

Pantheon Report

Generated at 2018-01-25 18:09:08 (UTC).

Data path: India ppp0 (*remote*) → AWS India 1 Ethernet (*local*).

Repeated the test of 15 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).

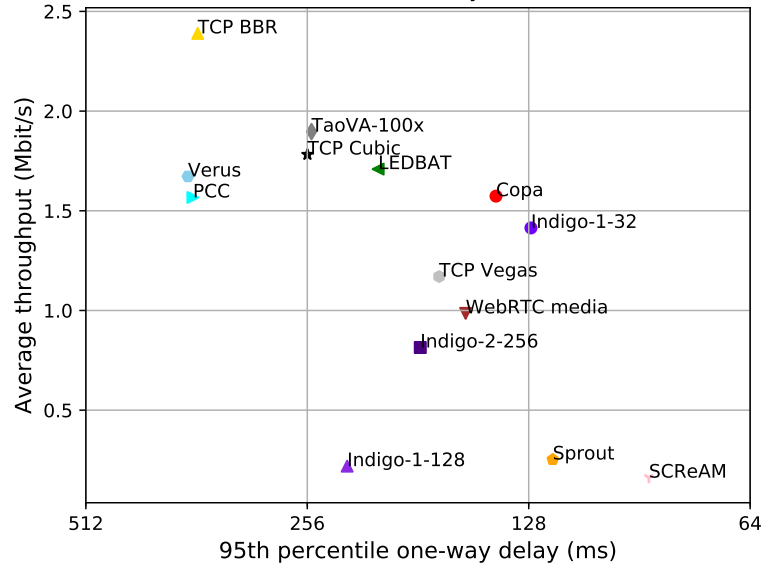
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

NTP offsets were measured against **nets.org.sg** and have been applied to correct the timestamps in logs.

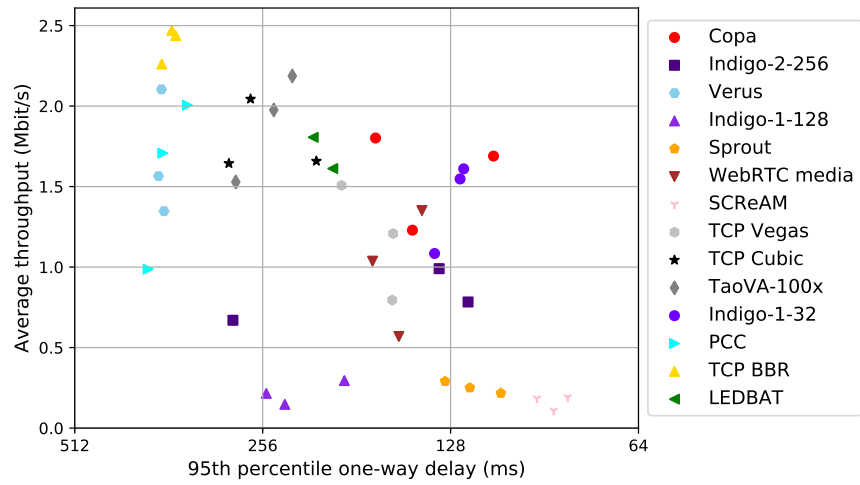
Git summary:

```
branch: master @ f23294ec38436c9f802847d477a41b7343ec76e6
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ ec9585325218d5048c4d4152fa42240af54c6e67
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ a9b2060d39e4da2e8987e893e3eca2a6c7cd0ab9
third_party/indigo-1-layer-128-unit @ 3ae9e4ef4230db7484501f82ce8b377695f2f66d
third_party/indigo-1-layer-32-unit @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-1-layer-32-unit-no-calib @ 1f3a7f75b41135ed5b540c0fd3505939528e2a5f
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 @ 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/vivace @ 423cbca3e8ea1d599e7b5cf725835e8a2b6bfac6
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from India ppp0 to AWS India 1 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from India ppp0 to AWS India 1 Ethernet, 3 runs of 30s each per scheme



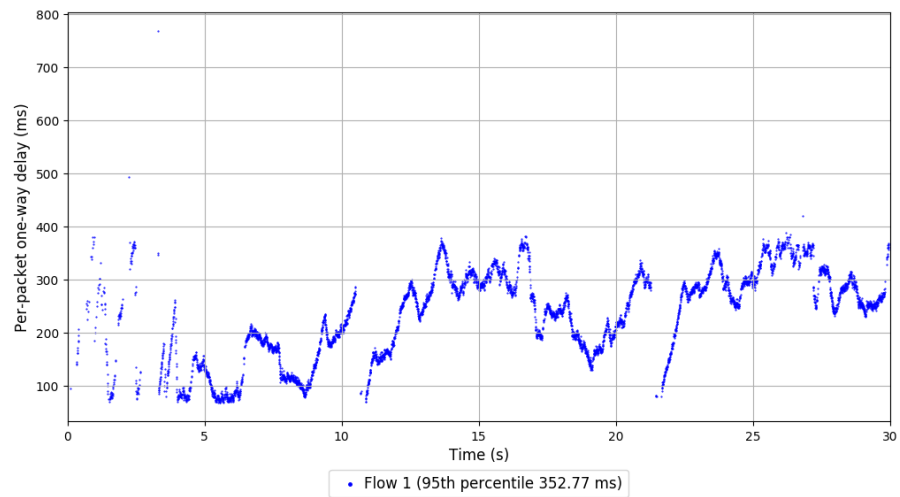
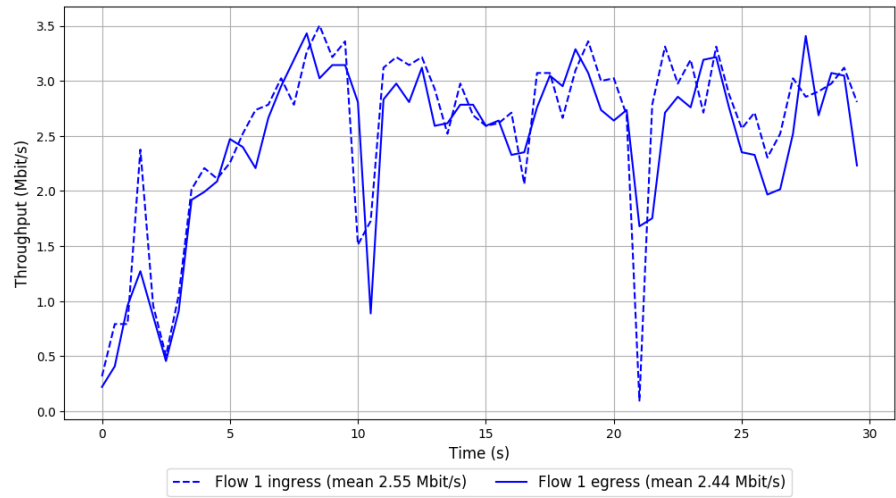
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	2.39	360.74	5.90
TCP Cubic	3	1.78	255.90	1.64
LEDBAT	2	1.71	205.07	1.04
PCC	3	1.57	366.19	58.73
QUIC Cubic	0	N/A	N/A	N/A
SCReAM	3	0.16	87.86	0.46
WebRTC media	3	0.99	155.96	0.76
Sprout	3	0.25	118.73	0.70
TaoVA-100x	3	1.90	252.63	3.65
TCP Vegas	3	1.17	169.44	1.21
Verus	3	1.67	372.01	43.63
Copa	3	1.57	141.80	0.38
Indigo-2-256	3	0.81	179.73	4.22
Indigo-1-32	3	1.41	127.11	0.86
Indigo-1-128	3	0.22	225.96	5.02

Run 1: Statistics of TCP BBR

Start at: 2018-01-25 16:25:35
End at: 2018-01-25 16:26:05
Local clock offset: 1.584 ms
Remote clock offset: -16.254 ms

Below is generated by plot.py at 2018-01-25 18:08:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 352.766 ms
Loss rate: 4.59%
-- Flow 1:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 352.766 ms
Loss rate: 4.59%

Run 1: Report of TCP BBR — Data Link

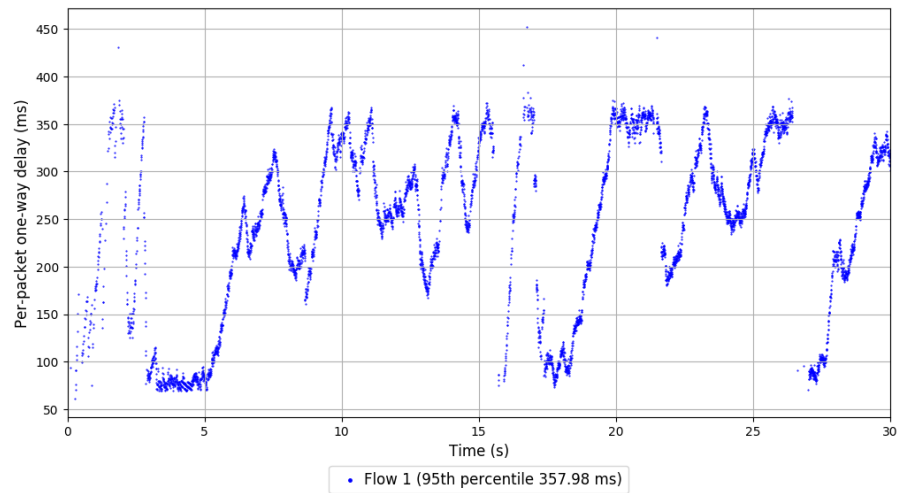
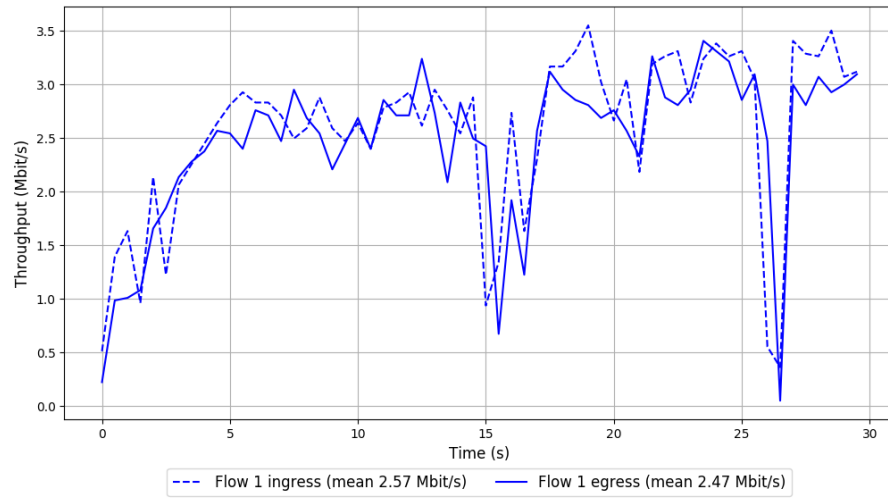


Run 2: Statistics of TCP BBR

Start at: 2018-01-25 16:43:00
End at: 2018-01-25 16:43:30
Local clock offset: 3.14 ms
Remote clock offset: -15.668 ms

Below is generated by plot.py at 2018-01-25 18:08:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.47 Mbit/s
95th percentile per-packet one-way delay: 357.978 ms
Loss rate: 4.20%
-- Flow 1:
Average throughput: 2.47 Mbit/s
95th percentile per-packet one-way delay: 357.978 ms
Loss rate: 4.20%

Run 2: Report of TCP BBR — Data Link

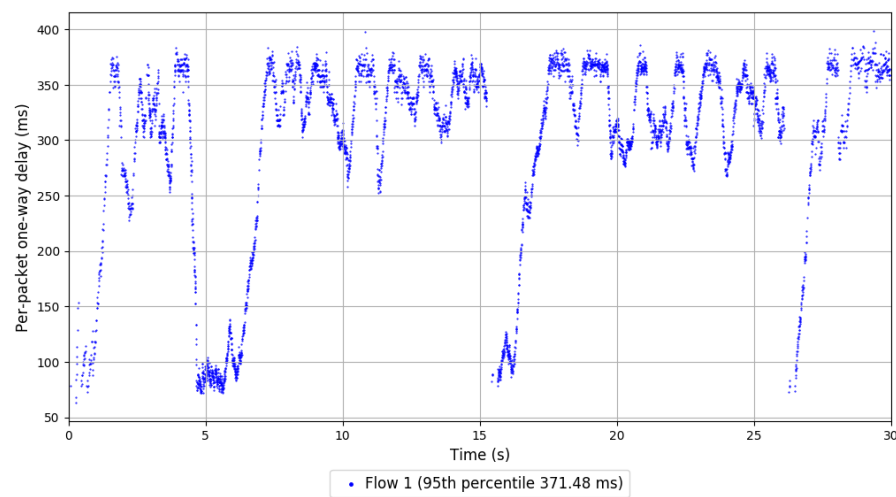
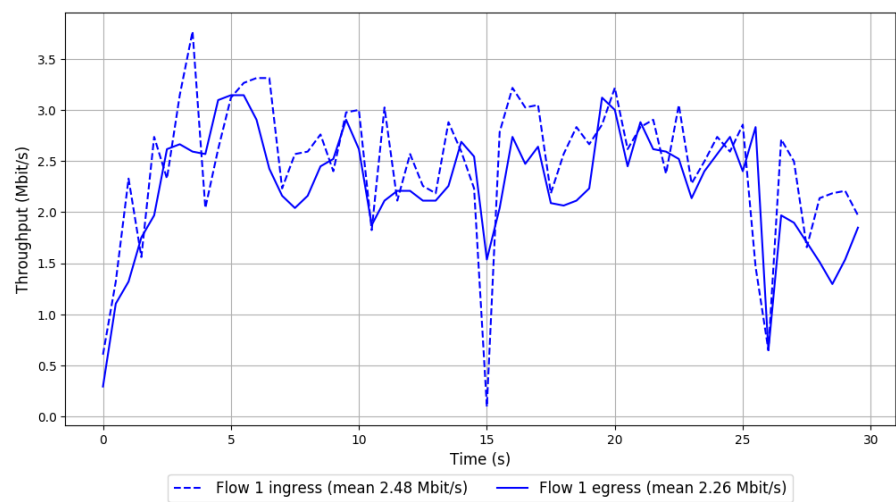


Run 3: Statistics of TCP BBR

Start at: 2018-01-25 17:00:34
End at: 2018-01-25 17:01:04
Local clock offset: 4.093 ms
Remote clock offset: -15.506 ms

Below is generated by plot.py at 2018-01-25 18:08:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 371.476 ms
Loss rate: 8.91%
-- Flow 1:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 371.476 ms
Loss rate: 8.91%

Run 3: Report of TCP BBR — Data Link

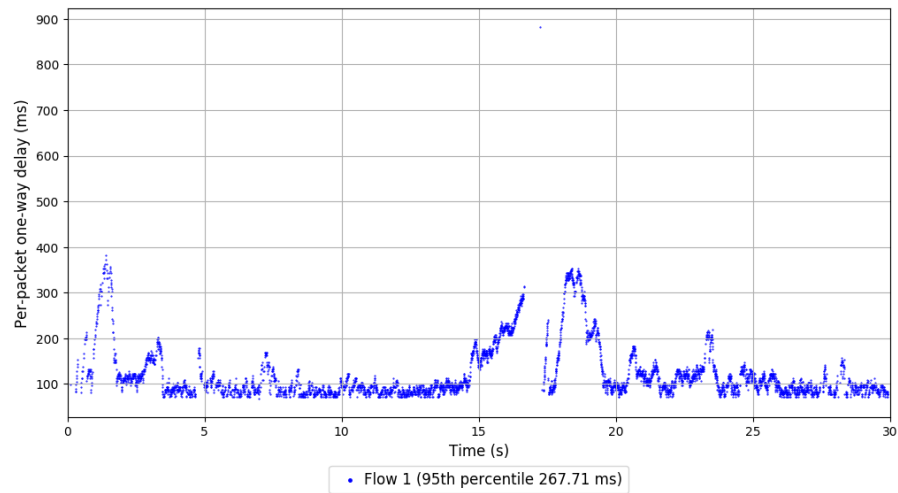
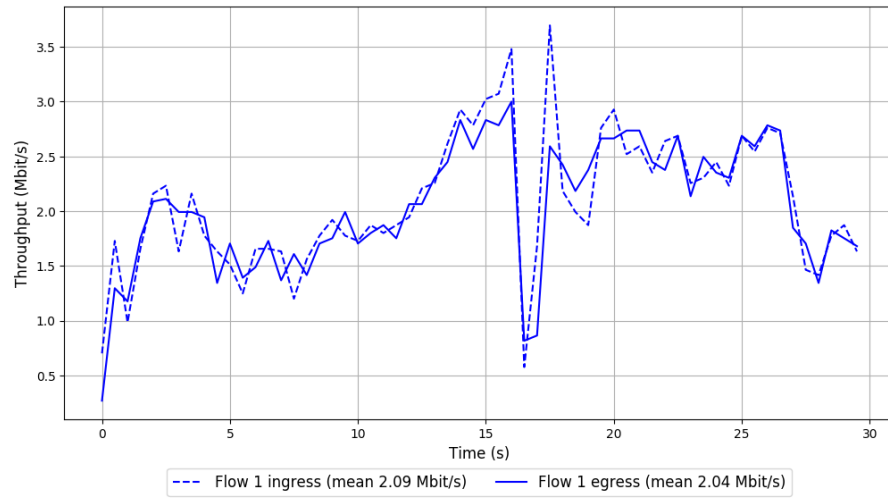


Run 1: Statistics of TCP Cubic

Start at: 2018-01-25 16:40:49
End at: 2018-01-25 16:41:19
Local clock offset: 1.758 ms
Remote clock offset: -18.194 ms

Below is generated by plot.py at 2018-01-25 18:08:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 267.713 ms
Loss rate: 2.36%
-- Flow 1:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 267.713 ms
Loss rate: 2.36%

Run 1: Report of TCP Cubic — Data Link

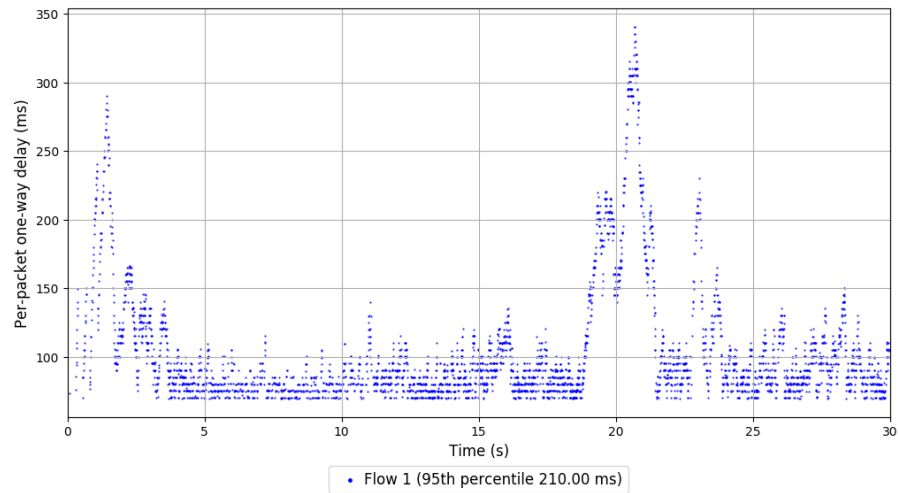
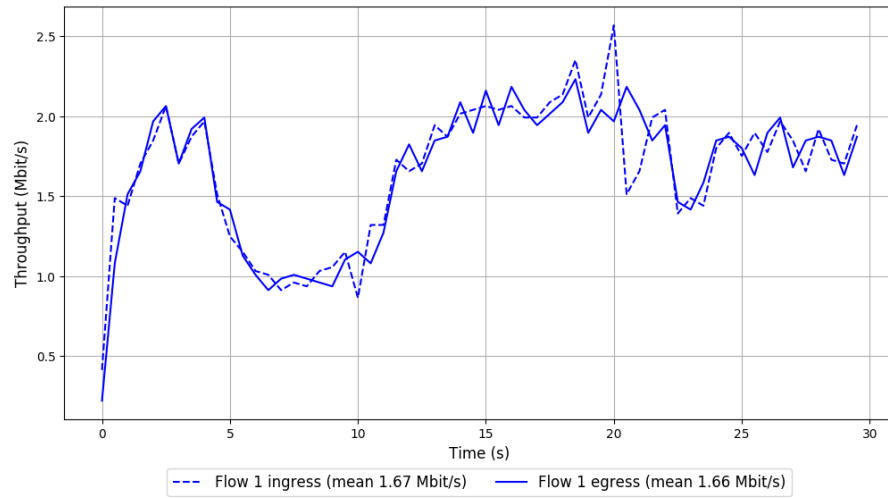


Run 2: Statistics of TCP Cubic

Start at: 2018-01-25 16:58:23
End at: 2018-01-25 16:58:53
Local clock offset: 0.965 ms
Remote clock offset: -15.477 ms

Below is generated by plot.py at 2018-01-25 18:08:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 210.003 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 210.003 ms
Loss rate: 0.65%

Run 2: Report of TCP Cubic — Data Link

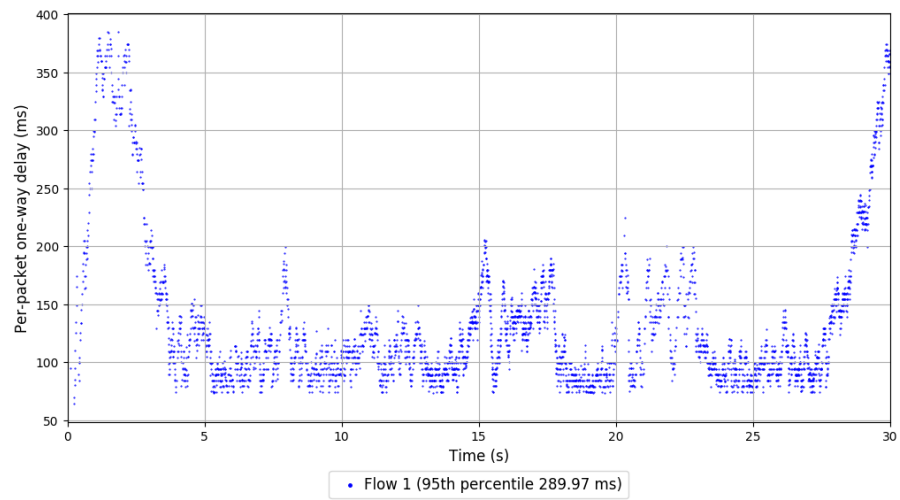
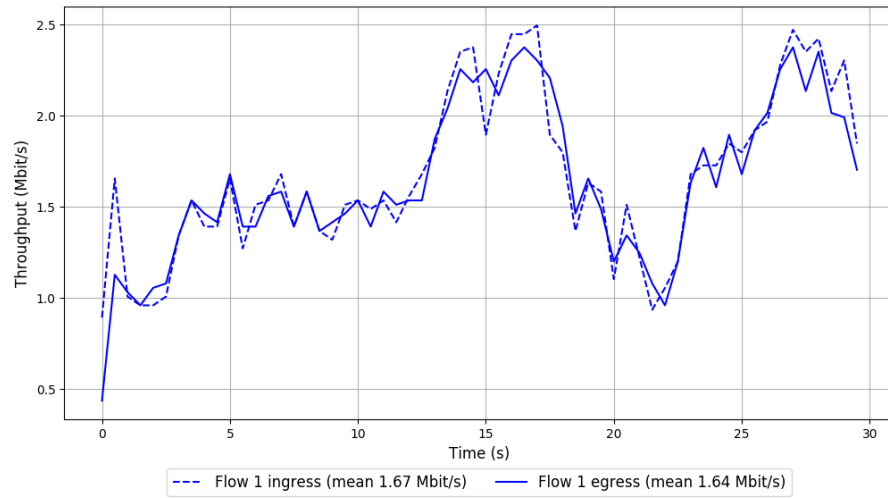


Run 3: Statistics of TCP Cubic

Start at: 2018-01-25 17:15:45
End at: 2018-01-25 17:16:15
Local clock offset: 2.615 ms
Remote clock offset: -17.117 ms

Below is generated by plot.py at 2018-01-25 18:08:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 289.971 ms
Loss rate: 1.92%
-- Flow 1:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 289.971 ms
Loss rate: 1.92%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of LEDBAT

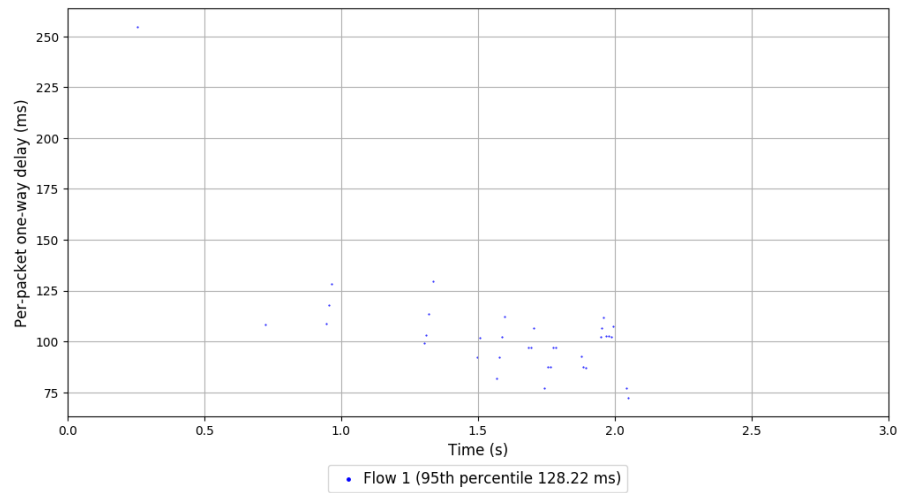
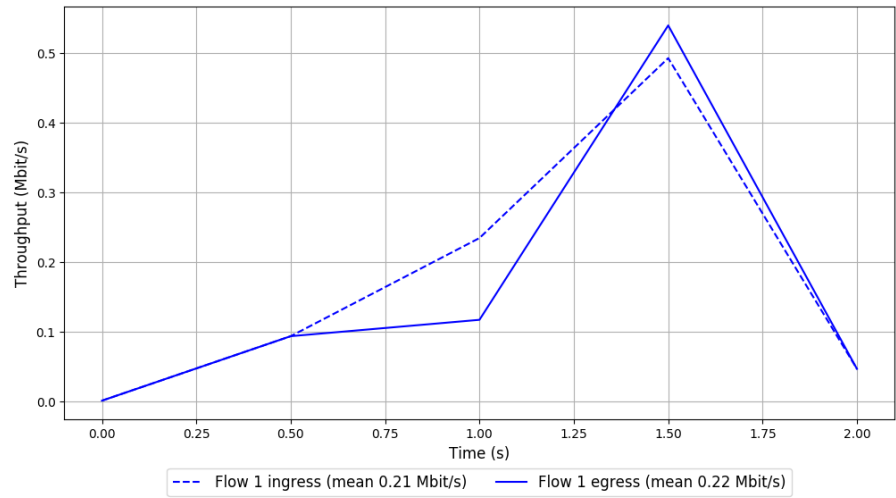
Start at: 2018-01-25 16:28:51

End at: 2018-01-25 16:29:21

Local clock offset: 4.227 ms

Remote clock offset: -17.217 ms

Run 1: Report of LEDBAT — Data Link

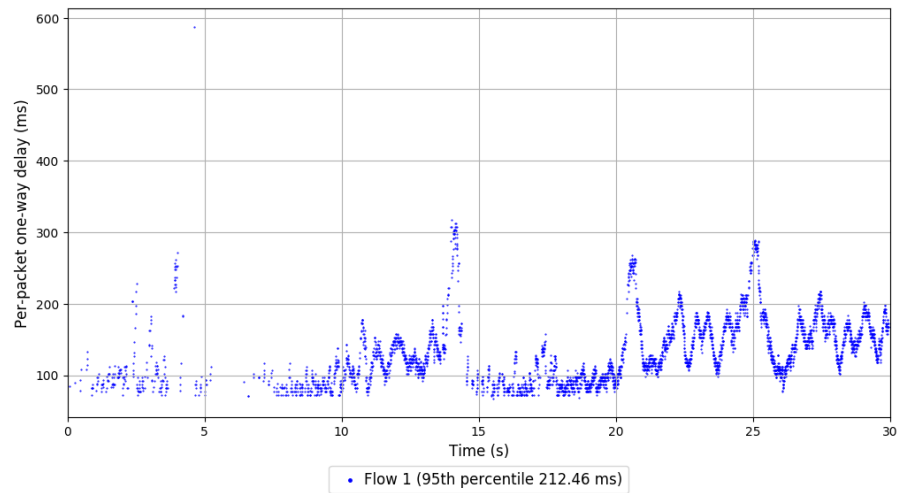
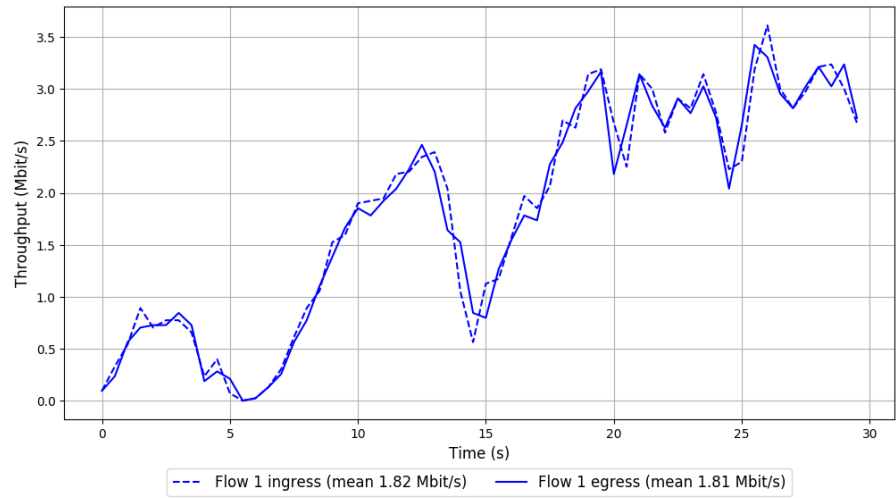


Run 2: Statistics of LEDBAT

Start at: 2018-01-25 16:46:15
End at: 2018-01-25 16:46:46
Local clock offset: 4.108 ms
Remote clock offset: -17.378 ms

Below is generated by plot.py at 2018-01-25 18:08:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 212.456 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 212.456 ms
Loss rate: 1.16%

Run 2: Report of LEDBAT — Data Link

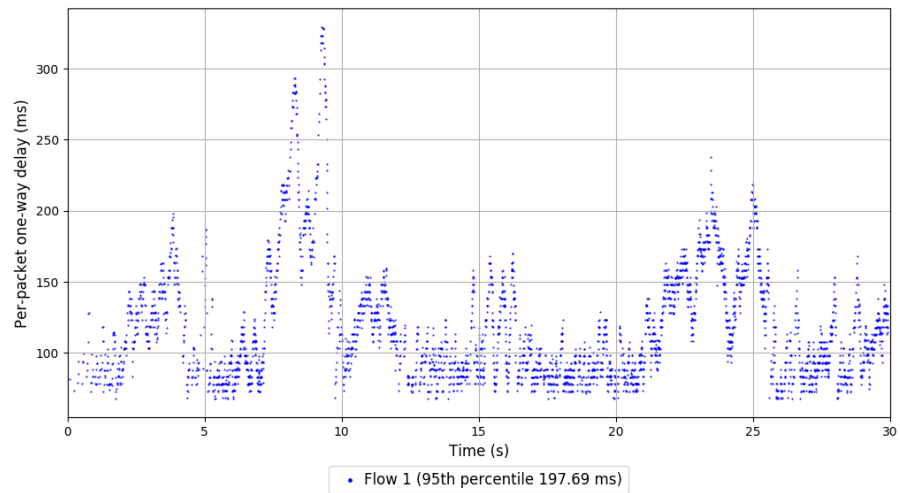
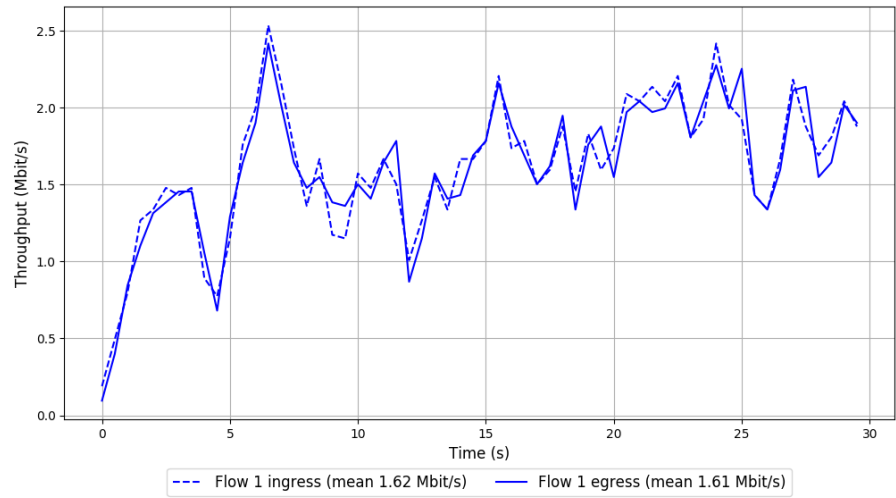


Run 3: Statistics of LEDBAT

Start at: 2018-01-25 17:03:49
End at: 2018-01-25 17:04:19
Local clock offset: 0.557 ms
Remote clock offset: -15.332 ms

Below is generated by plot.py at 2018-01-25 18:08:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 197.694 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 197.694 ms
Loss rate: 0.92%

Run 3: Report of LEDBAT — Data Link

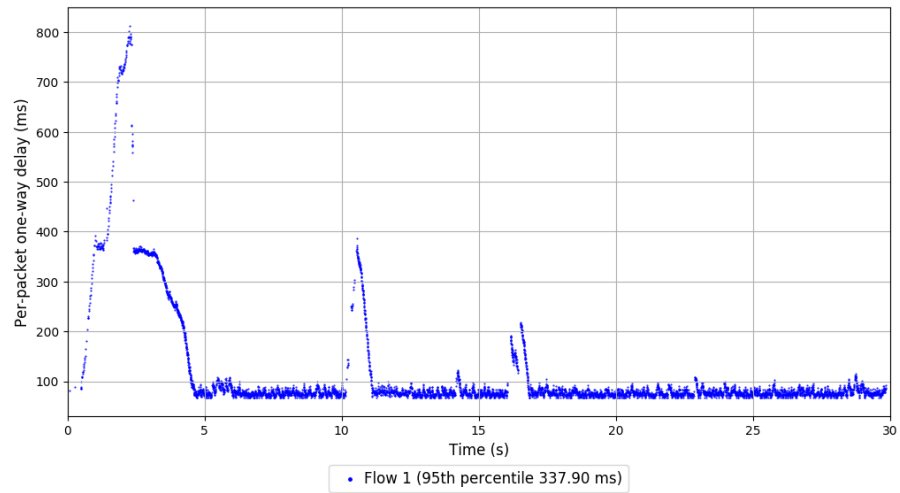
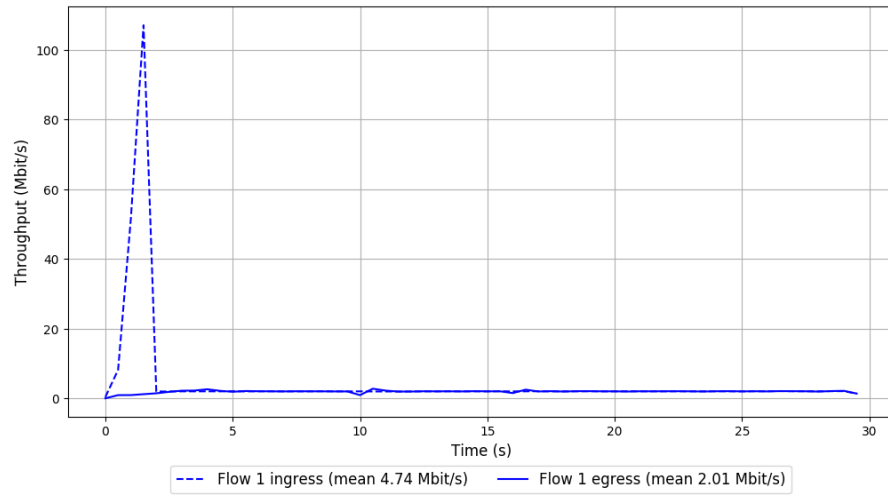


Run 1: Statistics of PCC

Start at: 2018-01-25 16:39:44
End at: 2018-01-25 16:40:14
Local clock offset: 2.455 ms
Remote clock offset: -17.255 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.01 Mbit/s
95th percentile per-packet one-way delay: 337.896 ms
Loss rate: 57.79%
-- Flow 1:
Average throughput: 2.01 Mbit/s
95th percentile per-packet one-way delay: 337.896 ms
Loss rate: 57.79%

Run 1: Report of PCC — Data Link

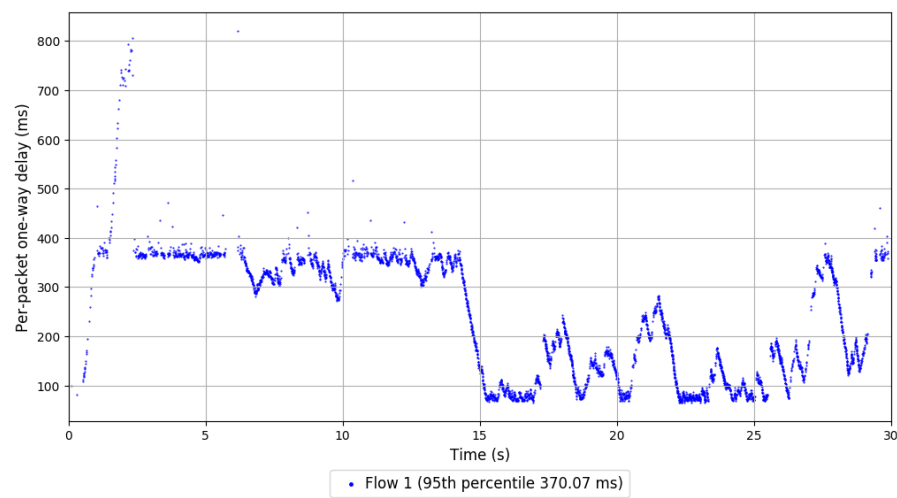
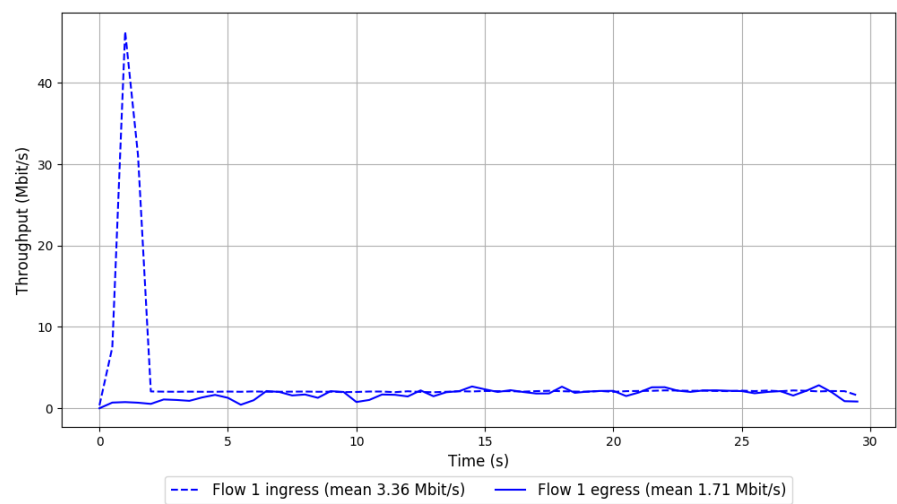


Run 2: Statistics of PCC

Start at: 2018-01-25 16:57:18
End at: 2018-01-25 16:57:48
Local clock offset: 0.972 ms
Remote clock offset: -16.416 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 370.075 ms
Loss rate: 49.40%
-- Flow 1:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 370.075 ms
Loss rate: 49.40%

Run 2: Report of PCC — Data Link

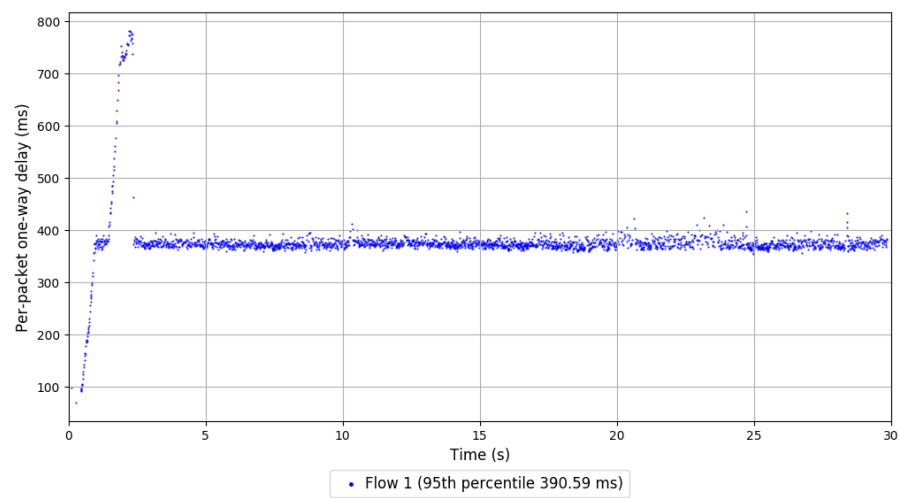
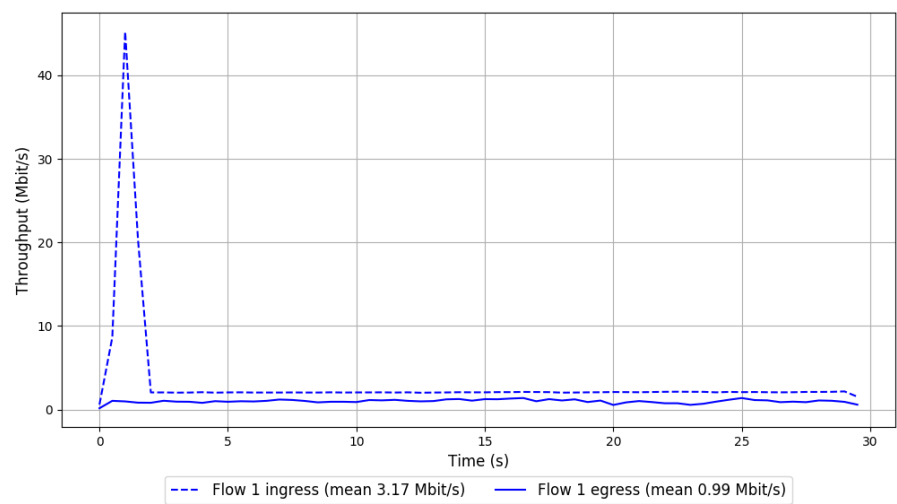


Run 3: Statistics of PCC

Start at: 2018-01-25 17:14:40
End at: 2018-01-25 17:15:10
Local clock offset: 3.886 ms
Remote clock offset: -14.973 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 390.588 ms
Loss rate: 69.00%
-- Flow 1:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 390.588 ms
Loss rate: 69.00%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

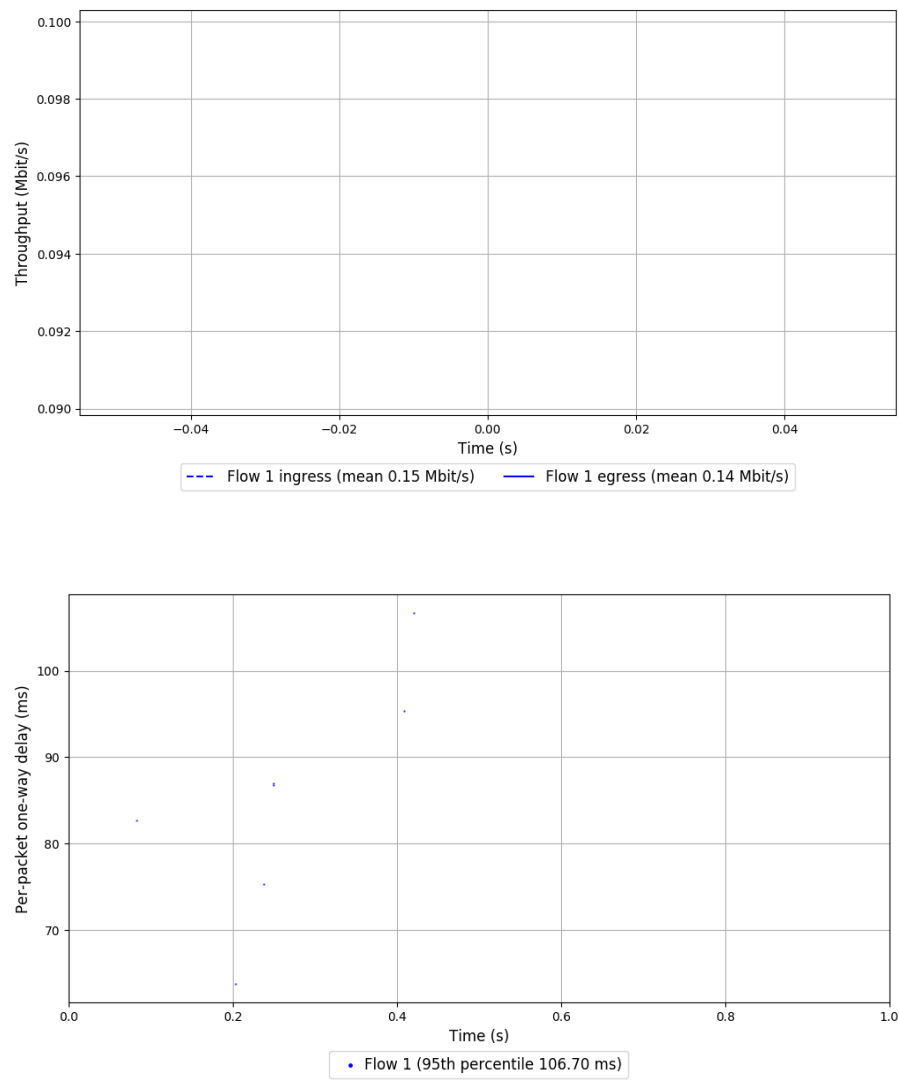
Start at: 2018-01-25 16:36:27

End at: 2018-01-25 16:36:57

Local clock offset: 3.659 ms

Remote clock offset: -15.954 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

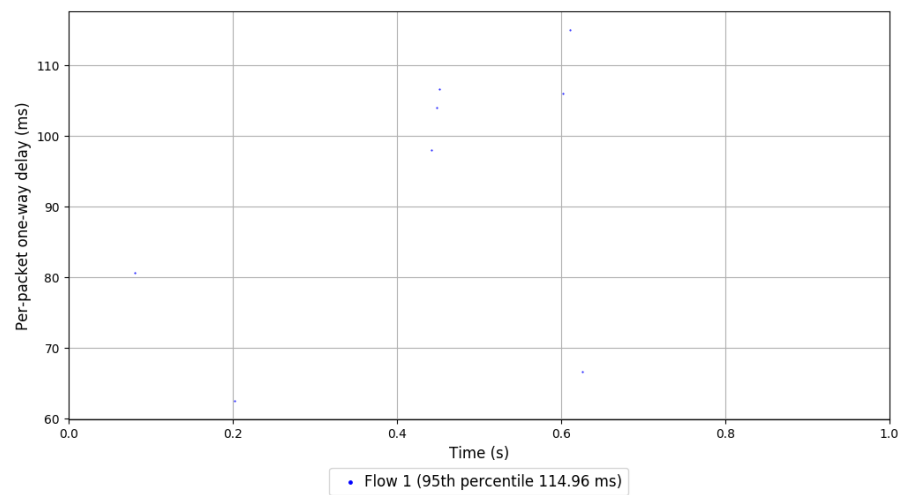
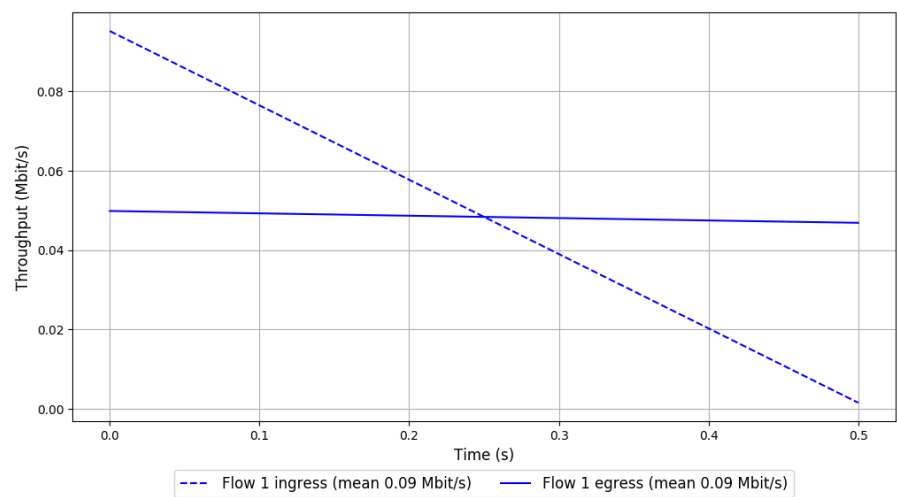
Start at: 2018-01-25 16:54:00

End at: 2018-01-25 16:54:30

Local clock offset: 1.74 ms

Remote clock offset: -16.875 ms

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

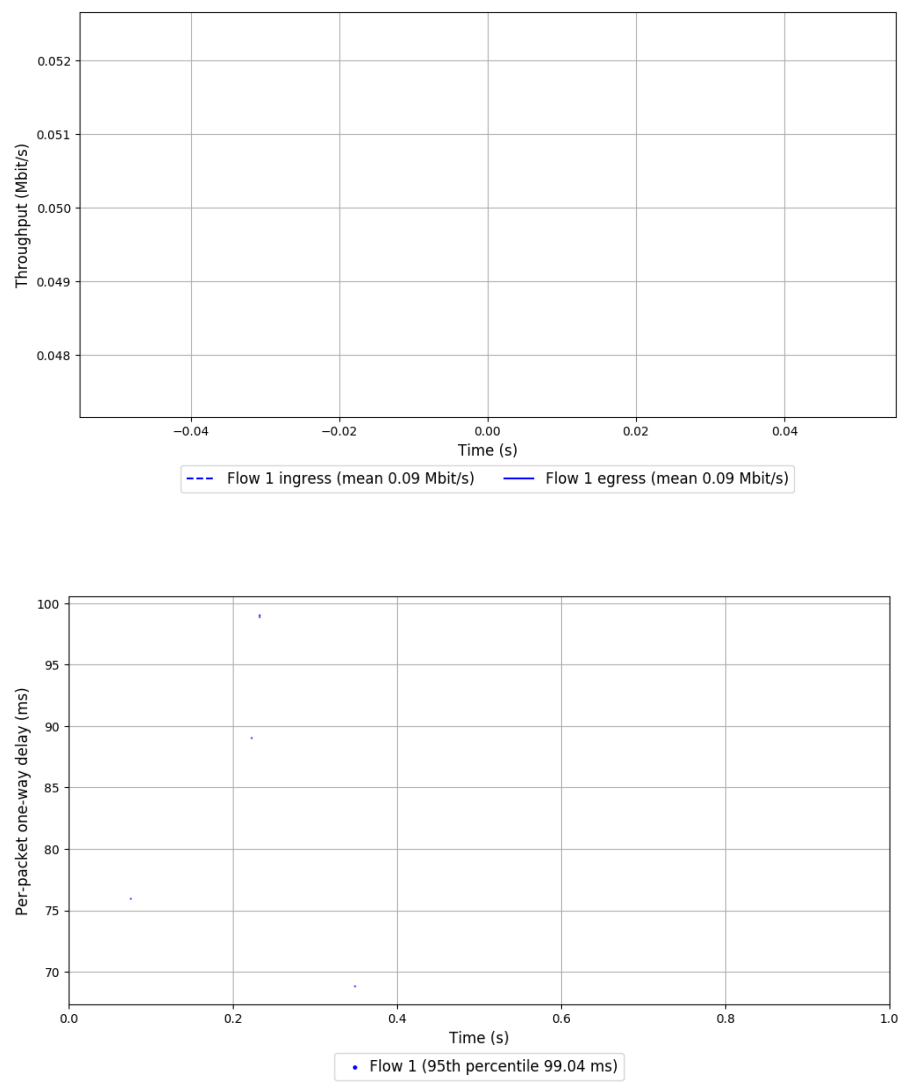
Start at: 2018-01-25 17:11:24

End at: 2018-01-25 17:11:54

Local clock offset: 4.098 ms

Remote clock offset: -16.351 ms

Run 3: Report of QUIC Cubic — Data Link

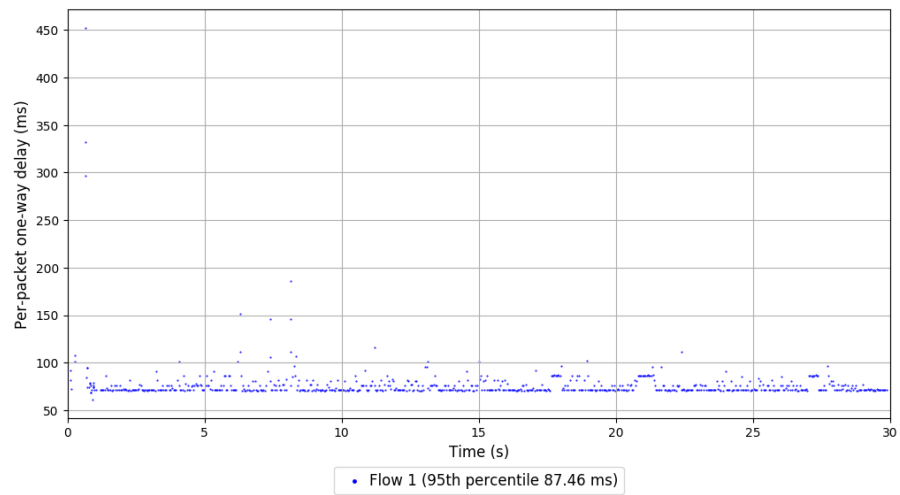
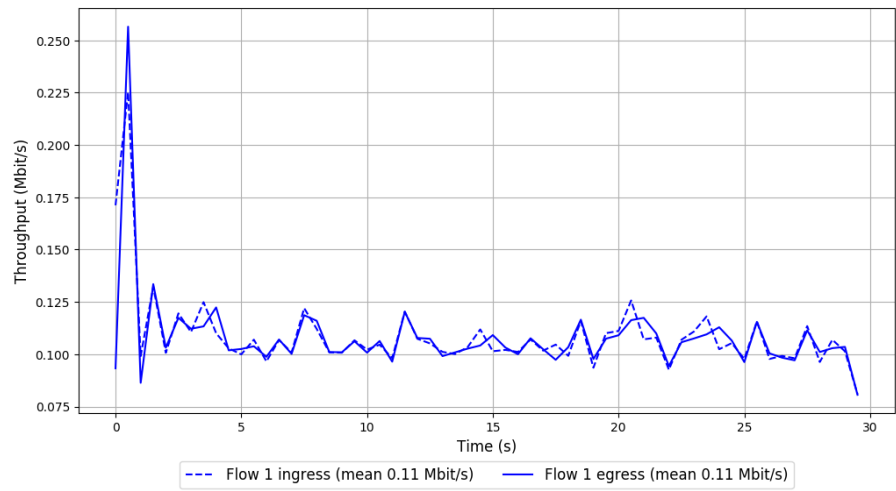


```
Run 1: Statistics of SCReAM

Start at: 2018-01-25 16:32:06
End at: 2018-01-25 16:32:36
Local clock offset: 2.432 ms
Remote clock offset: -16.515 ms

# Below is generated by plot.py at 2018-01-25 18:08:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 87.460 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 87.460 ms
Loss rate: 0.83%
```

Run 1: Report of SReAM — Data Link

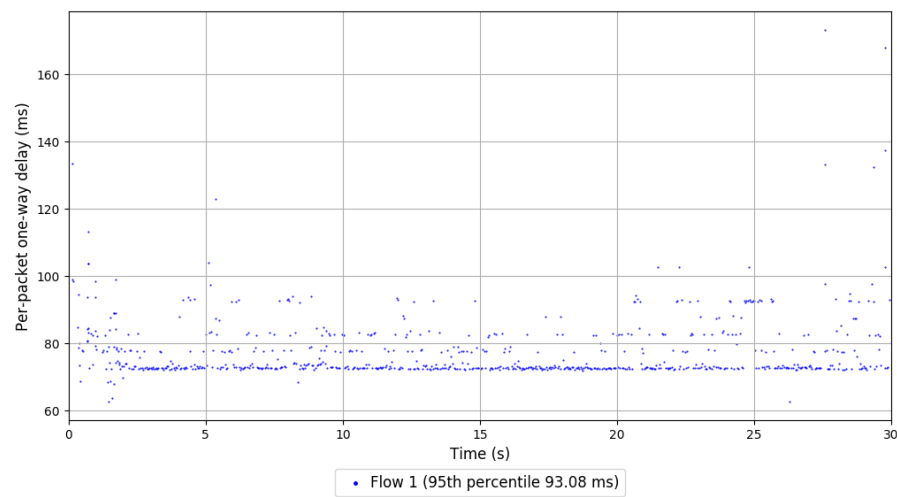
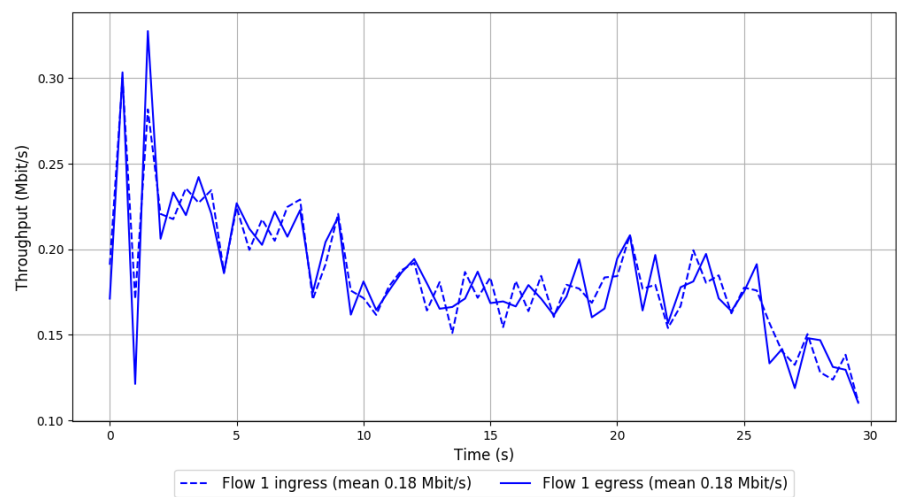


Run 2: Statistics of SCReAM

Start at: 2018-01-25 16:49:32
End at: 2018-01-25 16:50:02
Local clock offset: 2.962 ms
Remote clock offset: -16.271 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 93.077 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 93.077 ms
Loss rate: 0.32%

Run 2: Report of SReAM — Data Link

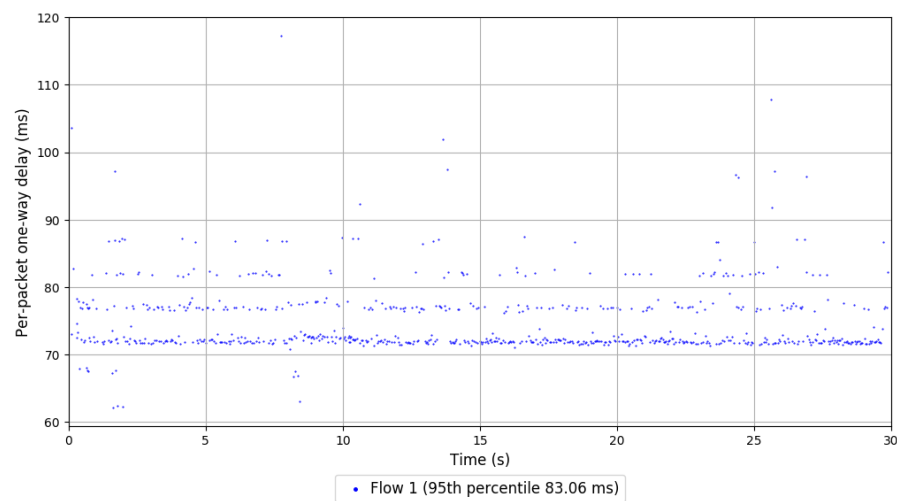
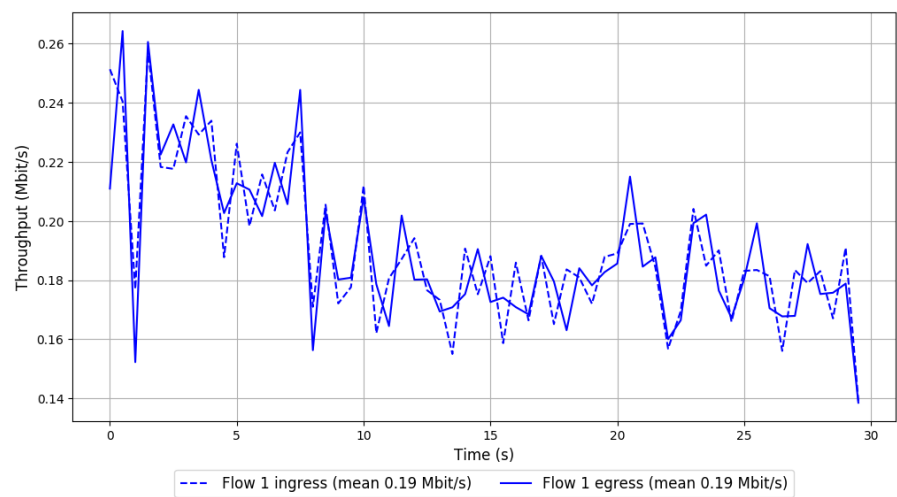


Run 3: Statistics of SCReAM

Start at: 2018-01-25 17:07:04
End at: 2018-01-25 17:07:34
Local clock offset: 2.32 ms
Remote clock offset: -14.203 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 83.057 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 83.057 ms
Loss rate: 0.24%

Run 3: Report of SReAM — Data Link

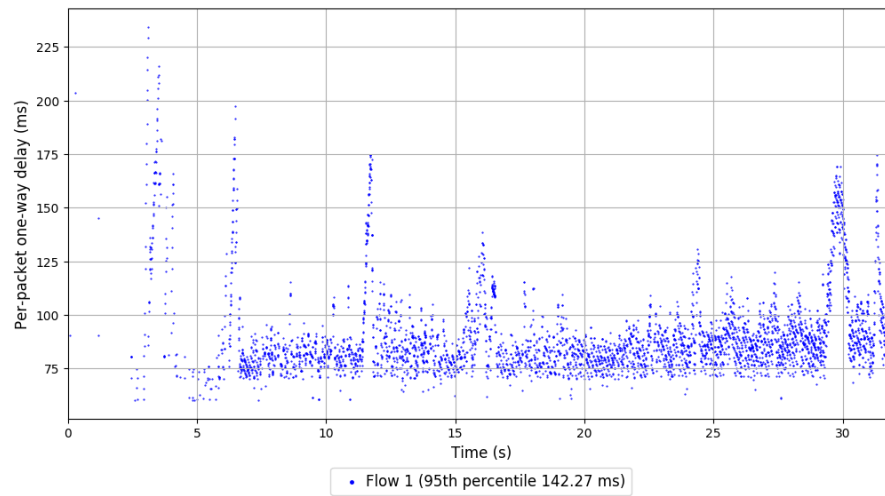
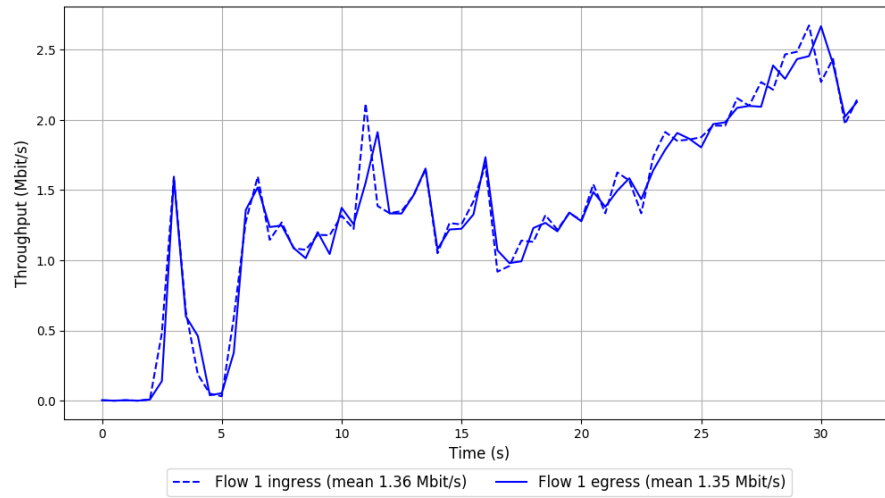


Run 1: Statistics of WebRTC media

Start at: 2018-01-25 16:29:56
End at: 2018-01-25 16:30:26
Local clock offset: 4.552 ms
Remote clock offset: -16.097 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 142.269 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 142.269 ms
Loss rate: 0.90%

Run 1: Report of WebRTC media — Data Link

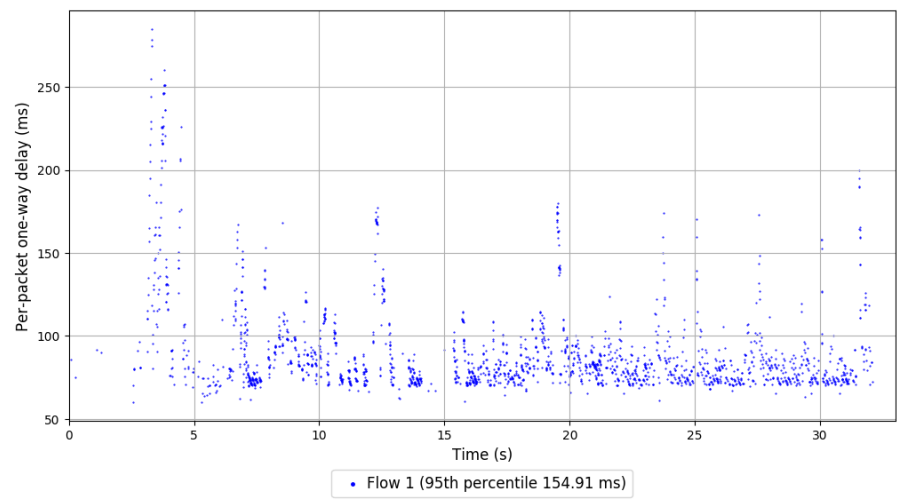
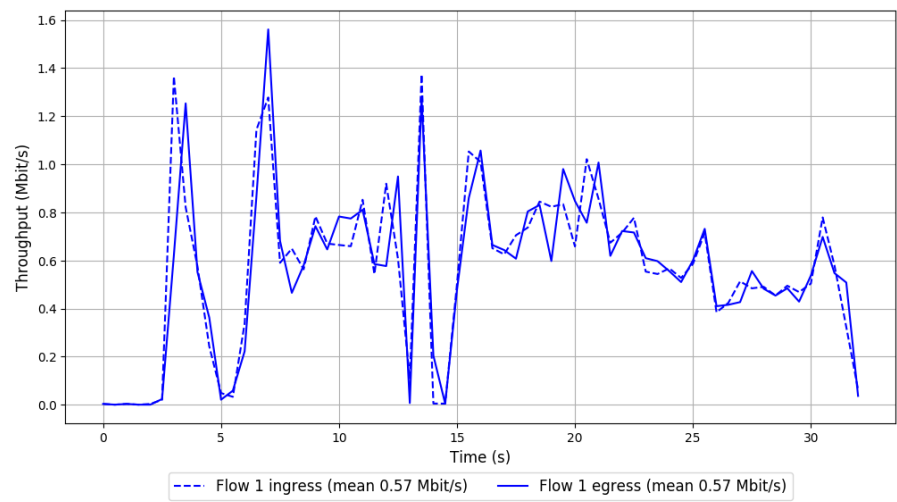


Run 2: Statistics of WebRTC media

Start at: 2018-01-25 16:47:21
End at: 2018-01-25 16:47:51
Local clock offset: 4.483 ms
Remote clock offset: -15.744 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 154.914 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 154.914 ms
Loss rate: 1.08%

Run 2: Report of WebRTC media — Data Link

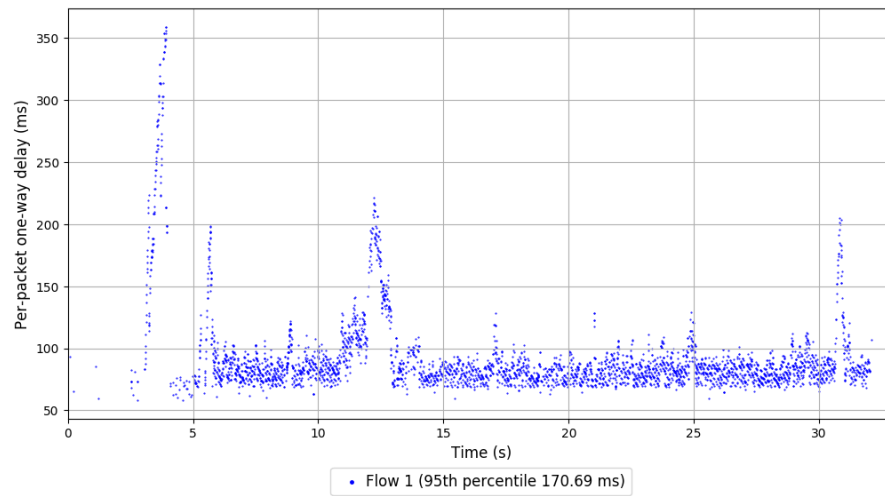
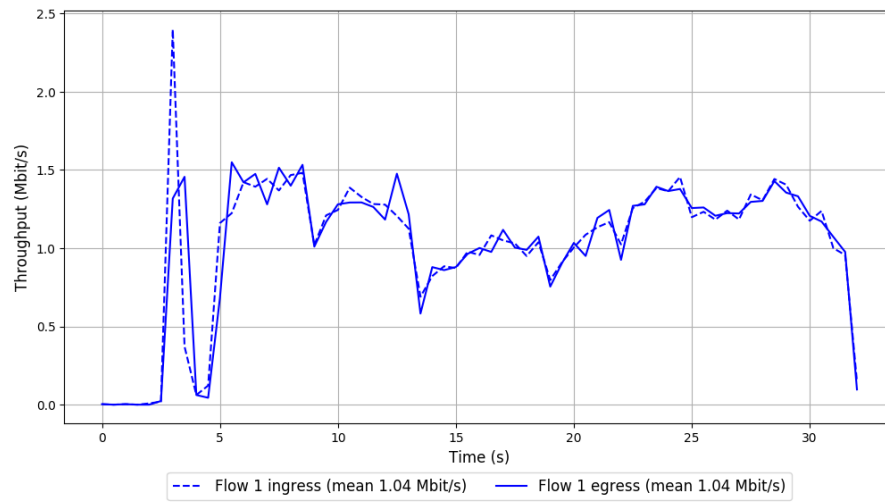


Run 3: Statistics of WebRTC media

Start at: 2018-01-25 17:04:54
End at: 2018-01-25 17:05:24
Local clock offset: 1.662 ms
Remote clock offset: -14.946 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 170.687 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 170.687 ms
Loss rate: 0.31%

Run 3: Report of WebRTC media — Data Link

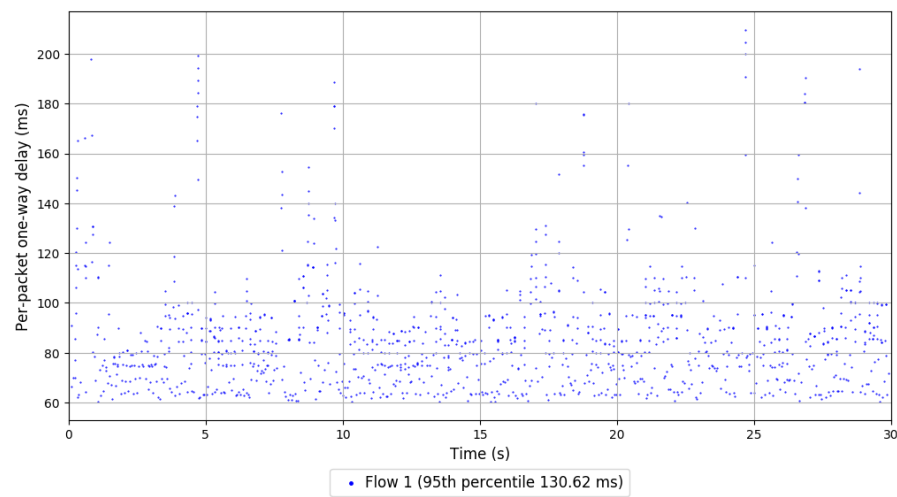
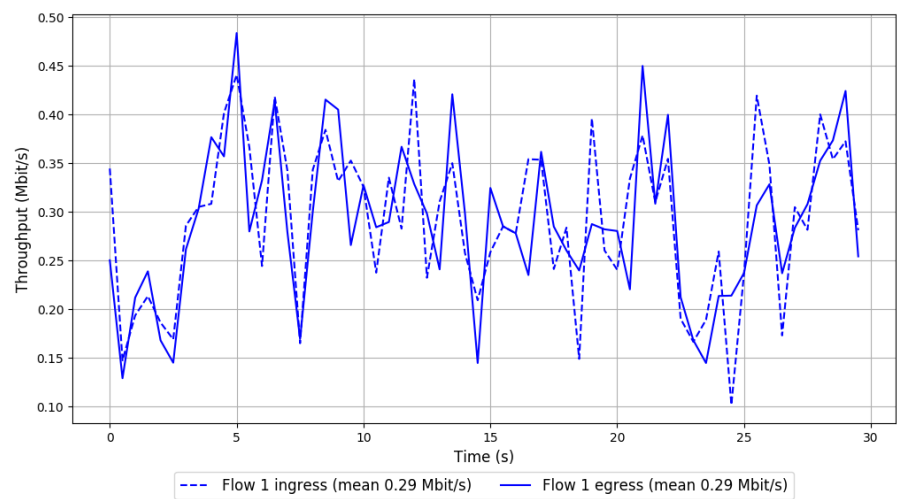


Run 1: Statistics of Sprout

Start at: 2018-01-25 16:33:11
End at: 2018-01-25 16:33:41
Local clock offset: 3.591 ms
Remote clock offset: -16.963 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 130.619 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 130.619 ms
Loss rate: 0.78%

Run 1: Report of Sprout — Data Link

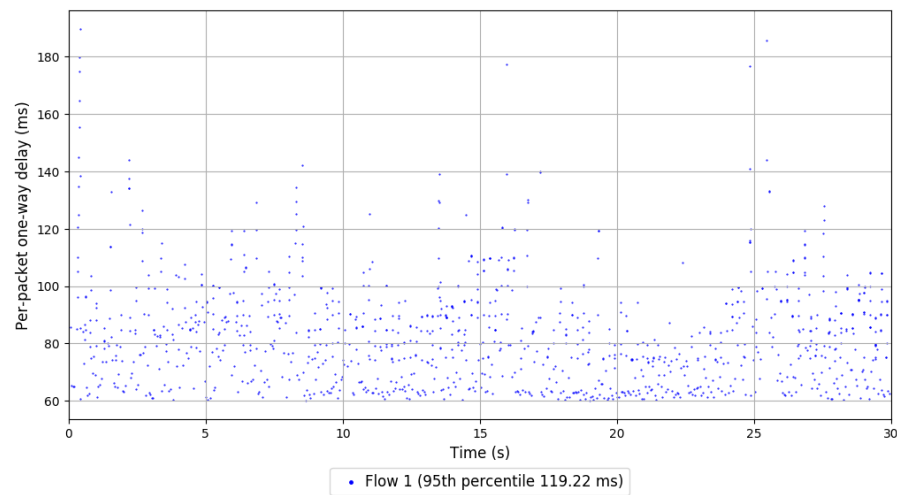
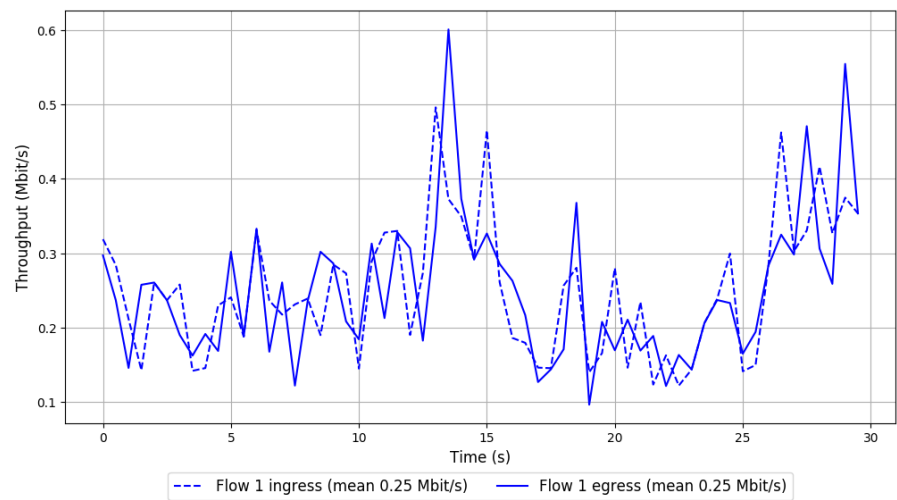


Run 2: Statistics of Sprout

Start at: 2018-01-25 16:50:38
End at: 2018-01-25 16:51:08
Local clock offset: 4.658 ms
Remote clock offset: -15.659 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 119.222 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 119.222 ms
Loss rate: 0.75%

Run 2: Report of Sprout — Data Link

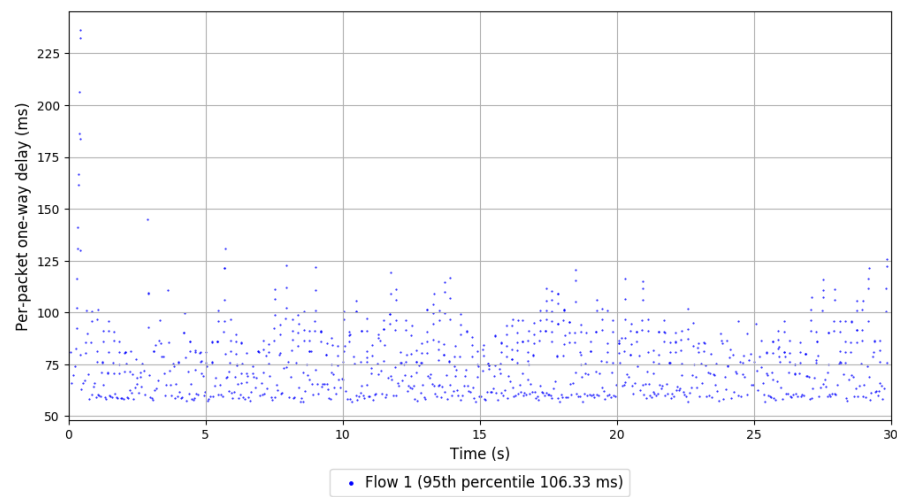
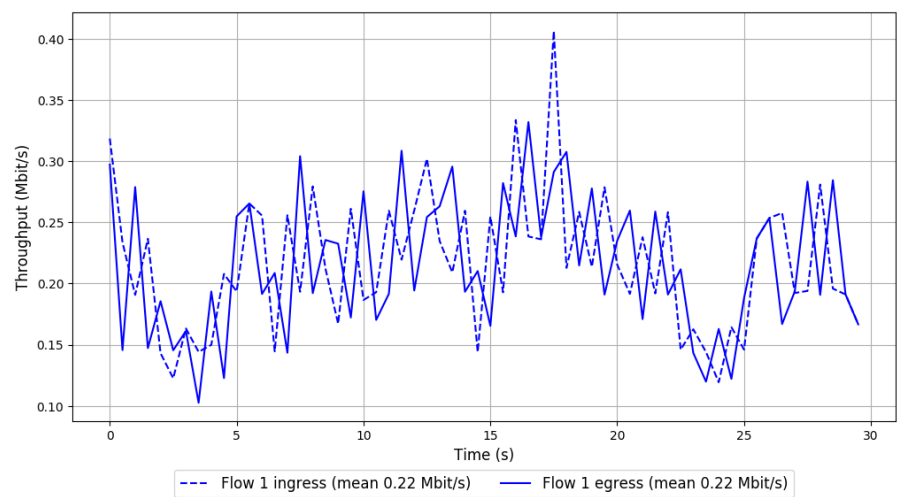


Run 3: Statistics of Sprout

Start at: 2018-01-25 17:08:09
End at: 2018-01-25 17:08:39
Local clock offset: 0.482 ms
Remote clock offset: -14.645 ms

Below is generated by plot.py at 2018-01-25 18:08:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 106.335 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 106.335 ms
Loss rate: 0.56%

Run 3: Report of Sprout — Data Link

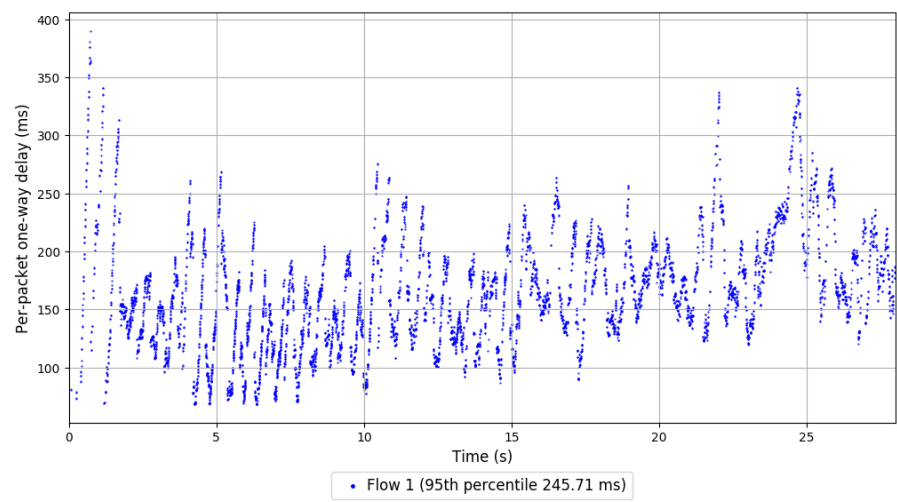
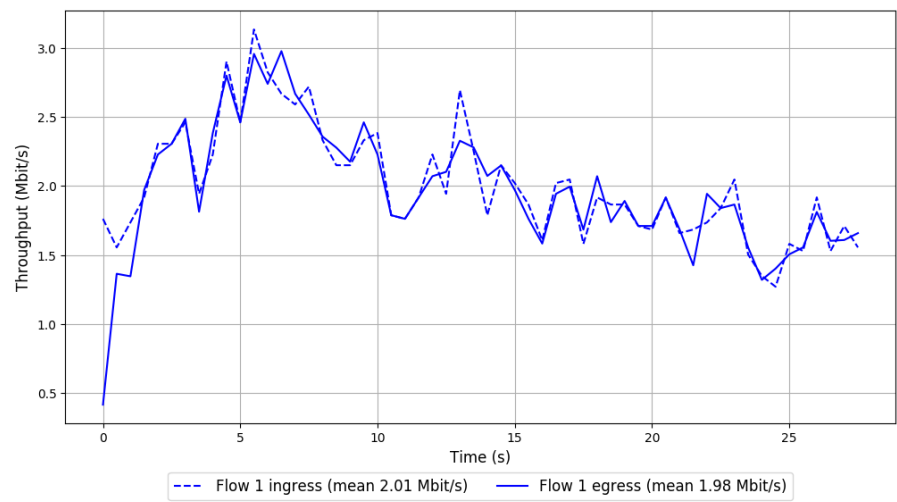


Run 1: Statistics of TaoVA-100x

Start at: 2018-01-25 16:34:16
End at: 2018-01-25 16:34:46
Local clock offset: 1.698 ms
Remote clock offset: -16.089 ms

Below is generated by plot.py at 2018-01-25 18:08:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 245.710 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 245.710 ms
Loss rate: 1.99%

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

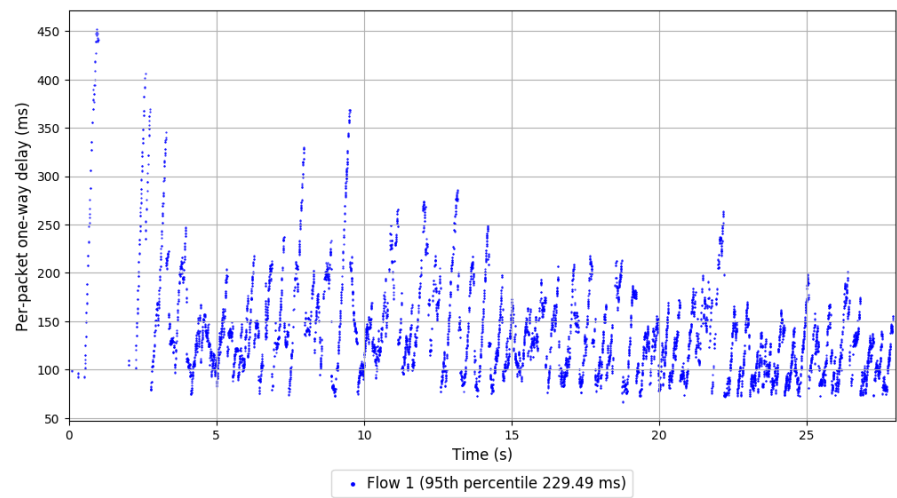
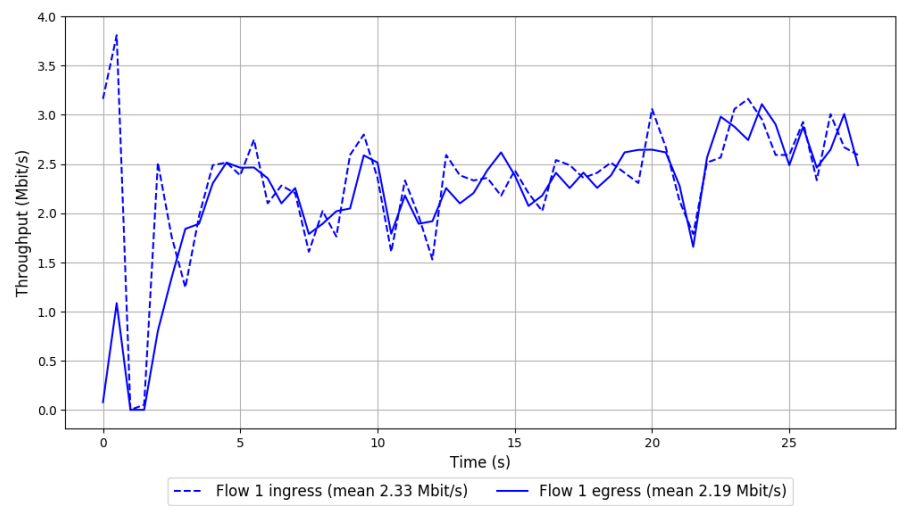


Run 2: Statistics of TaoVA-100x

Start at: 2018-01-25 16:51:43
End at: 2018-01-25 16:52:13
Local clock offset: 4.398 ms
Remote clock offset: -17.349 ms

Below is generated by plot.py at 2018-01-25 18:08:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 229.493 ms
Loss rate: 6.35%
-- Flow 1:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 229.493 ms
Loss rate: 6.35%

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

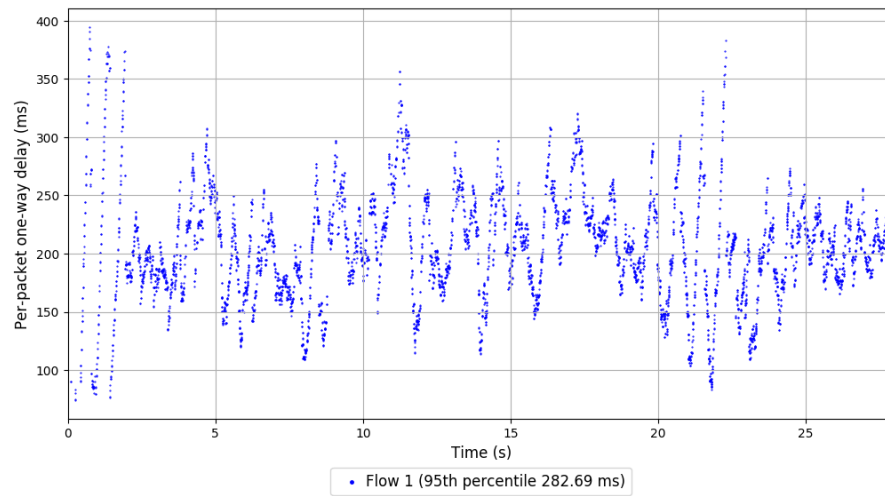
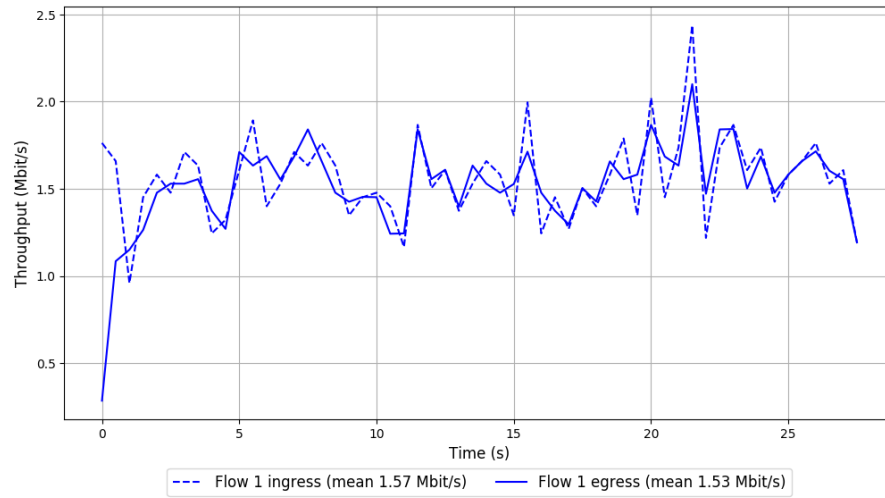


Run 3: Statistics of TaoVA-100x

Start at: 2018-01-25 17:09:14
End at: 2018-01-25 17:09:44
Local clock offset: 3.401 ms
Remote clock offset: -14.431 ms

Below is generated by plot.py at 2018-01-25 18:08:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 282.693 ms
Loss rate: 2.62%
-- Flow 1:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 282.693 ms
Loss rate: 2.62%

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

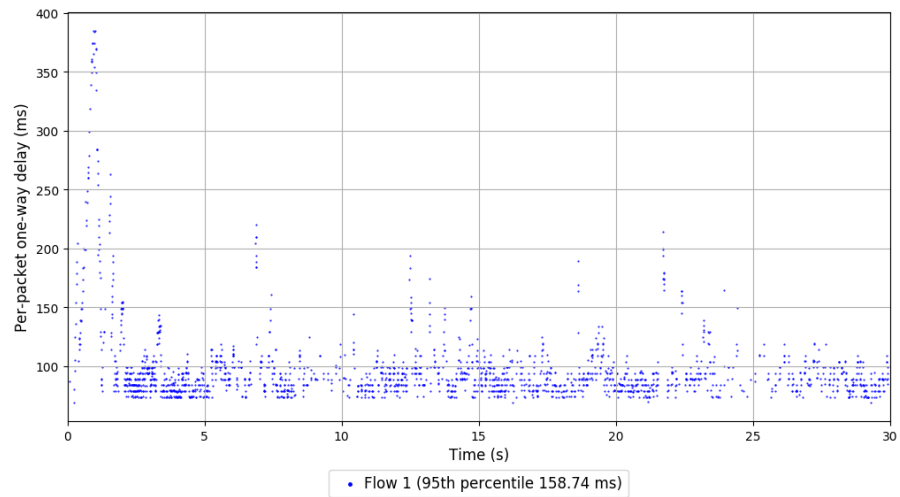
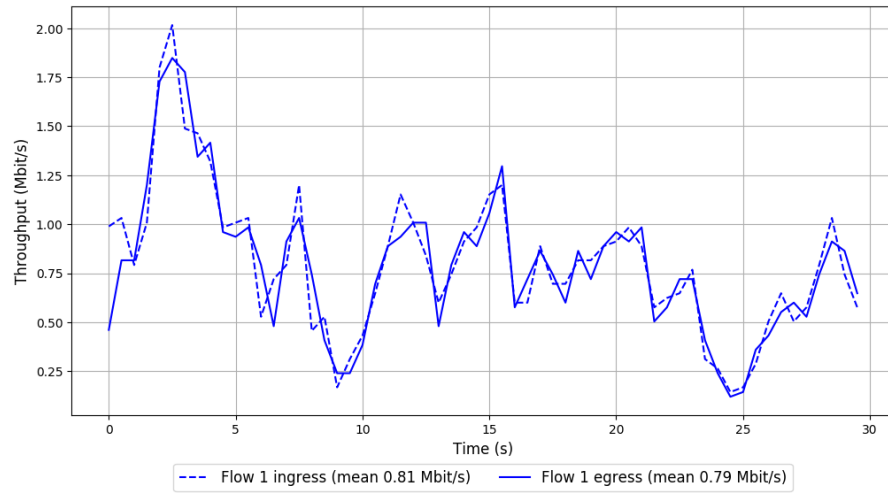


Run 1: Statistics of TCP Vegas

Start at: 2018-01-25 16:35:22
End at: 2018-01-25 16:35:52
Local clock offset: 3.537 ms
Remote clock offset: -16.259 ms

Below is generated by plot.py at 2018-01-25 18:08:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 158.739 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 158.739 ms
Loss rate: 1.50%

Run 1: Report of TCP Vegas — Data Link

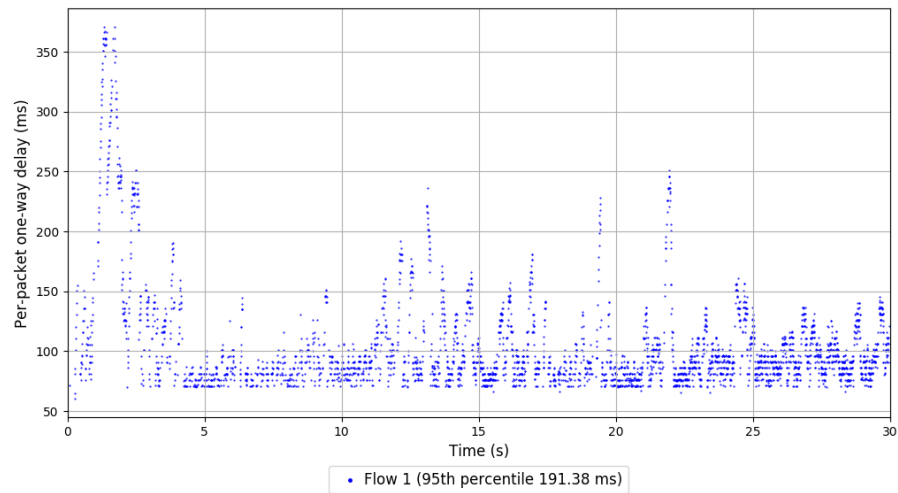
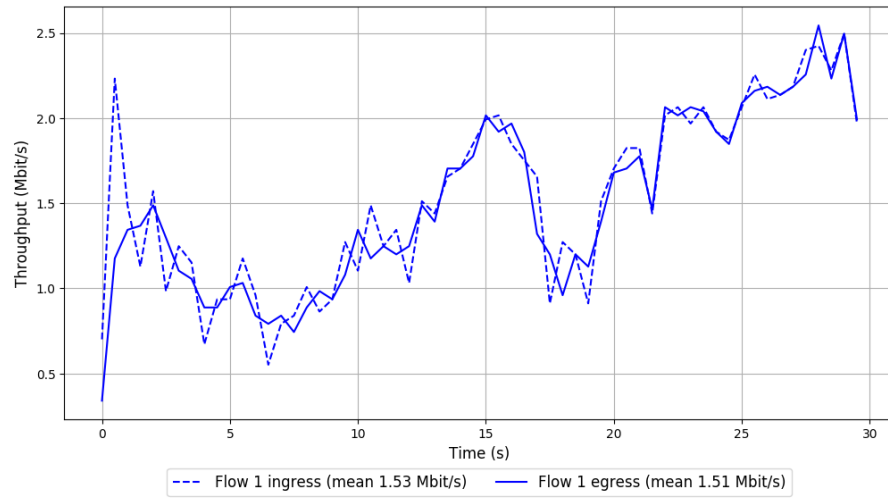


Run 2: Statistics of TCP Vegas

Start at: 2018-01-25 16:52:54
End at: 2018-01-25 16:53:24
Local clock offset: 1.151 ms
Remote clock offset: -15.561 ms

Below is generated by plot.py at 2018-01-25 18:08:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 191.385 ms
Loss rate: 1.94%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 191.385 ms
Loss rate: 1.94%

Run 2: Report of TCP Vegas — Data Link

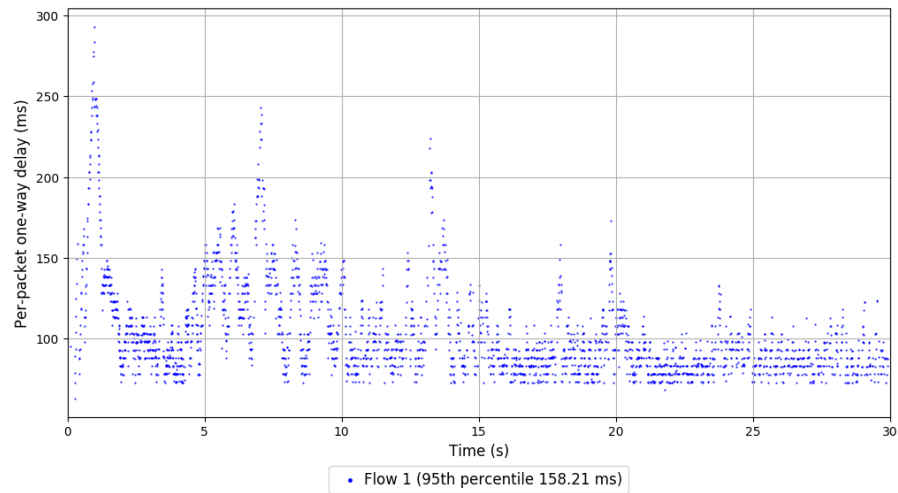
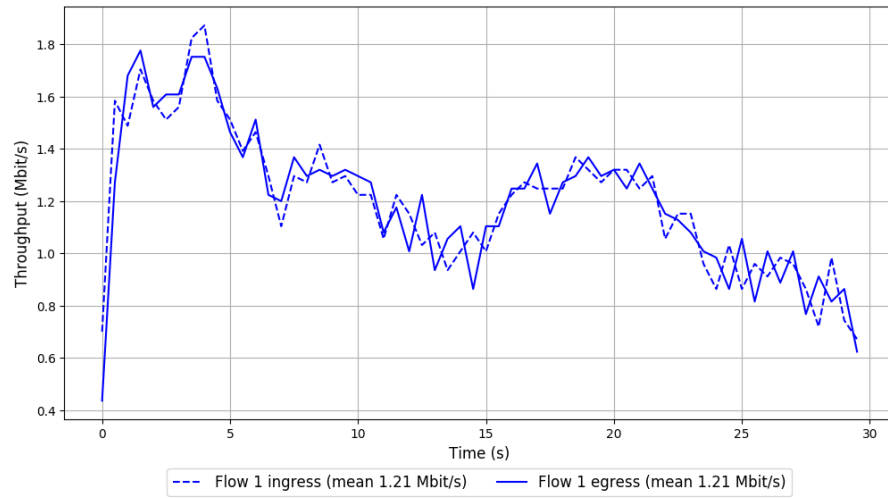


Run 3: Statistics of TCP Vegas

Start at: 2018-01-25 17:10:19
End at: 2018-01-25 17:10:49
Local clock offset: 3.555 ms
Remote clock offset: -13.805 ms

Below is generated by plot.py at 2018-01-25 18:08:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 158.208 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 158.208 ms
Loss rate: 0.20%

Run 3: Report of TCP Vegas — Data Link

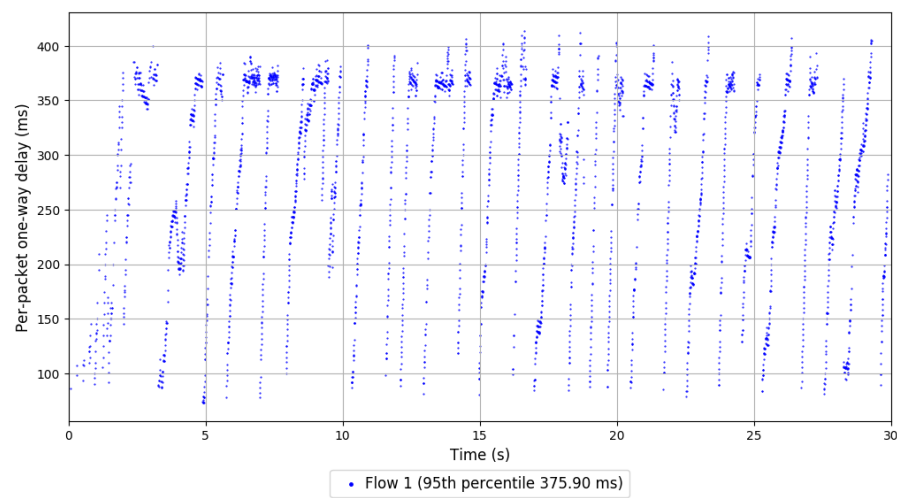
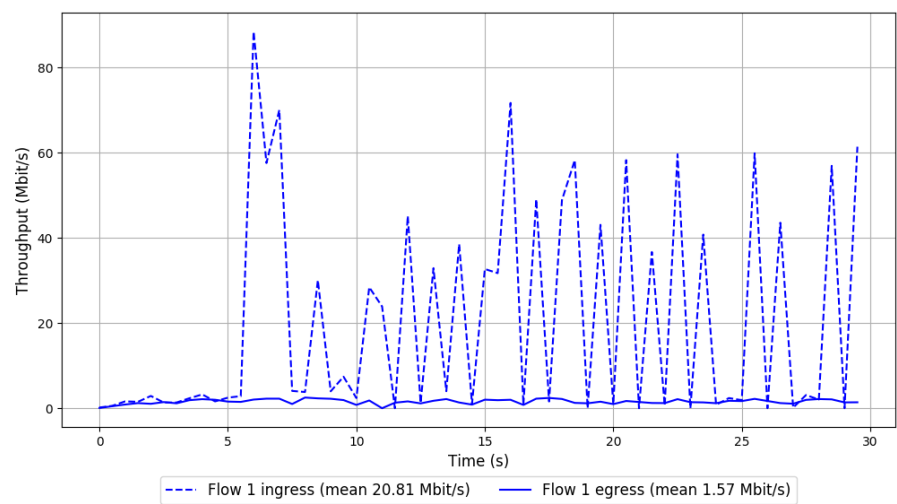


Run 1: Statistics of Verus

Start at: 2018-01-25 16:37:32
End at: 2018-01-25 16:38:02
Local clock offset: 4.429 ms
Remote clock offset: -16.679 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 375.903 ms
Loss rate: 92.43%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 375.903 ms
Loss rate: 92.43%

Run 1: Report of Verus — Data Link

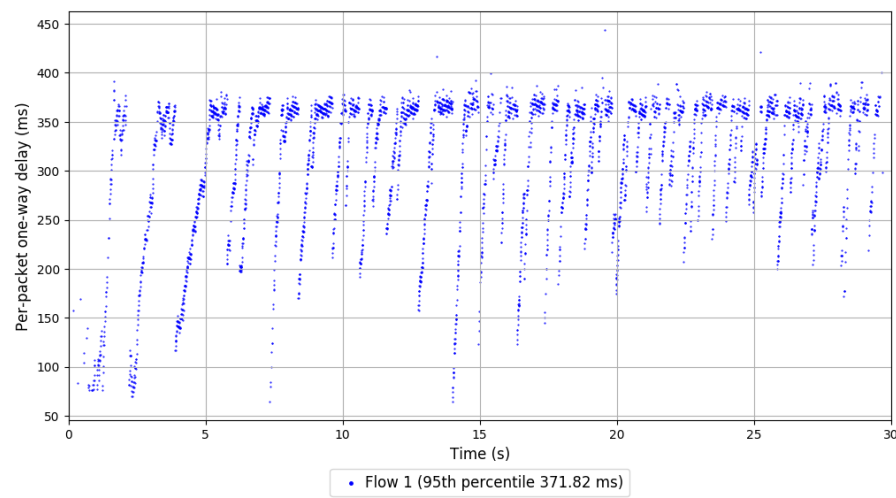
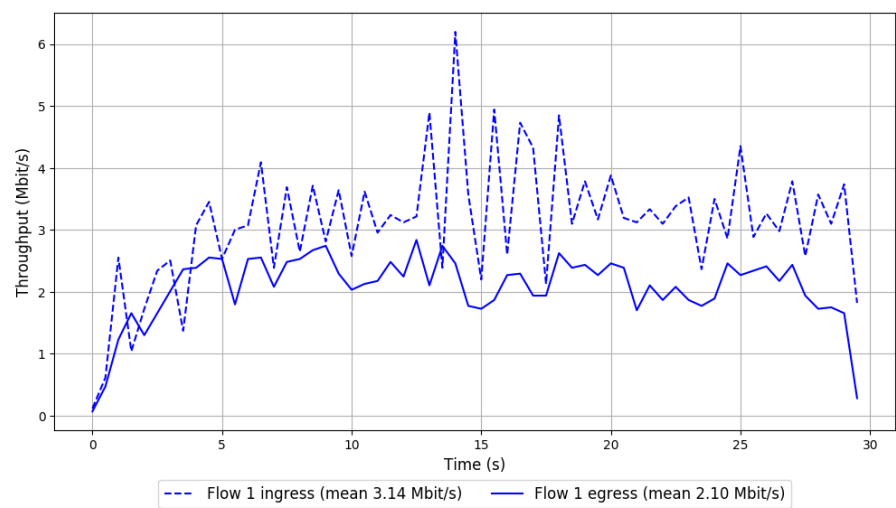


Run 2: Statistics of Verus

Start at: 2018-01-25 16:55:05
End at: 2018-01-25 16:55:35
Local clock offset: 1.193 ms
Remote clock offset: -16.473 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 371.818 ms
Loss rate: 33.32%
-- Flow 1:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 371.818 ms
Loss rate: 33.32%

Run 2: Report of Verus — Data Link

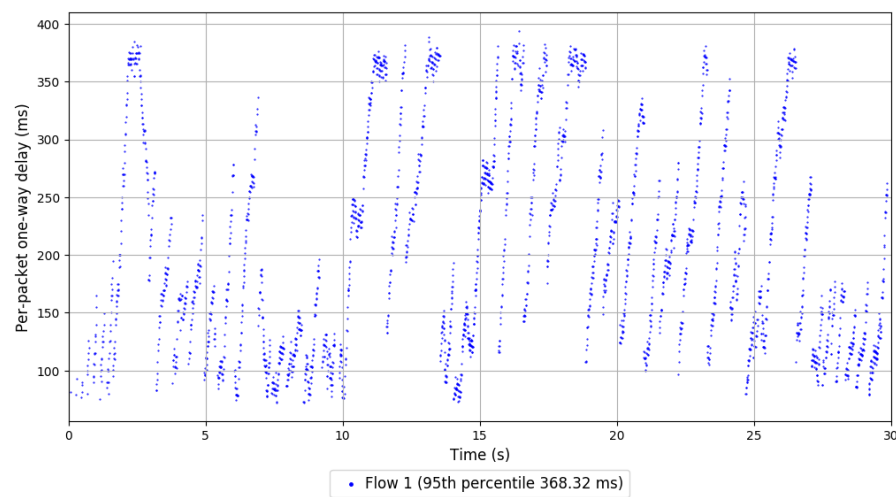
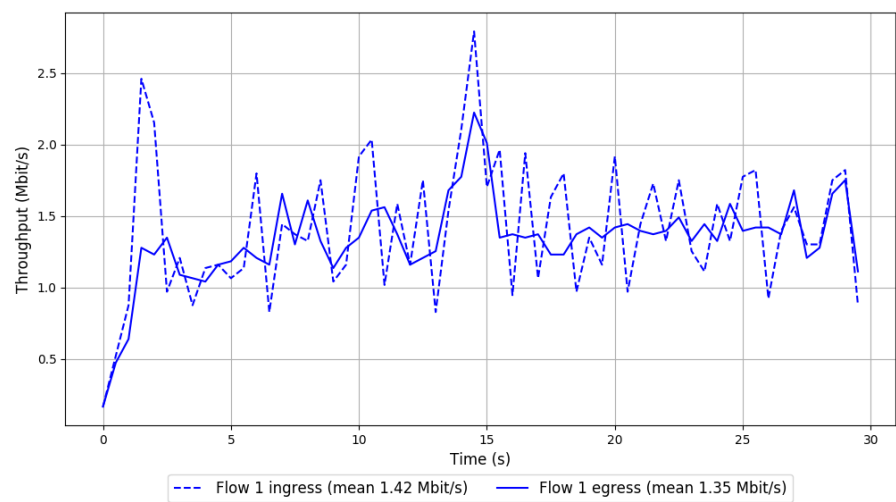


Run 3: Statistics of Verus

Start at: 2018-01-25 17:12:29
End at: 2018-01-25 17:12:59
Local clock offset: 3.739 ms
Remote clock offset: -15.717 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 368.316 ms
Loss rate: 5.14%
-- Flow 1:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 368.316 ms
Loss rate: 5.14%

Run 3: Report of Verus — Data Link

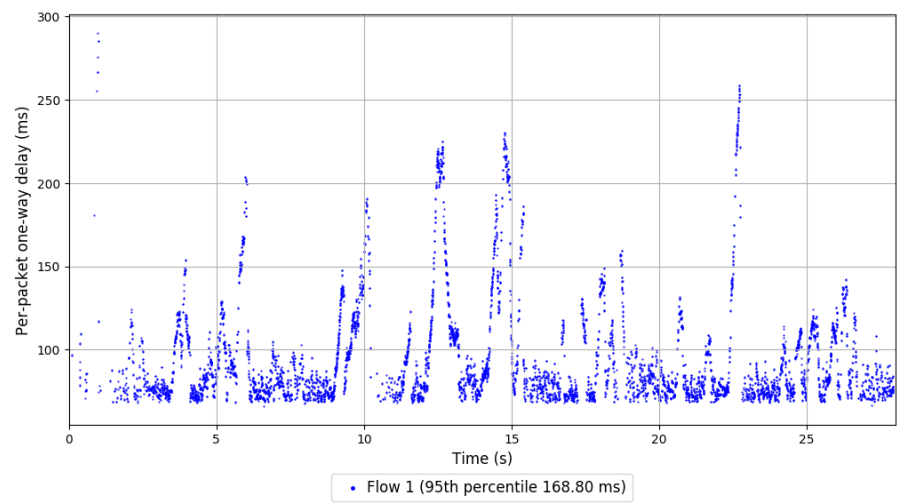
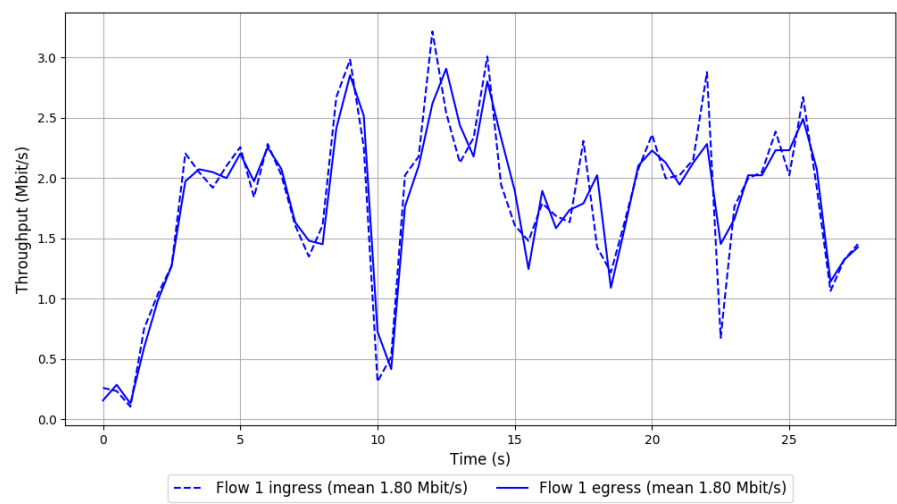


Run 1: Statistics of Copa

Start at: 2018-01-25 16:26:40
End at: 2018-01-25 16:27:10
Local clock offset: 3.676 ms
Remote clock offset: -15.264 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 168.800 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 168.800 ms
Loss rate: 0.23%

Run 1: Report of Copa — Data Link

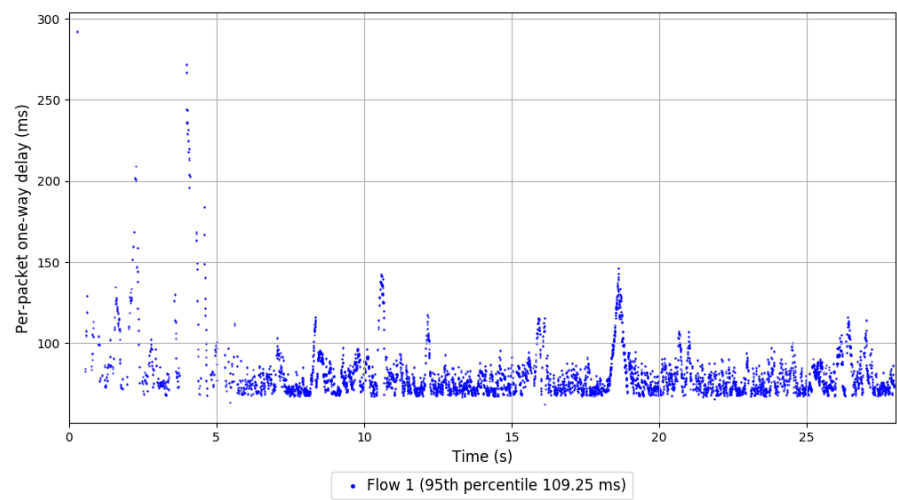
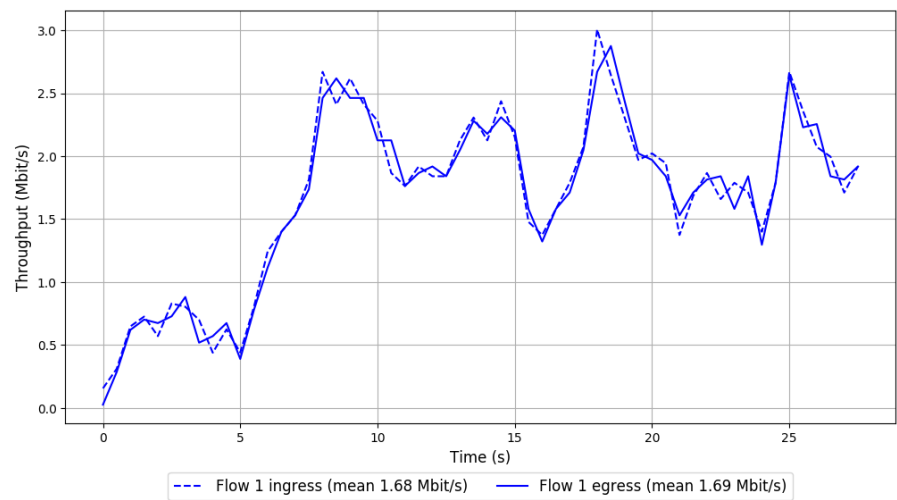


Run 2: Statistics of Copa

Start at: 2018-01-25 16:44:05
End at: 2018-01-25 16:44:35
Local clock offset: 1.318 ms
Remote clock offset: -16.293 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.69 Mbit/s
95th percentile per-packet one-way delay: 109.249 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 1.69 Mbit/s
95th percentile per-packet one-way delay: 109.249 ms
Loss rate: 0.57%

Run 2: Report of Copa — Data Link

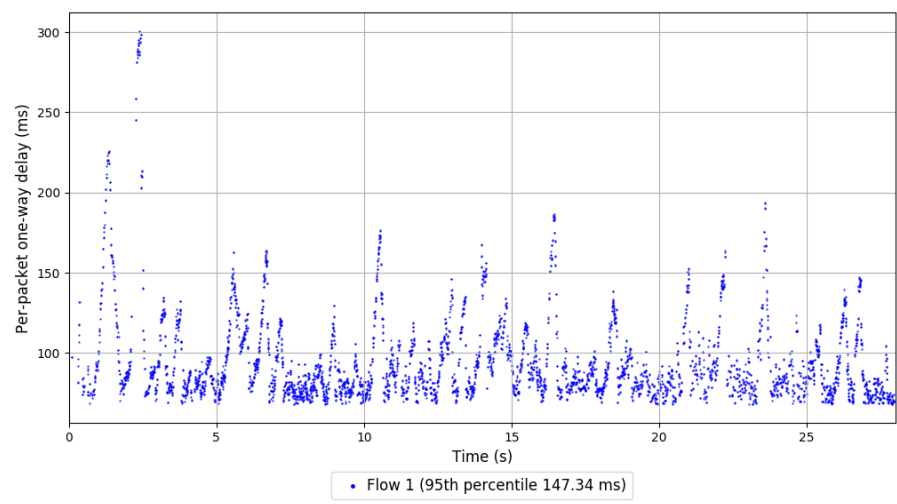
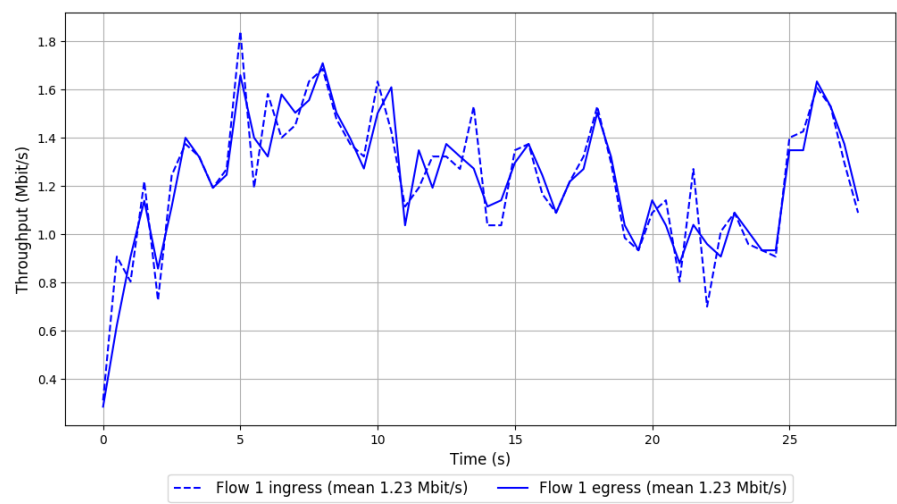


Run 3: Statistics of Copa

Start at: 2018-01-25 17:01:39
End at: 2018-01-25 17:02:09
Local clock offset: 0.548 ms
Remote clock offset: -15.369 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 147.340 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 147.340 ms
Loss rate: 0.34%

Run 3: Report of Copa — Data Link

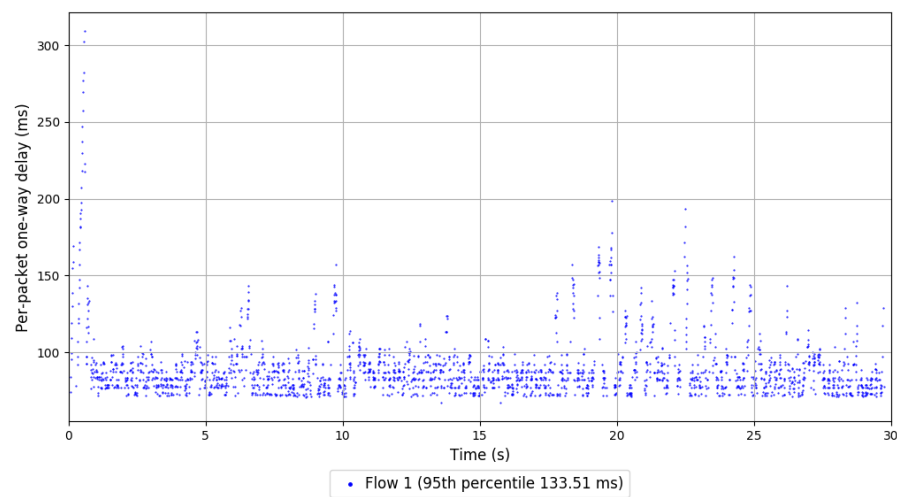
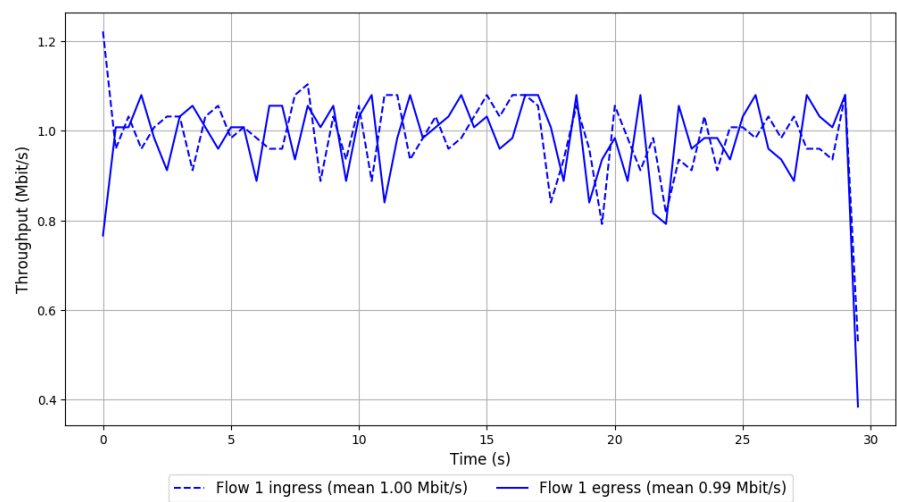


```
Run 1: Statistics of Indigo-2-256

Start at: 2018-01-25 16:38:39
End at: 2018-01-25 16:39:09
Local clock offset: 4.146 ms
Remote clock offset: -16.103 ms

# Below is generated by plot.py at 2018-01-25 18:09:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 133.506 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 133.506 ms
Loss rate: 0.73%
```

Run 1: Report of Indigo-2-256 — Data Link

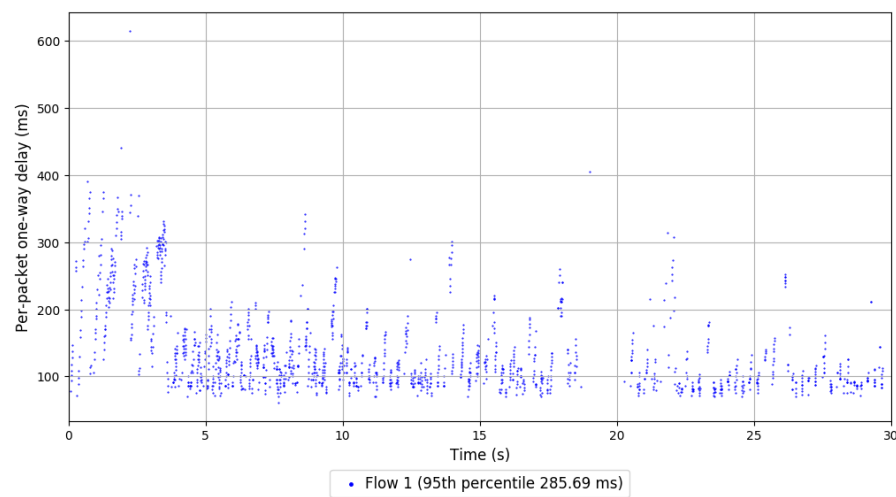
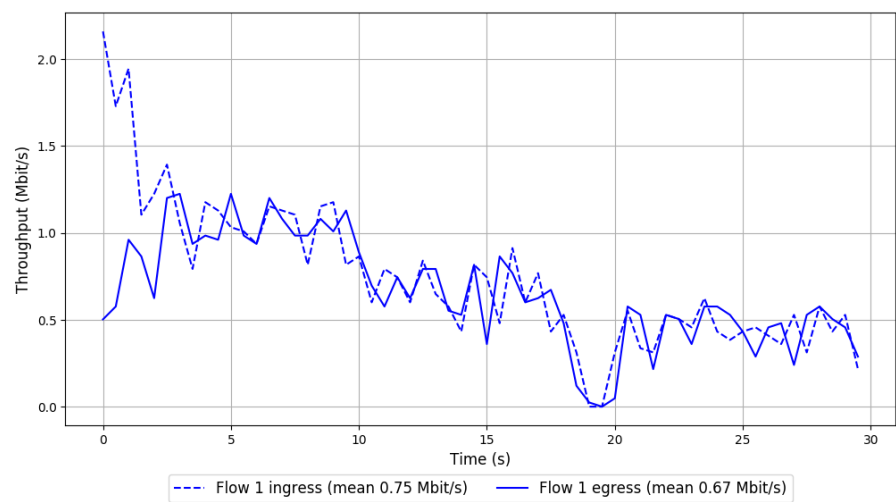


Run 2: Statistics of Indigo-2-256

Start at: 2018-01-25 16:56:12
End at: 2018-01-25 16:56:42
Local clock offset: 3.171 ms
Remote clock offset: -15.84 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 285.685 ms
Loss rate: 10.70%
-- Flow 1:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 285.685 ms
Loss rate: 10.70%

Run 2: Report of Indigo-2-256 — Data Link

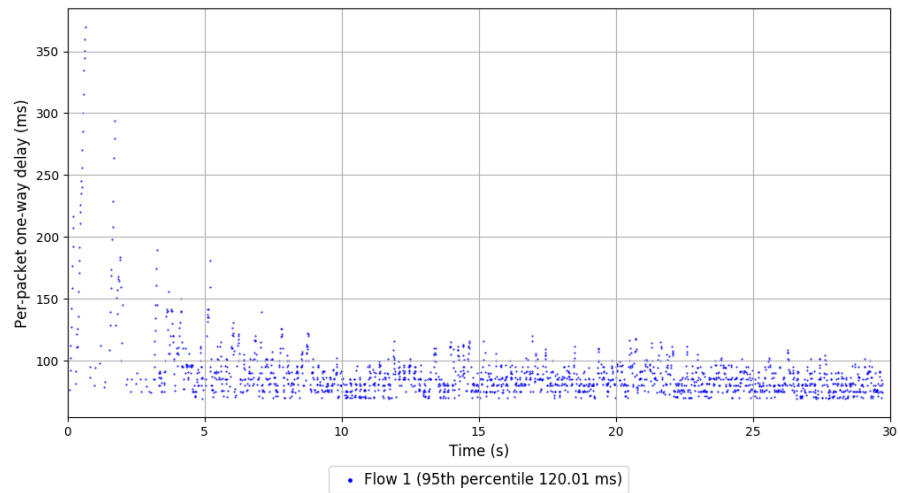
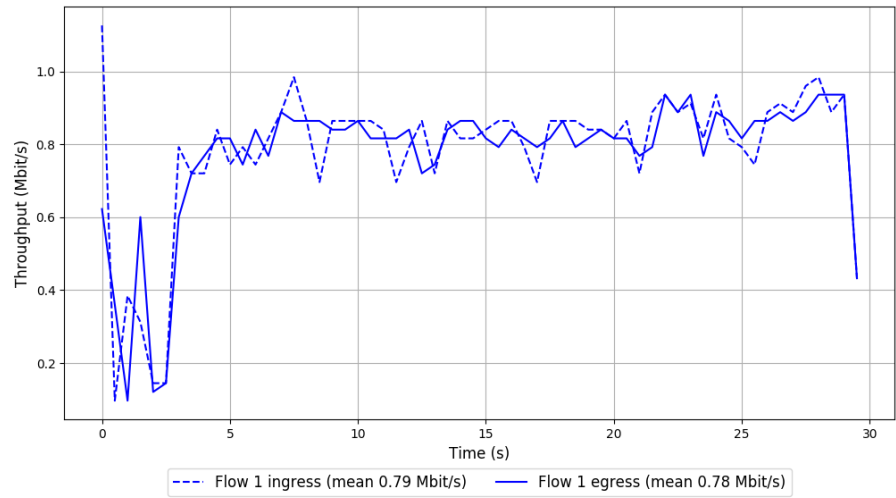


Run 3: Statistics of Indigo-2-256

Start at: 2018-01-25 17:13:34
End at: 2018-01-25 17:14:04
Local clock offset: 1.349 ms
Remote clock offset: -15.154 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 120.009 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 120.009 ms
Loss rate: 1.23%

Run 3: Report of Indigo-2-256 — Data Link

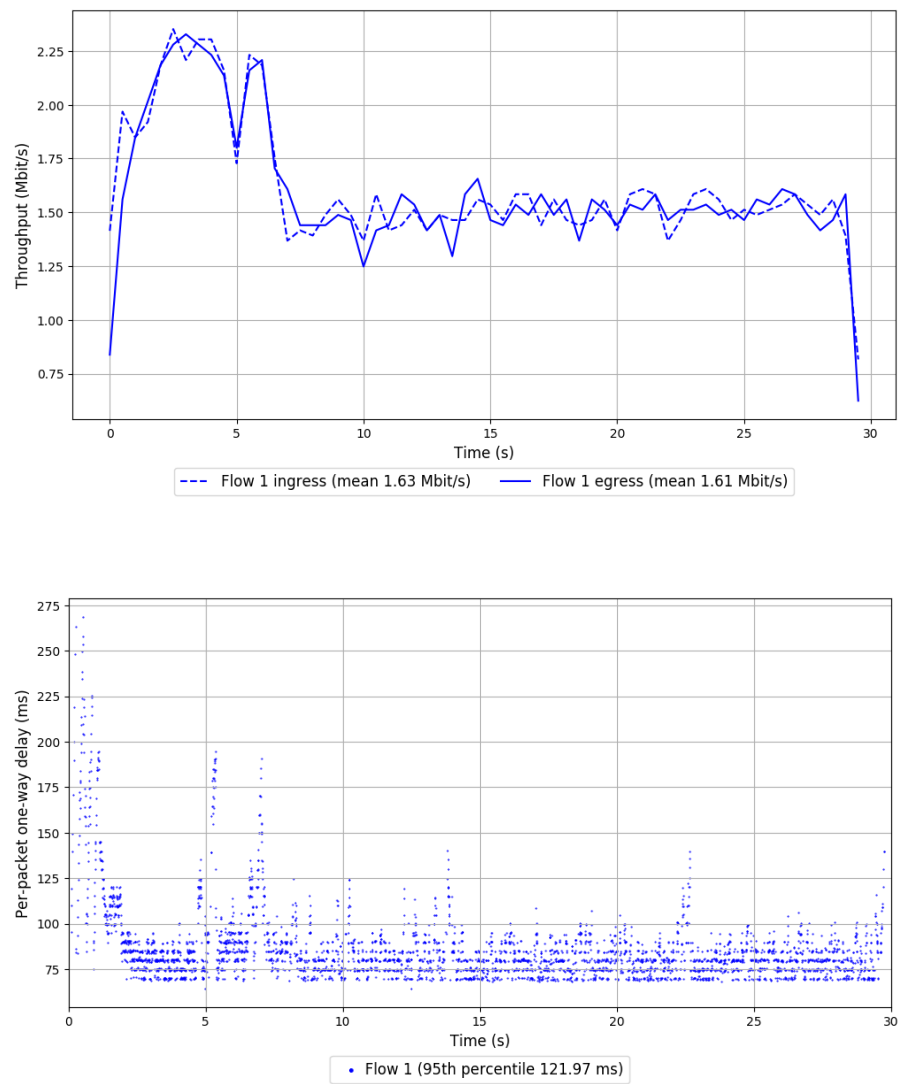


```
Run 1: Statistics of Indigo-1-32

Start at: 2018-01-25 16:27:45
End at: 2018-01-25 16:28:15
Local clock offset: 3.132 ms
Remote clock offset: -15.401 ms

# Below is generated by plot.py at 2018-01-25 18:09:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 121.966 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 121.966 ms
Loss rate: 1.24%
```

Run 1: Report of Indigo-1-32 — Data Link

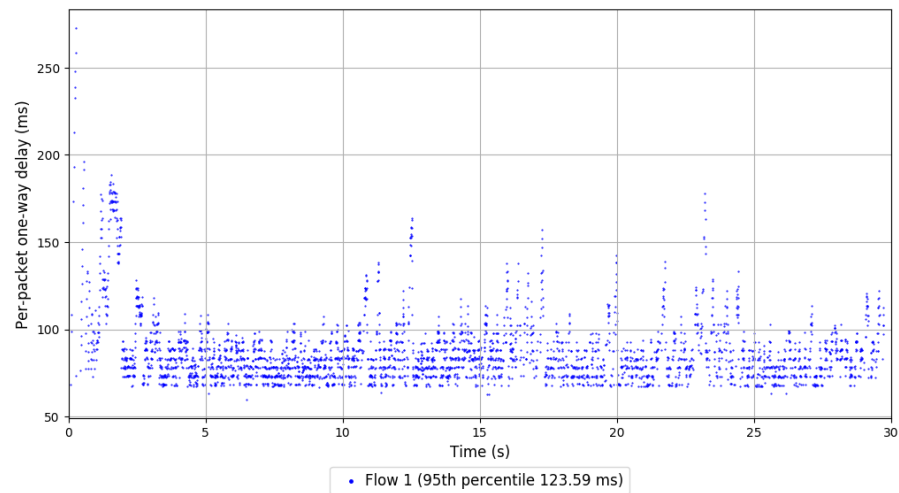
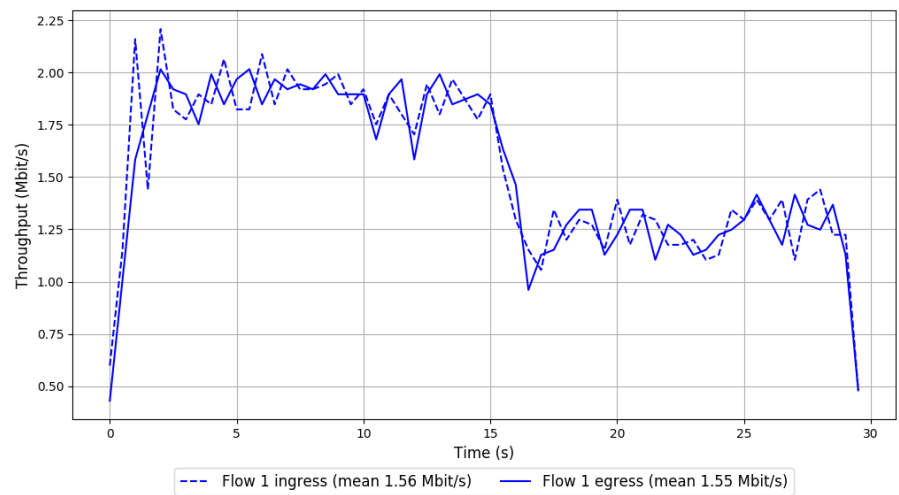


Run 2: Statistics of Indigo-1-32

Start at: 2018-01-25 16:45:10
End at: 2018-01-25 16:45:40
Local clock offset: 1.546 ms
Remote clock offset: -15.745 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 123.592 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 123.592 ms
Loss rate: 0.65%

Run 2: Report of Indigo-1-32 — Data Link



Run 3: Statistics of Indigo-1-32

Start at: 2018-01-25 17:02:44

End at: 2018-01-25 17:03:14

Local clock offset: 2.781 ms

Remote clock offset: -15.485 ms

Below is generated by plot.py at 2018-01-25 18:09:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 135.771 ms

Loss rate: 0.70%

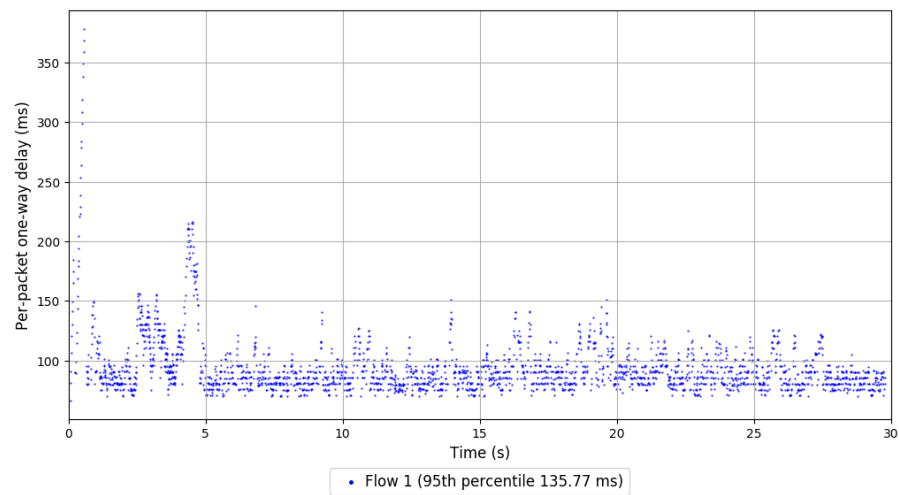
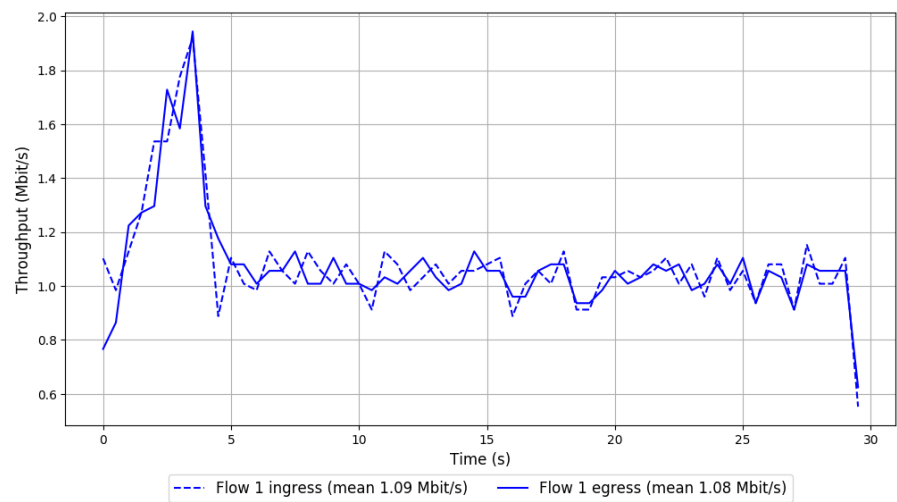
-- Flow 1:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 135.771 ms

Loss rate: 0.70%

Run 3: Report of Indigo-1-32 — Data Link

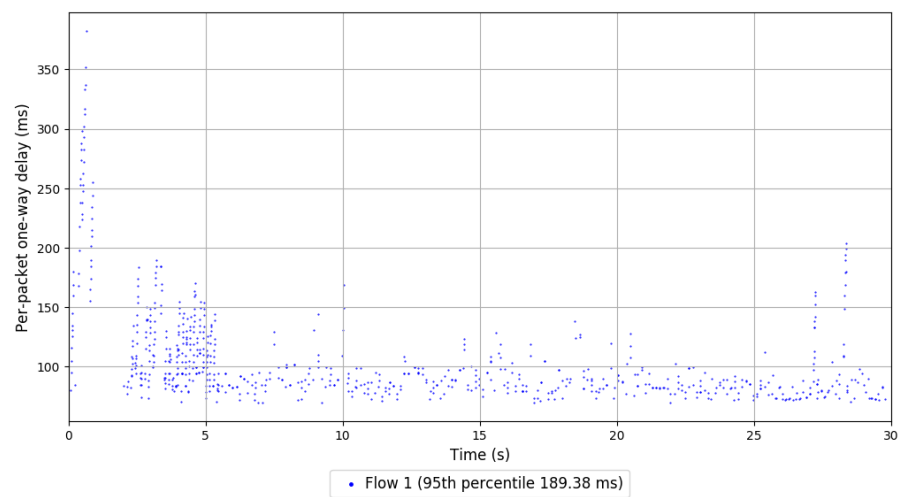
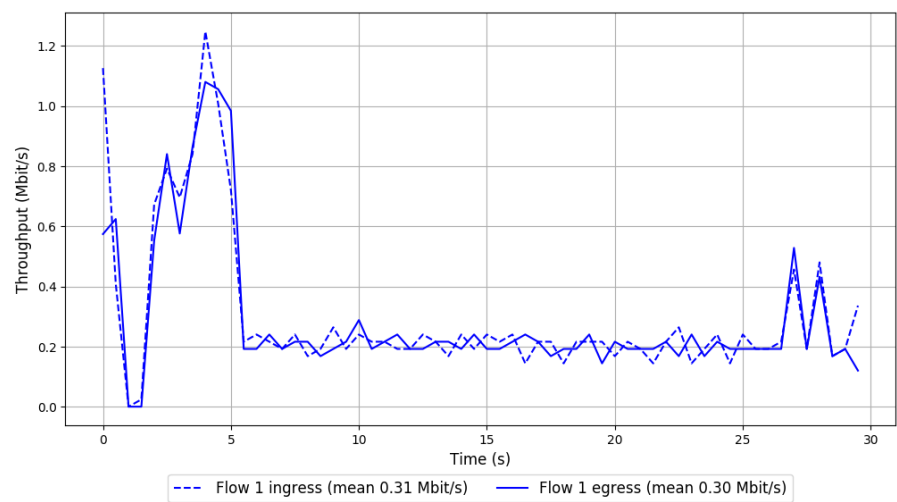


```
Run 1: Statistics of Indigo-1-128

Start at: 2018-01-25 16:31:01
End at: 2018-01-25 16:31:31
Local clock offset: -0.168 ms
Remote clock offset: -19.683 ms

# Below is generated by plot.py at 2018-01-25 18:09:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 189.380 ms
Loss rate: 3.69%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 189.380 ms
Loss rate: 3.69%
```


Run 1: Report of Indigo-1-128 — Data Link

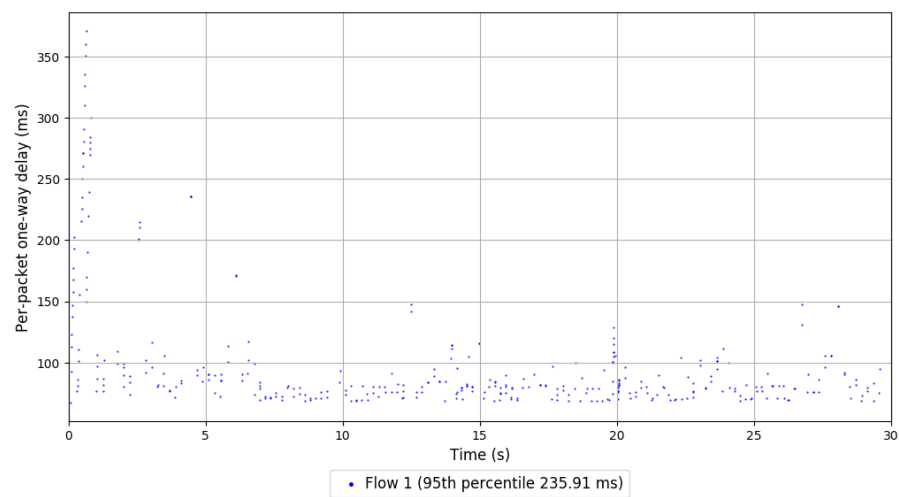
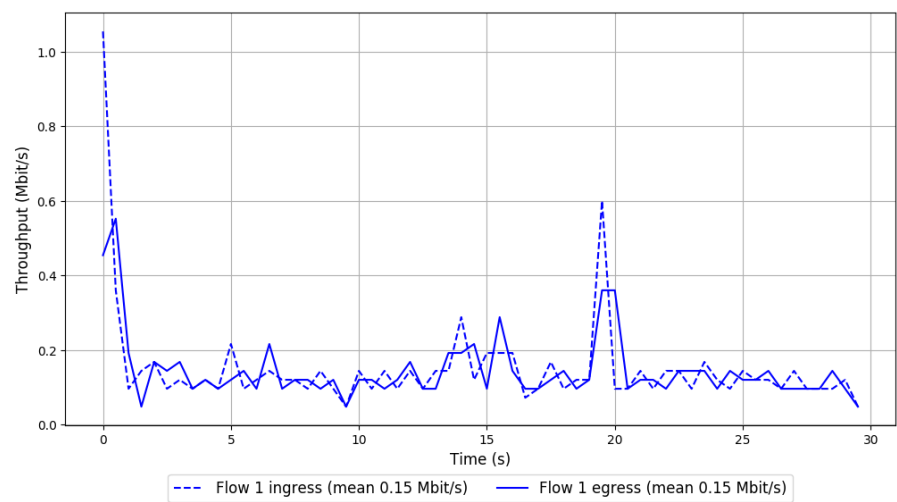


Run 2: Statistics of Indigo-1-128

Start at: 2018-01-25 16:48:27
End at: 2018-01-25 16:48:57
Local clock offset: 0.531 ms
Remote clock offset: -15.987 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 235.905 ms
Loss rate: 4.22%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 235.905 ms
Loss rate: 4.22%

Run 2: Report of Indigo-1-128 — Data Link



Run 3: Statistics of Indigo-1-128

Start at: 2018-01-25 17:05:59
End at: 2018-01-25 17:06:29
Local clock offset: 1.877 ms
Remote clock offset: -14.363 ms

Below is generated by plot.py at 2018-01-25 18:09:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 252.602 ms
Loss rate: 7.16%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 252.602 ms
Loss rate: 7.16%

Run 3: Report of Indigo-1-128 — Data Link

