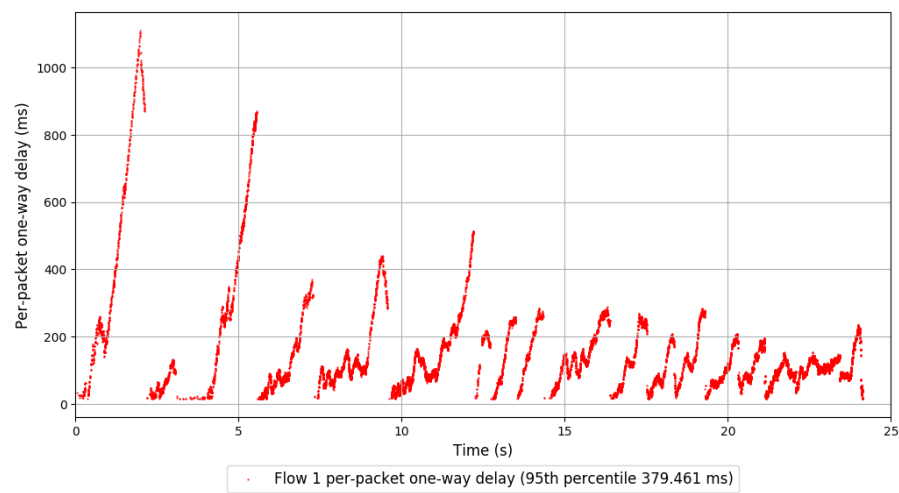
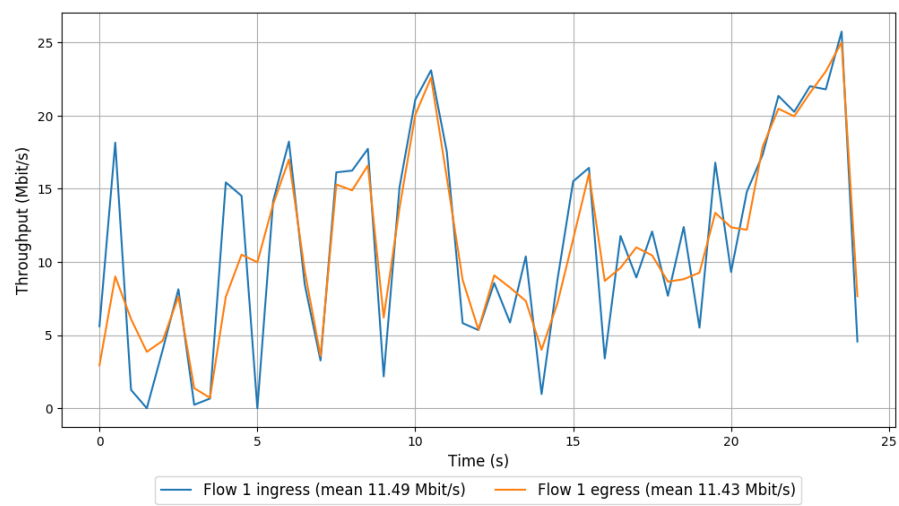
-- Flow 1:

Average throughput: 11.43 Mbit/s

95th percentile per-packet one-way delay: 379.461 ms

Loss rate: 0.67%

Run 1: Report of Verus — Data Link



Run 1: Statistics of WebRTC media

Start at: Wed, 05 Jul 2017 23:34:19 +0000

End at: Wed, 05 Jul 2017 23:34:49 +0000

Local clock offset: 0.68 ms

Remote clock offset: -2.978 ms

# Below is generated by plot.py at Wed, 05 Jul 2017 23:54:14 +0000

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.46 Mbit/s

95th percentile per-packet one-way delay: 32.154 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 2.46 Mbit/s

95th percentile per-packet one-way delay: 32.154 ms

Loss rate: 0.00%



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

