

Pantheon Report

Generated at 2017-09-22 09:18:53 (UTC).

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

Repeated the test of 13 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).

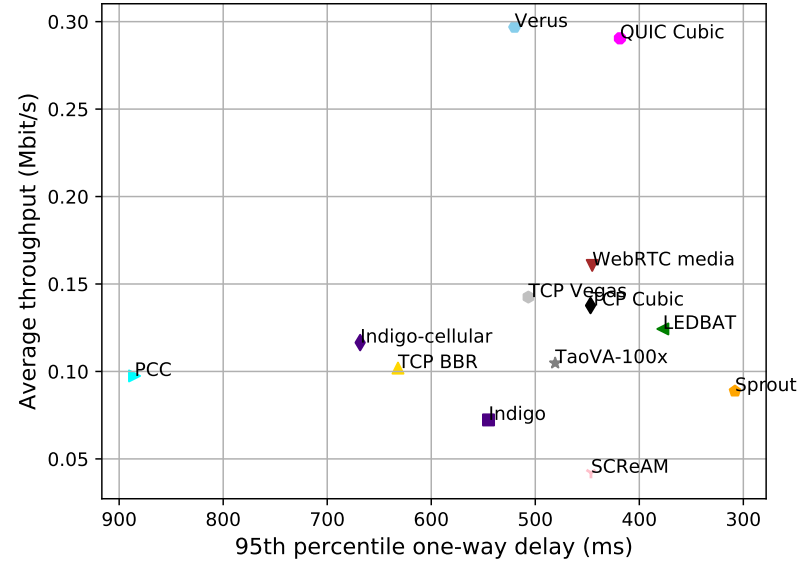
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

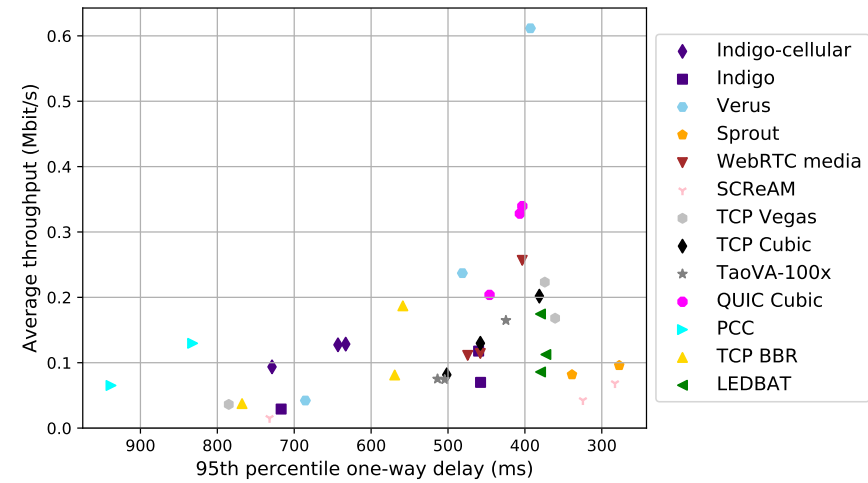
Git summary:

```
branch: indigos @ 46c7c812d4acb71eea4f5fb0b03b3657cea3062f
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-cellular @ aee99e8eb842cb053f8c9a80e28cd256a930bbc2
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/indigo-no-cwnd @ 3e58442c04028a11d7b02456e137604633ba2d6c
third_party/indigo-no-delivery-rate @ 57caa40858b964906edff4876d5a7e5bfff666c5
third_party/indigo-no-queuing-delay @ 03455460fd1a8ffbdad86fab936fdca204b80db
third_party/indigo-no-send-rate @ b39dfa6b2c5f19cb7cd89626cb4f5bb81f9fecda
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
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/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	0.10	631.98	32.14
TCP Cubic	3	0.14	446.88	15.11
LEDBAT	3	0.12	377.38	9.65
PCC	2	0.10	885.20	99.53
QUIC Cubic	3	0.29	418.62	22.14
SCReAM	3	0.04	446.47	11.84
WebRTC media	3	0.16	445.26	34.44
Sprout	2	0.09	308.05	8.69
TaoVA-100x	3	0.10	480.87	89.87
TCP Vegas	3	0.14	506.65	14.00
Verus	3	0.30	519.88	37.29
Indigo	3	0.07	544.95	60.30
Indigo-cellular	3	0.12	668.34	46.42

Run 1: Statistics of TCP BBR

Start at: 2017-09-22 08:03:33

End at: 2017-09-22 08:04:03

Local clock offset: 1.067 ms

Remote clock offset: -3.411 ms

Below is generated by plot.py at 2017-09-22 09:18:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.19 Mbit/s

95th percentile per-packet one-way delay: 558.741 ms

Loss rate: 38.40%

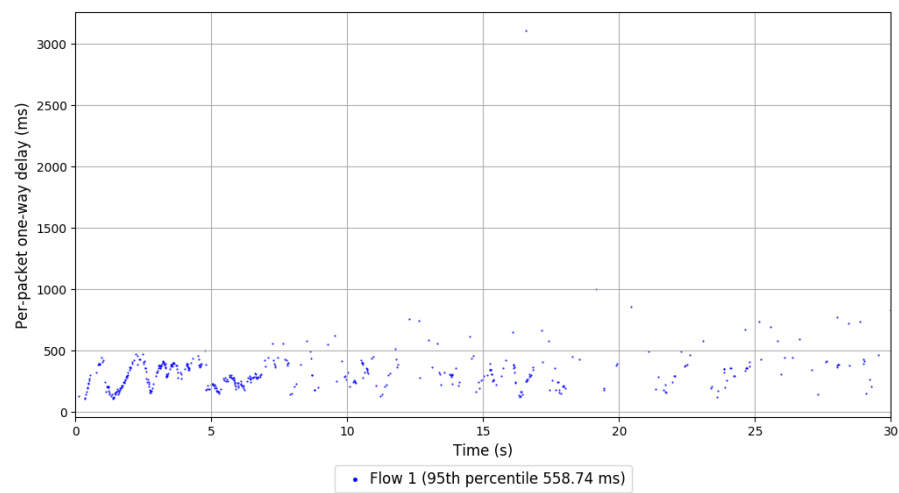
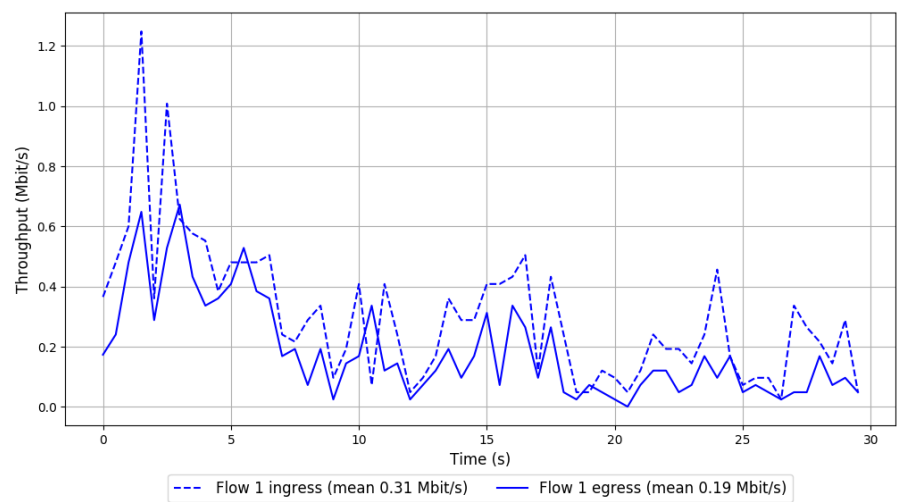
-- Flow 1:

Average throughput: 0.19 Mbit/s

95th percentile per-packet one-way delay: 558.741 ms

Loss rate: 38.40%

Run 1: Report of TCP BBR — Data Link

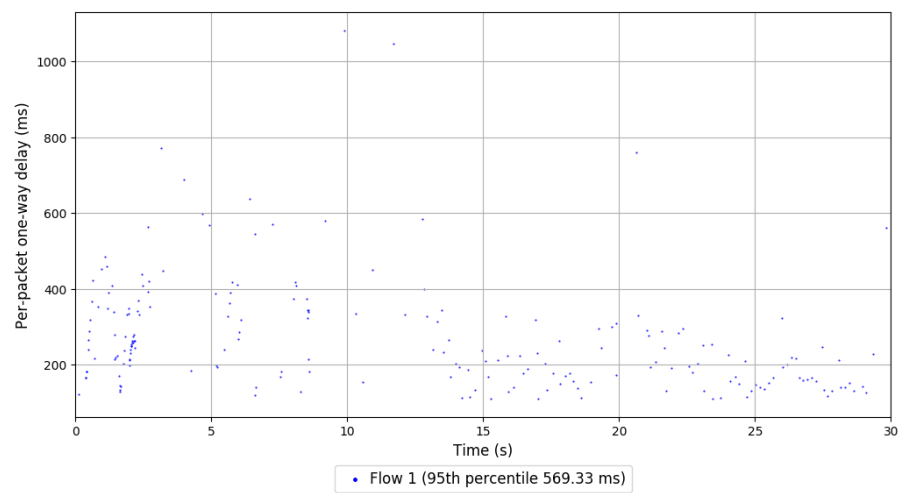
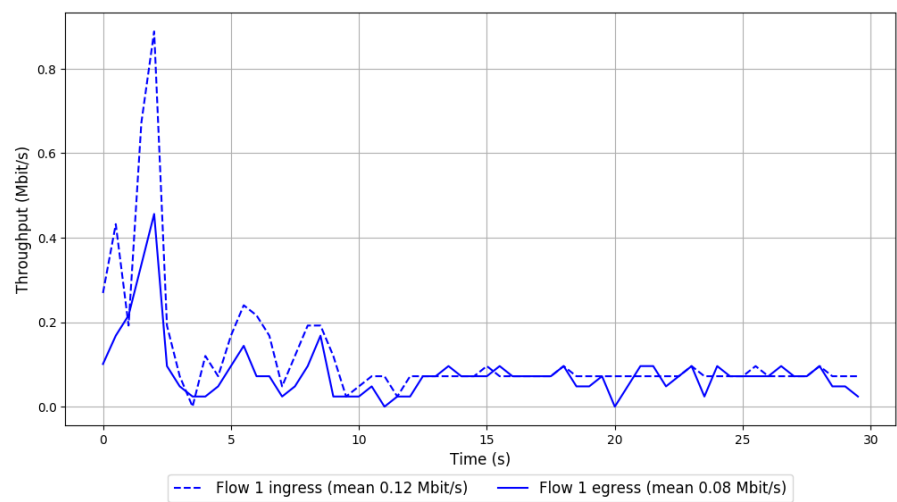


Run 2: Statistics of TCP BBR

Start at: 2017-09-22 08:17:41
End at: 2017-09-22 08:18:11
Local clock offset: 0.351 ms
Remote clock offset: -4.003 ms

Below is generated by plot.py at 2017-09-22 09:18:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 569.332 ms
Loss rate: 34.08%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 569.332 ms
Loss rate: 34.08%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2017-09-22 08:31:58

End at: 2017-09-22 08:32:28

Local clock offset: -0.319 ms

Remote clock offset: 2.422 ms

Below is generated by plot.py at 2017-09-22 09:18:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 767.854 ms

Loss rate: 23.93%

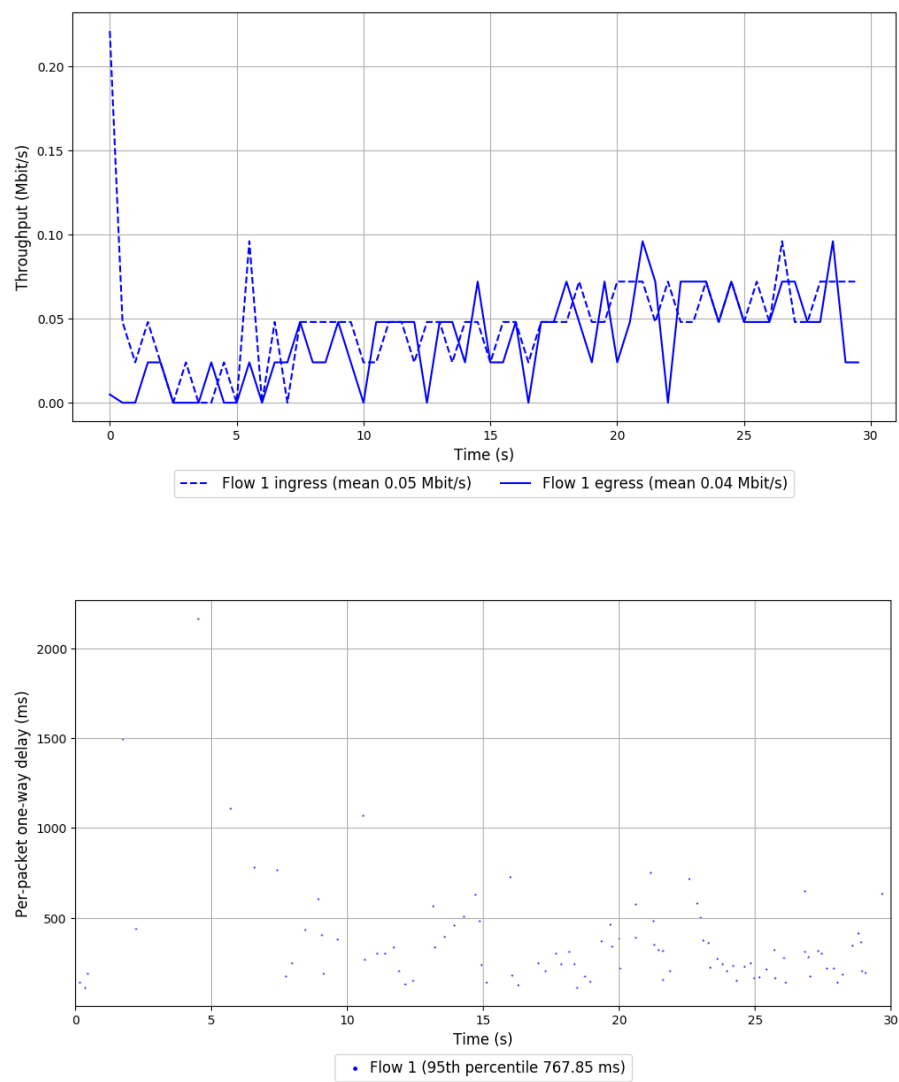
-- Flow 1:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 767.854 ms

Loss rate: 23.93%

Run 3: Report of TCP BBR — Data Link

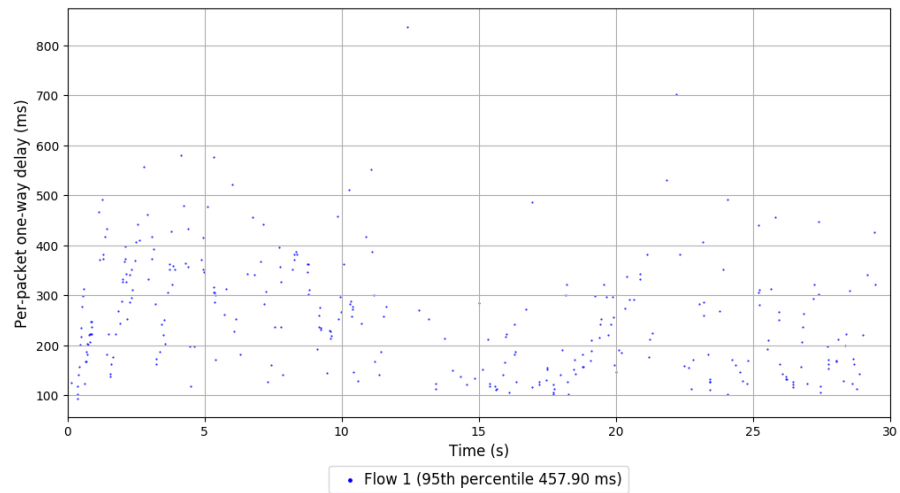
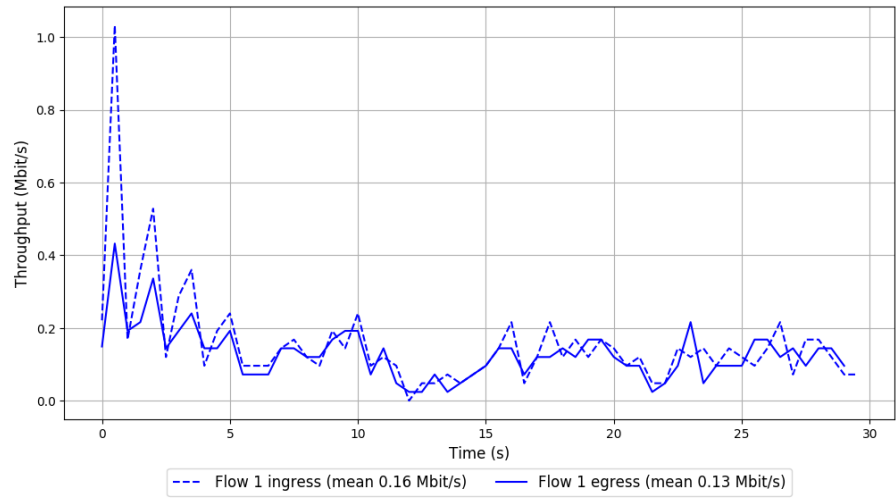


Run 1: Statistics of TCP Cubic

Start at: 2017-09-22 08:02:27
End at: 2017-09-22 08:02:57
Local clock offset: -2.636 ms
Remote clock offset: -0.903 ms

Below is generated by plot.py at 2017-09-22 09:18:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 457.904 ms
Loss rate: 18.71%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 457.904 ms
Loss rate: 18.71%

Run 1: Report of TCP Cubic — Data Link

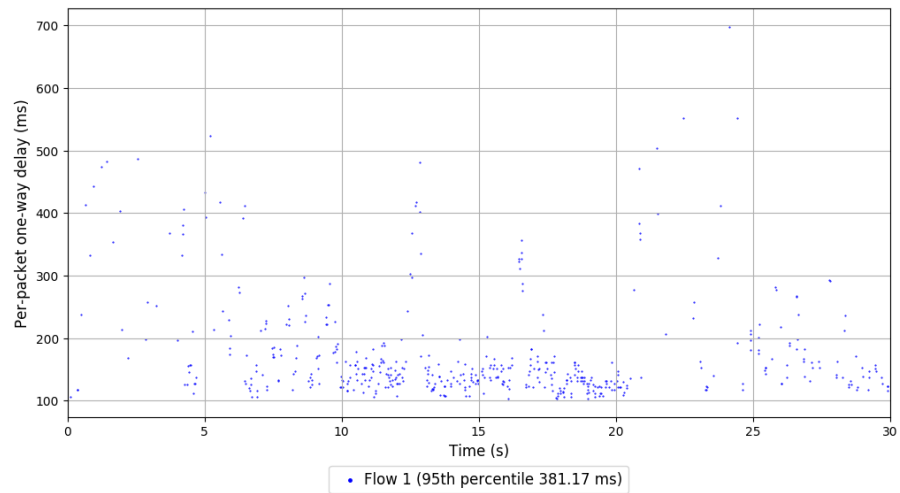
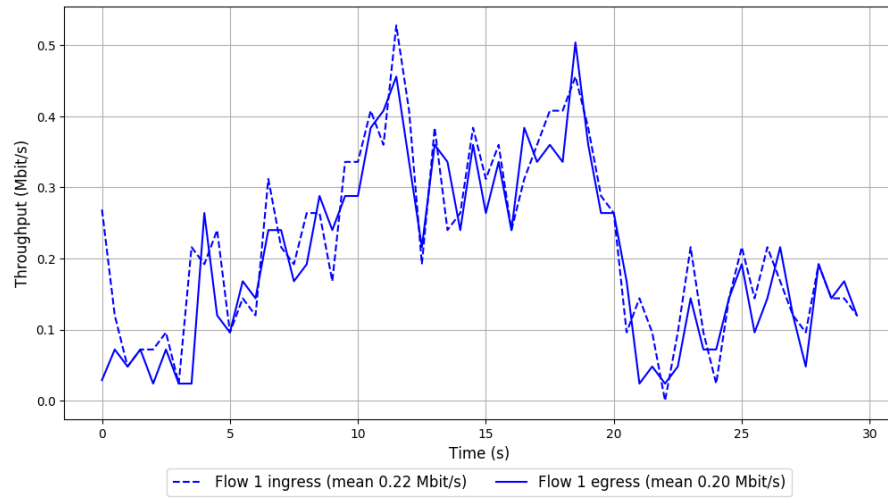


Run 2: Statistics of TCP Cubic

Start at: 2017-09-22 08:16:36
End at: 2017-09-22 08:17:06
Local clock offset: 0.925 ms
Remote clock offset: -2.001 ms

Below is generated by plot.py at 2017-09-22 09:18:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 381.172 ms
Loss rate: 9.07%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 381.172 ms
Loss rate: 9.07%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2017-09-22 08:30:53

End at: 2017-09-22 08:31:23

Local clock offset: 0.318 ms

Remote clock offset: 1.443 ms

Below is generated by plot.py at 2017-09-22 09:18:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 501.564 ms

Loss rate: 17.54%

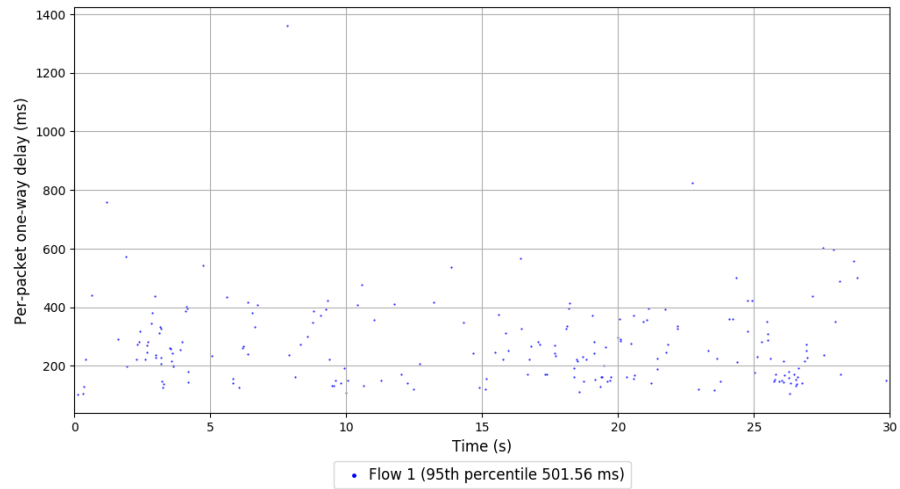
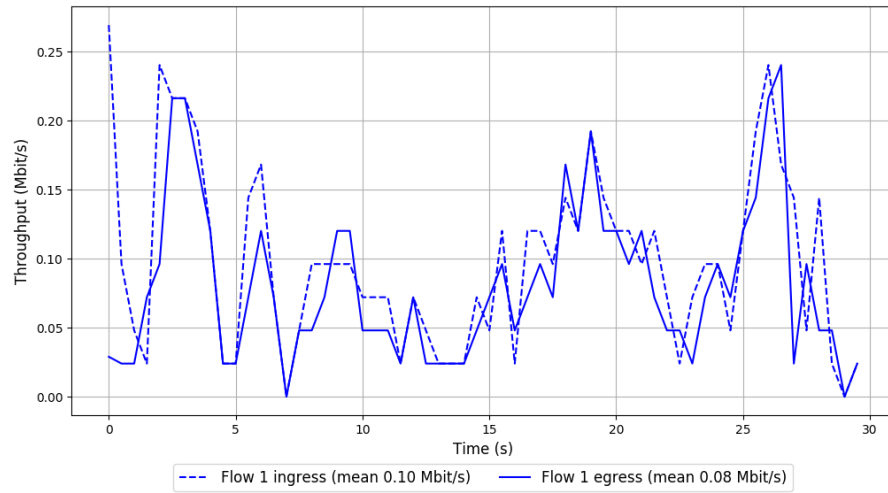
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 501.564 ms

Loss rate: 17.54%

Run 3: Report of TCP Cubic — Data Link

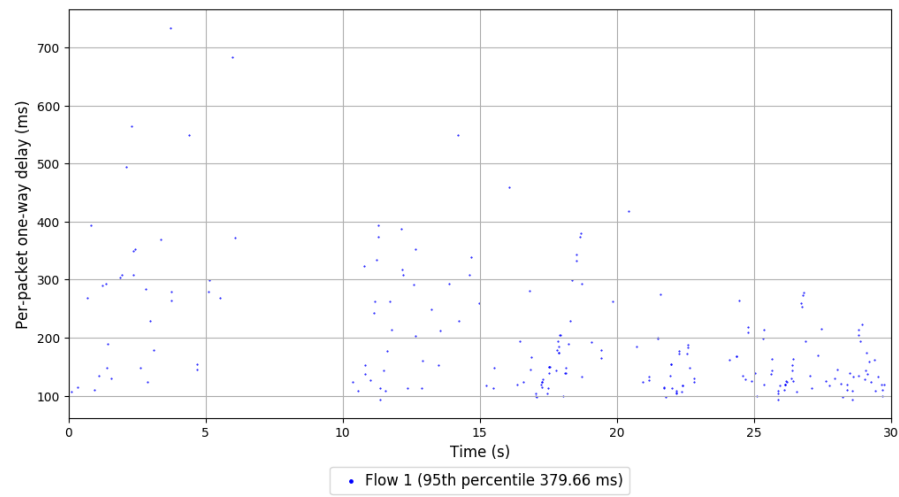
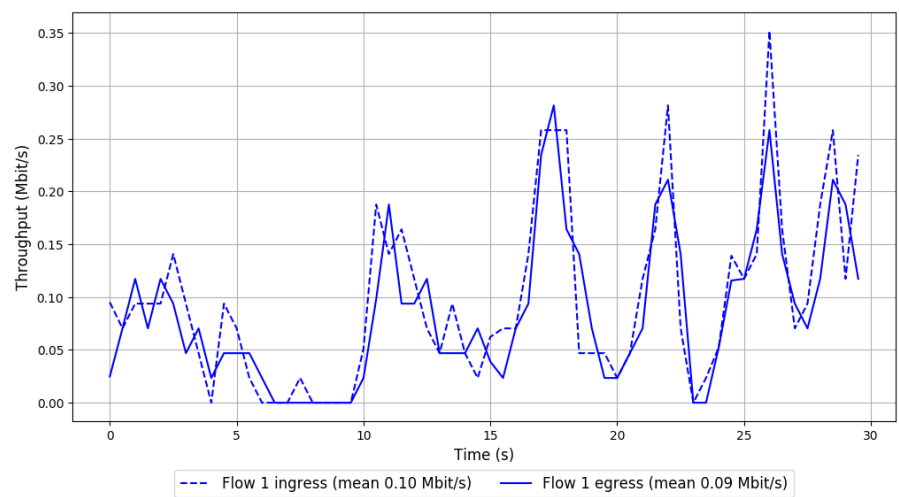


```
Run 1: Statistics of LEDBAT

Start at: 2017-09-22 07:58:06
End at: 2017-09-22 07:58:36
Local clock offset: -0.648 ms
Remote clock offset: 3.593 ms

# Below is generated by plot.py at 2017-09-22 09:18:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 379.656 ms
Loss rate: 12.14%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 379.656 ms
Loss rate: 12.14%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2017-09-22 08:12:15

End at: 2017-09-22 08:12:45

Local clock offset: -2.607 ms

Remote clock offset: 1.427 ms

Below is generated by plot.py at 2017-09-22 09:18:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 372.748 ms

Loss rate: 10.63%

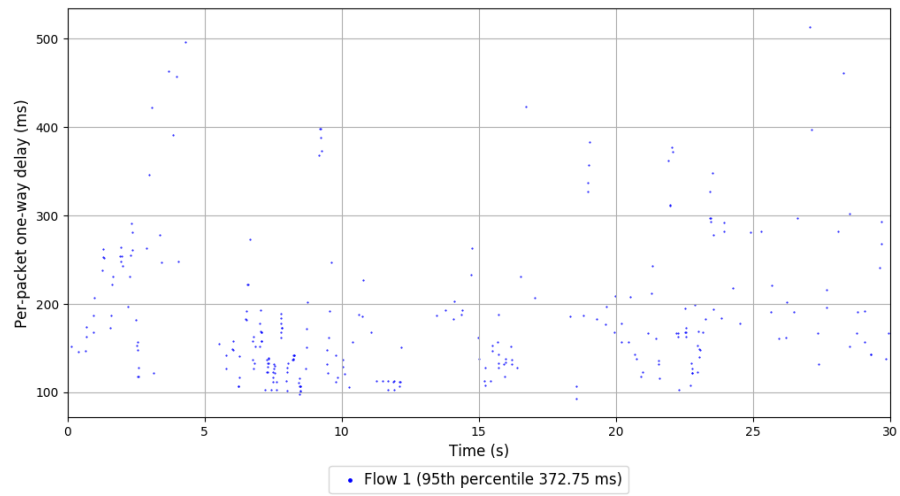
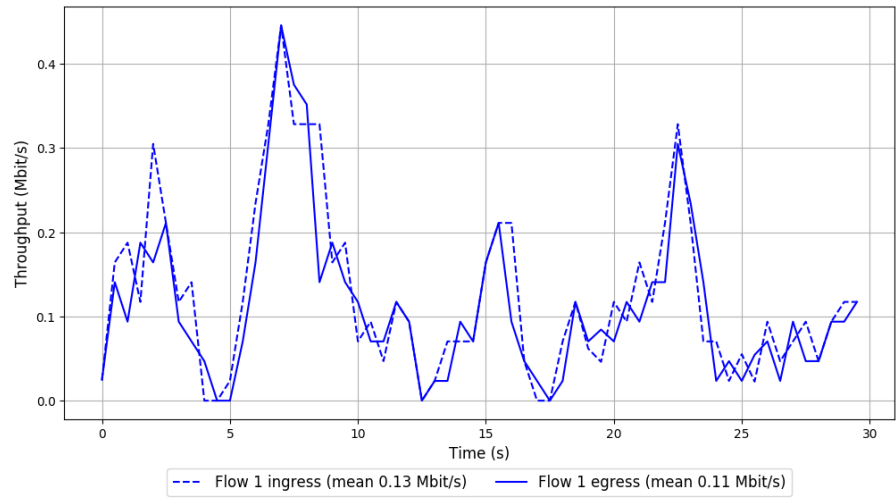
-- Flow 1:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 372.748 ms

Loss rate: 10.63%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2017-09-22 08:26:33

End at: 2017-09-22 08:27:03

Local clock offset: -0.095 ms

Remote clock offset: 3.693 ms

Below is generated by plot.py at 2017-09-22 09:18:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 379.733 ms

Loss rate: 6.17%

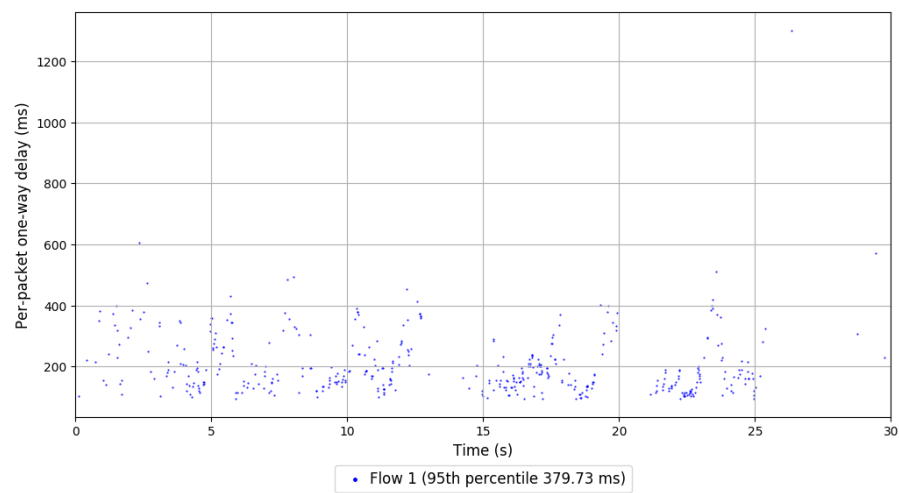
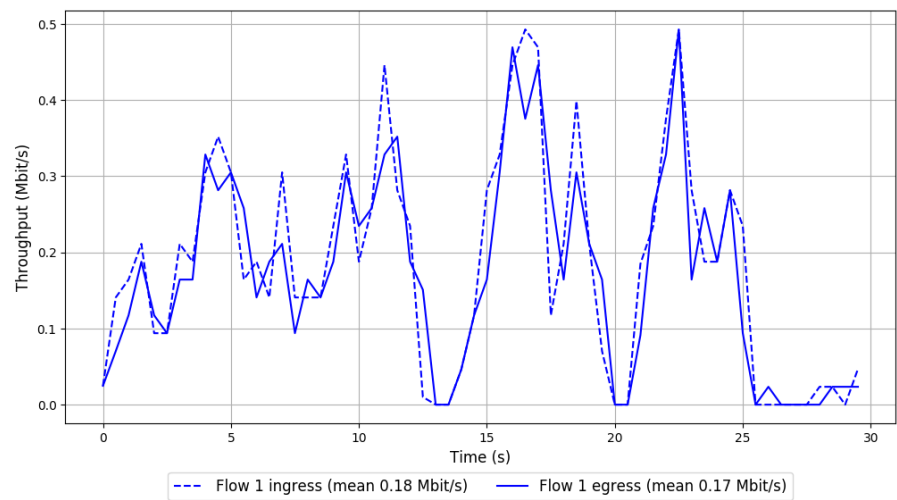
-- Flow 1:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 379.733 ms

Loss rate: 6.17%

Run 3: Report of LEDBAT — Data Link

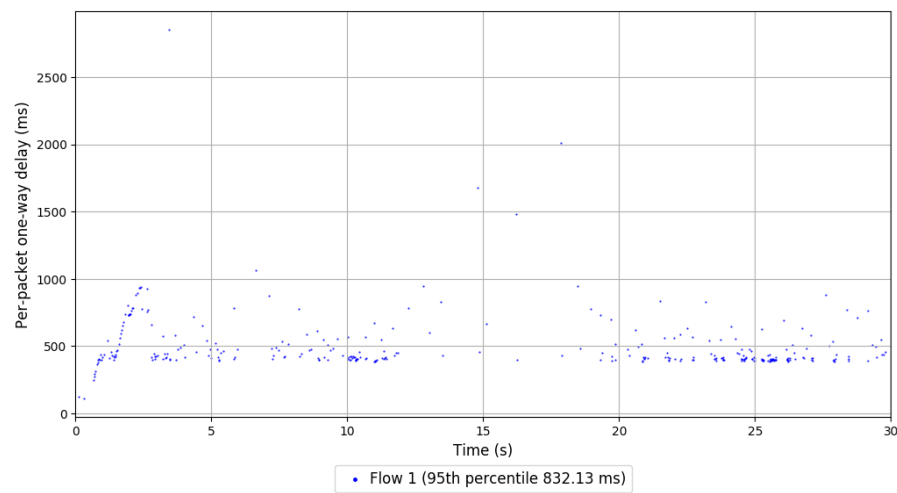
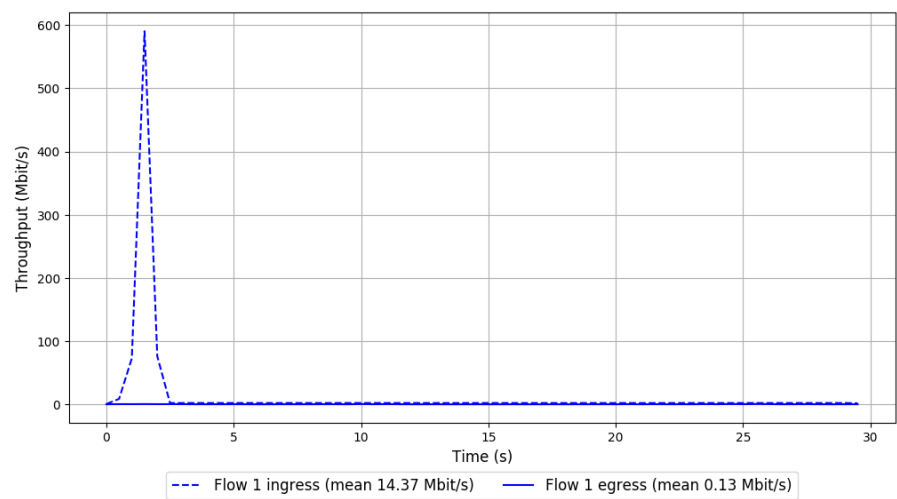


Run 1: Statistics of PCC

Start at: 2017-09-22 07:54:49
End at: 2017-09-22 07:55:19
Local clock offset: -1.478 ms
Remote clock offset: -3.505 ms

Below is generated by plot.py at 2017-09-22 09:18:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 832.126 ms
Loss rate: 99.10%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 832.126 ms
Loss rate: 99.10%

Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

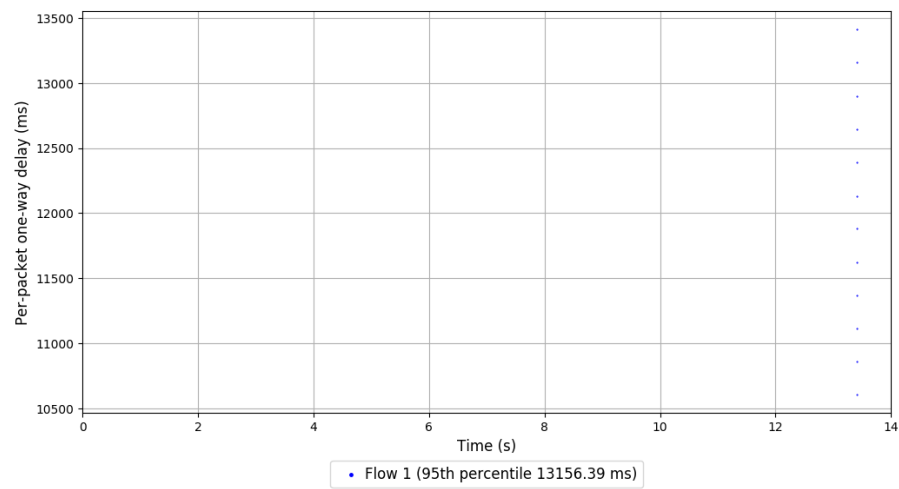
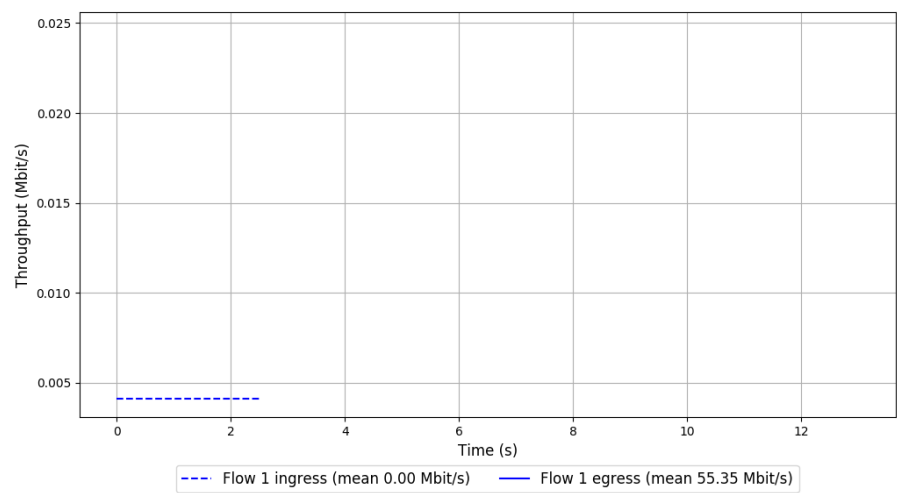
Start at: 2017-09-22 08:08:59

End at: 2017-09-22 08:09:29

Local clock offset: -1.776 ms

Remote clock offset: -0.813 ms

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2017-09-22 08:23:07

End at: 2017-09-22 08:23:37

Local clock offset: 0.305 ms

Remote clock offset: 3.656 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 938.276 ms

Loss rate: 99.97%

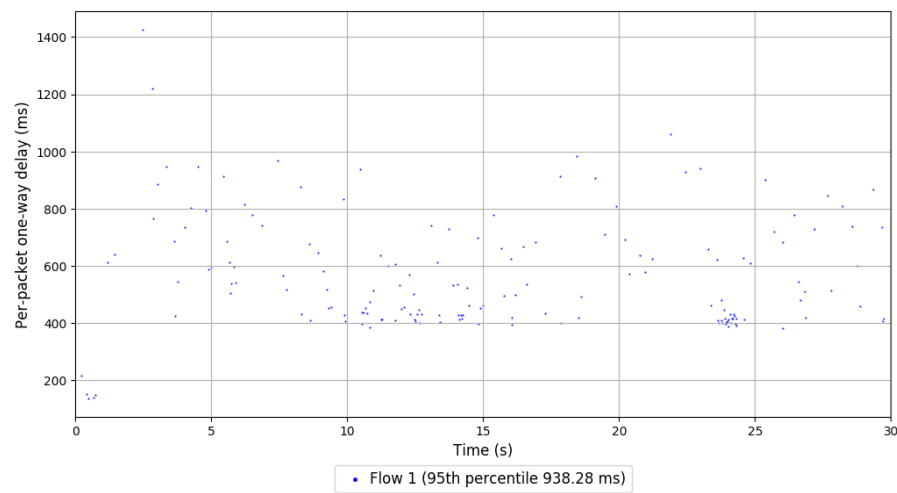
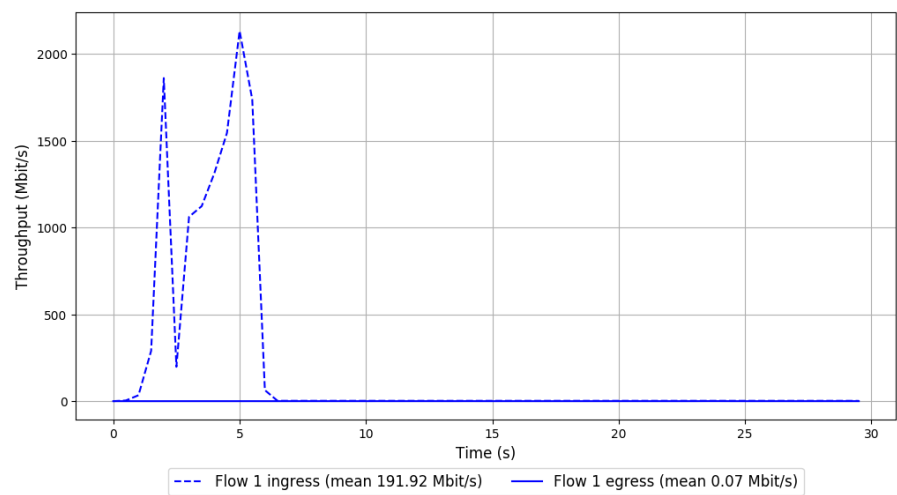
-- Flow 1:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 938.276 ms

Loss rate: 99.97%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2017-09-22 07:55:55

End at: 2017-09-22 07:56:25

Local clock offset: 2.129 ms

Remote clock offset: 1.95 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.34 Mbit/s

95th percentile per-packet one-way delay: 403.349 ms

Loss rate: 17.24%

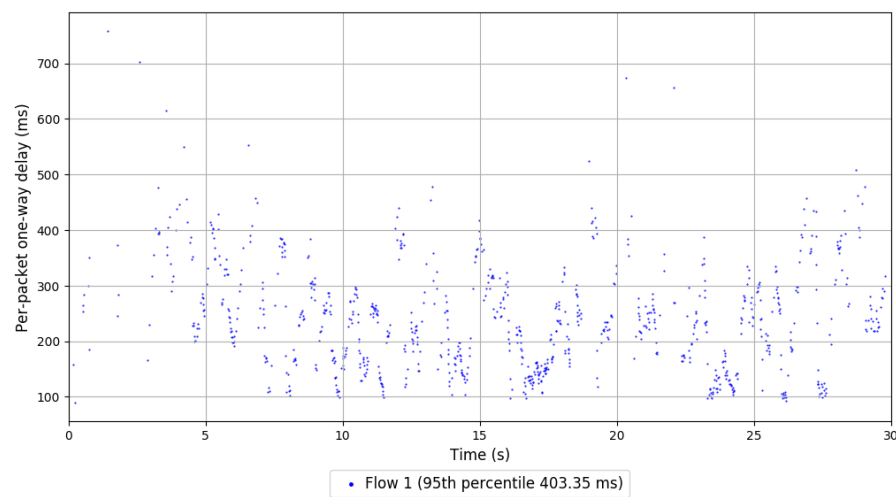
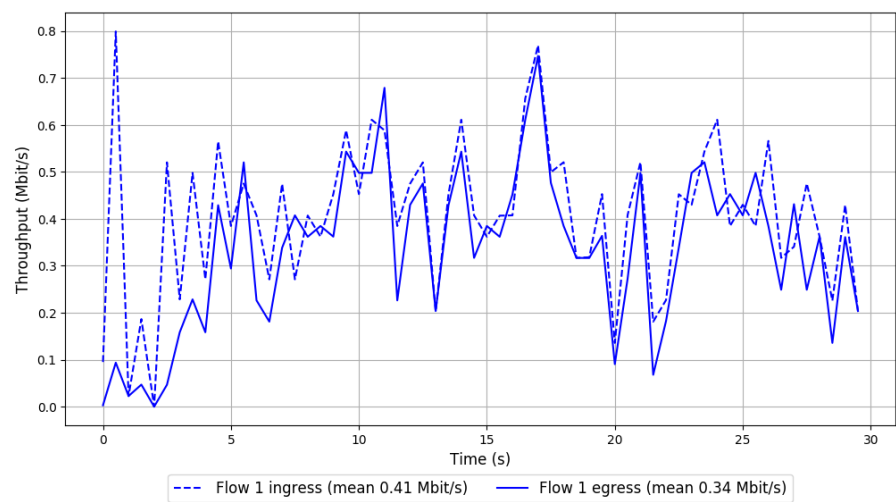
-- Flow 1:

Average throughput: 0.34 Mbit/s

95th percentile per-packet one-way delay: 403.349 ms

Loss rate: 17.24%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2017-09-22 08:10:04

End at: 2017-09-22 08:10:34

Local clock offset: -1.124 ms

Remote clock offset: 4.014 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 406.529 ms

Loss rate: 17.62%

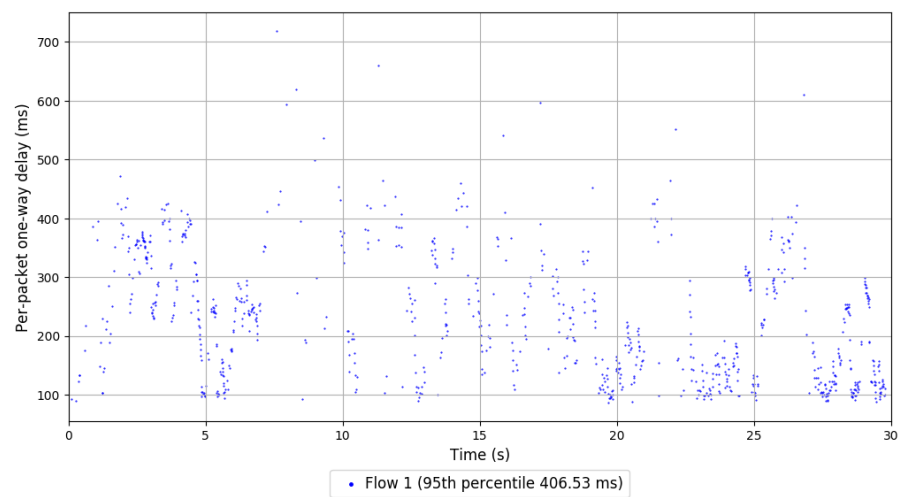
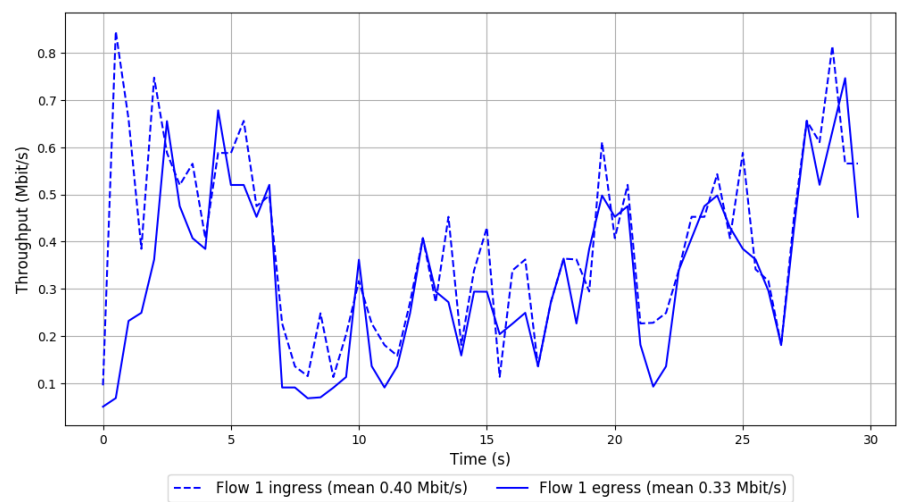
-- Flow 1:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 406.529 ms

Loss rate: 17.62%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-09-22 08:24:22

End at: 2017-09-22 08:24:52

Local clock offset: -0.067 ms

Remote clock offset: 7.636 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 445.995 ms

Loss rate: 31.55%

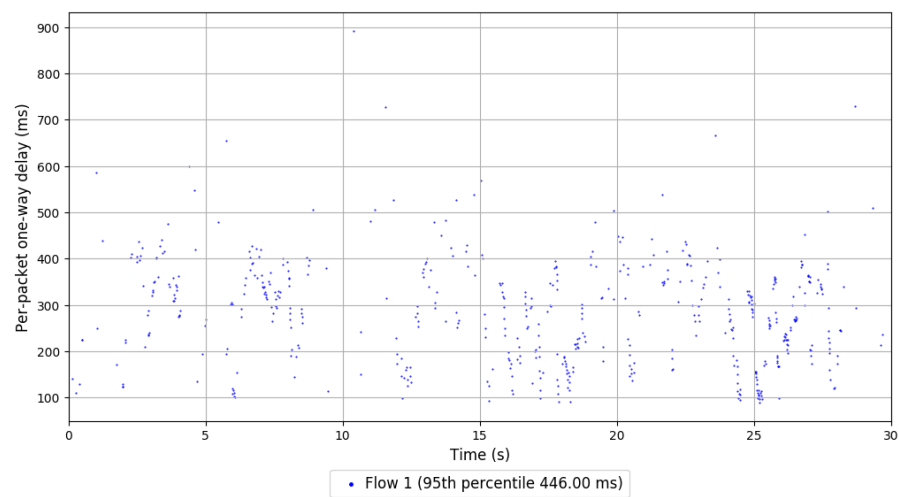
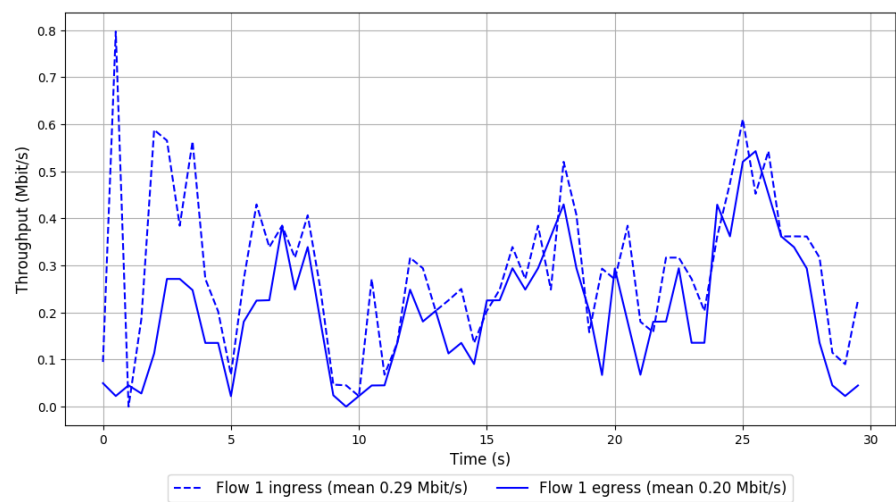
-- Flow 1:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 445.995 ms

Loss rate: 31.55%

Run 3: Report of QUIC Cubic — Data Link

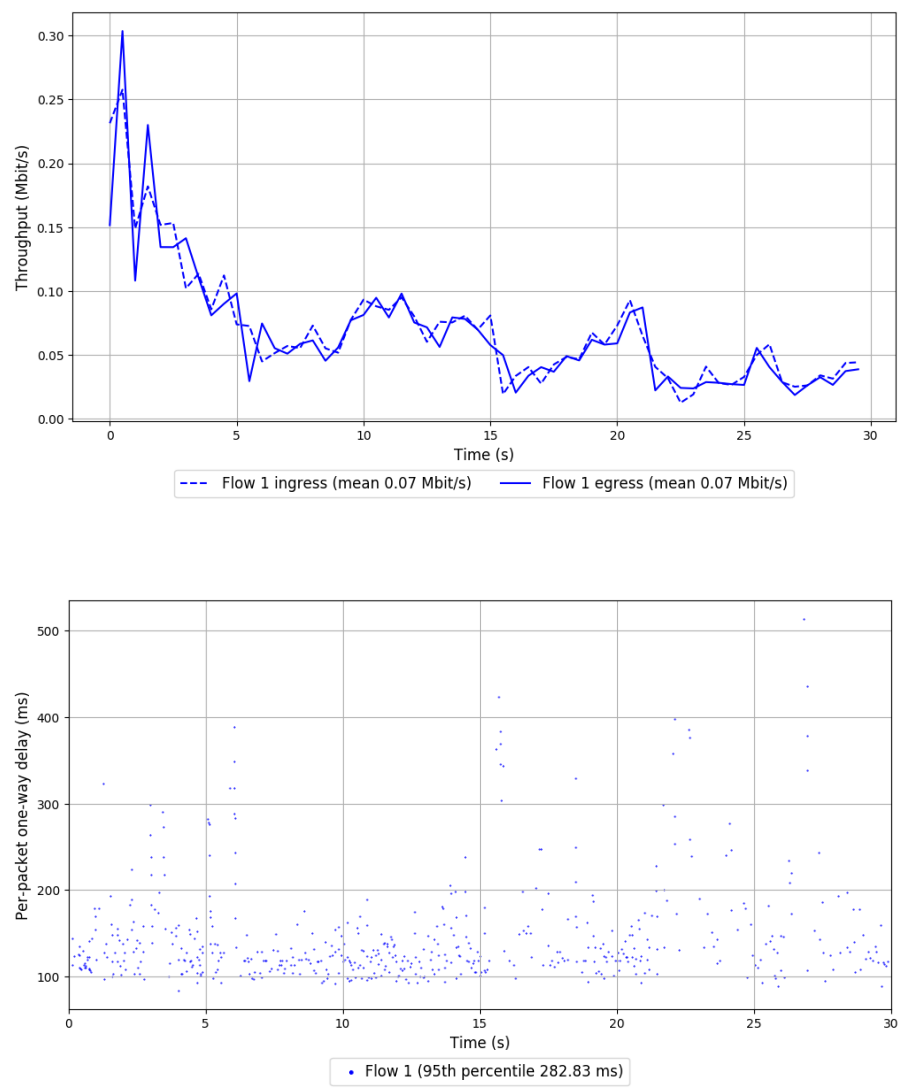


```
Run 1: Statistics of SCReAM

Start at: 2017-09-22 08:01:22
End at: 2017-09-22 08:01:52
Local clock offset: -2.93 ms
Remote clock offset: 0.961 ms

# Below is generated by plot.py at 2017-09-22 09:18:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 282.827 ms
Loss rate: 3.49%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 282.827 ms
Loss rate: 3.49%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2017-09-22 08:15:31

End at: 2017-09-22 08:16:01

Local clock offset: -1.624 ms

Remote clock offset: 2.869 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 324.533 ms

Loss rate: 6.03%

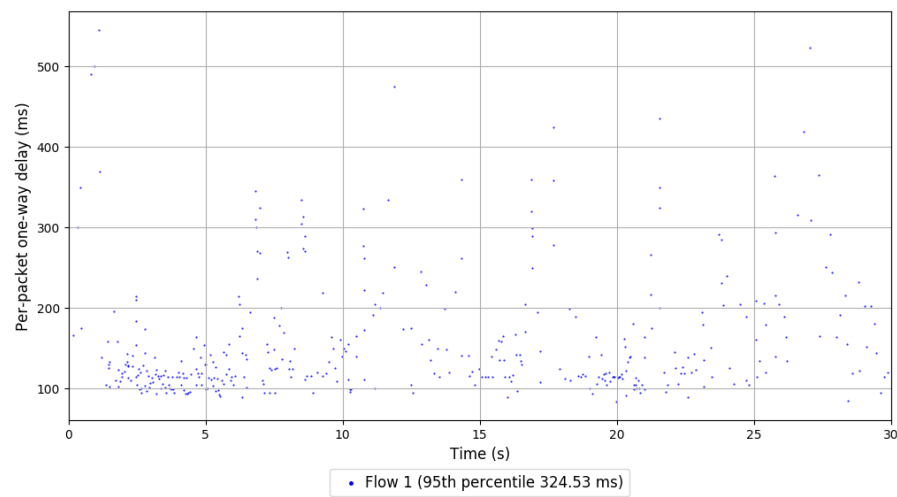
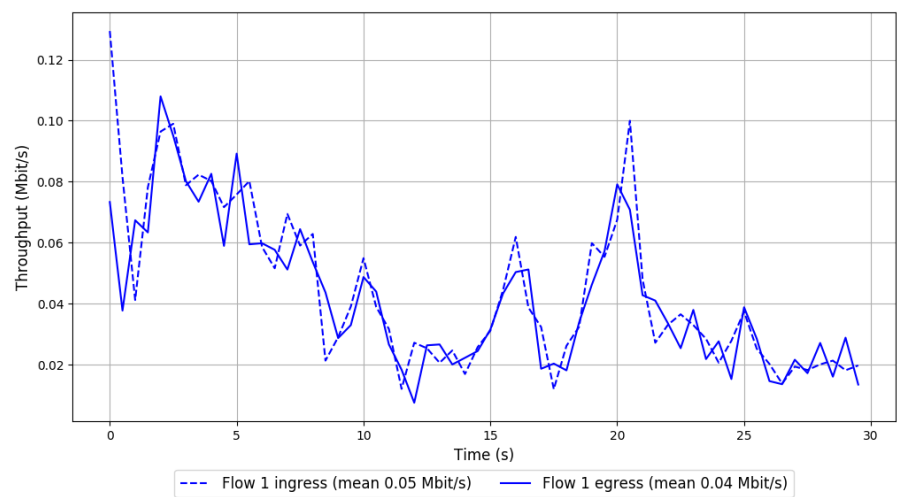
-- Flow 1:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 324.533 ms

Loss rate: 6.03%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2017-09-22 08:29:48

End at: 2017-09-22 08:30:18

Local clock offset: -5.876 ms

Remote clock offset: 1.591 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.02 Mbit/s

95th percentile per-packet one-way delay: 732.059 ms

Loss rate: 26.00%

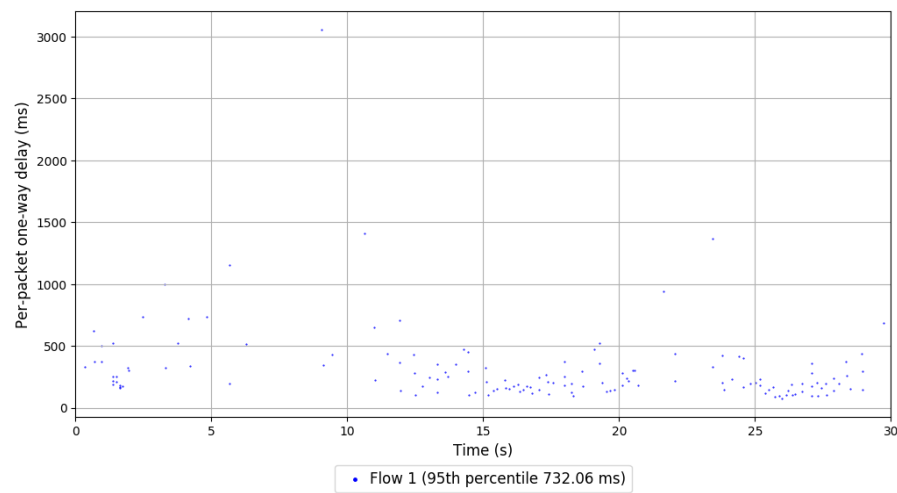
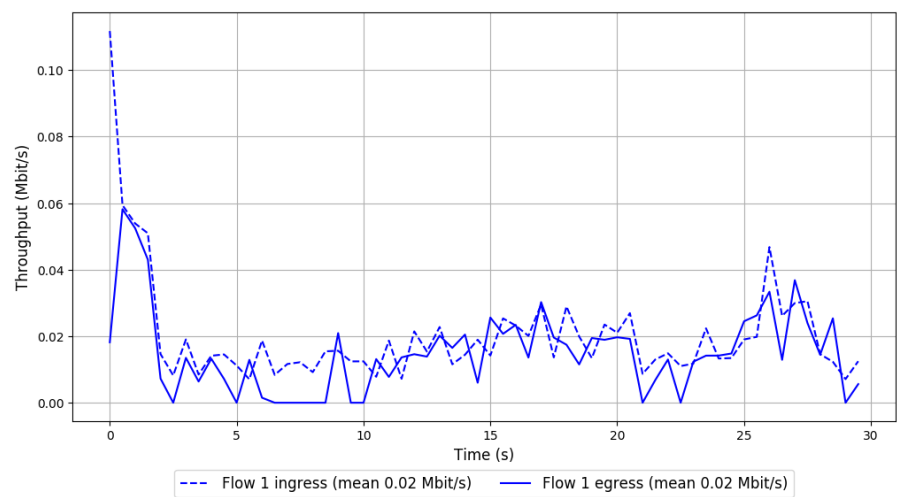
-- Flow 1:

Average throughput: 0.02 Mbit/s

95th percentile per-packet one-way delay: 732.059 ms

Loss rate: 26.00%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of WebRTC media

Start at: 2017-09-22 07:57:01

End at: 2017-09-22 07:57:31

Local clock offset: 0.841 ms

Remote clock offset: 3.538 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 457.942 ms

Loss rate: 31.76%

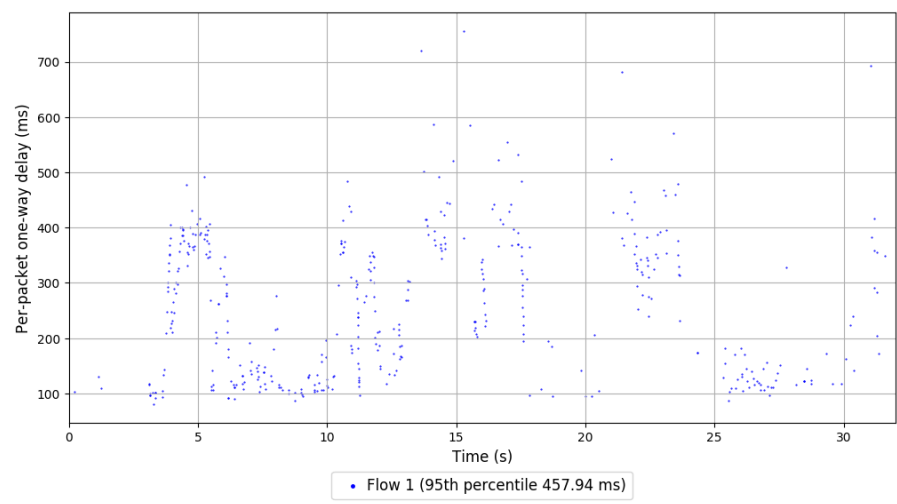
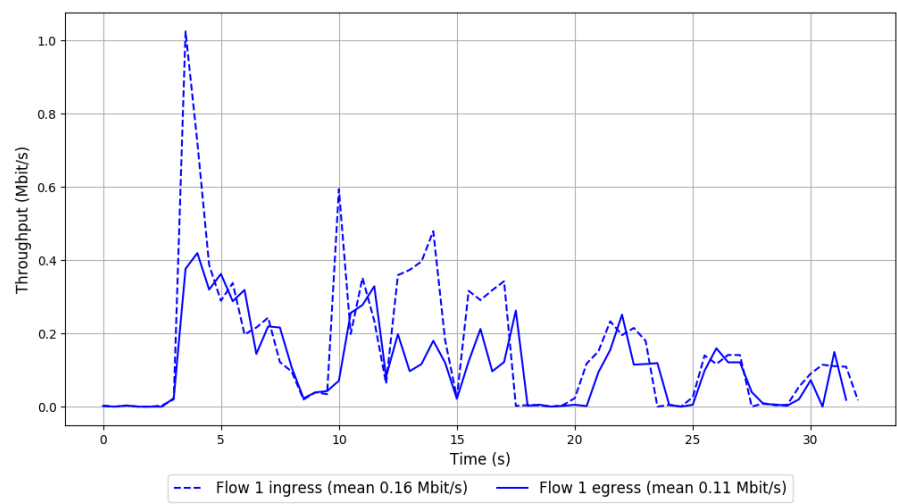
-- Flow 1:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 457.942 ms

Loss rate: 31.76%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2017-09-22 08:11:10

End at: 2017-09-22 08:11:40

Local clock offset: -2.662 ms

Remote clock offset: 1.371 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 403.431 ms

Loss rate: 24.35%

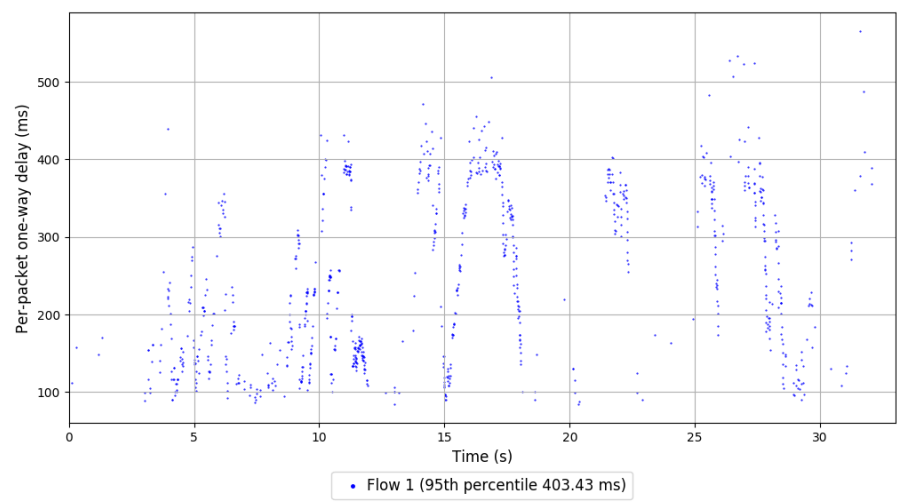
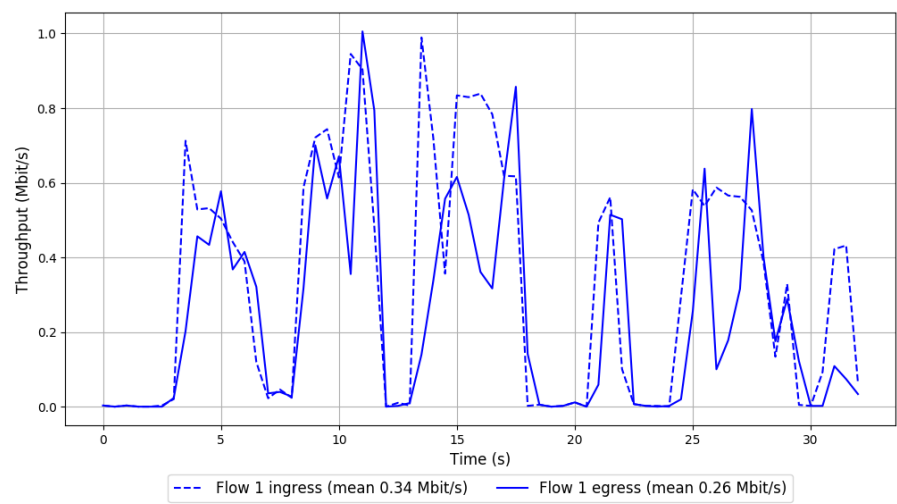
-- Flow 1:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 403.431 ms

Loss rate: 24.35%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2017-09-22 08:25:28

End at: 2017-09-22 08:25:58

Local clock offset: -2.029 ms

Remote clock offset: 6.321 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 474.417 ms

Loss rate: 47.20%

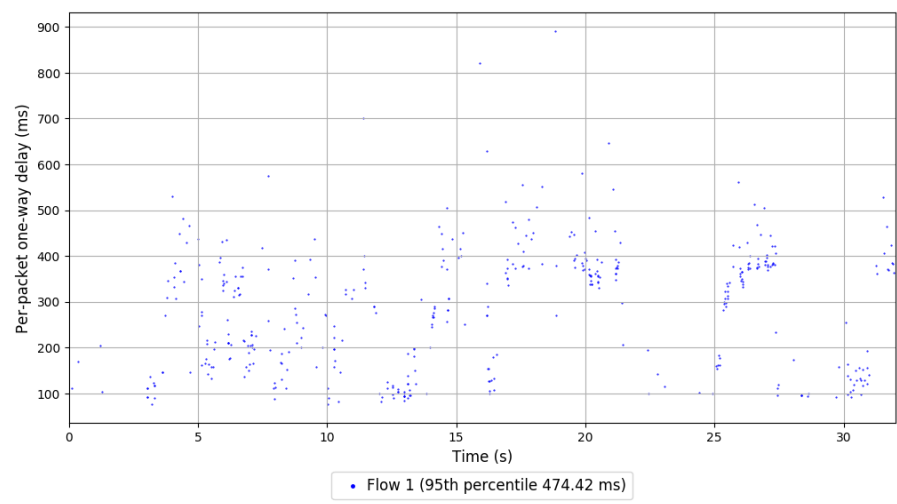
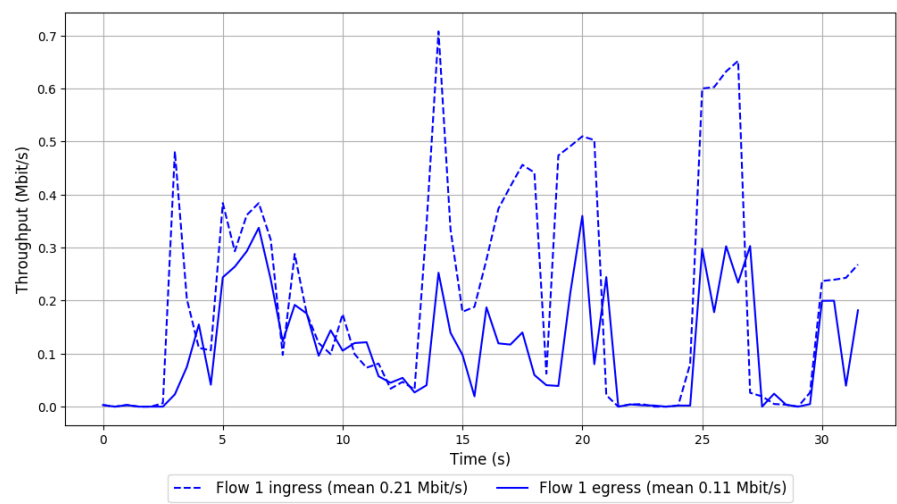
-- Flow 1:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 474.417 ms

Loss rate: 47.20%

Run 3: Report of WebRTC media — Data Link

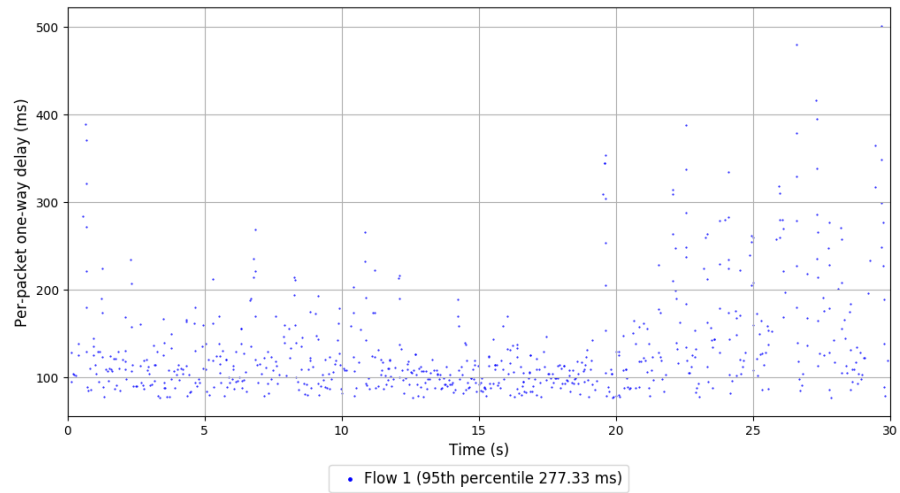
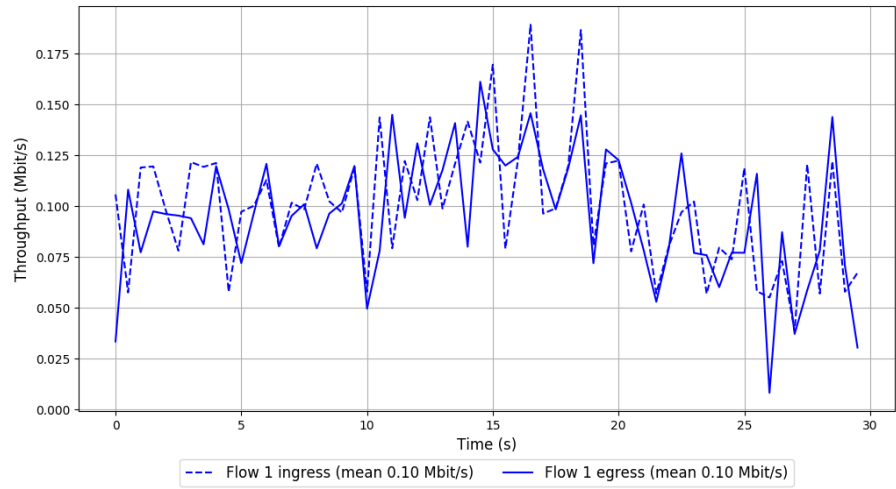


```
Run 1: Statistics of Sprout

Start at: 2017-09-22 08:05:44
End at: 2017-09-22 08:06:14
Local clock offset: -2.578 ms
Remote clock offset: 5.794 ms

# Below is generated by plot.py at 2017-09-22 09:18:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 277.331 ms
Loss rate: 5.36%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 277.331 ms
Loss rate: 5.36%
```

Run 1: Report of Sprout — Data Link

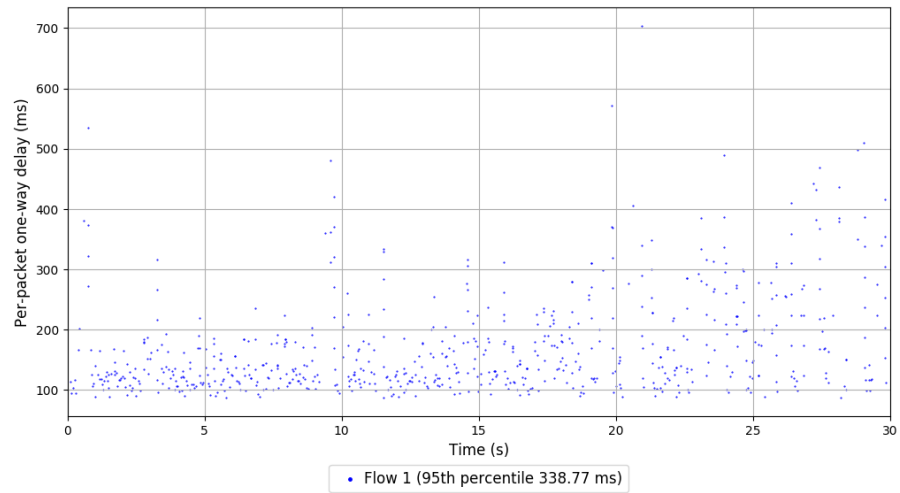
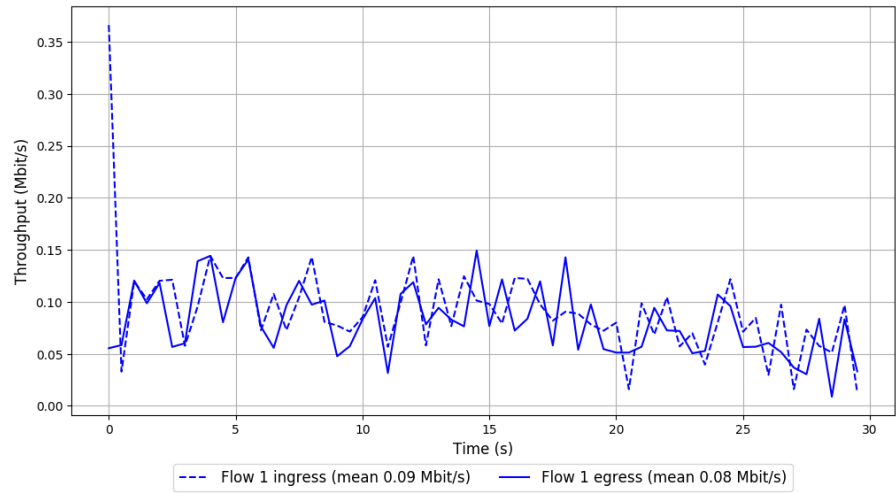


Run 2: Statistics of Sprout

Start at: 2017-09-22 08:19:51
End at: 2017-09-22 08:20:21
Local clock offset: 0.235 ms
Remote clock offset: -4.247 ms

Below is generated by plot.py at 2017-09-22 09:18:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 338.768 ms
Loss rate: 12.02%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 338.768 ms
Loss rate: 12.02%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

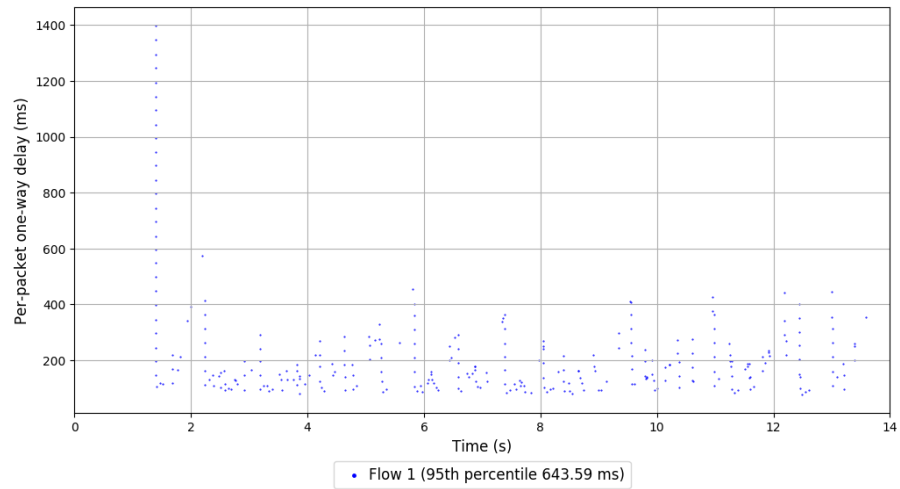
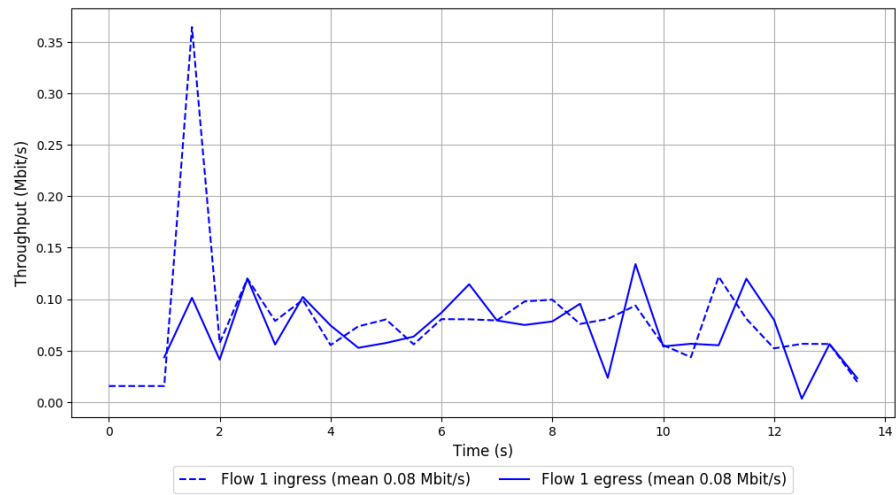
Start at: 2017-09-22 08:34:09

End at: 2017-09-22 08:34:39

Local clock offset: 0.54 ms

Remote clock offset: 3.758 ms

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2017-09-22 08:04:38

End at: 2017-09-22 08:05:08

Local clock offset: 0.922 ms

Remote clock offset: -6.952 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 504.283 ms

Loss rate: 92.86%

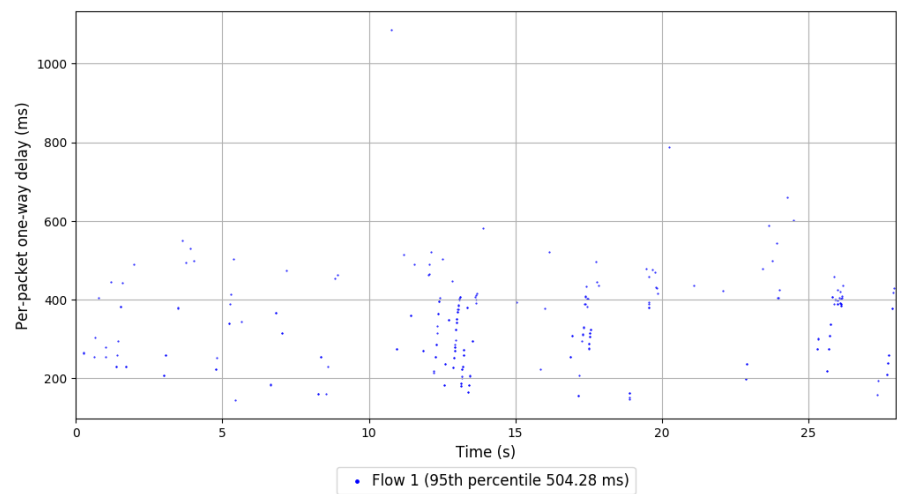
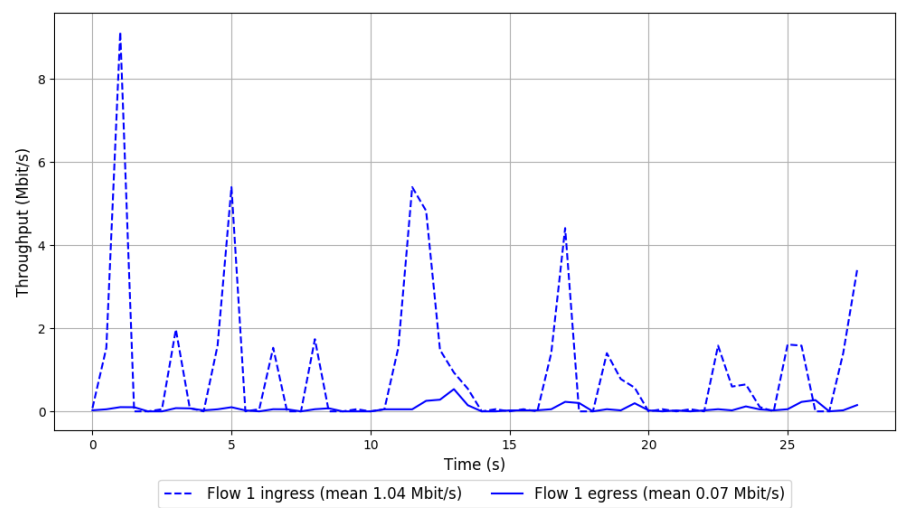
-- Flow 1:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 504.283 ms

Loss rate: 92.86%

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



Run 2: Statistics of TaoVA-100x

Start at: 2017-09-22 08:18:46

End at: 2017-09-22 08:19:16

Local clock offset: -1.983 ms

Remote clock offset: 3.229 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 424.680 ms

Loss rate: 83.13%

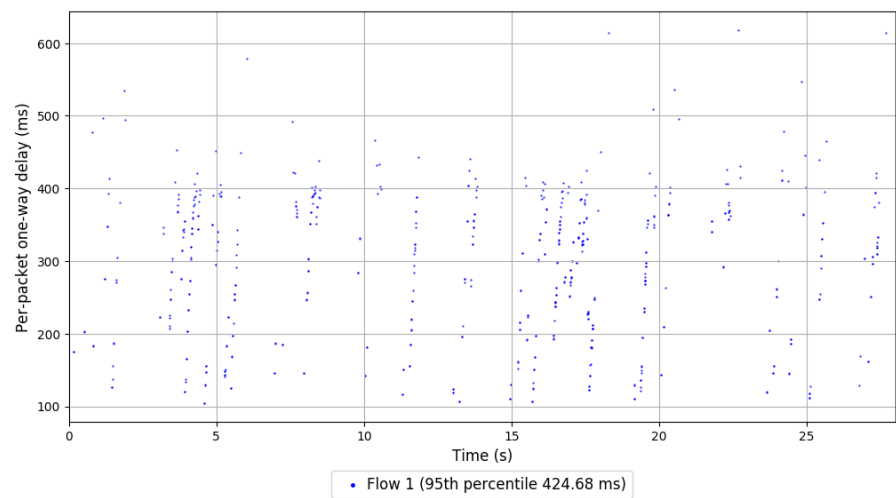
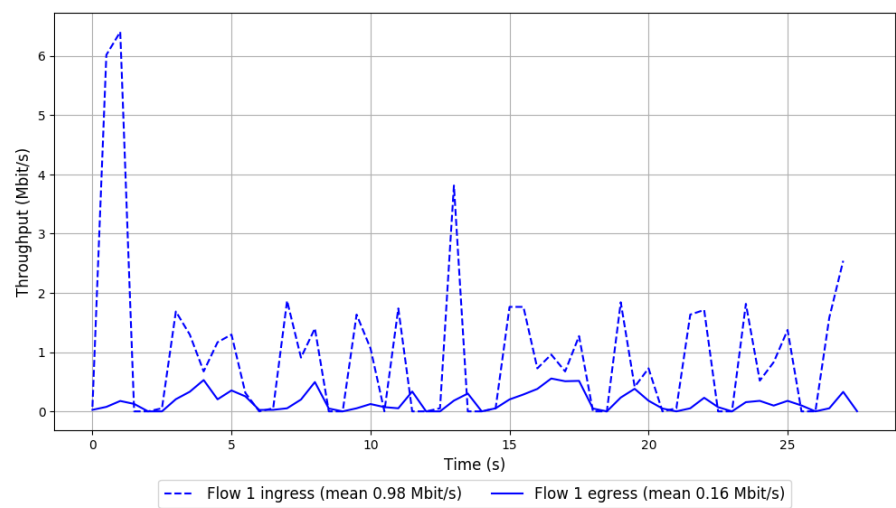
-- Flow 1:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 424.680 ms

Loss rate: 83.13%

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



Run 3: Statistics of TaoVA-100x

Start at: 2017-09-22 08:33:03

End at: 2017-09-22 08:33:33

Local clock offset: 0.488 ms

Remote clock offset: 1.796 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 513.638 ms

Loss rate: 93.62%

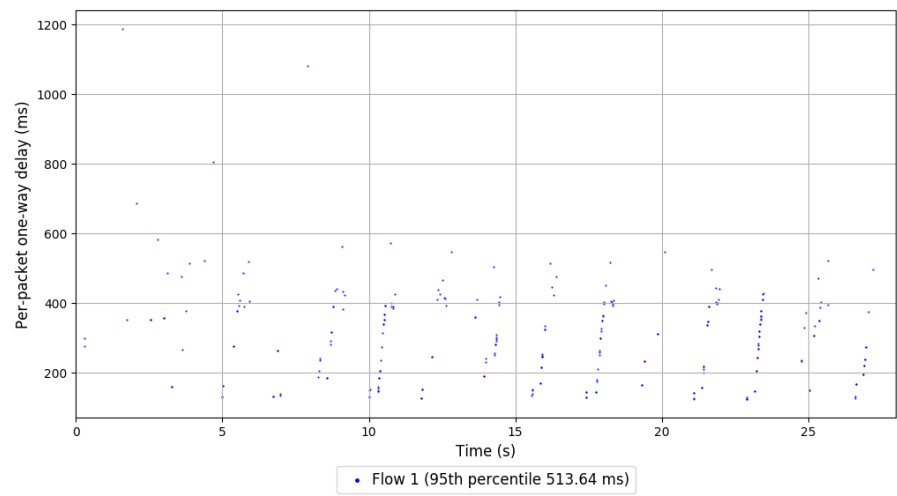
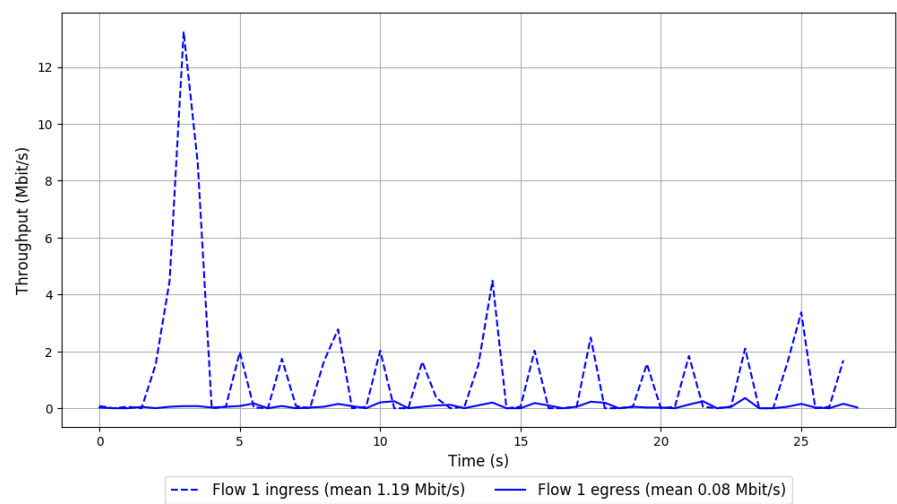
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 513.638 ms

Loss rate: 93.62%

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



Run 1: Statistics of TCP Vegas

Start at: 2017-09-22 08:00:17

End at: 2017-09-22 08:00:47

Local clock offset: 0.094 ms

Remote clock offset: 3.85 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 360.703 ms

Loss rate: 7.74%

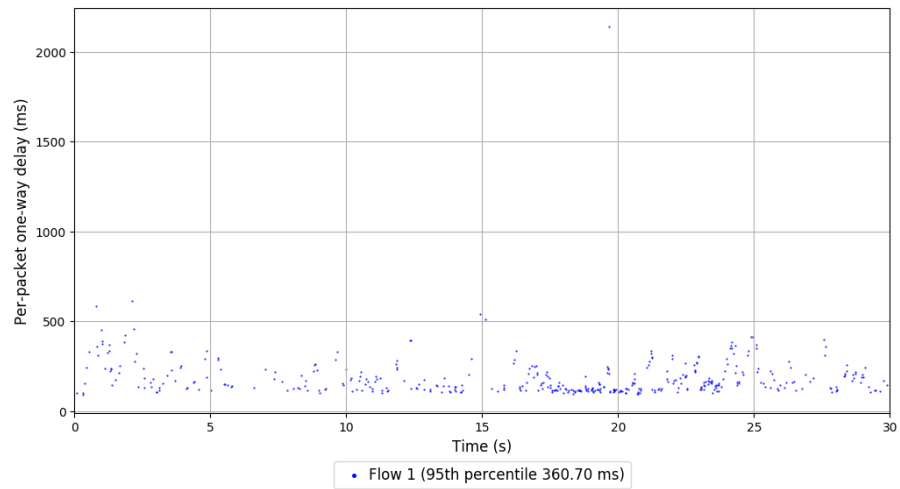
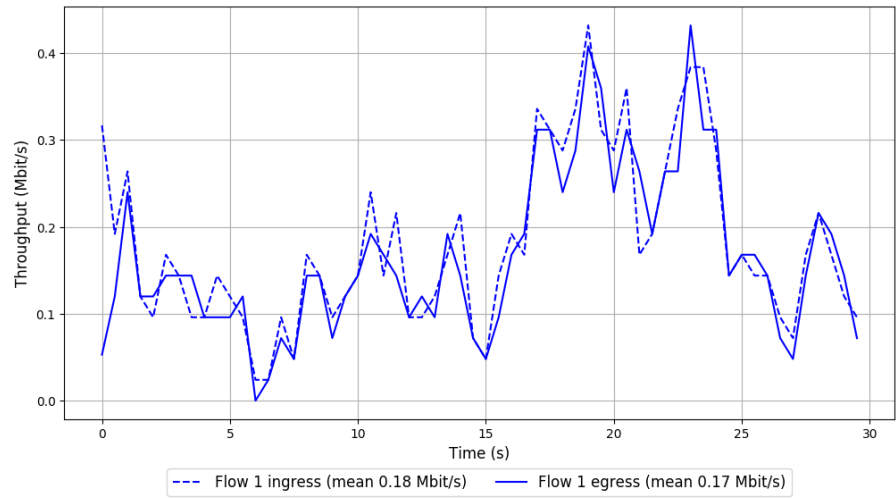
-- Flow 1:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 360.703 ms

Loss rate: 7.74%

Run 1: Report of TCP Vegas — Data Link

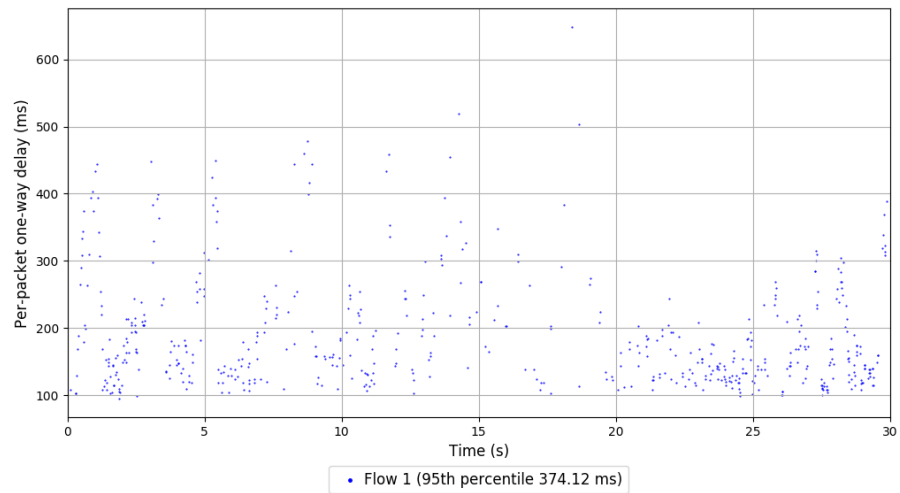
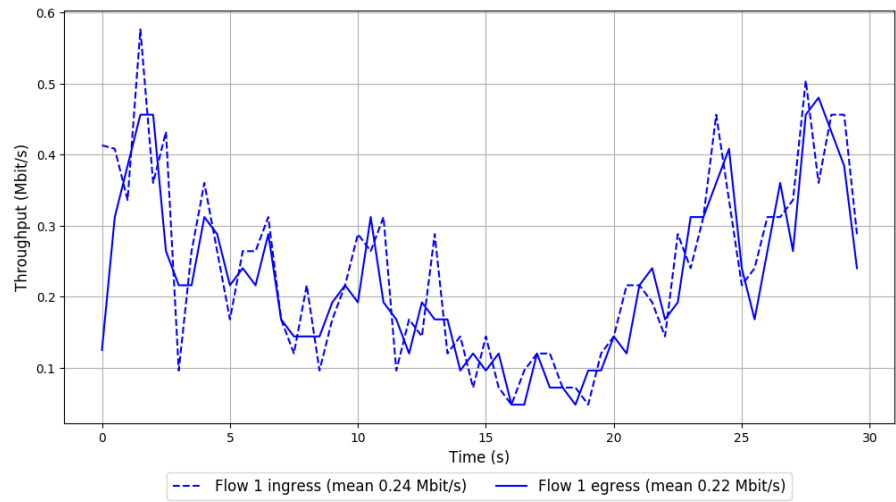


Run 2: Statistics of TCP Vegas

Start at: 2017-09-22 08:14:25
End at: 2017-09-22 08:14:56
Local clock offset: -1.721 ms
Remote clock offset: -2.218 ms

Below is generated by plot.py at 2017-09-22 09:18:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 374.122 ms
Loss rate: 7.20%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 374.122 ms
Loss rate: 7.20%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2017-09-22 08:28:42

End at: 2017-09-22 08:29:12

Local clock offset: 0.151 ms

Remote clock offset: -5.97 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 785.129 ms

Loss rate: 27.05%

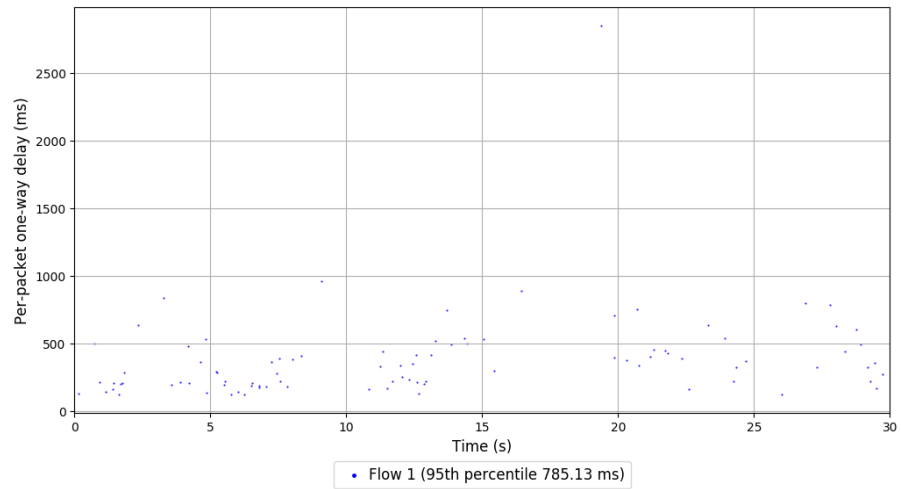
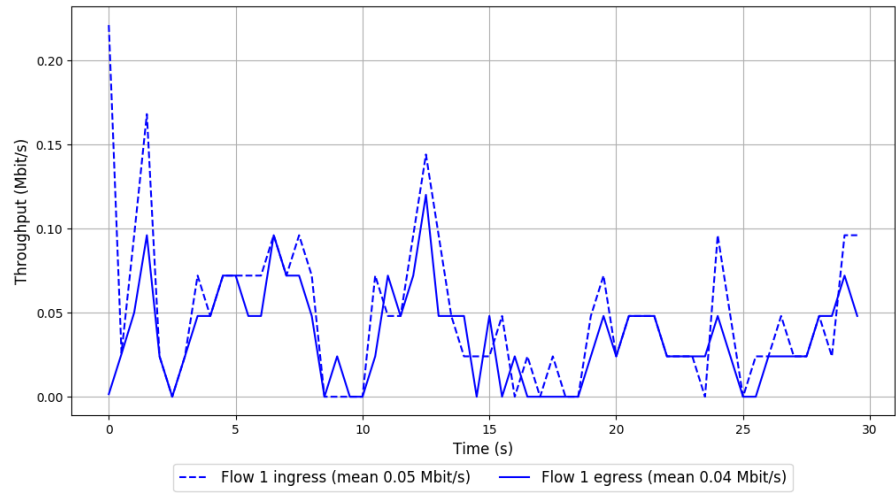
-- Flow 1:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 785.129 ms

Loss rate: 27.05%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2017-09-22 07:59:12

End at: 2017-09-22 07:59:42

Local clock offset: -1.516 ms

Remote clock offset: 2.171 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.24 Mbit/s

95th percentile per-packet one-way delay: 481.315 ms

Loss rate: 66.25%

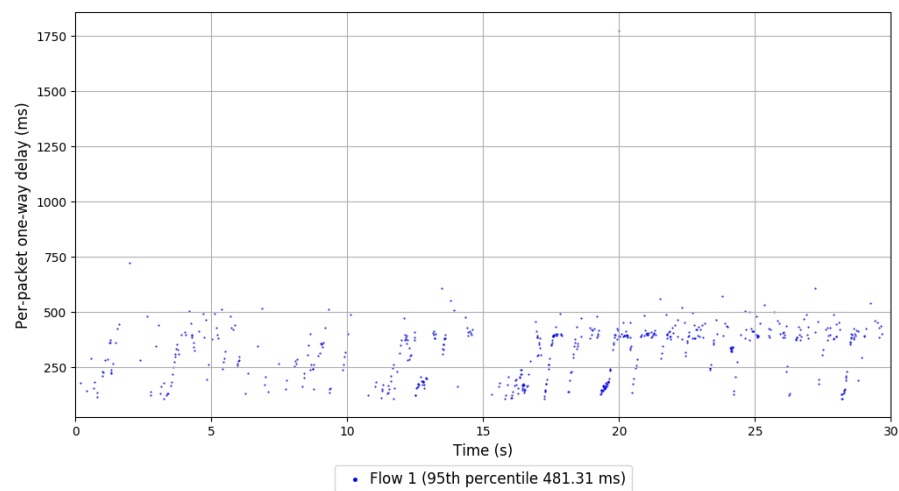
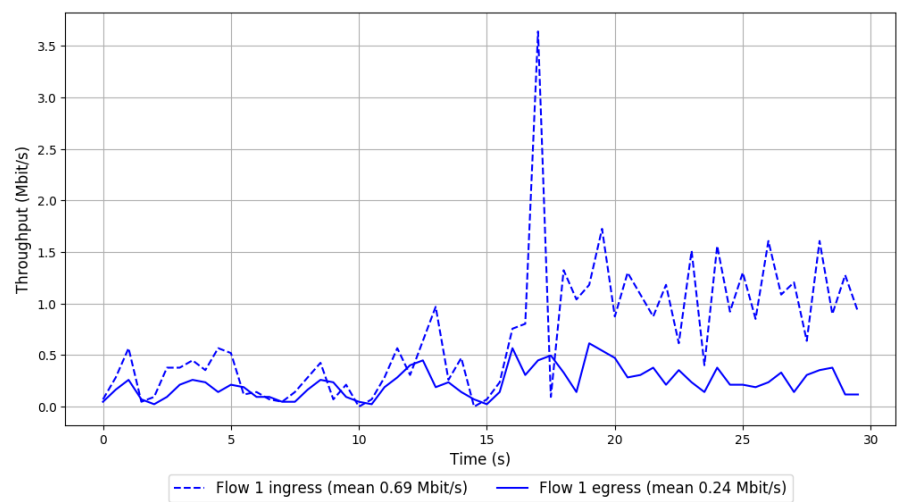
-- Flow 1:

Average throughput: 0.24 Mbit/s

95th percentile per-packet one-way delay: 481.315 ms

Loss rate: 66.25%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2017-09-22 08:13:20

End at: 2017-09-22 08:13:50

Local clock offset: -2.07 ms

Remote clock offset: 1.74 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 392.835 ms

Loss rate: 16.58%

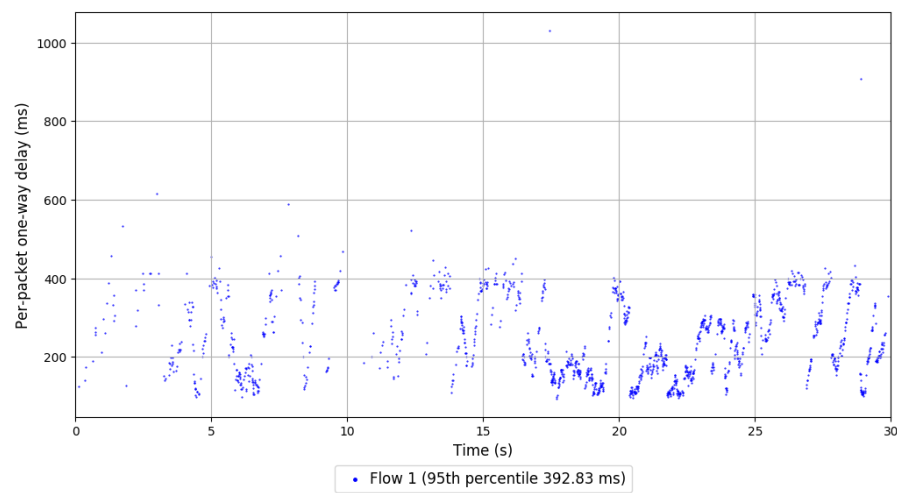
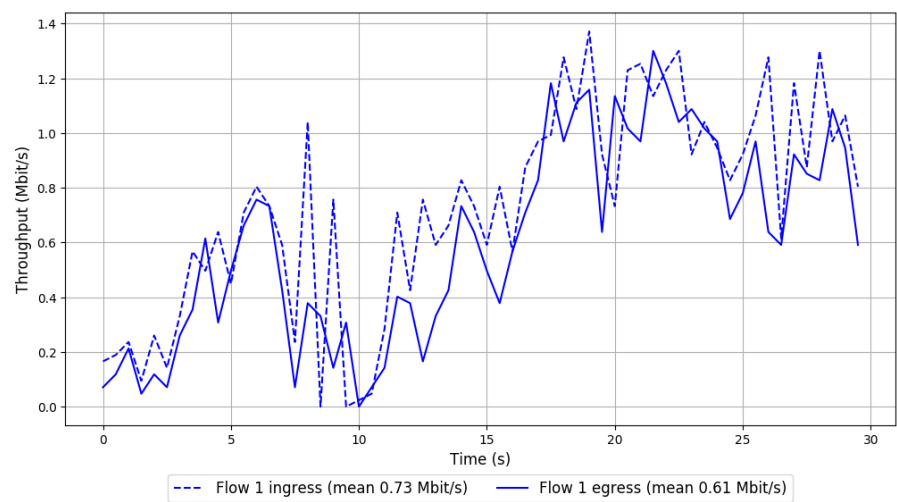
-- Flow 1:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 392.835 ms

Loss rate: 16.58%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2017-09-22 08:27:38

End at: 2017-09-22 08:28:08

Local clock offset: 0.339 ms

Remote clock offset: 3.455 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 685.483 ms

Loss rate: 29.05%

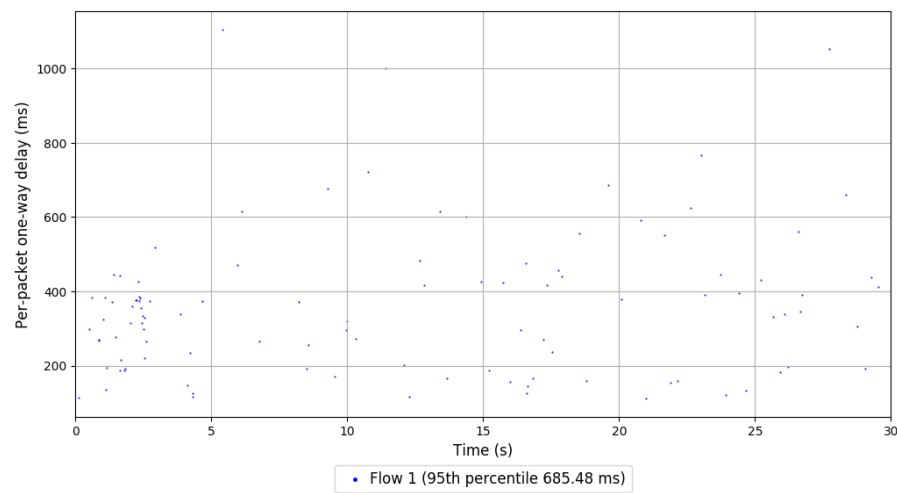
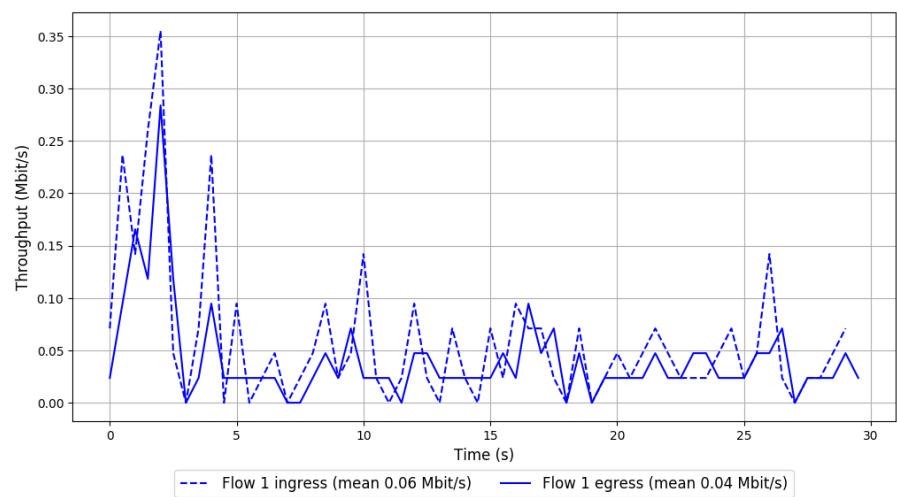
-- Flow 1:

Average throughput: 0.04 Mbit/s

95th percentile per-packet one-way delay: 685.483 ms

Loss rate: 29.05%

Run 3: Report of Verus — Data Link

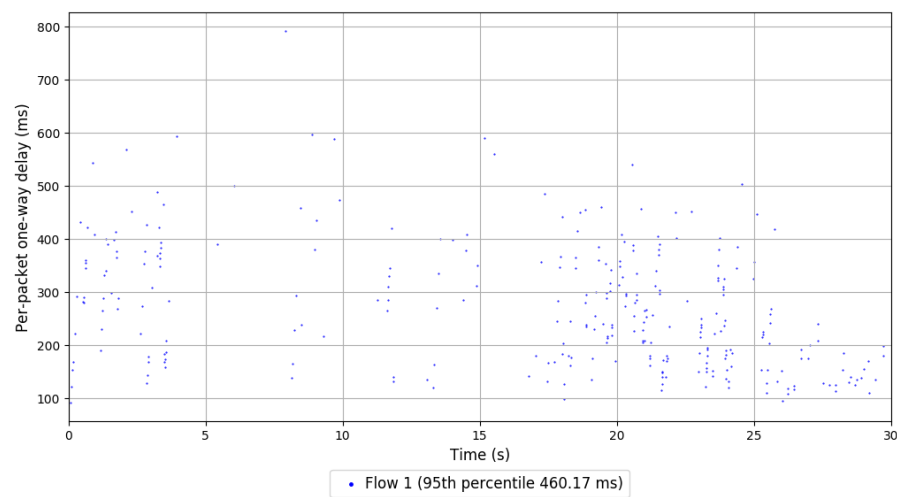
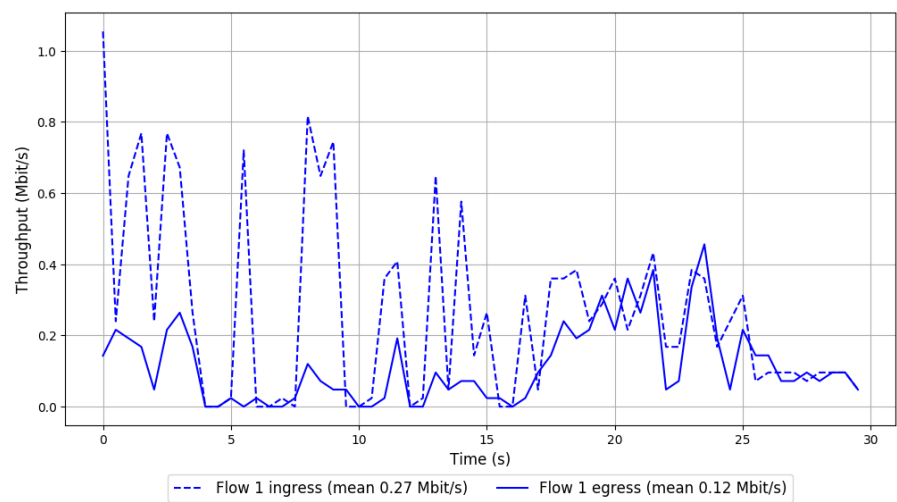


```
Run 1: Statistics of Indigo

Start at: 2017-09-22 07:53:43
End at: 2017-09-22 07:54:13
Local clock offset: -0.539 ms
Remote clock offset: 0.883 ms

# Below is generated by plot.py at 2017-09-22 09:18:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 460.174 ms
Loss rate: 56.37%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 460.174 ms
Loss rate: 56.37%
```

Run 1: Report of Indigo — Data Link

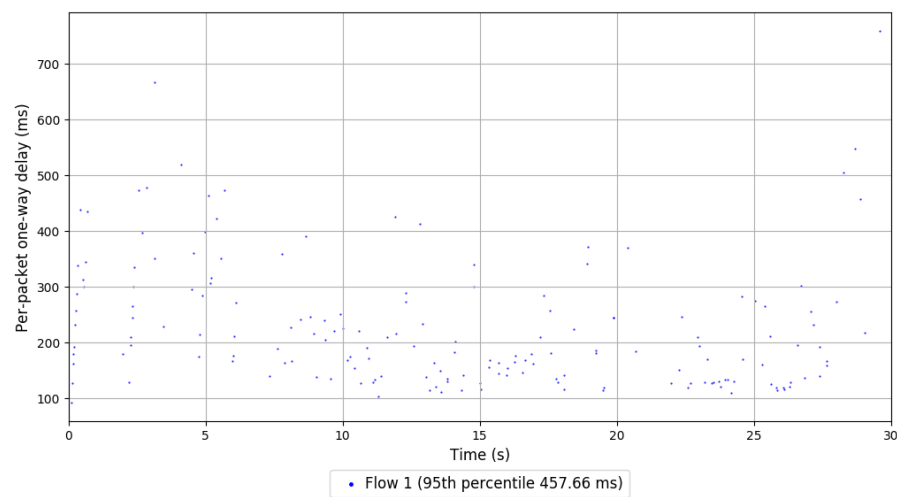
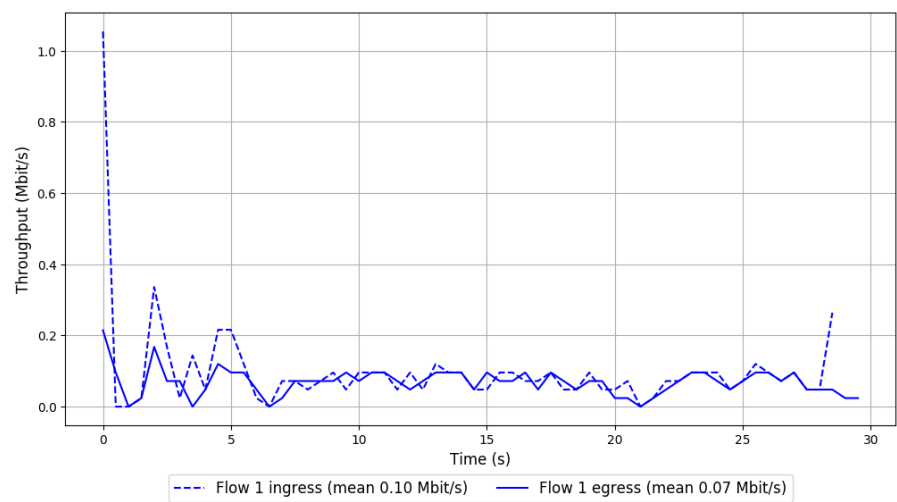


Run 2: Statistics of Indigo

Start at: 2017-09-22 08:07:54
End at: 2017-09-22 08:08:24
Local clock offset: -2.724 ms
Remote clock offset: -2.574 ms

Below is generated by plot.py at 2017-09-22 09:18:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 457.663 ms
Loss rate: 28.64%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 457.663 ms
Loss rate: 28.64%

Run 2: Report of Indigo — Data Link

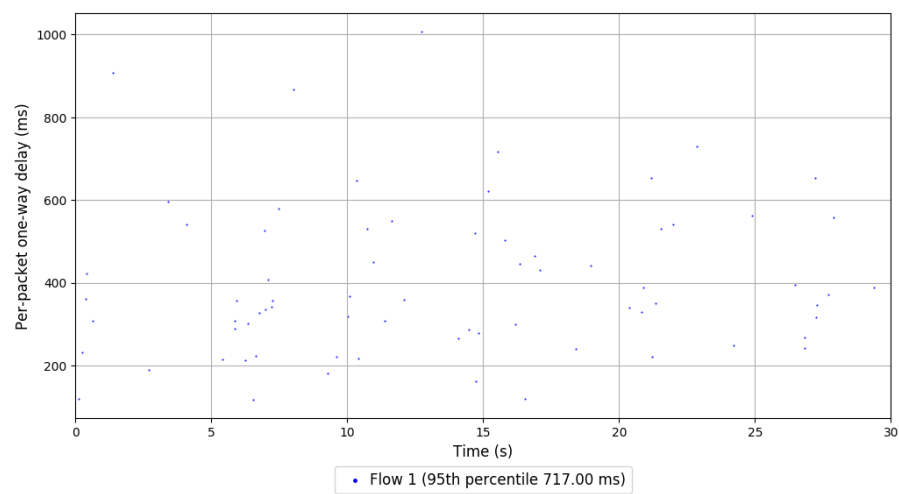
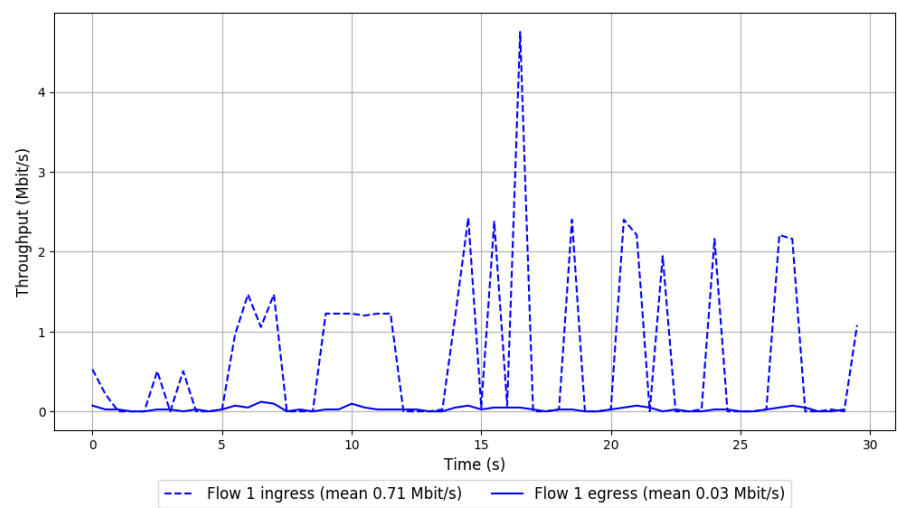


Run 3: Statistics of Indigo

Start at: 2017-09-22 08:22:02
End at: 2017-09-22 08:22:32
Local clock offset: -0.351 ms
Remote clock offset: -3.666 ms

Below is generated by plot.py at 2017-09-22 09:18:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 717.002 ms
Loss rate: 95.90%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 717.002 ms
Loss rate: 95.90%

Run 3: Report of Indigo — Data Link

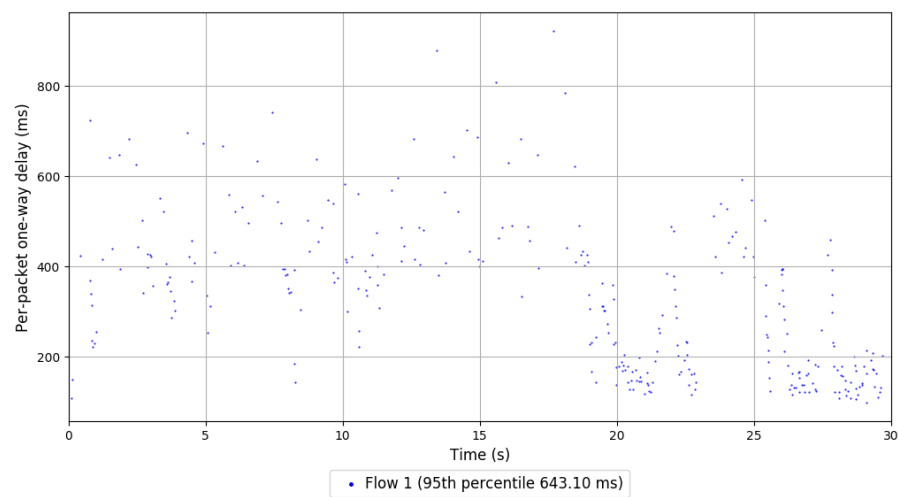
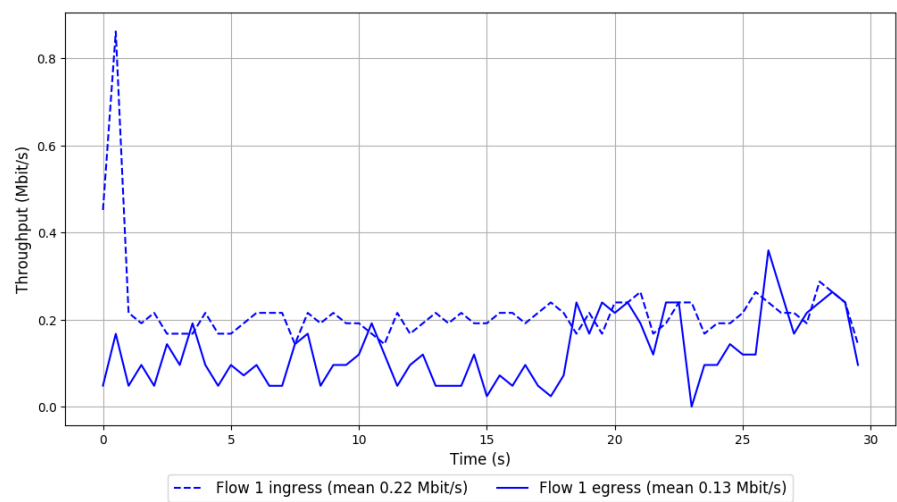


Run 1: Statistics of Indigo-cellular

Start at: 2017-09-22 08:06:49
End at: 2017-09-22 08:07:19
Local clock offset: -0.023 ms
Remote clock offset: -0.504 ms

Below is generated by plot.py at 2017-09-22 09:18:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 643.098 ms
Loss rate: 42.50%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 643.098 ms
Loss rate: 42.50%

Run 1: Report of Indigo-cellular — Data Link



Run 2: Statistics of Indigo-cellular

Start at: 2017-09-22 08:20:57

End at: 2017-09-22 08:21:27

Local clock offset: -1.631 ms

Remote clock offset: 4.303 ms

Below is generated by plot.py at 2017-09-22 09:18:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 633.047 ms

Loss rate: 41.10%

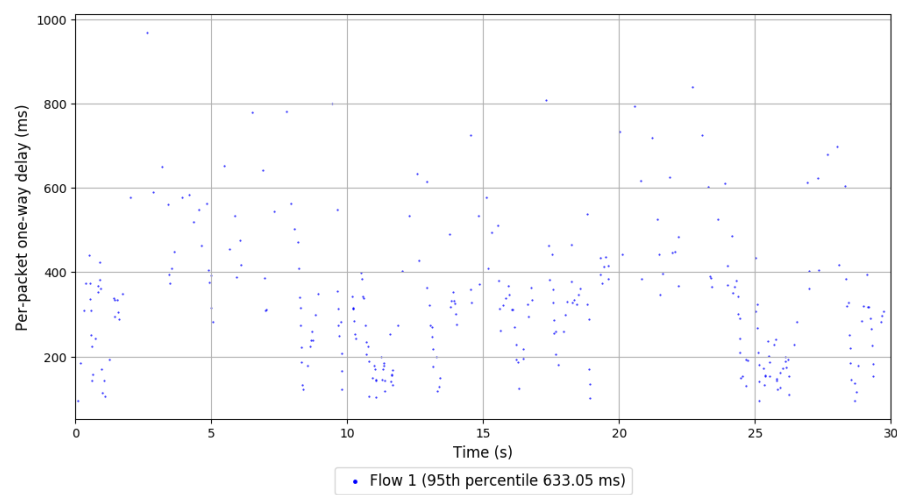
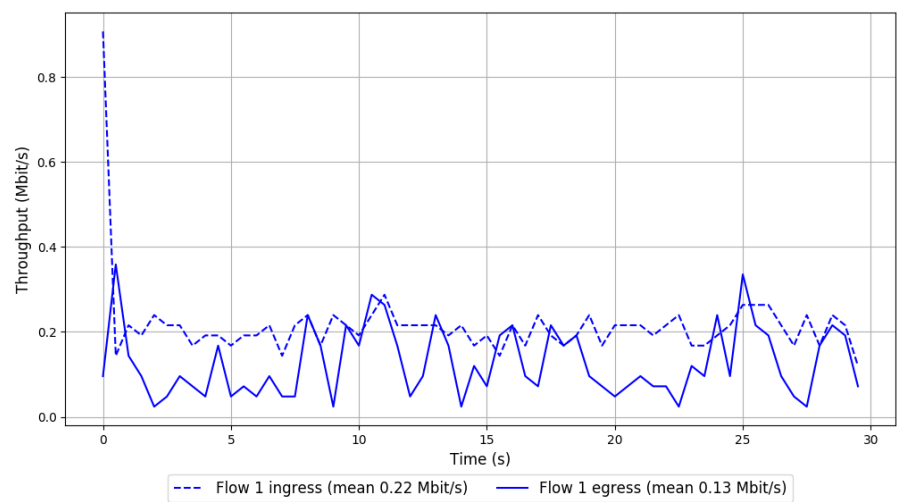
-- Flow 1:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 633.047 ms

Loss rate: 41.10%

Run 2: Report of Indigo-cellular — Data Link



Run 3: Statistics of Indigo-cellular

Start at: 2017-09-22 08:35:15
End at: 2017-09-22 08:35:45
Local clock offset: 0.58 ms
Remote clock offset: -4.149 ms

Below is generated by plot.py at 2017-09-22 09:18:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 728.868 ms
Loss rate: 55.65%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 728.868 ms
Loss rate: 55.65%

Run 3: Report of Indigo-cellular — Data Link

