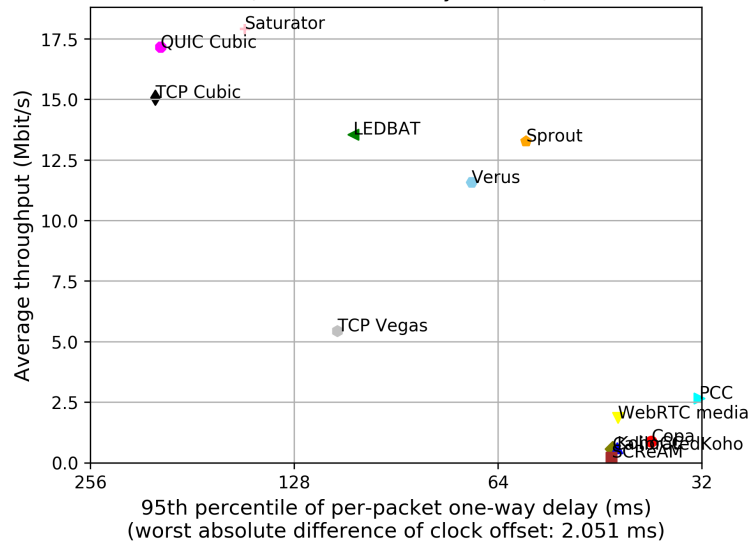


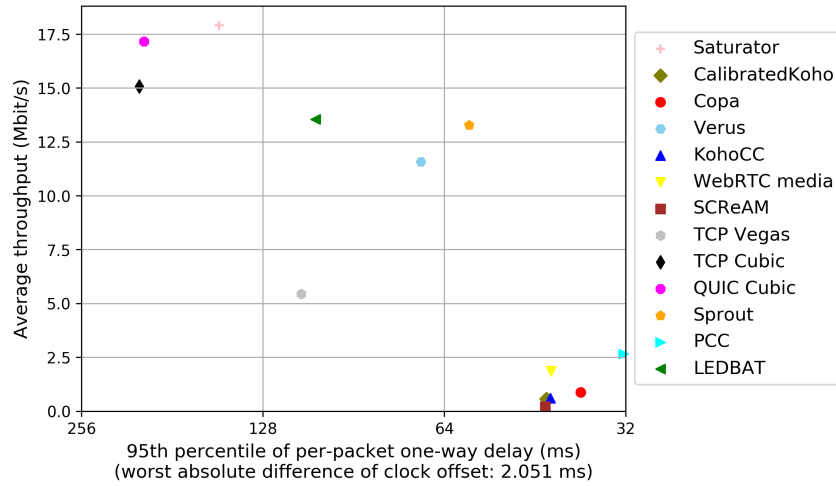
Pantheon Summary (Generated at Mon, 10 Jul 2017 22:23:04 +0000 with
pantheon version c3610718e2bbac84102e8ac47b889a75d4392d79)
Repeated the test of 15 congestion control schemes once.
Each test lasted for 30 seconds running 1 flow.
Data path **from** Stanford ppp0 **to** AWS California 1 Ethernet.
NTP offset measured against time.stanford.edu.

git branch: master @ c3610718e2bbac84102e8ac47b889a75d4392d79
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-quick @ 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 Stanford ppp0 to AWS California 1 Ethernet, 1 run of 30s each per scheme
(mean of all runs by scheme)



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



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	nan	nan	nan
CalibratedKoho	1	0.57	43.38	0.56
Copa	1	0.87	38.00	0.25
TCP Cubic	1	15.08	205.20	0.53
KohoCC	1	0.60	42.71	0.40
LEDBAT	1	13.55	104.75	0.55
PCC	1	2.65	32.30	0.23
QUIC Cubic	1	17.16	201.72	0.40
Saturator	1	17.91	151.49	0.51
SCReAM	1	0.22	43.53	0.26
Sprout	1	13.27	58.22	1.57
TaoVA-100x	1	nan	nan	nan
TCP Vegas	1	5.44	110.58	0.23
Verus	1	11.57	70.04	15.93
WebRTC media	1	1.85	42.55	0.21

Run 1: Statistics of TCP BBR

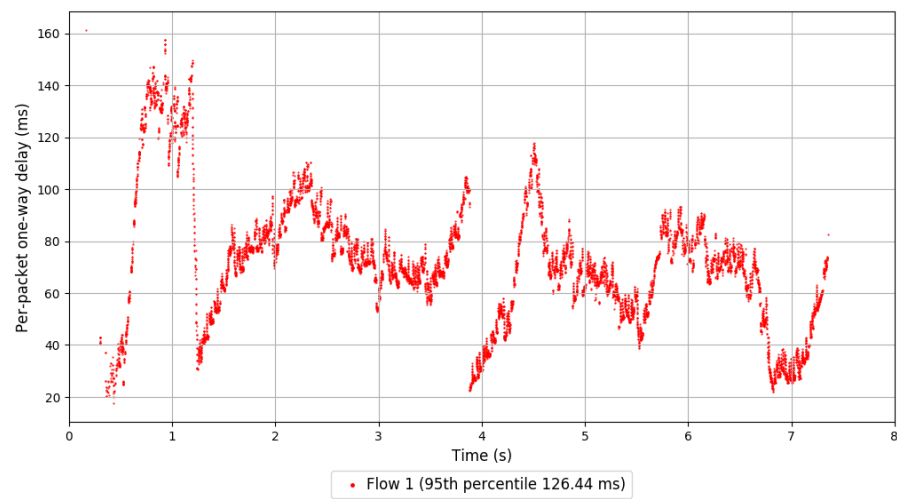
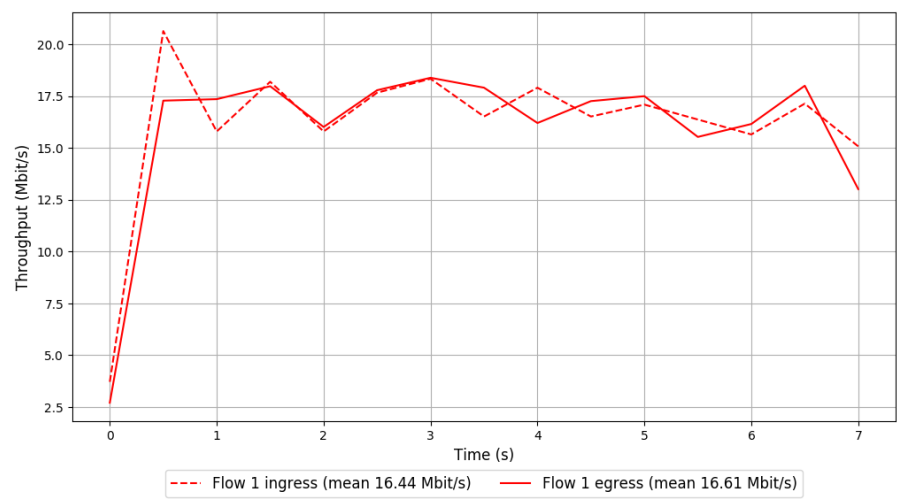
Start at: Mon, 10 Jul 2017 22:18:55 +0000

End at: Mon, 10 Jul 2017 22:19:25 +0000

Local clock offset: -0.373 ms

Remote clock offset: -2.474 ms

Run 1: Report of TCP BBR — Data Link



Run 1: Statistics of CalibratedKoho

Start at: Mon, 10 Jul 2017 22:08:25 +0000

End at: Mon, 10 Jul 2017 22:08:55 +0000

Local clock offset: -0.457 ms

Remote clock offset: -1.776 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:48 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 43.376 ms

Loss rate: 0.56%

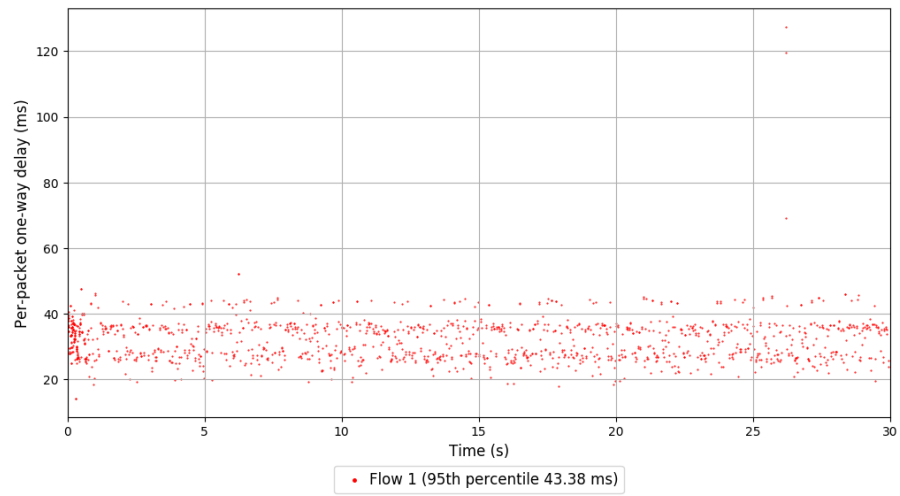
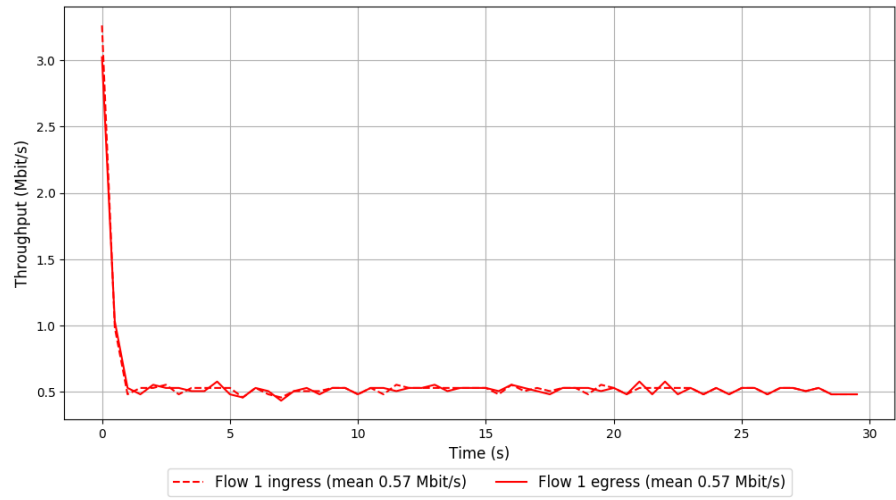
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 43.376 ms

Loss rate: 0.56%

Run 1: Report of CalibratedKoho — Data Link



Run 1: Statistics of Copa

Start at: Mon, 10 Jul 2017 22:14:14 +0000

End at: Mon, 10 Jul 2017 22:14:44 +0000

Local clock offset: -0.483 ms

Remote clock offset: -2.168 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:49 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.87 Mbit/s

95th percentile per-packet one-way delay: 38.002 ms

Loss rate: 0.25%

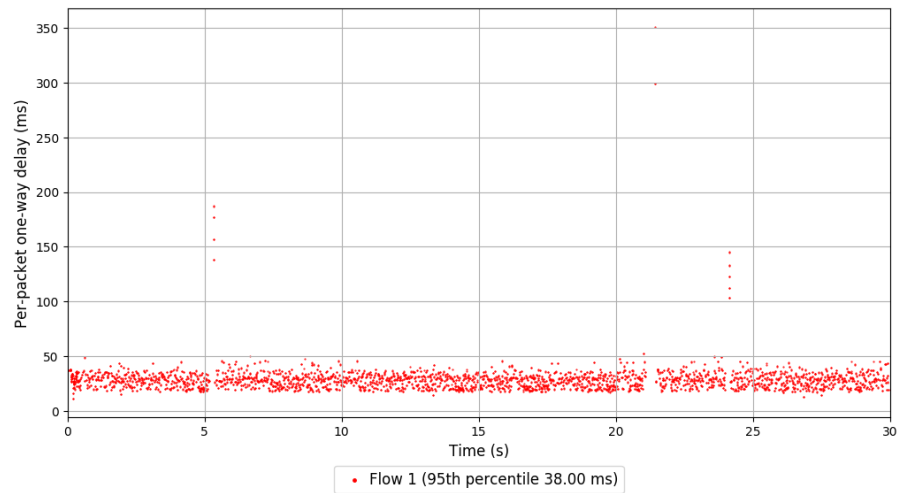
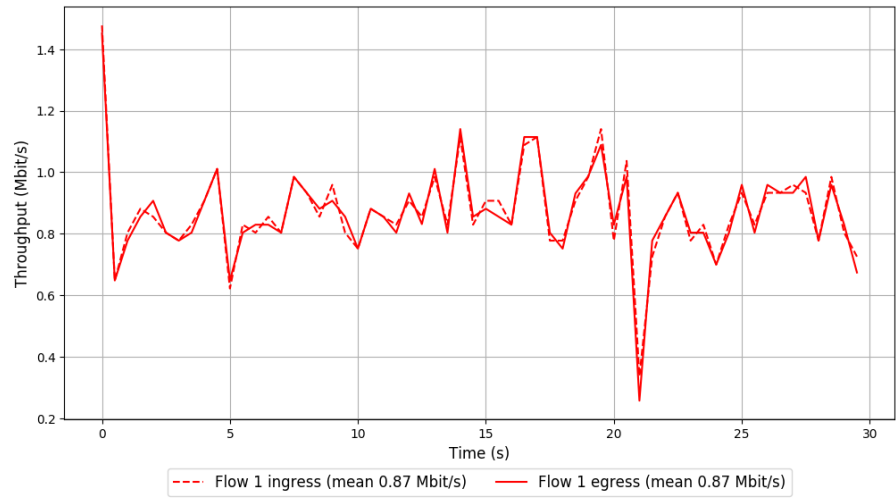
-- Flow 1:

Average throughput: 0.87 Mbit/s

95th percentile per-packet one-way delay: 38.002 ms

Loss rate: 0.25%

Run 1: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: Mon, 10 Jul 2017 22:15:24 +0000

End at: Mon, 10 Jul 2017 22:15:54 +0000

Local clock offset: -0.449 ms

Remote clock offset: -2.246 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:51 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 15.08 Mbit/s

95th percentile per-packet one-way delay: 205.203 ms

Loss rate: 0.53%

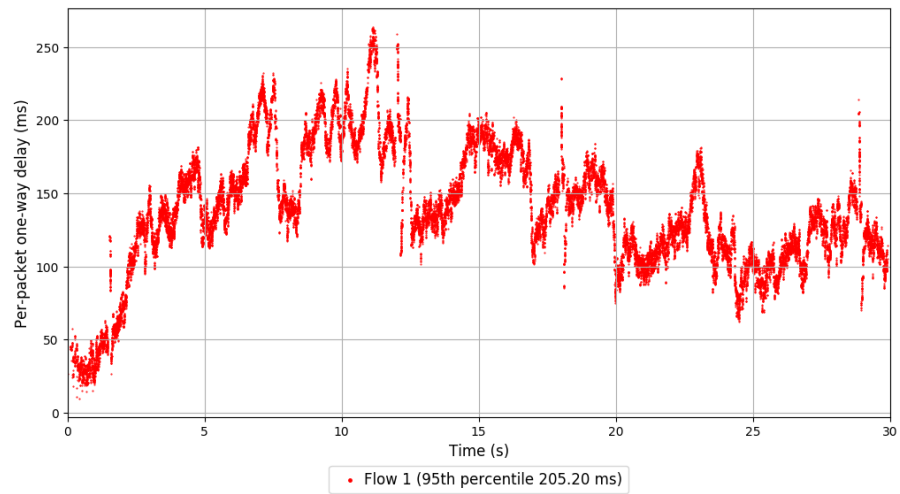
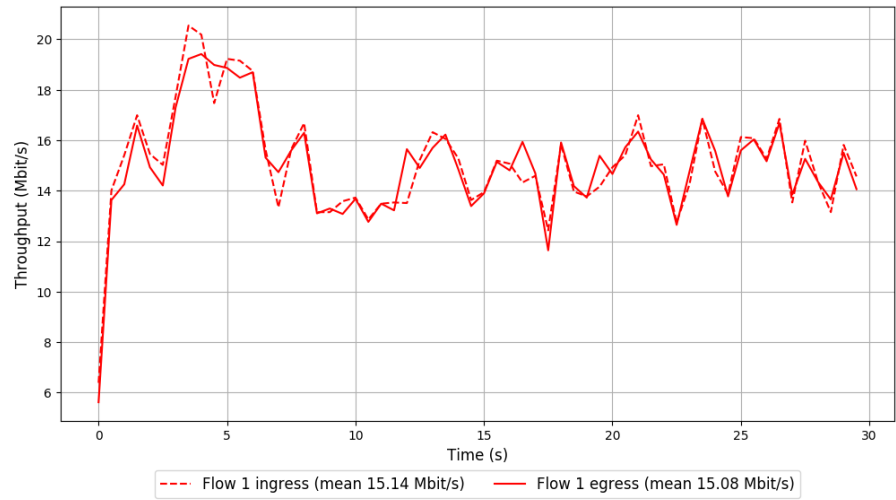
-- Flow 1:

Average throughput: 15.08 Mbit/s

95th percentile per-packet one-way delay: 205.203 ms

Loss rate: 0.53%

Run 1: Report of TCP Cubic — Data Link



Run 1: Statistics of KohoCC

Start at: Mon, 10 Jul 2017 22:09:35 +0000

End at: Mon, 10 Jul 2017 22:10:05 +0000

Local clock offset: -0.356 ms

Remote clock offset: -1.769 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:51 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 42.711 ms

Loss rate: 0.40%

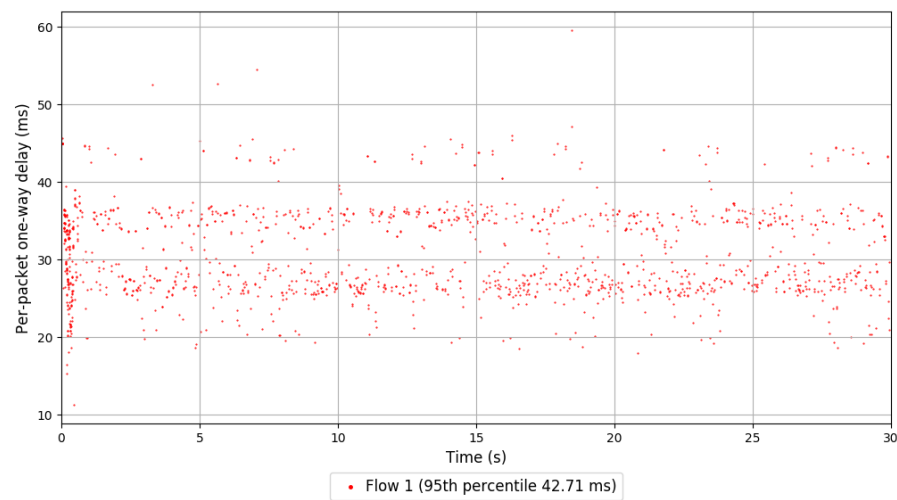
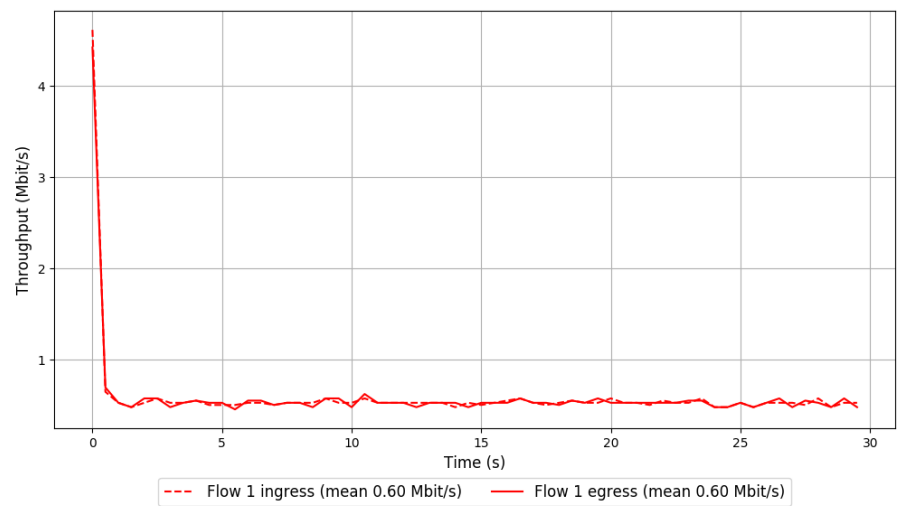
-- Flow 1:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 42.711 ms

Loss rate: 0.40%

Run 1: Report of KohoCC — Data Link



Run 1: Statistics of LEDBAT

Start at: Mon, 10 Jul 2017 22:04:54 +0000

End at: Mon, 10 Jul 2017 22:05:24 +0000

Local clock offset: -0.414 ms

Remote clock offset: -1.966 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:52 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.55 Mbit/s

95th percentile per-packet one-way delay: 104.750 ms

Loss rate: 0.55%

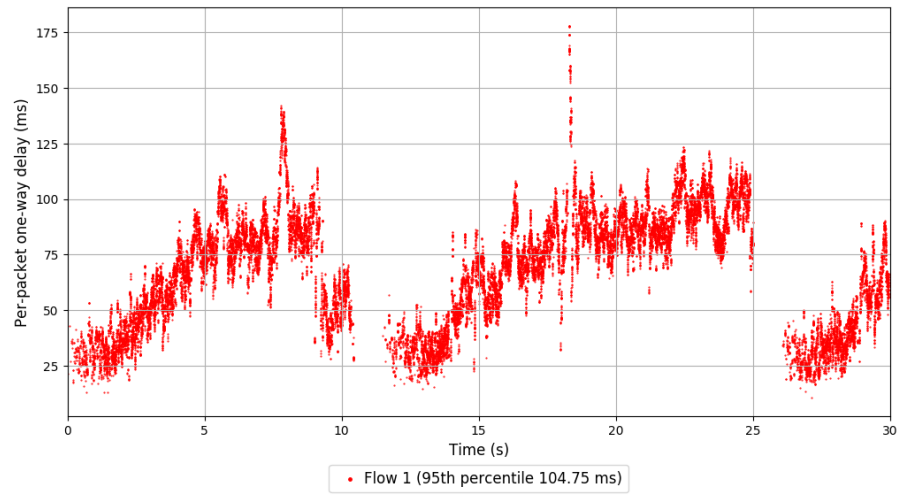
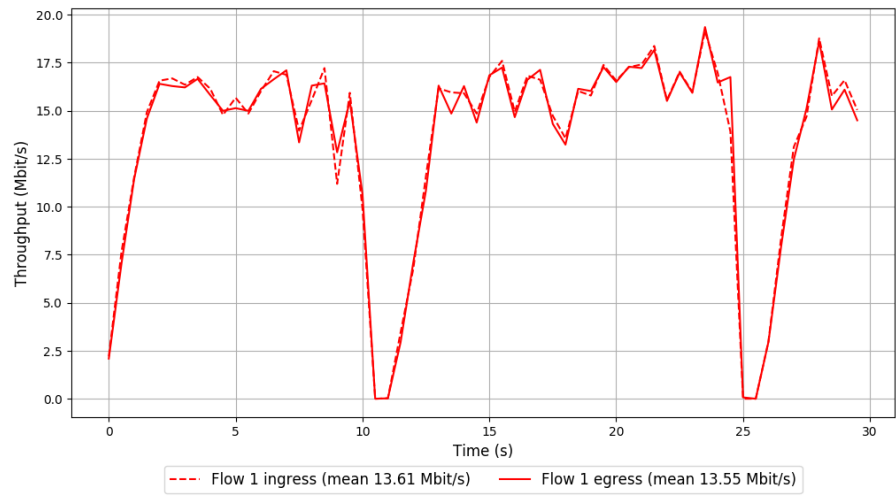
-- Flow 1:

Average throughput: 13.55 Mbit/s

95th percentile per-packet one-way delay: 104.750 ms

Loss rate: 0.55%

Run 1: Report of LEDBAT — Data Link



Run 1: Statistics of PCC

Start at: Mon, 10 Jul 2017 22:21:17 +0000

End at: Mon, 10 Jul 2017 22:21:47 +0000

Local clock offset: -0.408 ms

Remote clock offset: -2.459 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:53 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.65 Mbit/s

95th percentile per-packet one-way delay: 32.297 ms

Loss rate: 0.23%

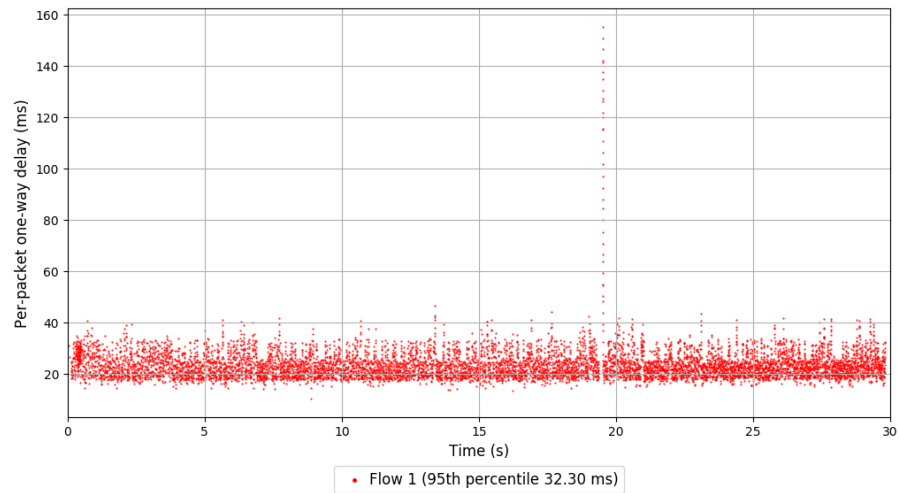
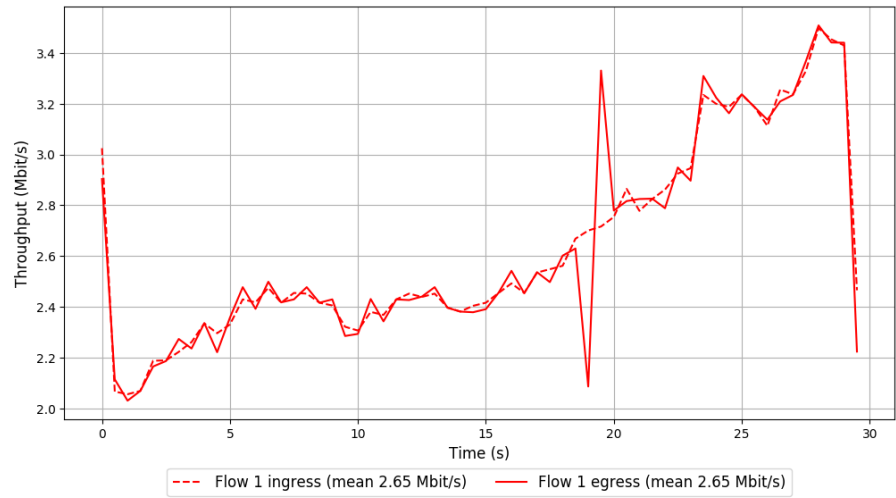
-- Flow 1:

Average throughput: 2.65 Mbit/s

95th percentile per-packet one-way delay: 32.297 ms

Loss rate: 0.23%

Run 1: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: Mon, 10 Jul 2017 22:16:35 +0000

End at: Mon, 10 Jul 2017 22:17:05 +0000

Local clock offset: -0.47 ms

Remote clock offset: -2.495 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:55 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 17.16 Mbit/s

95th percentile per-packet one-way delay: 201.724 ms

Loss rate: 0.40%

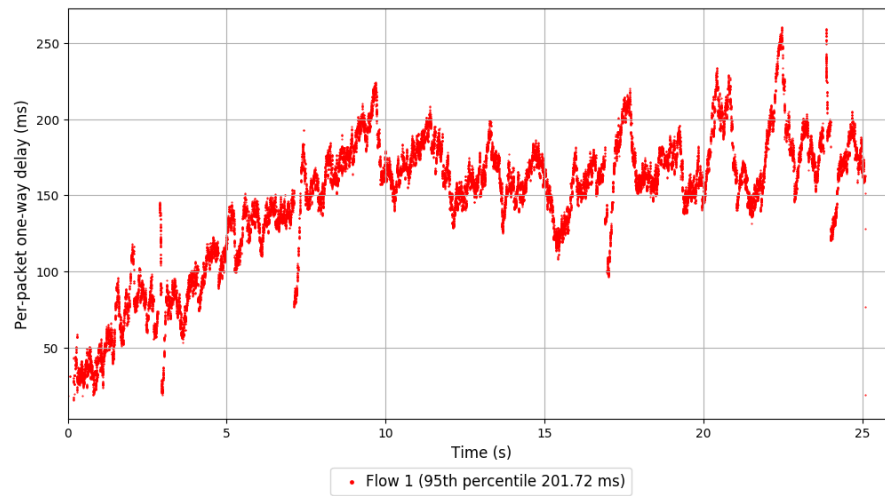
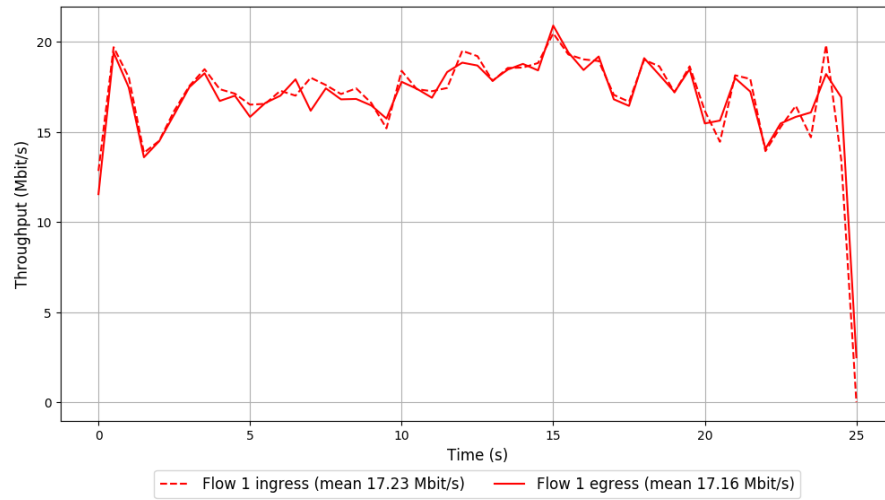
-- Flow 1:

Average throughput: 17.16 Mbit/s

95th percentile per-packet one-way delay: 201.724 ms

Loss rate: 0.40%

Run 1: Report of QUIC Cubic — Data Link



Run 1: Statistics of Saturator

Start at: Mon, 10 Jul 2017 22:20:06 +0000

End at: Mon, 10 Jul 2017 22:20:36 +0000

Local clock offset: -0.429 ms

Remote clock offset: -2.462 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:57 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 17.91 Mbit/s

95th percentile per-packet one-way delay: 151.493 ms

Loss rate: 0.51%

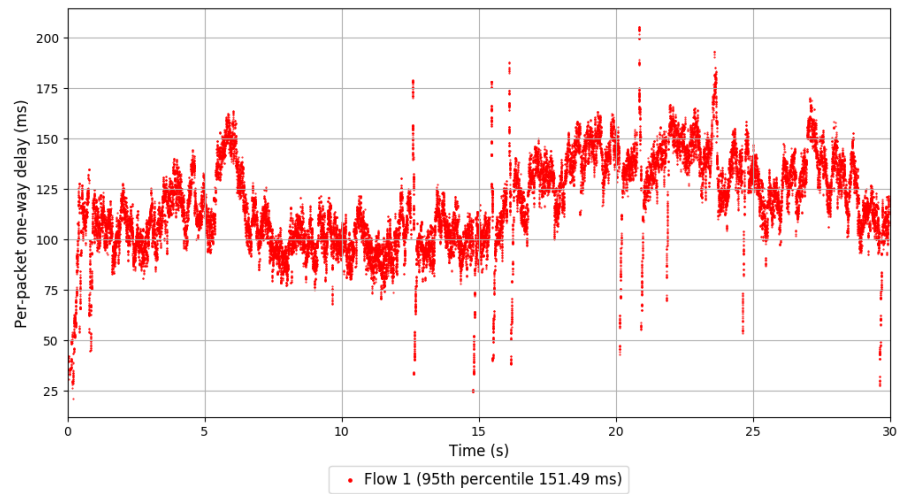
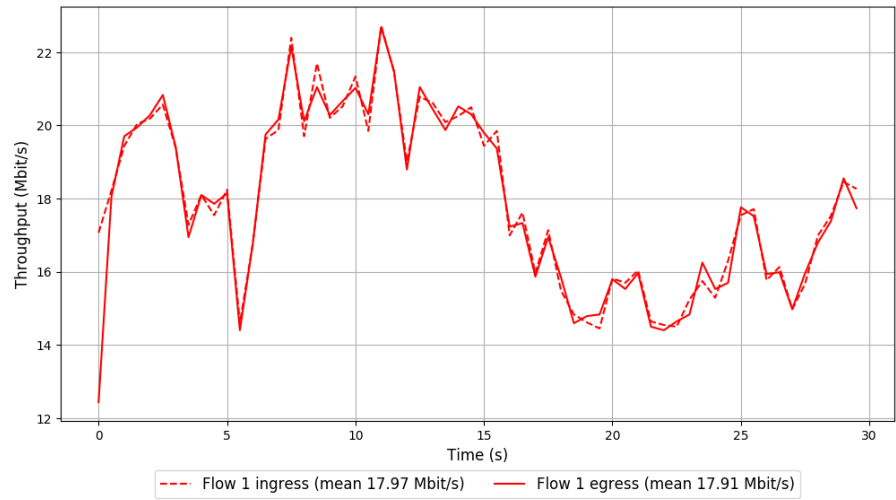
-- Flow 1:

Average throughput: 17.91 Mbit/s

95th percentile per-packet one-way delay: 151.493 ms

Loss rate: 0.51%

Run 1: Report of Saturator — Data Link



Run 1: Statistics of SCReAM

Start at: Mon, 10 Jul 2017 22:17:45 +0000

End at: Mon, 10 Jul 2017 22:18:15 +0000

Local clock offset: -0.479 ms

Remote clock offset: -2.51 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:57 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 43.534 ms

Loss rate: 0.26%

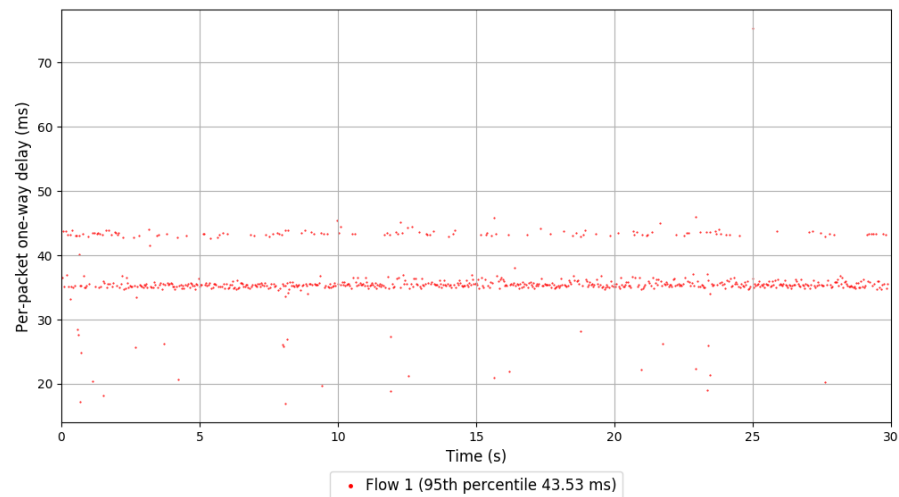
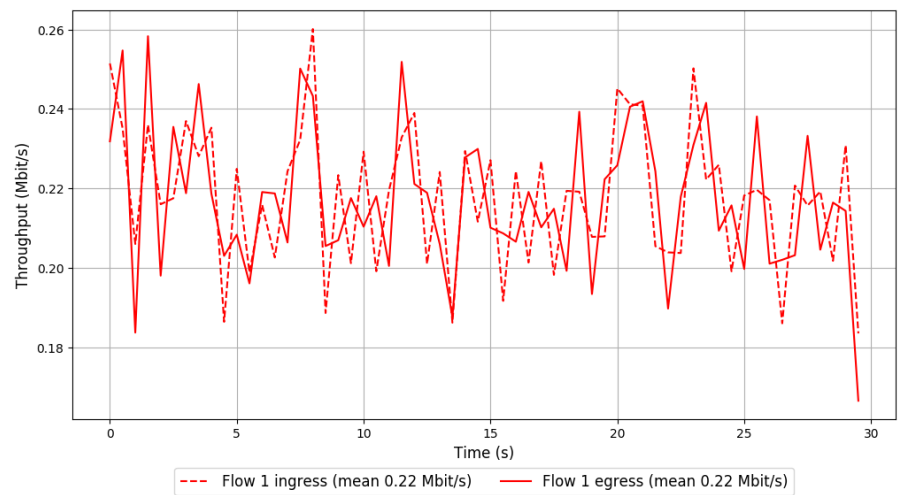
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 43.534 ms

Loss rate: 0.26%

Run 1: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: Mon, 10 Jul 2017 22:07:15 +0000

End at: Mon, 10 Jul 2017 22:07:45 +0000

Local clock offset: -0.431 ms

Remote clock offset: -1.785 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:22:59 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.27 Mbit/s

95th percentile per-packet one-way delay: 58.224 ms

Loss rate: 1.57%

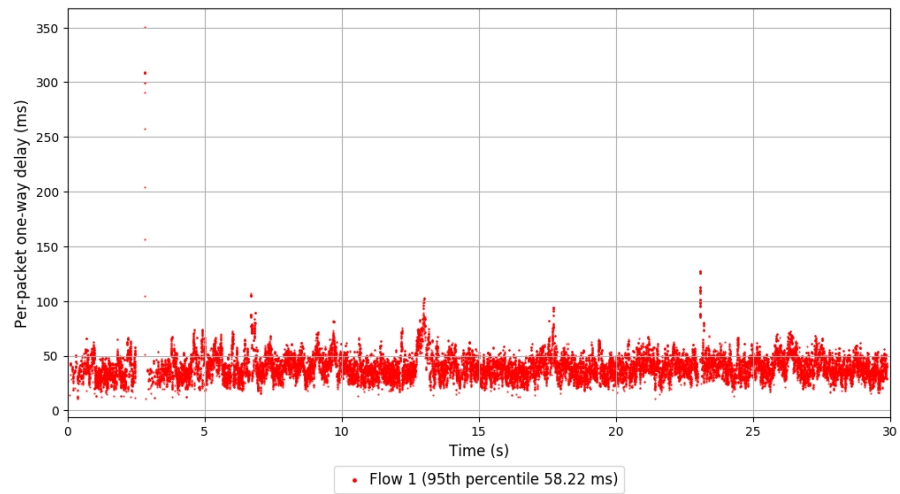
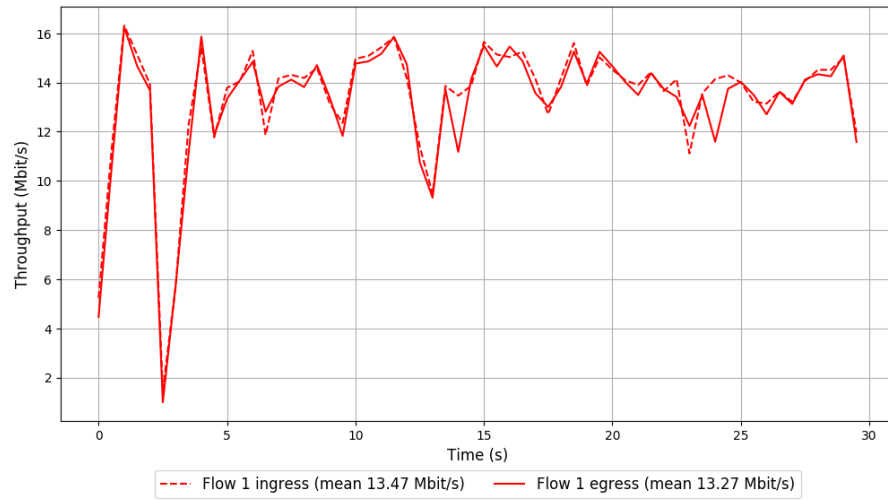
-- Flow 1:

Average throughput: 13.27 Mbit/s

95th percentile per-packet one-way delay: 58.224 ms

Loss rate: 1.57%

Run 1: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

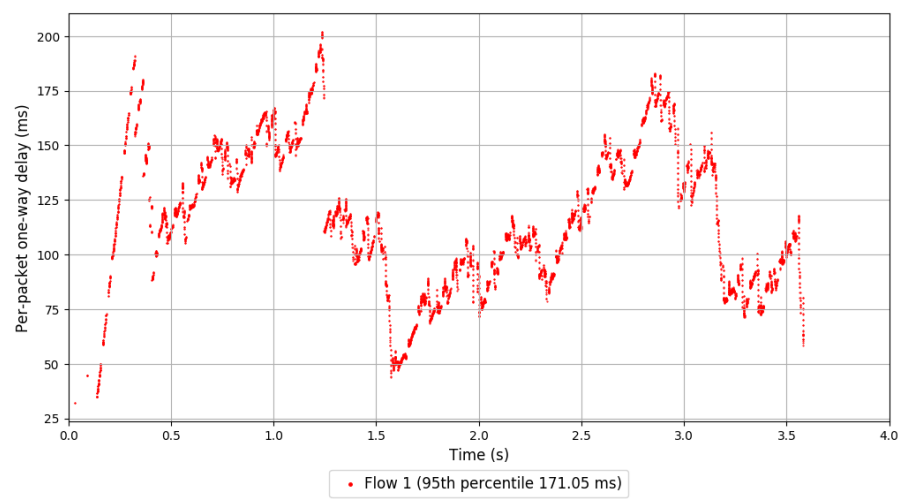
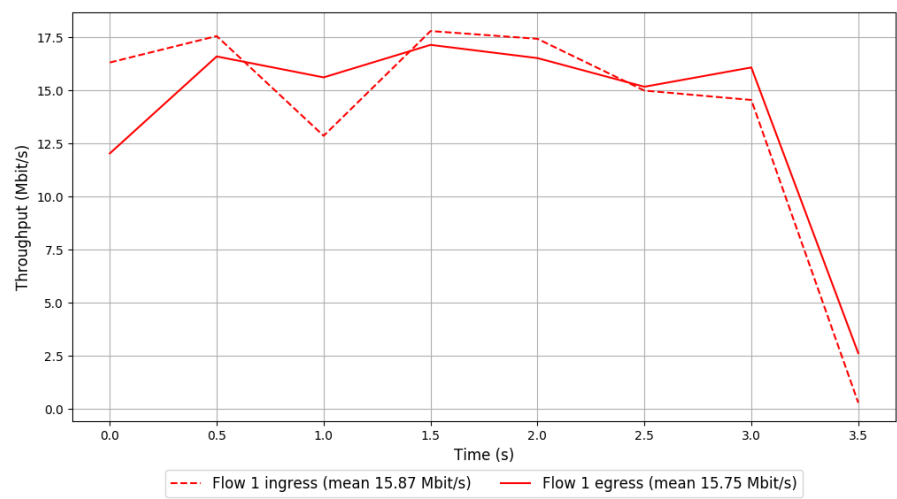
Start at: Mon, 10 Jul 2017 22:11:54 +0000

End at: Mon, 10 Jul 2017 22:12:24 +0000

Local clock offset: -0.449 ms

Remote clock offset: -1.808 ms

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



Run 1: Statistics of TCP Vegas

Start at: Mon, 10 Jul 2017 22:06:04 +0000

End at: Mon, 10 Jul 2017 22:06:34 +0000

Local clock offset: -0.424 ms

Remote clock offset: -1.893 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:23:00 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.44 Mbit/s

95th percentile per-packet one-way delay: 110.575 ms

Loss rate: 0.23%

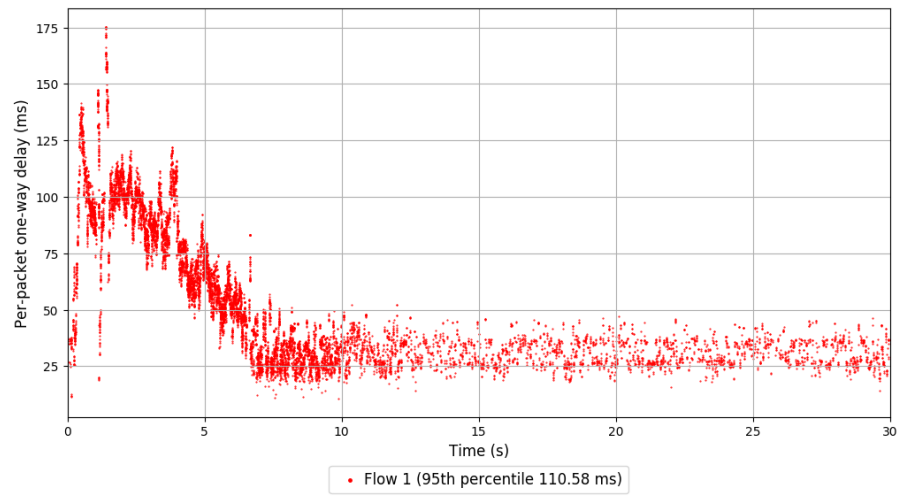
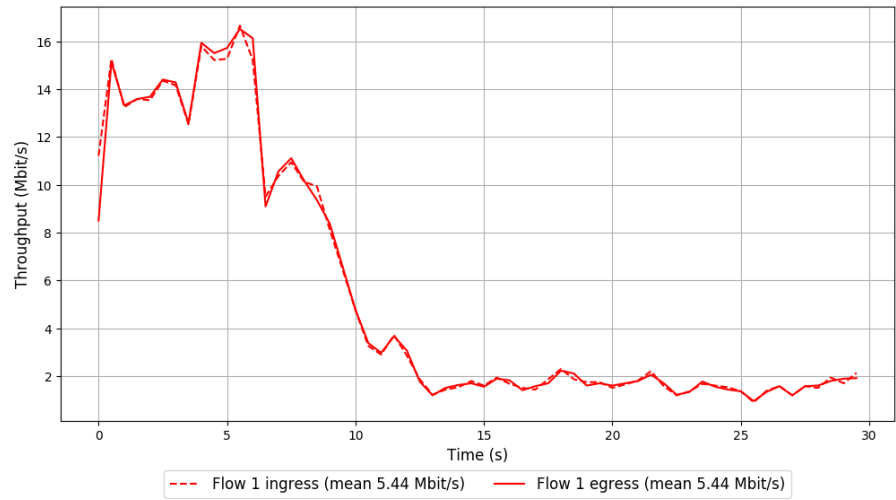
-- Flow 1:

Average throughput: 5.44 Mbit/s

95th percentile per-packet one-way delay: 110.575 ms

Loss rate: 0.23%

Run 1: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: Mon, 10 Jul 2017 22:13:04 +0000

End at: Mon, 10 Jul 2017 22:13:34 +0000

Local clock offset: -0.353 ms

Remote clock offset: -1.979 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:23:01 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 11.57 Mbit/s

95th percentile per-packet one-way delay: 70.044 ms

Loss rate: 15.93%

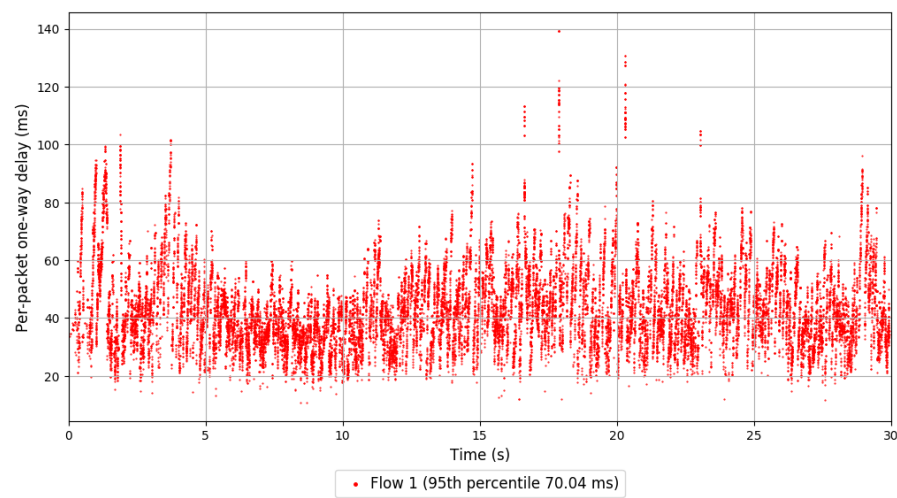
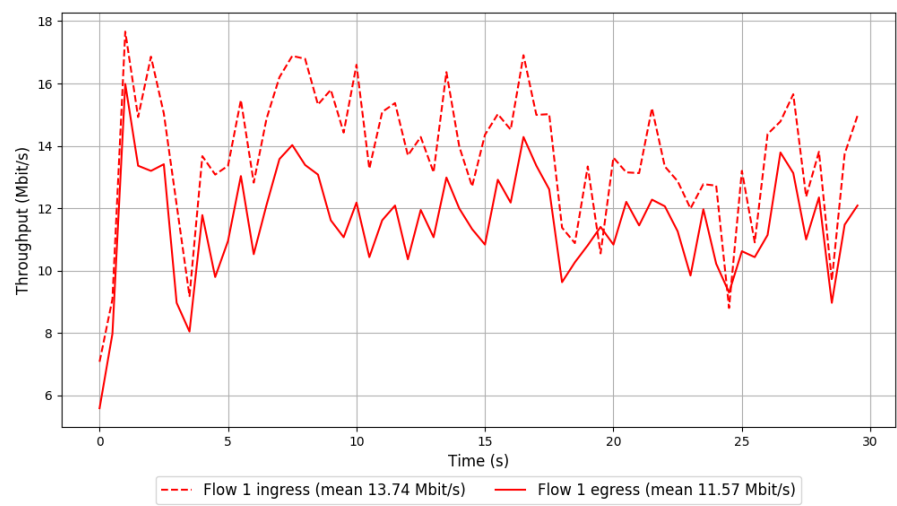
-- Flow 1:

Average throughput: 11.57 Mbit/s

95th percentile per-packet one-way delay: 70.044 ms

Loss rate: 15.93%

Run 1: Report of Verus — Data Link



Run 1: Statistics of WebRTC media

Start at: Mon, 10 Jul 2017 22:10:44 +0000

End at: Mon, 10 Jul 2017 22:11:14 +0000

Local clock offset: -0.336 ms

Remote clock offset: -1.711 ms

Below is generated by plot.py at Mon, 10 Jul 2017 22:23:02 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 42.553 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 42.553 ms

Loss rate: 0.21%

Run 1: Report of WebRTC media — Data Link

