

Pantheon Report

Generated at 2018-11-15 05:31:51 (UTC).

Data path: GCE London on *ens4 (remote)* → GCE Tokyo on *ens4 (local)*.

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.

System info:

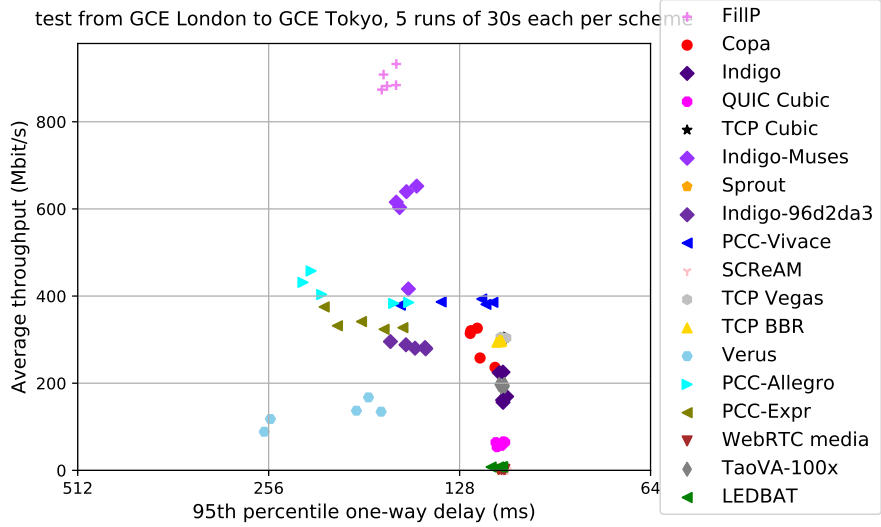
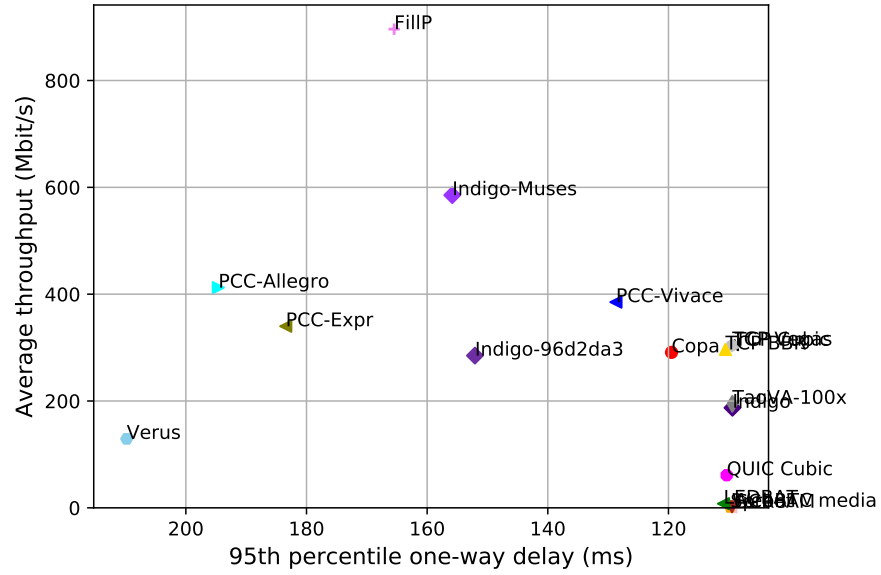
```
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
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/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
  M src/ScreamClient
  M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
  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 @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
```

third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from GCE London to GCE Tokyo, 5 runs of 30s each per scheme
(mean of all runs by scheme)



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	296.54	110.56	0.80
Copa	5	291.07	119.49	0.75
TCP Cubic	5	303.50	109.00	0.78
FillP	5	896.15	165.47	2.52
Indigo	5	187.30	109.39	0.77
Indigo-96d2da3	5	284.98	152.08	0.88
LEDBAT	5	7.78	110.87	1.47
Indigo-Muses	5	585.39	155.84	1.10
PCC-Allegro	5	412.19	194.61	2.90
PCC-Expr	5	339.92	183.44	3.22
QUIC Cubic	5	61.09	110.35	1.14
SCReAM	5	0.22	108.80	0.73
Sprout	5	1.17	109.72	0.66
TaoVA-100x	5	194.75	109.41	0.82
TCP Vegas	5	304.18	109.43	0.78
Verus	5	129.12	209.81	3.89
PCC-Vivace	5	385.11	128.71	0.99
WebRTC media	5	1.96	109.47	0.87

Run 1: Statistics of TCP BBR

Start at: 2018-11-15 02:14:03

End at: 2018-11-15 02:14:33

Local clock offset: 9.816 ms

Remote clock offset: 13.419 ms

Below is generated by plot.py at 2018-11-15 04:21:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 297.47 Mbit/s

95th percentile per-packet one-way delay: 109.882 ms

Loss rate: 0.80%

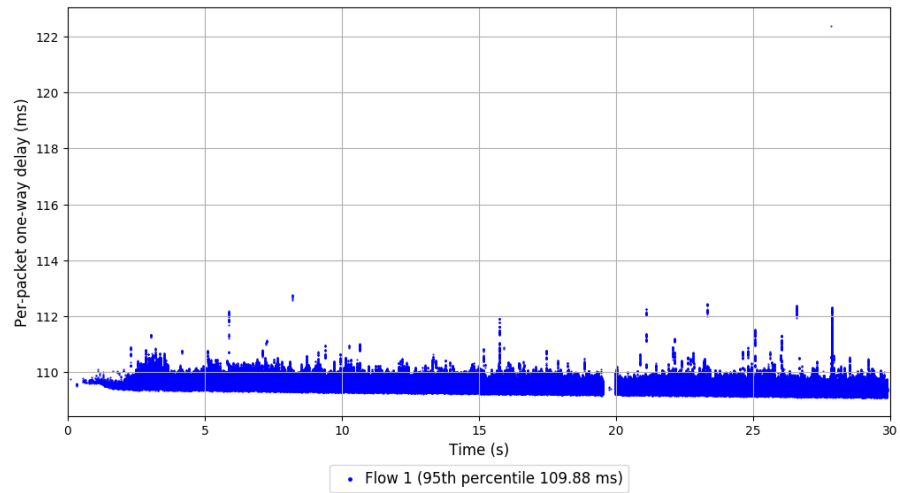
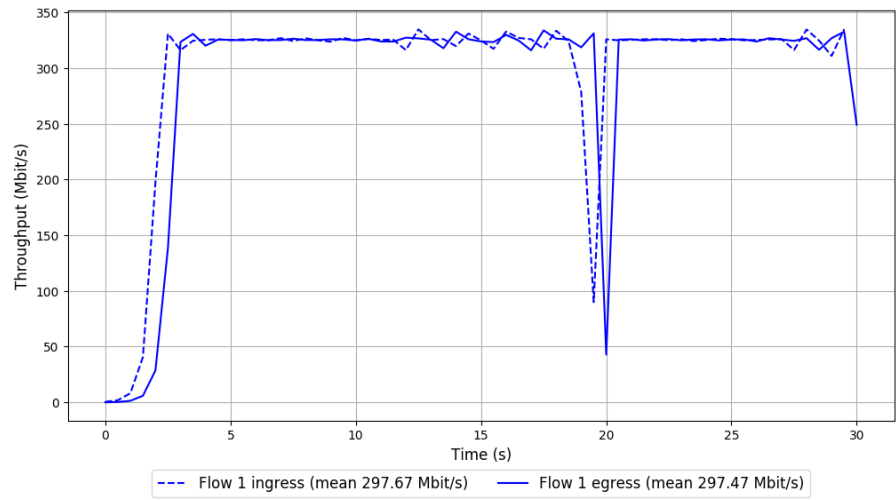
-- Flow 1:

Average throughput: 297.47 Mbit/s

95th percentile per-packet one-way delay: 109.882 ms

Loss rate: 0.80%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-11-15 02:40:25

End at: 2018-11-15 02:40:55

Local clock offset: 11.666 ms

Remote clock offset: 14.69 ms

Below is generated by plot.py at 2018-11-15 04:21:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 295.20 Mbit/s

95th percentile per-packet one-way delay: 110.391 ms

Loss rate: 0.80%

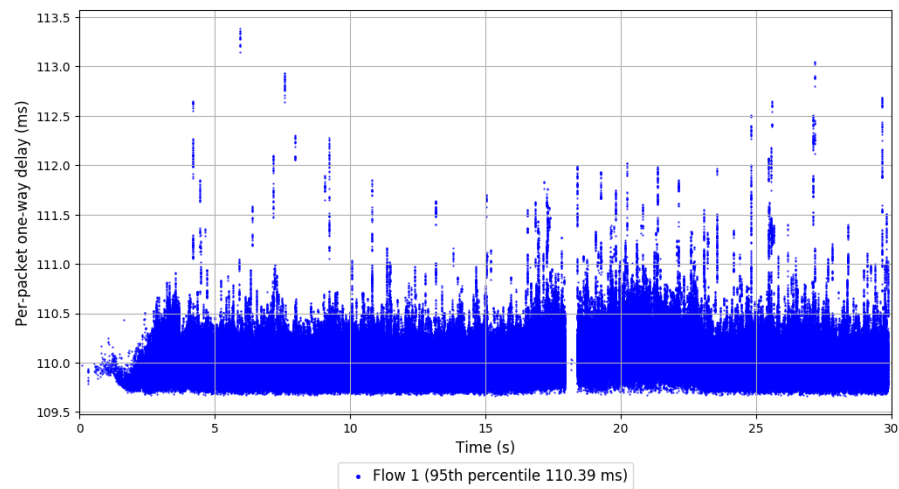
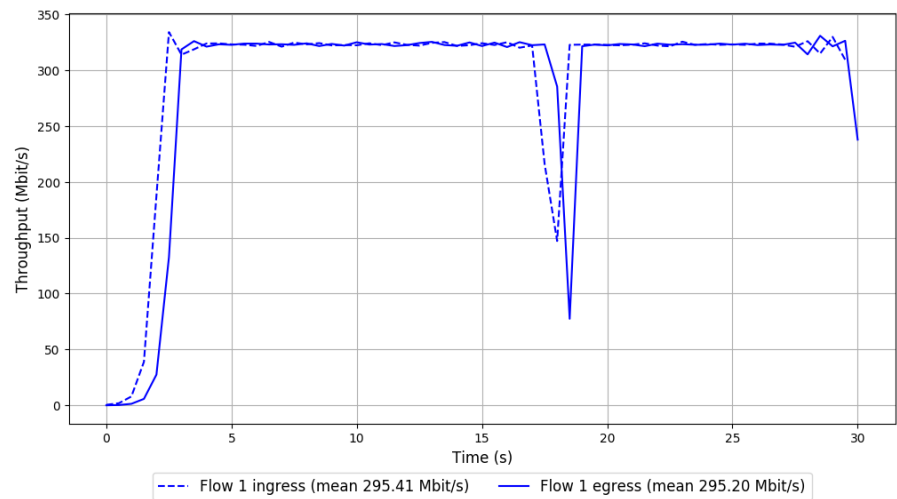
-- Flow 1:

Average throughput: 295.20 Mbit/s

95th percentile per-packet one-way delay: 110.391 ms

Loss rate: 0.80%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-11-15 03:06:25

End at: 2018-11-15 03:06:55

Local clock offset: 18.41 ms

Remote clock offset: 26.494 ms

Below is generated by plot.py at 2018-11-15 04:21:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 298.78 Mbit/s

95th percentile per-packet one-way delay: 110.683 ms

Loss rate: 0.80%

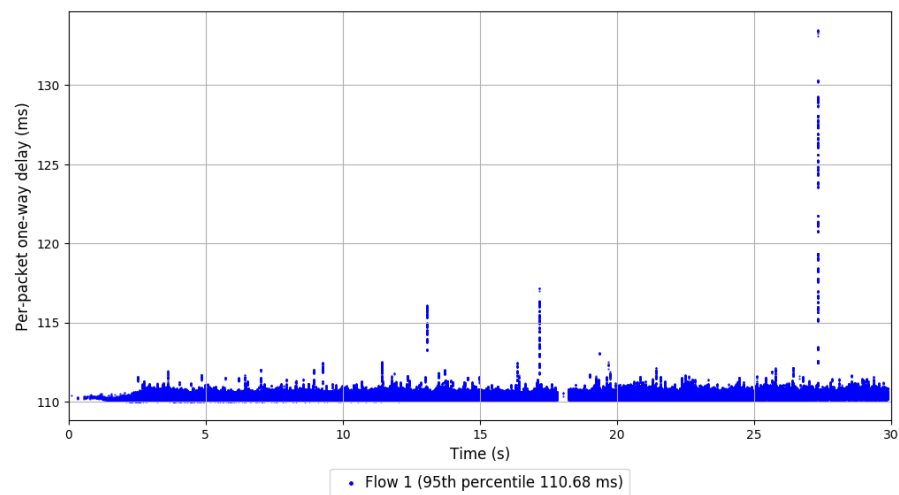
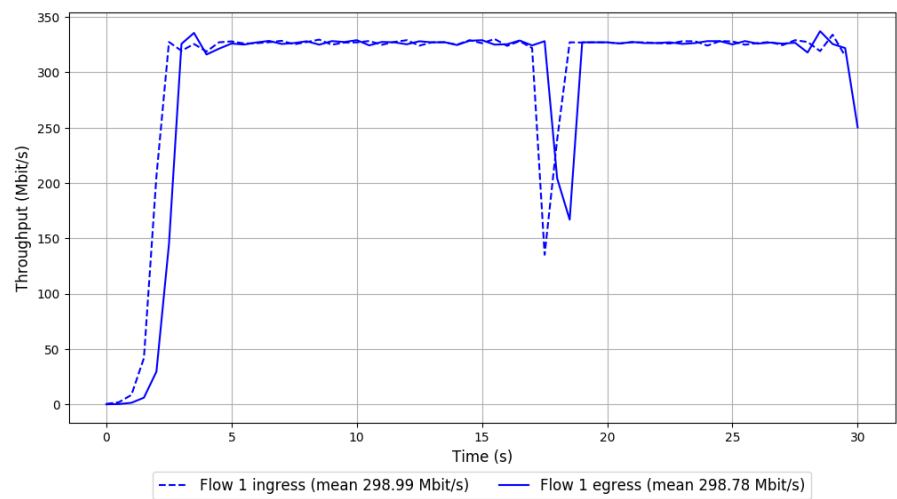
-- Flow 1:

Average throughput: 298.78 Mbit/s

95th percentile per-packet one-way delay: 110.683 ms

Loss rate: 0.80%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-11-15 03:32:49

End at: 2018-11-15 03:33:19

Local clock offset: -4.71 ms

Remote clock offset: 6.967 ms

Below is generated by plot.py at 2018-11-15 04:21:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 297.03 Mbit/s

95th percentile per-packet one-way delay: 110.017 ms

Loss rate: 0.80%

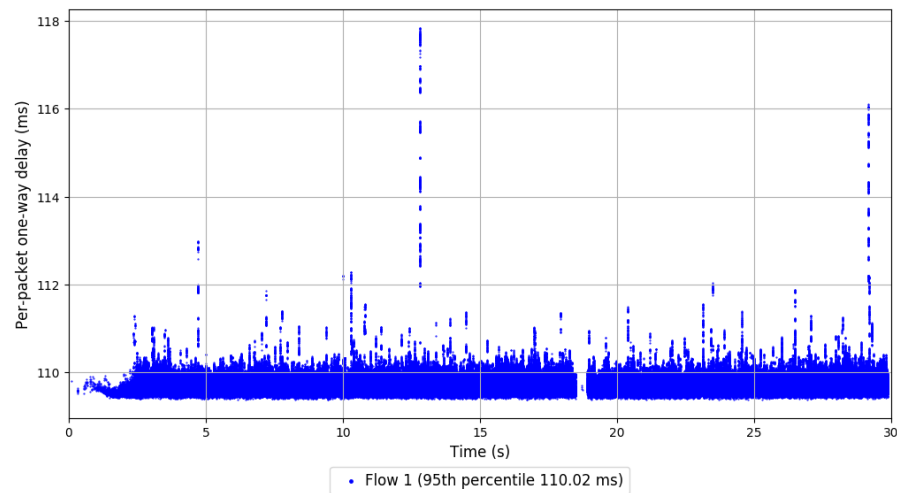
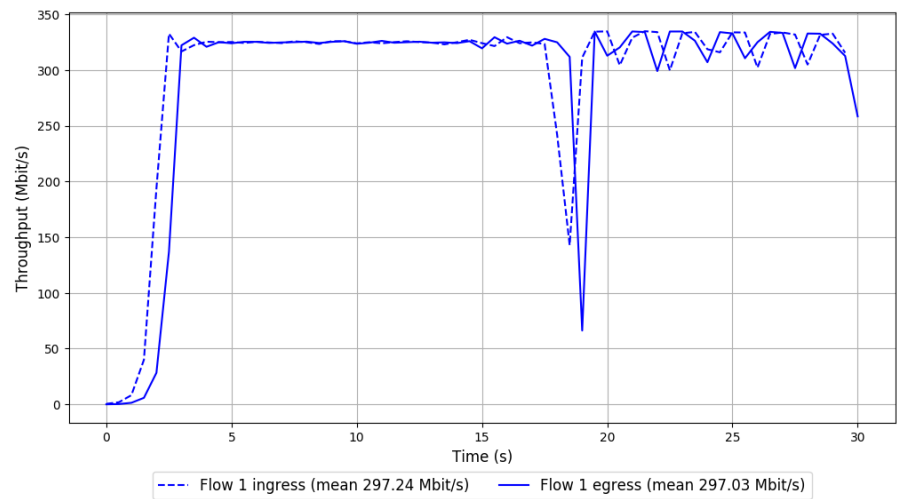
-- Flow 1:

Average throughput: 297.03 Mbit/s

95th percentile per-packet one-way delay: 110.017 ms

Loss rate: 0.80%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-11-15 03:59:22

End at: 2018-11-15 03:59:52

Local clock offset: 4.2 ms

Remote clock offset: 2.631 ms

Below is generated by plot.py at 2018-11-15 04:21:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 294.23 Mbit/s

95th percentile per-packet one-way delay: 111.811 ms

Loss rate: 0.80%

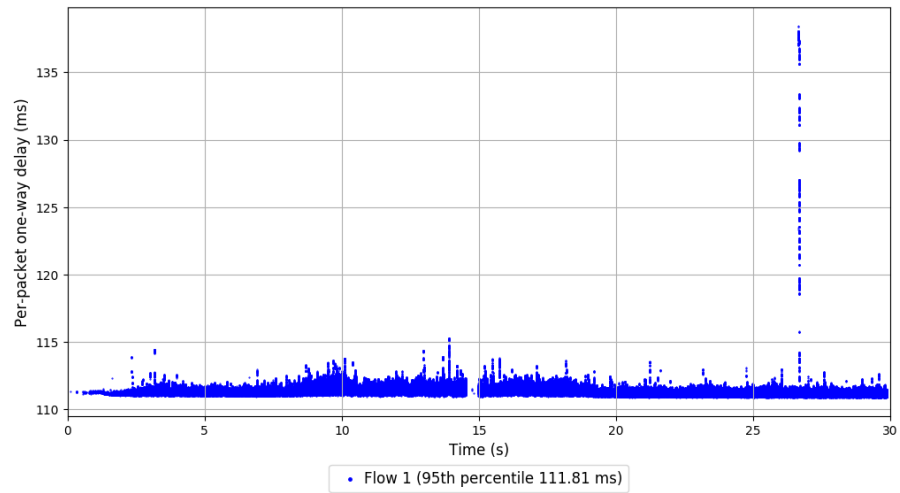
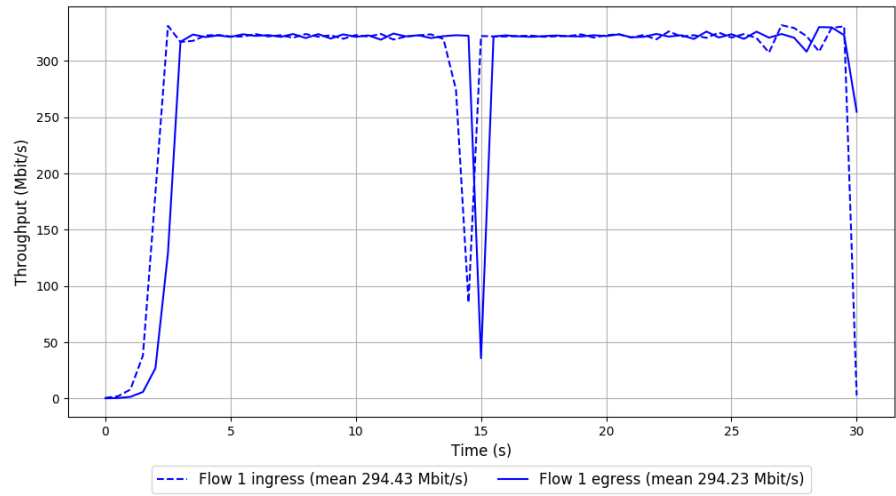
-- Flow 1:

Average throughput: 294.23 Mbit/s

95th percentile per-packet one-way delay: 111.811 ms

Loss rate: 0.80%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-11-15 01:59:13

End at: 2018-11-15 01:59:43

Local clock offset: 3.319 ms

Remote clock offset: 3.293 ms

Below is generated by plot.py at 2018-11-15 04:27:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 326.25 Mbit/s

95th percentile per-packet one-way delay: 120.047 ms

Loss rate: 0.81%

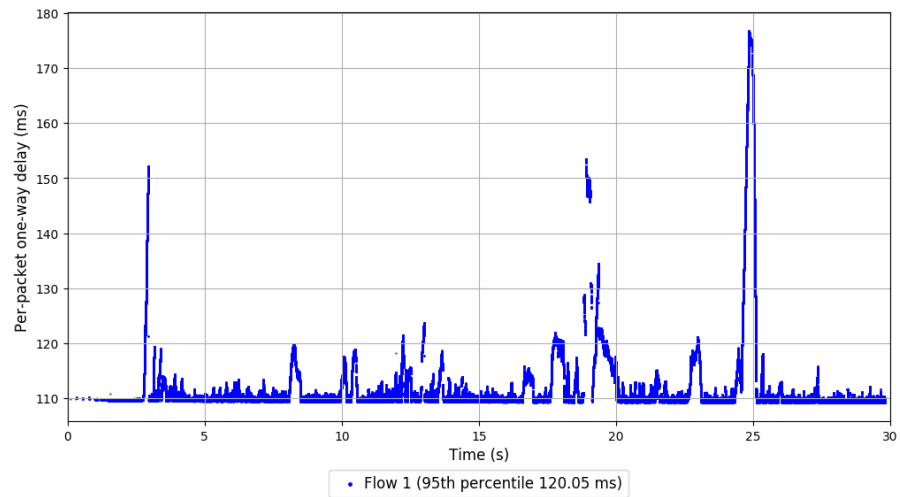
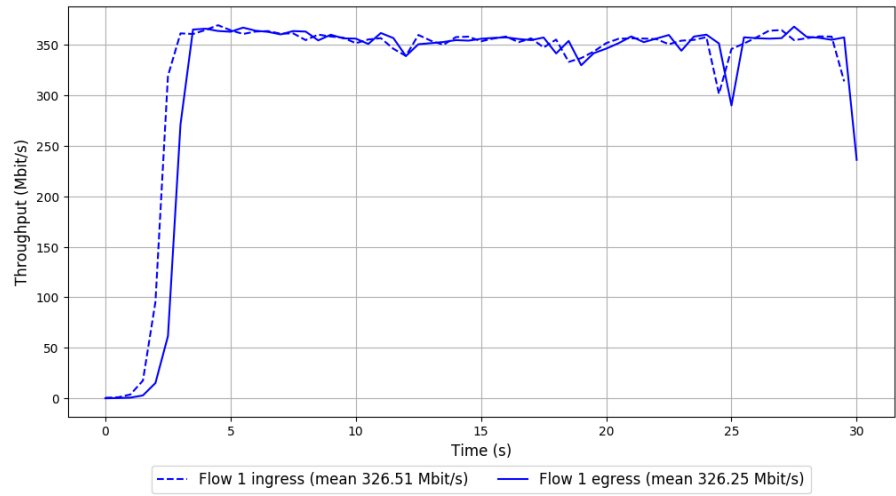
-- Flow 1:

Average throughput: 326.25 Mbit/s

95th percentile per-packet one-way delay: 120.047 ms

Loss rate: 0.81%

Run 1: Report of Copa — Data Link

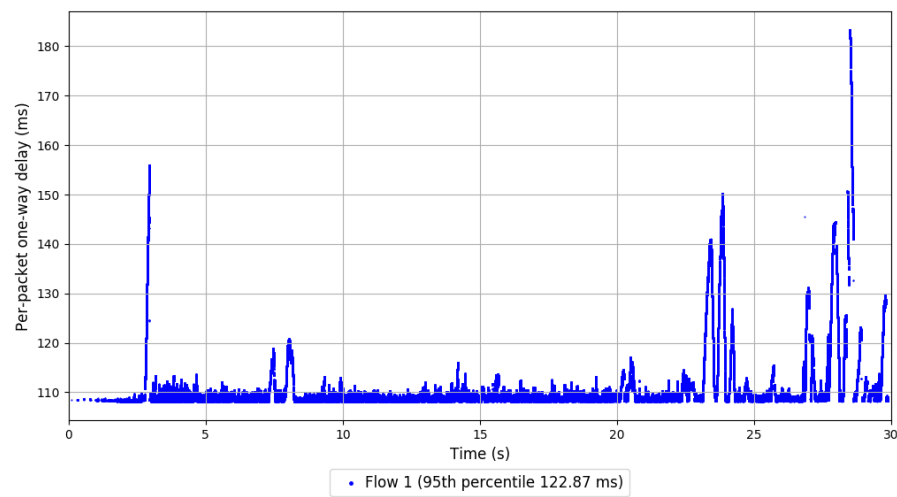
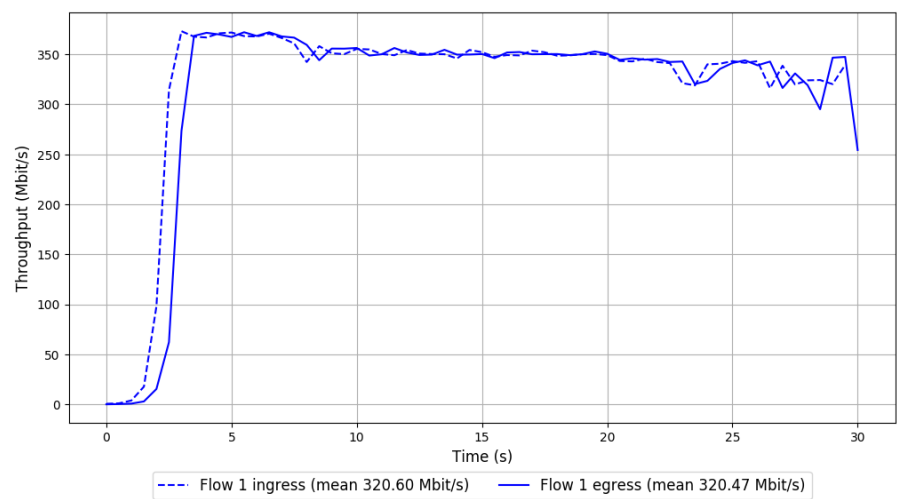


Run 2: Statistics of Copa

Start at: 2018-11-15 02:25:26
End at: 2018-11-15 02:25:56
Local clock offset: 10.811 ms
Remote clock offset: 14.568 ms

Below is generated by plot.py at 2018-11-15 04:27:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 320.47 Mbit/s
95th percentile per-packet one-way delay: 122.867 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 320.47 Mbit/s
95th percentile per-packet one-way delay: 122.867 ms
Loss rate: 0.77%

Run 2: Report of Copa — Data Link

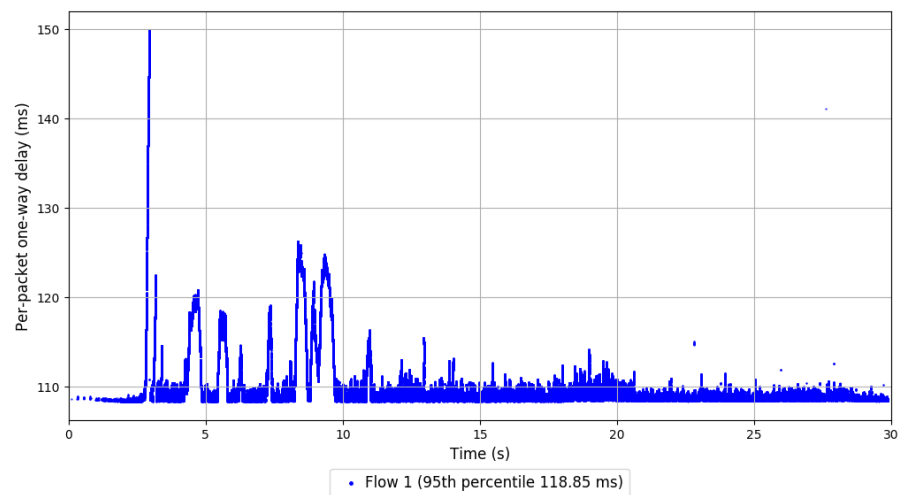
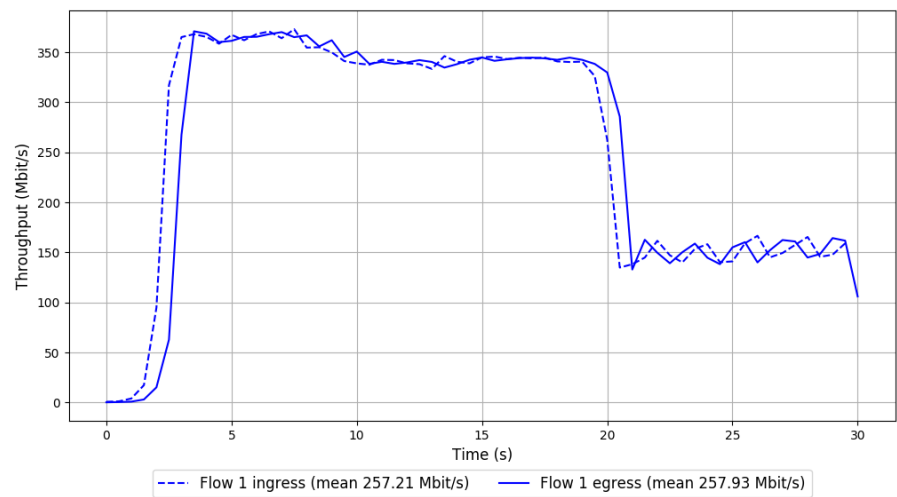


Run 3: Statistics of Copa

Start at: 2018-11-15 02:51:49
End at: 2018-11-15 02:52:19
Local clock offset: 15.072 ms
Remote clock offset: 20.192 ms

Below is generated by plot.py at 2018-11-15 04:27:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 257.93 Mbit/s
95th percentile per-packet one-way delay: 118.851 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 257.93 Mbit/s
95th percentile per-packet one-way delay: 118.851 ms
Loss rate: 0.45%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-11-15 03:17:50

End at: 2018-11-15 03:18:20

Local clock offset: -1.785 ms

Remote clock offset: 9.437 ms

Below is generated by plot.py at 2018-11-15 04:29:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 236.35 Mbit/s

95th percentile per-packet one-way delay: 112.549 ms

Loss rate: 0.89%

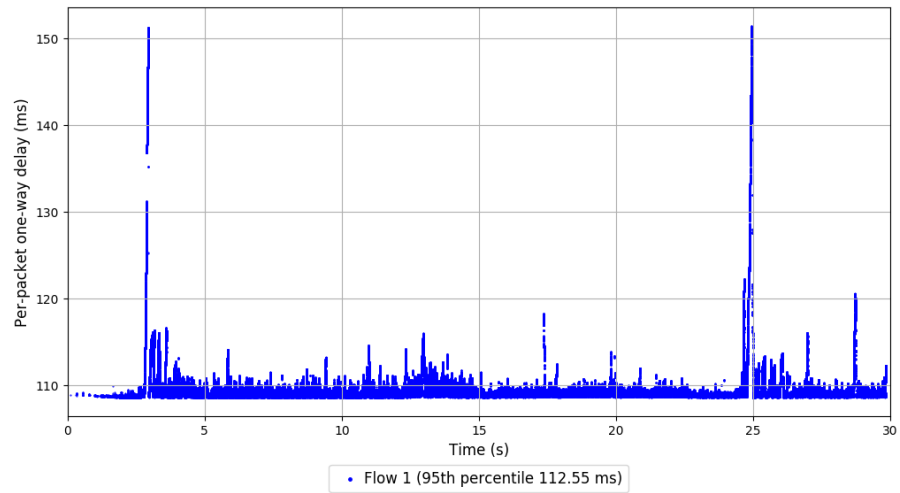
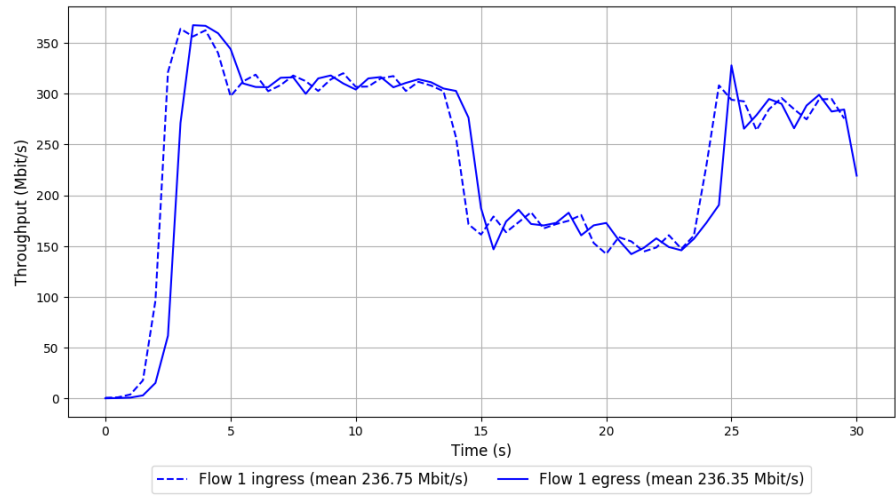
-- Flow 1:

Average throughput: 236.35 Mbit/s

95th percentile per-packet one-way delay: 112.549 ms

Loss rate: 0.89%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-11-15 03:44:22

End at: 2018-11-15 03:44:52

Local clock offset: -1.074 ms

Remote clock offset: 4.647 ms

Below is generated by plot.py at 2018-11-15 04:32:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 314.35 Mbit/s

95th percentile per-packet one-way delay: 123.135 ms

Loss rate: 0.82%

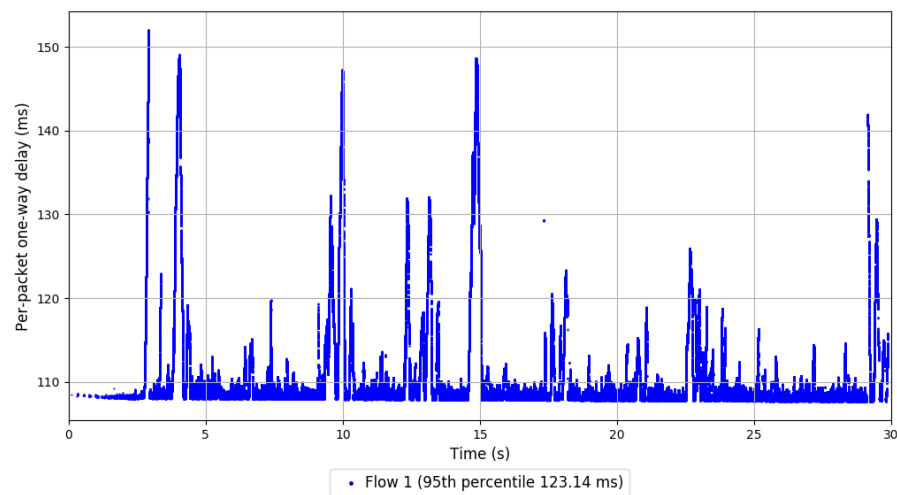
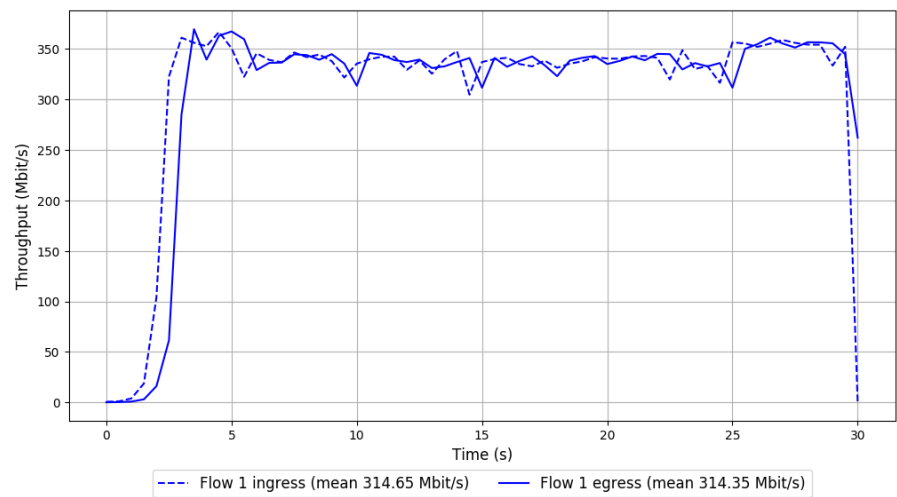
-- Flow 1:

Average throughput: 314.35 Mbit/s

95th percentile per-packet one-way delay: 123.135 ms

Loss rate: 0.82%

Run 5: Report of Copa — Data Link

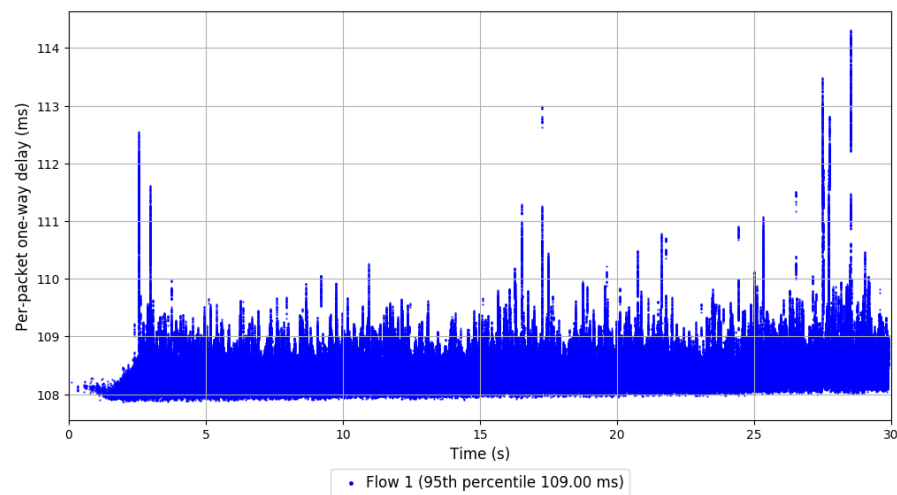
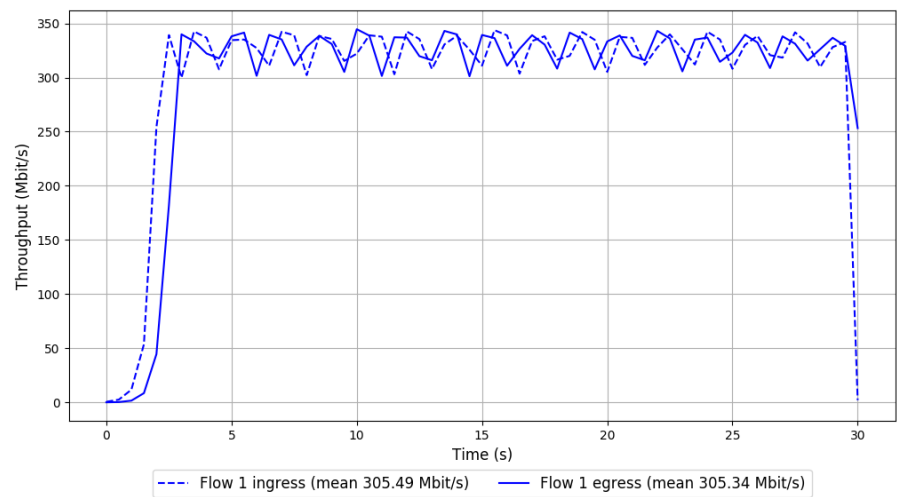


Run 1: Statistics of TCP Cubic

Start at: 2018-11-15 02:11:22
End at: 2018-11-15 02:11:52
Local clock offset: 7.837 ms
Remote clock offset: 10.133 ms

Below is generated by plot.py at 2018-11-15 04:32:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 305.34 Mbit/s
95th percentile per-packet one-way delay: 109.001 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 305.34 Mbit/s
95th percentile per-packet one-way delay: 109.001 ms
Loss rate: 0.77%

Run 1: Report of TCP Cubic — Data Link

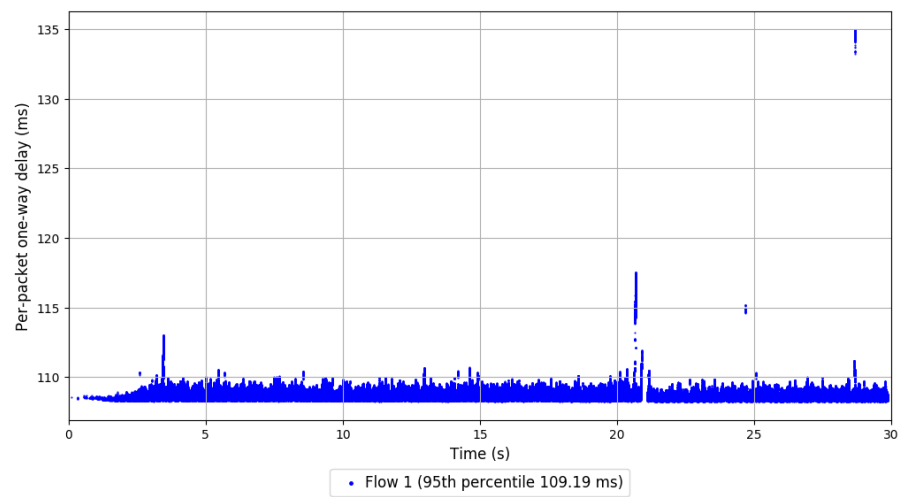
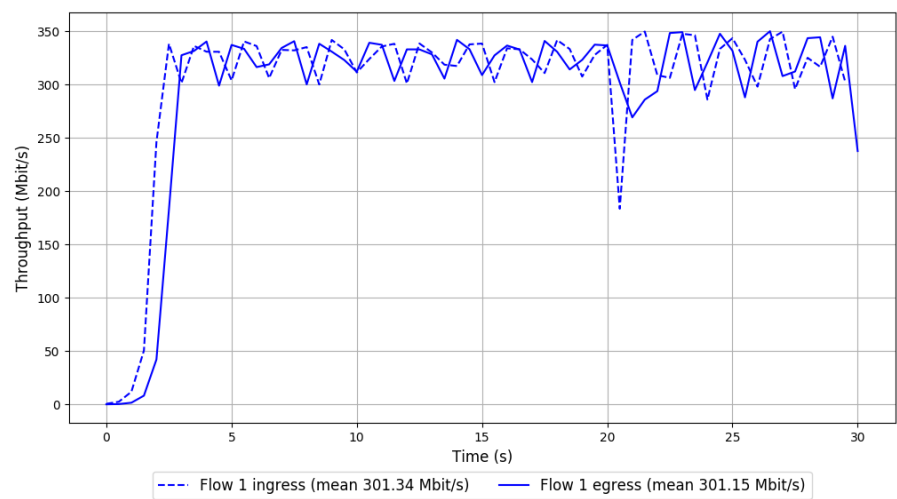


Run 2: Statistics of TCP Cubic

Start at: 2018-11-15 02:37:44
End at: 2018-11-15 02:38:14
Local clock offset: 10.977 ms
Remote clock offset: 15.154 ms

Below is generated by plot.py at 2018-11-15 04:32:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 301.15 Mbit/s
95th percentile per-packet one-way delay: 109.188 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 301.15 Mbit/s
95th percentile per-packet one-way delay: 109.188 ms
Loss rate: 0.79%

Run 2: Report of TCP Cubic — Data Link

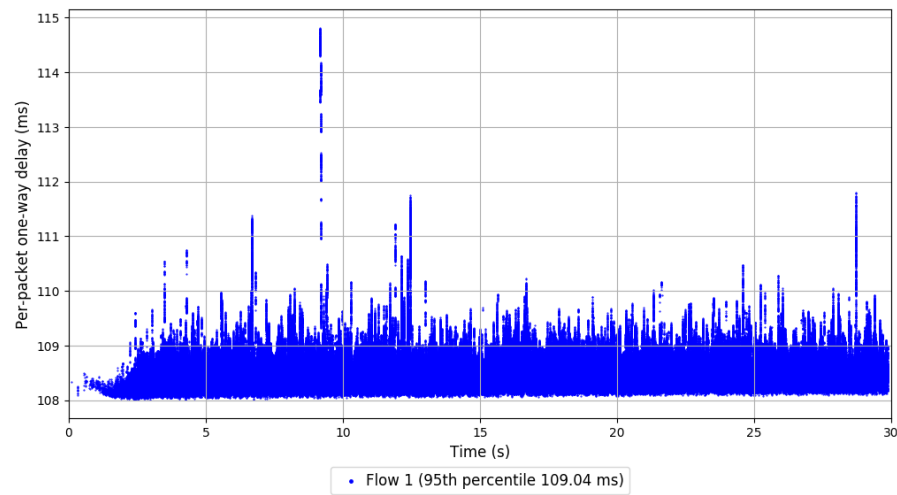
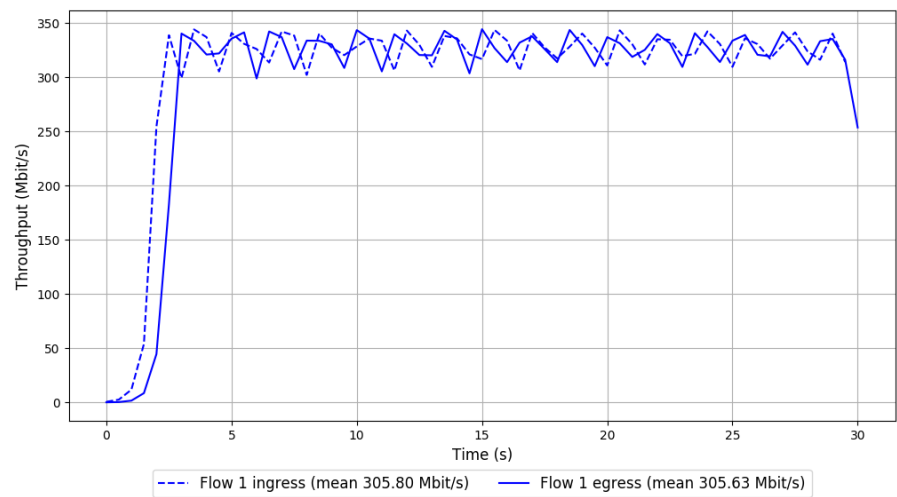


Run 3: Statistics of TCP Cubic

Start at: 2018-11-15 03:03:45
End at: 2018-11-15 03:04:15
Local clock offset: 22.96 ms
Remote clock offset: 29.455 ms

Below is generated by plot.py at 2018-11-15 04:32:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 305.63 Mbit/s
95th percentile per-packet one-way delay: 109.037 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 305.63 Mbit/s
95th percentile per-packet one-way delay: 109.037 ms
Loss rate: 0.78%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-11-15 03:30:09

End at: 2018-11-15 03:30:39

Local clock offset: -5.595 ms

Remote clock offset: 6.826 ms

Below is generated by plot.py at 2018-11-15 04:32:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 303.92 Mbit/s

95th percentile per-packet one-way delay: 108.431 ms

Loss rate: 0.78%

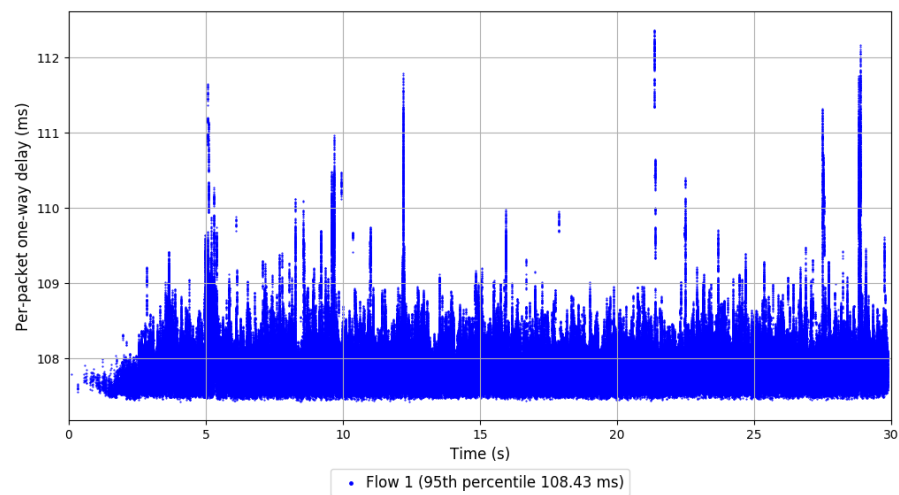
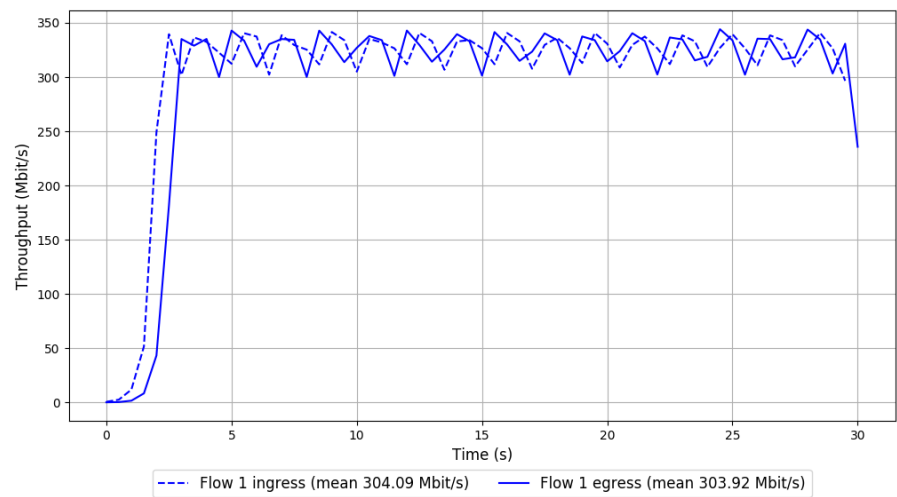
-- Flow 1:

Average throughput: 303.92 Mbit/s

95th percentile per-packet one-way delay: 108.431 ms

Loss rate: 0.78%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-15 03:56:41

End at: 2018-11-15 03:57:11

Local clock offset: 3.441 ms

Remote clock offset: 2.299 ms

Below is generated by plot.py at 2018-11-15 04:32:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 301.45 Mbit/s

95th percentile per-packet one-way delay: 109.346 ms

Loss rate: 0.79%

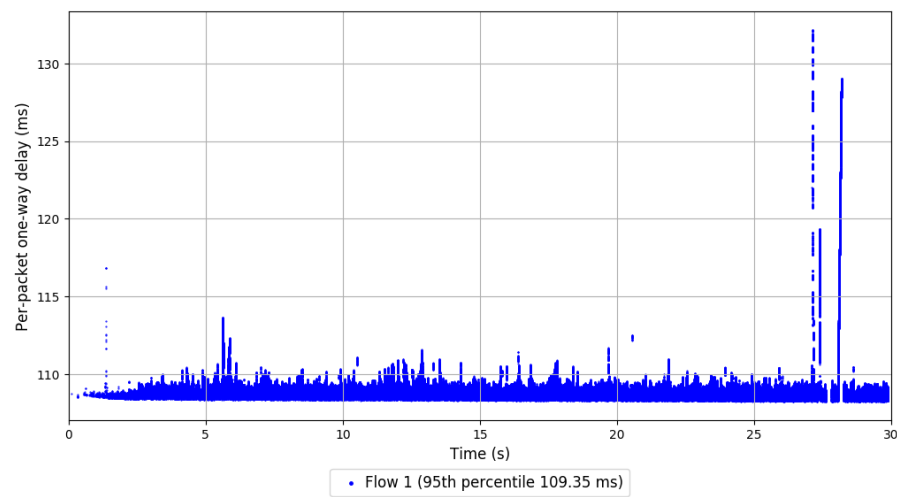
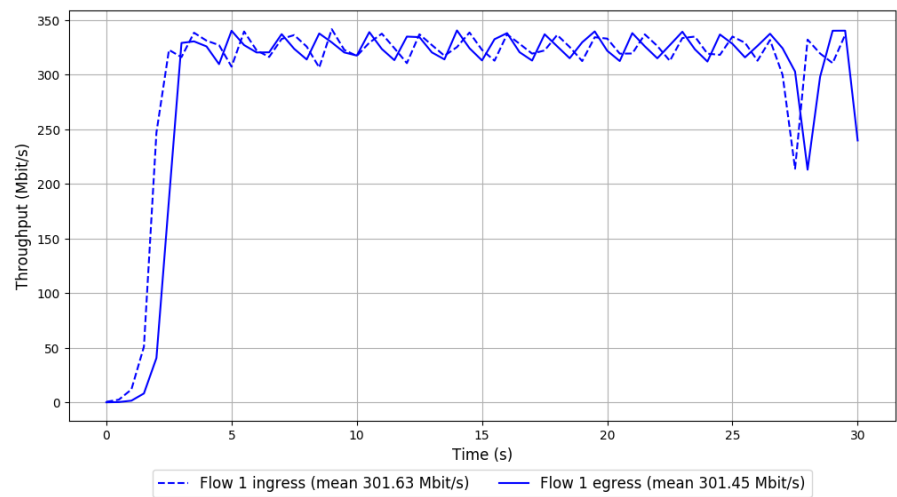
-- Flow 1:

Average throughput: 301.45 Mbit/s

95th percentile per-packet one-way delay: 109.346 ms

Loss rate: 0.79%

Run 5: Report of TCP Cubic — Data Link

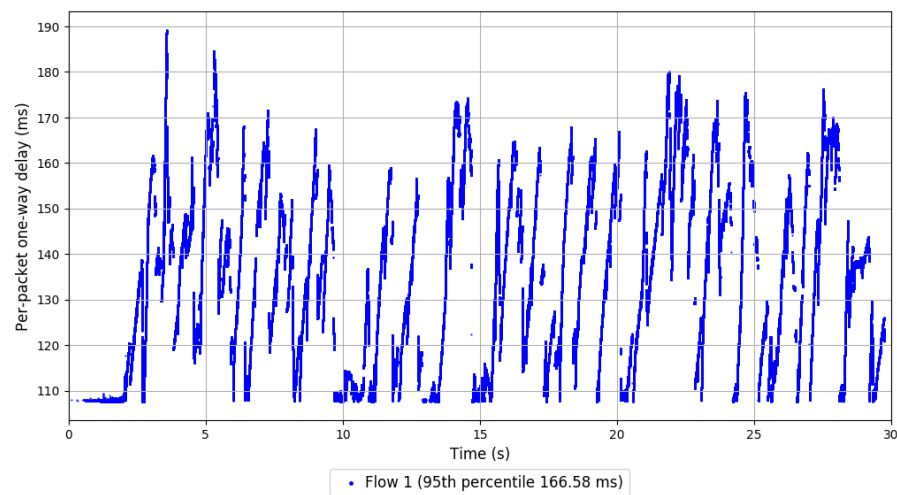
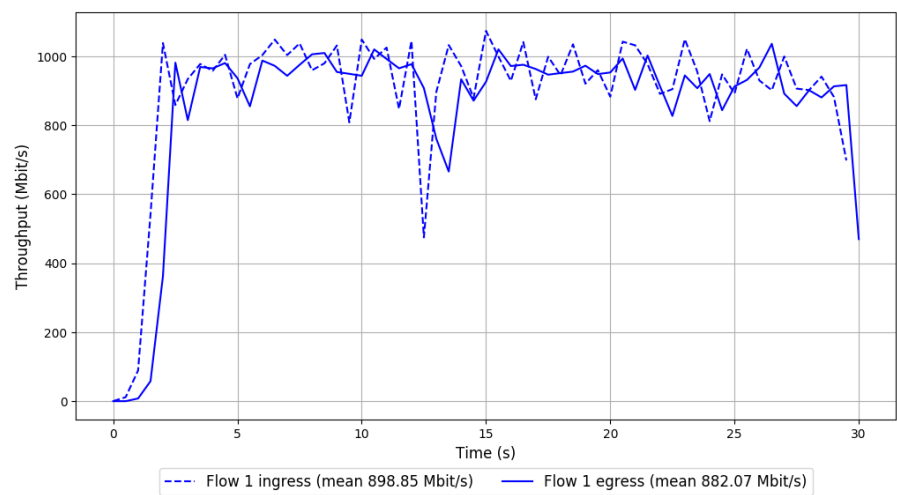


Run 1: Statistics of FillP

Start at: 2018-11-15 02:15:29
End at: 2018-11-15 02:15:59
Local clock offset: 7.185 ms
Remote clock offset: 11.317 ms

Below is generated by plot.py at 2018-11-15 04:47:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 882.07 Mbit/s
95th percentile per-packet one-way delay: 166.578 ms
Loss rate: 2.59%
-- Flow 1:
Average throughput: 882.07 Mbit/s
95th percentile per-packet one-way delay: 166.578 ms
Loss rate: 2.59%

Run 1: Report of FillP — Data Link

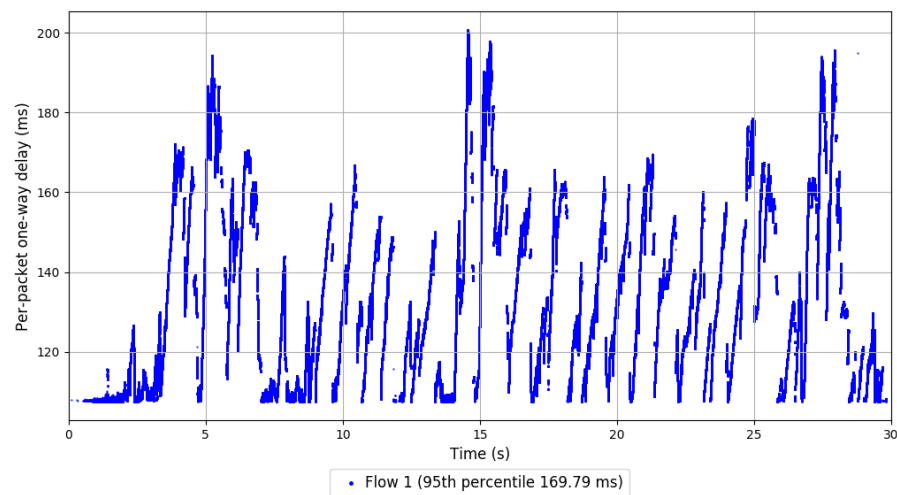
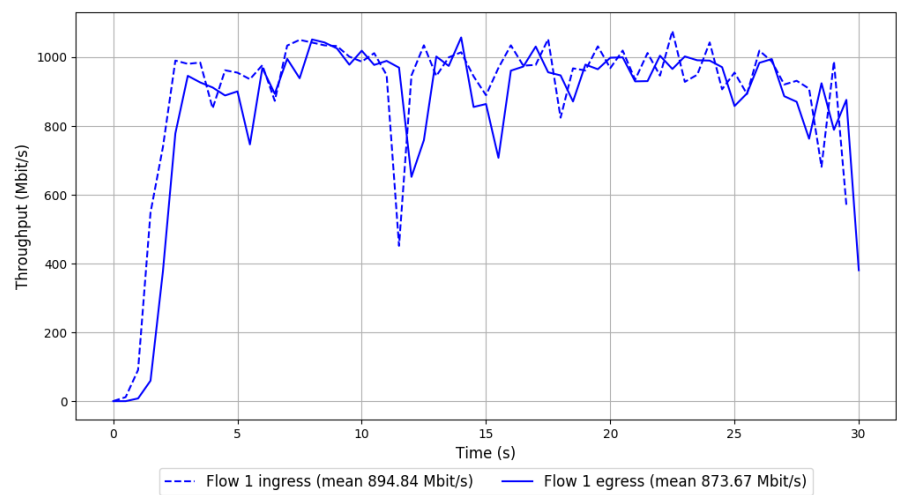


Run 2: Statistics of FillP

Start at: 2018-11-15 02:41:51
End at: 2018-11-15 02:42:21
Local clock offset: 11.139 ms
Remote clock offset: 15.224 ms

Below is generated by plot.py at 2018-11-15 04:47:59
Datalink statistics
-- Total of 1 flow:
Average throughput: 873.67 Mbit/s
95th percentile per-packet one-way delay: 169.788 ms
Loss rate: 3.26%
-- Flow 1:
Average throughput: 873.67 Mbit/s
95th percentile per-packet one-way delay: 169.788 ms
Loss rate: 3.26%

Run 2: Report of FillP — Data Link

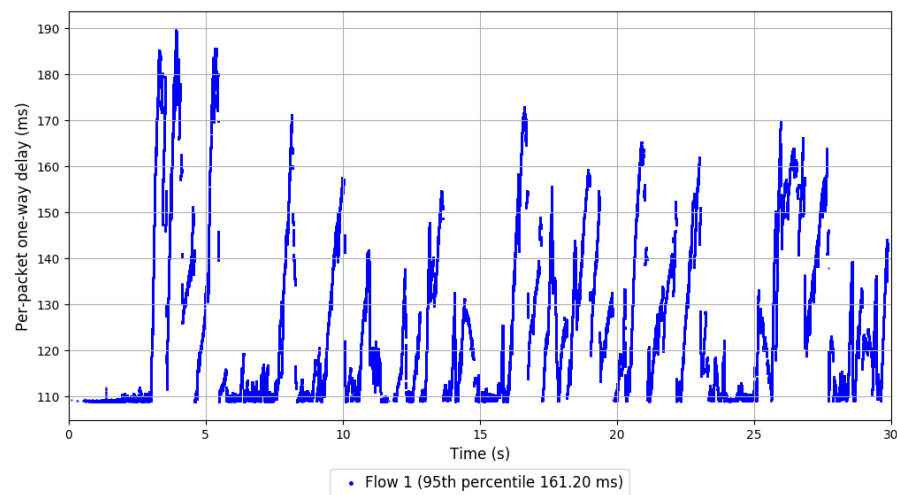
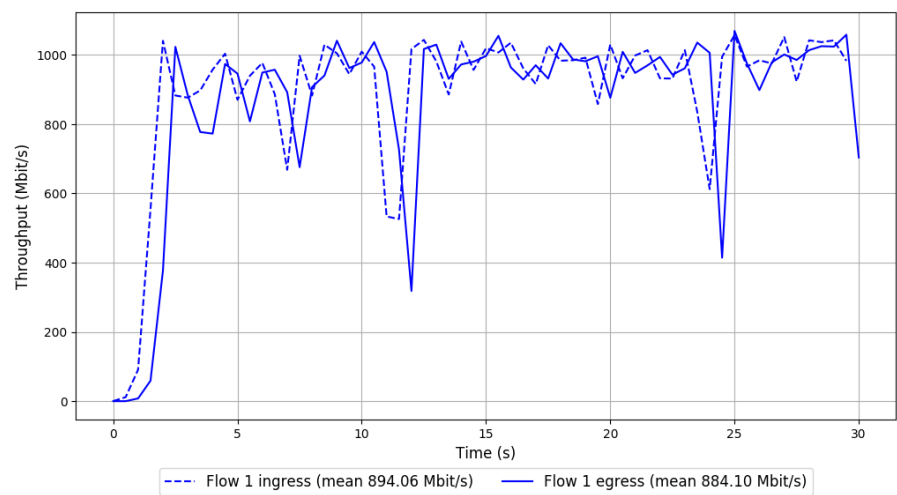


Run 3: Statistics of FillP

Start at: 2018-11-15 03:07:52
End at: 2018-11-15 03:08:22
Local clock offset: 12.859 ms
Remote clock offset: 22.719 ms

Below is generated by plot.py at 2018-11-15 04:48:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 884.10 Mbit/s
95th percentile per-packet one-way delay: 161.201 ms
Loss rate: 1.84%
-- Flow 1:
Average throughput: 884.10 Mbit/s
95th percentile per-packet one-way delay: 161.201 ms
Loss rate: 1.84%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-11-15 03:34:16

End at: 2018-11-15 03:34:46

Local clock offset: -4.635 ms

Remote clock offset: 7.078 ms

Below is generated by plot.py at 2018-11-15 04:49:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 932.58 Mbit/s

95th percentile per-packet one-way delay: 161.061 ms

Loss rate: 1.85%

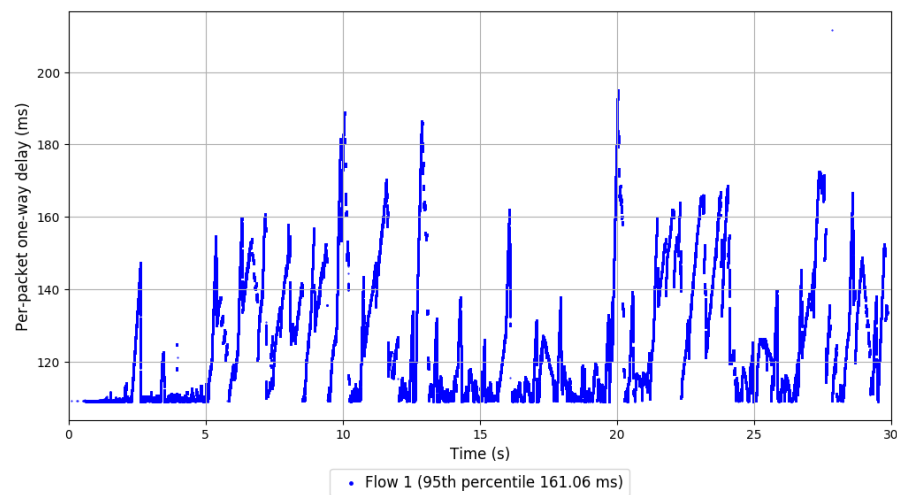
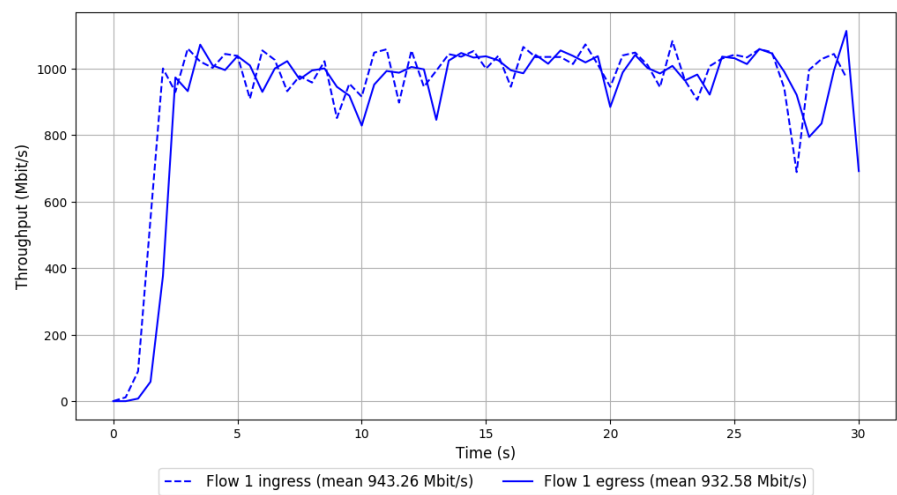
-- Flow 1:

Average throughput: 932.58 Mbit/s

95th percentile per-packet one-way delay: 161.061 ms

Loss rate: 1.85%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-11-15 04:00:48

End at: 2018-11-15 04:01:18

Local clock offset: 4.57 ms

Remote clock offset: 2.71 ms

Below is generated by plot.py at 2018-11-15 04:51:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 908.31 Mbit/s

95th percentile per-packet one-way delay: 168.705 ms

Loss rate: 3.07%

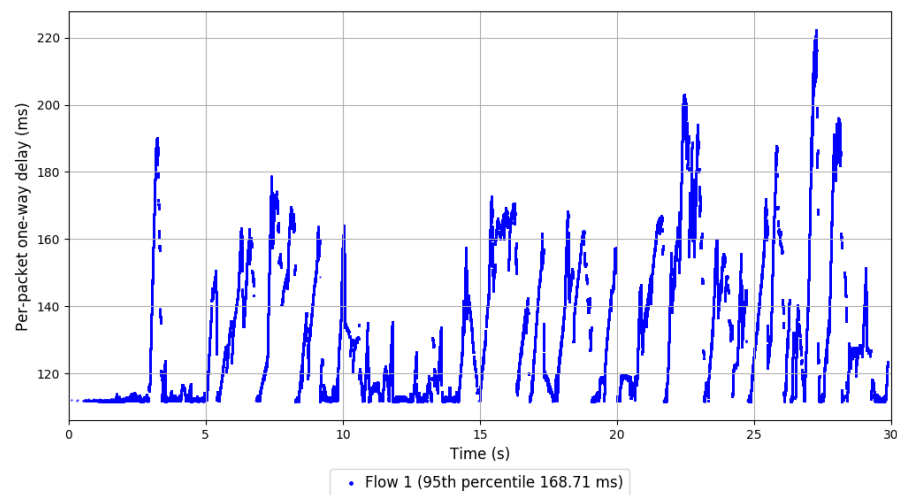
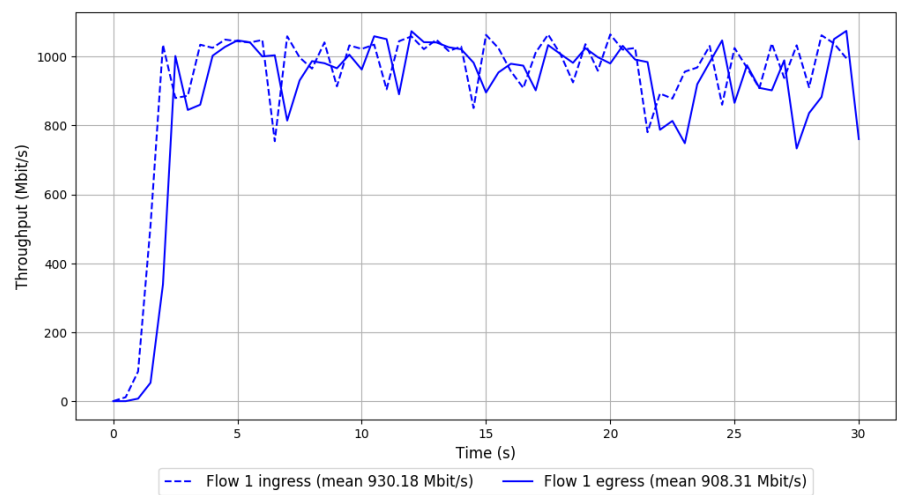
-- Flow 1:

Average throughput: 908.31 Mbit/s

95th percentile per-packet one-way delay: 168.705 ms

Loss rate: 3.07%

Run 5: Report of FillP — Data Link



Run 1: Statistics of Indigo

Start at: 2018-11-15 02:06:56

End at: 2018-11-15 02:07:26

Local clock offset: 5.565 ms

Remote clock offset: 6.826 ms

Below is generated by plot.py at 2018-11-15 04:51:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 225.39 Mbit/s

95th percentile per-packet one-way delay: 109.356 ms

Loss rate: 0.78%

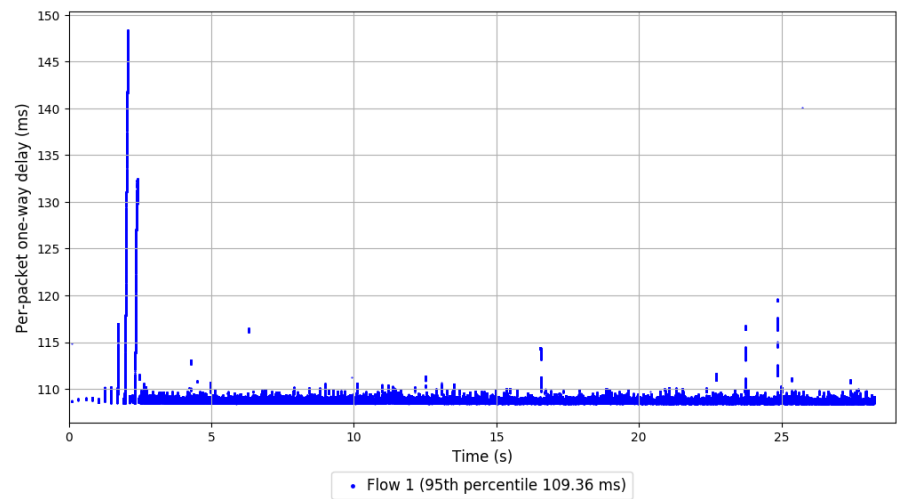
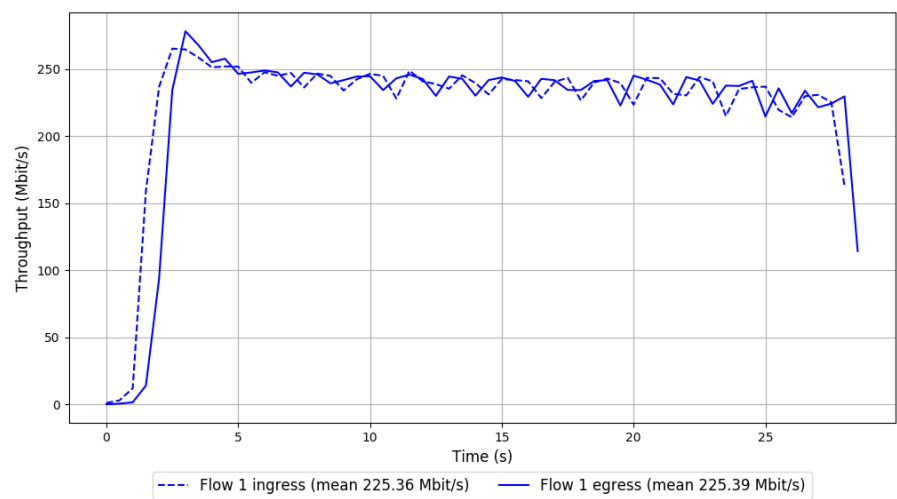
-- Flow 1:

Average throughput: 225.39 Mbit/s

95th percentile per-packet one-way delay: 109.356 ms

Loss rate: 0.78%

Run 1: Report of Indigo — Data Link

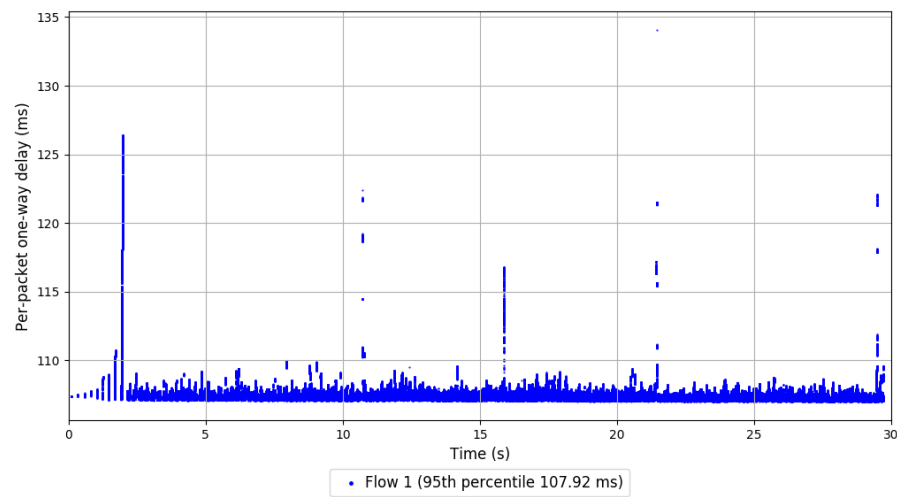
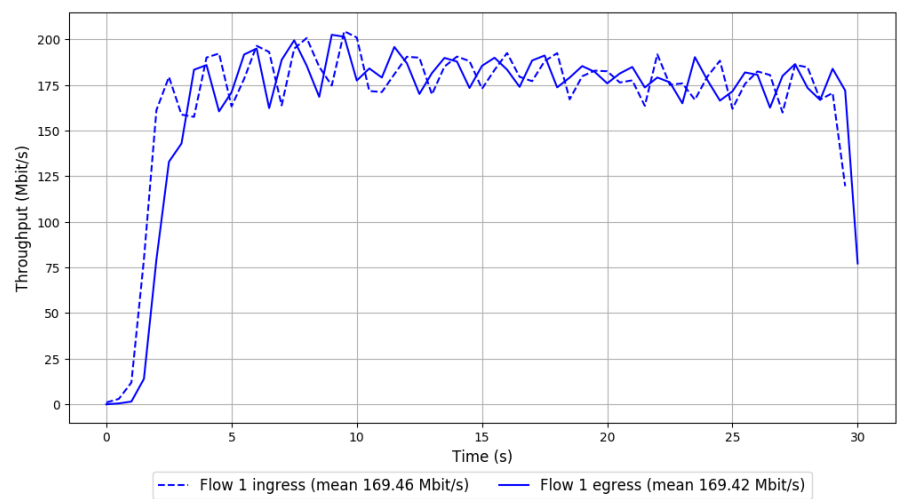


Run 2: Statistics of Indigo

Start at: 2018-11-15 02:33:26
End at: 2018-11-15 02:33:56
Local clock offset: 12.147 ms
Remote clock offset: 17.423 ms

Below is generated by plot.py at 2018-11-15 04:51:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 169.42 Mbit/s
95th percentile per-packet one-way delay: 107.923 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 169.42 Mbit/s
95th percentile per-packet one-way delay: 107.923 ms
Loss rate: 0.76%

Run 2: Report of Indigo — Data Link

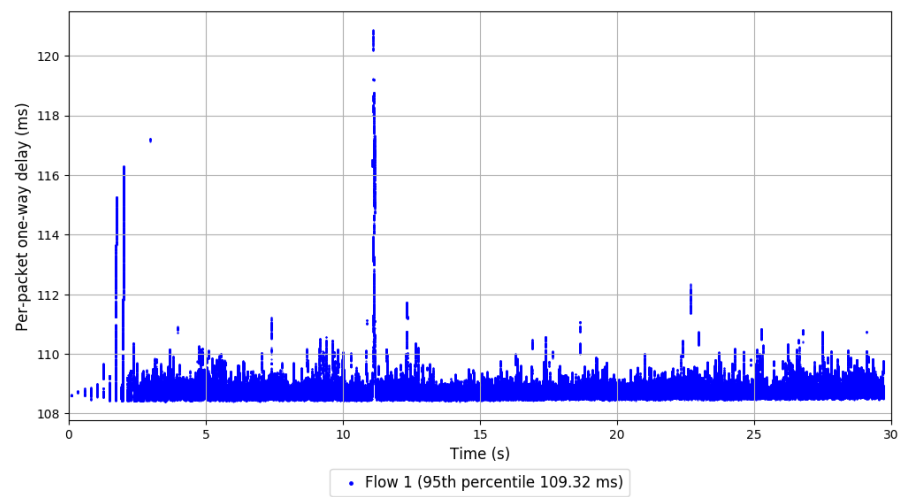
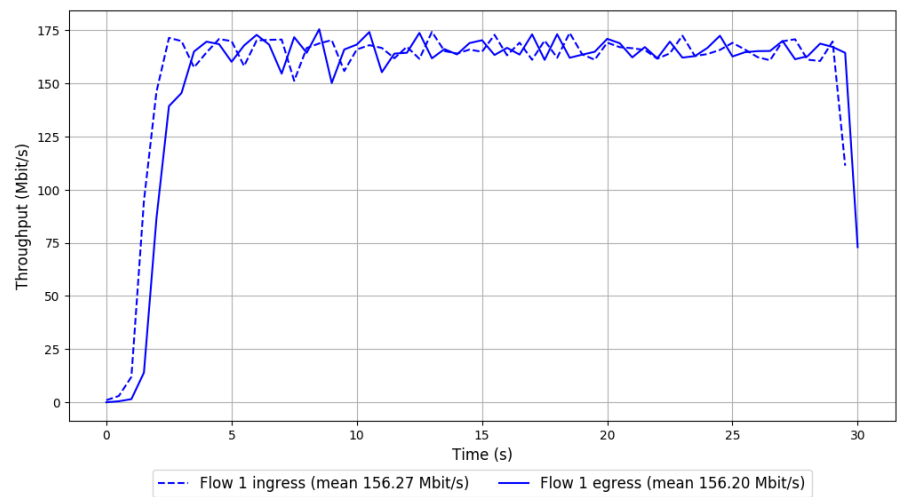


Run 3: Statistics of Indigo

Start at: 2018-11-15 02:59:33
End at: 2018-11-15 03:00:03
Local clock offset: 20.69 ms
Remote clock offset: 25.955 ms

Below is generated by plot.py at 2018-11-15 04:51:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 156.20 Mbit/s
95th percentile per-packet one-way delay: 109.318 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 156.20 Mbit/s
95th percentile per-packet one-way delay: 109.318 ms
Loss rate: 0.78%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-11-15 03:25:52

End at: 2018-11-15 03:26:22

Local clock offset: -5.061 ms

Remote clock offset: 6.97 ms

Below is generated by plot.py at 2018-11-15 04:51:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 161.31 Mbit/s

95th percentile per-packet one-way delay: 109.499 ms

Loss rate: 0.78%

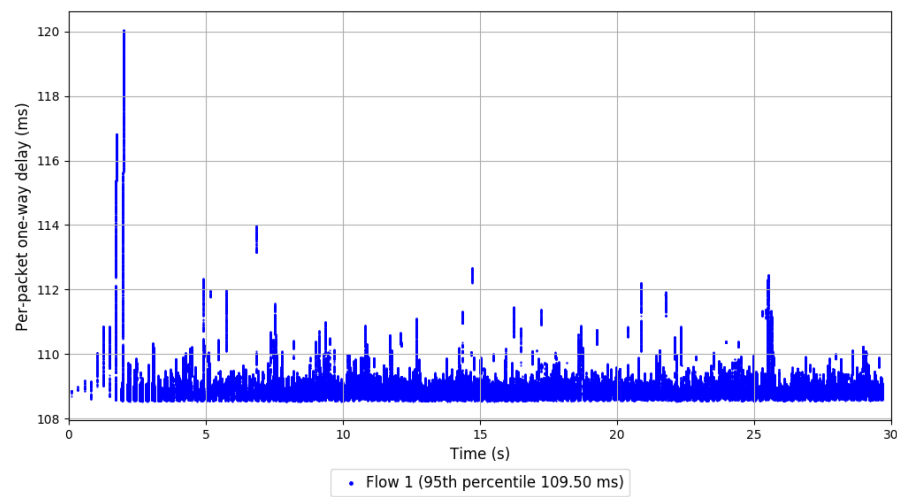
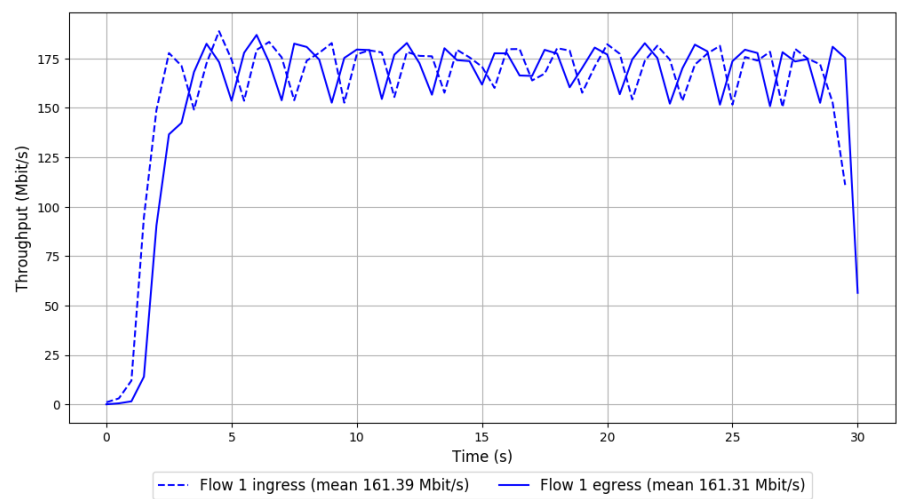
-- Flow 1:

Average throughput: 161.31 Mbit/s

95th percentile per-packet one-way delay: 109.499 ms

Loss rate: 0.78%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-11-15 03:52:19

End at: 2018-11-15 03:52:49

Local clock offset: 3.51 ms

Remote clock offset: 2.971 ms

Below is generated by plot.py at 2018-11-15 04:51:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 224.20 Mbit/s

95th percentile per-packet one-way delay: 110.865 ms

Loss rate: 0.73%

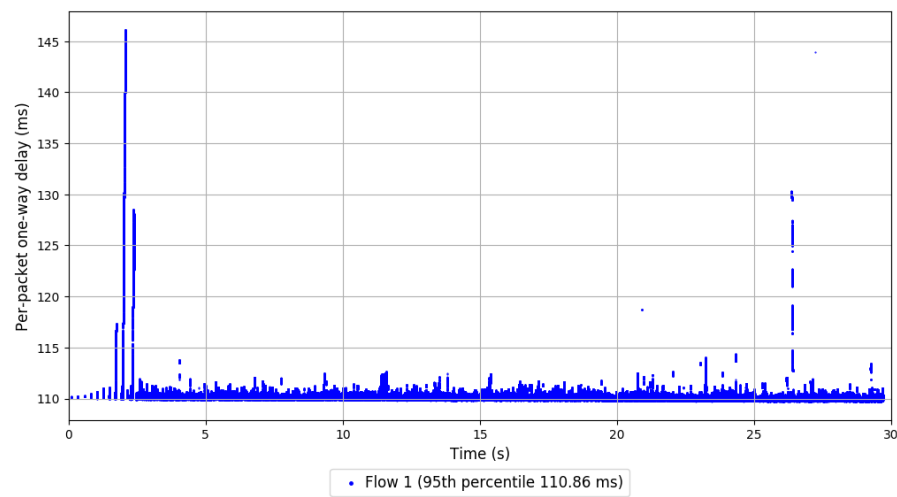
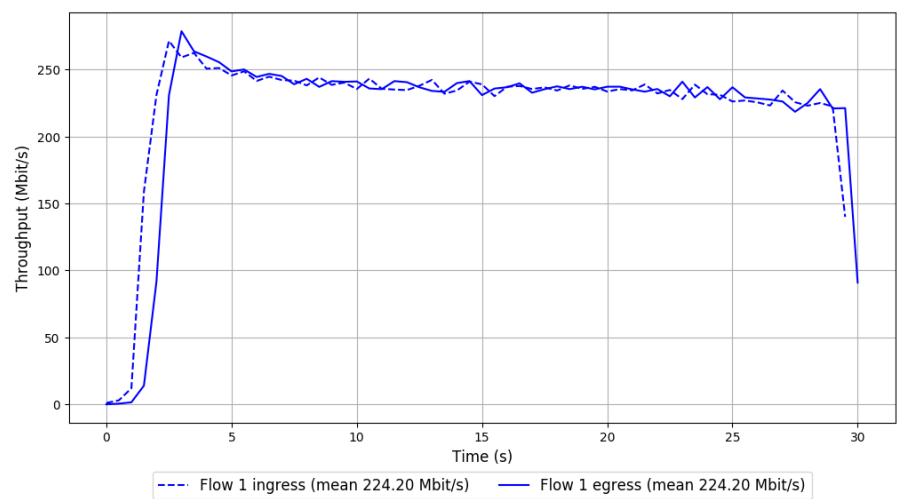
-- Flow 1:

Average throughput: 224.20 Mbit/s

95th percentile per-packet one-way delay: 110.865 ms

Loss rate: 0.73%

Run 5: Report of Indigo — Data Link

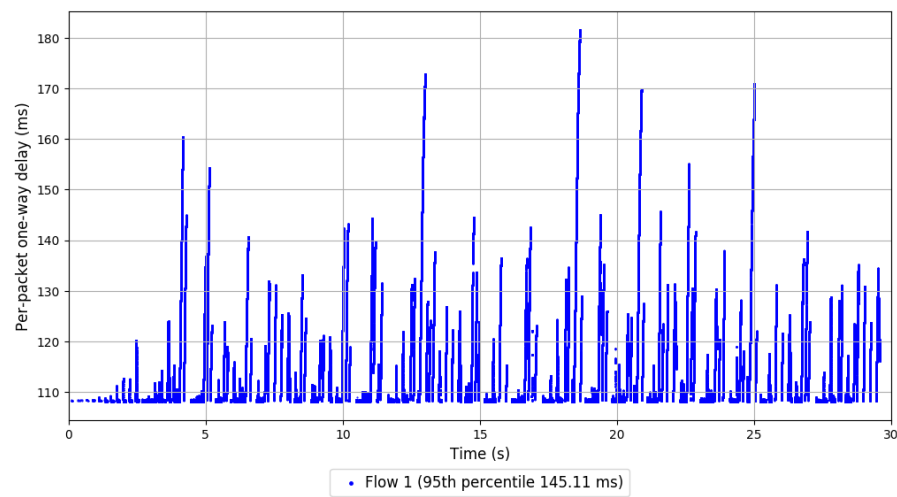
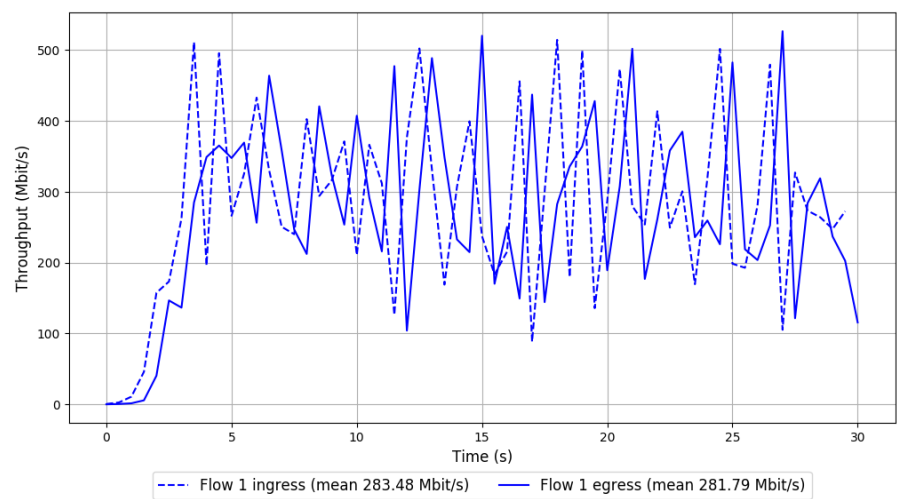


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-15 02:18:48
End at: 2018-11-15 02:19:18
Local clock offset: 7.729 ms
Remote clock offset: 10.095 ms

Below is generated by plot.py at 2018-11-15 04:51:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 281.79 Mbit/s
95th percentile per-packet one-way delay: 145.109 ms
Loss rate: 1.61%
-- Flow 1:
Average throughput: 281.79 Mbit/s
95th percentile per-packet one-way delay: 145.109 ms
Loss rate: 1.61%

Run 1: Report of Indigo-96d2da3 — Data Link

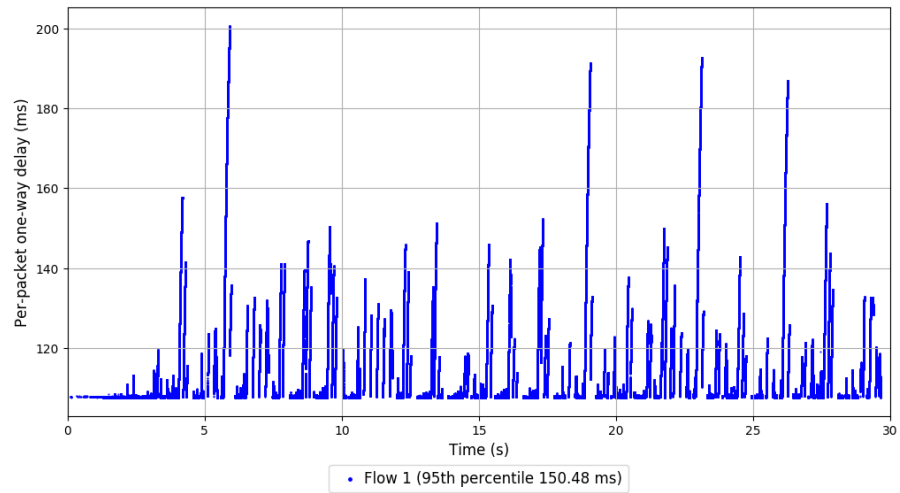
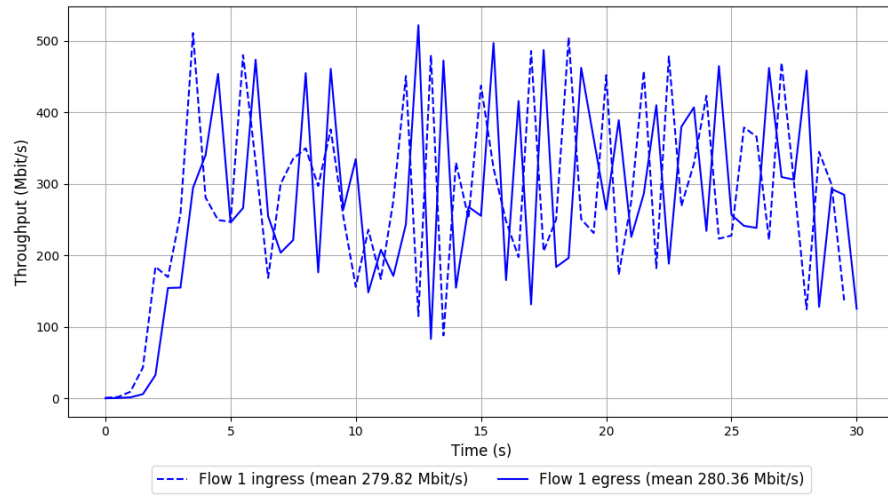


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-15 02:45:09
End at: 2018-11-15 02:45:40
Local clock offset: 11.965 ms
Remote clock offset: 16.388 ms

Below is generated by plot.py at 2018-11-15 04:51:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 280.36 Mbit/s
95th percentile per-packet one-way delay: 150.483 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 280.36 Mbit/s
95th percentile per-packet one-way delay: 150.483 ms
Loss rate: 0.54%

Run 2: Report of Indigo-96d2da3 — Data Link

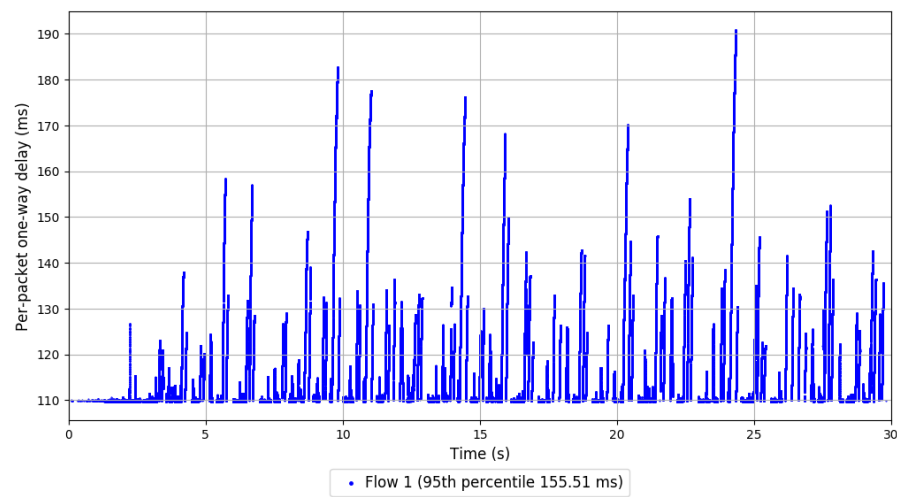
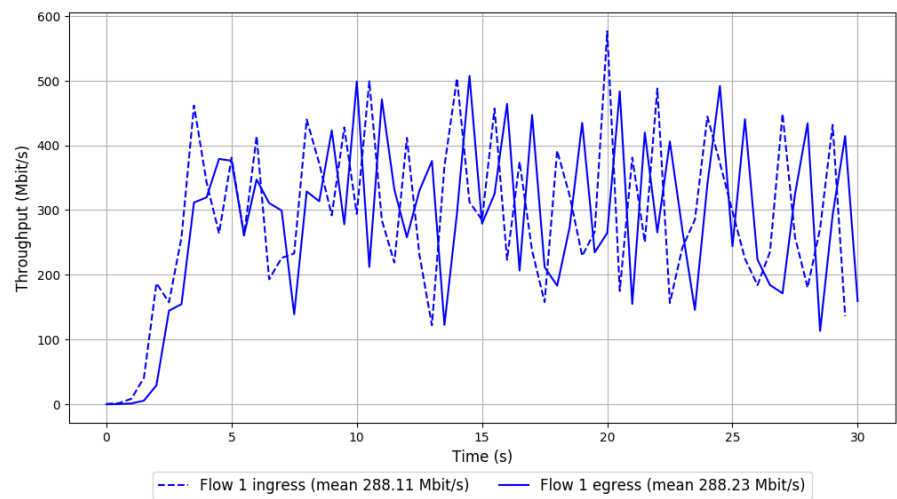


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-15 03:11:10
End at: 2018-11-15 03:11:41
Local clock offset: 6.793 ms
Remote clock offset: 16.165 ms

Below is generated by plot.py at 2018-11-15 04:51:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 288.23 Mbit/s
95th percentile per-packet one-way delay: 155.510 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 288.23 Mbit/s
95th percentile per-packet one-way delay: 155.510 ms
Loss rate: 0.37%

Run 3: Report of Indigo-96d2da3 — Data Link



Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-15 03:37:37

End at: 2018-11-15 03:38:07

Local clock offset: -3.699 ms

Remote clock offset: 7.48 ms

Below is generated by plot.py at 2018-11-15 04:52:02

Datalink statistics

-- Total of 1 flow:

Average throughput: 278.91 Mbit/s

95th percentile per-packet one-way delay: 144.782 ms

Loss rate: 1.65%

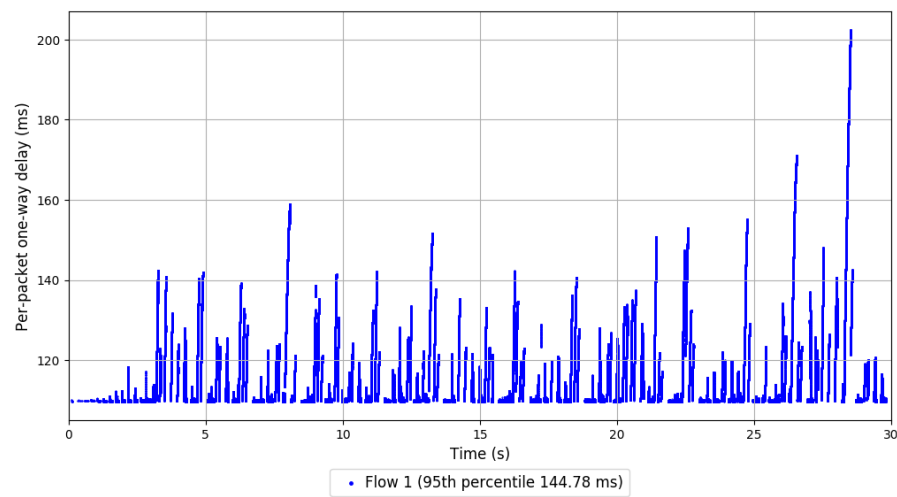
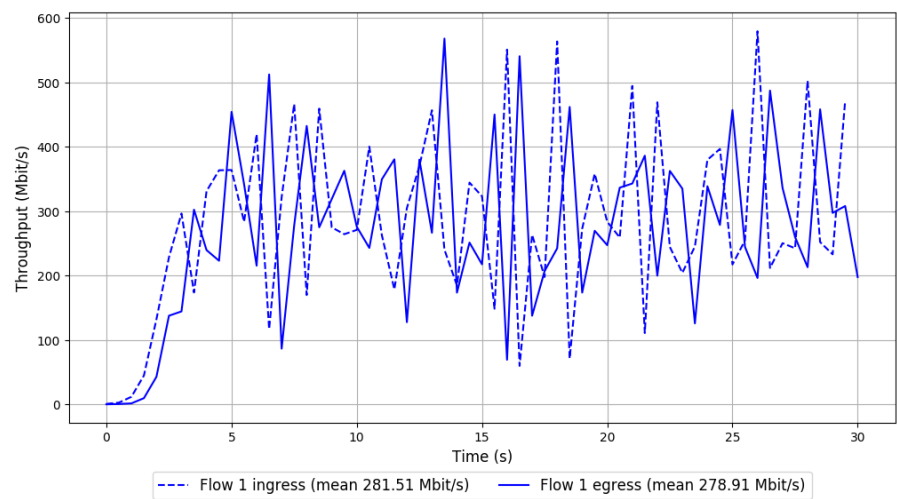
-- Flow 1:

Average throughput: 278.91 Mbit/s

95th percentile per-packet one-way delay: 144.782 ms

Loss rate: 1.65%

Run 4: Report of Indigo-96d2da3 — Data Link



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-15 04:04:10

End at: 2018-11-15 04:04:40

Local clock offset: 6.393 ms

Remote clock offset: 2.788 ms

Below is generated by plot.py at 2018-11-15 04:52:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 295.61 Mbit/s

95th percentile per-packet one-way delay: 164.534 ms

Loss rate: 0.25%

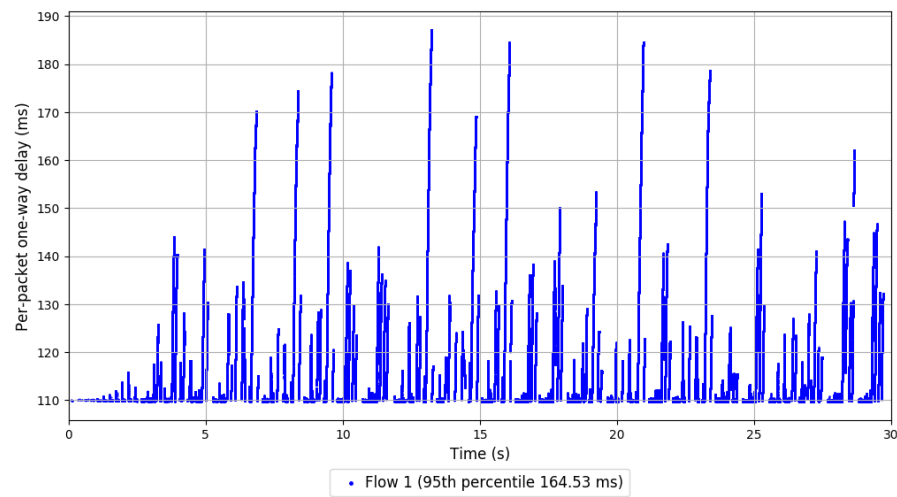
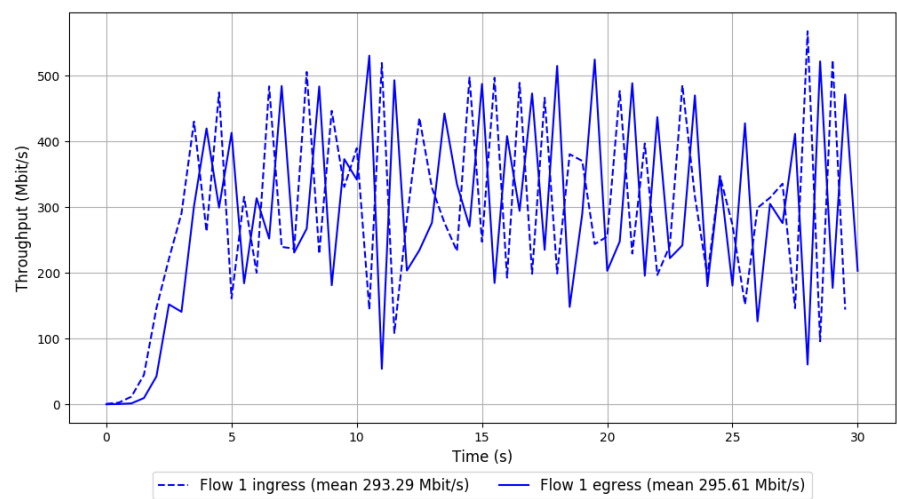
-- Flow 1:

Average throughput: 295.61 Mbit/s

95th percentile per-packet one-way delay: 164.534 ms

Loss rate: 0.25%

Run 5: Report of Indigo-96d2da3 — Data Link

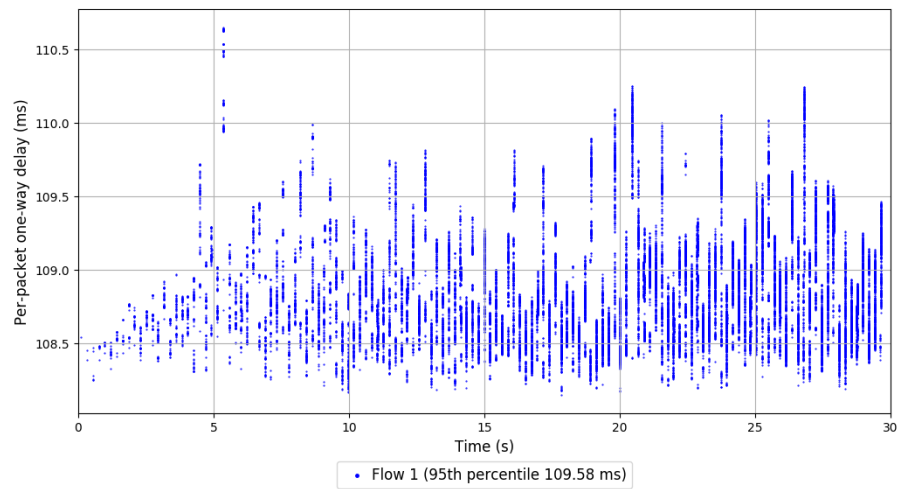
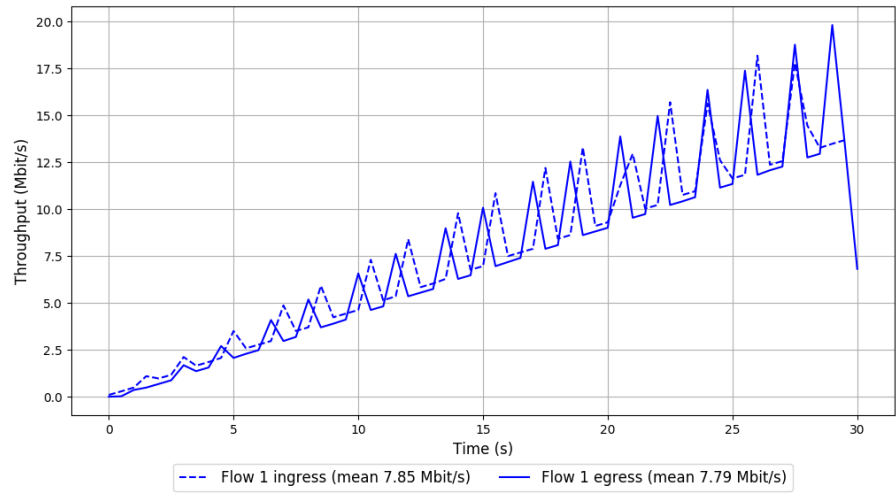


Run 1: Statistics of LEDBAT

Start at: 2018-11-15 02:20:13
End at: 2018-11-15 02:20:43
Local clock offset: 8.319 ms
Remote clock offset: 10.617 ms

Below is generated by plot.py at 2018-11-15 04:52:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.79 Mbit/s
95th percentile per-packet one-way delay: 109.578 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 7.79 Mbit/s
95th percentile per-packet one-way delay: 109.578 ms
Loss rate: 1.47%

Run 1: Report of LEDBAT — Data Link

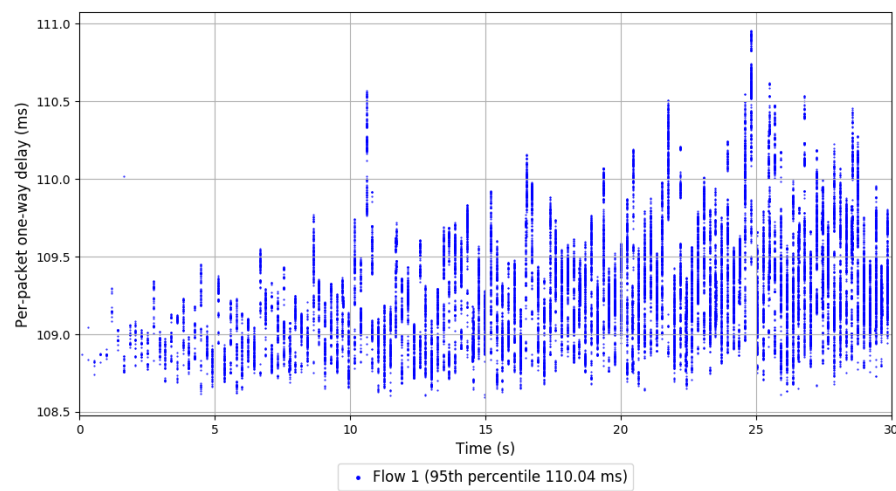
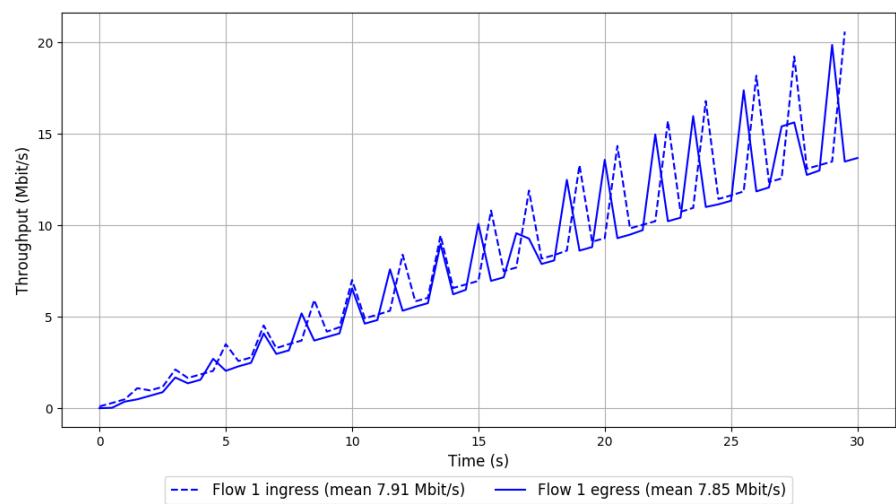


Run 2: Statistics of LEDBAT

Start at: 2018-11-15 02:46:35
End at: 2018-11-15 02:47:05
Local clock offset: 13.585 ms
Remote clock offset: 17.106 ms

Below is generated by plot.py at 2018-11-15 04:52:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 110.044 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 110.044 ms
Loss rate: 1.46%

Run 2: Report of LEDBAT — Data Link

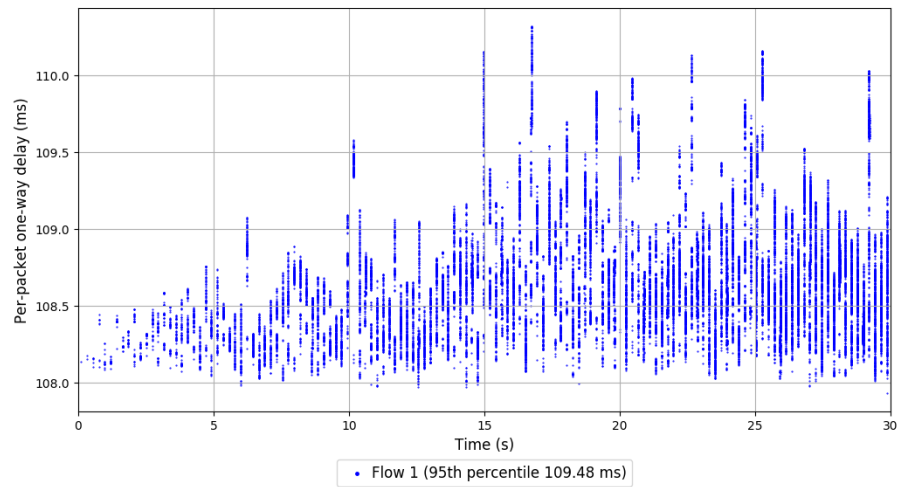
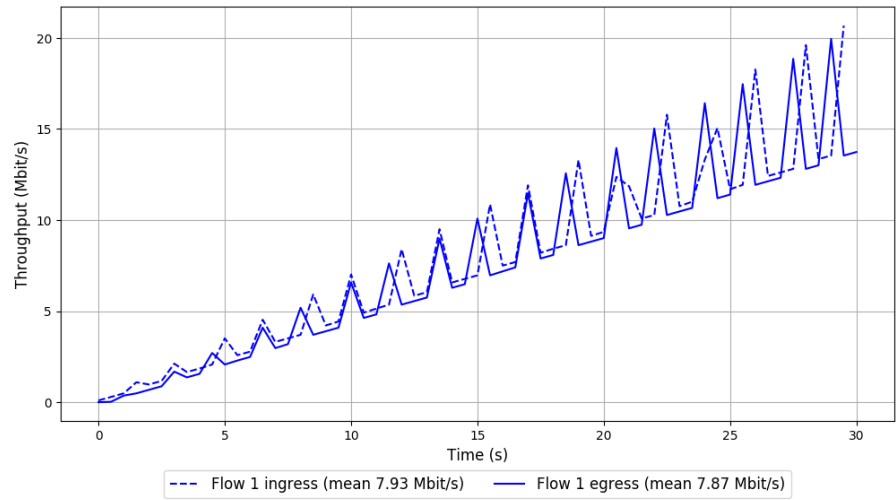


Run 3: Statistics of LEDBAT

Start at: 2018-11-15 03:12:36
End at: 2018-11-15 03:13:06
Local clock offset: 2.924 ms
Remote clock offset: 14.259 ms

Below is generated by plot.py at 2018-11-15 04:52:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.87 Mbit/s
95th percentile per-packet one-way delay: 109.477 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 7.87 Mbit/s
95th percentile per-packet one-way delay: 109.477 ms
Loss rate: 1.46%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-11-15 03:39:02

End at: 2018-11-15 03:39:32

Local clock offset: -2.976 ms

Remote clock offset: 7.671 ms

Below is generated by plot.py at 2018-11-15 04:52:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.75 Mbit/s

95th percentile per-packet one-way delay: 111.096 ms

Loss rate: 1.47%

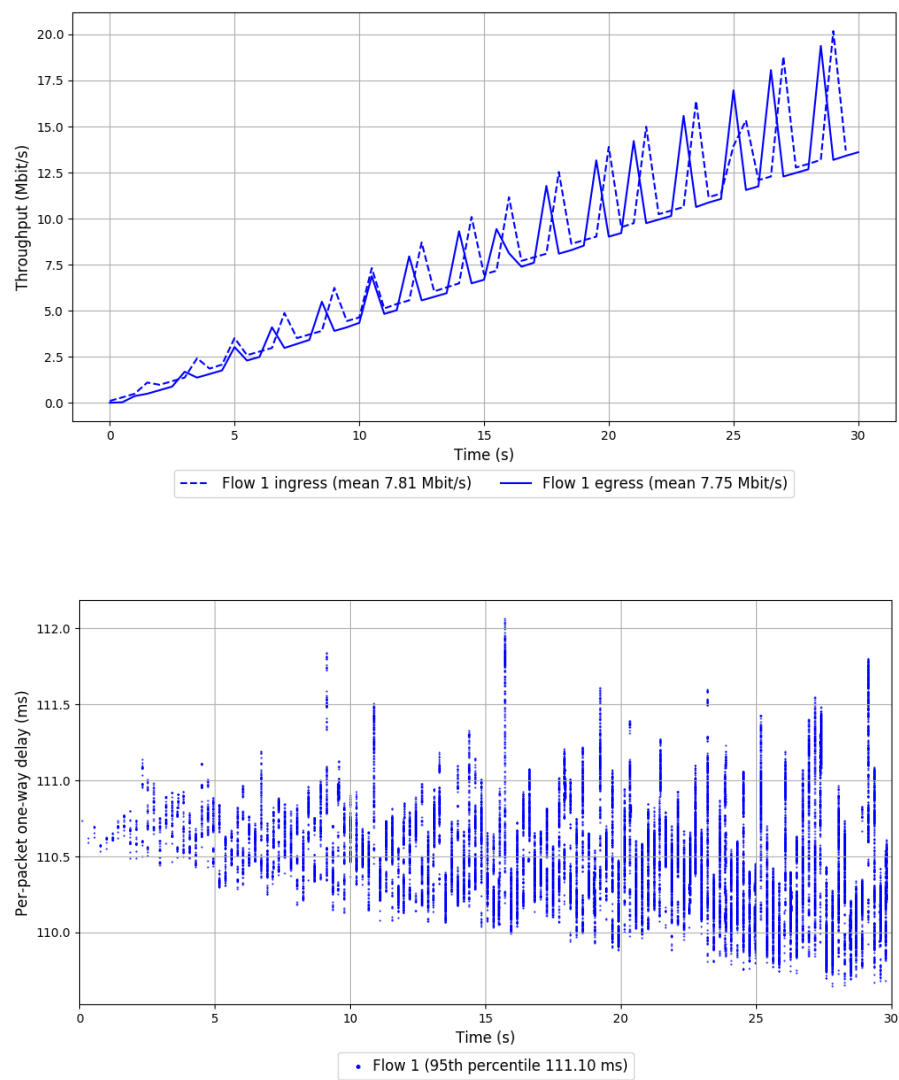
-- Flow 1:

Average throughput: 7.75 Mbit/s

95th percentile per-packet one-way delay: 111.096 ms

Loss rate: 1.47%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-11-15 04:05:37

End at: 2018-11-15 04:06:07

Local clock offset: 7.32 ms

Remote clock offset: 2.865 ms

Below is generated by plot.py at 2018-11-15 04:52:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.64 Mbit/s

95th percentile per-packet one-way delay: 114.171 ms

Loss rate: 1.48%

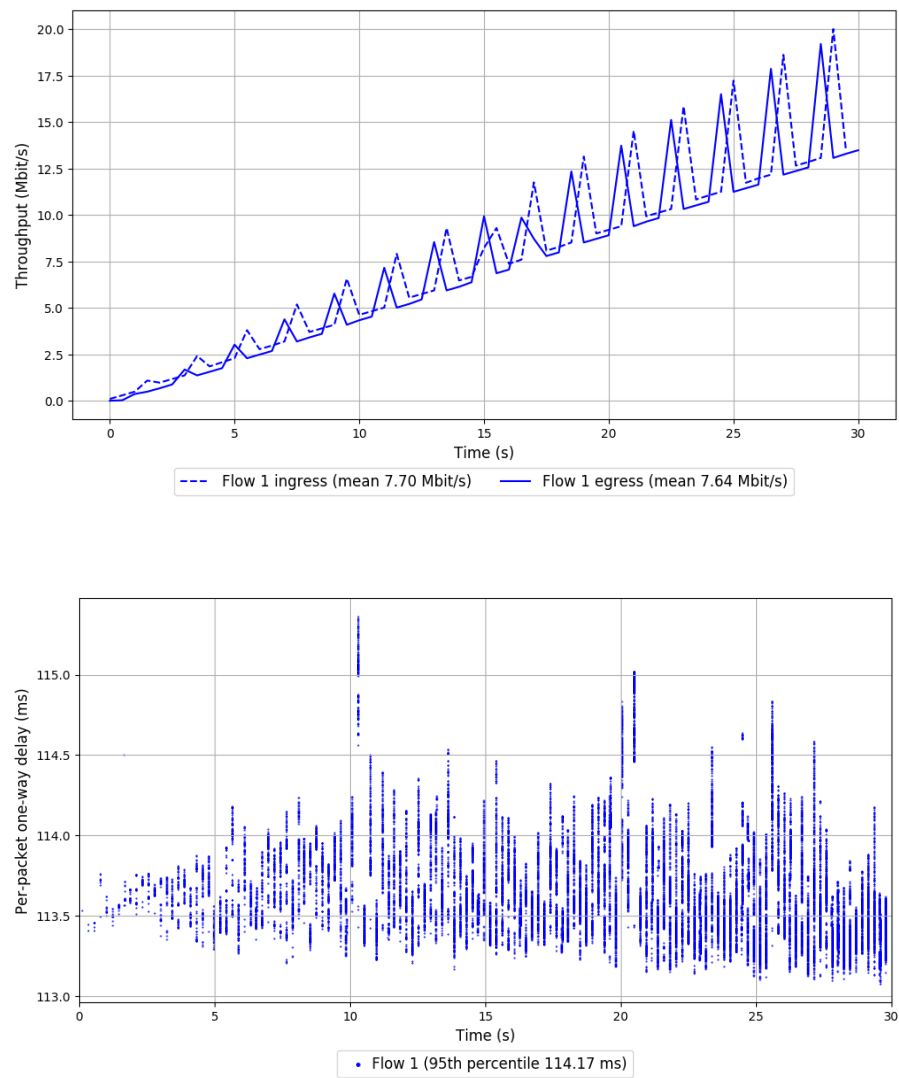
-- Flow 1:

Average throughput: 7.64 Mbit/s

95th percentile per-packet one-way delay: 114.171 ms

Loss rate: 1.48%

Run 5: Report of LEDBAT — Data Link

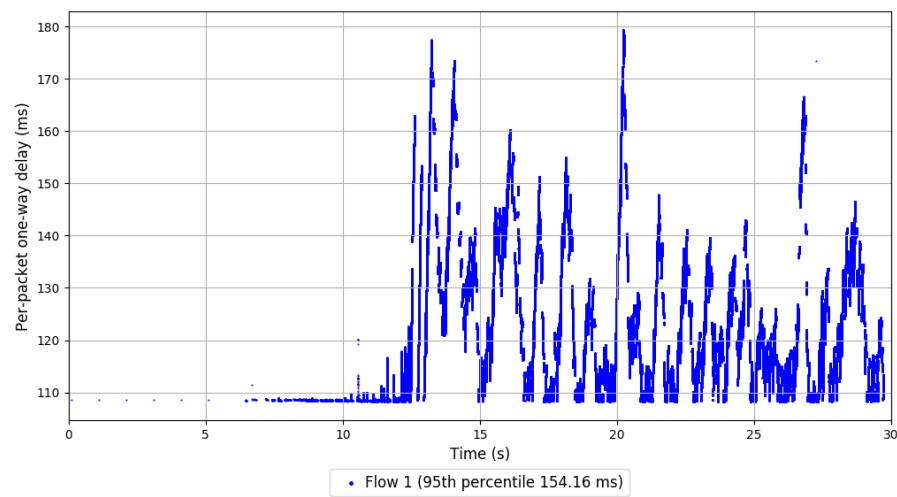
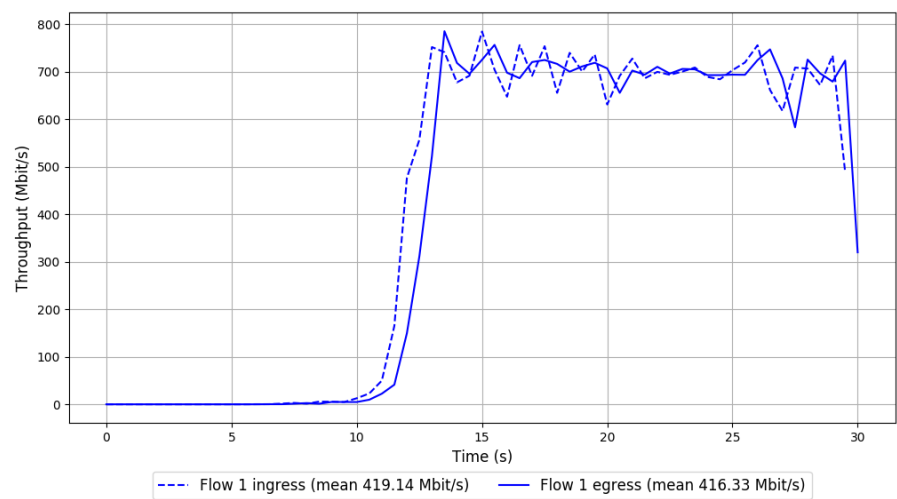


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-15 02:02:06
End at: 2018-11-15 02:02:36
Local clock offset: 3.591 ms
Remote clock offset: 4.886 ms

# Below is generated by plot.py at 2018-11-15 04:55:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 416.33 Mbit/s
95th percentile per-packet one-way delay: 154.161 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 416.33 Mbit/s
95th percentile per-packet one-way delay: 154.161 ms
Loss rate: 1.39%
```

Run 1: Report of Indigo-Muses — Data Link

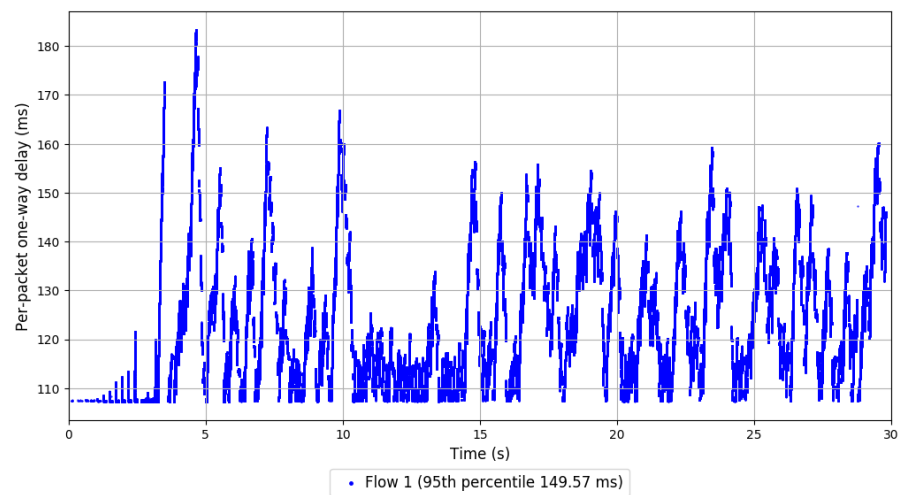
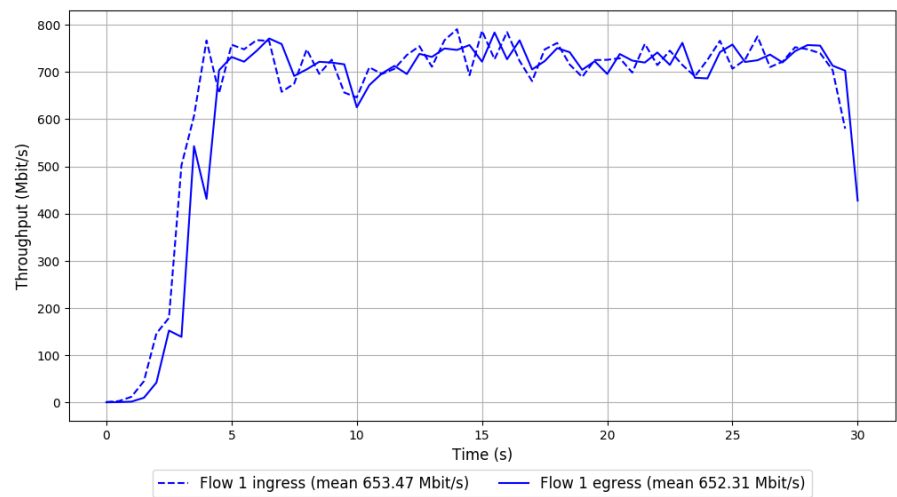


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-15 02:28:19
End at: 2018-11-15 02:28:49
Local clock offset: 12.85 ms
Remote clock offset: 17.501 ms

Below is generated by plot.py at 2018-11-15 05:00:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 652.31 Mbit/s
95th percentile per-packet one-way delay: 149.567 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 652.31 Mbit/s
95th percentile per-packet one-way delay: 149.567 ms
Loss rate: 0.89%

Run 2: Report of Indigo-Muses — Data Link

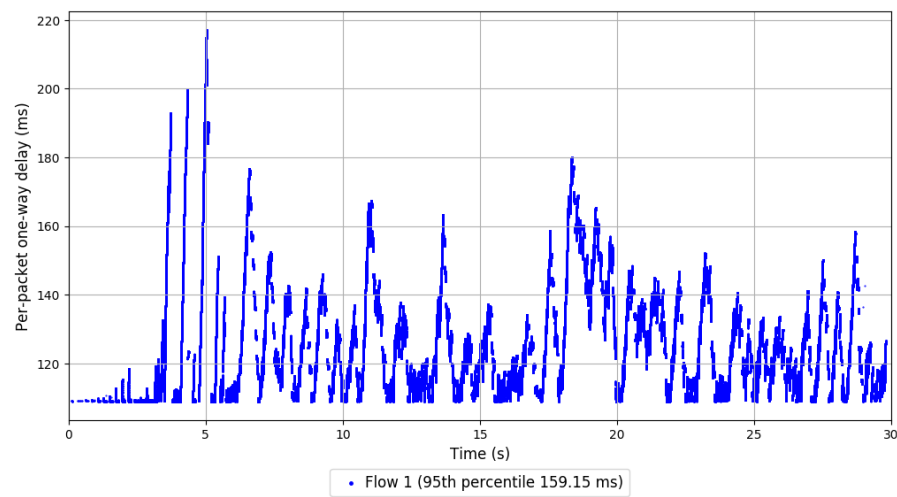
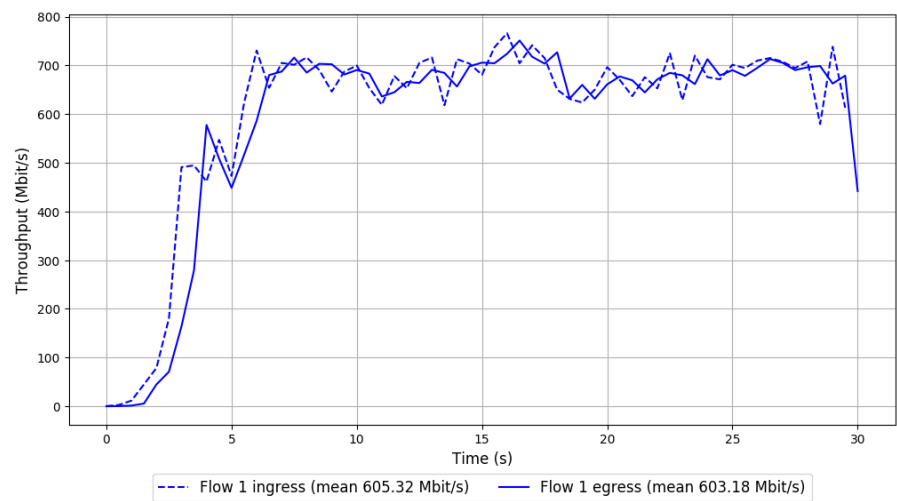


Run 3: Statistics of Indigo-Muses

Start at: 2018-11-15 02:54:35
End at: 2018-11-15 02:55:05
Local clock offset: 18.037 ms
Remote clock offset: 22.123 ms

Below is generated by plot.py at 2018-11-15 05:00:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 603.18 Mbit/s
95th percentile per-packet one-way delay: 159.146 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 603.18 Mbit/s
95th percentile per-packet one-way delay: 159.146 ms
Loss rate: 1.08%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-11-15 03:20:34

End at: 2018-11-15 03:21:04

Local clock offset: -2.754 ms

Remote clock offset: 8.106 ms

Below is generated by plot.py at 2018-11-15 05:00:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 615.56 Mbit/s

95th percentile per-packet one-way delay: 161.086 ms

Loss rate: 1.14%

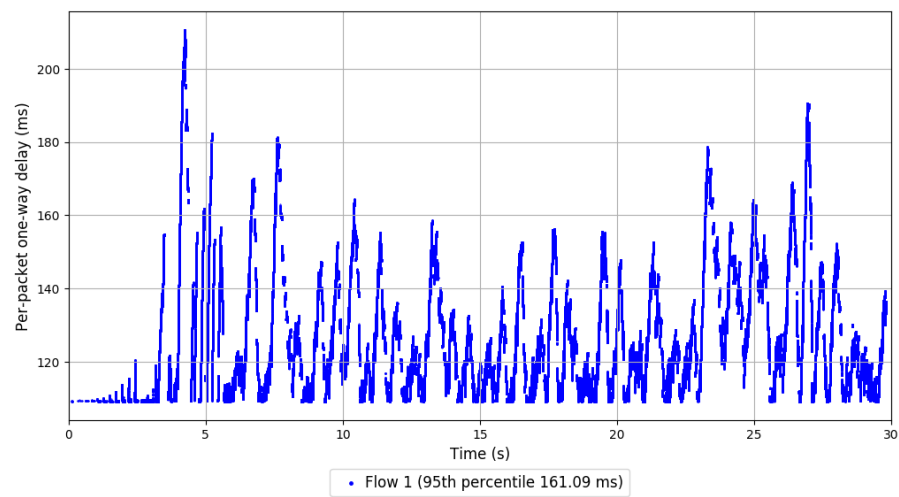
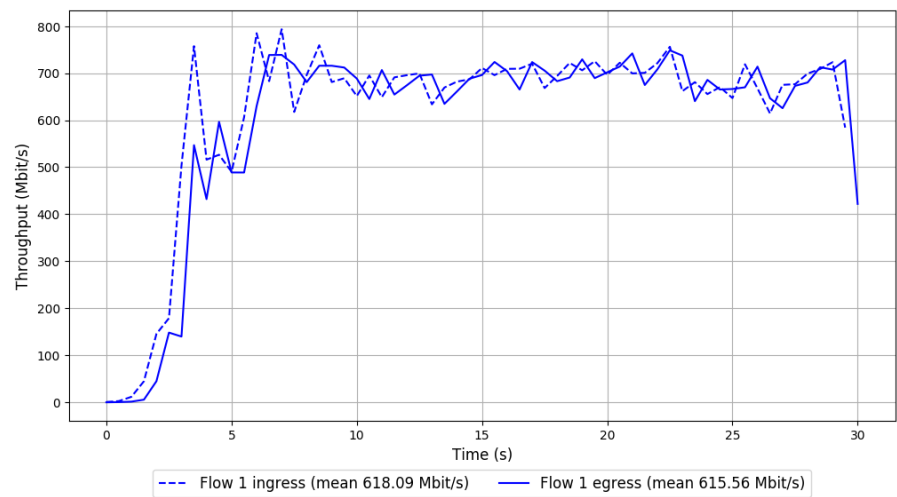
-- Flow 1:

Average throughput: 615.56 Mbit/s

95th percentile per-packet one-way delay: 161.086 ms

Loss rate: 1.14%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-15 03:47:14

End at: 2018-11-15 03:47:44

Local clock offset: 1.123 ms

Remote clock offset: 3.768 ms

Below is generated by plot.py at 2018-11-15 05:02:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 639.58 Mbit/s

95th percentile per-packet one-way delay: 155.234 ms

Loss rate: 1.02%

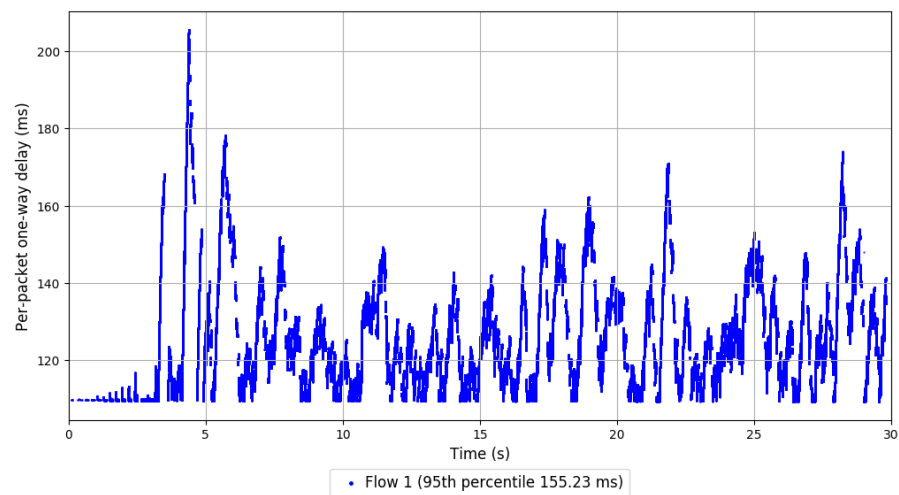
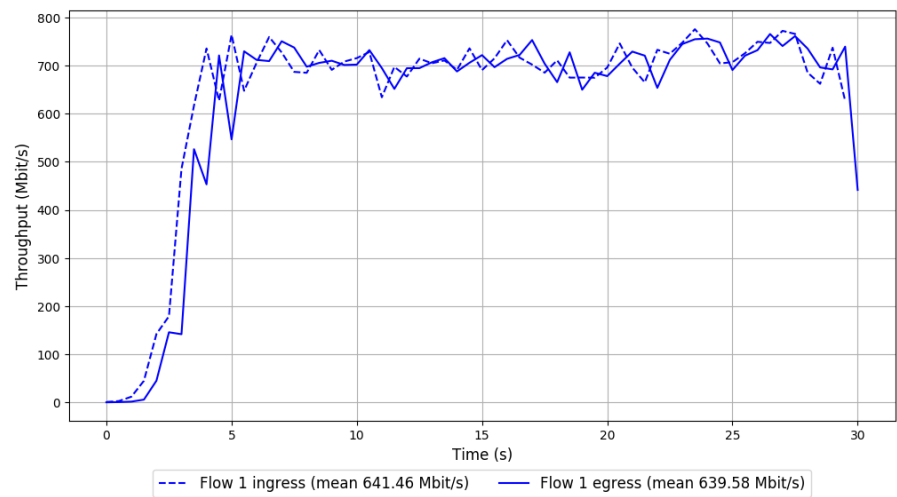
-- Flow 1:

Average throughput: 639.58 Mbit/s

95th percentile per-packet one-way delay: 155.234 ms

Loss rate: 1.02%

Run 5: Report of Indigo-Muses — Data Link

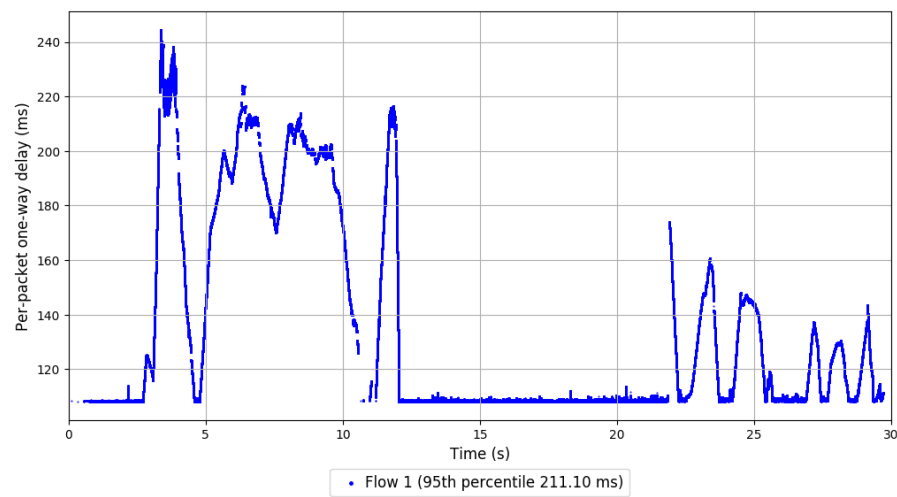
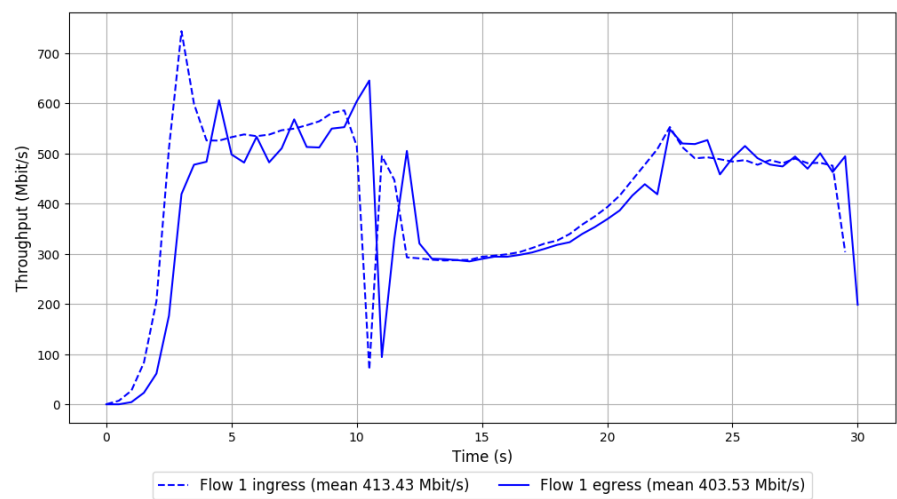


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-15 02:03:38
End at: 2018-11-15 02:04:08
Local clock offset: 5.525 ms
Remote clock offset: 5.872 ms

# Below is generated by plot.py at 2018-11-15 05:05:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 403.53 Mbit/s
95th percentile per-packet one-way delay: 211.105 ms
Loss rate: 3.11%
-- Flow 1:
Average throughput: 403.53 Mbit/s
95th percentile per-packet one-way delay: 211.105 ms
Loss rate: 3.11%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-11-15 02:30:04

End at: 2018-11-15 02:30:34

Local clock offset: 16.462 ms

Remote clock offset: 19.383 ms

Below is generated by plot.py at 2018-11-15 05:05:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 383.18 Mbit/s

95th percentile per-packet one-way delay: 162.581 ms

Loss rate: 1.17%

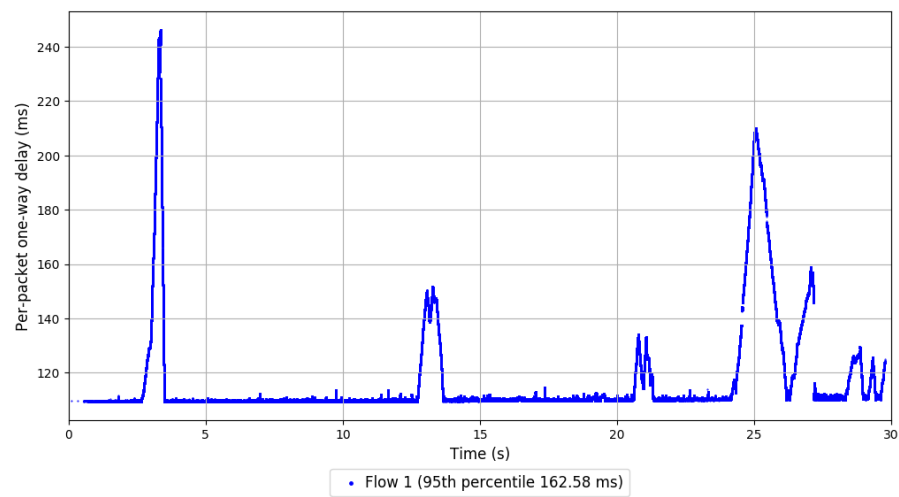
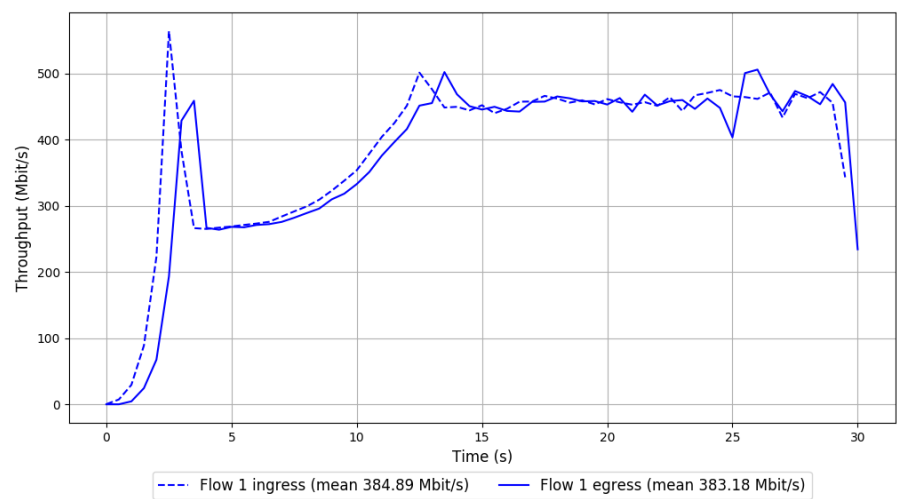
-- Flow 1:

Average throughput: 383.18 Mbit/s

95th percentile per-packet one-way delay: 162.581 ms

Loss rate: 1.17%

Run 2: Report of PCC-Allegro — Data Link

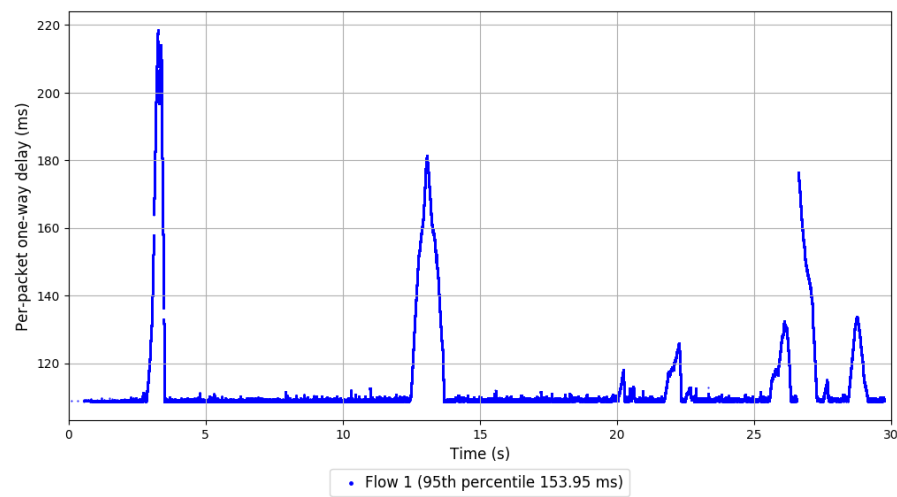
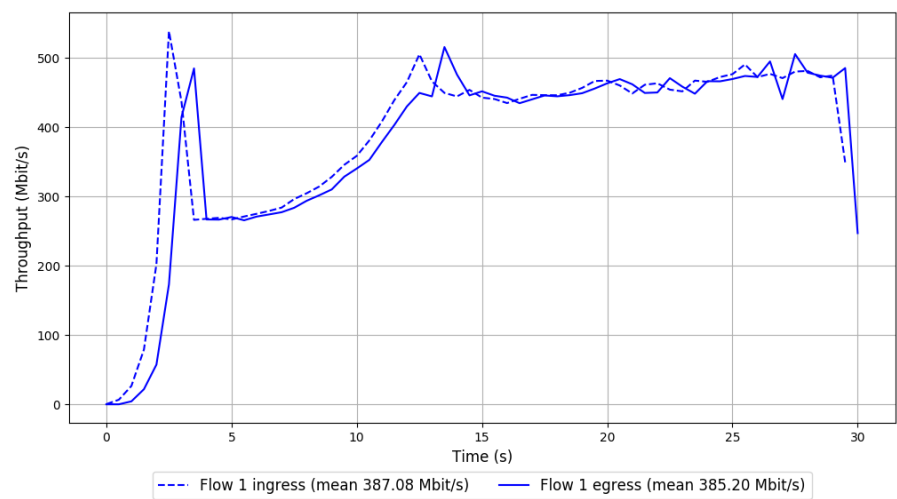


Run 3: Statistics of PCC-Allegro

Start at: 2018-11-15 02:56:17
End at: 2018-11-15 02:56:47
Local clock offset: 18.111 ms
Remote clock offset: 23.459 ms

Below is generated by plot.py at 2018-11-15 05:06:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 385.20 Mbit/s
95th percentile per-packet one-way delay: 153.948 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 385.20 Mbit/s
95th percentile per-packet one-way delay: 153.948 ms
Loss rate: 1.21%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-11-15 03:22:18

End at: 2018-11-15 03:22:48

Local clock offset: -2.048 ms

Remote clock offset: 7.579 ms

Below is generated by plot.py at 2018-11-15 05:13:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 457.67 Mbit/s

95th percentile per-packet one-way delay: 219.406 ms

Loss rate: 3.48%

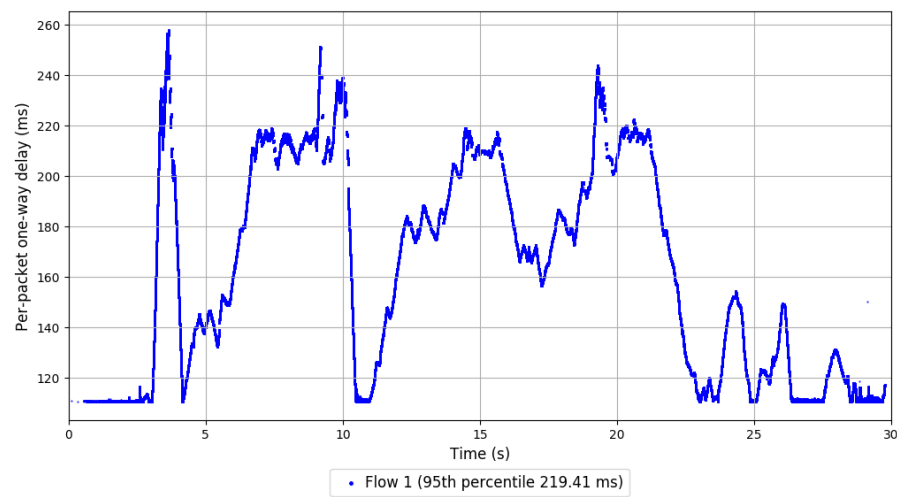
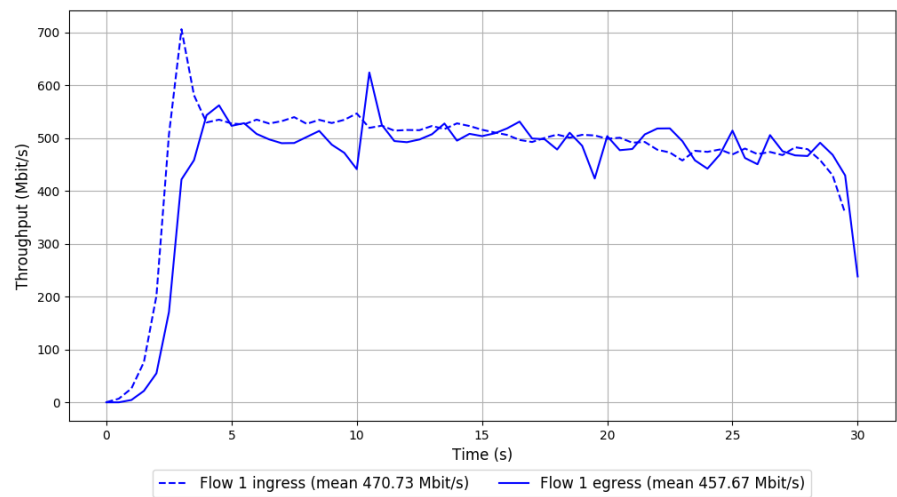
-- Flow 1:

Average throughput: 457.67 Mbit/s

95th percentile per-packet one-way delay: 219.406 ms

Loss rate: 3.48%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-11-15 03:48:59

End at: 2018-11-15 03:49:29

Local clock offset: 0.778 ms

Remote clock offset: 3.339 ms

Below is generated by plot.py at 2018-11-15 05:17:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 431.36 Mbit/s

95th percentile per-packet one-way delay: 225.992 ms

Loss rate: 5.53%

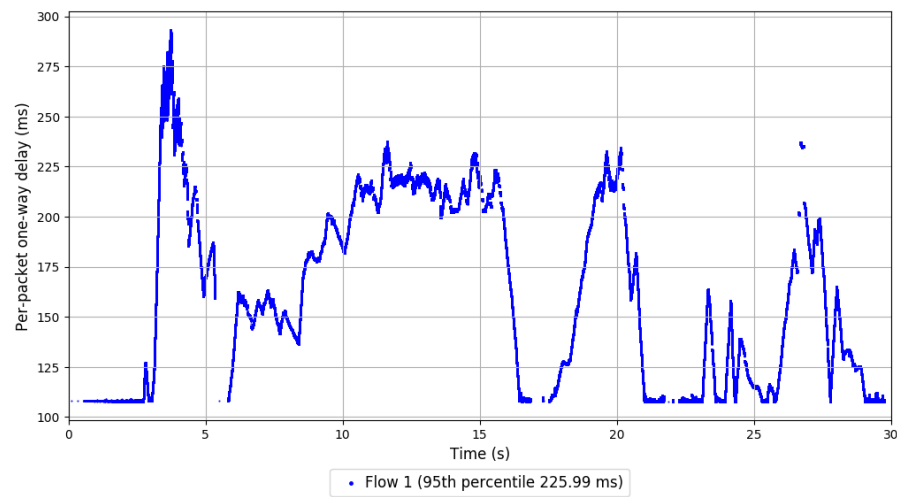
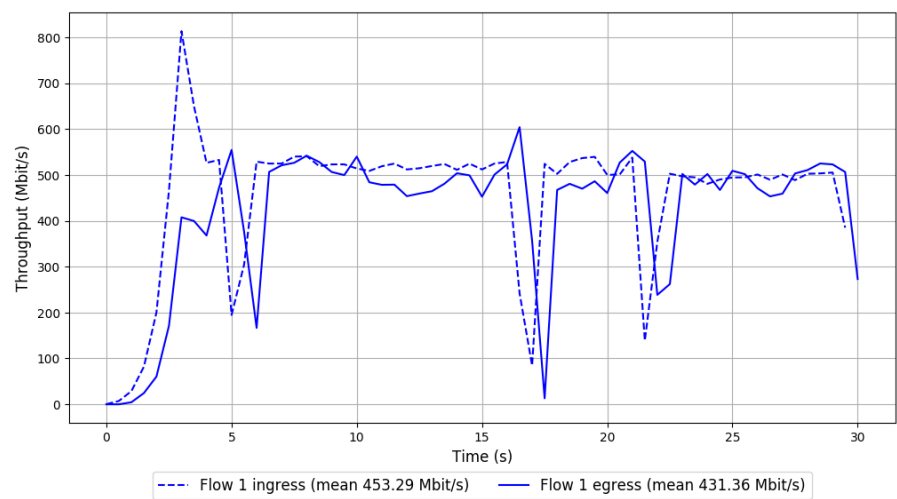
-- Flow 1:

Average throughput: 431.36 Mbit/s

95th percentile per-packet one-way delay: 225.992 ms

Loss rate: 5.53%

Run 5: Report of PCC-Allegro — Data Link

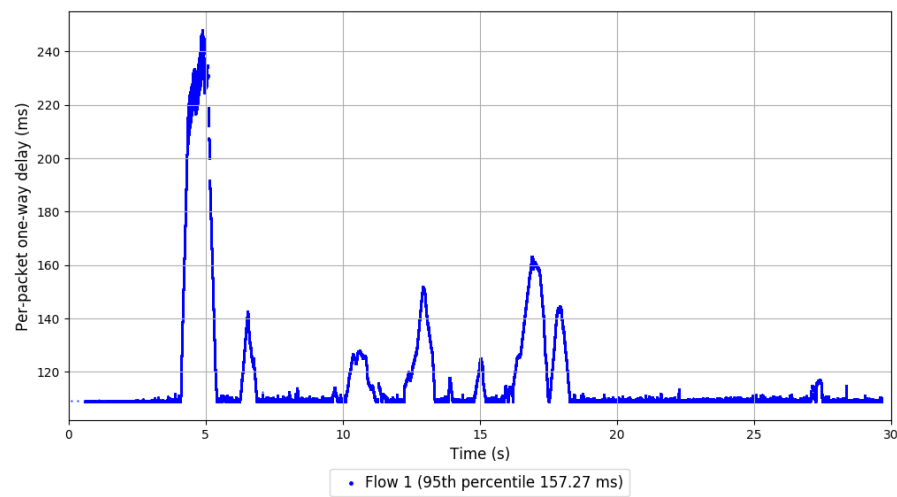
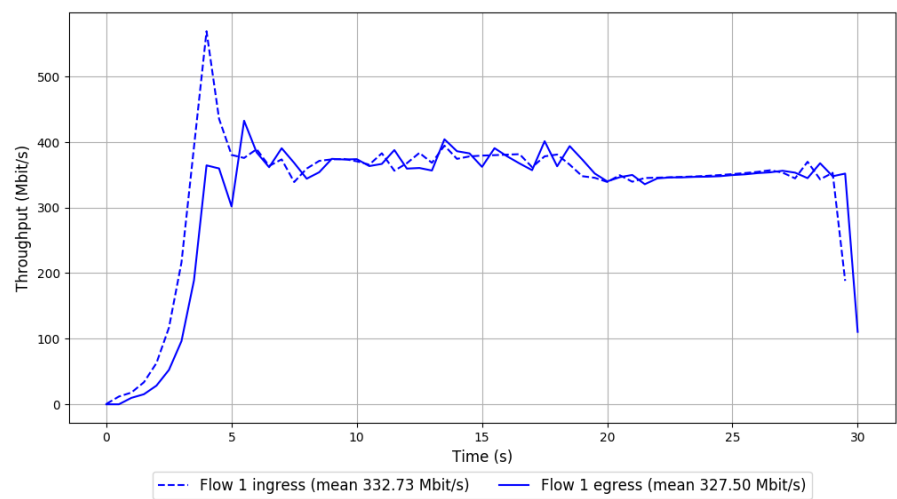


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-15 02:21:24
End at: 2018-11-15 02:21:54
Local clock offset: 8.654 ms
Remote clock offset: 11.203 ms

# Below is generated by plot.py at 2018-11-15 05:17:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 327.50 Mbit/s
95th percentile per-packet one-way delay: 157.266 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 327.50 Mbit/s
95th percentile per-packet one-way delay: 157.266 ms
Loss rate: 2.30%
```

Run 1: Report of PCC-Expr — Data Link

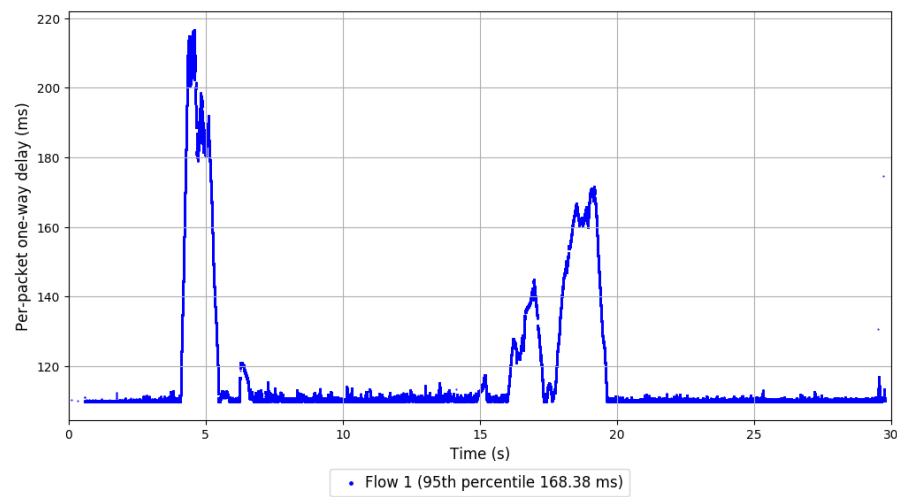
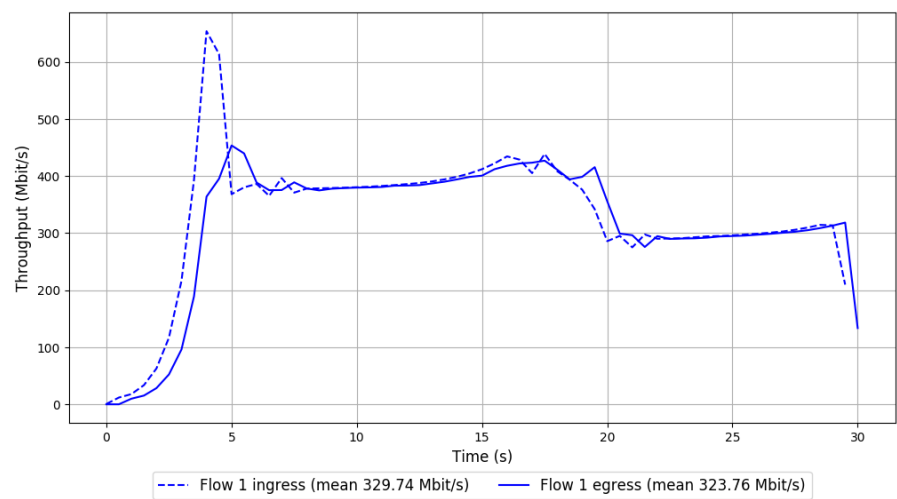


Run 2: Statistics of PCC-Expr

Start at: 2018-11-15 02:47:46
End at: 2018-11-15 02:48:16
Local clock offset: 15.218 ms
Remote clock offset: 18.126 ms

Below is generated by plot.py at 2018-11-15 05:17:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 323.76 Mbit/s
95th percentile per-packet one-way delay: 168.381 ms
Loss rate: 2.53%
-- Flow 1:
Average throughput: 323.76 Mbit/s
95th percentile per-packet one-way delay: 168.381 ms
Loss rate: 2.53%

Run 2: Report of PCC-Expr — Data Link

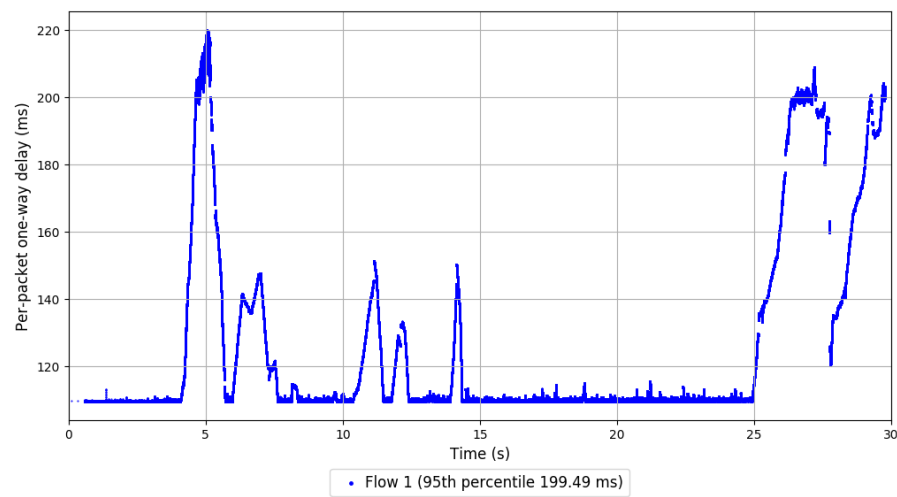
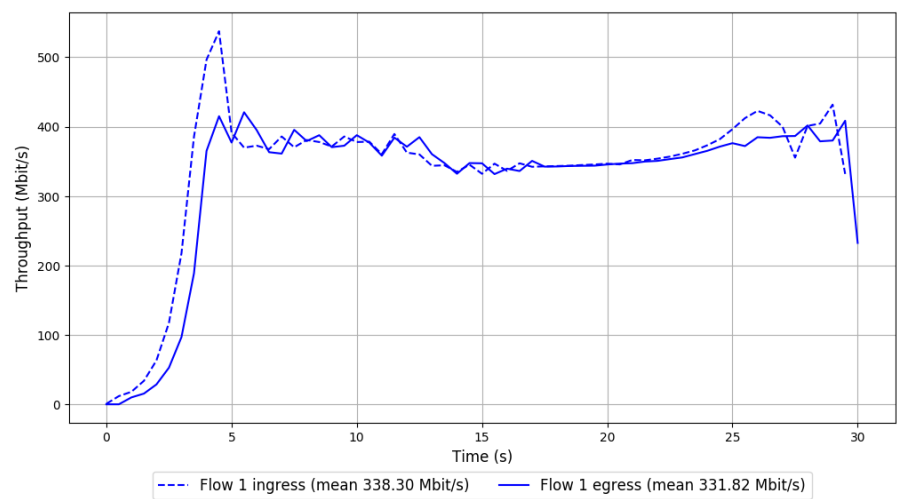


Run 3: Statistics of PCC-Expr

Start at: 2018-11-15 03:13:47
End at: 2018-11-15 03:14:17
Local clock offset: 2.703 ms
Remote clock offset: 12.835 ms

Below is generated by plot.py at 2018-11-15 05:17:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 331.82 Mbit/s
95th percentile per-packet one-way delay: 199.490 ms
Loss rate: 2.63%
-- Flow 1:
Average throughput: 331.82 Mbit/s
95th percentile per-packet one-way delay: 199.490 ms
Loss rate: 2.63%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-11-15 03:40:14

End at: 2018-11-15 03:40:44

Local clock offset: -3.643 ms

Remote clock offset: 6.86 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 375.05 Mbit/s

95th percentile per-packet one-way delay: 209.285 ms

Loss rate: 7.31%

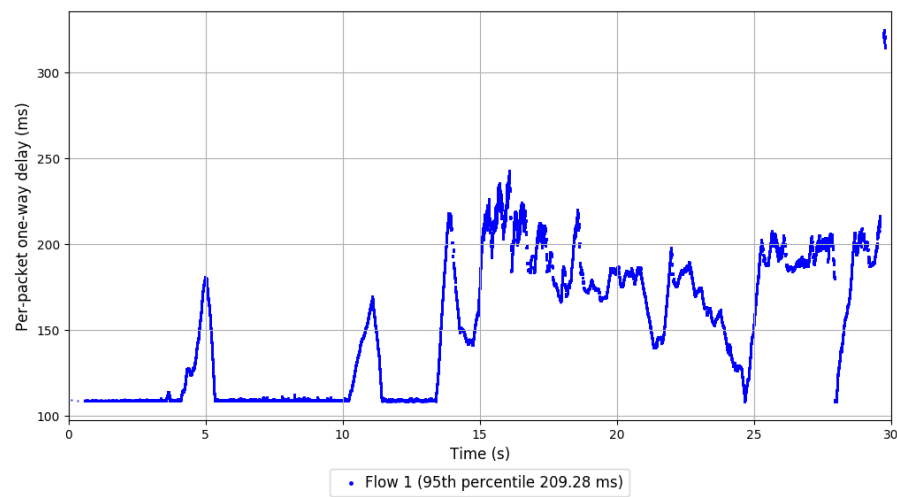
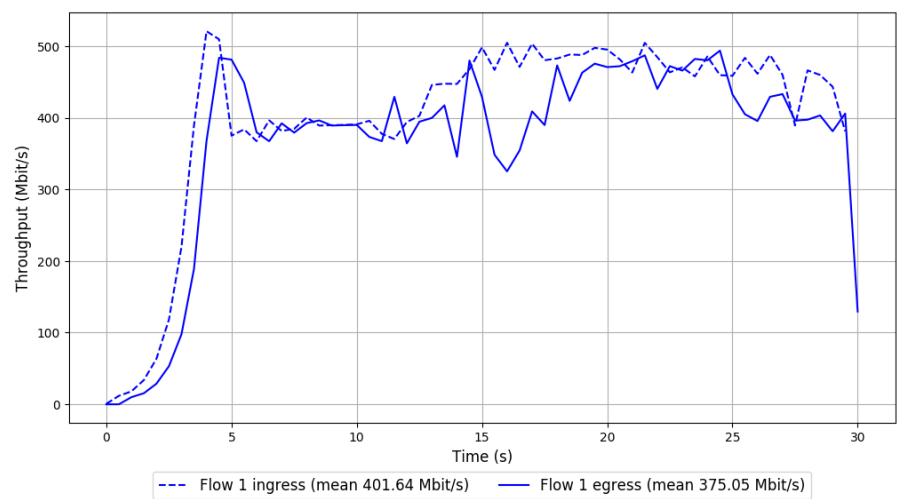
-- Flow 1:

Average throughput: 375.05 Mbit/s

95th percentile per-packet one-way delay: 209.285 ms

Loss rate: 7.31%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-15 04:06:48

End at: 2018-11-15 04:07:18

Local clock offset: 6.213 ms

Remote clock offset: 2.953 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 341.49 Mbit/s

95th percentile per-packet one-way delay: 182.779 ms

Loss rate: 1.32%

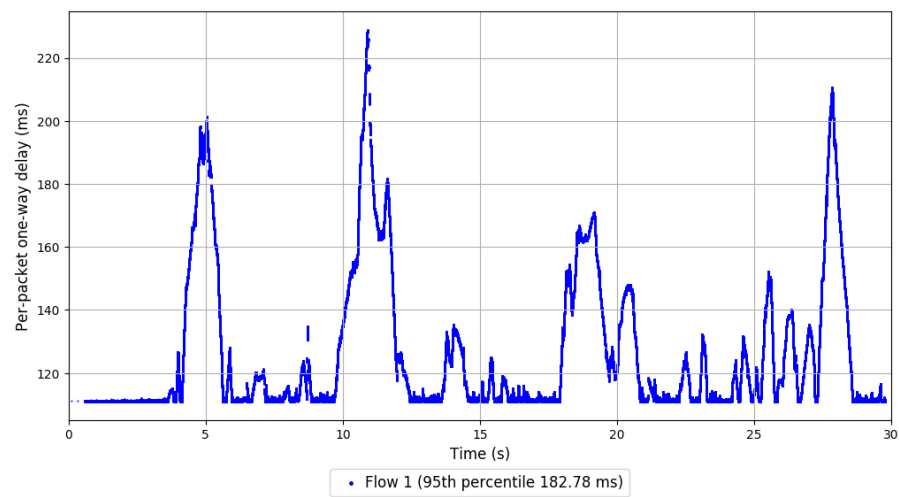
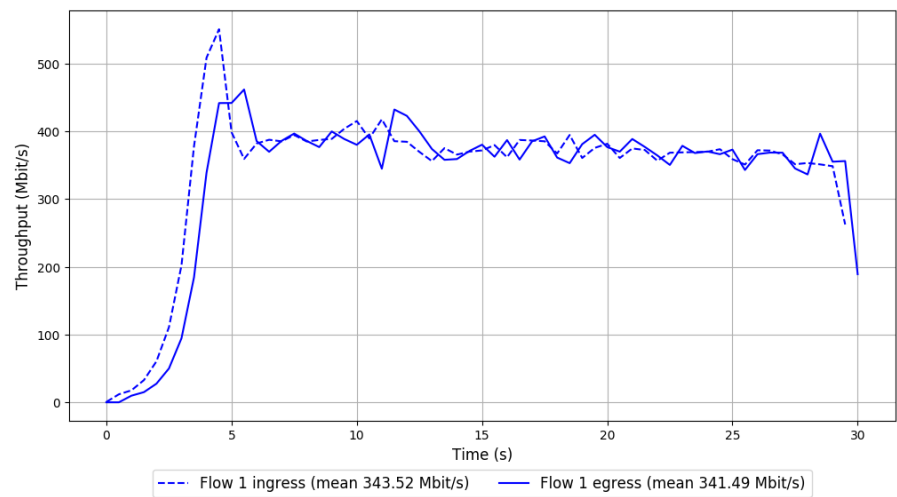
-- Flow 1:

Average throughput: 341.49 Mbit/s

95th percentile per-packet one-way delay: 182.779 ms

Loss rate: 1.32%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-11-15 02:12:49

End at: 2018-11-15 02:13:19

Local clock offset: 9.633 ms

Remote clock offset: 11.871 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 56.90 Mbit/s

95th percentile per-packet one-way delay: 109.917 ms

Loss rate: 1.30%

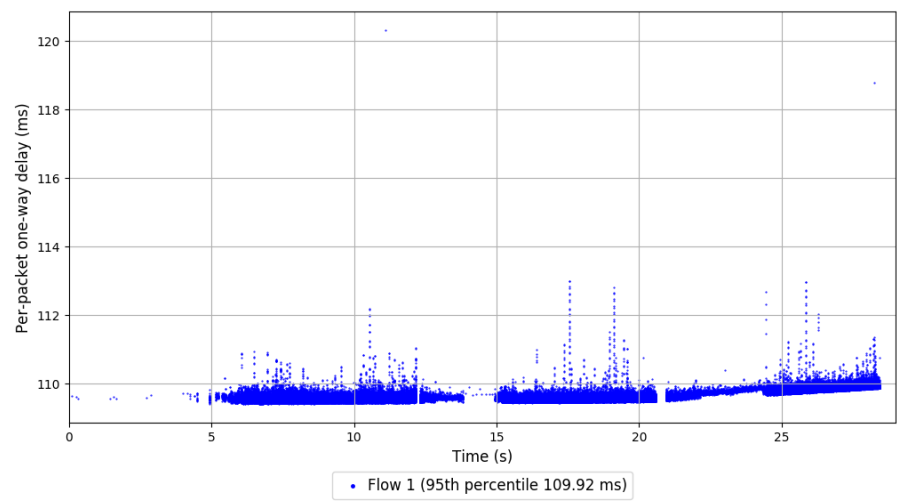
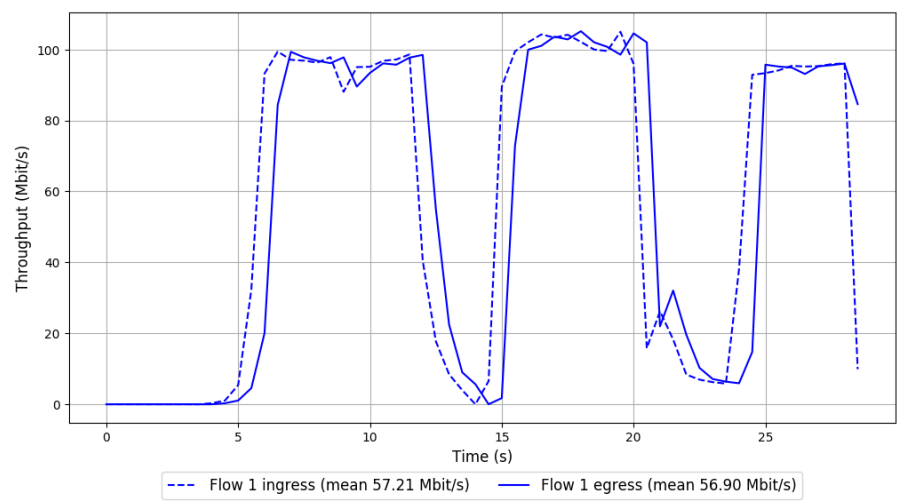
-- Flow 1:

Average throughput: 56.90 Mbit/s

95th percentile per-packet one-way delay: 109.917 ms

Loss rate: 1.30%

Run 1: Report of QUIC Cubic — Data Link

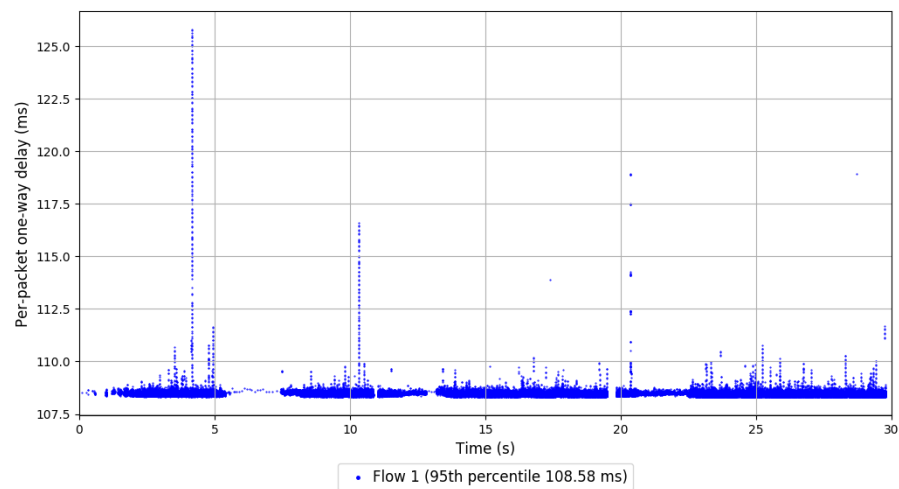
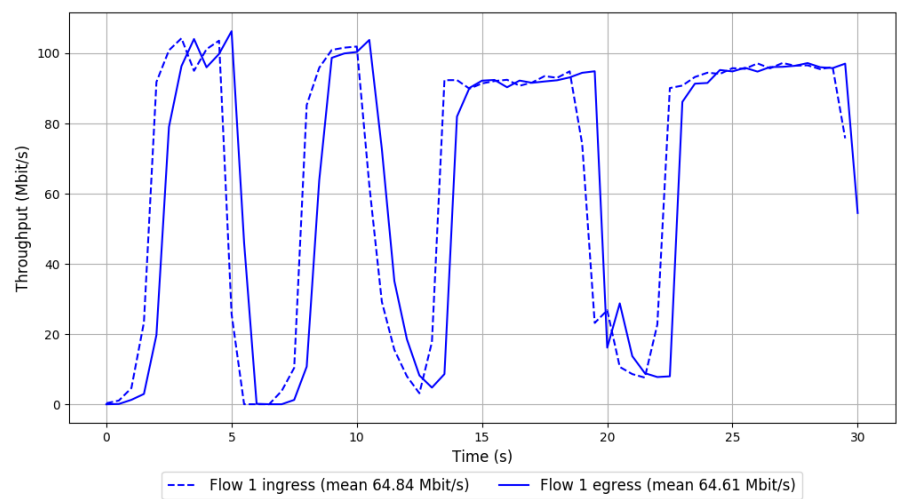


Run 2: Statistics of QUIC Cubic

Start at: 2018-11-15 02:39:11
End at: 2018-11-15 02:39:41
Local clock offset: 11.729 ms
Remote clock offset: 14.985 ms

Below is generated by plot.py at 2018-11-15 05:20:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 64.61 Mbit/s
95th percentile per-packet one-way delay: 108.575 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 64.61 Mbit/s
95th percentile per-packet one-way delay: 108.575 ms
Loss rate: 1.08%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-11-15 03:05:12

End at: 2018-11-15 03:05:42

Local clock offset: 23.362 ms

Remote clock offset: 29.967 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 53.78 Mbit/s

95th percentile per-packet one-way delay: 111.792 ms

Loss rate: 1.14%

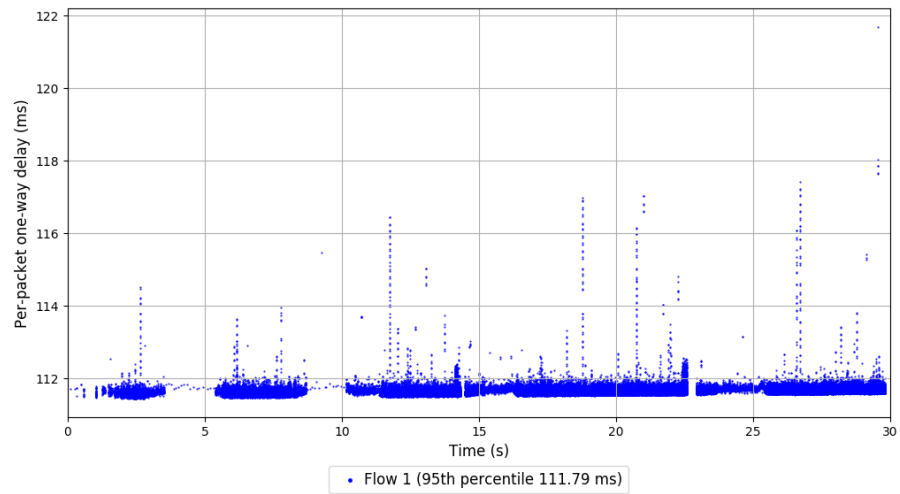
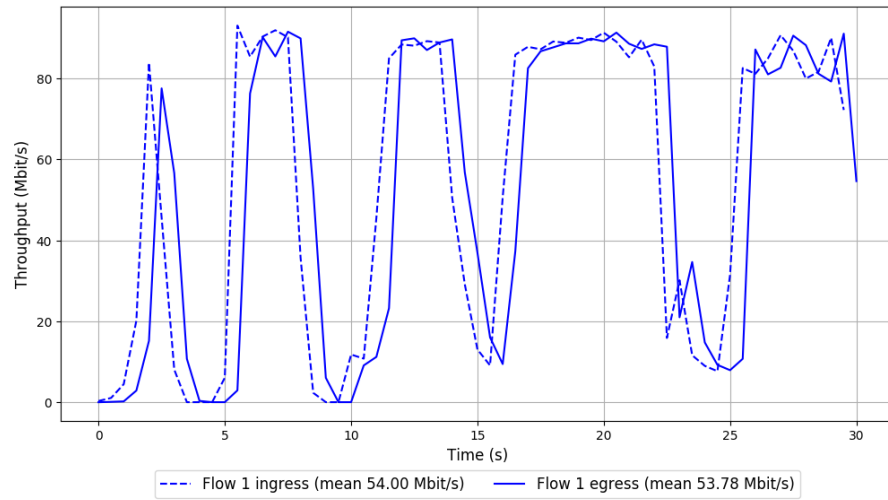
-- Flow 1:

Average throughput: 53.78 Mbit/s

95th percentile per-packet one-way delay: 111.792 ms

Loss rate: 1.14%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-11-15 03:31:35

End at: 2018-11-15 03:32:05

Local clock offset: -4.681 ms

Remote clock offset: 6.91 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 65.97 Mbit/s

95th percentile per-packet one-way delay: 109.191 ms

Loss rate: 1.07%

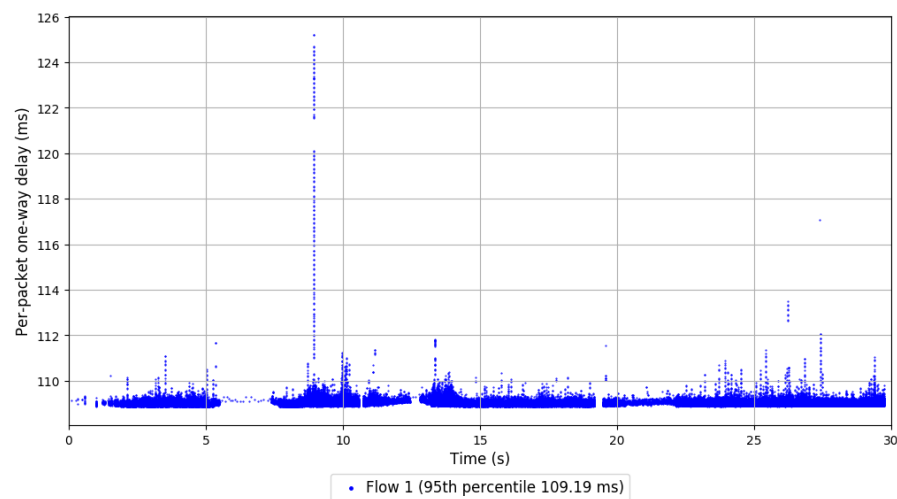
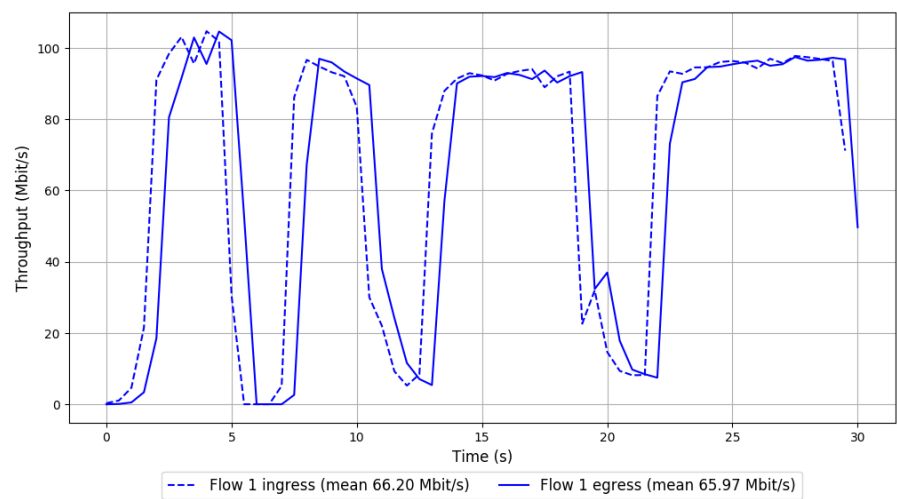
-- Flow 1:

Average throughput: 65.97 Mbit/s

95th percentile per-packet one-way delay: 109.191 ms

Loss rate: 1.07%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-11-15 03:58:08

End at: 2018-11-15 03:58:38

Local clock offset: 4.259 ms

Remote clock offset: 2.668 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 64.20 Mbit/s

95th percentile per-packet one-way delay: 112.252 ms

Loss rate: 1.10%

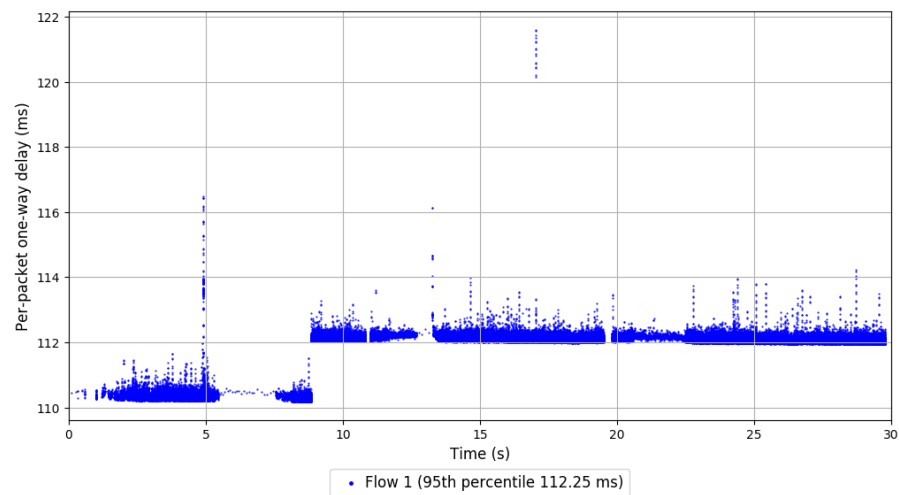
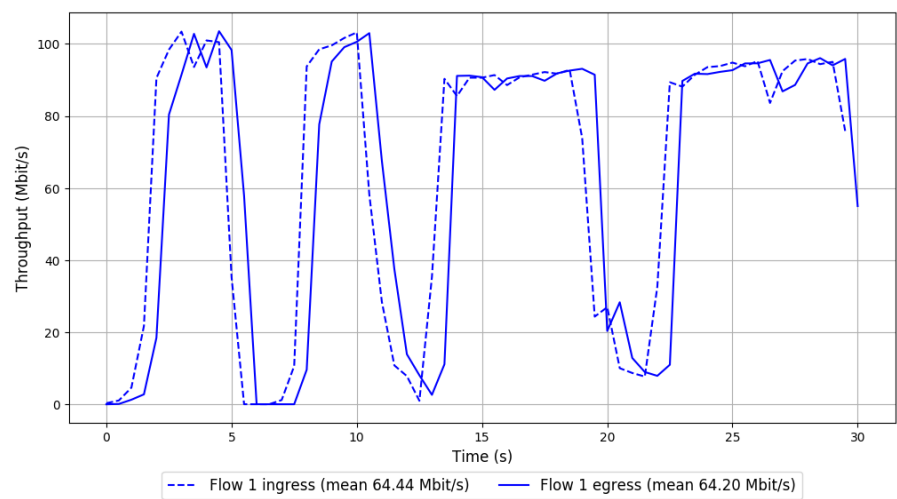
-- Flow 1:

Average throughput: 64.20 Mbit/s

95th percentile per-packet one-way delay: 112.252 ms

Loss rate: 1.10%

Run 5: Report of QUIC Cubic — Data Link

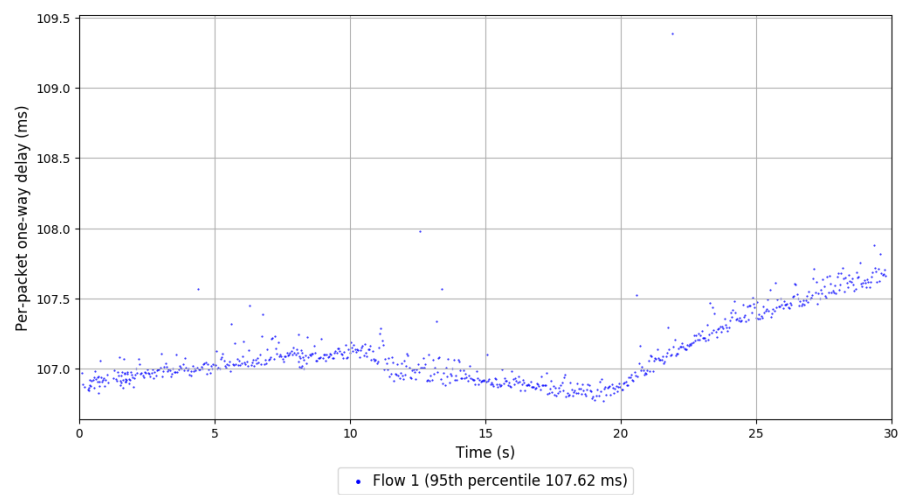
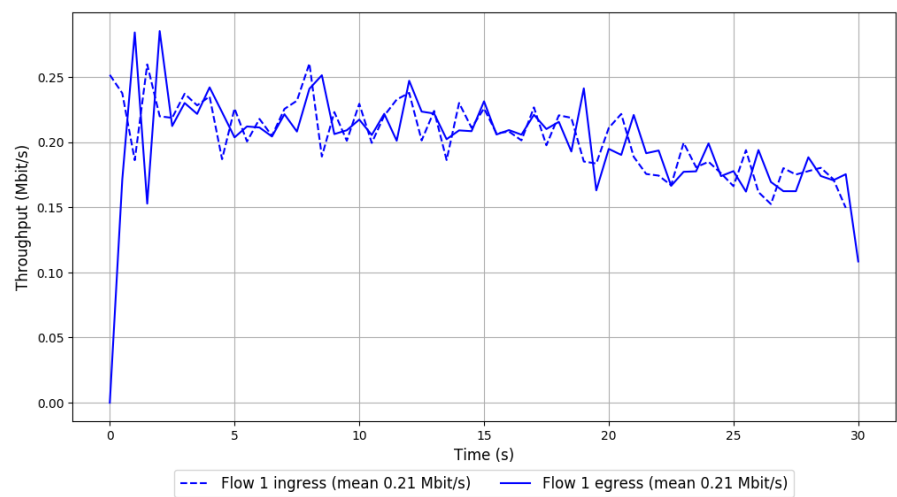


```
Run 1: Statistics of SCReAM

Start at: 2018-11-15 01:56:51
End at: 2018-11-15 01:57:21
Local clock offset: 1.983 ms
Remote clock offset: 4.706 ms

# Below is generated by plot.py at 2018-11-15 05:20:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 107.616 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 107.616 ms
Loss rate: 0.82%
```

Run 1: Report of SReAM — Data Link

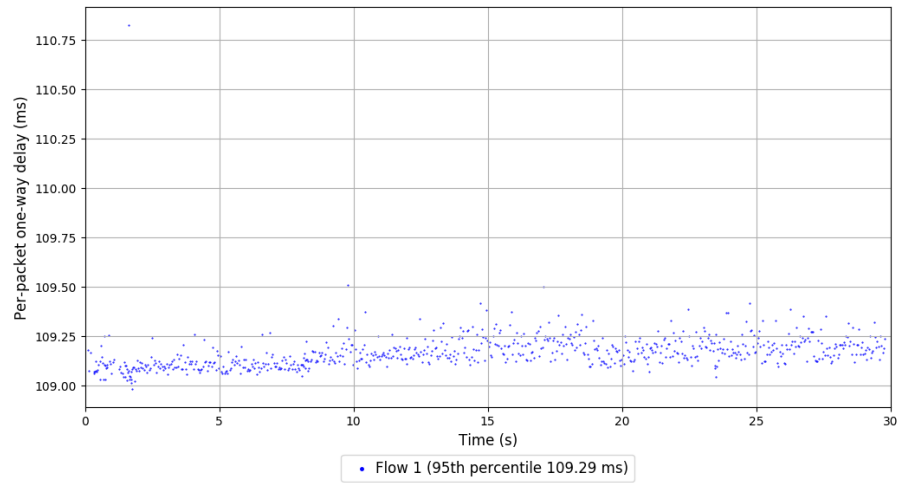
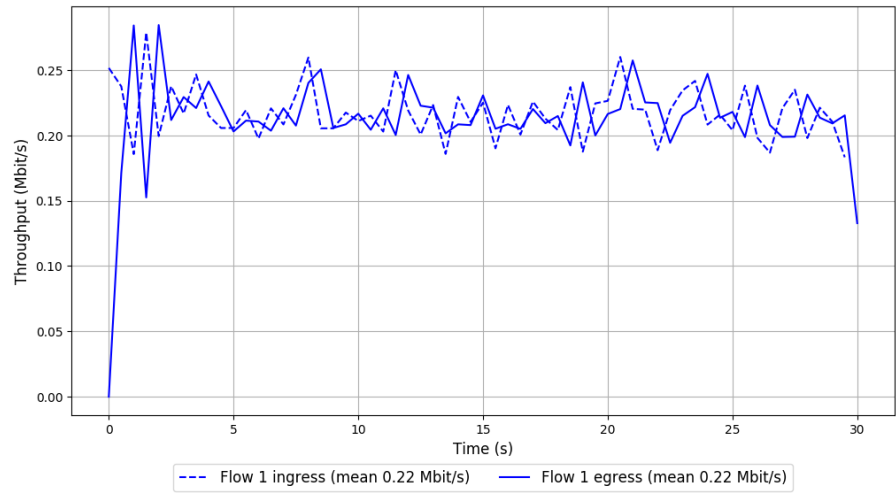


Run 2: Statistics of SCReAM

Start at: 2018-11-15 02:23:07
End at: 2018-11-15 02:23:37
Local clock offset: 9.8 ms
Remote clock offset: 12.427 ms

Below is generated by plot.py at 2018-11-15 05:20:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.293 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.293 ms
Loss rate: 0.77%

Run 2: Report of SReAM — Data Link

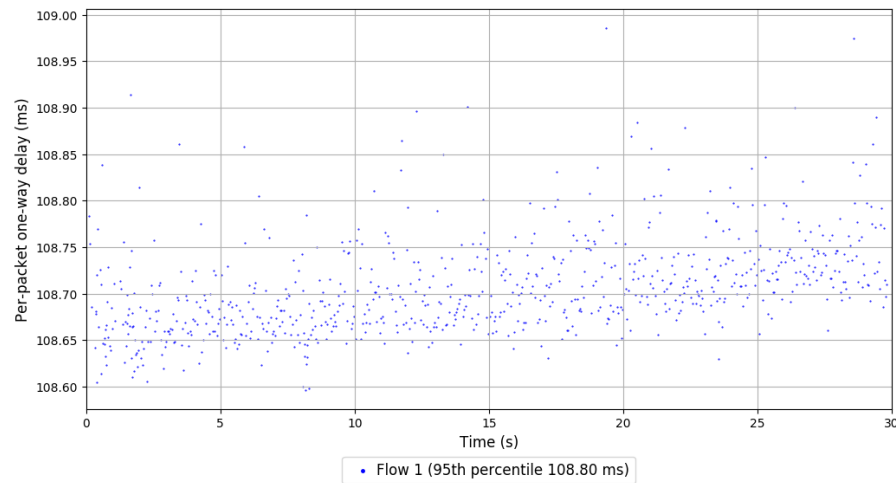
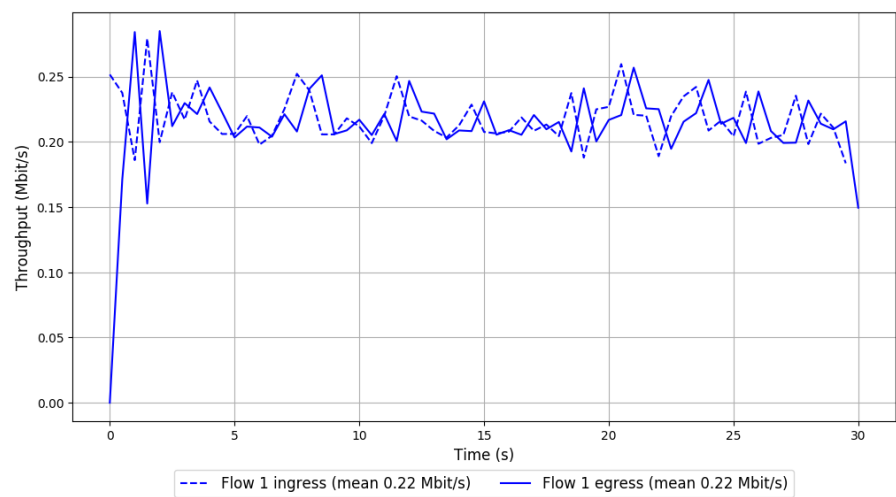


Run 3: Statistics of SCReAM

Start at: 2018-11-15 02:49:29
End at: 2018-11-15 02:49:59
Local clock offset: 14.591 ms
Remote clock offset: 18.612 ms

Below is generated by plot.py at 2018-11-15 05:20:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.798 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.798 ms
Loss rate: 0.64%

Run 3: Report of SReAM — Data Link

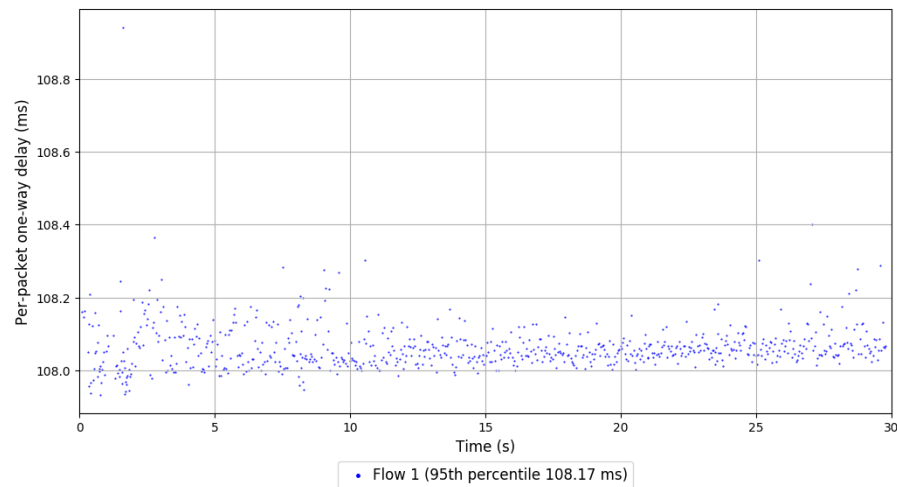
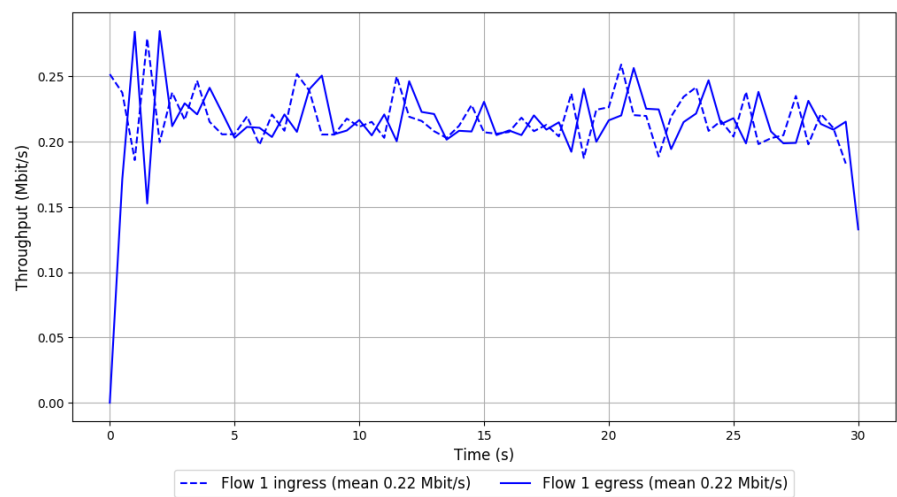


Run 4: Statistics of SCReAM

Start at: 2018-11-15 03:15:30
End at: 2018-11-15 03:16:00
Local clock offset: -0.679 ms
Remote clock offset: 11.149 ms

Below is generated by plot.py at 2018-11-15 05:20:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.166 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.166 ms
Loss rate: 0.77%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-11-15 03:42:02

End at: 2018-11-15 03:42:32

Local clock offset: -1.003 ms

Remote clock offset: 5.793 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 110.128 ms

Loss rate: 0.64%

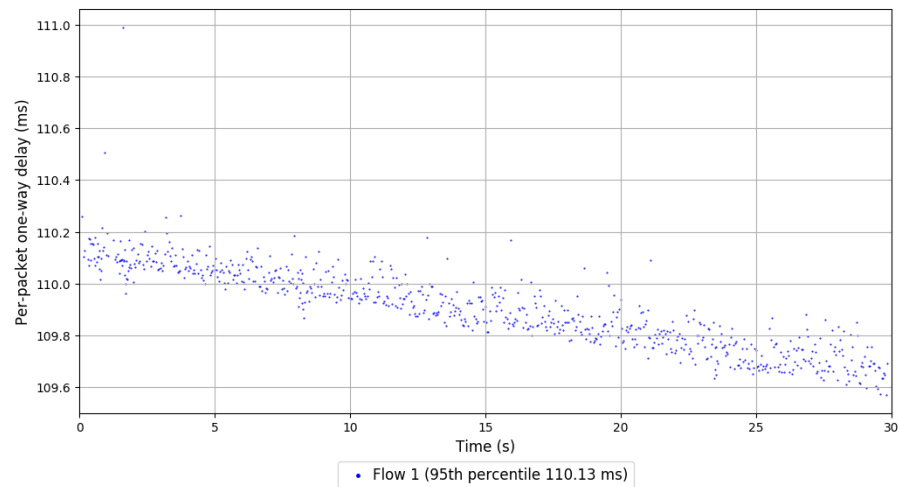
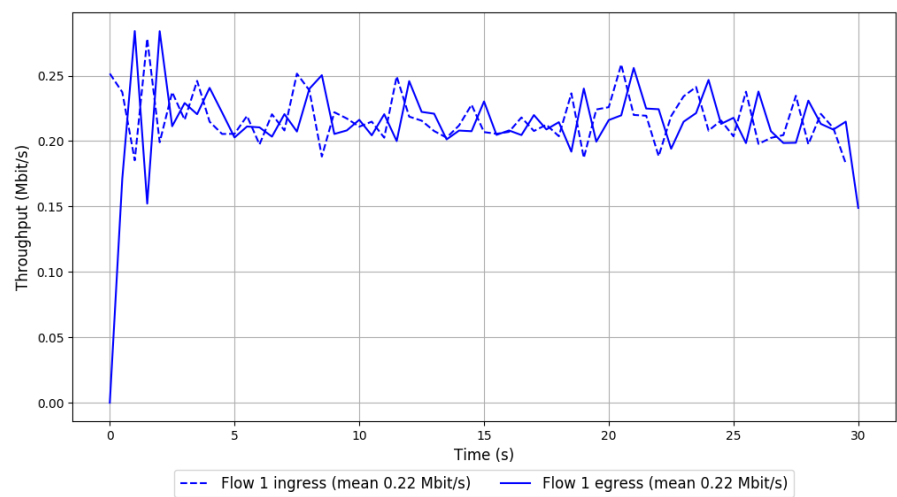
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 110.128 ms

Loss rate: 0.64%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-11-15 01:58:03

End at: 2018-11-15 01:58:33

Local clock offset: 3.184 ms

Remote clock offset: 2.429 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 110.239 ms

Loss rate: 0.73%

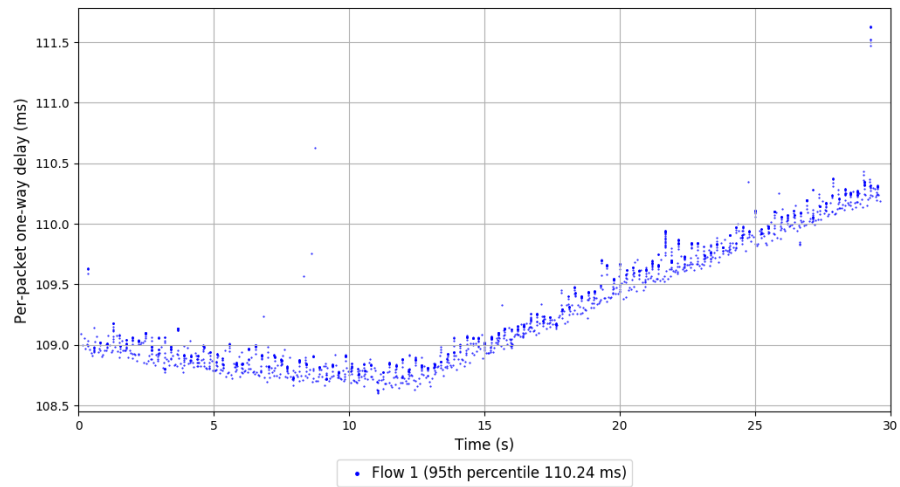
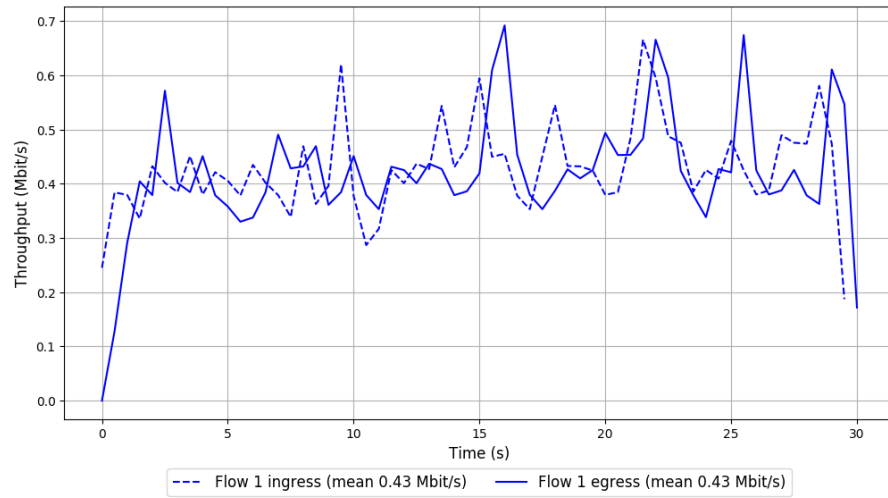
-- Flow 1:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 110.239 ms

Loss rate: 0.73%

Run 1: Report of Sprout — Data Link

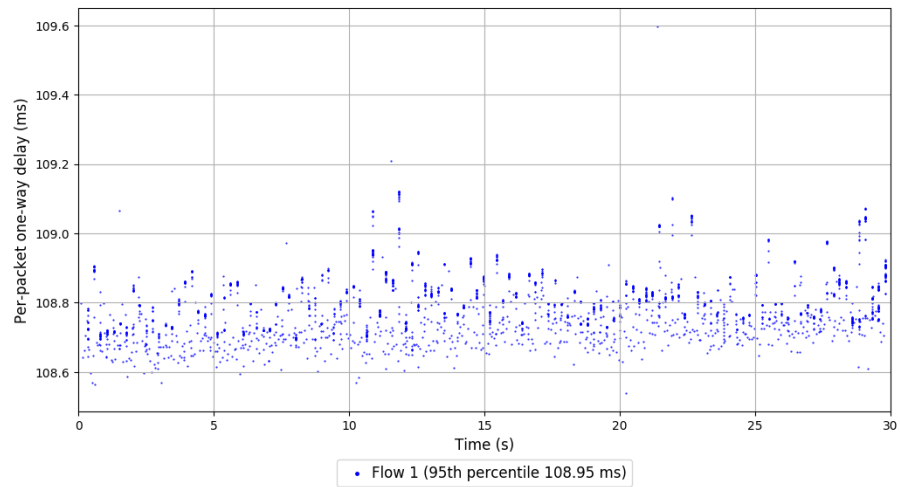
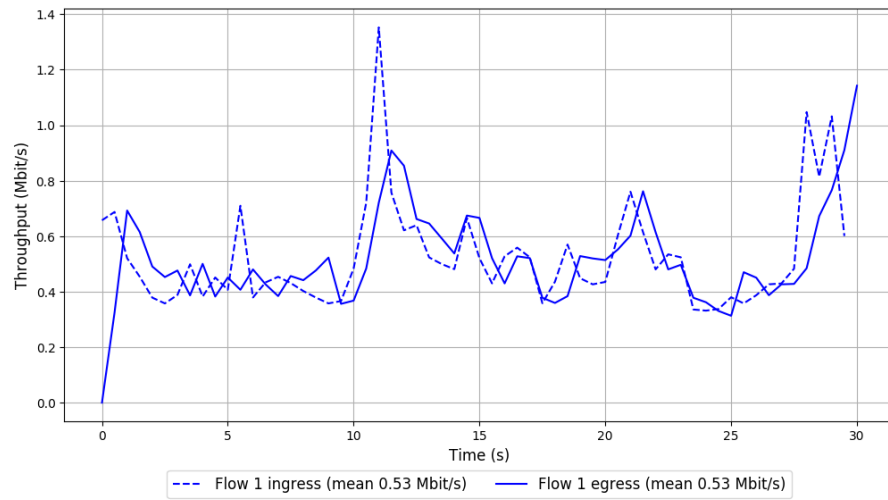


Run 2: Statistics of Sprout

Start at: 2018-11-15 02:24:16
End at: 2018-11-15 02:24:46
Local clock offset: 10.772 ms
Remote clock offset: 13.422 ms

Below is generated by plot.py at 2018-11-15 05:20:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 108.950 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 108.950 ms
Loss rate: 0.02%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-11-15 02:50:39

End at: 2018-11-15 02:51:09

Local clock offset: 14.974 ms

Remote clock offset: 19.37 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.77 Mbit/s

95th percentile per-packet one-way delay: 109.510 ms

Loss rate: 0.42%

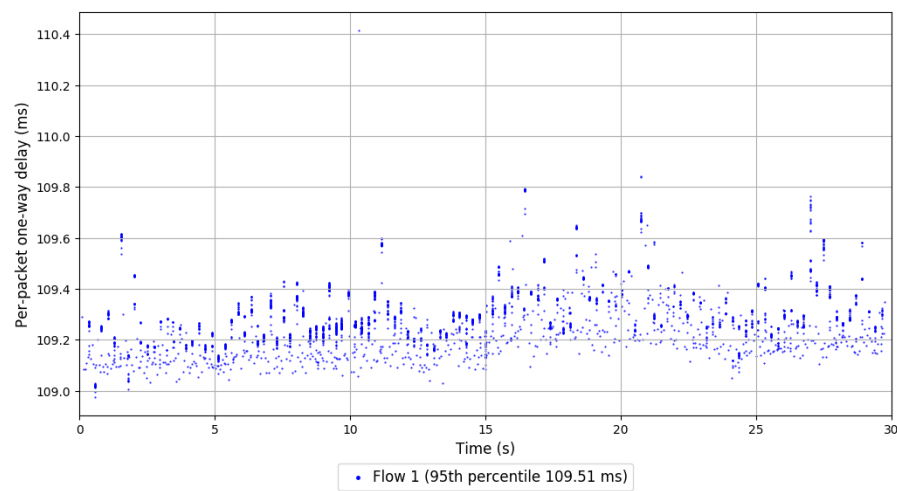
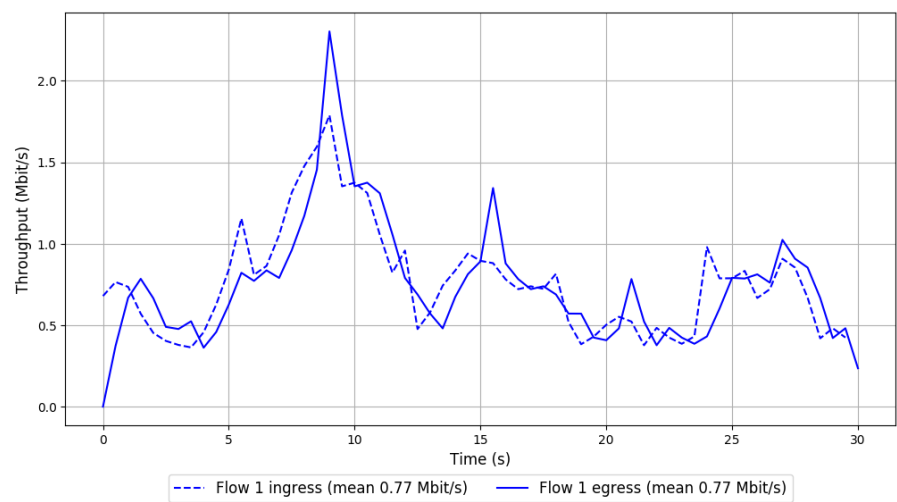
-- Flow 1:

Average throughput: 0.77 Mbit/s

95th percentile per-packet one-way delay: 109.510 ms

Loss rate: 0.42%

Run 3: Report of Sprout — Data Link

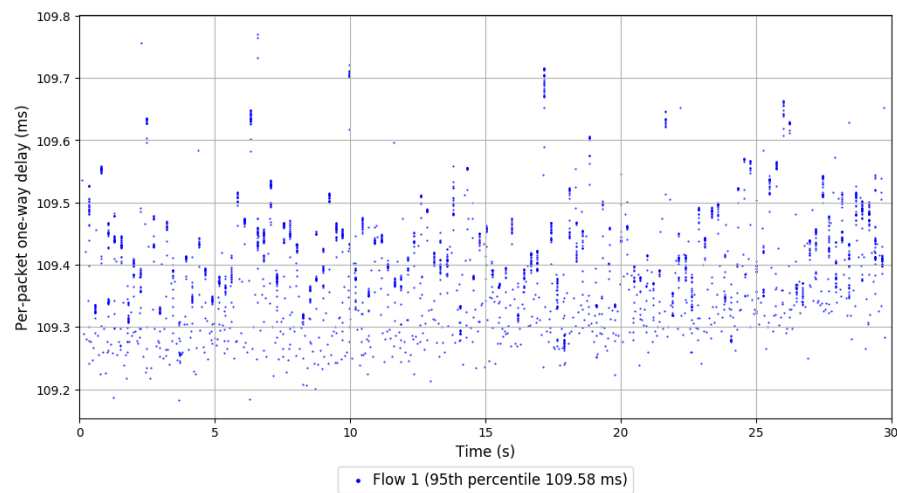
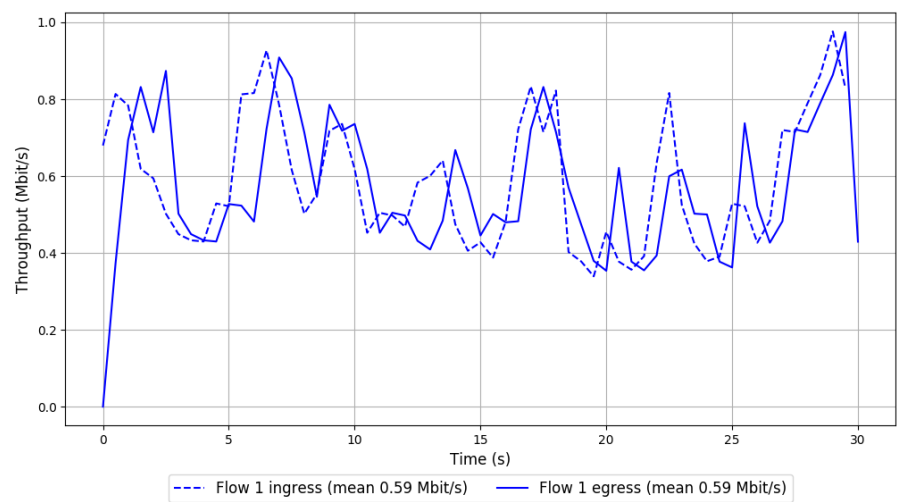


Run 4: Statistics of Sprout

Start at: 2018-11-15 03:16:40
End at: 2018-11-15 03:17:10
Local clock offset: -0.097 ms
Remote clock offset: 10.585 ms

Below is generated by plot.py at 2018-11-15 05:20:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 109.576 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 109.576 ms
Loss rate: 1.15%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-11-15 03:43:12

End at: 2018-11-15 03:43:42

Local clock offset: -2.949 ms

Remote clock offset: 5.199 ms

Below is generated by plot.py at 2018-11-15 05:20:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.51 Mbit/s

95th percentile per-packet one-way delay: 110.347 ms

Loss rate: 0.97%

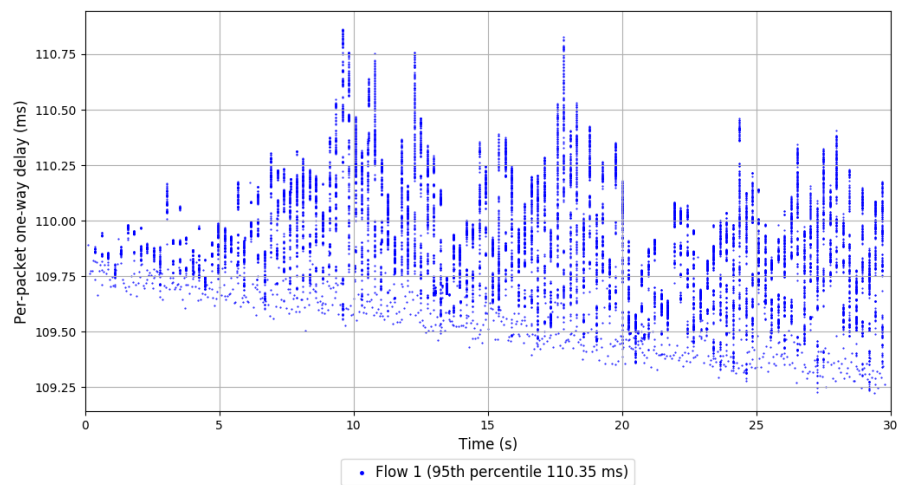
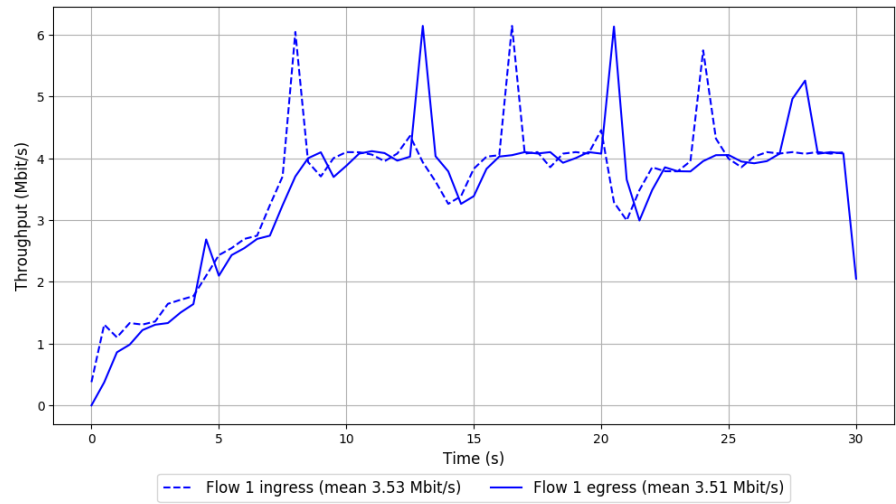
-- Flow 1:

Average throughput: 3.51 Mbit/s

95th percentile per-packet one-way delay: 110.347 ms

Loss rate: 0.97%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-11-15 02:17:18

End at: 2018-11-15 02:17:48

Local clock offset: 7.811 ms

Remote clock offset: 10.125 ms

Below is generated by plot.py at 2018-11-15 05:20:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 197.58 Mbit/s

95th percentile per-packet one-way delay: 108.791 ms

Loss rate: 0.79%

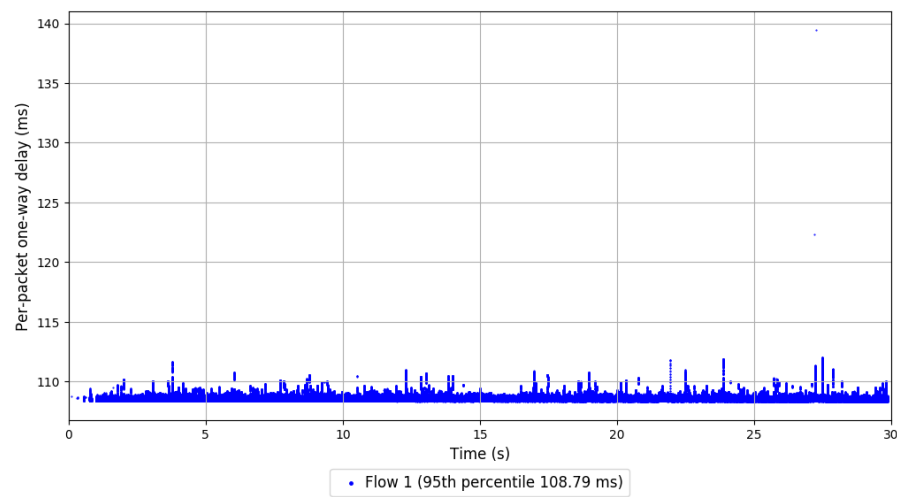
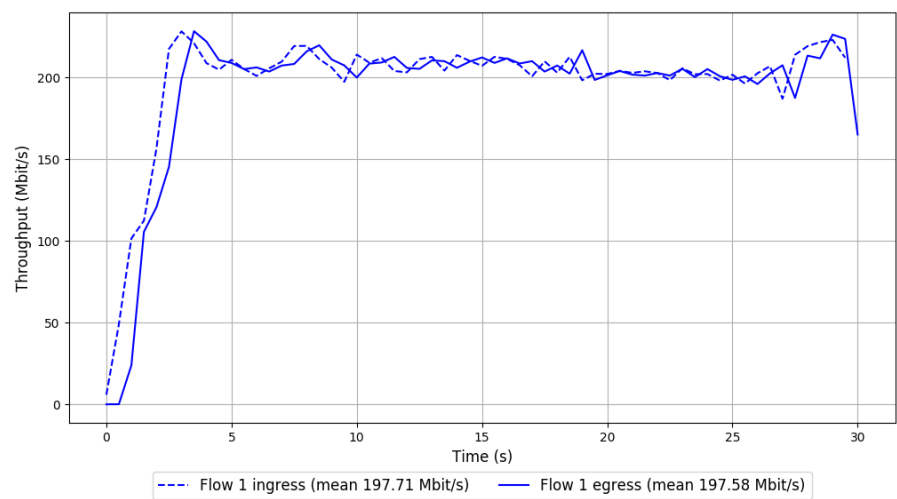
-- Flow 1:

Average throughput: 197.58 Mbit/s

95th percentile per-packet one-way delay: 108.791 ms

Loss rate: 0.79%

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

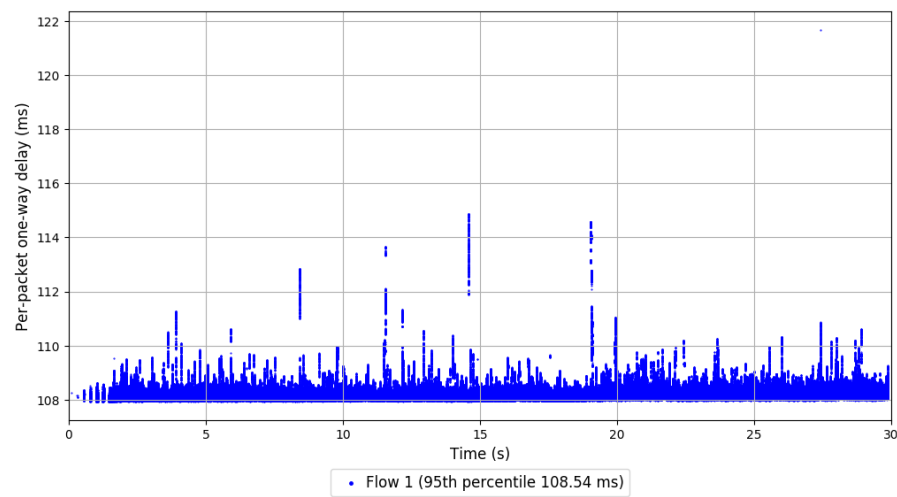
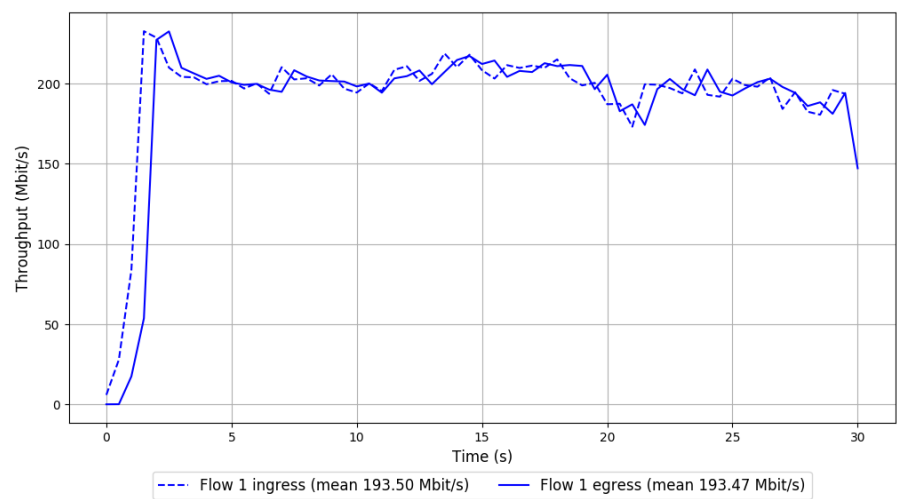


Run 2: Statistics of TaoVA-100x

Start at: 2018-11-15 02:43:40
End at: 2018-11-15 02:44:10
Local clock offset: 11.468 ms
Remote clock offset: 15.407 ms

Below is generated by plot.py at 2018-11-15 05:20:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 193.47 Mbit/s
95th percentile per-packet one-way delay: 108.537 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 193.47 Mbit/s
95th percentile per-packet one-way delay: 108.537 ms
Loss rate: 0.75%

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

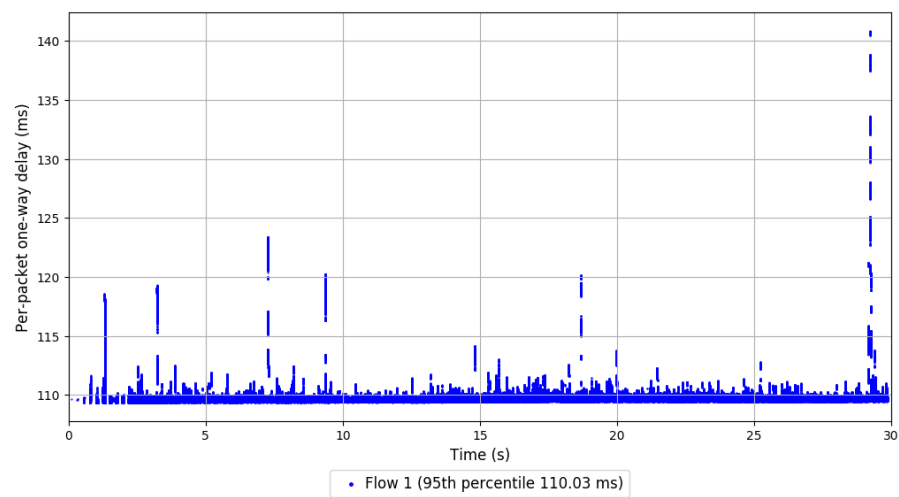
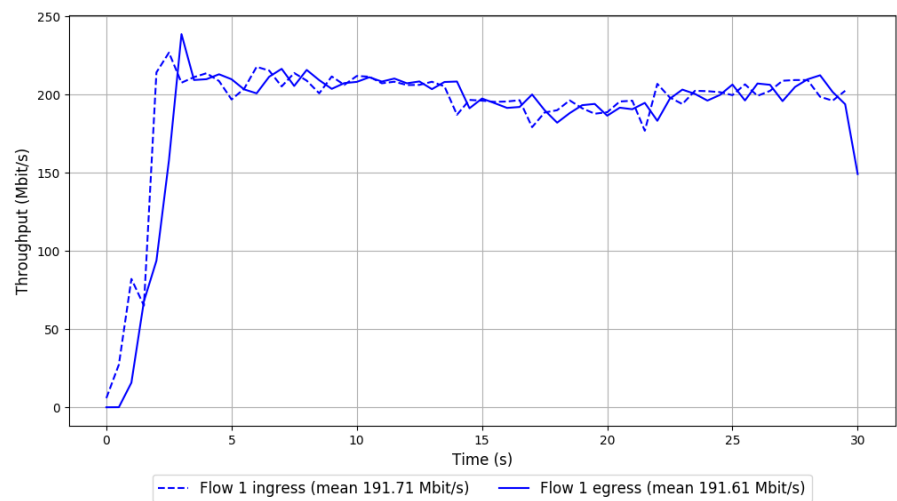


Run 3: Statistics of TaoVA-100x

Start at: 2018-11-15 03:09:41
End at: 2018-11-15 03:10:11
Local clock offset: 9.162 ms
Remote clock offset: 18.851 ms

Below is generated by plot.py at 2018-11-15 05:20:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 191.61 Mbit/s
95th percentile per-packet one-way delay: 110.033 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 191.61 Mbit/s
95th percentile per-packet one-way delay: 110.033 ms
Loss rate: 0.85%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-11-15 03:36:07

End at: 2018-11-15 03:36:37

Local clock offset: -4.358 ms

Remote clock offset: 7.329 ms

Below is generated by plot.py at 2018-11-15 05:21:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 193.92 Mbit/s

95th percentile per-packet one-way delay: 108.837 ms

Loss rate: 0.80%

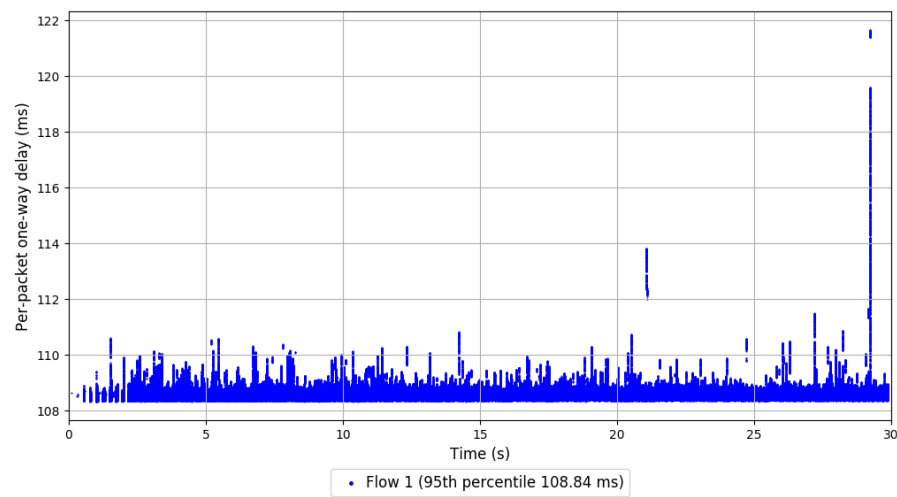
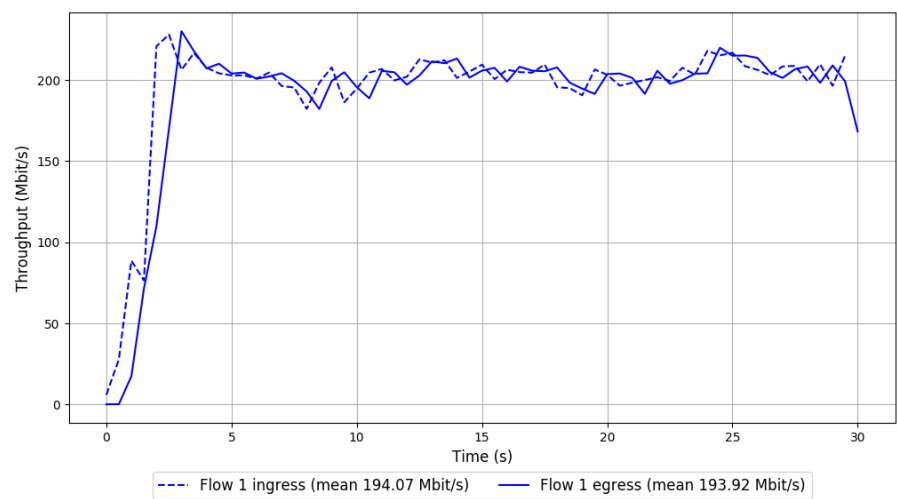
-- Flow 1:

Average throughput: 193.92 Mbit/s

95th percentile per-packet one-way delay: 108.837 ms

Loss rate: 0.80%

Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-15 04:02:40

End at: 2018-11-15 04:03:10

Local clock offset: 5.352 ms

Remote clock offset: 2.769 ms

Below is generated by plot.py at 2018-11-15 05:21:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 197.16 Mbit/s

95th percentile per-packet one-way delay: 110.866 ms

Loss rate: 0.90%

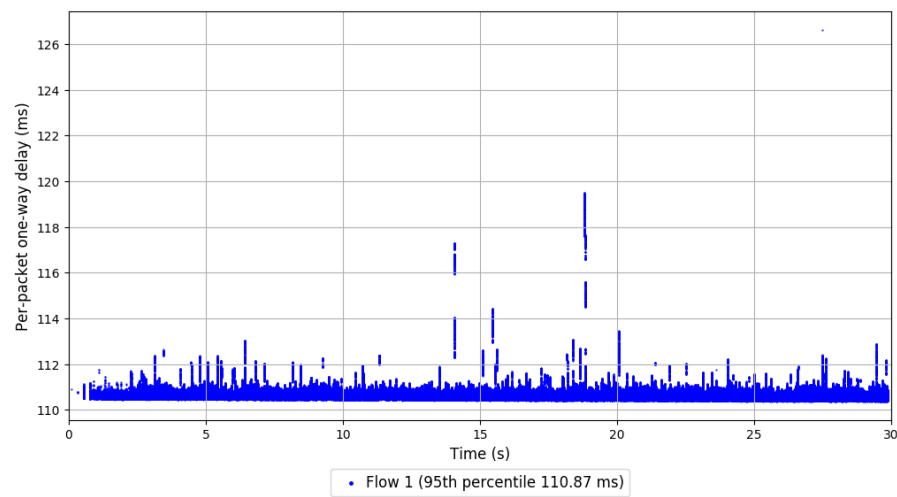
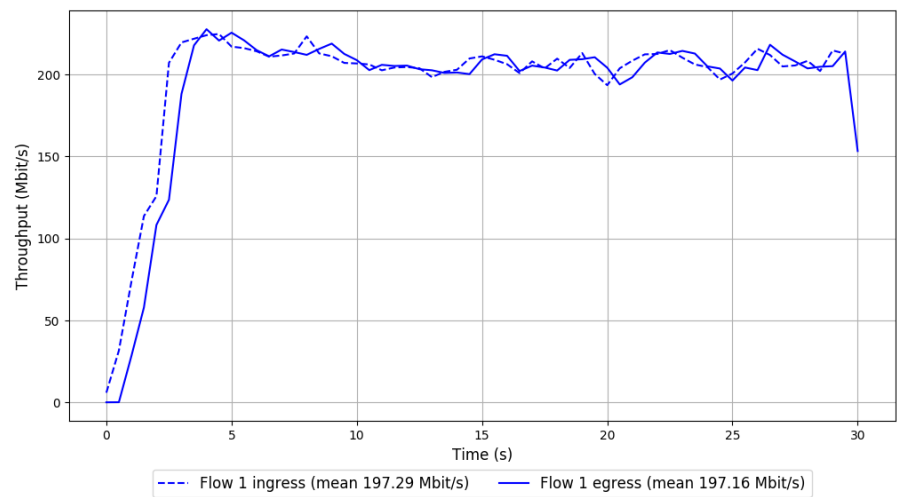
-- Flow 1:

Average throughput: 197.16 Mbit/s

95th percentile per-packet one-way delay: 110.866 ms

Loss rate: 0.90%

Run 5: Report of TaoVA-100x — Data Link



Run 1: Statistics of TCP Vegas

Start at: 2018-11-15 02:09:55

End at: 2018-11-15 02:10:25

Local clock offset: 5.469 ms

Remote clock offset: 8.452 ms

Below is generated by plot.py at 2018-11-15 05:23:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 304.00 Mbit/s

95th percentile per-packet one-way delay: 107.998 ms

Loss rate: 0.78%

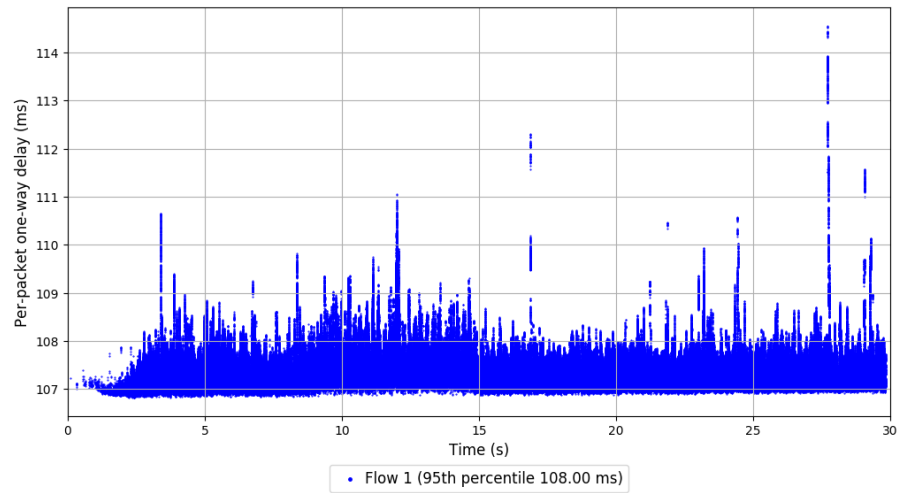
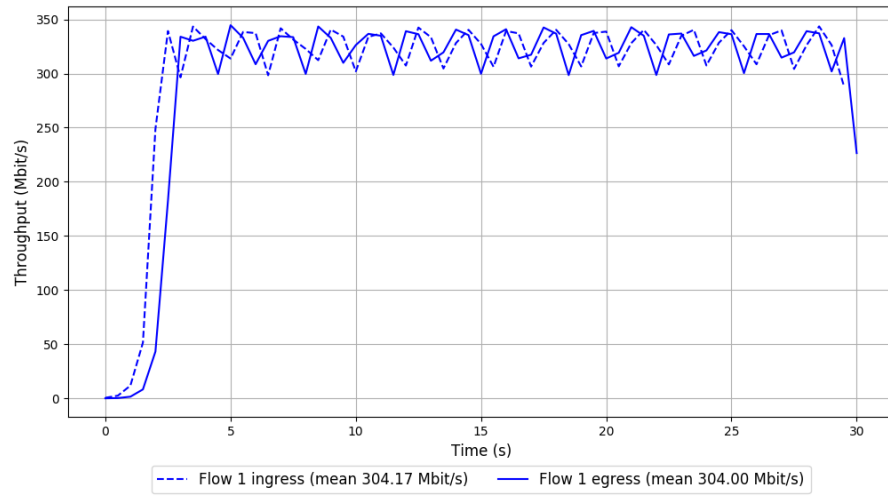
-- Flow 1:

Average throughput: 304.00 Mbit/s

95th percentile per-packet one-way delay: 107.998 ms

Loss rate: 0.78%

Run 1: Report of TCP Vegas — Data Link

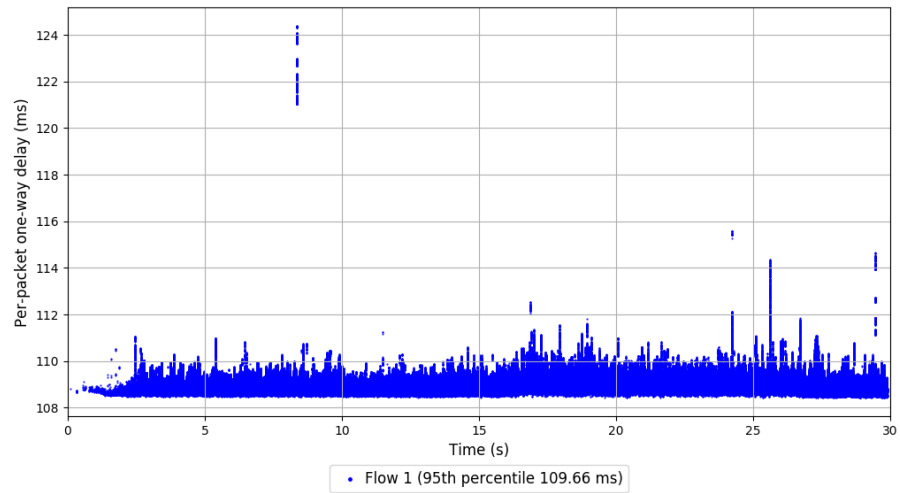
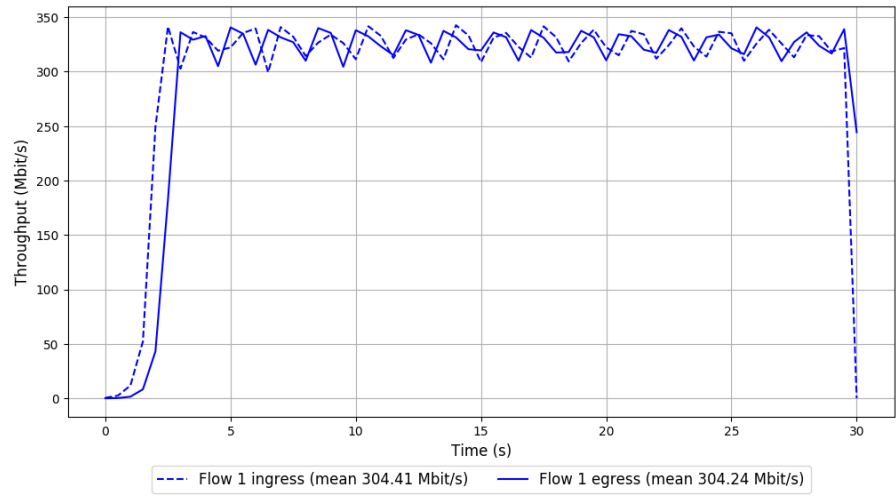


Run 2: Statistics of TCP Vegas

Start at: 2018-11-15 02:36:17
End at: 2018-11-15 02:36:47
Local clock offset: 12.187 ms
Remote clock offset: 15.532 ms

Below is generated by plot.py at 2018-11-15 05:24:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 304.24 Mbit/s
95th percentile per-packet one-way delay: 109.662 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 304.24 Mbit/s
95th percentile per-packet one-way delay: 109.662 ms
Loss rate: 0.78%

Run 2: Report of TCP Vegas — Data Link

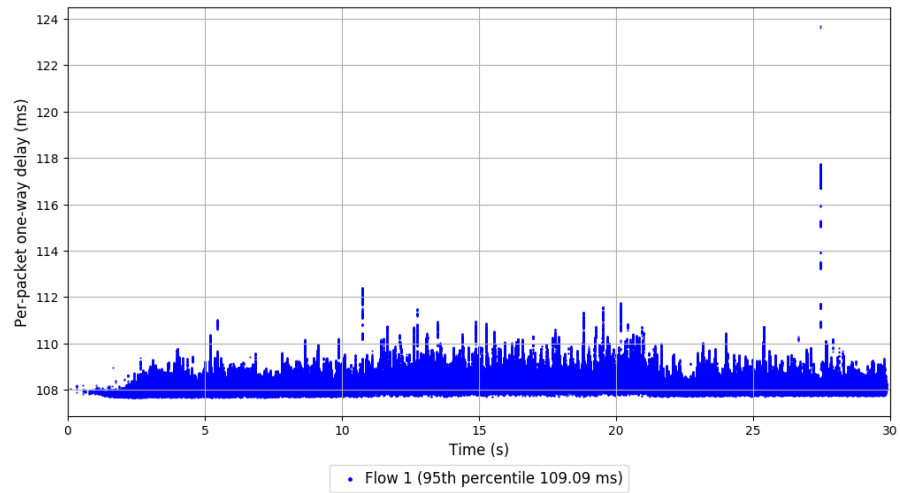
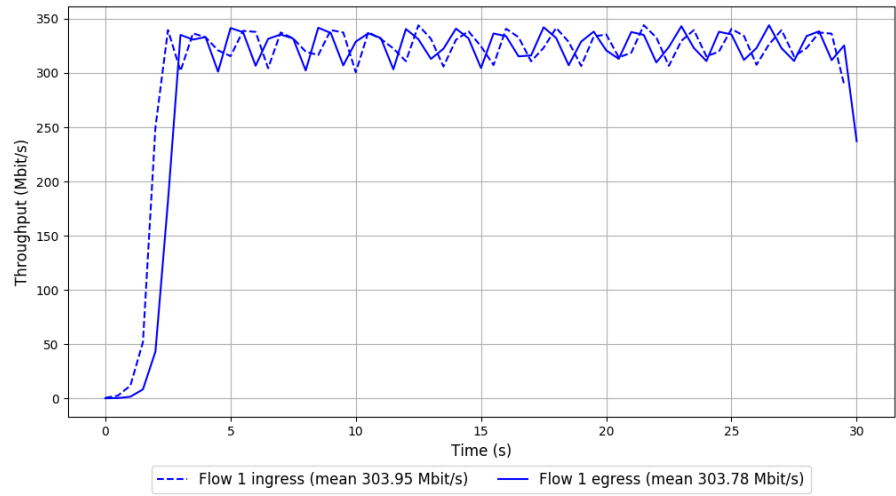


Run 3: Statistics of TCP Vegas

Start at: 2018-11-15 03:02:18
End at: 2018-11-15 03:02:48
Local clock offset: 21.63 ms
Remote clock offset: 28.227 ms

Below is generated by plot.py at 2018-11-15 05:26:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 303.78 Mbit/s
95th percentile per-packet one-way delay: 109.093 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 303.78 Mbit/s
95th percentile per-packet one-way delay: 109.093 ms
Loss rate: 0.78%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-11-15 03:28:43

End at: 2018-11-15 03:29:13

Local clock offset: -4.658 ms

Remote clock offset: 6.834 ms

Below is generated by plot.py at 2018-11-15 05:26:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 303.28 Mbit/s

95th percentile per-packet one-way delay: 110.063 ms

Loss rate: 0.78%

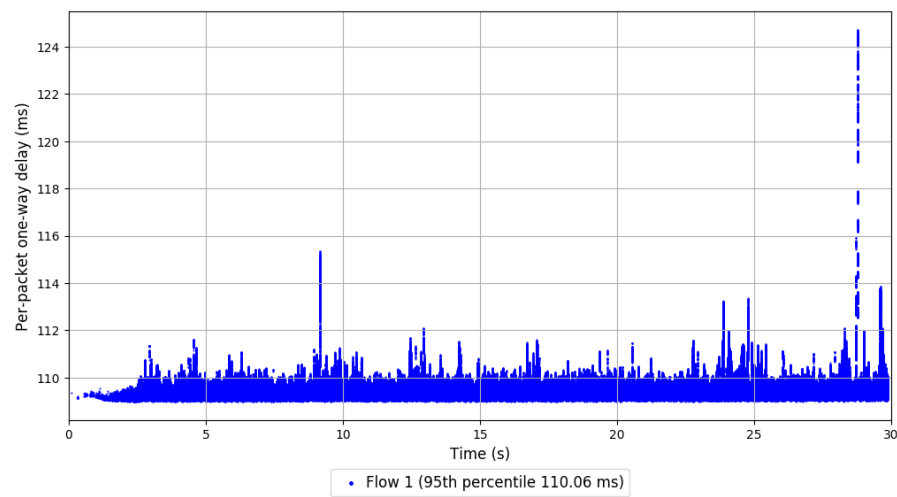
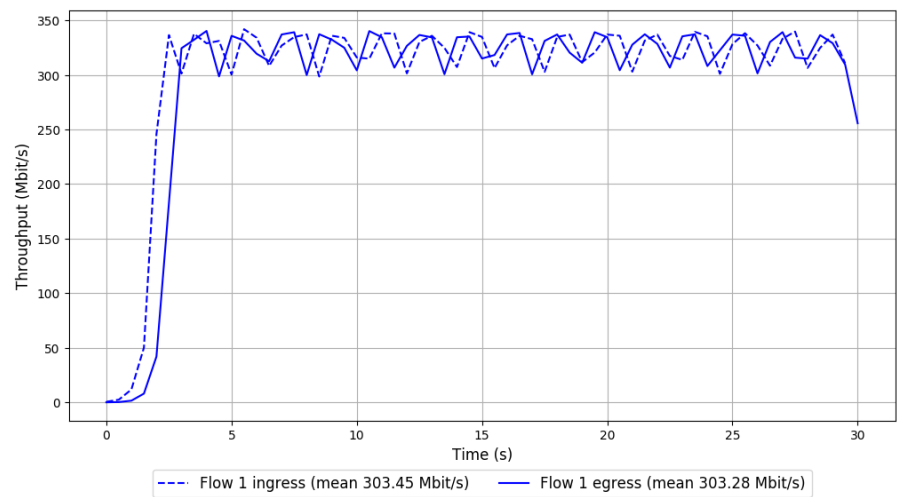
-- Flow 1:

Average throughput: 303.28 Mbit/s

95th percentile per-packet one-way delay: 110.063 ms

Loss rate: 0.78%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-11-15 03:55:14

End at: 2018-11-15 03:55:44

Local clock offset: 4.395 ms

Remote clock offset: 2.69 ms

Below is generated by plot.py at 2018-11-15 05:26:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 305.60 Mbit/s

95th percentile per-packet one-way delay: 110.336 ms

Loss rate: 0.78%

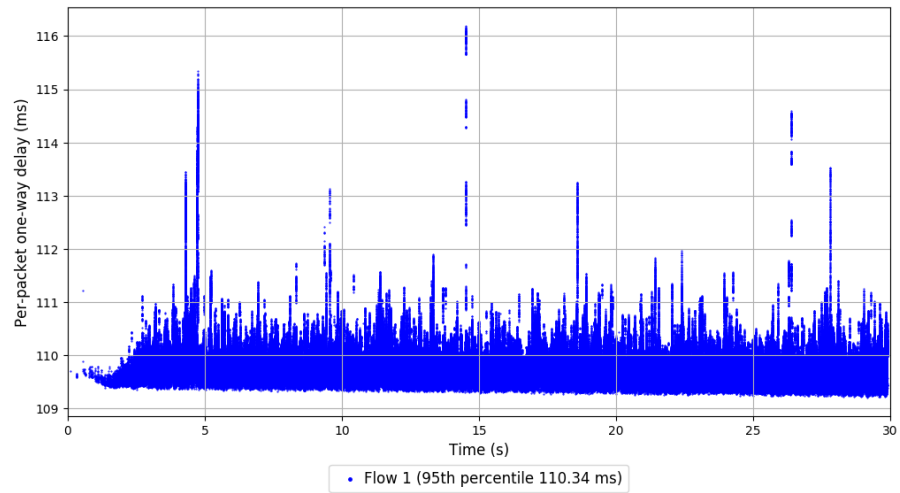
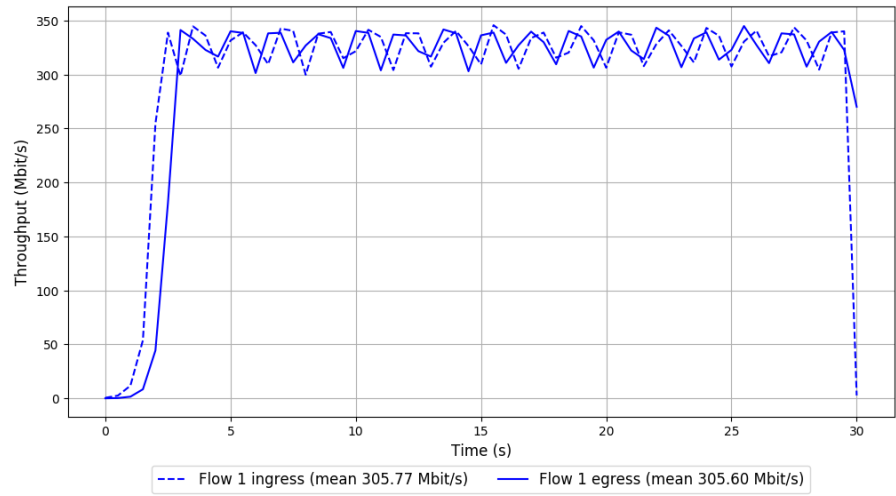
-- Flow 1:

Average throughput: 305.60 Mbit/s

95th percentile per-packet one-way delay: 110.336 ms

Loss rate: 0.78%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-11-15 02:08:28

End at: 2018-11-15 02:08:58

Local clock offset: 5.553 ms

Remote clock offset: 7.068 ms

Below is generated by plot.py at 2018-11-15 05:27:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 167.54 Mbit/s

95th percentile per-packet one-way delay: 178.181 ms

Loss rate: 1.58%

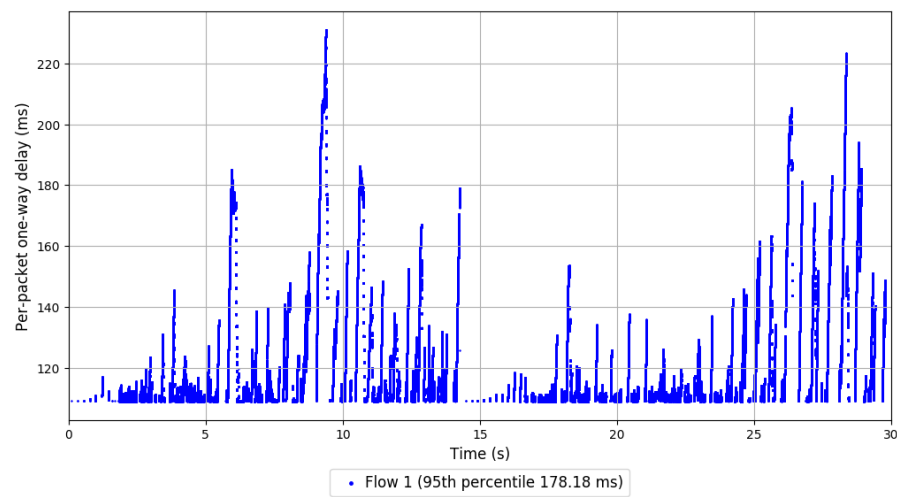
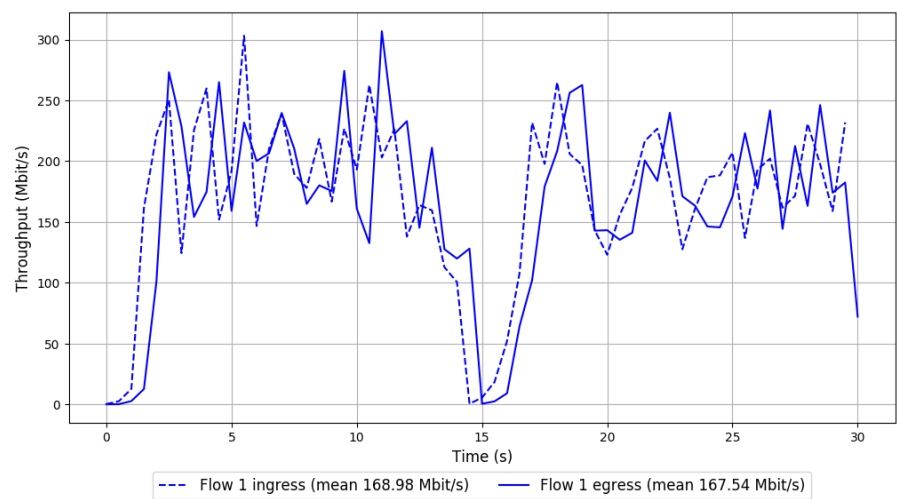
-- Flow 1:

Average throughput: 167.54 Mbit/s

95th percentile per-packet one-way delay: 178.181 ms

Loss rate: 1.58%

Run 1: Report of Verus — Data Link

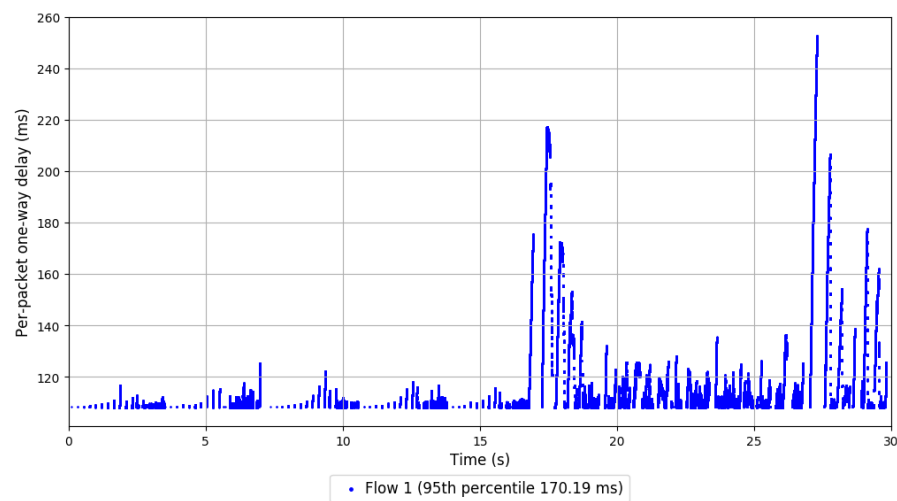
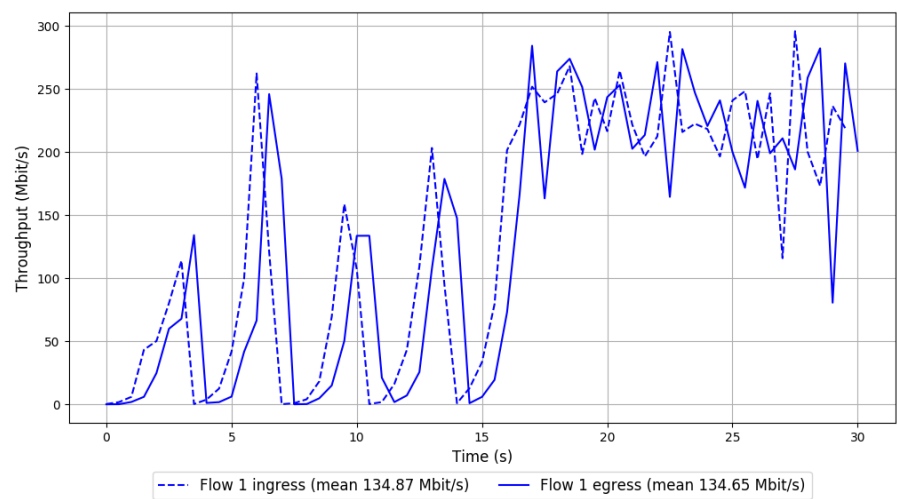


Run 2: Statistics of Verus

Start at: 2018-11-15 02:34:53
End at: 2018-11-15 02:35:23
Local clock offset: 11.842 ms
Remote clock offset: 15.931 ms

Below is generated by plot.py at 2018-11-15 05:27:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 134.65 Mbit/s
95th percentile per-packet one-way delay: 170.191 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 134.65 Mbit/s
95th percentile per-packet one-way delay: 170.191 ms
Loss rate: 1.02%

Run 2: Report of Verus — Data Link

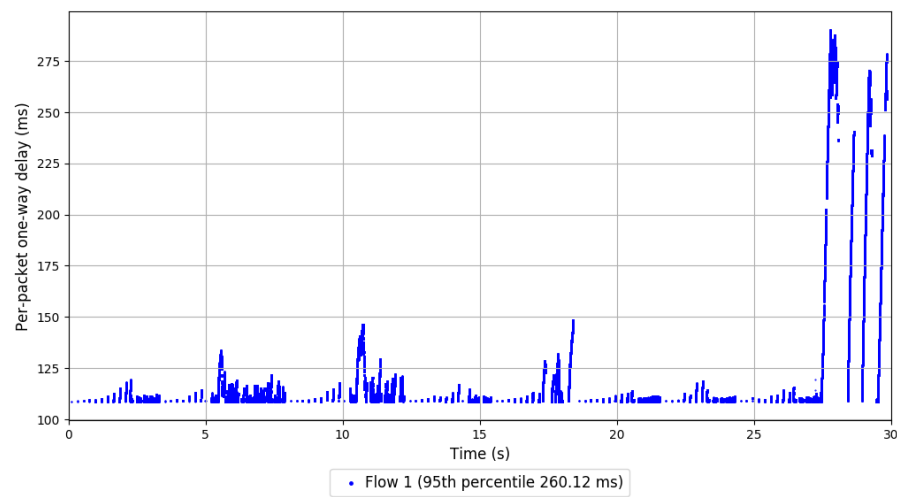
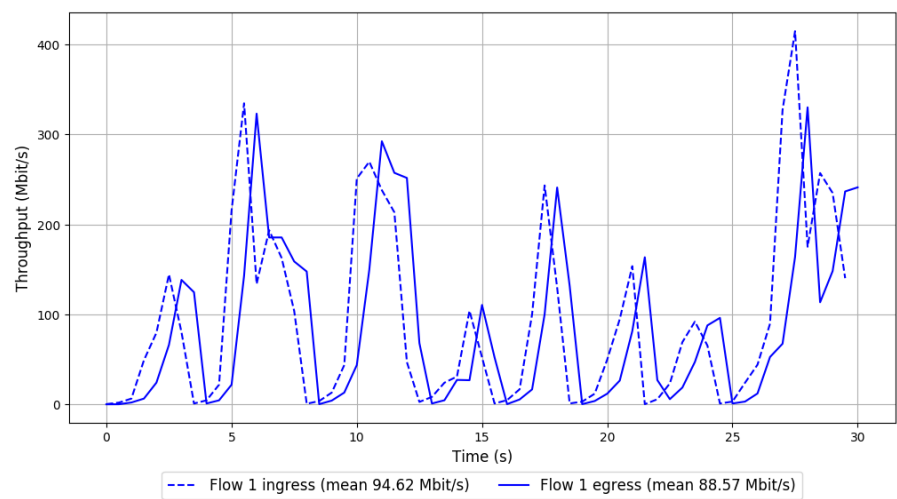


Run 3: Statistics of Verus

Start at: 2018-11-15 03:00:59
End at: 2018-11-15 03:01:29
Local clock offset: 21.301 ms
Remote clock offset: 26.649 ms

Below is generated by plot.py at 2018-11-15 05:27:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 88.57 Mbit/s
95th percentile per-packet one-way delay: 260.120 ms
Loss rate: 6.10%
-- Flow 1:
Average throughput: 88.57 Mbit/s
95th percentile per-packet one-way delay: 260.120 ms
Loss rate: 6.10%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-11-15 03:27:18

End at: 2018-11-15 03:27:48

Local clock offset: -3.679 ms

Remote clock offset: 6.947 ms

Below is generated by plot.py at 2018-11-15 05:28:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 136.94 Mbit/s

95th percentile per-packet one-way delay: 186.145 ms

Loss rate: 1.95%

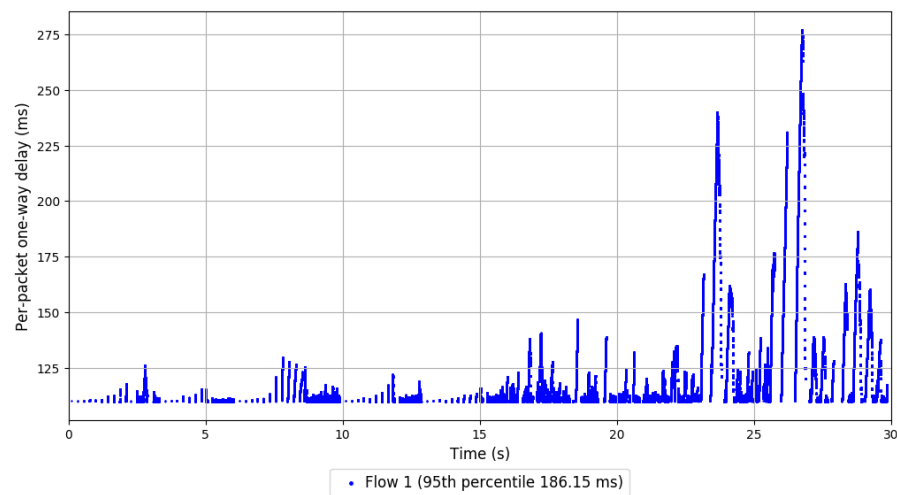
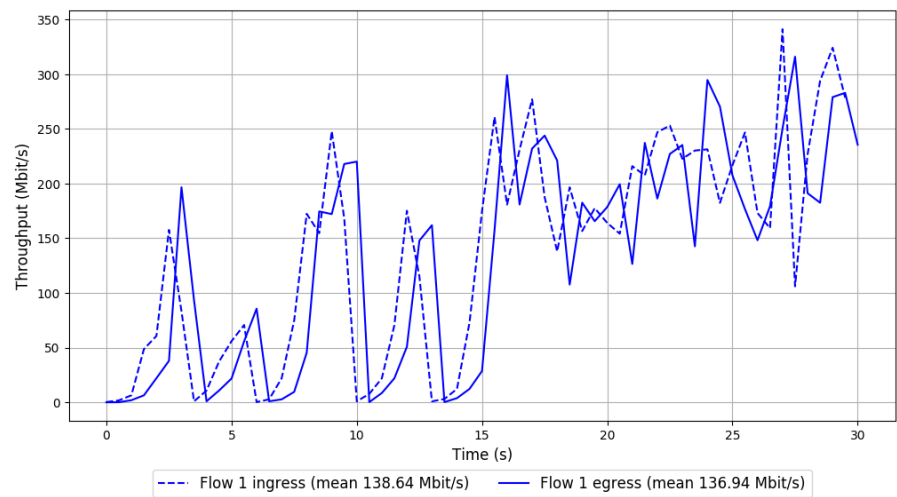
-- Flow 1:

Average throughput: 136.94 Mbit/s

95th percentile per-packet one-way delay: 186.145 ms

Loss rate: 1.95%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-15 03:53:52

End at: 2018-11-15 03:54:22

Local clock offset: 3.593 ms

Remote clock offset: 3.112 ms

Below is generated by plot.py at 2018-11-15 05:28:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 117.88 Mbit/s

95th percentile per-packet one-way delay: 254.400 ms

Loss rate: 8.81%

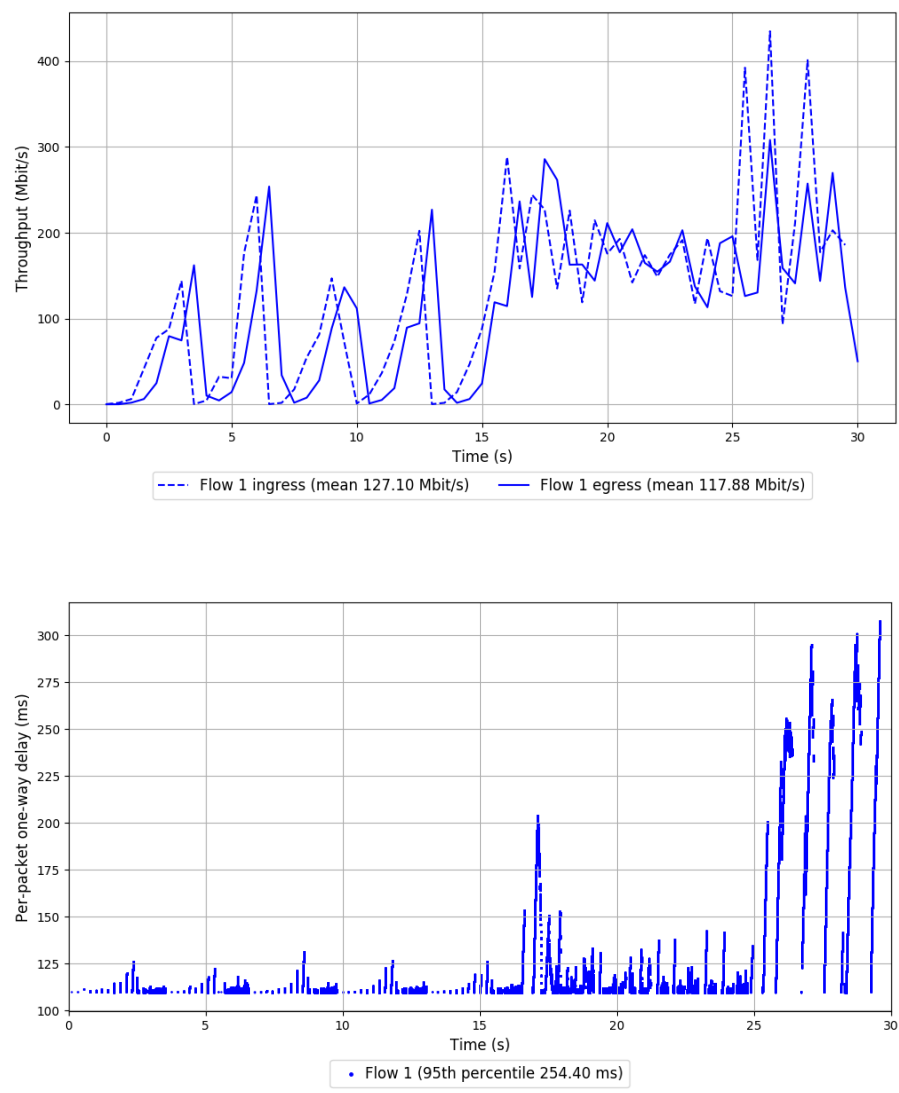
-- Flow 1:

Average throughput: 117.88 Mbit/s

95th percentile per-packet one-way delay: 254.400 ms

Loss rate: 8.81%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-11-15 02:05:18

End at: 2018-11-15 02:05:48

Local clock offset: 7.118 ms

Remote clock offset: 8.967 ms

Below is generated by plot.py at 2018-11-15 05:31:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 386.60 Mbit/s

95th percentile per-packet one-way delay: 136.884 ms

Loss rate: 1.00%

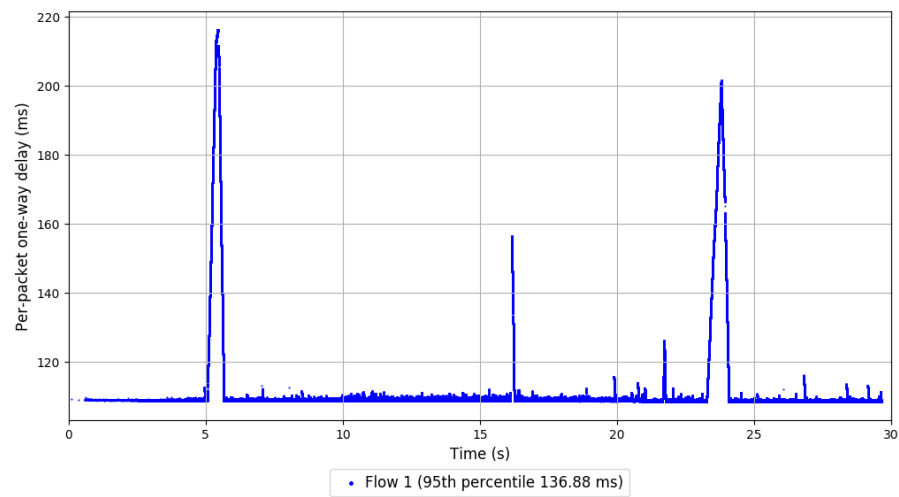
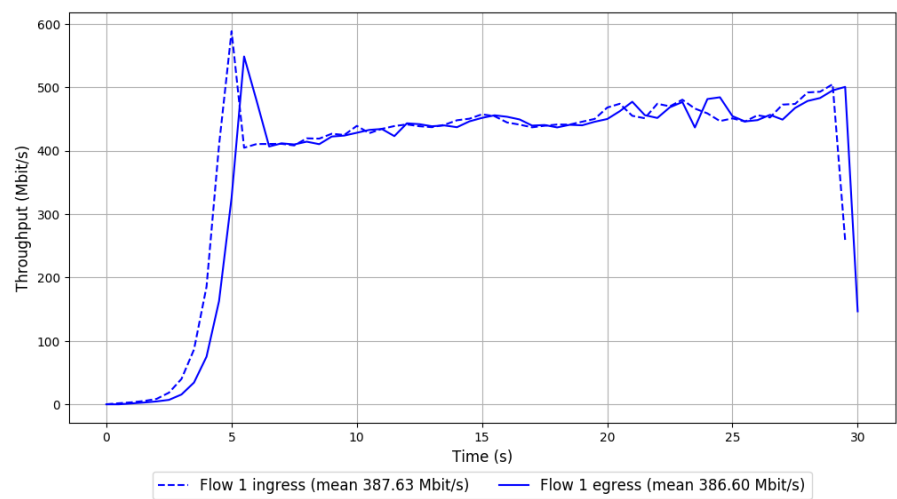
-- Flow 1:

Average throughput: 386.60 Mbit/s

95th percentile per-packet one-way delay: 136.884 ms

Loss rate: 1.00%

Run 1: Report of PCC-Vivace — Data Link

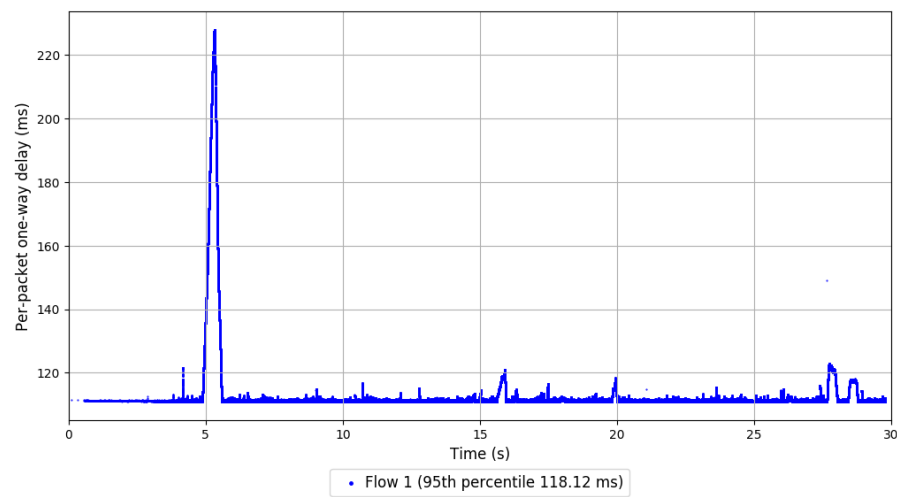
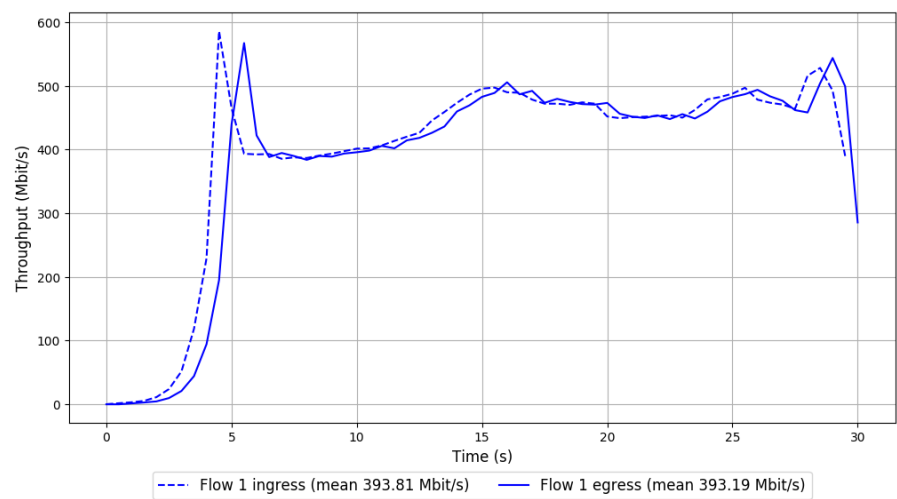


Run 2: Statistics of PCC-Vivace

Start at: 2018-11-15 02:31:41
End at: 2018-11-15 02:32:12
Local clock offset: 14.691 ms
Remote clock offset: 19.352 ms

Below is generated by plot.py at 2018-11-15 05:31:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 393.19 Mbit/s
95th percentile per-packet one-way delay: 118.124 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 393.19 Mbit/s
95th percentile per-packet one-way delay: 118.124 ms
Loss rate: 0.90%

Run 2: Report of PCC-Vivace — Data Link

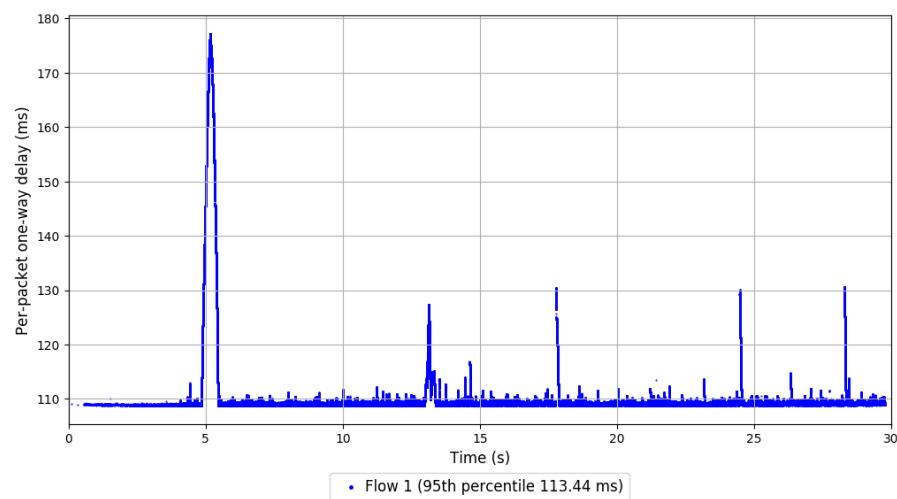
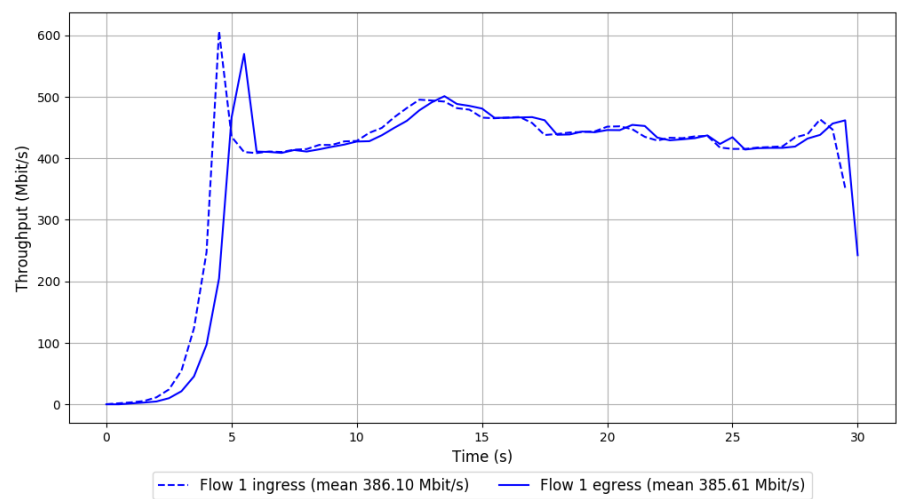


Run 3: Statistics of PCC-Vivace

Start at: 2018-11-15 02:57:54
End at: 2018-11-15 02:58:24
Local clock offset: 19.276 ms
Remote clock offset: 24.711 ms

Below is generated by plot.py at 2018-11-15 05:31:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 385.61 Mbit/s
95th percentile per-packet one-way delay: 113.442 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 385.61 Mbit/s
95th percentile per-packet one-way delay: 113.442 ms
Loss rate: 0.86%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-11-15 03:24:13

End at: 2018-11-15 03:24:43

Local clock offset: -4.081 ms

Remote clock offset: 7.195 ms

Below is generated by plot.py at 2018-11-15 05:31:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 381.01 Mbit/s

95th percentile per-packet one-way delay: 116.341 ms

Loss rate: 1.03%

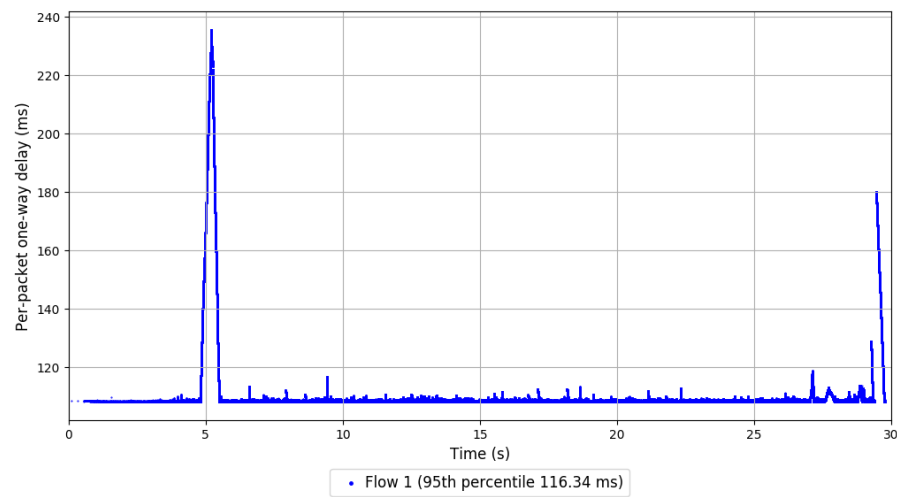
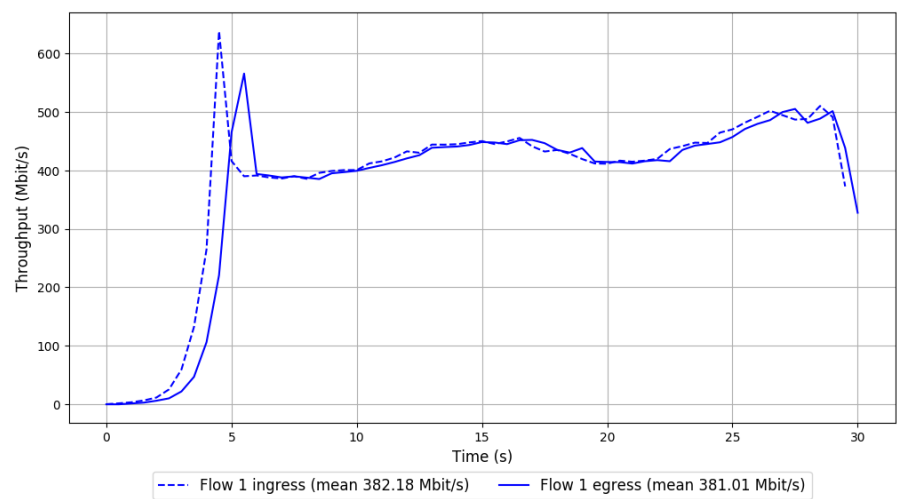
-- Flow 1:

Average throughput: 381.01 Mbit/s

95th percentile per-packet one-way delay: 116.341 ms

Loss rate: 1.03%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-11-15 03:50:41

End at: 2018-11-15 03:51:11

Local clock offset: 0.469 ms

Remote clock offset: 3.111 ms

Below is generated by plot.py at 2018-11-15 05:31:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 379.15 Mbit/s

95th percentile per-packet one-way delay: 158.756 ms

Loss rate: 1.16%

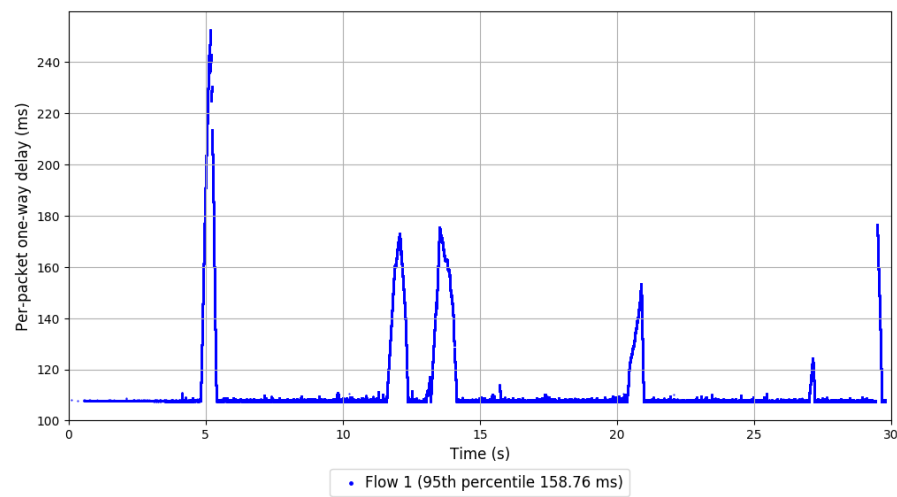
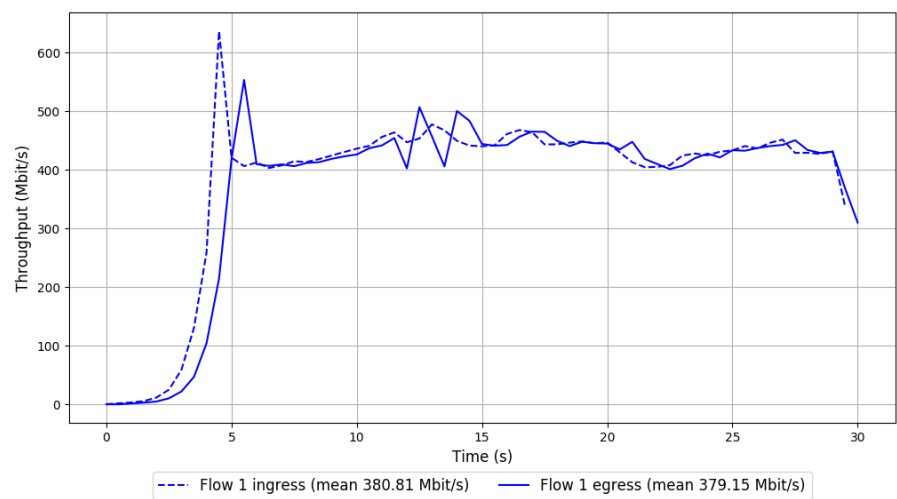
-- Flow 1:

Average throughput: 379.15 Mbit/s

95th percentile per-packet one-way delay: 158.756 ms

Loss rate: 1.16%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-11-15 02:00:56

End at: 2018-11-15 02:01:26

Local clock offset: 5.247 ms

Remote clock offset: 5.646 ms

Below is generated by plot.py at 2018-11-15 05:31:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.81 Mbit/s

95th percentile per-packet one-way delay: 109.934 ms

Loss rate: 0.87%

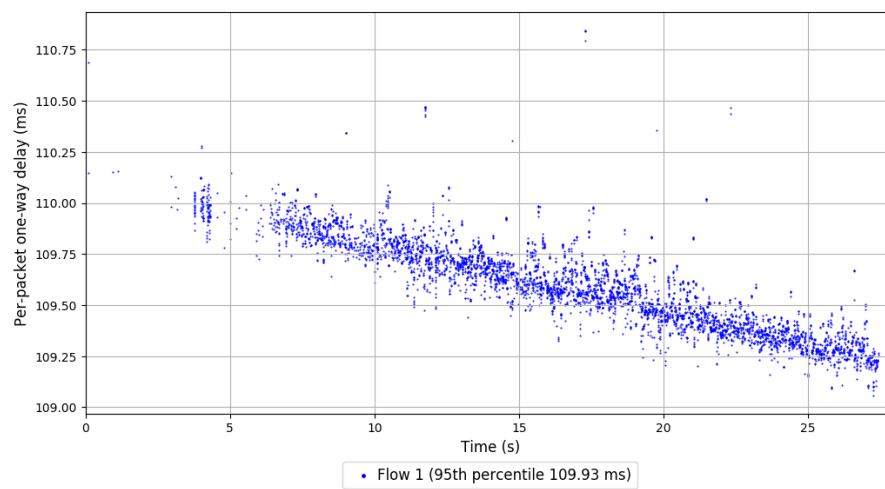
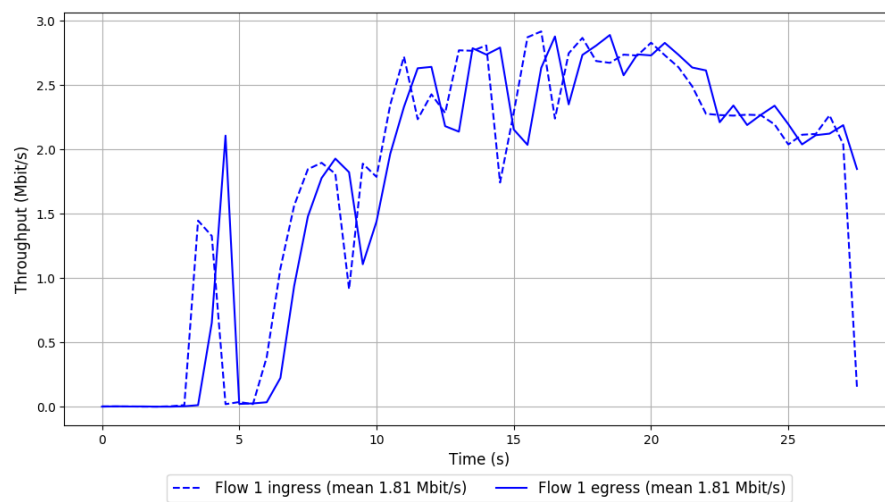
-- Flow 1:

Average throughput: 1.81 Mbit/s

95th percentile per-packet one-way delay: 109.934 ms

Loss rate: 0.87%

Run 1: Report of WebRTC media — Data Link

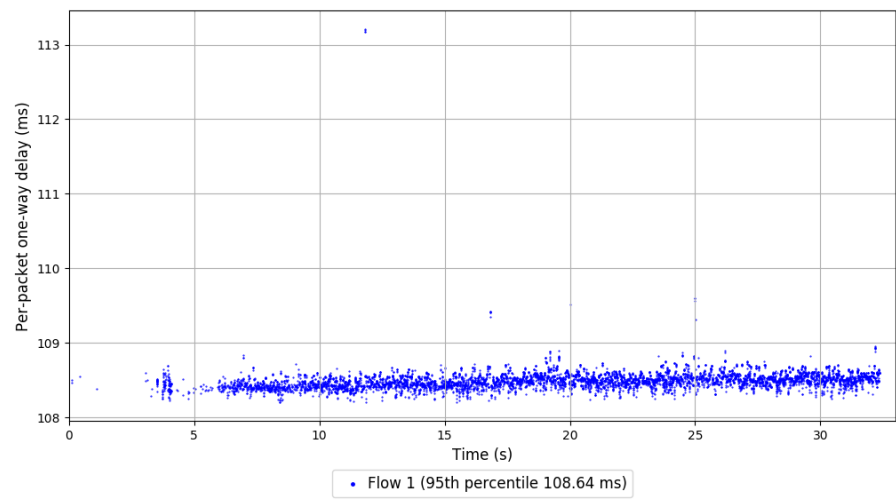
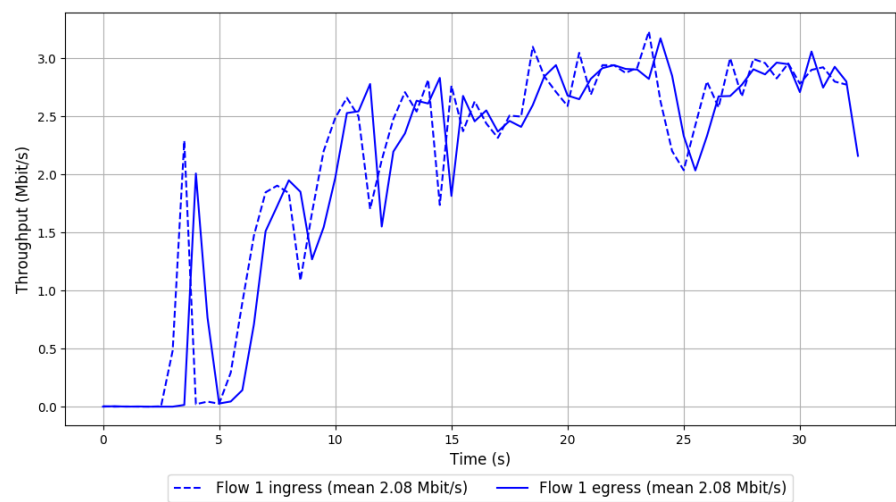


Run 2: Statistics of WebRTC media

Start at: 2018-11-15 02:27:09
End at: 2018-11-15 02:27:39
Local clock offset: 12.692 ms
Remote clock offset: 16.323 ms

Below is generated by plot.py at 2018-11-15 05:31:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 108.644 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 108.644 ms
Loss rate: 0.92%

Run 2: Report of WebRTC media — Data Link

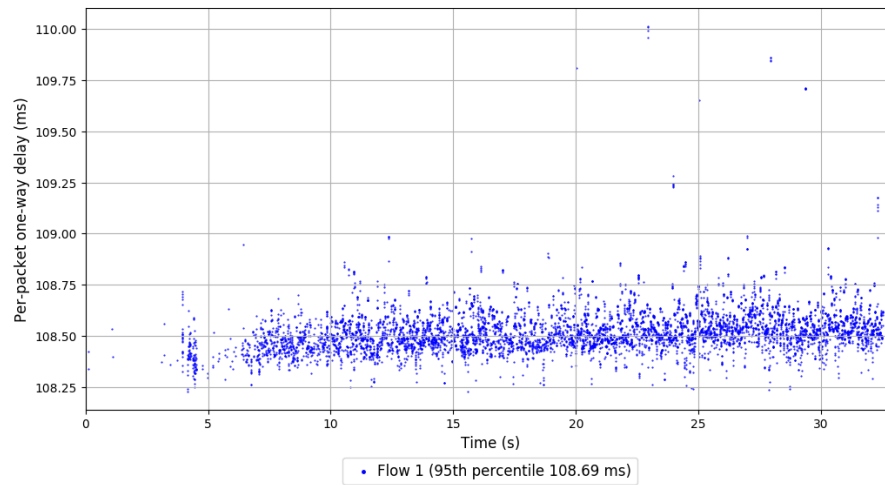
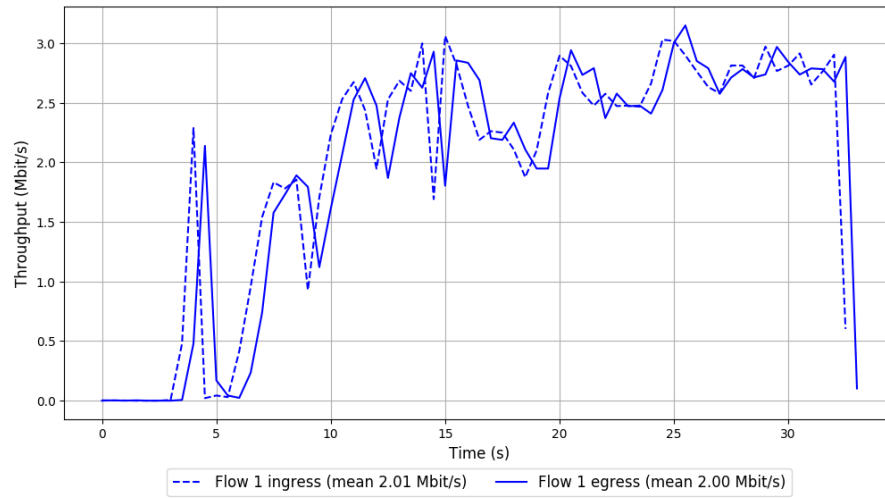


Run 3: Statistics of WebRTC media

Start at: 2018-11-15 02:53:24
End at: 2018-11-15 02:53:54
Local clock offset: 16.513 ms
Remote clock offset: 21.272 ms

Below is generated by plot.py at 2018-11-15 05:31:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.00 Mbit/s
95th percentile per-packet one-way delay: 108.691 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 2.00 Mbit/s
95th percentile per-packet one-way delay: 108.691 ms
Loss rate: 0.90%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-11-15 03:19:24

End at: 2018-11-15 03:19:54

Local clock offset: -0.699 ms

Remote clock offset: 8.607 ms

Below is generated by plot.py at 2018-11-15 05:31:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 111.106 ms

Loss rate: 0.89%

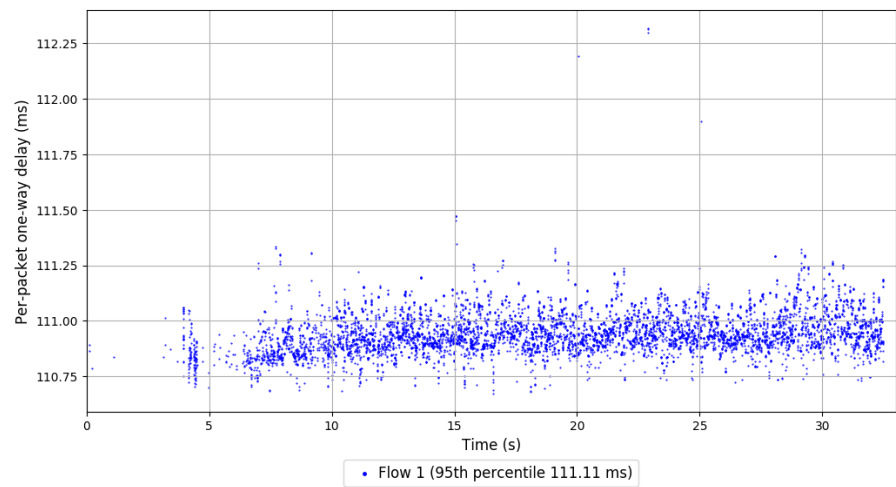
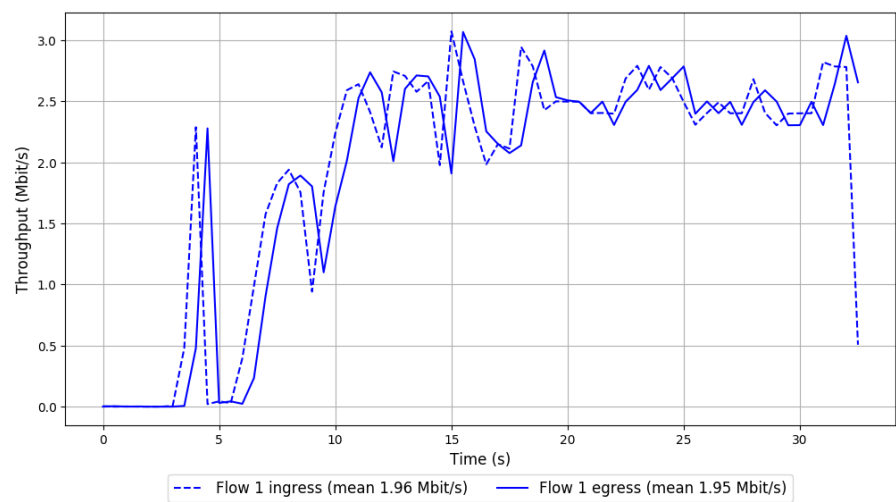
-- Flow 1:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 111.106 ms

Loss rate: 0.89%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-15 03:46:04

End at: 2018-11-15 03:46:34

Local clock offset: -0.285 ms

Remote clock offset: 4.113 ms

Below is generated by plot.py at 2018-11-15 05:31:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 108.981 ms

Loss rate: 0.75%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 108.981 ms

Loss rate: 0.75%

Run 5: Report of WebRTC media — Data Link

