

Pantheon Report

Generated at 2018-01-18 10:47:25 (UTC).

Data path: Colombia ppp0 (*remote*) → AWS Brazil 2 Ethernet (*local*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

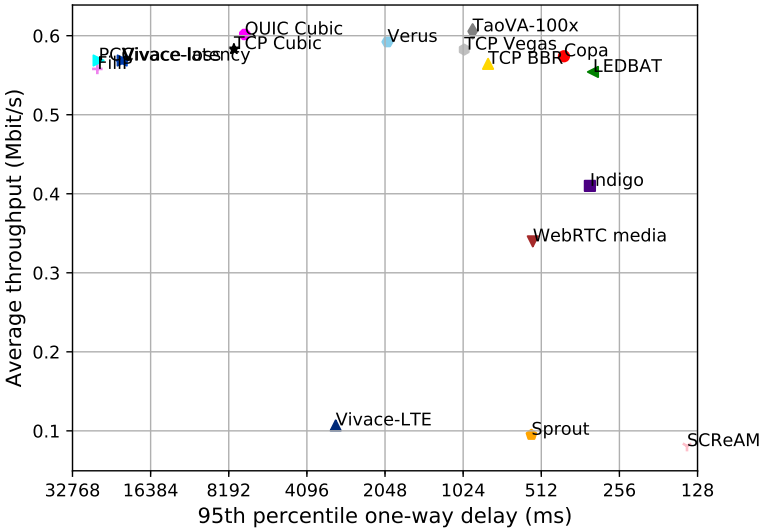
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

NTP offsets were measured against **gps.ntp.br** and have been applied to correct the timestamps in logs.

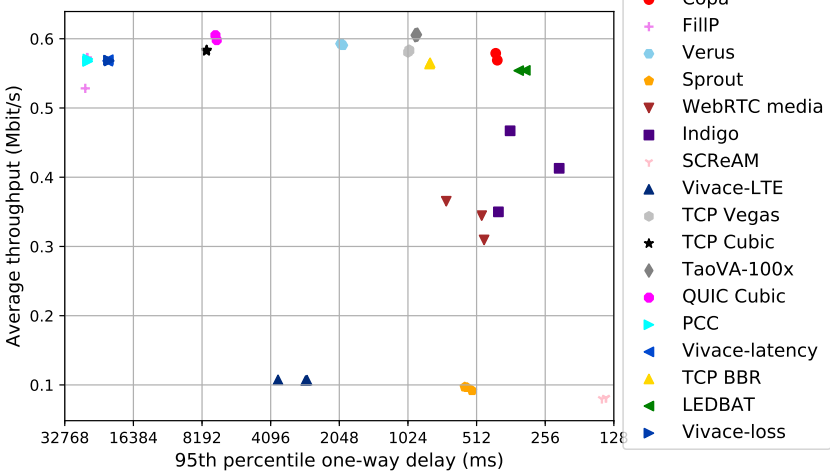
Git summary:

```
branch: master @ 54510ce29f849c716ac5c8199ca1604b6abdfbc3
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ ec9585325218d5048c4d4152fa42240af54c6e67
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
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 @ f1a14bffe749737437f61b1eaaeb30b267cde681
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/vivace @ 423cbca3e8ea1d599e7b5cf725835e8a2b6bfac6
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from Colombia ppp0 to AWS Brazil 2 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from Colombia ppp0 to AWS Brazil 2 Ethernet, 3 runs 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	2	0.56	820.95	2.15
TCP Cubic	3	0.58	7825.65	30.91
LEDBAT	2	0.55	323.79	1.23
PCC	3	0.57	25988.05	98.60
QUIC Cubic	2	0.60	7108.64	29.20
SCReAM	3	0.08	140.55	0.66
WebRTC media	3	0.34	552.04	0.76
Sprout	3	0.10	558.79	1.58
TaoVA-100x	3	0.61	941.51	2.66
TCP Vegas	3	0.58	1014.40	1.96
Verus	3	0.59	2004.47	5.96
Copa	2	0.57	418.72	1.36
FillP	3	0.56	26284.30	98.16
Indigo	3	0.41	332.65	1.19
Vivace-latency	3	0.57	21186.55	72.05
Vivace-loss	3	0.57	20983.30	89.25
Vivace-LTE	3	0.11	3172.44	0.53

Run 1: Statistics of TCP BBR

Start at: 2018-01-18 08:41:37

End at: 2018-01-18 08:42:07

Local clock offset: -1.004 ms

Remote clock offset: 2.455 ms

Below is generated by plot.py at 2018-01-18 10:46:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 823.264 ms

Loss rate: 1.98%

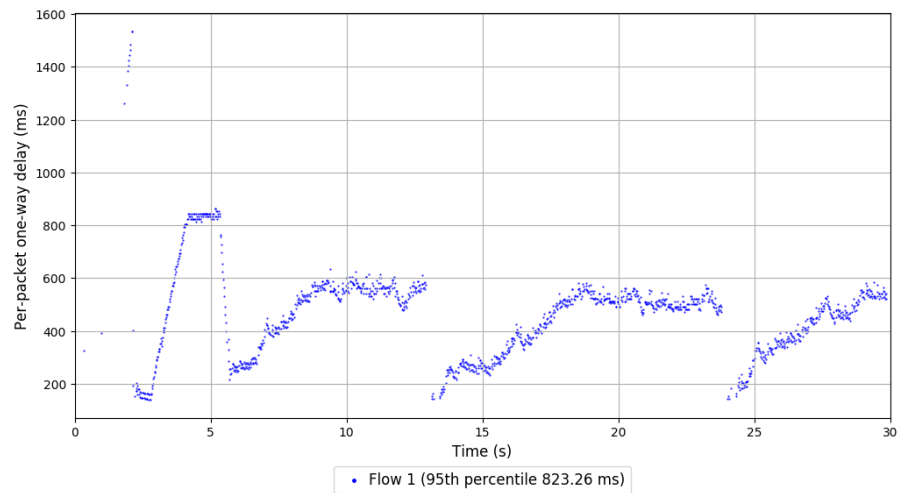
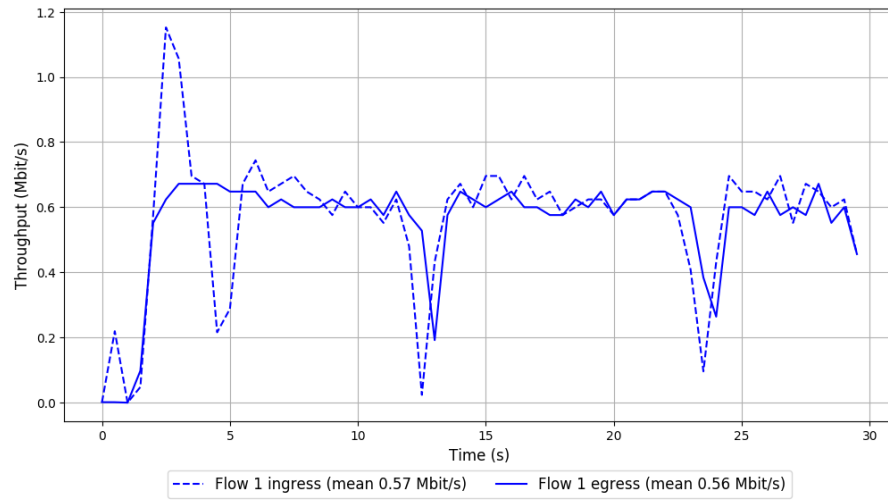
-- Flow 1:

Average throughput: 0.56 Mbit/s

95th percentile per-packet one-way delay: 823.264 ms

Loss rate: 1.98%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-01-18 09:02:44

End at: 2018-01-18 09:03:14

Local clock offset: -2.241 ms

Remote clock offset: -3.13 ms

Below is generated by plot.py at 2018-01-18 10:46:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 818.641 ms

Loss rate: 2.32%

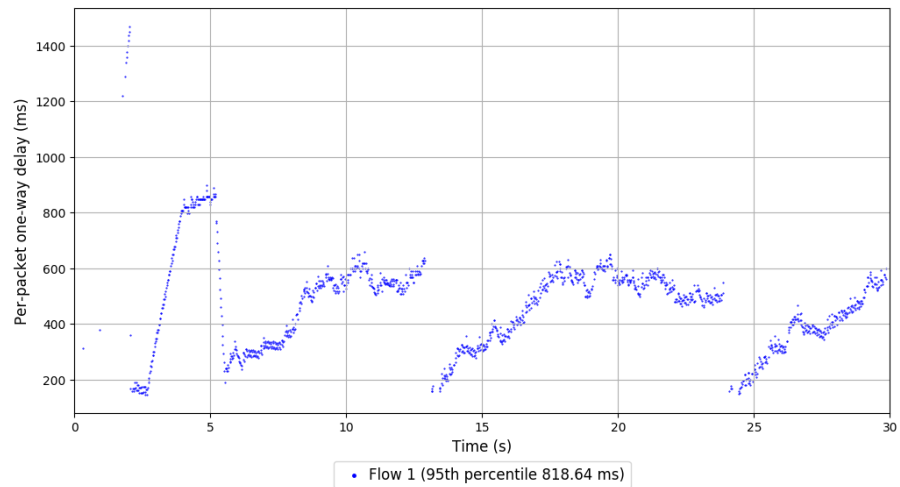
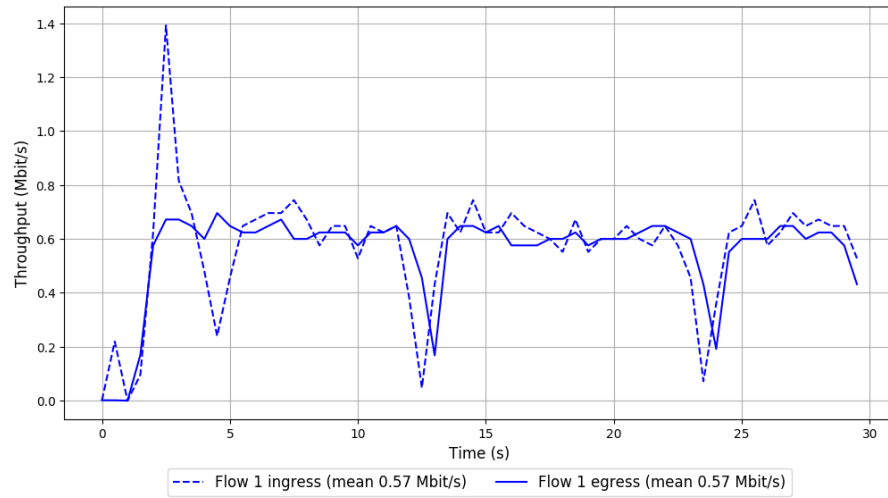
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 818.641 ms

Loss rate: 2.32%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

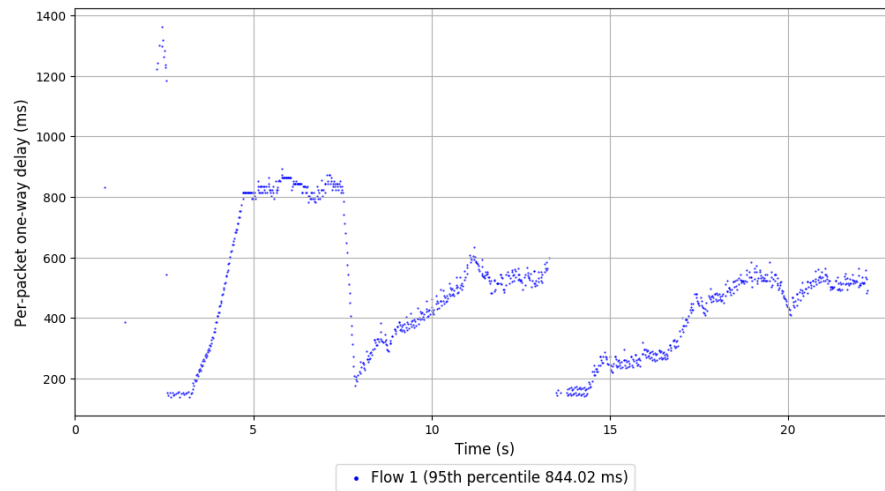
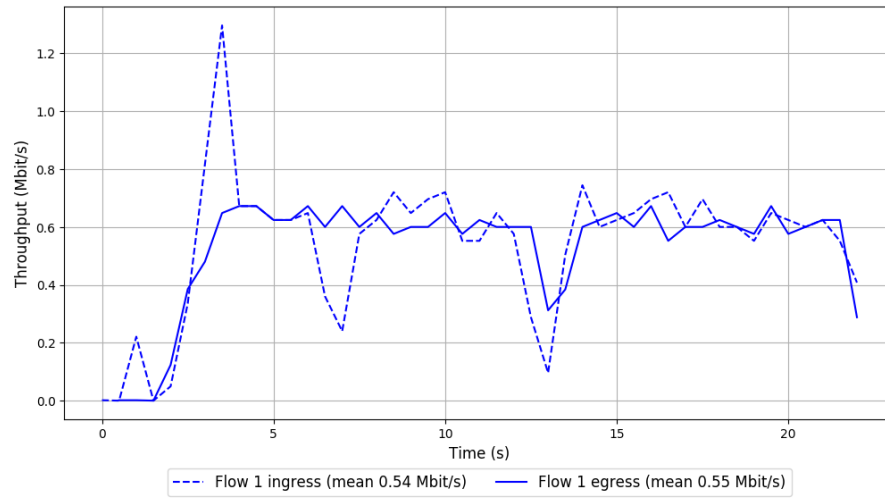
Start at: 2018-01-18 09:23:52

End at: 2018-01-18 09:24:22

Local clock offset: -3.368 ms

Remote clock offset: 1.555 ms

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-01-18 08:42:47

End at: 2018-01-18 08:43:17

Local clock offset: -1.34 ms

Remote clock offset: 0.323 ms

Below is generated by plot.py at 2018-01-18 10:46:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 7836.620 ms

Loss rate: 31.01%

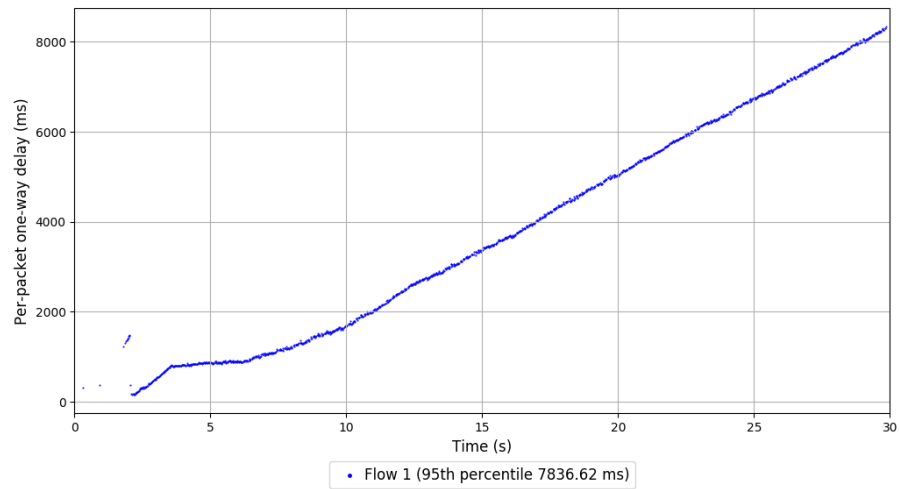
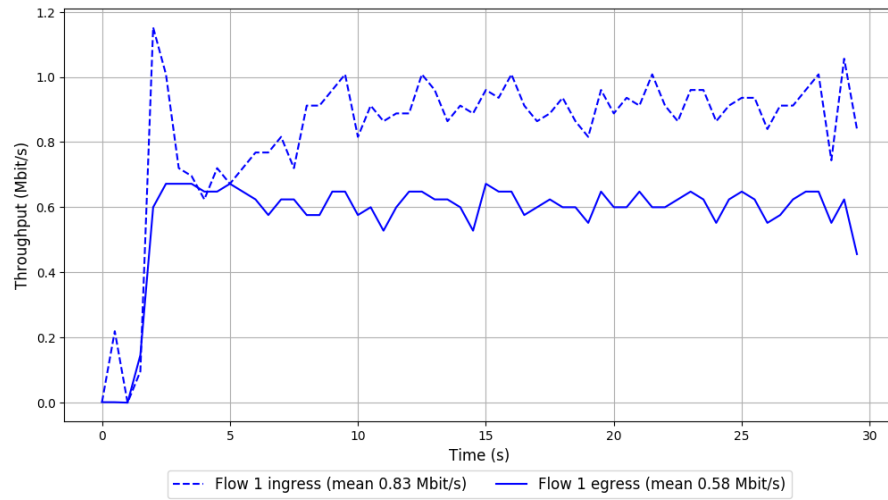
-- Flow 1:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 7836.620 ms

Loss rate: 31.01%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-01-18 09:03:54

End at: 2018-01-18 09:04:24

Local clock offset: -2.247 ms

Remote clock offset: 0.468 ms

Below is generated by plot.py at 2018-01-18 10:46:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 7833.784 ms

Loss rate: 30.80%

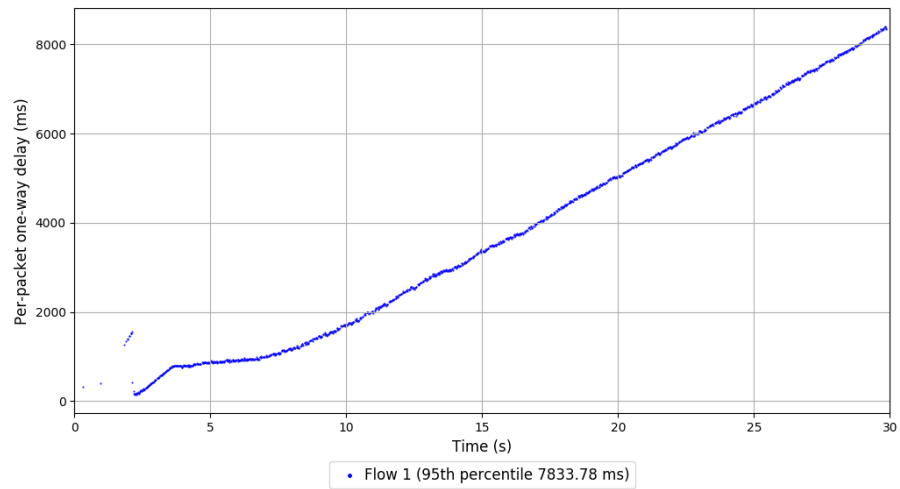
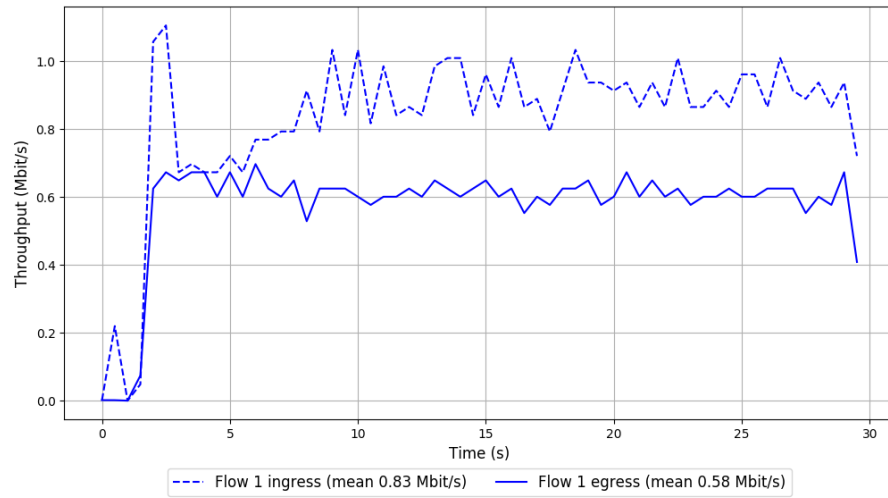
-- Flow 1:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 7833.784 ms

Loss rate: 30.80%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-01-18 09:25:02

End at: 2018-01-18 09:25:32

Local clock offset: -3.339 ms

Remote clock offset: 1.515 ms

Below is generated by plot.py at 2018-01-18 10:46:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 7806.535 ms

Loss rate: 30.91%

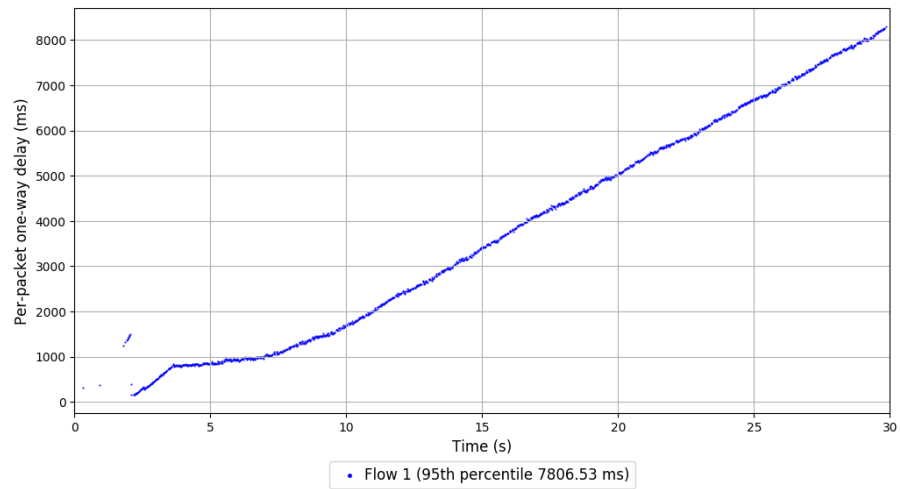
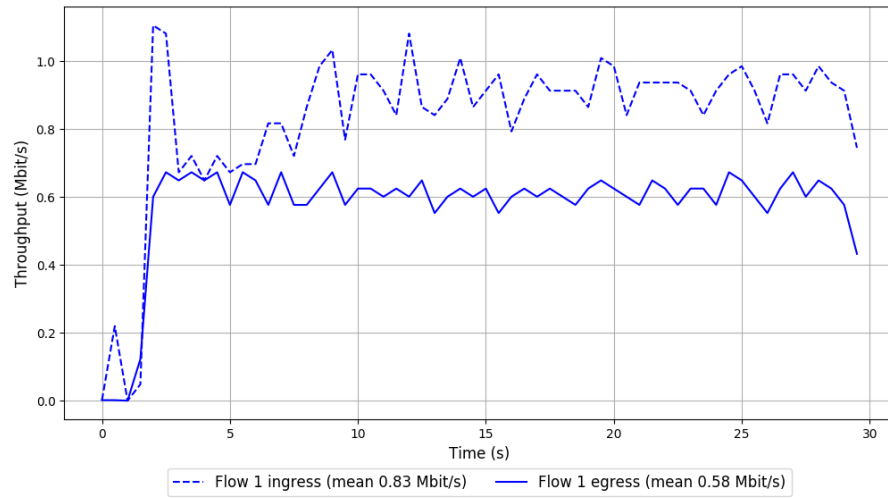
-- Flow 1:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 7806.535 ms

Loss rate: 30.91%

Run 3: Report of TCP Cubic — Data Link

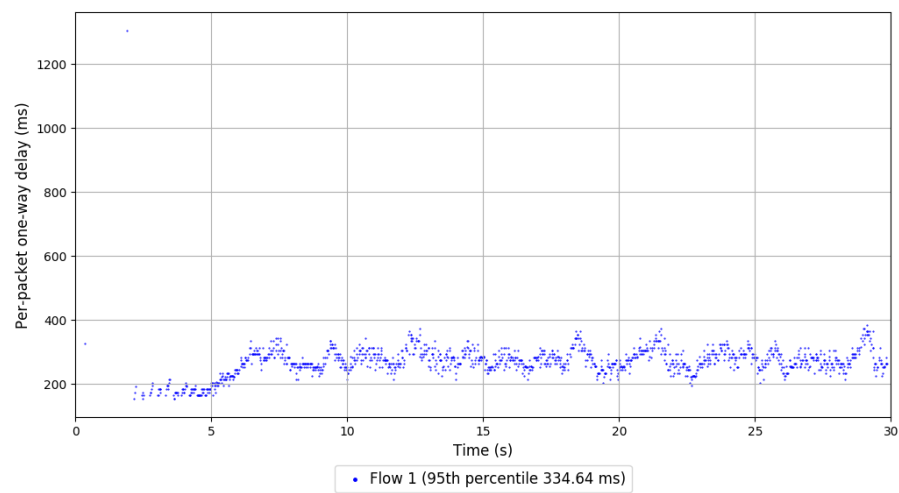
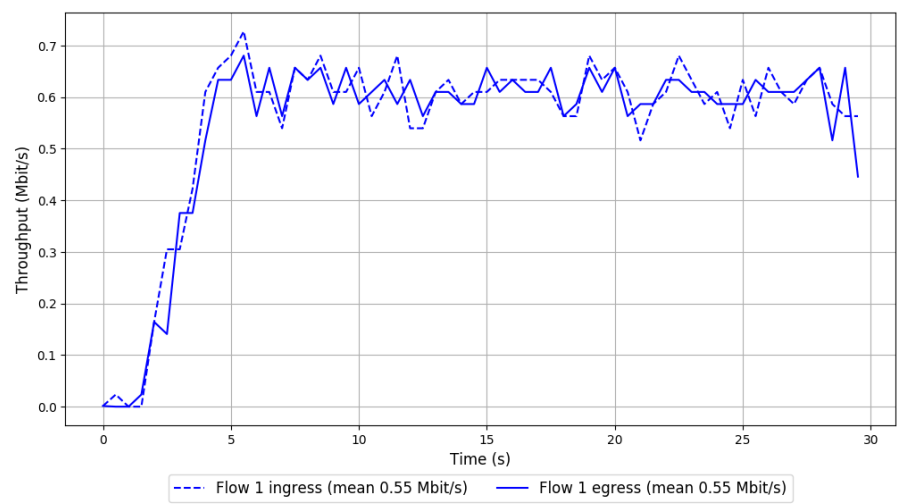


```
Run 1: Statistics of LEDBAT

Start at: 2018-01-18 08:46:18
End at: 2018-01-18 08:46:48
Local clock offset: -2.385 ms
Remote clock offset: -4.41 ms

# Below is generated by plot.py at 2018-01-18 10:46:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 334.638 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 334.638 ms
Loss rate: 1.27%
```


Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

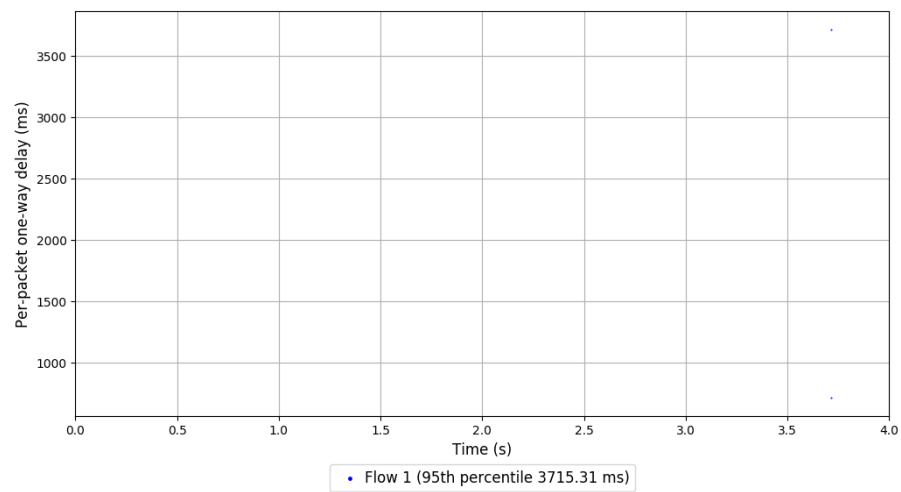
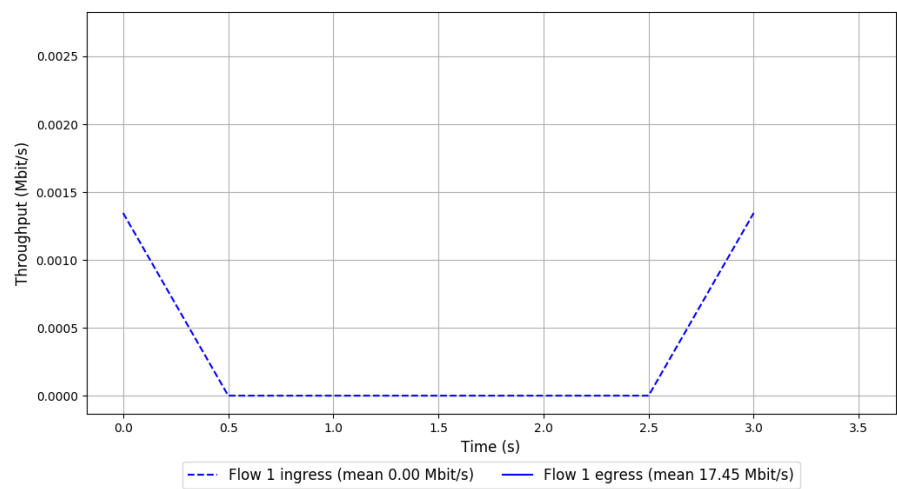
Start at: 2018-01-18 09:07:25

End at: 2018-01-18 09:07:55

Local clock offset: -2.471 ms

Remote clock offset: 1.71 ms

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-01-18 09:28:32

End at: 2018-01-18 09:29:02

Local clock offset: -2.825 ms

Remote clock offset: 2.101 ms

Below is generated by plot.py at 2018-01-18 10:46:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 312.943 ms

Loss rate: 1.20%

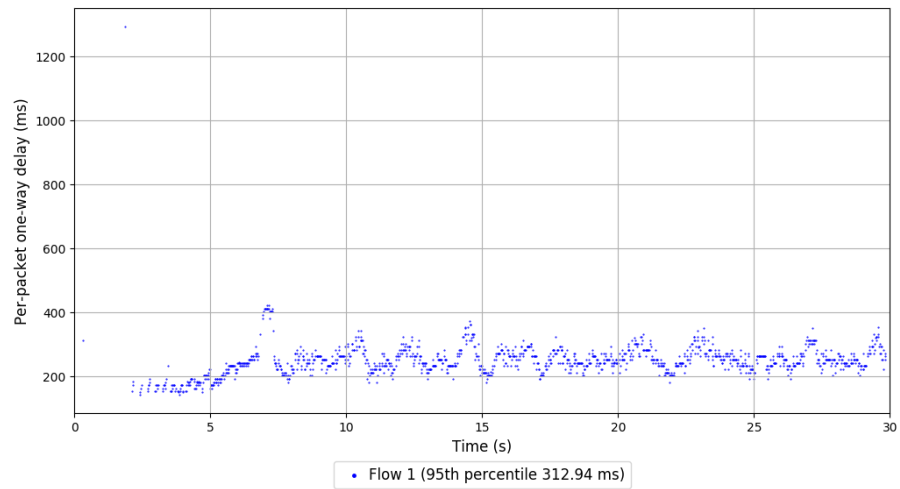
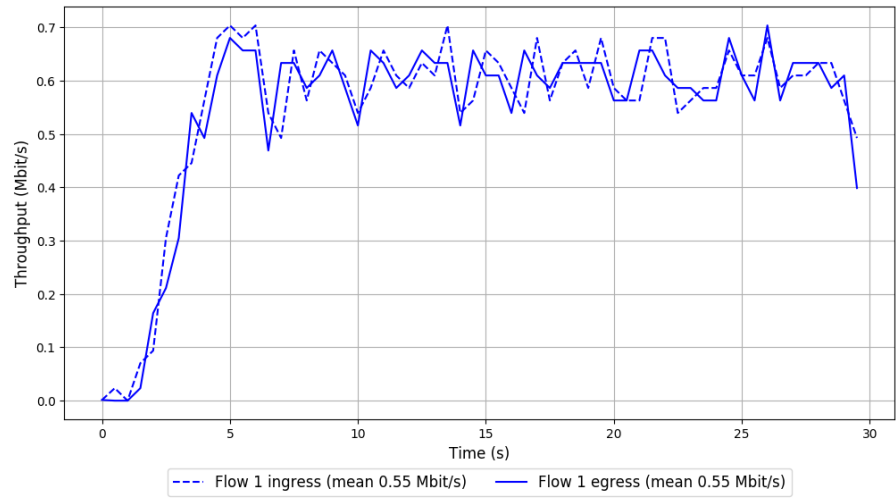
-- Flow 1:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 312.943 ms

Loss rate: 1.20%

Run 3: Report of LEDBAT — Data Link

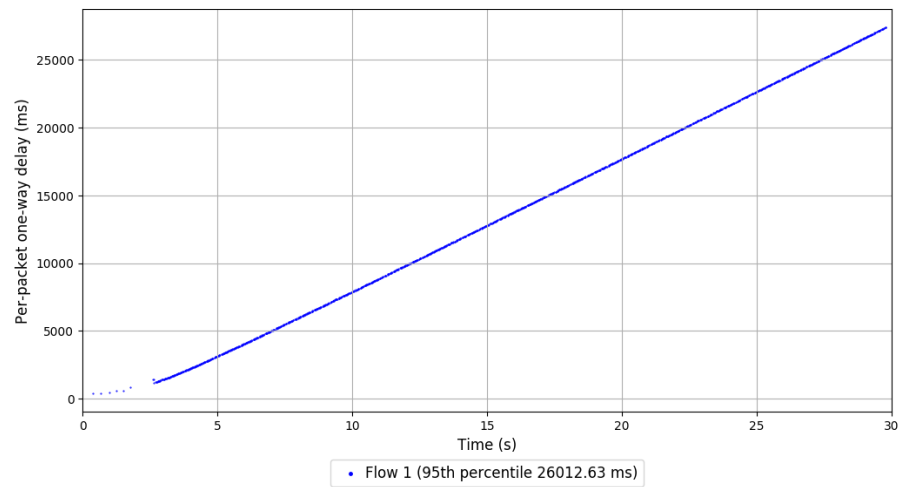
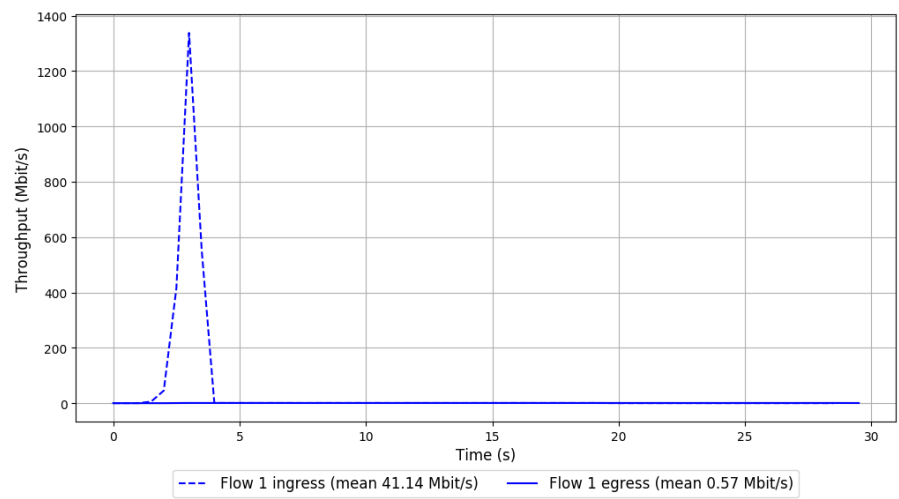


Run 1: Statistics of PCC

Start at: 2018-01-18 08:40:25
End at: 2018-01-18 08:40:55
Local clock offset: -0.529 ms
Remote clock offset: -3.594 ms

Below is generated by plot.py at 2018-01-18 10:47:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26012.635 ms
Loss rate: 98.60%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26012.635 ms
Loss rate: 98.60%

Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

Start at: 2018-01-18 09:01:32

End at: 2018-01-18 09:02:02

Local clock offset: -2.353 ms

Remote clock offset: 2.72 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 25961.803 ms

Loss rate: 98.59%

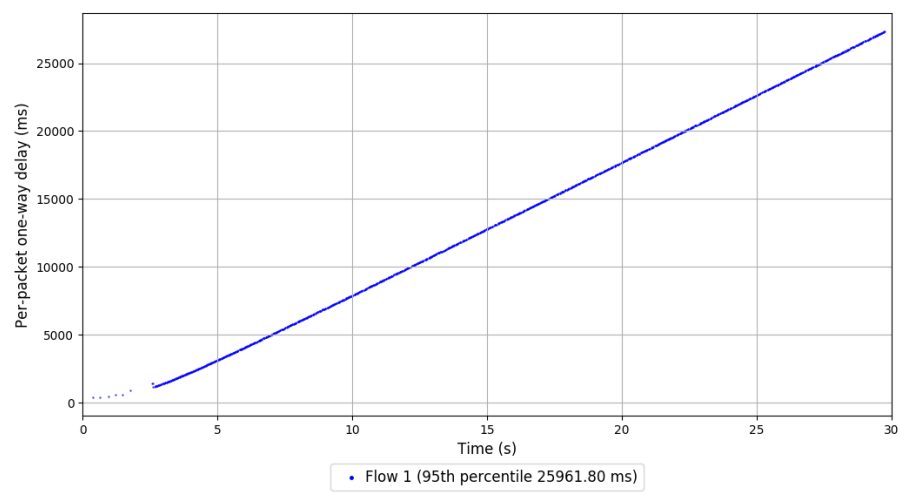
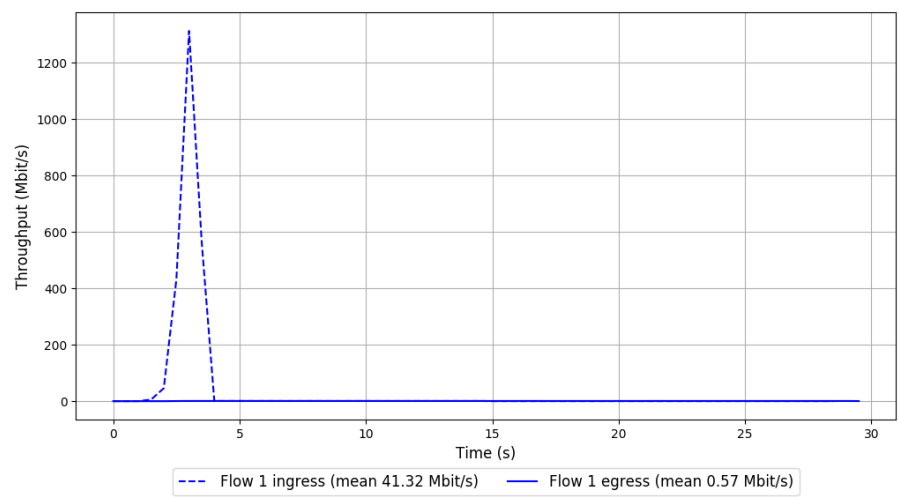
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 25961.803 ms

Loss rate: 98.59%

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2018-01-18 09:22:40

End at: 2018-01-18 09:23:10

Local clock offset: -3.48 ms

Remote clock offset: 1.442 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 25989.726 ms

Loss rate: 98.60%

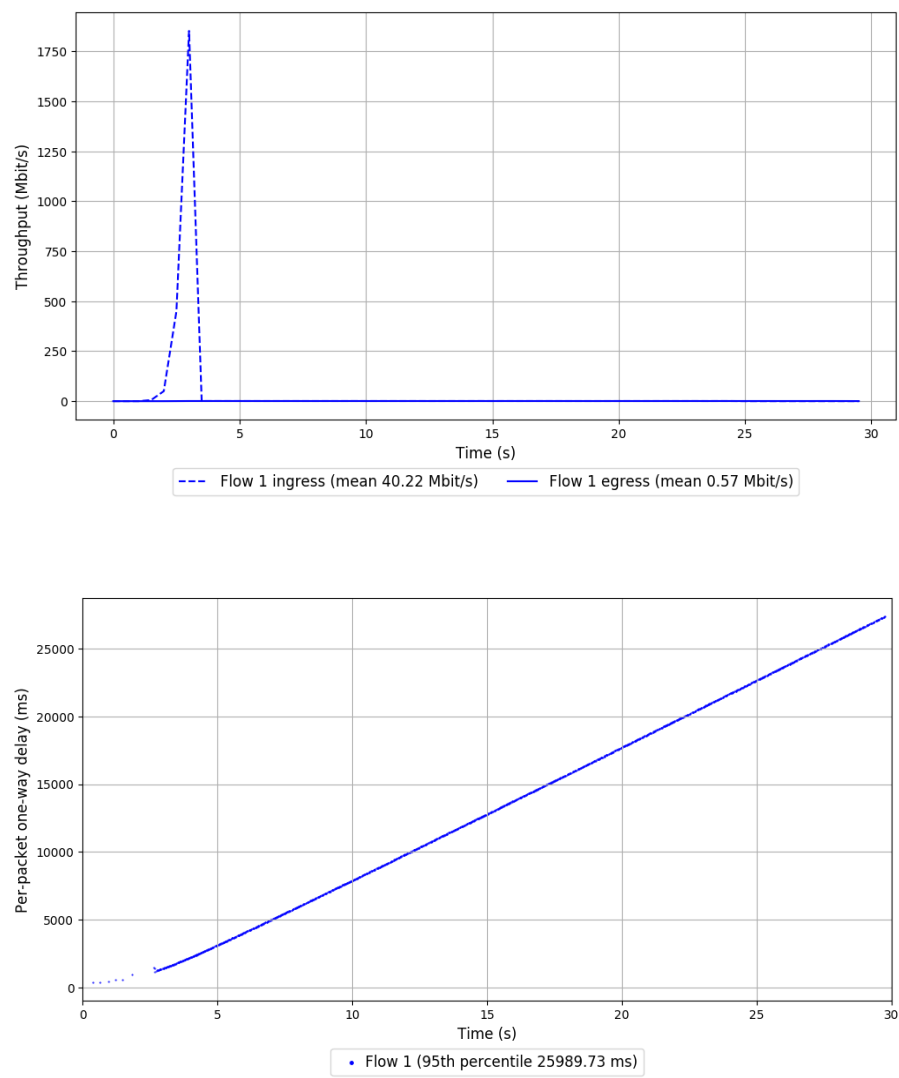
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 25989.726 ms

Loss rate: 98.60%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

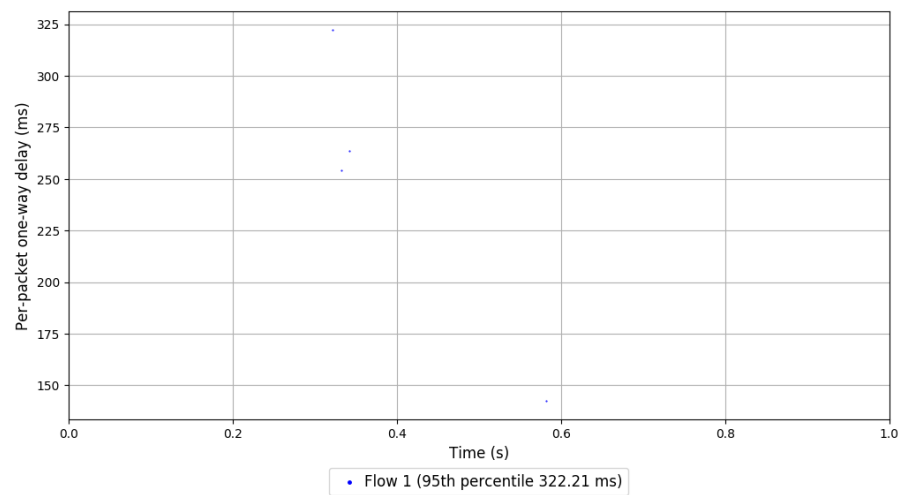
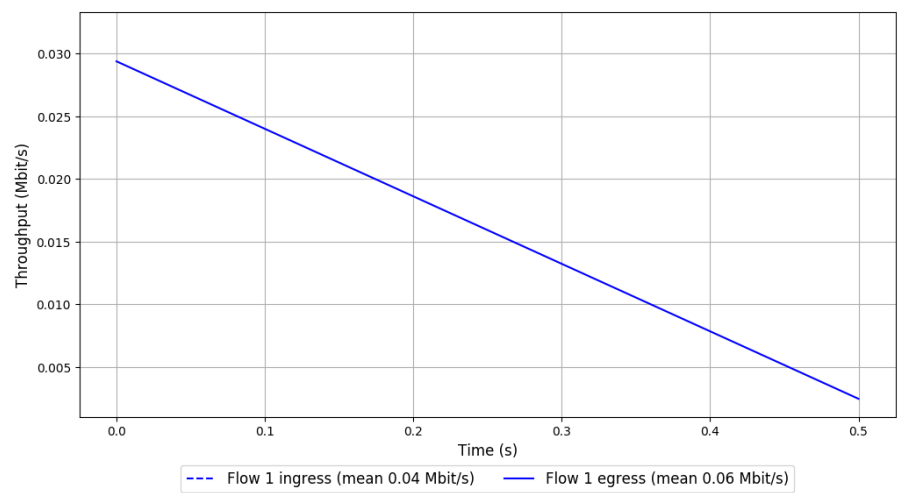
Start at: 2018-01-18 08:56:51

End at: 2018-01-18 08:57:21

Local clock offset: -2.437 ms

Remote clock offset: -4.083 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-01-18 09:17:59

End at: 2018-01-18 09:18:29

Local clock offset: -3.325 ms

Remote clock offset: 1.424 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7061.969 ms

Loss rate: 29.34%

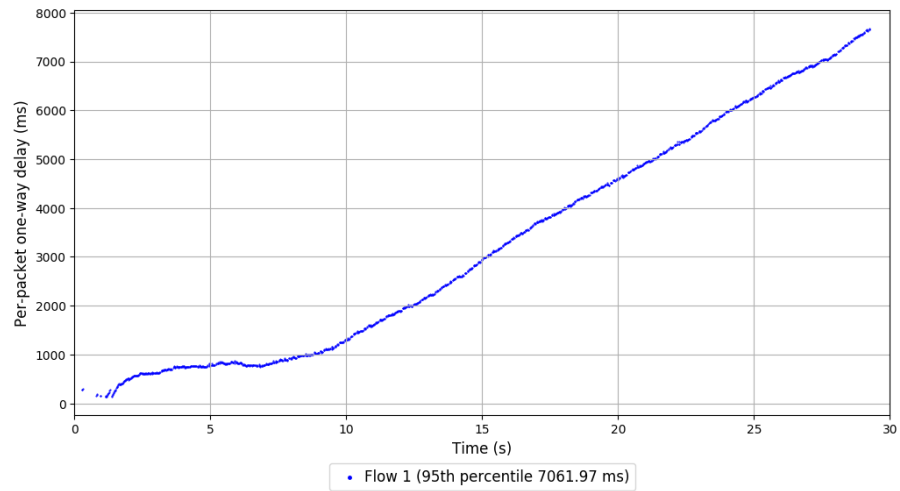
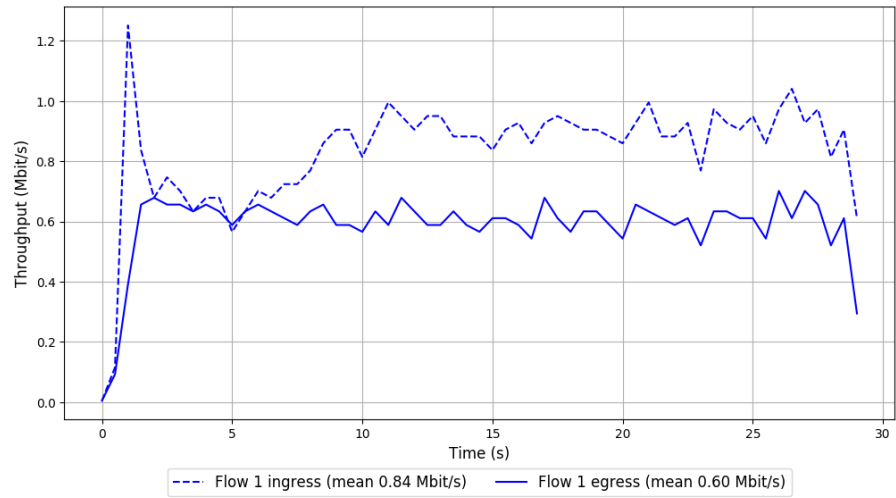
-- Flow 1:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 7061.969 ms

Loss rate: 29.34%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-01-18 09:39:05

End at: 2018-01-18 09:39:35

Local clock offset: -3.235 ms

Remote clock offset: 0.896 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 7155.310 ms

Loss rate: 29.05%

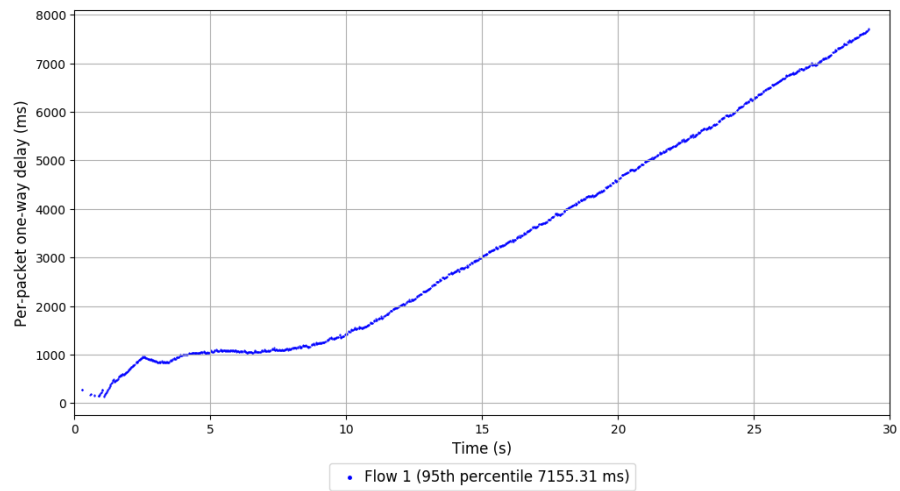
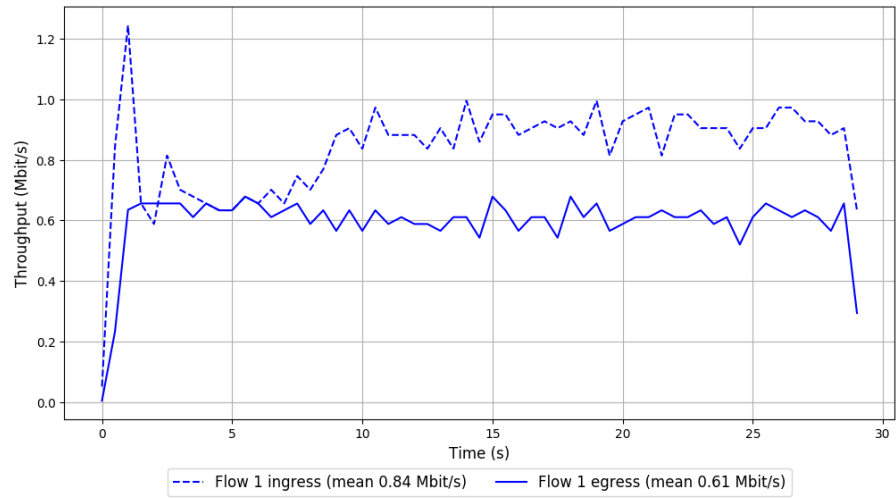
-- Flow 1:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 7155.310 ms

Loss rate: 29.05%

Run 3: Report of QUIC Cubic — Data Link

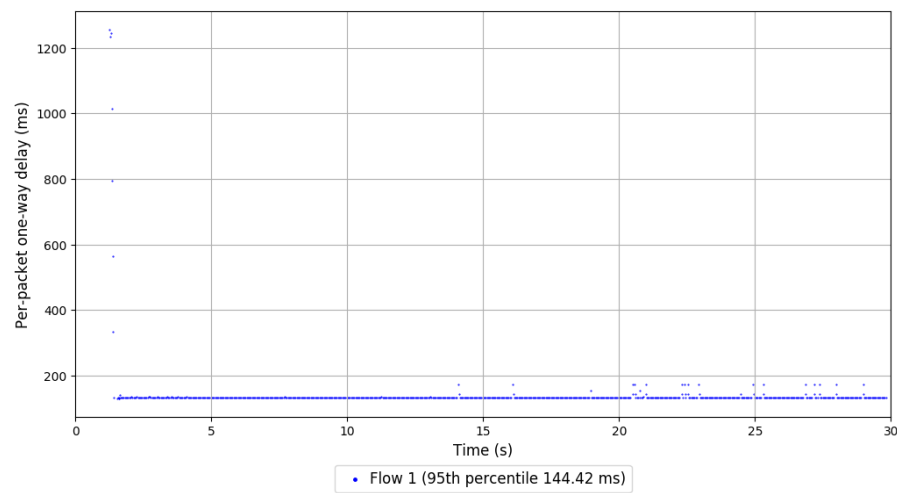
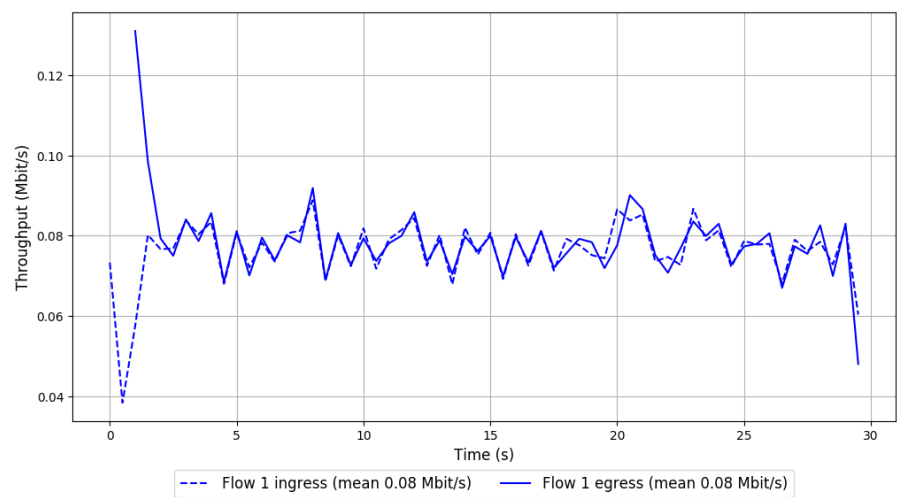


```
Run 1: Statistics of SCReAM

Start at: 2018-01-18 08:43:58
End at: 2018-01-18 08:44:28
Local clock offset: -1.579 ms
Remote clock offset: 2.869 ms

# Below is generated by plot.py at 2018-01-18 10:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 144.423 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 144.423 ms
Loss rate: 0.66%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-01-18 09:05:05

End at: 2018-01-18 09:05:35

Local clock offset: -2.333 ms

Remote clock offset: 2.987 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 138.367 ms

Loss rate: 0.66%

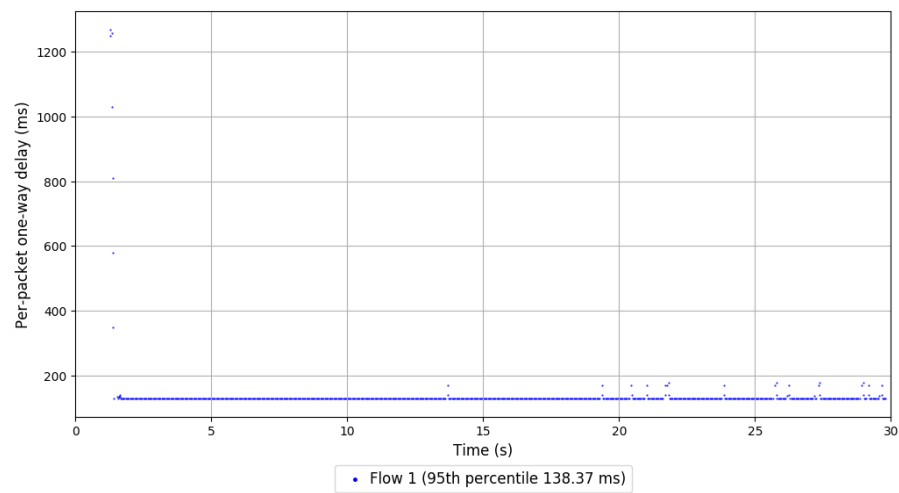
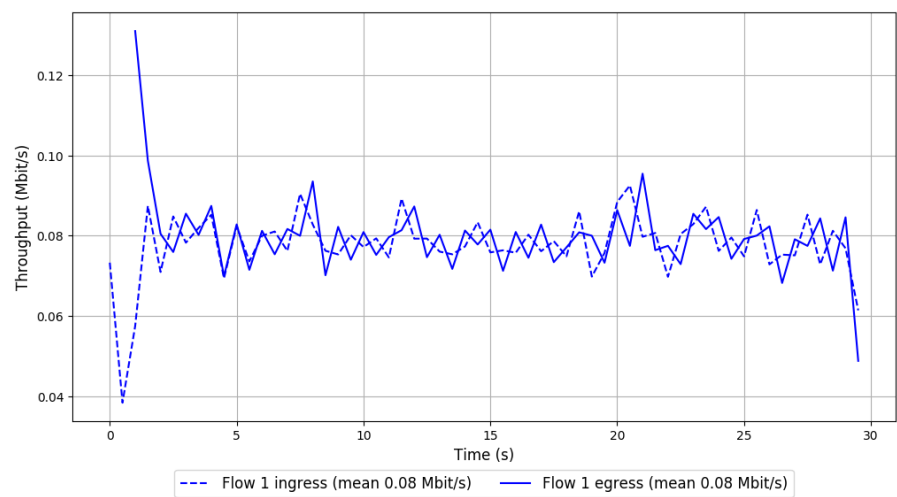
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 138.367 ms

Loss rate: 0.66%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-01-18 09:26:12

End at: 2018-01-18 09:26:42

Local clock offset: -3.161 ms

Remote clock offset: 0.962 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 138.872 ms

Loss rate: 0.66%

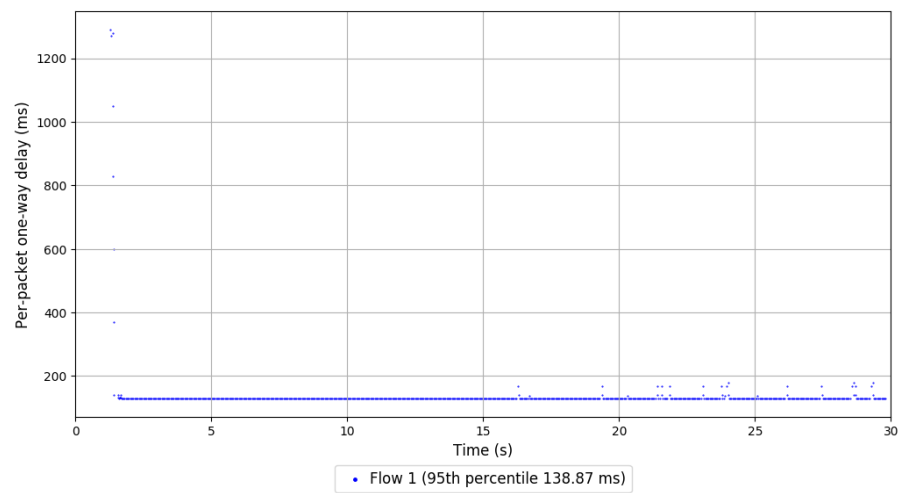
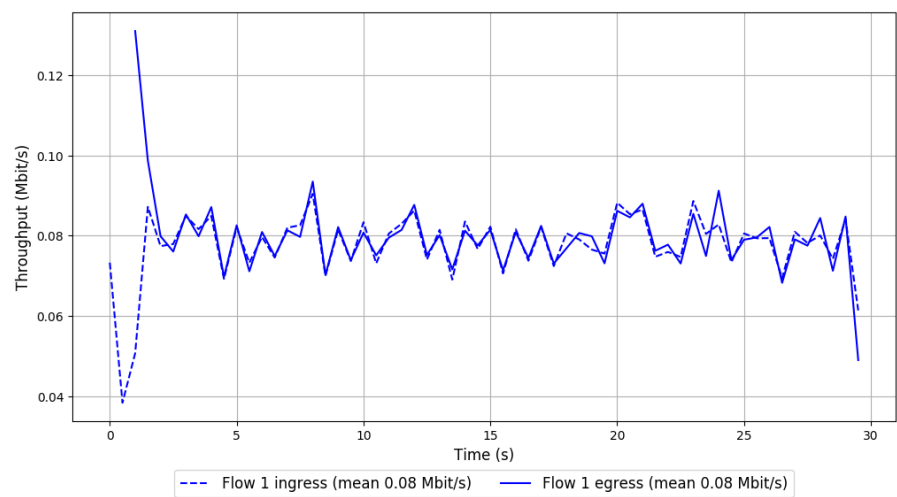
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 138.872 ms

Loss rate: 0.66%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-01-18 08:45:08

End at: 2018-01-18 08:45:38

Local clock offset: -1.965 ms

Remote clock offset: 1.206 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 474.542 ms

Loss rate: 0.31%

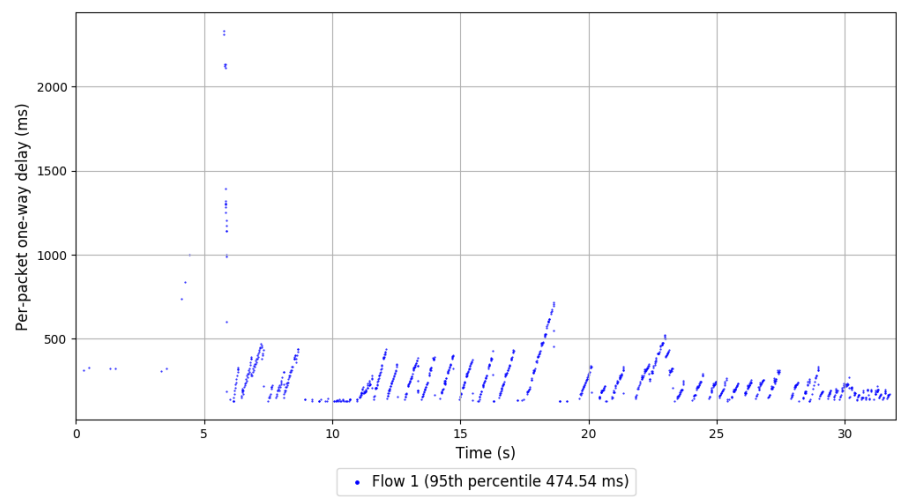
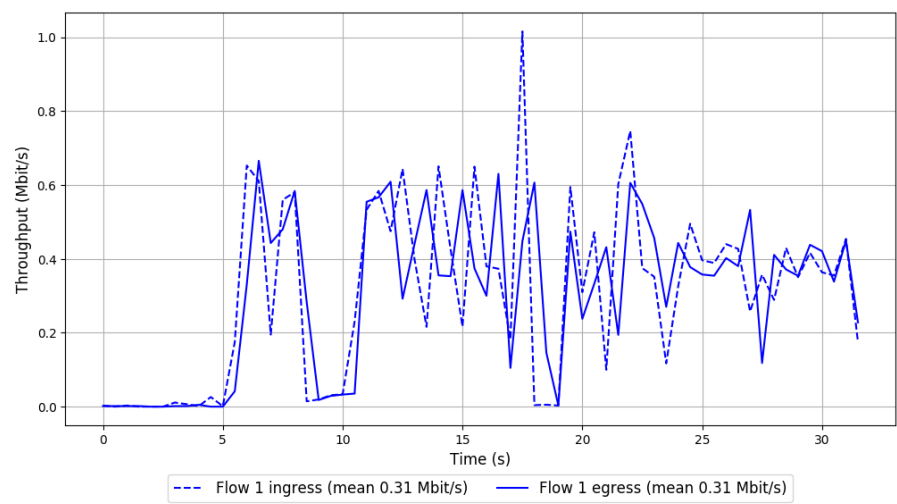
-- Flow 1:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 474.542 ms

Loss rate: 0.31%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-01-18 09:06:15

End at: 2018-01-18 09:06:45

Local clock offset: -2.371 ms

Remote clock offset: -4.06 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.34 Mbit/s

95th percentile per-packet one-way delay: 486.204 ms

Loss rate: 0.78%

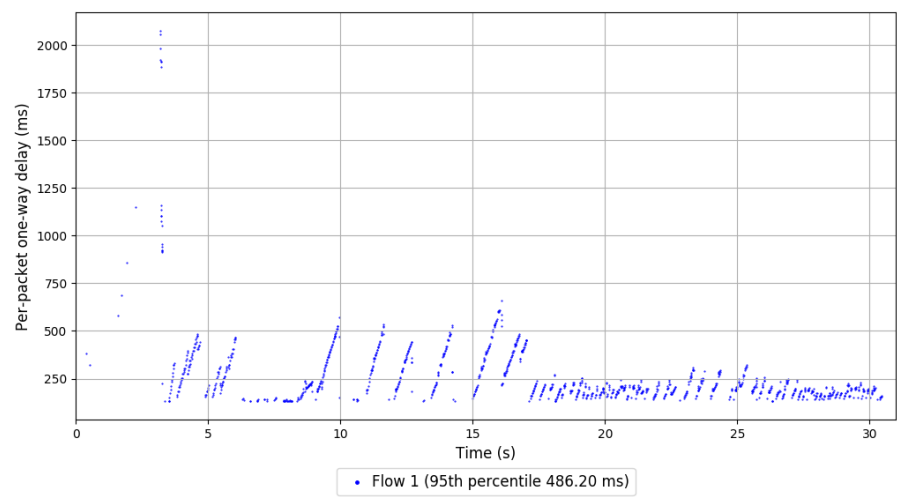
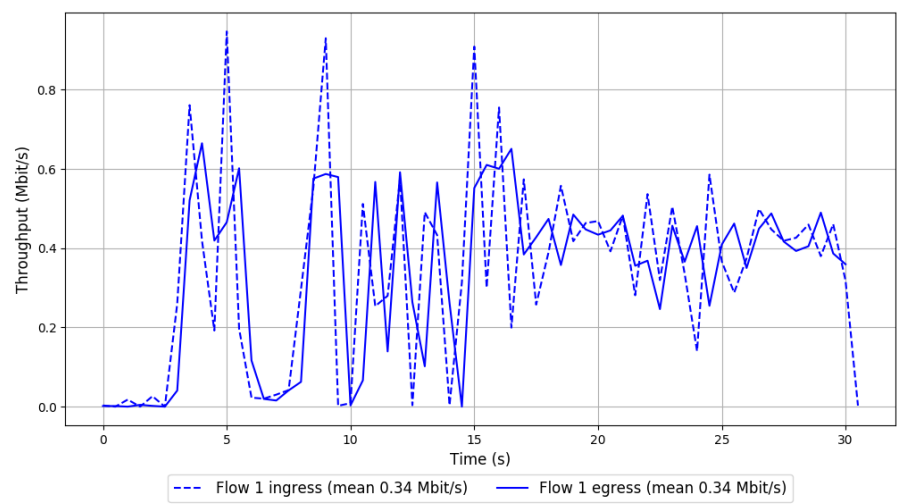
-- Flow 1:

Average throughput: 0.34 Mbit/s

95th percentile per-packet one-way delay: 486.204 ms

Loss rate: 0.78%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-01-18 09:27:22

End at: 2018-01-18 09:27:52

Local clock offset: -3.04 ms

Remote clock offset: 1.801 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 695.386 ms

Loss rate: 1.20%

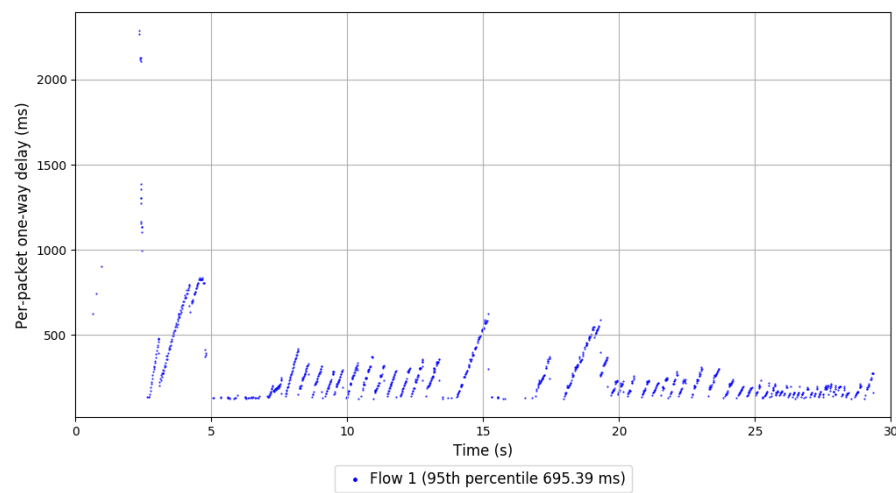
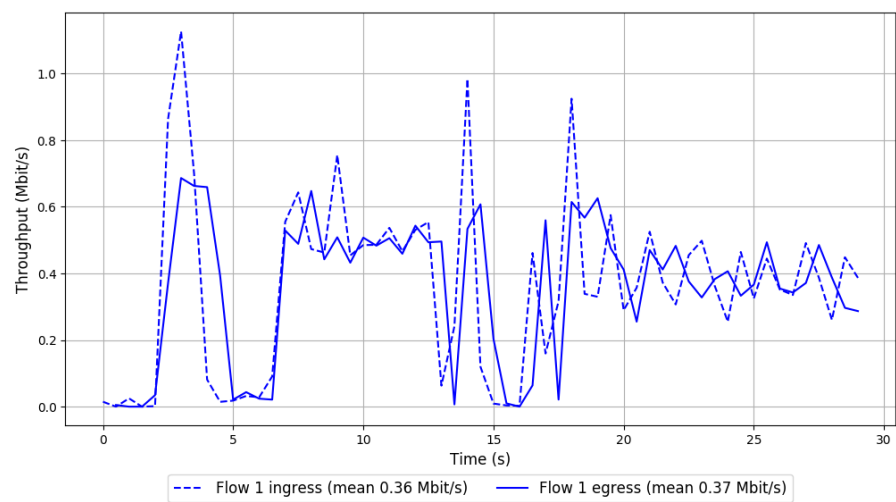
-- Flow 1:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 695.386 ms

Loss rate: 1.20%

Run 3: Report of WebRTC media — Data Link



Run 1: Statistics of Sprout

Start at: 2018-01-18 08:59:12

End at: 2018-01-18 08:59:42

Local clock offset: -2.454 ms

Remote clock offset: -4.02 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.09 Mbit/s

95th percentile per-packet one-way delay: 535.598 ms

Loss rate: 1.81%

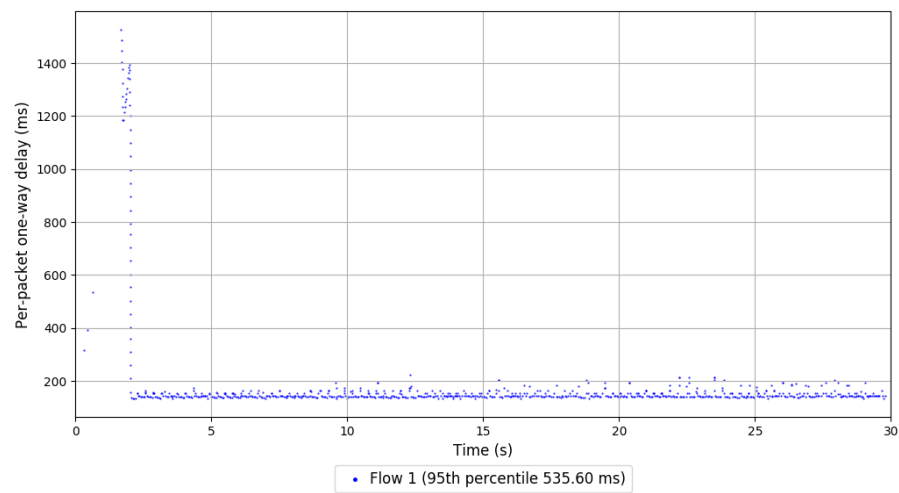
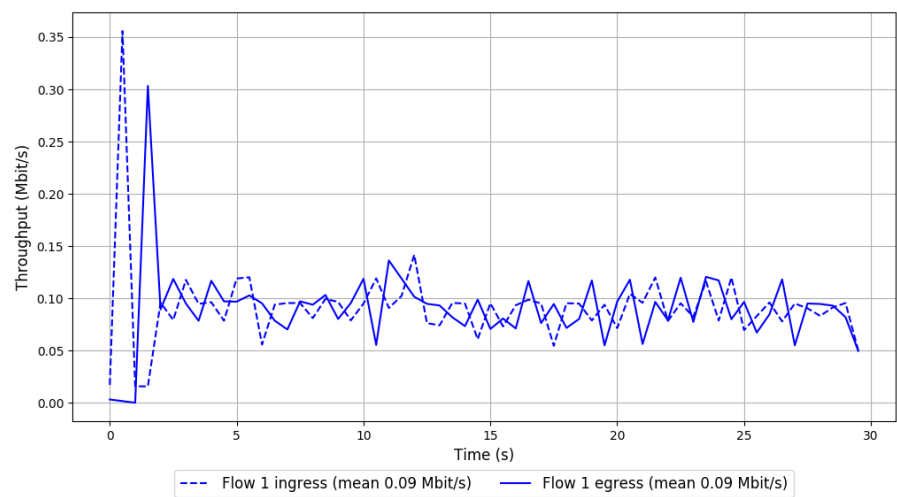
-- Flow 1:

Average throughput: 0.09 Mbit/s

95th percentile per-packet one-way delay: 535.598 ms

Loss rate: 1.81%

Run 1: Report of Sprout — Data Link

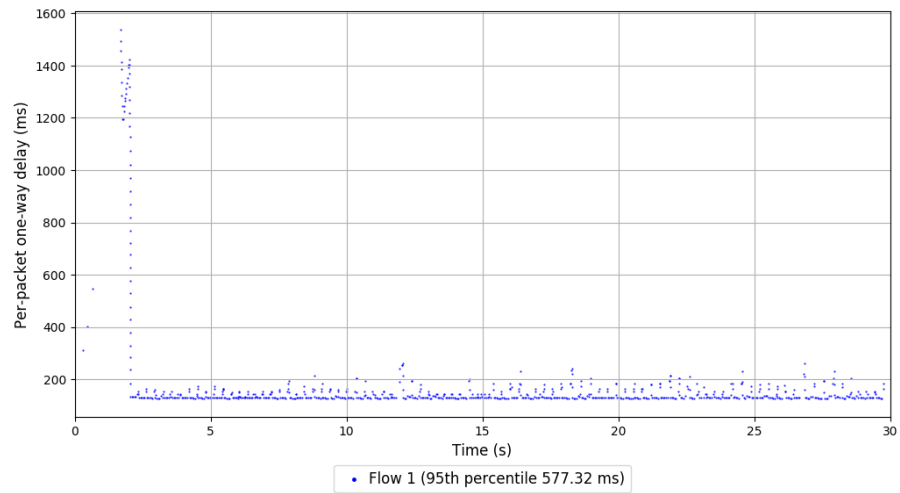
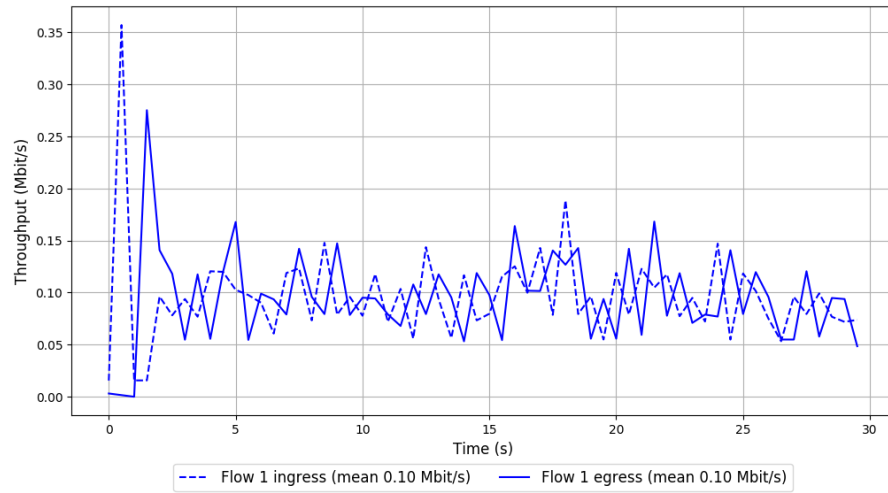


Run 2: Statistics of Sprout

Start at: 2018-01-18 09:20:20
End at: 2018-01-18 09:20:50
Local clock offset: -3.583 ms
Remote clock offset: 1.48 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 577.320 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 577.320 ms
Loss rate: 1.12%

Run 2: Report of Sprout — Data Link

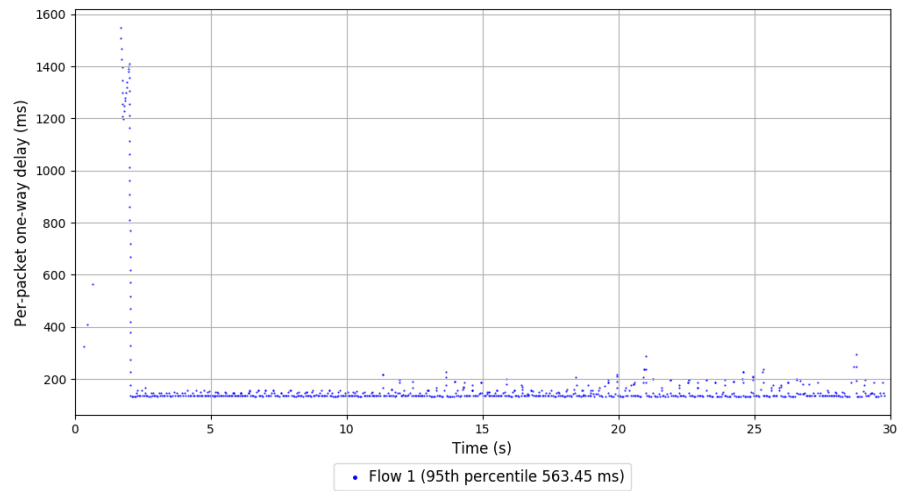
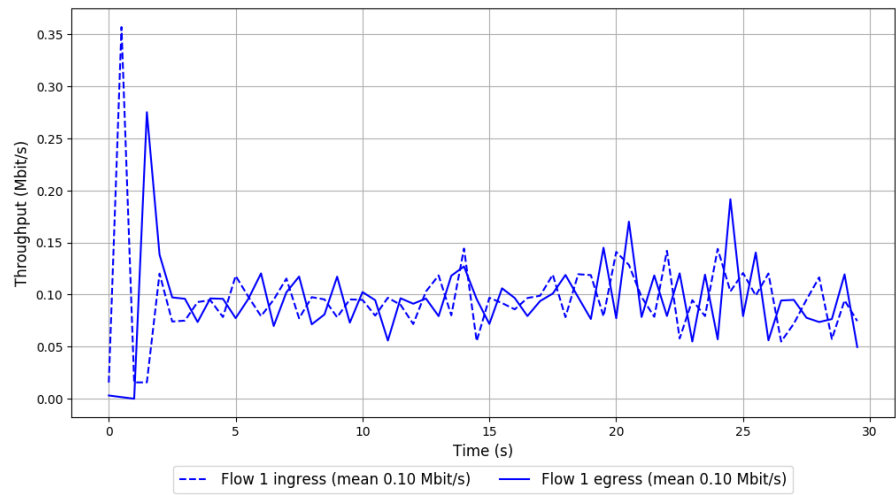


Run 3: Statistics of Sprout

Start at: 2018-01-18 09:41:26
End at: 2018-01-18 09:41:56
Local clock offset: -3.476 ms
Remote clock offset: -3.413 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 563.446 ms
Loss rate: 1.81%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 563.446 ms
Loss rate: 1.81%

Run 3: Report of Sprout — Data Link

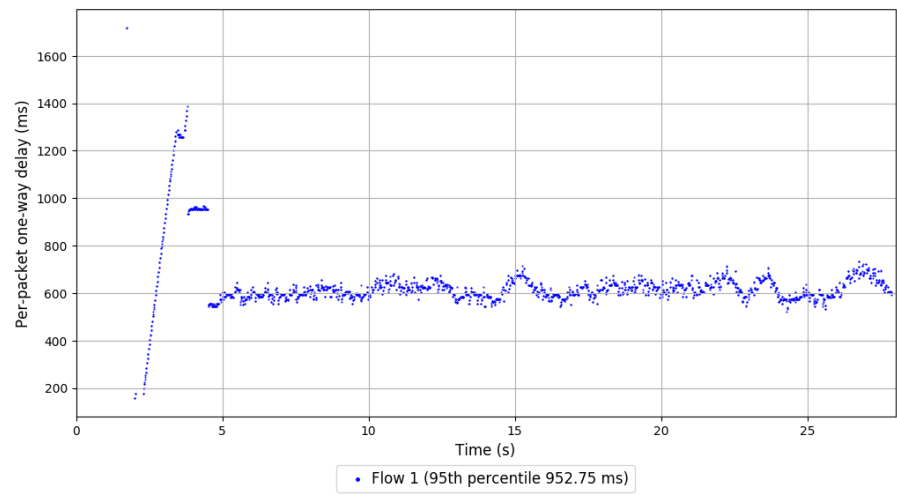
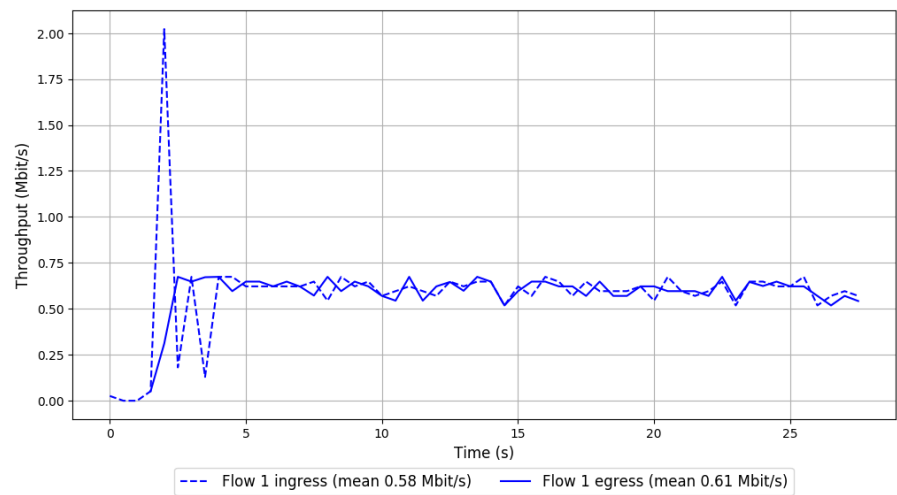


Run 1: Statistics of TaoVA-100x

Start at: 2018-01-18 08:54:30
End at: 2018-01-18 08:55:00
Local clock offset: -2.538 ms
Remote clock offset: -3.135 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 952.746 ms
Loss rate: 2.57%
-- Flow 1:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 952.746 ms
Loss rate: 2.57%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-01-18 09:15:38

End at: 2018-01-18 09:16:08

Local clock offset: -3.222 ms

Remote clock offset: 1.74 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 942.151 ms

Loss rate: 2.56%

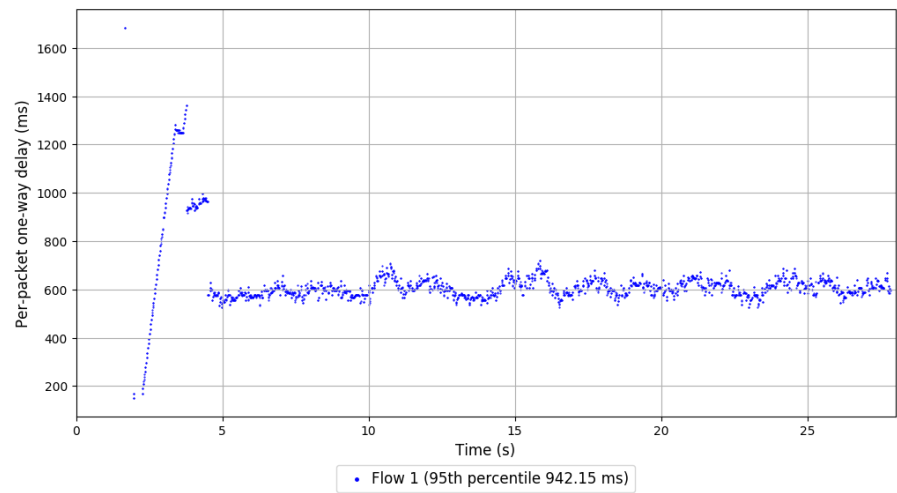
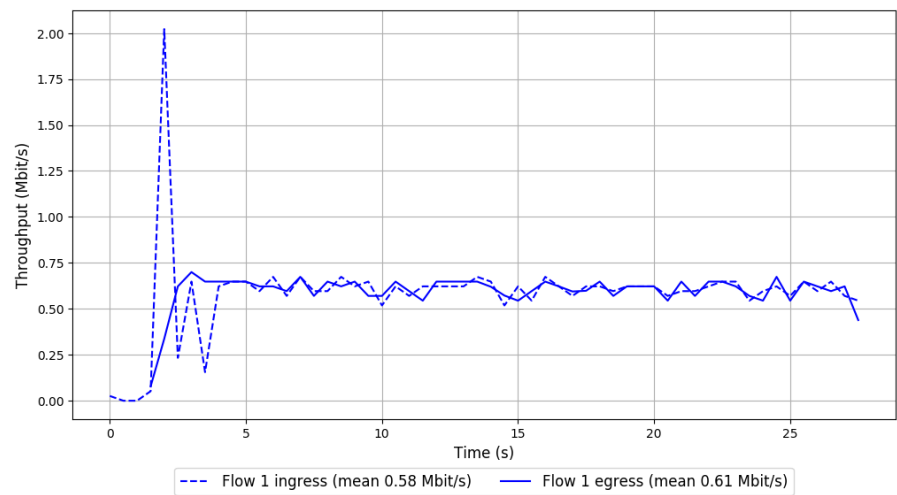
-- Flow 1:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 942.151 ms

Loss rate: 2.56%

Run 2: Report of TaoVA-100x — Data Link



Run 3: Statistics of TaoVA-100x

Start at: 2018-01-18 09:36:44

End at: 2018-01-18 09:37:14

Local clock offset: -2.92 ms

Remote clock offset: -3.658 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 929.648 ms

Loss rate: 2.85%

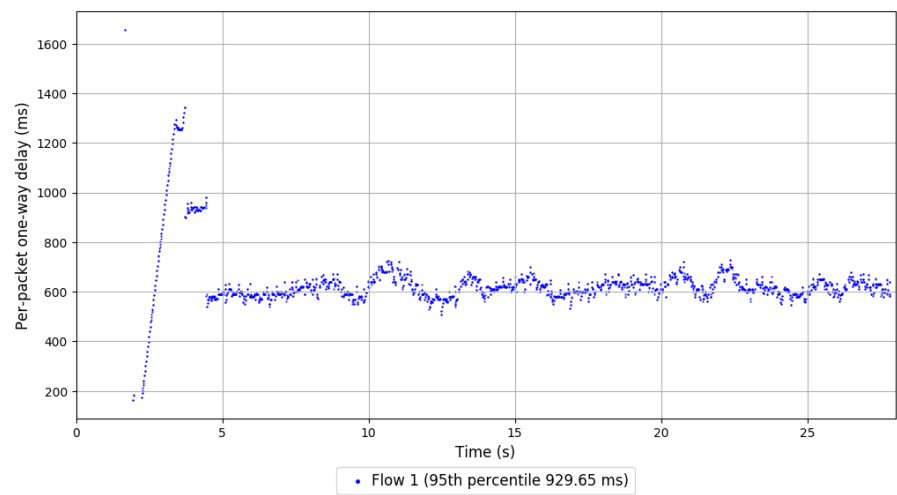
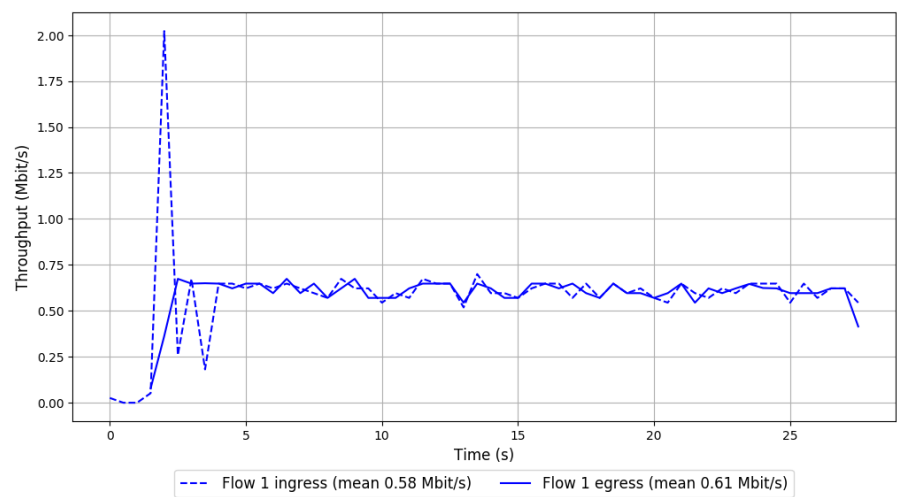
-- Flow 1:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 929.648 ms

Loss rate: 2.85%

Run 3: Report of TaoVA-100x — Data Link

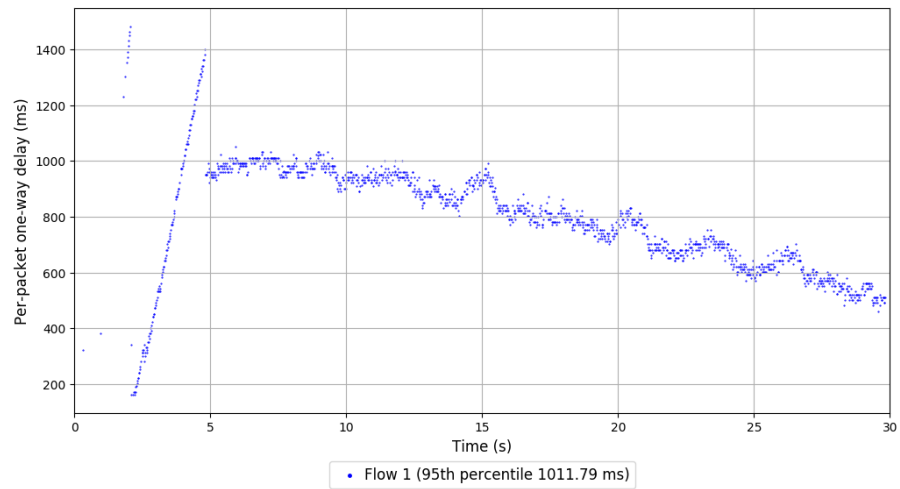
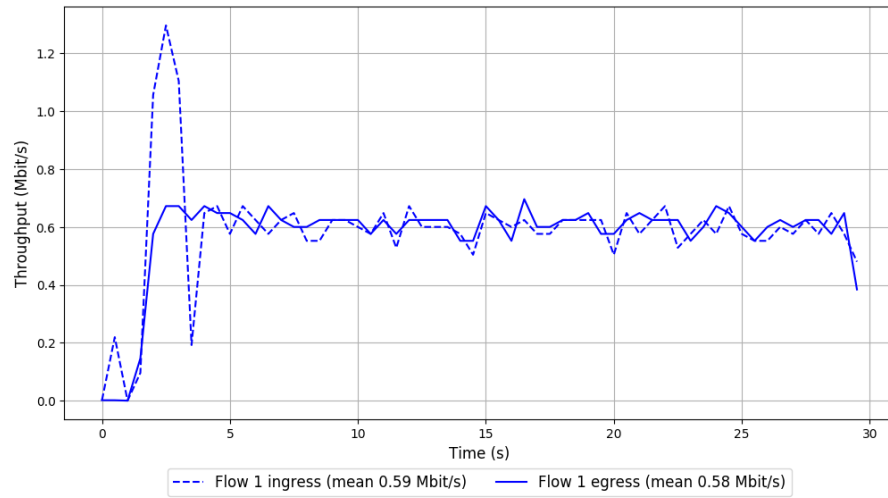


Run 1: Statistics of TCP Vegas

Start at: 2018-01-18 09:00:22
End at: 2018-01-18 09:00:52
Local clock offset: -2.408 ms
Remote clock offset: -4.411 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 1011.795 ms
Loss rate: 1.98%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 1011.795 ms
Loss rate: 1.98%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-01-18 09:21:30

End at: 2018-01-18 09:22:00

Local clock offset: -3.634 ms

Remote clock offset: 2.813 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 1007.497 ms

Loss rate: 1.85%

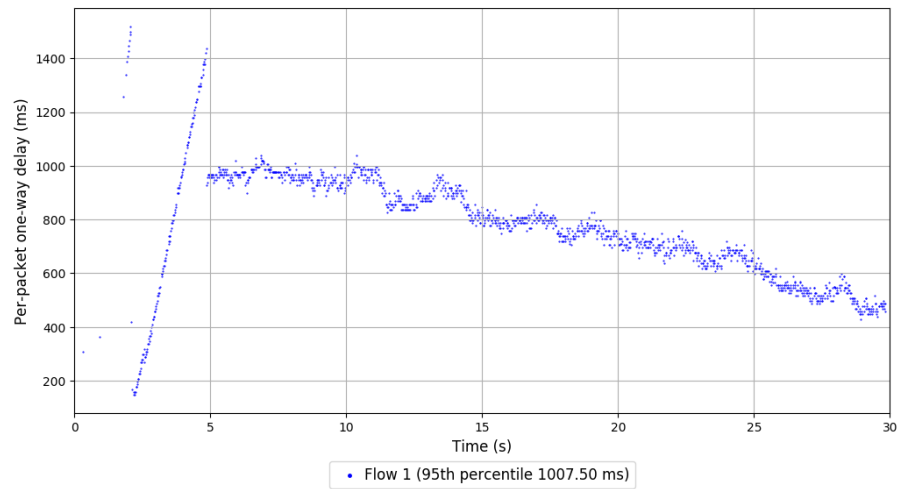
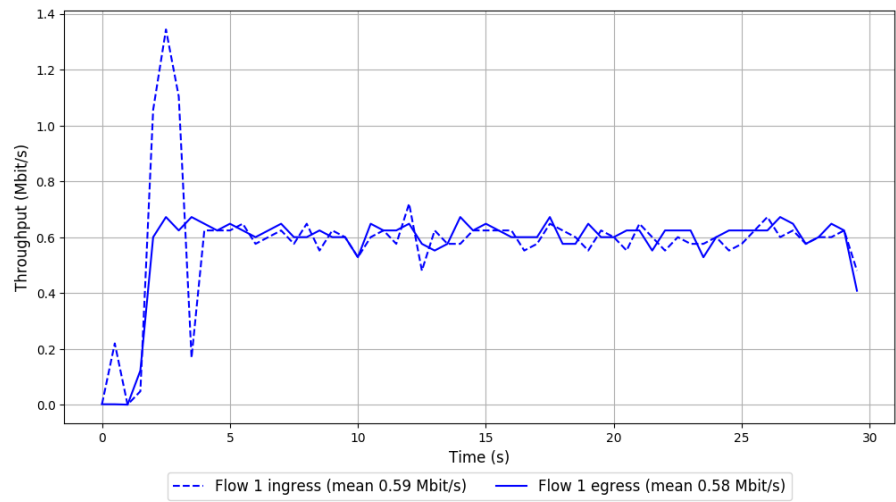
-- Flow 1:

Average throughput: 0.58 Mbit/s

95th percentile per-packet one-way delay: 1007.497 ms

Loss rate: 1.85%

Run 2: Report of TCP Vegas — Data Link

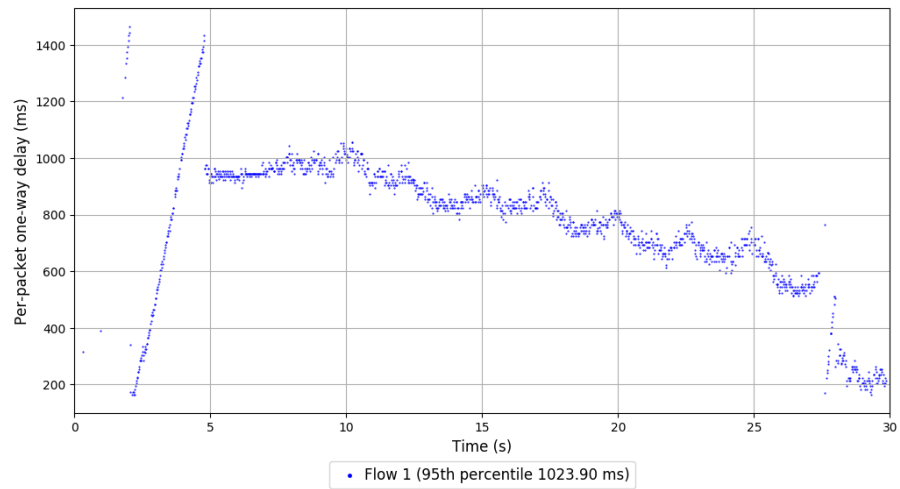
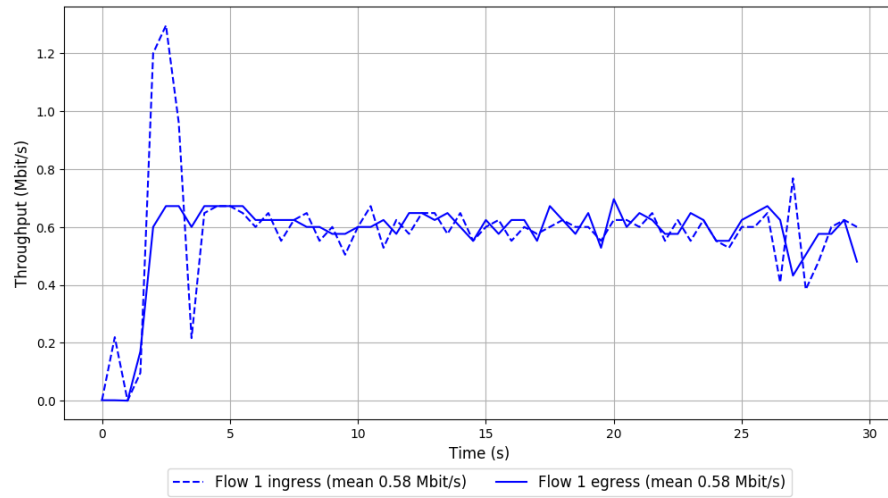


Run 3: Statistics of TCP Vegas

Start at: 2018-01-18 09:42:36
End at: 2018-01-18 09:43:06
Local clock offset: -3.476 ms
Remote clock offset: -4.438 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 1023.898 ms
Loss rate: 2.06%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 1023.898 ms
Loss rate: 2.06%

Run 3: Report of TCP Vegas — Data Link

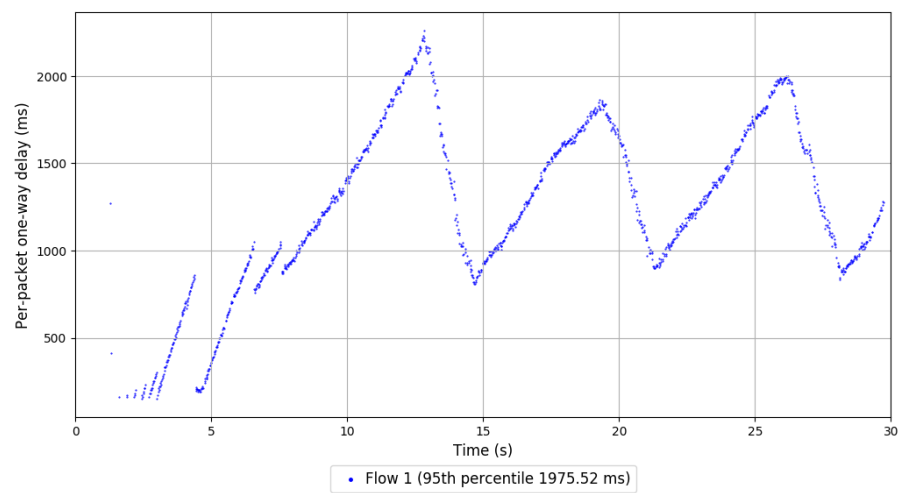
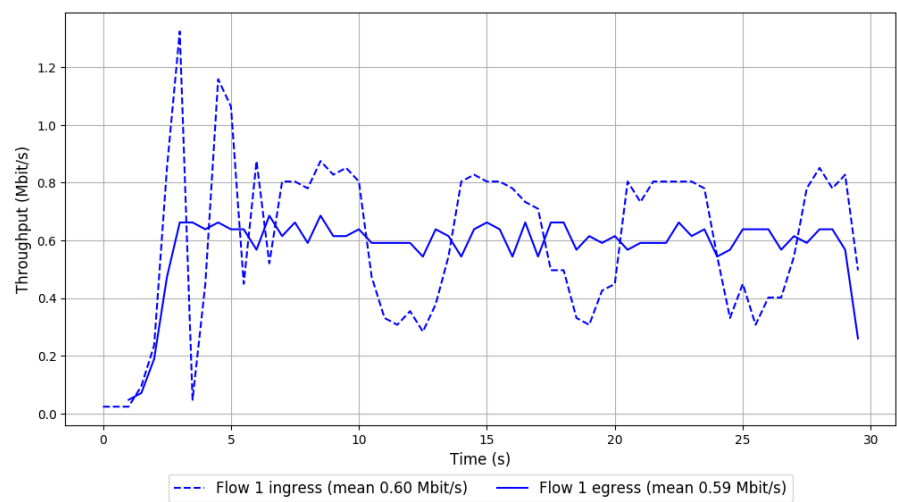


Run 1: Statistics of Verus

Start at: 2018-01-18 08:52:08
End at: 2018-01-18 08:52:38
Local clock offset: -3.119 ms
Remote clock offset: -3.131 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1975.523 ms
Loss rate: 6.01%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1975.523 ms
Loss rate: 6.01%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-01-18 09:13:15

End at: 2018-01-18 09:13:45

Local clock offset: -3.277 ms

Remote clock offset: 1.711 ms

Below is generated by plot.py at 2018-01-18 10:47:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 2020.900 ms

Loss rate: 5.81%

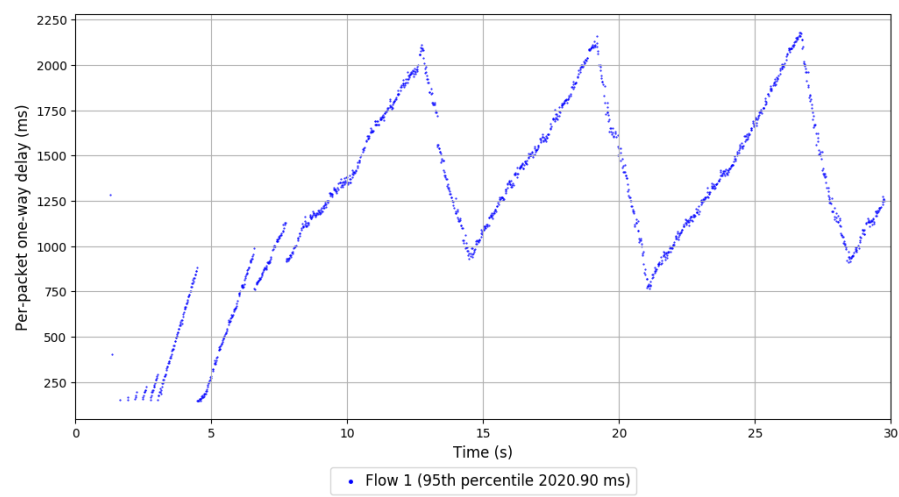
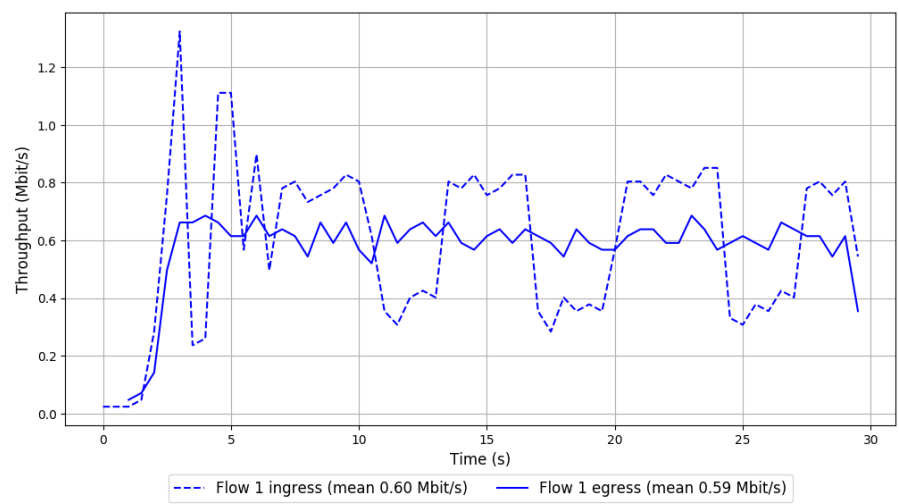
-- Flow 1:

Average throughput: 0.59 Mbit/s

95th percentile per-packet one-way delay: 2020.900 ms

Loss rate: 5.81%

Run 2: Report of Verus — Data Link

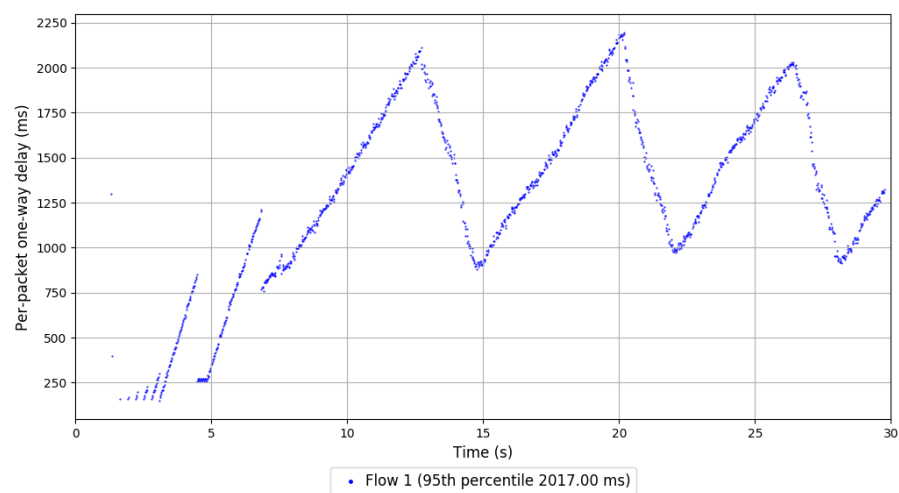
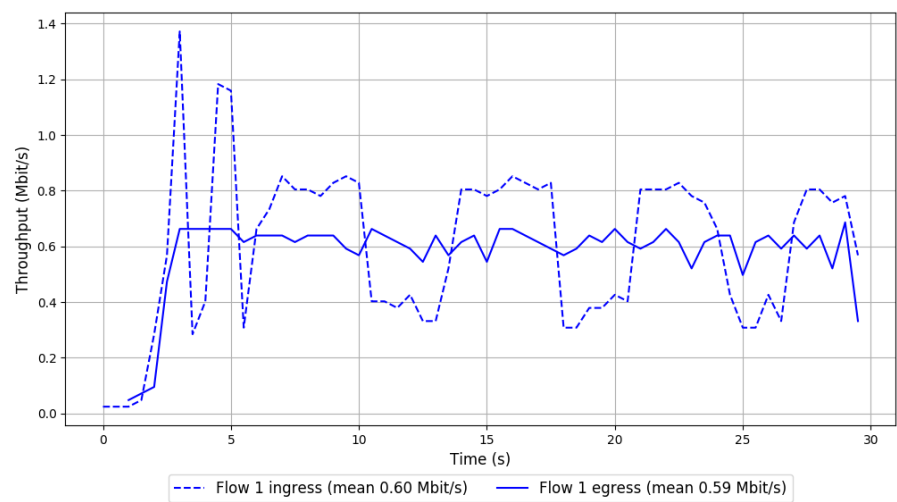


Run 3: Statistics of Verus

Start at: 2018-01-18 09:34:22
End at: 2018-01-18 09:34:52
Local clock offset: -2.774 ms
Remote clock offset: -2.798 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 2016.999 ms
Loss rate: 6.05%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 2016.999 ms
Loss rate: 6.05%

Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

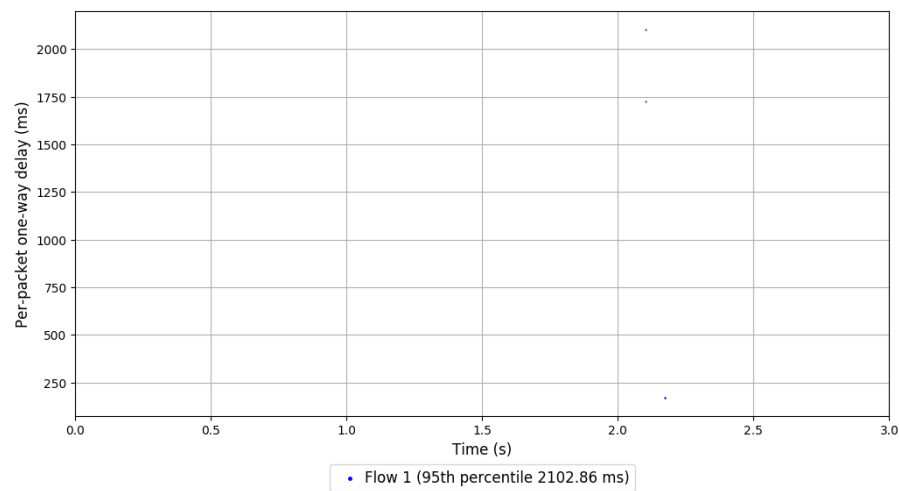
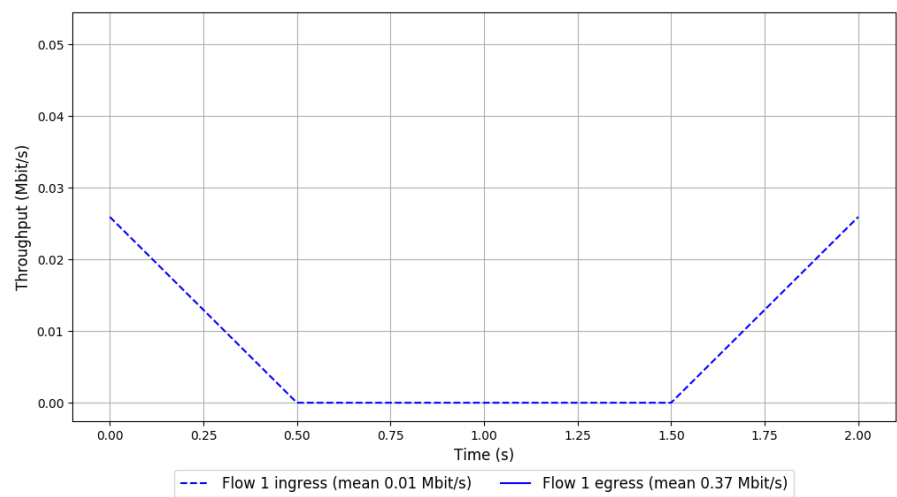
Start at: 2018-01-18 08:48:38

End at: 2018-01-18 08:49:08

Local clock offset: -2.801 ms

Remote clock offset: -2.798 ms

Run 1: Report of Copa — Data Link

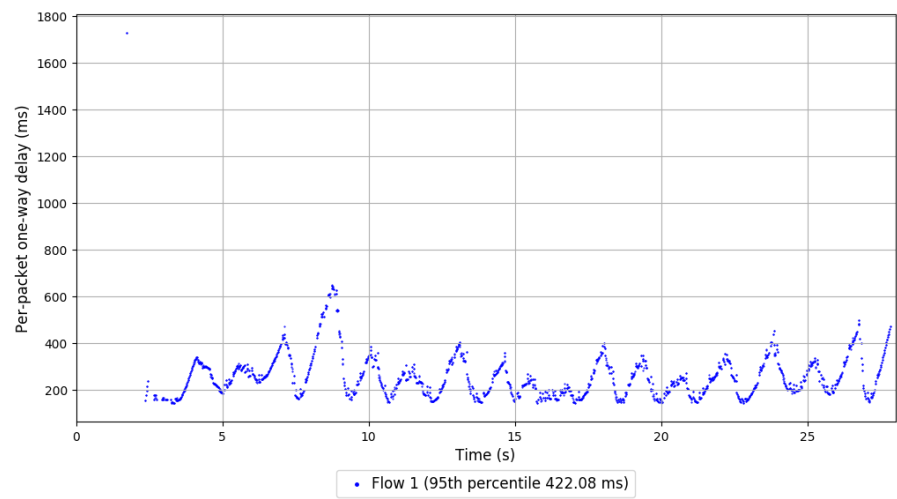
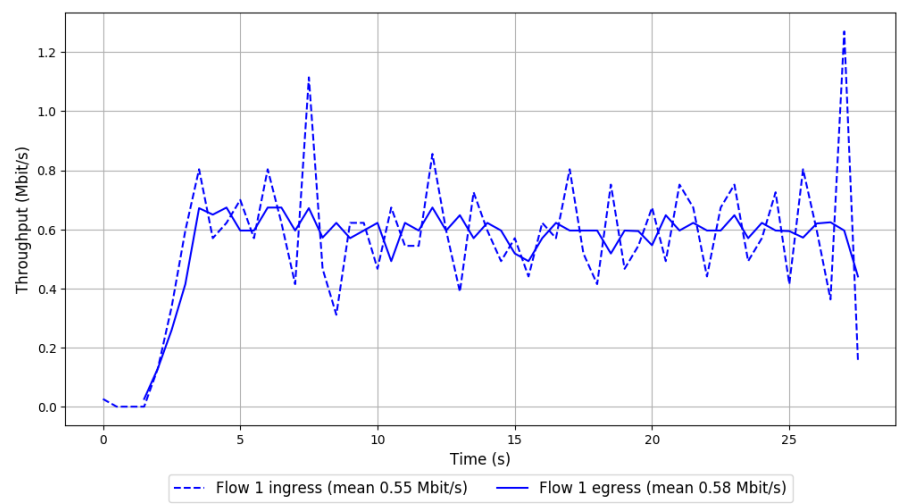


Run 2: Statistics of Copa

Start at: 2018-01-18 09:09:44
End at: 2018-01-18 09:10:15
Local clock offset: -2.774 ms
Remote clock offset: -3.628 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 422.081 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 422.081 ms
Loss rate: 1.77%

Run 2: Report of Copa — Data Link

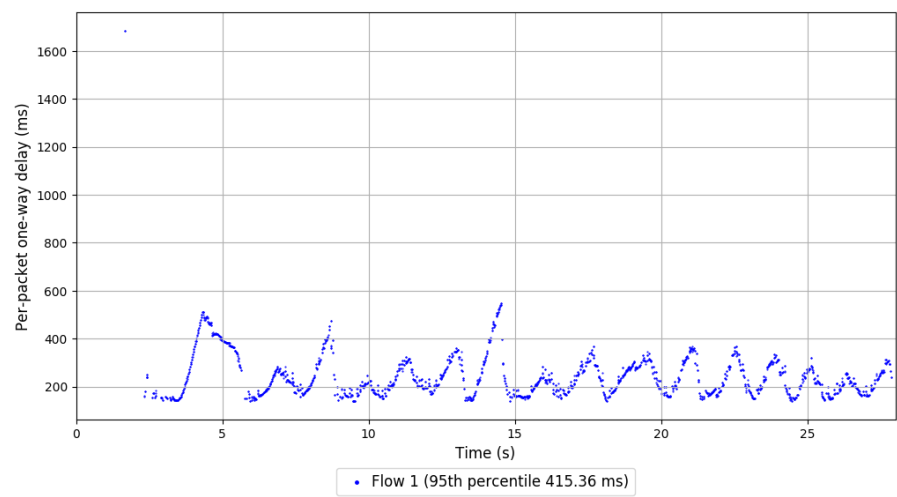
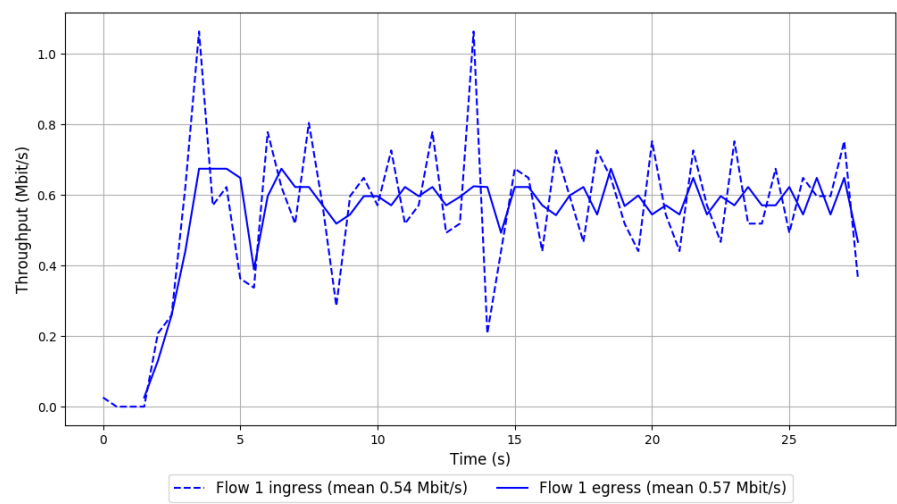


Run 3: Statistics of Copa

Start at: 2018-01-18 09:30:52
End at: 2018-01-18 09:31:22
Local clock offset: -2.781 ms
Remote clock offset: 0.793 ms

Below is generated by plot.py at 2018-01-18 10:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 415.355 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 415.355 ms
Loss rate: 0.95%

Run 3: Report of Copa — Data Link



Run 1: Statistics of FillP

Start at: 2018-01-18 08:53:18

End at: 2018-01-18 08:53:48

Local clock offset: -2.796 ms

Remote clock offset: 2.526 ms

Below is generated by plot.py at 2018-01-18 10:47:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 26638.167 ms

Loss rate: 98.34%

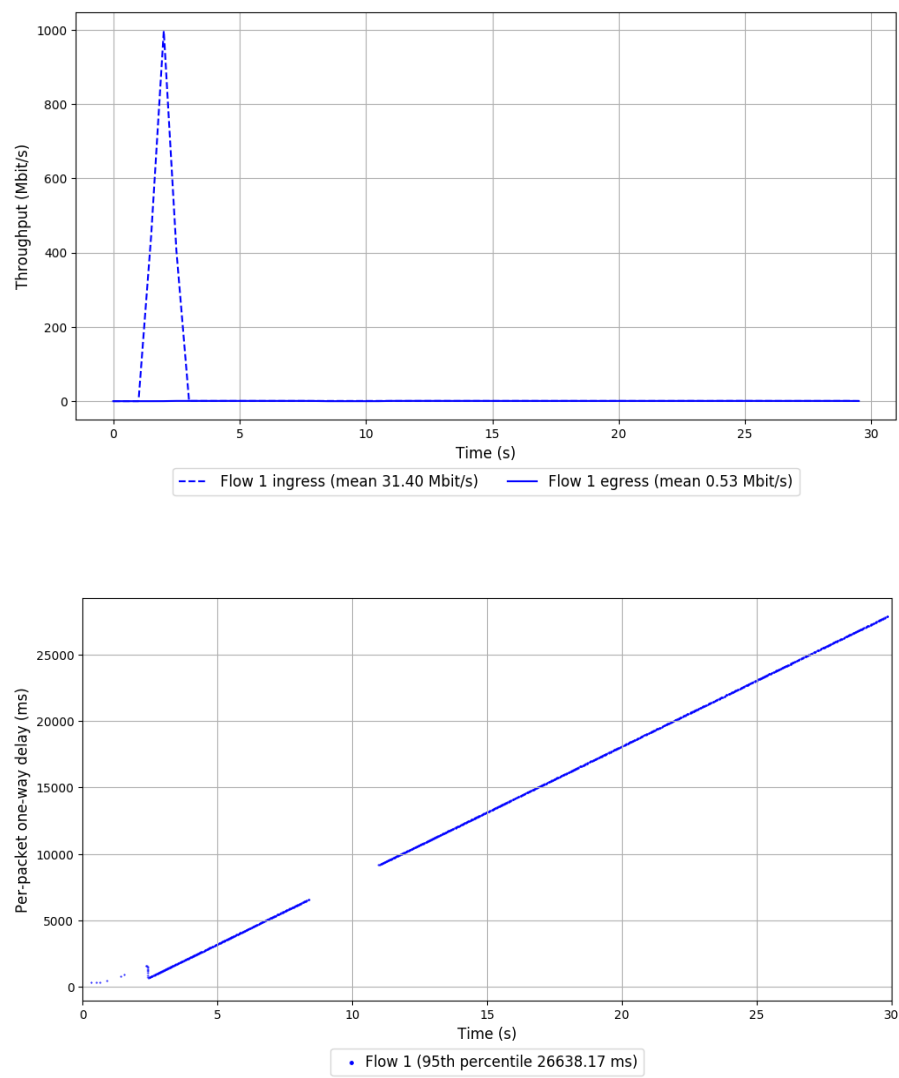
-- Flow 1:

Average throughput: 0.53 Mbit/s

95th percentile per-packet one-way delay: 26638.167 ms

Loss rate: 98.34%

Run 1: Report of FillP — Data Link

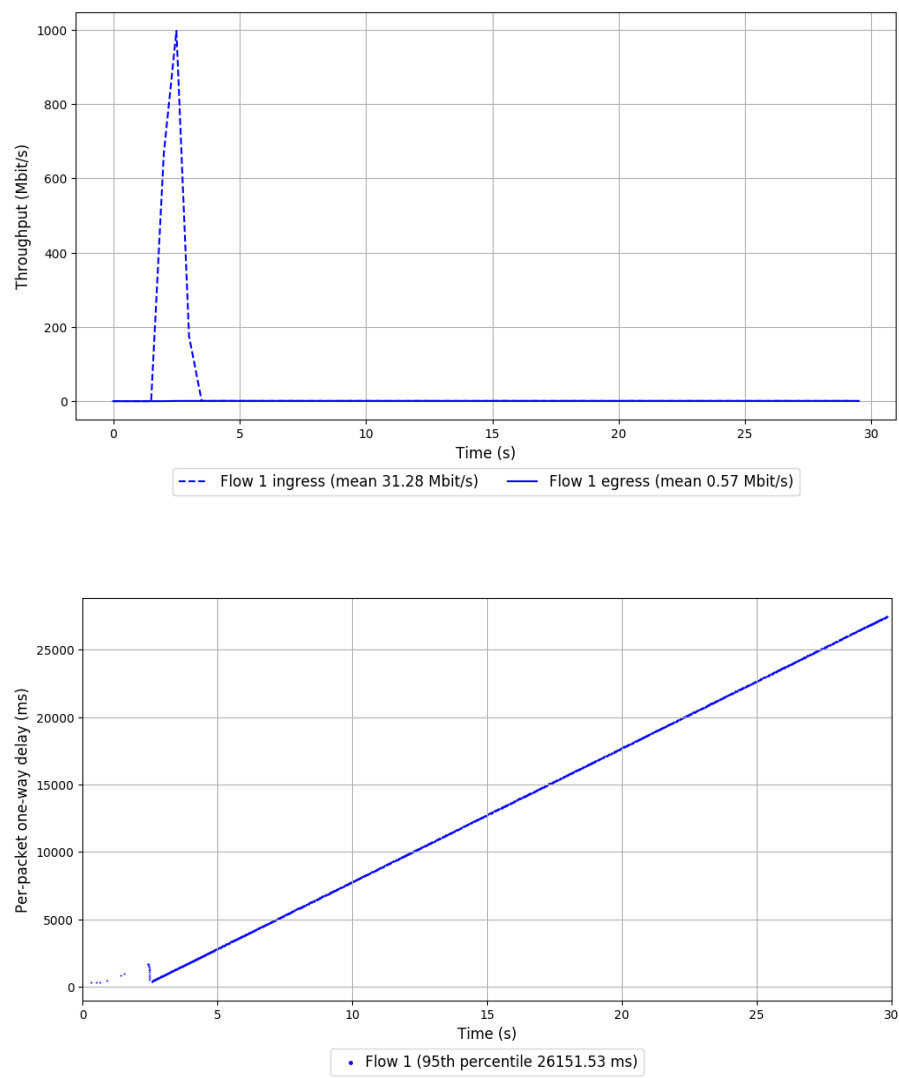


Run 2: Statistics of FillP

Start at: 2018-01-18 09:14:25
End at: 2018-01-18 09:14:56
Local clock offset: -3.166 ms
Remote clock offset: -2.726 ms

Below is generated by plot.py at 2018-01-18 10:47:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26151.535 ms
Loss rate: 98.19%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26151.535 ms
Loss rate: 98.19%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-01-18 09:35:33

End at: 2018-01-18 09:36:03

Local clock offset: -2.845 ms

Remote clock offset: 2.125 ms

Below is generated by plot.py at 2018-01-18 10:47:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 26063.190 ms

Loss rate: 97.95%

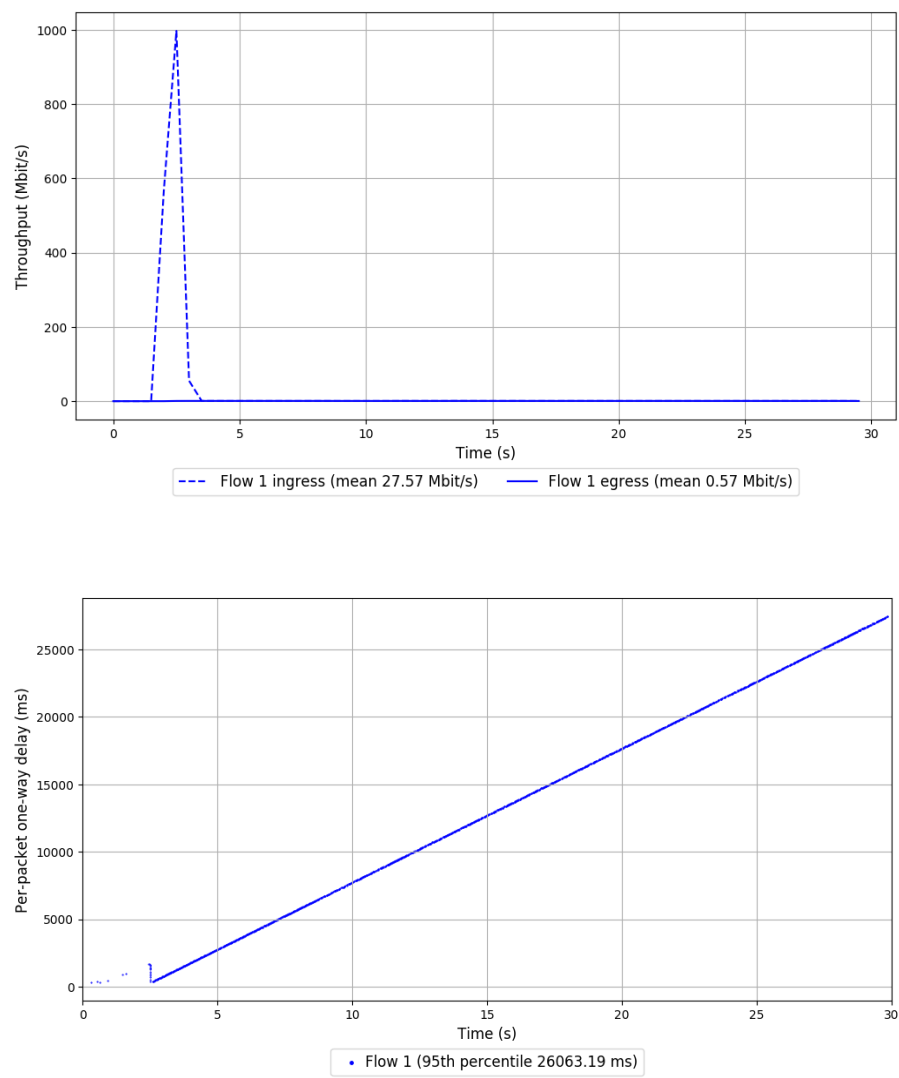
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 26063.190 ms

Loss rate: 97.95%

Run 3: Report of FillP — Data Link

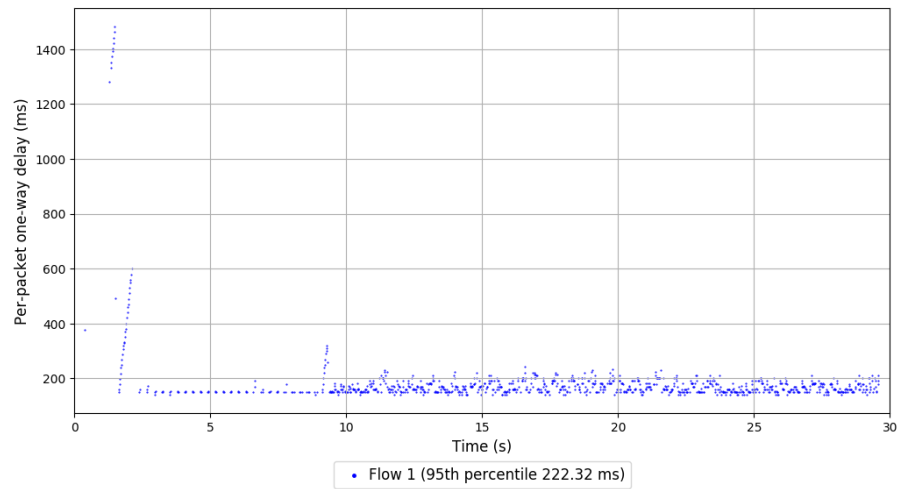
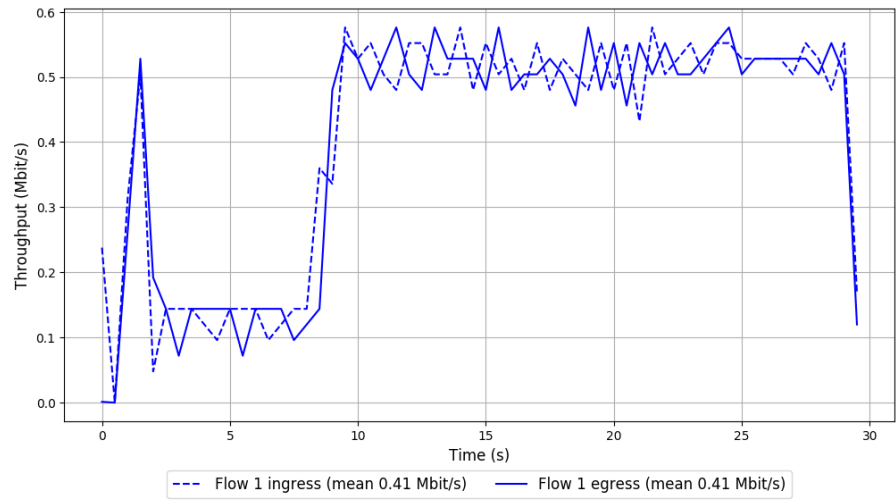


```
Run 1: Statistics of Indigo

Start at: 2018-01-18 08:49:48
End at: 2018-01-18 08:50:18
Local clock offset: -2.828 ms
Remote clock offset: 1.971 ms

# Below is generated by plot.py at 2018-01-18 10:47:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 222.321 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 222.321 ms
Loss rate: 1.47%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-01-18 09:10:55

End at: 2018-01-18 09:11:25

Local clock offset: -2.991 ms

Remote clock offset: 0.888 ms

Below is generated by plot.py at 2018-01-18 10:47:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.35 Mbit/s

95th percentile per-packet one-way delay: 410.719 ms

Loss rate: 1.39%

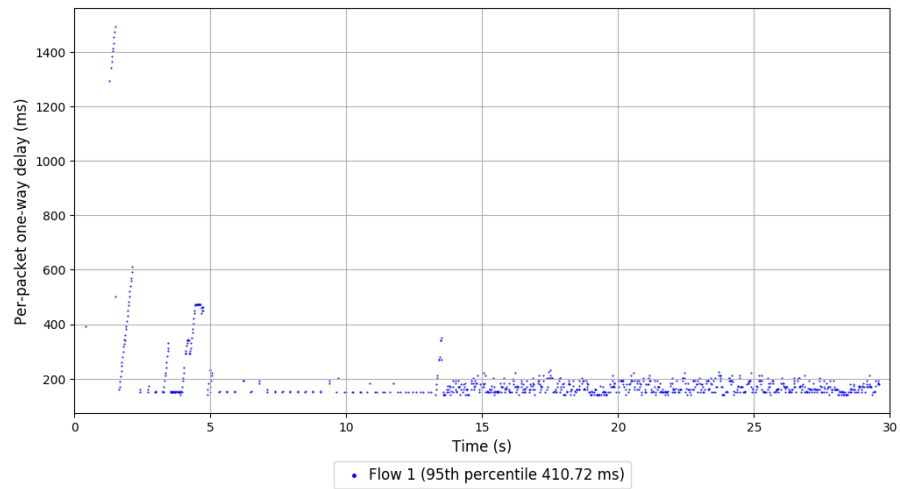
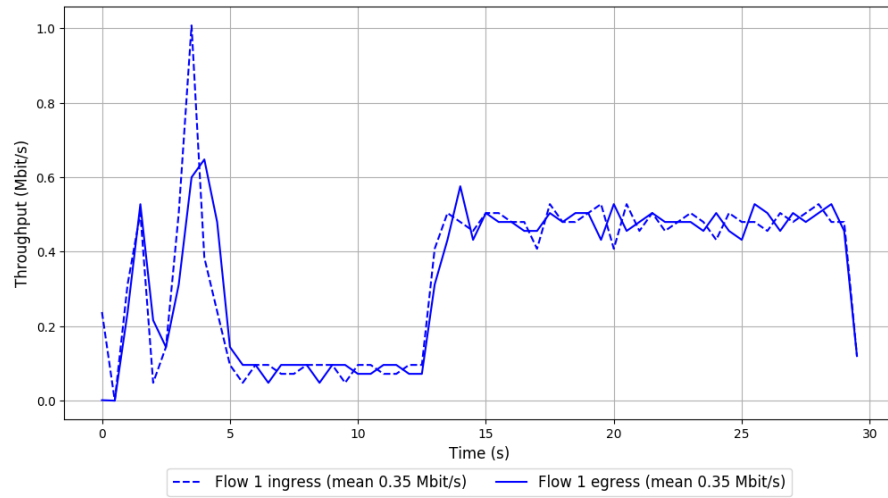
-- Flow 1:

Average throughput: 0.35 Mbit/s

95th percentile per-packet one-way delay: 410.719 ms

Loss rate: 1.39%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-01-18 09:32:02

End at: 2018-01-18 09:32:32

Local clock offset: -2.763 ms

Remote clock offset: 2.335 ms

Below is generated by plot.py at 2018-01-18 10:47:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 364.925 ms

Loss rate: 0.70%

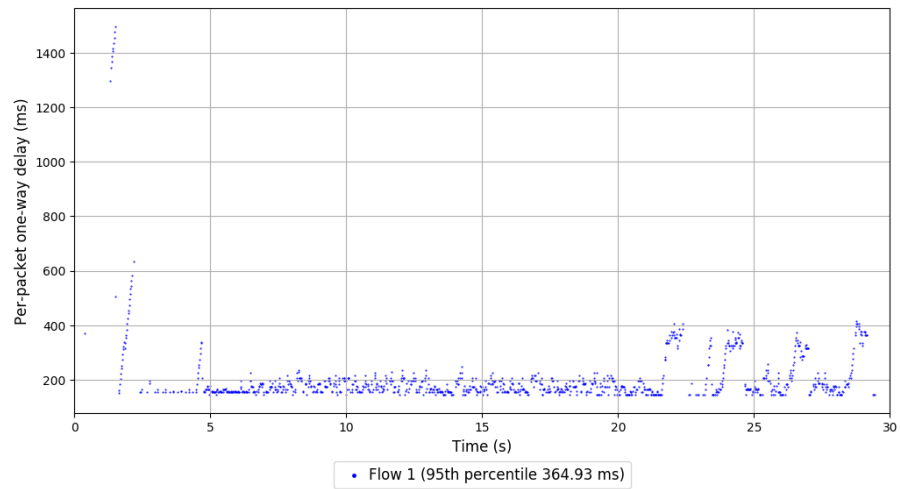
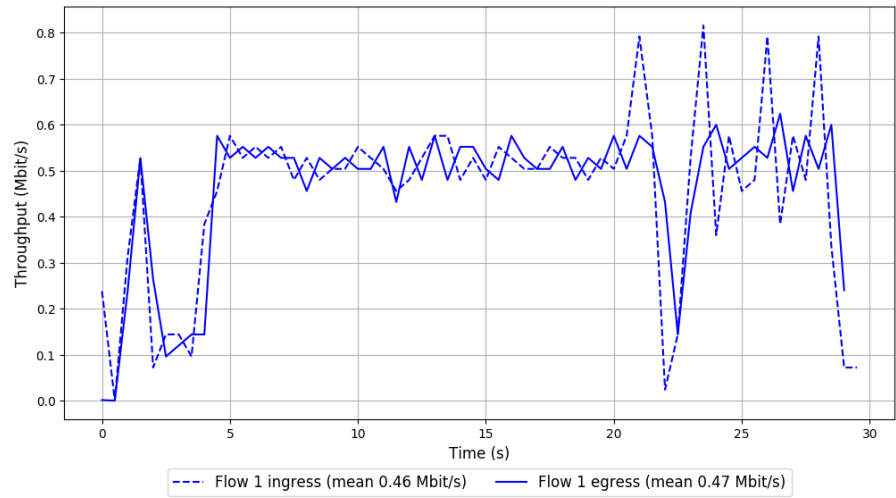
-- Flow 1:

Average throughput: 0.47 Mbit/s

95th percentile per-packet one-way delay: 364.925 ms

Loss rate: 0.70%

Run 3: Report of Indigo — Data Link

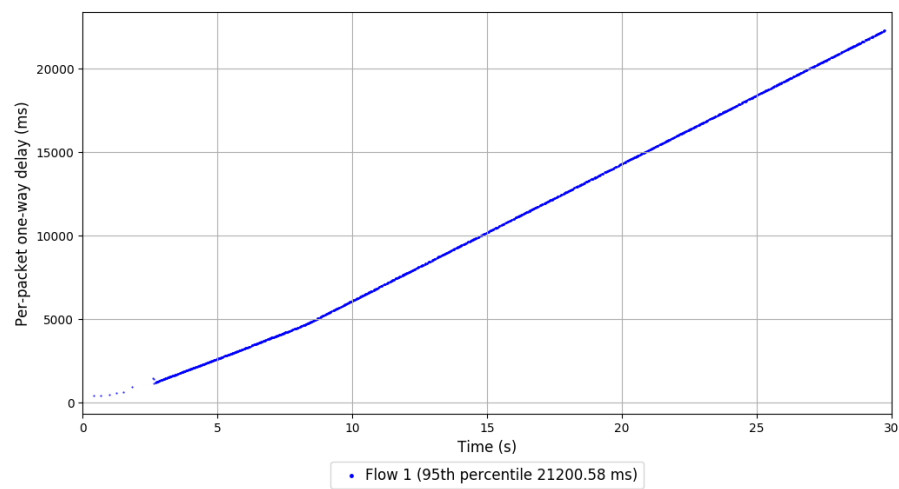
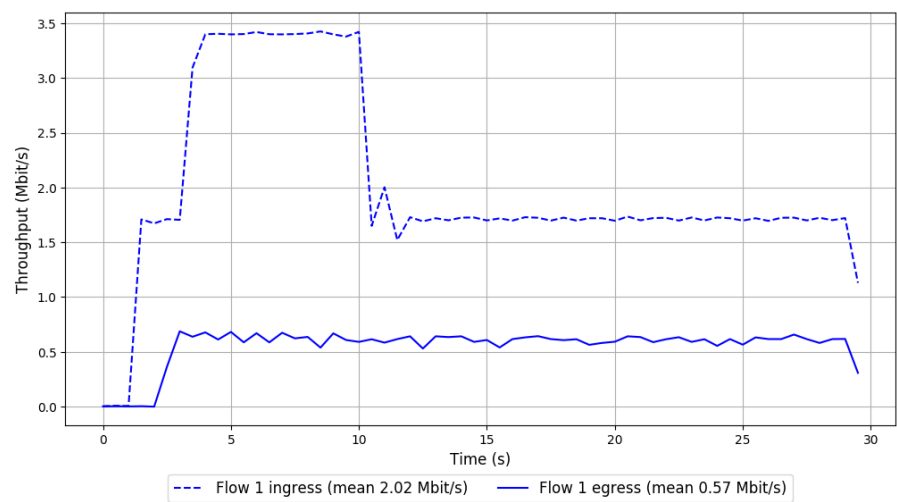


Run 1: Statistics of Vivace-latency

Start at: 2018-01-18 08:58:01
End at: 2018-01-18 08:58:31
Local clock offset: -2.525 ms
Remote clock offset: -3.458 ms

Below is generated by plot.py at 2018-01-18 10:47:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21200.581 ms
Loss rate: 72.35%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21200.581 ms
Loss rate: 72.35%

Run 1: Report of Vivace-latency — Data Link

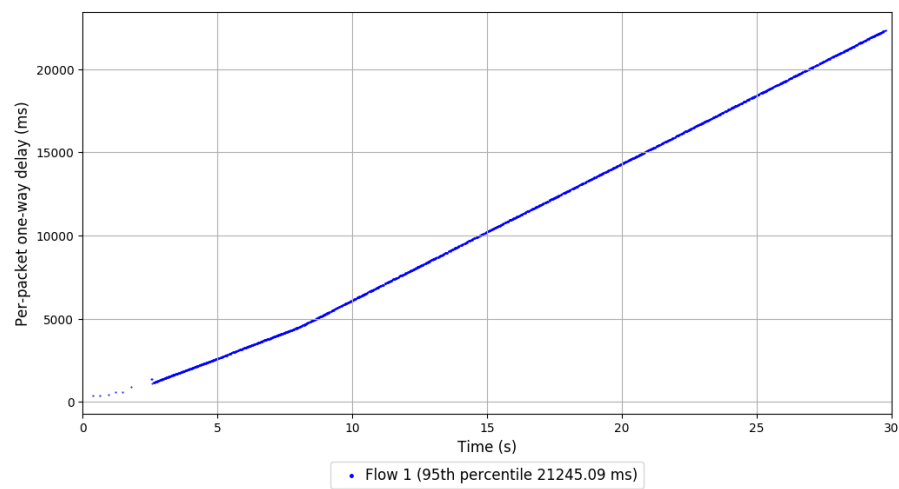
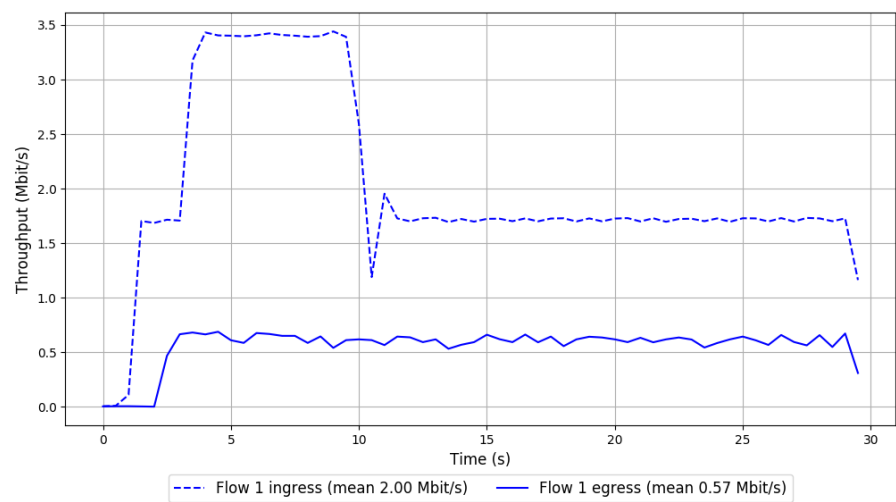


Run 2: Statistics of Vivace-latency

Start at: 2018-01-18 09:19:09
End at: 2018-01-18 09:19:39
Local clock offset: -3.548 ms
Remote clock offset: -4.348 ms

Below is generated by plot.py at 2018-01-18 10:47:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21245.092 ms
Loss rate: 72.07%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21245.092 ms
Loss rate: 72.07%

Run 2: Report of Vivace-latency — Data Link

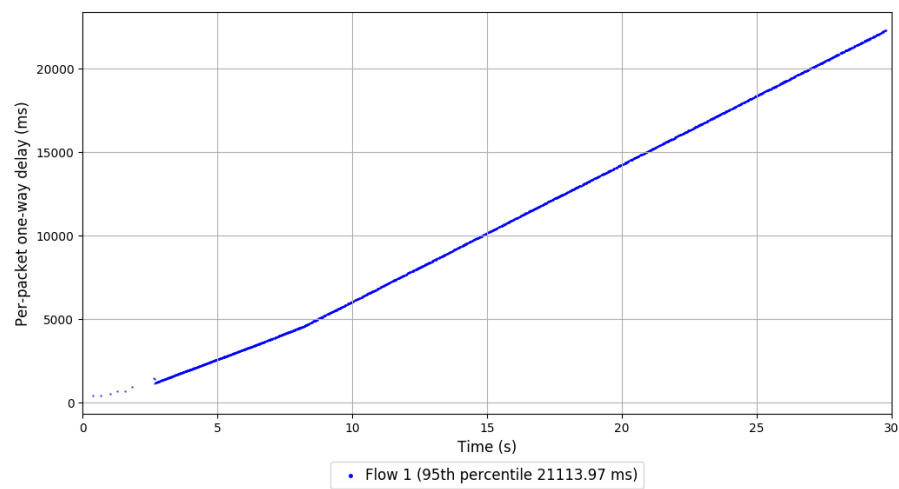
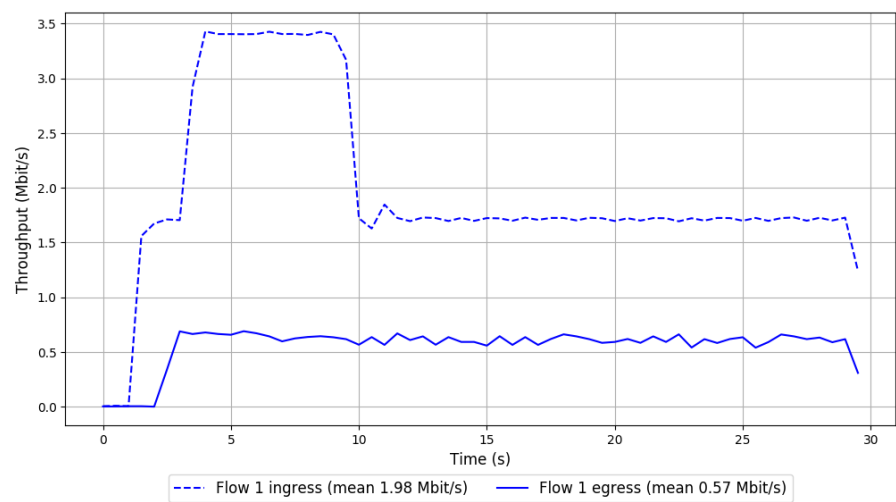


Run 3: Statistics of Vivace-latency

Start at: 2018-01-18 09:40:16
End at: 2018-01-18 09:40:46
Local clock offset: -3.434 ms
Remote clock offset: -3.636 ms

Below is generated by plot.py at 2018-01-18 10:47:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21113.973 ms
Loss rate: 71.72%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21113.973 ms
Loss rate: 71.72%

Run 3: Report of Vivace-latency — Data Link



Run 1: Statistics of Vivace-loss

Start at: 2018-01-18 08:55:40

End at: 2018-01-18 08:56:10

Local clock offset: -2.435 ms

Remote clock offset: 1.419 ms

Below is generated by plot.py at 2018-01-18 10:47:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 20912.844 ms

Loss rate: 89.27%

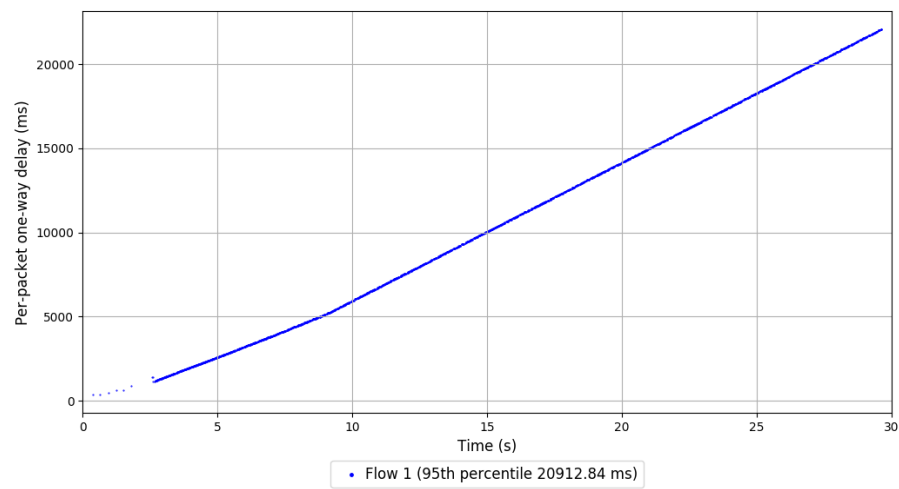
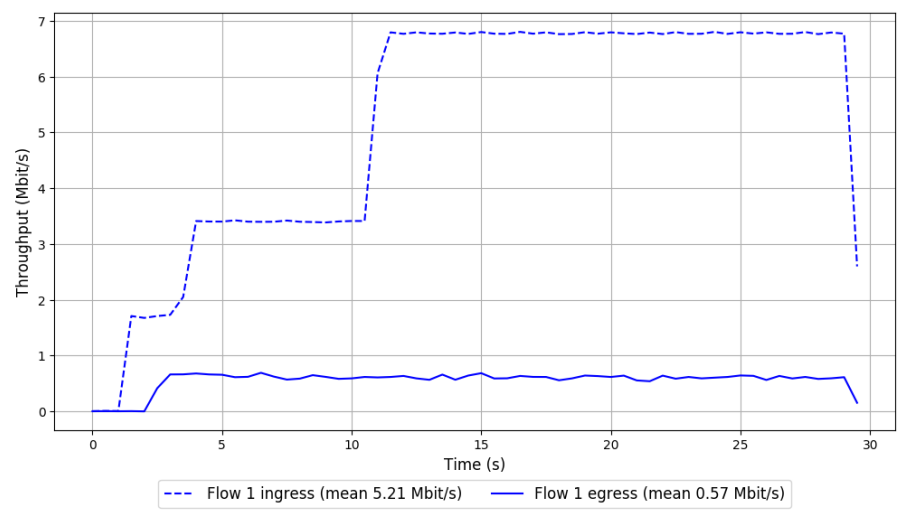
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 20912.844 ms

Loss rate: 89.27%

Run 1: Report of Vivace-loss — Data Link



Run 2: Statistics of Vivace-loss

Start at: 2018-01-18 09:16:48

End at: 2018-01-18 09:17:18

Local clock offset: -3.301 ms

Remote clock offset: 1.468 ms

Below is generated by plot.py at 2018-01-18 10:47:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 21063.459 ms

Loss rate: 89.21%

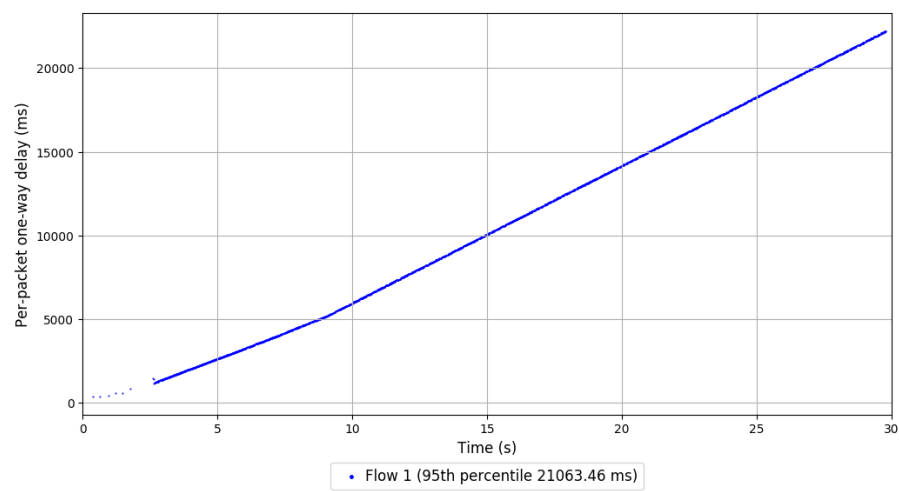
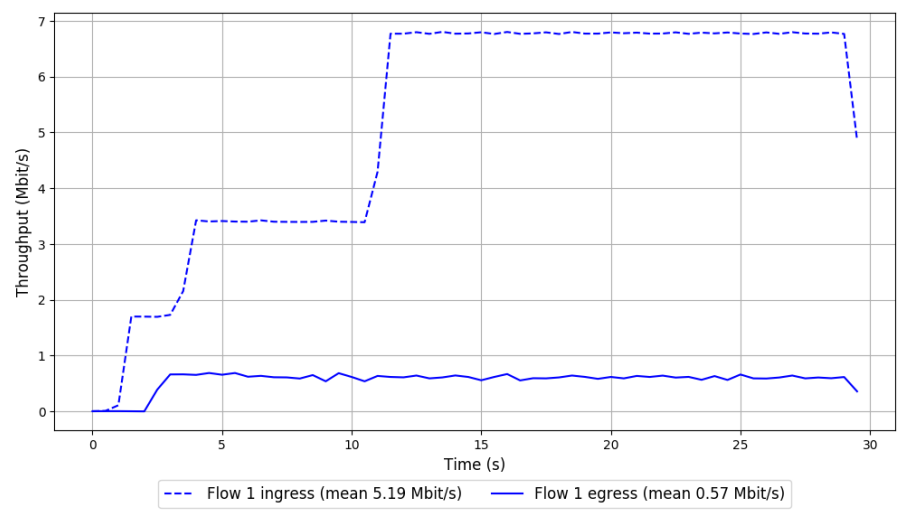
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 21063.459 ms

Loss rate: 89.21%

Run 2: Report of Vivace-loss — Data Link



Run 3: Statistics of Vivace-loss

Start at: 2018-01-18 09:37:54

End at: 2018-01-18 09:38:24

Local clock offset: -3.093 ms

Remote clock offset: 0.77 ms

Below is generated by plot.py at 2018-01-18 10:47:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 20973.596 ms

Loss rate: 89.27%

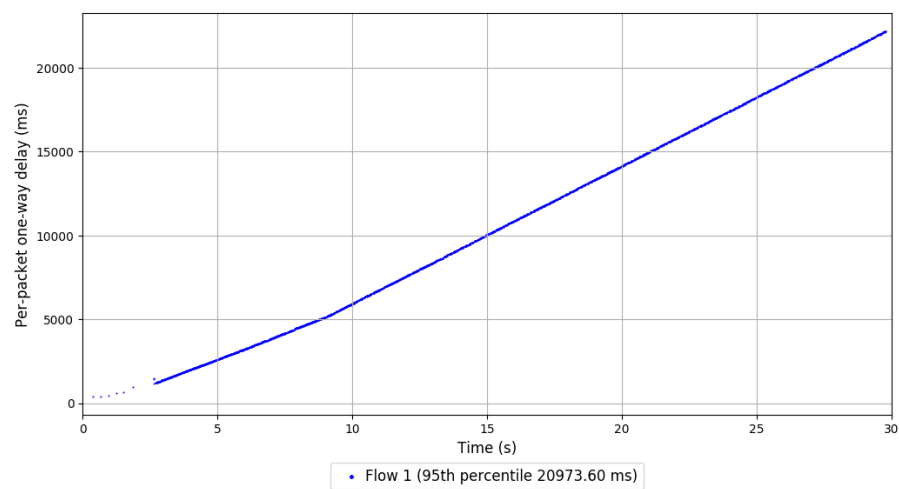
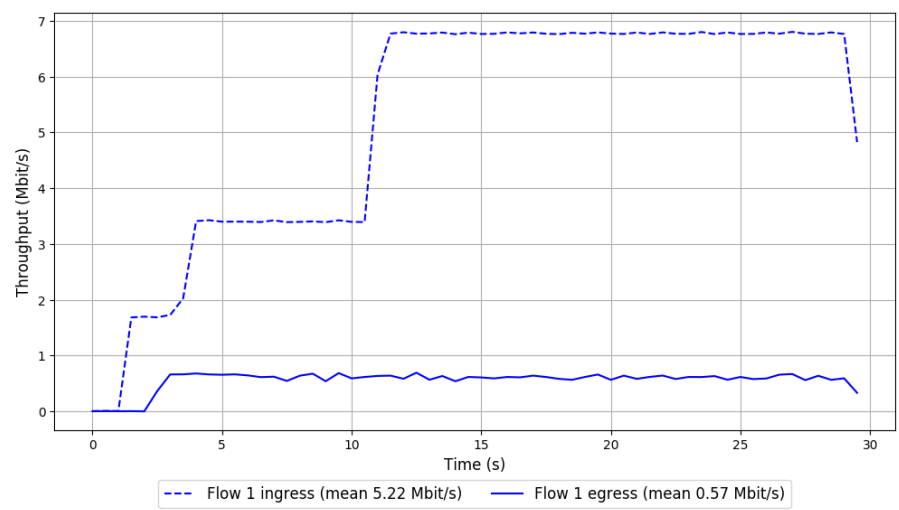
-- Flow 1:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 20973.596 ms

Loss rate: 89.27%

Run 3: Report of Vivace-loss — Data Link

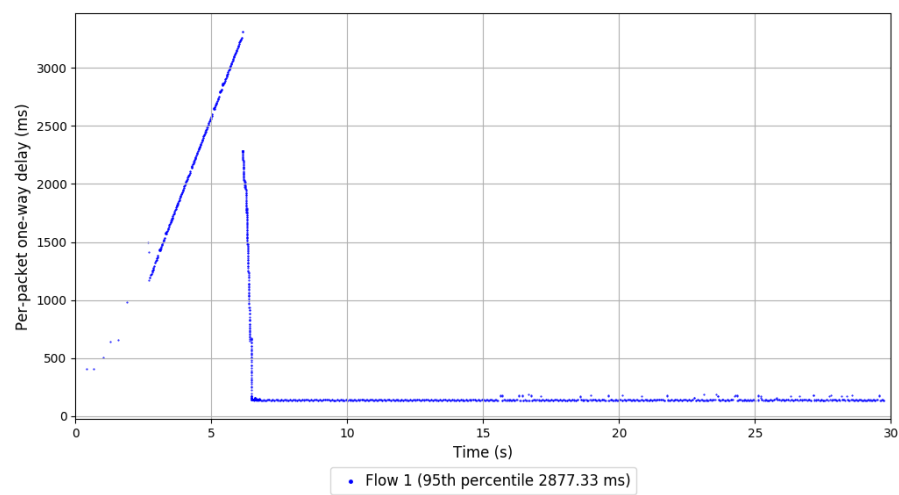
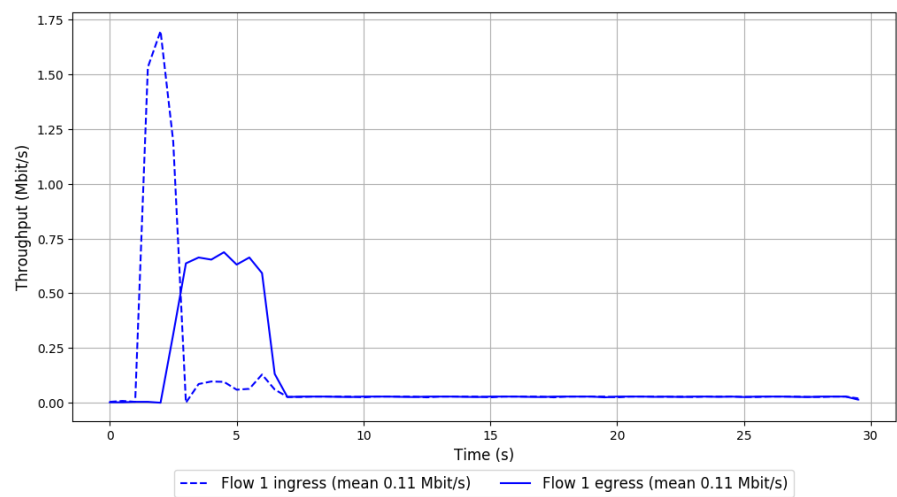


Run 1: Statistics of Vivace-LTE

Start at: 2018-01-18 08:50:58
End at: 2018-01-18 08:51:28
Local clock offset: -2.887 ms
Remote clock offset: -3.728 ms

Below is generated by plot.py at 2018-01-18 10:47:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 2877.330 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 2877.330 ms
Loss rate: 0.78%

Run 1: Report of Vivace-LTE — Data Link

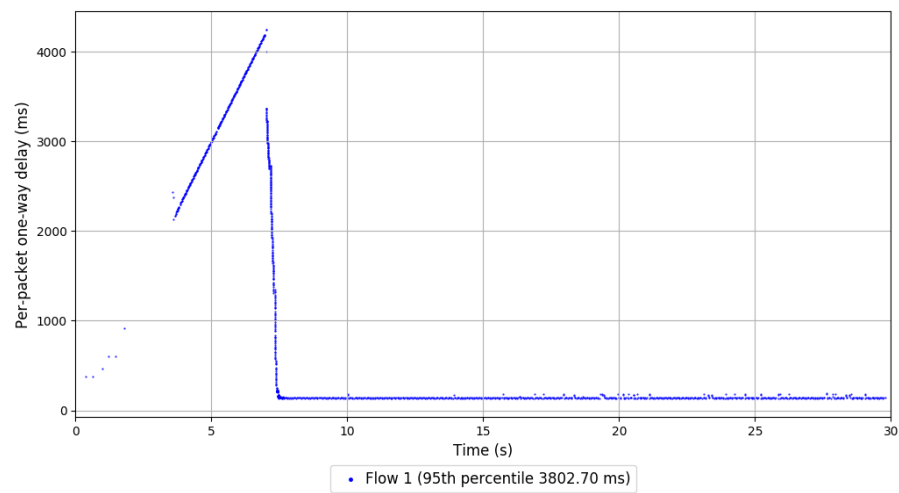
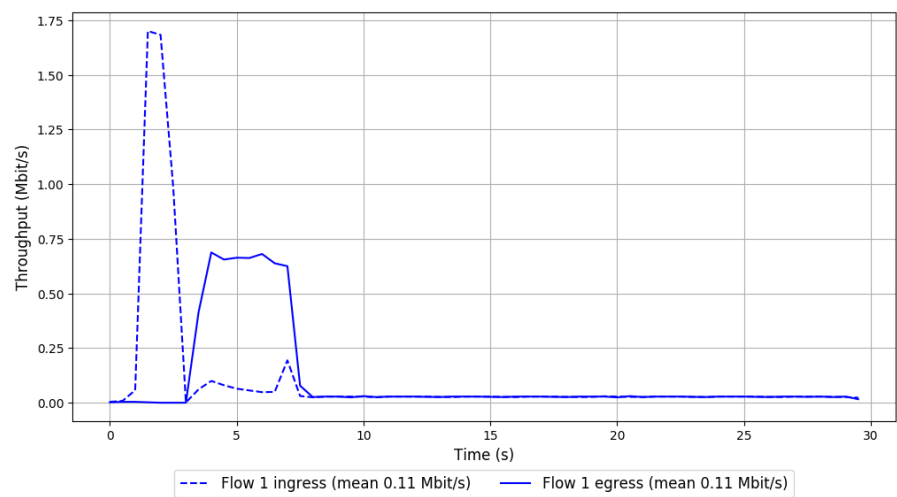


Run 2: Statistics of Vivace-LTE

Start at: 2018-01-18 09:12:05
End at: 2018-01-18 09:12:35
Local clock offset: -3.17 ms
Remote clock offset: -3.118 ms

Below is generated by plot.py at 2018-01-18 10:47:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 3802.704 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 3802.704 ms
Loss rate: 0.22%

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

Start at: 2018-01-18 09:33:12

End at: 2018-01-18 09:33:42

Local clock offset: -2.733 ms

Remote clock offset: 2.286 ms

Below is generated by plot.py at 2018-01-18 10:47:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 2837.301 ms

Loss rate: 0.59%

-- Flow 1:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 2837.301 ms

Loss rate: 0.59%

Run 3: Report of Vivace-LTE — Data Link

