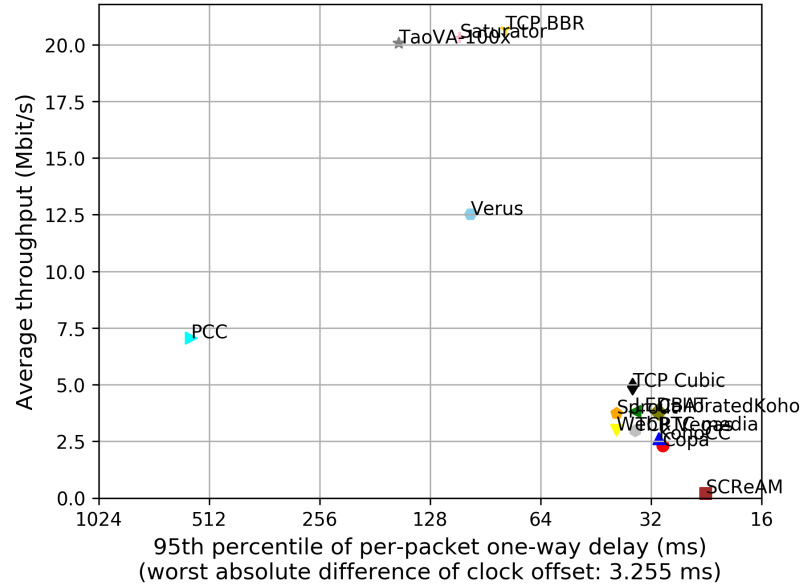


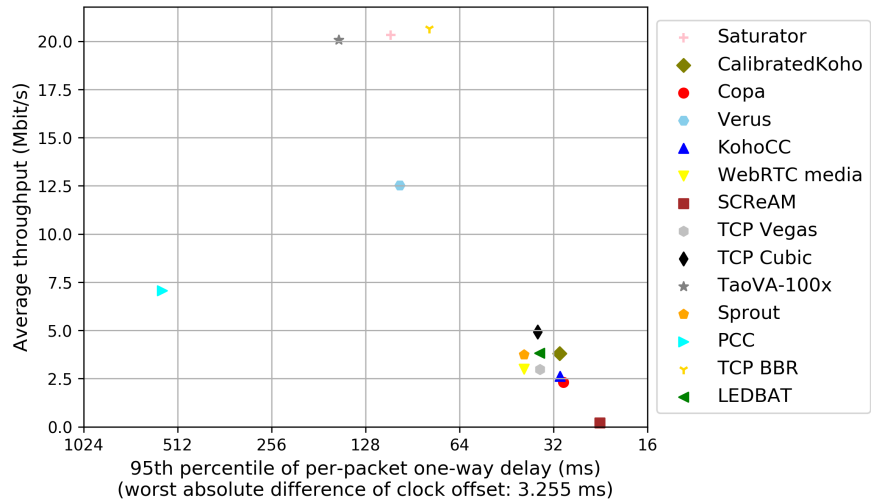
**Pantheon Summary** (Generated at Wed, 05 Jul 2017 06:38:03 +0000 with  
pantheon version 767a95bcc95d67bd77e69c0f8bc9320c1ad3146b)  
Repeated the test of 15 congestion control schemes once.  
Each test lasted for 30 seconds running 1 flow.  
Data path **from** Brazil ppp0 **to** AWS Brazil 1 Ethernet.  
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 @ 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 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



The figure is a log-log plot titled "mean power scores of all runs by scheme". The y-axis is labeled "Average throughput (Mbit/s)" and ranges from 0.0 to 20.0. The x-axis is labeled "95th percentile of per-packet one-way delay (ms) (worst absolute difference of clock offset: 3.255 ms)" and ranges from 1024 to 16. The plot shows several curves representing different congestion control schemes. Each curve has a label indicating its mean power score and standard deviation.

Scheme	Mean Power Score	Standard Deviation
TaoVA-100x	0.08	0.01
Verus	0.11	0.01
PCC	0.01	0.01
SCReAM	0.01	0.01
TCP Cubic	0.13	0.04
SCUBA	0.14	0.04
BWrateKoho	0.14	0.04
WebPAC media	0.19	0.04
Copa	0.26	0.04
TCP BBR	0.26	0.04

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%

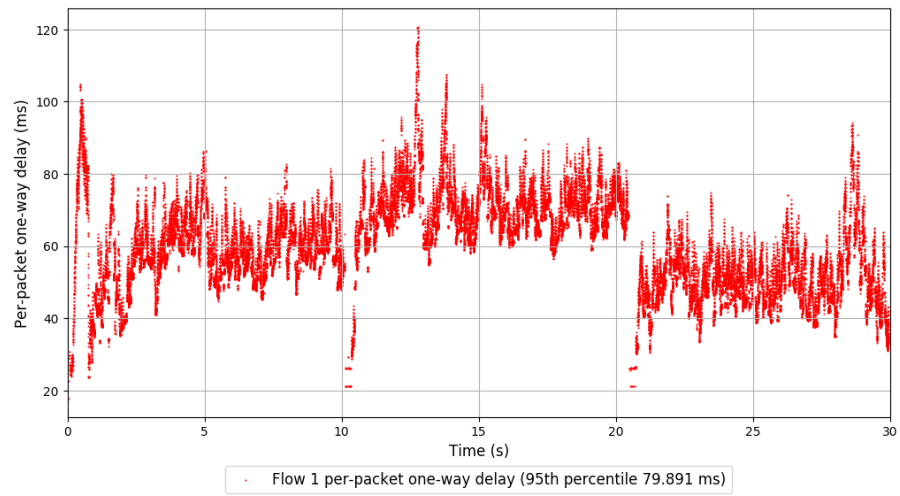
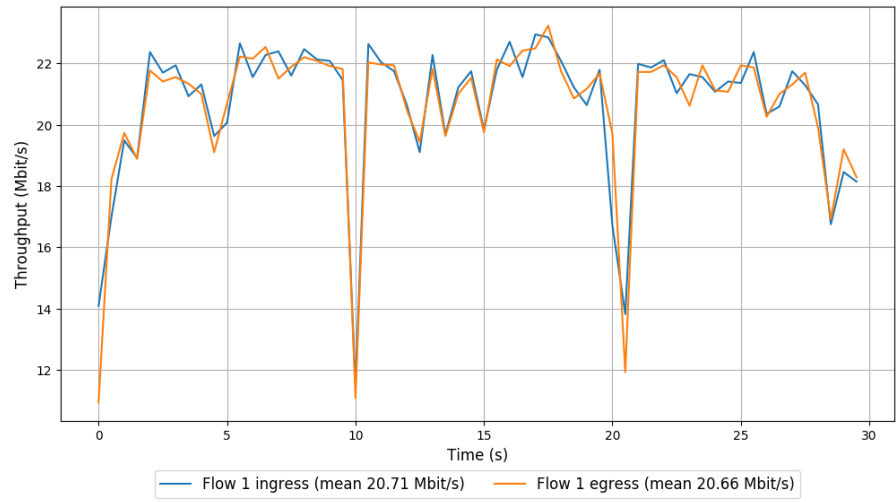
-- Flow 1:

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%

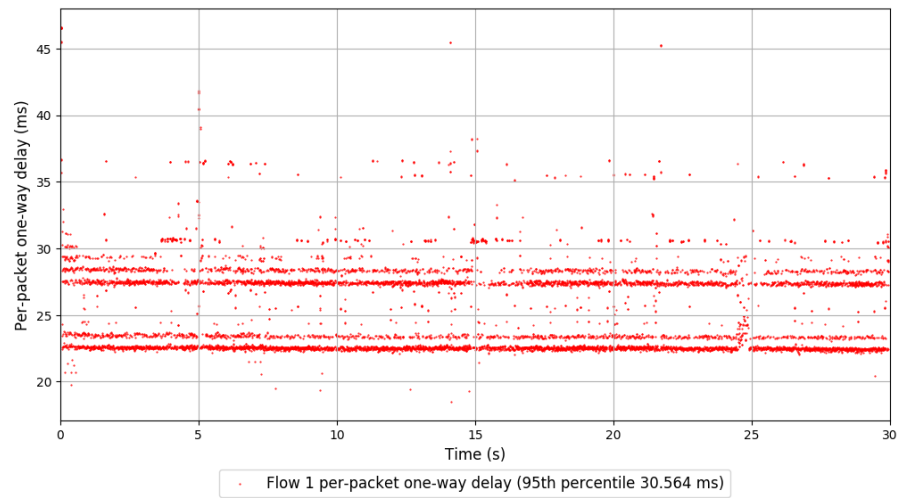
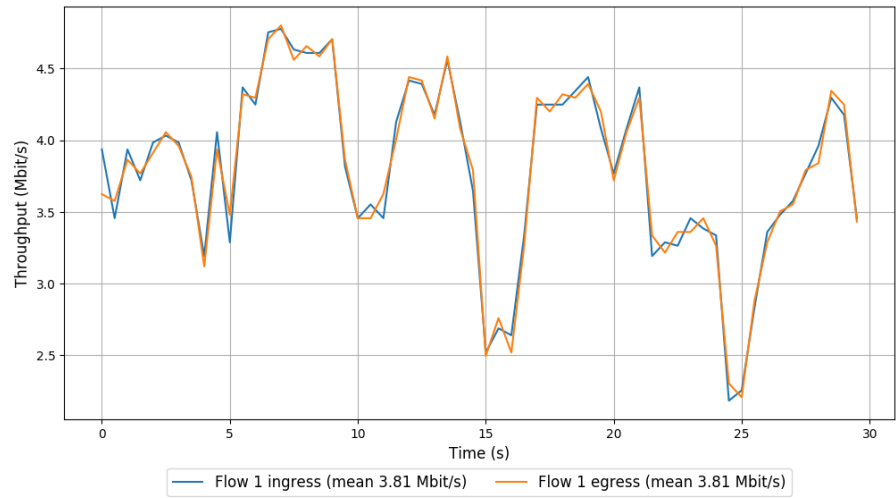
-- Flow 1:

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:

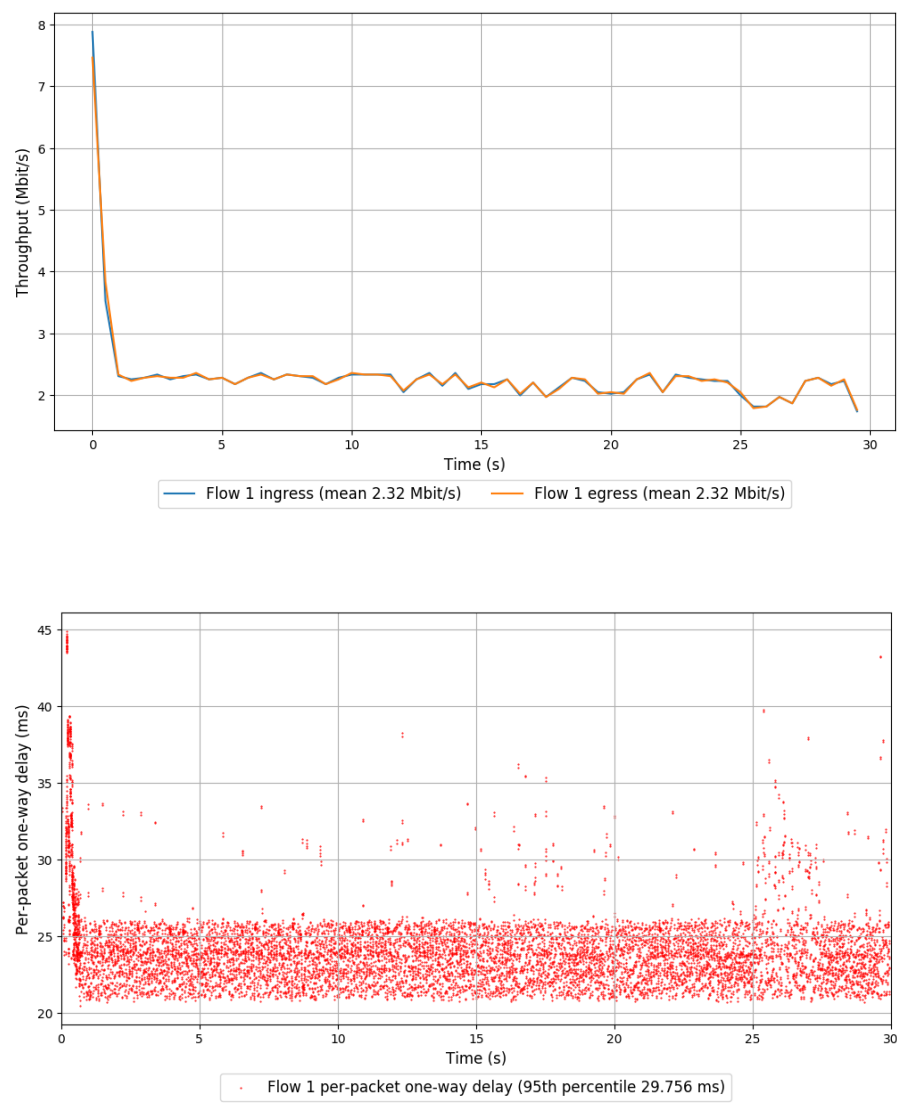
Average throughput: 2.32 Mbit/s

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%

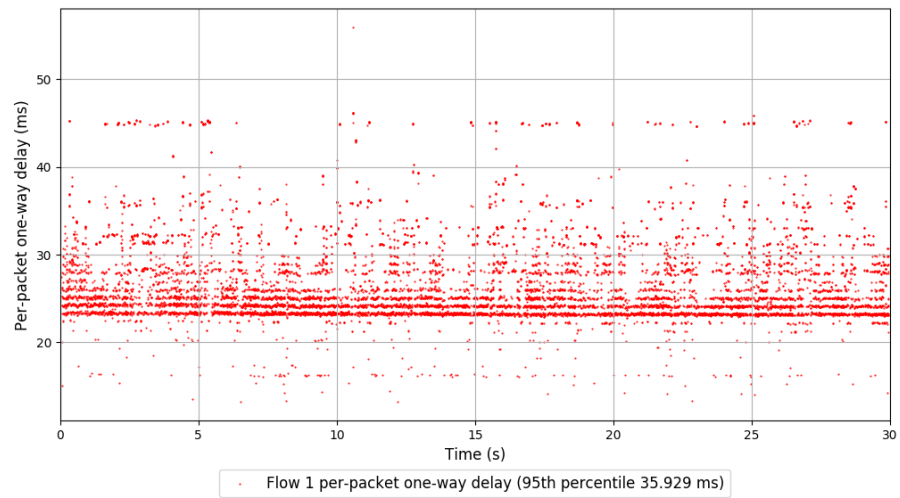
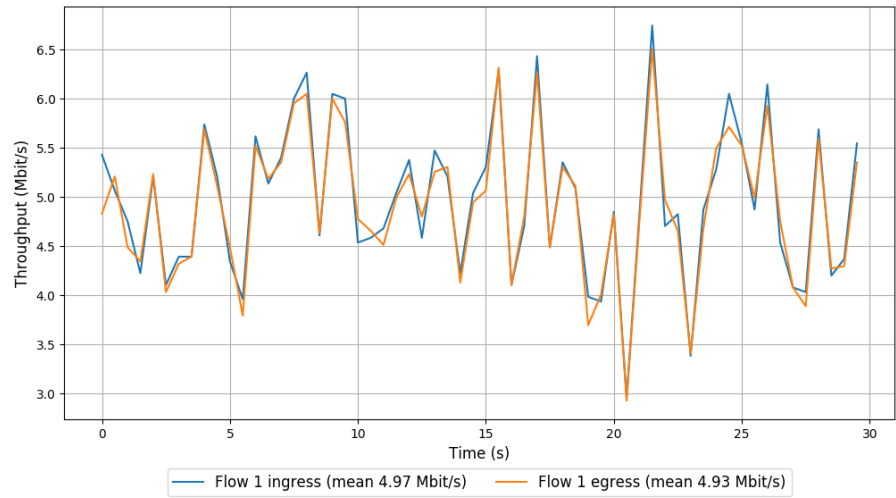
-- Flow 1:

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%

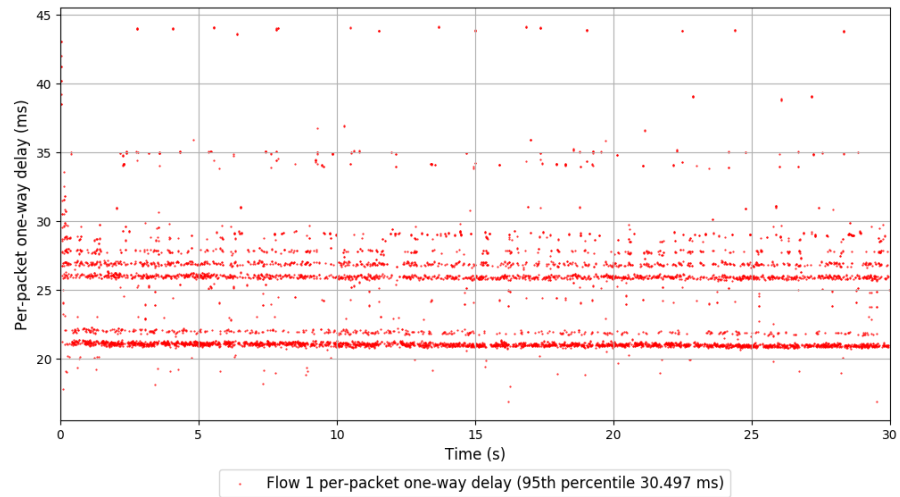
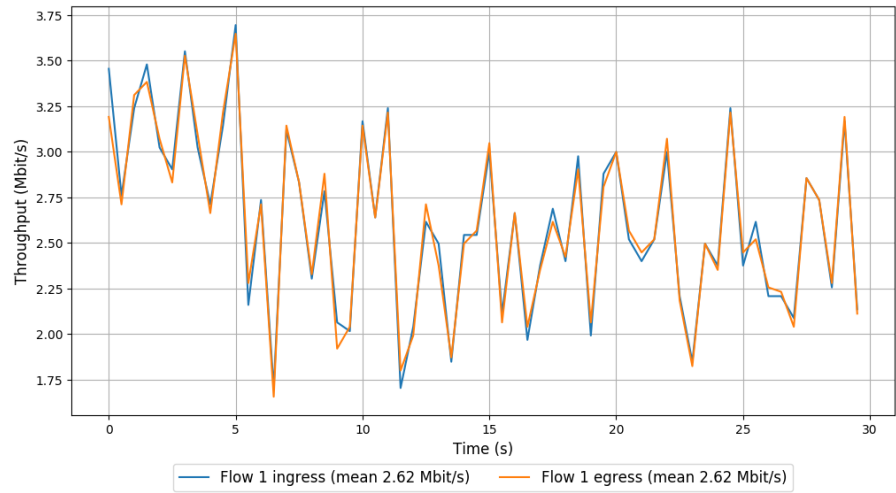
-- Flow 1:

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%

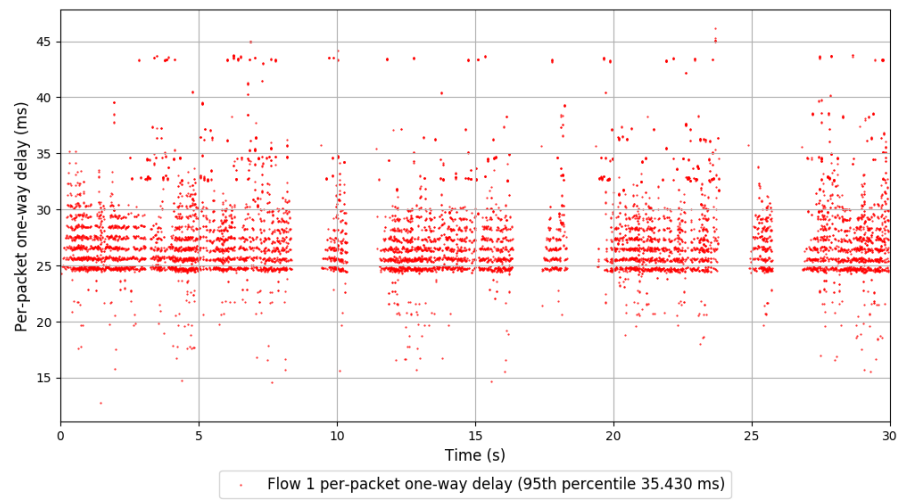
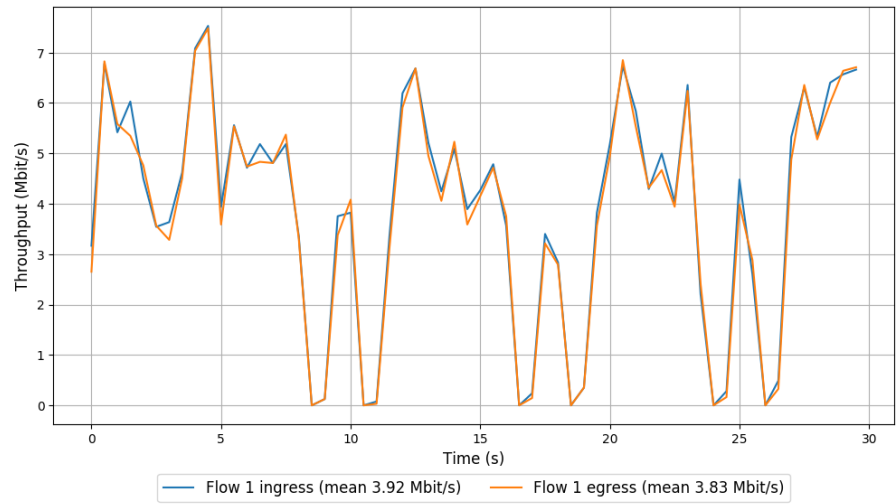
-- Flow 1:

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:

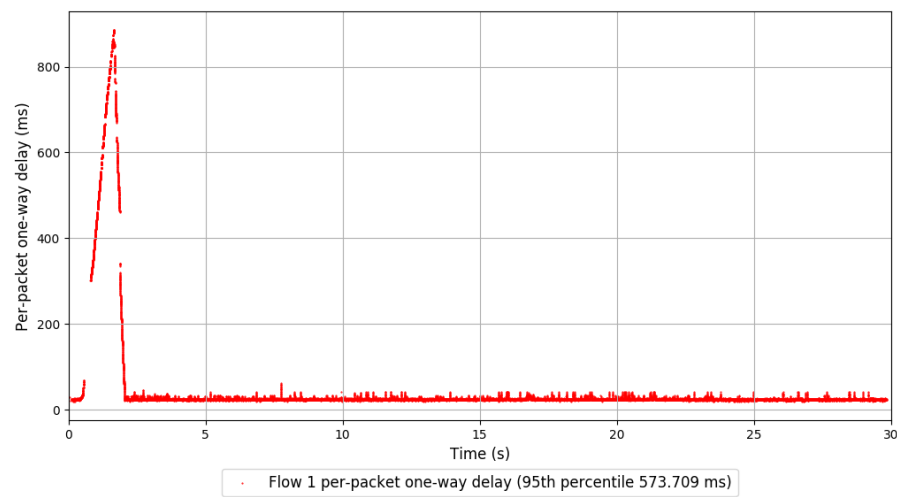
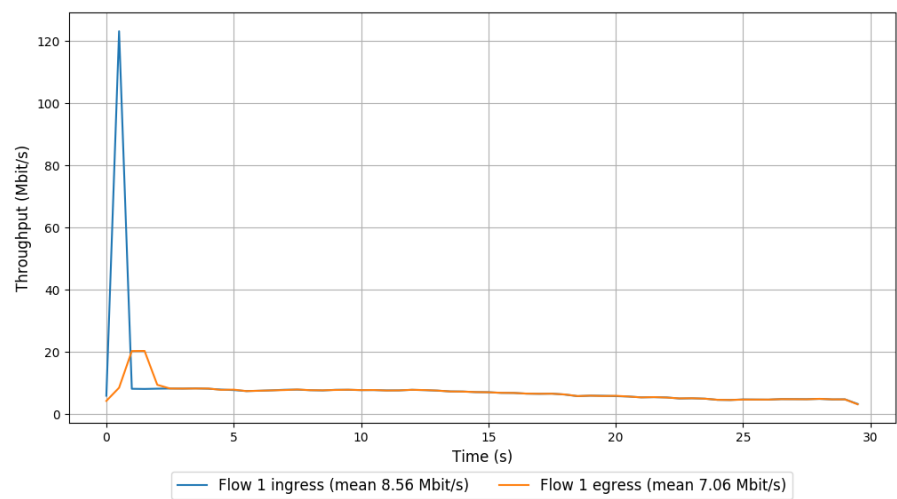
Average throughput: 7.06 Mbit/s

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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Figure is missing

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%

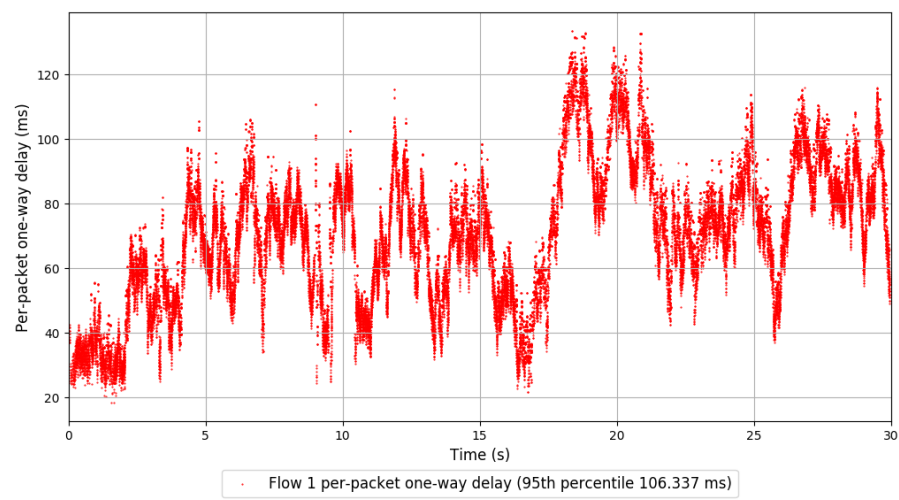
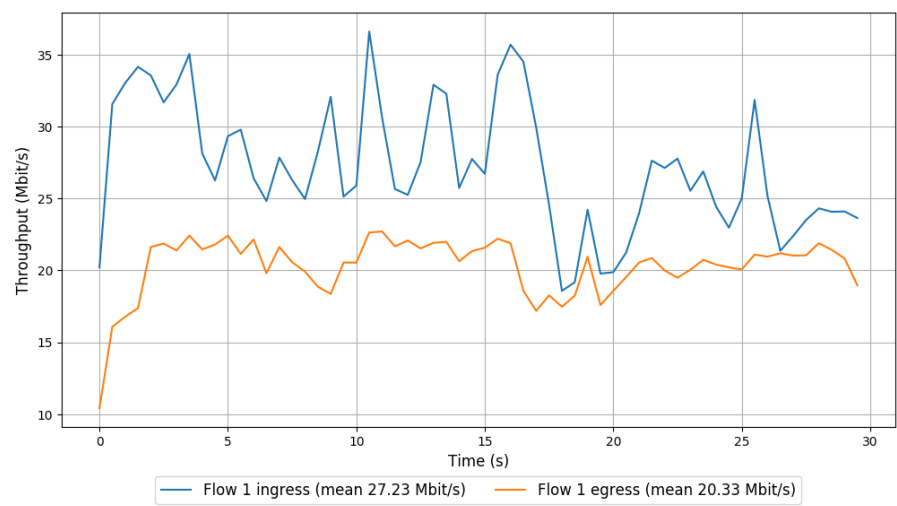
-- Flow 1:

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%

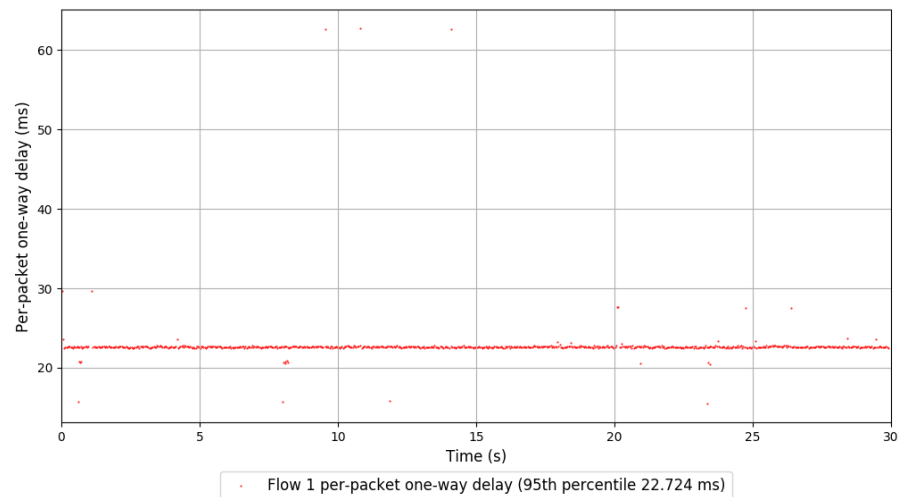
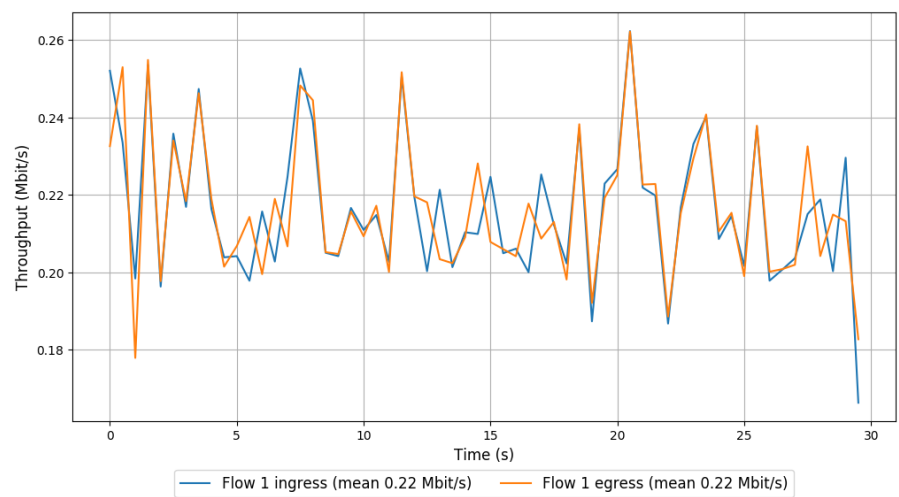
-- Flow 1:

Average throughput: 0.22 Mbit/s

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

Loss rate: 0.00%

Run 1: Report of SReAM — 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:

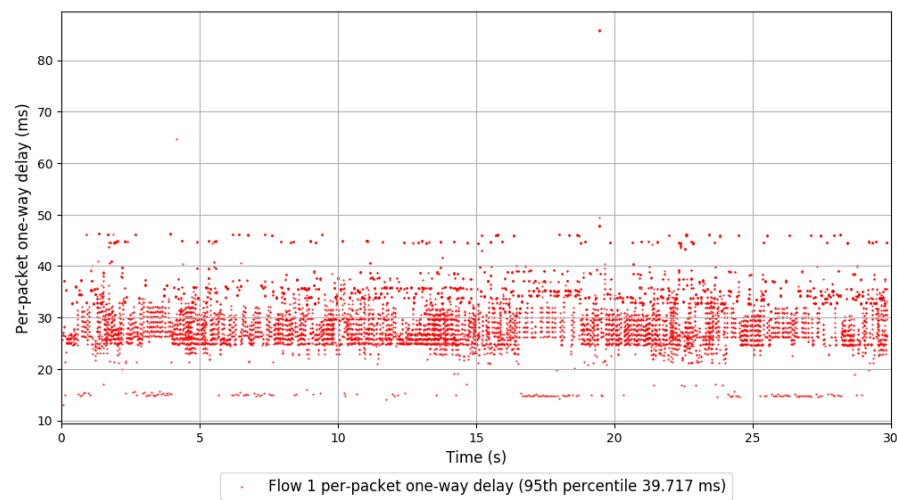
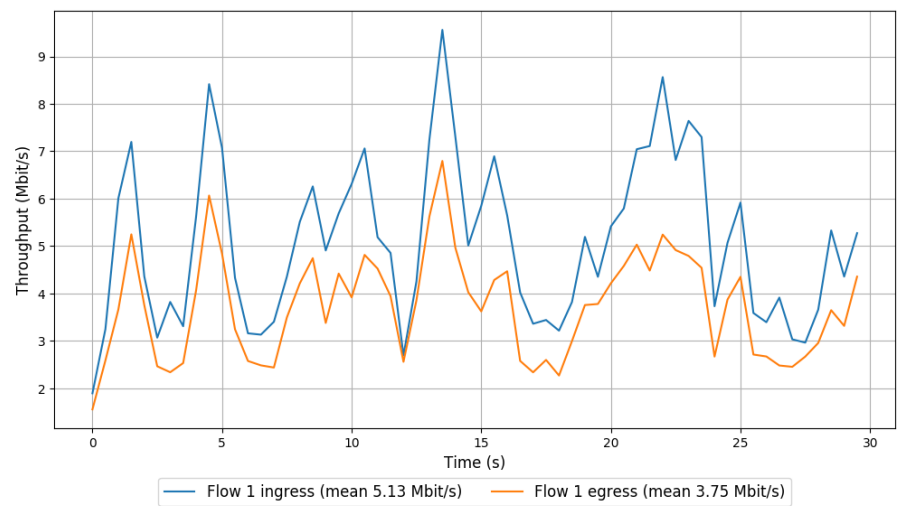
Average throughput: 3.75 Mbit/s

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%

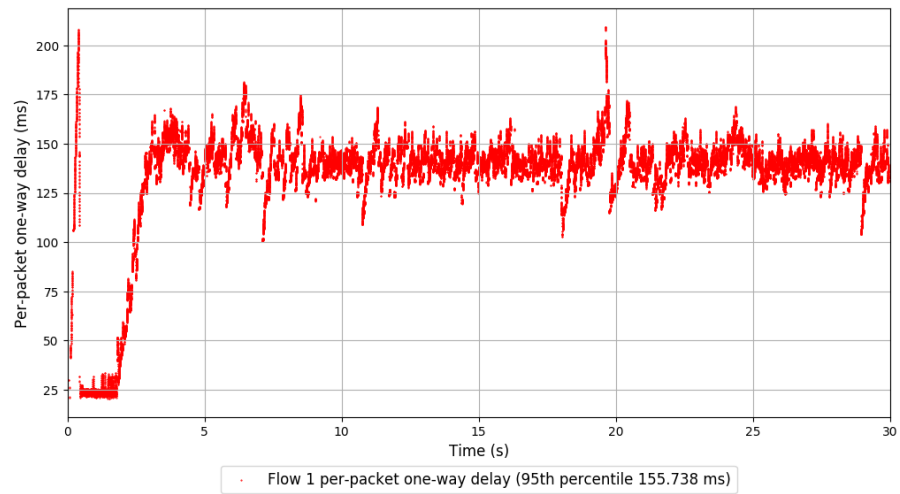
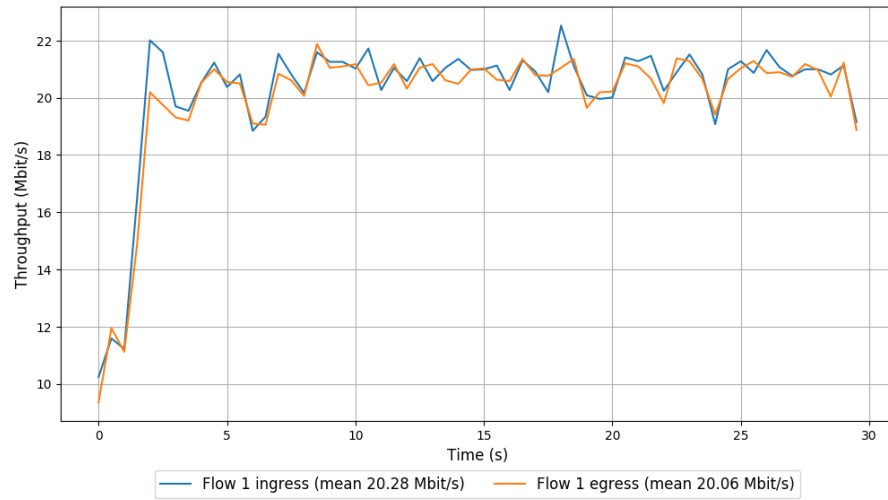
-- Flow 1:

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%

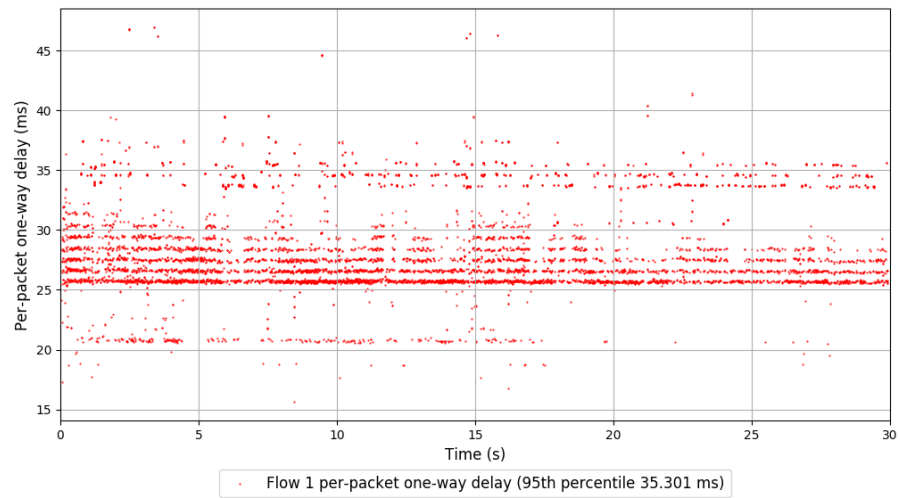
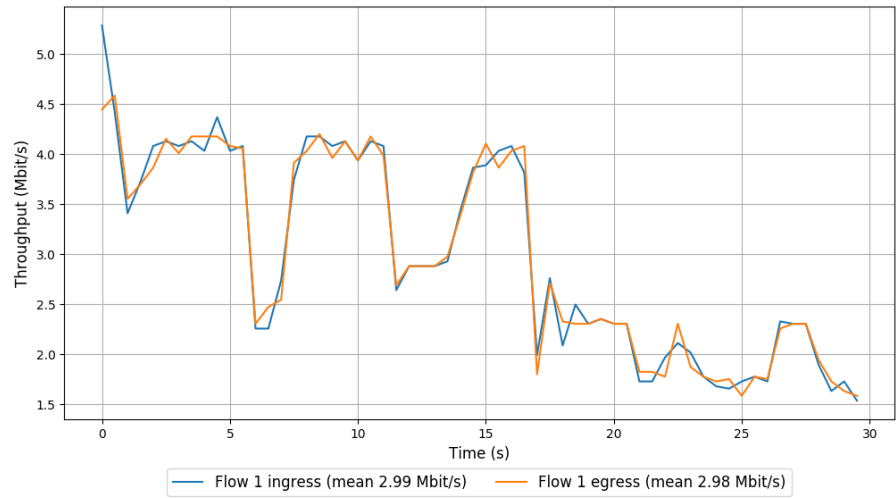
-- Flow 1:

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%

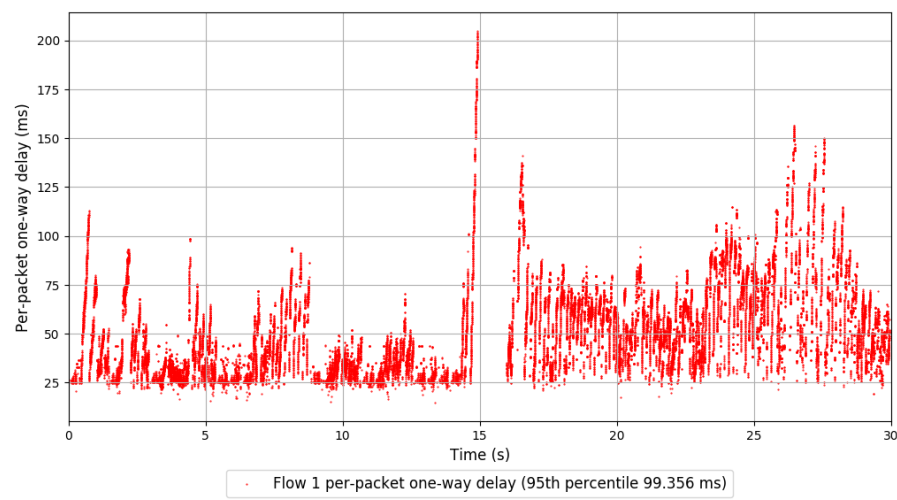
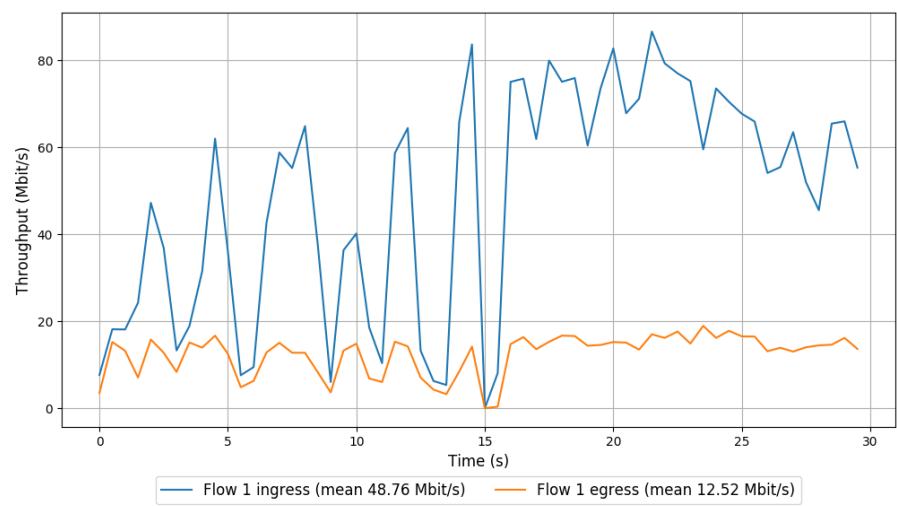
-- Flow 1:

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

