

Pantheon Report

Generated at 2018-01-25 18:15:21 (UTC).

Data path: China ppp0 (*remote*) → AWS Korea 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).

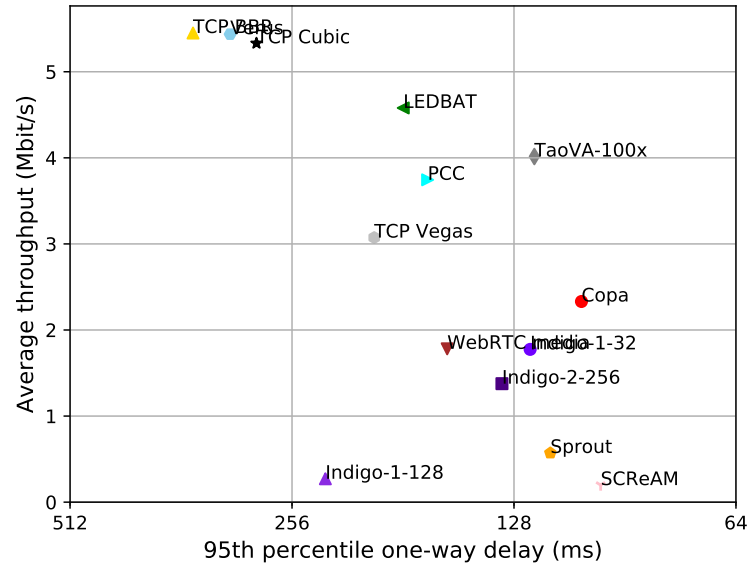
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

NTP offsets were measured against `ntp.nict.jp` and have been applied to correct the timestamps in logs.

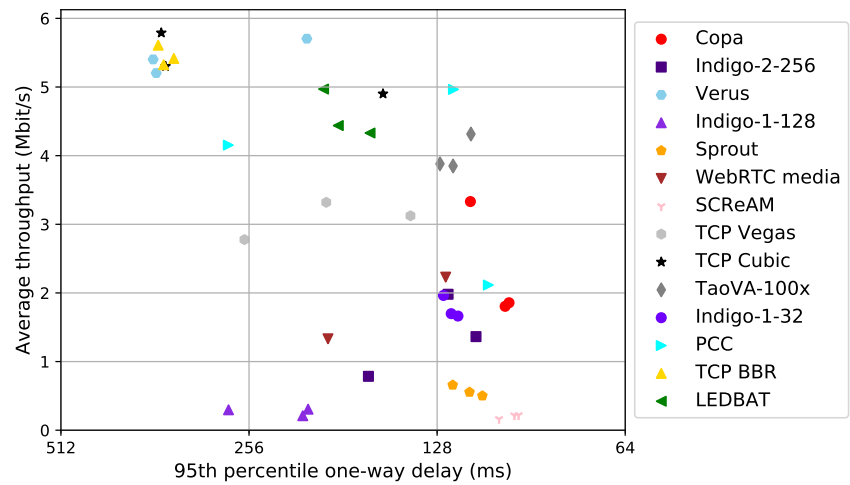
Git summary:

```
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 China ppp0 to AWS Korea Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from China ppp0 to AWS Korea Ethernet, 3 runs of 30s each per scheme



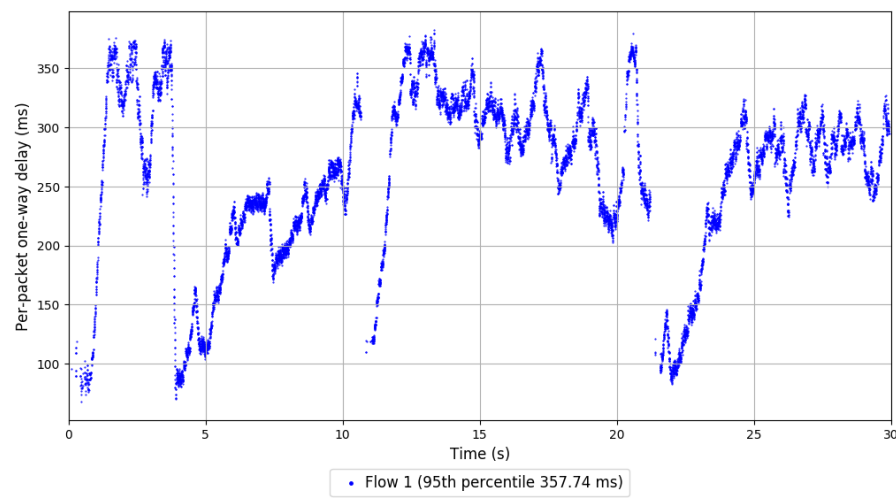
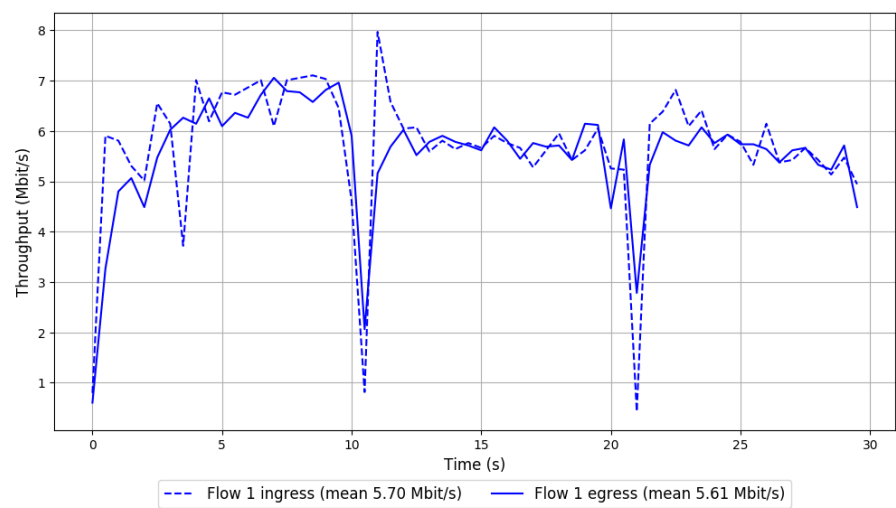
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	5.45	348.73	1.86
TCP Cubic	3	5.33	286.05	1.16
LEDBAT	3	4.58	180.89	0.88
PCC	3	3.74	167.61	8.15
QUIC Cubic	0	N/A	N/A	N/A
SCReAM	3	0.20	97.65	0.39
WebRTC media	2	1.78	157.69	0.70
Sprout	3	0.57	114.27	0.81
TaoVA-100x	3	4.01	120.12	1.21
TCP Vegas	3	3.07	198.05	1.84
Verus	3	5.43	310.57	14.20
Copa	3	2.33	103.69	0.27
Indigo-2-256	3	1.38	132.91	0.76
Indigo-1-32	3	1.77	121.70	0.67
Indigo-1-128	3	0.27	230.68	2.62

Run 1: Statistics of TCP BBR

Start at: 2018-01-25 16:26:49
End at: 2018-01-25 16:27:19
Local clock offset: 4.121 ms
Remote clock offset: -3.609 ms

Below is generated by plot.py at 2018-01-25 18:14:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.61 Mbit/s
95th percentile per-packet one-way delay: 357.736 ms
Loss rate: 1.96%
-- Flow 1:
Average throughput: 5.61 Mbit/s
95th percentile per-packet one-way delay: 357.736 ms
Loss rate: 1.96%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-01-25 16:45:09

End at: 2018-01-25 16:45:39

Local clock offset: 3.99 ms

Remote clock offset: -4.04 ms

Below is generated by plot.py at 2018-01-25 18:14:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.32 Mbit/s

95th percentile per-packet one-way delay: 350.703 ms

Loss rate: 1.75%

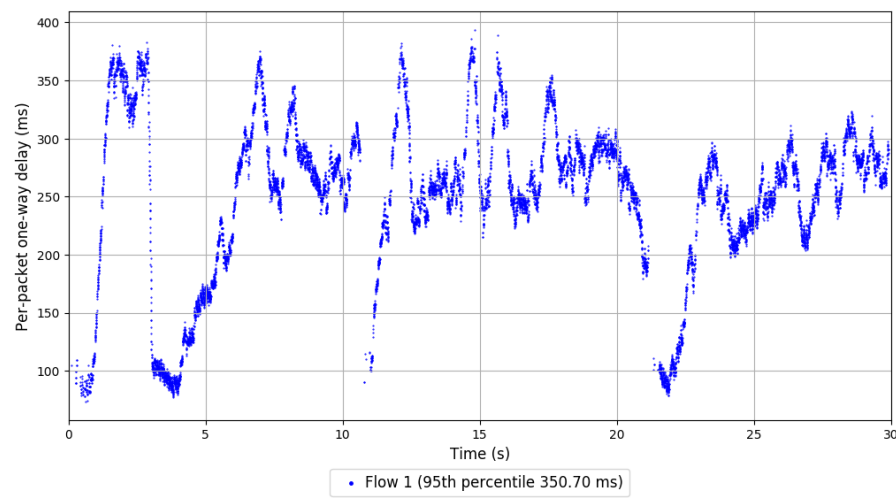
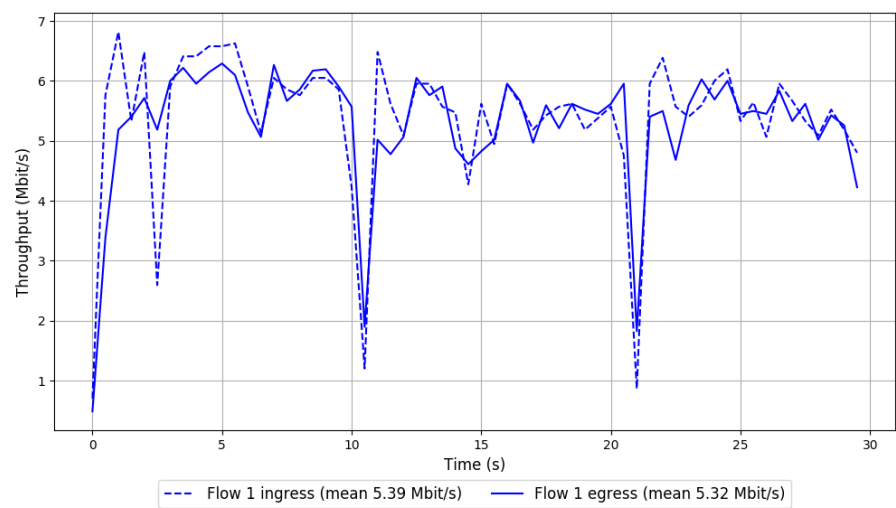
-- Flow 1:

Average throughput: 5.32 Mbit/s

95th percentile per-packet one-way delay: 350.703 ms

Loss rate: 1.75%

Run 2: Report of TCP BBR — Data Link

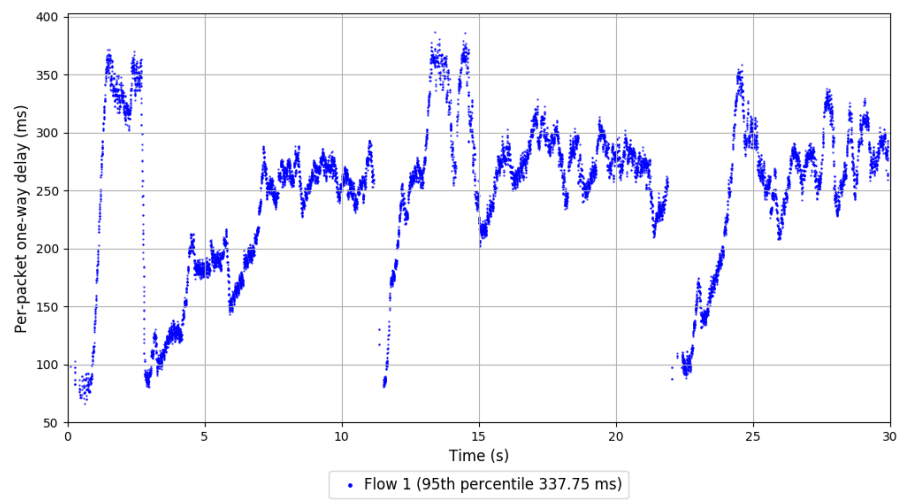
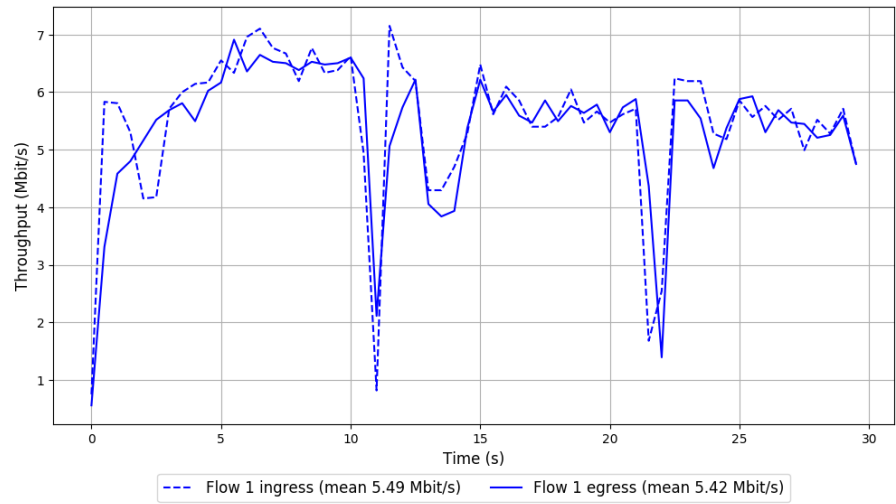


Run 3: Statistics of TCP BBR

Start at: 2018-01-25 17:03:31
End at: 2018-01-25 17:04:01
Local clock offset: 3.286 ms
Remote clock offset: -4.803 ms

Below is generated by plot.py at 2018-01-25 18:14:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.42 Mbit/s
95th percentile per-packet one-way delay: 337.751 ms
Loss rate: 1.87%
-- Flow 1:
Average throughput: 5.42 Mbit/s
95th percentile per-packet one-way delay: 337.751 ms
Loss rate: 1.87%

Run 3: Report of TCP BBR — Data Link

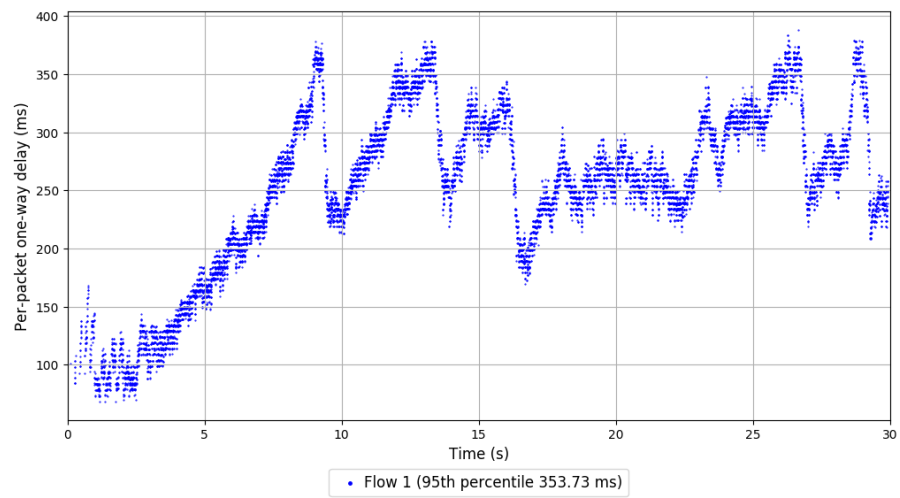
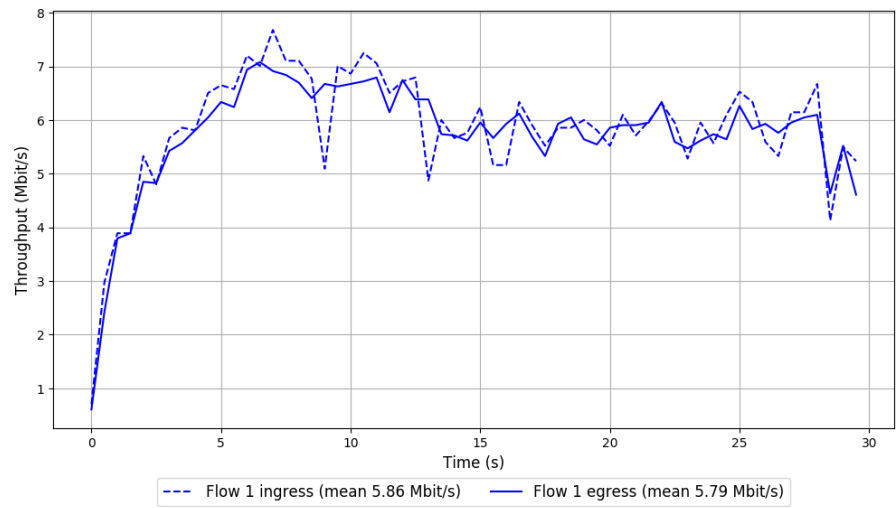


Run 1: Statistics of TCP Cubic

Start at: 2018-01-25 16:29:07
End at: 2018-01-25 16:29:37
Local clock offset: 4.254 ms
Remote clock offset: -3.808 ms

Below is generated by plot.py at 2018-01-25 18:14:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.79 Mbit/s
95th percentile per-packet one-way delay: 353.727 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 5.79 Mbit/s
95th percentile per-packet one-way delay: 353.727 ms
Loss rate: 1.60%

Run 1: Report of TCP Cubic — Data Link

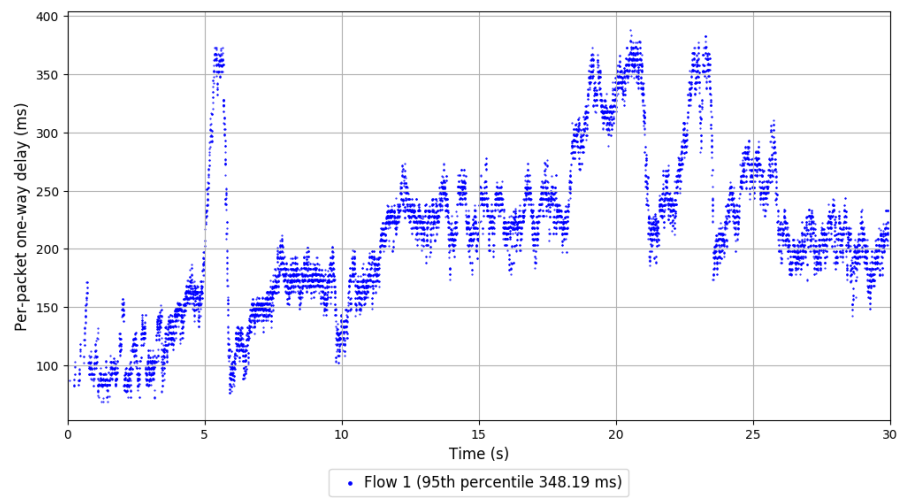
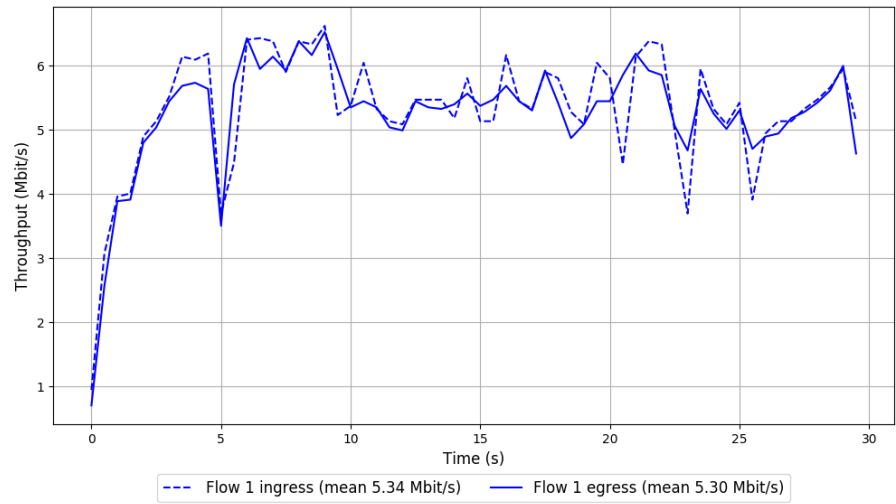


Run 2: Statistics of TCP Cubic

Start at: 2018-01-25 16:47:27
End at: 2018-01-25 16:47:57
Local clock offset: 3.928 ms
Remote clock offset: -3.975 ms

Below is generated by plot.py at 2018-01-25 18:14:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.30 Mbit/s
95th percentile per-packet one-way delay: 348.189 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 5.30 Mbit/s
95th percentile per-packet one-way delay: 348.189 ms
Loss rate: 1.10%

Run 2: Report of TCP Cubic — Data Link

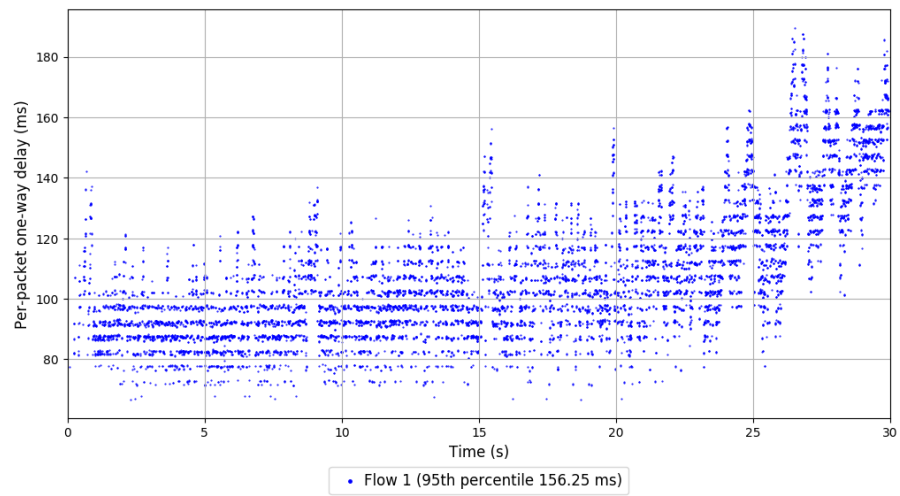
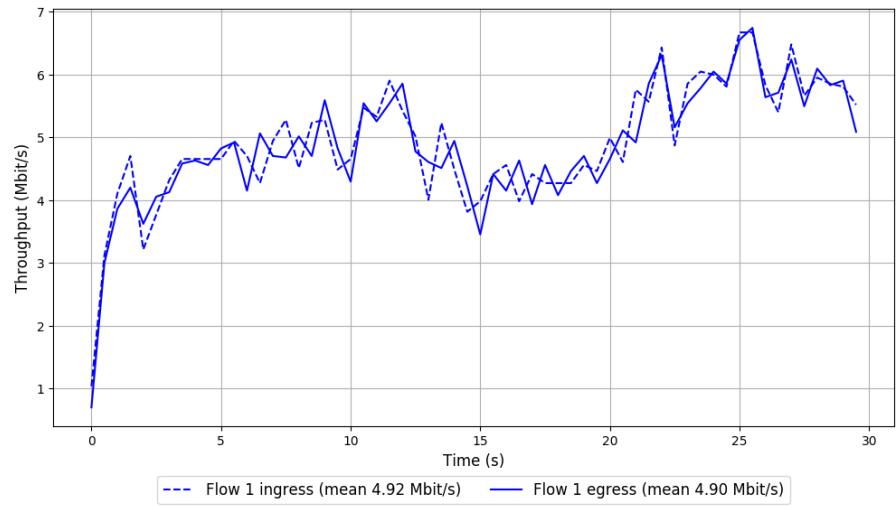


Run 3: Statistics of TCP Cubic

Start at: 2018-01-25 17:05:48
End at: 2018-01-25 17:06:18
Local clock offset: 3.693 ms
Remote clock offset: -4.928 ms

Below is generated by plot.py at 2018-01-25 18:14:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 156.246 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 4.90 Mbit/s
95th percentile per-packet one-way delay: 156.246 ms
Loss rate: 0.77%

Run 3: Report of TCP Cubic — Data Link

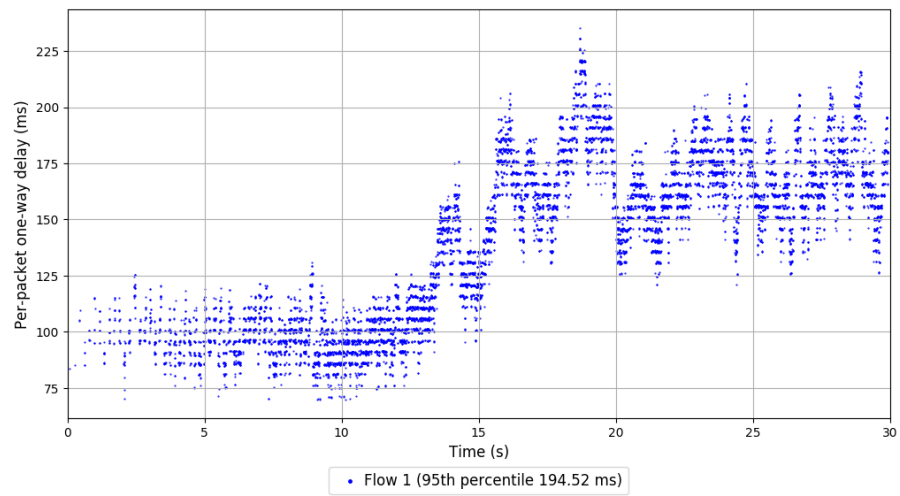
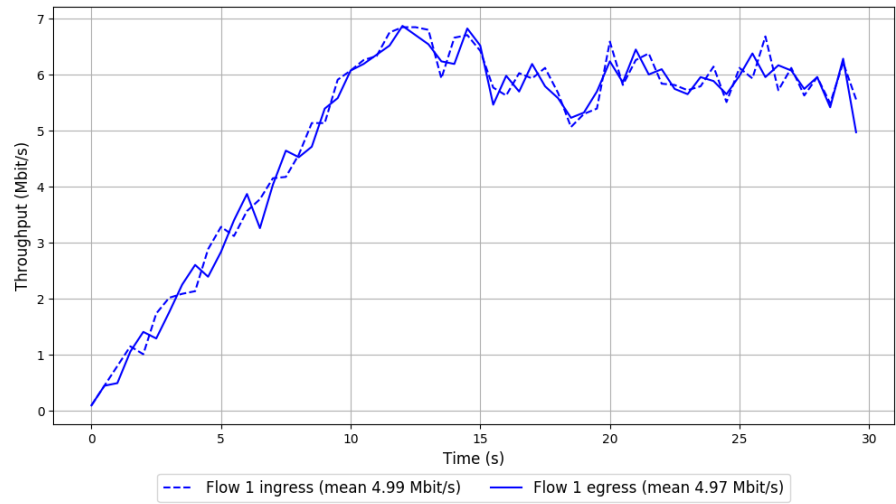


Run 1: Statistics of LEDBAT

Start at: 2018-01-25 16:38:17
End at: 2018-01-25 16:38:47
Local clock offset: 3.995 ms
Remote clock offset: -4.344 ms

Below is generated by plot.py at 2018-01-25 18:14:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 194.521 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 194.521 ms
Loss rate: 0.84%

Run 1: Report of LEDBAT — Data Link

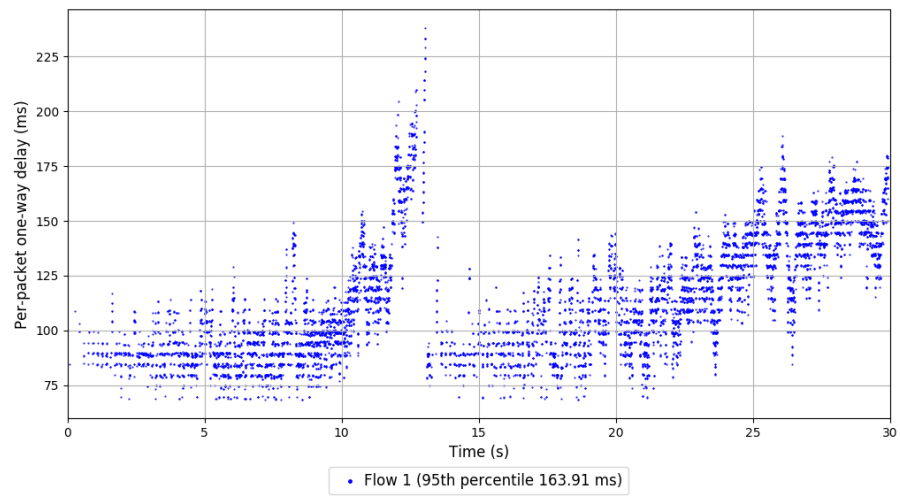
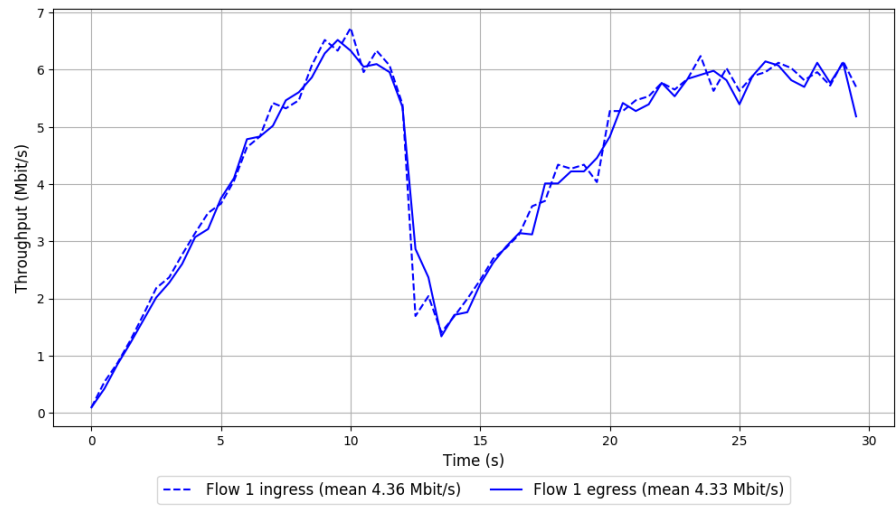


Run 2: Statistics of LEDBAT

Start at: 2018-01-25 16:56:38
End at: 2018-01-25 16:57:08
Local clock offset: 3.172 ms
Remote clock offset: -4.198 ms

Below is generated by plot.py at 2018-01-25 18:14:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.33 Mbit/s
95th percentile per-packet one-way delay: 163.909 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 4.33 Mbit/s
95th percentile per-packet one-way delay: 163.909 ms
Loss rate: 1.02%

Run 2: Report of LEDBAT — Data Link

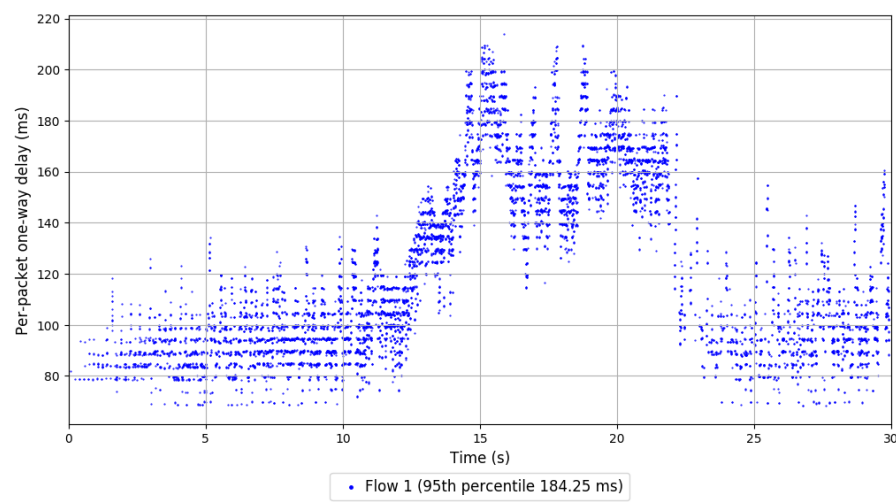
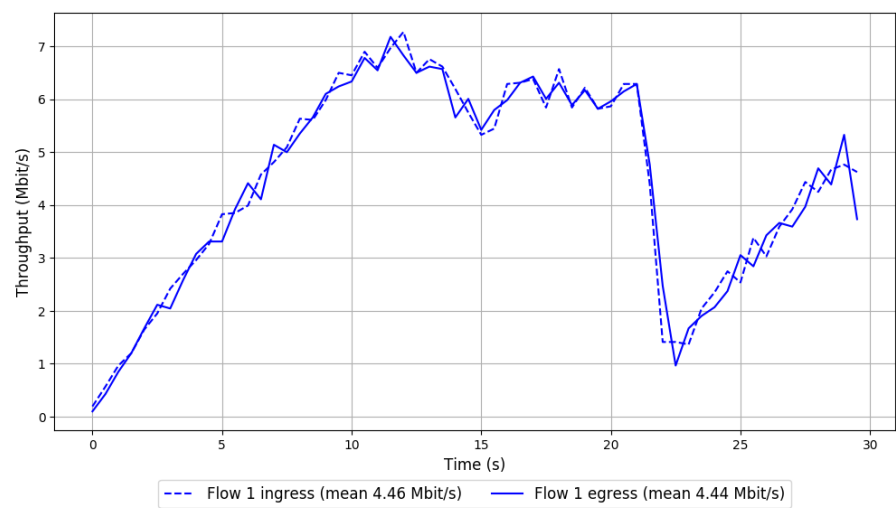


Run 3: Statistics of LEDBAT

Start at: 2018-01-25 17:14:59
End at: 2018-01-25 17:15:29
Local clock offset: 3.661 ms
Remote clock offset: -5.636 ms

Below is generated by plot.py at 2018-01-25 18:14:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.44 Mbit/s
95th percentile per-packet one-way delay: 184.249 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 4.44 Mbit/s
95th percentile per-packet one-way delay: 184.249 ms
Loss rate: 0.78%

Run 3: Report of LEDBAT — Data Link

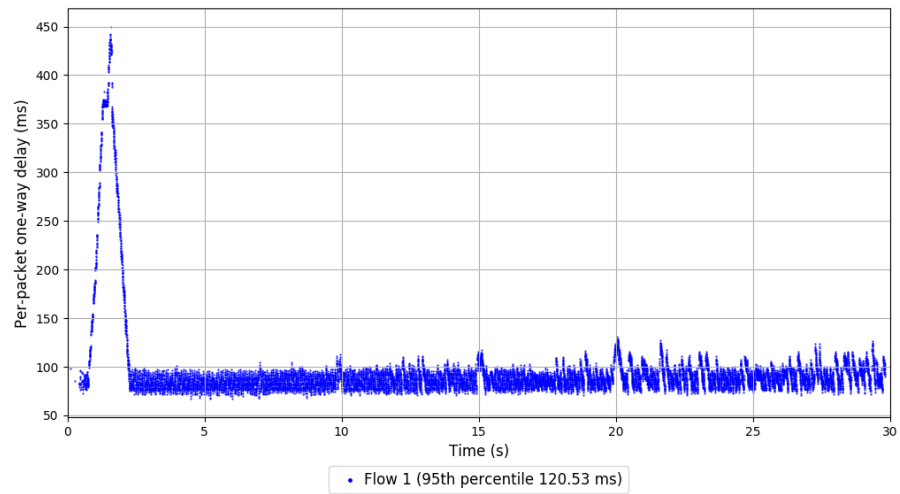
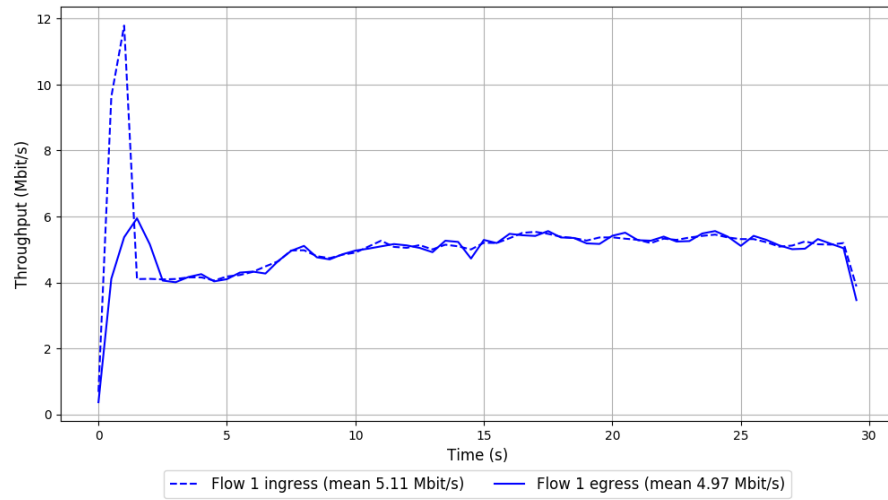


Run 1: Statistics of PCC

Start at: 2018-01-25 16:34:51
End at: 2018-01-25 16:35:21
Local clock offset: 4.028 ms
Remote clock offset: -4.251 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 120.526 ms
Loss rate: 3.36%
-- Flow 1:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 120.526 ms
Loss rate: 3.36%

Run 1: Report of PCC — Data Link

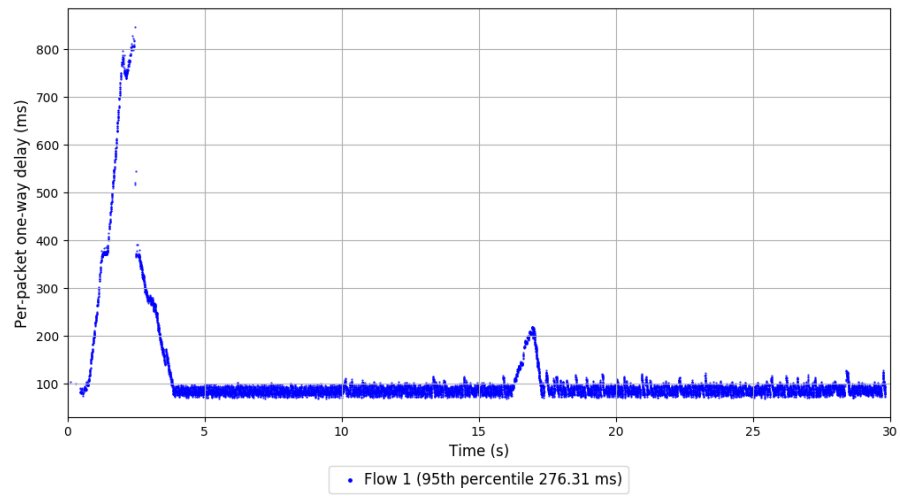
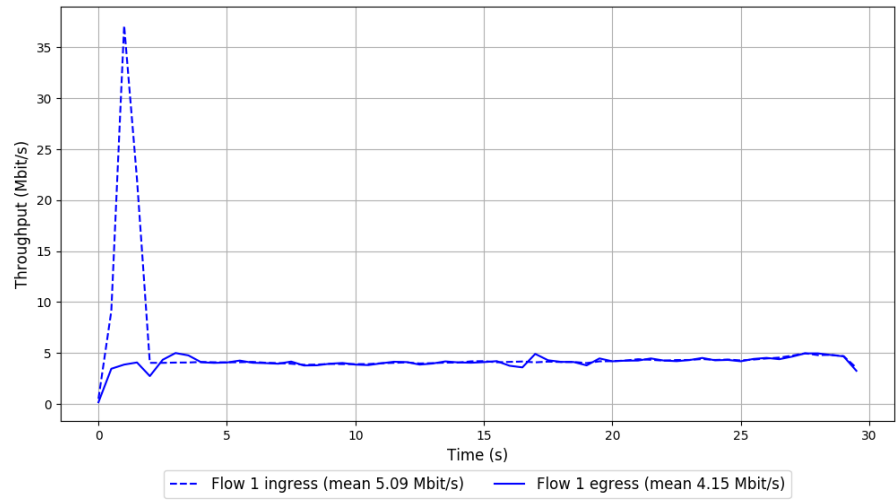


Run 2: Statistics of PCC

Start at: 2018-01-25 16:53:11
End at: 2018-01-25 16:53:41
Local clock offset: 3.677 ms
Remote clock offset: -4.071 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.15 Mbit/s
95th percentile per-packet one-way delay: 276.309 ms
Loss rate: 18.74%
-- Flow 1:
Average throughput: 4.15 Mbit/s
95th percentile per-packet one-way delay: 276.309 ms
Loss rate: 18.74%

Run 2: Report of PCC — Data Link

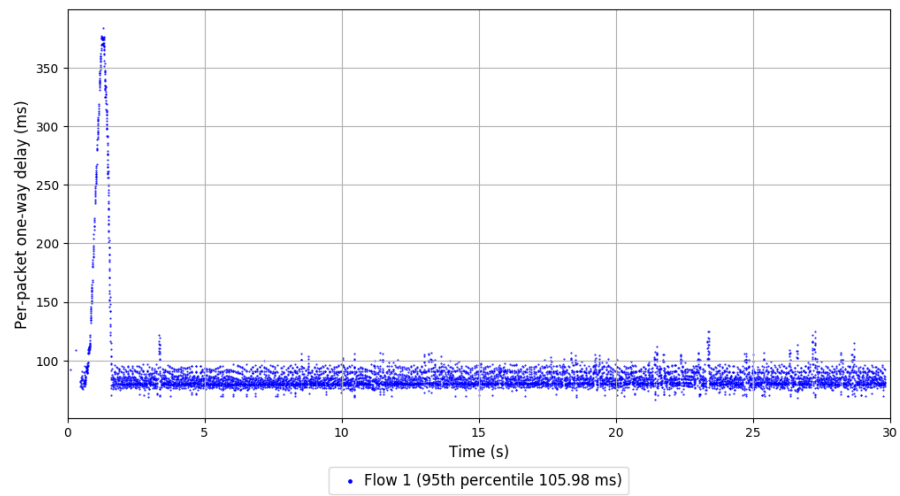
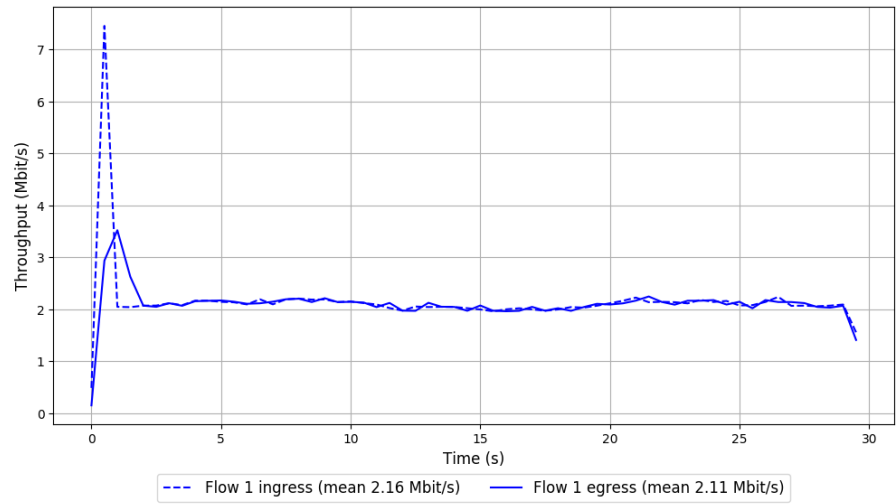


Run 3: Statistics of PCC

Start at: 2018-01-25 17:11:32
End at: 2018-01-25 17:12:02
Local clock offset: 3.408 ms
Remote clock offset: -5.394 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 105.984 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 105.984 ms
Loss rate: 2.34%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

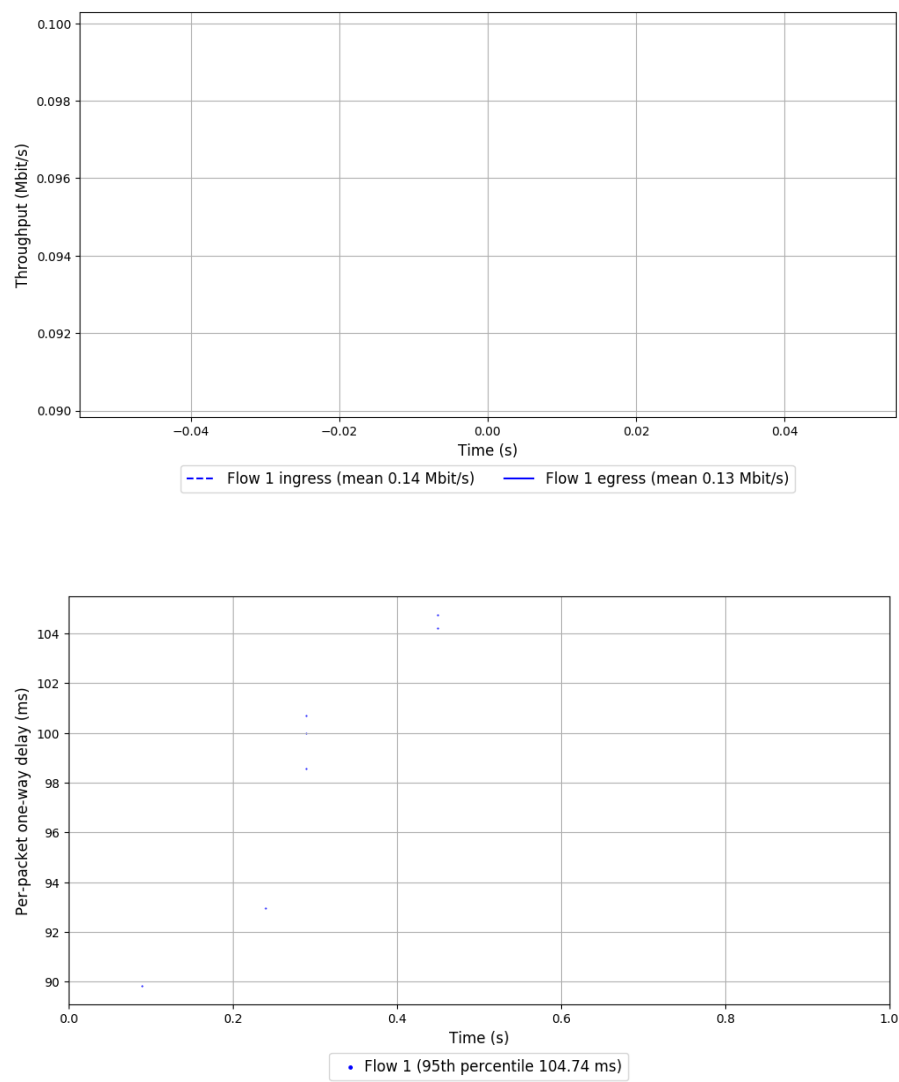
Start at: 2018-01-25 16:40:35

End at: 2018-01-25 16:41:05

Local clock offset: 3.417 ms

Remote clock offset: -4.201 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

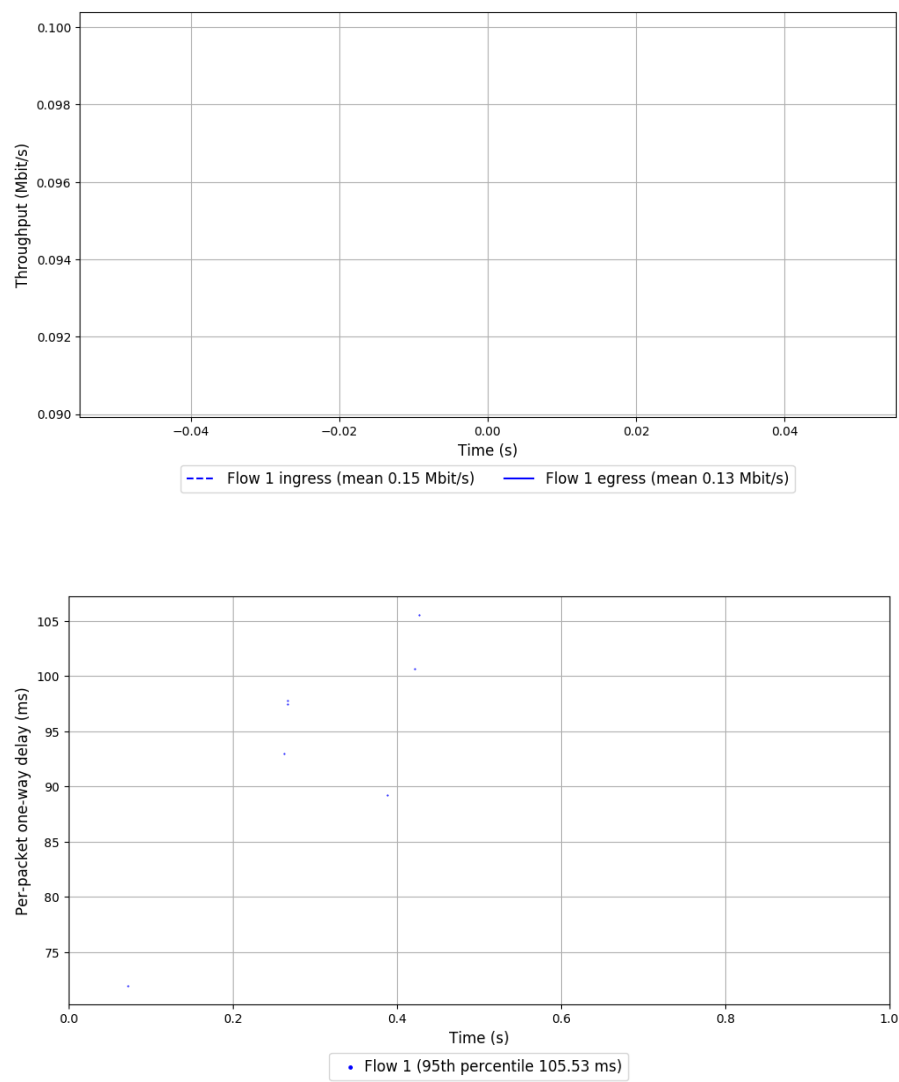
Start at: 2018-01-25 16:58:56

End at: 2018-01-25 16:59:26

Local clock offset: 3.486 ms

Remote clock offset: -4.334 ms

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

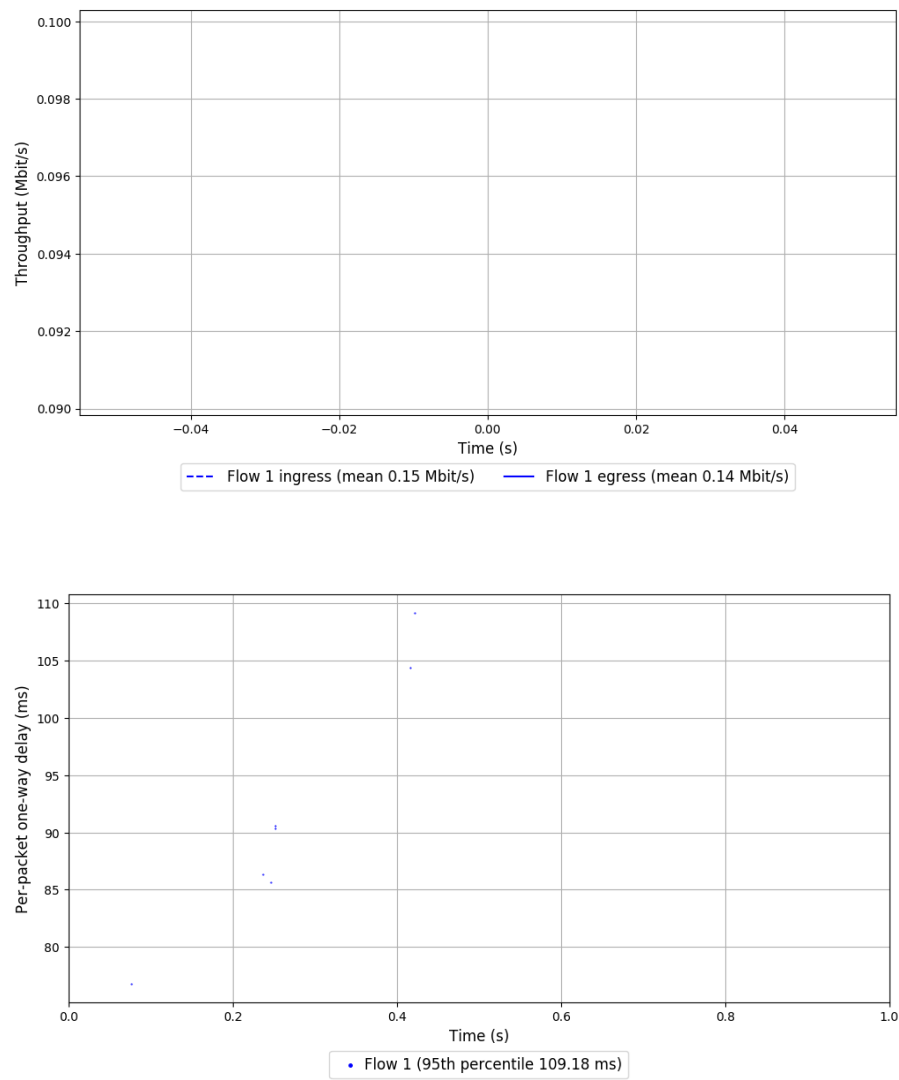
Start at: 2018-01-25 17:17:16

End at: 2018-01-25 17:17:46

Local clock offset: 3.113 ms

Remote clock offset: -5.475 ms

Run 3: Report of QUIC Cubic — Data Link

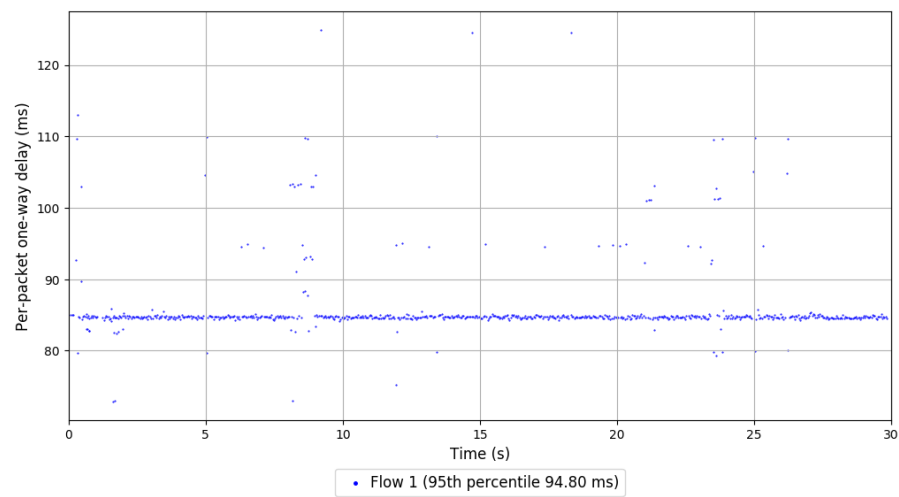
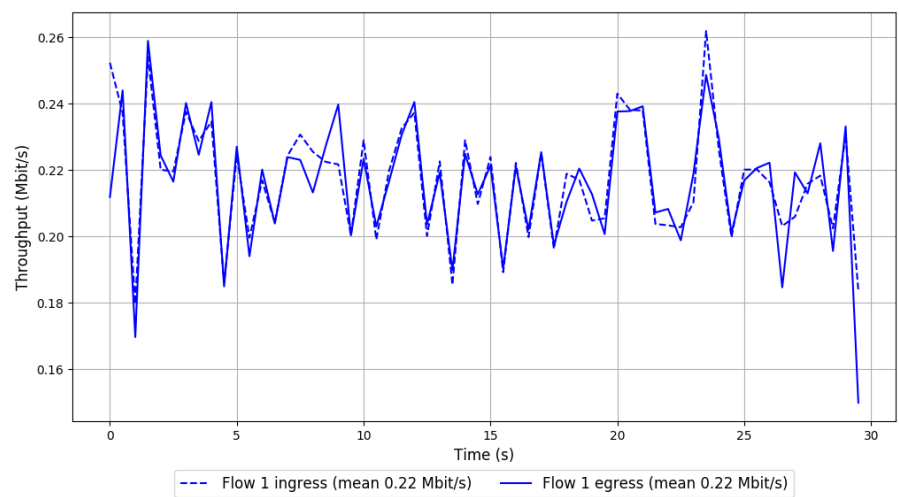


```
Run 1: Statistics of SCReAM

Start at: 2018-01-25 16:24:32
End at: 2018-01-25 16:25:02
Local clock offset: 3.651 ms
Remote clock offset: -2.929 ms

# Below is generated by plot.py at 2018-01-25 18:15:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 94.798 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 94.798 ms
Loss rate: 0.51%
```

Run 1: Report of SReAM — Data Link

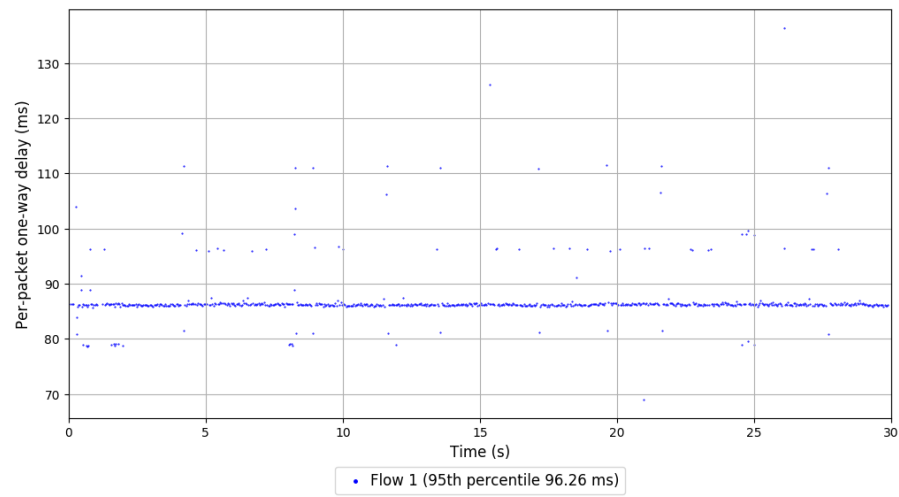
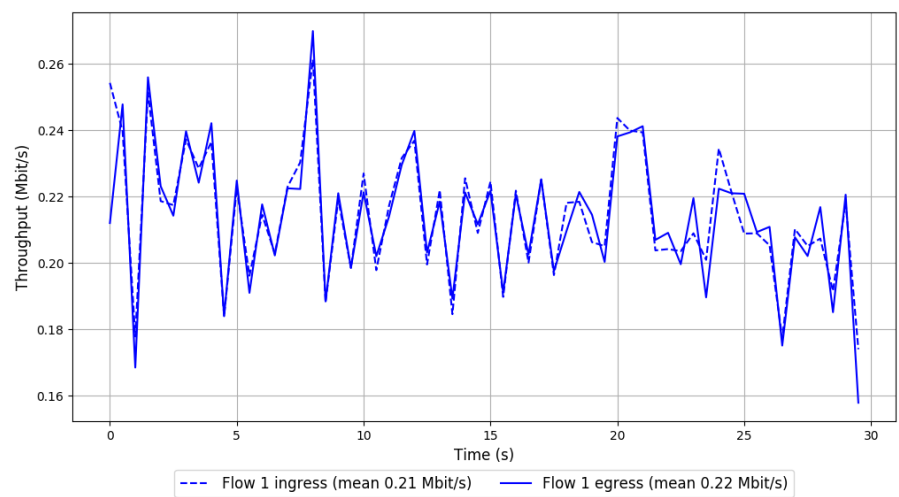


Run 2: Statistics of SCReAM

Start at: 2018-01-25 16:42:52
End at: 2018-01-25 16:43:22
Local clock offset: 3.652 ms
Remote clock offset: -4.204 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 96.264 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 96.264 ms
Loss rate: 0.37%

Run 2: Report of SReAM — Data Link

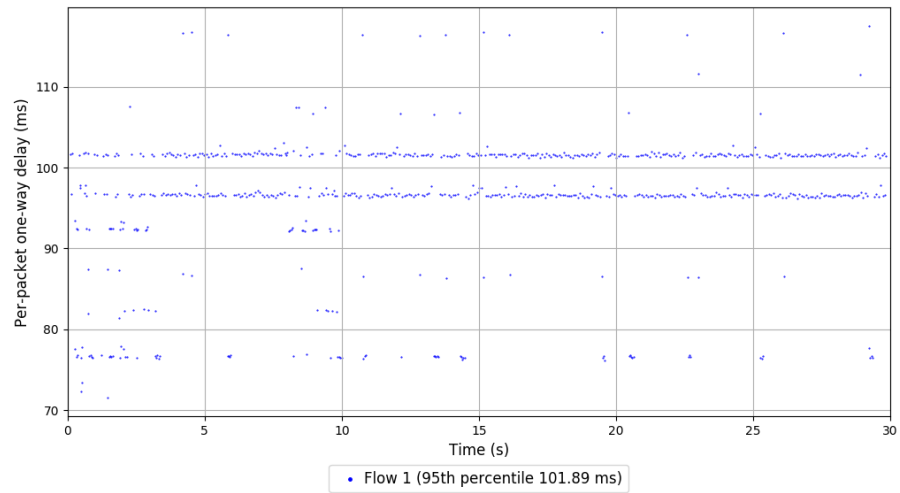
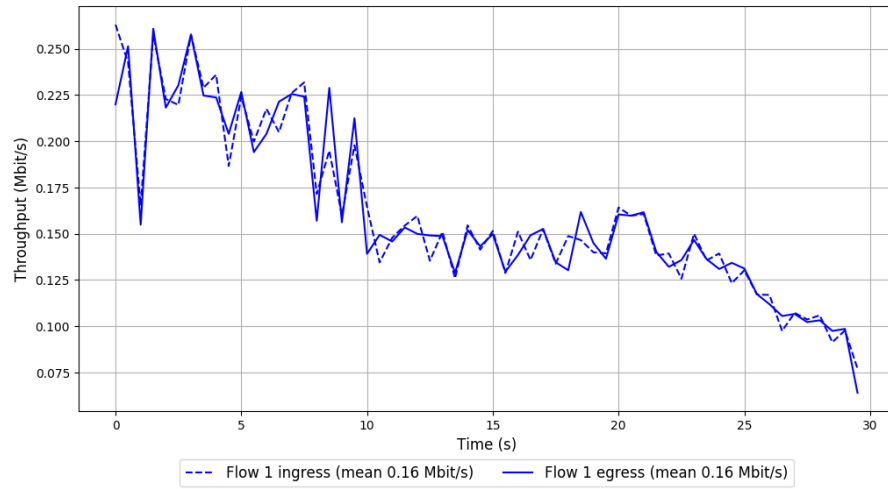


Run 3: Statistics of SCReAM

Start at: 2018-01-25 17:01:13
End at: 2018-01-25 17:01:43
Local clock offset: 3.372 ms
Remote clock offset: -4.559 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 101.894 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 101.894 ms
Loss rate: 0.28%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

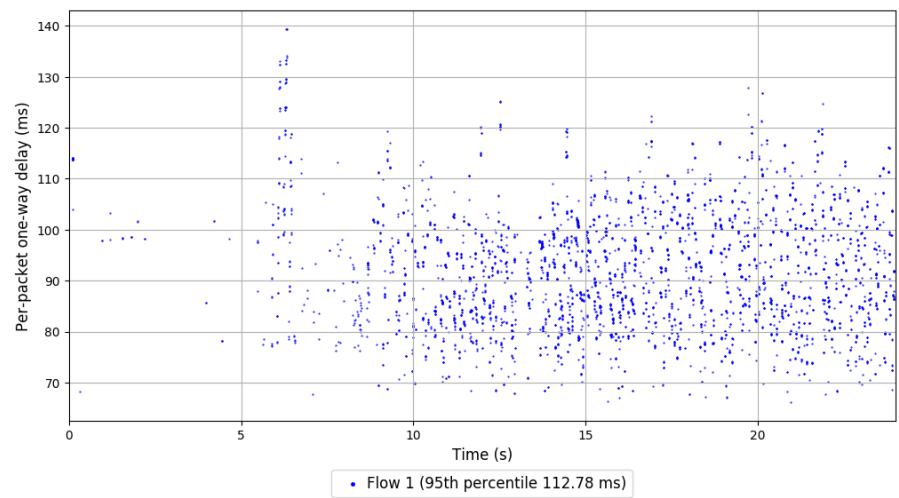
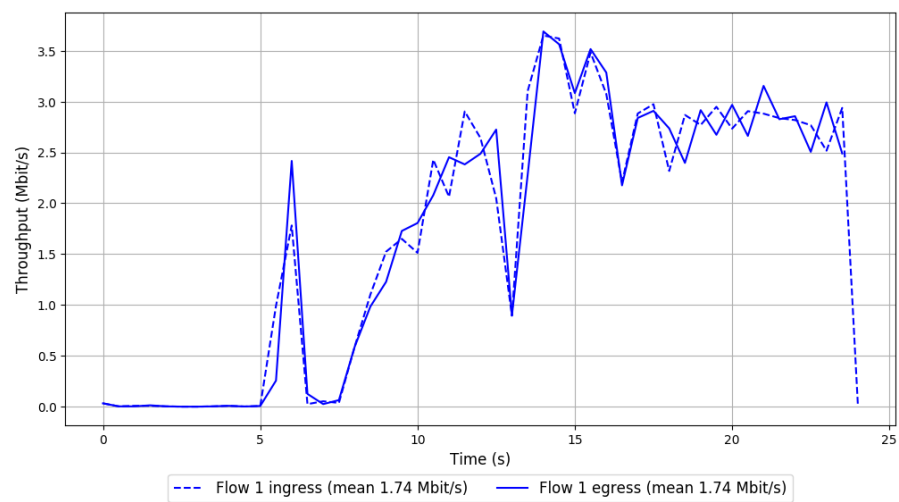
Start at: 2018-01-25 16:27:58

End at: 2018-01-25 16:28:28

Local clock offset: 4.246 ms

Remote clock offset: -3.812 ms

Run 1: Report of WebRTC media — Data Link

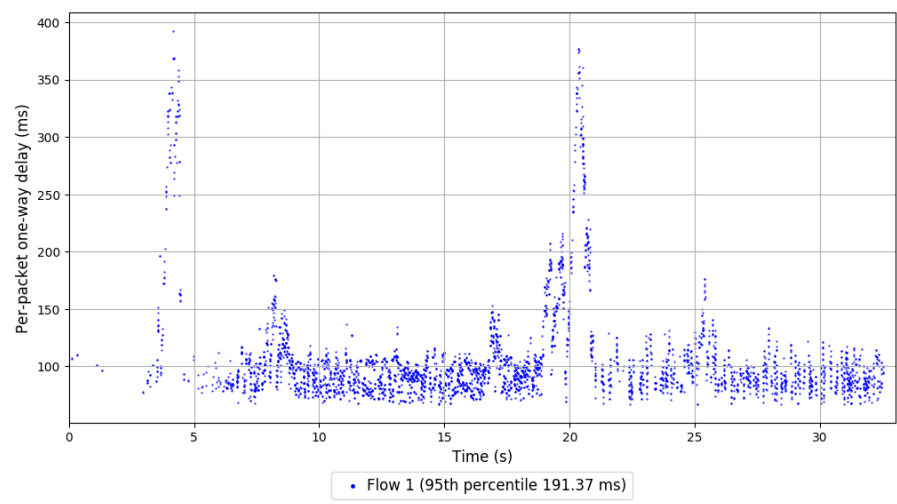
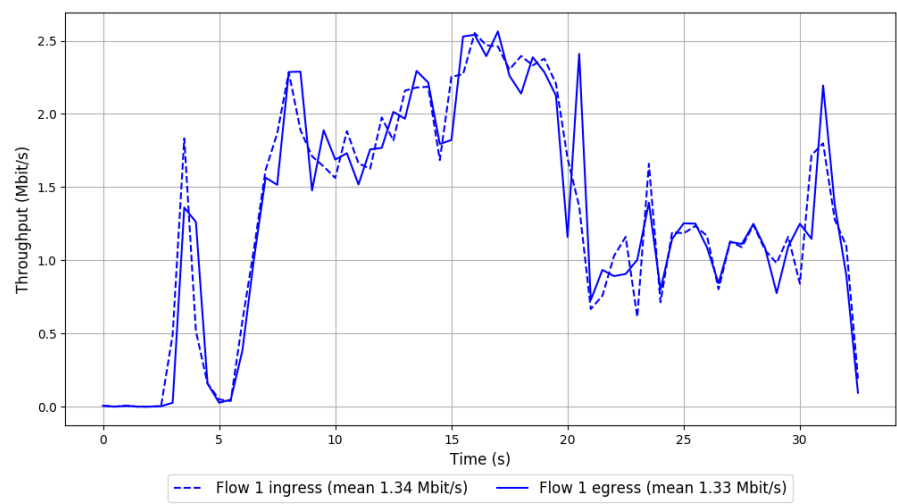


Run 2: Statistics of WebRTC media

Start at: 2018-01-25 16:46:18
End at: 2018-01-25 16:46:48
Local clock offset: 3.95 ms
Remote clock offset: -4.008 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 191.366 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 191.366 ms
Loss rate: 0.76%

Run 2: Report of WebRTC media — Data Link

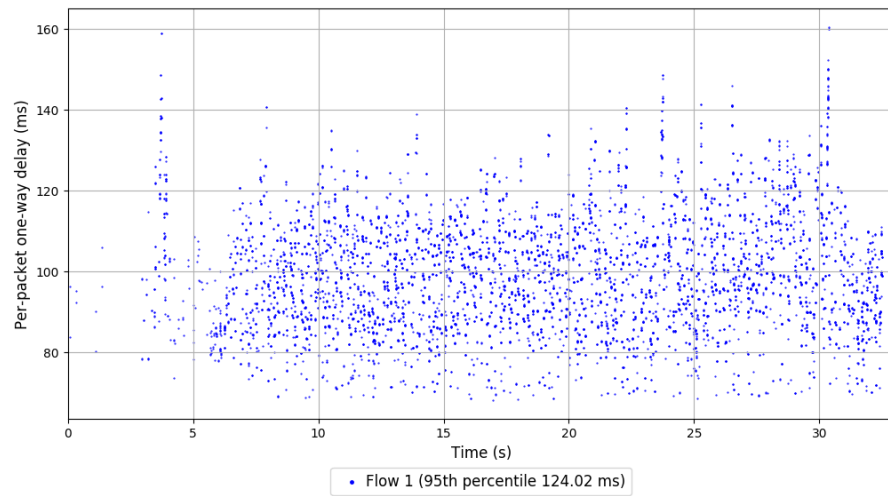
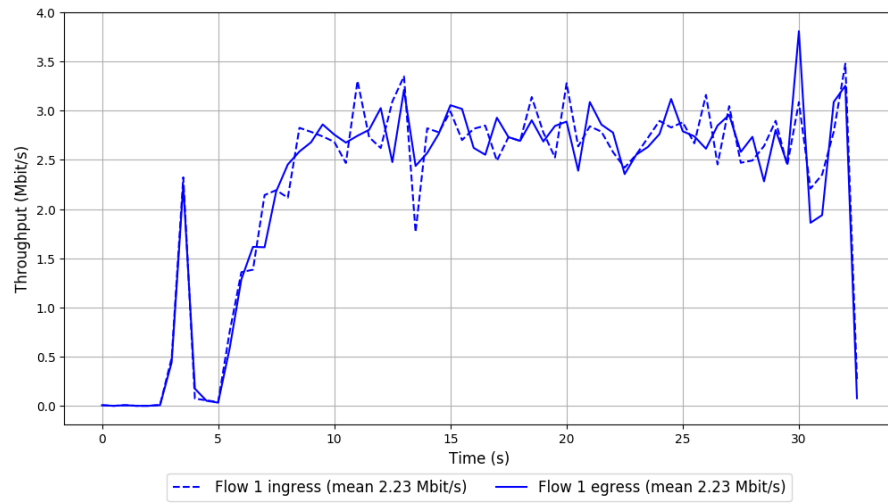


Run 3: Statistics of WebRTC media

Start at: 2018-01-25 17:04:40
End at: 2018-01-25 17:05:10
Local clock offset: 3.37 ms
Remote clock offset: -4.886 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 124.024 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 124.024 ms
Loss rate: 0.63%

Run 3: Report of WebRTC media — Data Link

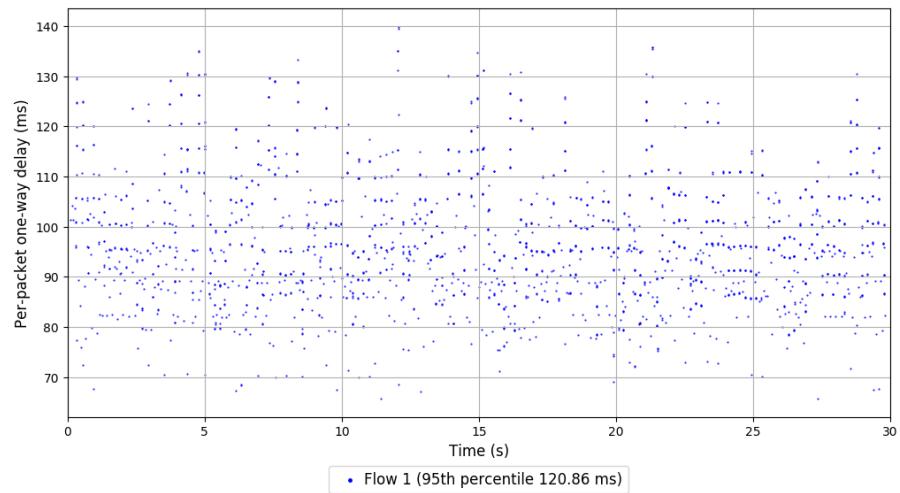
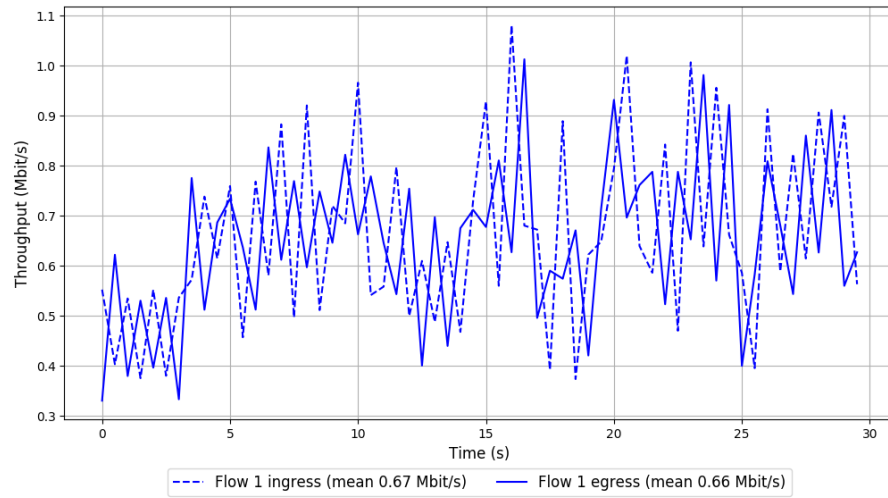


Run 1: Statistics of Sprout

Start at: 2018-01-25 16:41:43
End at: 2018-01-25 16:42:13
Local clock offset: 3.67 ms
Remote clock offset: -4.213 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 120.865 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 120.865 ms
Loss rate: 1.72%

Run 1: Report of Sprout — Data Link

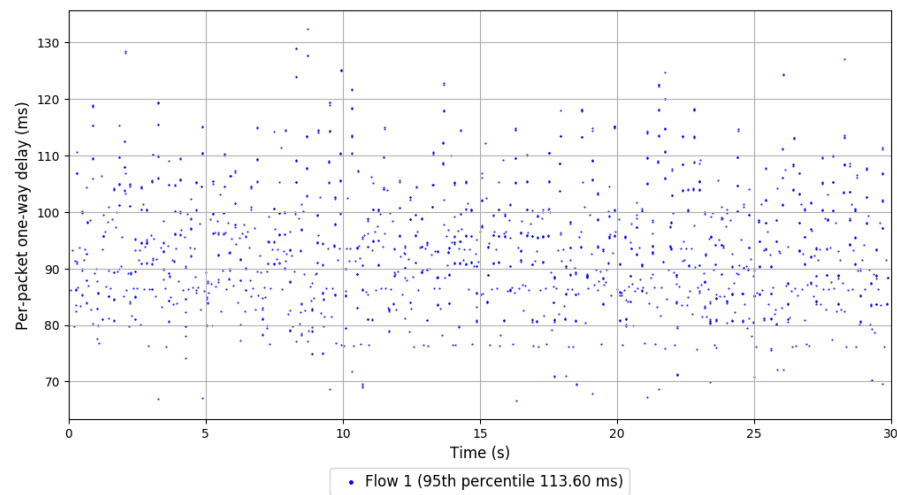
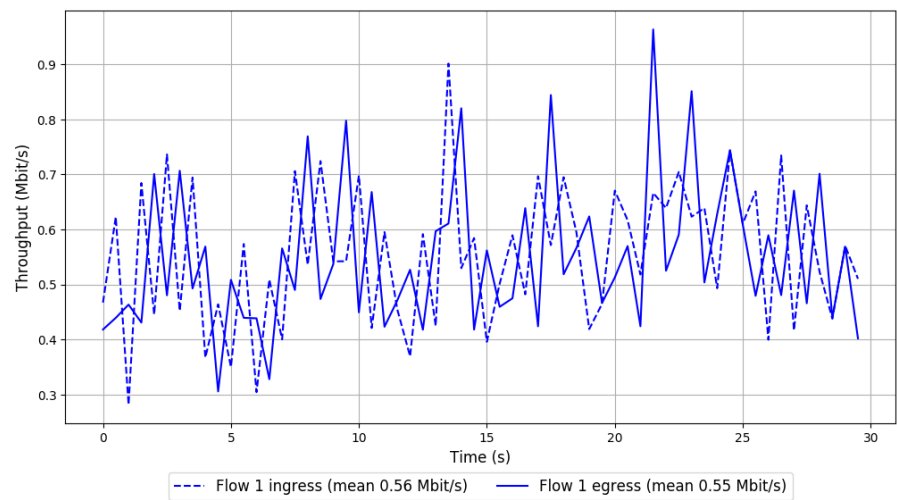


Run 2: Statistics of Sprout

Start at: 2018-01-25 17:00:04
End at: 2018-01-25 17:00:34
Local clock offset: 3.456 ms
Remote clock offset: -4.466 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 113.600 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 113.600 ms
Loss rate: 0.48%

Run 2: Report of Sprout — Data Link

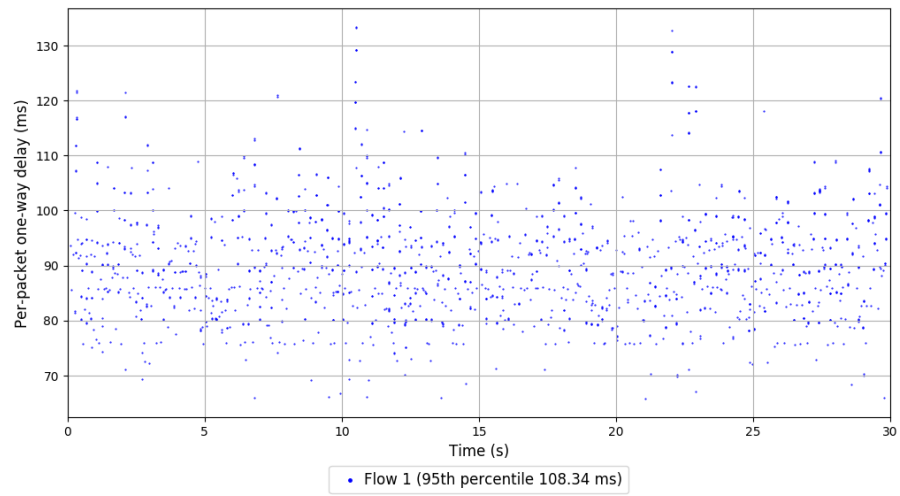
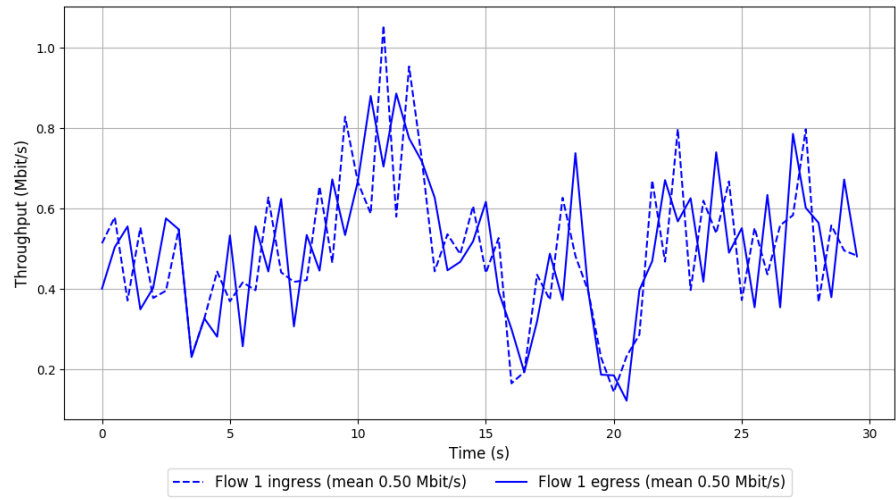


Run 3: Statistics of Sprout

Start at: 2018-01-25 17:18:25
End at: 2018-01-25 17:18:55
Local clock offset: 3.418 ms
Remote clock offset: -5.367 ms

Below is generated by plot.py at 2018-01-25 18:15:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 108.338 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 108.338 ms
Loss rate: 0.23%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-01-25 16:33:42

End at: 2018-01-25 16:34:12

Local clock offset: 1.263 ms

Remote clock offset: -4.186 ms

Below is generated by plot.py at 2018-01-25 18:15:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.85 Mbit/s

95th percentile per-packet one-way delay: 120.691 ms

Loss rate: 0.61%

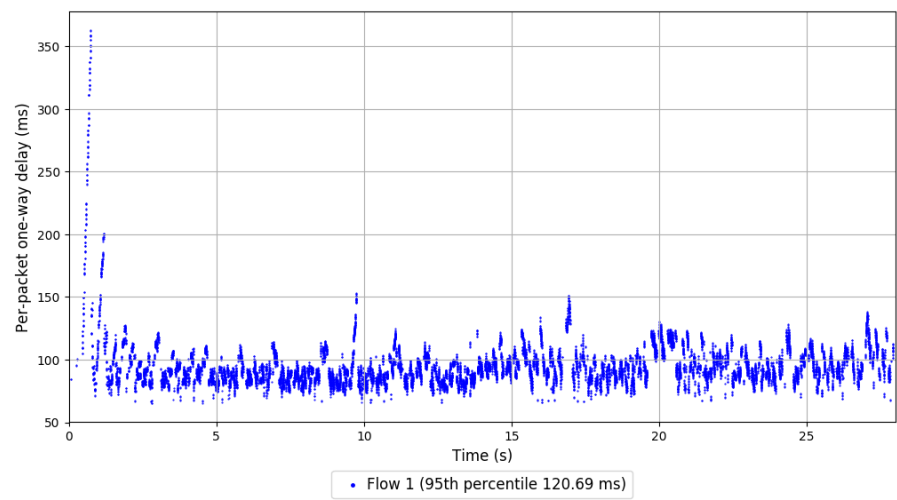
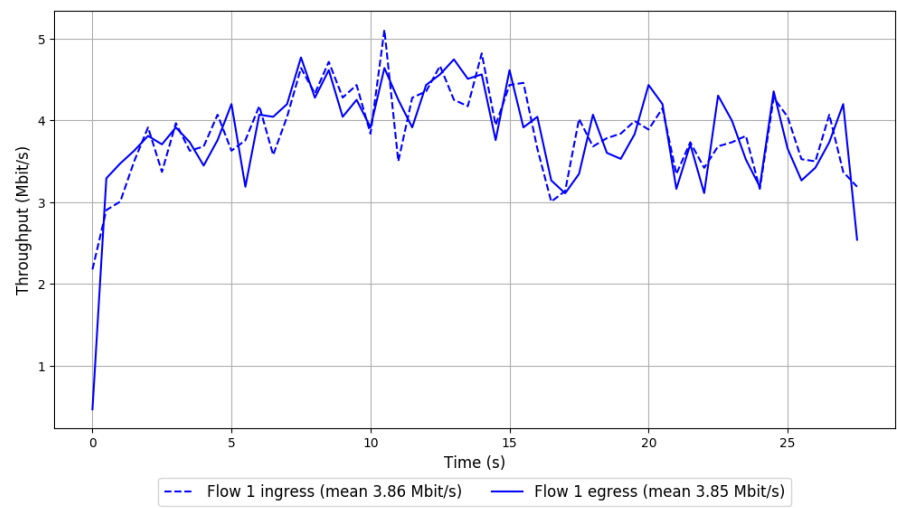
-- Flow 1:

Average throughput: 3.85 Mbit/s

95th percentile per-packet one-way delay: 120.691 ms

Loss rate: 0.61%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-01-25 16:52:02

End at: 2018-01-25 16:52:32

Local clock offset: 0.933 ms

Remote clock offset: -4.028 ms

Below is generated by plot.py at 2018-01-25 18:15:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.88 Mbit/s

95th percentile per-packet one-way delay: 126.665 ms

Loss rate: 0.61%

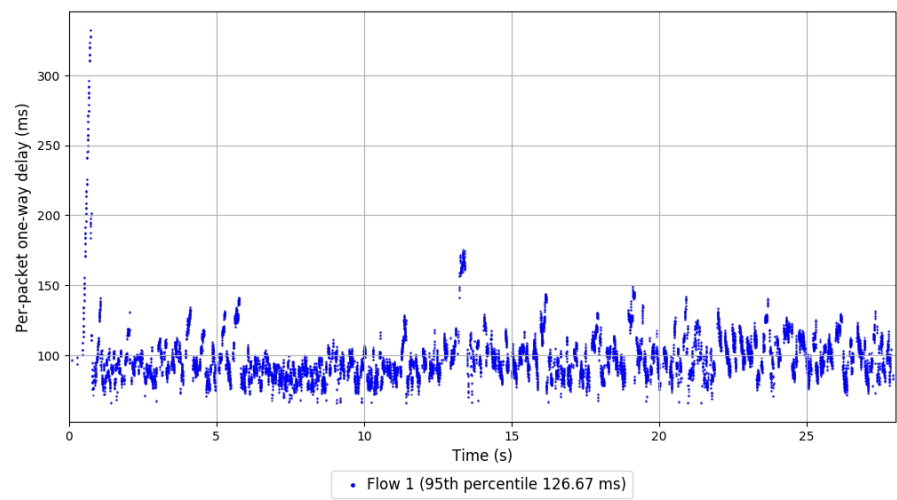
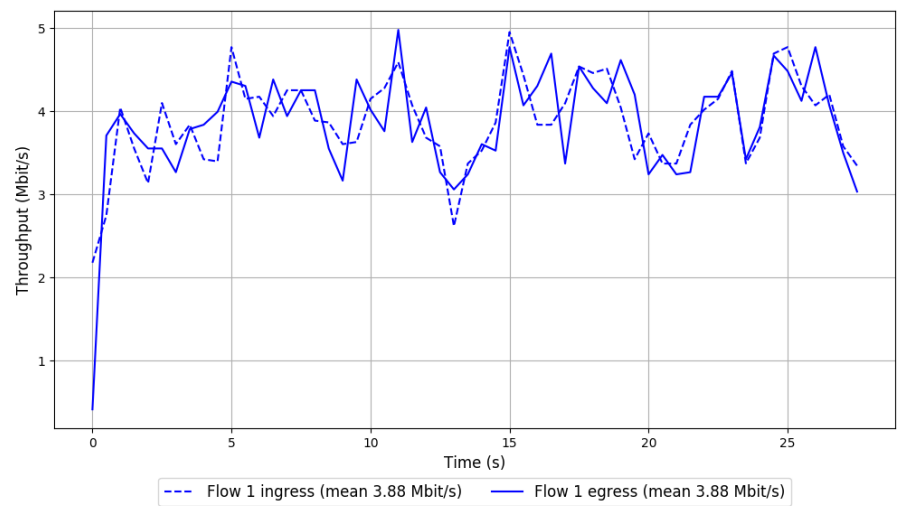
-- Flow 1:

Average throughput: 3.88 Mbit/s

95th percentile per-packet one-way delay: 126.665 ms

Loss rate: 0.61%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-01-25 17:10:23

End at: 2018-01-25 17:10:53

Local clock offset: 3.18 ms

Remote clock offset: -5.26 ms

Below is generated by plot.py at 2018-01-25 18:15:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.31 Mbit/s

95th percentile per-packet one-way delay: 113.002 ms

Loss rate: 2.42%

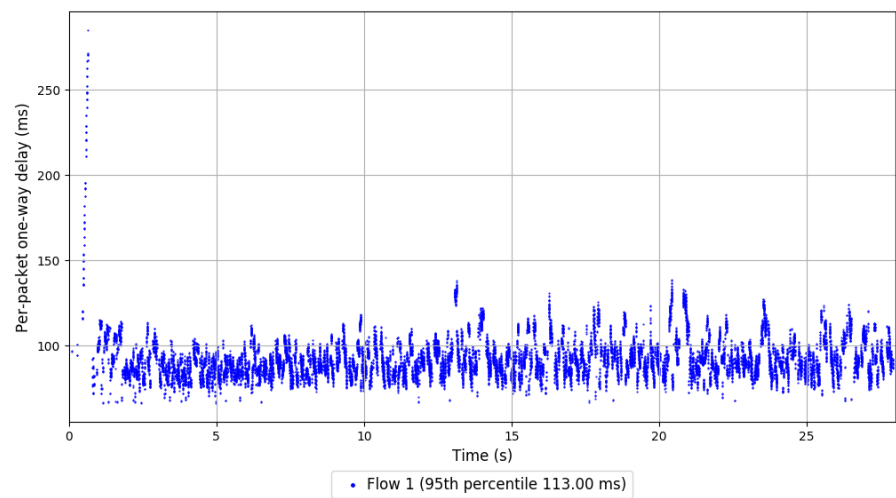
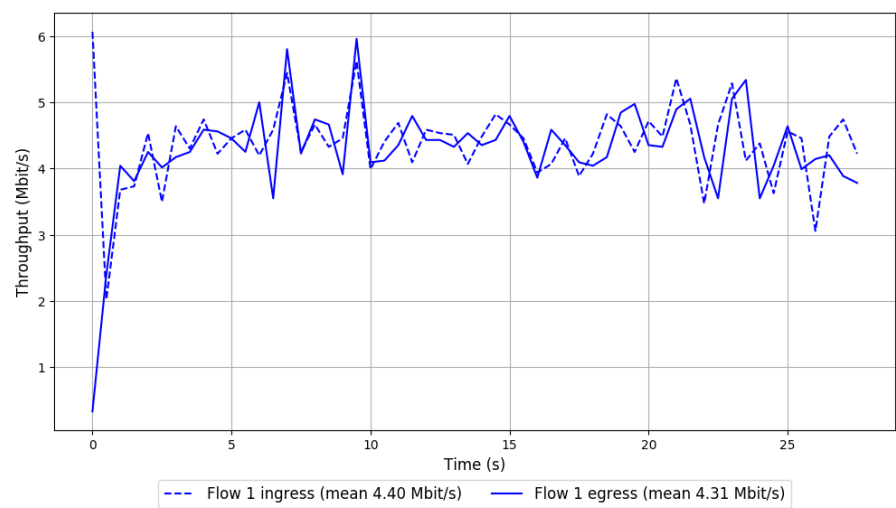
-- Flow 1:

Average throughput: 4.31 Mbit/s

95th percentile per-packet one-way delay: 113.002 ms

Loss rate: 2.42%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-01-25 16:25:40

End at: 2018-01-25 16:26:10

Local clock offset: 3.988 ms

Remote clock offset: -3.34 ms

Below is generated by plot.py at 2018-01-25 18:15:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.12 Mbit/s

95th percentile per-packet one-way delay: 141.211 ms

Loss rate: 0.42%

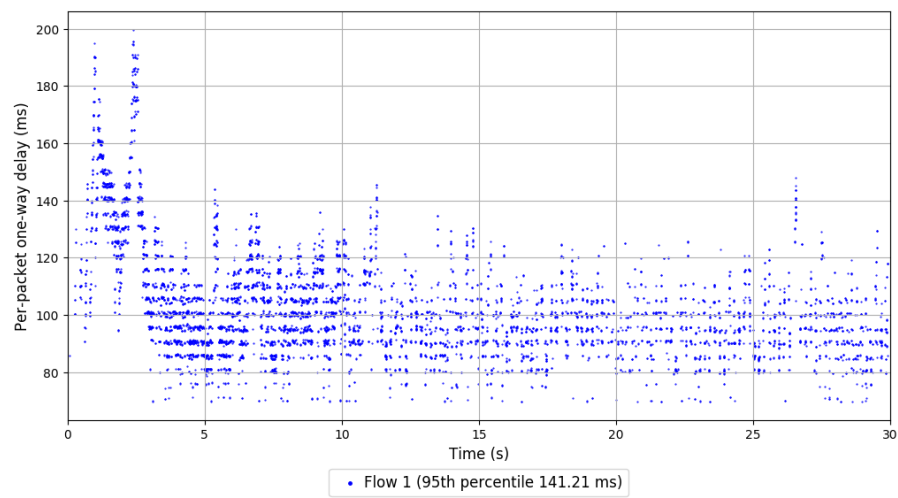
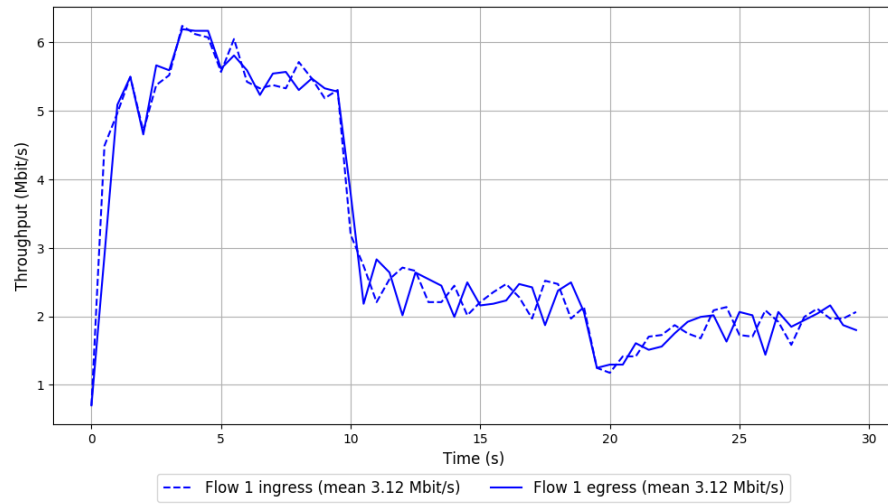
-- Flow 1:

Average throughput: 3.12 Mbit/s

95th percentile per-packet one-way delay: 141.211 ms

Loss rate: 0.42%

Run 1: Report of TCP Vegas — Data Link

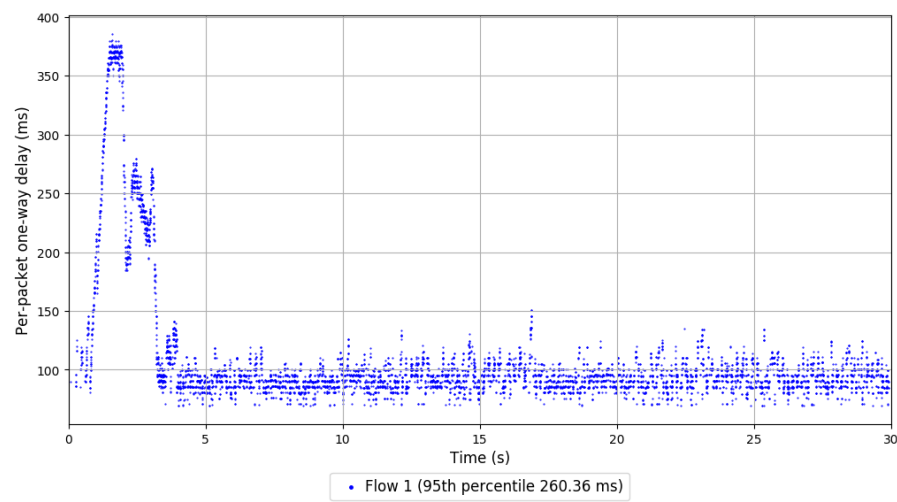
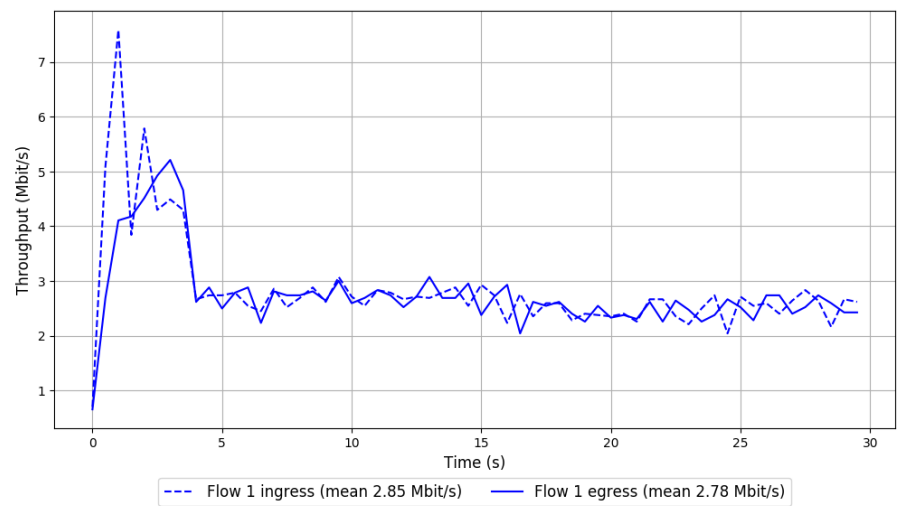


Run 2: Statistics of TCP Vegas

Start at: 2018-01-25 16:44:01
End at: 2018-01-25 16:44:31
Local clock offset: 4.072 ms
Remote clock offset: -4.096 ms

Below is generated by plot.py at 2018-01-25 18:15:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 260.359 ms
Loss rate: 3.09%
-- Flow 1:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 260.359 ms
Loss rate: 3.09%

Run 2: Report of TCP Vegas — Data Link

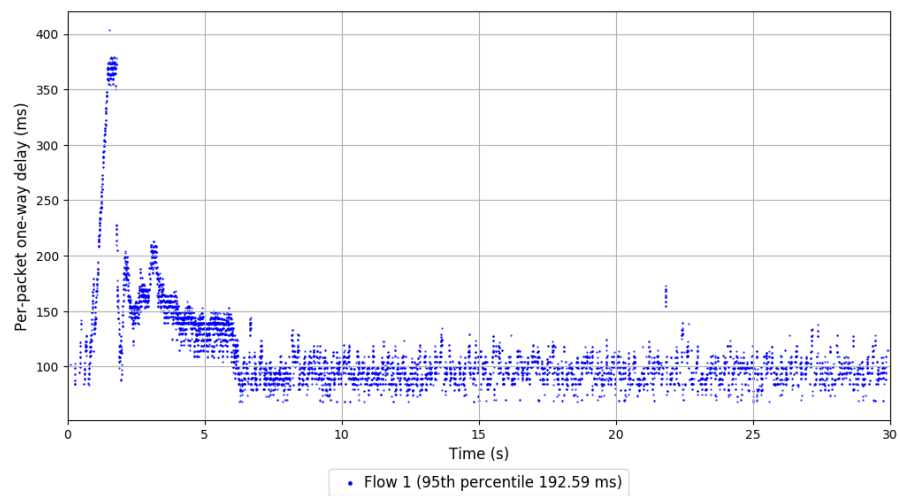
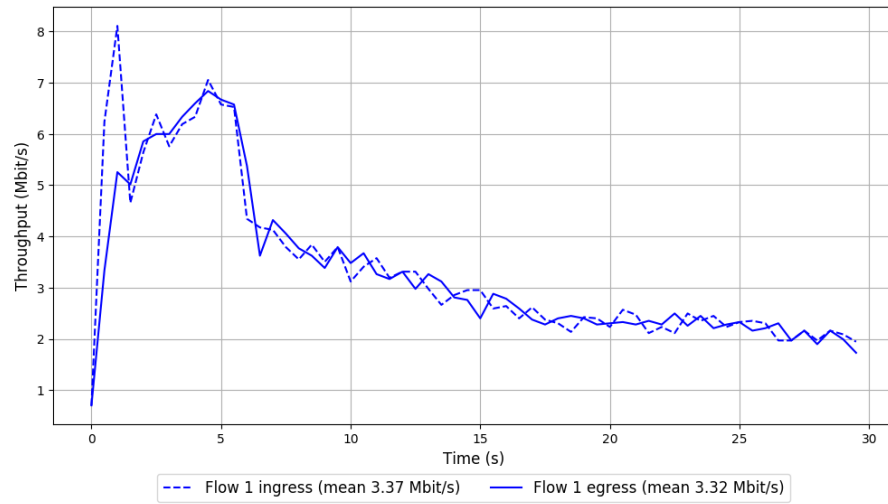


Run 3: Statistics of TCP Vegas

Start at: 2018-01-25 17:02:22
End at: 2018-01-25 17:02:52
Local clock offset: 3.318 ms
Remote clock offset: -4.652 ms

Below is generated by plot.py at 2018-01-25 18:15:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.32 Mbit/s
95th percentile per-packet one-way delay: 192.590 ms
Loss rate: 2.02%
-- Flow 1:
Average throughput: 3.32 Mbit/s
95th percentile per-packet one-way delay: 192.590 ms
Loss rate: 2.02%

Run 3: Report of TCP Vegas — Data Link

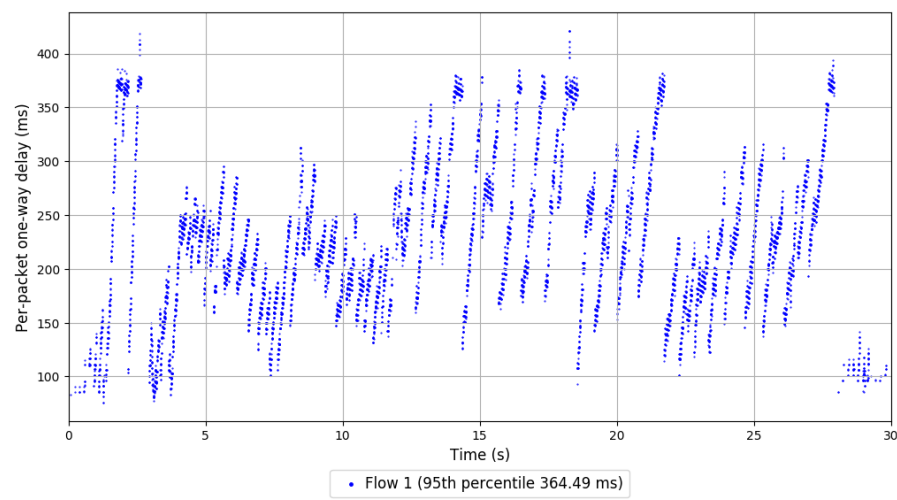
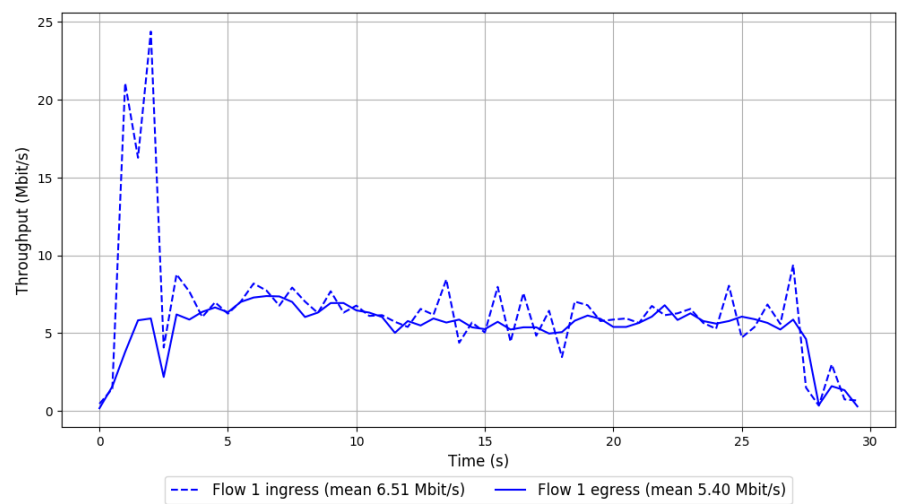


Run 1: Statistics of Verus

Start at: 2018-01-25 16:37:08
End at: 2018-01-25 16:37:38
Local clock offset: 3.86 ms
Remote clock offset: -4.415 ms

Below is generated by plot.py at 2018-01-25 18:15:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.40 Mbit/s
95th percentile per-packet one-way delay: 364.486 ms
Loss rate: 17.47%
-- Flow 1:
Average throughput: 5.40 Mbit/s
95th percentile per-packet one-way delay: 364.486 ms
Loss rate: 17.47%

Run 1: Report of Verus — Data Link

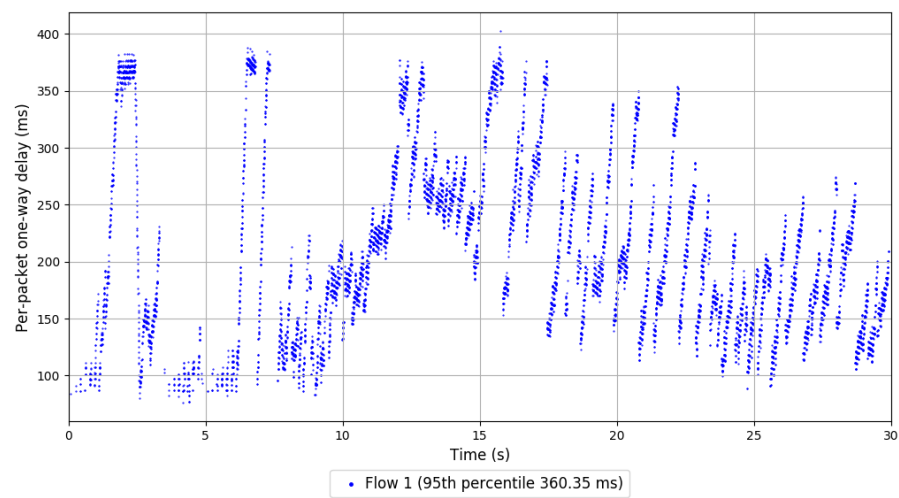
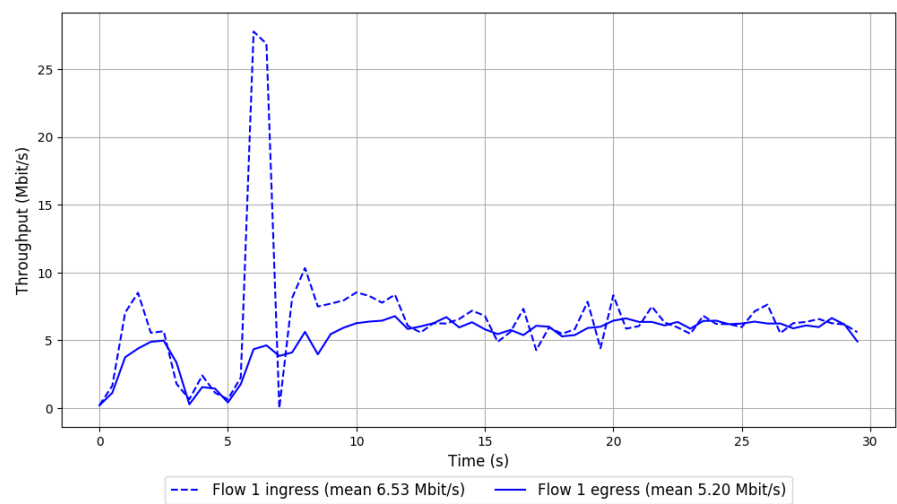


Run 2: Statistics of Verus

Start at: 2018-01-25 16:55:28
End at: 2018-01-25 16:55:59
Local clock offset: 3.37 ms
Remote clock offset: -4.216 ms

Below is generated by plot.py at 2018-01-25 18:15:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.20 Mbit/s
95th percentile per-packet one-way delay: 360.352 ms
Loss rate: 20.71%
-- Flow 1:
Average throughput: 5.20 Mbit/s
95th percentile per-packet one-way delay: 360.352 ms
Loss rate: 20.71%

Run 2: Report of Verus — Data Link

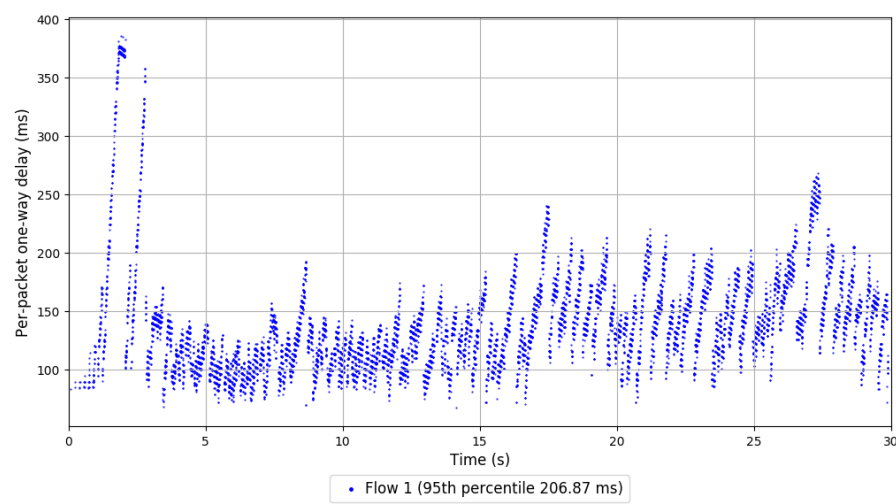
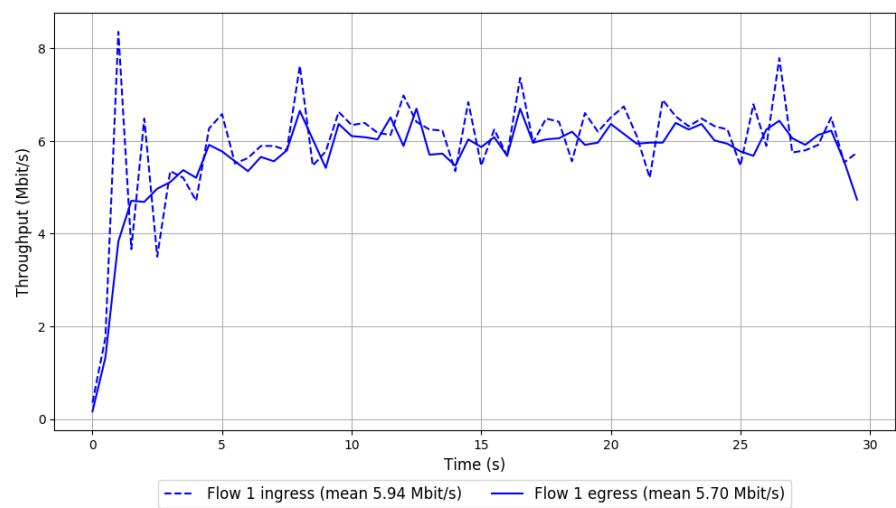


Run 3: Statistics of Verus

Start at: 2018-01-25 17:13:50
End at: 2018-01-25 17:14:20
Local clock offset: 3.563 ms
Remote clock offset: -5.662 ms

Below is generated by plot.py at 2018-01-25 18:15:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.70 Mbit/s
95th percentile per-packet one-way delay: 206.871 ms
Loss rate: 4.43%
-- Flow 1:
Average throughput: 5.70 Mbit/s
95th percentile per-packet one-way delay: 206.871 ms
Loss rate: 4.43%

Run 3: Report of Verus — Data Link

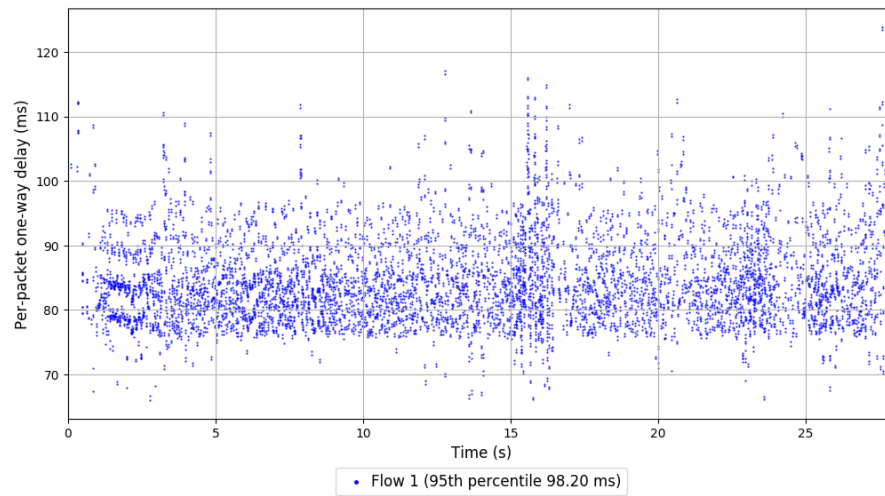
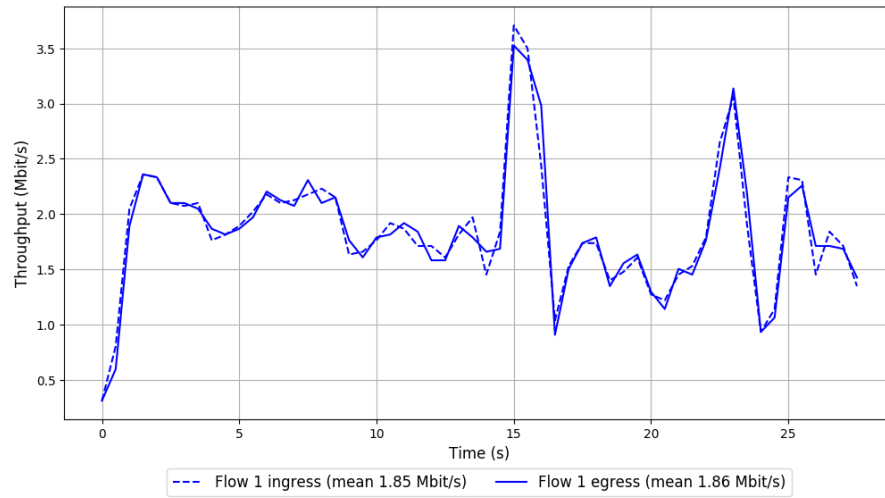


Run 1: Statistics of Copa

Start at: 2018-01-25 16:39:26
End at: 2018-01-25 16:39:56
Local clock offset: 3.592 ms
Remote clock offset: -4.291 ms

Below is generated by plot.py at 2018-01-25 18:15:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 98.203 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 98.203 ms
Loss rate: 0.28%

Run 1: Report of Copa — Data Link

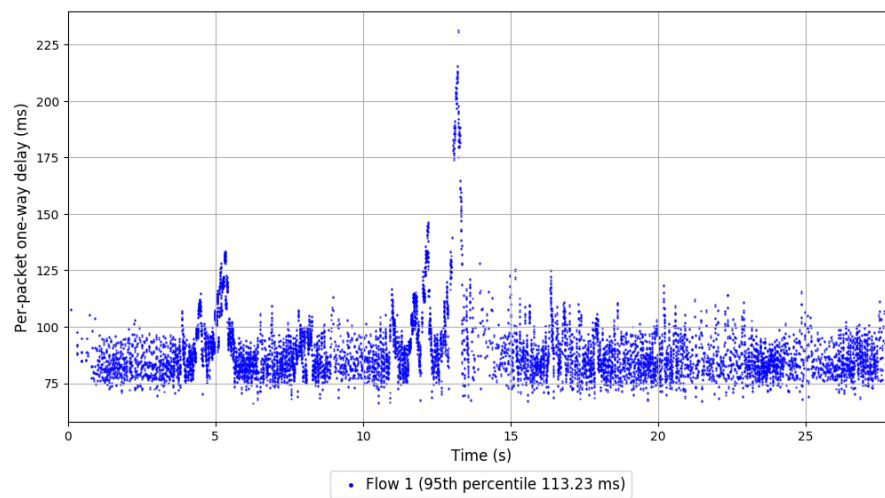
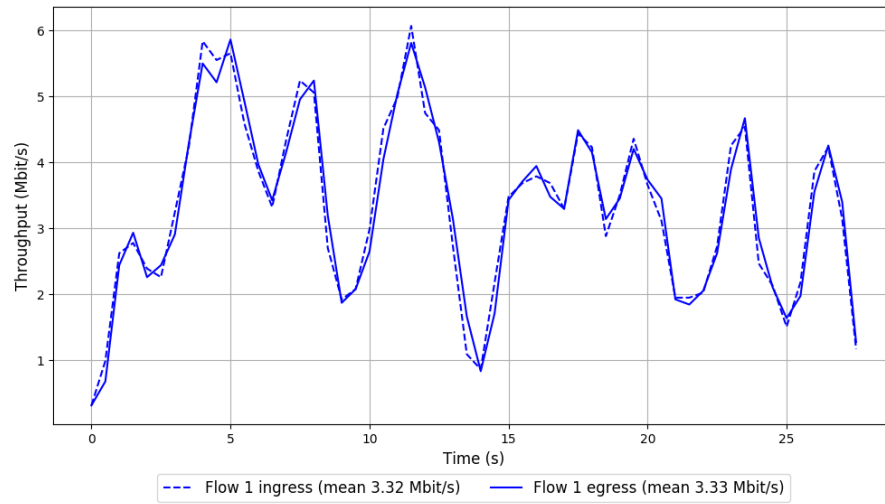


Run 2: Statistics of Copa

Start at: 2018-01-25 16:57:47
End at: 2018-01-25 16:58:17
Local clock offset: 3.5 ms
Remote clock offset: -4.324 ms

Below is generated by plot.py at 2018-01-25 18:15:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.33 Mbit/s
95th percentile per-packet one-way delay: 113.229 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 3.33 Mbit/s
95th percentile per-packet one-way delay: 113.229 ms
Loss rate: 0.20%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-01-25 17:16:08

End at: 2018-01-25 17:16:38

Local clock offset: 0.74 ms

Remote clock offset: -5.62 ms

Below is generated by plot.py at 2018-01-25 18:15:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.80 Mbit/s

95th percentile per-packet one-way delay: 99.624 ms

Loss rate: 0.33%

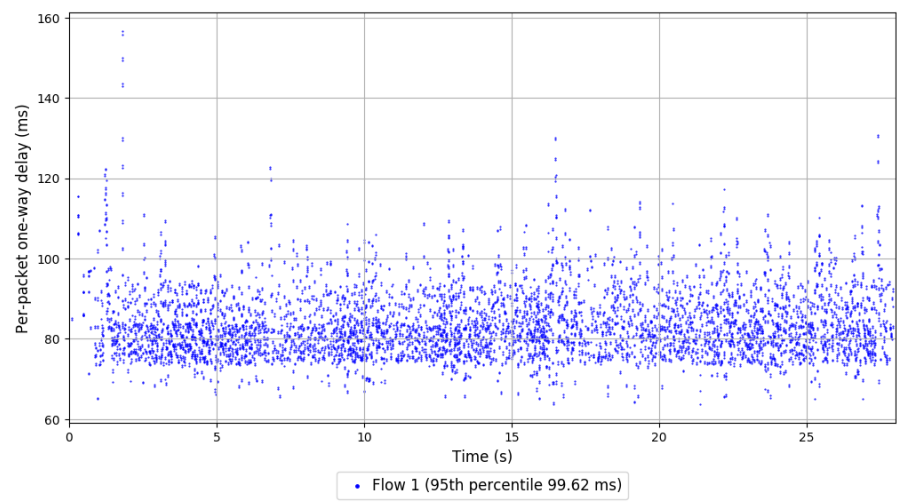
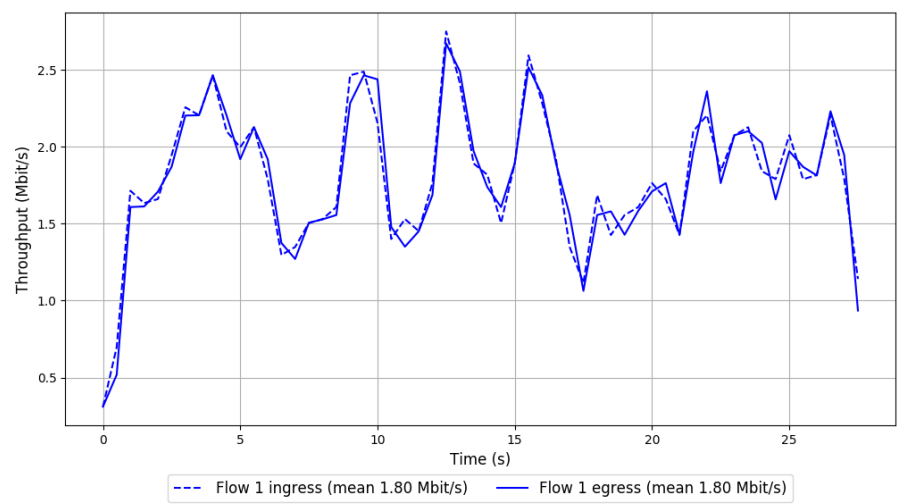
-- Flow 1:

Average throughput: 1.80 Mbit/s

95th percentile per-packet one-way delay: 99.624 ms

Loss rate: 0.33%

Run 3: Report of Copa — Data Link

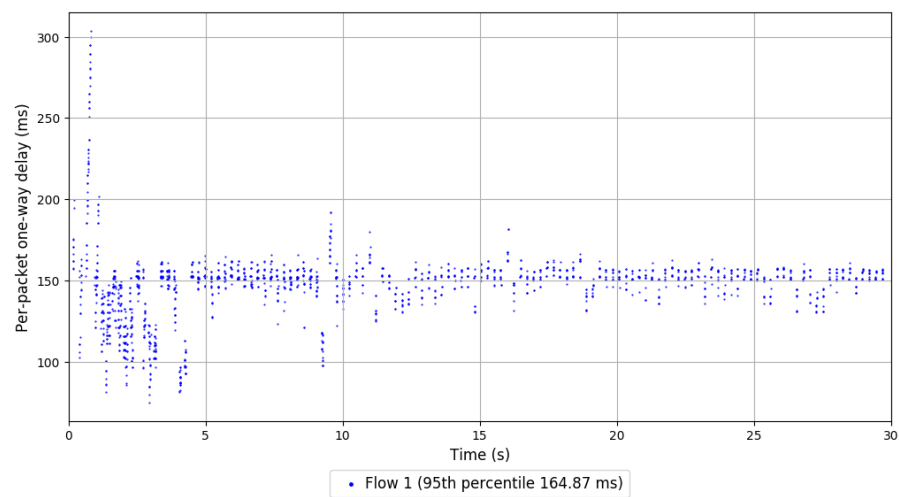
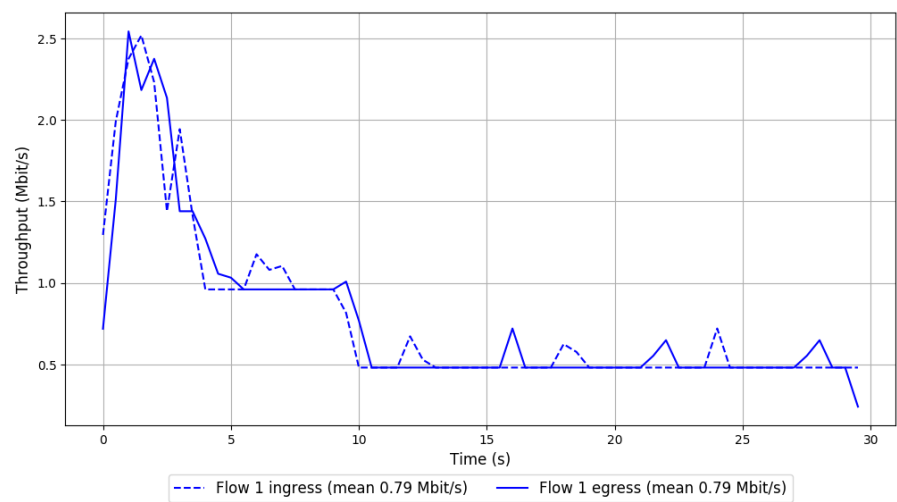


Run 1: Statistics of Indigo-2-256

Start at: 2018-01-25 16:30:16
End at: 2018-01-25 16:30:46
Local clock offset: 3.95 ms
Remote clock offset: -3.896 ms

Below is generated by plot.py at 2018-01-25 18:15:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 164.873 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 164.873 ms
Loss rate: 1.33%

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

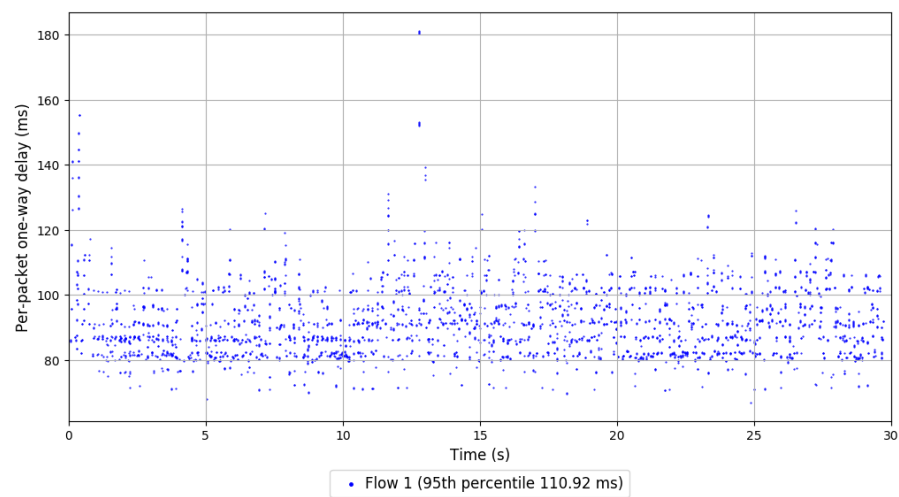
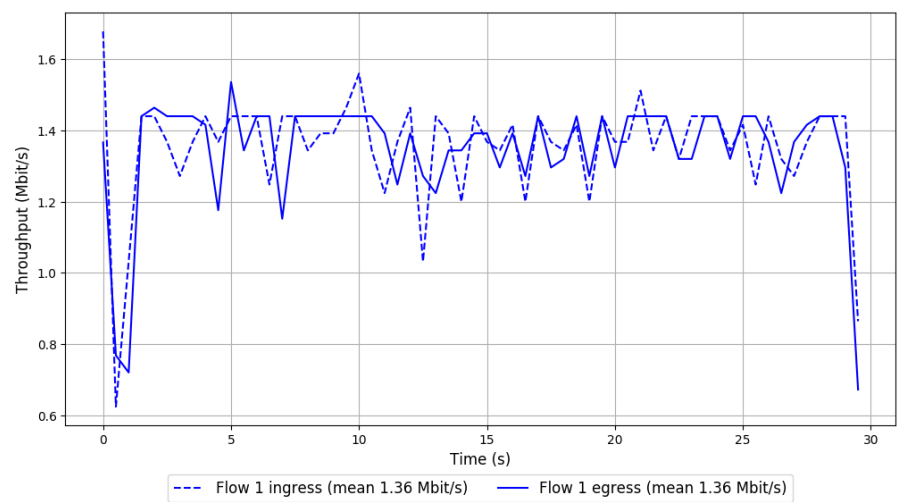


Run 2: Statistics of Indigo-2-256

Start at: 2018-01-25 16:48:36
End at: 2018-01-25 16:49:06
Local clock offset: 3.693 ms
Remote clock offset: -3.995 ms

Below is generated by plot.py at 2018-01-25 18:15:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 110.919 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 110.919 ms
Loss rate: 0.62%

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

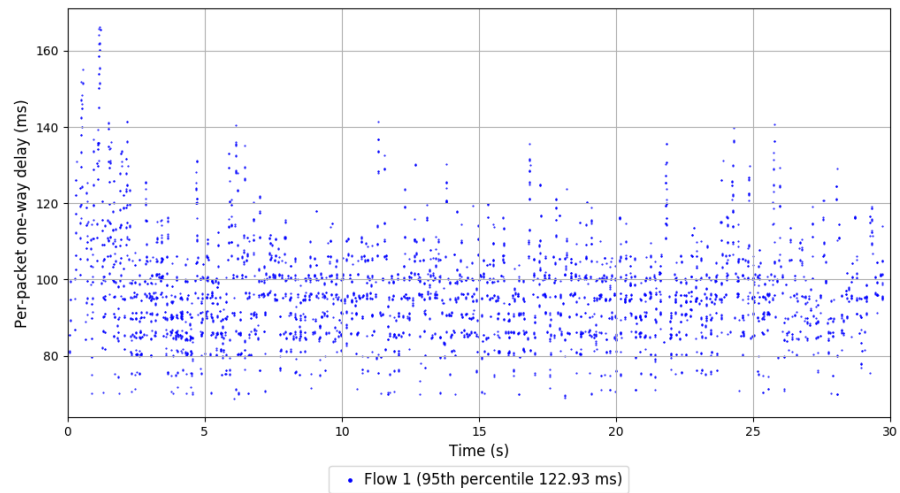
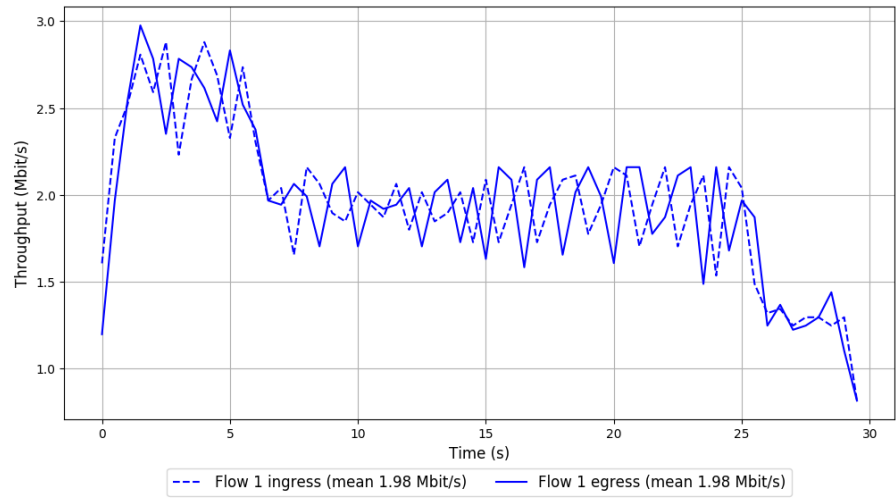


Run 3: Statistics of Indigo-2-256

Start at: 2018-01-25 17:06:57
End at: 2018-01-25 17:07:27
Local clock offset: 3.23 ms
Remote clock offset: -5.028 ms

Below is generated by plot.py at 2018-01-25 18:15:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 122.930 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 122.930 ms
Loss rate: 0.33%

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



Run 1: Statistics of Indigo-1-32

Start at: 2018-01-25 16:31:25

End at: 2018-01-25 16:31:55

Local clock offset: 3.975 ms

Remote clock offset: -4.016 ms

Below is generated by plot.py at 2018-01-25 18:15:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.70 Mbit/s

95th percentile per-packet one-way delay: 121.528 ms

Loss rate: 0.64%

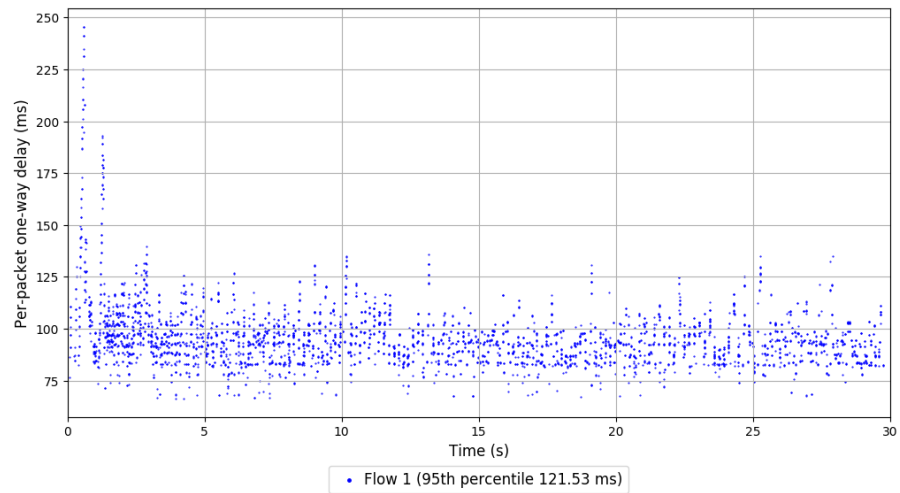
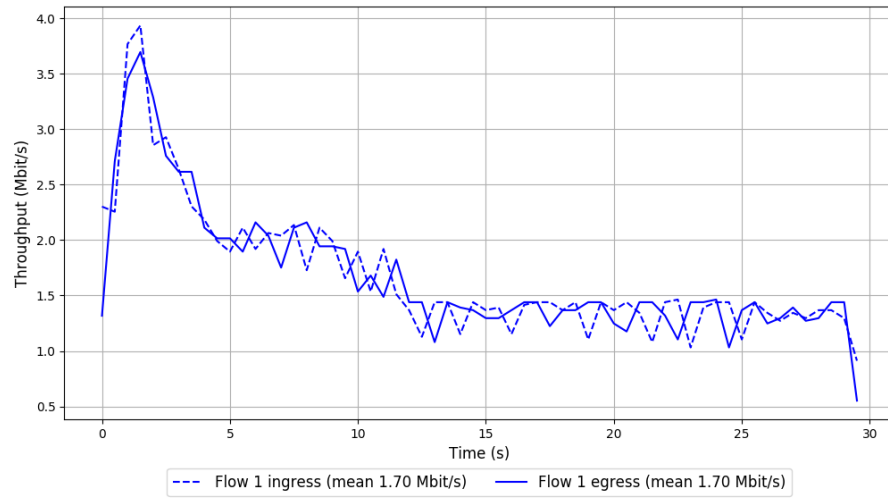
-- Flow 1:

Average throughput: 1.70 Mbit/s

95th percentile per-packet one-way delay: 121.528 ms

Loss rate: 0.64%

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

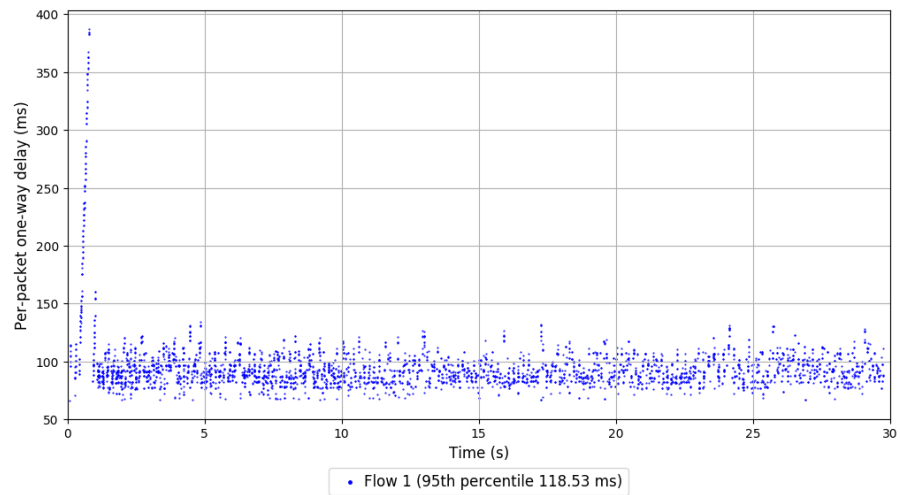
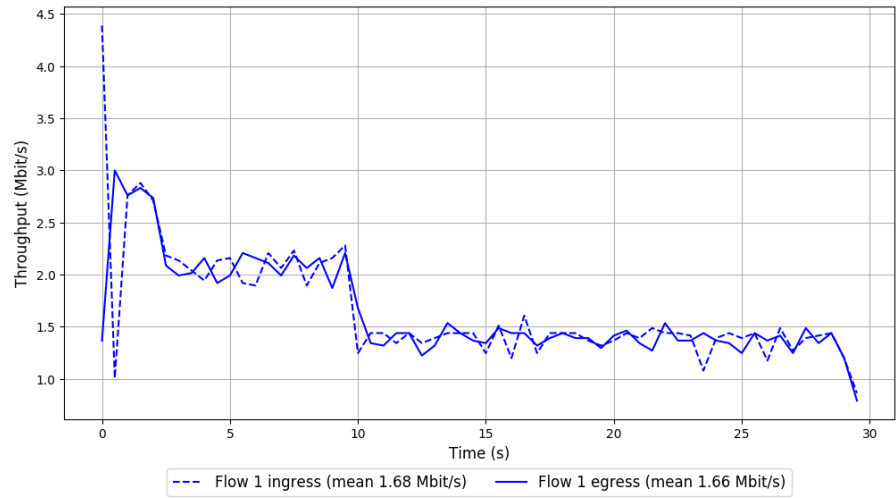


Run 2: Statistics of Indigo-1-32

Start at: 2018-01-25 16:49:45
End at: 2018-01-25 16:50:15
Local clock offset: 3.651 ms
Remote clock offset: -3.995 ms

Below is generated by plot.py at 2018-01-25 18:15:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 118.535 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 118.535 ms
Loss rate: 1.11%

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



Run 3: Statistics of Indigo-1-32

Start at: 2018-01-25 17:08:06

End at: 2018-01-25 17:08:36

Local clock offset: 3.557 ms

Remote clock offset: -5.137 ms

Below is generated by plot.py at 2018-01-25 18:15:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 125.047 ms

Loss rate: 0.25%

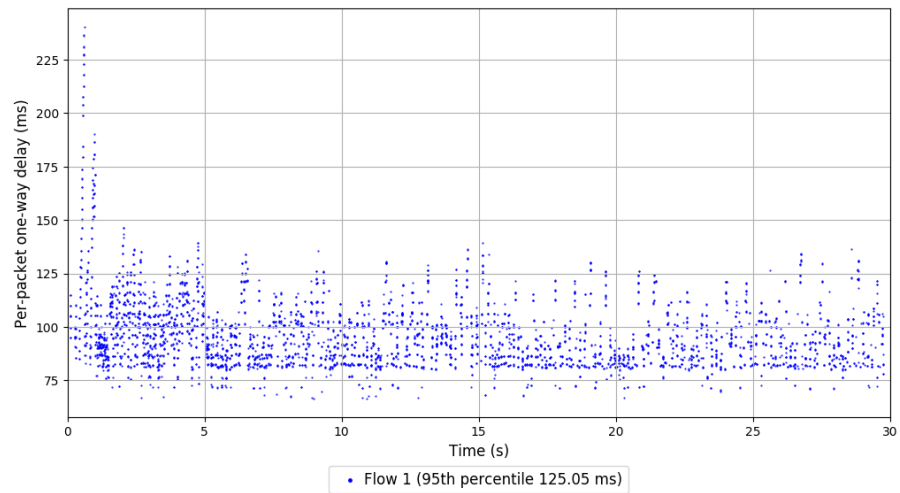
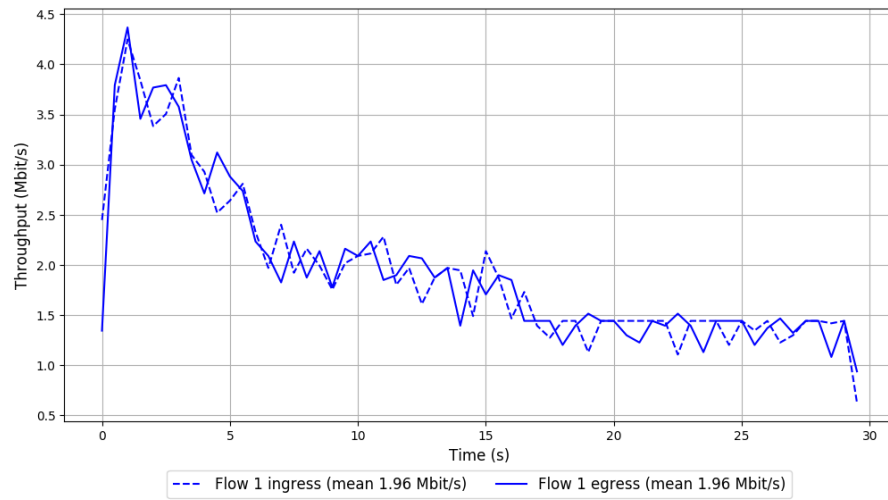
-- Flow 1:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 125.047 ms

Loss rate: 0.25%

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



Run 1: Statistics of Indigo-1-128

Start at: 2018-01-25 16:32:33

End at: 2018-01-25 16:33:03

Local clock offset: 4.079 ms

Remote clock offset: -4.138 ms

Below is generated by plot.py at 2018-01-25 18:15:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 205.928 ms

Loss rate: 0.53%

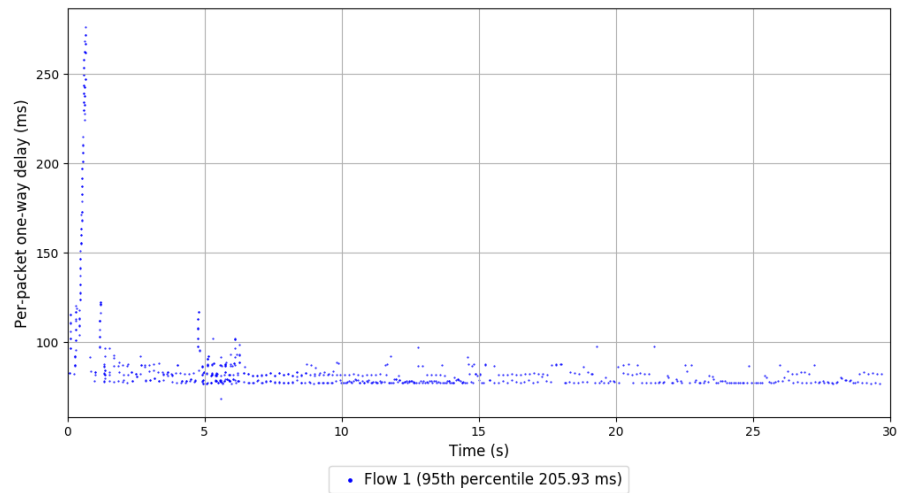
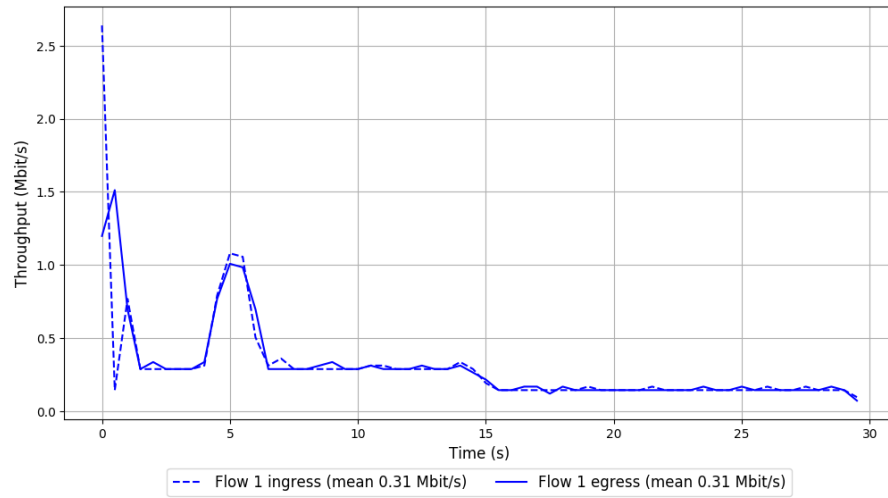
-- Flow 1:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 205.928 ms

Loss rate: 0.53%

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



Run 2: Statistics of Indigo-1-128

Start at: 2018-01-25 16:50:53

End at: 2018-01-25 16:51:23

Local clock offset: 3.158 ms

Remote clock offset: -4.015 ms

Below is generated by plot.py at 2018-01-25 18:15:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 210.016 ms

Loss rate: 0.95%

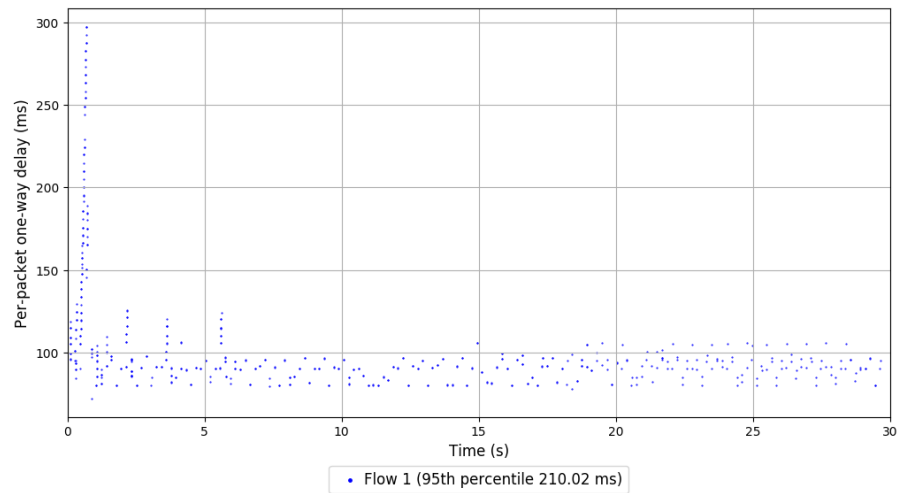
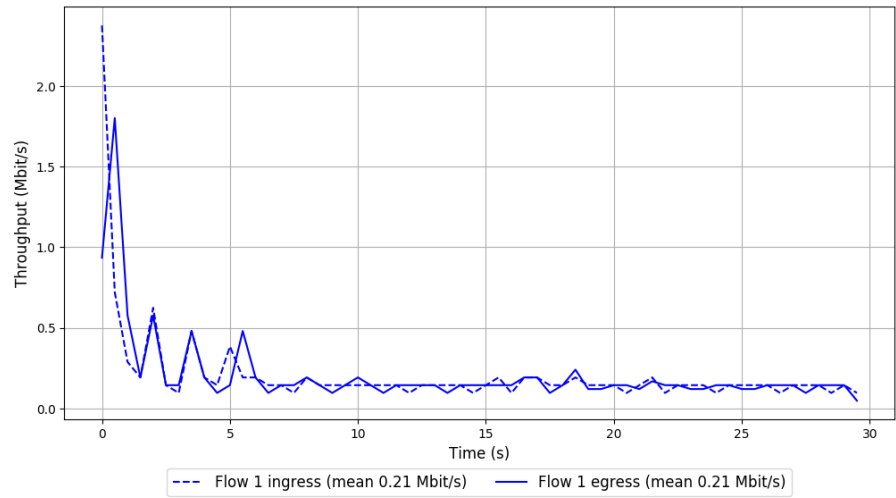
-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 210.016 ms

Loss rate: 0.95%

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



Run 3: Statistics of Indigo-1-128

Start at: 2018-01-25 17:09:15
End at: 2018-01-25 17:09:45
Local clock offset: 3.302 ms
Remote clock offset: -5.182 ms

Below is generated by plot.py at 2018-01-25 18:15:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 276.084 ms
Loss rate: 6.39%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 276.084 ms
Loss rate: 6.39%

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

